

HYDRAULIC DATA

	DESIGN FLOOD	BASE FLOOD	MAXIMUM PROBABLE FLOOD
DISCHARGE CFS	7,250	8,350	11,100
FREQUENCY YRS.	50	100	500
BACKWATER FT.	0.8	0.9	1.3
H.W. ELEVATION NAT. CHANNEL FT.	1960.8	1961.7	1963.9

Numbers in table are for H.W. elevation at upstream face of bridge.

**GENERAL NOTES:**

All material and workmanship shall conform to the 1991 Standard Specifications for Highway Construction of the Oregon Department of Transportation, as modified and/or extended by the Special Provisions and Supplemental Standard Specifications for this project.

Bridge designed for HS-20 loading & 50 psf for future wearing surface.

All reinforcing steel shall conform to ASTM Specification A615 Grade 60 or A706. Field bend stirrup and hoop splice bars shall conform to ASTM Specification A706. The following splice lengths shall be used unless shown otherwise:

Bar Size	3	4	5	6	7	8	9	10	11	14/18
Splice Length	11'-0"	11'-4"	11'-8"	12'-0"	12'-9"	13'-7"	14'-7"	15'-9"	17'-1"	Not Allowed

All bars shall be placed 2 inches clear of the nearest face of concrete unless shown otherwise.

Concrete fill in the steel grid deck shall be Class 4000 - 3/4" Concrete in deck closure pour shall be Class 3000 - 3/4" - High/Early All other concrete shall be Class 3300 - 1 1/2" or 3/4".

The minimum concrete strength at the time traffic is allowed on the concrete surface shall be 3300 psi.

Structural steel for plate girders & crossbracing shall conform to AASHTO M270 Grade 50W (ASTM A709 Grade 50W). Structural steel tubing for rails shall be ASTM A500 galvanized. All other structural steel shall conform to A588 (weathering) unless shown otherwise.

All bolts shall be ASTM A325 type 3 unless shown otherwise. A436 Weathering steel washers with A563 Grade C3 heavy hex nuts shall be used with A325 type 3 bolts. Tighten by turn of nut method or use lock-pin and collar fasteners.

Superstructure designed by Working Stress Method.

Existing Bridge 02068

DATE	REVISION	BY	DRATED
10-18-07	As Constructed	JAM	Tom Ohren
			Nowzar Ardalan
			Frank J. Nelson

DESIGNER:

BRIDGE ENGINEER:

OREGON DEPARTMENT OF TRANSPORTATION  
BRIDGE ENGINEERING SECTION

ACCOMPANIED BY DWGS: 53251 thru 53275  
34959, 50494, 50495, 50507, 50509, 50902

BRIDGE NO.	18074
DATE	9-MAY-1996
CALC. BOOK	4467

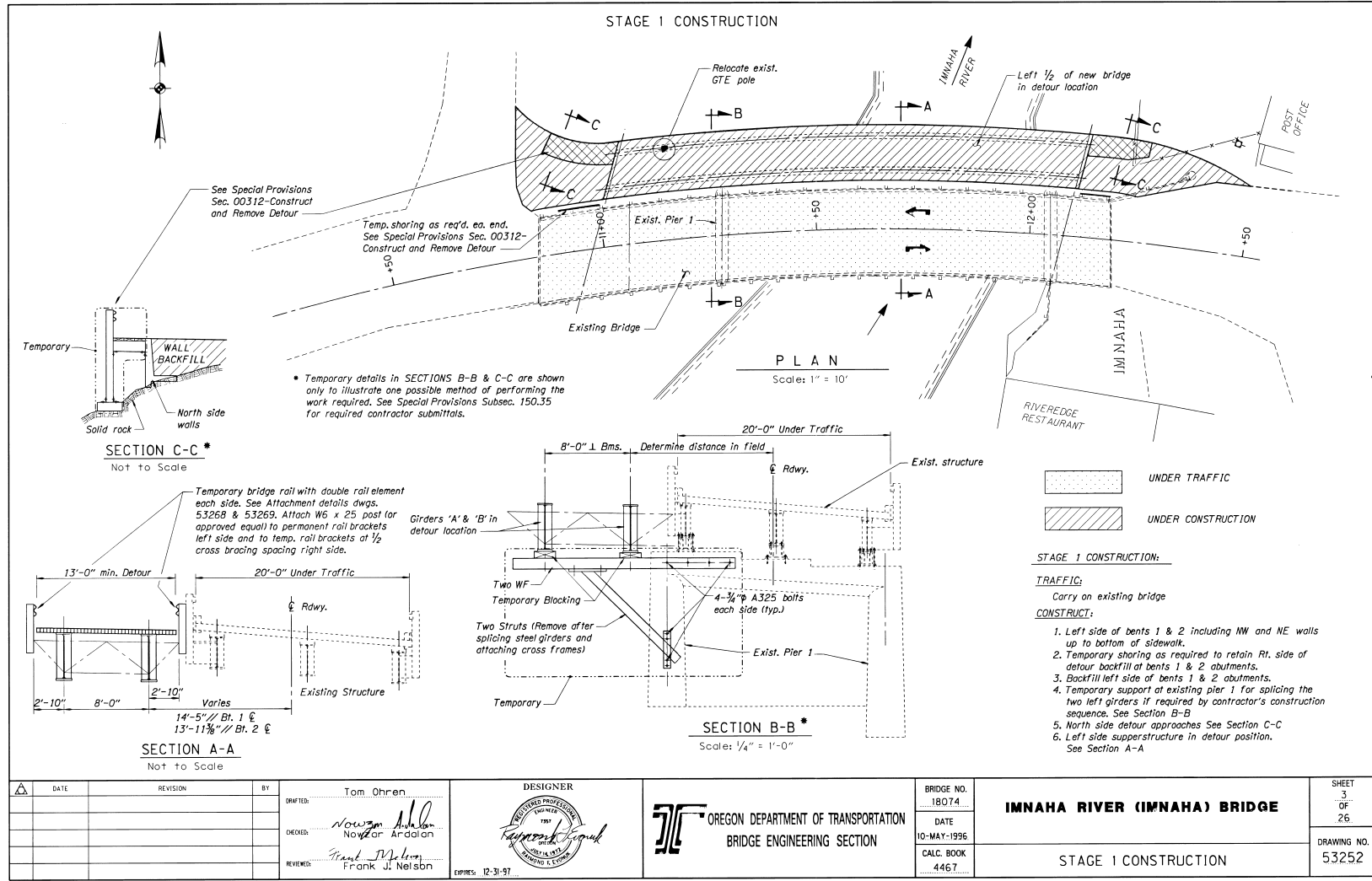
**IMNAHA RIVER (IMNAHA) BRIDGE SECTION**  
IMNAHA RIVER (IMNAHA) BRIDGE SECTION  
LITTLE SHEEP CREEK HWY. NO. 350 (M.P. 29.34)  
WALLOWA COUNTY

PLAN AND ELEVATION

FEDERAL HIGHWAY ADMINISTRATION PROJECT NUMBER

SHEET	1
OF	26
DRAWING NO.	53250

br:2020.dwg /usr/br/projects/j18074.dgn [VIEW=C4] [PGRID=C4] 9-MAY-1996 OHREN



DATE	REVISION	BY

DRAFTED: Tom Ohren  
 CHECKED: Norman Ardalan  
 REVIEWED: Frank J. Nelson

DESIGNER

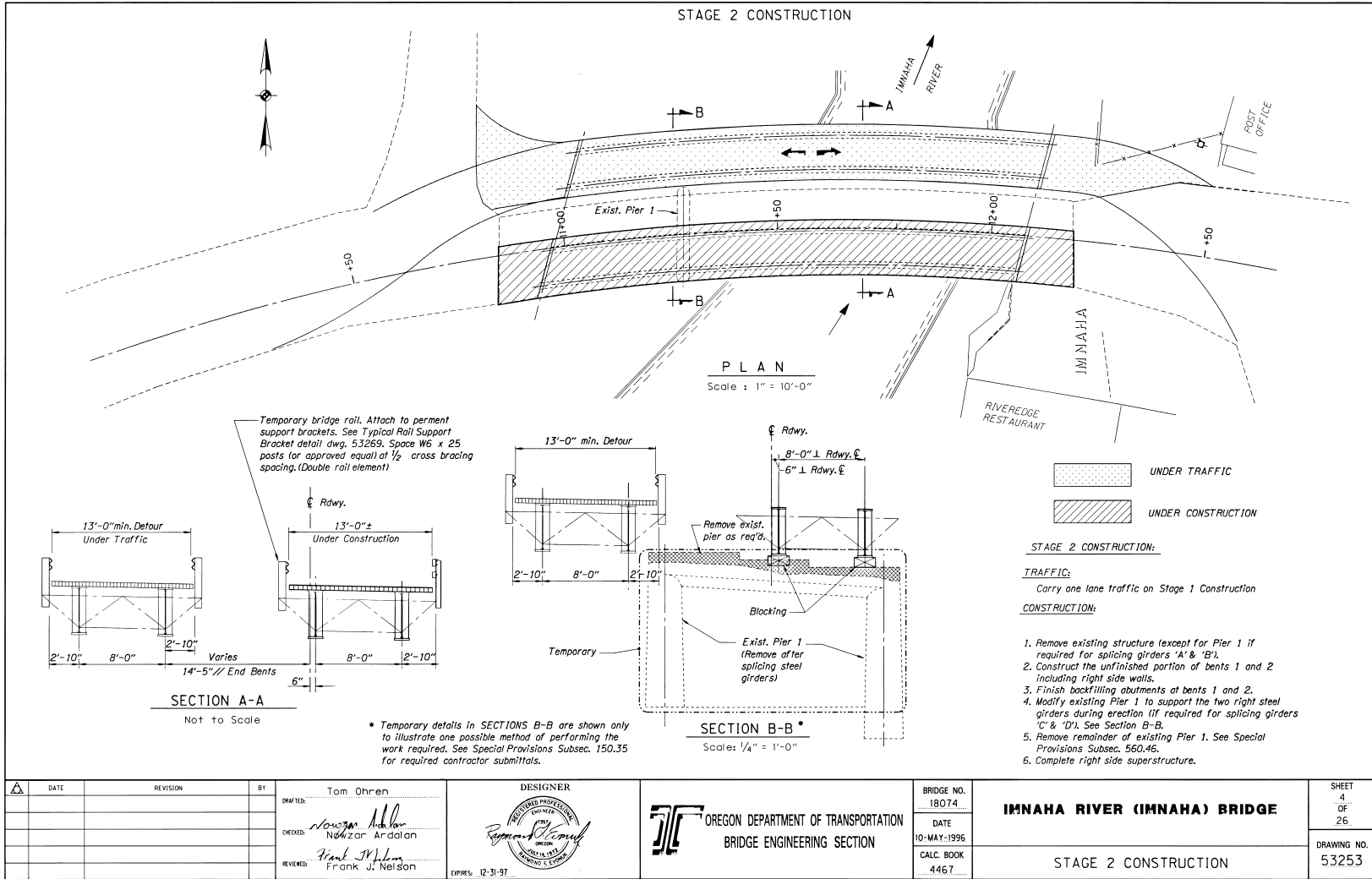
OREGON DEPARTMENT OF TRANSPORTATION  
 BRIDGE ENGINEERING SECTION

BRIDGE NO. 18074  
 DATE 10-MAY-1996  
 CALC. BOOK 4467

**IMNAHA RIVER (IMNAHA) BRIDGE**  
  
 STAGE 1 CONSTRUCTION

SHEET 3 OF 26  
 DRAWING NO. 53252

OHREN 10-MAY-1996 [VIEW=1] [PGRID=1] /usr/br/projects/18074.dgn



DATE	REVISION	BY

DRAFTER: Tom Ohren  
 CHECKED: Nawzar Ardalan  
 REVIEWED: Frank J. Nelson

DESIGNER

EXPIRES: 12-31-97

OREGON DEPARTMENT OF TRANSPORTATION  
 BRIDGE ENGINEERING SECTION

BRIDGE NO.  
18074  
 DATE  
10-MAY-1996  
 CALC. BOOK  
4467

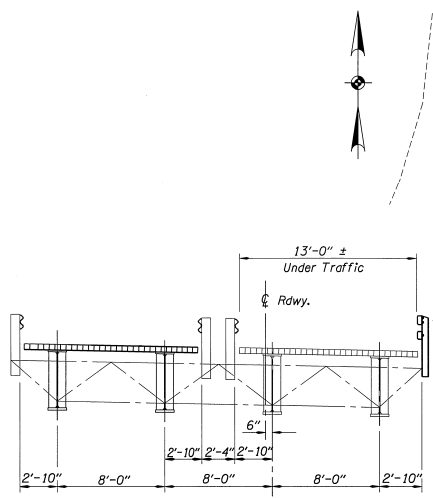
**IMNAHA RIVER (IMNAHA) BRIDGE**

STAGE 2 CONSTRUCTION

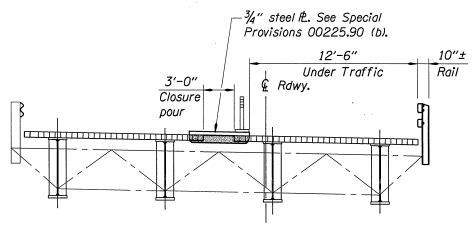
SHEET  
4  
OF  
26  
 DRAWING NO.  
53253

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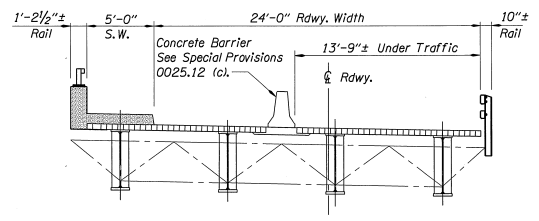
STAGE 3 CONSTRUCTION



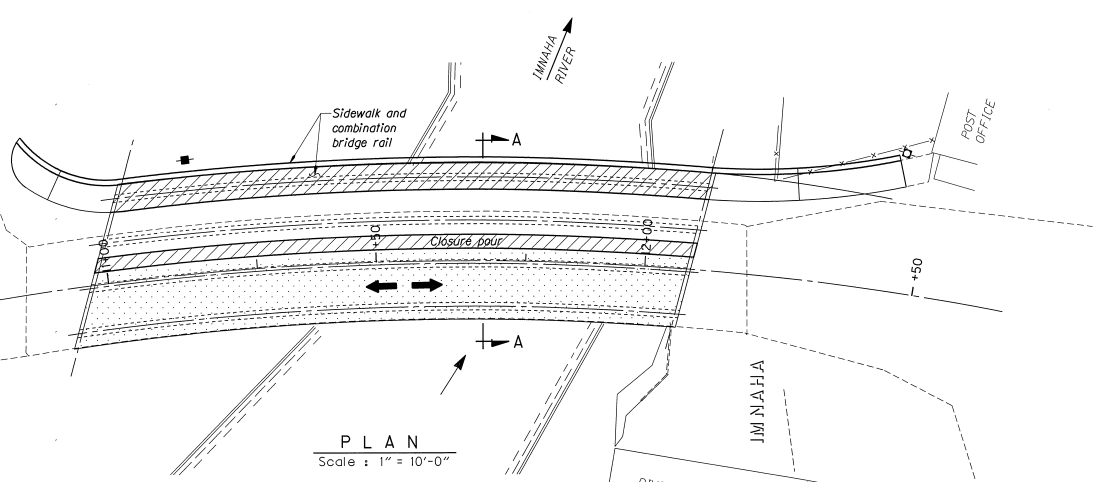
SECTION A-A STAGE 3a  
Scale : 1/4" = 1'-0"



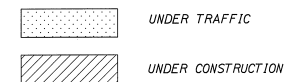
SECTION A-A STAGE 3b  
Scale : 1/4" = 1'-0"



SECTION A-A STAGE 3c  
Scale : 1/4" = 1'-0"



PLAN  
Scale : 1" = 10'-0"



STAGE 3 CONSTRUCTION:

**TRAFFIC:**  
Carry one lane traffic on Stage 2 Construction.

- CONSTRUCTION:**
- (3a) 1. Horizontally jack Stage 1 superstructure construction
  - 4. 6'-4" right along bent & into final position.
  - (3b) 2. Remove temporary bridge rails and support brackets in center bay.
  - 3. Cover 3'-deck opening with 3/4" steel plate. Omitted
  - 5. 4. Install crossbracing and end frames in center bay. See Special Provisions Subsec. 560.46.
  - 6. 5. Deck closure pour. Limit traffic to 10 tons GW until deck closure reaches 3300 psi.
  - 4. 3a) 6. Install temporary concrete median barrier. Omitted
  - 2. 7. Remove Left side Detour rail and posts.
  - 3. 8. Combination Rail & Sidewalk.
  - 7. 9. Install Compression Joint Seals.

DATE	REVISION	BY
10-19-07	As Constructed	JAM

DRAWN BY: Tom Ohren  
CHECKED BY: Nowzar Ardalan  
REVIEWED BY: Frank J. Nelson

DESIGNER: Tom Ohren

OREGON DEPARTMENT OF TRANSPORTATION  
BRIDGE ENGINEERING SECTION

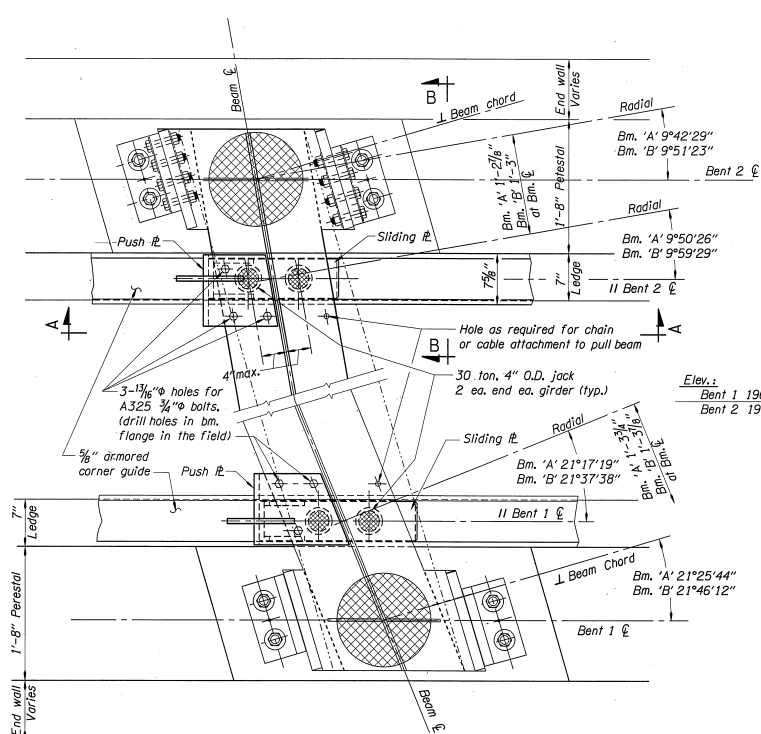
BRIDGE NO.	18074
DATE	10-MAY-1996
CALC. BOOK	4467

**IMNAHA RIVER (IMNAHA) BRIDGE**

STAGE 3 CONSTRUCTION

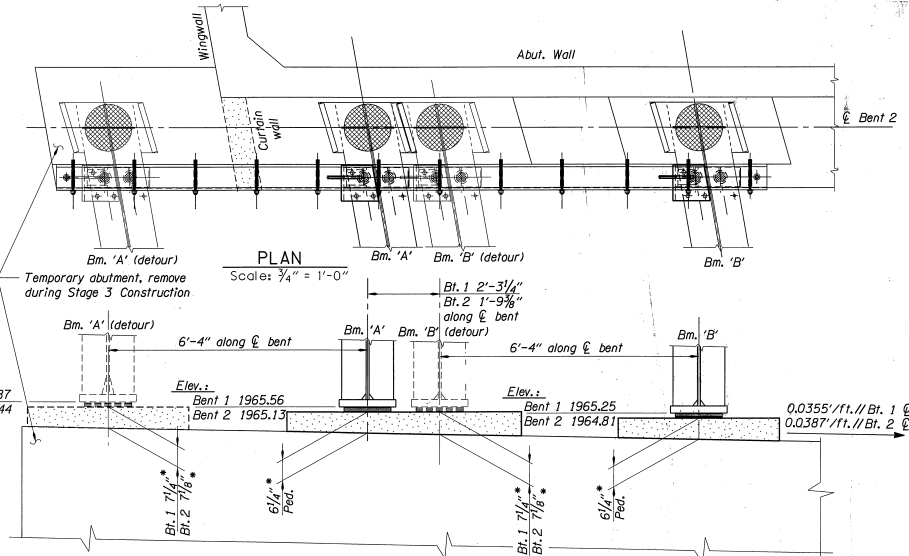
SHEET	5 OF 26
DRAWING NO.	53254

OHREN 10-MAY-1996 [P&RID-E3] [VIEW-E3] /usr/b7/proj/sectrs/18074c.dgn br 202004

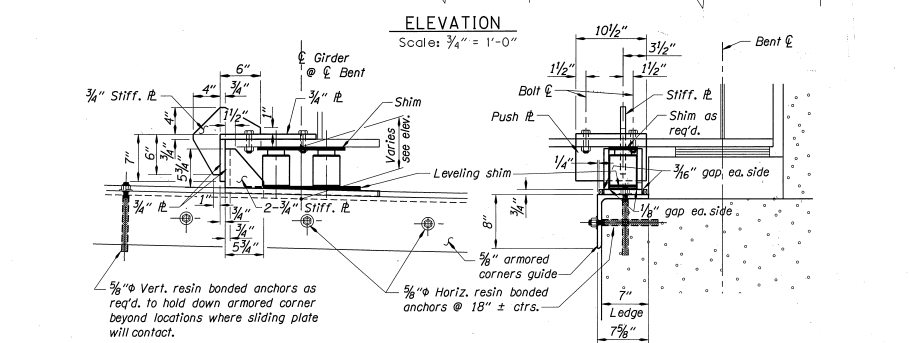


**BEAM 'A' AND 'B' - PLAN**  
Scale: 1/2" = 1'-0"

- NOTE:**
- This drawing is included only to illustrate one possible method of performing horizontal jacking. See Special Provisions Subsec. 150.35 for required contractor submittals.
  - Dimensions is for nominal pad thickness of 1 1/2". Adjust height of pedestal to accommodate finished pad thickness. See Special Provisions.
  - Field verify all elevations prior to constructing bearing pedestals.



**PLAN**  
Scale: 3/4" = 1'-0"



**SECTION A-A**  
Scale: 1/2" = 1'-0"

**SECTION B-B**  
Scale: 1/2" = 1'-0"

DATE	REVISION	BY	DESIGNER
10-18-07	As Constructed	JAM	Tom Ohren
			Checked: Noyzar Ardaian
			Reviewed: Frank J. Nelson

DESIGNER

REGISTERED PROFESSIONAL ENGINEER  
1931  
Tom Ohren  
OREGON  
LICENSE NO. 12-31-97

OREGON DEPARTMENT OF TRANSPORTATION  
BRIDGE ENGINEERING SECTION

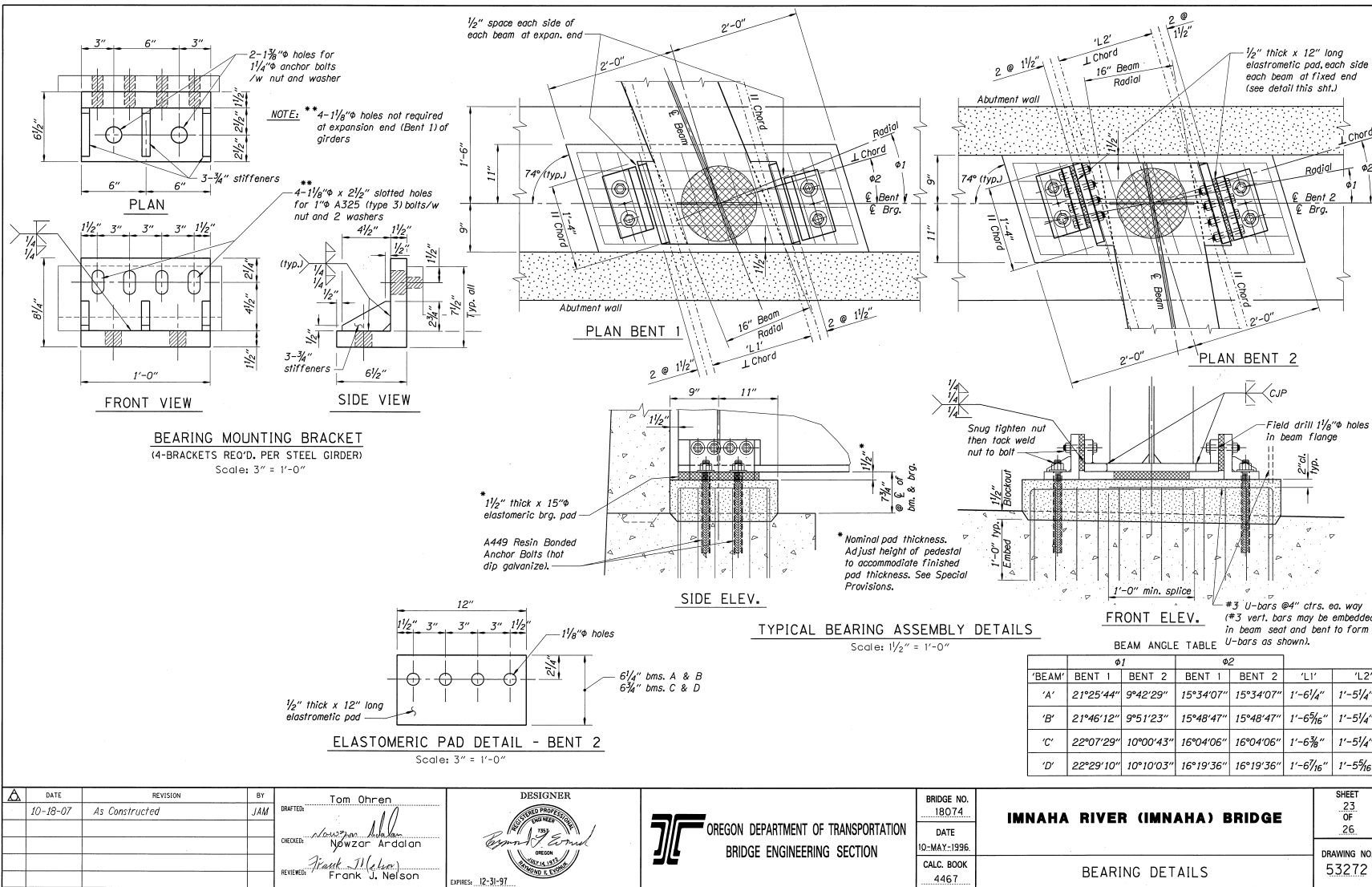
BRIDGE NO. 18074	<b>IMNAHA RIVER (IMNAHA) BRIDGE</b>
DATE 10-MAY-1996	
CALC. BOOK 4467	
<b>BEAM JACKING DETAILS</b>	

SHEET 26 OF 26
DRAWING NO. 53275

OHREN 10-MAY-1996 [VIEW=N2] [GRID=N2] /usr/bt/projects/j18074c.dgn

OHREN 10-MAY-1996 [VIEW=NI] [PGRID=N]

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Δ	DATE	REVISION	BY
	10-18-07	As Constructed	JAM

DESIGNER  
Tom Ohren

CHECKED: *[Signature]*  
Nawzar Ardalan

REVIEWED: *[Signature]*  
Frank J. Nelson

EXPIRES: 12-31-97

REGISTERED PROFESSIONAL ENGINEER  
1999  
*[Signature]*  
OREGON  
BRIDGE ENGINEERING SECTION

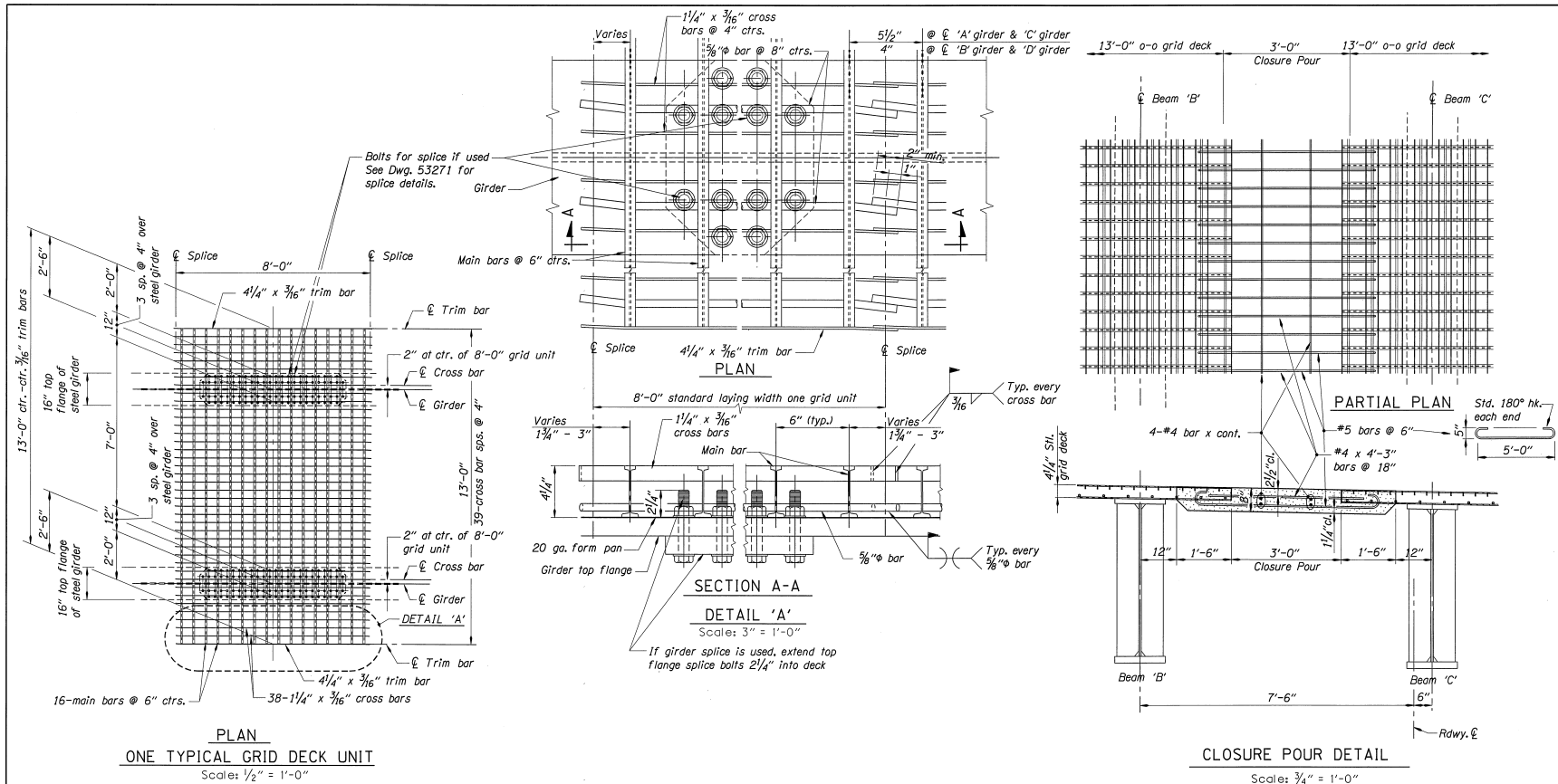
BRIDGE NO. 18074

DATE 10-MAY-1996  
CALC. BOOK 4467

**IMNAHA RIVER (IMNAHA) BRIDGE**

BEARING DETAILS

SHEET 23 OF 26  
DRAWING NO. 53272



**Notes:**  
 See dwg. no. 53259 for grid details at end bents.  
 Tack weld grid decking to top of girders as required to keep grid in place during concrete pour.

DATE	REVISION	BY	DRAWN
10-18-07	As Constructed	JAM	Tom Ohren
			Novzar Ardalan
			Frank J. Nelson

DESIGNER

*Reynolds & Reynolds*

REGISTERED PROFESSIONAL ENGINEER  
 OREGON  
 1971  
 10000 N.E. SUNNYVALE BLVD.  
 PORTLAND, OREGON

EXPIRES: 12-31-97

**OREGON DEPARTMENT OF TRANSPORTATION**  
 BRIDGE ENGINEERING SECTION

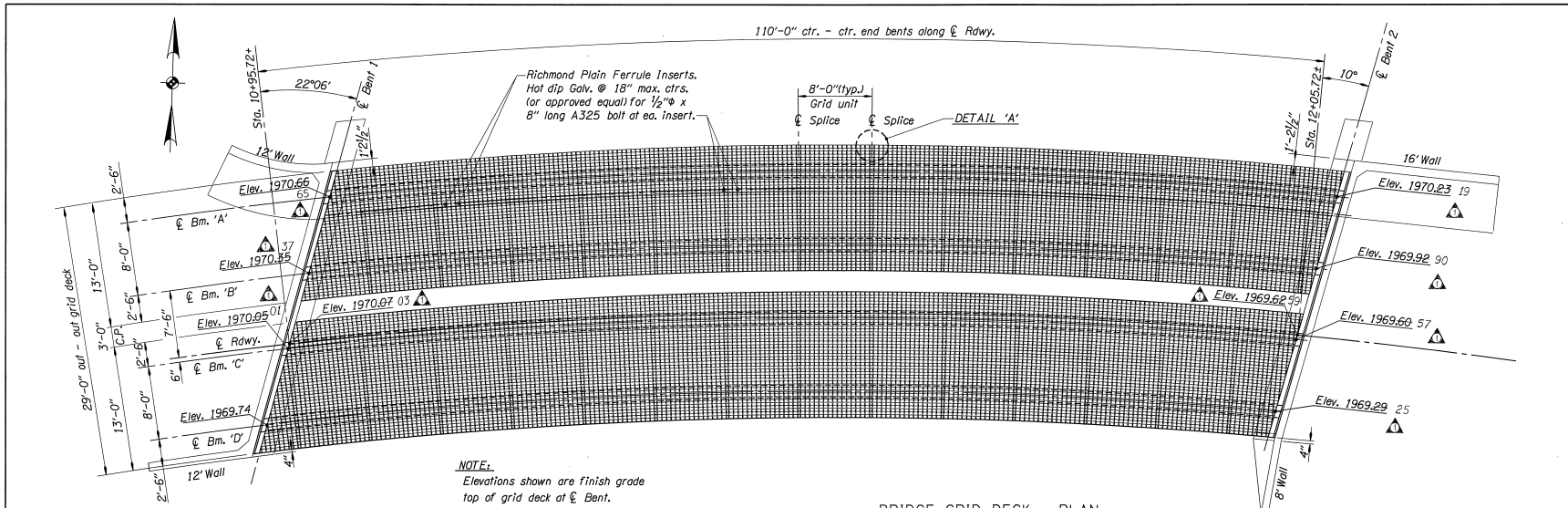
BRIDGE NO.	18074
DATE	10-MAY-1996
CALC. BOOK	4467

**IMNAHA RIVER (IMNAHA) BRIDGE**

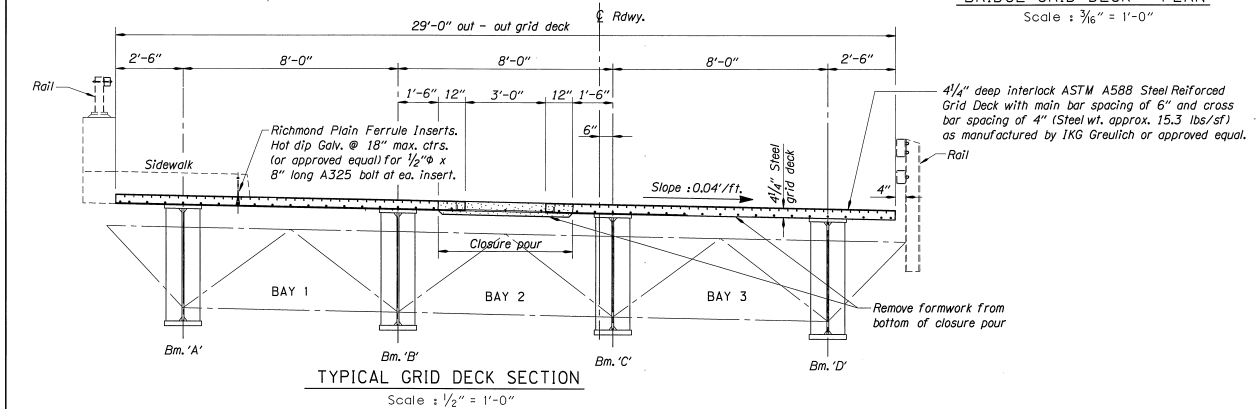
BRIDGE GRID DECK - DETAILS

SHEET	25
OF	26
DRAWING NO.	53274

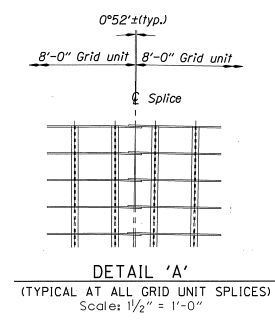
OHREN 10-MAY-1996 [VIEW=H2] [PGRID=H2] br:2020ct /usr:/br-/projects/j18074.dgn



**BRIDGE GRID DECK - PLAN**  
Scale : 3/16" = 1'-0"



**TYPICAL GRID DECK SECTION**  
Scale : 1/2" = 1'-0"



**DETAIL 'A'**  
(TYPICAL AT ALL GRID UNIT SPLICES)  
Scale: 1/2" = 1'-0"

DATE	REVISION	BY
10-18-07	As Constructed	JAM

DRAWN BY:	Tom Ohren
CHECKED:	Nawzar Ardalani
REVIEWED:	Frank J. Nelson

DESIGNER

OREGON DEPARTMENT OF TRANSPORTATION  
BRIDGE ENGINEERING SECTION

BRIDGE NO.	18074
DATE	10-MAY-1996
CALC. BOOK	4467

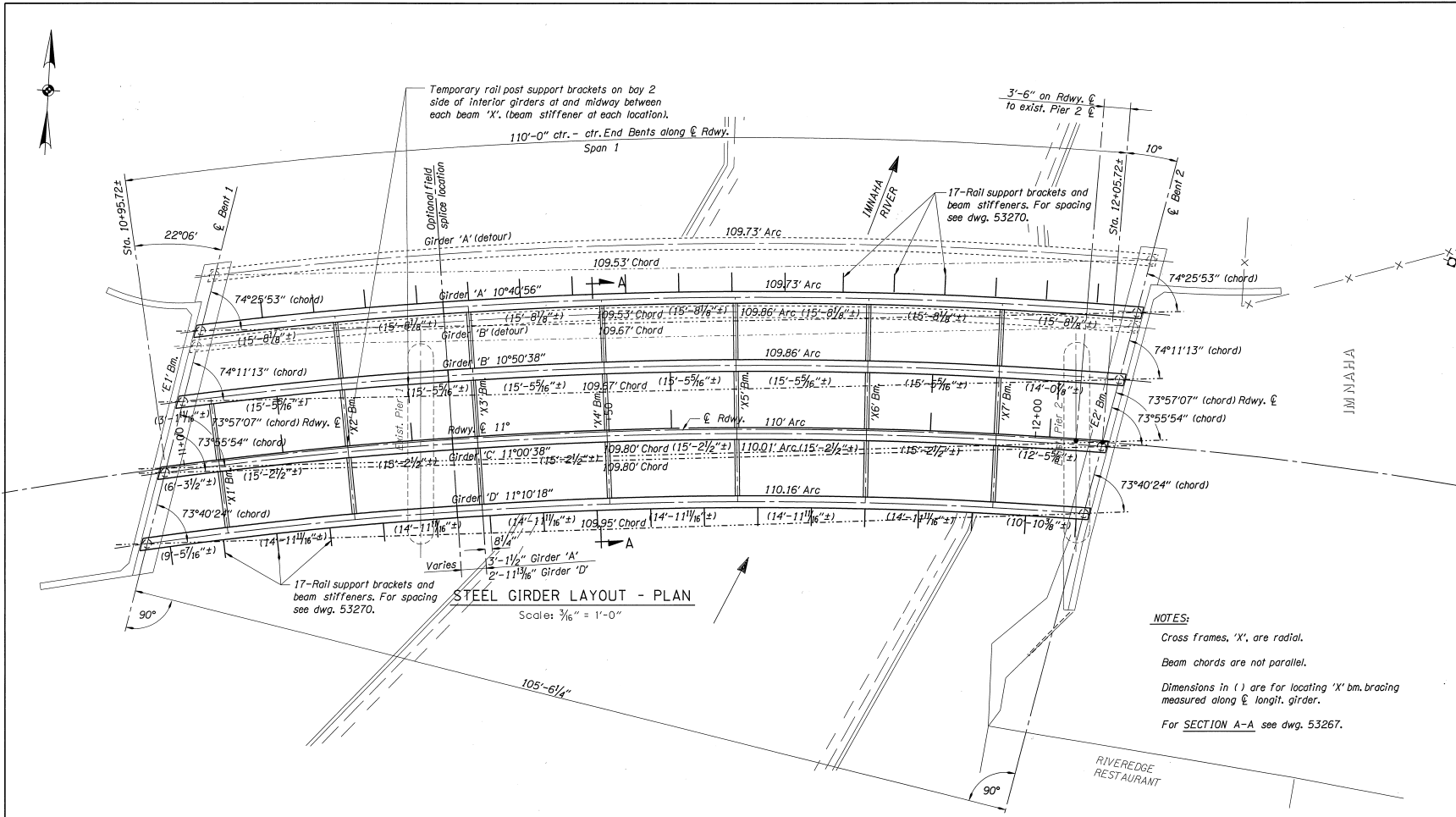
**IMNAHA RIVER (IMNAHA) BRIDGE**

BRIDGE GRID DECK - PLAN AND DETAILS

SHEET	24
OF	26
DRAWING NO.	53273

OHREN 10-MAY-1996 [VIEW=H1] [PCRID=H1] b:\usr\br\projects\j18074.dgn





**STEEL GIRDER LAYOUT - PLAN**  
Scale: 3/16" = 1'-0"

**NOTES:**  
 Cross frames, 'X', are radial.  
 Beam chords are not parallel.  
 Dimensions in ( ) are for locating 'X' bracing measured along  $\bar{C}$  longitud. girder.  
 For SECTION A-A see dwg. 53267.

DATE	REVISION	BY
10-18-07	As Constructed	JAM

DRAWN BY	Tom Ohren
CHECKED BY	Frank J. Nelson
REVIEWED BY	Frank J. Nelson

DESIGNER

OREGON DEPARTMENT OF TRANSPORTATION  
BRIDGE ENGINEERING SECTION

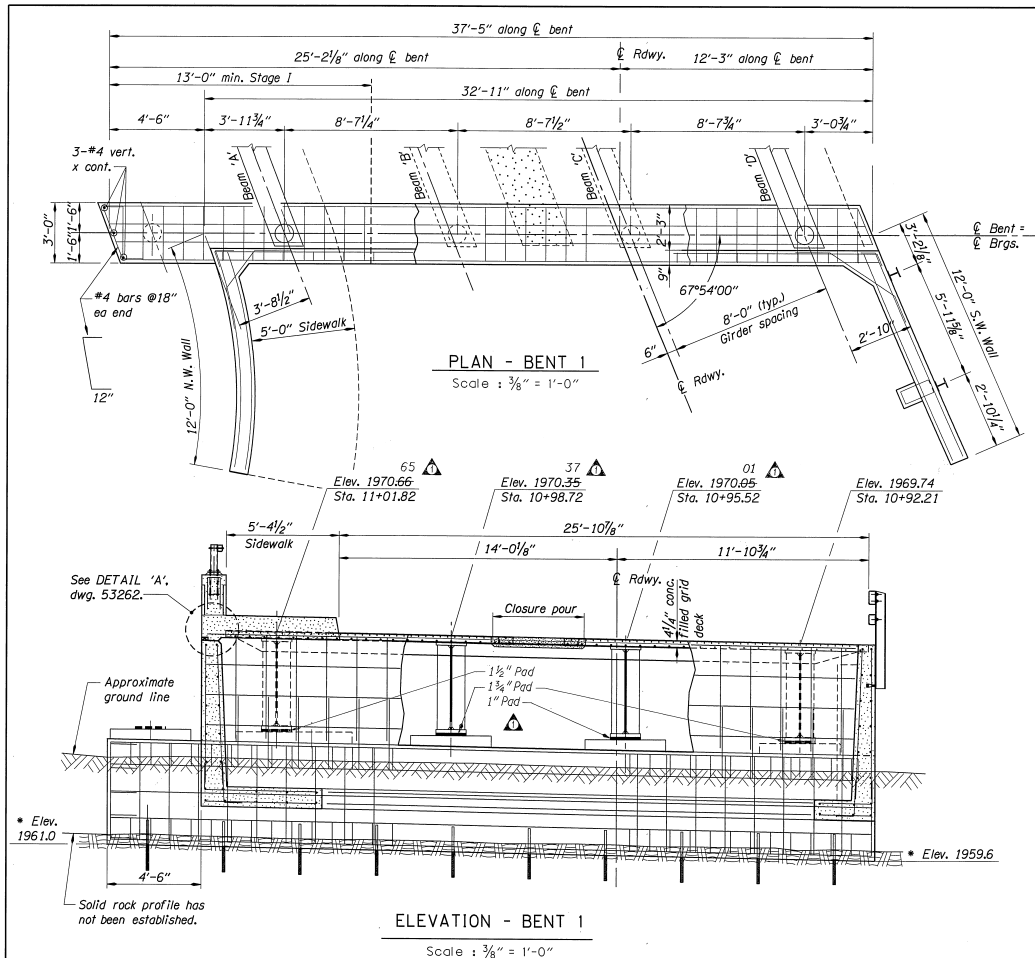
BRIDGE NO.	18074
DATE	10-MAY-1996
CALC. BOOK	4467

**IMNAHA RIVER (IMNAHA) BRIDGE**

STEEL GIRDER LAYOUT - PLAN

SHEET	17 OF 26
DRAWING NO.	53266

OHREN  
 10-MAY-1996  
 [VIEW=H2] [PGRID=H2]  
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**NOTES:**

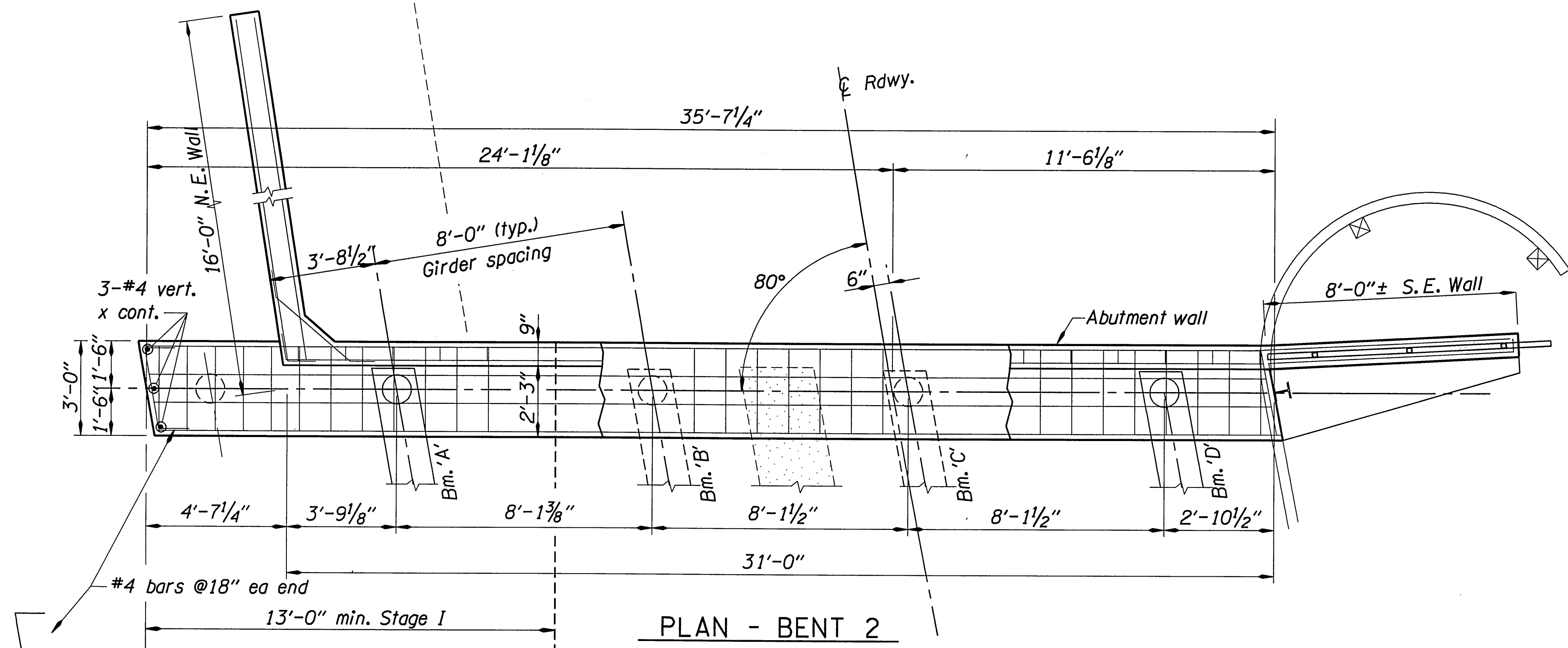
1. For Typical Bent Section, see dwg. 53259.
2. Elevations shown are finish grade at top of grid deck, & centerline.
3. Assumed elev. for concrete quantity estimate. Final footing elevation to be determined in the field by the engineer.
4. Splice all horizontal bars between stages.

DATE	10-19-07	REVISION	As Constructed	BY	JAM	DRAFTED	Tom Ohren	DESIGNER			BRIDGE NO.	18074	SHEET	9
											DATE	10-MAY-1996		
											CALC. BOOK	446.7	DRAWING NO.	53257

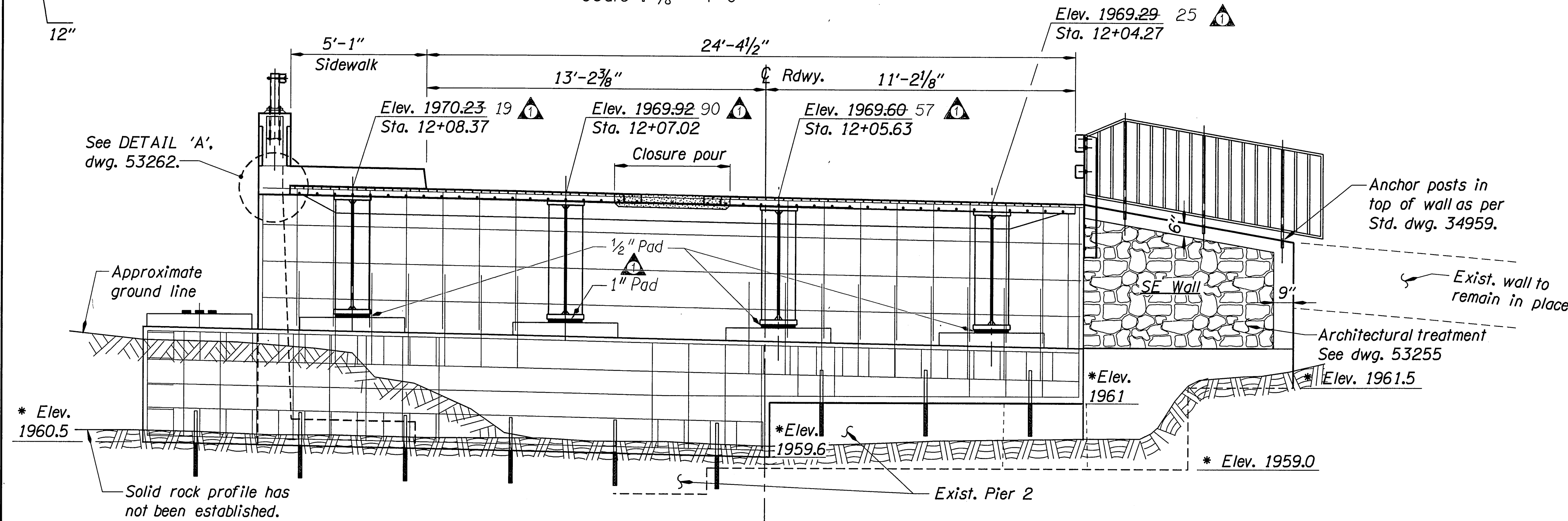
**IMNAHA RIVER (IMNAHA) BRIDGE**

**BENT 1 DETAILS**

OHREN  
 10-MAY-1996  
 [VIEW=1] [PGRID=1] /usr/br/proj/sects/j18074b.dgn



**PLAN - BENT 2**  
Scale : 3/8" = 1'-0"



**ELEVATION - BENT 2**  
Scale : 3/8" = 1'-0"

**NOTE:**

1. For Typical Bent Section, see dwg. 53259.
2. Elevations shown are finish grade at top of grid deck, &  $\bar{C}$  bent.
3. Splice all horizontal bars between stages.
- \* 4. Assumed elev. for concrete quantity estimate. Final footing elevation to be determined in the field by the engineer.

DATE	REVISION	BY
10-18-07	As Constructed	JAM

DESIGNER: Tom Ohren  
 CHECKED: Nowzar Ardalan  
 REVIEWED: Frank J. Nelson

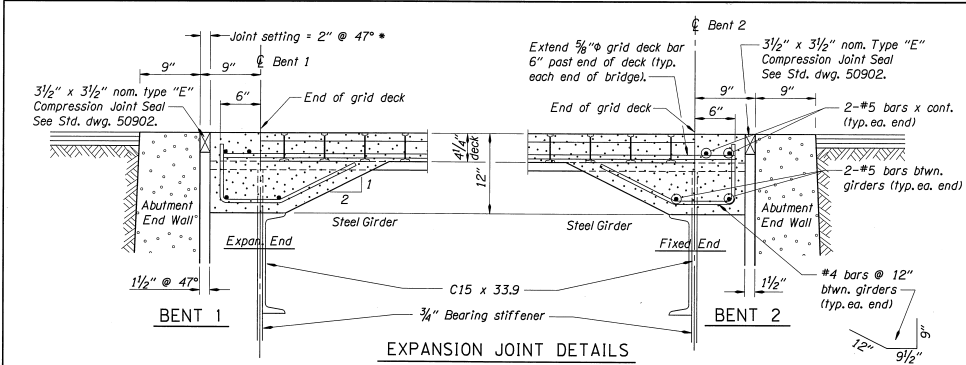
REGISTERED PROFESSIONAL ENGINEER  
 7357  
 JULY 14, 1972  
 RAYMOND F. EYONOK  
 EXPIRES: 12-31-97

**OREGON DEPARTMENT OF TRANSPORTATION**  
 BRIDGE ENGINEERING SECTION

BRIDGE NO. 18074  
 DATE 10-MAY-1996  
 CALC. BOOK 4467

**IMNAHA RIVER (IMNAHA) BRIDGE**  
 BENT 2 DETAILS

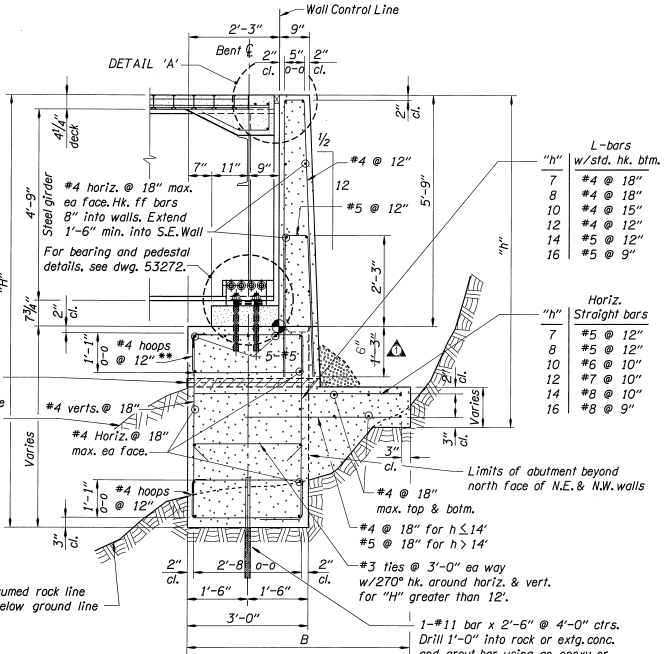
SHEET 9 OF 26  
 DRAWING NO. 53258



**EXPANSION JOINT DETAILS**

Scale: 1/2" = 1'-0"

\* Decrease joint setting 1/8" for every 15°F of structure temperature above 47°F.  
 Increase joint setting 1/8" for every 15°F of structure temperature below 47°F.

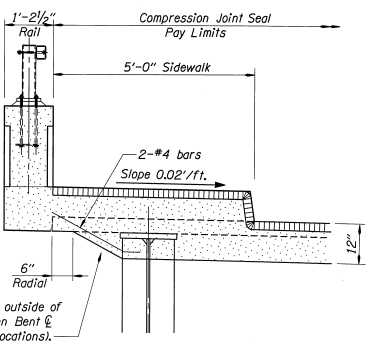


**TYP. SECTION - BENTS 1 & 2**

Scale: 3/4" = 1'-0"

- NOTES:**
- One additional #4 hoop between each of the first 20 top hoops on the left side of Bents 1 and 2.
  - 1. H = 7-3" min.
  - 2. If "h" < 7-3", B = h-1' but not more than B for H = 7-3" shown on dwgs. 53260 & 53261. (Hk. top fig. bar into wall)
  - 3. If solid rock or concrete fill behind wall is within 2'-0" of top of wall fig., heel behind wall is not required.
  - 4. Footing elevations to be determined in the field by the Engineer.

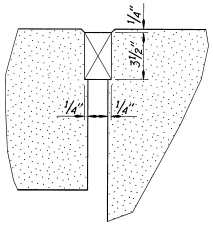
Vertical steel below beam seat will vary in length because of unknown rock elevation.



**EXPANSION JOINT DETAIL THRU SIDEWALK**

BENTS 1 & 2

Scale: 3/4" = 1'-0"



**DETAIL 'A'**

Scale: 3" = 1'-0"

DATE	REVISION	BY	DESIGNER
10-18-07	As Constructed	JAM	Tom Ohren
			Nowzar Ardalan
			Frank J. Nelson

DESIGNER  
  
 REGISTERED PROFESSIONAL ENGINEER  
 121  
 TOM OHREN  
 OREGON  
 EXPIRES 12-31-97

OREGON DEPARTMENT OF TRANSPORTATION  
 BRIDGE ENGINEERING SECTION

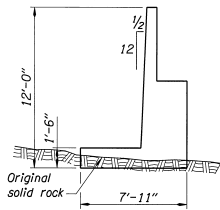
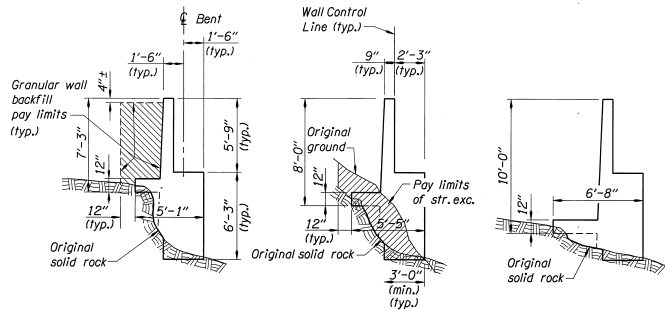
BRIDGE NO.	18074
DATE	10-MAY-1996
CALC. BOOK	4467

**IMNAHA RIVER (IMNAHA) BRIDGE**

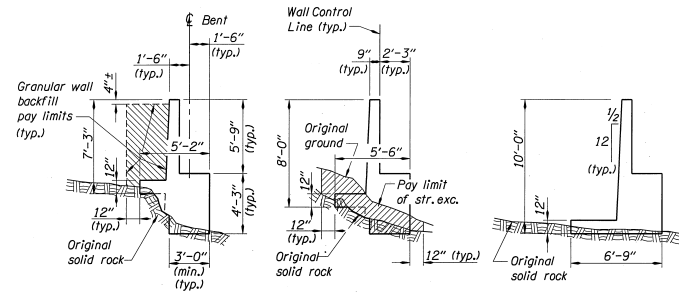
TYPICAL BENT DETAILS

SHEET	10
OF	26
DRAWING NO.	53259

OHREN 10-MAY-1996 [VIEW-L1] [PGRID-L1] br2020.dwg /usr7br/projects/j18074b.dwg

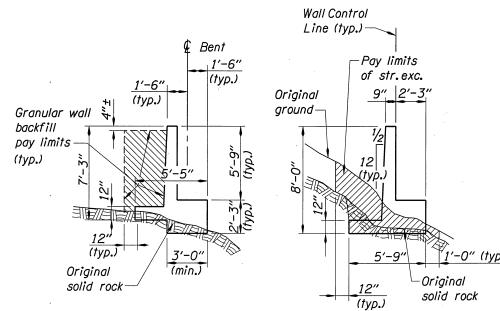


**12 FT ABUTMENT WALL**  
Scale: 1/4" = 1'-0"

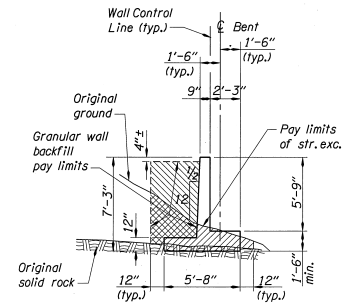


**10 FT ABUTMENT WALL**  
Scale: 1/4" = 1'-0"

▲ Used 9 ft. abutment wall height at Bent #1.



**8 FT ABUTMENT WALL**  
Scale: 1/4" = 1'-0"



**7'-3" ABUTMENT WALL**  
Scale: 1/4" = 1'-0"

▲ Used Bent #2

**NOTE:**  
If solid rock or concrete fill is within 2'-0" of top of wall, footing heel is not required.

DATE	REVISION	BY	DESIGNED
10-18-07	As Constructed	JAM	Tom Ohren
			Checked: <i>Nowzar Ardalan</i>
			Reviewed: <i>Frank J. Nelson</i>

DESIGNER

EXP. 12-31-37

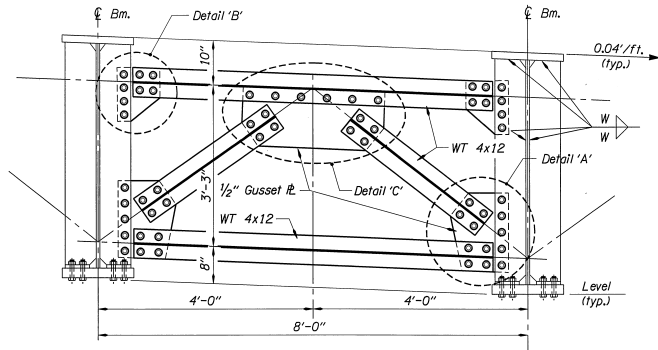
**OREGON DEPARTMENT OF TRANSPORTATION**  
BRIDGE ENGINEERING SECTION

BRIDGE NO.	18074
DATE	10-MAY-1996
CALC. BOOK	4467

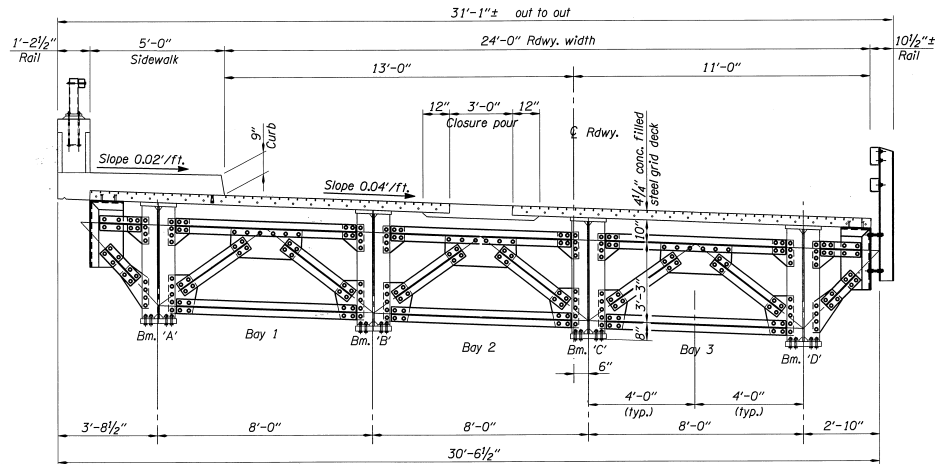
**IMNAHA RIVER (IMNAHA) BRIDGE**

TYPICAL BENT SECTIONS

SHEET	12
OF	26
DRAWING NO.	53261

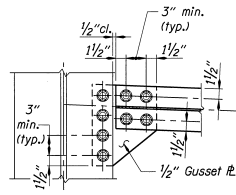


TYPICAL BAY 1, 2 AND 3 'X' BEAM BRACING  
 (For additional bay details, see dwg. 53268)  
 Scale: 1" = 1'-0"

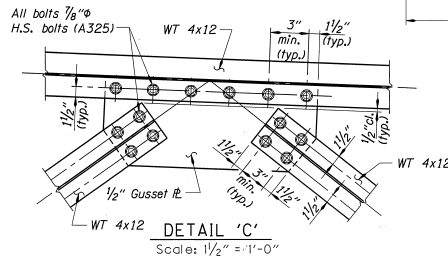


DECK SECTION A-A  
 Scale: 1/2" = 1'-0"

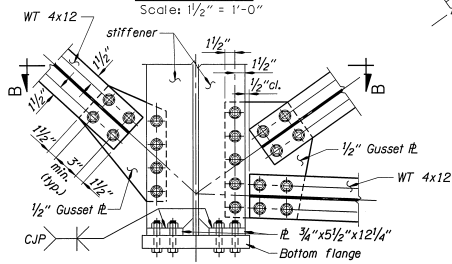
NOTE:  
 Section A-A from dwg. 53266.



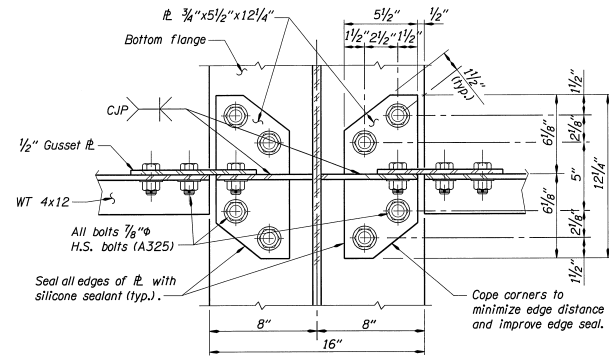
DETAIL 'B'  
 Scale: 1/2" = 1'-0"



DETAIL 'C'  
 Scale: 1/2" = 1'-0"



DETAIL 'A'  
 Scale: 1/2" = 1'-0"



SECTION B-B  
 Scale: 3" = 1'-0"

Δ	DATE	REVISION	BY
	10-18-07	As Constructed	JAM

DESIGNED BY  
**Tom Ohren**  
 DRAFTED BY  
**Noyzar Ardalan**  
 CHECKED BY  
**Frank J. Nelson**  
 REVIEWED BY  
**Frank J. Nelson**

DESIGNER  
**REGISTERED PROFESSIONAL ENGINEER**  
**Tom Ohren**  
 LICENSE NO. 10034  
 EXPIRES: 12-31-97

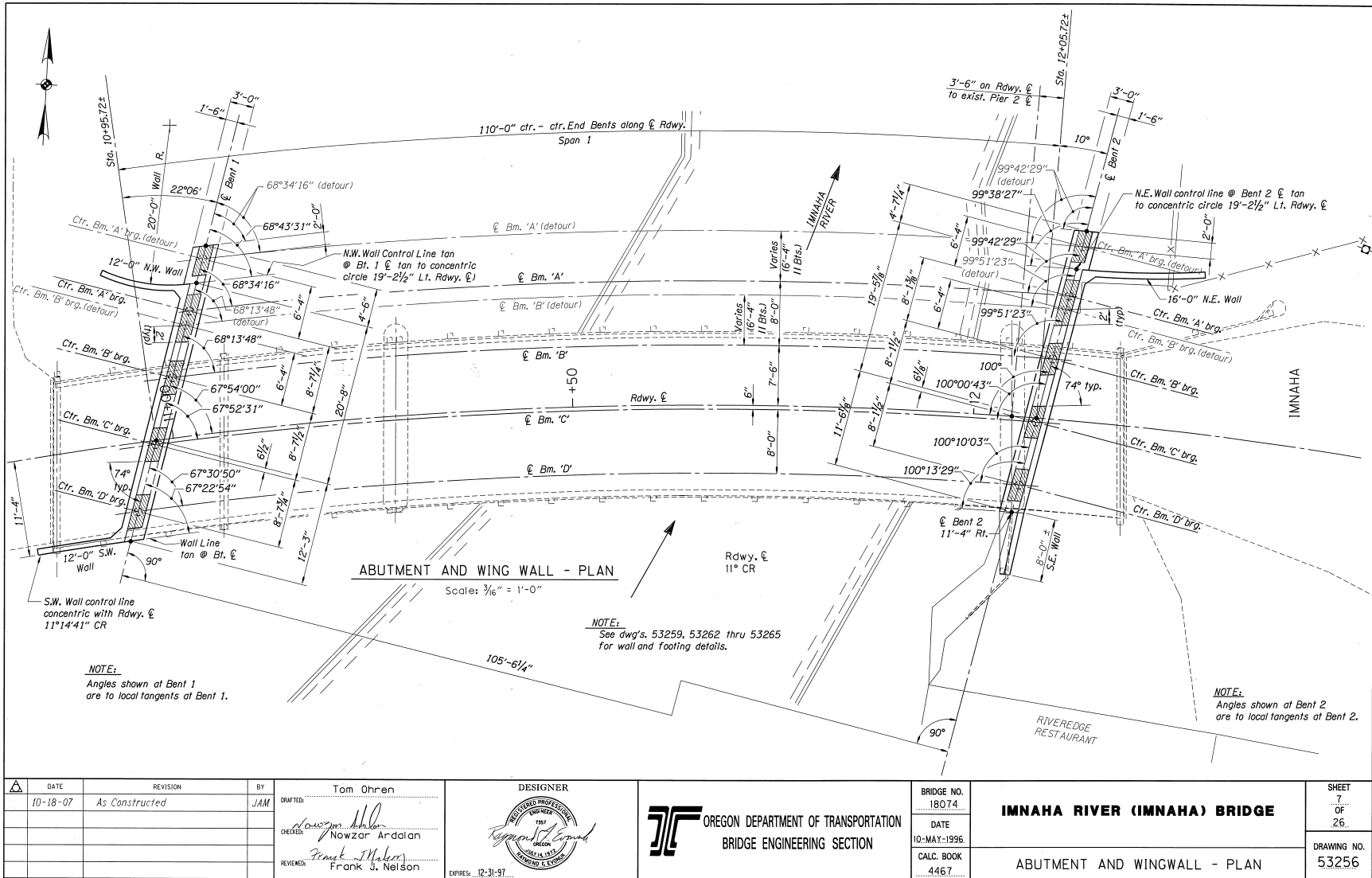
**OREGON DEPARTMENT OF TRANSPORTATION**  
 BRIDGE ENGINEERING SECTION

BRIDGE NO.	18074
DATE	10-MAY-1996
CALC. BOOK	4467

**IMNAHA RIVER (IMNAHA) BRIDGE**  
 TYP. DECK SECTION AND BRACING DETAILS

SHEET	18
OF	26
DRAWING NO.	53267

OHREN 10-MAY-1996 [VIEW=K1] [PGRID=K1] /usr/bw/projects/j18074.dgn



OHREN 10-MAY-1996 [VIEW-HI] [PGRID-HI] /usr/br/projects/j18074a.dgn

DATE	REVISION	BY	DRAWN	CHECKED	REVIEWED
10-18-07	As Constructed	JAM	Tom Ohren	Nowzar Ardalan	Frank J. Nelson

DESIGNER

REGISTERED PROFESSIONAL ENGINEER  
 197  
 Raymond J. Espeland  
 OREGON  
 NO. 197  
 EXPIRES 12-31-97

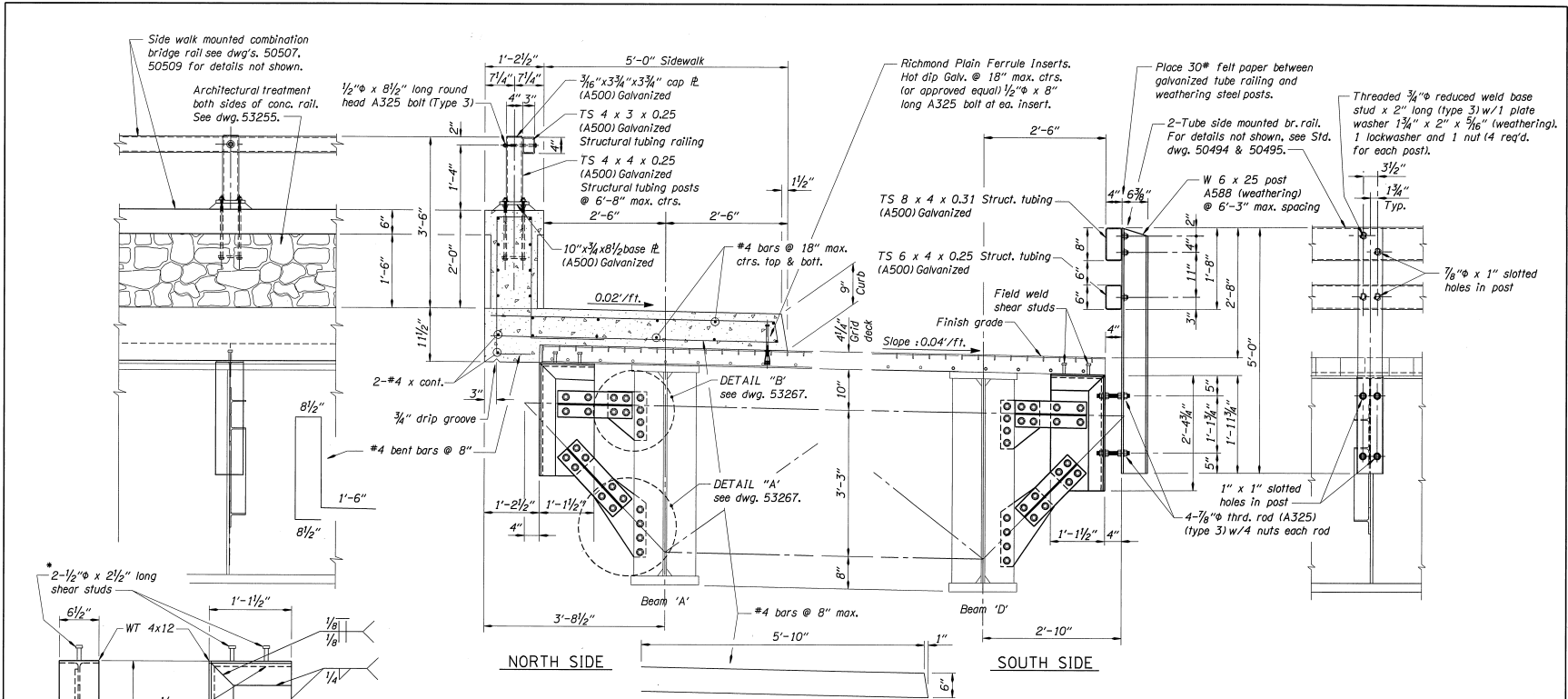
OREGON DEPARTMENT OF TRANSPORTATION  
 BRIDGE ENGINEERING SECTION

BRIDGE NO. 18074	DATE 10-MAY-1996
CALC. BOOK 4467	

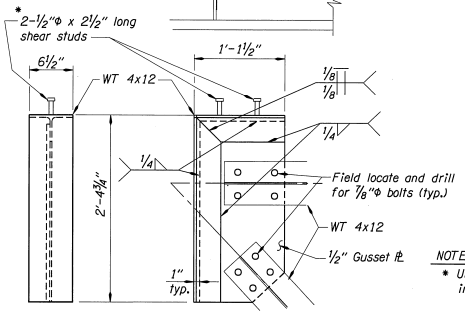
**IMNAHA RIVER (IMNAHA) BRIDGE**

ABUTMENT AND WINGWALL - PLAN

SHEET 7 OF 26	DRAWING NO. 53256
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**BRIDGE RAIL MOUNTING DETAILS**  
Scale: 1" = 1'-0"



**TYP. TEMP. OR PERMENT RAIL SUPPORT BRACKET**  
(NORTH SIDE BRACKET SHOWN, SOUTH SIDE SIMILAR)  
Scale: 1 1/2" = 1'-0"

DATE: 10-18-07 REVISION: As Constructed BY: JAM	DESIGNER: Tom Ohren CHECKED: Nazwar Ardalan REVIEWED: Frank J. Nelson			BRIDGE NO. 18074	<b>IMNAHA RIVER (IMNAHA) BRIDGE</b>	SHEET 20 OF 26
				DATE: 10-MAY-1996 CALC. BOOK: 4467		DRAWING NO. 53269

[VIEW=MAIN] [PGRID=MAIN] 10-MAY-1996  
 br2020.dwg /usr/cbr/projects/j18074.dgn OHREN