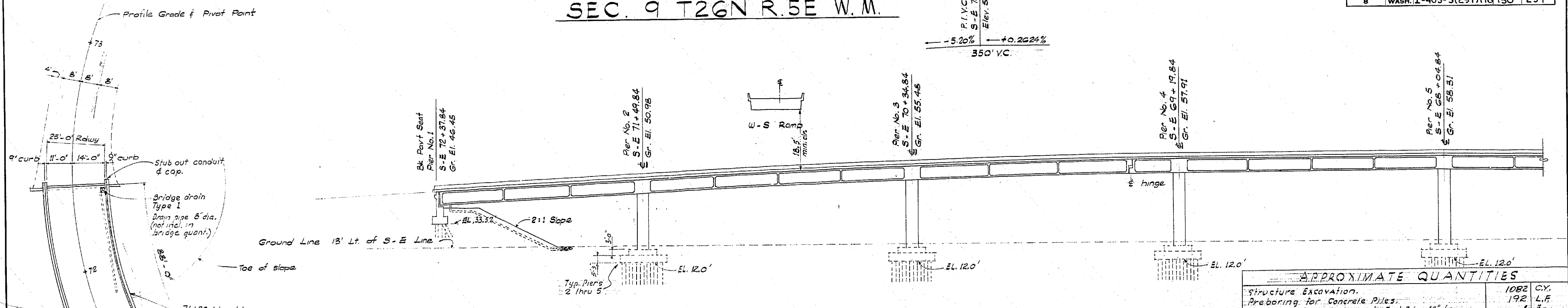


# SEC. 9 T26N R.5E W.M.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	WASH.	I-405-3(297)178	130	297

P.I.V.C.  
S-E 70+00  
Elev. 58.82  
-5.20% ← +0.2624%  
350' V.C.



### APPROXIMATE QUANTITIES

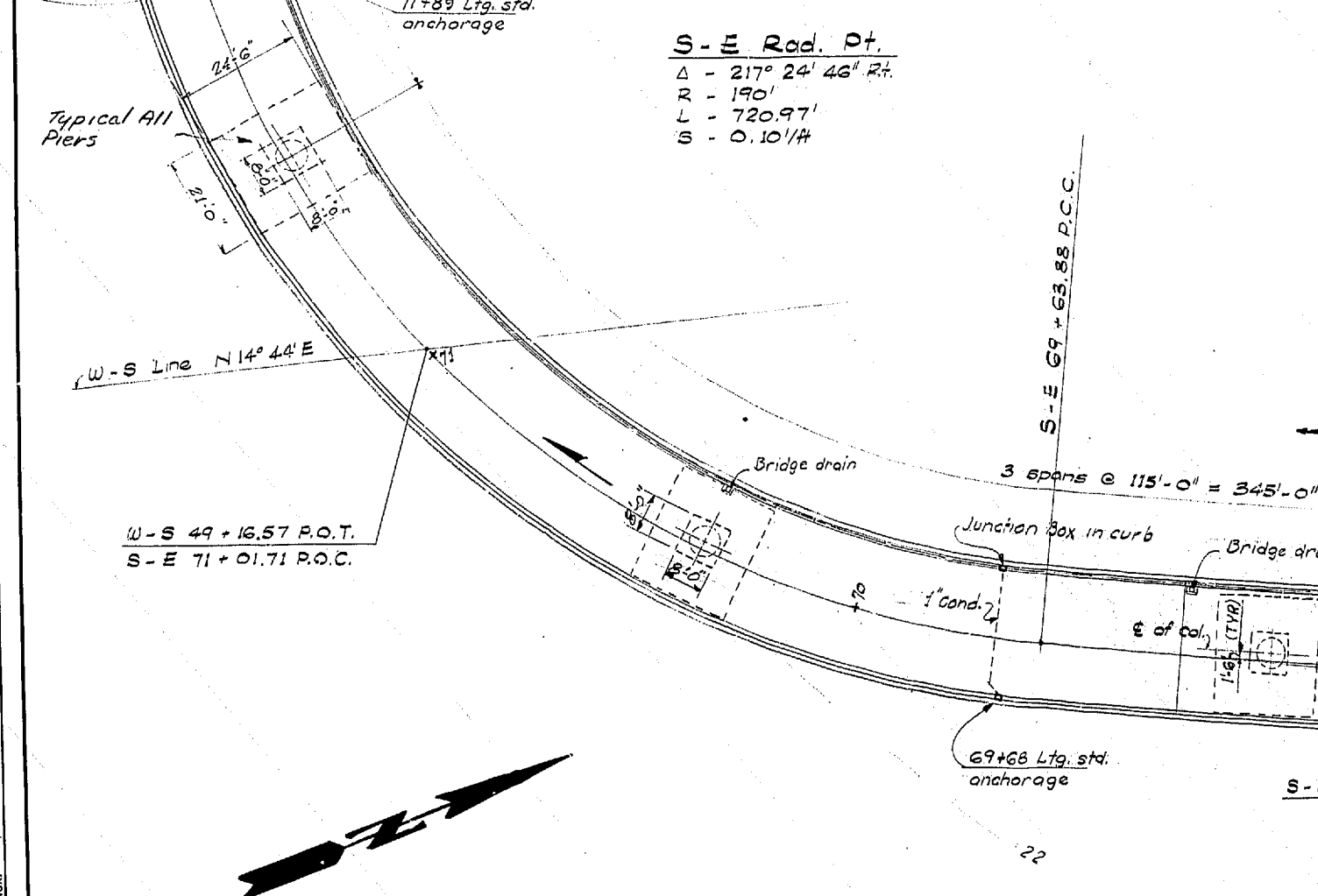
Structure Excavation	1082	C.Y.
Preboring for Concrete Piles	192	L.F.
Furnishing & Driving Concrete Test Piles 18" dia.	1	Ea.
Furnishing Concrete Piling 18" dia.	864	L.F.
Driving Concrete Piles 18" dia.	15	Ea.
Furnishing and Driving Timber Test Piles	4	Ea.
Furnishing Timber Piling (Creosote treated)	5964	L.F.
Driving Timber Piles (Creosote treated)	164	Ea.
Steel Reinforcing Bars	117879	Lbs.
Concrete Class B.	474	C.Y.
Concrete Class A.X.	85	C.Y.
Superstructure "S-E Ramp"	Lump Sum	L.S.
Water reducing additive	Est. 74	Dollar

## DEVELOPED ELEVATION - S-E RAMP

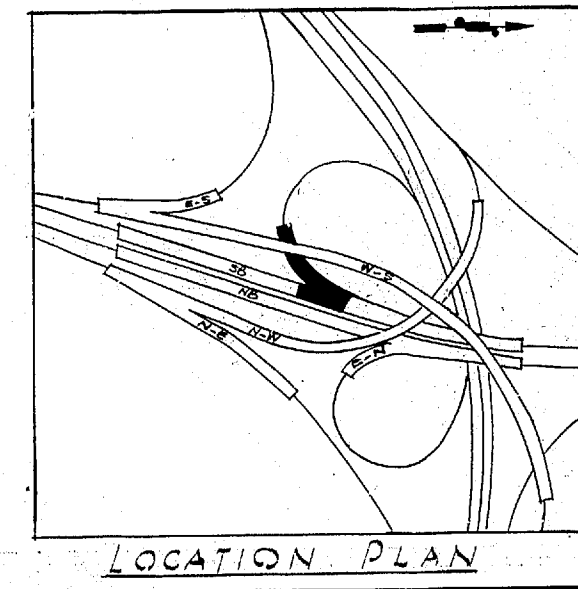
Grade elevations shown are finish grades on S-E Line & are equal to profile grade.

**S-E Rad. Pt.**  
Δ - 217° 24' 46" Rt.  
R - 190'  
L - 720.97'  
S - 0.101/H

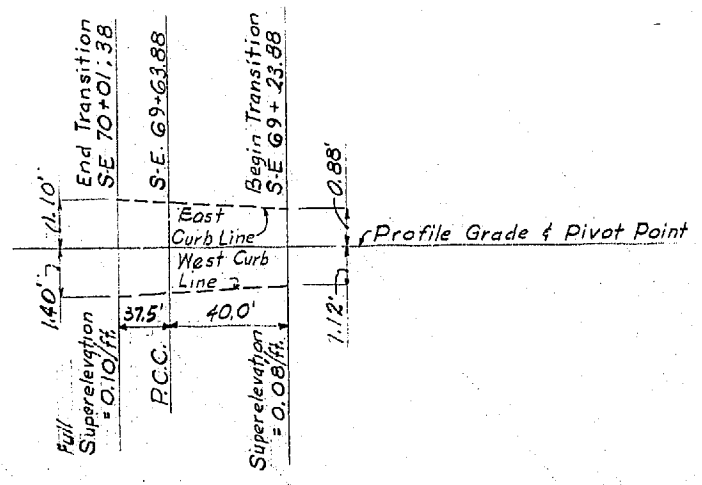
**S-E Line**  
P.I. - 68+63.90  
Δ - 5° 33' Rt.  
RD - 2066'  
T - 100.14'  
L - 200.12'  
S - 0.081/H



## PLAN



## LOCATION PLAN



## SUPERELEVATION PROFILE - S-E RAMP

U.S.C. & G.S.  
Mean Sea Level - 1947 Adj.

FOR GENERAL NOTES - See  
S.B. UNIT No. 1

DATE	REVISION	BY

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SR 405  
MP 23.49 TO MP 23.76  
WOODINVILLE INTERCHANGE  
KING COUNTY  
S-E STRUCTURE

## LAYOUT

WASHINGTON STATE HIGHWAY COMMISSION  
DEPARTMENT OF HIGHWAYS  
OLYMPIA, WASHINGTON

APPROVED December 7, 1967  
SHEET 130 OF 297 SHEETS  
CONTRACT NO. 8382

P/1995

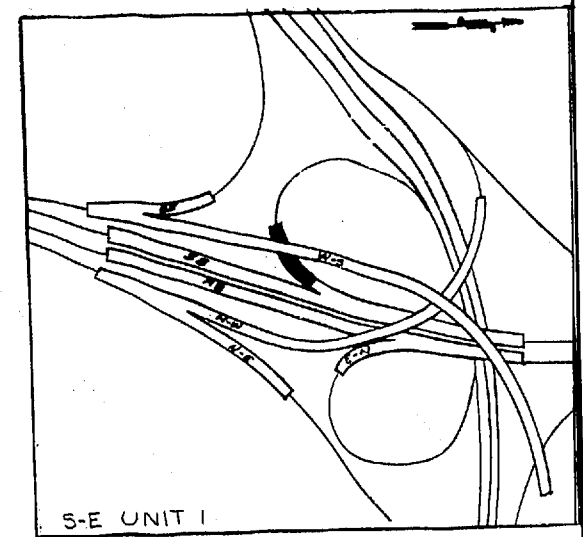
As Built Changes in Rad 9-11-70

DESIGNED BY	
CHECKED BY	
DATE	

DATE	
BY	
DRAWN	
CHECKED	
DATE	

WOODINVILLE INTERCHANGE  
PSH NO. 1-RE/PSH NO. 2-BO  
S-E STRUCTURE  
LAYOUT  
SHEET 130 OF 297

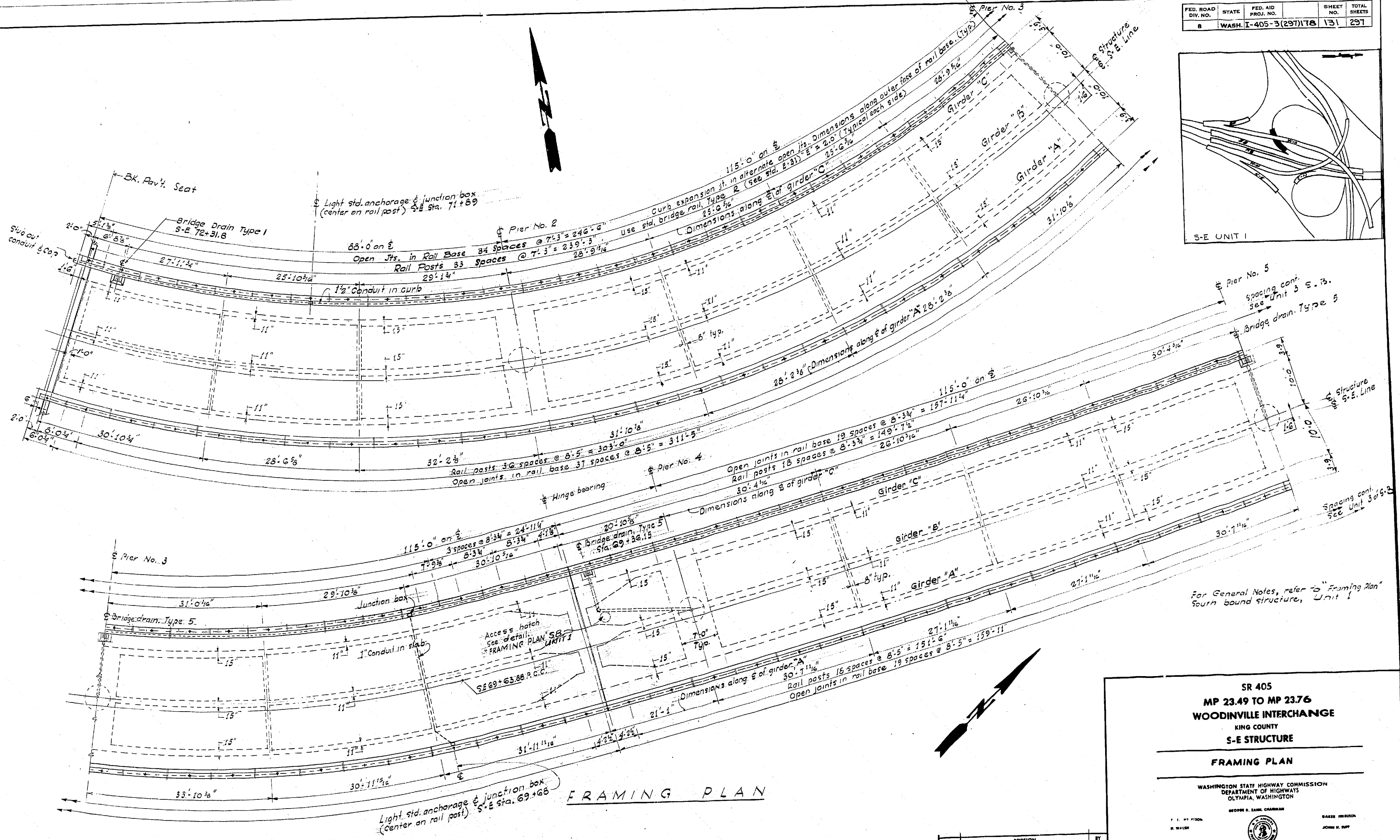
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	WASH.	I-405-3(297)178	131	297



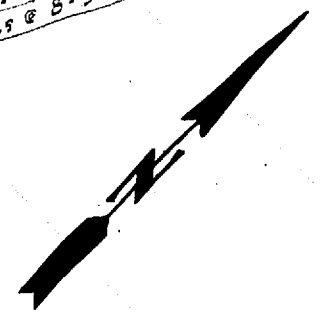
DESIGNED BY	
CHECKED BY	
DATE	
BY	
DATE	
BY	
DATE	

DATE	
BY	
DATE	
BY	
DATE	
BY	

WOODVILLE INTERCHANGE  
 PSH NO. 1-BE/PSH NO. 2-BO  
 S-E STRUCTURE  
 FRAMING PLAN  
 SHEET 123 OF 289  
 11-16-67



For General Notes, refer to "Framing Plan" South bound structure, Unit 1



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**WOODVILLE INTERCHANGE**  
 KING COUNTY  
**S-E STRUCTURE**

---

**FRAMING PLAN**

---

WASHINGTON STATE HIGHWAY COMMISSION  
 DEPARTMENT OF HIGHWAYS  
 OLYMPIA, WASHINGTON

GEORGE D. ZANK, CHAIRMAN  
 JOHN H. RUFF

December 7, 1967  
 SHEET 131 OF 297 SHEETS  
 CONTRACT NO. 8382

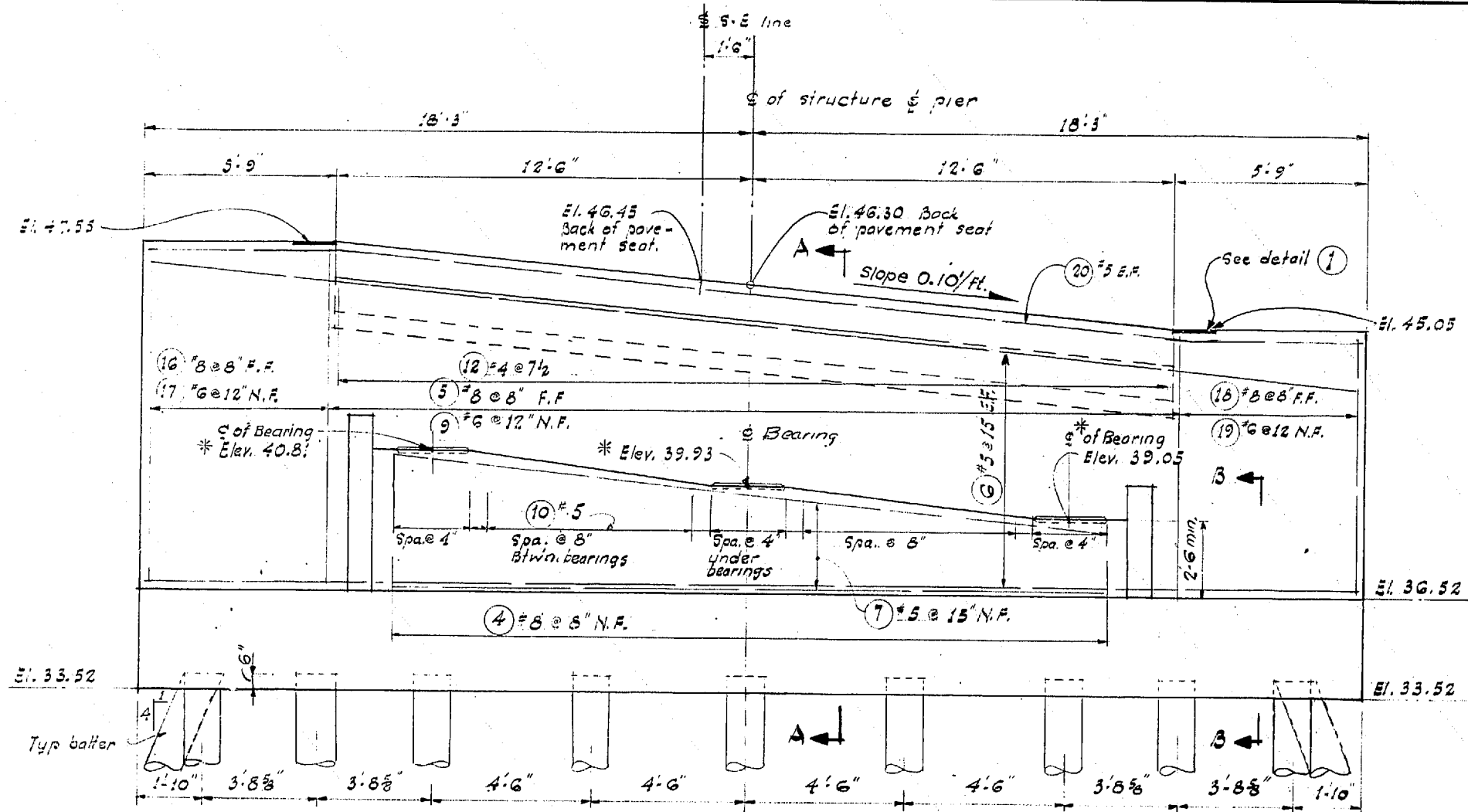
P/1995

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	WASH.	I-405-3(297)178	132	297

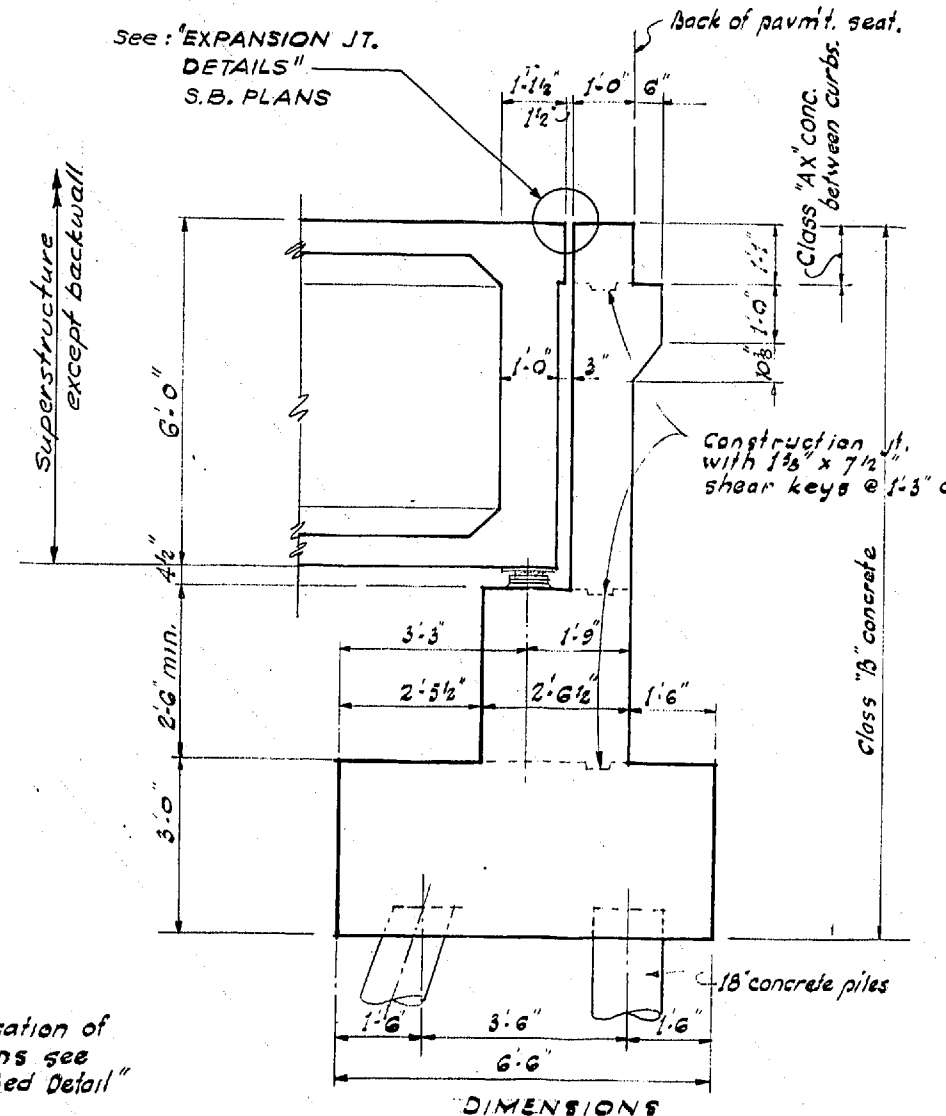
DESIGNING ENGINEER	
TRACED	
CHECKED	
QUANTITIES FORWARDED	
QUANTITIES CHECKED	

DATE	
BY	
CHECKED	
APPROVED	
DIVISION	

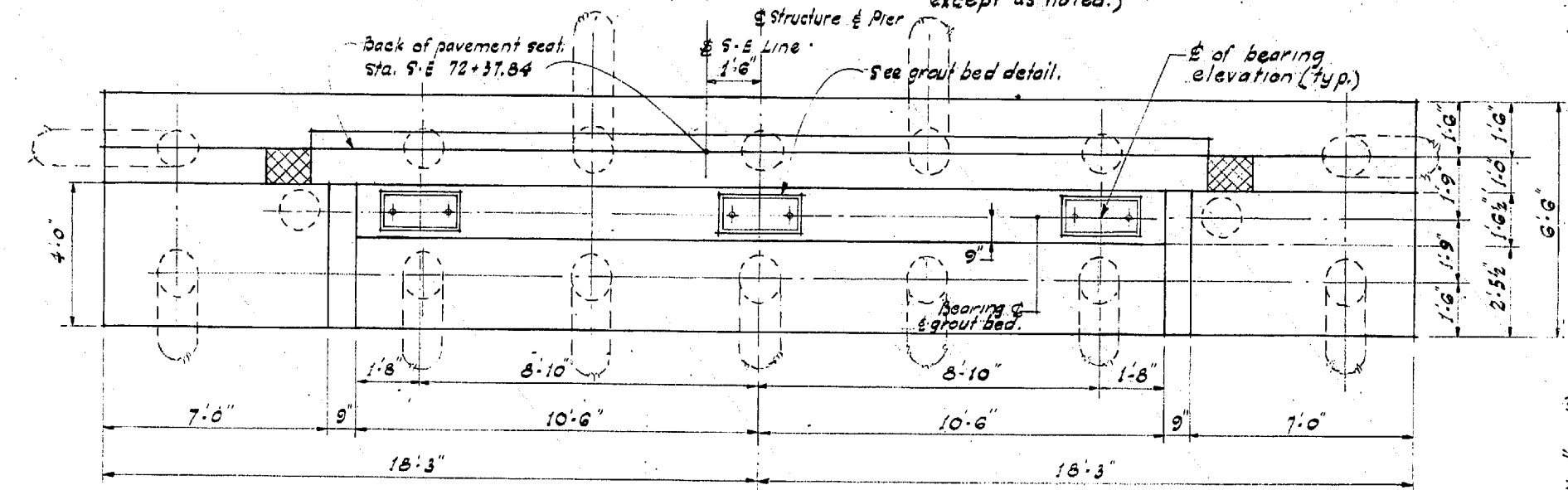
WOODRILLE INTERCHANGE  
 PSH NO. 1-RE/PSH NO. 2-BO  
 S-5 STRUCTURE  
 SHEET NO. 1  
 SHEET 132 OF 297  
 11-16-67



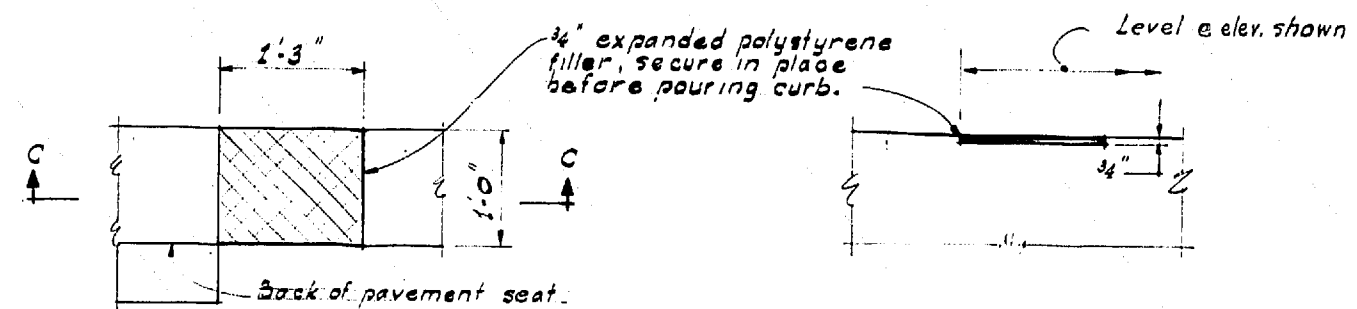
**ELEVATION PIER No. 1**  
 (Looking ahead on station)  
 (Elevation shown at back of pavt. seat except as noted.)



**SECTION A-A**

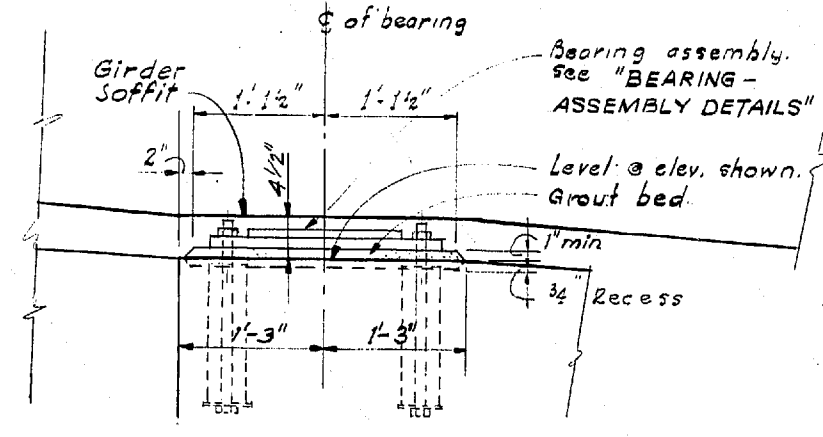


**PLAN PIER No. 1**



**DETAIL 1**

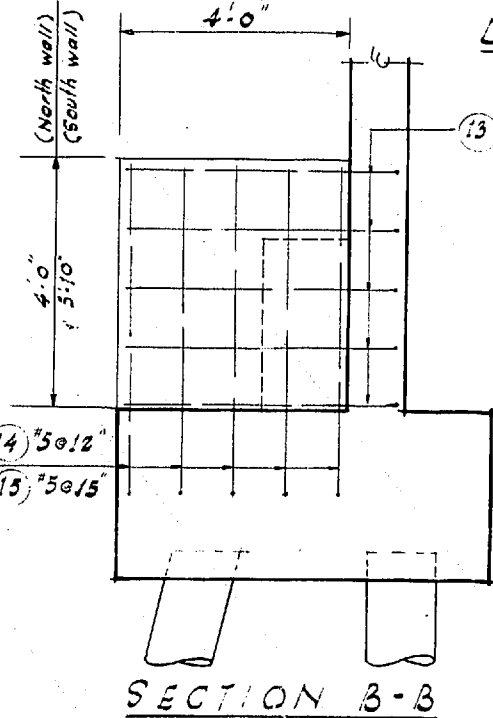
**SECTION C-C**



**GROUT BED DETAIL**



U.S.C. & G.S.  
 MEAN SEA LEVEL 1947 ADJ.



**SECTION B-B**

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 MP 23.49 TO MP 23.76  
**WOODRILLE INTERCHANGE**  
 KING COUNTY  
**S-E STRUCTURE**

**PIER NO. 1**

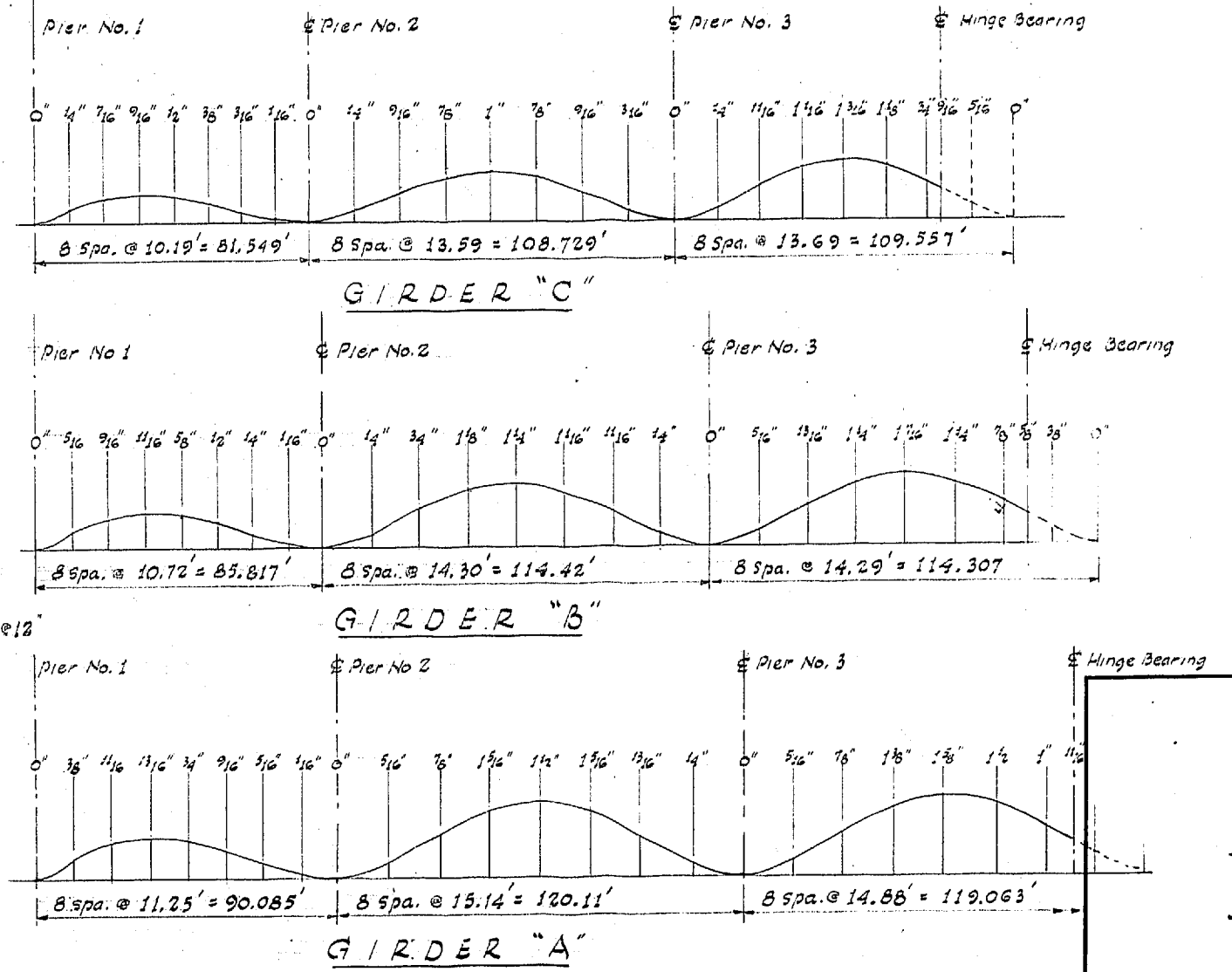
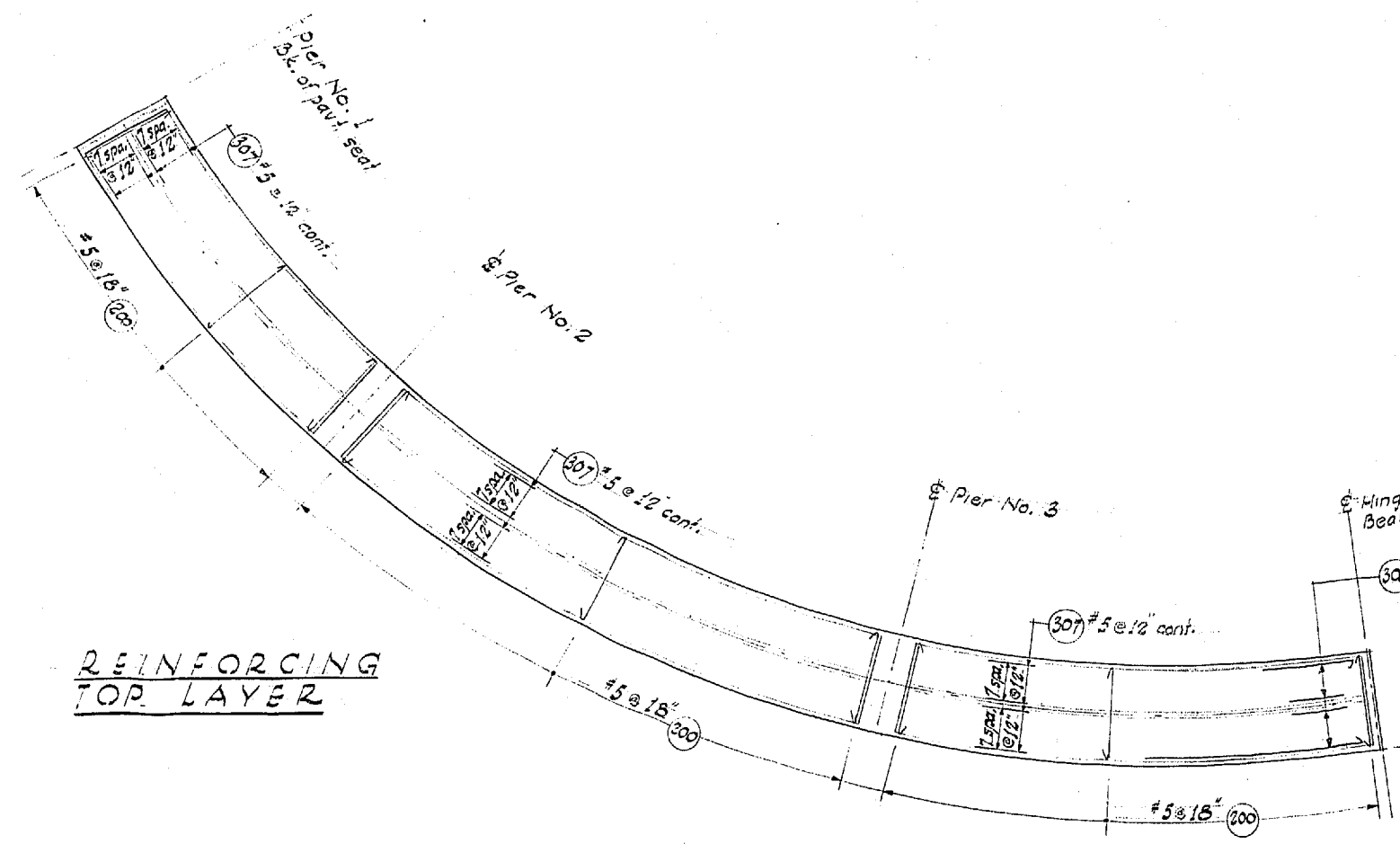
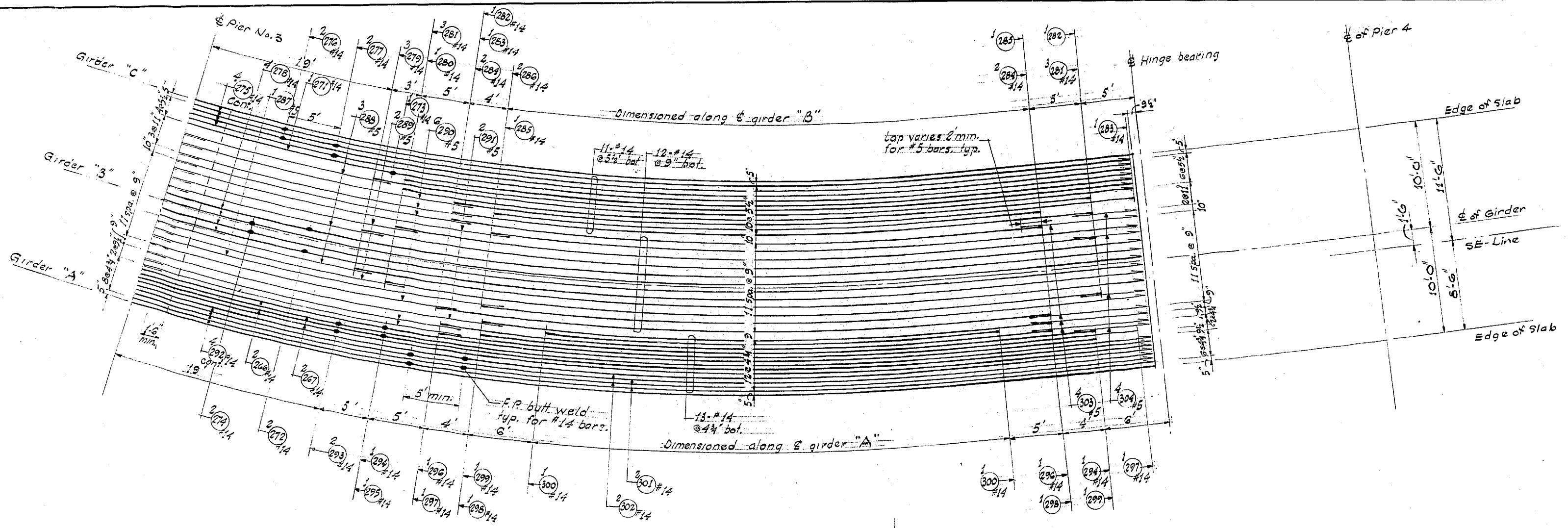
WASHINGTON STATE HIGHWAY COMMISSION  
 DEPARTMENT OF HIGHWAYS  
 OLYMPIA, WASHINGTON

GEORGE O. ZANK, CHAIRMAN  
 BAKER PEROUTON  
 JOHN M. BOPP

APPROVED December 7, 1967  
 SHEET 132 OF 297 SHEETS  
 CONTRACT NO. 8382

P/1992





DESIGNING ENGINEER	
DESIGNED	
DESIGN CHECKED	
DRAWN BY	
QUANTITIES FIGURED	
QUANTITIES CHECKED	

DATE	
BY	
DRAWN	
CHECKED	
LOG. ENGR.	
DIST. ENGR.	

WOODVILLE INTERCHANGE  
 PSH NO. 1-RE/PSH NO. 2-BO  
 S-E STRUCTURE  
 SHEET 126 OF 289  
 11-16-67

**BOTTOM SLAB**

**DEAD LOAD CAMBERS**

Note: These curves show the dead load camber only and should be increased by the amount of anticipated take up in the falsework.

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 WOODVILLE INTERCHANGE  
 KING COUNTY  
 S-E STRUCTURE**

---

**BOTTOM SLAB**

WASHINGTON STATE HIGHWAY COMMISSION  
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 OLYMPIA, WASHINGTON

GEORGE D. ZAHM, CHAIRMAN  
 F. I. HILSON  
 H. WALSH

BARRE PERSSON  
 JOHN H. RUFF

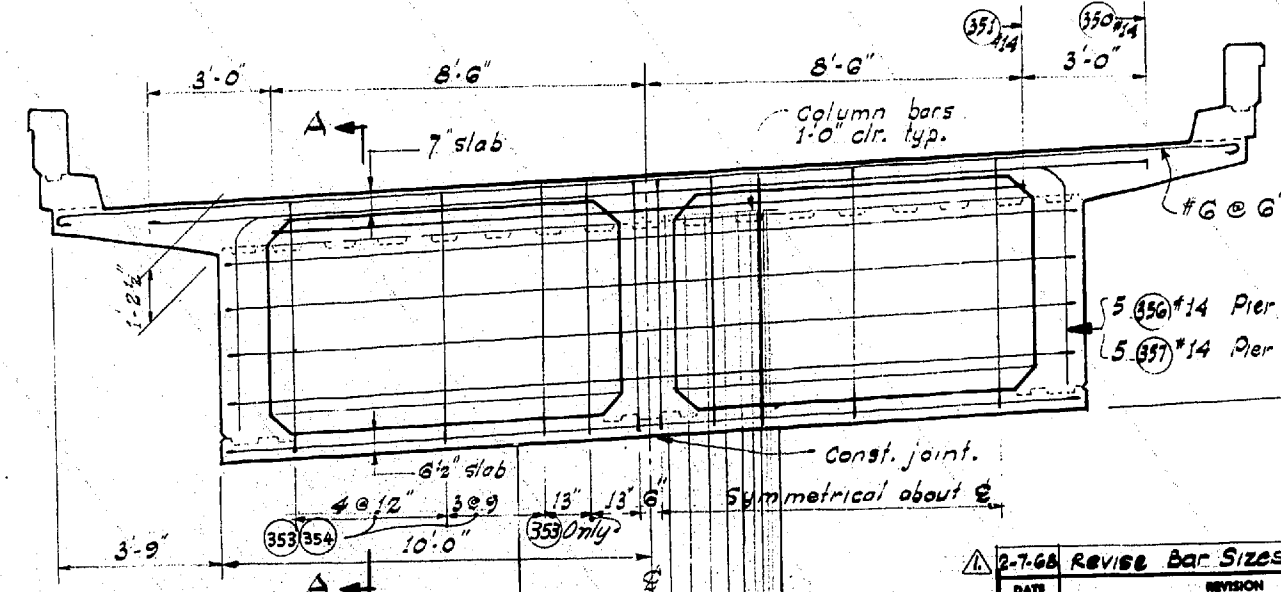
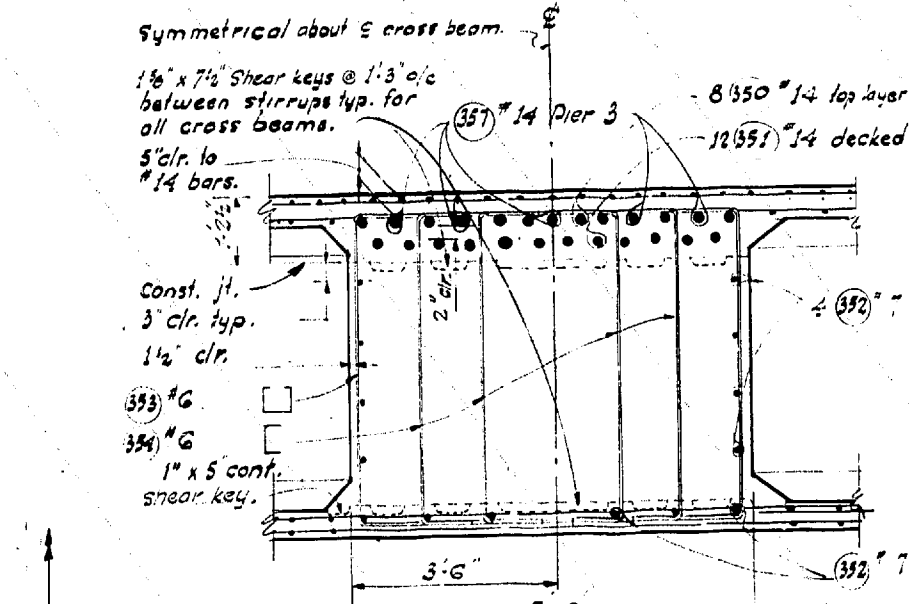
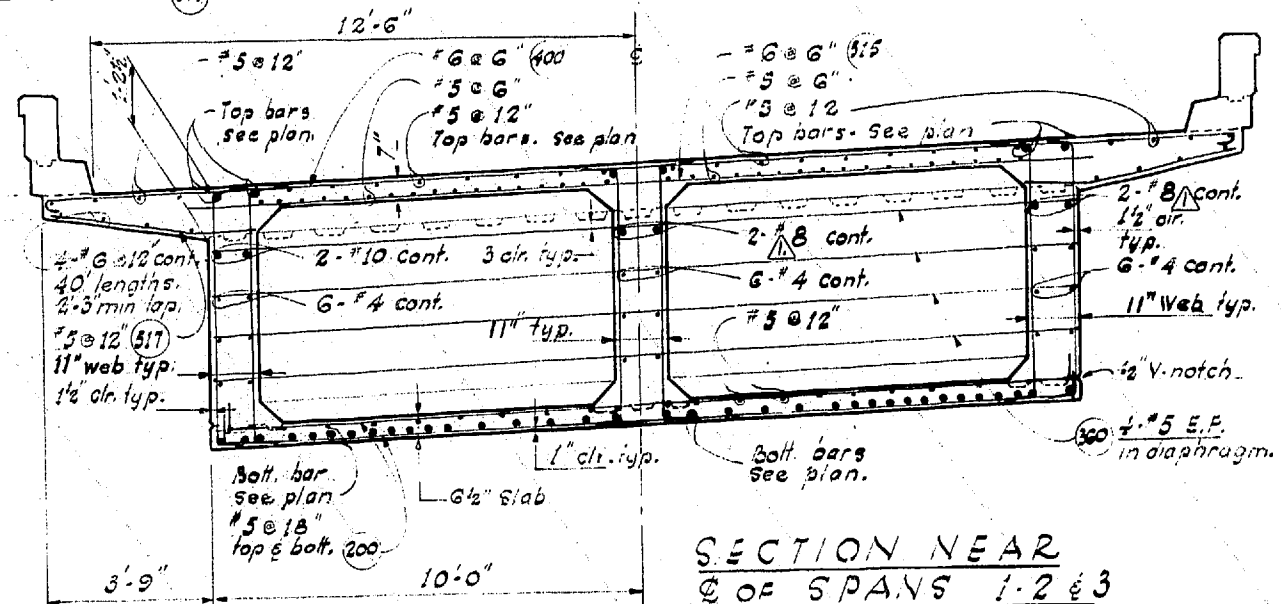
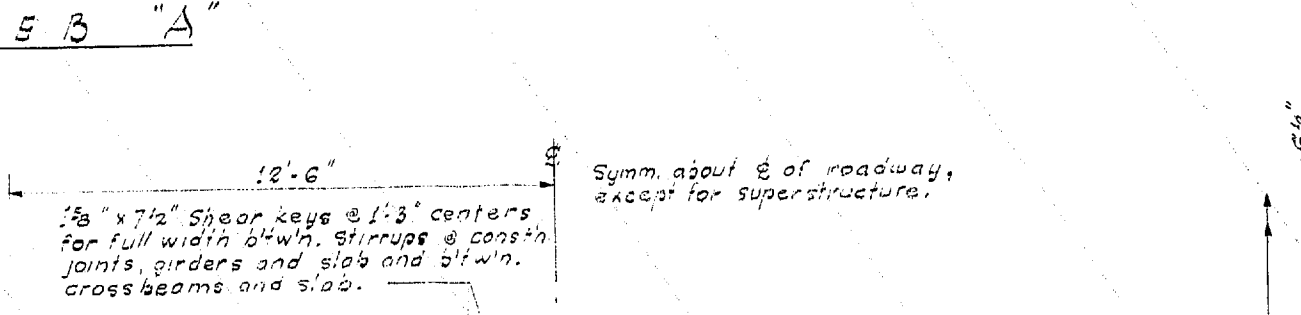
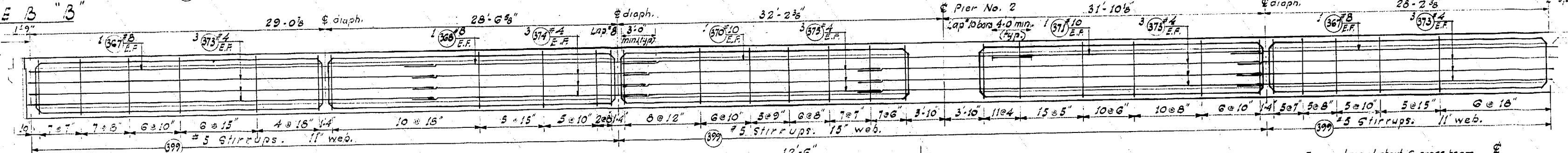
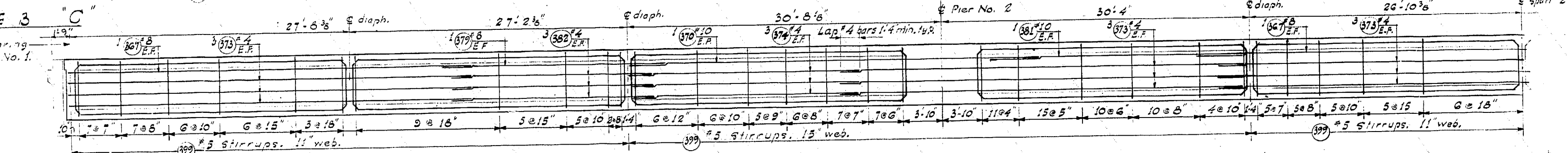
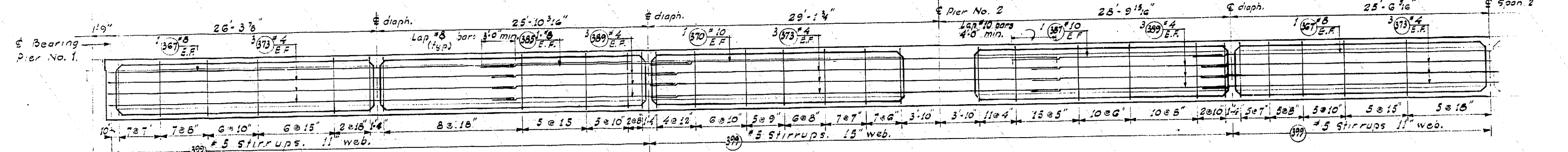
APPROVED December 7, 1967  
 SHEET 134 OF 297 SHEETS  
 CONTRACT NO. 8382

P/1995

DESIGNING ENGINEER  
 DRAWN BY  
 CHECKED BY  
 QUANTITIES FIGURED

DATE  
 BY  
 CHECKED  
 QUANTITIES FIGURED  
 DATE

WOODVILLE INTERCHANGE  
 PSR NO. 1-RE/PSR NO. 2-BO  
 S-E STRUCTURE  
 LONGITUDINAL AND TRANSVERSE SECTIONS  
 SHEET 135 OF 297  
 11-16-67



SECTION NEAR PIER No. 2 (Typical for Pier 3) Except as noted  
Looking back on station.

CROSS BEAM ELEVATION, PIERS 2 & 3

2-7-68 REVISE Bar Sizes in Section

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SEATTLE WASHINGTON

SR 405  
MP 23.49 TO MP 23.76  
WOODVILLE INTERCHANGE  
KING COUNTY  
S-E STRUCTURE

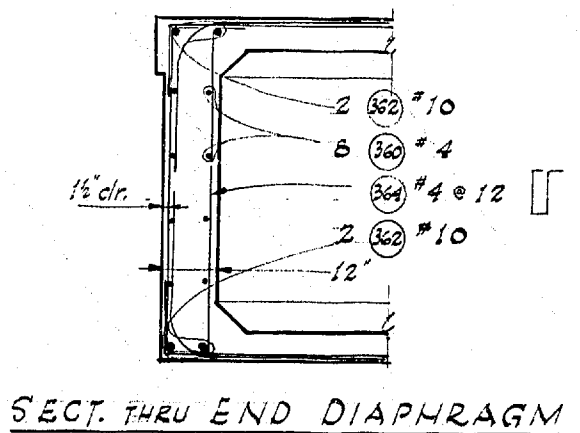
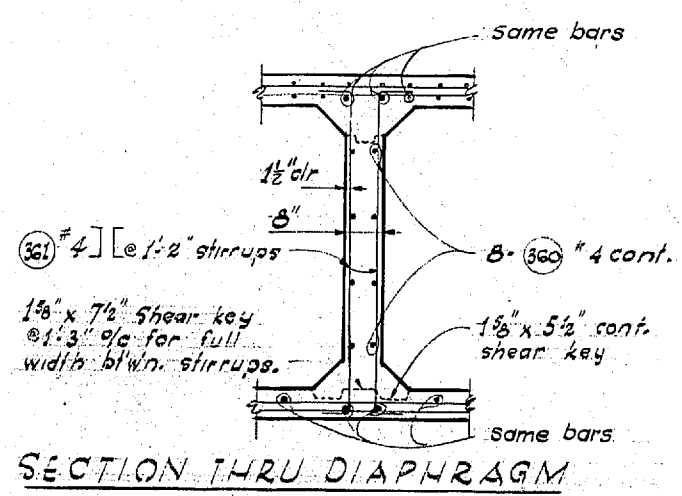
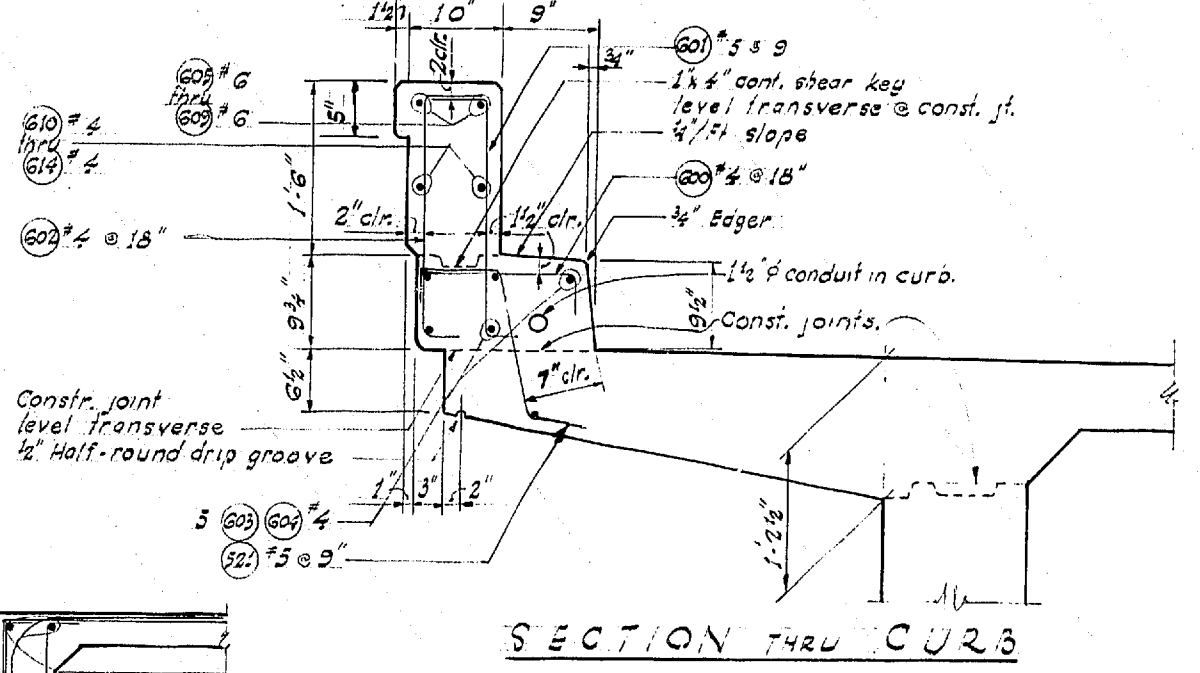
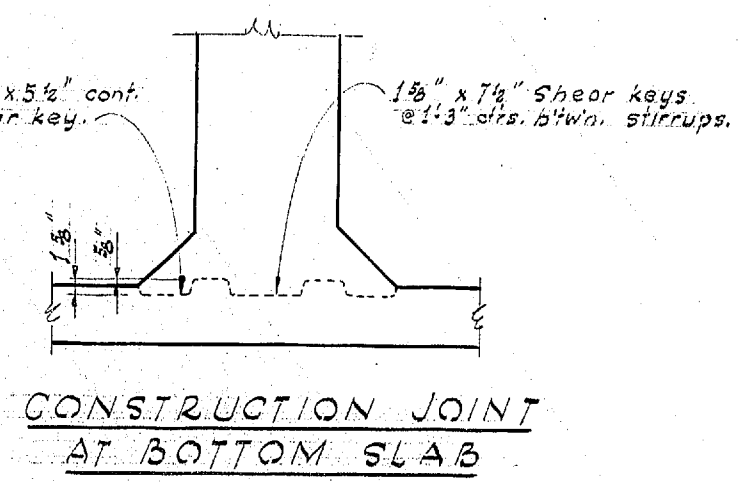
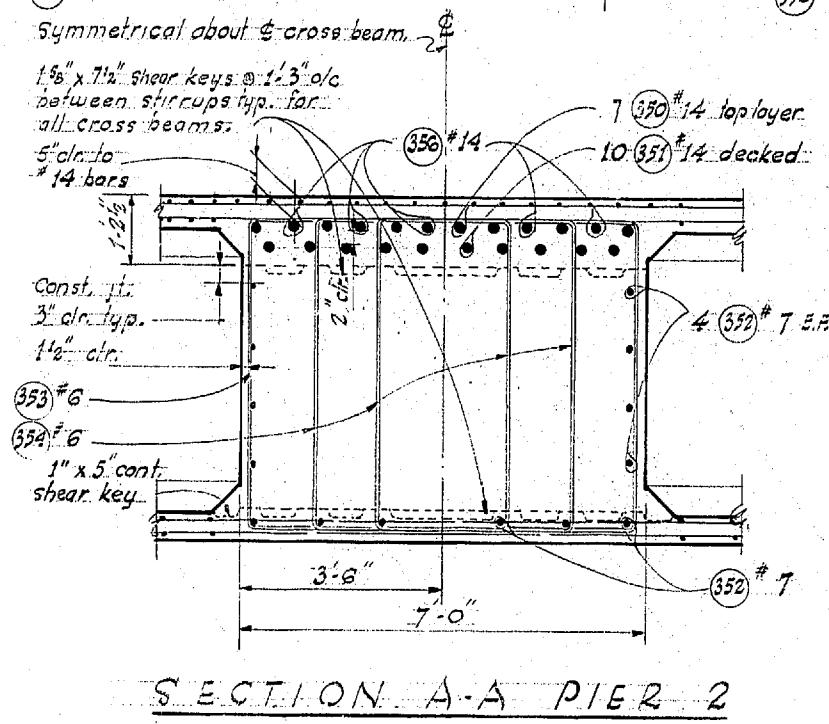
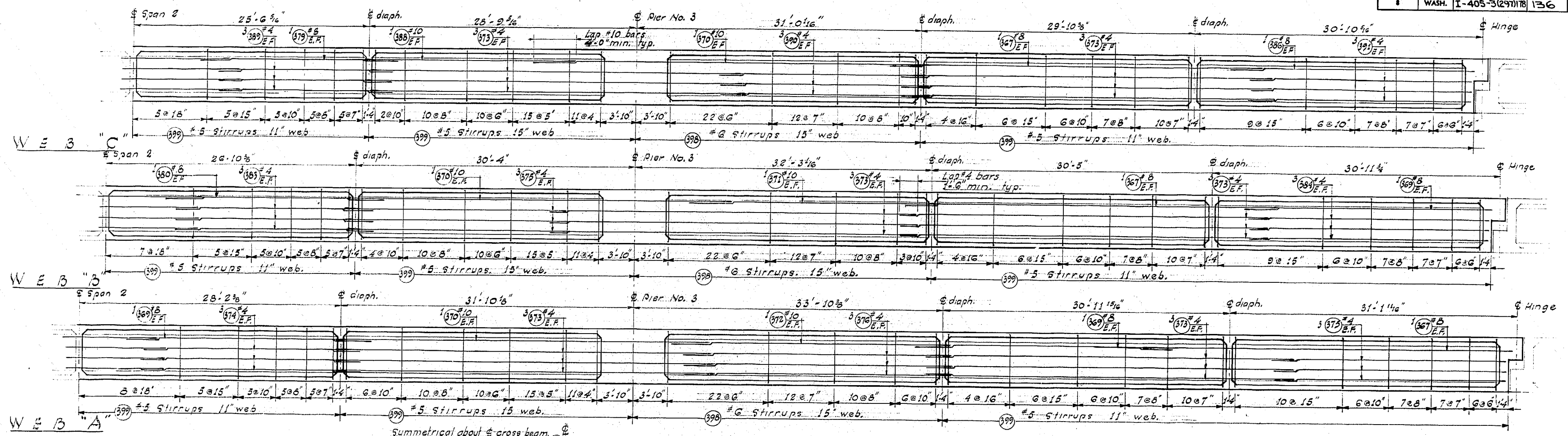
LONGITUDINAL AND TRANSVERSE SECTIONS

WASHINGTON STATE HIGHWAY COMMISSION  
DEPARTMENT OF HIGHWAYS  
OLYMPIA, WASHINGTON

APPROVED December 7, 1967  
SHEET 135 OF 297 SHEETS  
CC CONTRACT NO. 8382

P/1995

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	WASH.	I-405-3(29)118	136	297



DESIGNED	CHECKED	QUANTITIES CHECKED
DRAWN	DRAWN	DRAWN
BY	BY	BY

DATE	
BY	
DRAWN	
TRACED	
CHECKED	
LOC. ENGR.	
DATE	

WOODVILLE INTERCHANGE  
 PSH NO. 1-RE/PSH NO. 2-BO  
 S-E STRUCTURE  
 LONGITUDINAL & TRANSVERSE SECTIONS  
 SHEET 136 OF 297  
 11-16-67

DATE \_\_\_\_\_ REVISION \_\_\_\_\_ BY \_\_\_\_\_

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SR 405  
 MP 23.49 TO MP 23.76  
**WOODVILLE INTERCHANGE**  
 KING COUNTY  
**S-E STRUCTURE**

**LONGITUDINAL & TRANSVERSE SECTIONS**

WASHINGTON STATE HIGHWAY COMMISSION  
 DEPARTMENT OF HIGHWAYS  
 OLYMPIA, WASHINGTON

GEORGE D. ZANI, CHAIRMAN  
 SAUER PROUSSON  
 JOHN H. SUPP

APPROVED December 7, 1967  
 SHEET 136 OF 297 SHEETS  
 CONTRACT NO. 8382

P/1995

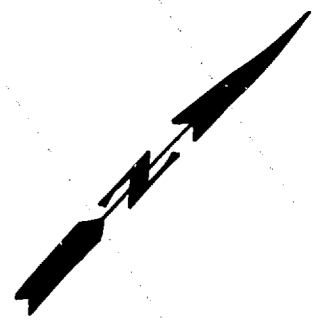
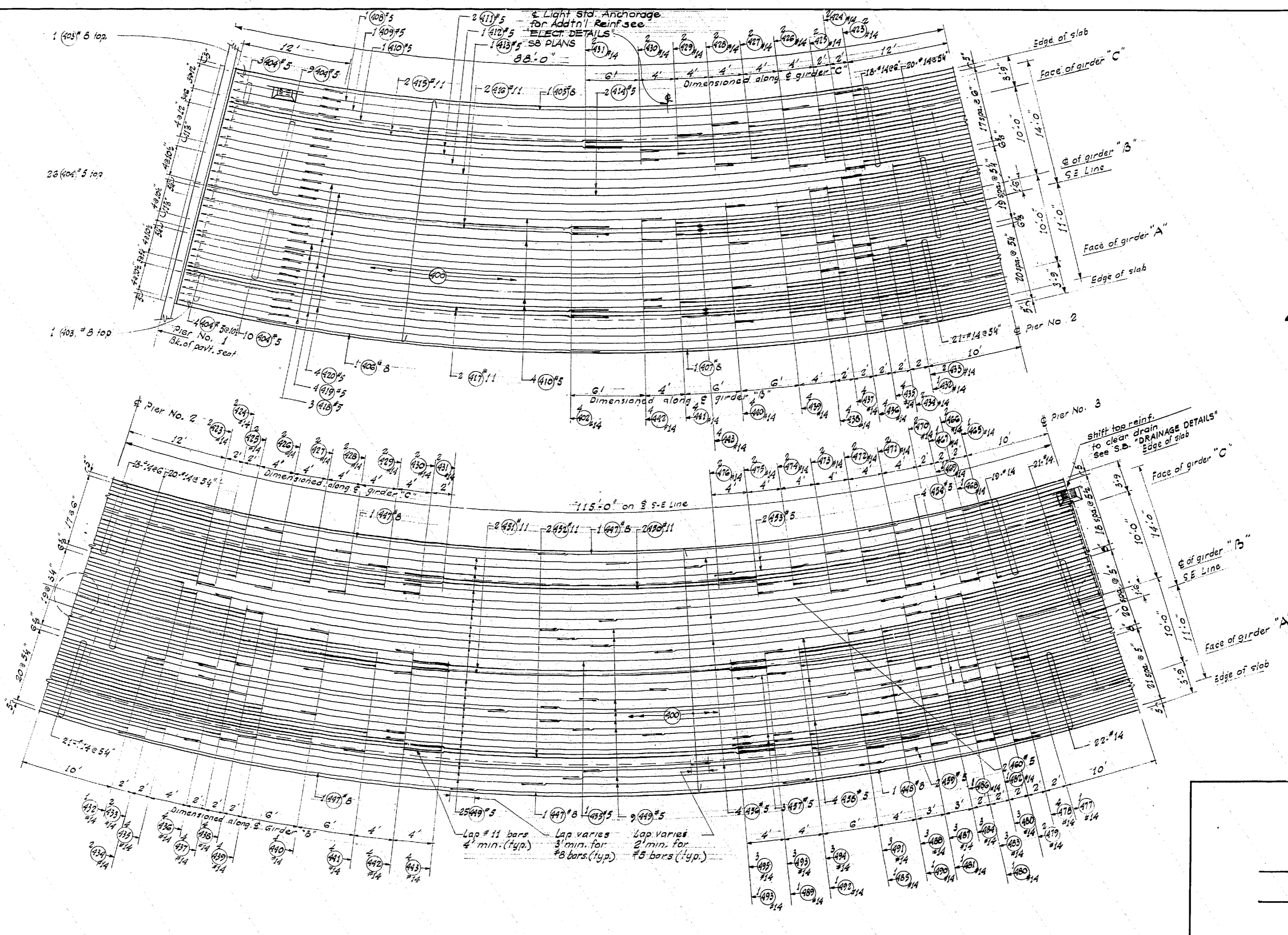
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	WASH.	I-405-3(297)178	137	297

DESIGNING ENGINEER	
CHECKED	
DRAWN BY	
QUANTITIES FIGURED	
QUANTITIES CHECKED	

DATE	
BY	
DRAWN	
CHECKED	
LOC. DIR.	
DIST. ENGR.	

WOODVILLE INTERCHANGE  
 PSH NO. 1  
 STRUCTURE NO. 2-B0  
 S-E STRUCTURE  
 ROADWAY SLAB  
 SHEET 137 OF 297

11-16-67



**ROADWAY SLAB**

DATE	REVISION	BY
<b>WORTHINGTON, SKILLING          HELLE &amp; JACKSON</b> Consulting Civil and Structural Engineers SEATTLE WASHINGTON		

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 MP 23.49 TO MP 23.76  
 WOODVILLE INTERCHANGE  
 KING COUNTY  
 S-E STRUCTURE**

**ROADWAY SLAB**

WASHINGTON STATE HIGHWAY COMMISSION  
 DEPARTMENT OF HIGHWAYS  
 OLYMPIA, WASHINGTON

F. I. WELSH  
 H. WASH  
 GEORGE D. ZAPPE, CHAIRMAN  
 LAKER PERSSON  
 JOHN H. BAPP  
 ENGINEER

APPROVED December 7, 1967  
 SHEET 137 OF 297 SHEETS  
 CONTRACT NO. 8382  
 P/1995







S- Bar is included in substructure quantities.  
 F- Bar to be field welded.  
 T- Tie or StIRRUP.  
 H-A.S.T.M. A-432.  
 V- Bar dimensions vary between dimensions shown on this line and the following line.

MARK NO.	LOCATION	SIZE	NO. REQD.	BEND TYPE	TIE OR STIR	FIELD WELD	SUBSTR.	A-432	VARIES	NO. EACH	DIMENSIONS (Out to out)										LENGTH		WEIGHT Lbs.				
											U		W		X		Y		Z		θ <sub>1</sub>	θ <sub>2</sub>		Ft.	In.		
											Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.							
S-E RAMP UNIT 1																											
1	SE PIER 1 FTG BARS	5	38	50						6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	238		
2	SE PIER 1 FTG BARS	5	14	50						36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	526		
3	SE PIER 1 FTG BARS	6	46	50						6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	415		
4	SE PIER 1 FTG DWLS FF	8	32	54						6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	520		
5	SE PIER 1 FTG DWLS FF	8	40	54						10	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	570	
6	SE PIER 1 ABUT HORIZ EF	5	16	50						13	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1393	
7	SE PIER 1 ABUT HORIZ NF	5	3	50						36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	601	
8	SE PIER 1 ABUT HORIZ NF	4	3	50						22	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69	
9	SE PIER 1 ABUT VERT NF	6	26	50						24	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	
10	SE PIER 1 ABUT TIES	5	42	56	T					10	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	376	
11	SE PIER 1 ABUT TIES	4	38	56	T					3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	
12	SE PIER 1 TIES	4	44	91	T					1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	
13	SE PIER 1 ABUT END WALL H	5	10	54						4	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	127	
14	SE PIER 1 ABUT END WALL V	5	5	54						5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	
15	SE PIER 1 ABUT END WALL V	5	5	54						6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	
16	SE PIER 1 ABUT	8	9	54						8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	
17	SE PIER 1 ABUT	8	9	54						13	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	342	
18	SE PIER 1 ABUT	8	9	54						10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	98	
19	SE PIER 1 ABUT	6	6	50						10	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	282	
20	SE PIER 1 ABUT	6	6	50						8	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	
21	SE PIER 1 ABUT	5	2	69						5	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	
22	PIER 2 FTG LONG	10	26	50						20	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2300
23	PIER 2 FTG LONG	11	33	50						24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4200
24	PIER 2 FTG DWLS	18	18	54						15	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3784
25	PIER 2 FTG DWLS	18	18	54						22	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5416
26	PIER 2 COL VERTS	14	17	50						24	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3143
27	PIER 2 COL VERTS	14	17	50						17	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2276
28	PIER 2 COL TIES	4	30	66						1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	324
29	PIER 3 FTG LONGS	10	26	50						20	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2300
30	PIER 3 FTG LONGS	11	33	50						27	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4820
31	PIER 3 FTG DWLS	18	18	54						15	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3994
32	PIER 3 FTG DWLS	18	18	54						22	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5717
33	PIER 3 COL VERTS	18	19	50						28	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7407
34	PIER 3 COL VERTS	18	19	50						22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5685
35	PIER 3 COL TIES	4	35	66						1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	381
200	BOT SLAB BOT LONG PIER 1-2	5	200	61						19	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4415
201	BOT SLAB BOT LONG PIER 1-2	5	5	50						3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
202	BOT SLAB BOT LONG PIER 1-2	5	4	50						9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
203	BOT SLAB BOT LONG PIER 1-2	5	1	50						13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
204	BOT SLAB BOT LONG PIER 1-2	5	1	50						13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
205	BOT SLAB BOT LONG PIER 1-2	14	2	90						91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	780
206	BOT SLAB BOT LONG PIER 1-2	14	2	90						56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	857
207	BOT SLAB BOT LONG PIER 1-2	14	1	90						61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	467
208	BOT SLAB BOT LONG PIER 1-2	14	1	90						62	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	476
209	BOT SLAB BOT LONG PIER 1-2	14	1	90						58	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	448
210	BOT SLAB BOT LONG PIER 1-2	14	1	90						66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	505
211	BOT SLAB BOT LONG PIER 1-2	14	1	90						67	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	514
212	BOT SLAB BOT LONG PIER 1-2	14	1	90						68	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	524
213	BOT SLAB BOT LONG PIER 1-2	14	1	90						69	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	530
214	BOT SLAB BOT LONG PIER 1-2	14	1	90						72	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	553
215	BOT SLAB BOT LONG PIER 1-2	14	1	90						73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	558
216	BOT SLAB BOT LONG PIER 1-2	14	2	94						75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1147
217	BOT SLAB BOT LONG PIER 1-2	14	2	94						80	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1228
218	BOT SLAB BOT LONG PIER 1-2	14	2	94						12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	207
219	BOT SLAB BOT LONG PIER 1-2	14	4	94						75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	207
220	BOT SLAB BOT LONG PIER 1-2	14	4	94						80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2371
221	BOT SLAB BOT LONG PIER 1-2	14	4	54						5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	293
222	BOT SLAB BOT LONG PIER 1-2	14																									



S=Bar is included in substructure quantities.

H=A.S.T.M. A-432.

F=Bar to be field welded.

V=Bar dimensions vary between dimensions shown on this line and the following line.

T=Tie or StIRRup.

MARK NO.	LOCATION	SIZE	NO. REQ'D.	BEND TYPE	TIE OR STIRRUP	FIELD WELD	SUBSTR.	VARIES	NO. EACH	DIMENSIONS (Out to out)										LENGTH		WEIGHT Lbs.		
										U		W		X		Y		Z		θ <sub>1</sub>	θ <sub>2</sub>		Ft.	In.
										Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.					
S-E RAMP UNIT 2																								
48	PIER 4 FTG LONG	10	26	50					20	6.0							20	6.0	2290					
49	PIER 4 FTG TRAN	11	26	50					24	0.0							24	0.0	4208					
50	PIER 4 FTG DWLS	18	18	54					12	8.0							15	6.0	3784					
51	PIER 4 FTG DWLS	18	18	54					12	4.0							22	2.0	5616					
52	PIER 4 COL VERTS	18	18	50					31	1.0							31	1.0	7609					
53	PIER 4 COL VERTS	18	18	50					24	5.0							24	5.0	5977					
54	PIER 4 COL TIES	14	38	66					4	9.0	1	6.0					16	3.0	414					
52	PIER 5 FTG LONG	10	31	50					20	6.0							20	6.0	2735					
53	PIER 5 FTG TRAN	11	26	50					24	0.0							24	0.0	2300					
54	PIER 5 FTG DWLS	18	32	54					12	8.0							15	6.0	4700					
55	PIER 5 FTG DWLS	18	18	54					19	4.0							22	2.0	5416					
67	PIER 5 COL VERTS	18	18	50					31	6.0							31	6.0	7711					
67	PIER 5 COL VERTS	18	18	50					24	10.0							24	10.0	6079					
60	PIER 5 COL TIES	4	39	66					5	9.0	1	6.0					19	2.0	306					
200	BOT SLAB BOT LONGIT	5	20	50					22	6.0							22	6.0	469					
201	BOT SLAB BOT LONGIT	5	20	50					24	0.0							24	0.0	50					
202	BOT SLAB BOT LONGIT	5	20	50					33	0.0							33	0.0	69					
203	BOT SLAB BOT LONGIT	5	6	50					28	0.0							28	0.0	175					
204	BOT SLAB BOT LONGIT	5	6	50					21	0.0							21	0.0	131					
205	BOT SLAB BOT TRANSV	5	85	61	T				19	8.0	1	0.0	1	0.0			21	3.0	1884					
207	BOT SLAB BOT LONGIT	5	4	50					30	9.0							30	9.0	128					
208	BOT SLAB BOT LONGIT	5	2	50					34	0.0							34	0.0	71					
209	BOT SLAB BOT LONGIT	5	2	50					31	6.0							31	6.0	66					
210	BOT SLAB BOT LONGIT	5	2	50					41	6.0							41	6.0	87					
211	BOT SLAB BOT LONGIT	14	6	50					76	0.0							76	0.0	3488					
212	BOT SLAB BOT LONGIT	14	6	50					71	0.0							71	0.0	3259					
213	BOT SLAB BOT LONGIT	14	6	50					63	0.0							63	0.0	2892					
214	BOT SLAB BOT LONGIT	14	6	50					54	0.0							54	0.0	2479					
216	BOT SLAB BOT LONGIT	10	6	50					80	6.0							80	6.0	2078					
217	BOT SLAB BOT LONGIT	14	2	50					37	0.0							37	0.0	566					
218	BOT SLAB BOT LONGIT	14	2	50					27	0.0							27	0.0	413					
219	BOT SLAB BOT LONGIT	14	4	50					32	0.0							32	0.0	979					
220	BOT SLAB BOT LONGIT	14	4	50					41	6.0							41	6.0	1270					
221	BOT SLAB BOT LONGIT	14	4	50					36	6.0							36	6.0	1117					
222	BOT SLAB BOT LONGIT	14	4	50					42	0.0							42	0.0	1285					
223	BOT SLAB BOT LONGIT	14	2	50					80	0.0							80	0.0	1224					
224	BOT SLAB BOT LONGIT	5	4	50					38	0.0							38	0.0	159					
225	BOT SLAB BOT LONGIT	5	2	50					36	9.0							36	9.0	77					
205	BOT SLAB TOP TRANS	5	85	61	T				19	8.0	1	0.0	1	0.0			21	3.0	1884					
206	BOT SLAB TOP LONGIT	5	32	50					46	0.0							46	0.0	1535					
226	BOT SLAB TOP LONGIT	5	16	50					39	0.0							39	0.0	651					
227	BOT SLAB TOP LONGIT	5	16	50					22	6.0							22	6.0	375					
352	LONGIT WEBS HNG TO PIER 5	10	6	50					52	0.0							52	0.0	1348					
353	LONGIT WEBS HNG TO PIER 5	8	6	50					27	0.0							27	0.0	433					
354	LONGIT WEBS HNG TO PIER 5	8	6	50					40	0.0							40	0.0	641					
356	LONGIT WEBS HNG TO PIER 5	4	18	50					22	0.0							22	0.0	265					
357	LONGIT WEBS HNG TO PIER 5	4	36	50					30	0.0							30	0.0	721					
358	LONGIT WEBS HNG TO PIER 5	4	36	50					32	0.0							32	0.0	770					
359	LONGIT WEBS STIRRUPS	6	900	65					6.0	5	9.5	6.0					4	5.0	8730					
360	TRANSV DIAPHRAGMS HORIZ	5	32	50					19	8.0							19	8.0	656					
363	TRANSV DIAPHRAGMS STIRRUPS	4	108	64	T				6.0	5	4.0	6.0					6	1.0	439					
381	PIERS 4 & 5 CROSSBEAMS TOP	14	12	50					23	0.0							23	0.0	2111					
382	PIERS 4 & 5 CROSSBEAMS TOP	14	20	50					17	0.0							17	0.0	2601					
383	PIERS 4 & 5 CROSSBEAMS EF	14	16	56					19	4.0							23	6.0	2876					
384	PIERS 4 & 5 CROSSBEAMS BOT	7	12	50					19	8.0							19	8.0	482					
390	PIERS 4 & 5 CROSSBEAMS TOP	14	12	61					19	4.0	5	0.0	5	0.0			27	4.0	2509					

S=Bar is included in substructure quantities.

H=A.S.T.M. A-432.

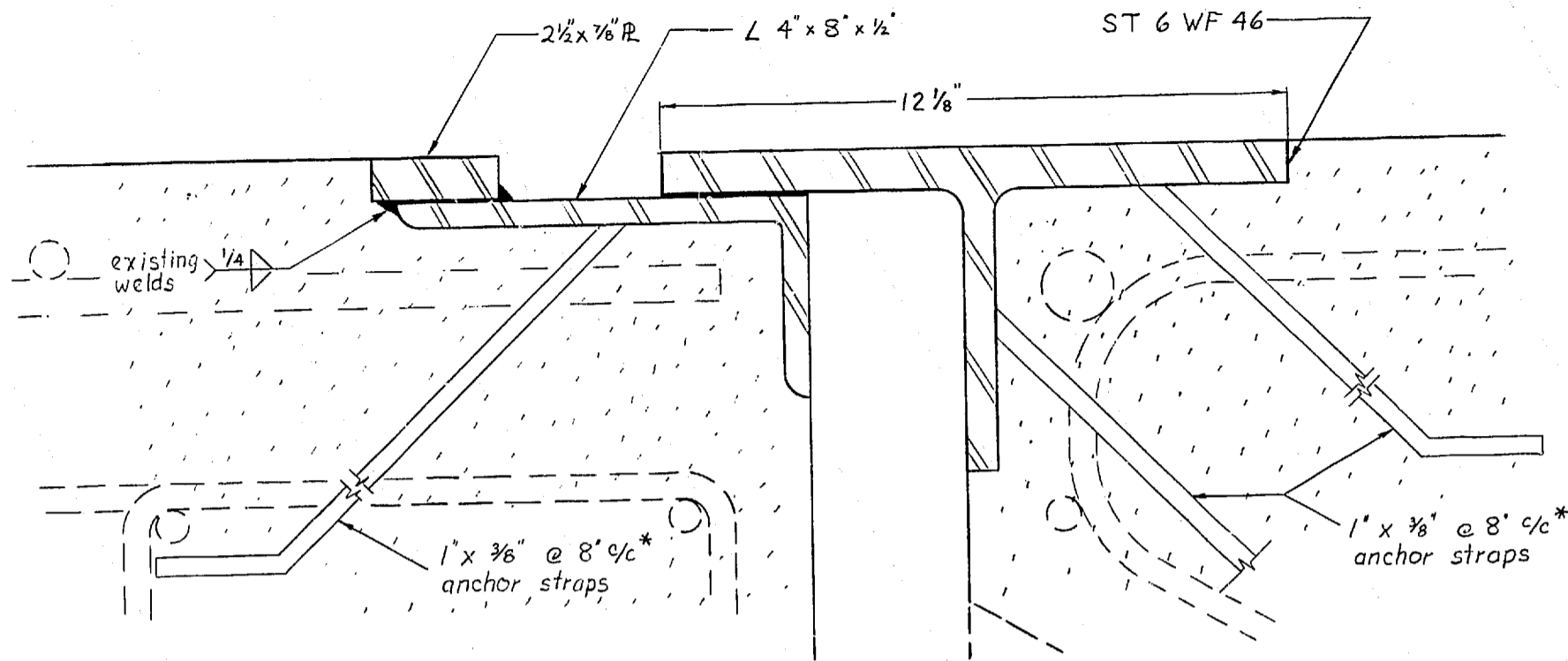
F=Bar to be field welded.

V=Bar dimensions vary between dimensions shown on this line and the following line.

T=Tie or StIRRup.

MARK NO.	LOCATION	SIZE	NO. REQ'D.	BEND TYPE	TIE OR STIRRUP	FIELD WELD	SUBSTR.	VARIES	NO. EACH	DIMENSIONS (Out to out)										LENGTH		WEIGHT Lbs.		
										U		W		X		Y		Z		θ <sub>1</sub>	θ <sub>2</sub>		Ft.	In.
										Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.					
S-E RAMP UNIT 2																								
215	BOT SLAB LONGIT P4	14	4	50					25	6.0							25	6.0	857					
385	PIERS 4 & 5 CROSS STIRR	6	40	61	T				6	9.0	5	6.5	5	6.5	1	0.0	1	0.0	1157					
386	PIERS 4 & 5 CROSS STIRRUPS	6	112	64	T				1	0.0	5	6.5	1	0.0			7	1.0	1195					
630	HINGE DIAGONAL	11	21	96					3	0.0	5	5.5					11	5.0	1270					
631	BRG SUPPORT HORIZ	14	21	50					0	5.0							0	5.0	84					
632	BRG SUPPORT STIRRUPS	5	24	61	T				2	9.0	4	10.0	4	10.0			6.0	6.0	325					
633	BRG SUPPORT STIRRUPS	5	3	61	T				3	9.0	4	10.0	4	10.0			6.0	6.0	44					
634	BRG SUPPORT STIRRUPS	5	24	61	T				3	9.0	2	0.5	2	0.5			6.0	6.0	211					
635	BRG SUPPORT HORIZ	6	4	50					4	0.0							4	0.0	240					
636	BRG SUPPORT HORIZ	6	4	69					3	10.0	5	0.0	1	8.0			9	0.0	54					
637	BRG SUPPORT HORIZ	6	4	69					3	10.0	9	6.0	3	2.0			13	9.0	82					
638	WEB HORIZ BOT	4	12	50					5	0.0							5	0.0	40					
639	WEB HORIZ BOT	4	6	50					19	5.0							19	5.0	79					
640	DIAPHRAM STIRRUPS	4	8	60	T				1	0.0	4	6.5	6.0				11	8.0	62					
641	DIAPHRAM HORIZ TOP	5	2	50					23	0.0							23	0.0	48					
642	DIAPHRAM HORIZ BOT	7	2	50					19	9.0							19	9.0	81					
647	HINGE WALL HORIZ	4	4	50					2	0.0							2	0.0	5					
648	HINGE WALL VERT	4	4	50					2	0.0							2	0.0	8					
650	TOP TRANSV	6	3	52					25	3.0							26	7.0	120					
400	ROADWAY SLAB TOP LONGIT	5	6	54					5	0.0							5	10.0	36					
401	ROADWAY SLAB TOP LONGIT	5	6	54					9	0.0							9	10.0	61					
402	ROADWAY SLAB TOP LONGIT	5	22	50					40	0.0							40	0.0	918					
403	ROADWAY SLAB TOP LONGIT	5	4	50					33	0.0							33	0.0	128					
404	ROADWAY SLAB TOP LONGIT	5	4	50					22	0.0							22	0.0	92					
405	ROADWAY SLAB TOP LONGIT	5	6	50					41	0.0							41	0.0	257					
406	ROADWAY SLAB TOP LONGIT	5	6	50					28	0.0							28	0.0	175					
407	ROADWAY SLAB TOP LONGIT	5	6	50					31	0.0							31	0.0	69					
409	ROADWAY SLAB TOP TRANSV	6	276	52					27	2.0							28	6.0	11815					
411	ROADWAY SLAB BOT LONGIT	8	2	50					42	0.0							42	0.0	224					
412	ROADWAY SLAB BOT LONGIT	8	2	50					40	0.0							40	0.0	214					
409	ROADWAY SLAB BOT LONGIT	8	2	50					17	0.0							17	0.0	91					
414	ROADWAY SLAB BOT LONGIT	14	6	50					22	0.0							22	0.0	1010					
415	ROADWAY SLAB BOT LONGIT	14	6	50					26	0.0							26	0.0	1193					
416	ROADWAY SLAB BOT LONGIT																							

WOODINVILLE INTERCHANGE



EXISTING EXPANSION JOINT DETAIL-TYPICAL

\* spacing is approximate

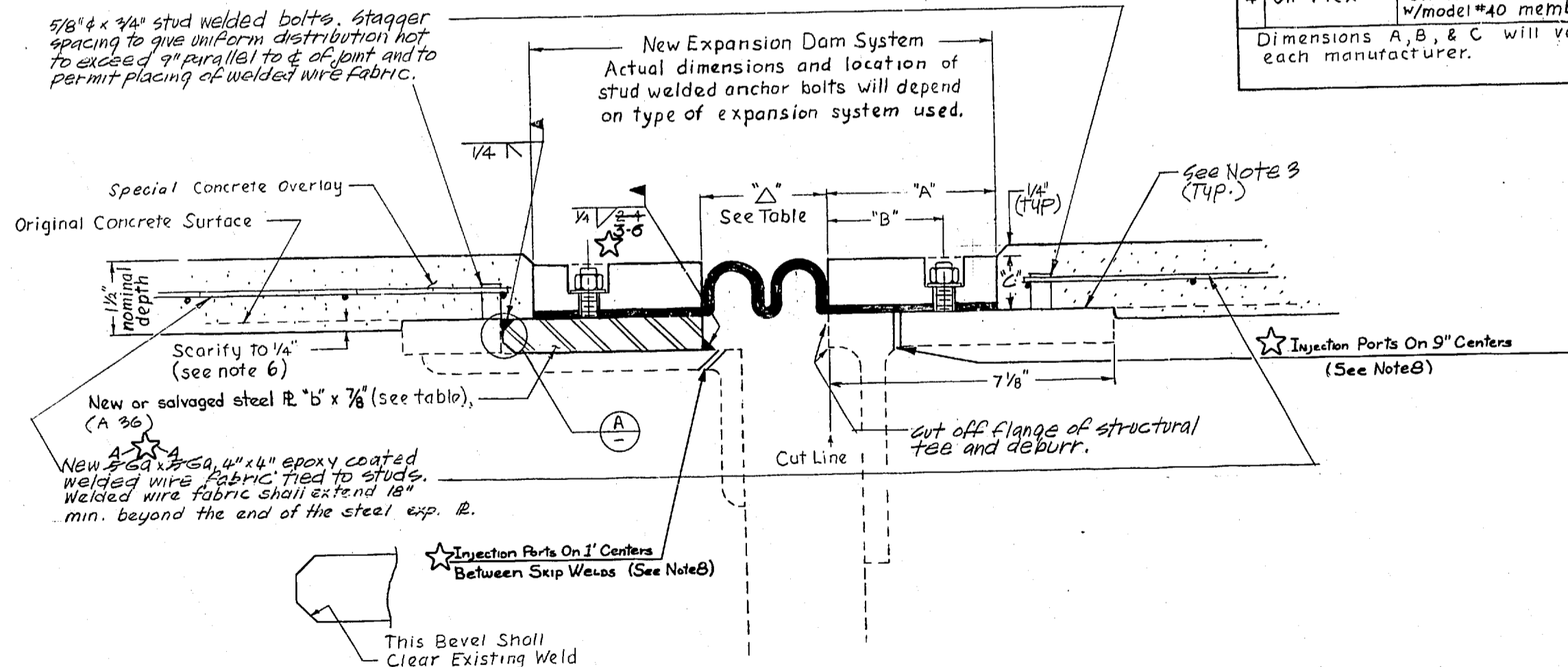
Bridge No.	Joint Location	Length (note 2)	Skew	Exp. System	"Δ" (in)			Dimensions	
					@ 0°F	@ 64°F	@ 100°F	b"	t"
405/70W	W 853+06	33'-0"	0°	1, 2, 3 or 4	4 1/2	2 1/4	1	4 3/4	7/8"
"	W 856+59	33'-0"	0°	"	3 3/4	2 1/4	1 1/2	5	"
"	W 860+06	46'-0"	0°	"	4 1/4	2 1/2	1 3/8	5 1/4	"
"	W 863+41	33'-0"	0°	"	3 1/2	2 1/2	1 7/8	5	"
405/70S-E	S-E 69+19	25'-0"	0°	"	3 1/2	2 3/8	2	5	"
"	S-E 72+37	25'-0"	0°	"	3	2 3/8	2	5	"
405/70E	E 850+07	33'-0"	0°	"	3	2 3/8	1 3/4	5	"
"	E 853+26	33'-0"	0°	"	3 1/2	2	1 1/8	5	"
"	E 856+81	33'-0"	0°	"	4 1/4	2 3/8	1 3/8	5 1/2	"
"	E 860+30	59'-0"	0°	"	3 3/4	2 3/8	1 1/8	5 1/4	"
"	E 863+58	45'-0"	0°	"	4 1/8	2 3/8	1 1/2	5 1/4	"
405/70N-E	N-E 50+88	40'-0"	0°	"	2 1/4	2 1/8	1 7/8	5	"
"	N-E 53+11	23'-0"	0°	"	2 7/8	1 7/8	1 1/4	5	"
"	N-E 55+98	23'-0"	0°	"	4	2 3/8	1 3/8	5	"
405/70N-W	N-W 53+11	24'-0"	0°	"	3 3/8	2 1/8	1 7/8	5	"
"	N-W 56+38	24'-0"	0°	"	4	2 7/8	1 1/2	5	"
"	N-W 59+37	24'-0"	0°	"	3 3/4	2 3/8	1 1/2	5	"
"	N-W 62+31	24'-0"	0°	"	3 1/4	2	1 1/4	5	"
522/30W-S	W-S 45+83	33'-0"	0°	"	3 3/8	2 1/8	1 5/8	5	"
"	W-S 50+22	33'-0"	0°	"	2 7/8	2 1/8	1 3/8	5	"
"	W-S 53+66	33'-0"	0°	"	3 1/2	2	1 1/8	4 1/2	"
"	W-S 58+33	33'-0"	0°	"	2 7/8	2	1 1/8	5	"
"	W-S 61+88	33'-0"	0°	"	3 1/2	2 1/8	1 1/4	5	"
"	W-S 66+16	33'-0"	0°	"	3 3/8	2 5/8	1 7/8	5	"
522/30E-S	E-S 77+96	45'-0"	35° ±	4 only	3 3/8	2 1/4	1 3/8	5	7/8"

Expansion dam systems and dimensions have been selected based on joint movement histories.

List of Expansion Dam Systems	Range
1 Acme Trojan TR-400	3/4" - 4 3/4"
2 Watson-Bowman WABO Elastoflex	1/2" - 4 1/2"
3 Fel-Pro Felspan T-40 ACS	1/2" - 4 1/2"
4 On-Flex On-flex E-Last-On w/model #40 membrane	1" - 5"

Dimensions A, B, & C will vary with each manufacturer.

5/8" x 3/4" stud welded bolts. Stagger spacing to give uniform distribution not to exceed 9" parallel to & of joint and to permit placing of welded wire fabric.



MODIFIED EXPANSION DAM DETAIL TYPICAL

NOTES

- EXPANSION DAM SYSTEMS SHALL BE IN PLACE BEFORE PLACEMENT OF THE CONCRETE OVERLAY AND SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
- MODIFY EACH EXPANSION JOINT FULL LENGTH CURB TO CURB. CONTRACTOR SHALL VERIFY ACTUAL LENGTH REQUIRED AT EACH JOINT.
- IMMEDIATELY PRIOR TO PLACEMENT OF THE OVERLAY, APPLY AN EPOXY RESIN BONDING AGENT TO ALL STEEL SURFACES TO BE COVERED BY THE OVERLAY.
- THE DEPTH OF THE OVERLAY AT THE EXPANSION DAM WILL VARY WITH THE EXPANSION SYSTEM CHOSEN. THE OVERLAY SHALL BE FEATHERED AWAY FROM THE JOINT AT A RATE OF 0.10 INCHES IN 10 FEET TO THE NOMINAL OVERLAY DEPTH.
- USE 5/8" DIA. STUD WELDED ANCHOR BOLTS WHENEVER POSSIBLE (1/2" DIA. MINIMUM). SIZE, INSTALLATION, AND LOCATION OF BOLTS SHALL CONFORM TO THE EXPANSION DAM MANUFACTURER'S SPECIFICATIONS.
- CARE SHALL BE EXERCISED DURING SCARIFICATION OF THE CONCRETE BRIDGE DECK TO PREVENT DAMAGE TO THE EXISTING EXPANSION PLATES AND ANCHORAGES.
- BOLT HOLE CAVITIES IN EXPANSION JOINT PANELS SHALL BE CLEANED AND FILLED WITH MANUFACTURER'S RECOMMENDED SEALANT AFTER JOINT SYSTEM HAS BEEN INSTALLED AND CHECKED FOR LEAKAGE.

☆ B. Change Order No. 3, Item No. 46, & Change Order No. 7 Item No. 48

☆ As-Built Changes 1-24-89

Bridge Design Engineer	9/84	Added Note # 7	
Supervisor			
Reviewed By			
Designed By			
Checked By			
Detailed By			
Architect			
Preliminary Plan By	DATE	REVISION	BY/APP'D

**BRIDGES AND STRUCTURES**

REGION NO. 10 STATE WASH. FED. AID PROJ. NO. JR-405-3(521) FHWA DEMO. NO. 39

JOB NUMBER 84W 054

CONTRACT NO. 2814

May 14, 1984 APPROVED

*E. S. Boyd*

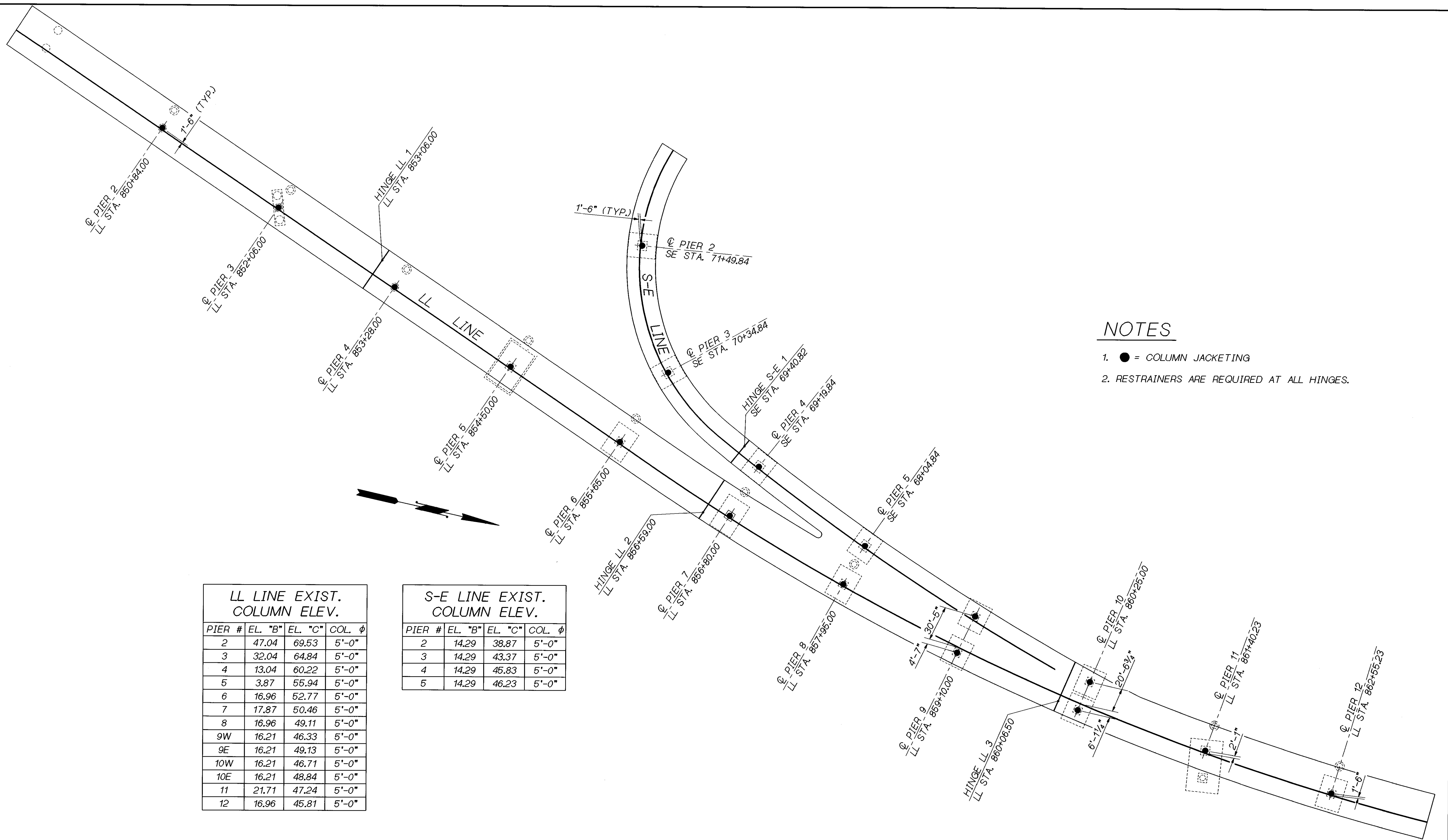
**Washington State Department of Transportation**

SR 405 WOODINVILLE I/C BRIDGE DECKS - RESURFACING

EXPANSION DAM MODIFICATION DETAILS

SR 405/112

154/d



- NOTES**
- = COLUMN JACKETING
  - RESTRAINERS ARE REQUIRED AT ALL HINGES.

**LL LINE EXIST. COLUMN ELEV.**

PIER #	EL. "B"	EL. "C"	COL. $\phi$
2	47.04	69.53	5'-0"
3	32.04	64.84	5'-0"
4	13.04	60.22	5'-0"
5	3.87	55.94	5'-0"
6	16.96	52.77	5'-0"
7	17.87	50.46	5'-0"
8	16.96	49.11	5'-0"
9W	16.21	46.33	5'-0"
9E	16.21	49.13	5'-0"
10W	16.21	46.71	5'-0"
10E	16.21	48.84	5'-0"
11	21.71	47.24	5'-0"
12	16.96	45.81	5'-0"

**S-E LINE EXIST. COLUMN ELEV.**

PIER #	EL. "B"	EL. "C"	COL. $\phi$
2	14.29	38.87	5'-0"
3	14.29	43.37	5'-0"
4	14.29	45.83	5'-0"
5	14.29	46.23	5'-0"

Bridge Design Engr. C. C. RUTH									
Supervisor J. A. VAN LUND									
Designed By T.M. MOORE 4/95									
Checked By J. MERTH 5/95									
Detailed By V.B. SCHICCHI 4/95									
Bridge Projects Engr.									
Prelim. Plan By									
Architect/Specialist	DATE	REVISION	BY	APP'D					

REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10	WASH.			
JOB NUMBER				
96W020				
4944				

BRIDGE AND STRUCTURES OFFICE

**JOHN A. VAN LUND**  
SUPERVISING BRIDGE ENGINEER  
EXPIRES 12/23/97

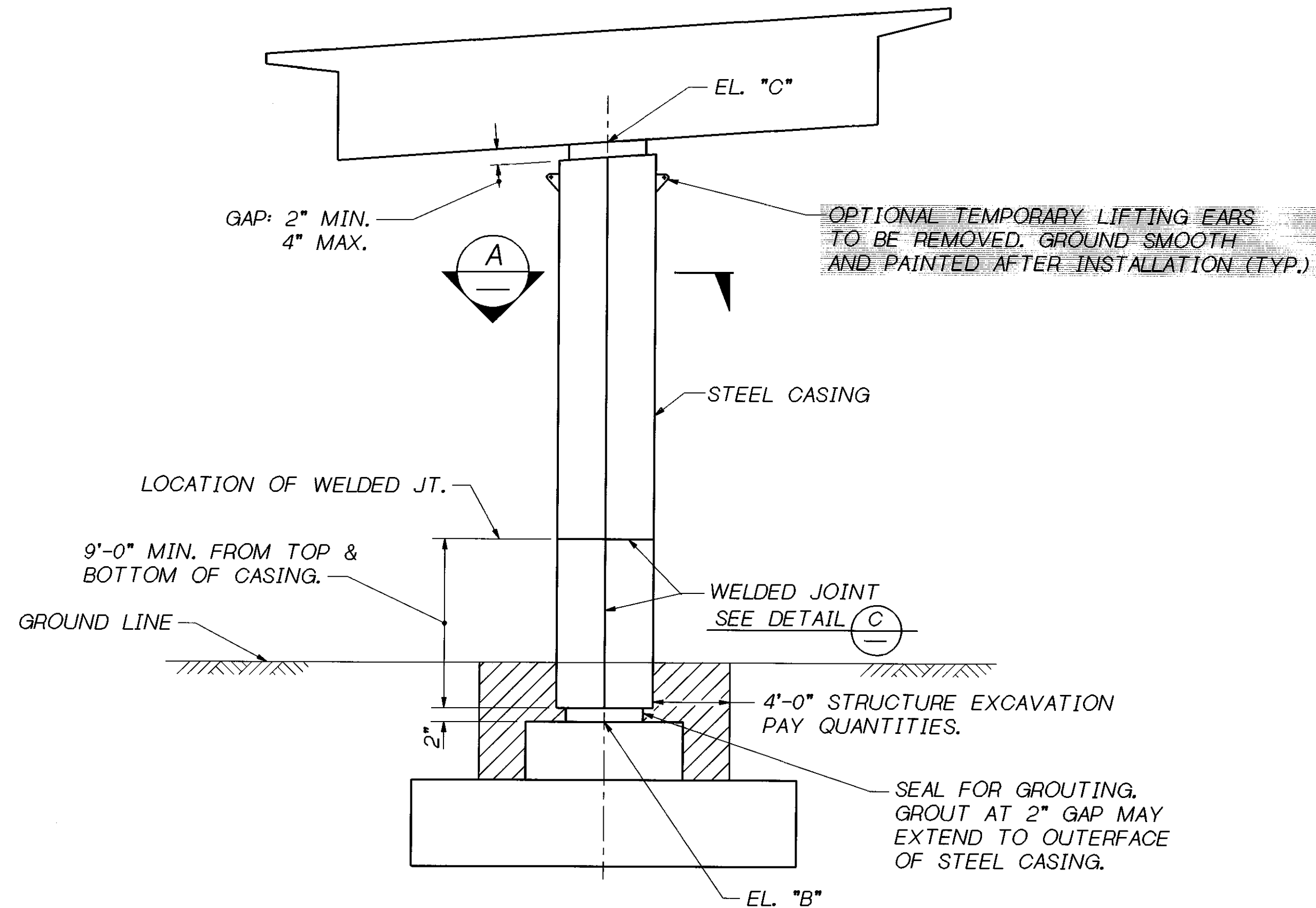
**CHARLES C. RUTH**  
BRIDGE DESIGN ENGINEER  
EXPIRES 5/3/98

**Washington State Department of Transportation**

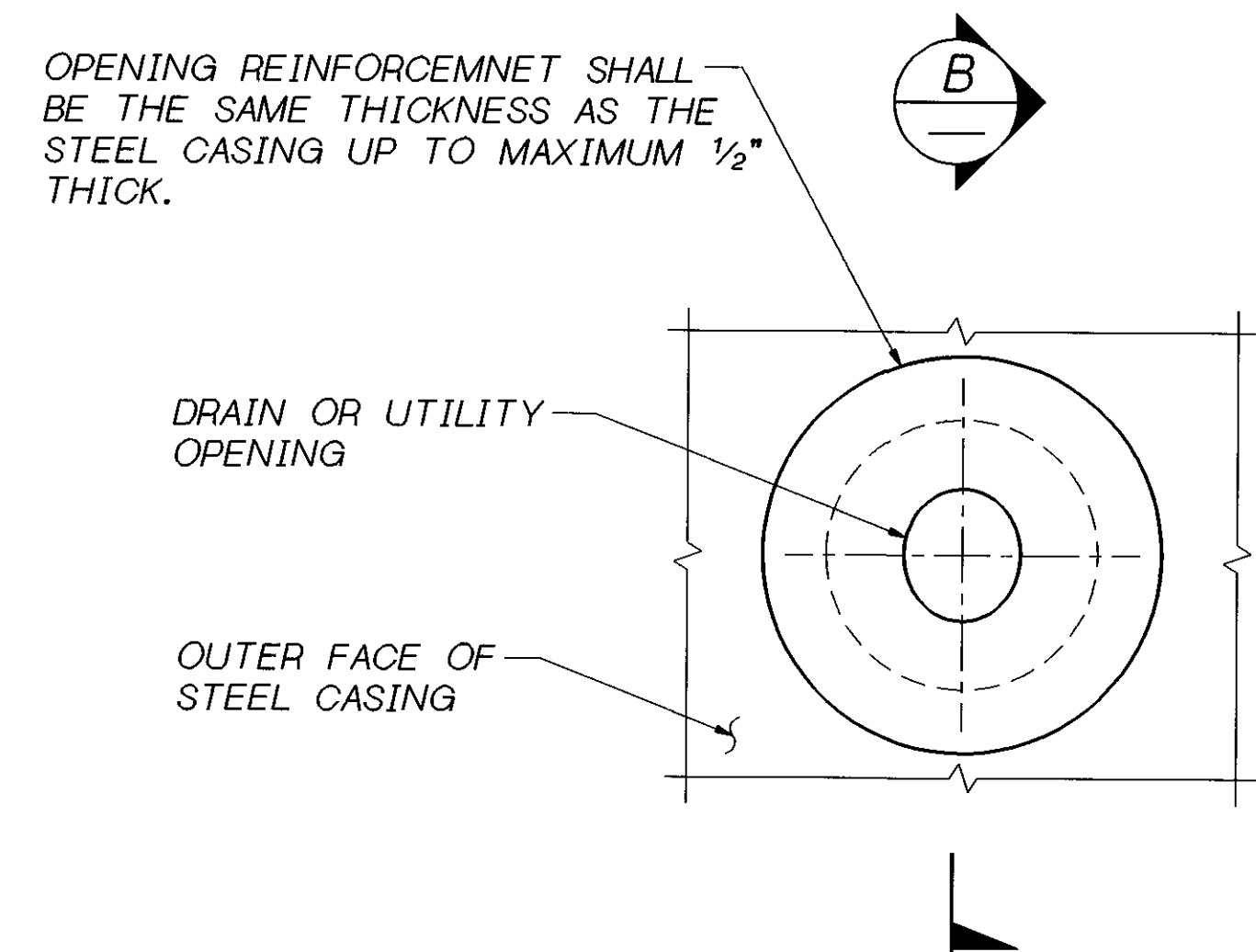
SR 405  
WOODINVILLE INTERCHANGE  
HOV WIDENING  
SEISMIC RETROFIT

**RETROFIT LAYOUTS AND COLUMN JACKETING - LL**

BRIDGE SHEET NO. S2  
SHEET 412 OF 452 SHEETS



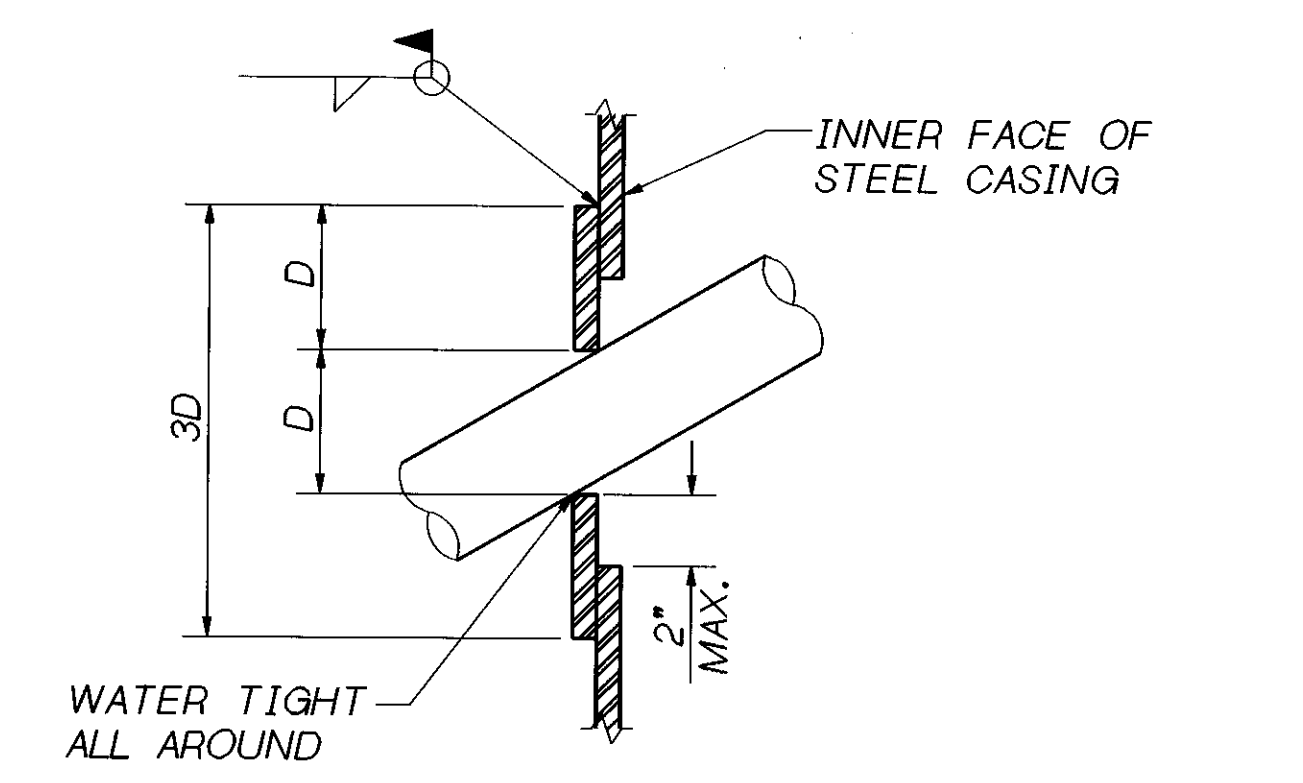
ROUND COLUMN



NOTE: OPENING REINFORCEMENT REQUIRED FOR DRAIN OR UTILITY OPENINGS LARGER THAN 4\"/>

DRAINS WILL BE PLUGGED ON THE FOLLOWING BRIDGES (OPENING IN JACKET IS NOT REQUIRED):

- SOUTHBOUND PIERS - EXIST. COLUMNS 4, 6, 7, 8 & 11
- NORTHBOUND PIERS - EXIST. COLUMNS 2, 6 & 8

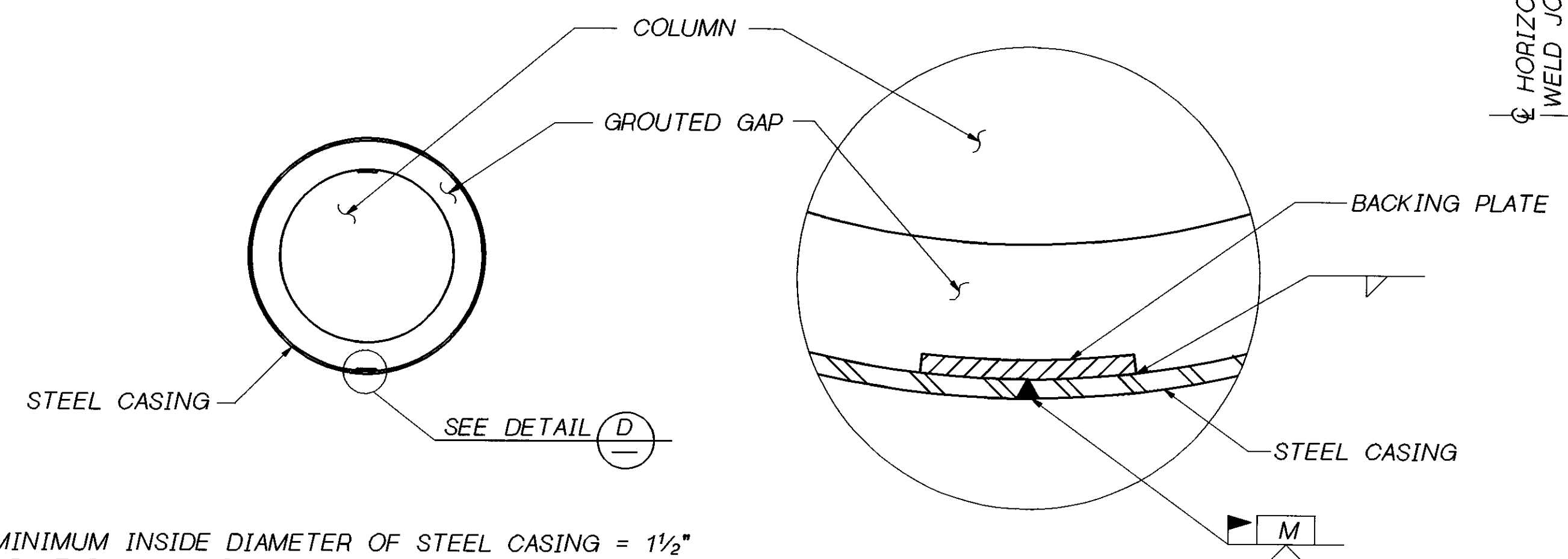


SECTION B

CASING OPENING

NOTES

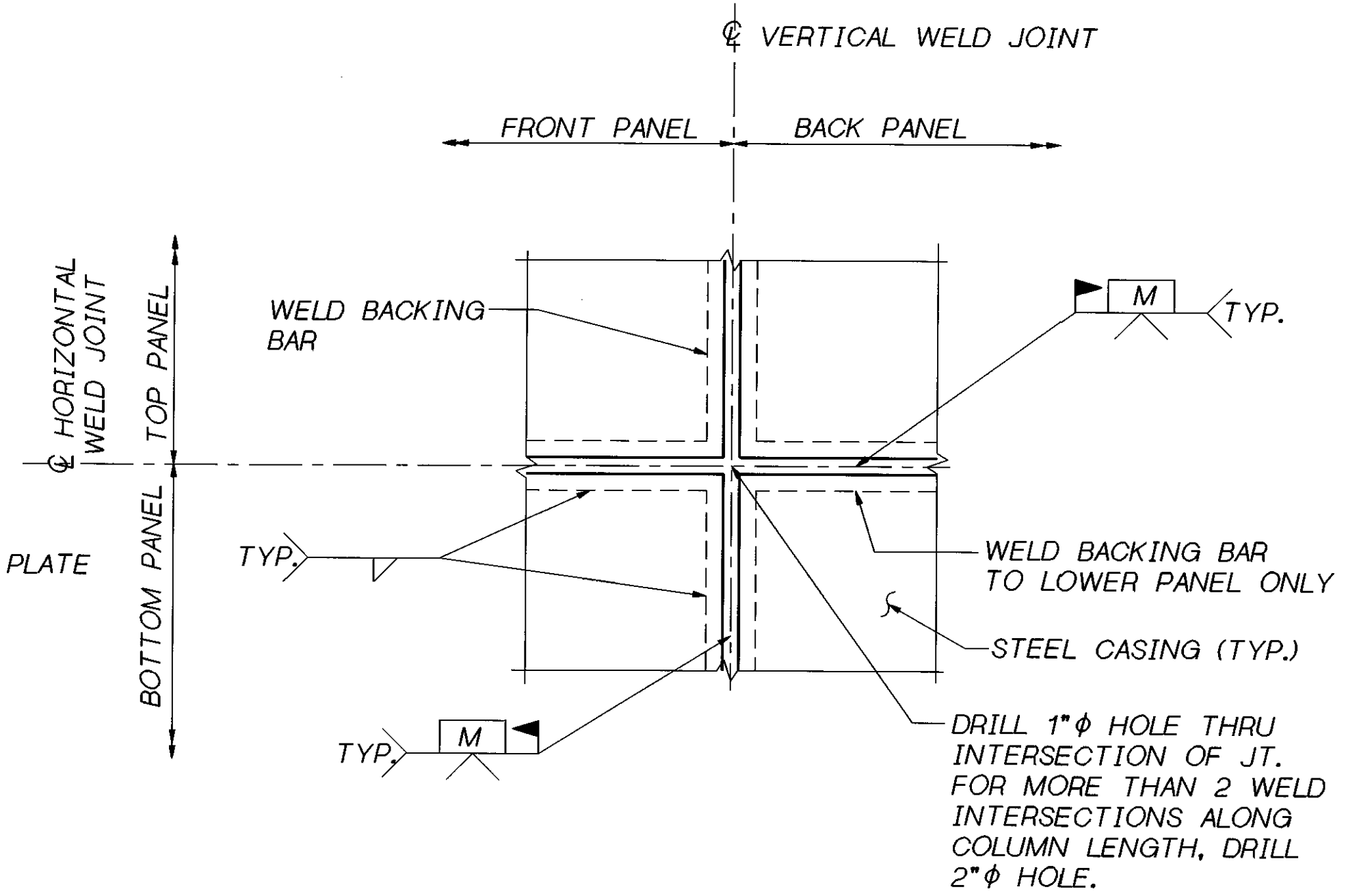
1. APPROPRIATE INJECTION NOZZLES TO BE PROVIDED ON CASING, AND SHALL BE REMOVED, GROUND FLUSH AND PAINTED FOLLOWING COMPLETION OF GROUTING OPERATION.
2. ALL VOIDS BETWEEN STEEL CASING AND EXISTING COLUMN SURFACE SHALL BE FILLED WITH CEMENT GROUT.
3. THE LOCATION AND NUMBER OF VERTICAL AND HORIZONTAL WELDS SHALL BE DETERMINED BY THE CONTRACTOR, AND SUBJECT TO THE APPROVAL OF THE ENGINEER. THE LOCATION OF CASING WELDS ARE FOR ILLUSTRATION. THERE SHALL BE NO SKIP WELDS.
4. CASING THICKNESS SHALL BE 1/4\"/>



SECTION A

DETAIL D

MINIMUM INSIDE DIAMETER OF STEEL CASING = 1/2\"/>

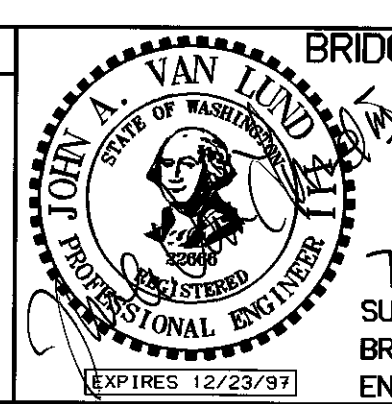


(TWO WELDED INTERSECTION JOINT)

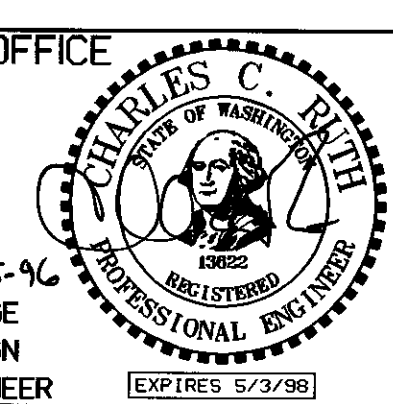
DETAIL C

SR 405 JOB NO. 7056 SHEET S5

Bridge Design Engr. C. C. RUTH			REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor J. A. VAN LUND			10	WASH.			
Designed By T.M. MOORE 1/96							
Checked By J. MERTH							
Detailed By J. PLESHA 1/96							
Bridge Projects Engr.			JOB NUMBER				
Prelim. Plan By	7-31-96	REVISED NOTE	96W020				
Architect/Specialist	DATE	REVISION	BY	APP'D	4944		

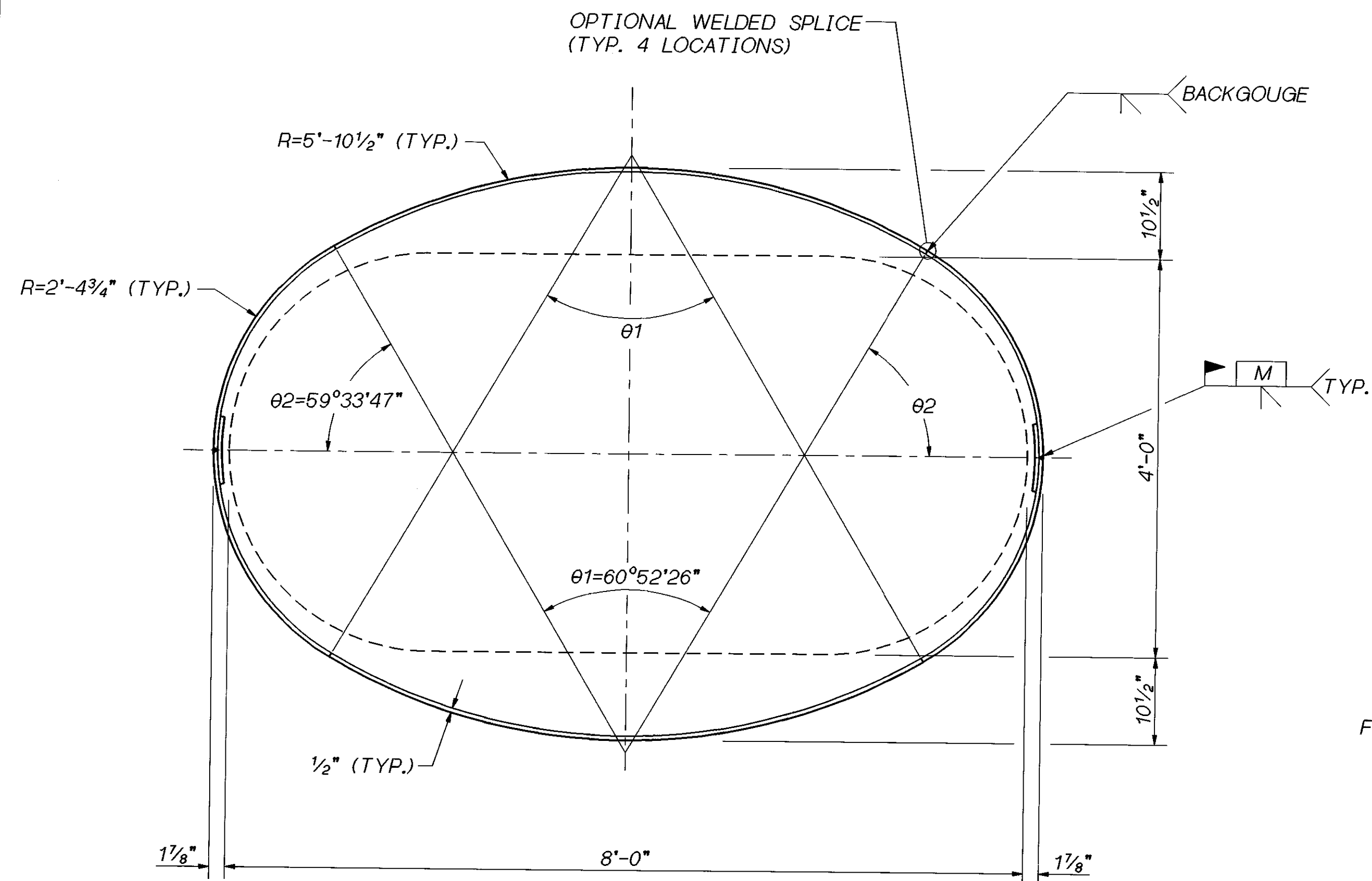


BRIDGE AND STRUCTURES OFFICE  
7-25-96  
SUPERVISING  
BRIDGE  
ENGINEER



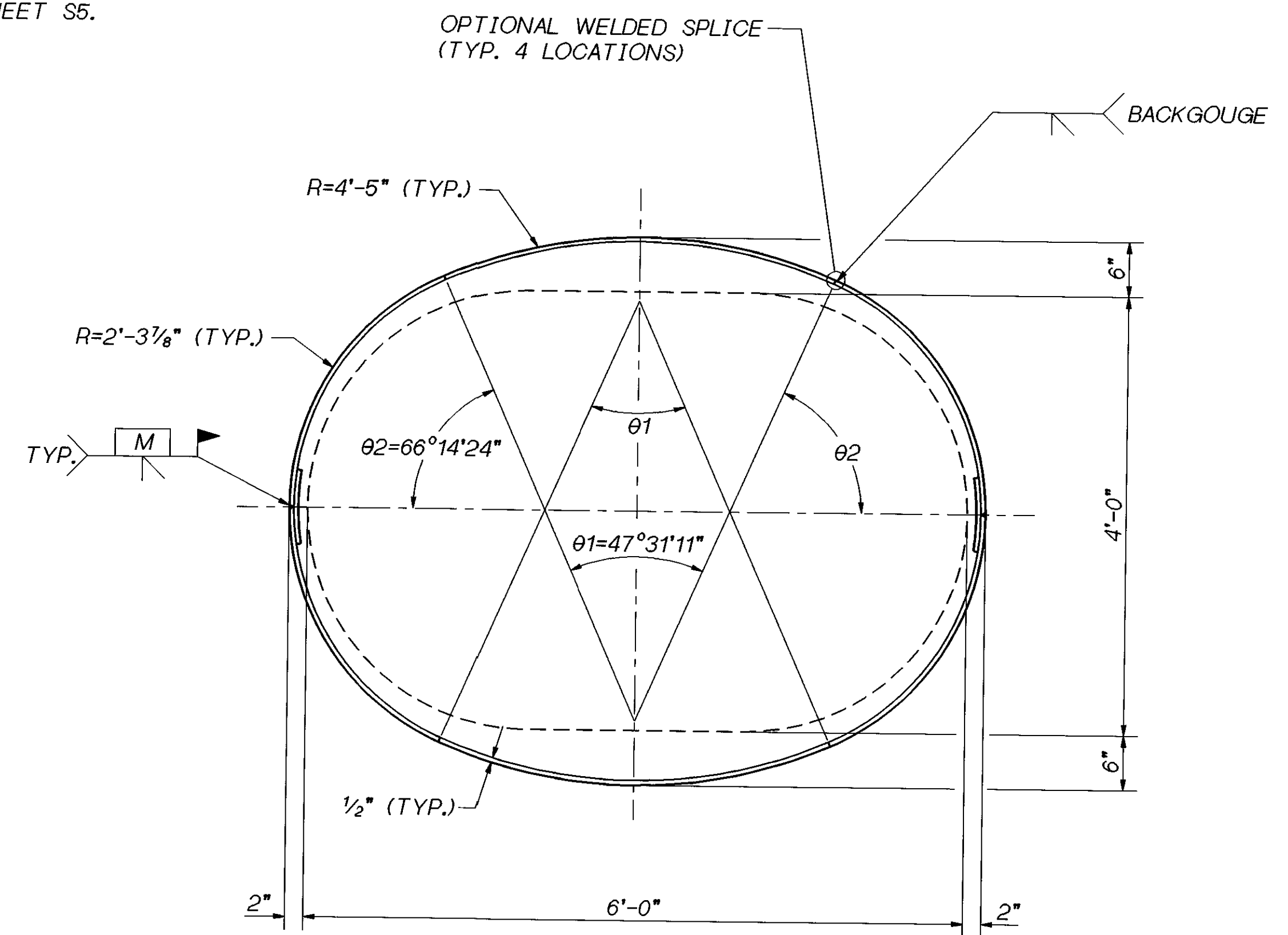
SR 405 WOODINVILLE INTERCHANGE HOV WIDENING SEISMIC RETROFIT	BRIDGE SHEET NO. S5
COLUMN JACKETING DETAILS	SHEET OF 415 OF 452 SHEETS

SR 405 JOB NO. 1066 SHEET S6



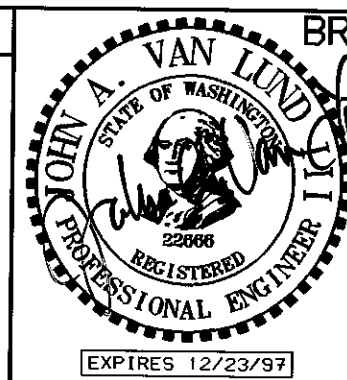
PIER 12 W-S COLUMN JACKET

FOR NOTES SEE BRIDGE SHEET S5.

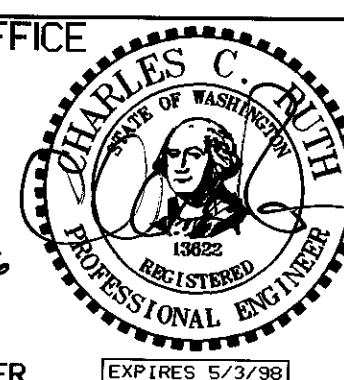


PIER 11 NW COLUMN JACKET

Bridge Design Engr. C. C. RUTH				REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor J. A. VAN LUND				10	WASH.			
Designed By T.M. MOORE 1/96								
Checked By J. MERTH 1/96								
Detailled By V.B. SCHICCHI 1/96								
Bridge Projects Engr.				JOB NUMBER				
Prelim. Plan By				96W020				
Architect/Specialist	DATE	REVISION	BY	APP'D				



BRIDGE AND STRUCTURES OFFICE  
 6/4/96  
 SUPERVISING BRIDGE ENGINEER



6-5-96  
 BRIDGE DESIGN ENGINEER

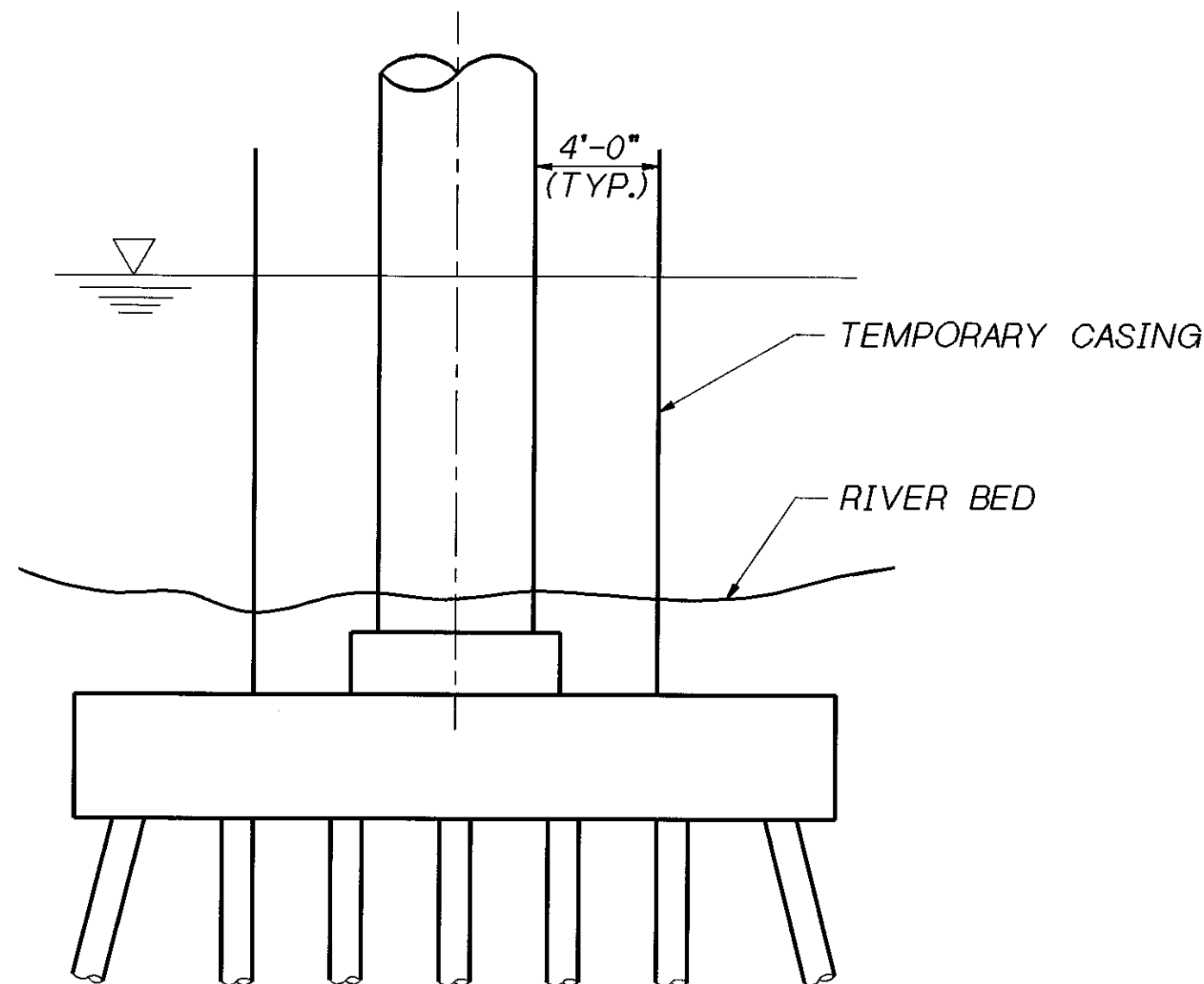


31-MAY-96

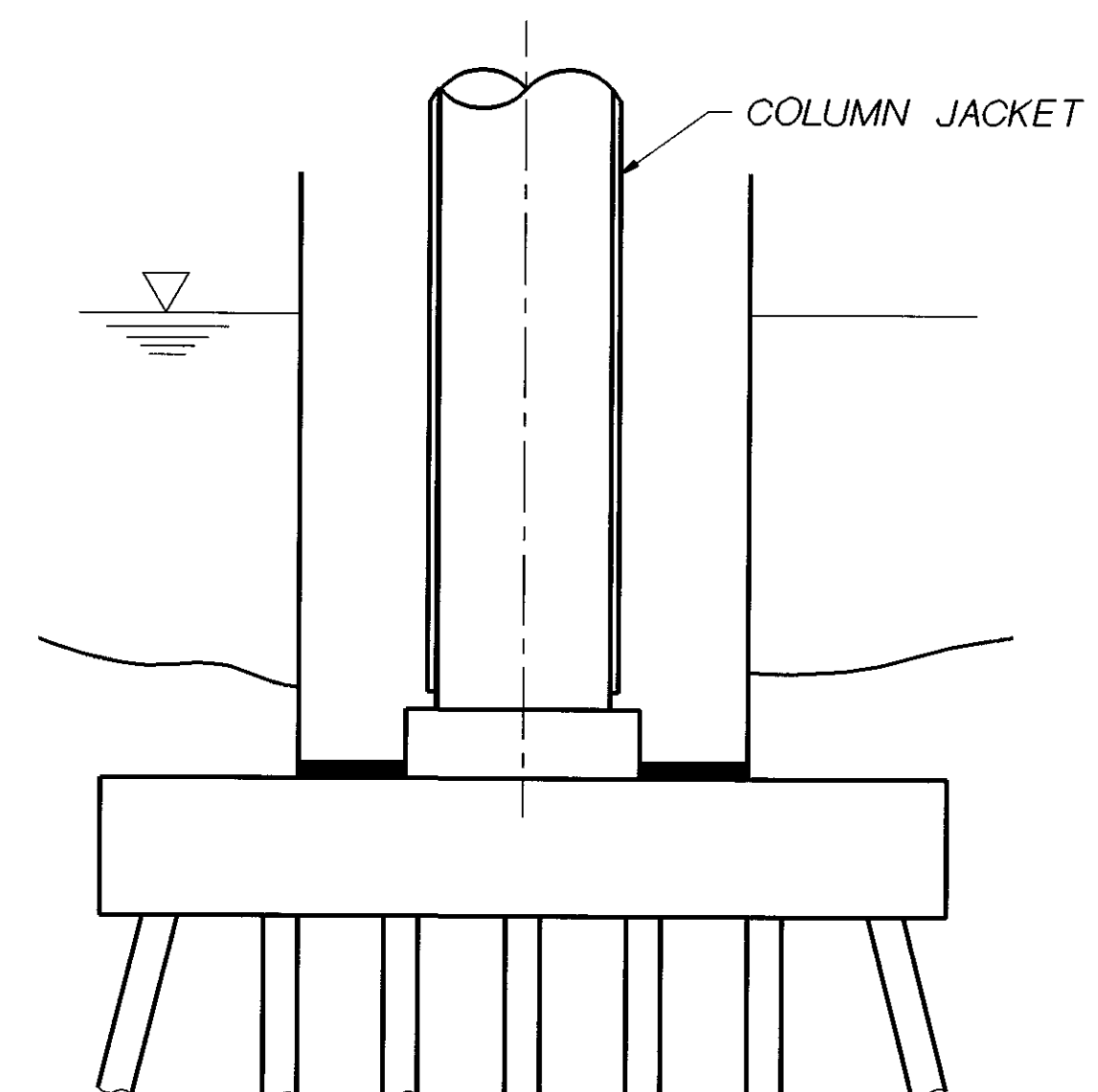
SR 405  
 WOODINVILLE INTERCHANGE  
 HOV WIDENING  
 SEISMIC RETROFIT  
 COLUMN JACKETING DETAILS

BRIDGE SHEET NO. S6  
 SHEET 416 OF 452 SHEETS

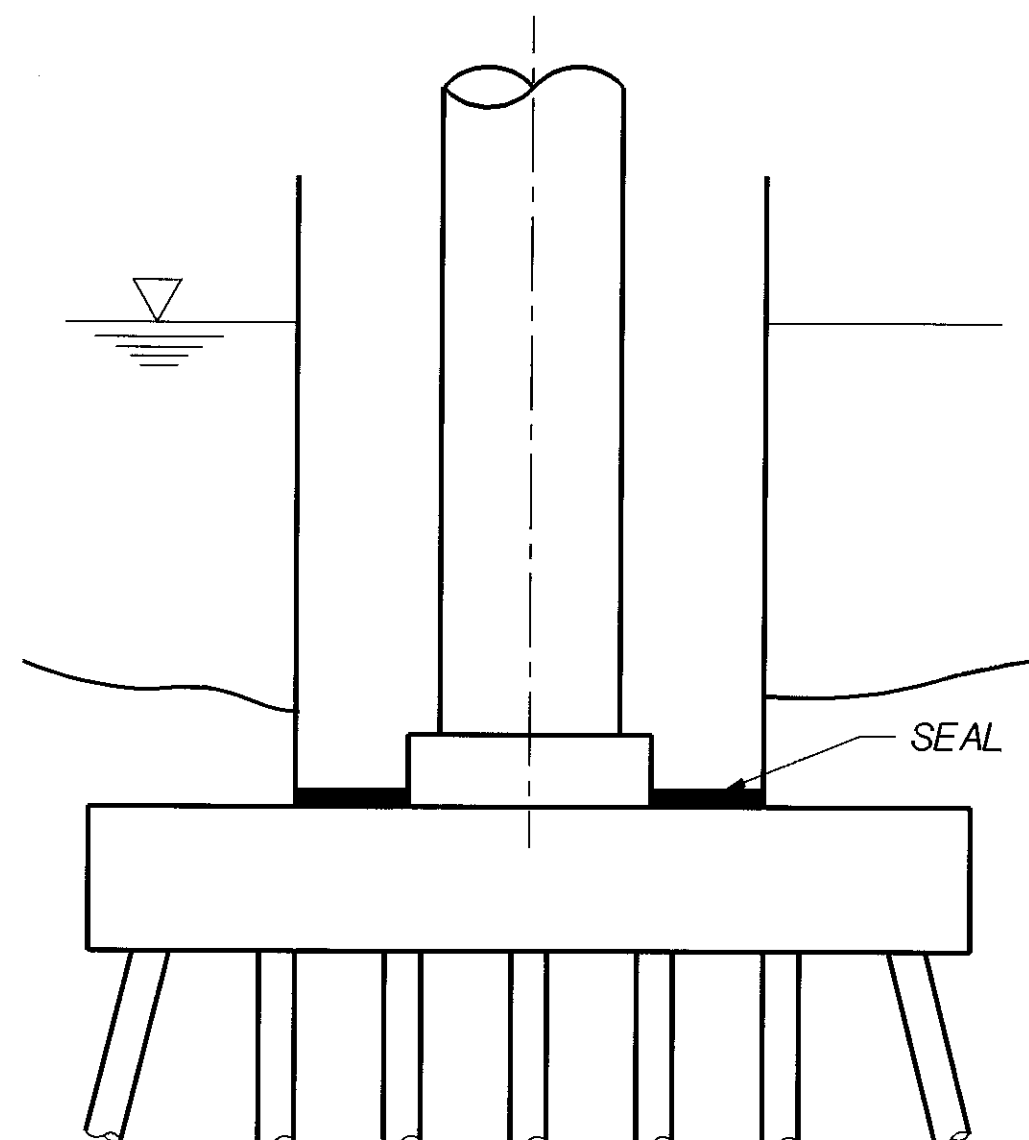
SR 405 JOB NO. 7056 SHEET S7



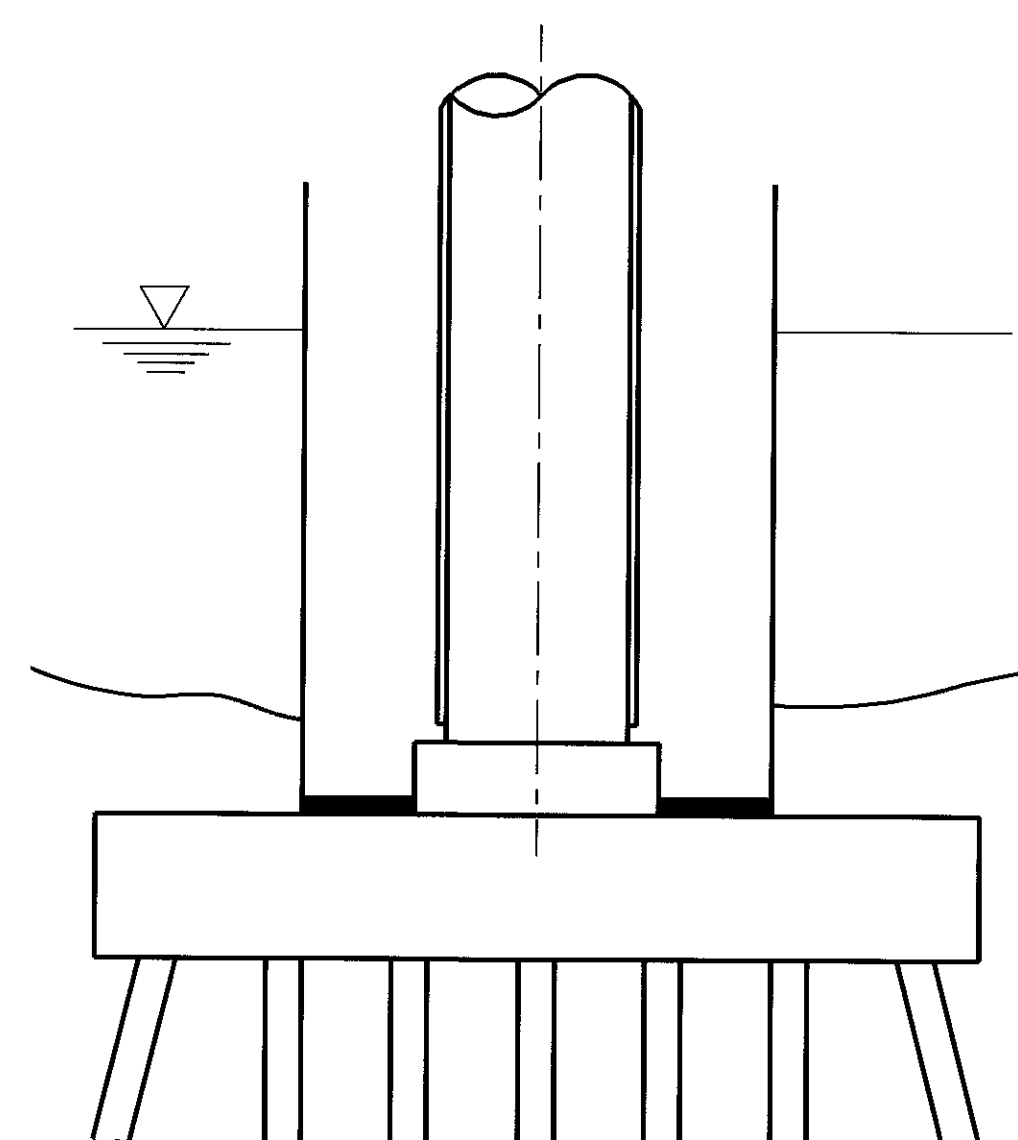
**STAGE I**  
SET TEMPORARY CASING TO TOP OF FOOTING OR BELOW TOP OF EXISTING SHAFT.



**STAGE III**  
INSTALL STEEL JACKET ON COLUMN. GROUT INSIDE OF JACKET. PAINT JACKET.

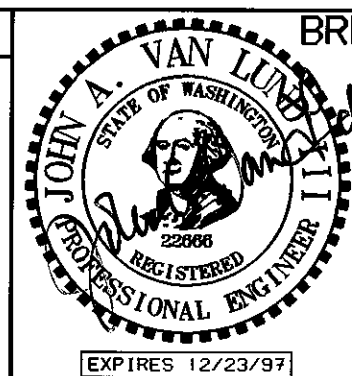


**STAGE II**  
EXCAVATE TO TOP OF FOOTING. SEAL CASING AND DEWATER AS DESIGNED BY THE CONTRACTOR.



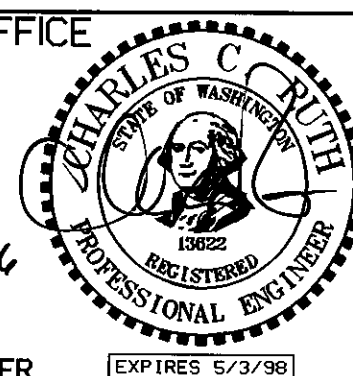
**STAGE IV**  
REMOVE TEMPORARY CASING.

Bridge Design Engr. C. C. RUTH				REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor J. A. VAN LUND				10	WASH.			
Designed By T.M. MOORE 1/96				JOB NUMBER				
Checked By J. MERTH 2/96				96W020				
Detailed By V.B. SCHICCHI 2/96				BY	APP'D	DATE	REVISION	
Bridge Projects Engr.								
Prelim. Plan By								
Architect/Specialist								



BRIDGE AND STRUCTURES OFFICE

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BRIDGE  
ENGINEER



6-5-96  
BRIDGE  
DESIGN  
ENGINEER



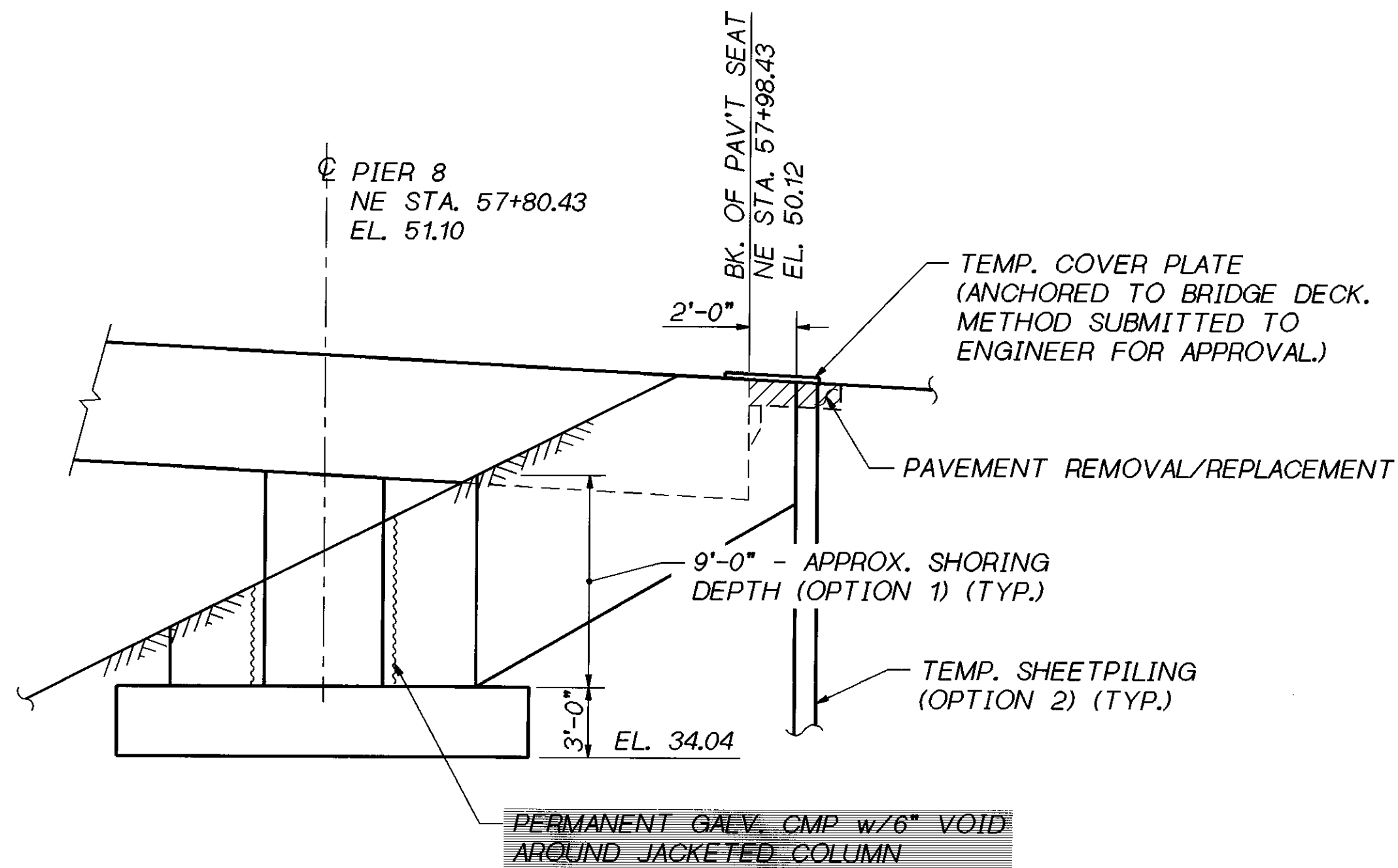
**Washington State  
Department of  
Transportation**

31-MAY-96

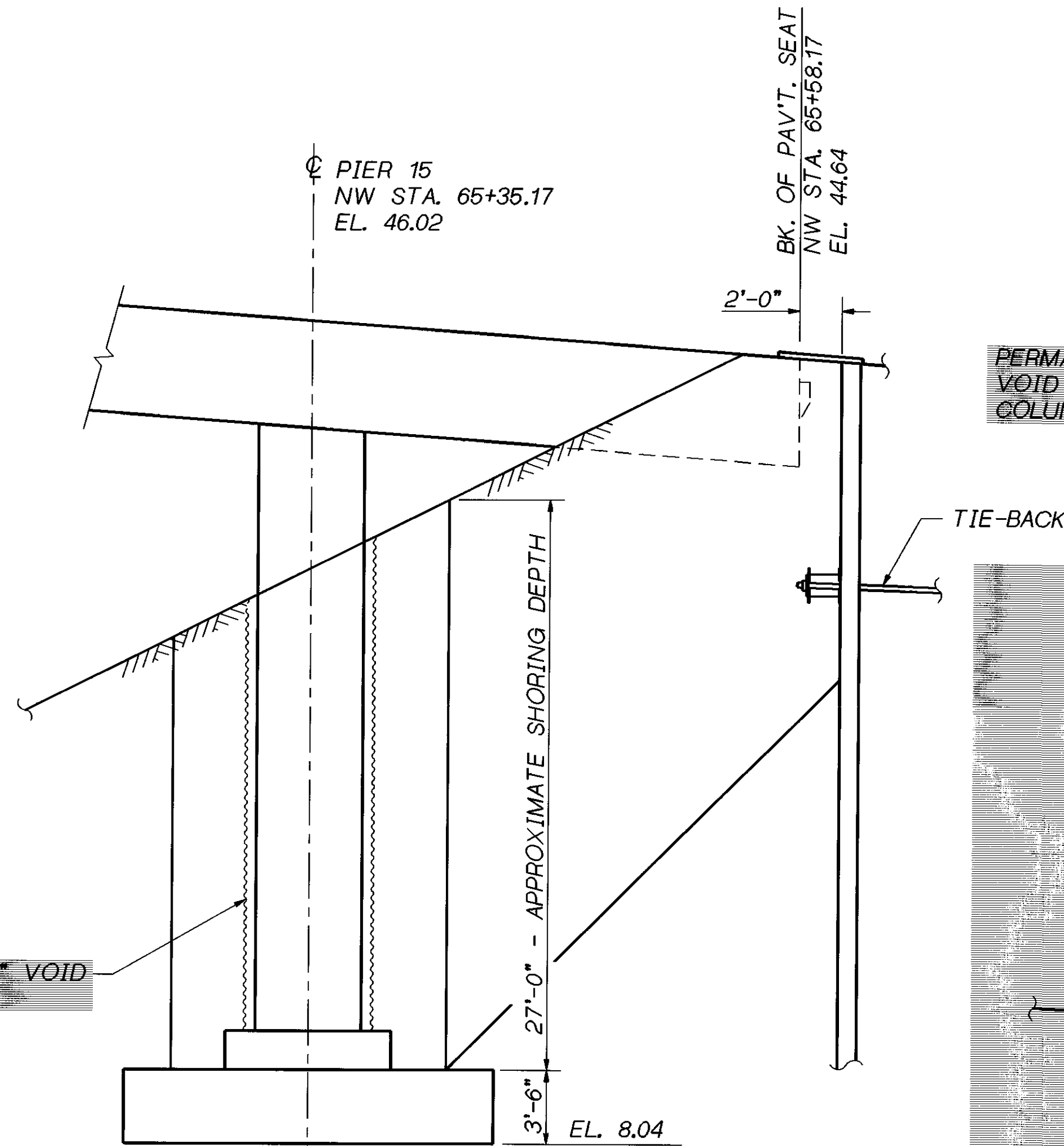
SR 405  
WOODINVILLE INTERCHANGE  
HOV WIDENING  
SEISMIC RETROFIT  
**COLUMN JACKETING  
RIVER CONSTRUCTION SEQUENCE**

BRIDGE SHEET NO. S7  
SHEET 417 OF 452 SHEETS

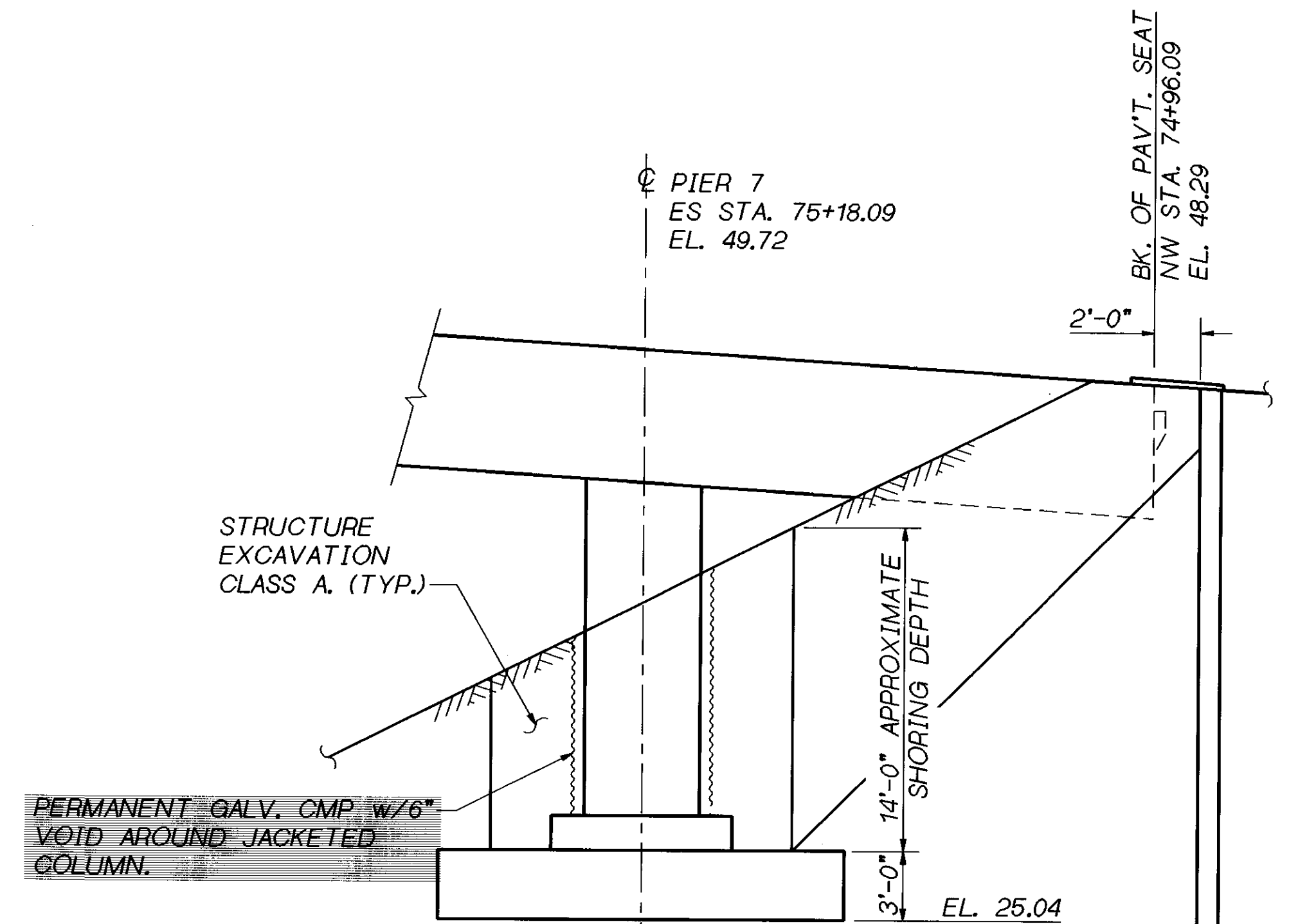
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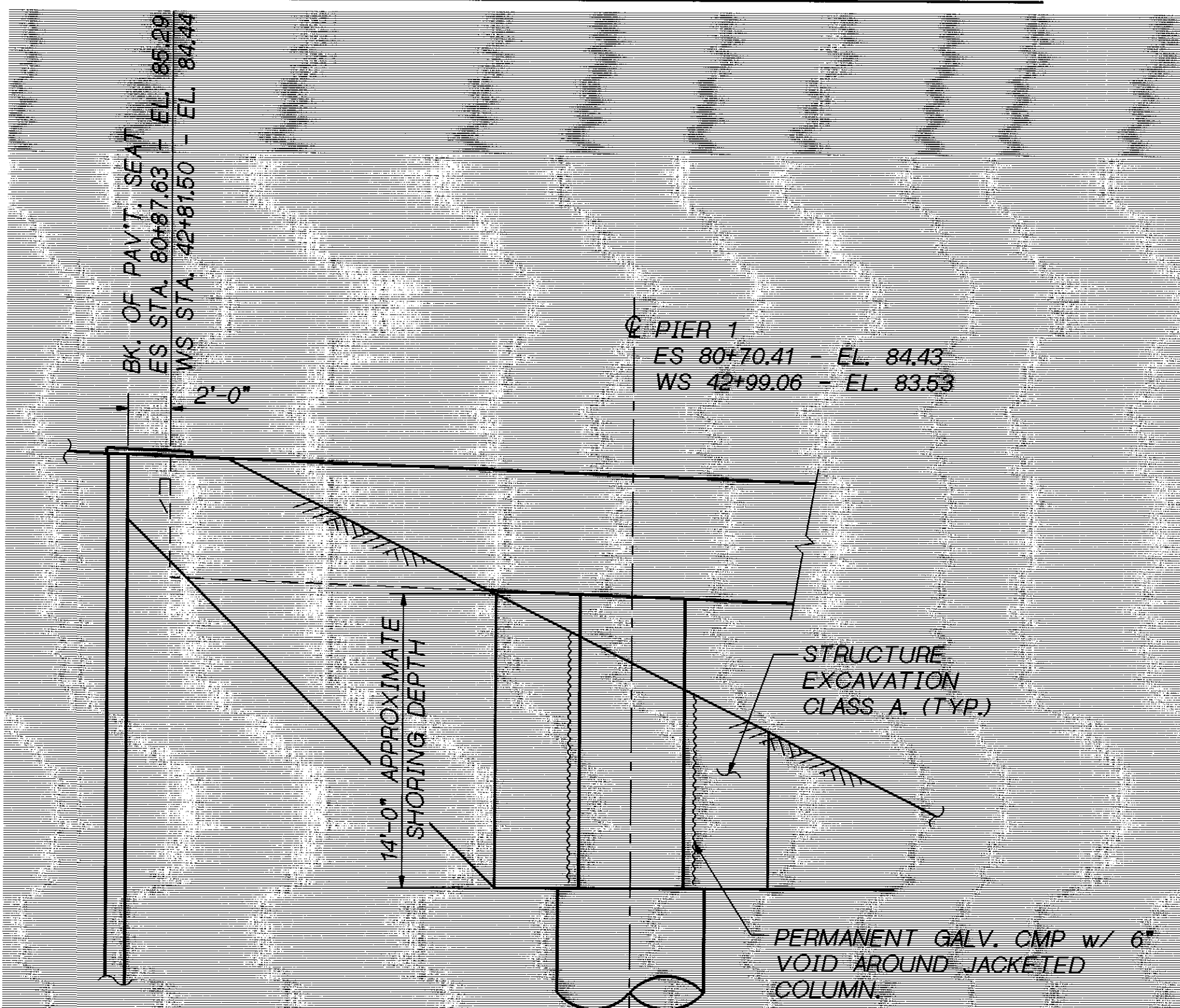
ELEVATION - NE LINE PIER 8



ELEVATION - NW LINE PIER 15



ELEVATION - ES LINE PIER 7



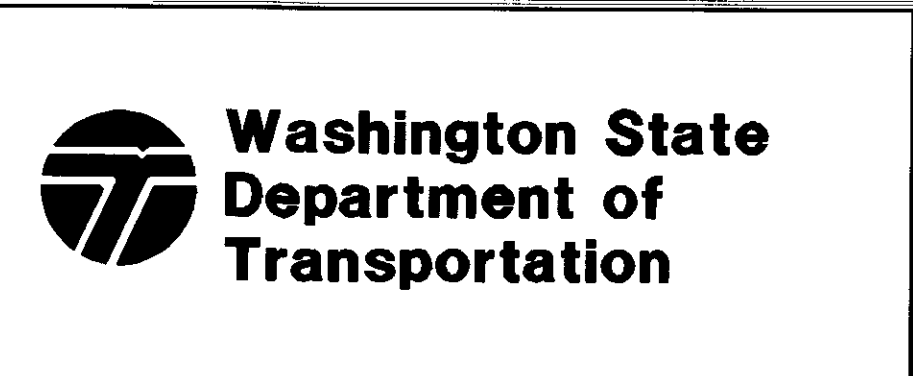
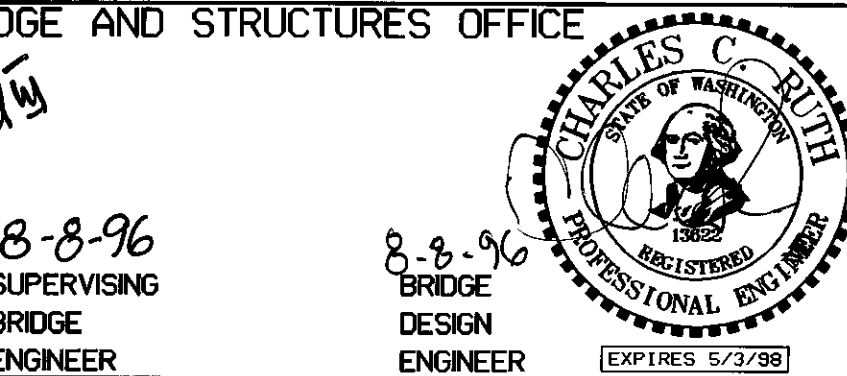
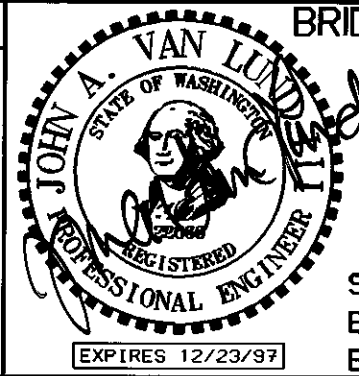
ELEVATION - ES/WS LINE PIER 1

**SHORING NOTES:**

1. PAY QUANTITIES BASED ON OPTION 1.
2. METHOD OF SHORING SHALL BE DESIGNED AND DETAILED BY THE CONTRACTOR IN ACCORDANCE TO STD. SPEC.
3. NO CONCRETE APPROACH SLABS ARE PRESENT FOR THESE PIERS SHOWN.
4. RELOCATE EXISTING UTILITIES THAT INTERFERE WITH SHORING WALL.

SR 405 JOB NO. 7056 SHEET 58

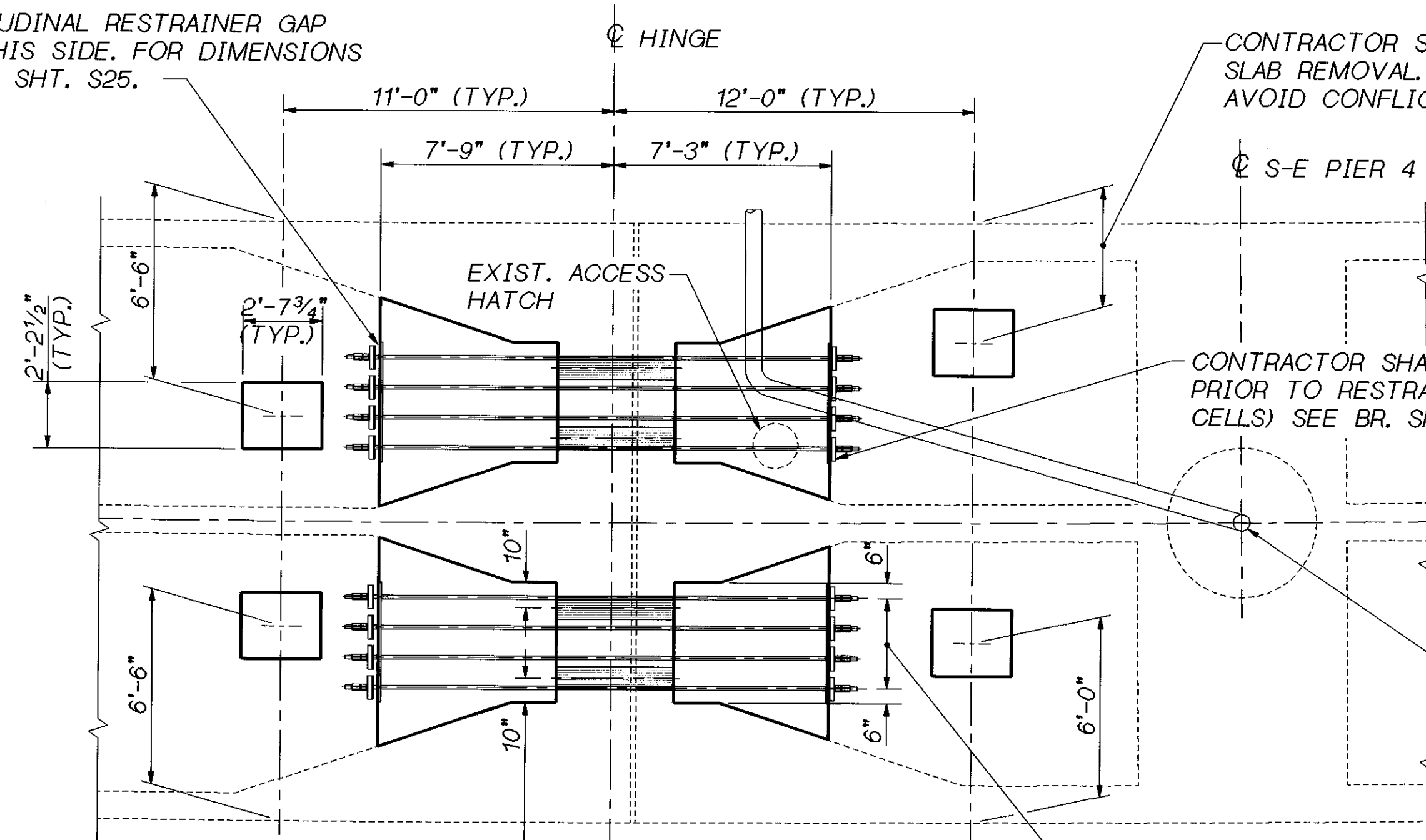
Bridge Design Engr. C. C. RUTH	405_70RETROFIT - (FGB) JAX_END_PRS_FGB; 1	REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor J. A. VAN LUND		10	WASH.			
Designed By T.M.M. MOORE 1/96						
Checked By J. MERTH 2/96						
Detailled By V.B. SCHICCHI 2/96						
Bridge Projects Engr.						
Prelim. Plan By	8/96 ADDED ES/WS PIER 1 & GALV. CALLOUT TM CL					
Architect/Specialist	DATE	REVISION	BY	APP'D	4944	



SR 405  
WOODINVILLE INTERCHANGE  
HOV WIDENING  
SEISMIC RETROFIT  
COLUMN JACKETING  
END PIER EXCAVATION

BRIDGE SHEET NO. 58  
SHEET 418 OF 452 SHEETS

LONGITUDINAL RESTRAINER GAP  
TYP. THIS SIDE. FOR DIMENSIONS  
SEE BR. SHT. S25.



TRANSVERSE RESTRAINER LOCATIONS.  
TYP. BOTH CELLS. FOR DETAILS SEE  
BR. SHT. S29.

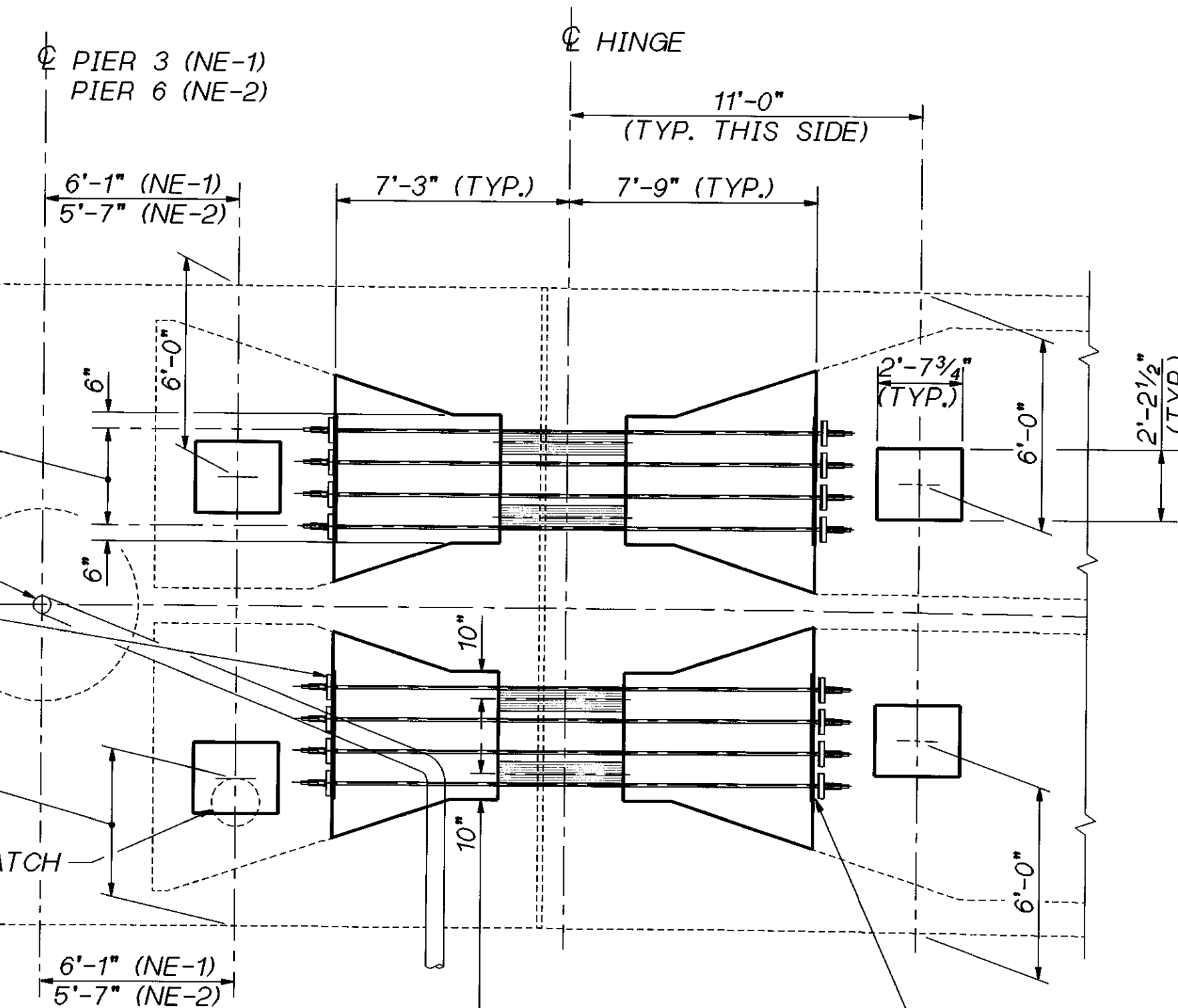
### RESTRAINER LAYOUT - S-E 1

FOR REINFORCEMENT DETAILS SEE BR. SHT. S22.  
TACK WELD EXISTING ACCESS HATCH SHUT.  
RESTRAINERS ARE NORMAL TO HINGE.

CONTRACTOR SHALL LOCATE DRAIN PIPE PRIOR TO ACCESS HATCH  
SLAB REMOVAL. ADJUST TRANSVERSE HATCH DIMENSION TO  
AVOID CONFLICT WITH DRAIN PIPE. MINIMUM = 4'-0"

CONTRACTOR SHALL FIELD MEASURE EXISTING WEB GAP  
PRIOR TO RESTRAINER FABRICATION (TYP. BOTH  
CELLS) SEE BR. SHT. S26 FOR RESTRAINER DETAILS.

4 LONGITUDINAL RESTRAINERS @ 3 EQ. SPA.  
TYP. BOTH CELLS. FOR DETAILS SEE BR. SHT. S25.



TRANSVERSE RESTRAINER LOCATIONS.  
TYP. BOTH CELLS. FOR DETAILS SEE  
BR. SHT. S29.

### RESTRAINER LAYOUT - NE-1 & NE-2

FOR REINFORCEMENT DETAILS SEE BR. SHT. S22.  
RESTRAINERS ARE NORMAL TO HINGE

4 LONGITUDINAL RESTRAINERS @ 3 EQ. SPA.  
TYP. BOTH CELLS. FOR DETAILS SEE BR. SHT. S25.

EXIST. DRAIN PIPE TO REMAIN

CONTRACTOR SHALL FIELD MEASURE EXISTING WEB GAP  
PRIOR TO RESTRAINER FABRICATION (TYP. BOTH  
CELLS) SEE BR. SHT. S26 FOR RESTRAINER DETAILS.

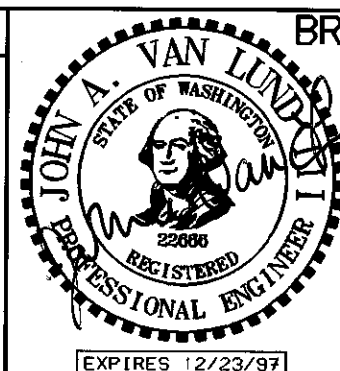
CONTRACTOR SHALL LOCATE DRAIN PIPE PRIOR TO ACCESS HATCH  
SLAB REMOVAL. ADJUST TRANSVERSE HATCH DIMENSION TO  
AVOID CONFLICT WITH DRAIN PIPE.

REMOVE EXISTING ACCESS HATCH

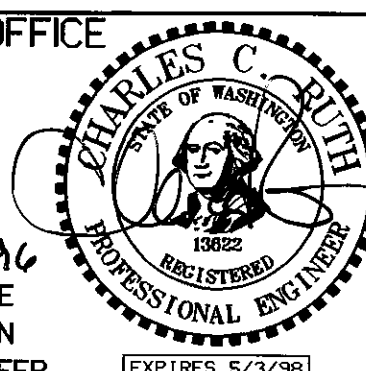
LONGITUDINAL RESTRAINER GAP  
TYP. THIS SIDE. FOR DIMENSIONS  
SEE BR. SHT. S25.

SR 405 JOB NO. 7056 SHEET S18

Bridge Design Engr. C. C. RUTH	REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor J. A. VAN LUND	10	WASH.			
Designed By J. MERTH 2/96	JOB NUMBER 96W020				
Checked By J. WEI 2/96	DATE 4/9/96				
Detailed By V.B. SCHICCHI 2/96	BY APP'D				
Bridge Projects Engr.	DATE				
Prelim. Plan By	REVISION				
Architect/Specialist	BY APP'D				



BRIDGE AND STRUCTURES OFFICE  
6/5/96  
SUPERVISING  
BRIDGE  
ENGINEER



**Washington State**  
Department of  
Transportation

SR 405  
WOODINVILLE INTERCHANGE  
HOV WIDENING  
SEISMIC RETROFIT

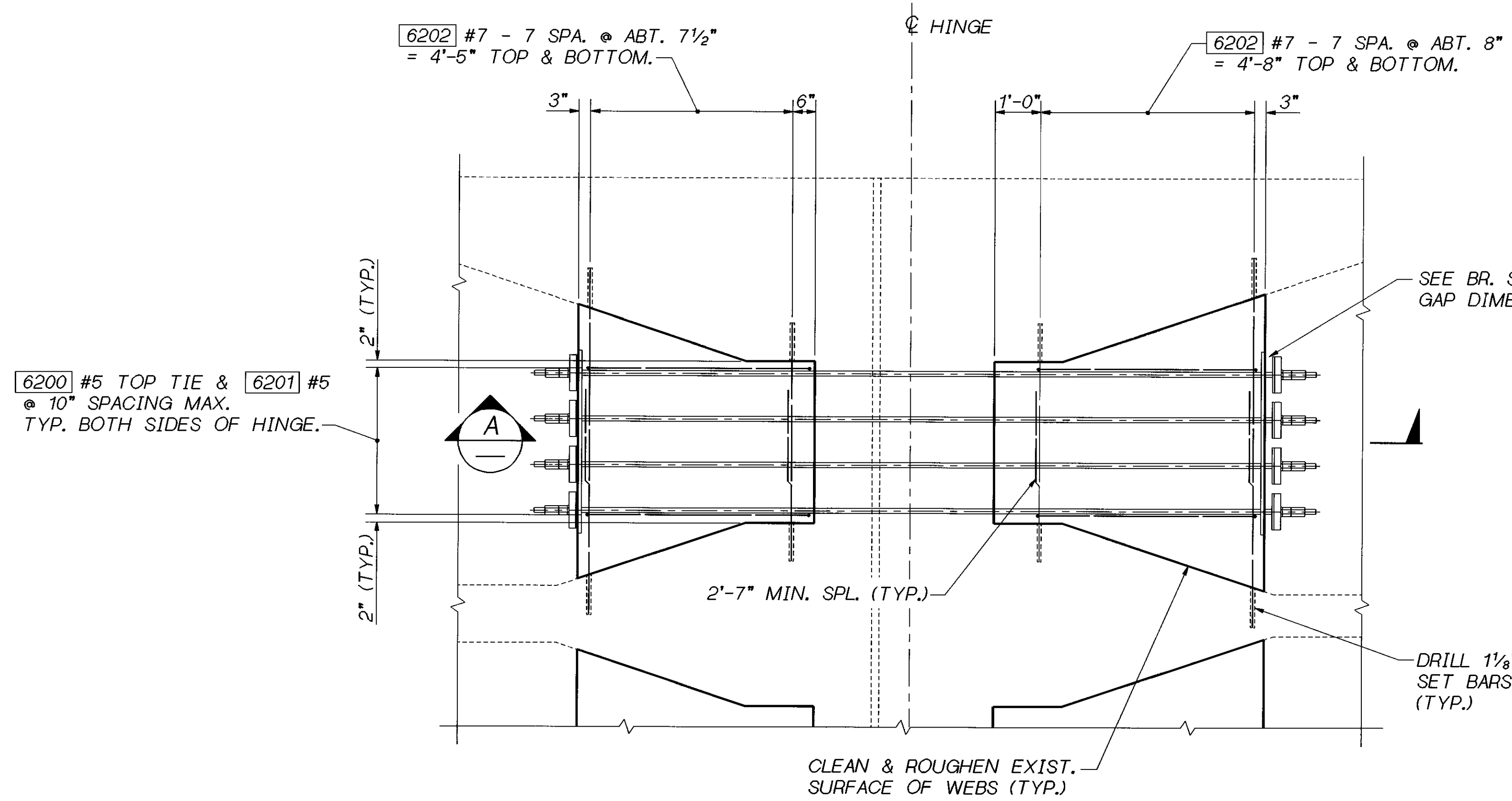
RESTRAINER LAYOUTS  
N-E 1, N-E 2 & S-E 1

BRIDGE SHEET NO. S18  
SHEET OF 452 SHEETS

31-MAY-96

405\_70WROOT:1.000000.FGB.RETRD.FGB\QUAKE\_3.RESTR.FGB:1

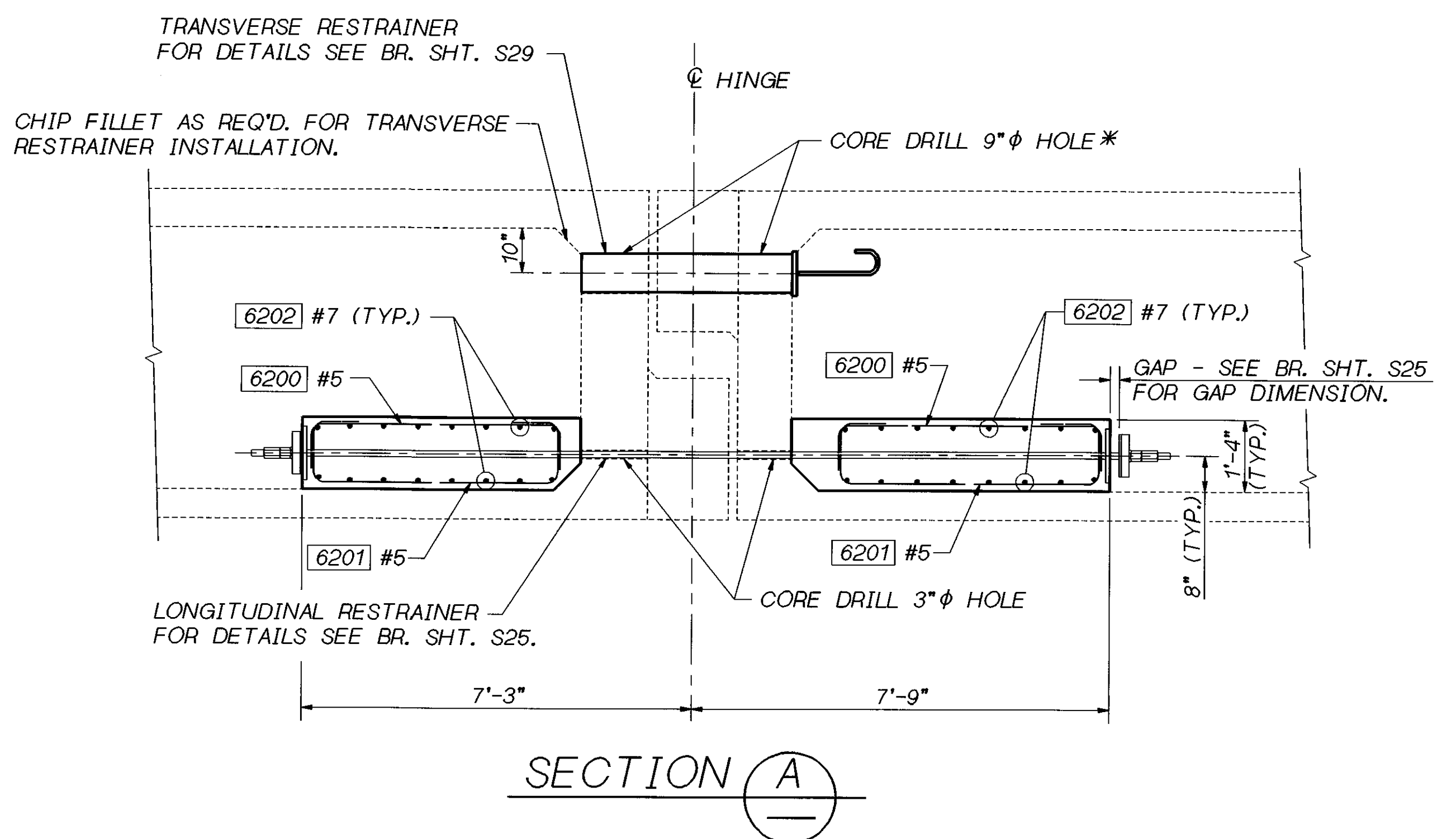
SR 405 JOB NO. 7056 SHEET S22



**TYPICAL REINFORCEMENT**  
REINF. FOR 3 RESTRAINERS PER CELL SIMILAR.

FOR HINGES LL-1, LL-2, LL-3, N-W 1, N-W 2, N-W 3,  
N-W 4, S-E 1, N-E 1, N-E 2, W-S 1,  
W-S 2, W-S 3, W-S 4 & W-S 5.

\* CONTRACTOR SHALL LOCATE EXISTING WEB REINFORCEMENT PRIOR TO DRILLING. ADJUST LOCATION OF DRILLED HOLE TO CLEAR EXISTING REINFORCEMENT.



Bridge Design Engr. C. C. RUTH				REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor J. A. VAN LUND				10	WASH.			
Designed By J. MERTH	2/96			JOB NUMBER				
Checked By J. WEI	2/96			96W020				
Detailed By V.B. SCHICCHI	11/95	2/96						
Bridge Projects Engr.								
Prelim. Plan By								
Architect/Specialist	DATE	REVISION	BY	APP'D				

BRIDGE AND STRUCTURES OFFICE

JOHN A. VAN LUND  
REGISTERED PROFESSIONAL ENGINEER  
EXPIRES 12/23/97

6/5/96  
SUPERVISING BRIDGE ENGINEER

6-5-96  
BRIDGE DESIGN ENGINEER  
EXPIRES 5/3/98

**Washington State Department of Transportation**

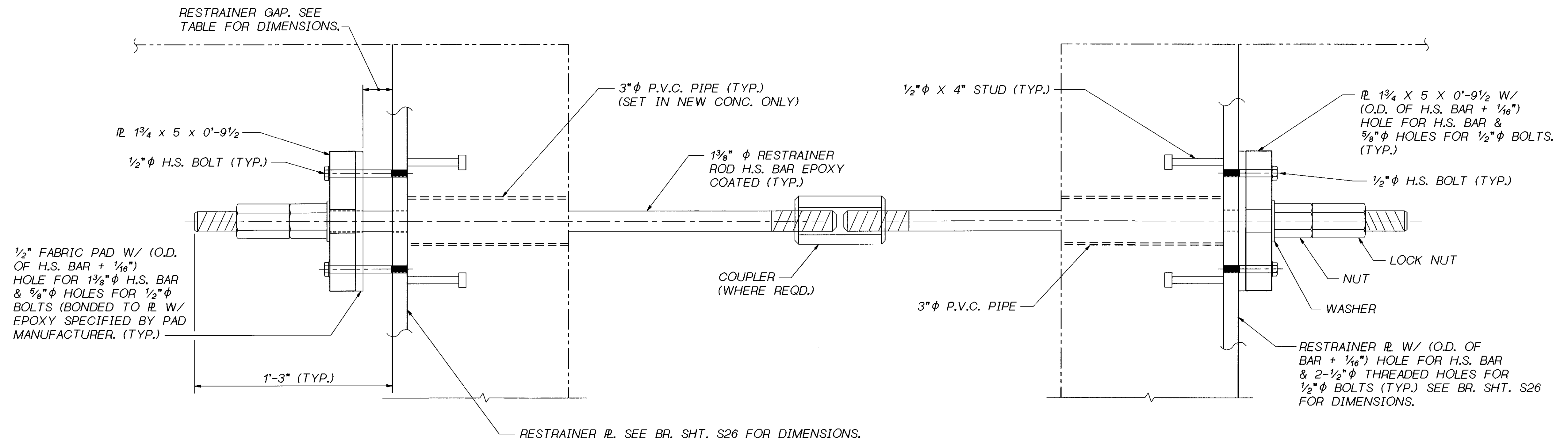
SR 405  
WOODINVILLE INTERCHANGE  
HOV WIDENING  
SEISMIC RETROFIT

**BOLSTER REINFORCING  
TYPICAL DETAILS**

BRIDGE SHEET NO. S22  
SHEET 432 OF 452 SHEETS

31-MAY-96

405\_70WROOT-1.000000.FGB.RETRO.FGB\FOUR\_RESTR\_REINF.FGB;1



TYPICAL LONGITUDINAL RESTRAINER DETAIL  
PLAN VIEW

**NOTE:**

ALL PLATES AND HARDWARE SHALL BE FABRICATED FROM AASHTO M183 STRUCTURAL STEEL AND SHALL BE HOT-DIPPED GALVANIZED PER AASHTO M111.

LONGIT. RESTR. GAP				
BRIDGE	HINGE #	40 F	64 F	80 F
SB	1	2 1/8"	2 3/4"	3 1/8"
	2	2"	2 5/8"	3"
	3	2"	2 5/8"	3"
S-E	1	1 1/8"	2 1/2"	2 3/4"
N-W	1	1 5/8"	2 1/8"	2 3/8"
	2	1 1/8"	2 3/8"	2 3/4"
	3	1 3/4"	2 1/4"	2 5/8"
	4	1 3/4"	2 3/8"	2 3/4"
N-E	1	1 1/2"	2"	2 1/4"
	2	1 1/2"	2"	2 1/8"
W-S	1	2 1/8"	2 3/4"	3 1/4"
	2	2 1/4"	3"	3 3/8"
	3	2 3/8"	3 1/8"	3 1/2"
	4	2 3/8"	3 1/8"	3 5/8"
	5	2 1/4"	3"	3 3/8"
E-S	1	1 3/4"	2 1/4"	2 5/8"

NOTE: TEMPERATURE IN ABOVE TABLE REFERS TO TEMPERATURE OF AMBIENT AIR AT TIME OF INSTALLATION.

LONGITUDINAL RESTRAINER SHOWN IS TYPICAL FOR HINGES LL-1, LL-2, LL-3, N-W 1, N-W 2, N-W 3, N-W 4, N-E 1, N-E 2, S-E 1, W-S 1, W-S 2, W-S 3, W-S 4, W-S 5 & E-S 1

SR 405 JOB NO. 7056 SHEET S25

Bridge Design Engr. C. C. RUTH									
Supervisor J. A. VAN LUND									
Designed By J. MERTH	2/96								
Checked By J. WEI	2/96								
Detailed By V.B. SCHICCHI	2/96								
Bridge Projects Engr.									
Prelim. Plan By									
Architect/Specialist	DATE	REVISION	BY	APP'D	4944				

REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
10	WASH.			
JOB NUMBER				
96W020				

BRIDGE AND STRUCTURES OFFICE

6/5/96  
SUPERVISING  
BRIDGE  
ENGINEER

6-5-96  
BRIDGE  
DESIGN  
ENGINEER

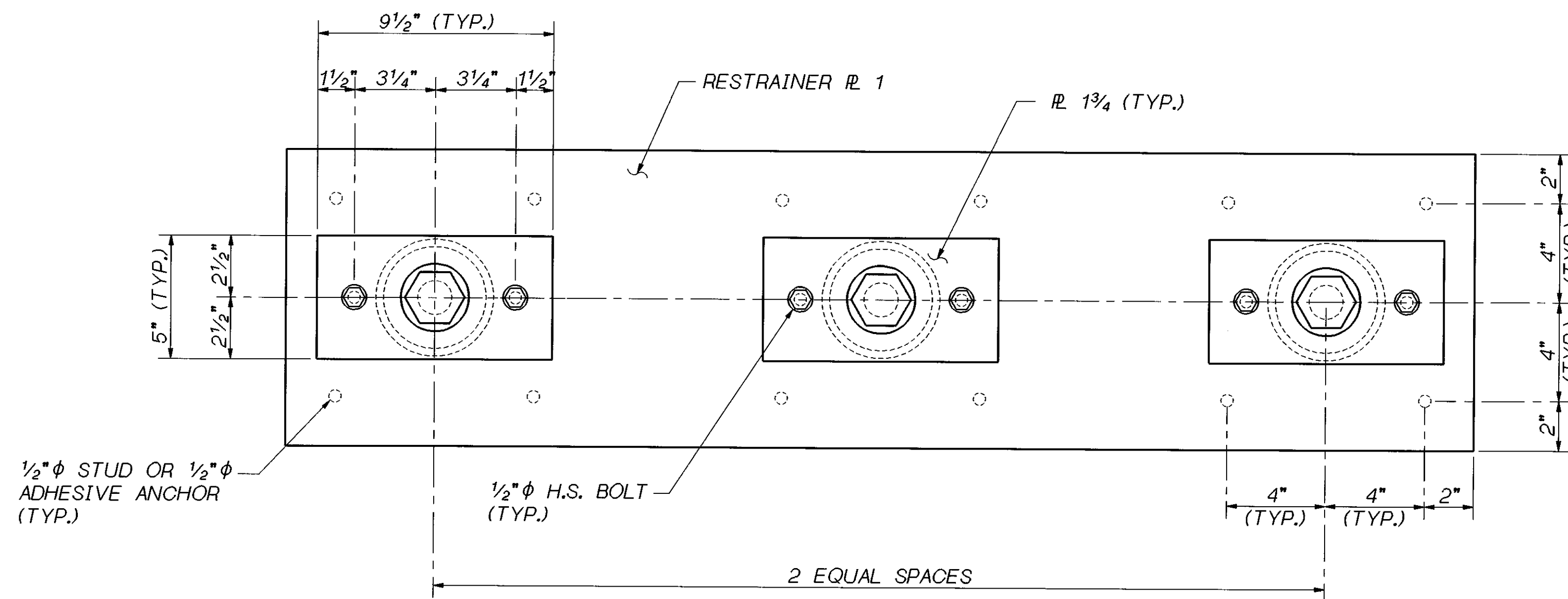
**Washington State**  
**Department of**  
**Transportation**

SR 405  
WOODINVILLE INTERCHANGE  
HOV WIDENING  
SEISMIC RETROFIT

RESTRAINER DETAILS  
LONGITUDINAL

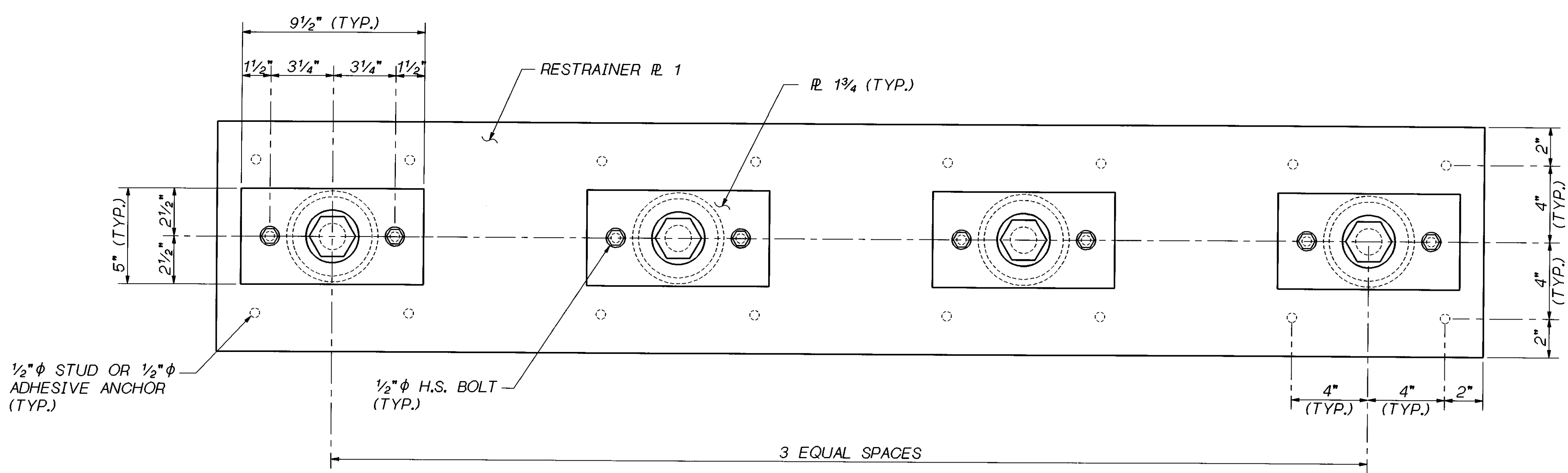
BRIDGE SHEET NO.  
**S25**

SHEET  
435  
OF  
452  
SHEETS



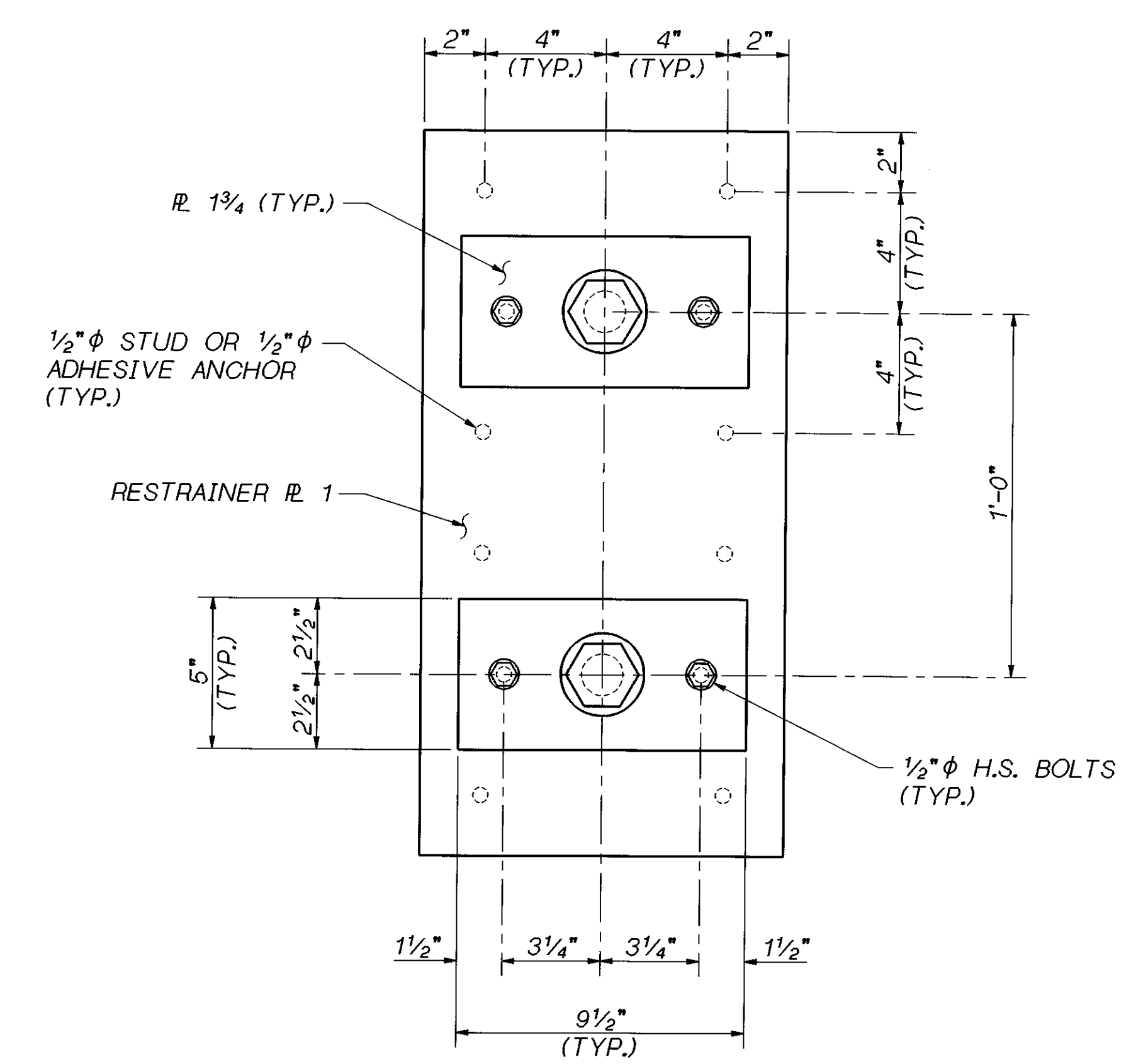
**LONGITUDINAL RESTRAINER - END VIEW**

TYP. FOR 3 RESTRAINER ASSEMBLY. CONTRACTOR SHALL FIELD MEASURE WEB GAP PRIOR TO RESTRAINER PLATE FABRICATION.



**LONGITUDINAL RESTRAINER - END VIEW**

TYP. FOR 4 RESTRAINER ASSEMBLY. CONTRACTOR SHALL FIELD MEASURE WEB GAP PRIOR TO RESTRAINER PLATE FABRICATION.



**LONGITUDINAL RESTRAINER END VIEW**

TYPICAL FOR WIDENED SECTION

PLATES SHOWN ARE TYPICAL FOR HINGES  
 LL-1, LL-2, LL-3, N-W 1, N-W 2, N-W 3,  
 N-W 4, N-E 1, N-E 2, S-E 1, W-S 1, W-S 2,  
 W-S 3, W-S 4, W-S 5 & E-S 1.

SR 405 JOB NO. 1056 SHEET S26

Bridge Design Engr. C. C. RUTH					REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor J. A. VAN LUND					10	WASH.			
Designed By J. MERTH	2/96				JOB NUMBER				
Checked By J. WEI	2/96				96W020				
Detailed By V.B. SCHICCHI	2/96				BY APP'D		4944		
Bridge Projects Engr.					DATE				
Prelim. Plan By					REVISION				
Architect/Specialist					BY				

BRIDGE AND STRUCTURES OFFICE

6/5/96

6-5-96

CHARLES C. RUTH  
 REGISTERED PROFESSIONAL ENGINEER  
 EXPIRES 5/3/98

J. A. VAN LUND  
 REGISTERED PROFESSIONAL ENGINEER  
 EXPIRES 12/23/97

**Washington State Department of Transportation**

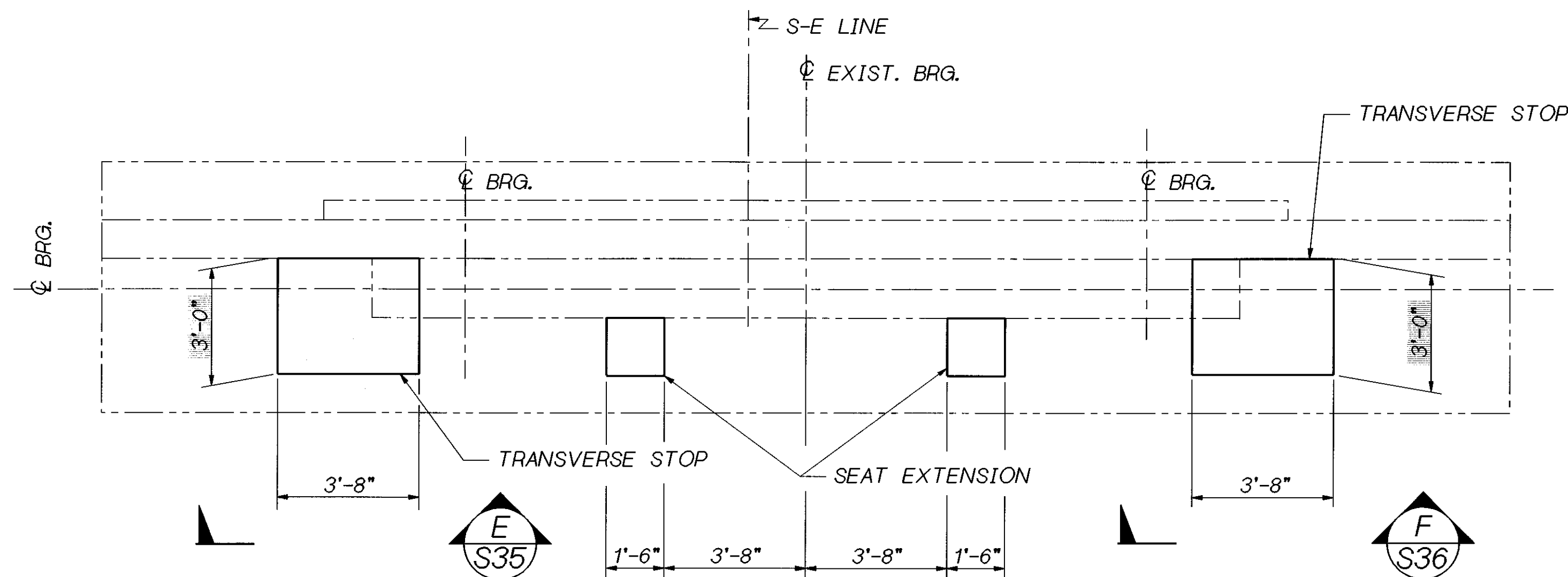
SR 405  
 WOODINVILLE INTERCHANGE  
 HOV WIDENING  
 SEISMIC RETROFIT

RESTRAINER DETAILS  
 PLATES

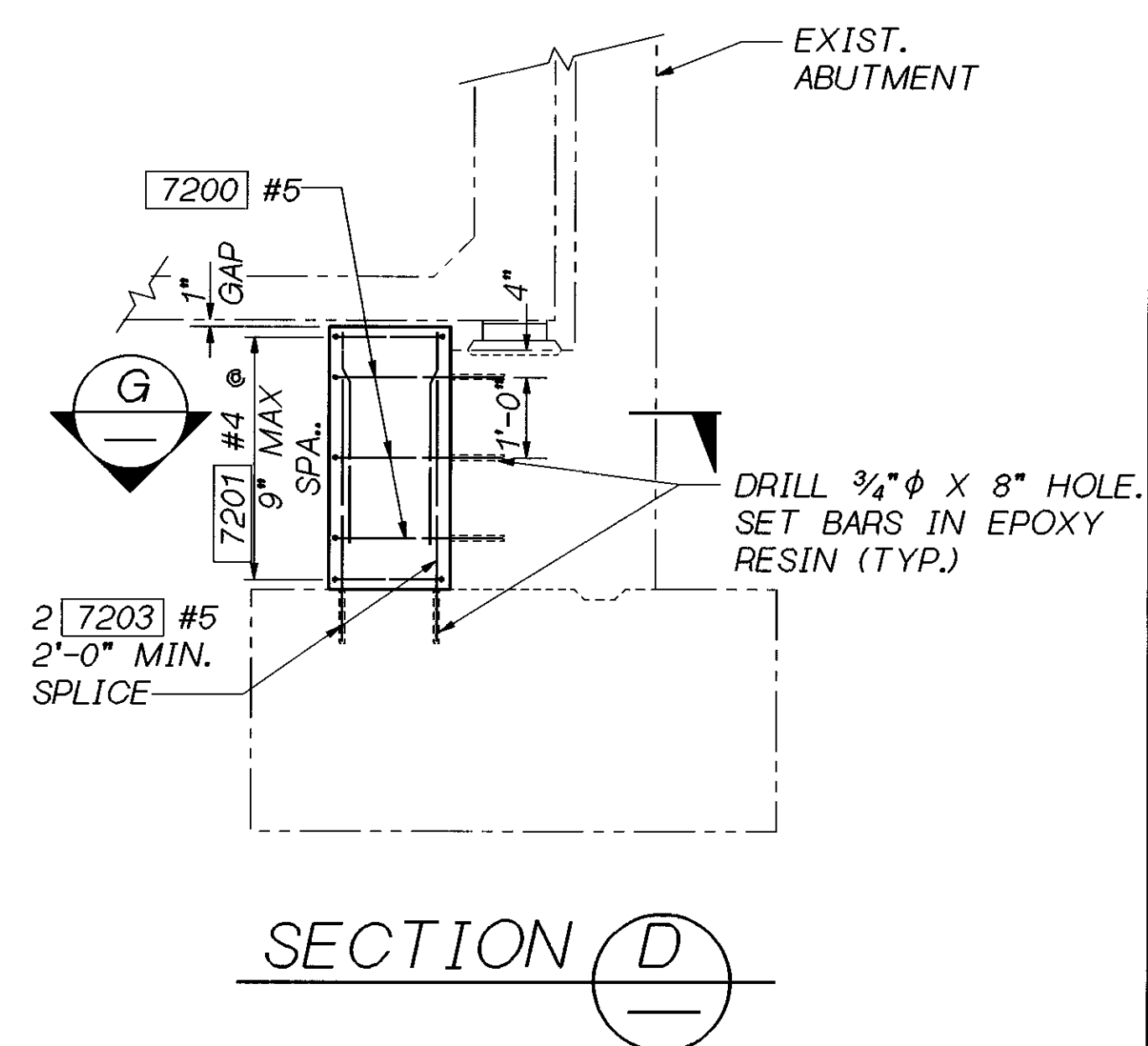
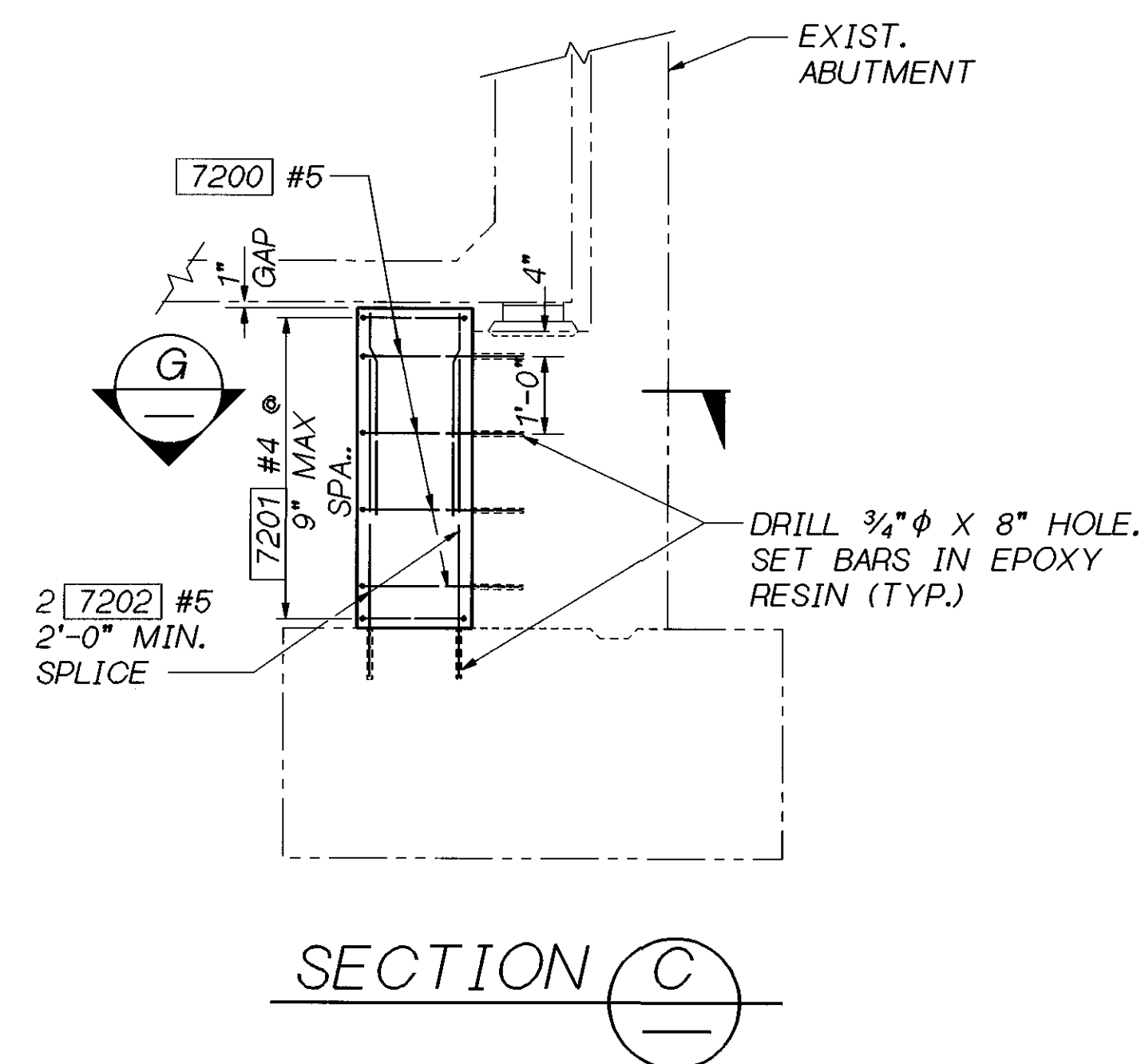
BRIDGE SHEET NO. S26  
 SHEET 436 OF 452 SHEETS





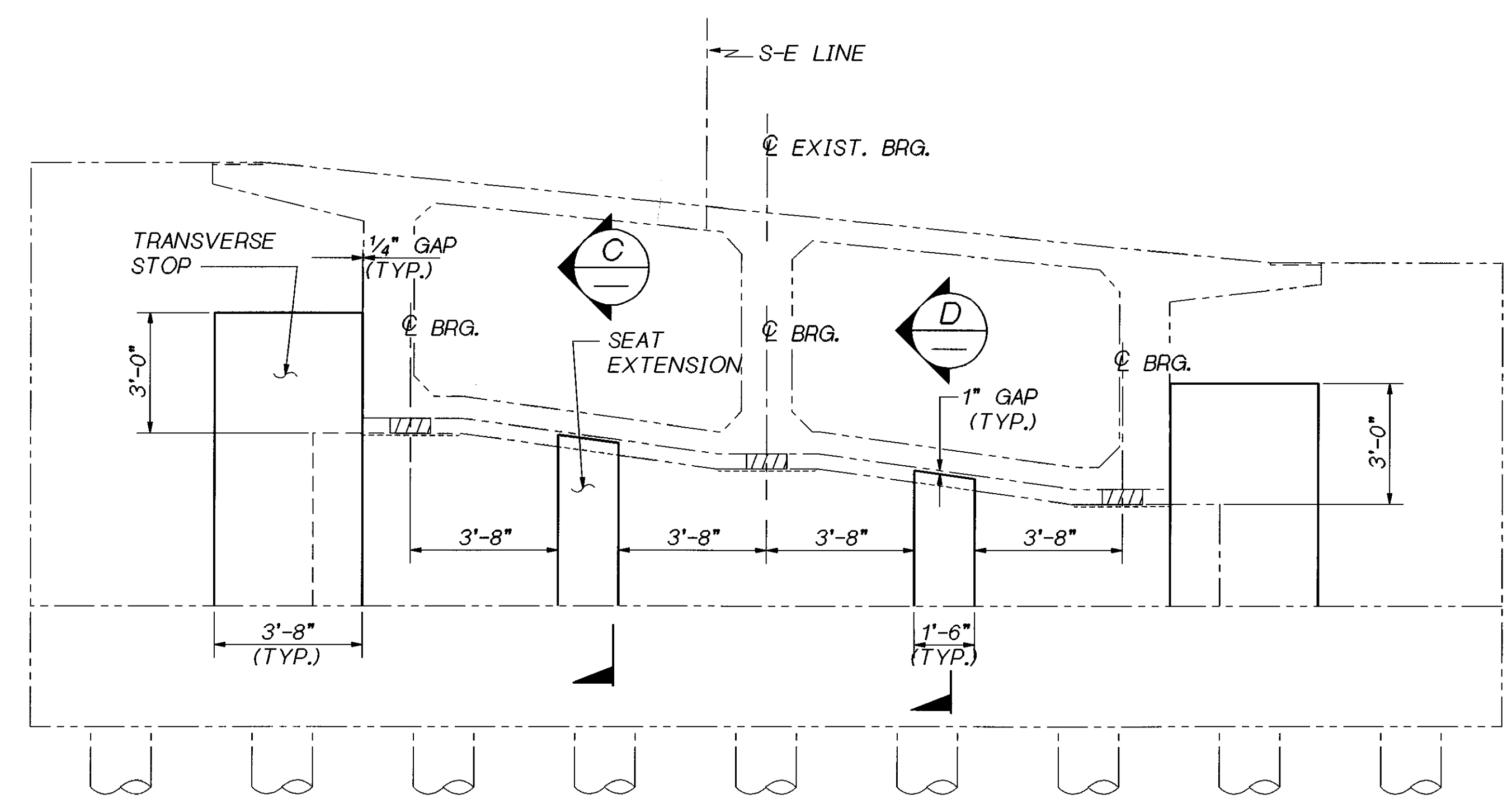


ABUTMENT RETROFIT - PLAN



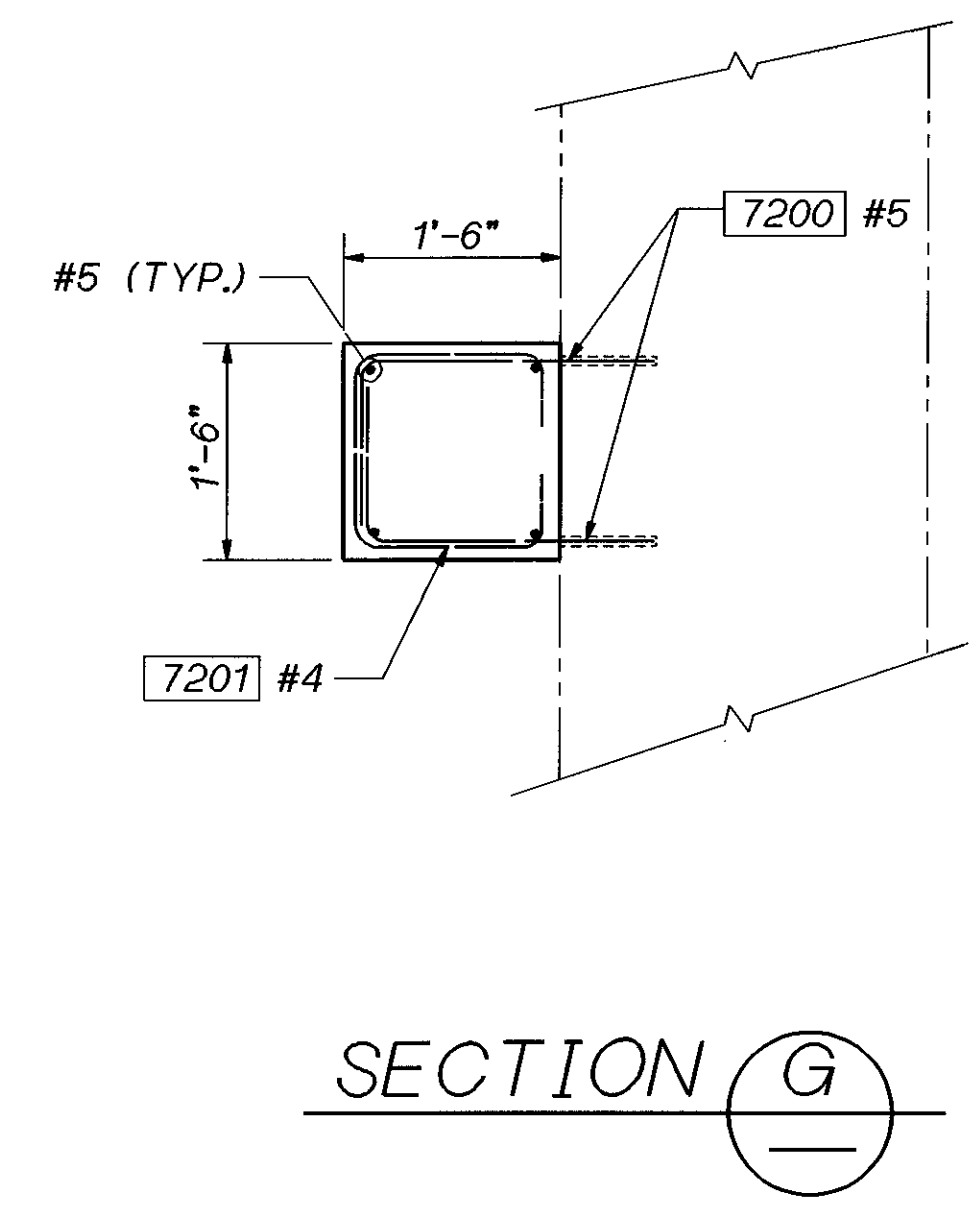
SECTION C

SECTION D



ABUTMENT RETROFIT - ELEVATION

LOOKING AHEAD ON STATION



SECTION G

SR 405 JOB NO. 7056 SHEET S34

Bridge Design Engr. C. C. RUTH				REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor J. A. VAN LUND				10	WASH.			
Designed By J. MERTH	2/96			JOB NUMBER				
Checked By M. SHEIKHIZADAH	2/96			96W020				
Detailed By L. ANDREOTTI	2/96							
Bridge Projects Engr.								
Prelim. Plan By	7-31-96	3'-0" STOP WAS 4'-0"	JM	CL				
Architect/Specialist	DATE	REVISION	BY	APP'D	4944			

BRIDGE AND STRUCTURES OFFICE

**J. JOHN A. VAN LUND**  
PROFESSIONAL ENGINEER  
EXPIRES 12/23/97

7-25-96  
SUPERVISING  
BRIDGE  
ENGINEER

**CHARLES C. RUTH**  
PROFESSIONAL ENGINEER  
EXPIRES 5/3/98

**Washington State Department of Transportation**

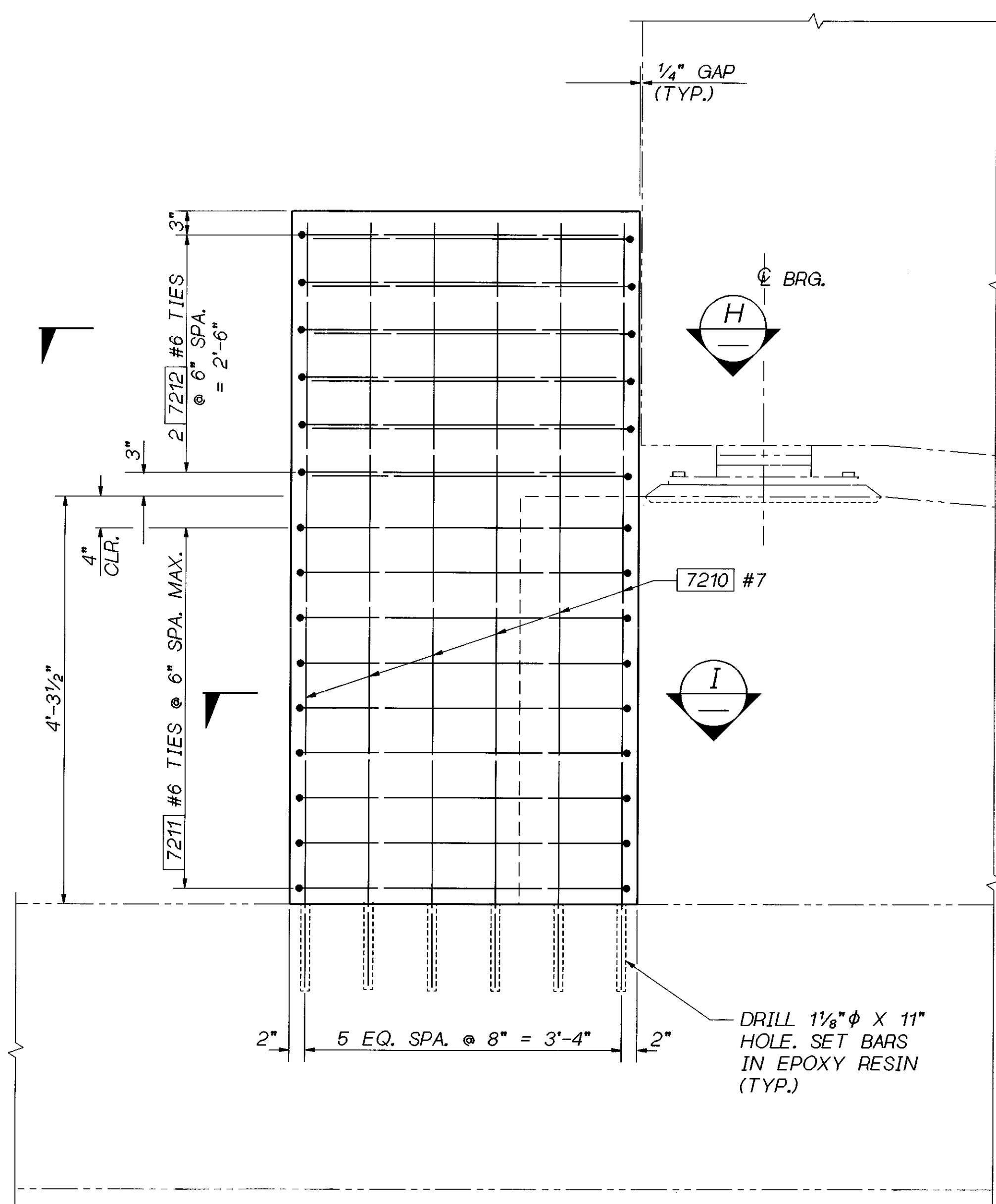
SR 405  
WOODINVILLE INTERCHANGE  
HOV WIDENING  
SEISMIC RETROFIT  
S-E RAMP  
PIER 1 RETROFIT

BRIDGE SHEET NO. S34  
SHEET 444 OF 452 SHEETS

25-JLY-96

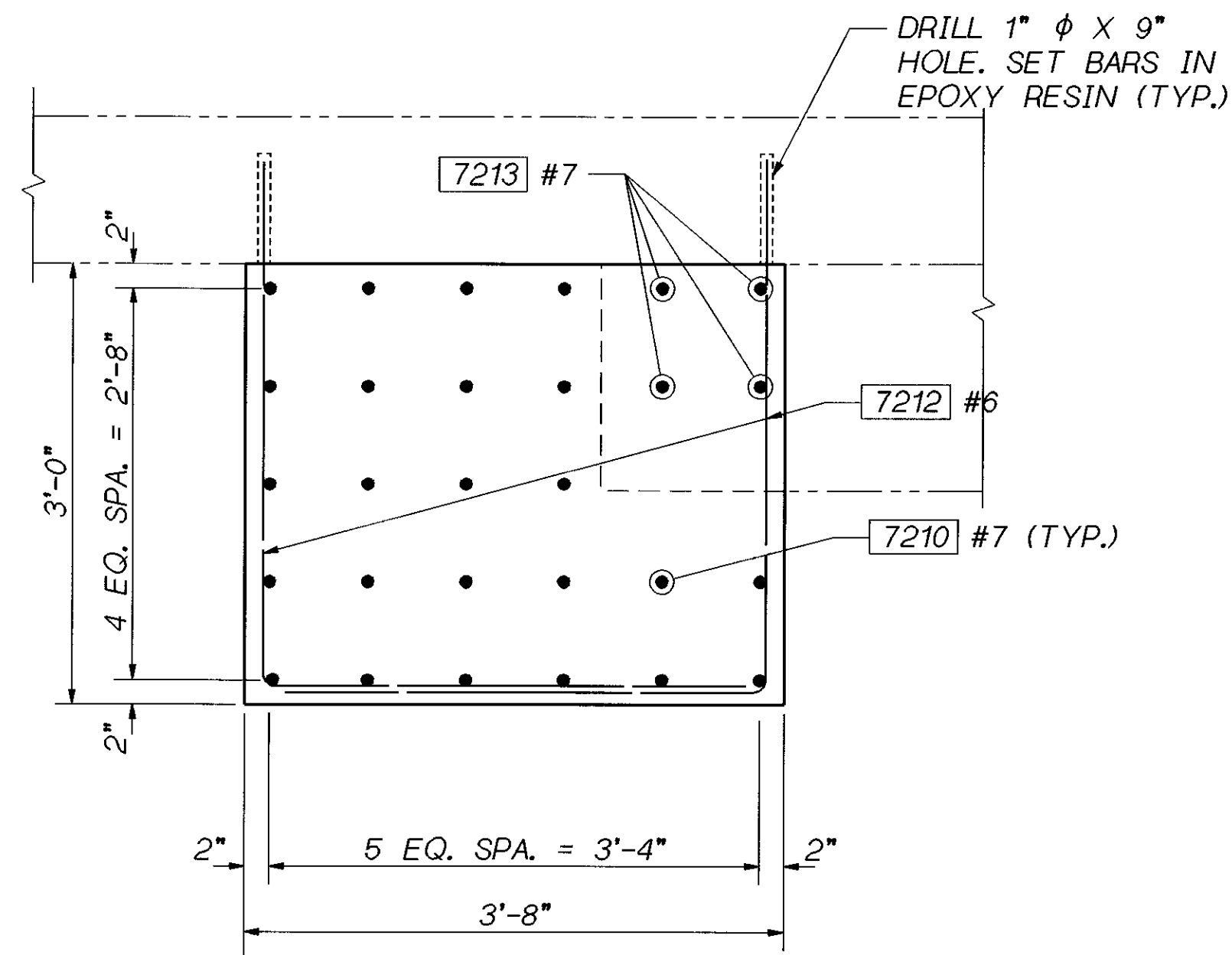
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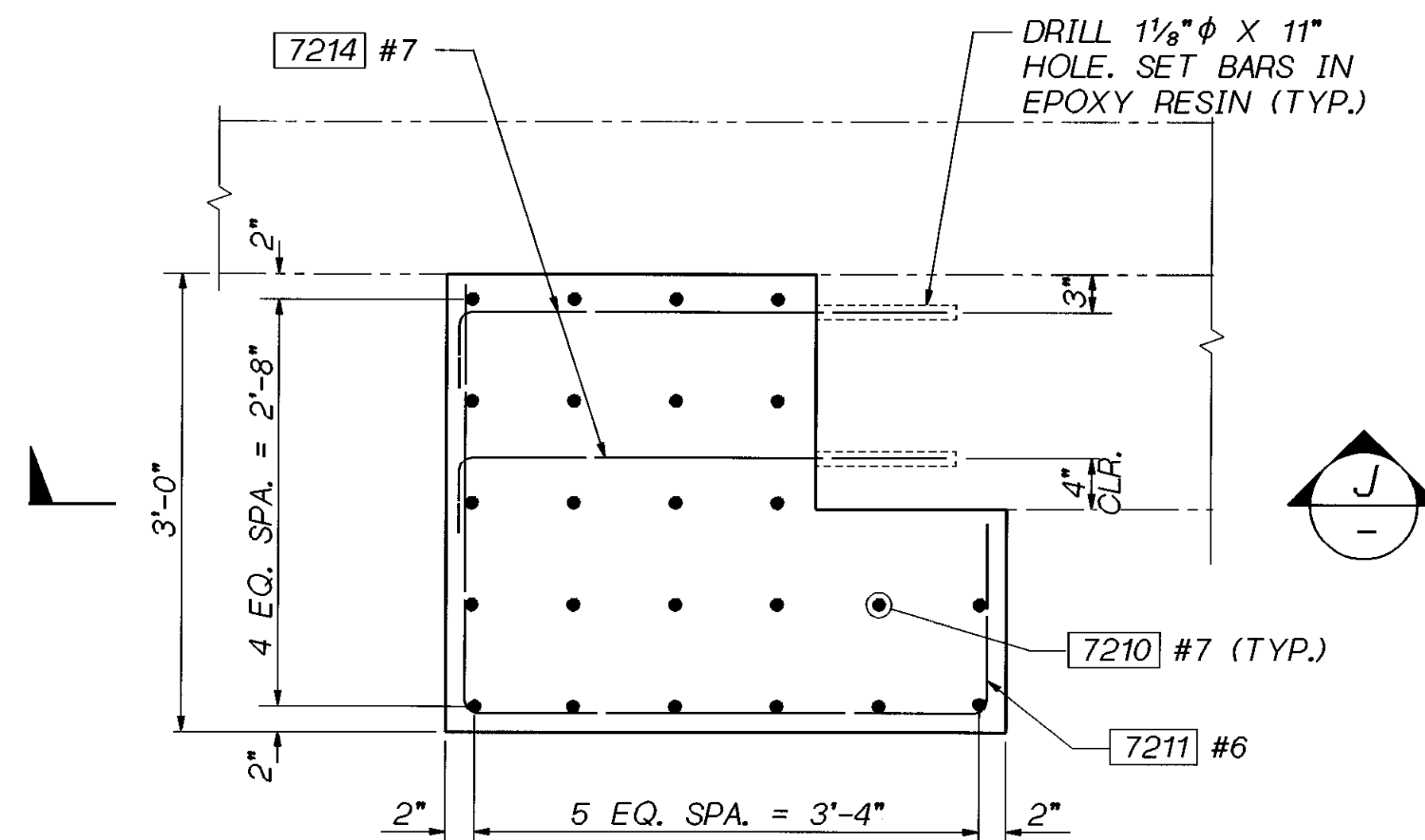


SECTION E  
S34

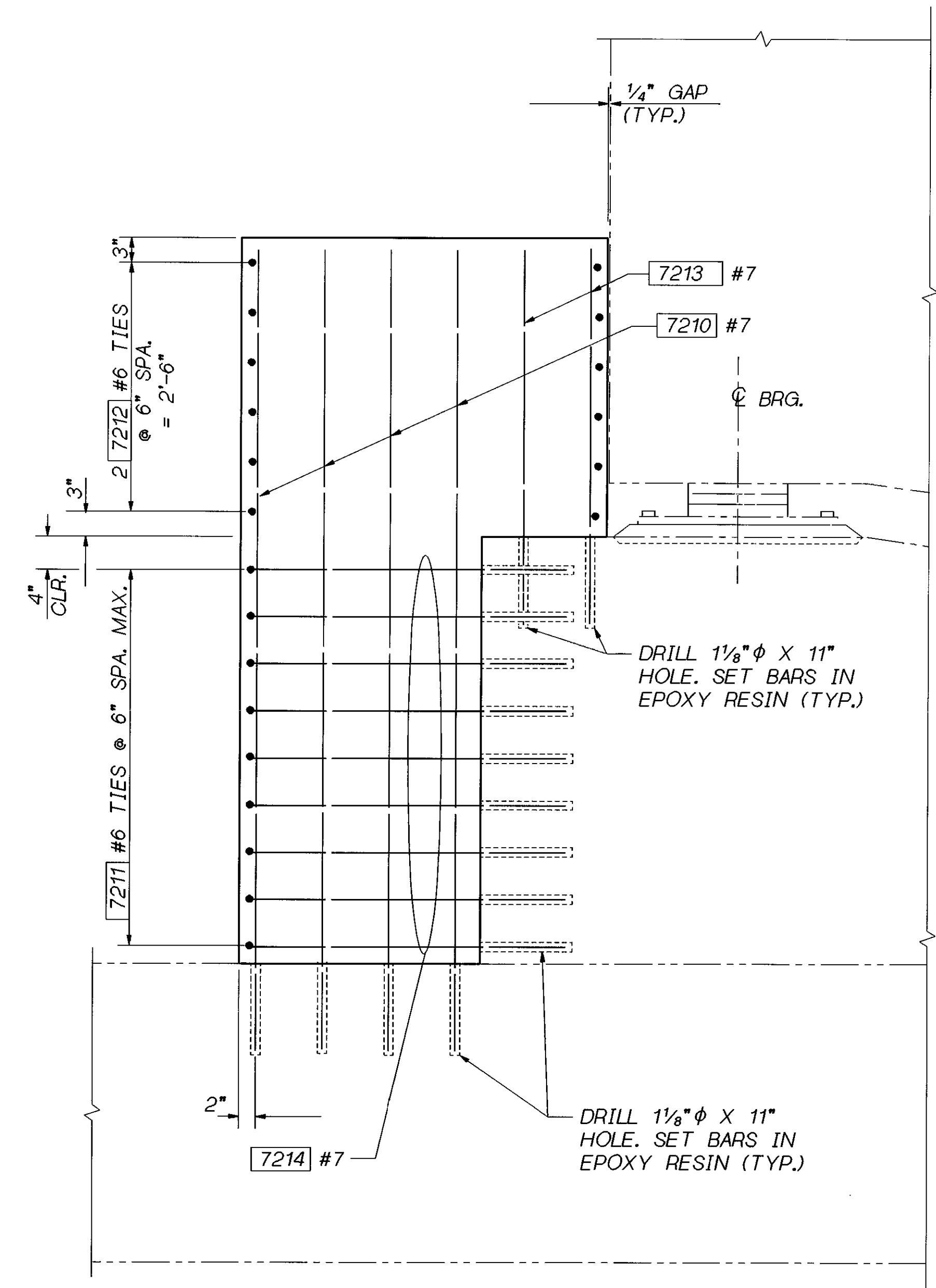
LEFT TRANSVERSE STOP ELEVATION



SECTION H



SECTION I



SECTION J

Bridge Design Engr.	C. C. RUTH	REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor	J. A. VAN LUND	10	WASH.			
Designed By	J. MERTH					
Checked By	M. SHEIKHIZADEH					
Detailed By	L. ANDREOTTI					
Bridge Projects Engr.						
Prelim. Plan By						
Architect/Specialist		DATE	REVISION	BY	APP'D	4944

JOB NUMBER	96W020
------------	--------

BRIDGE AND STRUCTURES OFFICE

JOHN A. VAN LUND  
REGISTERED PROFESSIONAL ENGINEER  
EXPIRES 12/23/97

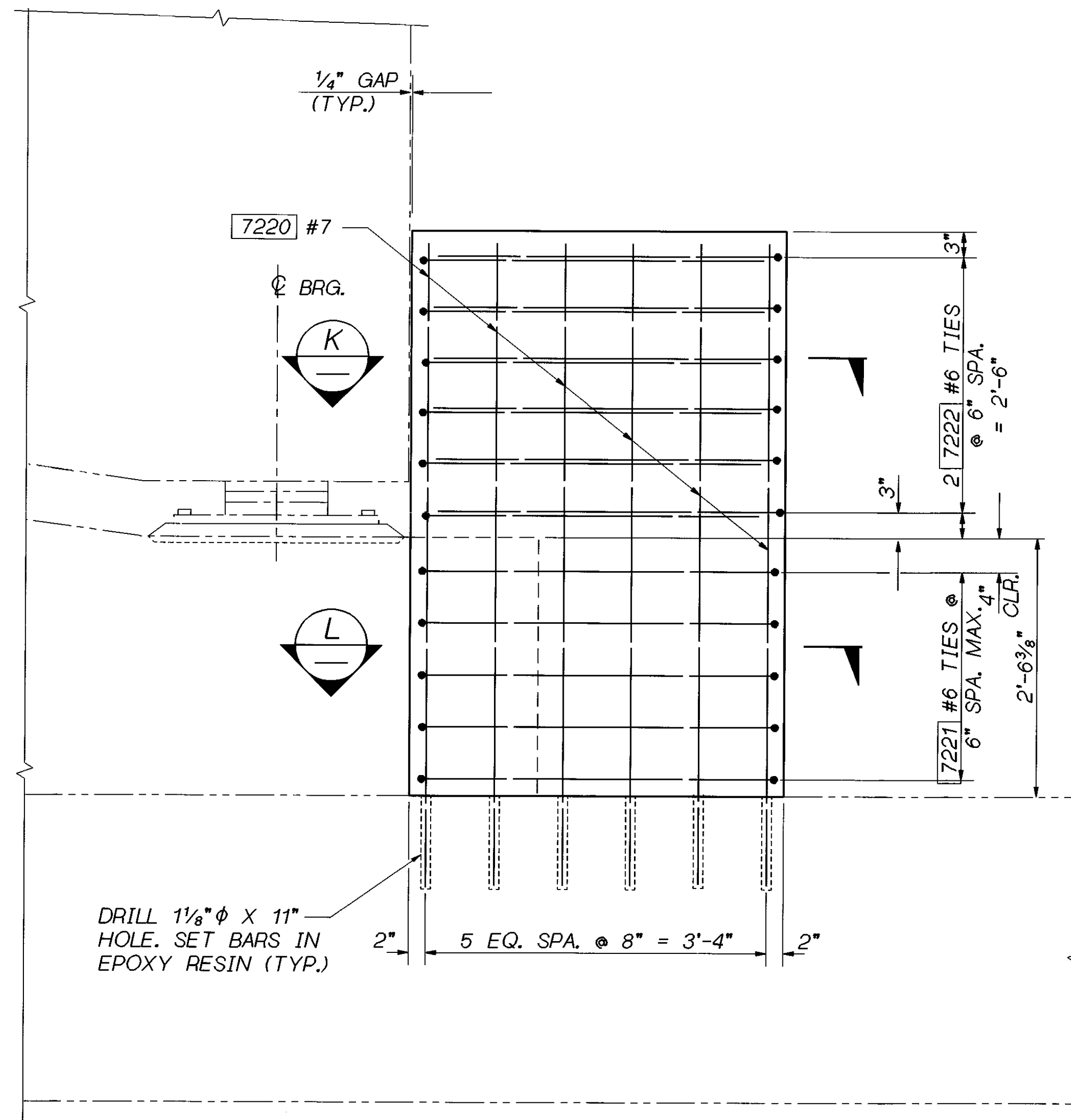
6/5/96  
SUPERVISING BRIDGE ENGINEER

6-5-96  
BRIDGE DESIGN ENGINEER  
EXPIRES 5/3/98

Washington State Department of Transportation

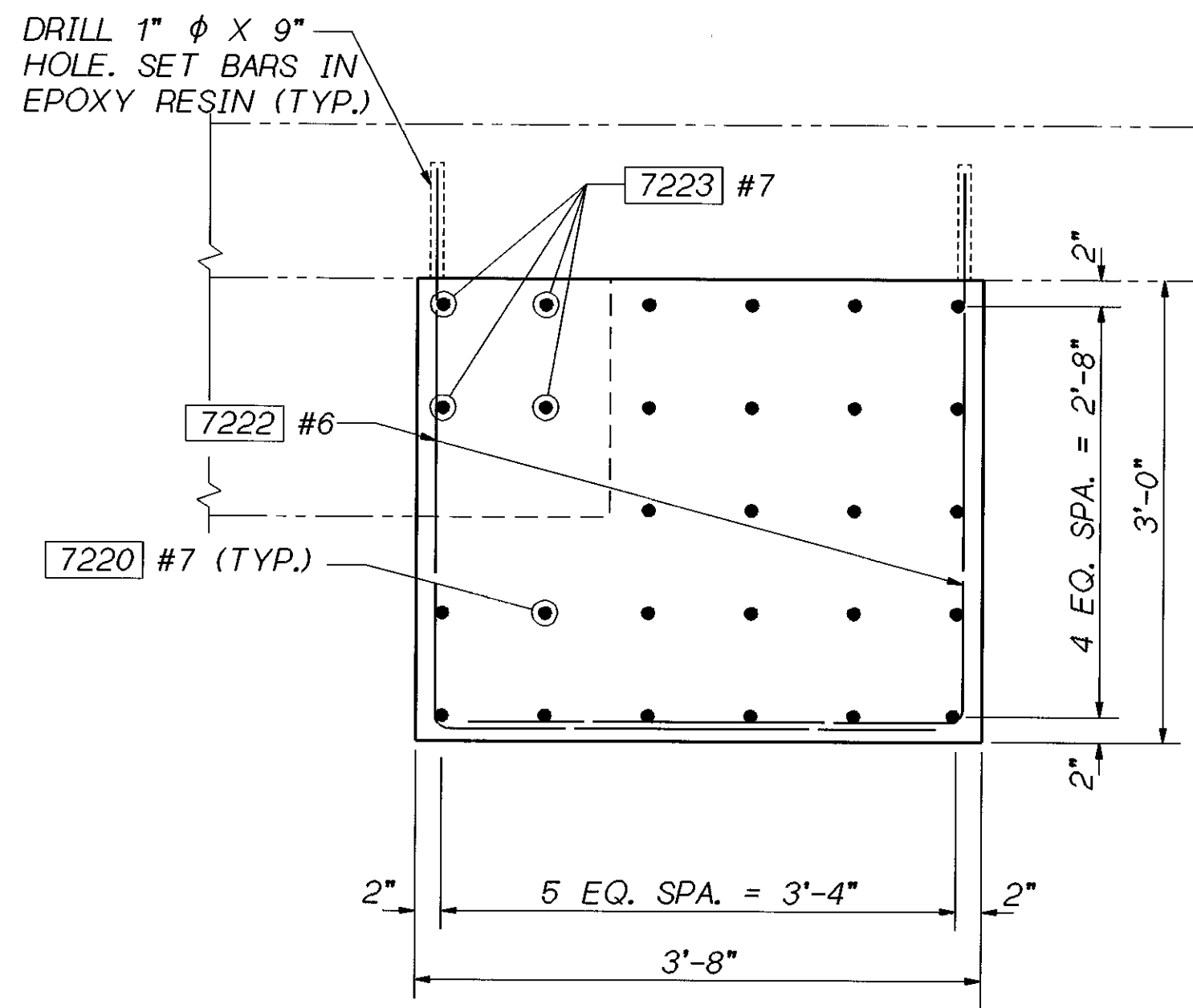
SR 405  
WOODINVILLE INTERCHANGE  
HOV WIDENING  
SEISMIC RETROFIT  
S-E PIER 1 TRANSVERSE STOP  
LEFT SIDE

BRIDGE SHEET NO. S35  
SHEET 445 OF 452 SHEETS

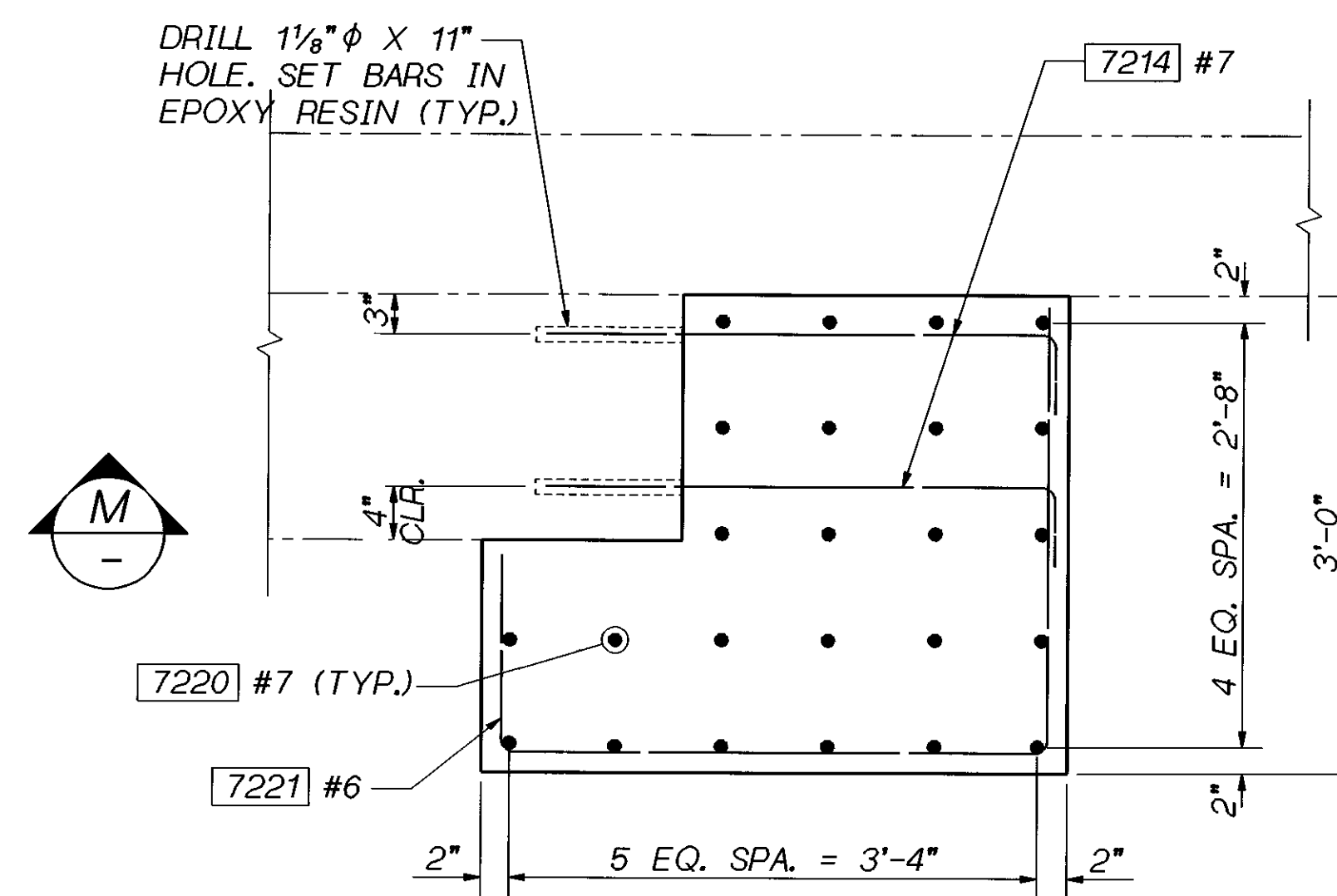


F SECTION  
S34

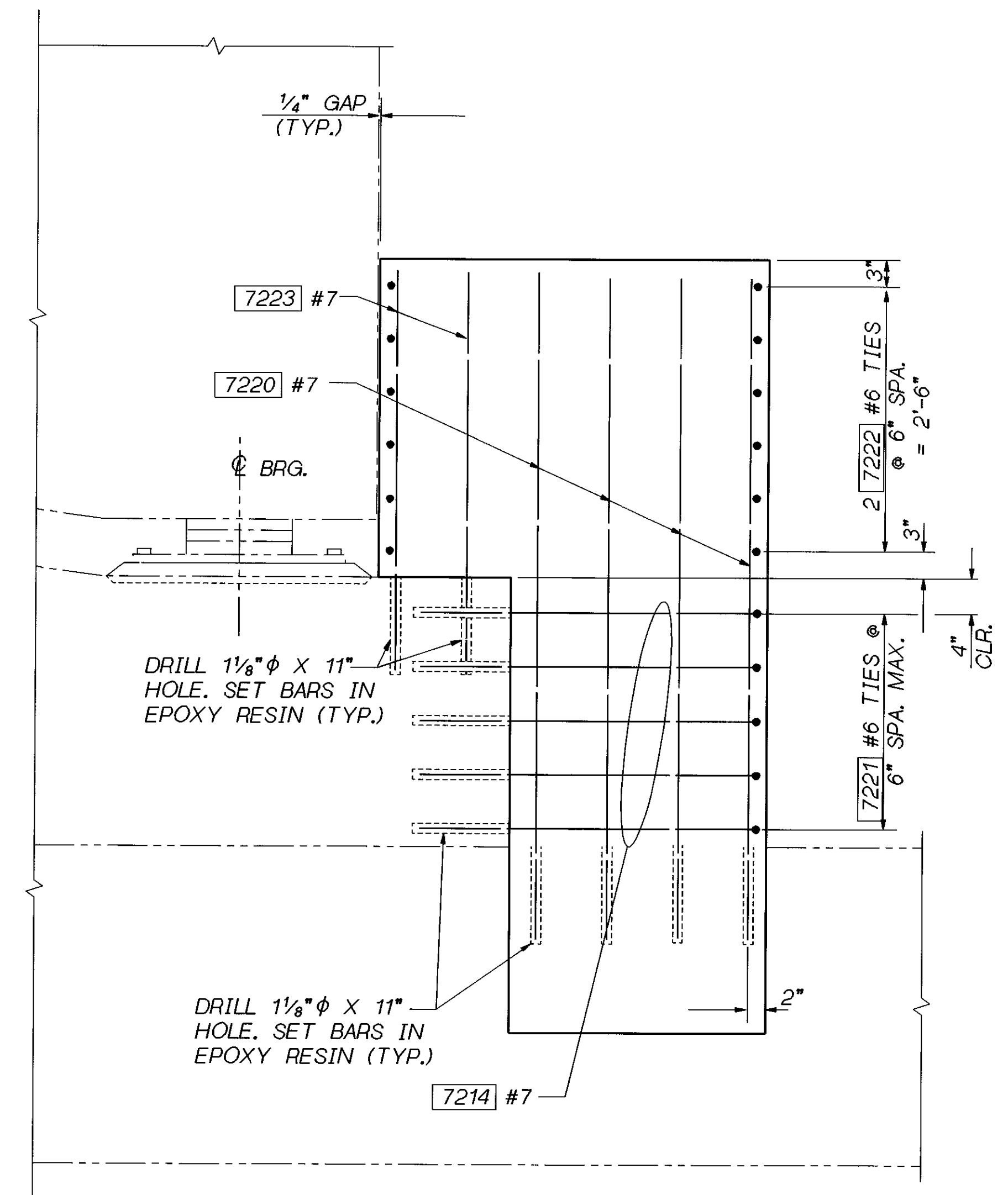
RIGHT TRANSVERSE STOP ELEVATION



K SECTION



L SECTION



M SECTION

Bridge Design Engr. C. C. RUTH				REGION NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
Supervisor J. A. VAN LUND				10	WASH.			
Designed By J. MERTH	2/96			JOB NUMBER				
Checked By M. SHEIKHIZADEH	2/96			96W020				
Detailed By L. ANDREOTTI	2/96							
Bridge Projects Engr.								
Prelim. Plan By								
Architect/Specialist	DATE	REVISION	BY	APP'D				

BRIDGE AND STRUCTURES OFFICE

J. A. VAN LUND  
SUPERVISING BRIDGE ENGINEER  
6/5/96

C. C. RUTH  
REGISTERED PROFESSIONAL ENGINEER  
6-5-96  
BRIDGE DESIGN ENGINEER

Washington State Department of Transportation

SR 405  
WOODINVILLE INTERCHANGE  
HOV WIDENING  
SEISMIC RETROFIT

S-E PIER 1 TRANSVERSE STOP  
RIGHT SIDE

BRIDGE SHEET NO. S36  
SHEET 446 OF 452 SHEETS