

Bridge #

29-094.196

JOB# 19

STATE	PROJECT NO.	PCN	SHEET NO.
ND	SIM-9-999(143)	14279	1

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

RICHLAND, CASS, TRAILL & GRAND FORKS COUNTIES

SIM-9-999(143)

CLEANING AND PAINTING
STRUCTURAL STEEL SURFACES ON
TWELVE BRIDGES ALONG INTERSTATE 29

GOVERNING SPECIFICATIONS:

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

INDEX OF DRAWINGS

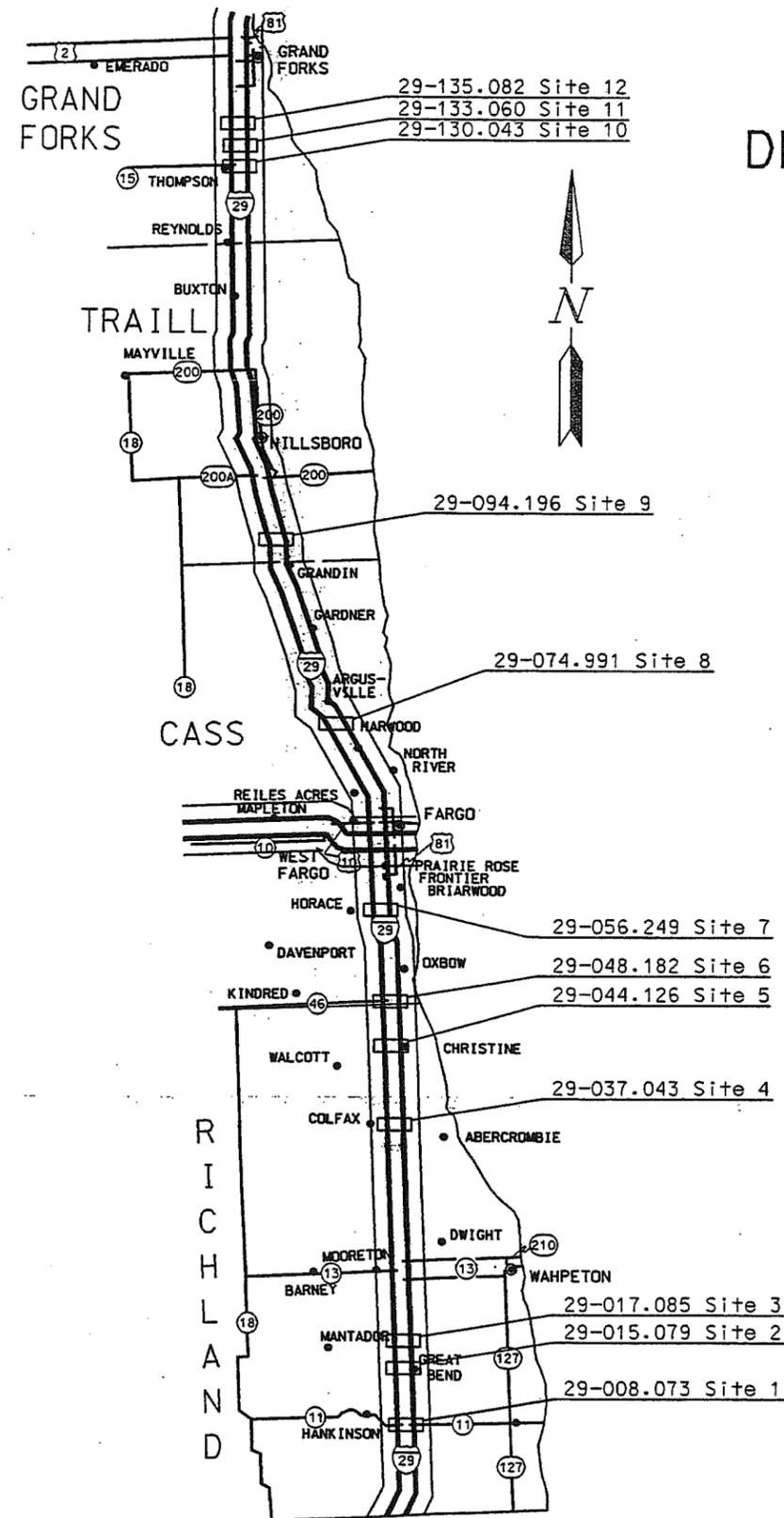
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATE OF QUANTITIES
3	BASIS OF ESTIMATE AND NOTES
4-5	STRUCTURAL STEEL PAINTING DETAILS

SPECIAL PROVISIONS

SP 357(97) BRIDGE PAINTING

LIST OF STANDARD DRAWINGS

D-704-8	BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS
D-704-9, 10, 11, 12	CONSTRUCTION SIGN DETAILS
D-704-13	BARRICADE DETAILS
D-704-14	CONSTRUCTION SIGN AND BARRICADE ASSEMBLY DETAILS
D-704-35	SIGN LAYOUT FOR ONE LANE CLOSURE INTERSTATE SYSTEM



SITE LOCATIONS

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

APPROVED DATE March 23, 2001

Terrence R. Udland
BRIDGE ENGINEER
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION



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

APPROVED DATE 3/23/2001

Francis J. Ziegler
OFFICE OF INFRASTRUCTURE SUPPORT
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

ESTIMATE OF QUANTITIES

STATE	FED. AID PROJ. NO.	SHEET NO.
N.D.	SIM-9-999 ((143))	2

SPEC CODE	ITEM DESCRIPTION	UNIT	I29 BRIDGES	TOTAL
-----		-----	-----	-----
103	0100 CONTRACT BOND	L SUM	1	1
630	0120 CLEANING & PAINTING	L SUM	1	1
702	0100 MOBILIZATION	L SUM	1	1
704	0100 FLAGGING	MHR	65	65
704	1100 TRAFFIC CONTROL	L SUM	1	1

STRUCTURAL STEEL PAINTING ~ BASIS OF ESTIMATE

SITE	BRIDGE NO.	DISTRICT	LOCATION	AREAS TO BE PAINTED	SPANS	GIRDER LENGTH	FINISH COLOR	COLOR NO.	AREA (SF)	SPOT COAT (SF)	TOTAL (SF)
1	29-008.073	Fargo	Hankinson Interchange	Fascia Girders & Spot Paint	2	233'-8"	Blue-Gray	25184	3230	300	3530
2	29-015.079	Fargo	Great Bend Interchange	Fascia Girders & Spot Paint	2	233'-8"	Blue-Gray	25184	3145	300	3445
3	29-017.085	Fargo	Mantador Separation	Fascia Girders & Spot Paint	2	233'-8"	Maroon	10076	3105	100	3205
4	29-037.043	Fargo	Colfax Interchange	Fascia Girders & Spot Paint	2	233'-8"	Maroon	10076	2995	300	3295
5	29-044.126	Fargo	Christine Interchange	Fascia Girders & Spot Paint	2	233'-8"	Maroon	10076	3145	300	3445
6	29-048.182	Fargo	Kindred Interchange	Fascia Girders & Spot Paint	2	233'-8"	Green-Gray	24300	3230	300	3530
7	29-056.249	Fargo	Horace Interchange	Fascia Girders & Spot Paint	2	233'-8"	Green-Gray	24300	2995	300	3295
8	29-074.991	Fargo	Amenia Separation	Fascia Girders & Spot Paint	4	279'-7 1/4"	Green-Gray	24300	2955	200	3155
9	29-094.196	Fargo	Galesburg Separation	Fascia Girders & Spot Paint	4	264'-8"	Green-Gray	24300	2780	100	2880
10	29-130.043	Grand Forks	Thompson Interchange	Fascia Girders & Spot Paint	4	264'-8"	Green-Gray	24300	2770	400	3170
11	29-133.060	Grand Forks	Walle Separation	All Exposed Structural Steel	4	263'-8"	Blue-Gray	25184	8730	---	8730
12	29-135.082	Grand Forks	Merrifield Separation	Fascia Girders & Spot Paint	4	298'-4 1/4"	Maroon	10076	3205	200	3405
TOTAL									42,285	2,800	45,085

NOTES:

100 SCOPE OF WORK: This project consists of cleaning and painting the fascia surfaces of exterior girders and miscellaneous spot coating of deteriorated areas on all remaining painted surfaces for Sites 1-10 and 12. All exposed structural steel shall be cleaned and painted for Site 11.

630 CLEANING AND PAINTING: All structural steel surfaces that are to be painted shall be cleaned and painted according to Special Provision 357(97). The finish coats at each site shall be the color shown in the above table and shall meet Federal Standard No. 595B colors.

The contractor shall shroud the work area to protect the motor-ing public. Shrouding shall be capable of preventing dust and paint overspray from reaching passing traffic and causing vehicle damage or impairing motorist visibility. The cost for protecting traffic at each site shall be included in the lump sum bid item "Cleaning & Painting."

Plan Sheets 29-008.073-2 and 29-008.073-3 show the approximate surface area of structural steel to be painted at each site. A complete set of plans for each structure can be viewed at the NDDOT Bridge Division.

704 TRAFFIC CONTROL: The traffic control shall be according to Standard Drawing D-704-35 for all sites. The traffic control shall be set up only while work is going on at the sites during daylight hours. The traffic control shall be removed and normal traffic operations restored at the end of each workday. All traffic control devices, labor and equipment required for traffic control at all twelve sites shall not be bid separately but shall be included in the lump sum bid item "Traffic Control."

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
630	0120	CLEANING & PAINTING	L SUM	1

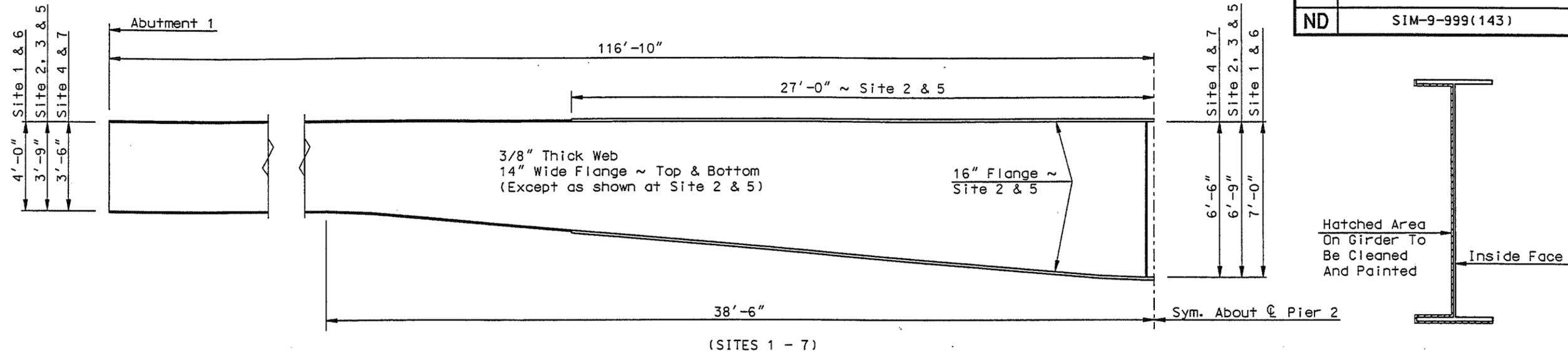
SPECIAL PROVISIONS

SP 357(97)	BRIDGE PAINTING
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BRIDGES ALONG I-29
(TWELVE SITES)

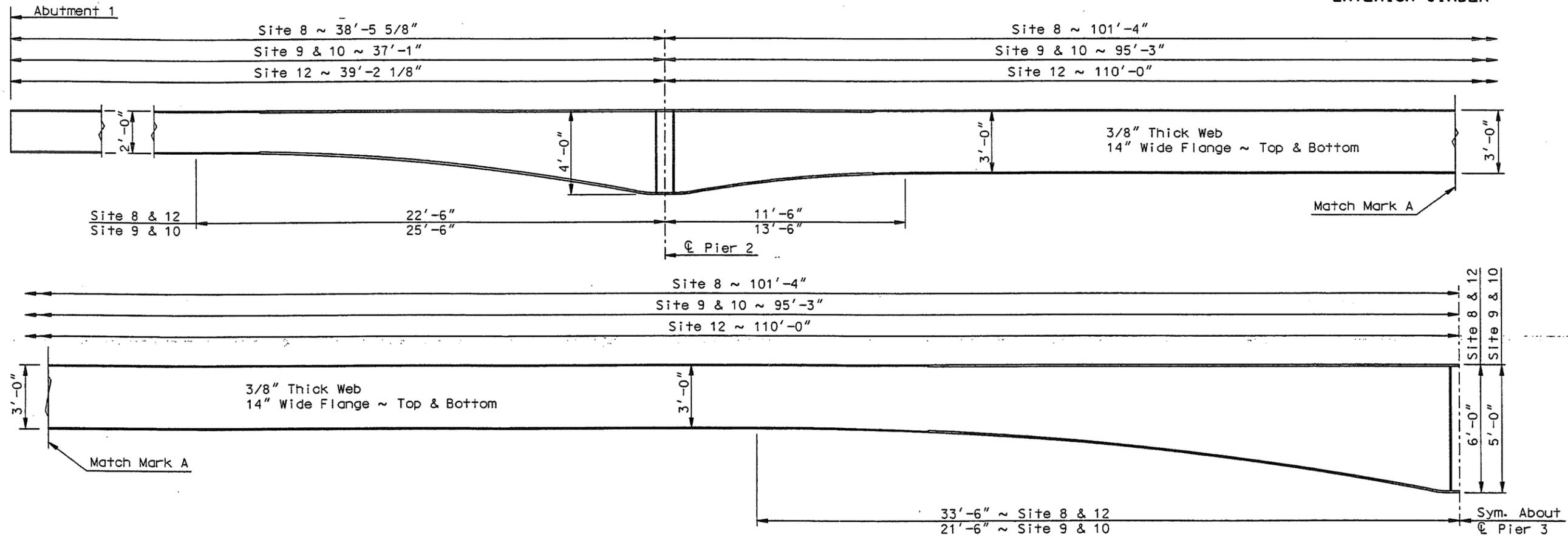
**STRUCTURAL STEEL PAINTING
BASIS OF ESTIMATE & NOTES**

STATE	PROJECT NUMBER	SHEET NO.
ND	SIM-9-999(143)	4



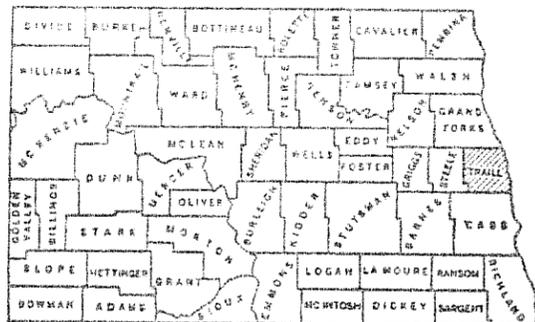
(SITES 1 - 7)
PARTIAL GIRDER ELEVATION

EXTERIOR GIRDER

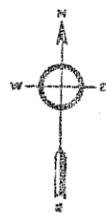


(SITES 8 - 10 & 12)
PARTIAL GIRDER ELEVATION

SITES 1 - 10 & 12
STRUCTURAL STEEL
PAINTING DETAILS



SKETCH-MAP OF NORTH DAKOTA SHOWING COUNTIES



SCALES
 LAYOUT SHEET 1 IN. = 5000 FT
 PLAN AND PROFILE DRAWINGS 1 IN. = 100 FT
 STRUCTURAL DRAWINGS 1/2 IN. = 10 FT
 CROSS SECTION SHEETS 1 IN. = 20 FT

NORTH DAKOTA STATE HIGHWAY DEPARTMENT

PLANS

FOR THE PROPOSED IMPROVEMENT OF A
STATE HIGHWAY
 IN TRAILL COUNTY
 FEDERAL AID PROJECT NO. 1-29-2(25) 94
STRUCTURAL

INDEX OF DRAWINGS

SHEET NO. 1	TITLE PAGE & SUMMARY OF QUANTITIES
SHEET NO. 2	TYPICAL SECTION & SIGNING
SHEET NO. 3	PLAN AND PROFILE DRAWING
SHEET NO. 4	TO 7 INCL. PLAN AND PROFILE DRAWING
SHEET NO. 5	TO 33 INCL. STRUCTURAL DRAWING
SHEET NO. 34	TO 46 INCL. CROSS SECTION

GOVERNING SPECIFICATIONS
 Standard Specifications adopted by the North Dakota State Highway Department Jan. 1965 and approved as standard by the Bureau of Public Roads June 23, 1965. Requirer Contract Provisions (Form-PR-1273) dated October 1968 and others submitted herewith.

KEY TO CONVENTIONAL SIGNS

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

LENGTH OF PROJECT	
PROJECT MILES-GROSS	MILES-NET
1-29-2(25) 3.137	0.000
TOTALS	3.137 0.000

DESIGN DATA

TRAFFIC	AVERAGE DAILY	EST. WITH MAX. HR.
CURRENT TRAFFIC 1968	2210 PASS 390 TRUCKS 2600 TOTAL 390	
TRAFFIC FORECAST 1985	4860 PASS 860 TRUCKS 5720 TOTAL 650	
DESIGN SPEED	70 MPH	
TRAFFIC CLASSIFICATION	"M"	
MINIMUM SIGHT DISTANCE (NON PASSING)	600'	
FULL CONTROL OF ACCESS.		
NO POINT OF ACCESS OTHER THAN BY RAMPS AT INTERCHANGES.		

STA.	CLEAR ROWY WIDTH	DESIGN LOADING
215+08.2	30'	H ₂₀ (1944)
380+72.5	30'	H ₂₀ (1944)

SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS

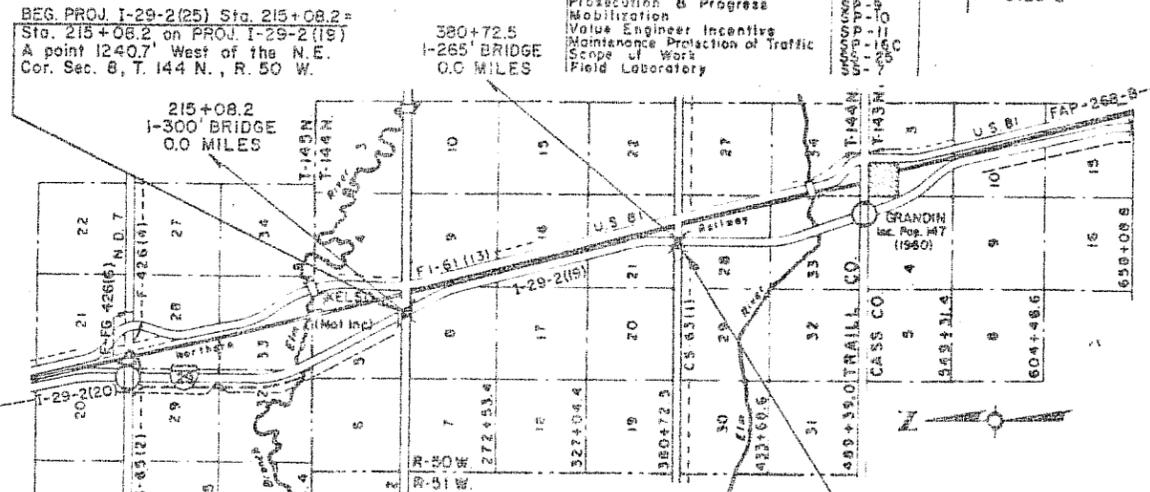
NAME	NO.
Piling	1
Conc. Slope Protection	2
Backfill	3
Conc. Structures	4
Reinforcement	5
Struct. Steel	6
Painting	7
Quick Setting Anchor Grout	8
Bidding Requirements & Conditions	9
Legal Relations & Resp. to the Public	10
General Statement	11
Procurement & Progress	12
Mobilization	13
Value Engineer Incentive	14
Maintenance Protection of Traffic	15
Scope of Work	16
Field Laboratory	17

LIST OF STRUCT. ST'D'S. SHEET NO.

H-0401	20
H-0153	21
H-0501	22
H-1299	26
H-1371	27
H-1372	28
H-5120	29
H-5121	30
H-5122	31
H-5123-1	32
H-5123-2	33

LIST OF STANDARDS STD. NO.

Slope Protection	7.5A
Federal Aid Name Plate	14.9B
Bridge Bench Marks	7.6
Const. Ident. Sign	14.25
Standard Signs	14.1A-1 thru 14.1A-10



LAYOUT MAP
 SCALE IN FEET
 0 3000

The bridge approach embankments are under contract and are in various stages of completion. Until the bridge approach embankments are completed the Structural Contractor's progress will be dependent upon the Grading Contractor's progress. During this period the time charged for work performed on the structural contract shall be computed by multiplying the number of working days allowed for the performance of the work shown in the contract as awarded, by the ratio of the amount of work earned to the original contract amount. After completion of the bridge approach embankments, time will be charged according to Section 108-6 of the Standard Specifications.

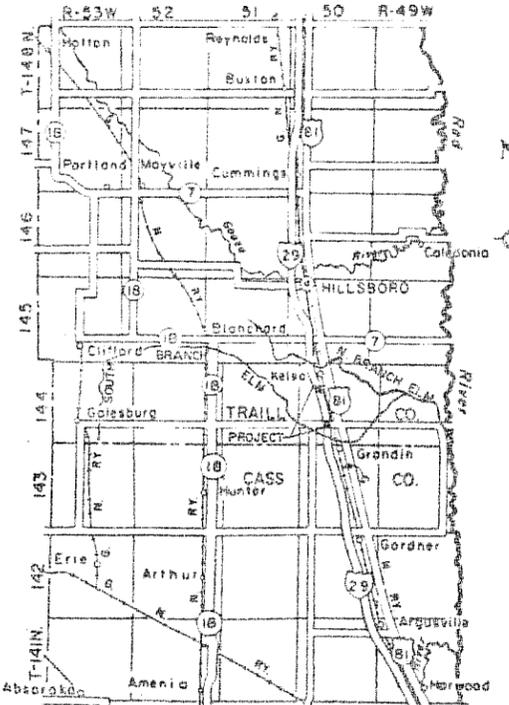
CONSTRUCTION IDENTIFICATION SIGNS - To be installed at Sta. 24+50 Lt. Kelso X-Rd. and Sta. 24+50 Lt. Galesburg X-Rd.

The grading & structural contractors shall conduct their individual operations to the mutual benefit of each other. See Sec. 105-7 of the 3rd Spec.

Aggr Surface Crse. has been prov on the grading contract for the Crossroads. In the event that structural work has not progressed sufficiently to allow the grading contractor to install this item of the structure ends, the structural contractor shall install this item in accordance with the plan. The grading contractor will furnish the materials at the site. Temp. curbing shall be installed (See Sheet # 3). The cost of this work shall be incidental to other items.

The grading contractor shall be responsible for maintenance and protection of traffic while the grading contract is active. The structural contractor shall be responsible for maintenance and protection of traffic on the detours as soon as he begins work if the grading contract is complete, or suspended while the structural contract is active. The detours will be removed on the future surfacing contract. The cost of maintenance of detours and protection of traffic shall be paid for as maintenance and protection of traffic (Two X-Road Detours).

SPEC. NO.	QUANTITIES																				
	208	228	610	610	610	612	616	616	622	622	622	622	750	704	756	746					
CODE NO.	0100	0100	1112	1134	0138	0110	0362	4412	0020	0040	1370	1410	0510	0570	0100	0100	3000	0100	7520	3331	0100
LOCATION	CLASS I EXCAVATION	SELECT BACKFILL	CLASS AE-1 CONCRETE (SUBSTRUCT)	CLASS AE-3 CONCRETE (Y-BEAM SUPERSTRUCT)	CLASS AE-3 CONCRETE (RAILING)	REINFORCING STEEL	GRADE 40 STRUCTURAL STEEL (A-36)	WELDED BEAM STRUCTURAL STEEL (A-44)	WELDED BEAM STRUCTURAL STEEL (A-44)	STEEL PILING (10BP42)	STEEL PILING (12BP33)	STEEL TEST PILES (12BP53)	STEEL TEST PILES (10BP42)	LINSEED OIL TREATMENT	CONC. SLOPE PROTECTION	BRIDGE BENCH MARKS	FIELD LABORATORY MOBILIZATION	MAINTENANCE & PROTECTION OF TRAFFIC 2-2-CROSS ROAD DETOURS	FLAGGING		
	CY.	CY.	CY.	CY.	CY.	LB.	LB.	LB.	Lin. Ft.	Lin. Ft.	EA.	EA.	Gal.	S.Y.	Set	EA.	Lump Sum	Lump Sum	Man Hr's.		
215+08.2	230	195	1392	293.4	19.28	113,535	29,900	172,200	770	1,745				48	504						100
380+72.5	195	150	1268	259.6	17.13	101,575	26,000	140,400	860	1,905				42	480						100
TOTAL	425	345	2660	553	36	215,110	55,900	312,600	1630	3650				90	984	2					200



SKETCH MAP OF PARTS OF CASS & TRILL COUNTIES

APPROVED DATE: 10-14-69

Chief Engineer
 NORTH DAKOTA STATE HIGHWAY DEPARTMENT

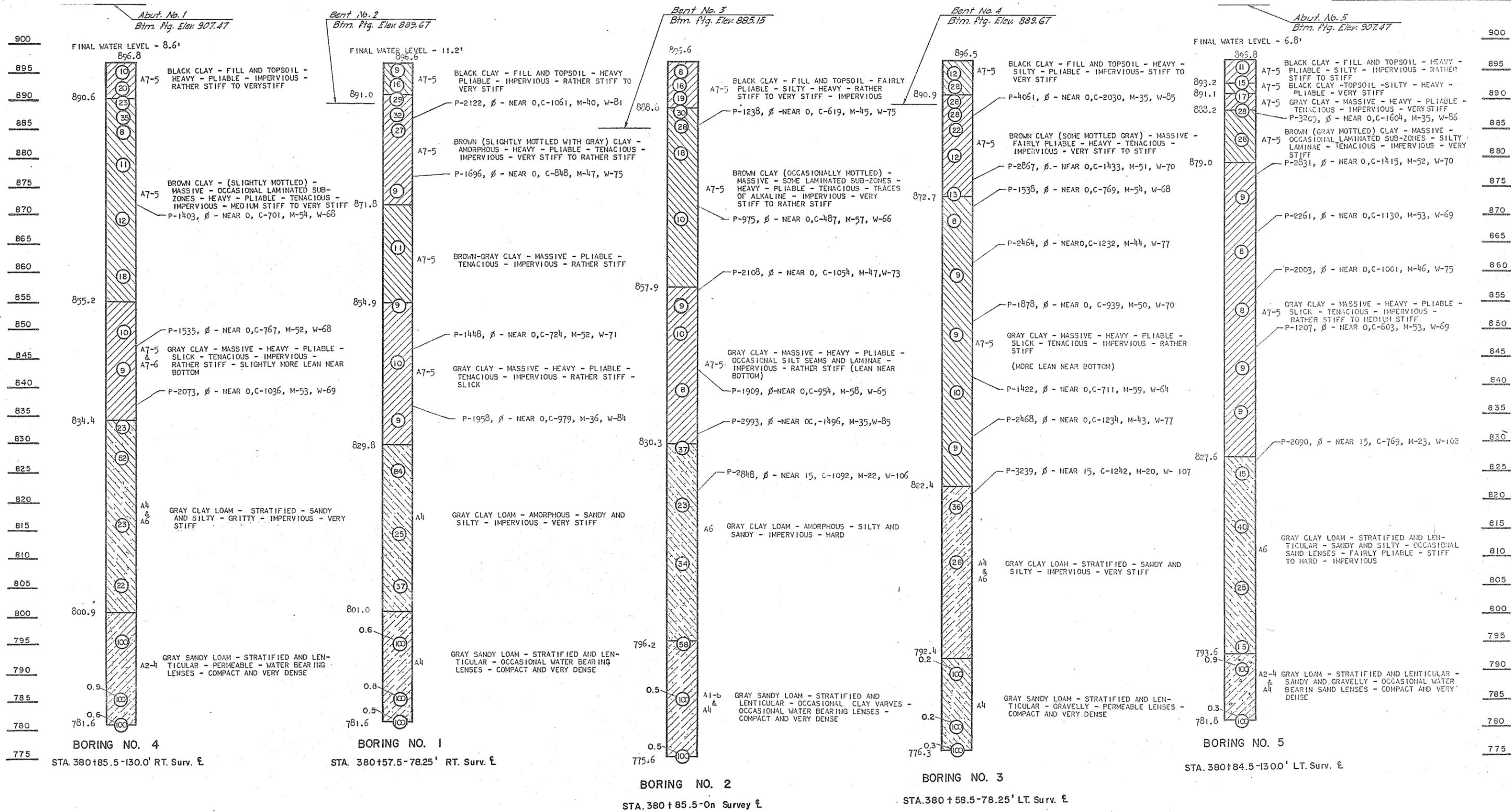


Quantity Totals have been rounded off to the nearest whole unit for bidding purposes.

U.S. DEPARTMENT OF TRANSPORTATION
 FEDERAL HIGHWAY ADMINISTRATION
 BUREAU OF PUBLIC ROADS

APPROVED _____ DATE _____
 DIVISION ENGINEER

Plotted by JLS Aug. 8, 1966



SYMBOLS:
P- MAXIMUM LOAD (LBS/SQ.FT.)
 β - SHEAR ANGLE (DEGREES)
C- COHESION (LBS/SQ.FT.)
M- MOISTURE (PER CENT)
W- DRY WEIGHT (LBS/CU.FT.)

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.

BRIDGE NO. 29-65

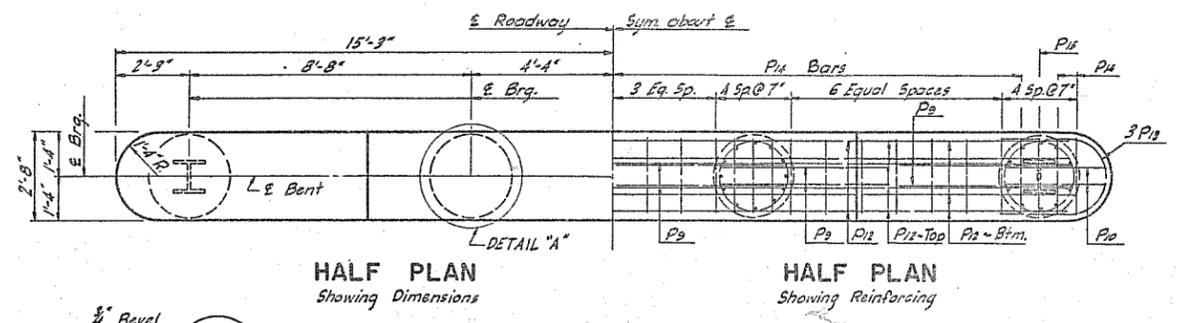
BORING LOG

I-29-2(25)

TRAILL COUNTY

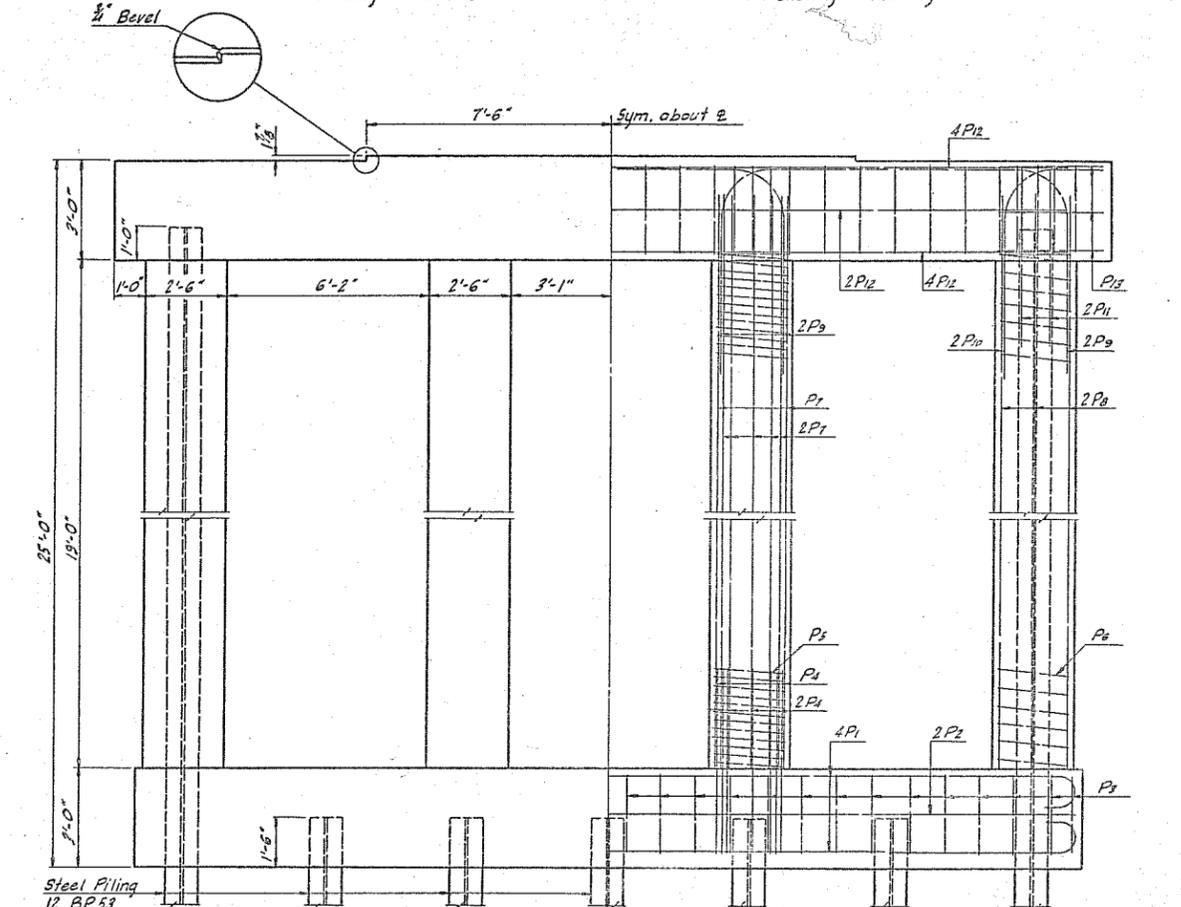
29-65-2

29-65-2



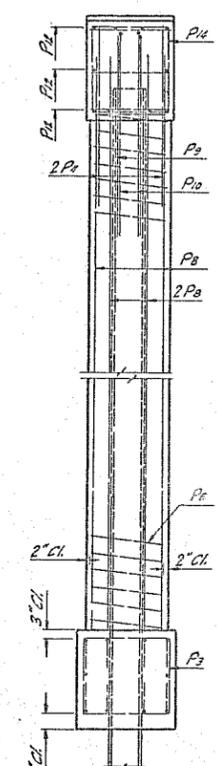
HALF PLAN
Showing Dimensions

HALF PLAN
Showing Reinforcing

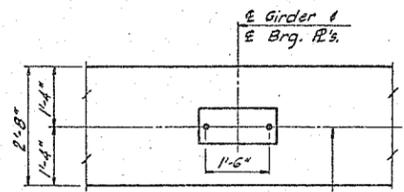


HALF ELEVATION
Showing Dimensions

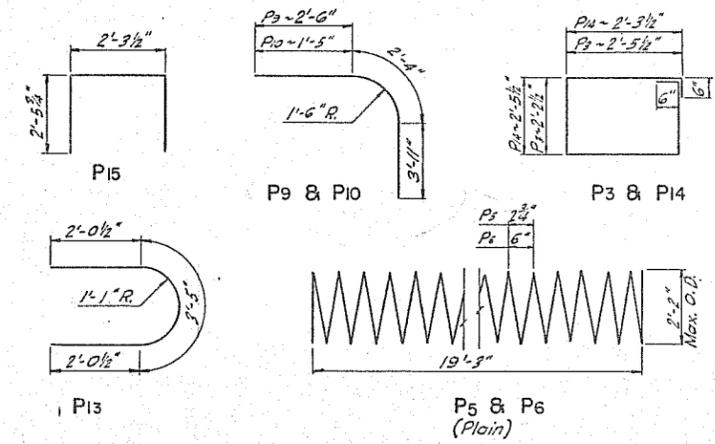
HALF ELEVATION
Showing Reinforcing



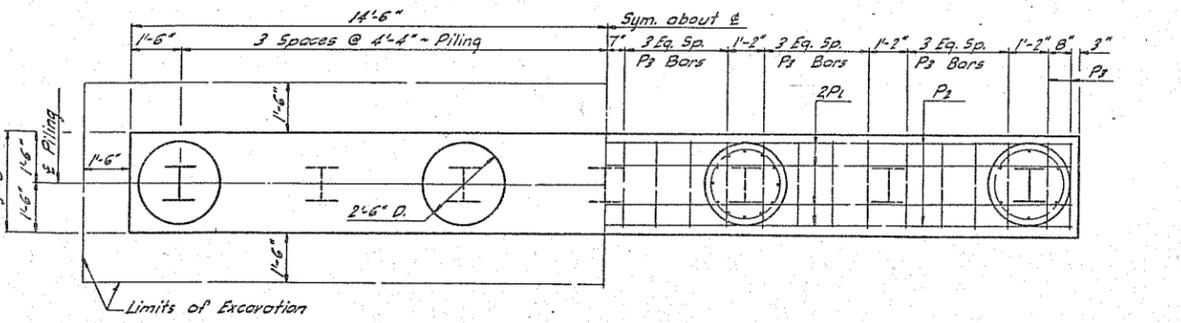
END VIEW



DETAIL "A"



BENT BAR DETAILS



HALF FOOTING PLAN
Showing Dimensions

HALF FOOTING PLAN
Showing Reinforcing

BENT BAR LIST (ONE BENT)						
MARK	NUMBER	SIZE	LENGTH	SHAPE		
P1		8	10	31'-0"	Bent	
P2		2	5	28'-6"	Str.	
P3		28	5	10'-1"	Bent	
P4		24	7	5'-6"	Str.	
P5	2	4	531'-0"	Spiral		
P6	2	2	279'-0"			
P7	24	7	21'-0"	Str.		
P8	12	5	21'-0"			
P9	12	8	8'-9"	Bent		
P10	4	8	7'-9"			
P11	8	6	5'-6"	Str.		
P12	10	6	28'-0"			
P13	6	5	7'-6"	Bent		
P14	39	5	10'-6"			
P15	2	5	7'-3"			
SR2	1	4	3'-8"	Str.		
SR3	1	5	4'-0"			
SR4	1	6	4'-6"			
SR5	1	7	5'-0"			
SR6	1	8	5'-4"			

NOTE:
The concrete in the columns shall be allowed to set at least two (2) hours before the bent cap reinforcing is placed and concrete poured.
All exposed edges to be beveled with 3/4" triangular molding.

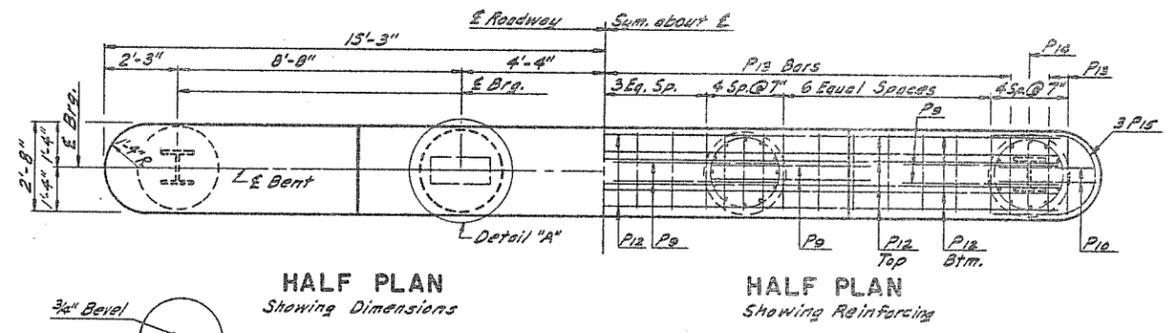
* Sample replacement bar to be spliced to bar from which 2'-0" sample has been cut. Furnish only one set for the entire bridge. This is not a pay item and shall be included in the unit price bid for reinforcing steel.

QUANTITIES (ONE BENT)	
Class AE-1 Concrete	32.6 Cu Yd
Reinforcing Steel	5249 Lb
Steel Piling (See Layout)	
Excavation (See Layout)	

25'-0" BENT DETAIL
WELDED GIRDER SPANS
30'-0" ROADWAY
H20 LOADING

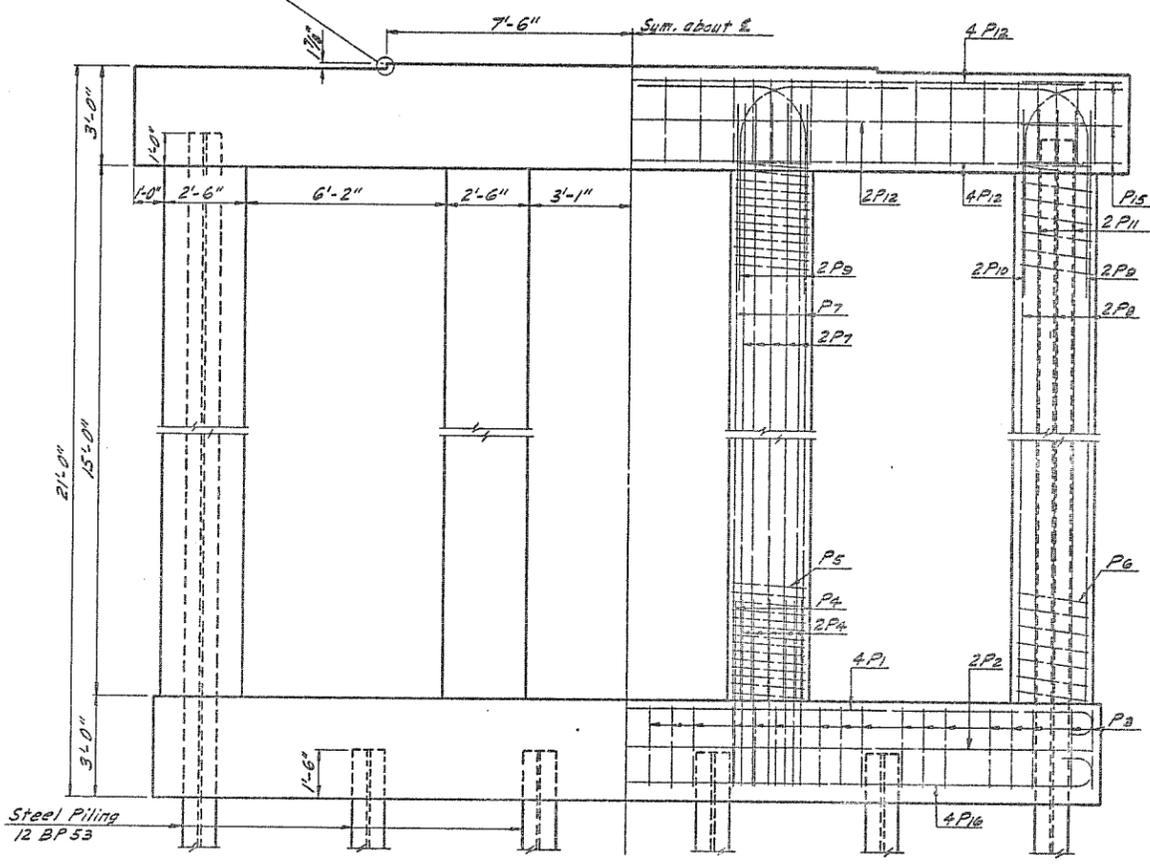
DESIGN: MADE BY M.E.W. CHECKED BY D.A.R.
 DETAILS: MADE BY G.A.L. CHECKED BY L.F.G.
 TRACING: MADE BY G.A.L. CHECKED BY L.F.G.
 QUANTITIES: MADE BY L.F.G. CHECKED BY G.A.L.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.			18	



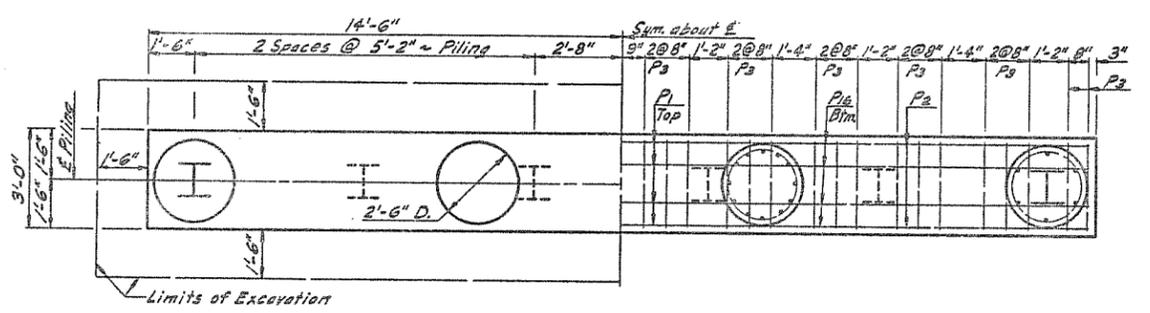
HALF PLAN
Showing Dimensions

HALF PLAN
Showing Reinforcing



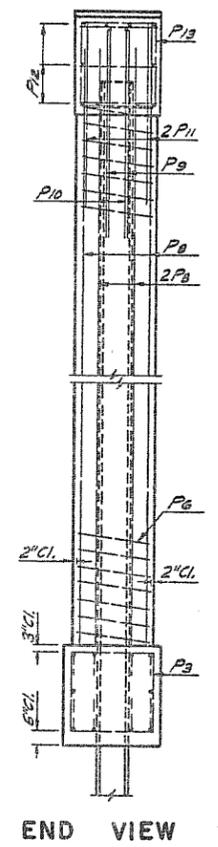
HALF ELEVATION
Showing Dimensions

HALF ELEVATION
Showing Reinforcing

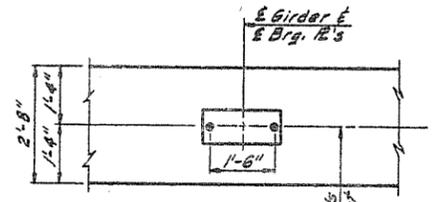


HALF FOOTING PLAN
Showing Dimensions

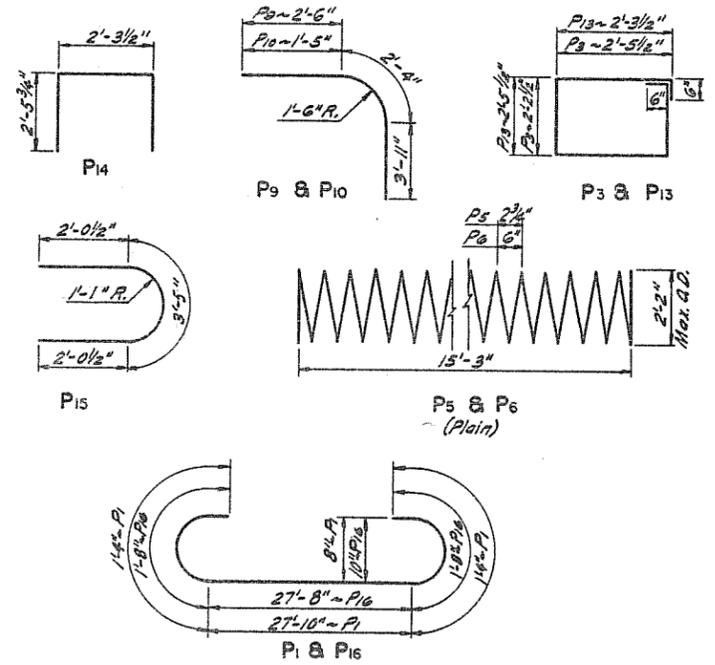
HALF FOOTING PLAN
Showing Reinforcing



END VIEW



DETAIL "A"



BENT BAR DETAILS

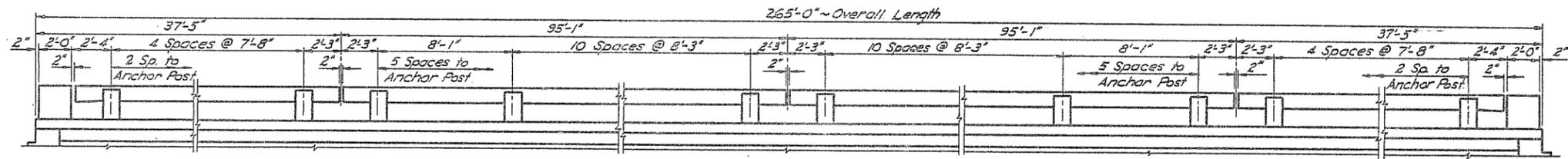
BENT BAR LIST (ONE BENT)					
MARK	NUMBER	SIZE	LENGTH	SHAPE	
	CAP	COLUMN	FOOTING		
P1			4	8	30'-6" Bent
P2			2	5	28'-6" Str.
P3			3	5	10'-4" Bent
P4			2	7	5'-6" Str.
P5	2		4	4	46'-0" Spiral
P6	2		3	225'-0"	"
P7	24		7	17'-0"	Str.
P8	12		5	17'-0"	"
P9	12		8	8'-3"	Bent
P10	4		8	7'-8"	"
P11	8		6	5'-6"	Str.
P12	10		6	28'-0"	"
P13	33		5	10'-6"	Bent
P14	2		5	7'-3"	"
P15	6		5	7'-6"	"
P16		4	10	31'-0"	"

NOTE:
The concrete in the columns shall be allowed to set at least two (2) hours before the bent cap reinforcing is placed and concrete poured.
All exposed edges to be beveled with 3/4" triangular mauling.

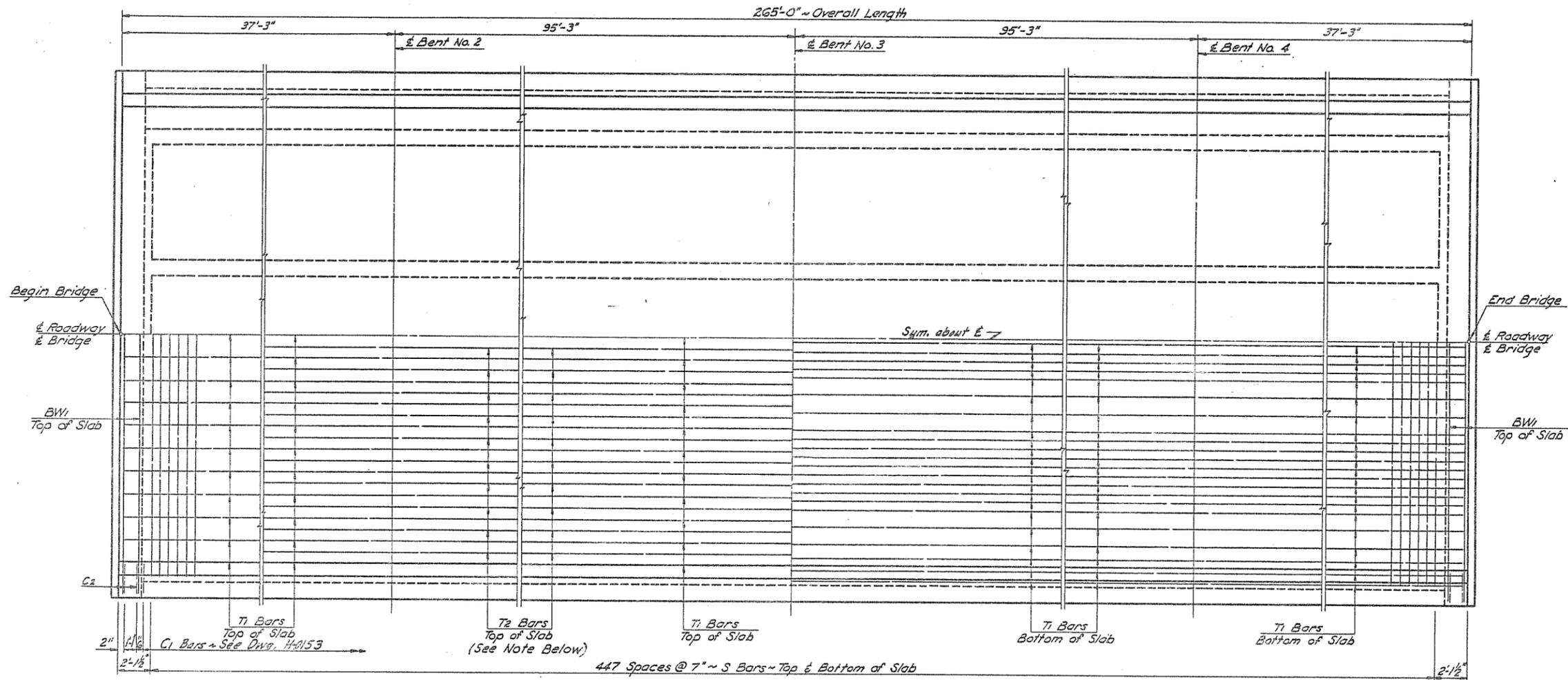
QUANTITIES (ONE BENT)	
Class AE-1 Concrete	237 C.Y.
Reinforcing Steel	4663 Lbs.
Steel Piling (See Layout)	
Excavation (See Layout)	

21'-0" BENT DETAIL
WELDED GIRDER SPANS
30'-0" ROADWAY
H20 LOADING

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	M. D.			32	



PART ELEVATION
See H-0153 for Railing Details



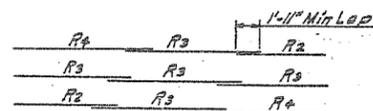
Quarter Showing Reinforcing in Top of Slab

Quarter Showing Reinforcing in Bottom of Slab

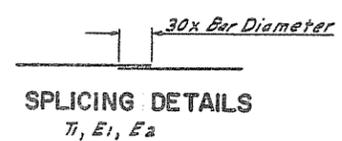
PART PLAN
Half Showing Slab Reinforcing
Typical Both Sides ~ by Rotation

NOTE:

T₂ Bar Placement (slab & curb):
 At Bent #2 - 15 feet in Span #1, 25 feet in Span #2
 At Bent #3 - Center over Bent, 20 feet in each of Spans 2 & 3.
 At Bent #4 - 25 feet in Span #3, 15 feet in Span #4.



R BAR SPLICING DETAIL
(Spans 2 & 3 Railing)
Use R₁ bars in end span railing



SPLICING DETAILS
T₁, E₁, E₂

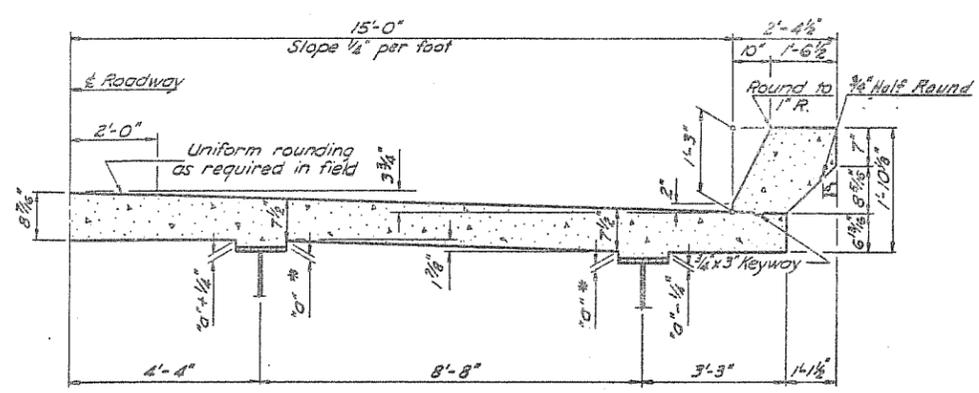
Designed for 25th/S.F. F.W.S.

QUANTITIES

SLAB & RAILING DETAILS
WELDED GIRDER SPANS

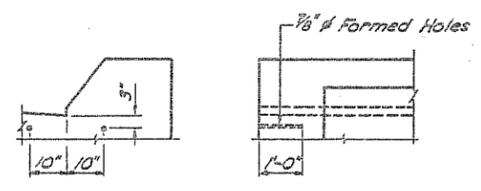
30'-0" ROADWAY
H₂₀ LOADING

DESIGN	MADE BY	DATE
	F.D.O.	
JETAILS	CHECKED BY	DATE
	D.A.L.	
TRACING	MADE BY	DATE
	F.D.O.	
QUANTITIES	CHECKED BY	DATE
	D.L.P.	
	F.D.O.	
	F.D.O.	

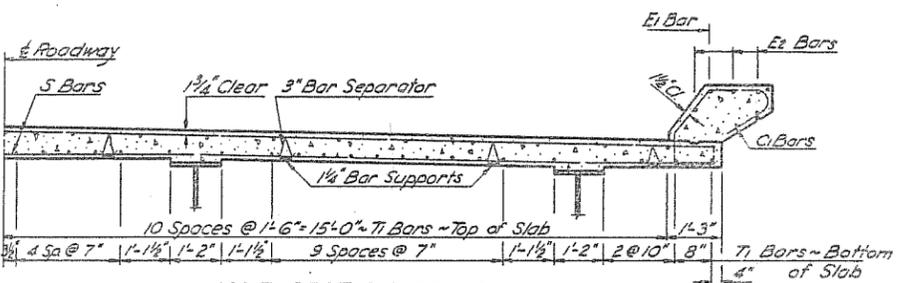


HALF SECTION OF SLAB
Showing Dimensions

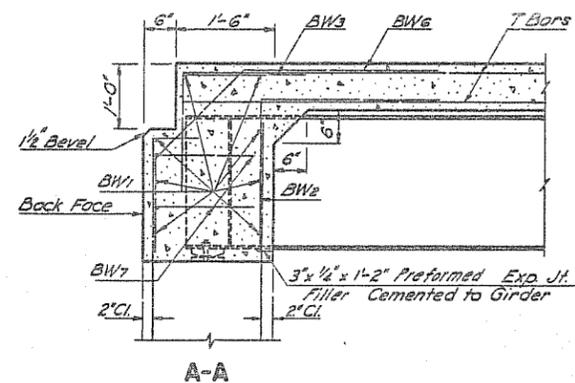
*"a" equals 1/8" @ bearings of bents and abutments. At intermediate points "a" equals screed elevation at & Roadway minus top of girder elevation minus (.884 outside girders) (.727 inside girders).



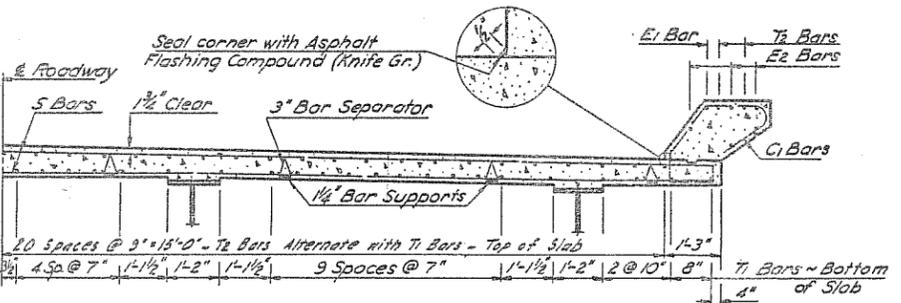
CURB SLEEVE DETAILS



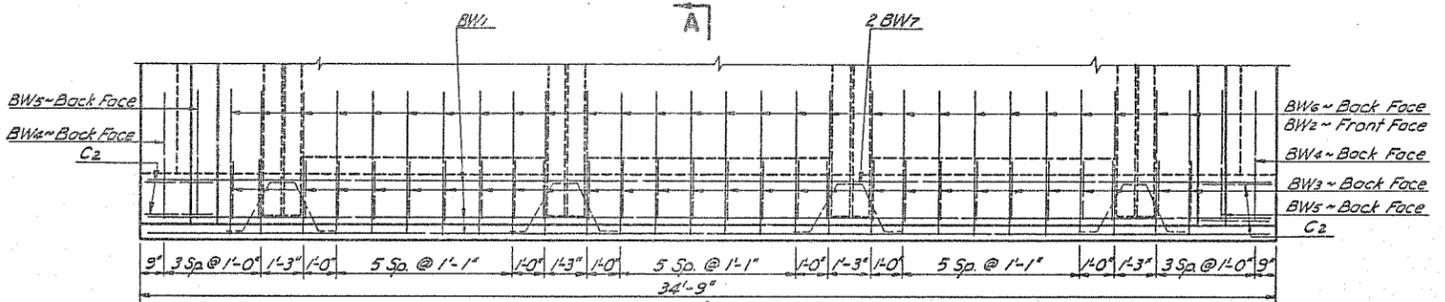
HALF SECTION OF SLAB
Showing Reinforcing between Bents & Abutments



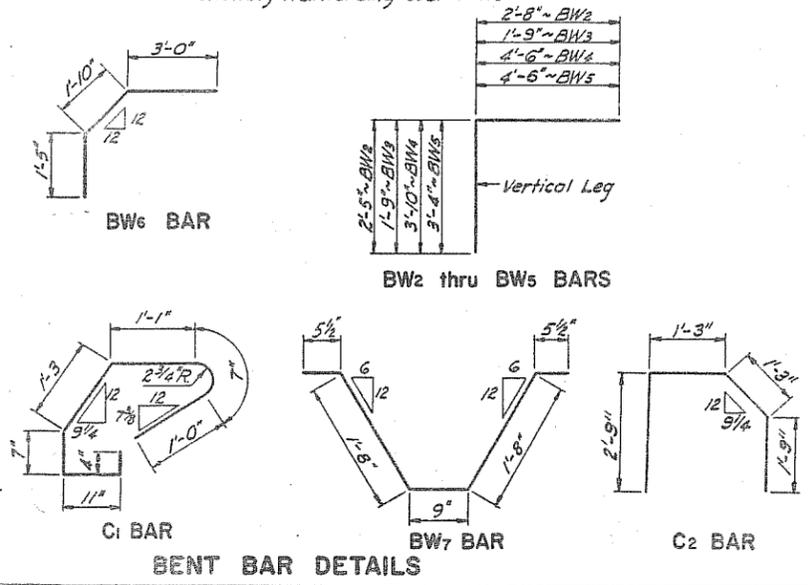
A-A



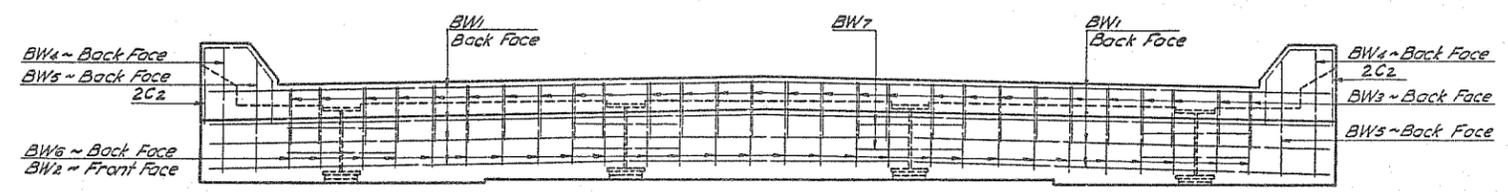
HALF SECTION OF SLAB
Showing Reinforcing over Bents



END BEAM PLAN



BENT BAR DETAILS



END BEAM ELEVATION

SUPERSTRUCTURE					
MARK	NUMBER	SIZE	LENGTH	SHAP	
BW1	16	6	34'-5"	Str.	
BW2	56	6	5'-1"	Ben.	
BW3	56	6	3'-6"	"	
BW4	4	6	8'-4"	"	
BW5	4	6	7'-10"	"	
BW6	56	6	6'-3"	"	
BW7	16	5	5'-0"	"	
C1	592	5	5'-9"	"	
C2	8	5	7'-0"	"	
E1		14	39'-5"	Str.	
E2		70	39'-2"	"	
P2		180	3'-8"	Ben.	
P5		24	4'-5"	"	
P6		136	4'-11"	"	
P7		136	3'-10"	"	
P8		120	2'-10"	"	
P9		16	4'-4"	"	
RC		468	3	2'-11"	Ben.
R1		24	6	3'-8"	Str.
R2		16	6	29'-10"	"
R3		40	6	32'-10"	"
R4		16	6	33'-10"	"
S		896	6	32'-2"	Str.
T1		455	5	39'-2"	Str.
T2		60	12	40'-0"	"

NOTES:
It is assumed that the Contractor can place the slab concrete in one continuous operation in accordance with Sections 602-3.6.1 thru 602-3.6.2.1.4 of the Standard Specifications. If the Contractor cannot pour at the specified rate, he shall submit drawings to the Bridge Engineer, for approval, showing proposed construction joints and pouring sequence. Each curb shall be poured in one continuous operation. See Sid. Drawing H-0153 for railing details. See Drawings H-5120 thru H-5122 for Structural Steel details. The end beams shall be poured at the same time that the deck slab is poured. Special care shall be taken to completely fill the space under the concrete in the end beams with concrete.

Designed for 25% S.F. F.V.S.

QUANTITIES	
Class AE-3 Concrete	259.8 C.Y.
Class AA-3 Concrete	17.73 C.Y.
Reinforcing Steel	83,442 Lbs.

Railing and end post quantities included.

SLAB END BEAM & MISC. DETAILS
WELDED GIRDER SPANS
30'-0" ROADWAY
H₂₀ LOADING

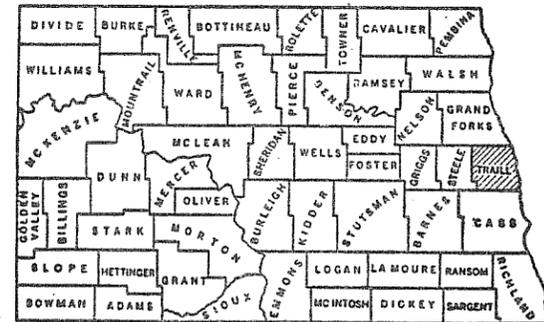
H-5123-2

H-5123-2

Bridge # 29-097.333

NORTH DAKOTA STATE HIGHWAY DEPARTMENT

PLANS FOR THE PROPOSED IMPROVEMENT OF A STATE HIGHWAY IN TRAILL COUNTY FEDERAL AID PROJECT NO. 1-29-2(25) 94 STRUCTURAL



SKETCH-MAP OF NORTH DAKOTA
SHOWING COUNTIES



SCALES
LAYOUT SHEET: 1 IN. = 5000 FT.
PLAN AND PROFILE DRAWINGS: 1 IN. = 100 FT.
STRUCTURAL DRAWINGS: AS SHOWN
CROSS SECTION SHEETS: 1 IN. = 10 FT.

STA.	CLEAR ROWY. WIDTH	DESIGN LOADING
215+08.2	30'	H ₂₀ (1944)
380+72.5	30'	H ₂₀ (1944)

DESIGN DATA

TRAFFIC AVERAGE DAILY EST 30TH MAX HR

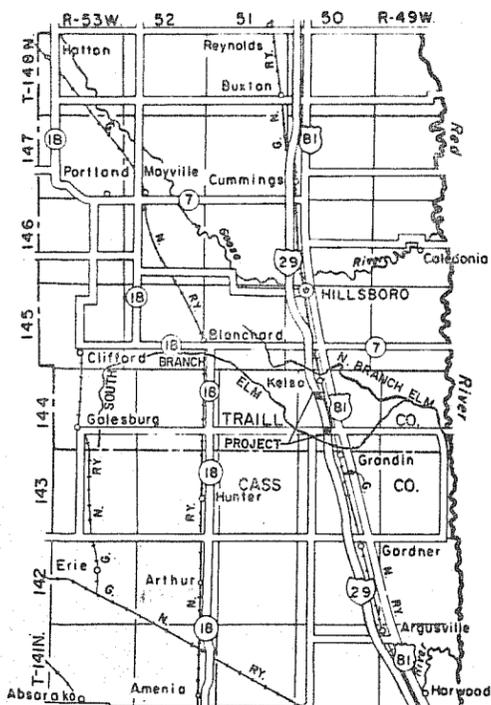
CURRENT TRAFFIC (1969) 12210 PASS 390 TRUCKS 2600 TOTAL 390
TRAFFIC FORECAST (1989) 14860 PASS 860 TRUCKS 5720 TOTAL 860

DESIGN SPEED 70 MPH
TRAFFIC CLASSIFICATION "M"
MINIMUM SIGHT DISTANCE (NON PASSING) 600'

FULL CONTROL OF ACCESS.
NO POINT OF ACCESS OTHER THAN BY RAMPS AT INTERCHANGES.

LEGEND

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



SKETCH MAP OF
PARTS OF CASS & TRAILL COUNTIES

INDEX OF DRAWINGS

SHEET NO. 1 TITLE PAGE & SUMMARY OF QUANTITIES
SHEET NO. 2 TO 3 ATYPICAL SECTIONS & SIGNING
SHEETS NO. 4 TO 7 INCL. PLAN AND PROFILE DRAWINGS
SHEETS NO. 8 TO 33 INCL. STRUCTURAL DRAWINGS
SHEETS NO. 34 TO 46 INCL. CROSS SECTIONS

LENGTH OF PROJECT	
PROJECT MILES-GROSS	MILES-NET
1-29-2(25) 3.137	0.000
TOTALS	3.137 0.000

FED. ROAD DIV. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
5	N. D.	1-29-2(25) 94	1	46

GOVERNING SPECIFICATIONS
Standard Specifications adopted by the North Dakota State Highway Department Jan. 1965 and approved as standard by the Bureau of Public Roads June 23, 1965. Requirer Contract Provisions (Form - PR-1273) dated October 1968 and others submitted herewith.

KEY TO CONVENTIONAL SIGNS

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

SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS

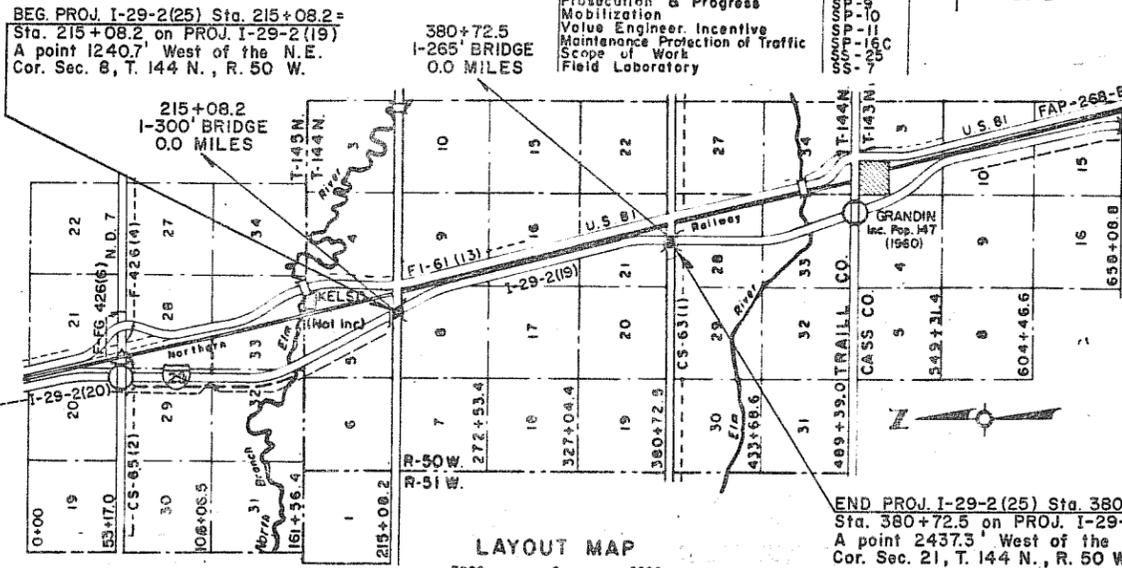
NAME	NO.
Piling	SS-21
Conc. Slope Protection	SS-21
Backfill	SS-21
Conc. Structures	SS-21
Reinforcement	SS-21
Struct. Steel	SS-21
Painting	SS-21
Quick Setting Anchor Grout	SS-21
Bidding Requirements & Conditions	SS-21
Legal Relations & Resp. to the Public	SS-21
General Statement	SS-21
Prosecution & Progress	SS-21
Mobilization	SS-21
Value Engineer Incentive	SS-21
Maintenance Protection of Traffic	SS-21
Field Laboratory	SS-21

LIST OF STRUCT. ST'DS. SHEET NO.

H-0401	20
H-0153	21
H-0501	22
H-1299	26
H-1371	27
H-1372	28
H-5120	29
H-5121	30
H-5122	31
H-5123-1	32
H-5123-2	33

LIST OF STANDARDS ST'D. NO.

Slope Protection	7.5A
Federal Aid Name Plate	14.9B
Bridge Bench Marks	7.6
Const. Ident. Sign	14.25
Standard Signs	14.1A-1 thru 14.1A-10



LAYOUT MAP

SCALE IN FEET
5000 0 5000

The bridge approach embankments are under contract and are in various stages of completion. Until the bridge approach embankments are completed the Structural Contractor's progress will be dependent upon the Grading Contractor's progress. During this period the time charged for work performed on the structural contract shall be computed by multiplying the number of working days allowed for the performance of the work shown in the contract as awarded, by the ratio of the amount of work earned to the original contract amount. After completion of the bridge approach embankments, time will be charged according to Section 10B-6 of the Standard Specifications.

CONSTRUCTION IDENTIFICATION SIGNS - To be installed at Sta. 24+50 Lt. Kelso X-Rd. and Sta. 24+50 Lt. Galesburg X-Rd.

END PROJ. 1-29-2(25) Sta. 380+72.5 =
Sta. 380+72.5 on PROJ. 1-29-2(19)
A point 2437.3' West of the S.E.
Cor. Sec. 21, T. 144 N., R. 50 W.

The grading & structural contractors shall conduct their individual operations to the mutual benefit of each other. See Sec. 105-7 of the St'd Spec.

Aggr. Surface Crse. has been prov on the grading contract for the Crossroads. In the event that structural work has not progressed sufficiently to allow the grading contractor to install this item at the structure ends, the structural contractor shall install this item in accordance with the plan. The grading contractor will furnish the materials at the site. Temp. curbing shall be installed (See Sheet # 3). The cost of this work shall be incidental to other items.

The grading contractor shall be responsible for maintenance and protection of traffic while the grading contract is active. The structural contractor shall be responsible for maintenance and protection of traffic on the detours as soon as he begins work if the grading contract is complete, or suspended while the structural contract is active. The detours will be removed on the future surfacing contract. The cost of maintenance of detours and protection of traffic shall be paid for as maintenance and protection of traffic (Two X-Road Detours).

QUANTITIES

SPEC. NO.	208	228	610	610	610	612	616	616	622	622	622	622	750	704	756	746						
CODE NO.	0100	0100	1112	1134	0138	0110	0362	4412	0020	0040	1370	1410	0510	0570	0100	0100	3000	0100	7520	3331	0100	
LOCATION	CLASS I EXCAVATION	SELECT BACKFILL	CLASS AE-1 CONCRETE (SUBSTRUCT)	CLASS AE-3 CONCRETE (I-BEAM SUPERSTRUCT)	CLASS AE-3 CONCRETE (RAILING)	REINFORCING STEEL	GRADE 40 STRUCTURAL STEEL (A-36)	STRUCTURAL STEEL (WELDED BEAM)	STEEL PILING (10BP42)	STEEL PILING (12BP53)	STEEL TEST PILES (12BP53)	STEEL TEST PILES (10BP42)	LINSEED OIL TREATMENT	CONC. SLOPE PROTECTION	BRIDGE BENCH MARKS	FIELD LABORATORY	MOBILIZATION	MAINTENANCE & PROTECTION OF TRAFFIC 2-CROSS ROAD DETOURS	FLAGGING			
	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	LB.	LB.	LB.	Lin. Ft.	Lin. Ft.	EA.	EA.	Gal.	S.Y.	Set	EA.	Lump Sum	Lump Sum	Mon Hr's.			
215+08.2	230	195	139.2	293.4	19.28	113,535	29,900	172,200	770	1,745	1	1	28	504	1							100
380+72.5	195	150	126.8	259.8	17.13	101,575	26,000	140,400	860	1,905	1	1	42	480	1							100
TOTAL	425	345	266	553	36	215,110	55,900	312,600	1630	3650	1	1	90	984	2							200

APPROVED DATE: 10-14-69
[Signature]
CHIEF ENGINEER
NORTH DAKOTA STATE
HIGHWAY DEPARTMENT

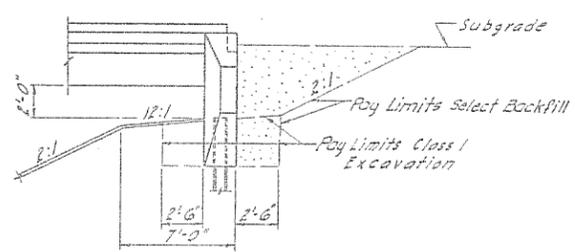
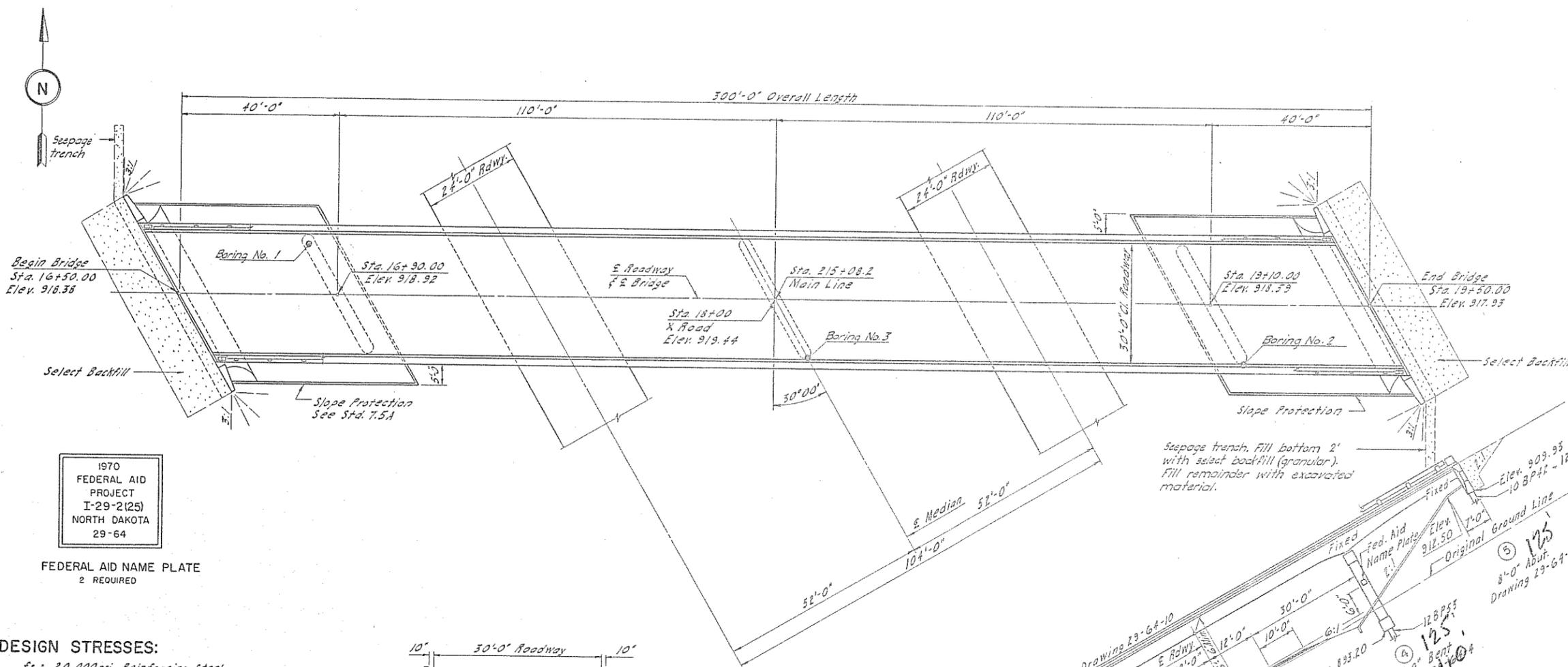


Quantity Totals have been rounded off to the nearest whole unit for bidding purposes.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS

APPROVED _____ DATE _____
DIVISION ENGINEER

BRIDGE CODE	FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
X-771	5	N. D.	I-29-2(25)		8	46



DETAIL AT ABUTMENTS

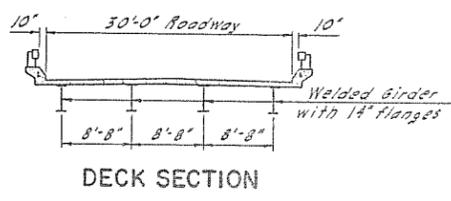
- ① See SP-35 for Painting.
- ② See SP-35 for Structural Steel.
- ③ See SS-21 for Piling.
- ④ See SP-45 for Concrete Slope Protection.
- ⑤ See SP-32 for Reinforcement.
- ⑥ See SP-27 for Backfill.
- See SP-34 for Quick Setting Anchor Grout.
- See SP-29 for Optional Concrete Surface Finish.

1970
FEDERAL AID
PROJECT
I-29-2(25)
NORTH DAKOTA
29-64

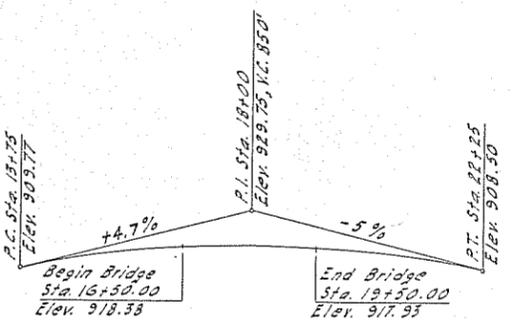
FEDERAL AID NAME PLATE
2 REQUIRED

DESIGN STRESSES:

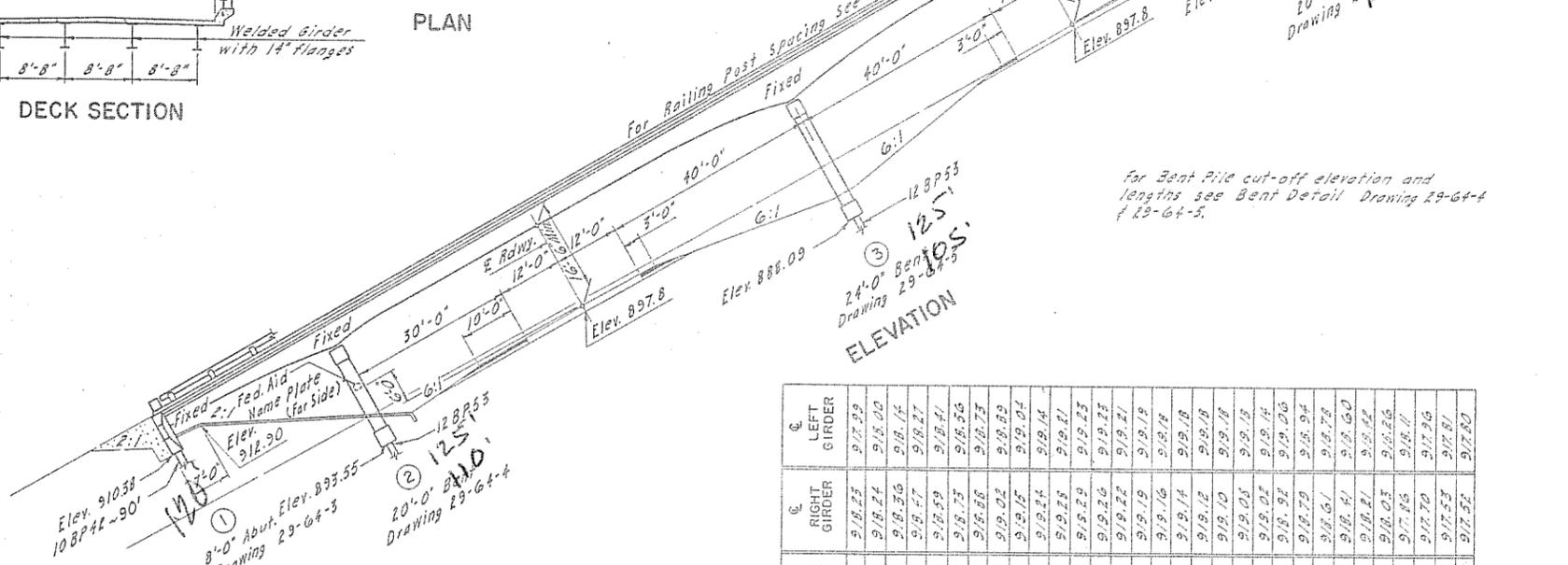
- $f_s = 20,000$ psi - Reinforcing Steel
- $f_c = 1,200$ psi - Class AE-1 & AE-3 Concrete
- $f_c = 1,700$ psi - Class AE-3 Concrete
- $f_s = 20,000$ psi - Structural Steel A-36
- $f_s = 27,000$ psi - Structural Steel A-441 (3/4" and under)
- $f_s = 25,000$ psi - Structural Steel A-441 (1/2" to 1 1/2")
- $f_s = 23,000$ psi - Structural Steel A-441 (1 1/2" to 4")



DECK SECTION



VERTICAL CURVE



ELEVATION

The general notes for this project are shown on drawing 29-64-1.

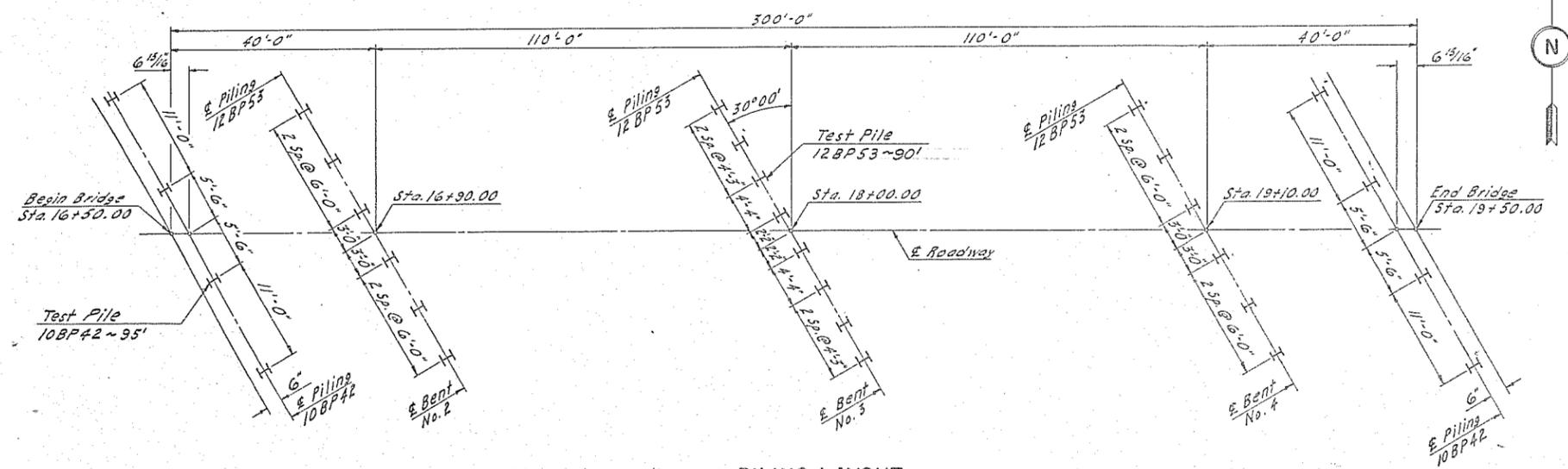
ESTIMATE OF QUANTITIES		
SPEC. NO.	CODE NO.	BID ITEM
203	0100	COMMON EXCAVATION CU. YD.
208	0100	CLASS 1 EXCAVATION 230 CU. YD.
228	0100	SELECT BACKFILL ⑤ 195 CU. YD.
216	0100	WATER - "M" GAL.
610	1112	CLASS AE-1 CONCRETE (SUBSTRUCTURE) 139.2 CU. YD.
610	1134	CLASS AE-3 " (SUPERSTRUCTURE) 293.4 CU. YD.
610	0138	CLASS AAE-3 " (RAILING) 19.26 CU. YD.
612	0100	REINFORCING STEEL ④ (GRADE 40) 113,535 LB.
615	4-12	STRUCTURAL STEEL (A-441) ① (WELDED GIRDER) 172,200 LB.
616	0362	STRUCTURAL STEEL (A-36) ① 29,900 LB.
622	0040	STEEL PILING (12BP53) ② 1745 LHM FT.
622	0020	STEEL PILING (10BP42) ② 770 LHM FT.
622	1570	STEEL TEST PILING (12BP53) ② 90 FT. 1 EACH
622	0510	STEEL TEST PILING (10BP42) ② 95 FT. 1 EACH
750	0100	LINSEED OIL TREATMENT 48 GAL.
704	0100	CONCRETE SLOPE PROTECTION ⑤ 504 SQ. YD.
3000		BRIDGE BENCH MARKS 1 SET

BENCH MARKS			PILE LOADING							
NO.	DESCRIPTION	ELEV.	LOCATION	DEAD LOAD	LIVE LOAD	EARTH LOAD	WIND	EMBARMENT SETTLEMENT	DESIGN LOAD	MAXIMUM REQUIRED BEARING
17	In. Mon. 2 x 2 P.F.M.	897.56	24 x 46 - 245' RA				50 LB.	15 LB.	100 LB. LL	
17A	In. Mon. 2 x 2 Gal. Ins.	899.52	4100-16' RA	13.4 T.	10.1 T.				20.0 T.	46.5 T.
17B	N.W. Cor. Conc. Abut. R.R. Bridge	896.95	28 x 78 - 36' LT.	48.1 T.	19.8 T.	1.6 T.			69.5 T.	70.0 T.
				31.4 T.	17.4 T.	1.2 T.			70.0 T.	70.0 T.

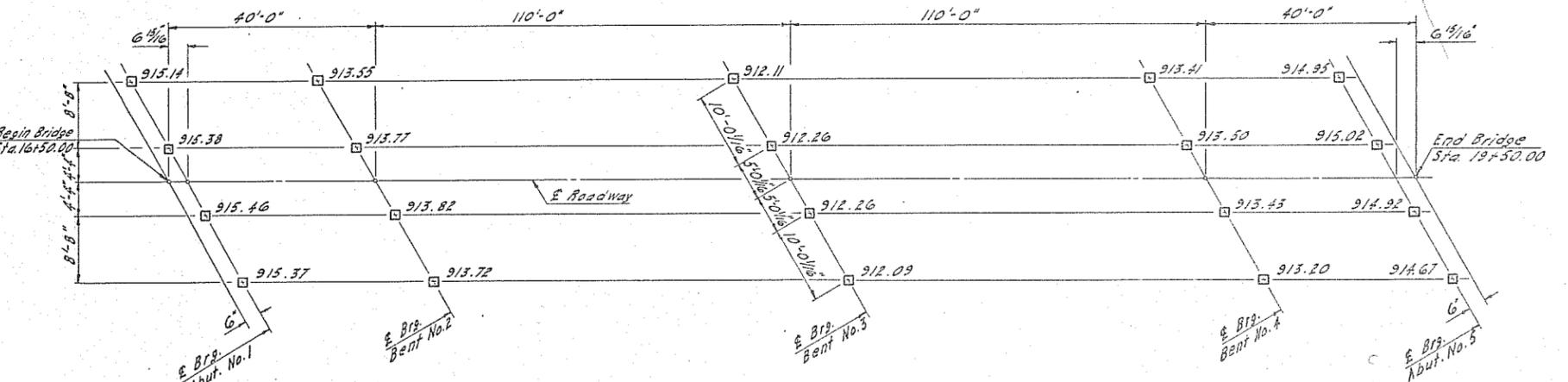
ROADWAY	RIGHT GIRDER	LEFT GIRDER
918.59	918.23	917.99
918.59	918.24	918.00
918.65	918.36	918.14
918.73	918.47	918.27
918.79	918.59	918.41
918.91	918.75	918.56
919.01	918.86	918.73
919.23	919.02	918.89
919.37	919.15	919.04
919.46	919.24	919.14
919.52	919.35	919.21
919.57	919.49	919.33
919.61	919.62	919.45
919.64	919.74	919.57
919.67	919.84	919.68
919.70	919.94	919.78
919.72	919.99	919.84
919.74	920.01	919.87
919.75	920.02	919.88
919.76	920.03	919.89
919.77	920.04	919.90
919.78	920.05	919.91
919.79	920.06	919.92
919.80	920.07	919.93
919.81	920.08	919.94
919.82	920.09	919.95
919.83	920.10	919.96
919.84	920.11	919.97
919.85	920.12	919.98
919.86	920.13	919.99
919.87	920.14	920.00
919.88	920.15	920.01
919.89	920.16	920.02
919.90	920.17	920.03
919.91	920.18	920.04
919.92	920.19	920.05
919.93	920.20	920.06
919.94	920.21	920.07
919.95	920.22	920.08
919.96	920.23	920.09
919.97	920.24	920.10
919.98	920.25	920.11
919.99	920.26	920.12
920.00	920.27	920.13
920.01	920.28	920.14
920.02	920.29	920.15
920.03	920.30	920.16
920.04	920.31	920.17
920.05	920.32	920.18
920.06	920.33	920.19
920.07	920.34	920.20
920.08	920.35	920.21
920.09	920.36	920.22
920.10	920.37	920.23
920.11	920.38	920.24
920.12	920.39	920.25
920.13	920.40	920.26
920.14	920.41	920.27
920.15	920.42	920.28
920.16	920.43	920.29
920.17	920.44	920.30
920.18	920.45	920.31
920.19	920.46	920.32
920.20	920.47	920.33
920.21	920.48	920.34
920.22	920.49	920.35
920.23	920.50	920.36
920.24	920.51	920.37
920.25	920.52	920.38
920.26	920.53	920.39
920.27	920.54	920.40
920.28	920.55	920.41
920.29	920.56	920.42
920.30	920.57	920.43
920.31	920.58	920.44
920.32	920.59	920.45
920.33	920.60	920.46
920.34	920.61	920.47
920.35	920.62	920.48
920.36	920.63	920.49
920.37	920.64	920.50
920.38	920.65	920.51
920.39	920.66	920.52
920.40	920.67	920.53
920.41	920.68	920.54
920.42	920.69	920.55
920.43	920.70	920.56
920.44	920.71	920.57
920.45	920.72	920.58
920.46	920.73	920.59
920.47	920.74	920.60
920.48	920.75	920.61
920.49	920.76	920.62
920.50	920.77	920.63
920.51	920.78	920.64
920.52	920.79	920.65
920.53	920.80	920.66
920.54	920.81	920.67
920.55	920.82	920.68
920.56	920.83	920.69
920.57	920.84	920.70
920.58	920.85	920.71
920.59	920.86	920.72
920.60	920.87	920.73
920.61	920.88	920.74
920.62	920.89	920.75
920.63	920.90	920.76
920.64	920.91	920.77
920.65	920.92	920.78
920.66	920.93	920.79
920.67	920.94	920.80
920.68	920.95	920.81
920.69	920.96	920.82
920.70	920.97	920.83
920.71	920.98	920.84
920.72	920.99	920.85
920.73	921.00	920.86
920.74	921.01	920.87
920.75	921.02	920.88
920.76	921.03	920.89
920.77	921.04	920.90
920.78	921.05	920.91
920.79	921.06	920.92
920.80	921.07	920.93
920.81	921.08	920.94
920.82	921.09	920.95
920.83	921.10	920.96
920.84	921.11	920.97
920.85	921.12	920.98
920.86	921.13	920.99
920.87	921.14	921.00
920.88	921.15	921.01
920.89	921.16	921.02
920.90	921.17	921.03
920.91	921.18	921.04
920.92	921.19	921.05
920.93	921.20	921.06
920.94	921.21	921.07
920.95	921.22	921.08
920.96	921.23	921.09
920.97	921.24	921.10
920.98	921.25	921.11
920.99	921.26	921.12
921.00	921.27	921.13
921.01	921.28	921.14
921.02	921.29	921.15
921.03	921.30	921.16
921.04	921.31	921.17
921.05	921.32	921.18
921.06	921.33	921.19
921.07	921.34	921.20
921.08	921.35	921.21
921.09	921.36	921.22
921.10	921.37	921.23
921.11	921.38	921.24
921.12	921.39	921.25
921.13	921.40	921.26
921.14	921.41	921.27
921.15	921.42	921.28
921.16	921.43	921.29
921.17	921.44	921.30
921.18	921.45	921.31
921.19	921.46	921.32
921.20	921.47	921.33
921.21	921.48	921.34
921.22	921.49	921.35
921.23	921.50	921.36
921.24	921.51	921.37
921.25	921.52	921.38
921.26	921.53	921.39
921.27	921.54	921.40
921.28	921.55	921.41
921.29	921.56	921.42
921.30	921.57	921.43
921.31	921.58	921.44
921.32	921.59	921.45
921.33	921.60	921.46
921.34	921.61	921.47
921.35	921.62	921.48
921.36	921.63	921.49
921.37	921.64	921.50
921.38	921.65	921.51
921.39	921.66	921.52
921.40	921.67	921.53
921.41	921.68	921.54
921.42	921.69	921.55
921.43	921.70	921.56
921.44	921.71	921.57
921.45	921.72	921.58
921.46	921.73	921.59
921.47	921.74	921.60
921.48	921.75	921.61
921.49	921.76	921.62
921.50	921.77	921.63
921.51	921.78	921.64
921.52	921.79	921.65
921.53	921.80	921.66
921.54	921.81	921.67
921.55	921.82	921.68
921.56	921.83	921.69
921.57	921.84	921.70
921.58	921.85	921.71
921.59	921.86	921.72
921.60	921.87	921.73
921.61	921.88	921.74
921.62	921.89	921.75
921.63	921.90	921.76
921.64	921.91	921.77
921.65	921.92	921.78
921.66	921.93	921.79
921.67	921.94	921.80
921.68	921.95	921.81
921.69	921.96	921.82
921.70	921.97	921.83
921.71	921.98	921.84
921.72	921.99	921.85
921.73	922.00	921.86
921.74		

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	E-29-2025		9	46

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



PILING LAYOUT
(Not to Scale)



BEARING PLATE LAYOUT
Elevations are to top of finished concrete
(Not to Scale)

NOTES:

GENERAL:

THE COST OF FURNISHING AND PLACING JOINT FILLER, ASPHALT CURB SEAL, NAME PLATES, AND OTHER MISCELLANEOUS ITEMS SHALL BE INCLUDED IN THE PRICE BID FOR CONCRETE.

WELDING WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR STRUCTURAL STEEL.

DEAD LOAD DEFLECTIONS AND VERTICAL CURVE CORRECTIONS HAVE BEEN ACCOUNTED FOR IN THE SHOP CAMBER OF THE GIRDERS.

BEARING AREAS SHALL BE FINISHED TRUE TO PLAN AND ELEVATION BY GRINDING, IF NECESSARY, BEFORE BEARING PLATES ARE SET.

ALL RIVETS OR HIGH STRENGTH BOLTS ARE TO BE 7/8" HOLES ARE TO BE 15/16" EXCEPT AS NOTED. SHOP CONNECTIONS SHALL BE MADE AS SHOWN. FIELD CONNECTIONS SHALL BE MADE WITH HIGH TENSILE STRENGTH BOLTS OR SHALL BE RIVETED.

IF HIGH STRENGTH BOLTS ARE USED IN THE WEB AND FLANGE SPLICES, THE BOLTS SHALL BE PLACED WITH THE NUTS ON THE INTERIOR SIDE OF THE WEB AND ON THE UPPER SIDE OF THE FLANGE.

EMBANKMENT:

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

THE CONTRACTOR WILL BE REQUIRED TO PREDRILL THROUGH THE FILL AT THE ABUTMENTS BEFORE DRIVING PILING. ALL PILOT HOLES, NOT COMPLETELY FILLED BY THE PILES, SHALL BE BACKFILLED WITH SAND OR FINE GRAVEL BEFORE THE SUB-STRUCTURE IS PLACED.

EXCAVATION:

EXCAVATION CLASS I AT THE ABUTMENTS SHALL EXTEND FROM THE BOTTOM OF THE FOOTING TO THE UPPER LIMITS AS SHOWN ON THE BRIDGE LAYOUT DRAWING. EXCAVATION CLASS I AT THE BENTS SHALL EXTEND FROM THE BOTTOM OF THE FOOTING TO THE FINISHED ELEVATION OF THE INTERSTATE MEDIUM AT BENT 3, AND TO THE FINISHED PROFILE UNDER THE SLOPE PROTECTION AT BENTS 2 AND 4.

BACKFILL:

THE BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO DESIGNATION T-99. THE MOISTURE CONTENT IN THE SOIL AT THE TIME OF COMPACTION SHALL NOT BE LESS THAN FOUR PERCENTAGE POINTS BELOW OPTIMUM NOR MORE THAN THAT WHICH WILL PERMIT COMPACTION TO THE REQUIRED DENSITY. SELECT BACKFILL SHALL NOT BE PLACED ABOVE THE BERM ELEVATIONS UNTIL THE ENTIRE SUPERSTRUCTURE SLAB HAS CURED.

REINFORCING STEEL:

DIMENSIONS FOR BENT BARS ARE GIVEN CENTER TO CENTER AND TO TANGENT INTERSECTIONS UNLESS OTHERWISE NOTED. BENT BARS SHALL BE BENT AROUND CRS1 STANDARD SIZE PINS.

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

CONCRETE:

ALL EXPOSED EDGES OF CONCRETE SHALL BE BEVELED WITH 3/4" TRIANGULAR MOLDING UNLESS OTHERWISE NOTED. THE DECK SLAB CONCRETE SHALL BE STRUCK OFF AND COMPACTED BY AN APPROVED DECK FINISHING MACHINE. ALL CONCRETE ABOVE THE TOP OF THE CURBS SHALL BE CLASS AE-3. SLAB, CURBS, AND END WALLS SHALL BE CLASS AE-3. ABUTMENTS AND BENTS SHALL BE CLASS AE-1.

ALL CONCRETE SHALL BE COMPACTED BY VIBRATION. THE "RUBBED SURFACE FINISH" WILL BE REQUIRED FOR THE ROADWAY AND OUTSIDE FACES OF CURBS, EDGES OF SLAB, ALL FACES OF THE RAILS, RAIL POSTS AND END POSTS, ALL EXPOSED FACES OF BENTS, AND ALL EXPOSED FACES OF ABUTMENT WINGS. ALL OTHER SURFACES SHALL BE GIVEN THE "ORDINARY SURFACE FINISH" (SEE OPTION BELOW).

IF THE EXPOSED FACES OF THE ABUTMENTS AND BENTS HAVE A SURFACE FINISH ACCEPTABLE TO THE ENGINEER WITHOUT RUBBING THE REQUIREMENT FOR "RUBBED SURFACE FINISH" MAY BE WAIVED AT THE OPTION OF THE ENGINEER AND THE "ORDINARY SURFACE FINISH" WILL APPLY.

ALL "ORDINARY SURFACE FINISH" SHALL BE COMPLETED WITHIN 24 HOURS AFTER REMOVAL OF FORMS.

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

THE CONTRACTOR HAS THE OPTION OF USING THE SPECIAL SURFACE FINISH AS PROVIDED IN SPECIAL PROVISION NO. 29, CONCRETE STRUCTURES. IN LIEU OF THE RUBBED SURFACE FINISH (602-3.10.3) CALLED FOR ABOVE.

LINSEED OIL TREATMENT:

LINSEED OIL TREATMENT SHALL NOT BE DONE UNTIL ALL CONCRETE WORK IS COMPLETED AND ASPHALT CURB SEAL HAS BEEN INSTALLED.

STRUCTURAL STEEL:

THE NORTH DAKOTA STANDARD SPECIFICATIONS 616-3.3.12, FLAME CUTTING, SHALL GOVERN THE FLAME CUTTING PREPARATION OF A36 AND A441 STEELS. IN ADDITION, PREHEATING OF THE A36 AND A441 STEEL SHALL BE REQUIRED, JUST PRIOR TO FLAME CUTTING, THE STEEL SHALL BE PREHEATED TO A TEMPERATURE CONFORMING TO TABLE 2, PAGE 3 OF SPECIAL PROVISION 35 GOVERNING THE PREHEATING OF STEEL WHEN LOW HYDROGEN ELECTRODES ARE USED IN WELDING.

THE BEND TEST, UNDER 616-3.3.12.2, SHALL BE REQUIRED FOR THE THICKEST A36 AND A441 STEEL USED IN THE PROJECT. AS STATED IN PARAGRAPHS 616-3.3.12.3, "IN LIEU OF PREHEATING, THE FLAME CUT EDGES SHALL BE REMOVED TO A DEPTH OF AT LEAST 1/8" BY MILLING OR GRINDING OR IN THE CASE OF MACHINE FLAME CUTTINGS, THE EDGES MAY BE FLAME SOFTENED AFTER CUTTING".

IN ACCORDANCE WITH SP 35, PARAGRAPH 406(G) THE TEST PLATE SIZE SHALL BE 5/8"x14".

THE GIRDERS SHALL BE CAMBERED IN THE SHOP AS DETAILED ON DRAWING 29-64-8. SUFFICIENT PARTS OF THE STRUCTURE SHALL BE SHOP ASSEMBLED AND ADJUSTED TO LINE, GRADE AND CAMBER OR OTHER PROPER FIT UP. IN ORDER TO ESTABLISH THE ACCURACY OF THE WORKMANSHIP AND SHOP DRAWINGS, A MINIMUM OF THREE CONTIGUOUS GIRDER SECTIONS SHALL BE SHOP ASSEMBLED WITH THEIR PLANNED ANGULAR DEFLECTIONS FOR REMAINS OF SPLICE BOLT HOLES BETWEEN SECTIONS. TEMPLATES SHALL NOT BE USED IN LIEU OF THE ABOVE SHOP ASSEMBLY.

ALTERNATE SHEAR DEVICES WILL BE PAID FOR AS CHANNEL SHEAR DEVICES.

ALTERNATE STUD SHEAR DEVICES SHALL BE MANUFACTURED OF C-1015 OR C-1020 COLD ROLLED STEEL WHICH CONFORMS TO ASTM A 105-61T SPECIFICATIONS, AND SHALL CONFORM TO THE DIAMETER AND OTHER DIMENSIONS AS SHOWN. THE CONTRACTOR IS REQUIRED TO OBTAIN A PRODUCT CERTIFICATION OF THE STUD SHEAR DEVICES USED ON THIS BRIDGE IN ACCORDANCE WITH SECTION 802 OF THE 1955 NORTH DAKOTA "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION". AASHTO REQUIREMENTS FOR WELDABILITY OF STUD CONNECTORS SHALL BE MET AND CERTIFIED.

PILE HAMMERS:

THE PILES FOR THIS STRUCTURE SHALL BE DRIVEN BY A STEAM (OR AIR) OR DIESEL HAMMER HAVING A RATED ENERGY AND RAM WEIGHT NOT LESS THAN 35,500 FOOT-POUND-TONS AS COMPUTED BY THE FORMULA $WE=10,900H-65E$ WHERE W IS THE WEIGHT OF THE RAM IN TONS AND E IS THE RATED HAMMER ENERGY AS ALLOWED IN THE SPECIAL PROVISIONS. IN NO CASE SHALL THE RAM WEIGHT BE LESS THAN 4,000 POUNDS.

TEST PILES:

THE TEST PILES SHALL BE DRIVEN TO A BEARING OF NOT LESS THAN 125% DESIGN LOAD AS DETERMINED BY DYNAMIC FORMULA.

MATERIALS: (STRUCTURAL STEEL)

GIRDER FLANGES, WEBS, FLANGE AND WEB SPLICE PLATES: A 441 STIFFENERS, DIAPHRAGMS, SHEAR DEVICES, BEARING PLATES AND ANCHOR BOLTS: A 36, EXCEPT ALTERNATE STUD SHEAR DEVICES.

PAINT:

PAINT AND PAINTING SHALL CONFORM TO THE NORTH DAKOTA STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, SECTIONS 710 AND 870-1.2, AND THE SPECIAL PROVISION NO. 33.

ALL EXPOSED STEEL SURFACES SHALL BE GIVEN ONE SHOP COAT OF RED LEAD PAINT (INCLUDING TOP OF UPPER GIRDER FLANGES BUT NOT SHEAR DEVICES), ONE SPOT COAT OF RED LEAD PAINT AFTER ERECTION AND CONCRETE WORK IS COMPLETED, AND TWO FIELD COATS OF ENAMEL. THE FIRST FIELD COAT SHALL CONFORM TO MARCON COLOR NO. 20109 AND THE SECOND COAT SHALL CONFORM TO MARCON COLOR NO. 10076. BOTH COATS SHALL MEET THE FEDERAL STANDARD NO. 595 FOR COLOR. COLOR CHIPS ARE ON FILE IN THE BRIDGE DIVISION OF THE NORTH DAKOTA STATE HIGHWAY DEPARTMENT, BISMARCK.

BLAST CLEANING:

COMMERCIAL BLAST CLEANING OF ALL EXPOSED MAIN AND SECONDARY STEEL MEMBERS WILL BE REQUIRED PRIOR TO PAINTING. SEE S.P. 33 (INCLUDE IN UNIT BID PRICE FOR STRUCTURAL STEEL).

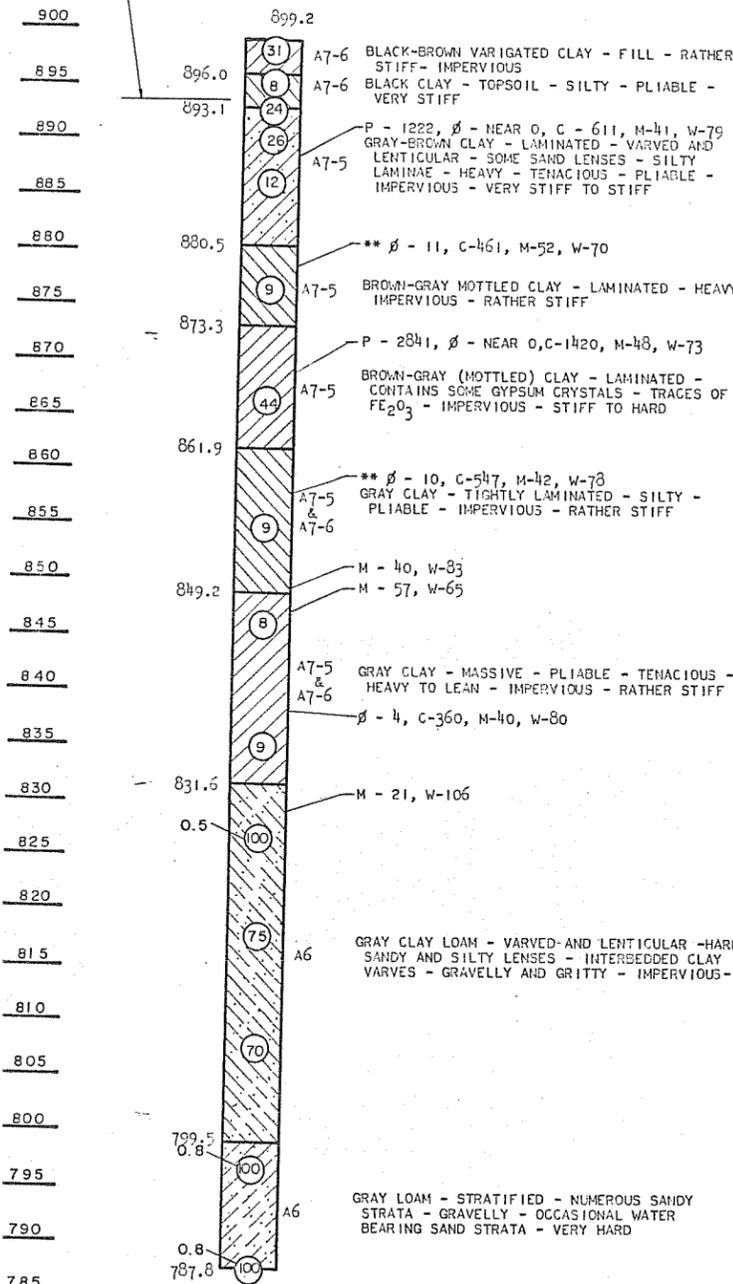
KELSO SEPARATION
BEARING PLATE LAYOUT
PILING LAYOUT
GENERAL NOTES

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	1-29-225		10	46

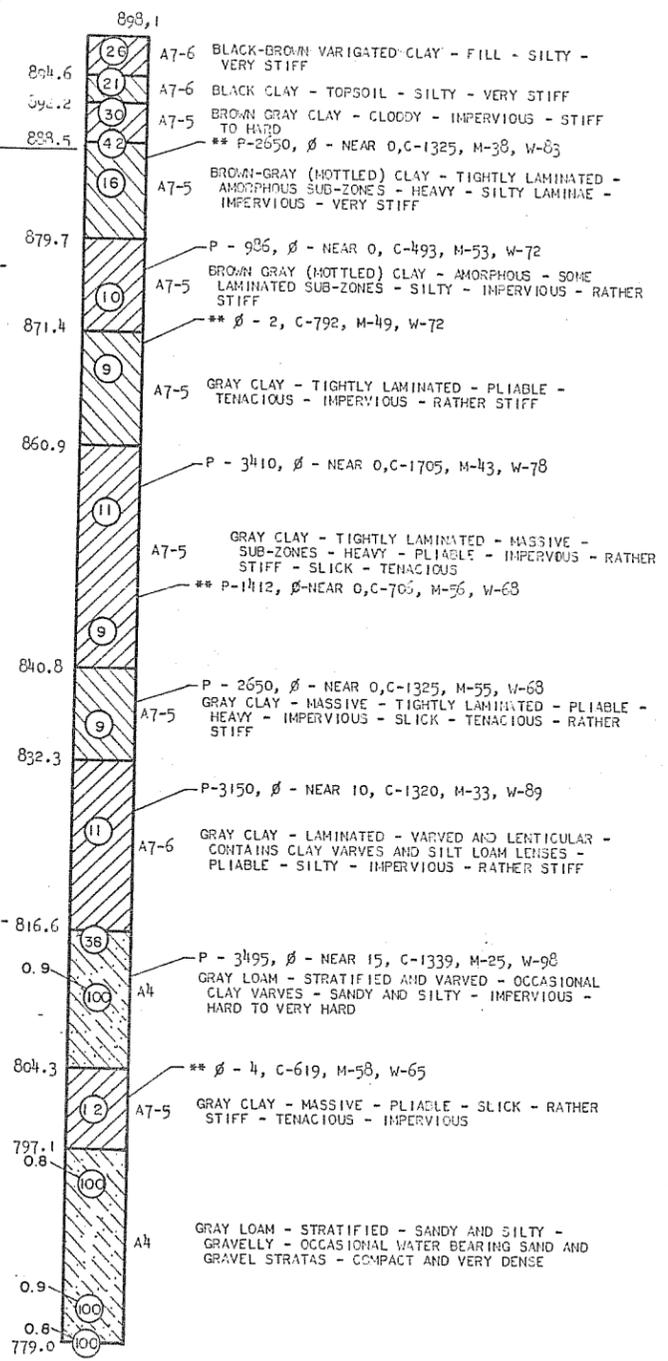
Bent No. 2
Btm. Ftg. Elev. 893.55

Bent No. 3
Btm. Ftg. Elev. 888.09

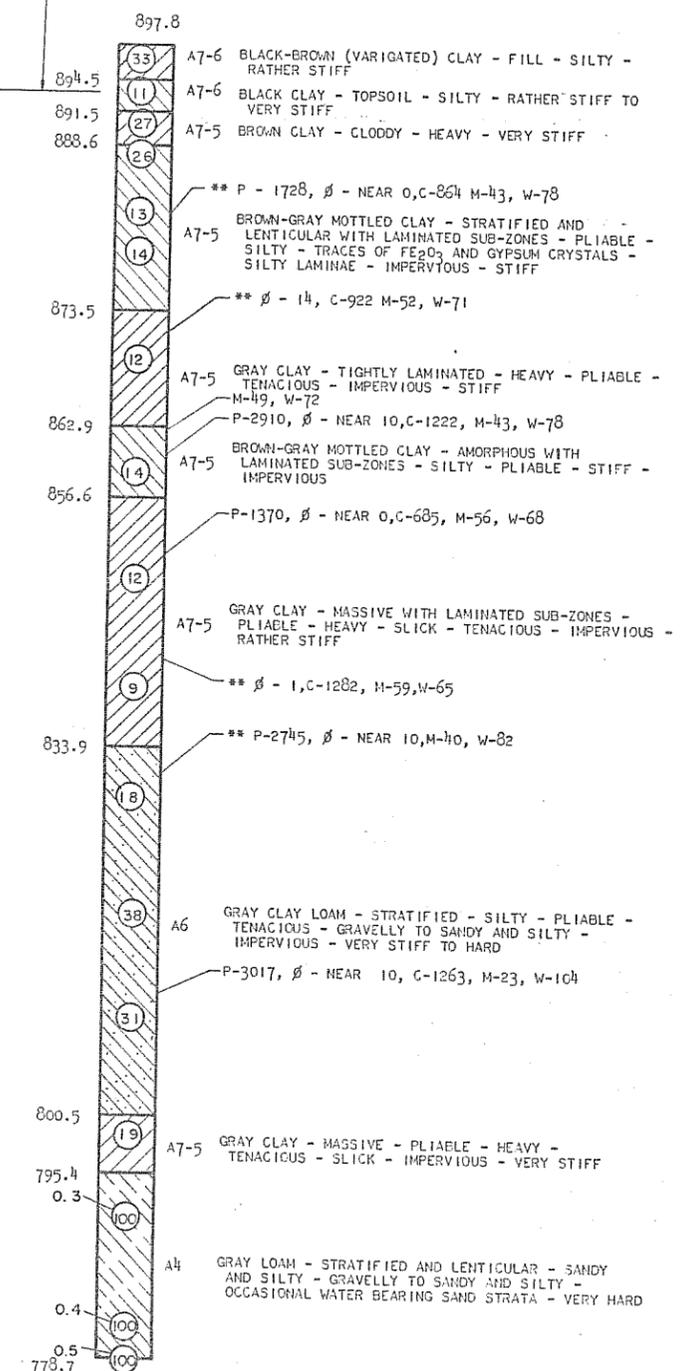
Bent No. 4
Btm. Ftg. Elev. 893.20



BORING NO. 1
STA. 214+38.2 - 95.3' RT.
Surv. E



BORING NO. 3
STA. 215+25.2 - On Surv. E



BORING NO. 2
STA. 215+60.2 - 95.26' LT.
Surv. E

SYMBOLS:
P - MAXIMUM LOAD (LBS./SQ. FT.)
phi - SHEAR ANGLE (DEGREES)
C - COHESION (LBS./SQ. FT.)
M - MOISTURE (PER CENT)
W - DRY WEIGHT (LBS./CU. FT.)
** - TRIAXIAL

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 PURPOSE ONLY. THE STATE ASSUMES NO RESPONSIBILITY IF SOIL CONDITIONS ENCOUNTERED DURING CONSTRUCTION DIFFER FROM THOSE SHOWN.

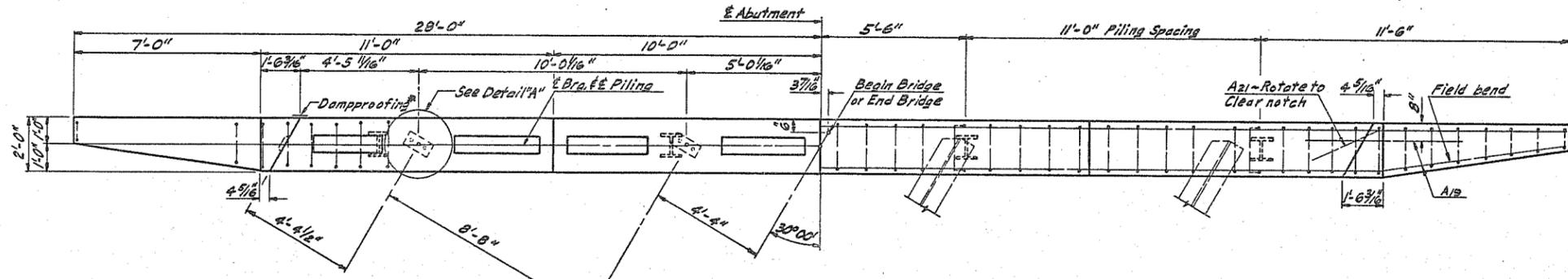
BRIDGE NO. 29-64

BORING LOG
KELSO SEPARATION
TRAILL COUNTY

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

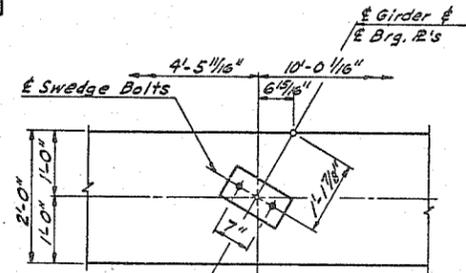
REVISIONS	NO.	DATE	DESCRIPTION

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.
5	N. D.	I-29-222		11

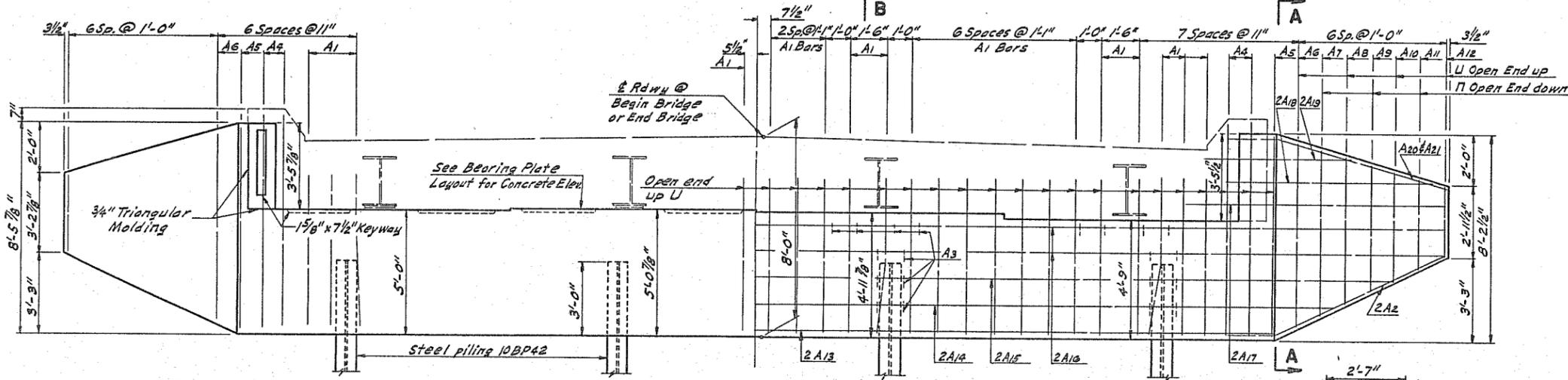


HALF PLAN
Showing Dimensions

HALF PLAN
Showing Reinforcing



DETAIL "A"

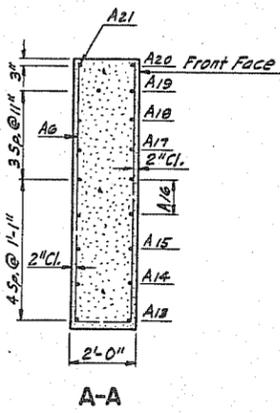


HALF ELEVATION
Showing Dimensions

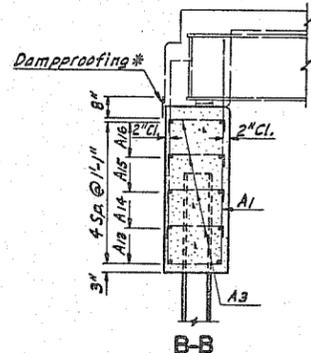
HALF ELEVATION
Showing Reinforcing

NOTES:
 * Two coats of dampproofing shall be applied over the construction joint on the back face as shown on the detail.
 "Dampproofing Two Coats" shall be applied in accordance with Section 736 of the Standard Specifications. Dampproofing will not be paid for directly, but shall be included in the unit price bid for Class AE-1 Concrete.

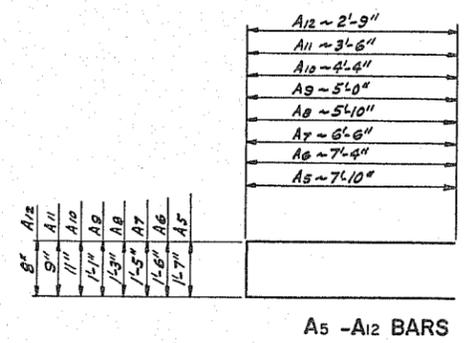
ABUTMENT (ONE ABUT.)				
MARK	NUMBER	SIZE	LENGTH	
A1	34	6	15'-3"	
A2	4	6	9'-6"	
A3	40	4	2'-6"	
A4	4	6	16'-10"	
A5	2	6	17'-3"	
A6	2	5	16'-2"	
A7	2	5	14'-5"	
A8	2	5	12'-11"	
A9	2	5	11'-1"	
A10	2	5	9'-7"	
A11	2	5	7'-9"	
A12	2	5	6'-2"	
A13	4	6	22'-0"	
A14	4	5	24'-6"	
A15	4	5	26'-8"	
A16	8	5	28'-10"	
A17	4	5	10'-6"	
A18	4	5	9'-10"	
A19	4	5	5'-10"	
A20	2	6	10'-6"	
A21	2	6	9'-9"	



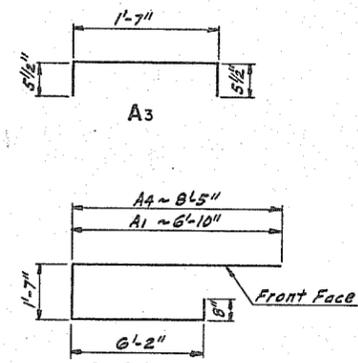
A-A



B-B

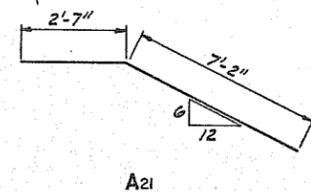


A5 - A12 BARS

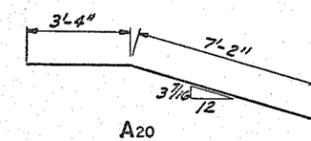


BENT BAR DETAILS

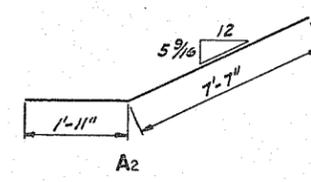
Dimensions shown are center to center



A21



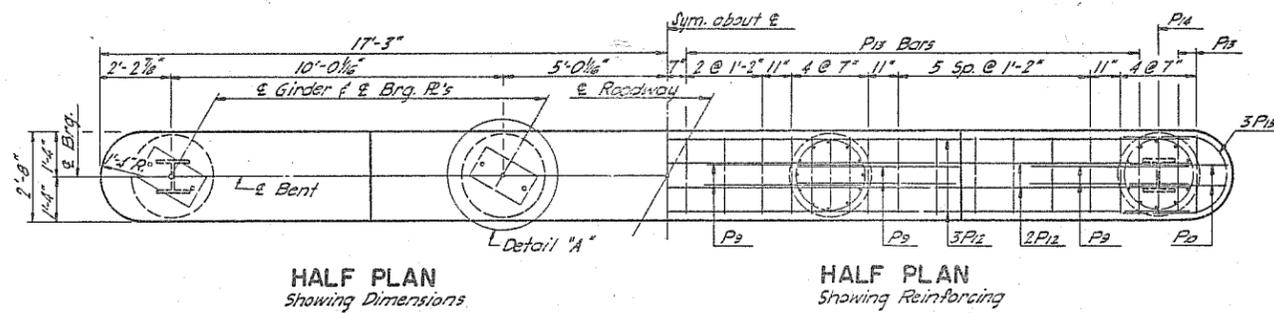
A20



A2

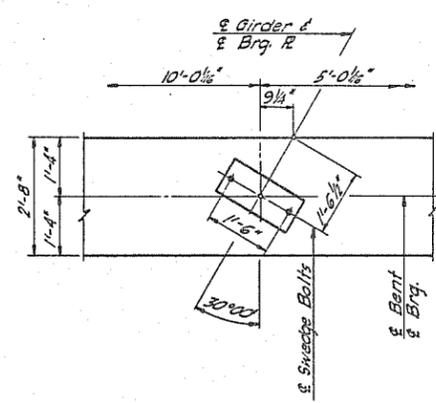
QUANTITIES (ONE ABUT.)	
Class AE-1 Concrete	20.6
Reinforcing Steel	1975
Excavation (See Layout)	
Piling (See Layout)	

KELSO SEPARATION
 8'-0" ABUTMENT
 30'-0" ROADWAY
 H2o LOADING

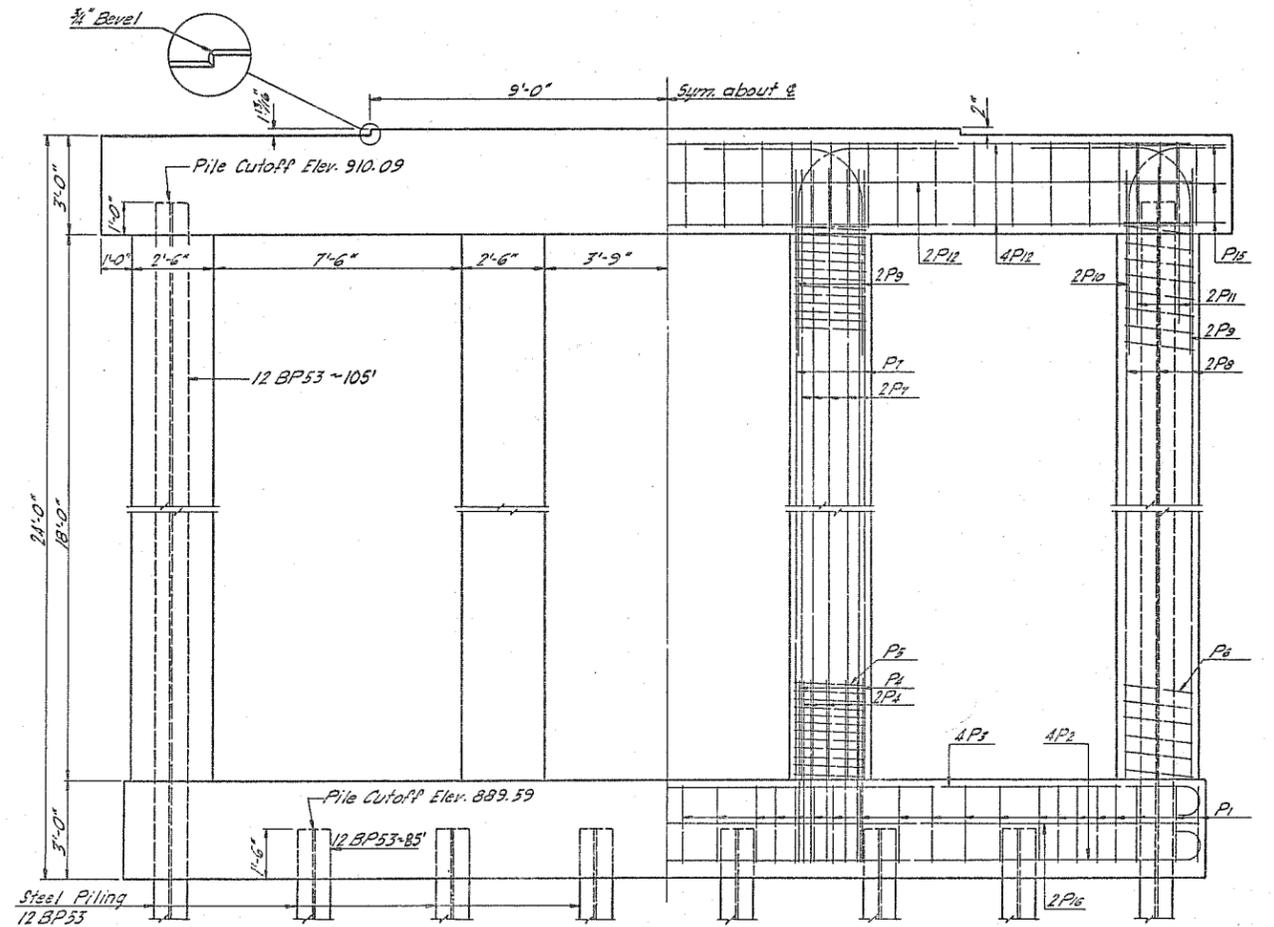


HALF PLAN
Showing Dimensions

HALF PLAN
Showing Reinforcing

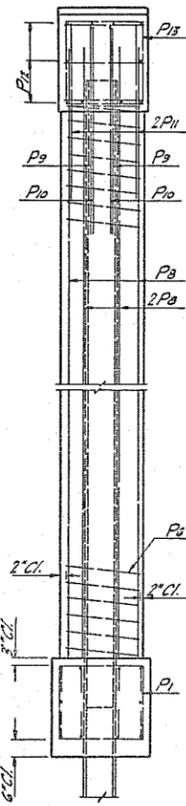


DETAIL "A"

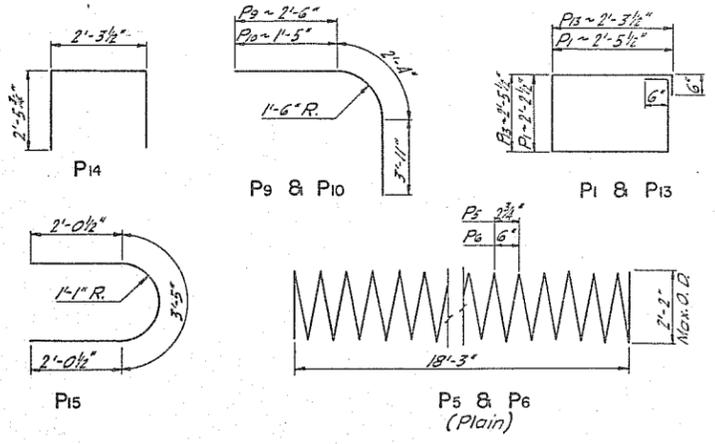


HALF ELEVATION
Showing Dimensions

HALF ELEVATION
Showing Reinforcing

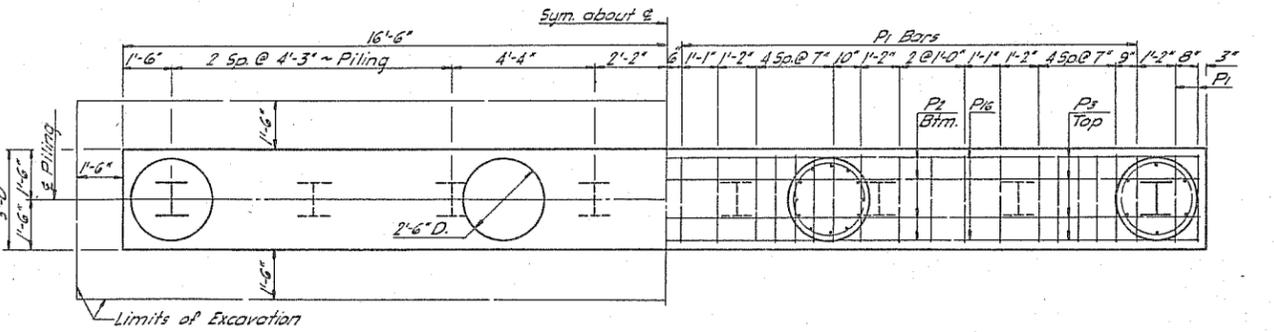


END VIEW



BENT BAR DETAILS

Dimensions shown are center to center



HALF FOOTING PLAN
Showing Dimensions

HALF FOOTING PLAN
Showing Reinforcing

BAR LIST (ONE BENT)					
MARK	NUMBER	SIZE	LENGTH	SH.	
P1	40	5	10'-4"	B	
P2	4	10	31'-10"	B	
P3	4	9	31'-8"	B	
P4	24	7	5'-6"	B	
P5	2	4	55'-0"	B	
P6	2	3	26'-0"	B	
P7	24	7	20'-0"	B	
P8	12	5	20'-0"	B	
P9	12	8	8'-9"	B	
P10	4	8	7'-8"	B	
P11	8	6	5'-6"	B	
P12	10	7	31'-10"	B	
P13	36	5	10'-6"	B	
P14	2	5	7'-5"	B	
P15	6	5	7'-6"	B	
P16	2	5	32'-6"	B	
*5R1	1	4	3'-8"	B	
*5R2	1	5	4'-0"	B	
*5R3	1	6	4'-6"	B	
*5R4	1	7	5'-0"	B	
*5R5	1	8	5'-4"	B	

NOTE:
The concrete in the columns shall be allowed to set at least two (2) hours before the bent cap reinforcing is placed and concrete poured.
All exposed edges to be beveled with 3/4" triangular mslating.

* Some replacement bar to be spliced to bar from which 2'-0" sample has been cut. Furnish only one set for the entire bridge. This is not a pay item and shall be included in the unit price bid for reinforcing steel.

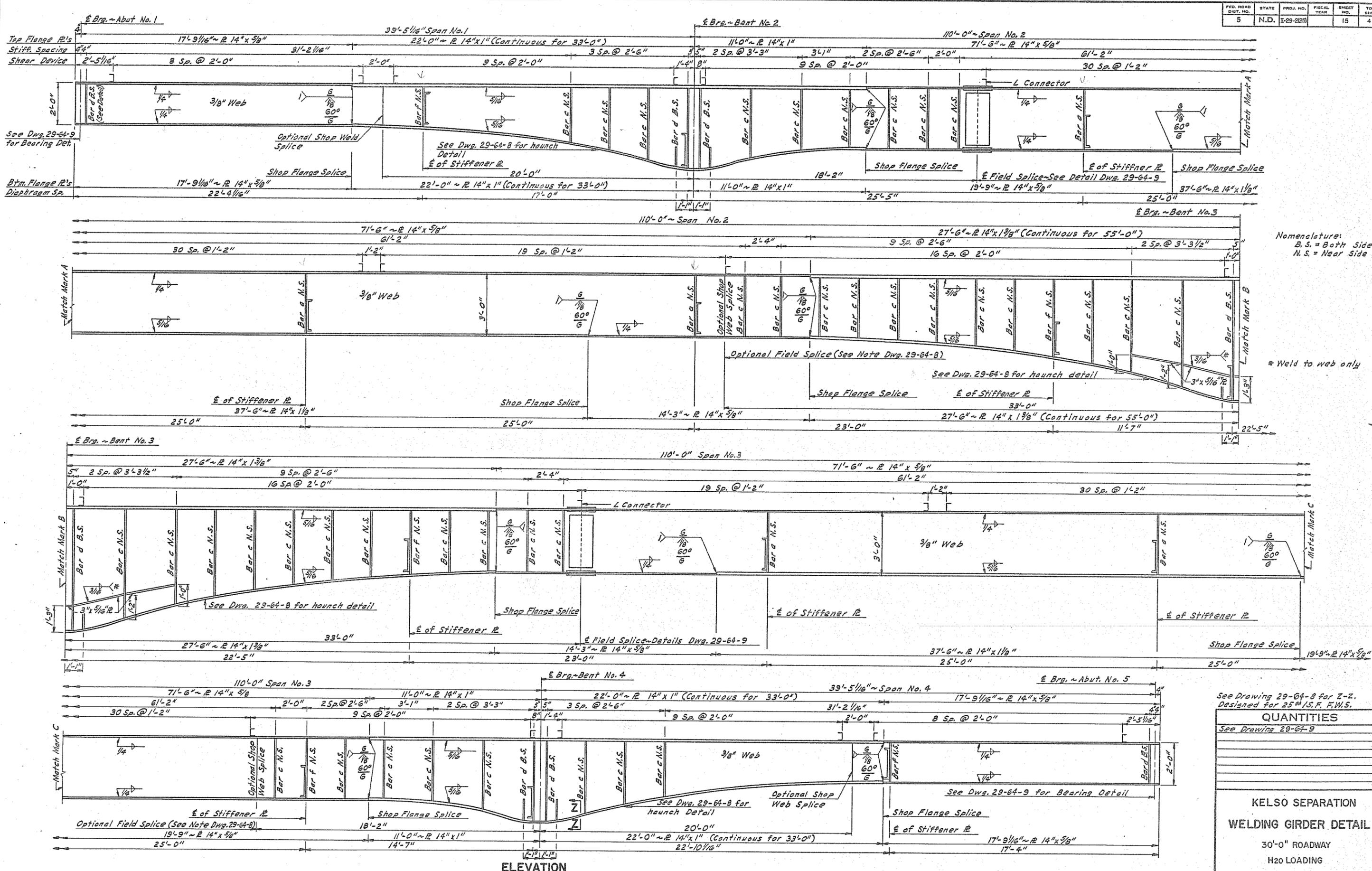
QUANTITIES (ONE BENT)	
Class A-1 Concrete	34.2
Reinforcing Steel	5545
Steel Piling (see layout)	
Excavation (see layout)	

KELSO SEPARATION
24'-0" BENT
30'-0" ROADWAY
H2o LOADING

DATE	REVISIONS
	MADE BY D.O.A.
	CHECKED BY G.H.H.
	MADE BY G.A.L.
	CHECKED BY L.F.G.
	MADE BY G.A.L.
	CHECKED BY L.F.G.
	MADE BY F.D.H.
	CHECKED BY L.F.G.

29-64-5

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



Nomenclature:
 B.S. = Both Sides
 N.S. = Near Side

* Weld to web only

See Drawing 29-64-8 for Z-Z.
 Designed for 25th I.S.F. F.W.S.

QUANTITIES
 See Drawing 29-64-9

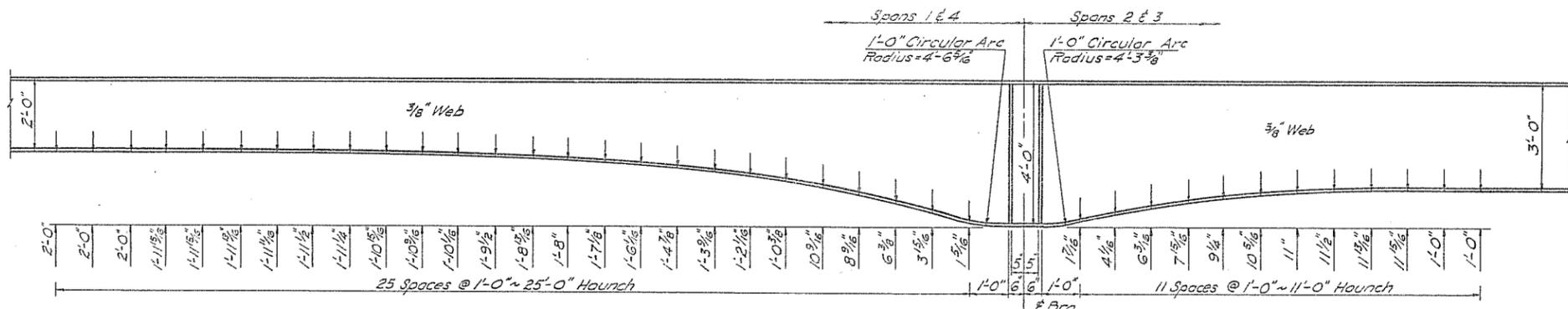
**KELSO SEPARATION
 WELDING GIRDER DETAIL**

30'-0" ROADWAY
 H2O LOADING

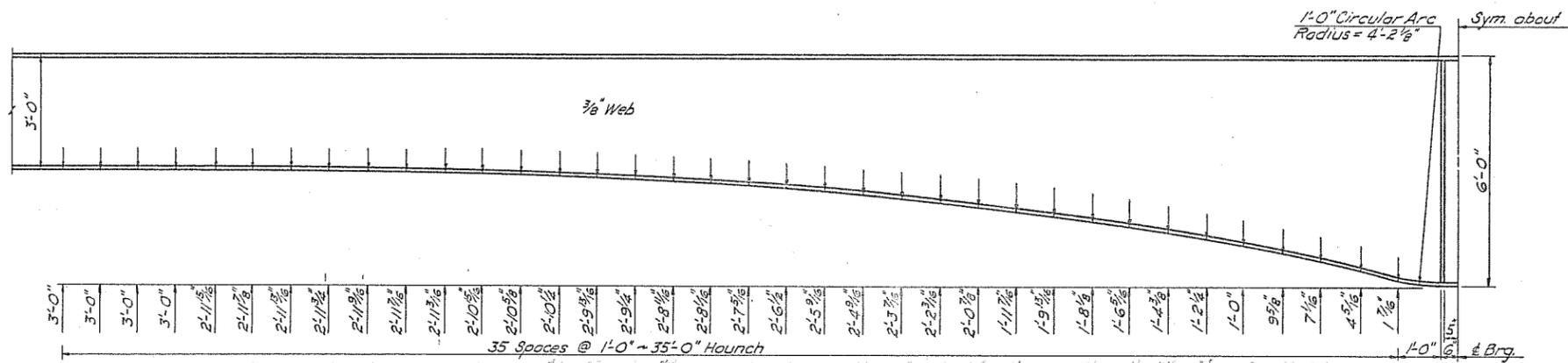
29-64-7

ELEVATION

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	1-29-225		16	46

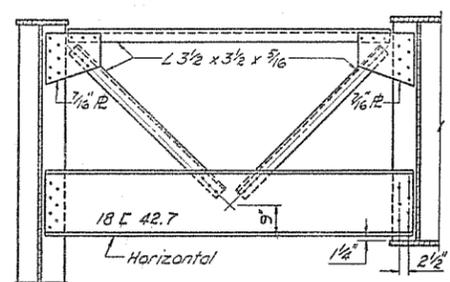


BENTS 2 & 4

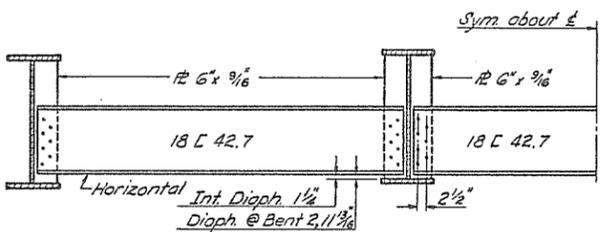


BENT NO. 3

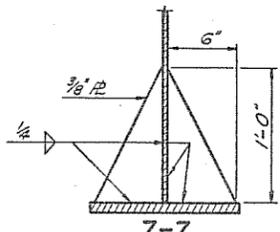
GIRDER HAUNCH DETAILS



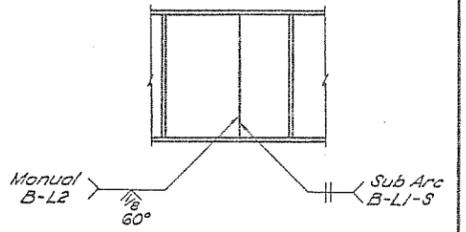
Y-Y
Typical At Bent No. 3 only



X-X
Typical for diaphragms of Bents 2 and most intermediate diaphragms. For diaphragms at Bent 4 and intermediate diaphragms in the haunch region the 1 1/4 inch dimension shall be measured from the girder with the higher bottom flange.

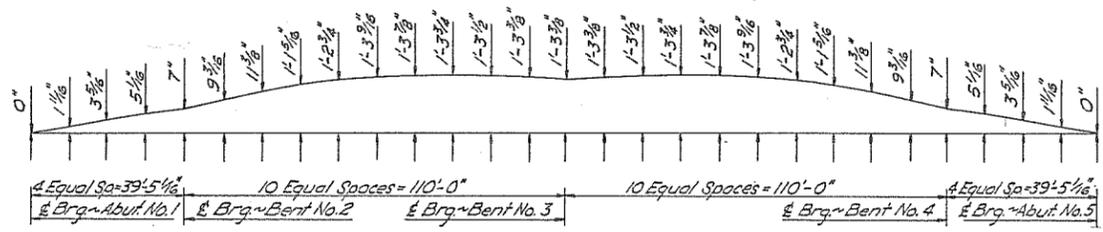


Z-Z
Typical for Bents 2, 3, & 4
See Drawing 29-64-7



OPTIONAL SHOP WEB SPLICE

If optional field splices are used in spans 2 and 3, shop web splices will not be used in those spans.



SHOP CAMBER DIAGRAM

The shop camber diagram above represents the total rise in inches above a chord between the center of abutment bearings, that shall be cut into the web plate of the girders to compensate for the dead load deflection of the superstructure, plus the vertical curve of the roadway. The camber shown shall be in addition to the rise required for the girder haunch. The depth of the web plate will also vary according to the thickness of the flange plates.

NOTES:

FIELD SPLICE:

TWO FIELD SPLICES ARE PROVIDED ON DRAWING 29-64-7. FALSEWORK WITH PROVISIONS FOR JACKING MUST BE PROVIDED DURING ERECTION TO HOLD THE GIRDERS IN ALIGNMENT WHILE SPLICES ARE BEING MADE.

OPTIONAL FIELD SPLICES:

IN ADDITION TO THE TWO FIELD SPLICES ON DRAWING 29-64-7, TWO OPTIONAL FIELD SPLICES ARE SHOWN. THE TWO ADDITIONAL FIELD SPLICES MAY BE USED BY THE CONTRACTOR UNDER THE FOLLOWING CONDITIONS:

1. THEY ARE MADE AT NO EXPENSE TO THE STATE.
2. FLANGE AND WEB SPLICE PLATES AND BOLTS WILL BE AS SHOWN IN DETAILS ON DRAWING 29-64-9.
3. FALSEWORK AT THESE SPLICE POINTS WITH PROVISIONS FOR JACKING MUST BE PROVIDED DURING ERECTION TO HOLD THE GIRDERS IN ALIGNMENT WHILE SPLICES ARE BEING MADE.

THE SHOP FABRICATION AND ERECTION DRAWING MUST INDICATE FOUR PICK-UP POINTS FOR EACH MEMBER OVER 100 FEET LONG TO BE USED DURING SHIPPING AND ERECTION.

THE DETAILS SHOWN ON DRAWING 29-64-7 REPRESENT GIRDER NO. 1 IN A FOUR (4) GIRDER BRIDGE. GIRDERS NO. 2, NO. 3 AND NO. 4 ARE SIMILAR TO GIRDER NO. 1 AND SHALL BE FABRICATED IN ACCORDANCE WITH THESE DETAILS AND DRAWINGS 29-64-6 THRU 29-64-9.

ALL SHOP BUTT WELDS IN THE FLANGE PLATES SHALL BE MADE BEFORE FINAL FITTING AND WELDING INTO THE GIRDER.

OPTIONAL WEB SPLICES:

THE PAY QUANTITY FOR STRUCTURAL STEEL WILL BE BASED ON THE USE OF THE OPTIONAL SHOP WEB SPLICES.

Designed for 25' S.F. F.W.S.

QUANTITIES

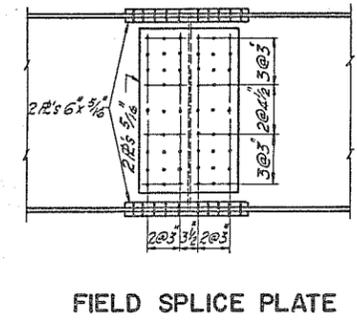
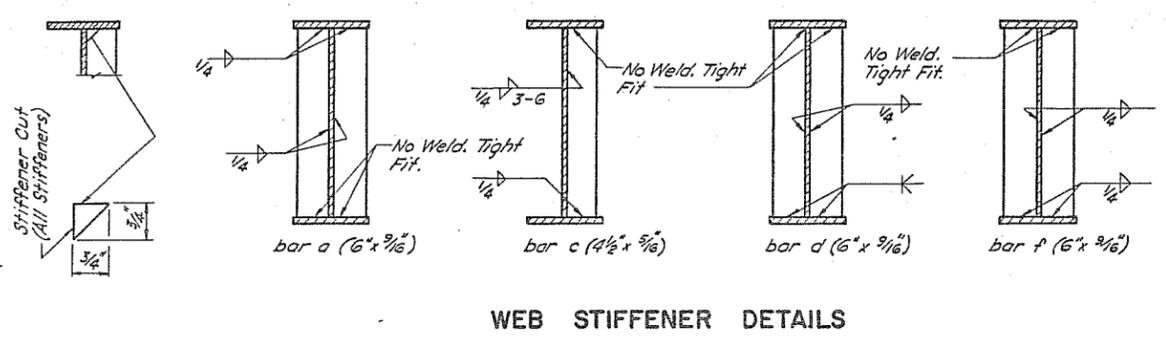
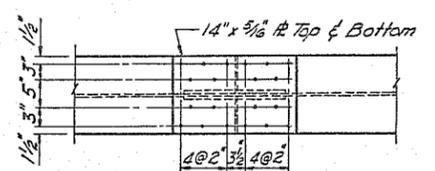
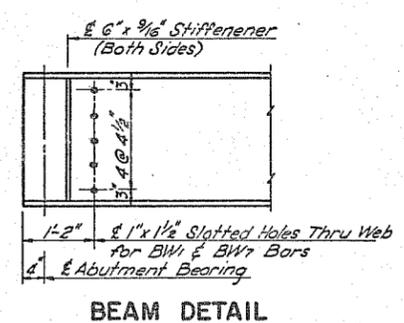
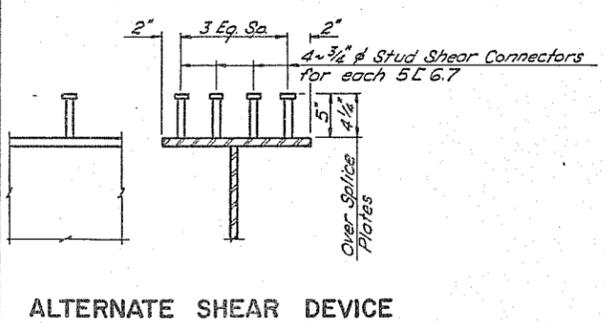
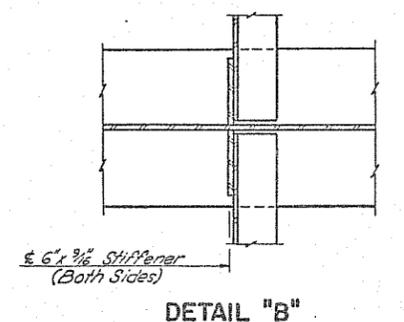
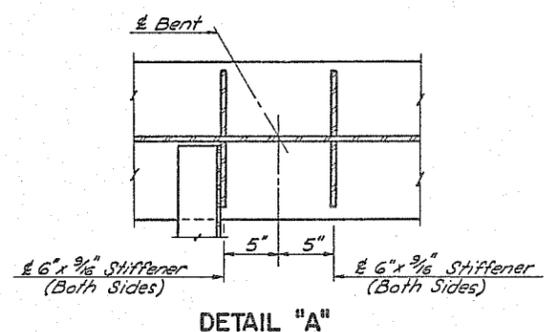
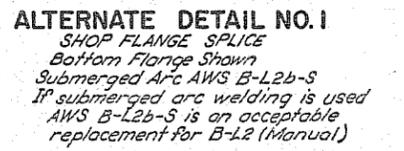
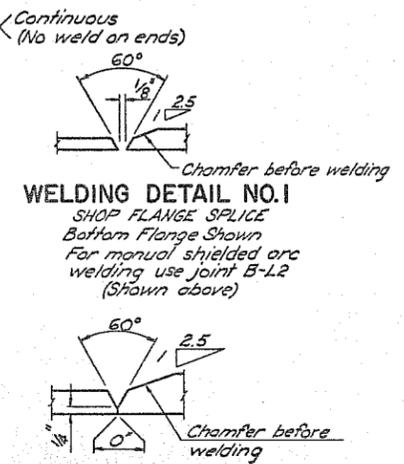
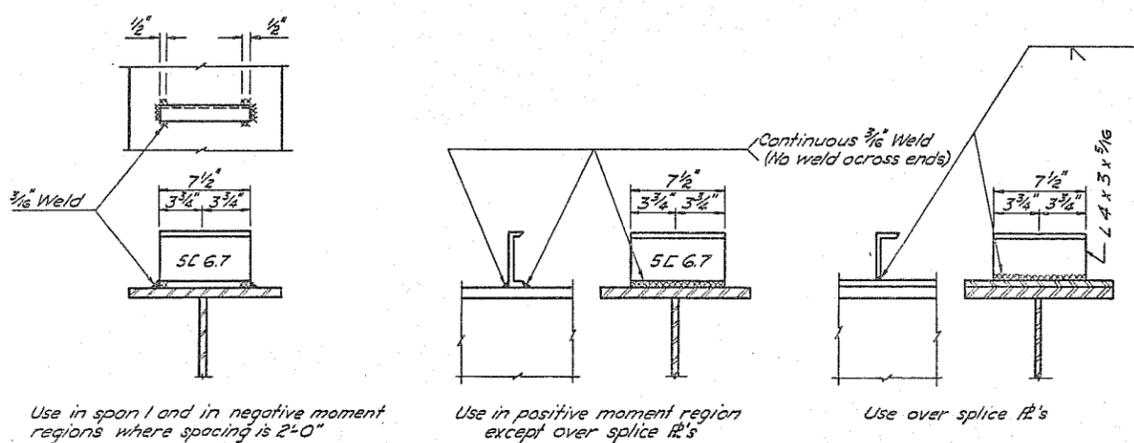
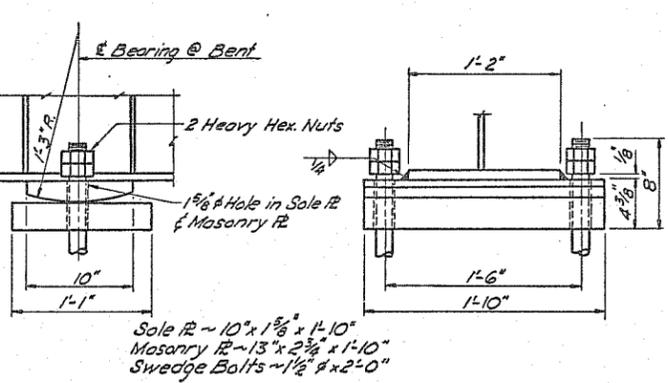
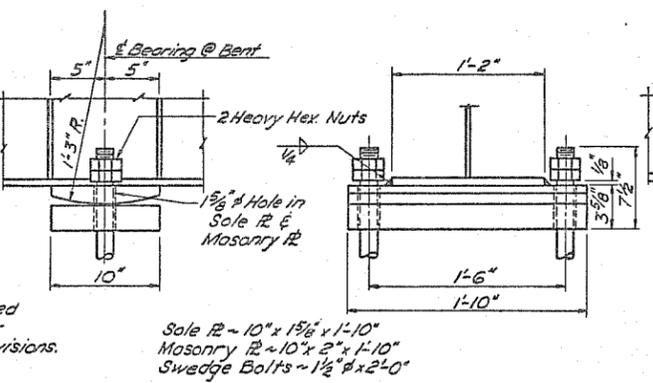
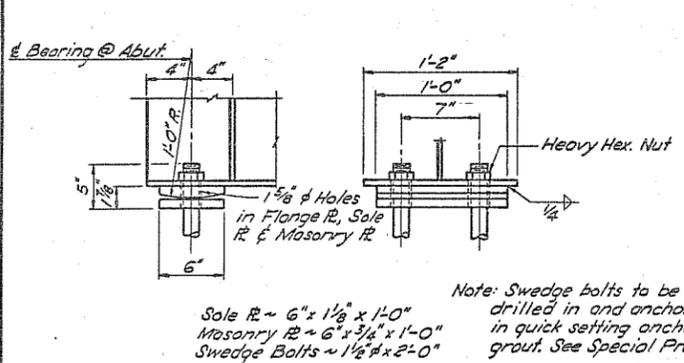
See Drawing 29-64-9

KELSO SEPARATION SUPERSTRUCTURE DETAILS

30'-0" ROADWAY
H₂O LOADING

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	1-29-2(25)		17	4

DESIGN	MADE BY	DDA
DETAILS	CHECKED BY	LPH
TRACING	MADE BY	LEG
QUANTITIES	CHECKED BY	DLG
	MADE BY	LFB
	CHECKED BY	ADH
	MADE BY	VJS
	CHECKED BY	



Designed For 25 #/SF F.V.I.S.

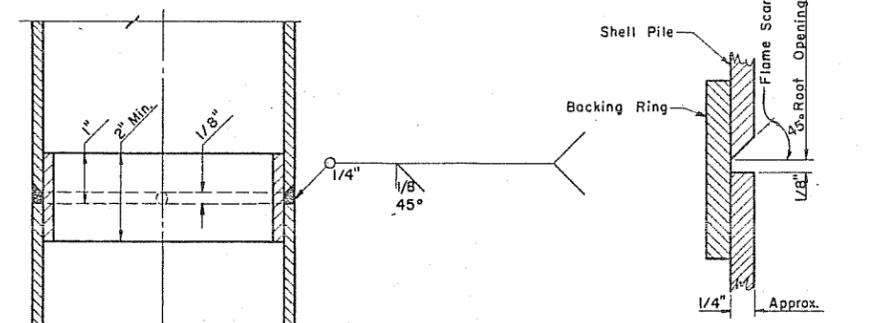
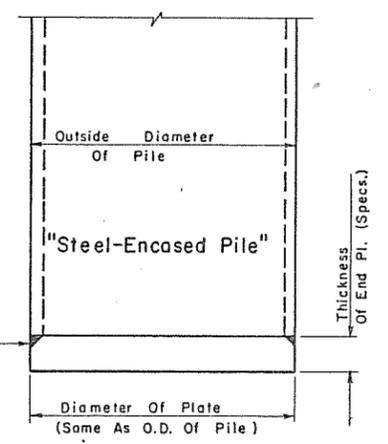
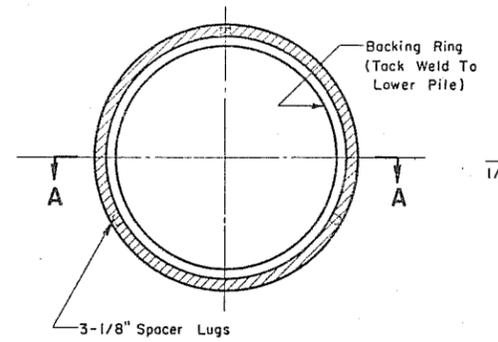
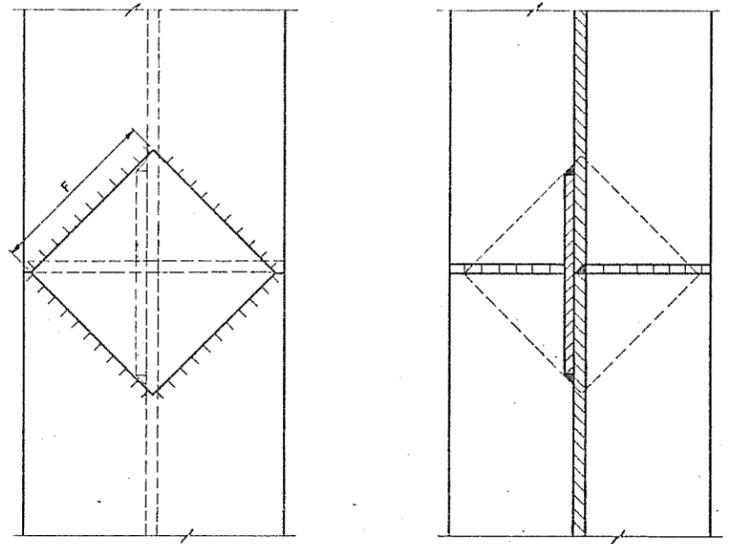
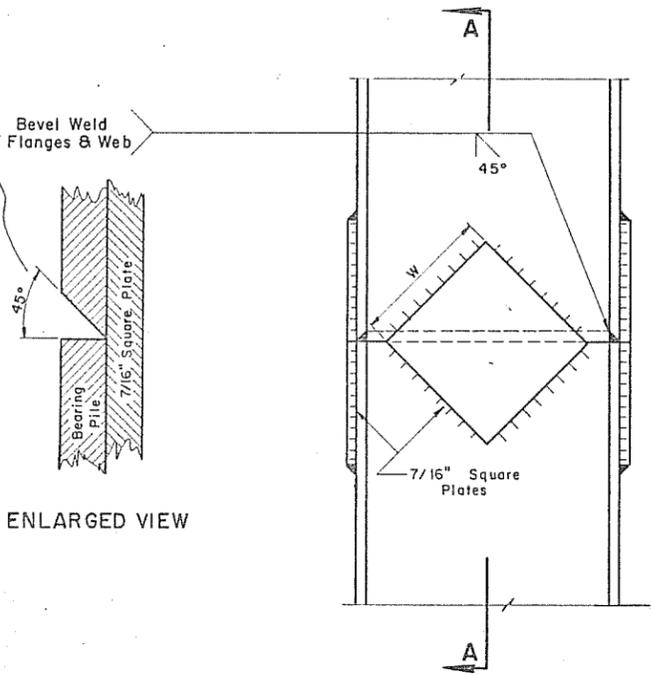
QUANTITIES	
Structural Steel A-44	172200
Structural Steel A-36	29,900

**KELSO SEPARATION
SUPERSTRUCTURE DETAIL**

30'-0" ROADWAY
H₂o LOADING

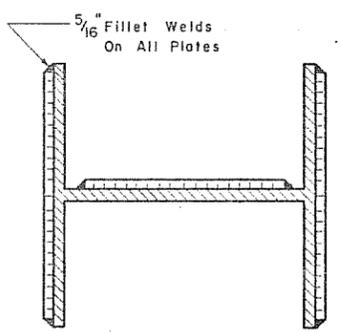
29-64-9

29-64-9



A - A

SHELL PILE SPLICE DETAIL



PILE	8"	10"	12"	14"
F FLANGE	5"	6 1/2"	8"	10"
W WEB	4"	5 1/2"	6 1/2"	8"

All welding shall conform to the current specification for "Welded Highway and Railway Bridges of the American Welding Society."

PILE SPLICE DETAILS

Bridge # 29-100.391

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
5	N. D.	I-29-2(31)	1	34

NORTH DAKOTA STATE HIGHWAY DEPARTMENT

INDEX OF DRAWINGS

SHEET NO. 1	TITLE PAGE & SUMMARY OF QUANTITIES
SHEET NO. 2	TO 4 INCL. PLAN AND PROFILE DRAWINGS
SHEET NO. 5	TO 26 INCL. STRUCTURAL DRAWINGS
SHEET NO. 27	TO 28 INCL. SIGNING & DETAILS & TYPICAL SECTIONS
SHEET NO. 29	TO 34 INCL. CROSS SECTIONS

GOVERNING SPECIFICATIONS
Standard Specifications adopted by the North Dakota State Highway Department Jan. 1965 and approved as standards by the Bureau of Public Roads June 23, 1965. Required Contract Provisions (Form PR-1273) dated October 1968 and others submitted herewith.

KEY TO CONVENTIONAL SIGNS

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



SKETCH-MAP OF NORTH DAKOTA SHOWING COUNTIES



SCALES

LAYOUT SHEET	1 IN = 5000 FT
PLAN AND 1/4 HOR	1 IN = 100 FT
PROFILE DRAWINGS	1 IN = 10 FT
STRUCTURAL DRAWINGS	AS SHOWN
CROSS SECTION SHEETS	1 IN = 10 FT & 1 IN = 20 FT

PLANS FOR THE PROPOSED IMPROVEMENT OF A STATE HIGHWAY IN TRAILL COUNTY FEDERAL AID PROJECT NO. I-29-2 (31) 100 & FG-426(5)

LENGTH OF PROJECT

PROJECT MILES-GROSS	MILES-NET
I-29-2(31) .000	.000
FG-426(5) .042	.042
TOTALS	.042

LIST OF STANDARDS

ST'D. NO.	SHEET NO.
Slope Protection 7.5A	23
Federal Aid Name Plate 14.9B	24
Bridge Bench Marks 7.6	25
Const. Ident. Sign 14.25	26
Standard Signs 14.1A-1 thru 14.1A-10	26 A

DESIGN DATA
I-29-2 (31) 100

TRAFFIC	AVERAGE DAILY	EST. 30TH MAX. HR.
CURRENT TRAFFIC 1969	2258 PASS 392 TRUCKS 2650 TOTAL	334
TRAFFIC FORECAST 1989	4998 PASS 882 TRUCKS 5880 TOTAL	741
DESIGN SPEED	70 MPH	
TRAFFIC CLASSIFICATION	"M"	
MINIMUM SIGHT DISTANCE (NON PASSING)	600'	
FULL CONTROL OF ACCESS.		
NO POINT OF ACCESS OTHER THAN BY RAMPS AT INTERCHANGES.		

Aggr. Surface Course has been provided on the grading contract for the Crossroads. In the event that structural work has not progressed sufficiently to allow the grading contractor to install this item at structure ends, the structural contractor shall install this item in accordance with the plan. The grading contractor will furnish the materials at the site. Temp. curbing shall be installed (See Sheet # 27). The cost of this work shall be incidental to other items.

The grading contractor shall be responsible for maintenance and protection of traffic while the grading contract is active. The structural contractor shall be responsible for maintenance and protection of traffic on the detours as soon as he begins work if the grading contract is complete, or suspended while the structural contract is active. The detours will be removed on the future surfacing contract. The cost of maintenance of detours and protection of traffic shall be paid for as maintenance and protection of traffic.

SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS

NAME	NO.
Piling	SS-2
Conc. Slope Protection	SS-27
Backfill	SS-28
Conc. Structures	SS-29
Reinforcement	SS-30
Struct. Steel	SS-31
Painting	SS-32
Quick Setting Anchor Grout	SS-33
Bidding Requirement & Conditions	SS-34
Legal Relations & Resp. to the Public	SS-35
General Statement	SS-36
Prosecution & Progress	SS-37
Mobilization	SS-38
Value Engineer Incentive	SS-39
Maintenance Protection of Traffic	SS-40
Scope of Work	SS-41
Field Laboratory	SS-42
Std. Prov. for Railway Protection	SS-43

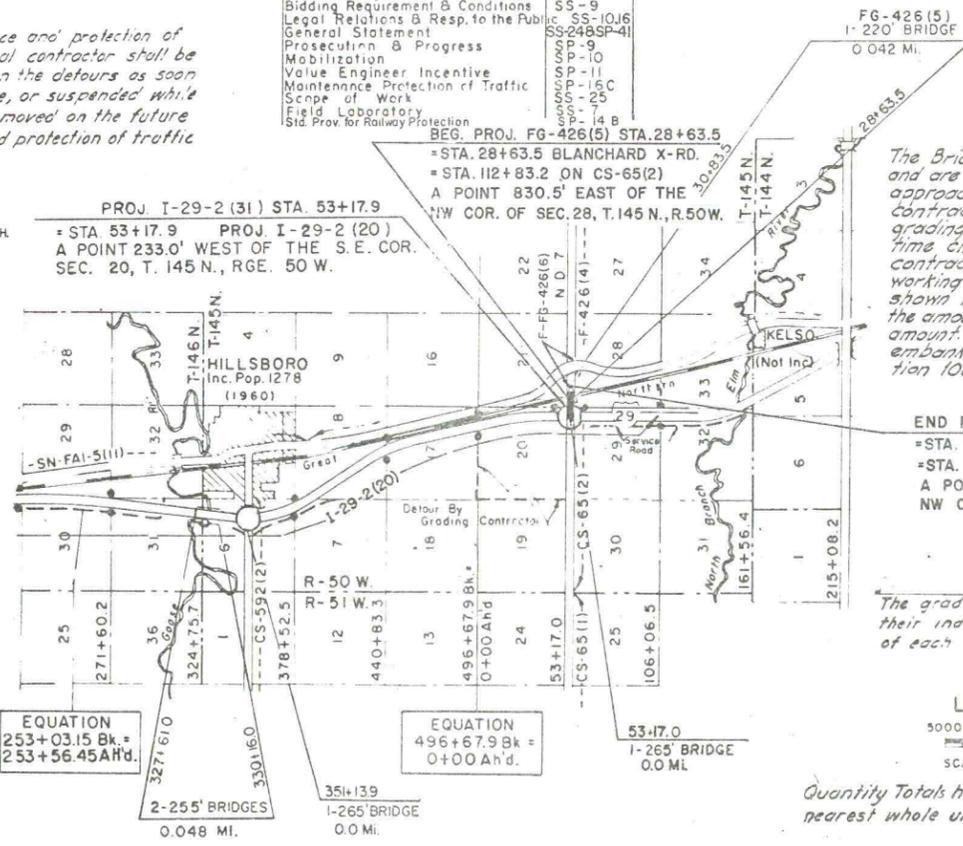
LEGEND

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

DESIGN DATA
FG-426 (5)

TRAFFIC	AVERAGE DAILY	EST. 30TH MAX. HR.
CURRENT TRAFFIC (1969)	550 PASS. 100 TRUCKS 650 TOTAL	85
TRAFFIC FORECAST (1989)	1100 PASS. 200 TRUCKS 1300 TOTAL	170
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'	

STA.	CLEAR ROWDY WIDTH	DESIGN LOADING
29+66.2	36'	HS ₂₀ (1944)
53+17.9	36'	HS ₂₀ (1944)



CONSTRUCTION IDENTIFICATION SIGNS - To be installed at Sta. 197+00 Rt. Hwy. #81 Swingout.

The Bridge approach embankments are under contract and are in various stages of completion. Until the bridge approach embankments are completed the structural contractors progress will be dependent upon the grading contractors progress. During this period the time charged for work performed on the structural contract shall be computed by taking the number of working days allowed for the performance of the work shown in the contract as awarded, times the ratio of the amount of work earned to the original contract amount. After completion of the bridge approach embankments, time will be charged according to section 108-6 of the Standard Specifications.

END PROJ. FG-426(5) STA. 30+83.5
= STA. 115+03.3 ON CS-65(2)
= STA. 30+83.5 ON F-FG-426(6)
A POINT 1050.5' EAST OF THE NW COR. OF SEC. 28, T.145N., R.50W.

The grading & structural contractors shall conduct their individual operations to the mutual benefit of each other. See Sec. 105-7 of the Std. Spec.

LAYOUT MAP



Quantity Totals have been rounded off to the nearest whole unit for bidding purposes.



SKETCH MAP OF TRAILL COUNTY

QUANTITIES

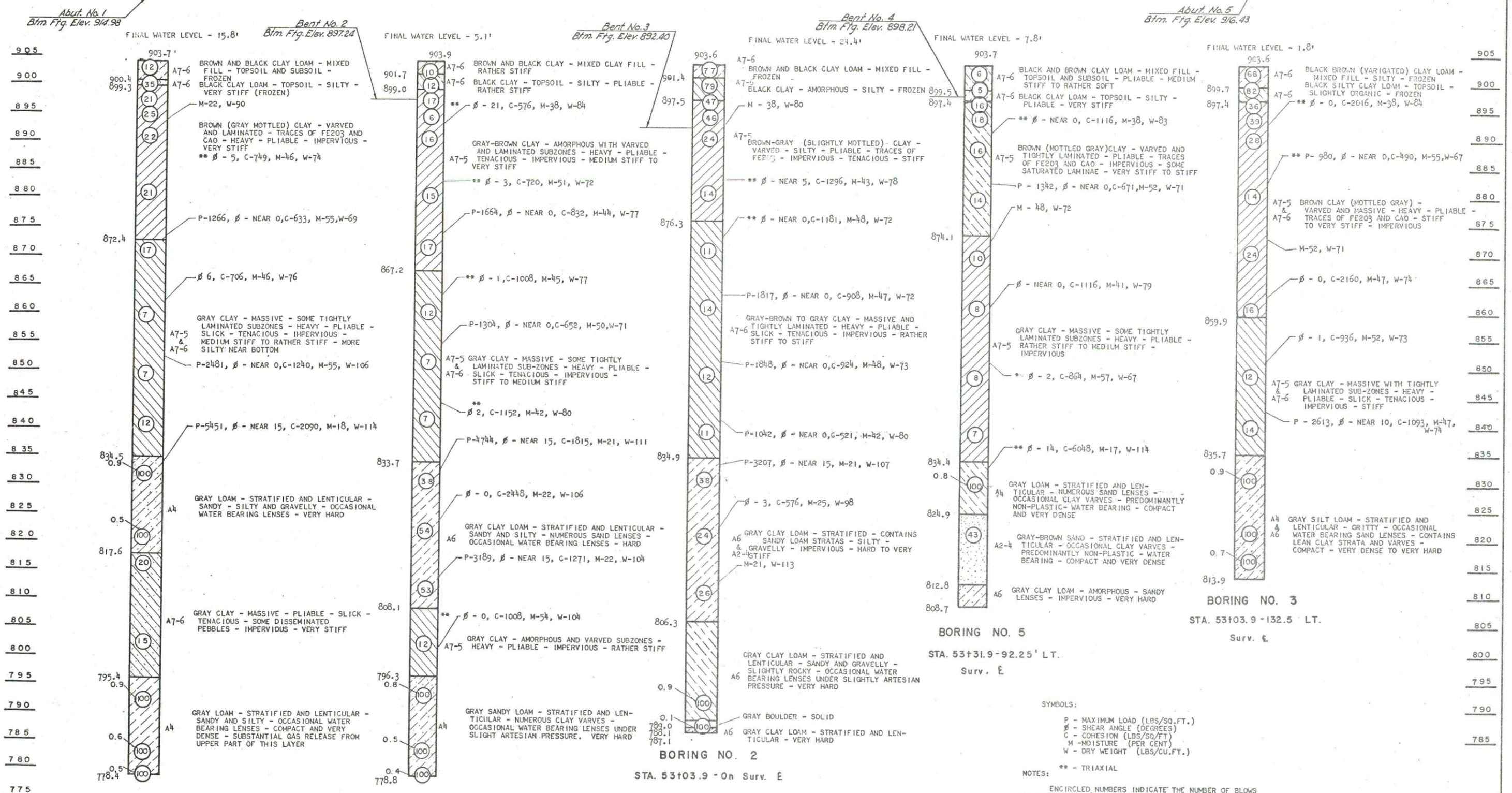
SPEC. NO.	208	228	610	610	610	612	616	616	622	622	622	750	704	756	745	604	610					
CODE NO.	0100	0100	1112	1134	0138	0110	0362	4412	0020	0040	1360	1430	1480	0100	0100	3000	0100	7520	3298	0100	4100	1135
LOCATION	CLASS 1 EXCAVATION	SELECT BACKFILL	CLASS AE-1 CONCRETE (SUBSTRUCT.)	CLASS AE-3 CONCRETE (I-BEAM SUPERSTRUCT.)	CLASS AAE-3 CONCRETE (RAILING)	REINFORCING STEEL GRADE 40	STRUCTURAL STEEL (A-36) (WELDED BEAM)	STRUCTURAL STEEL (A-441) (WELDED BEAM)	STEEL PILING (10BP42)	STEEL PILING (12BP53)	STEEL TEST PILES (12 BP 53)	LINSEED OIL TREATMENT	CONC. SLOPE PROTECTION	BRIDGE BENCH MARKS	FIELD LABORATORY	MOBILIZATION	MAINTENANCE PROTECTION OF TRAFFIC - DETOUR	FLAGGING	71'-10" PRESTRESSED BOX BEAM (33" x 36")	CLASS AE-3 CONCRETE SUPERSTRUCT.		
	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	LB.	LB.	LB.	Lin. Ft.	Lin. Ft.	EA.	EA.	EA.	Gal.	S.Y.	Set	EA.	Lump Sum	Lump Sum	Man Hr's.	EA.	C.Y.
I-29-2 (31) Sta. 53+17.9	240	180	143	298	17	112,183	32,100	174,400	900	1980	1	1	50	540	1	1	1	1	1	100		
FG-426(5) Sta. 29+66.2	170	175	171		14	83,175				3450			2	1	41	1125	1				18	239
TOTAL	410	355	314	298	31	195,358	32,100	174,400	900	5430	1	3	1	91	1665	2	1	1	1	100	18	239

APPROVED DATE 10-23-69
Alfred J. ...
CHIEF ENGINEER
NORTH DAKOTA STATE HIGHWAY DEPARTMENT

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS

APPROVED
DIVISION ENGINEER DATE

Plotted by JLS - July 12, 1947



SYMBOLS:

- P - MAXIMUM LOAD (LBS/SQ. FT.)
- ϕ - SHEAR ANGLE (DEGREES)
- C - COHESION (LBS/SQ. FT.)
- M - MOISTURE (PER CENT)
- W - DRY WEIGHT (LBS/CU. FT.)

NOTES:

- ** - TRIAXIAL
- 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.
- THE FINAL WATER LEVEL SHOWN IS CAUSED BY PRESSURE FORCING THE LIQUID UP FROM THE 70' REGION AND DOES NOT NECESSARILY MEAN THAT WATER WILL BE ENCOUNTERED IN THE EXCAVATION FOR FOOTINGS AT THE ELEVATIONS SHOWN.

BRIDGE NO. 29-62

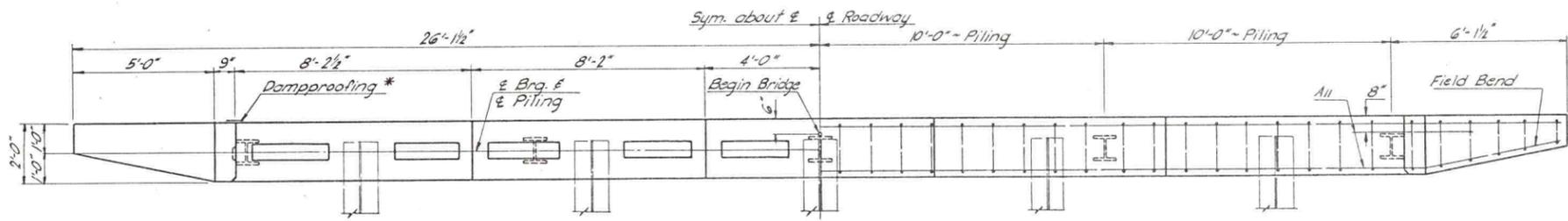
BORING LOG

BLANCHARD INTERCHANGE

TRAILL COUNTY

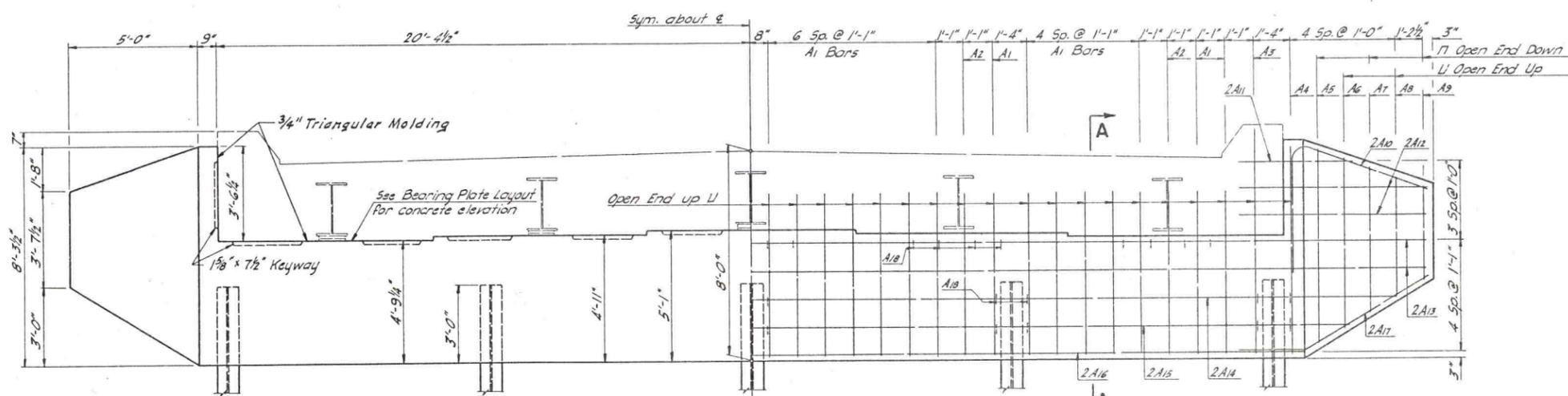
29-62-2

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	1-29-2317		9	34



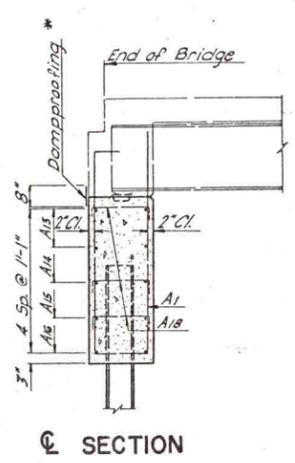
PLAN
Showing Dimensions

PLAN
Showing Reinforcing

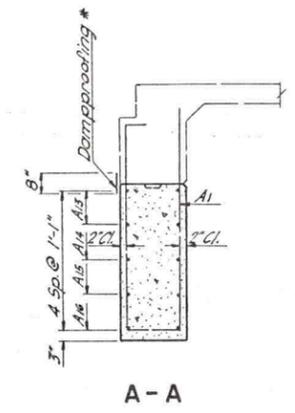


ELEVATION
Showing Dimensions

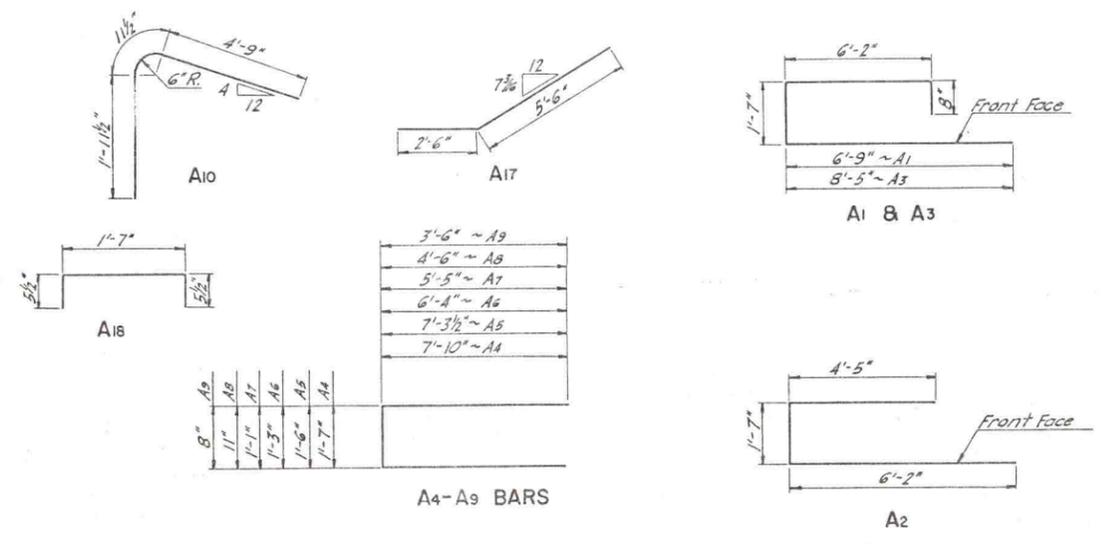
ELEVATION
Showing Reinforcing



SECTION



A-A



BENT BAR DETAILS
Dimensions shown are center to center.

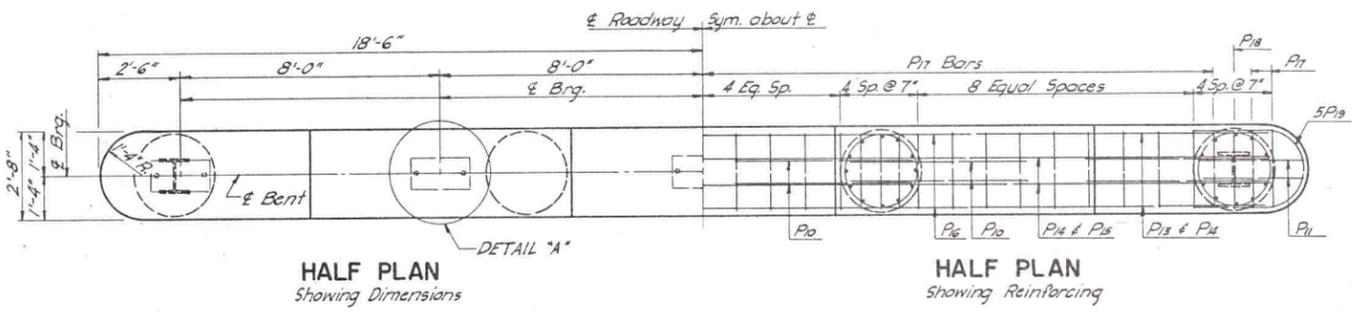
ABUTMENT (ONE ABUT.)					
MARK	NUMBER	SIZE	LENGTH	SHAPE	
A1	30	6	15'-2"	Bent	
A2	4	6	12'-2"	"	
A3	2	6	16'-10"	"	
A4	2	6	17'-3"	"	
A5	2	5	16'-1"	"	
A6	2	5	13'-11"	"	
A7	2	5	11'-11"	"	
A8	2	5	9'-11"	"	
A9	2	5	7'-8"	"	
A10	4	6	7'-8"	"	
A11	4	5	4'-5"	Str.	
A12	8	5	7'-3"	"	
A13	8	5	26'-8"	"	
A14	4	5	25'-3"	"	
A15	4	5	23'-5"	"	
A16	4	6	21'-11"	"	
A17	4	6	8'-0"	Bent	
A18	40	4	2'-6"	"	

NOTE:
* Two coats of dampproofing shall be applied over the construction joint on the back face as shown on the detail.
"Dampproofing Two Coats" shall be applied, in accordance with Section 736 of the standard specifications. Dampproofing will not be paid for directly, but shall be included in the unit price bid for Class AE-1 Concrete.

QUANTITIES (ONE ABUT.)		
Class AE-1 Concrete	191	CY
Reinforcing Steel	1780	Lb.
Excavation (See Layout)		
Piling (See Layout)		

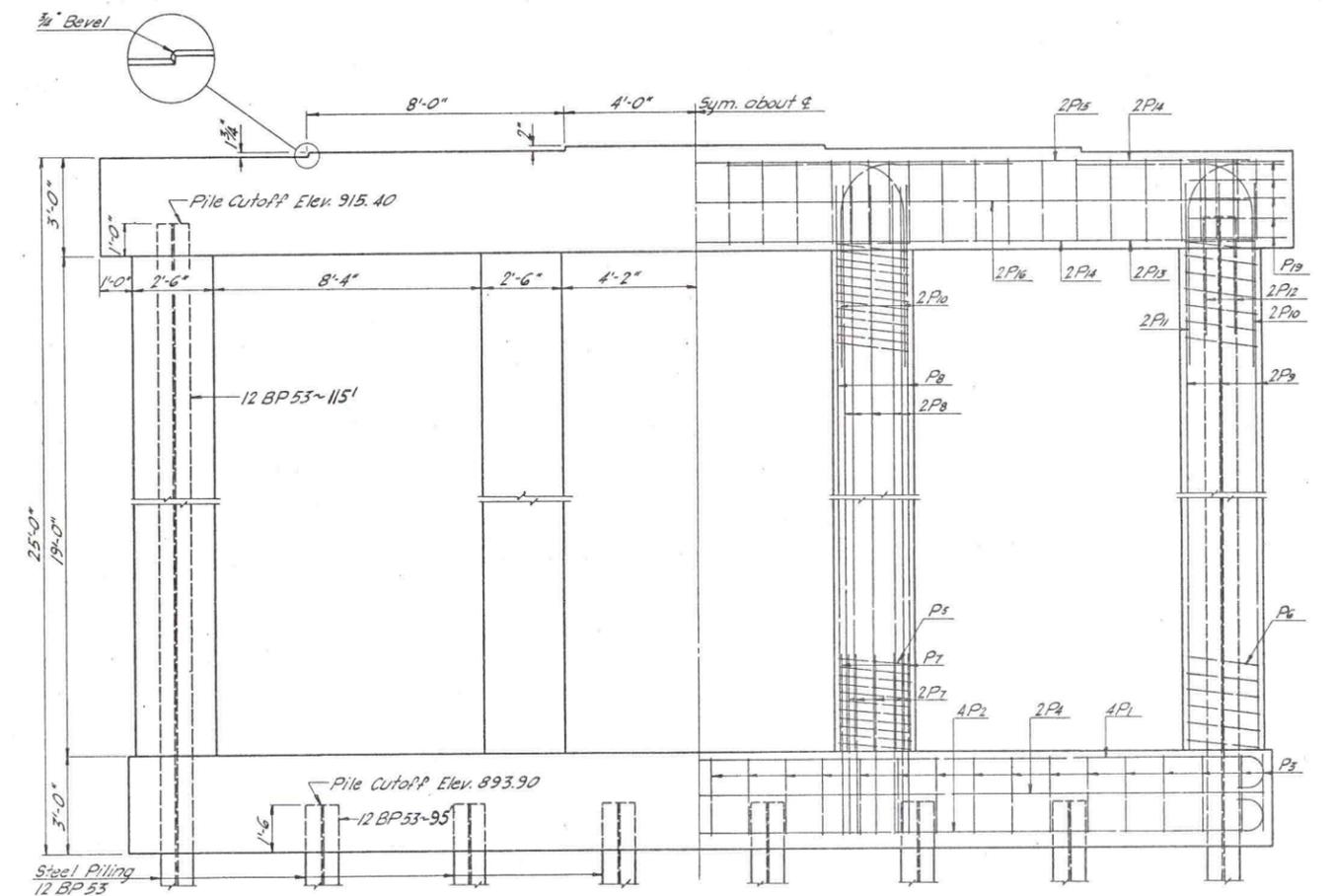
BLANCHARD INTERCHANGE
8'-0" ABUTMENT
36'-0" ROADWAY
HS20 LOADING

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	1-29-2(81)		10	34



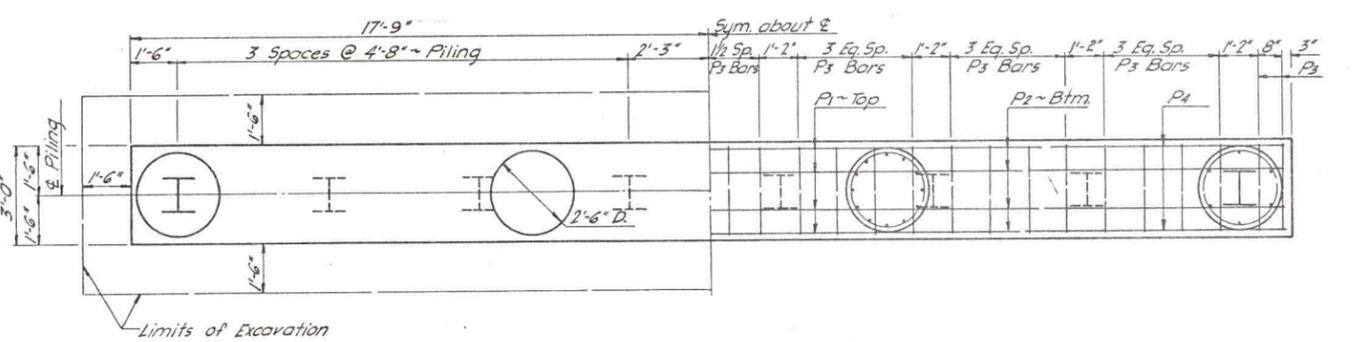
HALF PLAN
Showing Dimensions

HALF PLAN
Showing Reinforcing



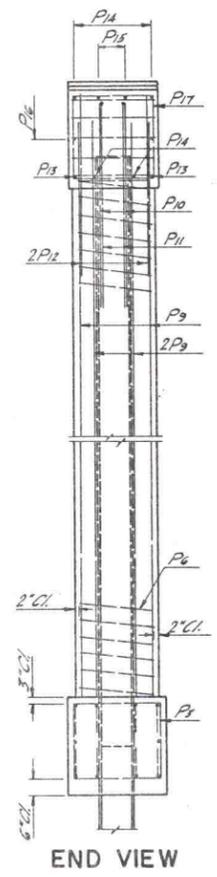
HALF ELEVATION
Showing Dimensions

HALF ELEVATION
Showing Reinforcing

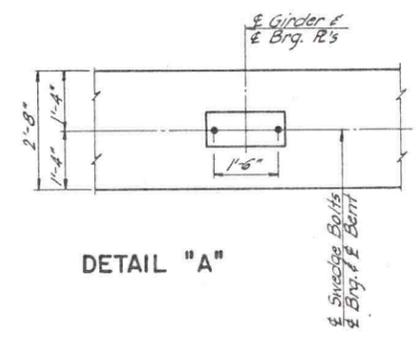


HALF FOOTING PLAN
Showing Dimensions

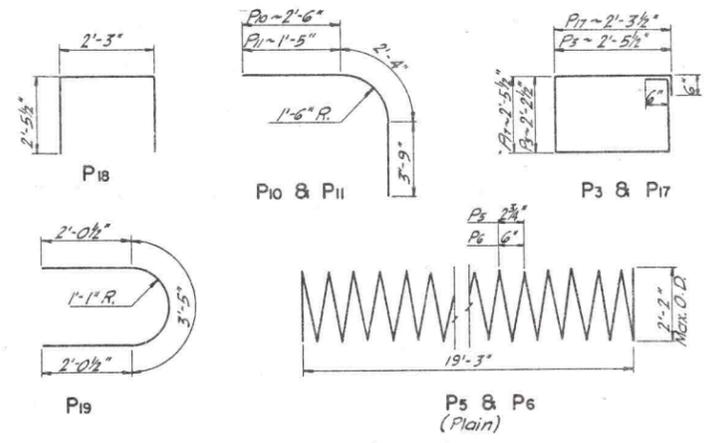
HALF FOOTING PLAN
Showing Reinforcing



END VIEW



DETAIL "A"



BENT BAR DETAILS

Dimensions shown are center to center

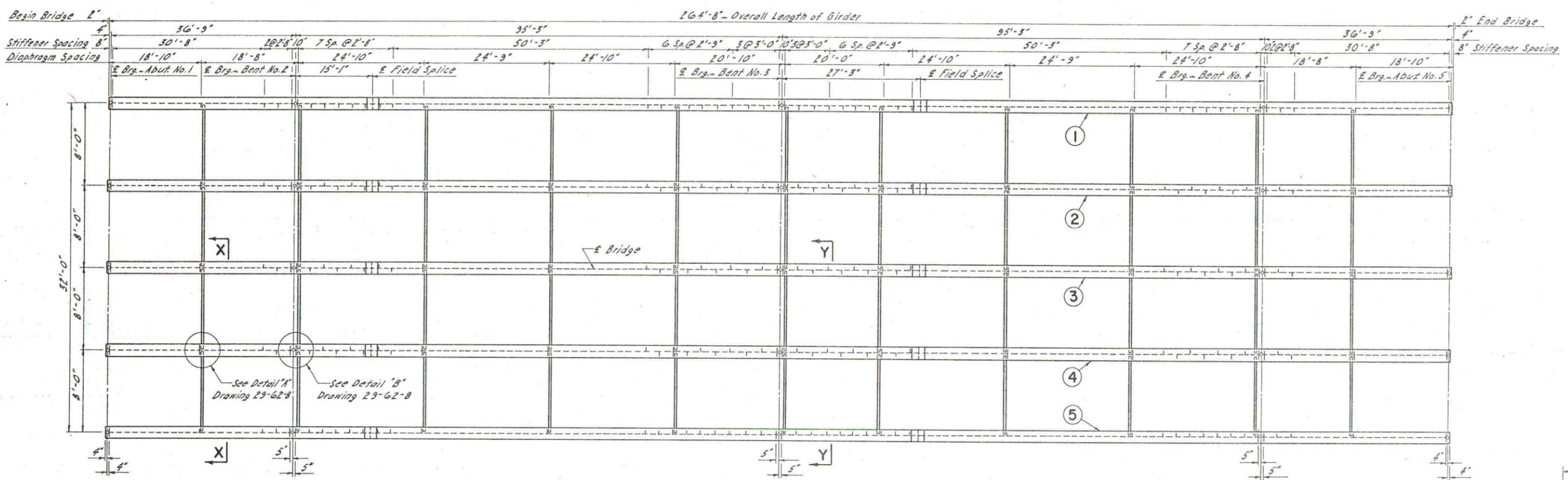
BAR LIST (ONE BENT)						
MARK	NUMBER			SIZE	LENGTH	SHAPE
	CAP	COLUMN	FOOTING			
P1		4	9	37'-2"	Bent	
P2		4	8	36'-11"	"	
P3		32	5	10'-4"	"	
P4		2	5	35'-0"	Str.	
P5	2	4	4	581'-0"	Spiral	
P6	2	3	3	278'-0"	"	
P7		24	7	5'-6"	Str.	
P8	24	7	7	21'-0"	"	
P9	12	5	5	21'-0"	"	
P10	12	8	8	8'-7"	Bent	
P11	4	8	8	7'-6"	"	
P12	8	6	6	5'-6"	Str.	
P13	2	9	9	34'-6"	"	
P14	4	10	10	34'-6"	"	
P15	2	11	11	34'-6"	"	
P16	2	4	4	34'-6"	"	
P17	39	5	5	10'-6"	Bent	
P18	2	5	5	7'-2"	"	
P19	10	5	5	7'-6"	"	

NOTE:
The concrete in the columns shall be allowed to set at least two (2) hours before the bent cap reinforcing is placed and concrete poured.
All exposed edges to be beveled with 3/4" triangular mounding.

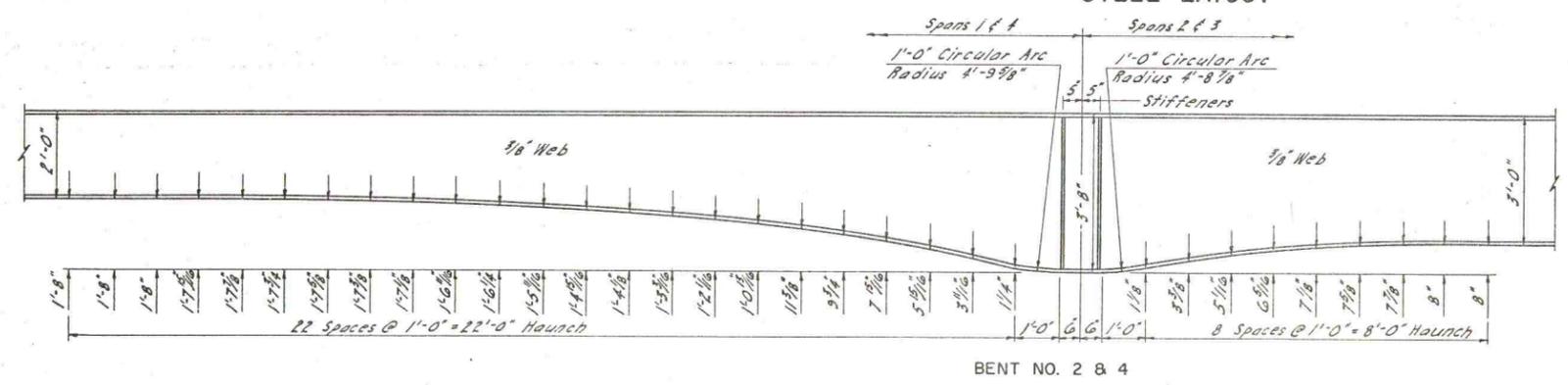
QUANTITIES (ONE BENT)	
Glass AE-1 Concrete	36.9 cu yd
Reinforcing Steel	6048 lbs
Steel Piling (See Layout)	
Excavation (See Layout)	

BLANCHARD INTERCHANGE
25'-0" BENT
36'-0" ROADWAY
HS20 LOADING

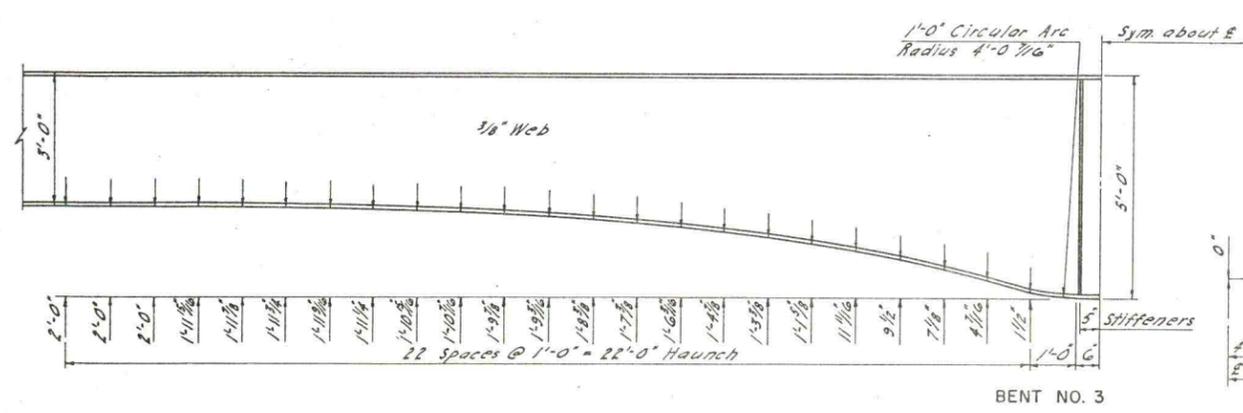
DESIGN	MADE BY D.O.A.	CHECKED BY L.P.H.
LS	MADE BY L.P.H.	CHECKED BY G.A.L.
TRACING	MADE BY L.F.G.	CHECKED BY D.L.P.
QUANTITIES	MADE BY G.A.L.	CHECKED BY D.L.P.



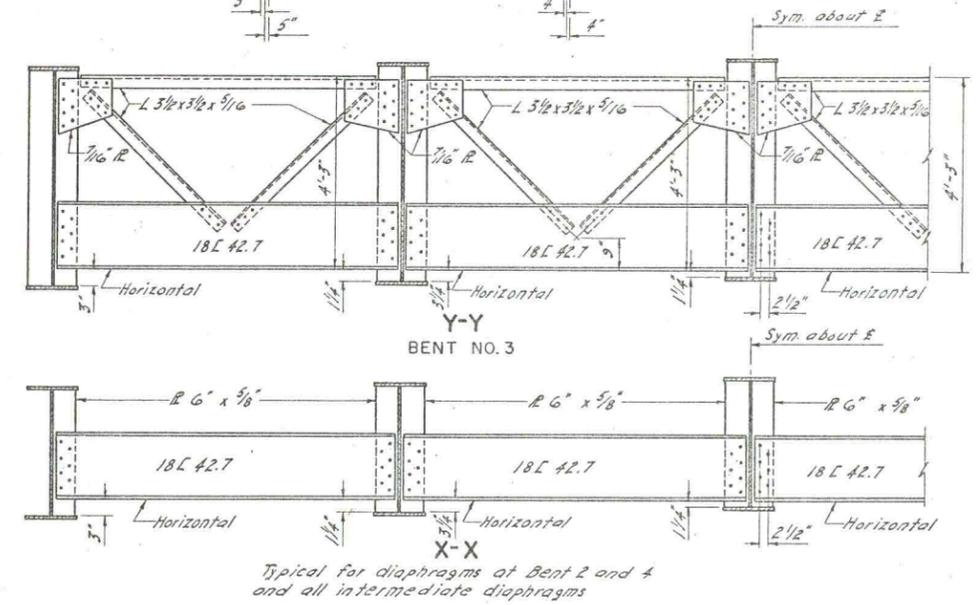
STEEL LAYOUT



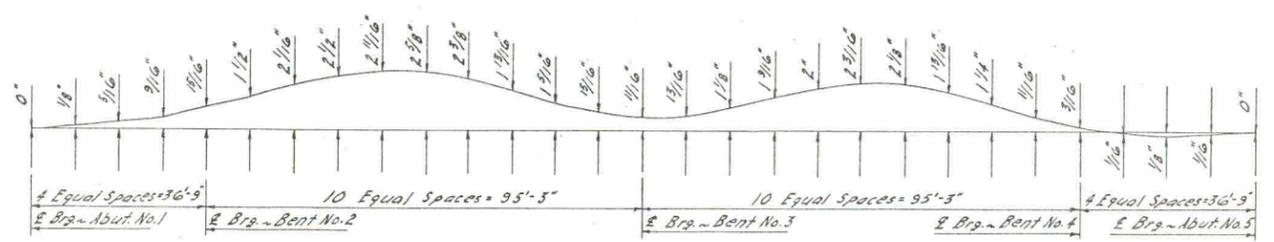
BENT NO. 2 & 4



BENT NO. 3
GIRDER HAUNCH DETAILS



BENT NO. 3



SHOP CAMBER DIAGRAM

The shop camber diagram above represents the total rise in inches above a chord between the Σ of abutment bearings that shall be cut into the web plate of the girders to compensate for the dead load deflection of the superstructure, plus the vertical curve of the roadway. The camber shown shall be in addition to the rise required for the girder haunch. The depth of the web plate will also vary according to the thickness of the flange plates.

Designed for 25 # S.F.F.W.S.

QUANTITIES	
See Drawing 29-62-8	

BLANCHARD INTERCHANGE
SUPERSTRUCTURE DETAILS
36'-0" ROADWAY
HS20 LOADING

29-62-6

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	I-29-2131		12	24



FIELD SPLICES:
 TWO FIELD SPLICES ARE PROVIDED ON THIS DRAWING. FALSEWORK WITH PROVISIONS FOR JACKING MUST BE PROVIDED DURING ERECTION TO HOLD THE GIRDER IN ALIGNMENT WHILE SPLICES ARE BEING MADE.

OPTIONAL FIELD SPLICES:
 IN ADDITION TO THE TWO FIELD SPLICES SHOWN ON THIS DRAWING TWO OPTIONAL FIELD SPLICES ARE SHOWN. THESE TWO ADDITIONAL FIELD SPLICES MAY BE USED BY THE CONTRACTOR UNDER THE FOLLOWING CONDITIONS:

1. THEY ARE MADE AT NO EXPENSE TO THE STATE.
2. FLANGE AND WEB SPLICE PLATES AND BOLTS WILL BE AS SHOWN IN DETAILS ON SHEET 29-62-8.
3. FALSEWORK AT THESE SPLICE POINTS WITH PROVISIONS FOR JACKING MUST BE PROVIDED DURING ERECTION TO HOLD THE GIRDERS IN ALIGNMENT WHILE SPLICES ARE BEING MADE.

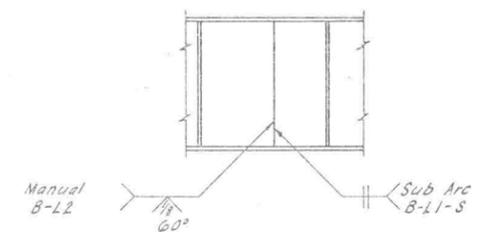
SHOP FLANGE SPLICES:
 THE SHOP FABRICATION AND ERECTION DRAWING MUST INDICATE FOUR PICK-UP POINTS FOR EACH MEMBER OVER 100 FEET LONG TO BE USED DURING SHIPPING AND ERECTION.

THE DETAILS SHOWN ARE FOR A FOUR SPAN CONTINUOUS WELDED GIRDER AND REPRESENT GIRDER NO. 1 IN A FIVE (5) GIRDER BRIDGE. GIRDERS NO. 2, NO. 3, NO. 4 AND NO. 5 ARE SIMILAR TO GIRDER NO. 1 AND SHALL BE FABRICATED IN ACCORDANCE WITH THESE DETAILS AND DRAWINGS 29-62-6 AND 29-62-8.

ALL SHOP BUTT WELDS IN THE FLANGE PLATES SHALL BE MADE BEFORE FINAL FITTING AND WELDING INTO THE GIRDER.

OPTIONAL SHOP WEB SPLICES:
 THE PAY QUANTITY FOR STRUCTURAL STEEL WILL BE BASED ON THE USE OF THE OPTIONAL SHOP WEB SPLICES.

*Weld to web only



SHOP WEB SPLICE
 If optional field splices are used in Spans 2 and 3, shop web splice shall not be used in those spans.

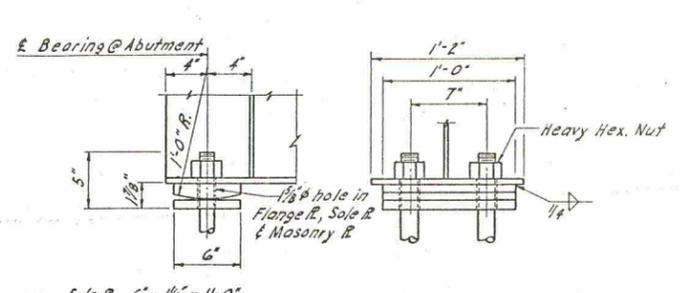
See Drawing 29-62-8 for Z-Z.

Designed for 25 M.S.F.F.W.S.
QUANTITIES
 See Drawing 29-62-8

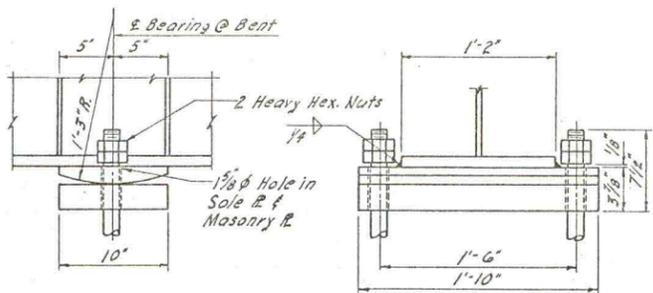
Nomenclature:
 B.S. = Both Sides
 M.S. = Near Side

BLANCHARD INTERCHANGE
WELDED GIRDER DETAIL
 36'-0" ROADWAY

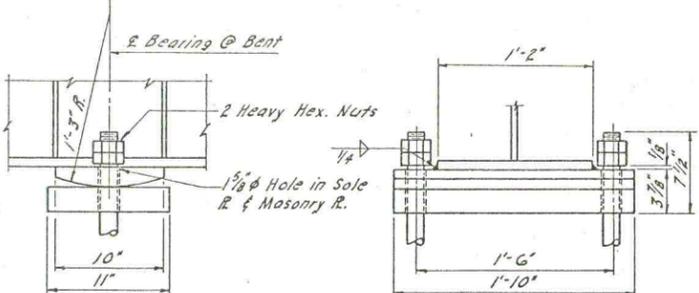
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N.D.	1-29-251		13	24



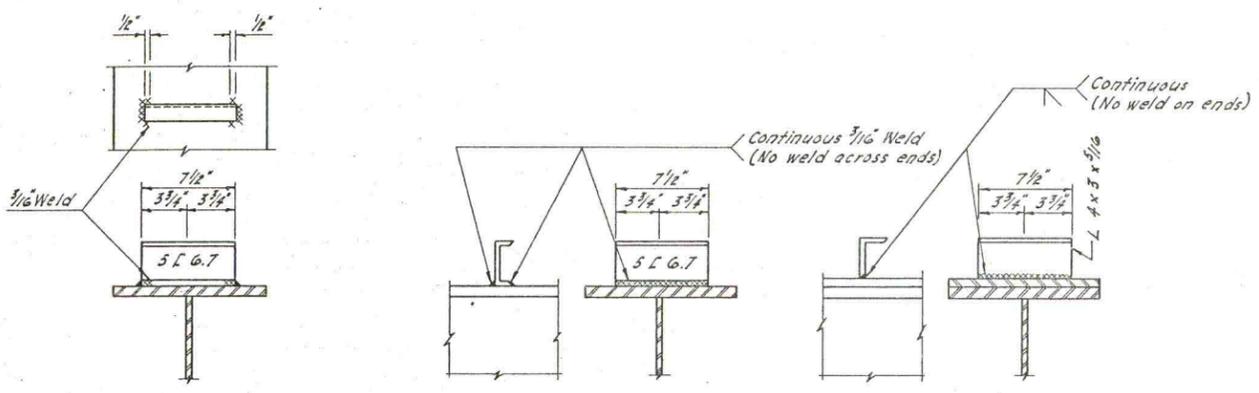
Sole R - 6" x 1 1/8" x 1'-0"
 Masonry R - 6" x 3/4" x 1'-0"
 Swedge Bolts - 1 1/2" φ x 2'-0"
 Note: Swedge bolts to be drilled, and anchored in quick setting grout. See Special Provisions.
ABUTMENT BEARING DETAILS



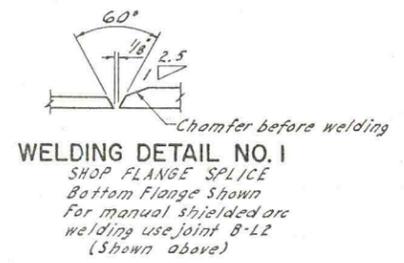
Sole R - 10" x 1 3/8" x 1'-10"
 Masonry R - 10" x 2 1/4" x 1'-10"
 Swedge Bolts - 1 1/2" φ x 2'-0"
BENT BEARING DETAILS
 BENTS 2 & 4



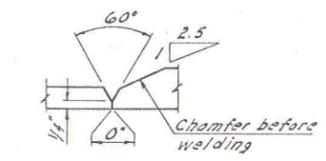
Sole R - 10" x 1 3/8" x 1'-10"
 Masonry R - 11" x 2 1/4" x 1'-10"
 Swedge Bolts - 1 1/2" φ x 2'-0"
BENT BEARING DETAILS
 BENT 3



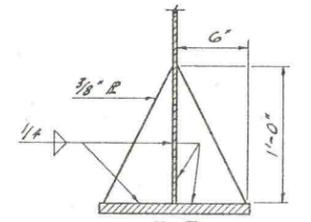
Use in Span I and in negative moment regions where spacing is 2'-0".
 Use in positive moment region except over splice R's.
 Use over splice R's.
SHEAR DEVICE DETAILS



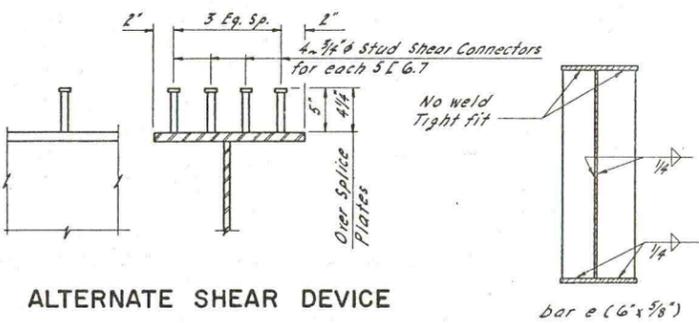
WELDING DETAIL NO. 1
 SHOP FLANGE SPLICE
 Bottom Flange Shown
 For manual shielded arc welding use joint B-L2 (shown above)



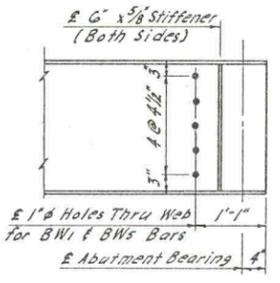
ALTERNATE DETAIL NO. 1
 SHOP FLANGE SPLICE
 Bottom Flange Shown
 Submerged Arc AWS B-L2 b-5
 If submerged arc welding is used AWS B-L2 b-5 is an acceptable replacement for B-L2 (Manual).



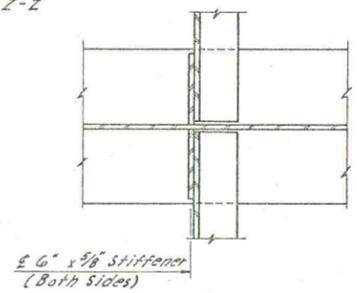
Typical for Bents 2, 3 & 4
 See 29-62-7 for Z-Z



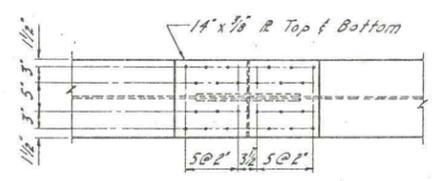
ALTERNATE SHEAR DEVICE



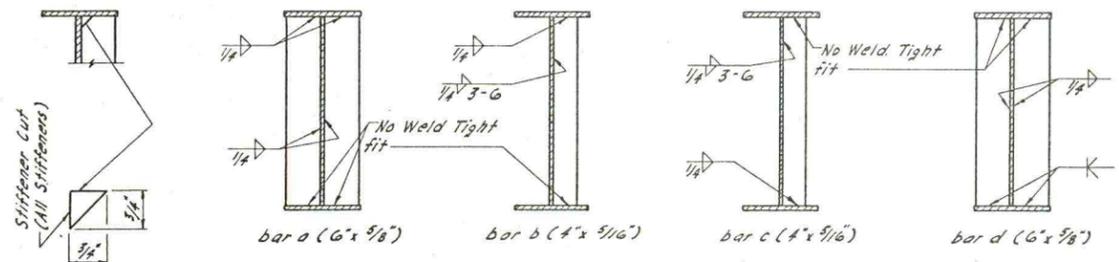
BEAM DETAILS



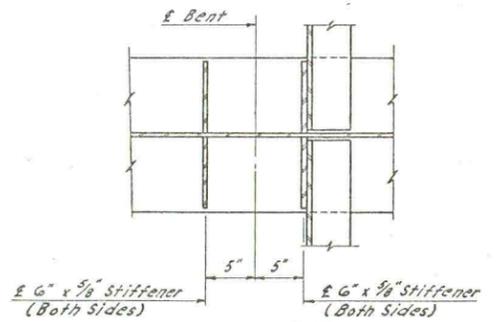
DETAIL "A"



FIELD SPLICE PLATE



WEB STIFFENER DETAILS



DETAIL "B"

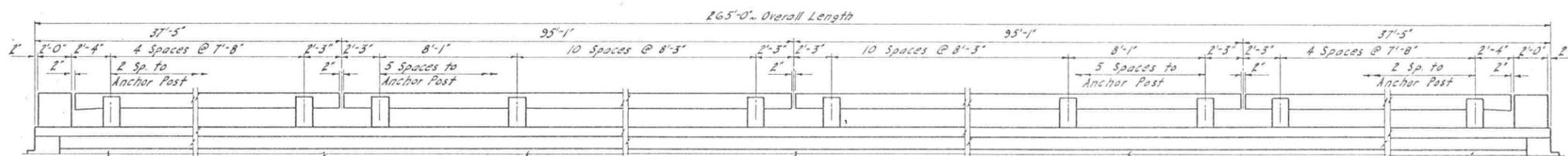
Designed for 25# I.S.F. F.W.S.

QUANTITIES	
Structural Steel (A-4#1)	174,400 Lbs.
Structural Steel (A-3G)	32,100 Lbs.

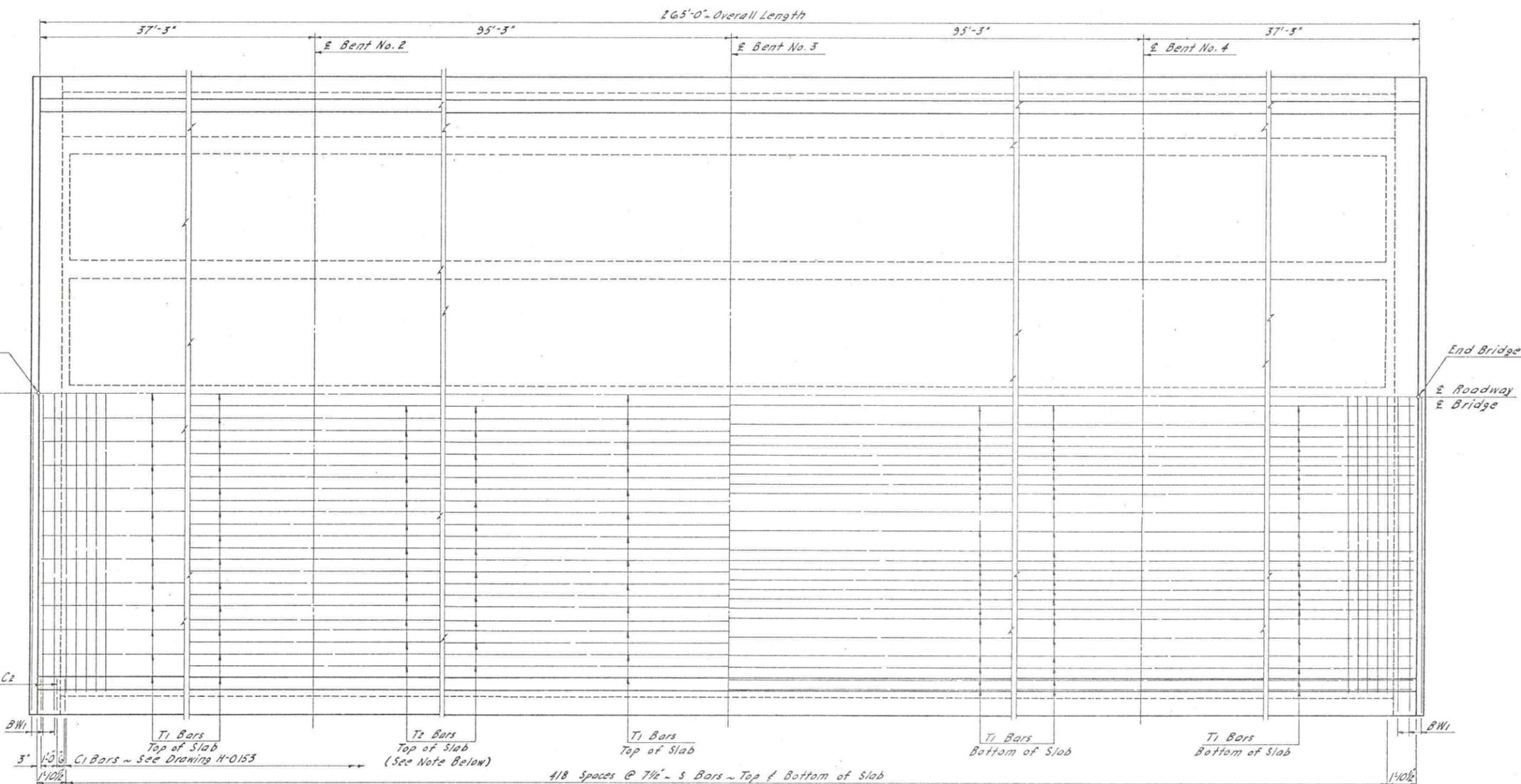
BLANCHARD INTERCHANGE
 SUPERSTRUCTURE DETAILS
 36'-0" ROADWAY
 HS20 LOADING

DESIGN	MADE BY	CHECKED BY	DATE
DESIGN	D.O.I.	L.P.H.	
QUANTITIES	D.L.T.	G.A.L.	
	D.L.T.	G.A.L.	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	I-29-2811		14	34

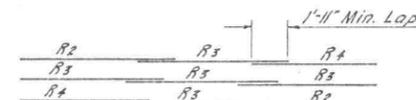


PART ELEVATION
See H-0153 for Railing Details



PART PLAN
Half Showing Slab Reinforcing
Typical Both Sides - by Rotation
30 x Bar dia.

SPLICING DETAIL
T₁, E₁, & E₂



R BAR SPLICING DETAIL
(Spans 2 & 3 Railing)
Use R₁ bars in end spans railing

NOTE:
T₂ Bar Placement: (Slab & Curb)
At Bent #2 - 15 feet in Span #1, 25 feet in Span #2
At Bent #3 - Center over Bent
At Bent #4 - 25 feet in Span #3, 15 feet in Span #4

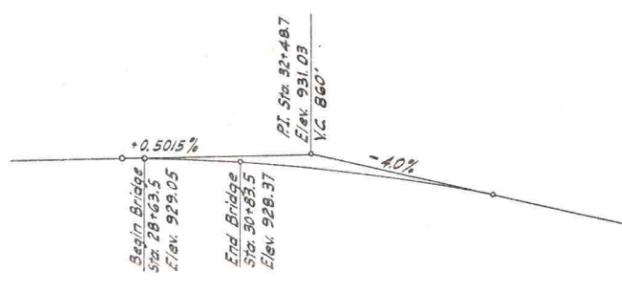
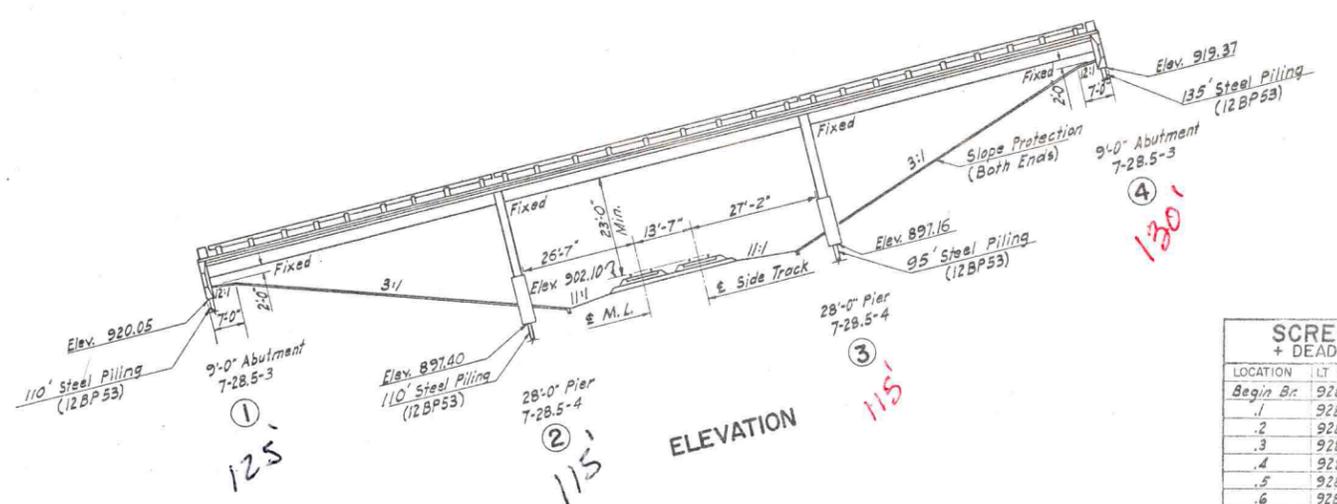
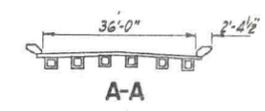
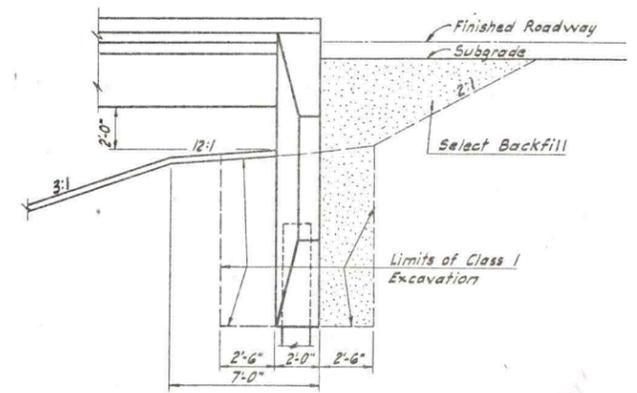
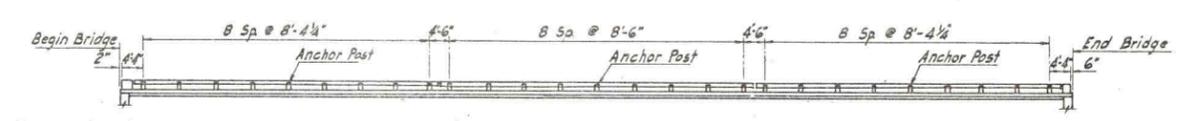
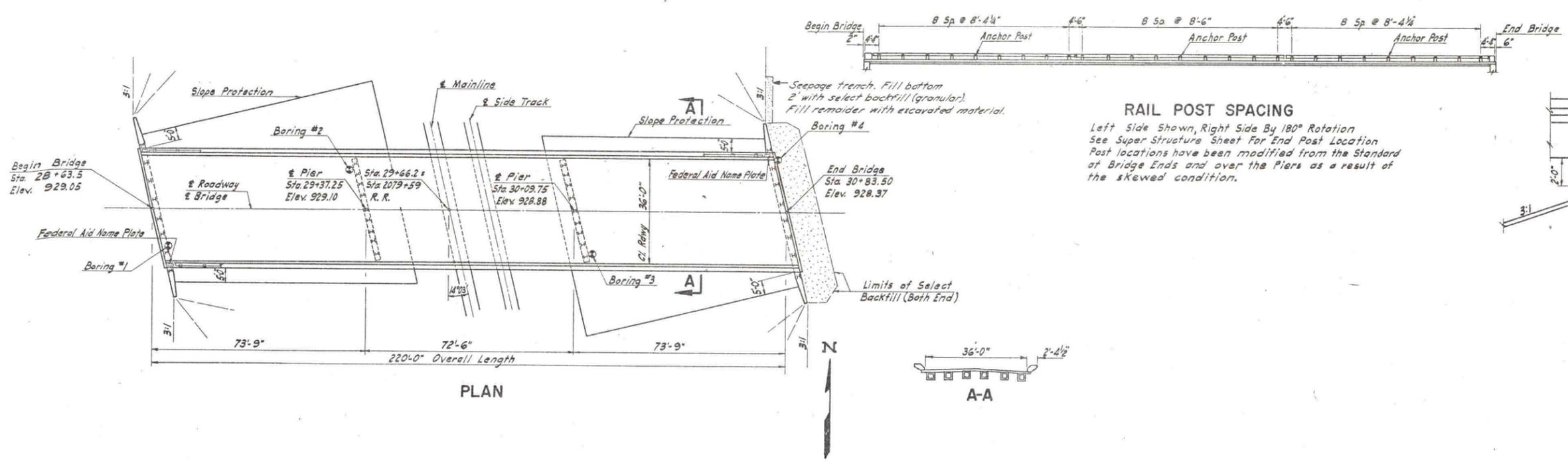
Designed for 25 #15.F. F.W.S.

QUANTITIES
See Sheet 29-62-10 for Quantities

BLANCHARD INTERCHANGE
SLAB & RAILING DETAILS

36'-0" ROADWAY
HS20 LOADING

BRIDGE CODE	FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
X-181	5	N. D.	FG-426(5)		16	34



ESTIMATE OF QUANTITIES			
SPEC. NO.	CODE NO.	BID ITEM	QUANTITY
208	0100	CLASS 1 EXCAVATION	170 CU. YD.
228	0100	SELECT BACKFILL	175 CU. YD.
604	4100	71'-10" PRESTRESSED BOX GIRDER (33" x 36")	18 EACH
610	1112	CLASS AE-1 CONCRETE (SUBSTRUCTURE)	170.8 CU. YD.
610	1135	CLASS AE-3 (SUPERSTRUCTURE)	239.1 CU. YD.
610	0138	CLASS AAE-3 (RAILING)	14.15 CU. YD.
612	0110	REINFORCING STEEL (GRADE 40)	83,175 LB.
622	1430	STEEL TEST PILES(12BP53) 2 @ 120 FT.	2 EACH
622	1480	STEEL TEST PILES(12BP53) 1 @ 145 FT.	1 EACH
622	0040	STEEL PILING(12BP53)	3,450 LIN. FT.
			LIN. FT.
704	0100	CONCRETE SLOPE PROTECTION	1,125 SQ. YD.
750	0100	LINSEED OIL TREATMENT	41 GAL.
3000		BRIDGE BENCH MARKS	1 SET

SCREED ELEVATIONS + DEAD LOAD DEFLECTIONS					FINISHED GRADE @ E.
LOCATION	LT. GUTTER	CENTER LINE	RT. GUTTER		
Begin Br.	928.66	929.05	928.68	929.05	
.1	928.71	929.09	928.73	929.06	
.2	928.76	929.15	928.78	929.08	
.3	928.81	929.19	928.82	929.09	
.4	928.84	929.22	928.85	929.10	
.5	928.85	929.23	928.86	929.11	
.6	928.85	929.23	928.86	929.11	
.7	928.84	929.21	928.84	929.11	
.8	928.81	929.19	928.81	929.11	
.9	928.77	929.15	928.77	929.11	
Pier #1	928.73	929.10	928.72	929.10	
.1	928.76	929.13	928.74	929.09	
.2	928.78	929.15	928.77	929.08	
.3	928.80	929.16	928.78	929.06	
.4	928.80	929.16	928.77	929.04	
.5	928.78	929.14	928.76	929.02	
.6	928.75	929.11	928.72	929.00	
.7	928.71	929.07	928.68	928.97	
.8	928.66	929.02	928.62	928.94	
.9	928.59	928.95	928.55	928.91	
Pier #2	928.52	928.88	928.48	928.88	
.1	928.52	928.88	928.48	928.84	
.2	928.52	928.87	928.47	928.80	
.3	928.51	928.85	928.45	928.75	
.4	928.48	928.82	928.42	928.71	
.5	928.43	928.78	928.37	928.66	
.6	928.38	928.72	928.31	928.60	
.7	928.30	928.65	928.24	928.55	
.8	928.22	928.56	928.15	928.49	
.9	928.12	928.46	928.05	928.43	
End Br.	928.03	928.37	927.95	928.37	

LIST OF SPECIAL PROVISIONS & SUPPLEMENTAL SPECIFICATIONS	
NAME	NO.
Piling	SS-21
Railroad Protection Insurance	SP-14B
Concrete Slope Protection	SP-45
Select Backfill	SP-27
Concrete Structures	SP-29
Reinforcement	SP-32

1970 FEDERAL AID PROJECT FG-426(5) NORTH DAKOTA 7-28.5

2 Each Required FEDERAL AID NAME PLATE

BENCH MARKS		
NO.	DESCRIPTION	ELEV.
2	2x2 Hub by P. Pole	898.79
5	Spike in T.P.	900.97

PILE LOADING									
LOCATION	DEAD LOAD	LIVE LOAD	EARTH	WIND			DOWN DRAG	DESIGN LOAD	MAX REQ'D BEARING
				50 LB.	15 LB.	100 LB. LL.			
Abut #1 #1	28.2 T	10.2 T					31.6 T	70.0 T	70 T
Pier #2	49.4 T	19.8 T						69.2 T	70 T
Pier #3	49.4 T	19.8 T						69.2 T	70 T

STRUCTURAL DRAWINGS

GENERAL DRAWING THIS SHEET, 7-28.5-1, 7-28.5-2
SUBSTRUCTURE 7-28.5-3, 7-28.5-4, H-0401, STD. 7.5A
SUPERSTRUCTURE 7-28.5-5, 7-28.5-6, H-0505, H-0501, H-7008, STD. 14.9B, STD. 7.6

DESIGN LOADING HS20 SCALE 1 INCH = 20 FEET

NORTH DAKOTA STATE HIGHWAY DEPARTMENT
G. N. RY. OVERHEAD
BRIDGE LAYOUT
PROJECT FG-426(5) STA. 29+66.2
TRAILL COUNTY
14° 03' SKEW

APPROVED 10-17-69 DATE *Joseph P. Kelly* BRIDGE ENGINEER

REGISTERED PROFESSIONAL ENGINEER NORTH DAKOTA



SKETCH MAP OF NORTH DAKOTA SHOWING COUNTIES



SCALES
 LAYOUT SHEET 1" = 1 MI.
 PLAN AND PROFILE DRAWINGS 1" = 100 FT.
 STRUCTURAL DRAWINGS AS SHOWN
 CROSS SECTION SHEETS 1" = 10 FT.

NORTH DAKOTA
 STATE HIGHWAY DEPARTMENT

PLANS
 FOR THE PROPOSED IMPROVEMENT OF A
 STATE HIGHWAY
 IN CASS AND TRAILL COUNTIES

FEDERAL AID PROJ. NO. TQFI-I-029-2(46)063 & TQFI-I-094-8(72)289

REPAIR & OVERLAY OF PORTLAND CEMENT CONCRETE
 BRIDGE DECKS

LENGTH OF PROJECT		
PROJECT	MILES GROSS	MILES NET
TOTALS		

GOVERNING SPECIFICATIONS
 Standard Specifications adopted by the North Dakota State Highway Department, June 1974, and approved as standard by the Federal Highway Administration Sept. 29, 1971 Required Contract Provisions Form PR 1273 dated Sept. 1, 1971, and others submitted herewith.

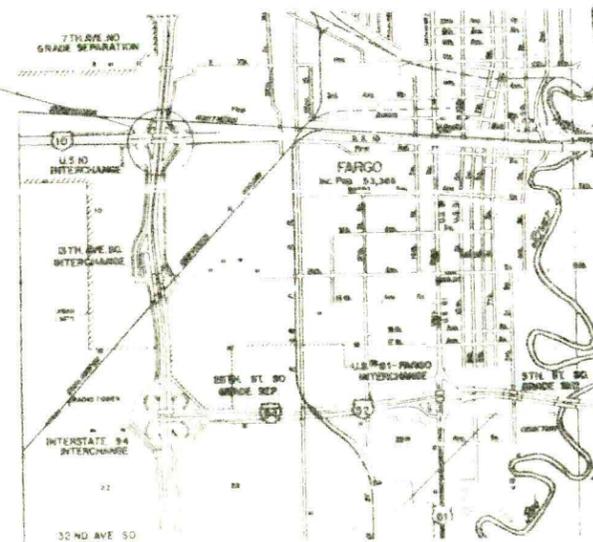
DESIGN DATA

TRAFFIC	AVERAGE DAILY	EST. WITH MAX. NR.
CURRENT TRAFFIC (19)	PASS TRUCKS	TOTAL
TRAFFIC FORECAST (19)	PASS TRUCKS	TOTAL
DESIGN SPEED	MPH	
TRAFFIC CLASSIFICATION		
MINIMUM SIGHT DISTANCE (STOPPING)		
MINIMUM SIGHT DISTANCE (SAFE PASSING)		
MINIMUM PASSING SIGHT DISTANCE FOR MARKING BRIDGES		



BRIDGE NO. 29-100.42
 PROJECT NO. TQFI-I-029-2(46)063

BRIDGE NO. 29-65.28
 PROJECT NO. TQFI-I-029-2(46)063



BRIDGE NO. 94-352.22
 PROJECT NO. TQFI-I-094-8(72)289

SUMMARY OF QUANTITIES				
	SPEC. NO.	QTY.	UNIT	
I	705	0100	MOBILIZATION	1 L
	762	3299	MAINTENANCE & PROTECTION OF TRAFFIC	1 L
	900	9700	CLASS I OVERLAY	4784 S
	900	8673	EXPANSION JOINT MODIFICATION	168 L
	750	0100	LINCEED OIL TREATMENT (LOW SLUMP ONLY)	72 S
TOTAL	900	9501	APPROACH SLAB (REMOVE & REPLACE)	3
	900	9701	CLASS II OVERLAY	2370 S
	900	8674	JOINTS AT ENDS OF BRIDGE	307 L
	302	0120	AGGREGATE (CLASS 5)	70
	550	0184	10" NON-REINF. CONC. PAVEMENT CLASS AE-3	25
	216	0100	WATER	M 6

APPROVED DATE 4-15-76
 R. E. Bradley
 CHIEF ENGINEER
 NORTH DAKOTA
 STATE HIGHWAY DEPARTMENT



APPROVED DATE 4-13-76
 BRIDGE ENGINEER
 NORTH DAKOTA
 STATE HIGHWAY DEPARTMENT

Stanley 10/2/76

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

TRAFFIC CONTROL ON BRIDGE DECK OVERLAYS

STANDARD D-754-71-7, TYPE F, WILL BE USED FOR TWO-WAY TRAFFIC AREAS. THE FOLLOWING STANDARDS WILL BE NEEDED WITH THE ABOVE STANDARD: D-754-71-1, 2, 2.8, 3, 4 & 5.

THE FOLLOWING IS A LIST OF SIGNS THAT ARE REQUIRED:

SIGN NO.	NAME	QUANTITY
CW-73-48	ROAD CONSTRUCTION AHEAD	3 EACH
CW-86-48	ONE LANE ROAD 1000 FT.	3 EACH
CW-99-48	FLAGMAN 500 FT.	3 EACH
CM-104-60	END CONSTRUCTION	3 EACH
CM-102	ABC CONSTRUCTION CO.	3 EACH
TYPE I	BARRICADES	6 EACH
TYPE II	BARRICADES	20 EACH
	DELINEATOR DRUMS	20 EACH
	FLASHERS	30 EACH
	ORANGE FLAGS	20 EACH
R-4-48	SPEED ZONE AHEAD	3 EACH
R-8-48	SPEED LIMIT	3 EACH
	20" NUMERALS 0 TO 9	6 EACH
SR-96-24	SIGN PADDLES	3 EACH
SR-120-24	SIGN PADDLES	3 EACH

NOTES:

THE CONTRACTOR SHALL NOTIFY THE DISTRICT OFFICE OF THE STATE HIGHWAY DEPARTMENT WELL IN ADVANCE OF ANY WORK REQUIRED TO BE DONE BY THE STATE MAINTENANCE SO AS NOT TO INTERFERE WITH THE CONTRACTOR'S OPERATIONS.
 ALL MUDJACKING, PREPARATION AND PLACEMENT OF TA ON ASPHALTIC SURFACES SHALL BE DONE BY STATE MAINTENANCE.
 ALL PREMOLDED JOINT FILLER, CLEANING AND FILLING MUD JACK HOLES AND THE CLEANING AND FILLING OF APPROACH SLAB CRACKS UNDER OVERLAY ONLY SHALL BE INCIDENTAL TO CLASS 1 OVERLAY.
 STRUCTURAL DETAILS OF SPECIFIC STRUCTURES ARE AVAILABLE AT THE DISTRICT OFFICE OR AT THE BRIDGE DIVISION, CENTRAL OFFICE IN BISMARCK.
 LIMITS OF CLASS 2 OVERLAY SHALL BE DETERMINED BY THE ENGINEER AND OUTLINED WITH SOME SUITABLE MARKING. THESE AREAS SHALL NOT BE EXPANDED UNLESS APPROVED BY THE ENGINEER.
 ANY DECK REINFORCING REQUIRED SHALL BE PAID FOR IN ACCORDANCE WITH SECTION 109-5 OF THE NORTH DAKOTA STANDARD SPECIFICATIONS FOR ROADS & BRIDGES.
 THE OVERLAY SHALL BE PLACED OVER ONE HALF OF THE BRIDGE FROM THE LONGITUDINAL TO THE CURB IN ONE CONTINUOUS POUR UNLESS THE AREA IS TOO LARGE TO PLACE IN ONE DAY.
 IF THIS OCCURS THE ENGINEER SHALL DETERMINE WHERE THE CONSTRUCTION JOINTS SHALL BE LOCATED.
 TRAFFIC SHALL BE MAINTAINED ON THE OTHER HALF OF BRIDGE.

CANOPY

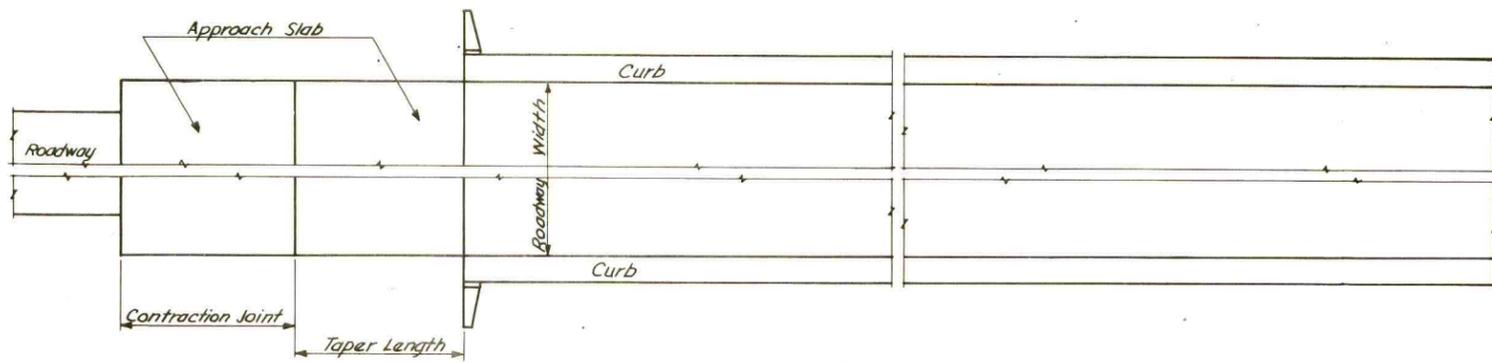
SHOULD THE DEPTH OF CONCRETE REMOVAL MAKE IT POSSIBLE THE CHIPPING HAMMER TO PENETRATE THE FULL DEPTH OF THE SLAB A MEANS OF PROTECTING THE ROADWAY BENEATH THE STRUCTURE FROM FALLING DEBRIS SHALL BE PROVIDED AS DIRECTED BY THE ENGINEER. PAYMENT FOR SUCH PROTECTION WILL BE MADE IN ACCORDANCE WITH SECTION 109-5 OF THE NORTH DAKOTA STANDARD SPECIFICATIONS FOR ROADS & BRIDGES.

SPECIAL PROVISIONS	
NO.	NAME
	REPAIR & OVERLAY OF PORTLAND CEMENT CONCRETE BRIDGE
123	LEGAL RELATIONS & RESPONSIBILITY TO PUBLIC
124	MAINTENANCE & PROTECTION OF TRAFFIC
SP	MEASUREMENT & PAYMENT (FREIGHT RATES)

STRUCTURE NUMBER	LENGTH	WIDTH	APPROACH SLABS	APPROACH SLAB LENGTH	TAPER LENGTH
29-100.42	265'	36'	NONE		* 2

* See Special Details
 ** Two Alternate, Low Slump Concrete & Latex Concrete

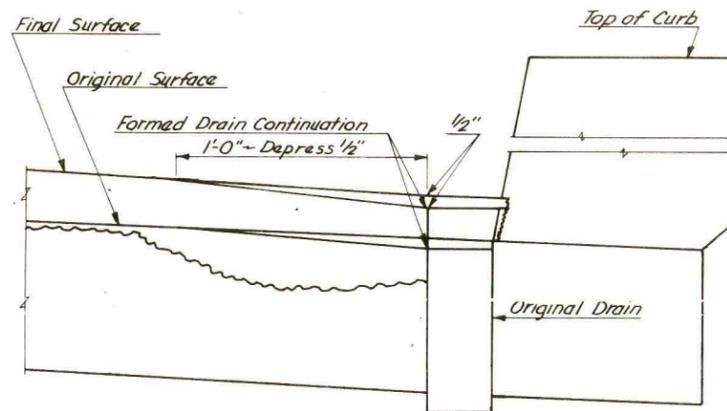
ESTIMATE OF QUANTITIES					
SPEC. NO.	CODE NO.	DESCRIPTION	QUANTITY	UNIT	AMOUNT
705	0100	MOBILIZATION			
762	3299	MAINTENANCE & PROTECTION OF TRAFFIC			
900	9700	CLASS I OVERLAY	1060		
900	9701	CLASS II OVERLAY	1060		
750	0100	LINSEED OIL TREATMENT (LOW SLUMP ONLY)	16		
900	9501	APPROACH SLAB (REMOVE & REPLACE)			
900	8673	EXPANSION JOINT MODIFICATION			
900	8674	JOINTS AT ENDS OF BRIDGE			
302	0120	AGGREGATE (CLASS 5)			
550	0184	10" NON-REINF. CONC. PAVEMENT CLASS AE-3			
216	0100	WATER			



HALF PLAN

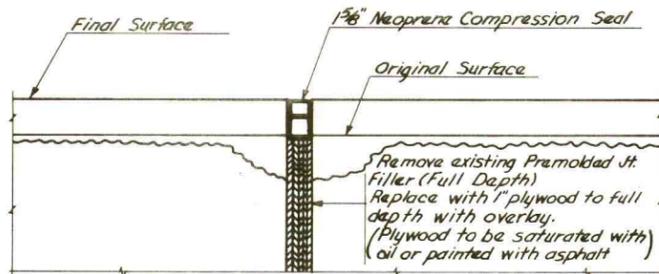


APPROACH SLAB

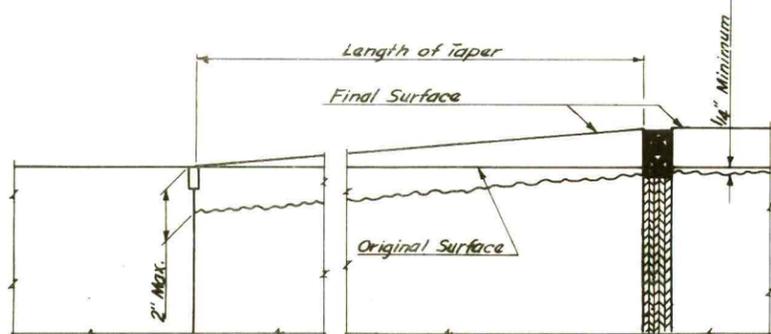


DETAILS AT FLOOR DRAINS

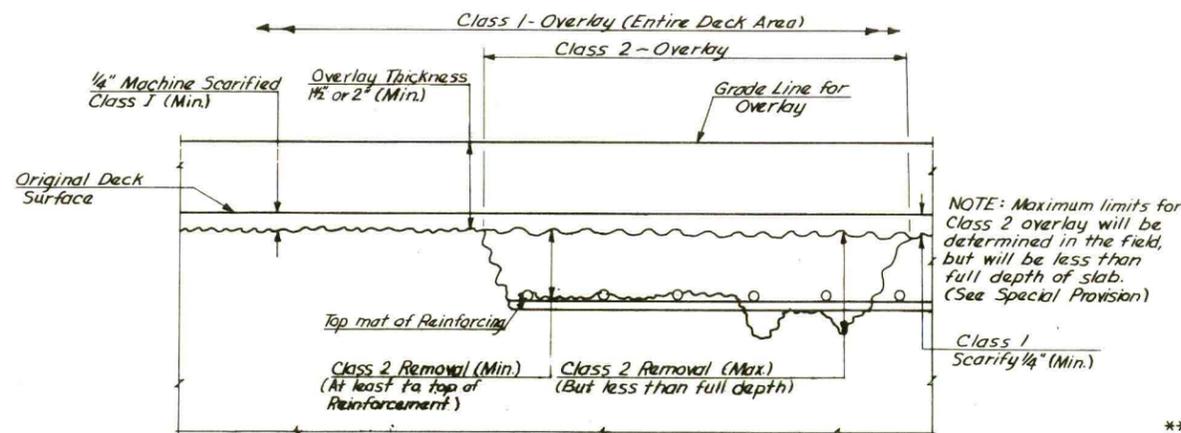
NOTE: After overlay has been placed & cured the top 2 1/2" of plywood shall be routed & the Neoprene Seal installed.



DETAIL "A"
 Joints at end of bridge



DETAIL "B"



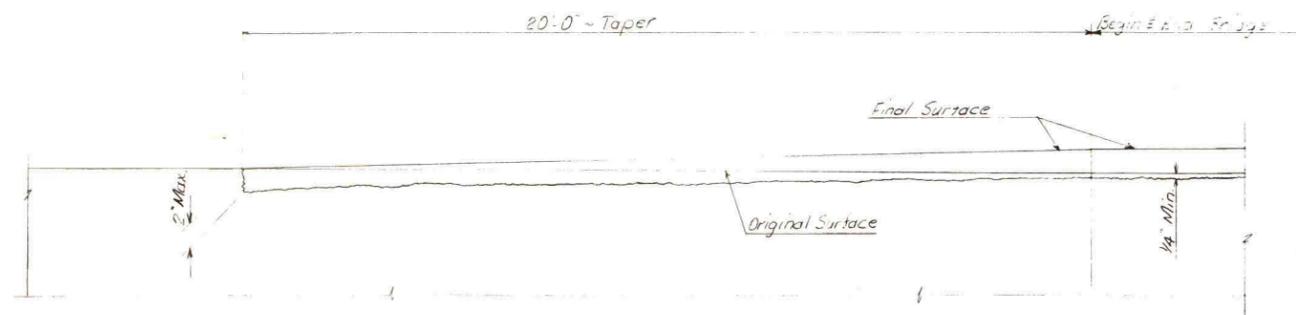
BRIDGE DECK

NOTE: Maximum limits for Class 2 overlay will be determined in the field, but will be less than full depth of slab. (See Special Provision)

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	TQFI-1-029-2(46)	4

NOTES:

Bituminous overlay taper shall be placed between the curb & gutter extensions from the bridge & shall be tapered in thickness as shown in the detail.



BITUMINOUS TAPER AT END OF BRIDGE

BLANCHARD INTERCHANGE
HIGHWAY 200 EAST
TAPER DETAIL

Bridge # 29-111.835

FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
5	N. D.	I-29-3(2)110	54	54

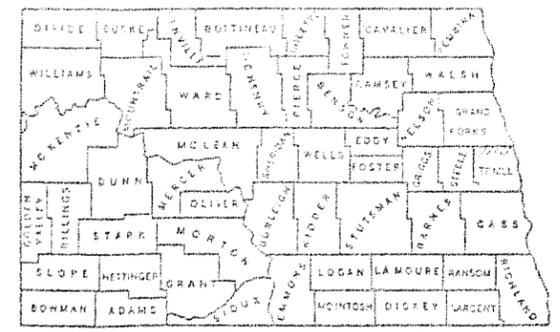
NORTH DAKOTA STATE HIGHWAY DEPARTMENT

PLANS FOR THE PROPOSED IMPROVEMENT OF A STATE HIGHWAY IN TRAILL COUNTY FEDERAL AID PROJECT NO. I-29-3(2)110 STRUCTURAL

INDEX OF DRAWINGS

SHEET NO. 1	PLAN, PROFILE & QUANTITIES
SHEET NO. 2	TRAFFIC DATA
SHEET NO. 3	DETAILED SIGNING LAYOUT
SHEET NO. 4	TRAFFIC PLAN AND PROFILE DWGS
SHEET NO. 5	TO 35 INCL. STRUCTURAL DWGS
SHEET NO. 36	TO 54 INCL. CROSS SECTIONS

GOVERNING SPECIFICATIONS
Standard Specifications adopted by the North Dakota State Highway Department, JAN 1965 and approved as amended by the Board of Public Roads, JUNE 23, 1965. Required Contract Provision (Form PR-1273) dated October 1968 and others submitted herewith.



SKETCH-MAP OF NORTH DAKOTA SHOWING COUNTIES

STA.	CLEAR RDWY WIDTH	DESIGN LOADING
945+17.31	30'	H 20-1944
1000+11.35	36'	KS 20-1944

SCALES
LAYOUT SHEET: 1 IN. = 5000 FT
PLAN AND PROFILE DRAWINGS: 1 IN. = 100 FT
STRUCTURAL DRAWINGS: AS SHOWN
CROSS SECTION SHEETS: 1 IN. = 10 FT

LIST OF SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS

NAME	NO.
BIDDING REQUIREMENTS AND CONDITIONS	SS-9
PAINTING	SP-33
LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC	SS-16 B 10
PILING	SS-21
CONCRETE SLOPE PROTECTION	SS-22
FIELD LABORATORY	SS-23
GENERAL STATEMENT	SS-24
STRUCTURAL STEEL	SS-25
UTILIZATION	SS-26
PRODUCTION AND PROGRESS	SS-27
QUALITY ENGINEERING INCENTIVE	SS-28
MAINTENANCE AND PROTECTION OF TRAFFIC	SS-29
CONSTRUCTION OF STRUCTURES	SS-30
REINFORCEMENT	SS-31
QUICK SETTING ANCHOR GROUT	SS-32

LENGTH OF PROJECT

PROJECT MILES-GROSS	MILES-NET
1-29-3(2) 104.0	0.000
TOTALS	104.0 0.000

LIST OF STANDARDS

SLOPE PROTECTION	7.5A
BRIDGE BENCH MARKS	7.8
STANDARD SIGNS	14.1A-1 Thru 14.1A-10
FEDERAL AID NAME PLATE	14.9B
CONST. IDENT. SIGNS	14.25

KEY TO CONVENTIONAL SIGNS

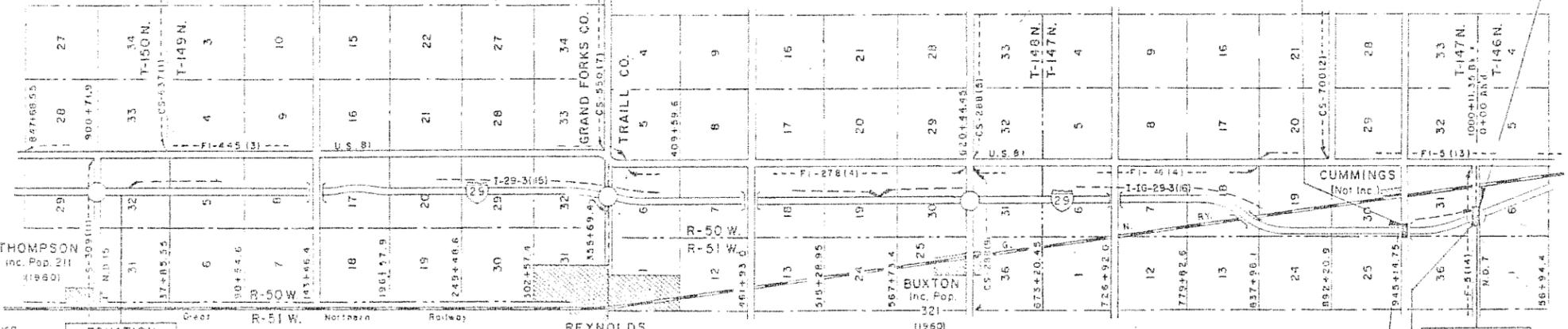
STATE & NATIONAL LINES	
COUNTY LINE	
TOWNSHIP & RANGE LINES	
GRADE LINE	
CENTERLINE OF CONSTRUCTION	
OLD RIGHT OF WAY LINE	
NEW RIGHT OF WAY LINE	
ABANDONED RIGHT OF WAY LINE	
PROPERTY LINE	
STONE WALL	
OTHER FENCES	
POLE LINES	
POWER LINES	
BRIDGE	
GROUND ELEVATION	
GRADE	
TRAVELED WAY	
RAILROADS	
HEDGES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

DESIGN DATA

TRAFFIC	AVERAGE DAILY	EST 30TH MAX HR
CURRENT TRAFFIC 1969	2000 PASS 250 TRUCKS 2350 TOTAL 310	
TRAFFIC FORECAST 1969	4550 PASS 670 TRUCKS 5220 TOTAL 760	
DESIGN SPEED	TO MPH	
TRAFFIC CLASSIFICATION	"M"	
MINIMUM SIGHT DISTANCE (NOV PASSING)	600'	
FULL CONTROL OF ACCESS		
NO POINT OF ACCESS OTHER THAN BY RAMPS AT INTERCHANGES		

LEGEND

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



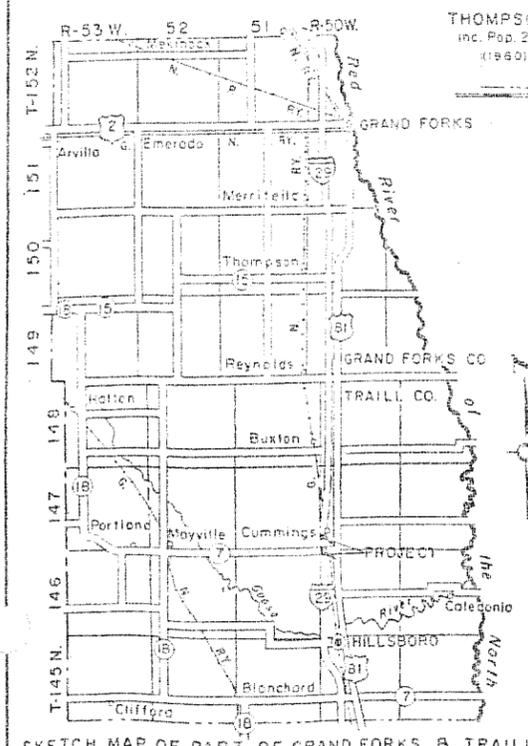
EQUATION
945+17.31 = 0+00 Ahd.

EQUATION
1000+11.35 = 0+00 Ahd.

NOTES:
Quantities-Total quantities have been adjusted to the nearest whole unit for bidding purposes.
The structural and grading contractors shall conduct their individual operations to the mutual benefit of each other. See Sec. 105-7 of the Std. Specs.

LAYOUT MAP
SCALE IN FEET

CONSTRUCTION IDENTIFICATION SIGN
shall be installed at Sta 23+00 Lt. Cummings Sep. X-Rd. and 553+00 Rt. and 577+00 Lt. Mayville Int. X-Rd.



SKETCH MAP OF PART OF GRAND FORKS & TRAILL COUNTIES

QUANTITIES

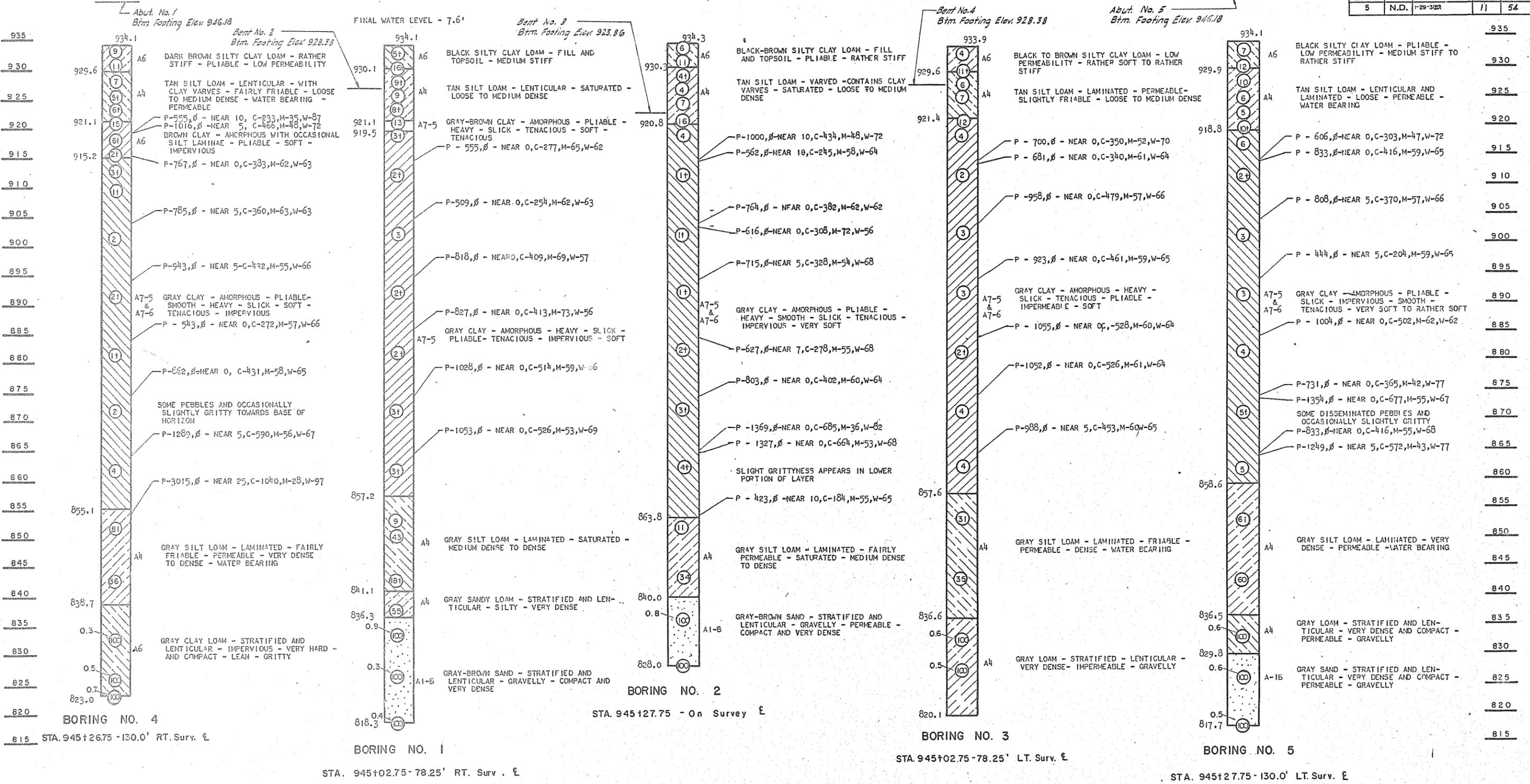
LOC.	756	208	228	610	612	616	622	750	704	746
CODE	0100	0100	0100	1112	1134	0138	0110	4412	0362	0020
LOCATION	FIELD LABORATORY	CLASS I EXCAVATION	SELECT BACKFILL	CLASS AE-1 CONCRETE (SUB-STRUCTURE)	CLASS AE-3 CONCRETE (SUPER-STRUCTURE)	CLASS AE-3 CONCRETE (RAILING)	REINFORCING STEEL (GRADE 40)	STRUCTURAL STEEL (A-441) WELDED BEAM	STRUCTURAL STEEL (A-36) WELDED BEAM	STEEL PILING
	EA.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	CU. YD.	LB.	LB.	LB.	LF.
945+17.31		195	150	126.8	259.8	17.13	101,575	140,400	26,000	805
1000+11.35		250	210	156.9	312.2	18.07	119,224	168,100	33,300	1175
TOTAL	1	445	360	284	572	35	220,799	308,500	59,300	1980

APPROVED DATE 2-6-69
Rehley
CHIEF ENGINEER
NORTH DAKOTA STATE HIGHWAY DEPARTMENT

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS

APPROVED
DIVISION ENGINEER DATE

Plotted by JES - Nov. 19, 1965



- SYMBOLS:**
- P - MAXIMUM LOAD (LBS./SQ.FT.)
 - δ - SHEAR ANGLE (DEGREES)
 - C - COHESION (LBS./SQ.FT.)
 - M - MOISTURE (PER CENT)
 - W - DRY WEIGHT (LBS./CU.FT.)

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.

BRIDGE NO. 29-55

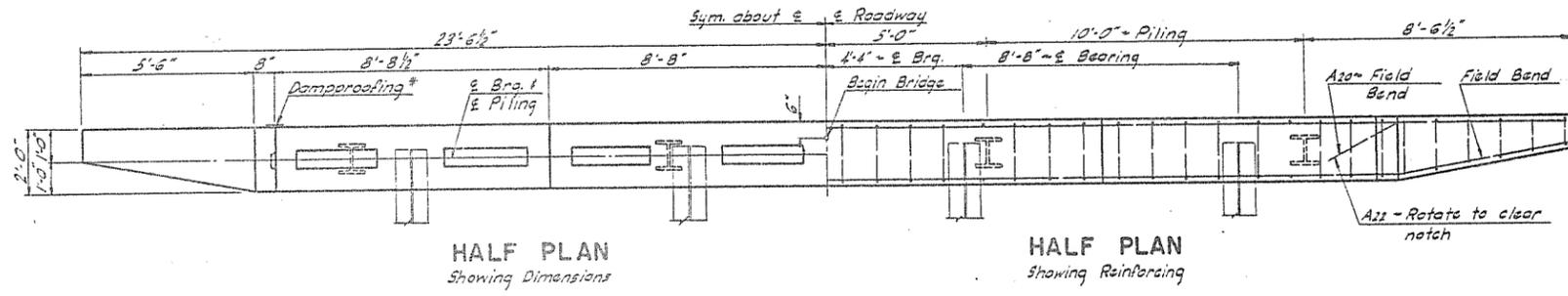
BORING LOG

I-29-3(1)

TRAILL COUNTY

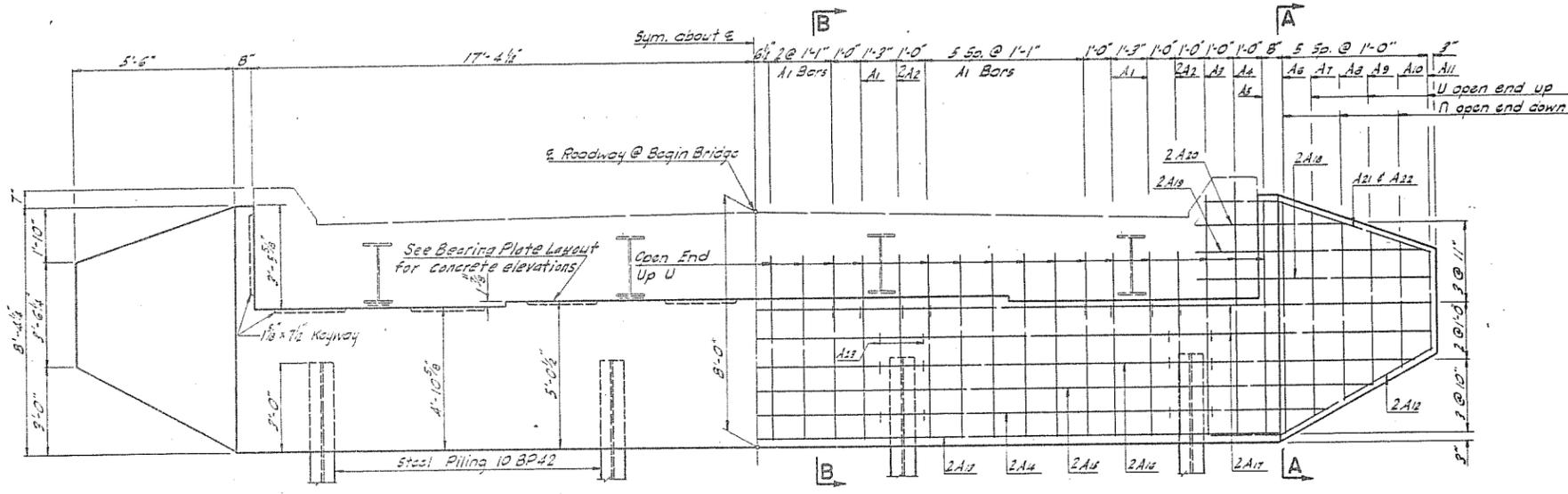
Scale 1" = 8'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	I-29-320		12	



HALF PLAN
Showing Dimensions

HALF PLAN
Showing Reinforcing

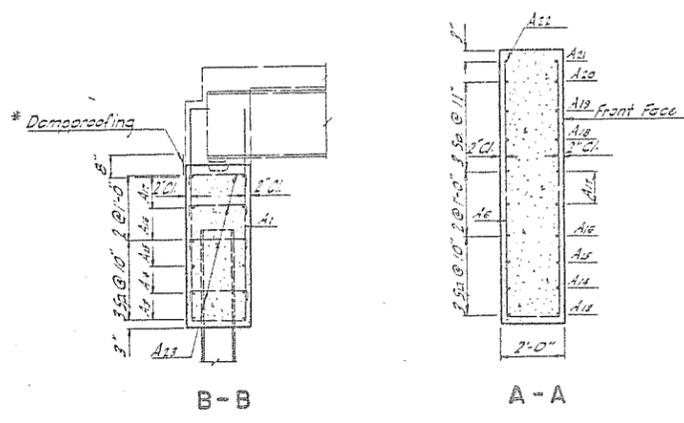


HALF ELEVATION
Showing Dimensions

HALF ELEVATION
Showing Reinforcing

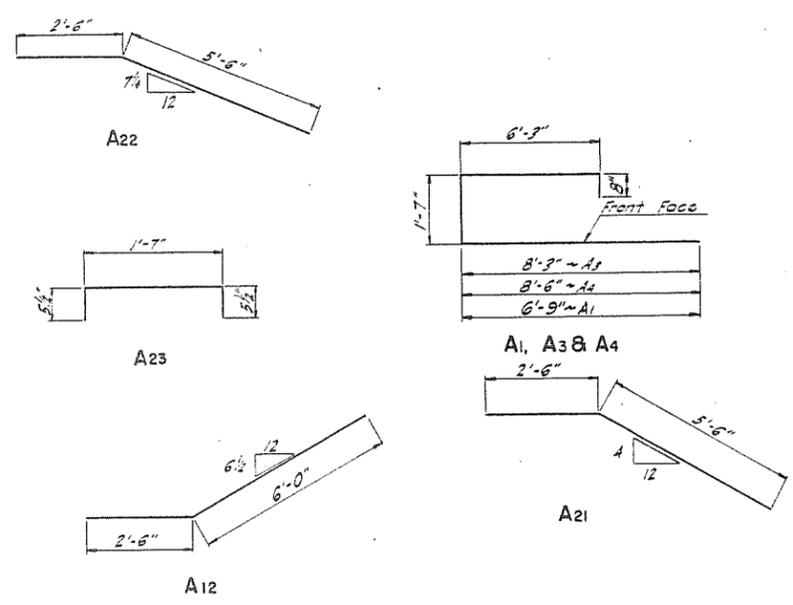
ABUTMENT (ONE ABUT.)					
MARK	NUMBER	SIZE	LENGTH	SHAPE	
					WALL
A1	24	6	15'-3"	Scot	
A2	8	6	6'-3"	Str.	
A3	2	6	16'-9"	Scot	
A4	2	6	17'-0"	"	
A5	2	6	17'-7"	"	
A6	2	5	17'-1"	"	
A7	2	5	15'-3"	"	
A8	2	5	13'-6"	"	
A9	2	5	11'-6"	"	
A10	2	5	9'-8"	"	
A11	2	5	7'-5"	"	
A12	4	6	8'-6"	"	
A13	2	6	36'-0"	Str.	
A14	4	5	20'-9"	"	
A15	4	5	22'-2"	"	
A16	4	5	22'-9"	"	
A17	8	5	24'-1"	"	
A18	4	5	8'-2"	"	
A19	4	5	8'-0"	"	
A20	4	5	5'-2"	"	
A21	2	6	8'-0"	Scot	
A22	2	6	8'-0"	"	
A23	40	4	2'-6"	"	

NOTES:
 * Two coats of damprooing shall be applied over the construction joint on the back face as shown on the detail.
 "Damprooing Two Coats" shall be applied, in accordance with Section 756 of the Standard Specifications. Damprooing will not be paid for directly, but shall be included in the unit price bid for Class AE-1 Concrete.



A11 ~ 3'-4"
A10 ~ 4'-4"
A9 ~ 5'-2"
A8 ~ 6'-1"
A7 ~ 6'-11"
A6 ~ 7'-9"
A5 ~ 8'-0"

A11	1'-0"
A10	1'-2"
A9	1'-4"
A8	1'-5"
A7	1'-7"
A6	1'-7"
A5	1'-7"



BENT BAR DETAILS

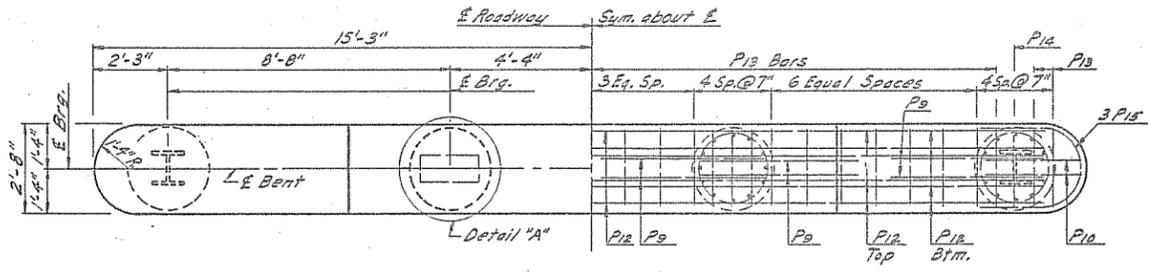
QUANTITIES (ONE ABUT.)	
Class AE-1 Concrete	172 cu yd
Reinforcing Steel	1779 lbs
Excavation (See Layout)	
Piling (See Layout)	

8'-0" ABUTMENT
 WELDED GIRDER SPANS
 30'-0" ROADWAY
 H20 LOADING

H-1299

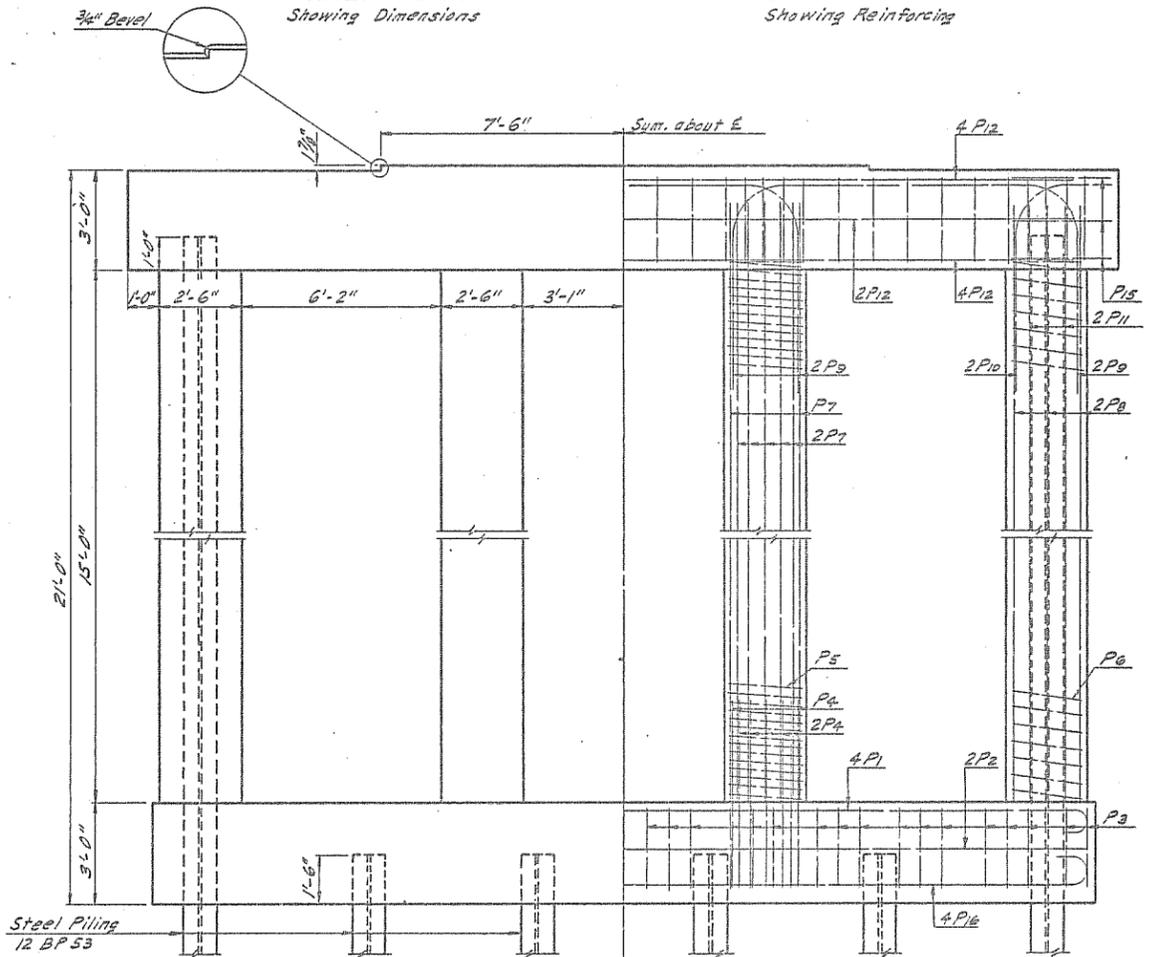
H-1299

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	1-29-3(2)		14	



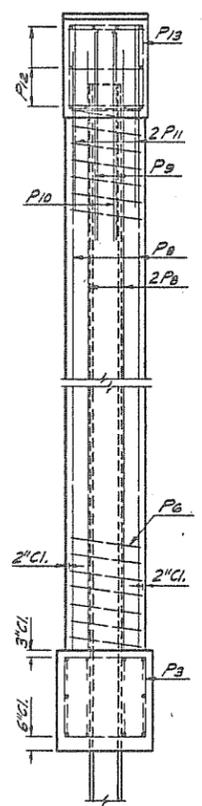
HALF PLAN Showing Dimensions

HALF PLAN Showing Reinforcing

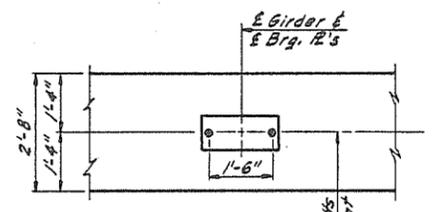


HALF ELEVATION Showing Dimensions

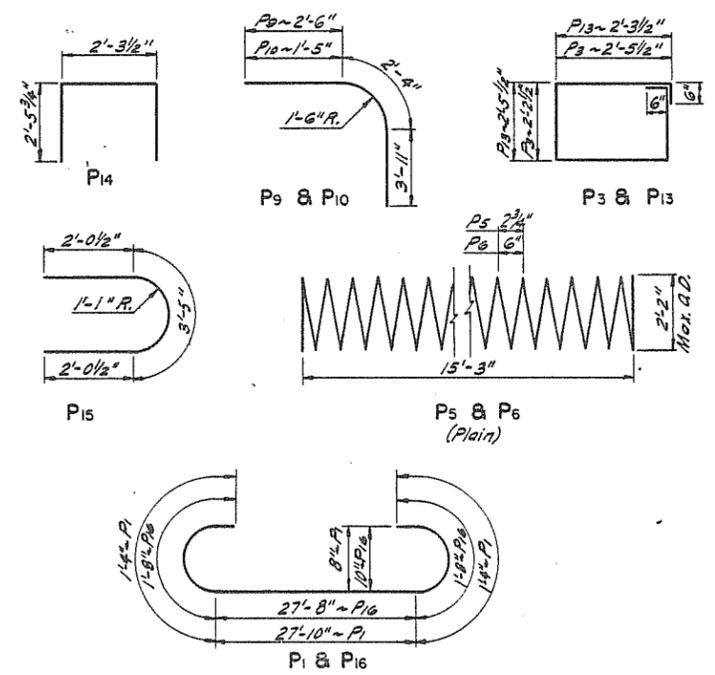
HALF ELEVATION Showing Reinforcing



END VIEW



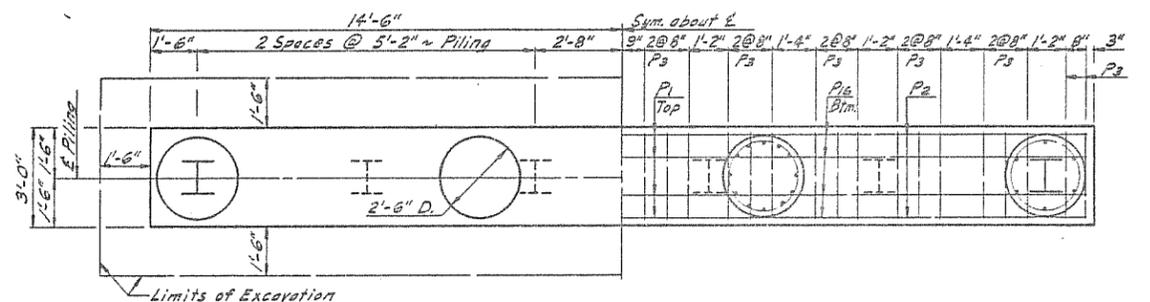
DETAIL "A"



BENT BAR DETAILS

BENT BAR LIST (ONE BENT)					
MARK	NUMBER	SIZE	LENGTH	SHAPE	
P1	4	8	30'-6"	Bent	
P2	2	5	28'-6"	Str.	
P3	34	5	10'-4"	Bent	
P4	24	7	5'-6"	Str.	
P5	2	4	464'-0"	Spiral	
P6	2	3	225'-0"	"	
P7	24	7	17'-0"	Str.	
P8	12	5	17'-0"	"	
P9	12	8	8'-9"	Bent	
P10	4	8	7'-8"	"	
P11	8	6	5'-6"	Str.	
P12	10	6	28'-0"	"	
P13	33	5	10'-6"	Bent	
P14	2	5	7'-3"	"	
P15	6	5	7'-6"	"	
P16	4	10	31'-0"	"	

NOTE:
The concrete in the columns shall be allowed to set at least two (2) hours before the bent cap reinforcing is placed and concrete poured.
All exposed edges to be beveled with 3/4" triangular mounding.



HALF FOOTING PLAN Showing Dimensions

HALF FOOTING PLAN Showing Reinforcing

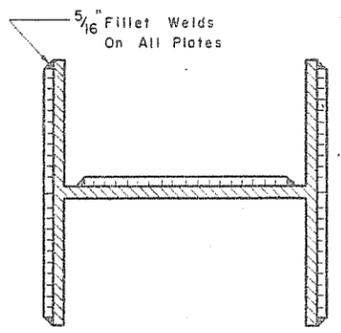
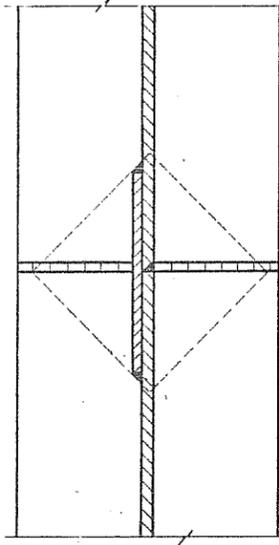
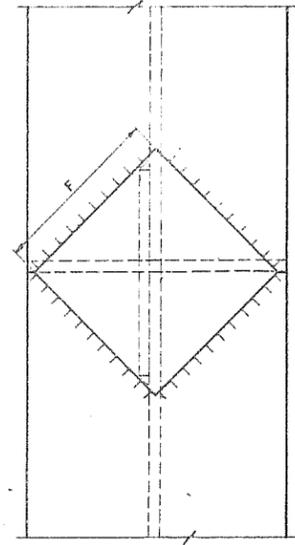
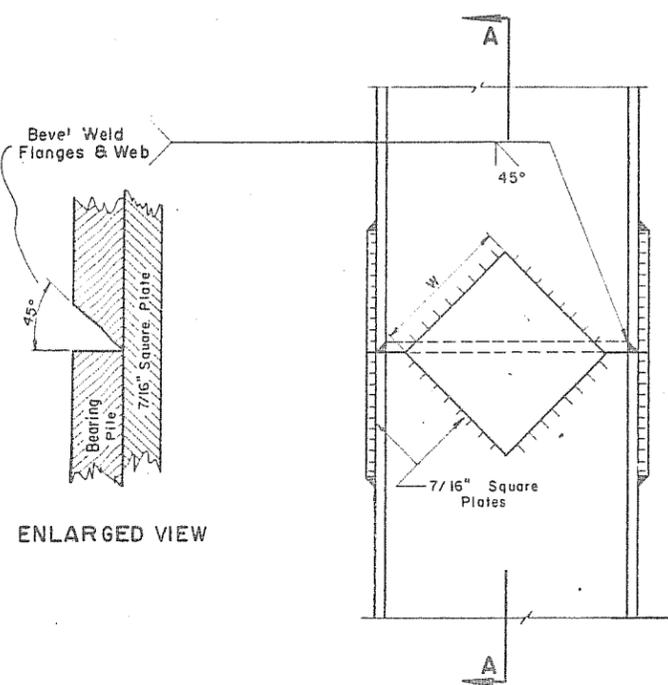
QUANTITIES (ONE BENT)	
Class AE-1 Concrete	237 C.Y.
Reinforcing Steel	4665 Lbs.
Steel Piling (See Layout)	
Excavation (See Layout)	

21'-0" BENT DETAIL
WELDED GIRDER SPANS
30'-0" ROADWAY
H₂O LOADING

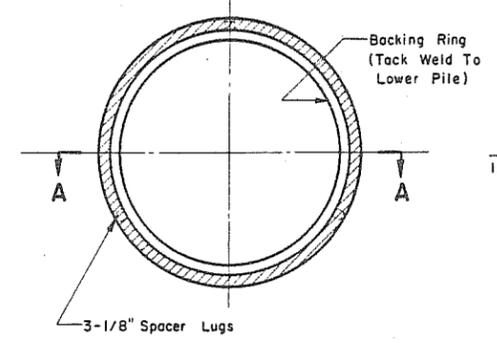
H-1372

H-1372

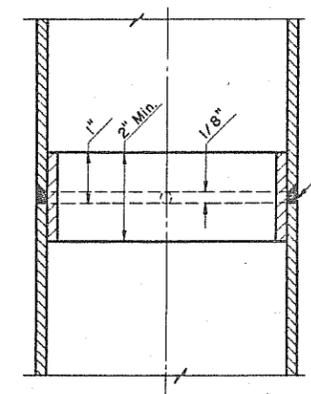
DESIGN CHECKED BY: []
 MADE BY: []
 DETAILS CHECKED BY: []
 MADE BY: []
 QUANTITIES CHECKED BY: []
 MADE BY: []



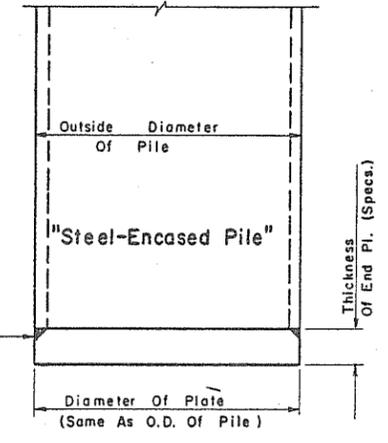
PILE	8"	10"	12"	14"
F FLANGE	5"	6 1/2"	8"	10"
W WEB	4"	5 1/2"	6 1/2"	8"



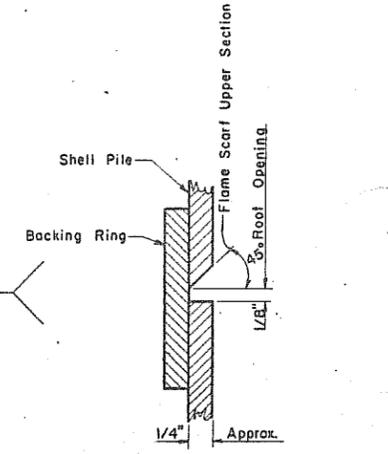
Backing Ring may be made from pile cut-offs or other material of a like quality.



SHELL PILE SPLICE DETAIL



END PLATE DETAIL

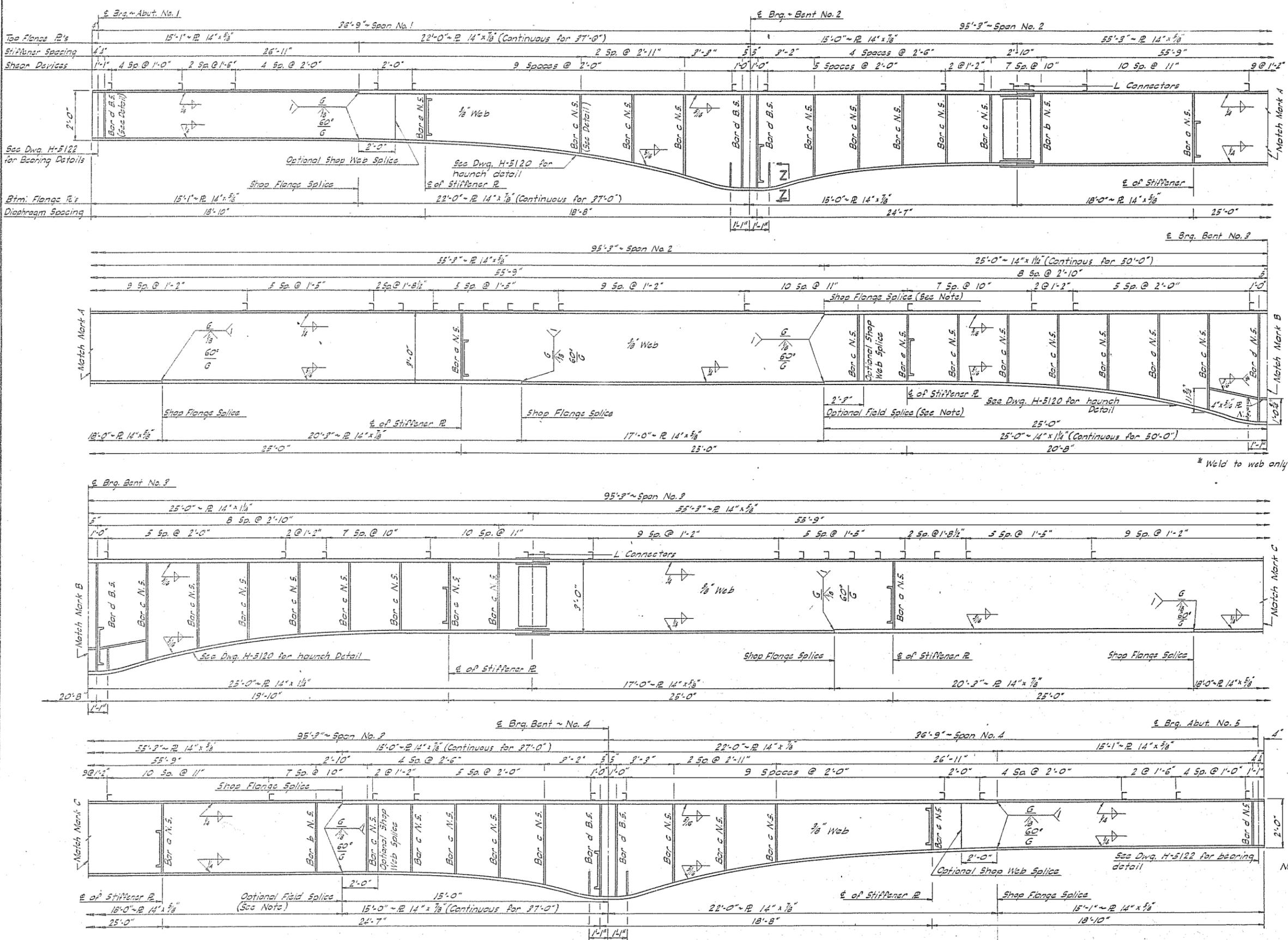


ENLARGED VIEW

All welding shall conform to the current specification for "Welded Highway and Railway Bridges of the American Welding Society".

PILE SPLICE DETAILS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	N. D.	F-29-3201		17	



FIELD SPLICES:
 TWO FIELD SPLICES ARE PROVIDED ON THIS DRAWING. FALSEWORK WITH PROVISIONS FOR JACKING MUST BE PROVIDED DURING ERECTION TO HOLD THE GIRDER IN ALIGNMENT WHILE SPLICES ARE BEING MADE.

OPTIONAL FIELD SPLICES:
 IN ADDITION TO THE TWO FIELD SPLICES SHOWN ON THIS DRAWING TWO OPTIONAL FIELD SPLICES ARE SHOWN. THESE TWO ADDITIONAL FIELD SPLICES MAY BE USED BY THE CONTRACTOR UNDER THE FOLLOWING CONDITIONS:

1. THEY ARE MADE AT NO EXPENSE TO THE STATE.
2. FLANGE AND WEB SPLICE PLATES AND BOLTS WILL BE AS SHOWN IN DETAILS ON SHEET H-5122.
3. FALSEWORK AT THESE SPLICE POINTS WITH PROVISIONS FOR JACKING MUST BE PROVIDED DURING ERECTION TO HOLD THE GIRDER IN ALIGNMENT WHILE SPLICES ARE BEING MADE.

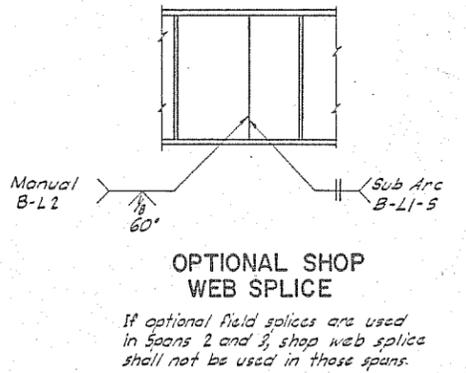
SHOP FLANGE SPLICES:
 SHOP FLANGE SPLICES ARE SHOWN AT THE SAME POINTS AS THE OPTIONAL FIELD SPLICES. THESE SHOP FLANGE SPLICES CAN BE MADE IF THE OPTIONAL FIELD SPLICES ARE NOT USED.

THE SHOP FABRICATION AND ERECTION DRAWING MUST INDICATE FOUR PICK-UP POINTS FOR EACH MEMBER OVER 100 FEET LONG TO BE USED DURING SHIPPING AND ERECTION.

THE DETAILS SHOWN ARE FOR A FOUR SPAN CONTINUOUS WELDED GIRDER AND REPRESENT GIRDER NO. 1 IN A FOUR (4) GIRDER BRIDGE. GIRDERS NO. 2, NO. 3 AND NO. 4 ARE SIMILAR TO GIRDER NO. 1 AND SHALL BE FABRICATED IN ACCORDANCE WITH THESE DETAILS AND DRAWINGS H-5120, H-5122 AND THE SHOP CARDS DIAGRAM.

ALL SHOP BUTT WELDS IN THE FLANGE PLATES SHALL BE MADE BEFORE FINAL FITTING AND WELDING INTO THE GIRDER.

OPTIONAL WEB SPLICES:
 THE PAY QUANTITY FOR STRUCTURAL STEEL WILL BE BASED ON THE USE OF THE OPTIONAL SHOP WEB SPLICES.



See Dwg. H-5120 for Section I-Z
 Designed for 25# S.F. F.H.S.

QUANTITIES	

Nomenclature:
 B.S. = Both Sides
 N.S. = Near Side

SUPERSTRUCTURE
FOUR SPAN CONTINUOUS
COMPOSITE WELDED GIRDER
 30'-0" ROADWAY
 H20 LOADING

ELEVATION

DESIGN	DETAILS	TRACING	QUANTITIES
MADE BY: D.A.	MADE BY: S.P.	MADE BY: S.P.	MADE BY: S.P.
CHECKED BY: D.A.	CHECKED BY: S.P.	CHECKED BY: S.P.	CHECKED BY: S.P.
REVISIONS			

H-5121

H-5121

