FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	WASH.	F0034(6)			

DIAGONALS AND VERTICALS

Member	Dead D(Steel)	Dead D(Conc)	Dead D(Total)	Live L	Impact I	Rev. R	150# Wind: Portal Shear	150# Wind: Direct*	Temp T	Erect. E	C.W.	Governing Condition (D L R W T E CW)	Design Stress	l feet	r inch	l/r	Allow. Unit Stress	Act. Unit Stress	Area Used Gross	Area Used Net	Section	Member
Lo-Portal / Portal-U1	+59	-117	-52	-262 / +189	-18 / +7	±74	H=-221	-288	±27			D W T / D L R	-1967/1780* / -413	80.6 / 80.6	11.70 / 12.92	/ 74.8	/ -14.5	/ -6.6	86.8 / 73.7		2 Cov. Pls. 24x5/8 (6) 4 Ls 8x6x5/8, 2 Webs 32x5/8, 2 Pls. 15x5/8 } A36 / 2 Cov. Pls. 24x5/8 (6) 4 Ls 8x6x5/8, 2 Webs 32x5/8 } A36	Lo-Portal / Portal U1
U1-L2	-143	+16	-127	-278 / +172	-18 / +8	±43						D L R	-377	76.5	8.24	111.0	-11.9	-8.9	42.9		2 Pls. 24x5/8, 2 Webs 24 5/8x7/16 (10) } A36	U1-L2
L2-U3	+234	+89	+317	+295 / -210	-14 / +8							D L	+635	80.6			+20.0	+18.0	32.0	29.7	2 Pls. 24x5/8 (3), 2 Web 24 5/8x5/8 (6) } A36	L2-U3
U3-L4	-291	-174	-465	-210	-8							D L	-888	76.5	8.26	111.0	-15.1	-13.3	51.8		2 Pls. 24x5/8, 2 Webs 23 5/8x9/16 (6) } A441	U3-L4
L4-U5	+405	+282	+687	+295	+9							D L	+931	80.6			+27.0	+24.0	38.2	35.8	2 Pls. 24x5/8 (23), 2 Webs 24 5/8x5/8 (6) } A441	L4-U5
U5-L6	-424	-334	-758	-215	-8							D L	-981	76.5	9.63	95.5	-16.9	-16.3	60.2		2 Pls. 24x5/8, 4 Ls 8x4x7/16, 2 Cov. Pls. 24x5/8 (8) } A440	U5-L6
L6-U7	+546	+446	+992	+250	+9							D L	+1251	84.7			+27.0	+26.3	54.3	47.6	2 Pls. 27x5/8 (45), 2 Webs 24 5/8x5/8 (6) } A441	L6-U7
U7-L8	-424	-373	-797	-182	-16							D L	-995	80.5	10.62	91.0	-17.4	-14.9	66.6		2 Pls. 27x5/8, 4 Ls 8x4x7/16, 2 Cov. Pls. 24x5/8 (8) } A440	U7-L8
L8-U9	+554	+468	+1022	+216	+18							D L	+1259	97.7			+27.0	+25.2	56.6	49.9	2 Pls. 27x5/8 (45), 2 Webs 24 5/8x5/8 (6) } A441	L8-U9
U9-L10	-327	-289	-616	-202	-14							D L	-832	93.3	10.62	105.5	-15.8	-12.5	66.6		2 Pls. 27x5/8, 4 Ls 8x4x7/16, 2 Cov. Pls. 24x5/8 (8) } A440	U9-L10
L10-M11	+535	+432	+967	+272	+18							D L	+1257	79.7			+27.0	+26.4	54.3	47.6	2 Pls. 27x5/8 (45), 2 Webs 24 5/8x5/8 (6) } A441	L10-M11
M11-U12	+614	+479	+1093	+281	+20							D L	+1404	78.7			+27.0	+26.9	59.9	52.2	2 Pls. 27x5/8 (45), 2 Webs 24 5/8x5/8 (6) } A441	M11-U12
U12-M13	-418	-231	-649	-256	-16		H=751	-178	±17			D W T	-946	74.6	10.62	84.2	-18.0	-14.2	66.6		2 Pls. 27x5/8, 4 Ls 8x4x7/16, 2 Cov. Pls. 24x5/8 (8) } A440	U12-M13
M13-Portal / Portal-L14	-543	-278	-820	-254	-17		H=63	-178	±17			D W T / D W T	-1218 / -1575/-1938*	74.6 / 74.6	9.95	90.3	-17.4	-14.3	85.9 / 142.7		2 Pls. 27x5/8, 4 Ls 8x4x5/8, 2 Pls. 11x5/8 } A440, 2 Cov. Pls. 24x5/8 (6) A441 / 2 Pls. 27x5/8, 4 Ls 8x4x5/8, 4 Pls. 6x5/8, 4 Ls 8x4x5/8 } A440, 2 Cov. Pls. 38x5/8 (6) A441	M13-Portal / Portal-L14
L14-Portal / Portal-M15	-688	-458	-1146	-222	-13		H=63	-93	±26			D W T / D W T	-1845/-1925* / -1875	78.5 / 78.5	/ 9.45	/ 94.7	/ 17.0	/ 16.0	183.3 / 131.0		6 Pls. 27x5/8, 4 Ls 8x4x5/8, 4 Ls 8x4x5/8, 2 Pls. 11x5/8 } A440, 2 Cov. Pls. 38x5/8 (6) A441 / 4 Pls. 27x5/8, 4 Ls 8x4x5/8 } A440, 2 Cov. Pls. 24x5/8 (6) A441	L14-Portal / Portal M15
M15-U16	-542	-409	-951	-241	-14		H=463	-93	±26			D W T	-1450	78.5	10.65	88.5	-17.6	-16.4	86.0		2 Pls. 27x5/8, 4 Ls 8x4x5/8, 2 Cov. Pls. 24x5/8 (8) } A440	M15-U16
U16-M17	+751	+702	+1453	+334	+12							D L	+1789	75.1			+27.0	+26.2	82.0	68.7	2 Pls. 27x5/8 (45), 4 Ls 8x4x5/8 (24), 2 Cov. Pls. 24x5/8 (8) } A440	U16-M17
M17-L18	+658	+664	+1322	+316	+12							D L	+1650	78.1			+27.0	+26.1	75.2	63.0	2 Pls. 27x5/8 (45), 4 Ls 8x4x5/8 (24), 2 Cov. Pls. 24x5/8 (8) } A440	M17-L18
L18-U19	-514	-541	-1055	-270	-10							D L	-1335	97.0	10.6	110.0	-15.3	-15.2	87.7		2 Pls. 27x5/8, 4 Ls 8x6x5/8, 2 Cov. Pls. 24x5/8 (6) } A440	L18-U19
U19-L20	+692	+695	+1387	+318	+12							D L	+1717	94.2			+27.0	+26.5	77.4	65.0	2 Pls. 27x5/8 (45), 4 Ls 8x4x5/8 (27), 2 Cov. Pls. 24x5/8 (8) } A440	U19-L20
L20-U21	-630	-646	-1276	-300	-12							D L	-1587	89.7	10.72	93.6	-17.1	-16.8	94.1		2 Pls. 27x5/8, 4 Ls 8x6x5/8, 2 Cov. Pls. 24x5/8 (6) } A440	L20-U21
U21-L22	+678	+680	+1358	+306	+15							D L	+1625	81.7			+27.0	+25.9	71.8	63.2	2 Pls. 27x5/8 (45), 4 Ls 8x4x5/8 (21), 2 Cov. Pls. 24x5/8 (6) } A440	U21-L22
L22-U23	-607	-559	-1166	-284	-15							D L	-1465	79.3	11.02	86.2	-17.8	-17.4	84.0		2 Pls. 27x5/8, 4 Ls 8x6x5/8, 2 Cov. Pls. 24x5/8 (6) } A440	L22-U23
L23-U24	-510	-441	-951	-257	-14							D L	-1222	79.1	10.90	87.0	-17.7	-17.0	72.1		2 Pls. 27x5/8, 4 Ls 8x6x5/8, 2 Cov. Pls. 24x5/8 (6) } A440	L23-U24
U24-L25	+400	+342	+742	+225	+13							D L	+980	78.0			+27.0	+26.3	41.1	37.3	2 Pls. 24x5/8 (4), 2 Webs 24 5/8x5/8 (6) } A441	U24-L25
L25-U26	-290	-238	-528	-200	-12							D L	-740	72.9	9.64	92.3	-16.6	-13.4	55.2		2 Pls. 24x5/8, 4 Ls 8x4x5/8, 2 Cov. Pls. 24x5/8 (8) } A440	L25-U26
U26-L27	+175	+158	+333	+177	+11							D L	+521	78.5			+18.0	+17.4	32.4	30.1	2 Pls. 24x5/8 (3), 2 Webs 25 5/8x5/8 (6) } A36	U26-L27
L27-U28	-57	-44	-101	-152 / +110	-8 / +8	±19						D L R	-251	78.6	8.37	112.5	-11.8	-7.0	33.9		2 Pls. 24x5/8, 2 Webs 24 5/8x7/16 (10) } A36	L27-U28
Hangers																						
L12-U12 / L16-U16	+283	+161	+444	+96	+16							D L	+556	48.7			+27.0	+19.3	31.6	28.8	2 Pls. 18x5/8 (23), 1 Web 24 5/8x3/8 } A441	L12-U12 / L16-U16
L13-U13	+486	+449	+928	+237	+12					+591		D L	+1177	66.0			+27.0	+26.3	49.8	44.8	2 Pls. 24x5/8 (14), 2 Webs 24 5/8x5/8 (6) } A441	L23-U23
L9-U9 / L19-U19	+64	+81	+145	+65	+20							D L	+230	49.5			+27.0	+10.6	24.0	21.7	2 Pls. 20x5/8 (33), 1 Web 24 7/8x5/16 (12) } A441	L9-U9 / L19-U19
Others														70.0			+27.0	+13.0	20.0	17.7	2 Pls. 16x5/8 (33), 1 Web 24 7/8x5/16 (12) } A441	Others
Posts																						
U14-Portal / Portal-L14	-2410	-1445	-3855	-641	-16		H=480, H=58	+1194	±74			D L / D W T	-4312 / -3729/-1336*	82.2 / 82.0	10.70	85.7	-16.9	-16.1	262.8 / 260.2		2 Cov. Pls. 24x5/8 (6), 4 Ls 8x6x5/8, 6 Webs 32x5/8, 2 Pls. 15x5/8, 2 Pls. 29 5/8x5/8 } A440 / 2 Cov. Pls. 38x5/8 (6) A441, 4 Ls 8x6x5/8, 6 Webs 32x5/8, 4 Ls 8x4x5/8 } A440	U14-Portal / Portal-L14
L8-U8 / L20-U20														77.3					24.2		2 Pls. 18x5/16, 1 Web 24 1/2x5/16 (12)	L8-U8 / L20-U20
M13-U13 / M15-U15														82.6					28.9		2 Pls. 20x5/8, 1 Web 24 1/2x5/16 (12)	M13-U13 / M15-U15
Others														67.6					19.9		2 Pls. 16x5/8, 1 Web 24 1/2x5/16 (12)	Others
M-Struts (exc. M13-M15)																			14.7		2 Pls. 14x5/8, 1 Web 25 1/2x5/16 (12)	M-Struts (exc. M13-M15)
Sub-Diag.	-135	-55	-190	-45	-19							D L	-248	78.7	8.37	115.5	-11.8	-6.2	39.9		2 Pls. 24x5/8, 2 Webs 24 5/8x7/16 (10)	Sub Diag.
M13-M15	+200	+122	+322	+54	+2							D L	+378	49.4			+27.0	+26.2	16.3	14.4	2 Pls. 14x5/8 (23), 1 Web 25x5/8 (12) } A441	M13-M15

* Direct wind stress does not include effect of Portal Shears and is given for Lee truss.

Note: All stresses in trusses are given with M13-M14 not acting.

1-67 As Constructed

FOR INFORMATION ONLY

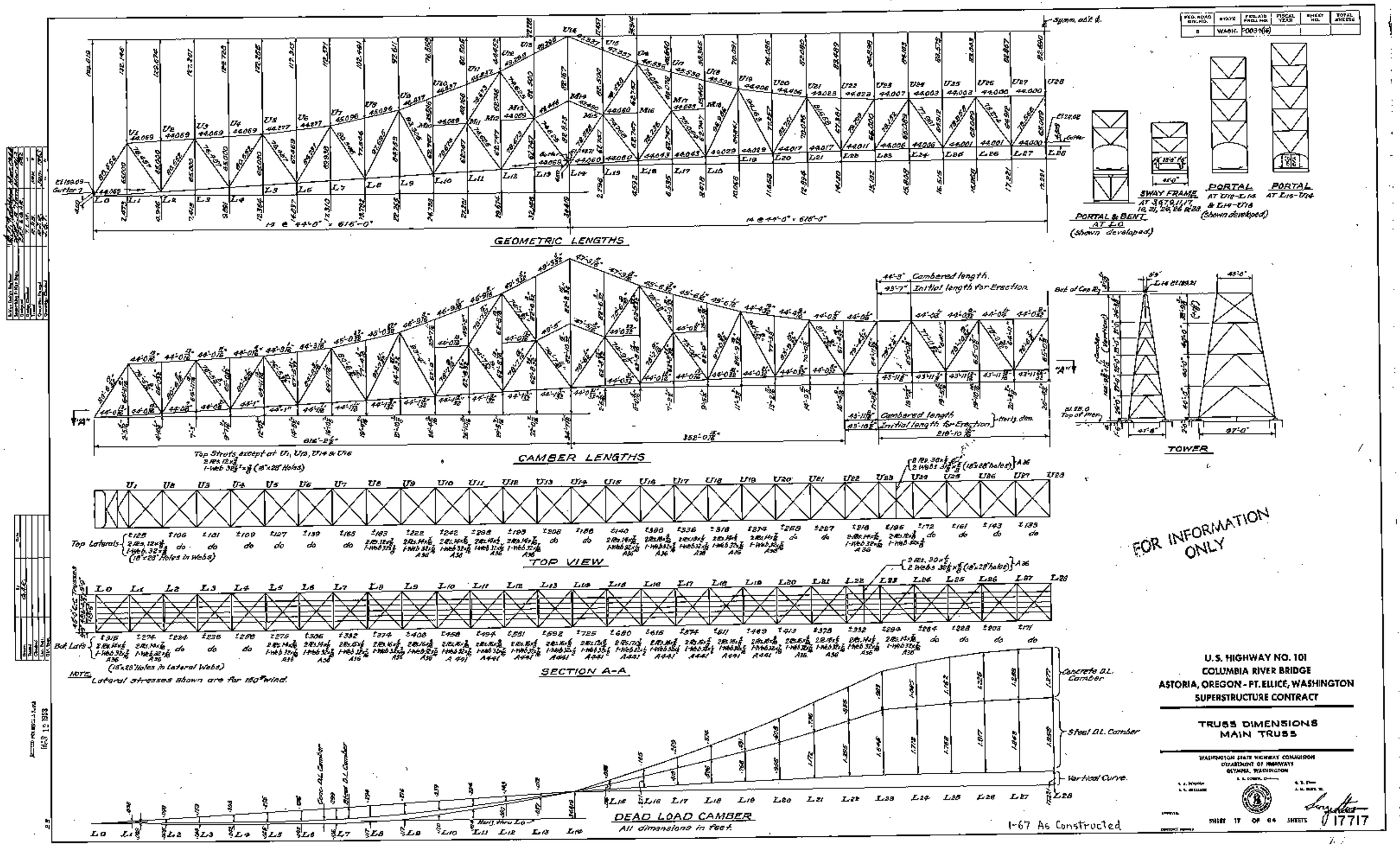
U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

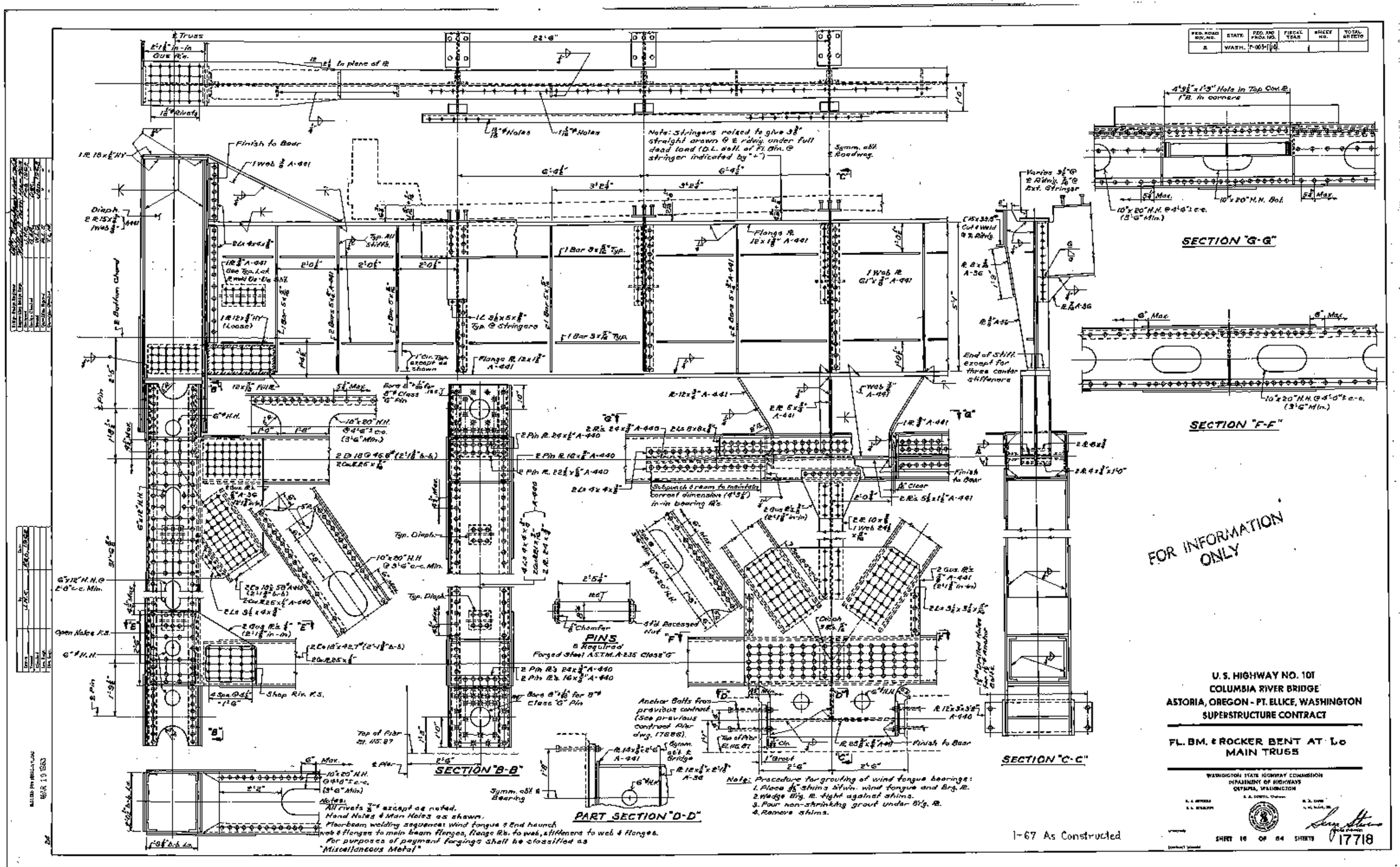
STRESS SHEET-WEB MEMBERS MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 16 OF 64 SHEETS

17716


GEOMETRIC LENGTHS
CAMBER LENGTHS
TOP VIEW
SECTION A-A
DEAD LOAD CAMBER
All dimensions in feet.
TOWER
PORTAL & BENT AT L0 (shown developed)
SWAY FRAME
PORTAL
PORTAL
Top Struts except at U1, U12, U14 & U16
Top Laterals
Bot. Lats
Concrete D.L. Camber
Steel D.L. Camber
Vertical Curve
FOR INFORMATION ONLY
U.S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT
TRUSS DIMENSIONS
MAIN TRUSS
WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON
SHEET 17 OF 64 SHEETS
17717
1-67 As Constructed



SECTION "G-G"
SECTION "F-F"
SECTION "B-B"
SECTION "C-C"
PART SECTION "D-D"
PINS
8 Required
Forged Steel A.S.T.M. A-235 Class "G"
Note: Stringers raised to give 3⅜" straight drawn @ ℄ r'dwy. under full dead load (D.L. defl. of Fl. Bm. @ stringer indicated by "+")
Note: Procedure for grouting of wind tongue bearings:
1. Place 1/16" shims btwn. wind tongue and Brg. Pl.
2. Wedge Brg. Pl. tight against shims.
3. Pour non-shrinking grout under Brg. Pl.
4. Remove shims.
Notes:
All rivets 7/8" except as noted.
Hand Holes & Man Holes as shown.
Floor-beam welding sequence: Wind tongue & End haunch web & flanges to main beam flanges, flange Pls. to web, stiffeners to web & flanges.
For purposes of payment forgings shall be classified as "Miscellaneous Metal"
FOR INFORMATION ONLY
U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT
FL. BM. & ROCKER BENT AT Lo
MAIN TRUSS
WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON
SHEET 16 OF 64 SHEETS
17718
1-67 As Constructed

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	WASH.	F-003-1(10)			

6"x12" H.N. @ 3'-0" c-c. (1'-8" o.c. Min.) Bot. only

Typ. Diaph.

1 PL 15"x 5/16" A-441

2-Cov. Pls 24"x 5/16" 4-Ls 8"x6"x 7/16" 2-Webs 32"x 5/16"

1 PL 3/4" A-441

Slot H.S. Stiff. & Diaph. Fig. 2.5 Fin. E.

10" Bore 8"+1/16" for 8" Class "G" pin.

L0

2 Ls 6"x4"x 7/16" 12"x 24" M.H. 1 PL 15"x 5/16" A-441 5'-2" 1'-8" Min. 5/8" Max. L 6"x4"x 5/16" A-440 2 Lat. Rfs. 5/16" A-441 (2'-8 1/2" in-in)

Lat's. L0-L1 2 Rfs. 14"x 5/16" 1-Web 32"x 5/16" A-36 18"x 28" Holes in Web, see U1

2-Rfs. 14"x 5/16" A-441

1-Fill 15"x 5/16"

1-R. 3/4" A-441

1-Fill 15"x 5/8"

1-R. 7"x 1/2" A-36

L1

For Access platform see L5-L6 sheet For Ladder details see Light access Ladder & Railforms @ Br. See Dwg. 17746

Gutter Line

End of F.S. Fill

2-Gus. Pls 24"x 5/16" (2'-1 1/2" in-in)

2-Rfs. 16"x 5/16" 1-Web 28"x 5/16" A-441

4'-0" Typ. except 4'-7 1/2" @ L1 & L2

Typ. Diaph.

L2

12"x 22" Holes

4'-0" Min. 4'-6" c-c. Max.

2-Rfs. 16"x 5/16" 1-Web 28"x 5/16" A-441 Slope View same as for Hanger @ L1

2-Rfs. 14"x 5/16" (10 1/2" Holes) 1-Web 28"x 5/16" (6 1/2" Holes) End Details same as for U3-L3

2-Rfs. 14"x 5/16" (10 1/2" Holes) 1-Web 28"x 5/16" (6 1/2" Holes) Top View same as @ U3

N.S. only

1-L 4"x 6"x 5/16" F.S. 1-L 4"x 6"x 5/16" A-440 N.S.

2-Gus. Pls 5/16" A-440 (2'-1 1/2" in-in)

2-Cov. Pls 24"x 5/16" 4-Ls 8"x 6"x 7/16" 2-Webs 32"x 5/16"

Typ. Diaph.

L3

Same as L1 except 1/2" Fill under Lat. Rfs. (2'-8 1/2" in-in) & 15"x 5/16" Fills on Laterals.

L4

2-Rfs. 14"x 5/16" (10 1/2" Holes) 1-Web 28"x 5/16" (6 1/2" Holes) Top View same as @ U3

2-Rfs. 16"x 5/16" 1-Web 28"x 5/16" A-441 Slope View same as for Hanger @ L1

2-Rfs. 16"x 5/16" 2-Webs 32"x 5/16" A-441 6 1/2" Holes in Web as for L1-U3 @ U3

2 Fills 1/2"

2 Fills 32"x 1/2"

Typ. Diaph.

1-Fill 24"x 1/2"

1-Bar 4"x 3/8" 12"x 24" M.H. 1-Spl. R. 24"x 3/8" A-440

Lat. Conn. same as for L2

1-Fill 24"x 5/8"

1-Spl. R. 24"x 5/8" A-440

1-Bev. Fill 5/8" av.

1-R. 7"x 1/2" A-36

1-Spl. R. 5/8" A-440 F.S.

1-Lat. R. 5/8" A-441 N.S. (2'-9" in-in)

2-Rfs. 16"x 5/16" A-440

LAT. INTERSECTION L1-L6

Notes:
Rivets 7/8" ø except Diagonal connections 1" ø as noted.
Hand Holes in chords 6"x 12" @ 3'-0" c-c, 2'-8" Min.
Tack Weld all loose fills.
For typ. diaphs. and weld details see L6-U6 Dwg. 17731

FOR INFORMATION ONLY

I-67 As Constructed

U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

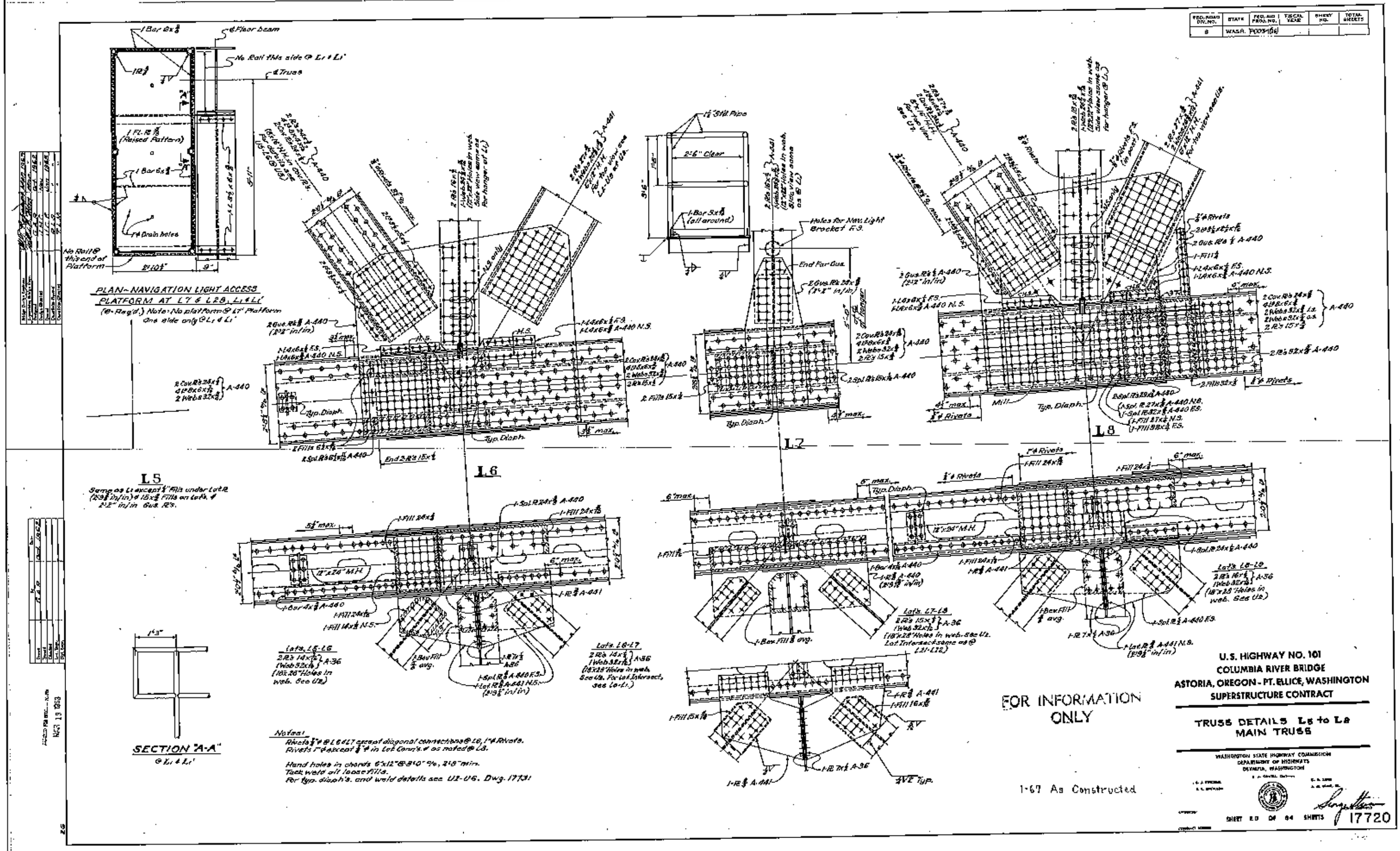
TRUSS DETAILS L0 to L4
MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 12 OF 64 SHEETS 17719

RECD FYI MAR 19 1958
MAR 19 1958
26

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	WASH.	F003-1(16)			



FOR INFORMATION ONLY

1-67 As Constructed

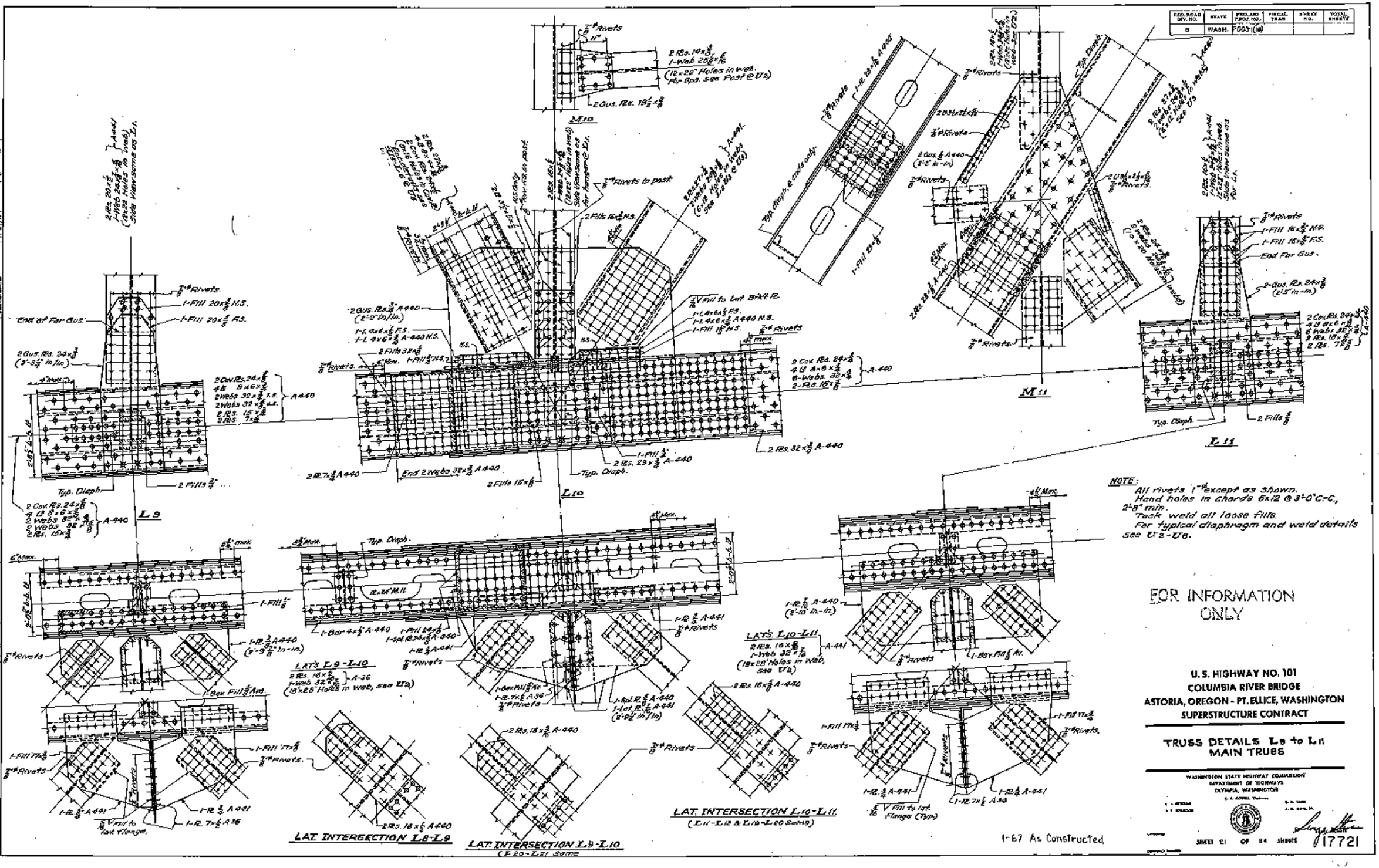
U.S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

TRUSS DETAILS L5 to L8
MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

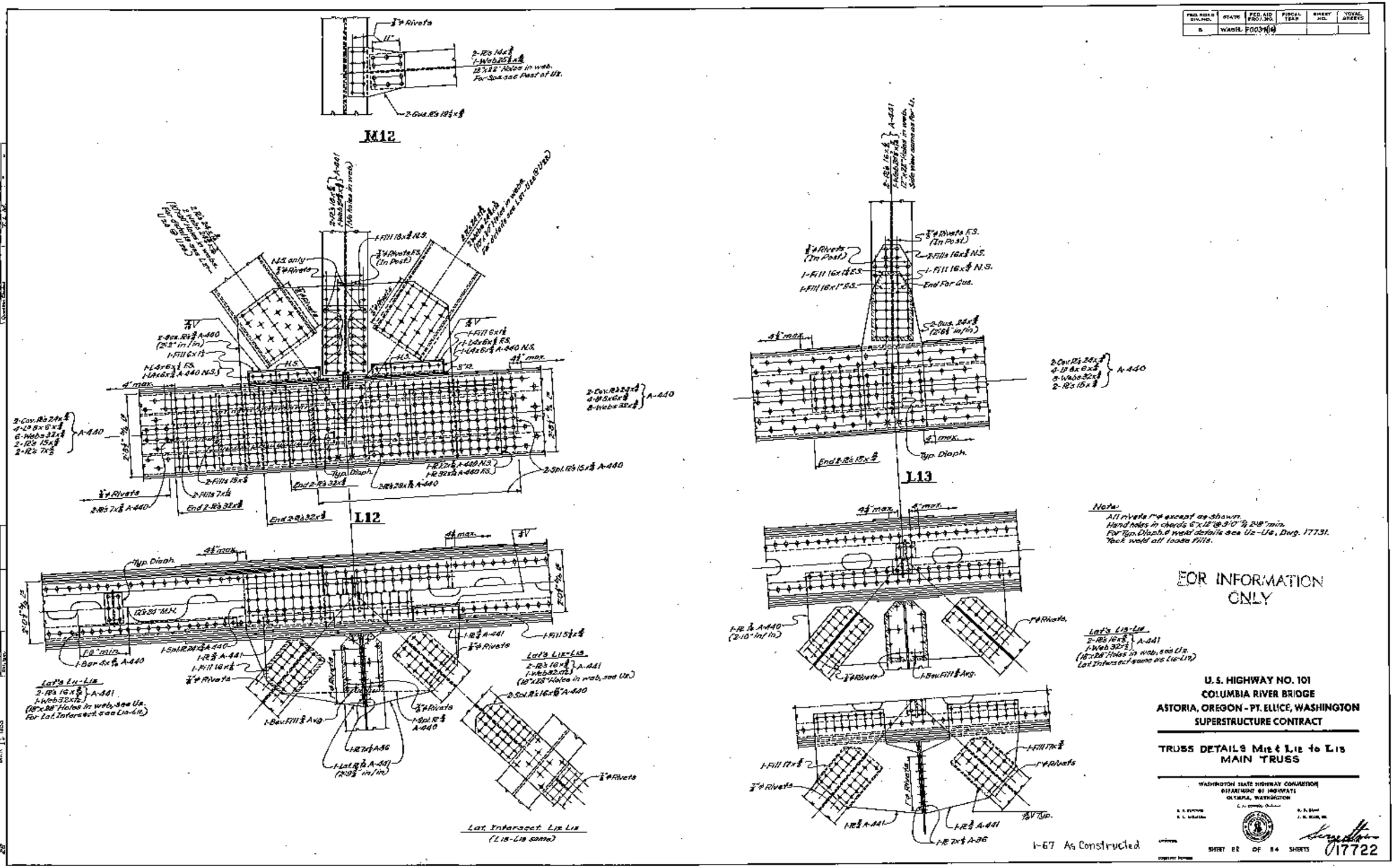
SHEET 20 OF 84 SHEETS

17720



FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS
8 | WASH. | F003-1(18)
M10
M11
L9
L10
L11
LAT'S L9-L10
LAT'S L10-L11
LAT. INTERSECTION L8-L9
LAT. INTERSECTION L9-L10
LAT. INTERSECTION L10-L11
NOTE:
All rivets 1"ø except as shown.
Hand holes in chords 6x12 @ 3'-0" C-C, 2'-8" min.
Tack weld all loose fills.
For typical diaphragm and weld details see U2-U6.
FOR INFORMATION ONLY
U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT
TRUSS DETAILS L9 to L11
MAIN TRUSS
WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON
1-67 As Constructed
SHEET 21 OF 84 SHEETS
17721

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	WASH.	F003-N(16)			



Note:
All rivets 1"ø except as shown.
Hand holes in chords 6"x12" @ 3'-0" ⅝ 2'-8" min.
For Typ. Diaph. & weld details see U2-U4, Dwg. 17731.
Tack weld all loose fills.

FOR INFORMATION ONLY

U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

TRUSS DETAILS M12 & L12 to L13
MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

1-67 As Constructed

SHEET 82 OF 84 SHEETS

17722

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	WASH.	F003-1(14)			

FOR INFORMATION ONLY

U.S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

TRUSS DETAILS AT L14 MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 83 OF 84 SHEETS 17723

NOTES:
Rivets 1" except in U12-L14 as noted.
Hand holes in chords and diagonals 6"x12" @ 3'0" C-C, 2'-8" minimum.
Tack weld all loose fills.
For typ. diaphs and weld details see U2-U6.
As Constructed 1-67
Revised Sus. & material 7-3-63

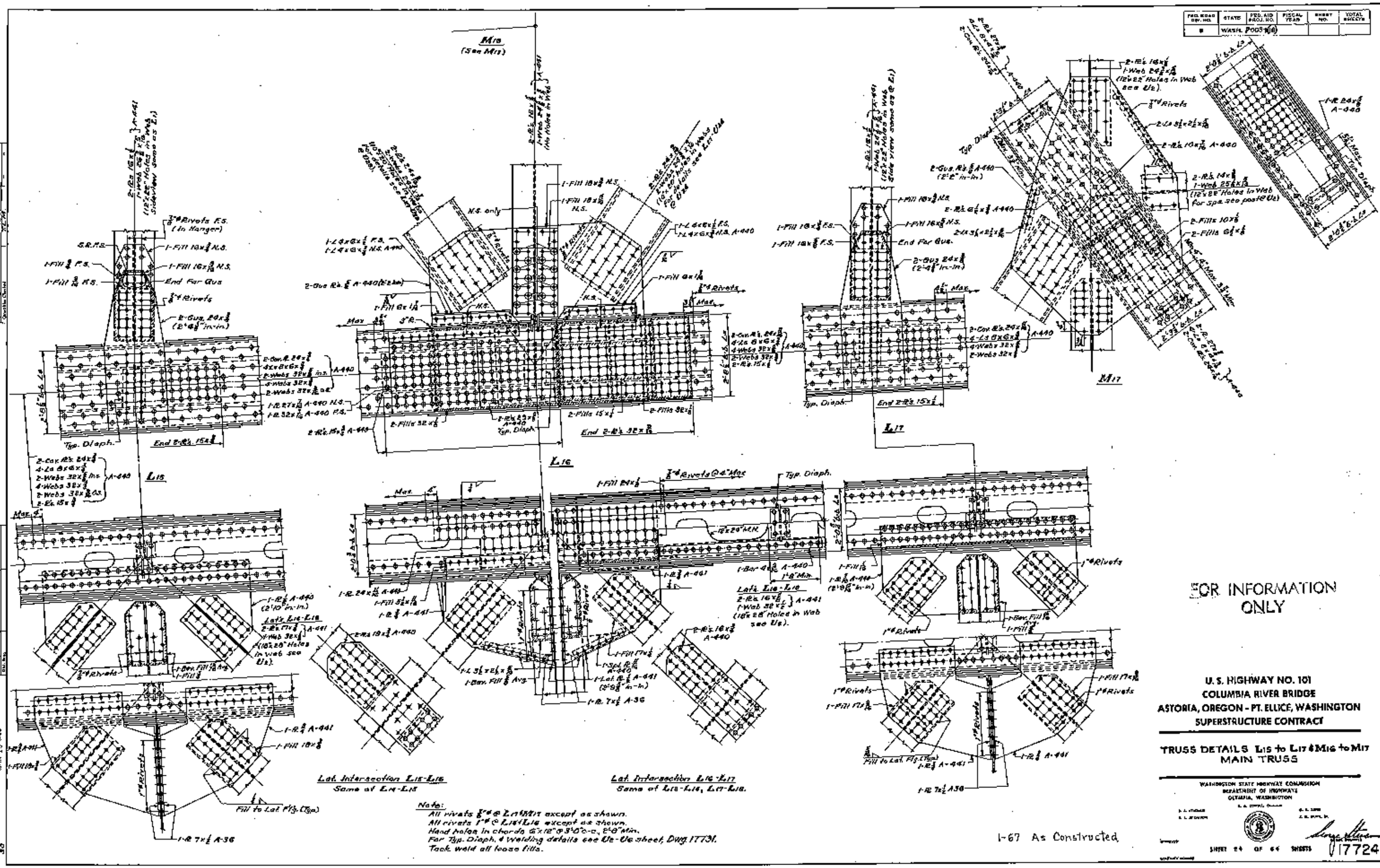
SECTION A-A
Typ. Stringer Conn.

SECTION B-B

SECTION C

VIEW "D-D"
(View E-E Similar)

See upper part of tower Dwg. 17748



FOR INFORMATION ONLY

U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

TRUSS DETAILS L15 to L17 & M16 to M17
MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 24 OF 64 SHEETS

17724

I-67 As Constructed

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	WASH.	7003-1(16)			

M18
(See M10)

Stairs and Platforms on East Truss only.

SECTION C-C
(See Stairway & U16 for details not shown)

SECTION B-B

SECTION V-V

L19

L18

LATS L16-L18
2 Rds. 16 x 5/8 } A441
1-Web 32 x 5/16
(For Lat. Intersect. See L16-L18)

LATS L18-L19
2 Rds. 15 x 5/8 } A441
1-Web 32 x 5/16
(For Lat. Intersect. See L18)

LATS L18-L20
2 Rds. 18 x 5/8 } A441
1-Web 32 x 5/16
(For Lat Intersect. See L18-L20)

Notes:
All rivets 7/8" ø L18 except as noted.
Hand holes in chords 6"x12" @ 3'-0" c-c. (2'-8" min.)
Tack weld all loose fills.
For Typ. Diaph. & Weld Details see U2-U6, Dwg. 17731

Platform:
Weld floorplates to ℄ with 5/16" weld 2" long @ 6" ctrs. Rail posts & rails shall be joined with 5/16" continuous welds. All other welds as noted.
All floor plates shall have a raised pattern.

FOR INFORMATION ONLY

1-67 As Constructed

U.S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

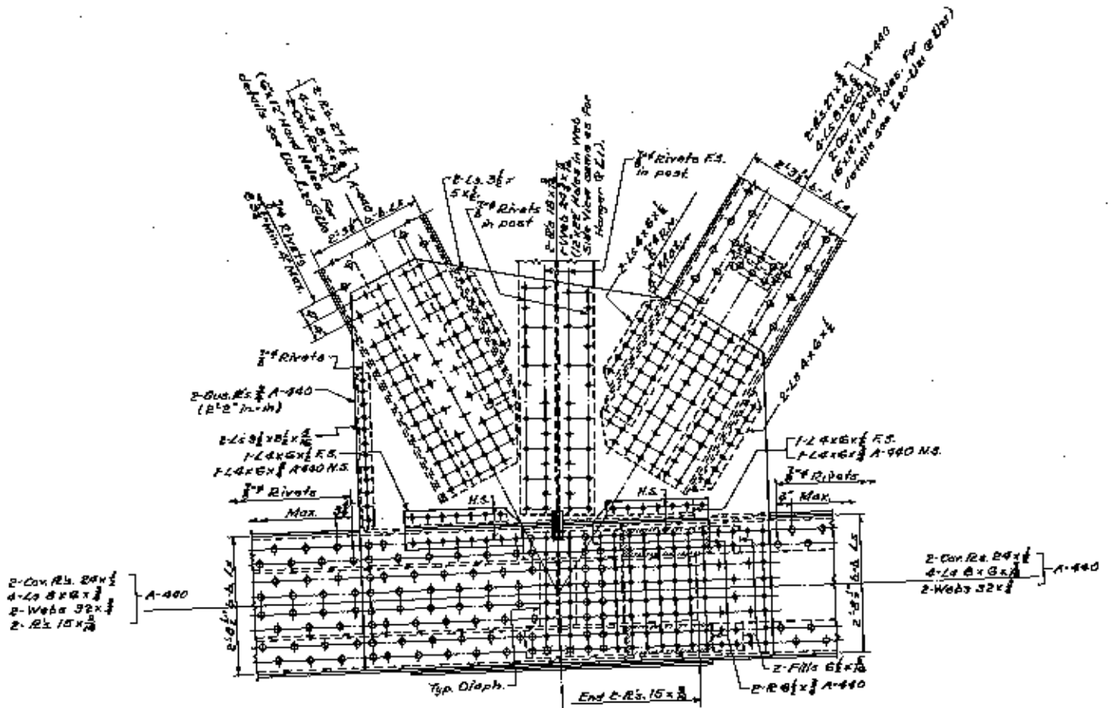
TRUSS DETAILS M18 & L18 to L19
MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 29 OF 84 SHEETS

17725

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	WASH. F003(16)				



U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

TRUSS DETAILS L20 to L21
MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 28 OF 64 SHEETS 17726

I-67 As Constructed

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	WASH.	P0031(16)			

LATERAL INTERSECTION

SECTION "A-A"

L 22

L 23

NOTES

Rivets 1"ϕ except ⅞"ϕ in Lat. Conn's and as noted.
Handholes 6x12 @ 3'-0" C/c, 2'-8" min.
Tackweld all loose Fills.
For typical diaphragms and welding details see U2-U6, Dwg. 17731. For final adjustment of jacking member plates "P" and Holes "E" See U23 - U24 except: Dwg. 17738.
2. Fill Space "A" with D+0.048 (T-65) inches of shims for T≥65°F & D=0.048 (65-T) inches of shims for T≤63°F
3. Machine R. "P" to a width of 8" minus shims inserted in space "A".

FOR INFORMATION ONLY

U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

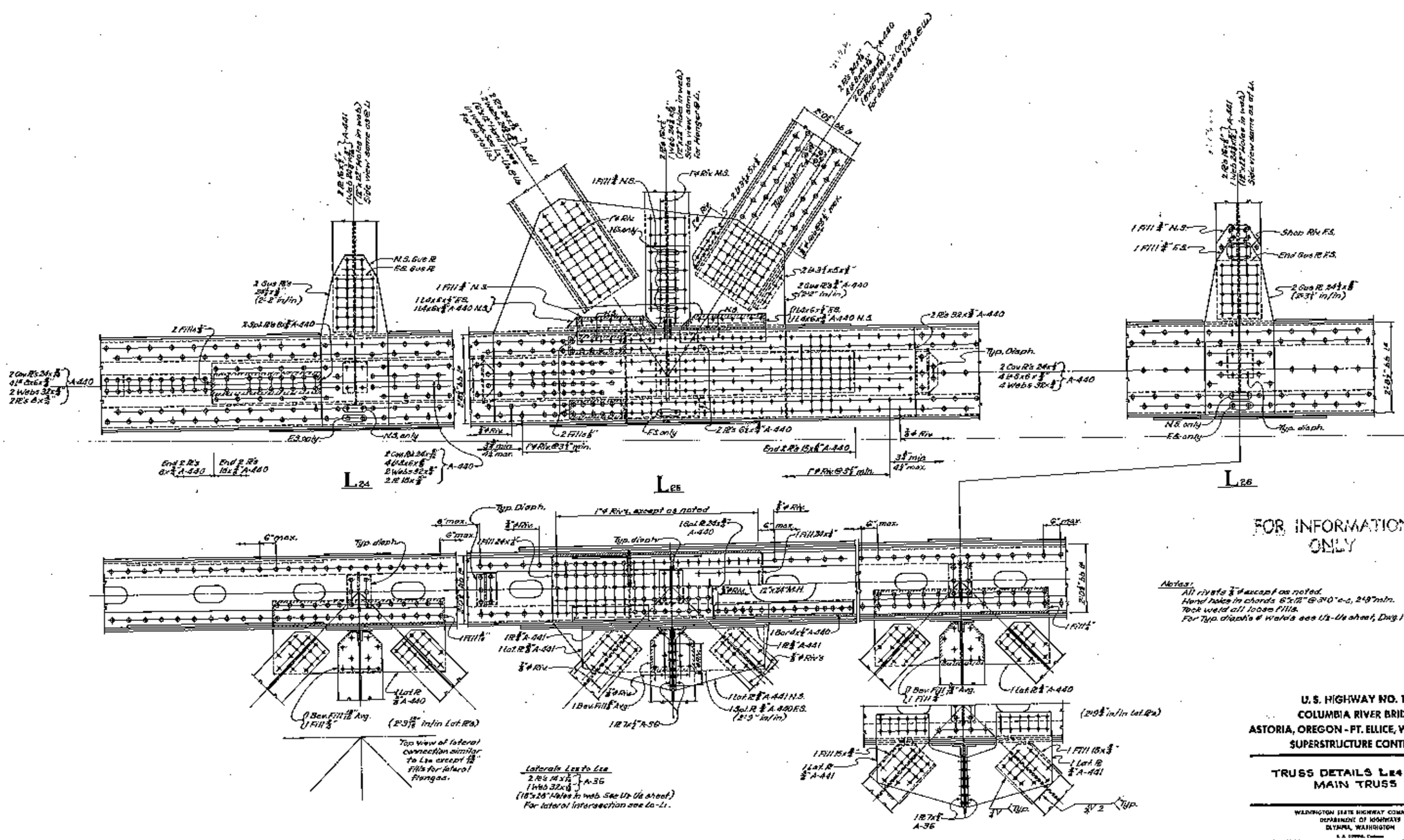
TRUSS DETAILS L22 to L23
MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

1-67 As Constructed

SHEET 27 OF 64 SHEETS 17727

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	WASH.	P0031(6)			



FOR INFORMATION ONLY

Notes:
All rivets 3/4" ϕ except as noted.
Horiz holes in chords 6"x18" @ 30" c-c, 24" min.
Tack weld all loose fills.
For Typ. diaph's & Webs see U1-U2 sheet, Dwg. 17731

U.S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - FT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

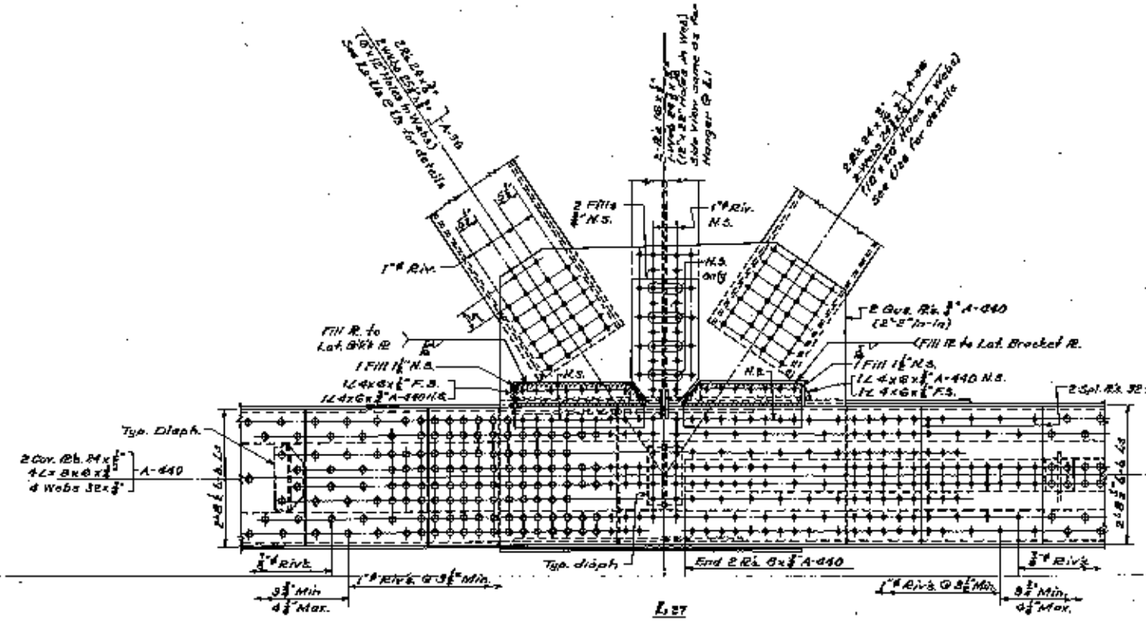
TRUSS DETAILS L24 to L26
MAIN TRUSS

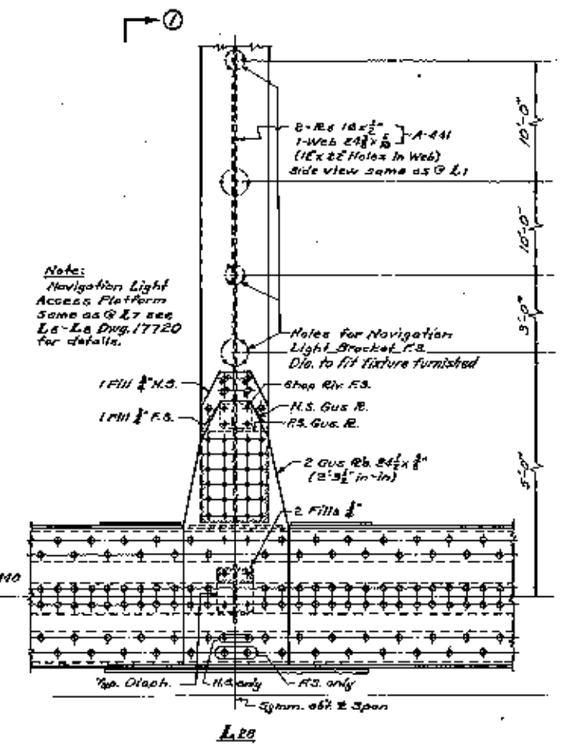
WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

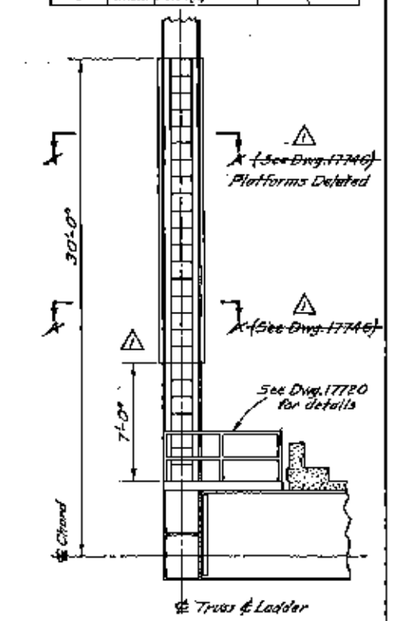
SHEET 55 OF 84 SHEETS 17728

I-67 As Constructed

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	WASH.	I-(A)-I(N)			



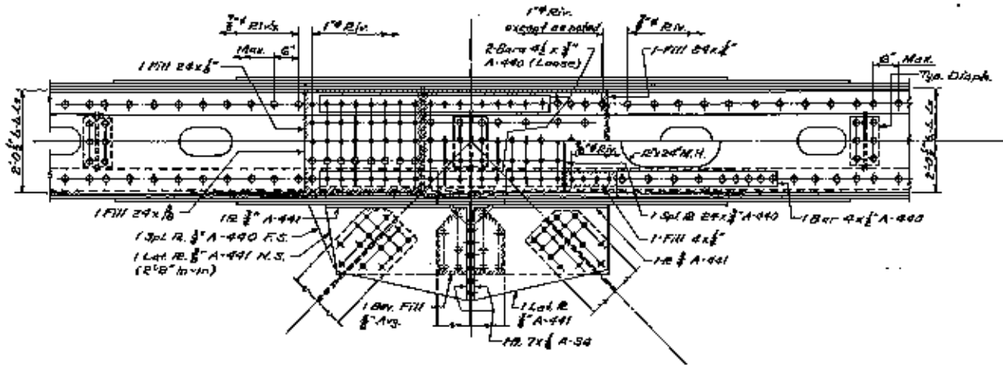


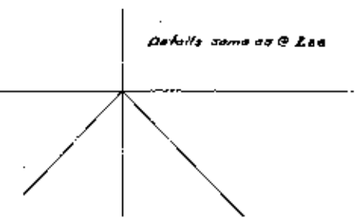


SECTION ①-①

Showing location of ladder and platforms, required on both East and West trusses. For ladder and platform details see Dwg. 17746. ~~Omit cage at this location.~~

cage





Note:
Rivets 3/4" except as noted.
Hand holes in chords 6"x12" @ 3'-0" c.c., 2'-8" Min.
Tackweld all loose fills.
For typ. diaphs. and weld details see U2-U4 sheet, Dwg. 17731.

FOR INFORMATION ONLY

U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

TRUSS DETAILS L27 to L28
MAIN TRUSS

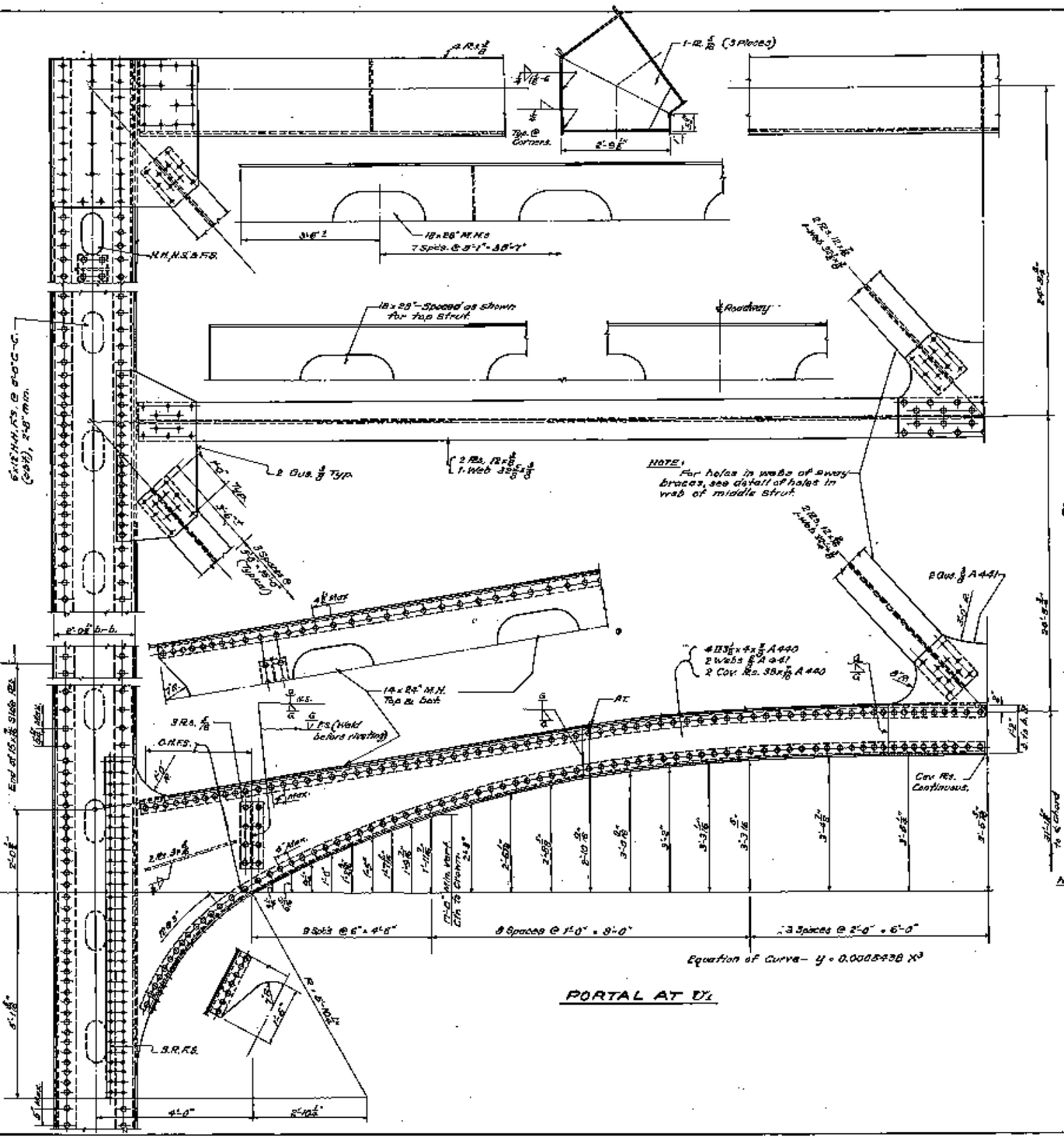
WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 29 OF 64 SHEETS

17729

1-67 As Constructed
Apr. 11, '63 Revised Ladder & Platform Detail

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	WASH.	F-0024(16)			



FOR INFORMATION ONLY

U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

PORTAL & TRUSS DETAILS AT U1 MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 30 OF 64 SHEETS 17730

I-67 As Constructed

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	WASH.	F003-1(6)			

U2

U3

U4
Same as U2

U5

U6
Similar to U2 except 2-6⅝" in-in. Lat. Rs., 13/8" Fills under laterals, 2'-5" in./in. gus. and as shown.

LATS U1 to U3
2 Pls. 12 x ⅞
1-Web 32 x ⅞ (13/16" Holes)

2 Cov. Pls. 24 x ⅞
4 L 8 x 6 x ⅞
2 Webs 32 x ½

2 Pls. 16 x ⅝ } A441
1-Web 24 x ⅞
18" x 22" Holes in web
Same as for post at U2

2 Pls. 16 x ⅝ } A441
1-Web 24 x ⅞
12" x 22" Holes in web
Same as for post at U2

2 Cov. Pls. 24 x ⅞
4 L 8 x 6 x ⅞
2 Webs 32 x ½ } A440

2 Pls. 16 x ⅝
1-Web 28 x ⅞ } A441

2 Pls. 12 x ⅝
1-Web 32 x ⅝
10" x 28" Holes in Web, see U2

2 Pls. 12 x ⅝
1-Web 32 x ⅝
10" x 28" Holes in web
See U2

2 Pls. 12 x ⅝
1-Web 32 x ⅝
10" x 28" Holes in web
See U3

CHORDS, L0-U1 & L14-U14

24" & 27" DIAG'S.

WELDED 24" & 27" DIAG'S.
Lat. Strut @ L22½ & U22½ Similar.

TYPICAL DIAPHRAGMS.
Use one diaphragm at each end of all diagonals and as shown.

WELD DETAILS OF HANGERS, POSTS & LATERALS

WELD DETAIL OF LATERAL PLATES

HANDHOLE ALIGNMENT DETAIL
Handholes in diagonals shall be aligned vertically as shown (Typ.)

NOTES:
Rivets ⅞" except 1" for Diagonal connections at U3 & U5.
Hand holes in chords 6'-12" @ 8'-0" c/c, 2'-8" min.
Tack weld all loose fills.

FOR INFORMATION ONLY

U.S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

TRUSS DETAILS U2 to U6
MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

1-67 As Constructed

SHEET 51 OF 64 SHEETS

17731

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	WASH.	F003H(16)			

U7

U8

U9

LATERAL INTERSECTION U9 - U11

Notes:
Rivets in Truss Members 7/8 D.N.
Rivets in laterals & bracing 3/4 ø.
Handholes in chords 6"x12"@3'-0" c/c min.
For Typ. Diaphs. & welding details of welded members see U2-U6 Sheet, Dwg. 17731.
Tackweld all loose fills.

FOR INFORMATION ONLY

1-67 As Constructed

U.S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

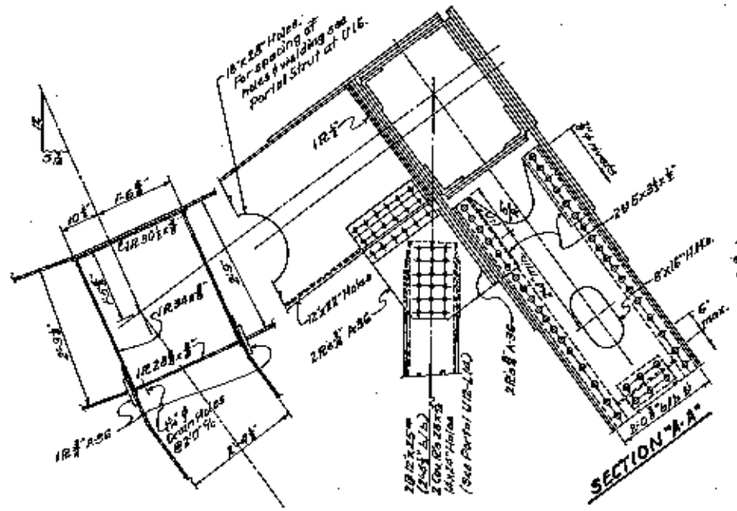
TRUSS DETAILS U7 to U9
MAIN TRUSS

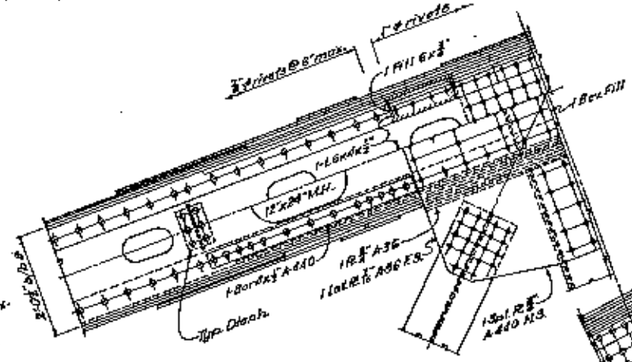
WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

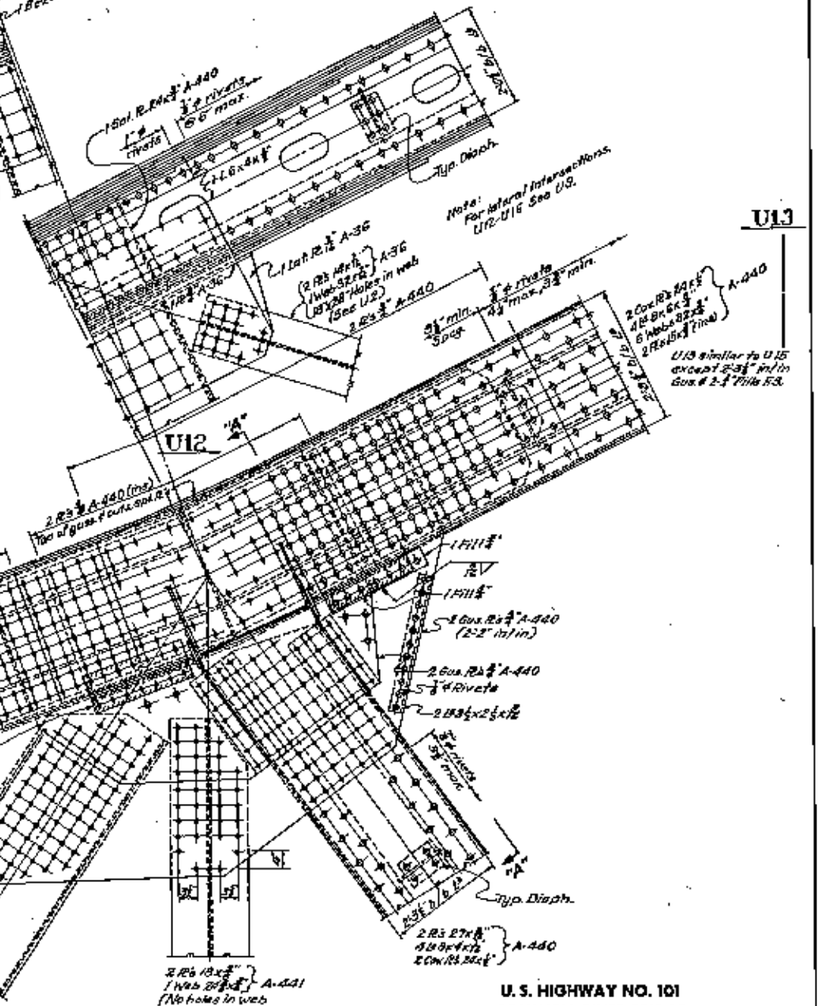
SHEET 32 OF 84 SHEETS

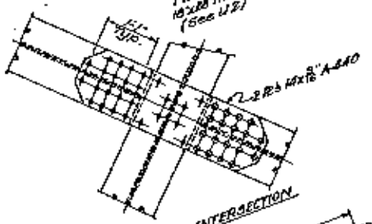
17732

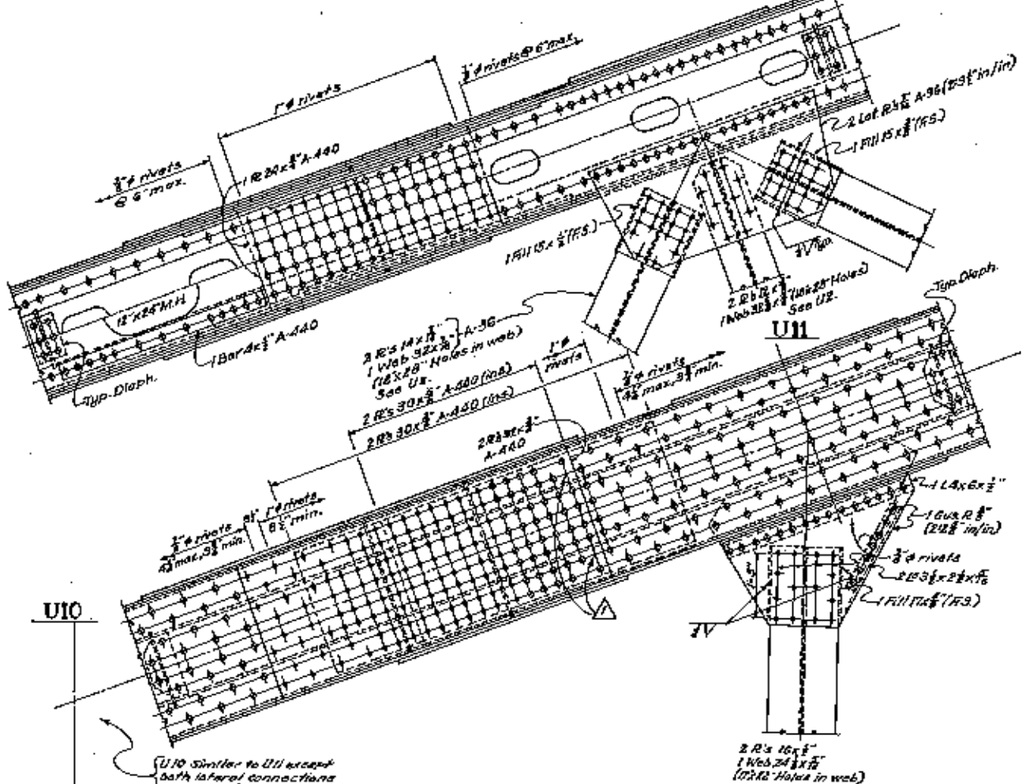
PROJECT DESIGNATION	STATE	FED. AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
B	WASH.	F003(1)8			

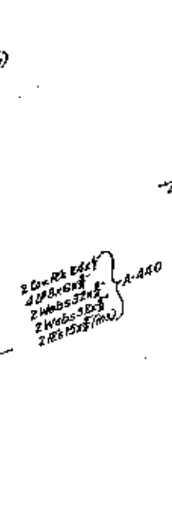


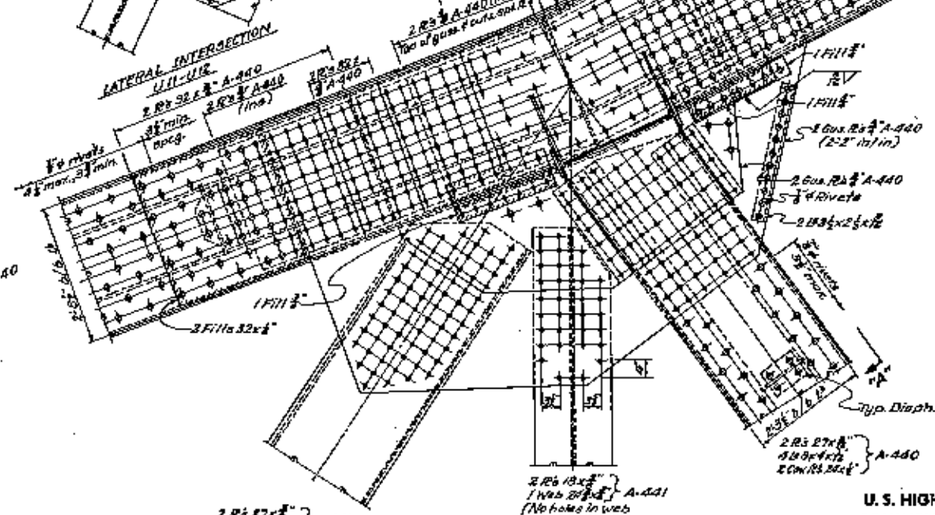












FOR INFORMATION ONLY

Note.
Rivets in truss members 1" ø U.N.O.
Rivets in laterals & bracing ¾" ø.
Hand Holes in Cov Pls of Truss Chords & Diagonals 6"x12" @ 9'-10" c/c, 2'-8" min. except U12-M13.
For Typ. Diaphs. & welding details of welded members see U2-U6 Shts. Dwg. 17731
Tack weld all loose Fills.

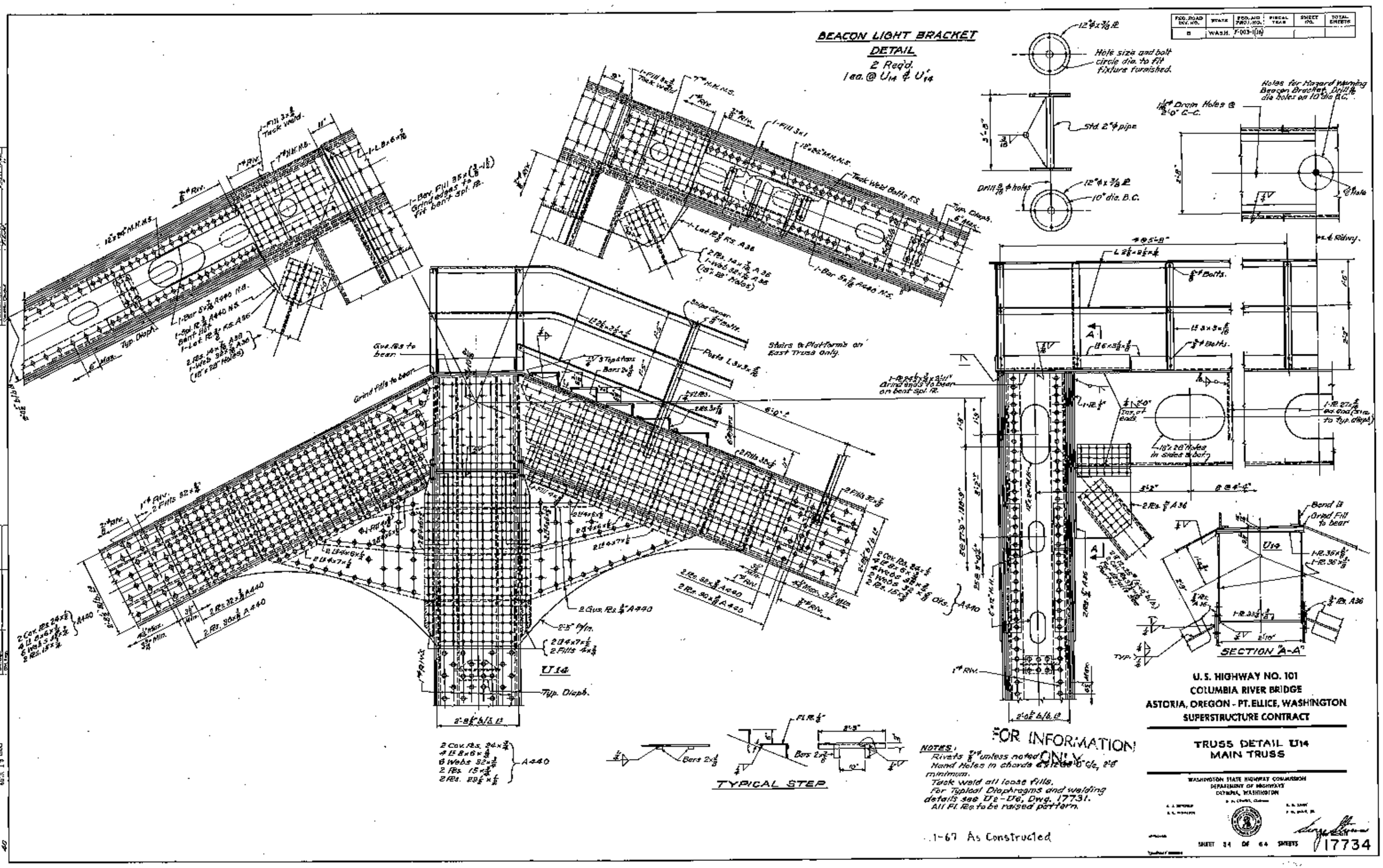
⚠ May 8, 1964 Removed 2 Rivets
1-67 As Constructed

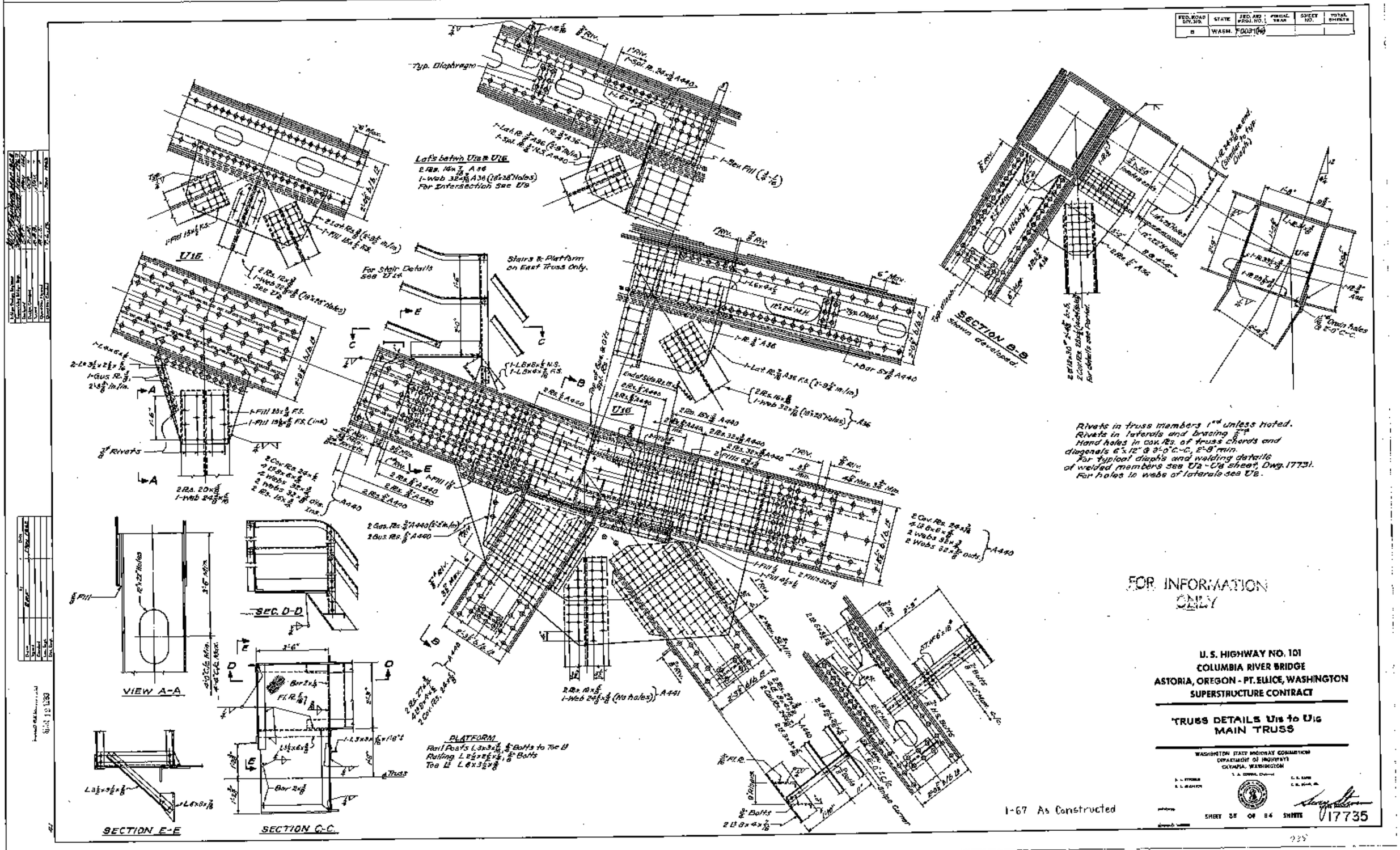
U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

TRUSS DETAILS U10 to U13 MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 38 OF 84 SHEETS 17733


BEACON LIGHT BRACKET
DETAIL
2 Req'd.
1 ea. @ U14 & U'14
Hole size and bolt circle dia. to fit fixture furnished.
Std. 2" ϕ pipe
10" dia. B.C.
Holes for Hazard Warning Beacon Bracket. Drill 9/16 dia holes on 10" dia B.C.
Stairs & Platforms on East Truss Only.
Grind Fills to bear
Typ. Diaph.
U14
SECTION "A-A"
TYPICAL STEP
NOTES:
Rivets 7/8" ϕ unless noted.
Hand Holes in chords 6"x12" @ 0" c/c, 2'-8" minimum.
Tack weld all loose fills.
For Typical Diaphragms and welding details see U2-U6, Dwg. 17731.
All Fl. Rs. to be raised pattern.
FOR INFORMATION ONLY
1-67 As Constructed
U.S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT
TRUSS DETAIL U14
MAIN TRUSS
WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON
SHEET 34 OF 64 SHEETS
17734



FED. ROAD DIV. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS
8 | WASH. | F0031(16)
Typ. Diaphragm
Lat's betwn U18 & U16
2 Pls. 14x7/16 A36
1-Web 32x3/8 A36 (18"x28" Holes)
For Intersection See U9
Stairs & Platform on East Truss Only.
For Stair Details See U14
U15
U16
SECTION B-B
Shown developed.
Rivets in truss members 1st unless noted.
Rivets in laterals and bracing 7/8"φ
Hand holes in cov. Pls. of truss chords and diagonals 6"x12" @ 3'-0" C.-C., 2'-8" min.
For typical diaphs and welding details of welded members see U2-U6 sheet, Dwg. 17731.
For holes in webs of laterals see U2.
VIEW A-A
SEC. D-D
SECTION E-E
SECTION C-C
PLATFORM
Rail Posts L 3x3x3/8, 5/8" Bolts to Toe Ls
Railing L 2 1/2x2 1/2x1/4, 5/8" Bolts
Toe Ls L 6x3 1/2x3/8
FOR INFORMATION ONLY
U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT
TRUSS DETAILS U15 to U16
MAIN TRUSS
WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON
1-67 As Constructed
SHEET 38 OF 84 SHEETS
17735

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	WASH.	F-003-1(6)			

U17

U18

U19

LATERAL INTERSECTION U17 - U18

LATERAL INTERSECTION U16 - U17

Notes:
Rivets in truss members 1"ø U.N.
Rivets in laterals & bracing ⅞"ø
Hand Holes in Cov. Pls. of Chord members 6"x 12" @ 3'-0" ctrs., 2'-8" Min.
For Typ. Diaphs. & Welding details of welded members see U16-U18 sheet, Dwg. 17731.
Tack weld all loose fills.

FOR INFORMATION ONLY

1-67 As Constructed

U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

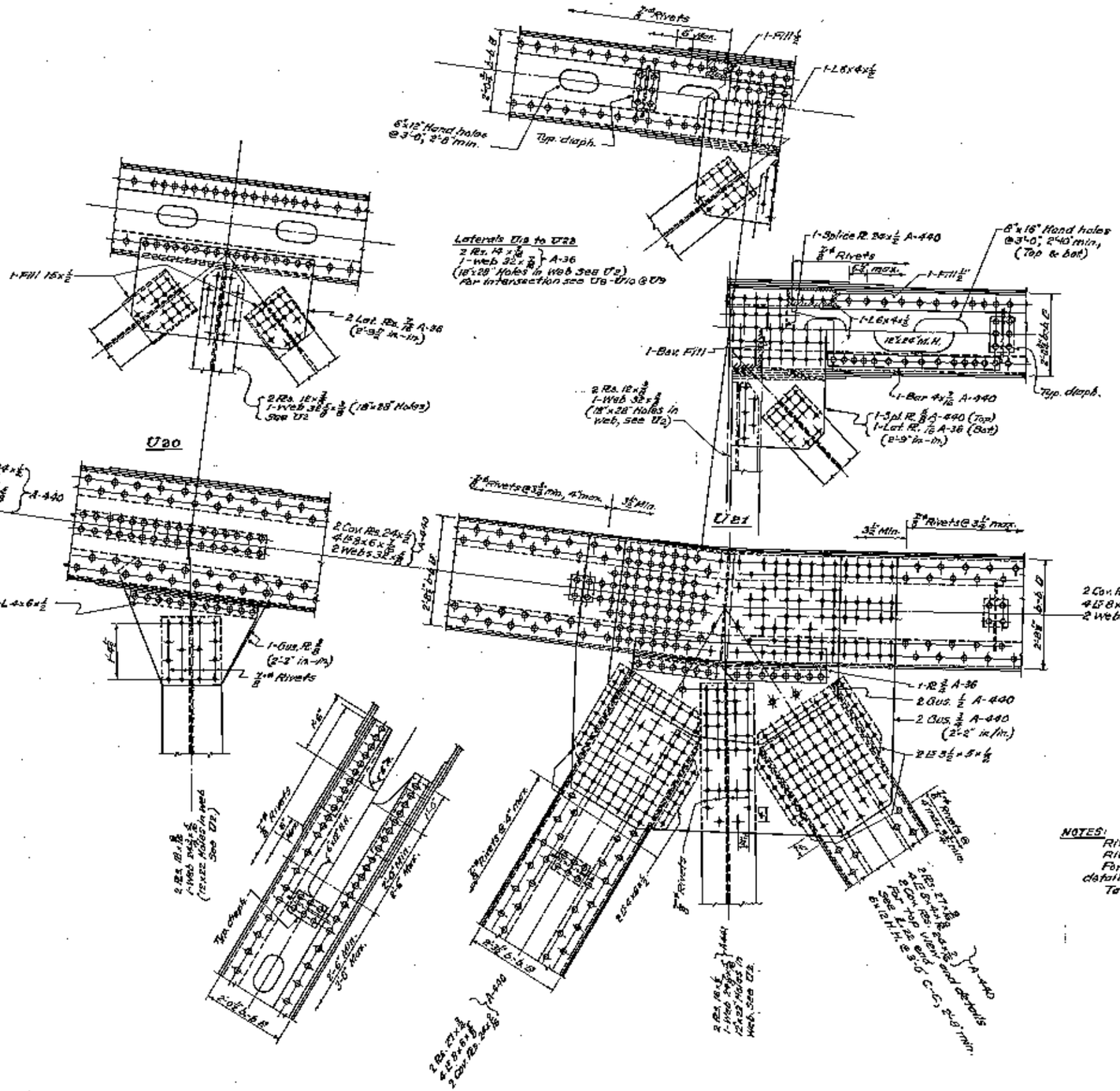
TRUSS DETAILS U17 to U19
MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 36 OF 84 SHEETS

17736

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	WASH.	F-061-1(8)			



NOTES:
Rivets in truss members @ U21 1st U.N.
Rivets in laterals and struts 7/8 ø
For typical diaphrams and welding details of welded members see U2-U6 sheet Dwg. 17731
Tack weld all loose fills.

FOR INFORMATION ONLY

I-67 As Constructed

U.S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

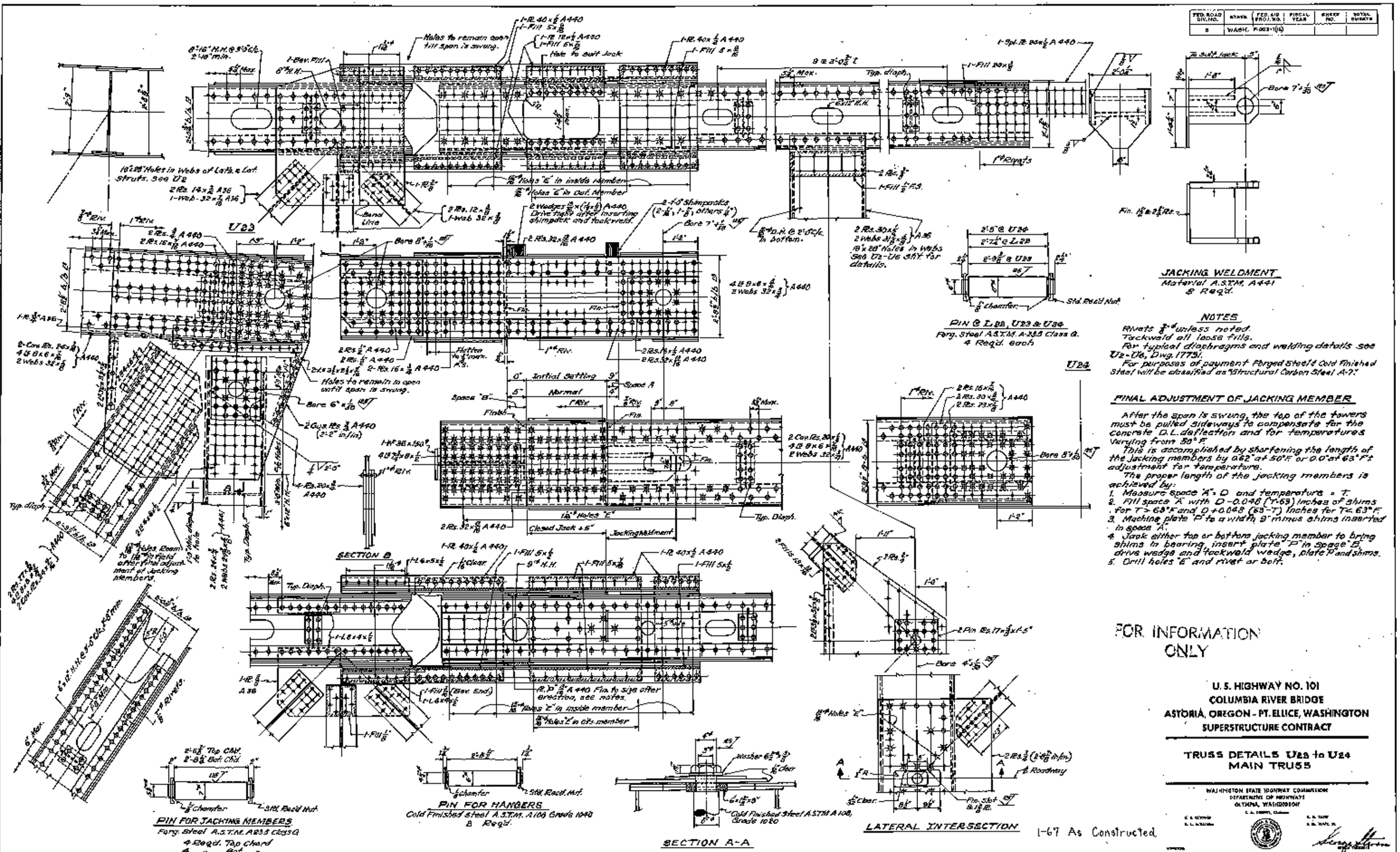
TRUSS DETAILS U20 to U22
MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 32 OF 84 SHEETS

17737

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	WASH.	F-003-1(14)			



JACKING WELDMENT

Material A.S.T.M. A441
8 Reqd.

NOTES

Rivets 7/8" ø unless noted.
Tackweld all loose fills.
For typical diaphragms and welding details see U2-U6, Dwg. 1779.
For purposes of payment Forged Steel's Cold Finished Steel will be classified as "Structural Carbon Steel A-7".

PIN @ L 28, U23 & U24

Forg. Steel A.S.T.M. A-235 Class G.
4 Reqd. each

PIN FOR JACKING MEMBERS

Forg. Steel A.S.T.M. A235 class G
4 Reqd. Top Chord
4 " Bot. "

PIN FOR HANGERS

Cold Finished Steel A.S.T.M. A108 Grade 1040
8 Reqd.

FINAL ADJUSTMENT OF JACKING MEMBER

After the span is swung, the top of the towers must be pulled sideways to compensate for the concrete D.L. deflection and for temperatures varying from 50° F.

This is accomplished by shortening the length of the Jacking members by 0.62" at 50°F or 0.0" at 63° F. adjustment for temperature.

The proper length of the jacking members is achieved by:

1. Measure space "A" = D and temperature = T.
2. Fill space "A" with D-0.048 (T-63) inches of shims for T > 63°F and D+0.048 (63-T) inches for T< 63°F.
3. Machine plate "P" to a width 9" minus shims inserted in space "A".
4. Jack either top or bottom jacking member to bring shims to bearing, insert plate "P" in space "B", drive wedge and tackweld wedge, plate "P" and shims.
5. Drill holes "E" and rivet or bolt.

FOR INFORMATION ONLY

U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

TRUSS DETAILS U23 to U24 MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

I-67 As Constructed

SHEET 38 OF 64 SHEETS

17738

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	WASH.	F-001-1(16)			

NOTES:

Rivets in truss members 1" unless noted.
Rivets in laterals and struts 7/8".
Hand holes in cover Pls. of truss chords, 6"x 12" @ 3'-0" C.-C., 2'-6" min.
For typ. diaphragms and welding details of welded members see U2 - U6 sheet, Dwg. 17731.
Tack weld all loose fills.

FOR INFORMATION ONLY

1-67 As Constructed

U.S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

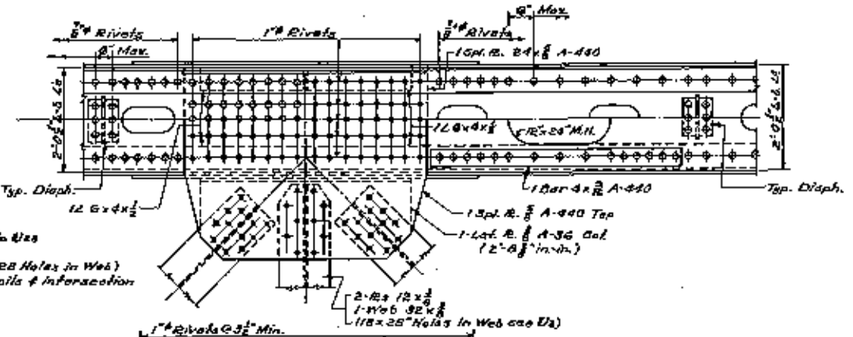
TRUSS DETAILS U24 to U26 MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 39 OF 64 SHEETS

17739

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	WASH.	F-003-1(6)			



Notes:
Rivets 7/8" ϕ U.H.
Hand Holes in chord members 6"x12"@ 9'0" ctrs., 2'-8" min.
For Typ. diaphrs. & details of welded members see U2-U8 sheet, Dwg. 17731.

FOR INFORMATION ONLY

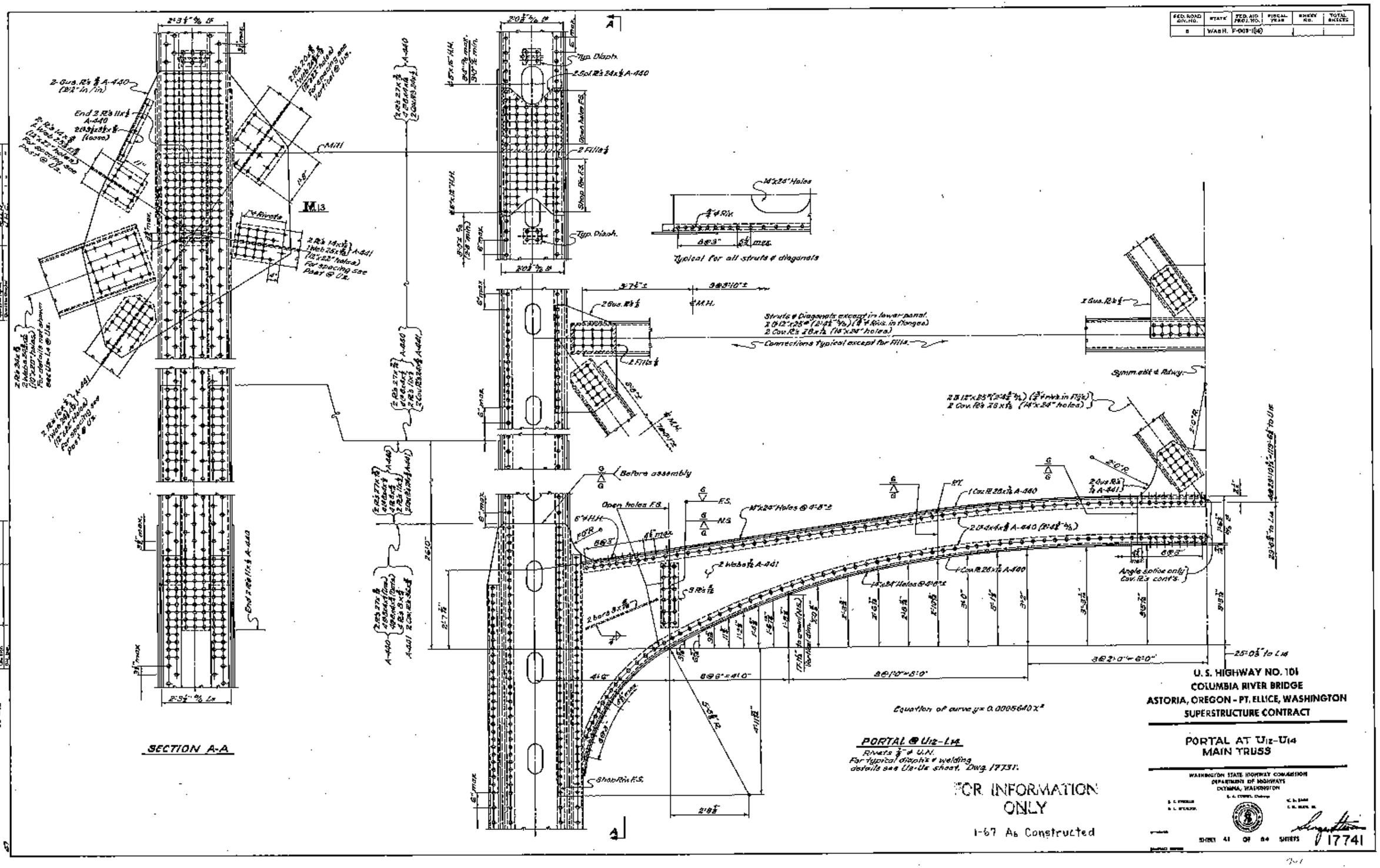
I-67 As Constructed

U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

TRUSS DETAILS U27 to U28
MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 40 OF 64 SHEETS 17740



SECTION A-A
Typical for all struts & diagonals
Struts & Diagonals except in lower panel.
Connections typical except for fills.
Before assembly
Open holes F.S.
Shop Riv. F.S.
Typ. Diaph.
Mill
Symm. abt. ℄ Rdwy.
Angle splice only Cov. Pl's cont's.
Equation of curve y = 0.0005640 x²
PORTAL @ U12-L14
Rivets 7/8" ⌀ U.N.
For typical diaph's & welding details see U2-U4 sheet, Dwg. 17731.
FOR INFORMATION ONLY
1-67 As Constructed
U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT
PORTAL AT U12-U14
MAIN TRUSS
WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON
SHEET 41 OF 84 SHEETS
17741

Fed. Roads Div. No.	State	Fed. Aid Proj. No.	Fiscal Year	Sheet No.	Total Sheets
8	WASH. F-003-1(16)				

Typ. Detail of Splice Material

Mark	Thick	Size	Length	Width	Pieces	Weight
Web Splice	1/2"	PL	2'-6"	1'-6"	2	31.9
Upper Flange Splice	1/2"	PL	2'-6"	1'-6"	2	31.9
Lower Flange Splice	1/2"	PL	2'-6"	1'-6"	2	31.9
Diagonal Splice	1/2"	PL	2'-6"	1'-6"	2	31.9
Diagonal Splice	1/2"	PL	2'-6"	1'-6"	2	31.9
Diagonal Splice	1/2"	PL	2'-6"	1'-6"	2	31.9
Diagonal Splice	1/2"	PL	2'-6"	1'-6"	2	31.9
Diagonal Splice	1/2"	PL	2'-6"	1'-6"	2	31.9
Diagonal Splice	1/2"	PL	2'-6"	1'-6"	2	31.9
Diagonal Splice	1/2"	PL	2'-6"	1'-6"	2	31.9

Typ. diagph. at splice only.

Typ. for all struts and diagonals.

Strut near M 14
Others Similar

Struts & Diagonals
2 LL 12 x 8 5/8 x 2 1/2 x 10 1/2 (3/4" Riv. in flgs.)
2 Cov Pls., 33 1/2 x 7/16 (14" x 26" holes)

SECTION A-A

PORTAL AT 14

LOWER DIAGONAL CONNECTION AT VERTICAL

Equation of Curve
$Y = .0004535 X^3$

Rivets 7/8" U.N.
For typical diaphs see U2-U6

FOR INFORMATION ONLY

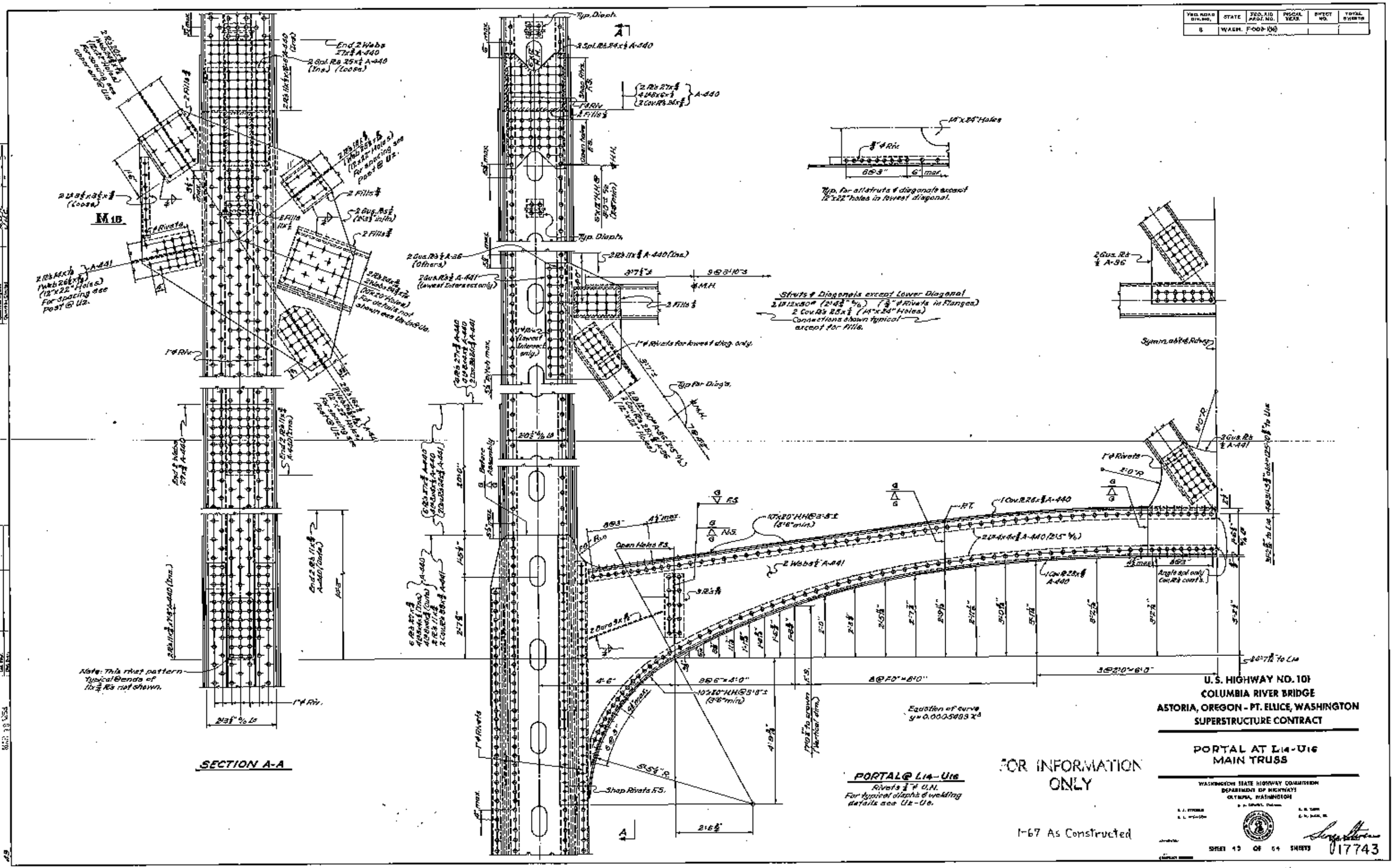
1-67 As Constructed

U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT

PORTAL AT U14-L14
MAIN TRUSS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

SHEET 42 OF 64 SHEETS 17742



SECTION A-A
M 16
Note: This rivet pattern typical @ ends of 11x¾ R's not shown.
Struts & Diagonals except Lower Diagonal
Connections shown typical except for fills.
Typ. for all struts & diagonals except 12"x22" holes in lowest diagonal.
PORTAL @ L14-U16
Rivets ¾" ϕ U.N.
For typical diaph's & welding details see U2-U6.
Equation of curve
U. S. HIGHWAY NO. 101
COLUMBIA RIVER BRIDGE
ASTORIA, OREGON - PT. ELLICE, WASHINGTON
SUPERSTRUCTURE CONTRACT
PORTAL AT L14-U16
MAIN TRUSS
WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON
FOR INFORMATION ONLY
1-67 As Constructed
SHEET 43 OF 64 SHEETS
17743