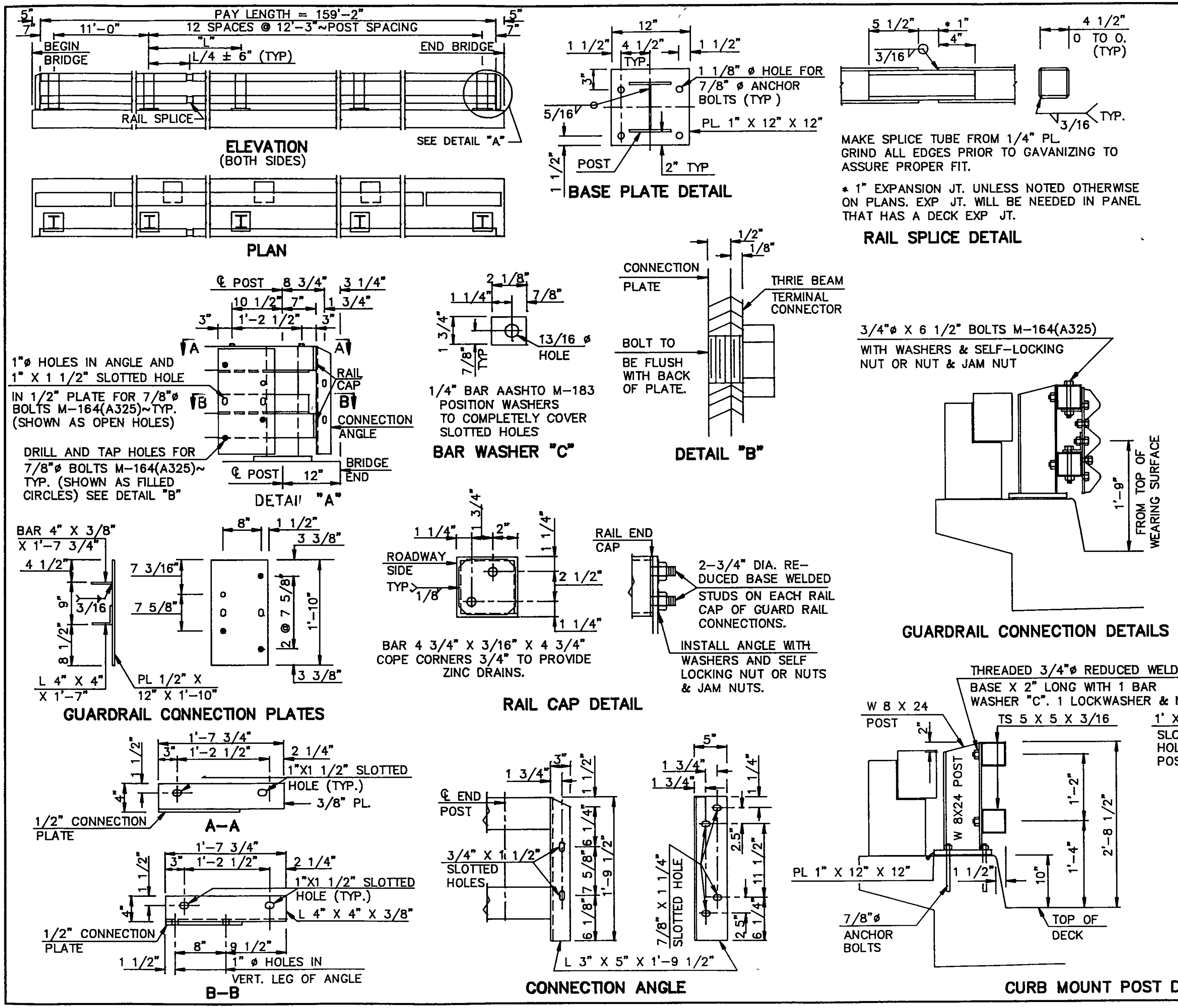
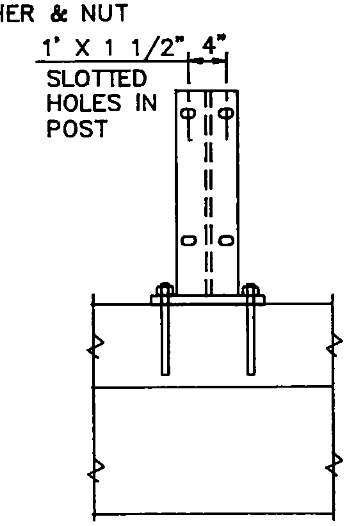
FHWA REGION	STATE	FED AID PROJ NO.	SHEET NO.
8	N.D	SHE-3-0001(003)143	





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 A 500 GRADE B.

STEEL POSTS, PLATES, BARS & 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 TO 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.

THE ANCHOR BOLTS MUST BE ABLE TO DEVELOP IN TENSION THE EQUIVALENT OF A AASHTO M-164 (A325) 7/8"ø BOLT (18,250 LBS). THE ANCHOR BOLTS MAY BE MECHANICAL TYPE, GROUT-IN TYPE OR OTHER TYPE THAT CAN DEVELOP THE REQUIRED TENSION IN THE CONCRETE.

ALL ANCHOR AND SPLICE BOLTS SHALL BE GALVANIZED AND WILL BE AASHTO M-164 (A325).

THE CONTRACTOR SHALL SUBMIT THE SHOP DRAWINGS FOR DOUBLE BOX BEAM RAIL FOR APPROVAL BY THE BRIDGE ENGINEER BEFORE FABRICATION.

QUANTITIES

DOUBLE BOX BEAM RAIL RETROFIT (FREE STANDING)	318 3	L FT

SHEYENNE RIVER

RAIL RETROFIT DETAILS

93LCS32 LPH

1-143.430-1

1-143,430

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	F-152(4)		1	20

NORTH DAKOTA STATE HIGHWAY DEPARTMENT

PLANS

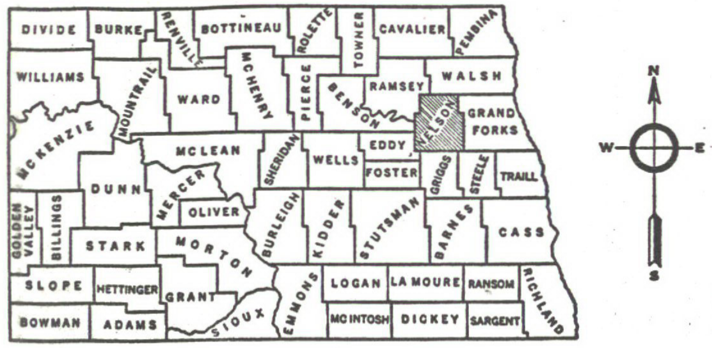
FOR THE PROPOSED IMPROVEMENT OF A

STATE HIGHWAY

IN NELSON COUNTY

FEDERAL AID PROJECT NO. F-152 (4)

SHEYENNE RIVER BRIDGE



SKETCH-MAP OF NORTH DAKOTA SHOWING COUNTIES

SCALES
- LAYOUT SHEET: 1 IN. = 3000 FT.
- PLAN AND PROFILE DRAWINGS: HOR. 1 IN. = 100 FT.; VERT. 1 IN. = 10 FT.
- STRUCTURAL DRAWINGS: AS SHOWN
- CROSS SECTION SHEETS: 1 IN. = 10 FT.

DESIGN DATA

TRAFFIC	AVERAGE DAILY	EST. 30TH MAX. HR.
CURRENT TRAFFIC (1960) 206 PASS.	69 TRUCKS 275 TOTAL	36
TRAFFIC FORECAST (1980) 412 PASS.	138 TRUCKS 550 TOTAL	72

DESIGN SPEED 60 MPH
TRAFFIC CLASSIFICATION M
MINIMUM SIGHT DISTANCE (NON PASSING) 475'
MINIMUM SIGHT DISTANCE (SAFE PASSING) 2300'
MINIMUM PASSING SIGHT DISTANCE FOR MARKING 1000'
BRIDGES MINIMUM WIDTH 30'
DESIGN LOADING H20 S16 (1959)

INDEX OF DRAWINGS

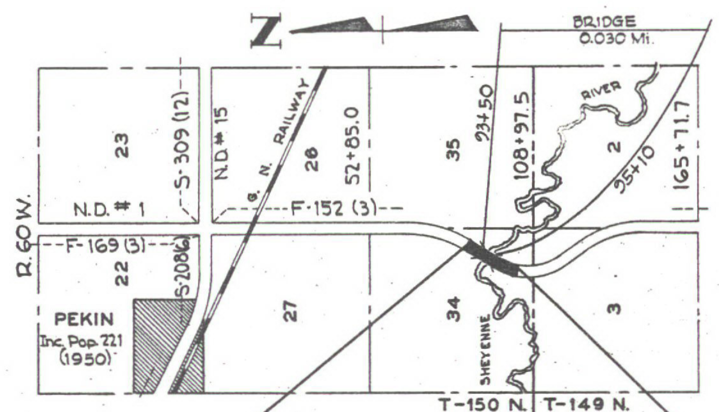
LENGTH OF PROJECT		
PROJECT	MILES-GROSS	MILES-NET
F-152(4)	0.274	0.274
TOTALS	0.274	0.274

GOVERNING SPECIFICATIONS:

Standard Specifications adopted by the North Dakota State Highway department Jan. 1956 and approved as standard by the Bureau of Public Roads May 7, 1956 Required Special Provisions dated June 15, 1959 and approved by the Bureau of Public Roads July 8, 1959 and others submitted herewith

KEY TO CONVENTIONAL SIGNS

STATE & NATIONAL LINES
COUNTY LINE
TOWNSHIP & RANGE LINES
GRADE LINE
CENTERLINE OF CONSTRUCTION (500)
OLD RIGHT OF WAY LINE
NEW RIGHT OF WAY LINE
ABANDONED RIGHT OF WAY LINE
PROPERTY LINE
STONE WALL
OTHER FENCES (KIND)
POLE LINES (KIND)
POWER LINES (KIND)
BRIDGE
GROUND / GRADE — ELEVATION
TRAVELED WAY
RAILROADS (KIND & NAME)
HEDGES AND TREES (KIND)
TRAILS
CITY OR VILLAGE CORPORATE LIMITS
SECTION CORNER
QUARTER SECTION CORNER
BUILDINGS
OLD CULVERTS
NEW CULVERTS
DRAINAGE
BENCH MARKS (BM)
WATERS EDGE
MARSH
WIRE ROPE GUARD RAIL
SNOW FENCE
RIPRAP
GUARD POSTS
COBBLE GUTTERS
CONCRETE GUTTERS

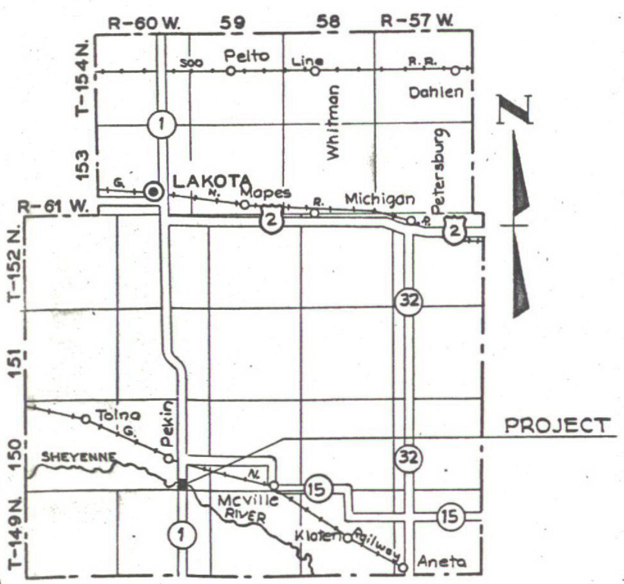


BEG. OF PROJ. NO. F 152 (4)
STA. 89+00 =
Sta. 89+00 F 152 (3)
899.9' S and 704.6' W. of the NE Cor. of the SE 1/4 of Sec. 34, T. 150 N., R. 60 W..

LAYOUT MAP

3000' 0 3000'
SCALE IN FEET

END OF PROJ. NO. F 152 (4)
STA. 103+50 =
Sta. 103+50 F 152 (3)
1947.1' S. and 1285.5' W. of the NE Cor. of the SE 1/4 of Sec. 34, T. 150 N., R. 60 W..



SKETCH MAP OF NELSON COUNTY

Not built 4/27/61

Revise note as to location of temp Bridge Mat'l. ASA 1/18/60

APPROVED DATE 9-18-59

CHIEF ENGINEER
NORTH DAKOTA STATE HIGHWAY DEPARTMENT

R. E. BRADLEY REGISTERED PROFESSIONAL ENGINEER NORTH DAKOTA

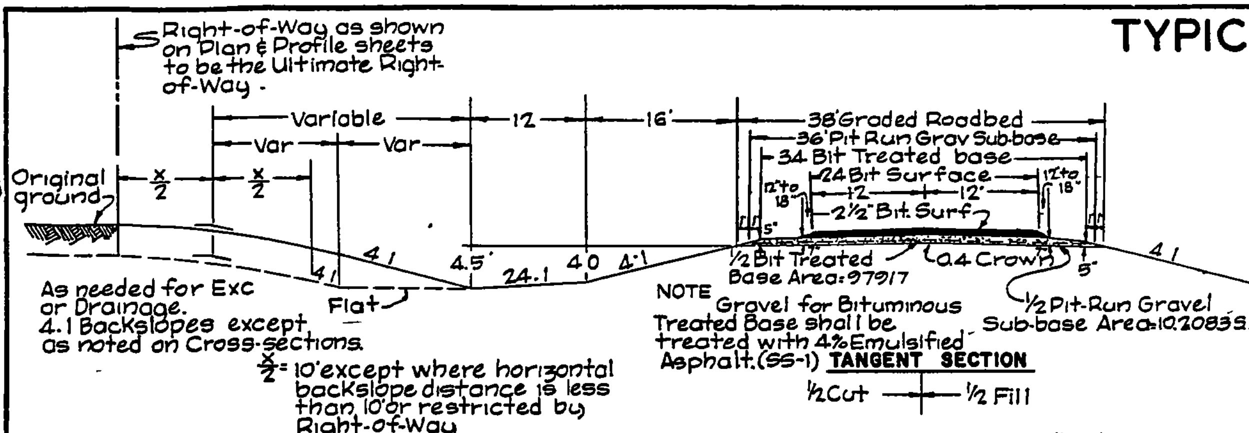
DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

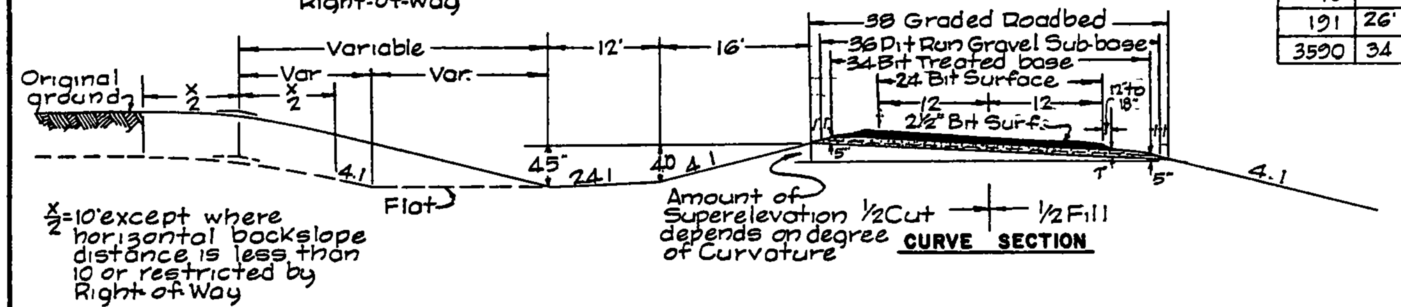
APPROVED:

DIVISION ENGINEER DATE

TYPICAL SECTIONS AND QUANTITIES

FED ROAD DIV NO	STATE	Proj No.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N D	F-152(A)		2	20





FOOTNOTES:

① See Special Provisions

QUANITY PER MILE	WIDTH	UNIT	BASIS OF ESTIMATE SURFACING — DESCRIPTION
156		MGals	Water-8% of Pit Run Grav Sub-base, Bit Tretd base by wgt
3743	36	Ton	Pit Run Grav Subbase (15 ton per CY + 25%)
39137		Gal	Emulsified Asphalt SS-1 4% of Sub base.
4459	38	Gal	Bit for Prime 020 gal /SY (MC 0 1 or 2)
141	32	Ton	Blotter Sand-15 lbs per sq yd
763	26	Gal	Bit for Tack 05 gal /SY (MC 0 1 or 2)
1782	24	Ton	Combined Aggregate-175 Ton per Cu Yd
24948		Gal	Bitumen for Mix-14 gal /ton Comb Aggregate MC-3)
7803	38	Gal	Bitumen for Seal (035 gal./SY RC 3 or RC 2)
78		Gal	Coating Aid-1% of Seal Bitumen
191	26'	Ton	Seal Aggregate-25 Lbs per sq yd
3590	34	Ton	Gravel for Bituminous Treat Base 15 Ton/CY + 25%

MAXIMUM SIZE OF AGGREGATE — DESCRIPTION	TYPE OF AGGREGATE	MAXIMUM SIZE
Pit Run Gravel Sub base	Screened	1½"
Gravel for Bit Treated Base	Crushed	1"
Blotter Sand	Screened	3/8"
Combined Aggregate	Crushed	3/4"
Seal Aggregate	Crushed	½"

BASIS OF ESTIMATE - GRADING

WATER- 10 Gal per CuYd of Embankment

SEEDING- Entire Right of Way except roadbed plus excavated area Lt Sta 76+00 to 84+00

BASIS OF ESTIMATE - PD APPR

Combined Aggregate	3 Ton
Bitumen for Mix	42 Gal
Gravel for Bit Treat Base	6 Ton
Emulsified Asphalt	65 Gal
Seal Aggregate	05 Ton

NOTES

GENERAL NOTE— The Engineer will attend to the removal of existing fences to the new highway right-of-way line and to the removal of existing pole lines to within 1½ feet of the new highway right of-way line so as not to interfere with construction

SHRINKAGE— 30 % additional volume in yardage computed by the end area method is allowed for shrinkage in earth embankment,

SIGHT DISTANCE — Passing sight distance shall be the longest distance in which a driver whose eye is assumed to be 4½ feet above the pavement surface can see the top of an object 4½ feet above the road Non-passing sight distance shall be the longest distance in which a driver whose eye is assumed to be 4½ feet above the pavement surface can see the top of an object 4 inches high on the road.

GUARD POSTS— All guard posts in place shall be moved by the State Highway Maintenance Department prior to construction

INTERCEPTING DITCH — Intercepting Ditches shall be constructed where-ever considered necessary by the Engineer

POLE LINES— ⊖ ⊖ Designation of poles to be moved
⊙ ⊙ Designation of poles to be moved

RELAYING PIPE— Only that pipe in good condition shall be relaid and determination of its fitness for relaying shall rest with the Engineer

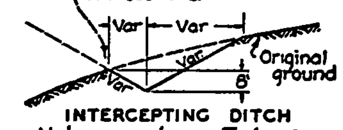
SEEDING – The entire right-of-way, except roadbed and sodded areas, shall be seeded

GRAVEL – *When natural conditions are too dry to obtain satisfactory setting up of traffic service gravel (or gravel surfacing) material "Water for Compaction" shall be added as authorized by the Engineer to obtain the required results.*

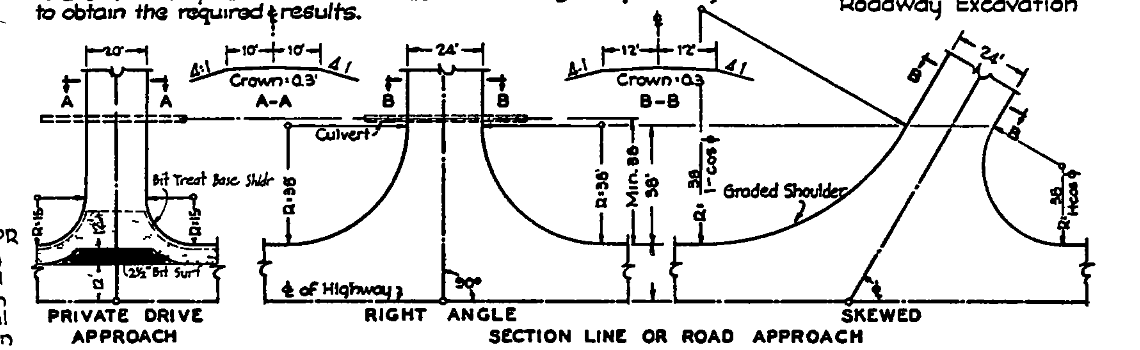
LIST OF STANDARDS & STRUCTURAL DRAWINGS

STANDARD OR DRAWING NO	SHEET NO.
Windrow Markers	Std 14.5
Standard Signs	Std 14.1A
Four Cable Guard Rail	Std 10.2A
Bridge Bench Marks	Std 7.6
Bridge Name Plates	Std 14.9

I-7	4	H-1346	9
I-7-1	5	H-0401	10
I-7-2	6	H-1172-1	11
I-7-3	7	H-1172-2	12
H-1276	8	H-0112	13
		H-0501	14



Not a pay item. To be considered as incidental to Roadway Excavation



SUMMARY OF QUANTITIES

ROAD GRADING AND INCIDENTAL

MILE	WATER	13X ROADWAY EXCAVATION CLASS-A	25 OVERHAUL (Not a pay item)	29C LIQUID BITUMEN EMULSIFIED ASPHALT	29A PIT RUN GRAVEL SUB-BASE CLASS-5	29C GRAVEL FOR BIT TR BASE	39 LIQ BIT. FOR PRIME & TACK	39 BLOTTER SAND CLASS 24	45C-1 COMB. AGGR FOR BIT. SURF CLASS 20	45 LIQUID BIT FOR MIX	45 LIQUID BIT FOR SEAL	45 COATING AID	45 SEAL AGGREGATE CLASS 23	85 SEEDING TYPE "B" CLASS III	83 FOUR CABLE GUARD RAIL	REMOVE & RESET FOUR CABLE GUARD RAIL
	M Gals	Cu. Yds	Cu Yd Sta	Gal	Ton	Ton	Gal	Ton	Ton	Gal	Gal	Gal	Ton	Acre	L F	L F
89+00-103+50	247	20882	136867	9549	913	876	1274	34	435	6087	1904	19	47	7.5	3081	1027
P D Appr's				260		24			12	168			2			
Br 93+50-95+10																
TOTAL	247	20882	136867	9809	913	900	1274	34	447	6255	1904	19	49	7.5	3081	1027
	① SP 42			① SP 40A	① SP 9	① SP 40A SP 9			① SP 9				① SP 26	① SP 20		

STRUCTURAL

MILE	15B CLASS 2 EXCAV	15C CLASS 3 EXCAV	60A CLASS A-1 CONC	60A CLASS A-1½ CONC	62A REINF STEEL	63A STRUCT STEEL	65C STEEL PILING (10BP42)	12 REMOVE EXISTING BRIDGE LUMP SUM	84 TEMP CROSSING AND DETOUR LUMP SUM	BRIDGE BENCH MARKS
	CY	CY	Cu Yd	Cu Yd	Lb	Lb	L F	Sta	Sta	Set
89+00-103+50										
P D Appr's										
Br 93+50-95+10	140	330	80	379 8	60988	104,400	300	94+34	94+30	1
TOTAL	140	330	80	379 8	60988	104,400	300	1 LUMP SUM	1 LUMP SUM	1
				SP 50			① SP 15 I			

INSTALL FOUR-CABLE GUARD RAILS

Sta 92+48 to Sta 93+50.7 Lt 102.7 L.F.
Sta 95+09.3 to Sta 96+12 Rt & Lt 205.4 L.F

REMOVE & RESET FOUR-CABLE GUARD RAIL

.. 92+48 to Sta. 93+50.7 Rt. 102.7' LF.
(of all materials necessary to reset Guard Rail in accordance with Std. 10.2A shall be incidental to the bid item)

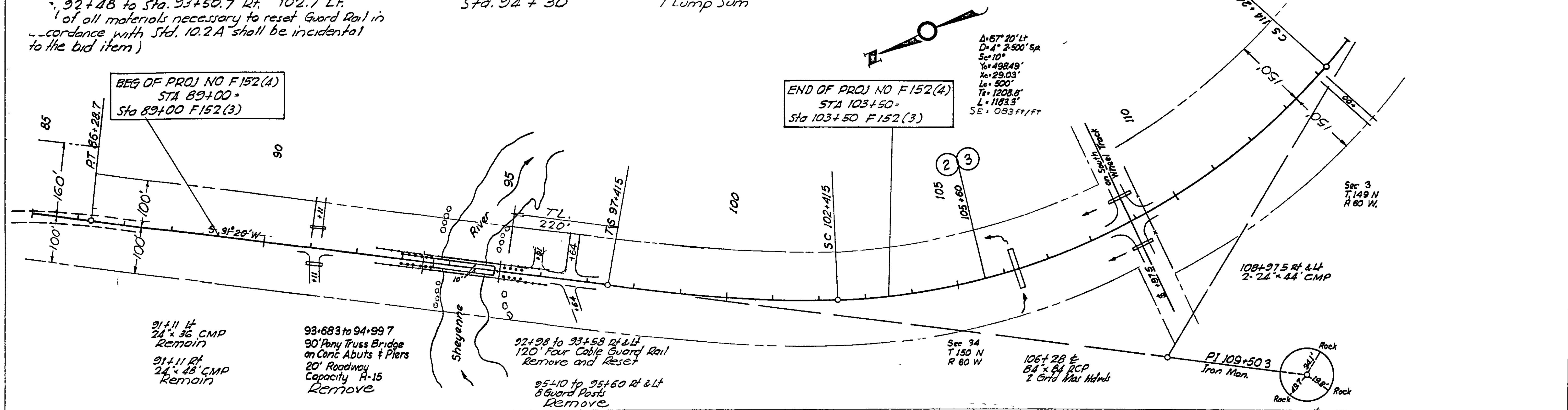
REMOVE EXISTING BRIDGE

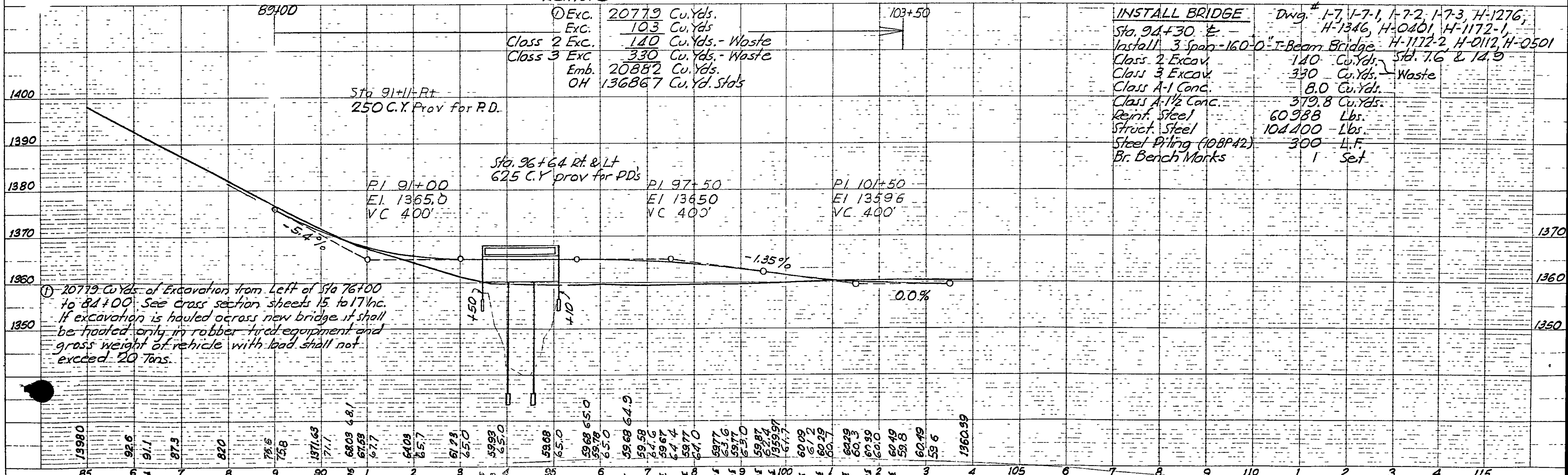
Sta 94+34 1 Lump Sum

INSTALL TEMP. CROSSING & DETOUR

Sta. 94 + 30 1 Lump Sum

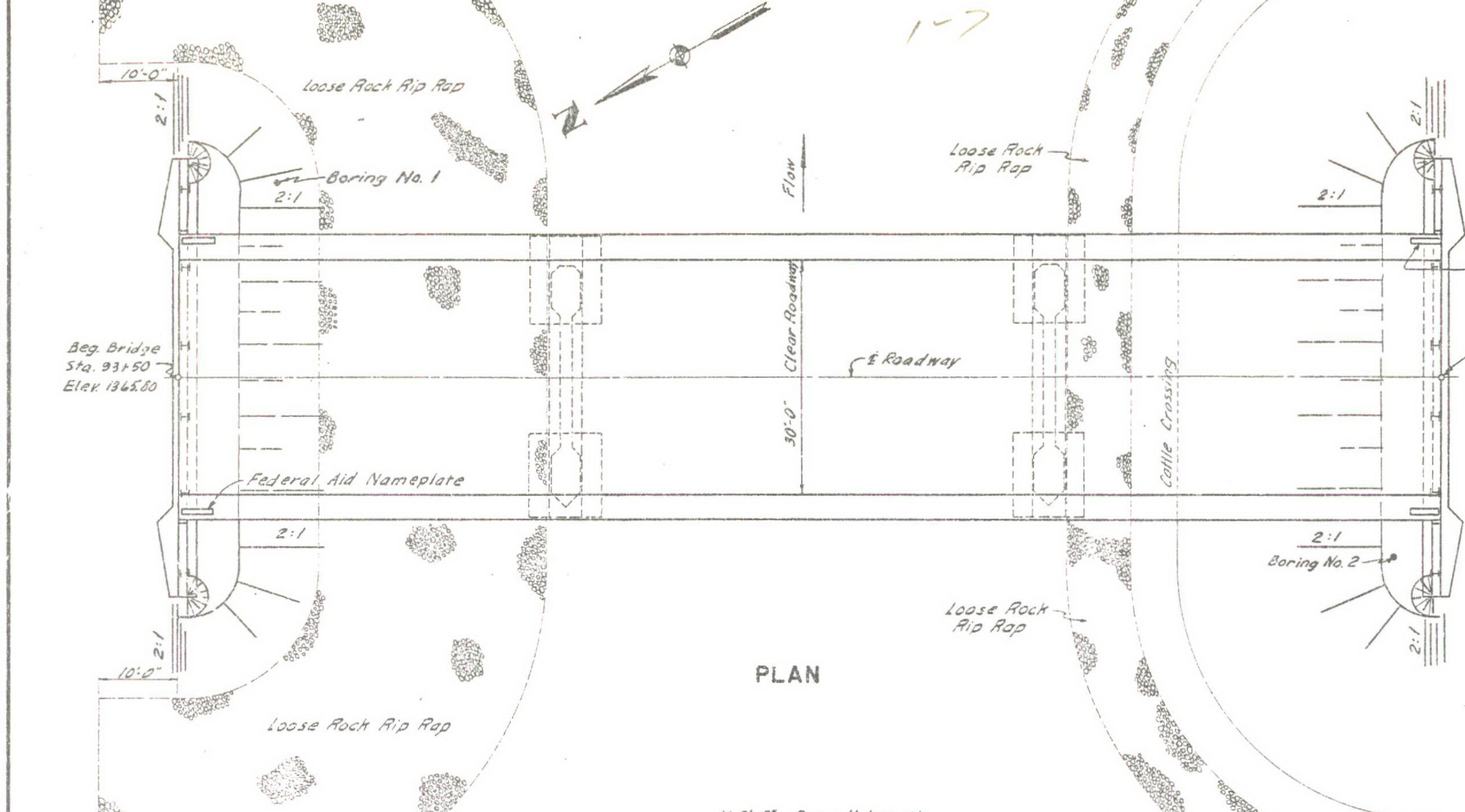
NO	DESCRIPTION	LOCATION	ELEV
13	Iron Mon by FP	87+51-38 Lt	1371 60'
14	Top of Conc Abut-Br	93+87-11.2' Lt	1360 18
15	Iron Mon by PP	102+09-182 5' Lt	1352 38'
16	Emb Rock	111+80-162' Lt	1361 32'



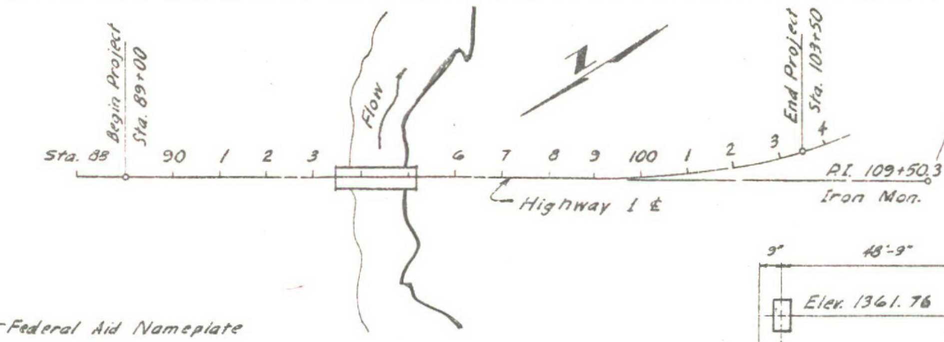


BRIDGE CODE NO.	FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
X-031	5	N.D.	F-152(4)		4	20

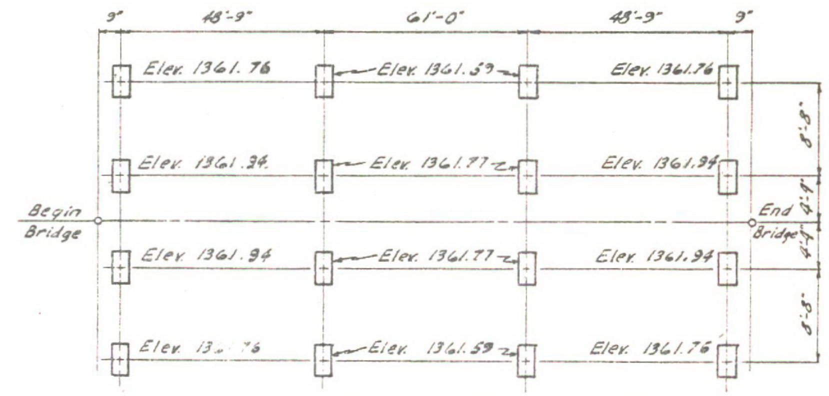
1-7



PLAN



AREA SKETCH



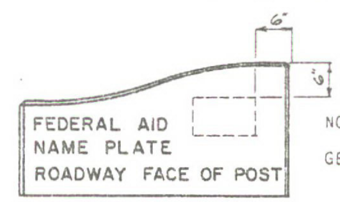
BEARING PLATE LAYOUT

Elevations shown are to top of concrete

1964
FEDERAL AID
PROJECT
F-152 (4)
NORTH DAKOTA
1-7

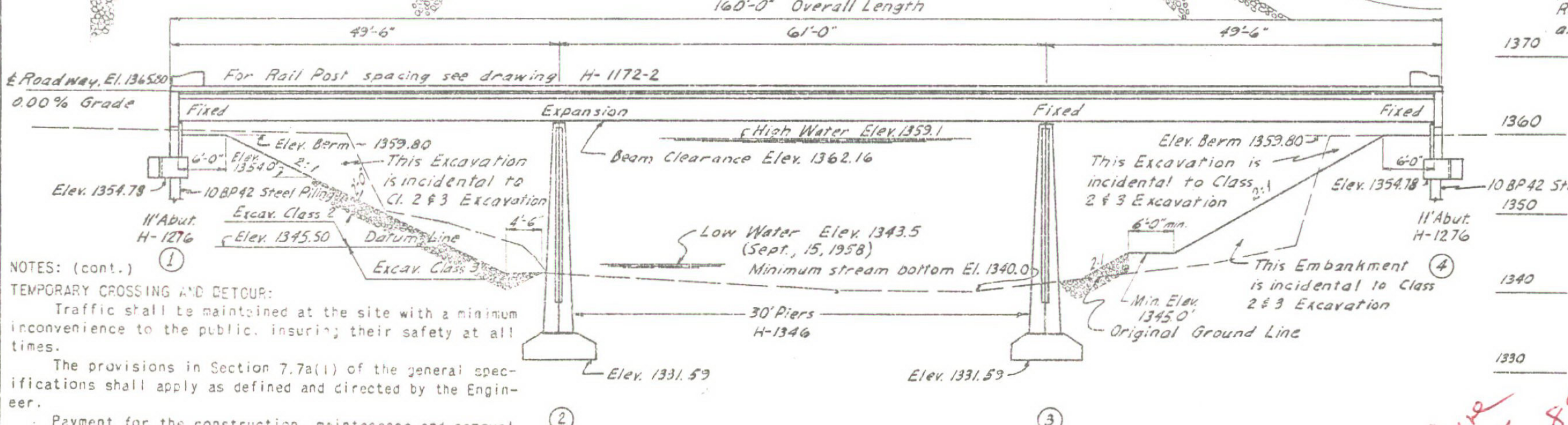
FEDERAL AID NAME PLATE

Two Required



NAME PLATE ON END POST

Also see Plan (this sheet), Railing details sheet H-0112, and std. sheet 14.9.



ELEVATION

NOTES: (cont.)

TEMPORARY CROSSING AND DETOUR:

Traffic shall be maintained at the site with a minimum inconvenience to the public, insuring their safety at all times.

The provisions in Section 7.7a(1) of the general specifications shall apply as defined and directed by the Engineer.

Payment for the construction, maintenance and removal of the temporary detour road and bridge shall be made under the contract "Lump Sum" bid price in Temporary Crossing and Detour which payment shall be full compensation for furnishing, hauling, placing and removing all materials, including all incidentals necessary to complete the work.

REMOVING EXISTING STRUCTURE:

The bridge to be removed is located at station 94+34. It is a 90' Pony Truss with 2 I-Beam end spans, overall length 131.4', 19' clear roadway supported on concrete walls and piers.

All salvageable material shall be carefully removed, cleaned and neatly piled on planking on highway right of way near the bridge site, and shall remain the property of the State. Each truss shall be removed in not less than three

REMOVING EXISTING STRUCTURE: (cont.)

(3) sections. All floor beams, stringers, approach I-Beams, etc., shall be removed as separate members. All members shall be match marked.

All material not salvageable shall be disposed of by the contractor in a manner satisfactory to the Engineer. Old concrete removed from the existing bridge may be used for riprap if broken into satisfactory sizes but will not be paid for as loose rock rip rap. All old concrete not used as rip rap shall be buried.

Existing Structure
Structural Steel — 89,251 lbs
90' Pony Truss
2-20' approach spans (I-Bm)

NOTES:

GENERAL:

The cost of furnishing and placing joint filler, asphalt curb seal, name plates, drain pipes, and post pipe sleeves, copper flashing sheet metal bearing boxes, and other miscellaneous items shall be included in the price bid for Class AE-2 concrete.

For painting, welding, and deflection notes see drawing no. H-1172-1.

For rail post spacing and slab pouring sequence notes see drawing no. H-1172-2.

For railing notes see drawing no. H-0112.

For Hydraulic Design Data see drawing no. 1-7-1.

For Temporary Crossing Detour details and additional notes see drawing no 1-7-3.

REINFORCING STEEL: (INTERMEDIATE GRADE).

Bent bar details are given center to center unless 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 the concrete shall be beveled with 3/4" triangular molding except as shown on the plans.

The "Rubbed Surface Finish" shall be given to the railing end posts, railing, to the outside and roadway vertical faces of curbs, and to the exposed faces of the abutment wing walls. All other surfaces shall be given the "Ordinary Surface Finish".

All concrete below the tops of curbs shall be Class AE-2. End posts are to be Class AE-2 and railing Class AAE-4. In each instance the concrete shall be compacted by vibration.

The deck slab concrete shall be struck off and compacted by an approved bridge deck finishing machine(s).

EXCAVATION:

All structural excavation below elevation 1345.5 shall be excavation Class 3.

Excavation for the abutments shall be excavation Class 2. Any other excavation necessary shall be incidental to excavation Class 2 and 3.

ESTIMATE OF QUANTITIES

SPL. PROV.	SPEC. NO.	BID ITEM		
	12	REMOVING EXISTING STRUCTURE AT STA. 94+34.0		LUMP SUM
	16A	CLASS 1 EXCAVATION	———	CU. YD.
100	15B	CLASS 2 "	140	CU. YD.
100	15C	CLASS 3 "	330	CU. YD.
32D				
88A 89A	50AA	CONCRETE CLASS AAE-4	80	CU. YD.
88A 89A	60A	" CLASS AE-2	391.7	CU. YD.
90	62A	REINFORCING STEEL	70,427	LB.
	63A	STRUCTURAL STEEL	103,919	LB.
	64A	UNTREATED TIMBER	———	M.B.M.
	64B	TREATED TIMBER	———	M.B.M.
	65A	UNTREATED TIMBER PILING ——— @ ——— FT.	———	LIN. FT.
	65B	TREATED TIMBER PILING ——— @ ——— FT.	———	LIN. FT.
102	65C	STEEL PILING (10 BP 42) 12 @ 25 FT.	300	LIN. FT.
	65K	UNTREATED TIMBER TEST PILES	———	EACH
	65L	TREATED TIMBER TEST PILES	———	EACH
106A		LINSEED OIL TREATMENT	33	GAL.
	84	TEMPORARY CROSSING AND DETOUR	1	LUMP SUM
		BRIDGE BENCH MARKS	1	SET
	72D	LOOSE ROCK RIP RAP	500	CU. YD.

STRUCTURAL DRAWINGS

GENERAL DRAWING	THIS SHEET, 1-7-1, 1-7-2, & 1-7-3
SUBSTRUCTURE	H-1276, H-1346, & H-0401
SUPERSTRUCTURE	H-1172-1, H-1172-2, H-0112, H-0301, ST'D. 7.5, & ST'D. 14.9

DESIGN LOADING	SCALE
H20 S16(57)	1 INCH = 10 FT.-8 IN.

NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

SHEYENNE RIVER
BRIDGE LAYOUT

PROJECT F-152 (4) STA. 94+30

NELSON COUNTY

APPROVED

9-10-59 Joseph R. Kirby
DATE BRIDGE ENGINEER

BENCH MARKS

NO.	DESCRIPTION	LOCATION	ELEV.
14	TOP OF CONC. ABUT. BR.	STA. 93+87-11.2' LT.	1360.18
15	IRON MON. BY P.P.	STA. 102+09-182.5' LT.	1352.38
16	EMB. ROCK	STA. 111+80-162.0' LT.	1361.32

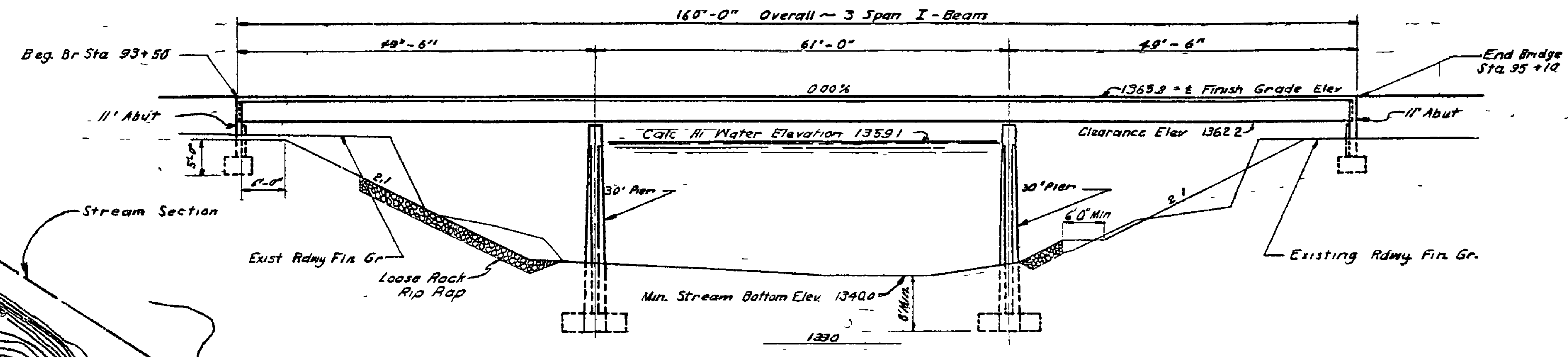
PILE LOADING

LOCATION	DEAD LOAD + EARTH	LIVE LOAD	EARTH O. T. M.	WIND 50 LB.	WIND 15 LB.	WIND 100 LB. L.L.	LONG. FORCE	DESIGN LOAD	MAX REQ'D BEARING	*MINIMUM PENETRATION
ABUTMENT	27.7 T	9.2 T	———	———	———	———	———	36.9 T	50.0 T	15'
PIER	3365 PSF	895 PSF	———	———	———	———	———	4260 PSF	———	———

*BELOW BOTTOM OF FOOTING IN FEET

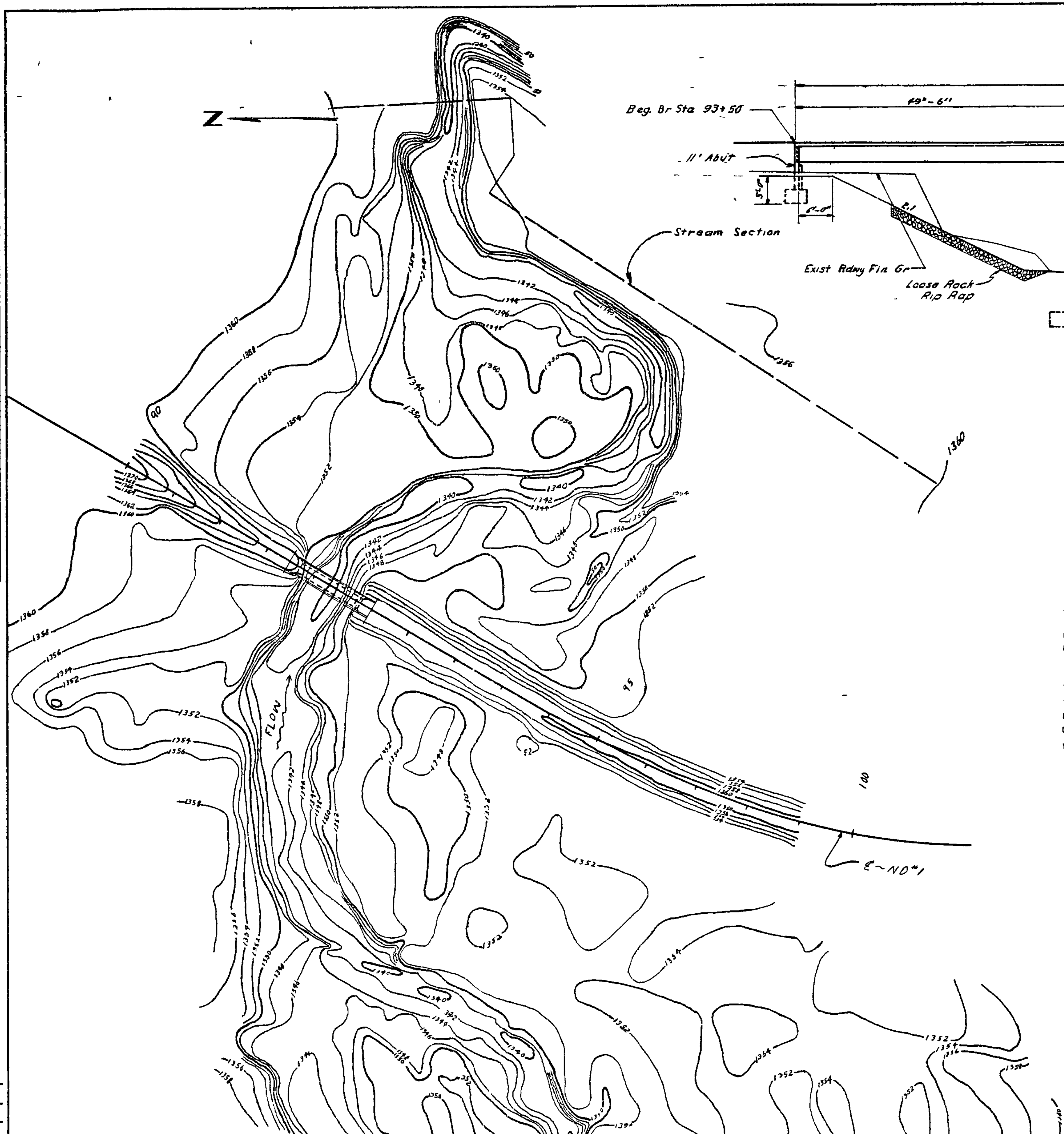
OGRAPHY	PLOTTED BY	REVISIONS	MADE BY	CHK'D BY	DATE
	CHECKED BY	Structural Review Aug. 28, 1959			
DETAILS	MADE BY WEG	Bottom of Pier Elev. Revised	D.B.	EWH	10/2/63
	CHECKED BY CEG	Bearing Pl. Elev. Revised	D.B.	EWH	10/2/63
TRACING	MADE BY WEG	Pile Loading & Earth Pressures Rev.	D.B.	EWH	10/2/63
	CHECKED BY GFE	Date on Name Pl. Revised	D.B.	EWH	10/2/63
QUANTITIES	MADE BY GFE				
	CHECKED BY CEG				

FED. ROAD DIST NO	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	F-152(4		5	20



ELEVATION OF PROPOSED BRIDGE

Scale ~ 1" = 10'



HYDRAULIC DESIGN DATA

DRAINAGE AREA	790 SQ MI
DESIGN FREQUENCY	50 YR
DESIGN DISCHARGE	4680 C F S
FLOW DEPTH	19 1 FT
STREAM VELOCITY	1 25 F P S
STREAM GRADIENT	0.000214 FT / FT
VELOCITY THRU STRUCTURE	2 48 F P S
REQUIRED WATERWAY	1890 SQ FT BELOW HIWATER
FREEBOARD PROVIDED	3 1 FT ABOVE 1950 H W
LOW WATER ELEV (9-15-58)	1343 5
WATERWAY PROVIDED	2465 SQ FT BELOW CLEARANCE

BRIDGE NO 1-7

SHEYENNE RIVER BRIDGE

TOPOGRAPHIC LAYOUT

PROJ F-152(4) STA 94+30 ℄

NELSON COUNTY

1-7-1

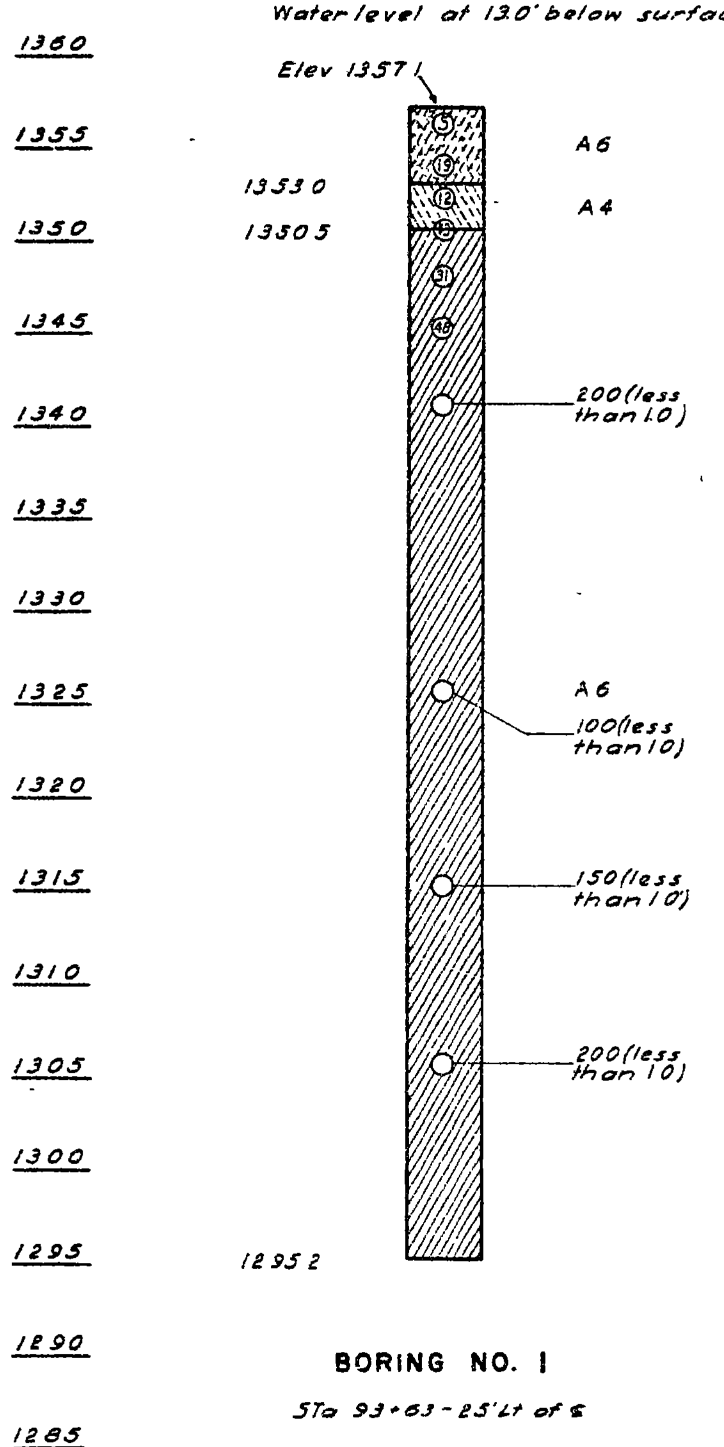
REVISIONS: Revised from 3' to 160' Length Finish Grade raised 2 ft

SIGN | DETAILS | TRACING | QUANTITIES — MADE BY / CHECKED BY

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	F-152(4)		6	20

Water level at 13.0' below surface

Elev 1357.1



A 6 — Brown clay loam high sand content fill some gravel

A 4 — Black clay loam topsoil - high organic content stiff

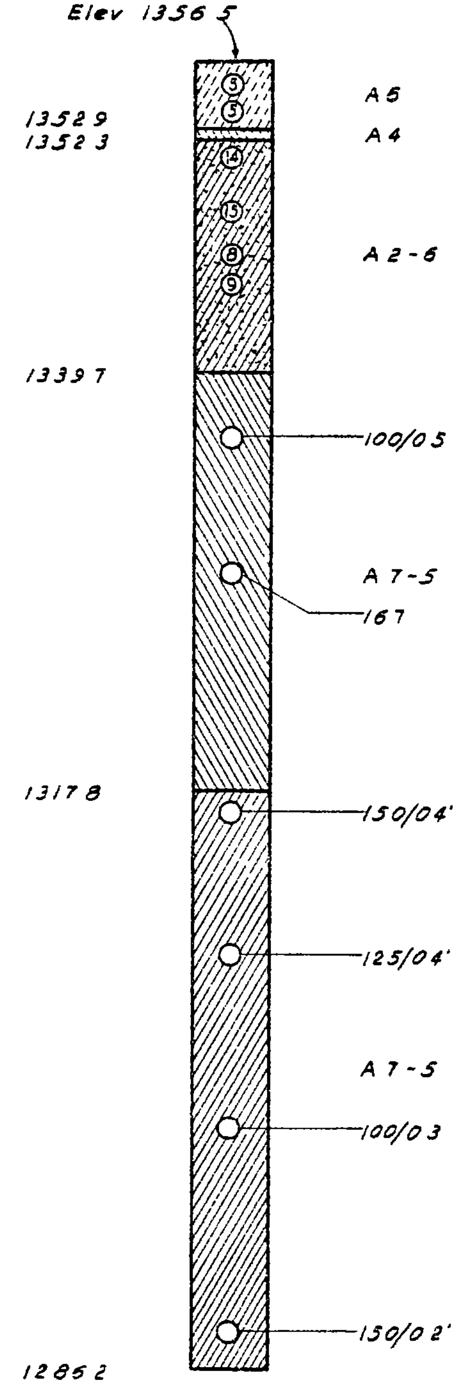
A 6 — Dark gray clay, (clay pan & shale) the top of this horizon was gray brown grading into dark gray with depth, numerous layers of shale throughout horizon, the shale is fractured along bedding planes & some layers appear to carry water, the clay is hard & impervious small seams & pockets of a light tan clay appears throughout horizon (bentonite)

BORING NO. 1

STa 93+63 - 25' Lt of ℄

Water level at 13.1 below surface

Elev 1356.5



A 6 — Dark brown clay loam medium stiffness high organic content fill

A 4 — Black clay loam topsoil

A 2-6 — Dark brown sandy clay & sandy clay loam mottled stratifications of fine sand throughout horizon

A 7-5 — Dark gray clay (soft shale) clay has a massive structure shale present is fractured along bedding planes giving it a platty structure shallow stratifications of bentonitic clay, hydraulic pressure rose to 3000 pounds when fishtail was in use bentonitic clay possible points of weakness

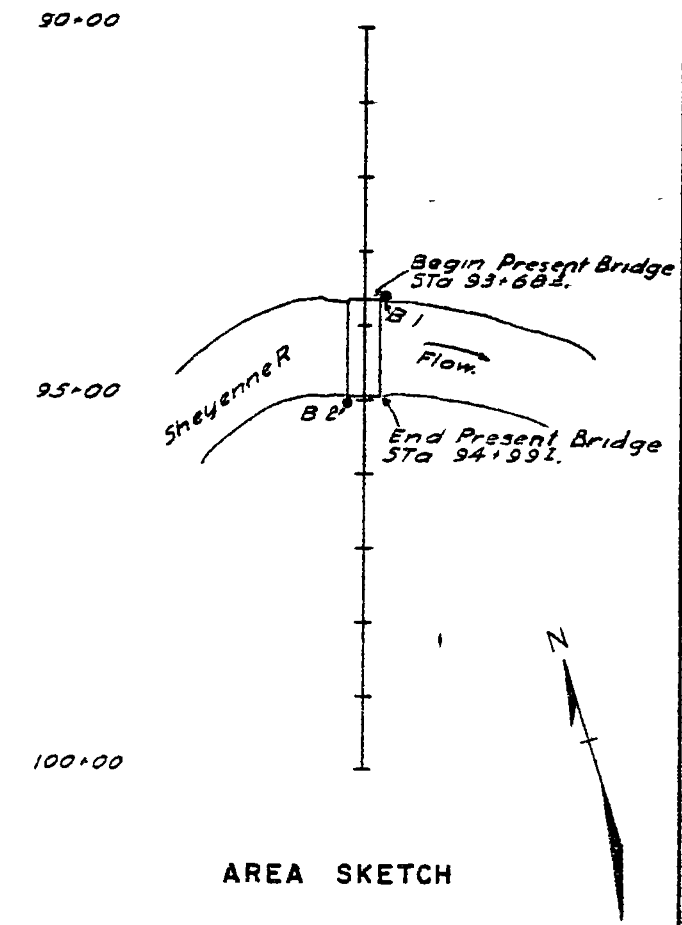
A 7-5 — Dark gray clay (clay pan) soft shale hard impervious fair amount of fractured shale, (fractured among bedding planes) using fishtail bit hydraulic pressure amounted to 4200 pounds hardness increases with depth.

BORING NO. 2

STa 95+03 - 23' Rt ℄

Note:

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



AREA SKETCH

Note

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

BRIDGE NO. 1-7
QUANTITIES

BORING LOG

F-152 (4)

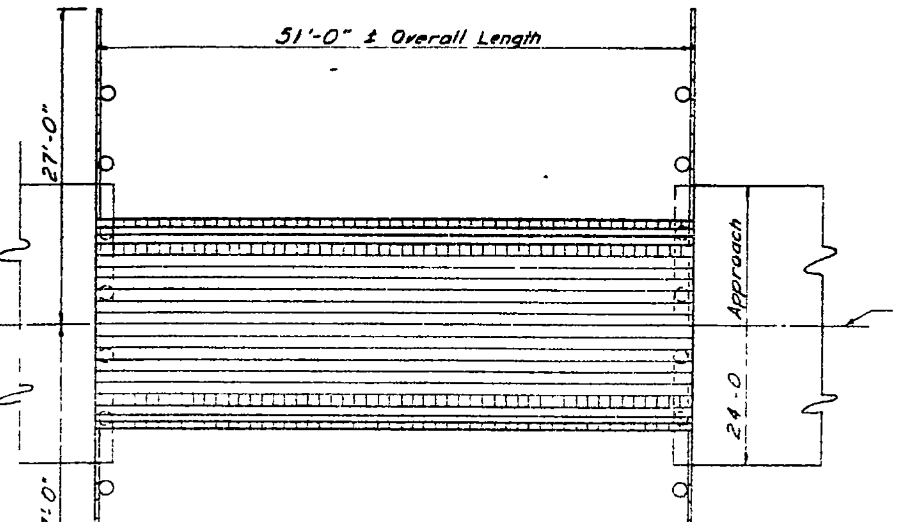
NELSON COUNTY

1-7-2

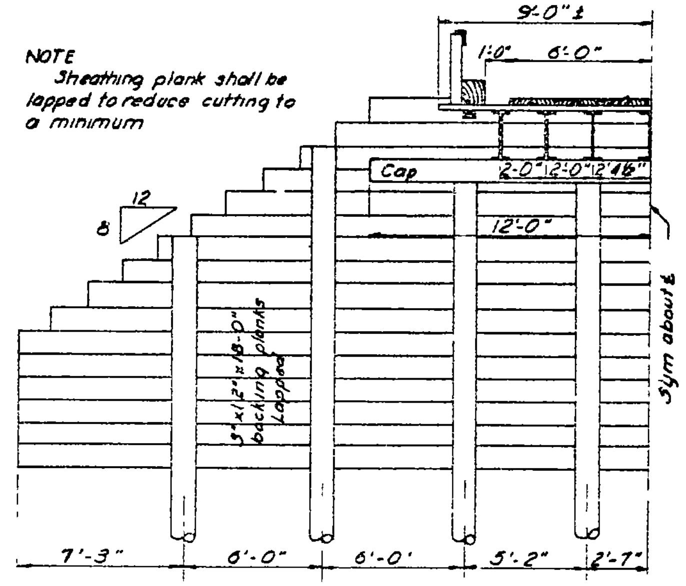
REVISIONS	MADE BY	CHK'D BY	DATE

	MADE BY	CHECKED BY
DESIGN		
DETAILS		
TRACING	R.M.S.	
QUANTITIES		

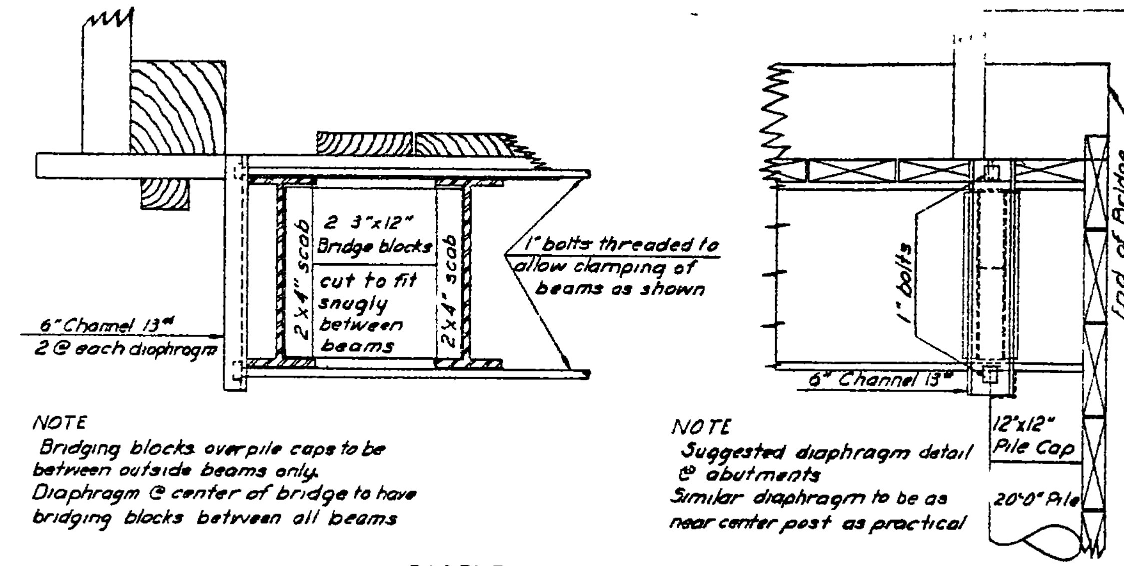
1-7-2



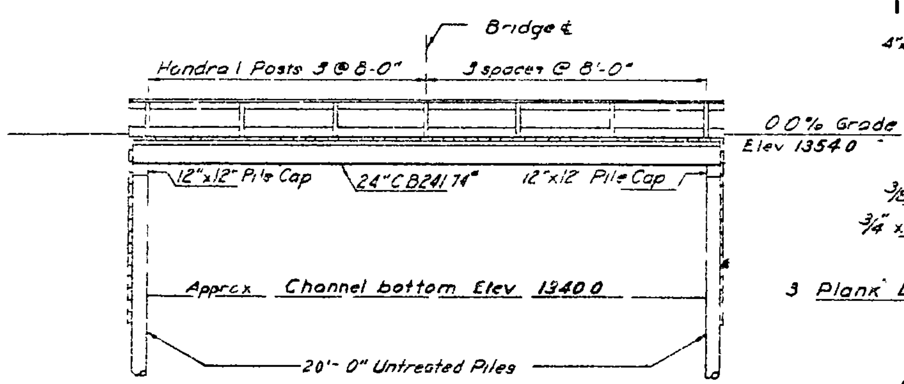
PLAN



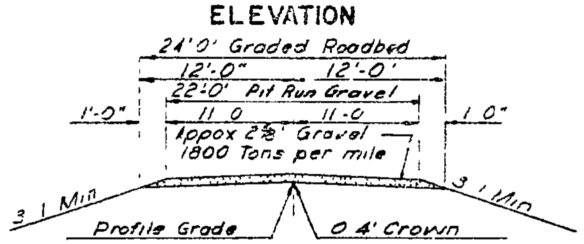
HALF ABUTMENT ELEVATION



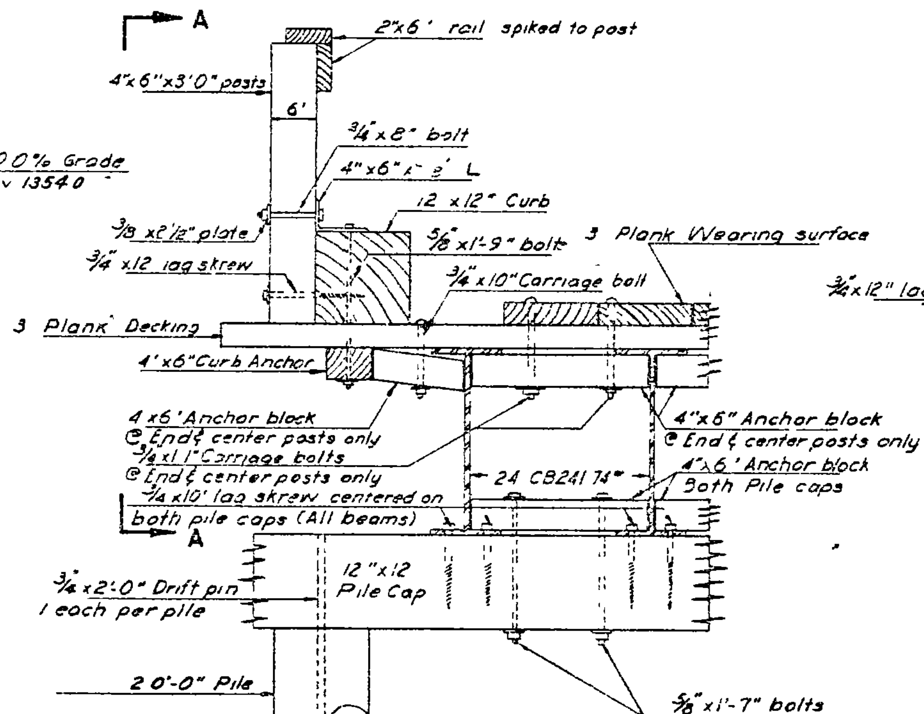
DIAPHRAGM DETAILS



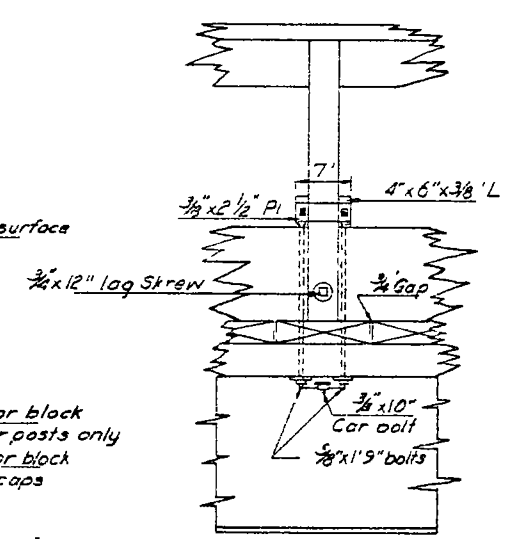
ELEVATION



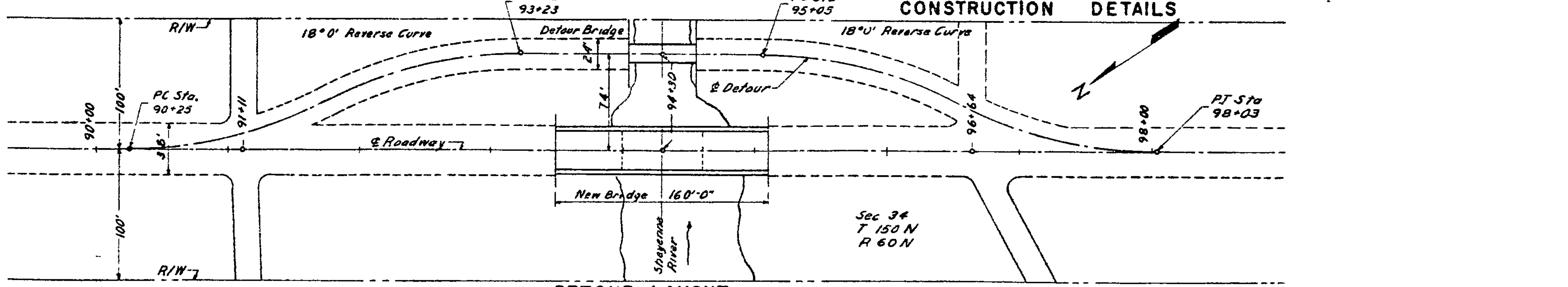
TYPICAL SECTION-DETOUR



CONSTRUCTION DETAILS



VIEW A-A



DETOUR LAYOUT (Scale 1"=50')

NOTES:

The State will furnish seven 24" CB 74# steel beams each 50'-8" long to be used in the temporary detour bridge to be constructed 74' left of the ℄ of roadway at Sta 94+00. The Contractor shall load and transport these beams from the Highway Department District yard at Valley City and shall return them to this location after the structure is dismantled.

All other material required for the detour bridge shall be furnished by the Contractor and shall retain his property after the structure is dismantled.

Alternate proposals for bridging the stream as submitted by the Contractor, may be used if approved by the Bridge Engineer. In general, the requirements to be met shall be a minimum clear roadway width of fourteen feet, approximately the same clear flow cross-sectional area beneath the bridge as shown above elevation 1340.0 and adequate design and construction to support H-15 highway loading.

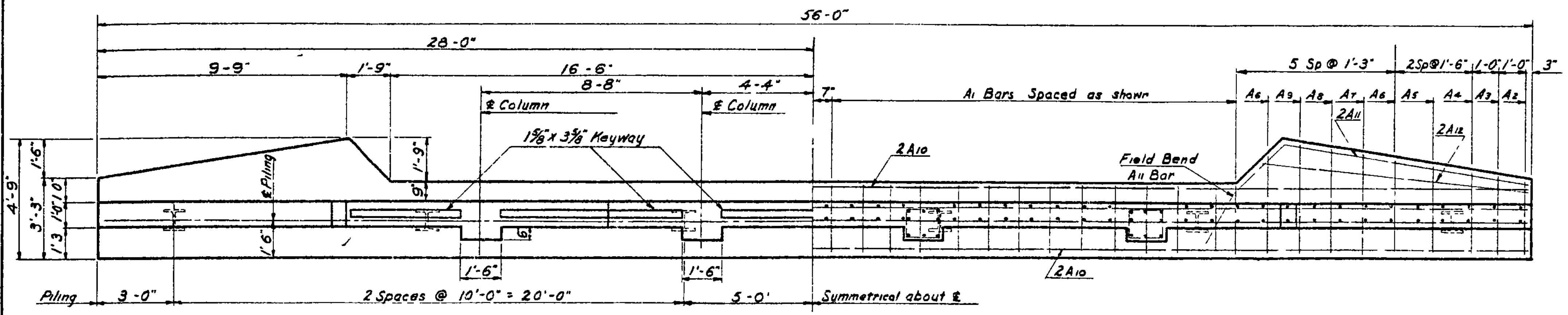
If the contractor wishes to place the detour on the upstream side of the bridge, an 18" C M P shall be placed under the drive at Sta 96+64 Rt.

The Contractor will be required to drill pilot holes, if necessary, to get a minimum piling penetration to elevation 1320.50.

When the detour is no longer needed the Contractor shall completely remove the detour road and bridge. Piling shall be either pulled or cut off below the original ground line.

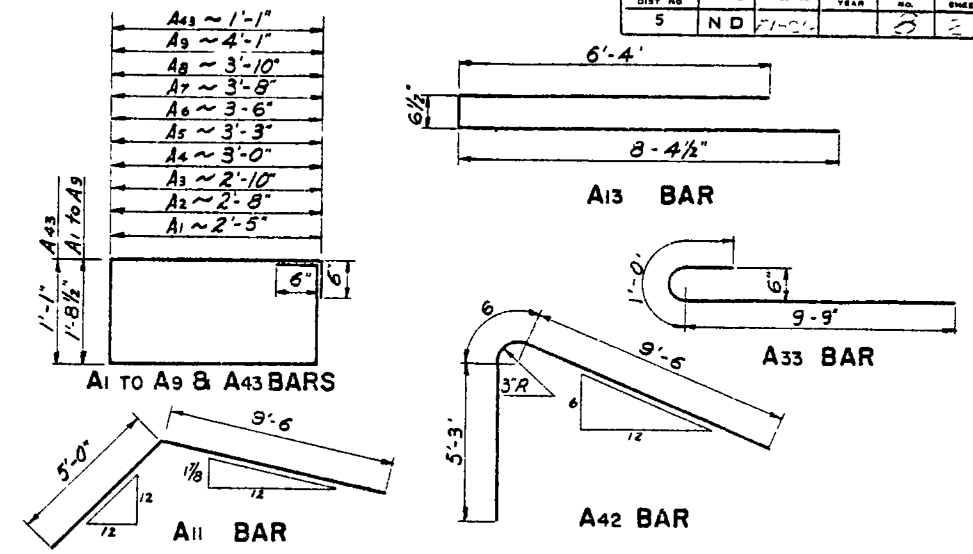
DETOUR LAYOUT AND BRIDGE DETAILS
PROJECT F-152(4)
STA 94+30 - 74' LEFT
NELSON COUNTY

FED ROAD DIST NO	STATE	PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	N D				

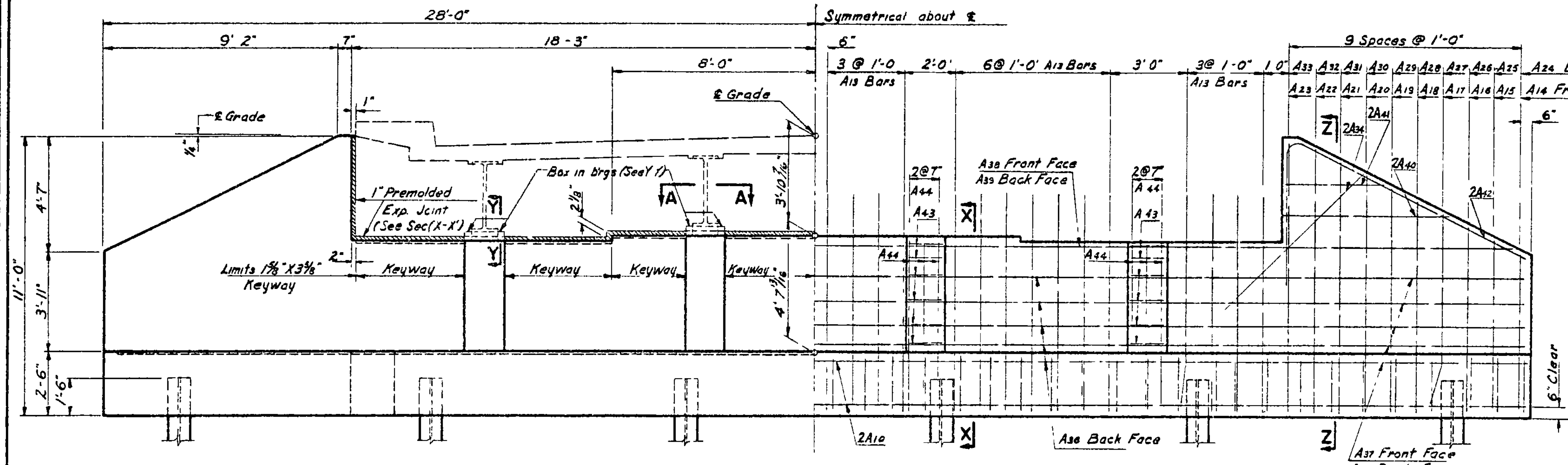


HALF PLAN
Showing dimensions

HALF PLAN
Showing Reinforcing

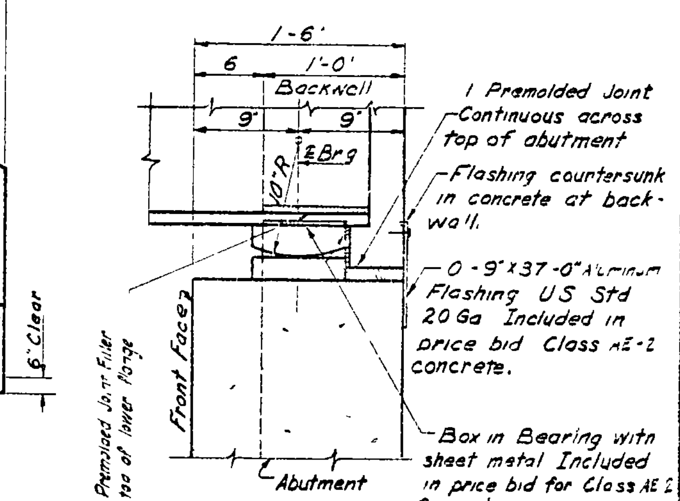


BENT BAR DETAILS

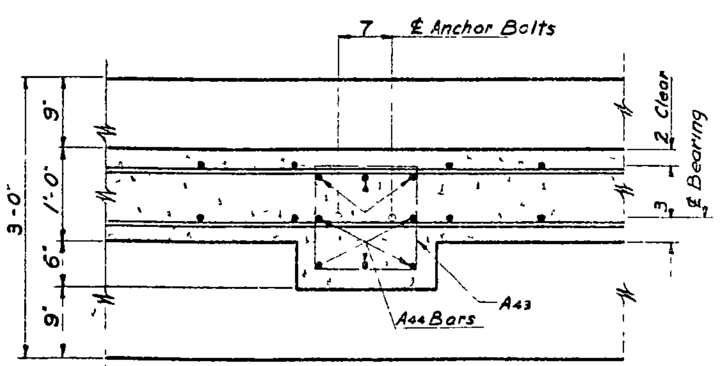


HALF ELEVATION
Showing dimensions

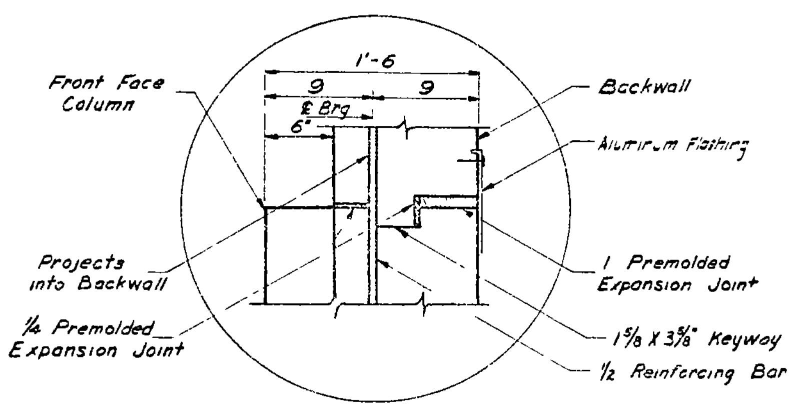
HALF ELEVATION
Showing Reinforcing



Y-Y

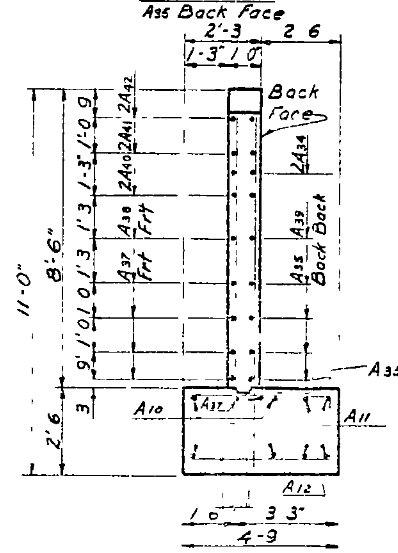


A-A

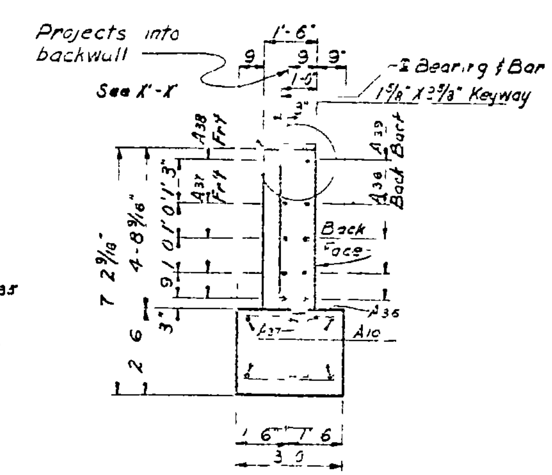


See Elevation View this sheet for Limits of Keyway and Premolded Expansion Joint

X'-X'



Z-Z



X-X

BAR LIST (ONE ABUT)				
MARK	NO	SIZE	LENGTH	SHAPE
A1	28	4	9'-3"	Bent
A2	2	4	9 9"	"
A3	2	4	10'-1"	"
A4	2	4	10'-5"	"
A5	2	4	10-11"	"
A6	4	4	11'-5"	"
A7	2	4	11-9"	"
A8	2	4	12'-1"	"
A9	2	4	12' 7	"
A10	8	8	23'-6	Str
A11	4	8	14'-6"	Bent
A12	4	6	10'-3"	Str
A13	30	4	15'-3'	Bent
A14	2	4	3'-9'	Str
A15	2	4	4'-3'	"
A16	2	4	4'-9'	"
A17	2	4	5'-3"	"
A18	2	4	5'-9"	"
A19	2	4	6'-3	"
A20	2	4	6'-9	"
A21	2	4	7'-3"	"
A22	2	4	7'-9	"
A23	2	4	8'-3"	"
A24	2	4	6'-0"	"
A25	2	4	6'-6'	"
A26	2	4	7'-0"	"
A27	2	4	7'-6	"
A28	2	4	8-0"	"
A29	2	4	8'-6"	"
A30	2	5	9'-0	"
A31	2	5	9-6"	"
A32	2	5	10'-0"	"
A33	2	6	10'-9"	Bent
A34	4	6	8'-0"	Str
A35	10	4	15'-9"	"
A36	5	4	27'-9"	"
A37	10	4	13'-9	"
A38	2	6	28'-3	"
A39	2	4	28-0'	"
A40	4	4	5'-9"	"
A41	4	4	3'-6	"
A42	4	6	15'-3	Bent
A43	24	5	5-4"	"
A44	32	5	6-3'	Str

QUANTITIES (ONE ABUT)

Concrete Class AE 2	29 C.Y.
Reinforcing Steel	2758 Lbs
Piling (See Layout)	
Excavation (See Layout)	

11'-0" ABUTMENT
FOR I-BEAM SPANS
FIXED END
30' ROADWAY

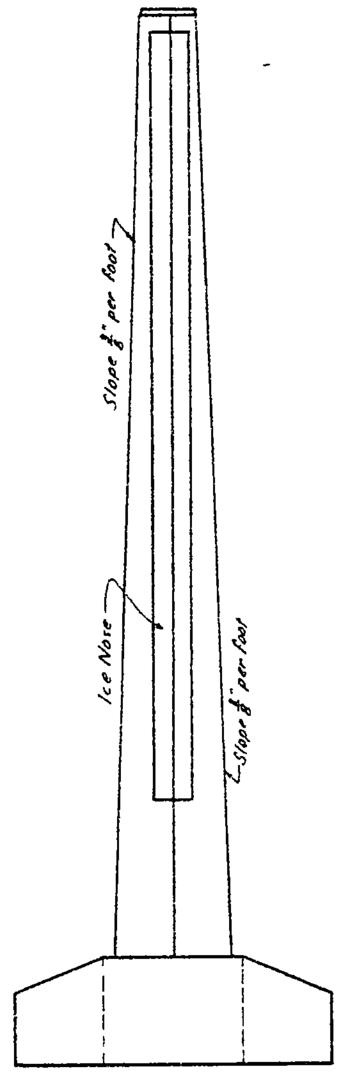
H-1276

REVISIONS: ℄ Dimension Revised — 10/2/63

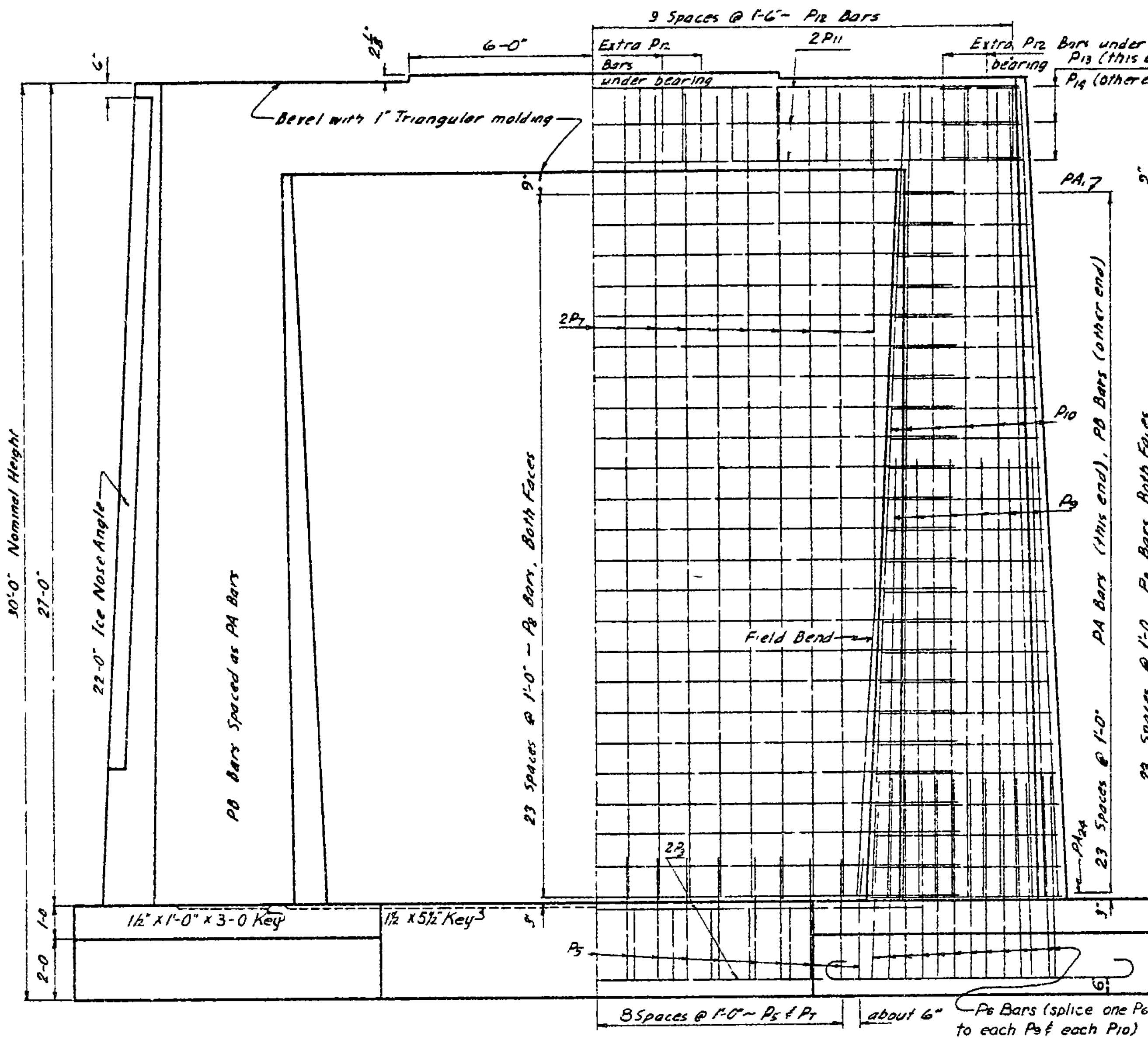
SIGN	
DETAILS	MADE BY CEG; CHECKED BY GFE
TRACING	MADE BY WEG; CHECKED BY CEG
QUANTITIES	MADE BY JDS; CHECKED BY CEG GFE; MADE BY GFE; CHECKED BY GFE

H-1276

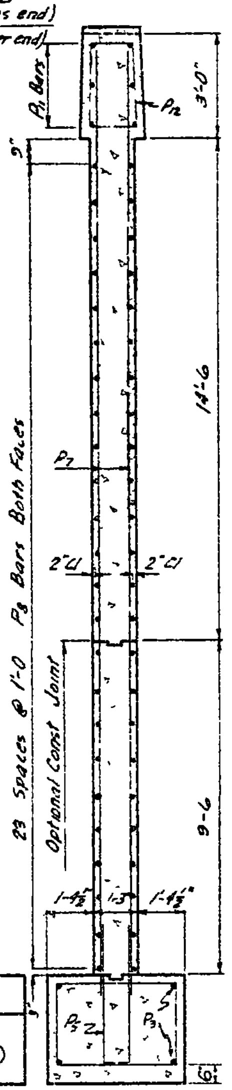
FED ROAD DIST NO	STATE	PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	N D	F152(-)		7	20



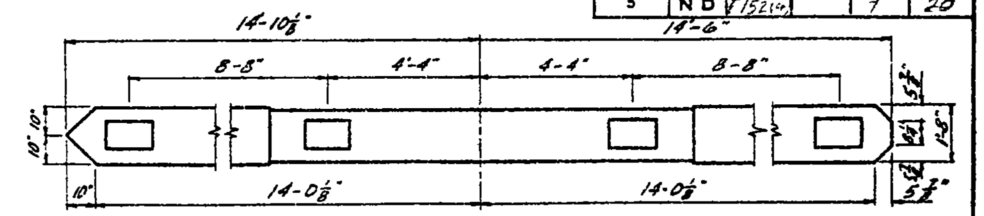
END VIEW



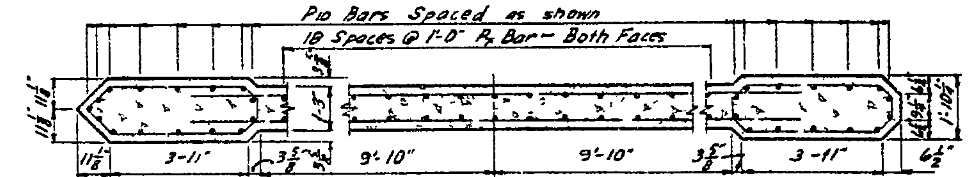
ELEVATION



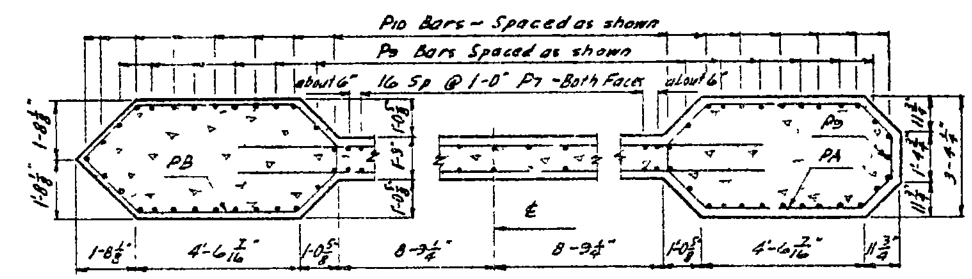
℄ SECTION



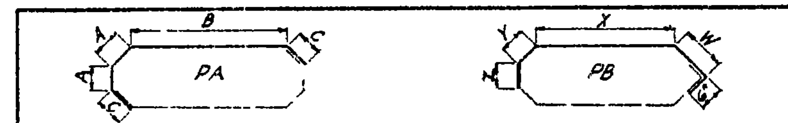
TOP PLAN



PART SECTION AT BOTTOM OF BEAM



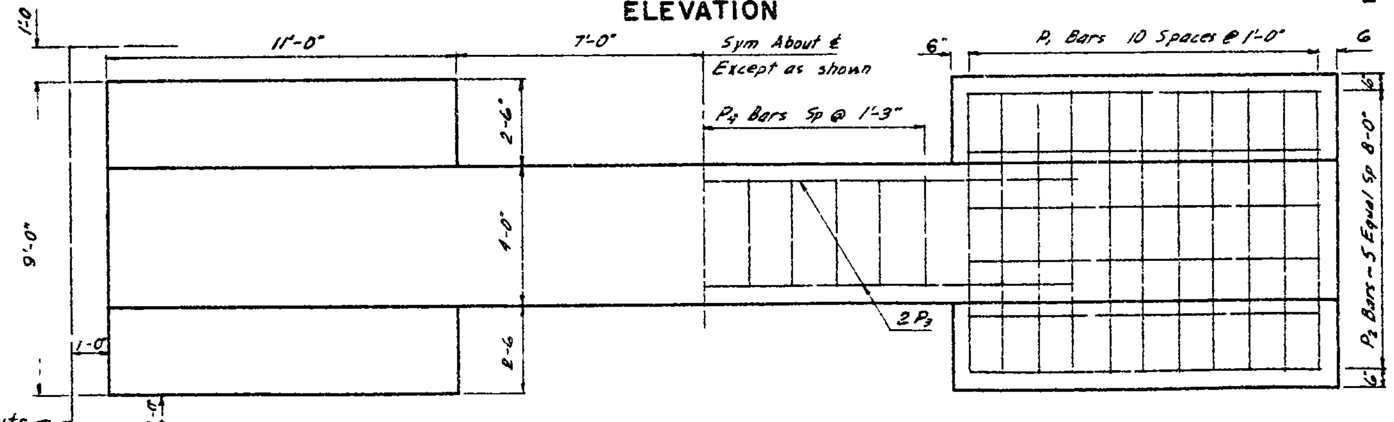
PART SECTION AT TOP OF FOOTING



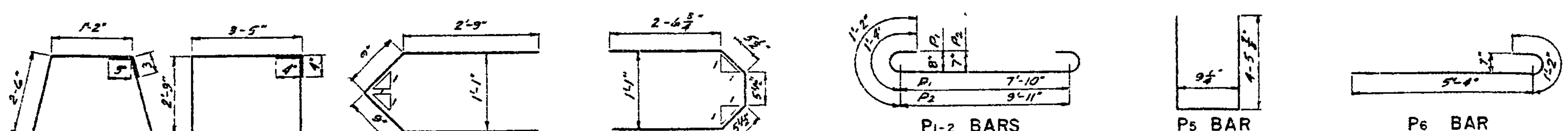
MARK	A	B	C	LENGTH	MARK	W	X	Y	Z	LENGTH
PA1	0'-6⅝"	3'-8½"	0-5⅛"	5'-8"	PB1	0-11⅝"	3-8½"	0-6⅝"	0-6¼"	6'-3"
PA2	0'-7"	3'-8¾"	0-6⅜"	6-0"	PB2	1'-0⅛"	3'-8¾"	0'-7"	0-6⅛"	6'-4"
PA3	0-7½	3-9⅛"	0'-6 3/16"	6-0"	PB3	1'-0⅝"	3'-9⅛	0-7¼"	0-5'	6'-4"
PA4	0-7⅝"	3-9⅜"	0'-7 3/16"	6-3"	PB4	1'-1⅛"	3-9⅜"	0'-7⅝"	0-5⅞"	6-6"
PA5	0-7⅞	3'-9¾"	0-7¼"	6-4"	PB5	1'-1⅝"	3-9¾"	0'-7⅞"	0-6¾"	6-8"
PA6	0-8¼"	3-10"	0'-7¾"	6-6"	PB6	1'-2¼"	3'-10"	0-8¼"	0'-6½"	6-9"
PA7	0'-8½	3 10-½"	0'-8 5/16"	6-8"	PB7	1-2¾"	3-10⅜	0-8½"	0-8⅜"	7-0"
PA8	0'-8⅞"	3'-10⅝"	0-8 5/16"	6-9"	PB8	1'-3¼"	3-10⅝"	0'-8⅞"	0'-7¼"	7'-0"
PA9	0'-9⅛"	3-11"	0-7⅞"	6-9"	PB9	1'-3¾"	3'-11"	0-9⅛"	0'-9⅛"	7'-3"
PA10	0-9½"	3-11¼"	0-6⅞"	7'-0"	PB10	1'-4¼"	3-11¼	0-9½"	0'-8"	7'-3"
PA11	0'-9¾"	3 11⅝"	0-8 7/16"	7'-0"	PB11	1'-4⅞"	3-11⅝"	0-9¾"	0-7¾	7'-4"
PA12	0-10⅛	3'-11⅞"	0'-9 7/16"	7-3"	PB12	1'-5⅜"	3-11⅞"	0'-10⅛"	0-8⅝"	7'-6"
PA13	0'-10⅜"	4-0¼"	0'-9"	7'-3"	PB13	1'-5⅞	4'-0¼"	0-10⅜	0'-9½"	7'-8"
PA14	0'-10¾	4-0½"	0-10½"	7-7"	PB14	1'-6⅜"	4 0½"	0-10¾	0'-9⅜"	7'-9"
PA15	0'-11"	4-0⅞"	0'-10 9/16"	7-8"	PB15	1'-6⅞"	4'-0⅞"	0-11"	0'-8¼"	7'-9"
PA16	0-11⅜"	4-1⅛"	0-10 9/16	7'-9	PB16	1'-7½"	4'-1⅛"	0-11⅜"	0-10"	8-0"
PA17	0-11⅝	4-1½"	0'-10⅛	7-9"	PB17	1'-8"	4'-1½"	0-11⅝"	0-8⅞"	8-0"
PA18	1'-0"	4 1¾"	0-11½"	8'-0"	PB18	1'-8½"	4-1¾"	1'-0	0-10¾	8'-3"
PA19	1-0¼"	4-2⅛"	1'-0 3/16"	8-3"	PB19	1'-9"	4'-2⅛"	1'-0¼"	0-10⅝"	8-4"
PA20	1-0⅝"	4-2⅜"	1'-0 3/16	8-4	PB20	1-9½"	4'-2⅜"	1'-0⅝"	0'-11½"	8'-6
PA21	1'-0⅞"	4-2¾"	1'-0 3/16	8'-6"	PB21	1'-10⅛"	4-2¾	1'-0⅞"	1'-0⅛"	8-8"
PA22	1'-1⅛"	4-3"	1'-0¼"	8-6"	PB22	1'10⅝"	4-3"	1'-1⅛"	1-0⅛"	8-9"
PA23	1-1½"	4-3⅜"	1-0 11/16"	8-8"	PB23	1-11⅛"	4'-3⅜"	1'-1½"	0'-11"	8-9"
PA24	1'-1⅞"	4'-3⅝"	1'-0 9/16"	8-8"	PB24	1-11⅝"	4'-3⅝"	1'-1⅞"	1'-0⅞"	9'-0"

BAR LIST (ONE PIER)

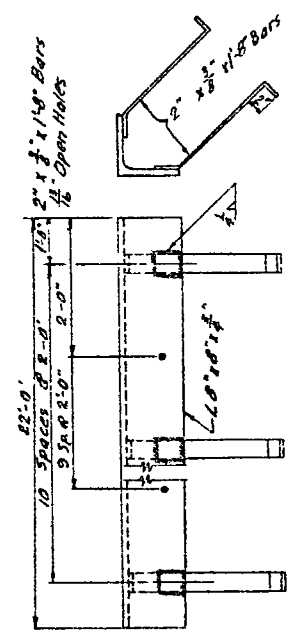
MARK	NO	SIZE	LENGTH	SHAPE
P1	22	8	10'-6"	Bent
P2	12	7	12'-9"	"
P3	4	8	21-0"	Str
P4	11	5	12-0"	Bent
P5	19	5	9-9"	"
P6	54	7	6-6"	"
P7	38	6	26-6"	Str
P8	48	4	23'-6"	"
P9	25	7	14-6"	"
P10	29	7	26-6"	"
P11	6	8	28-0"	"
P12	27	4	8-0"	Bent
P13	3	6	6-6"	"
P14	3	6	7'-0"	"
PA1 to PA24	2 Sets	5	175-1"	"
PB to PB24	2 Sets	5	181'-7"	"



FOOTING PLAN



BENT BAR DETAILS



ICE NOSE ANGLE

QUANTITIES (ONE PIER)

Concrete Class AE-2	77.6 CY
Reinforcing Steel	8,166 Lb
Structural Steel	950 Lb
Excavation (See Layout)	

30' PIER DETAIL FOR I-BEAM SPANS

30' ROADWAY SPREAD FOOTING

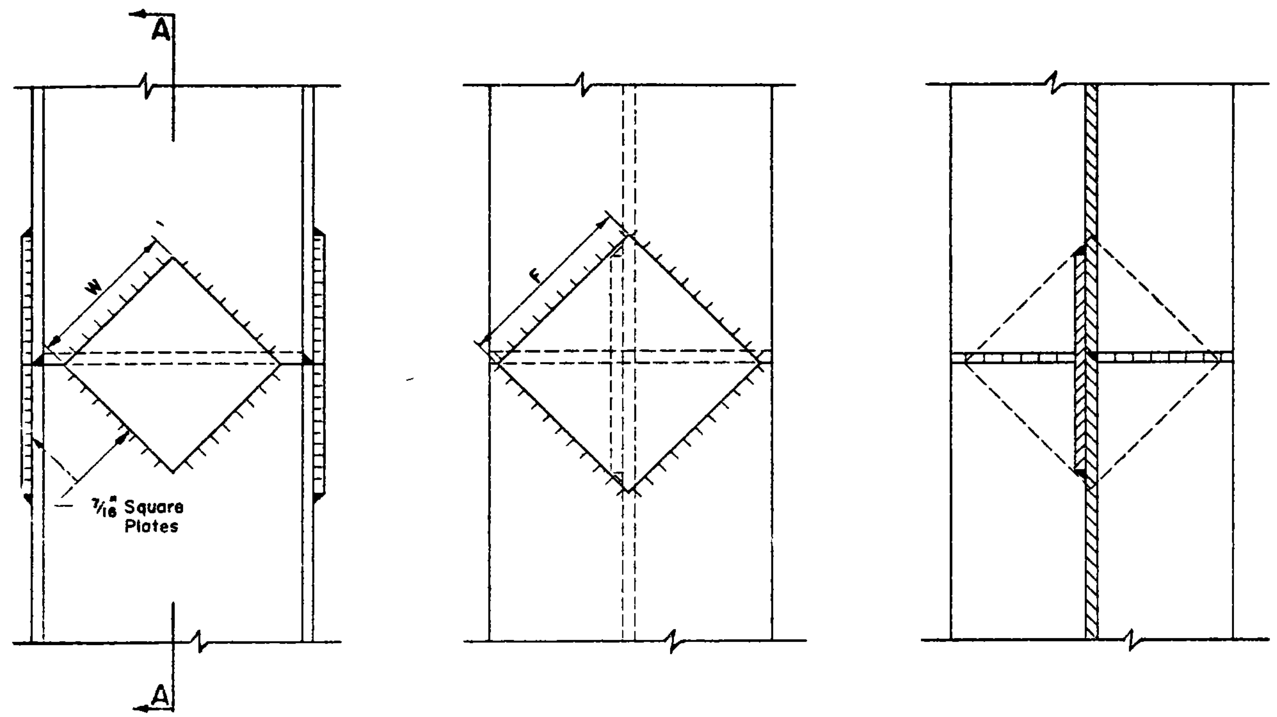
H-1346

DETAILS	MADE BY CEG	CHECKED BY JFE
TRACING	MADE BY THD	CHECKED BY CEG
QUANTITIES	MADE BY WEG / CEG	CHECKED BY THD / WEG

H-1346

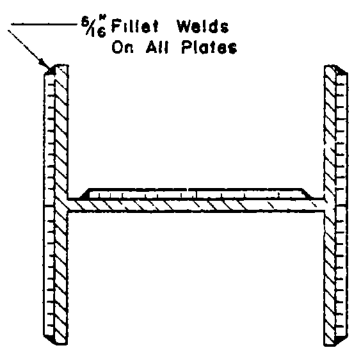
JULY 1959

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D	F ...		10	20



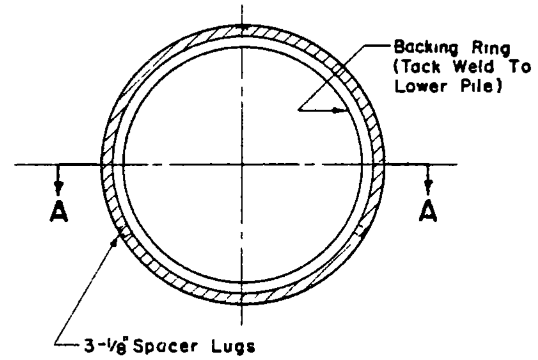
Flame Scarf Inside Of Both Flanges And One Side Of Web Of Upper Section

A - A

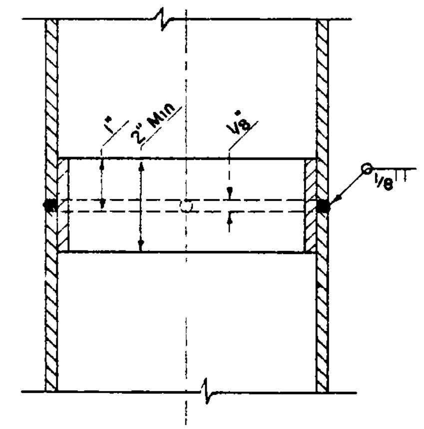


PILE	8"	10"	12"	14"
F FLANGE	5"	6½"	8"	10"
W WEB	4"	5½"	6½"	8"

H-PILE SPLICE DETAIL

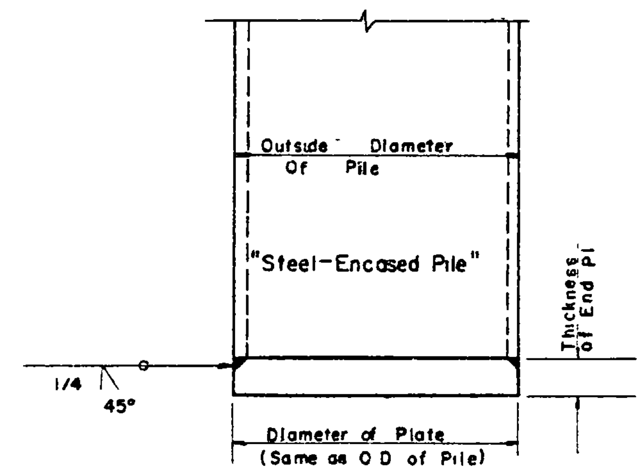


Backing Ring may be made from pile cut-offs or other material of a like quality.



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.

Revised 6-19-59

PILE SPLICE DETAILS

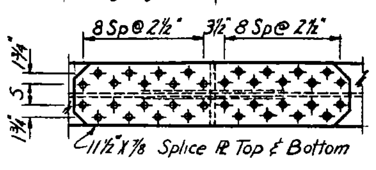
H-0401

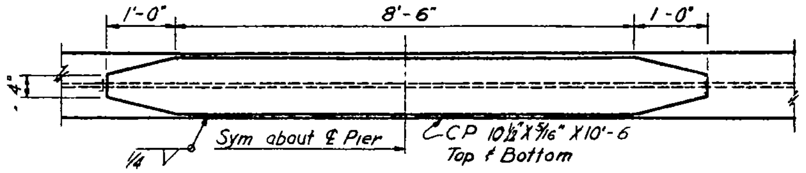
H-0401

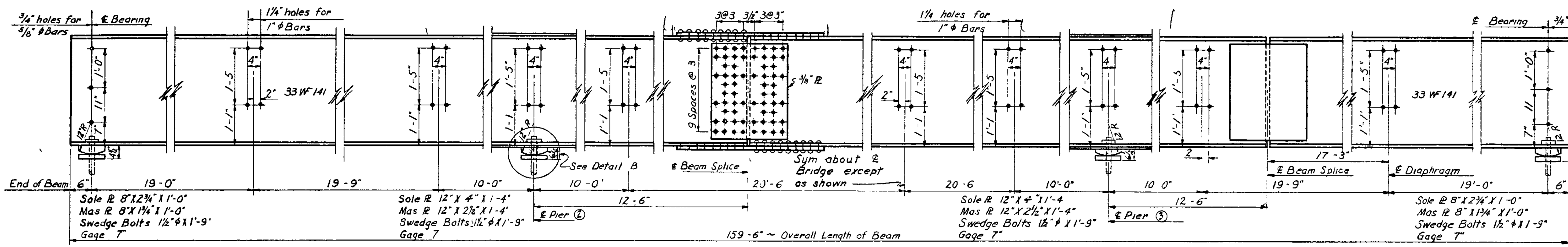
REVISIONS	MADE BY	CHK'D BY	DATE
Added End Plate Detail			6-19-59

DESIGN — ILS
TRACING — JGS, KJH
QUANTITIES

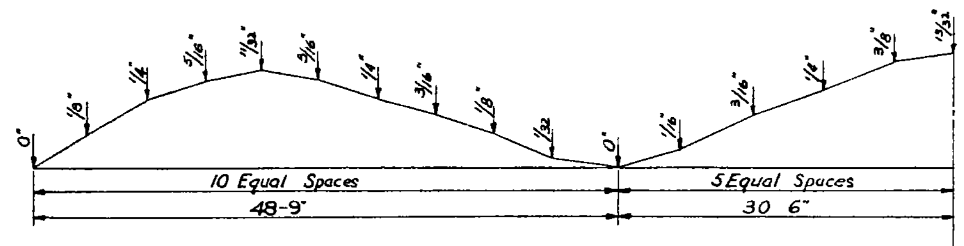
FED ROAD DIST NO	STATE	PROJ NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	N D			11	20







BEAM ELEVATION



FIELD RISER DIAGRAM

Showing dimension "a"

NOTES

GENERAL

All rivets are to be 7/8" Open holes are to be 15/16" except as noted

Field connections shall be made with high tensile strength bolts or shall be riveted

Paint and painting shall conform to the North Dakota Standard Specifications for Road and Bridge Construction, Section 60 & 132 17 All exposed steel surfaces shall be given one shop coat of red lead paint one spot coat of red lead paint after erection and concrete work is completed and two field coats of aluminum paint (first field coat tinted with Prussian Blue) No paint shop or field, or top of beams

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

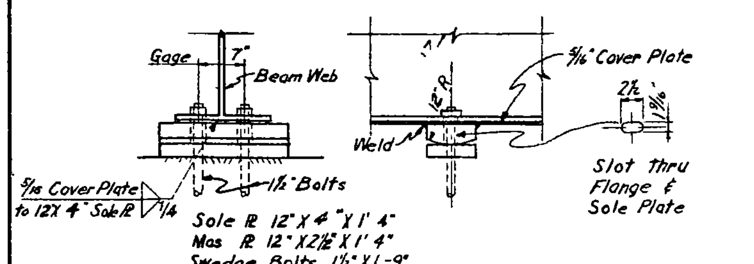
The Field Riser Diagram shows dimensions from an assumed chord drawn between ends of each span Additions or subtractions must be made to the riser dimensions to compensate for the tolerances in the beam and deflection due to the weight of the beam

STRUCTURAL STEEL

All Structural Carbon Steel shall conform to the latest ASTM A 36 Specifications (Fabricator may substitute ASTM A-7 steel for the bearing ℞ s, swedge bolts, and RA bars)

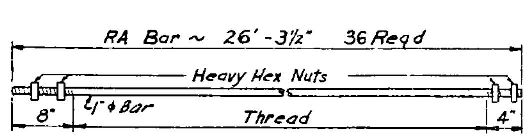
The metal-arc process shall be used for all shop and field fabrication All welding shall conform to the current "Standard Specifications for Welding Highway and Railway Bridges - Design Construction and Repair" of the American Welding Society

Welding will not be paid for directly, but shall be included in the unit price bid for structural steel



DETAIL B

Showing sliding bearing plates at Pier ②
Pier ③ bearing are the same, except holes through sole & flange plates shall be 1 9/16" ϕ instead of slotted.



RA BAR

Designed for 25 # FWS

QUANTITIES	
Structural Steel	102,019 lb

SUPERSTRUCTURE-
THREE SPAN
CONTINUOUS I-BEAM
OVERALL LENGTH 160 FT.
H20 S16 LOADING

H-1172-1

JULY, 1959

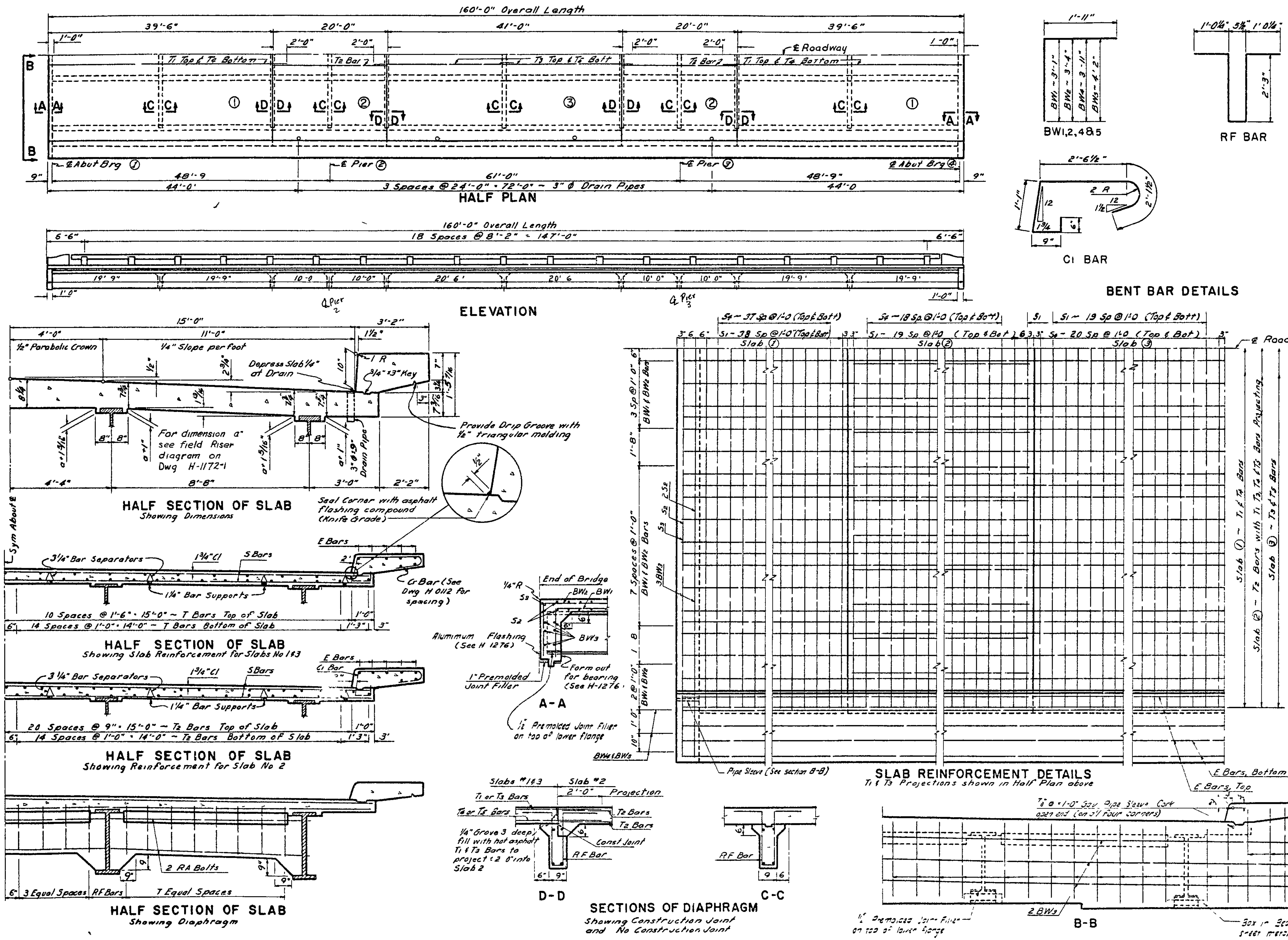
SIGN	
MADE BY	CEG
CHECKED BY	GFE
DETAILS MADE BY	JDS
CHECKED BY	CEG
TRACING MADE BY	JDS
CHECKED BY	CEG
QUANTITIES MADE BY	CEG
CHECKED BY	GFE

REVISIONS
Bearing Plates Revised
FWS Note Added

H-1172-1

REVISIONS	CHK'D BY	DATE
Removed Radius on Curb & Added Pipe Sleeves	GFE	7/1/63
Slab Thickness Revised	EWH	10/4/62
FW's Note Added	EWH	10/4/62
Slab Reinforcing Revised	EWH	10/4/62

DESIGN	MADE BY	CEG
	CHECKED BY	GFE
DETAILS	MADE BY	WEO
	CHECKED BY	GFE
TRACING	MADE BY	THD
	CHECKED BY	GFE
QUANTITIES	MADE BY	GFE
	CHECKED BY	CEG

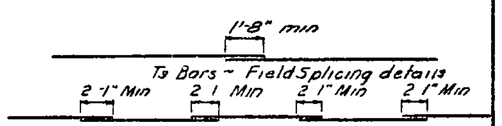


FED. ROAD DIST NO	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N D	[illegible]		12	20

BAR LIST

MARK	NO	SIZE	LENGTH	SHAPE
BW1	56	5	5'-0"	Bent
BW2	56	5	5 3"	"
BW3	12	5	36'-0"	Str.
BW4	12	5	5'10	Bent
BW5	12	5	6'-1	"
*C1	352	5	7'-0"	Bent
E	70	5	33'-9"	Str
RF	216	4	7'-0"	Bent
S1	320	5	31'-8"	Str
S2	6	5	36'-0"	"
S3	2	6	36'-0"	"
S4	312	6	31'-8"	"
T1	42	4	41' 3"	Str
T2	146	6	19'-9"	
T3	42	4	23' 6"	
T4	64	6	41'-9	
T5	64	6	24-3	"
*P10	72	5	3'-4	Bent
*P11	4	5	4'-0"	"
*P12	76	5	3-6	
*P13	80	3	3-8	
*P14	72	3	2'-8	
*RC	264	3	2'-8"	Bent
*R	60	5	31'-9"	Str

* See Drawing H 0112



R Bars ~ Field Splicing details in rail
E Bars ~ Field Splicing details in curb

Notes

The slab shall be placed in following sequence

1 Slab sections ①
2 Slab section ③
3 Slab sections ②

Each curb shall be placed in one continuous operation

Bevel all exposed edges with 3/4" triangular molding except as shown

Quantities shown below include handrail end posts

Rails and Posts shall be of Class HAE-- concrete

For railing details see Sheet No H 0112

Diaphragms in any section shall be poured and allowed to set at least 48 hours before the remaining section is poured

Designed for 25# F.W.S

QUANTITIES

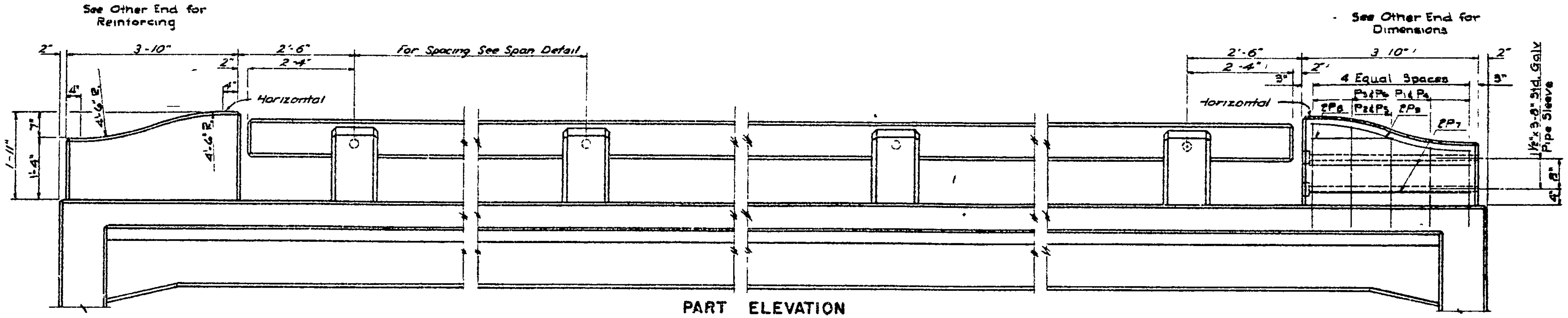
Concrete Class AE 2	178.5 C Y
Concrete Class HAE-4	8.0 C Y
Reinforcing Steel	43,379 Lb

SUPERSTRUCTURE
THREE SPAN
CONTINUOUS I-BEAM
OVERALL LENGTH 160'-0"
H 20 S 16 LOADING

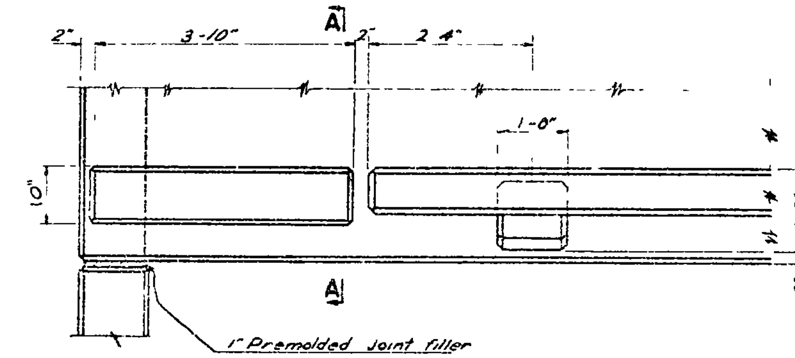
H-1172-2

July 1959

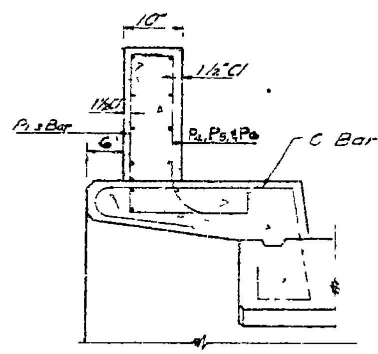
FED. ROAD DIV. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.
5	N. D.	[illegible]		13



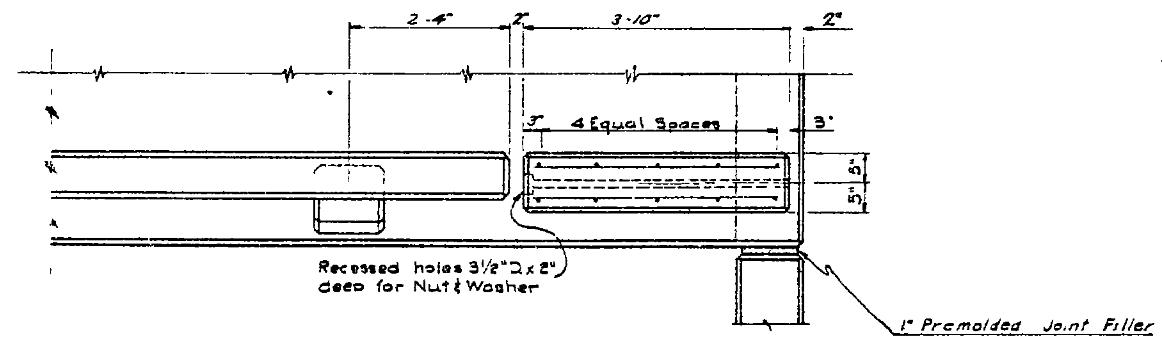
PART ELEVATION



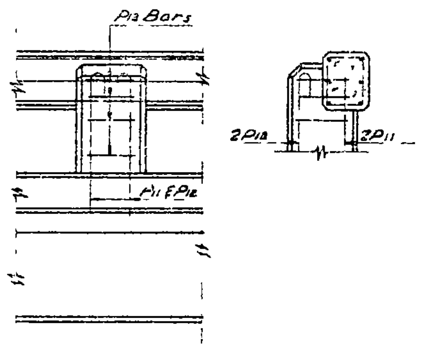
PART PLAN



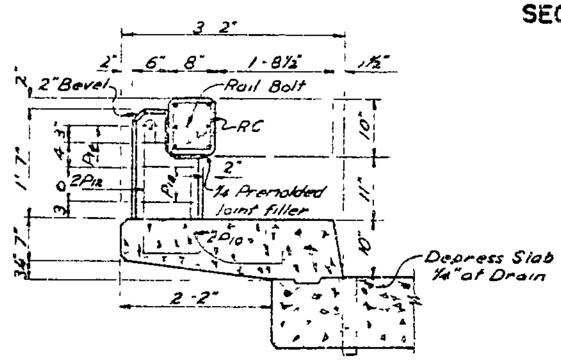
SEC A-A



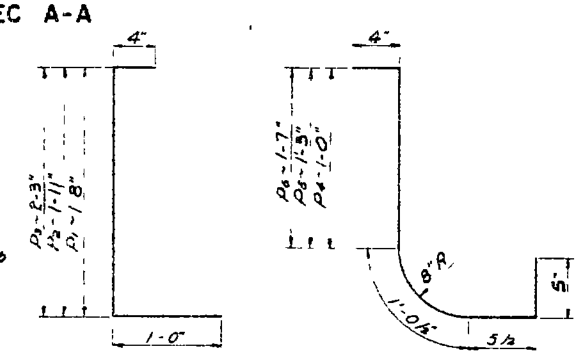
PART PLAN



ANCHOR POST DETAIL
See Layout For Placement



TYPICAL SECTION



P1, P2 & P3 BARS

P4, P5 & P6 BARS

BENT BAR DETAILS FOR END POSTS

NOTES:

All concrete above top of curb sh[...] be Class AAE-4 except concrete end pos[...]

"Rubbed Surface Finish" will be requ[...] for the roadway faces of curbs, [...] outside vertical faces of curb [...] slab, and all faces of rails, in[...]termediate and end posts. All o[...] surfaces shall be given the "Ord[...] Surface Finish"

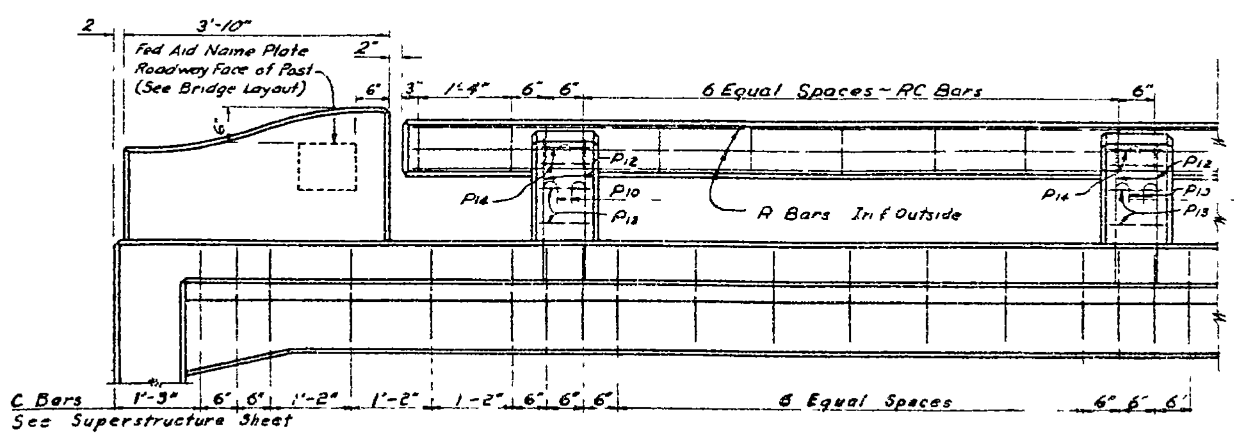
BAR LIST (BARS FOR RAILING AND POSTS)				
MARK	NO	SIZE	LENGTH	SHAPE
P10	*	5	3-4"	Bent
P11	*	5	4 0"	Bent
P12	*	5	3' 6"	Bent
P13	*	3	3 8"	Bent
P14	*	3	2' 8"	Bent
RC	*	3	2'-8"	Bent
R**	**	5	**	Str

* Number of bars shown on Superstructure Sheet
** Number Length & Splicing information of R bars shown on Superstructure Sheet

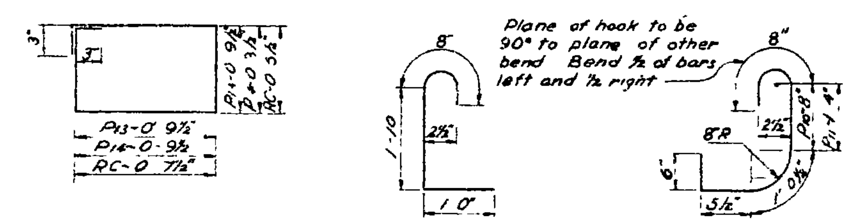
BAR LIST (4 END POSTS)				
MARK	NO	SIZE	LENGTH	SHA[PE]
P1	8	5	3-0"	Ben[t]
P2	4	5	3 3"	"
P3	8	5	3-7"	"
P4	8	5	3-3"	"
P5	4	5	3-6"	"
P6	8	5	3-10"	"
P7	16	4	3-6"	St[r]
P8	8	4	1-9"	Str
P9	8	5	3-9"	Field [...]

QUANTITIES ~ 4 END POSTS	
Concrete Class AE-2	0 8 [...]
Reinforcing Steel	221 [...]

* Railing and end post quan[ti]ties are included in slab qua[nti]ties on Superstructure Sheet



HAND RAIL DETAILS

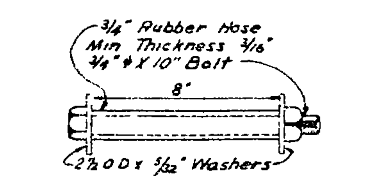


P13, P14 & RC BARS

P12 BARS

P10 & P11 BARS

BENT BAR DETAILS FOR RAILING POSTS & RAILING

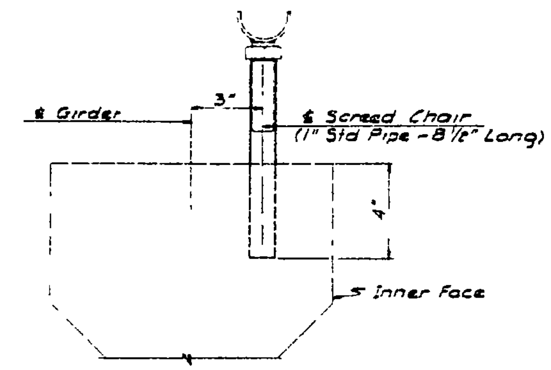


RAIL BOLT
(Galvanized)
(To be included in the unit price bid for Class A 1½ Concrete)

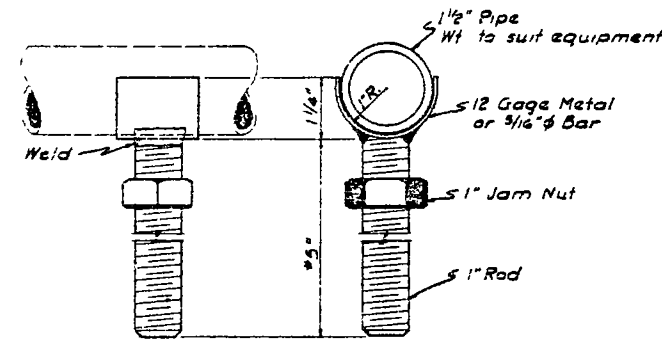
STANDARD RAILING
DETAILS

H-0112

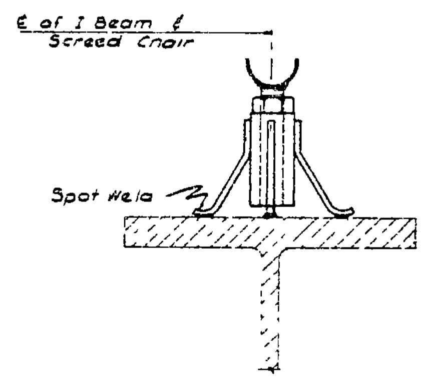
REVISIONS	MADE BY	CHK'D BY	DATE
Galvanized Rail Bolt	A.J.A.	GTE	4-23-55
Class of concrete	OAL	GTE	9-30-57

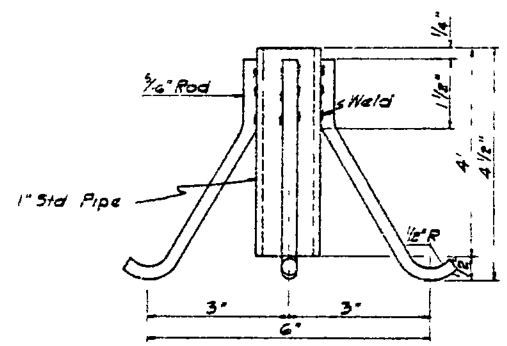


SCREED CHAIR IN PRESTRESSED GIRDER
(Outside Girders Only)



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





SCREED CHAIR*

I-BEAM WITH 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 [illegible] and screed holders shall [illegible] the property of the Contractor.

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

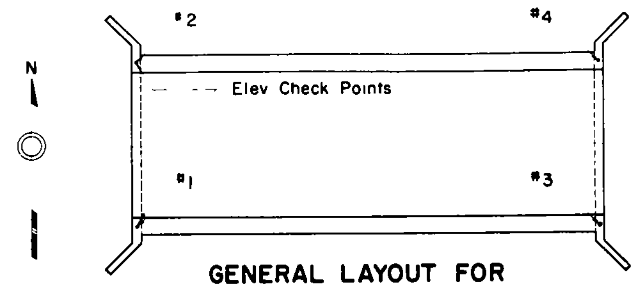
NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

SCREED CHAIR
AND
ADJUSTABLE SCREED
HOLDER

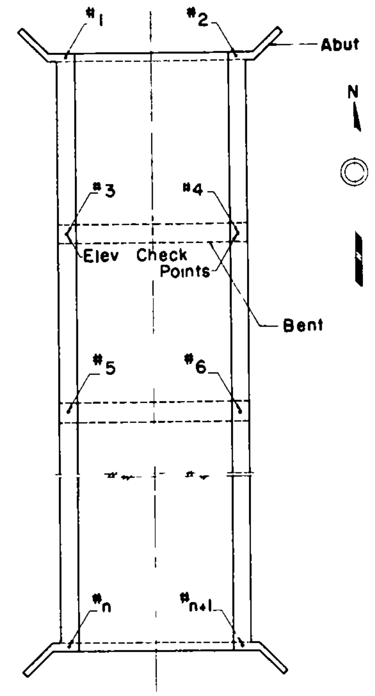
APPROVED
1-6-59
DATE
BRIDGE ENGINEER

H-0501

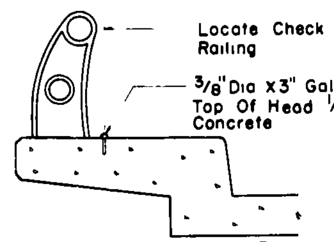
BRIDGE BENCH MARKS



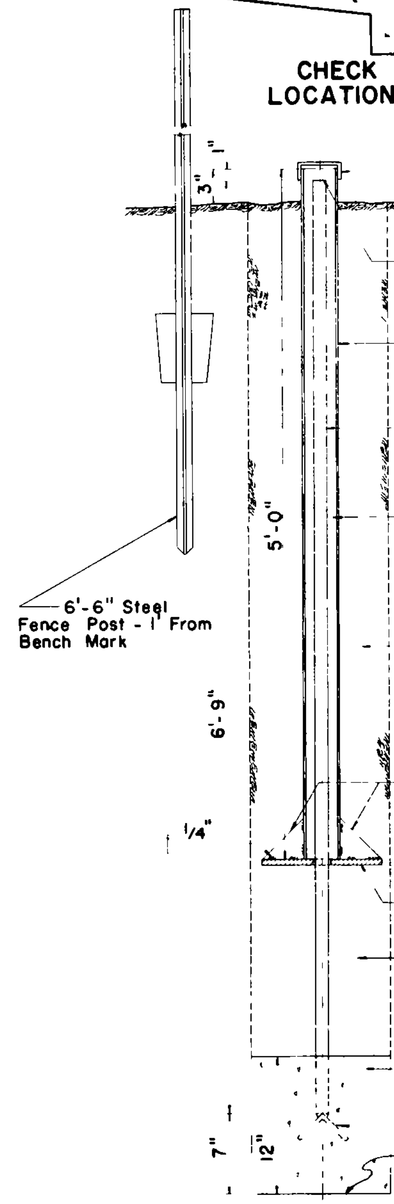
GENERAL LAYOUT FOR SINGLE SPAN



GENERAL LAYOUT FOR MULTIPLE SPAN



CHECK POINT LOCATION SKETCH



BENCH MARK DETAIL

NOTES

Elevation check points shall consist of 3/8"x 3" galvanized carriage bolt (or equal) set in the concrete curb at the points indicated on the General Layout Sketches. The top of bolt head shall project above the finished concrete 1/8". Elevation check points shall be placed on each curb over each unit of the substructure for each bridge at a structural location.

Two bench marks as detailed hereon shall be set at diagonal opposite positions away from the structure location and at least 300 feet from the nearest point on the bridge or bridges (if more than one at a location). These bench marks shall be constructed as detailed on this sheet and located near the Highway Right-of-way lines. The steel fence post shall extend 4'-0" above ground and be painted with two coats of white paint suitable for steel surfaces.

The Project Engineer shall run a set of levels determining the elevation of each check point on the structure and the two bench marks immediately after the completion of the bridge. This information shall be submitted to the Bridge Engineer with adequate information locating each check point and bench mark.

Except for fence posts all metal parts to be hot dip galvanized after punching, shearing, welding and fabrication.

Threads of cap and pipe are not to be galvanized. At time of installation these threads are to be coated with grease and cap screwed to snug fit.

METHOD OF MEASUREMENT

Each set of Bridge Bench Marks consisting of two bench marks and the required number of elevation check points shall be considered as one unit for bidding purposes and the quantity to be paid for shall be the number of sets of bridge bench marks which have been installed complete in place and accepted by the Engineer.

BASIS OF PAYMENT

Bridge Bench Marks shall be paid for at the contract price bid for each set of Bridge Bench Marks which price shall be full compensation for all excavation, backfill and clean-up and for furnishing, hauling and placing all elevation check points, fence posts, galvanized pipe, caps, rods, sand backfill, concrete, rock, equipment, tools and incidentals including galvanizing necessary to complete this item.

GALVANIZING

After fabrication the complete assembly shall be Hot Dip Galvanized

Revised 10-20-59
Revised 6-9-59

NORTH DAKOTA
STATE HIGHWAY DEPARTMENT

Submitted Joseph R. Kirby
Bridge Engineer

Recommended [signature]
Director Staff Division

Approved [signature]
Chief Engineer

Date 3-3-58