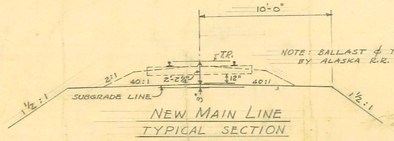
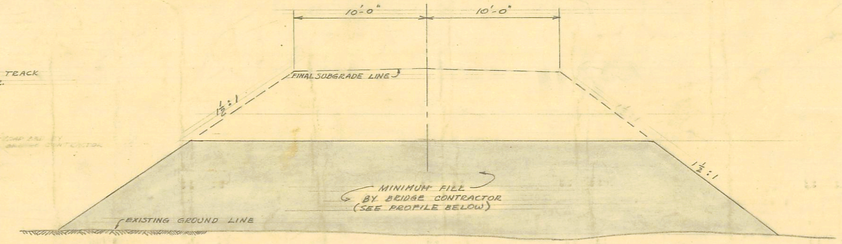
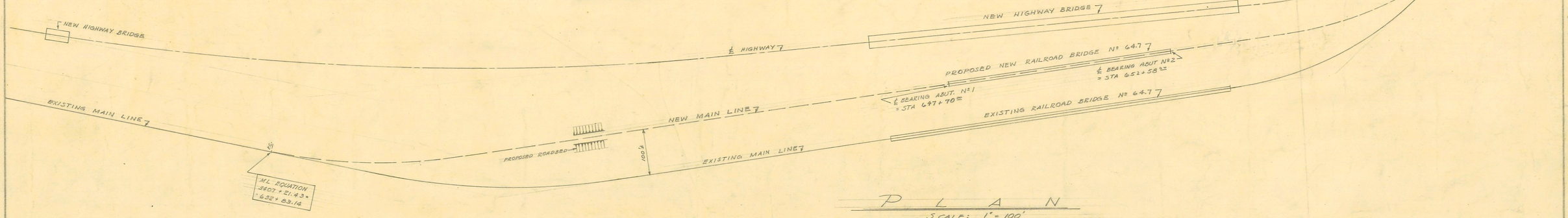


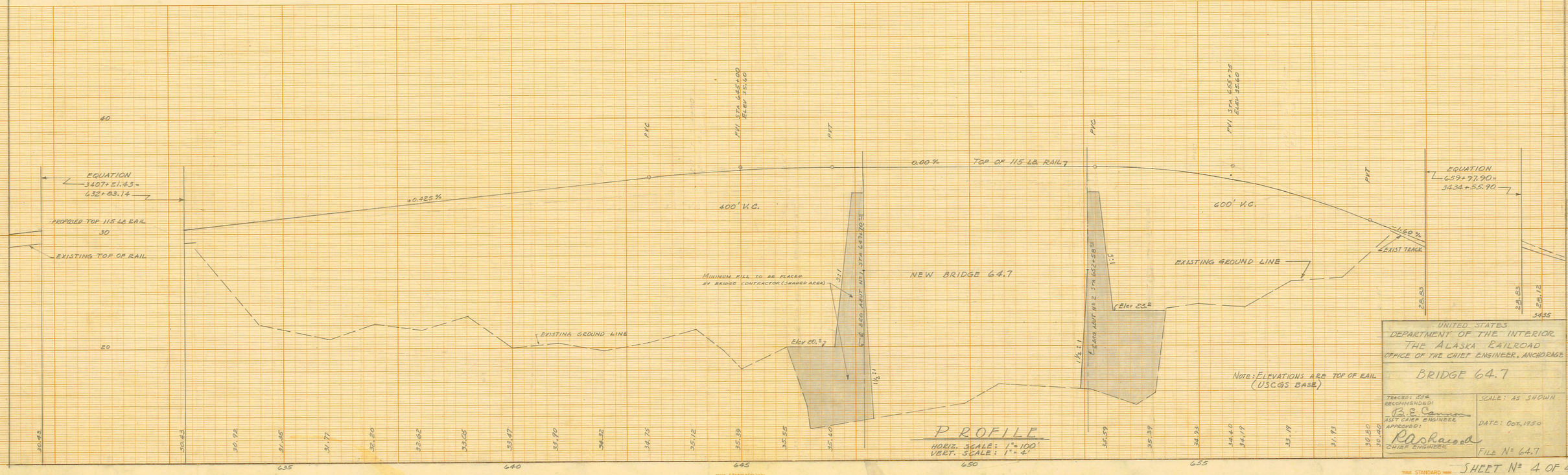
NEW MAIN LINE
TYPICAL SECTION
NOT TO SCALE



TYPICAL SECTION THRU MINIMUM FILL BY BRIDGE CONTRACTOR
NOT TO SCALE



PLAN
SCALE: 1" = 100'



PROFILE
HORIZ. SCALE: 1" = 100'
VERT. SCALE: 1" = 4'

Note: Elevations are top of rail (USCGS base)

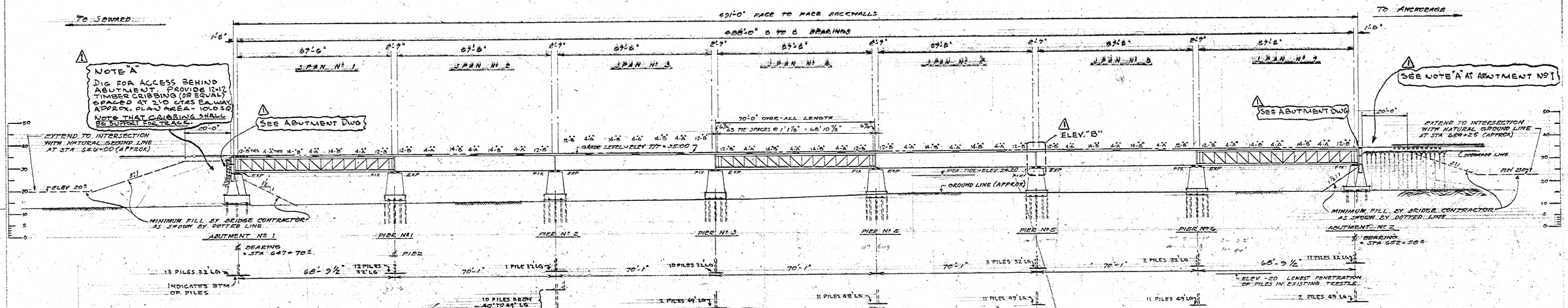
UNITED STATES
DEPARTMENT OF THE INTERIOR
THE ALASKA RAILROAD
OFFICE OF THE CHIEF ENGINEER, ANCHORAGE

BRIDGE 64.7

TRACED: SB
RECOMMENDED: B.E. Cannon ASST CHIEF ENGINEER
APPROVED: Rashaad CHIEF ENGINEER

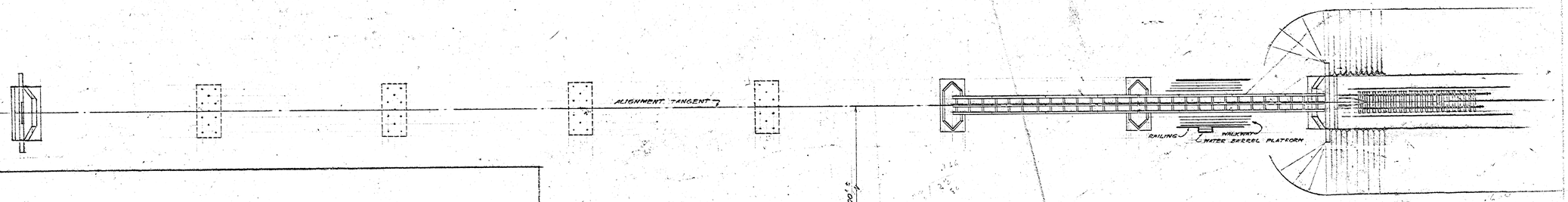
SCALE: AS SHOWN
DATE: Oct, 1950
FILE Nº 64.7

SHEET Nº 4 OF 4



E L E V A T I O N

SCALE: 1" = 20'

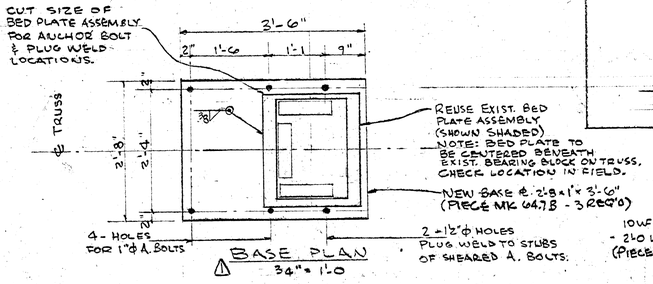


P L A N

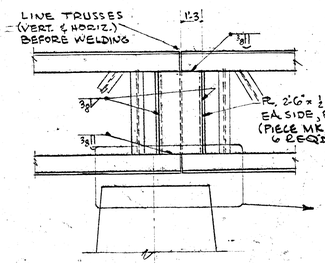
SCALE: 1" = 20'

⚠ WORK AT PIER No. 5
ORDER OF PROCEDURE

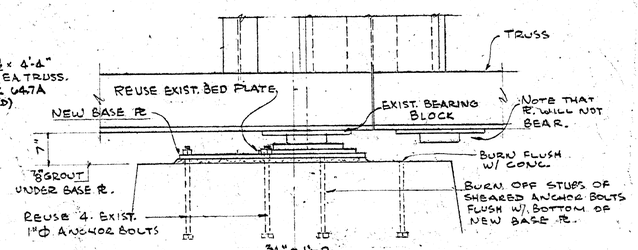
1. ALIGN TRUSSES & JOIN WITH PLATES WELDED TO END POSTS. SEE ELEV. "B".
2. JACK UP BOTH TRUSSES (JOINED TOGETHER) SEE "JACKING ARRANGEMENT"
3. REMOVE EXISTING BED PLATES.
4. TRIM ANCHOR BOLTS WHICH SHEARED OFF SO THEY CAN BE PLUG WELDED TO NEW BASE PLATE.
5. CUT DOWN 3 EXISTING BED PLATES & WELD TO NEW BED PLATES. SEE BASE PLAN.
6. SET NEW BED PLATES IN "EMBECO" GROUT. ALLOW TO SET FOR 3 DAYS BEFORE RELEASING JACKS. GROUT SHALL BE COVERED WITH INSULATING BLANKETS DURING CURING PERIOD.



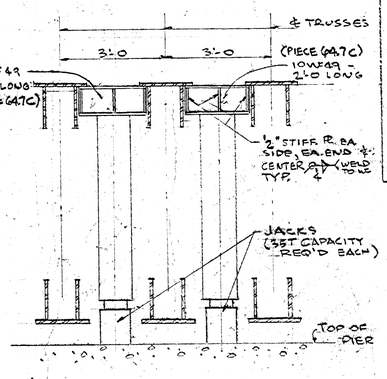
BASE PLAN
3/4" = 1'-0



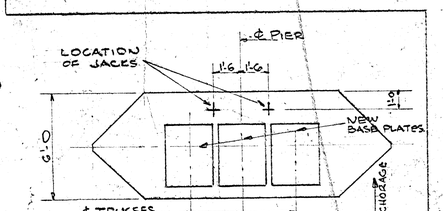
ELEVATION "B"
1/4" = 1'-0



PIER No. 5
3/4" = 1'-0



JACKING ARRANGEMENT
1/2" = 1'-0



PIER No. 5 - PLAN
1/4" = 1'-0

SUMMARY OF ESTIMATED QUANTITIES (APPROX)

EXCAVATION	300 CY
CONCRETE	508 CY
REINF. STEEL	3.1 TONS
FOUNDATION PILES - 88 @ 38' LONG (SEE DETAIL)	101 TONS
CAP PLATES FOR PILES	1.8 TONS
STEEL SHEET PILING (COFFERDAMS)	84.4 TONS
STRUCTURAL STEEL	348.25 TONS
TIES 329 @ 8"x10"x12'0"	20.7 MBF
119 @ 8"x10"x16'0"	13.2 MBF
LUMBER IN WALKS & BARREL STANDS	11.5 MBF
"GORED RAIL 4"x8" 1000 LF	2.47 MBF

NOTE:
BOTH ABUTMENTS ALIKE EXCEPT FOR DEPTH OF FOOTINGS
ALL PIERS ALIKE

WT. OF STEEL PER SPAN . . APPROX. 49.75 TON
WT. OF ONE GIRDER . . " 12.7 TON
TOTAL WT. OF STEEL IN SUPERSTRUCTURE " 348.25 TON

ELEVATIONS ARE TO U.S.C. & G.S. DATUM

UNITED STATES
DEPARTMENT OF THE INTERIOR
THE ALASKA RAILROAD
OFFICE OF THE CHIEF ENGINEER, ANCHORAGE

BRIDGE No. 647
TWENTY MILE RIVER

DESIGNED: HOLMEN
RECOMMENDED:
B E Conner
ASSISTANT CHIEF ENGR.
APPROVED:
Ralph Reinecke
CHIEF ENGINEER

SCALE: 1" = 20'
DATE: Oct, 1950
FILE No. 647

REVISION No. ⚠ April 2, 1964 PIER No. 5 & END ABUTMENTS

SHEET 1 OF 4

All Open Holes in Top Chord Filled with Drift Pins For 15'-0" each side of ℄ of Truss.

TYPICAL 15'-0" CHORD

TYPICAL 20'-0" CHORD

Symmetrical about ℄ except as otherwise shown or noted.

2'-6" 5'-0" 5'-0" 2'-6" 2'-6" 5'-0" 5'-0" 5'-0" 2'-6"

℄ Splice ℄ Splice

8'-0" c.c. Intersections

6'-10" Overall

7'-1¼" for 7" Ties
7'-3¼" for 5" Ties

Base of Rail

Top of Abutment

Bolt S6 to S1A

4-1" ϕ Hold Down Bolts

Timber Grillage

Alternate centers of Bearings

1'-3" 1'-3"

TYPICAL GENERAL ELEVATION

℄ Girder

2'-7"

5'-2"

℄ Track

2'-7"

℄ Girder

TWO GIRDER— HALF PLAN
HALF SECTIONAL PLAN

℄ Girder

3'-0"

℄ Girder & Track

3'-0"

℄ Girder

THREE GIRDER PLAN

Gage 3'-6"
Meter Gage
4'-8½" Standard Gage

90 LB. Rail
Standard Tie Plates

75 LB. Guard Rails

90 LB. Rail

Tie Hook Bolt 2 per Tie.

Tie: 5"x10"x8'-6" @ 18" ctrs. for Std. Gage
Tie: 7"x9"x8'-6" @ 18" ctrs. for 3'-6" & Meter Gage

S1A or S2A

S19

S22 L-5"x3½"x⅜" S21

S3

L-4"x3½"x⅜" S20

6'-10" c.c. Intersections

5'-2" c.c. Girders

SECTION D-D

TWO GIRDER TYPICAL CROSS SECTION A-A

Bracing Angles at each Panel Point

Bracing Angles at alternate Panel Points

Note: Connection of Bracing Member S10 to Post shall be made with 2-1⅛" ϕ Drift Pins & 2-1" ϕ Bolts.

L-3½"x3½"x⅝" S40

L-3½"x3½"x⅝" S60

S41

S13A

3'-0" 3'-0"

6'-0"

THREE GIRDER TYPICAL CROSS SECTION A-A

L-5"x3½"x⅜" Tee Gusset S23

L-4"x3"x⅜"

L-8"x3½"x½" S13A

WP

Web of Main Chord S1A or S2A

SECTION E-E
Showing Lateral Bracing

⅜" Web Plates of S1A or S2A

⅜" Bent 12

Gusset ⅜"x8"x3½" S13A

SECTION B-B
Showing Chord Bracer

SECTION C-C

NOTES:
All holes shall be 1⅛" ϕ except as otherwise noted.
♦ — Indicates Open Holes.
⊕ — Indicates 1" ϕ Bolts (Field).
⊕ — Indicates 1⅛" ϕ Drift Pins (Field).
All bracing shall be connected by Bolts except where Drift Pins are indicated in the General Elevation of the Truss and as noted for S40, S22, & S13A

WAR DEPARTMENT
THE ENGINEER BOARD
TECHNICAL DIVISION IX
BRIDGE BRANCH, STRUCTURAL DESIGN SECTION
FORT BELVOIR, VIRGINIA

UNIT CONSTRUCTION RAILWAY BRIDGE
GENERAL DETAILS FOR DECK TYPE BRIDGE

REVISIONS	NAME	DATE
Sheet 6 deleted from set.	J.A.W.	5-2-43
Marks revised.	H.B.S.	20 May 43

	NAME	DATE
DESIGNED		
DRAWN	F.J.T.	OCT. 1942
TRACED	D.J.J. & J.D.C.	OCT. 1942
CHECKED	J.G. & S.B.	DEC. 1942

PLAN NO. D-2604-2

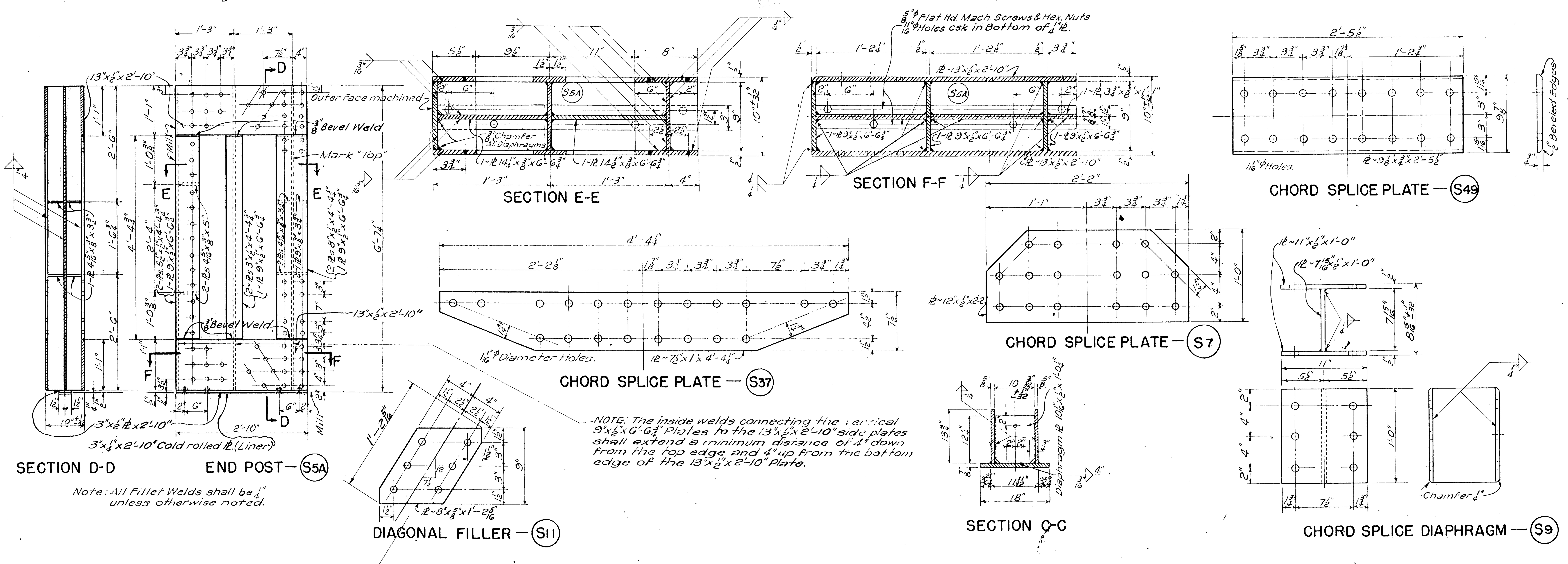
SHEET 2 OF 5

SUBMITTED FOR APPROVAL: 12-17-42
Howard H. Mullins
SENIOR ENGINEER

RECOMMENDED FOR APPROVAL:
Gregg W. Howard
MAJOR C. E. ASSISTANT EXECUTIVE OFFICER

APPROVED:
Peter Berry
COL. C. E. EXECUTIVE OFFICER

B.A.



Notes:

The ends of the chords shall be milled square and to the correct length within the tolerances shown, so as to secure a true butting surface with adjacent members.

The end vertical face and the bottom horizontal face of the End Post shall be milled and shall be truly at right angles with one another. The end vertical face shall be milled to be flush with the ends of the top & bottom chords. The bottom face of the bottom horizontal 3"x1/2"x2'-10" Plate shall be milled. The 3"x1/4"x2'-10" liner may be cold rolled or hot rolled steel. If liner is hot rolled it shall be milled on top and bottom surfaces. If cold rolled it need not be milled.

⊕ Indicates 1 1/16"φ holes except as otherwise noted.

Revision	Date	Name	
Sheet 6 deleted from set. Revised sheet number.	20 May '53	J.A.W.	E.
Marks chg. Tolerance for Chords & Posts, 3"x1/4" liner chg. to cold rolled steel & mill not revsd. Note on welds at S5A added	5-21-43	H.B.S.	A.

REVISIONS

WAR DEPARTMENT
THE ENGINEER BOARD
TECHNICAL DIVISION IV
BRIDGE BRANCH, STRUCTURAL DESIGN SECTION
FORT BELVOIR, VIRGINIA

UNIT CONSTRUCTION RAILWAY BRIDGE

TRUSS MEMBER DETAILS

	NAME	DATE
DESIGNED		
DRAWN	F.J.T.	OCT. 1942
TRACED	D.J.J.&J.D.C	OCT. 1942
CHECKED	J.G.&S.B	DEC. 1942

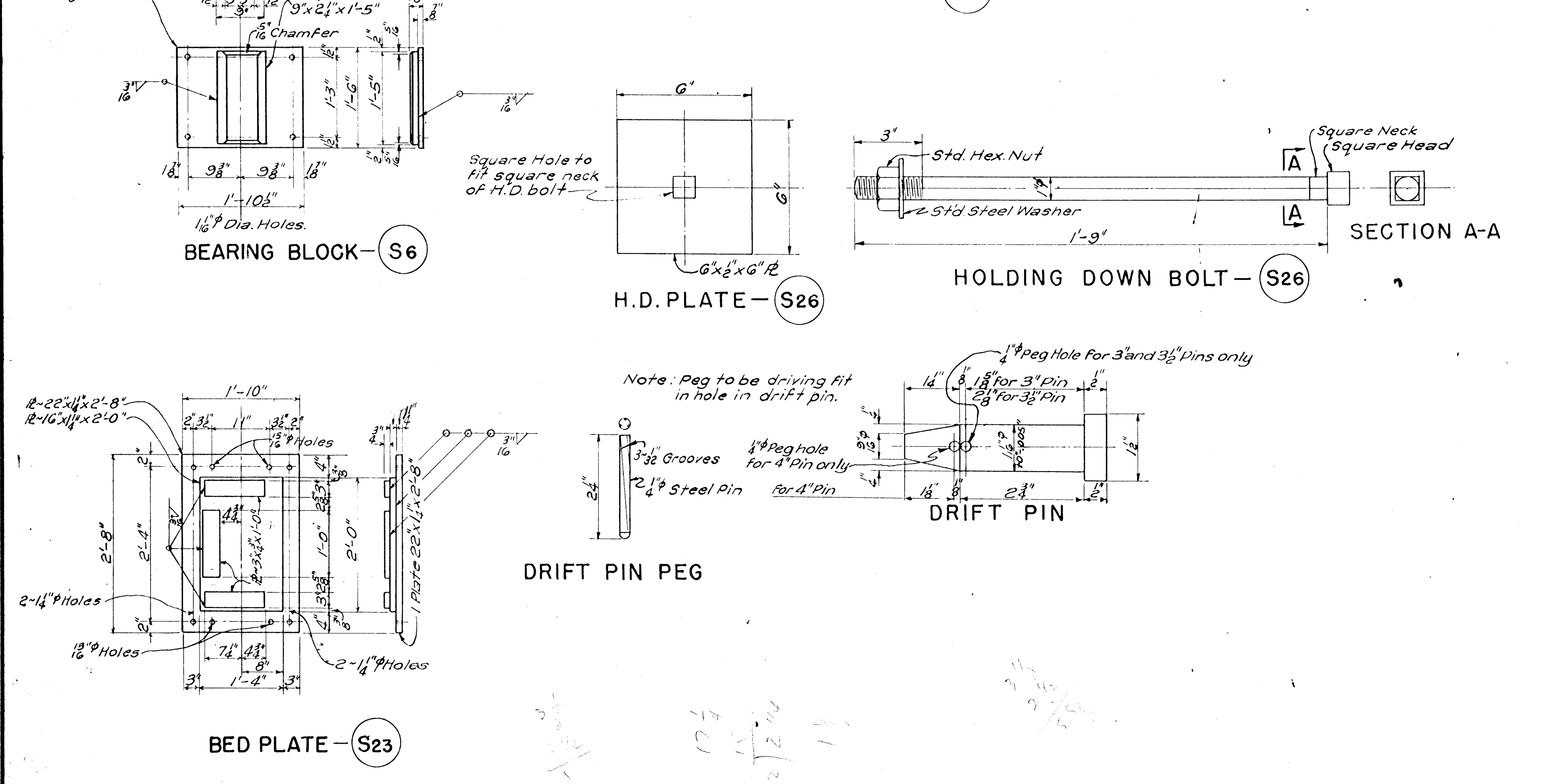
PLAN NO. D-2604-3

SHEET 3 OF 5

SUBMITTED FOR APPROVAL: 12-17-42
SENIOR ENGINEER

RECOMMENDED FOR APPROVAL:
MAJOR C. E. ASSISTANT EXECUTIVE OFFICER

APPROVED:
COL. C. E. EXECUTIVE OFFICER



Notes:

⌀ Indicates 1 1/16"⌀ holes except as otherwise noted.

WAR DEPARTMENT
THE ENGINEER BOARD
TECHNICAL DIVISION IX
BRIDGE BRANCH, STRUCTURAL DESIGN SECTION
FORT BELVOIR, VIRGINIA

UNIT CONSTRUCTION RAILWAY BRIDGE

BEARINGS, BRACING AND MISCELLANEOUS DETAILS

	NAME	DATE
DESIGNED		
DRAWN	F.J.T.	OCT. 1942
TRACED	D.J.J.&J.D.G.	OCT. 1942
CHECKED	J.G.& S.B.	DEC., 1942

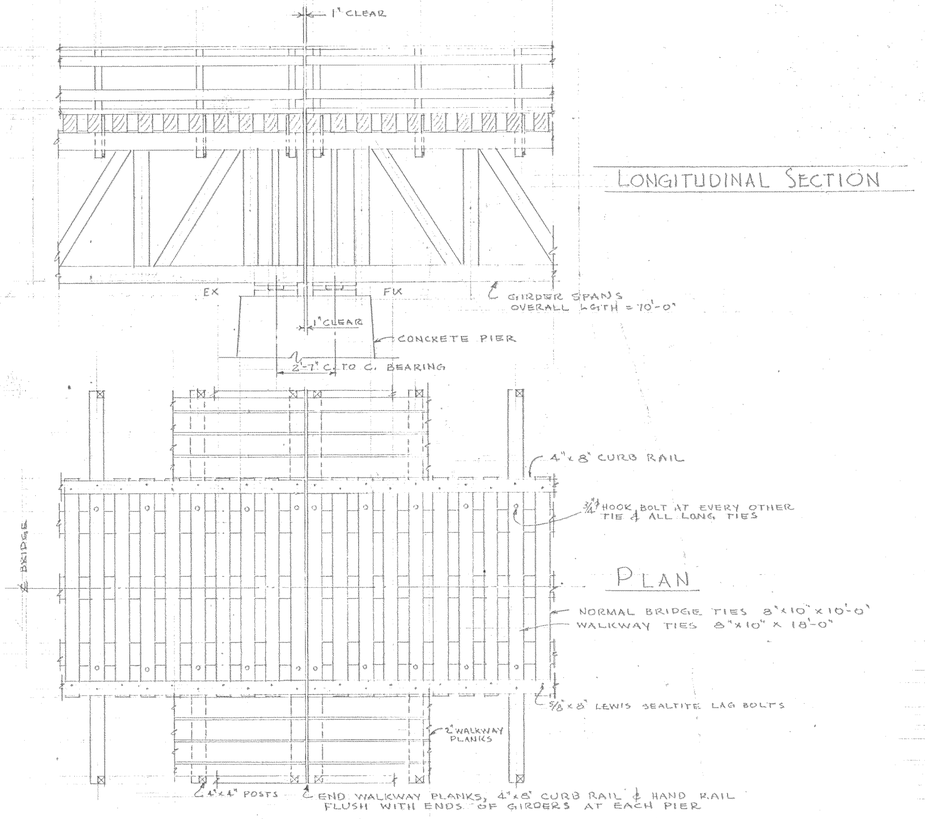
PLAN NO. D-2604-5

SHEET 5 OF 5

SUBMITTED FOR APPROVAL: 12-17-42
Howard H. Mullins
SENIOR ENGINEER

RECOMMENDED FOR APPROVAL:
[signature]
MAJOR C. E. ASSISTANT EXECUTIVE OFFICER

APPROVED:
[signature]
COL. C. E. EXECUTIVE OFFICER



LONGITUDINAL SECTION

PLAN

EXPANSION DETAIL AT PIERS

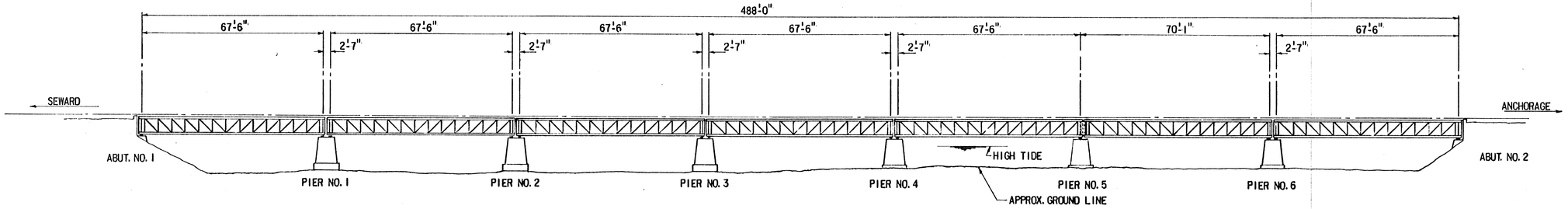
SCALES: ¼" = 1'-0"

UNITED STATES
DEPARTMENT OF THE INTERIOR
THE ALASKA RAILROAD
OFFICE OF THE CHIEF ENGINEER, ANCHORAGE

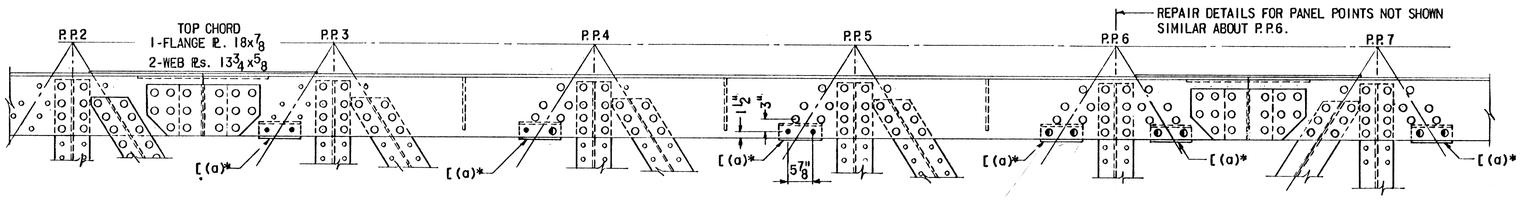
EXPANSION DETAIL AT PIERS
FOR
BRIDGE 64.7

DRAWN: EAH
RECOMMENDED:
C.F. Griffith
ASSISTANT CHIEF ENGINEER
APPROVED
R.A. Shalcross
CHIEF ENGINEER

SCALE: AS SHOWN
DATE: JULY 16, 1951
FILE Nº 64.7



ELEVATION
SCALE: 1"=20'-0"

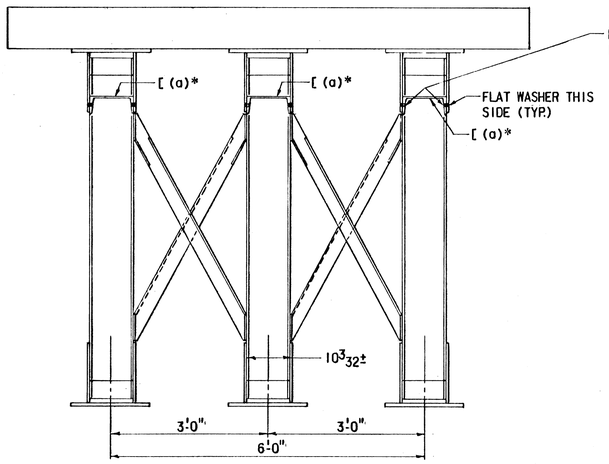


NOTES:

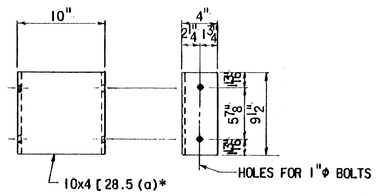
For complete details of girders see War Department Technical Manual TM 5-372 and revision by the Alaska Railroad, April 1964.

Existing fasteners are 1"φ rivets.

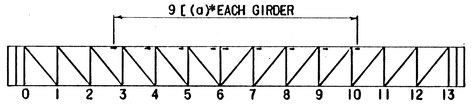
TYPICAL TOP CHORD DETAIL
(ALL GIRDERS AND SPANS)



TYPICAL CROSS SECTION



CHANNEL DIAPHRAGM DETAIL



GIRDER KEY ELEVATION

GENERAL NOTES:

DESIGN SPECIFICATIONS
The 1967 A.R.E.A Specifications for Steel Railway Bridges shall apply.

STRUCTURAL STEEL
Material furnished under this contract shall be structural steel conforming to A.S.T.M. A36-67.

All new and replacement fasteners shall be high strength bolts conforming to A.S.T.M. A325-66b.

High strength bolts shall be 1"φ; a hardened washer shall be placed under the turned element. All permanent bolts shall be installed in accordance with "Specifications for Structural Joints using A.S.T.M. A325 or A490 Bolts" approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation.

All bolt holes in the new material shall be sub-drilled 3/16" smaller than nominal size of bolt, assembled and reamed or drilled to full size to match the existing holes in the member.

PROCEDURE FOR INSTALLATION OF STRENGTHENING MATERALS
The general requirement for placing new bolts and material shall be as follows:

1. All paint from the existing material in area of holes for new and replaced bolts and all rust and loose paint from areas to be in contact with new material shall be removed.
2. Each rivet removed, shall be immediately replaced with a properly tightened high strength bolt. Rivets shall not be removed by burning.
3. Clean and paint all new material and abraded paint surfaces with two coats of paint in the field.

LEGEND
Symbols and their definitions are as follows:

- ○ Existing fasteners.
- ◦ Existing open holes to remain open.
- • Existing holes to be filled with H.S. Bolts.
- ◐ Existing fasteners to be removed and replaced with H.S. Bolts.
- * New material, all others existing.

MATERIAL LIST
189-10"x4" [28.5 x 0'-9 1/2"
756-1"φ x 2 3/4" bolts
Furnish hex head bolts, nuts and washers (provide one hardened washer for each bolt; also, provide one hardened beveled washer for each bolt if slope of channel flange exceeds 1:20).

REVISION	DATE	DESCRIPTION	BY

UNITED STATES
DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION
THE ALASKA RAILROAD
OFFICE OF THE CHIEF ENGINEER, ANCHORAGE

STRENGTHENING OF THE
BRIDGE NO. 64.7
GIRDER SPAN – DETAILS

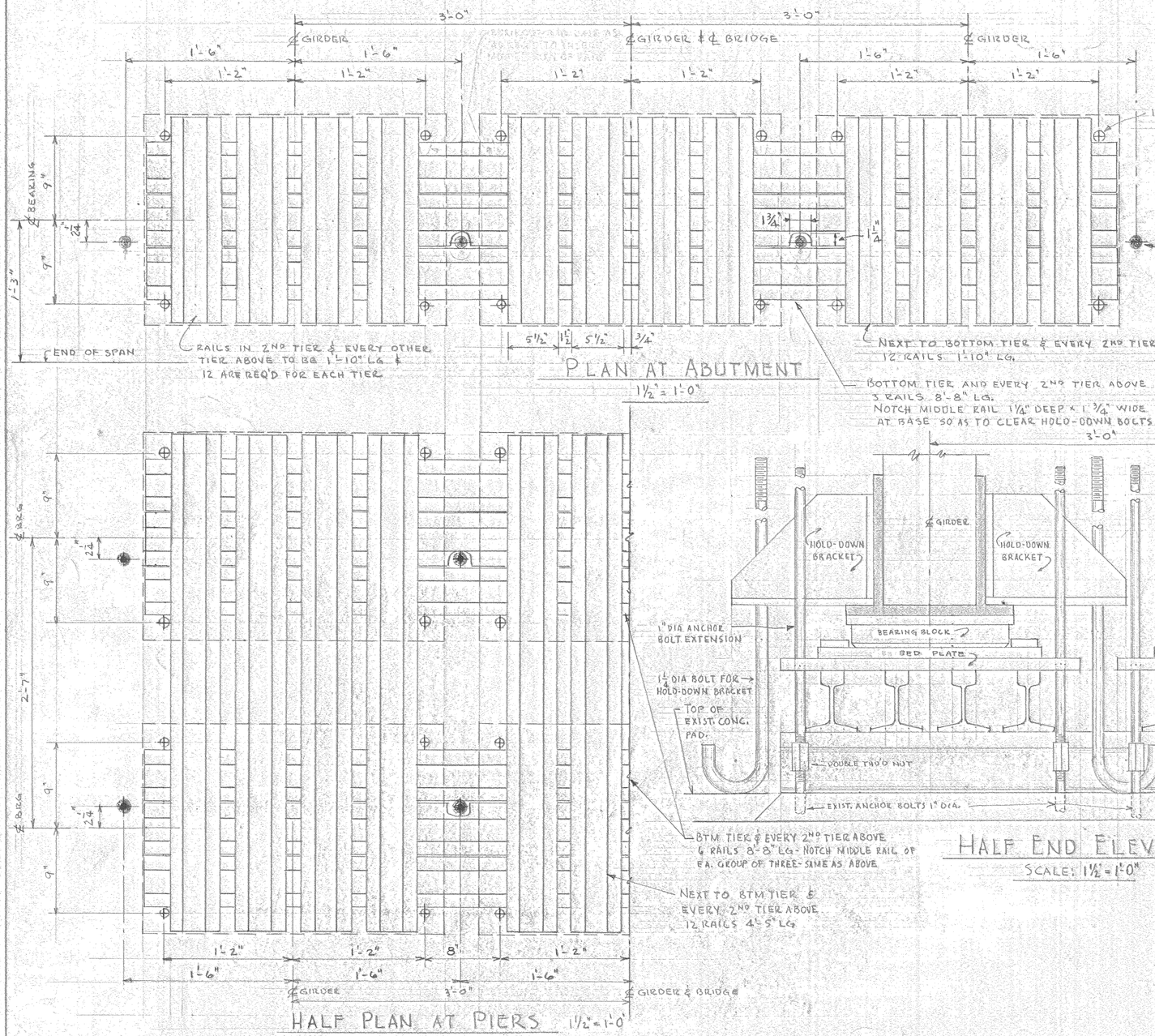
SUBMITTED: _____ CHIEF ENGINEER
APPROVED: _____

SCALE: 3/4"=1'-0 UNLESS NOTED
DATE: DECEMBER 1968
SHEET 1 OF 1
FILE NO. 64.7-A

PREPARED BY
MODJESKI & MASTERS
HARRISBURG, PA.

DR. CWH CK. HS

0371 | 0105 | 5120 | 3388



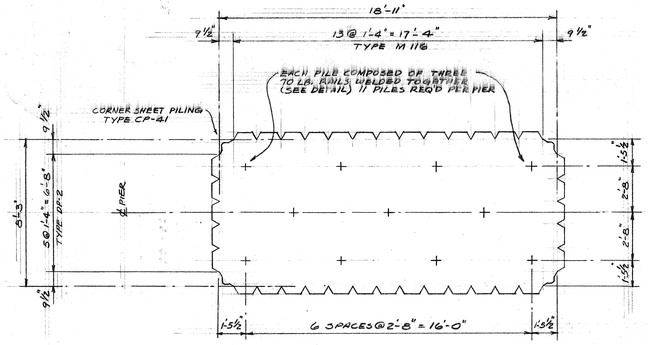
NOTES:

1. CRIBBING FOR RAISING OPERATION TO BE USED. 115 LB. RAIL PLANED TO A HT. OF 6½"
2. POUR CONC. AROUND CRIBS AFTER EVERY RAISE OF 13". EXTEND FACES OF PIERS & ABUTMENTS VERTICALLY
3. PLACE JACKS BEHIND BED PLATES & JACK ON BOTTOM OF GIRDER FLANGE OR UTILIZE JACKING ARRANGEMENT SHOWN ON SH. 1 OF 4, FILE NO. 64.7, DATED OCT. 1950
4. FOR DETAILS OF HOLD-DOWN BRACKETS SEE SEPARATE DRAWING
5. WELD RAILS FORMING CRIBBING TO EACH OTHER WHEREVER PRACTICAL

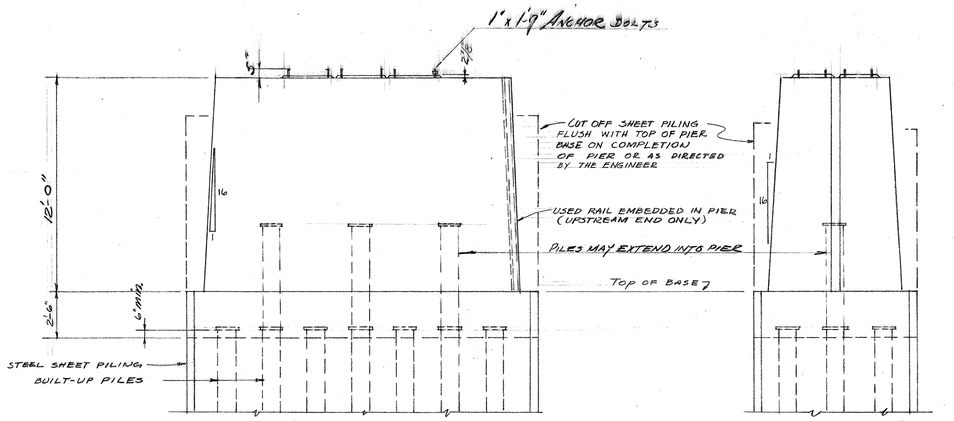
UNITED STATES
DEPARTMENT OF THE INTERIOR
THE ALASKA RAILROAD
OFFICE OF THE CHIEF ENGINEER, ANCHORAGE

RAISING DETAILS BRIDGE 64.7

DRAWN; E.G.H. RECOMMENDED	SCALE
ASST. CHIEF ENGINEER APPROVED	DATE:
CHIEF ENGINEER	FILE Nº 64.7



SHEET PILING & PILE PLAN FOR PIERS
SCALE: 1/4" = 1'-0"

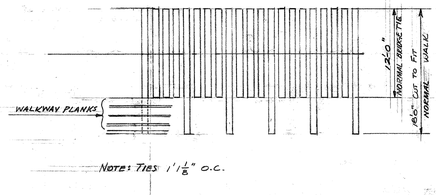


ELEVATION

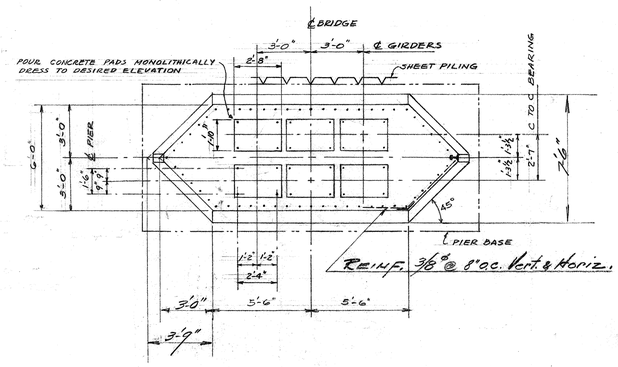
END ELEVATION

ESTIMATED QUANTITIES
ONE PIER

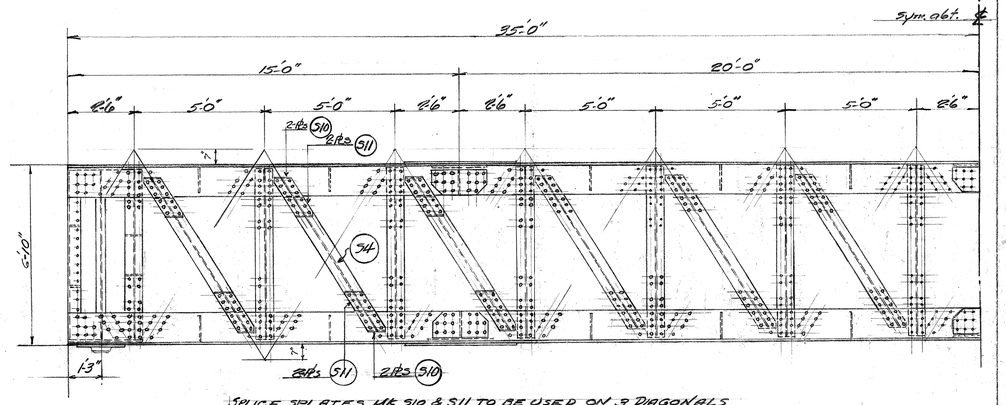
59 cu.yd. CONCRETE
1600 ft. 3/8" REINF. BARS = 600 pounds
40 - STEEL SHEET PILES 20'lg. 28 800 pounds
11 - FOUNDATION PILES 33' lg. 27 200 "
38 - Cu.Yd. EXCAVATION (APPROXIMATE AVERAGE)



TYPICAL TIE PLAN
SCALE: 1/8" = 1'-0"

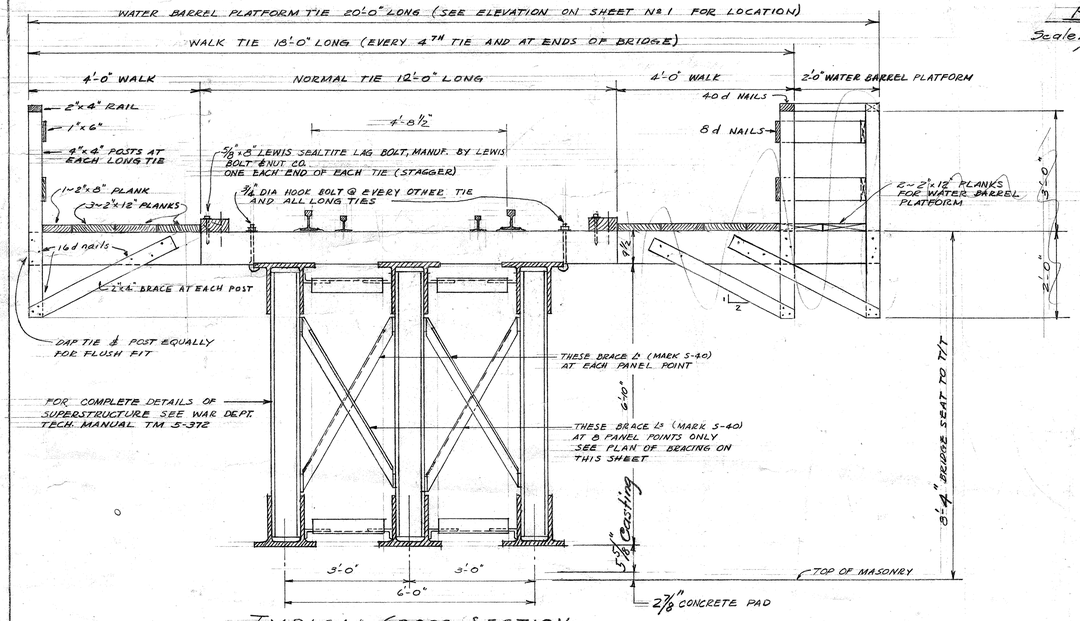


PLAN
Scale: 1/4" = 1'-0"

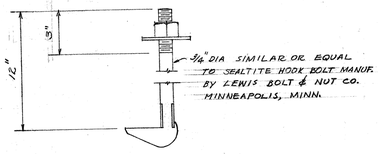


SPLICE PLATES NOS 510 & 511 TO BE USED ON 3 DIAGONALS NEAREST ENDS - 72 EACH REQUIRED PER SPAN

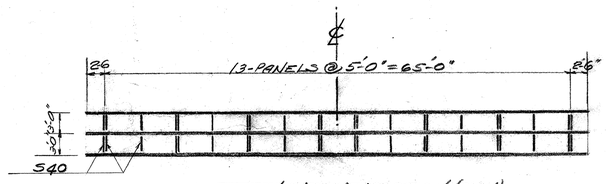
ELEVATION OF GIRDER
HALF SPAN



TYPICAL CROSS SECTION
NOT TO SCALE

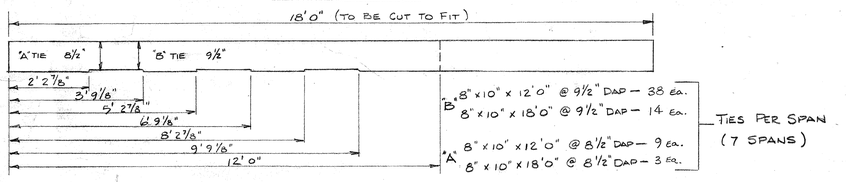


HOOK BOLT DETAIL
SCALE: 3" = 1'-0"



SKETCH SHOWING LOCATION (PLAN) OF BRACING ℄ MARKED S40
44-REQ'D

TIE DETAIL



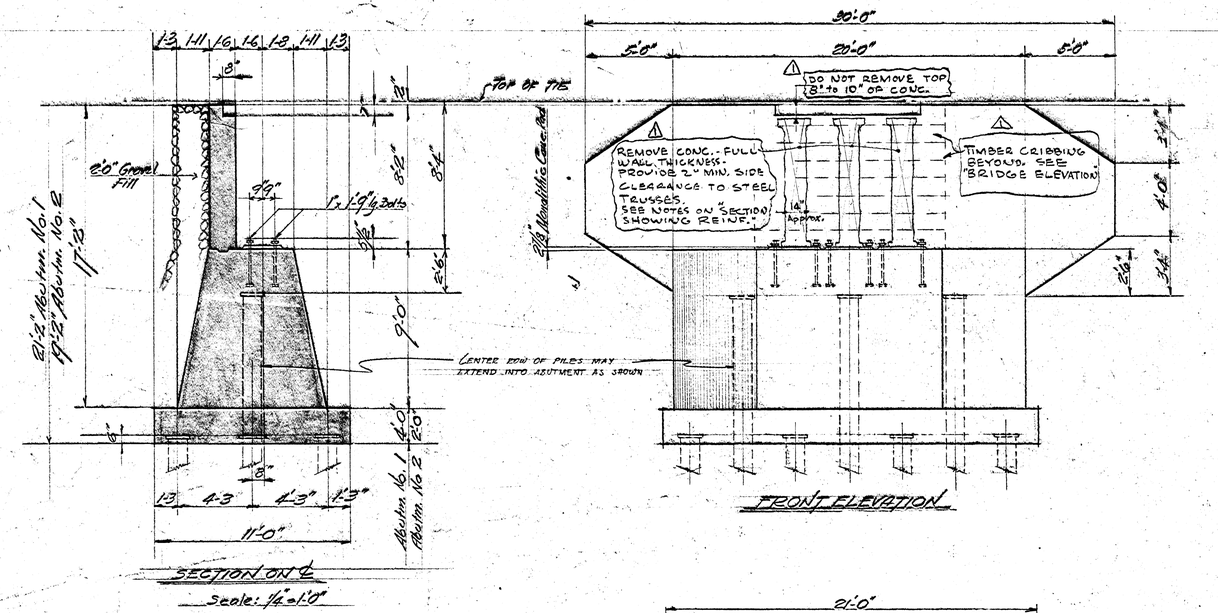
UNITED STATES
DEPARTMENT OF THE INTERIOR
THE ALASKA RAILROAD
OFFICE OF THE CHIEF ENGINEER, ANCHORAGE

BRIDGE 64.7 - TWENTY MILE RIVER

DESIGNED: HOLMEN
RECOMMENDED
C.H. Griffith
ASSISTANT CHIEF ENGINEER
APPROVED
Rashaver
CHIEF ENGINEER

SCALE: AS SHOWN
DATE: Oct. 1950
FILE No 64.7

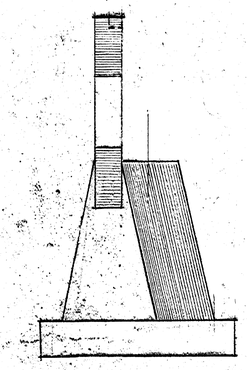
SHEET No 1



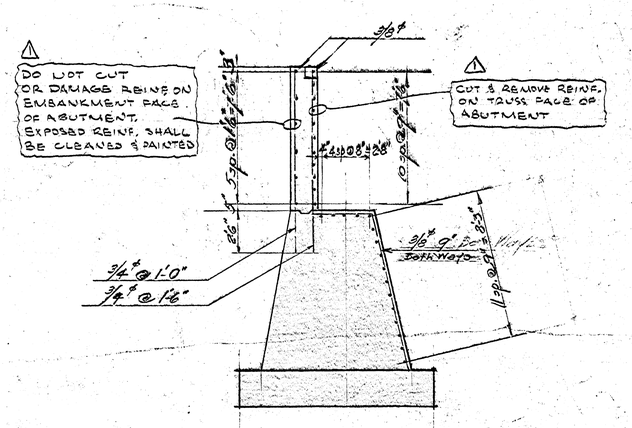
SECTION ON ℄

Scale: 1/4"=1'-0"

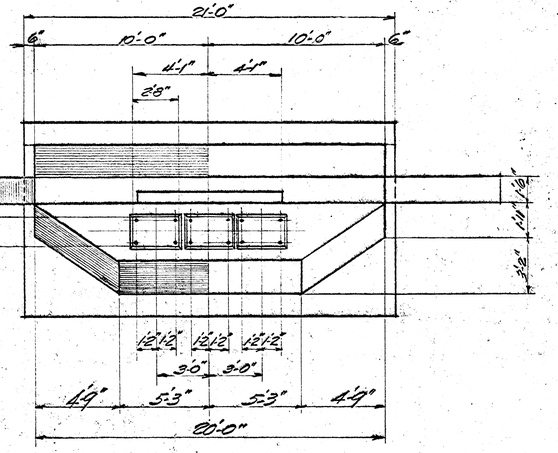
FRONT ELEVATION



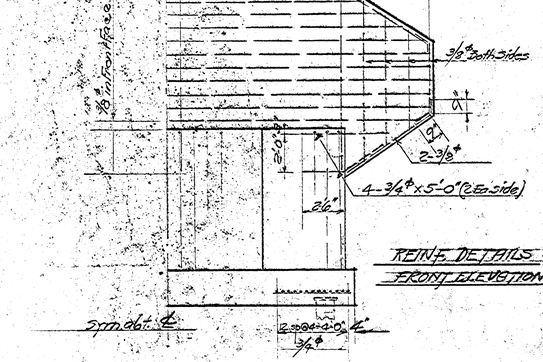
END ELEVATION



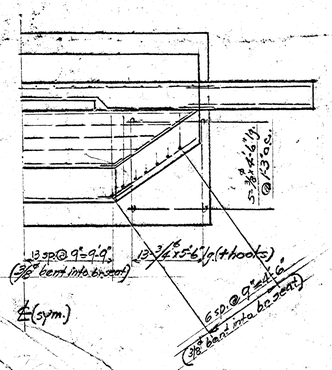
SECTION SHOWING REINFORCEMENT



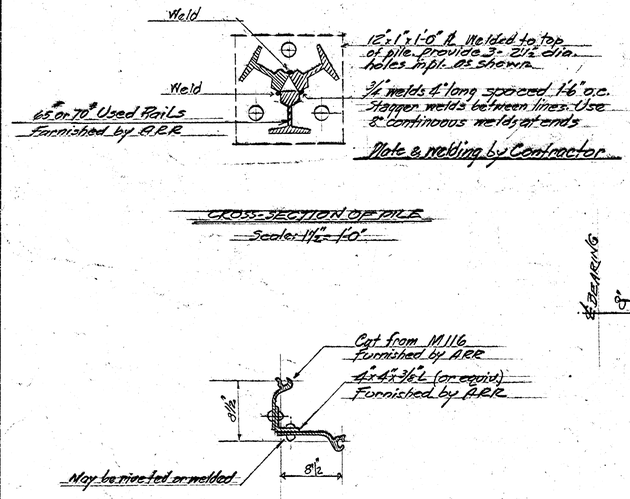
PLAN



REINF. DETAILS FRONT ELEVATION



REINF. DETAILS (HALF PLAN)

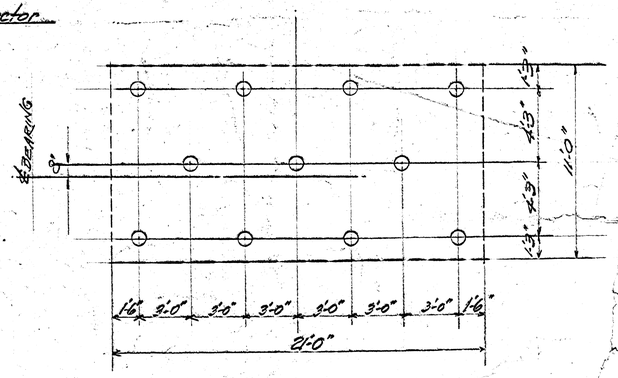


CROSS-SECTION OF PILE

Scale: 1½"=1'-0"

CORNER PILE FOR COFFERDAMS

2-A CORNER SHEETS REQ'D IN TOTAL - 2 TO BE MADE UP AS SHOWN ABOVE (BY CONTRACTOR)



PILE PLAN

ESTIMATED QUANTITIES

ABUTMENT No. 1

11-FOUNDATION PILES 33 Ft. 16. 25,500 lb.

11-CAP PLATES FOR PILES 12"x 1"x 1'-0" 450 "

CONCRETE ——————————— 85.5 cu. yd.

REINFORCING BARS

3/4" ø 580 ft — 870 lb.

3/8" ø 1200 " — 450 "

TOTAL REINF. 1320 lb.

ABUTMENT No. 2

11-FOUNDATION PILES 33 Ft. 16. 25,500 lb.

11-CAP PLATES FOR PILES 12"x 1"x 1'-0" 450 "

CONCRETE 68.5 cu. yd.

REINFORCING BARS

3/4" ø 580 ft — 870 lb.

3/8" ø 1200 " — 450 "

TOTAL REINF. 1320 lb.

NOTE:

BOTH ABUTMENTS ALIKE EXCEPT FOR DEPTH OF FOOTINGS.

TOKLAT RIVER BRIDGE

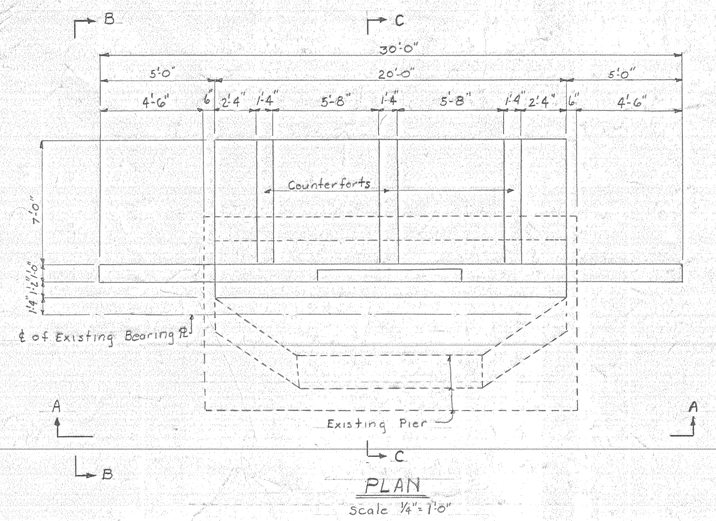
UNITED STATES DEPARTMENT OF THE INTERIOR
THE ALASKA RAILROAD
OFFICE OF THE CHIEF ENGINEER, ANCHORAGE

BRIDGE NO. 64.7
ABUTMENT NO. 1 & 2

Designed: H.C. Brown
Recommended: R. E. Comm, Assistant Chief Engineer
Approved: Rasmussen, Chief Engineer

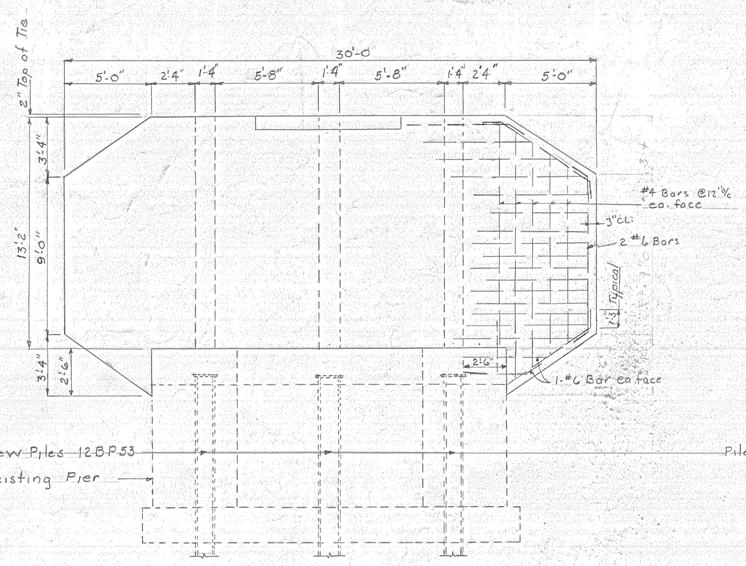
Scale: 1/4" = 1'-0"
October 1950
FILE: 647

REVISION NO. 1	APRIL 2, 1964	FRONT ELEVATION & SECTION SHOWING REINF.



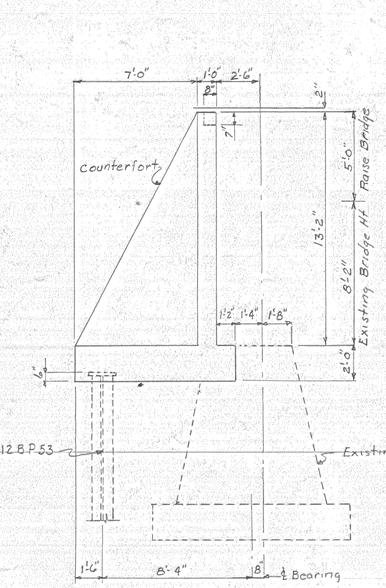
PLAN

Scale 1/4"=1'-0"



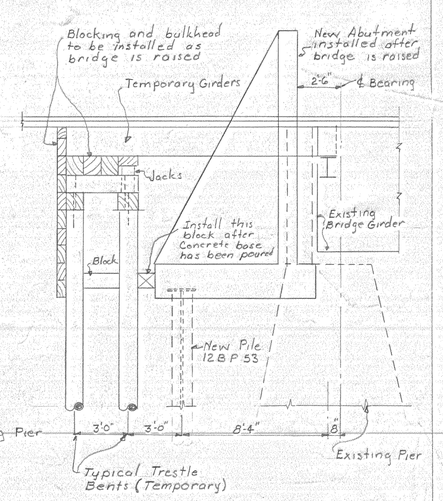
SECTION A-A

Scale 1/4"=1'-0"

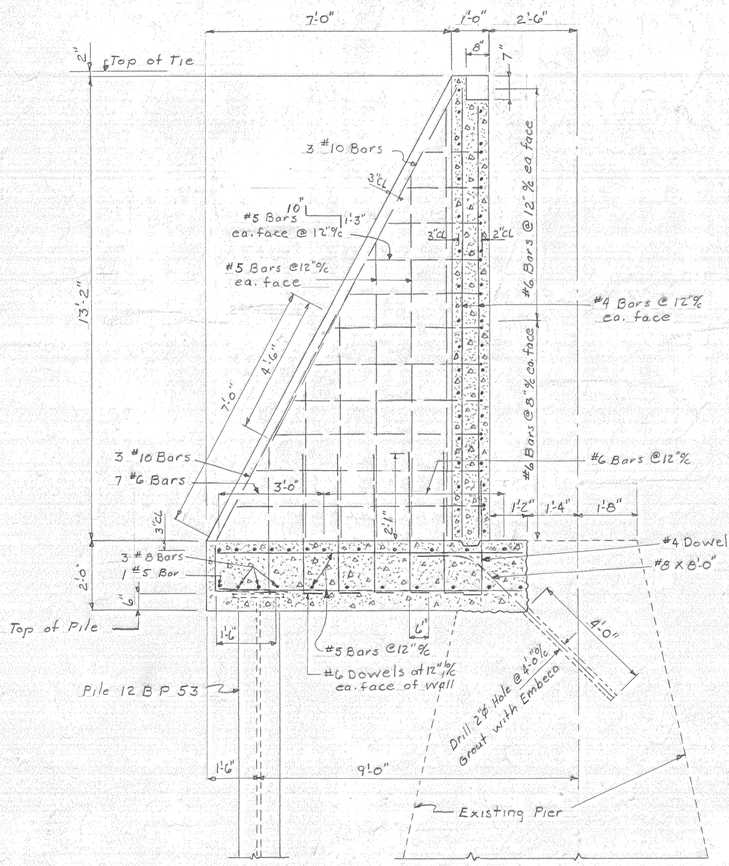


SECTION B-B

Scale 1/4"=1'-0"

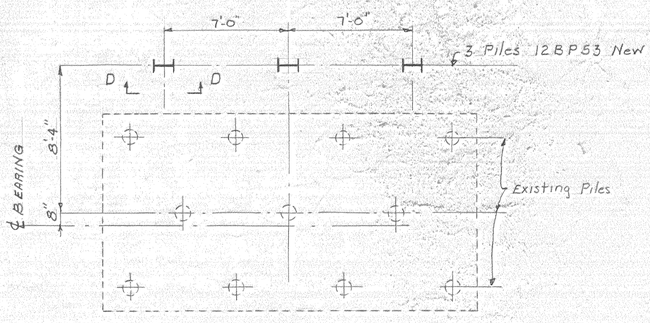


TEMPORARY SUPPORTS FOR INSTALLATION OF NEW ABUTMENTS



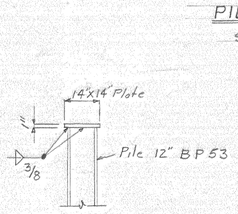
SECTION C-C

Scale 1/2"=1'-0"



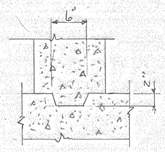
PILE PLAN

scale 1/4"=1'-0"

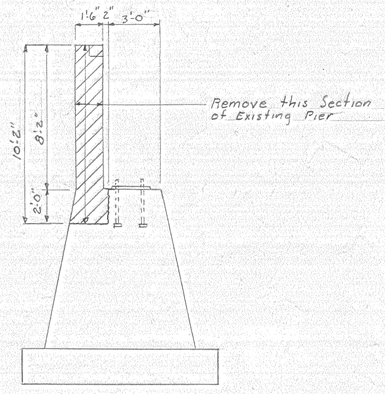


SECTION D-D

Scale 1/2"=1'-0"



TYPICAL KEY WALL AND COUNTERFORT



SECTION OF EXISTING PIER

NOTES

Concrete 2500#"
Reinforcing Steel intermediate grade
Both abutments are similar
New Piles 12 B P 53 X 40'-0" long

EARL AND WRIGHT, INC. CONSULTING ENGINEERS 49 FREMONT ST. SAN FRANCISCO, CALIFORNIA	UNITED STATES DEPARTMENT OF THE INTERIOR THE ALASKA RAILROAD OFFICE OF THE CHIEF ENGINEER, ANCHORAGE
DESIGNED BY M. Watt DRAWN BY M. Watt CHECKED BY W.W. Hayes SUBMITTED BY W.W. Hayes DATE August 18, 1964	PORTAGE ALASKA BRIDGE 64.7 NEW ABUTMENT
EARL AND WRIGHT, INC. BY CE 488-2 July 7, 1956	RECOMMENDED BY APPROVED BY DATE 19 AUG 1964 SHEET NO. 1 OF 1 FILE 64.7