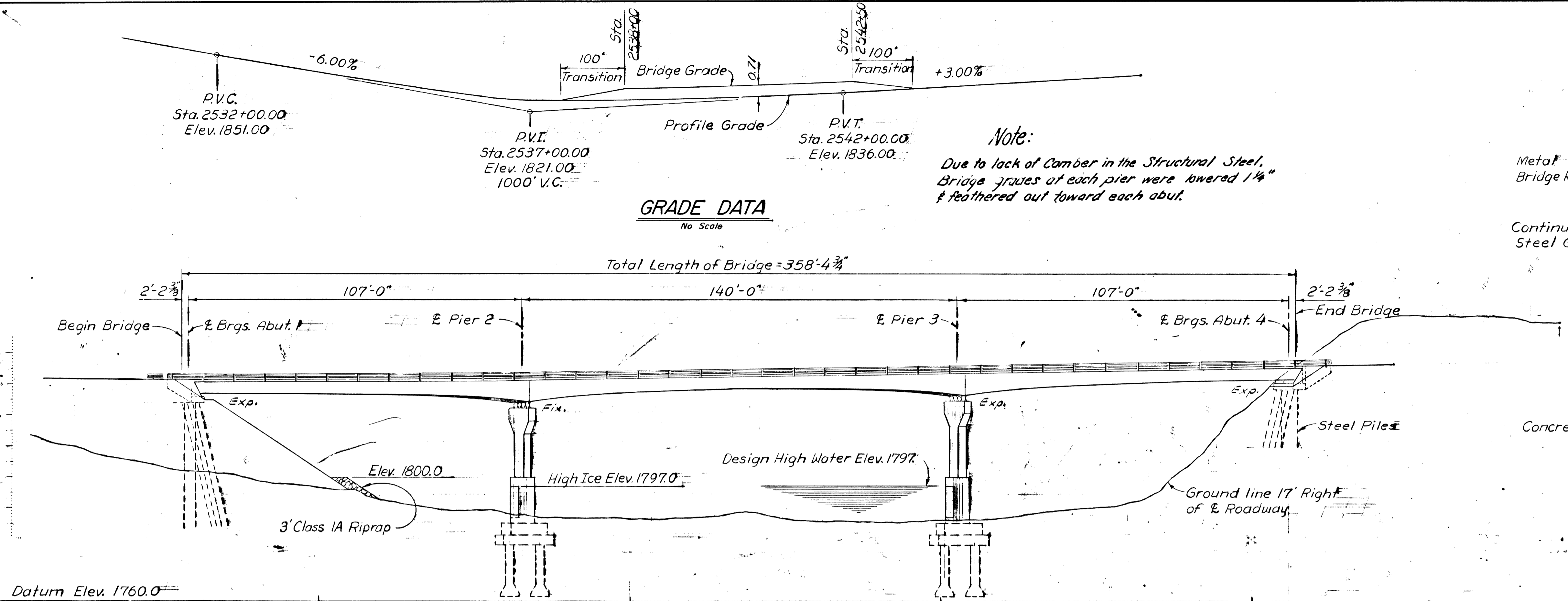
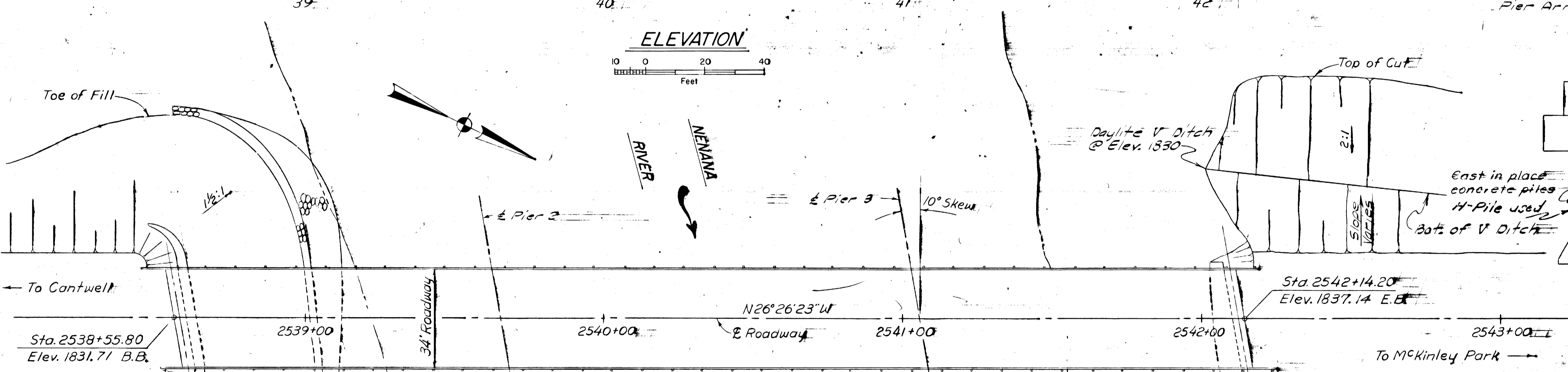
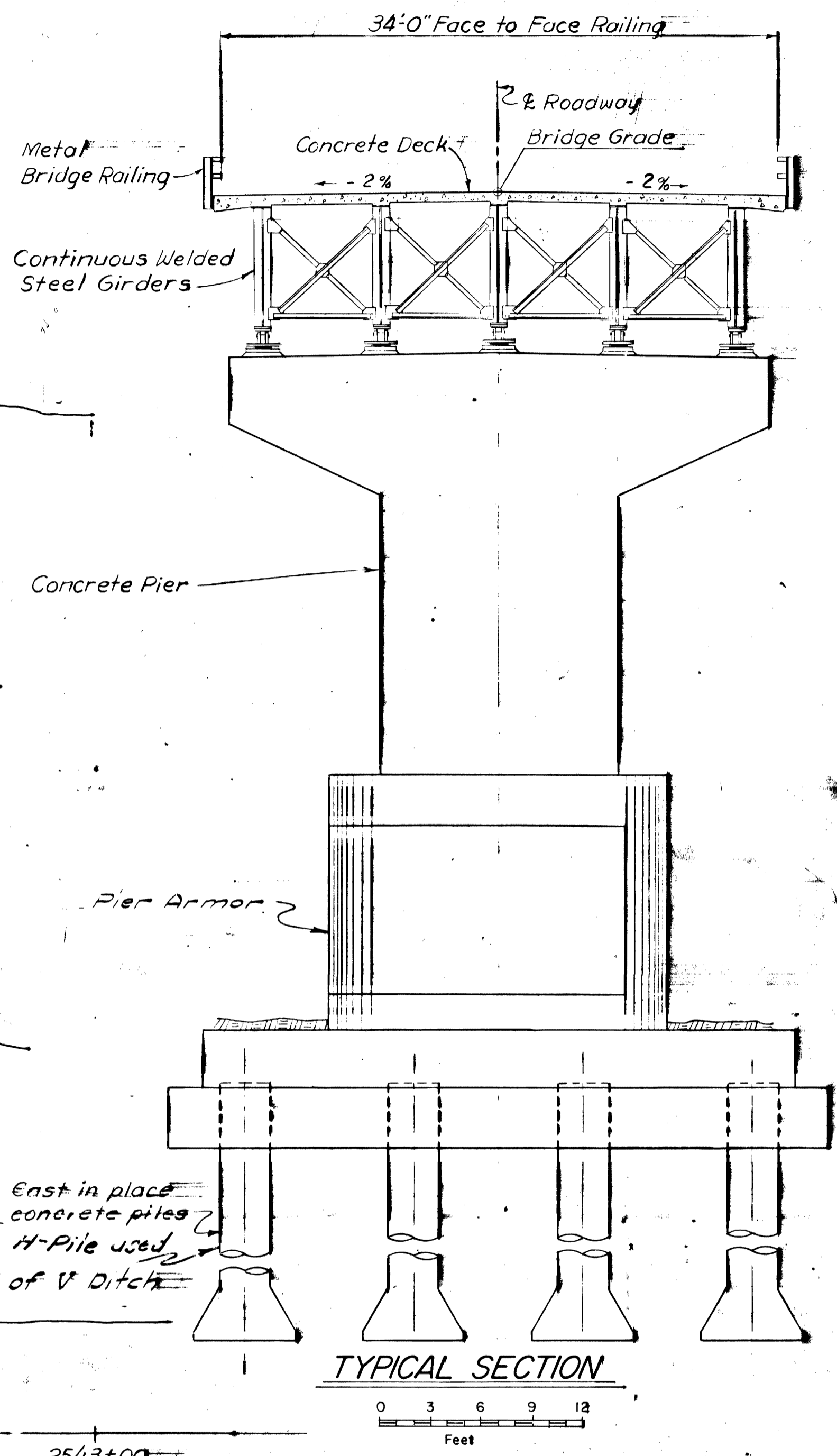


STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	BRF-037-2(19)	1971	63	74



Note:
Due to lack of Camber in the Structural Steel, Bridge grades at each pier were lowered 1/4" & feathered out toward each abut.



AS BUILT PLANS

Robert W. Benjamin Date _____
Project Engineer

CORRECTIONS TRANSFERRED

Tracings Date _____

Checked: KK Date: 3-11-75

INDEX

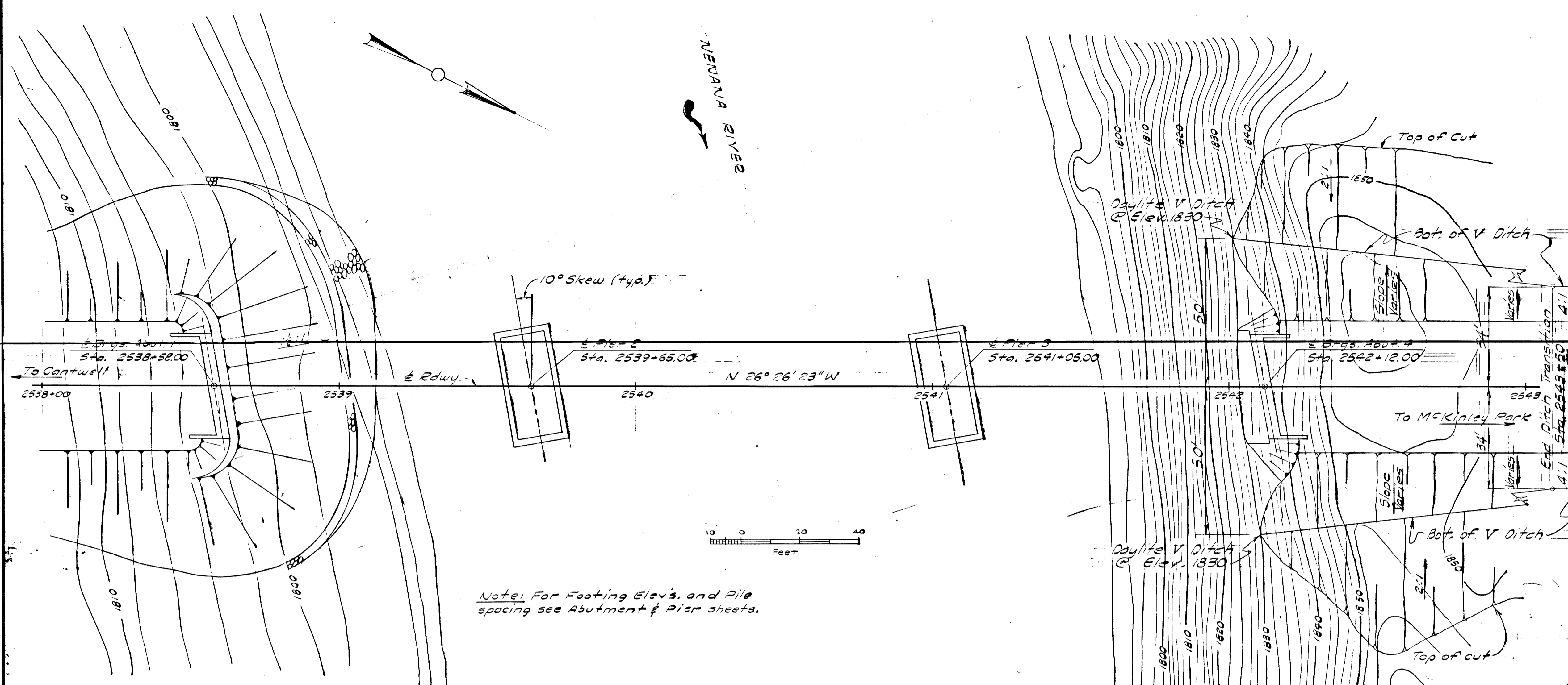
TITLE	DWG. NO.
GENERAL LAYOUT	2390
SITE PLAN	2391
ABUTMENTS	2392
WINGWALLS	2393
PIERS	2394
SUPERSTRUCTURE	2395
GIRDERS	2396
DIAPHRAGMS & SPLICES	2397
EXPANSION DEVICE	2398
BEARINGS	2399
BRIDGE RAILING	2400
LOG OF TEST BORINGS	2401
STANDARD DRAWINGS R-5, R-6, T-9	

NENANA RIVER BRIDGE
AT PARK BOUNDARY
Route No. F-37
GENERAL LAYOUT

State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

Date: 4/2/72
Approved: [Signature]

BRIDGE NO. 694
DWG. NO. 2390



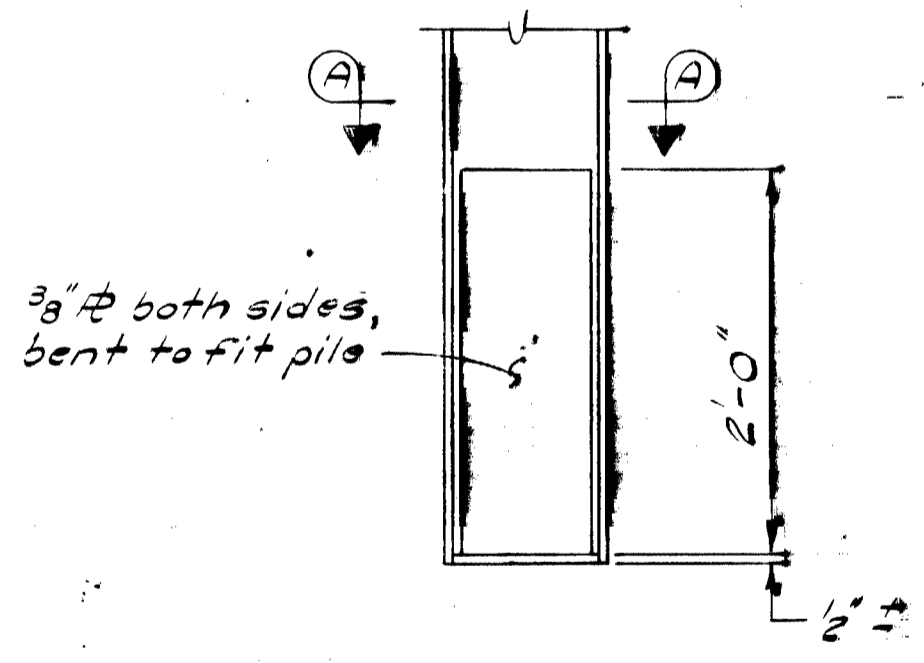
GENERAL NOTES

Specifications:
Design: A.A.S.H.O. Standard Specifications for Highway Bridges, 1969 Edition, with latest interim specifications.
Construction: State of Alaska Standard Specifications for Highway Construction, 1972, and the Special Provisions.
Live Load: HS20-44
Unit Stresses:
 Reinforced Concrete: $F_c = 1200 \text{ psi}$, $F_s = 20,000 \text{ psi}$, $n = 10$
 Structural Steel: Bending Stress in extreme Fiber, Tensile Steel Thickness Allowable Stress:
 A-36 All 20,000 psi
 A-572 Grade 50 All 27,000 psi
Concrete: All concrete shall be Class A except for seals which shall be Class S.
Reinforcing Steel: All reinforcing steel shall be intermediate grade.
Structural Steel: Flange Rs. and girder webs shall be A-572 steel, Grade 50. All other structural steel shall be A-36 unless otherwise shown on the plans or noted in the specification. Field connections shall be made with $\frac{3}{8}$ " high strength bolts conforming to ASTM A-325 except as otherwise shown.
Piles: Abutments:
 Type: HP 10x57 with reinforced tips
 Loading: 50 Tons
 Piers:
 Type: Cast in Place Concrete or reinforced tips
 Loading: 200 Tons or 70 Tons
Design Ice Loading on Piers:
 70% on nose of pier at Elev. 1799
 7% on side of pier at Elev. 1793

Note: For Footing Elevs. and Pile spacing see Abutment & Pier sheets.

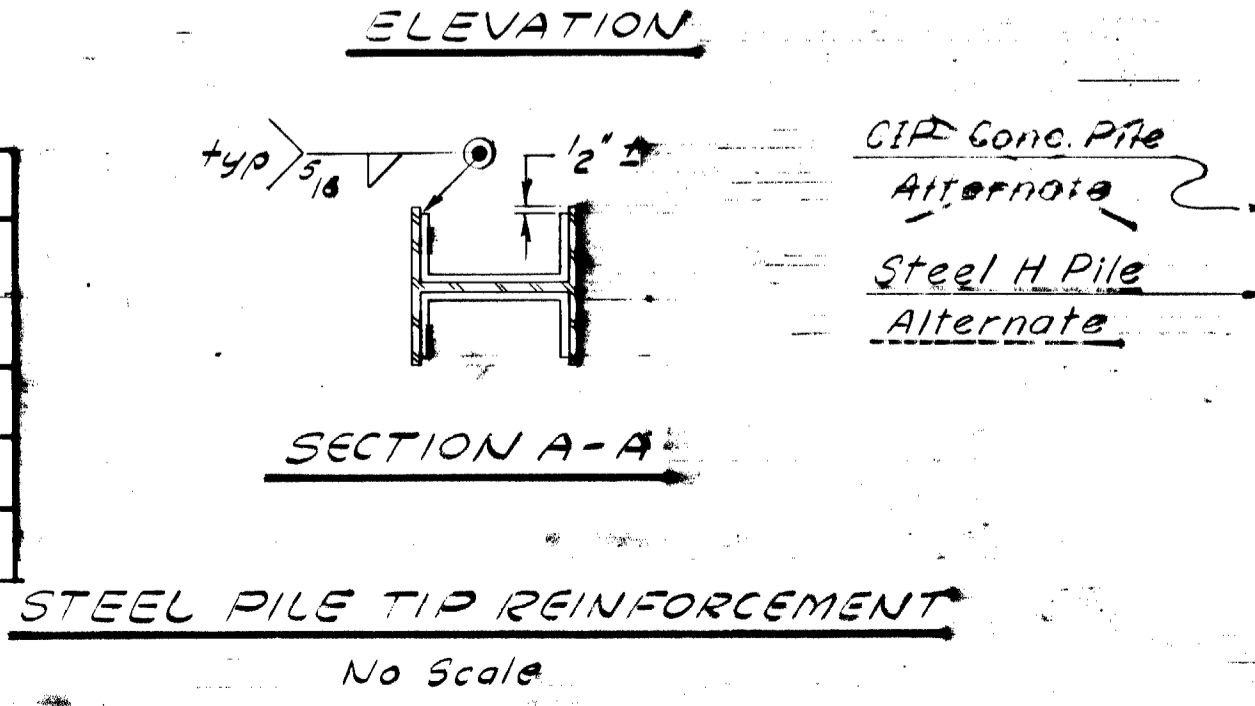
Note
 Contour interval = 2 feet
 Date of contours February, 1964

HYDRAULIC & HYDROLOGIC SUMMARY	
Drainage Area	1300 sq. mi.
Design Flood Frequency	50 yrs.
Design Discharge	25000 cfs
Design High Water	El. 1797.0



PILE TIP ELEVATIONS				
Location	Desirable	Estimated	Actual Pile Tip Elevations	
			Minimum	Maximum
Abut. 1	1785.0	1780.0	1784.8	1777.8
Pier 2*	1762.0	1762.0	1761.6	1753.8
Pier 3*	1755.0	1755.0	1758.2	1752.5
Abut. 4	1810.0	1805.0	1809.5	1805.4

* These pile tip elevations apply to CIP Conc. Piles and Steel H Piles.



ESTIMATE OF QUANTITIES				
ITEM	UNIT	SUB.	SUPER	TOTAL
Removal of structures and obstructions.	Lump Sum			All Req'd.
Class I Excavation for structures.	C.Y.	560		560
Class II Excavation for structures.	C.Y.	200		200
Class A Concrete	C.Y.	385.5	305.6	671.1
Class S Concrete	C.Y.	192.1		192.1
Reinforcing steel	Lb.	70,060	68,890	136,950
Structural Steel Piles, furnished and driven @ Abut.	L.F.	426		426
Cast in Place Concrete Piles @ Piers	L.F.	372		372
Structural Steel Piles, furnished and driven @ Piers	L.F.	116.2		116.2
Structural Steel, furnished fabricated, & erected.	Lb.	11,760	285,800	297,560
Metal Bridge Railing	L.F.		754	754

* Includes approximately 61,000 lbs. A-36, 224,800 lbs. A572 and 11,760 lbs. A588.

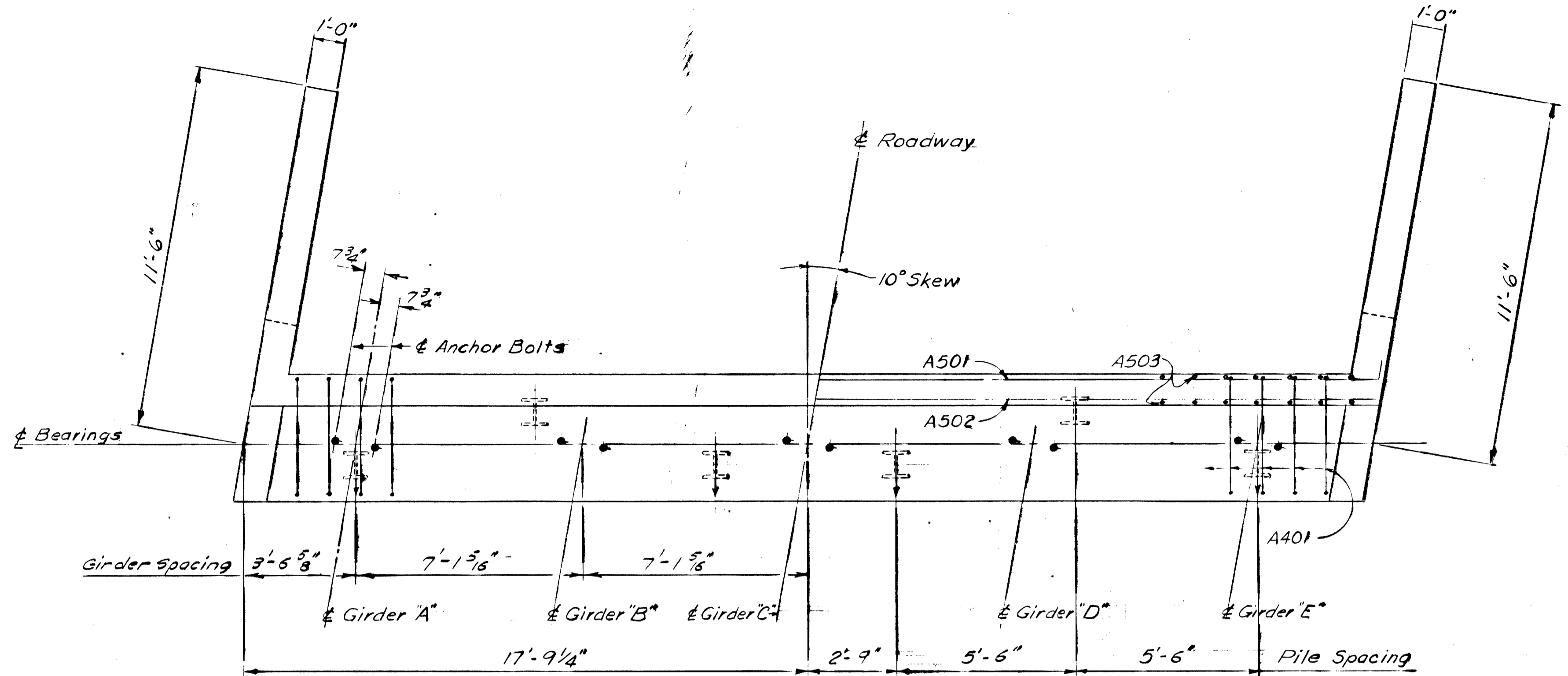
AS BUILT PLANS
 Robert W. Bengeman Date _____
 Project Engineer
 CORRECTIONS TRANSFERRED
 Tracings _____ Date _____
 Checked KIK Date 3-15-76

5/31/72	Added H Pile Alternate	7
DATE	REVISION	BY

NENANA RIVER BRIDGE AT PARK BOUNDARY
 Route No. F-37
SITE PLAN

State of Alaska
DEPARTMENT OF HIGHWAYS
 Juneau, Alaska
 Date 5/23/72
 Approved [Signature]
 BRIDGE NO. 694
 DWNG. NO. 2391

Traced By: [Signature] Date: 5/14/72

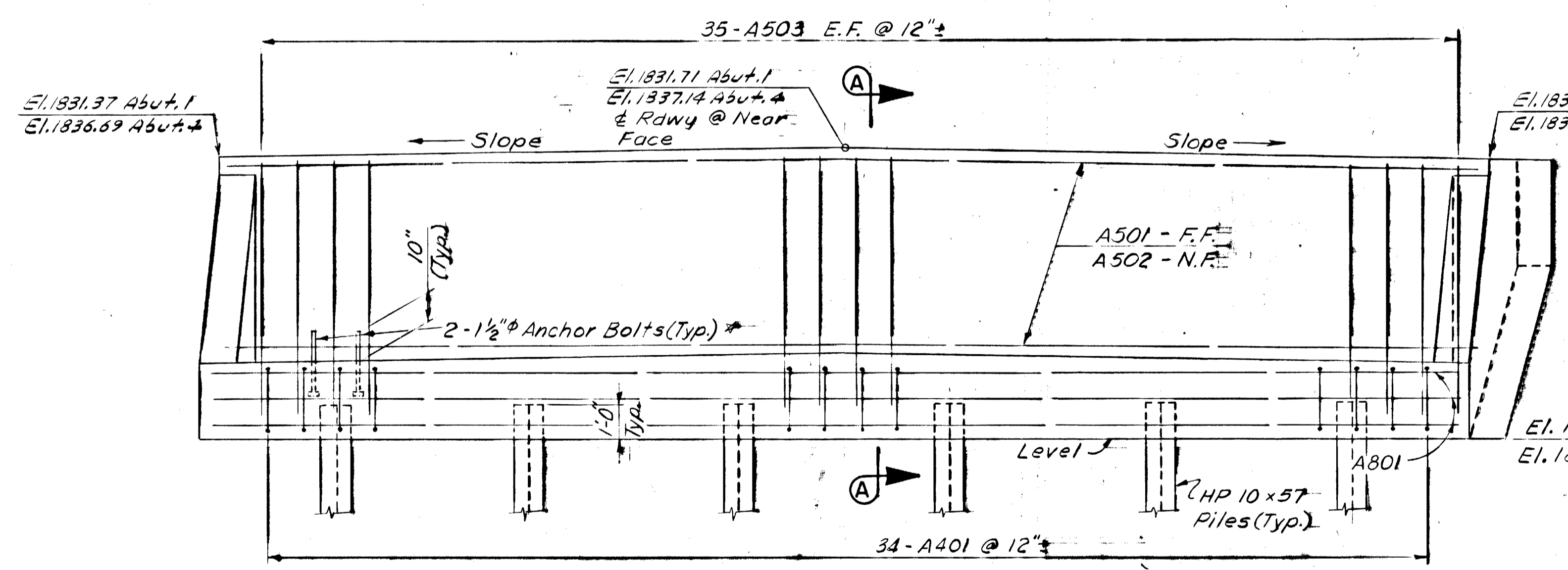
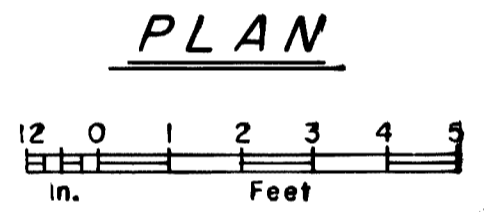


ELEVATIONS @ BEARINGS

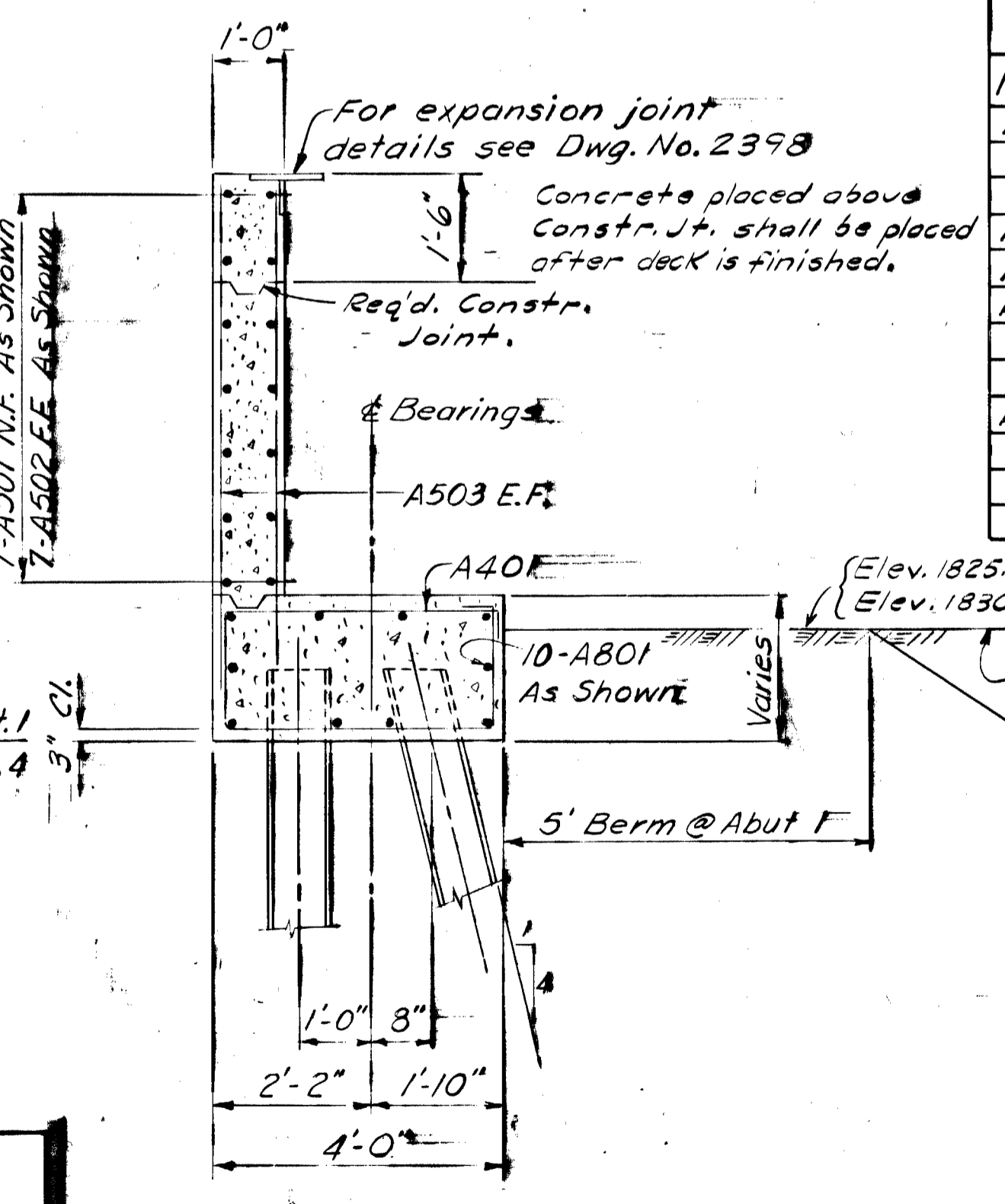
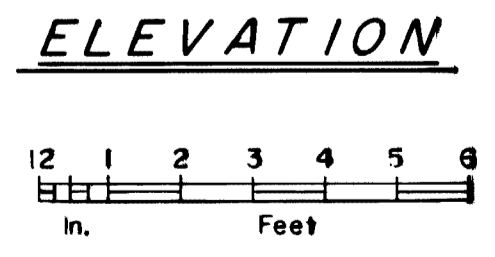
Girder Letter	TOP OF MASONRY PL's.	
	Abutment No. 1	Abutment No. 4
"A"	1826.03	1831.47
"B"	1826.17	1831.57
"C"	1826.31	1831.68
"D"	1826.16	1831.49
"E"	1826.02	1831.31

Note: It is anticipated that predrilling will be required at Abut. 4 to obtain pile penetration. Predrilling through fill at Abut. 1 is required per Standard Specifications.

Note: For Wingwall Details See Dwg. No. 2393



* For bearing & anchor bolt details See Dwg. No. 2399



REINFORCING STEEL - One Abutment (2 Req'd.)

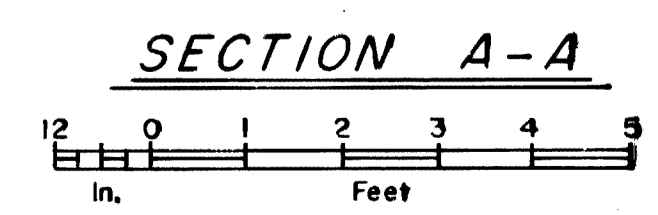
Mark	No.	Size	Length	Type	Bending Diagrams
A401	34	4	11'-6"	Bent	3'-8" 6"
A501	7	5	36'-2"	Bent	A401 12 2
A502	7	5	35'-2"		35'-2" 10
A503	70	5	7'-0"		A501
A801	10	8	35'-2"		

AS BUILT PLANS

Robert W. Songemore Date _____
Project Engineer

CORRECTIONS TRANSFERRED

Tracings _____ Date _____
Checked K.K. Date 3-15-75



NENANA RIVER BRIDGE
AT PARK BOUNDARY

Route No. F-37

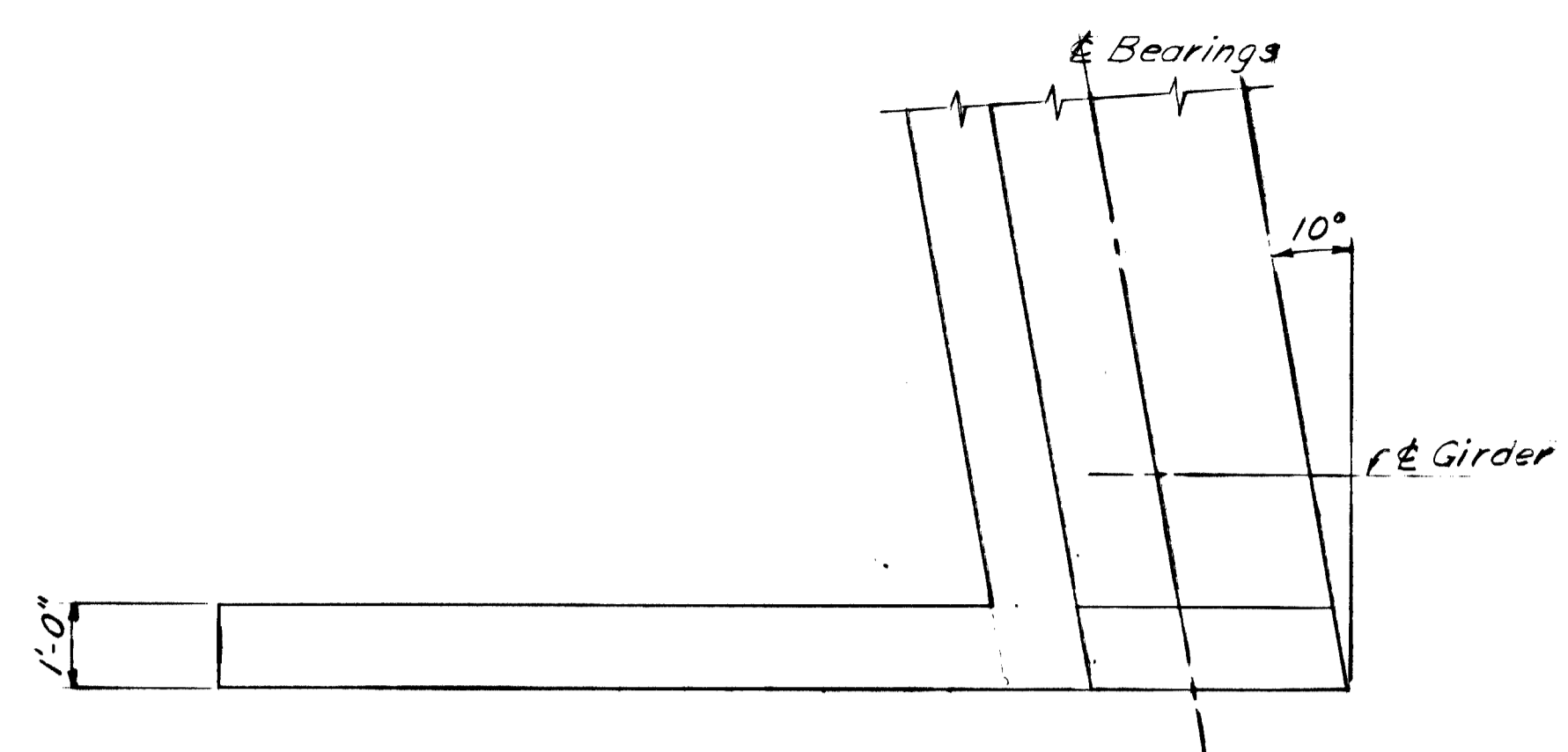
ABUTMENTS

State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

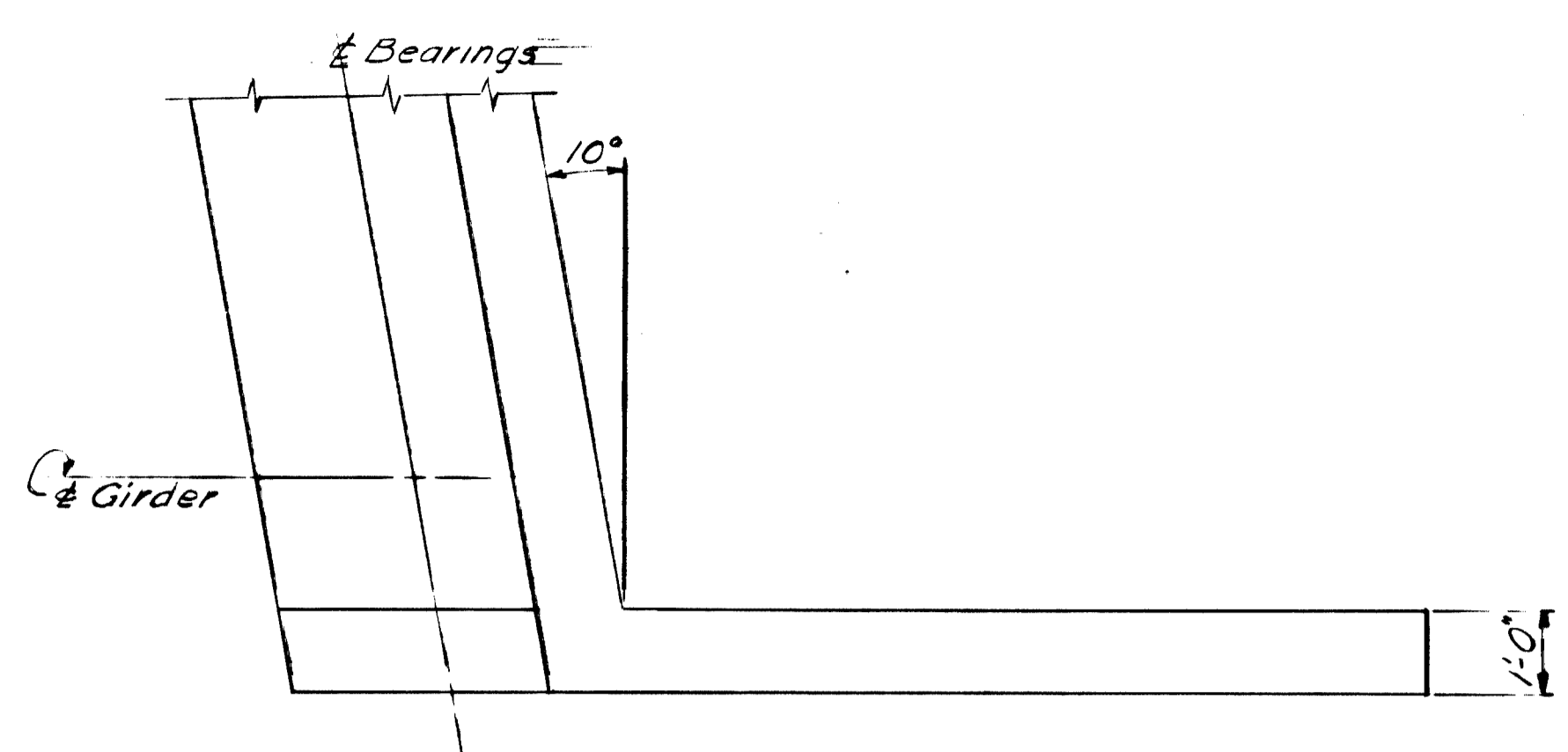
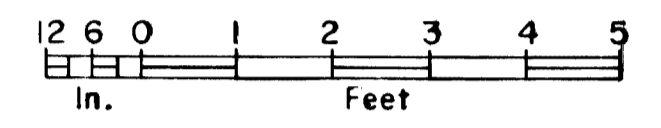
Date 5/23/72
Approved [Signature]

BRIDGE NO. 694
DWNG. NO. 2392

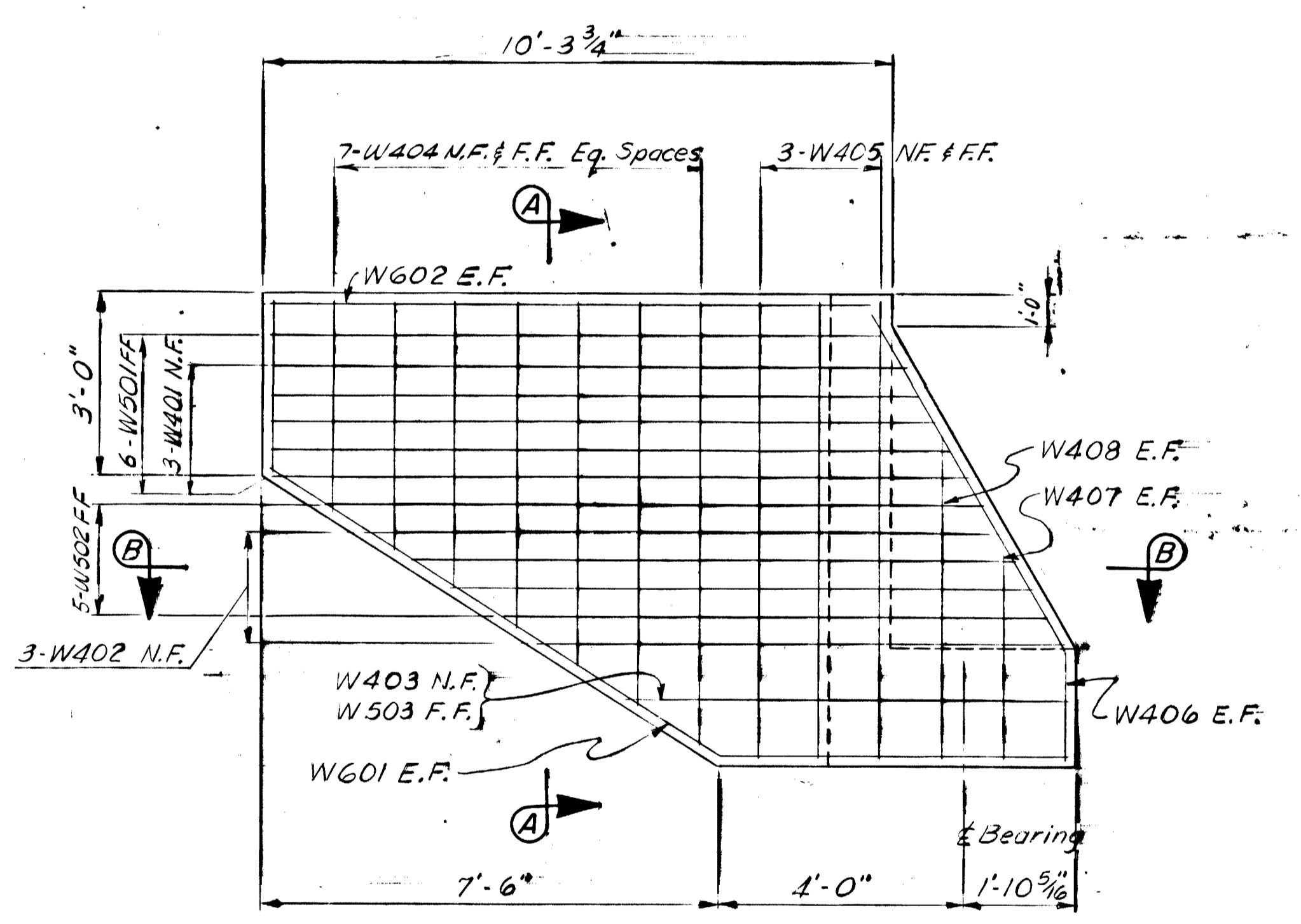
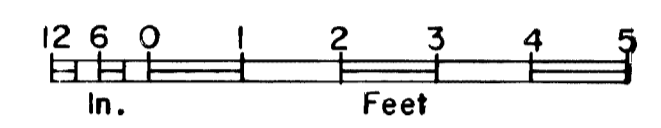
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	B.R.F.-037-2(19)	1971	66	74



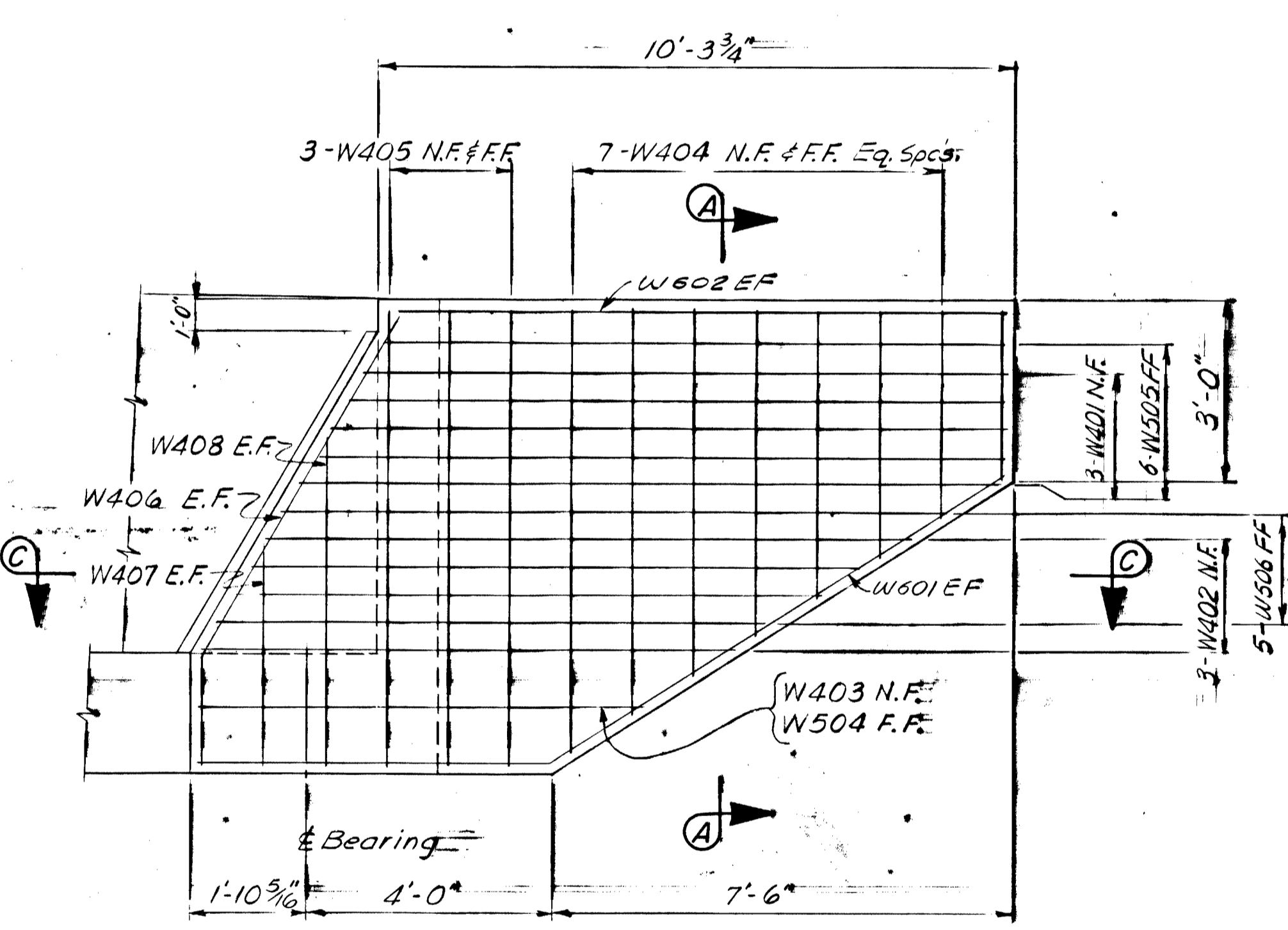
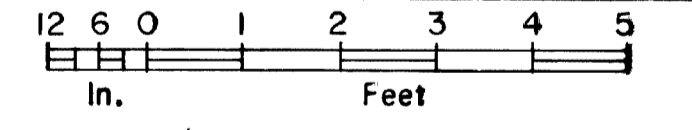
WINGWALL PLAN — ACUTE ANGLE



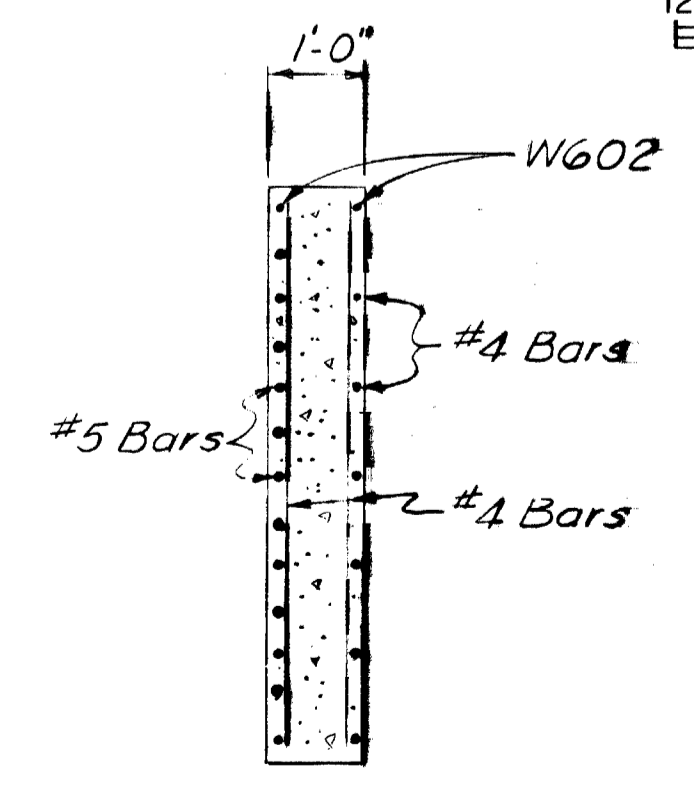
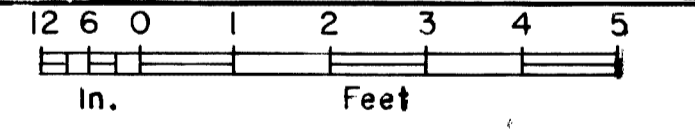
WINGWALL PLAN — OBTUSE ANGLE



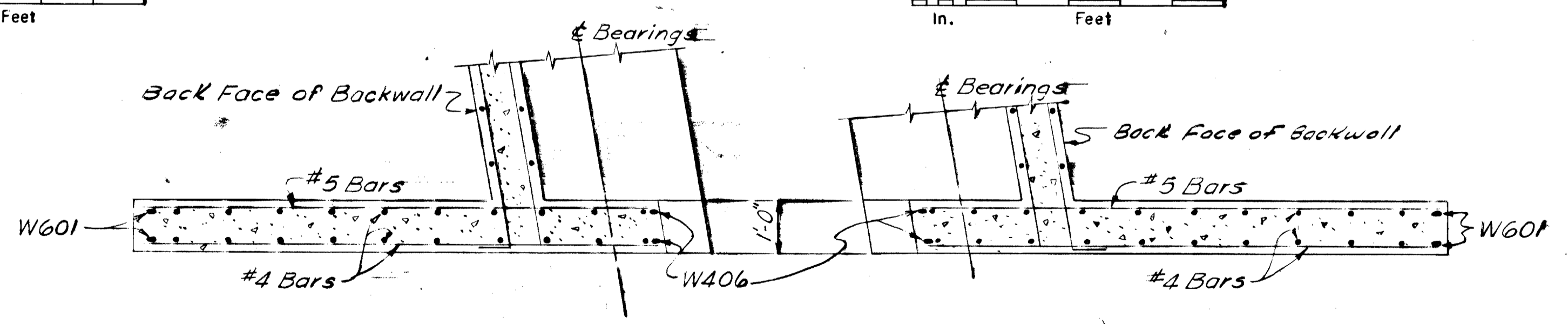
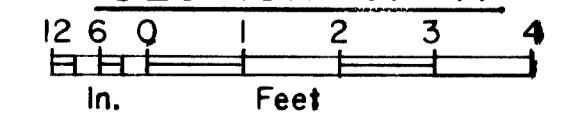
ELEVATION — ACUTE ANGLE



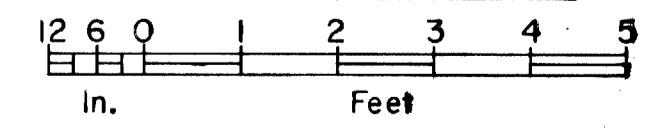
ELEVATION — OBTUSE ANGLE



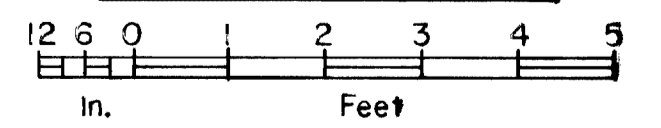
SECTION A-A



SECTION B-B



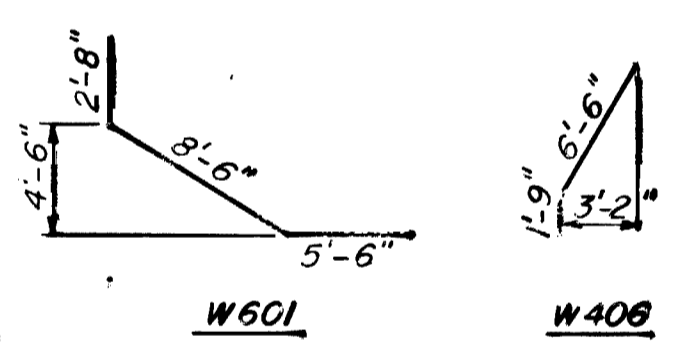
SECTION C-C



Note: See Railing sheet for Railpost Anchors.

WINGWALL REINFORCING STEEL — ONE ABUTMENT				
Mark	No.	Size	Length	Type
W401	6	4	Varies	—
W402	6		Varies	—
W403	2		7'-4"	—
W404	28		Varies	—
W405	12		7'-4"	—
W406	4		8'-3"	Bent
W407	4		3'-8"	—
W408	4	4	5'-5"	—
W501	6	5	Varies	—
W502	5		Varies	—
W503	1		7'-3"	—
W504	1		7'-5"	—
W505	6		Varies	—
W506	5	5	Varies	—
W601	4	6	16'-8"	Bent
W602	4	6	10'-0"	—

Bending Diagrams		
10'-4" to 11'-4" @ 6" increments	W401	
8'-7" to 10'-7" @ 12" increments	W402	
3'-2" to 7'-2" @ 8" increments	W404	
9'-10" to 11'-4" @ 3" increments	W501	
8'-10" to 10'-10" @ 6" increments	W502	
9'-11" to 11'-5" @ 3" increments	W505	
9'-0" to 11'-0" @ 6" increments	W506	



NENANA RIVER BRIDGE
AT PARK BOUNDARY

Route No. F-37

WINGWALLS

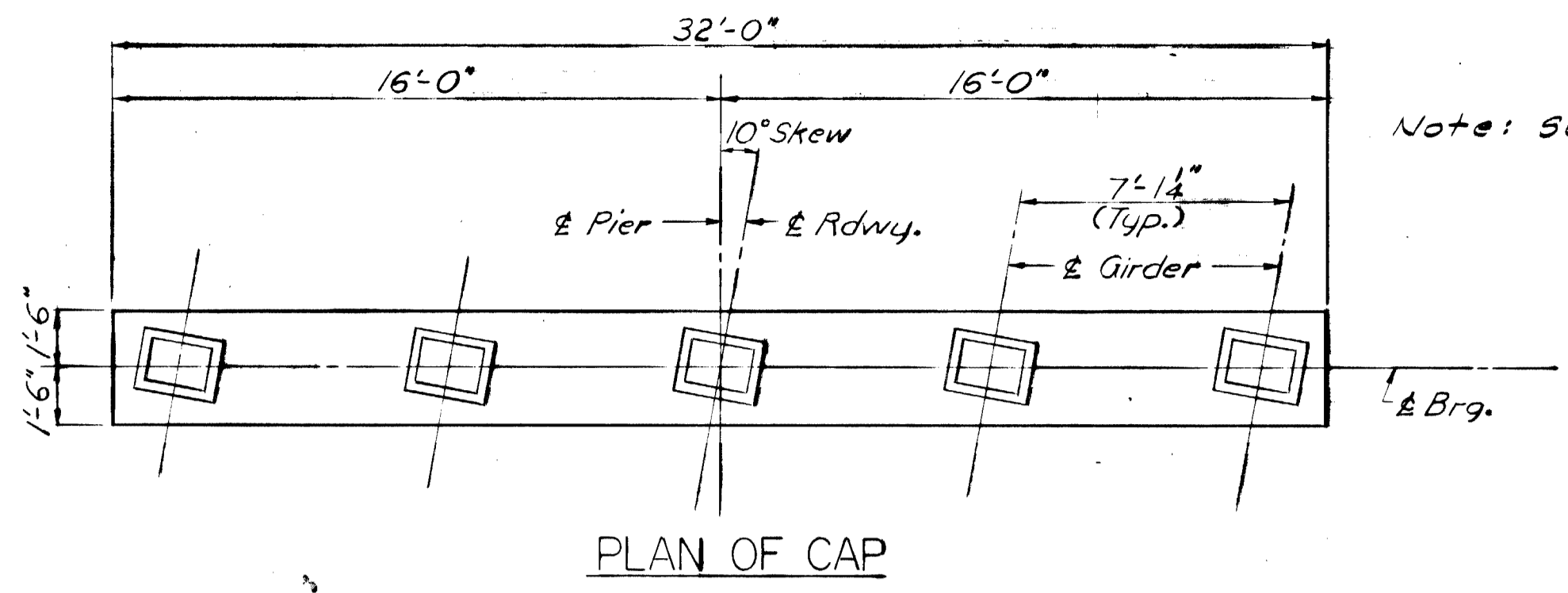
AS BUILT PLANS
 Robert W. Bergerman
 Project Engineer
 CORRECTIONS TRANSFERRED
 Tracings _____ Date _____
 Checked KK _____ Date 3-15-74

State of Alaska
DEPARTMENT OF HIGHWAYS
 Juneau, Alaska

Date 5/23/72
 Approved [Signature]

BRIDGE NO. 694
 DWNG. NO. 2393

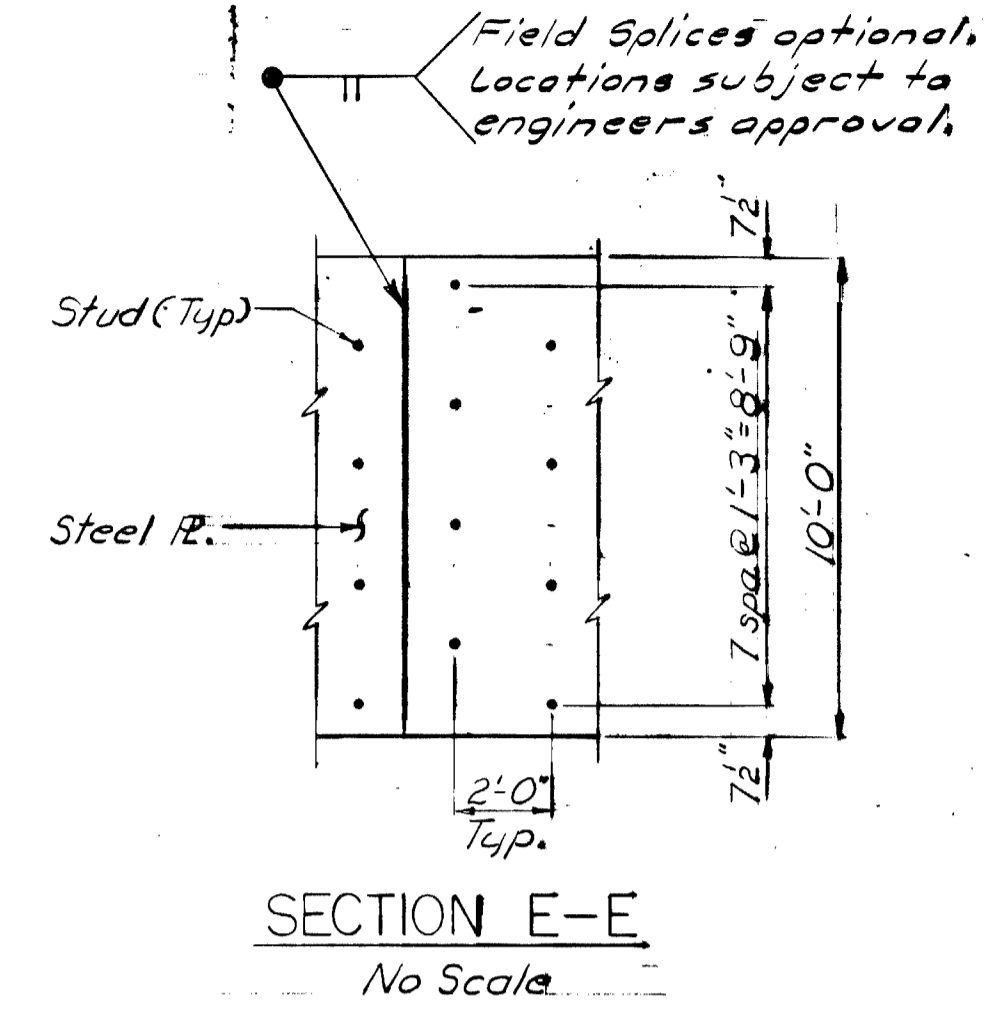
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	BRF-037-2(19)	1971	67	74



Note: See Dwg. No. 2399 for Anchor bolts.

BRG. ELEVATIONS		
	Pier 2	Pier 3
A	1822.58	1824.75
B	1822.73	1824.92
C	1822.88	1825.09
D	1822.75	1824.97
E	1822.63	1824.86
F	1822.15	1824.23
G	1822.49	1824.61
H	1822.21	1824.35

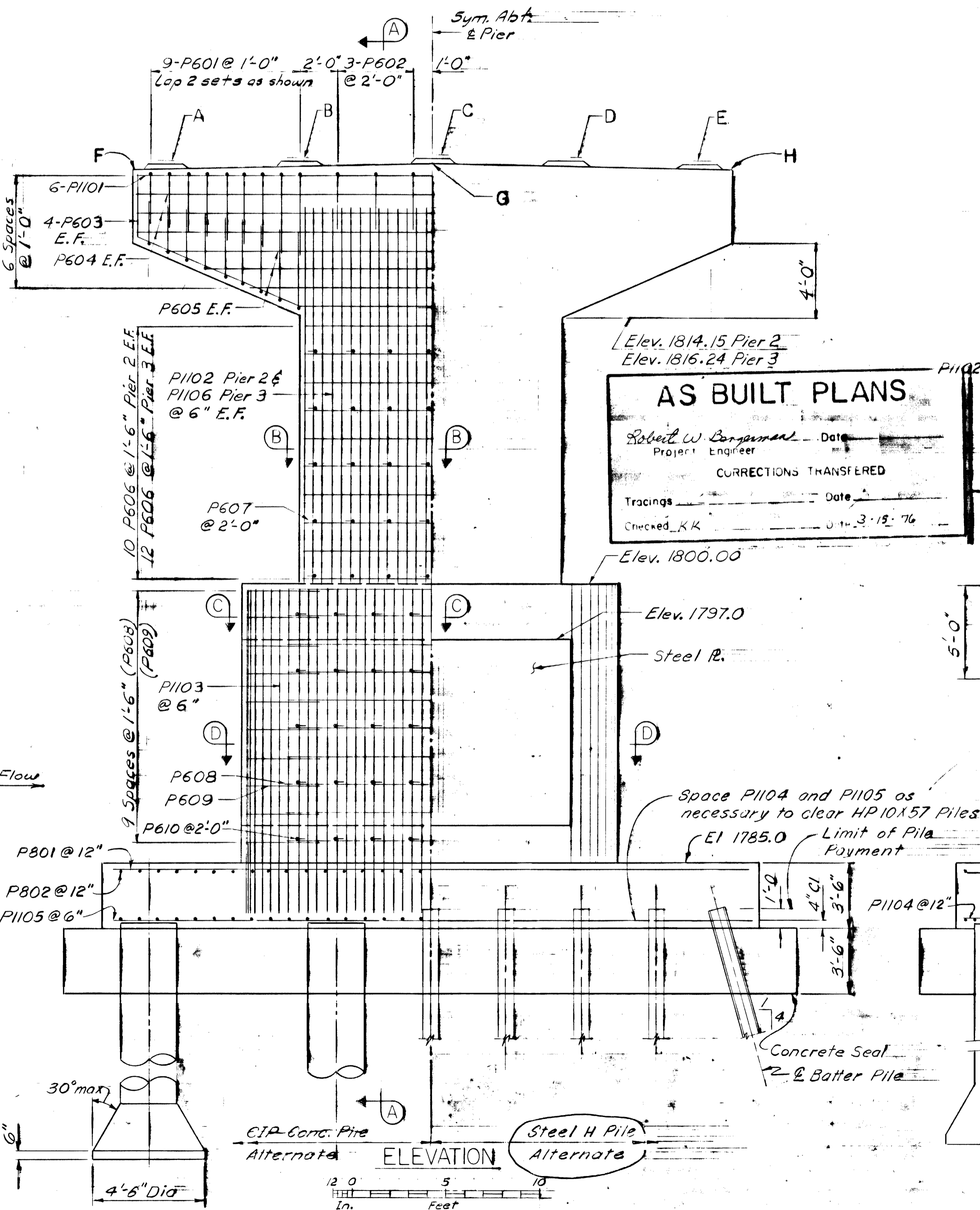
Note: Elevations A thru E are @ top of masonry plates.



SECTION E-E
No Scale

REINFORCING STEEL (TWO PIERS)				BENDING DIAGRAMS	
MARK NO.	SIZE	LENGTH	TYPE		
P601	8*	6	92'-3"	Bent	
P602	12		8'-11"	Bent	
P603	16		21'-1"	Bent	
P604	12		31'-9"		
P605	6		47'-9"		
P606	44		13'-9"		
P607	70		4'-4"	Bent	
P608	40		15'-0"		
P609	40		10'-1"	Bent	
P610	80		6'-4"	Bent	
P801	30	8	34'-8"		
P802	68	8	14'-8"		
P1101	12	11	31'-9"		
P1102	56		25'-0"		
P1103	176		20'-2"	Bent	
P1104	68		14'-8"		
P1105	58		34'-8"		
P1106	56	11	27'-0"		
P401	392	4	8'-4"	Bent	
P1107	56	11	21'-0"		
P1108	56	11	28'-0"		

* Indicates no. of sets required, length shown is total bar length for one set.
 ** For Cast in Place Piles. See Special Provisions for payment.
 Note: Seal designed for H.W. Elev. 1794.



AS BUILT PLANS

Robert W. Bergman - Date _____
 Project Engineer

CORRECTIONS TRANSFERRED

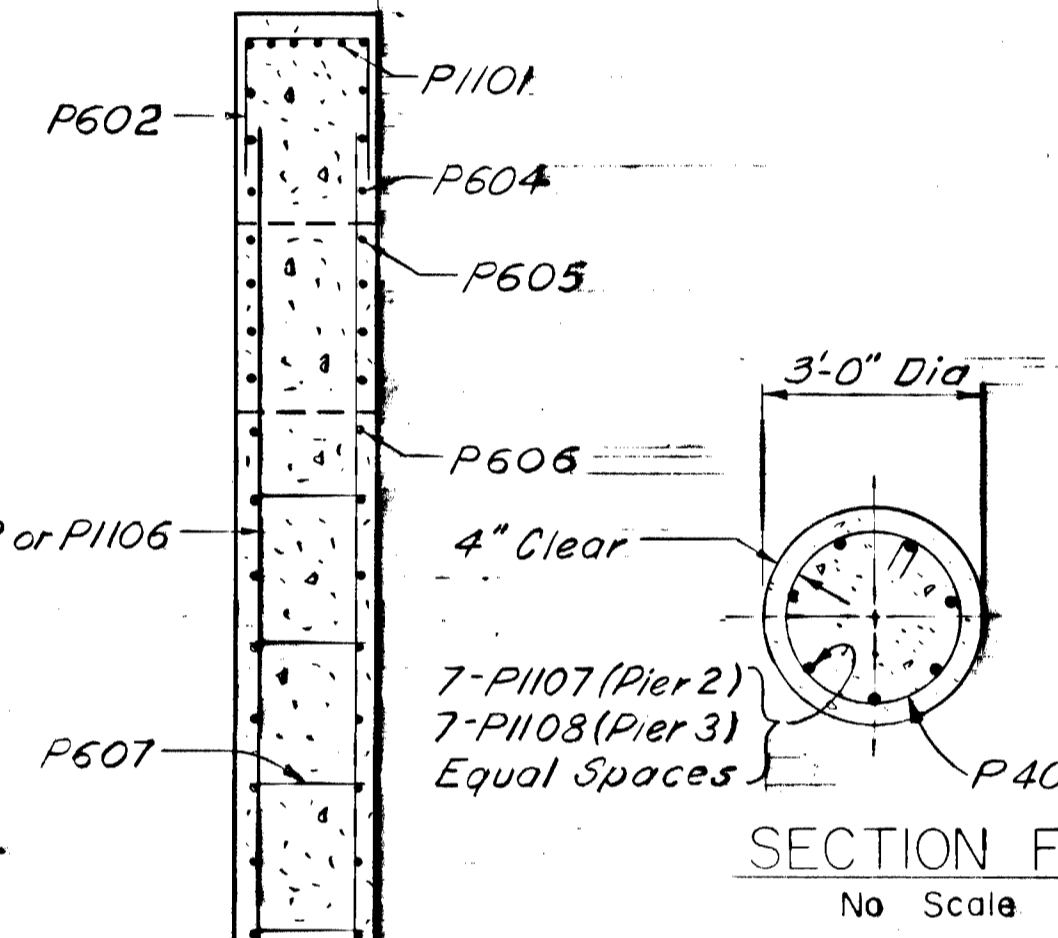
Tracings _____ Date _____
 Checked_KK _____ 3-15-76

Elev. 1814.15 Pier 2
 Elev. 1816.24 Pier 3

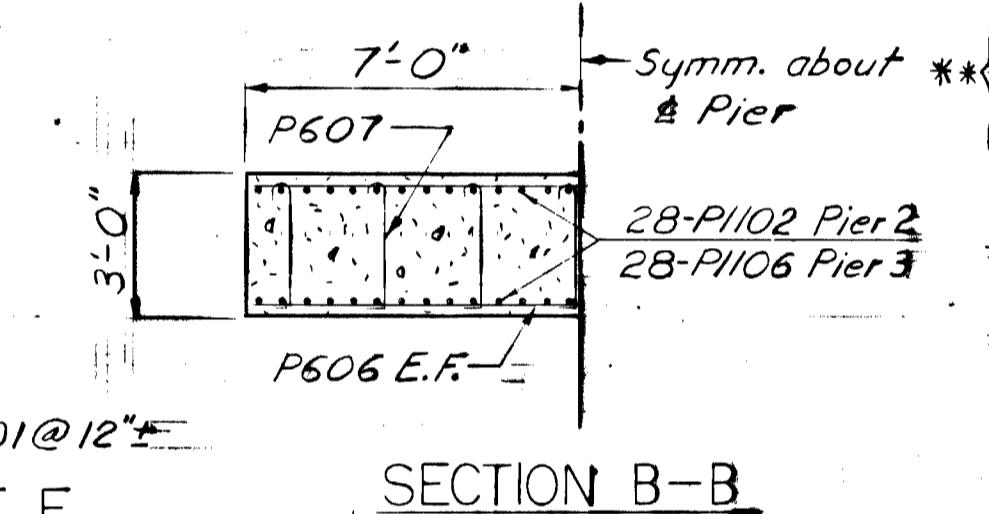
Elev. 1800.00

Elev. 1797.0

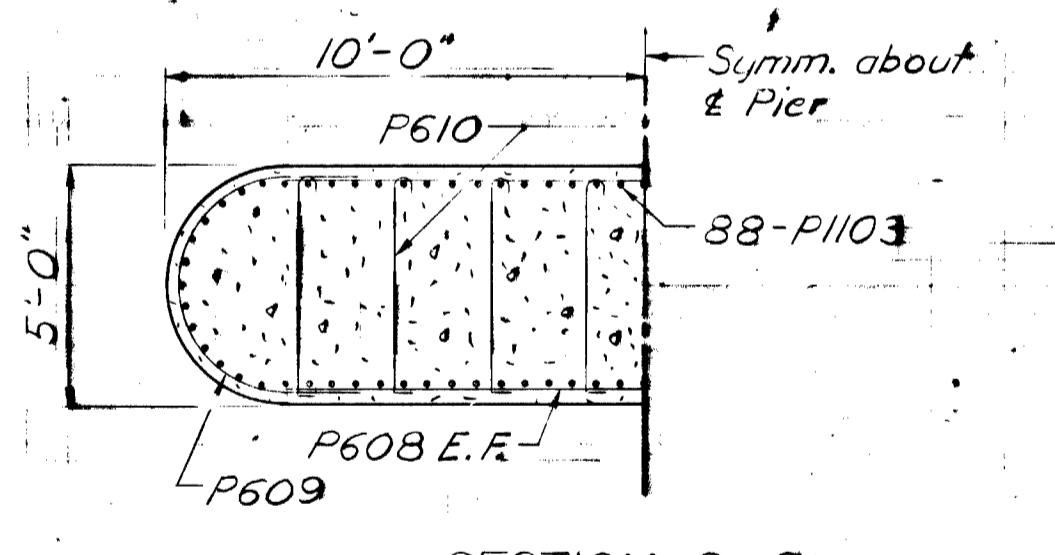
Elev. 1785.0



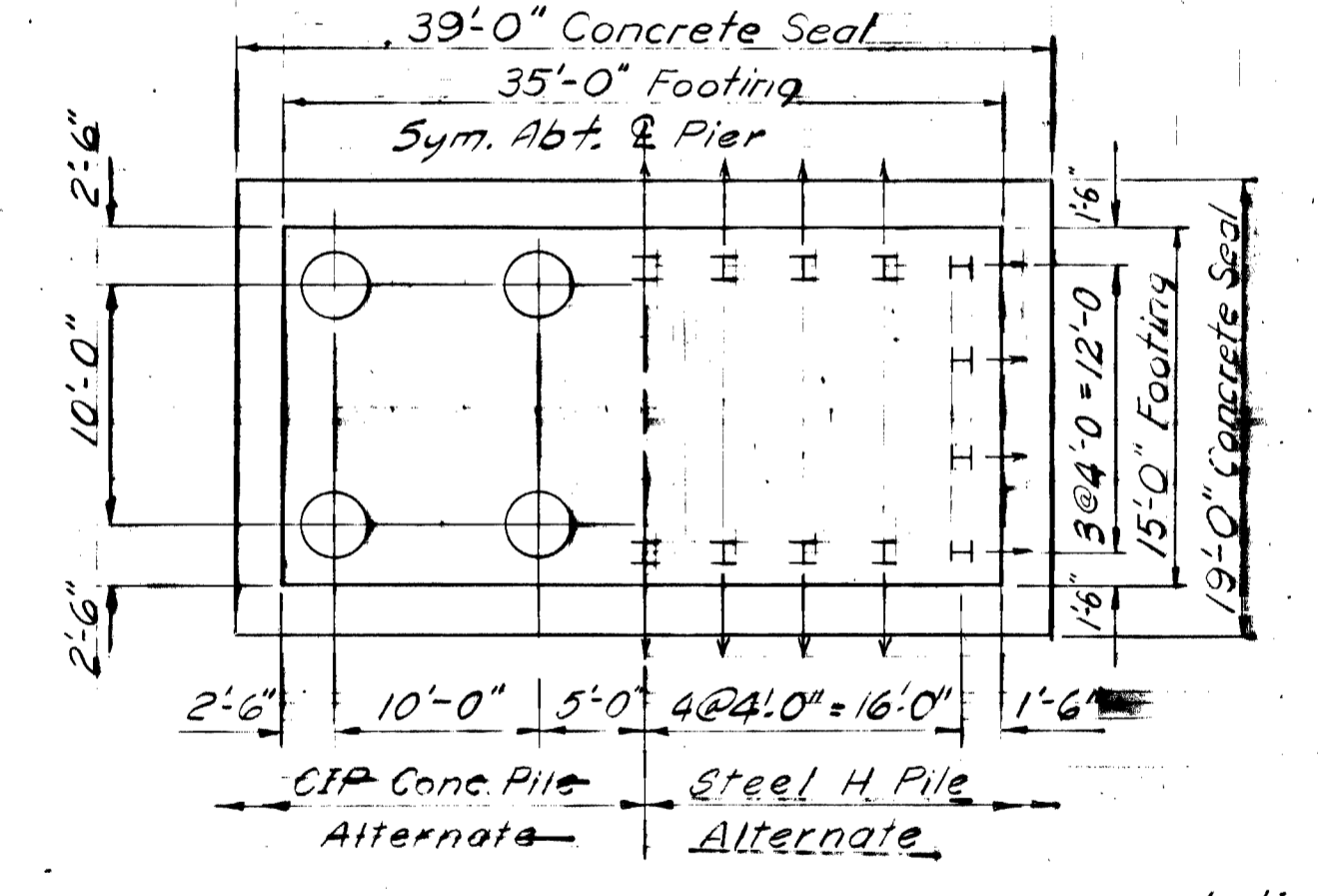
SECTION F-F
No Scale



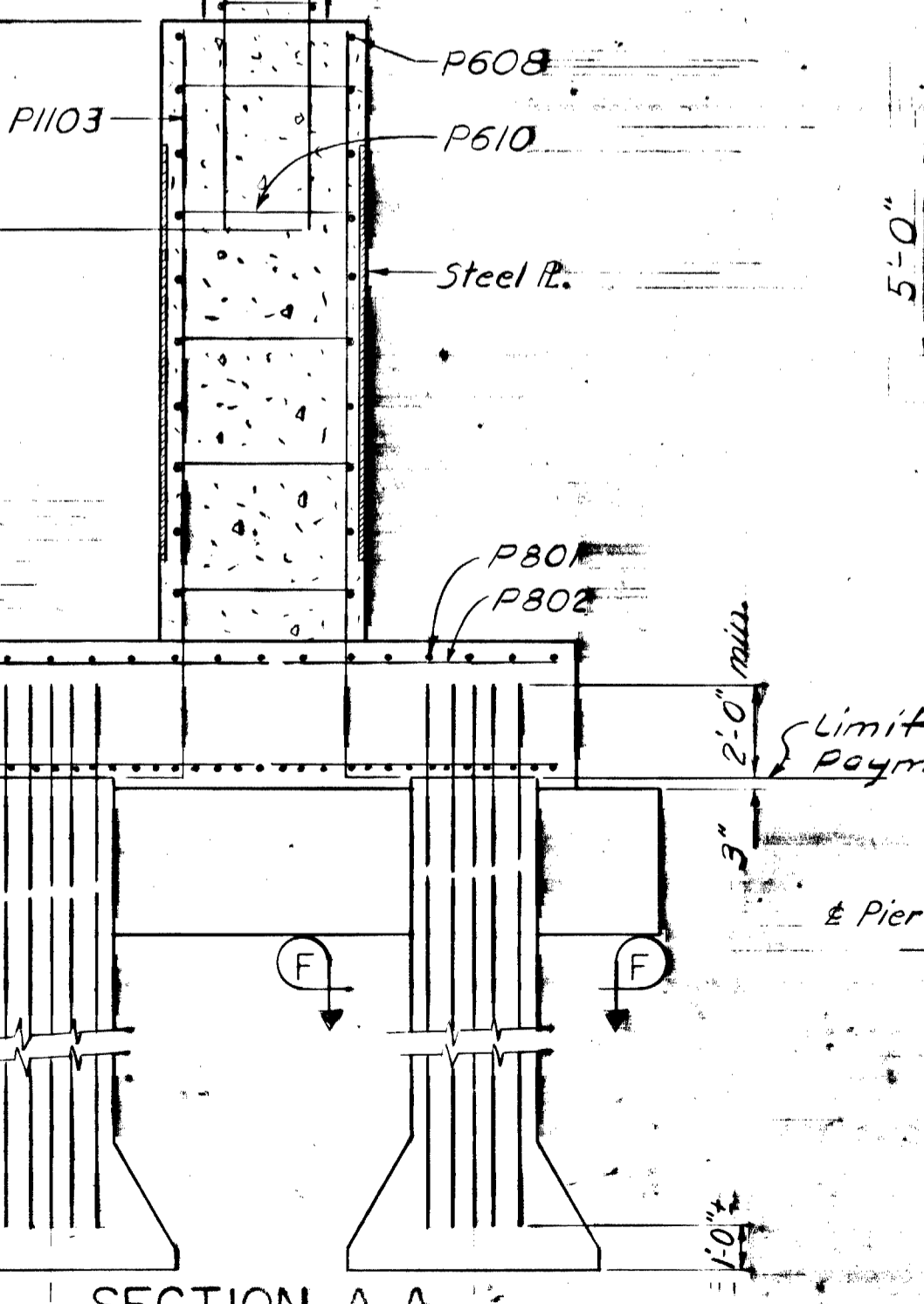
SECTION B-B



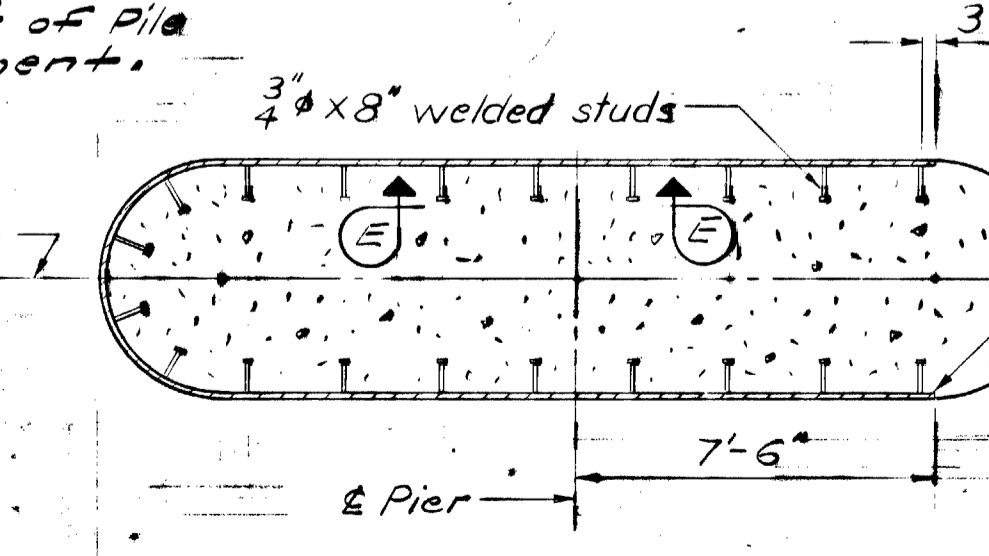
SECTION C-C



FOOTING PLAN
No Scale



SECTION A-A



SECTION D-D
SHOWING ARMOR PLATE

REVISION-5-31-72
 Added H Pile Alternate

NENANA RIVER BRIDGE
 AT PARK BOUNDARY
 ROUTE NO. F-37
 PIERS

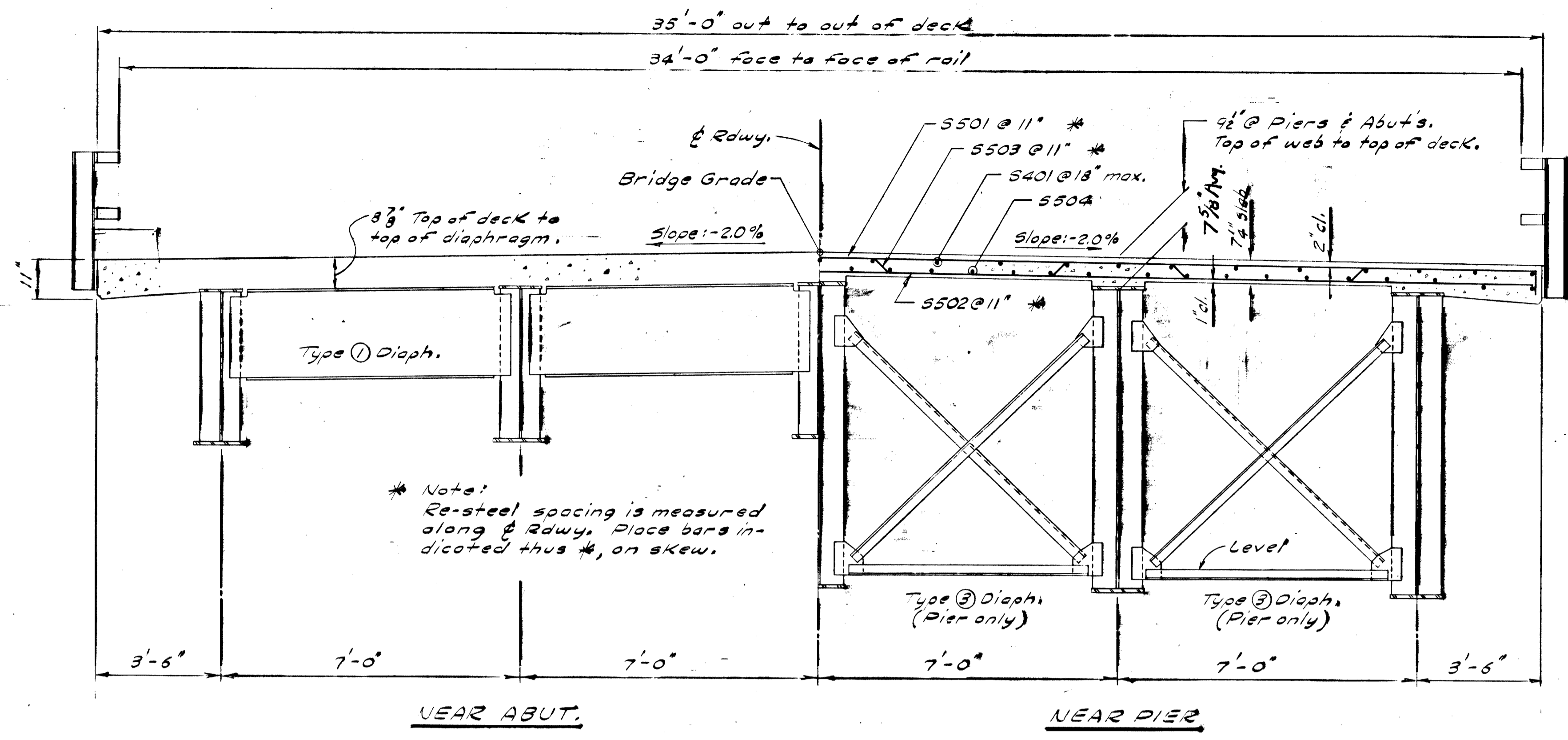
State of Alaska
DEPARTMENT OF HIGHWAYS
 Juneau, Alaska

Date 5/23/72
 Approved _____

BRIDGE NO. 694
 DWNG. NO. 2394

AS BUILT PLANS
 Robert W. Bonaparte Project Engineer
 Date _____
 CORRECTIONS TRANSFERRED
 Tracings 1/18 Date _____
 Checked K.K. Date 3-15-76

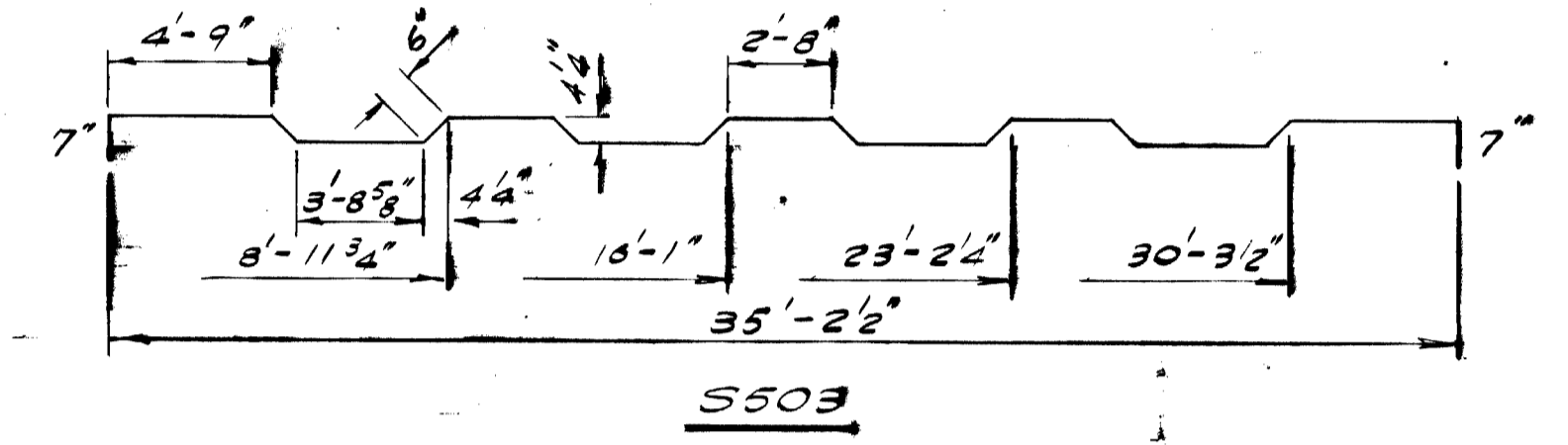
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	BRF-037-2(19)	1971	68	74



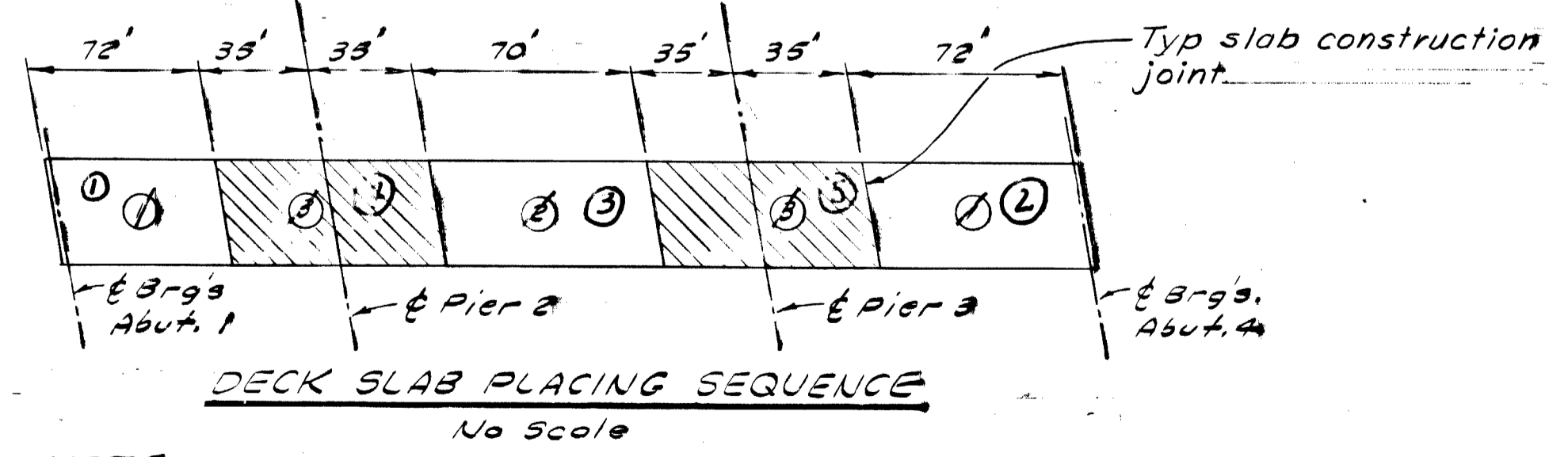
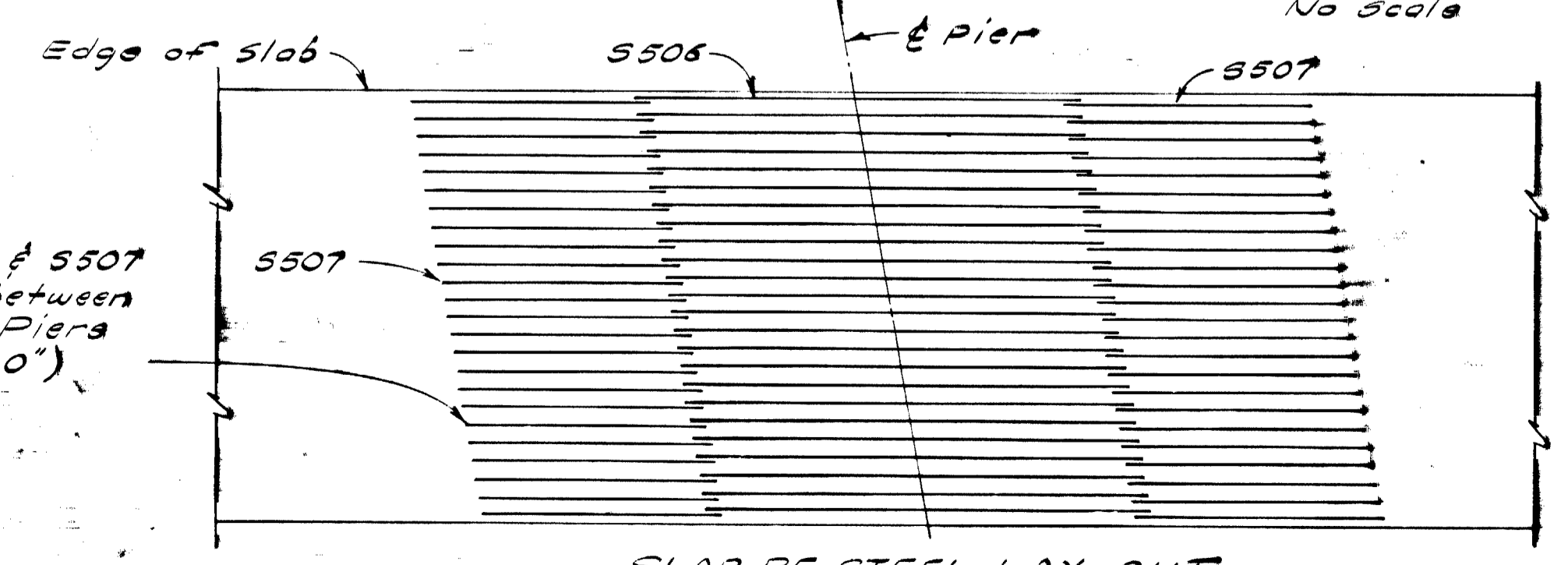
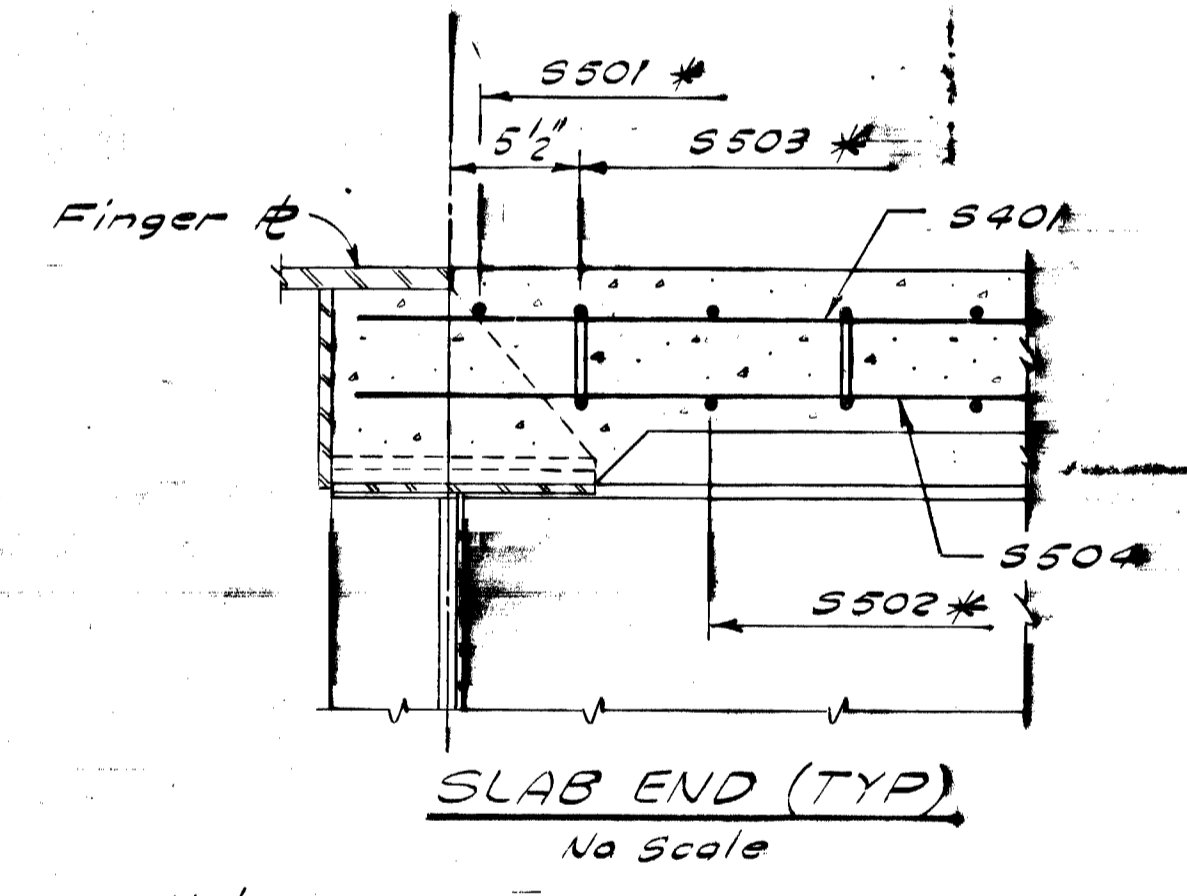
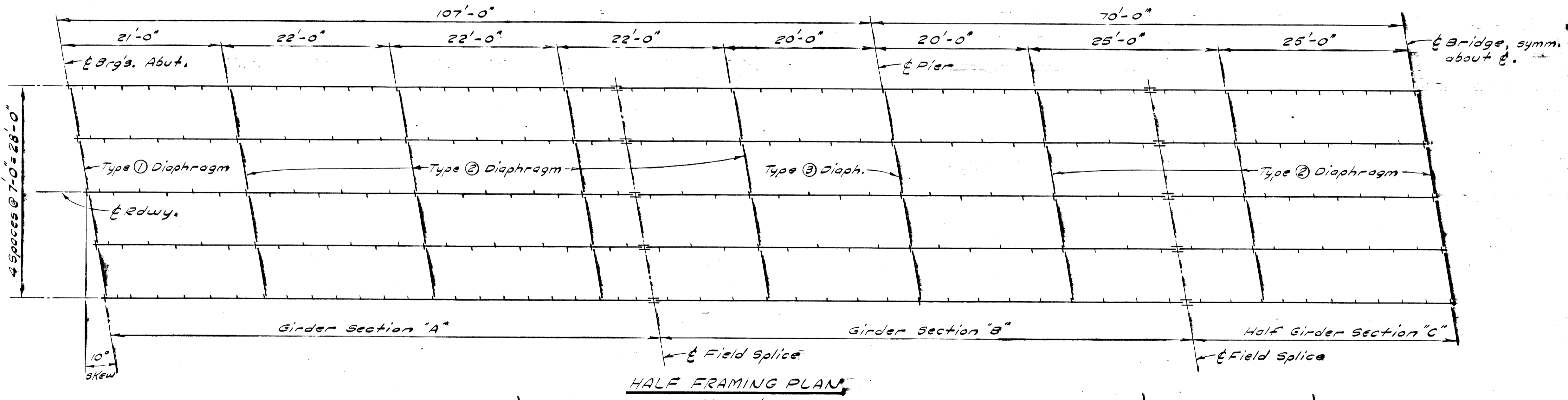
NOTE:
 Because S.I.P's were used to form the deck, slab thickness was increased 3/8" & deck re-steel was perpendicular to centerline.

REINFORCING SCHEDULE - DECK SLAB

Mark	No.	Size	Length	Type
S5401	25	4	*363'-0"	
S5501	387	5	36'-5"	Bent
S5502	385		35'-3"	
S5503	385		37'-7"	Bent
S5504	34		*363'-0"	
S5506	48		40'-0"	
S5507	98	5	20'-0"	



TYPICAL SECTION
 1 1/2" = 1' Feet



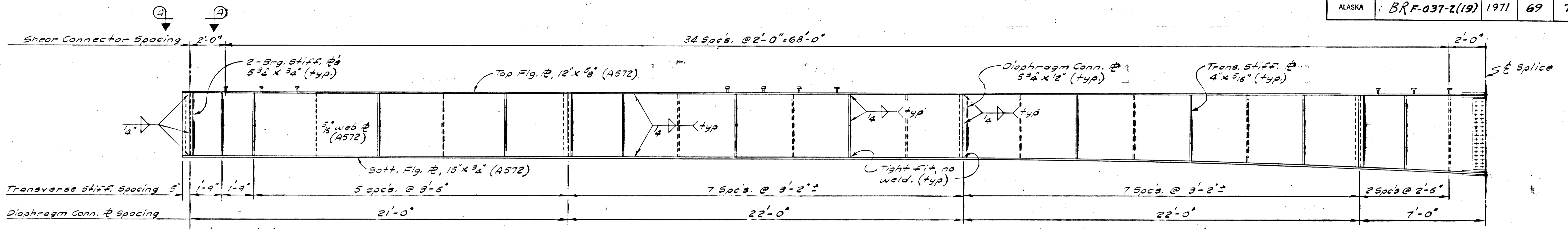
NENANA RIVER BRIDGE
 AT PARK BOUNDARY
 Route No. F-37
 SUPERSTRUCTURE

State of Alaska
DEPARTMENT OF HIGHWAYS
 Juneau, Alaska

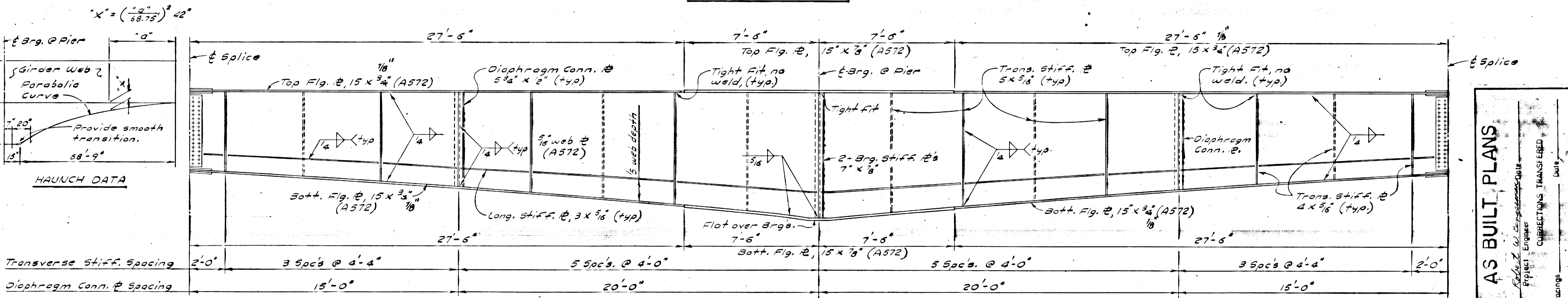
Date 5/23/72
 Approved [Signature]

BRIDGE NO. 694
 DWNG. NO. 2395

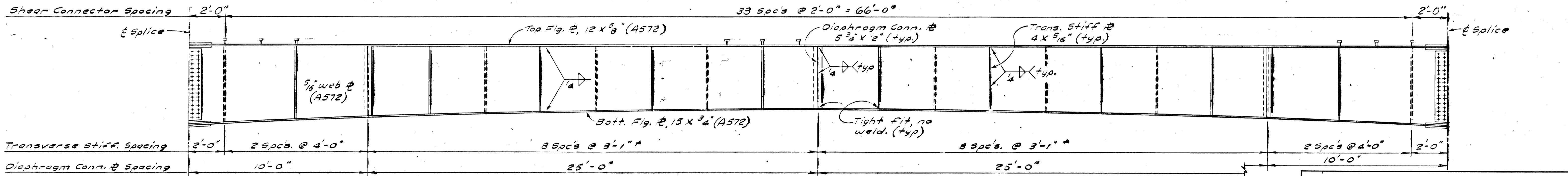
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	BRF-037-2(19)	1971	69	74



GIRDER SECTION "A"

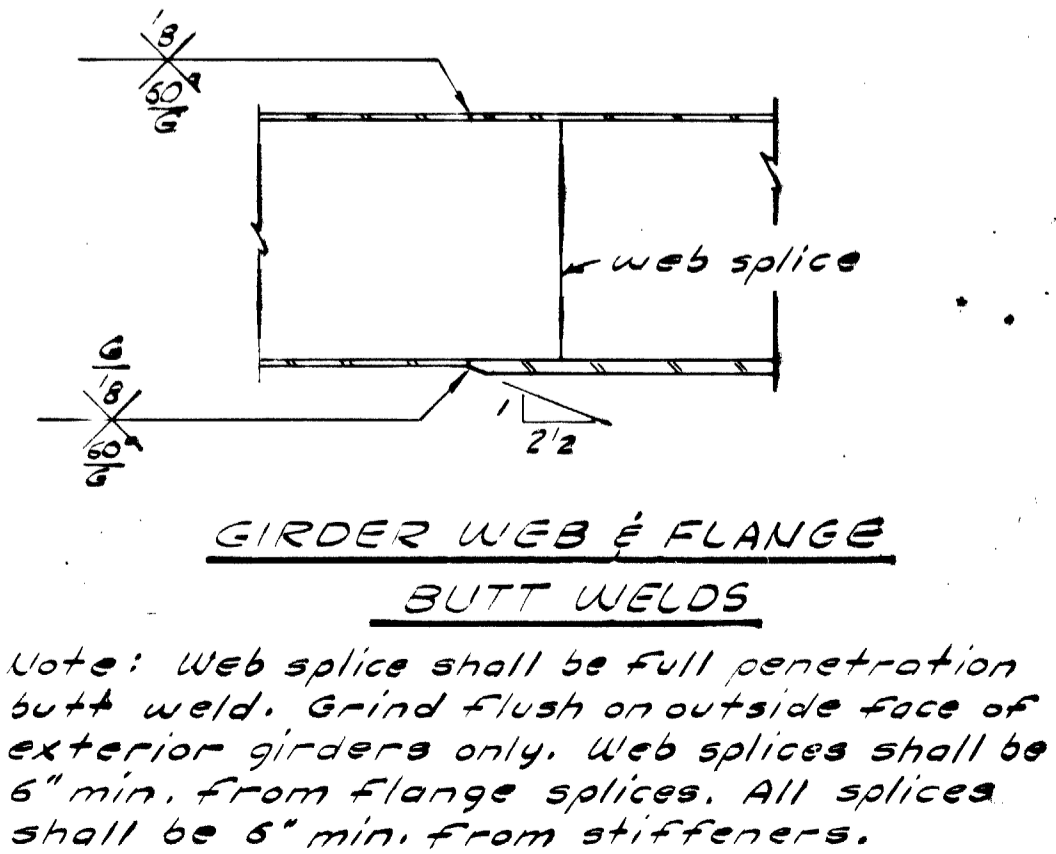
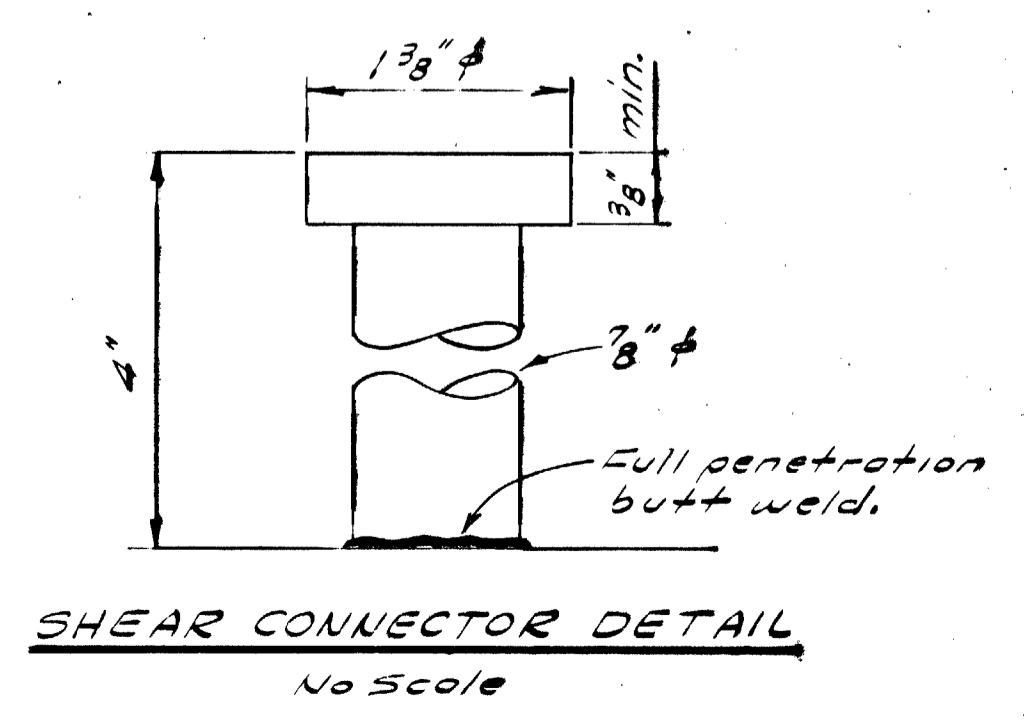
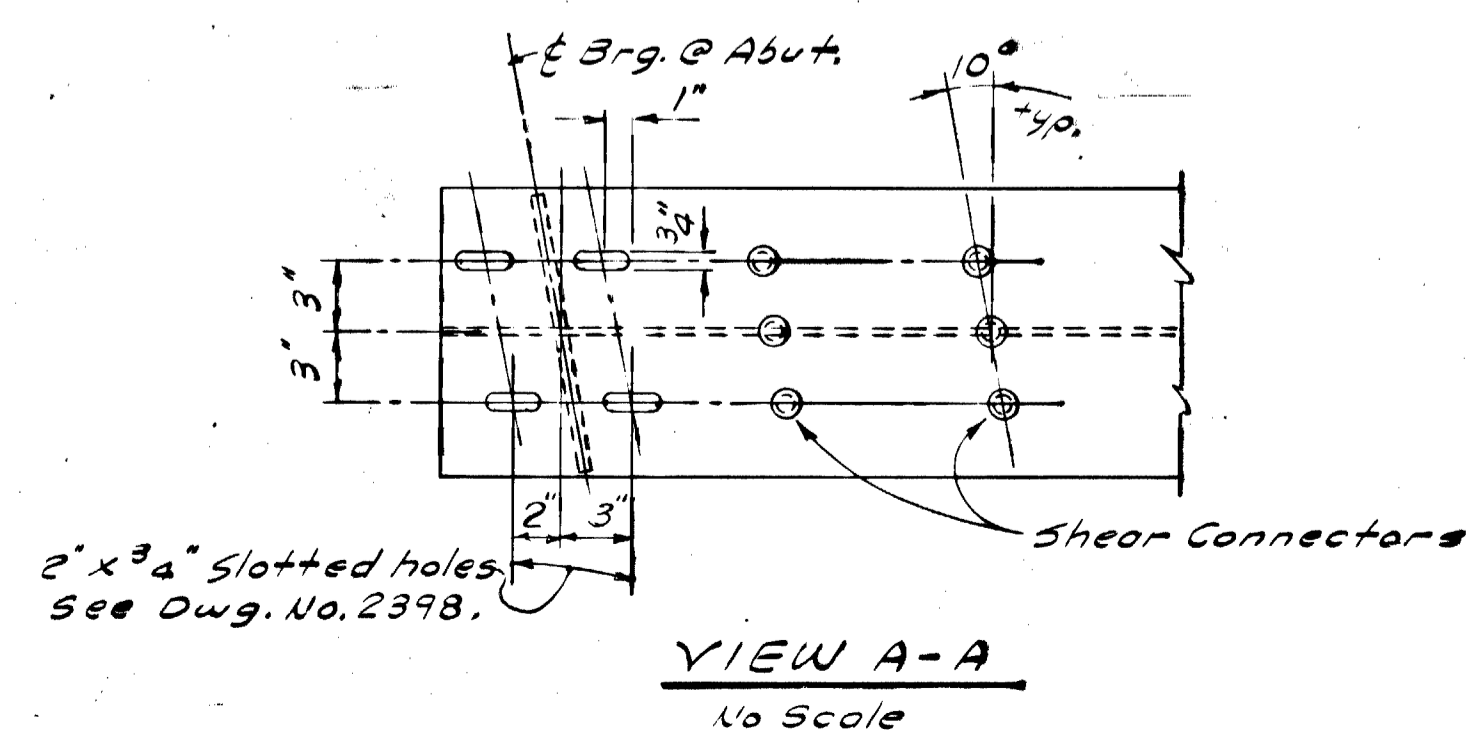


GIRDER SECTION "B"



GIRDER SECTION "C"

Notes:
 All dimensions are measured along ϵ girders.
 Place connection P's and bearing stiff. P's on 10° skew.
 Longitudinal stiffeners to be placed on one side of web of interior girders between transverse stiff. P's as shown, and on the outside of exterior girders.



**NENANA RIVER BRIDGE
AT PARK BOUNDARY**

Route No. F-37

GIRDERS

State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

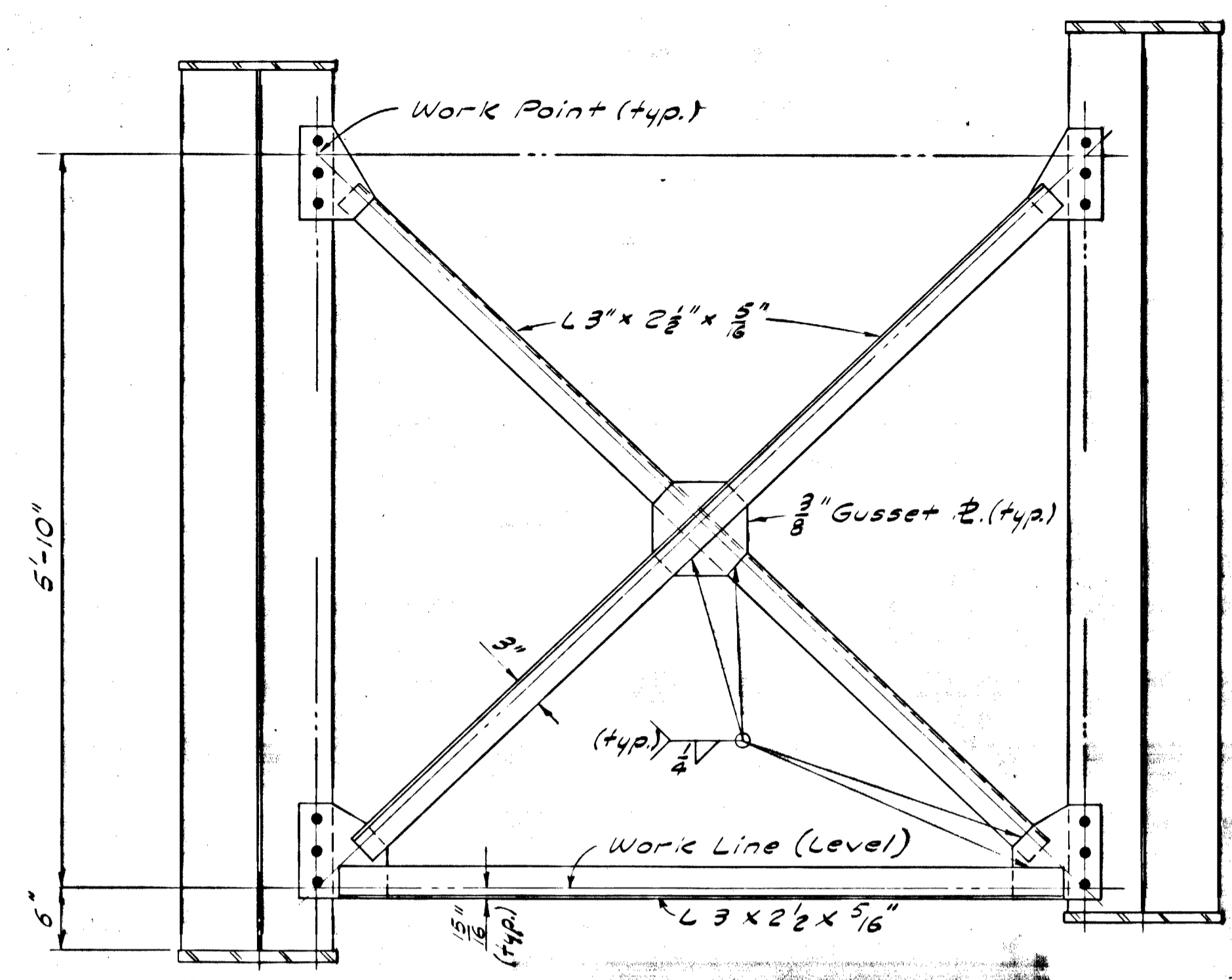
Date 5/23/72
Approved [Signature]

BRIDGE NO. 694
DWG. NO. 2396

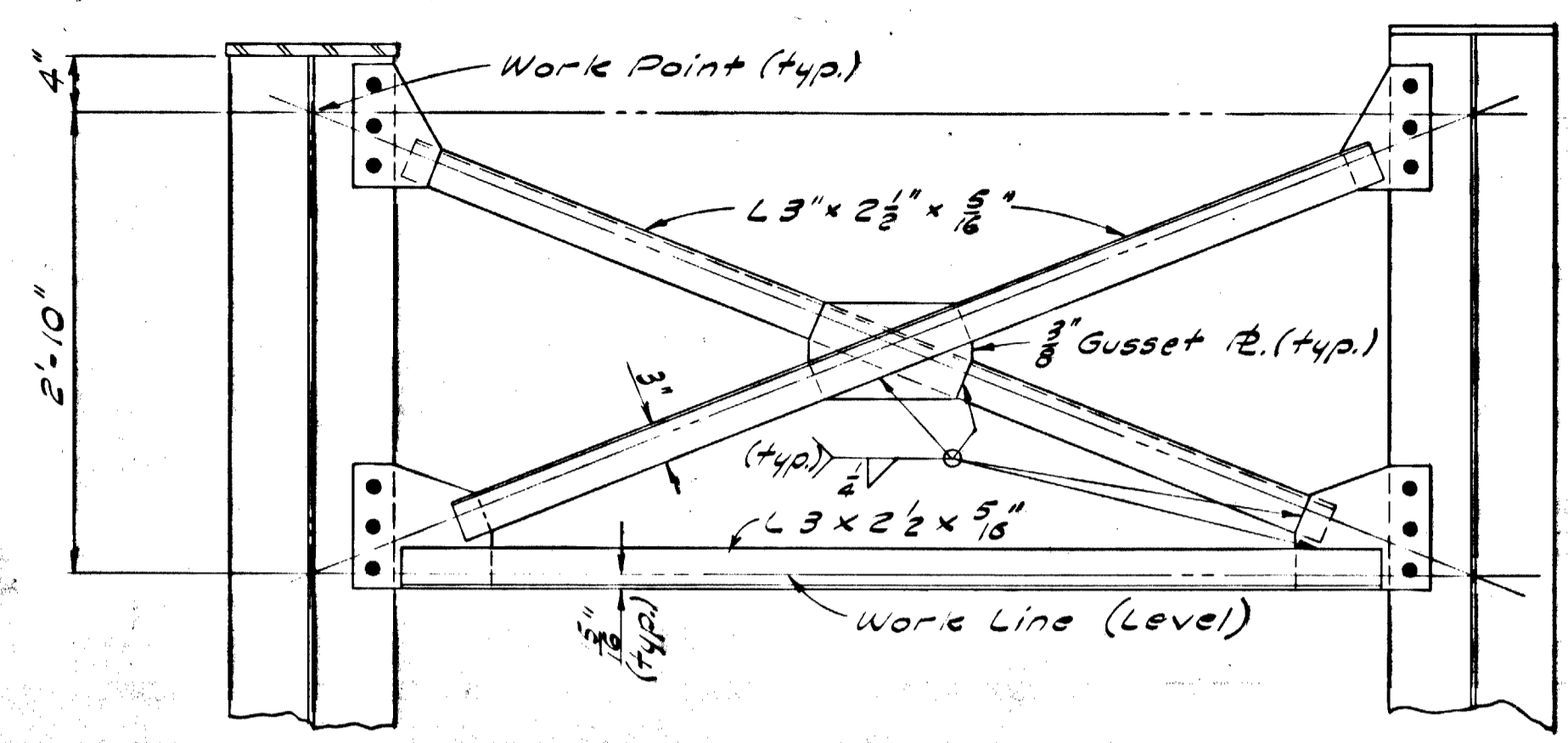
AS BUILT PLANS

Project Engineer
CORRECTIONS TRANSFERRED
Date 5-11-74
Checked K.K.

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	BRF-037-2(19)	1971	70	74

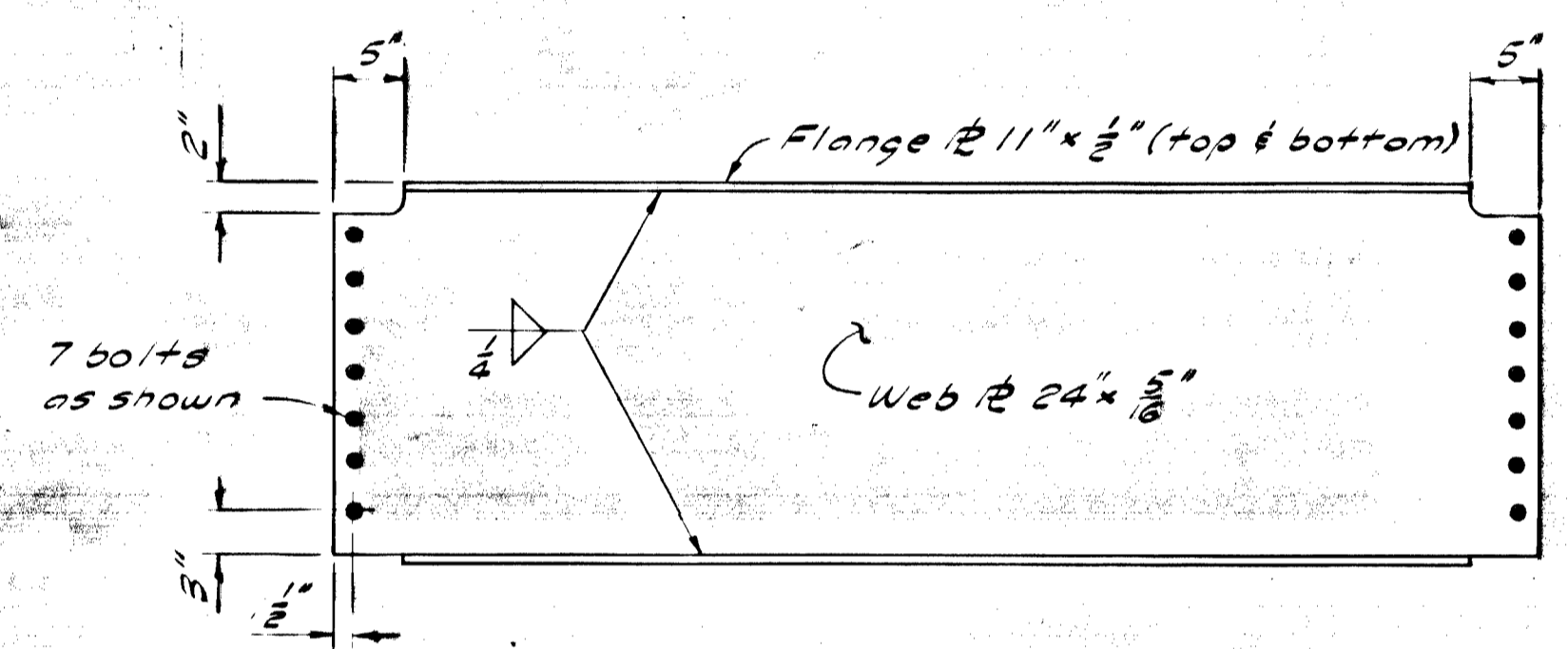


TYPE ③ DIAPHRAGM

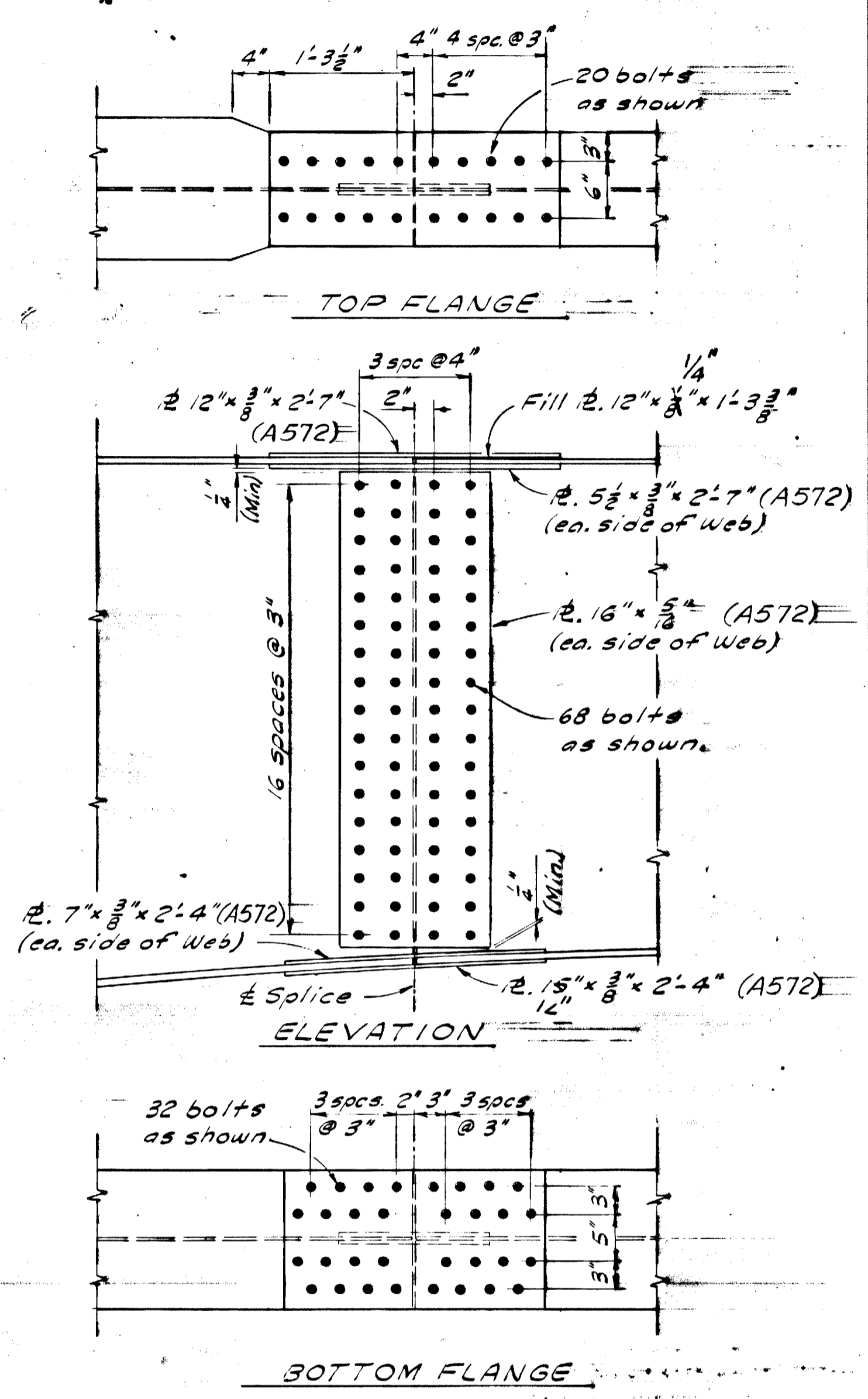


TYPE ② DIAPHRAGM

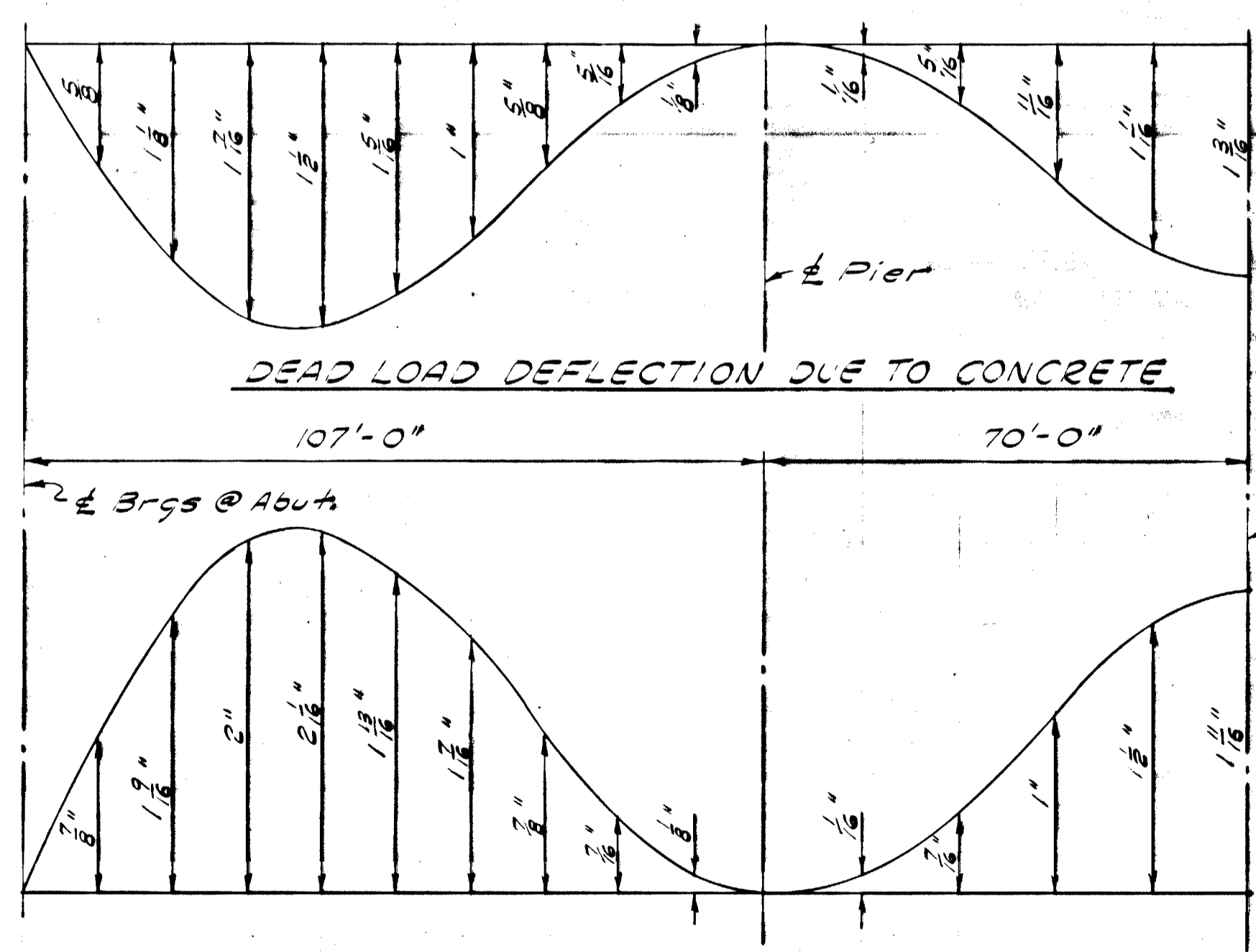
Note:
Each angle attached to a gusset pl. showing bolt holes shall be welded with a minimum of 11 lineal inches of 1/4" fillet weld or equivalent.



TYPE ① DIAPHRAGM



GIRDER SPLICE DETAILS



CAMBER DIAGRAM

Offsets @ 1/10th Points of span (Top of Web)
No Scale

Symm. about center of center span.

Structural Steel was fabricated with no camber

AS-BUILT PLANS

Robert W. Bengeman, Project Engineer, Date _____

CORRECTIONS TRANSFERRED _____

Tracings _____ Date _____

Checked KK Date 3-15-76

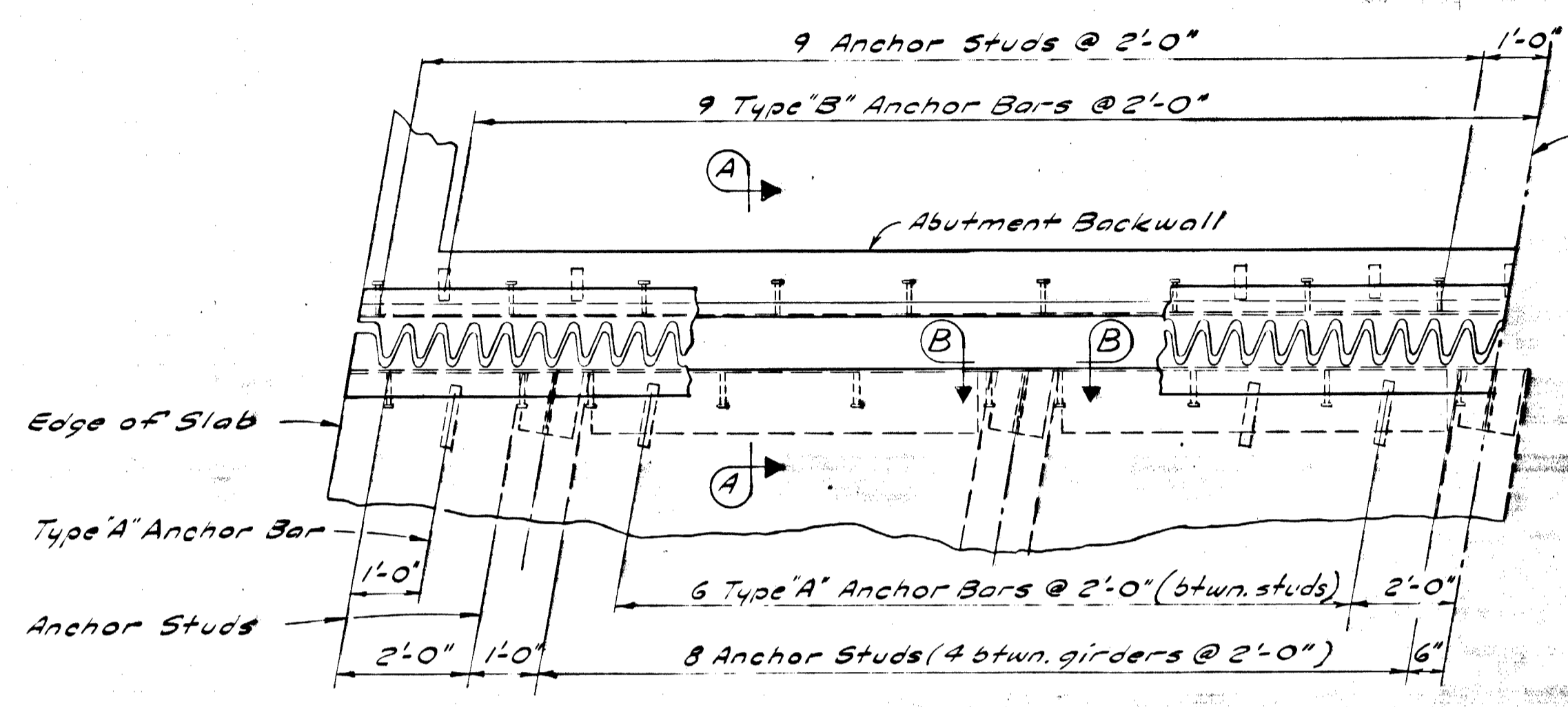
NENANA RIVER BRIDGE
AT PARK BOUNDARY
Route No. F-37
DIAPHRAGMS & SPLICES

State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

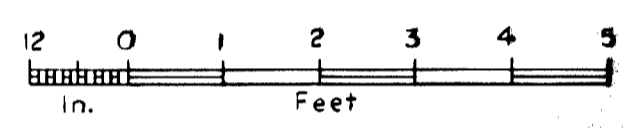
Date 5/23/72
Approved [Signature]

BRIDGE NO. 694
DWNG. NO. 2397

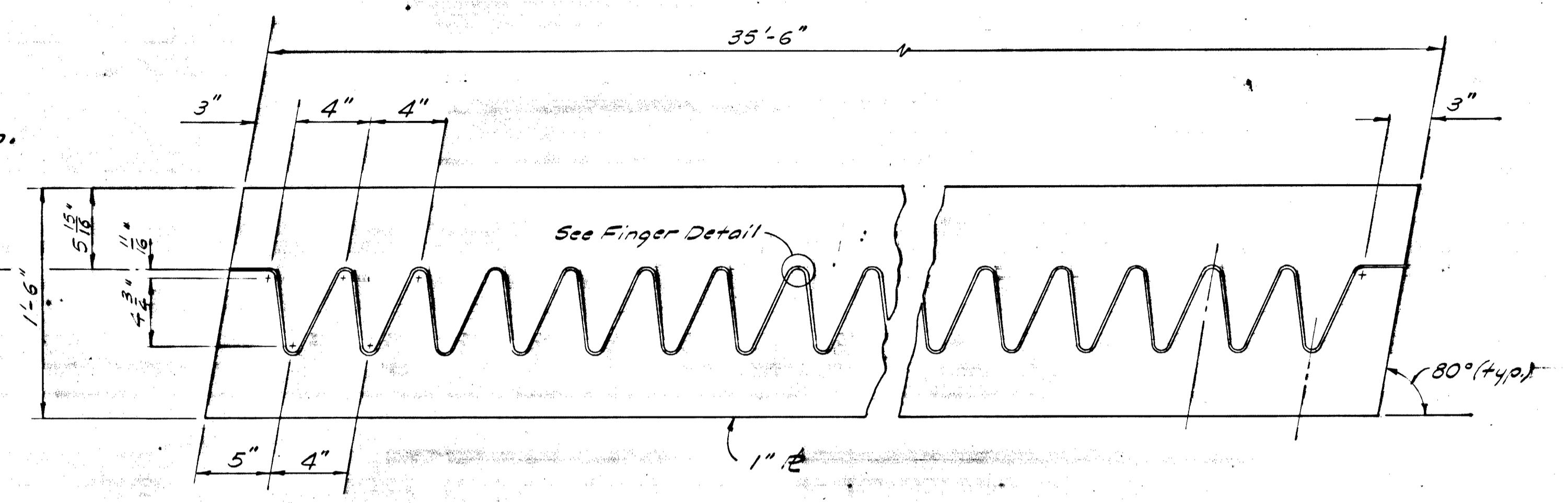
* Design similar to Bridge No. 1147.



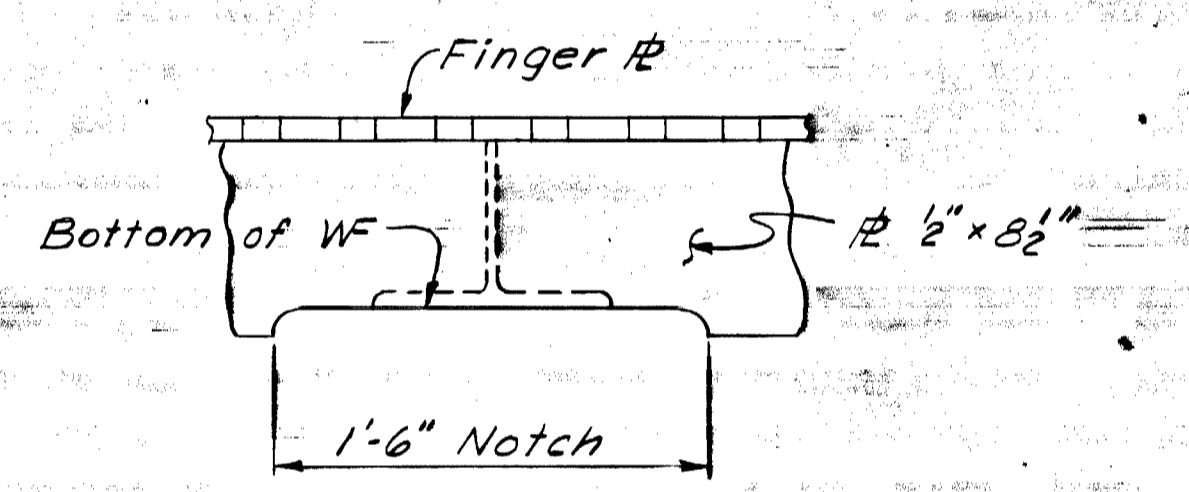
HALF PLAN-EXPANSION DEVICE
AT ABUTMENTS



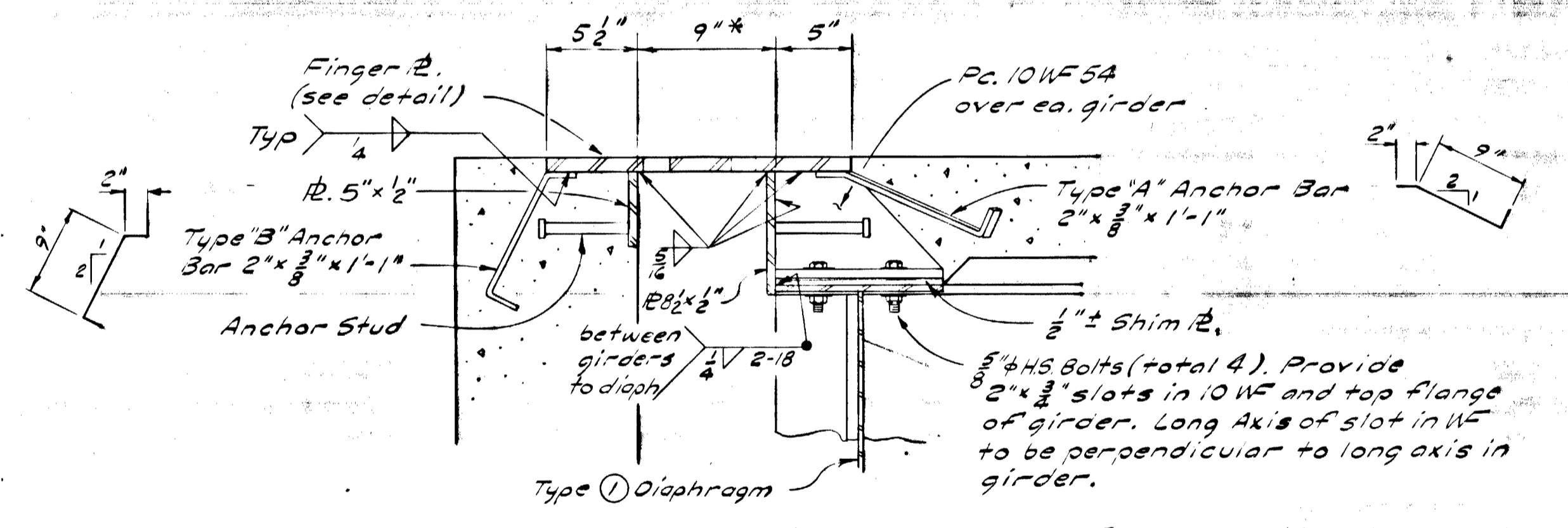
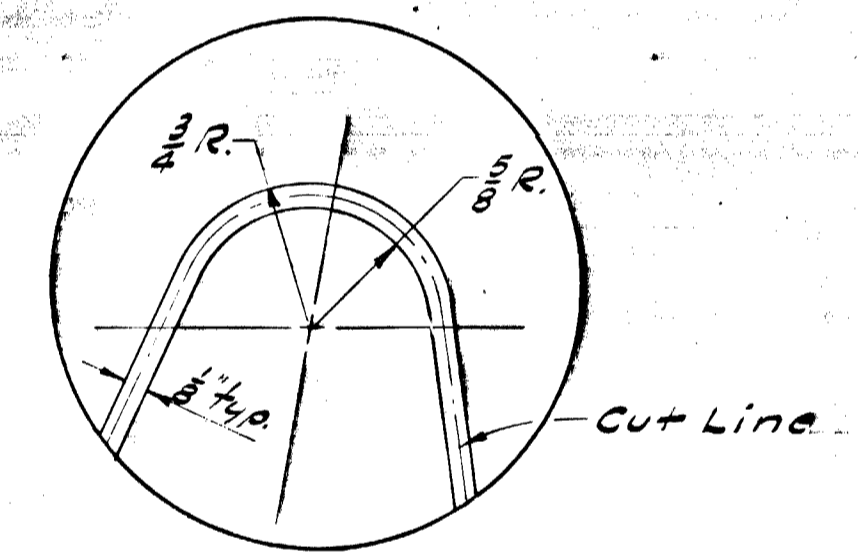
Symmetrical about & Rowy, fabricate to fit crown.



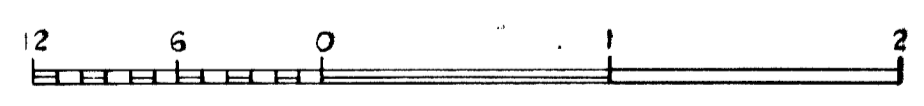
FINGER PLATE DETAIL
No Scale



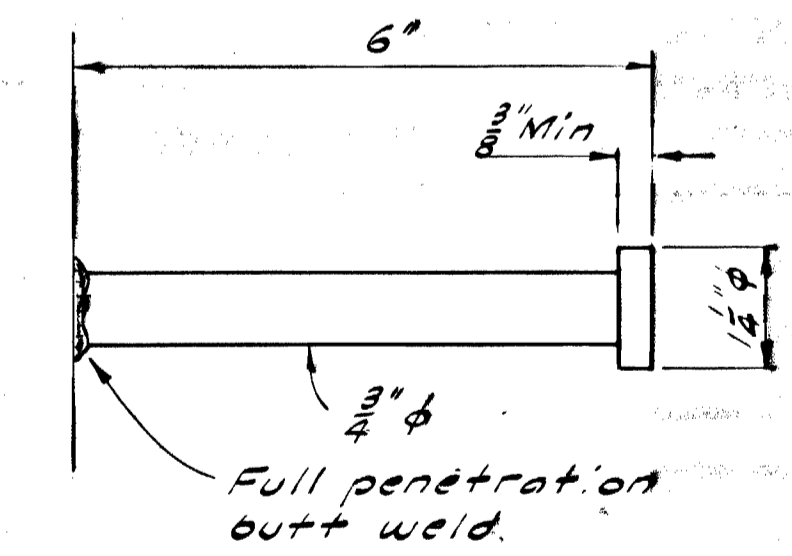
SECTION B-B
NO SCALE



SECTION A-A



* Dimension shown is for an erection temperature of 40° F. and varies 3/16" @ Abut. 4 & 1/8" @ Abut. 1 for each 10° F. in temperature.



TYPICAL ANCHOR STUD
No Scale

FINGER DETAIL
No Scale

AS BUILT PLANS	
Project Engineer	Date
CORRECTIONS TRANSFERRED	
Tracings 3-15-76	Date 3-15-76
Checked	Date

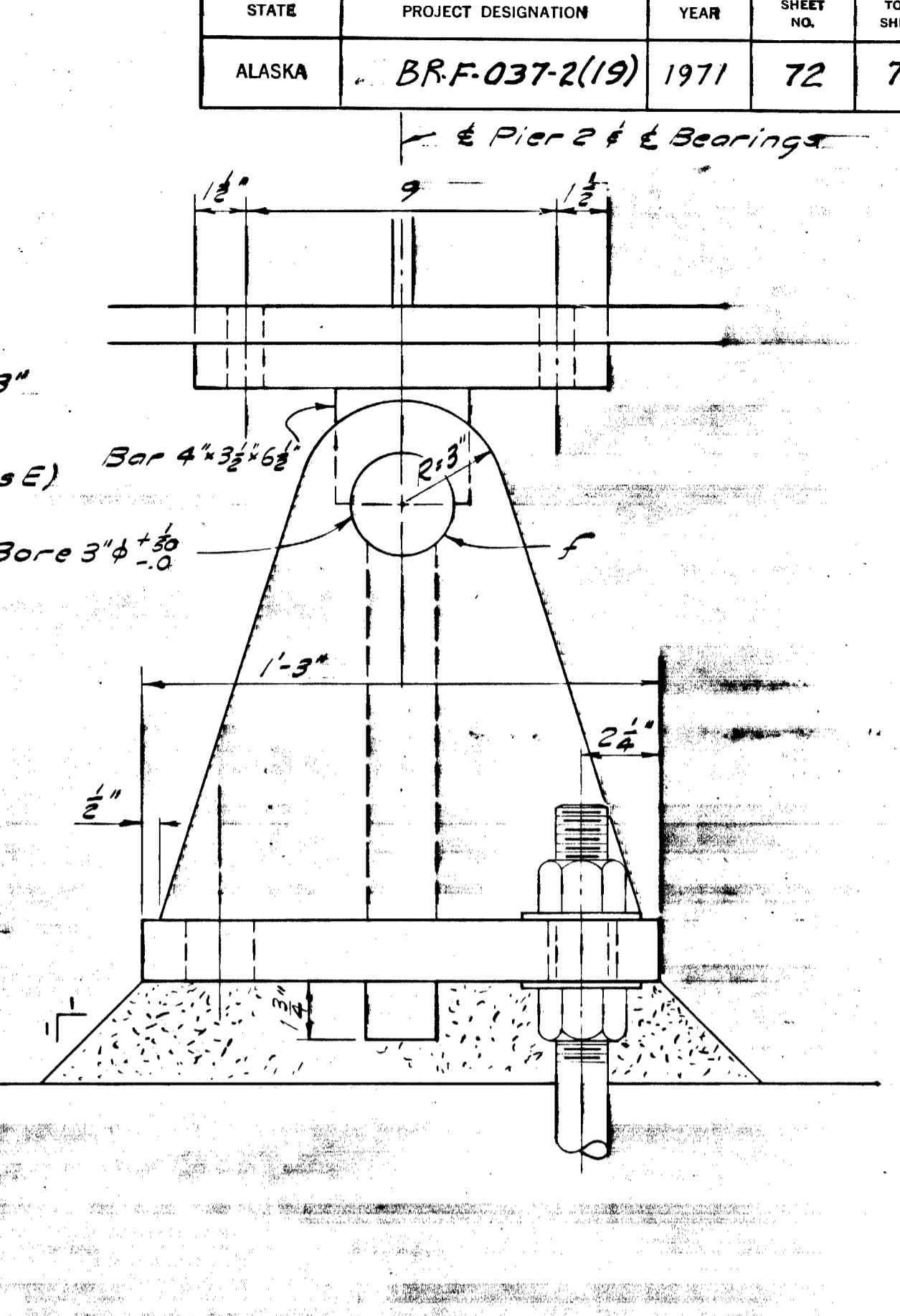
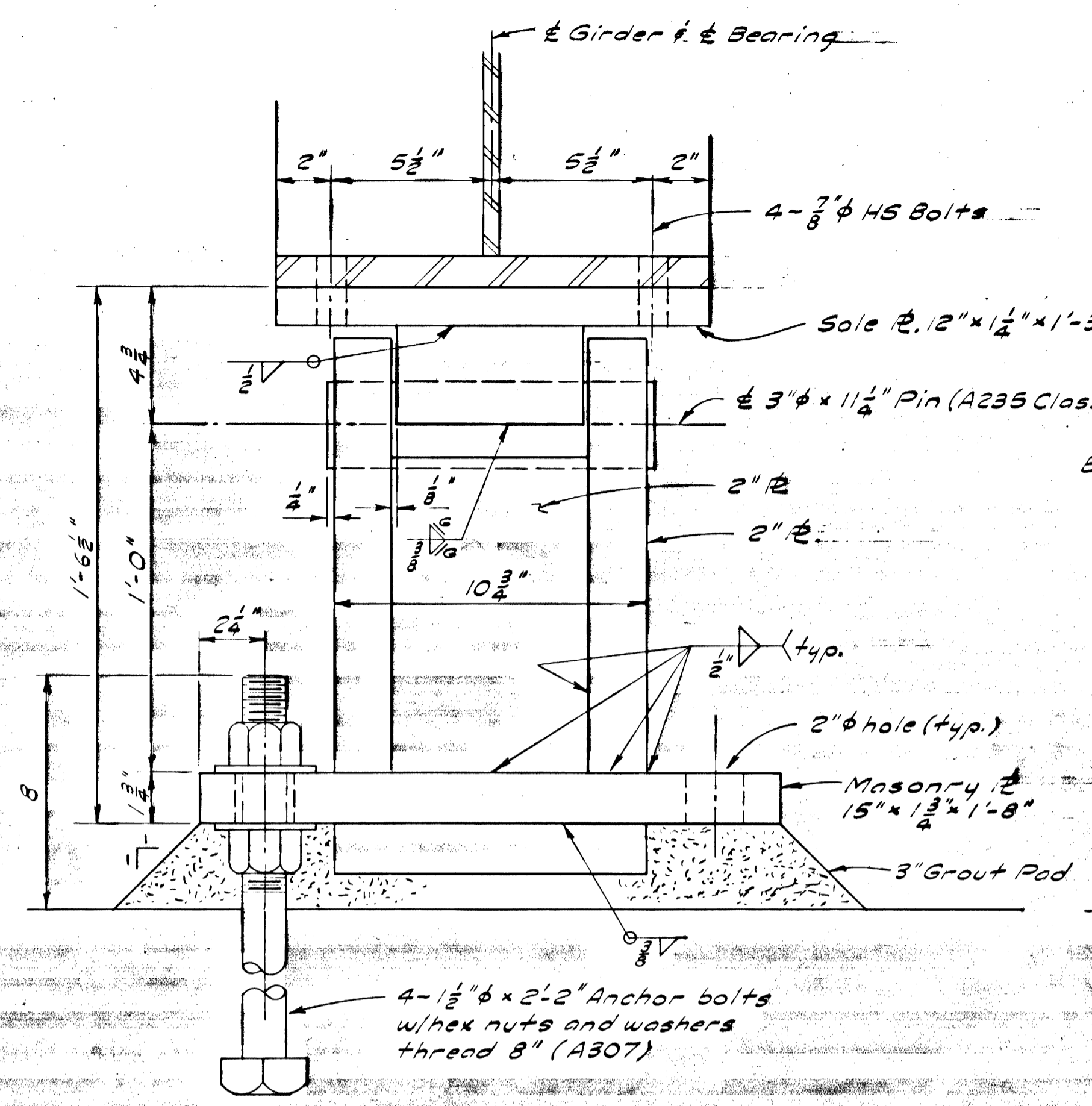
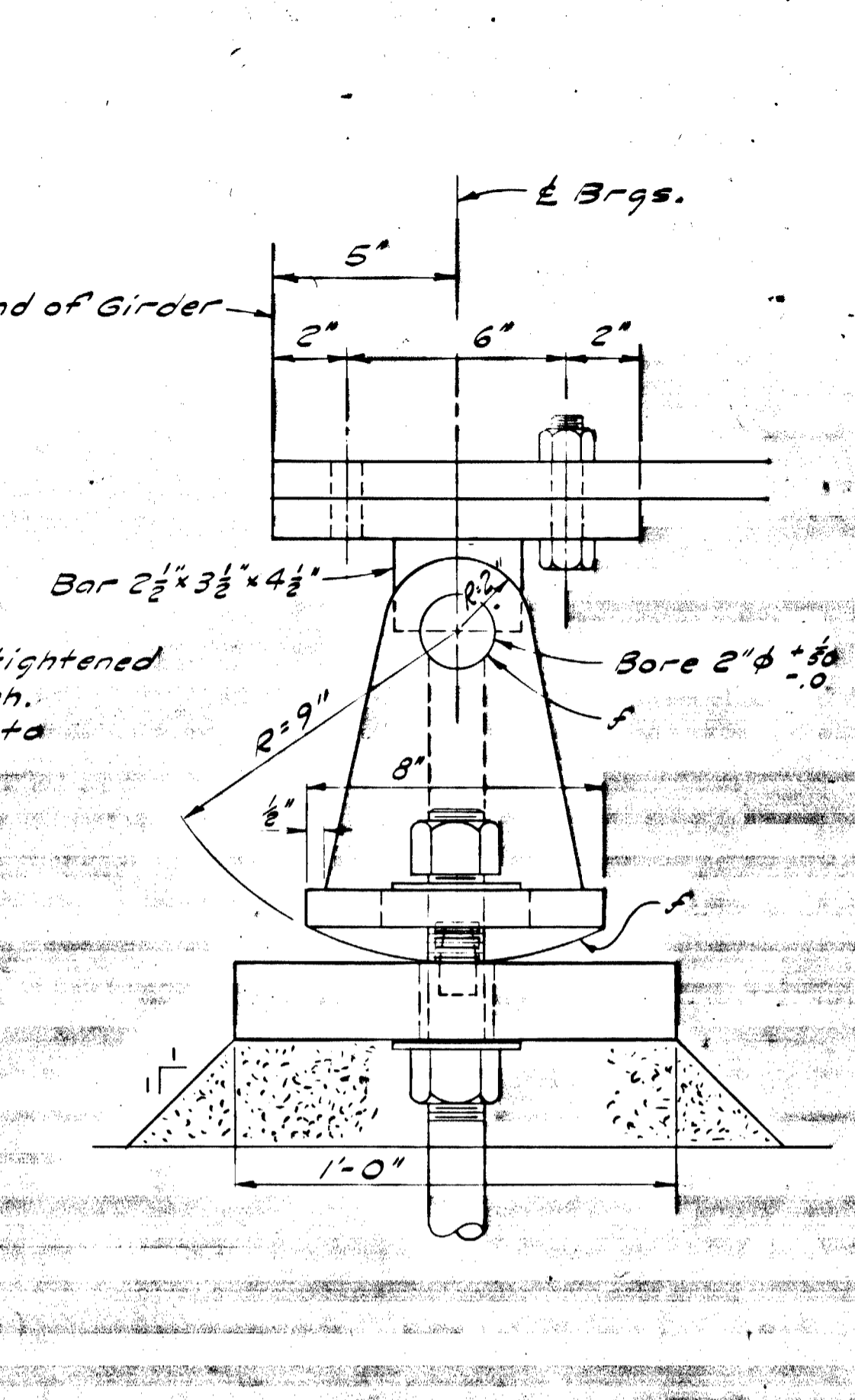
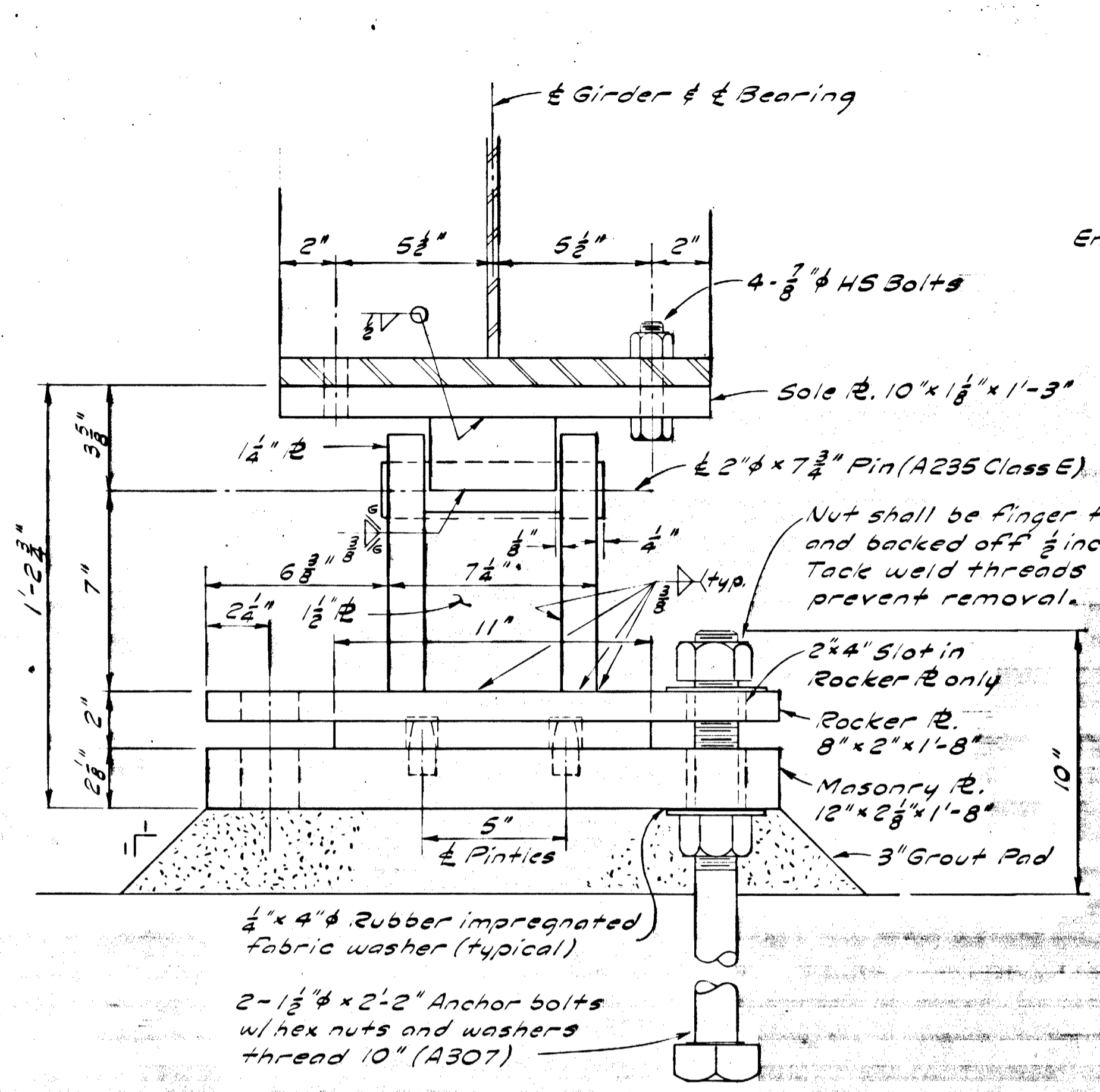
NENANA RIVER BRIDGE
AT PARK BOUNDARY
Route No. F-37
EXPANSION DEVICE

State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

Date 5/23/71 LL
Approved [Signature]

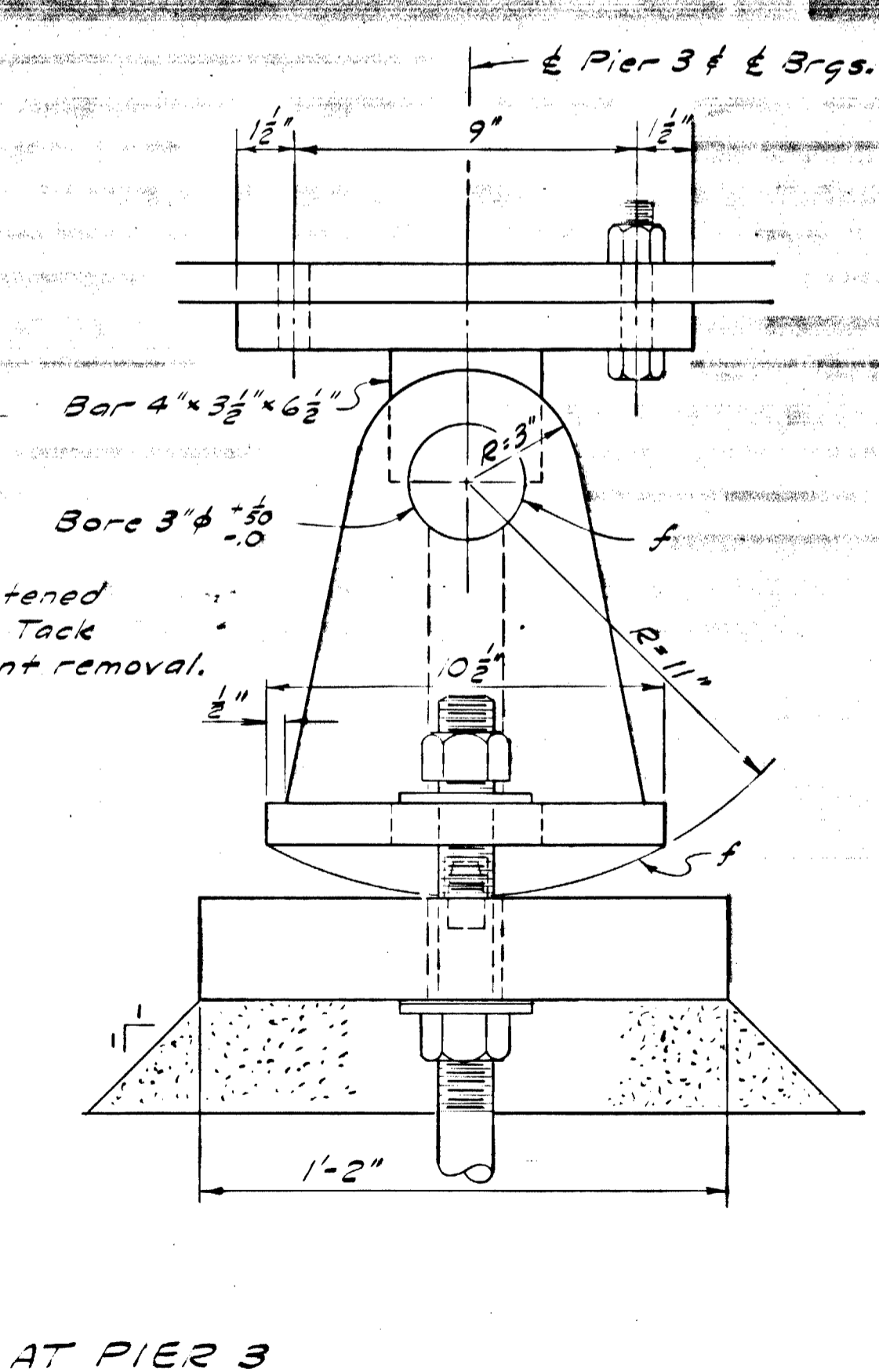
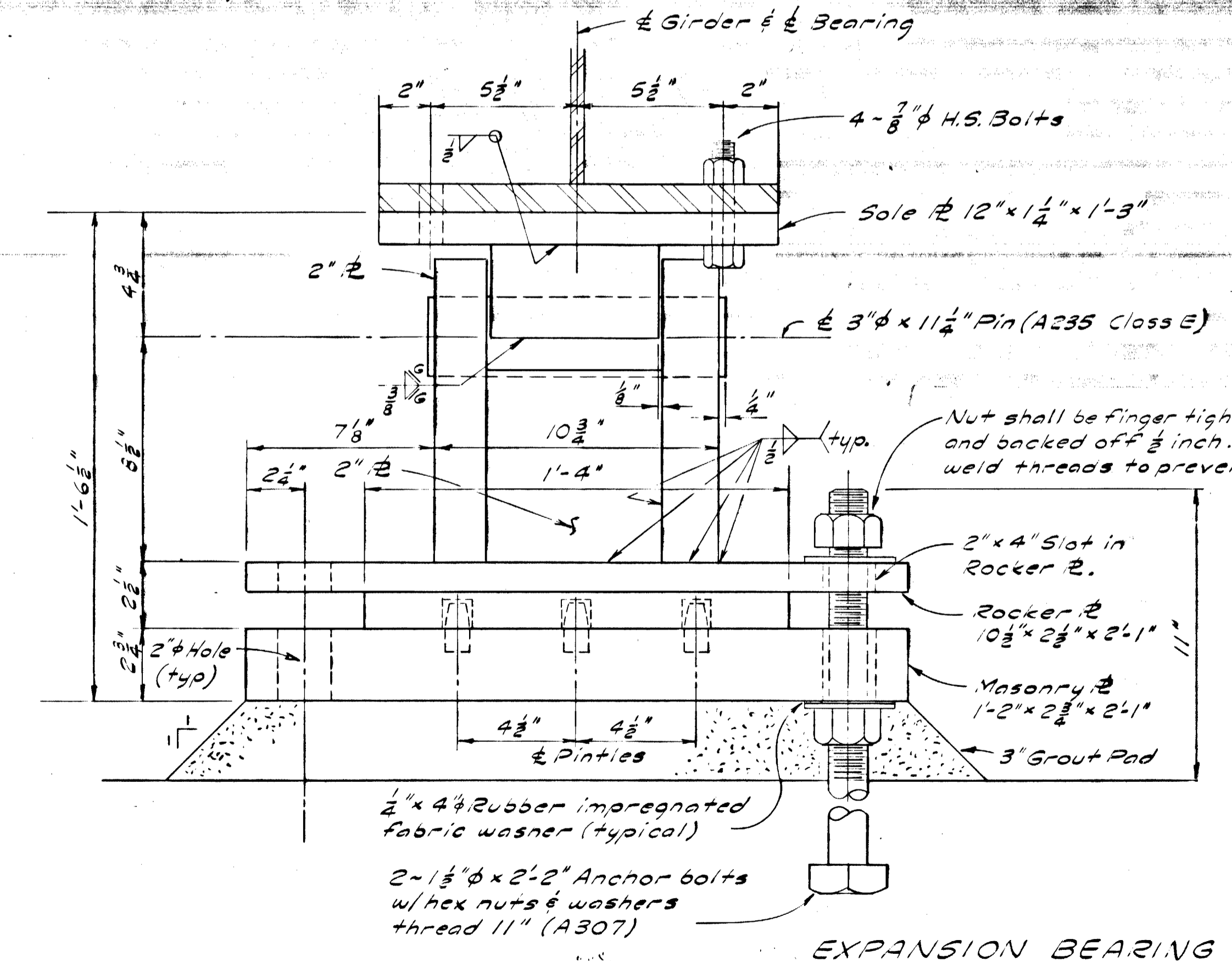
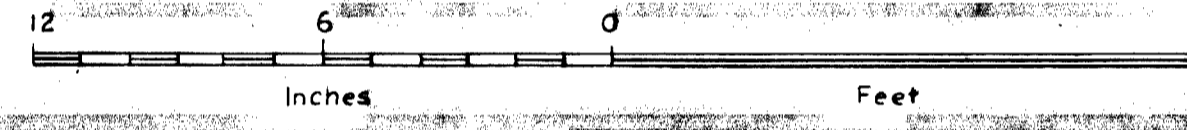
BRIDGE NO. 694
DWNG. NO. 2398

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	BR-F-037-2(19)	1971	72	74

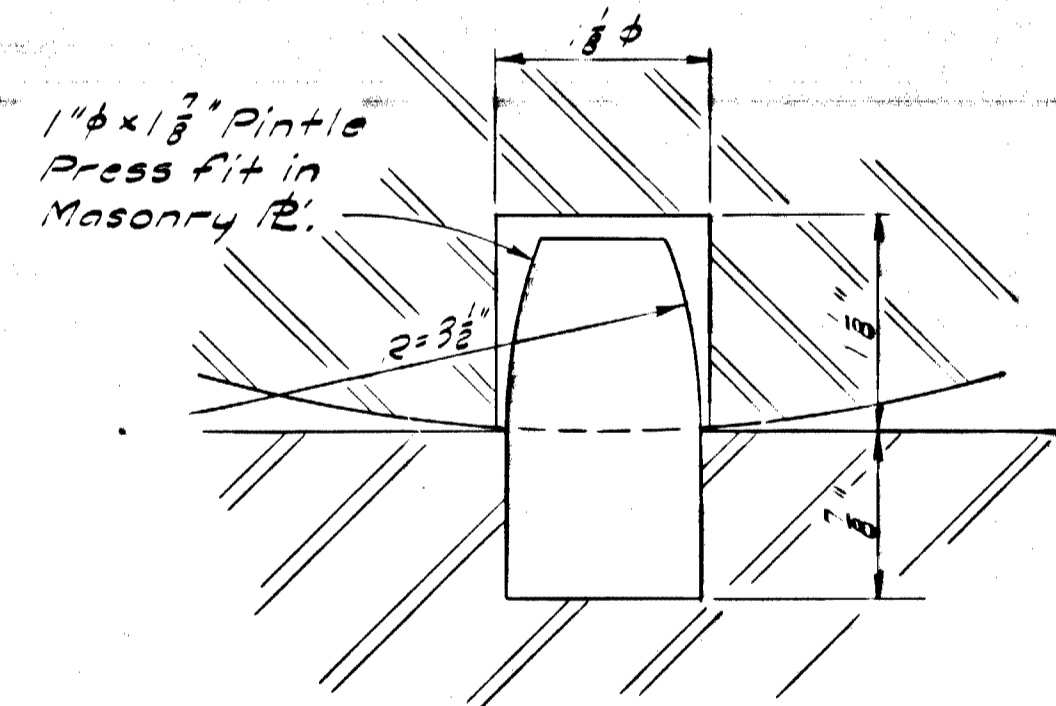
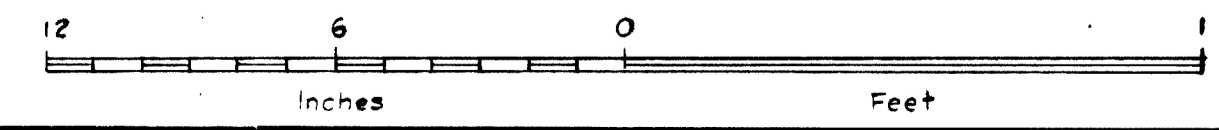


EXPANSION BEARING AT ABUTMENTS (10 REQ'D)

FIXED BEARING AT PIER 2 (5 REQ'D)



EXPANSION BEARING AT PIER 3 (5 REQ'D)



TYPICAL PINTLE Full Scale

Note: Pinties shall be A108 Class C, Grade 1080 Rockwell B' Hardness 85 with a minimum yield strength of 36,000 psi

Notes

- Expansion bearing rockers are to be plumb at +40°F. Offset & pin from masonry plate for each 10°F. temperature variation from +40°F. as follows: Abutment 1 = 1/8" Abutment 4 = 3/8" Pier 3 = 1/8"
- Masonry pl's shall be level.

AS BUILT PLANS

Robert W. Sangerman Date: _____
Project Engineer

CORRECTIONS TRANSFERRED

Tracings _____ Date: _____
Checked K.K. Date: 3-15-70A

NENANA RIVER BRIDGE AT PARK BOUNDARY

Route No. F-37

BEARINGS

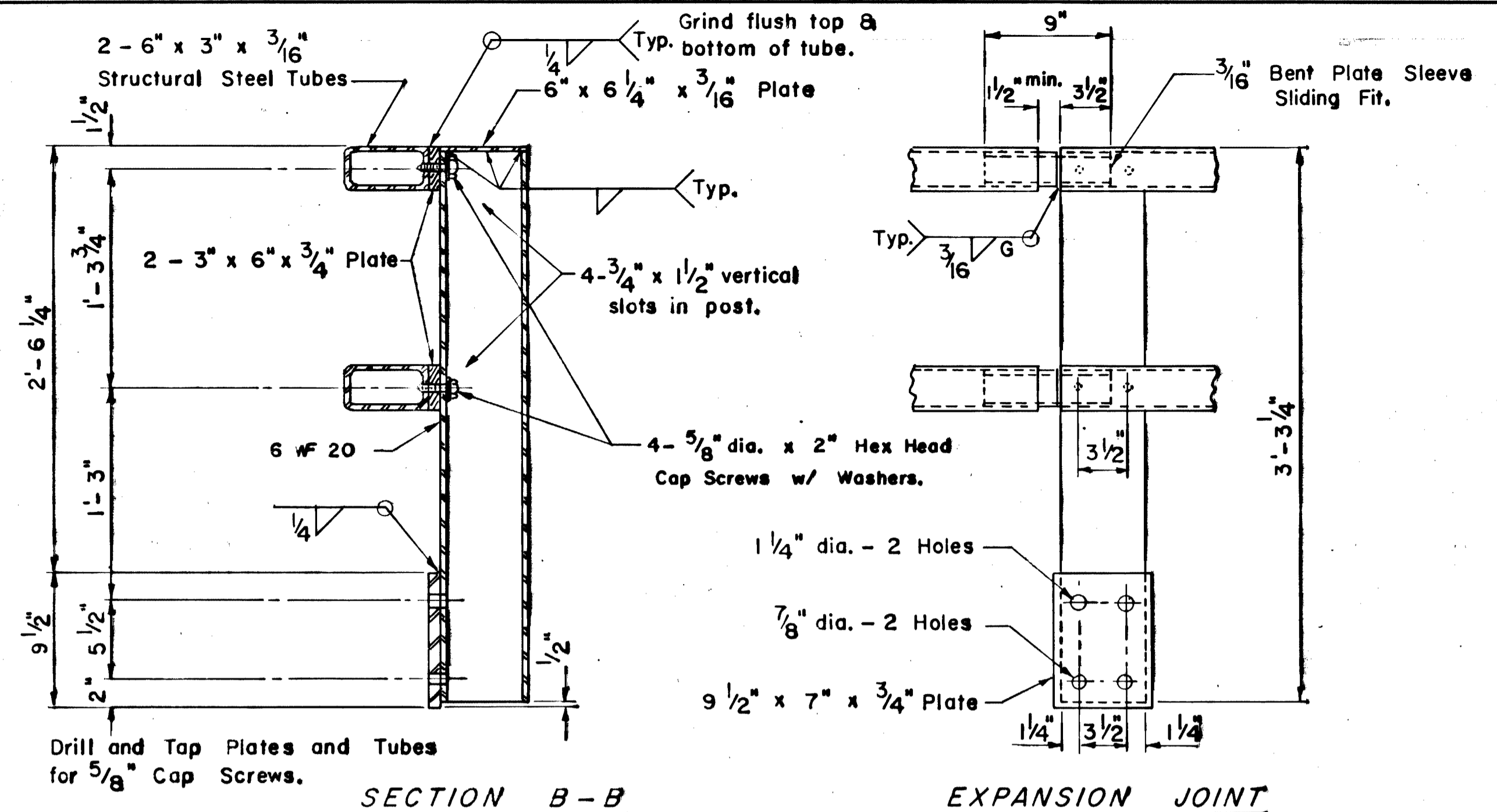
State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

BRIDGE NO. 694
DWNG. NO. 2399

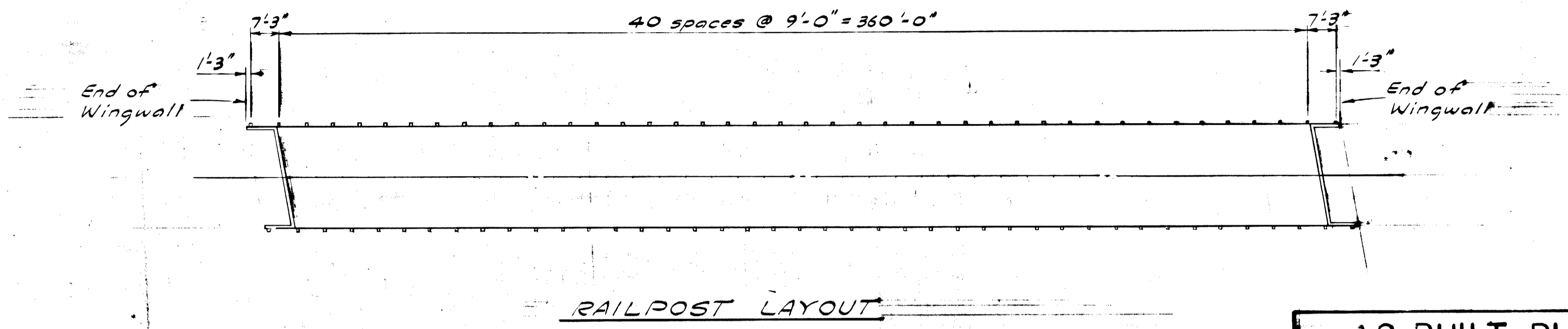
Date 5/23/70
Approved [Signature]

Design similar to Br. No. 1147

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	BRF-037-2(19)	1971	73	74



SECTION B-B EXPANSION JOINT
STEEL RAIL AND POST



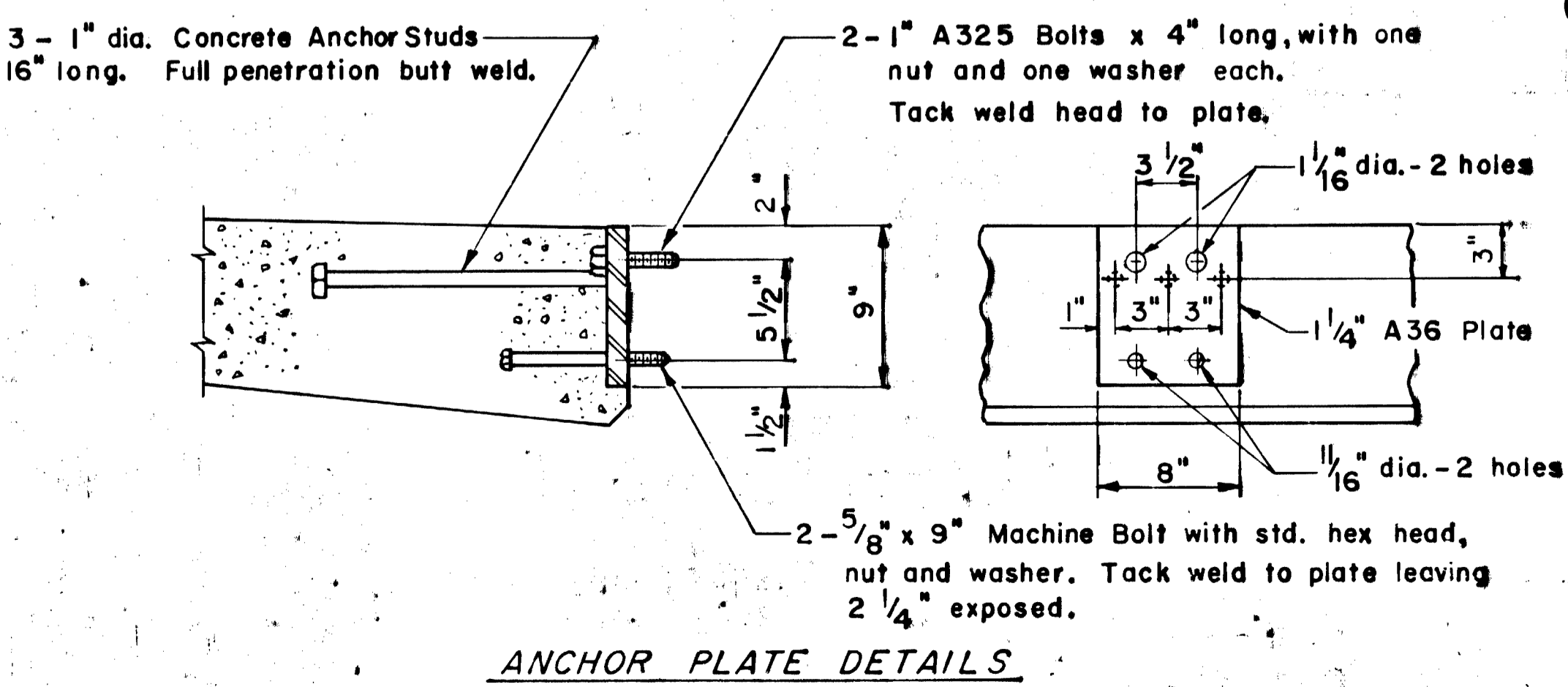
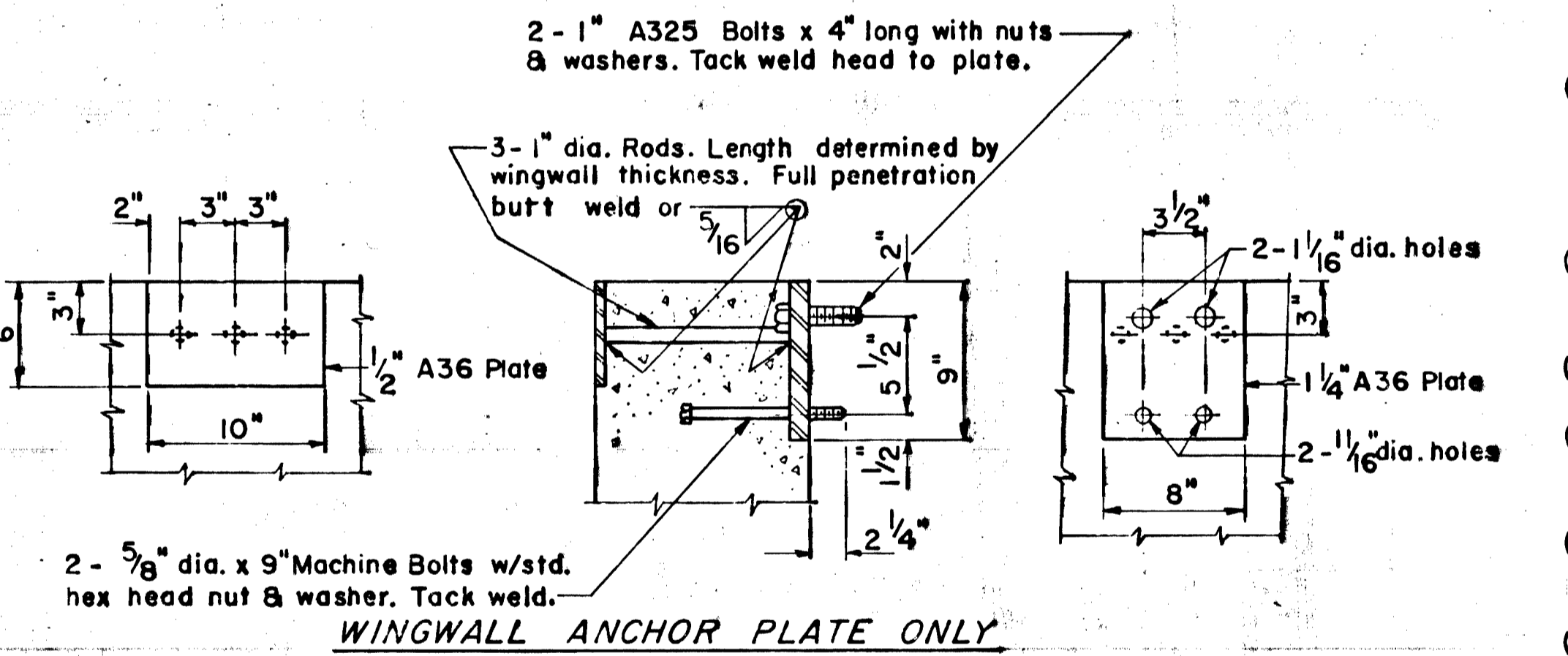
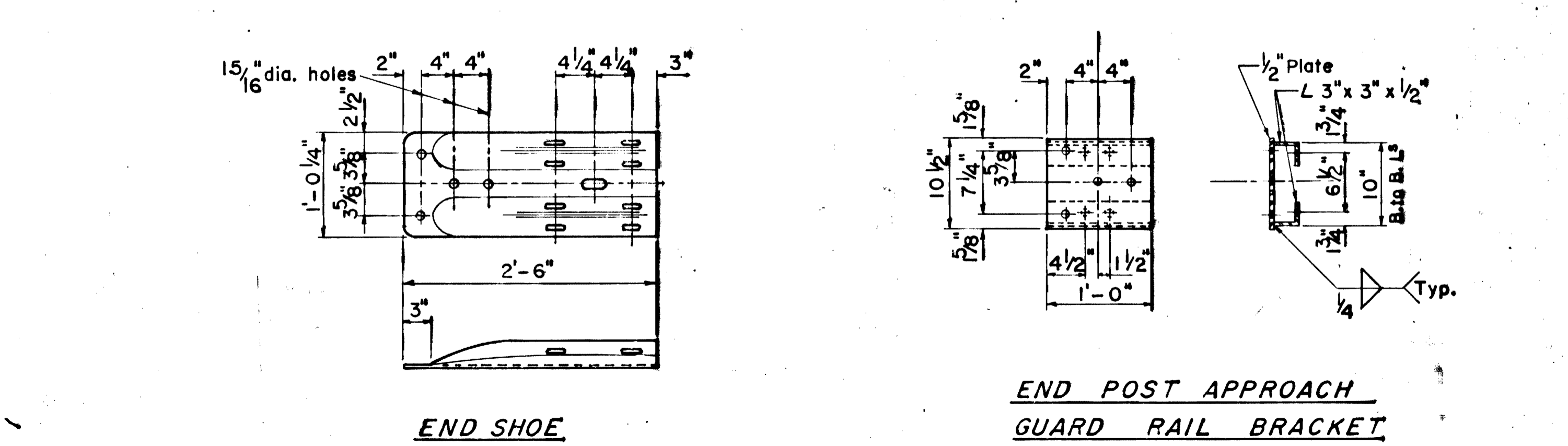
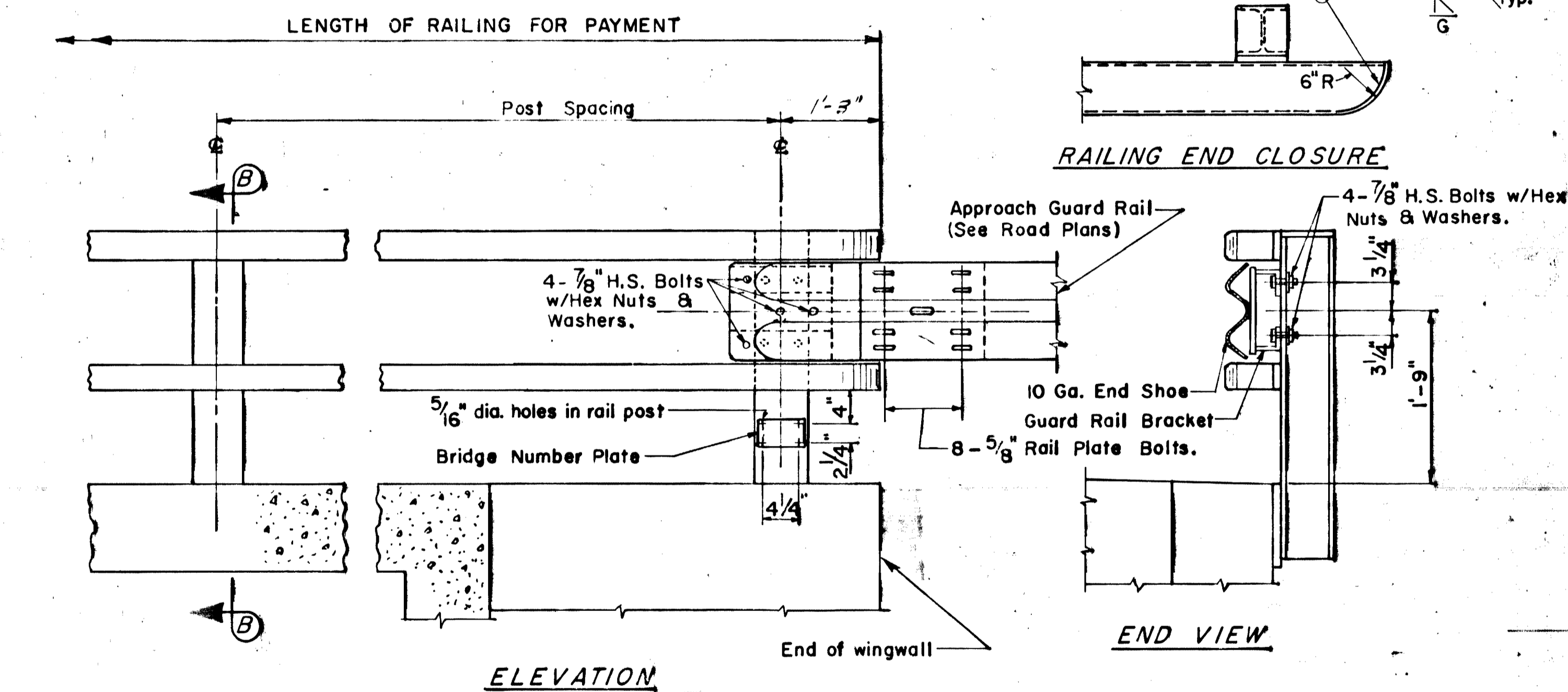
AS BUILT PLANS

Robert W. Bergman, Date _____
Project Engineer

CORRECTIONS TRANSFERRED _____

Tracings _____ Date _____

Checked K/L Date 3-15-74



- NOTES**
- (1) All railing, posts, anchor assemblies and other steel components shall be galvanized after fabrication. Galvanized steel shims shall be furnished by the contractor as required.
 - (2) Locate bridge number plate on right side of roadway at each end of bridge as shown.
 - (3) Bridge number plate to be furnished by the state.
 - (4) Increase gap in railing expansion joint to match deck joint opening.
 - (5) All Machine bolts and cap screws shall have locking nuts or lock washers.
 - (6) Railing Expansion Joints must be provided in panels over the Deck Expansion Joints and at 30' 0" maximum intervals throughout the Railing.
 - (7) Railing Expansion Joints shall be located immediately adjacent to a Rail Post.

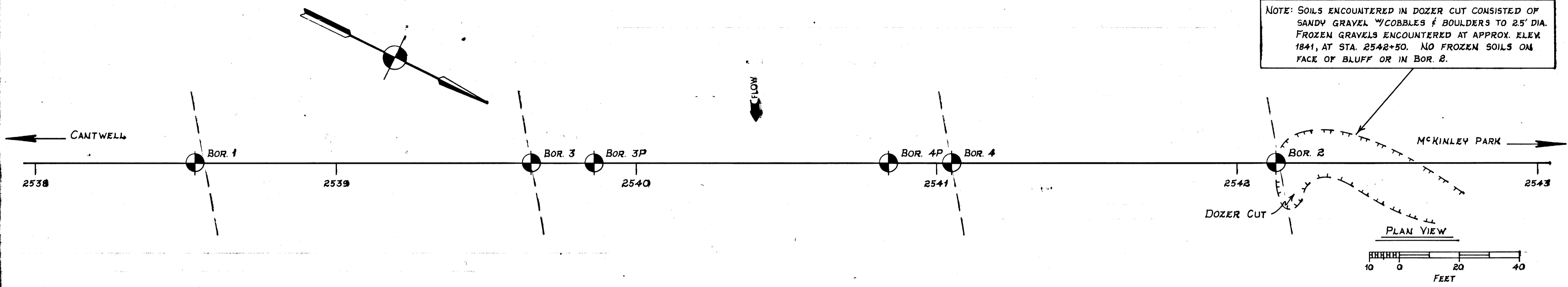
NENANA RIVER BRIDGE AT PARK BOUNDARY
Route No. F-37
BRIDGE RAILING

No Scale

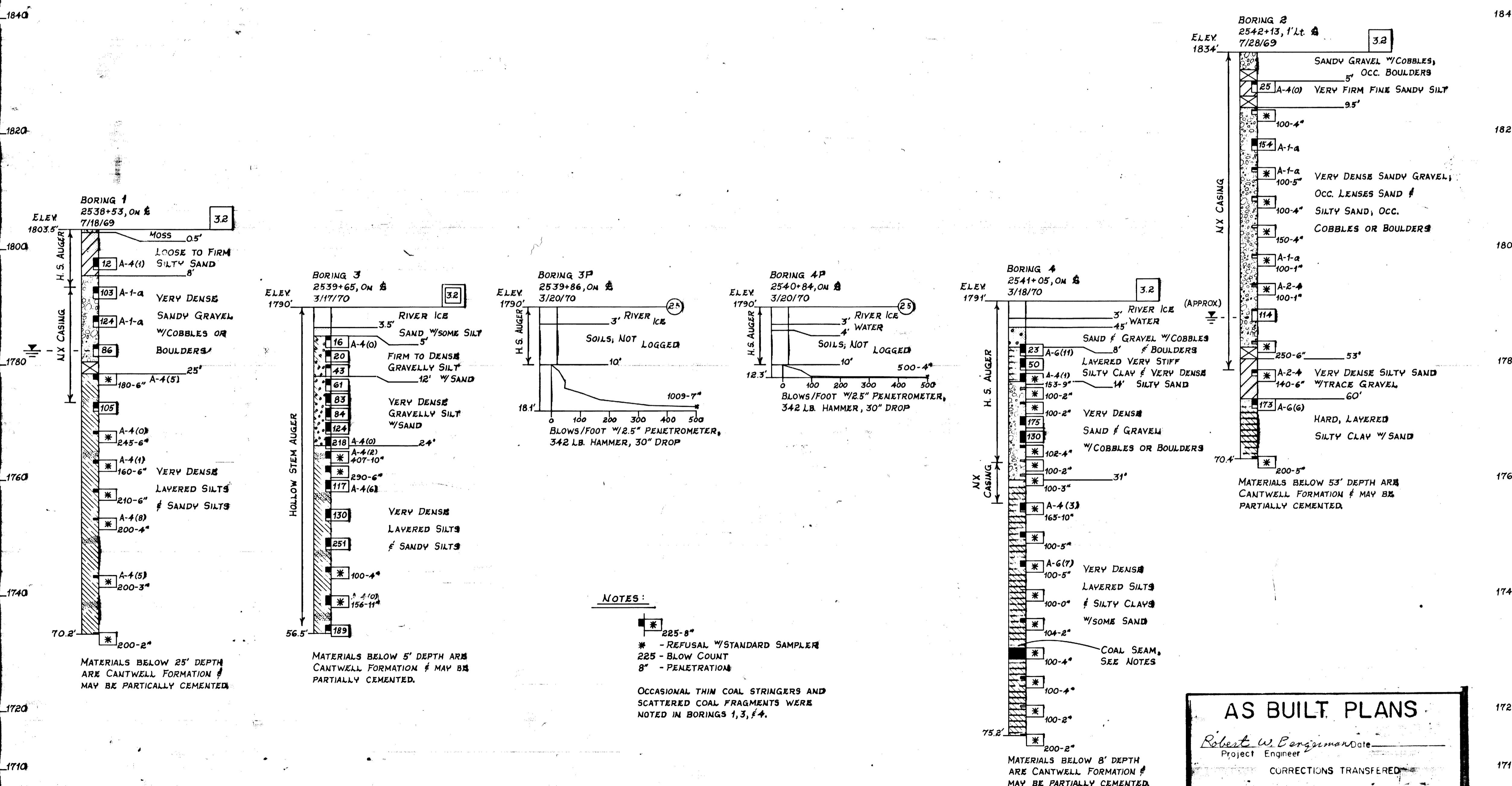
State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

Date 5/23/72
Approved [Signature]

BRIDGE NO. 694
DWNG. NO. 2400

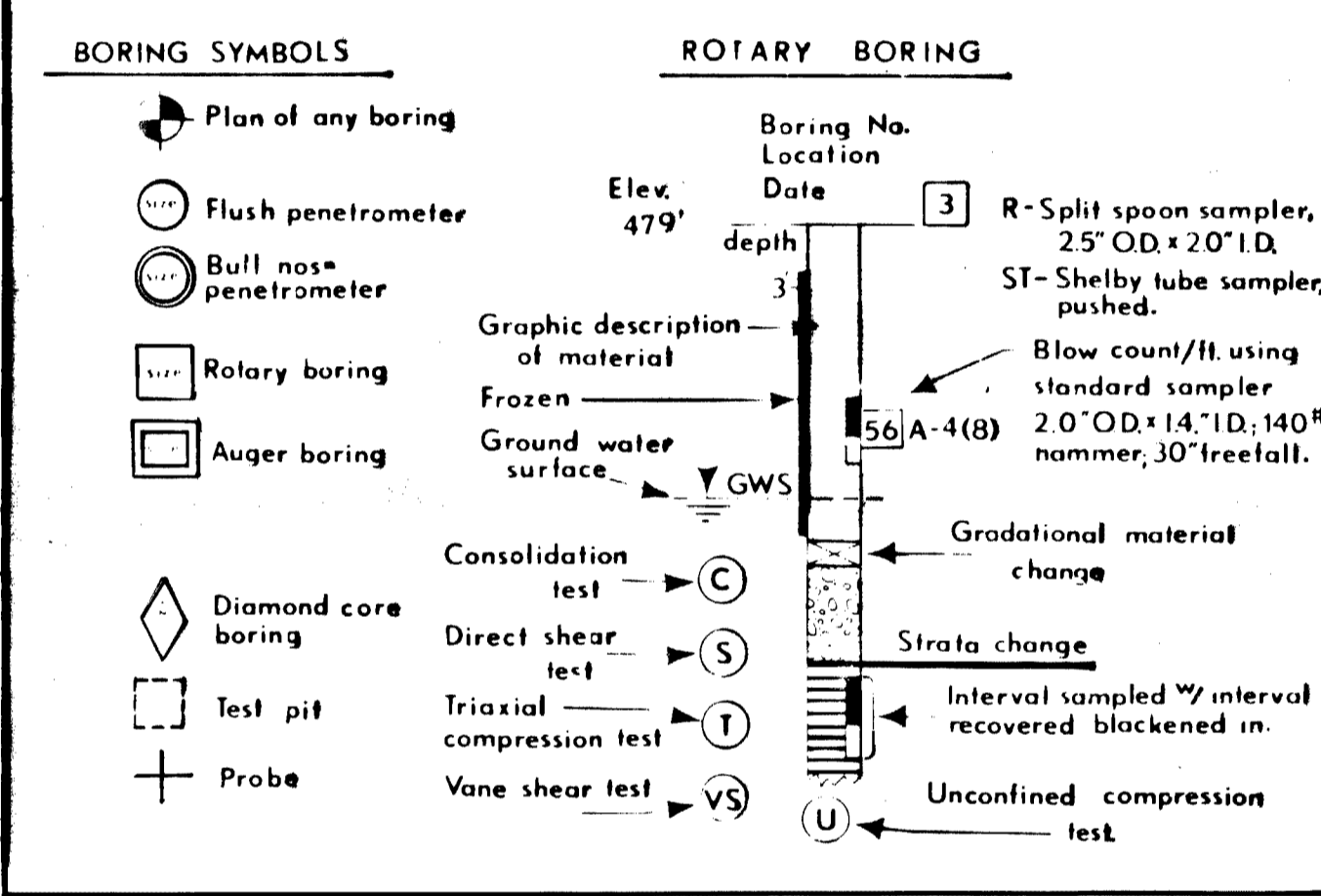


NOTE: SOILS ENCOUNTERED IN DOZER CUT CONSISTED OF SANDY GRAVEL w/COBBLES & BOULDERS TO 2.5' DIA. FROZEN GRAVELS ENCOUNTERED AT APPROX. ELEV. 1841, AT STA. 2542+50. NO FROZEN SOILS ON FACE OF BLUFF OR IN BOR. 2.



MATERIAL SYMBOLS

	Organics, Organic Silt		Clayey Silt
	Cobbles and Boulders		Sandy Silt
	Sandy Gravel		Gravelly Silt
	Gravelly Sand		Silty Clay
	Gravel		Silty Sand
	Sand		Silty Gravel
	Clay		Silt



PENETROMETER TEST

Number Location Date

Elev. 479' depth

2.5

Graphic representation of driving rate

Blows Foot 2.5" OD Penetrometer w 342# Hammer, 30" drop

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

According to Standard Penetration Test

GRANULAR		COHESIVE	
Blows/ft	Rel Density	Blows/ft	Consistency
0 - 4	very loose	0 - 1	very soft
5 - 10	loose	2 - 4	soft
11 - 20	firm	5 - 8	firm
21 - 30	very firm	9 - 15	stiff
31 - 50	dense	15 - 30	very stiff
Over 50	very dense	Over 30	hard

NOTES:

- * - REFUSAL w/ STANDARD SAMPLER
- 225 - BLOW COUNT
- 8" - PENETRATION

OCCASIONAL THIN COAL STRINGERS AND SCATTERED COAL FRAGMENTS WERE NOTED IN BORINGS 1, 3, & 4.

AS BUILT PLANS

Robert W. Benjamin
Project Engineer

CORRECTIONS TRANSFERRED

Tracings _____ Date _____

Checked *KK* _____ Date *3-15-76*

LOG OF TEST BORINGS

Nenana @ Park Boundary

State of Alaska
DEPARTMENT OF HIGHWAYS
Juneau, Alaska

Date *Jan, 1971*

Approved *WJL*

Bridge no. *694*

Drawing no. *2401*