

94-260-125 R

DESIGN DATA			
Traffic	Average Daily		
Current 2015	Pass: 3560	Trucks: 1430	Total: 4990
Forecast 2035	Pass: 5305	Trucks: 2135	Total: 7440
Clear Zone Dist. Existing	Design Speed: 75		
Minimum Sight Dist. for Stopping: Existing	Bridges:		
Full Control of Access, No Point of Access Other Than at Interchange Ramps			
Pavement Design Life 20 (years)			
Design Accumulated One-way Rigid ESALs: N/A			

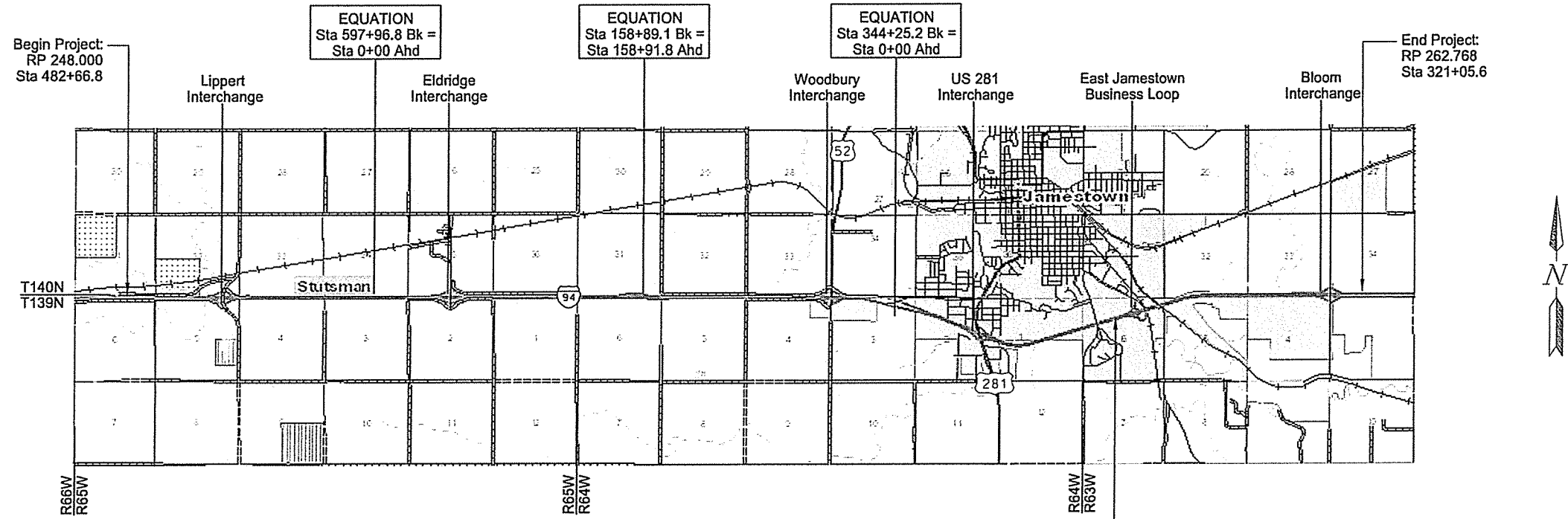
**JOB # 20**  
**NORTH DAKOTA**  
**DEPARTMENT OF TRANSPORTATION**

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	IM-2-094(144)248	21401	1	1

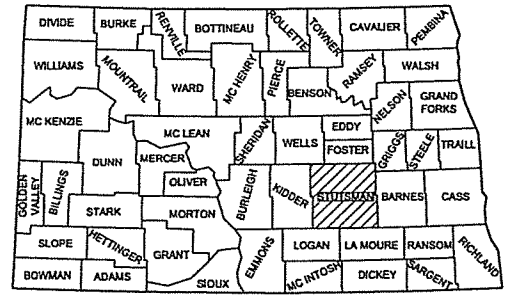
IM-2-094(144)248  
 Stutsman County  
 W Lippert to E Bloom - Eastbound  
 CPR, HMA, Approach Slab Repair, & Guardrail Replacement

**GOVERNING SPECIFICATIONS:**  
 2014 Standard Specifications adopted by the North Dakota Department of Transportation and the Supplemental Specifications effective on the date the project is advertised.

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
IM-2-094(144)248	14.726	14.768
Bridge Exception Areas: RP 259.826 to RP 259.868 =	0.042	



DESIGNERS
Daniel R. Viau /s/
Jesse Feldmeyer /s/



STATE COUNTY MAP

DISTRICT REVIEW
Jay Praska /s/
Valley City District
APPROVED DATE <u>3/28/16</u>
Roger Weigel /s/
Office of Project Development ND DEPARTMENT OF TRANSPORTATION

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of ND.

APPROVED DATE 3/23/2016

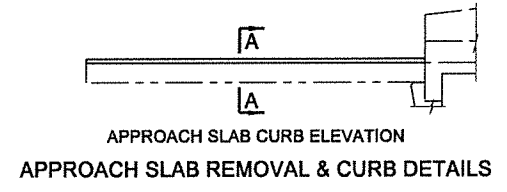
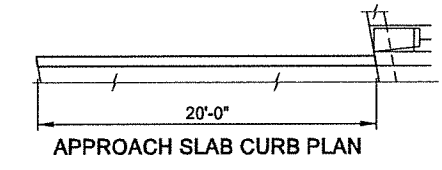
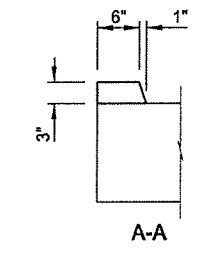
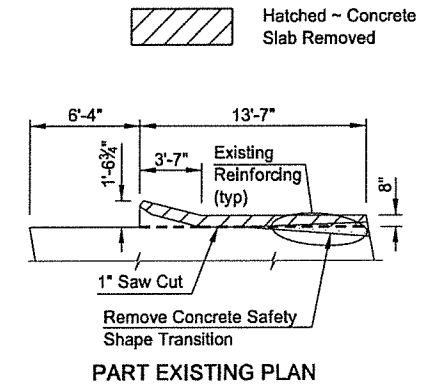
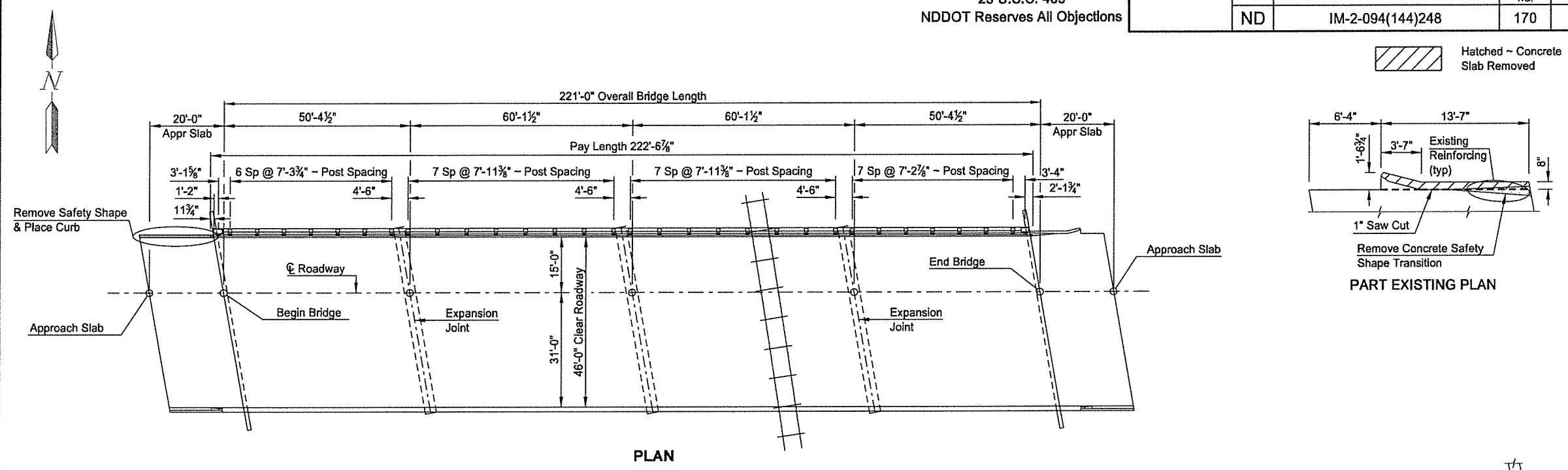
Daniel R. Viau /s/

NDDOT Valley City District

This document was originally issued and sealed by Daniel R. Viau, Registration Number PE- 6329, on 3/21/2016 and the original document is stored at the North Dakota Department of Transportation

23 U.S.C. 409  
NDDOT Reserves All Objections

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-2-094(144)248	170	4



**NOTES:**

- 100 SCOPE OF WORK: Work at this site consists of removing the concrete safety shape transition and portions of the approach slab on the northwest corner of the bridge, placing concrete curb on the approach slab, and installing a double box beam E-Rail retrofit on the north bridge rail.
- 764 REMOVE CONCRETE SAFETY SHAPE TRANSITION: Cut the existing reinforcing steel flush with the concrete surface and seal with epoxy. Include the sealing of reinforcing, 1" saw cuts, and the removal of the safety shape transitions and portions of the approach slabs in the price bid for "Remove Concrete Safety Shape Transition."

**BRIDGE BID ITEMS**

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
624	3002	DOUBLE BOX BEAM RAIL RETROFIT - E-RAIL	LF	222.6
748	0540	CURB	LF	20
764	1990	REMOVE CONCRETE SAFETY SHAPE TRANSITION	EA	1

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NORTH DAKOTA  
DEPARTMENT OF TRANSPORTATION  
BNRR & SE JAMESTOWN  
INTERCHANGE

**BRIDGE LAYOUT**

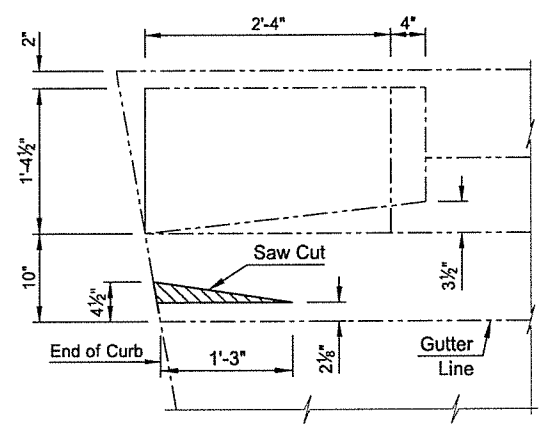
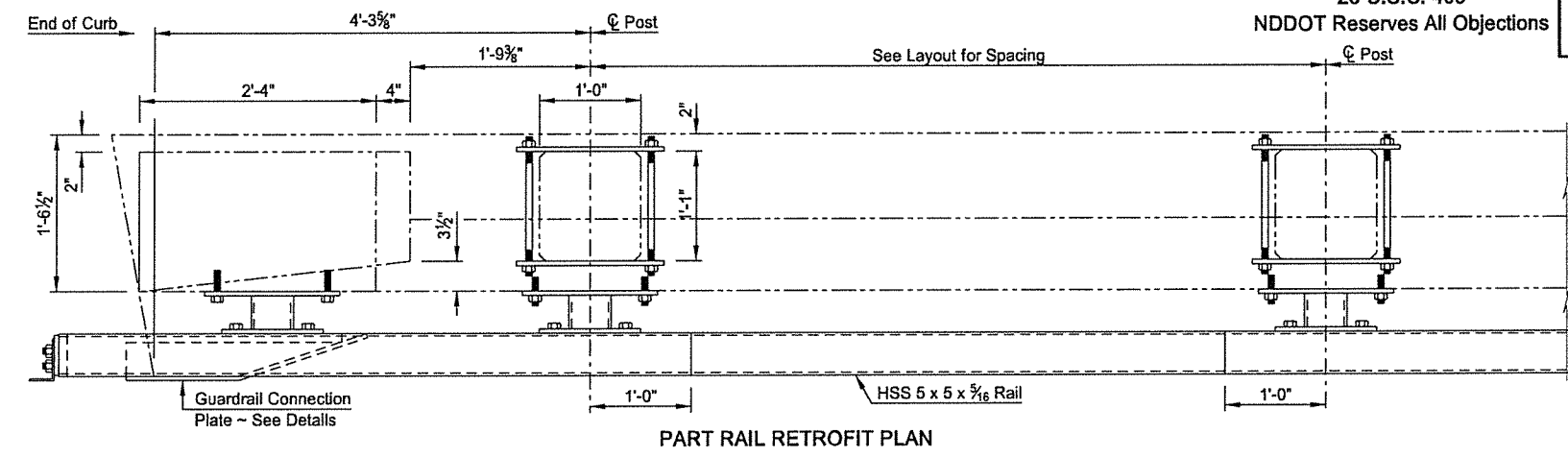
PROJECT: IM-2-094(144)248

STUTSMAN COUNTY

DATE: 3/17/2016      Terrence R. Udland  
BRIDGE ENGINEER

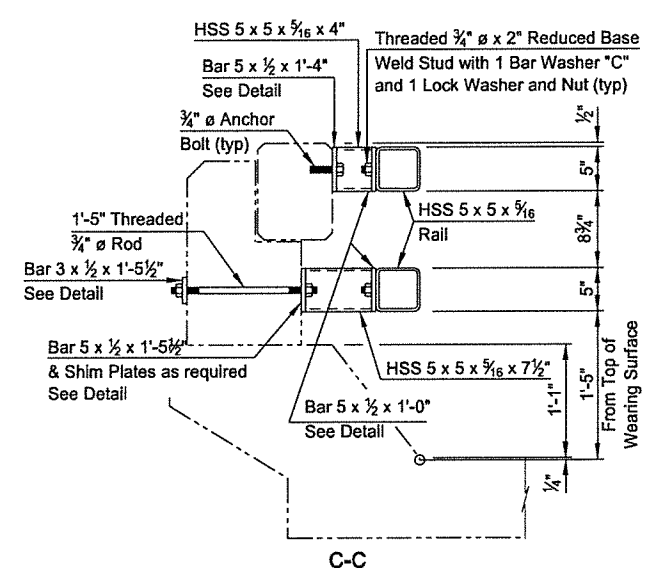
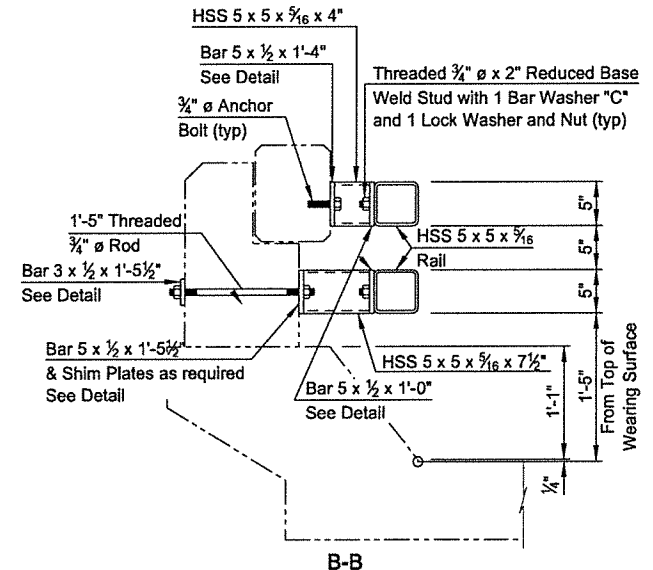
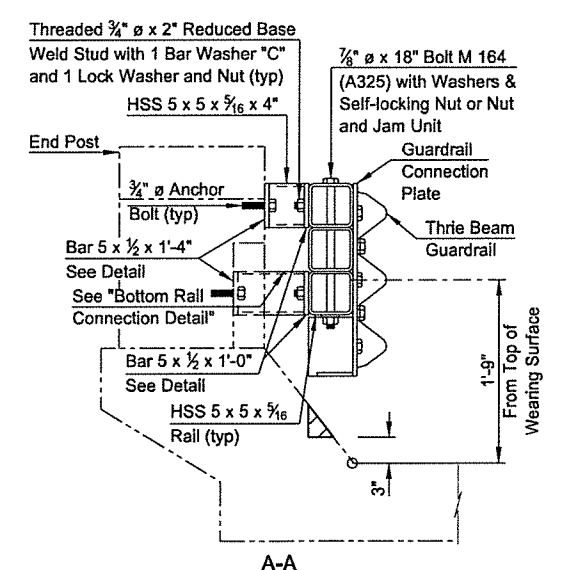
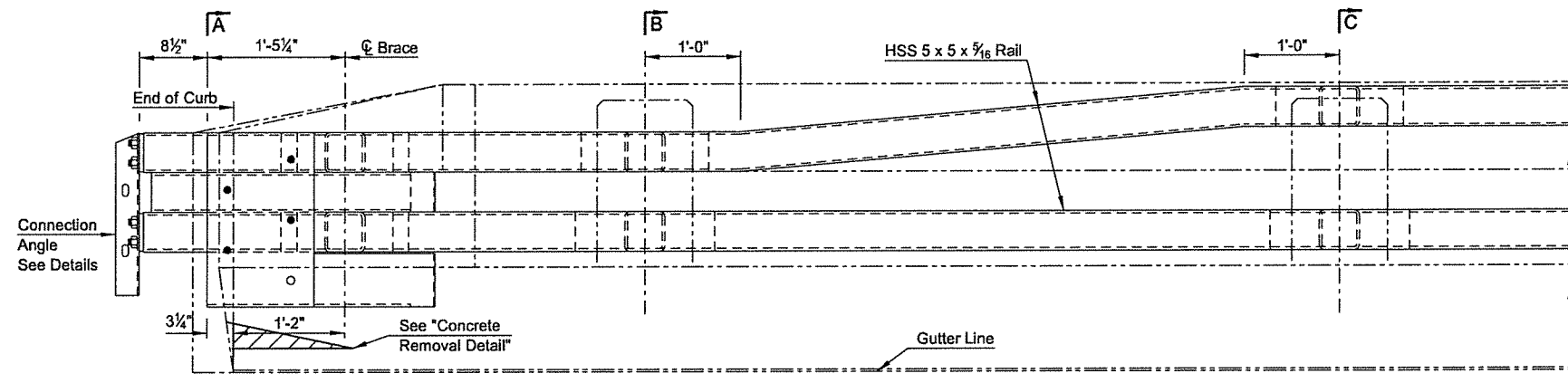
23 U.S.C. 409  
NDDOT Reserves All Objections

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-2-094(144)248	170	5



Indicates Concrete Removal

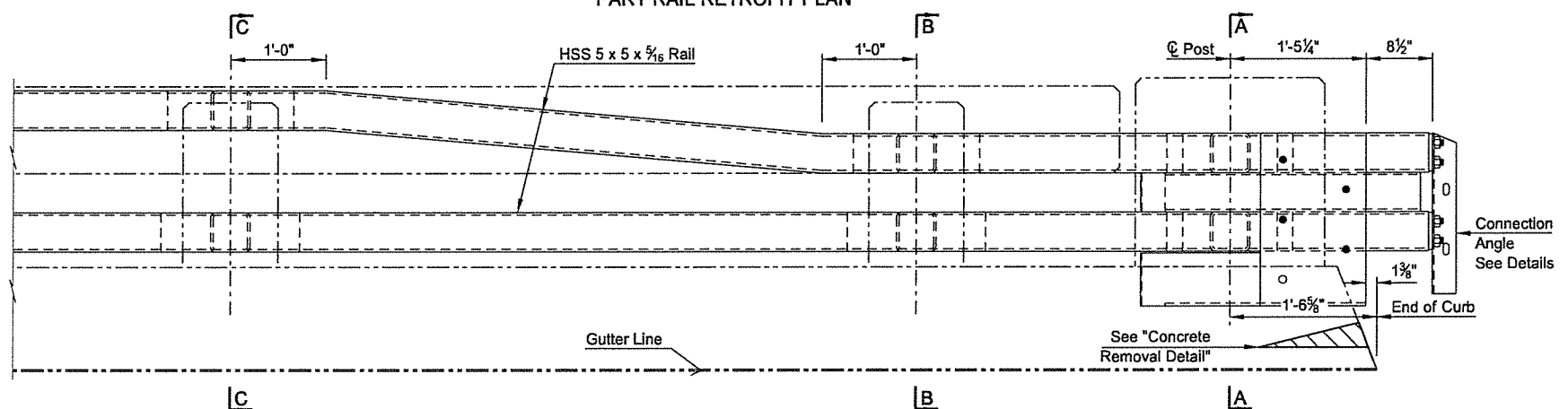
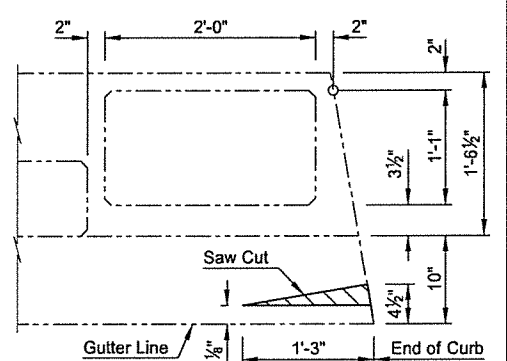
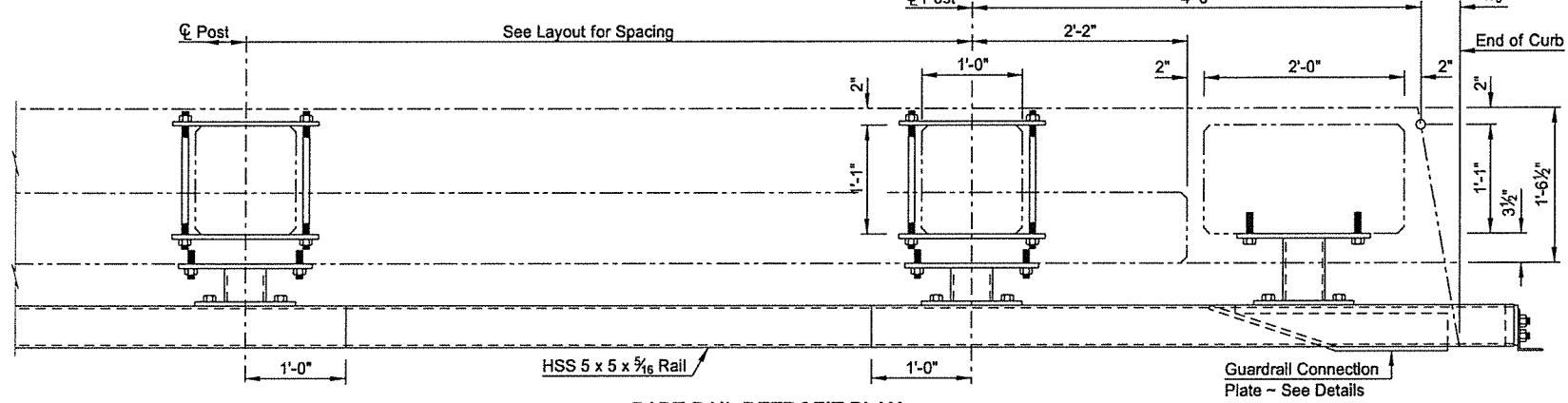
NOTE:  
See Dwg 94-260.125R-4 for notes and details not shown on this drawing.



QUANTITIES
SEE DWG 94-260.125R-4
<b>BNRR &amp; SE JAMESTOWN INTERCHANGE</b>
(ENTRANCE END)
<b>DOUBLE BOX BEAM E-RAIL RETROFIT DETAILS</b>

23 U.S.C. 409  
NDDOT Reserves All Objections

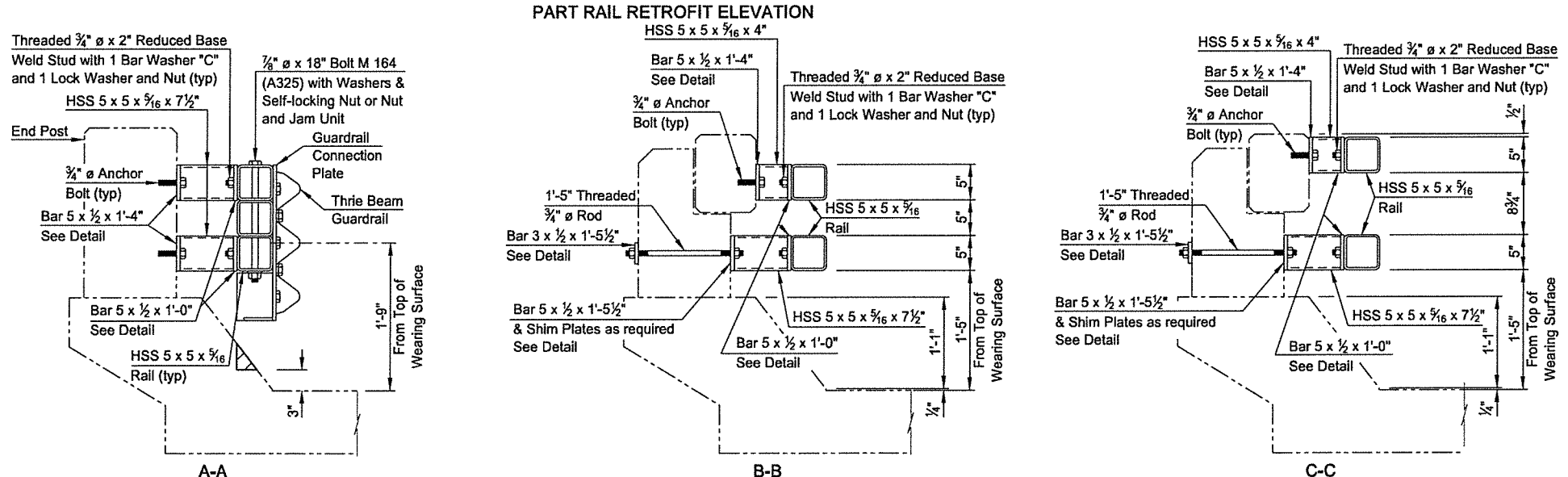
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-2-094(144)248	170	6



PLAN  
CONCRETE REMOVAL DETAIL

Indicates Concrete Removal

NOTE:  
See Dwg 94-260.125R-4 for notes and details not shown on this drawing.

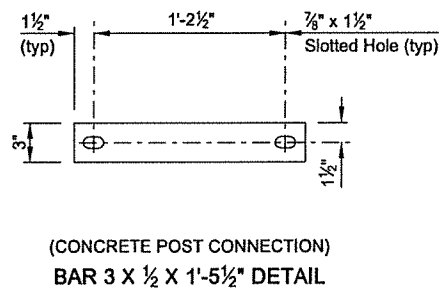
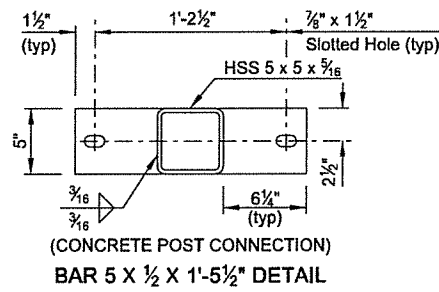
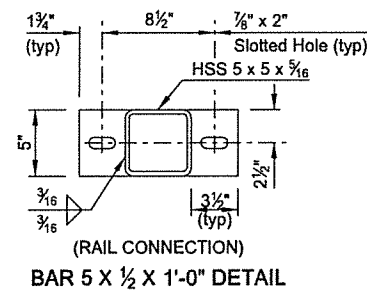
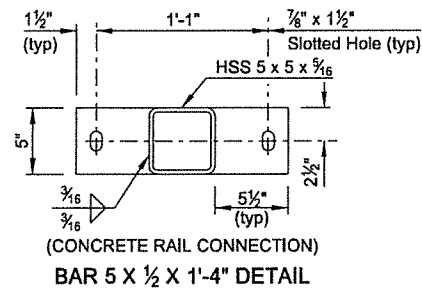


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<b>QUANTITIES</b>
SEE DWG 94-260.125R-4
<b>BNRR &amp; SE JAMESTOWN INTERCHANGE</b>
(EXIT END)
<b>DOUBLE BOX BEAM E-RAIL RETROFIT DETAILS</b>

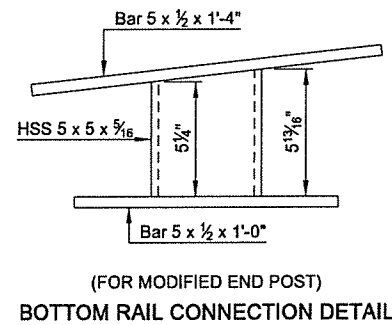
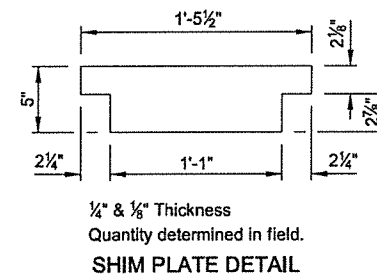
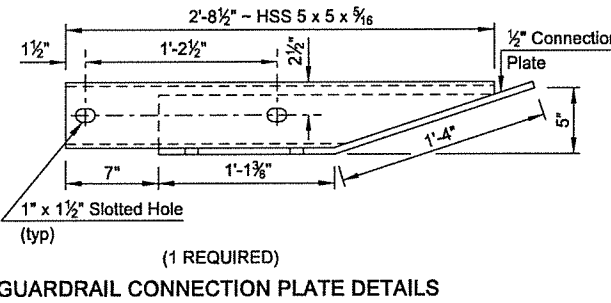
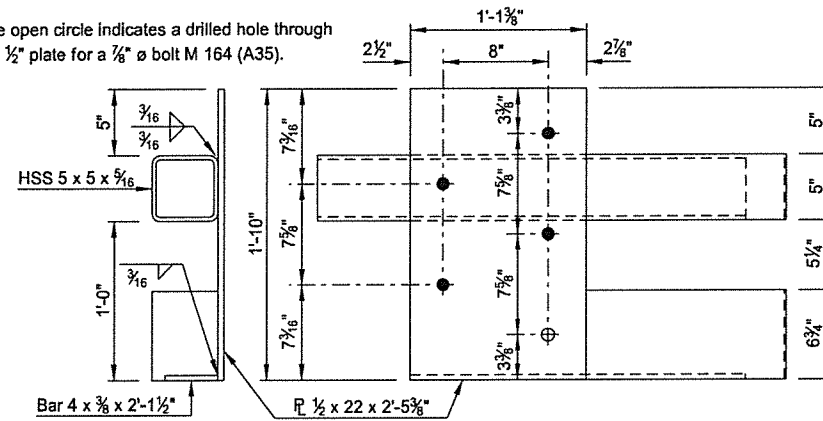
23 U.S.C. 409  
NDDOT Reserves All Objections

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	IM-2-094(144)248	170	7



The filled circles indicate drilled and tapped holes for 7/8" bolts M 164 (A325). See Detail "B"

The open circle indicates a drilled hole through the 1/2" plate for a 7/8" bolt M 164 (A35).

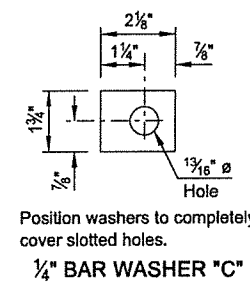
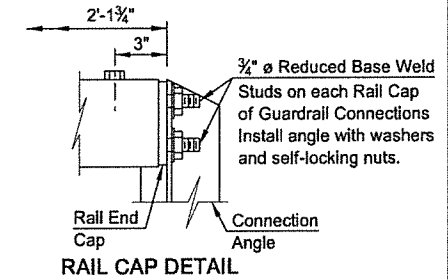
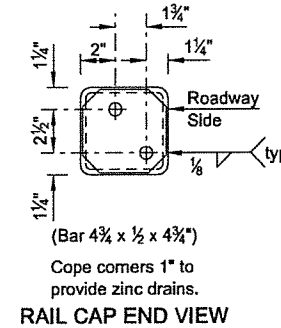
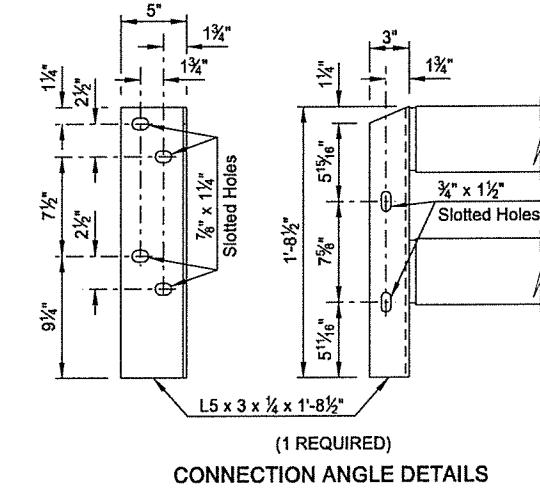
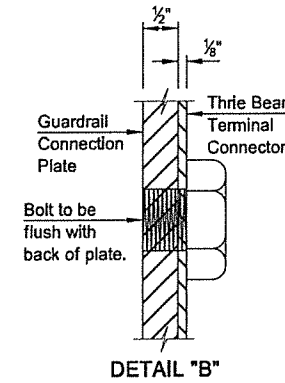


**NOTES:**

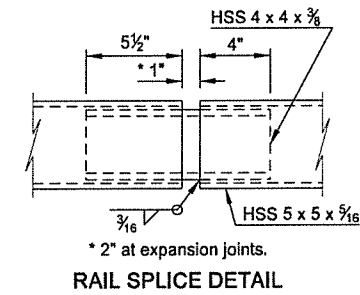
Galvanize all steel components after fabrication according to Section 854.

Submit work drawings to the Engineer for review. Use the following minimum text sizes on all work drawing sheets.

Dimensions and Notes = 0.08"  
Detail Subtitles = 0.09"  
Detail Titles = 0.10"



Position washers to completely cover slotted holes.



**QUANTITIES**

E-RAIL RETROFIT	222.6 LF
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BNRR & SE JAMESTOWN INTERCHANGE

DOUBLE BOX BEAM E-RAIL RETROFIT DETAILS

STUTSMAN COUNTY, NORTH DAKOTA  
 PROJECT NO. IM-2-094(144)248  
 BNRR & SE JAMESTOWN INTERCHANGE  
 BRIDGE NO. 94-260.125R  
 DOUBLE BOX BEAM RAIL RETROFIT E-RAIL  
 (222.6 LF)

INDEX	
SHEET	TITLE
B01	INDEX & GENERAL NOTES & SPECIFICATIONS
B02	DOUBLE BOX BEAM RAIL RETROFIT E-RAIL INST. DETAILS
B03	DOUBLE BOX BEAM RAIL RETROFIT E-RAIL INST. DETAILS
B04	DOUBLE BOX BEAM RAIL RETROFIT E-RAIL INST. DETAILS
B05	DOUBLE BOX BEAM RAIL RETROFIT E-RAIL INST. DETAILS
B06	DOUBLE BOX BEAM RAIL RETROFIT E-RAIL INST. DETAILS
B07	DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS
B08	DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS
B09	DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS
B10	DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS
B11	DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS
B12	DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS
B13	DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS
B15	DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS
B16	DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS

GENERAL NOTES & SPECIFICATIONS
<p>1) ALL MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH NORTH DAKOTA STANDARD SPECIFICATIONS DATED 2014 AND SUPPLEMENTAL SPECIFICATIONS.</p> <p>2) MATERIAL AND FABRICATION - ND DOT 624                      A) STRUCTURAL STEEL ASTM A709 GRADE 36 OR A36 EQUIVALENT                      B) STRUCTURAL STEEL TUBING ASTM A500 GRADE B                      C) BOLTS AND ANCHOR BOLTS SHALL BE ASTM A325, TYPE 1 OR A449                      D) THREADED RODS ASTM F1554, GRADE 36 OR ASTM A449                      E) REDUCED BASE STUDS, ASTM F1554-36                      F) WELDING - AWS D1.1</p> <p>3) GALVANIZING - ND DOT 854                      A) STRUCTURAL STEEL ASTM A123 - AASHTO M-111                      PRIOR TO GALVANIZING NO SURFACE PREP REQUIRED                      B) HARDWARE ASTM A153 - AASHTO M-232                      C) REPAIR OF GALVANIZED SURFACES ASTM A780</p>

<b>NO EXCEPTIONS NOTED</b>
Digitally signed by Dean Stolz DN: cn=Dean Stolz, o=ND DOT, ou=Bridge Division, email=dstolz@nd.gov, c=US Date: 2016.06.17 10:31:14 -05'00'
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS NDDOT

DRAWING LOT B		
JOB NUMBER	PERCENTAGE	JOB STATUS
B293-12	100%	COMPLETE

DUE TO SHOP PROCESS, SPLICES MAY OCCUR OTHER THAN SHOWN.

ALL VERIFIES WILL BE ASSUMED CORRECT AS SHOWN UNLESS NOTED OTHERWISE BY APPROVER

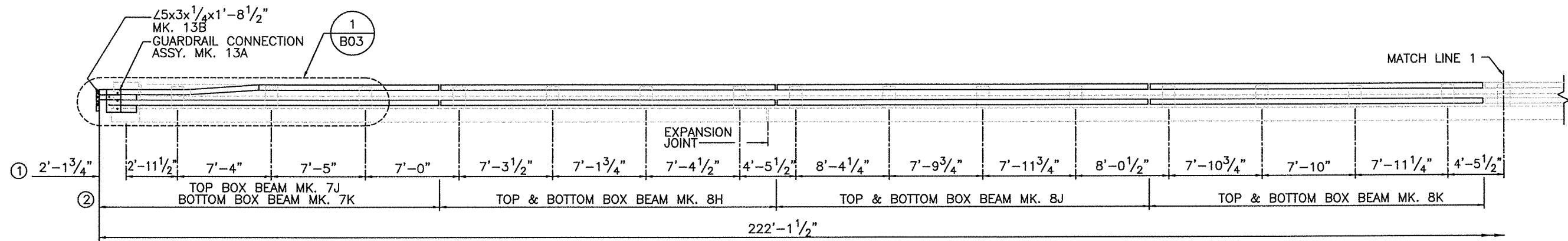
ANY AND ALL BACKCHARGES WILL BE REJECTED UNLESS WRITTEN CONSENT IS GIVEN BY AURA FABRICATORS, INC. PRIOR TO ANY WORK PERFORMED FOR OUR ACCOUNT. SUCH REJECTION MEANS THAT INVOICES WILL NOT BE HONORED OR DEDUCTIONS FROM PAYMENT WILL BE CHARGED BACK.

REV.	DESCRIPTION	BY	DATE
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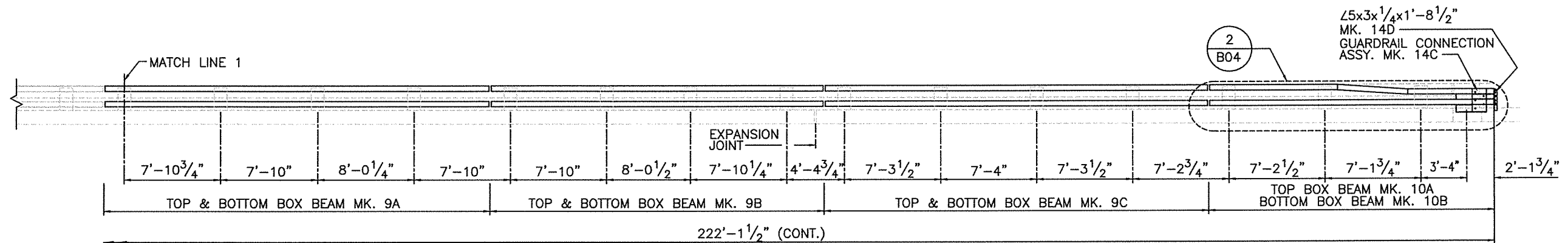
FOR APPROVAL: 5-23-16	TO SHOP:	TO FIELD:
R & R APPROVAL:		AS BUILT:

Aura Fabricators Inc.

LOCATION: STUTSMAN COUNTY, ND PROJECT NO. IM-2-094(144)248 BRIDGE NO. 94-260.125R PRIME CONTRACTOR: CENTRAL SPECIALTIES SUBCONTRACTOR: CUSTOM CONTRACTING SOLUTIONS, LLC (JOB #2016-19GR)	DRAWN BY: GF CHECKED BY: RS SCALE: NONE DATE: 5-23-16				
DESCRIPTION: INDEX, GENERAL NOTES & SPECIFICATIONS	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">JOB NUMBER</th> <th style="width: 50%;">SHEET</th> </tr> <tr> <td style="text-align: center;">B293-12</td> <td style="text-align: center;">B01 0</td> </tr> </table>	JOB NUMBER	SHEET	B293-12	B01 0
JOB NUMBER	SHEET				
B293-12	B01 0				



~ WEST END ~



~ EAST END ~

## DOUBLE BOX BEAM RAIL RETROFIT E-RAIL NORTH ELEVATION VIEW

(VIEWING E-RAIL FROM  $\odot$  ROADWAY LOOKING NORTH)

### NOTES:

- ① FIELD MEASUREMENTS PROVIDED BY CUSTOM CONTRACTING SOLUTIONS
- ② HSS 5x5x<sup>5</sup>/<sub>16</sub> BOX BEAM SHIP MKS.

DUE TO SHOP PROCESS, SPLICES MAY OCCUR OTHER THAN SHOWN.

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ANY AND ALL BACKCHARGES WILL BE REJECTED UNLESS WRITTEN CONSENT IS GIVEN BY AURA FABRICATORS, INC. PRIOR TO ANY WORK PERFORMED FOR OUR ACCOUNT. SUCH REJECTION MEANS THAT INVOICES WILL NOT BE HONORED OR DEDUCTIONS FROM PAYMENT WILL BE CHARGED BACK.

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REV.	DESCRIPTION	BY	DATE

FOR APPROVAL: 5-23-16	TO SHOP:	TO FIELD:
R & R APPROVAL:		AS BUILT:

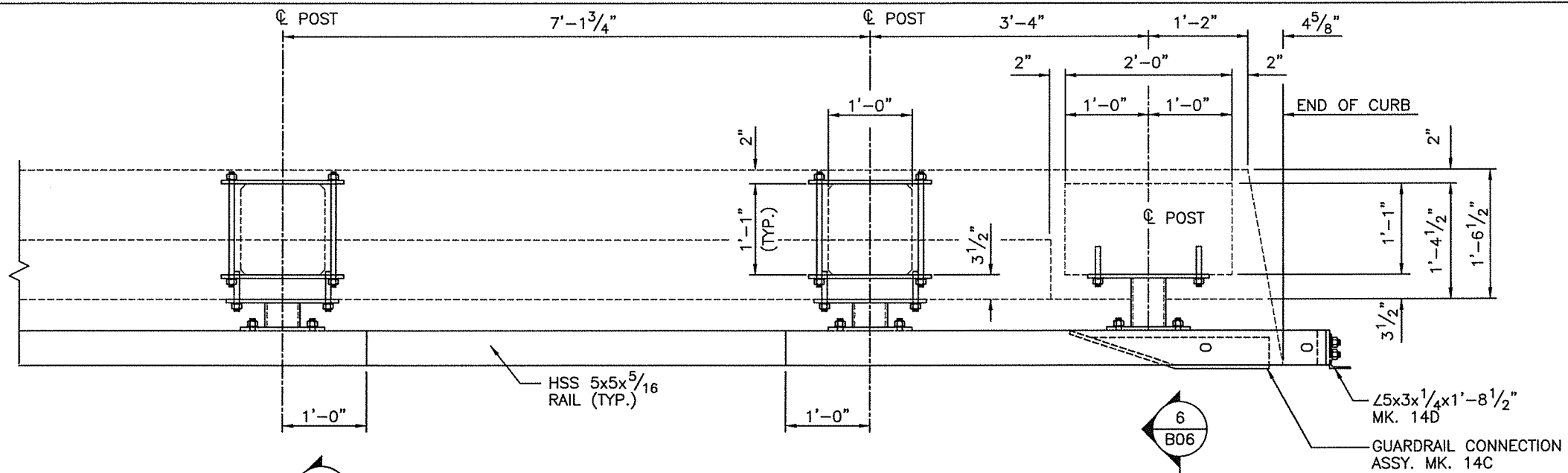
# Aura Fabricators Inc.

No Exceptions Noted
BY: D Stolz
DATE: June 17, 2016
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS
NDDOT

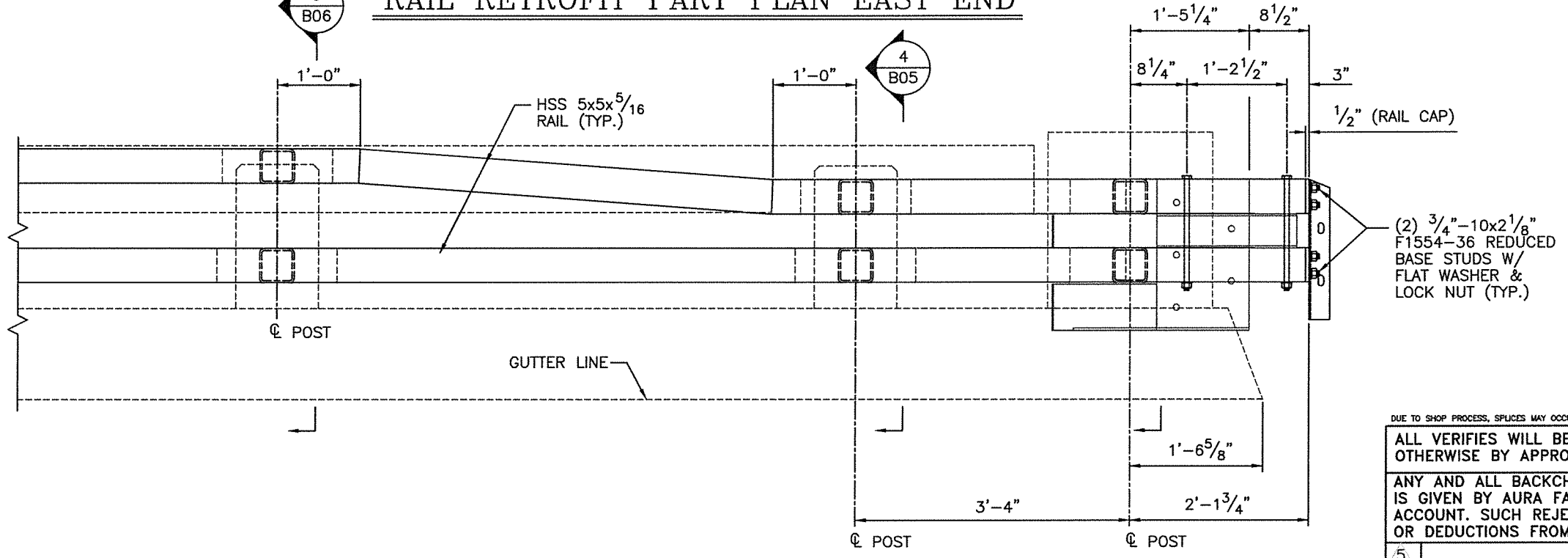
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DESCRIPTION: DOUBLE BOX BEAM RAIL RETROFIT E-RAIL INST. DETAILS	







5 B06 RAIL RETROFIT PART PLAN EAST END



2 B02 RAIL RETROFIT PART ELEVATION EAST END

No Exceptions Noted  
 BY: D Stolz  
 DATE: June 17, 2016  
 REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
 NDDOT

DUE TO SHOP PROCESS, SPLICES MAY OCCUR OTHER THAN SHOWN.

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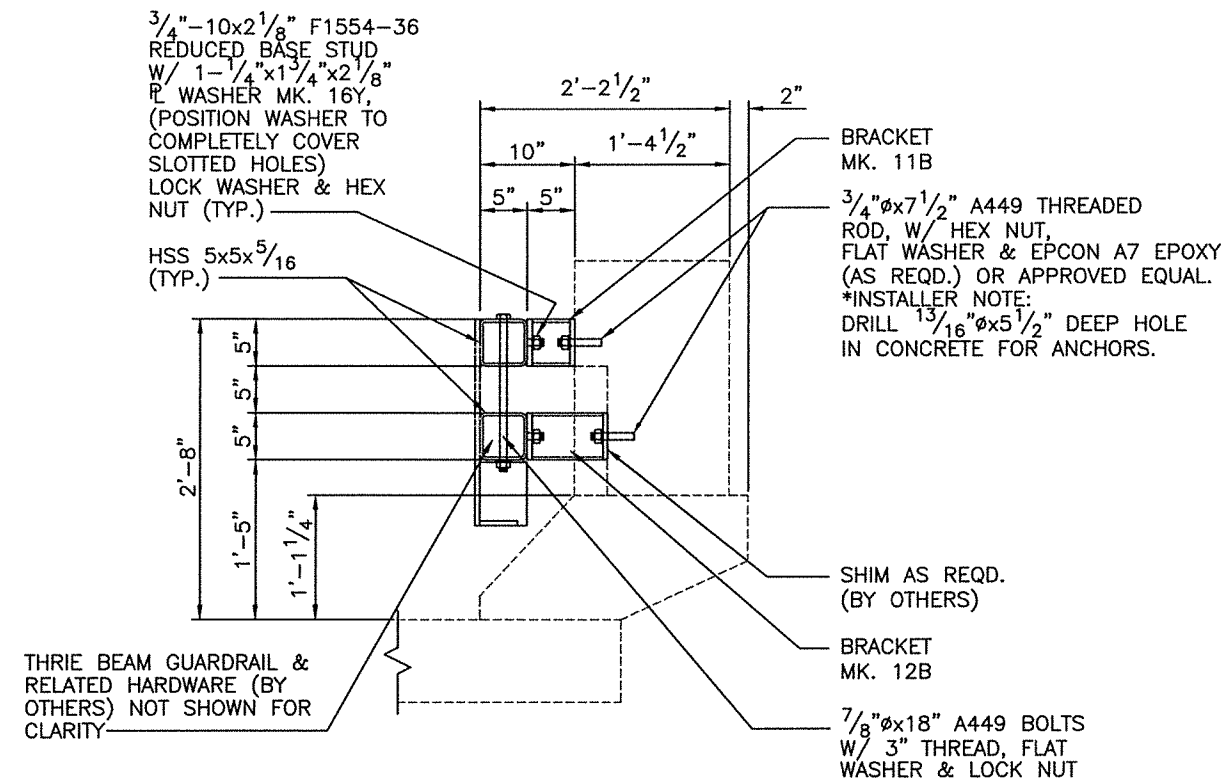
ANY AND ALL BACKCHARGES WILL BE REJECTED UNLESS WRITTEN CONSENT IS GIVEN BY AURA FABRICATORS, INC. PRIOR TO ANY WORK PERFORMED FOR OUR ACCOUNT. SUCH REJECTION MEANS THAT INVOICES WILL NOT BE HONORED OR DEDUCTIONS FROM PAYMENT WILL BE CHARGED BACK.

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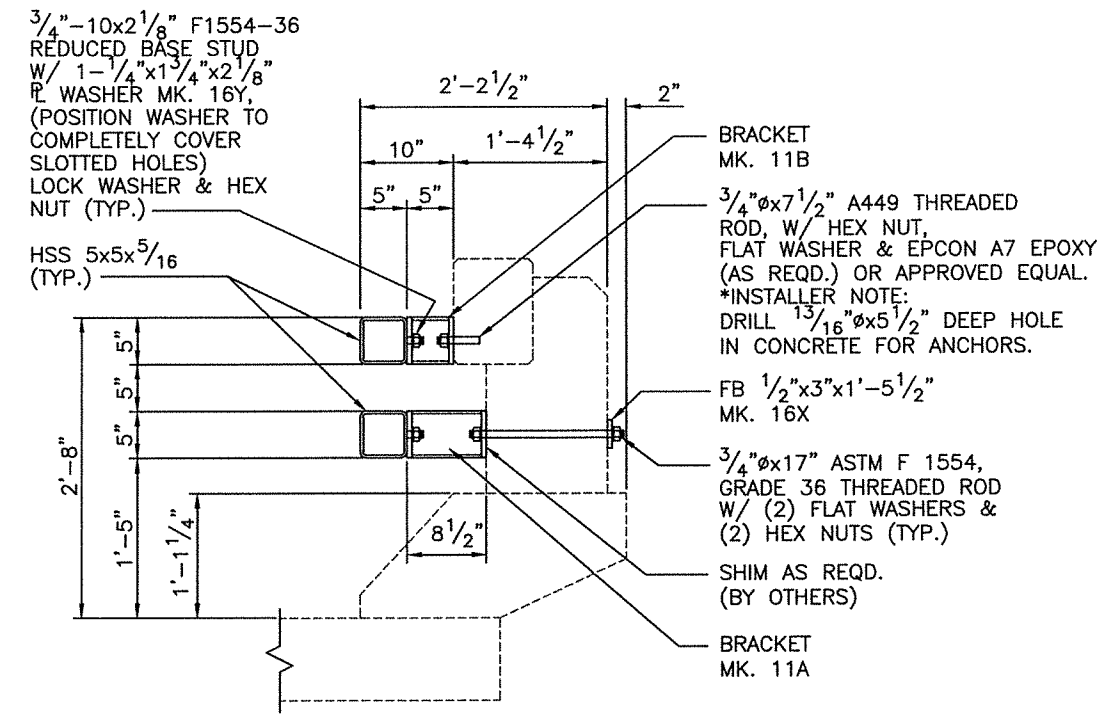
REV.	DESCRIPTION	BY	DATE
FOR APPROVAL: 5-23-16	TO SHOP:		TO FIELD:
R & R APPROVAL:			AS BUILT:

Aura Fabricators Inc.

LOCATION: STUTSMAN COUNTY, ND PROJECT NO. IM-2-094(144)248 BRIDGE NO. 94-260.125R PRIME CONTRACTOR: CENTRAL SPECIALTIES SUBCONTRACTOR: CUSTOM CONTRACTING SOLUTIONS, LLC (JOB #2016-196R)	DRAWN BY: GF CHECKED BY: RS SCALE: NONE DATE: 5-23-16 JOB NUMBER SHEET B293-12 B04 0
DESCRIPTION: DOUBLE BOX BEAM RAIL RETROFIT E-RAIL INST. DETAILS	



3 SECTION VIEW  
B03 (END POST APPROACH END)



4 SECTION VIEW  
B03 B04 (CONCRETE RAIL POST)

No Exceptions Noted  
BY: D Stolz  
DATE: June 17, 2016  
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
NDDOT

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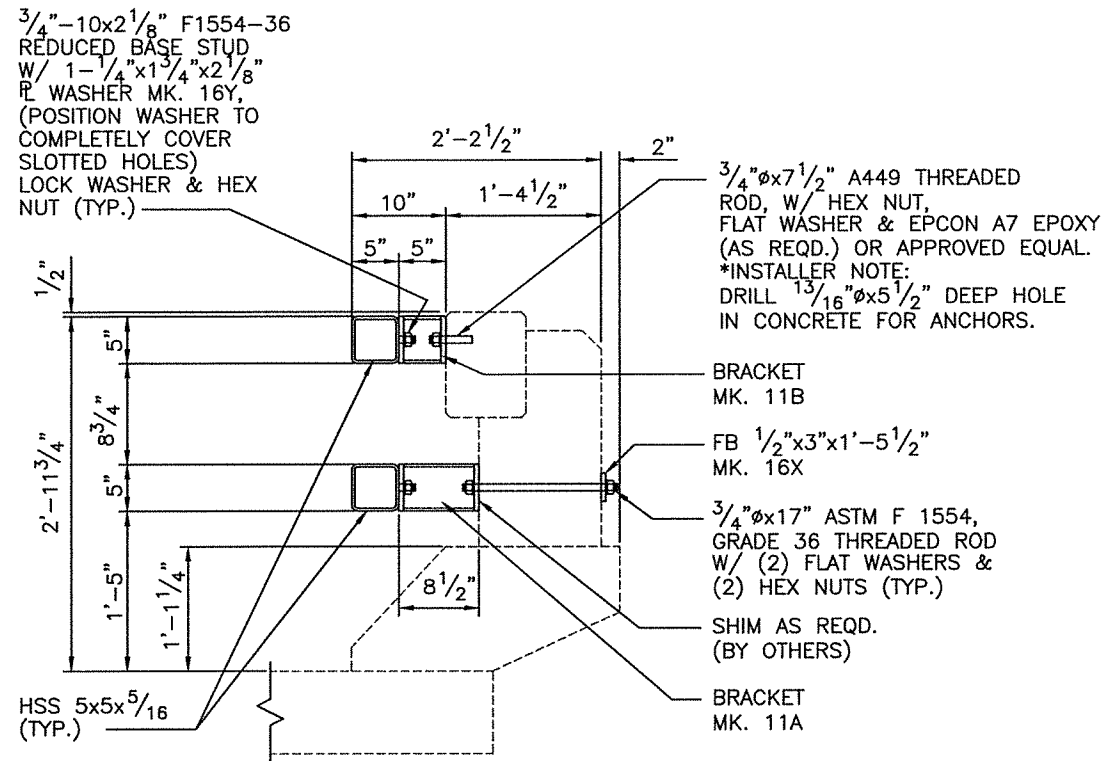
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REV.	DESCRIPTION	BY	DATE

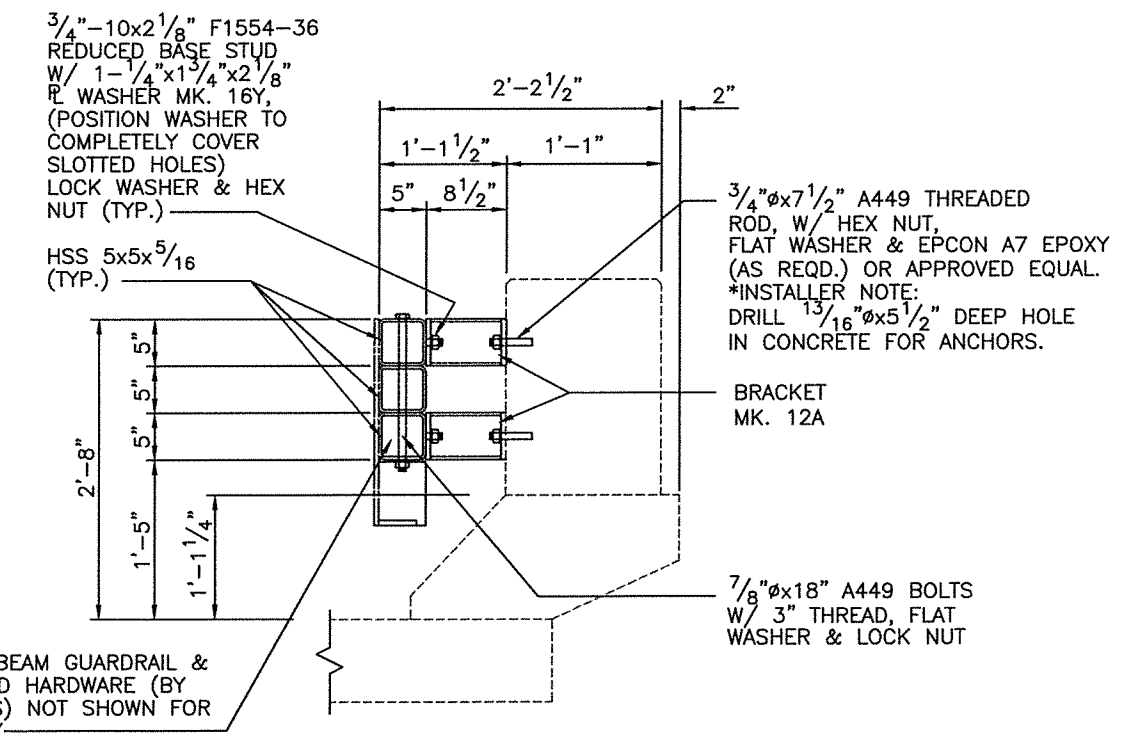
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R & R APPROVAL: AS BUILT:

Aura Fabricators Inc.

LOCATION: STUTSMAN COUNTY, ND PROJECT NO. IM-2-094(144)248 BRIDGE NO. 94-260.125R PRIME CONTRACTOR: CENTRAL SPECIALTIES SUBCONTRACTOR: CUSTOM CONTRACTING SOLUTIONS, LLC (JOB #2016-19GR)	DRAWN BY: GF CHECKED BY: RS SCALE: NONE DATE: 5-23-16 JOB NUMBER SHEET B293-12 B05 0
DESCRIPTION: DOUBLE BOX BEAM RAIL RETROFIT E-RAIL INST. DETAILS	



5 SECTION VIEW  
B03 (CONCRETE RAIL POST)  
B04



6 SECTION VIEW  
B04 (END POST EXIT END)

THRE BEAM GUARDRAIL & RELATED HARDWARE (BY OTHERS) NOT SHOWN FOR CLARITY

SHIPPING LIST

SHIP MARK	PIECE MARK	NO. OF PIECES	TYPE	DESCRIPTION	LENGTH		GRADE	NOTES
					FEET	INCHES		
~ SHIPPING LIST ~								
VARIES		16	HSS	5x5x 5/16 (BOX BEAM)				
11A		30	AURA	BRACKET				
11B		31	AURA	BRACKET				
12A		2	AURA	BRACKET				
12B		1	AURA	BRACKET				
13A		1	AURA	GUARDRAIL CONNECTION				
13B		1	L	5x3x 1/4	1	8 1/2		
14C		1	AURA	GUARDRAIL CONNECTION				
14D		1	L	5x3x 1/4	1	8 1/2		
16X		30	FB	1/2x3	1	5 1/2	A709-36	
16Y		135	MW	1/4x1 3/4	0	2 1/8	F844-HDG	PL WASHER
17A1		62	TR	3/4 THRD. ROD	1	5	F1554-36-HDG	
17A2		124	FW	3/4 WASHER			F436-1-HDG	
17A3		124	HHN	3/4 NUT			A563-A-HDG	
17B1		70	TR	3/4 THRD. ROD	0	7 1/2	A449-1-HDG	
17B2		70	FW	3/4 WASHER			F436-1-HDG	
17B3		70	HHN	3/4 NUT			A563-DH-HDG	
17C		3	MI	ADHESIVE-EPCON A7				28 OUNCE CARTRIDGE
17D1		135	MW	LOCK WASHER-3/4			F436-1-HDG	
17D2		135	HHN	3/4 NUT			A563-A-HDG	
17E1		8	FW	3/4 WASHER			F436-1-HDG	
17E2		8	MN	LOCK NUT-3/4			A563-A-HDG	
17F1		4	HHB	7/8 BOLT	1	6	A449-1-HDG	3" THREAD
17F2		4	FW	7/8 WASHER			F436-1-HDG	
17F3		4	MN	LOCK NUT-7/8			A563-DH-HDG	

ALL VERIFIES WILL BE ASSUMED CORRECT AS SHOWN UNLESS NOTED OTHERWISE BY APPROVER

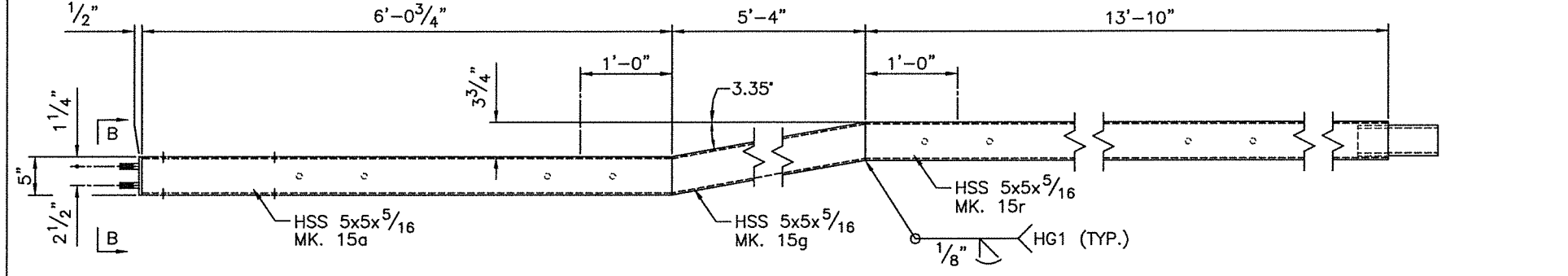
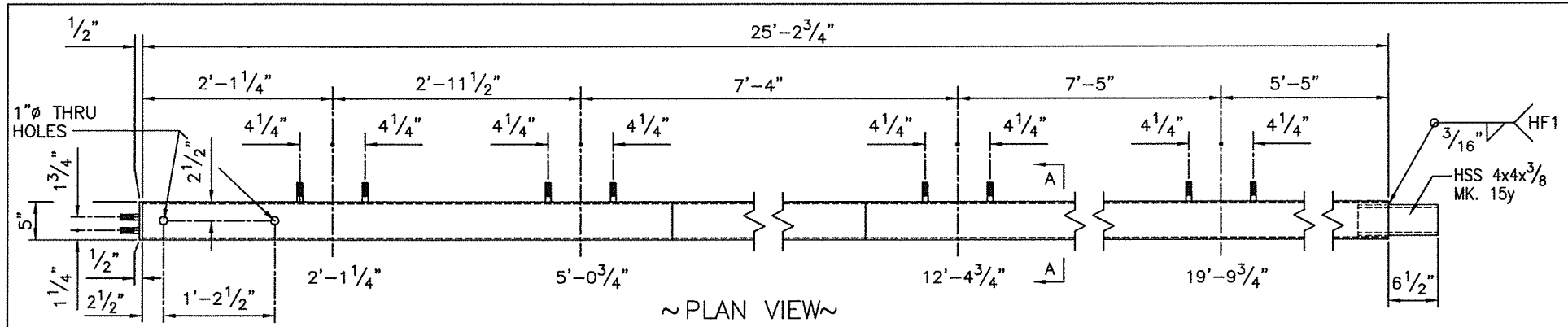
ANY AND ALL BACKCHARGES WILL BE REJECTED UNLESS WRITTEN CONSENT IS GIVEN BY AURA FABRICATORS, INC. PRIOR TO ANY WORK PERFORMED FOR OUR ACCOUNT. SUCH REJECTION MEANS THAT INVOICES WILL NOT BE HONORED OR DEDUCTIONS FROM PAYMENT WILL BE CHARGED BACK.

5					
4					
3					
2					
1					
REV.		DESCRIPTION		BY	DATE
FOR APPROVAL: 5-23-16		TO SHOP:	TO FIELD:		
R & R APPROVAL:			AS BUILT:		

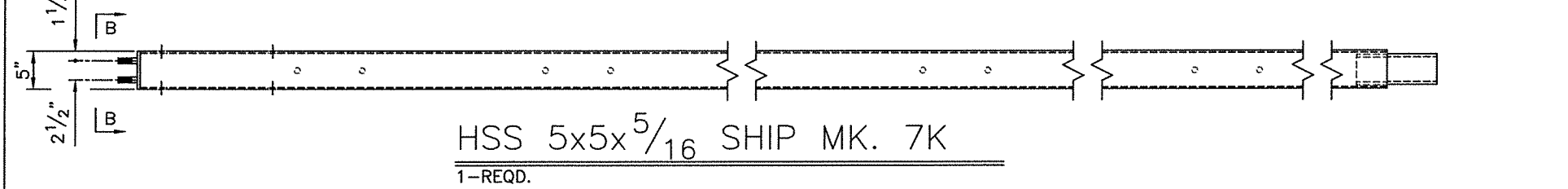
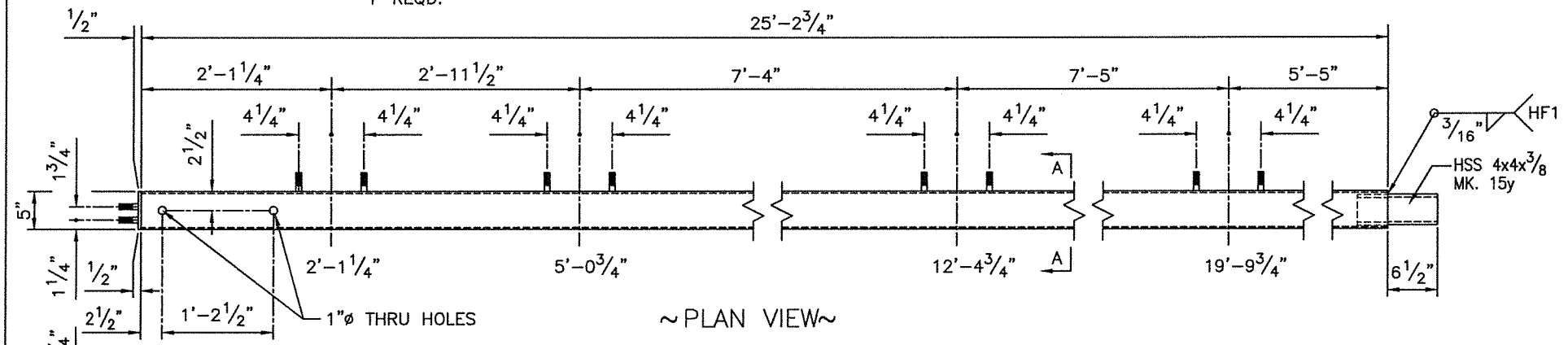
Aura Fabricators Inc.

No Exceptions Noted  
BY: D Stolz  
DATE: June 17, 2016  
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
NDDOT

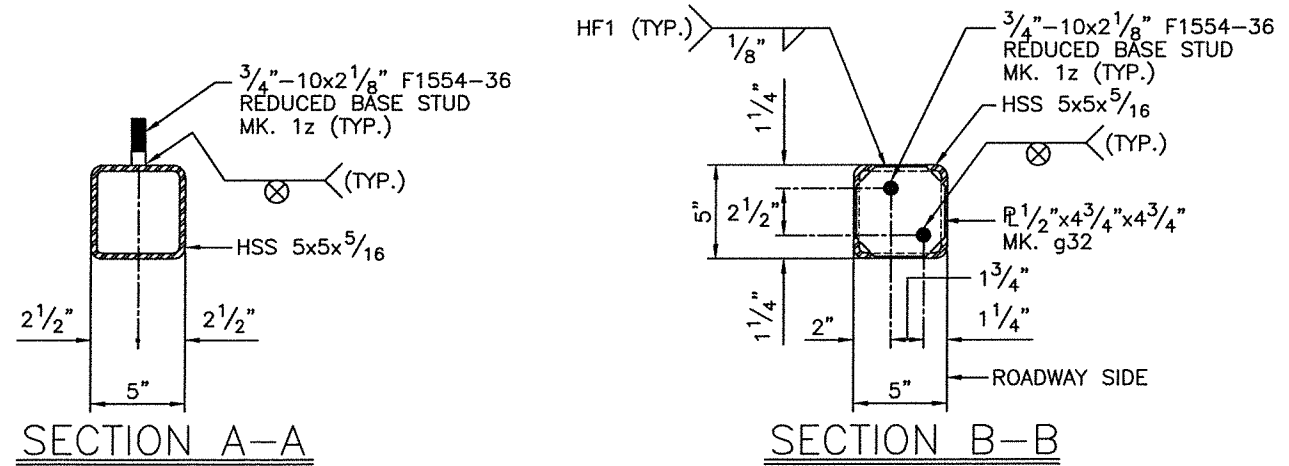
LOCATION: STUTSMAN COUNTY, ND  
PROJECT NO. IM-2-094(144)248  
BRIDGE NO. 94-260.125R  
PRIME CONTRACTOR: CENTRAL SPECIALTIES  
SUBCONTRACTOR: CUSTOM CONTRACTING SOLUTIONS, LLC (JOB #2016-19GR)  
DESCRIPTION: DOUBLE BOX BEAM RAIL RETROFIT E-RAIL INST. DETAILS  
DRAWN BY: GF CHECKED BY: RS  
SCALE: NONE  
DATE: 5-23-16  
JOB NUMBER SHEET  
B293-12 B06 0



HSS 5x5x<sup>5</sup>/<sub>16</sub> (BOX BEAM) SHIP MK. 7J  
1-REQD.



HSS 5x5x<sup>5</sup>/<sub>16</sub> SHIP MK. 7K  
1-REQD.



No Exceptions Noted  
BY: D Stolz  
DATE: June 17, 2016  
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
NDDOT

BILL OF MATERIAL

SHIP MARK	PIECE MARK	NO. OF PIECES	TYPE	DESCRIPTION	LENGTH		GRADE	SHOP NOTES	SEQ	LOT
					FEET	INCHES				
7J		1	AURA	BOX BEAM						12 B
	15a	1	HSS	5x5x <sup>5</sup> / <sub>16</sub>	6	0 <sup>3</sup> / <sub>4</sub>	A500-B	S		
	15g	1	HSS	5x5x <sup>5</sup> / <sub>16</sub>	5	4 <sup>3</sup> / <sub>8</sub>	A500-B	M		
	15r	1	HSS	5x5x <sup>5</sup> / <sub>16</sub>	13	10	A500-B	S		
	15y	1	HSS	4x4x <sup>3</sup> / <sub>8</sub>	0	10 <sup>1</sup> / <sub>2</sub>	A500-B	S		
	g32	1	PL	1/2x4 <sup>3</sup> / <sub>4</sub>	0	4 <sup>3</sup> / <sub>4</sub>	A709-36			
	1z	10	WS	RB- <sup>3</sup> / <sub>4</sub>	0	2 <sup>1</sup> / <sub>8</sub>	F1554-36			

7K		1	HSS	5x5x <sup>5</sup> / <sub>16</sub>	25	2 <sup>3</sup> / <sub>4</sub>	A500-B	S	12	B
	15y	1	HSS	4x4x <sup>3</sup> / <sub>8</sub>	0	10 <sup>1</sup> / <sub>2</sub>	A500-B	S		
	g32	1	PL	1/2x4 <sup>3</sup> / <sub>4</sub>	0	4 <sup>3</sup> / <sub>4</sub>	A709-36			
	1z	10	WS	RB- <sup>3</sup> / <sub>4</sub>	0	2 <sup>1</sup> / <sub>8</sub>	F1554-36			

GENERAL NOTES:

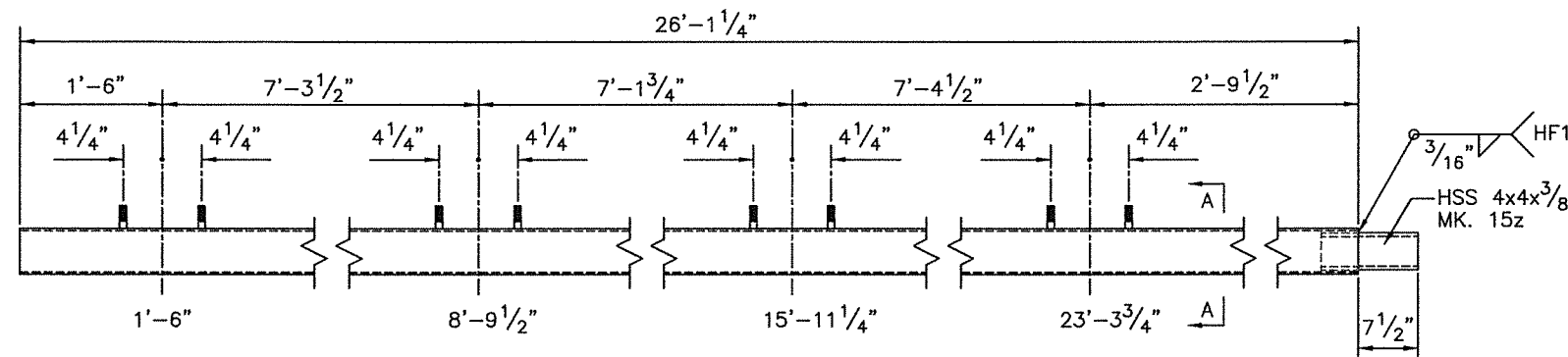
DUE TO SHOP PROCESS, SPLICES MAY OCCUR OTHER THAN SHOWN.  
ALL VERIFIES WILL BE ASSUMED CORRECT AS SHOWN UNLESS NOTED OTHERWISE BY APPROVER

REV.	DESCRIPTION	GF	DATE
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1			

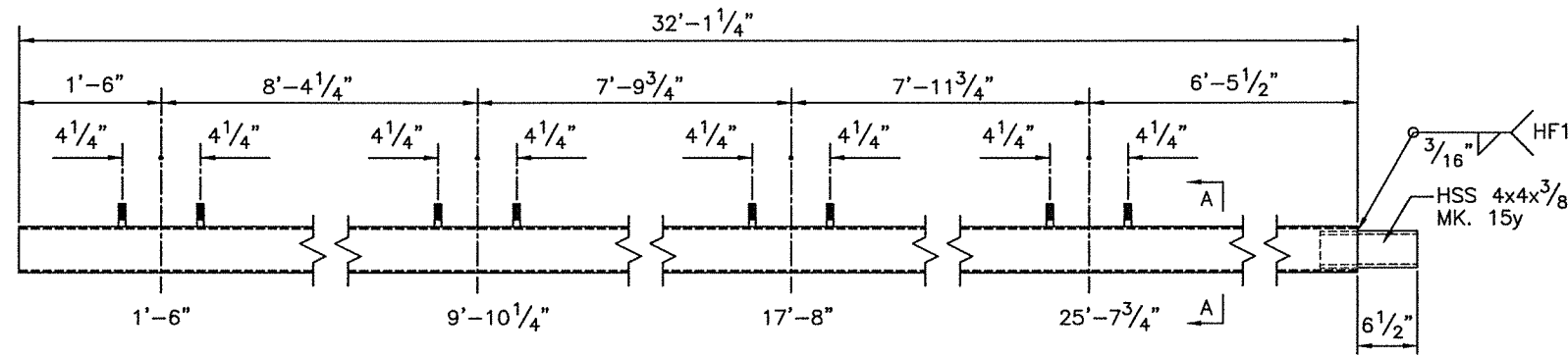
FOR APPROVAL: 5-23-16 TO SHOP: TO FIELD:  
R & R APPROVAL: AS BUILT:

Aura Fabricators Inc.

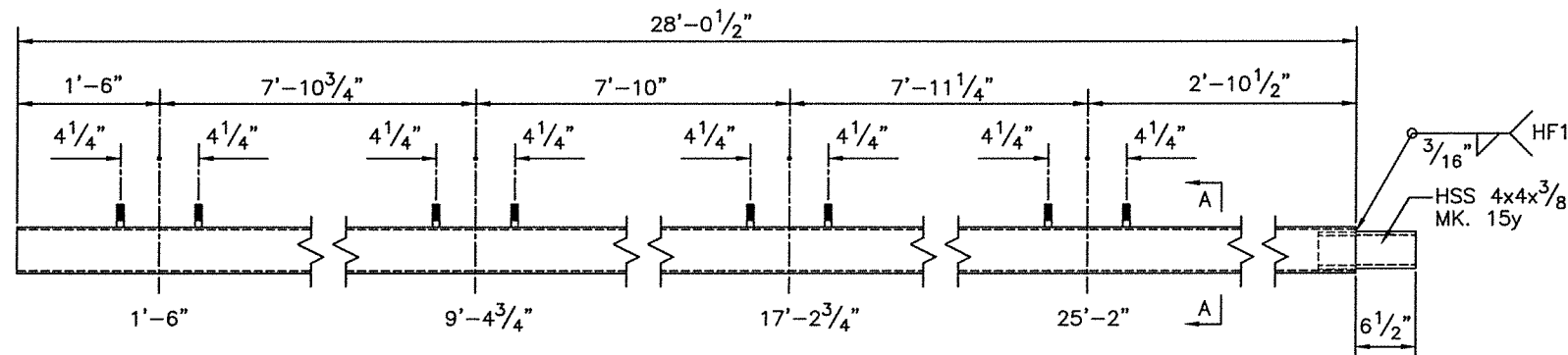
LOCATION: STUTSMAN COUNTY, ND  
PROJECT NO. IM-2-094(144)248  
BRIDGE NO. 94-260.125R  
PRIME CONTRACTOR: CENTRAL SPECIALTIES  
SUBCONTRACTOR: CUSTOM CONTRACTING SOLUTIONS, LLC (JOB #2016-19GR)  
DESCRIPTION: DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS  
DRAWN BY: GF CHECKED BY: RS  
SCALE: NONE  
DATE: 5-23-16  
JOB NUMBER: B293-12 SHEET: B07 0



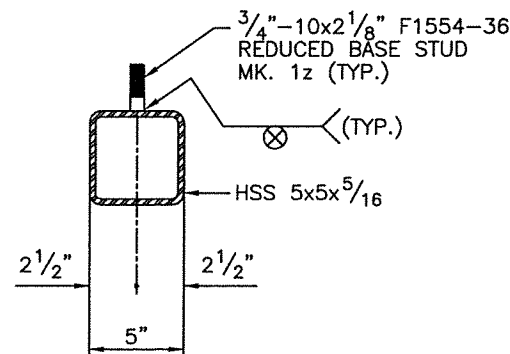
HSS 5x5x<sup>5</sup>/<sub>16</sub> SHIP MK. 8H  
2-REQD.



HSS 5x5x<sup>5</sup>/<sub>16</sub> SHIP MK. 8J  
2-REQD.



HSS 5x5x<sup>5</sup>/<sub>16</sub> SHIP MK. 8K  
2-REQD.



SECTION A-A

BILL OF MATERIAL

SHIP MARK	PIECE MARK	NO. OF PIECES	TYPE	DESCRIPTION	LENGTH		GRADE	SHOP NOTES	SEQ	LOT
					FEET	INCHES				
8H		2	HSS	5x5x <sup>5</sup> / <sub>16</sub>	26	1 1/4	A500-B	S	12	B
	15z	2	HSS	4x4x <sup>3</sup> / <sub>8</sub>	0	11 1/2	A500-B	S		
	1z	16	WS	RB- <sup>3</sup> / <sub>4</sub>	0	2 1/8	F1554-36			
8J		2	HSS	5x5x <sup>5</sup> / <sub>16</sub>	32	1 1/4	A500-B	S	12	B
	15y	2	HSS	4x4x <sup>3</sup> / <sub>8</sub>	0	10 1/2	A500-B	S		
	1z	16	WS	RB- <sup>3</sup> / <sub>4</sub>	0	2 1/8	F1554-36			
8K		2	HSS	5x5x <sup>5</sup> / <sub>16</sub>	28	0 1/2	A500-B	S	12	B
	15y	2	HSS	4x4x <sup>3</sup> / <sub>8</sub>	0	10 1/2	A500-B	S		
	1z	16	WS	RB- <sup>3</sup> / <sub>4</sub>	0	2 1/8	F1554-36			

GENERAL NOTES:

DUE TO SHOP PROCESS, SPLICES MAY OCCUR OTHER THAN SHOWN.

ALL VERIFIES WILL BE ASSUMED CORRECT AS SHOWN UNLESS NOTED OTHERWISE BY APPROVER

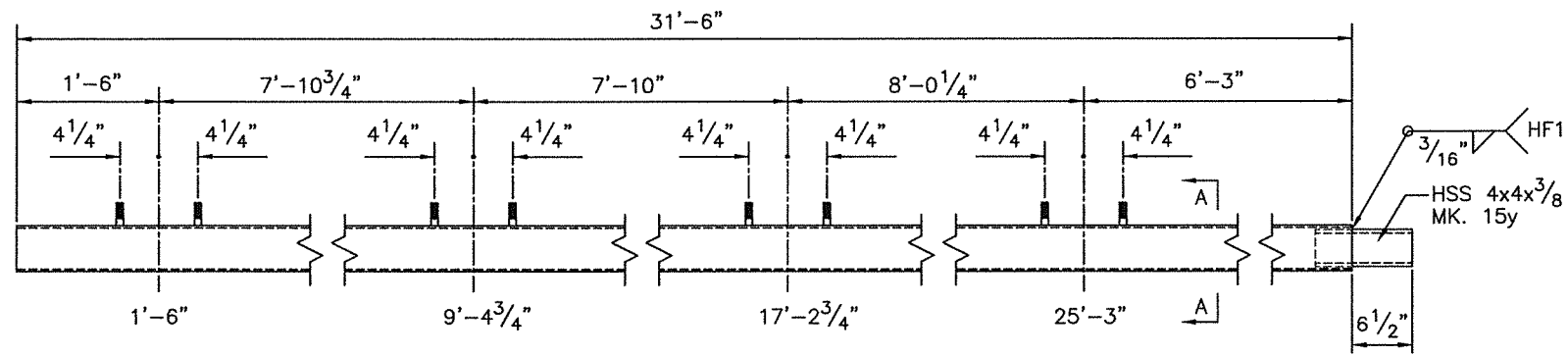
5			
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REV.	DESCRIPTION	BY	DATE

FOR APPROVAL: 5-23-16	TO SHOP:	TO FIELD:
R & R APPROVAL:		AS BUILT:

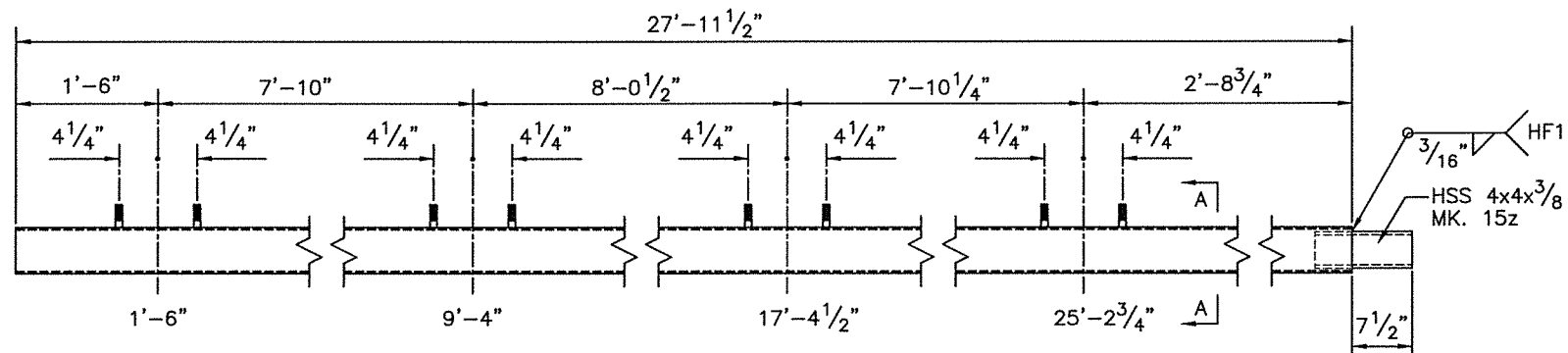
Aura Fabricators Inc.

No Exceptions Noted  
BY: D Stolz  
DATE: June 17, 2016  
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
NDDOT

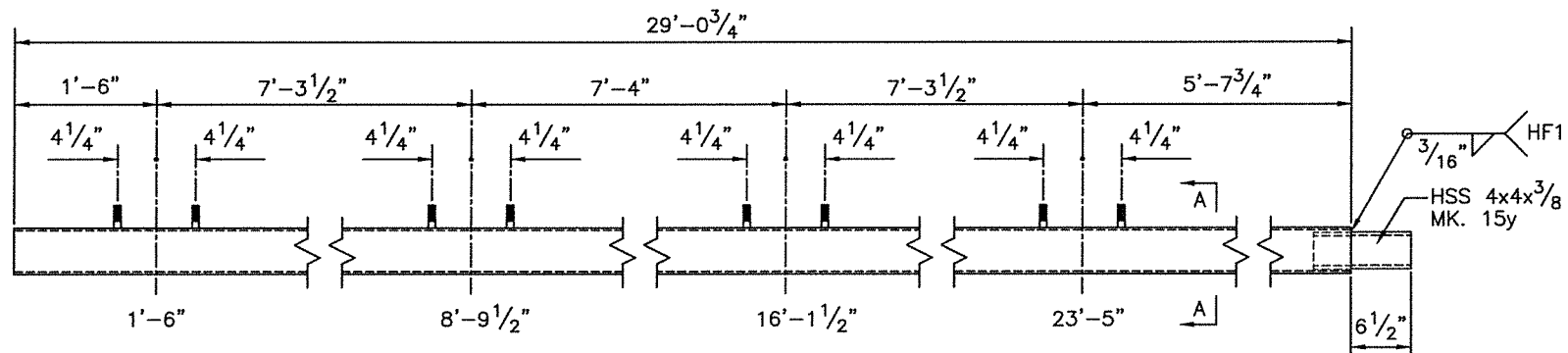
LOCATION: STUTSMAN COUNTY, ND PROJECT NO. IM-2-094(144)248 BRIDGE NO. 94-260.125R	DRAWN BY:GF CHECKED BY:RS SCALE:NONE DATE: 5-23-16
PRIME CONTRACTOR: CENTRAL SPECIALTIES SUBCONTRACTOR: CUSTOM CONTRACTING SOLUTIONS, LLC (JOB #2016-19GR)	JOB NUMBER SHEET B293-12 B08 0
DESCRIPTION: DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS	



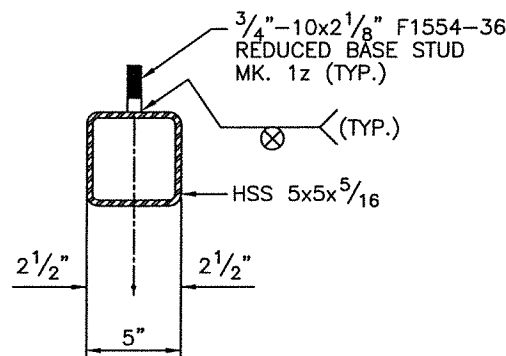
HSS 5x5x<sup>5</sup>/<sub>16</sub> SHIP MK. 9A  
2-REQD.



HSS 5x5x<sup>5</sup>/<sub>16</sub> SHIP MK. 9B  
2-REQD.



HSS 5x5x<sup>5</sup>/<sub>16</sub> SHIP MK. 9C  
2-REQD.



SECTION A-A

BILL OF MATERIAL

SHIP MARK	PIECE MARK	NO. OF PIECES	TYPE	DESCRIPTION	LENGTH		GRADE	SHOP NOTES	SEQ	LOT
					FEET	INCHES				
9A		2	HSS	5x5x <sup>5</sup> / <sub>16</sub>	31	6	A500-B	S	12	B
	15y	2	HSS	4x4x <sup>3</sup> / <sub>8</sub>	0	10 1/2	A500-B	S		
	1z	16	WS	RB- <sup>3</sup> / <sub>4</sub>	0	2 1/8	F1554-36			
9B		2	HSS	5x5x <sup>5</sup> / <sub>16</sub>	27	11 1/2	A500-B	S	12	B
	15z	2	HSS	4x4x <sup>3</sup> / <sub>8</sub>	0	11 1/2	A500-B	S		
	1z	16	WS	RB- <sup>3</sup> / <sub>4</sub>	0	2 1/8	F1554-36			
9C		2	HSS	5x5x <sup>5</sup> / <sub>16</sub>	29	0 3/4	A500-B	S	12	B
	15y	2	HSS	4x4x <sup>3</sup> / <sub>8</sub>	0	10 1/2	A500-B	S		
	1z	16	WS	RB- <sup>3</sup> / <sub>4</sub>	0	2 1/8	F1554-36			

GENERAL NOTES:

DUE TO SHOP PROCESS, SPLICES MAY OCCUR OTHER THAN SHOWN.

ALL VERIFIES WILL BE ASSUMED CORRECT AS SHOWN UNLESS NOTED OTHERWISE BY APPROVER

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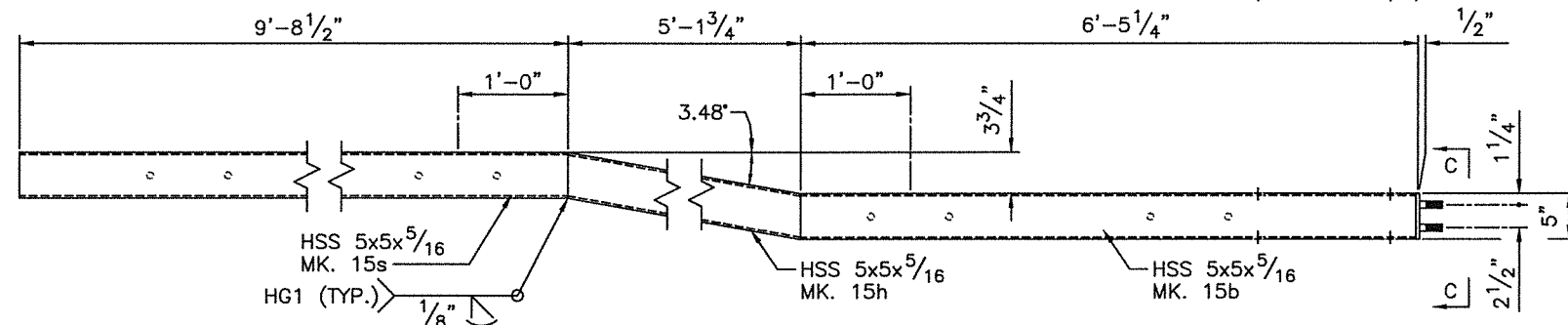
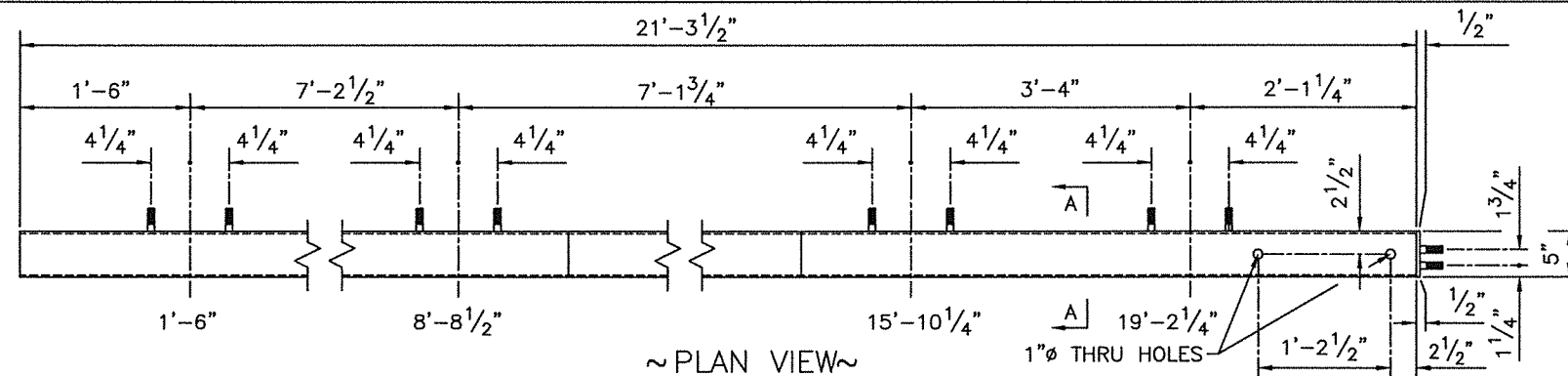
REV.	DESCRIPTION	BY	DATE
	FOR APPROVAL: 5-23-16	TO SHOP:	TO FIELD:
	R & R APPROVAL:		AS BUILT:

Aura Fabricators Inc.

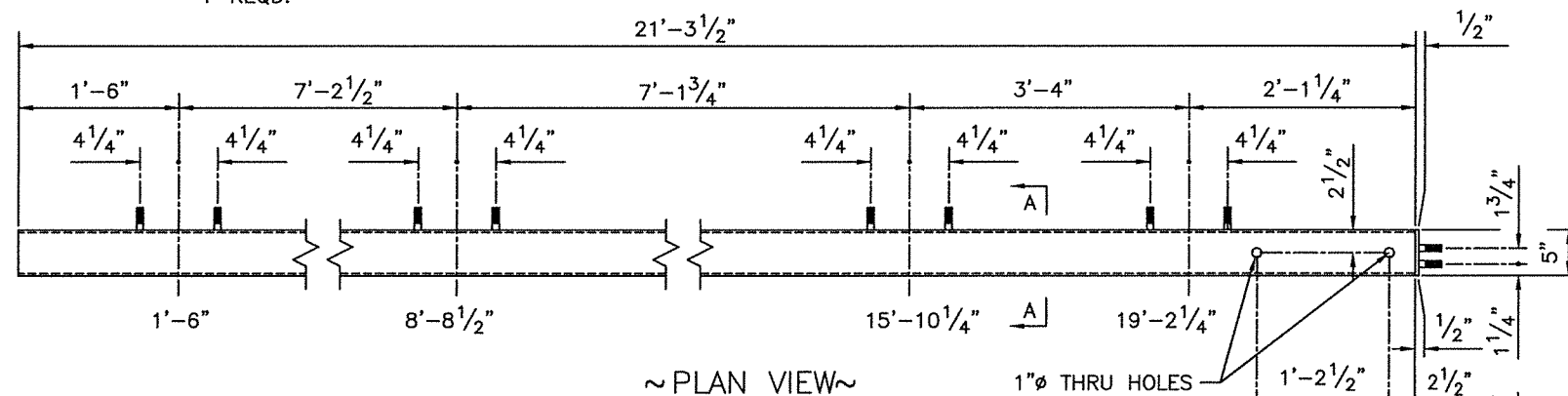
No Exceptions Noted  
BY: D Stolz  
DATE: June 17, 2016  
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
NDDOT

LOCATION: STUTSMAN COUNTY, ND  
PROJECT NO. IM-2-094(144)248  
BRIDGE NO. 94-260.125R  
PRIME CONTRACTOR: CENTRAL SPECIALTIES  
SUBCONTRACTOR: CUSTOM CONTRACTING SOLUTIONS, LLC (JOB #2016-19GR)  
DESCRIPTION: DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS

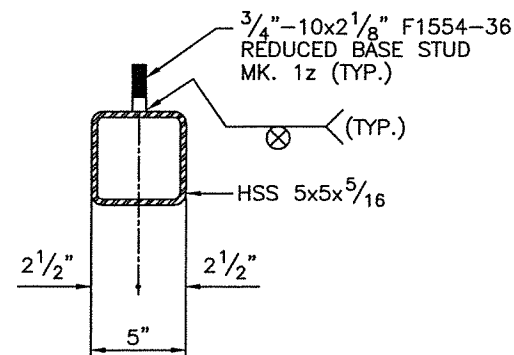
DRAWN BY: GF CHECKED BY: RS  
SCALE: NONE  
DATE: 5-23-16  
JOB NUMBER: B293-12 SHEET: B09 .0



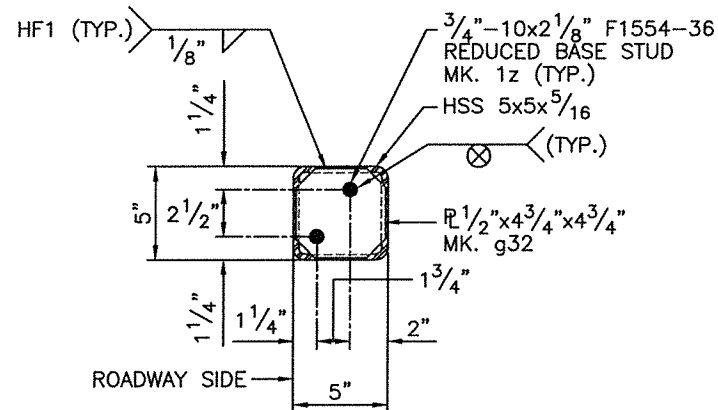
HSS 5x5x<sup>5</sup>/<sub>16</sub> (BOX BEAM) SHIP MK. 10A  
1-REQD.



HSS 5x5x<sup>5</sup>/<sub>16</sub> SHIP MK. 10B  
1-REQD.



SECTION A-A



SECTION C-C

No Exceptions Noted  
BY: D Stolz  
DATE: June 17, 2016  
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
NDDOT

BILL OF MATERIAL

SHIP MARK	PIECE MARK	NO. OF PIECES	TYPE	DESCRIPTION	LENGTH		GRADE	SHOP NOTES	SEQ	LOT
					FEET	INCHES				
10A		1	AURA	BOX BEAM					12	B
	15b	1	HSS	5x5x <sup>5</sup> / <sub>16</sub>	6	5 1/4	A500-B	S		
	15h	1	HSS	5x5x <sup>5</sup> / <sub>16</sub>	5	2 1/8	A500-B	M		
	15s	1	HSS	5x5x <sup>5</sup> / <sub>16</sub>	9	8 1/2	A500-B	S		
	g32	1	PL	1/2x4 <sup>3</sup> / <sub>4</sub>	0	4 3/4	A709-36			
	1z	10	WS	RB- <sup>3</sup> / <sub>4</sub>	0	2 1/8	F1554-36			
10B		1	HSS	5x5x <sup>5</sup> / <sub>16</sub>	21	3 1/2	A500-B	S	12	B
	g32	1	PL	1/2x4 <sup>3</sup> / <sub>4</sub>	0	4 3/4	A709-36			
	1z	10	WS	RB- <sup>3</sup> / <sub>4</sub>	0	2 1/8	F1554-36			

GENERAL NOTES:

DUE TO SHOP PROCESS, SPLICES MAY OCCUR OTHER THAN SHOWN.

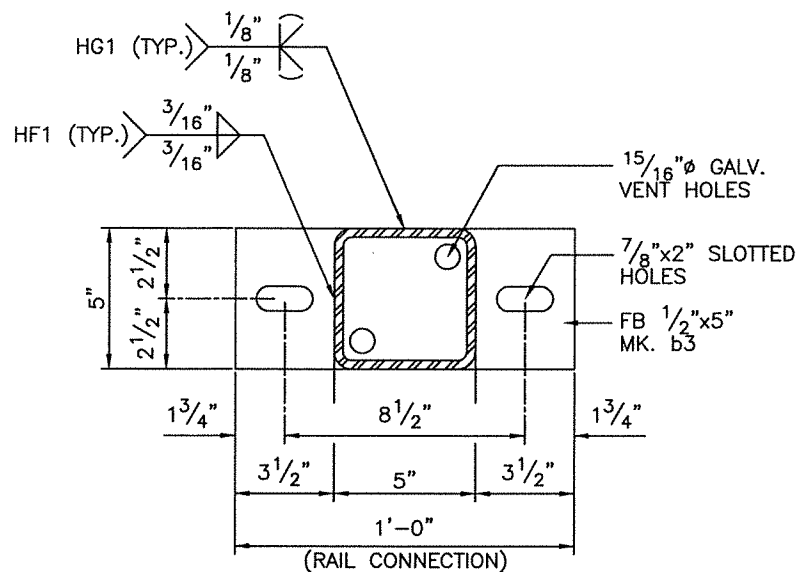
ALL VERIFIES WILL BE ASSUMED CORRECT AS SHOWN UNLESS NOTED OTHERWISE BY APPROVER

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REV	DESCRIPTION	BY	DATE

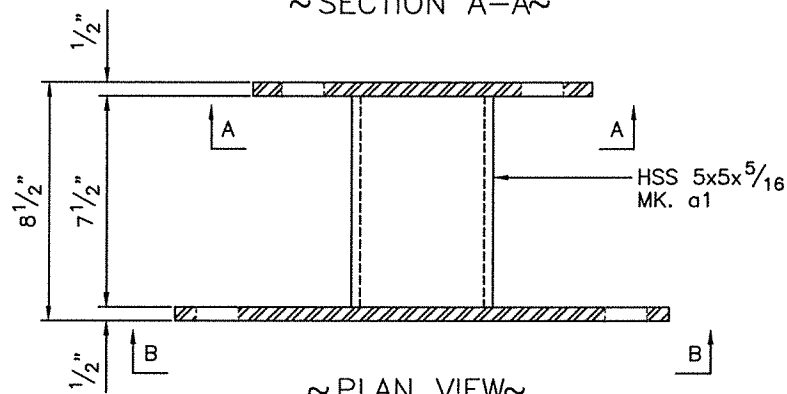
FOR APPROVAL: 5-23-16	TO SHOP:	TO FIELD:
R & R APPROVAL:		AS BUILT:

Aura Fabricators Inc.

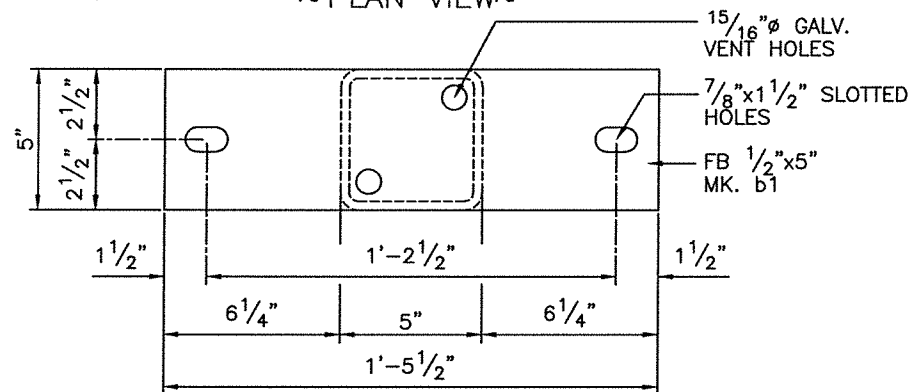
LOCATION: STUTSMAN COUNTY, ND PROJECT NO. IM-2-094(144)248 BRIDGE NO. 94-260.125R	DRAWN BY:GF CHECKED BY:RS SCALE: NONE DATE: 5-23-16
PRIME CONTRACTOR: CENTRAL SPECIALTIES SUBCONTRACTOR: CUSTOM CONTRACTING SOLUTIONS, LLC (JOB #2016-19GR)	JOB NUMBER SHEET B293-12 B10 0
DESCRIPTION: DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS	



~SECTION A-A~



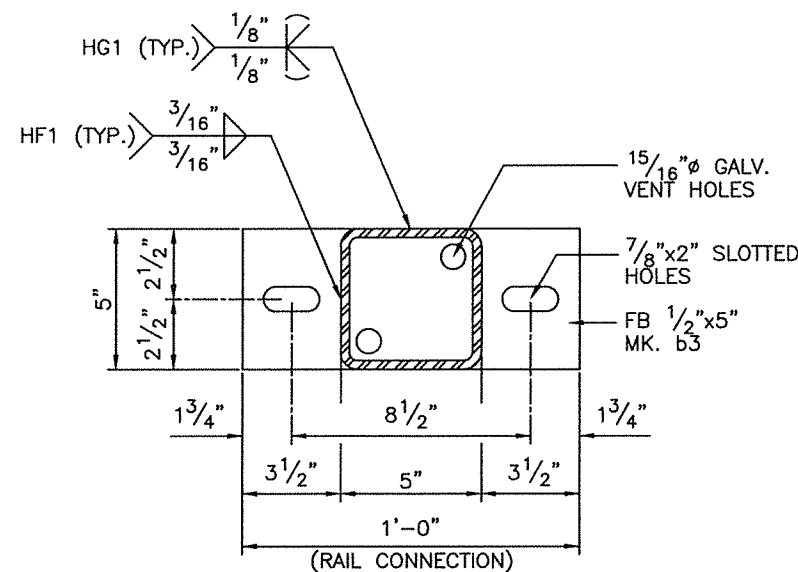
~PLAN VIEW~



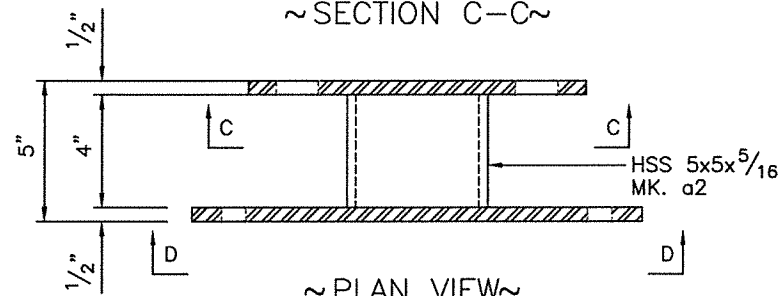
~SECTION B-B~

**BRACKET SHIP MK. 11A**

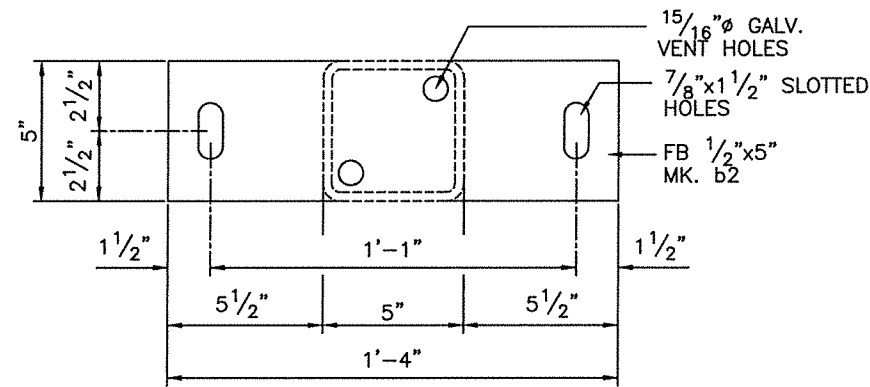
30-REQD. (CONCRETE POST CONNECTION)



~SECTION C-C~



~PLAN VIEW~



~SECTION D-D~

**BRACKET SHIP MK. 11B**

31-REQD. (CONCRETE RAIL CONNECTION)

**BILL OF MATERIAL**

SHIP MARK	PIECE MARK	NO. OF PIECES	TYPE	DESCRIPTION	LENGTH		GRADE	SHOP NOTES	SEQ	LOT
					FEET	INCHES				
11A		30	AURA	BRACKET					12	B
	a1	30	HSS	5x5x5/16	0	7 1/2	A500-B	S		
	b1	30	FB	1/2x5	1	5 1/2	A709-36	S		
	b3	30	FB	1/2x5	1	0	A709-36	S		
11B		31	AURA	BRACKET					12	B
	a2	31	HSS	5x5x5/16	0	4	A500-B	S		
	b2	31	FB	1/2x5	1	4	A709-36	S		
	b3	31	FB	1/2x5	1	0	A709-36	S		

**GENERAL NOTES:**

DUE TO SHOP PROCESS, SPLICES MAY OCCUR OTHER THAN SHOWN.

ALL VERIFIES WILL BE ASSUMED CORRECT AS SHOWN UNLESS NOTED OTHERWISE BY APPROVER

REV.	DESCRIPTION	BY	DATE
5			
4			
3			
2			
1			

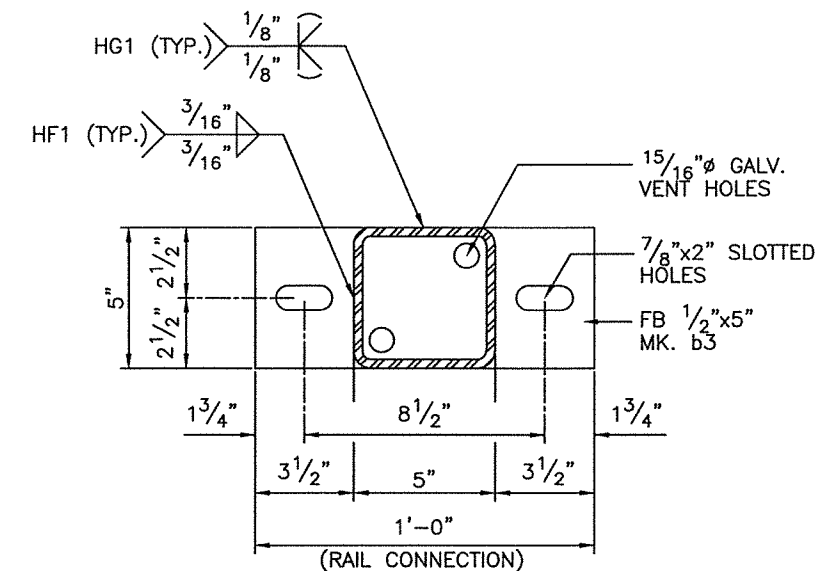
FOR APPROVAL: 5-23-16	TO SHOP:	TO FIELD:
R & R APPROVAL:		AS BUILT:

**Aura Fabricators Inc.**

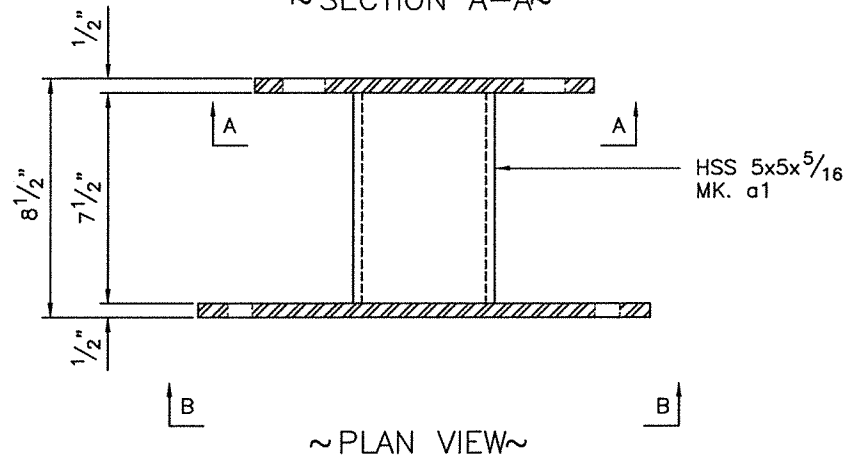
No Exceptions Noted  
 BY: D Stolz  
 DATE: June 17, 2016  
 REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
 NDDOT

LOCATION: STUTSMAN COUNTY, ND PROJECT NO. IM-2-094(144)248 BRIDGE NO. 94-260.125R	DRAWN BY:GF CHECKED BY:RS SCALE:NONE DATE: 5-23-16
PRIME CONTRACTOR: CENTRAL SPECIALTIES SUBCONTRACTOR: CUSTOM CONTRACTING SOLUTIONS, LLC (JOB #2016-19GR)	JOB NUMBER SHEET B293-12 B11 0
DESCRIPTION: DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS	

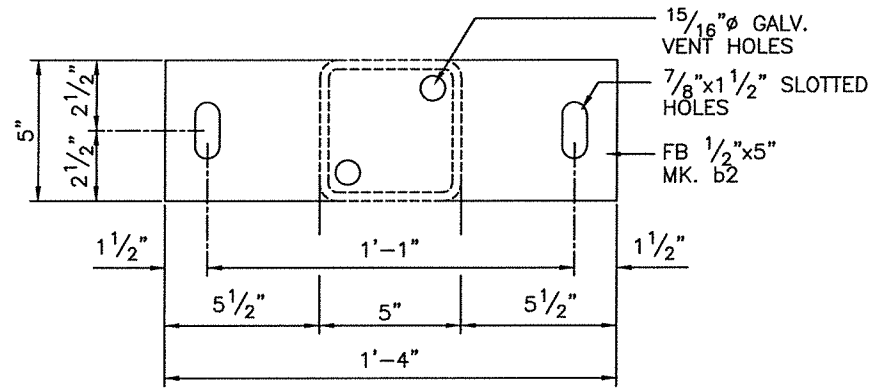




~SECTION A-A~

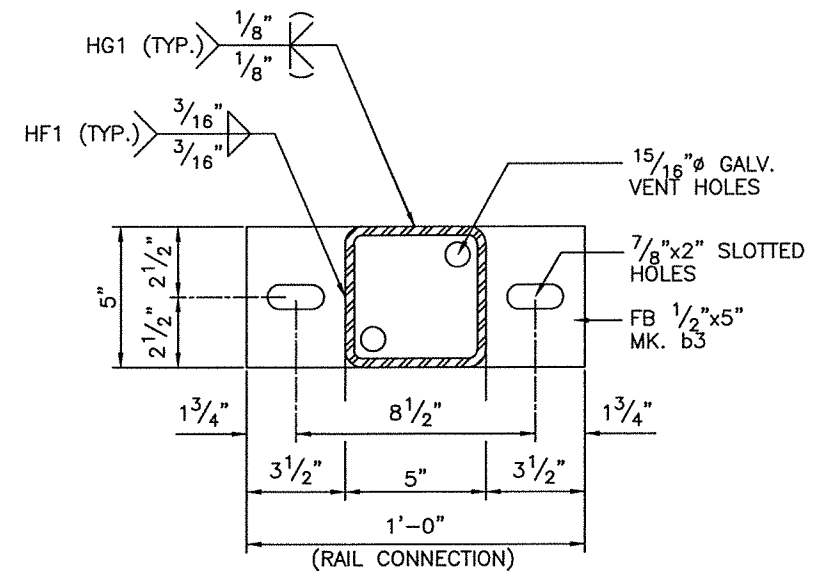


~PLAN VIEW~

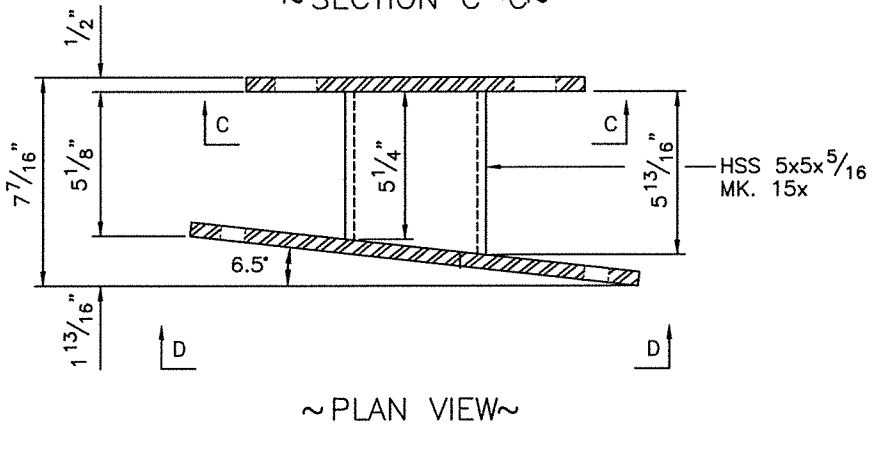


~SECTION B-B~

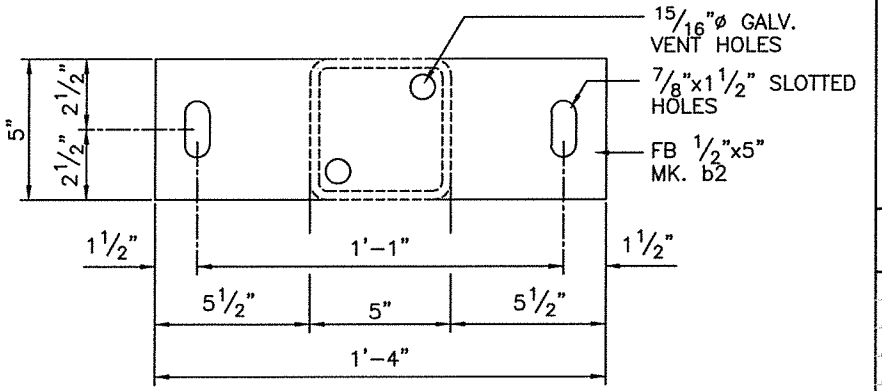
**BRACKET SHIP MK. 12A**  
2-REQD. (CONCRETE END POST CONNECTION)



~SECTION C-C~



~PLAN VIEW~



~SECTION D-D~

**BRACKET SHIP MK. 12B**  
1-REQD. (MODIFIED CONCRETE END POST BOTTOM CONNECTION)

**BILL OF MATERIAL**

SHIP MARK	PIECE MARK	NO. OF PIECES	TYPE	DESCRIPTION	LENGTH		GRADE	SHOP NOTES	SEQ	LOT
					FEET	INCHES				
12A		2	AURA	BRACKET					12	B
	a1	2	HSS	5x5x <sup>5</sup> / <sub>16</sub>	0	7 1/2	A500-B	S		
	b2	2	FB	1/2x5	1	4	A709-36	S		
	b3	2	FB	1/2x5	1	0	A709-36	S		
12B		1	AURA	BRACKET					12	B
	15x	1	HSS	5x5x <sup>5</sup> / <sub>16</sub>	0	5 13/16	A500-B	M		
	b2	1	FB	1/2x5	1	4	A709-36	S		
	b3	1	FB	1/2x5	1	0	A709-36	S		

**GENERAL NOTES:**

No Exceptions Noted  
 BY: D Stolz  
 DATE: June 17, 2016  
 REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
 NDDOT

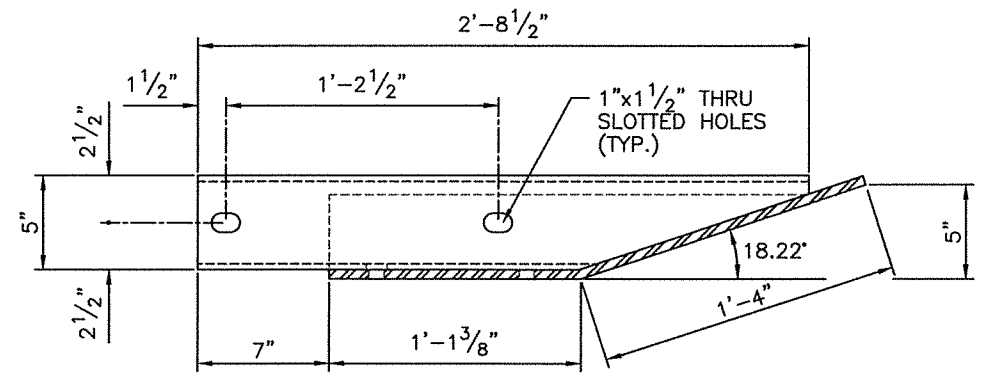
DUE TO SHOP PROCESS, SPLICES MAY OCCUR OTHER THAN SHOWN.

**ALL VERIFIES WILL BE ASSUMED CORRECT AS SHOWN UNLESS NOTED OTHERWISE BY APPROVER**

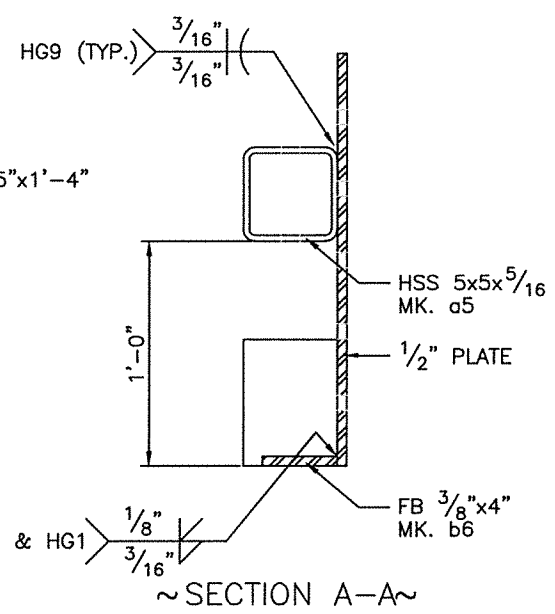
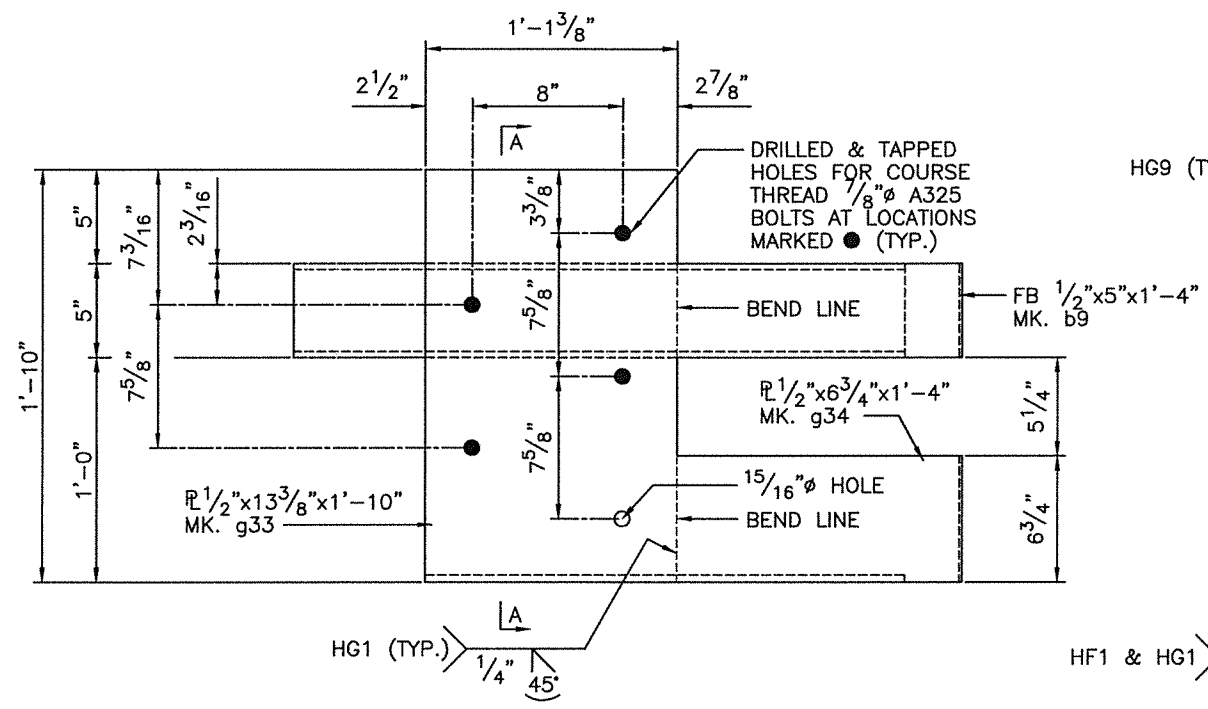
5			
4			
3			
2			
1			
REV.	DESCRIPTION	BY	DATE
	FOR APPROVAL: 5-23-16	TO SHOP:	TO FIELD:
	R & R APPROVAL:		AS BUILT:

**Aura Fabricators Inc.**

LOCATION: STUTSMAN COUNTY, ND PROJECT NO. IM-2-094(144)248 BRIDGE NO. 94-260.125R PRIME CONTRACTOR: CENTRAL SPECIALTIES SUBCONTRACTOR: CUSTOM CONTRACTING SOLUTIONS, LLC (JOB #2016-19GR)	DRAWN BY: GF CHECKED BY: RS SCALE: NONE DATE: 5-23-16 JOB NUMBER SHEET B293-12 B12 0
DESCRIPTION: DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS	

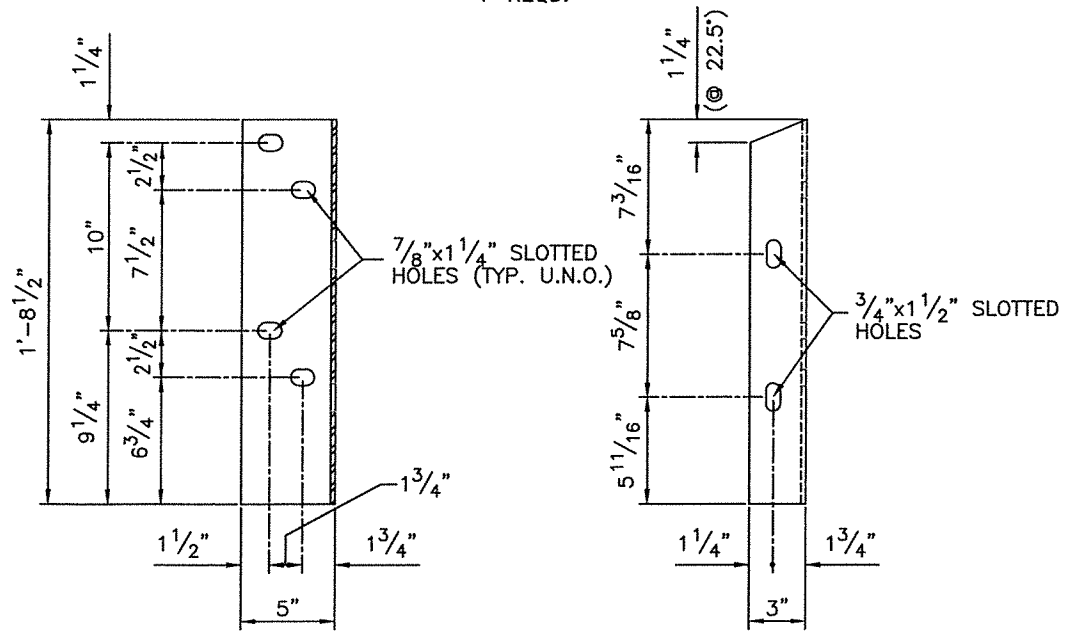


~ PLAN VIEW ~



~ SECTION A-A ~

GUARDRAIL CONNECTION SHIP MK. 13A  
1-REQD.



5x3x1/4 SHIP MK. 13B  
1-REQD.

BILL OF MATERIAL

SHIP MARK	PIECE MARK	NO. OF PIECES	TYPE	DESCRIPTION	LENGTH		GRADE	SHOP NOTES	SEQ	LOT
					FEET	INCHES				
13A		1	AURA	GUARDRAIL CONNECTION					12	B
	a5	1	HSS	5x5x5/16	2	8 1/2	A500-B	M		
	b6	1	FB	3/8x4	2	1 1/2	A709-36	M		
	g33	1	PL	1/2x13 3/8	1	10	A709-36			
	g34	1	PL	1/2x6 3/4	1	4	A709-36			
	b9	1	FB	1/2x5	1	4	A709-36	S		
13B		1	L	5x3x1/4	1	8 1/2	A709-36	M	12	B

GENERAL NOTES:  
  
DUE TO SHOP PROCESS, SPLICES MAY OCCUR OTHER THAN SHOWN.

ALL VERIFIES WILL BE ASSUMED CORRECT AS SHOWN UNLESS NOTED OTHERWISE BY APPROVER

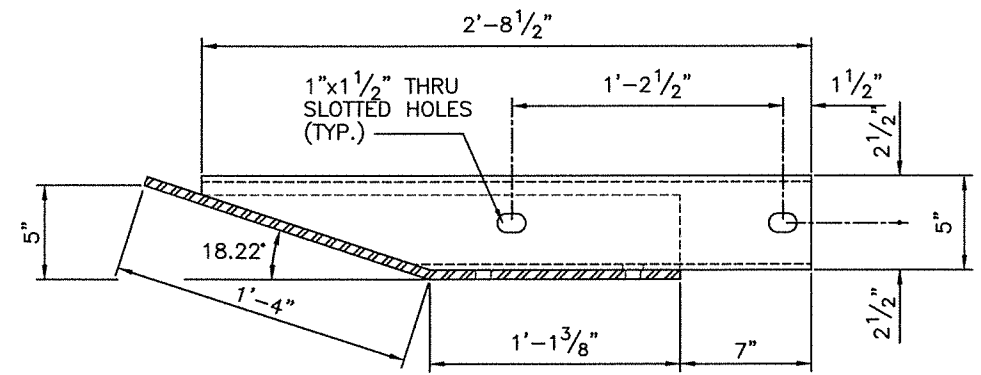
5			
4			
3			
2			
1			

REV.	DESCRIPTION	BY	DATE
FOR APPROVAL: 5-23-16	TO SHOP:		TO FIELD:
R & R APPROVAL:			AS BUILT:

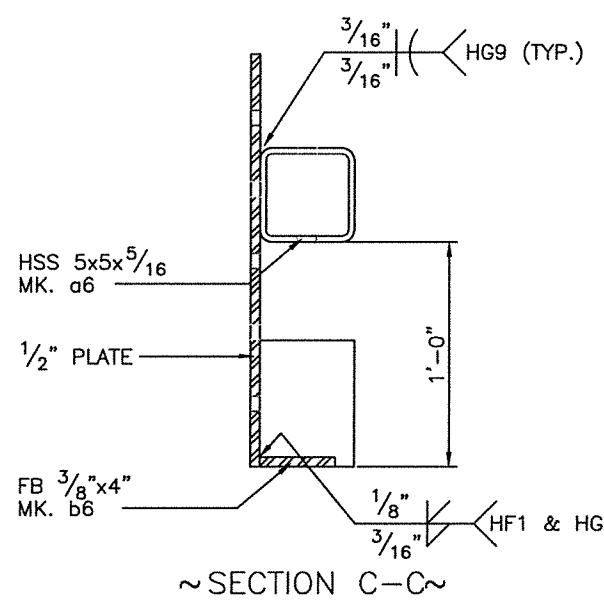
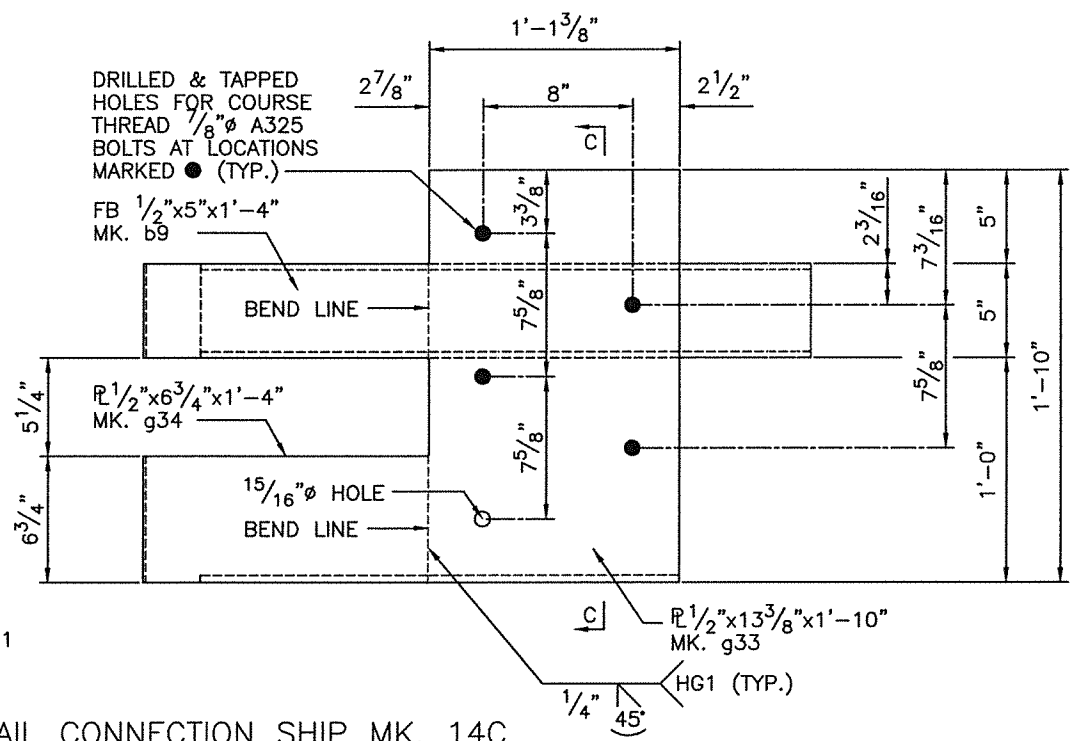
Aura Fabricators Inc.

No Exceptions Noted  
BY: D Stolz  
DATE: June 17, 2016  
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
NDDOT

LOCATION: STUTSMAN COUNTY, ND  
PROJECT NO. IM-2-094(144)248  
BRIDGE NO. 94-260.125R  
PRIME CONTRACTOR: CENTRAL SPECIALTIES  
SUBCONTRACTOR: CUSTOM CONTRACTING SOLUTIONS, LLC (JOB #2016-19GR)  
DESCRIPTION: DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS  
DRAWN BY: GF CHECKED BY: RS  
SCALE: NONE  
DATE: 5-23-16  
JOB NUMBER: B293-12 SHEET: B13 0

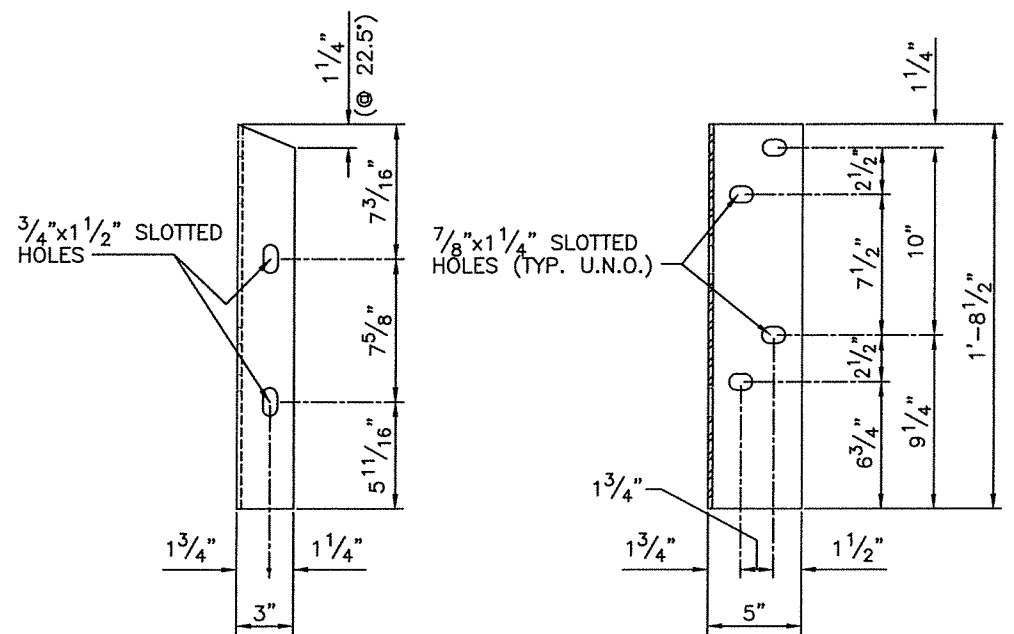


~ PLAN VIEW ~



~ SECTION C-C ~

GUARDRAIL CONNECTION SHIP MK. 14C  
1-REQD.



5x3x1/4 SHIP MK. 14D  
1-REQD.

BILL OF MATERIAL

SHIP MARK	PIECE MARK	NO. OF PIECES	TYPE	DESCRIPTION	LENGTH		GRADE	SHOP NOTES	SEQ	LOT
					FEET	INCHES				
14C		1	AURA	GUARDRAIL CONNECTION					12	B
	a6	1	HSS	5x5x5/16	2	8 1/2	A500-B	M		
	b6	1	FB	3/8x4	2	1 1/2	A709-36	M		
	g33	1	PL	1/2x13 3/8	1	10	A709-36			
	g34	1	FB	1/2x6 3/4	1	4	A709-36			
	b9	1	PL	1/2x5	1	4	A709-36	S		
14D		1	L	5x3x1/4	1	8 1/2	A709-36	M	12	B

GENERAL NOTES:

DUE TO SHOP PROCESS, SPLICES MAY OCCUR OTHER THAN SHOWN.

ALL VERIFIES WILL BE ASSUMED CORRECT AS SHOWN UNLESS NOTED OTHERWISE BY APPROVER

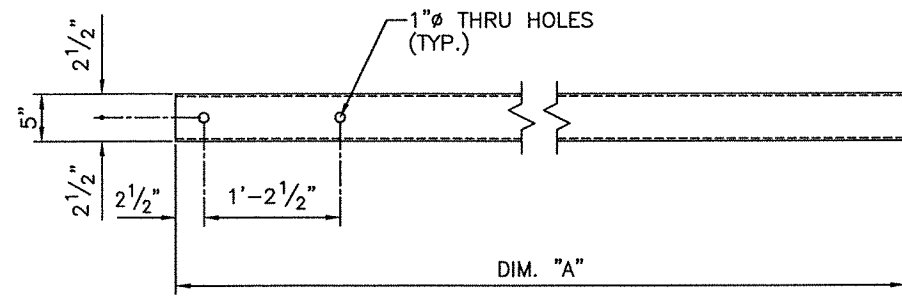
REV.	DESCRIPTION	BY	DATE
5			
4			
3			
2			
1			

FOR APPROVAL: 5-23-16	TO SHOP:	TO FIELD:
R & R APPROVAL:		AS BUILT:

Aura Fabricators Inc.

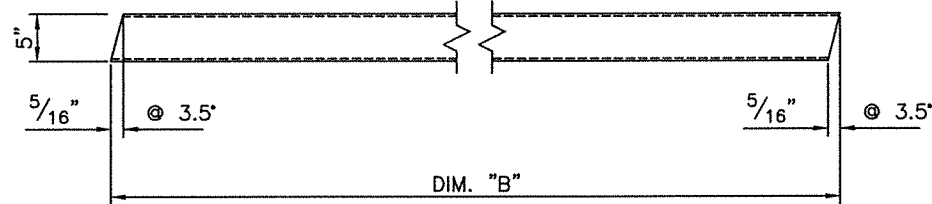
No Exceptions Noted  
BY: D Stolz  
DATE: June 17, 2016  
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
NDDOT

LOCATION: STUTSMAN COUNTY, ND PROJECT NO. IM-2-094(144)248 BRIDGE NO. 94-260.125R PRIME CONTRACTOR: CENTRAL SPECIALTIES SUBCONTRACTOR: CUSTOM CONTRACTING SOLUTIONS, LLC (JOB #2016-19GR) DESCRIPTION: DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS	DRAWN BY: GF CHECKED BY: RS SCALE: NONE DATE: 5-23-16 JOB NUMBER SHEET B293-12 B14 0
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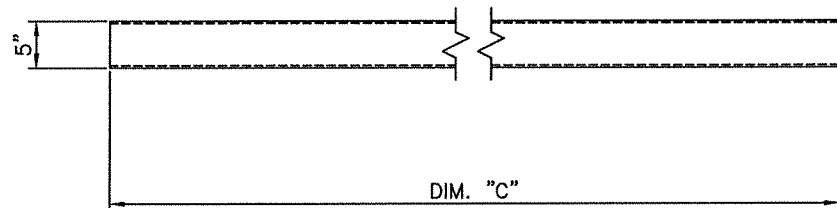
HSS 5x5x<sup>5</sup>/<sub>16</sub>

PC. MK.	QN.	DIM. "A"
15a	1	6'-0 <sup>3</sup> / <sub>4</sub> "
15b	1	6'-5 <sup>1</sup> / <sub>4</sub> "



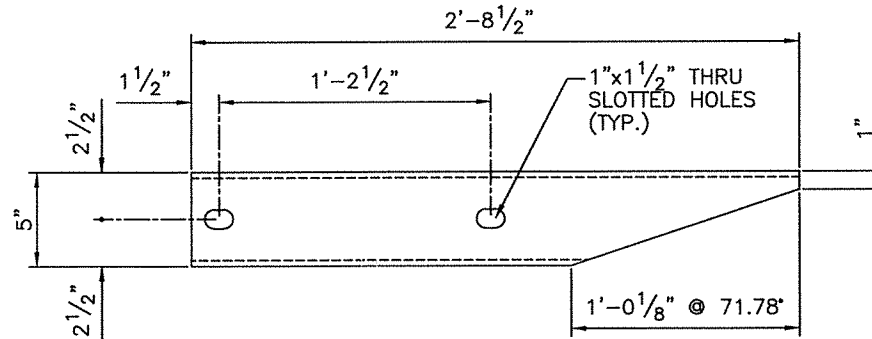
HSS 5x5x<sup>5</sup>/<sub>16</sub>

PC. MK.	QN.	DIM. "B"
15g	1	5'-4 <sup>3</sup> / <sub>8</sub> "
15h	1	5'-2 <sup>1</sup> / <sub>8</sub> "

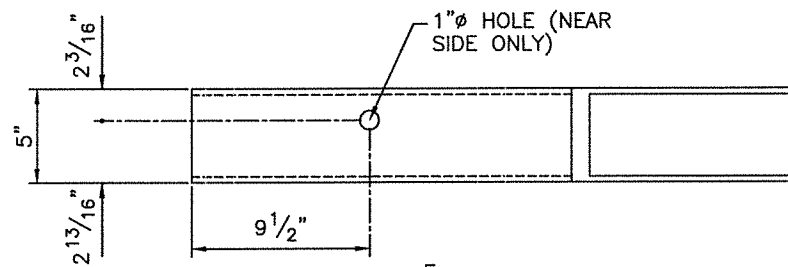


HSS 5x5x<sup>5</sup>/<sub>16</sub>

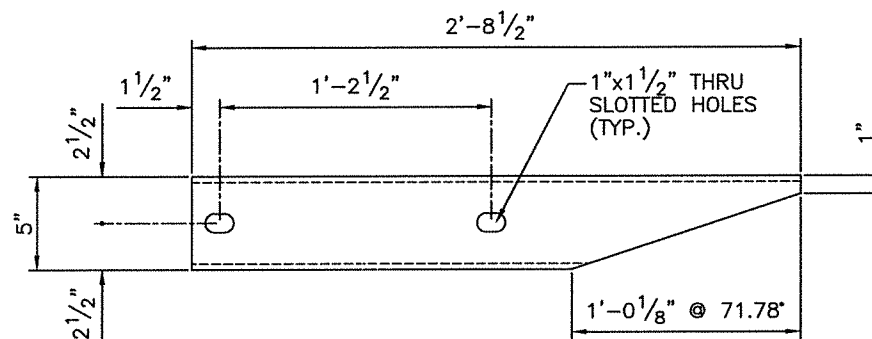
PC. MK.	QN.	DIM. "C"
15r	1	13'-10"
15s	1	9'-8 <sup>1</sup> / <sub>2</sub> "
a1	32	0'-7 <sup>1</sup> / <sub>2</sub> "
a2	31	0'-4"



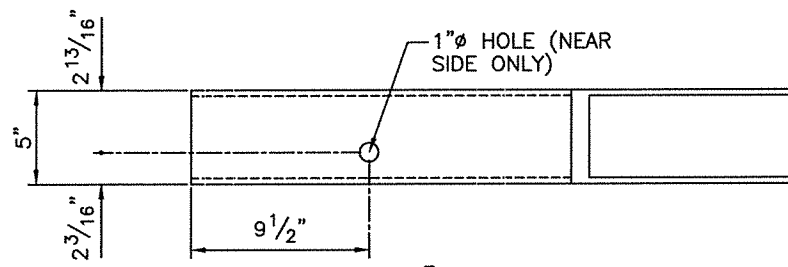
~ PLAN VIEW ~



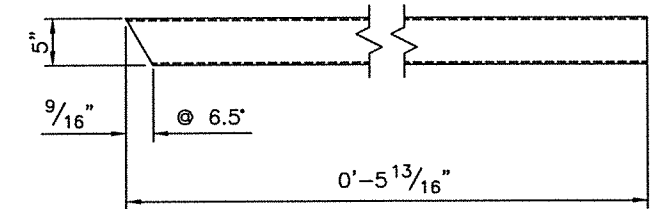
HSS 5x5x<sup>5</sup>/<sub>16</sub> PC. MK. a5  
1-REQD.



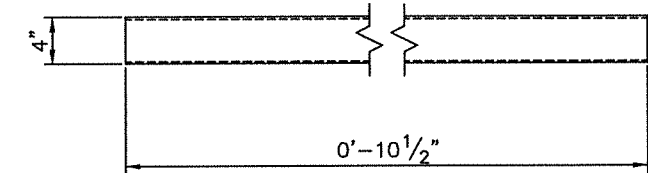
~ PLAN VIEW ~



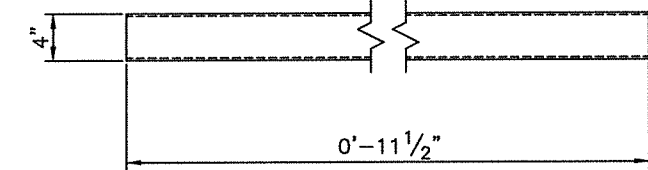
HSS 5x5x<sup>5</sup>/<sub>16</sub> PC. MK. a6  
1-REQD.



HSS 5x5x<sup>5</sup>/<sub>16</sub> PC. MK. 15x  
1-REQD.



HSS 4x4x<sup>3</sup>/<sub>8</sub> PC. MK. 15y  
10-REQD.



HSS 4x4x<sup>3</sup>/<sub>8</sub> PC. MK. 15z  
4-REQD.

DUE TO SHOP PROCESS, SPLICES MAY OCCUR OTHER THAN SHOWN.

ALL VERIFIES WILL BE ASSUMED CORRECT AS SHOWN UNLESS NOTED OTHERWISE BY APPROVER

REV.	DESCRIPTION	BY	DATE
5			
4			
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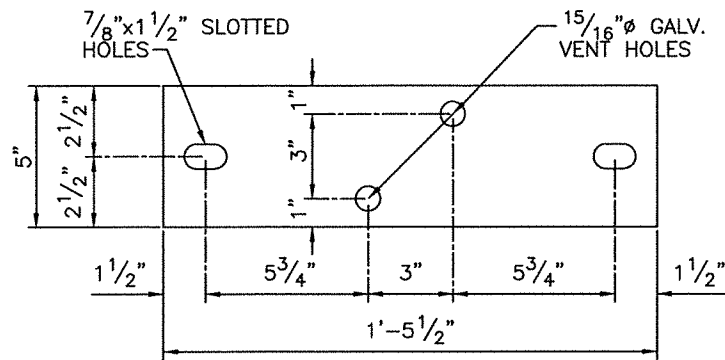
FOR APPROVAL: 5-23-16	TO SHOP:	TO FIELD:
R & R APPROVAL:		AS BUILT:

# Aura Fabricators Inc.

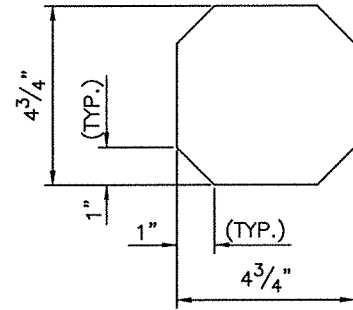
No Exceptions Noted  
 BY: D Stolz  
 DATE: June 17, 2016  
 REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
 NDDOT

LOCATION: STUTSMAN COUNTY, ND  
 PROJECT NO. IM-2-094(144)248  
 BRIDGE NO. 94-260.125R  
 PRIME CONTRACTOR: CENTRAL SPECIALTIES  
 SUBCONTRACTOR: CUSTOM CONTRACTING SOLUTIONS, LLC (JOB #2016-19GR)  
 DESCRIPTION: DOUBLE BOX BEAM RAIL RETROFIT E--RAIL FAB. DETAILS

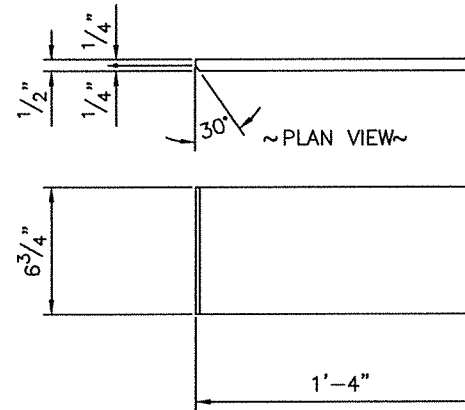
DRAWN BY: GF / CHECKED BY: RS  
 SCALE: NONE  
 DATE: 5-23-16  
 JOB NUMBER: B293-12 / SHEET: B15 0



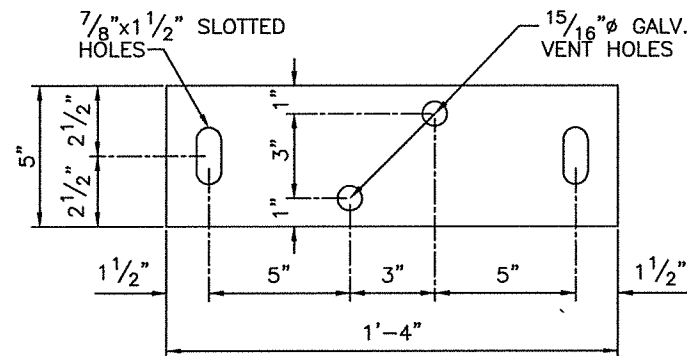
FB 1/2"x5" PC. MK. b1  
30-REQD.



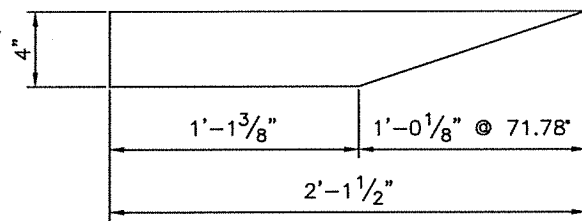
PL 1/2"x4 3/4" PC. MK. g32  
4-REQD.



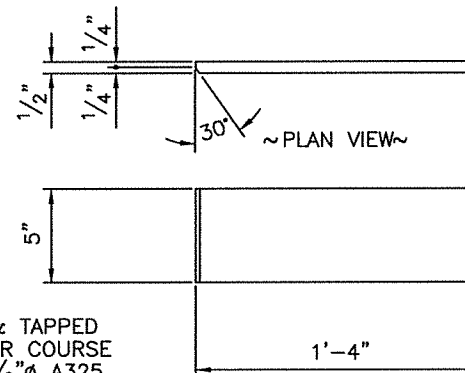
PL 1/2"x6 3/4" PC. MK. g34  
2-REQD.



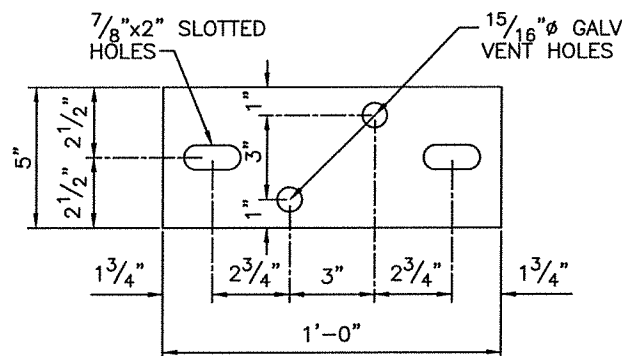
FB 1/2"x5" PC. MK. b2  
34-REQD.



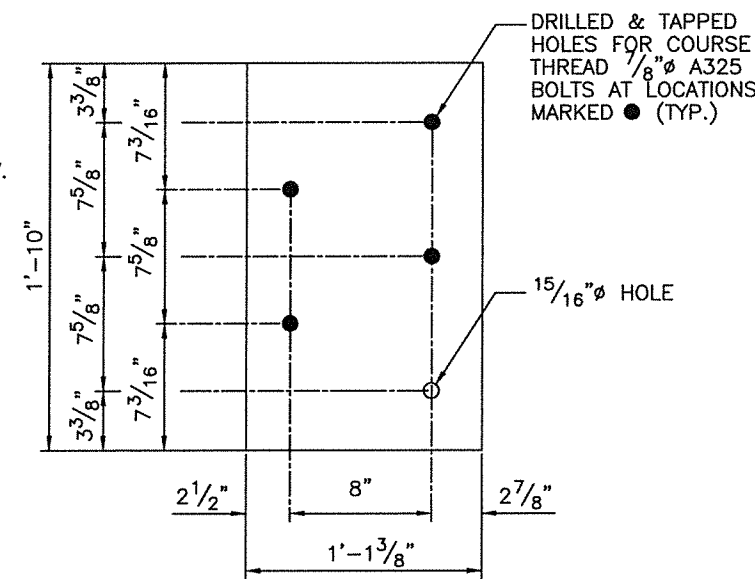
FB 3/8"x4" PC. MK. b6  
2-REQD.



FB 1/2"x5" PC. MK. b9  
2-REQD.

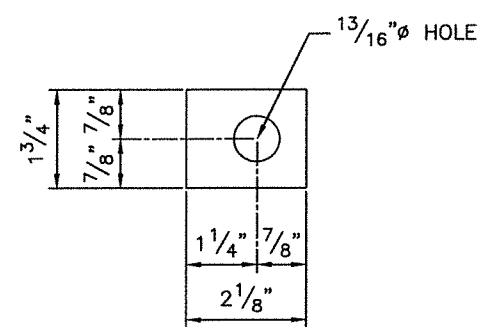


FB 1/2"x5" PC. MK. b3  
64-REQD.

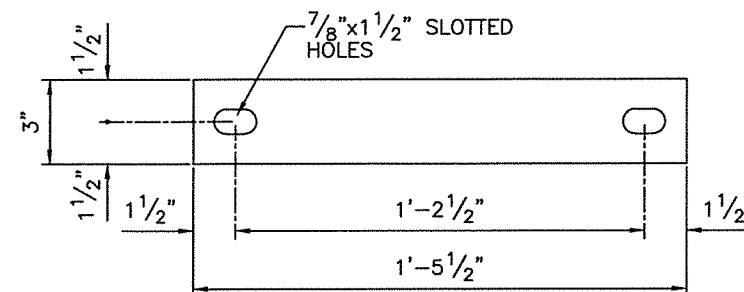


PL 1/2"x13 3/8" PC. MK. g33  
2-REQD.

No Exceptions Noted  
BY: D Stolz  
DATE: June 17, 2016  
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
NDDOT



MW 1/4"x1 3/4"x2 1/8" PL WASHER SHIP MK. 16Y  
135-REQD. (PL WASHERS ACTUAL QN. = 128)



FB 1/2"x3" SHIP MK. 16X  
30-REQD.

BILL OF MATERIAL

SHIP MARK	PIECE MARK	NO. OF PIECES	TYPE	DESCRIPTION	LENGTH		GRADE	SHOP NOTES	SEQ	LOT	
					FEET	INCHES					
16X		30	FB	1/2x3	1	5 1/2	A709-36	S	12	B	
16Y		135	MW	PLATE-3/4			F844-HDG		1/4x1 3/4x2 1/8	12	B

GENERAL NOTES:  
DUE TO SHOP PROCESS, SPLICES MAY OCCUR OTHER THAN SHOWN.

ALL VERIFIES WILL BE ASSUMED CORRECT AS SHOWN UNLESS NOTED OTHERWISE BY APPROVER

REV.	DESCRIPTION	BY	DATE
5			
4			
3			
2			
1			

FOR APPROVAL: 5-23-16 TO SHOP: TO FIELD:  
R & R APPROVAL: AS BUILT:

Aura Fabricators Inc.

LOCATION: STUTSMAN COUNTY, ND  
PROJECT NO. IM-2-094(144)248  
BRIDGE NO. 94-260.125R  
PRIME CONTRACTOR: CENTRAL SPECIALTIES  
SUBCONTRACTOR: CUSTOM CONTRACTING SOLUTIONS, LLC (JOB #2016-19GR)  
DESCRIPTION: DOUBLE BOX BEAM RAIL RETROFIT E-RAIL FAB. DETAILS

DRAWN BY: GF CHECKED BY: RS  
SCALE: NONE  
DATE: 5-23-16  
JOB NUMBER SHEET  
B293-12 B16 0

ND DEPARTMENT OF TRANSPORTATION

SHEET NO 1 OF 4

ABSTRACT OF BIDS RECEIVED

PROJECT NO. SHE-SIM-2-094(094)260		NO. 12		BIDDER ENGINEERS ESTIMATE		BIDDER WANZEK CONSTRUCTION INC		BIDDER INDUSTRIAL BUILDERS INC	
COUNTY & DATE STUTSMAN (093) FEB 18, 2011 09:30AM						FARGO, ND		FARGO, ND	
LENGTH & TYPE I-94 EAST JAMESTOWN INTERCHANGE				C.C. CHECK RANK 00		C.C. BOND RANK 01		C.C. BOND RANK 02	
COMPLETION TIME 09/10/11 ACCELERATION LANE, SIGNING, & BRIDGE W									
SPEC. NO.	ITEM DESCRIPTION	UNIT	QUANTITY	BID PRICE	AMOUNT	BID PRICE	AMOUNT	BID PRICE	AMOUNT
103	CONTRACT BOND	L SUM	1000	12900000	12900000	20000000	20000000	15000000	15000000
107	RAILWAY PROTECTION INSURANCE-SITE 1	EA	1000	3500000	3500000	6100000	6100000	3000000	3000000
107	RAILWAY PROTECTION INSURANCE-SITE 2	EA	1000	3000000	3000000	13000000	13000000	3000000	3000000
201	CLEARING & GRUBBING	L SUM	1000	6000000	6000000	3500000	3500000	5000000	5000000
202	REMOVAL OF CONCRETE-SITE 1	L SUM	1000	3000000	3000000	2000000	2000000	3500000	3500000
202	REMOVAL OF CONCRETE-SITE 2	L SUM	1000	3000000	3000000	1900000	1900000	3500000	3500000
203	COMMON EXCAVATION-TYPE A	CY	1176000	3500	4116000	4000	4704000	4000	4704000
203	TOPSOIL	CY	2287000	5000	11435000	5400	12349800	3250	7432750
203	BORROW-EXCAVATION	CY	21575000	10000	21575000	9400	20280500	9000	19417500
210	CLASS 1 EXCAVATION-SITE 1	L SUM	1000	20000000	20000000	15000000	15000000	25000000	25000000
210	CLASS 1 EXCAVATION-SITE 2	L SUM	1000	15000000	15000000	7100000	7100000	15000000	15000000
210	FOUNDATION PREPARATION-SITE 1	L SUM	1000	10000000	10000000	20000000	20000000	15000000	15000000
210	FOUNDATION PREPARATION-SITE 2	L SUM	1000	10000000	10000000	20000000	20000000	15000000	15000000
216	WATER	M GAL	255000	30000	7650000	32000	8160000	20000	5100000
302	SALVAGED BASE COURSE	TON	1361000	20000	27220000	22000	29942000	22000	29942000
401	MC70 OR 250 LIQUID ASPHALT	GAL	372000	11000	4092000	8400	3124800	8500	3162000
401	SS1H OR CSS1H OR MSI EMULSIFIED ASPHALT	GAL	76000	17000	1292000	13000	988000	12500	950000
408	HOT BITUMINOUS PAVEMENT CL 27	TON	154000	180000	27720000	170000	26180000	168000	25872000
408	PG 58-28 ASPHALT CEMENT	TON	11000	590000	6490000	550000	6050000	540000	5940000
550	10IN NON-REINF CONCRETE PAVEMENT CL AE	SY	1000000	900000	900000000	730000	730000000	720000	720000000
550	BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	88300	3000000	26490000	3000000	26490000	3700000	32671000
570	SPALL REPAIR-PARTIAL DEPTH	SF	168000	65000	10920000	67000	11256000	55000	9240000
602	CLASS AAE-3 CONCRETE	CY	146800	1000000	14680000	970000	14239600	820000	12037600
602	CLASS AE-3 CONCRETE	CY	308900	550000	16989500	520000	16062800	500000	15445000
602	PENETRATING WATER REPELLENT TREATMENT	SY	365100	3500	1277850	4300	1569930	1400	511140
604	PRESTRESSED I-BEAM-36IN	LF	220000	215000	47300000	240000	52800000	215000	47300000
612	REINFORCING STEEL-GRADE 60	LBS	46764000	1150	53778600	1100	51440400	1300	60793200
612	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	26002000	1500	39003000	1500	33802600	2400	62404800
616	STRUCTURAL STEEL	LBS	1634000	12000	19608000	19000	31046000	20000	32680000
616	STRUCTURAL STEEL	L SUM	1000	90000000	90000000	120000000	120000000	90000000	90000000
622	TREATED TIMBER PILING	LF	1800000	30000	54000000	36000	64800000	24000	43200000
630	CLEANING & PAINTING	L SUM	1000	10200000	10200000	13000000	13000000	11000000	11000000
702	MOBILIZATION	L SUM	1000	87029490	87029490	58000000	58000000	145030000	145030000
704	FLAGGING	MHR	240000	25000	6000000	27000	6480000	28500	6840000
704	TRAFFIC CONTROL SIGNS	UNIT	4227000	2000	8454000	2200	9299400	2900	12258300
704	ATTENUATION DEVICE-TYPE B-40	EA	1000	1500000	1500000	1400000	1400000	1500000	1500000
704	ATTENUATION DEVICE-TYPE B-55	EA	4000	1600000	6400000	2100000	8400000	2015000	8060000
704	TYPE III BARRICADE	EA	30000	100000	3000000	89000	2670000	90000	2700000
704	DELINEATOR DRUMS	EA	150000	25000	3750000	24000	3600000	24000	3600000
704	TUBULAR MARKERS	EA	50000	7900	395000	11000	550000	11000	550000
704	FLEXIBLE DELINEATORS	EA	60000	35000	2100000	41000	2460000	40000	2400000
704	SEQUENCING ARROW PANEL-TYPE C	EA	2000	1200000	2400000	1100000	2200000	1500000	3000000
704	PRECAST CONCRETE MED BARRIER-STATE FURNISHED	EA	270000	200000	54000000	200000	54000000	160000	43200000
704	PORTABLE CHANGEABLE MESSAGE SIGN	EA	1000	3800000	3800000	2900000	2900000	3000000	3000000
704	FIELD LABORATORY-TYPE C	EA	1000	3700000	3700000	5600000	5600000	1000000	1000000
708	FIBER ROLLS 12IN	LF	1915000	3500	6702500	3000	5745000	3100	5936500
708	SEEDING-TYPE B-CL II	ACRE	3000	500000	1500000	940000	2820000	420000	1260000

ACTION TAKEN BY DEPARTMENT OF TRANSPORTATION DIRECTOR: AWARD TO: WANZEK CONSTRUCTION INC WHEN PRELIMINARY ARRANGEMENTS ARE COMPLETED.

30 DATE OF AWARD DEPARTMENT OF TRANSPORTATION DIRECTOR

ND DEPARTMENT OF TRANSPORTATION

SHEET NO 2 OF 4

ABSTRACT OF BIDS RECEIVED

PROJECT NO. SHE-SIM-2-094(094)260  
 COUNTY & DATE STUTSMAN (093) FEB 18, 2011 09:30AM  
 LENGTH & TYPE 0.333  
 COMPLETION TIME I-94 EAST JAMESTOWN INTERCHANGE ACCELERATION LANE, SIGNING, & BRIDGE W

NO. 12  
 BIDDER ENGINEERS ESTIMATE  
 BIDDER WANZEK CONSTRUCTION INC  
 FARGO, ND  
 c.c. CHECK RANK 00  
 BIDDER INDUSTRIAL BUILDERS INC  
 FARGO, ND  
 c.c. BOND RANK 01  
 c.c. BOND RANK 02

SPEC. NO.	ITEM DESCRIPTION	UNIT	QUANTITY	BID PRICE	AMOUNT	BID PRICE	AMOUNT	BID PRICE	AMOUNT
708	SEEDING-TYPE B-CL IV	ACRE	3000	46000	138000	54000	162000	60000	180000
708	MULCHING	ACRE	3000	330000	990000	860000	2580000	3150000	9450000
708	TRM TYPE 1	SY	455000	3000	1365000	4200	1911000	4000	1820000
714	PIPE CONDUIT 24IN	LF	24000	83000	1992000	120000	2880000	1150000	2760000
714	PIPE CONDUIT 30IN	LF	20000	110000	2200000	160000	3200000	1550000	3100000
714	PIPE CONDUIT 42IN	LF	16000	170000	2720000	240000	3840000	2350000	3760000
748	CURB & GUTTER-TYPE 1 SPECIAL	LF	43000	50000	2150000	54000	2322000	52000	2236000
752	FENCE RESET EXISTING	LF	783000	6000	4698000	4600	3601800	4500	3523500
754	FLAT SHEET FOR SIGNS-TYPE 3A REFL SHEETING	SF	16000	20000	320000	22000	352000	21500	344000
754	DIAMOND GRADE DELINEATORS-TYPE A	EA	1000	35000	35000	38000	38000	40000	40000
754	DIAMOND GRADE DELINEATORS-TYPE B	EA	1000	40000	40000	43000	43000	45000	45000
754	GALV STEEL POST-STANDARD PIPE	LF	62000	40000	2480000	40000	2480000	40000	2480000
754	PANEL FOR SIGNS-TYPE 3A REFLECTIVE SHEETING	SF	62000	22000	1364000	26000	1612000	25000	1550000
754	EXTRU ALUM SIGN PANEL-TYPE 3A REFL SHEETING	SF	166000	25000	4150000	25000	4150000	25000	4150000
754	RESET SIGN PANEL	EA	1000	75000	75000	85000	85000	80000	80000
754	OBJECT MARKERS - TYPE I	EA	1000	125000	125000	140000	140000	140000	140000
754	CLASS AE CONCRETE-SIGN FOUNDATIONS	CY	15200	1300000	19760000	1400000	21280000	1400000	21280000
754	REMOVE SIGN FOUNDATION	EA	7000	300000	2100000	300000	2100000	300000	2100000
754	OVERHEAD SIGN STR 24FT CANTILEVER	EA	1000	4000000	4000000	5200000	5200000	5000000	5000000
762	SHORT TERM 4IN LINE-TYPE R	LF	8400000	1000	8400000	1200	10080000	1150	9660000
762	PVMT MK PAINTED 4IN LINE	LF	11500000	100	1150000	200	2300000	200	2300000
762	OBLITERATION OF PVMT MK	SF	438000	2000	876000	3000	1314000	3000	1314000
764	W-BEAM GUARDRAIL	LF	1658000	30000	49740000	23000	38134000	22500	37305000
764	W-BEAM GUARDRAIL END TERMINAL	EA	5000	2100000	10500000	2200000	11000000	2205000	11025000
764	REMOVE W-BEAM GUARDRAIL & POSTS	LF	804000	3000	2412000	2100	1688400	2100	1688400
764	RESET W-BEAM GUARDRAIL	LF	500000	10000	5000000	7200	3600000	7000	3500000
764	REMOVE 3-CABLE GUARDRAIL & POSTS	LF	1158000	1100	1273800	1100	1273800	1200	1389600
764	REMOVE END TREATMENT & TRANSITION	EA	6000	150000	900000	86000	516000	90000	540000
770	OVERHEAD SIGN LIGHTING	EA	1000	5000000	5000000	11000000	11000000	10500000	10500000
930	POLYURETHANE FOAM	LBS	8600000	5250	45150000	3300	28380000	3300	28380000
930	ROADWAY CANOPY-SITE 1	L SUM	1000	10000000	10000000	9300000	9300000	10000000	10000000
930	ROADWAY CANOPY-SITE 2	L SUM	1000	10000000	10000000	12000000	12000000	10000000	10000000
930	SHORING	EA	8000	20000000	160000000	21000000	168000000	25000000	200000000
930	SILICONE SEALANT	LF	210000	10000	2100000	9700	2037000	8000	1680000
930	4IN EXPANSION JOINT STRIP SEAL	LF	59000	125000	7375000	130000	7670000	65000	3835000
930	EXPANSION JOINT STRIP SEAL	LF	143000	140000	20020000	110000	15730000	60000	8580000
930	DECK SPALL REPAIR	SF	60000	75000	4500000	40000	2400000	95000	5700000
930	BEAM END REPAIR	EA	12000	800000	9600000	1200000	14400000	1000000	12000000

TOTAL 183658464 182691693 188016919

NO LIMIT

NO LIMIT

ACTION TAKEN BY DEPARTMENT OF TRANSPORTATION DIRECTOR: AWARD TO: WANZEK CONSTRUCTION INC WHEN PRELIMINARY ARRANGEMENTS ARE COMPLETED.

31

DATE OF AWARD

DEPARTMENT OF TRANSPORTATION DIRECTOR

ND DEPARTMENT OF TRANSPORTATION

SHEET NO 3 OF 4

ABSTRACT OF BIDS RECEIVED

PROJECT NO. SHE-SIM-2-094(094)260	NO. 12	BIDDER SWINGEN CONSTRUCTION CO	BIDDER	BIDDER
COUNTY & DATE STUTSMAN (093) FEB 18, 2011 09:30AM		GRAND FORKS, ND		
LENGTH & TYPE 0.333 I-94 EAST JAMESTOWN INTERCHANGE				
COMPLETION TIME 09/10/11 ACCELERATION LANE, SIGNING, & BRIDGE W		C.C. BOND RANK 03	C.C.	C.C.

ITEM DESCRIPTION	UNIT	QUANTITY	BID PRICE	AMOUNT	BID PRICE	AMOUNT	BID PRICE	AMOUNT
103 CONTRACT BOND	L SUM	1000	8000000	8000000				
107 RAILWAY PROTECTION INSURANCE-SITE 1	EA	1000	1200000	1200000				
107 RAILWAY PROTECTION INSURANCE-SITE 2	EA	1000	6500000	6500000				
201 CLEARING & GRUBBING	L SUM	1000	4000000	4000000				
202 REMOVAL OF CONCRETE-SITE 1	L SUM	1000	41000000	41000000				
202 REMOVAL OF CONCRETE-SITE 2	L SUM	1000	35000000	35000000				
203 COMMON EXCAVATION-TYPE A	CY	1174000	3800	4468800				
203 TOPSOIL	CY	2287000	3300	7547100				
203 BORROW-EXCAVATION	CY	21575000	9000	194175000				
210 CLASS 1 EXCAVATION-SITE 1	L SUM	1000	15000000	15000000				
210 CLASS 1 EXCAVATION-SITE 2	L SUM	1000	15000000	15000000				
210 FOUNDATION PREPARATION-SITE 1	L SUM	1000	6000000	6000000				
210 FOUNDATION PREPARATION-SITE 2	L SUM	1000	6000000	6000000				
214 WATER	M GAL	2550000	5000	12750000				
302 SALVAGED BASE COURSE	TON	1361000	21100	28717100				
401 MC70 OR 250 LIQUID ASPHALT	GAL	372000	8200	3050400				
401 SS1H OR CSS1H OR MSI EMULSIFIED ASPHALT	GAL	74000	12300	934800				
408 HOT BITUMINOUS PAVEMENT CL 27	TON	154000	168000	25872000				
408 PG 58-28 ASPHALT CEMENT	TON	11000	535000	5885000				
550 10IN NON-REINF CONCRETE PAVEMENT CL AE	SY	1000000	71200	71200000				
550 BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	88300	414000	36556200				
570 SPALL REPAIR-PARTIAL DEPTH	SF	168000	142000	23856000				
602 CLASS AAE-3 CONCRETE	CY	146800	963000	141368400				
602 CLASS AE-3 CONCRETE	CY	308900	662000	204491800				
602 PENETRATING WATER REPELLENT TREATMENT	SY	365100	4000	1460400				
604 PRESTRESSED I-BEAM-36IN	LF	220000	227000	49940000				
612 REINFORCING STEEL-GRADE 60	LBS	46764000	1700	79498800				
612 REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	26002000	2700	70205400				
614 STRUCTURAL STEEL	LBS	1634000	18300	29902200				
614 STRUCTURAL STEEL	L SUM	1000	9200000	9200000				
622 TREATED TIMBER PILING	LF	1800000	35700	64260000				
630 CLEANING & PAINTING	L SUM	1000	39300000	39300000				
702 MOBILIZATION	L SUM	1000	68000000	68000000				
704 FLAGGING	MHR	240000	25000	6000000				
704 TRAFFIC CONTROL SIGNS	UNIT	4227000	2100	8876700				
704 ATTENUATION DEVICE-TYPE B-40	EA	1000	1430000	1430000				
704 ATTENUATION DEVICE-TYPE B-55	EA	4000	2000000	8000000				
704 TYPE III BARRICADE	EA	30000	87400	2622000				
704 DELINEATOR DRUMS	EA	150000	23100	3465000				
704 TUBULAR MARKERS	EA	50000	10700	535000				
704 FLEXIBLE DELINEATORS	EA	60000	40000	2400000				
704 SEQUENCING ARROW PANEL-TYPE C	EA	2000	1040000	2080000				
704 PRECAST CONCRETE MED BARRIER-STATE FURNISHED	EA	270000	301000	81270000				
704 PORTABLE CHANGEABLE MESSAGE SIGN	EA	1000	2900000	2900000				
704 FIELD LABORATORY-TYPE C	EA	1000	551000	551000				
708 FIBER ROLLS 12IN	LF	1915000	3100	5936500				
708 SEEDING-TYPE B-CL II	ACRE	3000	420000	1260000				

ACTION TAKEN BY DEPARTMENT OF TRANSPORTATION DIRECTOR:	AWARD TO: <u>WANZEK CONSTRUCTION INC</u>	WHEN PRELIMINARY ARRANGEMENTS ARE COMPLETED.
32	DATE OF AWARD _____	DEPARTMENT OF TRANSPORTATION DIRECTOR _____



ND DEPARTMENT OF TRANSPORTATION

SHEET NO 4 OF 4

ABSTRACT OF BIDS RECEIVED

PROJECT NO. SHE-SIM-2-094(094)260  
 COUNTY & DATE STUTSMAN (093) FEB 18, 2011 09:30AM  
 LENGTH & TYPE 0.333  
 COMPLETION TIME 09/10/11 ACCELERATION LANE, SIGNING, & BRIDGE W  
 NO. 12 BIDDER SWINGEN CONSTRUCTION CO  
 GRAND FORKS, ND  
 c.c. BOND RANK 03

SPEC. NO	ITEM DESCRIPTION	UNIT	QUANTITY	BID PRICE	AMOUNT	BID PRICE	AMOUNT	BID PRICE	AMOUNT
708	SEEDING-TYPE B-CL IV	ACRE	3000	63000	189000				
708	MULCHING	ACRE	3000	315000	945000				
708	TRM TYPE 1	SY	455000	4000	1820000				
714	PIPE CONDUIT 24IN	LF	24000	114000	2736000				
714	PIPE CONDUIT 30IN	LF	20000	153000	3060000				
714	PIPE CONDUIT 42IN	LF	16000	235000	3760000				
748	CURB & GUTTER-TYPE 1 SPECIAL	LF	43000	52000	2236000				
752	FENCE RESET EXISTING	LF	783000	4500	3523500				
754	FLAT SHEET FOR SIGNS-TYPE 3A REFL SHEETING	SF	16000	21500	344000				
754	DIAMOND GRADE DELINEATORS-TYPE A	EA	1000	37000	37000				
754	DIAMOND GRADE DELINEATORS-TYPE B	EA	1000	42000	42000				
754	GALV STEEL POST-STANDARD PIPE	LF	62000	39000	2418000				
754	PANEL FOR SIGNS-TYPE 3A REFLECTIVE SHEETING	SF	62000	25000	1550000				
754	EXTRU ALUM SIGN PANEL-TYPE 3A REFL SHEETING	SF	166000	25000	4150000				
754	RESET SIGN PANEL	EA	1000	83600	83600				
754	OBJECT MARKERS - TYPE I	EA	1000	132000	132000				
754	CLASS AE CONCRETE-SIGN FOUNDATIONS	CY	15200	1390000	21128000				
754	REMOVE SIGN FOUNDATION	EA	7000	290000	2030000				
754	OVERHEAD SIGN STR 24FT CANTILEVER	EA	1000	50800000	50800000				
762	SHORT TERM 4IN LINE-TYPE R	LF	8400000	1130	9492000				
762	PVMT MK PAINTED 4IN LINE	LF	11500000	300	3450000				
762	OBLITERATION OF PVMT MK	SF	438000	2900	1270200				
764	W-BEAM GUARDRAIL	LF	1658000	22600	37470800				
764	W-BEAM GUARDRAIL END TERMINAL	EA	5000	2200000	11000000				
764	REMOVE W-BEAM GUARDRAIL & POSTS	LF	804000	2100	1688400				
764	RESET W-BEAM GUARDRAIL	LF	500000	7100	3550000				
764	REMOVE 3-CABLE GUARDRAIL & POSTS	LF	1158000	1000	1158000				
764	REMOVE END TREATMENT & TRANSITION	EA	6000	84000	504000				
770	OVERHEAD SIGN LIGHTING	EA	1000	10600000	10600000				
930	POLYURETHANE FOAM	LBS	8600000	3200	27520000				
930	ROADWAY CANOPY-SITE 1	L SUM	1000	24400000	24400000				
930	ROADWAY CANOPY-SITE 2	L SUM	1000	25000000	25000000				
930	SHORING	EA	8000	19000000	152000000				
930	SILICONE SEALANT	LF	210000	7200	1512000				
930	4IN EXPANSION JOINT STRIP SEAL	LF	59000	87000	5133000				
930	EXPANSION JOINT STRIP SEAL	LF	143000	73000	10439000				
930	DECK SPALL REPAIR	SF	60000	189000	11340000				
930	BEAM END REPAIR	EA	12000	1800000	21600000				
	TOTAL				196910210				
				NO LIMIT					

ACTION TAKEN BY DEPARTMENT OF TRANSPORTATION DIRECTOR: \_\_\_\_\_ AWARD TO: WANZEK CONSTRUCTION INC WHEN PRELIMINARY ARRANGEMENTS ARE COMPLETED.  
 33 DATE OF AWARD \_\_\_\_\_ DEPARTMENT OF TRANSPORTATION DIRECTOR \_\_\_\_\_

Feb 18, 2011

DESIGN DATA				
Traffic	Average Daily			Max.Hr.
Current 2008	Pass: 6,020	Trucks: 2,450	Total: 8,470	850
Forecast 2028	Pass: 8,970	Trucks: 3,655	Total: 12,625	1,265
Clear Zone Distance: 34'		Design Speed: 75		
Minimum Sight Dist for Stopping: ___		Bridges: HS 43		
Limited Access Control				
Pavement Design Life ___ (years)				

**JOB# 12  
NORTH DAKOTA  
DEPARTMENT OF TRANSPORTATION**

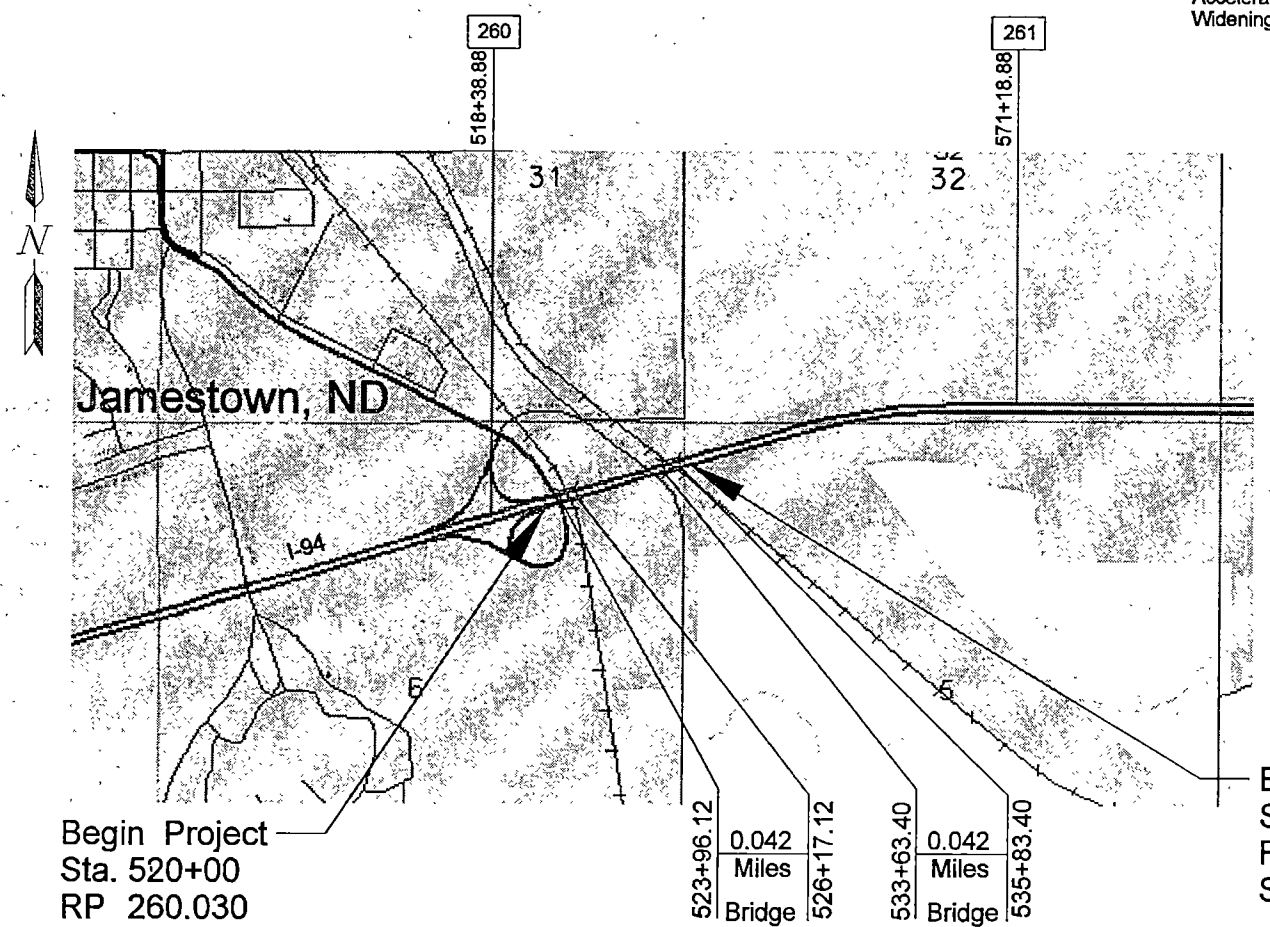
STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	17342	1	1

**SHE-SIM-2-094(094)260**  
Stutsman County  
East Jamestown I-94 Interchange  
Acceleration Lane, Signing & Bridge Widening

**GOVERNING SPECIFICATIONS:**  
Standard Specifications adopted by the North Dakota Department of Transportation October 2008; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

23 USC § 409 Documents  
NDDOT Reserves All Objections

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
SHE-SIM-2-094(094)260 East Jamestown I-94 Interchange Acceleration Lane, Signing & Bridge Widening	.333 Mi.	.417 Mi.
	.084 Miles Deducted for Bridges	



DESIGNERS
Reuben Hauck
Brian Rosin

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of ND.

APPROVED DATE 1/6/11  
  
Roger Weigel  
NDDOT DESIGN DIVISION

APPROVED DATE 1/6/11  
  
Roger Weigel  
for OFFICE OF PROJECT DEVELOPMENT  
ND DEPARTMENT OF TRANSPORTATION

This document was originally issued and sealed by Roger Weigel Registration Number PE-2930 on 1/6/11 and the original document is stored at the North Dakota Department of Transportation



23 U.S.C. 409  
 NDDOT Reserves All Objections

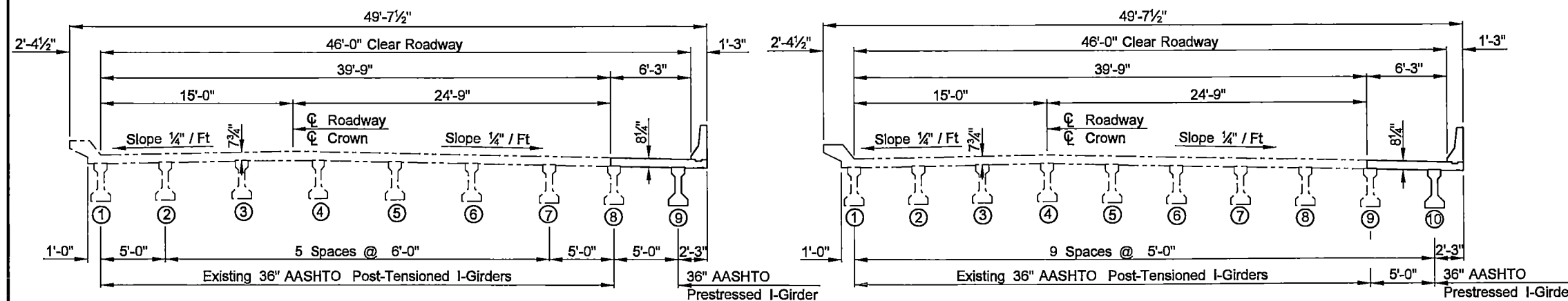
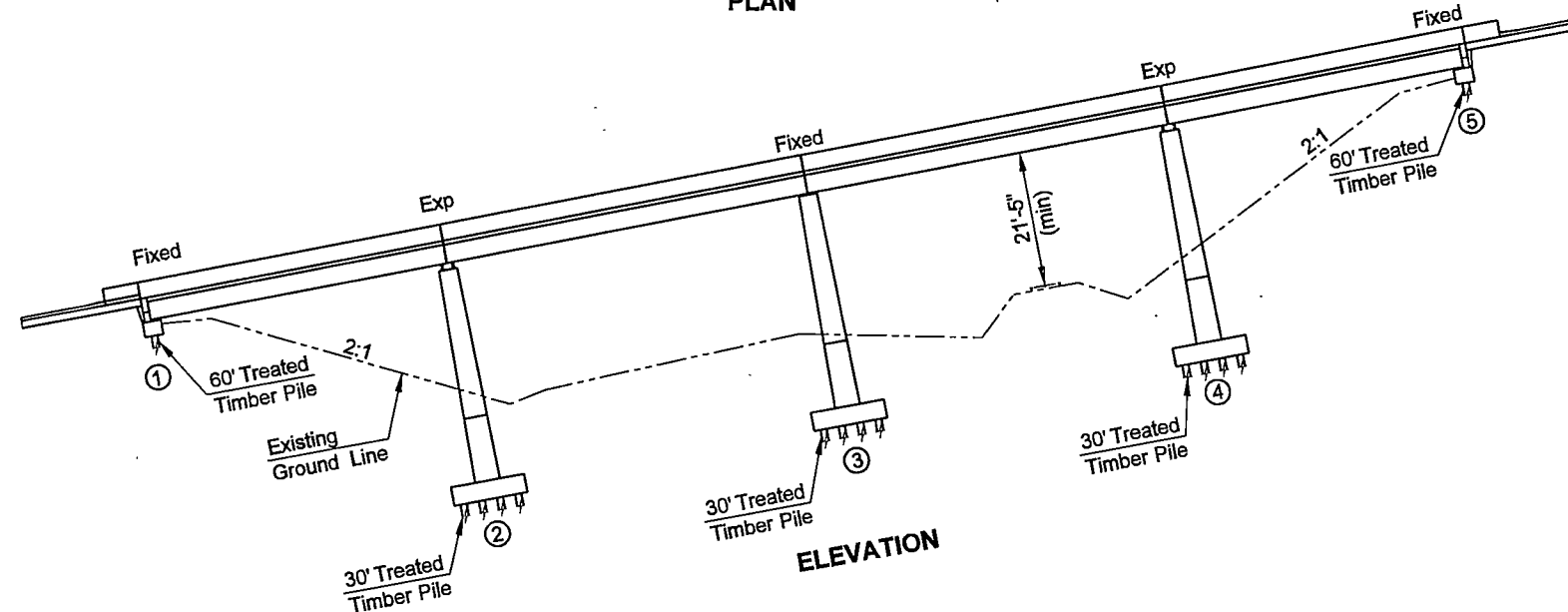
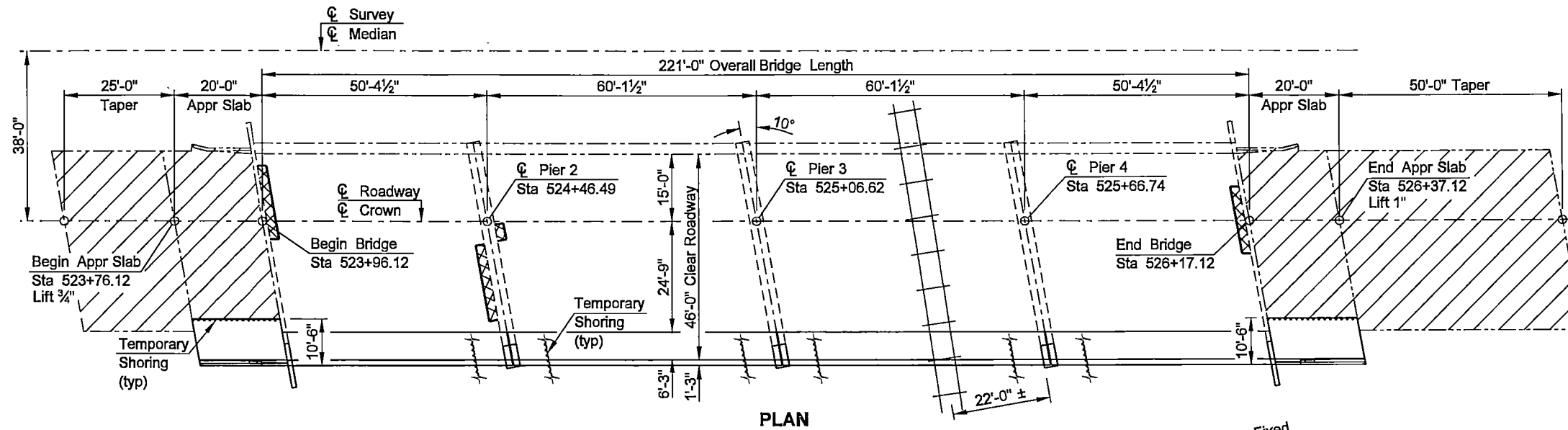
BRIDGE CODE	STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
X-581	ND	SHE-SIM-2-094(094)260	170	1

**DESIGN STRENGTHS:**

f<sub>c</sub> = 3,000 psi ~ Class AE-3 Concrete  
 f<sub>c</sub> = 4,000 psi ~ Class AAE-3 Concrete  
 f<sub>c</sub> = 5,000 psi ~ Prestressed Girder Concrete  
 f<sub>y</sub> = 60,000 psi ~ Reinforcing Steel

Load Factor Design

-  Indicates area to be lifted.
-  Indicates deck spall repair areas.



This document was originally issued and sealed by Jason R Thorenson, Registration Number PE 5048, on 11/17/09 and the original document is stored at the North Dakota Department of Transportation

STANDARD DRAWINGS
D900-1
F.W.S. 15 PSF
HS 20 DESIGN LOADING
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION BNSF & SE JAMESTOWN INTERCHANGE
BRIDGE LAYOUT
PROJECT: SHE-SIM-2-094(094)260 STATION: 524+99.92 STUTSMAN COUNTY
DATE: 12/2/09 BRIDGE ENGINEER: Terrence R. Udland

**NOTES**

23 U.S.C. 409  
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	2

100 SCOPE OF WORK: The existing structure is a simple 4-span post-tensioned I-Girder bridge, 221'-0" long with a clear roadway width of 40'-0". This project consists of widening the south side of the bridge and approach slabs 6 ft to a new clear roadway width of 46'-0". The existing approach slabs and adjacent roadway panels will be lifted, spall repairs will be made to the deck, expansion joint strip seals will be replaced, extrusions added, bearings will be sandblasted and repainted, and exterior beam ends will be repaired.

100 GENERAL: The cost of furnishing and placing preformed expansion joint filler, concrete inserts, rebar couplers, silicone sealant at the gutter line, and other miscellaneous items shall be included in the price bid for Class AE-3 and AAE-3 concrete.

107 RAILROAD PROTECTIVE LIABILITY INSURANCE: This project crosses the BNSF Railway Company at RP 260.1395. The type of work that will be performed within the railroad right of way is widening of the existing railroad bridge structure. Inquiries for protective liability insurance should be directed to:

Rosa Martinez  
Marsh Co.  
Texas  
Phone: 214-303-8519

Information on crossing number DOT 062183R may be obtained from the Federal Railroad Administration website: <http://safetydata.fra.dot.gov/Officeofsafety/>.

107 HAZARDOUS MATERIAL: The existing structural steel is painted with lead-based paint. Certain Contractor operations could expose employees to hazardous levels of lead. The Contractor shall plan accordingly and shall inform employees of the hazards of lead-based paint. Any loose and peeling paint found on the existing structural steel shall be removed, contained, and disposed of properly.

202 REMOVAL OF CONCRETE: The Contractor shall remove the concrete in a manner that prevents any damage to the parts of the structure to remain. A 15 pound maximum size hammer shall be used for the deck removal over the girders. All labor, equipment, and materials required for the superstructure and abutment removal shall be included in the lump sum bid item, "Removal of Concrete-Site 1."

210 EXCAVATION: The excavation required to widen the abutments and piers shall be included in the lump sum bid item, "Class 1 Excavation-Site 1."

210 STRUCTURAL FILL: The embankment has settled approximately 1' below the bottom of the footing along the south half of Abutment 1. The Contractor shall place ordinary backfill up to approximately 1 ft above the bottom of the footing and reshape the embankment at both abutments, filling in any eroded areas, to restore the embankment to the original condition. All costs associated with this work shall be included in the price bid for "Class 1 Excavation-Site 1."

602 DIAPHRAGMS AND ENDWALLS: The intermediate diaphragm concrete shall be placed before the deck concrete and shall cure for at least 72 hours before deck placement. The pier diaphragm and endwall concrete shall be placed at the same time as the deck concrete.

602 SURFACE FINISH "D": Surface Finish "D" shall be required on all faces of the new barrier and curb and the edge of deck. The surface finish color shall match the existing eastbound structure. This work shall be included in the price bid for Class AE-3 and AAE-3 concrete.

602 DECK CONCRETE: Beams have slight variations in the anticipated camber. To build the deck to the designated thickness will require slight adjustments in deck elevation and/or riser dimensions. These adjustments result in minor concrete quantity discrepancies. The Contractor shall consider this quantity discrepancy when bidding the unit price for Class AAE-3 concrete. The Department will pay plan quantity of "Class AAE-3 concrete."

602 PENETRATING WATER REPELLENT TREATMENT: Penetrating water repellent shall be applied to the driving surface of the new concrete deck.

602 CONCRETE DECK CURING: No work shall be done on the bridge deck or approach slabs while the wet cure is in progress, including forming the barriers. No vehicles or equipment not required in the curing process shall be on the bridge deck or approach slabs.

622 PREBORING: The Contractor will be required to bore pilot holes through the existing constructed embankment for the abutments to an elevation of 1398 before driving piling. All pilot holes shall have a diameter of 18 inches. Prior to pile driving, the pilot holes shall be backfilled with polymer free sodium bentonite slurry, designed for sealing wells and bored holes. The bentonite slurry shall be made by thoroughly mixing bentonite with water, according to the manufacturer's recommendations. In no case shall more than 100 gallons of water be used per 80 pounds of bentonite. Slurry materials shall be placed by pumping or other applicable methods which assure that the pilot holes are completely filled. All costs associated with boring pilot holes and backfilling with bentonite slurry shall be included in the price bid for "Treated Timber Piling."

622 PILING: Piling shall be driven with a steam, air, or diesel hammer with a rated energy and ram weight not less than 10,112 foot-pound-tons, as computed by the formula  $W(E-3,326) + 0.608E$ , where W is the weight of the ram in tons and E is the rated hammer energy. In no case shall the ram weight be less than 1,770 pounds.

This document was originally issued and sealed by Jason R Thorenson, Registration Number PE-5048, on 11/17/09 and the original document is stored at the North Dakota Department of Transportation.

**NOTES**

23 U.S.C. 409  
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	3

630 **CLEANING & PAINTING BEARINGS:** All exposed surfaces of the existing bearings at the abutments and piers shall be sandblasted and repainted in place. The finish coat shall be Gray color No. 26152 and shall meet Federal Standard No. 595B. All labor, equipment, and materials required to complete this work shall be included in the price bid for "Cleaning & Painting."

900 **ELEVATION CHECK POINTS:** Five carriage bolts need to be placed on the top of the barrier to serve as elevation check points. The cost for this item shall be included in the unit price bid for "Class AAE-3 Concrete."

930 **SHORING:** Temporary shoring is required as shown on the plans for construction of each substructure unit. The Contractor is responsible to design, construct, maintain, and remove temporary shoring. The design of the shoring shall be stamped by a registered Engineer. All labor, equipment and material required to complete this work shall be included in the bid item, "Shoring."

930 **SILICONE SEALANT:** The silicone sealant and backer rod shall be replaced at the joint between the approach slabs and deck. The new silicone sealant and backer rod shall extend 6 inches up the faces of both barriers. After removing the existing silicone sealant and backer rod, the joint shall be cleaned of all foreign material and sandblasted before the new backer rod and silicone sealant are installed. A low modulus (Type 5) silicone sealant shall be used. The backer rod diameter shall be 1/4" larger than the joint width. All labor, equipment, and materials required to complete this work shall be included in the price bid for "Silicone Sealant."

930 **DECK SPALL REPAIR:** The bridge deck has spall areas in areas as shown. The actual limits of the areas to be repaired shall be determined by the Engineer in the field. The deck spall repair shall be constructed as a bridge deck overlay meeting Section 650 of the NDDOT Standard Specifications, except that the use of a mobile mixer shall not be required. The minimum depth of removal shall be 2". The perimeter of the repair shall be saw cut to a depth of 1". The deck spall repair shall be done after the existing approach slabs are removed to the limits indicated and before the widened portion of the approach slabs are installed. All labor, equipment, and materials required to complete this work shall be included in the bid item "Deck Spall Repair."

930 **ROADWAY CANOPY:** The Contractor shall construct a canopy above the railroad and the traveled roadway to protect traffic from falling material. The canopy is an added safeguard and does not relieve the Contractor of any responsibility for the safety of the public.

The canopy must be erected before the concrete deck and barrier of the existing structure is removed. The canopy must also be in place before installing forming for the new deck and shall remain in place until after the new deck is complete. The canopy may be supported from the ground or suspended from the beams. The erection of the canopy shall be completed in a minimum amount of time and with the least inconvenience to the public and the railroad. The canopy shall be of a design and material selected by the Contractor and submitted to the Engineer for review at least one week prior to construction. The minimum vertical clearance shall be 21'-0" above the

railroad tracks and roadway. The canopy shall project a minimum distance of 5'-0" beyond the outside edge of the proposed deck of the structure. The canopy shall project a minimum distance of 5'-0" beyond the edge of the railroad tracks beneath the structure. After completion of the structure, the canopy shall be removed and shall remain the property of the Contractor.

The canopy shall be paid for at the contract lump sum unit price for "Roadway Canopy-Site 1." The canopy shall be measured as a lump sum item and shall include construction, maintenance, and removal.

930 **RAILROAD FLAGGING:** The Contractor shall give a minimum of at least thirty (30) working days notice to Craig Kemmet, the Railways Roadmaster, at telephone (701) 253-3535, in advance of when flagging services will be required to bulletin the flaggers position and shall provide five (5) working days notice to the Roadmaster to abolish the position per union requirements.

930 **POLYURETHANE FOAM:** This work shall consist of lifting and leveling the existing concrete bridge approach panels by a polyurethane foam system. Lifting and leveling of the concrete panels shall be performed by drilling injection holes, injecting polymer, verifying elevations to control lift of panel and cleanup as approved by the Project Engineer.

The medium used to lift and level the approach slabs shall be a water blown high-density polyurethane. The material shall be hydrophobic. The high density, closed cell, polyurethane system shall exhibit the following physical characteristics and properties:

Density, Lb/Cu Ft (ASTM 1622)	Compressive Strength (ASTM 1621)
3.0	40 psi
3.5	50 psi
4.0	60 psi
6.0	110 psi

The polyurethane foam system will have a free-rise density of 3.0 – 3.2 lb/ft<sup>3</sup>, with a minimum compressive strength of 40 psi. The expansion of the polyurethane foam under pressure increases the foam density above the original free rise density value.

The high density formulation shall reach 90% of full compressive strength within 15 minutes of injection, at which time the Contractor may allow traffic on the treated areas, as approved by the Project Engineer.

The Contractor shall submit, to the Project Engineer, manufacturer's certification stating that all materials and methods meet requirements. The Contractor shall also submit all warranties and guarantees, which shall be transferred to the Department upon acceptance by the Project Engineer.

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## NOTES

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A list of the lifting and undersealing equipment shall be submitted to the Project Engineer for review. The minimum list of equipment required shall be as listed below. This list shall not preclude the use of additional equipment.

- a. A pneumatic drill and an electric drill capable of drilling 5/8-inch diameter holes to the required depths.
- b. A truck-mounted pumping unit capable of injecting the high-density polyurethane formulation between the concrete pavement and the underlying surface. The pumping unit shall be equipped with a dial gauge in increments of 45 grams (1/10 pound), and shall be capable of controlling the rate of flow of the material as well as of the rise of the pavement.
- c. A laser leveling unit to ensure that the concrete is raised to an even plane and to the required elevations.

All equipment provided by the Contractor shall be in excellent condition and kept clean at all times. All stored materials shall be sealed and protected from contamination of dust or any foreign material.

The Contractor shall have prior experience using high-density polyurethane to raise and underseal concrete slabs.

A series of 5/8 inch holes shall be drilled at the locations required for the proper raising of the surface. The exact locations and spacing shall be determined by the Contractor. The pumping unit shall be calibrated daily, or at the Project Engineer's request, to ensure consistent accuracy of injected material.

The high density polyurethane formulation is injected under the slab. The amount of rise shall be controlled, using the pumping unit, by regulating the rate of injection of the raising/undersealing polymer. When the nozzle is removed from the hole, any excessive polyurethane material shall be removed from the area and the hole sealed with a nonexpansive cementitious grout. All removed material shall be disposed of in an environmentally acceptable manner conforming to Federal, State and local regulations. Final elevations shall be within 1/4" of the elevations proposed by profile. A tight string line may be used to monitor and verify elevations for slab lengths of 50 foot or less. For longer sections, a laser level will be used to monitor and verify elevations. The Contractor shall be responsible for any pavement blowouts or excessive pavement lifting which may result from the process and shall repair the damaged area to the satisfaction of the Project Engineer without additional cost.

The slab shall not be raised more than 1/4 inch while pumping in any one hole at any one time. Cracks emanating radially from the injection holes will be presumed to have been caused by improper injection techniques by the Contractor. For each five feet of crack measured, the pay quantity will be reduced by 10 pounds of polyurethane material. If cracks develop between adjacent injection holes, the Contractor shall repair the cracks by a satisfactory method approved by the Engineer. Pavement raised above specified

tolerances shall be brought to grade by grinding. If over jacking is greater than 0.10 foot, satisfactory removal and replacement shall be required, at no cost to the Owner.

The price bid for the item "Polyurethane Foam" shall include full compensation for furnishing all labor, supervision, materials tools, equipment, and incidentals for all work called for in this note. Daily material usage shall be attested by the Inspector and the Contractor and reported on a field production report.

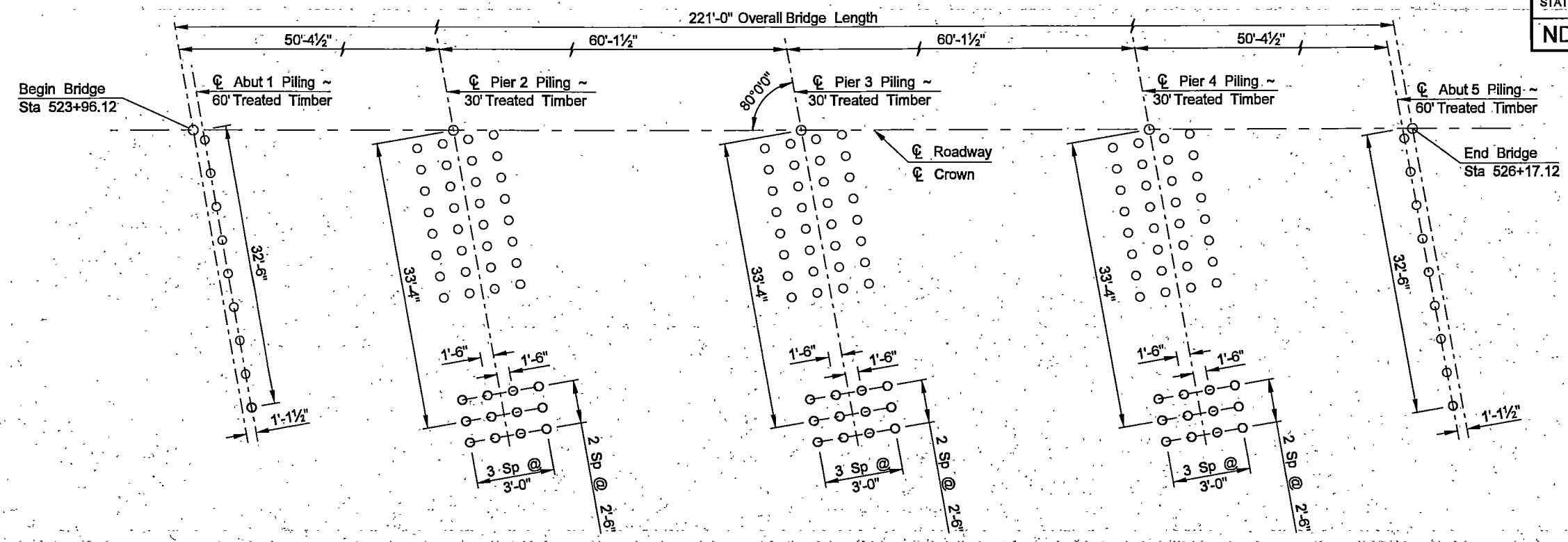
SHOP DRAWINGS: The Contractor shall submit the following shop drawings to the Engineer for review.

1. Prestressed Concrete I-Girders
2. Expansion Joint Strip Seals
3. Structural Steel

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	5

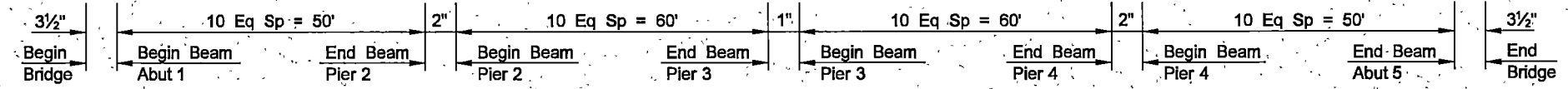
23 U.S.C. 409  
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NOTE: Treated timber pile shall be driven to 28' ton at the Abut's and 24' ton at the Piers

**PILE LAYOUT**

BEAM TENTH POINTS	SOUTH GIRDER (ft)
0.0	0
0.0	0
0.1	.009
0.2	.016
0.3	.022
0.4	.026
0.5	.028
0.6	.026
0.7	.022
0.8	.016
0.9	.009
1.0	0
0.0	0
0.1	.018
0.2	.034
0.3	.046
0.4	.054
0.5	.057
0.6	.054
0.7	.046
0.8	.034
0.9	.018
1.0	0
0.0	0
0.1	.018
0.2	.034
0.3	.046
0.4	.054
0.5	.057
0.6	.054
0.7	.046
0.8	.034
0.9	.018
1.0	0
0.0	0
0.1	.009
0.2	.016
0.3	.022
0.4	.026
0.5	.028
0.6	.026
0.7	.022
0.8	.016
0.9	.009
1.0	0
0.0	0



**DEAD LOAD DEFLECTIONS**

**NOTES:**

Prior to any deck removal, the deck elevations at the centerline of the existing exterior girders shall be surveyed at the ends of the beams and at each tenth point for each span.

The screed elevations for each girder at each tenth point are as follows:  
Proposed Girder Elev = Existing Girder Elev + the Dead Load Defl. - 0.104

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
107	0103	RAILWAY PROTECTION INSURANCE-SITE 1	EA	1
202	0115	REMOVAL OF CONCRETE-SITE 1	L SUM	1
210	0102	CLASS 1 EXCAVATION-SITE 1	L SUM	1
210	0202	FOUNDATION PREPARATION-SITE 1	L SUM	1
550	0217	BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	46.6
602	0130	CLASS AAE-3 CONCRETE	CY	65.2
602	1130	CLASS AE-3 CONCRETE	CY	245.0
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	153.2
604	9900	PRESTRESSED I-BEAM-36 IN	LF	220
612	0115	REINFORCING STEEL-GRADE 60	LBS	38,127
612	0116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	4,751
616	0360	STRUCTURAL STEEL	LBS	1634
622	4630	TREATED TIMBER PILING	LF	1200
630	0120	CLEANING AND PAINTING	LSUM	1
930	3631	POLYURETHANE FOAM	LBS	5100
930	7013	ROADWAY CANOPY-SITE 1	L SUM	1
930	8230	SHORING	EA	5
930	8644	SILICONE SEALANT	LF	96
930	8680	EXPANSION JOINT STRIP SEAL	LF	143
930	9610	DECK SPALL REPAIR	SF	60
930	9696	BEAM END REPAIR	EA	12

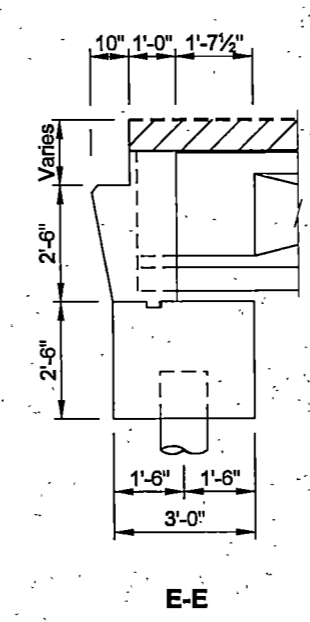
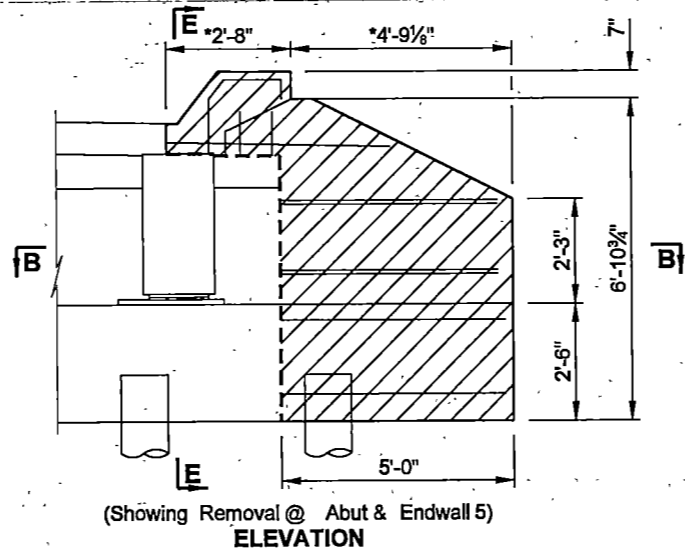
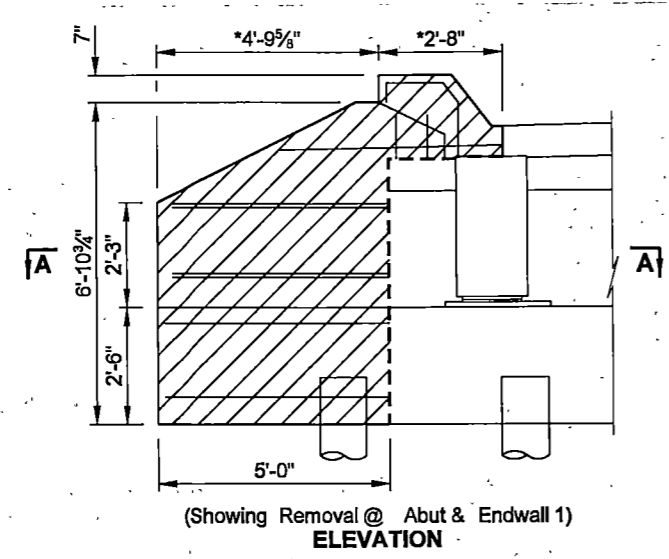
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**BNSF & SE JAMESTOWN INTERCHANGE**

**PILE LAYOUT, SCREEDS & QUANTITIES**

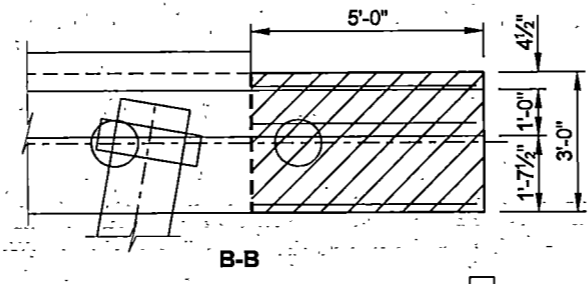
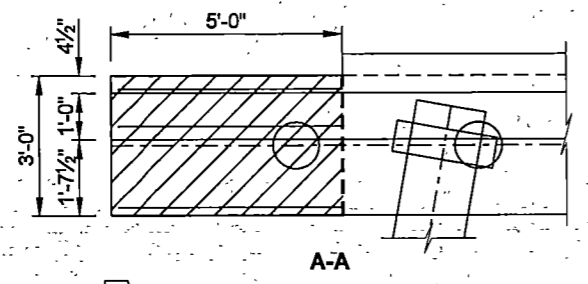
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	6

**23 U.S.C. 409**  
**NDDOT Reserves All Objections**

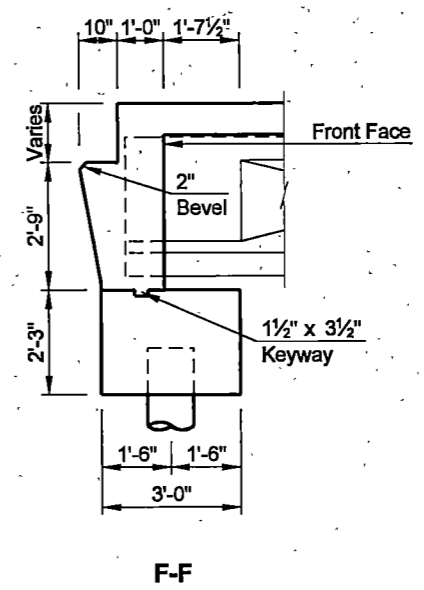
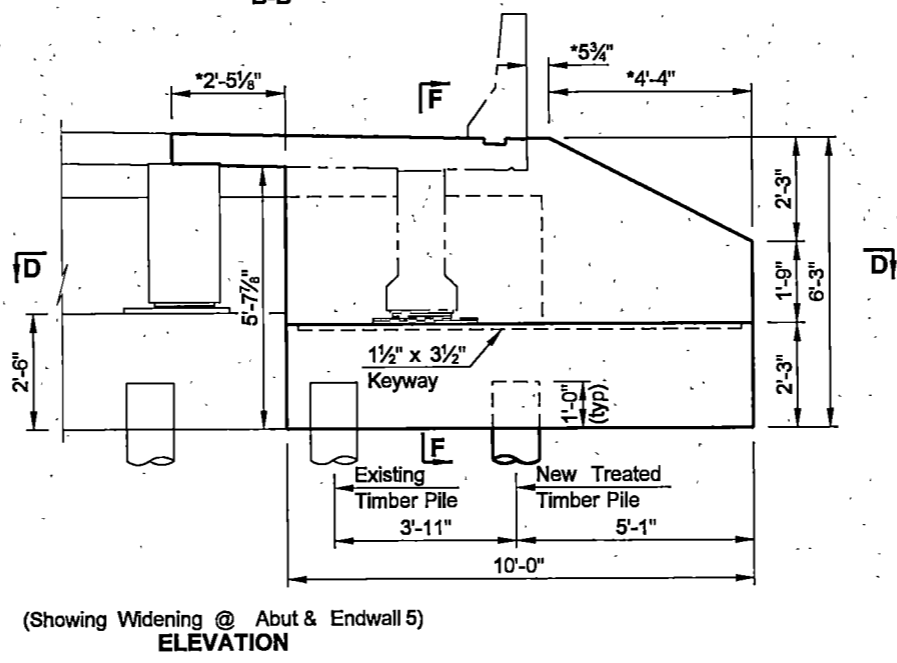
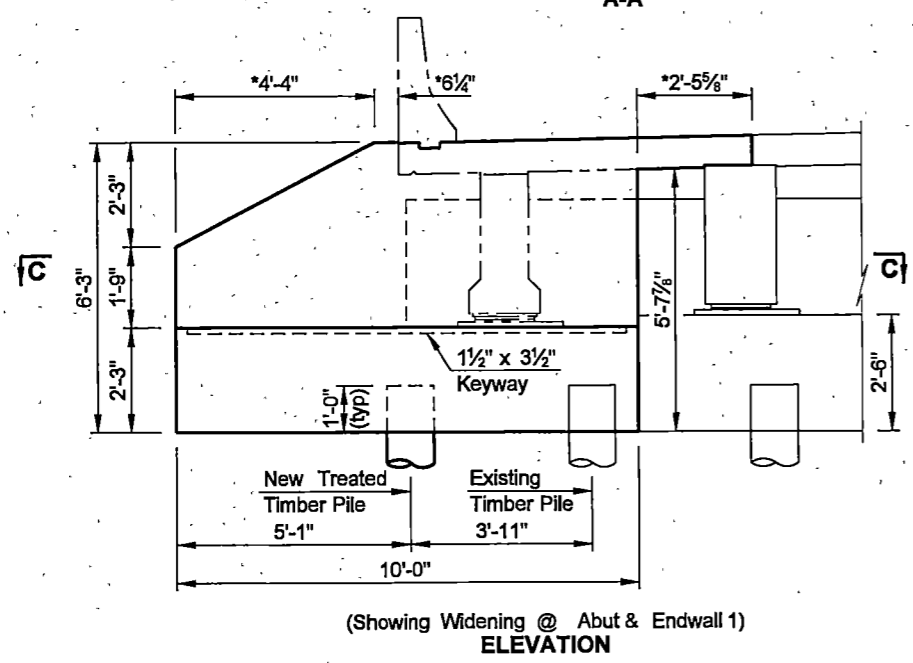


--- Denotes areas to be saw cut 1" deep to facilitate removal.

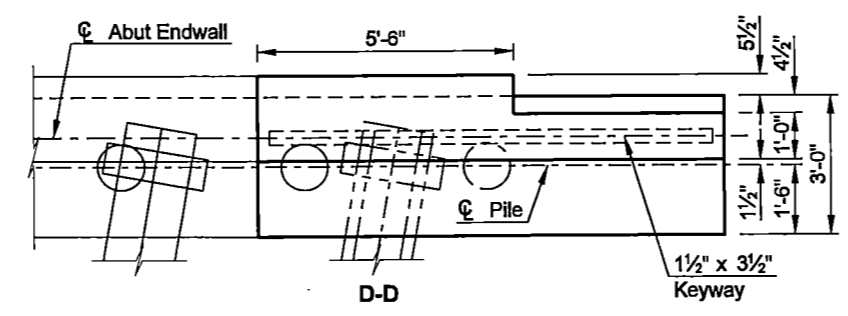
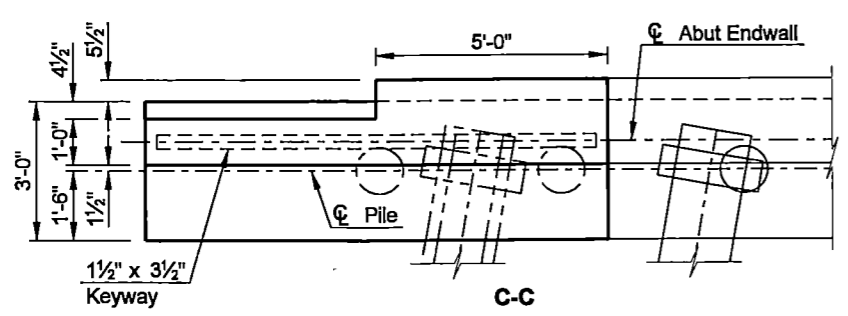
▨ Hatched area indicates removal areas. The deck shall be saw cut to a depth of 1" to produce a neat line between the concrete to be removed and the concrete to remain. Care shall be taken to ensure no damage is done to reinforcing steel that is to remain in place as shown. Any rust scale found on the exposed existing reinforcing steel shall be thoroughly sand blast cleaned.



\* Dimensions shown are at front face of back wall.



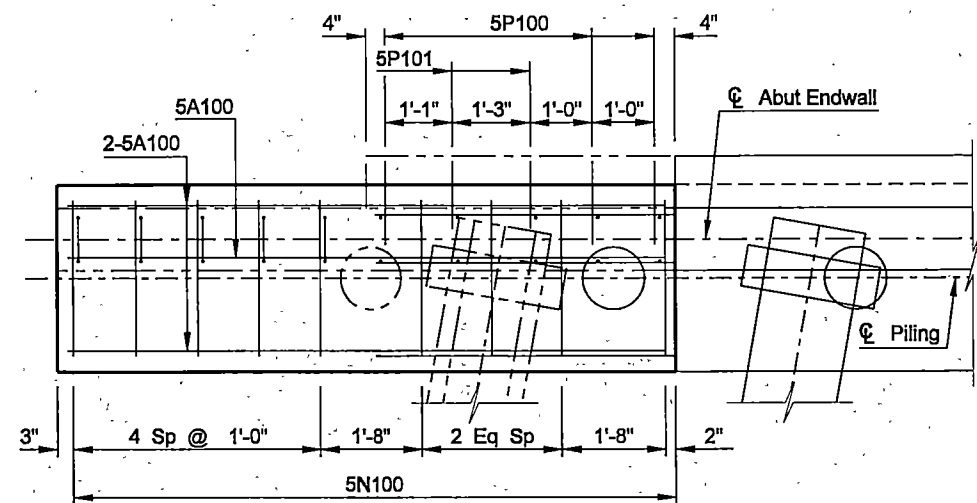
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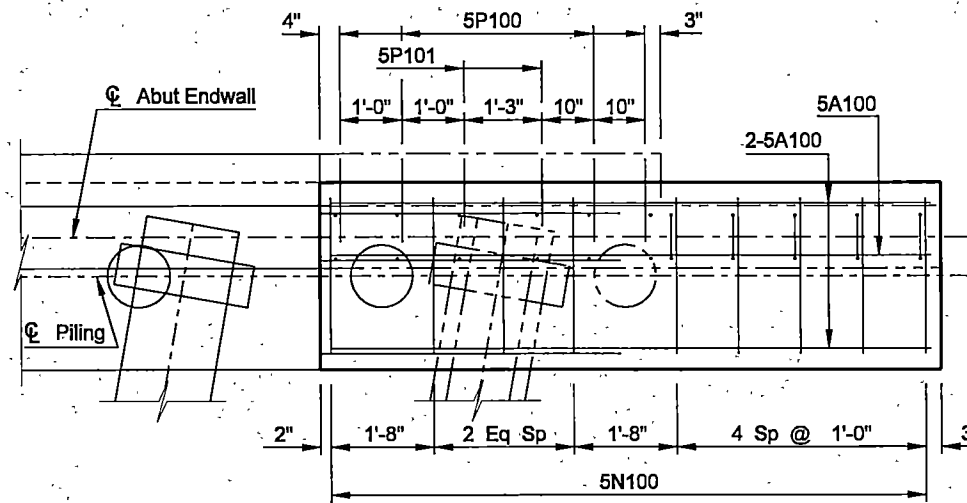
<b>QUANTITIES</b>
SEE DWG 94-260.125R-7 & 94-260.125R-18
<b>BNSF &amp; SE JAMESTOWN INTERCHANGE</b>
(SHOWING DIMENSIONS & REMOVAL)
<b>ABUTMENT &amp; ENDWALL DETAILS</b>



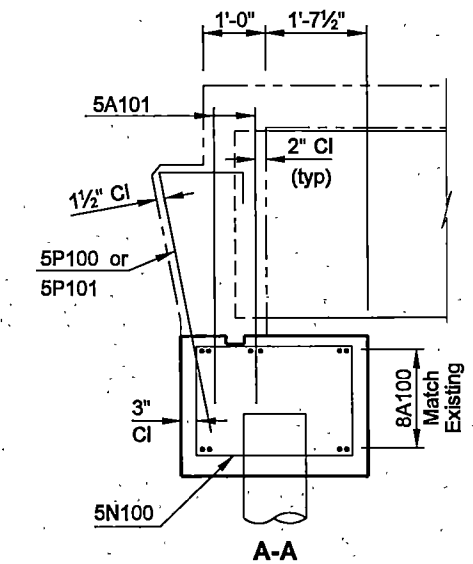
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	7



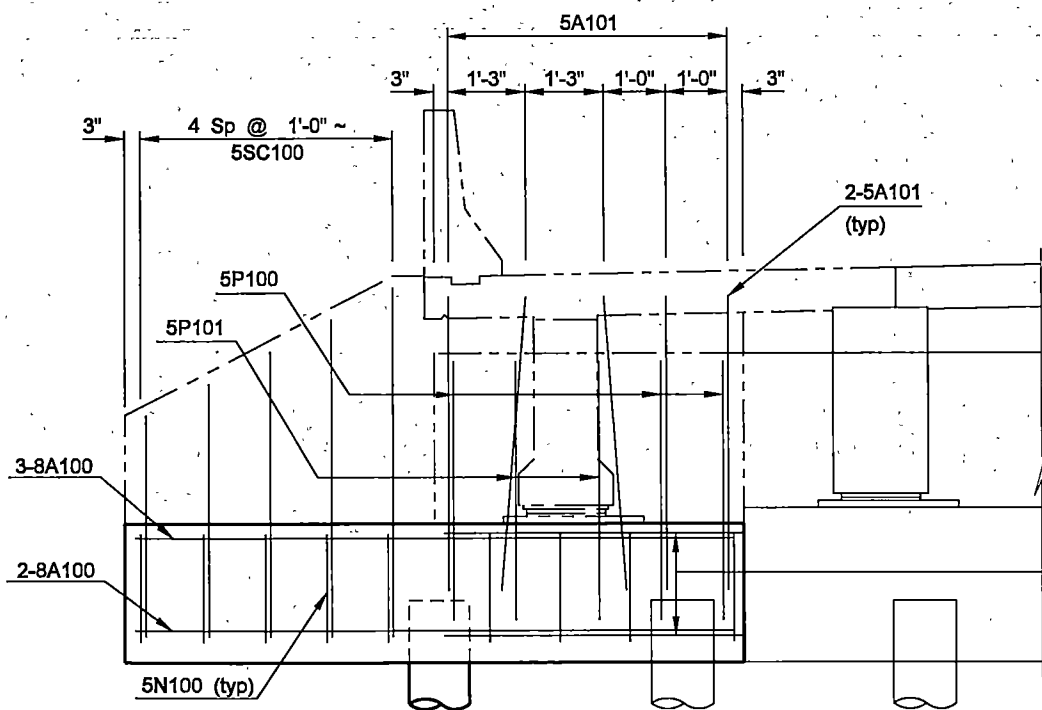
PLAN



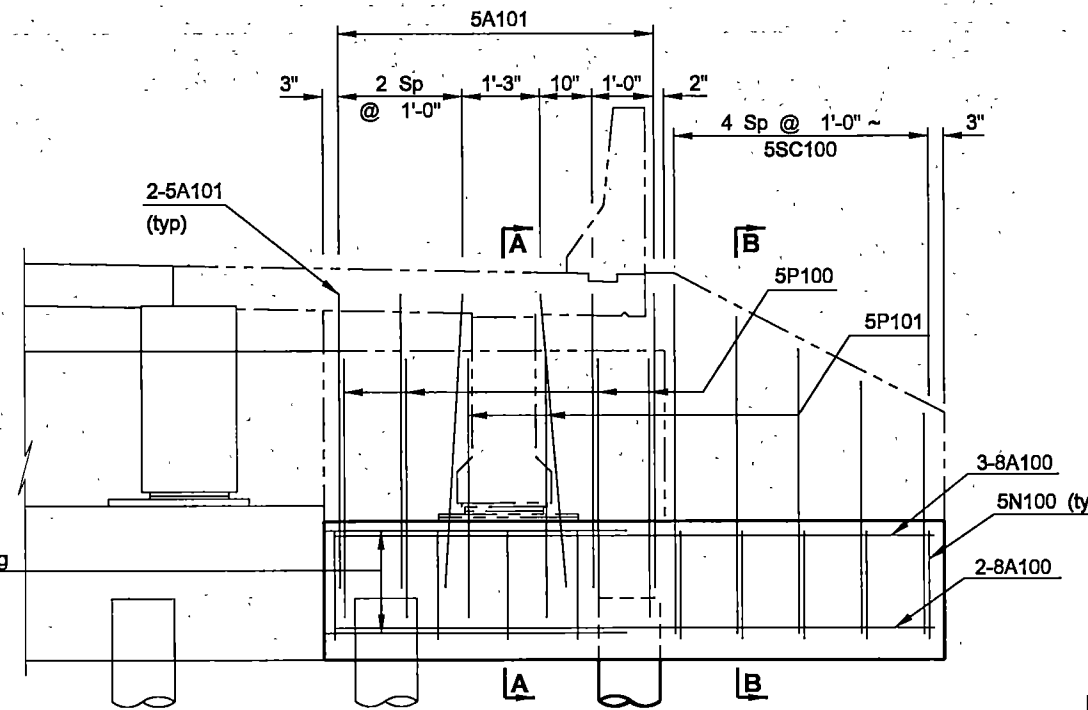
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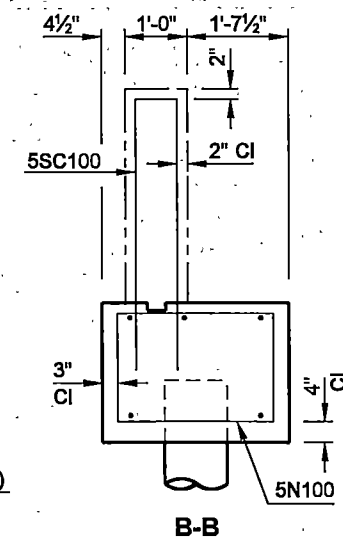
A-A



ELEVATION  
 ABUTMENT 1 DETAILS



ELEVATION  
 ABUTMENT 5 DETAILS



B-B

**NOTE:**

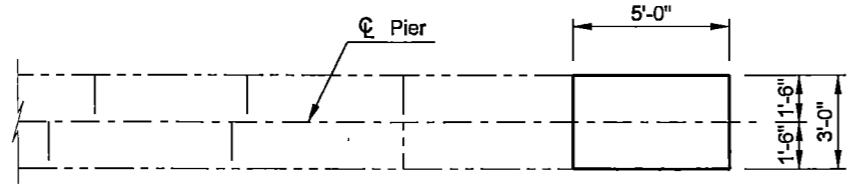
Bush Hammer Finish: Before any concrete is placed against existing concrete, the surface shall be prepared with a bush hammer to produce a clean rough surface with a minimum amplitude of 1/4".

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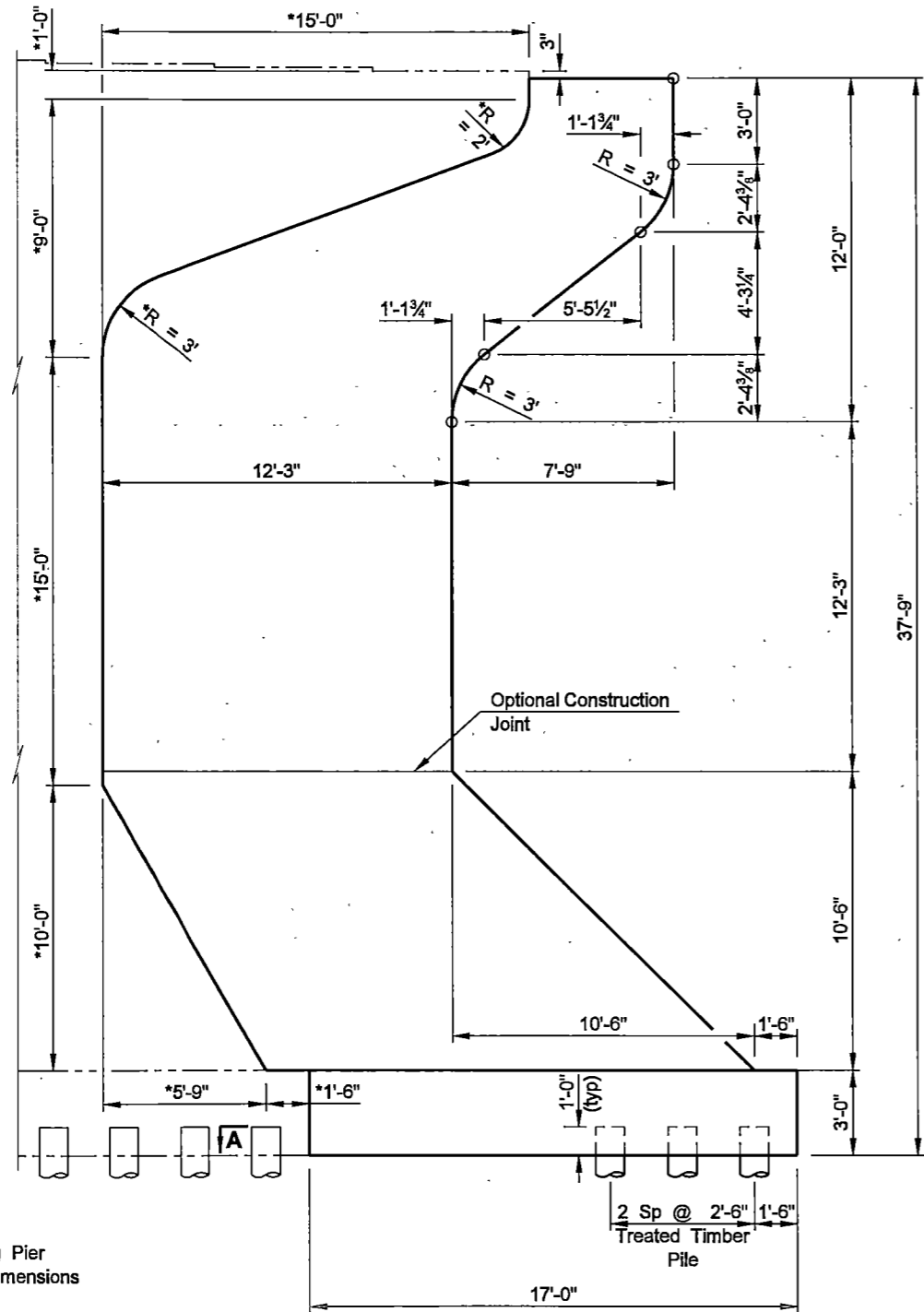
QUANTITIES	
CLASS AE-3 CONCRETE	5.0 CY
REINFORCING STEEL-GRADE 60	718 LBS

**BNSF & SE JAMESTOWN INTERCHANGE**  
 (SHOWING REINFORCING)  
**ABUTMENT DETAILS**

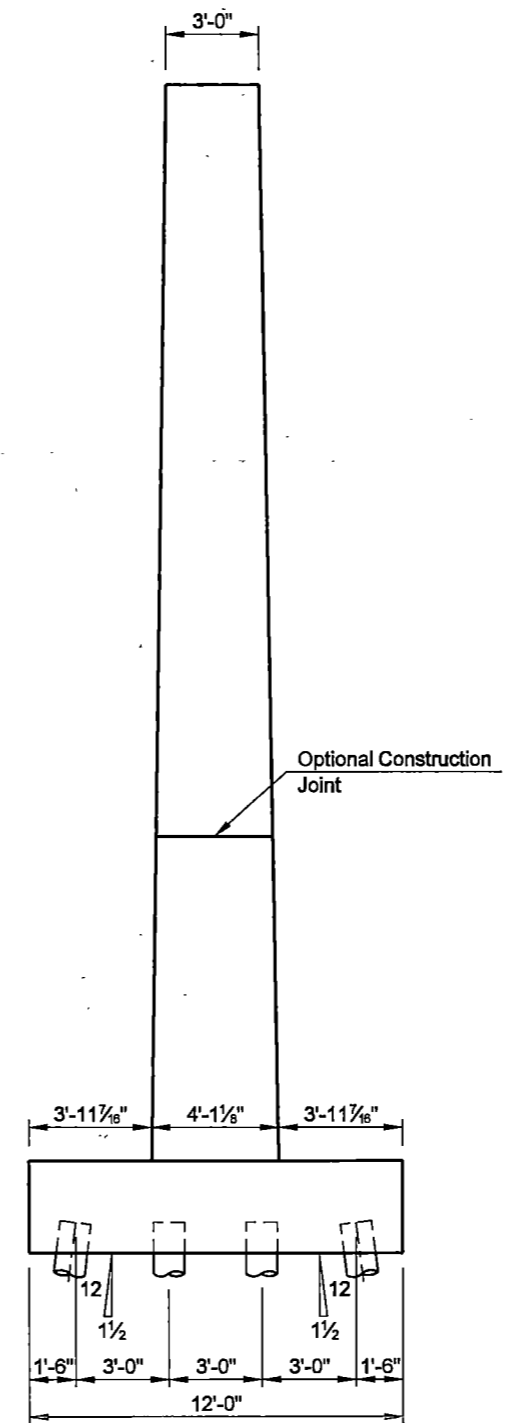
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ND	SHE-SIM-2-094(094)260	170	8



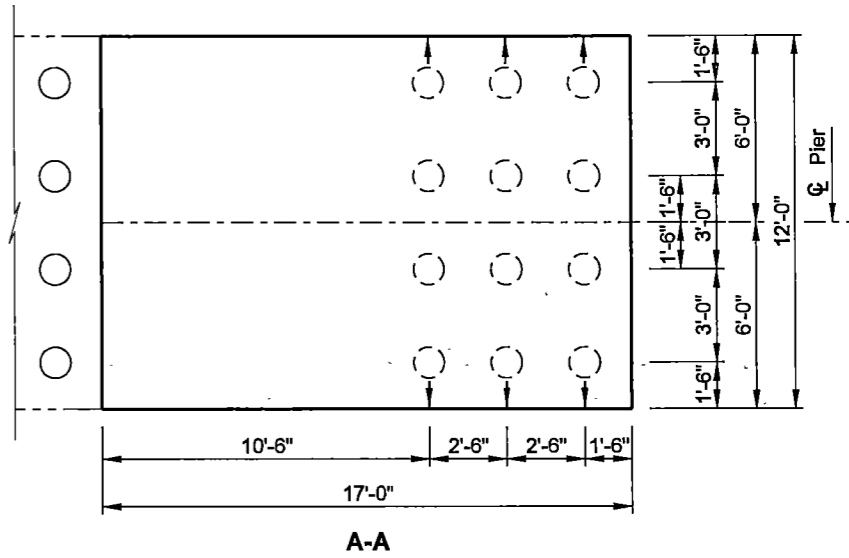
PLAN



ELEVATION



END VIEW



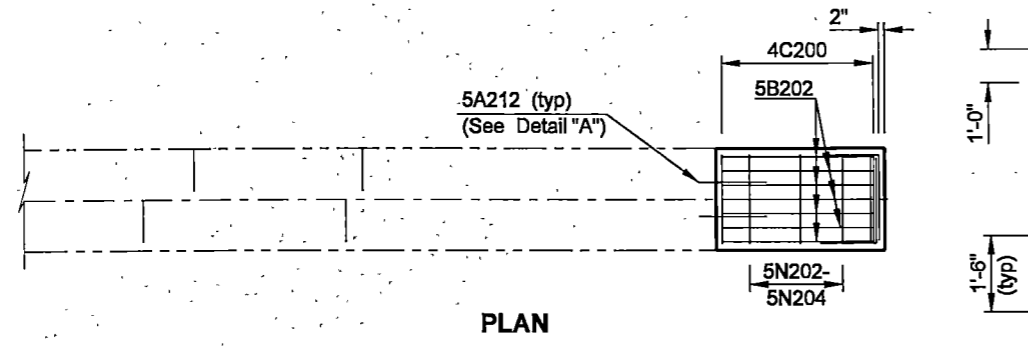
A-A

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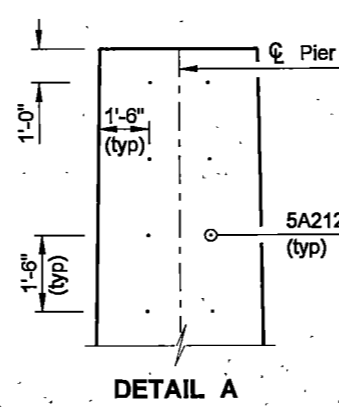
<b>QUANTITIES</b>
SEE DWG 94-280.125R-9
<b>BNSF &amp; SE JAMESTOWN INTERCHANGE</b>
(SHOWING DIMENSIONS)
<b>PIER DETAILS</b>

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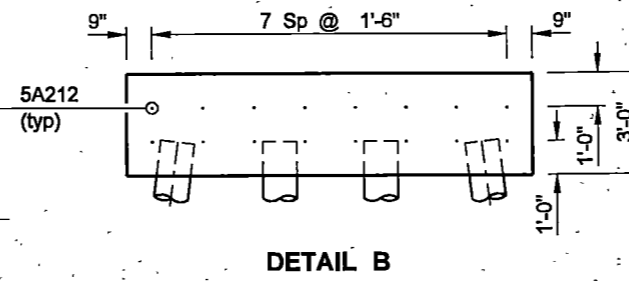
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	9



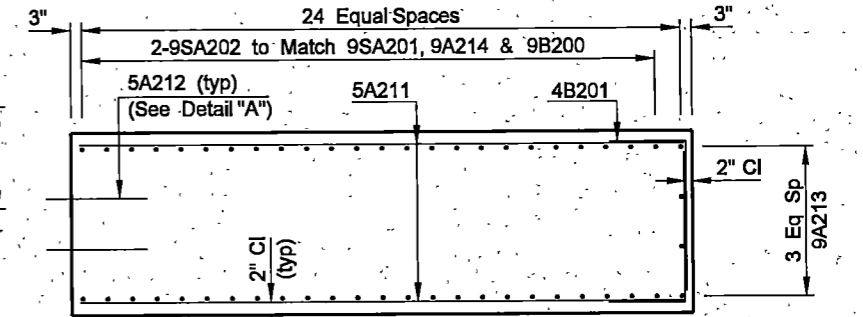
PLAN



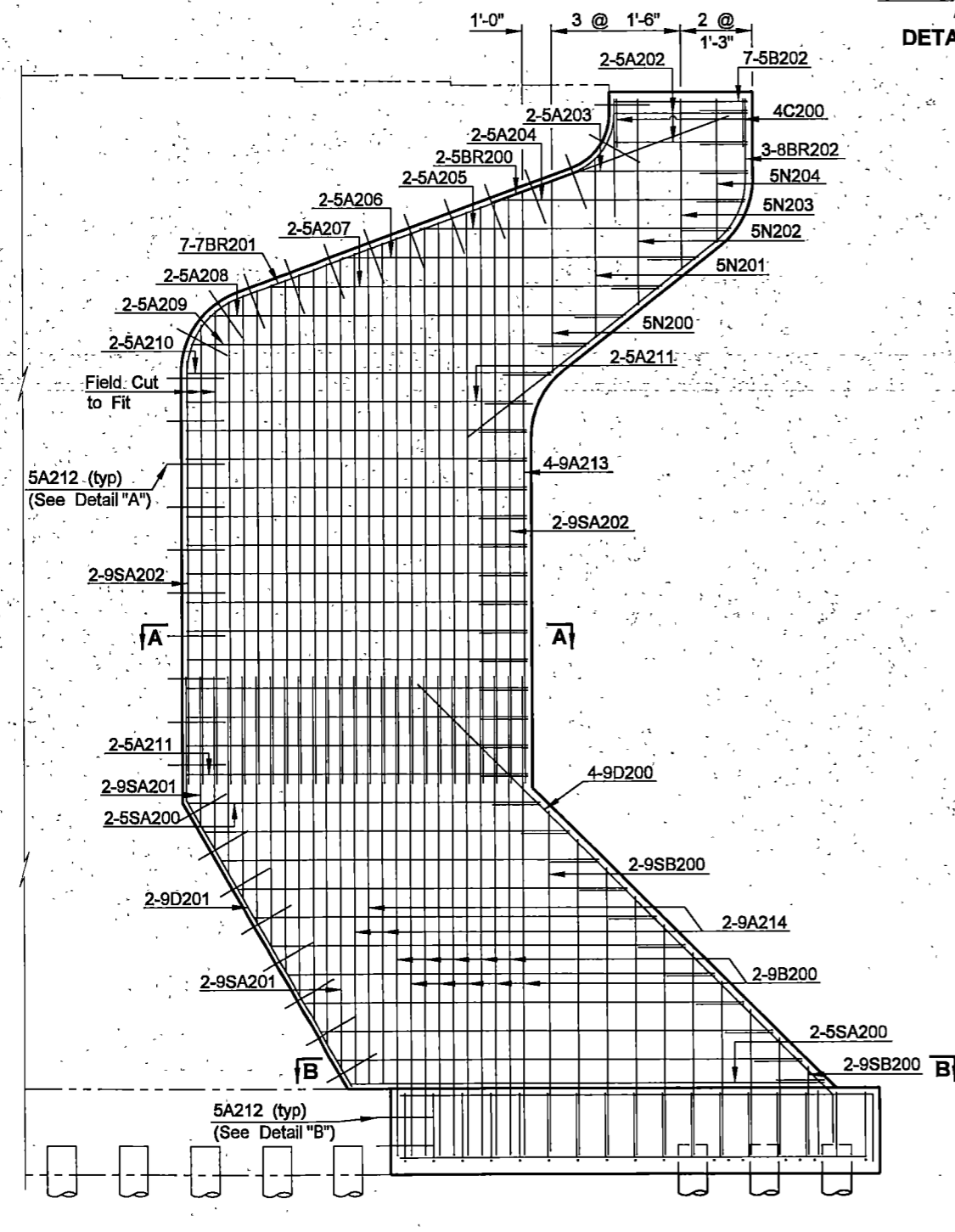
DETAIL A



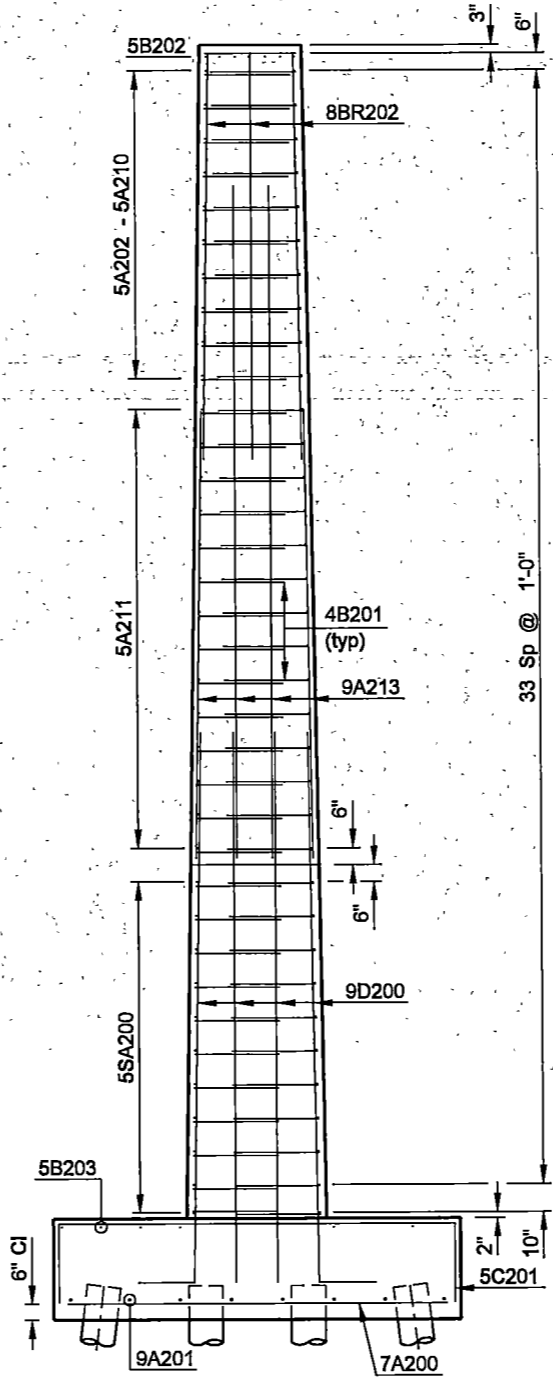
DETAIL B



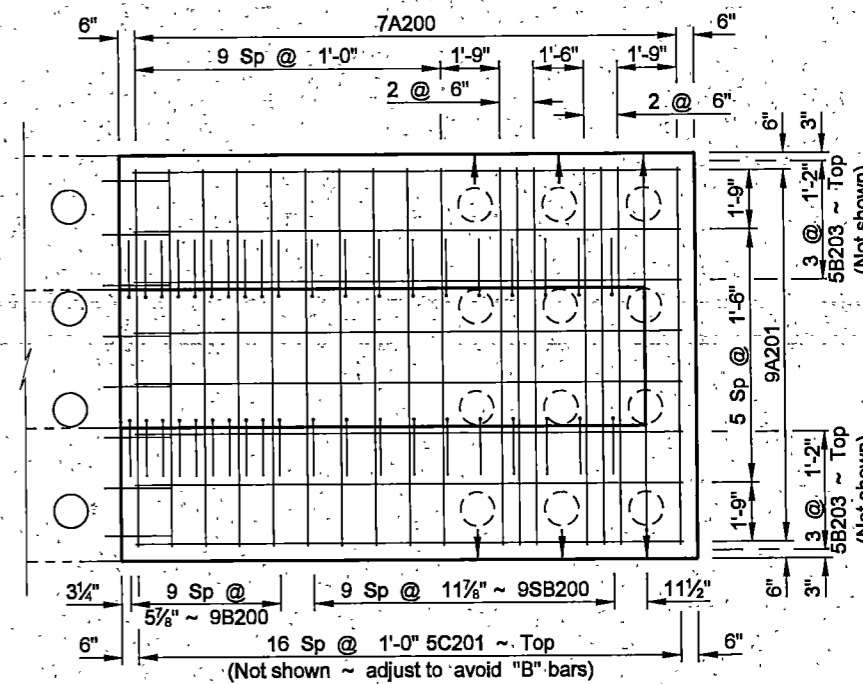
A-A



ELEVATION



END VIEW



B-B

**NOTES:**

The 5A212 bars shall be installed according to the manufacturer's recommendations, with a high strength adhesive specifically intended for concrete anchorage, in accordance with Sec. 806.02 of the NDDOT Standard Specifications. The 5A212 bar length is based on a 6" embedment into the existing concrete. The actual bar length shall be based on embedment according to the adhesive manufacturer's recommendations.

Bush Hammer Finish: Before any concrete is placed against existing concrete, the surface shall be prepared with a bush hammer to produce a clean rough surface with a minimum amplitude of 1/4".

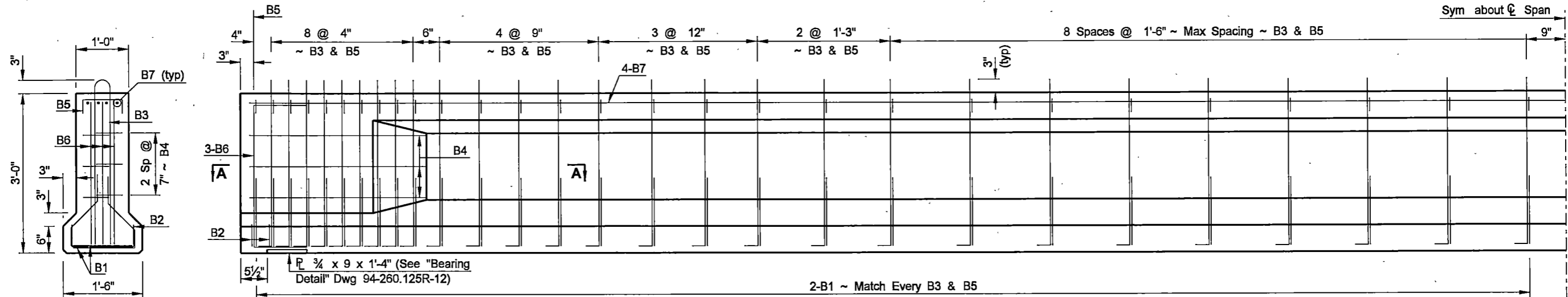
QUANTITIES	(ONE PIER)
CLASS AE-3 CONCRETE	80.0 CY
REINFORCING STEEL	9,707 LBS

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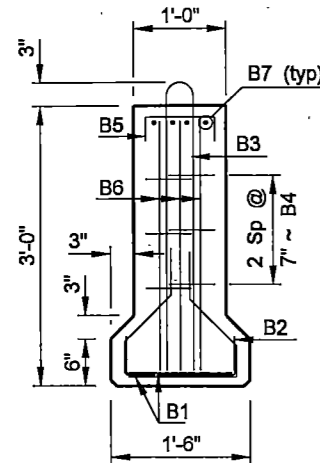
**BNSF & SE JAMESTOWN INTERCHANGE**  
 (SHOWING REINFORCING)

**PIER DETAILS**

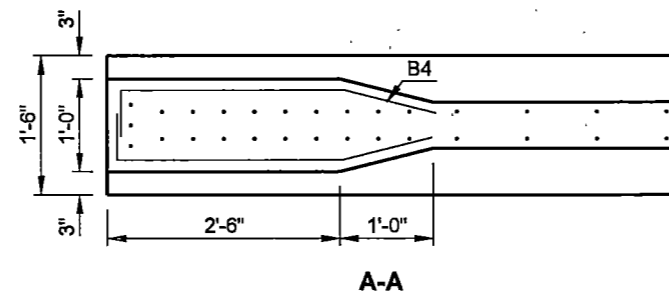
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	10



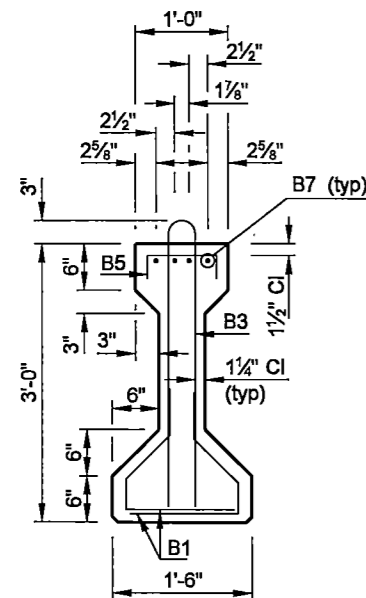
PART BEAM ELEVATION



END VIEW



A-A



SECTION @ CL SPAN

BEAM SECTION DATA	
WT =	384 LBS/FT + 675 LBS FOR END BLOCKS
CROSS SECTIONAL AREA AT CL SPAN =	369 IN <sup>2</sup>
C.G. (FROM BOTTOM) =	15.83 IN
I =	50,978 IN <sup>4</sup>
S <sub>a</sub> =	3,220.3 IN <sup>3</sup>
END AREA =	477 IN <sup>2</sup>

BAR LIST ~ ONE BEAM				
MARK	SIZE	NO.	LENGTH	SHAPE
B1	4	112	2'-8"	BENT
B2	5	4	1'-2"	BENT
B3	4	54	6'-10"	BENT
B4	4	12	3'-11"	BENT
B5	3	56	1'-3"	BENT
B6	5	6	4'-8"	BENT
B7	5	8	26'-4"	STR

NOTE:  
 B7 bars shall have a 3'-0" (min) splice length.

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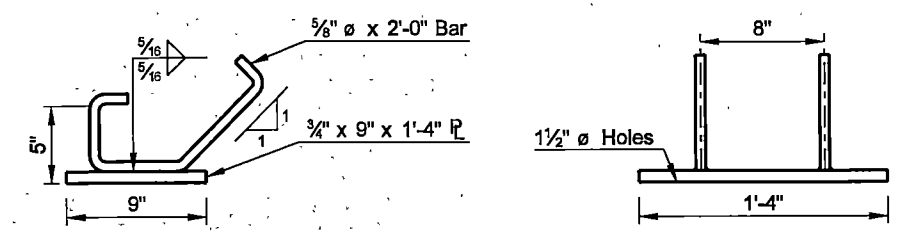
QUANTITIES	(ONE BEAM)
BEAM LENGTH	50.0 LF
<b>BNSF &amp; SE JAMESTOWN INTERCHANGE</b>	
<b>50' PRE-TENSIONED AASHTO TYPE II PRESTRESSED BEAM</b>	



STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
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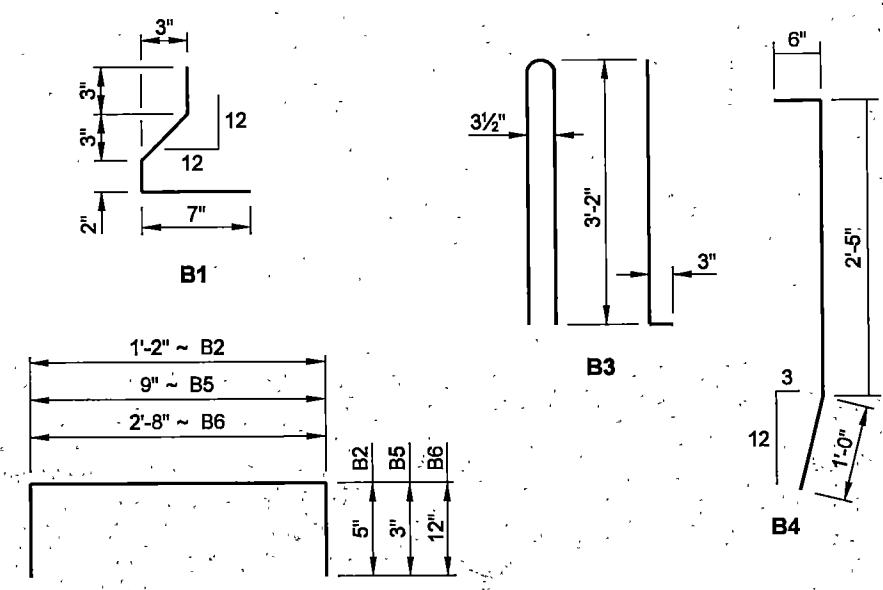
**23 U.S.C. 409**  
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PRESTRESSING DATA				
C.G.	FINAL FORCE	DETENSION STRENGTH	ACCEPTANCE STRENGTH	BEAM LENGTH
2.00	238.4 k	5000 psi (Min)	5000 psi (Min)	50'-0"
2.25	241.1 k			
2.50	243.8 k			
2.00	311.4 k	5000 psi (Min)	5000 psi (Min)	60'-0"
2.25	314.9 k			
2.50	318.4 k			



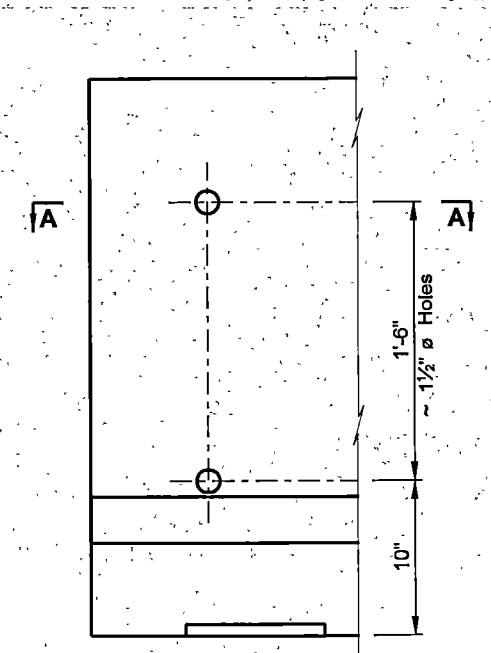
(Bearing plate to be Structural Steel M 270 Grade 36 hot dipped galvanized, and included in the bid price for the beam.)

**BEARING DETAIL**



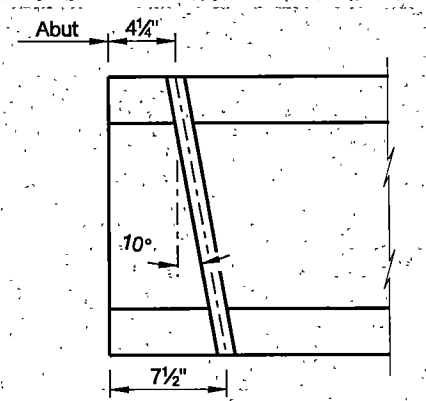
**B2, B5 & B6**

(DIMENSIONS SHOWN ARE OUT TO OUT)  
**BENT BAR DETAILS**

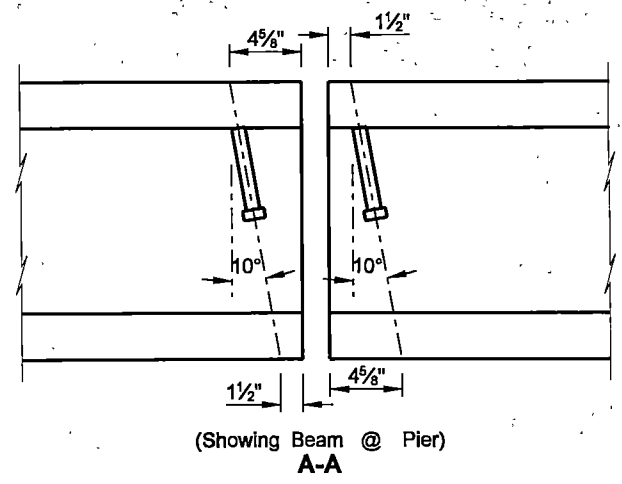


(Holes shall be required at the abutments only. Inserts shall be required at the piers only. See Dwg 94-260.125R-16 for locations.)

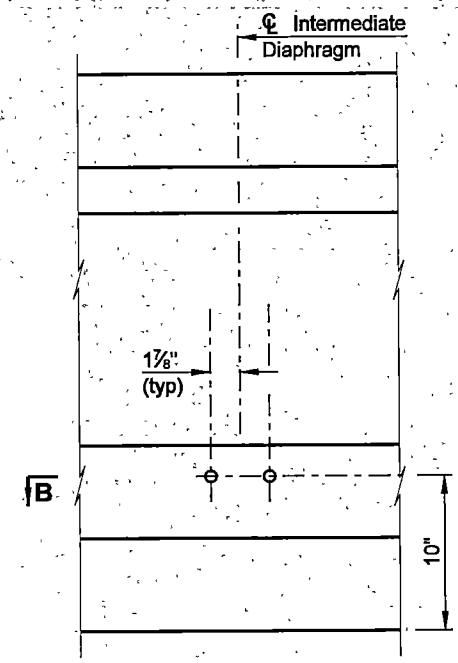
**BEAM END DETAIL**



(Showing Beam @ Abutment)  
**A-A**

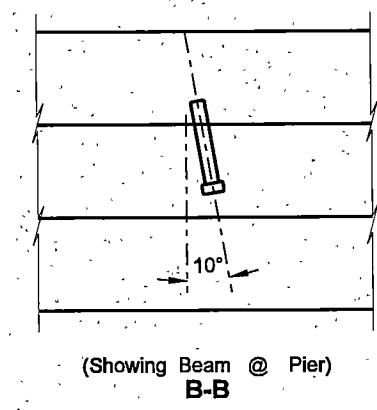


(Showing Beam @ Pier)  
**A-A**



(Inserts shall be used for the exterior beams. See Dwg 94-260.125R-16 for locations.)

**INTERMEDIATE DIAPHRAGM DETAIL**



(Showing Beam @ Pier)  
**B-B**

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**NOTES:**

At least 14 days prior to the forming and pouring of any beams, the Contractor shall submit design figures and shop drawings to the Engineer for review. The design figures shall show the total initial prestress force taken from the contract drawings and the losses in the prestress due to elastic shortening, shrinking or creeping of concrete and the relaxation of steel stress as determined by the Contractor for his method of stressing.

Shop drawings shall show strand layout, pull down locations, tensioning forces, elongation and any proposed changes in reinforcing steel.

The final prestress force (remaining after all losses have been accounted for) and its corresponding center of gravity, shall be selected from those on a curve determined by the three values shown.

The beams shall be poured in all steel forms. The prestressing strands at the end of the beams shall be sealed with epoxy.

Holes and inserts to accommodate the diaphragm and end beam bars shall be provided in the beams at locations as shown.

All reinforcing steel shall have a clearance of 1 1/4" unless otherwise noted.

Minor changes to the shape of the beam and to reinforcing steel may be made to accommodate the forms of various contractors and their construction methods with the approval of the Engineer.

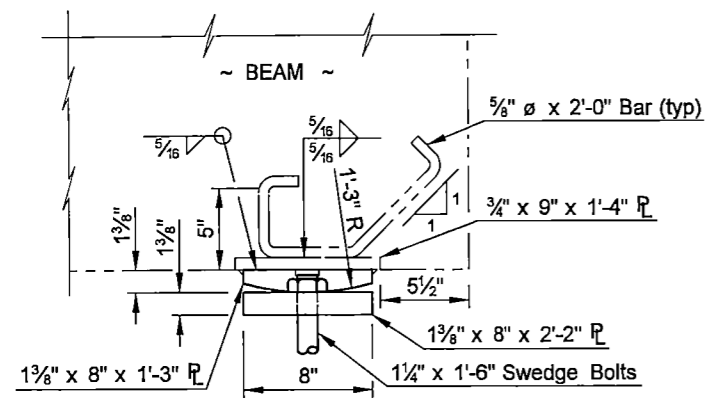
The tops of the beams shall be rough floated and broomed transversely for bond.

Provide handling hooks or devices as required by the Contractor. Hooks or devices provided will be subject to approval by the Engineer and shall be installed within 4'-0" of the end of beam.

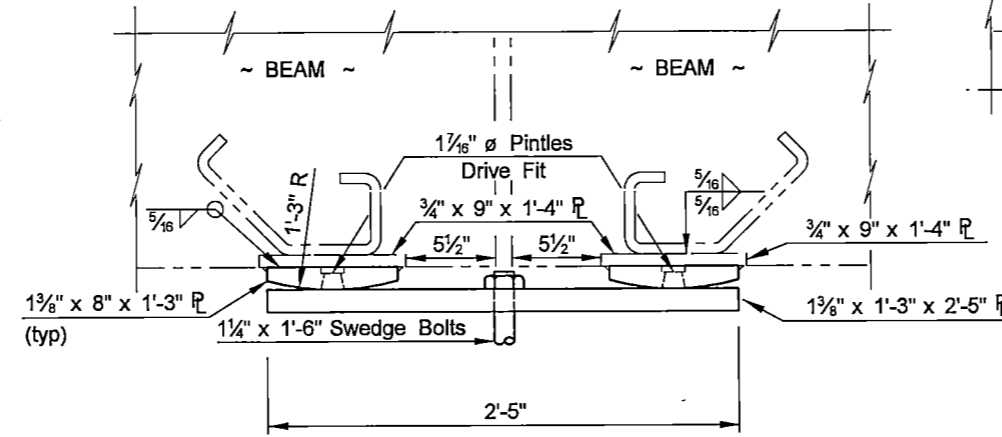
**BNSF & SE JAMESTOWN INTERCHANGE**

**PRE-TENSIONED 36" PRESTRESSED BEAM**

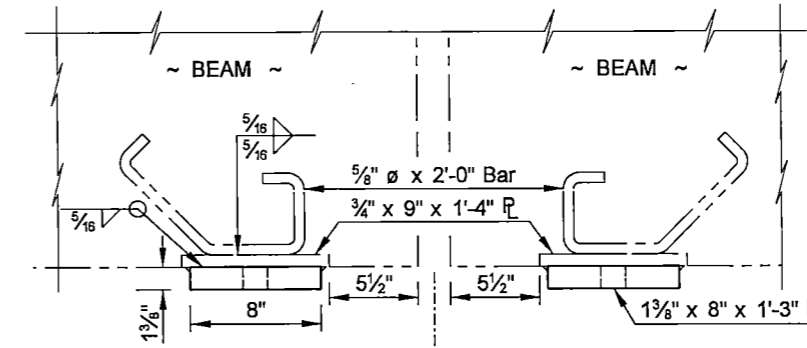
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	13



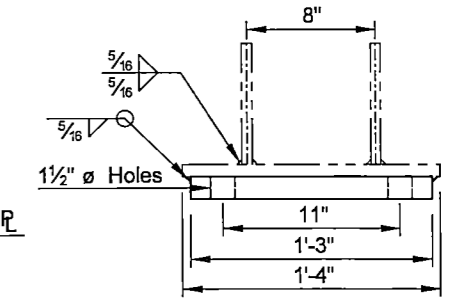
ELEVATION



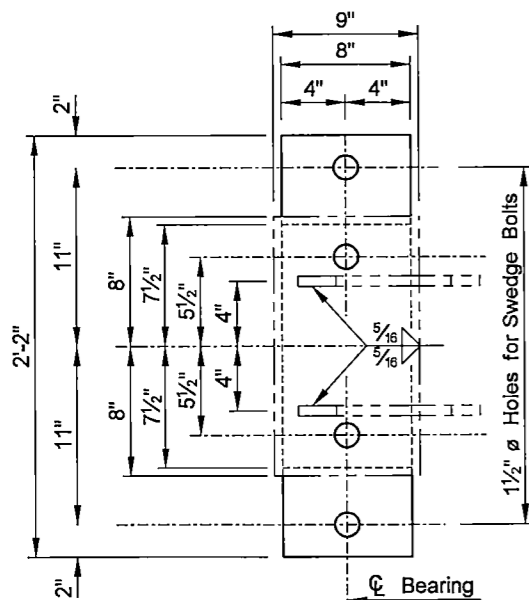
ELEVATION



ELEVATION

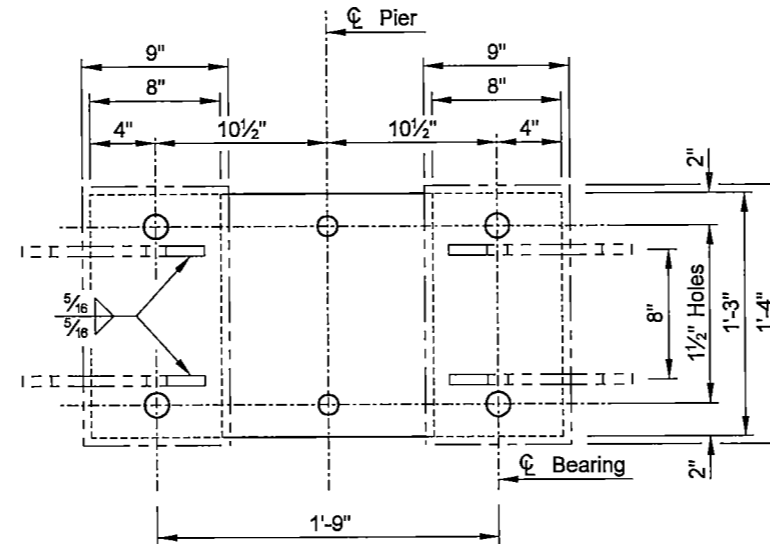
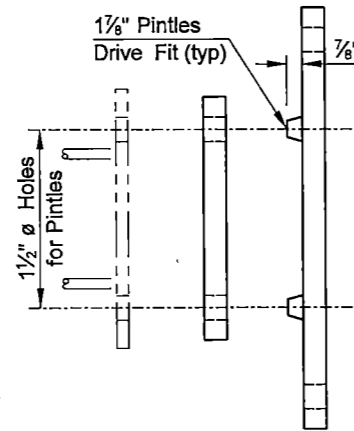


ELEVATION



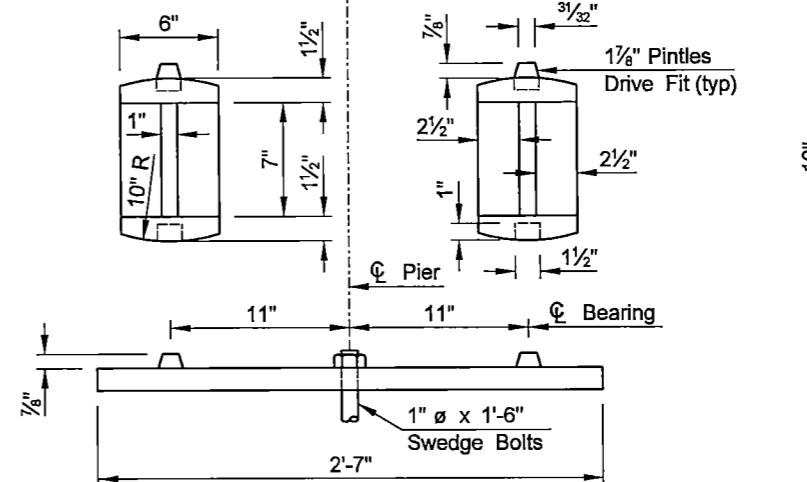
PLAN

(Single Fixed Bearing)  
 ABUTMENTS 1 & 5



PLAN

(Double Fixed Bearing)  
 PIER 3



PLAN

(Double Expansion Bearing)  
 PIER 2 & 4

NOTES:

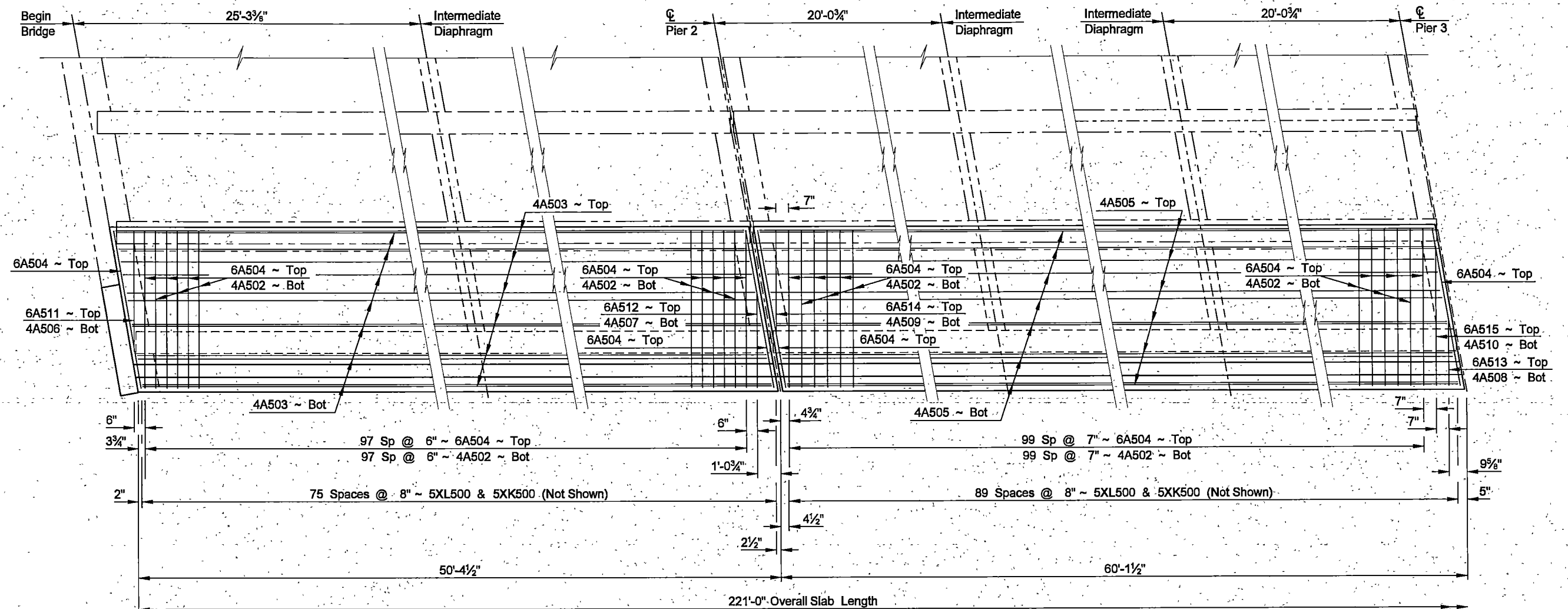
The structural steel for the abutment and pier bearings shall be AASHTO M270 Grade 50WT2: The Charpy V-notch test is waived. The pintles shall meet AASHTO M222 and the swedge bolts shall meet ASTM A449. The bearings shall be shop painted Gray color No. 26152 and shall meet Federal Standard No. 595B. All labor, equipment, and materials to complete this work shall be included in the price bid for "Structural Steel."

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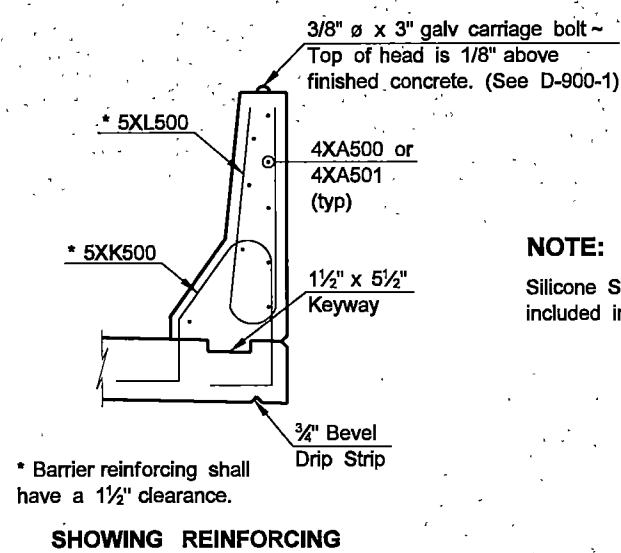
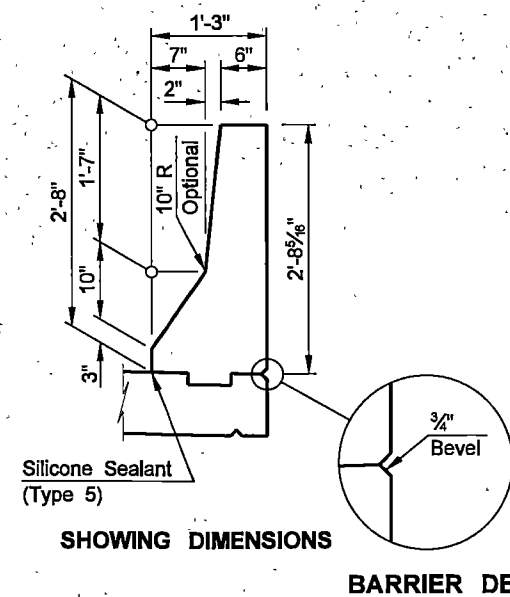
BNSF & SE JAMESTOWN  
 INTERCHANGE

BEARING DETAILS

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	14



PLAN



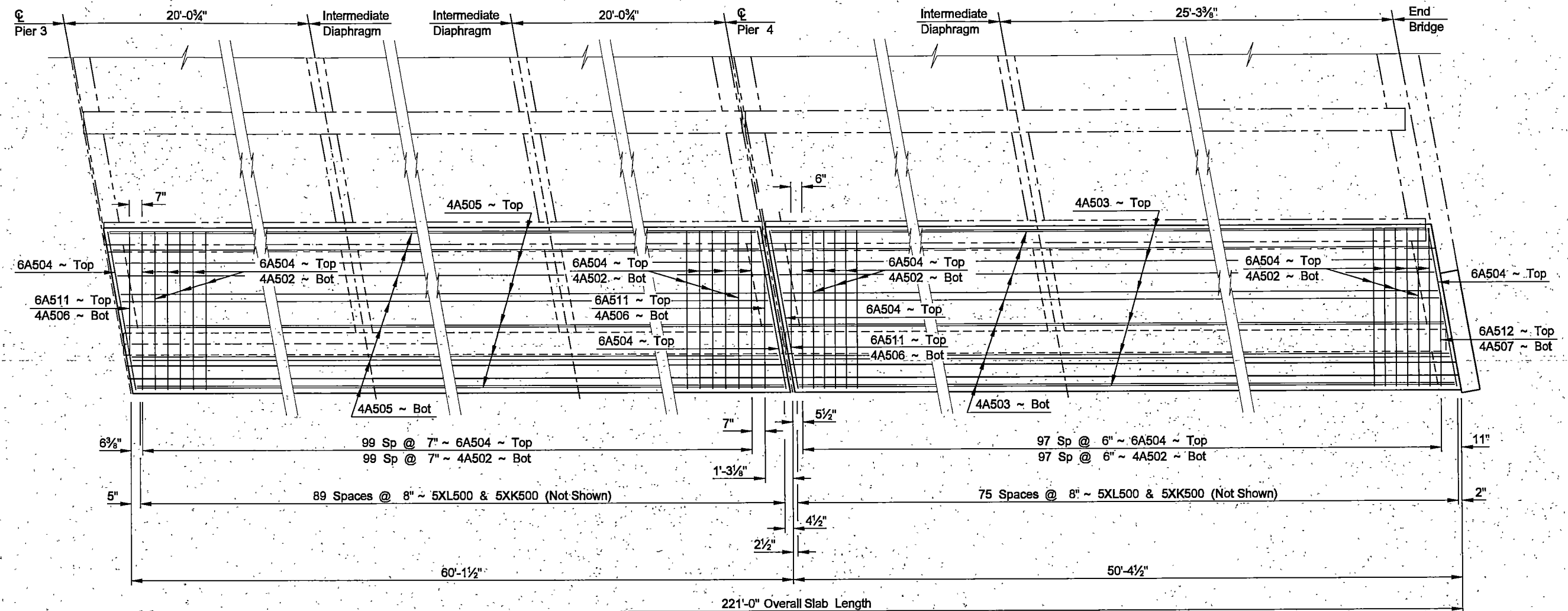
**NOTE:**  
 Silicone Sealant for the barrier shall be included in the price bid for "Class AAE-3 Concrete."

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QUANTITIES
SEE DWG 94-260.125R-18
<b>BNSF &amp; SE JAMESTOWN INTERCHANGE</b>
<b>SLAB LAYOUT</b>



STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	15

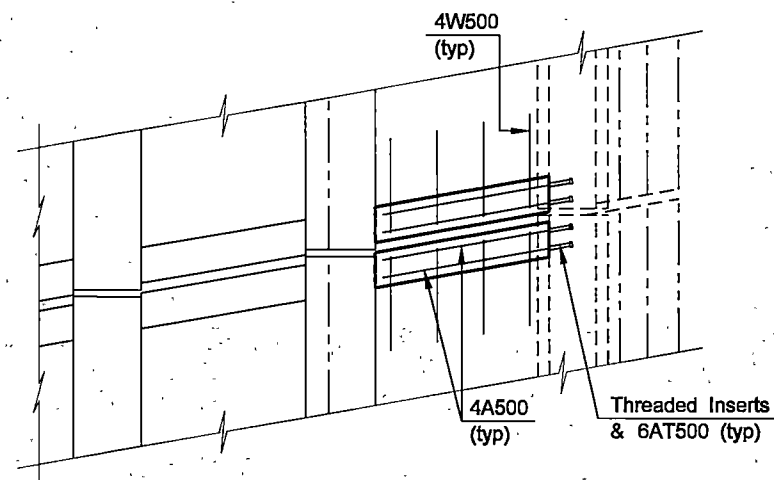


PLAN

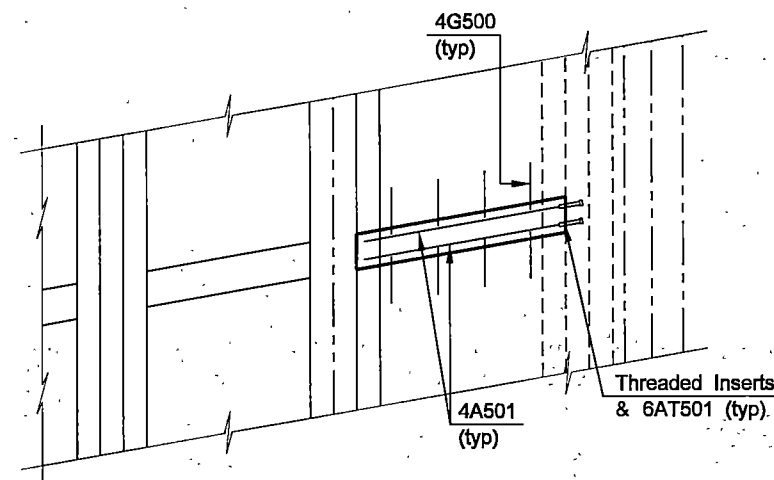
This document was originally issued and sealed by Jason R Thorenson, Registration Number PE 5048, on 9/14/09 and the original document is stored at the North Dakota Department of Transportation

QUANTITIES
SEE DWG 94-260.125R-18
<b>BNSF &amp; SE JAMESTOWN INTERCHANGE</b>
<b>SLAB LAYOUT</b>

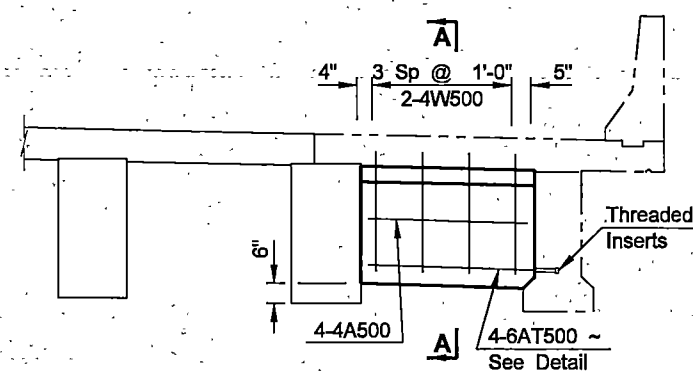
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	16



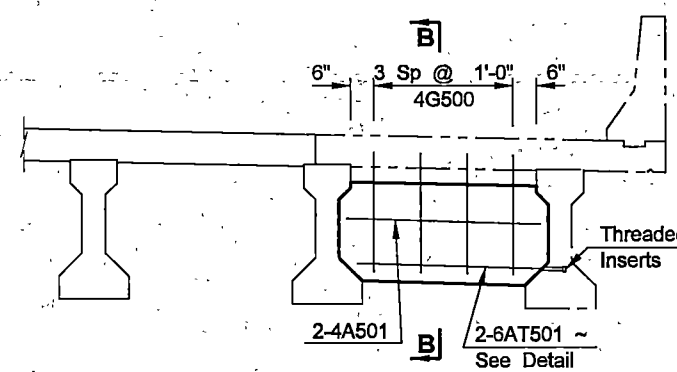
PLAN



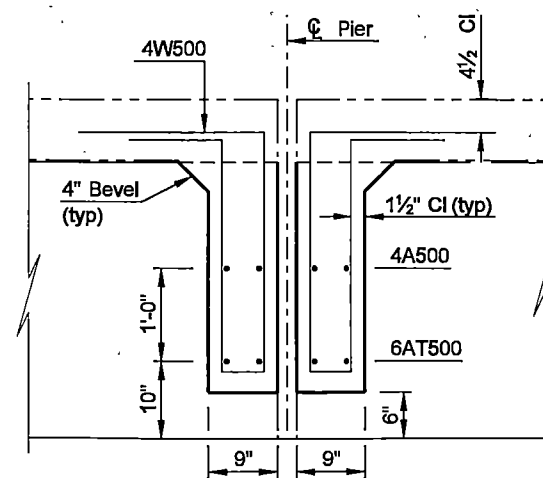
PLAN



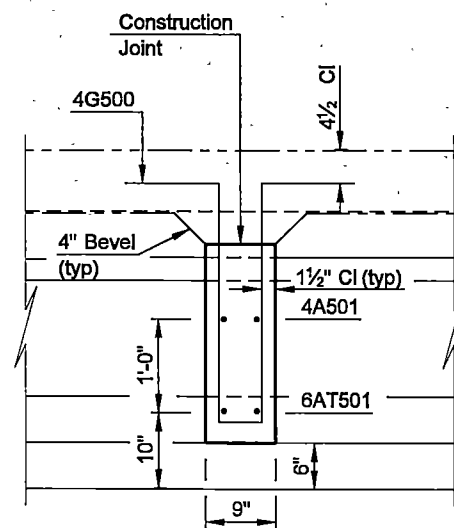
ELEVATION  
 PIER DIAPHRAGMS



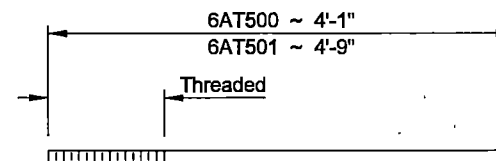
ELEVATION  
 INTERMEDIATE DIAPHRAGMS



PIER DIAPHRAGMS  
 A-A



INTERMEDIATE DIAPHRAGMS  
 B-B



No. 6 Reinforcing Steel ~ Included in the Prestressed I-Beam 36" bid item.

6AT500 & 6AT501 DETAIL

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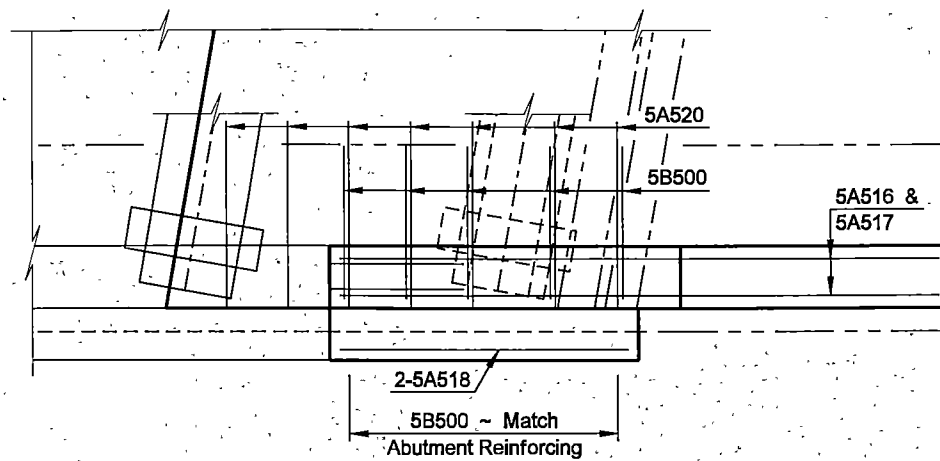
QUANTITIES

SEE DWG 94-260.125R-18

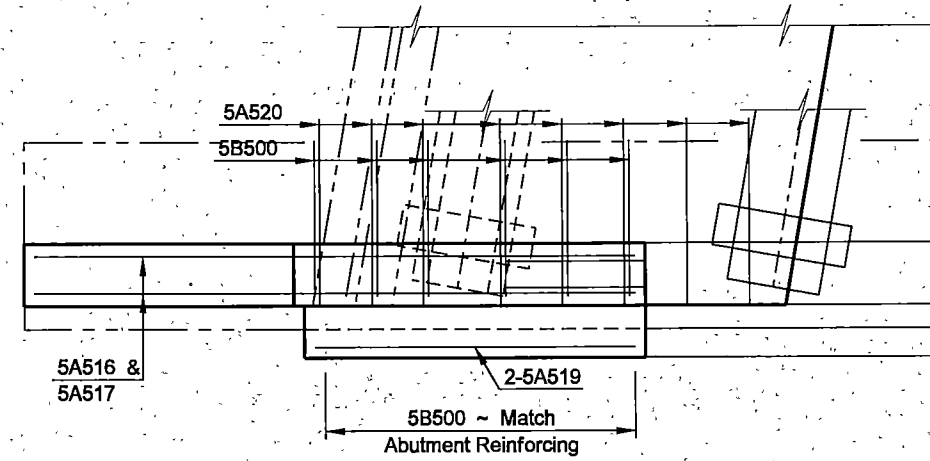
BNSF & SE JAMESTOWN INTERCHANGE

INTERMEDIATE & PIER DIAPHRAGM DETAILS

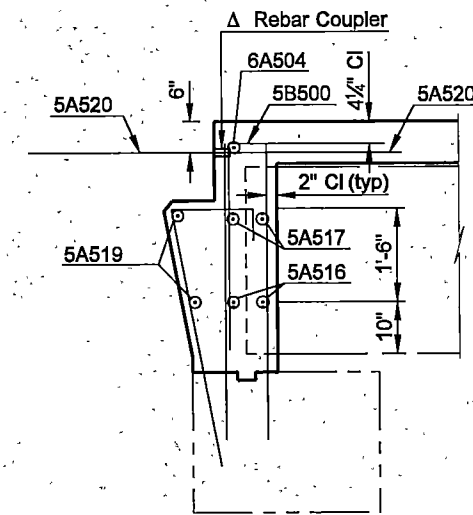
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	17



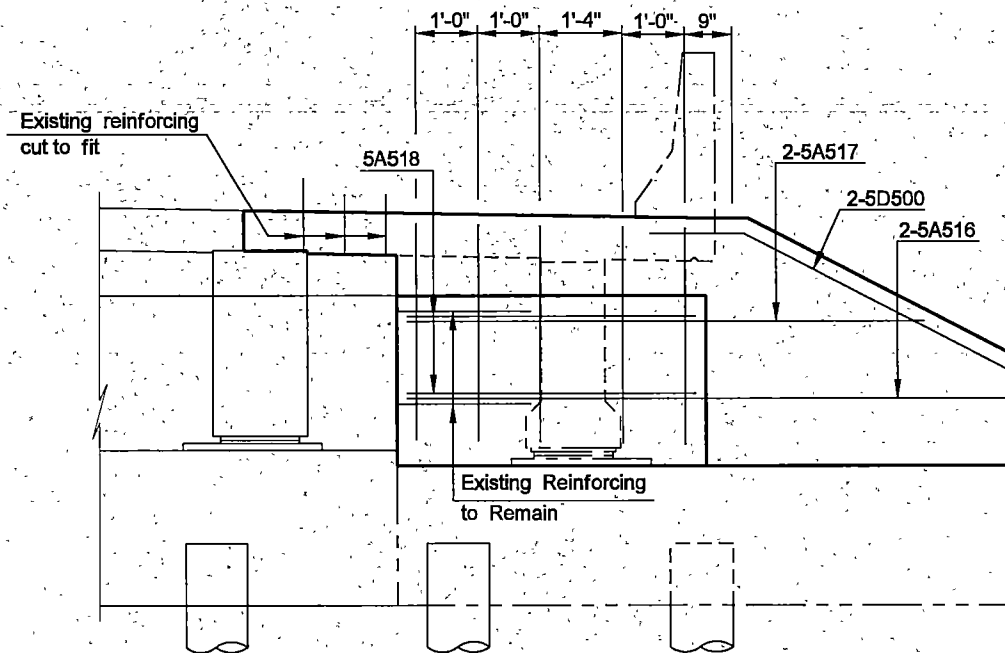
PLAN



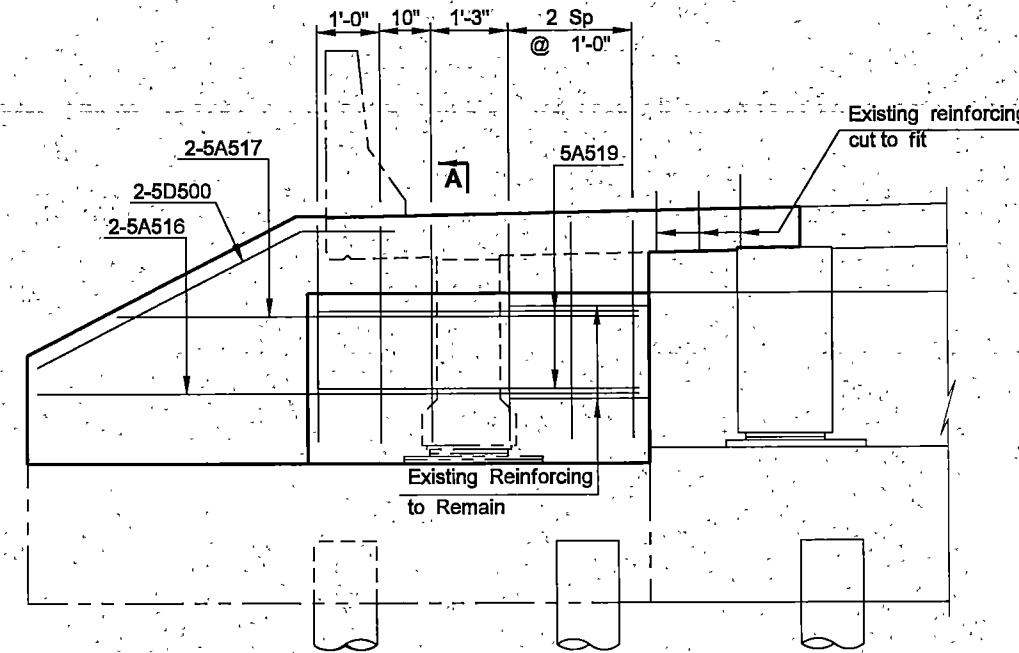
PLAN



A-A



ELEVATION  
 ENDWALL ~ ABUTMENT 1



ELEVATION  
 ENDWALL ~ ABUTMENT 5

**NOTES:**

The 5A520 bars may or may not be present in the existing structure. If they are present, then install the 5A520 bars as shown.

Δ Rebar couplers shall be capable of developing 125% of the specified yield strength of the reinforcing steel.

The 5A520 bars extending into the approach slab shall not be installed until all of the select backfill is in place.

The 5A516 & 5A517 bars shall lap the existing reinforcing steel a minimum of 2 ft.

**QUANTITIES**

SEE DWG 94-260.125R-18

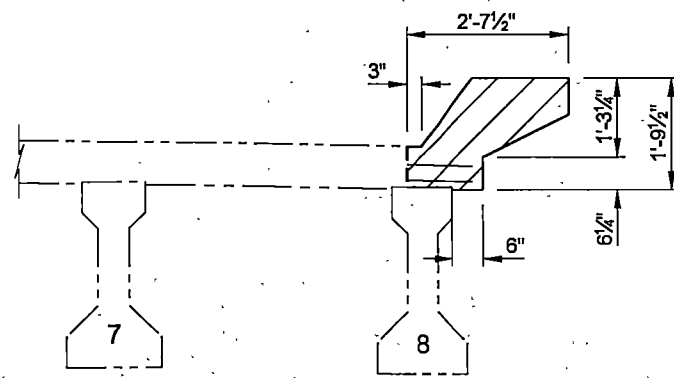
**BNSF & SE JAMESTOWN  
 INTERCHANGE**

**ENDWALL DETAILS**

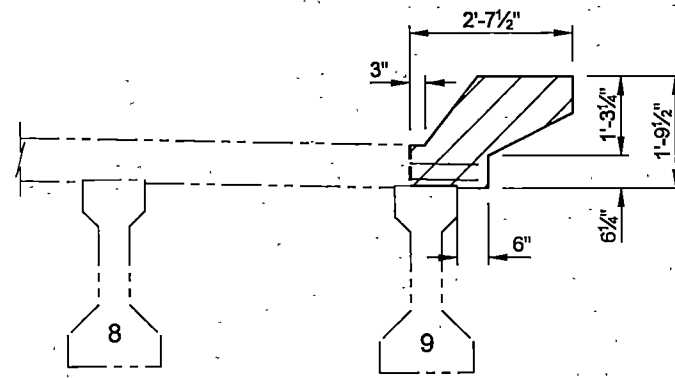
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23 U.S.C. 409  
 NDDOT Reserves All Objections

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	18

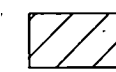


REMOVAL DETAIL ~ SPANS 1 & 4



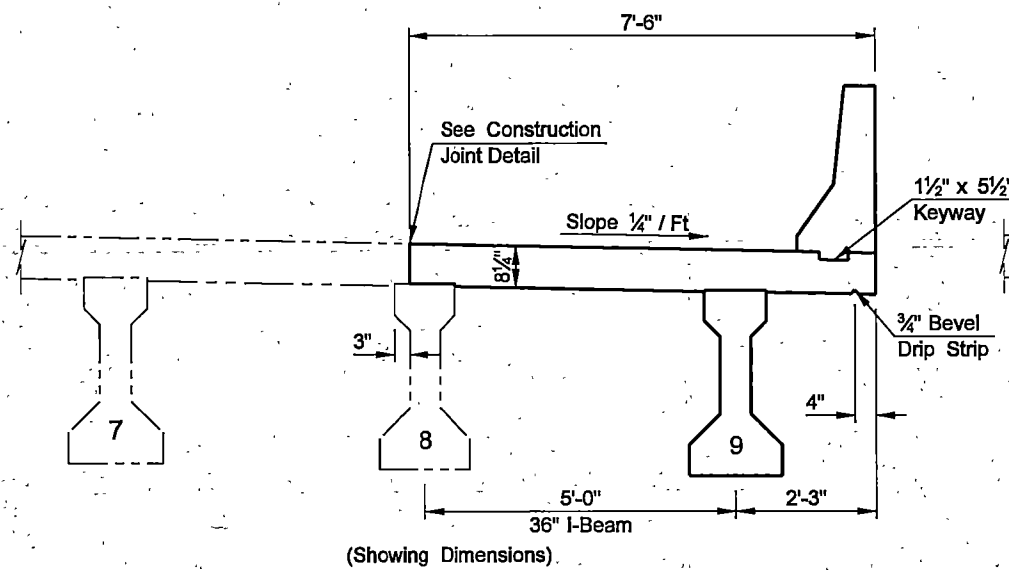
REMOVAL DETAIL ~ SPANS 2 & 3

--- Denotes areas to be saw cut  
 1" deep to facilitate removal.

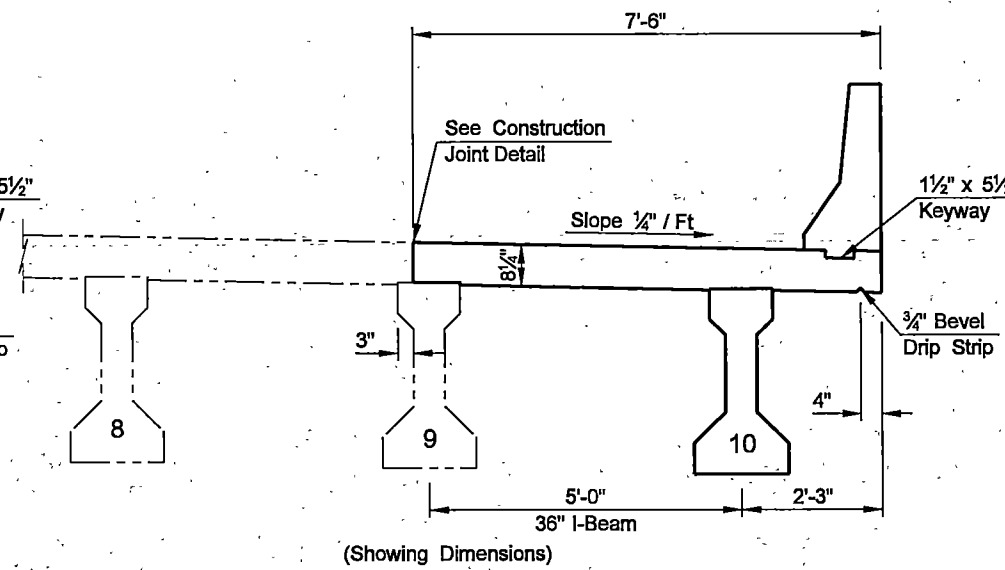


Hatched area indicates removal areas. The deck shall be saw cut to a depth of 1" to produce a neat line between the concrete to be removed and the concrete to remain. Care shall be taken to ensure no damage is done to reinforcing steel that is to remain in place as shown. Any rust scale found on the exposed existing reinforcing steel shall be thoroughly sand blast cleaned.

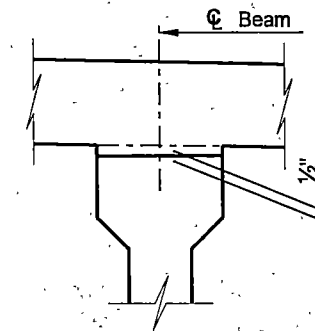
△ Rebar couplers shall be capable of developing 125% of the specified yield strength of the reinforcing steel.



PROPOSED DECK SECTION ~ SPANS 1 & 4

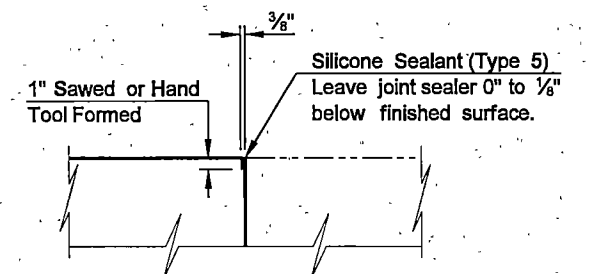


PROPOSED DECK SECTION ~ SPANS 2 & 3



The 1/2" dimension shown is located at the supports. The anticipated midspan riser is a negative 1/4". The riser shall be adjusted to maintain a minimum 8 1/4" deck thickness.

RISER DETAIL



The work and material to install the joint shall be included in the pay item "Class AAE-3 Concrete."

CONSTRUCTION JOINT DETAIL

QUANTITIES

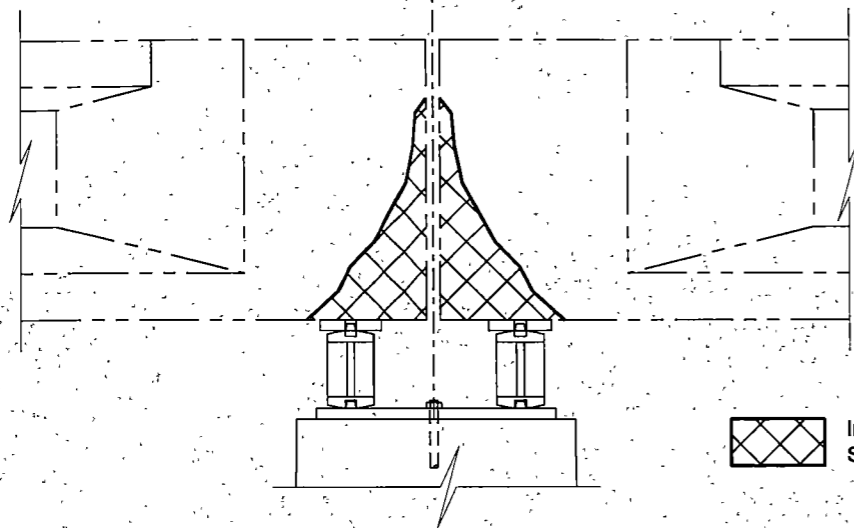
CLASS AAE-3 CONCRETE	65.2 CY
REINFORCING STEEL	8,288 LBS
REINFORCING STEEL (EPOXY)	4,751 LBS

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BNSF & SE JAMESTOWN INTERCHANGE

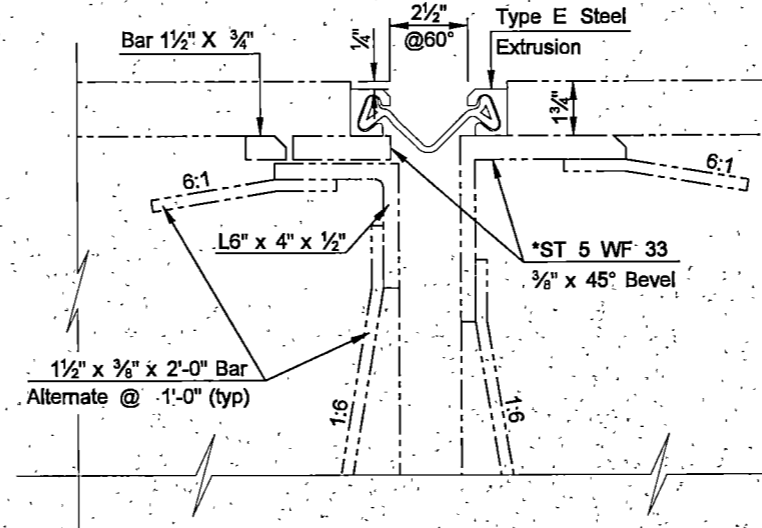
SLAB SECTION

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	19

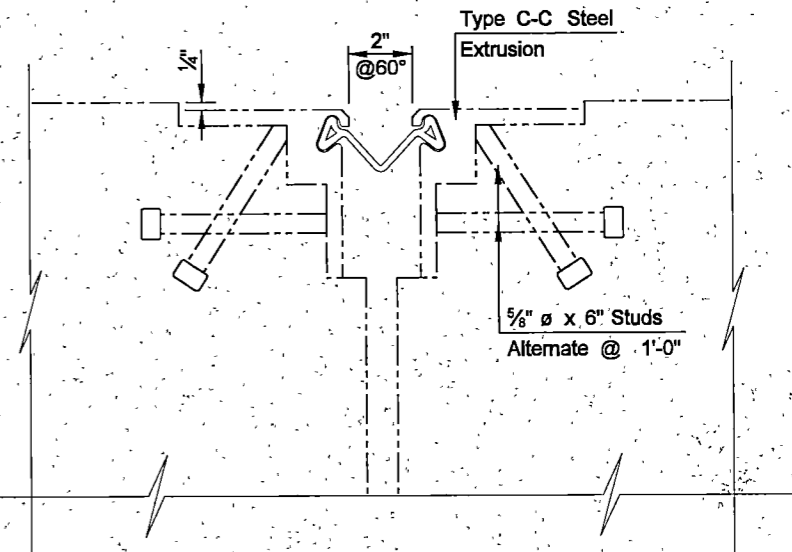


(EXTERIOR BEAM ELEVATION)  
 BEAM END REPAIR

Indicates Spall Area



EXISTING EXPANSION JOINT  
 PIER 2 & 4



EXISTING MODIFIED JOINT  
 PIER 3

**NOTES:**

**BEAM END REPAIR:** The detail shown illustrates the approximate spalling on the exterior beam ends at Piers, 2, 3, & 4. The actual limits of the repair shall be determined by the Engineer in the field. The Contractor shall remove all unsound concrete and replace it with new concrete to restore the beams to their original cross section.

A 15 pound maximum size hammer shall be used on any unsound concrete removal. The edges of the repair areas shall be sharp, neat lines at least 1 inch deep. These sharp, neat lines shall be produced by saw cutting or other means approved by the Engineer. Care shall be taken in the removal process to ensure no damage is done to the prestressing and reinforcing steel.

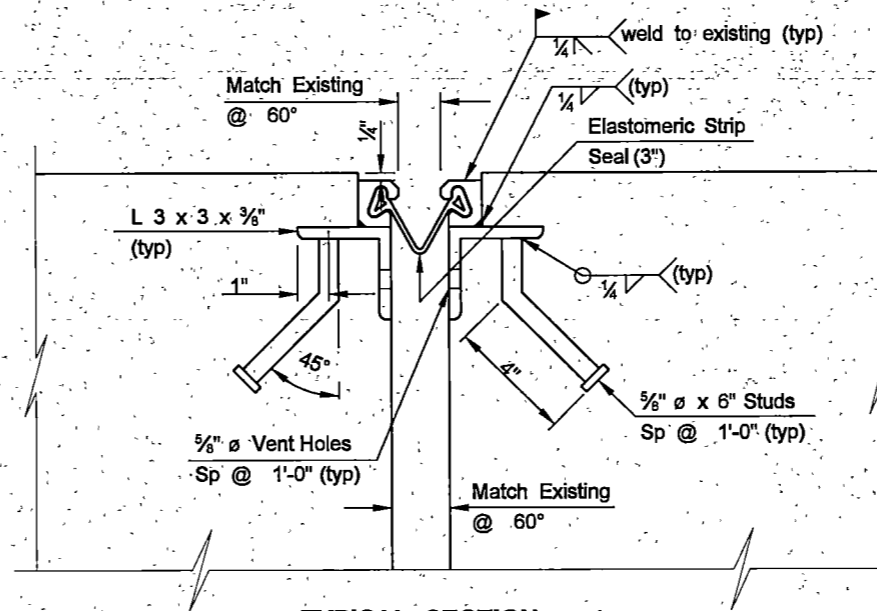
After all unsound concrete is removed, the existing surface shall be cleaned by light sandblasting or high pressure water blasting. After the surface has dried and just before the patching material is placed, the surface shall be coated with an epoxy bonding agent.

The patching material shall be Class AE-5 concrete or other concrete material that is specifically intended for patching concrete. This material may be SikaTop 122 Plus (Sika Corporation), Tamms Industries Duraltop Gel, ThoRoc HB2 (ChemRex Incorporated), or an approved equal repair mortar.

It is important to minimize the shrinkage in the patching material. Therefore, the Contractor shall take steps including proper curing to minimize shrinkage.

The beam end repair quantity is based on the north and south exterior beam ends at each pier.

Costs for all labor, equipment and materials needed to repair each beam end shall be paid for per each under the bid item "Beam End Repair."



TYPICAL SECTION

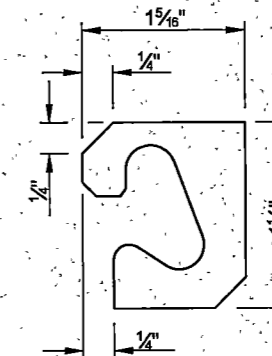
(Galvaize After Fabrication)  
 EXPANSION JOINT DETAILS

**NOTES:**

**EXPANSION JOINT STRIP SEAL:** \*The existing ST 5 WF 33 3/8 x 45 ø bevel at piers 2 and 4 were cut and adjusted to accommodate the Type E steel extrusion and strip seal shown above.

The existing extrusions shall remain in place. The existing strip seals shall be removed and a new strip seal shall be installed to accommodate the proposed deck width. The Contractor shall provide expansion joint extrusions such that the strip seal shall fit smoothly between the existing and proposed extrusions. The extrusions shall be welded to the existing extrusions to prevent water from leaking through the joint. The extrusion and strip seal shall extend 6 inch up the face of curb on the widened portion and the strip seal shall extend 6 inch beyond the existing extrusion on the north end.

All labor, equipment, and materials required to complete this work shall be included in the price bid for "Expansion Joint Strip Seal."



STEEL EXTRUSION

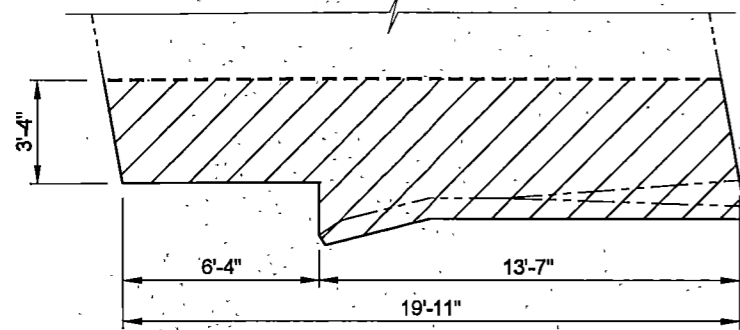
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BSNF & SE JAMESTOWN  
 INTERCHANGE

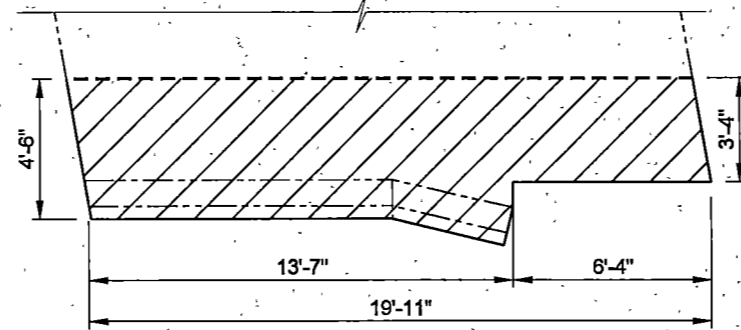
JOINT DETAILS  
 & BEAM END REPAIR



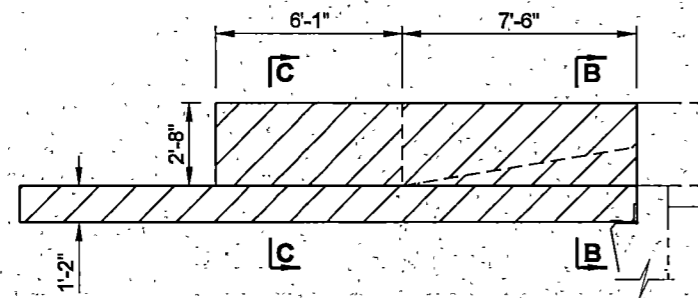
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	21



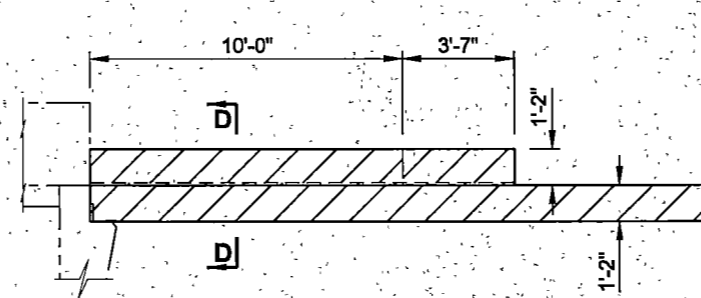
(ENTRANCE END ~ SHOWING REMOVAL)  
 EXISTING PLAN



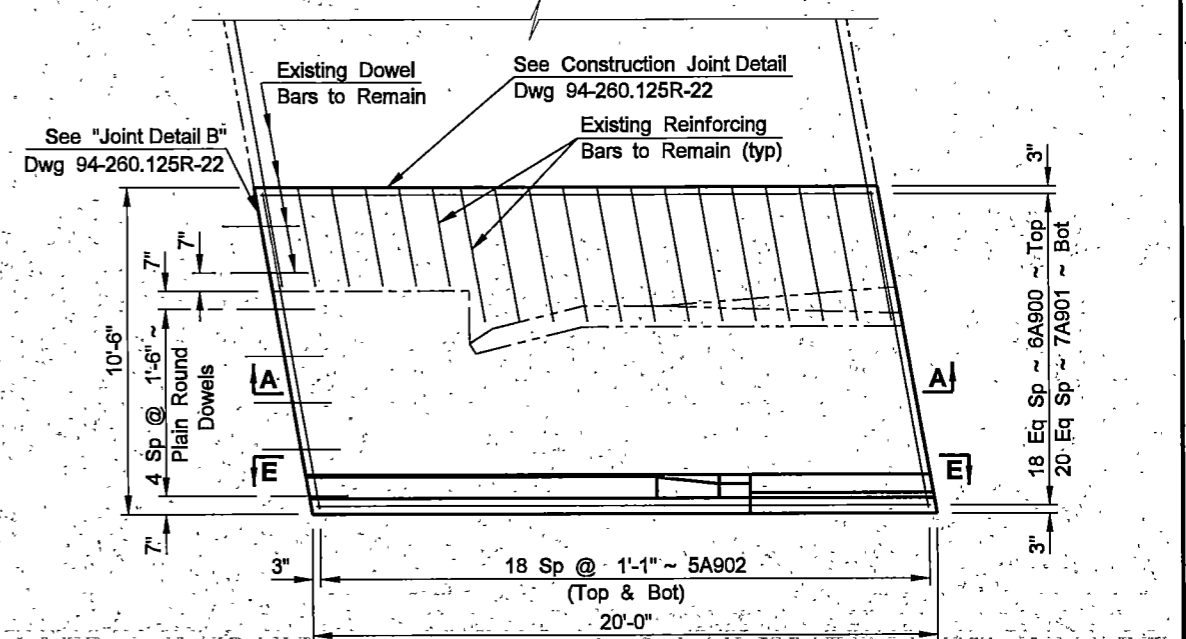
(EXIT END ~ SHOWING REMOVAL)  
 EXISTING PLAN



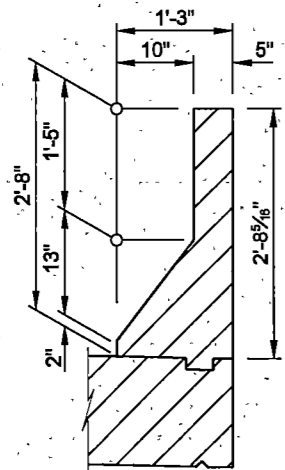
(ENTRANCE END ~ SHOWING REMOVAL)  
 EXISTING ELEVATION



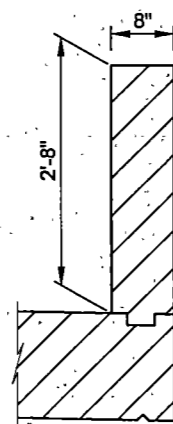
(EXIT END ~ SHOWING REMOVAL)  
 EXISTING ELEVATION



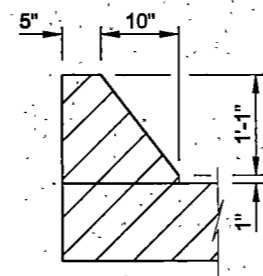
PLAN



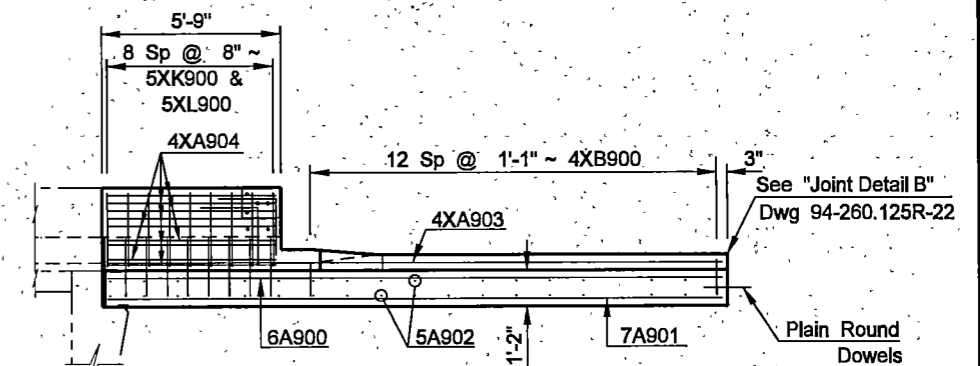
B-B  
 (ENTRANCE END ~ SHOWING REMOVAL)  
 EXISTING BARRIER ELEVATION



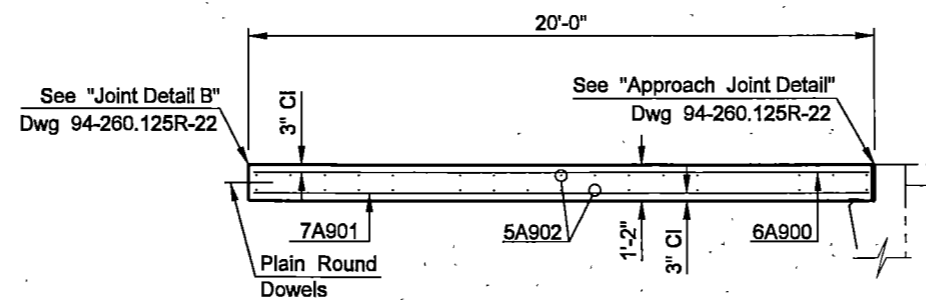
C-C



D-D  
 (EXIT END ~ SHOWING REMOVAL)  
 EXISTING CURB ELEVATION

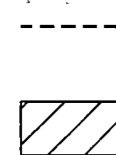


E-E



A-A

Entrance end shown.  
 Rotate for exit end.



Denotes areas to be saw cut  
 1" deep to facilitate removal.

Hatched area indicates removal areas.  
 The deck shall be saw cut to a depth of 1" to produce a neat line between the concrete to be removed and the concrete to remain. Care shall be taken to ensure no damage is done to reinforcing steel that is to remain in place as shown. Any rust scale found on the exposed existing reinforcing steel shall be thoroughly sand blast cleaned.

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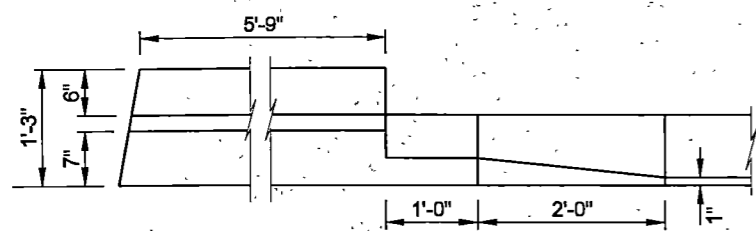
**QUANTITIES**

SEE DWG 94-260.125R-22

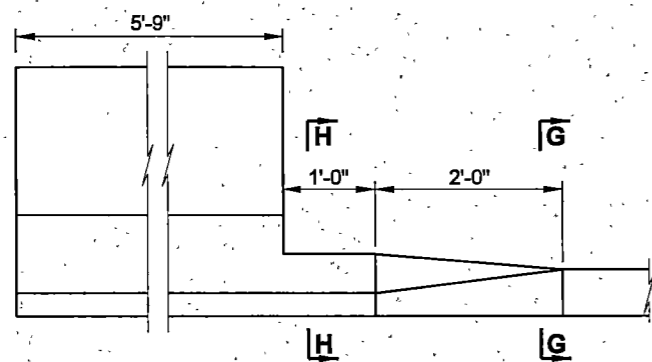
**BNSF & SE JAMESTOWN INTERCHANGE**

**APPROACH SLAB**

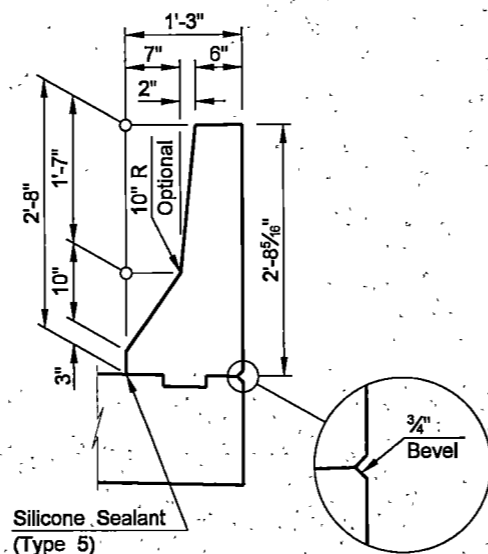
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	SHE-SIM-2-094(094)260	170	22



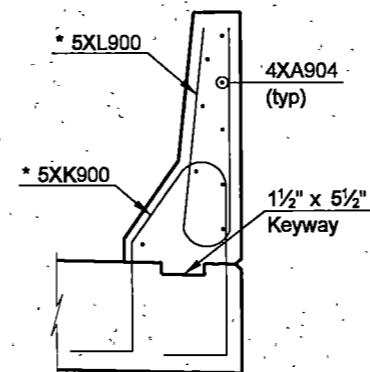
PLAN



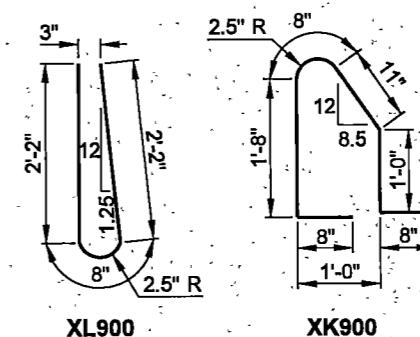
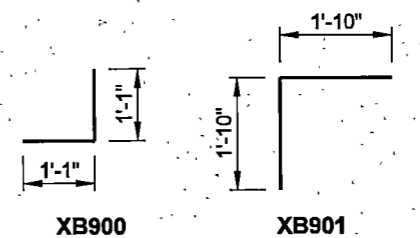
ELEVATION  
 (SHOWING FRONT FACE)  
 CURB TRANSITION DETAIL



SHOWING DIMENSIONS  
 BARRIER DETAIL



SHOWING REINFORCING



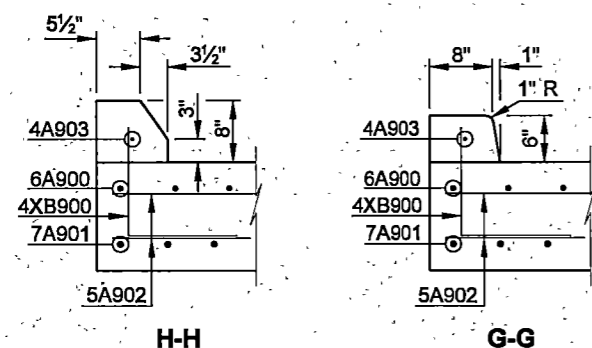
BENT BAR DETAILS

**SKUEW ANGLE = 10°**

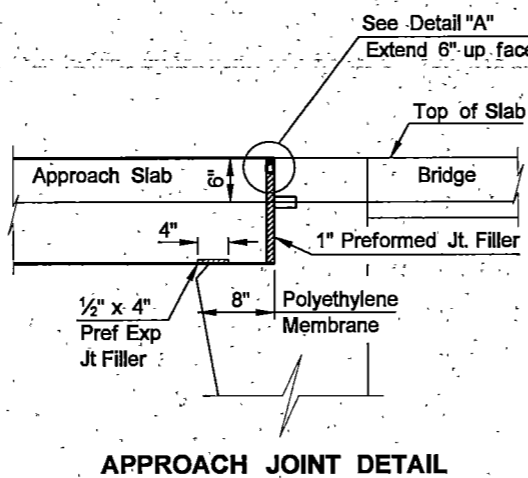
BAR LIST - ONE SLAB			
SIZE	MARK	NO.	LENGTH
6	A900	19	19'-8"
7	A901	21	19'-8"
5	A902	38	10'-4"
4	A903	1	19'-8"
4	XA904	9	5'-5"
4	XB900	13	2'-2"
4	XB901	4	3'-8"
5	XK900	9	5'-7"
5	XL900	9	5'-0"

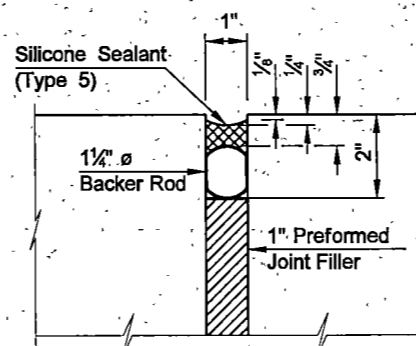
ESTIMATED MATERIAL QUANTITIES	
REINFORCING STEEL (LBS)	CONCRETE (CY)
1989	11.4



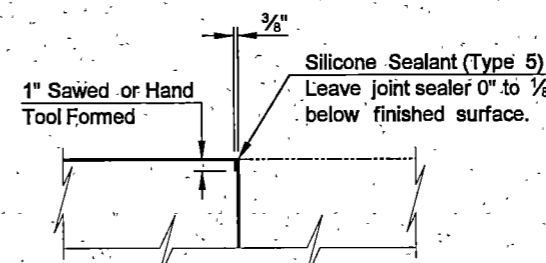
H-H G-G



APPROACH JOINT DETAIL



DETAIL A

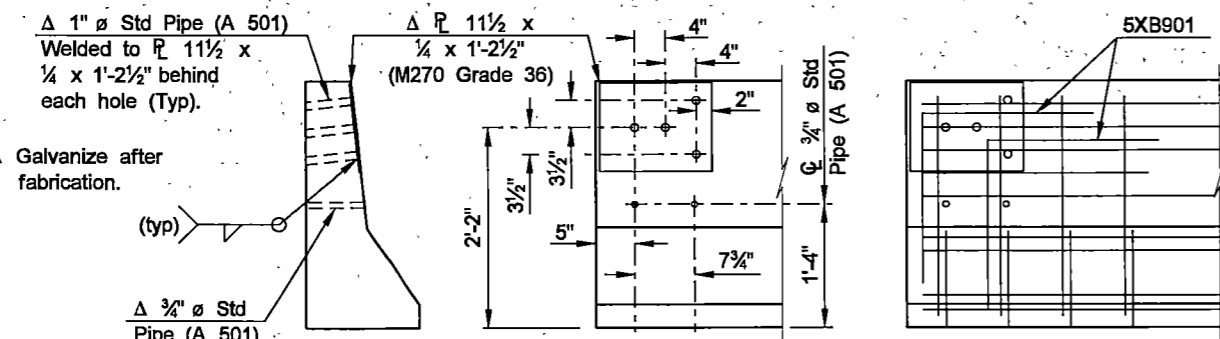


CONSTRUCTION JOINT DETAIL

NOTES:

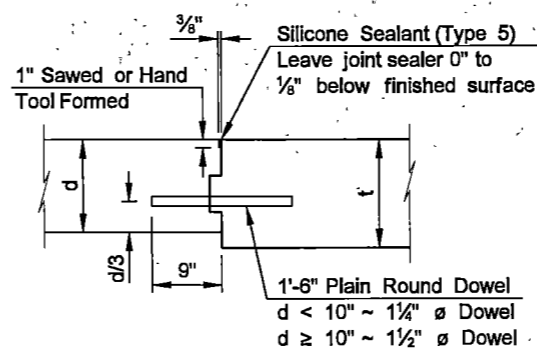
The estimated material quantities shown are for information purposes only. All materials including select backfill, concrete, reinforcing bars, polyethylene membrane, prefilled joint filler, silicone sealant in front of barrier, and all labor required to remove and build the approach slabs and curbs shall be included in the pay item "Bridge Approach Slab-Remove & Replace".

The concrete shall be Class AE-3 and the reinforcing steel shall be Grade 60. The polyethylene membrane shall meet the requirements of AASHTO M 171. The dimensions shown in the bent bar details are out to out.



SHOWING FRONT FACE SHOWING REINFORCING

CONNECTION PLATE DETAILS  
 Southwest and Southeast Corners



d = Pavement Thickness  
 t = Approach Slab Thickness

JOINT DETAIL B

This document was originally issued and sealed by Jason R Thorenson, Registration Number PE 5048, on 9/14/09 and the original document is stored at the North Dakota Department of Transportation

QUANTITIES (ONE SLAB)	
BRIDGE APPROACH SLAB- REMOVE & REPLACE	23.3 SY
<b>BNSF &amp; SE JAMESTOWN INTERCHANGE</b>	
<b>APPROACH SLAB</b>	



# BEAM STRESS DATA

April 14, 2011

Project  
Bridge #  
Short Bed

Stutsman County, SHE-SIM-2-094(094)260  
94-260-125R  
(2) 36"x 50'-0" AASHTO I-Beam

Strand	0.6 inch
Bed	Short
Number of Beams this setup	2 beams
Height of Beams	36 inches
Length of Beams	50.0000 feet
Degree of Skew	0.0000 degrees
Top Draped Strand (at end) to bottom	NA inches
Top Draped Strand (at center) to bottom	NA inches
Center of beam to first Hold Down	NA feet
Distance Horse to Horse	60.0000 feet
Distance from end of beam to horse	60.00 inches
Height of Horse above pallet top drape	NA inches
<b>STRAIGHT STRAND DATA</b>	
Straight Bottom Strand Elongation	17 1/2 inches
Total Gage Reading Bottom Strand	44,850 lbs.
<b>DRAPED STRAND DATA</b>	
Draped Strand Elongation	NA inches
Total Gage Reading Draped Strand	NA lbs.

No Exceptions Noted

BY: D Stolz

DATE: May 3, 2011

REVIEW DOES NOT RELIEVE CONTRACTOR FROM  
RESPONSIBILITY FOR ERRORS, OMISSIONS, OR  
DEVIATIONS FROM CONTRACT REQUIREMENTS

NDDOT

# BEAM STRESS DATA

April 14, 2011

Project  
Bridge #  
Short Bed

Stutsman County, SHE-SIM-2-094(094)260

94-260-125R

(2) 36"x 50'- 0" AASHTO I-Beam

Strand	0.6 inch
Bed	Short
Number of Beams this setup	2 beams
Height of Beams	36 inches
Length of Beams	50.0000 feet
Degree of Skew	0.0000 degrees
Top Draped Strand (at end) to bottom	NA inches
Top Draped Strand (at center) to bottom	NA inches
Center of beam to first Hold Down	NA feet
Distance Horse to Horse	60.0000 feet
Distance from end of beam to horse	60.00 inches
Height of Horse above pallet top drape	NA inches
<b>STRAIGHT STRAND DATA</b>	
Straight Bottom Strand Elongation	17 1/2 inches
Total Gage Reading Bottom Strand	44,850 lbs.
<b>DRAPED STRAND DATA</b>	
Draped Strand Elongation	NA inches
Total Gage Reading Draped Strand	NA lbs.

No Exceptions Noted

BY: D Stolz

DATE: May 3, 2011

REVIEW DOES NOT RELIEVE CONTRACTOR FROM  
RESPONSIBILITY FOR ERRORS, OMISSIONS, OR  
DEVIATIONS FROM CONTRACT REQUIREMENTS

NDDOT

INDEX OF SHEETS

- 1 - TITLE SHEET
- 2 - BEAM LAYOUT
- 3, 4 & 5 - DIMENSIONS OF BEAM
- 6 & 7 - STRAND DETAILS
- 8 & 9 - REINFORCING DETAILS
- 10 - REBAR DETAILS
- 11 - SAFETY SLEEVE LAYOUT

PRECAST BRIDGE BEAM  
SHOP DRAWINGS

COUNTY - STUTSMAN  
 PROJECT NO. - SHE-SIM-2-094(094)260  
 STRUCTURE NO. - 94-260.125R  
 ENGINEER - ND-DOT  
 CONTRACTOR - WANZEK CONSTRUCTION  
 MANUFACTURING PLANT - MENOKEN, NORTH DAKOTA

DESIGN DATA


CONCRETE DESIGN - 5,000 psi (50'-0" & 60'-0")  
 DETENSION - 5,000 psi. (50'-0" & 60'-0")  
 STRAND - 0.6" 270 K. S. I. LOW-RELAX  
 REINFORCING STEEL - GR. 60  
 PRESTRESS LOSS - 31.640 ksi final (50'-0")  
 - 39.420 ksi final (60'-0")  
 LOADING - HS-20  
 WEIGHT - 20,800# (50'-0")  
 - 24,820# (60'-0")

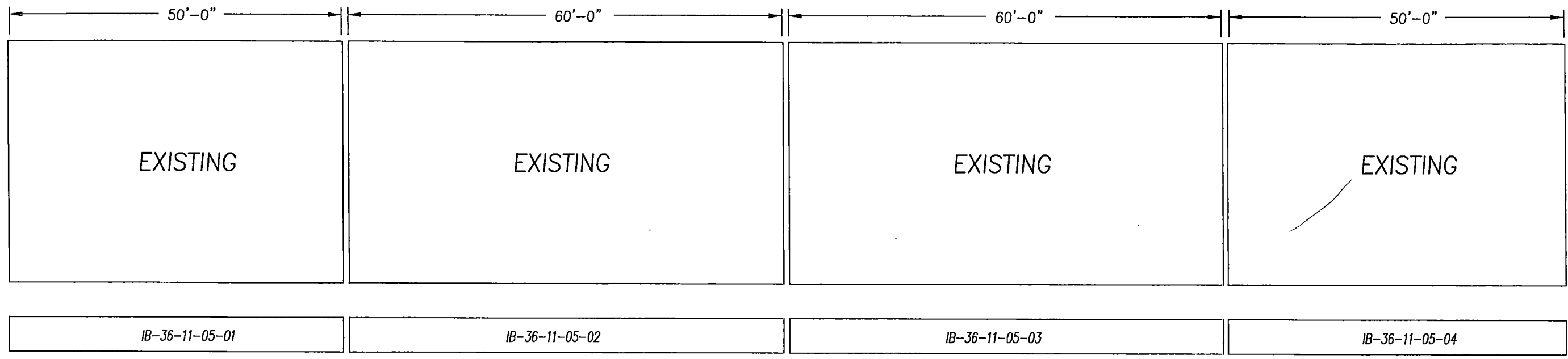
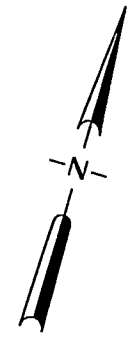


**NO EXCEPTIONS NOTED**

**NDDOT** Digitally signed by NDDOT  
DN: cn=NDDOT, o=Dean Stolz,  
ou=Bridge Division,  
email=dstolz@nd.gov, c=US  
Date: 2011.05.03 11:16:38 -0500

REVIEW DOES NOT RELIEVE CONTRACTOR FROM  
RESPONSIBILITY FOR ERRORS, OMISSIONS, OR  
DEVIATIONS FROM CONTRACT REQUIREMENTS  
NDDOT

SKEW 0°		
HEIGHT	36" AASHTO I-BEAM	
NO. OF BEAMS	2	2
LENGTH	50'-0"	60'-0"
 OFFICES IN: RAPID CITY    BISMARCK    HELENA		
SCALE <del>NONE</del>	DR'N. HK	
DATE 4/14/11	REV DATE 4/28/11	
RS# 491085	DWG NAME 1 - 05Layout - 491085	



SPAN 1

SPAN 2

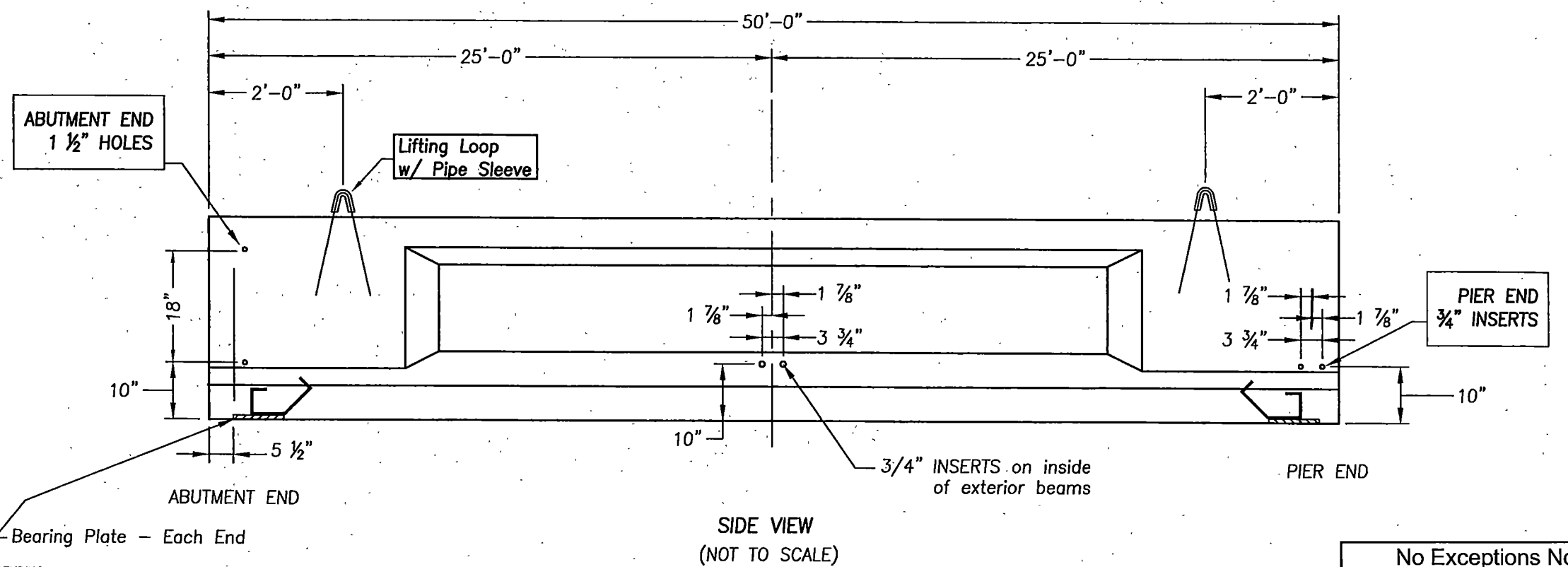
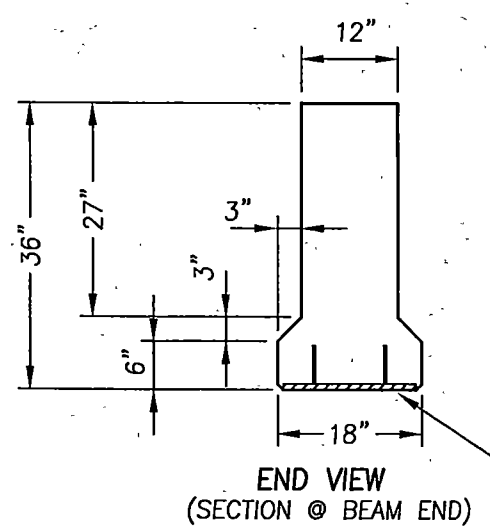
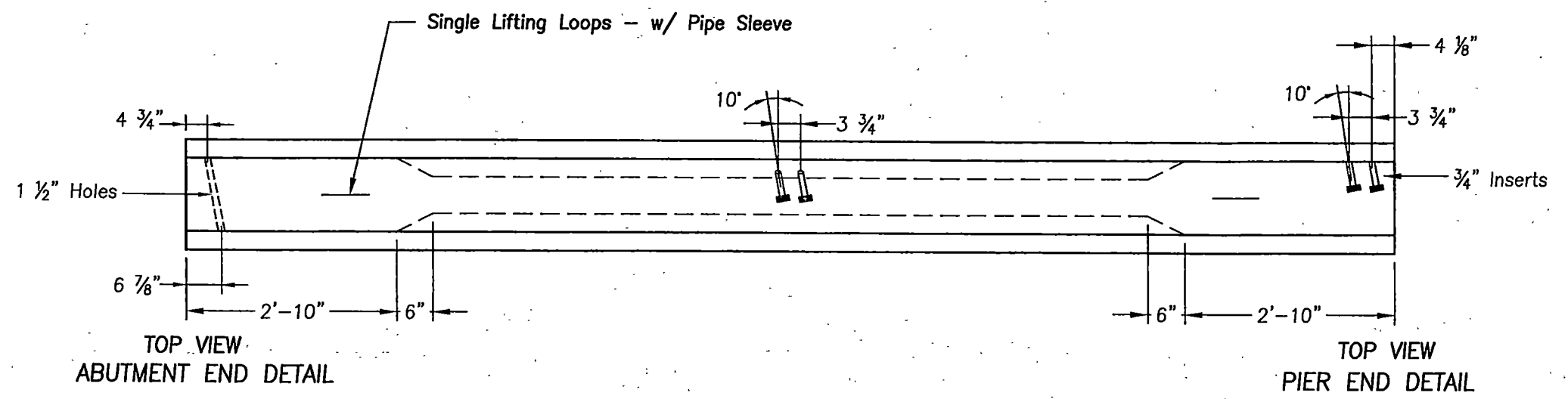
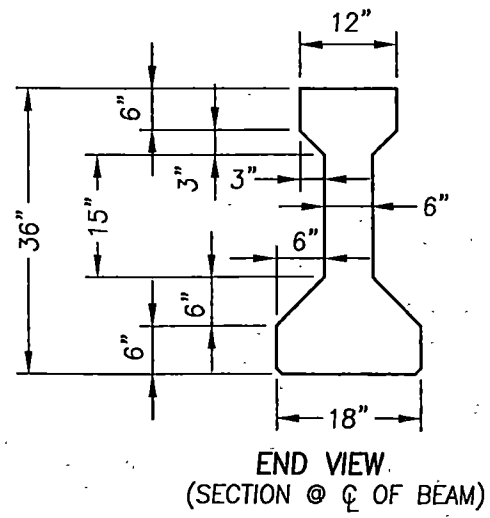
SPAN 3

SPAN 4

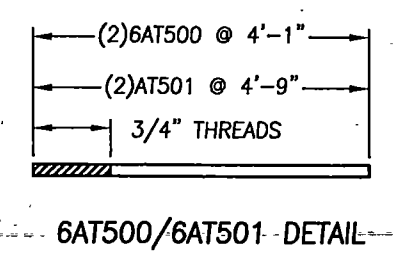
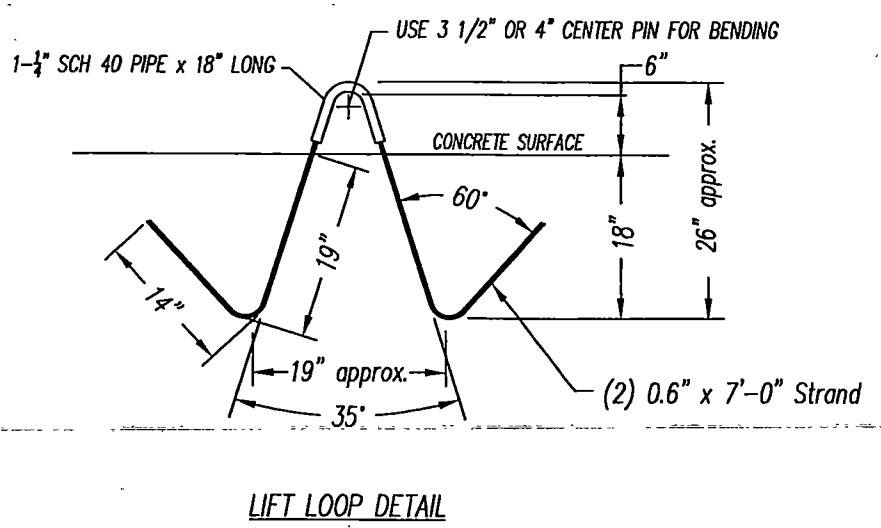
# LAYOUT

No Exceptions Noted  
 BY: D Stolz  
 DATE: May 3, 2011  
 REVIEW DOES NOT RELIEVE CONTRACTOR FROM  
 RESPONSIBILITY FOR ERRORS, OMISSIONS, OR  
 DEVIATIONS FROM CONTRACT REQUIREMENTS  
 NDDOT

		OFFICES IN: BISMARCK    HELENA    RAPID CITY	
SCALE	none	TITLE Stutsman County SHE-SIM-2-094(094)260 Bridge # 94-260.125R	
DATE	4/11/11		
DR'N BY	HK		
RS#	491085	CUSTOMER	Wanzek Construction
REV DATE	---	DWG NAME	02 - 05Layout - 491085



BEAM IB-36-11-05-01



No Exceptions Noted

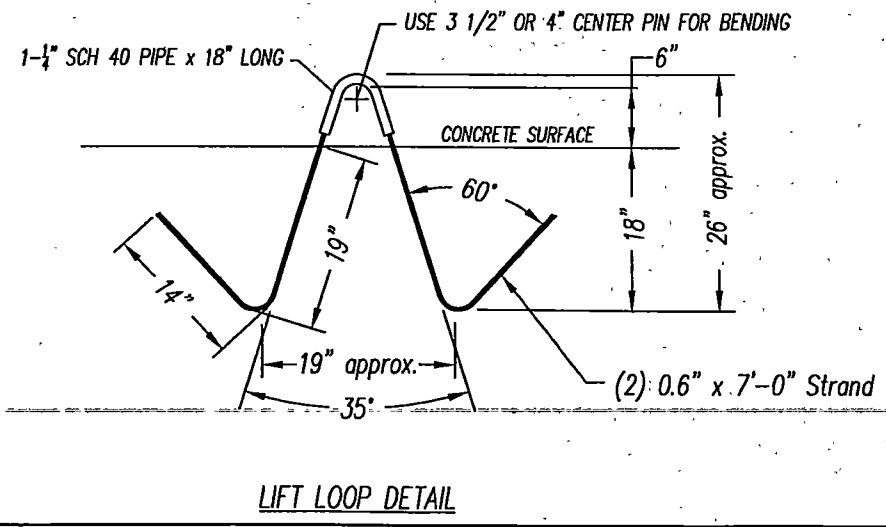
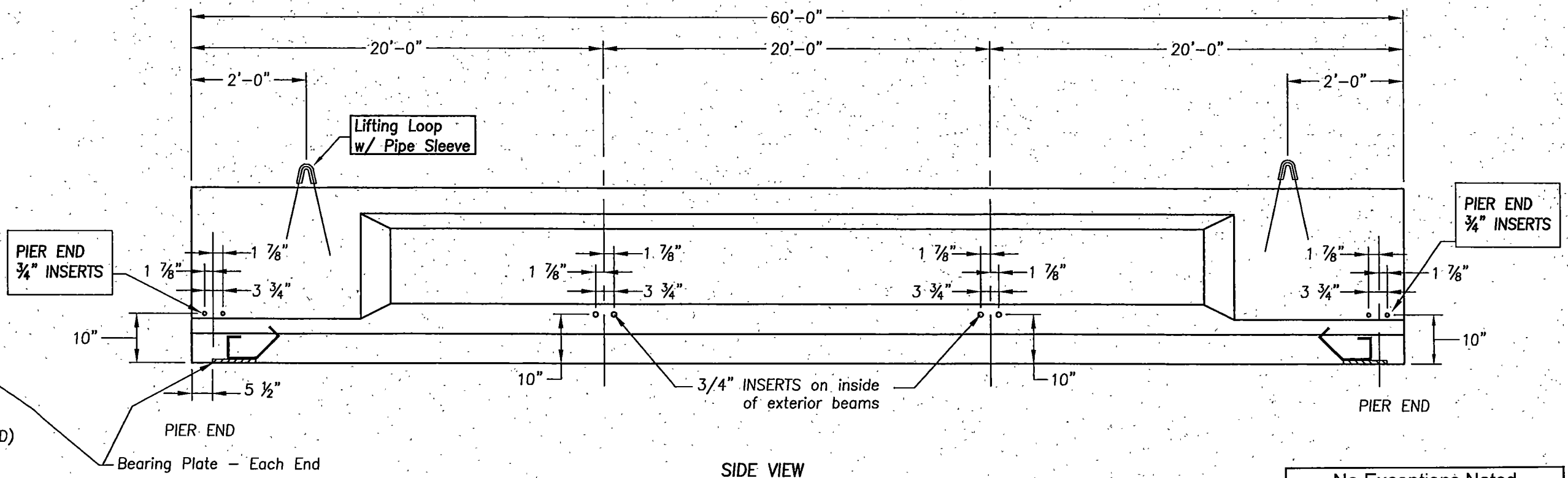
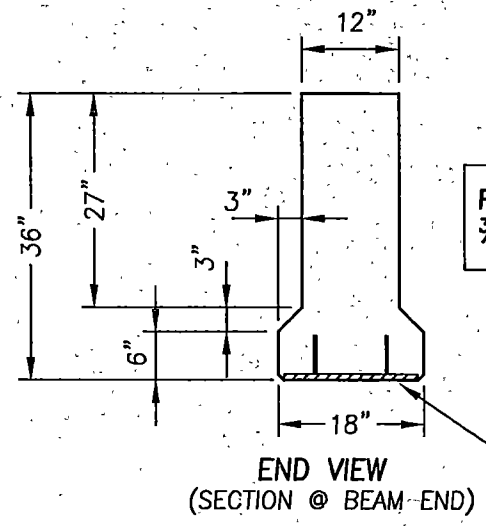
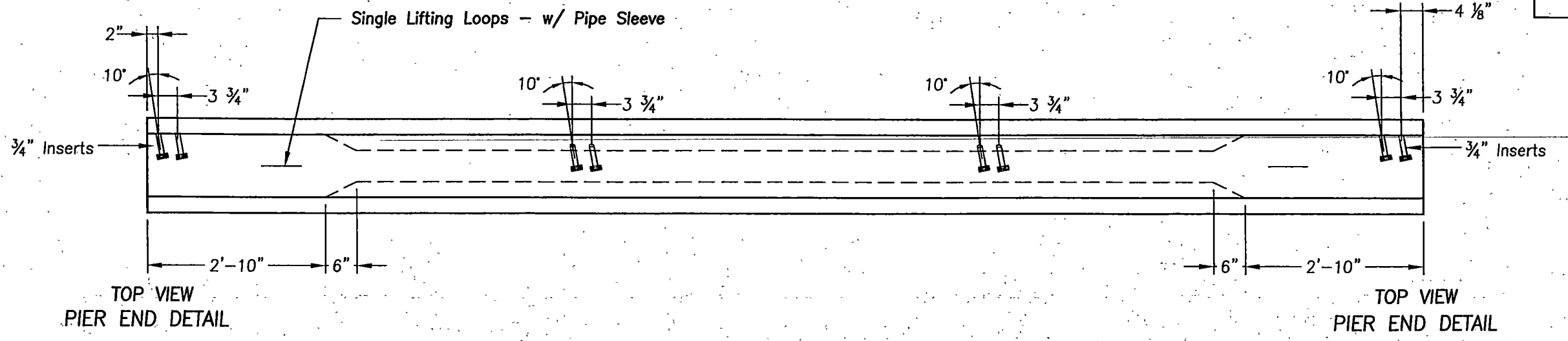
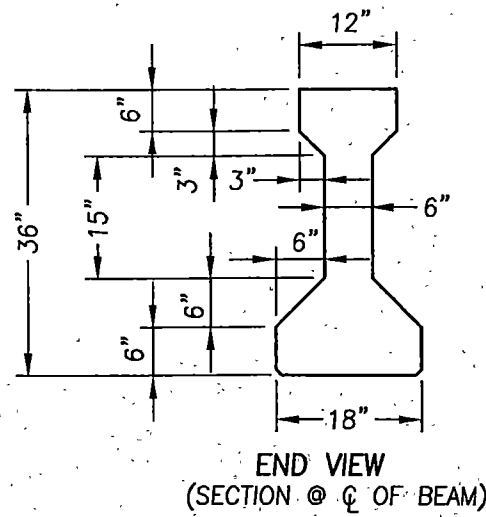
BY: D Stolz

DATE: May 3, 2011

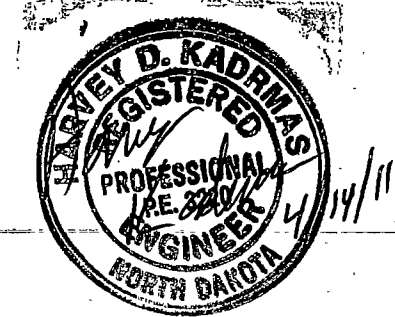
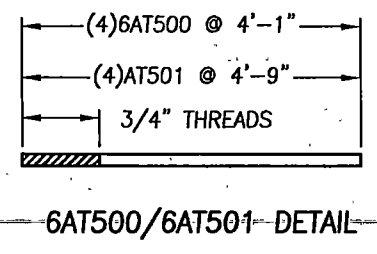
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS

NDDOT

CreteX Concrete Products West, Inc.		OFFICES IN: BISMARCK HELENA RAPID CITY	
SCALE none	TITLE	Stutsman County	
DATE 4/11/11		SHE-SIM-2-094(094)260	
DR'N BY HK		Bridge # 94-260.125R	
RS# 491085	CUSTOMER	Wanzek Construction	
REV DATE	DWG NAME	03 - 05Dim-01 - 491085	

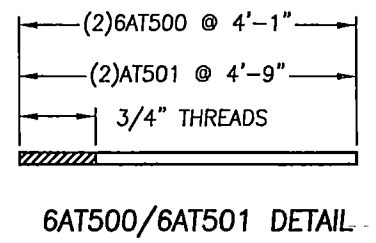
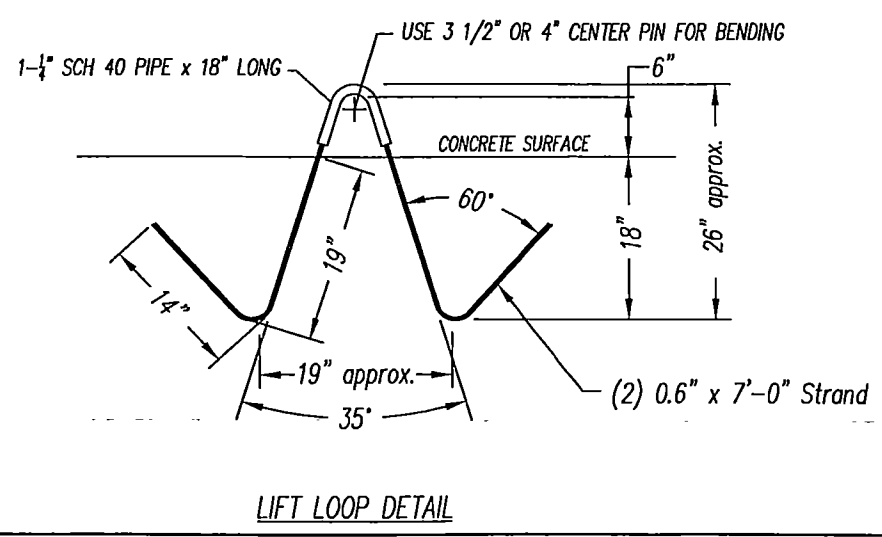
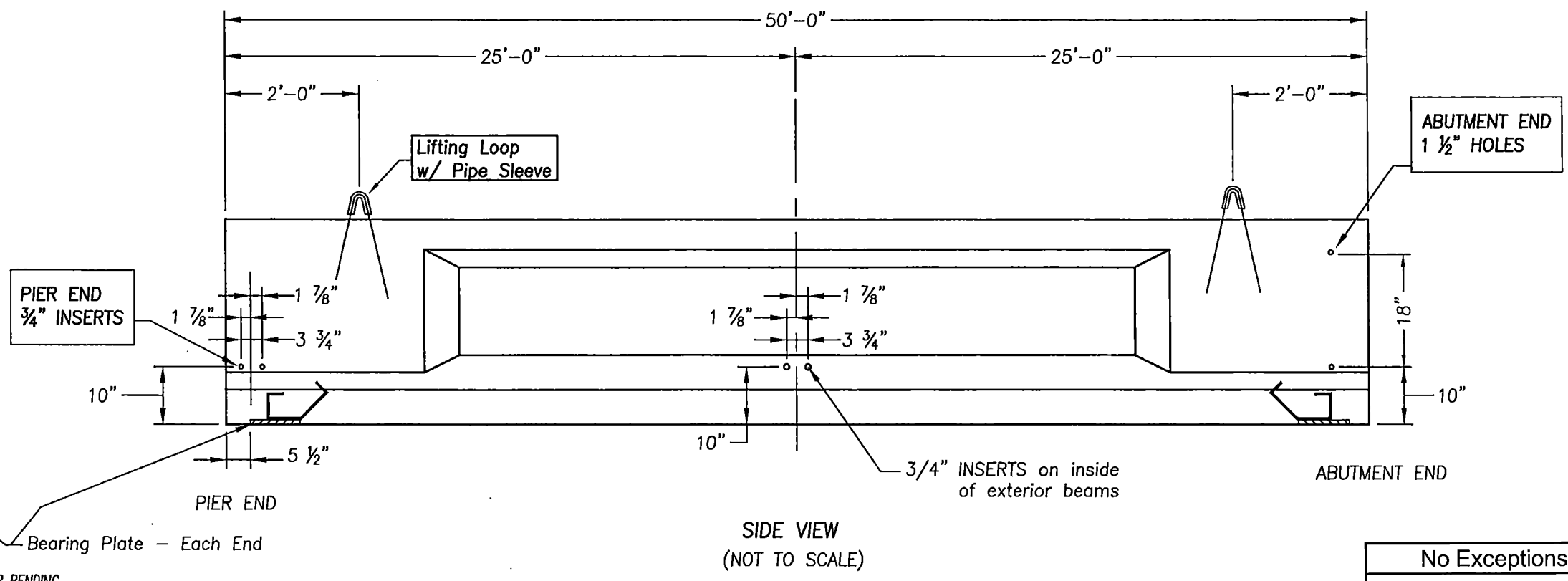
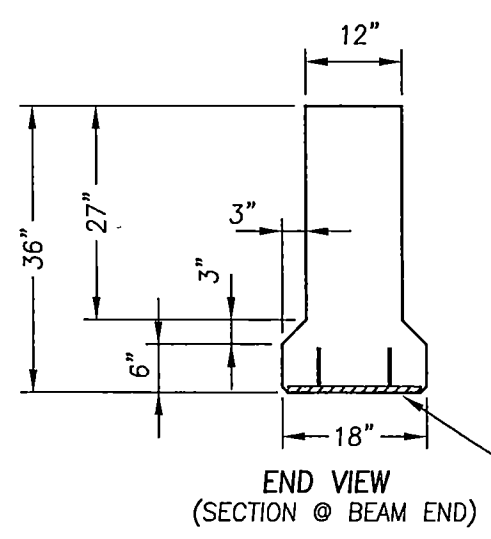
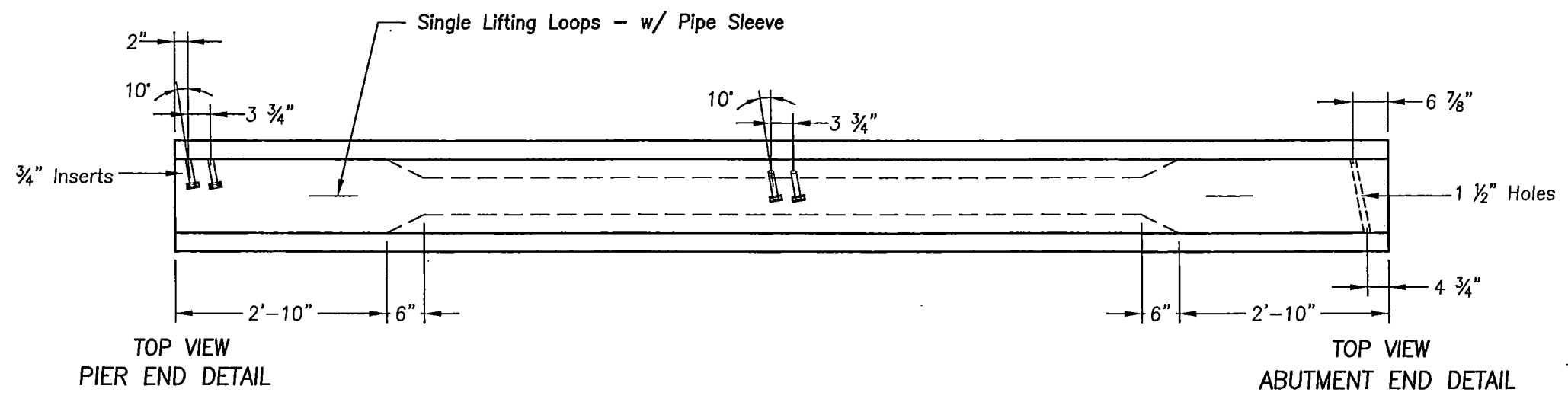
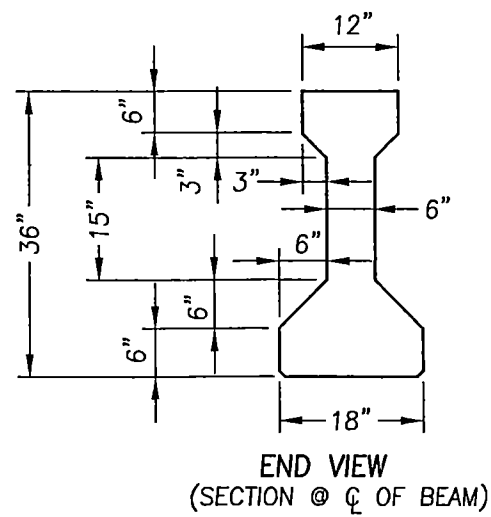


BEAM IB-36-11-05-02 & IB-36-11-05-03



No Exceptions Noted  
 BY: D Stolz  
 DATE: May 3, 2011  
 REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
 NDDOT

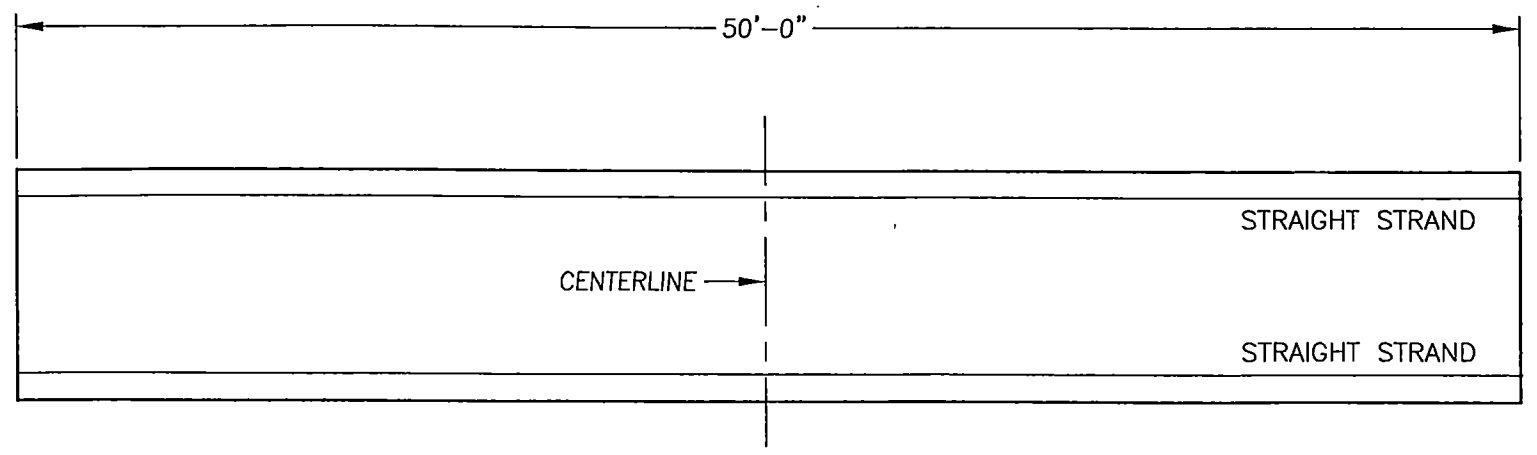
CreteX Concrete Products West, Inc.		OFFICES IN: BISMARCK HELENA RAPID CITY	
SCALE none	TITLE Stutsman County SHE-SIM-2-094(094)260 Bridge # 94-260.125R	RS# 491085	CUSTOMER Wanzek Construction
DATE 4/11/11	DR'N BY HK	REV DATE ---	DWG NAME 04 - 05Dim-02-03 - 491085



No Exceptions Noted  
 BY: D Stolz  
 DATE: May 3, 2011  
 REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
 NDDOT

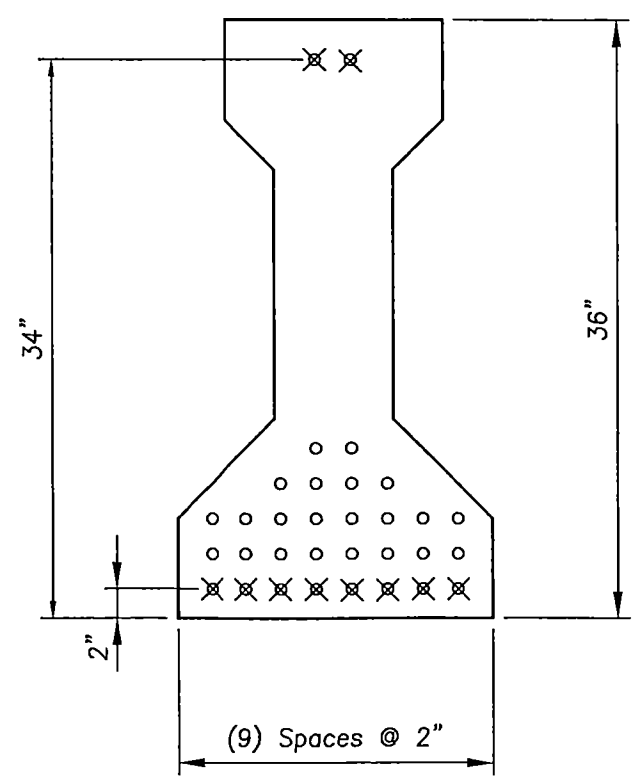
<b>Cretex</b> Concrete Products West, Inc.		OFFICES IN: BISMARCK HELENA RAPID CITY	
SCALE: none	TITLE: Stutsman County	SHE-SIM-2-094(094)260	
DATE: 4/11/11	DR'N BY: HK	Bridge # 94-260.125R	
RS#: 491085	CUSTOMER: Wanzek Construction		
REV DATE: 4/28/11	DWG NAME: 05 - 05Dim-04 - 491085		

BEAM IB-36-11-05-04

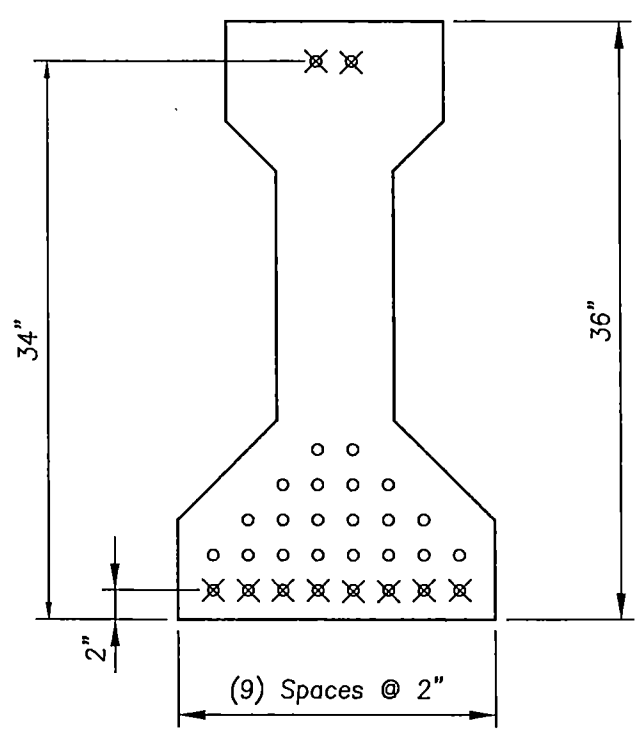


ELEVATION

NO. OF DRAPED STRAND	=	0
NO. OF STRAIGHT STRAND	=	10
TOTAL NO. OF 0.6" Ø STRAND	=	10
CENTER OF GRAVITY AT CENTERLINE	=	8.40"
INITIAL FORCE	=	439.42 K
FINAL FORCE	=	370.77 K



SECTION AT END



SECTION AT Q

0.6" Strand



No Exceptions Noted

BY: D Stolz

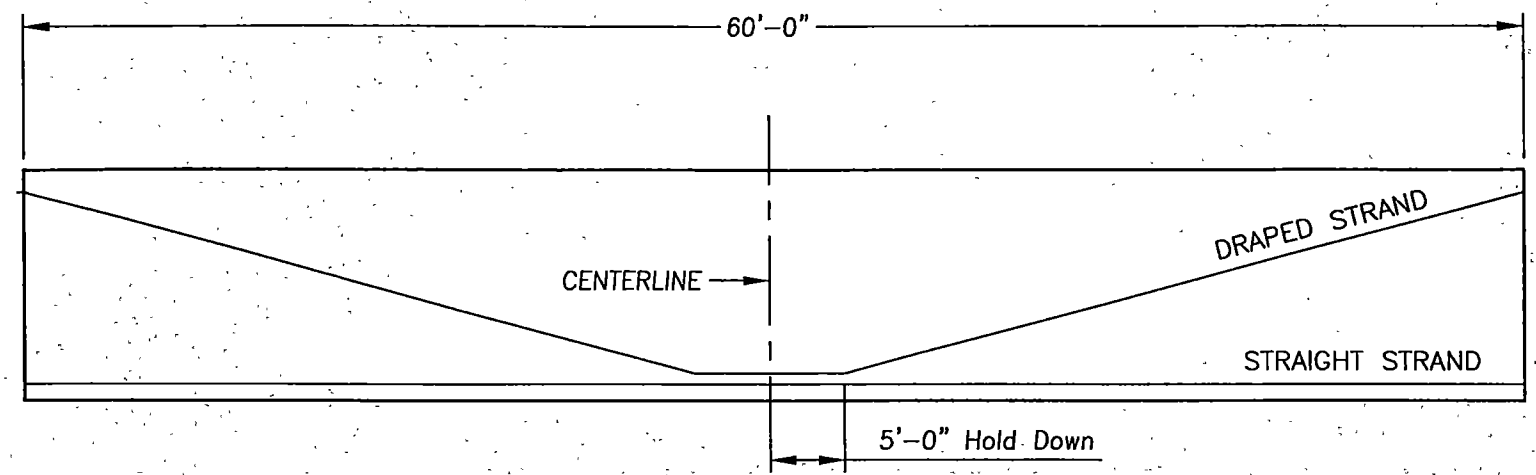
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REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS

NDDOT

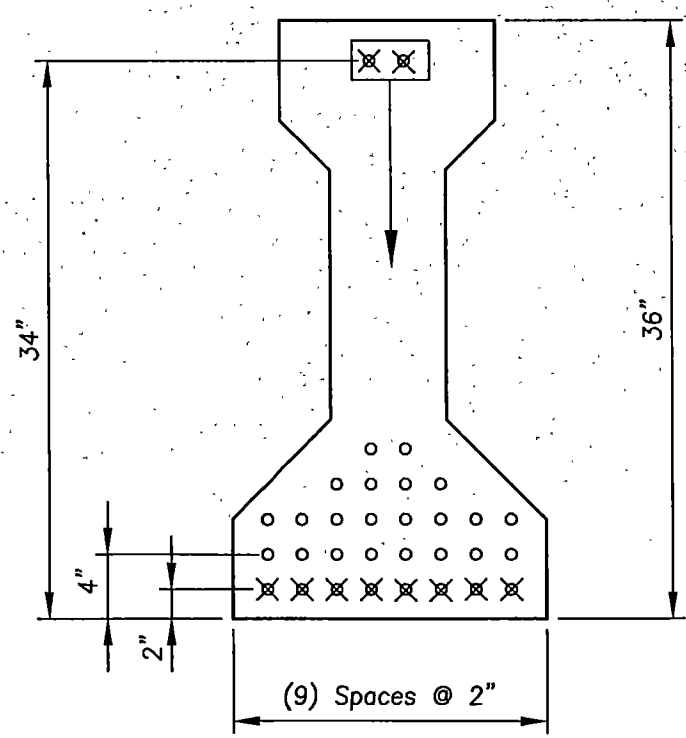
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	BISMARCK	HELENA	RAPID CITY
SCALE none	TITLE Stutsman County		
DATE 4/14/11	SHE-SIM-2-094(094)260		
DR'N BY HK	Bridge # 94-260.125R		
RS# 491085	CUSTOMER Wanzek Construction		
REV DATE 4/28/11	DWG NAME 06 - 05Strand 50ft - 491085		



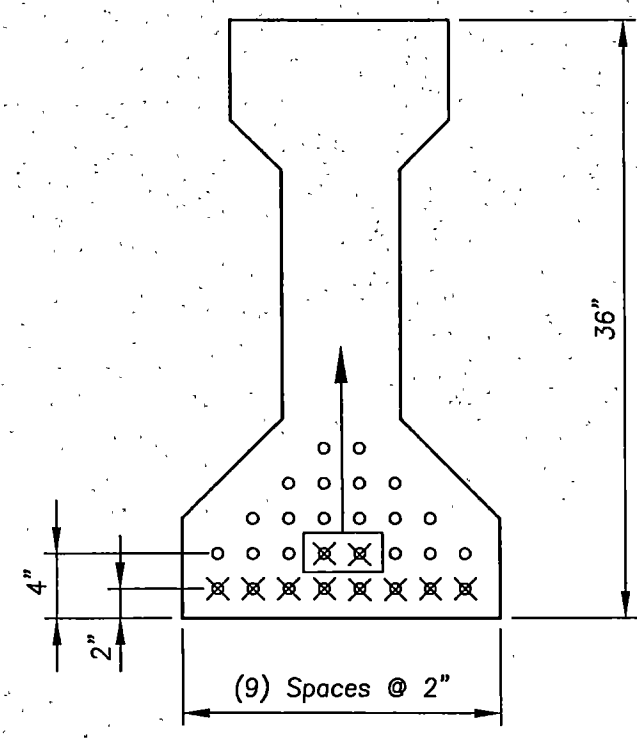


ELEVATION

NO. OF DRAPED STRAND	=	2
NO. OF STRAIGHT STRAND	=	8
TOTAL NO. OF 0.6" Ø STRAND	=	10
CENTER OF GRAVITY AT CENTERLINE	=	2.40"
INITIAL FORCE	=	439.42 K
FINAL FORCE	=	353.88 K

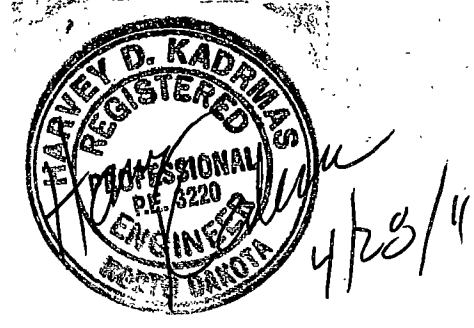


SECTION AT END



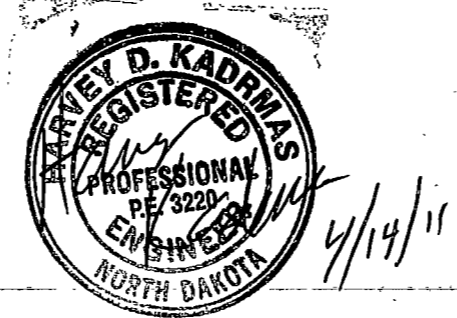
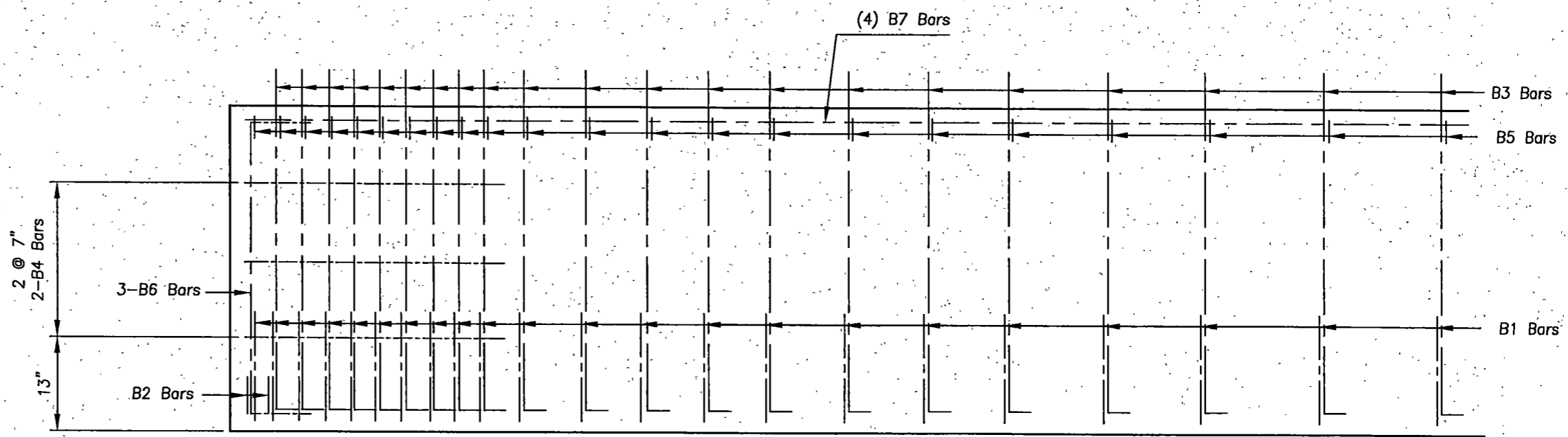
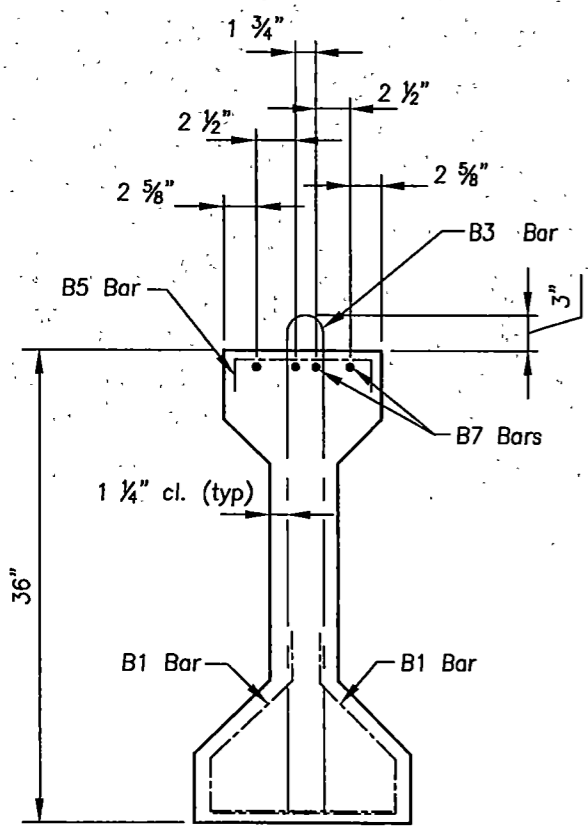
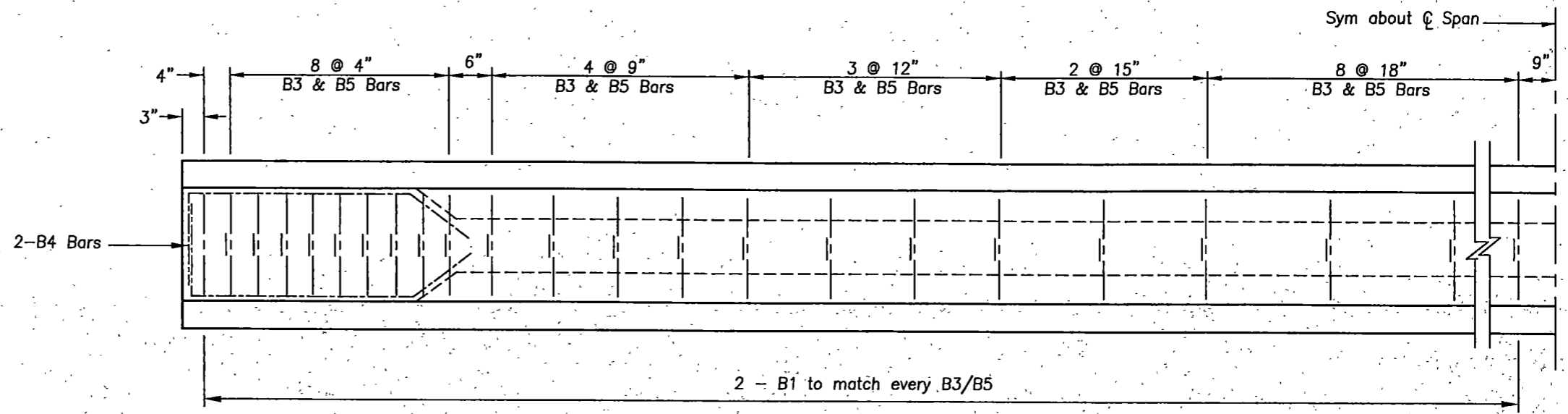
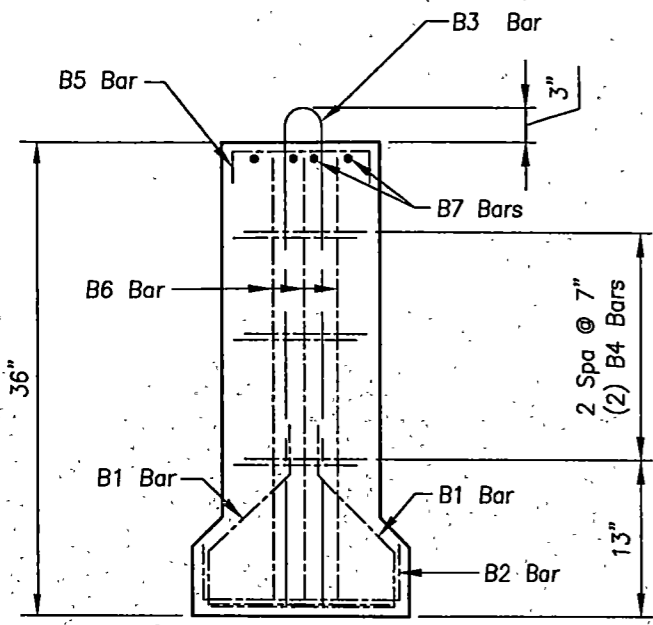
SECTION AT C

0.6" Strand



No Exceptions Noted  
 BY: D Stolz  
 DATE: May 3, 2011  
 REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
 NDDOT

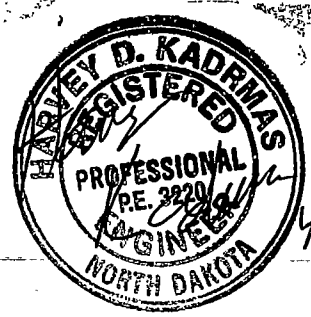
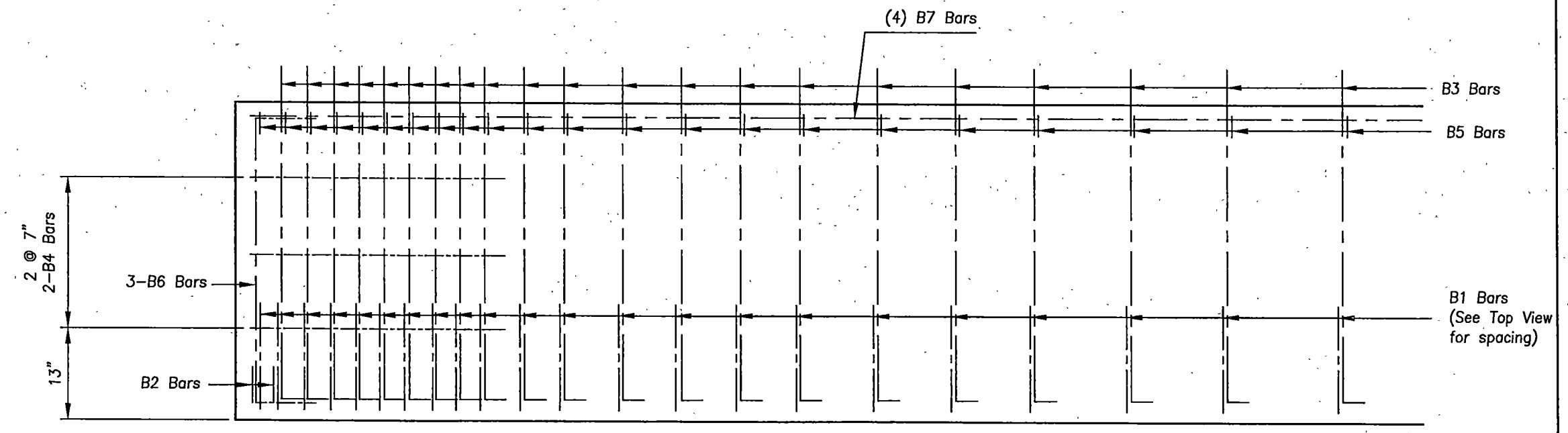
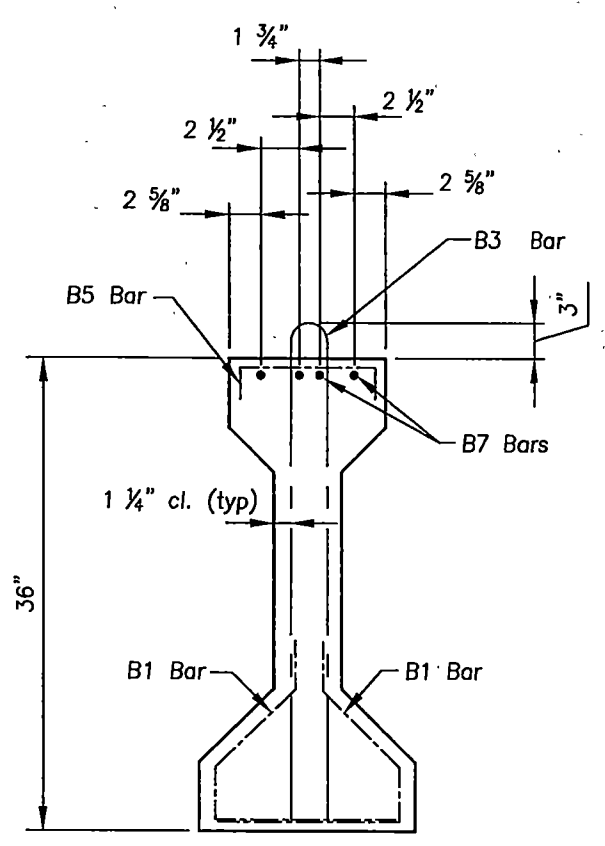
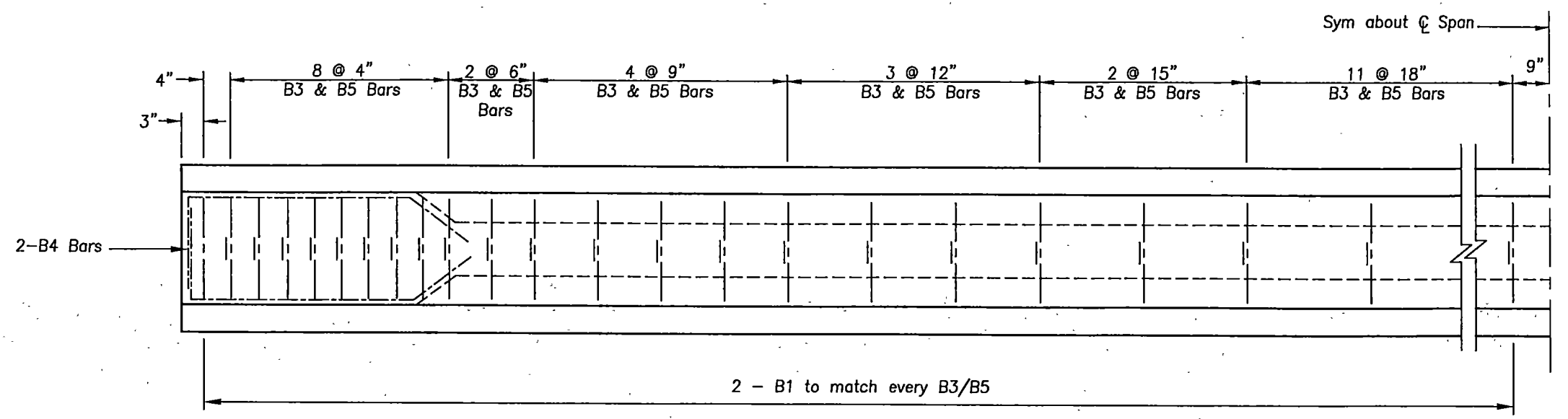
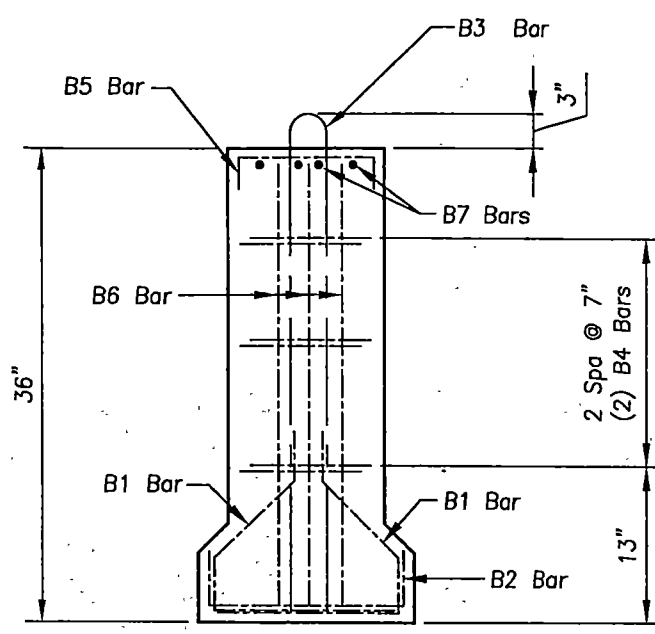
	OFFICES IN:		
	BISMARCK	HELENA	RAPID CITY
SCALE none	TITLE Stutsman County		
DATE 4/14/11	SHE-SIM-2-094(094)260		
DR'N BY HK	Bridge # 94-260.125R		
RS# 491085	CUSTOMER Wanzek Construction		
REV DATE 4/28/11	DWG NAME 07 - 05Strand 60ft - 491085		



No Exceptions Noted  
BY: D Stolz  
DATE: May 3, 2011

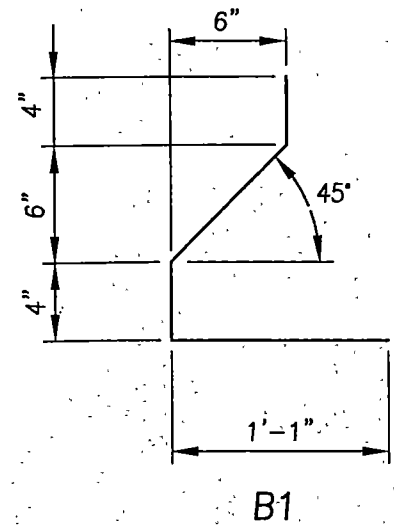
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS.  
NDDOT

	OFFICES IN:		
	BISMARCK	HELENA	RAPID CITY
SCALE none	TITLE	Stutsman County	
DATE 4/11/11	SHE-SIM-2-094(094)260		
DR'N BY HK	Bridge # 94-260.125R		
RS# 491085	CUSTOMER	Wanzek Construction	
REV DATE ---	DWG NAME	08 - 05Reinf 50ft - 491085	

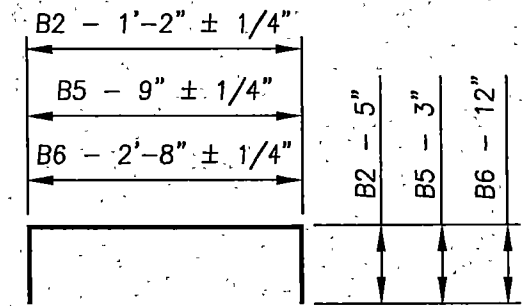


No Exceptions Noted  
 BY: D Stolz  
 DATE: May 3, 2011  
 REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
 NDDOT

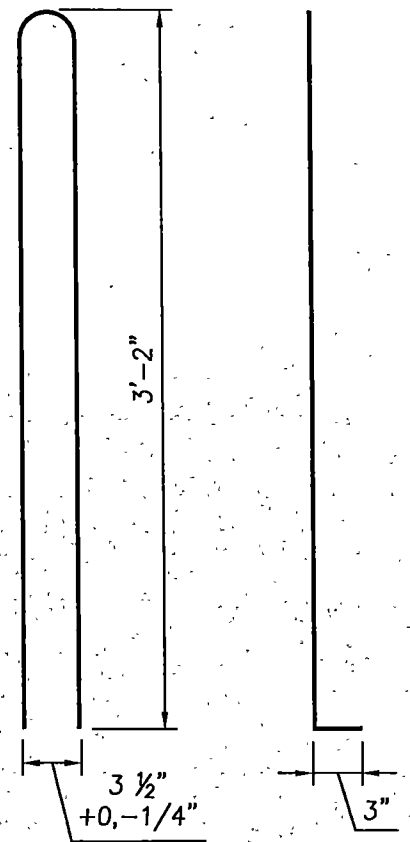
		OFFICES IN: BISMARCK    HELENA    RAPID CITY	
SCALE	none	TITLE	
DATE	4/11/11	Stutsman County	
DR'N BY	HK	SHE-SIM-2-094(094)260	
		Bridge # 94-260.125R	
RS#	491085	CUSTOMER	
		Wanzek Construction	
REV DATE	---	DWG NAME	
		09 - 05Reinf 60ft - 491085	



B1



B2, B5 & B6

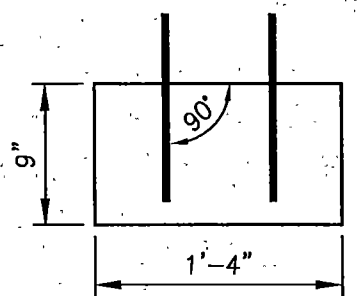


B3

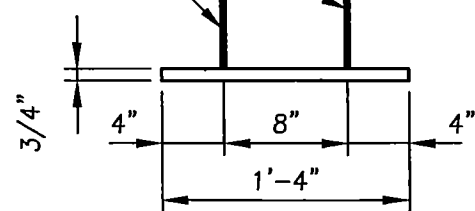
REINFORCING STEEL SCHEDULE						
MARK	TYPE	SIZE	LENGTH	QTY/BEAM 50'-0"	QTY/BEAM 60'-0"	TOTAL
B1	BENT	4	2'-6"	112	128	480
B2	BENT	5	2'-0"	4	4	16
B3	BENT	4	7'-0"	54	62	232
B4	BENT	4	4'-2"	12	12	48
B5	BENT	3	1'-3"	56	64	240
B6	BENT	5	4'-8"	6	6	24
B7	STR	5	As Req.	8 @ 26'-4"	8 @ 31'-4"	As Req.
BEARING PLATE				4	4	8

ALL DIMENSIONS ARE OUT TO OUT.

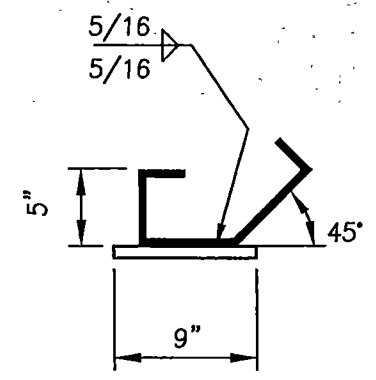
ALL REBAR TO BE GRADE 60.



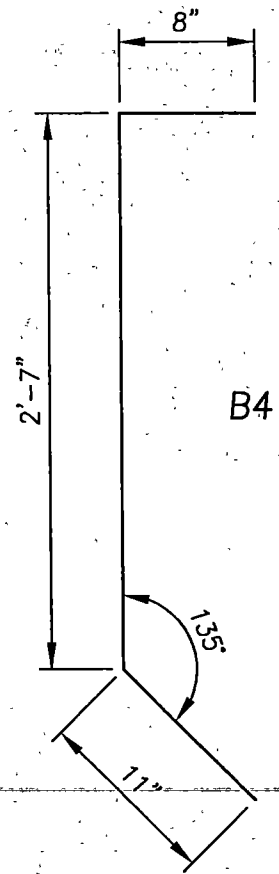
TOP VIEW



SIDE VIEW



END VIEW



B4



No Exceptions Noted  
 BY: D Stolz  
 DATE: May 3, 2011  
 REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
 NDDOT

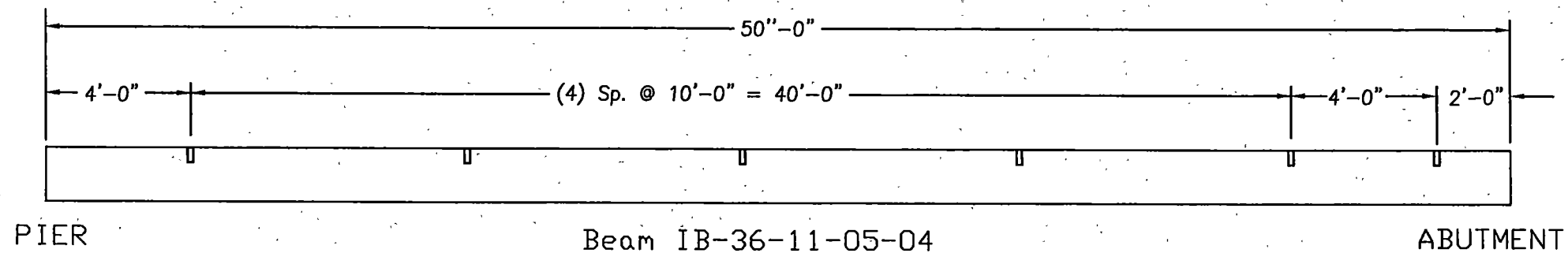
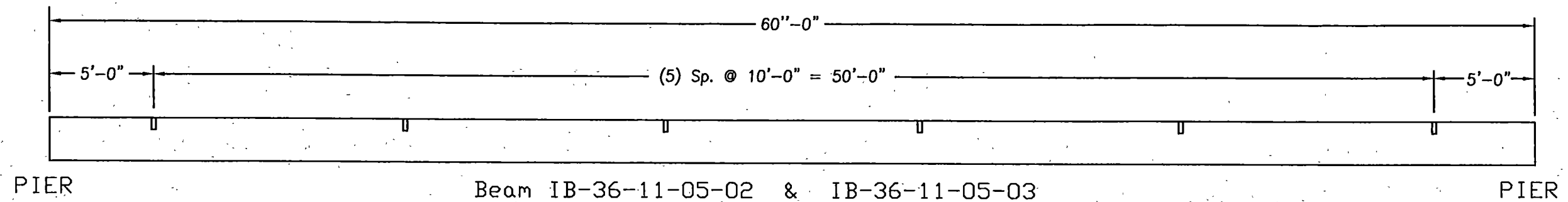
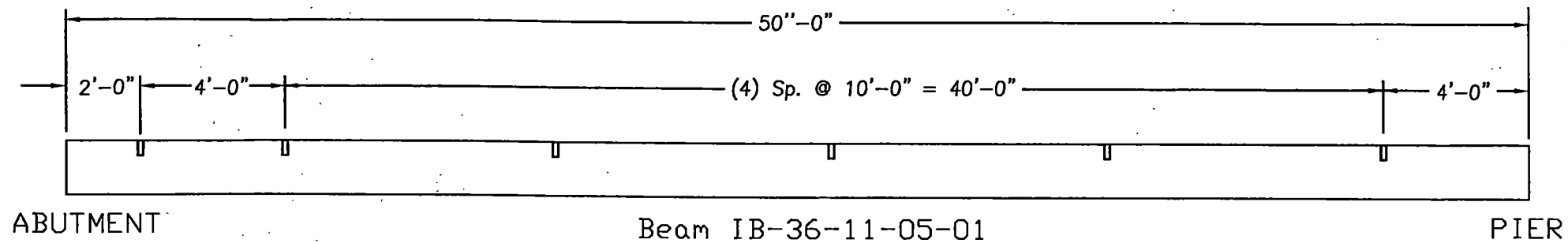
**Cretex** Concrete Products West, Inc. OFFICES IN: BISMARCK HELENA RAPID CITY

SCALE: none TITLE: Stutsman County  
 DATE: 4/11/11 SHE-SIM-2-094(094)260  
 DR'N BY: HK Bridge # 94-260.125R

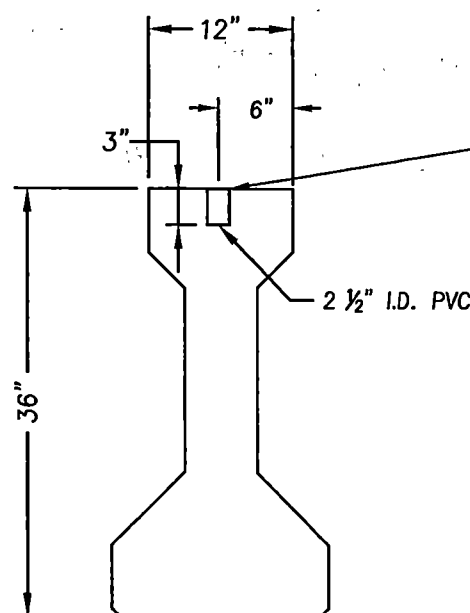
RS# 491085 CUSTOMER: Wanzek Construction  
 REV DATE: 5/3/11 DWG NAME: 10 - 05Rebar - 491085

BEARING PLATE  
 (Hot Dipped Galvanized)

Note: Bearing Plate to be Structural steel M-270 Grade 36



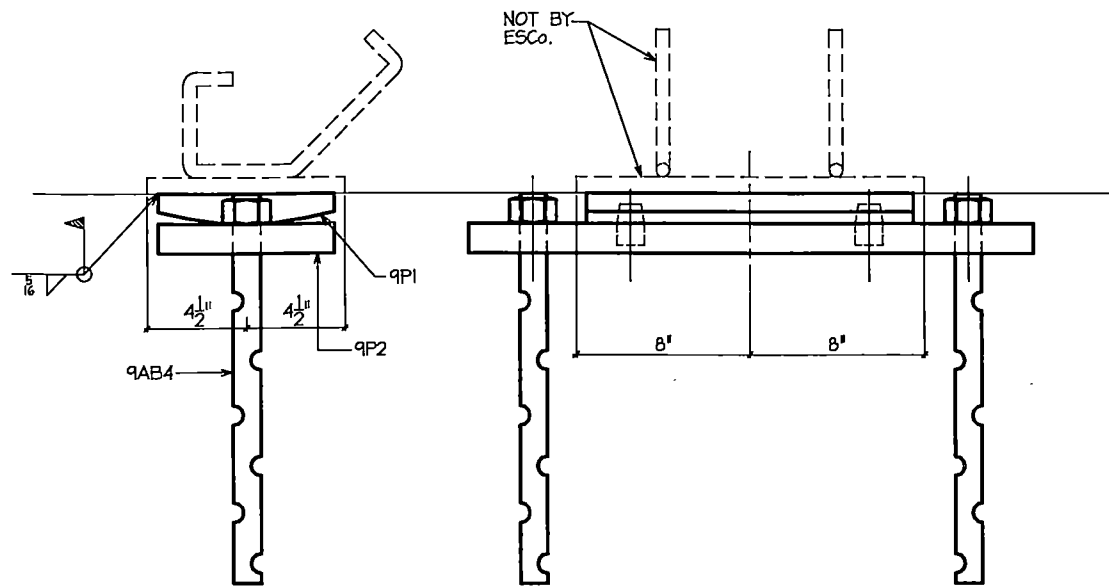
### Spacing of Contractor Safety Rail PVC Sleeves (PVC Sleeves provided by contractor)



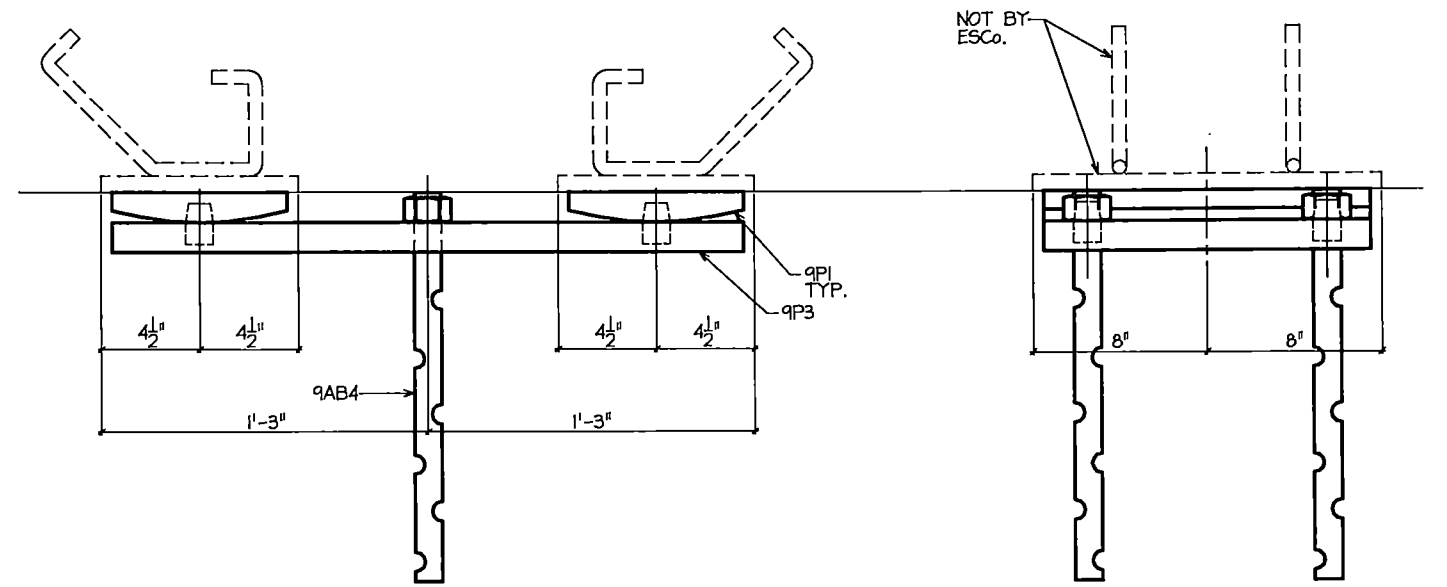
Before Deck Reinforcement is placed  
 PVC Sleeve to be cut flush with top of beam  
 and filled with concrete to top of beam.

Not Required For Review  
 BY:  
 DATE: May 3, 2011  
 REVIEW DOES NOT RELIEVE CONTRACTOR FROM  
 RESPONSIBILITY FOR ERRORS, OMISSIONS, OR  
 DEVIATIONS FROM CONTRACT REQUIREMENTS  
 NDDOT

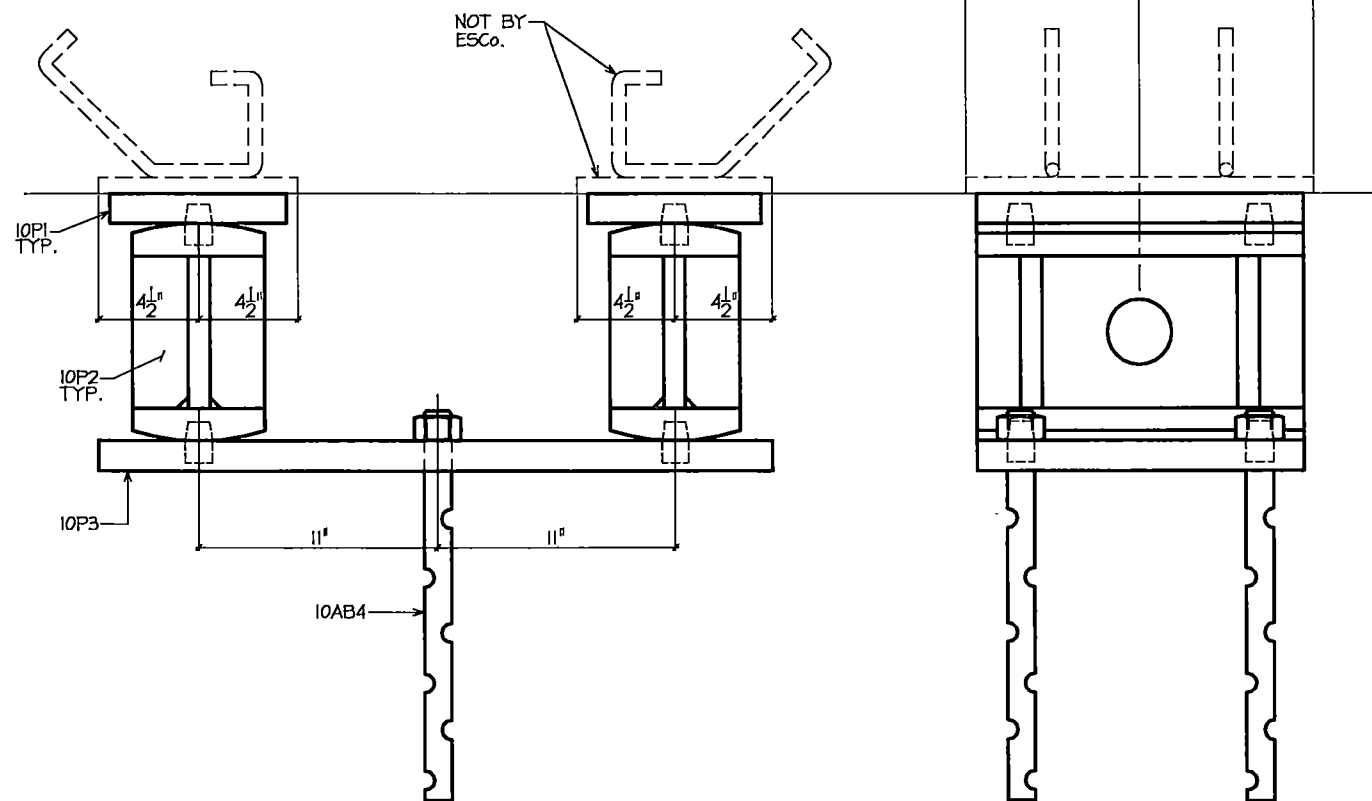
		OFFICES IN: BISMARCK HELENA RAPID CITY	
SCALE	none	TITLE	
DATE	4/11/11	Stutsman County	
DR'N BY	HK	SHE-SIM-2-094(094)260	
		Bridge # 94-260.125R	
RS#	491085	CUSTOMER	Wanzek Construction
REV DATE	---	DWG NAME	11 - 05Safety - 491085



TYPICAL DETAIL  
@ ABUTMENTS 1&5



TYPICAL DETAIL  
@ PIER 3



TYPICAL DETAIL  
@ PIER 2&4

NO EXCEPTIONS NOTED



**NDDOT**

Digitally signed by NDDOT  
DN: cn=NDDOT, o=Dean Stolz,  
ou=Bridge Division,  
email=dstolz@nd.gov, c=US  
Date: 2011.04.07 13:43:18 -0500

REVIEW DOES NOT RELIEVE CONTRACTOR FROM  
RESPONSIBILITY FOR ERRORS, OMISSIONS, OR  
DEVIATIONS FROM CONTRACT REQUIREMENTS

NDDOT

INDEX OF DRAWINGS	
SHEET #	DESCRIPTION
E3	BEARING ERECTION PLAN
GN2	GENERAL NOTES
S9	BEARINGS
S10	BEARINGS
WP2	WELD PROCEDURES
B2	FIELD BOLTS

BRIDGE #: 94-260.125R		 Egger Steel Company 909 South 7th Avenue Sioux Falls, South Dakota 57104 605.336.2490 (Office) 605.336.6816 (Fax)																														
PROJECT #SHE-SIM-2-094(094)260																																
STATION: 524+99.92																																
1. SEE GNI FOR TYPICAL SHOP NOTES. 2. ALL MATERIAL TO BE MADE IN USA. 3. MILL CERTIFICATES REQUIRED ON ALL MATERIAL. 4. ALL WELDERS TO BE CERTIFIED.		MEMBERS TO BE ERECTED USING DIRECTION MARK ON MEMBER.	<b>EGGER STEEL COMPANY</b> EST 1946																													
HOLES: PAINT:		REVISIONS <table border="1"> <thead> <tr> <th>LET</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>A</td> <td></td> <td></td> </tr> <tr> <td>B</td> <td></td> <td></td> </tr> <tr> <td>C</td> <td></td> <td></td> </tr> </tbody> </table>	LET	DATE	BY	A			B			C			ERECTION PLAN(BEARINGS) STRUCTURE: BNSF & SE JAMESTOWN INTERCHANGE LOCATION: STUTSMAN CO., ND CUSTOMER: WANZEK CONSTRUCTION ARCHITECT: ND/DOT	<table border="1"> <thead> <tr> <th>DRAWN BY</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>AH</td> <td>3/11</td> </tr> <tr> <th>CHK'D BY</th> <th>DATE</th> </tr> <tr> <td>BK</td> <td></td> </tr> <tr> <th>RESP. DET.</th> <th>WORK TYPE</th> </tr> <tr> <td>-</td> <td>M</td> </tr> <tr> <th>JOB NO.</th> <th>DWG. NO.</th> </tr> <tr> <td>11006D</td> <td>ES</td> </tr> </tbody> </table>	DRAWN BY	DATE	AH	3/11	CHK'D BY	DATE	BK		RESP. DET.	WORK TYPE	-	M	JOB NO.	DWG. NO.	11006D	ES
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-	M																															
JOB NO.	DWG. NO.																															
11006D	ES																															

GENERAL NOTES

**SPECIFICATIONS:**

1. WORKMANSHIP AND MATERIAL TO BE IN ACCORDANCE WITH THE STANDARD SPECIFICATION FOR HIGHWAY BRIDGES, 17TH EDITION, AND SUPPLEMENTAL SPECIFICATIONS.
2. ALL WELDING REQUIREMENTS, PROCEDURES AND INSPECTIONS SHALL BE IN ACCORDANCE WITH THE BRIDGE WELDING CODE ANSI/AASHTO/AWS D1.5-08

**MATERIAL REQUIREMENTS:**

1. ALL MATERIAL TYPE, GRADE, ETC. WILL BE SHOWN ON THE DETAILS.
2. MATERIAL NOTED AS "CVN" OR "T2" INDICATES MATERIAL WHICH IS SUBJECT TO ZONE 2 CHARPY V-NOTCH TESTING AS FOLLOWS:  
15 FT/LBS. AT 40°F (H) FREQUENCY FOR THICKNESS LESS THAN OR EQUAL TO 2".
3. BOLTS:  
-HIGH STRENGTH BOLTS SHALL BE AASHTO M164(TYPE 1) WITH AASHTO M291-1 HEAVY HEX NUT AND ONE M293-1 WASHER(UNLESS NOTED).  
-ALL PERMANENT HIGH STRENGTH BOLTS SHALL BE ROTATIONAL CAPACITY TEST PRIOR TO USE. DO NOT MIX NUTS AND BOLTS FROM DIFFERENT LOTS.
4. ALL MATERIAL TO BE "MADE IN USA" AND MILL CERTIFICATIONS ARE REQUIRED.

**FABRICATION NOTES:**

1. ALL FABRICATION TO CONFORM TO THE 2008 EDITION OF THE ND/DOT STANDARD SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND THE DESIGN DRAWINGS.
2. ALL FINISHED HOLES TO BE  $\frac{1}{16}$ " U.N.(ALL HOLES TO BE DEBURRED).
3. NOT USED
4. NOT USED
5. ALL MATERIAL SHALL BE IDENTIFIED BY HEAT NUMBERS, COLOR CODES OR ASTM GRADE THROUGHOUT FABRICATION.
6. NOT USED.
7. DO NOT PUNCH OR SHEAR CUT ANY MATERIAL OVER 5/8" THICK.
8. NOT USED
9. NOT USED
10. NOT USED.
11. ALL RE-ENTRANT CUTS SHALL HAVE A MINIMUM RADIUS OF 1"(UN).
12. MEMBERS WEIGHING MORE THAN 3 TONS SHALL HAVE THE WEIGHT MARKED THEREON.
13. ALL FLAME CUTTING TO MEET ANSI RATING OF 1000. FLAME CUT SURFACES SHALL HAVE CORNERS ROUNDED TO 1/16" RADIUS AFTER FLAME CUTTING.
14. ALL CORNERS OF OXYGEN CUT OR SHEARED EDGES TO BE PAINTED SHOULD BE ROUNDED ENOUGH TO HOLD PAINT(APP. 1/16" RAD.)

**SHOP WELDING:**

1. WELDING SHALL BE IN ACCORDANCE WITH ANSI/AASHTO/AWS BRIDGE WELDING CODE D1.5-08 AND THE DESIGN DRAWINGS.
2. ALL WELDERS ON THIS PROJECT TO BE CERTIFIED PER ANSI/AASHTO/AWS BRIDGE WELDING CODE D1.5-08.
3. SEE WP-2 FOR WELD PROCEDURES.

**WELD INSPECTIONS:**

1. WELD INSPECTION SHALL BE IN ACCORDANCE WITH ANSI/AASHTO/AWS BRIDGE WELDING CODE D1.5-08.
2. NOT USED
3. NOT USED
4. ALL WELDS SHALL BE 100% VISUALLY INSPECTED.

**CLEANING AND PAINTING:**



1. ALL MATERIAL TO BE BLAST-CLEANED TO A NEAR-WHITE FINISH PER SSPC SP10. PROVIDE A UNIFORM STEEL SURFACE PROFILE OF 1 TO 2.5 MILS (EXCEPT MACHINED SURFACES).
2. PRIME COAT: THE SHOP APPLIED PRIME COAT SHALL BE A 2-COMPONENT SELF CURING INORGANIC ZINC SILICONE PRIMER.  
-THE DRY FILM THICKNESS OF THE PRIME COAT TO BE 2-4 MILS.  
-PRIME COAT TO BE SHERWIN WILLIAMS ZINC CLAD II PLUS.
3. FINISH COAT: THE SHOP APPLIED FINISH COAT SHALL BE A HIGH BUILD ALIPHATIC POLYURETHANE FINISH COAT(2-COMPONENT).  
-TO PREVENT TOP COAT BUBBLING, A MIST COAT SHALL BE REQUIRED. THE MIST COAT SHALL CONSIST OF A FAST PASS OF THE SPRAY GUN TO SEAL THE SURFACE OF THE PRIMER FOLLOWED IMMEDIATELY BY A FULL WET COAT.  
-THE DRY FILM THICKNESS OF THE FINISH COAT TO BE 3-6 MILS.  
-THE FINISH COAT FOR THE BEARINGS (MK 9P1, 9P2, 9P3, 10P1, 10P2, & 10P3) TO BE GRAY, COLOR #26152 AND SHALL MEET FEDERAL STANDARD #595B.  
-FINISH COAT TO BE SHERWIN WILLIAMS ACROLON 218. H5

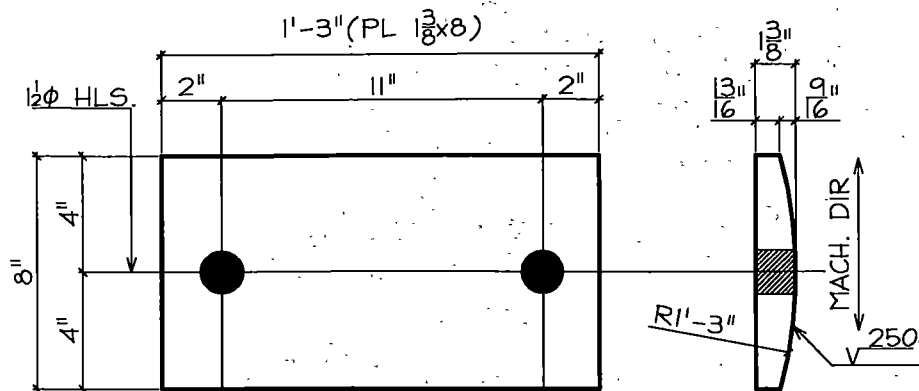
No Exceptions Noted

BY: D Stolz

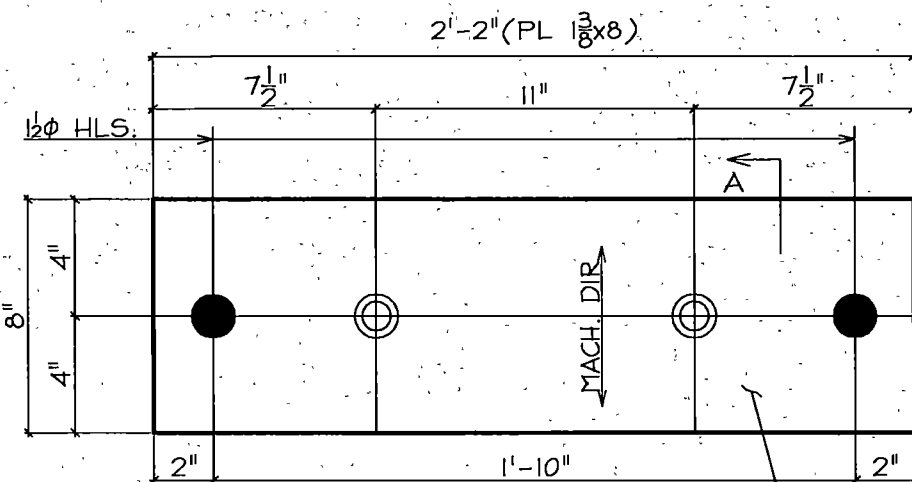
DATE: April 7, 2011

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NDDOT

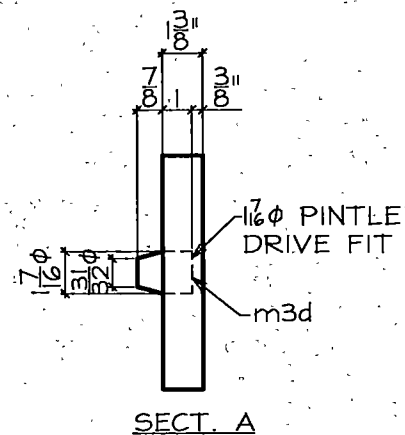
BRIDGE #: 94-260.125R		 Egger Steel Company 909 South 7th Avenue Sioux Falls, South Dakota 57104 605.336.2490 (Office) 605.336.6816 (Fax)		
PROJECT #SHE-SIM-2-094(094)260				
STATION: 524+99.92				
2. ALL MATERIAL TO BE MADE IN THE USA. 3. MILL CERTIFICATES REQUIRED ON ALL MATERIAL. 4. ALL WELDERS TO BE CERTIFIED.		MEMBERS TO BE ERECTED USING DIRECTION MARK ON MEMBER.	TYPICAL SHOP NOTES	DRAWN BY: AH DATE: 3/11 CHK'D BY: BK DATE: _____ RESP. DET. WORK TYPE: - M JOB NO. DWG. NO.: 11006D GND
REVISIONS LET DATE BY A _____ B _____ C _____		STRUCTURE: BNSF # SE JAMESTOWN INTERCHANGE LOCATION: STUTSMAN CO., ND CUSTOMER: WANZEK CONSTRUCTION ARCHITECT: ND/DOT		



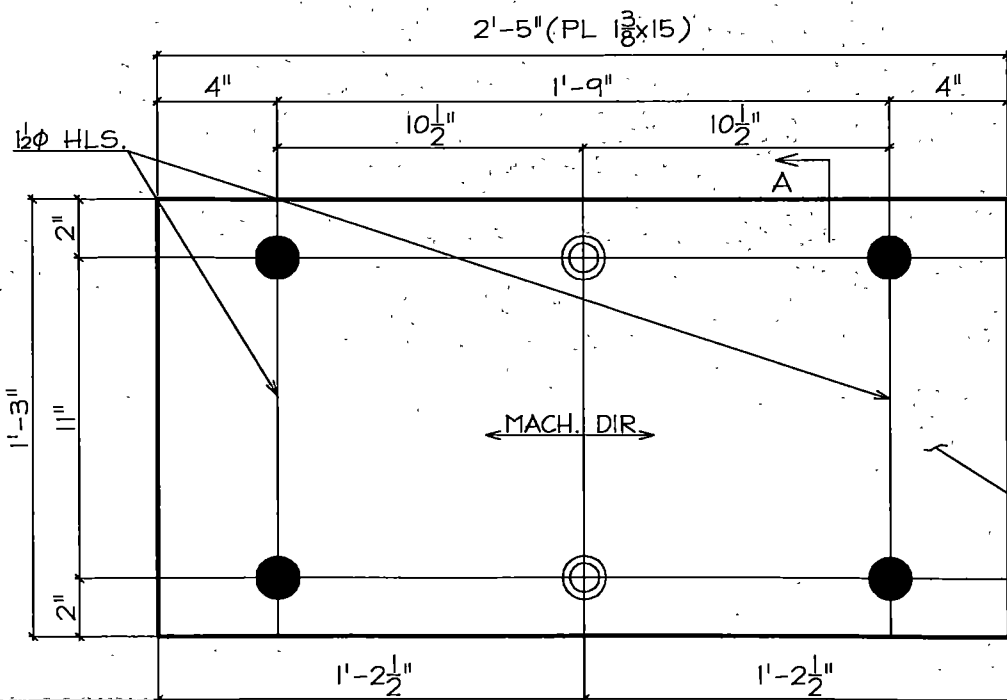
4-PLATE-9P1  
ABUT.'S 1#5, PIER 3



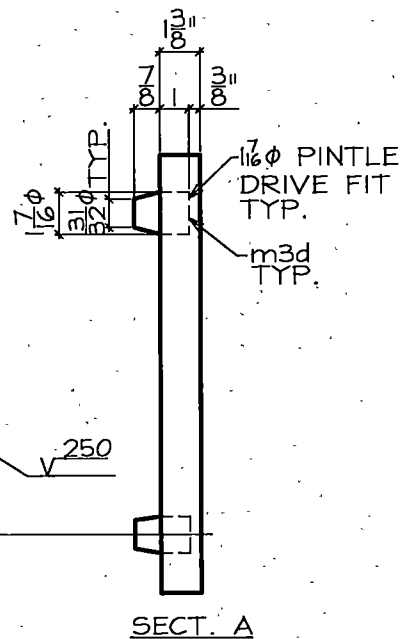
2-PLATE-9P2  
ABUTMENT 1#5



SECT. A

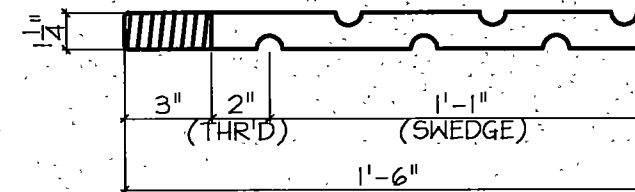


ONE-PLATE-9P3  
PIER #3



SECT. A

JOB NO: 11006D		BILL OF MATERIAL				SHEET: 59(M)			
SHIPPING MARK	SHIPPING QUANTITY	MATERIAL DESCRIPTION	LENGTH		ABM #	ORDER SIZE	P.O. NO.	MAT'L GRADE	REMARKS
			FT	IN					
9P1	4	PL 1 3/8 x 8	1	3				M270-50W	MACHINED
9P2	2	PL 1 3/8 x 8	2	2				M270-50W	MACHINED
m3d	4	RB 1/16 φ	0	1/16				M222	MACHINED
9P3	ONE	PL 1 3/8 x 15	2	5				M270-50W	MACHINED
m3d	2	RB 1/16 φ	0	1/16				M222	MACHINED
9AB4	6	RB 1/4 φ	1	6				A449	



6" SWEDGE BOLTS ~ 9AB4

A MINIMUM OF 20% OF THE EMBEDDED BOLT SURFACE SHALL BE COVERED WITH DEFORMATIONS WHOSE RADIAL DIMENSIONS ARE 15% TO 20% OF THE BOLT DIAMETER.

No Exceptions Noted

BY: D Stolz

DATE: April 7, 2011

REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS

NDDOT

BRIDGE #: 94-260.125R

PROJECT #SHE-SIM-2-094(094)260

STATION: 524+99.92

- SEE GNI FOR TYPICAL SHOP NOTES.
- MILL CERTIFICATES REQUIRED ON ALL MATERIAL.
- ALL MATERIAL TO BE MADE IN THE USA.
- ALL WELDERS TO BE CERTIFIED.

HOLES  
AS NTD

PAINT  
SEE GNI

MEMBERS TO BE ERECTED USING DIRECTION MARK ON MEMBER.

REVISIONS		
LET	DATE	BY
A		
B		
C		



Egger Steel Company  
909 South 7th Avenue  
Sioux Falls, South Dakota 57104  
605.336.2490 (Office)  
605.336.6816 (Fax)

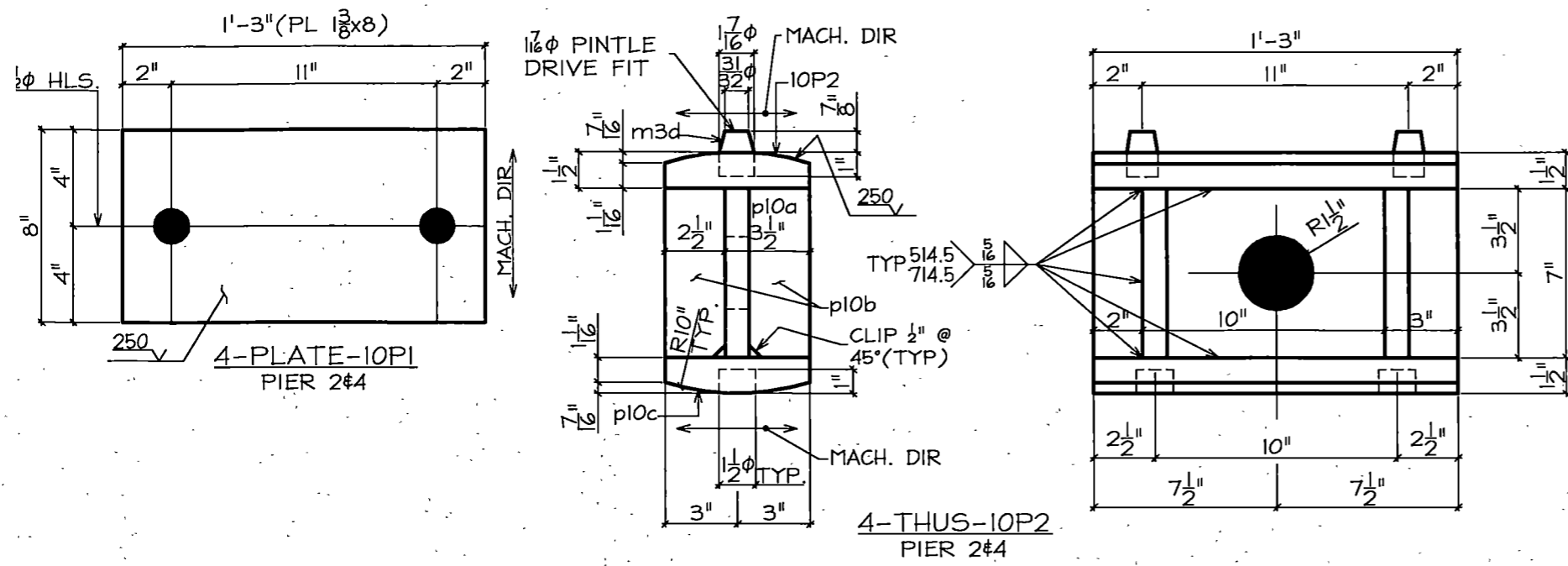


BEARINGS (ABUT. 1#5, PIER 3)

STRUCTURE: BNSF # SE JAMESTOWN INTERCHANGE  
LOCATION: STUTSMAN CO., ND  
CUSTOMER: WANZEK CONSTRUCTION  
ARCHITECT: ND/DOT

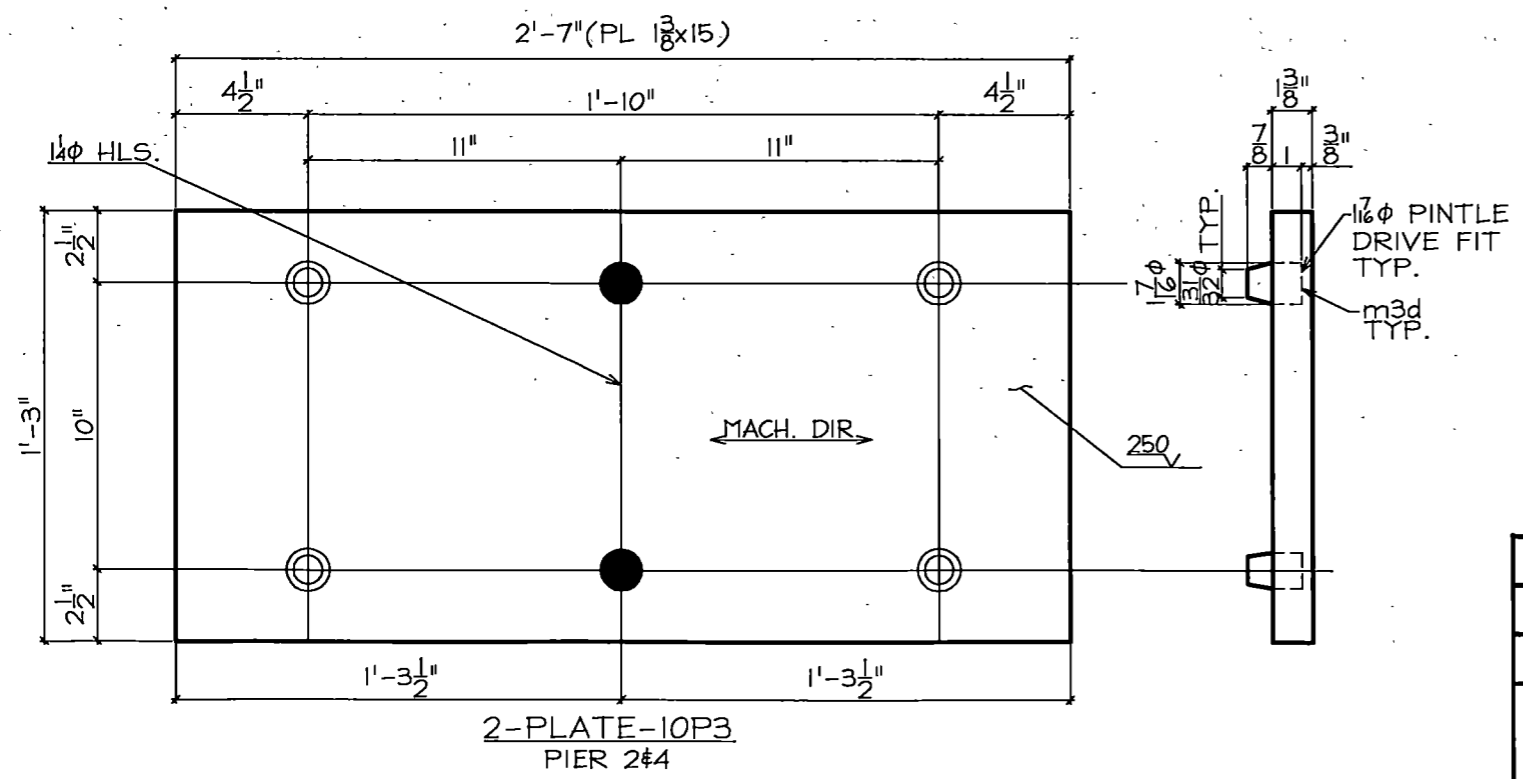
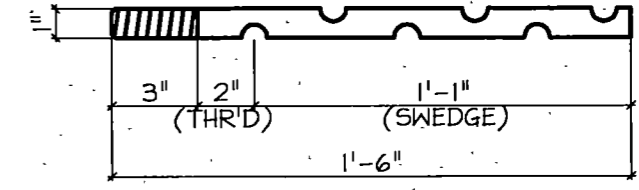
DRAWN BY	DATE
AH	3/11
CHK'D BY	DATE
BK	
RESP. DET.	WORK TYPE
FI	
JOB NO.	DWG. NO.
11006D	59





JOB NO: 11006D BILL OF MATERIAL SHEET: S10(M)

SHIPPING MARK	SHIPPING QUANTITY	MATERIAL DESCRIPTION	LENGTH		ABM #	ORDER SIZE	P.O. NO.	MAT'L GRADE	REMARKS
			FT	IN					
10P1	4	PL 1 3/8 x 8	1	3				M270-50W	MACHINED
10P2	4	PL 1 1/2 x 6	1	3				M270-50W	MACHINED
pl0a	4	PL 1 x 7	1	3				M270-50W	
pl0b	16	PL 1 x 2 1/2	0	7				M270-50W	
pl0c	4	PL 1 1/2 x 6	1	3				M270-50W	MACHINED
m3d	8	RB 7/16	0	7 1/8				M222	MACHINED
10P3	2	PL 1 3/8 x 15	2	7				M270-50W	MACHINED
m3d	8	RB 1/2	0	7 1/8				M222	MACHINED
10AB4	4	RB 1"	1	6				A449	



No Exceptions Noted

BY: D Stolz

DATE: April 7, 2011

REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS

NDDOT

BRIDGE #: 94-260.125R

PROJECT #SHE-SIM-2-094(094)260

STATION: 524+99.92

MEMBERS TO BE ERECTED USING DIRECTION MARK ON MEMBER.

EGGER STEEL COMPANY EST 1946

605.336.2490 (Office)  
605.336.6816 (Fax)

909 South 7th Avenue  
Sioux Falls, South Dakota 57104

BEARINGS (PIER 2#4)

STRUCTURE: BNSF & SE JAMESTOWN INTERCHANGE  
LOCATION: STUTSMAN CO., ND  
CUSTOMER: WANZEK CONSTRUCTION  
ARCHITECT: ND/DOT

LET	DATE	BY
A		
B		
C		

1. SEE GNI FOR TYPICAL SHOP NOTES.  
2. MILL CERTIFICATES REQUIRED ON ALL MATERIAL.  
3. ALL MATERIAL TO BE MADE IN THE USA.  
4. ALL WELDERS TO BE CERTIFIED.

DRANN BY	DATE
AH	3/11
CHK'D BY	DATE
EK	
RESP. DET.	WORK TYPE
M	
JOB NO.	DRWG. NO.
11006D	S10

GENERAL NOTES:

- 1.0 GENERAL
- 1.1 THE CONTRACTOR MUST VERIFY ALL DIMENSIONS PRIOR TO FABRICATION TO ENSURE ACCURACY OF THE EXPANSION JOINT.
- 1.2 IN CASE OF DISCREPANCY, CALCULATED DIMENSIONS GOVERN OVER SCALED DIMENSIONS AND THE FOLLOWING ORDER OF PRECEDENCE APPLIES
- SPECIAL PROVISIONS  
PLANS  
STANDARD SPECIFICATIONS
- DETAIL PLANS HOLD OVER STANDARD PLANS
- 2.0 STANDARD SPECIFICATION CRITERIA
- 3.0 SPECIAL PROVISION CRITERIA
- 4.0 MATERIALS
- 4.1 ALL STRUCTURAL AND PERMANENT MATERIALS SHALL BE OF DOMESTIC ORIGIN, AND MATERIAL CERTIFICATION STATING ALL SUCH MATERIALS ARE "MELTED AND MANUFACTURED" IN THE UNITED STATES OF AMERICA SHALL BE SUBMITTED.
- 4.2 ALL EXTRUSIONS SHALL CONFORM TO ASTM A 709, GRADE 36 (AASHTO M 270, GRADE 36 INDEPENDENT OF CHARPY V-NOTCH TESTING).
- 4.3 THE STRIP SEAL GLAND SHALL BE POLYCHLOROPRENE (NEOPRENE) SHALL BE IN ACCORDANCE WITH ASTM D 5973; AS NOTED BELOW:

REQUIRED PHYSICAL PROPERTIES	ASTM PROCEDURE	PHYSICAL REQUIREMENTS
TENSILE STRENGTH, MIN. PSI (MPA)	D-412	2000 (13.8)
ELONGATION @ BREAK, MIN.	D-412	250 %
HARDNESS, TYPE A DUROMETER	D-2240	60 ± 5
OVEN AGING 70 HRS. @ 212°F TENSILE STRENGTH, LOSS, MAX. ELONGATION, LOSS, MAX.	D-573	20% 20%
HARDNESS, TYPE A DURO (POINTS CHANGE)		0 TO 10
OIL SWELL, ASTM #3 OIL, 70 HRS. @ 212°F WEIGHT CHANGE, MAX.	D-471	45%
OZONE RESISTANCE, 20% STRAIN 300 PPHM IN AIR 70 HRS. @ 104°F (WIPE WITH TOLUENE TO REMOVE SURFACE CONTAMINANTS	D-1149	NO CRACKS
LOW TEMPERATURE STIFFENING 7 DAYS @ 14°F HARDNESS TYPE A DURO, POINTS CHANGE	D-2240	0 TO +15
COMPRESSION SET, 70 H AT 212°F (100°C), MAX. %	D 395 METHOD B	35

GENERAL NOTES:

- 4.4 THE STRIP SEAL GLAND SHALL BE ADHERED IN PLACE USING PRIMA-LUB ADHESIVE AND LUBRICANT. PRIMA-LUB IS A ONE-COMPONENT BLEND OF URETHANE AND AROMATIC SOLVENTS FOR USE IN LUBRICATING PREFORMED BRIDGE SEALS FOR INSERTION AND ADHESION TO METAL AND CONCRETE SURFACES. PRIMA-LUB SHALL BE IN ACCORDANCE ASTM D-4070 AND WITH THE FOLLOWING REQUIREMENTS:
- REQUIRED PHYSICAL PROPERTIES
- |                              |  |
|------------------------------|--|
| RESIN TYPE:                  | MOISTURE CURE URETHANE   |
| SOLVENT:                     | AROMATIC NAPHTHA   |
| WEIGHT SOLIDS:               | 72 - 73%   |
| VOLUME SOLIDS:               | 66 - 68%   |
| WEIGHT/GALLON:               | 8.4 - 8.6 LBS/GAL  |
| PRACTICAL COVERAGE:          | 400 - 500 FT./GALLON - SMALL SEALS (STRIP SEALS)<br>100 - 200 FT./GALLON - LARGE SEALS (COMPRESSION SEALS) |
| FLASHPOINT:                  | 106°F (40.5°C)   |
| SHELF LIFE:                  | ONE YEAR FROM DATE OF MANUFACTURE  |
| MEETS OR EXCEEDS ASTM D-4070 |  |
| FILM STRENGTH ASTM D-412     | 2000 PSI (MIN.)  |
| % ELONGATION (BEFORE BREAK)  | 350 (MIN.)   |
| WORKABLE TEMPERATURE RANGE   | 5 - 120°F (-15 - 49°C)   |
- 4.5 ALL STUDS SHALL CONFORM TO ASTM A 108 (AASHTO M169), GRADES 1015, 1018 OR 1020.
- 5.0 INSPECTION REQUIREMENTS
- 5.1 IN HOUSE SHOP INSPECTION BY A REPRESENTATIVE OF THE NORTH DAKOTA DEPARTMENT OF TRANSPORTATION INDEPENDENT OF WATSON BOWMAN ACME CORP.'S QUALITY CONTROL INSPECTOR IS NOT REQUIRED.
- 5.2 QUALITY CONTROL INSPECTION
- 5.2.1 DURING FABRICATION OF THE EXPANSION JOINT, WATSON BOWMAN ACME SHALL PROVIDE FULL TIME QUALITY CONTROL INSPECTION TO INSURE THAT THE MATERIALS AND WORKMANSHIP MEET OR EXCEED THE MINIMUM REQUIREMENTS OF THE CONTRACT.
- 5.2.2 QUALITY CONTROL INSPECTION SHALL BE THE RESPONSIBILITY OF A QUALITY CONTROL GROUP, WHICH SHALL BE INDEPENDENT OF THE FABRICATION GROUP.
- 6.0 FABRICATION
- 6.1 FABRICATION SHALL BE IN ACCORDANCE WITH WATSON BOWMAN ACME'S QUALITY CONTROL MANUAL AND MANUFACTURING TOLERANCES.
- 6.2 EXPANSION DAM DEVICES SHALL BE WELDED IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY AASHTO/AWS D1.5.
- 6.3 ALL WELDING SHALL BE EXECUTED USING EITHER GMAW OR FCAW PROCESSES UNLESS A PROCESS IS SPECIFICALLY IDENTIFIED ON THE SHOP DRAWINGS HEREIN.
- 6.4 THE NEOPRENE SEALS SHALL BE FIELD INSTALLED BY THE CONTRACTOR USING PRIMA-LUB ADHESIVE AND THE SEAL INSTALLATION TOOLS. ADHESIVE SHALL BE APPLIED TO THE FULL PERIMETER OF THE WALLS OF THE STRIP SEAL CAVITY. FACTORY SPLICES SHALL BE PERMITTED. THE SEAL SHALL BE ONE CONTINUOUS PIECE, FIELD SPLICES WILL NOT BE PERMITTED.

- 6.5 DISTORTED MEMBERS SHALL BE STRAIGHTENED BY MECHANICAL MEANS OR, IF APPROVED BY THE ENGINEER, BY CAREFULLY PLANNED PROCEDURE AND SUPERVISED APPLICATION OF A LIMITED AMOUNT OF LOCALIZED HEAT.

7.0 COATINGS

- 7.1 THE EXPANSION JOINT ASSEMBLY SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123.
- 7.2 REPAIR ANY DAMAGED GALVANIZED AREAS PER A-780.

INSPECTION REQUIRED

NO EXCEPTIONS NOTED

NDDOT

Digitally signed by NDDOT  
DN: cn=NDDOT, o=Dean Stolz,  
ou=Bridge Division,  
email=dstolz@nd.gov, c=US  
Date: 2011.04.05 09:15:15 -05'00'

REVIEW DOES NOT RELIEVE CONTRACTOR FROM  
RESPONSIBILITY FOR ERRORS, OMISSIONS, OR  
DEVIATIONS FROM CONTRACT REQUIREMENTS

NDDOT

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

COUNTY: STUTSMAN

PROJECT NO.: SHE-SIM-2-094(094)260

PCN: 17342

BRIDGE NO.: 94-260.125R

WBA PRODUCT NO.: SSE136803AA

JOINT TYPE: STRIP SEAL

DRAWING ACTION:

SUBMITTED FOR APPROVAL

DATE: 3/28/11

NO.	DESCRIPTION	DATE
1	BRIDGE NUMBER WAS BRIDGE CODE; CHANGED PROJECT DESCRIPTION	3/30/2011

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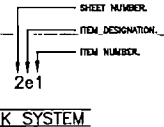
Watson Bowman Acme Corp.  
25 Pleasant Drive  
Arboret, NY 14226  
Phone: (716) 991-7000  
Fax: (716) 991-4229  
www.wbcorp.com

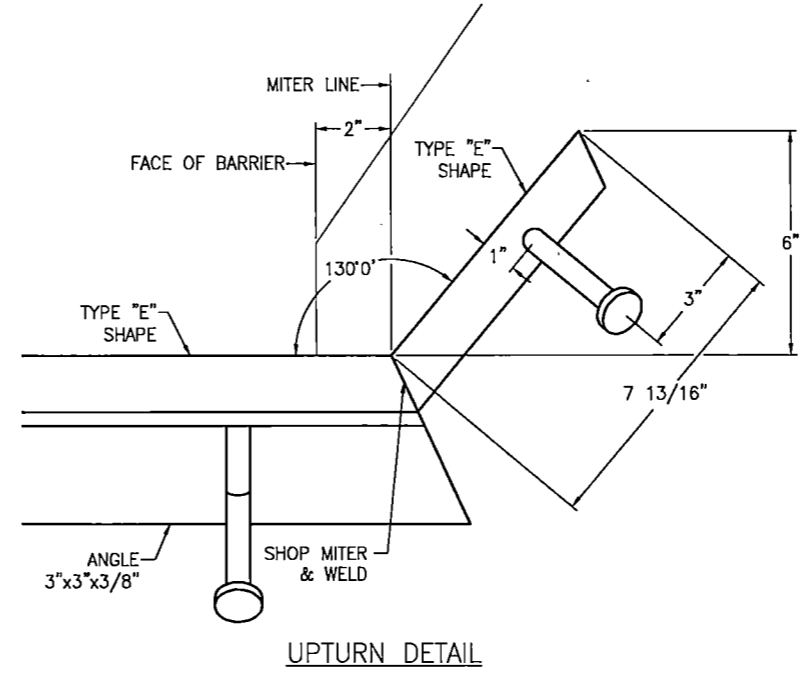
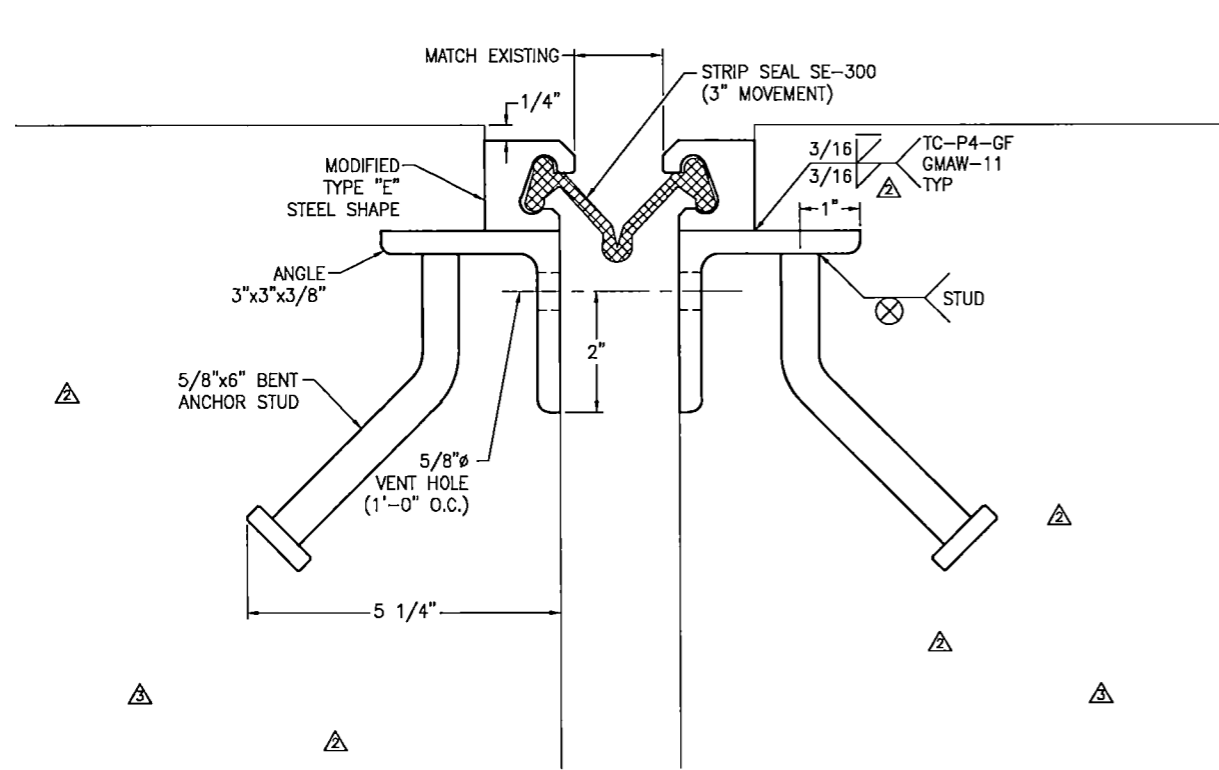
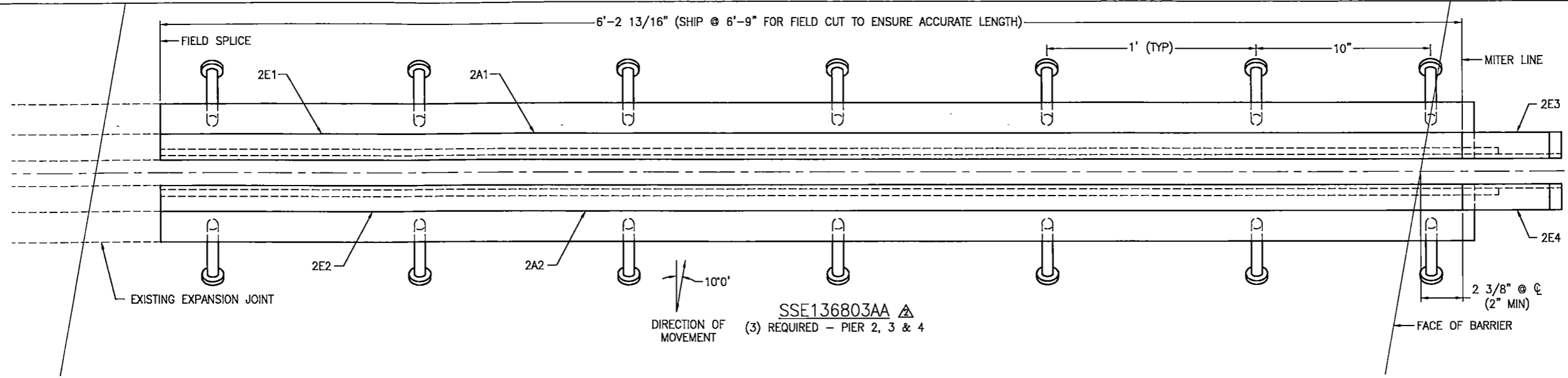
The Chemical Company

DETAILED BY:	SM	DATE:	3/28/11
CHECKED BY:	JFW	DATE:	3/28/11
SCALE:	NTS	WBA JOB NO.:	136803
SHEET NO.:	1 OF 4	DRAWING NO.:	B-28837

PROJECT: BNSF & SE JAMESTOWN INTERCHANGE

WABO SSE-300 STRIP SEAL EXPANSION JOINT





TYPICAL SECTION

UPTURN DETAIL

**No Exceptions Noted**  
 BY: D Stolz  
 DATE: April 5, 2011  
 REVIEW DOES NOT RELIEVE CONTRACTOR FROM  
 RESPONSIBILITY FOR ERRORS, OMISSIONS, OR  
 DEVIATIONS FROM CONTRACT REQUIREMENTS  
 NDDOT

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION  
 COUNTY: STUTSMAN  
 PROJECT NO.: SHE-SIM-2-094(094)260  
 PCN: 17342  
 BRIDGE NO.: 94-260.125R  
 WBA PRODUCT NO.: SSE136803AA  
 JOINT TYPE: STRIP SEAL

INSPECTION REQUIRED

DRAWING ACTION:  
 SUBMITTED FOR APPROVAL  
 DATE: 3/28/11

REMOVED BLOCKOUT LINES	SM	4/5/2011
REMOVED BRIDGE CODE; REMOVED DIMENSIONS; MODIFIED WELD SYMBOL	SM	4/1/2011
BRIDGE NUMBER WAS BRIDGE CODE; CHANGED PROJECT DESCRIPTION	SM	3/30/2011

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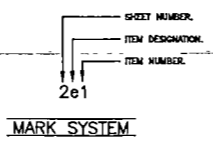


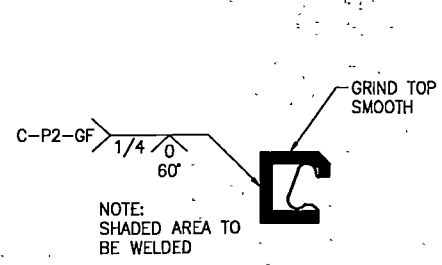
Watson Bowman Acme Corp.  
 85 Pioneer Drive  
 Auburn, NY 14226  
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 fax: (716) 681-4626  
 www.watsoncorp.com



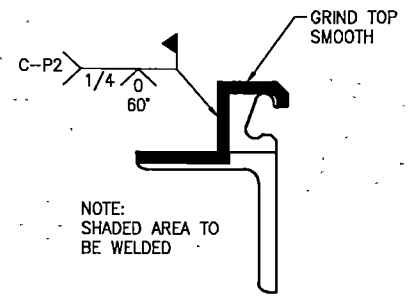
DETAILED BY:	SM	DATE:	3/28/11
CHECKED BY:	JFW	DATE:	3/28/11
SCALE:	NTS	WBA JOB NO.:	136803
SHEET NO.:	2 OF 4	DRAWING NO.:	B-28837

PROJECT: BNSF & SE JAMESTOWN INTERCHANGE  
 WABO SSE-300 STRIP SEAL EXPANSION JOINT

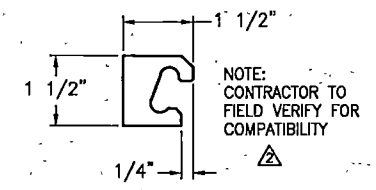




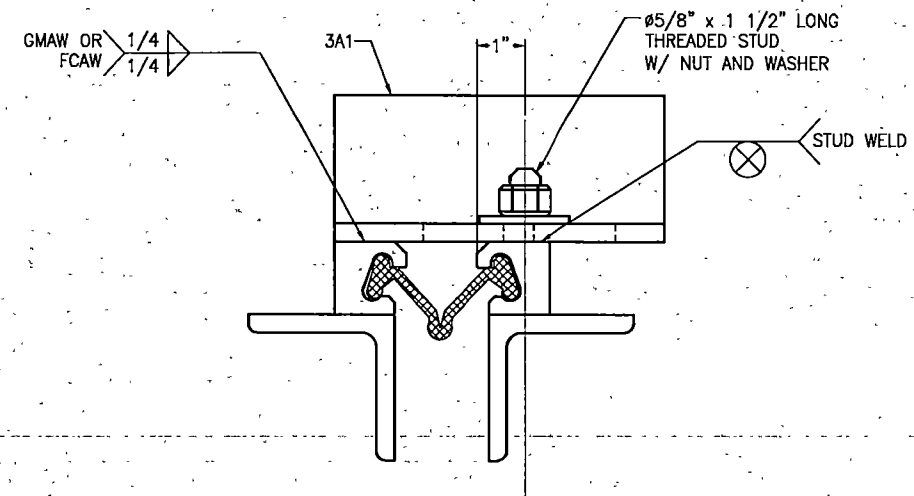
SHOP WELD DETAIL



FIELD WELD DETAIL

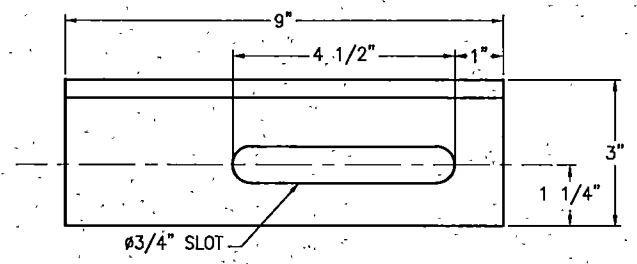


MODIFIED TYPE "E" STEEL EXTRUSION DETAIL

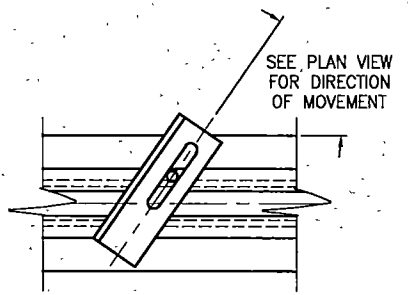


SHIPPING CLAMP ASSEMBLY  
(THIS IS A TEMPORARY DEVICE)

- NOTES:
1. SHIPPING CLAMPS SHALL BE SPACED DIRECTLY BETWEEN SUPPORT BOXES AND BETWEEN THE END OF THE JOINT AND LAST BOXES.
  2. THE CONTRACTOR IS TO REMOVE THE SHIPPING CLAMPS AND STUDS, WHEN THE JOINT IS SET. WELDS ARE TO BE GROUND SMOOTH AND DAMAGED GALVANIZING IS TO BE TOUCHED UP.
  3. EACH SHIPPING CLAMP ASSEMBLY SHALL INCLUDE:
    - 1 - ANGLE (3A1) - 3" x 3" x 3/8"
    - 1 - Ø5/8" x 1 1/2" LONG THREADED STUD
    - 1 - Ø5/8" WASHER
    - 1 - Ø5/8" NUT



DETAIL ANGLE (3A1)  
3" x 3" x 3/8" ANGLE

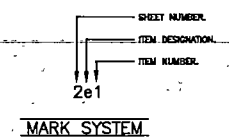


SHIPPING CLAMP ORIENTATION

INSPECTION REQUIRED

<b>No Exceptions Noted</b>	
BY: D Stolz	
DATE: April 5, 2011	
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS	
NDDOT	

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION  
 COUNTY: STUTSMAN  
 PROJECT NO.: SHE-SIM-2-094(094)260  
 PCN: 17342  
 BRIDGE NO.: 94-260.125R  
 WBA PRODUCT NO.: SSE136803AA  
 JOINT TYPE: STRIP SEAL



MARK SYSTEM

DRAWING ACTION:  
 SUBMITTED FOR APPROVAL  
 DATE: 3/28/11

NO.	DESCRIPTION	DATE
1	ADDED NOTE	4/5/2011
2	BRIDGE NUMBER WAS BRIDGE CODE; CHANGED PROJECT DESCRIPTION	3/30/2011

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 www.watsonacme.com

**D-BASF**  
 The Chemical Company

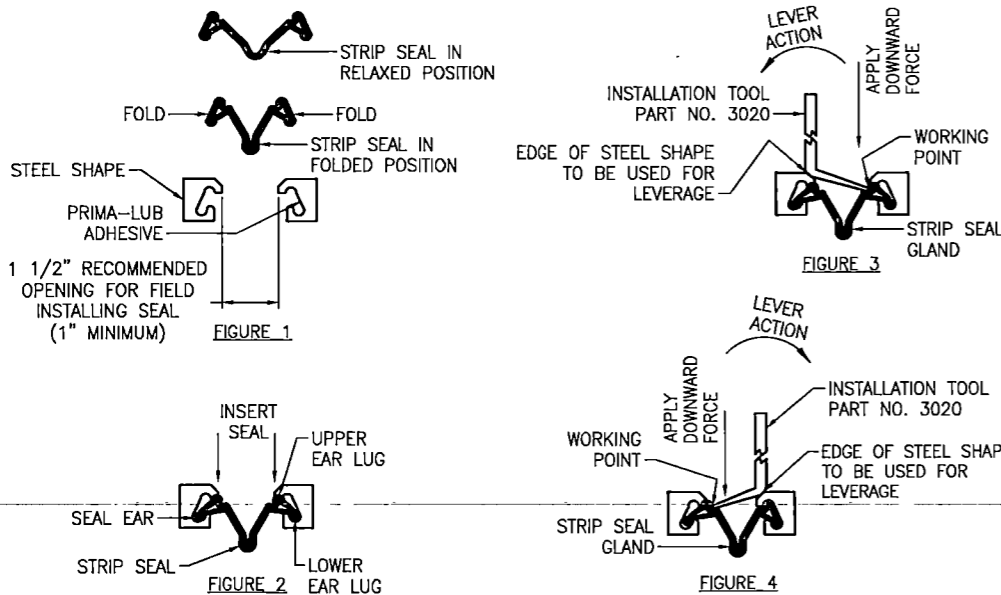
PROJECT: BNSF & SE JAMESTOWN INTERCHANGE  
 WABO SSE-300 STRIP SEAL EXPANSION JOINT

DETAILED BY: SM	DATE: 3/28/11
CHECKED BY: JFW	DATE: 3/28/11
SCALE: NTS	WBA JOB NO.: 136803
SHEET NO.: 3 OF 4	DRAWING NO.: B-28837

**RECOMMENDED SEAL INSTALLATION PROCEDURE**

- PRIOR TO INSTALLING OF THE STRIP SEAL GLAND, INSTALLATION OF THE EXPANSION JOINT HARDWARE AND COMPONENTS (ANCHORS AND EXTRUSIONS) SHALL BE COMPLETED AND SATISFY THE DETAILS AS SHOWN IN THE SHOP DRAWINGS.
  - SEAL INSTALLER SHALL INSURE THAT THE OPENING AT THE EXPANSION JOINT (OPENING EQUALS THE WIDTH BETWEEN TOP OF THE INSIDE EDGES OF THE EXTRUSIONS) HAS BEEN SET TO A WIDTH REQUIRED BY TEMPERATURE AND IS A MINIMUM FIELD INSTALLATION WIDTH OR WIDER.
  - PRIOR TO INSTALLATION OF THE SEAL, THE EXTRUSION CAVITY MUST BE FREE OF ALL RUST, DIRT, OIL OR ANY OTHER FOREIGN MATTER THAT COULD BE DETRIMENTAL TO THE SEALING CAPABILITY OF THE NEOPRENE GLAND AND SHALL BE CLEANED WITH AN APPROVED SOLVENT (TOLUENE OR MEK). DRIED CONCRETE FROM THE DECK POURING OPERATION OR PIECES OF SAND & GRAVEL, IF LEFT IN THE CAVITY, WILL PREVENT THE SEAL FROM LOCKING INTO THE EXTRUSION CAVITY.
  - APPLY THE LUBRICANT/ADHESIVE TO THE INSIDE OF THE EXTRUSION CAVITY AND TO THE EAR LUGS ON BOTH SIDES OF THE EXPANSION JOINT.
- NOTE: IT IS RECOMMENDED THAT THE INSTALLER APPLY THE LUBRICANT/ADHESIVE IN APPROXIMATE 5 FOOT INCREMENTS. EXTRA TIME MAY BE REQUIRED TO INSTALL THE SEAL; THEREFORE, THESE SMALL INTERVALS WILL MINIMIZE THE CHANCE OF THE LUBRICANT/ADHESIVE SETTING BEFORE THE SEAL HAS BEEN INSERTED.

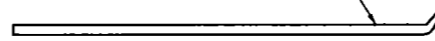
- TO BEGIN INSTALLATION, TAKE HOLD OF THE SEAL AND MANUALLY FOLD SEAL AS INDICATED IN FIGURE 1. CENTER FOLDED SEAL OVER EXPANSION JOINT OPENING.
- INSERT SEAL INTO OPENING BETWEEN STEEL EXTRUSIONS. IN THIS, CARE SHOULD BE EXERCISED THAT THE SEAL IS NOT INSERTED THROUGH AND PAST THE JOINT OPENING. ONCE PROPERLY INSERTED, THE BOTTOM HALF OF THE GLAND EAR OR THE LOWER EAR LUGS SHOULD BE AUTOMATICALLY EXTENDED OUTWARD AND SEAT THEMSELVES INTO THE BOTTOM PORTION OF THE EXTRUSION CAVITY. SEE FIGURE 2 FOR COMPLETED SETUP OF INSTALLATION AT THIS TIME.
- THE INSTALLER SHALL NOW PROCEED TO USE THE INSTALLATION TOOL AS SUPPLIED BY THE JOINT MANUFACTURER (PT. # 3020). PLEASE NOTE POSITION OF TOOL AS INDICATED IN FIGURE 3. THE TOOL MAY BE APPLIED TO EITHER SIDE OF THE EXTRUSION. WITH THE WORKING EDGE OF THE TOOL, APPLY FORCE TO THE WORKING POINT OF THE SEAL INDICATED IN FIGURE 3. WORK THE SEAL UPWARD TO ALLOW THE UPPER EAR LUG TO ROTATE TOWARD THE REAR OF THE EXTRUSION CAVITY & LOCK IN UNDER THE UPPER LIP. WORK THE TOOL IN SMALL SEGMENTS ALONG THE LENGTH OF THE JOINT. TO CONTINUE THE INSTALLATION, USE OF ONE TOOL TO HOLD THE UPPER EAR LUG AND A SECOND TOOL TO APPLY THE LEVER ACTION THAT IS RECOMMENDED UNTIL THE UPPER EAR LUG HAS BEEN PROPERLY SEATED AND LOCKED INTO THE UPPER PORTION OF THE EXTRUSION CAVITY
- UPON COMPLETING THE SECTION OF THE SEAL, REVERSE THE TOOL AS INDICATED IN FIGURE 4 AND FOLLOW THE SAME PROCEDURE AS OUTLINED IN STEP 7. HERE WE ARE SIMPLY WORKING THE TOOL ALONG THE OPPOSITE SIDE OF THE JOINT.
- UPON COMPLETING STEP 8, THE INSTALLER SHALL REPEAT 3 THROUGH 8 UNTIL THE TOTAL LENGTH HAS BEEN INSTALLED.
- IT IS RECOMMENDED THAT THE INSTALLER INSPECT THE OVERALL SEAL INSTALLATION AND ENSURE THAT THE SEAL HAS BEEN PROPERLY INSTALLED AND LOCKED IN THE EXTRUSION CAVITY. ANY PORTION OF THE SEAL NOT LOCKED PROPERLY MUST BE CORRECTED AT ONCE FOLLOWING STEPS 7 AND 8.
- INSTALLATION IS NOW COMPLETE. ALLOW LUBRICANT/ADHESIVE APPROXIMATELY 24 HOURS TO FULLY CURE.



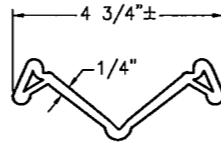
**INSTALLATION PROCEDURE**

- BLOCKOUT - THE BLOCKOUT FOR THE EXPANSION JOINT SHALL BE CONSTRUCTED TO DIMENSIONS SHOWN IN THE TYPICAL SECTION ON SHEET 3 AND AS DIRECTED BY THE FIELD ENGINEER.
- PLACE EXPANSION JOINT OVER CENTERLINE OF OPEN JOINT AND ADJUST TO PROPER GRADE AND ELEVATION.
- CHECK WIDTH OF OPEN JOINT AND MAKE ADJUSTMENTS IF NECESSARY. (AS DIRECTED BY ENGINEER).
- CUT STEEL EXTRUSION TO ACCURATE LENGTH AND MAKE NECESSARY FIELD WELDS (IF NECESSARY).
- FIELD WELD EXPANSION JOINT INTO PLACE AS SHOWN IN THE TYPICAL SECTION.
- APPLY GALVANIZING TOUCH-UP PAINT.
- POUR CONCRETE TO BLOCKOUT.
- CONTRACTOR SHALL REMOVE SHIPPING CLAMPS AND TOUCH UP ANY DAMAGED GALVANIZED AREAS.
- CONTRACTOR SHALL FIELD INSTALL THE NEOPRENE SEAL ACROSS THE ENTIRE ROADWAY.

FLAT BAR 3/8 x 1 1/2 x 16 3/4"



SEAL INSTALLATION TOOL



MOVEMENT RATING - 3"

SE-300 SEAL

INSPECTION REQUIRED

SSE136803AA QTY. 3 REQ'D.		STRUCTURED BILL OF MATERIALS				DWG# B-28837
LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	SSE136803AA	1	EA	ITEM 83; SSE; PL = 47 67' (W)	GALVANIZED	
					SHIPPING LENGTH = 8±	
					APPROX. SHIPPING WEIGHT = 250 lb	
1	7959	2	EA	NUT5/8(A)B69583C50T1 A563/DH-*		
1	7010	2	EA	THD STUD 5/8x1-1/2AWL NP108-*		
1	7549	2	EA	WASHER 5/8(A) B695C50T1 F436-*		
2	4831	16	EA	CON ANC BNT 5/8 x 6 C10596-*(U)		
3	1929	17	FT	SS E FM 1 50x1 5 A36 C11866(W)		
3	3880	15	FT	ANGLE 3x3x3/8 A36		
2	SSE136803AA01	2	EA	SHIPPING CLAMP (3A1)		
3	3880	0 75	FT	ANGLE 3x3x3/8 A36		

SSE136803S1 QTY. 3 REQ'D		STRUCTURED BILL OF MATERIALS				DWG#B-28837
LV	PART NO.	QTY	UM	DESCRIPTION	CLASS	REVISION
0	SSE136803S1	1	EA	SEAL FOR SHIPPING		
1	80	50 00	FT	SE STRIP SEAL 300 C1735-2	A	

SSE136803PS QTY. 1 REQ'D		STRUCTURED BILL OF MATERIALS				DWG#B-28837
LV	PART NO.	QTY	UM	DESCRIPTION	CLASS	REVISION
0	SSE136803PS	1	EA	PARTS FOR SHIPPING		
1	2720	2	EA	PRIMA-LUB GALLON CAN	A	
1	3020	2	EA	INSTALLATION TOOL STRIP SEAL(W)	A	

**No Exceptions Noted**

BY: D Stolz  
DATE: April 5, 2011

REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS  
**NDDOT**

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

COUNTY: STUTSMAN  
PROJECT NO.: SHE-SIM-2-094(094)260  
PCN: 17342  
BRIDGE NO.: 94-260.125R  
WBA PRODUCT NO.: SSE136803AA  
JOINT TYPE: STRIP SEAL

DRAWING ACTION:

SUBMITTED FOR APPROVAL

DATE: 3/28/11

REMOVED BRIDGE CODE	SM	4/1
BRIDGE NUMBER WAS BRIDGE CODE; CHANGED PROJECT DESCRIPTION	SM	3/30
	SM	2/11

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The Chemical Company

PROJECT: BNSF & SE JAMESTOWN INTERCHANGE  
WABO SSE-300 STRIP SEAL EXPANSION JOINT

DETAILED BY: SM	DATE: 3/28/11
CHECKED BY: JFW	DATE: 3/28/11
SCALE: NTS	WBA JOB NO.: 136803
SHEET NO.: 4 OF 4	DRAWING NO.: B-28837

Abutment Depth from  $\pm$

Crown	$25 \times .25''/ft = 6.25'$	}	4.1'
Deck + Riser	$= 10''$		
Beam	$= 33''$		
2' clear + 3' Embedment	$= 60''$		
	<hr/>		
	109.25"		9.1'

Bottom of Piers

RR Clearance	22'	
Superstructure depth	4.1'	
	<hr/>	
	26.1'	
Track above Ground	2	
Embedment	3'	
	<hr/>	
	31.1'	

# NORTH DAKOTA STATE HIGHWAY DEPARTMENT

SHEET NO. 1 OF 8

# ABSTRACT OF BIDS RECEIVED

PROJECT NO. <u>IM-2-094(007)256.</u>		TYPE IMP		NO. <u>18</u>		BIDDER ENGINEERS ESTIMATE		BIDDER NORTHERN IMPROVEMENT		BIDDER JAMES CAPE & SONS CO.	
COUNTY & DATE <u>093 SE Jamestown 94-260,125 L</u> <u>STUTSMAN COUNTY FEB 21, 1997</u>											
LENGTH & TYPE <u>7.135 Bloom</u> <u>194 FR (HOSPITAL RD) INTERCH (highlighted in yellow-Fed.)</u>											
COMPLETION TIME <u>10 24 97 RECYCLED PCC PVMT &amp; INCIDENTA</u>											
SPEC NO	ITEM DESCRIPTION	UNIT	QUANTITY	C.C. CHECK RANK 00		FARGO, ND C.C.BOND RANK 01		RACINE, WI C.C.BOND RANK 02			
				BID PRICE	AMOUNT	BID PRICE	AMOUNT	BID PRICE	AMOUNT		
103	CONTRACT BOND	L SUM	1000	33300000	3330000	25000000	2500000	60000000	6000000		
107	RAILWAY PROTECTION INSURANCE	L SUM	1000	1758000	175800	3000000	300000	8000000	800000		
202	REMOVAL OF STRUCTURE	L SUM	1000	6668000	666800	45000000	4500000	42000000	4200000		
203	COMMON EXCAVATION-TYPE A	CY	56836000	1300	7388680	2250	12788100	2200	12503920		
203	COMMON EXCAVATION-SUBCUT	CY	13653000	2840	3877452	2250	3071925	3000	4095900		
203	BORROW	CY	71911000	2540	18265394	3600	25887960	3100	22292410		
203	FLATTEN DITCH BLOCK SLOPES	EA	1000	512000	51200	1000000	100000	500000	50000		
210	CLASS I EXCAVATION	L SUM	1000	1874000	187400	2600000	260000	2500000	250000		
210	SELECT BACKFILL	TON	1673000	12860	2151478	11000	1840300	715012000	2007600		
210	FOUNDATION PREPARATION	EA	1000	5272000	527200	5200000	520000	5000000	500000		
216	WATER	M GAL	3616000	7750	2802400	5000	1808000	10000	3616000		
230	RESHAPING ROADWAY	MILE	4818	5000000	2409000	11300000	5444340	12400000	5974320		
230	SUBGRADE PREPARATION-TYPE B-18IN	MILE	4818	20380000	9819084	29700000	14309460	27400000	13201320		
302	SALVAGED BASE COURSE	TON	109666000	4360	47814376	4000	43866400	3500	38383100		
304	PERMEABLE STABILIZED BASE COURSE	SY	121388000	4850	58873180	5000	60694000	3650	44306620		
401	MC70 OR 250 LIQUID ASPHALT	GAL	26974000	830	2238842	1050	2832270	1300	3506620		
401	SS1H OR CSS1H EMULSIFIED ASPHALT	GAL	62000	2000	12400	3500	21700	3300	20460		
401	BLOTTER MATERIAL CL 44	TON	810000	14470	1172070	10000	810000	20000	1620000		
405	REMOVE & SALVAGE BITUMINOUS SURFACING	TON	103006000	3700	38112220	4750	48927850	5000	51503000		
408	HOT BITUMINOUS PAVEMENT CL 25	SY	500000	17450	872500	33000	1650000	31000	1550000		
408	HOT BITUMINOUS PAVEMENT CL 25	TON	1709000	30000	5127000	34000	5810600	31500	5383350		
408	120-150 ASPHALT CEMENT	TON	102000	130000	1326000	135000	1377000	129000	1315800		
408	PAVEMENT REPAIR ALL DEPTHS	SY	1450000	10000	1450000	22000	3190000	19250	2791250		
410	MILLING BITUMINOUS PAVEMENT	TON	22982000	5000	11491000	6250	14363750	5100	11720820		
550	CONCRETE BRIDGE APPROACH SLAB	SY	818100	111060	9085818	95000	7771950	90000	7362900		
550	BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	234500	119070	2792191	200000	4690000	192000	4502400		
550	DOWELED CONTRACTION JOINT ASSEMBLY	LF	83268000	3350	27894780	3400	28311120	3400	28311120		
550	LONGITUDINAL JOINT SILICONE SEAL	LF	8457000	1680	1420776	1850	1564545	800	676560		
550	CONTRACTION JOINT SILICONE SEAL	LF	117520000	1580	18568160	1700	19978400	1680	19743360		
550	PORTLAND CEMENT	TON	12811000	96730	123920803	100000	128110000	107000	137077700		
550	FLYASH	TON	3015000	39150	11803725	34000	10251000	44000	13266000		
560	PREPARE STOCKPILE SITE	L SUM	1000	46508000	4650800	50000000	5000000	75000000	7500000		
560	REMOVAL OF CONCRETE PAVEMENT	SY	89790000	3920	35197680	4750	42650250	5000	44895000		
560	10IN NON-REINF RECYCLED CONCRETE PAVEMENT	SY	195787000	6500	127261550	8250	161524275	9290	181886123		
602	CLASS AAE-3 CONCRETE	CY	265000	276280	7321420	320000	8480000	300000	7950000		
602	CLASS AE-3 CONCRETE	CY	224200	263580	5909463	340000	7622800	325000	7286500		
602	JERSEY BARRIER FORMED OR SLIP FORMED	LF	197000	65250	1285425	95000	1871500	290000	1773000		
602	PENETRATING WATER REPELLENT TREATMENT	SY	816000	2530	206448	3000	244800	3000	244800		
604	PRESTRESSED BOX BEAM-33IN	LF	990000	119970	11877030	125000	12375000	120000	11880000		
612	REINFORCING STEEL-GRADE 60	LBS	49845000	500	2492250	600	2990700	550	2741475		
612	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	36352000	600	2181120	700	2544640	650	2362880		
622	STEEL PILING HP 10 X 42	LF	780000	16570	1292460	22000	1716000	21000	1638000		
622	STEEL PILING HP 14 X 73	LF	1170000	26500	3100500	30000	3510000	29000	3393000		
638	96IN STR PLATE PIPE .138IN	LF	16000	200000	320000	520000	832000	500000	800000		
650	CLASS I OVERLAY	SY	489000	48670	2379963	70000	3423000	67000	3276300		
650	CLASS II OVERLAY	SY	98000	41290	404642	80000	784000	75000	785000		
650	CLASS III OVERLAY	SY	24000	52690	126456	90000	216000	85000	204000		
650	CLASS IIA OVERLAY	LF	176000	4340	76384	15000	264000	14000	246400		

*Handwritten notes:*

- SE James* (circled)
- Hos. Rd. Bloom*
- 30.6 27.6 650* (circled)
- 169.2 Rd. James* (circled)
- 177 195.8* (circled)
- 198.3*
- Hospital Rd. Sep. 94-259.525 L*

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	IM-2-094(007)256	1

JOB# 18

DESIGN DATA				
Traffic	Average Daily			Est. Max. Hr.
Current 1995	Pass: 2690	Trucks: 850	Total: 3540	350
Forecast 2015	Pass: 4035	Trucks: 1275	Total: 5310	530
Minimum Sight Dist. for:		Design Speed 70 MPH		
Stopping 600'		Bridges		
Full Control of Access				
No Point of Access Other Than at Interchange Ramps				

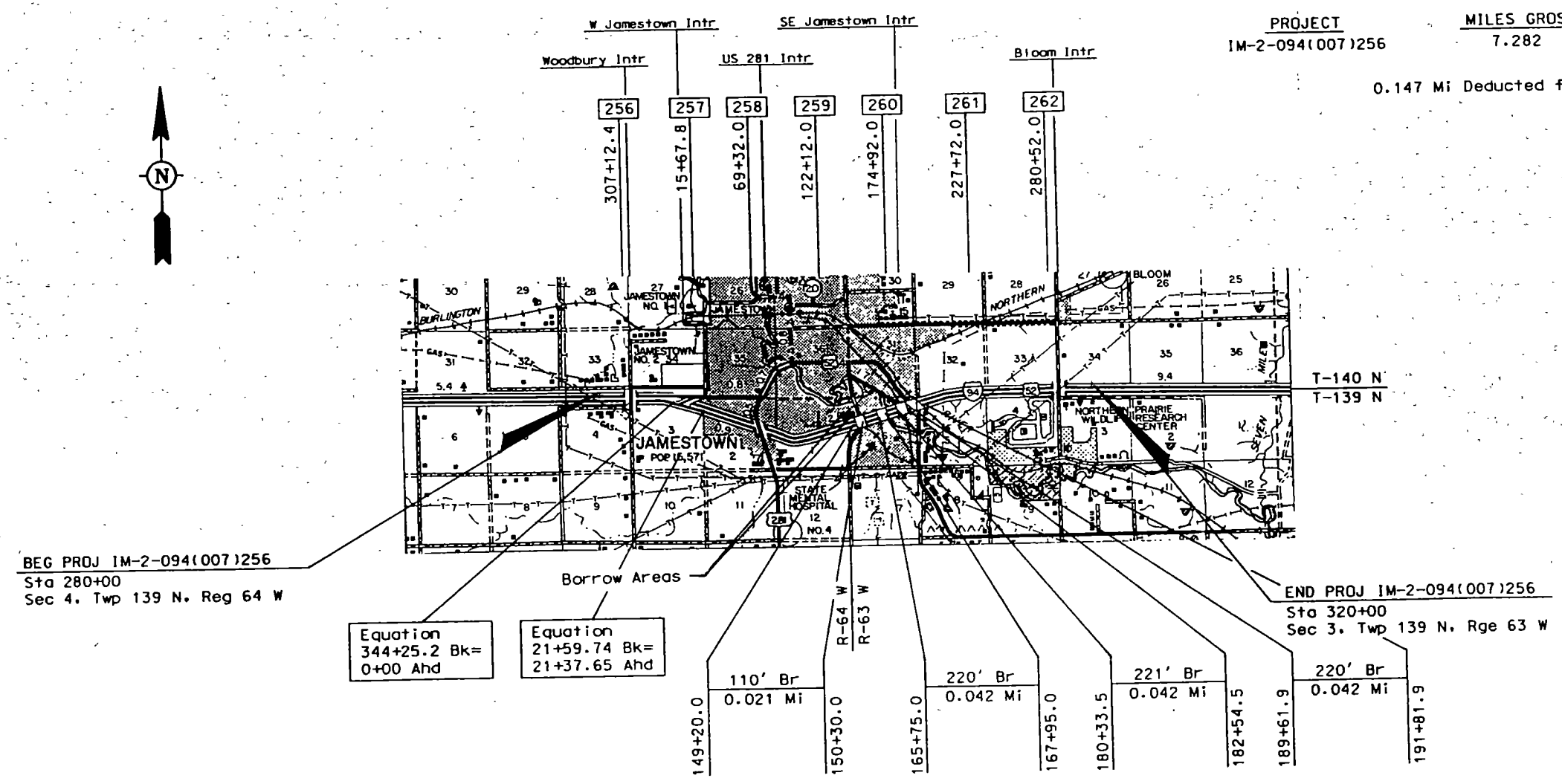
# NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT NO IM-2-094(007)256  
IN STUTSMAN COUNTY  
Recycled PCC Pavement & Incidentals  
(N Roadway)

**GOVERNING SPECIFICATIONS:**  
Standard Specifications adopted by the North Dakota Department of Transportation September 1992; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

### LENGTH OF PROJECT

PROJECT	MILES GROSS	MILES NET
IM-2-094(007)256	7.282	7.135
0.147 Mi Deducted for Structures		



256-19

PAVING SECTION	<i>Brian Rein</i>
URBAN SECTION	
TRAFFIC SECTION	<i>Dave Ellsper</i>
RURAL SECTION	
RECOMMEND APPROVAL	<i>1-10-1997</i>
DESIGN ENGINEER	<i>Kent E. Smith</i>

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ADMINISTRATOR \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED DATE *1-10-97*

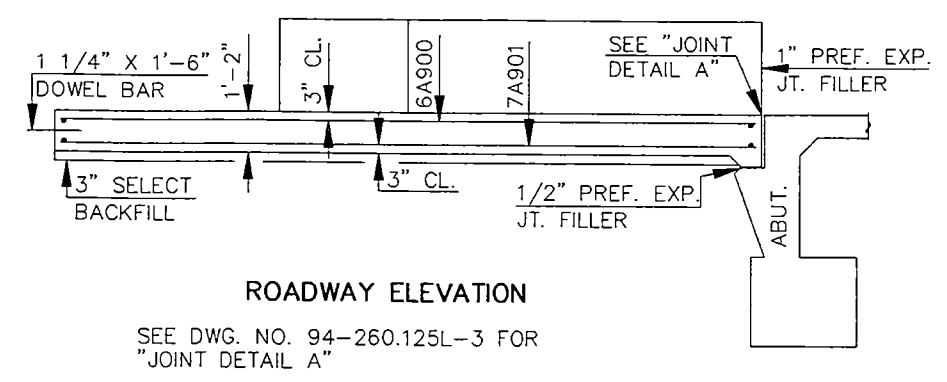
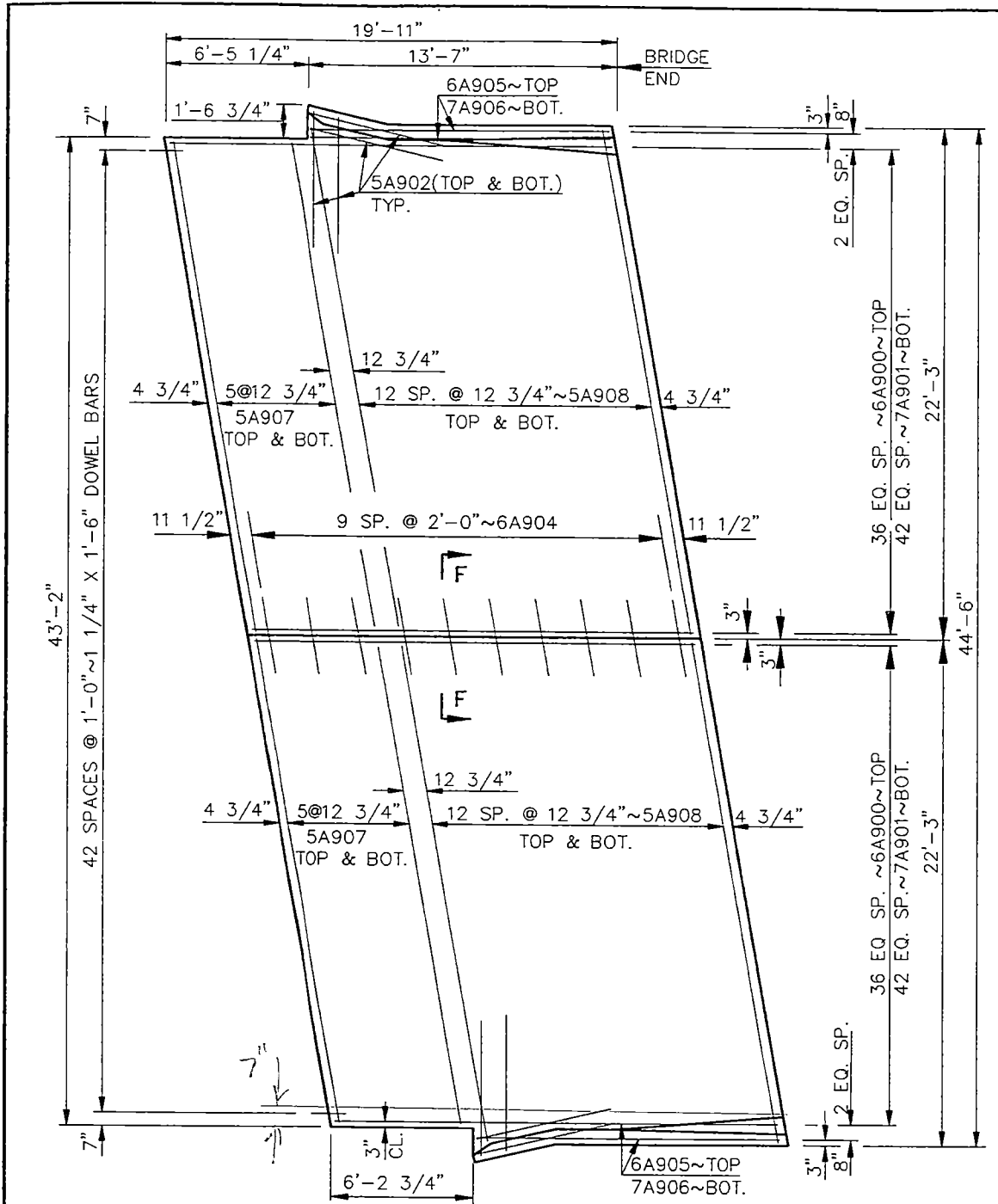
*Ray Zink*

DIRECTOR OF HIGHWAYS  
AND ENGINEERING

NORTH DAKOTA  
DEPARTMENT OF TRANSPORTATION







WIDTH = 42'-0" CLR RDWY

SKEW ANGLE = 10°

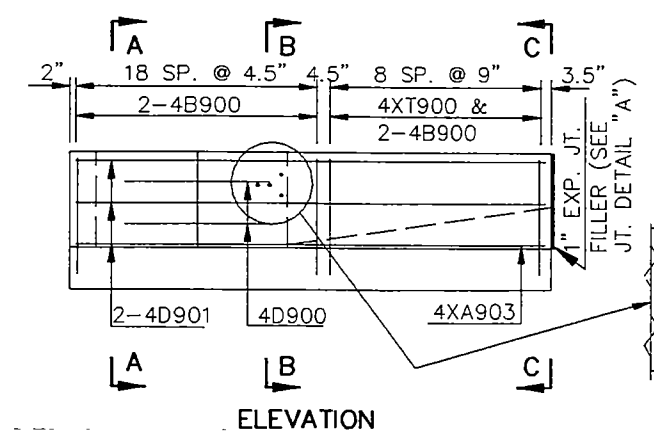
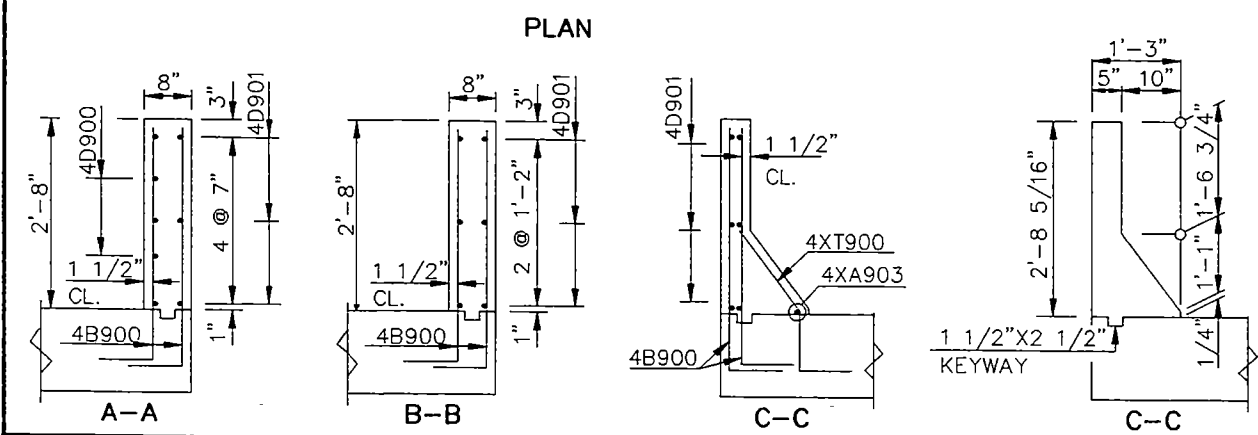
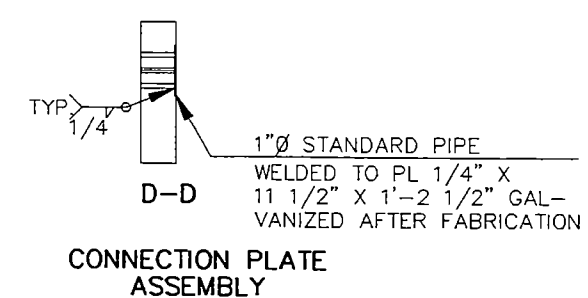
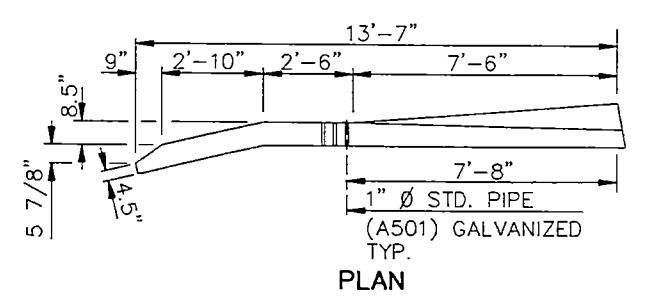
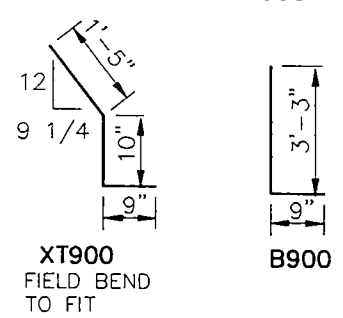
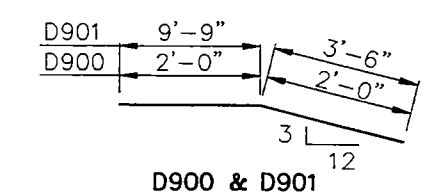
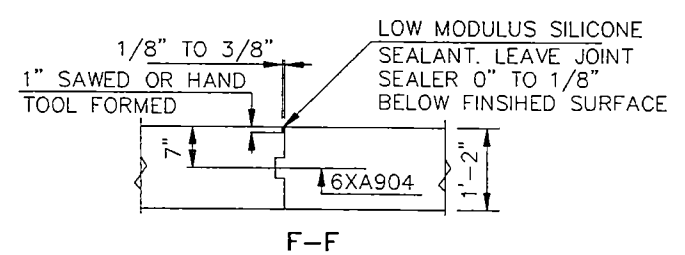
BAR LIST - ONE SLAB

SIZE	MARK	NO.	LENGTH
6	A900	74	19'-7"
7	A901	86	19'-7"
5	A902	16	6'-0"
4	XA903	2	7'-6"
6	XA904	10	2'-6"
6	A905	4	13'-3"
7	A906	4	13'-3"
5	A907	24	21'-7"
5	A908	52	22'-3"
4	B900	112	4'-0"
4	XT900	18	3'-0"
4	D900	4	4'-0"
4	D901	12	13'-3"

ESTIMATED MATERIAL QUANTITIES

REINFORCING STEEL LB	CONCRETE CY
8,154	39.8

X = EPOXY COATED BAR  
SEE DWG. 94-260.125L-3 FOR NOTES.



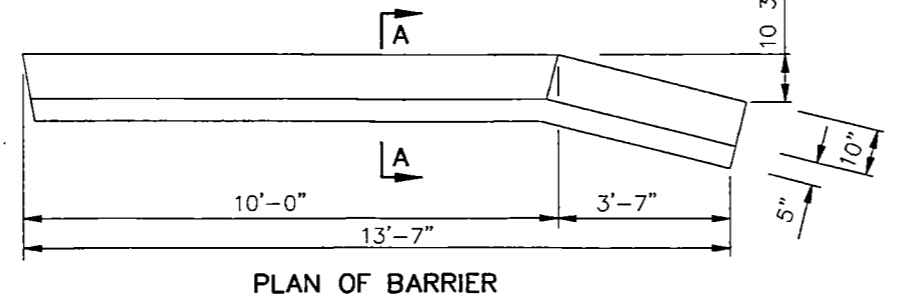
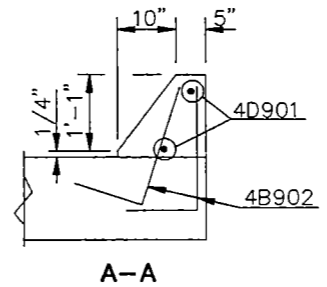
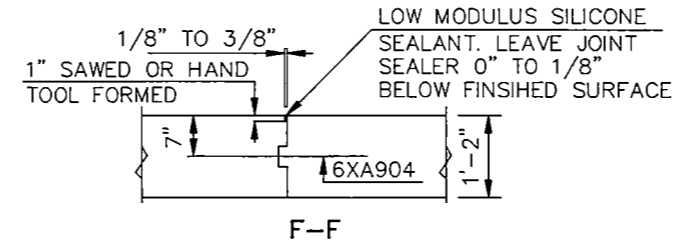
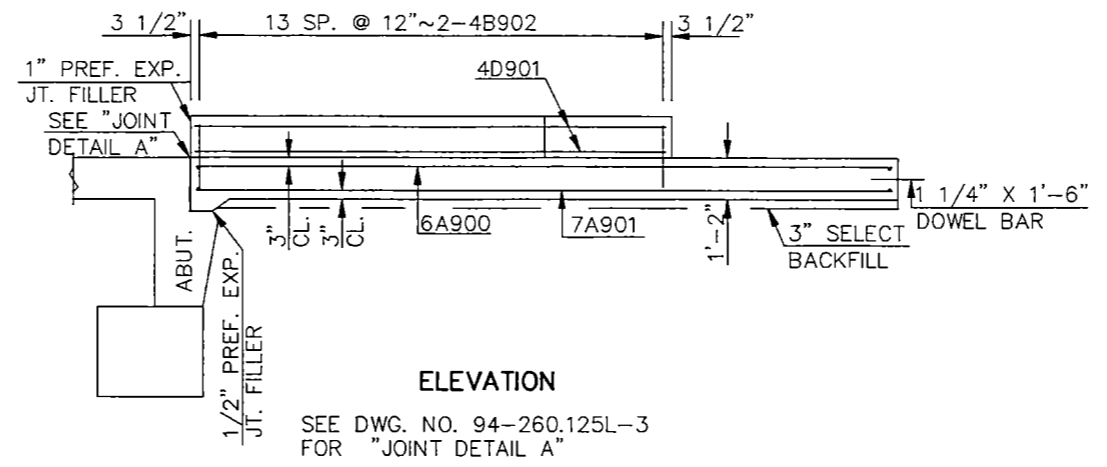
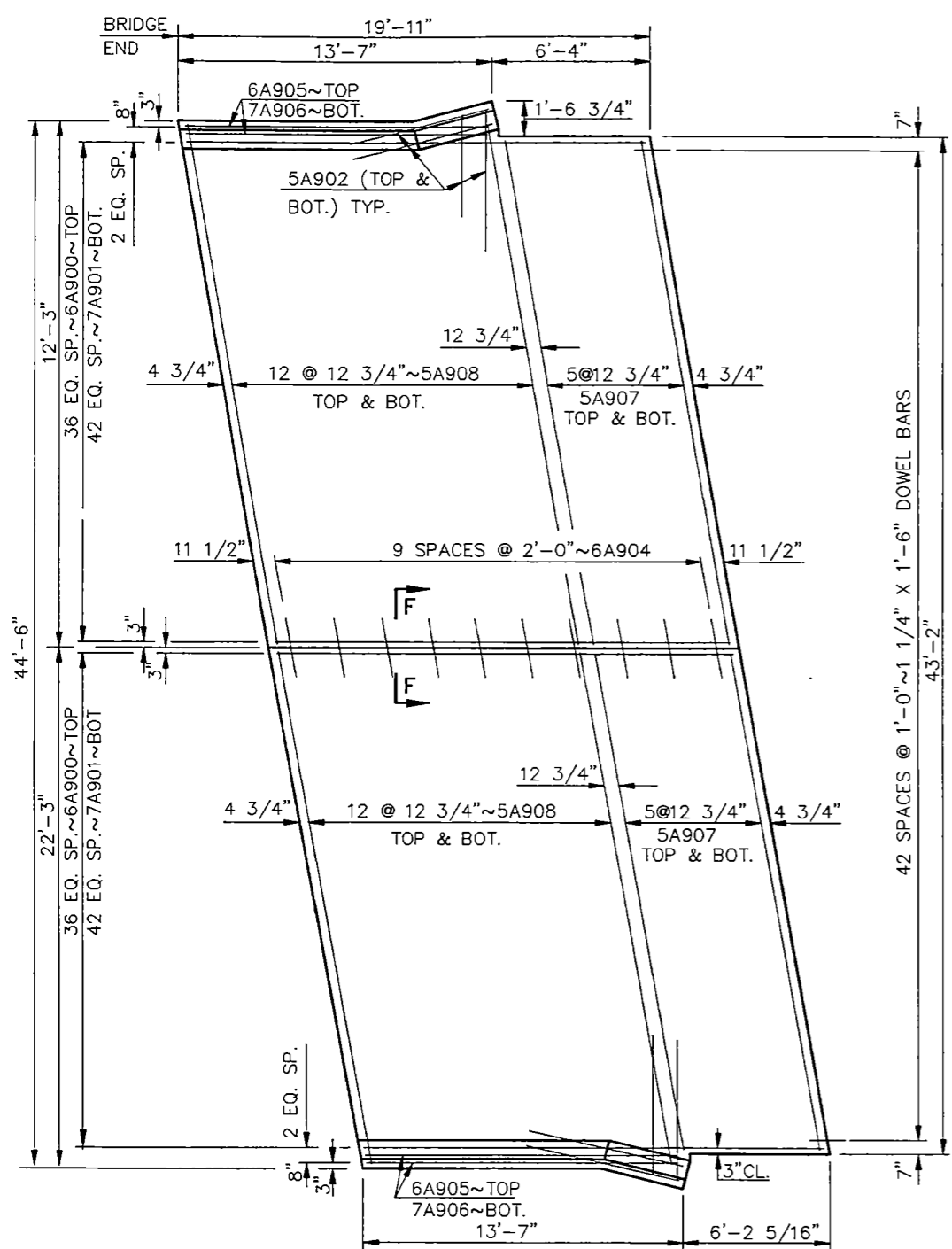
QUANTITIES (ONE SLAB)

APPROACH SLAB	97.9	SY
SELECT BACKFILL	15.3	TON

S.E. JAMESTOWN/BNRR INTERCHANGE

APPROACH SLAB ENTRANCE END

FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO
8	ND	IM-2-094(007)156	244



**WIDTH = 42'-0" CLR RDWY**

**SKEW ANGLE = 10°**

**BAR LIST - ONE SLAB**

SIZE	MARK	NO.	LENGTH
6	A900	74	19'-7"
7	A901	86	19'-7"
5	A902	16	6'-0"
6	XA904	10	2'-6"
6	A905	4	13'-3"
7	A906	4	13'-3"
5	A907	24	21'-7"
5	A908	52	22'-3"
4	B902	56	2'-9"
4	D901	4	13'-3"

**ESTIMATED MATERIAL QUANTITIES**

REINFORCING STEEL LB	CONCRETE CY
7,830	39.2

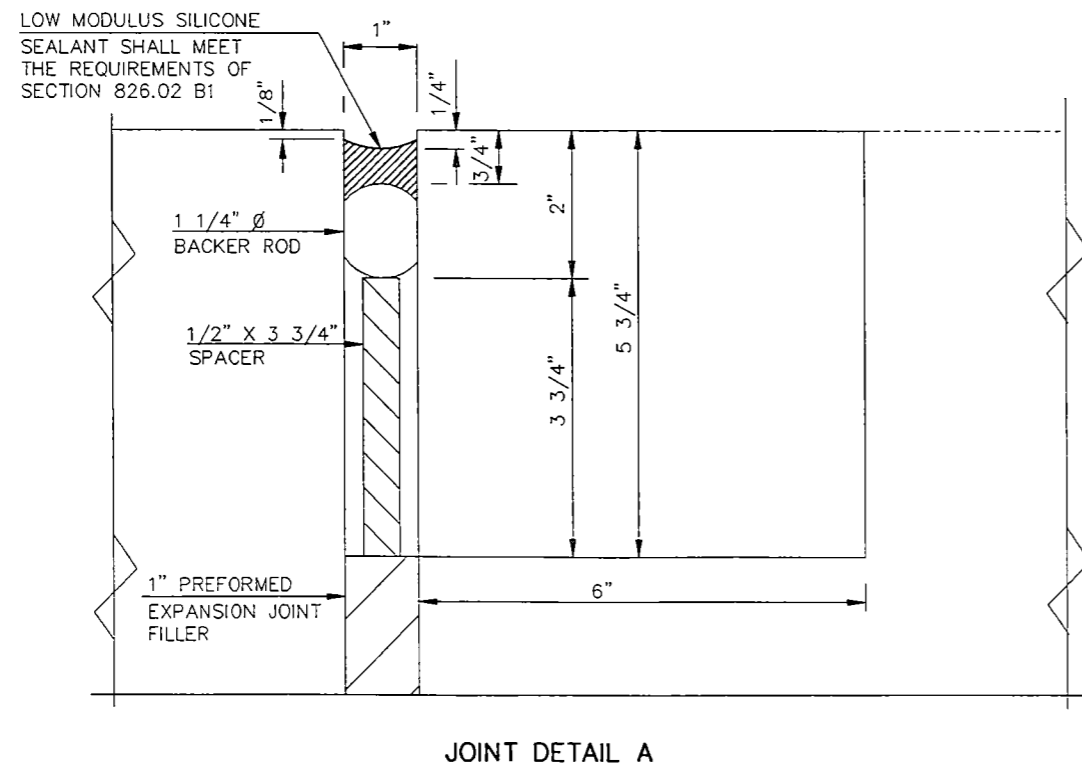
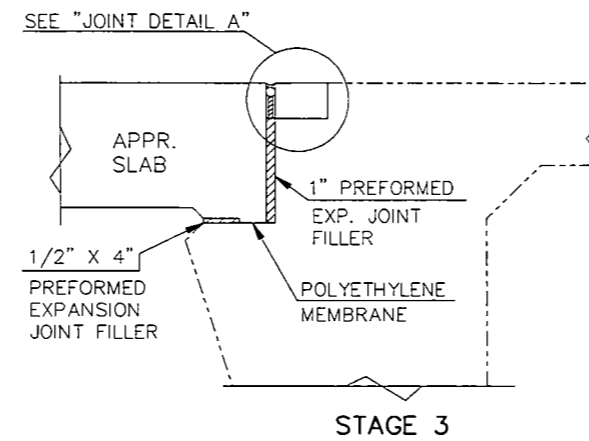
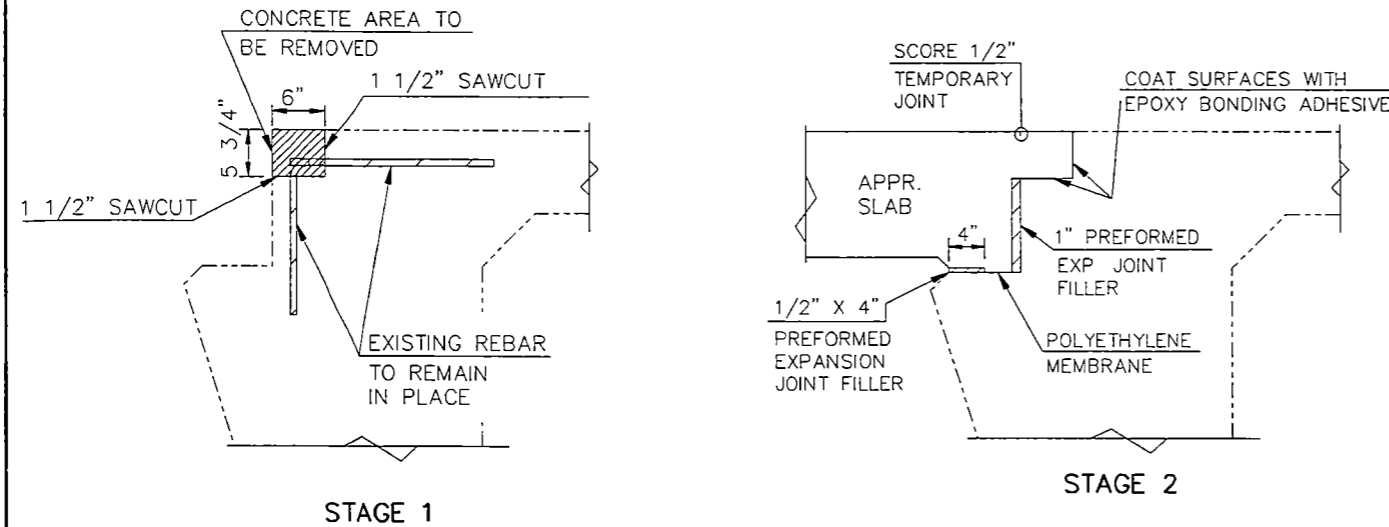
SEE DWG. 94-260.125L-3 FOR NOTES.

QUANTITIES	(ONE SLAB)
APPROACH SLAB	97.9 SY
SELECT BACKFILL	15.3 TON

S.E. JAMESTOWN/BNRR INTERCHANGE

**APPROACH SLAB  
EXIT END**

APPROACH SLAB – BRIDGE DECK JOINT



JOINT DETAIL A

STAGE 1

- 1 SAW 1 1/2" DEEP CUTS ALONG THE TOTAL WIDTH OF THE DECK OR AS CLOSE TO THE CURB AS POSSIBLE.
- 2 REMOVE THE CONCRETE FROM THE DECK APPROXIMATELY 5 3/4" DEEP AND 6" ACROSS FROM CURB LINE TO CURB LINE WITHOUT DAMAGING THE REINFORCING STEEL.

STAGE 2:

3. AFTER PLACING 1" THICK PREFORMED EXPANSION JOINT FILLER AGAINST THE EDGE OF THE DECK PLACE THE NEW APPROACH SLAB CONCRETE INCLUDING THE 5 3/4" X 6" AREA OF THE DECK. IMMEDIATELY BEFORE PLACING CONCRETE IN THE 5 3/4" X 6" AREA, COAT THE SURFACES OF THE DECK WITH A EPOXY BONDING ADHESIVE. THIS ADHESIVE SHALL MEET THE REQUIREMENTS OF AASHTO M-235 TYPE 2, GRADE 2 AND THE APPROPRIATE CLASS DEPENDING ON THE TEMPERATURE OF THE DECK CONCRETE AT THE TIME OF APPLICATION

STAGE 3:

4. AFTER THE CONCRETE HAS SET SAW CUT A 1" WIDE BY 5 3/4" DEEP JOINT OUT OF CONCRETE BETWEEN THE APPROACH SLAB AND THE NEW BRIDGE DECK END. THE JOINT SHOULD BE CENTERED OVER THE PREFORMED EXPANSION JOINT FILLER.
- 5 CLEAN THE JOINT AND INSTALL THE 3 3/4" SPACER, THE BACKER ROD AND THE SILICONE SEALANT ACCORDING TO SECTION 550.04 M.3 OF THE STANDARD SPECS

GENERAL:

WHEN SAW CUTTING CANNOT EXTEND ALONG THE TOTAL WIDTH OF THE DECK, THE AREA FROM WHERE THE SAW CUT ENDS AND THE SIDE EDGES OF THE DECK SHALL BE FORMED WITH 1" THICK PREFORMED JOINT FILLER AND FINISHED WITH BACKER ROD AND SILICONE SEALANT.

NOTES:

THE ESTIMATED MATERIAL QUANTITIES SHOWN ON DRAWINGS NO. 94-260.125L-1 & 2 ARE FOR INFORMATIONAL PURPOSES ONLY ALL MATERIALS, INCLUDING CONCRETE, REINFORCING BARS, DOWEL BARS, BACKER ROD, SILICONE SEALANT, POLYETHYLENE MEMBRANE, SAW CUTTING, CONNECTION PLATE ASSEMBLY, PREFORMED JOINT FILLER AND LABOR REQUIRED TO BUILD THE APPROACH SLAB SHALL BE INCIDENTAL TO THE PAY ITEM "CONCRETE BRIDGE APPROACH SLAB (REMOVE & REPLACE)"

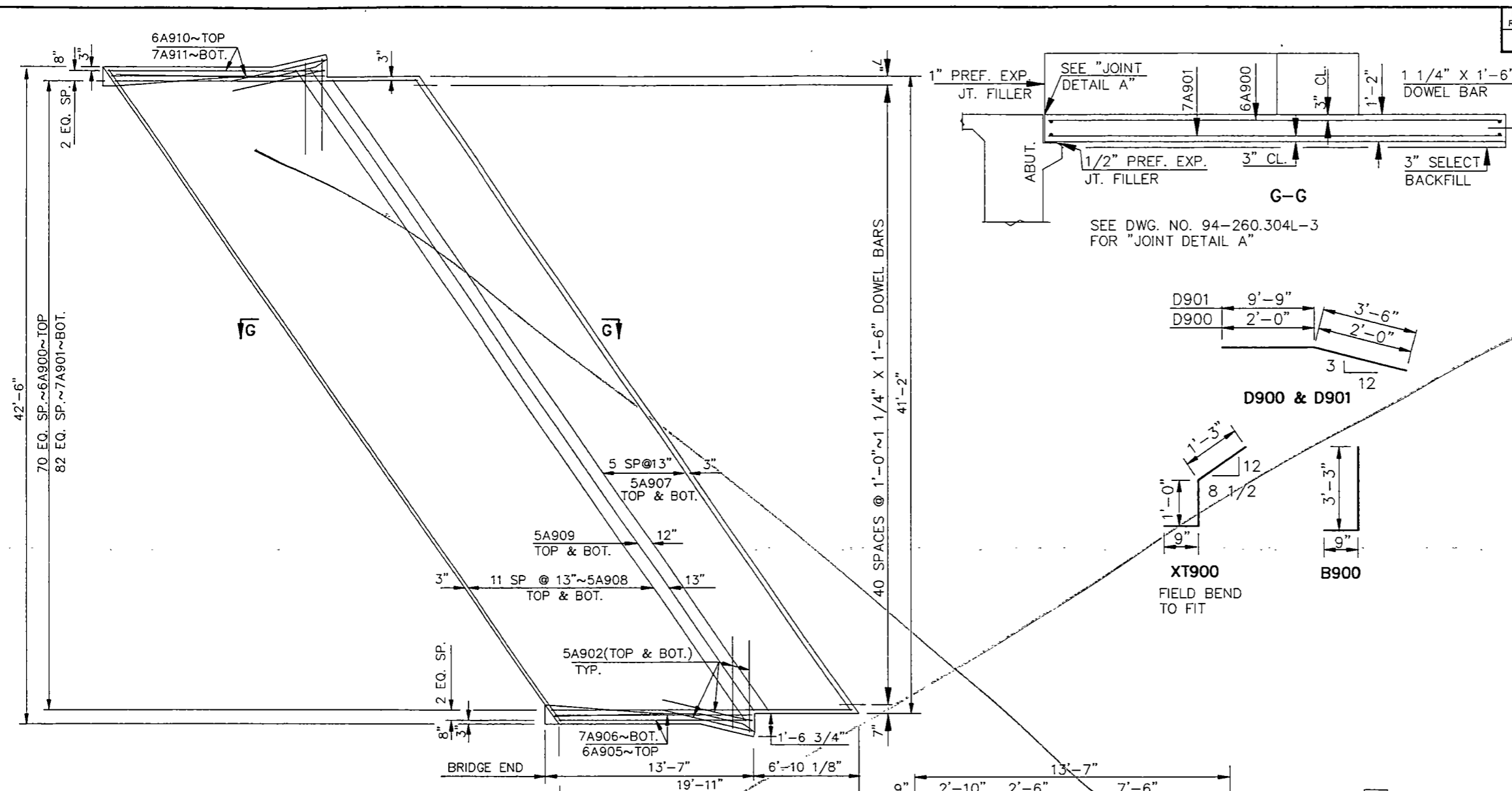
THE CONCRETE SHALL BE CLASS AE-3 AND THE REINFORCING STEEL SHALL BE GRADE 60.

THE POLYETHYLENE MEMBRANE SHALL MEET THE REQUIREMENTS OF AASHTO M171.

ALL DOWEL BARS SHALL BE EPOXY COATED AND CONFORM TO AASHTO M-254 TYPE B. FREE ENDS OF THE DOWEL BARS SHALL BE GIVEN A THIN UNIFORM COATING OF GREASE. THIS COATING SHALL BE APPLIED WITHIN TWO HOURS BEFORE COVERING WITH CONCRETE.

S.E. JAMESTOWN/BNRR INTERCHANGE

APPROACH SLAB  
JOINT DETAIL



**WIDTH = 40'-0" CLR RDWY**  
**SKEW ANGLE = 34° 40'**

**BAR LIST - ONE SLAB**

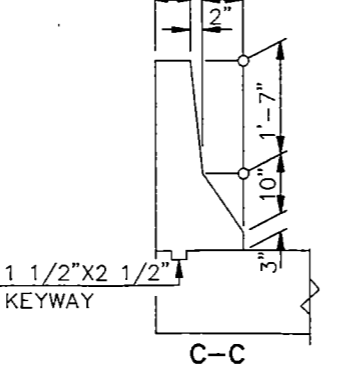
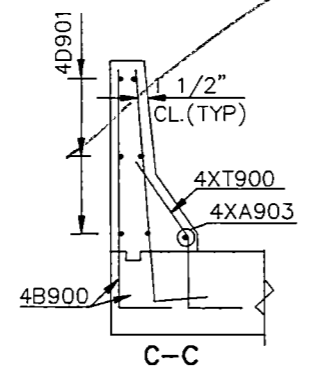
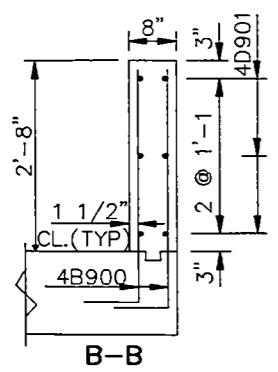
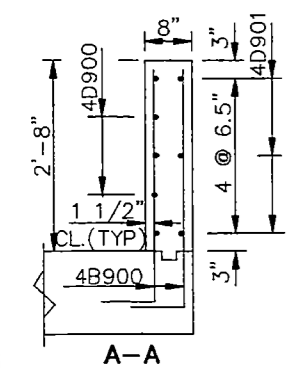
SIZE	MARK	NO.	LENGTH
6	A900	71	19'-7"
7	A901	83	19'-7"
5	A902	16	6'-0"
4	XA903	2	7'-6"
6	A905	2	12'-7"
7	A906	2	12'-7"
5	A907	12	49'-8"
5	A908	24	51'-4"
5	A909	2	50'-6"
6	A910	2	13'-8"
7	A911	2	13'-8"
4	B900	112	4'-0"
4	XT900	18	3'-0"
4	D900	4	4'-0"
4	D901	12	13'-3"

**ESTIMATED MATERIAL QUANTITIES**

REINFORCING STEEL LB	CONCRETE CY
8,171	38.3

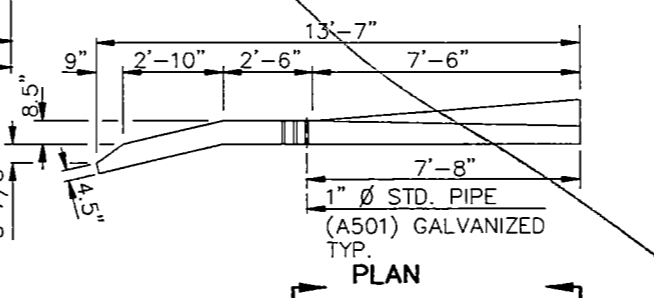
X = EPOXY COATED BAR  
 SEE DWG. 94-260.304L-3 FOR NOTES.

**PLAN**

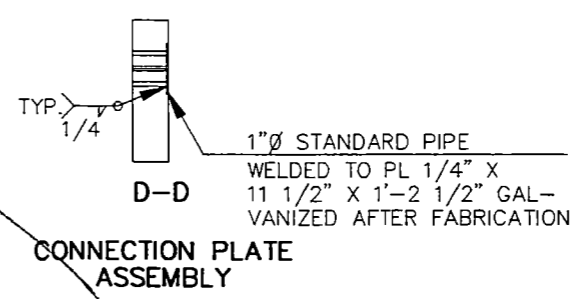


SHOWING REINFORCING

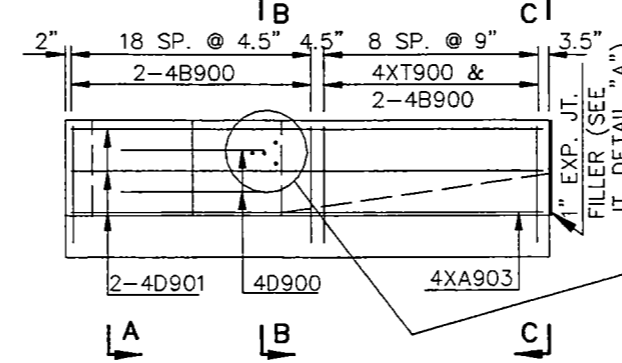
SHOWING DIMENSIONS



**PLAN**



**CONNECTION PLATE ASSEMBLY**

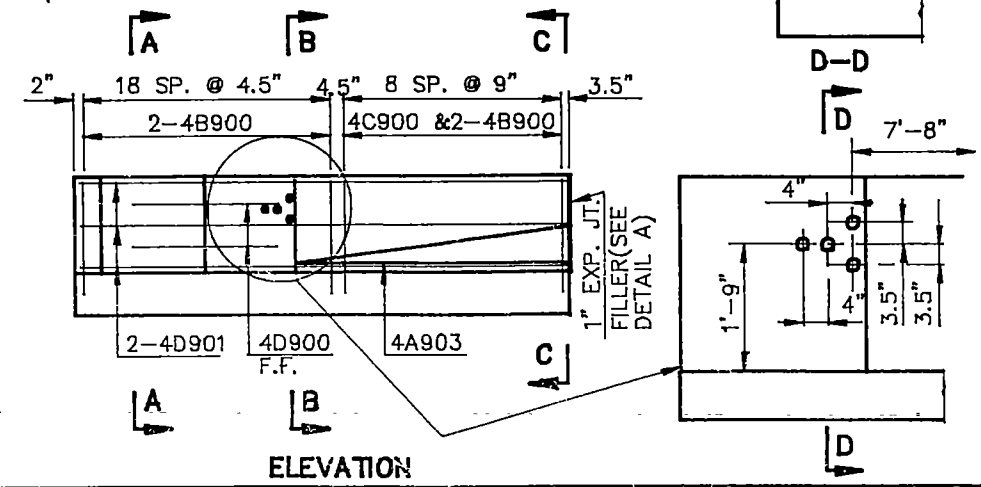
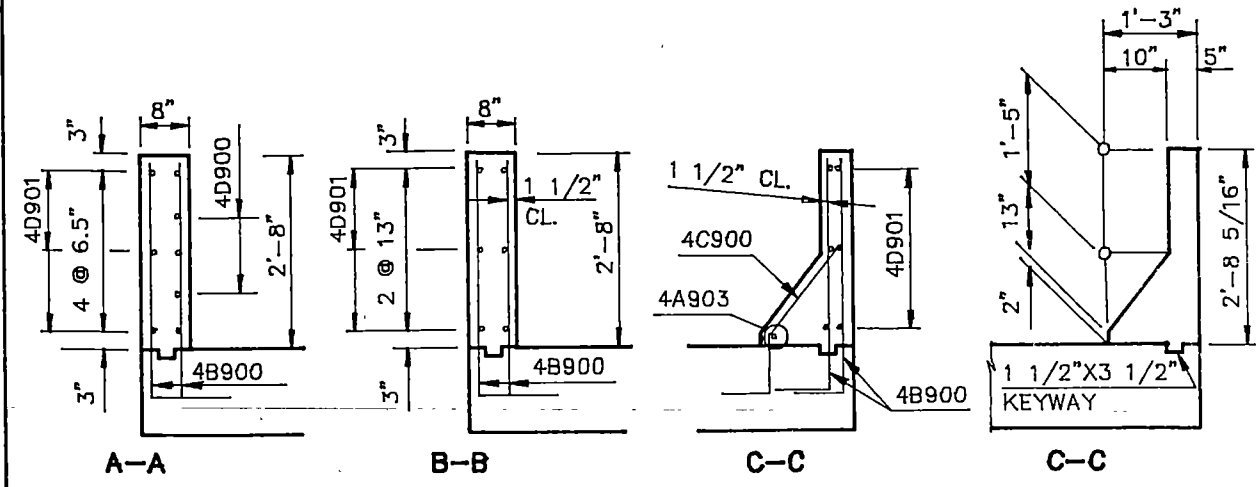
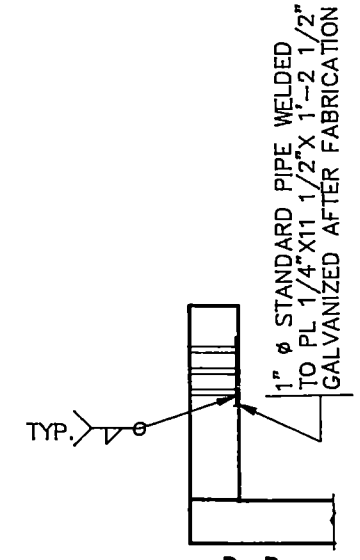
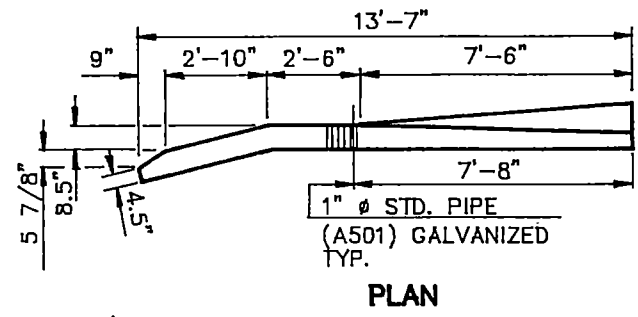
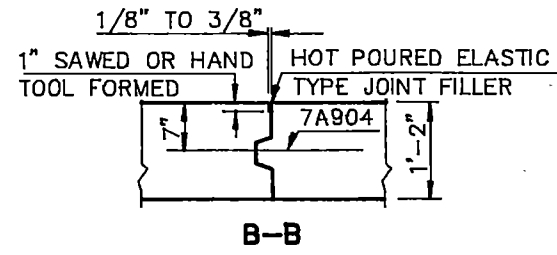
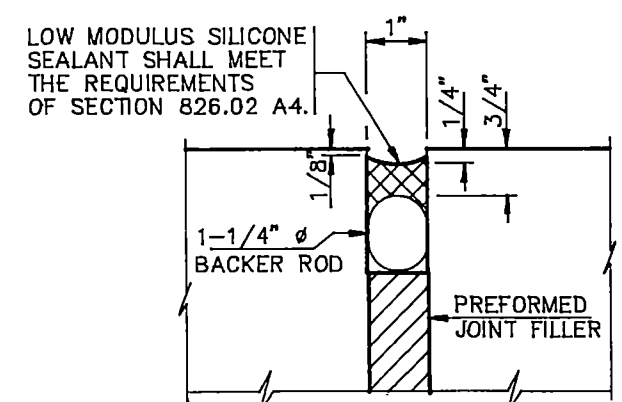
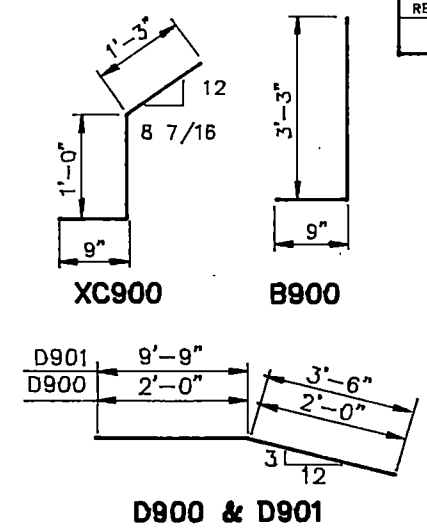
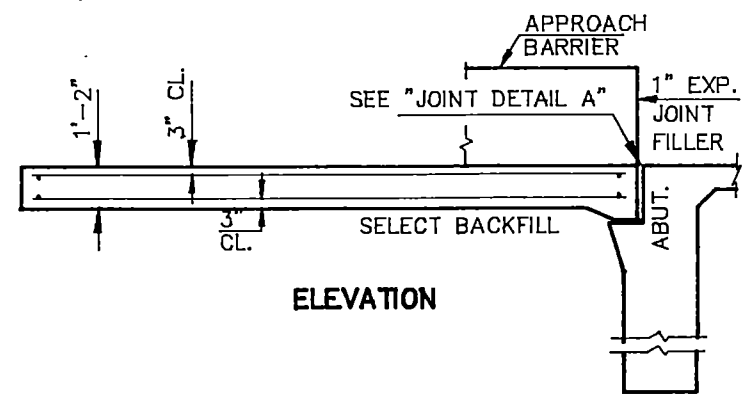
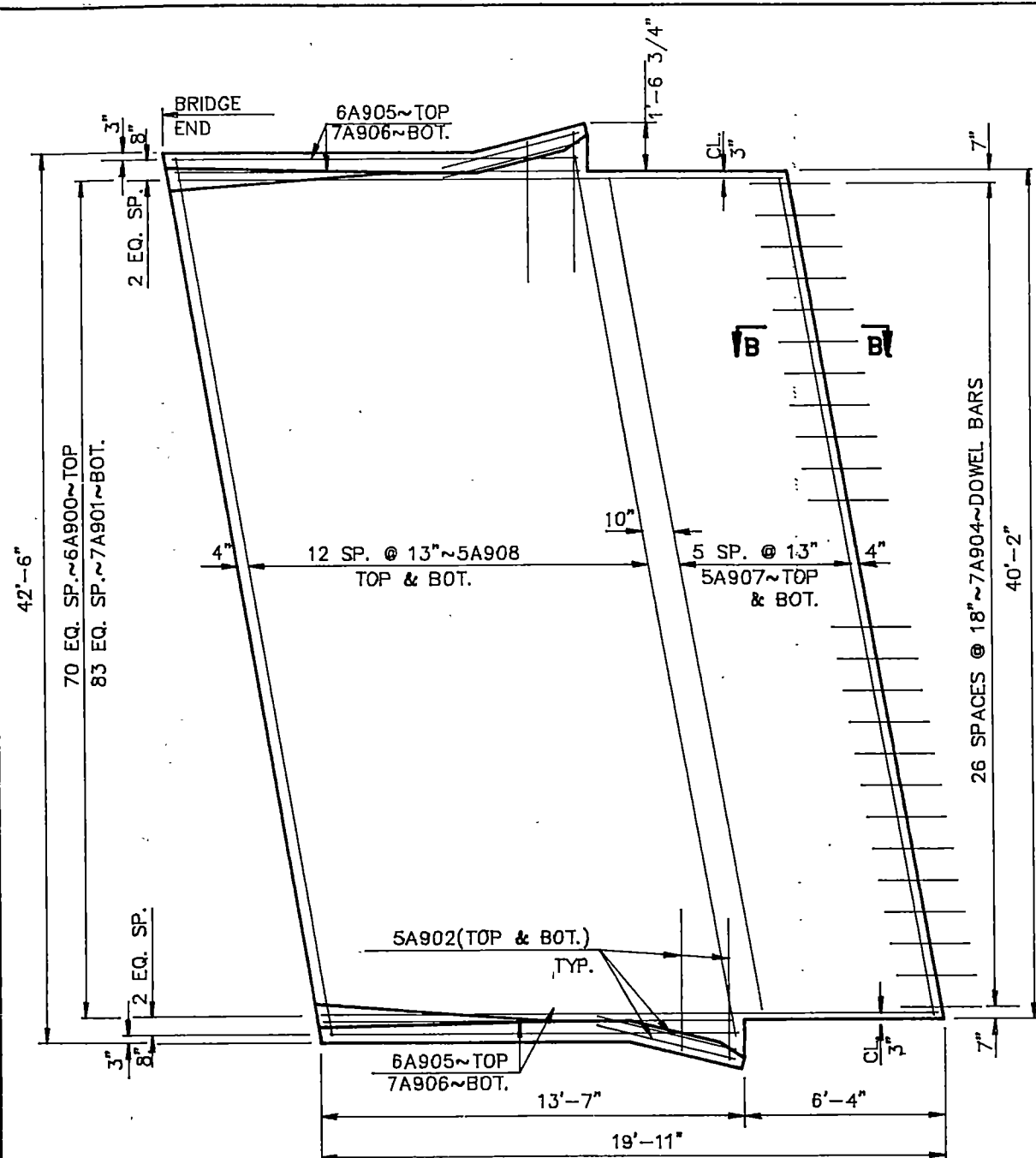


**ELEVATION**

**QUANTITIES (ONE SLAB)**

APPROACH SLAB	93.5	SY
SELECT BACKFILL	14.6	TON

RRV & WRR SEPARATION  
**APPROACH SLAB ENTRANCE END**



WIDTH = 40'-0" CL. RDWY.  
SKEW ANGLE = 10'

**BAR LIST - ENTRANCE SLAB**

SIZE	MARK	NO.	LENGTH
6	A900	71	19'-7"
7	A901	84	19'-7"
5	A902	16	4'-6"
4	XA903	2	13'-3"
7	A904	27	2'-6"
6	A905	4	13'-3"
7	A906	4	13'-3"
5	A907	12	42'-10"
5	A908	26	40'-9"
4	B900	112	4'-0"
4	XC900	18	3'-0"
4	D900	4	4'-0"
4	D901	12	13'-3"

**ESTIMATED MATERIAL QUANTITIES**

REINFORCING STEEL (LBS.)	CONCRETE (C.Y.)
7,963	38.1

**NOTES:**

THE ABOVE ESTIMATED MATERIAL QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. ALL MATERIALS INCLUDING CONCRETE, REINFORCING BARS, BACKER ROD, SILICON SEALANT, PREFORMED JOINT FILLER AND LABOR REQUIRED TO BUILD THE APPROACH SLABS AND THE APPROACH SLAB BARRIERS SHALL BE INCIDENTAL TO THE PAY ITEM "BRIDGE APPROACH SLAB (REMOVE & REPLACE)".

THE CONCRETE SHALL BE CLASS AE-3 AND THE REINFORCING STEEL SHALL BE GRADE 60.

THE BAR MARKS BEGINNING WITH AN "X" INDICATES AN EPOXY COATED BAR.

SURFACE FINISH "D" SHALL BE REQUIRED FOR THE INSIDE & TOP SURFACES OF THE CURB TRANSITIONS.

CARE SHALL BE TAKEN THAT THIS APPROACH SLAB BE PLACED ON ENTRANCE END OF THE ROADWAY STRUCTURE.

**QUANTITIES (ONE SLAB)**

APPROACH SLAB	93.5 S.Y.
SELECT BACKFILL	9.8 C.Y.

S.E. JAMESTOWN / BNRR INT.

**APPROACH SLAB  
ENTRANCE SLAB**

WIDTH = 40'-0" CL RDWY.

SKEW ANGLE = 10°

BAR LIST - EXIT SLAB			
SIZE	MARK	NO.	LENGTH
6	A900	71	19'-7"
7	A901	84	19'-7"
5	A902	16	4'-6"
4	XA903	2	13'-3"
7	A904	27	2'-6"
6	A905	4	13'-3"
7	A906	4	13'-3"
5	A907	12	42'-10"
5	A908	26	40'-9"
4	B902	56	2'-9"

ESTIMATED MATERIAL QUANTITIES

REINFORCING STEEL (LBS.)	CONCRETE (C.Y.)
7,614	37.5

**NOTES:**  
 THE ABOVE ESTIMATED MATERIAL QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. ALL MATERIALS INCLUDING CONCRETE, REINFORCING BARS, BACKER ROD, SILICON SEALANT, PREFORMED JOINT FILLER AND LABOR REQUIRED TO BUILD THE APPROACH SLABS AND APPROACH SLAB BARRIERS SHALL BE INCIDENTAL TO THE PAY ITEM "BRIDGE APPROACH SLAB (REMOVE & REPLACE)".

THE CONCRETE SHALL BE CLASS AE-3 AND THE REINFORCING STEEL SHALL BE GRADE 60.

THE BAR MARKS BEGINNING WITH AN X INDICATES AMD EPOXY COATED BAR.

SURFACE FINISH "D" SHALL BE REQUIRED FOR THE INSIDE & TOP SURFACES OF THE CURB TRANSITIONS.

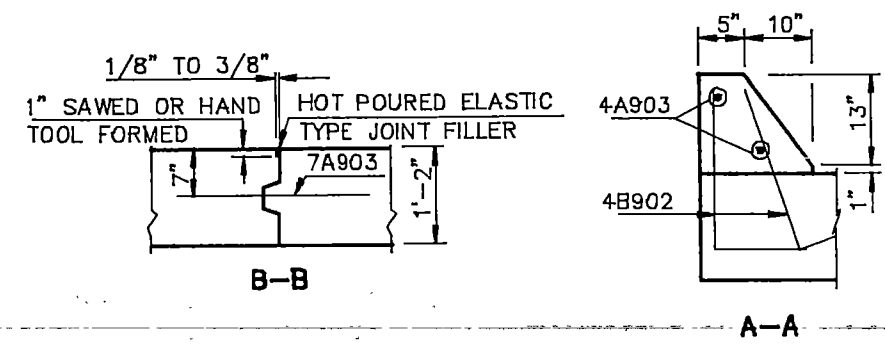
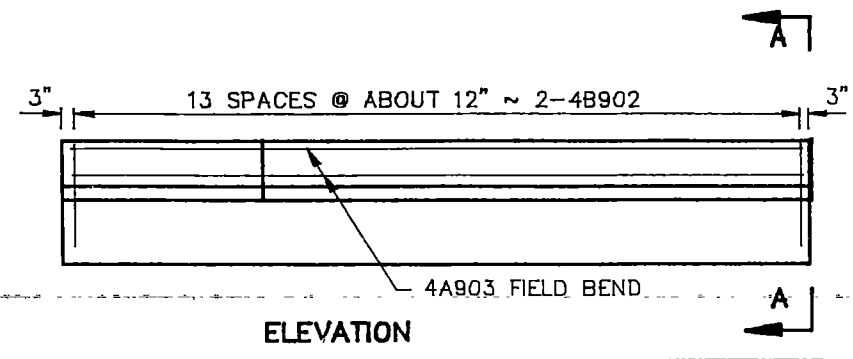
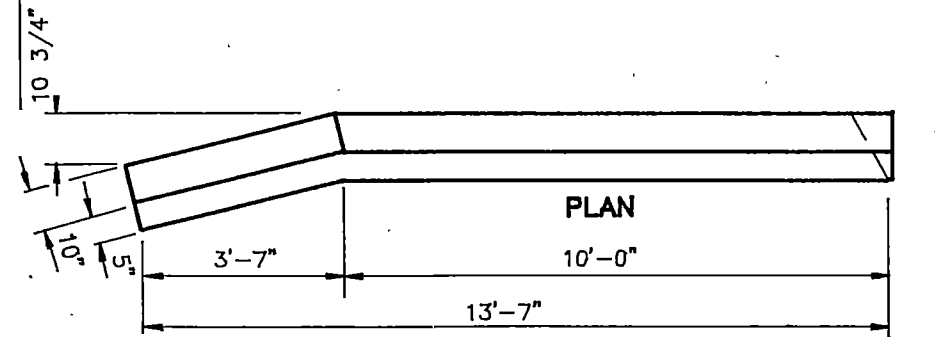
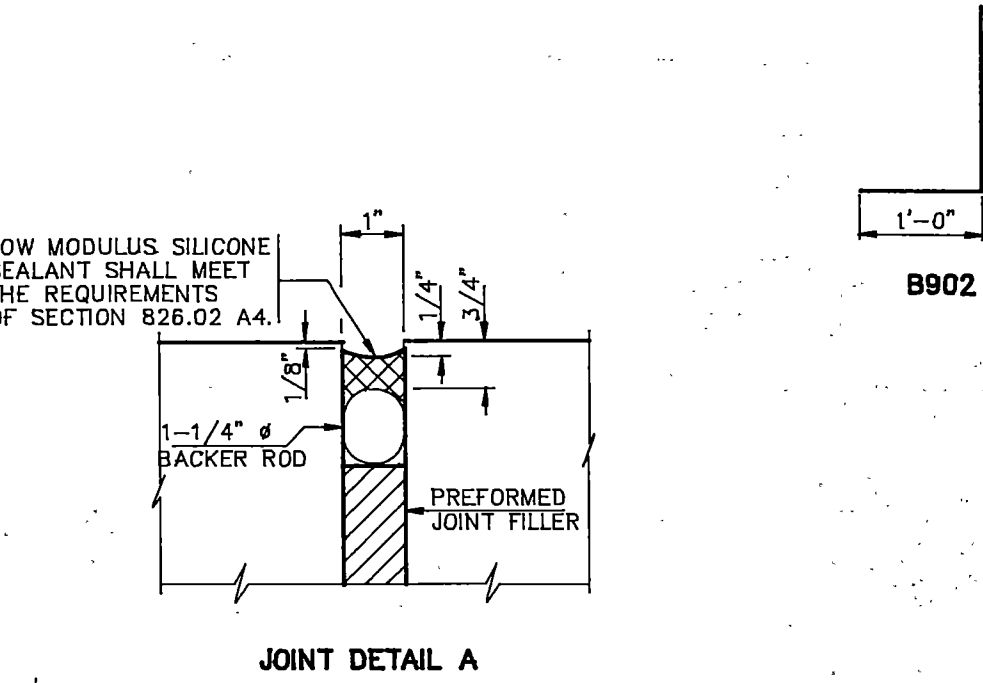
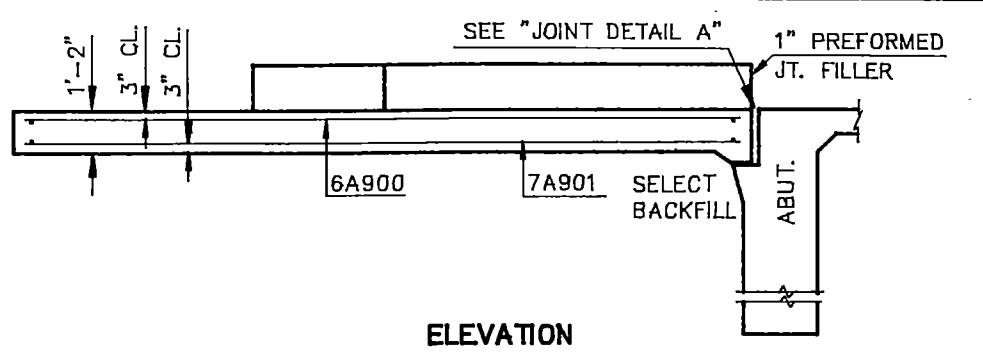
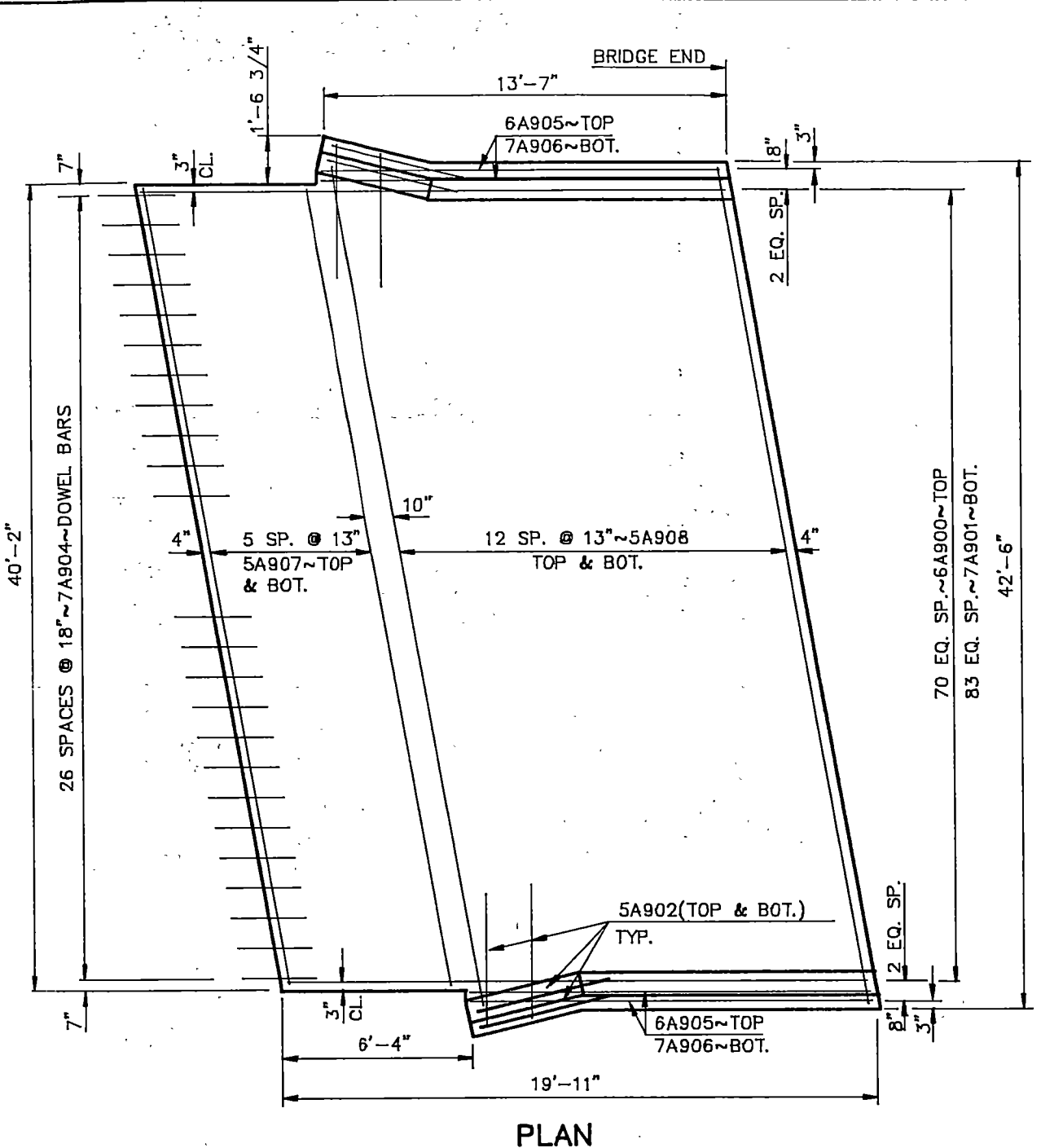
CARE SHALL BE TAKEN THAT THIS APPROACH SLAB BE PLACED ON THE EXIT END OF THE ROADWAY STRUCTURE.

QUANTITIES (ONE SLAB)	
APPROACH SLAB	93.5 S.Y.
SELECT BACKFILL	9.8 C.Y.

S.E.JAMESTOWN/BNRR INT.

APPROACH SLAB

EXIT SLAB



**DESIGN DATA**

Traffic		Average Daily		Est. 30th
Current (1990)	2250	Pass. 500	Trucks 2750	Total 350
Forecast (2010)	2850	Pass. 850	Trucks 3700	Total 425
Design Speed			70 MPH	
Traffic Classification	"M"			
Minimum Sight Distance (Stopping)	600'			

Bridges James River HS20  
Burlington Northern HS25

**JOB# 3**

FHWA REGION	STATE	PROJECT	SHEET NO.
8	N.D.	IR-094-7(038)259	1

**NORTH DAKOTA  
DEPARTMENT OF TRANSPORTATION**

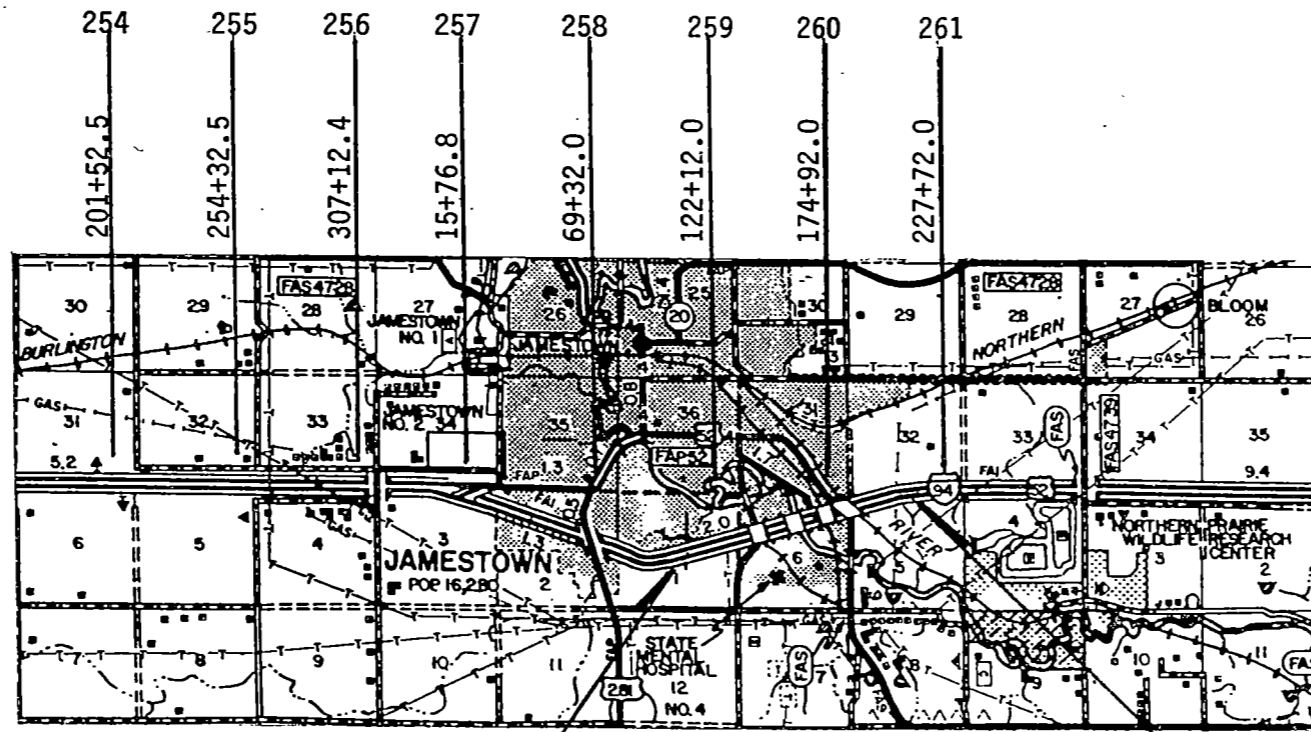
IN STUTSMAN COUNTY  
FEDERAL AID PROJECT IR-94-7(038)259 CONTRACT 2  
STRUCTURAL, GRADING, & SURFACING

**GOVERNING SPECIFICATIONS:**

Standard Specifications for Road and Bridge Construction, adopted by the North Dakota State Highway Department, November 1986, shall apply to all North Dakota Department of Transportation contracts, standard drawings currently in effect, and other contract provisions submitted herein.

**LENGTH OF PROJECT**

<u>Project</u>	<u>Miles-Gross</u>	<u>Miles-Net</u>
IR-94-7(038)259	1.685	1.685



T-140N  
T-139N

BEG. PROJECT IR-94-7(038)259  
STA. 116+00

R-64W  
R-63W

END PROJECT IR-94-7(038)259  
STA. 205+00



U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED \_\_\_\_\_

DIVISION ADMINISTRATOR \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED DATE 8/31/90

*Ray Zink*

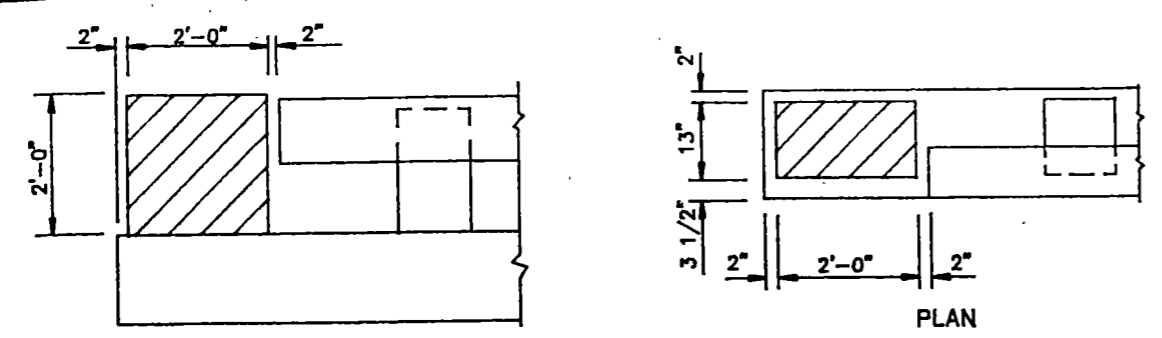
DIRECTOR OF HIGHWAYS  
AND ENGINEERING

NORTH DAKOTA  
DEPARTMENT OF TRANSPORTATION

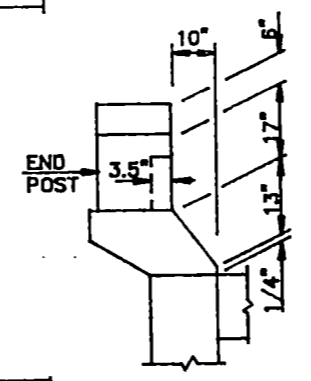


FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	IR-094-7(038)259	79

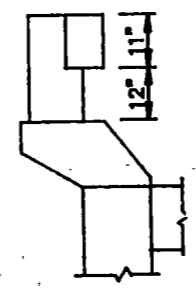
BAR LIST (ONE POST)				
SIZE	MARK	NO.	LENGTH	SHAPE
4	A500	2	1'-10"	STR.
4	B500	2	2'-4"	BENT
4	D500	1	3'-8"	BENT
4	D501	1	4'-0"	BENT



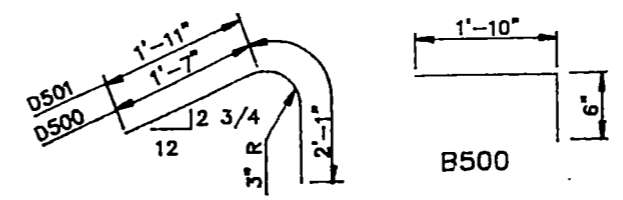
ELEVATION  
SHOWING END POST REMOVAL LIMITS



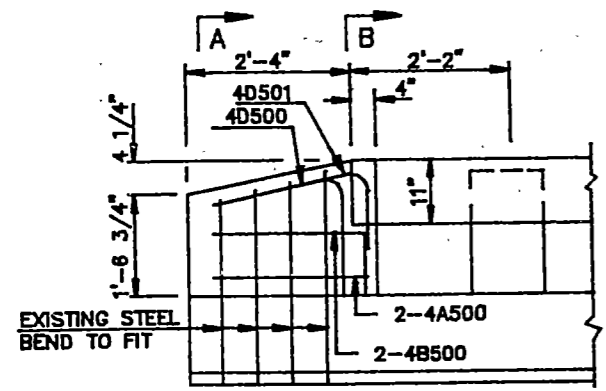
A-A



B-B

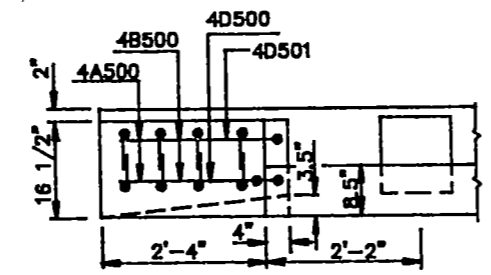


D500 & D501  
BENT BAR DETAILS  
DIMENSIONS SHOWN ARE OUT TO OUT

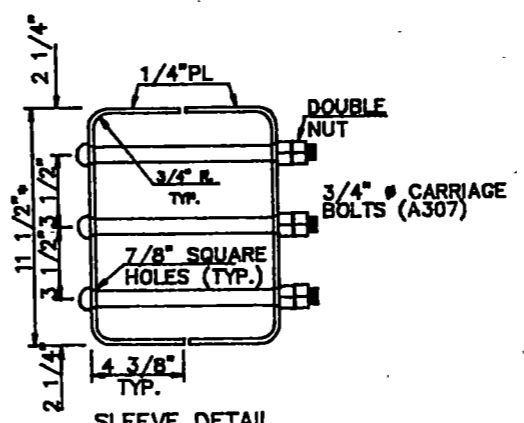


ELEVATION

NEW END POST



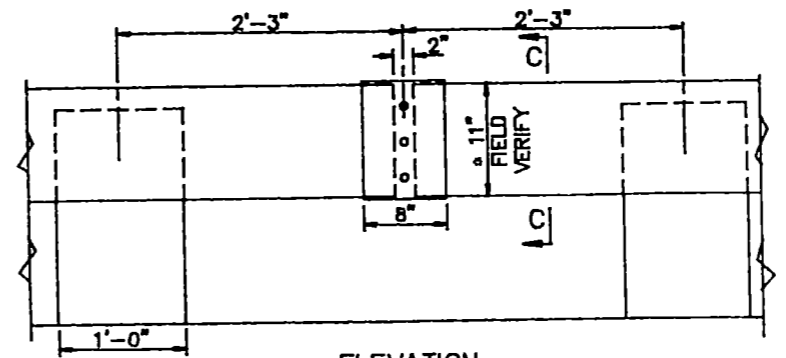
PLAN



SLEEVE DETAIL  
C-C

NOTE:  
PL & BOLTS AND NUTS SHALL BE GALVANIZED  
IN ACCORDANCE WITH ASTM A-153.  
(ALL STEEL ~ M183)

NOTE:  
THE CONCRETE SHALL BE CLASS AE-3 AND THE  
REINFORCING STEEL SHALL BE GRADE 60.  
THE EXISTING END POSTS AT THE TRAFFIC ENTRANCE  
END SHALL BE REMOVED AND PROPERLY DISPOSED OF.  
THE QUANTITIES SHOWN ARE FOR INFORMATIONAL PUR-  
POSES ONLY. ALL MATERIALS, LABOR, AND EQUIPMENT  
INCLUDING CONCRETE AND REINFORCING BARS REQUIRED  
TO REMOVE AND REPLACE THE END POSTS SHALL BE  
INCIDENTAL TO THE PAY ITEM "BRIDGE END POST  
MODIFICATION". (1)



ELEVATION

• FABRICATE 1/4" PL ACCORDINGLY TO  
FIELD VERIFICATION OF E-RAIL  
SLEEVE REQUIRED AT EACH RAIL JOINT  
( 6 REQUIRED PER BRIDGE)

QUANTITIES ( 4 POSTS)	
(1)	REMOVAL OF CONCRETE 0.6 C.YD
(1)	CLASS AE-3 CONCRETE 0.8 C.YD
(1)	REINFORCING STEEL 44 LBS.
(1)	SLEEVE 12 EA.

S.E. JAMESTOWN/BNRR  
INTERCHANGE

END POST DETAILS  
RAIL SLEEVES



# N DAKOTA STATE HIGHWAY DEPARTMENT

# ABSTRACT OF BIDS RECEIVED

SHEET 1 OF 2

PROJECT NO. IR 94-6(48)224 IR 94-7(30)260 IR 94-8(83)302	TYPE IMP	NO.	2 BIDDER	ENGINEERS ESTIMATE	BIDDER INDUSTRIAL BUILDERS.	BIDDER NORTHERN IMPROVEMENT
COUNTY & DATE STUTSMAN COUNTY BARNES NOV 04, 1983					FARGO, ND	FARGO, ND
LENGTH & TYPE 0.000 I-94 CRYSTAL SPGS -URISKA				CC. CHECK RANK 00	C.C.BOND RANK 01	C.C.BOND RANK 02
COMPLETION TIME 09/15/84 REPAIR & OVERLAY P.C.C. BRIDGE						

SPEC NO	ITEM DESCRIPTION	UNIT	QUANTITY	BID PRICE	AMOUNT	BID PRICE	AMOUNT	BID PRICE	AMOUNT
100	CONTRACT BOND	L SUM	1000	5000000	5000000	5000000	5000000	2000000	2000000
101	RAILWAY PROTECTION INSURANCE	L SUM	1000	1000000	1000000	4000000	4000000	2500000	2500000
202	REMOVAL OF CONCRETE	CU YD	107000	260000	2782000	330000	3531000	300000	3210000
203	EMBANKMENT-TYPE C	CU YD	1954000	3500	6839000	3500	6839000	4500	8793000
322	85-100 ASPHALT CEMENT	TON	6000	200000	1200000	265000	1590000	250000	1500000
400	HOT BITUMINOUS PAVEMENT - SPECIAL	TON	104000	60000	6240000	850000	8840000	140000	14560000
602	CLASS AAE-3 CONCRETE	CU YD	112000	300000	3360000	350000	3920000	375000	4200000
612	SPECIAL SURFACE FINISH	SQ FT	9616000	900	8654400	750	7212000	1000	9616000
612	REINFORCING STEEL - GRADE 60	LB	10217000	450	4597650	500	5108500	550	5619350
705	MOBILIZATION	L SUM	1000	50000000	50000000	50000000	50000000	39000000	39000000
700	CURB AND GUTTER TYPE I - REINFORCED	L FT	640000	22000	14080000	24000	15360000	25000	16000000
710	ADJUST CATCH BASIN	EA	14000	100000	1400000	100000	1400000	100000	1400000
722	8X BEAM GUARD RAIL	L FT	959000	25000	23975000	24700	23687300	25500	24454500
722	4-BEAM GUARDRAIL 6.25 FT. POST SPACING	L FT	300000	25000	7500000	19200	5760000	20000	6000000
722	4-BEAM G.R.-FLARED END TREAT & TRANSITION	EA	8000	500000	4000000	441000	3528000	450000	3600000
722	REMOVE BEAM GUARD RAIL AND POSTS	L FT	900000	1500	1350000	800	720000	600	720000
722	8X BEAM GUARDRAIL-FLARED END TREAT & TRAN.	EA	8000	500000	4000000	441000	3528000	450000	3600000
722	REMOVE 4-CABLE GUARD RAIL & POSTS	L FT	2100000	1250	2625000	530	1113000	550	1155000
740	FLAGGING	M HR	205000	5500	1127500	5500	1127500	5500	1127500
750	LINSEED OIL TREATMENT	GAL	98000	20000	1960000	12500	1225000	19000	1862000
756	FIELD LABORATORY-TYPE A	EA	1000	1800000	1800000	2000000	2000000	2500000	2500000
762	TRAFFIC CONTROL	L SUM	1000	60000000	60000000	60000000	60000000	60000000	60000000
900	EXPANSION JOINT MODIFICATION	L FT	174000	102000	17748000	100000	17400000	75000	13050000
900	EXPANSION JOINT STRIP SEAL	L FT	113000	120000	13560000	95000	10735000	110000	12430000
900	BRIDGE APPROACH SLAB (REMOVE AND REPLACE)	SQ YD	736000	80000	58880000	71500	52624000	80000	58880000
900	BRIDGE REPAIR	L SUM	1000	1000000	1000000	8000000	8000000	14000000	14000000
900	CURB OVERLAY	L FT	420000	15000	6300000	18000	7560000	24000	10080000
900	CLASS I OVERLAY	SQ YD	4888000	35000	171080000	27500	134420000	32000	156416000
900	CLASS II OVERLAY	SQ YD	977000	33000	32241000	24000	23448000	36000	35172000
900	CLASS III OVERLAY	SQ YD	247000	46000	11362000	44000	10868000	52000	12844000
900	OVERLAY TAPER	SQ YD	774000	30000	23220000	27500	21265000	37000	28638000
	TOTAL				60415955		56888830		62161735

NO LIMIT

NO LIMIT

# SOUTH DAKOTA STATE HIGHWAY DEPARTMENT

## ABSTRACT OF BIDS IVED

PROJECT NO. IR 94-6(48)224 IR 94-7(30)260 IR 94-8(8A)302 COUNTY & DATE STUTSMAN COUNTY BARNES NOV 04, 1983 LENGTH & TYPE 0+000 I-94 CRYSTAL SPGS -ORISKA COMPLETION TIME 09/15/84 REPAIR & OVERLAY P.C.C. BRIDGE	NO. 2 OF 2	BIDDER PROGRESSIVE CONTRACTOR OSSE, MN C.C. BOND RANK 03	BIDDER C.C.	BIDDER C.C.
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SPEC. NO.	ITEM DESCRIPTION	UNIT	QUANTITY	BID PRICE	AMOUNT	BID PRICE	AMOUNT	BID PRICE	AMOUNT
10	CONTRACT BOND	L SUM	1000	5000000	5000000				
10	RAILWAY PROTECTION INSURANCE	L SUM	1000	4500000	4500000				
20	REMOVAL OF CONCRETE	CU YD	107000	340000	3638000				
20	EMBANKMENT-TYPE C	CU YD	1954000	3500	6839000				
32	85-100 ASPHALT CEMENT	TON	6000	250000	1500000				
40	HOT BITUMINOUS PAVEMENT - SPECIAL	TON	104000	80000	8320000				
60	CLASS AAE-3 CONCRETE	CU YD	112000	285000	3192000				
60	SPECIAL SURFACE FINISH	SQ FT	9616000	1350	12981600				
61	REINFORCING STEEL - GRADE 60	LB	10217000	450	4597650				
70	MOBILIZATION	L SUM	1000	81700000	81700000				
70	CURB AND GUTTER TYPE I - REINFORCED	L FT	640000	19500	12480000				
71	ADJUST CATCH BASIN	EA	14000	150000	2100000				
72	HUX BEAM GUARD RAIL	L FT	959000	23540	22574860				
72	H-DEAM GUARDRAIL 6.25 FT. POST SPACING	L FT	300000	18250	5475000				
72	H-DEAM G.R.-FLARED END TREAT. & TRANSITION	EA	6000	420000	3360000				
72	REMOVE BEAM GUARD RAIL AND POSTS	L FT	900000	750	675000				
72	HUX BEAM GUARDRAIL-FLARED END TREAT & TRAN.	EA	6000	420000	3360000				
72	REMOVE H-CABLE GUARD RAIL & POSTS	L FT	2100000	500	1050000				
74	FLAGGING	M HR	205000	5500	1127500				
75	LINSEED OIL TREATMENT	GAL	98000	20000	1960000				
75	FIELD LABORATORY-TYPE A	EA	1000	3000000	3000000				
76	TRAFFIC CONTROL	L SUM	1000	76900000	76900000				
90	EXPANSION JOINT MODIFICATION	L FT	174000	72700	12475800				
90	EXPANSION JOINT STRIP SEAL	L FT	113000	185500	21300500				
90	BRIDGE APPROACH SLAB (REMOVE AND REPLACE)	SQ YD	736000	52000	38272000				
90	BRIDGE REPAIR	L SUM	1000	12500000	12500000				
90	CURB OVERLAY	L FT	420000	23750	9975000				
90	CLASS I OVERLAY	SQ YD	488000	42400	20725120				
90	CLASS II OVERLAY	SQ YD	977000	25000	24425000				
90	CLASS III OVERLAY	SQ YD	247000	30000	7410000				
90	OVERLAY TAPER	SQ YD	774000	37500	29025000				
	TOTAL				69043511				
				NO LIMIT					

October 20, 1983

A D D E N D U M

TO: All Prospective Bidders on Projects IR-094-6(48)224, IR-094-7(30)260  
and IR-094-8(84)302, Job No. 2 to be let on November 4, 1983

The following plan revision shall be made:

Plan Revision:

The Note on plan sheet No. 6 stating: "Asphalt shoulders shall be brought  
to grade with asphalt. Incidental to overlay taper" shall be changed to read:

"Bituminous shoulders in the taper overlay area shall be brought to grade  
with hot bituminous pavement . The hot bituminous pavement used in the taper-  
overlay area shall be measured and paid for under the bid item "Hot Bituminous  
Pavement - Special.."

This addendum is hereby incorporated into the bidder's proposal for this  
project.

Sincerely,

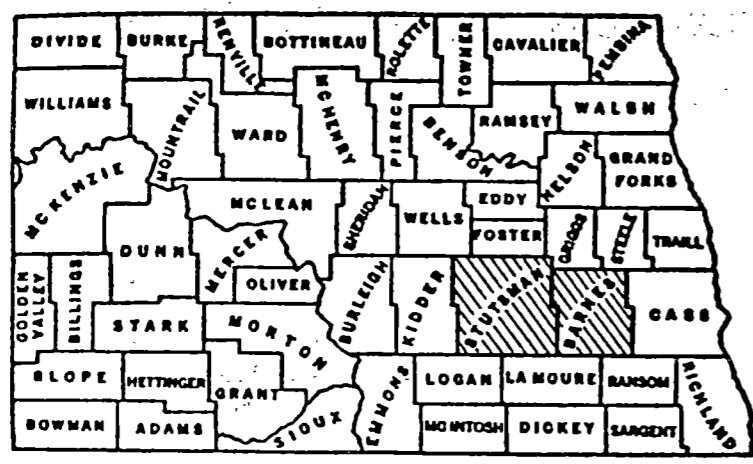


Fa Francis G. Ziegler  
Construction Engineer

jjb  
Enclosure

**JOB# 2**

FHWA REGION	STATE	PROJECT	SHEET NO.
8	N.D.	IR-094-6(48)224 IR-094-7(30)260 IR-094-8(84)302	1



**NORTH DAKOTA  
STATE HIGHWAY DEPARTMENT**

**REPAIR & OVERLAY PORTLAND CEMENT  
CONCRETE BRIDGE DECKS IN  
STUTSMAN & BARNES COUNTIES**  
FEDERAL AID PROJECT NO. IR-094-6(48)224,  
IR-094-7(30)260 & IR-094-8(84)302

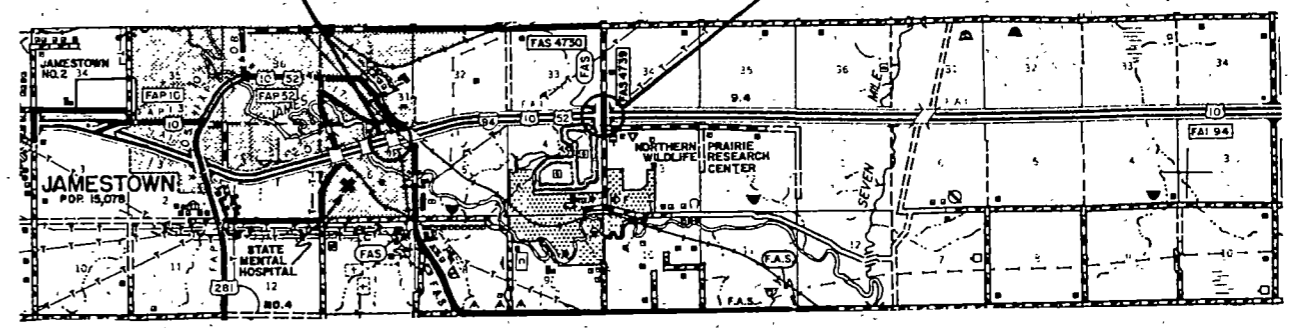
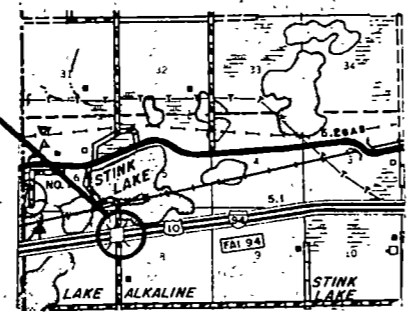
**GOVERNING SPECIFICATIONS:**  
Standard Specifications adopted by the North Dakota State Highway Department, Oct. 1976 and approved by the Federal Highway Administration on Dec. 17, 1976, and Supplemental Specifications thereto adopted July 1, 1983, and approved by the Federal Highway Administration and other Contract Provisions submitted herewith.

SKETCH-MAP OF NORTH DAKOTA  
SHOWING COUNTIES

**94-260.125 LT.&RT.**

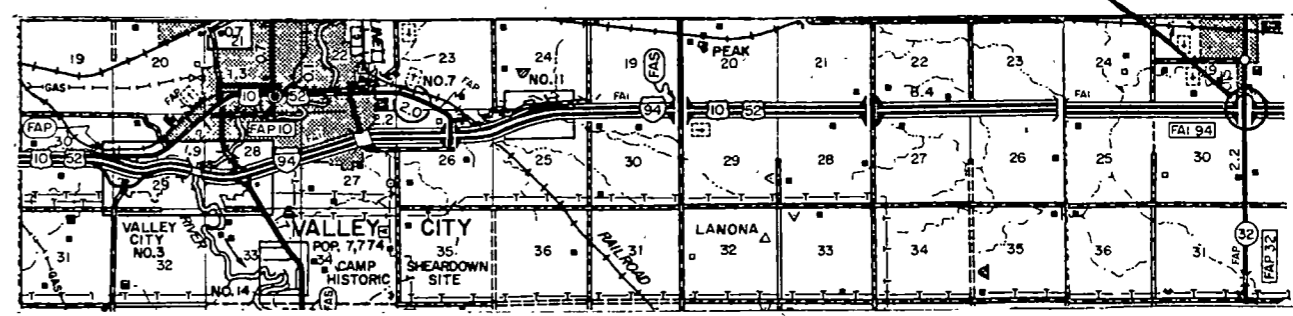
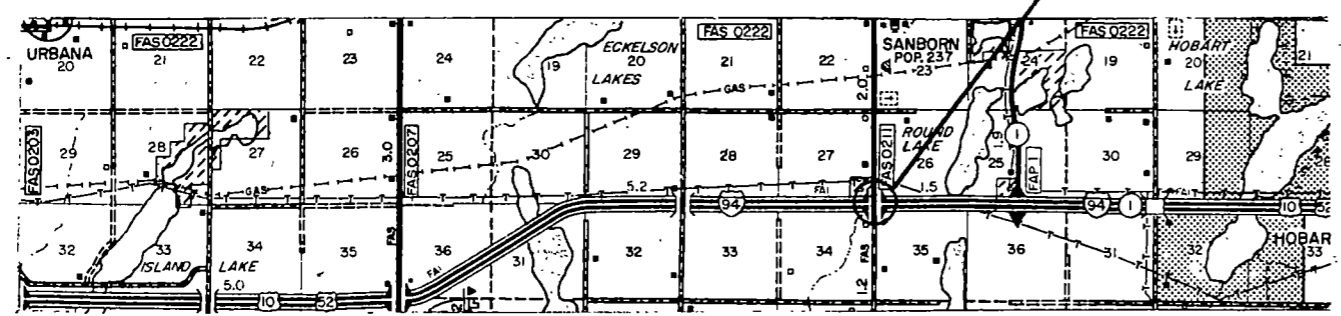
**94-262.861**

**94-224.292 LT.&RT.**



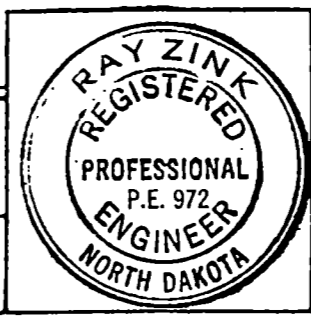
**94-281.64**

**94-302.712**



APPROVED DATE 8-26-83  
*for Clifford Scott*  
BRIDGE ENGINEER  
NORTH DAKOTA  
STATE HIGHWAY DEPARTMENT

APPROVED DATE 9-9-83  
*Ray Zink*  
CHIEF ENGINEER  
NORTH DAKOTA  
STATE HIGHWAY DEPARTMENT



U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
APPROVED  
DIVISION ENGINEER DATE

T A B L E O F C O N T E N T S

FHWA REGION	STATE	FED AID PROJ NO	SHEET NO
8	ND.	IR-094-6(48)224	2

IR-094-7(30)260  
IR-094-8(84)302

<u>SHEET NO.</u>	<u>GENERAL</u>
1	Title Page
3 - 5	Notes and Quantities
6	Minor Road Separation
7	Bridge Approach Panels
8 - 9	S.E. Jamestown and BNRR Int.
10	Bloom Interchange
11	Sanborn Interchange
12	Oriska Interchange
13	Overlay Details
14 - 25	Guardrail Layouts and Summary Sheet
26	Typical Construction Signal Layout
27 - 30	Construction Signing Layout
	 <u>STANDARD DRAWINGS</u>
31	D-708-6 Comb. Conc. Curb & Gutter for Bridge Approaches
32	D-708-8 Comb. Conc. Curb & Gutter for Bridge Approaches
33	D-708-9 Standard Anchorage Units
34	D-722-1 Beam Guardrail General Details
35	D-722-2 Beam Guardrail/Flared End Treatment and Transition
36	D-722-3 Box Beam Guardrail at Bridge Ends
37	D-722-4 Box Beam Guardrail at Bridge Ends
38	D-722-5 Typical Grading at Bridge Ends
39	D-722-13 W-Beam Guardrail at County Bridge Ends
40	D-722-17 Box Beam Guardrail at Bridge Ends Attachment Detail
41	D-754-1 Construction Sign Details
42	D-754-2 Construction Sign Details
43	D-754-3 Construction Sign Details
44	D-754-4 Construction Sign Details
45	D-754-5 Barricade Details
46	D-754-5-A Barricade Details



GENERAL NOTES

FHWA REGION	STATE	FED. AID PROJ NO	SHEET NO
8	ND.	IR-094-6(48)224 IR-094-7(30)260 IR-094-8(84)302	4

**TWO-LANE, TWO-WAY ROADWAY:** The maintenance and protection of traffic for two-lane, two-way roadways at Bloom, Sanborn, and Oriska Interchange provides for flagging the traffic at all times, until the roadway is completely open to traffic. In place of providing flagging during the time one-way traffic is maintained, a traffic system may be provided similar to the one shown in the plans, eliminating the need for flagging during the time one-lane traffic is maintained. The cost of flagging during the time one-lane traffic is maintained shall be considered incidental and shall be included in the price bid for traffic control. The traffic signal system shall be similar to the one shown and any modifications shall be approved by the engineer prior to the preconstruction conference.

**PORTABLE PRECAST CONCRETE MEDIAN BARRIERS:** The number of precast concrete median barriers required on the project shall be 55 ten foot units. this number provides coverage for the longest structure and approach on this project. The barriers shall be obtained from the Grand Forks District storage yard, transported to the work sites and assembled as required. Upon completion of the project, the contractor shall return the barriers to the Grand Forks District storage yard. Any barriers that become damaged during handling, transporting, or placing shall be replaced at the contractor's expense. If the contractor chooses to work on more than one structure, additional barriers and attenuation devices shall be furnished at his own expense. Instead of using the state furnished barriers, the contractor may furnish the required barriers. The cost of obtaining, transporting, installing, moving, and returning the precast concrete median barriers shall be incidental to the price bid for traffic control.

**ATTENUATION DEVICE:** The contractor shall obtain the attenuation device from the Grand Forks District and place as shown on the plans. Upon completion of the project, the attenuation devices shall be returned to the Grand Forks District storage yard. Any attenuation devices that become damaged during handling, transporting, or placing shall be replaced at the contractor's expense. The contractor shall furnish the necessary sand. Cost of obtaining, transporting, placing, and maintaining the attenuation device shall be incidental to the price bid for traffic control.

**REMOVE W-BEAM GUARDRAIL:** The sections of W-beam guardrail shown on the plan to be removed shall have the rail, posts, and end anchor removed. The removed guardrail and posts shall be stockpiled on the right of way in the location designated by the engineer. The stockpiled material shall remain the property of the state. If, in the opinion of the engineer, the concrete end anchors will not interfere with other construction, they may be cut off 1' (one foot) below ground line and surface restored to match the surrounding area. Cost of removing stockpiling and transporting W-beam guardrail shall be included in the price bid for "Remove Guardrail and Posts."

722  
300 **EMBANKMENT FOR GUARDRAIL INSTALLATION:** The embankment material required for guardrail installation may be obtained from within the right of way with the approval of the engineer. The existing topsoil shall be removed from the area to be disturbed, stockpiled, and replaced when embankment is completed. The disturbed areas shall be seeded with a seed type approved by the engineer. Compaction of the embankment shall be in accordance with Section 203-2.5 of the standard specification. The inslopes in areas that are to be widened shall be benched in accordance with Section 203-2.2.2 of the Standard Specifications unless otherwise directed by the engineer. All existing drainage patterns shall be maintained. This may involve some excavation and ditch widening. Embankment shall be measured using the average end area method and paid for by the cubic yard of embankment in place. The cost for any excavation to maintain the drainage patterns and for benching, seeding, salvaging, stockpiling, and spreading of topsoil shall be included in the price bid for "Embankment, Type C."

722  
600 **BRIDGE CONNECTIONS:** The contractor shall fabricate the attachment brackets in such a manner so that attachment bolt holes can be field drilled in order to fit the in-place bridge posts and rails. all box beam rail shall be field drilled for connection to attachment brackets. Shims may be required to meet alignments shown on the plans. The contractor shall furnish as necessary.

762  
400 **TRAFFIC CONTROL:** The contractor shall furnish, in addition to other traffic control devices, vertical panels for areas where the in-place guardrail is removed during the interim period between removal and installation of new or reset guardrail. The vertical panels shall be placed at 20 foot spacing for the full length of the proposed new or reset guardrail. Cost of furnishing, installing, and removing the vertical panels shall be considered incidental and included in the price bid for "Traffic Control."

FHWA REGION	STATE	FED AID PROJ NO	SHEET NO
8	ND.	IR-094-6(48)224	5

GENERAL NOTES

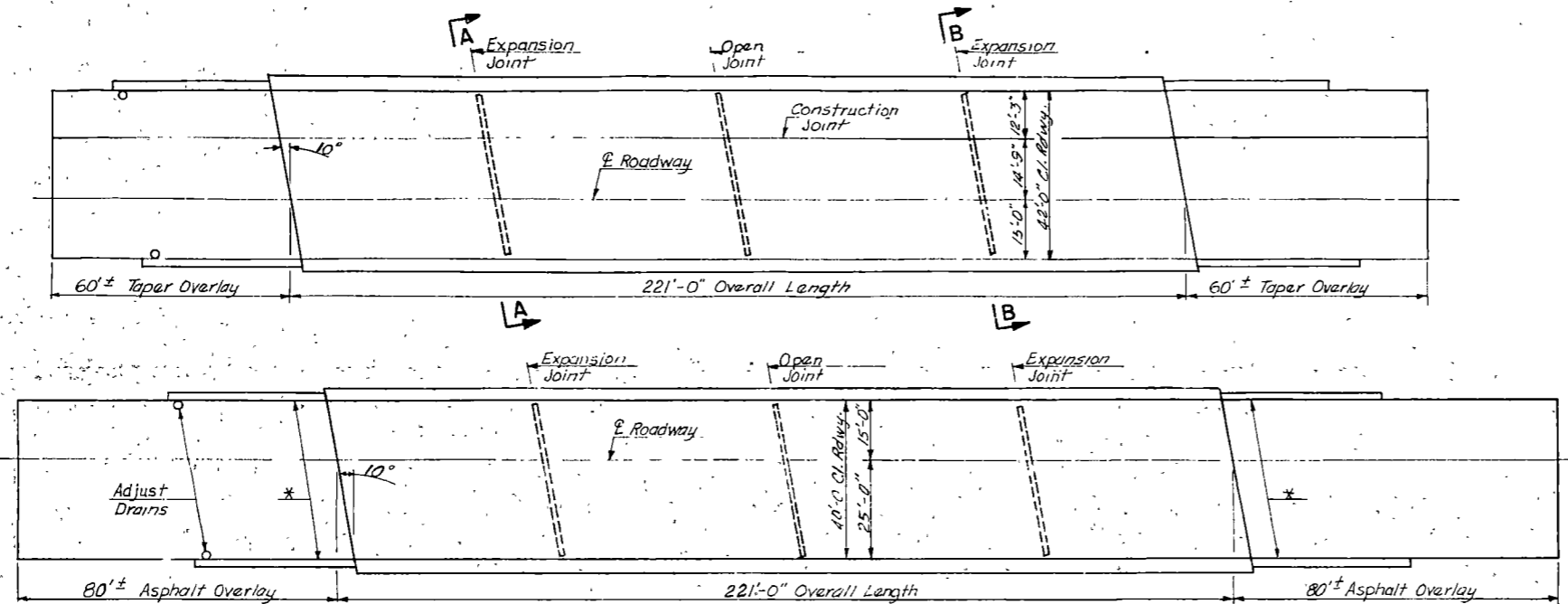
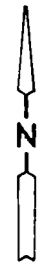
IR-094-7(30)260  
IR-094-8(84)302

REMOVE 4 CABLE GUARDRAIL: The 4 cable guardrail shown on the plan to be removed shall have the cable, posts, and end anchor removed. The removed guardrail and posts shall be stockpiled on the right of way in the location designated by the engineer. The stockpiled material shall remain the property of the state. If, in the opinion of the engineer, the anchor rods and end anchors will not interfere with other construction, they may be cut off 1' (one foot) below ground line and surface restored to match the surrounding area. Cost of removing, stockpiling, transporting 4 cable guardrail shall be included in the price bid for "Remove 4 Cable Guardrail and Posts."

MAIN LINE WEAVE TRAFFIC CONTROL: The contractor may use a taper channelization in place of the weave but, a flag person shall be required at the construction zone during construction hours and the cost of the flag person shall be incidental to the traffic control item.

The contractor may submit other proposals for traffic control for consideration but, they shall be in conformance with the Manual on Uniform Traffic Control Devices.





PLAN

\* Remove existing curb and gutter and replace as shown on Standard D-708-6. To be paid for as "Curb & Gutter Type I - Reinforced". 2 Drains to be adjusted.

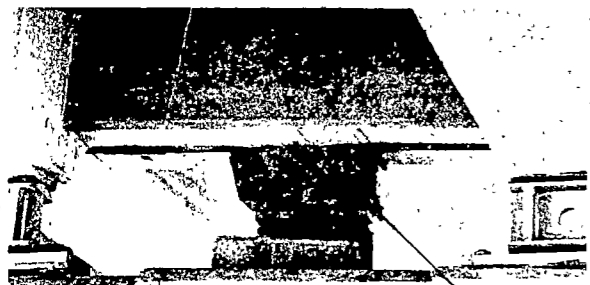


PHOTO 1



PHOTO 2



PHOTO 3

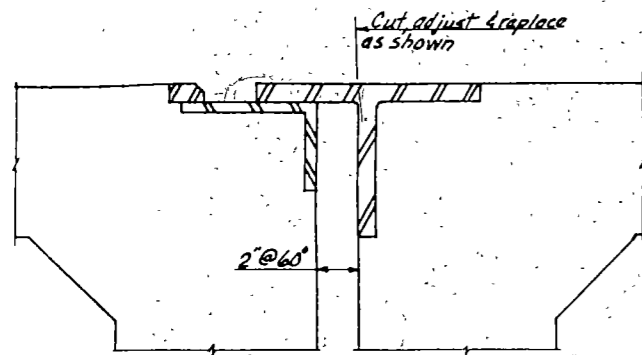
PATCH AND REPAIR OF GIRDER ENDS

THE CONTRACTOR WILL REMOVE ALL UNSOUND CONCRETE IN THE AREA OF THE PATCH. SHOULD REINFORCING STEEL BE EXPOSED, ALL LOOSE RUST AND DIRT SHALL BE REMOVED BY WIRE BRUSHING OR SANDBLASTING. THORITE OR AN APPROVED EQUAL SHALL BE USED FOR THE PATCH. MORTAR AND APPLICATION BY THE CONTRACTOR SHALL BE PERFORMED FOLLOWING THE MANUFACTURER'S RECOMMENDED PROCEDURE.

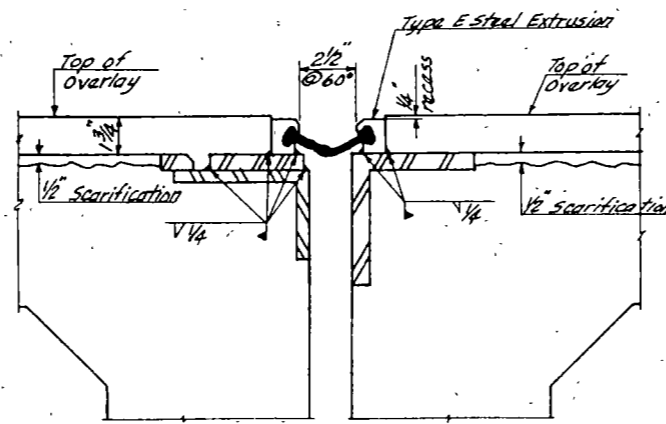
PHOTO 1 IS REPRESENTATIVE OF 5 SPALL AREAS IN THE EAST BOUND STRUCTURE AND OCCUR AT PIER 4. PHOTO 1 ILLUSTRATES AN AVERAGE LEVEL OF THIS TYPE OF DISREPAIR PRESENT ON THIS STRUCTURE. PHOTOS 2 AND 3 ARE REPRESENTATIVE OF SPALL AREAS OCCURRING ON BOTH STRUCTURES. THE WEST BOUND STRUCTURE HAS 4 SUCH AREAS AND THE EAST BOUND STRUCTURE HAS 2. THESE PHOTOS ILLUSTRATE AN AVERAGE LEVEL OF DISREPAIR PRESENT ON THESE STRUCTURES. COSTS FOR PATCH AND REPAIR OF GIRDER ENDS SHALL BE PAID FOR UNDER THE BID ITEM "BRIDGE REPAIR".

S.E. JAMESTOWN & BNRR INT.

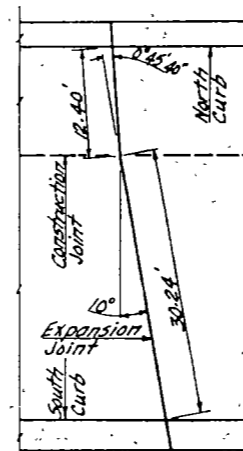




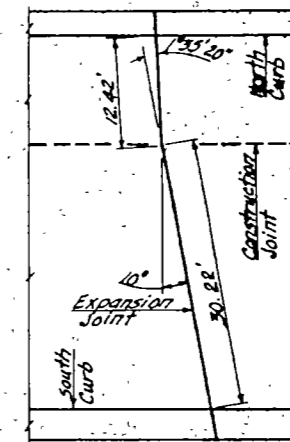
EXISTING EXPANSION JOINT  
PIERS 2 & 4



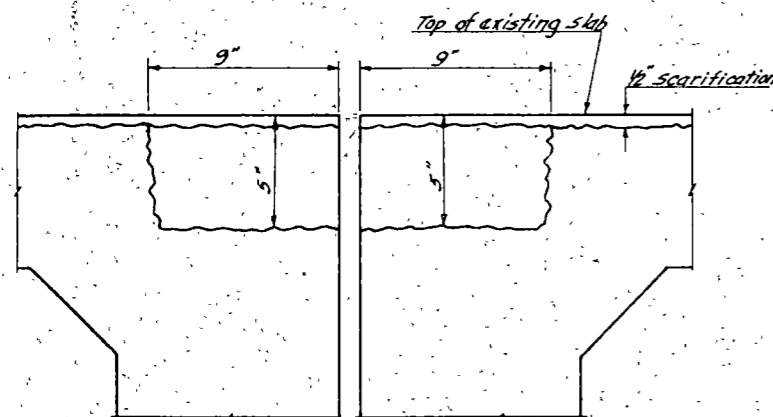
MODIFIED EXPANSION JOINT  
PIERS 2 & 4  
LOW SLUMP ALTERNATE



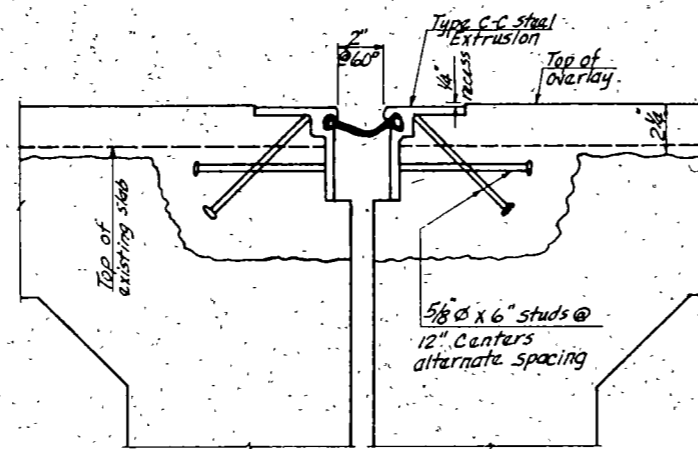
A-A  
PIER 2  
North Bridge Only  
South Bridge 10° Skew  
throughout joint



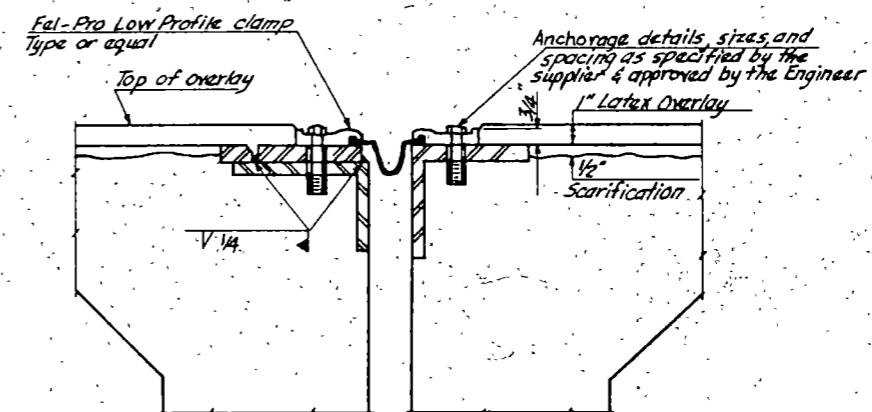
B-B  
PIER 4  
North Bridge Only  
South Bridge 10° Skew  
throughout joint



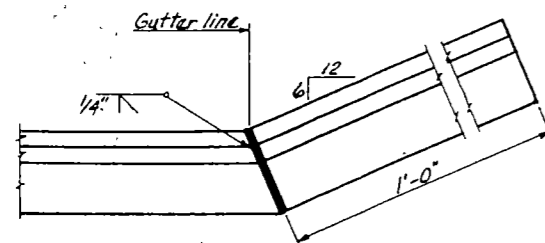
EXISTING JOINT  
PIER 3  
Showing removal limits



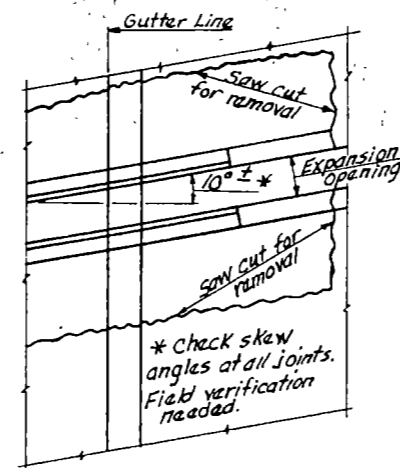
MODIFIED JOINT  
PIER 3



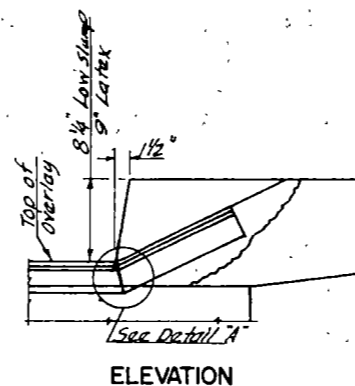
MODIFIED EXPANSION JOINT  
PIERS 2 & 4  
LATEX MODIFIED CONCRETE ALTERNATE



DETAIL "A"



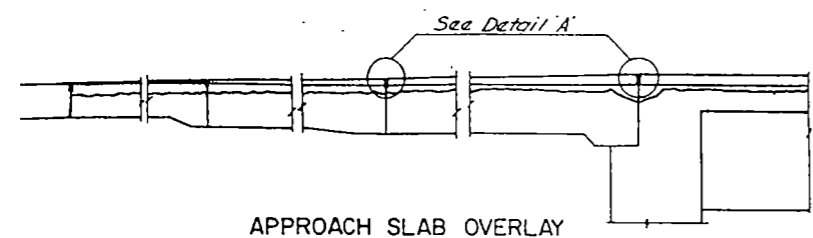
PLAN



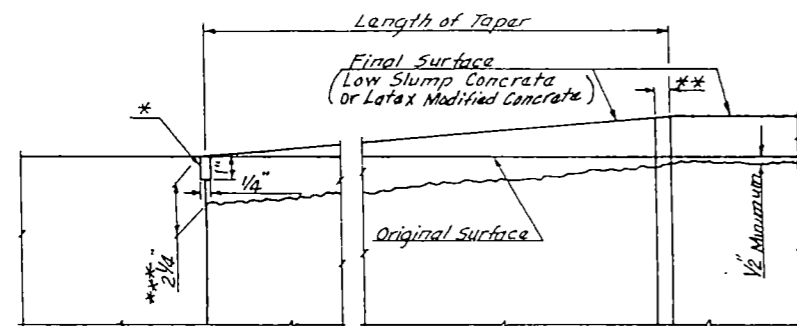
ELEVATION

S. E. JAMESTOWN & BNRR INT.  
JOINT MODIFICATION  
DETAILS

FHWA REGION	STATE	FED AID PROJ NO	SHEET NO
8	N.D.	IR-094-6(48)224	18
			IR-094-7(30)260
			IR-094-8(84)302



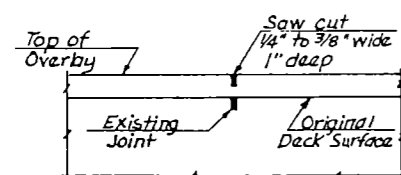
APPROACH SLAB OVERLAY



DETAIL "A"

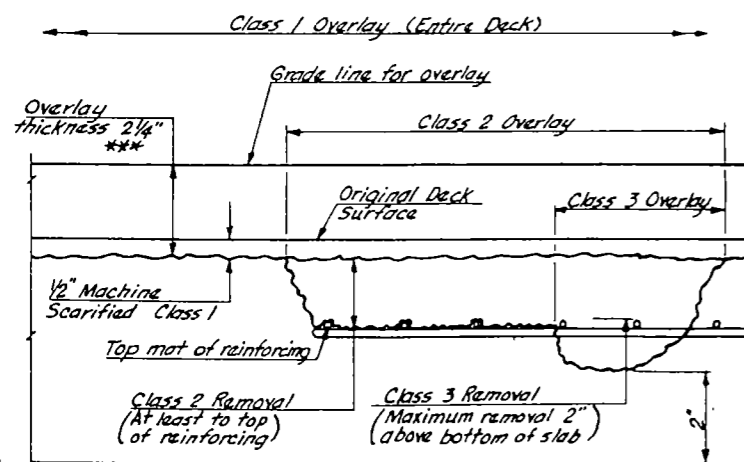
\* To be filled with hot poured joint filler

\*\* Remove existing precast joint filler & fill hot poured joint filler Width 1/2"



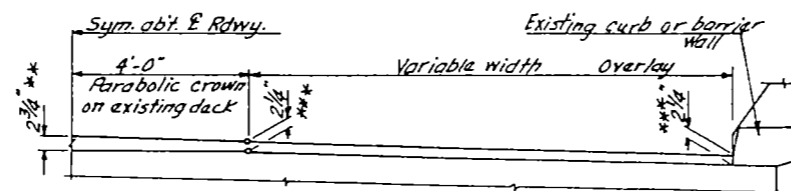
CONSTRUCTION OR RELIEF JOINTS  
(TRANSVERSE & LONGITUDINAL)

Incidental to Class 1 Overlay or Overlay Taper



BRIDGE DECK

\*\*\* Dimensions may be reduced by 3/4" if Latex Modified Concrete is used for the bridge deck overlay.



ELEVATION

NOTE:

Maximum limits for Class 3 Overlay will be determined in the field, but will be less than full depth of slab. (See Special Provisions)

OVERLAY DETAILS

E. Jamestown B.N.R.R Intenc' gge  
 bridge Widening & curb & Rail Replacement.

NORTH DAKOTA STATE HIGHWAY DEPARTMENT

ABSTRACT OF BIDS RECEIVED

STATE OF NORTH DAKOTA & U-2052 (01) 265  
 JOHN W. STUTSMAN JUN 16, 1976  
 PROJECT NO. 20

COMPLETION DATE 07/01/77

ITEM DESCRIPTION	UNIT	QUANTITY	BIDDER 1 ENGINEER'S ESTIMATE		BIDDER 3 WANZFK CONSTR., INC. FARGO, ND		BIDDER ANNCO, INC BISMARCK, ND	
			C. BOND BID PRICE	RANK 00 AMOUNT	C. BOND BID PRICE	RANK 01 AMOUNT	C. BOND BID PRICE	RANK 02 AMOUNT
2024 REMOVAL OF CONCRETE	CU YD	103000	2250000	2317500	2200000	2266000	850000	8755000
208 CLASS I EXCAVATION	CU YD	550000	50000	275000	100000	550000	95000	522500
228 SELECT BACKFILL	CU YD	27000	70000	18900	60000	16200	107500	29025
604 PRESTRESSED I BEAM-36 IN.	L FT	440000	750000	3300000	400000	1760000	550000	2420000
610 CLASS AAF-3 CONCRETE	CU YD	169000	3000000	5070000	1900000	2211000	2350000	3971500
610 CLASS AF-1 CONCRETE	CU YD	241000	1350000	3253500	1700000	4097000	1450000	4695500
612 REINFORCING STEEL-GRADE 40	LB	49075000	3900	1913925	3500	1717625	3700	1815775
616A 36 STEEL-ROLLED	LBS	4202000	5000	210100	10000	420200	15000	630300
622 TREATED TIMBER PILING	L FT	1245000	90000	1120500	95000	1182750	102500	1276125
624 TRAFFIC RAIL-STEEL	L FT	126000	490000	617400	340000	428400	430000	541800
705 MOBILIZATION	L SUM	1000	120000000	1200000	70000000	700000	60000000	6000000
746 FLAGGING	M HR	250000	32500	81250	40000	100000	40000	100000
750 LINSEED OIL TREATMENT	GAL	9000	80000	7200	200000	18000	160000	147500
756 FIELD LABORATORY-TYPE A	EA	1000	1500000	150000	10000000	100000	30000000	3000000
762 TRAFFIC PROTECTION OF TRAFFIC	L SUM	1000	100000000	1000000	130000000	1300000	70000000	7000000
772 2 IN. DIA. RIGID CONDUIT	L FT	225000	60000	135000	30000	67500	35000	76750
900 BRIDGE BENCH MARKS	SET	1000	3000000	30000	2500000	25000	5000000	50000
900 CANOPY	L SUM	1000	50000000	500000	60000000	600000	70000000	7000000
900 CLASS III OVERLAY	SO YD	22000	300000	66000	700000	154000	600000	176000
TOTAL				21266275		18713675		19501535

LIMIT \$500,000

ONE PROJECT

# NORTH DAKOTA STATE HIGHWAY DEPARTMENT

SHEET NO. 2 OF 3

## ABSTRACT OF BIDS RECEIVED

PROJECT NO. <b>TQF-7-094(21)260 &amp; U-2052 (01) 265</b> COUNTY & DATE <b>STUTSMAN JUN 16, 1976</b> LENGTH & TYPE <b>0.20</b>	NO. <b>2</b>	BIDDER <b>SWINGEN CONSTRUCTION</b> GRAND FORKS, ND C. BOND RANK 03	BIDDER <b>JAMES J. IGOF &amp; SONS</b> BISMARCK, ND C.C. BOND RANK 04	BIDDER <b>LINDBERG CONSTRUCTION</b> JAMESTOWN, ND C.C. BOND RANK 05
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COMPLETION TIME **07/01/77**

SPEC NO	ITEM DESCRIPTION	UNIT	QUANTITY	BIDDER SWINGEN CONSTRUCTION		BIDDER JAMES J. IGOF & SONS		BIDDER LINDBERG CONSTRUCTION		
				BID PRICE	AMOUNT	BID PRICE	AMOUNT	BID PRICE	AMOUNT	
202	REMOVAL OF CONCRETE	CU YD	103000	1250000	1287500	1500000	1545000	1500000	1545000	
208	CLASS I EXCAVATION	CU YD	550000	30000	165000	20000	110000	150000	825000	
228	SELECT BACKFILL	CU YD	27000	100000	27000	100000	27000	50000	13500	
604	PRESTRESSED I BEAM-36 IN.	L FT	440000	550000	2420000	650000	2860000	595000	2618000	
610	CLASS AAE-3 CONCRETE	CU YD	169000	1900000	3211000	2300000	3887000	3000000	5070000	
610	CLASS AE-1 CONCRETE	CU YD	241000	2000000	4820000	2350000	5663500	2000000	4820000	
612	REINFORCING STEEL-GRADE 40	LB	49075000	4000	1963000	3500	1717625	4000	1963000	
616	A 36 STEEL-ROLLED	LBS	4202000	20000	840400	10000	420200	15000	630300	
622	TREATED TIMBER PILING	L FT	1245000	110000	1369500	110000	1369500	100000	1245000	
624	TRAFFIC RAIL-STEEL	L FT	126000	450000	567000	500000	630000	500000	630000	
705	MOBILIZATION	L SUM	1000	200000000	2000000	180000000	1800000	150000000	1500000	
746	FLAGGING	M HR	250000	40000	100000	40000	100000	40000	100000	
750	LINSEED OIL TREATMENT	GAL	9000	100000	9000	100000	9000	100000	9000	
756	FIELD LABORATORY-TYPE A	EA	1000	1000000	100000	2000000	200000	2000000	200000	
762	MICE & PROTECTION OF TRAFFIC	L SUM	1000	180000000	1800000	160000000	1600000	150000000	1500000	
777	2 IN. DIA. RIGID CONDUIT	L FT	225000	60000	135000	30000	67500	50000	112500	
900	BRIDGE BENCH MARKS	SET	1000	1500000	15000	2000000	20000	2500000	25000	
900	CANDPY	L SUM	1000	50000000	500000	70000000	700000	65000000	650000	
900	CLASS III OVERLAY	SQ YD	22000	1500000	330000	500000	110000	150000	330000	
<b>TOTAL</b>						<b>21659400</b>		<b>22836325</b>		<b>23489300</b>

LIMIT ONE PROJECT

WHEN PRELIMINARY ARRANGEMENTS ARE COMPLETED

ACTION TAKEN BY STATE HIGHWAY COMMISSION.

AWARD TO: \_\_\_\_\_

DATE OF AWARD \_\_\_\_\_ 19 \_\_\_\_\_

STATE HIGHWAY COMMISSIONER

# NORTH DAKOTA STATE HIGHWAY DEPARTMENT

SHEET NO 3 OF 3

# ABSTRACT OF BIDS RECEIVED

PROJECT NO TQF-7-094(21)260 & U-2052 (01) 265  
 COUNTY & DATE STUTSMAN JUN 16, 1976  
 LENGTH & TYPE 0.20

NO. 2 BIDDER INDUSTRIAL BUILDERS. BIDDER  
FARGO, ND  
 C. & D. RANK 06 C.C.            RANK            BIDDER  
 C.C.            RANK            C.C.            RANK           

COMPLETION TIME 07/01/77

SPEC NO	ITEM DESCRIPTION	UNIT	QUANTITY	BID PRICE	AMOUNT	BID PRICE	AMOUNT	BID PRICE	AMOUNT
202	REMOVAL OF CONCRETE	CU YD	103000	2000000	20600000				
208	CLASS I EXCAVATION	CU YD	550000	60000	330000				
228	SELECT BACKFILL	CU YD	27000	100000	27000				
604	PRESTRESSED I BEAM-36 IN.	L FT	440000	470000	2068000				
610	CLASS AA-3 CONCRETE	CU YD	169000	3750000	6337500				
610	CLASS AE-1 CONCRETE	CU YD	241000	1900000	4579000				
612	REINFORCING STEEL-GRADE 40	LB	49075000	4000	1963000				
616	A 36 STEEL-ROLLED	LBS	4202000	20000	840400				
622	TREATED TIMBER PILING	L FT	1245000	90000	1120500				
624	TRAFFIC RAIL-STEEL	L FT	126000	500000	630000				
705	MOBILIZATION	L SUM	1000	15000000	1500000				
746	FLAGGING	M HR	250000	40000	100000				
750	LINSEED OIL TREATMENT	GAL	9000	150000	13500				
756	FIELD LABORATORY-TYPE A	EA	1000	3000000	300000				
762	MTC & PROTECTION OF TRAFFIC	L SUM	1000	95000000	950000				
777	2 IN. DIA. RIGID CONDUIT	L FT	225000	50000	112500				
900	BRIDGE BENCH MARKS	SET	1000	4500000	45000				
900	CANOPY	L SUM	1000	110000000	1100000				
900	CLASS III OVERLAY	SQ YD	22000	1000000	220000				
<b>TOTAL</b>						<b>24296400</b>			

Two overlays plus one job  
 or One overlay plus four  
 jobs.

ACTION TAKEN BY STATE HIGHWAY COMMISSION.

AWARD TO: \_\_\_\_\_

WHEN PRELIMINARY ARRANGEMENTS ARE COMPLETED

S.E. James town B.N.R.R. In exchange  
 Bridge Widening & Cu. & Rail Replacement

**NORTH DAKOTA STATE HIGHWAY DEPARTMENT**

SHEET NO. 2 OF 3

**ABSTRACT OF BIDS RECEIVED**

PROJECT NO TQF-7-094(21)260 & U-2052 (01) 265  
 COUNTY & DATE STUTSMAN JUN 16, 1976  
 LENGTH & TYPE 0.20  
 COMPLETION TIME 07/01/77

NO. 2 BIDDER SWINGEN CONSTRUCTION  
 GRAND FORKS, ND C.BOND RANK 03  
 BIDDER JAMES J. IGOF & SONS  
 BISMARCK, ND C.C. BOND RANK 04  
 BIDDER LINDBERG CONSTRUCTION  
 JAMESTOWN, ND C.C. BOND RANK 05

SPEC NO	ITEM DESCRIPTION	UNIT	QUANTITY	BID PRICE	AMOUNT	BID PRICE	AMOUNT	BID PRICE	AMOUNT	
202	REMOVAL OF CONCRETE	CU YD	103000	1250000	1287500	1500000	1545000	1500000	1545000	
208	CLASS I EXCAVATION	CU YD	550000	30000	165000	20000	110000	150000	825000	
228	SELECT BACKFILL	CU YD	27000	100000	27000	100000	27000	50000	13500	
604	PRESTRESSED I BEAM-36 IN.	L FT	440000	550000	2420000	650000	2860000	595000	2618000	
610	CLASS AAE-3 CONCRETE	CU YD	169000	1900000	3211000	2300000	3887000	3000000	5070000	
610	CLASS AE-1 CONCRETE	CU YD	241000	2000000	4820000	2350000	5663500	2000000	4820000	
612	REINFORCING STEEL-GRADE 40	LB	49075000	4000	1963000	3500	1717625	4000	1963000	
616A	36 STEEL-ROLLED	LBS	4202000	20000	840400	10000	420200	15000	630300	
622	TREATED TIMBER PILING	L FT	1245000	110000	1369500	110000	1369500	100000	1245000	
624	TRAFFIC RAIL-STEEL	L FT	126000	450000	567000	500000	630000	500000	630000	
705	MOBILIZATION	L SUM	1000	200000000	2000000	180000000	1800000	150000000	1500000	
746	FLAGGING	M HR	250000	40000	100000	40000	100000	40000	100000	
750	LINSEED OIL TREATMENT	GAL	9000	100000	9000	100000	9000	100000	9000	
756	FIELD LABORATORY-TYPE A	EA	1000	1000000	100000	2000000	200000	2000000	200000	
762	MTC.& PROTECTION OF TRAFFIC	L SUM	1000	180000000	1800000	160000000	1600000	150000000	1500000	
777	2 IN. DIA. RIGID CONDUIT	L FT	225000	60000	135000	30000	67500	50000	112500	
900	BRIDGE BENCH MARKS	SET	1000	1500000	15000	2000000	20000	2500000	25000	
900	CANOPY	L SUM	1000	50000000	500000	70000000	700000	65000000	650000	
900	CLASS III OVERLAY	SQ YD	22000	1500000	330000	500000	110000	150000	330000	
<b>TOTAL</b>						21659400		22836325		23489300

LIMIT ONE PROJECT



T.E. Jamestown B.N.R.R Intercange  
 bridge widening & curb & Rail Replacement.

**NORTH DAKOTA STATE HIGHWAY DEPARTMENT**

SHEET NO 1 OF 3

**ABSTRACT OF BIDS RECEIVED**

PROJECT NO. 101-7-0941, 1100 & U-2052 (01) 265  
 DISTRICT ENGINEER STOUTSMAN JUN 16, 1976  
 CONTRACT NO. 0-20

COMPLETION DATE 07/01/77

ITEM DESCRIPTION	UNIT	QUANTITY	BIDDER ENGINEER'S ESTIMATE		BIDDER WANZEK CONSTR., INC. FARGO, ND		BIDDER ANRICH, INC. BISMARCK, ND	
			C.BOND	RANK 00	C.C. BOND	RANK 01	C.C. BOND	RANK 02
			BID PRICE	AMOUNT	BID PRICE	AMOUNT	BID PRICE	AMOUNT
202 REMOVAL OF CONCRETE	CU YD	103000	2250000	2317500	2200000	2266000	850000	8755000
208 CLASS I EXCAVATION	CU YD	550000	50000	275000	100000	550000	95000	522500
228 SELECT BACKFILL	CU YD	27000	70000	18900	60000	16200	107500	29025
604 PRESTRESSED I BEAM-36 IN.	L FT	440000	750000	3300000	400000	1760000	550000	2420000
610 CLASS AAF-3 CONCRETE	CU YD	169000	3000000	5070000	1900000	3211000	2350000	3971500
610 CLASS AA-1 CONCRETE	CU YD	241000	1350000	3253500	1700000	4097000	1450000	4699500
612 REINFORCING STEEL-GRADE 40	LB	49075000	3900	1913925	3500	1717625	3700	1815775
616 A 36 STEEL-ROLLED	LBS	4202000	5000	210100	10000	420200	15000	630300
622 TREATED TIMBER PILING	L FT	1245000	90000	1120500	95000	1182750	102500	1276125
624 TRAFFIC RAIL-STEEL	L FT	126000	490000	617400	340000	428400	430000	541800
705 MOBILIZATION	L SUM	1000	12000000	1200000	7000000	700000	6000000	600000
746 FLAGGING	M HR	250000	32500	81250	40000	100000	40000	100000
750 LINSEED OIL TREATMENT	GAL	9000	80000	7200	200000	18000	164000	14760
756 FIELD LABORATORY-TYPE A	EA	1000	15000000	150000	10000000	100000	3000000	300000
762 PROTECTION OF TRAFFIC	L SUM	1000	10000000	1000000	13000000	1300000	7000000	700000
777 2 IN. DIA. RIGID CONDUIT	L FT	225000	60000	135000	30000	67500	35000	76750
900 BRIDGE BENCH MARKS	SET	1000	3000000	30000	2500000	25000	5000000	50000
900 SANDPY	L SUM	1000	5000000	500000	6000000	600000	7000000	700000
900 CLASS III OVERLAY	SQ YD	22000	300000	66000	700000	154000	600000	176000
<b>TOTAL</b>				<b>21266275</b>		<b>18713675</b>		<b>19501535</b>

LIMIT \$500,000 ONE PROJECT

# NORTH DAKOTA STATE HIGHWAY DEPARTMENT

# ABSTRACT OF BIDS RECEIVED

PROJECT NO. TQF-7-044(1)11260 & M-2987 (04) 002  
 COUNTY & DATE STUTSMAN- JUN 16, 1976  
 LENGTH & TYPE 0.056

SHEET NO. 1 OF 1

NO.	BIDDER ENGINEER'S ESTIMATE	BIDDER S. & S. CONSTRUCTION	BIDDER EVERETT & ASSOCIATES
		MOORHEAD, MINN. SOTA	JAMSTOWN, NORTH DAKOT
	C. BOND RANK 00	C. BOND RANK 01	C. BOND RANK 02

COMPLETION TIME 07/01/77

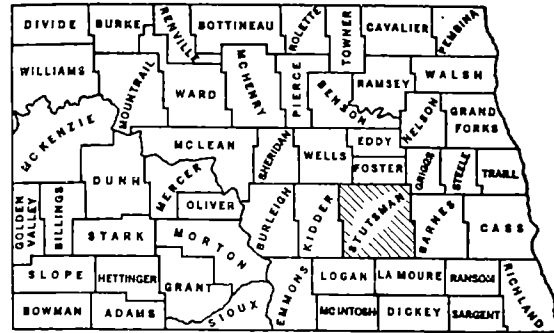
LINE NO.	ITEM DESCRIPTION	UNIT	QUANTITY	BID PRICE	AMOUNT	BID PRICE	AMOUNT	BID PRICE	AMOUNT
201	CLEARING AND GRUBBING	L SUM	1000	12000000	12000000	100000000	100000000	55000000	55000000
202	REMOVAL OF CONCRETE PAVEMENT	SQ YD	1453000	35000	508550	20000	290600	50000	726500
202	REMOVAL OF FOUR CABLE GUARD RAIL	L FT	2265000	20000	453000	20000	453000	6000	135900
203	COMMON EXCAVATION-TYPE A	CU YD	4107000	10000	410700	15000	616050	17500	718725
203	TOPSOIL-BORROW AREA	CU YD	4000000	5000	200000	5000	240000	5000	240000
203	TORROW	CU YD	47296000	15000	7094400	15000	7094400	23400	11067264
216	WATER FOR GRADING	M GAL	511000	32500	166075	40000	204400	40000	204400
216	WATER FOR SURFACING	M GAL	12000	32500	3900	100000	12000	100000	12000
302	AGGREGATE BASE COURSE CL.11	CU YD	31000	20000	6200	20000	6200	100000	31000
302	AGGREGATE BASE COURSE CL.24	TON	463000	30000	138900	55000	254650	55500	256965
401	SS1H OR CSS1H EMULS. ASPH.	GAL	382000	4500	17190	6000	22920	10000	38200
406	HOT BITUMINOUS PAVEMENT CL.24	TON	1339000	55000	736450	125000	1673750	200000	2678000
406	120-150 ASPH. CEMENT	TON	96000	1000000	960000	870000	835200	820000	787200
420	RC250.800 LIQ. OR CRS-2 EMULS. ASPH.	GAL	924000	4500	41580	6000	55440	7500	69300
420	COVER COAT MATERIAL CL.43	TON	26000	90000	23400	120000	31200	140000	36400
420	BLOTTER MATERIAL CL.44	TON	6000	30000	1800	50000	3000	100000	6000
550	10 IN. NON-REINF. CONCRETE PAVEMENT-CL. YE-CFM. INCL.	SQ YD	1455000	120000	1746000	180000	2619000	180000	2619000
550	CONCRETE BRIDGE APPROACH SLAB	SQ YD	372000	350000	1302000	280000	1041600	450000	1674000
550	LOWELED EXPANSION JOINT ASSEMBLY	L FT	152000	50000	76000	50000	76000	60000	91200
550	STANDARD ANCHORAGE UNIT-J BOLTS	EA	148000	50000	74000	60000	88800	75000	111000
550	PREF. COMPRESSION JOINT SEAL 9/16 IN.	L FT	468000	10000	46800	4300	20124	35000	163400
550	PREF. COMPRESSION JOINT SEAL 1 5/8 IN.	L FT	152000	40000	60800	45000	68400	80000	121600
610	CLASS AE CONCRETE-SIGN FOUNDATIONS	CU YD	4000	2240000	89600	5000000	2000000	5000000	2000000
630	15 IN. CORR. STEEL PIPE .064 IN.	L FT	118000	70000	82600	190000	224200	120000	141600
630	15 IN. CORR. STEEL END SEC. .064 IN.	EA	1000	350000	3500	500000	5000	500000	5000
705	MOBILIZATION	L SUM	1000	6000000	600000	35000000	3500000	7000000	7000000
722	THREE CABLE GUARD RAIL	L FT	1900000	55000	1045000	70000	1330000	75000	1425000
722	RESET BEAM GUARD RAIL-6.25FT. POST SPACING	L FT	400000	10000	40000	60000	240000	60000	240000
726	SEEDING TYPE B CLASS I OR IV	ACRE	5000	400000	20000	700000	35000	1500000	75000
728	SODDING	SQ YD	21000	10000	2100	25000	5250	100000	21000
743	PAVEMENT MARKING-DROP ON BEADS-TYPE II	L FT	2088000	4000	83520	5000	104400	5000	104400
746	FLAGGING	M HR	200000	32500	65000	40000	80000	40000	80000
752	BRIDGE APPROACH DRAINS	EA	1000	600000	60000	900000	90000	750000	75000
754	FLAT SHEET FUR SIGNS-ENCAPSULATED LENS	SQ FT	20000	150000	30000	200000	40000	200000	40000
754	STEEL GALV. POSTS	LB	168000	20000	33600	30000	50400	30000	50400
756	FIELD LABORATORY-TYPE A	EA	1000	1300000	130000	2000000	200000	2500000	250000
762	MTC. & PROTECTION OF TRAFFIC	L SUM	1000	5000000	500000	8000000	800000	7500000	750000
777	CABLE TRENCH-TYPE II	L FT	1416000	6000	84960	10000	141600	7500	106200
777	CONCRETE FOUNDATIONS-HIGHWAY LIGHTING	EA	4000	2000000	80000	2250000	90000	4500000	180000
777	2 IN. DIA. RIGID CONDUIT	L FT	32000	60000	19200	30000	9600	130000	41600
777	MULTIPLE UNDERGROUND CABLE 3ND. 2-1NO. 6 STYLE USE	L FT	619000	35000	216650	20000	123800	23000	142370
777	MULTIPLE UNDERGROUND CABLE 2ND. 4-1NO. 6 STYLE USE	L FT	1139000	30000	341700	20000	227800	12500	142375
777	LIGHT STD. 8FT. MAST ARM-40FT. MOUNT. HT. BREAKAWAY	EA	4000	800000	320000	700000	280000	900000	360000
777	MERCURY VAPOR LUMINAIRE-400 WATT	EA	1000	1000000	10000	2000000	20000	3000000	30000
777	MERCURY VAPOR LUMINAIRE-700 WATT	EA	3000	1000000	30000	3000000	90000	3500000	105000
777	LIGHTING-CONTROL CABINET	EA	1000	2500000	25000	3000000	30000	2500000	25000
900	LONGITUDINAL SHOULDER JOINT	L FT	1098000	4500	49410	7500	82350	7500	82350
	TOTAL				18149585		24706134		27710749

ACTION TAKEN BY STATE HIGHWAY COMMISSION

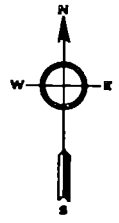
AWARD TO: \_\_\_\_\_

WHEN PRELIMINARY ARRANGEMENTS ARE COMPLETED

FED ROAD DIV NO	STATE	FED AID PROJ NO	SHEET NO
8	N.D.	RFI-I-094-7(21)260 U-2-052(01)265 M-2-987(04)002	1



SKETCH-MAP OF NORTH DAKOTA SHOWING COUNTIES



SCALES  
 LAYOUT SHEET 1 IN = 5000 FT  
 PLAN AND PROFILE DRAWINGS (HOR) 1 IN. = 100 FT  
 (VERT) 1 IN. = 10 FT  
 STRUCTURAL DRAWINGS - AS SHOWN  
 CROSS SECTION SHEETS - 1 IN. = 10 FT

# NORTH DAKOTA STATE HIGHWAY DEPARTMENT

## PLANS FOR THE PROPOSED IMPROVEMENT OF A STATE HIGHWAY

IN STUTSMAN COUNTY

FEDERAL AID PROJ. NO. RFI-I-094-7(21)260, U-2-052(01)265 & M-2-987(04)002  
 GRADING, P.C.C. PVMT., AGGR. BASE, HOT BIT. PVMT.  
 STRUCTURE, SIGNING, LIGHTING AND MISC.

PROJECT	LENGTH OF PROJECT	
	MILES-GROSS	MILES-NET
U-2-052(01)	.020	.020
RFI-I-094-7(21)	.297	.297
M-2-987(04)002	.359	.359
TOTALS	.676	.676

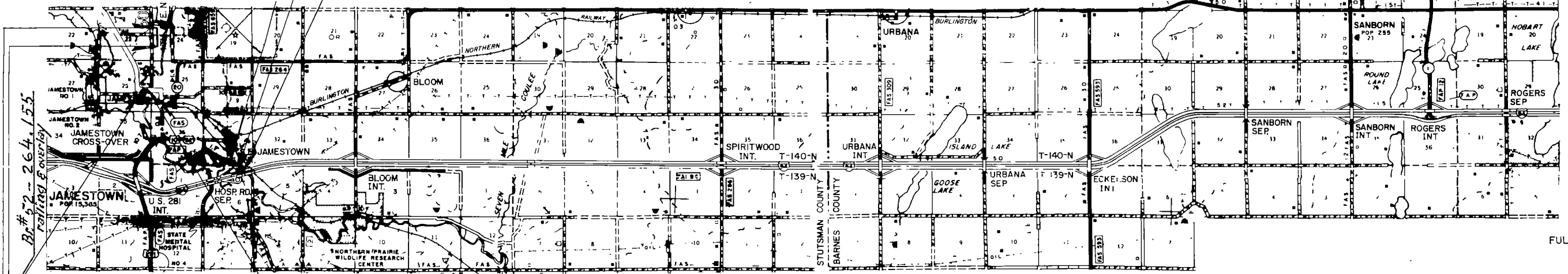
GOVERNING SPECIFICATIONS:  
 Standard Specifications adopted by the North Dakota State Highway Department July 1971 and approved as standard by the Federal Highway Administration Sept 29, 1971 Required Contract Provision (Form PR-1273) dated Sept. 1975 and others submitted herewith.

### DESIGN DATA

TRAFFIC	AVERAGE DAILY	EST. 30TH MAX. HR.
N.E. RAMP	CURRENT TRAFFIC (1976) 1120 PASS 100 TRUCKS 1220 TOTAL	170
	TRAFFIC FORECAST (1996) 1870 PASS. 160 TRUCKS 2030 TOTAL	280
DESIGN SPEED	70	MPH
TRAFFIC CLASSIFICATION	"M"	
MINIMUM SIGHT DISTANCE (STOPPING)	850'	
MINIMUM SIGHT DISTANCE (SAFE PASSING)	3200'	
MINIMUM PASSING SIGHT DISTANCE FOR MARKING	1200'	
BRIDGES	DESIGN LOADING HS 20	
	CLEAR RDWY WIDTH 42'	

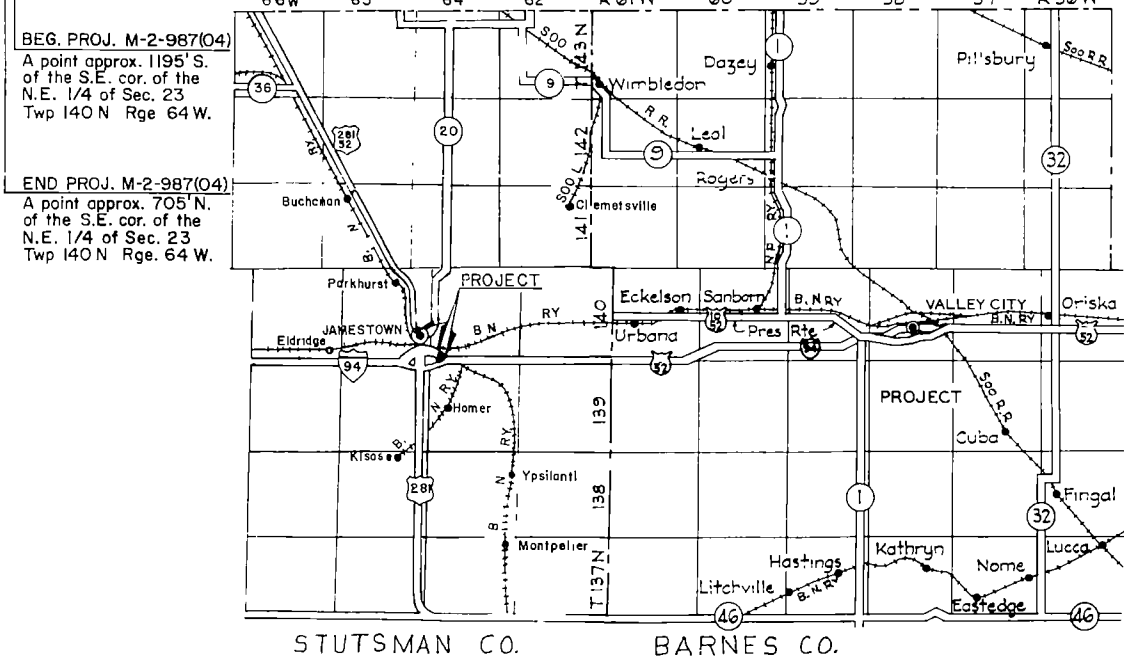
RFI- PORTION STA 179+33.5 TO 180+33.5  
 & STA 182+54.5 TO 183+54.5 (BRIDGE APPR. SLAB)

BEG PROJ RFI-I-94-7(21)260 STA. C+00  
 END PROJ RFI-I-94-7(21)260 STA. 107+372  
*Br # 94-160.136L (Widen to 42' cl.)*  
 A Point 338' So. & 1833.2' West Of The N.E. Cor Of Sec. 6, Twp 139-N, Rge. 64-W.  
 A Point 598.1 So & 619.1' West Of The N.E. Cor Of Sec 6, Twp. 139-N, Rge. 64-W



FULL CONTROL OF ACCESS  
 No point of access other than by ramps at interchanges.

BEG PROJ U-2-052(01) STA 641+67.8  
 A point approx. 3038.4' South & 1509.1 East of the NW Cor of the NE 1/4 of Sec. 26 Twp 140 N., Rge. 64 W.  
 END PROJ U-2-052(01) STA 642+75.3  
 A point approx 3038.4' South & 1616.6 East of the NW Cor. of the NE 1/4 of Sec 26 Twp 140 N., Rge. 64 W



P.S. & E. Changes Made 12/14/75

APPROVED DATE 4/26/76  
*Rehderley*  
 CHIEF ENGINEER  
 NORTH DAKOTA  
 STATE HIGHWAY DEPARTMENT

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 APPROVED  
 DIVISION ADMINISTRATOR DATE

## SYMBOLS

STATE & NATIONAL LINES		BUILDINGS	
COUNTY LINE		TELEGRAPH LINES	
TOWNSHIP & RANGE LINES		TELEPHONE LINES	
SECTION LINE		POWER LINES	
QUARTER SECTION LINE		CULVERTS (In Place)	
SECTION CORNER		CULVERTS (Install)	
QUARTER SECTION CORNER		CONCRETE BOX CULVERTS (Install)	
OLD RIGHT OF WAY LINE		BRIDGES (Install)	
NEW RIGHT OF WAY LINE		CONCRETE CURB	
GRADE LINE		CONCRETE CURB AND GUTTER	
CENTERLINE OF CONSTRUCTION		CONCRETE WALK	
RAILROAD RIGHT OF WAY LINE		CATCH BASIN (Existing)	
CITY OR VILLAGE CORPORATE LIMITS		CATCH BASIN (New)	
PROPERTY LINE		MANHOLE (Existing)	
EASEMENT LINE		MANHOLE (New)	
FENCES		CURB INLET (Existing)	
SNOW FENCE		CURB INLET (New)	
DRAINAGE		GROUND MOUNTED SIGNS	
WATERS EDGE		OVERHEAD SIGNS	
MARSH OR SWAMP		HYDRANT	
RIPRAP		LIGHT STANDARDS	
DRAINAGE DITCH		TRAFFIC SIGNALS (Plan & Profile Sheets)	
APPROACH		HIGH MAST LIGHTING ASSEMBLY	
TRAVELED WAY		GROUND ELEVATION	
RAILROADS		GRADE	
GUARD RAIL		CENTERLINE	
GUIDE POSTS		SECTION LINE	
DELINEATORS		DEFLECTION ANGLE (Delta)	
HEDGES AND TREES		SOD OR JUTE MESH	
INTERCHANGE		POLES TO BE MOVED	
HIGHWAY GRADE SEPARATION - NO CONNECTION		POLES TO BE LOWERED	
OTHER BRIDGE		CONCRETE FOUNDATION	
SERVICE ROAD		CONDUIT	
TERMINATED CROSS-ROAD		CONDUCTOR	
		CONCRETE PULL BOX	
		FEED POINT	
		250 WATT LIGHT STANDARDS	
		400 WATT LIGHT STANDARDS	
		700 WATT LIGHT STANDARDS	
		1000 WATT LIGHT STANDARDS	
		FLASHING BEACON	
		TRAFFIC SIGNAL - MAST ARM MOUNTED	
		TRAFFIC SIGNAL - POST MOUNTED	
		SIGNAL HEAD	
		PEDESTRIAN PUSHBUTTON POST	
		TRAFFIC SIGNAL CONTROLLER	
		FEED POINT - PAD MOUNTED	

## ABBREVIATIONS

Aggr.	Aggregate	M L	Main Line
Ahd	Ahead	N R	North Roadway
Alt	Alternate	Off. Loc.	Office Location
Approx	Approximate or Approximately	O to O	Out to Out
Appr.	Approach	P & P	Plan and Profile
Asph. Cem or A C	Asphalt Cement	P C	Point of Curvature
Asph. Conc.	Asphaltic Concrete	P.C.C	Point of Compound Curve
Bit.	Bituminous or Bitumen	P.C.C Pvm't	Portland Cement Concrete Pavement
Bk.	Back	P. D.	Private Drive
B M.	Bench Mark	Pen.	Penetration
Bldg.	Building	Perf.	Perforated
Br	Bridge	P. I.	Point of Intersection
C A. E. S.	Corrugated Aluminum End Section	P. O. C	Point on Curve
C A P	Corrugated Aluminum Pipe	P O T.	Point on Tangent
C B	Catch Basin	P P	Power Pole
C. B. G.	Curb and Gutter	P R C.	Point of Reverse Curvature
Ch. Bk.	Channel Block	Pref.	Preformed
Ch. Ch	Channel Change	P.S.D	Passing Sight Distance
C. I	Curb Inlet	P.T.	Point of Tangency
C. I P	Cast Iron Pipe	P.V.C.	Polyvinyl Chloride Sewer Pipe
Cl	Class	Quant.	Quantity or Quantities
C.S.E.S	Corrugated Steel End Section	R	Radius
C.S.P.	Corrugated Steel Pipe	R or Rge.	Range
CMS	Cationic Medium Setting	RC	Rapid Curing
Comp	Compression	R.C.E.S.	Reinforced Concrete End Section
Const	Construction	R C P	Reinforced Concrete Pipe
Conc	Concrete	R C P S	Reinforced Concrete Pipe Sewer
Cont. Reinf. Conc	Continuously Reinforced Concrete	Rd.	Road
Pvm't	Pavement	Rdbd	Roadbed
Contn.	Contraction	Rdwy.	Roadway
Crn	Crown	Refl.	ReflectORIZED
CRS	Cationic Rapid Setting	R R	Railroad
Crse.	Course	Rt.	Right
C S	Curve to Spiral	R/W	Right of Way
C to C	Center to Center	Salv	Salvage
C.Y	Cubic Yard	San	Sanitary
D	Degree of Curvature	S C.	Spiral to Curve
D-Load	Dead Load	SC	Slow Curing
D B	Ditch Block	Sc	Spiral Deflection Angle
Def	Deformed	S D	Sight Distance
Del	Deliver	S E	Superelevation
D G	Ditch Grade	Sec	Section
El. or Elev.	Elevation	Sec. Line Appr	Section Line Approach
Ellipt	Elliptical	Sep.	Separation
Emb	Embankment	Serv	Service
Emul	Emulsified	Sgr Prep	Subgrade Preparation
Engr.	Engineer	Shldr	Shoulder
Eq.	Equation	SP	Special Provision
E R	East Roadway	S P P	Structural Plate Pipe
E S	End Section	S.P.P.A.	Structural Plate Pipe Arch
Esmt	Easement	S.R	South Roadway
Exc	Excavation	SS	Slow Setting or Supplement Specification
Exp.	Expansion	S S D	Stopping Sight Distance
F D	Field Drive	S T.	Spiral to Tangent
Found.	Foundation	Sta	Station
F P	Fence Post	Std	Standard
Furn	Furnish	Std Specs	Standard Specifications
Go	Gage or Gauge	Struct.	Structure
Gr	Gravel	Surf.	Surface or Surfacing
Grd	Graded	Surv.	Survey
G V	Gate Valve	S.W.	Sidewalk
Hel	Helical	S.Y	Square Yard
Hyd	Hydrant	T.	Tangent Length (circular curve)
Ident.	Identification	T or Twp	Township
Inchg.	Interchange	Tel	Telephone
I M	Iron Monument	Temp.	Temporary
Inst	Install	T P	Telephone Pole
Inter	Intersection	Tr.	Traffic
Inv	Invert	Trans	Transverse or Transition
Jt	Joint	Trid.	Treated
L	Length of Curve	Ts	Tangent Length (curve with spirals)
Lc	Length of Spiral	T.S	Tangent to Spiral
Levg	Leveling	U S C & G.S.	United States Coast and Geodetic Survey
L.F	Linear or Lineal Foot	V.C.	Vertical Curve
Liq	Liquid	V.C.P.	Vitrified Clay Pipe
Long	Longitudinal	W M	Water Main
L P	Light Pole	W M V	Water Main Valve
LI	Left	W.R.	West Roadway
"M"	One Thousand	Wrng	Wearing
Matl	Material	W.S.V	Water Service Valve
Max	Maximum	X-Sec	Cross Section
MC	Medium Curing	Xc	Spiral Coordinate
M H	Manhole	Yc	Spiral Coordinate
Min	Minimum		

BRIDGE CODE	FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
A-581	8	N.D.	RFI-094-7(2)	15	

CURING CONCRETE: (Cont)

The cost of liquid membrane curing compound shall be included in the bid price for Class AE-3 Concrete.

**LINSEED OIL TREATMENT:**  
 Linseed oil treatment shall not be applied until all concrete work has been completed and the asphalt curb seal has been placed. Only one uniform application of .015 gallons per square yard shall be applied to the deck and curb.

**REINFORCING STEEL:**  
 Dimensions for bent bars are given out to out and all bends are to meet ACI Standards unless otherwise noted.

The top layer of transverse deck slab reinforcement shall be tied down with wire ties to the protruding shear reinforcing of the prestressed beams. The ties shall be 5' to 6' along the full length of all beams to prevent the slab reinforcing from rising when pouring.

SPECIAL PROVISIONS

- SP-14C Railway Protection and General Liability Insurance Policies.
- SP-108B Roadway Canopy.
- SP-113 Underground Utilities
- SP-136A Prestressed Beams (I & Box)
- SP-12A Maintenance and protection of traffic.
- SP Chemical admixtures for concrete

ESTIMATE OF QUANTITIES

SPEC. NO.	CODE NO.	BID ITEM	QTY.
202	0103	REMOVAL OF CONCRETE	58.6 C.Y.
208	0100	CLASS I EXCAVATION	550 C.Y.
228	0100	SELECT BACKFILL	27 C.Y.
604	9900	PRESTRESS I BEAM-36" 4 AT 50'	440 L.F.
602	1110	CLASS AE-1 CONCRETE 4 AT 50'	2410 C.Y.
602	0130	CLASS AAE-3 CONCRETE	169.2 C.Y.
612	0110	REINFORCING STEEL-GRADE 40	49,075 LBS
616	7000	A36 STEEL-ROLLED	4,208 LBS
622	4630	TREATED TIMBER PILING 6" AT 20'	1248 L.F.
740	0100	FLAGGING	260-264 L.
705	0100	MOBILIZATION	1 L.S.
750	0100	LINSEED OIL	8 GAL.
762	3320	MTCB PROTECTION OF TRAFFIC-STRUCTURES	1 L.S.
777	0141	2 IN. DIA RIGID CONDUIT	228 L.F.
900	3000	BENCH MARKS	1 SET
900	6033	CANOPY	1 L.S.

STRUCTURAL DRAWINGS

GENERAL DRAWING THIS SHEET, 94-260.14L-R-187  
 SUBSTRUCTURE 94-260.14L-2 B3, D-708-9 H-0401  
 SUPERSTRUCTURE 94-260.14L-4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

DESIGN LOADING HS 20 SCALE 1 INCH = 15 FEET

NORTH DAKOTA STATE HIGHWAY DEPARTMENT  
 S.E. JAMESTOWN B.N.R.R. INTERCHANGE  
 BRIDGE WIDENING AND CURB & RAIL REPLACEMENT  
 PROJECT 1-094-7(1) 1260 STA 181+50.5

STUTSMAN COUNTY

APPROVED  
 2-9-76 DATE  
 J. H. Haas BRIDGE ENGINEER

GENERAL:

Work shall conform to all applicable paragraphs of the "North Dakota State Highway Standard Specifications for Road and Bridge Construction" 1971 edition (Hereafter Referred to as Standard Specifications), and to all Special Provisions and Supplemental Specifications in the contract.

The cost of furnishing and placing asphalt curb seal, preformed expansion joint filler, bar spacers, bar supports, screed chairs, and other miscellaneous items shall be included in the price bid for Class AE-3 Concrete.

**MAINTENANCE & PROTECTION OF TRAFFIC**  
 No work shall begin on the removal of portions of either structure until the Temporary guard rail is in place. The Temporary guard rail shall extend across the Bridge and 25 ft. beyond the Bridge Ends. Railing shall be replaced on one side of entire structure before opposite railing is removed.

The pay item "MAINTENANCE & PROTECTION OF TRAFFIC" shall include the furnishing of all material, labor and equipment necessary for the installation, maintenance and removal of the rail shown on this drawing. Upon its removal all temporary guard rail material will remain the property of the contractor.

**REMOVAL OF CONCRETE:**  
 Portions of both structures shall be removed as indicated in the details. The broken concrete shall be disposed of as directed by the engineer. The cost of removal and disposal of broken concrete shall be included in price bid for "Removal of Concrete."

**CANOPY:**  
 The roadway canopy will be required for the highway roadway only and shall be in place before removal of any portion of the existing structures is begun. It shall be built in accordance with Special Provision No. 108. The roadway canopy will not be necessary over the railway but the contractor shall stop all work adjacent to and above the track during train movement.

**EXCAVATION:**  
 All excavation shall be Class I Excavation. The unit price bid for Class I Excavation shall include the cost of any necessary shoring to restrain the railway or roadway surcharge. The contractor shall submit his plan of action together with his plans for excavation and shoring to the bridge engineer and to the railway for approval before any work is done in these areas.

**BACKFILL:**  
 All backfilling shall be done according to section 228 and 203-2.3.2 of the Standard Specifications.

**PILING:**  
 The embankment widening shall be in place and the abutment piling shall be predrilled with a twelve inch auger to a depth of thirty feet below footings before driving the piles.

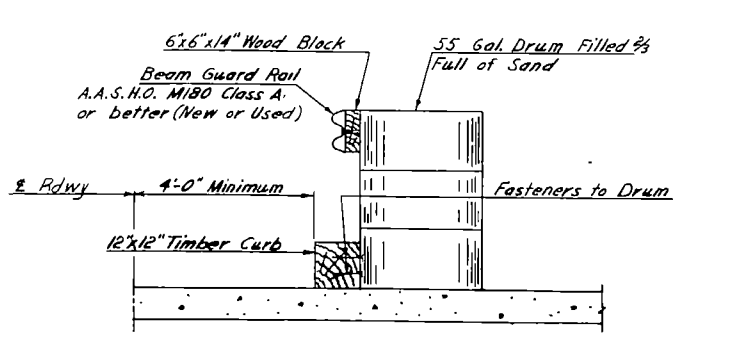
**CONCRETE:**  
 The concrete in the abutment footings and all concrete in the piers shall be Class AE-1 Concrete. All other concrete shall be Class AE-3 Concrete (With the exception of the prestressed girders, See Dwg. 94-260.14L-5)

A "Rubbed Surface Finish" or the "Special Surface Finish" (Section 602-3.10) will be required for the roadway and outside faces of the curb, the new exposed surfaces of the abutments, and the exposed surfaces of the piers (Both New and Old). All other surfaces shall be given the "Ordinary Surface Finish."

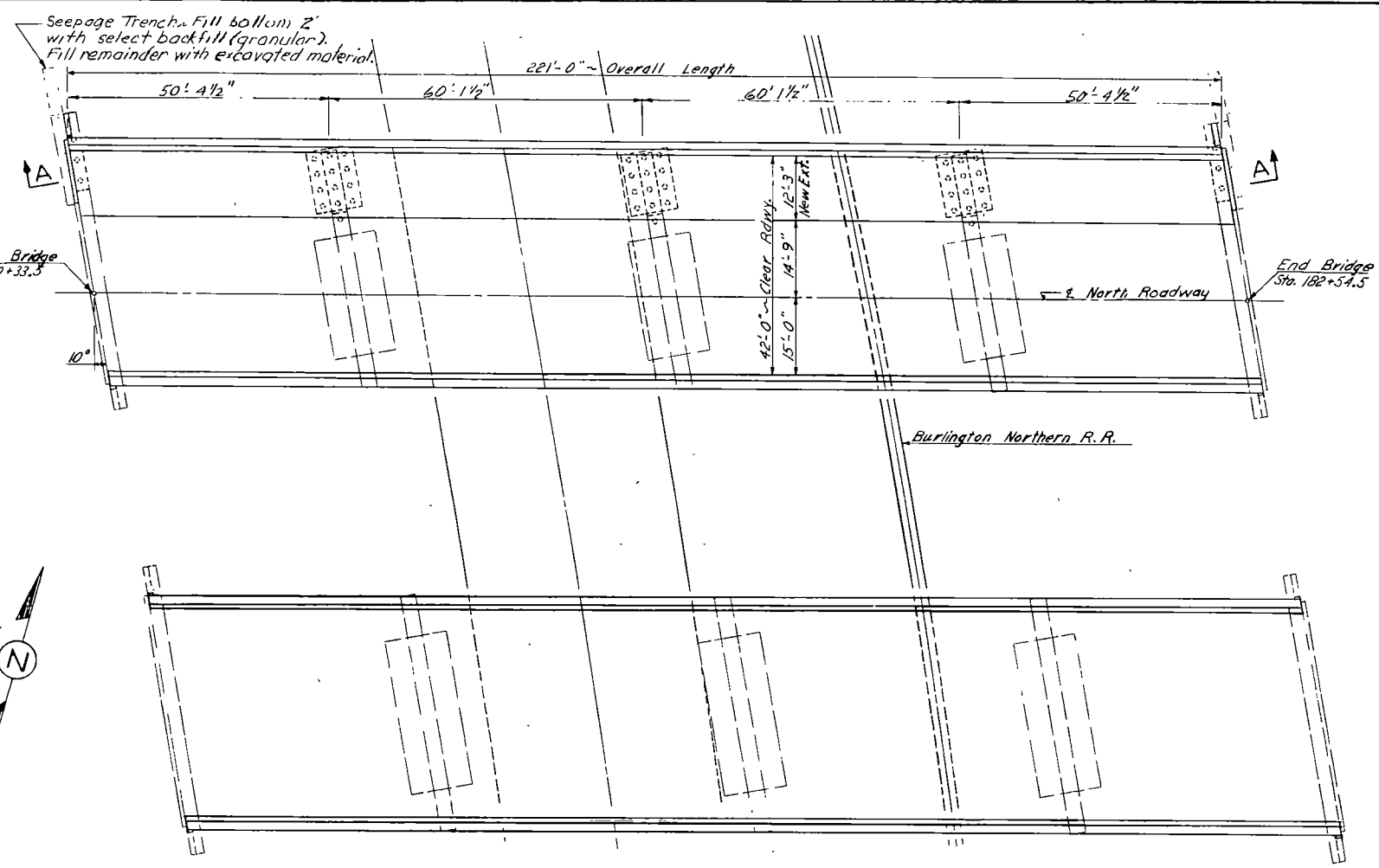
**CURING CONCRETE:**  
 Except as provided in the following paragraphs, liquid membrane curing compound shall not be used on any concrete that is to receive further treatment.

The water soluble liquid membrane cure (Sections 550-4.13.2.1 and 880-5 of the Standard Specifications) shall be used for curing the deck slab concrete. A protective covering shall be used so that linseed oil is not applied to the area within three inches of the gutter line until after the asphalt curb seal is in place.

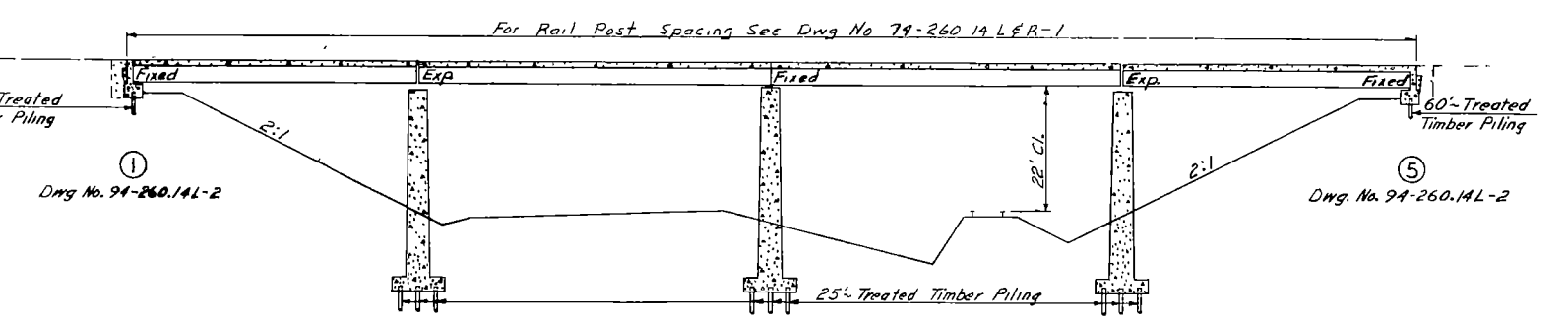
6"x6"x14" Wood Block  
 Beam Guard Rail  
 A.A.S.H.O. M180 Class A or better (New or Used)  
 55 Gal. Drum Filled 2/3 Full of Sand  
 Fasteners to Drum  
 4'-0" Minimum  
 12"x12" Timber Curb  
 Rdwy



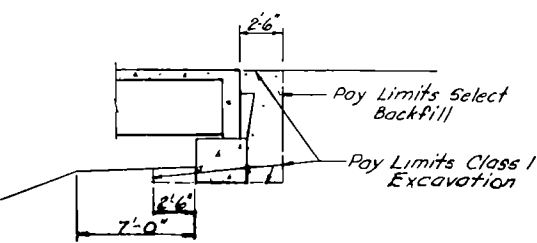
TEMPORARY GUARD RAIL SECTION



PLAN



A-A



DETAIL AT ABUTMENTS

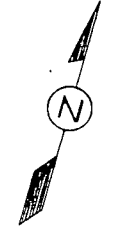
BENCH MARKS

DESCRIPTION	LOCATION	ELEV	LOCATION	DEAD LOAD + EARTH	LIVE LOAD	DESIGN LOAD	MAXIMUM REQUIRED BEARING	MINIMUM PENETRATION
Tr. Manf. Hub Grd. by T.P.	Sta. 173+12~261' RA	1384.55	Abut. 1 F#5	13.9 T	9.8 T	23.7 T	24.0 T	
Tr. Manf. Hub Grd. by I.F.P.	Sta. 183+32~108' RA	1388.74	Pier #2 31' A	20.9 T	2.4 T	23.3 T	24.0 T	15' Below 1/2" bed
Tr. Manf. Hub Grd. by T.P.	Sta. 189+82~157' RA	1386.17						

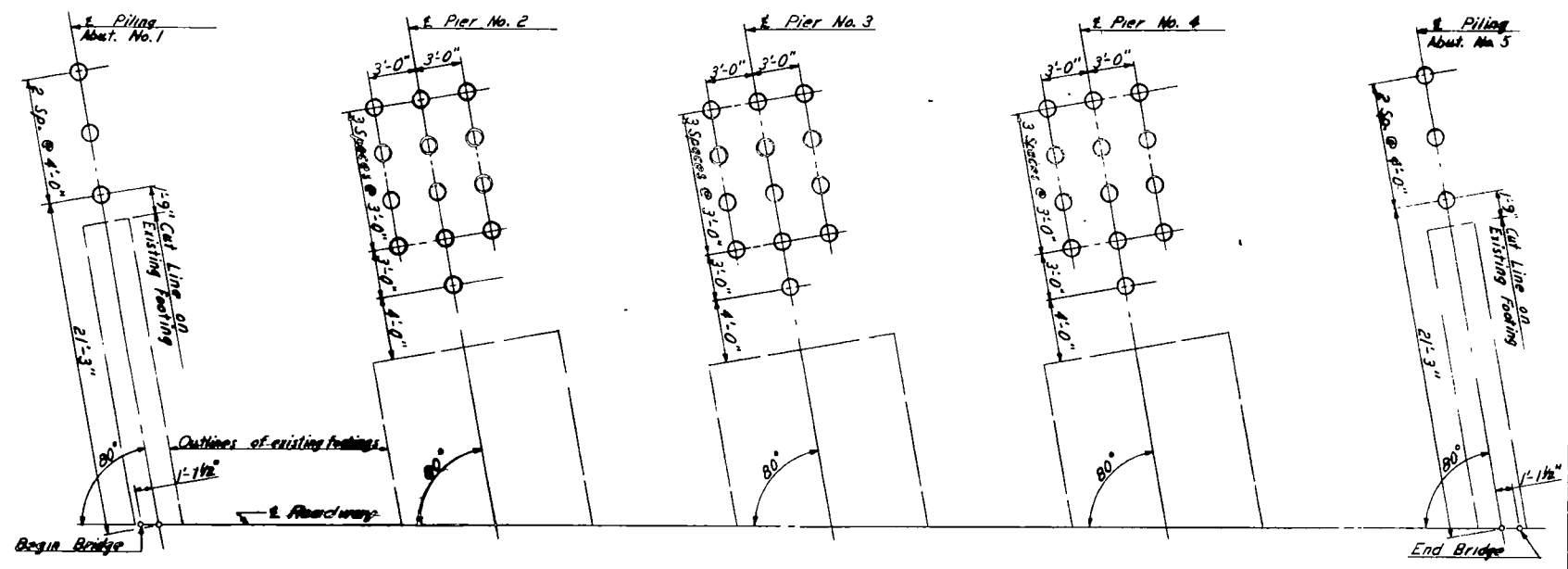
PILE LOADING

DESCRIPTION	LOCATION	ELEV	LOCATION	DEAD LOAD + EARTH	LIVE LOAD	DESIGN LOAD	MAXIMUM REQUIRED BEARING	MINIMUM PENETRATION
Tr. Manf. Hub Grd. by T.P.	Sta. 173+12~261' RA	1384.55	Abut. 1 F#5	13.9 T	9.8 T	23.7 T	24.0 T	
Tr. Manf. Hub Grd. by I.F.P.	Sta. 183+32~108' RA	1388.74	Pier #2 31' A	20.9 T	2.4 T	23.3 T	24.0 T	15' Below 1/2" bed
Tr. Manf. Hub Grd. by T.P.	Sta. 189+82~157' RA	1386.17						

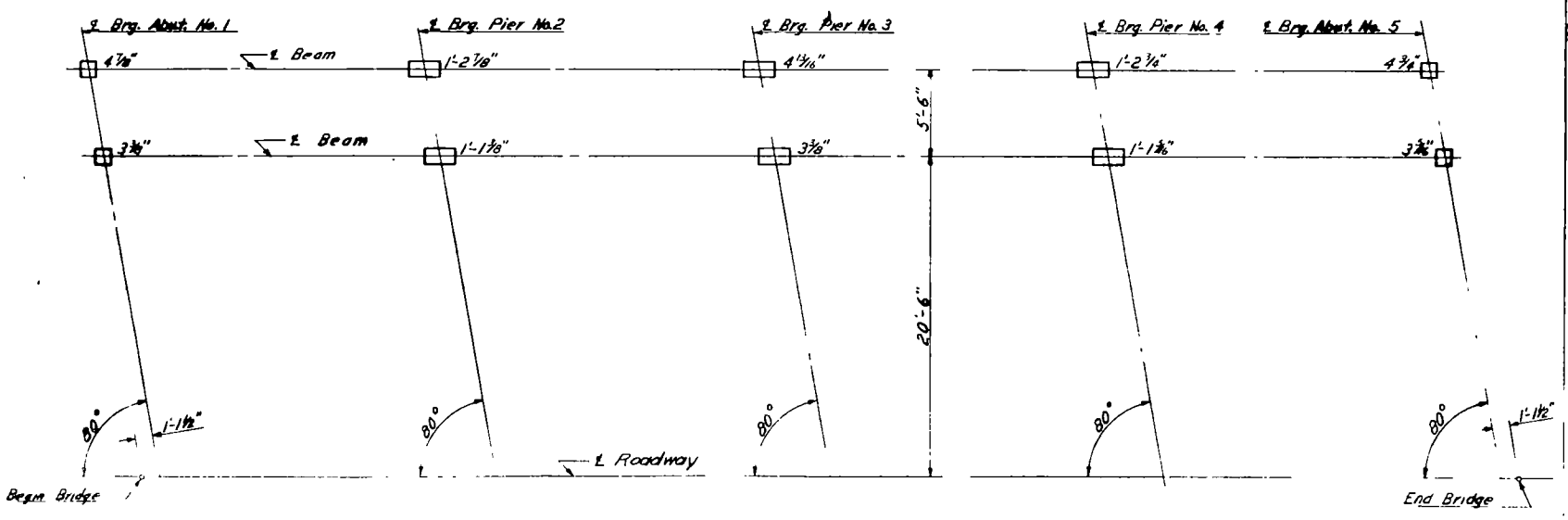
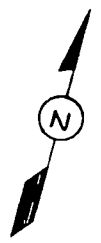
MADE BY E.J.B.  
 CHECKED BY R.A.P.  
 MADE BY R.A.P.  
 CHECKED BY R.A.P.



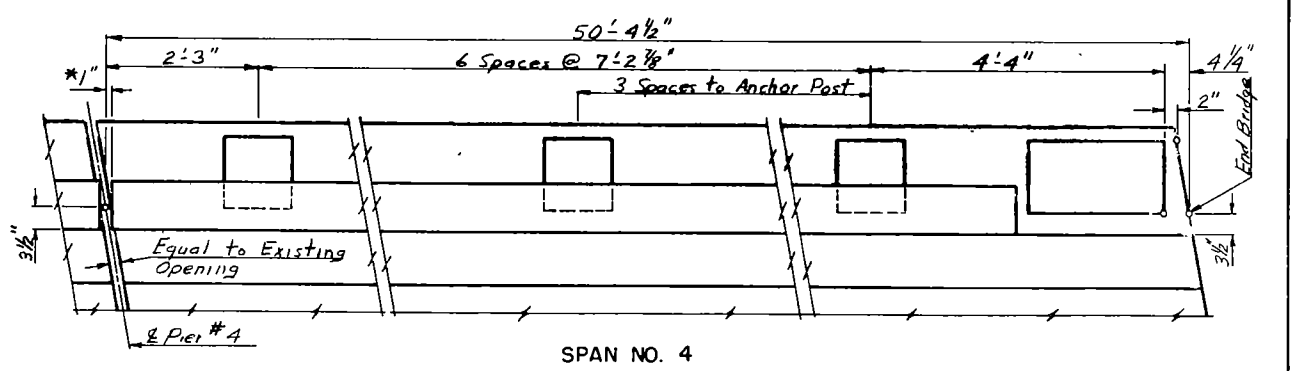
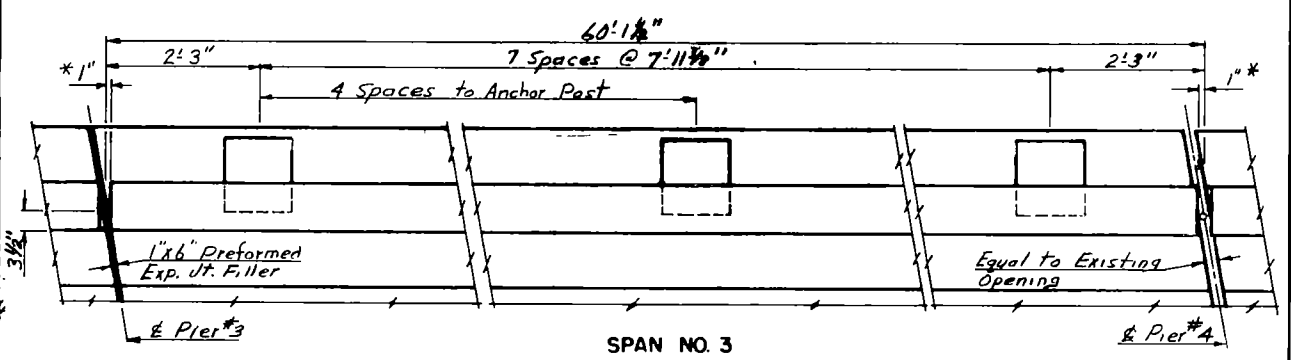
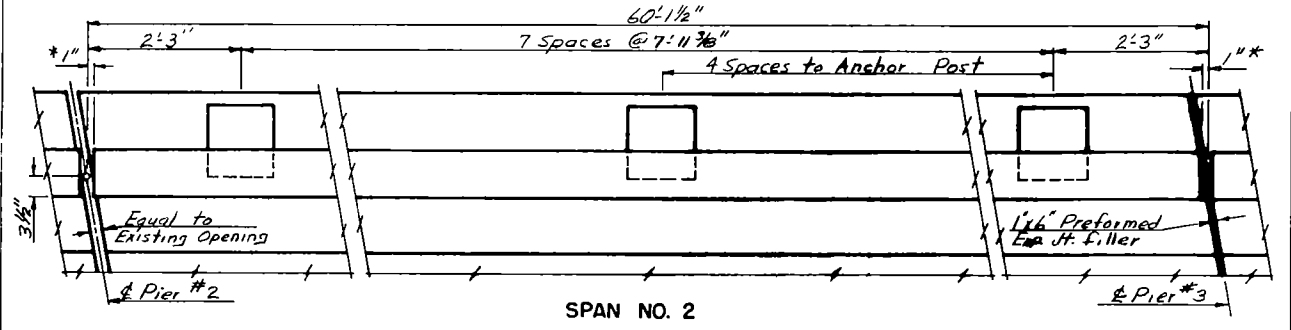
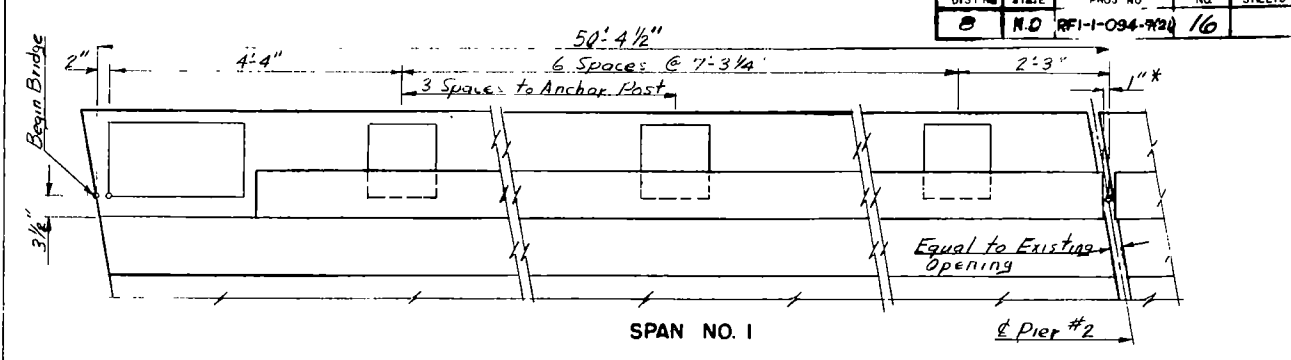
FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	N.D.	RF-1-094-720	16	



PILE STAKING LAYOUT  
(North Bridge)



BEARING PLATE LAYOUT  
The dimensions shown for the new bearings are vertical dimensions taken from the bottom of existing outside beam to the top of concrete.  
(North Bridge)

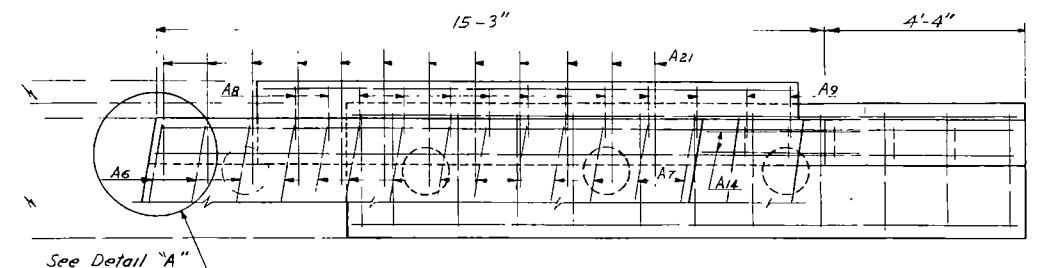


RAIL POST SPACING

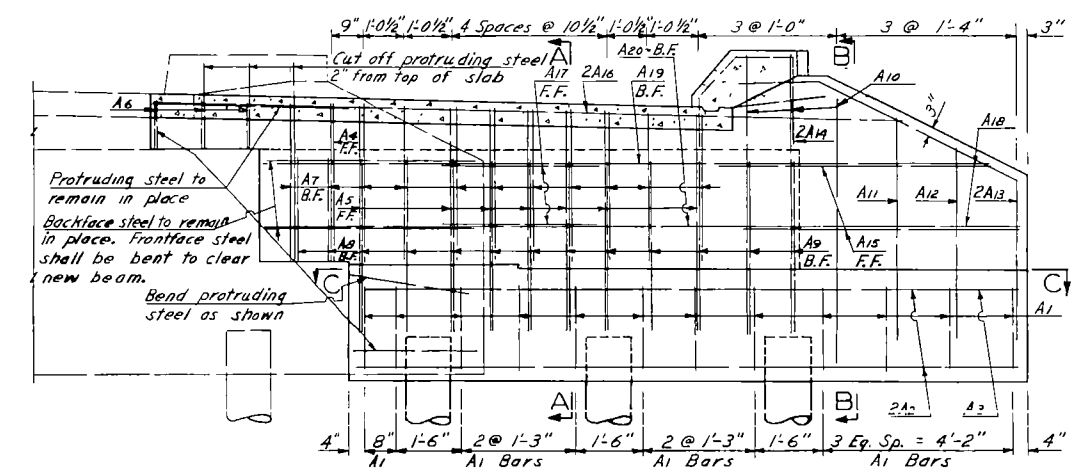
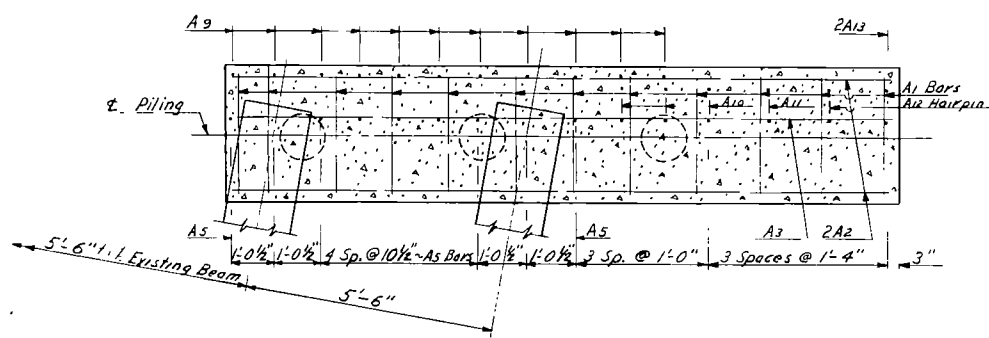
North railing shown. Rotate by 180° for south railings.  
(Typical for Both Bridges)  
\* The total opening between rails shall be 2" min or equal to opening in the existing slab whichever is greater.

S. E. JAMESTOWN  
B.N.R.R. INTERCHANGE  
PILE STAKING LAYOUT  
BEARING PLATE LAYOUT  
RAIL POST SPACING

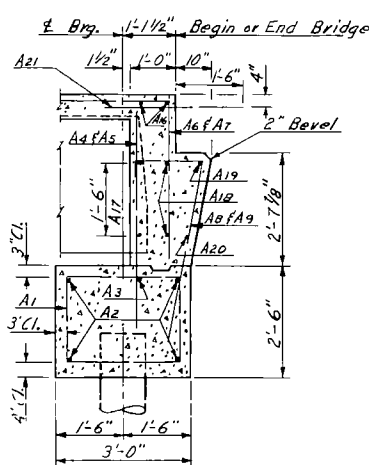
FED. AID PROJ. NO.	STATE	SHEET NO.	TOTAL SHEETS
RFI-1-094-7(2)	VA	17	17



PART PLAN

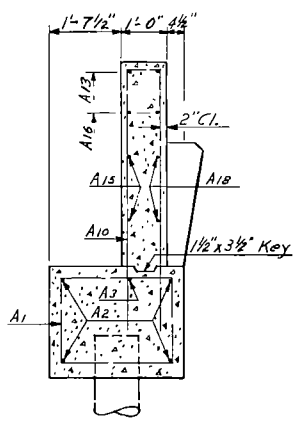


PART ELEVATION  
Showing Reinforcing

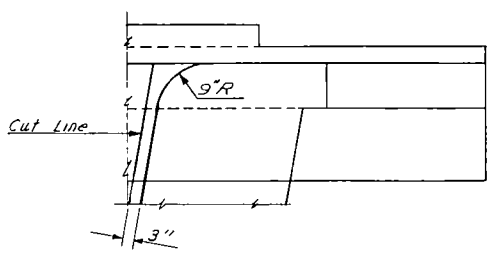


A-A

C-C



B-B

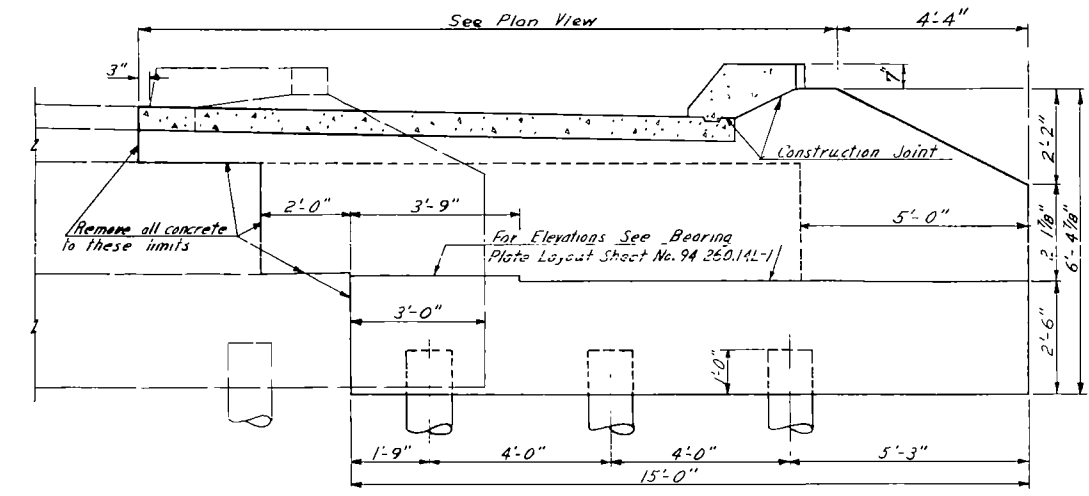


DETAIL "A"

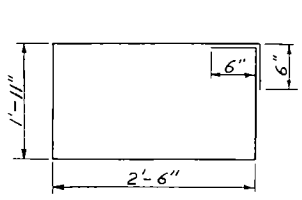
BAR LIST (ONE ABUT.)

MARK	NUMBER	SIZE	LENGTH	SHAPE	UNIT	WT.
A1	12	4	9'-10"	Bent		78.72
A2	4	8	14'-6"	Str.		154.88
A3	1	4	14'-6"	"		9.68
A4	1	5	3'-5"	"		3.56
A5	7	5	5'-0"	"		36.54
A6	3	5	3'-5"	Bent		10.68
A7	11	5	5'-9"	"		66.00
A8	2	5	4'-3"	"		8.86
A9	11	5	6'-3"	"		71.72
A10	3	4	12'-6"	"		
A11	1	4	10'-2"	"		6.79
A12	1	4	8'-10"	"		5.90
A13	2	6	10'-3"	"		
A14	2	4	7'-7"	"		
A15	2	4	6'-0"	Str.		8.02
A16	2	6	16'-6"	"		49.56
A17	2	4	3'-6"	"		4.68
A18	2	4	16'-0"	"		21.36
A19	1	6	11'-8"	"		17.52
A20	1	4	11'-8"	"		7.79
A21	12	4	3'-0"	"		24.00

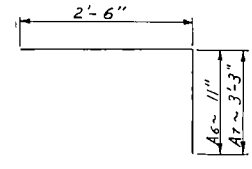
NOTE:  
Concrete above the top of the footing and girder seats shall be poured with the slab.



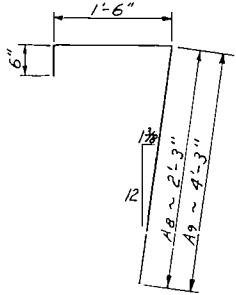
PART ELEVATION  
Showing Dimensions



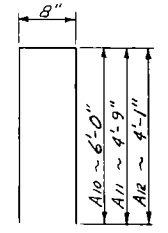
A1



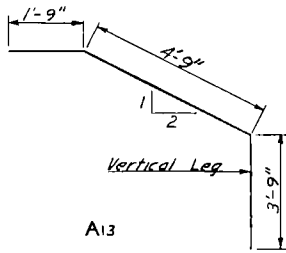
A6 & A7



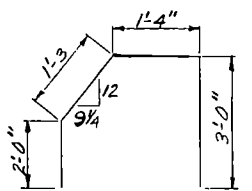
A8 & A9



A10, A11 & A12



A13



A14

BENT BAR DETAILS  
Dimensions Shown Are Out to Out

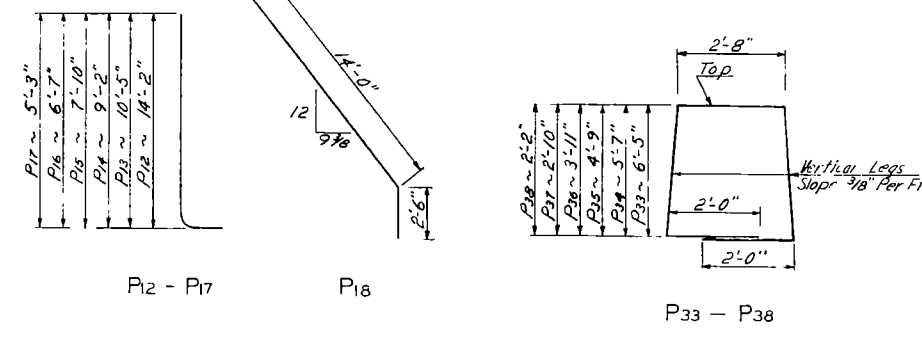
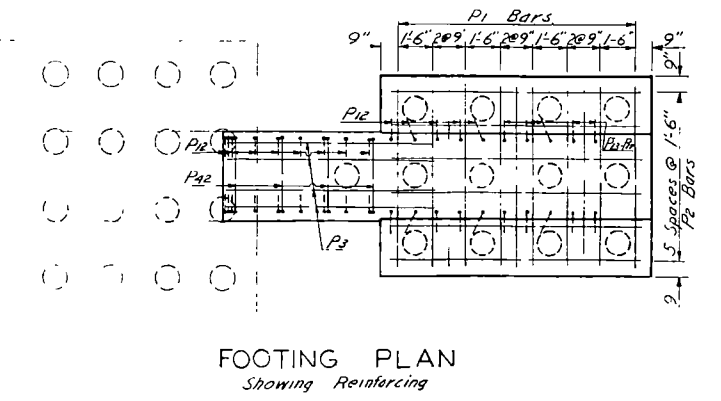
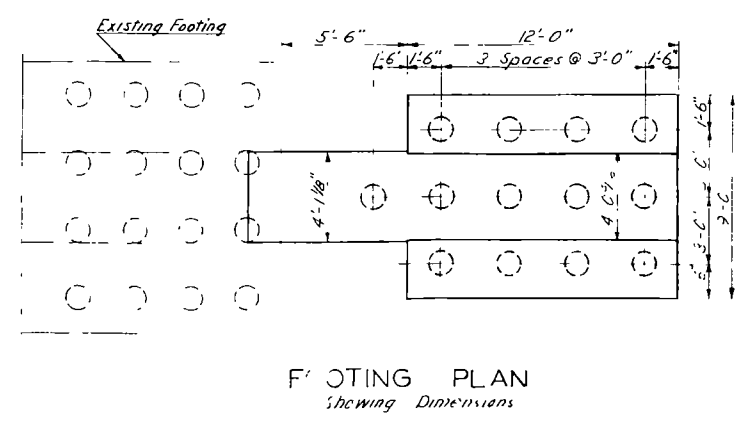
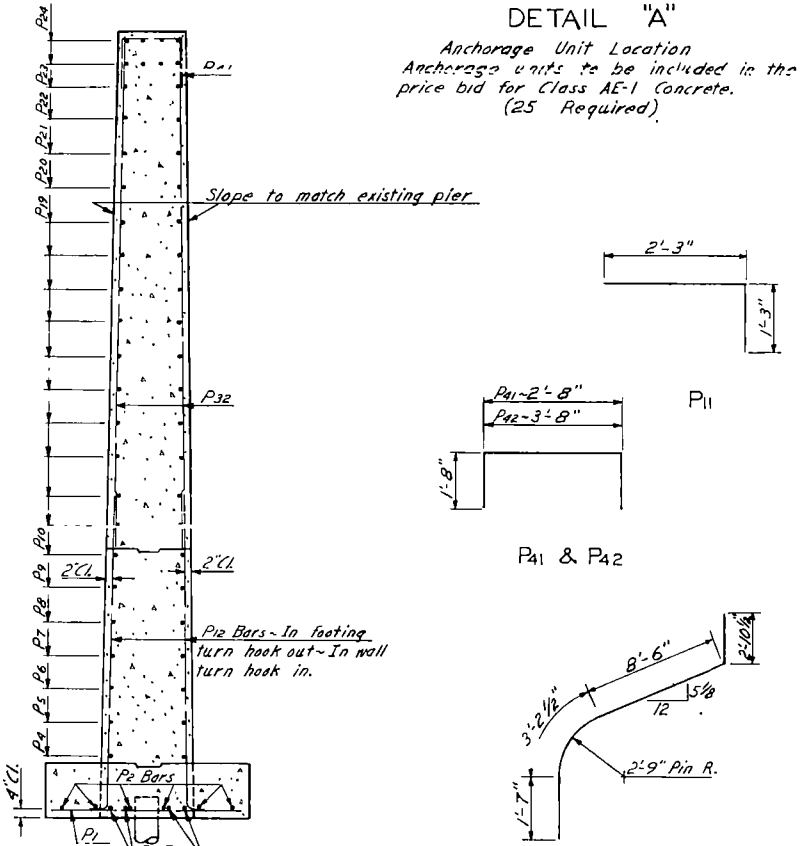
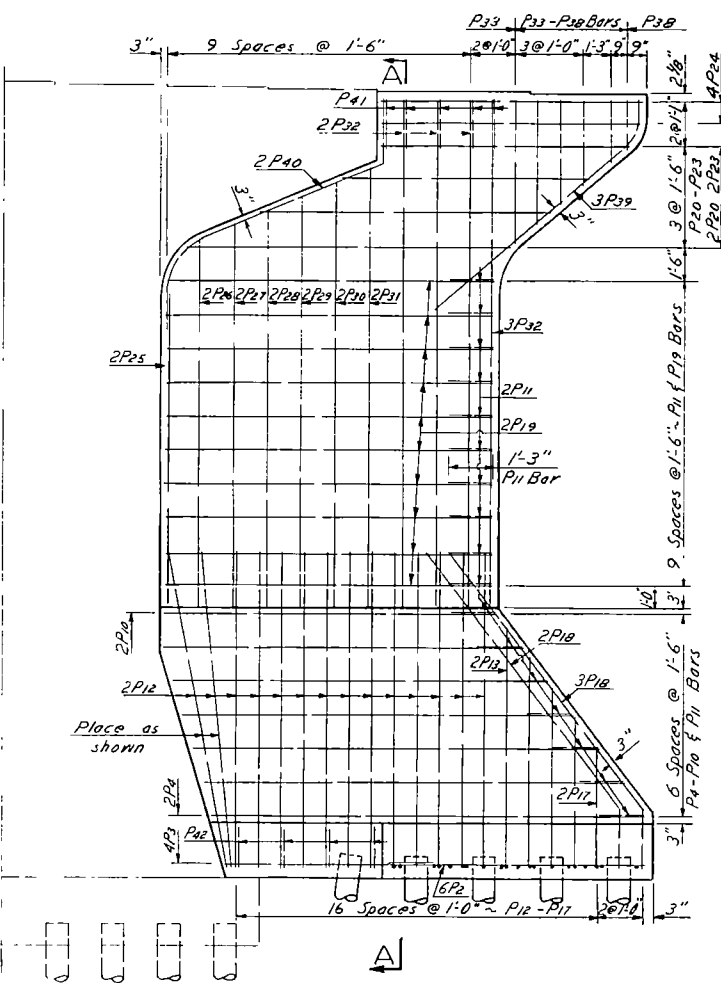
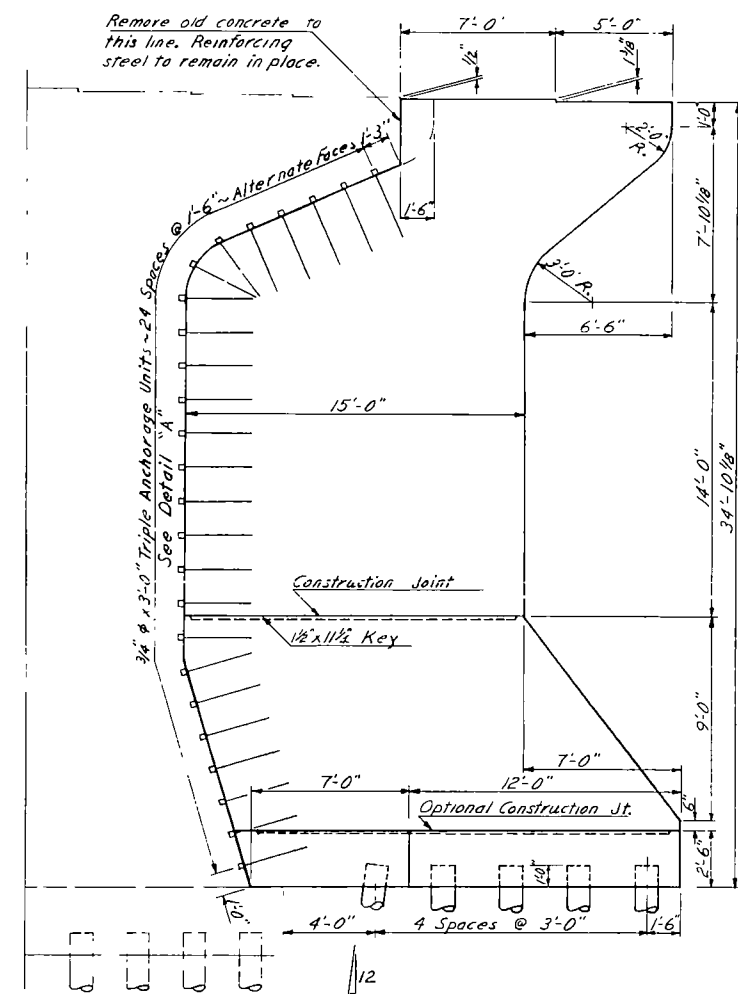
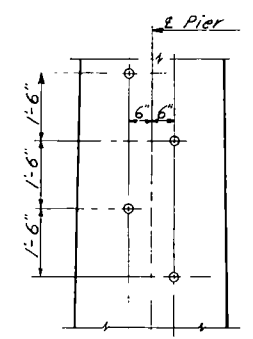
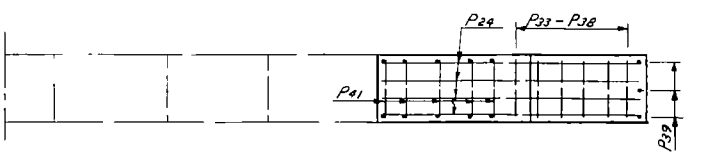
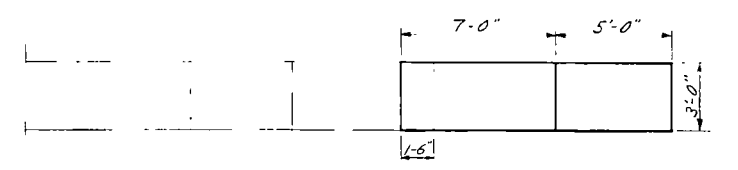
Nomenclature:  
B.F. - Back Face  
F.F. - Front Face

QUANTITIES (ONE ABUT.)

Class AE-1 Concrete	47 C.Y.
Reinforcing Steel	652 Lbs.

S. E. JAMESTOWN  
B.N.R.R. INTERCHANGE  
NORTH BRIDGE WIDENING  
ABUTMENT DETAILS

MADE BY EJB  
CHECKED BY RHP  
MADE BY RHP  
QUANTITIES CHECKED BY RHP



MARK	NUMBER	SIZE	LENGTH	SHAPE	UNIT WT.
P1	11	6	8'-6"	Str.	12.77
P2	6	4	11'-6"	"	7.68
P3	4	6	9'-3"	"	13.89
P4	2	4	19'-6"	"	13.02
P5	2	4	19'-0"	"	12.68
P6	2	4	18'-3"	"	12.18
P7	2	4	17'-6"	"	11.68
P8	2	4	16'-10"	"	11.24
P9	2	4	16'-0"	"	10.88
P10	2	4	14'-10"	"	9.90
P11	14	20	4	3'-6" Bent	2.34
P12	28	6	14'-0"	"	22.28
P13	2	6	11'-1"	"	16.65
P14	2	6	9'-10"	"	14.77
P15	2	6	8'-6"	"	12.77
P16	2	6	7'-3"	"	10.89
P17	2	6	5'-11"	"	8.89
P18	5	6	16'-6"	"	24.78
P19	20	4	14'-8"	Str.	9.79
P20	2	4	14'-6"	"	9.68
P21	2	4	13'-1"	"	8.73
P22	2	4	11'-4"	"	7.57
P23	2	4	11'-1"	"	7.40
P24	8	6	11'-8"	"	17.52
P25	2	5	14'-0"	"	14.60
P26	2	5	16'-7"	"	17.30
P27	2	5	17'-2"	"	17.91
P28	2	5	17'-10"	"	18.60
P29	2	5	18'-6"	"	19.30
P30	2	5	19'-1"	"	19.91
P31	2	5	19'-9"	"	20.60
P32	9	5	22'-9"	"	23.73
P33	1	5	19'-6"	Bent	20.34
P34	1	5	17'-10"	"	18.60
P35	1	5	16'-2"	"	16.86
P36	1	5	14'-6"	"	15.13
P37	1	5	12'-4"	"	12.87
P38	1	5	11'-0"	"	11.47
P39	3	6	13'-5"	"	20.15
P40	2	5	16'-2"	"	16.86
P41	5	5	6'-0"	"	6.26
P42	4	5	7'-0"	"	7.30

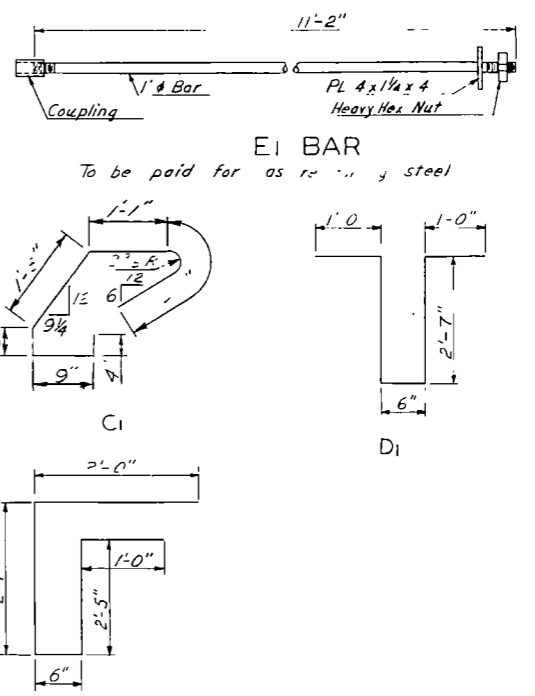
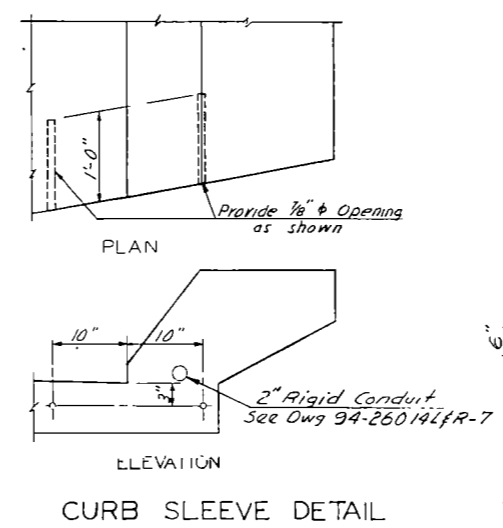
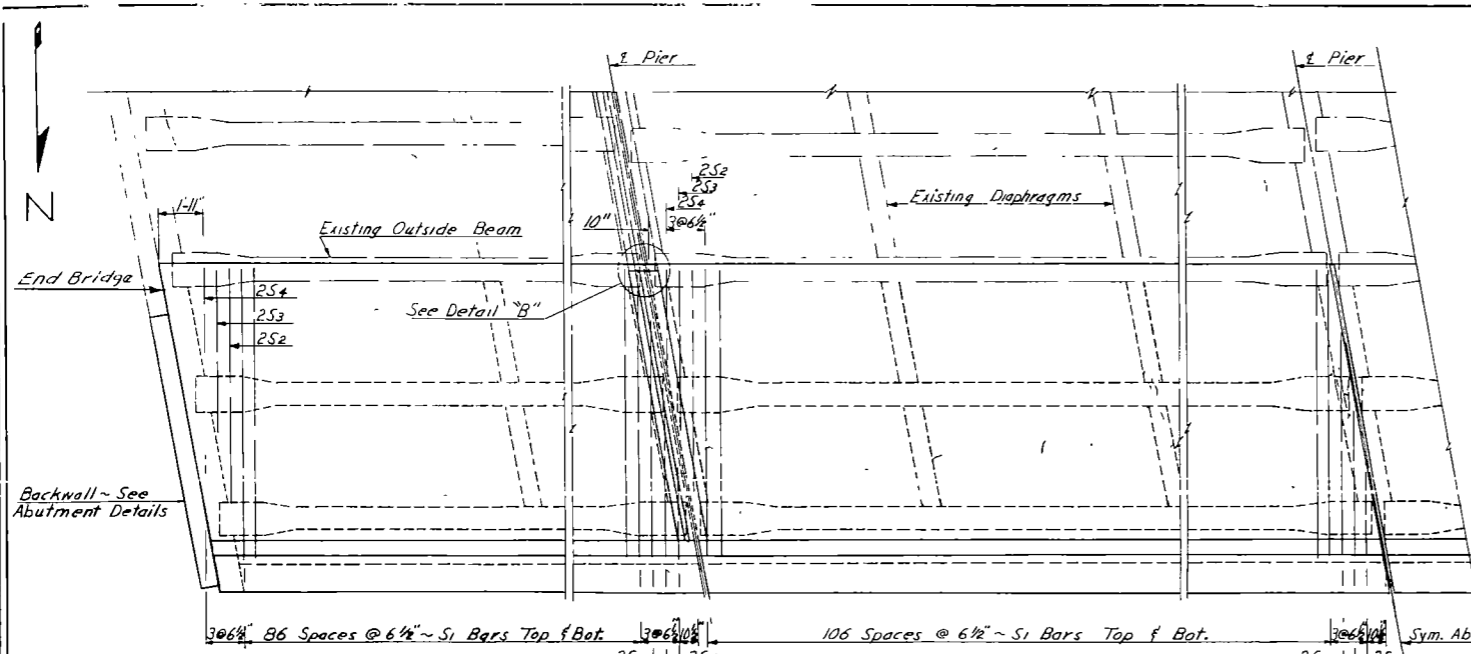
POUR	CONC.	CL	AE-1	REIN. STEEL
Footing	12.39	C.Y.		1,147 Lbs.
Lower Wall	24.26	C.Y.		196 Lbs.
Upper Wall	40.93	C.Y.		1,140 Lbs.

QUANTITIES (ONE PIER)	
Class AE-1 Concrete	77.6 C.Y.
Reinforcing Steel	2,483 Lbs.

S.E. JAMESTOWN  
B.N.R.R. INTERCHANGE  
NORTH BRIDGE WIDENING

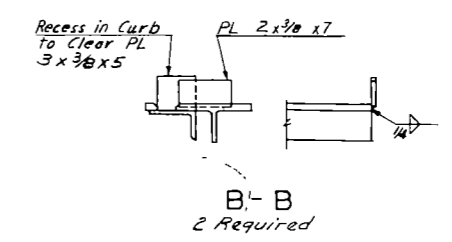
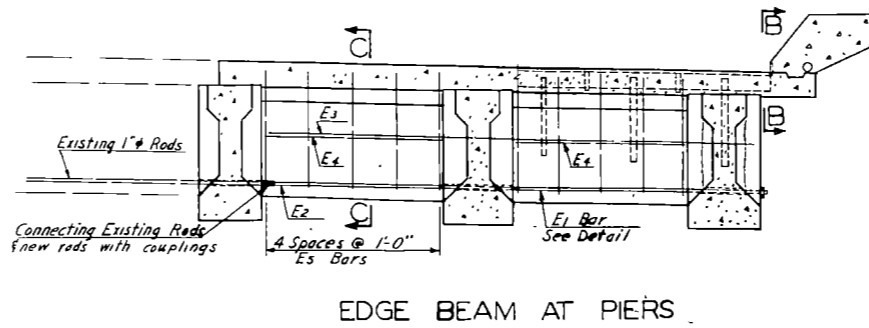
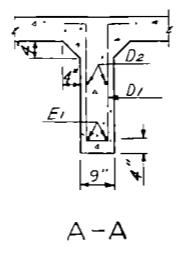
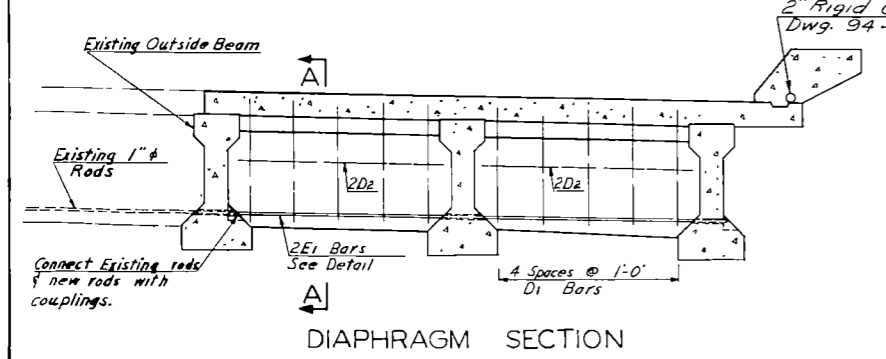
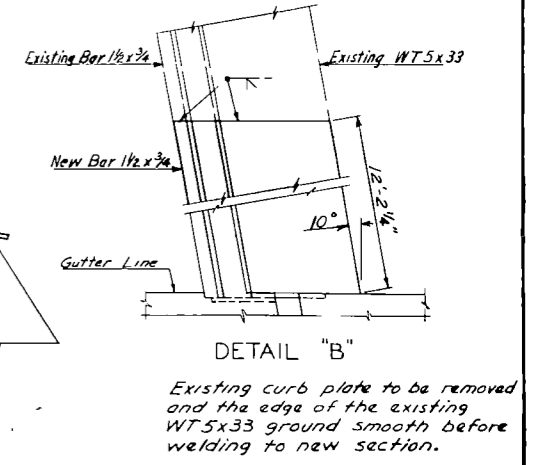
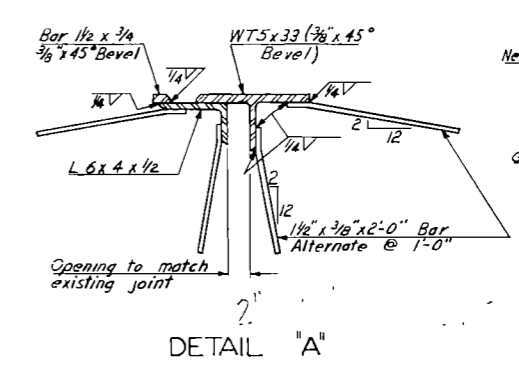
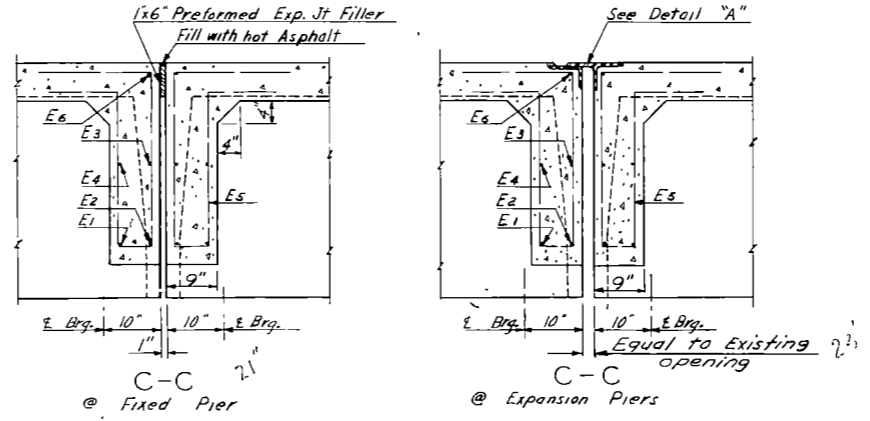
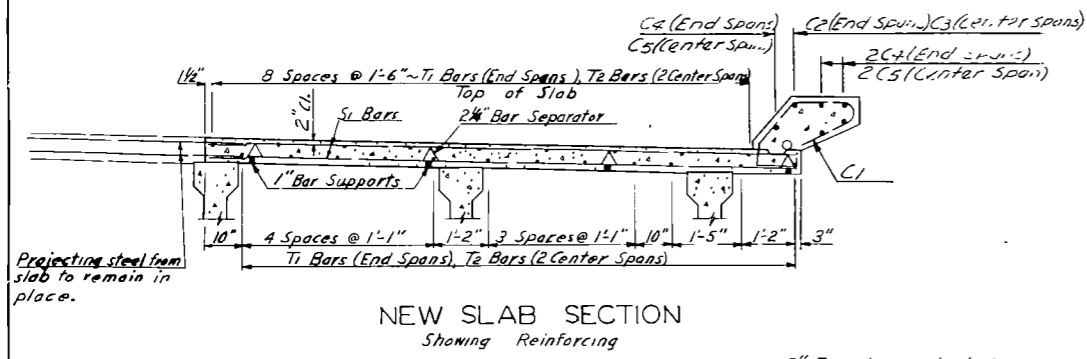
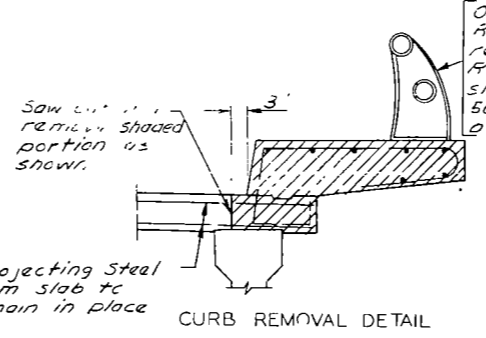
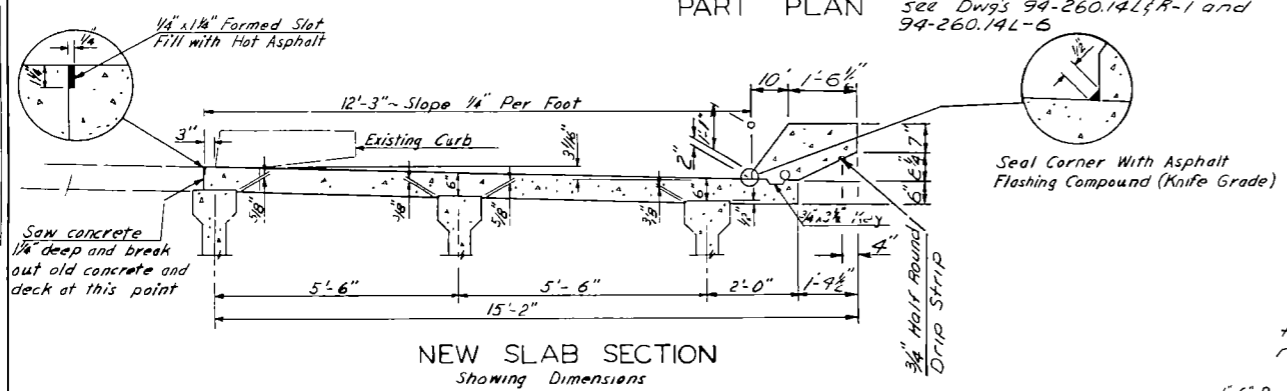
PIER DETAILS





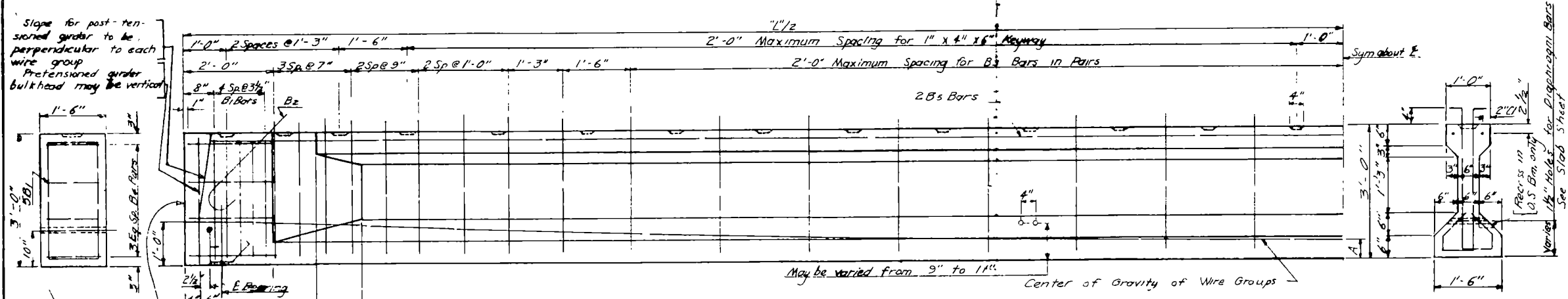
BAR LIST					
MARK	NUMBER	SIZE	LENGTH	SHAPE	UNIT WT
C1	4	5	5'-6"	Bent	
C2	4	6	26'-0"	Str.	39.05
C3	4	6	30'-10"	"	46.31
C4	20	5	25'-11"	"	
C5	20	5	30'-9"	"	
D1	60	4	7'-8"	Bent	5.12
D2	24	4	4'-6"	Str.	3.00
E1	18	1" ø	11'-2"	Str.	29.82
E2	6	8	10'-9"	"	28.71
E3	6	4	10'-9"	"	7.18
E4	12	4	3'-9"	"	2.50
E5	60	4	8'-6"	Bent	5.67
E6	6	5	13'-3"	Str.	13.82
S1	176	5	13'-0"	Str.	13.56
S2	16	5	9'-9"	"	10.17
S3	16	5	6'-9"	"	6.33
S4	16	5	3'-7"	"	3.74
T1	84	4	25'-8"	Str.	17.13
T2	84	4	30'-6"	"	20.36

**NOTE:**  
For rail post spacing, railing, C1 bar spacing and reinforcing see Dwg's 94-260.14L-R-1 and 94-260.14L-6

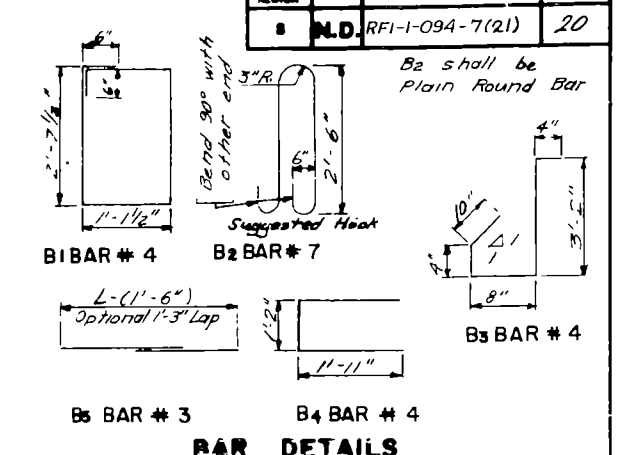


QUANTITIES	
Class AAE-3 Concrete	828.8 CY
Reinforcing Steel	18,452 Lbs.
Structural Steel A-36	4,487 Lbs.

S. E. JAMESTOWN  
B.N.R.R. INTERCHANGE  
NORTH BRIDGE WIDENING  
SLAB DETAILS



HALF GIRDER ELEVATION



SECTION AT E

DESIGN SPECIFICATION: A.A.S.H.O.

DESIGN AND SHOP DRAWING: AT LEAST 14 DAYS PRIOR TO THE FORMING AND POURING OF ANY GIRDERS, THE CONTRACTOR SHALL SUBMIT CHECKED DESIGN FIGURES AND SHOP DRAWINGS FOR THE APPROVAL OF THE BRIDGE ENGINEER OF THE STATE HIGHWAY DEPARTMENT. THE DESIGN FIGURES SHALL SHOW THE TOTAL INITIAL PRESTRESS FORCE REQUIRED AS THE SUM OF THE FINAL PRESTRESS FORCE TAKEN FROM THE CONTRACT DRAWING AND THE LOSSES IN PRESTRESS DUE TO FRICTION, ELASTIC SHORTENING OF CONCRETE, SHRINKAGE OF CONCRETE, CREEP OF CONCRETE AND RELAXATION OF STEEL STRESS AS DETERMINED BY THE CONTRACTOR FOR HIS METHOD OF STRESSING. IF THE CONTRACTOR WISHES, THE LOSS OF STEEL STRESS NOT INCLUDING FRICTION LOSSES MAY BE ASSUMED AS 35,000 PSI FOR PRETENSIONING AND 25,000 PSI FOR POST-TENSIONING.

SHOP DRAWINGS SHALL SHOW WIRE, STRAND OR BAR LAYOUT; END ANCHOR PLATE DETAILS, PULL DOWN LOCATION; TENSIONING FORCES, ELONGATION AND ORDER OF TENSIONING AND ANY PROPOSED CHANGES IN REINFORCING STEEL.

THE FINAL PRESTRESS FORCE (REMAINING AFTER ALL LOSSES HAVE BEEN ACCOUNTED FOR) AND ITS CORRESPONDING DIMENSION "A" SHALL BE SELECTED FOR THOSE ON A CURVE DETERMINED BY THE VALUES SHOWN ON THIS DRAWING.

THE GIRDERS SHALL BE POURED IN ALL-STEEL FORMS.

ALL REINFORCING STEEL SHALL BE GRADE 40.

MINOR CHANGES TO THE SHAPE OF THE GIRDER AND TO THE REINFORCING STEEL MAY BE MADE TO ACCOMMODATE THE FORMS OF VARIOUS CONTRACTORS AND THEIR CONSTRUCTION METHODS WITH THE APPROVAL OF THE BRIDGE ENGINEER.

ALL TENSION IN THE TOP OF THE BEAM SHALL BE TAKEN CARE OF BY DRAPING PRESTRESS STEEL, BY ADDING MILD STEEL IN THE TOP OR BY A COMBINATION OF THE TWO.

THE DEAD LOAD PROVISIONS IN THE DESIGN INCLUDE COMPOSITE CONCRETE SLAB, 25 P.S.F. FUTURE WEARING SURFACE AND CURB WEIGHT UNIFORMLY DISTRIBUTED OVER ALL UNITS.

THE CENTER OF GRAVITY OF THE TENSIONING UNITS AT ALL POINTS ALONG THE GIRDER SHALL LIE ON OR BELOW THE CURVE OF A DRAPED CHALK LINE THAT SAGS FREELY WITH DIMENSION "A" AS SHOWN AND WITH THE END 1'-0" ABOVE THE BOTTOM OF THE GIRDER.

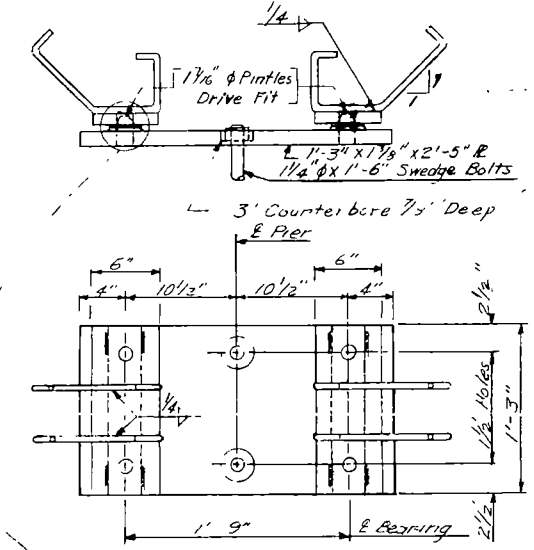
CONCRETE TEST CYLINDER STRENGTH AT TIME OF STRESS TRANSFER SHALL BE AT LEAST 4000 PSI, 5000 PSI IN 28 DAYS.

TYPE 1, 1C, 1I OR 1S-4-MS PORTLAND CEMENT SHALL BE USED IN THE PRESTRESSED GIRDERS.

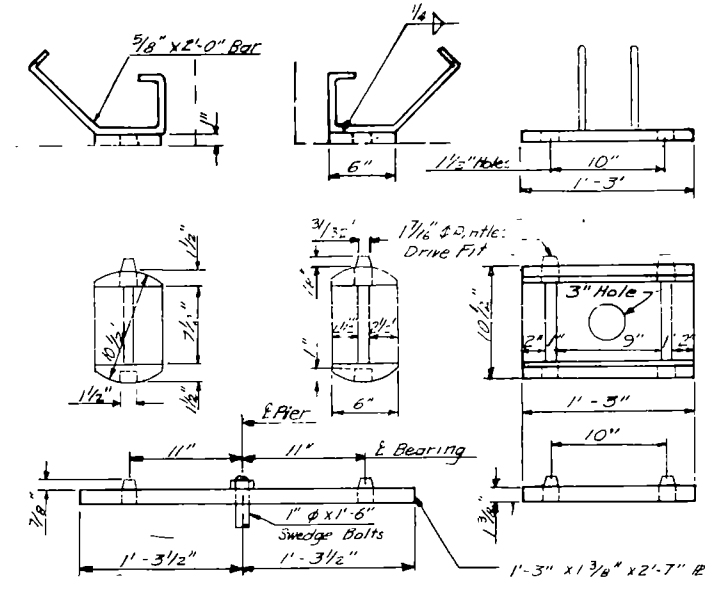
HOLES TO ACCOMMODATE THE DIAPHRAGM AND BACKWALL BARS SHALL BE PROVIDED IN THE GIRDERS AT LOCATIONS AS SHOWN ON THE SLAB SHEET. THE OUTSIDE GIRDER SHALL BE PROVIDED WITH A RECESS ON THE OUTER FACE TO CONTAIN THE REINFORCING BARS AND NUTS FROM THE DIAPHRAGM. AFTER THE DIAPHRAGMS HAVE BEEN COMPLETED AND THE NUTS SECURED IN PLACE, THE CONTRACTOR SHALL FILL THE RECESS WITH MORTAR AND FINISH TO THE SHAPE OF THE SECTION.

THE TYPE AND NUMBER OF BEARING DEVICES AS DETAILED ON THIS SHEET ARE SHOWN ON DWG. 94-260-14L & 94-260-14L-1. THEY SHALL BE PAID FOR AS STRUCTURAL STEEL.

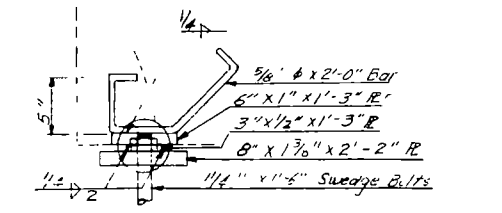
THE ROCKERS, AS DETAILED SHALL BE CONSTRUCTED FROM STRUCTURAL STEEL PLATES WELDED TOGETHER OR SHALL BE CAST STEEL.



DOUBLE FIXED BEARING AT PIER NO. 3



EXPANSION BEARING AT PIERS NO. 2 & 4



ABUTMENT FIXED BEARING

GIRDER DATA

SPAN	LENGTH "L"	FINAL PRESTRESSING FORCE		FORCE WITH DIMENSION "A"		FORCE "A"		FORCE "A"		WEIGHT TONS
		FORCE	"A"	FORCE	"A"	FORCE	"A"	FORCE	"A"	
END	50'-0"	329,800	4 0"	338,000	4 5"	346,600	5 0"	355,700	5 5"	10.4
CENTER	60'-0"	491,900	4 0"	463,200	4 5"	475,000	5 0"	487,500	5 5"	12.3

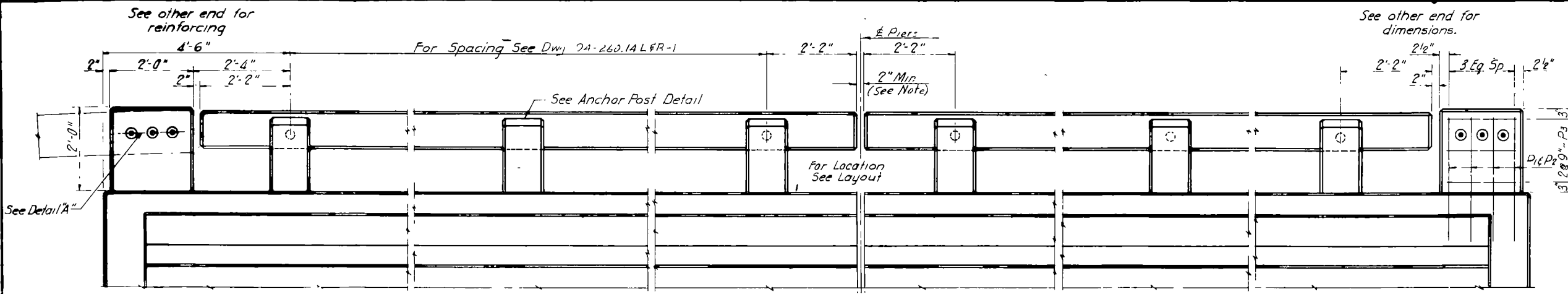
QUANTITIES

Structural Steel Age 2,715 Lbs.

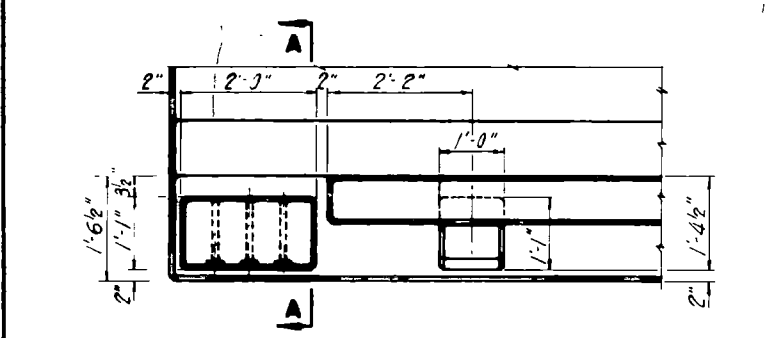
S.E. JAMESTOWN  
B.N.R.R. INTERCHANGE  
NORTH BRIDGE WIDENING  
**PRESTRESSED GIRDER**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	N.D.	RF-1-094-7104	21	

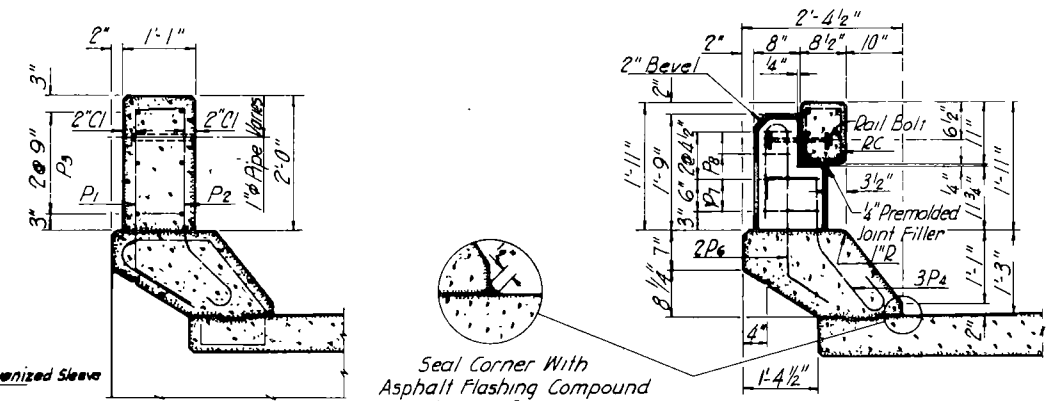
**NOTES:**  
 All concrete shall be Class AAE-3.  
 "Rubbed Surface Finish" will be required for the roadway faces of curbs, the outside vertical faces of curb and slab, and all faces of rails, intermediate and end posts  
 Designed in accordance with 1965 A.A.S.H.O. Specifications.  
 The opening in the curb shall be equal to the existing opening in the slab. The opening in the rail shall be 2" min. or equal to the opening in the existing slab which ever is greater.  
 \* Quantities shown are for Rail Posts, End Posts & Railing only. For curb see DWG. # 94-260.14L-4



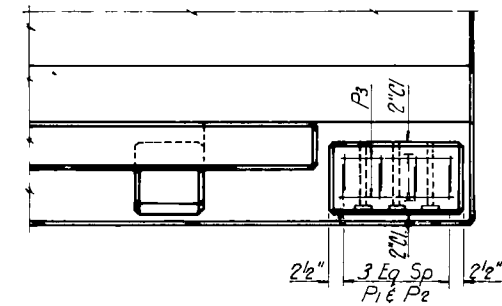
**PART ELEVATION**  
See Note



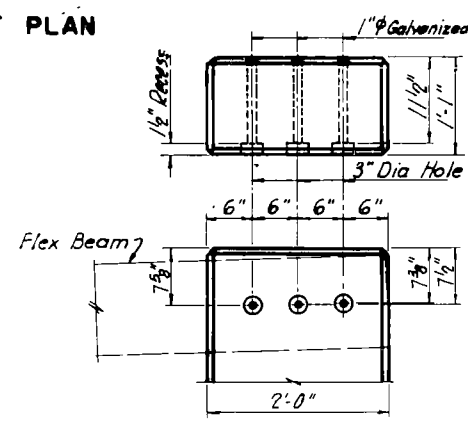
**PART PLAN**



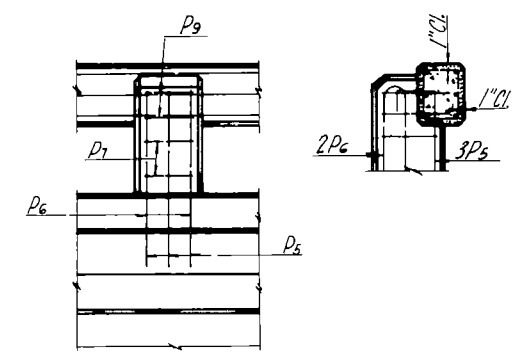
**TYPICAL SECTION**



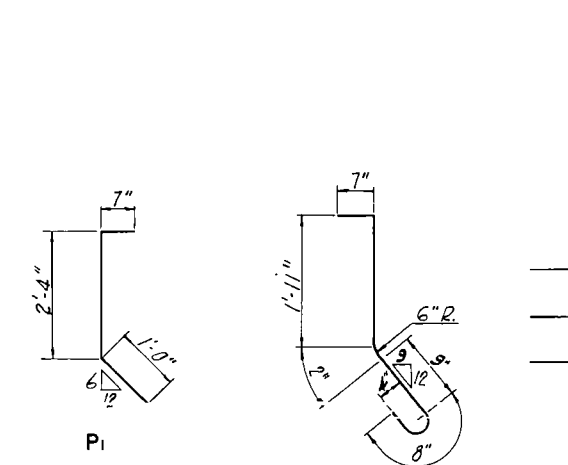
**PART PLAN**



**DETAIL 'A'**



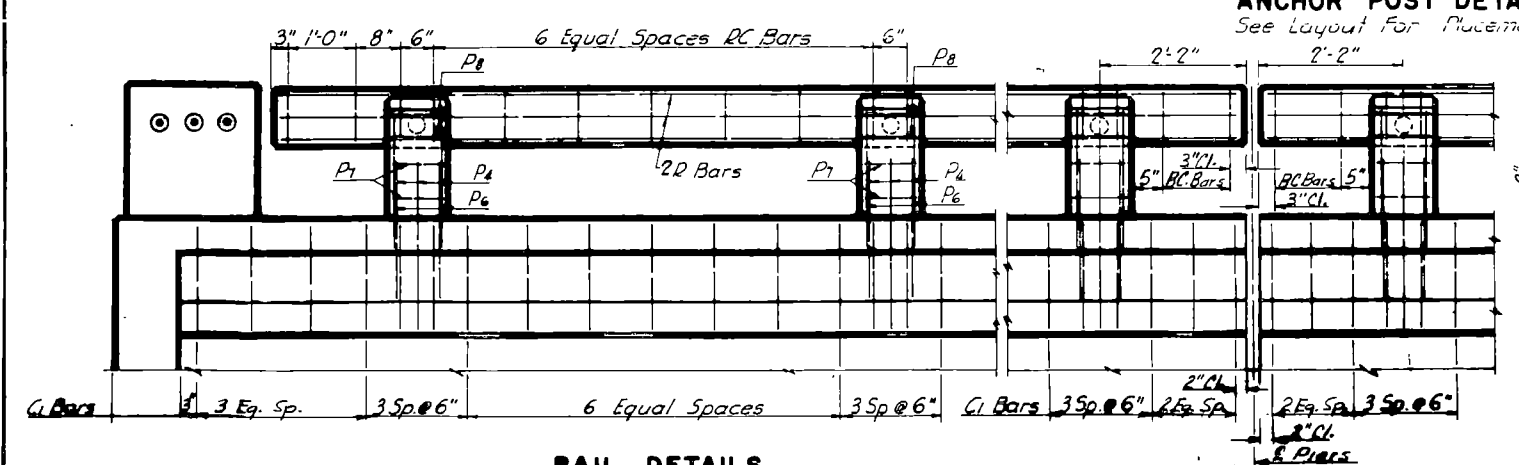
**ANCHOR POST DETAIL**  
See Layout For Placement



**BENT BAR DETAILS**  
Dimensions shown are out to out.

R2	R3
R1	R1
R3	R2
SPAN NO 1 & 4	
R5	R6
R4	R4
R6	R5
SPAN NO 2 & 3	

**"R" BAR SPLICING DETAIL**



**RAIL DETAILS**

**BAR LIST**  
(BARS FOR TWO END POSTS)

MARK	NO.	SIZE	LENGTH	SHAPE
P1	8	5	3'-11"	Bent
P2	8	5	4'-1"	"
P3	12	4	1'-8"	Str.

**BAR LIST**  
(BARS FOR RAILING AND POSTS)

MARK	NO.	SIZE	LENGTH	SHAPE
P4	78	6	3'-8"	Bent
P5	12	6	4'-5"	"
P6	60	5	4'-11"	"
P7	60	3	3'-10"	"
P8	52	3	2'-10"	"
P9	8	3	4'-4"	"

RC	NO.	SIZE	LENGTH	SHAPE
RC	206	3	2'-11"	Bent
R1	8	6	25'-0"	Str.
R2	8	6	27'-0"	"
R3	8	6	23'-0"	"
R4	8	6	31'-0"	"
R5	8	6	33'-0"	"
R6	8	6	29'-0"	"

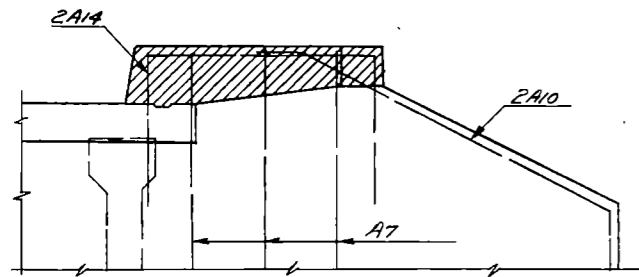
**QUANTITIES \***

Class AAE-3 Concrete	7.3 C.Y.
Reinforcing Steel	3297 Lbs.

**POST & RAILING DETAILS**

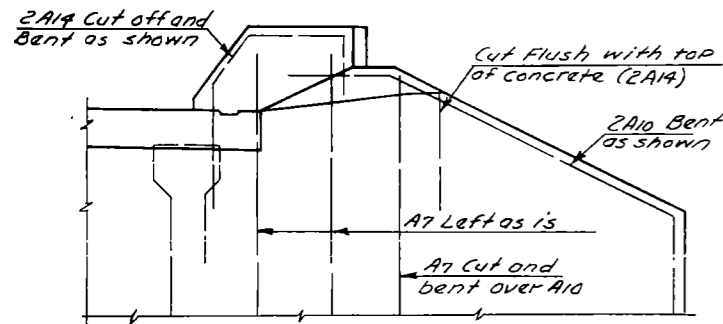
NORTH, RAILING ON NORTH BRIDGE

FYMA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	W-1-094-7(21)	22

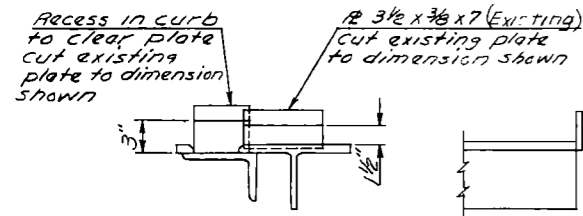


**CURB REMOVAL AT ABUTMENT**

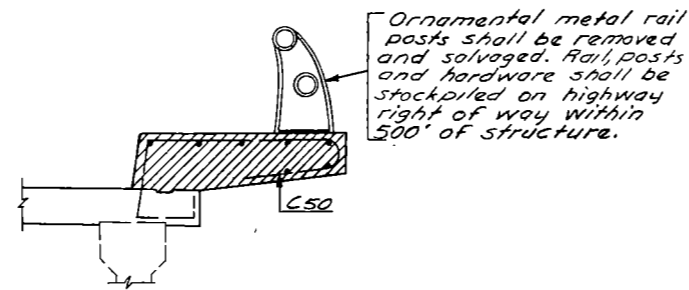
Remove shaded portion as shown. The protruding steel shall be left and rebent as shown below.



**NEW CURB AT ABUTMENT**

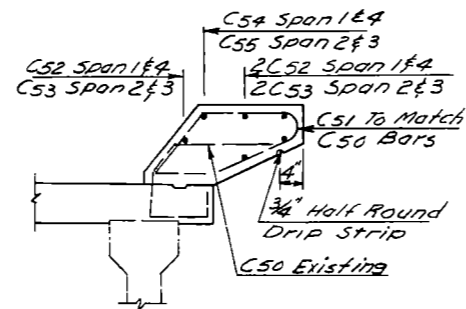


**CURB PLATE REVISION**  
Required at (6) locations

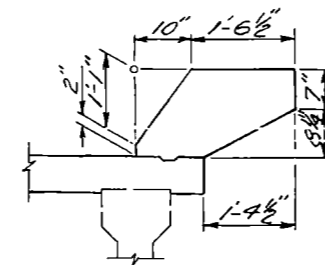


**CURB REMOVAL AT MIDSPANS**

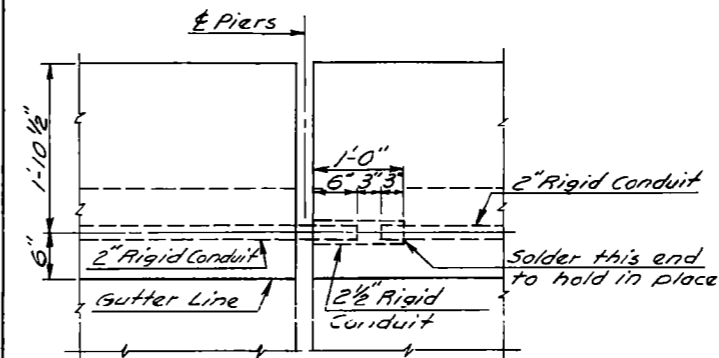
Remove shaded area as shown. The protruding steel from the slab (C50) shall be cut and bent as shown in detail below. The longitudinal steel in the existing curb shall not be used in the new curb.



**NEW CURB AT MIDSPANS**  
Showing Reinforcing



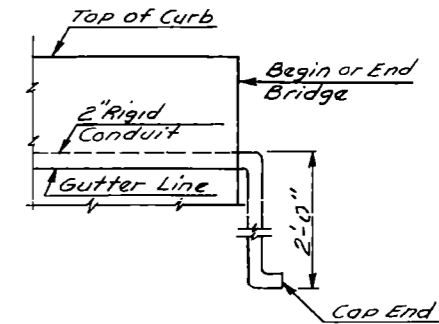
**NEW CURB AT MIDSPANS**  
Showing Dimensions



**CONDUIT EXPANSION DETAILS**

The conduit expansion joint shown shall be required at pier 2, 3 & 4 on North side of North bridge only.

**NOTE:**  
Bid price for the 2" dia conduit (Metallic) shall include all materials and labor for installation of conduit in the North bridge curb. Pay length equal 225'-0"



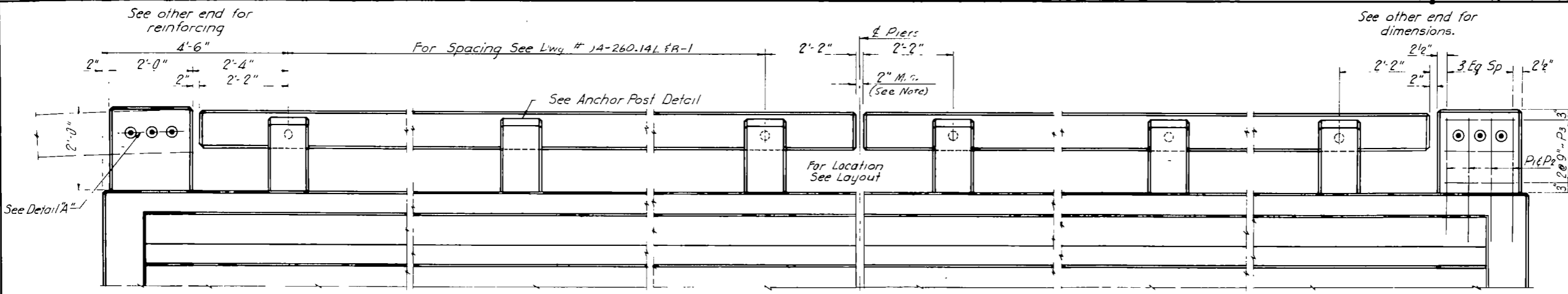
**CONDUIT DETAILS**  
At begin & end bridge on North side of North bridge only.

**NOTE:**  
For rail post spacing see Dwg. No. 94-260.14L & R-1.

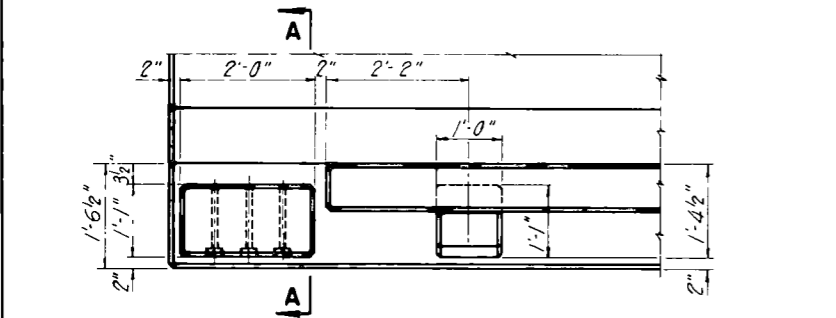
QUANTITIES
See Dwg. No. 94-260.14L & R-1

S. E. JAMESTOWN  
B.N.R.R. INTERCHANGE  
CURB & RAIL REPLACEMENT  
SOUTH SIDE NORTH BRIDGE  
BOTH SIDES SOUTH BRIDGE  
CONDUIT NO. CURB NO. BRIDGE

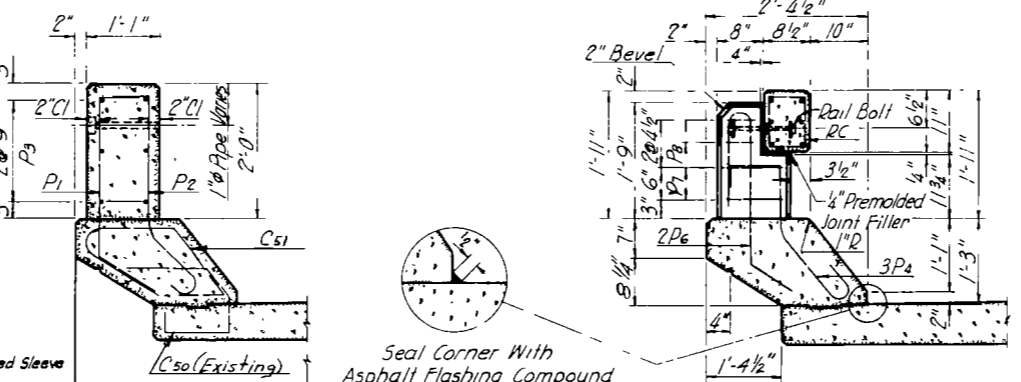
**NOTES:**  
 All concrete shall be Class AAE-3.  
 "Rubbed Surface Finish" will be required for the roadway faces of curbs, the outside vertical faces of curb and slab, and all faces of rails, intermediate and end posts  
 Designed in accordance with 1965 A.A.S.H.O. Specifications.  
 The opening in the curb shall be equal to the existing opening in the slab.  
 The opening in the rail shall be 2" Min. or equal to the opening in the existing slab which ever is greater.  
 \* Quantities shown on this sheet includes all the concrete and reinforcing steel needed for replacing curb, Rail, Railposts and end posts on South side of the North Bridge and both sides of the South Bridge



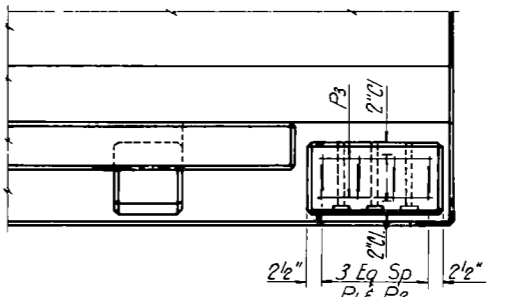
**PART ELEVATION**



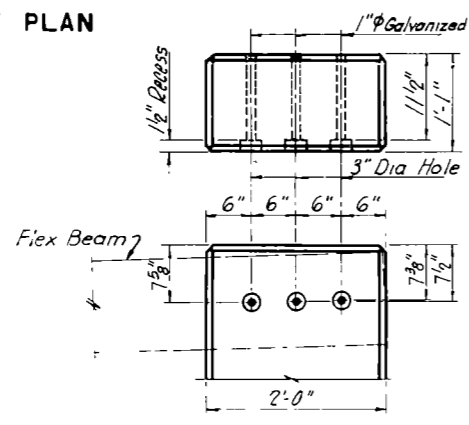
**PART PLAN**



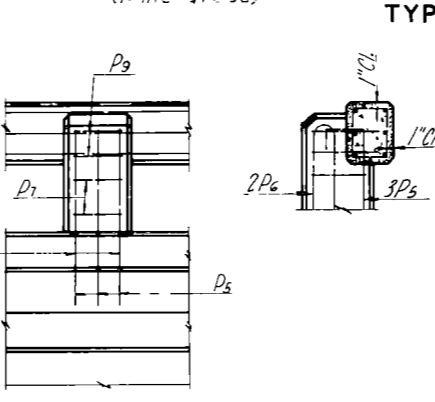
**TYPICAL SECTION**



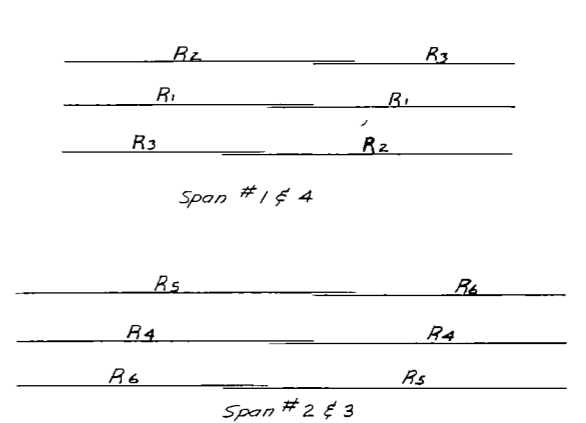
**PART PLAN**



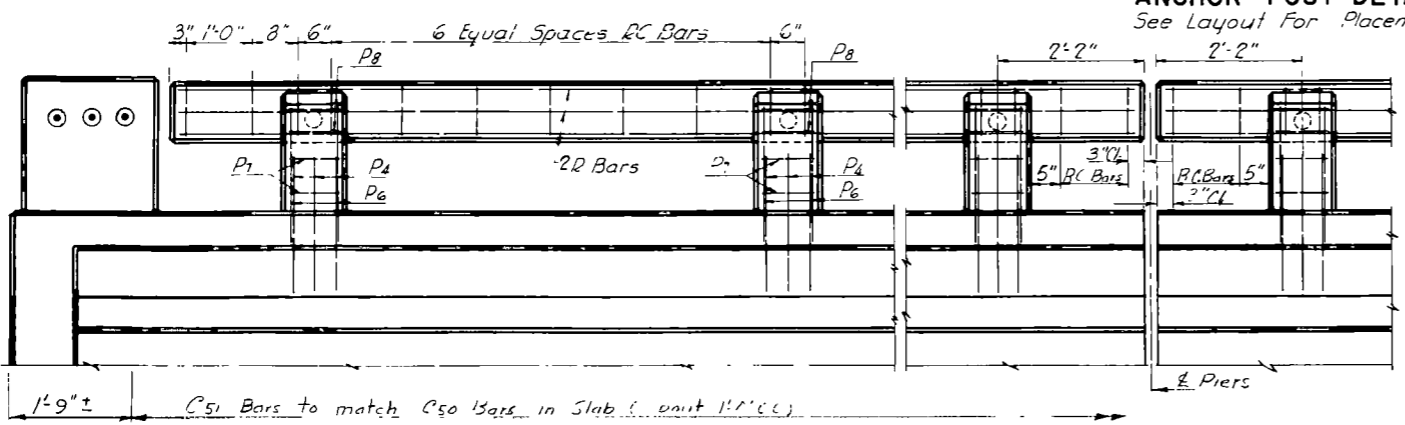
**DETAIL "A"**



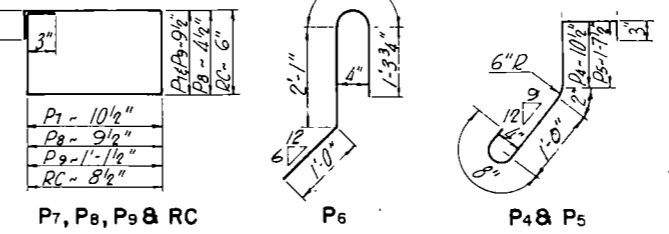
**ANCHOR POST DETAIL**



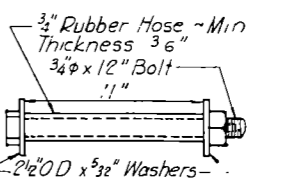
**"R" BAR SPlicing DETAIL**



**RAIL DETAILS**



**BENT BAR DETAILS**



**RAIL BOLT (Galvanized)**

**BAR LIST (BARS FOR CURBS)**

MARK	NO.	SIZE	LENGTH	SHAPE
C51	804	5	4'-8"	Bent
C52	60	5	25'-11"	Str.
C53	60	5	30'-9"	"
C54	12	6	26'-0"	"
C55	12	6	30'-10"	"

**BAR LIST (BARS FOR SIX END POSTS)**

MARK	NO.	SIZE	LENGTH	SHAPE
P1	24	5	3'-11"	Bent
P2	24	5	4'-1"	"
P3	36	4	1'-8"	Str.

**BAR LIST (BARS FOR RAILING AND POSTS)**

MARK	NO.	SIZE	LENGTH	SHAPE
P4	234	6	3'-8"	Bent
P5	36	6	4'-5"	"
P6	180	5	4'-11"	"
P7	180	3	3'-10"	"
P8	156	3	2'-10"	"
P9	24	3	4'-4"	"
RC	618	3	2'-11"	Bent
R1	24	6	25'-0"	Str.
R2	24	6	23'-0"	"
R3	24	6	23'-0"	"
R4	24	6	23'-0"	"
R5	24	6	23'-0"	"
R6	24	6	23'-0"	"

**QUANTITIES \***

Class AAE-3 Concrete	73.1 C.Y.
Reinforcing Steel	18,373 Lbs.

**CURB, POST & RAILING DETAILS**  
 SOUTH CURB & RAIL NORTH BRIDGE  
 BOTH CURBS & RAILS SOUTH BRIDGE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	N D	U-2-052 (01)	27	

**NOTES:**

**GENERAL:**

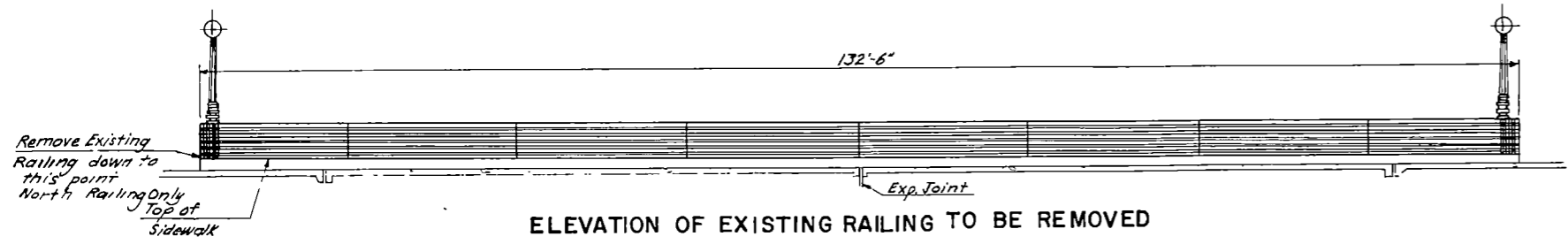
PAINT & PAINTING SHALL CONFORM TO THE STANDARD SECTIONS 718 AND 870.

ALL EXPOSED STEEL SURFACES SHALL BE GIVEN ONE SHOP PRIME COAT SPOT PRIME COAT AFTER THE ERECTION OF THE GUARD RAIL AND TWO FINISH COATS OF ENAMEL. THE FIRST FINISH COAT SHALL CONFORM TO BLUE COLOR NO. 35550. THE SECOND FINISH COAT SHALL CONFORM TO SAME COLOR AS THE FIRST COAT. BOTH FINISH COATS SHALL CONFORM TO THE FEDERAL STANDARD NO. 595 FOR COLOR.

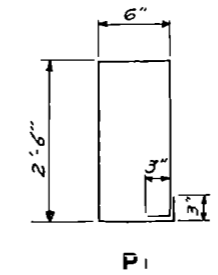
COLOR CHIPS ARE ON FILE IN THE BRIDGE DIVISION OF THE NORTH DAKOTA STATE HIGHWAY DEPARTMENT IN BISMARCK.

THE NORTH RAILING SHALL BE REMOVED AS SHOWN. THE LAMP POSTS SHALL BE SQUARED OFF ON THE RAILING SIDE OF THE POSTS AND CHIPPED INTO POSTS ONE INCH. THE REINFORCING CUT OFF AND OVERLAPPED WITH CONCRETE TO A DEPTH OF ONE INCH. THE RAILING SHALL BE REMOVED TO ONE INCH BELOW THE SIDEWALK GRADE. THE HORIZONTAL LIMITS SHALL BE ONE FOOT, SIX INCHES IN FROM THE BACK EDGE OF THE CURB AND FROM LAMP POST TO LAMP POST AS SHOWN ON THE DETAILS. THE ROADWAY SIDE OF THE HORIZONTAL LIMITS AS WELL AS THE POST EDGES SHALL BE SAWCUT ONE INCH DEEP AND SHALL BE VERTICAL. ALL SURFACES OF THE PATCH SHALL BE CLEANED OF ALL LATENTS AND FOREIGN MATERIAL AND OVERLAPPED WITH CONCRETE TO SIDEWALK GRADE. THE POST OVERLAY SHALL HAVE THE RUBBED SURFACE FINISH. THE ANCHOR BOLTS FOR RAIL POSTS SHALL BE OF THE SPLIT RING TYPE AS KWIK-BOLT BY MCCULLOUGH INDUSTRIES OR BY RAW PRODUCTS OR EQUAL.

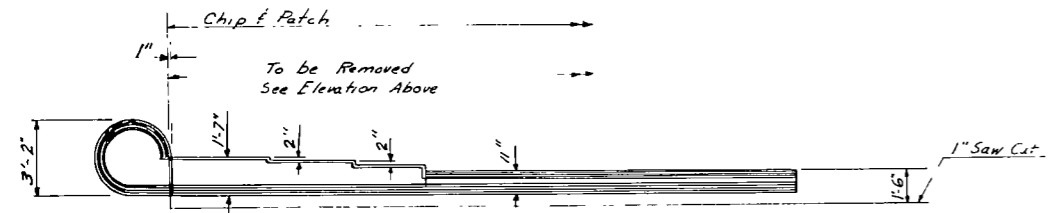
ALL STEEL SHALL BE ASTM A36. RAIL BOLTS SHALL BE ASTM A307. CONCRETE SHALL BE DURABLE EXPRESS PERMITS. SPEED LIMITS SHALL BE INDICATED IN THE PATCHING CONCRETE AND SHALL BE PAID FOR AS CLASSIFIED OVERLAY.



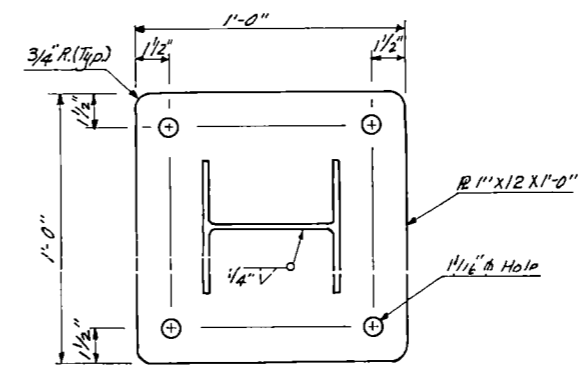
**ELEVATION OF EXISTING RAILING TO BE REMOVED**



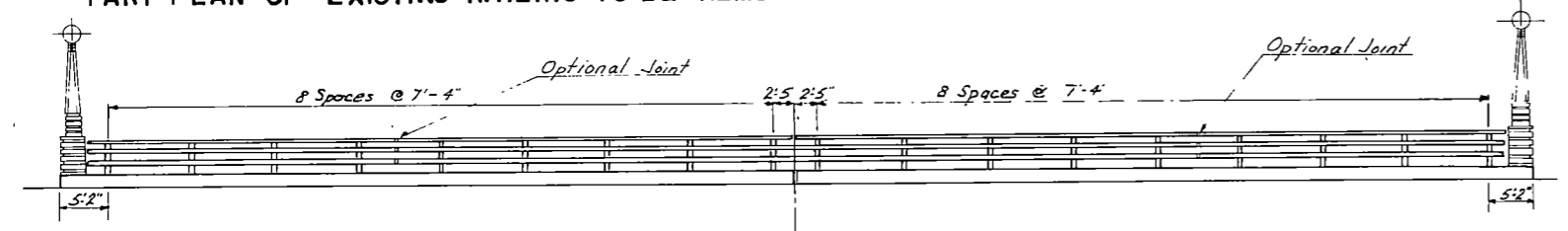
**P1**



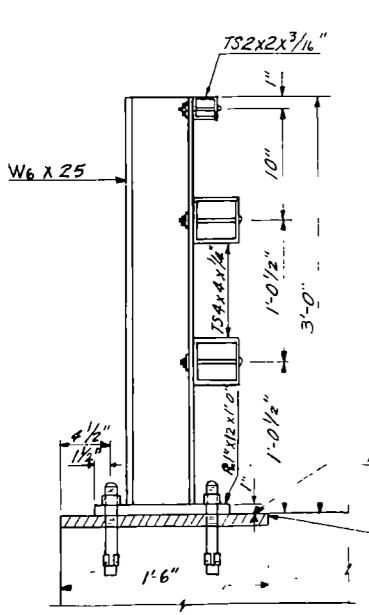
**PART PLAN OF EXISTING RAILING TO BE REMOVED**



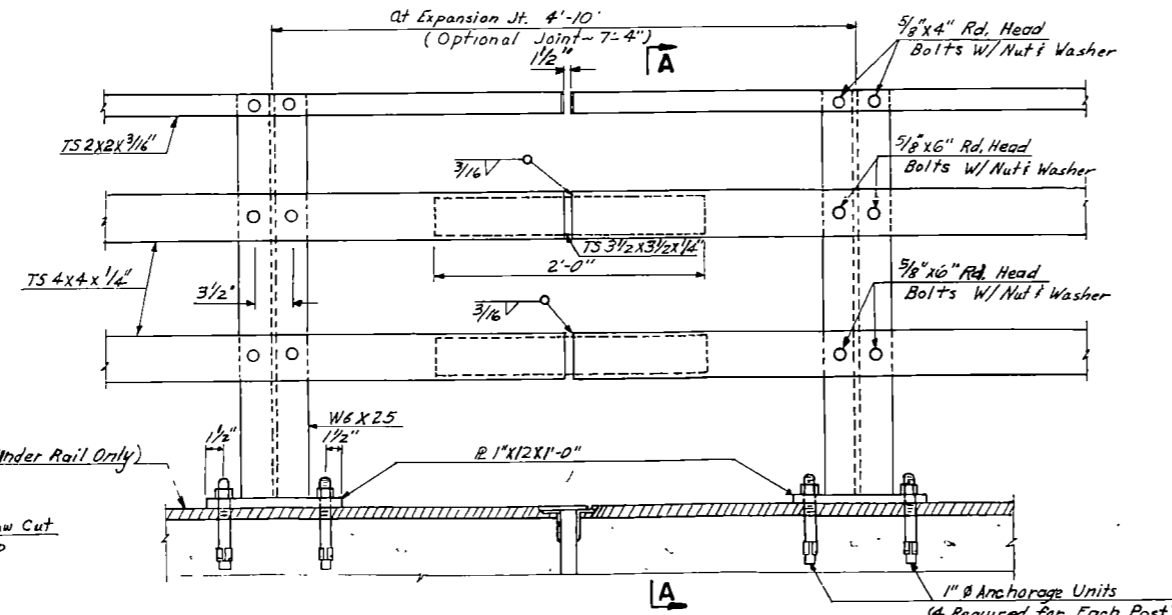
**RAILING POST BASE PLATE**



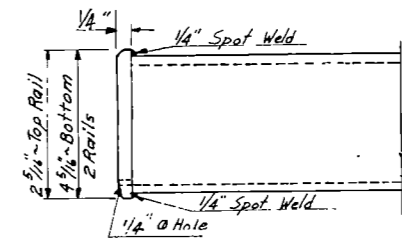
**ELEVATION OF NEW RAIL**



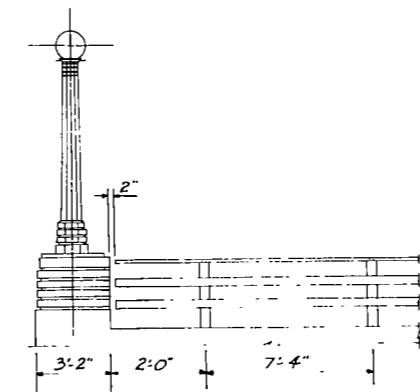
**A-A**



**SPLICE JOINT**



**END CAP**



**PART ELEVATION OF NEW RAIL**

SPEC NO.	CODE NO.	QUANTITIES
202	0113	Removal of Concrete 14.6 Cu. Yds.
900	9502	Class III Overlay 22.3 Sq. Yds.
624	0128	Traffic Rail - Steel 125'-10" Lin. Ft.
746	0100	Flagging 50 M. H.

date 2-9-76  
 STANLEY HAAS  
 BRIDGE ENGINEER  
 BISMARCK, N.D.

**NORTH RAILING DETAILS**  
 JAMES RIVER  
 U-2-052 (1) 265

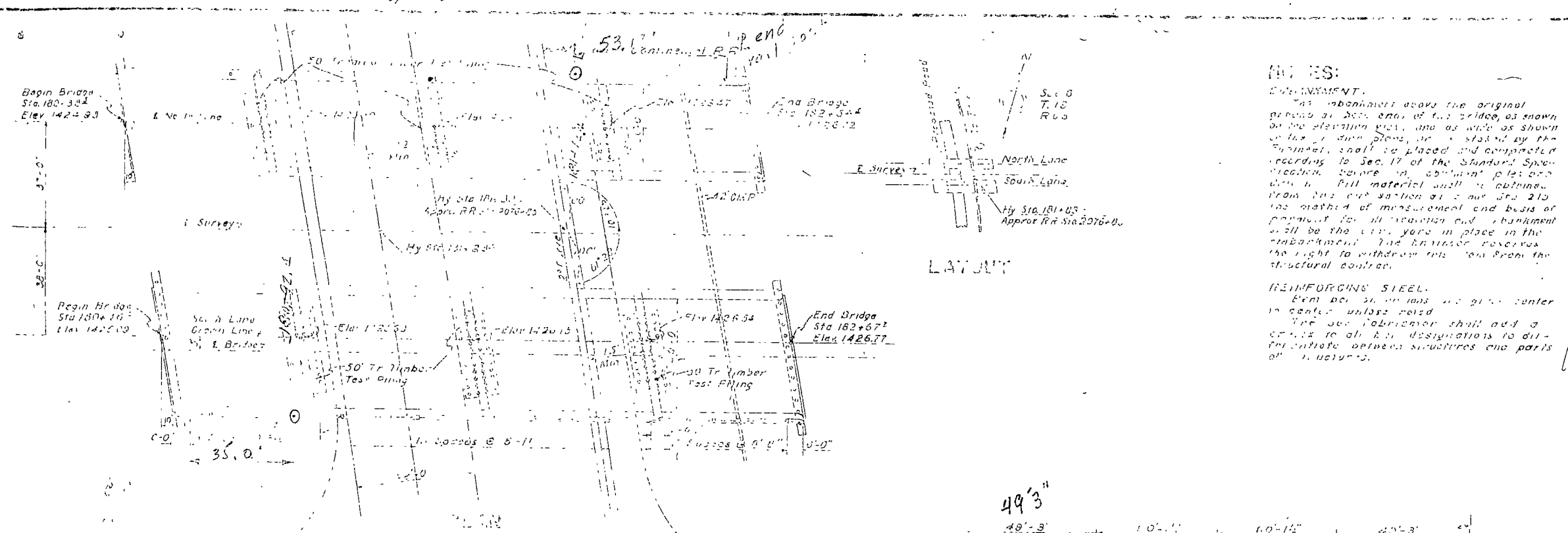
200-100

94-70

3,440.6

Bridge No. 94-100

DATE	1/10/37
BY	W.B. BENSCH
CHECKED BY	L.M.
APPROVED	L.M.
TITLE	BRIDGE
PROJECT	STUTSMAN COUNTY
SCALE	AS SHOWN
REVISIONS	



**NOTES:**

**EMBANKMENT.**  
The embankment above the original ground at both ends of the bridge, as shown on the elevation views, and as wide as shown on the plan views, shall be placed and compacted according to Sec. 17 of the Standard Specifications, before an abutment pile is driven. Fill material shall be obtained from the cut section at Sta. 215 as method of measurement and basis of payment for all excavation and embankment shall be the cut, yard in place in the embankment. The Engineer reserves the right to withdraw this item from the structural contract.

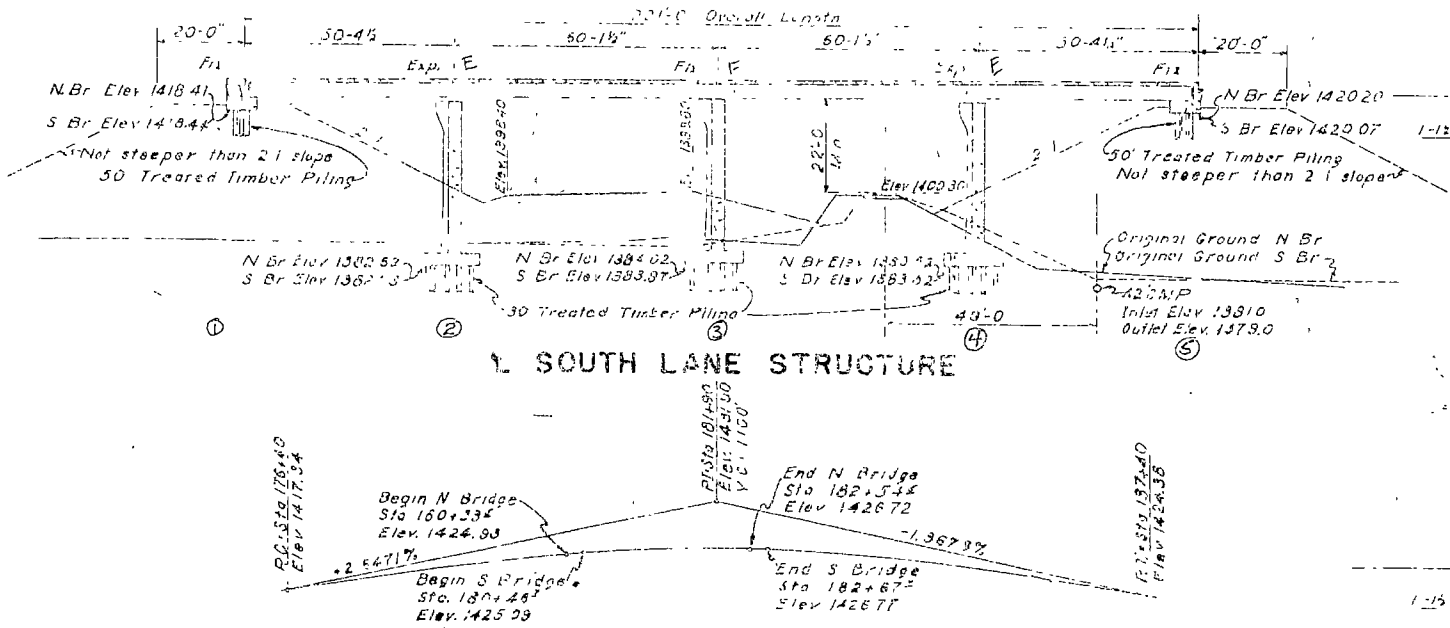
**REINFORCING STEEL.**  
Each pile shall have the given center in center unless noted.  
The section designer shall add a cross to all bar designations to differentiate between structures and parts of structures.

**PILING.**  
A cutoff of 10' has been assumed in estimating the lengths (below cutoff) of all timber piles as shown to the ordered length.  
All abutment piling must penetrate at least fifteen feet into the original ground. Pilot holes of sufficient depth to relieve the anticipated difficulty of driving through the underlain material will be required if necessary.

**CONCRETE.**  
All exposed edges shall be beveled with  $\frac{3}{4}$ " triangular mauling except as shown on the plans.  
The Rubbed Surface Finish shall be given to the railing and posts and to the outside and roadway vertical faces of curbs. All other surfaces shall be given the Ordinary Surface Finish.  
Except for the prestressed beams all concrete shall be Class A.  
All concrete shall be compacted by vibration.

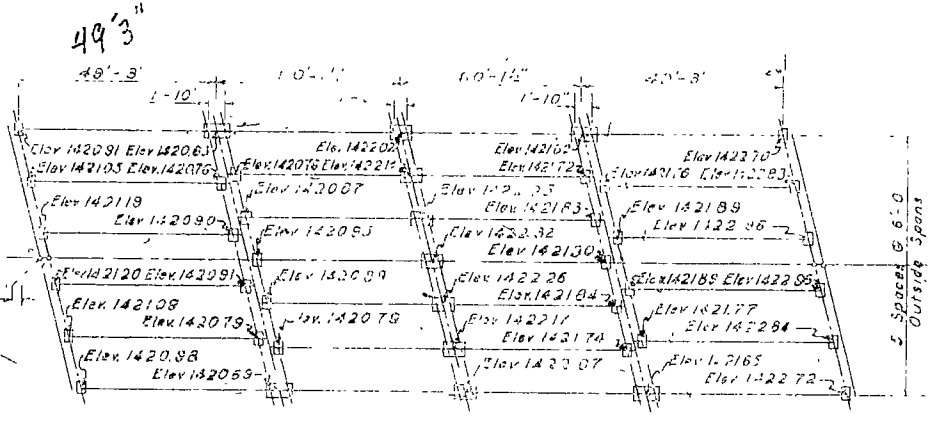
**42' C.M.P.**  
The Engineer reserves the right to withdraw this item from the structural contract.

NO.	DESCRIPTION	QUANTITY	UNIT	ESTIMATE
18	EXCAVATION	600	CY	
19	EMBANKMENT	60,000	CY	
20	CONCRETE	12,965	CU YD	
21	REINFORCING STEEL	181,636	LB	
22	TIMBER	33,800	CU YD	
23	PRESTRESSED CONCRETE			
24	STEEL			
25	TOTAL			

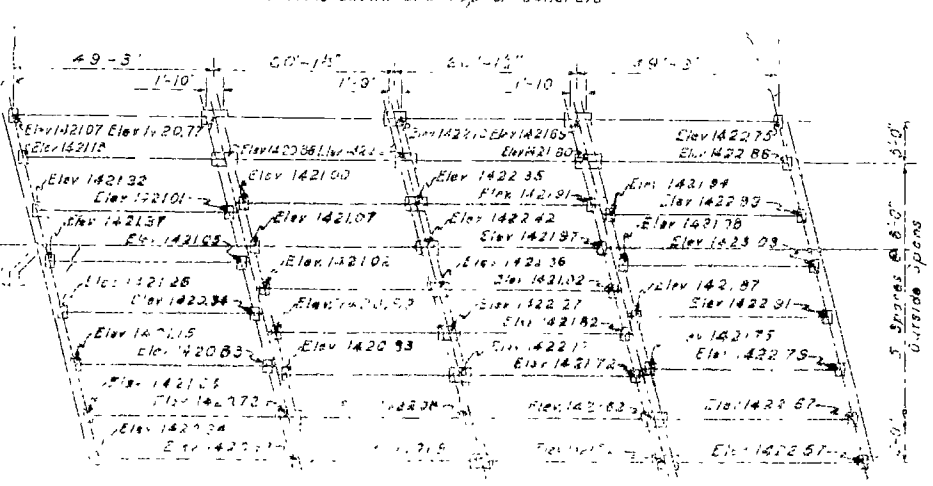


1. SOUTH LANE STRUCTURE

VERTICAL CURVE DATUM



BEARING PLATE LAYOUT (N BR.)  
Elevations shown are top of concrete



BEARING PLATE LAYOUT (S BR.)  
Elevations shown are top of concrete

NO.	DESCRIPTION	LOCATION	ELEV.	REMARKS
27	Tr. Mon. & Hub. Ord. by T.P.	Sta. 173+12	1326.55	
28	Tr. Mon. & Hub. Ord. by I.F.P.	Sta. 183+32	1392.74	
29	Tr. Mon. & Hub. Ord. by T.P.	Sta. 184+22	1336.17	

**STRUCTURAL DRAWINGS**

GENERAL OF WORK: This Sheet X-005

PROJECT: NORTH DAKOTA STATE HIGHWAY DEPARTMENT  
OVERHEAD BRIDGE  
MIDLAND CONTINENTAL R.R.

PROJECT: 1-ING-01-7(1) STA. 181+50.5

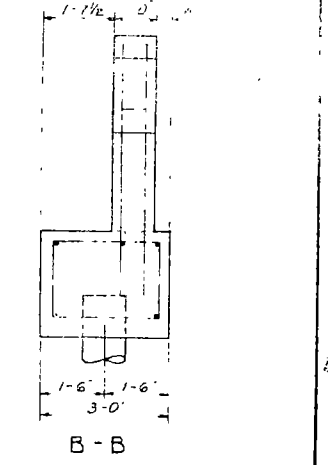
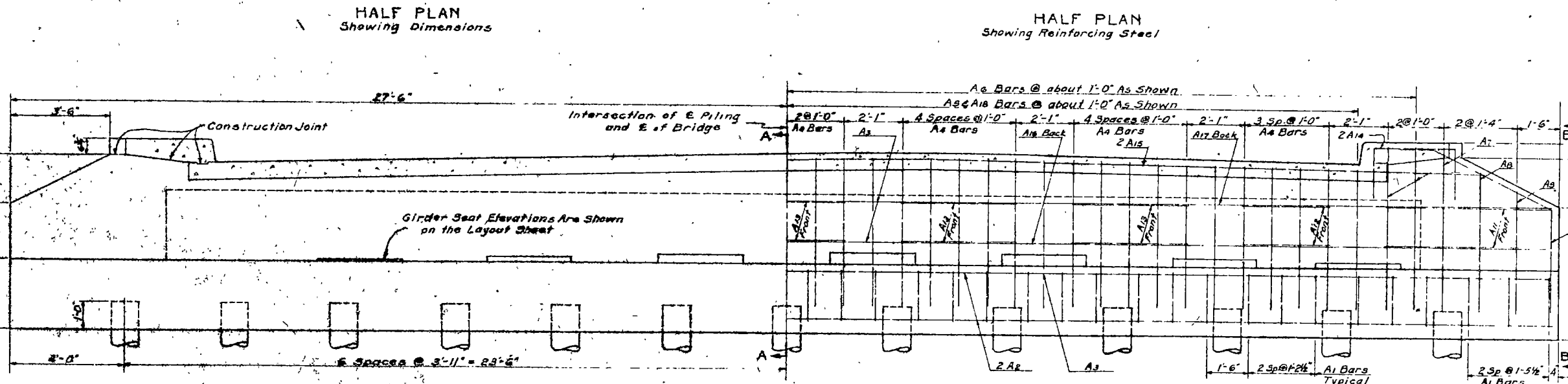
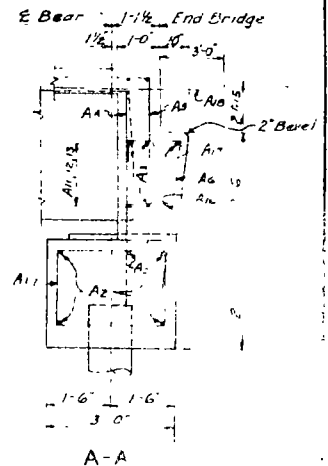
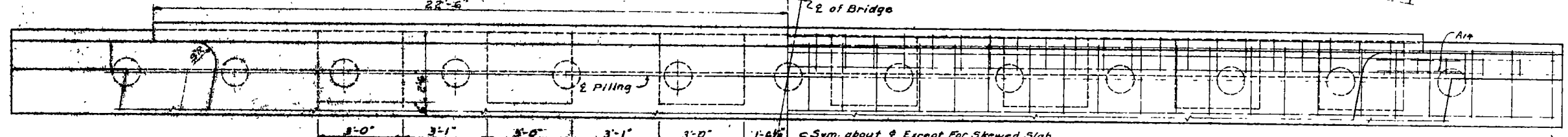
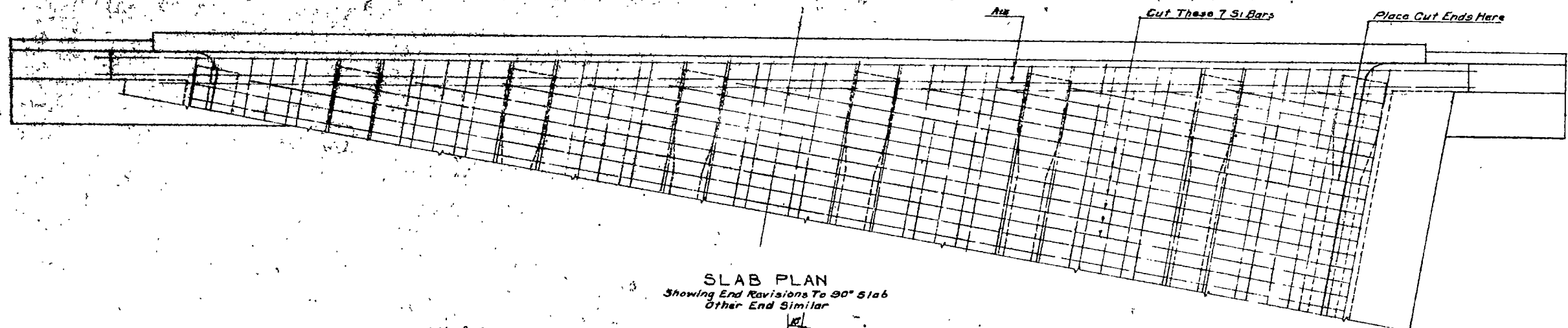
STUTSMAN COUNTY

APPROVED: Joseph P. Kirby, Bridge Engineer

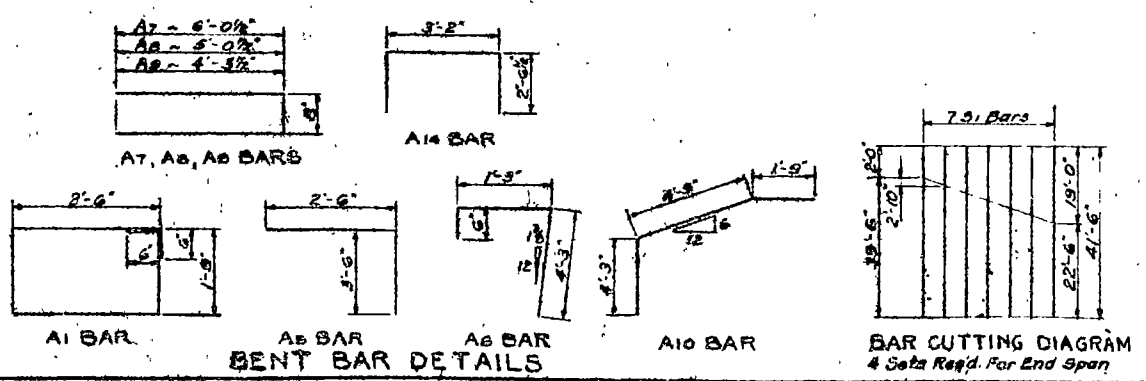
DATE: 21 Jan 37

DATE	
MADE BY	CHRS BY
REVISIONS	
TOPOGRAPHY	BY K. J. H.
DETAILS	BY E. G. P.
TRACING	BY E. G. P.
QUANTITIES	BY V. G. J.
	CHECKED BY M. V. G.

FILE NO.	5
DATE	N.D.



BAR LIST - ONE ABUTMENT				
MARK	NO.	SIZE	LENGTH	SHAPE
A1	42	4	9'-8"	Bent
A2	8	4	28'-0"	Str.
A3	6	4	28'-3"	Str.
A4	33	5	5'-5"	Str.
A5	41	5	6'-0"	Bent
A6	42	5	6'-0"	Bent
A7	8	4	12'-9"	Bent
A8	2	4	10'-9"	Bent
A9	2	4	9'-3"	Str.
A10	4	6	10'-0"	Bent
A11	4	4	6'-0"	Str.
A12	4	4	3'-0"	Str.
A13	10	4	4'-0"	Str.
A14	4	4	5'-3"	Bent
A15	4	6	28'-0"	Str.
A16	2	6	23'-3"	Str.
A17	2	8	23'-9"	Str.
A18	41	6	6'-0"	Str.



Concrete above the girder seats and top of the footing shall be poured with the slab.  
 \*The quantities shown on the slab sheet are for a square bridge. Additional amounts due to the skew are shown on this sheet.  
 Reinforcing steel shown on the slab sheet remains the same. However a number of bars must be cut as shown and installed as in the slab plan on this sheet.

QUANTITIES * ONE ABUTMENT	
Concrete Class A 1 1/2	15.4 CY
Reinforcing Steel	25.70 Lb
Structural Steel	50 Lb

Piling & Excavation (See Layout)

**ABUTMENT**  
 PRESTRESSED GIRDER  
 40' ROADWAY  
 10° SKEW  
 Bridge

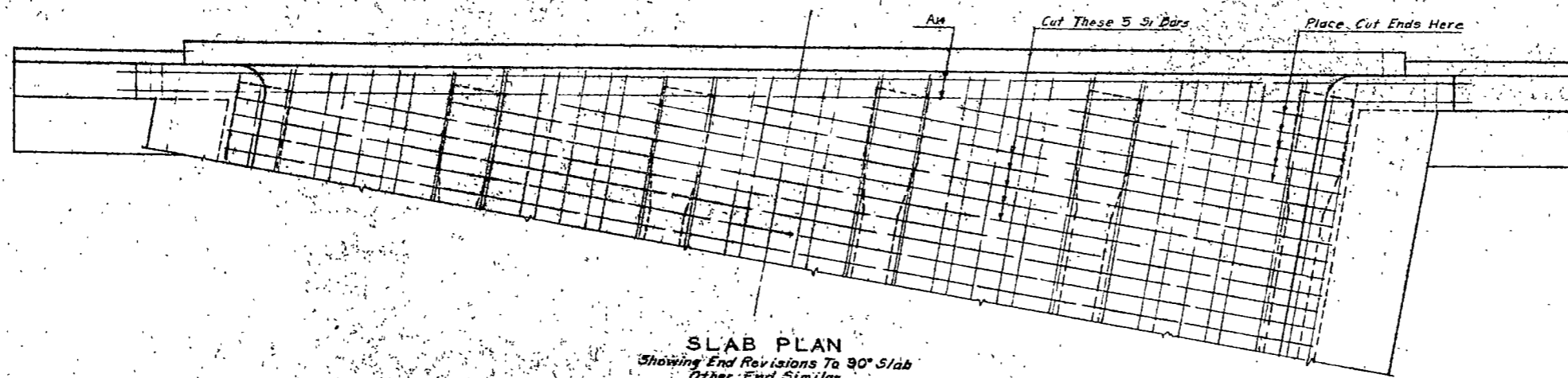
*Diaphragms are to be constructed perpendicular to the E of roadway.*  
 JHE 12/29/75

H-6201

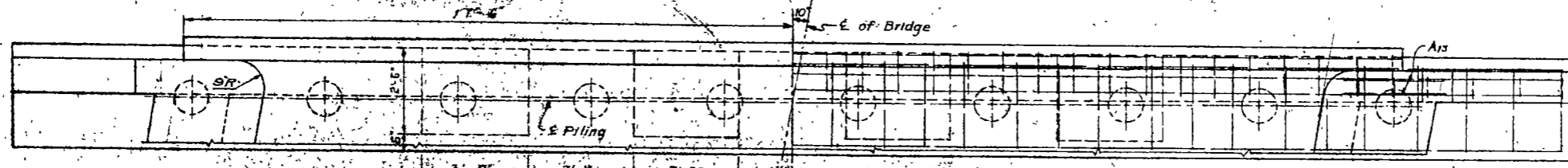
H-6201



FED. AID DIV. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.				

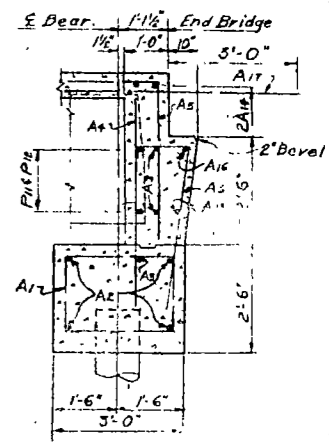


**SLAB PLAN**  
Showing End Revisions To 90° Slab  
Other End Similar

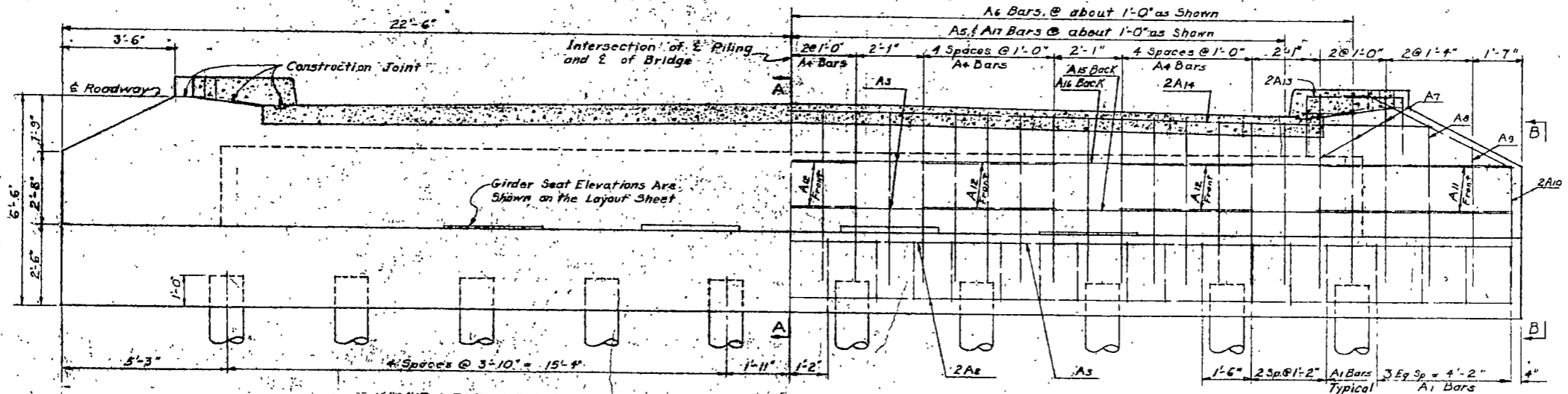


**HALF PLAN**  
Showing Dimensions

**HALF PLAN**  
Showing Reinforcing Steel

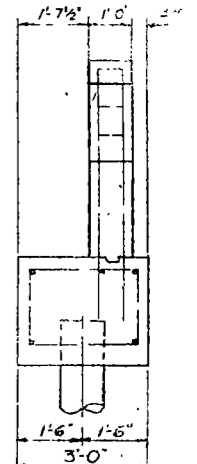


A-A



**HALF ELEVATION**  
Showing Dimensions

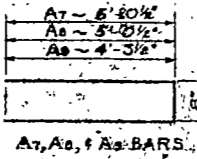
**HALF ELEVATION**  
Showing Reinforcing Steel



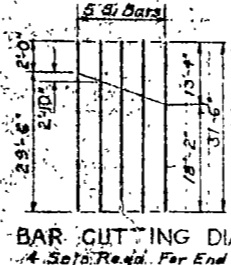
B-B

**BAR LIST - ONE ABUTMENT**

MARK	NO.	SIZE	LENGTH	SHAPE
A1	35	4	9'-6"	Bent
A2	8	8	24'-0"	Str.
A3	6	4	23'-3"	Str.
A4	29	5	6'-8"	Str.
A5	31	5	6'-0"	Bent
A6	33	5	6'-0"	Bent
A7	8	4	12'-5"	Bent
A8	2	4	10'-8"	Bent
A9	2	4	8'-8"	Bent
A10	4	4	10'-8"	Bent
A11	4	4	6'-0"	Str.
A12	10	4	4'-0"	Str.
A13	4	4	8'-8"	Bent
A14	4	6	20'-8"	Str.
A15	2	4	28'-8"	Str.
A16	2	6	28'-8"	Str.
A17	31	6	6'-0"	Str.



**BENT BAR DETAILS**



**BAR CUTTING DIAGRAM**  
4 Sets Req'd. For End Span

Concrete above the top of the footing and girder seats shall be poured with the slab.  
\* The quantities shown on the slab sheet are for a square bridge. Additional amounts due to the skew are shown on this sheet.

Reinforcing steel shown on the slab sheet remains the same. However, a number of bars must be cut as shown and installed as in the slab plan on this sheet.

Diaphragms are to be constructed perpendicular to the E of roadway.

**QUANTITIES - ONE ABUTMENT**

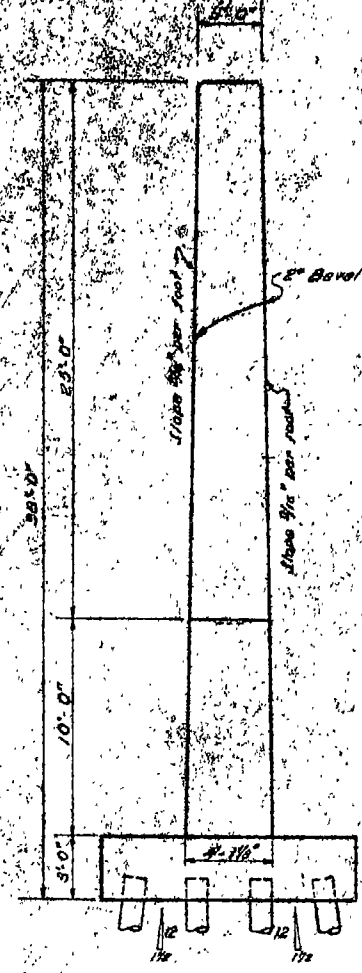
Structural Steel	50 Lbs.
Concrete Class A-1 1/2	12.5 CY
Reinforcing Steel	2069 Lbs.
Piling (See Layout)	
Excavation (See Layout)	

**ABUTMENT**  
PRESTRESSED GIRDER  
30' ROADWAY  
10° SKEW  
N. Bridge

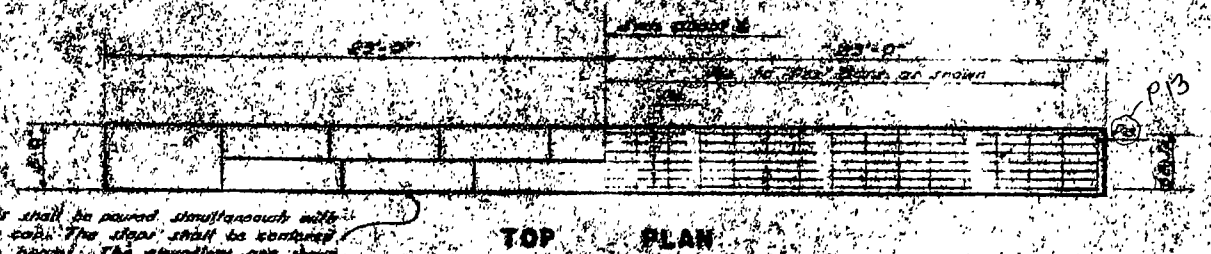
DATE	REVISION	BY	CHKD BY

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
S	N.D.		

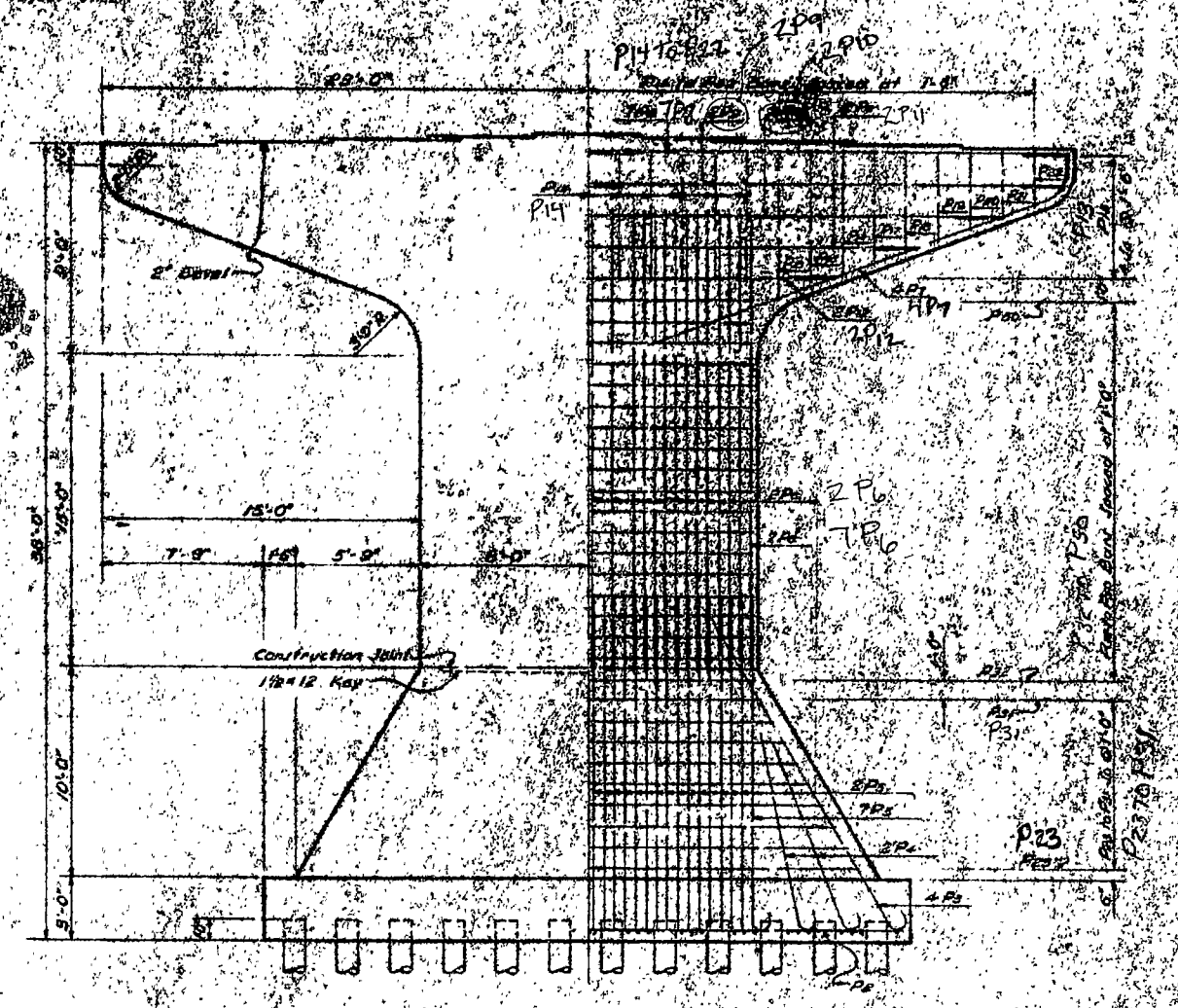
The slabs shall be poured simultaneously with the pier caps. The slabs shall be casted between beams. The elevations are shown on the layout sheet.



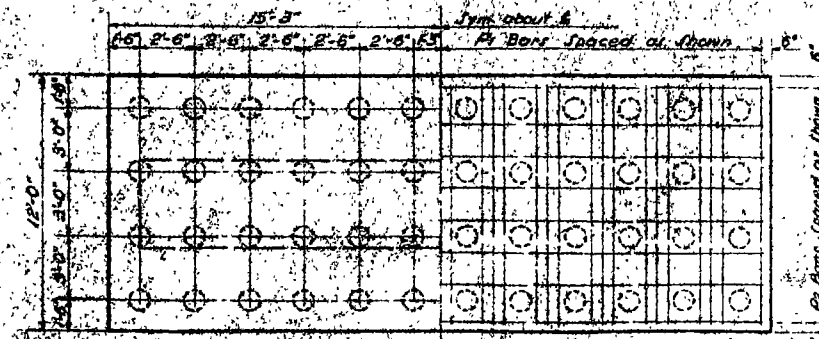
END VIEW



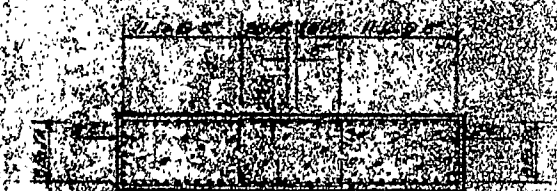
TOP PLAN



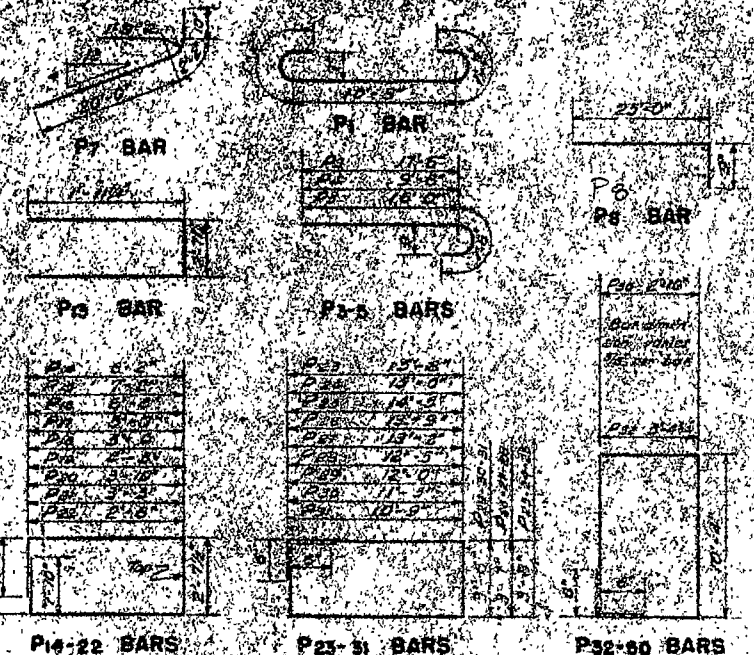
ELEVATION



FOOTING PLAN



SECTION OF COLUMN



BENT BAR DETAILS

MARK	No.	SIZE	LENGTH	SHAPE
P1	35	7	13'-0"	Bent
P2	8	6	30'-0"	Str.
P3	9	9	19'-0"	Bent
P4	6	9	11'-0"	"
P5	7	9	17'-8"	"
P6	66	9	28'-0"	Str.
P7	4	8	28'-0"	Bent
P8	14	11	28'-0"	"
P9	6	8	24'-0"	Str.
P10	8	8	38'-0"	"
P11	8	8	31'-0"	"
P12	2	8	23'-0"	"
P13	10	4	6'-5"	Bent
P14	13	8	18'-7"	"
P15	2	8	20'-7"	"
P16	2	5	19'-7"	"
P17	2	5	17'-5"	"
P18	2	5	18'-5"	"
P19	12	5	18'-5"	"
P20	12	5	18'-5"	"
P21	8	5	12'-1"	"
P22	8	5	11'-7"	"
P23	2	5	30'-8"	"
P24	2	5	30'-8"	"
P25	2	5	30'-8"	"
P26	2	5	30'-8"	"
P27	2	5	30'-8"	"
P28	2	5	30'-8"	"
P29	2	5	30'-8"	"
P30	2	5	30'-8"	"
P31	2	5	30'-8"	"
P32	2	5	30'-8"	"
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P34	2	5	30'-8"	"
P35	2	5	30'-8"	"
P36	2	5	30'-8"	"
P37	2	5	30'-8"	"
P38	2	5	30'-8"	"
P39	2	5	30'-8"	"
P40	2	5	30'-8"	"
P41	2	5	30'-8"	"
P42	2	5	30'-8"	"
P43	2	5	30'-8"	"
P44	2	5	30'-8"	"
P45	2	5	30'-8"	"
P46	2	5	30'-8"	"
P47	2	5	30'-8"	"
P48	2	5	30'-8"	"
P49	2	5	30'-8"	"
P50	2	5	30'-8"	"
P51	2	5	30'-8"	"
P52	2	5	30'-8"	"
P53	2	5	30'-8"	"
P54	2	5	30'-8"	"
P55	2	5	30'-8"	"
P56	2	5	30'-8"	"
P57	2	5	30'-8"	"
P58	2	5	30'-8"	"
P59	2	5	30'-8"	"
P60	2	5	30'-8"	"

\* The fabricator shall use profile for each bar design to differentiate bars structural and/or units on structures on the page.

QUANTITIES-ONE PIER	
Concrete Class A-116	139.9 CY
Reinforcing steel	16925 Lb.
Piling (See Layout)	
Excavation (See Layout)	

38' T-PIER  
FOR  
40' ROADWAY  
S. bridge

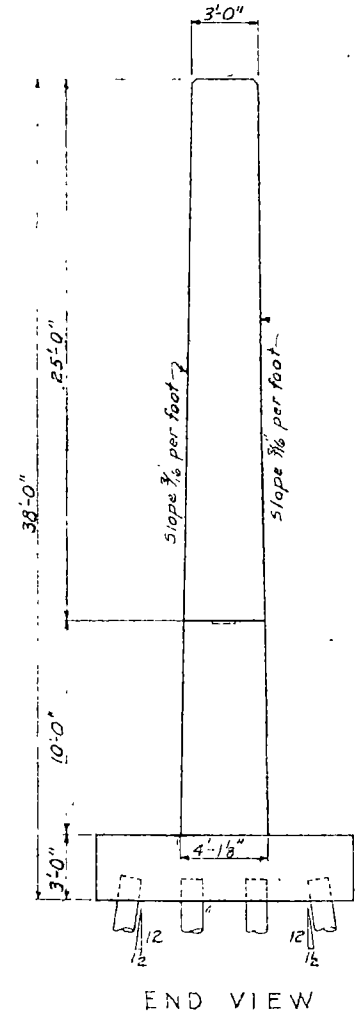
H-6301

H-6301

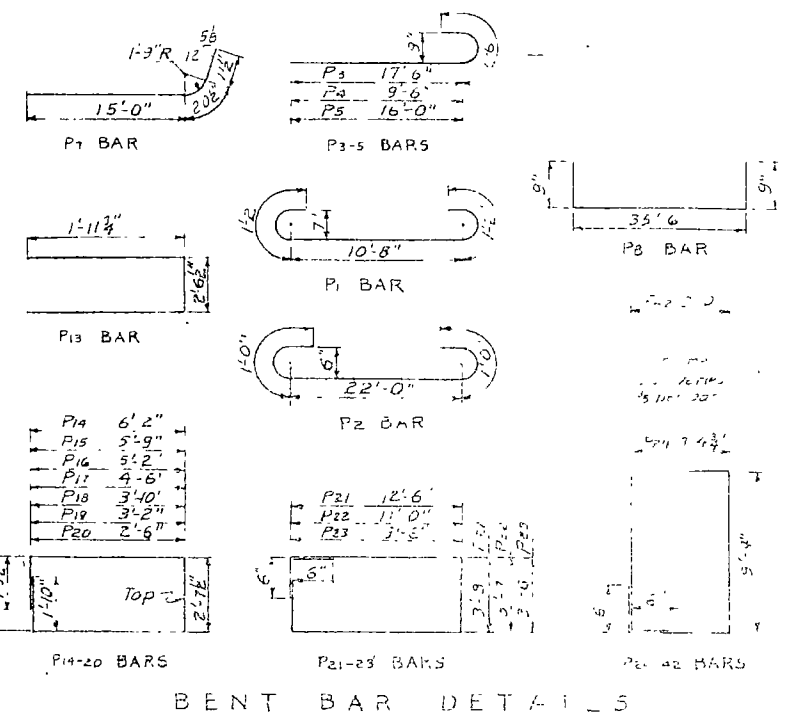
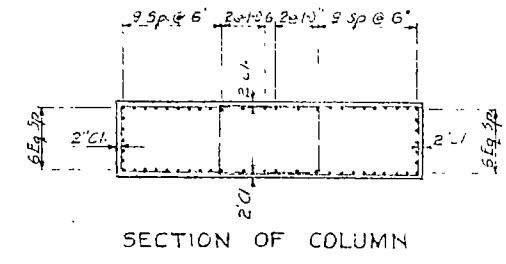
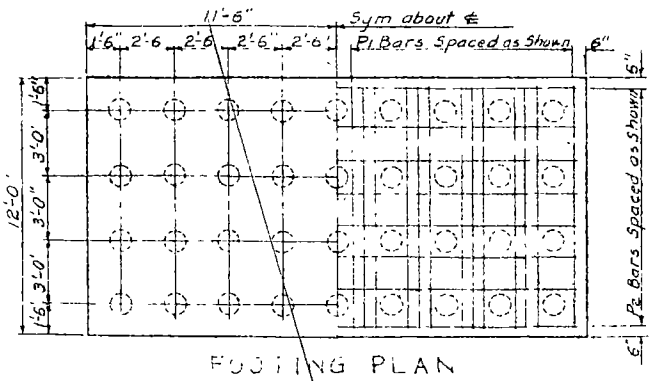
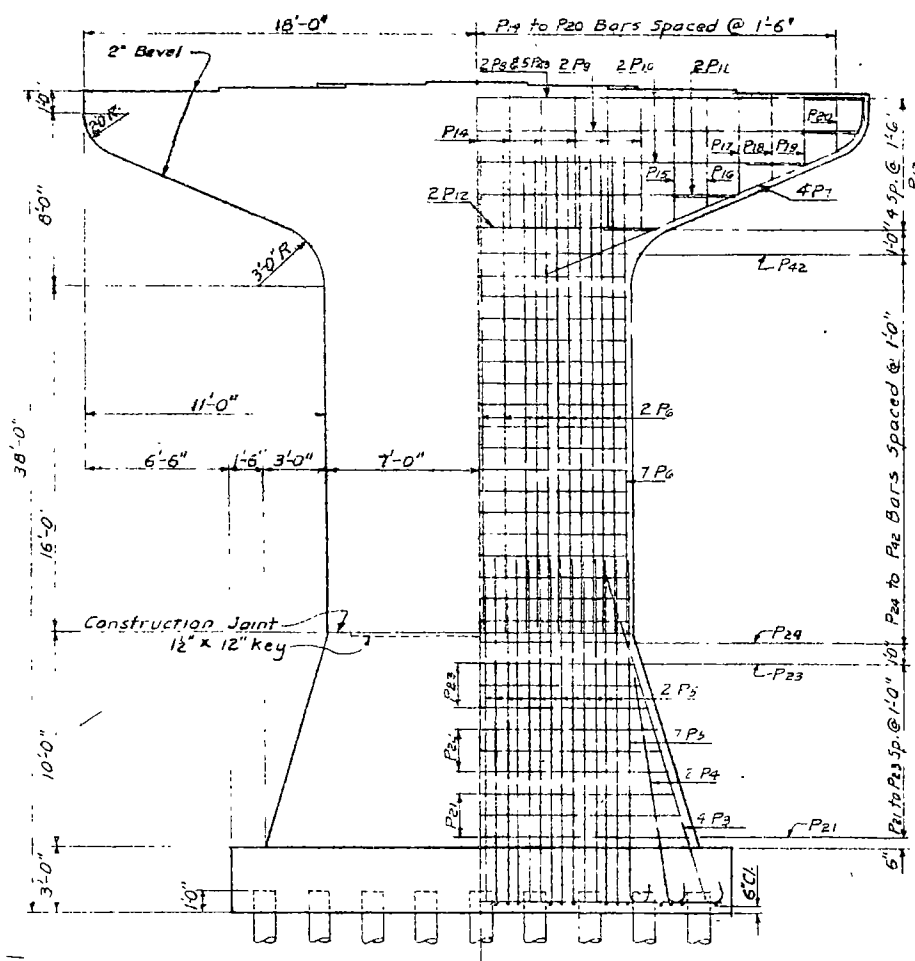
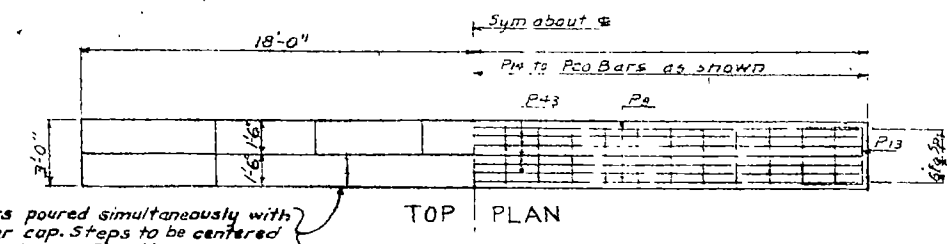
DESIGN	MADE BY	DATE
DETAILS	CHECKED BY	
TRACING	MADE BY	
QUANTITIES	CHECKED BY	

DESIGN	MADE BY	DATE
DETAILS	CHECKED BY	
TRACING	MADE BY	
QUANTITIES	CHECKED BY	



Risers poured simultaneously with the pier cap. Steps to be centered between beams. Elevations are shown on layout sheet.



BAR LIST ONE PIER				
NO.	SIZE	LENGTH	NO.	AMOUNT
P1	17'-6"	1	176	176
P2	9'-6"	1	96	96
P3	16'-0"	1	160	160
P4	10'-8"	1	108	108
P5	35'-6"	1	360	360
P6	22'-0"	1	220	220
P7	6'-2"	1	62	62
P8	5'-9"	1	59	59
P9	5'-2"	1	52	52
P10	4'-8"	1	48	48
P11	3'-4"	1	34	34
P12	3'-2 1/2"	1	33	33
P13	2'-6"	1	26	26
P14	12'-6"	1	126	126
P15	11'-0"	1	110	110
P16	3'-6"	1	36	36
P17	3'-2 1/2"	1	33	33
P18	3'-4"	1	34	34
P19	3'-2 1/2"	1	33	33
P20	2'-6"	1	26	26
P21	12'-6"	1	126	126
P22	11'-0"	1	110	110
P23	3'-6"	1	36	36
P24	5'-4"	1	54	54

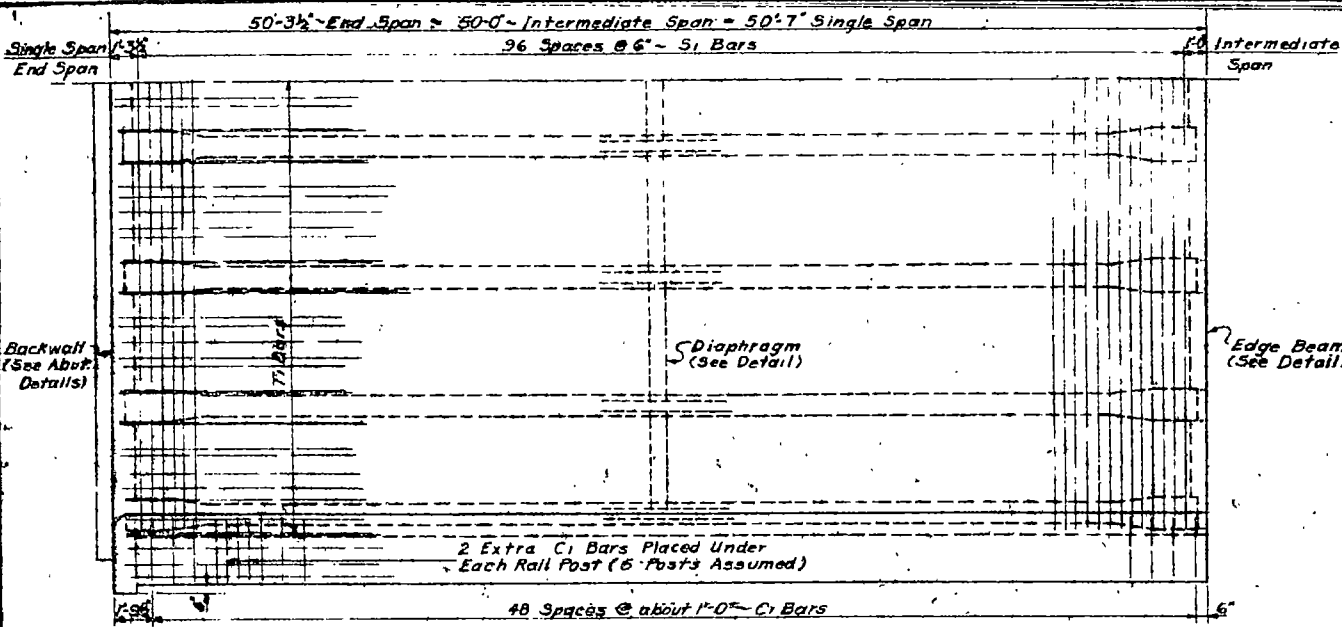
QUANTITIES-ONE PIER	
Concrete Class 4000	1116 CY.
Reinforcing Steel	13797 LB.
Form	152 sq ft
Excavation (see layout)	

**38' T-PIER**  
FOR  
30' ROADWAY  
N. Bridge

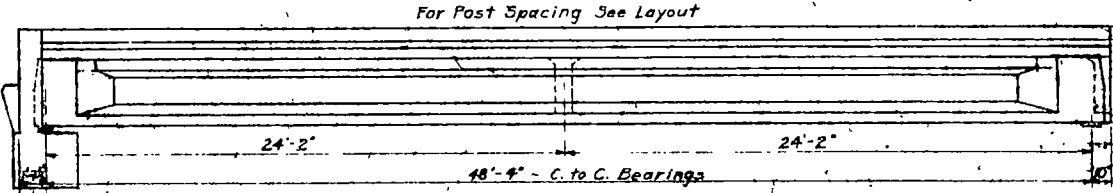
H-6302

H-6302

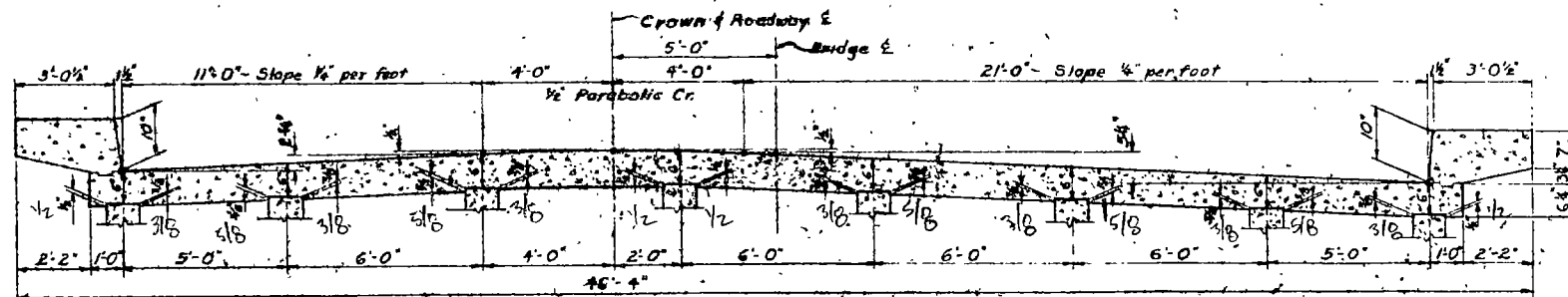
DESIGN	MADE BY	K.H.
DETAILS	CHECKED BY	D.L.H.
TRACING	MADE BY	K.H.
QUANTITIES	CHECKED BY	J.C.S.
	MADE BY	H.S.G.



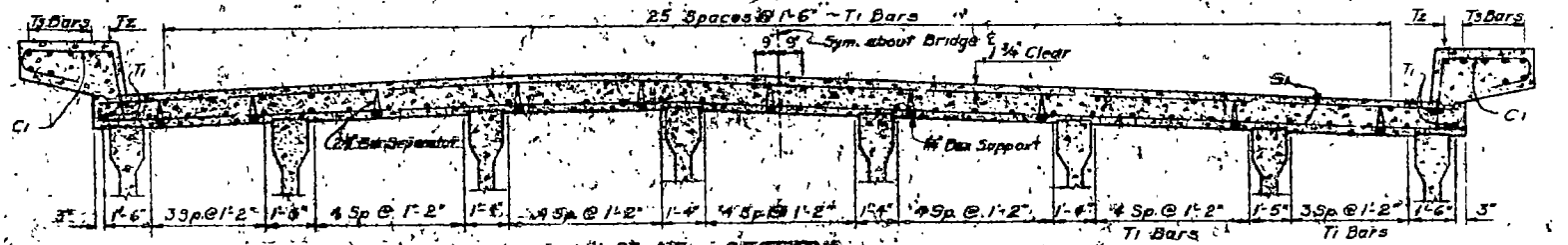
HALF PLAN



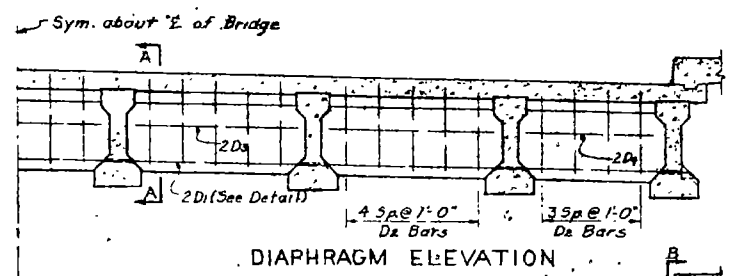
ELEVATION



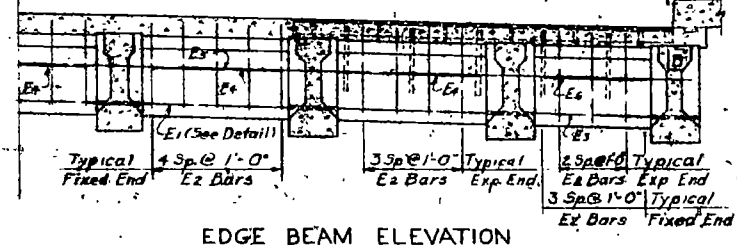
SLAB SECTION  
SHOWING DIMENSIONS



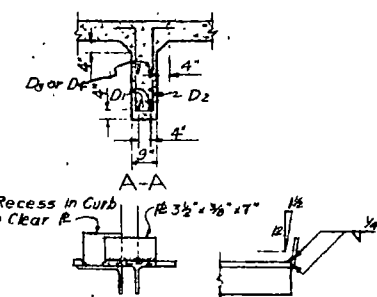
SLAB SECTION  
SHOWING REINFORCING



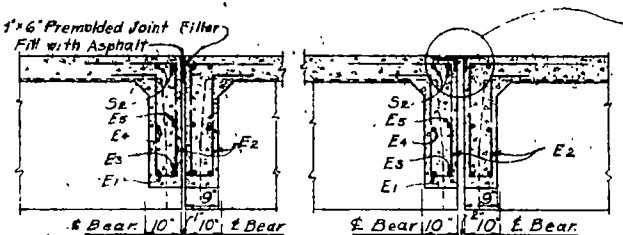
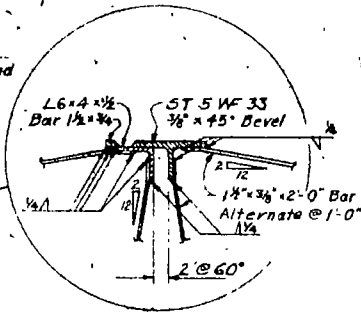
DIAPHRAGM ELEVATION



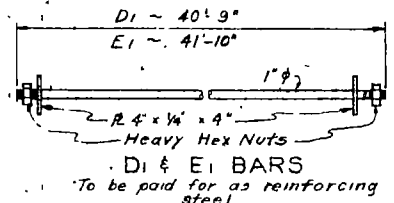
EDGE BEAM ELEVATION



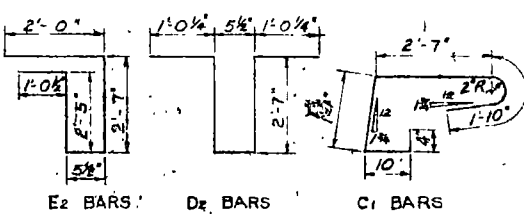
B-B



SEC. AT FIXED END    SEC. AT EXP. END



D1 & E1 BARS  
To be paid for as reinforcing steel



BENT BAR DETAILS

FED. ROAD DIST. NO.	STATE	FISCAL YEAR	PROJECT NO.	DIVISIONAL OFFICE
5	N.D.			

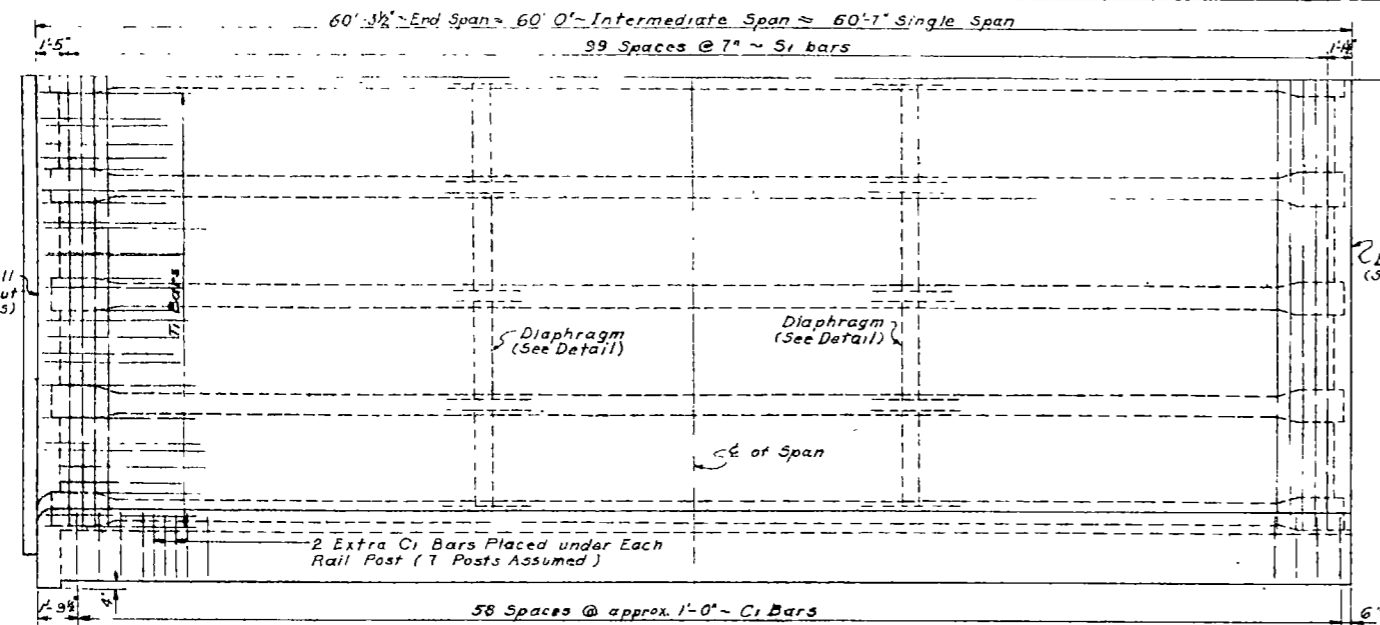
BAR LIST - ONE END SPAN				
MARK	NO.	SIZE	LENGTH	SHAPE
C1	122	5	6'-0"	Bent
D1	2			(See Detail)
D2	33	4	7'-8"	Bent
D3	10	4	5'-0"	Str.
D4	4	4	4'-0"	Str.
E1	1			(See Detail)
E2	26	4	8'-6"	Bent
E3	1	8	41'-0"	Str.
E4	5	4	4'-3"	Str.
E5	1	4	41'-0"	Str.
E6	2	4	3'-3"	Str.
S1	19	4	41'-6"	Str.
S2	2	5	41'-6"	Str.
T1	126	4	26'-0"	Str.
T2	4	6	26'-6"	Str.
T3	24	5	26'-3"	Str.

\* The number of E2 bars shown above is for one expansion end of a span. A fixed end requires 33 E2 bars.  
No E or S2 bars are required in a single span bridge.  
The number of E1, E3, E5, E6, E7 & S2 bars shown above must be doubled for an intermediate span.

QUANTITIES		ONE END SPAN WITH ONE EXP. END
Concrete Class A-1 1/2	650	CY
Reinforcing Steel	10281	Lb
Structural Steel	2300	Lb

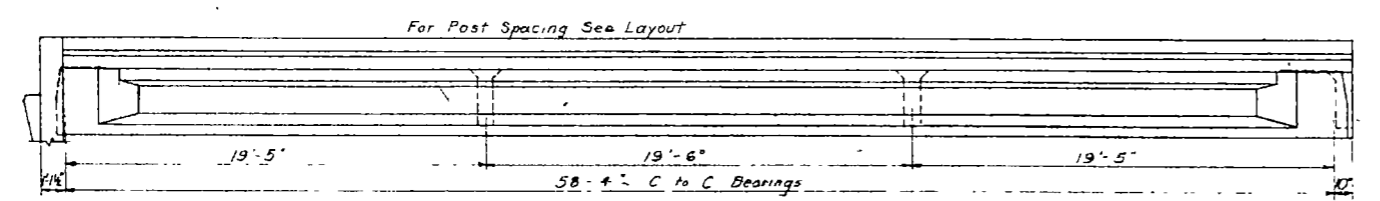
50' PRESTRESSED GIRDER  
SLAB  
40' ROADWAY  
Heo S18 LOADING (1953)

DESIGN	MADE BY	REVISIONS
DETAILS	CHECKED BY	
TRACING	MADE BY	
QUANTITIES	CHECKED BY	

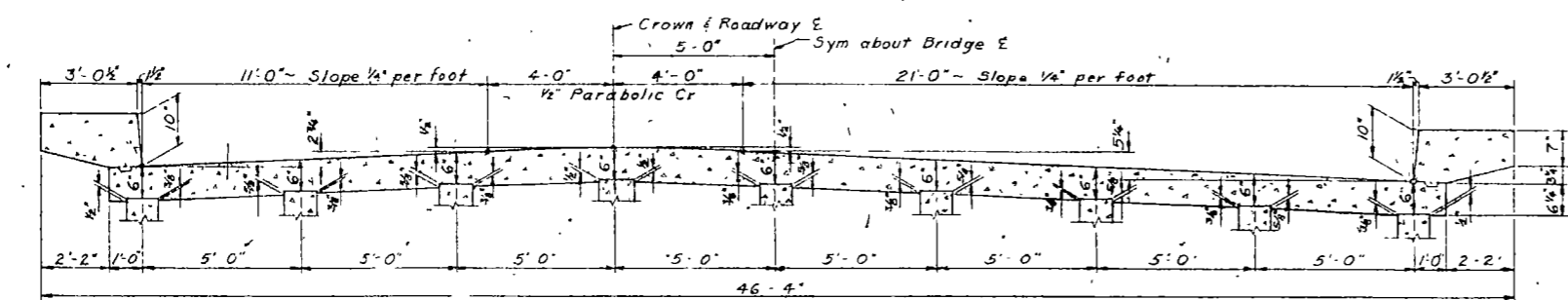


QUARTER PLAN SHOWING REINFORCEMENT FOR END AND SINGLE SPAN

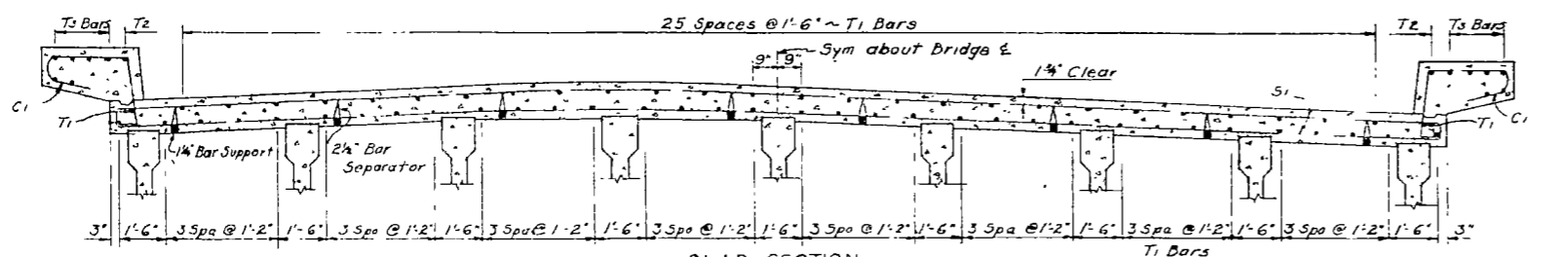
QUARTER PLAN SHOWING REINFORCEMENT FOR INTERMEDIATE SPAN



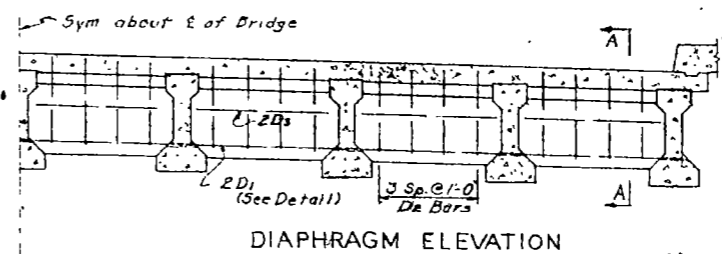
ELEVATION



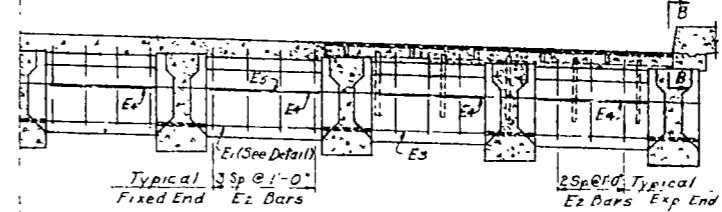
SLAB SECTION SHOWING DIMENSIONS



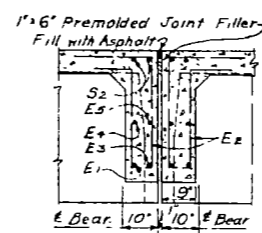
SLAB SECTION SHOWING REINFORCEMENT



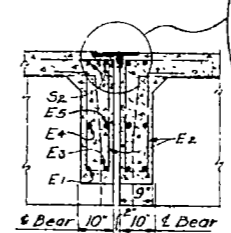
DIAPHRAGM ELEVATION



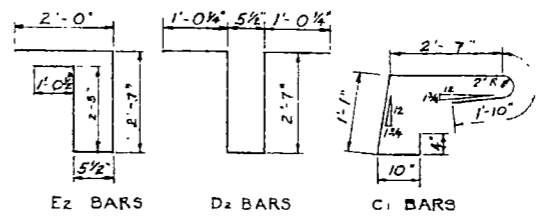
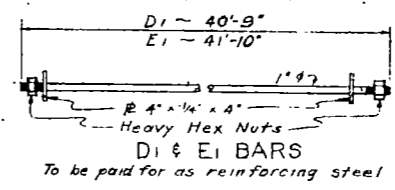
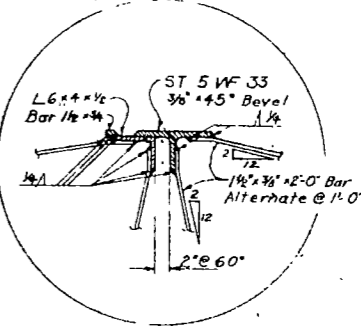
EDGE BEAM ELEVATION



SEC. AT FIXED END



SEC. AT EXP. END



BENT BAR DETAILS

FED. AID DIST. NO.	STATE	FED. AID PROJECT NO.	FISCAL YEAR	REPORT NO.	TOTAL SHEETS
5	ND				

MARK	NO	SIZE	LENGTH	SHAPE
C1	1 x 6	5	6'-8"	Bent
D1	4	(See Detail)		
D2	64	4	7'-8"	Bent
D3	32	4	4'-0"	Str.
E1	2	(See Detail)		
E2	66	4	8'-6"	Bent
E3	2	8	41'-0"	Str.
E4	16	4	3'-3"	Str.
E5	2	4	41'-0"	Str.
S1	200	4	41'-6"	Str.
S2	4	5	41'-6"	Str.
T1	124	4	30'-8"	Str.
T2	4	6	37'-3"	Str.
T3	24	3	31'-0"	Str.

\*The number of Ez bars above is for one intermediate span with one fixed and one expansion end. For other combinations the number of Ez bars must be revised; - fixed ends requiring 32 bars and expansion ends requiring 24 bars. No E or S2 bars are required in a single span bridge. Only half the number of Ez, E4, E5 & S1 bars shall be used for...

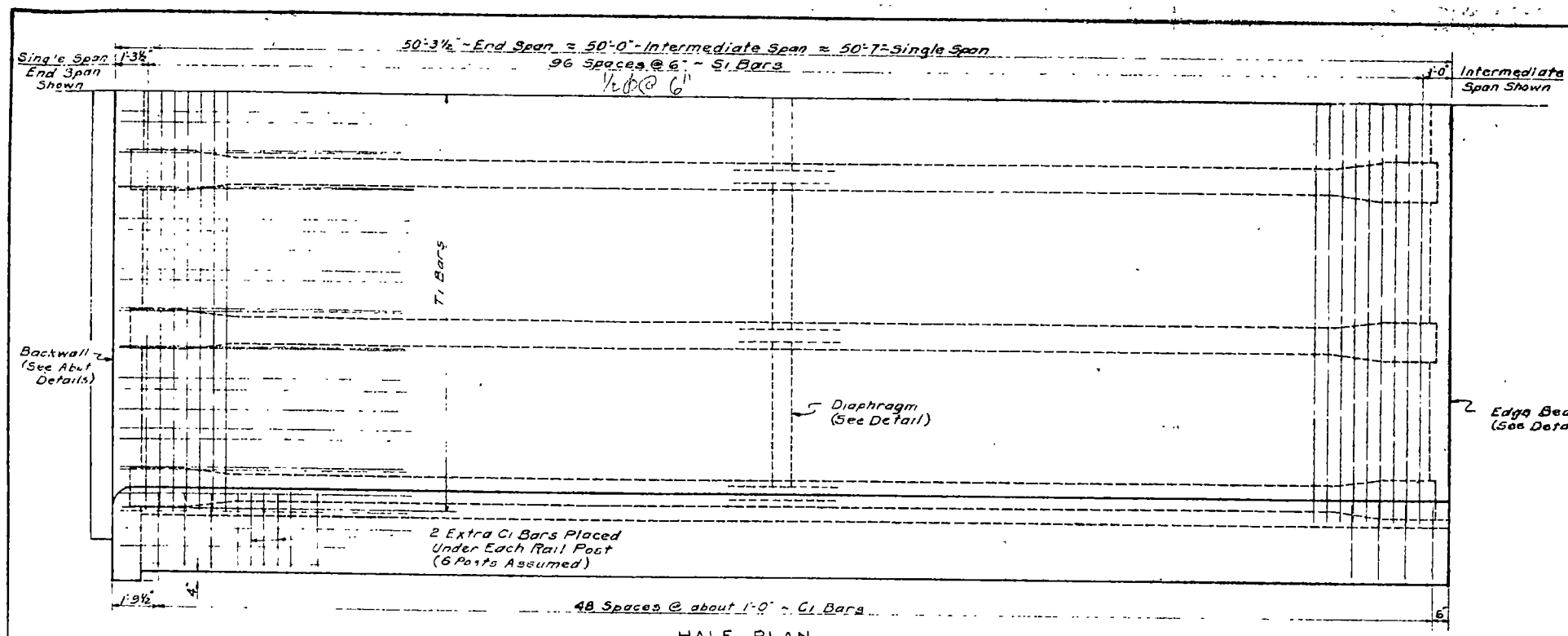
QUANTITIES	ONE INTER. SPAN	FIXED & EXP. END
Concrete Class A-1 1/2	703 CY	
Reinforcing Steel	11954 Lb	
Structural Steel	2300 Lb	

60' PRESTRESSED GIRDER  
SLAB  
40' ROADWAY  
H20 S16 LOADING (1953)

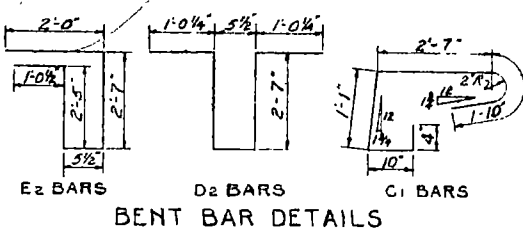
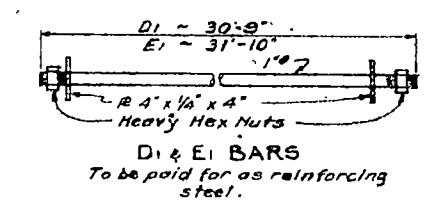
H-6102

H-6102

MADE BY: E.P.  
 CHECKED BY: A.H.  
 DESIGNED BY: K.H.  
 TRACING: H.P.  
 QUANTITIES: J.C.S.  
 DATE: 1-10-51



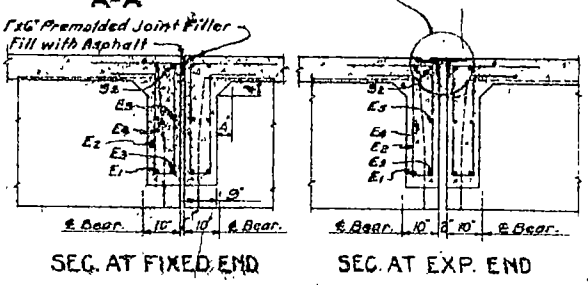
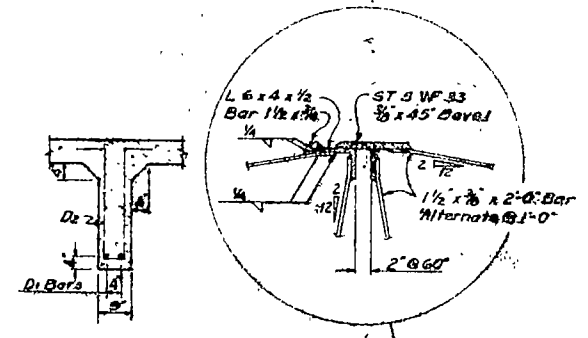
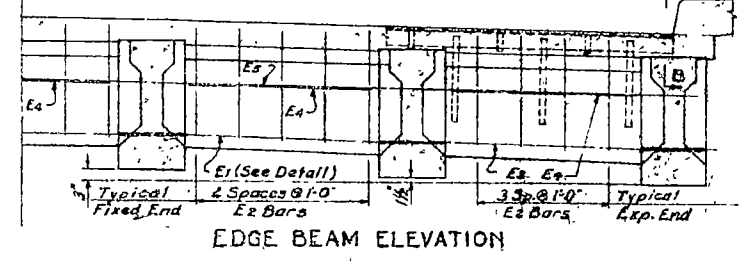
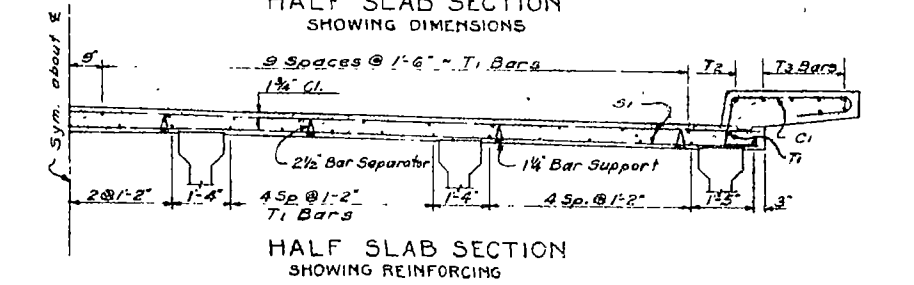
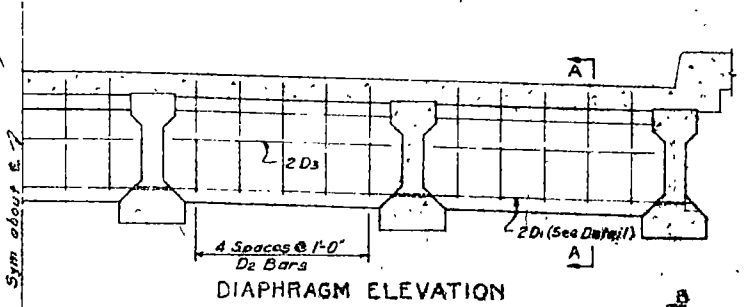
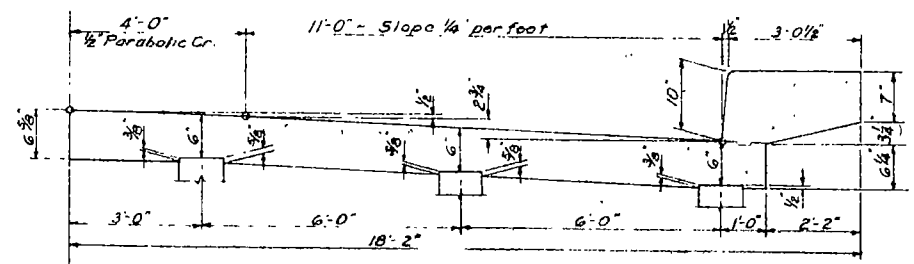
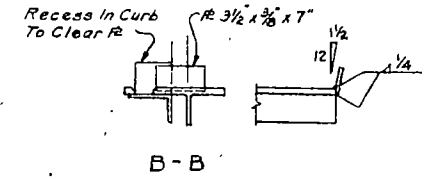
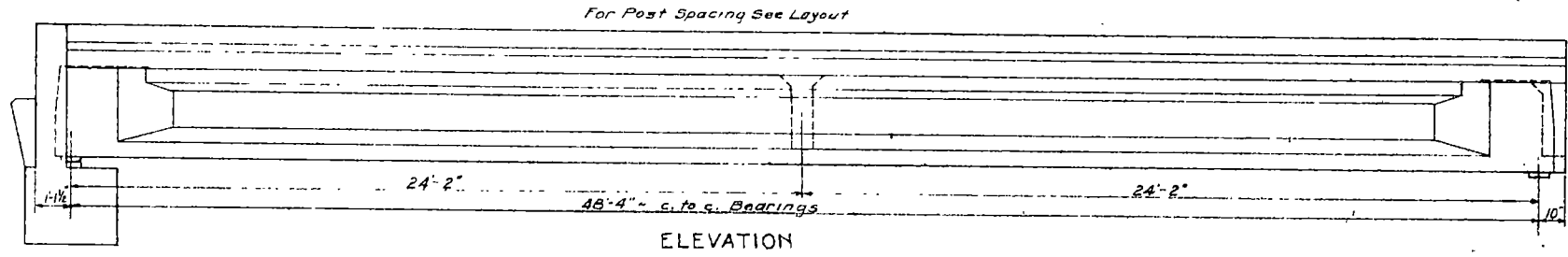
HALF PLAN



Y&S AID DIST. NO.	STATE	FED. AID PROJECT NO.	LOCAL PROJECT NO.	TOTAL SHEETS
5	N.D.			

BAR LIST - ONE END SPAN				
MARK	NO.	SIZE	LENGTH	SHAPE
C1	122	5	6'-8"	Bent
D1	2		(See Detail)	
D2	25	4	7'-8"	Bent
D3	10	4	5'-0"	Str.
E1	1		(See Detail)	
E2	20*	4	8'-6"	Bent
E3	7	8	31'-0"	Str.
E4	5	4	4'-3"	
E5	1	4	31'-0"	
S1	194	4	31'-6"	Str.
S2	2	5	31'-8"	
T1	98	4	26'-0"	Str.
T2	4	6	26'-6"	Str.
T3	24	5	26'-3"	Str.

\*The number of E2 bars shown above is for one expansion and a span. A fixed end requires 2 E2 bars.  
 No E or S2 bars are required in a single span bridge. (See Abut Sheet)  
 The number of E1, E3, E4, E5 & S2 bars shown above must be doubled for an intermediate span.



QUANTITIES ONE END SPAN WITH ONE EXP. END	
Concrete Class A-1 1/2	51.8 C.Y.
Reinforcing Steel	8275 Lb.
Structural Steel	1750 Lb.

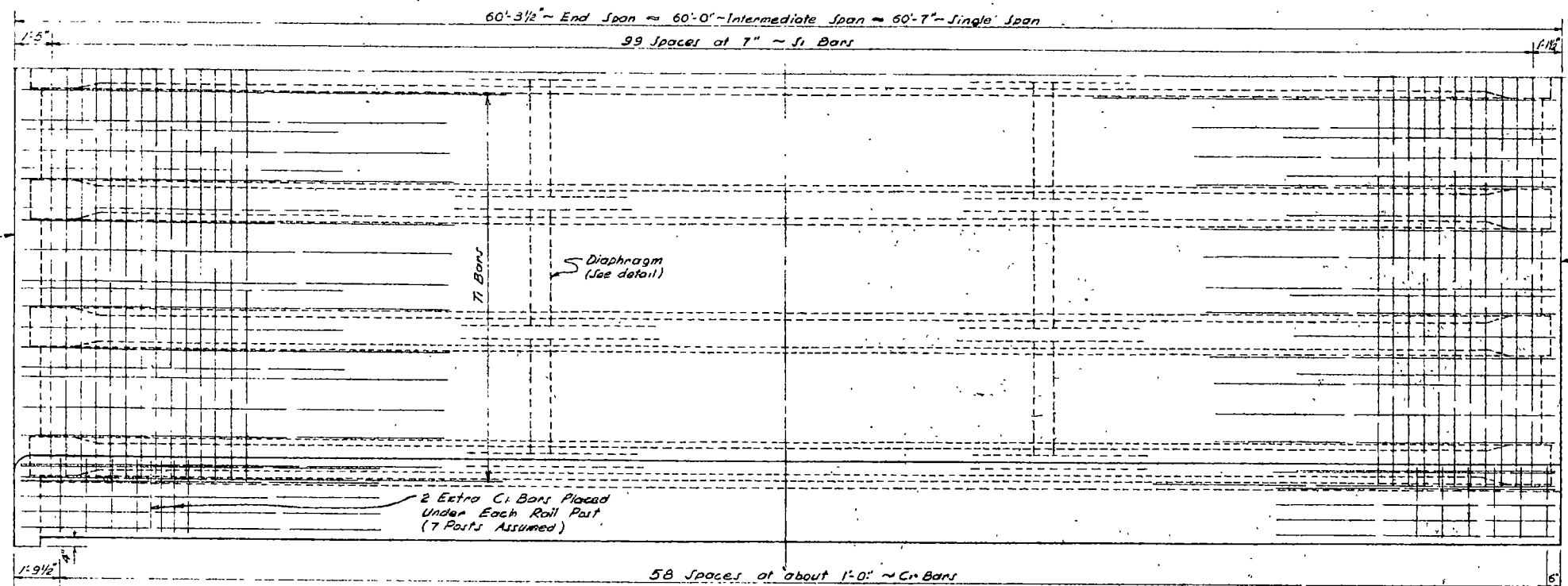
50' PRESTRESSED GIRDER SLAB  
 FOR 30' ROADWAY  
 H20 S16 LOADING (1953)

Concrete quantity shown includes the abutment backwall and wings above the top of footing, and two handrail end posts.

H-6103

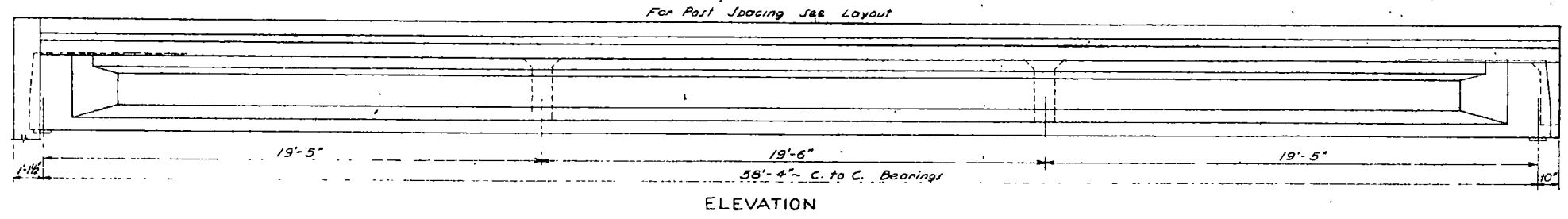
H-6103

FED. AID DIST. NO.	STATE	FY	A. D.	PROJECT NO.	SHEET NO.	TOTAL SHEETS
5	N.D.					

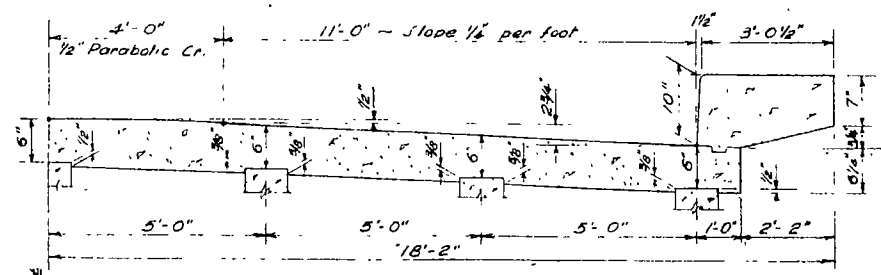


QUARTER PLAN  
Showing Reinforcing  
For End & Single Span

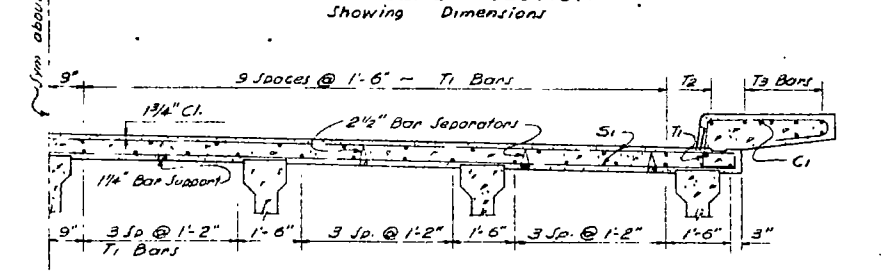
QUARTER PLAN  
Showing Reinforcing  
For Intermediate Span



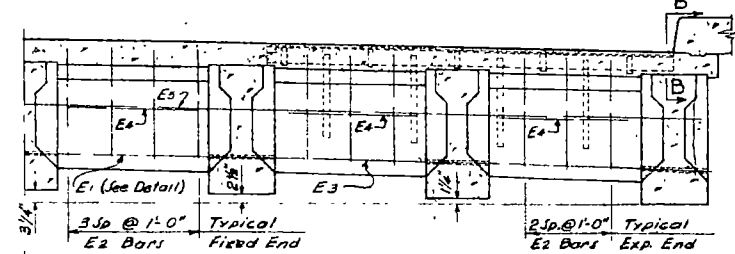
ELEVATION



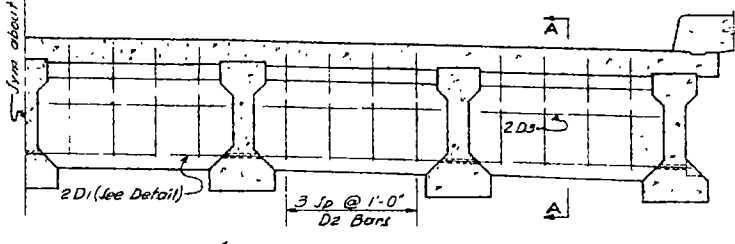
HALF SLAB SECTION  
Showing Dimensions



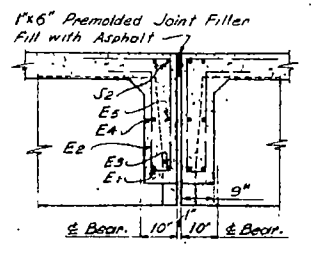
HALF SLAB SECTION  
Showing Reinforcing



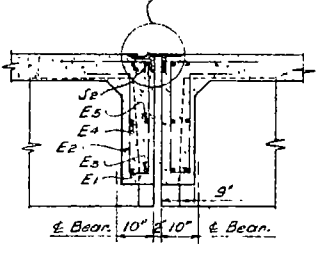
EDGE BEAM ELEVATION



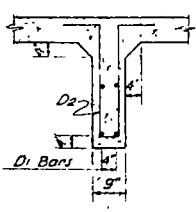
DIAPHRAGM ELEVATION



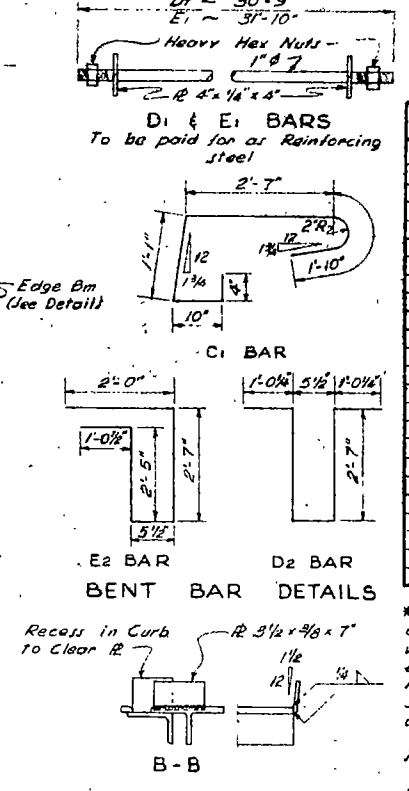
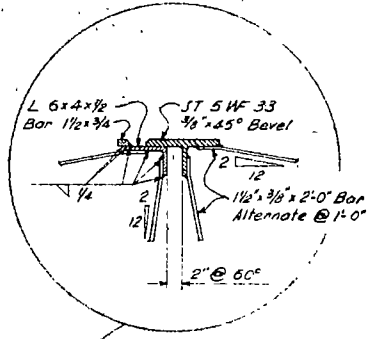
SEC. AT FIXED END



SEC. AT EXP. END



A - A



D1 & E1 BARS  
To be paid for as Reinforcing  
Steel

C1 BAR

E2 BAR  
D2 BAR  
BENT BAR DETAILS

BAR LIST - ONE INTER. SPAN				
MARK	No.	SIZE	LENGTH	SHAPE
C1	146	5	6'-8"	Bent
D1	4	(See detail)		
D2	48	4	7'-8"	Bent
D3	24	4	4'-0"	Str.
E1	2	(See detail)		
E2	42	4	8'-6"	Bent
E3	2	8	31'-0"	Str.
E4	12	4	3'-3"	"
E5	2	4	31'-0"	"
S1	200	4	31'-6"	Str.
S2	4	5	31'-8"	"
T1	96	4	30'-9"	Str.
T2	8	6	31'-3"	"
T3	24	5	31'-0"	"

\* The number of E2 bars shown above is for one intermediate span with one fixed and one expansion end. For other combinations the number of E2 bars must be revised, fixed ends requiring 24 bars and expansion ends 18 bars. No E or S2 bars are required in a single span bridge. Only half of the E1, E3, E4, E5 & S1 & S2 bars above shall be used in the end span.

QUANTITIES ONE INTER. SPAN FIXED & 1 EXP. END		
Concrete Class A-1 1/2	560	C.Y.
Reinforcing Steel	9586	Lb
Structural Steel	1750	Lb

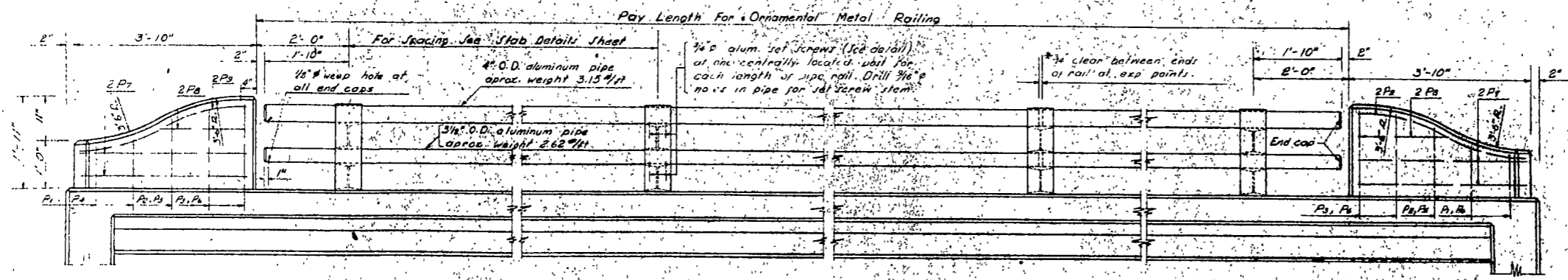
60' PRESTRESSED GIRDER  
SLAB  
FOR 30' ROADWAY

DESIGN	MADE BY	EP
DETAILS	MADE BY	KH
TRACING	MADE BY	EP
QUANTITIES	MADE BY	KH
	CHECKED BY	EP
	MADE BY	EP
	MADE BY	EP
	MADE BY	EP
	MADE BY	EP
	MADE BY	EP
	MADE BY	EP
	MADE BY	EP

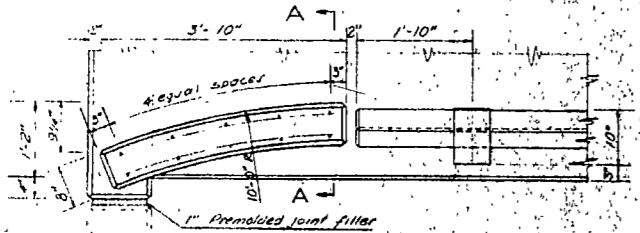
H-6104

H-6104

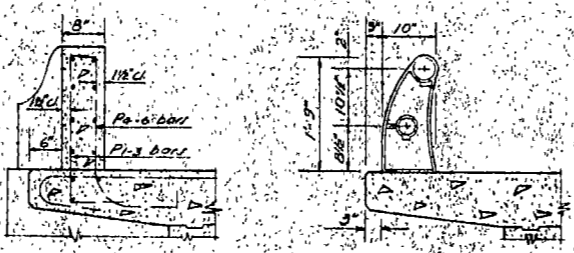
FED AID DIST NO.	STATE	FED AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.				



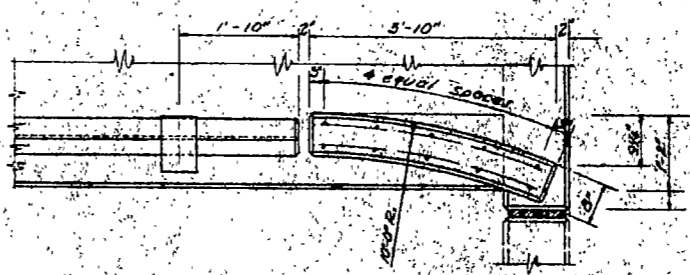
PART ELEVATION



PART PLAN



SECTION A-A TYPICAL SECTION



PART PLAN

**NOTES**

Rail posts shall be aluminum alloy sand or permanent mold castings 356-T6, alloy SG70A condition T6. Sand castings shall conform to A.S.T.M. Spec. B 26.

Rail pipe to be aluminum alloy tube 6061-T6 conforming to A.S.T.M. Spec. B 210-65T, alloy 6S11A condition T6, Mill finish.

Bolts and screws to be aluminum alloy 2024-T4 with No. 205 aluminum finish conforming to A.S.T.M. Spec. B 211-65T alloy 6S4A condition T4.

Pins shall conform to A.S.T.M. Spec. B 211-65T, alloy 6S11A condition T6.

All aluminum castings shall be finished by grinding off the gates and parting lines followed by sand blasting and one coat of lacquer.

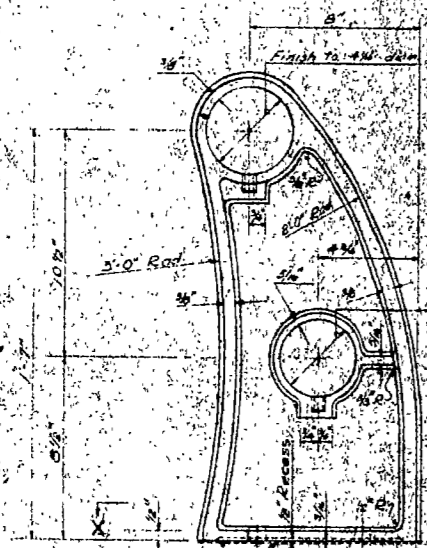
The bottom of rail posts in contact with concrete shall be coated with 'Alumalastic Compound' as manufactured by the Farr Paint and Color Company of Cleveland, Ohio, or approved equal (knife grade). Excess compound shall be neatly removed after the posts are bolted into final position.

All posts shall be set normal to grade.

All pipe, rail posts, anchor bolt assemblies, bolts, screws, shims, pins, and caps and compound shall be included in the price bid for Ornamental Metal Railing.

4H concrete in the end posts shall be Class A-1B.

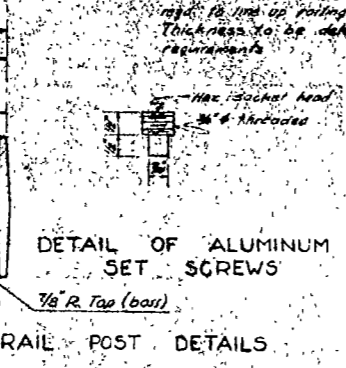
\* Each section of pipe rail shall project through, or into, at least three and preferably four posts.



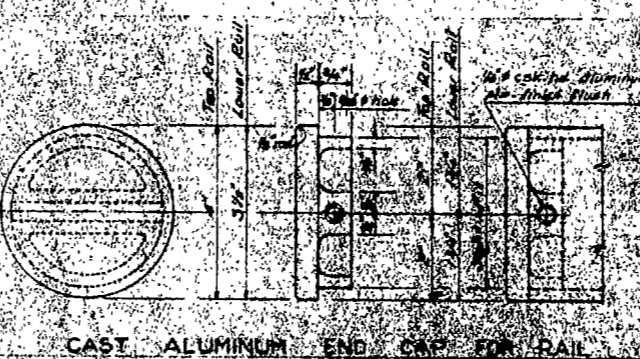
SECTION X-X

DETAIL OF ALUMINUM SET SCREWS

DETAIL OF ALUMINUM SHIMS



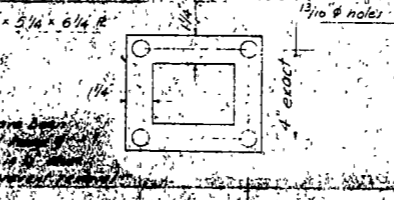
RAIL POST DETAILS



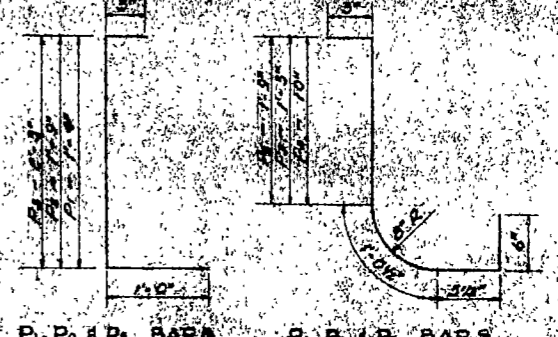
CAST ALUMINUM END CAP FOR RAIL

**BAR LIST (4 END POSTS)**

MARK	No.	SIZE	LENGTH	SHAPE
P1	4	4x4	8'-7"	Rect.
P2	4	4	5'-0"	"
P3	4	4	5'-0"	"
P4	4	4	5'-0"	"
P5	4	4	5'-0"	"
P6	4	4	5'-0"	"
P7	4	4	5'-0"	"
P8	4	4	5'-0"	"
P9	4	4	5'-0"	"
P10	4	4	5'-0"	"
P11	4	4	5'-0"	"
P12	4	4	5'-0"	"
P13	4	4	5'-0"	"
P14	4	4	5'-0"	"
P15	4	4	5'-0"	"
P16	4	4	5'-0"	"
P17	4	4	5'-0"	"
P18	4	4	5'-0"	"
P19	4	4	5'-0"	"
P20	4	4	5'-0"	"



ANCHOR BOLT ASSEMBLY



BENT BAR DETAILS

QUANTITIES FOR 4 END POSTS  
Concrete 1.00 cu yd  
Reinforcing 1.00 lb  
221.28

**NOTES**

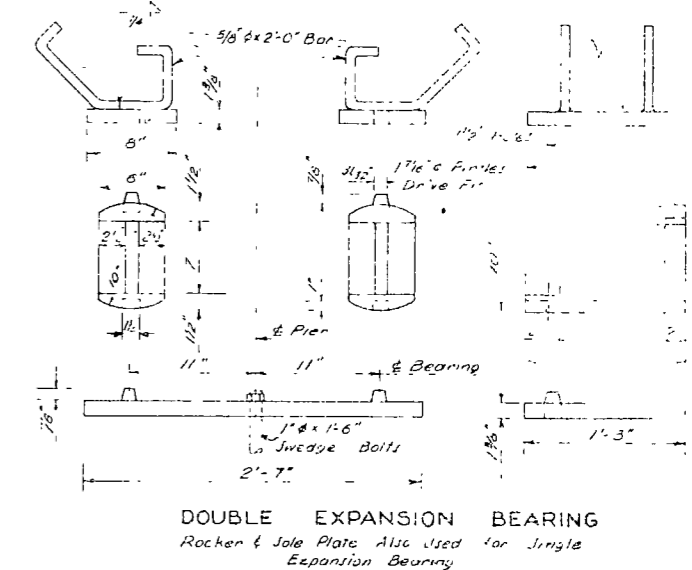
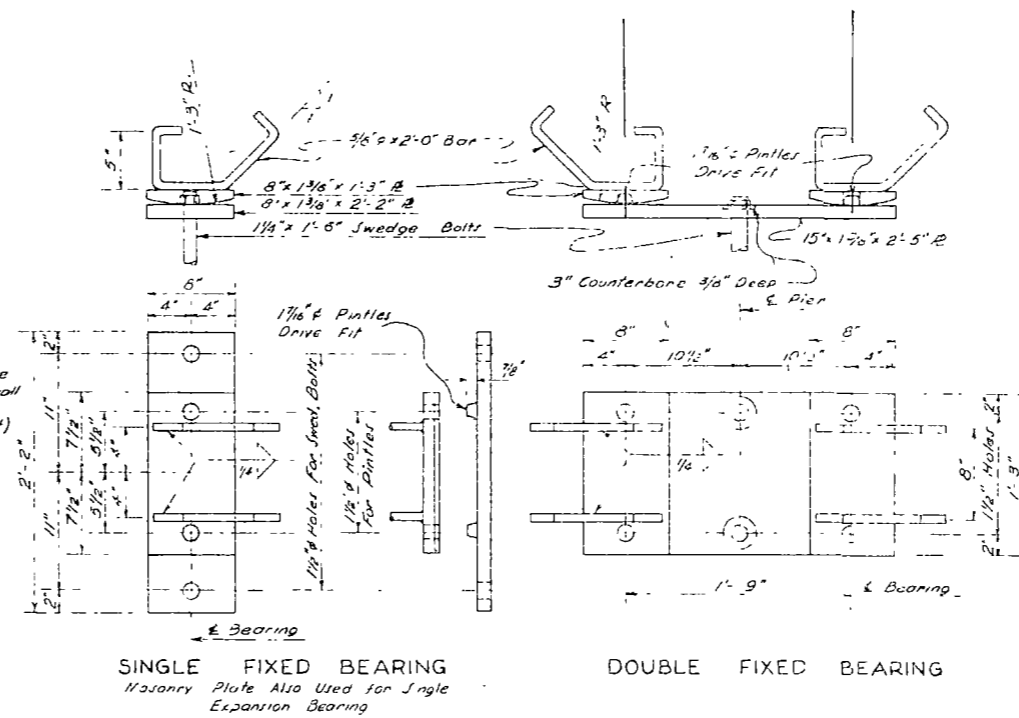
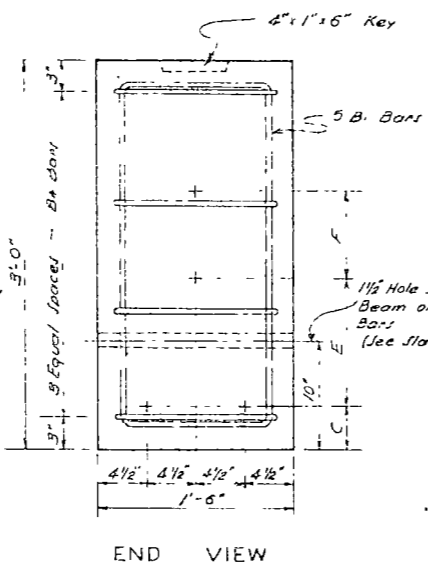
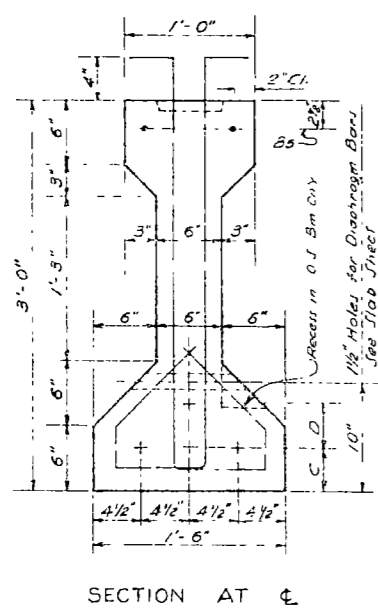
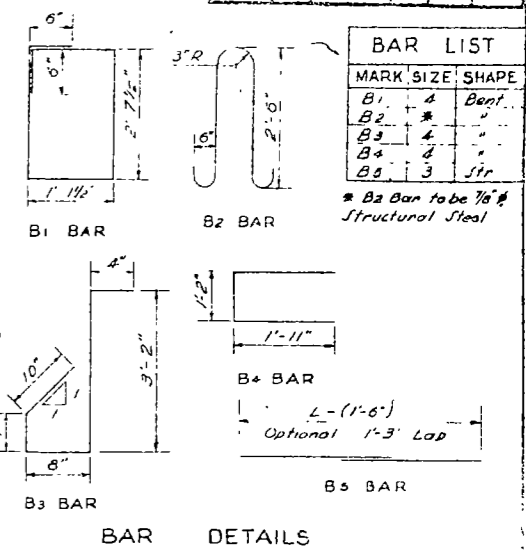
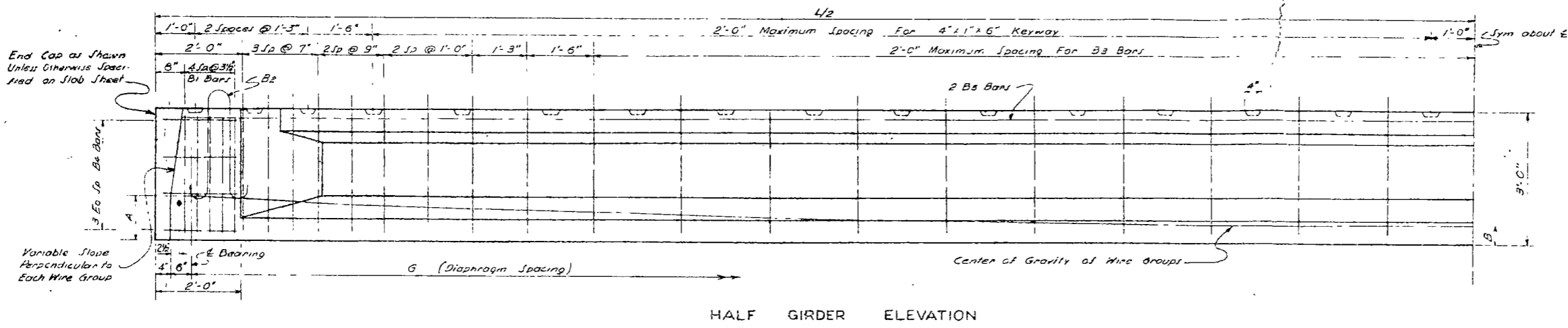
End posts shall be given the 'Rubbed Surface Finish'.

Railing and end post quantities are included in slab quantities in slab sheet.

**STANDARD RAILING DETAILS**



PROJ. NO.	STATE	PROJ. NO.	SCALE	SHEET NO.	TOTAL SHEETS
5	N.D.				



NOTES.

The draped post-tensioning wire groups as shown on this sheet shall follow the curve of a draped chalk line that sags freely with the dimensions shown.

The girders shall be poured in oil-steel forms.

The contractor shall provide adequate and anchor plates and devices, the design and details of which shall be submitted to the Bridge Engineer for approval.

The outside girder shall be provided with a recess on the exterior face as shown on the slab detail to contain the reinforcing bars and nuts from the diaphragms after the diaphragms have been completed and the nuts secured in place, the contractor shall fill the recess with mortar and finish to the shape of the section.

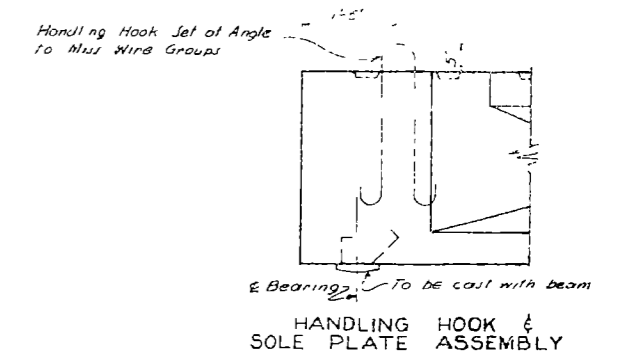
Holes to accommodate the diaphragm and backwall bars shall be provided in the girder at locations as shown on the slab sheet.

The type and number of bearing devices as detailed on this sheet are shown on the layout sheet. They shall be provided as structural steel.

The rockers, as detailed, shall be constructed from structural steel plates welded together or shall be of cast steel.

Diaphragms shall be constructed perpendicular to the roadway &.

JAE 12/1/79



Length (L)	No of Wires per Group	Total Initial Prestressing Force *	Shipping Weight	Dimensions						
				A	B	C	D	E	F	G
50'-0"	18	371,500 lb	10 Ton ±	1'-0"	5.3"	4"	6"	1'-0"	6"	24'-2"
60'-0"	21	435,000 lb	12 Ton ±	1'-0"	5"	4"	4"	1'-0"	6"	19'-5"

\* Based on 0.196 inch diameter wires.

Design	Checked by: K.J.H.
Details	Checked by: E.G.D.
Tracing	Checked by: K.V.H.
Quantities	Checked by: L.M.

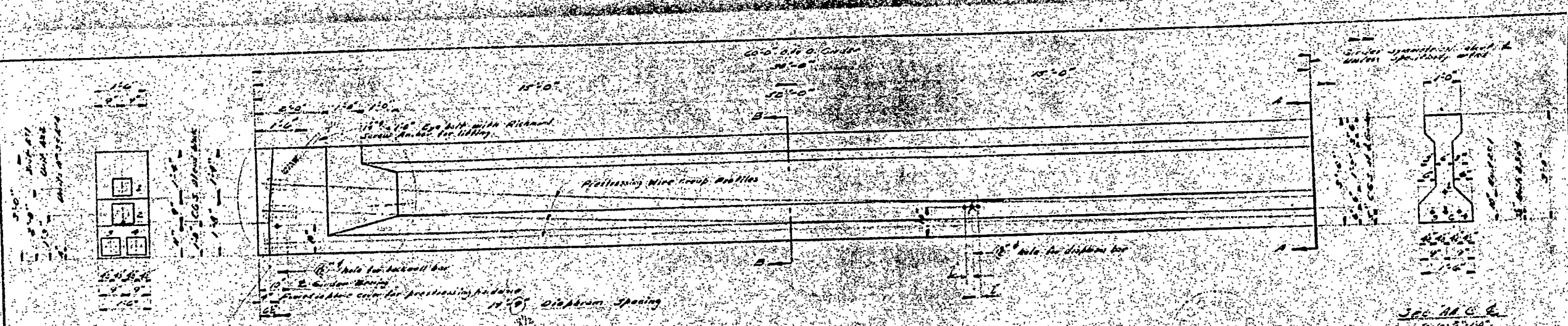
1-1/2" Fixed Bearing	50 Lb
Triple Expansion Bearing	217 Lb
Double Fixed Bearing	292 Lb
Double Expansion Bearing	553 Lb

H-6401

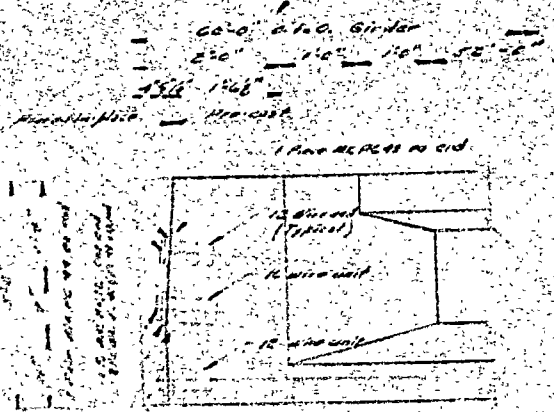
Design Specifications  
Criteria for Prestressed Concrete Bridges as published by the Bureau of Public Roads 1955

36" PRESTRESSED GIRDER POST-TENSIONED

H-6401



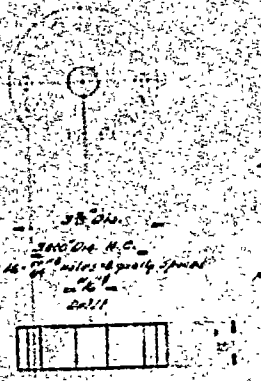
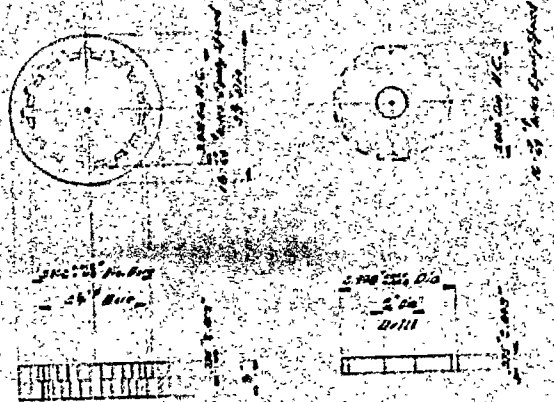
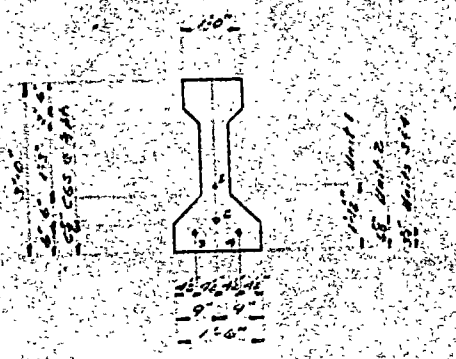
**END VIEW**



**ONE GIRDER GI**

**60 RECD**

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



**SEC. A-A**

Scale: 3/4" = 1'-0"

**GENERAL NOTES**

Reinforcing steel: P. E. Miller, Inc.  
Fabricated by: P. E. Miller, Inc.  
Steel: A36, A572 Gr. 50, A501 Gr. 42  
Concrete: 4000 psi  
All dimensions are in feet and inches.  
Reinforcing steel: 1/2" dia. @ 12" o.c.  
1/4" dia. @ 6" o.c.  
1/4" dia. @ 12" o.c.  
1/4" dia. @ 12" o.c.

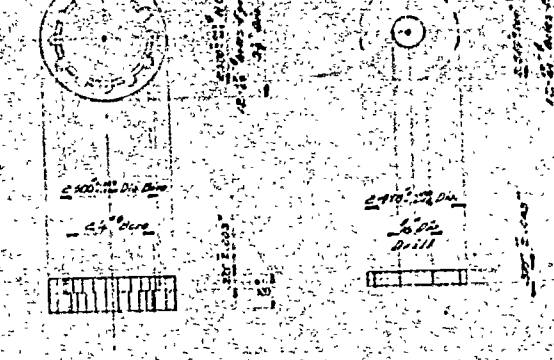
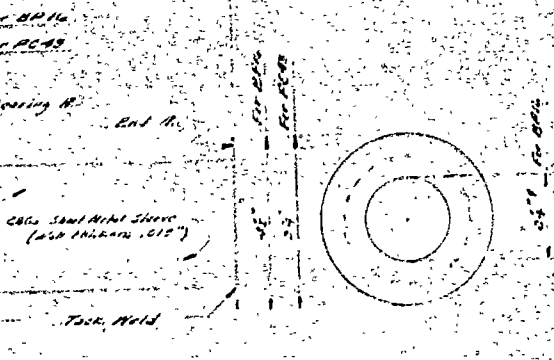
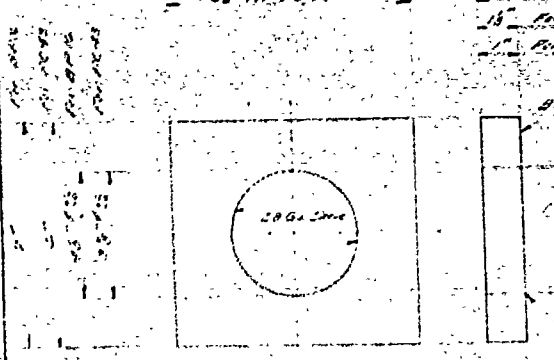
**DESIGN NOTES**

Design strength of girder: 1100 kips  
Design moment: 1000 k-ft  
Design shear: 100 kips  
Design axial: 100 kips  
Design temperature: 70°F  
Design wind speed: 100 mph  
Design seismic: 0.2g  
Design ground motion: 0.2g  
Design ground motion: 0.2g

**ENLARGED VIEW - END BLOCK**

Showing end form bolts and  
prestressing anchorage details

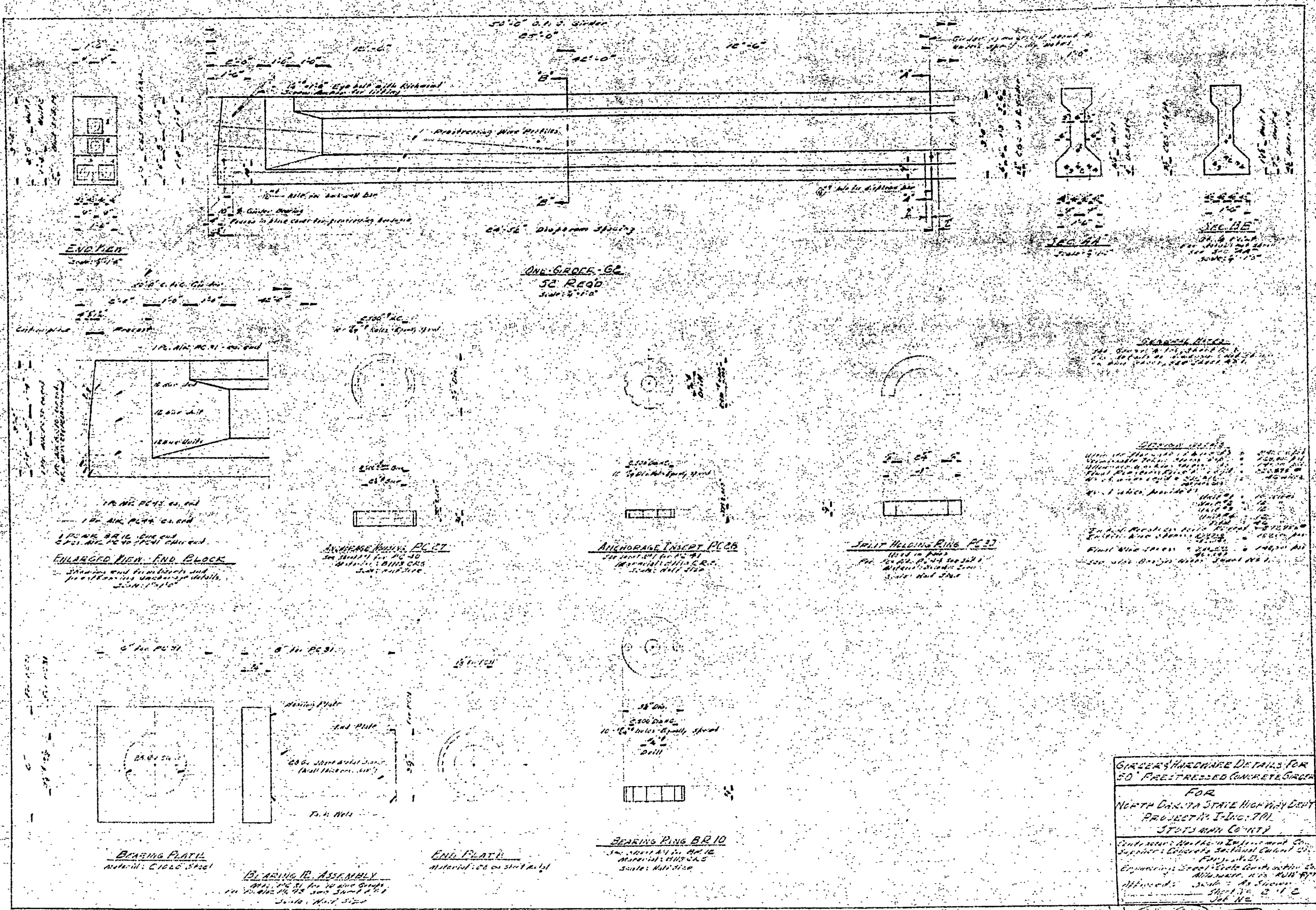
Scale: 1/4" = 1'-0"



**GIRDER & HARDWARE DETAILS FOR  
60' PRESTRESSED CONCRETE GIRDER**

FOR  
NORTH DAKOTA STATE HIGHWAY DEPT.  
PROJECT No. 5-ING-7(1)  
SOUTH DAKOTA COUNTY

Checked by: Northrup Engineering Co.  
Designed by: Concrete Structures Co.  
Fabricated by: P. E. Miller, Inc.  
Engineering: Steel Structures Co.  
Allanwood, N.D. 58501  
Approved: \_\_\_\_\_  
Scale: As Shown  
Job No. \_\_\_\_\_



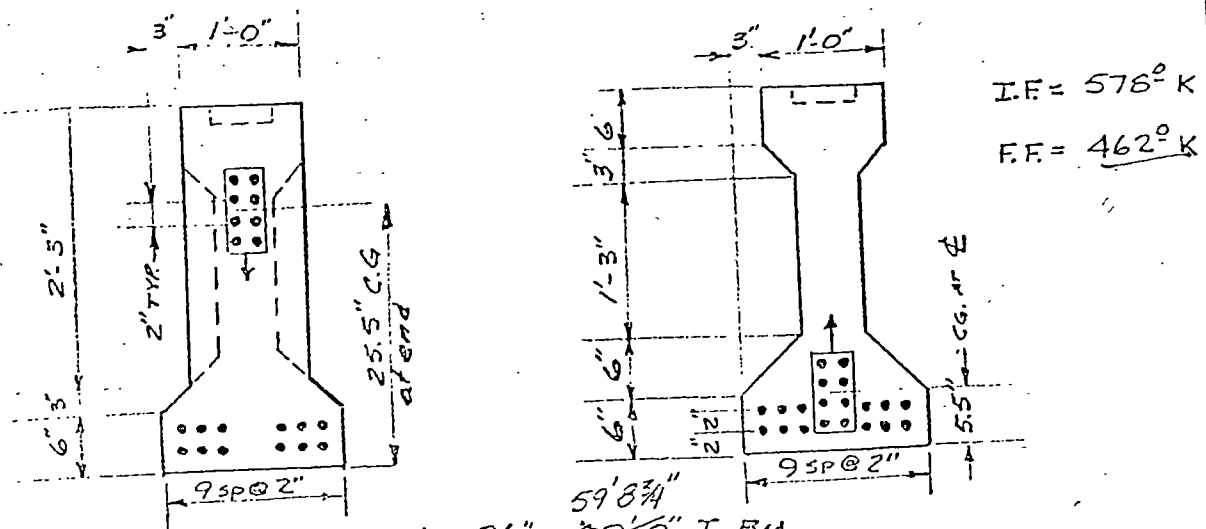
**GIRDER HARDWARE DETAILS FOR**  
**50" PRESTRESSED CONCRETE GIRDER**

**FOR**  
**NORTH DAKOTA STATE HIGHWAY DEPT**  
**PROJECT No. I-ING-701**  
**STANTON COUNTY**

Contractor: North Dakota Engineering Co.  
Supplier: Central Steel & Foundry Co.  
Engineer: State Steel & Foundry Co.  
Affiliated: State Steel & Foundry Co.  
Job No. 2112

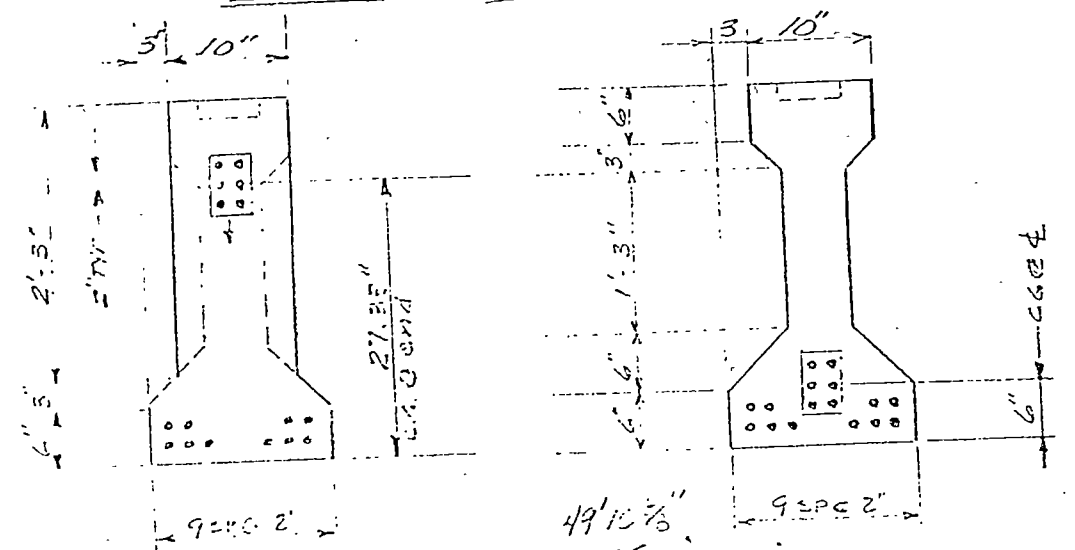
94-103210 (4-7311)

STRAND PATTERN



I.F. = 576° K  
F.F. = 462° K

59' 8 3/4"  
4 - 36" x 60" I BM  
20 - 1/2" φ 270 K STRAND CK



I.F. = 462° K  
F.F. = 369° K

49' 10 7/8"  
4 - 36" x 50" I BM  
16 - 1/2" φ 270 K STRAND CK

$$0.170(270) \times 16 \times 0.153 = 462.7 \text{ K}$$

$$0.170(270) - 38 \times 16 \times 0.153 = 369.6 \text{ K}$$

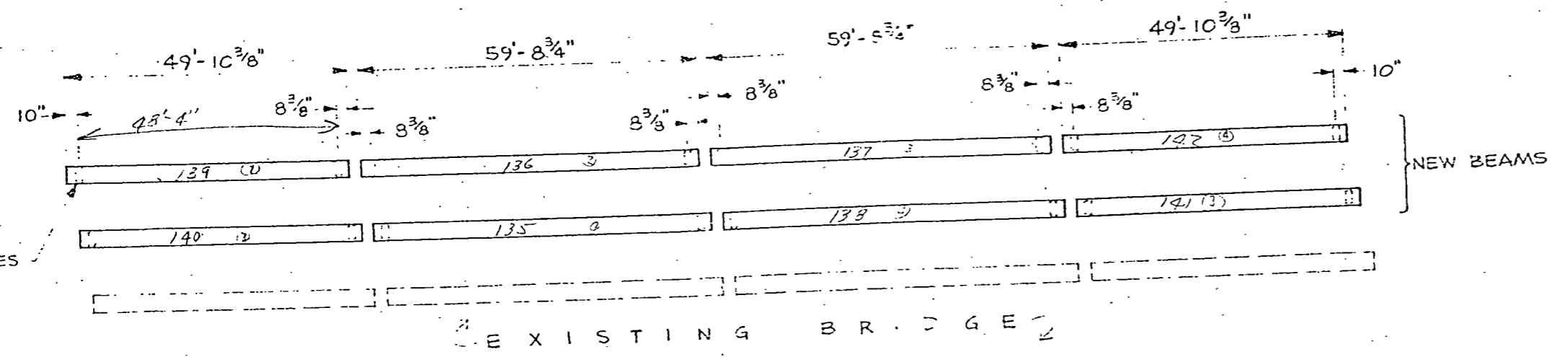
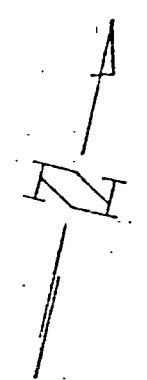
0094-260.125

NORTH DAKOTA CONCRETE PROD.  
BISMARCK, NORTH DAKOTA

RFI - I-094-7 (24) STUTSMAN Co  
4-36" x 50" & 4-36" x 60" P/S I BM.

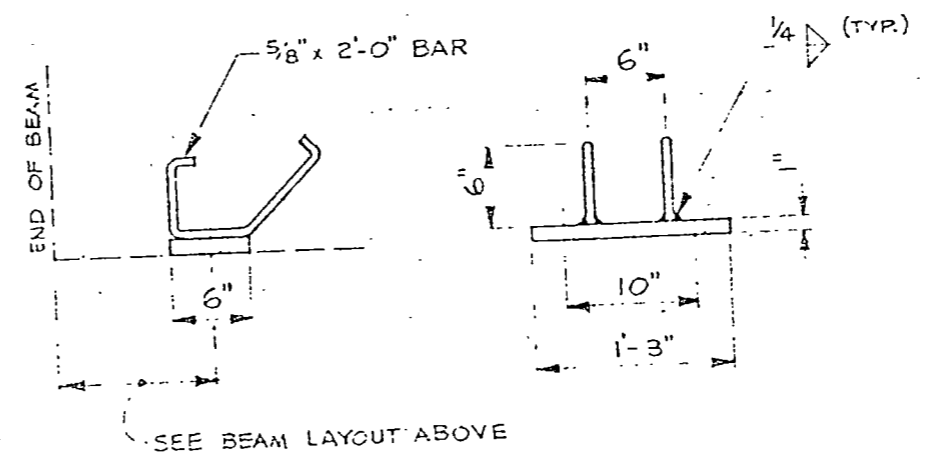
SCALE	DRAWING NUMBER
DATE 8-4-76	
DRAWN JBM	

Corrections per NDHW Dept  
10/4/76



BEAM LAYOUT

- NOTES:  
 SEE SHT. 2 FOR 59'-8 3/4" BEAMS  
 SEE SHT. 3 FOR 49'-10 3/8" BEAMS  
 SEE SHT. 4 FOR REINFORCING



SOLE PLATE DETAILS

**FINAL**  
**APPROVED**  
**DRAWING**  
 N.D. HIGHWAY DEPT.

PRINTED  
 AUG 25 1976  
 E.R.O.

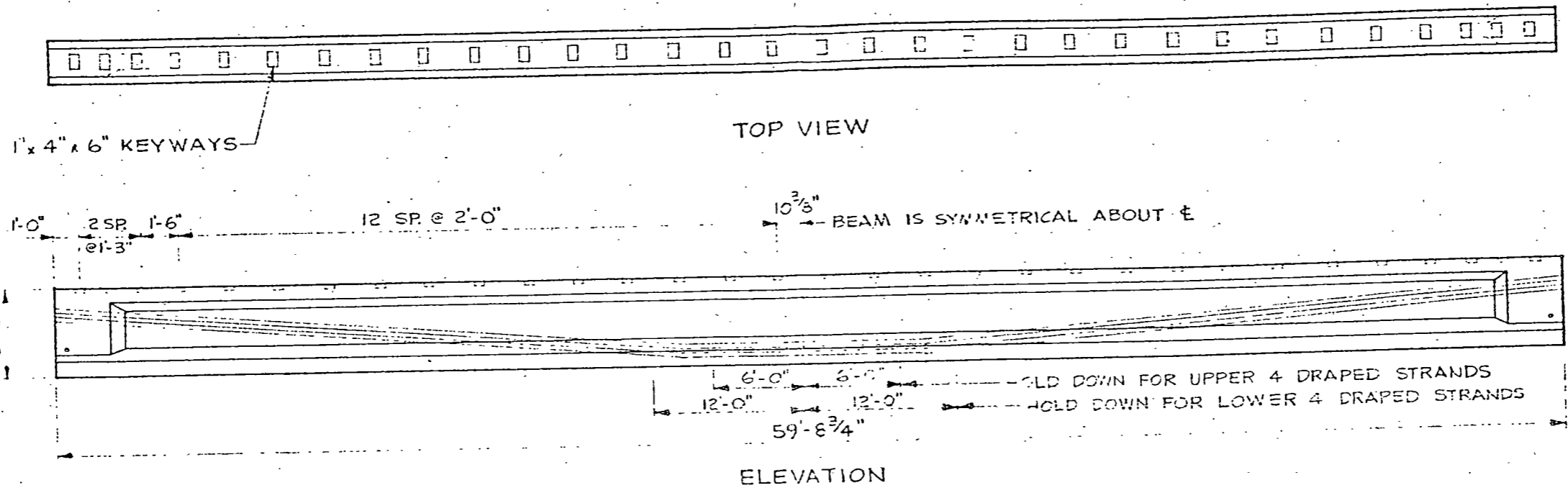
BR. No. 94-260.125 L 2-24-76 REV.

NORTH DAKOTA CONCRETE PRODUCTS  
 BISMARCK, NORTH DAKOTA

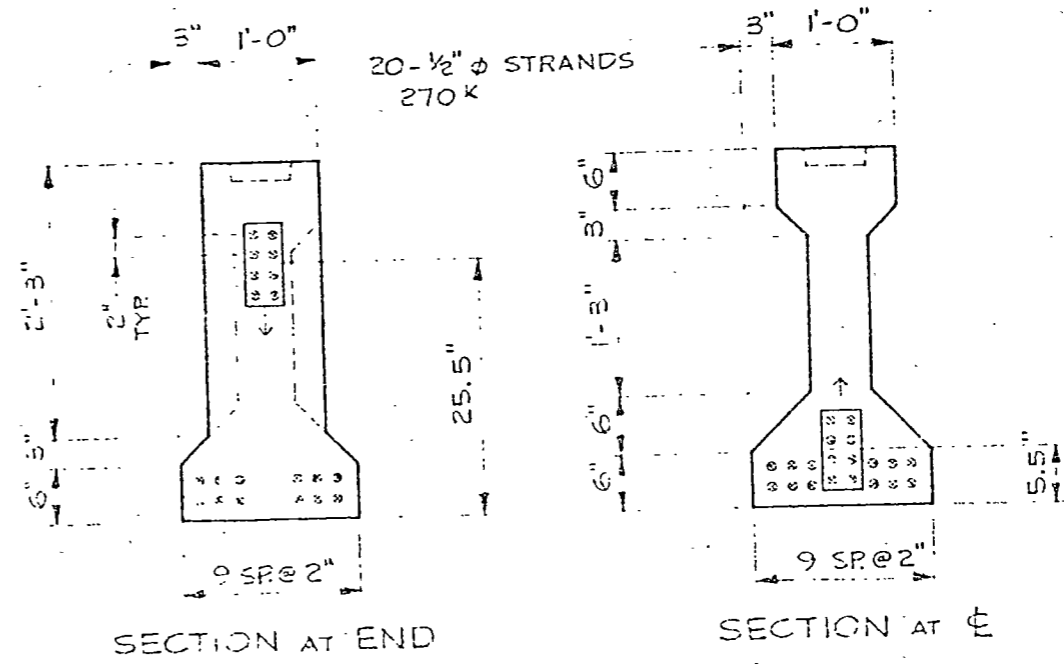
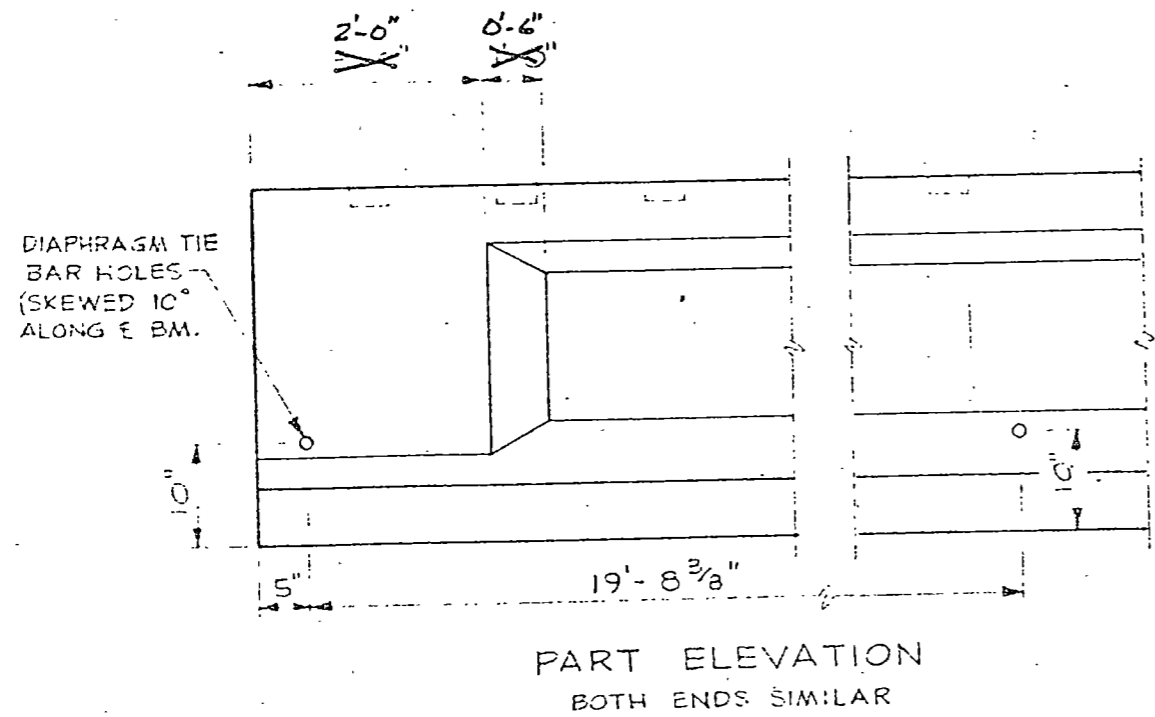
STUTSMAN CO. RFI-I-094-7(24) 260  
 8-35" P/S GIRDERS

DATE	7-6-76	SCALE	NONE	SK-76-333 3 SHT. 1 OF 4
DRAWN	CLC	APP'D		

• STRESS TRANSFER @ 5,075 PSI



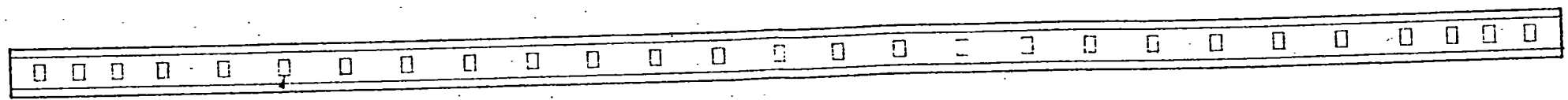
• MAKE 4 BEAMS THUS



59'-8 3/4" BEAM DETAILS  
SHT. 2 OF 4

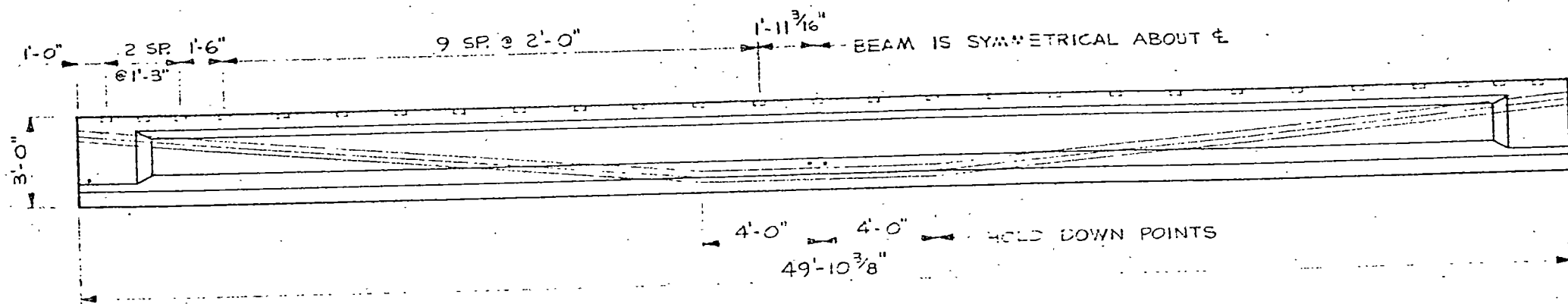
REV. 01-15-74

• STRESS TRANSFER @ 4,175 PSI



TOP VIEW

1" x 4" x 6" KEYWAYS

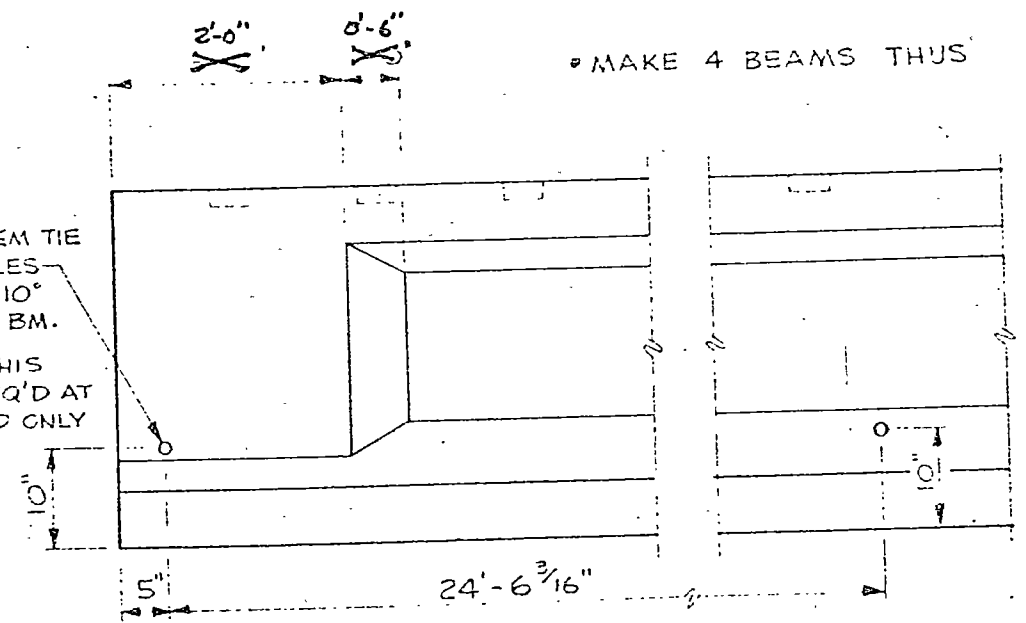


ELEVATION

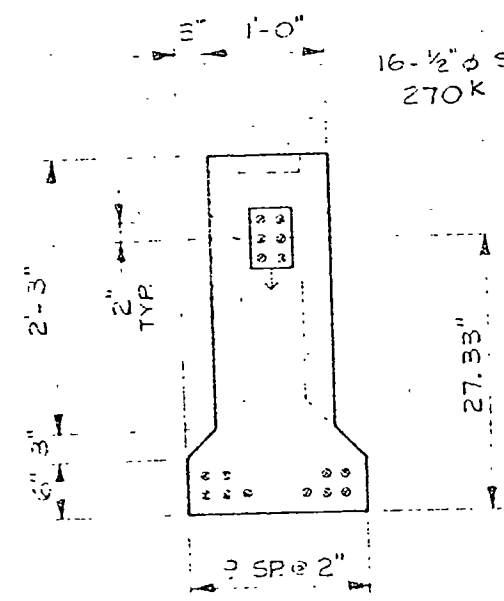
1'-0" 2 SP. @ 1'-6" 6'-3" 9 SP. @ 2'-0" 1'-11 3/16" BEAM IS SYMMETRICAL ABOUT  $\epsilon$   
3'-0" 4'-0" 4'-0" HOLD DOWN POINTS 49'-10 3/8"

• MAKE 4 BEAMS THUS

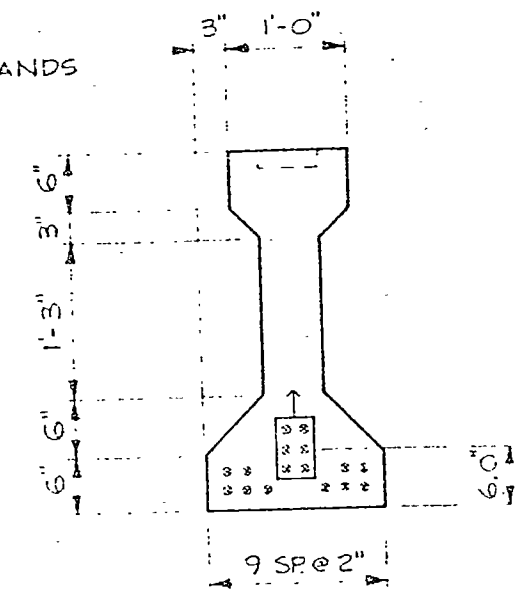
DIAPHRAGM TIE BAR HOLES (SKEWED 10° ALONG  $\epsilon$  BM.  
NOTE: THIS HOLE REQ'D AT PIER END ONLY



PART ELEVATION



SECTION AT END

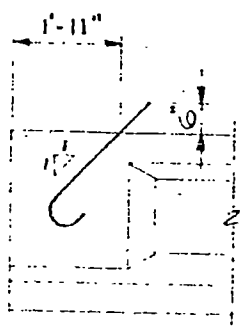
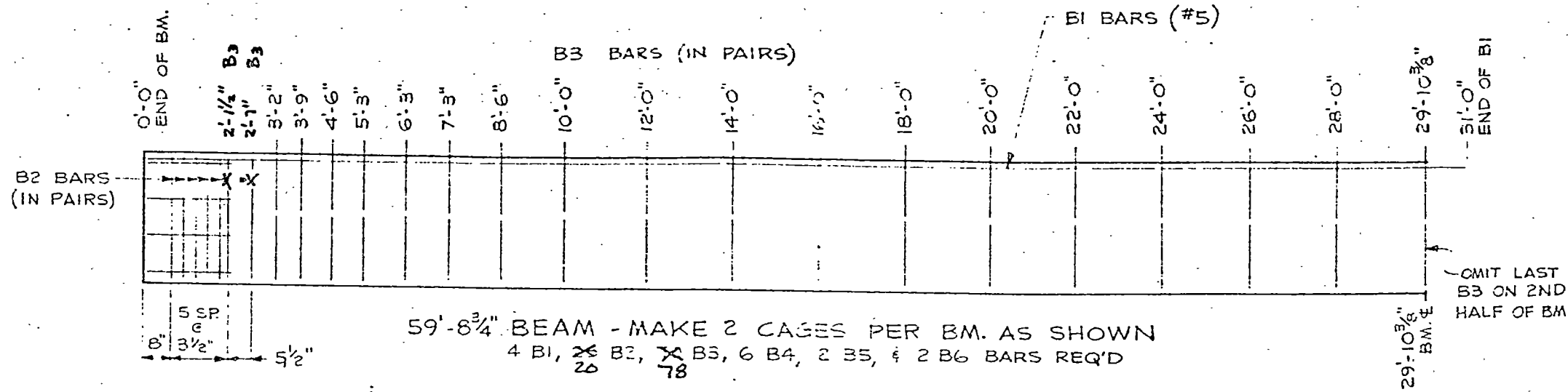


SECTION AT  $\epsilon$

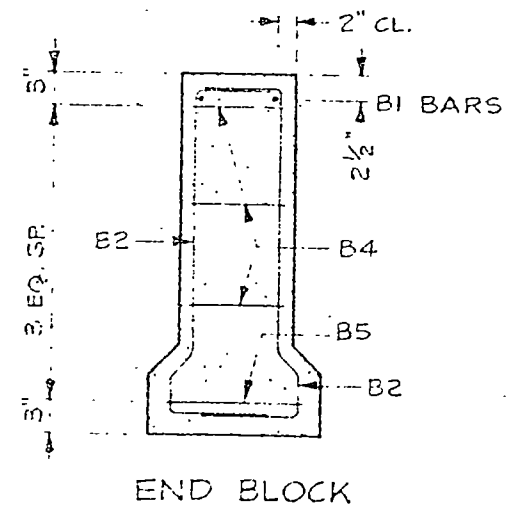
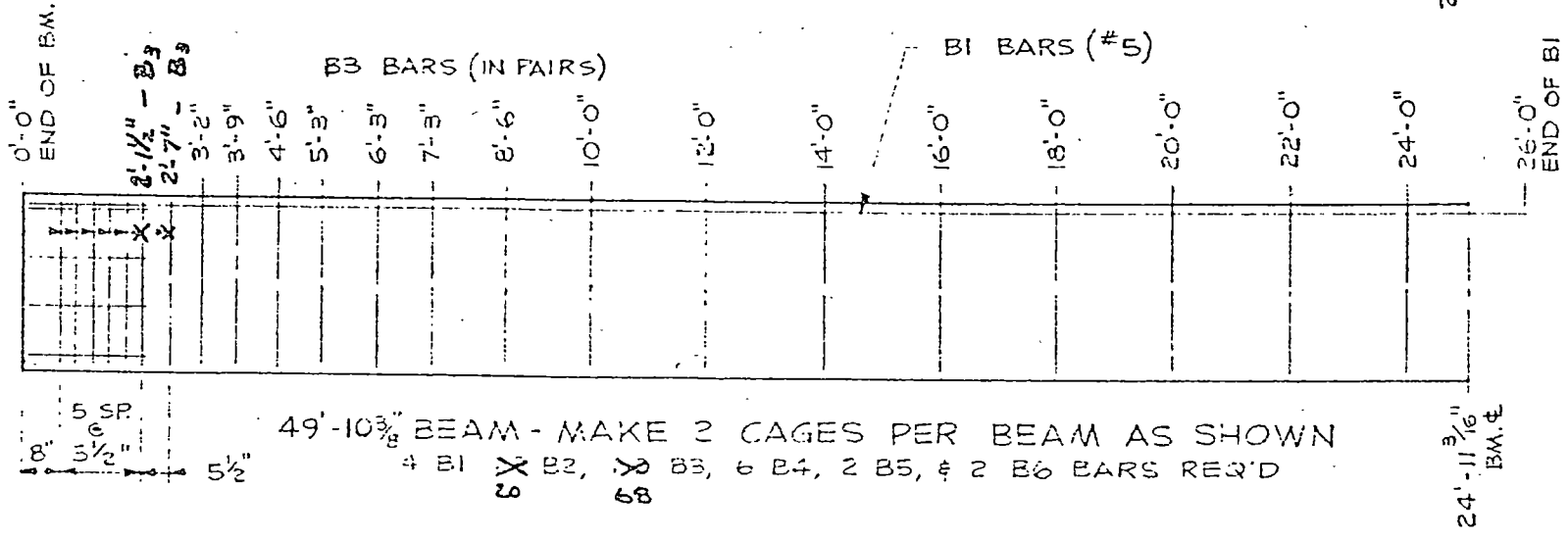
49'-10 3/8" BEAM DETAILS

SHT. 3 OF 4

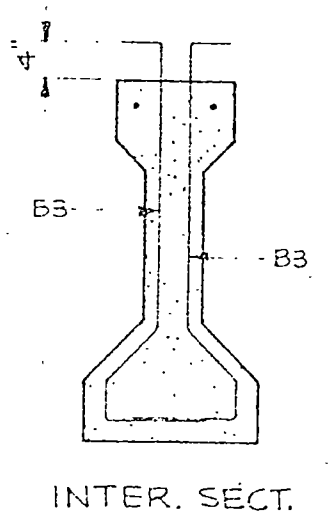
REV. 6-25-76



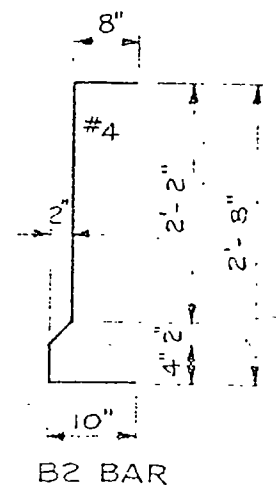
LIFTING BAR (B6) PLACEMENT



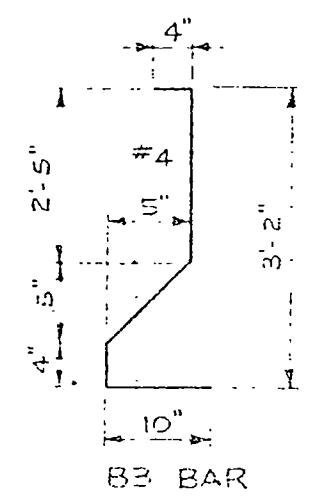
END BLOCK



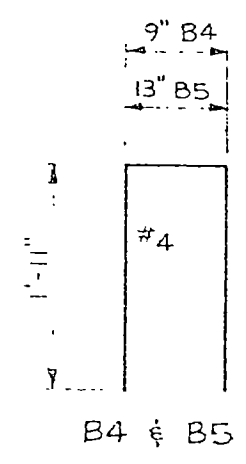
INTER. SECT.



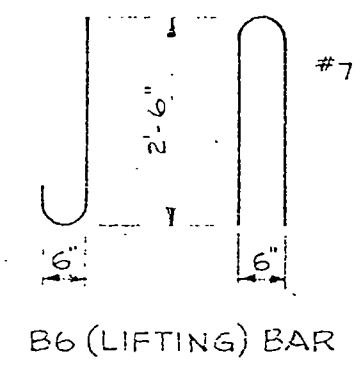
B2 BAR



B3 BAR



B4 & B5

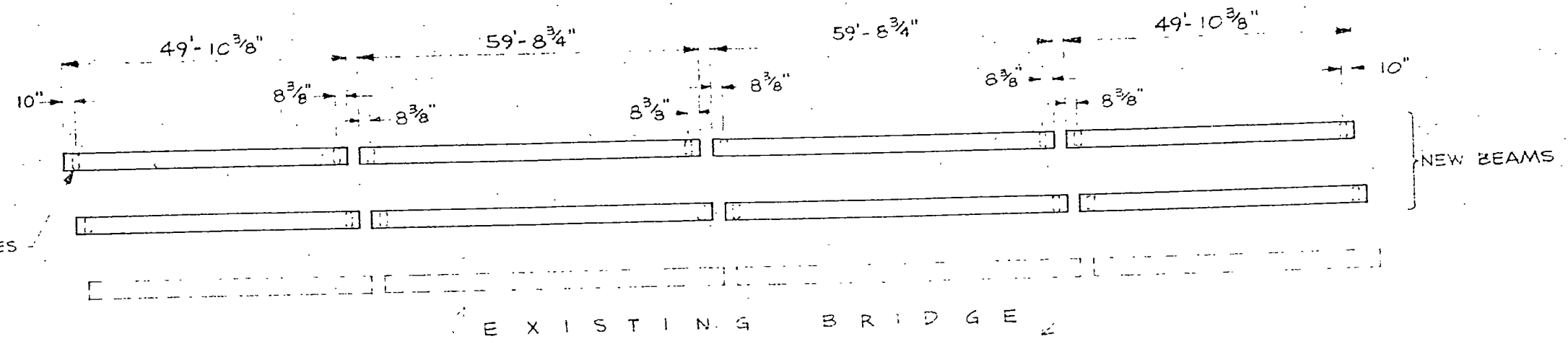
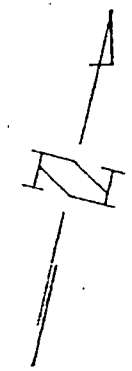


B6 (LIFTING) BAR

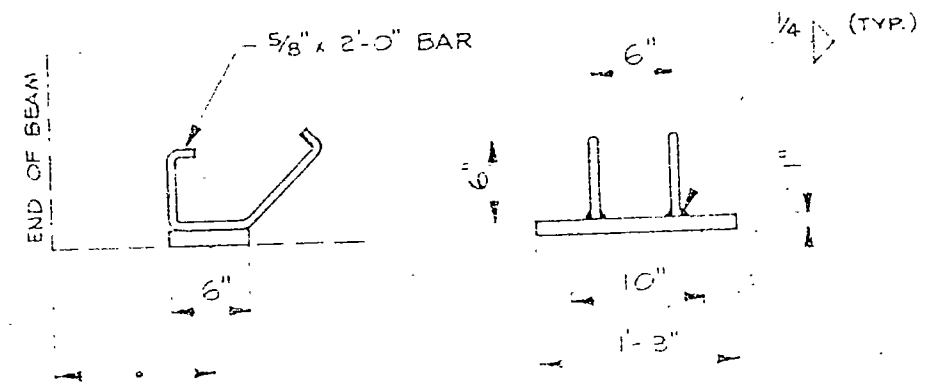
REINFORCING DETAILS - ALL B.M.S.

REV. 8-25-76





BEAM LAYOUT



- NOTES:  
 SEE SHT. 2 FOR 59'-8<sup>3</sup>/<sub>4</sub>" BEAMS  
 SEE SHT. 3 FOR 49'-10<sup>3</sup>/<sub>8</sub>" BEAMS  
 SEE SHT. 4 FOR REINFORCING

SEE BEAM LAYOUT ABOVE

SOLE PLATE DETAILS

**FINAL**  
**APPROVED**  
**DRAWING**  
 N.D. HIGHWAY DEPT.

PRINTED  
 AUG 25 1976  
 E.R.O.

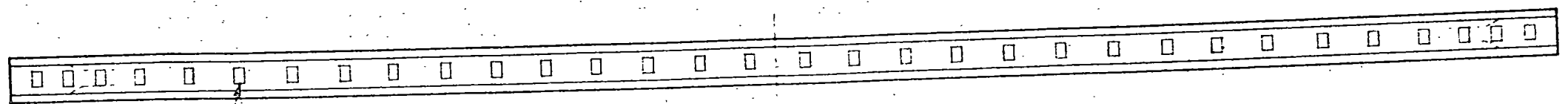
PR. No. 94-260.125 L 8-24-76 REV.

**NORTH DAKOTA CONCRETE PRODUCTS**  
 BISMARCK, NORTH DAKOTA

STUTSMAN CO. RFI-I-094-7(24)260  
 8-26" P/S. GIRDERS

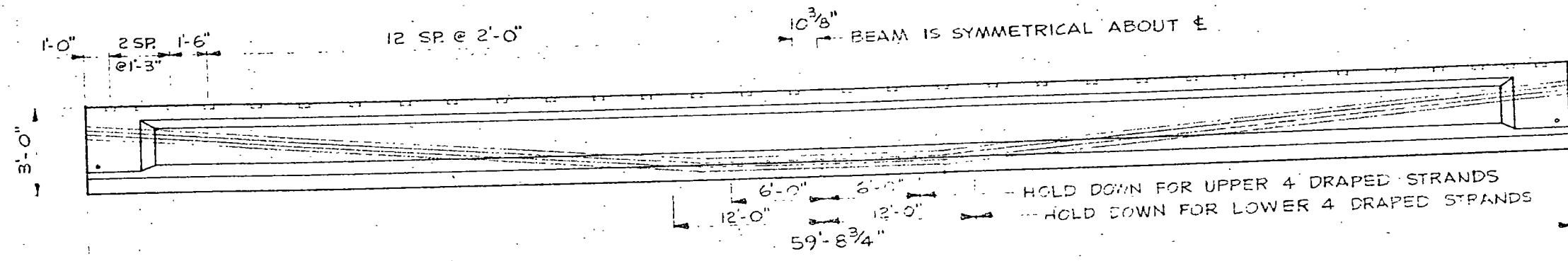
DATE	7-6-76	SCALE	NONE	SK-76-338 B SHT. 1 OF 4
DRAWN	CLR	APP'D		

• STRESS TRANSFER @ 5,075 PSI



1' x 4" x 6" KEYWAYS

TOP VIEW



3'-0"

1'-0" 2 SP 1'-6" @ 1'-3"

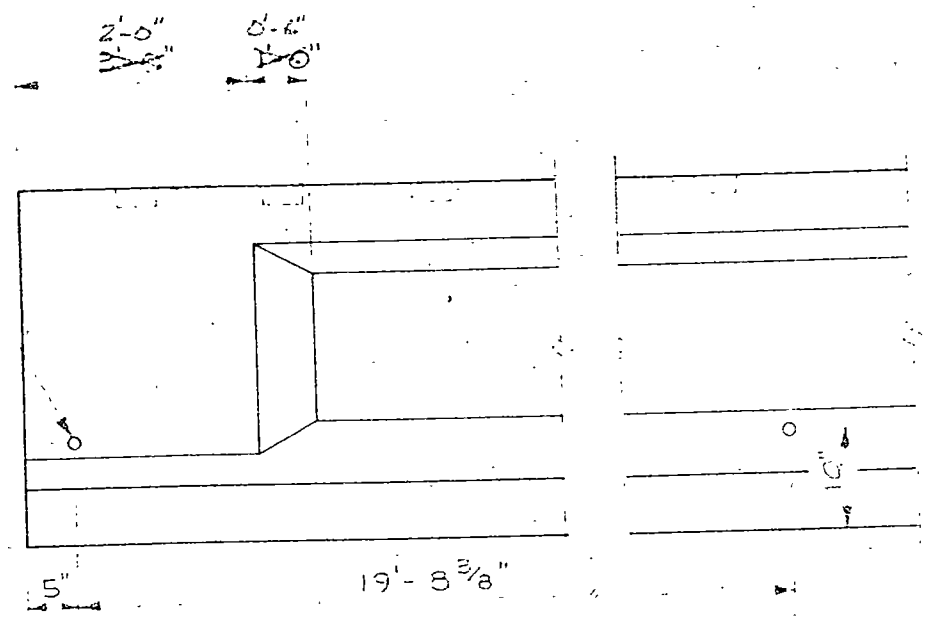
12 SP @ 2'-0"

10 3/8" BEAM IS SYMMETRICAL ABOUT E

6'-0" 6'-0" 12'-0" 12'-0" 59'-8 3/4" HOLD DOWN FOR UPPER 4 DRAPED STRANDS HOLD DOWN FOR LOWER 4 DRAPED STRANDS

ELEVATION

• MAKE 4 BEAMS THUS



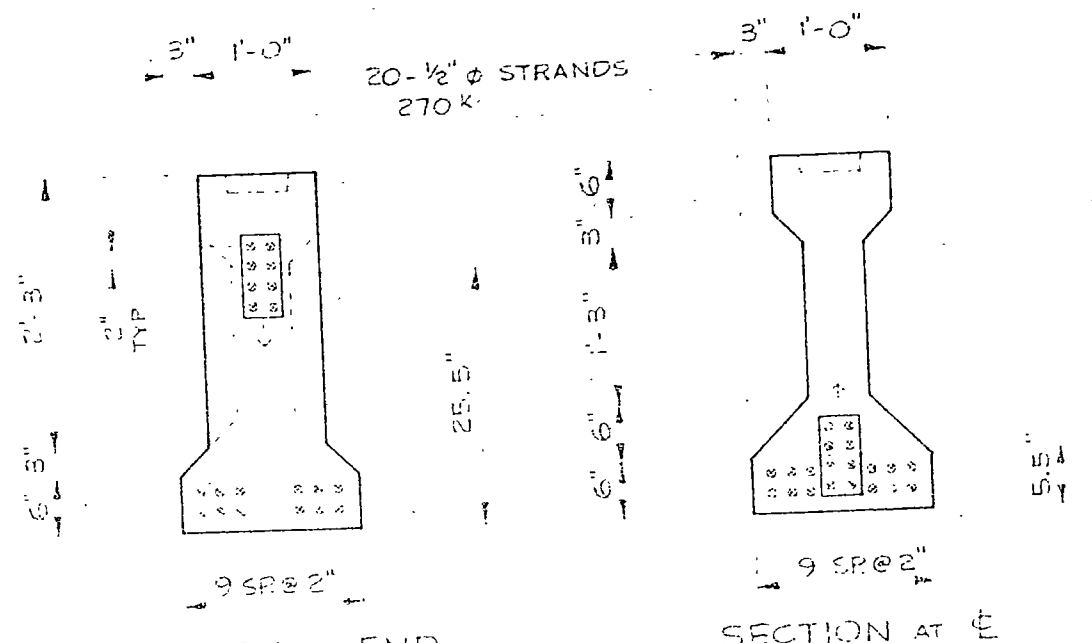
DIAPHRAGM TIE BAR HOLES (SKEWED 10° ALONG E BM.)

10"

5"

19'-8 3/4"

PART ELEVATION BOTH ENDS SIMILAR



3" 1'-0" 20-1/2" Ø STRANDS 270 K

21.5"

2" TYP

6.5"

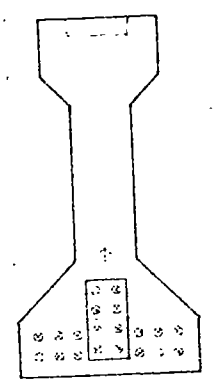
9 SP @ 2"

SECTION AT END

25.5"

3" 1'-0"

6" 6" 1'-3" 3" 0"



9 SP @ 2"

SECTION AT E

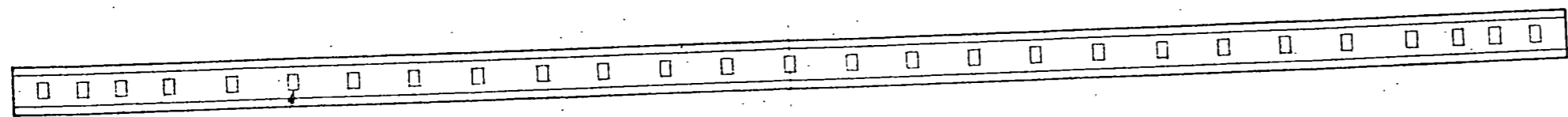
5.5"

59'-8 3/4" BEAM DETAILS

SHT. 2 OF 4

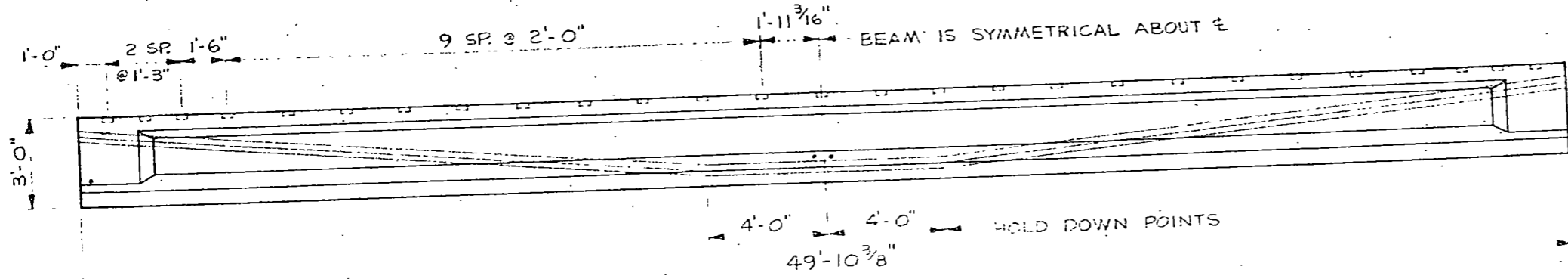
REV. 6-25-76

• STRESS TRANSFER @ 4,175 PSI



TOP VIEW

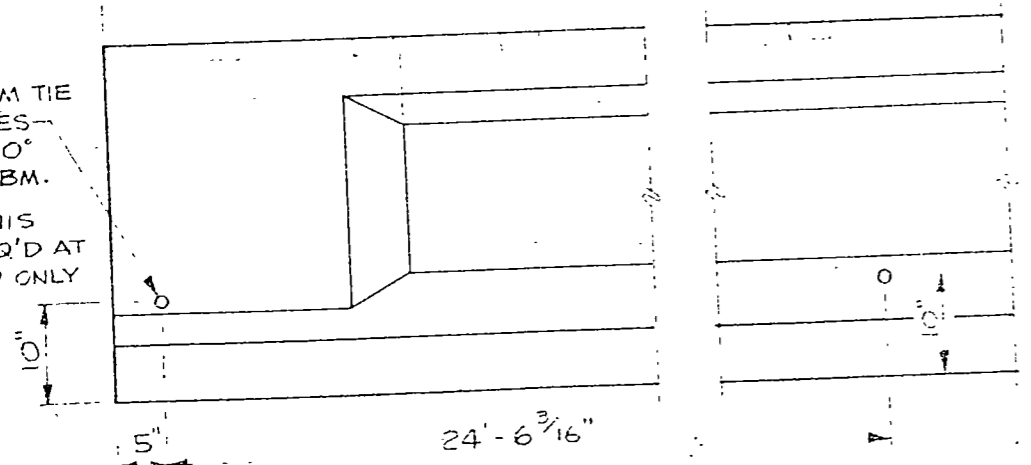
1" x 4" x 6" KEYWAYS



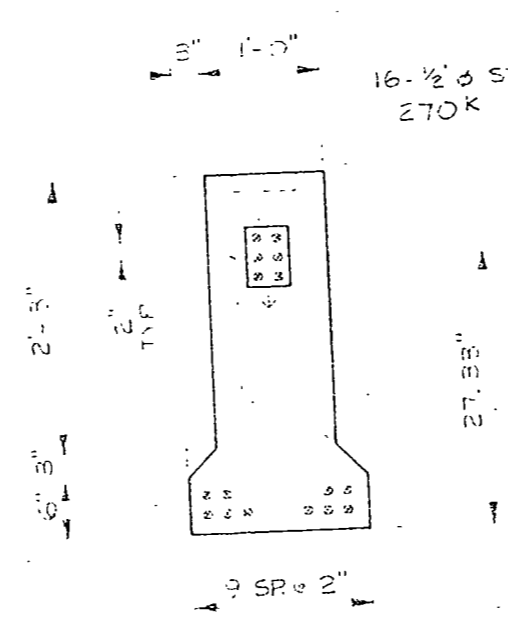
ELEVATION

• MAKE 4 BEAMS THUS

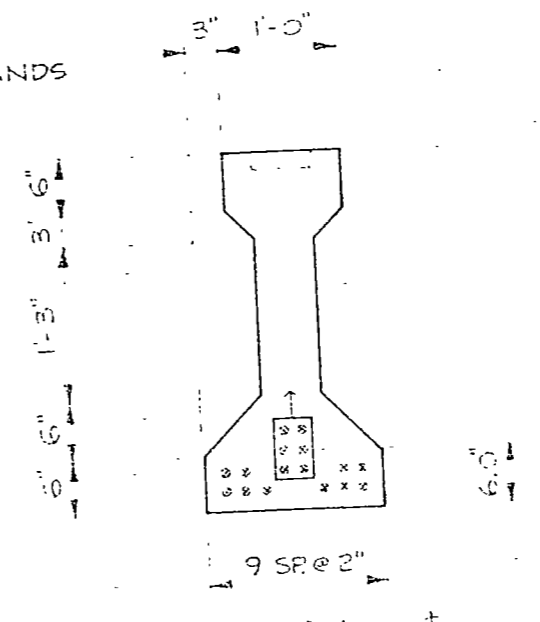
DIAPHRAGM TIE BAR HOLES (SKEWED 10° ALONG C BM. NOTE: THIS HOLE REQ'D AT PIER END ONLY



PART ELEVATION



SECTION AT END

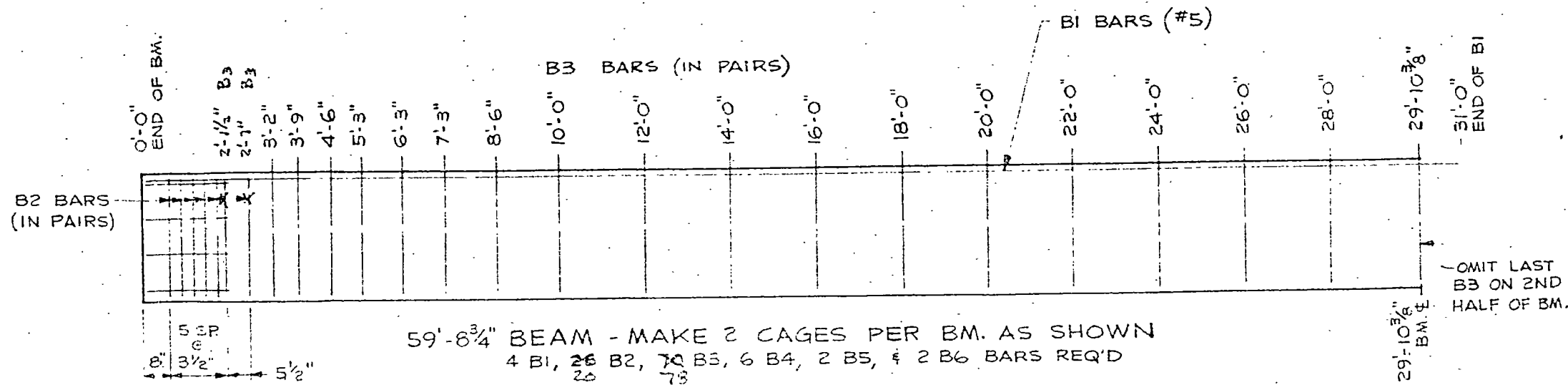


SECTION AT C

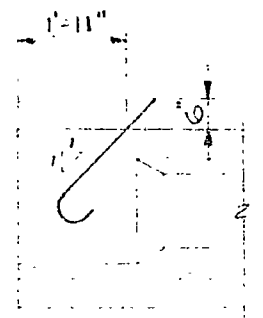
49'-10 3/8" BEAM DETAILS

SHT. 3 OF 4

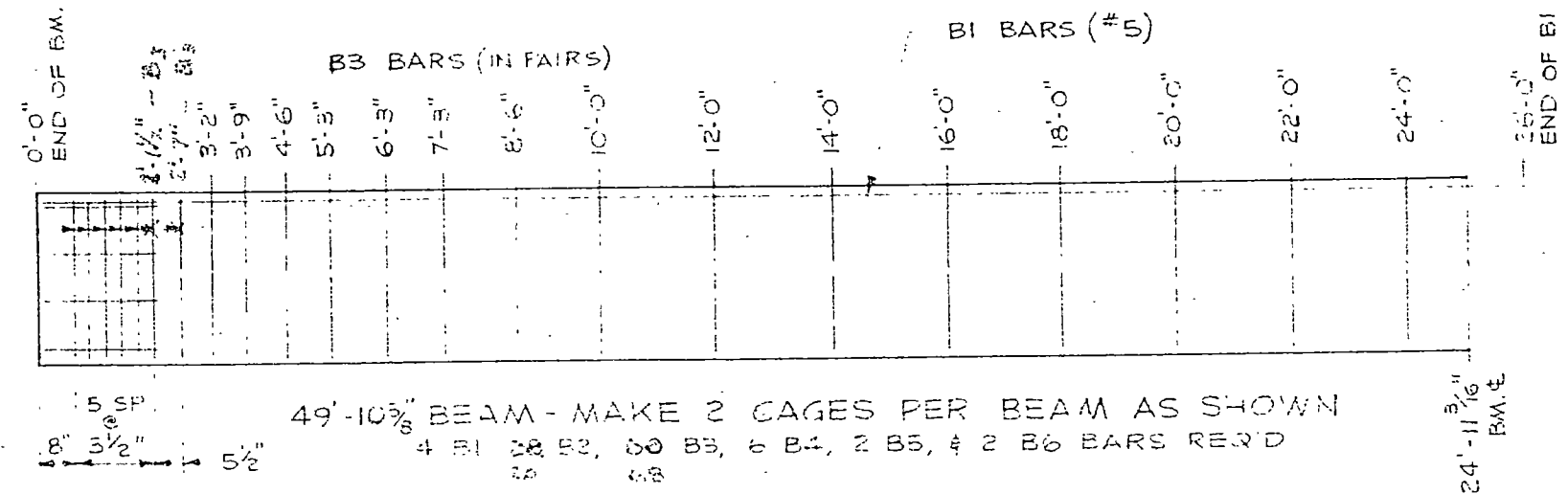
REV. 6 25-76



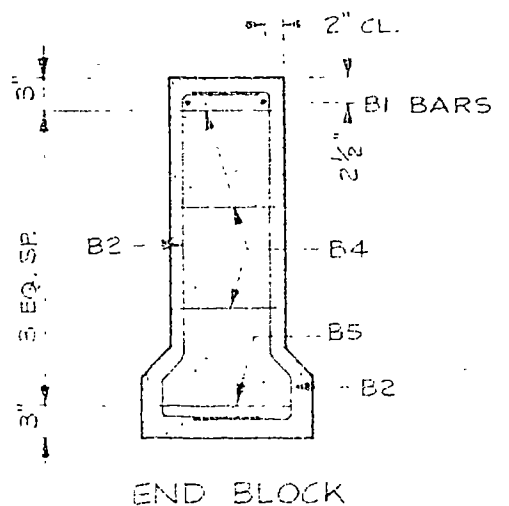
59'-8<sup>3</sup>/<sub>4</sub>" BEAM - MAKE 2 CAGES PER BM. AS SHOWN  
 4 B1, 26 B2, 70 B3, 6 B4, 2 B5, & 2 B6 BARS REQ'D



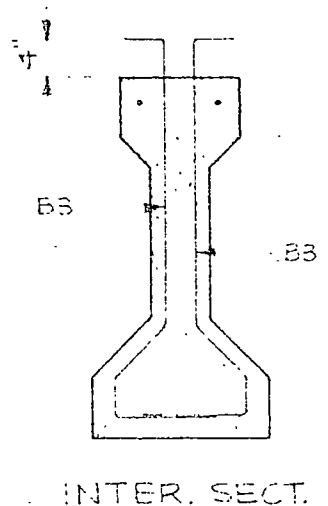
LIFTING BAR (B6) PLACEMENT



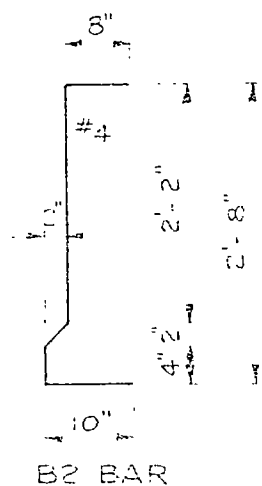
49'-10<sup>3</sup>/<sub>8</sub>" BEAM - MAKE 2 CAGES PER BEAM AS SHOWN  
 4 B1, 28 B2, 60 B3, 6 B4, 2 B5, & 2 B6 BARS REQ'D



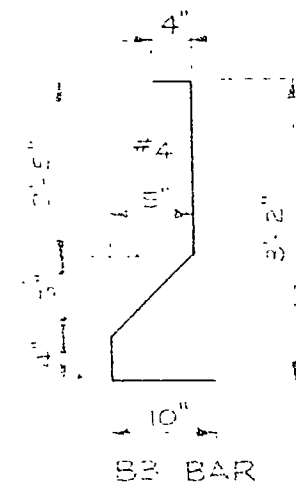
END BLOCK



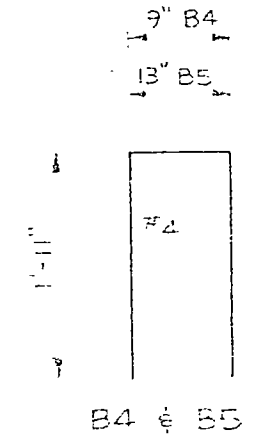
INTER. SECT.



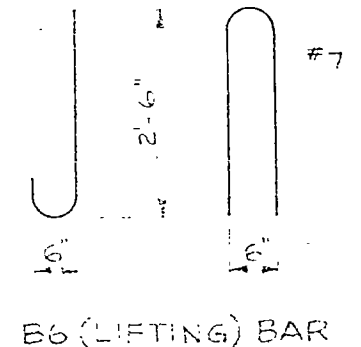
B2 BAR



B3 BAR



B4 & B5



B6 (LIFTING) BAR

REINFORCING DETAILS - ALL BARS

SHT. 4 OF 4

REV. 6-25-76