94-166.531

	STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
	ND	BRS-9-999(325)	18265	1	1

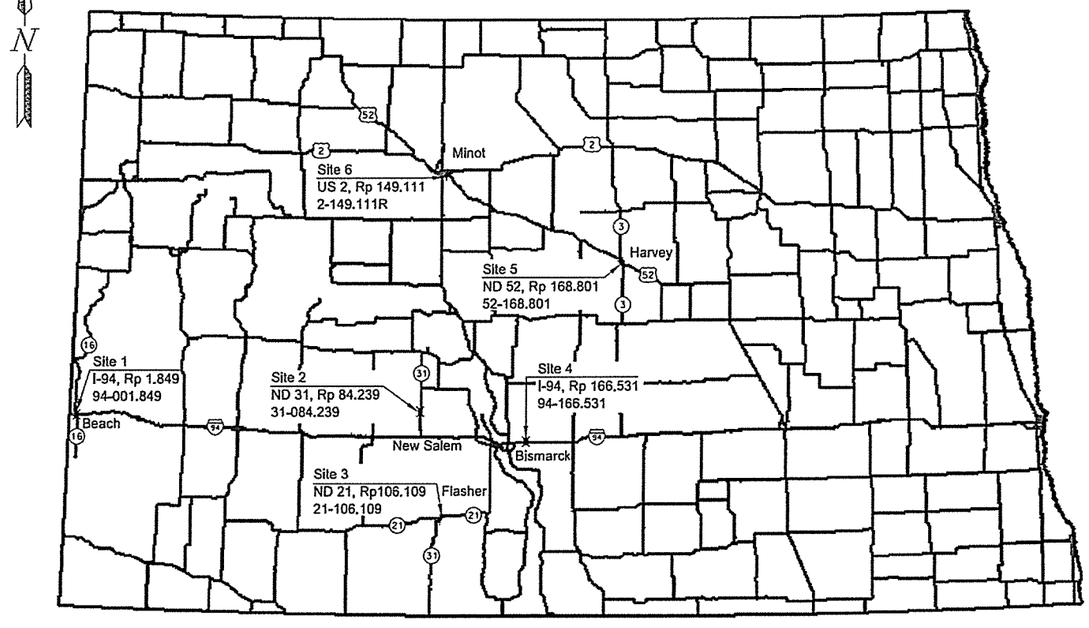
JOB # 21
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

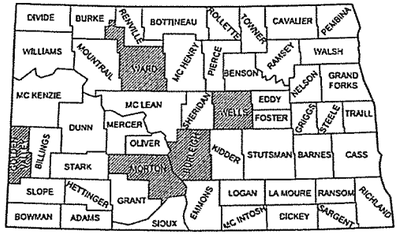
BRS-9-999(325)

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
BRS-9-999(325)	NA	NA

Burleigh, Golden Valley, Morton, Ward, & Wells
Beach Interchange, Sweet Briar Creek, Louse Creek
Apple Creek Separation, Sheyenne River, NE Jct. U.S. Hwy 2 & 52
Structural Painting





STATE COUNTY MAP

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.

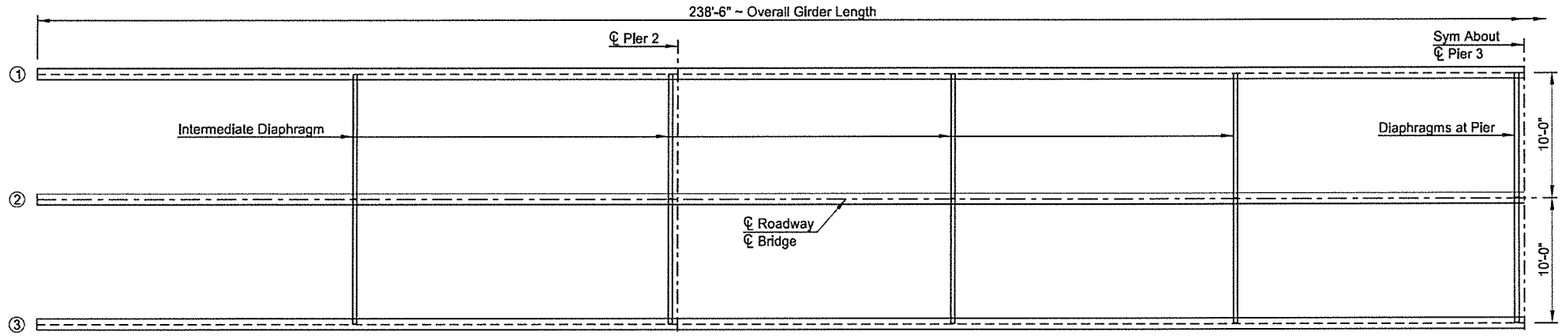
APPROVED DATE 12/1/15

Terrence R. Udland
BRIDGE DIVISION

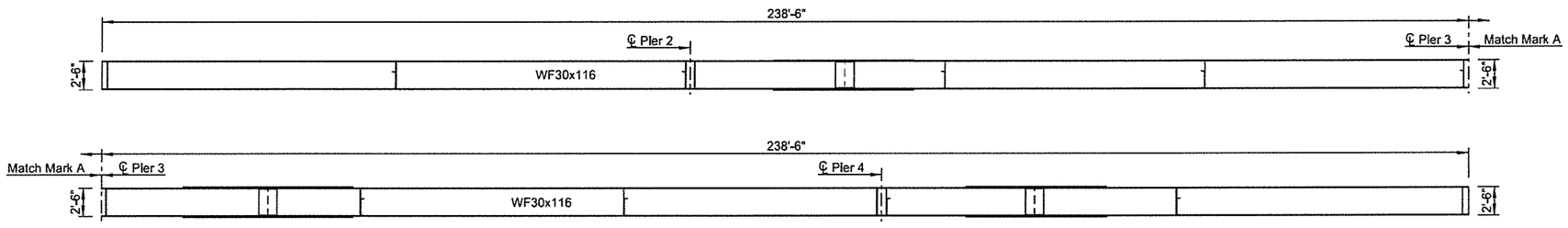
This document was originally issued and sealed by Terrence R. Udland Registration Number PE- 2674, on 12/1/15 and the original document is stored at the North Dakota Department of Transportation

12/1/2015 10:10:55 AM acahlin R:\project\99999000.325\bridge\170BR_001_TITLE.dgn

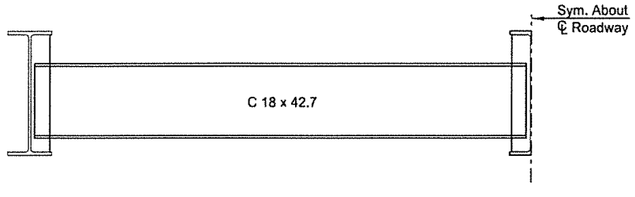
STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	BRS-9-999(325)	170	5



HALF GIRDER LAYOUT



GIRDER ELEVATION



INTERMEDIATE DIAPHRAGM

This document was originally issued and sealed by Lindsay Bossert, Registration Number PE 8395, on 11/18/2015, and the original document is stored at the North Dakota Department of Transportation

I-94 APPLE CREEK SEPARATION
7 MILES EAST OF US 83 N

STRUCTURAL STEEL PAINTING DETAILS

DESIGN DATA				
Traffic	Average Daily			Est.Max.Hr.
Current 1999	Pass: 3,605	Trucks 645	Total 4,250	425
Forecast 2019	Pass: 5,770	Trucks 1,035	Total 6,805	685
Minimum Sight Dist. for:		Design Speed 70 MPH		
Stopping 600'		Bridges		
Full Control of Access				
No Point of Access Other Than at Interchange Ramps				

JOB# 1

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	IM-SIB-1-094(054)161	1

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

GOVERNING SPECIFICATIONS:

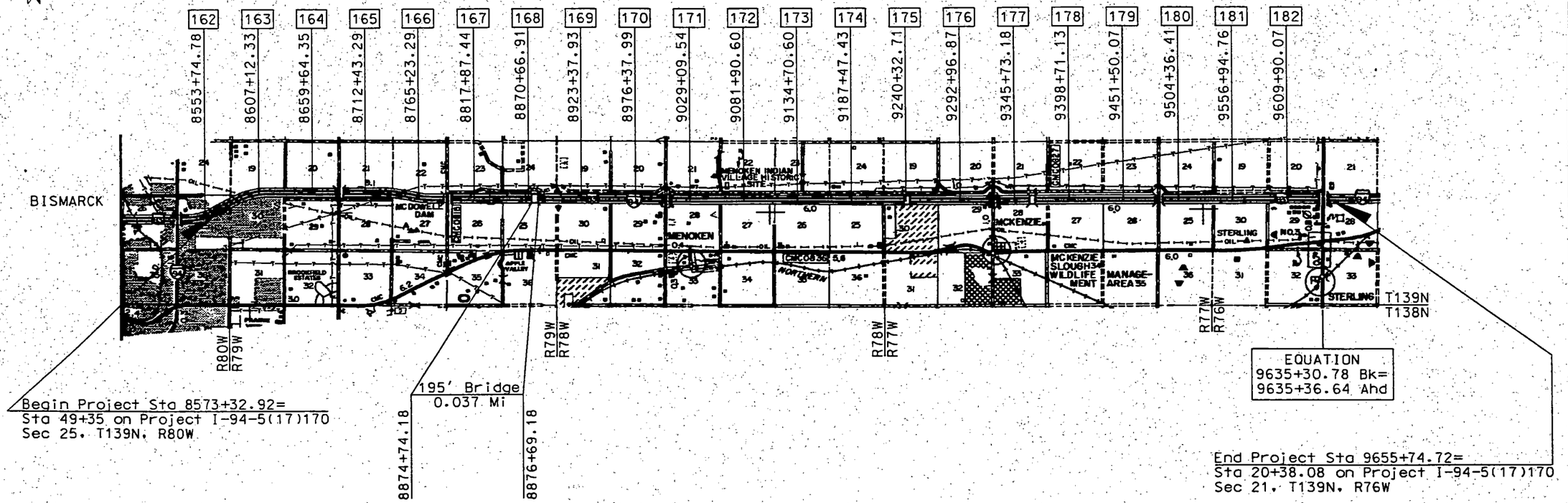
Standard Specifications adopted by the North Dakota Department of Transportation October 1997; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

FEDERAL AID PROJECT IM-SIB-1-094(054)161
IN BURLEIGH COUNTY
CONCRETE PAVEMENT REPAIR, HOT BITUMINOUS PAVEMENT OVERLAY, AND INCIDENTALS
(EAST BOUND)

LENGTH OF PROJECT

Miles- Gross	Miles- Net
20.499	20.462

0.037 Mi deducted for bridge



DESIGNER Dave Jenkins
DESIGNER Brad Pfeifer
DESIGNER
RECOMMEND APPROVAL 8-17-1999
DESIGN ENGINEER Kathleen Bird

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

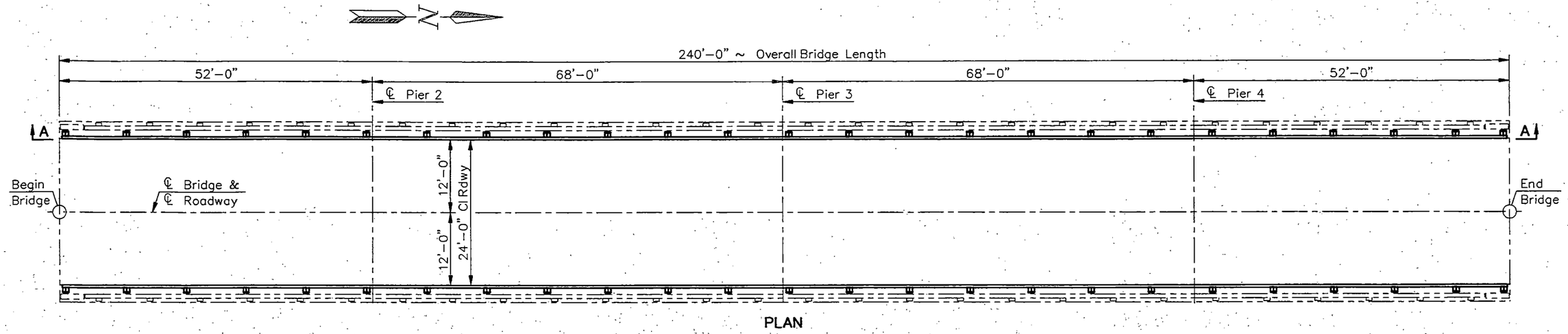
APPROVED

DIVISION ADMINISTRATOR DATE

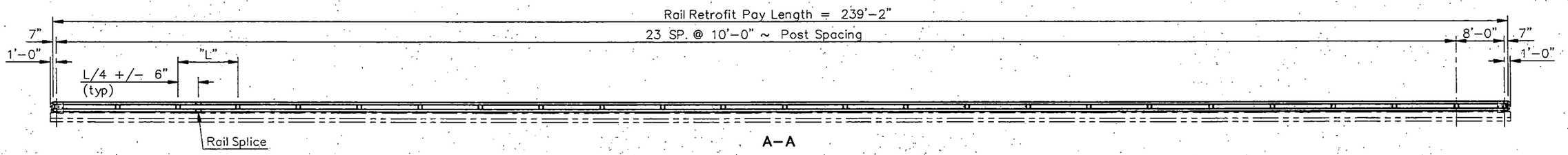
APPROVED DATE 8-17-99
David K.O. Leer
DIRECTOR OF HIGHWAYS AND ENGINEERING
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

DAVID K. O. LEER REGISTERED PROFESSIONAL P.E. 1199 ENGINEER NORTH DAKOTA

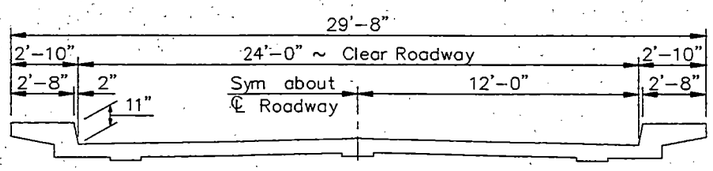
...\design\jenkins\title.dgn Jul. 08, 1999 10:41:56



PLAN



A-A



TYPICAL DECK SECTION

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
624	3001	DOUBLE BOX BEAM RAIL RETROFIT (FREE STANDING)	LF	478.3

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

APPLE CREEK SEPARATION

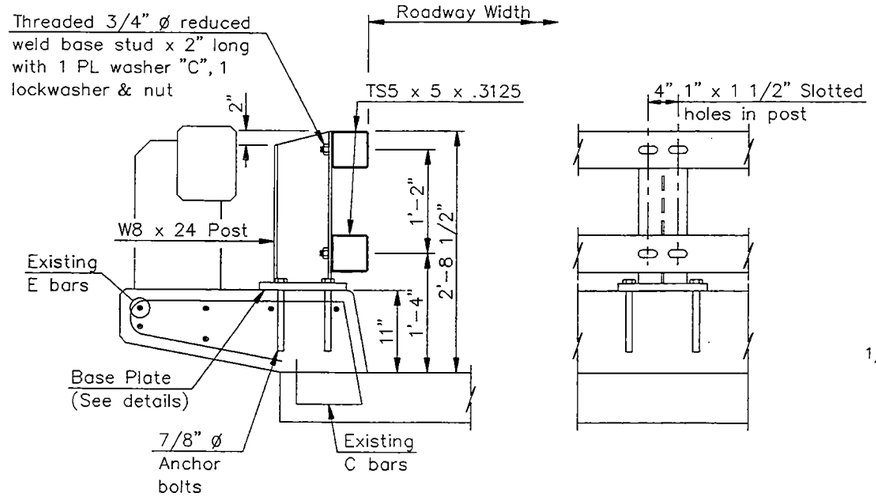
RAIL RETROFIT LAYOUT

PROJECT: IM-SIB-1-094(054)161

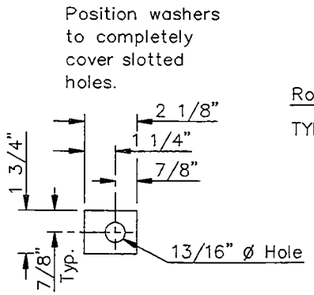
BURLEIGH COUNTY

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

FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-SIB-1-094(054)161	96

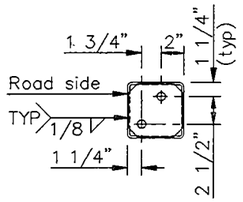


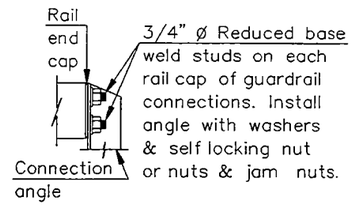
CURB MOUNT POST DETAILS



1/4" PL (A36 OR MERCHANT QUALITY)

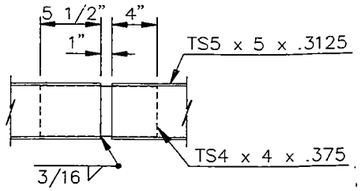
PLATE WASHER "C"



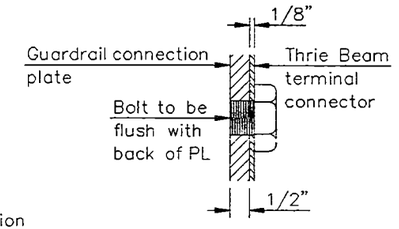


Rail Cap shall be a BAR 4 3/4 x 3/16 x 4 3/4".
Cope corners 3/4" to provide for zinc drains.

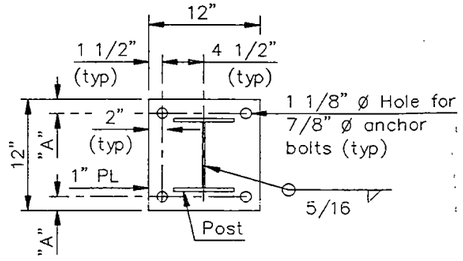
RAIL CAP DETAILS



RAIL SPLICE DETAIL

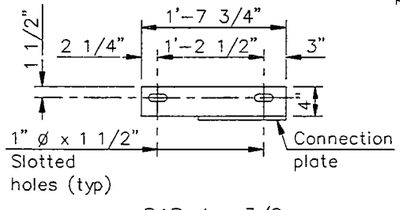


DETAIL "B"

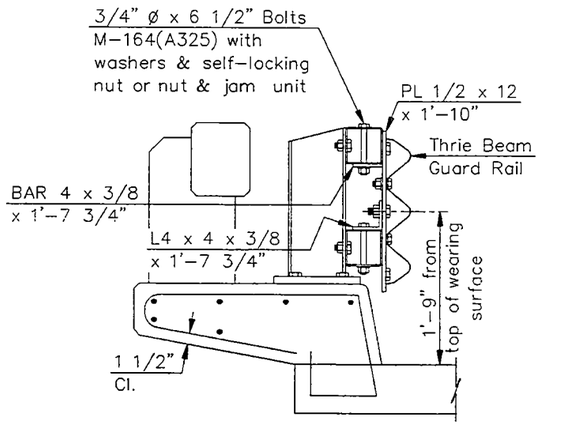


The "A" Dimension is variable, 1 1/2" to 3"

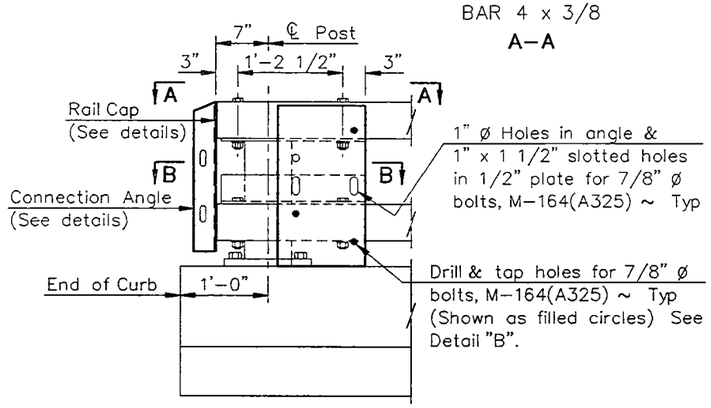
POST BASE PLATE DETAIL



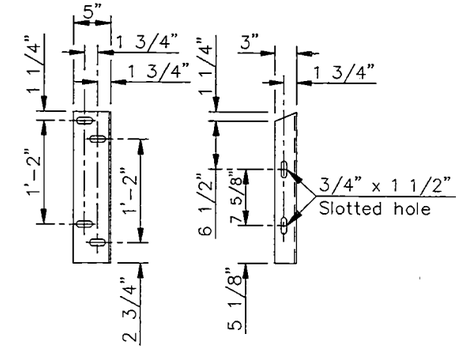
BAR 4 x 3/8
A-A



THRIE BEAM CONNECTION DETAIL

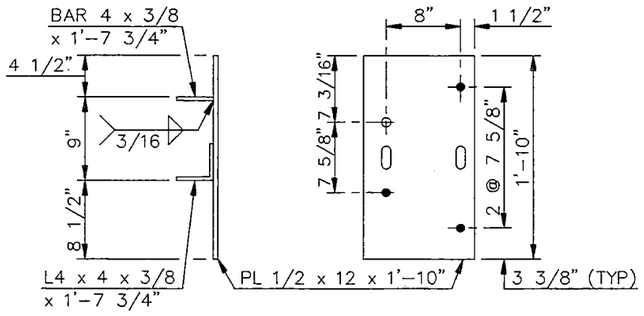


END POST CONNECTION DETAIL



L5 x 3 x 1/4 x 1'-8 1/2"

CONNECTION ANGLE DETAILS



(4 REQUIRED)

GUARDRAIL CONNECTION PLATE DETAILS

NOTES:

The bid item shall be "Double Box Beam Rail Retrofit". The pay length shall be end to end and in linear feet.

Rail elements shall be square structural tubing in accordance with ASTM Specification A500 Grade B.

Steel posts, plates and angles shall conform to AASHTO Specification M-183, unless otherwise noted.

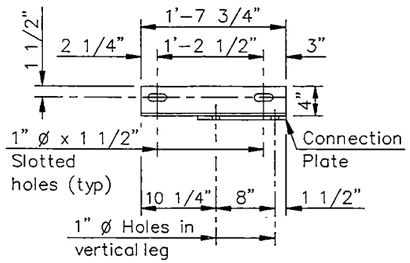
Railing shall be fabricated to the horizontal and vertical alignment of the structure. Posts shall be normal to grade.

Payment for the railing shall include compensation for furnishing and installing the guardrail connection plates.

All structural steel including fasteners shall be hot-dip galvanized after fabrication according to AASHTO M111.

Rails shall be fabricated so that each rail segment between splices is attached to a minimum of two posts.

The anchor bolts shall be embedded into the concrete with a chemical adhesive system that can develop a tensile strength of at least 17,500 lbs.



L4 x 4 x 3/8

B-B

QUANTITIES	
DOUBLE BOX BEAM RAIL RETROFIT (FREE STANDING)	478.3 LF

APPLE CREEK SEPARATION

TRAFFIC RAIL DETAILS

RAIL 99DLS37 LLS
...\bridge\applsep\rail.dgn Jul. 09, 1999 13:10:13

94-166.531-2

DESIGN DATA				
Traffic	Average Daily			Est.Max.Hr.
Current 1998	Pass: 3,325	Trucks 700	Total 4,025	400
Forecast 2018	Pass: 5,320	Trucks 1120	Total 6,440	635
Minimum Sight Dist. for:		Design Speed 70 MPH		
Stopping 600'		Bridges		
Full Control of Access				
No Point of Access Other Than at Interchange Ramps				

JOB# 3

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	AC-IM-1-094(053)161	1

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT AC-IM-1-094(053)161

IN BURLEIGH COUNTY

Concrete Pavement Repair
Hot Bituminous Pavement Overlay
and Incidentals
(Westbound Roadway)

GOVERNING SPECIFICATIONS:

Standard Specifications adopted by the North Dakota Department of Transportation October 1997; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

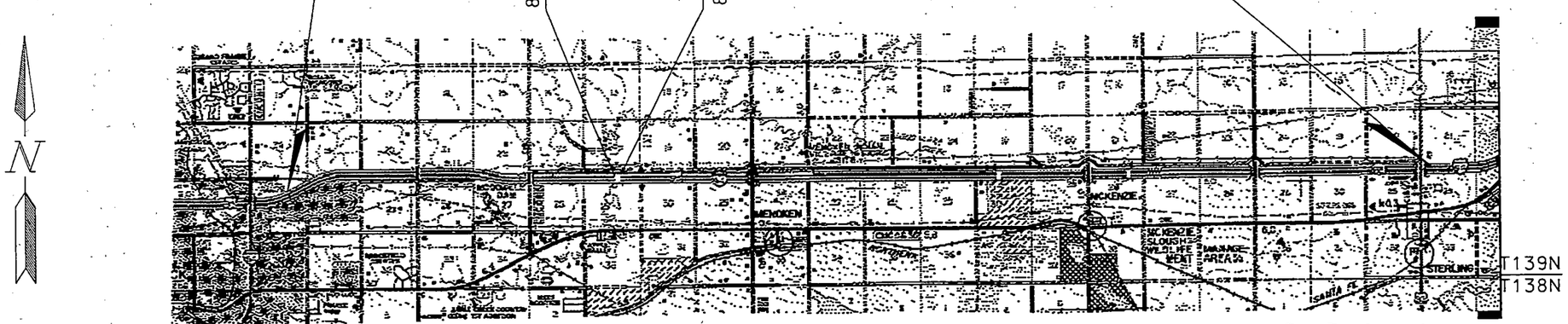
LENGTH OF PROJECT

Miles Gross	Miles Net
20.514	20.477

Begin Project Ref. Pt. 162.360
Sta 8572+96.78 (Old Sta 49+35)
Section 25, T139N, R80W

8873+56.01
Bridge
0.037 Mile
8875+51.21

End Project Ref. Pt. 182.874
Sta 9656+04.79 (Old Sta 20+38.08)
Section 21, T139N, R76W



8523+97.92 R80W 8579+13.88 R79W 8633+80.33 8686+85.87 8739+97.71 8792+70.28 8845+18.94 R79W 8897+20.81 R78W 8950+12.56 9003+22.52 9056+09.07 9108+94.40 9161+87.20 R78W 9214+53.53 R77W 9266+05.49 9319+01.87 9371+68.08 9424+47.43 9477+42.87 R77W 9530+24.31 R76W 9582+16.56 9635+36.64

DESIGNER Scott Workman
DESIGNER
DESIGNER
RECOMMEND APPROVAL May 22, 19 98
DESIGN ENGINEER K. The Bent

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

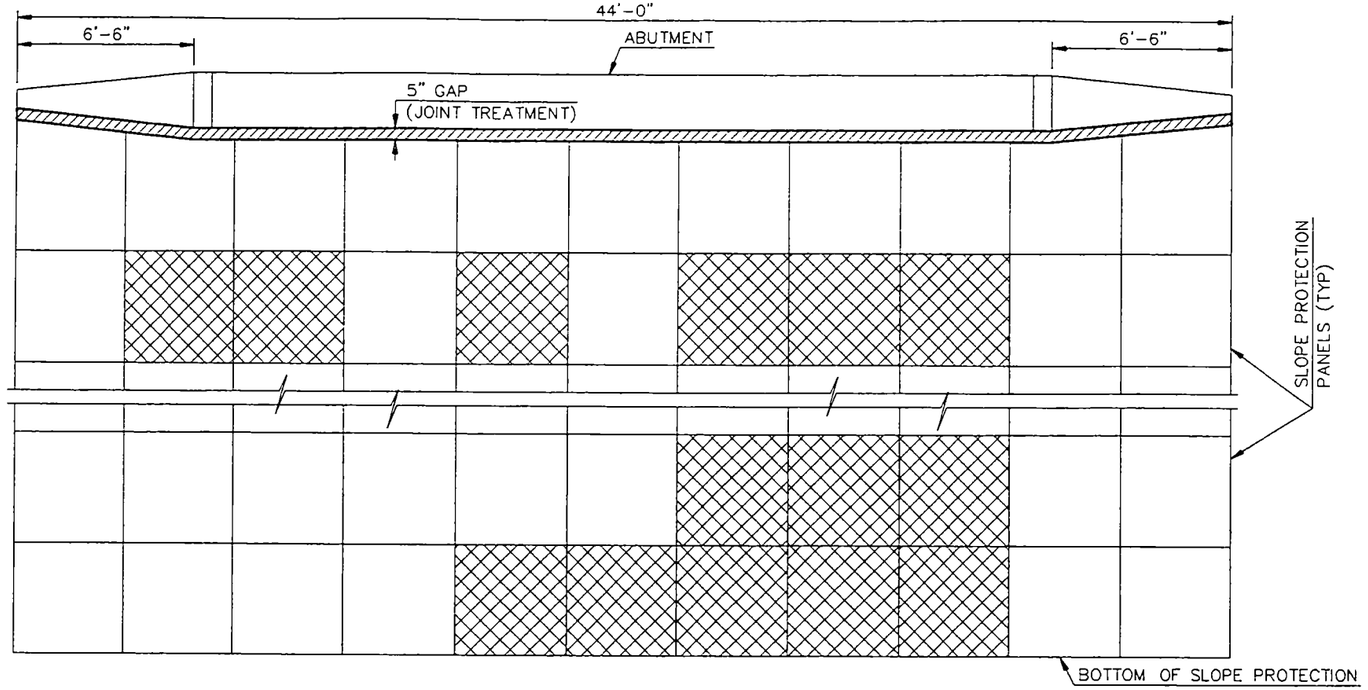
DIVISION ADMINISTRATOR DATE

APPROVED DATE 5-21-98
David K. O. Leer
P.E. 1199
DIRECTOR OF HIGHWAYS AND ENGINEERING
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

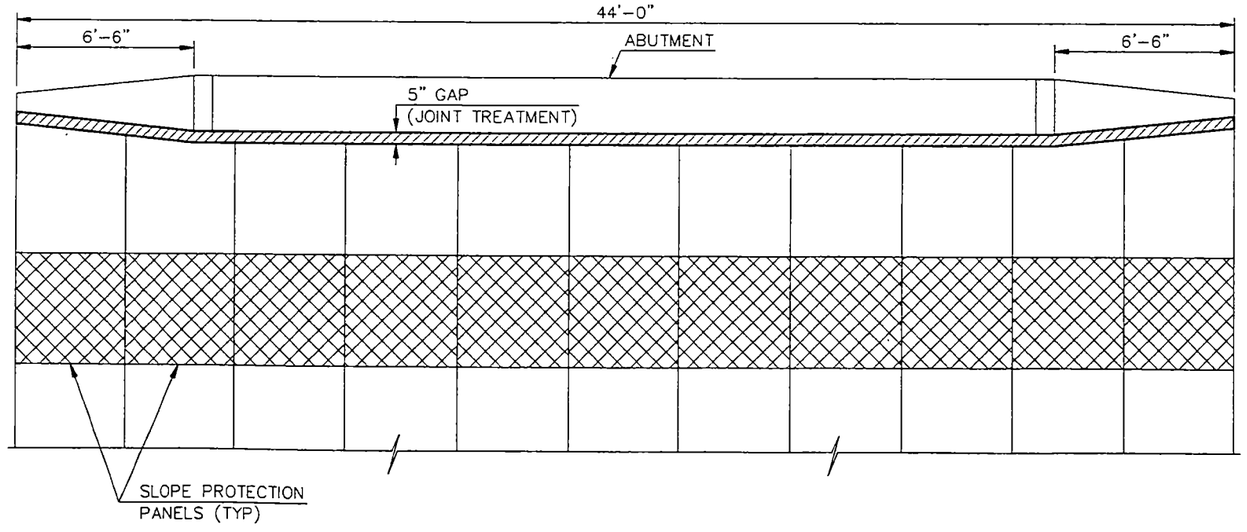
DAVID K. O. LEER REGISTERED PROFESSIONAL P.E. 1199 ENGINEER NORTH DAKOTA

...\d_paving\title.dgn May. 18, 1998 08:46:55

FHWA REGION	STATE	FEDERAL AID PROJECT NUMBER	SHEET NO.
8	ND	IM-1-094(053)161	31



PART SLOPE PROTECTION PLAN AT NORTH ABUTMENT



PART SLOPE PROTECTION PLAN AT SOUTH ABUTMENT

NOTES:

SCOPE OF WORK: THE WORK ON THIS SITE CONSISTS OF FILLING THE GAPS BETWEEN THE ABUTMENT AND THE SLOPE PROTECTION AND REPLACING THE DESIGNATED SLOPE PROTECTION PANELS.

JOINT TREATMENT: THE CONCRETE SLOPE PROTECTION HAS PULLED AWAY FROM THE ABUTMENTS LEAVING A GAP INDICATED BY THE HATCHING. ALL DEBRIS AND SOIL SHALL BE CLEANED OUT OF THE GAPS AND FILLED WITH NON-REINFORCED CONCRETE OR FLOWABLE FILL TO A MINIMUM DEPTH OF 4 INCHES FOR THE FULL WIDTH OF THE GAP. ALL MATERIALS AND LABOR REQUIRED TO PLACE THE CONCRETE OR FLOWABLE FILL SHALL BE INCULDED IN THE PRICE BID FOR "JOINT TREATMENT".

THE MIX DESIGN FOR FLOWABLE FILL SHALL BE AS FOLLOWS:

CEMENT	60 POUNDS/CUBIC YARD
FLY ASH	290 POUNDS/CUBIC YARD
FINE AGGREGATE	2900 POUNDS/CUBIC YARD
WATER	70 GALLONS/CUBIC YARD

CONCRETE SLOPE PROTECTION: THE PANELS MEASURE 4' x 4'. THE SLOPE PROTECTION PANELS INDICATED BY THE CROSS-HATCHING ARE TO BE REMOVED AND REPLACED BY THE CONTRACTOR. ALL CONCRETE REMOVED SHALL BE PROPERLY DISPOSED OF OFF OF THE RIGHT-OF-WAY. ALL MATERIAL AND LABOR REQUIRED TO REMOVE AND REPLACE THE PANELS SHALL BE INCLUDED IN THE PRICE BID FOR "CONCRETE SLOPE PROTECTION".

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
708	1100	CONCRETE SLOPE PROTECTION	SY	45
950	9712	JOINT TREATMENT	LF	88

STANDARD DRAWINGS

D708-1

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

APPLE CREEK SEPARATION

SLOPE PROTECTION REPAIR LAYOUT

PROJECT: IM-1-094(053)161

BURLEIGH COUNTY

5/20/98 — DATE

Steven J. Miller — BRIDGE ENGINEER

SLOPE 98DLS26 LLS

c: \dgn\94-166.531\slope.dgn May. 20, 1998 10: 00: 40

94-166.531-1

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

JOB # 15

GOLDEN VALLEY, BILLINGS, STARK,
MORTON & BURLEIGH COUNTY
SAP-9-0999(011)000

THIS PROJECT CONSISTS OF PAINTING FACIA GIRDERS AND MISCELLANEOUS SPOT COAT.

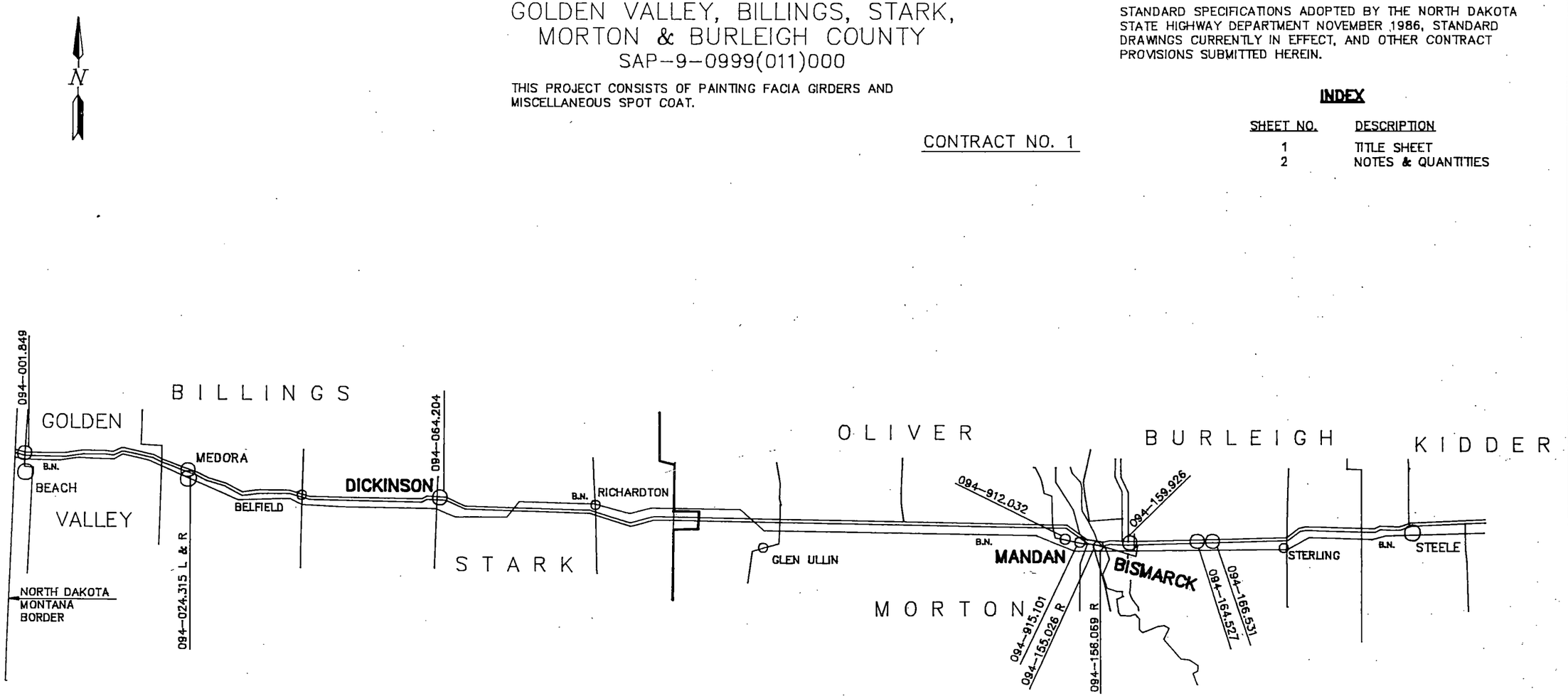
CONTRACT NO. 1

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	N.D.	SAP-9-0999(011)000	1

GOVERNING SPECIFICATIONS

STANDARD SPECIFICATIONS ADOPTED BY THE NORTH DAKOTA STATE HIGHWAY DEPARTMENT NOVEMBER 1986, STANDARD DRAWINGS CURRENTLY IN EFFECT, AND OTHER CONTRACT PROVISIONS SUBMITTED HEREIN.

INDEX



FOREST D. DUROW
REGISTERED
PROFESSIONAL
3148
ENGINEER
NORTH DAKOTA

1-23-91
DATE

NAME

APPROVED DATE 1-28-91

Ray Tank

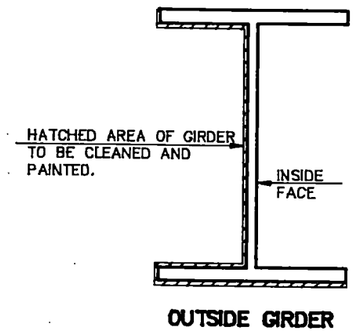
CHIEF ENGINEER
NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

90LCS123

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	SAP--9-0999(011)000	2

BASIS OF ESTIMATE

SITE NO.	BRIDGE NO.	LOCATION	BRIDGE LENGTH	GIRDER DEPTH	NO. OF GIRDERS	OUTSIDE GIRDER SQ.FT.	SPOT COAT SQ.FT.	FINISH COAT COLOR
DICKINSON DISTRICT								
1	094-001.849	BEACH INT.	265.0'	2.0' & 3.0'	4	2,941.0	365.0	BLUE
2	094-024.315 L & R	LITTLE MISSOURI RIVER	695.0'	4.125'	6	20,200.0	660.0	BLUE
3	094-064.204	EAST DICKINSON INT.	255.0'	3.0'	4	2,581.0	320.0	ALUMINUM
BISMARCK DISTRICT								
4	094-155.026 RT.	WEST MIDWAY SEP.	245.0'	3.5'	4	3,225.0	400.0	ALUMINUM
5	094-156.069 RT.	EAST MIDWAY SEP.	220.0'	3.5'	7	2,856.0	355.0	GREEN
6	094-159.926	19TH ST. SEP.	225.0'	3.5'	7	2,885.0	360.0	BLUE
7	094-164.527	GIBBS TWP. SEP.	240.0'	2.5'	3	2,058.0	255.0	ALUMINUM
8	094-166.531	APPLE CREEK SEP.	240.0'	2.5'	3	2,058.0	255.0	ALUMINUM
9	094-912.032	HEART RIVER 3.5 MI. W HWY 6	277.31'	4.54'	4	4,923.0	615.0	BLUE
10	094-915.101	HEART RIVER 0.5 MI. W HWY 6	283.75'	5.125'	4	5,584.0	695.0	BLUE
					TOTAL	49,311.0	4,280.0	



OUTSIDE GIRDER

GENERAL NOTES

SCOPE OF WORK: THIS PROJECT CONSISTS OF CLEANING AND PAINTING THE FACIA SURFACES OF EXTERIOR GIRDERS AND MISCELLANEOUS SPOT COATING OF DETERIORATED AREAS OF ALL REMAINING PAINTED SURFACES AS DESIGNATED BY THE ENGINEER AT THE TEN (10) BRIDGE SITES LISTED ABOVE.

PAINTING: THE FACIA SURFACES OF STRUCTURAL STEEL SHALL BE CLEANED AND PAINTED ACCORDING TO THE SUPPLEMENTAL SPECIFICATIONS, EXCEPT FOR SECTION 630.03 D.3. REHABILITATION PAINTING, WHICH SHALL BE REVISED AS FOLLOWS: THE SURFACE OF THE EXTERIOR BEAMS SHALL BE PREPARED BY BLAST CLEANING. THE LEVEL OF PREPARATION SHALL MEET THE REQUIREMENTS OF SSPC-SP 7 "BRUSH-OFF BLAST CLEANING".
FOR FIVE (5) STRUCTURES THE FINISH COAT SHALL BE BLUE COLOR NUMBER 25240 AND FOR EAST MIDWAY SEPARATION THE FINISH COAT SHALL BE GREEN COLOR NUMBER 24227 OF THE FEDERAL STANDARD 595B. FOR FOUR (4) STRUCTURES THE FINISH COAT SHALL BE ALUMINUM. THE ALUMINUM FILLED EPOXY MASTIC PRIMER SHALL BE TINTED TO DIFFERENTIATE THE COLOR FROM THE FINISH COAT. PREPARATION OF THE SPOT COAT AREAS SHALL MEET THE REQUIREMENTS OF SSPC-SP 3 "POWER TOOL CLEANING". PAYMENT FOR "SANDBLASTING AND PAINTING" AND "PREPARATION AND SPOT COATING" WILL BE FULL COMPENSATION FOR ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED.

TRAFFIC CONTROL: TRAFFIC SHALL BE CONTROLLED AS SHOWN ON STANDARD D-754-11, TYPE P FOR ALL OF THE SITES EXCEPT THE STRUCTURES OVER THE HEART RIVER. TRAFFIC CONTROL FOR THE HEART RIVER STRUCTURES SHALL BE CONTROLLED AS SHOWN ON STANDARD D-754-7, TYPE F.
ONE LANE OF THE ROADWAY SHALL BE CLOSED ONLY DURING DAYLIGHT HOURS. THE EQUIPMENT AND CONTROL DEVICES SHALL BE REMOVED FROM THE ROADWAY AND REGULAR TRAFFIC RESTORED AT THE END OF EACH WORK DAY. EQUIPMENT THAT MAY BE HAZARDOUS TO ERRANT VEHICLES LEAVING THE ROADWAY WILL HAVE TO BE PARKED BEYOND 50 FEET MEASURED FROM THE EDGE OF THE DRIVING LANE. CONTROL DEVICES SHALL BE PLACED IN LOCATIONS SO THAT MOTORISTS WILL NOT MISTAKE THEM AS REQUIRING THE MOTORIST TO MAKE A MANUEVER. THE CONTRACTOR SHALL NOTIFY THE DISTRICT ENGINEER ONE WEEK PRIOR TO THE START OF THE WORK.

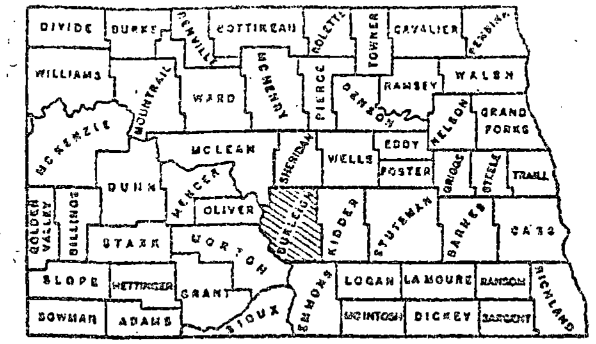
RESPONSIBILITY TO THE PUBLIC: THE CONTRACTOR SHALL SHROUD THE WORK AREA TO PROTECT THE MOTORING PUBLIC. SHROUDING SHALL BE CAPABLE OF PREVENTING DUST AND PAINT OVERSPRAY FROM REACHING PASSING TRAFFIC AND CAUSING VEHICLE DAMAGE OR IMPAIRING MOTORIST VISIBILITY.
THE COST OF MAINTAINING AND PROTECTING TRAFFIC WILL BE CONSIDERED INCIDENTAL TO THE PRICE BID FOR "TRAFFIC CONTROL".

ESTIMATE OF QUANTITIES

SPEC.	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
103	0100	CONTRACT BOND	L.SUM	1.0
630	0100	SANDBLASTING AND PAINTING	L.SUM	1.0
630	0104	PREPARATION AND SPOT COATING	L.SUM	1.0
702	0100	MOBILIZATION	L.SUM	1.0
704	0100	FLAGGING	M.HR.	50.0
704	1100	TRAFFIC CONTROL	L.SUM	1.0

TRAFFIC CONTROL STANDARDS
D-754-1, 2, 3, 4, 5, 5A, 7 AND 11

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	N. D.	I-94-5(10)	1	48



SKETCH-MAP OF NORTH DAKOTA
SHOWING COUNTIES

NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

PLANS

FOR THE PROPOSED IMPROVEMENT OF A

STATE HIGHWAY

IN BURLEIGH COUNTY

FEDERAL AID PROJECT NO. I-94-5(10)163

STRUCTURAL

SCALES
- LAYOUT SHEET: 1 IN. = 5000'
- 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.

LEGEND
- INTERCHANGE
- HIGHWAY GRADE SEPARATION-NO CONNECTION
- OTHER BRIDGE
- SERVICE ROAD
- TERMINATED CROSS-ROAD

INDEX OF DRAWINGS

LENGTH OF PROJECT

PROJECT	MILES-GROSS	MILES-NET
I-94-5(10)	2.004	0.000
TOTALS	2.004	0.000

GOVERNING SPECIFICATIONS:

Standard Specifications adopted by the North Dakota State Highway department July 1961 and approved as standard by the Bureau of Public Roads Dec. 29, 1961. Required Provisions dated NOV 12, 1963 and approved by the Bureau of Public Roads NOV. 22, 1963 and others submitted herewith.

KEY TO CONVENTIONAL SIGNS

STATE & NATIONAL LINES
COUNTY LINE
TOWNSHIP & RANGE LINES
GRADE LINE
CENTERLINE OF CONSTRUCTION
OLD RIGHT OF WAY LINE
NEW RIGHT OF WAY LINE
ABANDONED RIGHT OF WAY LINE
PROPERTY LINE
STONE WALL
OTHER FENCES
POLE LINES
POWER LINES
BRIDGE
GROUND / GRADE ELEVATION
TRAVELED WAY
RAILROADS
HEDGES AND TREES
TRAILS
CITY OR VILLAGE CORPORATE LIMITS
SECTION CORNER
QUARTER SECTION CORNER
BUILDINGS
OLD CULVERTS
NEW CULVERTS
DRAINAGE
BENCH MARKS
WATERS EDGE
MARSH
WIRE ROPE GUARD RAIL
SNOW FENCE
RIPRAP
GUARD POSTS
COBBLE GUTTERS
CONCRETE GUTTERS

DESIGN DATA

TRAFFIC — AVERAGE DAILY — EST. 30TH MAX. HR.

CURRENT TRAFFIC (1964) 2227 PASS. 393 TRUCKS 2620 TOTAL 393
TRAFFIC FORECAST (1984) 5763 PASS. 1017 TRUCKS 6780 TOTAL 1017
DESIGN SPEED 80 MPH
TRAFFIC CLASSIFICATION "M"
MINIMUM SIGHT DISTANCE (NON PASSING) 725'
FULL CONTROL OF ACCESS no point of access other than by ramps at interchanges

LIST OF SPECIAL PROVISIONS

NAME	NO.
Gravel Sub-Base	62 B
Roadway Excavation	65 B
Steel Piling	69 A
Embankment	73 B
Backfill	76 A
Construction Equipment Requirements	82 E & F
Concrete Bridge Construction	88 A
Portland Cement Concrete	89 A
Reinforcing Steel	90
Excavation For Culverts & Bridges	100 A
Piling	102 A
Linseed oil Treatment for Bridges	106 A
Piling	114
Reinf. concrete pipe culverts	91

LIST OF STRUCTURAL DRAWINGS

94-68	94-69	H-0135
94-68-1	94-69-1	H-0401
94-68-2	94-69-2	H-0501
94-68-3	94-69-3	H-1194-1
94-68-4	94-69-4	H-1194-2
94-68-5	94-69-5	H-1194-3
		H-0311

LIST OF STANDARDS

SLOPE PROTECTION	ST'D 7.5
BRIDGE BENCH MARKS	ST'D 7.6
STANDARD SIGNS	ST'D 14.1A - 1 & -2
FEDERAL AID NAME PLATE	STD 14.9
R.C.P. - ARCH CULVERTS	STD 4.17

EQUATION
94+80 S. Rd. Bk. = 95+07.6 ℄ Med.

EQUATION
95+79.21 N. Rd. Bk. = 95+52.24 ℄ Med.

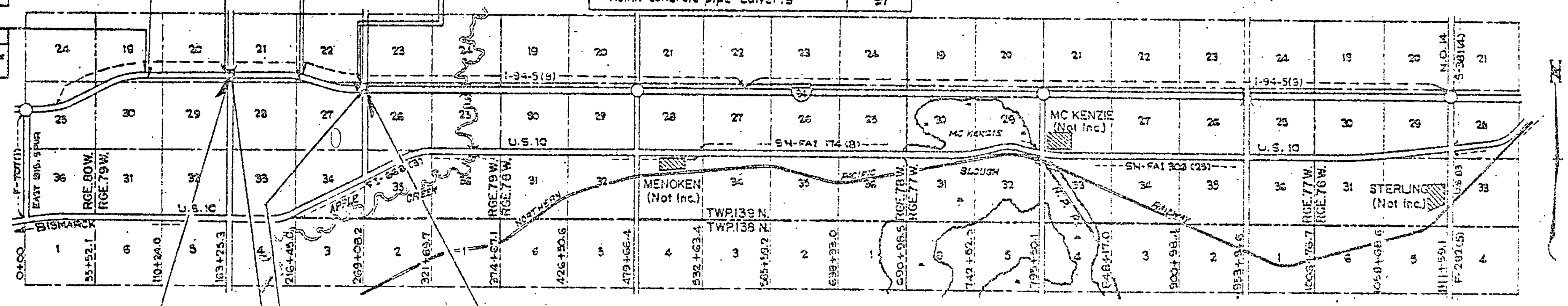
EQUATION
163+04.24 Both Rdwys Bk = 163+04.13 ℄ Med.

EQUATION
219+44.03 S. Rd. Bk. = 219+52.1 ℄ Med.

EQUATION
259+12.8 S. Rd. Bk. = 259+04.9 ℄ Med.

EQUATION
220+82.69 N. Rd. Bk. = 220+75.52 ℄ Med.

EQUATION
260+17.03 N. Rd. Bk. = 260+24.93 ℄ Med.



BEG. PROJ. NO. I-94-5(10)163
STA. 163+25.3 =
STA. 163+25.3 ON PROJ. I-94-5(9)160
A POINT 233' NORTH OF THE S.W. COR. OF SEC. 21, T-139, R-79W

94-68
163+25.3
1-240' BRIDGE
0.0 MILES

END PROJ. NO. I-94-5(10)163
STA. 269+08.2
STA. 269+08.2 ON PROJ. I-94-5(8)160
A POINT 233' SOUTH OF THE S.E. COR. SEC. 22, T139N, R-79W

94-69
269+08.2
1-240' BRIDGE
0.0 MILES

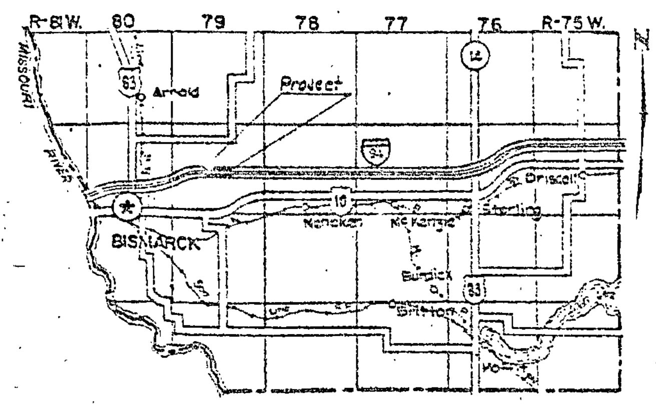
LAYOUT MAP
5000 0 5000
SCALE IN FEET

STA.	CLEAR RDWY. WIDTH	DESIGN LOADING
163+25.3	24'	H15 (1961)
269+08.2	24'	H15 (1961)

Note: Topsoil from excavation and embankment areas shall be excavated to its actual depth and stockpile by the Structural Contractor at locations designated by the Engineer. Topsoil excavation shall be paid for as Class A Roadway excavation.

APPROVED DATE 3-23-66

CHIEF ENGINEER
NORTH DAKOTA STATE HIGHWAY DEPARTMENT



SKETCH MAP OF PART OF BURLEIGH COUNTY

QUANTITIES

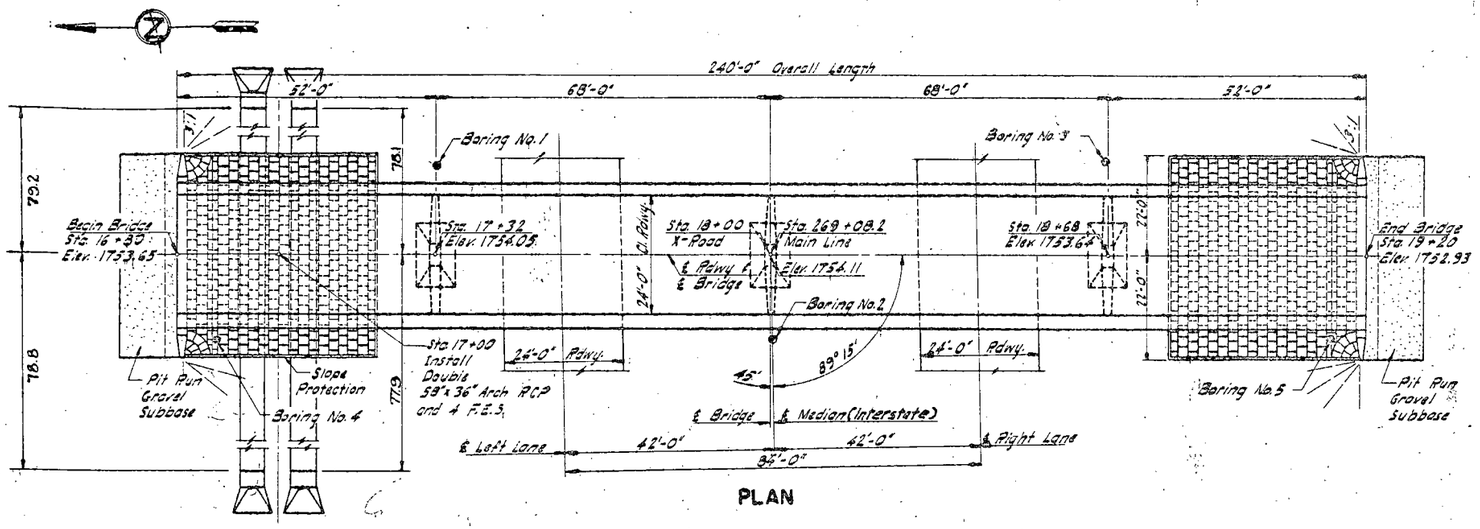
			13 X	15 B	16	29 A	60 A	60 AA	62 A	63 A			84	65 B		65 J		65 E	65 M				66	67
LOCATION			ROADWAY EXCAVATION CLASS A	CLASS-2 EXCAVATION	WATER	PIT RUN GRAVEL SUB-BASE CLASS 5A	CLASS AE-2 CONCRETE	CLASS AAE-4 CONCRETE	REINFORCING STEEL (INTERMEDIATE GRADE)	STRUCTURAL STEEL			TEMPORARY CROSSING & DETOUR CLASS C LUMP SUM	TREATED TIMBER PILING		TREATED TIMBER TEST PILES		STEEL ENCASED CONCRETE PILING	STEEL ENCASED CONCRETE TEST PILES	SLOPE PROTECTION	LINSEED OIL TREATMENT	BRIDGE BENCH MARK	RCP ARCH CULVERT	RCP ARCH CULVERT END SECTION
														30'		40'		2¾"x.230	12¾"x.230" 50'				53"x34"	53"x36"
			CU. YD.	CU. YD.	M' GAL	CU. YD.	CU. YD.	CU. YD.	LBS.	LBS.			STA.	L.F.	L.F.	EA.	EA.	L.F.	EA.	S.Y.	GAL.	SET	L.F.	NO.
163+25.3			39,422	280	295	110	323.7	12.25	71,865	102,300			163+25.3	336		2				410	33	1		
269+08.2			46,977	155	350	115	302.1	12.25	71,837	102,300			269+08.2					1440	3	410	33	1	314	4
GRAND TOT.			86,399	435	645	225	625.8	24.50	143,702	204,600			2 Lump Sums	336		2		1440	3	820	66	2	314	4

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

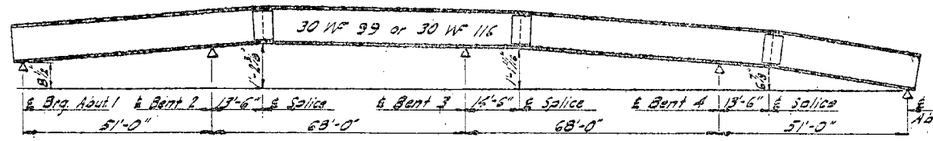
APPROVED

DIVISION ENGINEER DATE

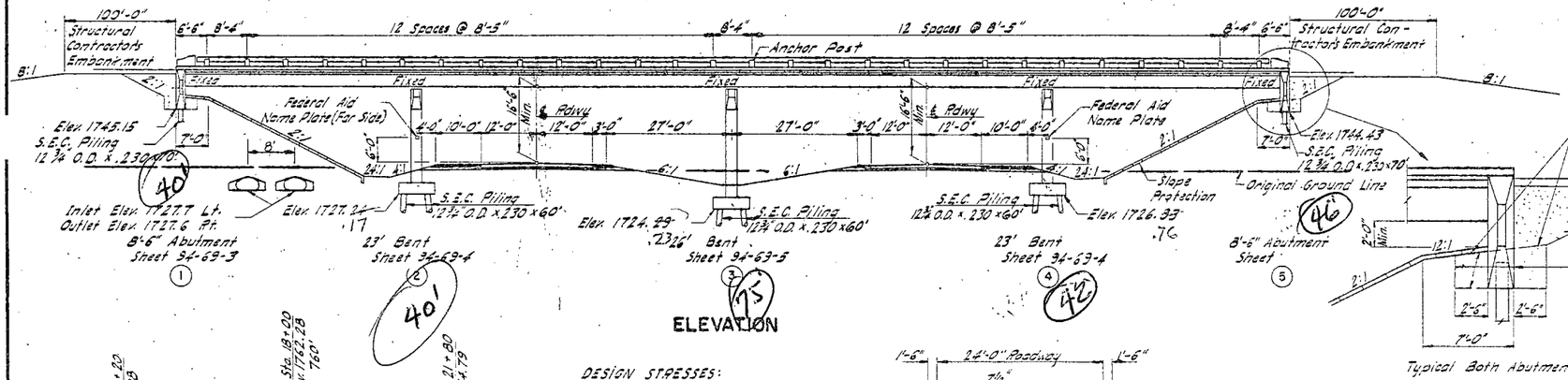
BRIDGE CODE	FED. ROAD DIST NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
X-771	5	N. D.	I-94-5(10)		14	48



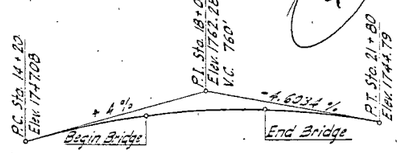
PLAN



SHOP CHAMBER DIAGRAM

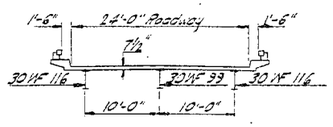


ELEVATION



VERTICAL CURVE DATA

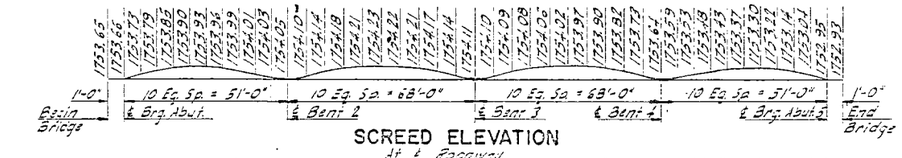
DESIGN STRESSES:
f_s = 20,000 psi ~ Structural Steel
f_s = 20,000 psi ~ Reinforcing Steel
f_c = 1200 psi



DECK SECTION

1965
FEDERAL AID
PROJECT
I-94-5(10)
NORTH DAKOTA
94-69

FEDERAL AID NAME PLATE
2 REQUIRED



SCREED ELEVATION

Jt ℄ Roadway

† See 94-69-1 for location

ESTIMATE OF QUANTITIES

SPEC. NO.	BID ITEM		
13X	ROADWAY EXCAVATION "CLASS A"	46,977	CU. YD.
16	WATER FOR COMPACTION (10 GAL./C.Y.)	330	"M" GAL.
15B	EXCAVATION CLASS 2	155	CU. YD.
15C	" CLASS 3		CU. YD.
29A	PIT RUN GRAVEL SUBBASE "CLASS 9A"	115	CU. YD.
60AA	CONCRETE CLASS AAE-4	12.25	CU. YD.
60AA	" CLASS AE-2	302.1	CU. YD.
62A	REINFORCING STEEL (INTERMEDIATE GRADE)	71,837	LB.
63A	STRUCTURAL STEEL	102,500	LB.
66	REINFORCED CONCRETE PIPE-ARCH CULVERT (58"x 36")	314	LIN. FT.
67	REINFORCED CONCRETE ARCH FLARED END (58"x 36")	4	EACH
68A	UNTREATED TIMBER PILING 12 FT.		LIN. FT.
68B	TREATED TIMBER PILING 12 FT.		LIN. FT.
69E	STEEL ENCASED CONCRETE PILING (12 ¾" O.D. x .230")	1440	LIN. FT.
69E	STEEL ENCASED CONCRETE PILING (12 ¾" O.D. x .330")		LIN. FT.
69L	STEEL ENCASED CONCRETE TEST PILE 12 ¾" O.D. x .230" @ 80 FT. BEARING		
84	TEMPORARY CROSSING AND DETOUR (CLASS C)	LUMP SUM	
	BRIDGE BENCH MARKS	1 SET	
* *	LINSEED OIL TREATMENT	53 GAL.	
	SLOPE PROTECTION	310 SQ. YD.	
* *	SEE SPECIAL PROVISIONS		

BENCH MARKS

NO.	DESCRIPTION	LOCATION	ELEV.
3	Lg. Rock by P.R.	Sta. 245 + 31 ~ 136' Lt.	1751.39
4	Lr. Pin by P.P.	Sta. 259 + 37 ~ 228' Lt.	1744.80
23A	Lr. Pin P.I. M on Fn. L.	Sta. 269 + 53 ~ 553' Lt.	1732.62

PILE LOADING

LOCATION	DEAD LOAD	LIVE LOAD	EARTH LOAD	WIND 50 LB.	WIND O.T.M.	WIND 100 LB. L.L.	LONG. FORCE	***	DESIGN LOAD	MAXIMUM REQUIRED BEARING	MINIMUM * PENETRATION
Abutments	18.0 T.	7.7 T.						10.3	36 T.	-2.3 T.	35'
Bents 2 & 4	24.2 T.	11.0 T.	2.0 T.	4.0 T.	1.7 T.	6.3 T.	1.2 T.		50.1 T.**	65.0 T.	20'
Bent 3	25.2 T.	11.4 T.	2.0 T.	4.5 T.	1.8 T.	7.2 T.	1.6 T.		53.9 T.**	66.0 T.	20'

*** Joint Drag Due to Settlement of Fill
** AASHO Group I Loading
* Below Bottom of Footing & Pedestal

LIST OF SPECIAL PROVISIONS

NAME	NO.
GRAVEL SUBBASE	62B
ROADWAY EXCAVATION	65B
EMBANKMENT	73B
BACKFILL	76A
CONSTRUCTION EQUIPMENT REQUIREMENTS	92B-NF
CONCRETE BRIDGE CONSTRUCTION	68A
PORTLAND CEMENT CONCRETE	89A
REINFORCING STEEL	90
EXCAVATION FOR CULVERTS & BRIDGE	10GA
LINSEED OIL TREATMENT	105A
STEEL PILING	69A
PILING	68A
REINF. CONCRETE PIPE CULVERTS	91

STRUCTURAL DRAWINGS

GENERAL DRAWING 34-69 (THIS SHEET), 34-69-1, 34-69-2, STD. AND STD. 7.5, HIGH
SUBSTRUCTURE 34-69-3, 34-69-4, 34-69-6, H=24'0", STD. 14.9
SUPERSTRUCTURE H=11'4", H=14'2", H=17'3, H=20'3, H=23'0", STD. 7.6

DESIGN LOADING: H S 20
SCALE: 1 INCH = 16 FEET

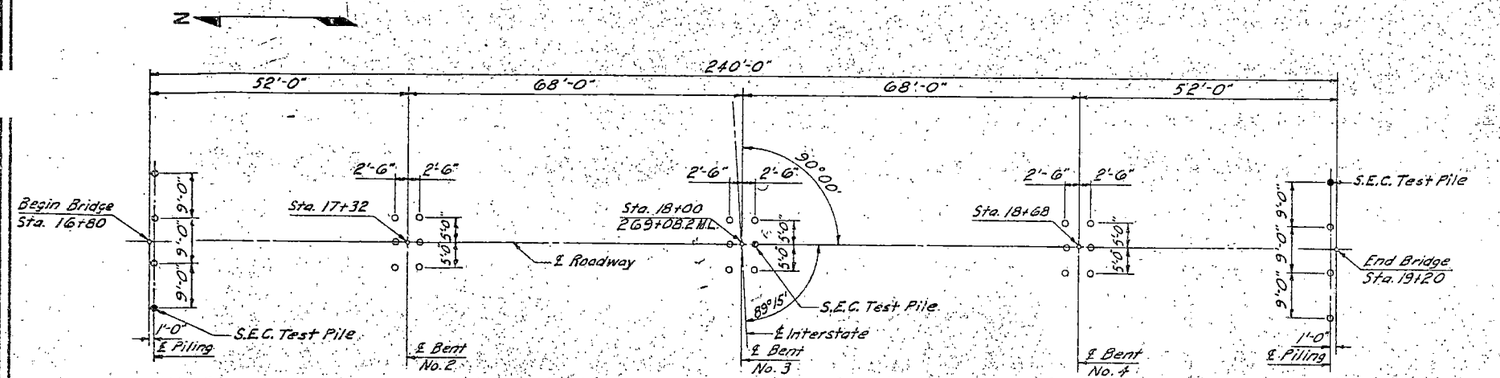
NORTH DAKOTA
STATE HIGHWAY DEPARTMENT
APPLE CREEK SEPARATION
BRIDGE LAYOUT
PROJECT I-94-5(10) STA. 269+08.2
BURLEIGH COUNTY

APPROVED
9-11-64 (DATE)
Joseph R. Kuhl (BRIDGE ENGINEER)

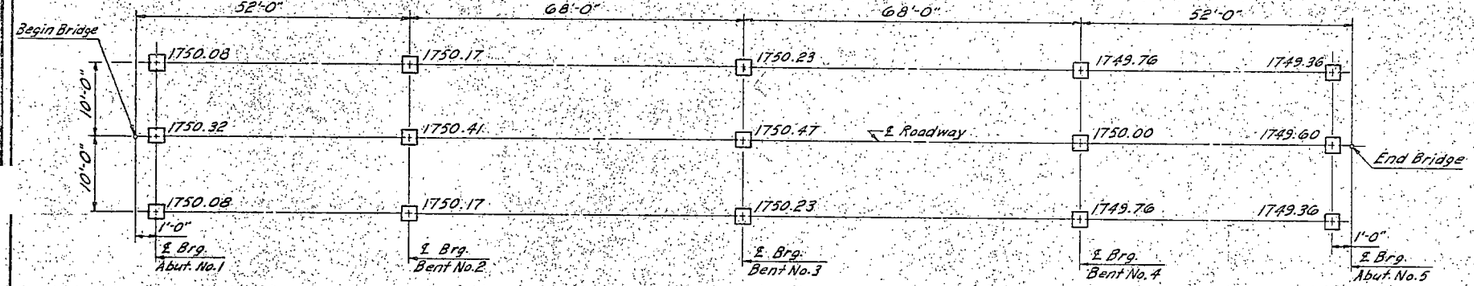
94-69

94-69

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	I-94-5(10)		15	48



PILING LAYOUT



BEARING PLATE LAYOUT

GENERAL:

THE COST OF FURNISHING AND PLACING DAMPPROOFING, ASPHALT CURB SEAL, NAME PLATES, END POSTS PIPE SLEEVES, CURB SLEEVES, AND OTHER MISCELLANEOUS ITEMS SHALL BE INCLUDED IN THE PRICE BID FOR CLASS AE-2 CONCRETE.

DEAD LOAD DEFLECTIONS AND VERTICAL CURVE CORRECTIONS HAVE BEEN ACCOUNTED FOR IN THE SCREED ELEVATIONS ON THE BRIDGE LAYOUT.

EMBANKMENT:

EMBANKMENT MATERIAL SHALL BE OBTAINED FROM THE LOCATIONS AS SHOWN ON THE PLAN AND PROFILE SHEETS.

THE EMBANKMENT AT THE ABUTMENTS SHALL BE IN PLACE BEFORE ANY ABUTMENT PILING ARE DRIVEN.

THE CONTRACTOR WILL BE REQUIRED TO PREDRILL THROUGH THE FILL AT THE ABUTMENTS BEFORE ANY PILING ARE DRIVEN.

ALL PILOT HOLES DRILLED FOR PILING, BUT NOT COMPLETELY FILLED BY THE PILES, SHALL BE BACKFILLED WITH SAND OR FINE GRAVEL BEFORE SUBSTRUCTURE IS PLACED.

THE PIT RUN GRAVEL SUBBASE SHALL NOT BE PLACED ABOVE THE BERM ELEVATION UNTIL THE SUPERSTRUCTURE DECK HAS BEEN PLACED.

EXCAVATION:

EXCAVATION CLASS 2 AT THE ABUTMENTS SHALL EXTEND FROM THE BOTTOM OF THE FOOTING TO THE UPPER LIMITS AS SHOWN ON THE BRIDGE LAYOUT.

EXCAVATION CLASS 2 AT THE BENTS SHALL EXTEND VERTICALLY FROM THE BOTTOM OF THE FOOTING TO THE FINISHED PROFILE OR TO THE ORIGINAL GROUND WHICHEVER IS LOWER. THE HORIZONTAL LIMITS SHALL BE AS SHOWN ON THE BENT DETAIL SHEETS.

PILING:

THE PILE LENGTHS SHOWN ON THE PLANS FOR EACH SUBSTRUCTURE UNIT ARE APPROXIMATE LENGTHS ONLY, BASED ON THE ENGINEER'S ESTIMATE OF CONDITIONS, AND ARE NOT TO BE CONSTRUED AS FINAL PAY LENGTHS. FINAL PILE LENGTHS IN PLACE SHALL BE DETERMINED BY DRIVING EACH PILE TO DRIVING BEARING EQUAL TO AT LEAST THE DESIGN PILE LOAD BUT NOT MORE THAN THE MAXIMUM REQUIRED BEARING SHOWN UNLESS: (1) THE MINIMUM PENETRATION HAS NOT BEEN REACHED; (2) THE CONTRACTOR IS OTHERWISE INSTRUCTED BY THE ENGINEER.

REINFORCING STEEL:

DIMENSIONS FOR BENT BARS ARE GIVEN CENTER TO CENTER UNLESS OTHERWISE NOTED.

THE BAR FABRICATOR SHALL ADD A PREFIX TO ALL BAR DESIGNATIONS TO DIFFERENTIATE BETWEEN THE SEVERAL PARTS OF THE STRUCTURE OR STRUCTURES.

CONCRETE:

ALL EXPOSED EDGES OF CONCRETE SHALL BE BEVELED WITH 3/4" TRIANGULAR MOLDING UNLESS OTHERWISE NOTED.

THE "RUBBED SURFACE FINISH" WILL BE REQUIRED FOR THE ROADWAY AND OUTSIDE VERTICAL FACES OF CURBS, EDGE OF SLAB, ALL FACES OF THE RAILING, RAIL POSTS AND END POSTS, AND TO ALL EXPOSED FACES OF ABUTMENTS AND BENTS. ALL OTHER SURFACES SHALL BE GIVEN THE "ORDINARY SURFACE FINISH". IF THE CONCRETE SURFACE OF THE ABUTMENT WING WALLS AND BENTS HAVE A SURFACE FINISH ACCEPTABLE TO THE ENGINEER WITHOUT RUBBING, THE REQUIREMENT FOR "RUBBED SURFACE FINISH" MAY BE WAIVED AT THE OPTION OF THE ENGINEER AND THE "ORDINARY SURFACE FINISH" WOULD APPLY. ALL "ORDINARY SURFACE FINISH" SHALL BE COMPLETED WITHIN 24 HOURS AFTER REMOVAL OF FORMS.

ALL CONCRETE ABOVE THE TOP OF THE CURBS EXCEPT END POSTS SHALL BE CLASS AAE-4. ALL OTHER CONCRETE SHALL BE CLASS AE-2 AND SHALL BE COMPACTED BY VIBRATION.

THE DECK SLAB CONCRETE SHALL BE STRUCK OFF AND COMPACTED BY AN APPROVED DECK FINISHING MACHINE.

WORK SHALL CONFORM TO ALL APPLICABLE PARAGRAPHS OF THE NORTH DAKOTA STATE HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

TEMPORARY CROSSING AND DETOUR:

A TEMPORARY CROSSING AND DETOUR SHALL BE CONSTRUCTED BY THE STRUCTURAL CONTRACTOR IN ACCORDANCE WITH STANDARD DRAWING H-0311 AND AS DIRECTED BY THE ENGINEER. IT SHALL BE SIMILAR TO TYPE X WITH A CLASS C ROADWAY SECTION.

CONSTRUCTION OF THE "TEMPORARY CROSSING AND DETOUR" WILL BE PAID FOR AS ONE "LUMP SUM."

THE REMOVAL OF THE DETOUR WILL BE THE RESPONSIBILITY OF THE GRADING CONTRACTOR.

SHORING:

THE CONTRACTOR WILL BE PERMITTED TO USE MANUFACTURED SHORING TO SUPPORT SLAB FORMS EXCEPT OVER SPLICE AND COVER PLATES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPORTING AND STABLIZING THE BENTS UNTIL THE SUPERSTRUCTURE HAS BEEN PLACED.

DAMAGE TO UNDERGROUND UTILITIES:

THE CONTRACTOR SHALL USE SPECIAL CARE TO PREVENT DAMAGE TO ALL PIPES, CABLES, AND OTHER UNDERGROUND UTILITY FACILITIES. THE CONTRACTOR SHALL REPAIR, AT HIS OWN EXPENSE, ANY DAMAGE TO UNDERGROUND UTILITY FACILITIES RESULTING FROM ANY ACT OR OMISSION ON HIS PART, REGARDLESS OF WHETHER OR NOT THE TYPE OR LOCATION OF SUCH FACILITIES IS SHOWN ON THE PLANS. THE DAMAGED FACILITIES SHALL BE RESTORED TO A CONDITION SIMILAR OR EQUAL TO THAT EXISTING BEFORE SUCH DAMAGE WAS DONE. IF IT IS DETERMINED BY THE ENGINEER THAT ADJUSTMENT OR RELOCATION OF SUCH UNDERGROUND FACILITIES IS NECESSARY TO ACCOMODATE CONSTRUCTION THE ENGINEER WILL MAKE THE NECESSARY ARRANGEMENTS WITH THE OWNER. IF SUCH WORK IS NOT OTHERWISE PROVIDED FOR IN THE PROJECT PLANS OR PROPOSAL.

APPLE CREEK SEPARATION
BEARING PLATE LAYOUT
PILING LAYOUT
GENERAL NOTES

94-69-1

94-69-1

FED ROAD DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	I-94-5(10)		16	48

TRACING MADE BY CHECKED BY
QUANTITIES MADE BY CHECKED BY

BORING NO. 1
DEPTH: 3.6-4.9
MAX.LOAD: 4128
SHEAR : Near 10°
COHESION: 1732
MOISTURE: 28%
DRY WT. : 94

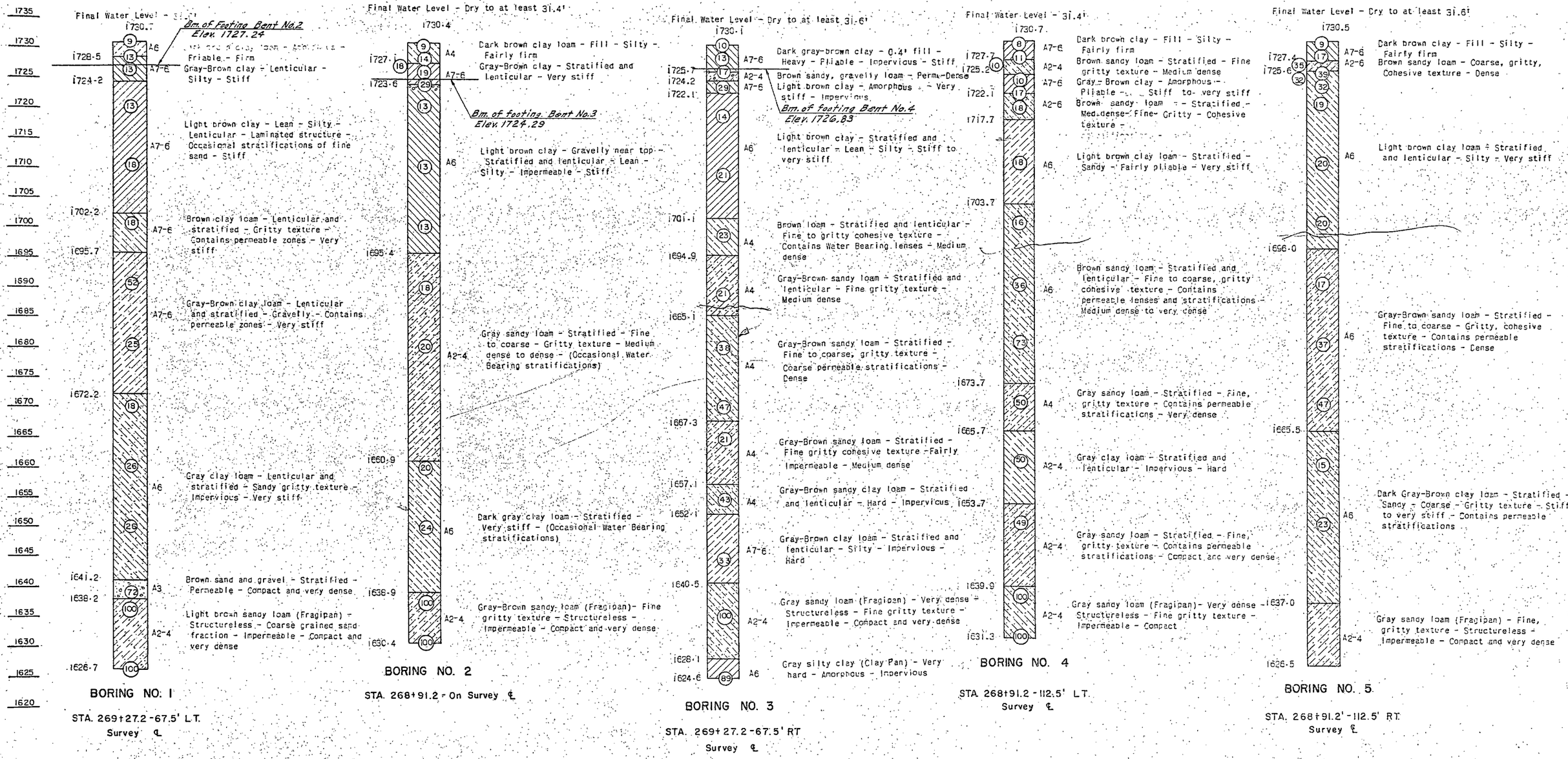
BORING No. 2
DEPTH: 3.6-4.6
MAX.LOAD: 2729
SHEAR : Near 10°
COHESION: 1145
MOISTURE: 25%
DRY WT.: 99

BORING NO. 3

	3.6-4.6	9.1-10.4	19.1-20.4	29.1-30.4
MAX.LOAD:	5565	2864	2565	952
SHEAR :	Near 0°	Near 10°	Near 10°	Near 28°
COHESION:	2782	1202	1076	266
MOISTURE:	23%	24%	24%	20%
DRY WT.:	103	95	96	101

Bm. of footing Abut. No.1
Elev. 1745.15

Bm. of footing Abut. No.5
Elev. 1744.43



NOTE:

Encircled numbers indicate the number of blows delivered by a 140 lb. hammer, from a height of 30" to drive core tube 1.0'.

The boring log shown is for design purposes only. The State assumes no responsibility if soil conditions encountered during construction differ from those shown.

BRIDGE NO. 94-69

BORING LOG

I-94-5(10)

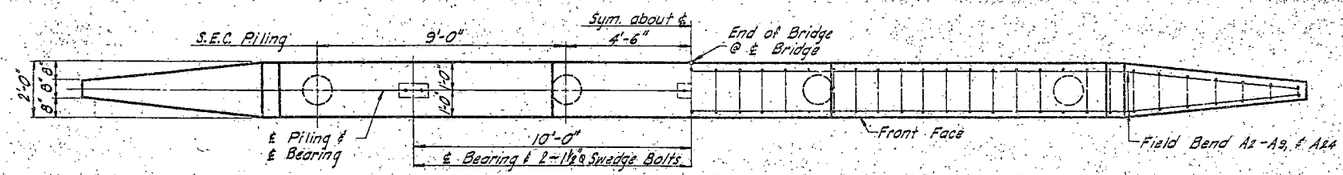
BURLEIGH COUNTY

94-69-2

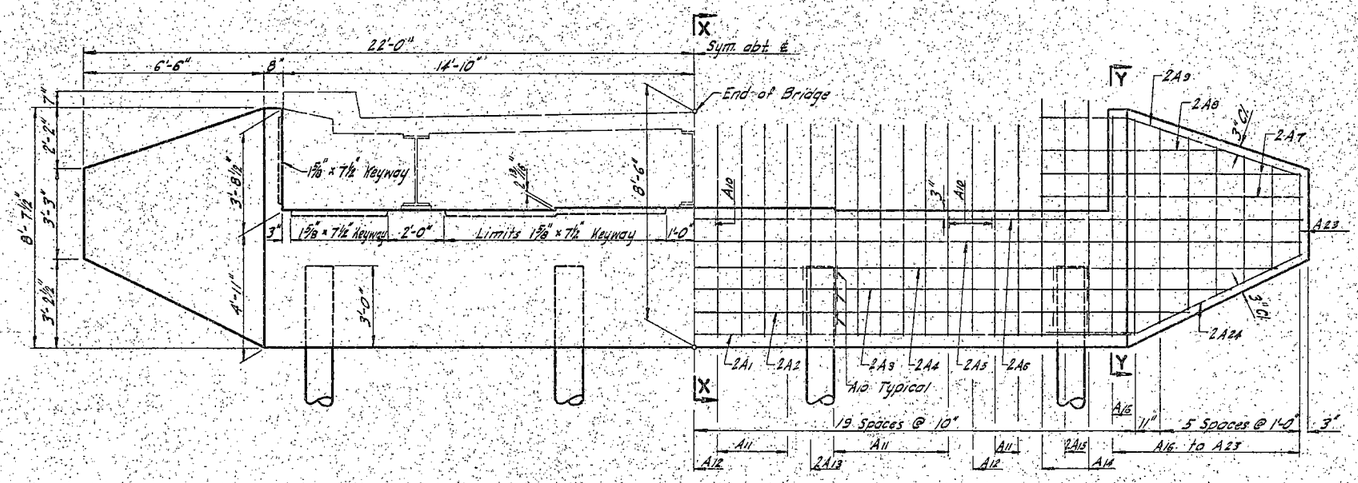
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	I-94-5(10)		17	48

BAR LIST ~ one abut.

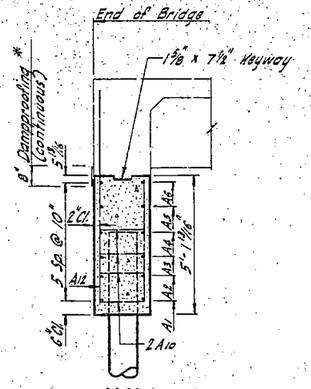
MARK	NO.	SIZE	LENGTH	SHAPE
A1	2	6	31'-6"	Str.
A2	2	5	35'-0"	"
A3	2	5	38'-6"	"
A4	4	5	21'-9"	"
A5	4	5	27'-9"	"
A6	4	6	23'-0"	"
A7	8	5	9'-3"	"
A8	4	5	6'-6"	"
A9	4	6	9'-9"	Bent
A10	30	4	2'-6"	"
A11	24	5	16'-9"	"
A12	3	5	13'-6"	"
A13	4	5	7'-6"	Str.
A14	4	5	18'-6"	Bent
A15	4	5	8'-6"	Str.
A16	2	5	17'-3"	Bent
A17	2	5	16'-10"	"
A18	2	5	15'-4"	"
A19	2	5	13'-6"	"
A20	2	5	11'-8"	"
A21	2	5	9'-9"	"
A22	2	5	7'-10"	"
A23	2	5	6'-2"	"
A24	4	6	10'-0"	"



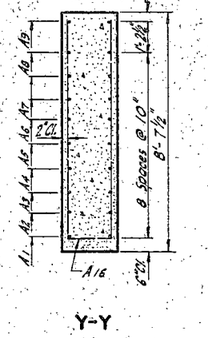
Half Showing Dimensions — **PLAN** — Half Showing Reinforcing



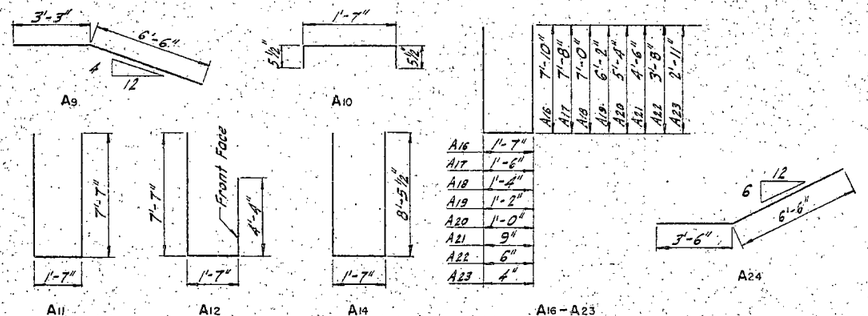
Half Showing Dimensions — **ELEVATION** — Half Showing Reinforcing



X-X



Y-Y



BENT BAR DETAILS

* Dampproofing: Two coats of dampproofing shall be applied to construction joints that will be covered by earth.

"Dampproofing Two Coats" shall be applied in accordance with Section 90 of the Standard Specs. Dampproofing will not be paid for directly but shall be inclued in the unit price bid for Class AE-2 concrete.

QUANTITIES (ONE ABUT.)

Concrete Class AE-2	15.9 C.Y.
Reinforcing Steel	1636 Lb.
Excavation (See Layout)	
Piling (See Layout)	

APPLE CREEK SEPARATION

8'-6" ABUTMENT DETAILS

24'-0" ROADWAY

H15 LOADING

TRACING — MADE BY — CHECKED BY

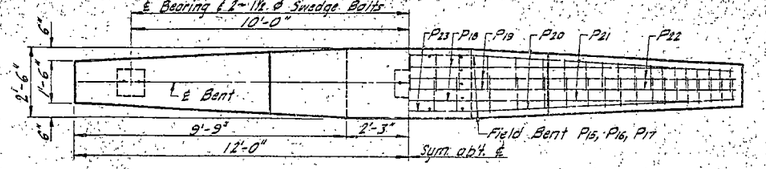
QUANTITIES — MADE BY — CHECKED BY

94-69-3

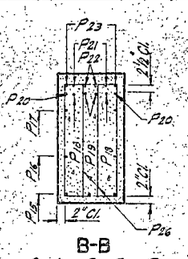
94-69-3

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	I-94-6(10)		18	48

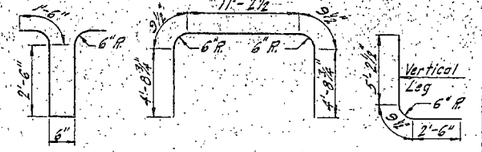
TRACING	MADE BY	CHECKED BY
	M.A.M.	E.A.L.
ANTITIES	MADE BY	CHECKED BY
	E.A.L.	F.O.H.



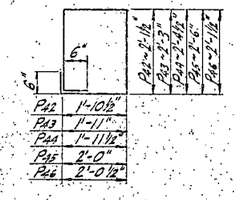
Half Dimensioned **CAP PLAN** Half Reinforcing



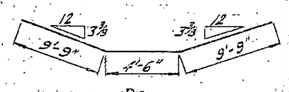
B-B
Center P18-P21 Bars over ℄ Column



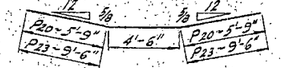
P1 P2 P7



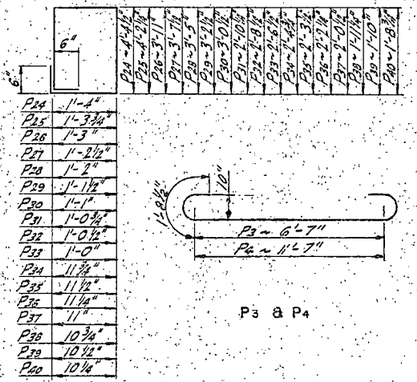
P42 - P46



P15



P20 & P23



P24 - P40

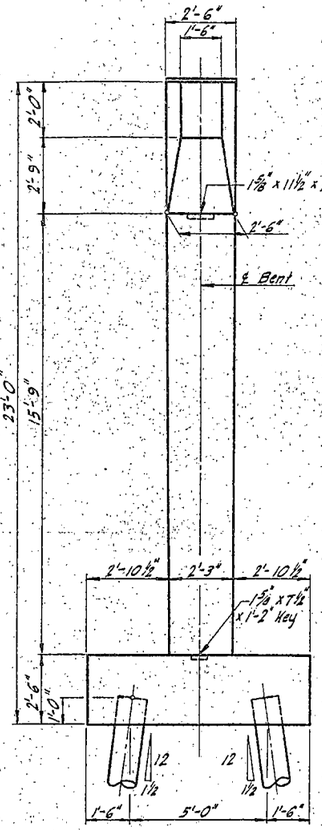
P3 & P4

BENT BAR DETAILS

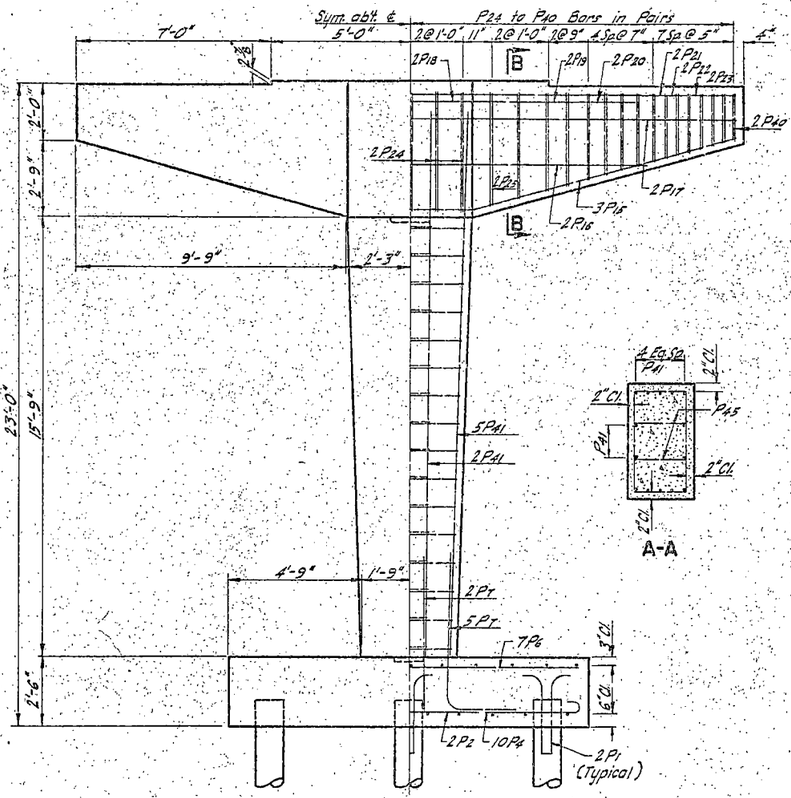
BAR LIST ~ one bent

	MARK	NO.	SIZE	LENGTH	SHAPE
Footing	P1	12	6	8'-6"	Bent
	P2	2	11	22'-3"	"
	P3	10	11	10'-0"	"
	P4	10	11	15'-0"	"
	P5	11	6	7'-6"	Str.
	P6	7	6	12'-6"	"
	P7	14	9	8'-6"	Bent
Cap	P15	3	6	24'-0"	"
	P16	2	6	16'-6"	Str.
	P17	2	6	23'-6"	"
	P18	2	10	10'-6"	"
	P19	2	10	13'-6"	"
	P20	2	10	16'-0"	Bent
	P21	2	11	20'-0"	Str.
	P22	2	11	23'-6"	"
	P23	2	11	23'-6"	Bent
	P24	10	5	12'-3"	"
	P25	4	5	12'-0"	"
	P26	4	5	11'-4"	"
	P27	4	5	10'-8"	"
	P28	4	5	10'-2"	"
	P29	4	5	9'-8"	"
	P30	4	5	9'-3"	"
	P31	4	5	8'-10"	"
	P32	4	5	8'-6"	"
	P33	4	5	8'-1"	"
	P34	4	5	7'-9"	"
	P35	4	5	7'-6"	"
	P36	4	5	7'-3"	"
	P37	4	5	6'-11"	"
	P38	4	5	6'-8"	"
	P39	4	5	6'-5"	"
	P40	4	5	6'-2"	"
Column	P41	14	9	19'-6"	"
	P42	6	4	9'-0"	Bent
	P43	6	4	9'-4"	"
	P44	6	4	9'-8"	"
	P45	6	4	10'-0"	"
	P46	8	4	10'-4"	"

NOTE:
The concrete in the column shall set at least two hours before the cap is placed.

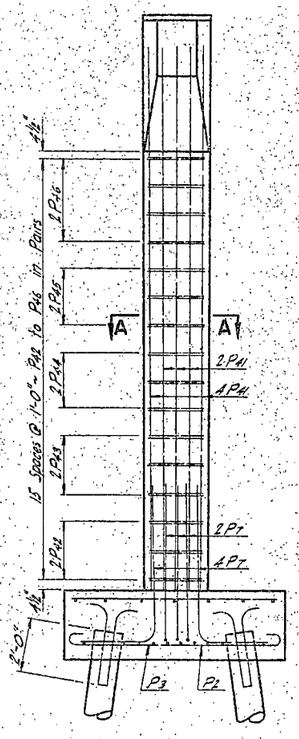


END VIEW
Showing Dimensions

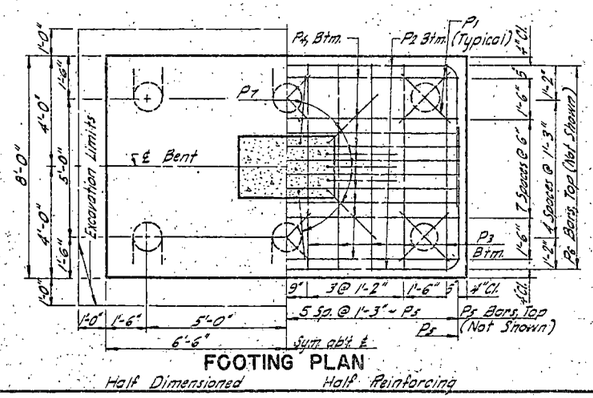


ELEVATION
Half Dimensioned Half Reinforcing

A-A



END VIEW
Showing Reinforcing
(Cap Reinforcing Not Shown)



FOOTING PLAN
Half Dimensioned Half Reinforcing

QUANTITIES (ONE BENT)

Concrete Class A.E.-2	32.2 C.Y.
Reinforcing Steel	3500 Lb.
Excavation (See Layout)	
Piling (See Layout)	

APPLE CREEK SEPARATION

23'-0" BENT DETAILS

24'-0" ROADWAY

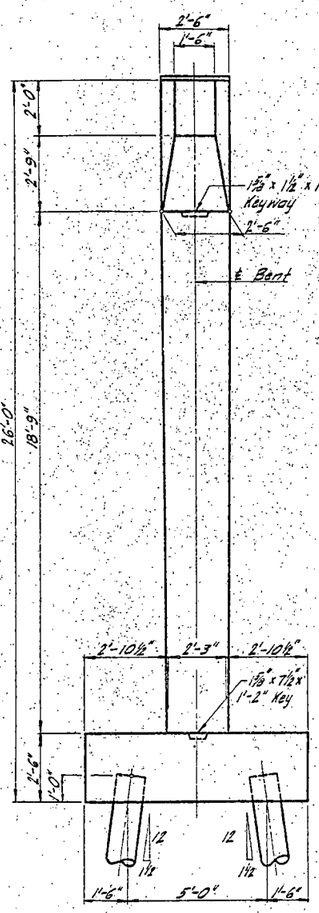
H15 LOADING

94-69-4

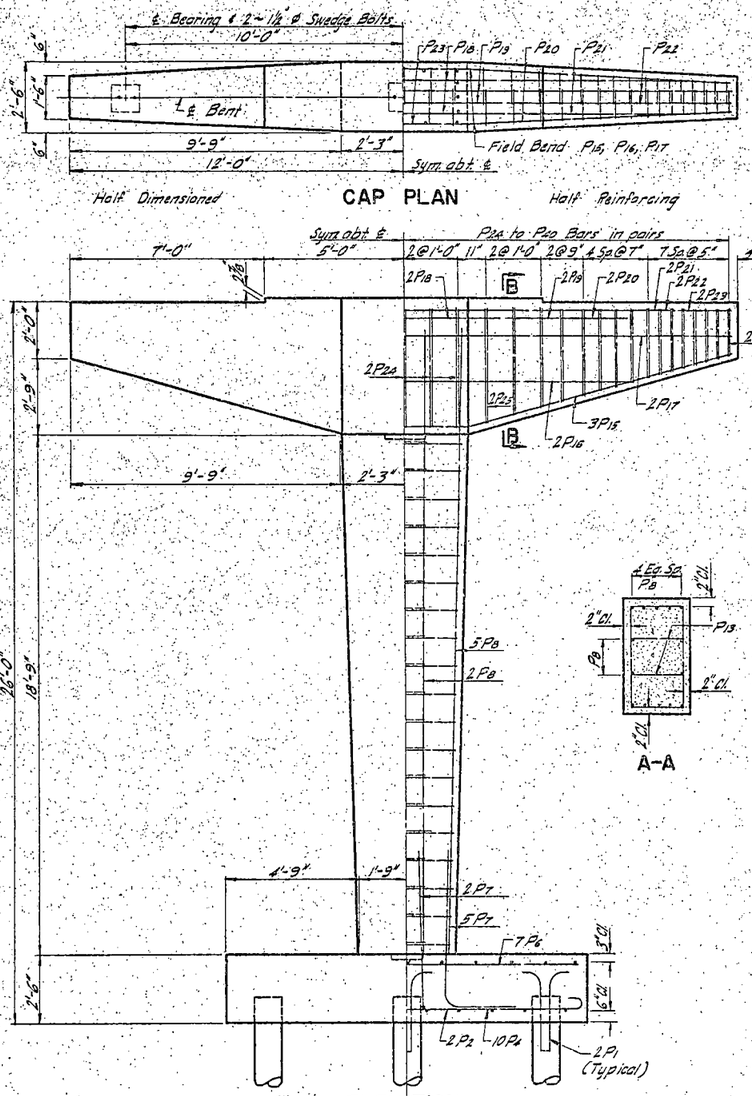
94-69-4

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	I-94-5(103)		19	48

DESIGNED BY H.A.K.
MADE BY G.A.L.
CHECKED BY F.D.H.
TRACING
QUANTITIES MADE BY F.D.H.
CHECKED BY G.A.L.



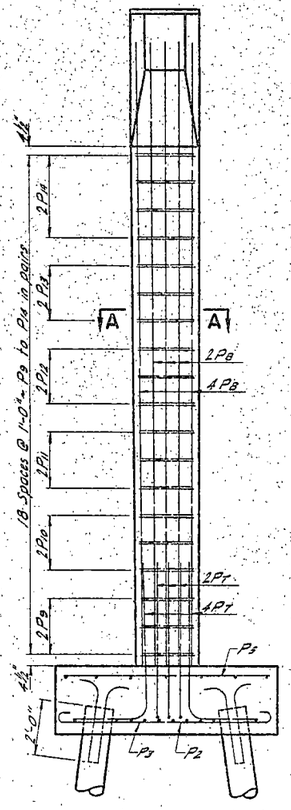
END VIEW
Showing Dimensions



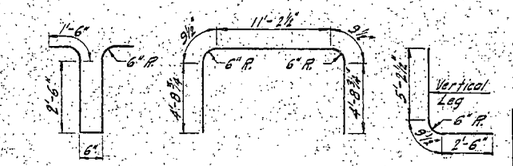
ELEVATION

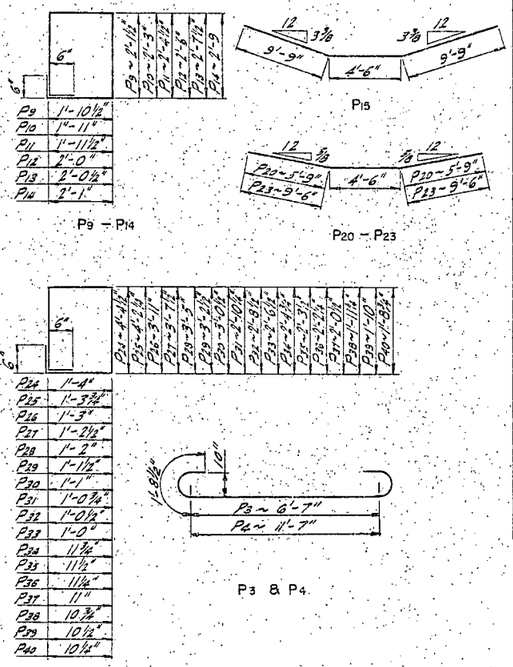
B-B
Center P18-P21 Bars over ℄ Column

FOOTING PLAN
Half Dimensioned Half Reinforcing



END VIEW
Showing Reinforcing
(Cap Reinforcing not shown)





BENT BAR DETAILS

BAR LIST ~ one bent

	MARK	NO.	SIZE	LENGTH	SHAPE
Footing	P1	12	6	8'-6"	Bent
	P2	2	11	22'-3"	"
	P3	10	11	10'-0"	"
	P4	10	11	15'-0"	"
	P5	11	6	7'-6"	Str.
	P6	7	6	12'-6"	"
	P7	14	9	8'-6"	Bent
	P8	14	9	22'-6"	Str.
Column	P9	6	4	9'-0"	Bent
	P10	6	4	9'-4"	"
	P11	6	4	9'-8"	"
	P12	6	4	10'-0"	"
	P13	6	4	10'-4"	"
	P14	8	4	10'-8"	"
	P15	3	6	24'-0"	"
	P16	2	6	16'-6"	Str.
	P17	2	6	23'-6"	"
	P18	2	10	10'-6"	"
	P19	2	10	13'-6"	"
	P20	2	10	16'-0"	Bent
	P21	2	11	20'-0"	Str.
	P22	2	11	33'-6"	"
	P23	2	11	23'-6"	Bent
Cap	P24	10	5	12'-5"	"
	P25	4	5	12'-0"	"
	P26	4	5	11'-4"	"
	P27	4	5	10'-8"	"
	P28	4	5	10'-2"	"
	P29	4	5	9'-8"	"
	P30	4	5	9'-3"	"
	P31	4	5	8'-10"	"
	P32	4	5	8'-6"	"
	P33	4	5	8'-1"	"
	P34	4	5	7'-9"	"
	P35	4	5	7'-6"	"
	P36	4	5	7'-3"	"
	P37	4	5	6'-11"	"
	P38	4	5	6'-8"	"
	P39	4	5	6'-5"	"
	P40	4	5	6'-2"	"

NOTE:
The concrete in the column shall set at least two hours before the cap is placed.

QUANTITIES (ONE BENT)

Concrete Class A-3	23.3 c.y.
Reinforcing Steel	3605 Lbs.
Excavation (See Layout)	
Piling (See Layout)	

APPLE CREEK SEPARATION
26'-0" BENT DETAILS
24'-0" ROADWAY
H15 LOADING

94-69-5

94-69-5

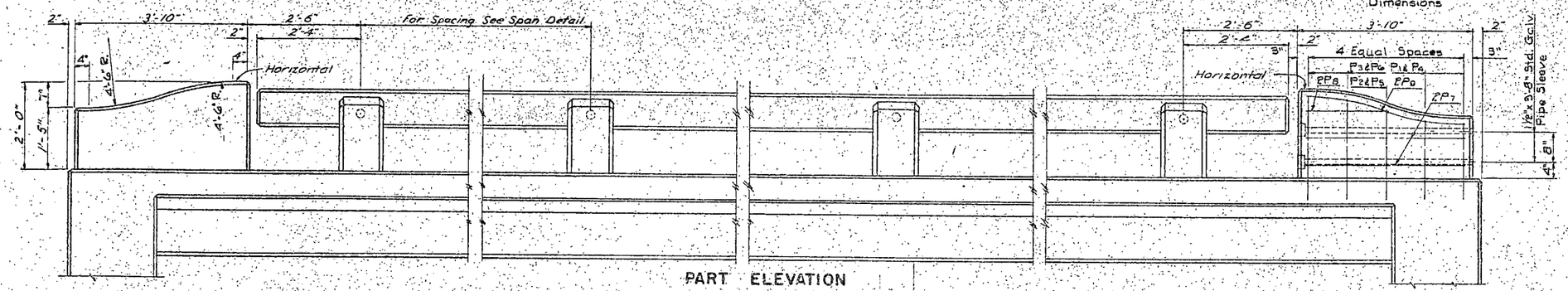
Revision of Concrete Class AAE-1 to Concrete Class AAE-1 (AE-1/A)	W.R.L.	T.H.R.	9-19-60
Revised Pa Bar length	C.J.	R.E.L.	4-28-61
Revised dimension at typical section	T.J.	U.C.	5-2-67

CHECKED BY J.C.
MADE BY B.G.N.
CHECKED BY C.E.G.
QUANTITIES MADE BY B.G.N.
CHECKED BY C.E.G.

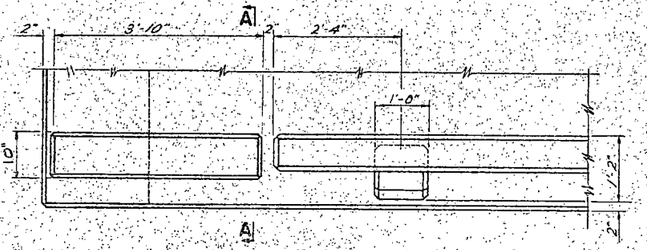
FED. ROAD DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	F-94 (10)		20	48

See Other End for Reinforcing

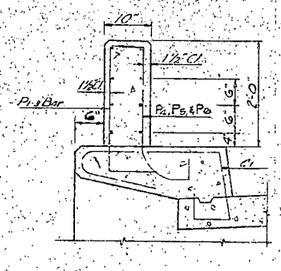
See Other End for Dimensions



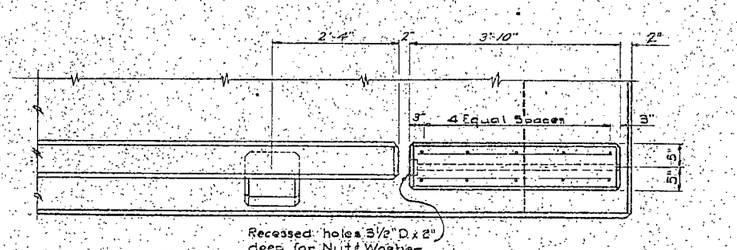
PART ELEVATION



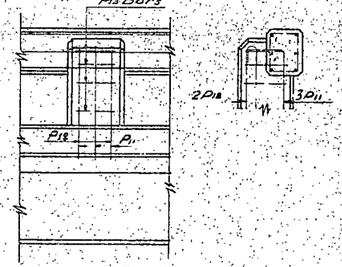
PART PLAN



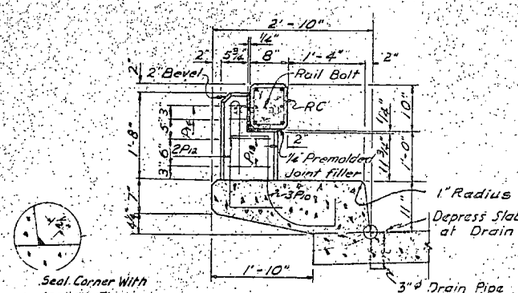
SEC. A-A



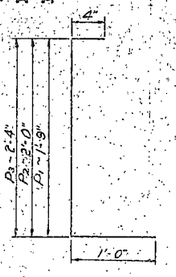
PART PLAN



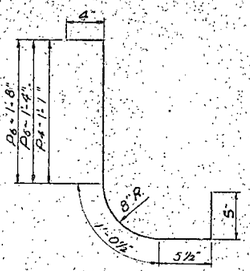
ANCHOR POST DETAIL
See Layout For Placement



TYPICAL SECTION



P1, P2 & P3 BARS



P4, P5 & P6 BARS

BAR LIST
(BARS FOR RAILING AND POSTS)

MARK	NO.	SIZE	LENGTH	SHAPE
P10	*	5	4'-0"	Bent
P11	*	5	4'-6"	Bent
P12	*	5	4'-5"	Bent
P13	*	3	3'-8"	Bent
P14	*	3	2'-8"	Bent
RC	*	3	2'-8"	Bent
P****	5	*	*	Str.

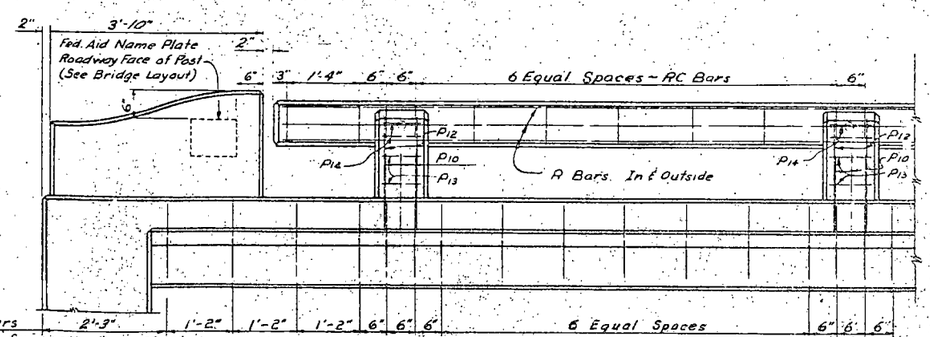
* Number of bars shown on superstructure sheet.
** Number, length & splicing information of R bars shown on superstructure sheet.

BAR LIST
(4 END POSTS)

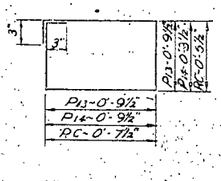
MARK	NO.	SIZE	LENGTH	SHAPE
P1	8	5	3'-1"	Bent
P2	4	5	3'-4"	"
P3	8	5	3'-8"	"
P4	8	5	3'-4"	"
P5	4	5	3'-7"	"
P6	8	5	3'-1"	"
P7	16	4	3'-6"	Str.
P9	8	4	1'-9"	Str.
P8	8	5	3'-9"	Field Bend

QUANTITIES ~ 4 END POSTS *	
Concrete Class AE-2	0.8 Cu. Yd.
Reinforcing Steel	224 Lbs.

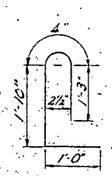
* Railing and end post quantities are included in slab quantities on superstructure sheet.



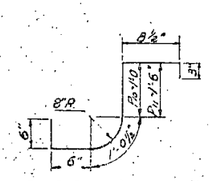
HAND RAIL DETAILS



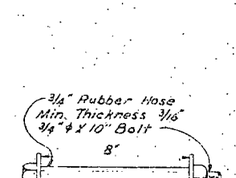
P13 P14 & RC BARS



P12 BARS



P10 & P11 BARS



RAIL BOLT
(Galvanized)
(To be included in the unit price bid for Class AE-2 Concrete)

BENT BAR DETAILS

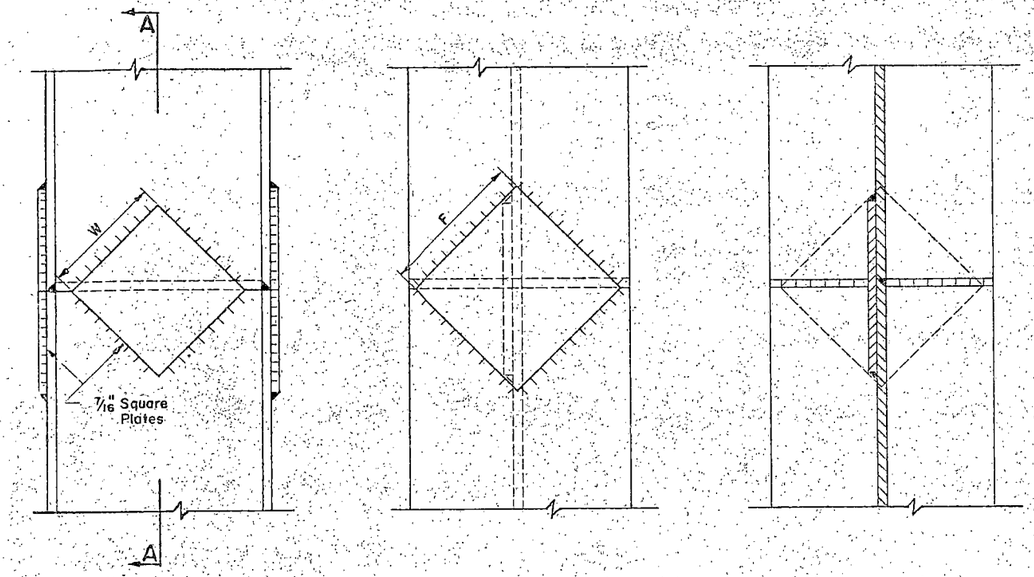
STANDARD RAILING DETAILS

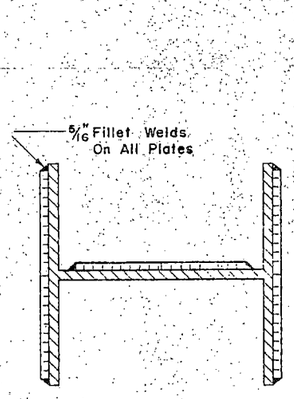
H-0133

H-0133

FED. ROAD DIV. NO.	STATE		FISCAL YEAR	SHEET NO.	TOTAL SHTS.
5	N. D.	[illegible]	[illegible]	[illegible]	[illegible]

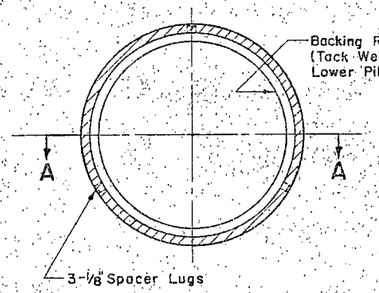
QUANTITIES MADE BY CHECKED BY



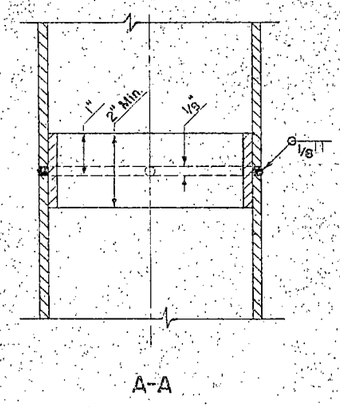


PILE	8"	10"	12"	14"
F FLANGE	5"	6½"	8"	10"
W WEB	4"	5½"	6½"	8"

H-PILE SPLICE DETAIL

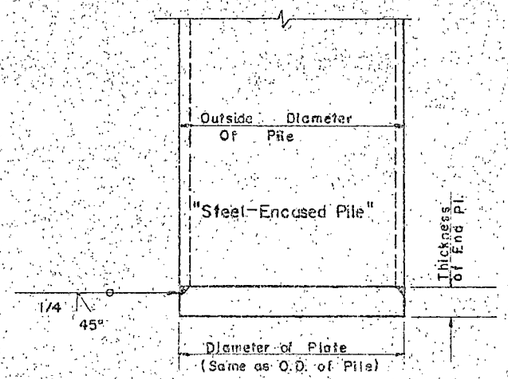


Backing Ring may be made from pile cut-offs or other material of a like quality.



A-A

SHELL PILE SPLICE DETAIL



END PLATE DETAIL

All welding shall conform to the current specification for "Welded Highway and Railway Bridges of the American Welding Society."
Backing rings and welding will not be paid for directly, but shall be included in the unit price bid for steel piles.

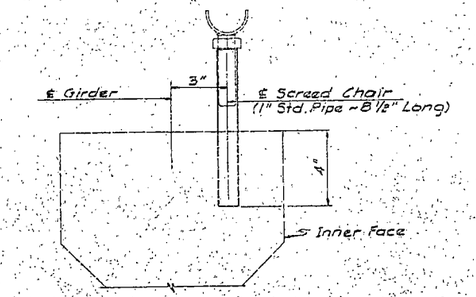
H-0401

PILE SPLICE DETAILS

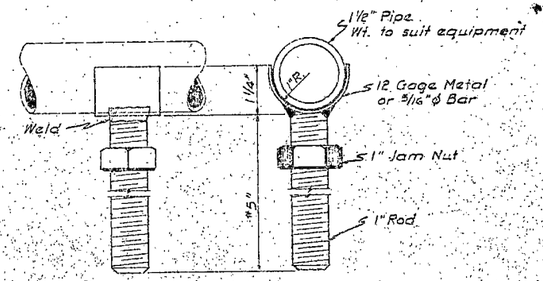
Revised 6-19-59

H-0401

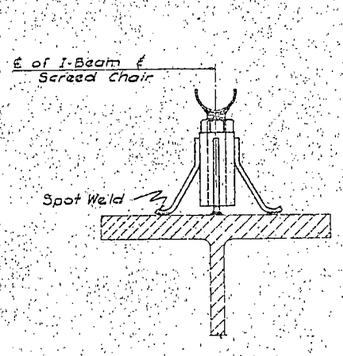
I-94-5(10) 22 47



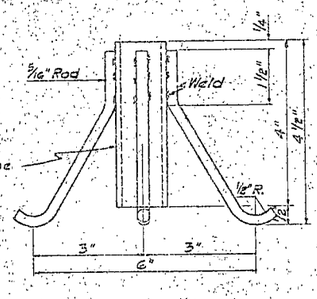
SCREED CHAIR IN PRESTRESSED GIRDER
(Outside Girders Only)



ADJUSTABLE SCREED HOLDER
*Useable with slab thickness of 7" or less. For greater slab thickness adjust length accordingly.



I-BEAM WITH SCREED CHAIR



SCREED CHAIR*

NOTES:

The spacing of screed chairs shall be such that no noticeable deflection occurs in the screed when the vibrating strike-off is in operation. Chairs shall be similarly placed for all screeds on the same bridge span with a maximum spacing of three feet when using 1½" extra strong pipe for a screed. Screeds shall be set on outer beams and also on intermediate beams if necessary to maintain the required template.

The cost of the screed chairs and holders shall be included in the unit price bid for the various pay items. Upon completion of the project the screed and screed holders shall remain the property of the Contractor.

The design shown for the screed chairs and seat may be varied slightly to suit manufacturers products if approved by the Engineer.

NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

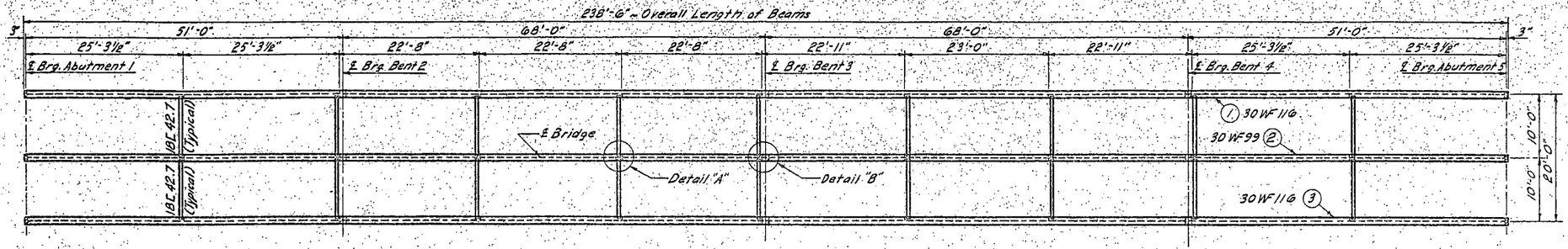
SCREED CHAIR
AND
ADJUSTABLE SCREED
HOLDER

APPROVED: 1-6-59
DATE

Harold P. Kirby
BRIDGE ENGINEER

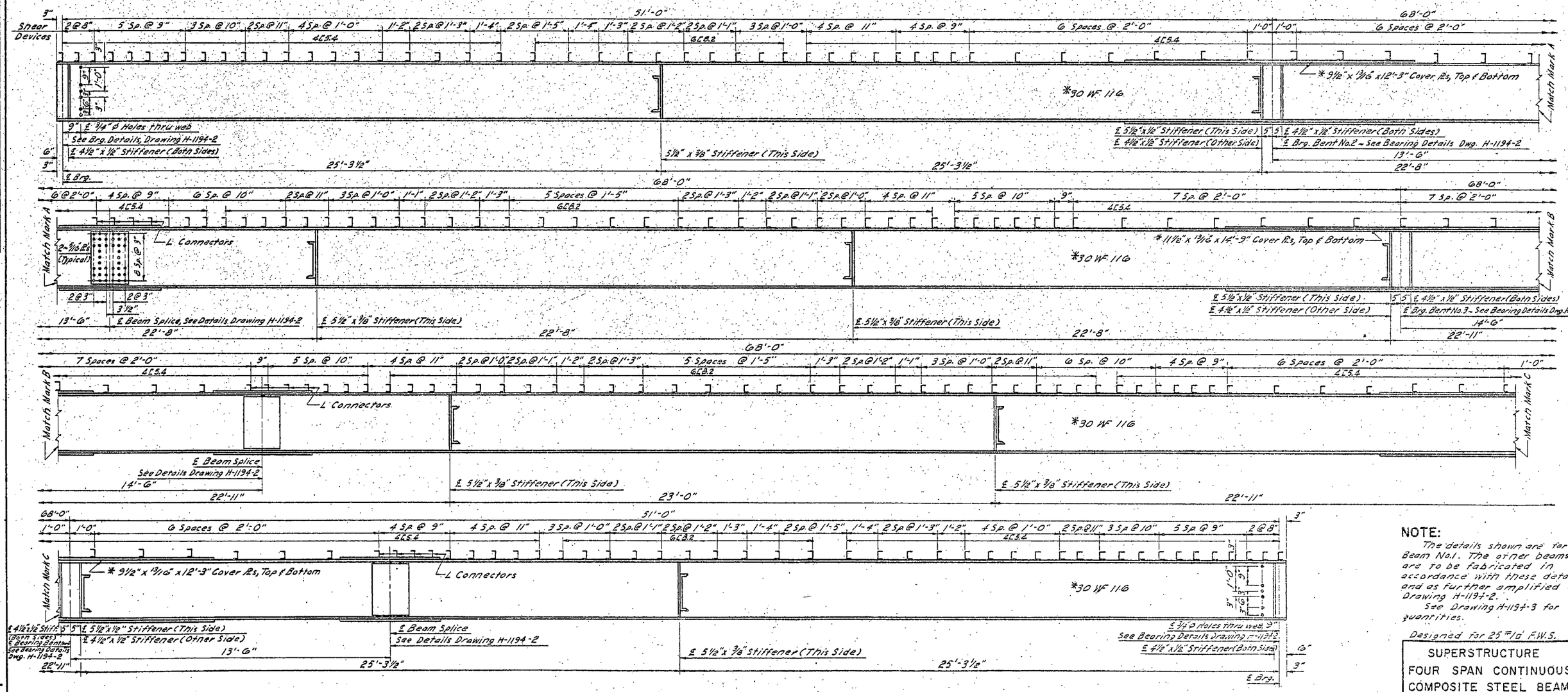
H-0501

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	I-94-5(8)		23	48



STEEL LAYOUT

See Drawing H-1194-2 for Detail 'A' & 'B'



BEAM ELEVATION

NOTE:

The details shown are for Beam No.1. The other beams are to be fabricated in accordance with these details and as further amplified on Drawing H-1194-2.

See Drawing H-1194-3 for quantities.

Designed for 25 #/ft² F.W.S.

* Sizes shown for exterior beams are not the same for interior beam. See other details.

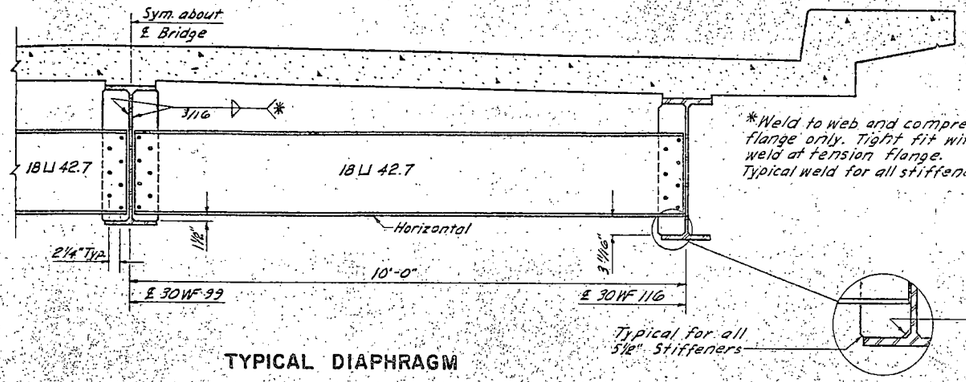
SUPERSTRUCTURE
FOUR SPAN CONTINUOUS
COMPOSITE STEEL BEAMS
OVERALL LENGTH 240'-0"
24' ROADWAY ~ H15 LOADING (1961)

DETAILS — CHECKED BY W.F.O.
DRAWING — MADE BY J.E.G.
QUANTITIES — MADE BY G.A.L. — CHECKED BY

H-1194-1

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	[illegible]		24	48

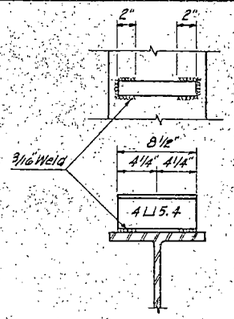
CHECKED BY W.L.G.
MADE BY L.E.G.
CHECKED BY G.A.L.
MADE BY
CHECKED BY



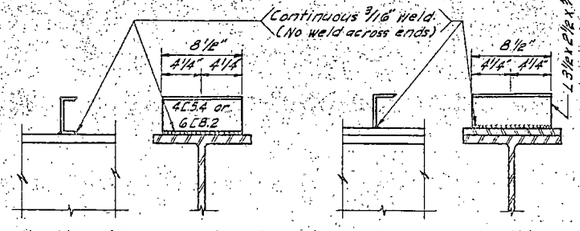
TYPICAL DIAPHRAGM

*Weld to web and compression flange only. Tight fit without weld at tension flange. Typical weld for all stiffeners.

3/4" cut next to web. Typical for all stiffeners.



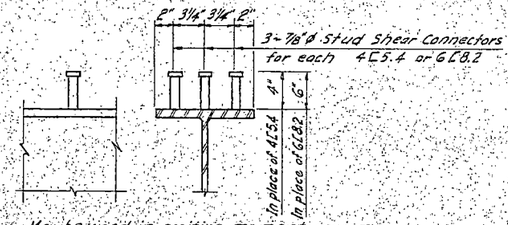
Used in negative moment region where spacing is 2'-0".



Used in positive moment region except over splice ℝ's. (See Drawing H-1194-1 for location of 4C5.4 and 6C8.2)

Use over splice ℝ's.

SHEAR DEVICE DETAIL



May be used in positive moment region except over splice plates.

ALTERNATE SHEAR DEVICE

NOTES:

All rivets or high strength bolts are to be ⅞". Open holes are to be 15/16" except as noted. Shop connections shall be made as shown. Field connections shall be made with high tensile strength bolts or shall be riveted.

If high strength bolts are used in the web and flange splice plates, the bolts shall be placed so that the nuts are on the upper side of the flange and on the interior side of the web.

Bearing areas are to be finished true to plan and elevation, by grinding if necessary, before bearing plates are set.

Paint and painting shall conform to the "North Dakota Standard Specifications for Road and Bridge Construction," Sections 80, 132.11 & 132.17.

All exposed steel surfaces shall be given one shop coat of red lead paint (including top of upper flange), one spot coat of red lead paint after erection and concrete work is completed and two field coats of aluminum paint (first coat tinted with Prussian Blue). No paint on shear devices.

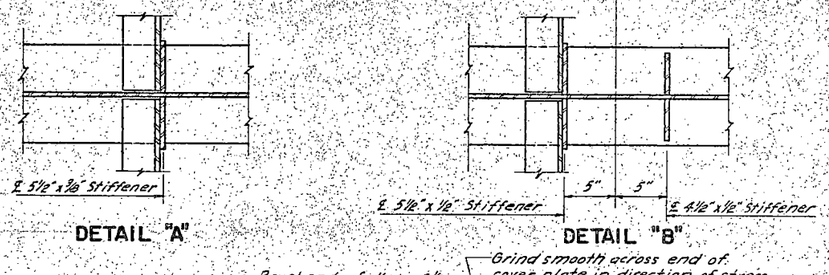
The metal arc process shall be used for all fabrication. Electrodes used in the fabrication of this bridge shall be of the E 60 classification. All welding shall conform to the current "Standard Specifications for Welded Highway and Railway Bridges - Design, Construction and Repair" of the American Welding Society.

Welding will not be paid for directly but shall be included in the unit price for Structural Steel.

Structural Carbon Steel shall conform to the latest ASTM-A36 Specifications.

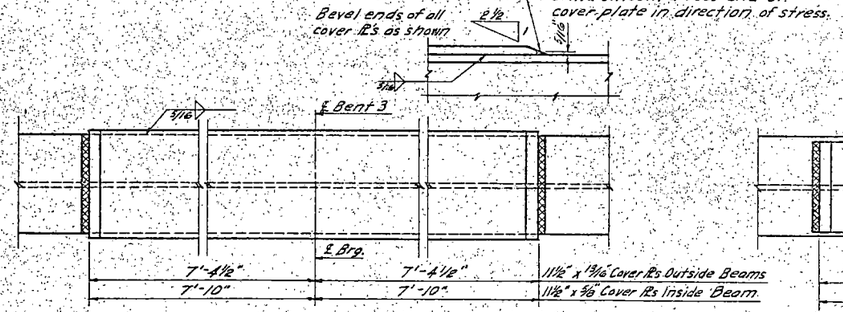
Alternate stud shear devices shall be manufactured of C-1015 or C-1020 cold rolled steel which conforms to ASTM Specifications A-108-64T, and shall conform to the diameter and other dimensions as shown. Alternate shear devices will be paid for as channel shear devices.

For Shop Camber Diagram see Bridge Layout.

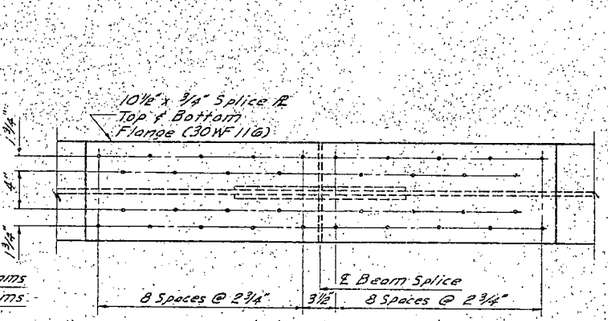


DETAIL "A"

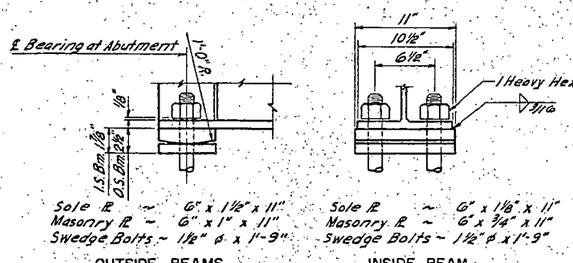
DETAIL "B"



COVER PLATE DETAIL

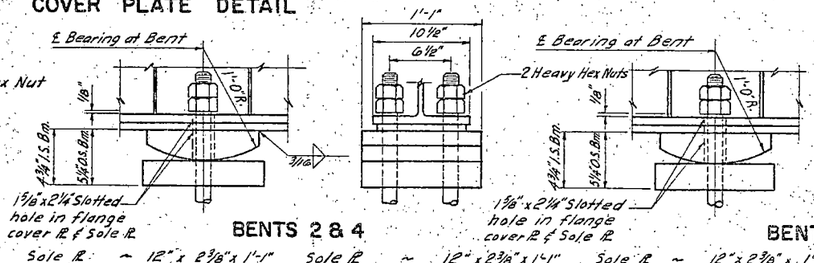


OUTSIDE BEAMS



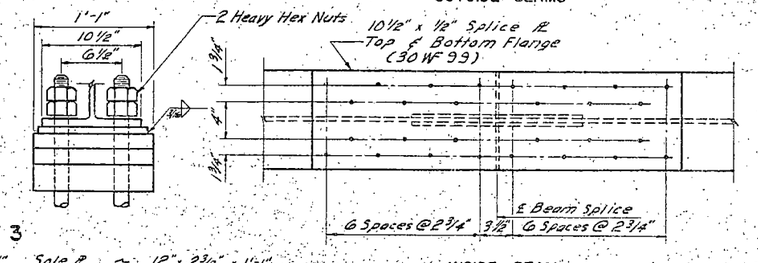
OUTSIDE BEAMS INSIDE BEAM

ABUTMENT BEARING DETAILS



OUTSIDE BEAMS INSIDE BEAM

BENTS 2 & 4



OUTSIDE BEAMS INSIDE BEAM

BENT 3

BENT BEARING DETAILS

INSIDE BEAM

FLANGE SPLICE DETAILS

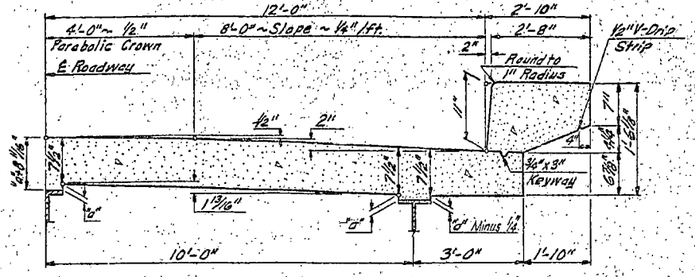
See Sheet H-1194-3 for quantities

SUPERSTRUCTURE
FOUR SPAN CONTINUOUS COMPOSITE STEEL BEAMS
OVERALL LENGTH ~ 240'-0"
24' ROADWAY ~ H15 LOADING (1961)

H-1194-2

H-1194-2

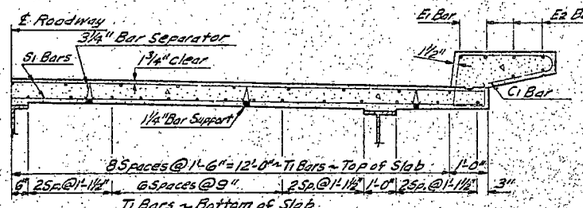
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	H-[illegible]-2(16)		25	A8



HALF SECTION OF SLAB

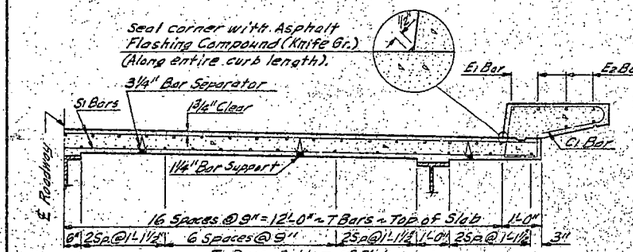
Showing Dimensions

Dimension "a" is 1⅛" at Abuts. and Bents and increases toward the center of the spans to compensate for dead load deflection which is taken care of in the screed elevations.



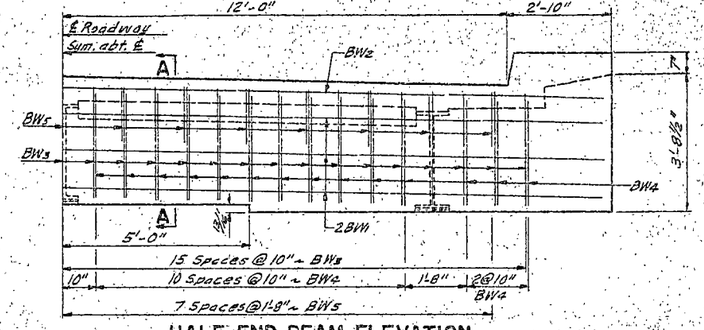
HALF SECTION OF SLAB

Showing Reinforcing in all spans between supports.

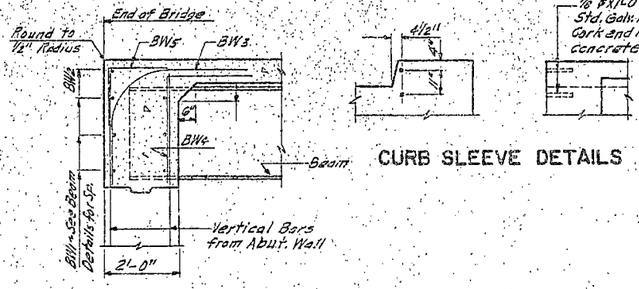


HALF SECTION OF SLAB

Showing Reinforcing over Bents.

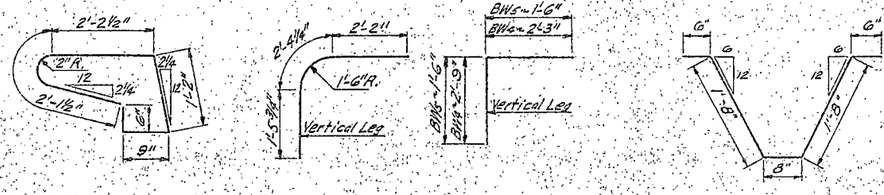


HALF END BEAM ELEVATION

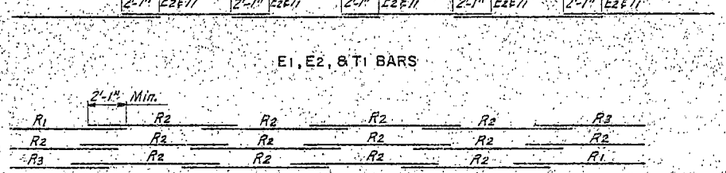


A-A

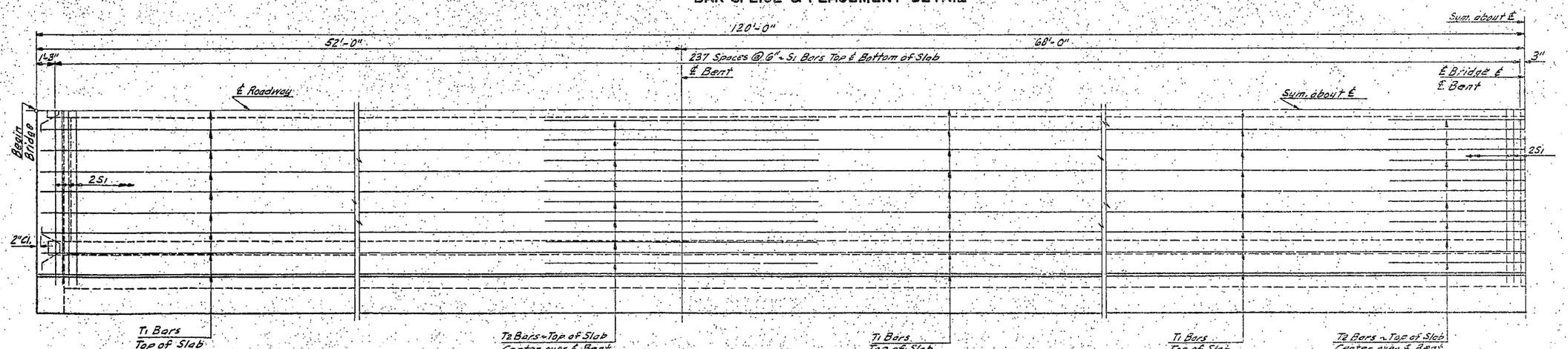
CURB SLEEVE DETAILS



BENT BAR DETAILS



BAR SPLICE & PLACEMENT DETAIL



QUARTER PLAN SLAB

T1 Bars Bottom of Slab not shown

BAR LIST (ONE SUPER.)

MARK	NO.	SIZE	LENGTH	SHAPE
BW1	12	5	29'-3"	Str.
BW2	2	6	29'-3"	"
BW3	62	5	6'-0"	Bent
BW4	56	5	5'-0"	"
BW5	30	4	3'-0"	"
BW6	18	5	5'-0"	"
C1	506	5	6'-3"	Bent
E1	12	6	42'-0"	Str.
E2	60	5	41'-8"	"
RC	390	3	2'-8"	Bent
R1	8	5	42'-3"	Str.
R2	36	5	40'-3"	"
R3	8	5	38'-3"	"
S1	952	5	25'-6"	Str.
T1	270	5	41'-8"	Str.
T2	48	6	20'-0"	"
P12	162	5	4'-0"	Bent
P11	6	5	4'-6"	"
P12	112	6	4'-5"	"
P13	116	3	3'-8"	"
P14	108	3	2'-8"	"

NOTE:

It is assumed that the Contractor can place the slab concrete in one continuous operation in accordance with Section 55.3 (F) 1 and 2.1 of the Standard Specifications. If the Contractor cannot pour at the specified rate, he shall submit drawings to the Bridge Engineer, for approval, showing proposed construction joints and pouring sequence.

Each curb shall be poured in one continuous operation.

See Std. Drwg. H-0133 for railing details. See Bridge Layout for rail post spacing.

See sheets H-1194-1 & H-1194-2 for structural steel details.

Designed for 25#/c.f.s.

QUANTITIES (ONE SUPER.)

Concrete Class AE-2*	202.6 C.Y.
Concrete Class AAE-1*	12.25 C.Y.
Reinforcing Steel	51,840 Lbs.
Structural Steel	102,300 Lbs.

*Includes End Post quant. Std. Dwg. H-0133

SUPERSTRUCTURE
FOUR SPAN CONTINUOUS COMPOSITE STEEL BEAMS
OVERALL LENGTH 240'-0"
24' ROADWAY ~ H15 LOADING (1961)

H-1194-3

FINAL