DESIGN DATA

Traffic		Average Daily					Est. 30th Max. Hr.
Current Traffic (1989)	270	Pass.	50	Trucks	320	Total	45
Traffic Forecast (2009)	325	Pass.	75	Trucks	400	Total	60
Design Speed			60	MPH			

BRIDGE HS 25

JOB# 9

NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

FEDERAL AID PROJECT NO. BRF-3-020(015)068
IN EDDY COUNTY
Grade, Surfacing & Structure

FHWA REGION	STATE	PROJECT	SHEET NO.
8	N.D.	BRF-3-020(015)068	1

GOVERNING SPECIFICATIONS:

Standard Specifications adopted by the North Dakota State Highway Department Nov. 1986, Standard Drawings currently in effect, and other Contract Provisions submitted herein.

LENGTH OF PROJECT

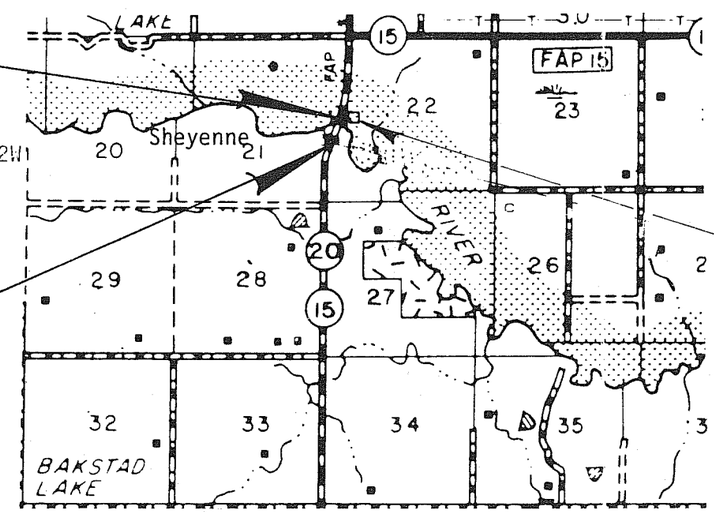
Project	Miles-Gross	Miles-Net
BRF-3-020(015)068	0.248	0.248

Beg. Project
Sta. 26+25.8

A point 58.48 ft. East & 43' N.Easterly of the SW Cor. of the NW¼ of Sec. 22, Twp. 150N.,Rge. 62W

End Project
Sta. 39+35

A point 127.56 ft. East & 559.0 ft. N.Easterly of the NW Cor. SW¼ SW¼ of Sec. 22, Twp. 150 N, Rge. 62 W.



Borrow Area BIA-6

T. 150 N.
T. 149 N.

Rge. 62 W.

N

450 c.y @ $16 - 15
Cushion 150 " @ 8 - 12

APPROVED DATE 2-24-89

Ray Link

CHIEF ENGINEER
NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ADMINISTRATOR DATE

SYMBOLS

STATE & NATIONAL LINES

COUNTY LINE

TOWNSHIP & RANGE LINES

SECTION LINE

QUARTER SECTION LINE

SECTION CORNER

QUARTER SECTION CORNER

OLD RIGHT OF WAY LINE

NEW RIGHT OF WAY LINE

GRADE LINE

CENTERLINE OF CONSTRUCTION — 500

RAILROAD RIGHT OF WAY LINE

CITY OR VILLAGE CORPORATE LIMITS

PROPERTY LINE

EASEMENT LINE

FENCES

SNOW FENCE

DRAINAGE

WATERS EDGE

MARSH OR SWAMP

RIPRAP

DRAINAGE DITCH

APPROACH — 502 + 00

TRAVELED WAY

RAILROADS

GUARD RAIL

GUIDE POSTS

DELINEATORS

HEDGES AND TREES

INTERCHANGE

HIGHWAY GRADE SEPARATION - NO CONNECTION

OTHER BRIDGE

SERVICE ROAD

TERMINATED CROSS-ROAD

BUILDINGS

TELEGRAPH LINES

TELEPHONE LINES

POWER LINES

CULVERTS (In Place)

CULVERTS (Install)

CONCRETE BOX CULVERTS (Install)

BRIDGES (Install)

CONCRETE CURB

CONCRETE CURB AND GUTTER

CONCRETE WALK

CATCH BASIN (Existing)

CATCH BASIN (New)

MANHOLE (Existing)

MANHOLE (New)

CURB INLET (Existing)

CURB INLET (New)

GROUND MOUNTED SIGNS

OVERHEAD SIGNS

HYDRANT

LIGHT STANDARDS

TRAFFIC SIGNALS (Plan & Profile Sheets)

HIGH MAST LIGHTING ASSEMBLY

GROUND ELEVATION / GRADE — 643.9 / 644.0 / 245

CENTERLINE

SECTION LINE

DEFLECTION ANGLE (Delta)

SOD OR JUTE MESH

POLES TO BE MOVED

POLES TO BE LOWERED

CONCRETE FOUNDATION

CONDUIT

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 — 3

PEDESTRIAN PUSHBUTTON POST

TRAFFIC SIGNAL CONTROLLER

FEED POINT - PAD MOUNTED

ABBREVIATIONS

Aggr	Aggregate
Ahd	Ahead
Alt	Alternate
Approx	Approximate or Approximately
Appr	Approach
Asph Cem or A C	Asphalt Cement
Asph Conc	Asphaltic Concrete
Bit	Bituminous or Bitumen
Bk	Back
B M	Bench Mark
Bldg	Building
Br	Bridge
C A E S	Corrugated Aluminum End Section
C A P	Corrugated Aluminum Pipe
C B	Catch Basin
C B & G	Curb and Gutter
Ch Blk	Channel Block
Ch Ch	Channel Change
C I	Curb Inlet
C I P	Cast Iron Pipe
Cl	Class
C.S.E.S	Corrugated Steel End Section
C.S.P.	Corrugated Steel Pipe
CMS	Cationic Medium Setting
Comp	Compression
Const	Construction
Conc	Concrete
Cont Reinf Conc Pvmt	Continuously Reinforced Concrete Pavement
Contn	Contraction
Crn	Crown
CRS	Cationic Rapid Setting
Crse	Course
C S	Curve to Spiral
C to C	Center to Center
C.Y	Cubic Yard
D	Degree of Curvature
D-Load	Dead Load
D B	Ditch Block
Def	Deformed
Del	Deliver
D G	Ditch Grade
El or Elev	Elevation
Ellipt	Elliptical
Emb	Embankment
Emul.	Emulsified
Engr	Engineer
Eq	Equation
E R	East Roadway
E S	End Section
Esmt	Easement
Exc	Excavation
Exp.	Expansion
F C	Field Drive
Found	Foundation
F P	Fence Post
Furn	Furnish
Ga	Gage or Gauge
Gr	Gravel
Grd	Graded
G V	Gate Valve
Hel	Helical
Hyd	Hydrant
Ident	Identification
Inchg	Interchange
I M	Iron Monument
Inst	Install
Inter	Intersection
Inv	Invert
Jt	Joint
L	Length of Curve
Lc	Length of Spiral
Levg	Leveling
L F	Linear or Lineal Foot
Liq	Liquid
Long	Longitudinal
L P	Light Pole
Lt	Left
"M"	One Thousand
Matl	Material
Max	Maximum
MC	Medium Curing
M H	Manhole
Min	Minimum
M L	Main Line
N R	North Roadway
Off Loc	Office Location
O to O	Out to Out
P & P	Plan and Profile
P C	Point of Curvature
P C C	Point of Compound Curve
P C C Pvmt	Portland Cement Concrete Pavement
P D	Private Drive
Pen	Penetration
Perf	Perforated
P I	Point of Intersection
P O C	Point on Curve
P O T	Point on Tangent
P P	Power Pole
P R C	Point of Reverse Curvature
Pref	Preformed
P S D	Passing Sight Distance
P T	Point of Tangency
P V C	Polyvinyl Chloride Sewer Pipe
Quant	Quantity or Quantities
R	Radius
R or Rge	Range
RC	Rapid Curing
R C E S	Reinforced Concrete End Section
R C P	Reinforced Concrete Pipe
R C P S	Reinforced Concrete Pipe Sewer
Rd	Road
Rdbd	Roadbed
Rdwy	Roadway
Refl	Reflectorized
R R	Railroad
Rt	Right
R/W	Right of Way
Salv	Salvage
San	Sanitary
S C	Spiral to Curve
SC	Slow Curing
Sc	Spiral Deflection Angle
S D	Sight Distance
S E	Superelevation
Sec	Section
Sec Line Appr	Section Line Approach
Sep	Separation
Serv	Service
Sgr Prep	Subgrade Preparation
Shldr	Shoulder
SP	Special Provision
S P P	Structural Plate Pipe
S P P A	Structural Plate Pipe Arch
S R	South Roadway
SS	Slow Setting or Supplement Specification
S S D	Stopping Sight Distance
S T	Spiral to Tangent
Sta.	Station
Std	Standard
Std Specs	Standard Specifications
Struct	Structure
Surf	Surface or Surfacing
Surv	Survey
S W	Sidewalk
S Y	Square Yard
T	Tangent Length (circular curve)
T or Twp	Township
Tel	Telephone
Temp	Temporary
T P	Telephone Pole
Tr	Traffic
Trans	Transverse or Transition
Trtd	Treated
Ts	Tangent Length (curve with spirals)
T S	Tangent to Spiral
U S C & G S	United States Coast and Geodetic Survey
V C	Vertical Curve
V C P	Vitrified Clay Pipe
W M	Water Main
W M V	Water Main Valve
W R	West Roadway
Wrng	Wearing
W S V	Water Service Valve
X-Sec	Cross Section
Xc	Spiral Coordinate
Yc	Spiral Coordinate

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	BRF-3-020(015)068	3

NOTES

100 014 Cross sections for this project are available for inspection at the Design Division, North Dakota State Highway Department, 600 East Boulevard Avenue, Bismarck, North Dakota 58505-0178 and also at the North Dakota State Highway Department District Office in Devils Lake.

100 070 PAVEMENT PROTECTION: The contractor shall protect the existing pavement during the course of construction. Surface repair which is required because of the contractor's operations shall be repaired by the contractor at the contractor's expense. Normal maintenance of existing pavement shall be performed by the State Highway Maintenance forces.

100 120 Excavate, if necessary, where the new surfacing meets existing pavement, and bridge ends to allow placement of the full depth of the surfacing course.

100 130 TREES, SHRUBS, AND NATIVE GRASSES: The contractor shall exercise care in his construction operations to ensure that trees, shrubs, and native grasses within the right of way and outside the construction area are not disturbed.

200 011 SHRINKAGE AND SUBCUT: Twenty percent additional volume in yardage computed by the end area method is allowed for shrinkage in earth embankment. Twenty percent of the subcut excavation has been added to the excavation and embankment quantities to allow for shrinkage in subcut excavation and shall be obtained within the right of way limits.

200 130 TOPSOIL: Total topsoil from clearing and grubbing areas is approximately 1,921 cubic yards.

200 301 WATER: The cost of applying water for compaction and for use as a dust palliative, as required, shall be included in the price bid for "Water."

200 360 COMPACTION AND DENSITY CONTROL: Compaction and density controls shall be in accordance with Section 203.02 F of the Standard Specifications AASHTO T-180.

400 014 BITUMINOUS PAVEMENT SLOUGHS: Bituminous pavement sloughs shall be compacted with rollers capable of providing a smooth finished compacted slough that is free of tire marks and uneveness or dropoff. No density tests will be required.

400 290 HOT BITUMINOUS PAVEMENT: The 4" hot bituminous pavement shall be paver laid in approximately 2 equal lifts.

710 200 TEMPORARY BYPASS: Approximate quantities for the temporary bypasses are as follows:

Location	Fill Material	Aggr. Base Course
94+60 ℄	3,407 C.Y.	340 Ton

EXISTING SURFACING: The contractor shall have the option of salvaging the existing surfacing for his own use. However, if this is done, he shall replace this material with an equal amount of borrow at his own expense.

REMOVE PIPE CULVERTS: It will be the contractor's responsibility to dispose of all existing culverts removed on this project. The cost to remove and dispose of the culverts will be incidental to other items.

754 030 IN-PLACE SIGNS: The district shall inspect the in-place signs and supports for condition to determine if there are any additional signs or supports that can reset or changed to new sign and supports. The district shall inform the contractor of any changes prior to the time the contractor orders materials.

754 050 SIGN SUPPORTS: The sign support "Steel Galvanized Posts - Square Tube Perforated" were designed using a minimum yield strength of 42,000 psi and the design requirements of the "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals." The wind speed of 75 mph was used. The contractor may choose other types of square telescoping steel post in lieu of the ones specified but the contractor must provide equivalent strength posts and meet the FHWA yielding support requirements.

COMPACTION OF HOT BITUMINOUS PAVEMENT: Compaction shall be in accordance with Section 406.04 H2 (Ordinary Compaction).

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	BRF-3-020(015)068	4

NOTES

SPECIAL CONDITIONS:

The following special conditions, if applicable, must be met:

1. The activity will not significantly disrupt the movement of those species of aquatic life indigenous to the water body (unless the primary purpose of the fill is to impound water).

2. Any discharge of dredge or fill material will consist of suitable material free from toxic pollutants in toxic amounts.

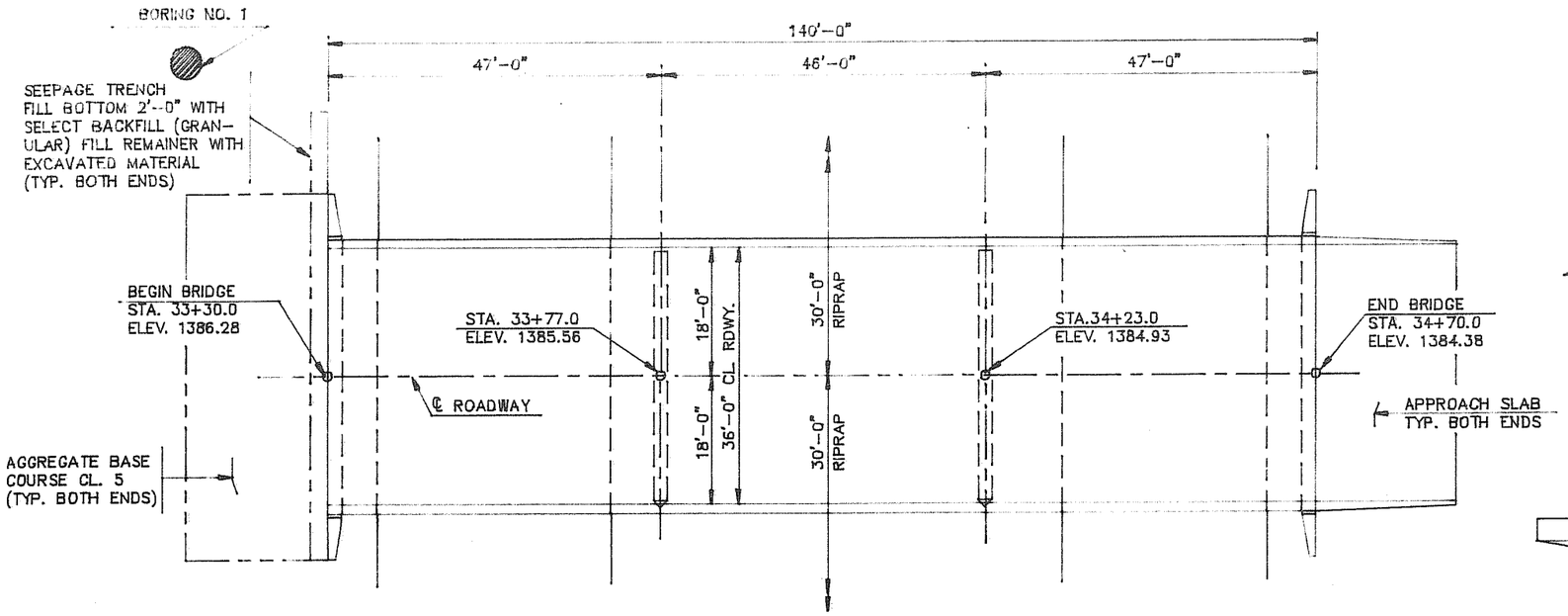
3. Any structure or fill authorized will be properly maintained.

4. Discharge of dredge or fill material or equipment movement in wetland areas shall be avoided to the maximum extent practicable.

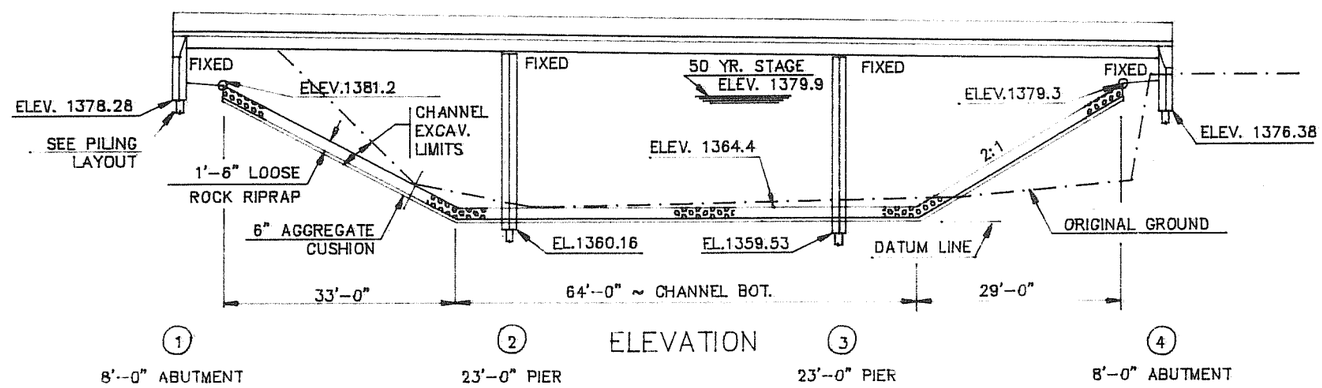
5. All temporary fills shall be removed in their entirety.

6. Placement of fill in the stream, during spring spawning will not be allowed from approximately April 15 to June 15.

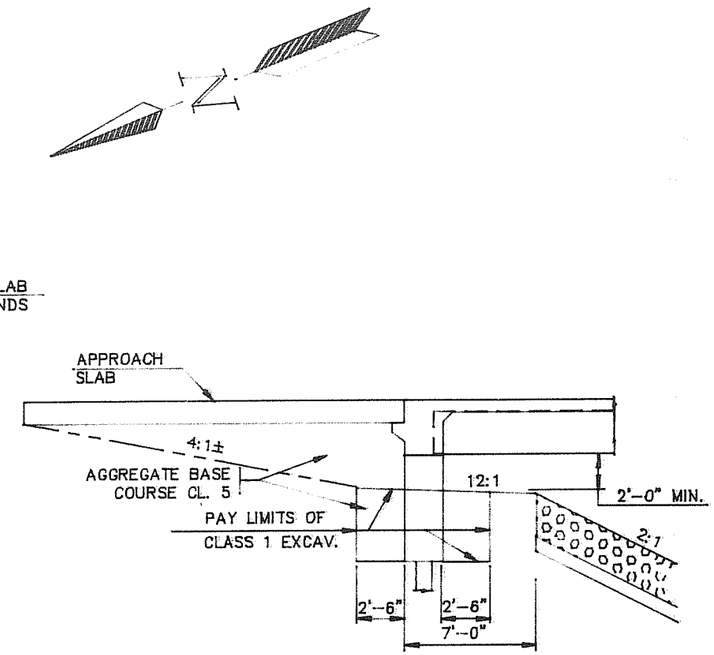
BRIDGE CODE	FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
X-081	8	N.D.	BRF-3-020(015)068	10



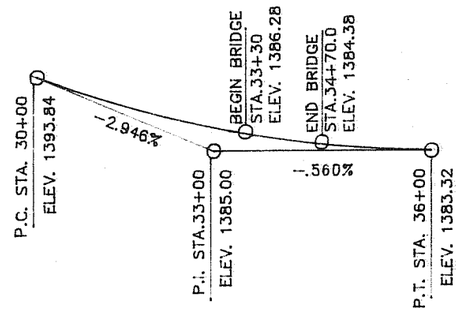
PLAN



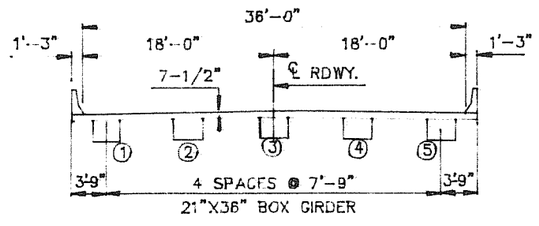
ELEVATION



DETAIL AT ABUTMENT



VERTICAL CURVE DATA



DECK SECTION

DESIGN LOADING	F.W.S.
HS25	15 LBS.

SHEYENNE RIVER
STATION 34+00

BRIDGE LAYOUT

EDDY COUNTY

CONCRETE ALTERNATE

24 JAN 89 [signature]

DATE: BRIDGE ENGINEER

88GAL45

20-068.[illegible]

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	BRF-3-020(015)068	15

PAGE 1

BASELINE STA	MATERIAL NAME	END AREAS	UNADJUSTED VOLUMES INCR	UNADJUSTED VOLUMES FROM BAL	UNADJUSTED VOLUMES ACCUM	MULT FACTOR	ADJUSTED VOLUMES INCR	ADJUSTED VOLUMES FROM BAL	ADJUSTED VOLUMES ACCUM	MASS ORDINATE
25+26.00	MODIFY VOLUMES									21974.
	BACKFILL	25.71	0	0	0	1.200	0	0	0	
	FILL	109.85	0	0	0	1.200	0	0	0	
	EARTH	420.67	21974	21974	21974	1.000	21974	21974	21974	
	TOPSOIL	64.10	0	0	0	1.000	0	0	0	
26+66.00	BACKFILL	21.38	35	35	35	1.200	42	42	42	22276.
	FILL	103.75	158	158	158	1.200	190	190	190	
	EARTH	300.31	534	22508	22508	1.000	534	22508	22508	
	TOPSOIL	53.37	87	87	87	1.000	87	87	87	
27+ 5.80	BACKFILL	24.96	34	69	69	1.200	41	83	83	22324.
	FILL	156.75	192	350	350	1.200	230	420	420	
	EARTH	132.04	319	22827	22827	1.000	319	22827	22827	
	TOPSOIL	47.95	75	162	162	1.000	75	162	162	
27+45.80	BACKFILL	26.94	38	108	108	1.200	46	129	129	22056.
	FILL	202.14	266	616	616	1.200	319	739	739	
	EARTH	0.0	98	22925	22925	1.000	98	22925	22925	
	TOPSOIL	26.94	55	217	217	1.000	55	217	217	
27+85.80	BACKFILL	31.10	43	150	150	1.200	52	181	181	21579.
	FILL	277.07	355	971	971	1.200	426	1165	1165	
	TOPSOIL	31.10	43	260	260	1.000	43	260	260	
28+10.00	BACKFILL	33.20	29	179	179	1.200	35	215	215	21230.
	FILL	307.37	262	1233	1233	1.200	315	1480	1480	
	TOPSOIL	33.20	29	289	289	1.000	29	289	289	
28+25.00	MODIFY VOLUMES									19965.
	BACKFILL	35.81	19	198	198	1.200	23	238	238	
	FILL	355.73	1034	2267	2267	1.200	1241	2721	2721	
	TOPSOIL	35.81	19	308	308	1.000	19	308	308	
28+65.80	BACKFILL	42.91	59	258	258	1.200	71	310	310	19131.
	FILL	485.39	636	2903	2903	1.200	763	3484	3484	
	TOPSOIL	42.91	59	368	368	1.000	59	368	368	
29+45.80	BACKFILL	48.44	135	393	393	1.200	162	472	472	16865.
	FILL	697.52	1753	4657	4657	1.200	2104	5588	5588	
	TOPSOIL	48.44	135	503	503	1.000	135	503	503	
30+25.80	BACKFILL	47.93	143	536	536	1.200	171	643	643	14089.
	FILL	767.68	2171	6827	6827	1.200	2605	8193	8193	
	TOPSOIL	47.93	143	646	646	1.000	143	646	646	
31+ 0.0	BACKFILL	46.77	130	666	666	1.200	156	799	799	11396.
	FILL	770.30	2113	8941	8941	1.200	2536	10729	10729	
	TOPSOIL	46.77	130	776	776	1.000	130	776	776	
32+ 0.0	BACKFILL	45.43	171	837	837	1.200	205	1004	1004	7873.
	FILL	722.99	2765	11706	11706	1.200	3318	14047	14047	
	TOPSOIL	45.43	171	947	947	1.000	171	947	947	
32+70.00	BACKFILL	45.35	118	955	955	1.200	141	1146	1146	5531.
	FILL	691.88	1834	13540	13540	1.200	2201	16248	16248	
	TOPSOIL	45.35	118	1064	1064	1.000	118	1064	1064	
33+ 0.0	BACKFILL	45.09	50	1005	1005	1.200	60	1206	1206	4555.
	FILL	681.25	763	14303	14303	1.200	915	17163	17163	
	TOPSOIL	45.09	50	1115	1115	1.000	50	1115	1115	
33+18.00	BACKFILL	43.32	29	1034	1034	1.200	35	1241	1241	3952.
	FILL	737.88	473	14776	14776	1.200	568	17731	17731	
	TOPSOIL	43.32	29	1144	1144	1.000	29	1144	1144	
33+42.00	BACKFILL	0.0	19	1054	1054	1.200	23	1264	1264	3536.
	FILL	0.0	328	15104	15104	1.200	394	18125	18125	
	TOPSOIL	0.0	19	1163	1163	1.000	19	1163	1163	
33+45.00	FILL	0.0	0	15104	15104	1.200	0	18125	18125	3536.
33+65.00	FILL	0.0	0	15104	15104	1.200	0	18125	18125	3536.
33+80.00	FILL	0.0	0	15104	15104	1.200	0	18125	18125	3536.
34+ 0.0	FILL	0.0	0	15104	15104	1.200	0	18125	18125	3536.
34+25.00	FILL	0.0	0	15104	15104	1.200	0	18125	18125	3536.
34+40.00	FILL	0.0	0	15104	15104	1.200	0	18125	18125	3536.
34+53.00	FILL	0.0	0	15104	15104	1.200	0	18125	18125	3536.
34+64.00	FILL	0.0	0	15104	15104	1.200	0	18125	18125	3536.
34+67.00	FILL	0.0	0	15104	15104	1.200	0	18125	18125	3536.
34+85.00	BACKFILL	46.59	16	1069	1069	1.200	19	1283	1283	3304.
	FILL	531.88	177	15281	15281	1.200	213	18337	18337	
	TOPSOIL	46.59	16	1179	1179	1.000	16	1179	1179	
35+ 0.0	BACKFILL	47.70	26	1095	1095	1.200	31	1314	1314	2972.
	FILL	371.55	251	15532	15532	1.200	301	18638	18638	
	TOPSOIL	47.70	26	1205	1205	1.000	26	1205	1205	
35+25.00	BACKFILL	42.92	42	1137	1137	1.200	50	1365	1365	2540.
	FILL	314.61	318	15850	15850	1.200	381	19020	19020	
	TOPSOIL	42.92	42	1247	1247	1.000	42	1247	1247	
35+65.00	BACKFILL	36.94	59	1196	1196	1.200	71	1436	1436	2006.
	FILL	206.95	386	16236	16236	1.200	464	19483	19483	
	TOPSOIL	36.94	59	1306	1306	1.000	59	1306	1306	
36+ 0.0	BACKFILL	33.26	46	1242	1242	1.200	55	1490	1490	1662.
	FILL	164.89	241	16477	16477	1.200	289	19772	19772	
	TOPSOIL	33.26	46	1352	1352	1.000	46	1352	1352	
37+ 0.0	BACKFILL	30.10	117	1359	1359	1.200	141	1631	1631	882.
	FILL	132.91	551	17029	17029	1.200	662	20434	20434	
	EARTH	12.05	22	22947	22947	1.000	22	22947	22947	
	TOPSOIL	30.17	117	1469	1469	1.000	117	1469	1469	
38+ 0.0	BACKFILL	28.47	108	1468	1468	1.200	130	1761	1761	299.
	FILL	110.76	451	17480	17480	1.200	542	20976	20976	
	EARTH	38.35	90	23036	23036	1.000	90	23036	23036	
	TOPSOIL	28.76	109	1578	1578	1.000	109	1578	1578	
38+70.00	BACKFILL	37.51	86	1553	1553	1.200	103	1864	1864	28.
	FILL	67.43	231	17711	17711	1.200	277	21253	21253	
	EARTH	47.00	108	23145	23145	1.000	108	23145	23145	
	TOPSOIL	40.47	90	1668	1668	1.000	90	1668	1668	
39+34.12	NATURAL BALANCE									0.
	BACKFILL		47	1600	1600	1.200	56	1920	1920	
	FILL		80	17771	17791	1.200	96	21349	21349	
	EARTH		125	23269	23269	1.000	125	23269	23269	
	TOPSOIL		57	1725	1725	1.000	57	1725	1725	
39+35.00	BACKFILL	2.05	1	1	1601	1.200	1	1	1921	-0.
	FILL	0.0	1	1	17792	1.200	1	1	21350	
	EARTH	58.04	2	2	23271	1.000	2	2	23271	
	TOPSOIL	7.65	1	1	1726	1.000	1	1	1726	

*** FILE *MASSPLT * HAS BEEN SAVED

Mainline Slope Stakes

BASELN STATION	CENTRLN STATION	P.G.ELEV	CL.OFFSET	SKEW	LEFT SLOPE STAKE SLOPE	LEFT C/F	LEFT OFFSET	LEFT ELEVATION	RIGHT SLOPE STAKE SLOPE	RIGHT C/F	RIGHT OFFSET	RIGHT ELEVATION
26+26.00	26+26.00	1406.30	0.0	1.00000	2.00	-22.46	-121.45	1428.76	-6.00	7.69	52.76	1398.61
26+66.00	26+66.00	1404.30	0.0	1.00000	2.00	-16.16	-109.20	1420.46	-6.00	7.23	51.04	1397.07
27+ 5.80	27+ 5.80	1402.47	0.0	1.00000	3.00	-5.47	-97.25	1407.94	-6.00	7.24	52.14	1395.23
27+45.80	27+45.80	1403.80	0.0	1.00000	-6.00	4.58	-55.70	1398.23	-6.00	8.99	61.57	1393.82
27+85.80	27+85.80	1399.31	0.0	1.00000	-6.00	6.68	-67.29	1392.63	-6.00	6.27	59.39	1393.04
28+10.00	28+10.00	1398.49	0.0	1.00000	-6.00	7.67	-72.61	1390.81	-6.00	6.05	57.28	1392.44
28+65.80	28+65.80	1396.79	0.0	1.00000	-6.00	8.91	-79.56	1387.89	-6.00	8.29	70.74	1388.50
29+45.80	29+45.80	1394.44	0.0	1.00000	-6.00	9.63	-83.85	1384.80	-6.00	9.76	79.51	1384.68
30+25.80	30+25.80	1392.09	0.0	1.00000	-6.00	9.72	-79.30	1382.37	-6.00	9.85	80.06	1382.24
31+ 0.0	31+ 0.0	1390.09	0.0	1.00000	-6.00	9.53	-78.17	1380.55	-6.00	9.65	78.80	1380.44
32+ 0.0	32+ 0.0	1387.74	0.0	1.00000	-6.00	9.19	-76.12	1378.55	-6.00	9.54	78.24	1378.20
32+70.00	32+70.00	1386.33	0.0	1.00000	-6.00	8.78	-73.65	1377.55	-6.00	9.93	80.54	1376.41
33+ 0.0	33+ 0.0	1385.79	0.0	1.00000	-6.00	9.62	-78.70	1376.17	-2.00	12.49	74.97	1373.30
33+18.00	33+18.00	1385.48	0.0	1.00000	-2.00	10.53	-71.04	1374.95	-2.00	14.55	79.09	1370.93
33+42.00	33+42.00	1385.09	0.0	1.00000	0.0	2.49	0.0	1382.60	0.0	2.49	0.0	1382.60
33+45.00	33+45.00	1385.04	0.0	1.00000	0.0	17.34	0.0	1367.70	0.0	17.34	0.0	1367.70
33+65.00	33+65.00	1384.73	0.0	1.00000	0.0	17.63	0.0	1367.10	0.0	17.63	0.0	1367.10
33+80.00	33+80.00	1384.51	0.0	1.00000	0.0	20.22	0.0	1364.30	0.0	20.22	0.0	1364.30
34+ 0.0	34+ 0.0	1384.24	0.0	1.00000	0.0	19.54	0.0	1364.70	0.0	19.54	0.0	1364.70
34+25.00	34+25.00	1383.91	0.0	1.00000	0.0	18.71	0.0	1365.20	0.0	18.71	0.0	1365.20
34+40.00	34+40.00	1383.72	0.0	1.00000	0.0	18.03	0.0	1365.70	0.0	18.03	0.0	1365.70
34+53.00	34+53.00	1383.57	0.0	1.00000	0.0	16.77	0.0	1366.80	0.0	16.77	0.0	1366.80
34+64.00	34+64.00	1383.45	0.0	1.00000	0.0	15.65	0.0	1367.80	0.0	15.65	0.0	1367.80
34+67.00	34+67.00	1383.42	0.0	1.00000	0.0	0.92	0.0	1382.50	0.0	0.92	0.0	1382.50
34+85.00	34+85.00	1383.23	0.0	1.00000	-6.00	10.02	-81.08	1373.21	-2.00	12.77	75.53	1370.46
35+ 0.0	35+ 0.0	1383.08	0.0	1.00000	-6.00	9.78	-79.65	1373.30	-6.00	9.69	79.09	1373.39
35+25.00	35+25.00	1382.85	0.0	1.00000	-6.00	9.24	-76.42	1373.61	-6.00	8.64	72.83	1374.21
35+65.00	35+65.00	1382.54	0.0	1.00000	-6.00	8.59	-72.49	1373.95	-6.00	7.30	64.79	1375.24
36+ 0.0	36+ 0.0	1382.32	0.0	1.00000	-6.00	8.02	-69.11	1374.30	-6.00	6.64	60.79	1375.68
37+ 0.0	37+ 0.0	1381.76	0.0	1.00000	-6.00	7.87	-68.19	1373.89	-6.00	5.75	55.46	1376.01
38+ 0.0	38+ 0.0	1381.34	0.0	1.00000	-6.00	8.10	-69.56	1373.24	-6.00	5.04	51.22	1376.30
38+70.00	38+70.00	1381.21	0.0	1.00000	-6.00	8.15	-69.87	1373.06	4.00	3.94	74.26	1377.27
39+35.00	39+35.00	1381.20	0.0	1.00000	*******	3.76	-43.53	1377.44	*******	1.91	32.44	1379.29

Bypass Volumes

STA	MATERIAL NAME	END AREAS	UNADJUSTED VOLUMES INCR	UNADJUSTED VOLUMES FROM BAL	UNADJUSTED VOLUMES ACCUM	MULT FACTOR	ADJUSTED VOLUMES INCR	ADJUSTED VOLUMES FROM BAL	ADJUSTED VOLUMES ACCUM	MASS ORDINATE
[illegible]	FILL	0.0	0	0	0	1.150	0	0	0	0.
30+25.80	FILL	0.26	0	0	0	1.150	0	0	0	8.
	EARTH	5.67	8	8	8	1.000	8	8	8	
31+ 0.0	FILL	0.0	0	1	1	1.150	0	1	1	34.
	EARTH	[illegible]	27	[illegible]	[illegible]	1.000	27	37	35	
32+ 0.0	BACKFILL	[illegible]	10	10	10	1.150	12	12	12	71.
	FILL	32.31	44	45	45	1.150	51	52	52	
	EARTH	38.65	100	135	135	1.000	100	135	135	
	TOPSOIL	6.22	11	11	11	1.000	11	11	11	
32+68.77	NATURAL BALANCE									0.
	BACKFILL		[illegible]	[illegible]	[illegible]	1.150	[illegible]	44	44	
	FILL		79	[illegible]	125	1.150	91	143	143	
	EARTH		52	[illegible]	[illegible]	1.000	52	187	187	
	TOPSOIL		[illegible]	40	40	1.000	[illegible]	40	40	
32+70.00	BACKFILL	15.35	1	1	[illegible]	1.150	[illegible]	2	46	-3.
	FILL	[illegible]	4	4	[illegible]	1.150	[illegible]	4	148	
	EARTH	0.0	3	[illegible]	190	1.000	[illegible]	3	190	
	TOPSOIL	[illegible]	1	1	41	1.000	[illegible]	1	41	
33+ 0.0	BACKFILL	15.62	18	[illegible]	58	1.150	21	23	67	-75.
	FILL	48.41	44	[illegible]	172	1.150	50	55	198	
	TOPSOIL	15.67	18	20	60	1.000	18	20	60	
33+18.00	BACKFILL	21.91	13	33	71	1.150	15	38	82	-139.
	FILL	[illegible]	43	[illegible]	215	1.150	49	104	247	
	TOPSOIL	21.91	13	[illegible]	73	1.000	13	33	73	
33+42.00	BACKFILL	24.54	21	54	[illegible]	1.150	24	62	106	-303.
	FILL	135.26	121	212	336	1.150	139	243	387	
	TOPSOIL	24.54	21	54	94	1.000	21	54	94	
33+45.00	BACKFILL	27.37	3	57	[illegible]	1.150	3	65	109	-334.
	FILL	237.71	35	236	[illegible]	1.150	[illegible]	271	415	
	TOPSOIL	27.37	3	57	[illegible]	1.000	3	57	96	
33+65.00	BACKFILL	[illegible]	[illegible]	77	117	1.150	23	[illegible]	132	-569.
	FILL	[illegible]	184	[illegible]	545	1.150	211	483	626	
	TOPSOIL	[illegible]	[illegible]	77	117	1.000	[illegible]	77	117	
33+80.00	BACKFILL	[illegible]	16	[illegible]	131	1.150	[illegible]	107	151	-779.
	FILL	[illegible]	167	[illegible]	712	1.150	192	675	818	
	TOPSOIL	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	133	
34+ 0.0	BACKFILL	32.41	23	[illegible]	[illegible]	[illegible]	27	133	177	-1157.
	FILL	461.33	305	[illegible]	[illegible]	1.150	351	1026	1169	
	TOPSOIL	32.91	[illegible]	116	[illegible]	1.000	[illegible]	116	156	
34+25.00	BACKFILL	[illegible]	31	147	[illegible]	1.150	35	[illegible]	213	-1685.
	FILL	[illegible]	426	1321	[illegible]	1.150	493	1519	1662	
	TOPSOIL	[illegible]	31	[illegible]	[illegible]	1.000	31	147	[illegible]	
34+40.00	BACKFILL	31.41	18	[illegible]	[illegible]	1.150	21	189	233	-1977.
	FILL	337.54	236	[illegible]	[illegible]	1.150	272	1791	1934	
	TOPSOIL	31.41	18	[illegible]	[illegible]	1.000	18	165	204	
34+53.00	BACKFILL	[illegible]	14	[illegible]	[illegible]	1.150	16	205	249	-2172.
	FILL	[illegible]	156	[illegible]	[illegible]	1.150	178	1969	2112	
	TOPSOIL	[illegible]	14	[illegible]	[illegible]	1.000	14	[illegible]	[illegible]	
34+64.00	BACKFILL	[illegible]	10	[illegible]	[illegible]	1.150	[illegible]	217	[illegible]	-2276.
	FILL	[illegible]	[illegible]	[illegible]	[illegible]	1.150	[illegible]	[illegible]	[illegible]	
	TOPSOIL	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	
34+67.00	BACKFILL	[illegible]	[illegible]	[illegible]	[illegible]	1.150	[illegible]	[illegible]	[illegible]	-2295.
	FILL	122.34	15	[illegible]	[illegible]	1.150	17	[illegible]	[illegible]	
	TOPSOIL	[illegible]	[illegible]	[illegible]	[illegible]	1.000	[illegible]	[illegible]	[illegible]	
34+85.00	BACKFILL	[illegible]	14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-2399.
	FILL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	TOPSOIL	[illegible]	14	[illegible]	[illegible]	[illegible]	14	[illegible]	245	
35+ 0.0	BACKFILL	[illegible]	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	292	-2479.
	FILL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	TOPSOIL	[illegible]	11	[illegible]	[illegible]	[illegible]	11	[illegible]	[illegible]	
[illegible]	BACKFILL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	FILL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	TOPSOIL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	BACKFILL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	FILL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	TOPSOIL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	BACKFILL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	FILL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	TOPSOIL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	BACKFILL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	FILL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	EARTH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	TOPSOIL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

*** FILE *MASSPLT * HAS BEEN SAVED

Bypass Slope Stakes

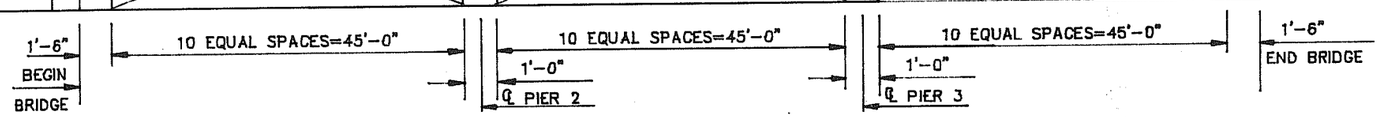
BASELN STATION	CENTRLN STATION	P.G.ELEV	CL.OFFSET	SKEW	LEFT SLOPE STAKE SLOPE	LEFT C/F	LEFT OFFSET	LEFT ELEVATION	RIGHT SLOPE STAKE SLOPE	RIGHT C/F	RIGHT OFFSET	RIGHT ELEVATION
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

34123

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	BRF-3-020(015)068	17

SCREED ELEVATIONS @ GIRDER 1 & 5	SCREED ELEVATIONS @ GIRDER 2 & 4	SCREED ELEVATIONS @ GIRDER 3
1385.96	1386.12	1386.28
.94	.10	.26
.88	.04	.20
.82	1385.99	.15
.77	.93	.09
.70	.86	.02
.64	.80	1385.96
.56	.73	.89
.49	.65	.81
.41	.57	.73
1385.33	.49	.65
.24	.40	.57
.23	.39	.55
.18	.34	.50
.13	.30	.46
.08	.24	.41
.03	.19	.35
1384.97	.13	.29
.91	.07	.23
.84	.00	.16
.77	1384.93	.09
.69	.86	.02
.62	.78	1384.94
.61	.77	.93
.57	.73	.89
.53	.69	.85
.49	.65	.81
.44	.60	.76
.39	.55	.71
.33	.49	.66
.27	.44	.60
.21	.37	.53
.15	.31	.47
.08	.24	.40
.06	.22	.38



SCREED ELEVATIONS

ELEVATIONS ARE TO TOP OF FINISHED ROADWAY

STANDARDS

D-622-1	PILE SPLICE DETAILS
D-900-1	BRIDGE BENCH MARKS
D-604-1	21" PRESTRESSED GIRDER

HYDRAULIC DESIGN DATA

DRAINAGE AREA	775 SQ. MI.
DESIGN FREQUENCY	50 YEAR
DESIGN DISCHARGE	6700 CFS
DESIGN STAGE	1379.9
STREAM GRADIENT	.000182 FT./FT.
AVERAGE VELOCITY OF FLOW IN NATURAL CHANNEL	1.5 FPS
DEPTH OF FLOW	15.5 FT.
MAXIMUM RECORDED STAGE( )	1378.7
MAXIMUM RECORDED DISCHARGE( )	UNKNOWN
100-YEAR STAGE	1380.7
100-YEAR DISCHARGE	8540 CFS

* MEASURED BELOW BOTTOM OF FOOTING

PILE LOADING

LOCATION	DEAD LOAD	LIVE LOAD	DESIGN LOAD	MINIMUM PENETRATION *
ABUT. 1 & 4	28.0 T	19.0 T	47.0 T	50'
PIER 2 & 3	42.8 T	23.1	65.9 T	40'

BENCH MARKS

NO.	DESCRIPTION	LOCATION	ELEVATION
1	PAINT SPOT-R/W POST	26+60-100' RT.	1400.01
2	PAINT SPOT-GRD POST	33+01-17' LT.	1384.34

PRESTRESSING DATA

C.G.	FINAL FORCE	DETENSION STRENGTH	ACCEPTANCE STRENGTH	WEIGHT TONS	GIRDER LENGTH
2.75	539.8				
3.00	551.1	4300 PSI	5000 PSI	10.3	45'-0"

SHEYENNE RIVER

MISCELLANEOUS DETAILS

CONCRETE ALTERNATE

20-068,068-1

88GA150

100 SCOPE OF WORK: This bridge replacement project consists of constructing a new concrete box girder bridge. The bridge will be located on the same alignment with a new grade. The new bridge will be 140 feet long, three spans and a 36 foot clear road. The existing structure will be removed.

100 GENERAL: The cost of furnishing and placing preformed expansion joint filler, concrete inserts, tie wire, bar spacers, bar supports, deck drains, and other miscellaneous items shall be included in the price bid for Class AE-3 and AAE-3 concrete.

202 REMOVAL OF STRUCTURE: The existing structure is a steel stringer bridge 124 feet long with a clear roadway of 23 feet. The substructures are made of concrete. All materials removed shall become the property of the contractor and shall be disposed of properly.

202 All concrete removed must be broken into pieces no larger than 18 inches if used as riprap. Concrete riprap shall be placed in a manner that minimizes the exposure of any protruding steel and presents a finished appearance acceptable to the engineer.

210 EXCAVATION: Class 1 excavation, at the abutments, shall extend from the bottom of the footing to the upper limits as shown on the bridge layout drawing.

210 Excavation Class 2, at the piers, shall extend from the bottom of the footing to the bottom of the aggregate cushion.

550 BRIDGE APPROACH SLABS: Mechanical finishing of the approach slabs shall be required. A mechanical or hand-held transverse metal tine finish shall be applied. A surface tolerance of 3/16" in 10 feet is also required.

The aggregate base shall meet the requirements of 816.03 of the specifications for Class 5 material with the following adjustment: (the maximum size of aggregate is increased to 3"). The granular fill shall be compacted in accordance with Section 203.02 F except that the required dry density shall be 95% of AASHTO T-180.

602 SURFACE FINISH "D": Surface Finish "D" shall be required for the inside and top surfaces of the barrier.

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

602 BARRIERS: Barriers shall be constructed according to the provisions of Section 602.03 B.4. V-groove contraction joints shall be added at approximately 10-foot spacing in all faces of the barriers.

602 DECK CONCRETE: Beams and girders 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 he bids the unit price for Class AAE-3 Concrete. The Department will only pay for the plan quantity of Class AAE-3 Concrete.

602 Deflection of the deck shoring shall be computed using the total dead load plus the weight of the finishing machine. The forming shall be adjusted properly to accommodate the deflection and thereby maintain the total slab thickness specified in the plans.

612 REINFORCING STEEL: Dimensions for bent bars are given out to out and to tangent intersections unless otherwise noted.

612 The bar fabricator shall add a prefix to all bar designations to differentiate between the several parts of the structure.

612 All reinforcing steel shall be Grade 60.

616 STRUCTURAL STEEL: Structural steel shall be AASHTO M 183.

622 PILING: Piling shall be driven with a steam, air, or diesel hammer with a rated energy and ram weight not less than 31,185 foot-pound-tons, as computed by the formula W(E-10,395)+0.6E, 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 4,800 pounds.

The substructure units have 24 H-piles which will require pile points. The pile points shall be carbon-steel castings with a minimum yield strength of 40,000 psi.

The unit price bid for pile points shall include material and installation.

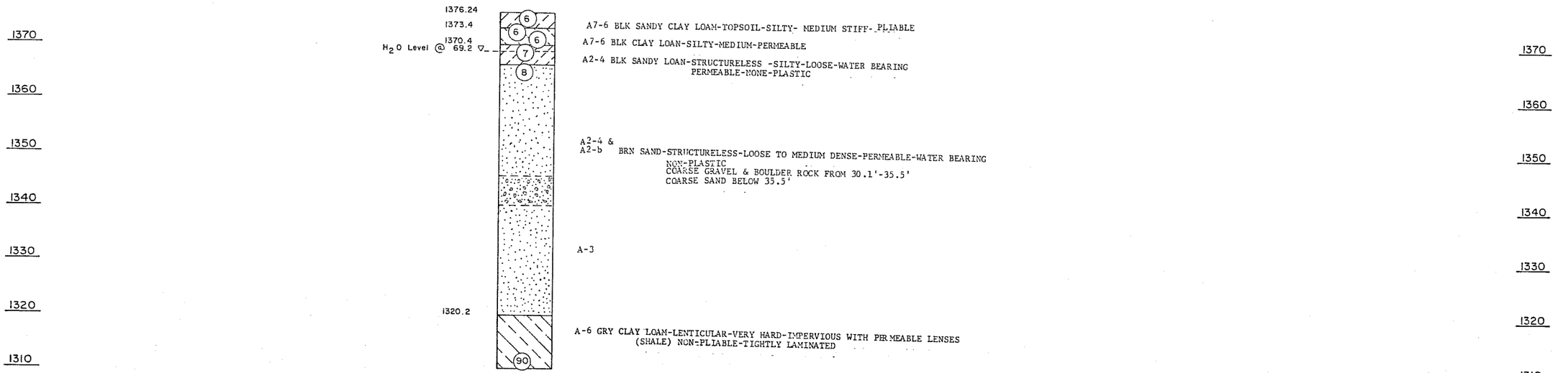
SHOP DRAWINGS: The contractor shall submit the following shop drawings to the Construction office for approval;

1. Prestressed box girders.

DESIGN STRENGTH:

F'C	3,000 PSI	Cl. AE-3 or AE-4 Concrete
F'C	4,000 PSI	Cl. AAE-3 or AAE-4 Concrete
FY	60,000 PSI	GR. 60 Reinforced Steel
F'C	5,000 PSI	Prestressed Girder Concrete
FY	36,000 PSI	Structural Steel

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	BRF-3-020(015)068	10



BORING NO. 1

STA. 33+10-44' LT.
OF ℄ SURVEY

NOTES:

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 DATA SHOWN IS FOR DESIGN PURPOSES ONLY. THE STATE ASSUMES NO RESPONSIBILITY IF SOIL CONDITIONS ENCOUNTERED DURING CONSTRUCTION DIFFER FROM THOSE SHOWN.

SYMBOLS:

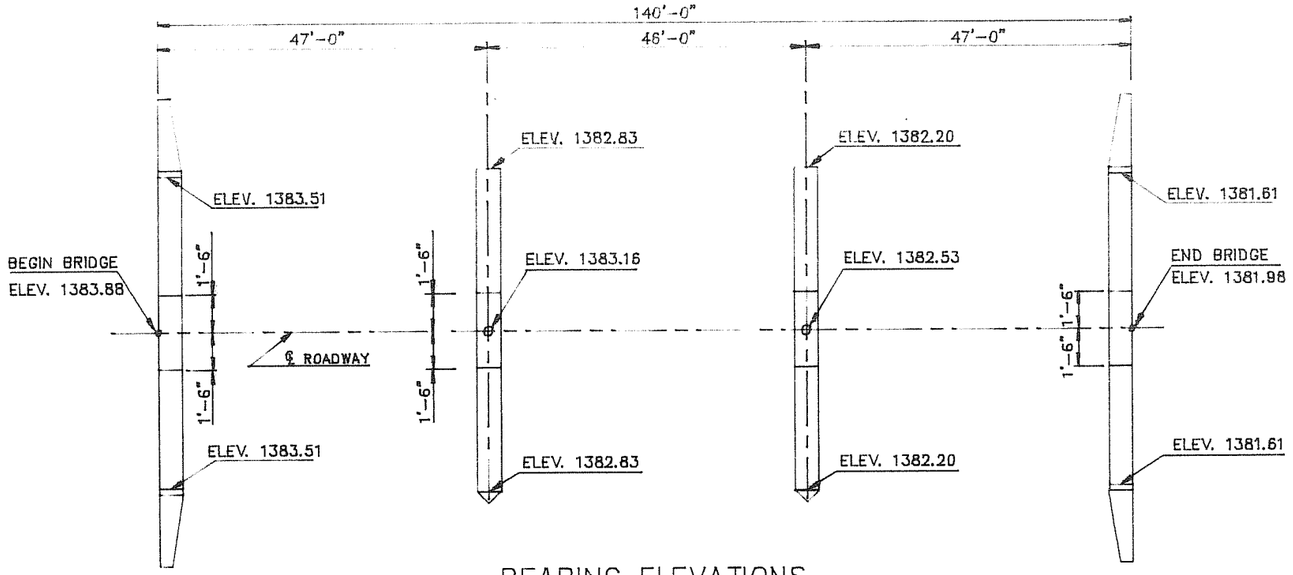
P - MAXIMUM LOAD (LBS/SQ FT)
Ø - ANGLE OF INTERNAL FRICTION (DEGREES)
C - COHESION (LBS/SQ FT)
M - MOISTURE (PERCENT)
W - DRY WEIGHT (LBS CU FT)
** - TRIAXIAL

SHEYENNE RIVER
EDDY COUNTY

BORING LOG

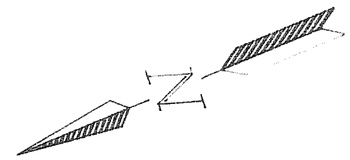
20-068.668-4

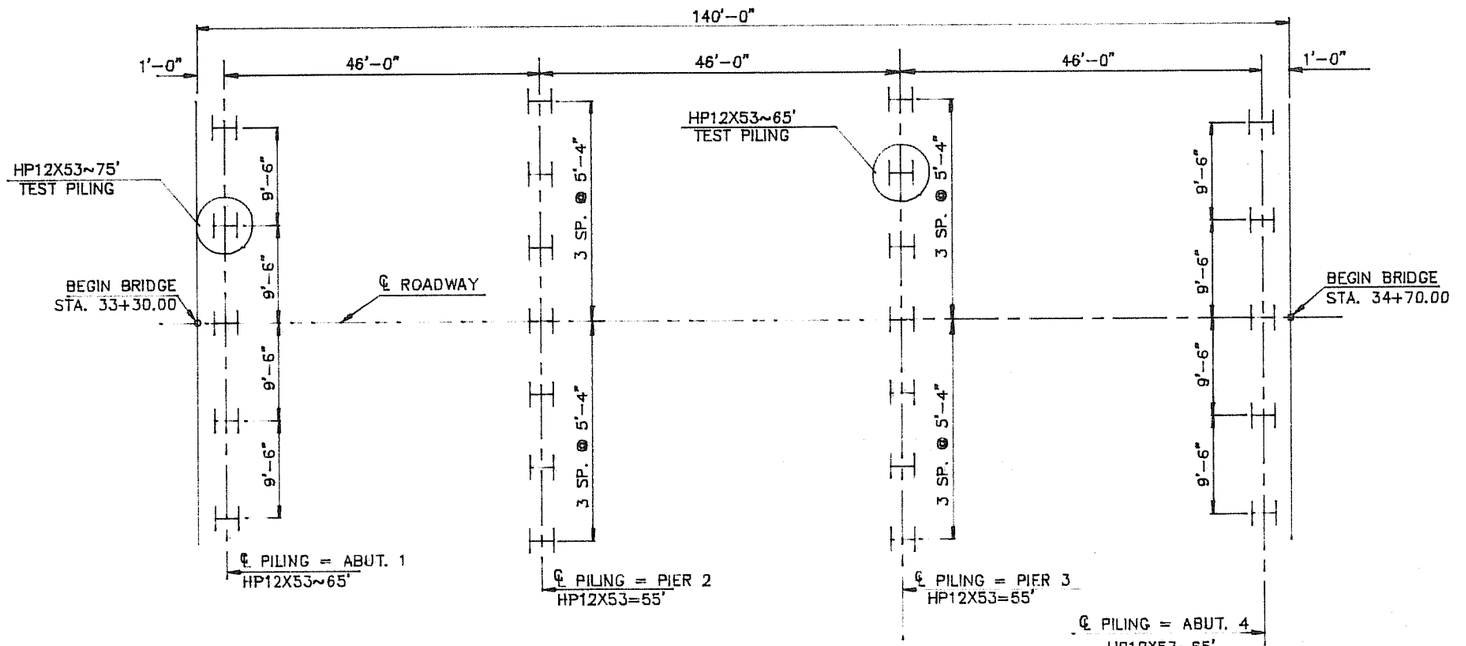
FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	BRF-3-020(015)068	[illegible]



BEARING ELEVATIONS

ELEVATIONS SHOWN ARE TO TOP OF FINISHED CONCRETE





PILING LAYWAY

SHEYENNE RIVER

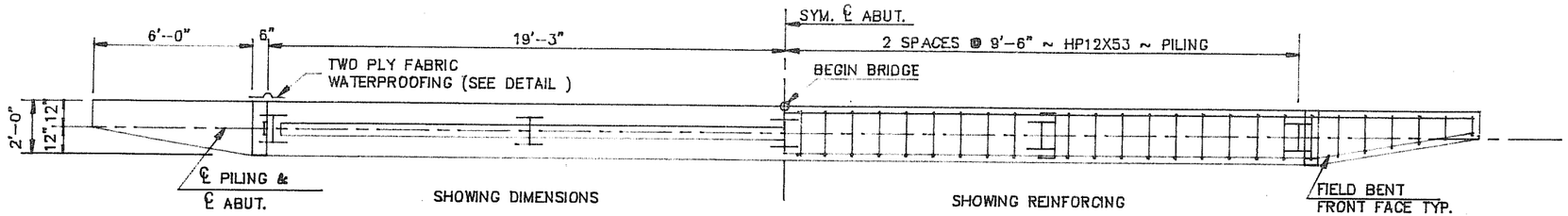
PILING LAYOUT &
BEARING SEAT ELEVATION

CONCRETE ALTERNATE

[illegible]

88GAL49

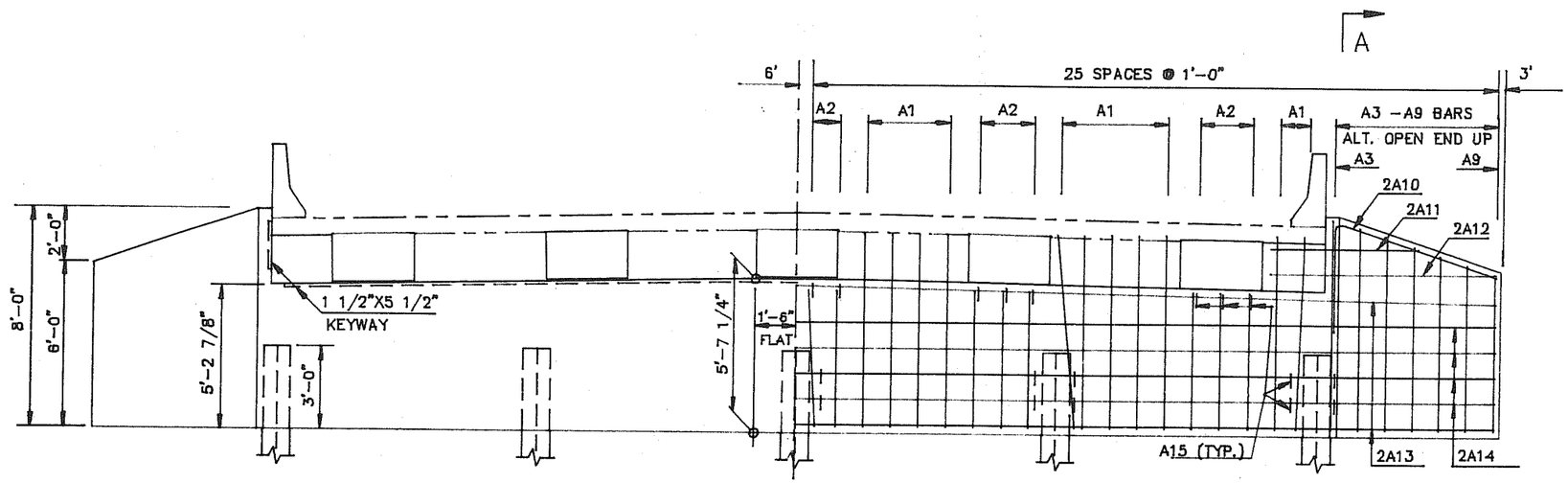
FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	BRF--3--020(015)068	1



SHOWING DIMENSIONS

SHOWING REINFORCING

PLAN

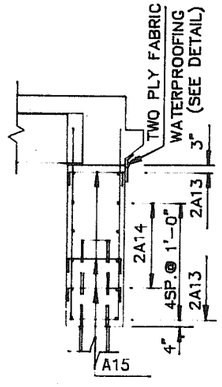


SHOWING DIMENSIONS

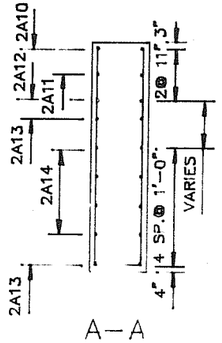
SHOWING REINFORCING

ELEVATION

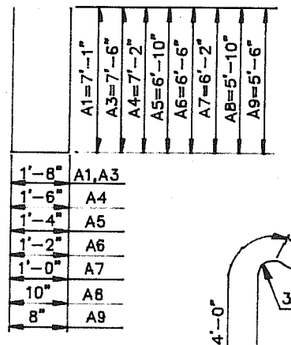
BAR LIST				
MARK	NO.	SIZE	LENGTH	SHAPE
A1	22	5	15'-10'	BENT
A2	16	5	13'-3"	BENT
A3	2	5	16'-8"	BENT
A4	2	5	15'-10"	BENT
A5	2	5	15'-0"	BENT
A6	2	5	14'-2"	BENT
A7	2	5	13'-4"	BENT
A8	2	5	12'-6"	BENT
A9	2	5	11'-8"	BENT
A10	4	6	10'-0"	BENT
A11	4	4	5'-5"	STR.
A12	4	4	8'-4"	STR
A13	4	6	51'-2"	STR
A14	8	4	51'-2"	STR
A15	35	4	2'-8"	BENT



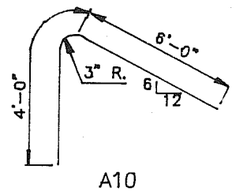
℄ SECTION



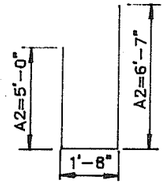
A-A



A1,A3-A9



A10



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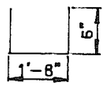
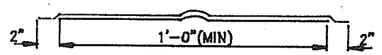


A15

BENT BAR DETAILS
DIMENSIONS SHOWN ARE OUT TO OUT



ALL MATERIAL AND WORK SHALL BE CONSIDERED INCIDINTAL TO THE PAY ITEM FOR CLASS AE-3 CONCRETE.

TWO-PLY FABRIC
WATERPROOFING DETAIL

QUANTITIES	
CLASS AE-3 CONCRETE	20.9 C.Y.
REINFORCING STEEL	1531 LBS
EXCAVATION & PILING (SEE ESTIMATE OF QUANTITIES)	

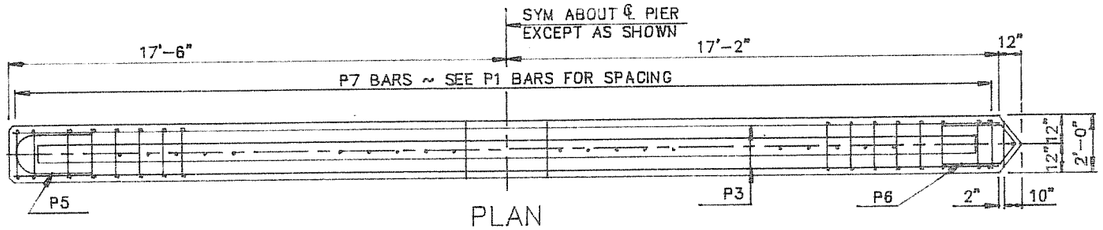
SHEYENNE RIVER
ABUTMENT DETAILS

CONCRETE ALTERNATE

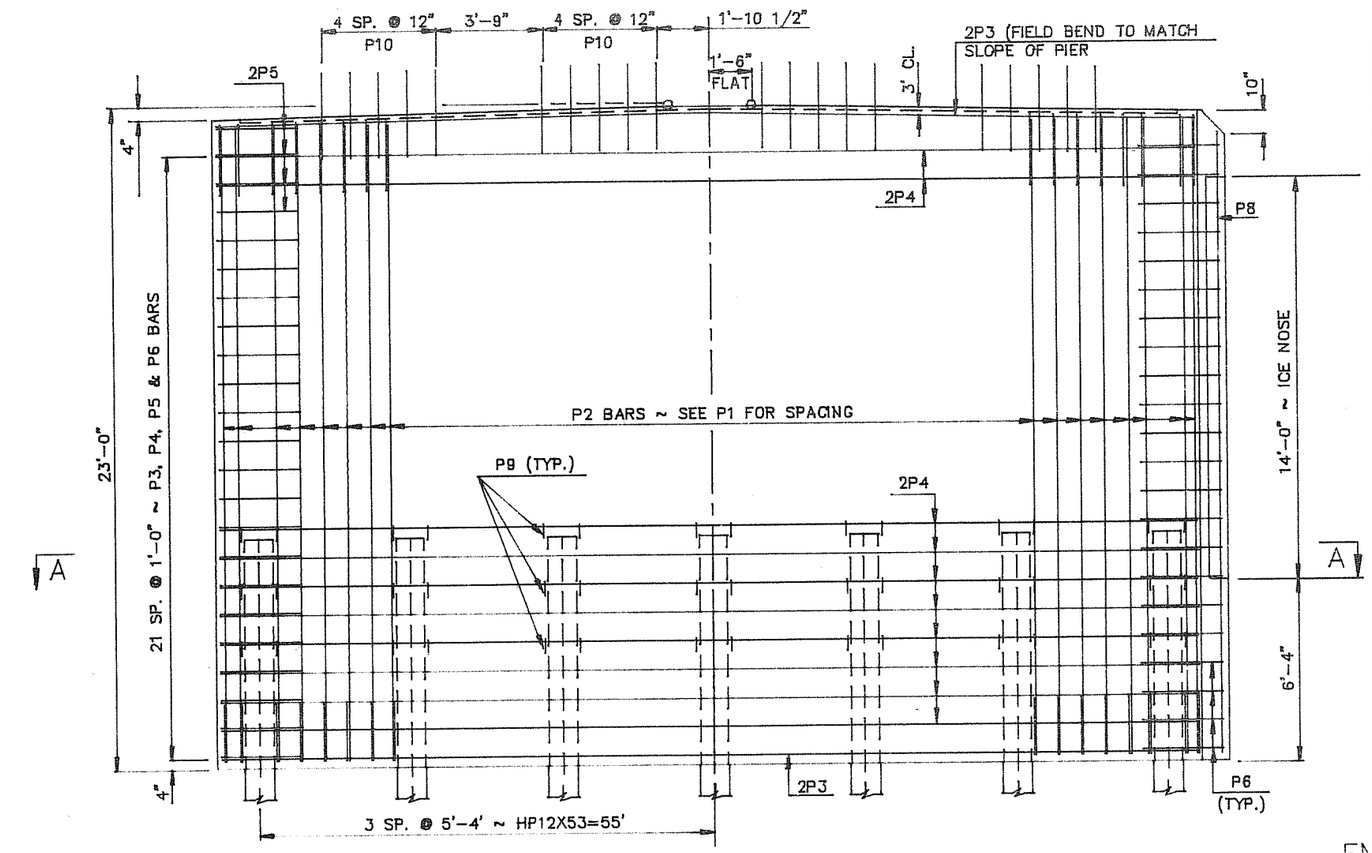
88RLA6

20-068.668-6

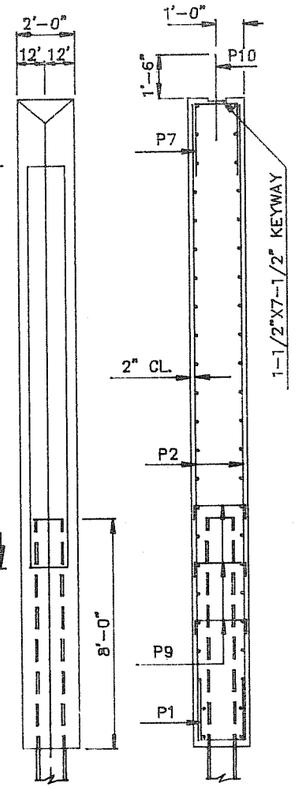
FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	BRF-3-020(015)068	[illegible]



PLAN

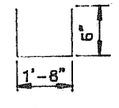


ELEVATION

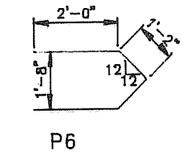


END VIEW

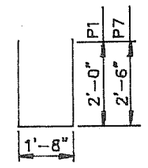
℄ SECTION



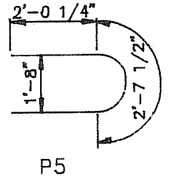
P9



P6



P1 & P7



P5

BENT BAR DETAILS

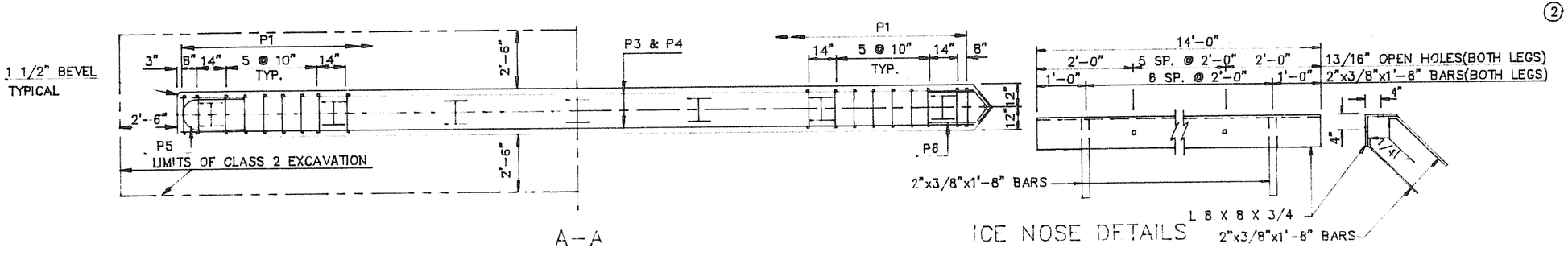
DIMENSIONS SHOWN ARE OUT TO OUT

BAR LIST				
MARK	NO.	SIZE	LENGTH	SHAPE
P1	40	6	5'-8"	BENT
P2	80	6	22'-7"	STR.
P3	4	6	34'-4"	STR.
P4	42	4	34'-4"	STR.
P5	23	5	6'-8"	BENT
P6	22	5	6'-4"	BENT
P7	40	6	6'-8"	BENT
P8	1	6	21'-7"	STR.
P9	42	4	2'-8"	BENT
(1) P10	20	1"ø	3'-0"	STR.

(1) P10 BARS SHALL BE ROUND MILD STEEL GREASE UPPER HALF BEFORE POURING DIAPHRAGH.

(2) AASHTO M-183

QUANTITIES		
CLASS AE-3 CONC.	59.5	C.Y.
REINFORCING STEEL	5197	LBS.
(2) STRUCTURAL STEEL	604	LBS.
EXCAVATION & PILING (SEE ESTIMATE OF QUANTITIES)		



A-A

ICE NOSE DETAILS

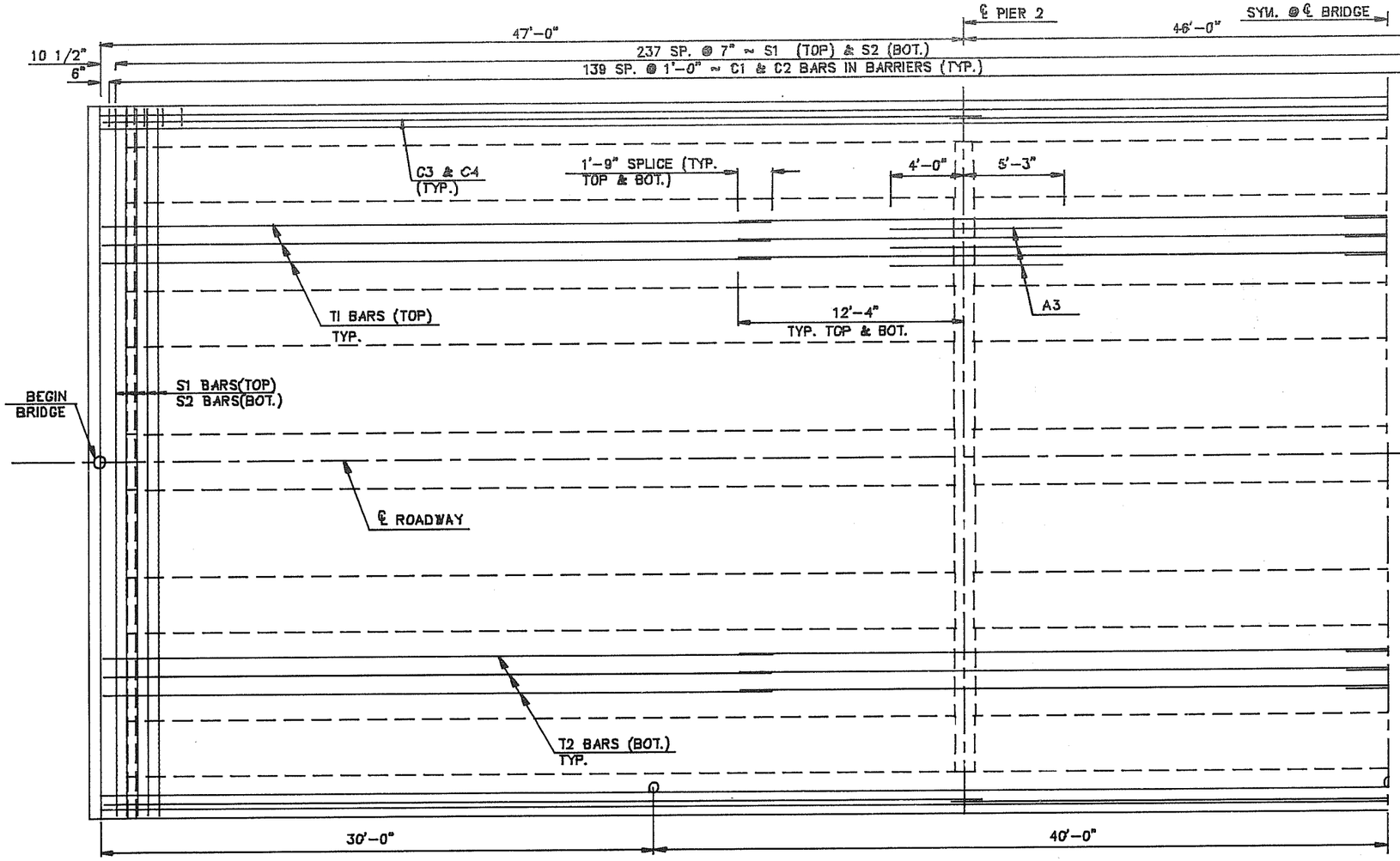
SHEYENNE RIVER
PIER DETAILS

CONCRETE ALTERNATE

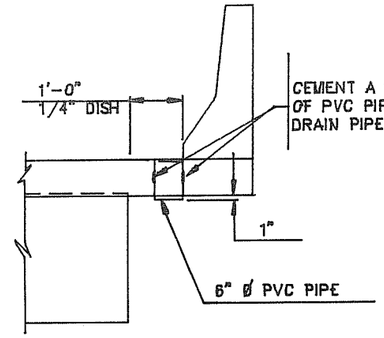
[illegible]

88GAL48

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	BRF-3-020(015)068	23

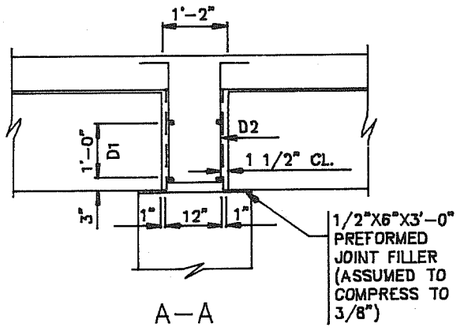


HALF PLAN

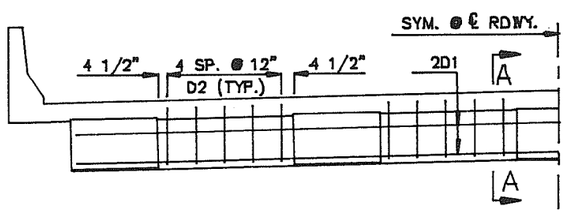


FLOOR DRAIN DETAIL

DRAINS SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE PRICE BID FOR AAE-3 CONCRETE.



A-A



PIER DIAPHRAGM

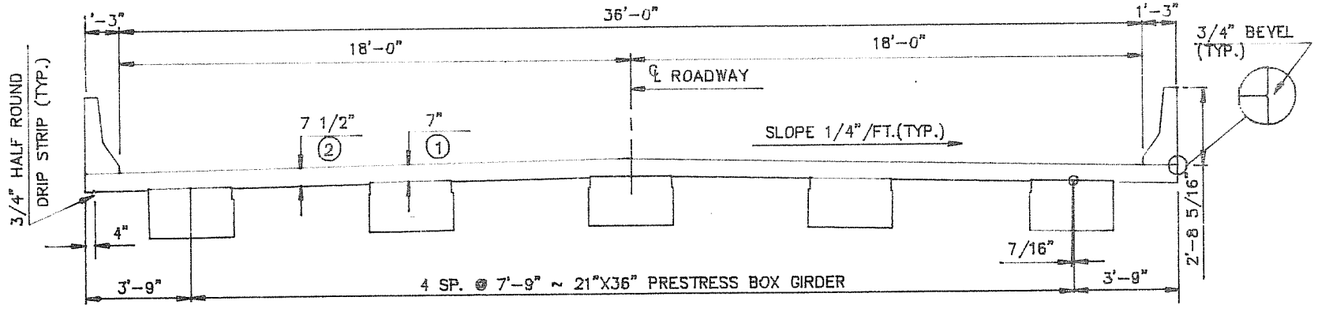
QUANTITIES
SEE DWG. 20-068.668-9

SHEYENNE RIVER
SUPERSTRUCTURE DETAILS
CONCRETE ALTERNATE

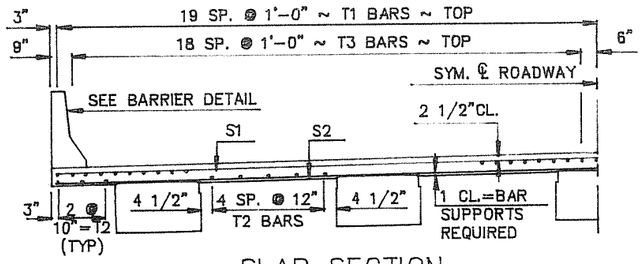
20-068.668-8

88GAL47

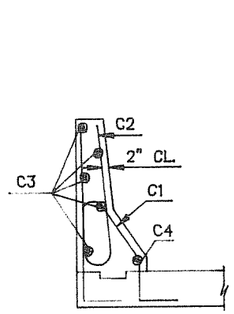
FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	BRF-3-020(020)068	14

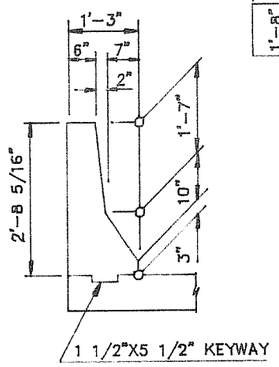


SLAB SECTION
(SHOWING DIMENSIONS)

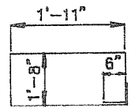


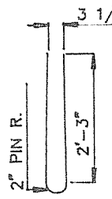
SLAB SECTION
SHOWING DIMENSION

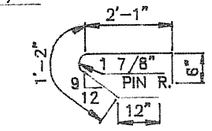


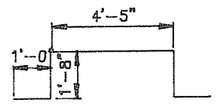


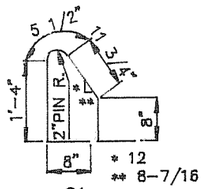
BARRIER DETAIL









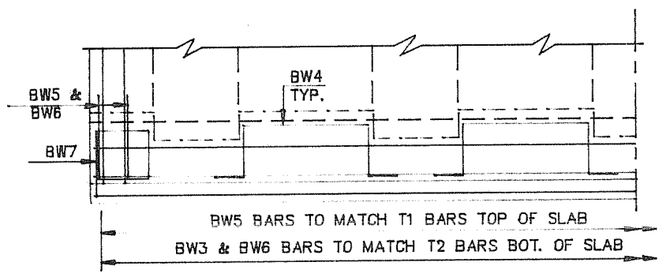


BAR LIST					
	MARK	NO.	SIZE	LENGTH	SHAPE
③	BW1	2	6	38'-2"	STR.
	BW2	10	5	38'-2"	STR.
	BW3	52	5	4'-9"	BENT
	BW4	16	6	9'-9"	BENT
③	BW5	78	5	5'-1"	BENT
	BW6	52	5	4'-9"	BENT
	BW7	8	6	8'-2"	BENT
③	C1	280	5	5'-0"	BENT
	C2	280	5	5'-0"	BENT
	C3	30	4	48'-0"	STR.
③	C4	6	4	48'-0"	STR.
	D1	8	6	33'-8"	STR.
	D2	40	4	6'-7"	STR.
③	S1	238	5	38'-2"	STR.
	S2	238	5	38'-2"	STR.
③	T1	156	5	36'-3"	STR.
	T2	104	5	36'-3"	STR.
③	T3	76	4	9'-3"	STR.

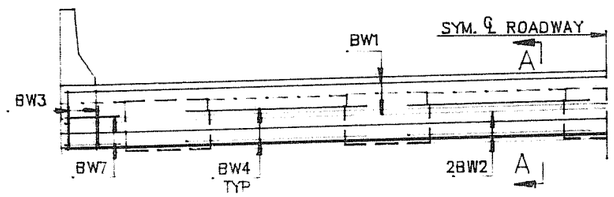
① THIS DIMENSION WILL VARY DUE TO THE VARIABLE CAMBER OF THE PRESTRESSED BOX GIRDER.

② THE SLAB FORMS MUST BE ADJUSTED TO PROPER ELEVATIONS TO ASSURE THE 7-1/2" DESIGN THICKNESS OF CONCRETE DECK. A POSITIVE RISER MAY BE REQUIRED.

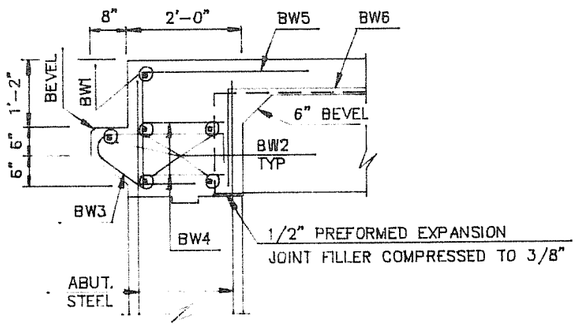
③ REINFORCING STEEL BARS SHALL BE EPOXY COATED.



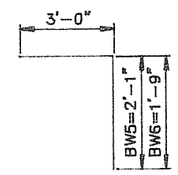
HALF ENDWALL PLAN



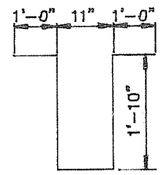
HALF ENDWALL ELEVATION



A--A



BW5 &BW6



D2

BENT BAR DETAILS
DIMENSIONS SHOWN ARE OUT TO OUT

QUANTITIES		
CLASS AAE-3 CONC.	158.5	C.Y.
REINFORCING STEEL	17655	LBS.
REINF. STEEL(EPOXY)	18023	LBS.

SHEYENNE RIVER

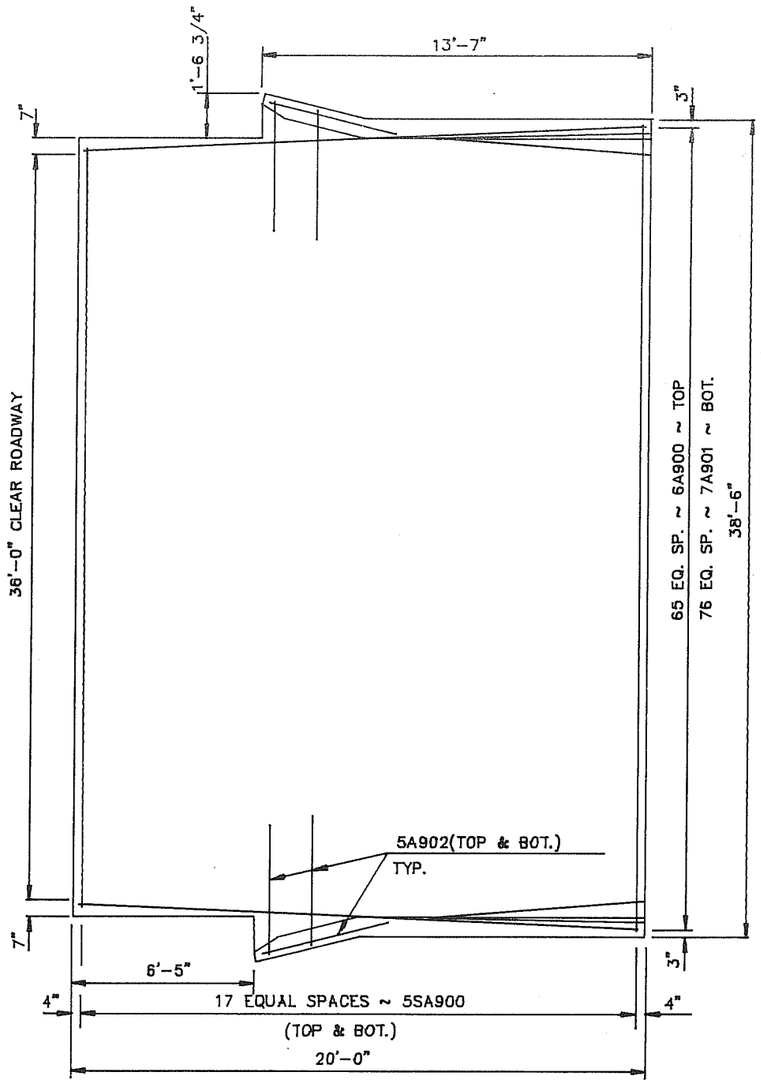
SUPERSTRUCTURE DETAILS

CONCRETE ALTERNATE

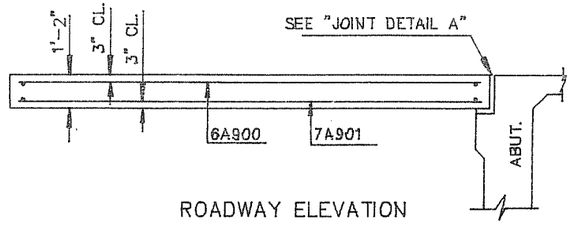
20- 068.668-9

88GA146

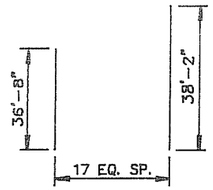
FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	BRF-3-020(015)068	25



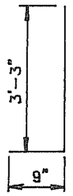
PLAN



ROADWAY ELEVATION



SA900



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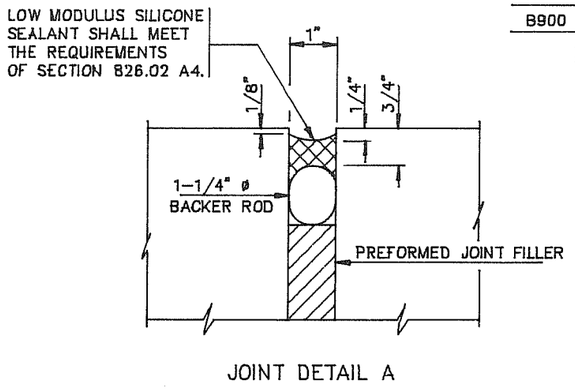
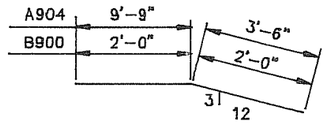
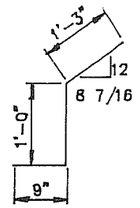


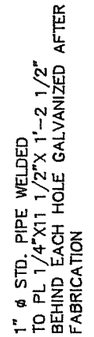
JOINT DETAIL A



B900 & A904



C900



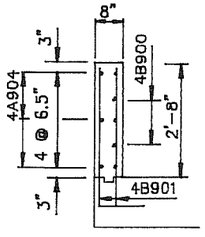
D-D

WIDTH = 36'-0"			
SKEW ANGLE = 0°			
BAR LIST - ONE SLAB			
SIZE	MARK	NO.	LENGTH
6	A900	66	19'-8"
7	A901	77	19'-8"
5	A902	12	4'-6"
4	A904	12	13'-3"
4	A905	2	7'-6"
5	SA900	2	673'-6"
4	B900	4	4'-0"
4	B901	112	4'-0"
4	C900	18	3'-0"
ESTIMATED MATERIAL QUANTITIES			
REINFORCING STEEL (LBS.)		CONCRETE (C.Y.)	
6968		34.8	

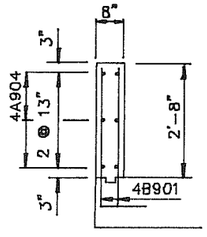
NOTES:

THE ABOVE ESTIMATED MATERIAL QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. ALL MATERIALS INCLUDING CONCRETE, RE-INFORCING BARS, BACKER ROD, ELASTIC JOINT SEALER, SILICONE SEALANT, PREFORMED JOINT FILLER AND LABOR REQUIRED TO BUILD THE APPROACH SLABS AND APPROACH SLAB BARRIERS SHALL BE INCIDENTAL TO THE PAY ITEM, "CONCRETE BRIDGE APPROACH SLAB".

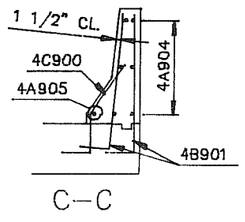
THE CONCRETE SHALL BE CLASS AE-3 AND THE REINFORCING STEEL SHALL BE GRADE 60.



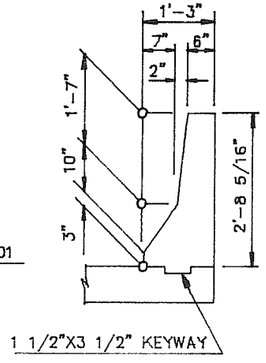
A-A



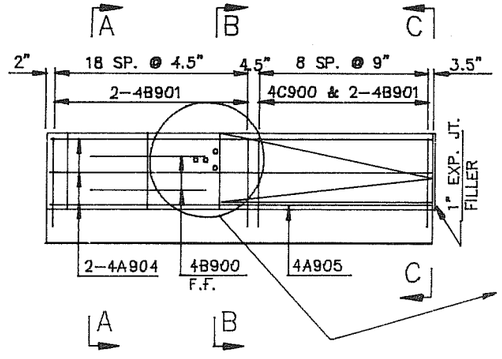
B-B



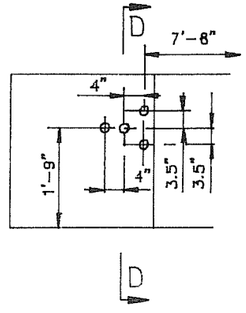
C-C



C-C



ELEVATION



QUANTITIES	(ONE SLAB)
APPROACH SLAB	85.0 S.Y.

SHEYENNE RIVER

APPROACH SLAB

89GAL28

20-068.668-10