

18049 033 02544

Bridge 1 - Oregon

[Portal Link](#)

NBI data

1 - State Name

8 - Structure Number

Bridge Name

26 - Functional Class Of Inventory Rte.

48 - Length Of Largest Span

49 - Total Length

52 - Deck Width

34 - Skew

22 - Owner

27 - Year Built

37 - Historic Significance

31 - Design Load

45 - Number Of Main Spans

43A - Main Span Materials

43B - Main Span Design

107 - Deck Type

108A - Wearing Surface

Oregon

18049 033 02544

US 20 (HWY 33) over LITTLE ELK CREEK

2 - Rural Principal Arterial - Other

33.5

33.5

14

30

1 - State Highway Agency

2000

5 - Bridge is not eligible for the NRHP.

9 - MS 22.5 / HS 25

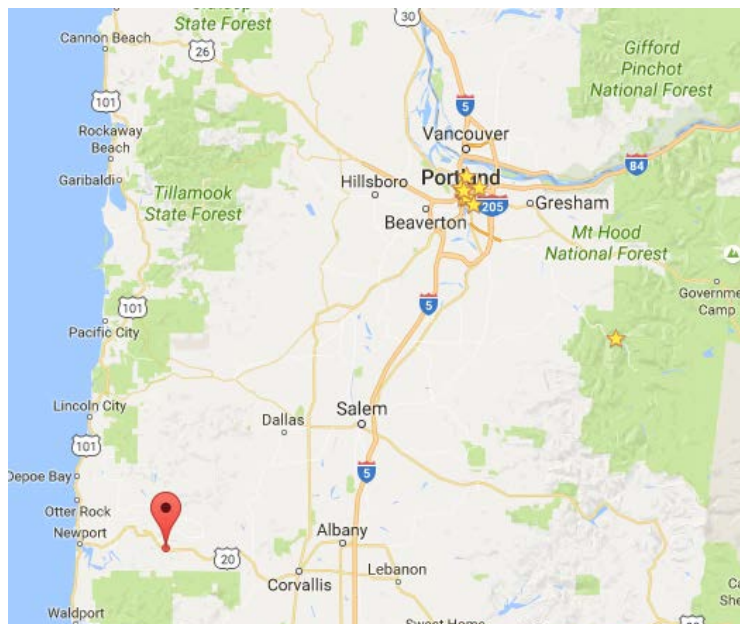
1

5 - Prestressed concrete

2 - Stringer/Multi-beam or girder

1 - Concrete Cast-in-Place

1 - Monolithic Concrete (concurrently placed with structural deck)...



44.62553, -123.74527



HOLIDAY INN EXPRESS NEWPORT

135 SE 32nd Street
Newport, Oregon 97365, US

Phone: [+1 \(541\)867-3377](tel:+15418673377)

Fax: +1 (541)867-3378

34 min (24.9 miles)



via US-20 E

32 min without traffic

Holiday Inn Express & Suites Newport

135 Southeast 32nd Street, Newport, OR 97365

↑ Head east on SE 32nd St toward SE Ferry Slip Rd/Science Center

148 ft

➤ Turn right onto SE Ferry Slip Rd

0.2 mi

➤ Turn right to stay on SE Ferry Slip Rd

108 ft

➤ Turn right at the 1st cross street onto US-101 N

2.0 mi

➤ Turn right onto US-20 E/E Olive St

[Continue to follow US-20 E](#)



Parts of this road may be closed at certain times or days

22.6 mi

Little Elk Creek

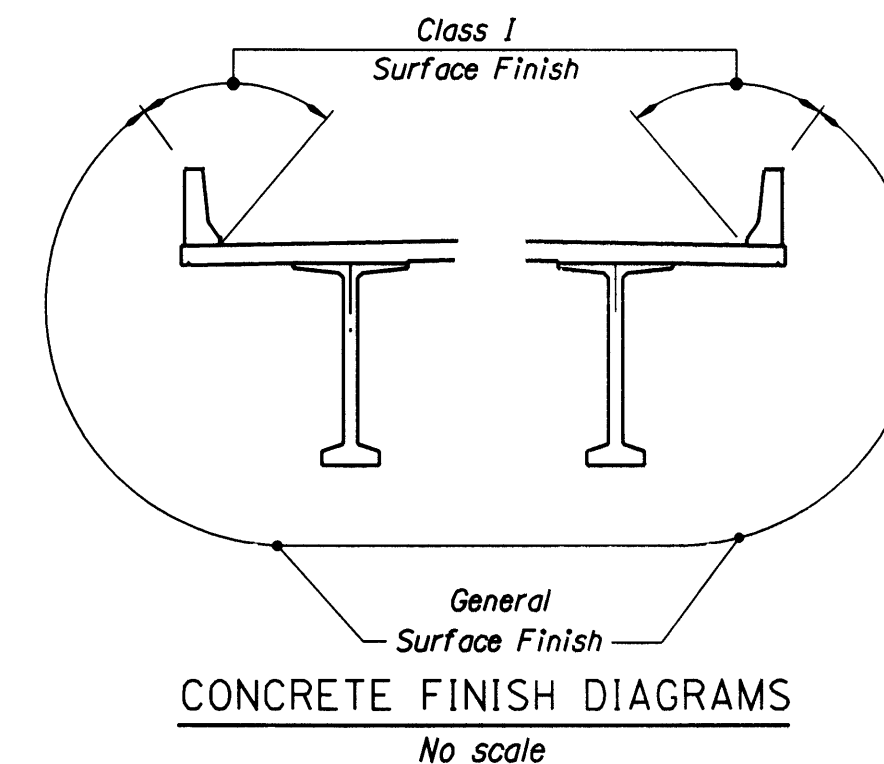


Time to hotel: 1hr 15 min

Comfort Inn & Suites

1775 Freeway Ct Northeast
Salem, OR 97301

+1 503-588-0515



The elevation view shows the roof profile with a central horizontal section and two sloped sections on either side. The central section is labeled with a length of 2194. The sloped sections are labeled with a length of 190. The roof height is indicated as 75 on both sides. Below the roof profile, a horizontal line represents the location of Bars "C".

The diagram shows a trapezoidal cross-section divided into three regions: "B" (left), "A" (center), and "B" (right). The left and right regions are shaded with vertical lines. The top surface is sloped, and the bottom surface is horizontal. Dimensions of 1.0 m are indicated for the sloped sections.

250

50 cl.

50 cl.

Add 4-#16 x cont. bars over Bm. "D"

205 deck

95 cl.

between beams

#16 bars "A" at 300

#16 bars "B" at 300

50 threaded 4.6) at beam

2390 ea. face

bent bars "C"

1738 0-0 #16 stirrups

50 cl.

Diagram illustrating the dimensions of two bars, A and B, used in the experiment.

Bar A: The height is 1738, the width is 150, and the top flange width is 155.

Bar B: The height is labeled as "varies", the width is 150, and the top flange width is 150.

Longitudinal bars:

Transverse bars:

*16 bars x cont. @ 300 mm max. full length of structure
(top and bottom) Top bars epoxy coated in Area "A".

*16 bars x cont. @ 150 mm max. full length of structure
(top and bottom) Top bars epoxy coated in Area "B".

See Deck Steel Placement Diagram.

Stop all transverse bars 150 mm clear of transverse beams.



	DATE	REVISION	BY	DRAFTED:			BRIDGE NO.	LITTLE ELK CREEK BRIDGE NO. 4	SHEET
	10-16-07	As Constructed	JAM	Jeffrey Lannigan			18049		6
				CHECKED:			DATE		OF
				Nowzar Ardalan			08-JUL-1997		18
				DESIGNED:			CALC. BOOK	TYPICAL DECK SECTION	DRAWING NO.
				Nam Bui	EXPIRES: 6/30/99	4590	55373		

18277 160 01866

Bridge 2 - Oregon

[Portal Link](#)

NBI data

1 - State Name

8 - Structure Number

Bridge Name

26 - Functional Class Of Inventory Rte.

48 - Length Of Largest Span

49 - Total Length

52 - Deck Width

34 - Skew

22 - Owner

27 - Year Built

37 - Historic Significance

31 - Design Load

45 - Number Of Main Spans

43A - Main Span Materials

43B - Main Span Design

107 - Deck Type

108A - Wearing Surface

Oregon

18277 160 01866

OR 213 (HWY 160) over ROCK CREEK

6 - Rural Minor Arterial

21

21

12.8

45

1 - State Highway Agency

1997

5 - Bridge is not eligible for the NRHP.

9 - MS 22.5 / HS 25

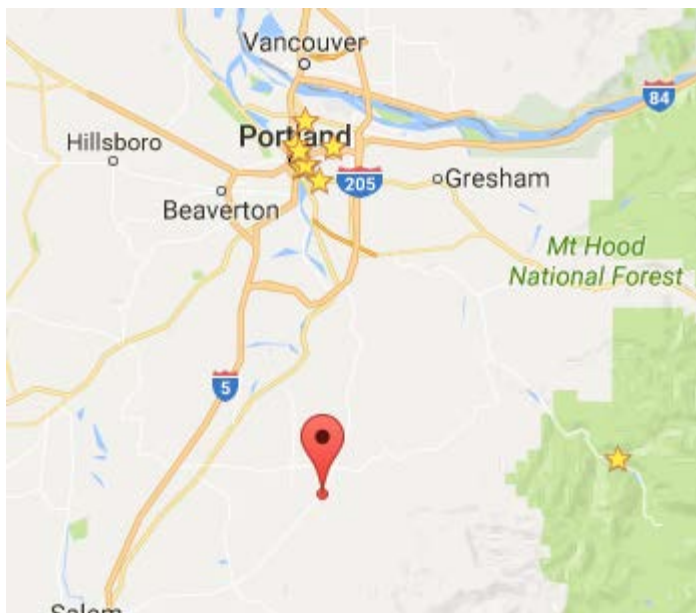
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5 - Prestressed concrete

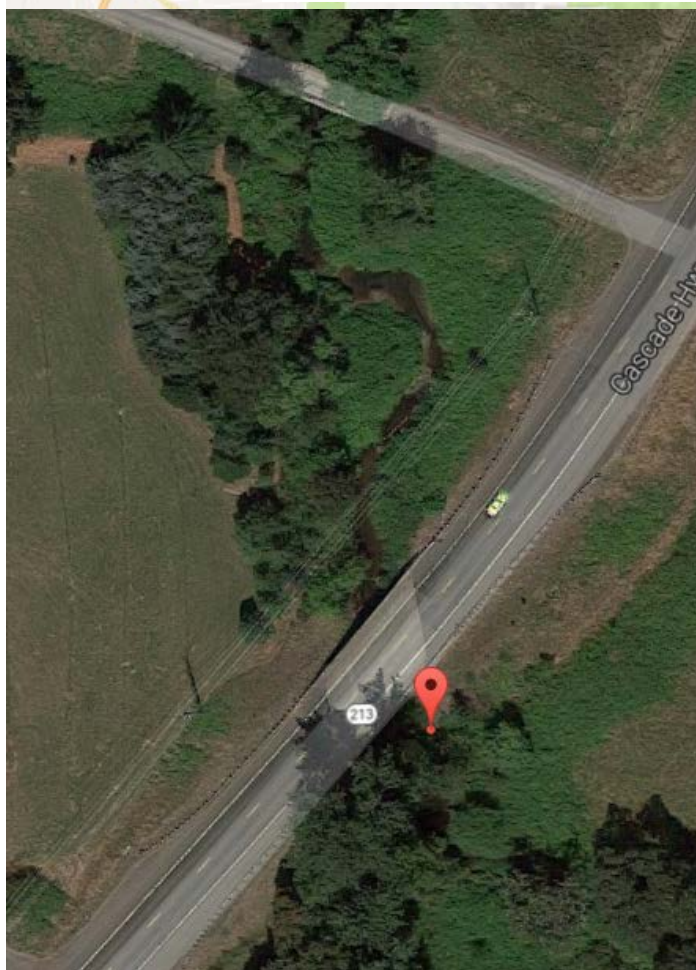
2 - Stringer/Multi-beam or girder

1 - Concrete Cast-in-Place

1 - Monolithic Concrete (concurrently placed
with structural



45.11741, -122.62826



36 min (23.4 miles)



via OR-213 N

33 min without traffic

Comfort Inn & Suites

1775 Freeway Court Northeast, Salem, OR 97301

↑ Head north on Fwy Ct NE toward Hawthorne Ave NE
302 ft

➤ Turn right onto Hawthorne Ave NE
1.1 mi

➤ Turn right onto Silverton Rd NE
10.4 mi

↑ Continue onto OR-213 N
0.8 mi

↶ Turn left onto N 1st St/Cascade Hwy NE
230 ft

➤ Turn right at the 1st cross street onto OR-213 N/Oak St

[i](#) Continue to follow OR-213 N

[i](#) Destination will be on the right

11.0 mi

Rock Creek

Time to hotel: 5.5 hours
(including stop at PDX)

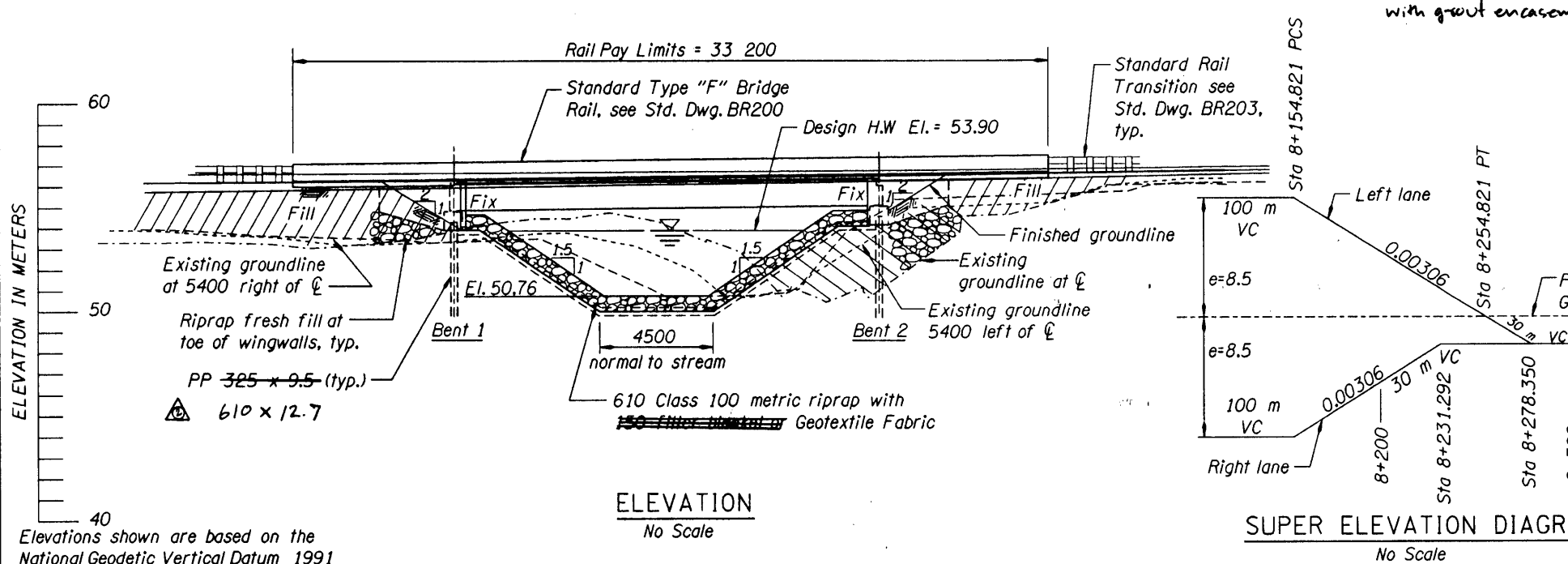
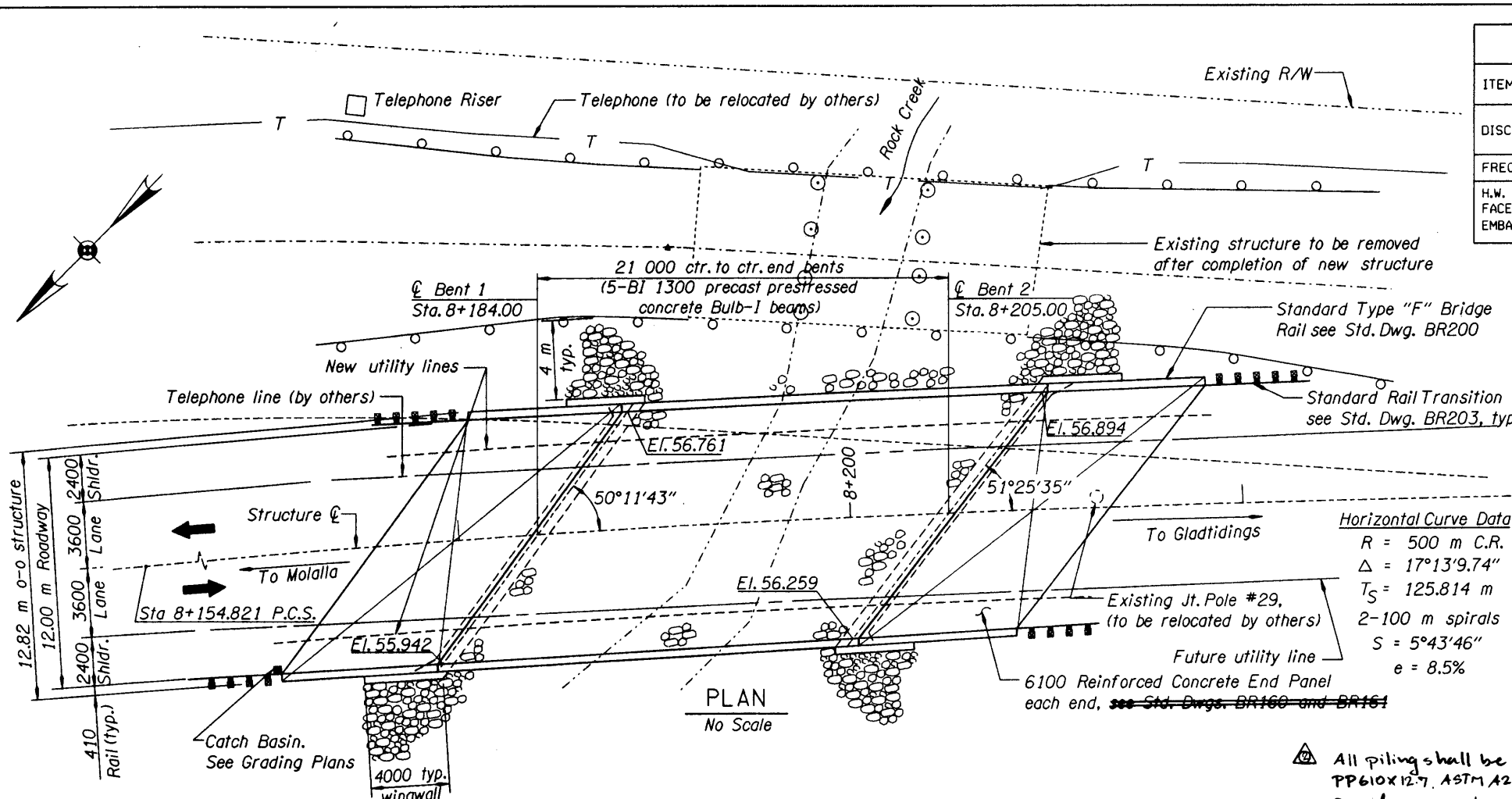
Comfort Inn & Suites

1775 Freeway Ct Northeast
Salem, OR 97301

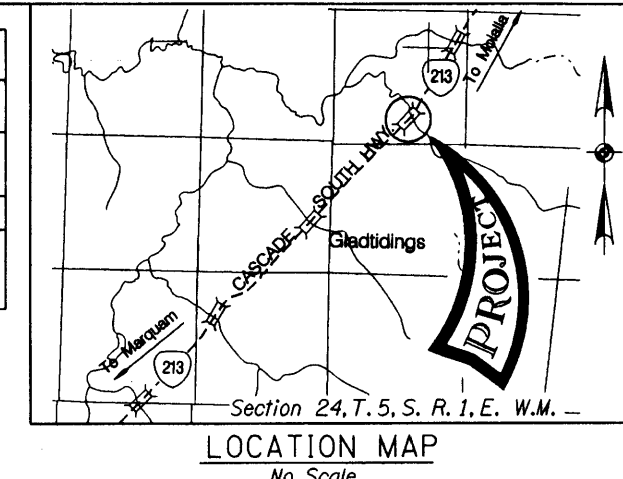
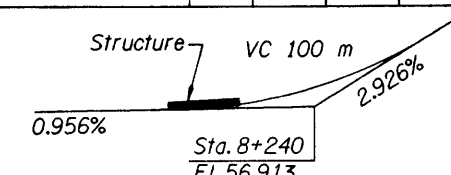
+1 503-588-0515

Holiday Inn Express Pendleton

600 SE Nye Ave, Pendleton, OR 97801
(541) 966-6520



HYDRAULIC DATA				
ITEMS	(UNITS)	DESIGN FLOOD	BASE FLOOD	MAX. PROBABLE FLOOD
DISCHARGE	(m ³ /s)	51.8	60.2	79.3
FREQUENCY	(YRS.)	50	100	500
H.W. ELEV. AT UPSTREAM FACE OF BRIDGE ALONG EMBANKMENT	(m)	53.90	54.04	54.27



General Notes:
 All material and workmanship shall conform to the 1996 Standard Specifications for Highway Construction of the Oregon Department of Transportation.
 Bridge is designed for MS22.5 loading with an allowance of 1.20 KN/m² for future wearing surface.
 Concrete deck is designed using the empirical method for isotropic reinforcing of the Ontario Highway Bridge Design Code.
 Concrete members (except prestressed members) are designed by Load Factor Design Method.
 Seismic design is in accordance with the AASHTO Division 1-A, "Seismic Design" Standard Specifications for Seismic Design of Highway Bridges. The site bedrock acceleration coefficient (A) is 0.17g and the assumed soil response coefficient is 1.0.
 All piling shall be PP 325 x 9.5, ASTM A252, Grade 3 driven open ended to an ultimate capacity of 2915 KN per pile.
 Pile tip elevation for minimum pile penetration at Bent 1 shall be elevation 45.7.
 Pile tip elevation for minimum pile penetration at Bent 2 shall be elevation 46.9.
 All piling shall be driven to the specified ultimate capacity using driving criteria developed from the ODOT Gates Equation.
 All reinforcing steel shall conform to ASTM Specification A706M, or AASHTO M31/M (ASTM A615) Grade 420 N/mm².
 Field bent stirrups shall conform to ASTM Specification A706M. The following splice lengths shall be used unless shown otherwise:

Bar Size	10	13	16	19	22	25	29	32	36	43	57
Splice Length (mm)	300	400	500	600	850	1075	1400	1750	2150	Not Permitted	Not Permitted
Epoxy Coated	425	550	700	850	1175	1525	1925	2450	3000	Not Permitted	Not Permitted

Splice reinforcing steel at alternate locations, staggering as far as possible, unless shown otherwise.
 Epoxy coat reinforcing steel in the upper portion of the deck and bridge end panels. This includes top longitudinal bars, and top transverse bars and all bars extending from the Bridge Deck or End Panels into the parapets.
 Place bars 50mm clear of the nearest face of concrete (unless shown otherwise). The top bends of stirrups extending from prestressed precast units may be shop or field bent (unless shown otherwise).
 Do not fabricate reinforcing steel for abutments and wingwalls until final elevations have been determined in the field.
 Concrete in precast prestressed beams shall be 40 - 19.
 Concrete in reinforced concrete end panels and deck shall be Class 30 - 19.
 All other concrete shall be Class 25 - 37.5 or 19.
 Prestressing steel shall be in accordance with detail plans.
 Bore hole and place PP 610 x 12.70. Settlement of placed piles shall be negligible.

DATE	REVISION	BY
8-13-97	No driven piles, Bore holes.	H.S.
10-11-2001	As Constructed.	PKT

DESIGNER
Ann Durley
 CHECKED:
 REVIEWED: Mark Hirota

BRIDGE ENGINEER
 REGISTERED PROFESSIONAL ENGINEER
 JERRY J. SHILL
 EXPIRES: 6-30-98

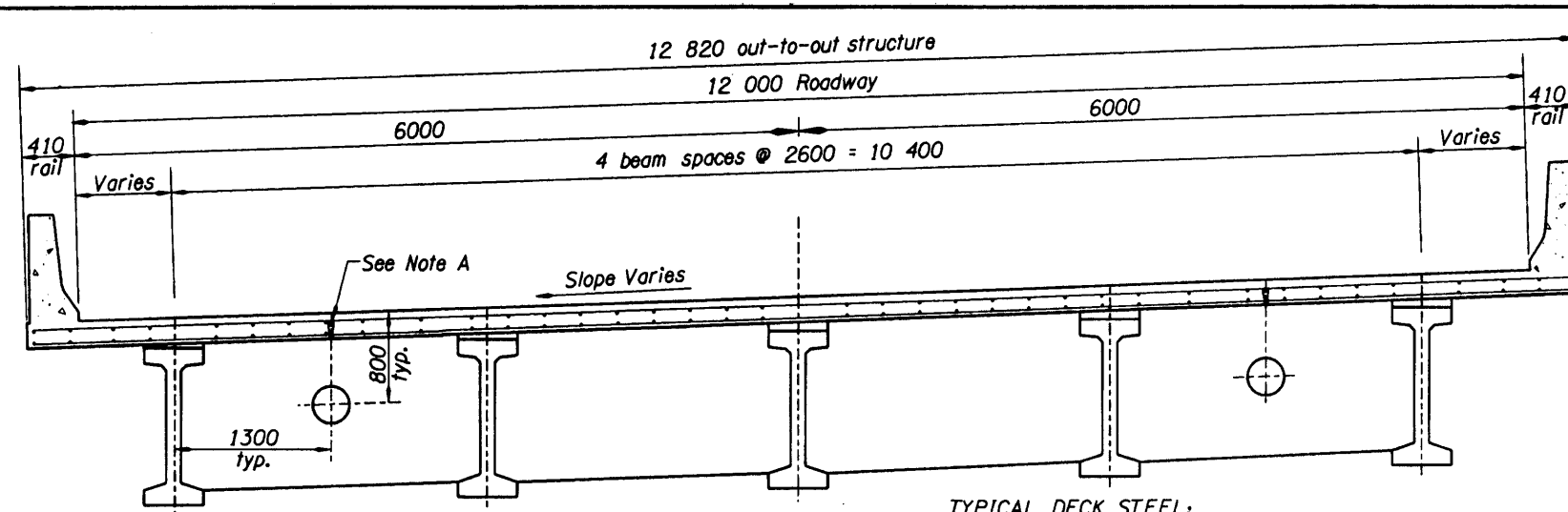
OREGON DEPARTMENT OF TRANSPORTATION
 BRIDGE ENGINEERING SECTION
 ACCOMPANIED BY DWGS. 54204 thru 54211, 54616
 BR200, BR203 and BR350

BRIDGE NO.
18277
 DATE
18-FEB-1997
 CALC. BOOK
4561

ROCK CREEK BRIDGE
 ROCK CREEK BRIDGE SECTION
 CASCADE HIGHWAY (M.P. 18.66)
 CLACKAMAS COUNTY
 PLAN and ELEVATION
 FEDERAL HIGHWAY ADMINISTRATION
 REGION 10 OREGON DIVISION
 PROJECT NUMBER

SHEET
1
OF
13
 DRAWING NO.
54203

Project Manager: Ron Clay



Note A:
Hot dipped galvanized Richmond Structural Concrete Inserts, Series EC-2F, or an approved equal for 19 dia. threaded rods. Place in bottom of deck @ 3000 max. ctrs. full length of deck in each exterior bay and in overhang as shown. (For utility installations not immediately used, install sort galvanized bolts in insert).

TYPICAL DECK SECTION

No Scale

POUR SCHEDULE:

1. Pour diaphragm Bem-D.
2. Pour deck to within 1 m of the centerline of the end bents.
3. Pour end bents.
4. Pour remainder of deck.

TYPICAL DECK STEEL:

Longitudinal Bars:

Bars "c" - #16 L-bars 2500 @ 150 max. ctrs. w/1000 legs
(top bars epoxy coated) place at end bents

*16 bars x cont. @ 300 max. ctrs. (top of deck) epoxy coated.

*16 bars x cont. @ 300 max. ctrs. (bottom of deck)

Place all longitudinal bars parallel to beams.

Transverse Bars:

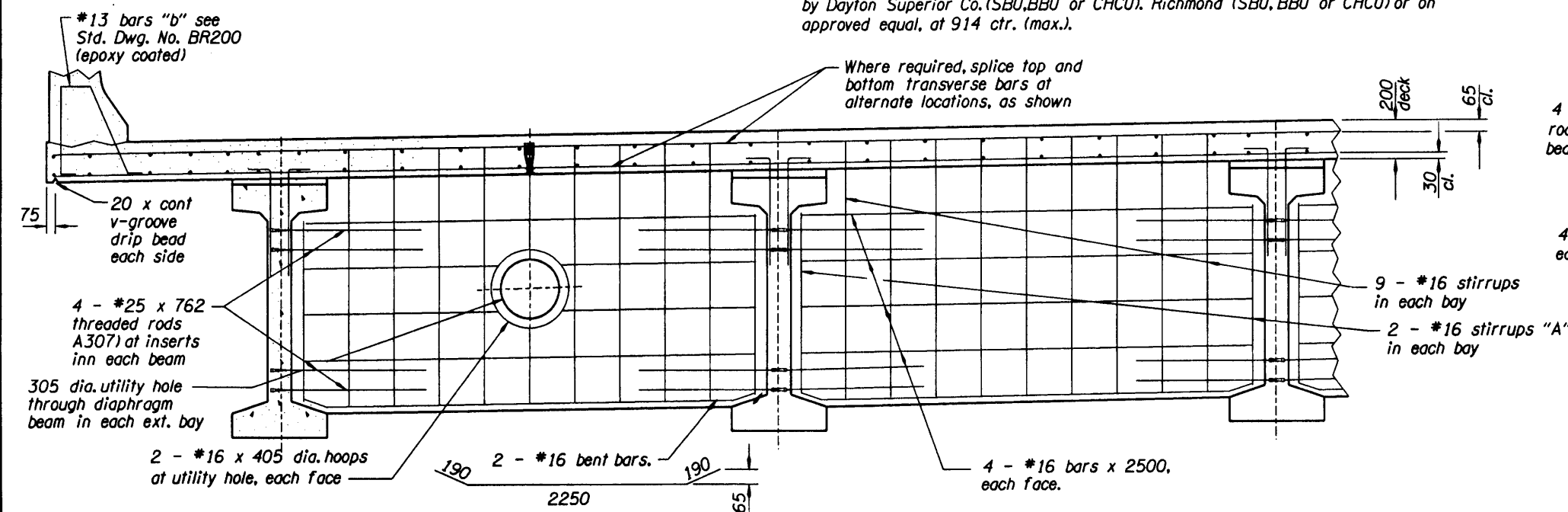
Bars "a" - #16 bars x varies @ 300 max. ctrs. w/600 legs (top and bottom)

Bars "b" - #16 bars x cont. @ 300 max. ctrs. (top and bottom)

Top bars epoxy coated.

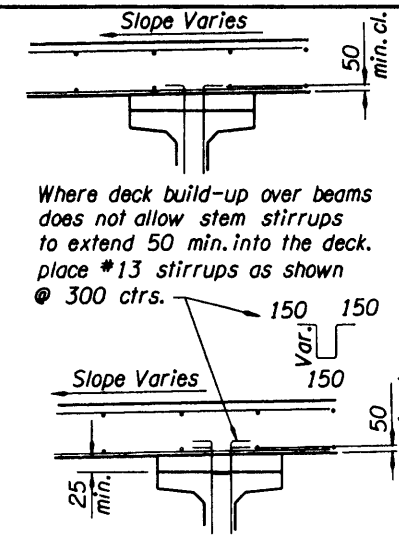
Place all transverse bars perpendicular to C roadway.

Bottom mat reinforcing steel shall be supported from the forms with precast mortar blocks at 914 ctrs. (max.) each way. Top mat reinforcing steel shall be supported from the bottom mat reinforcing steel with reinforcing bar supports by Dayton Superior Co. (SBU, BBU or CHCU). Richmond (SBU, BBU or CHCU) or on approved equal, at 914 ctr. (max.).



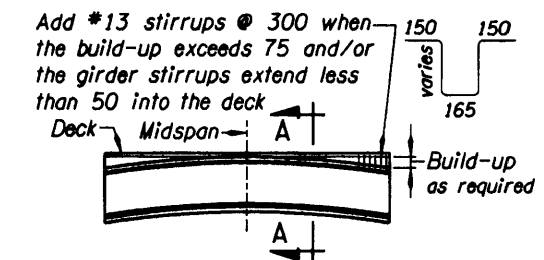
DIAPHRAGM BEAM-D DETAIL

No Scale



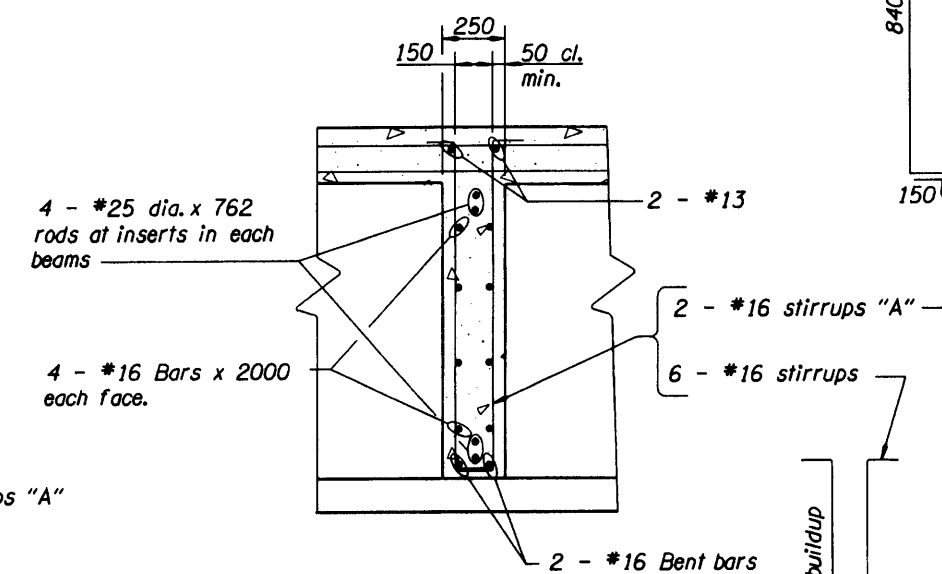
SECTION A-A

No Scale



Beam soffits shall be on level grade prior to prestressing. Difference between deck elevation and camber in beams shall be compensated for by build-up over beams.

BUILD - UP DECK DETAIL



TYPICAL SECTION
DIAPHRAGM BEAM-D


No Scale

NOTE: All dimensions are in millimeters (mm) except as noted.

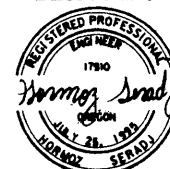
△	DATE	REVISION	BY
	10-11-2001	As Constructed.	pat

DRAFTED: John Ott

CHECKED: _____

REVIEWED:  Mark Hirota

DESIGNER



EXPIRES: 6-30-98



**OREGON DEPARTMENT OF TRANSPORTATION
BRIDGE ENGINEERING SECTION**

N	BRIDGE NO. 18277
	DATE 19-FEB-1997
	CALC. BOOK 4561

ROCK CREEK BRIDGE

TYPICAL DECK SECTION AND DETAILS



METRIC

SHEET
5
OF
13

DRAWING NO. 4

54207 13

19-FEB-1997

VIEW=F3] [PGRID=F3]

C:\USR\BRV\PROJECTS\0702\N\18277r.dgn

br2020f:

16611 002 16576

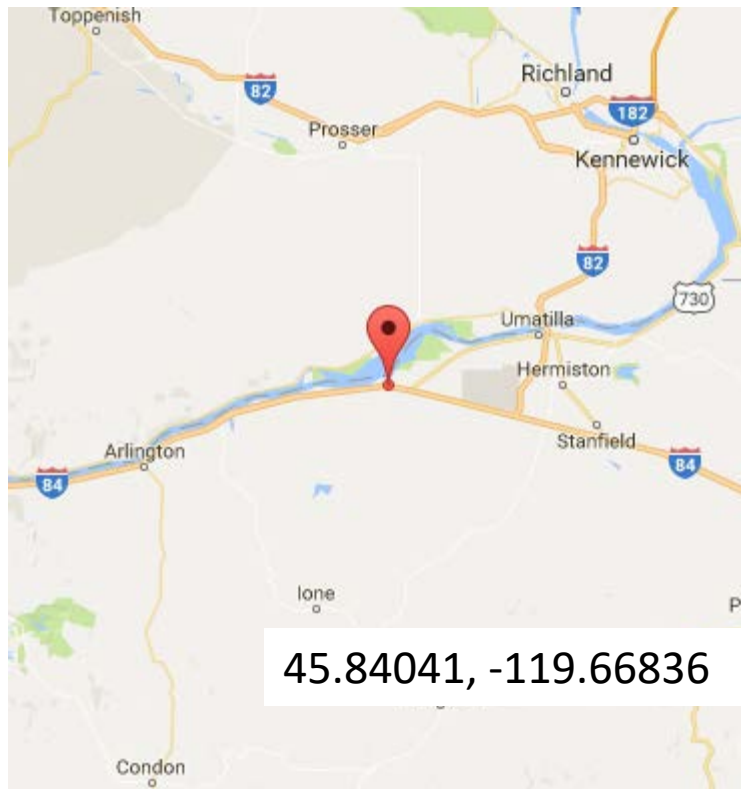
Bridge 3 - Oregon

[Portal Link](#)

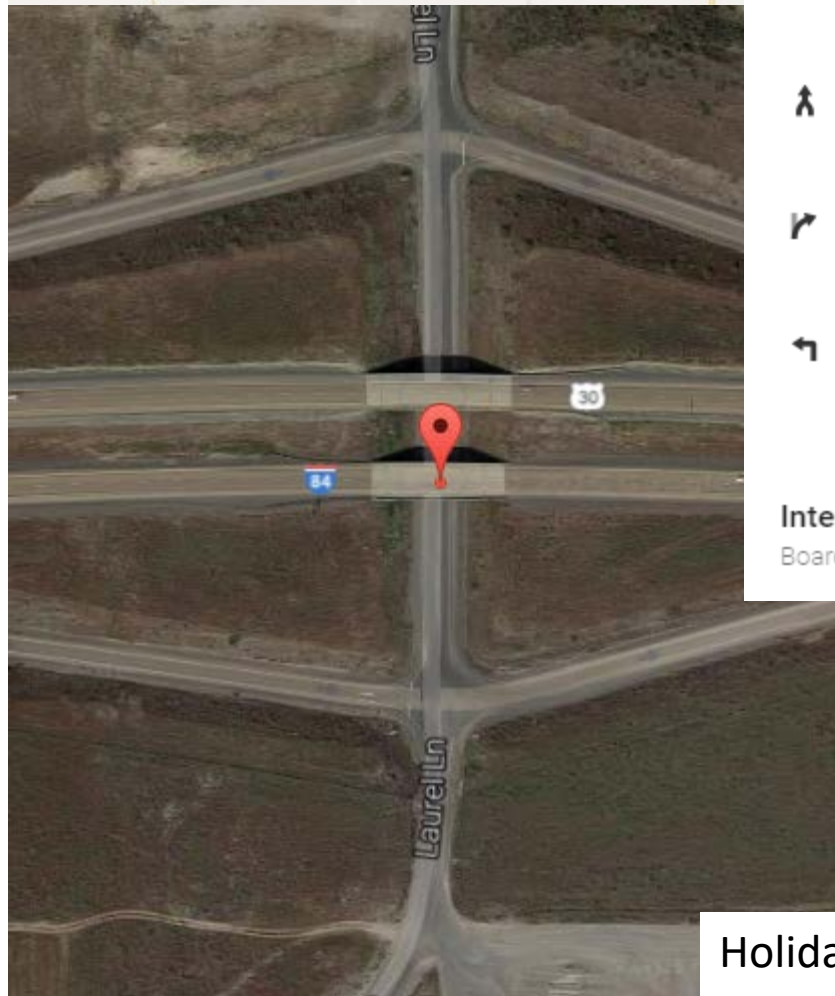
NBI data

Important NBI Attributes

1 - State Name	Oregon
8 - Structure Number	16611 002 16576
Bridge Name	I-84 (HWY 2) EB over PORT OF MORROW I/C (EB)...
26 - Functional Class Of Inventory Rte.	1 - Rural Principal Arterial - Interstate...
48 - Length Of Largest Span	33.2
49 - Total Length	33.2
52 - Deck Width	13.2
34 - Skew	0
22 - Owner	1 - State Highway Agency
27 - Year Built	1984
37 - Historic Significance	4 - Historical significance is not determinable at this time....
31 - Design Load	9 - MS 22.5 / HS 25
45 - Number Of Main Spans	1
43A - Main Span Materials	5 - Prestressed concrete *
43B - Main Span Design	2 - Stringer/Multi-beam or girder
107 - Deck Type	1 - Concrete Cast-in-Place
108A - Wearing Surface	1 - Monolithic Concrete (concurrently placed with structura...



45.84041, -119.66836



41 min (45.5 miles)



via I-84

40 min without traffic

Holiday Inn Express Pendleton

600 Southeast Nye Avenue, Pendleton, OR 97801

↑ Head west on SE Nye Ave toward SE 6th St

0.2 mi

➤ Turn right onto SE 3rd Dr

226 ft

↑ Continue onto OR-11 N

463 ft

⤴ Turn left onto the I-84 W ramp to Portland

0.3 mi

⤴ Merge onto I-84

44.5 mi

➤ Take exit 165 toward Port of Morrow

0.3 mi

⤵ Turn left onto Laurel Ln

i Destination will be on the left

404 ft

Interstate 84

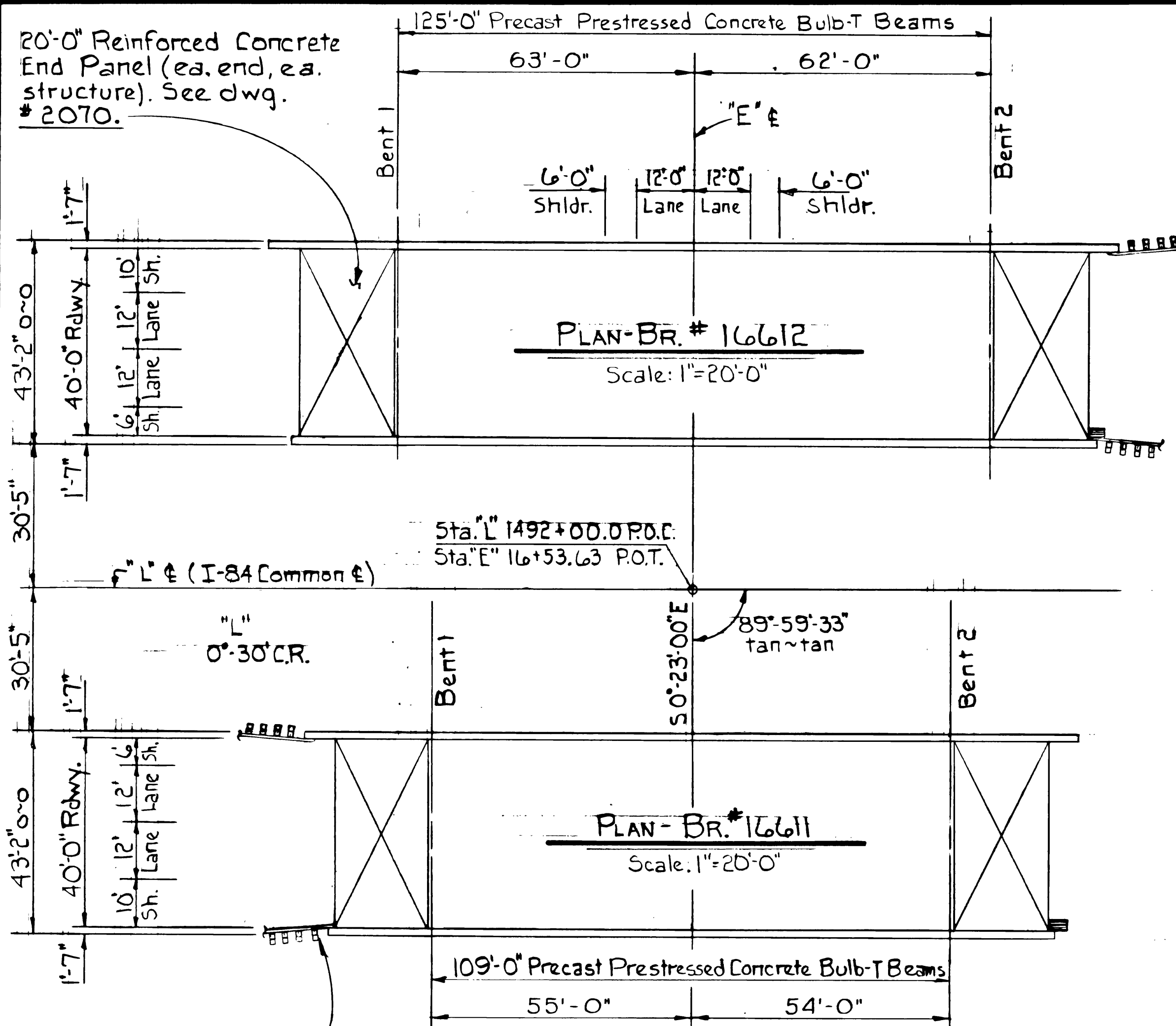
Boardman, OR 97818

Time to hotel: 40 min

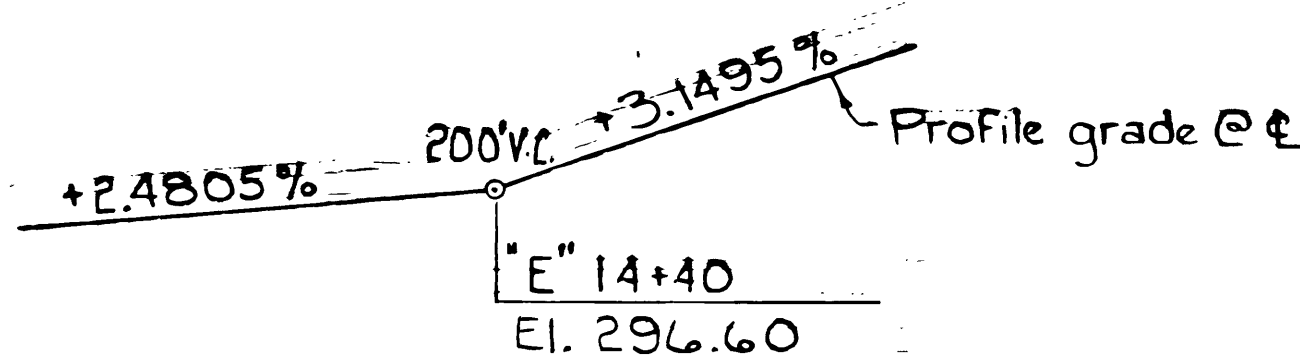
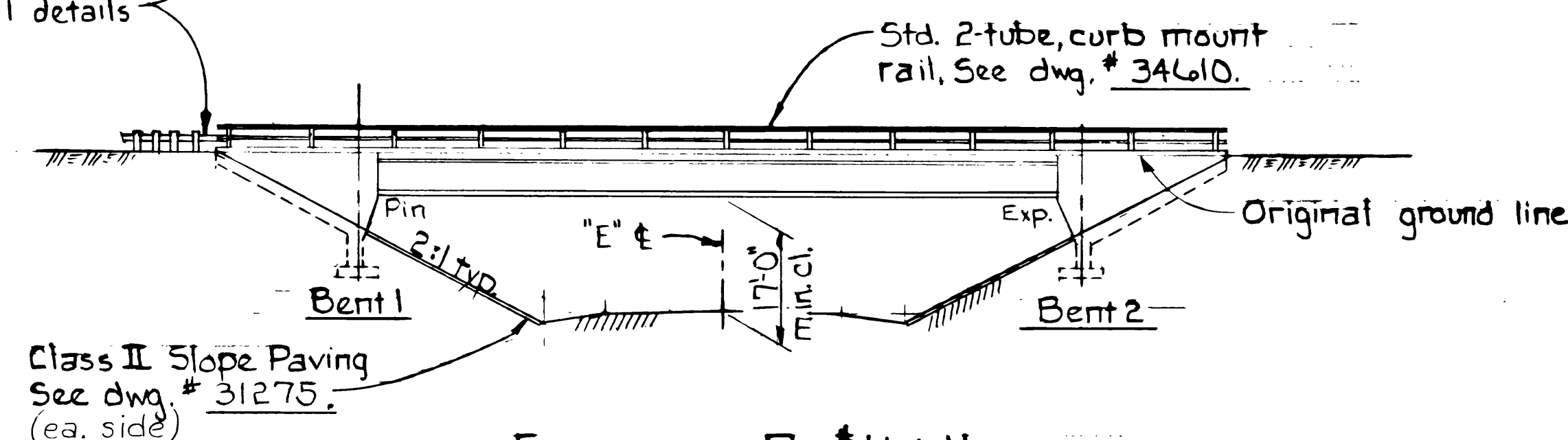
Holiday Inn Express Pendleton

600 SE Nye Ave, Pendleton, OR 97801
(541) 966-6520

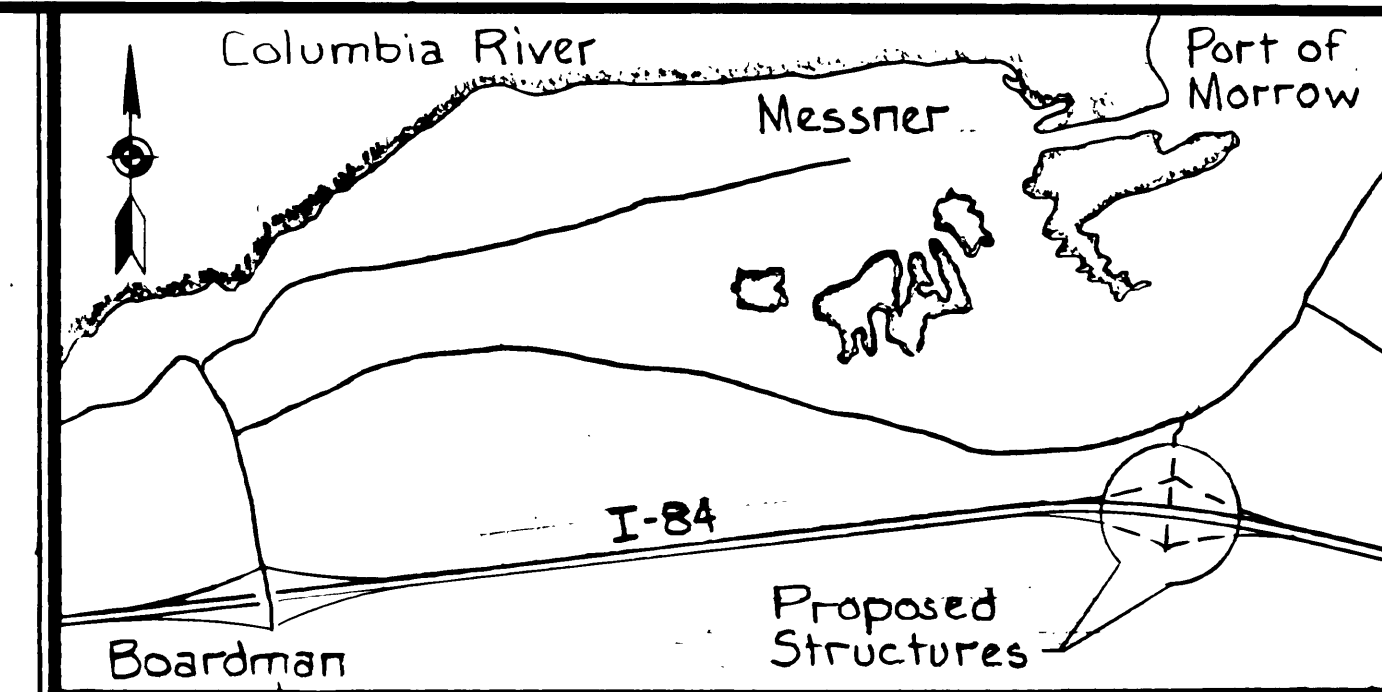
20'-0" Reinforced Concrete End Panel (ea. end, ea. structure). See dwg. #2070.



See Grading Plans for guardrail details



NOTE:
All bents are 90° to a chord between E's.



VICINITY MAP

GENERAL NOTES:

All material and workmanship shall conform to the Standard Specifications for Highway Construction of the Oregon State Highway Division.

Bridges designed for H525 and Military loadings with an allowance of 50psf for future wearing surface.

Concrete members except prestressed members designed by Load Factor Design Method.

Prestressing steel shall be in accordance with detail plans.

All other reinforcing steel shall conform to ASTM Specification A615 (SI) Grade 60. The following splice lengths shall be used unless shown otherwise:

Bar Size	3	4	5	6	7	8
Splice Length	1'-0"	1'-4"	1'-8"	2'-0"	2'-9"	3'-7"

All reinforcing steel in the upper portion of the deck shall be epoxy coated. This includes top longitudinal bars and top transverse bars including "truss" bars and all bars extending from the deck into the curb.

All bars shall be placed 2" clear of the nearest face of concrete unless shown otherwise. The top bends of stirrups extending from beam stems into the top slab shall be field bent.

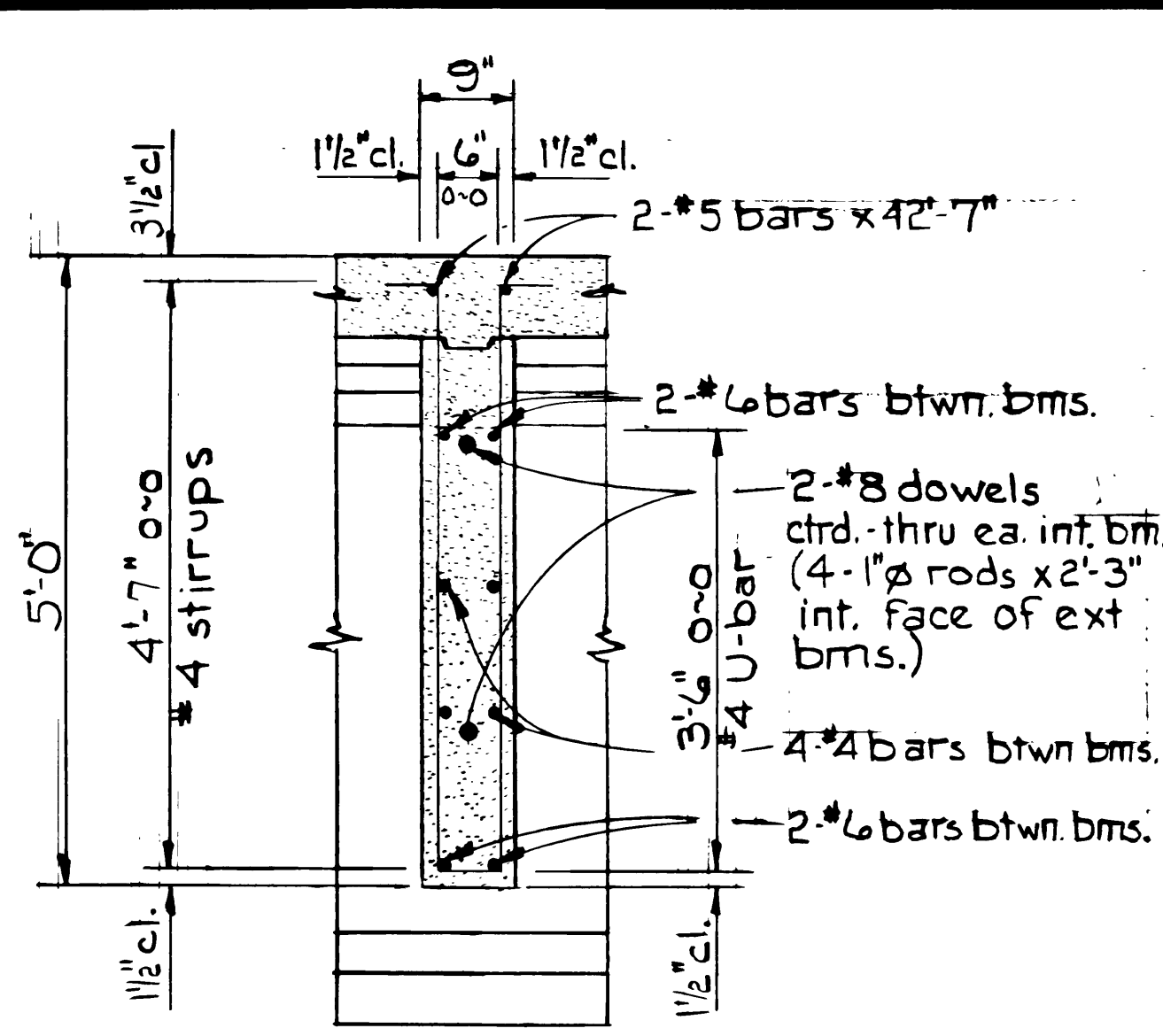
Reinforcing steel for abutments and wingwalls shall not be fabricated until final footing elevations have been determined in the field.

Concrete in prestressed precast beams shall be as shown on the detail plans.

Concrete in deck shall be Class 4,500-1 1/2".

All other concrete shall be Class 3,300-1 1/2".

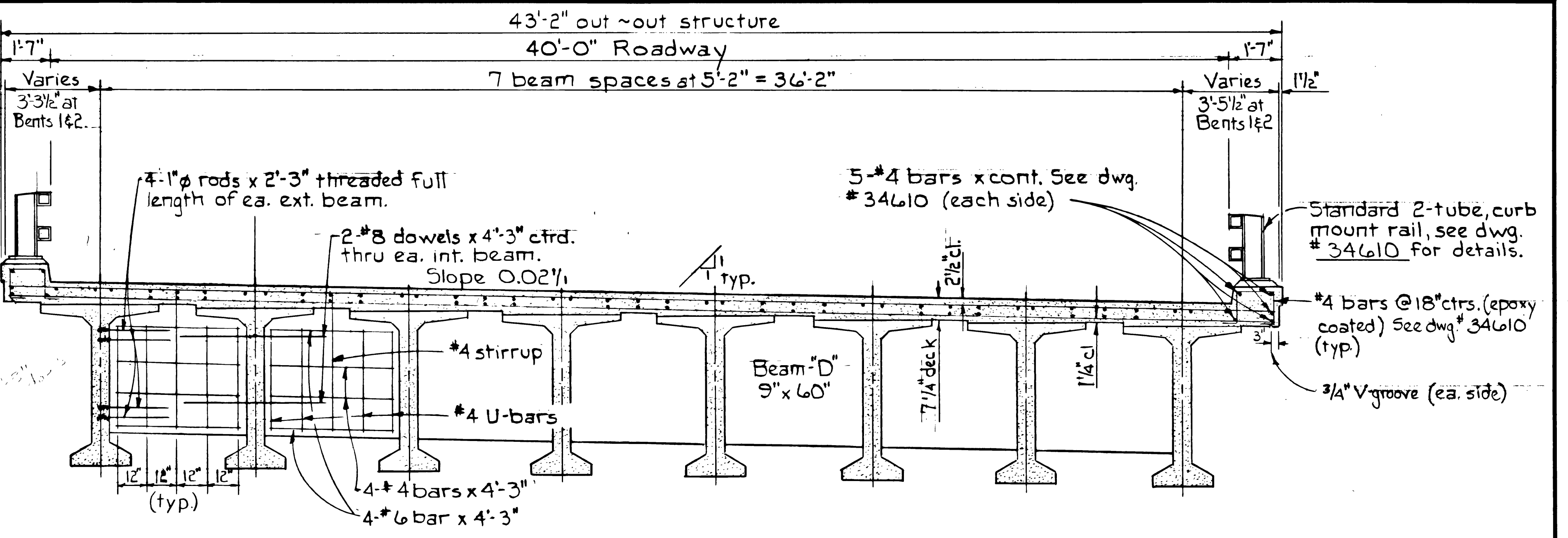
APPROVED: <i>Walter J. Robert</i> BRIDGE ENGINEER <i>E. J. Tomlin</i> ASST. STATE HIGHWAY ENGINEER DESIGNED: W.M. Thompson DRAWN: J. Silbernagel CHECKED: J. Page REVIEWED: M. Tindall 11-27-83 CALC. BOOK: 1919	OREGON DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN SECTION PORT OF MORROW INTERCHANGE PORT OF MORROW INTERCHANGE SECTION COLUMBIA RIVER HWY. (I-84) MORROW COUNTY PLAN & ELEVATION ACCOMPANIED BY DWGS. 38014 thru 38022, 2070, 22970, 31275 & 34610 DATE Jan. 1983 BRIDGE NO. 16611 & 16612 SHEET 1 OF 14 DRAWING NO. 38013
--	--



DECK STEEL: BR.# 16612
 *5 straight transverse bars at 10\"/>

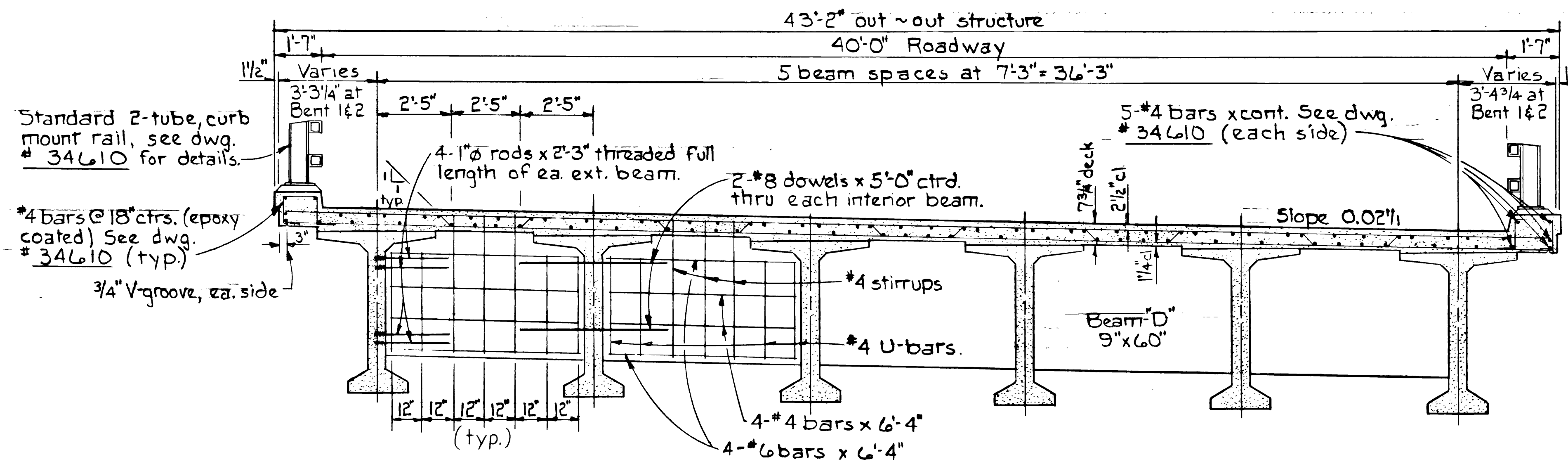
Place transverse bars parallel with bent \bar{e} 's.
 Stop transverse bars 6\"/>

Top straight bars shall be epoxy coated.
 39 - #4 longitudinal bars in top of deck (includes hanger bars) as shown (epoxy coated).
 21 - #5 longitudinal bars in bottom of deck as shown.



BEAM D - BR.# 16611 & 16612
 Scale: 3/4\"=1'-0"

DECK SECTION - BR.# 16612
 Scale: 3/8\"=1'-0"



DECK STEEL - BR.# 16611
 *5 straight transverse bars at 17\"/>

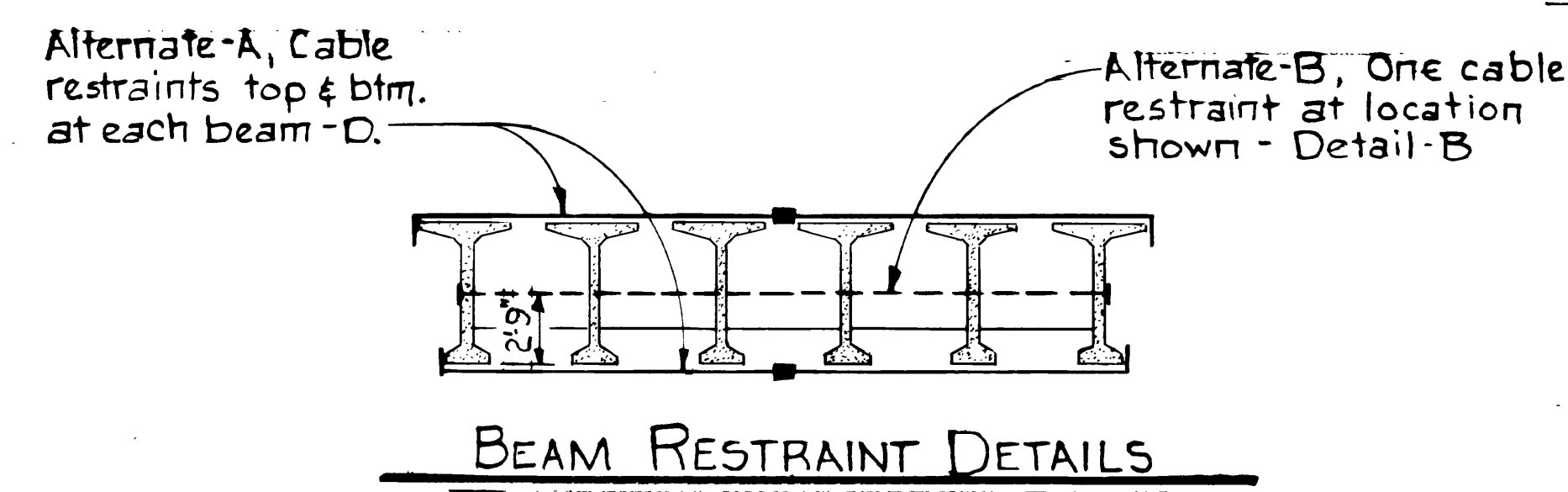
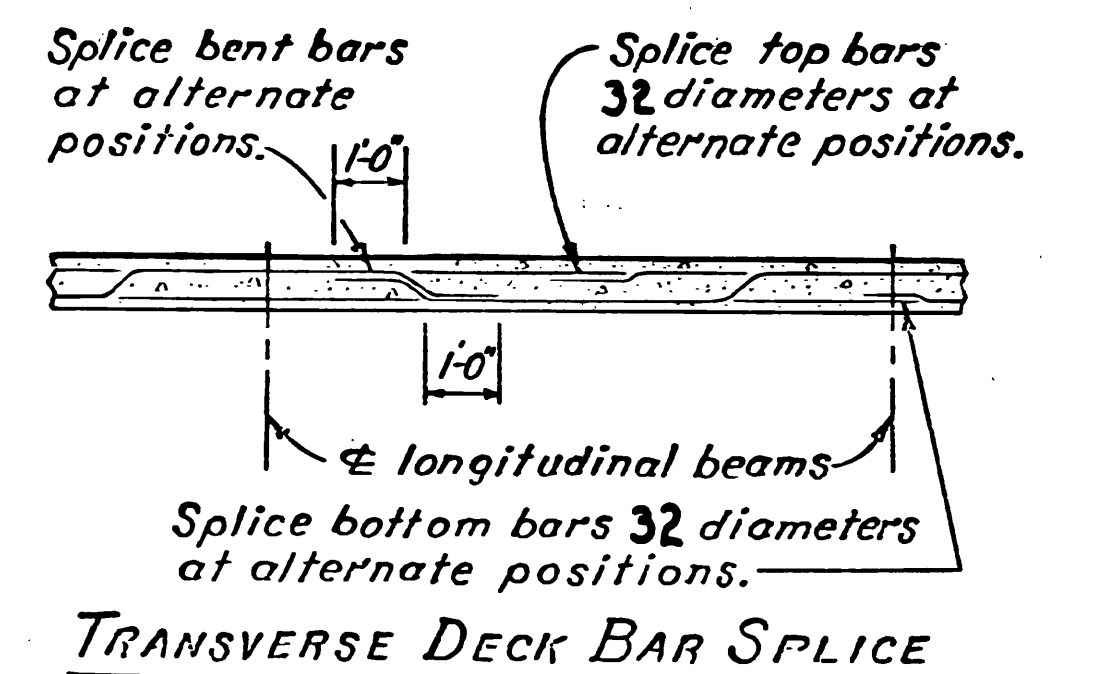
*5 bent transverse bars at 17\"/>

Alternate straight & bent bars at 8 1/2\"/>

Place transverse bars parallel with bent \bar{e} 's.
 Stop transverse bars 6\"/>

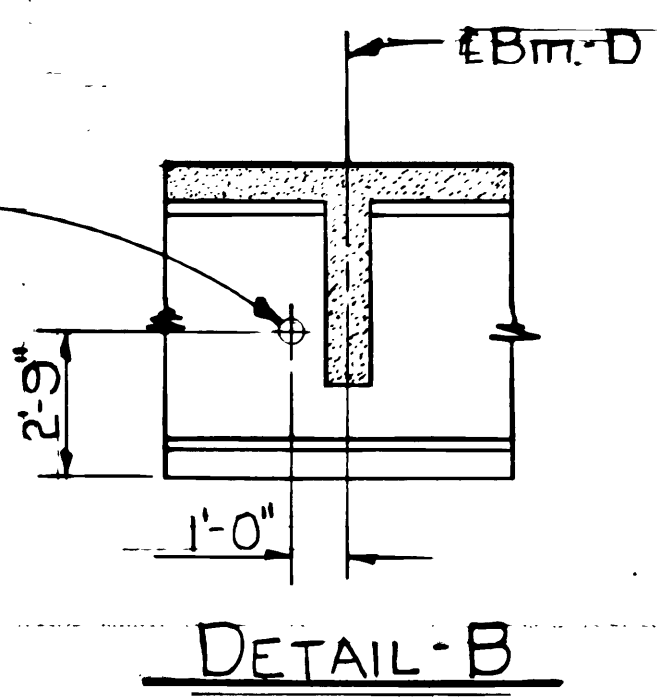
Top straight & bent bars shall be epoxy coated.
 44 - #4 longitudinal bars in top of deck (includes hanger bars) as shown (epoxy coated).
 32 - #5 longitudinal bars in bottom of deck as shown.

DECK SECTION - BR.# 16611
 Scale: 3/8\"=1'-0"



Snug fit prestressed beams against forms prior to diaphragm beam pour. Let concrete take initial set then revibrate. Restraints to remain in place a minimum of two days after completion of diaphragm pour. (Shown for Br.# 16611, Br.# 16612 is similar)

1\"/>



APPROVED: *Walter J. Blum*
 BRIDGE ENGINEER

DESIGNED: W.M. Thompson
 DRAWN: J. Silberhage
 CHECKED: Page
 REVIEWED: J. T. Tiedall 1/25/83
 CALC. BOOK 1913

DATE	REVISION
6/11/85	AS CONSTRUCTED

OREGON DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN SECTION	
PORT OF MORROW INTERCHANGE	
DECK SECTIONS	
DATE Jan. 1983	SHEET 5 OF 14
BRIDGE NO. 16611 & 16612	DRAWING NO. 38017

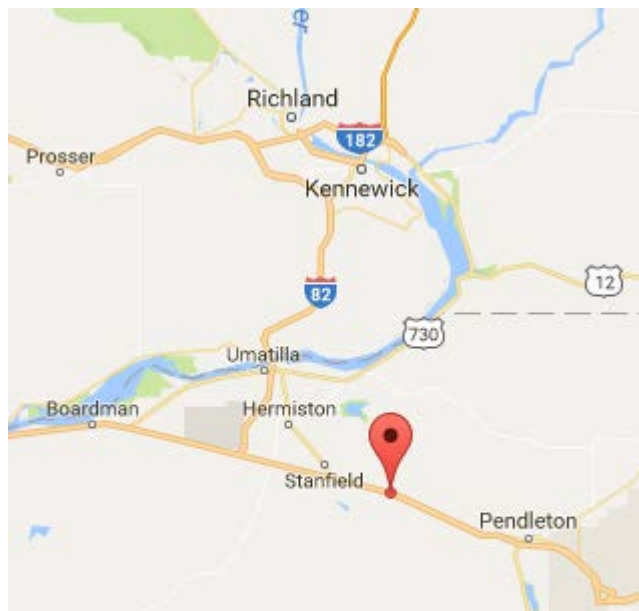
09578 006 19516

Bridge 4 - Oregon

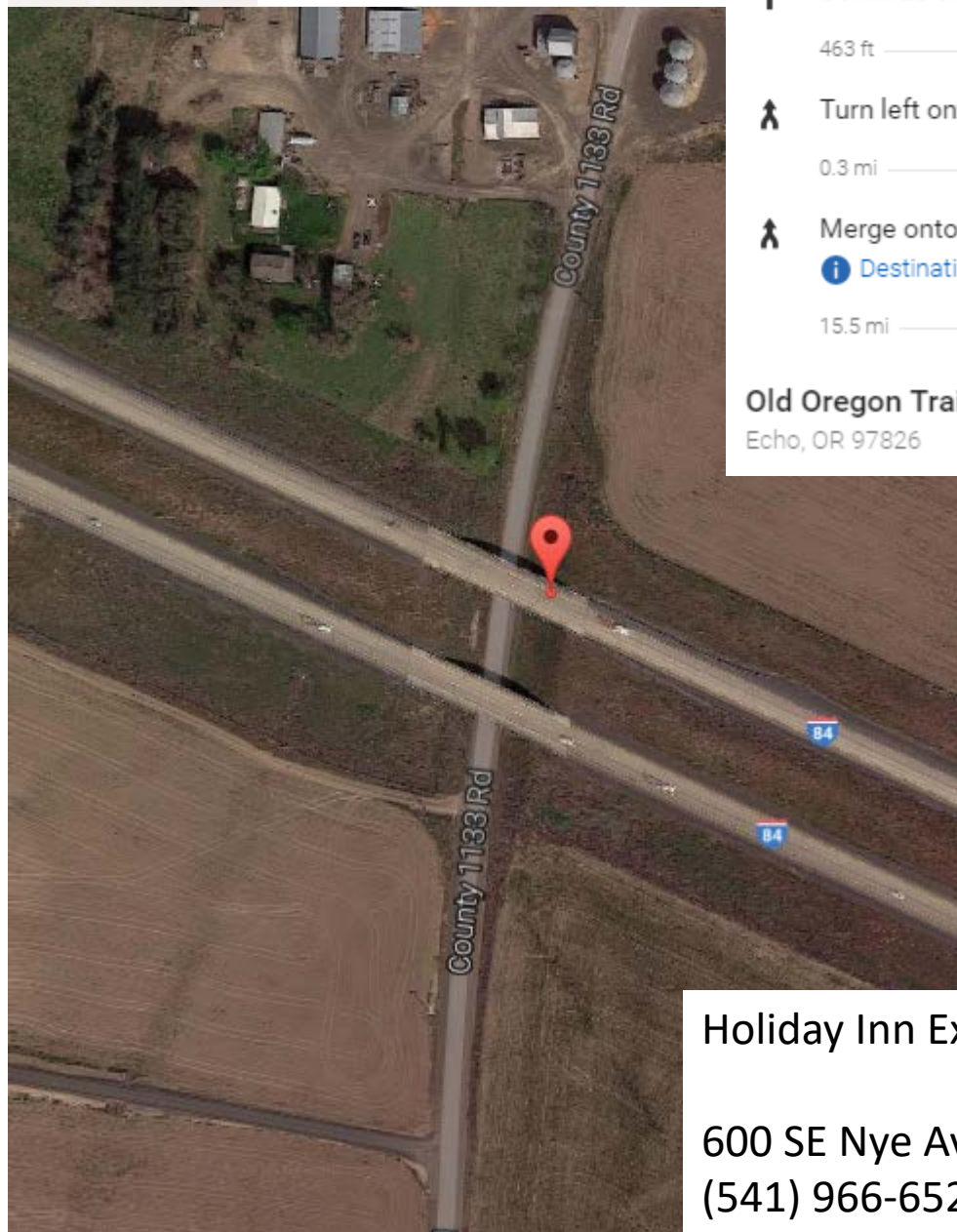
[Portal Link](#)

NBI data

1 - State Name	Oregon
8 - Structure Number	09578 006 19516
Bridge Name	I-84 (HWY 006) WB over NOLAN ROAD
26 - Functional Class Of Inventory Rte.	1 - Rural Principal Arterial - Interstate...
48 - Length Of Largest Span	24.4
49 - Total Length	49.4
52 - Deck Width	13.3
34 - Skew	16
22 - Owner	1 - State Highway Agency
27 - Year Built	1968
37 - Historic Significance	4 - Historical significance is not determinable at this time....
31 - Design Load	5 - MS 18 / HS 20
45 - Number Of Main Spans	3
43A - Main Span Materials	5 - Prestressed concrete *
43B - Main Span Design	2 - Stringer/Multi-beam or girder
107 - Deck Type	1 - Concrete Cast-in-Place
108A - Wearing Surface	1 - Monolithic Concrete (concurrently placed with structura...



45.73947, -119.07752



16 min (16.1 miles)

via I-84

15 min without traffic



Holiday Inn Express Pendleton

600 Southeast Nye Avenue, Pendleton, OR 97801

↑ Head west on SE Nye Ave toward SE 6th St

0.2 mi

➤ Turn right onto SE 3rd Dr

226 ft

↑ Continue onto OR-11 N

463 ft

⤴ Turn left onto the I-84 W ramp to Portland

0.3 mi

⤴ Merge onto I-84

[Destination will be on the right](#)

15.5 mi

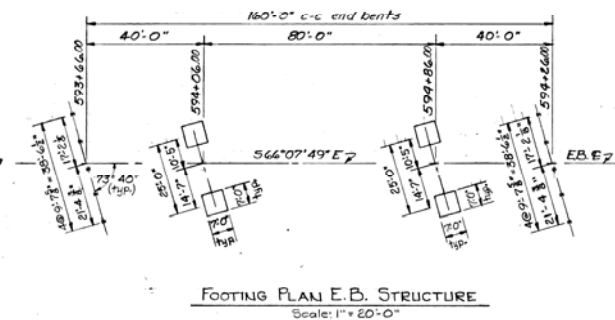
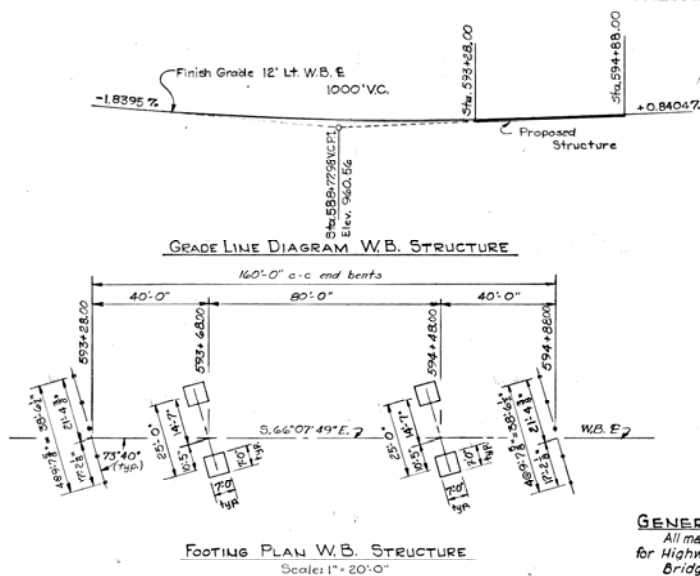
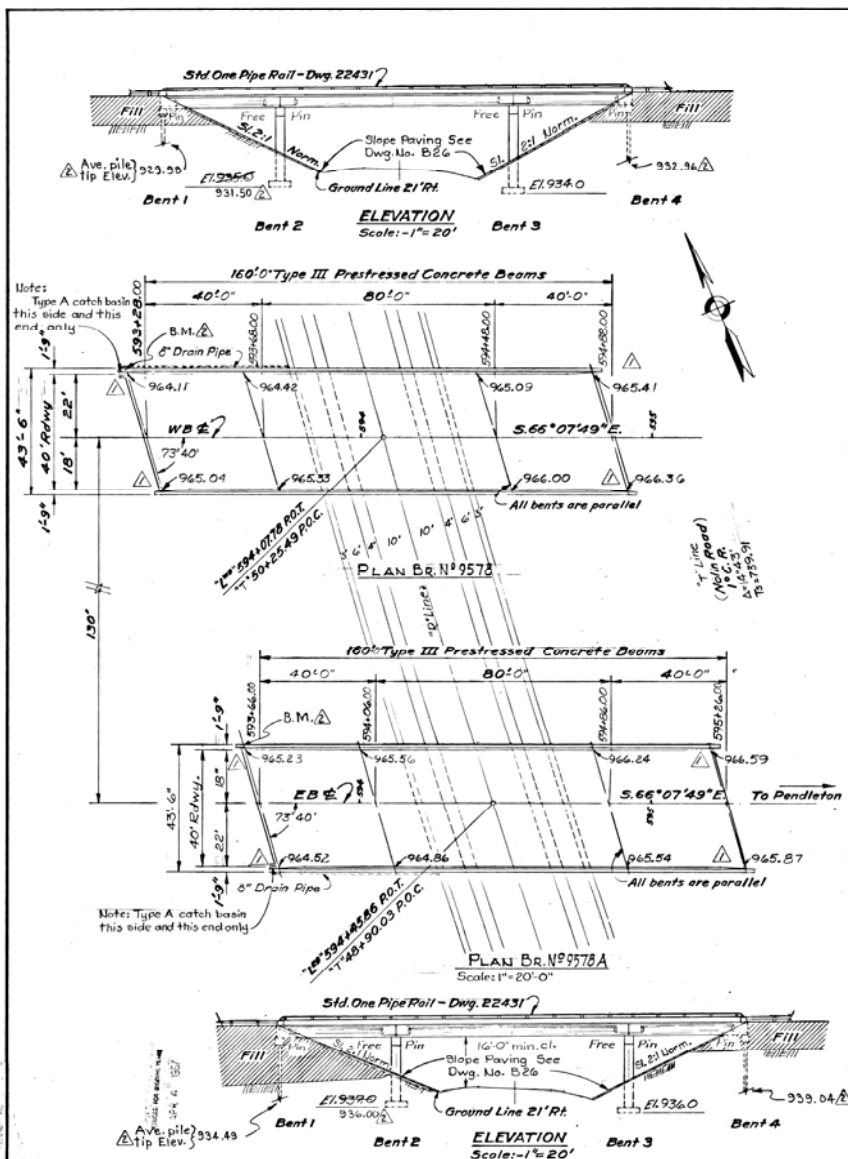
Old Oregon Trail Highway

Echo, OR 97826

Time to hotel: 20 min

Holiday Inn Express Pendleton

600 SE Nye Ave, Pendleton, OR 97801
(541) 966-6520



GENERAL NOTES

All material and workmanship shall conform to specifications for Highway Construction of the OREGON STATE HIGHWAY COMMISSION. Bridge designed for HS 20-44 and Military loading with 15% allowance for future wearing surface.

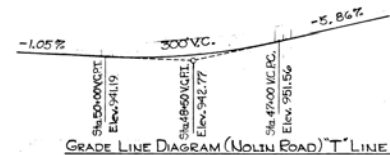
All reinforcing steel (except for prestressing strands) shall be intermediate grade deformed bars. Bars N^o 3 thru N^o 11 inclusive shall conform to ASTM specification A-305 and shall be lapped 20 diameters at all splices unless noted or shown otherwise. N^o 14 bars shall conform to ASTM specification A-408 and shall be lapped 30 diameters at all splices unless noted or shown otherwise. All bars shall be placed 2" clear of nearest face of concrete unless noted or shown otherwise (15,000 psi).

Footings elevations are subject to change depending upon foundation material encountered. Reinforcing steel for columns shall not be fabricated until final footing elevations have been determined in the field.

All concrete except that used in prestressed beams shall be class "A" and shall attain a design strength of 3300 psi in 28 days (2,380 psi).

Precast prestressed concrete shall be in accordance with prestressed beam details dwg. N^o 22879.

All piling to be 10BPA2 and shall be driven to a minimum bearing value of 50 tons per pile.



APPROVED:		OREGON STATE HIGHWAY DEPARTMENT BRIDGE DIVISION	
DESIGNED BY: J. H. M. M. M.		OVERCROSSING OF NOLIN ROAD STANFIELD JUNCTION-PENDLETON SEC.	
CHECKED BY: J. H. M. M. M.		OLD OREGON TRAIL HIGHWAY UMATILLA CO.	
DRAWN BY: J. H. M. M. M.		PLAN & ELEVATION	
DATE: 2-24-67		BRIDGE NO. 3378A	
DESIGNED BY: J. H. M. M. M.		SHEET 1 OF 2	
CHECKED BY: J. H. M. M. M.		DRAWING NO. 22875	
DRAWN BY: J. H. M. M. M.			

0011631B00000000

Bridge 5 – Washington

[Portal Link](#)

NBI Data:

1 - State Name	Washington
8 - Structure Number	0011631B00000000
Bridge Name	I-82 over THORP RD
26 - Functional Class Of Inventory Rte.	11 - Urban Principal Arterial - Interstate...
48 - Length Of Largest Span	31.1
49 - Total Length	31.7
52 - Deck Width	12.5
34 - Skew	27
22 - Owner	1 - State Highway Agency
27 - Year Built	1980
37 - Historic Significance	5 - Bridge is not eligible for the NRHP.
31 - Design Load	6 - MS 18+Mod / HS 20+Mod
45 - Number Of Main Spans	1
43A - Main Span Materials	5 - Prestressed concrete *
43B - Main Span Design	2 - Stringer/Multi-beam or girder
107 - Deck Type	1 - Concrete Cast-in-Place
108A - Wearing Surface	1 - Monolithic Concrete (concurrently placed with structura...



46.5114, -120.45212

8 min (7.6 miles)

via I-82 E

8 min without traffic



Holiday Inn Yakima

802 East Yakima Avenue, Yakima, WA 98901

↑ Head east on E Yakima Ave toward N 9th St

0.4 mi

↗ Turn right to merge onto I-82 E toward Richland

6.8 mi

↘ Take exit 40 for Thorp Rd toward Parker Rd

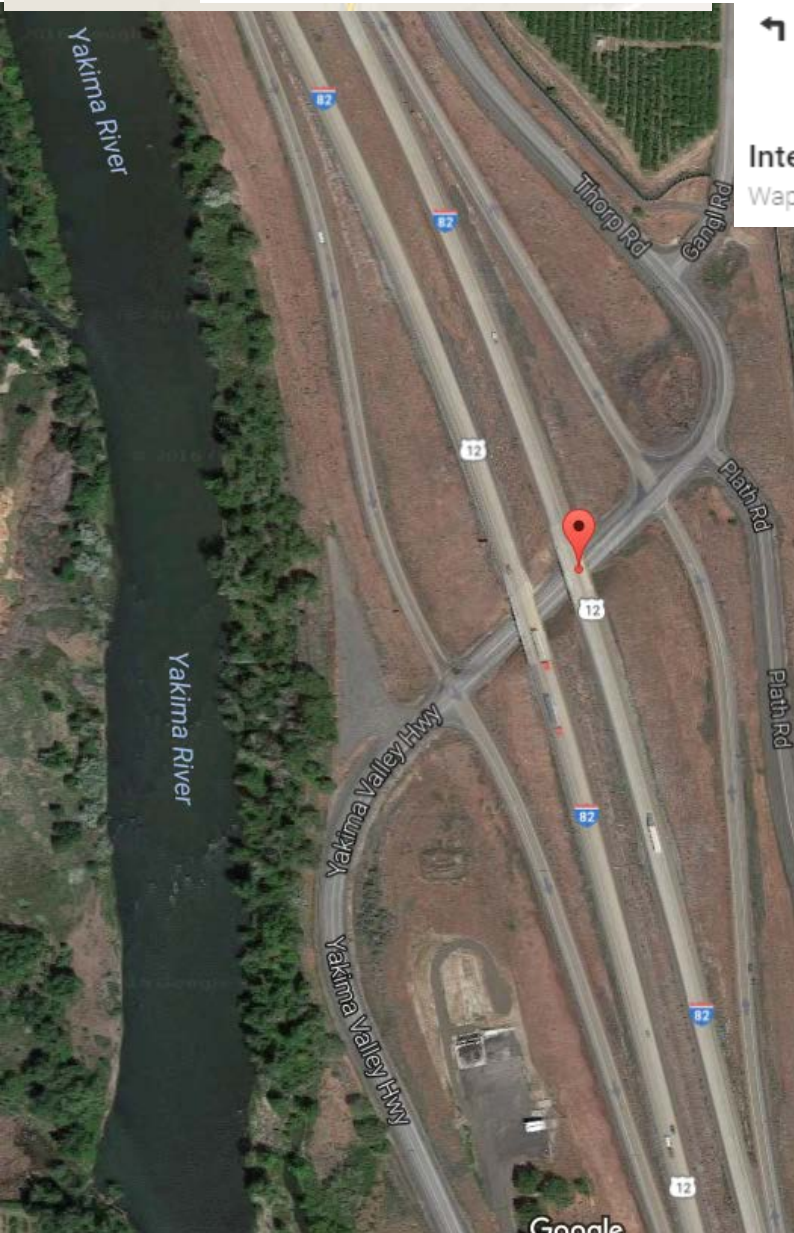
0.4 mi

↙ Turn left onto Thorp Rd

305 ft

Interstate 82

Wapato, WA 98951



Time to hotel: 10 min

Holiday Inn Express Yakima

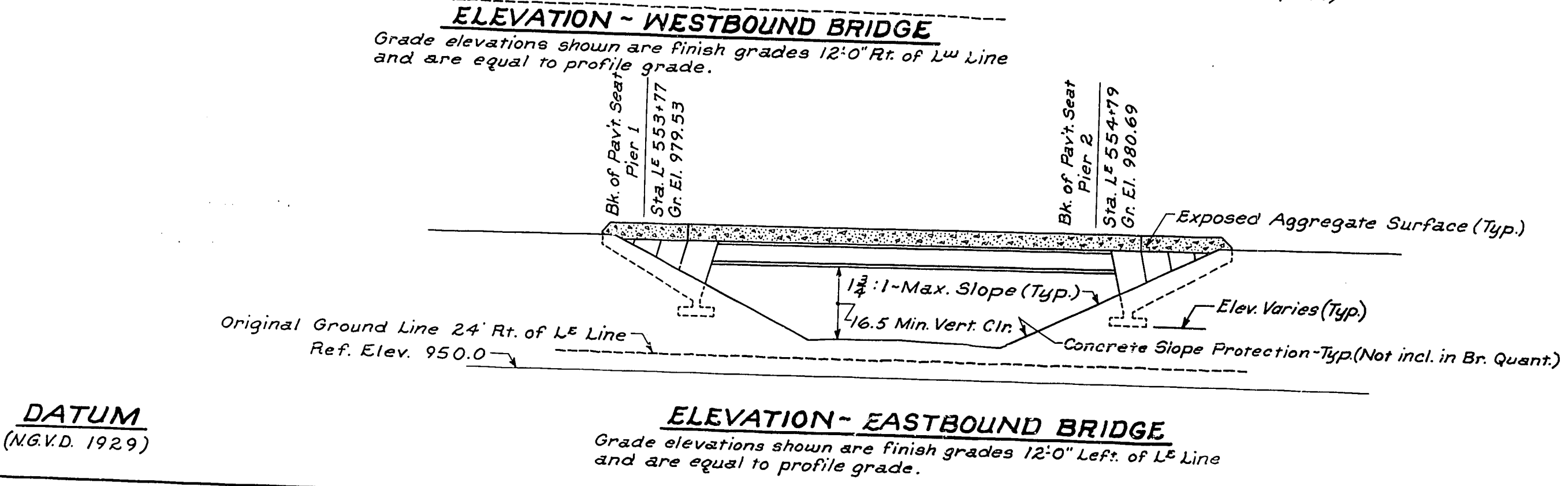
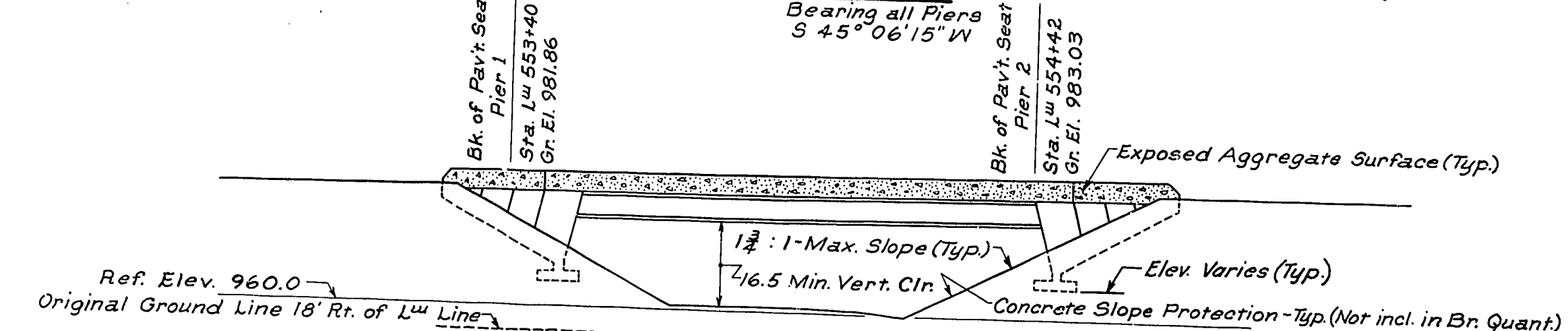
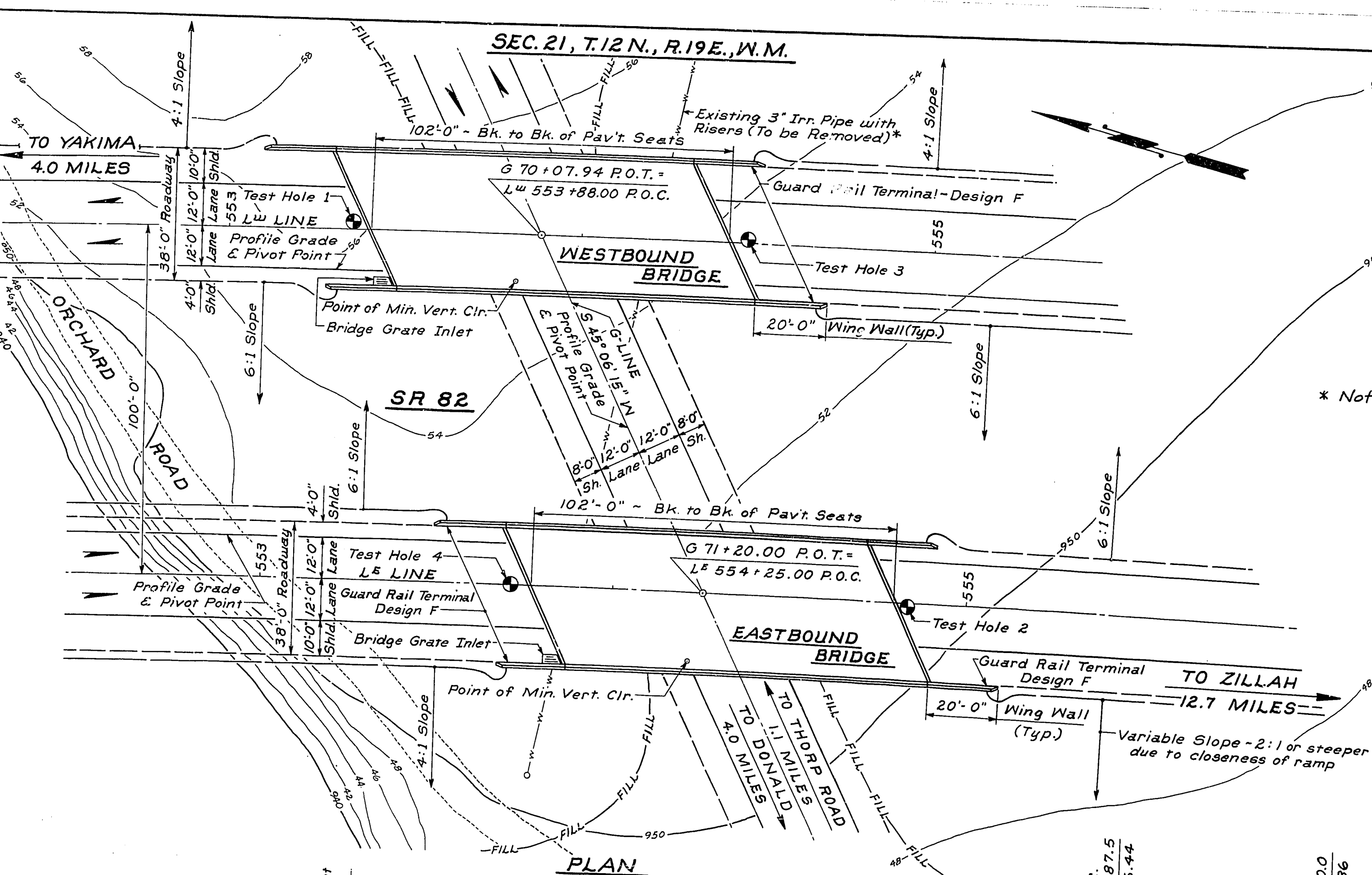
1001 S Sgt. Pendleton Way

Yakima, Washington 98901

United States

1 509 2491000

DATE	REVISION	BY	APP'D	DATE	REVISION	BY	APP'D
5-9-79	Deleted L&L Line Profiles	LL	LL	5-9-79	Deleted L&L Line Profiles	LL	LL
5-9-79	Deleted Quantities	LL	LL	5-9-79	Deleted Quantities	LL	LL
5-9-79	Deleted Quantities	LL	LL	5-9-79	Deleted Quantities	LL	LL



CURVE DATA

LW LINE		LS LINE	
P.I.	= Lw 551+74.04	P.I.	= Ls 551+63.85
Δ	= 11° 38' 45" Rt.	Δ	= 11° 38' 45" Rt.
R	= 7100'	R	= 7000'
T	= 724.06'	T	= 713.86'
L	= 1443.13'	L	= 1422.81'
S	= 0.04'/ft.	S	= 0.04'/ft.
Fwd. Tang. Br'g.	= S 14° 12' 00" E	Fwd. Tang. Br'g.	= S 14° 12' 00" E
Bk. Tang. Br'g.	= S 25° 50' 45" E	Bk. Tang. Br'g.	= S 25° 50' 45" E

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
10	WASH.	7-82-2(78)37	80	89	89

79W051

GENERAL NOTES

All material and work shall be in accordance with the requirements of the State of Washington, Department of Highways, Standard Specifications for Road and Bridge Construction dated 1977.

This structure has been designed in accordance with the requirements for Load Factor Design, 1973 AASHTO Specifications and Interim Specifications thru 1978.

Construction joints with roughened surface called for in the plans except under traffic barriers shall be struck off transversely with a tool capable of providing a rough surface with grooves 1/4" deep and at 2 1/2" centers. All laitance and loose material shall be removed from the surfaces to the satisfaction of the Engineer.

Footing elevations are subject to change depending upon foundation material encountered. Reinforcing steel for the footings and end pier walls shall not be cut until final footing elevations have been determined in the field, and substructure details have been modified as required.

The concrete in the footings of all piers shall be Class B mix. All other cast-in-place concrete shall be Class AX mix except the concrete in the traffic barrier which shall be class A special mix.

The maximum design soil pressure per square foot is three (3) tons for Piers 1 and 2 (Westbound and Eastbound Bridges).

Unless otherwise shown on the plans, concrete cover measured from the face of the concrete to the face of any reinforcement bar shall be 2" at the top of the roadway slab, 1" at the bottom of the roadway slab, 2 1/2" at the bottom of the footing and 1 1/2" at all other locations.

The roadway slab shall not be poured until 24 hours minimum after pouring the diaphragm.

Falsework shall be carefully released to prevent impact or undue stresses in the structure.

P.C. GIRDERS
LOADING: HS-20
OR
TWO 24 KIP AXLES @ 4' CTRS.

SR 82 **MP 38.94 TO MP 41.52**
UNION GAP TO SUNNYSIDE DAM
YAKIMA COUNTY
GANGLE ROAD OVERCROSSINGS

LAYOUT

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
 OLYMPIA, WASHINGTON

W. A. BULLY

SECRETARY



C. S. Lloyd

BRIDGE ENGINEER

CONTRACT NUMBER 1631

APPROVED May 4, 1979
 SHEET 80 OF 89 SHEETS

CS 3914-PROJ. NO 14293A-DIST NO 5-YAKIMA RIVER TO ZILLAH-SR 82-GANGLE ROAD OVERCROSSINGS

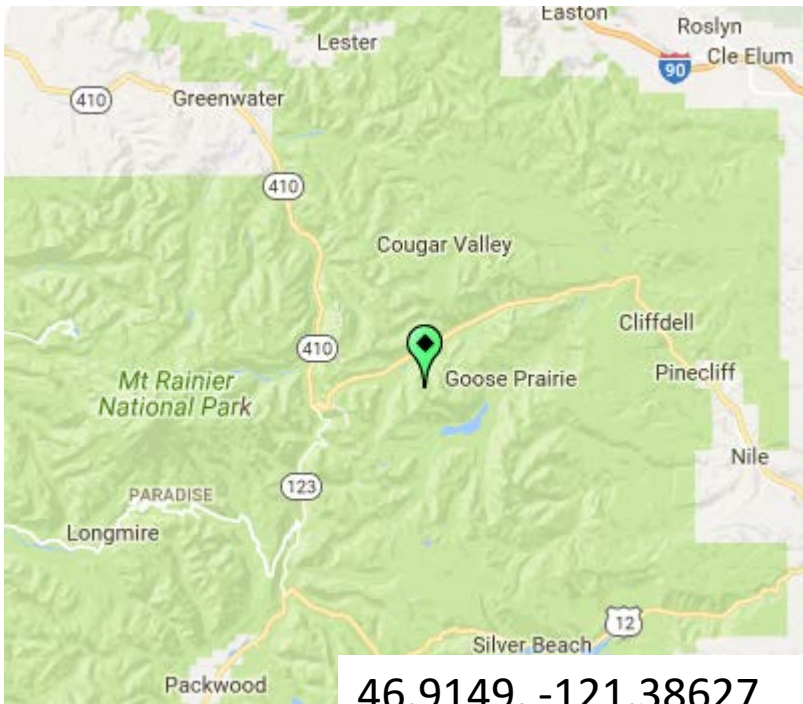
0013198A00000000

Bridge 6 – Washington

[Portal Link](#)

NBI Data:

1 - State Name	Washington
8 - Structure Number	0013198A00000000
Bridge Name	SR 410 over AMERICAN RIVER
26 - Functional Class Of Inventory Rte.	7 - Rural Major Collector
48 - Length Of Largest Span	35.1
49 - Total Length	36.6
52 - Deck Width	10.8
34 - Skew	0
22 - Owner	1 - State Highway Agency
27 - Year Built	1987
37 - Historic Significance	5 - Bridge is not eligible for the NRHP.
31 - Design Load	6 - MS 18+Mod / HS 20+Mod
45 - Number Of Main Spans	1
43A - Main Span Materials	5 - Prestressed concrete *
43B - Main Span Design	2 - Stringer/Multi-beam or girder
107 - Deck Type	1 - Concrete Cast-in-Place
108A - Wearing Surface	1 - Monolithic Concrete (concurrently placed with structura...



46.9149, -121.38627

Time to hotel: 2hrs

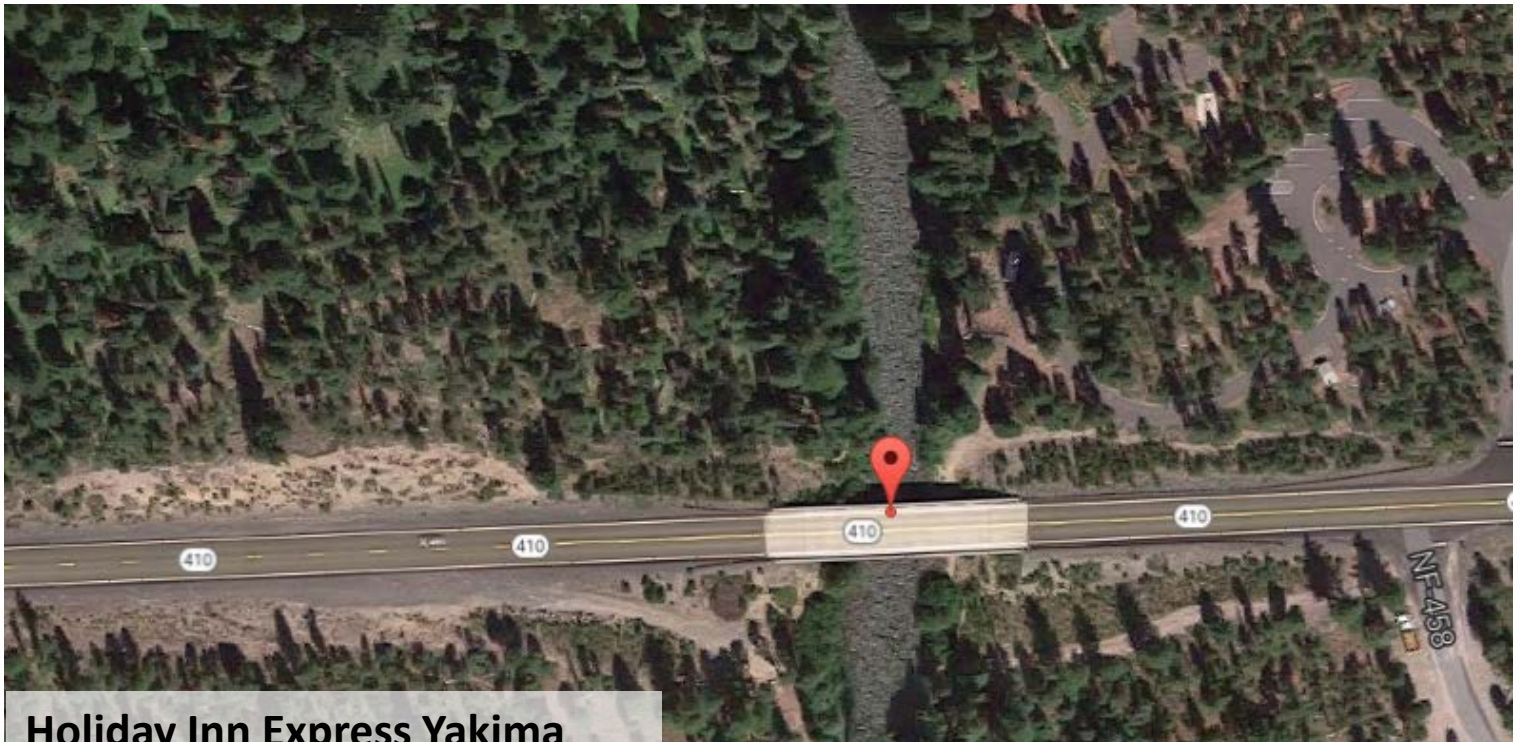
Holiday Inn Yakima

802 East Yakima Avenue, Yakima, WA 98901

- ↑ Head east on E Yakima Ave toward N 9th St
0.5 mi
- ↗ Turn left to merge onto I-82 W toward Ellensburg
1.6 mi
- ↘ Take exit 31 for US-12 W toward Naches/White Pass
0.5 mi
- ↑ Continue onto US-12 W
17.1 mi
- ↑ Continue straight onto WA-410 W
 ⓘ Destination will be on the right
 39.6 mi

Washington 410

Naches, WA 98937



Holiday Inn Express Yakima

1001 S Sgt. Pendleton Way
Yakima, Washington 98901
United States
1 509 2491000

[Holiday Inn Seattle-Issaquah](#)

1801 12th Avenue NW, Issaquah,
Washington, 98027
1 425 3926421

GENERAL NOTES

SPECIFICATIONS; DESIGN, AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 1983. CONSTRUCTION, STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE AND MUNICIPAL CONSTRUCTION, CURRENT EDITION.

DEAD LOAD: CONCRETE 150 LBS. PER CU. FT. PAVING ALLOWANCE 25 LBS. PER SQ. FT.
OF ROADWAY SURFACE. EARTH PRESSURE EQUIVALENT TO A FLUID WEIGHING 36 LBS. PER
CU. FT.

DESIGN CRITERIA: REINFORCED CONCRETE DESIGNED BY LOAD FACTOR DESIGN WITH $F'_c = 4,000$ PSI. (CLASS A CONCRETE) AND $F_y = 3,000$ PSI. (CLASS B CONCRETE) AND REINFORCING STEEL $F_y = 60,000$ PSI. TRANSVERSE DECK SLAB SERVICEABILITY STRESSES LIMITED TO $F_c = 1,455$ PSI AND $F_s = 20,000$ PSI, AND TO 1983 AASHTO SPECIFICATION VALUES FOR OTHER REINFORCED CONCRETE ELEMENTS. SEISMIC DESIGN IS PROVIDED IN ACCORDANCE WITH THE AASHTO 1983 GUIDE SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES. PRECAST, PRESTRESSED GIRDERS DESIGNED IN ACCORDANCE WITH 1983 AASHTO CRITERIA.

CONCRETE: CONCRETE IN PRECAST, PRESTRESSED GIRDERS SHALL HAVE THE FOLLOWING MINIMUM COMPRESSIVE STRENGTHS: $F'_{ci} = 6,500$ PSI AND $F'_c = 7,000$ PSI. ALL ABUTMENT FOOTING CONCRETE SHALL BE CLASS B, WITH $F'_c = 3,000$ PSI. ALL OTHER CAST-IN-PLACE CONCRETE SHALL BE CLASS AX, WITH $F'_c = 4,000$ PSI.

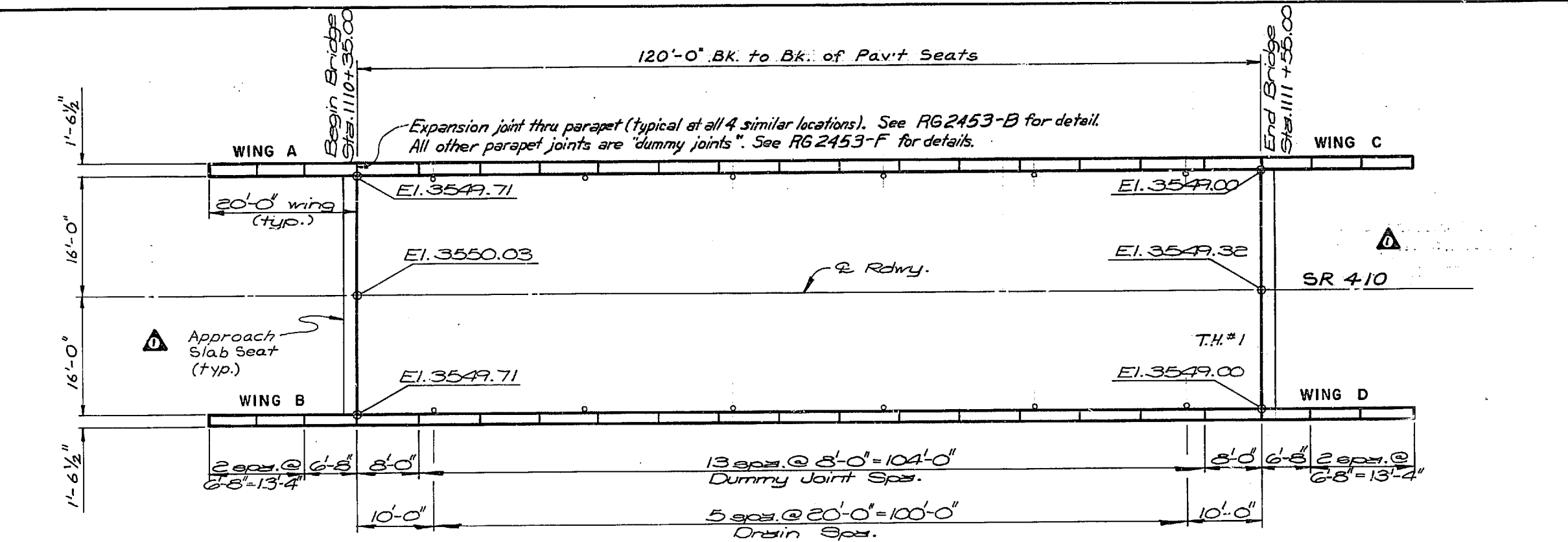
CONCRETE COVER: UNLESS OTHERWISE SHOWN ON THE PLANS THE MINIMUM CONCRETE COVER MEASURED FROM THE FACE OF THE CONCRETE TO THE FACE OF ANY REINFORCEMENT BAR SHALL BE 2 1/2" AT THE TOP OF THE ROADWAY SLAB, 1" AT THE BOTTOM OF THE ROADWAY SLAB, 3" AT THE BOTTOM OF THE FOOTINGS AND 1 1/2" AT ALL OTHER LOCATIONS.

REINFORCING STEEL: ALL REINFORCING STEEL SHALL CONFORM TO AASHTO M31, GRADE 60 (ASTM A615, GRADE 60). THOSE REINFORCING BARS IN THE DECK SLAB DESIGNATED BY AN * ON RG 2453-1 SHALL BE EPOXY-COATED.

PRESTRESSING STEEL: PRETENSIONED, PRESTRESSING STEEL SHALL BE 270K, 1/2-INCH SEVEN-WIRE, BRIGHT, STRESS-RELIEVED PRESTRESSING STRAND CONFORMING TO AASHTO M203 (ASTM A416). EACH STRAND SHALL BE PRETENSIONED TO A TOTAL LOAD OF 28,910 LBS., AT WHICH LOAD, $F_{s1} = 0.70 (F_s)$ = 189,000 PSI. THE FINAL EFFECTIVE PRESTRESS FORCE PER STRAND (AFTER ESTIMATED LOSSES = 63,500 PSI) IS 19,214 LBS.

STEEL H-PILES: STEEL FOR PILES SHALL CONFORM TO AASHTO M183 (ASTM A36). ALL PILES SHALL BE DRIVEN TO A MINIMUM BEARING OF 60 TONS PER PILE. EACH PILE SHALL HAVE A PILE TIP. EACH TIP SHALL BE AN "H-PILE" POINT BP75750, AS MANUFACTURED BY THE ASSOCIATED PILE AND FITTING CORPORATION, OR HP41042, AS MANUFACTURED BY THE INTERNATIONAL CONSTRUCTION EQUIPMENT COMPANY, OR AN APPROVED EQUAL:

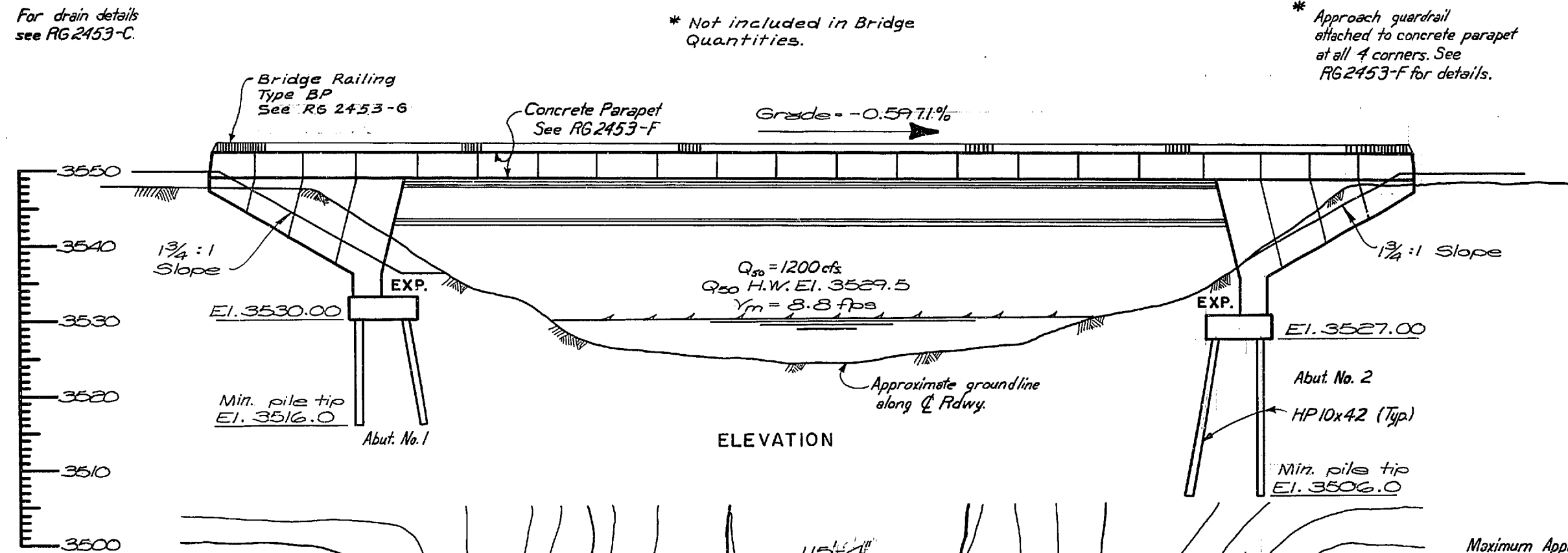
FOUNDATIONS: FOOTING ELEVATIONS AND, THEREFORE, SUBSTRUCTURE DETAILS, ARE SUBJECT TO CHANGE DEPENDING UPON FOUNDATION MATERIAL ENCOUNTERED. REINFORCING STEEL FOR PIERS AND WINGWALLS SHALL NOT BE CUT UNTIL FINAL FOOTING ELEVATIONS AND SUBSTRUCTURE DETAILS HAVE BEEN MODIFIED AS REQUIRED.



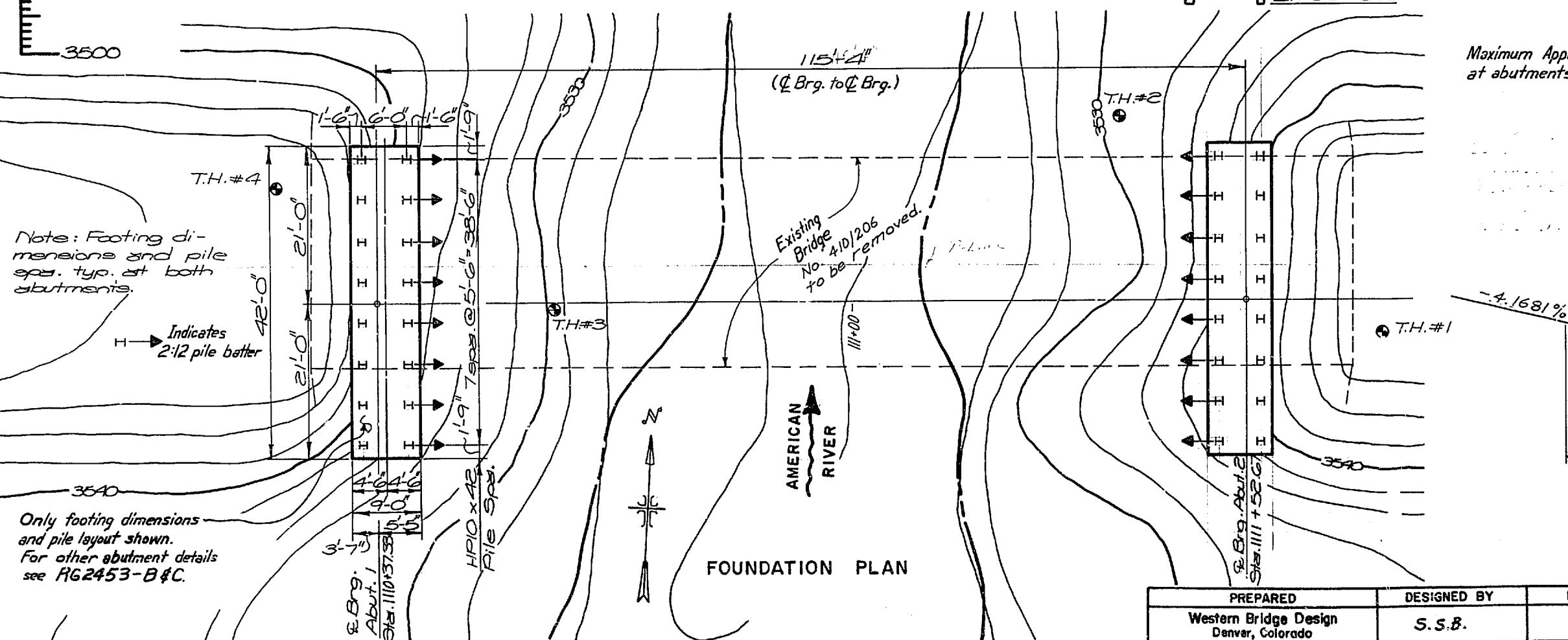
PLAN

* Not included in Bridge Quantities.

* Approach guardrail attached to concrete parapet at all 4 corners. See RG2453-F for details.

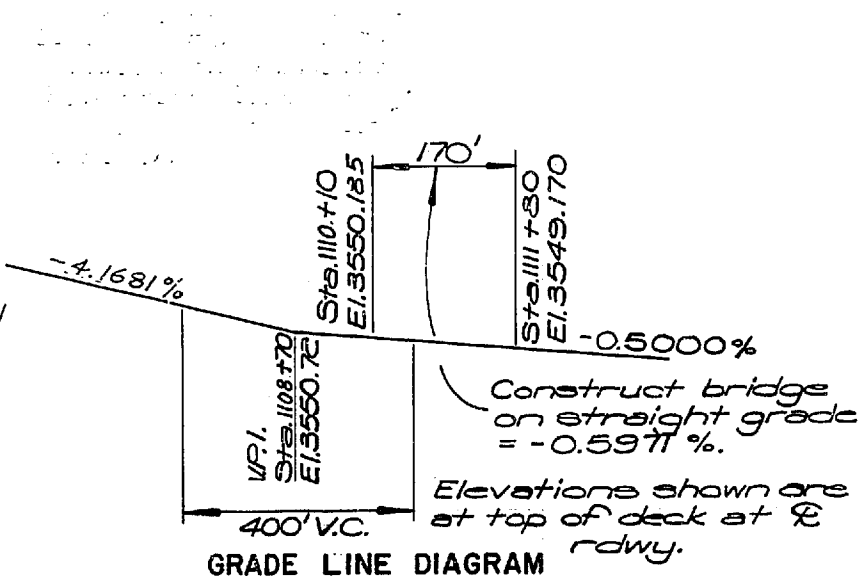


ELEVATION



FOUNDATION PLAN

Maximum Applied Structural Load
at abutments is 54 Tons per pile.



GRADE LINE DIAGRAM

APPROVED: James O. Roller
DIRECTOR, OFFICE OF WESTERN BRIDGE

PREPARED	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	BRIDGE DRAWING	DATE	DRAWING NO.
Western Bridge Design Denver, Colorado	S.S.B.	G.L.M.	JWK		1 of 9	NOV. 1985	RG 2453 - A

SR 410 | 104

70/55

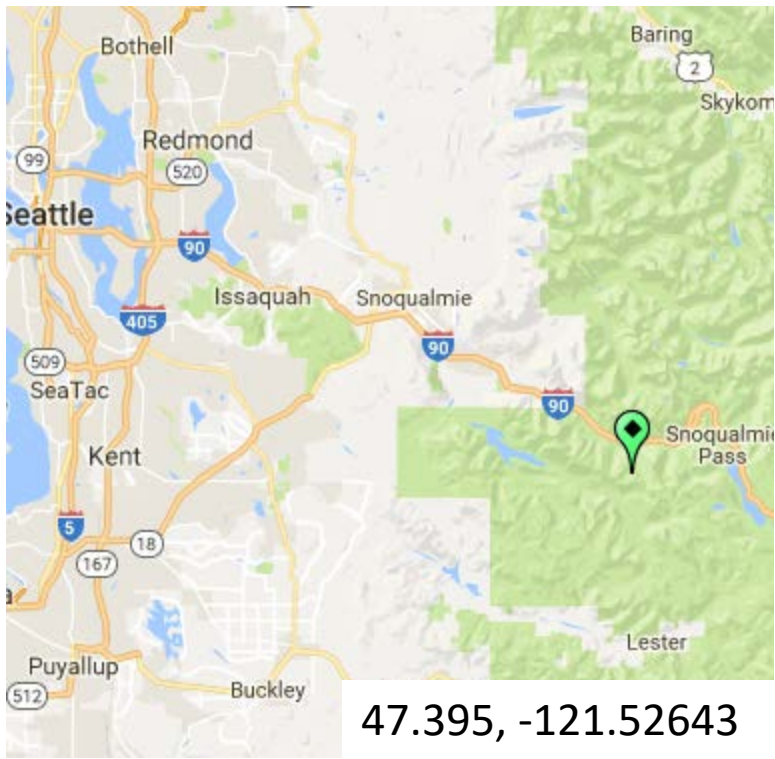
0009217C0000000

Bridge 7 – Washington

[Portal Link](#)

NBI Data:

1 - State Name	Washington
8 - Structure Number	0009217C0000000
Bridge Name	I-90 over BANDERA RD
26 - Functional Class Of Inventory Rte.	1 - Rural Principal Arterial - Interstate...
48 - Length Of Largest Span	34.1
49 - Total Length	34.1
52 - Deck Width	16.8
34 - Skew	1
22 - Owner	1 - State Highway Agency
27 - Year Built	1972
37 - Historic Significance	5 - Bridge is not eligible for the NRHP.
31 - Design Load	6 - MS 18+Mod / HS 20+Mod
45 - Number Of Main Spans	1
43A - Main Span Materials	5 - Prestressed concrete *
43B - Main Span Design	2 - Stringer/Multi-beam or girder
107 - Deck Type	1 - Concrete Cast-in-Place
108A - Wearing Surface	1 - Monolithic Concrete (concurrently placed with structura...



47.395, -121.52643

Time to hotel: 30 min

28 min (30.3 miles)



via I-90 E

27 min without traffic

Holiday Inn Seattle-Issaquah

1801 12th Avenue Northwest, Issaquah, WA 98027

↑ Head west on 12th Ave NW toward 17th Ave NW

177 ft

↙ Turn left onto 17th Ave NW

479 ft

↙ Use the left lane to stay on 17th Ave NW

0.2 mi

⤴ Turn left to merge onto I-90 E

30.0 mi

National Forest System Road 9030

North Bend, WA 98045



[Holiday Inn Seattle-Issaquah](#)

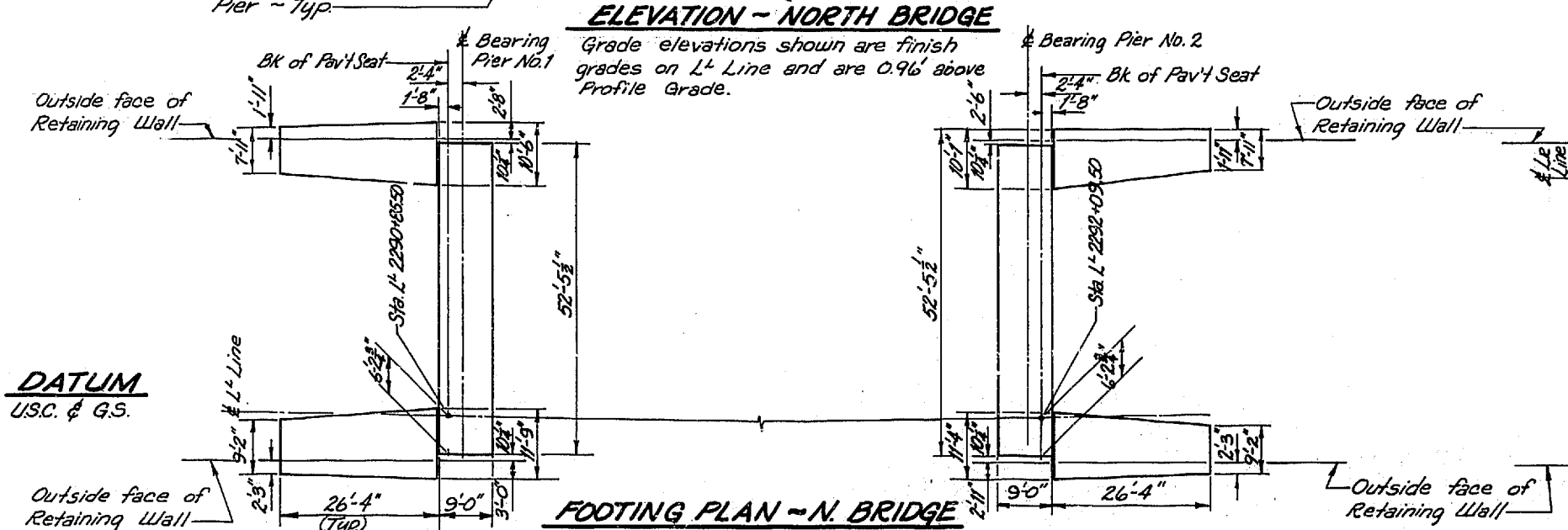
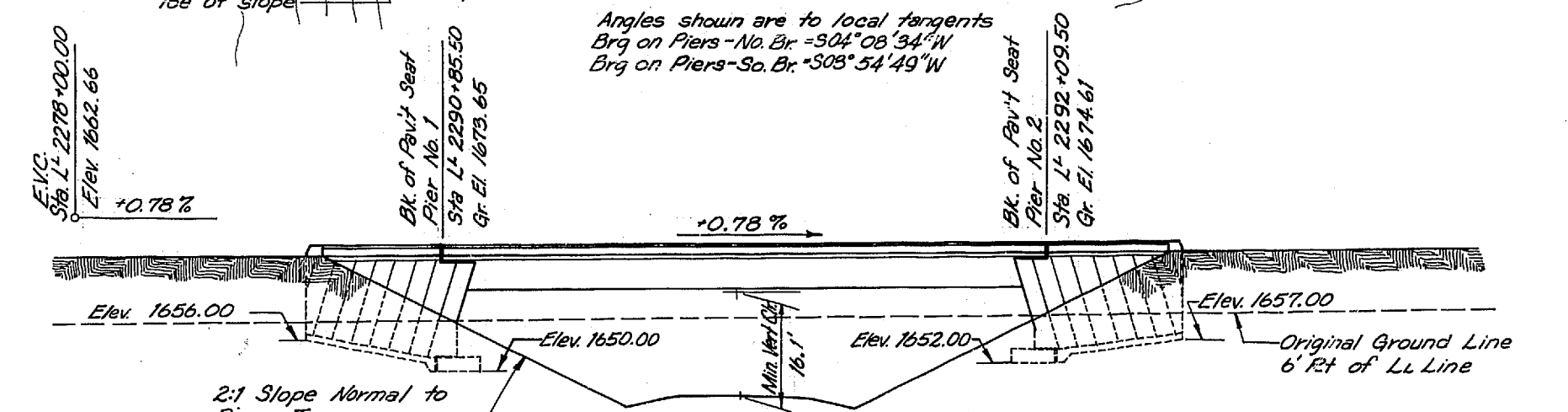
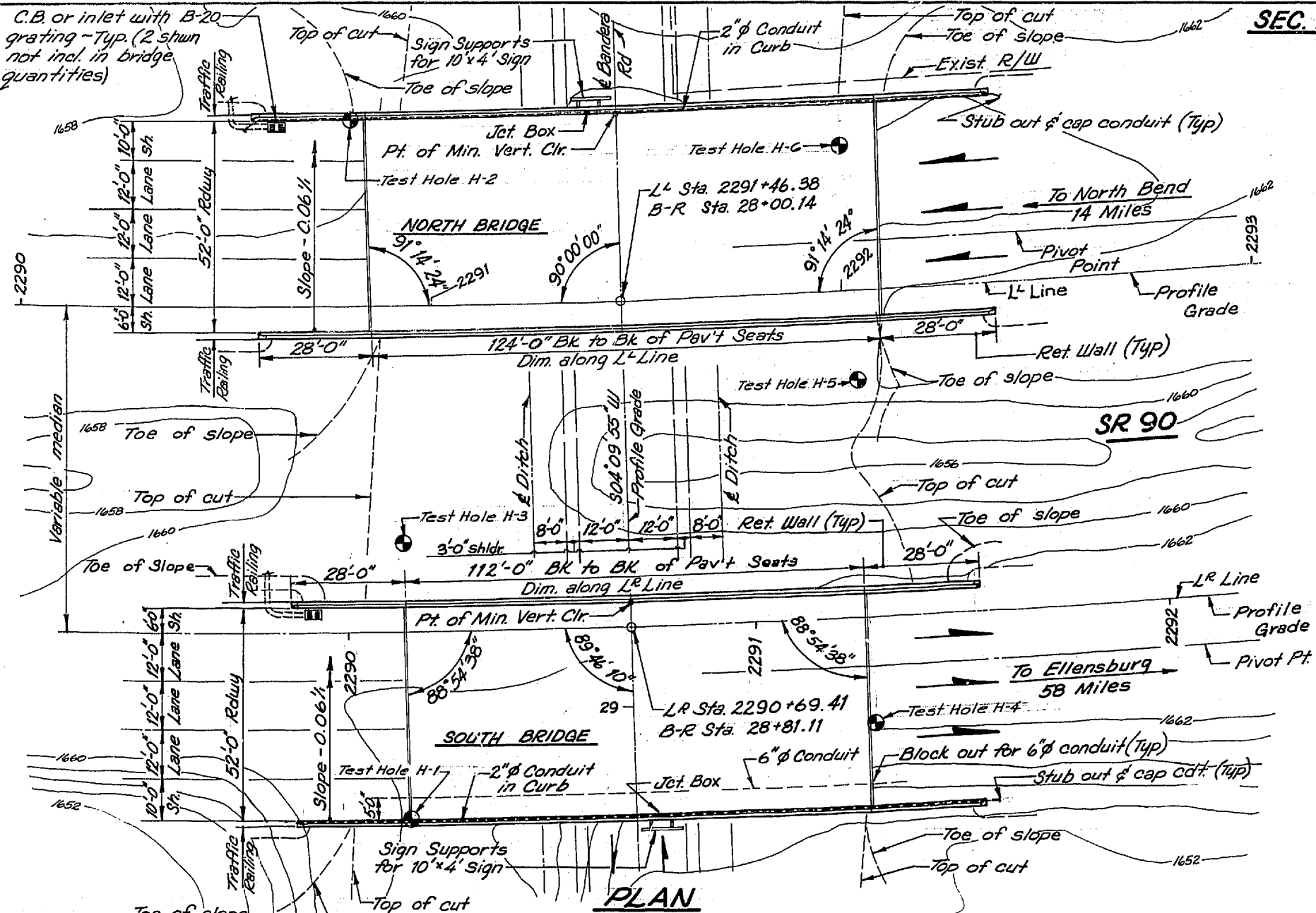
1801 12th Avenue NW, Issaquah,
Washington, 98027

1 425 3926421

DATE	REVISION	BY	APP'D	DATE	REVISION	BY	APP'D
9-9-71	Changed size of signs	TAL. BARR		9-16-77			
6-71		T.A. Larson		6-71		T.A. Larson	
6-71		C.E. Nelson		6-71		C.E. Nelson	
6-71		R.L. Bantz		6-71		R.L. Bantz	
6-71		G.C. Robertson		6-71		G.C. Robertson	
12-70		T.D. Crews		12-70		T.D. Crews	
12-70		M.W. Stepien		12-70		M.W. Stepien	

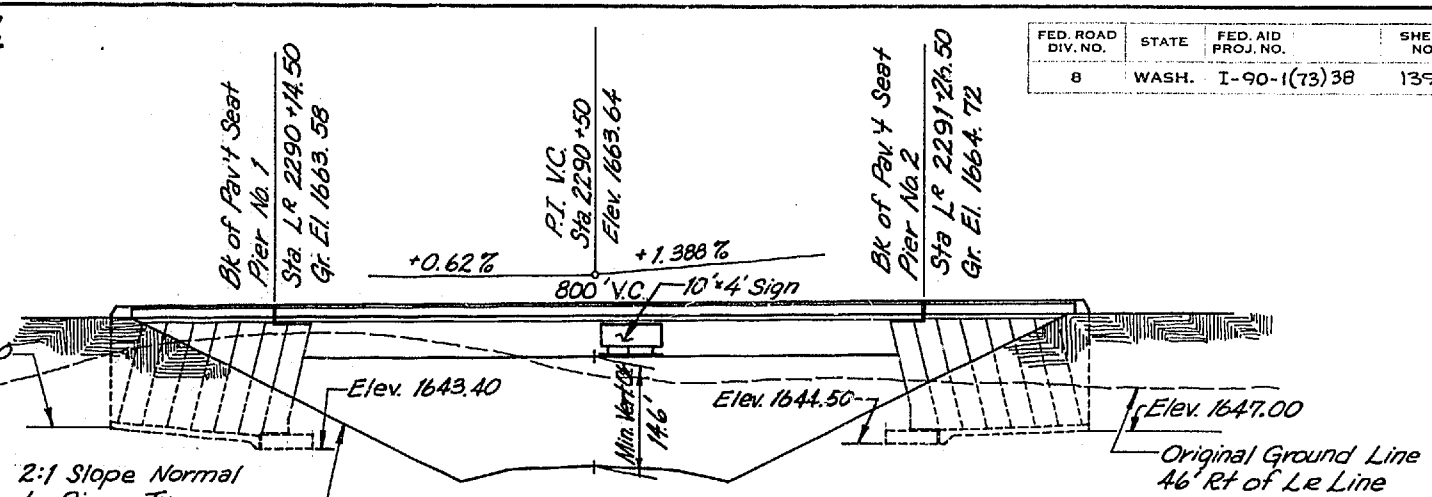
SEC. 16, T. 22 N., R. 10 E., W.M.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	WASH.	I-90-(173) 38	139	170



L¹ Line
PI Sta. 2290+65.42
Δ = 12° 55' 05" Lt.
R = 2865'
T = 324.95'
L = 645.95'
S = 0.06% Thru Bridge

L^R Line
PI Sta. 2289+72.26
Δ = 13° 00' 00" Lt.
R = 2945'
T = 335.54'
L = 648.20'
S = 0.06% Thru Bridge



ELEVATION - SOUTH BRIDGE
Grade elevations shown are finish grades on L^R Line and are 0.48' below Profile Grade

GENERAL NOTES

All material and work shall be in accordance with the requirements of the State of Washington, Department of Highways, Standard Specifications for Road and Bridge Construction, dated 1969.

Footings elevations are subject to change depending upon foundation material encountered. Reinforcing steel for the footings, pier walls and retaining walls shall not be cut until final footing elevations have been determined in the field.

The concrete in the footings of all piers and the retaining walls shall be Class B mix. All other cast in place concrete shall be Class AX mix.

Falsework shall be carefully released to prevent impact or undue stresses in the structure.

The maximum design soil pressure per square foot is as follows:

Piers No.	Bridge	Soil Pressure, Tons
1	North	4
2	North	3 1/2
1 & 2	South	3 1/2

Unless otherwise shown on the plans, concrete cover measured from the face of the concrete to the face of any reinforcement bar shall be 1 1/2".

APPROXIMATE QUANTITIES

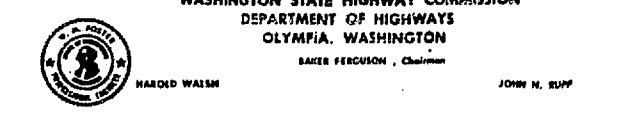
Structure Excavation Class A
Steel Reinforcing Bars
Concrete Class B
Concrete Class AX
Superstructure Bandera Int. O-Xing
Water Reducing Additive

NORTH BRIDGE	SOUTH BRIDGE	
710	1075	Cu. Yds.
46,500	46,500	Lbs.
255	265	Cu. Yds.
140	140	Cu. Yds.
L.S.	L.S.	Lump Sum
315	280	Dollars

LOADING: HS-20
OR
TWO 24 KIP AXLES @ 4' CTRS.

SR 90 MP 41.24 TO MP 46.98
NATIONAL FOREST BOUNDARY TO
ASAHEL CURTIS INTERCHANGE
KING COUNTY
BANDERA INTERCHANGE OVERCROSSING

LAYOUT



APPROVED Sept. 24, 1971
SHEET 139 OF 170 SHEETS
SR 90/292