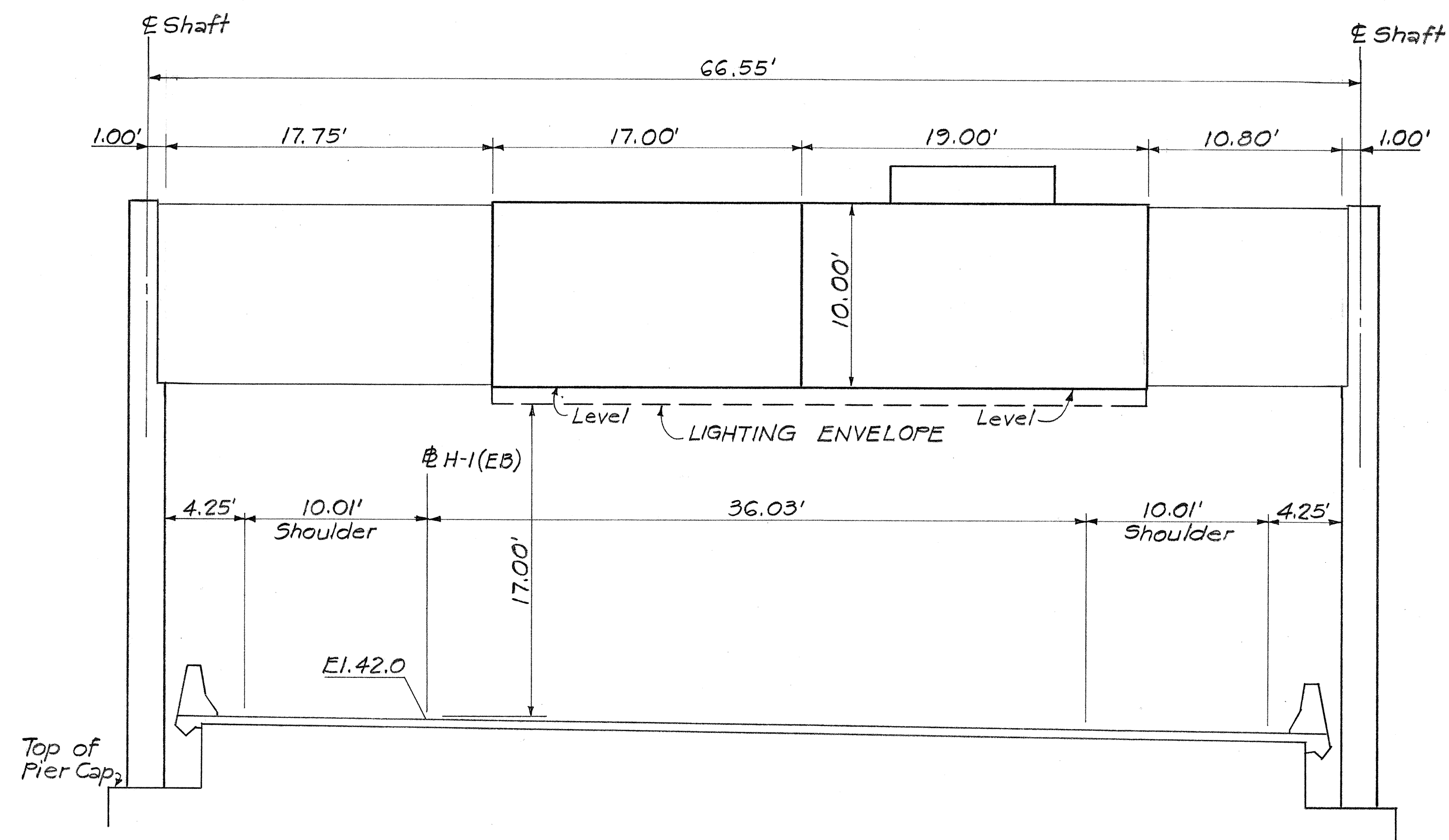
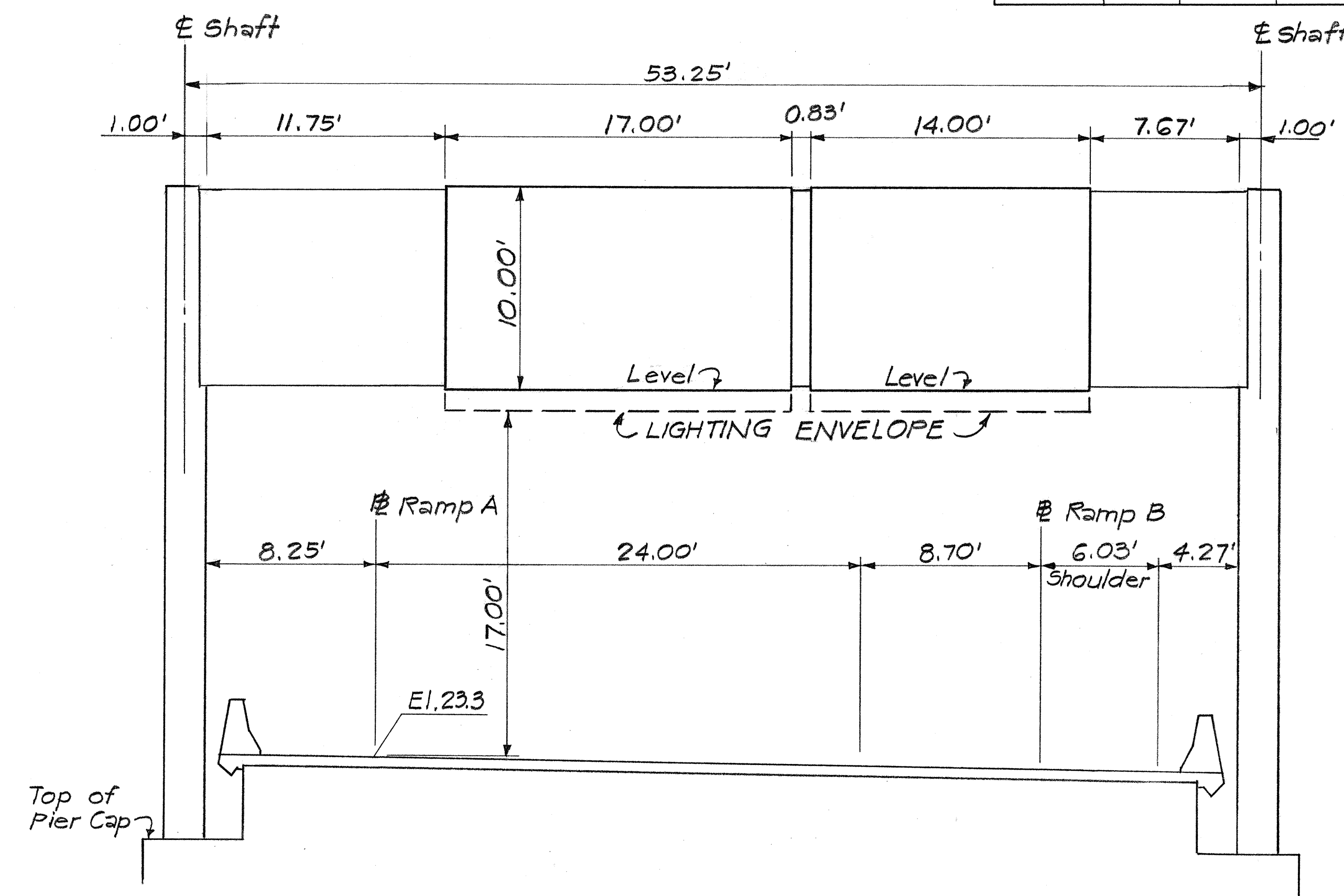


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(168):17	1982	17	145

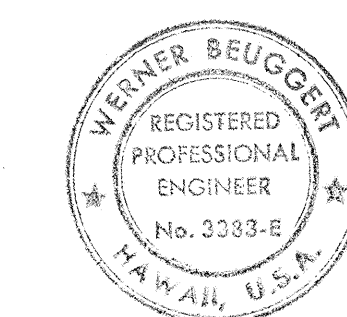


SIGN ASSEMBLY E-33
H-1 (EB) STA. 236 + 65
N.T.S.



SIGN ASSEMBLY E-34
Ramp A Sta. 19 + 82
N.T.S.

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



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Werner Beugert

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

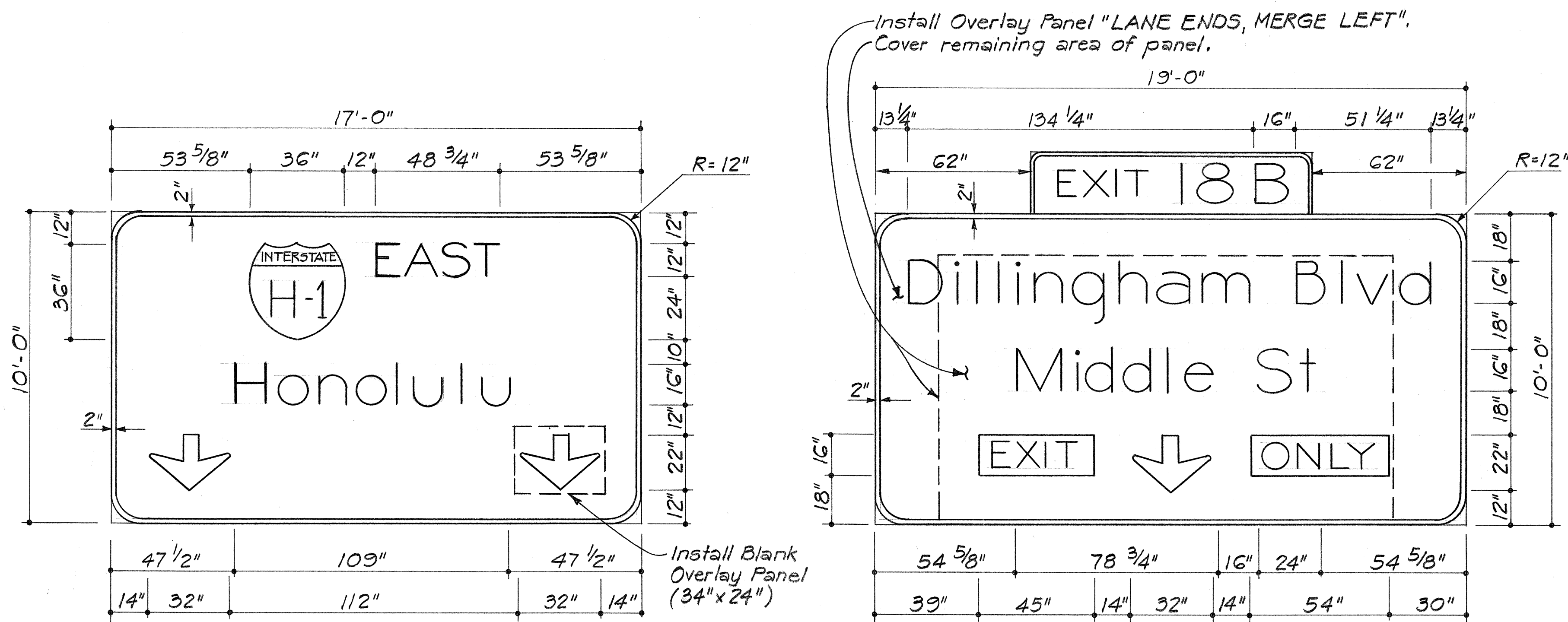
SIGNS E-33 & E-34
FRAME LAYOUT DETAILS

INTERSTATE ROUTE H-1
PROJECT NO. I-HI-1(168):17

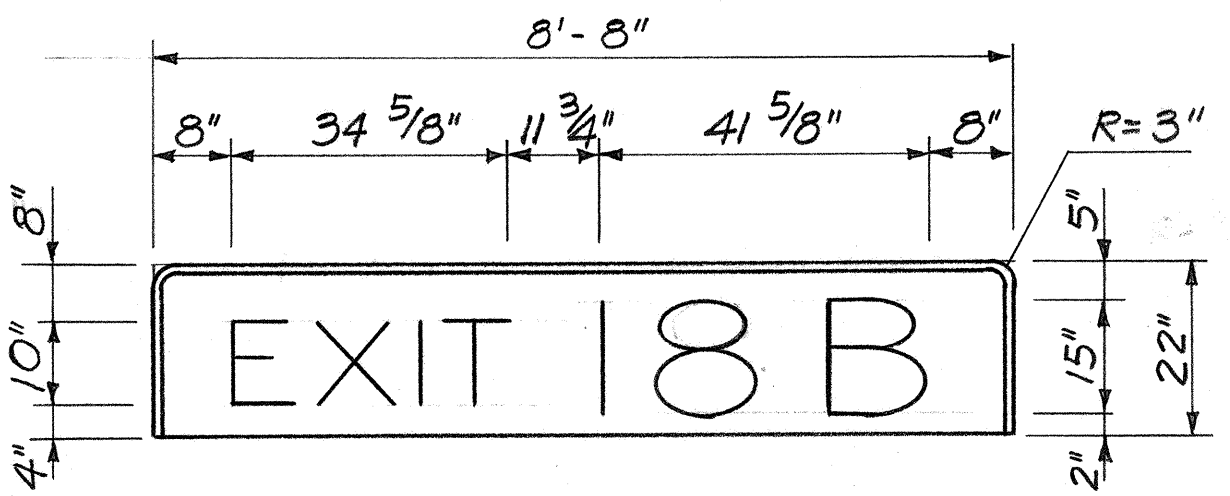
SCALE: AS SHOWN DATE: 8/17/81

SHEET NO. P-4 OF 5 SHEETS

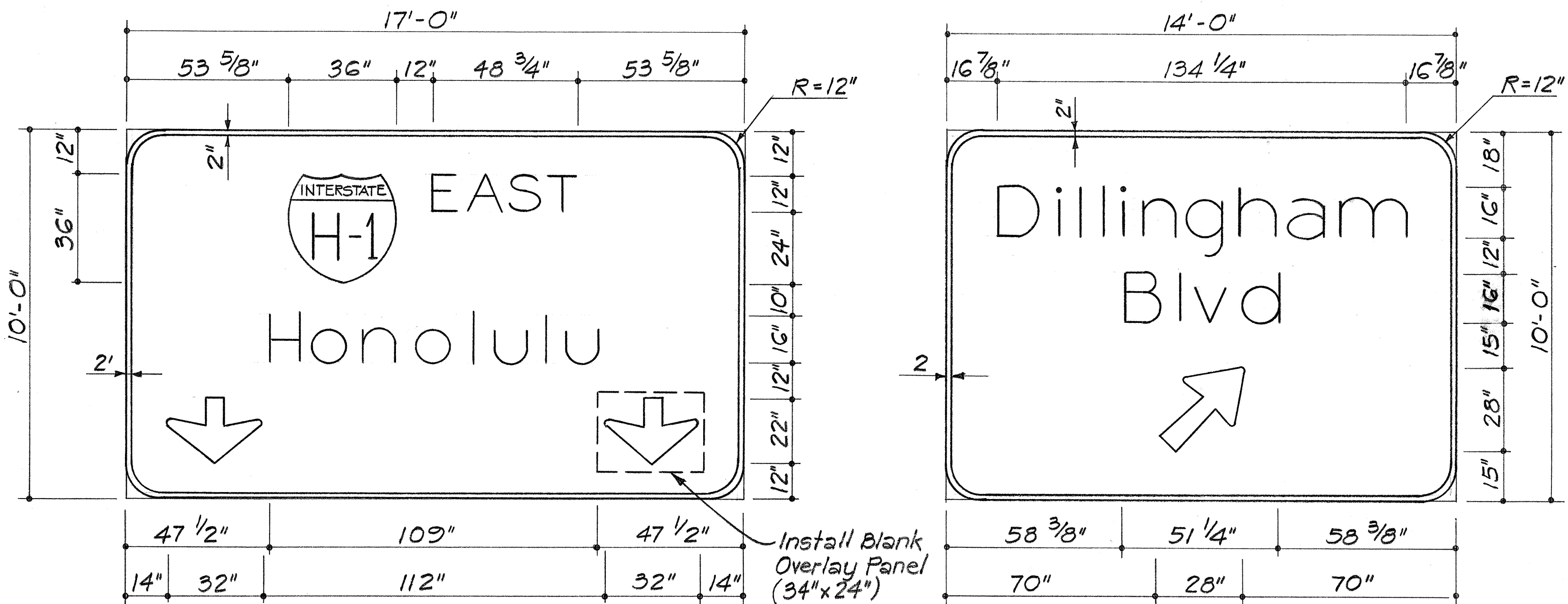
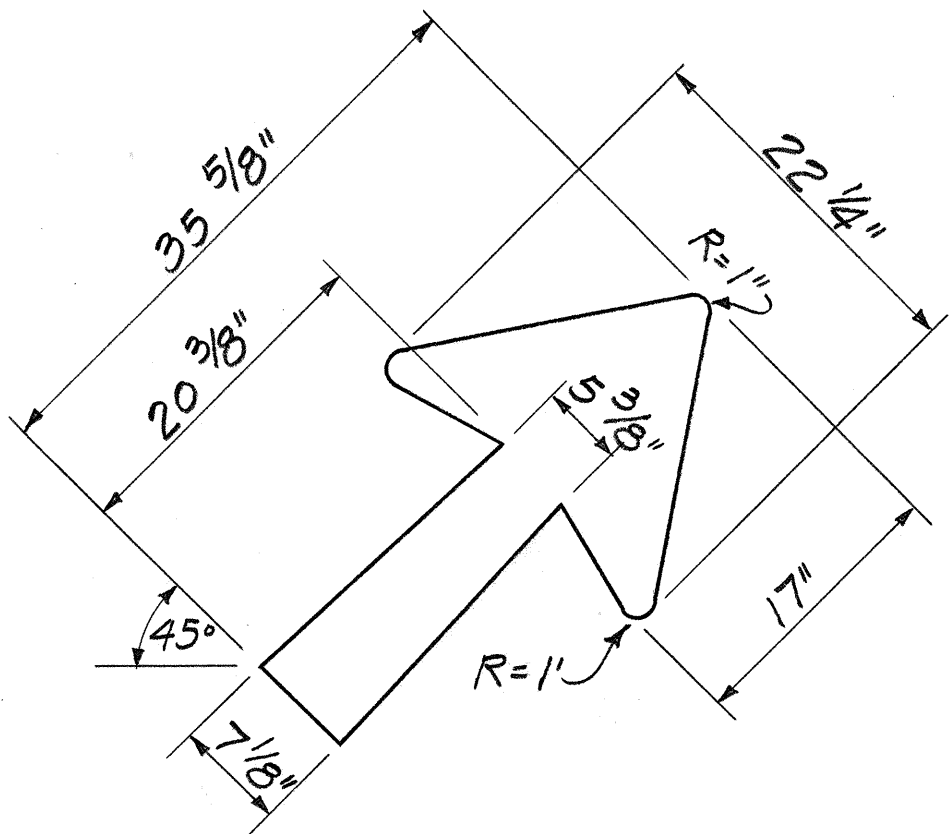
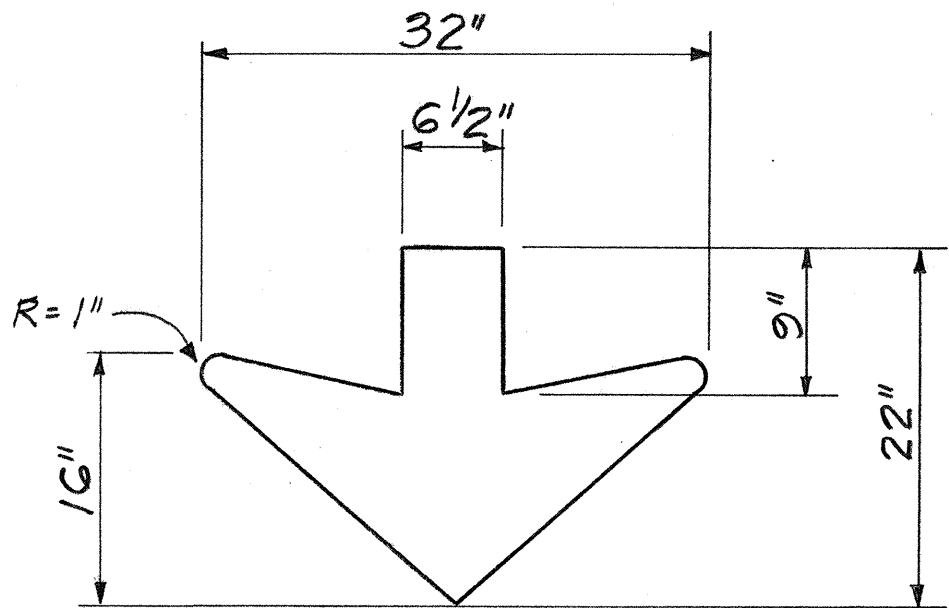
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(168):17	1982	18	145



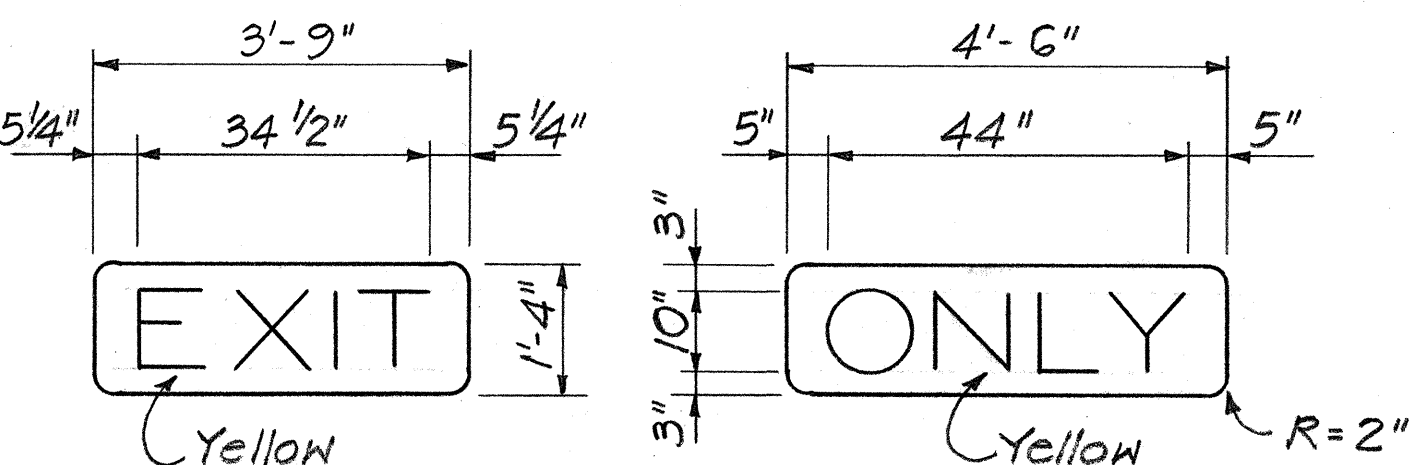
SIGN ASSEMBLY E-33
Scale: 3/8" = 1'-0"



EXIT NUMBER PANEL DETAIL
N.T.S.

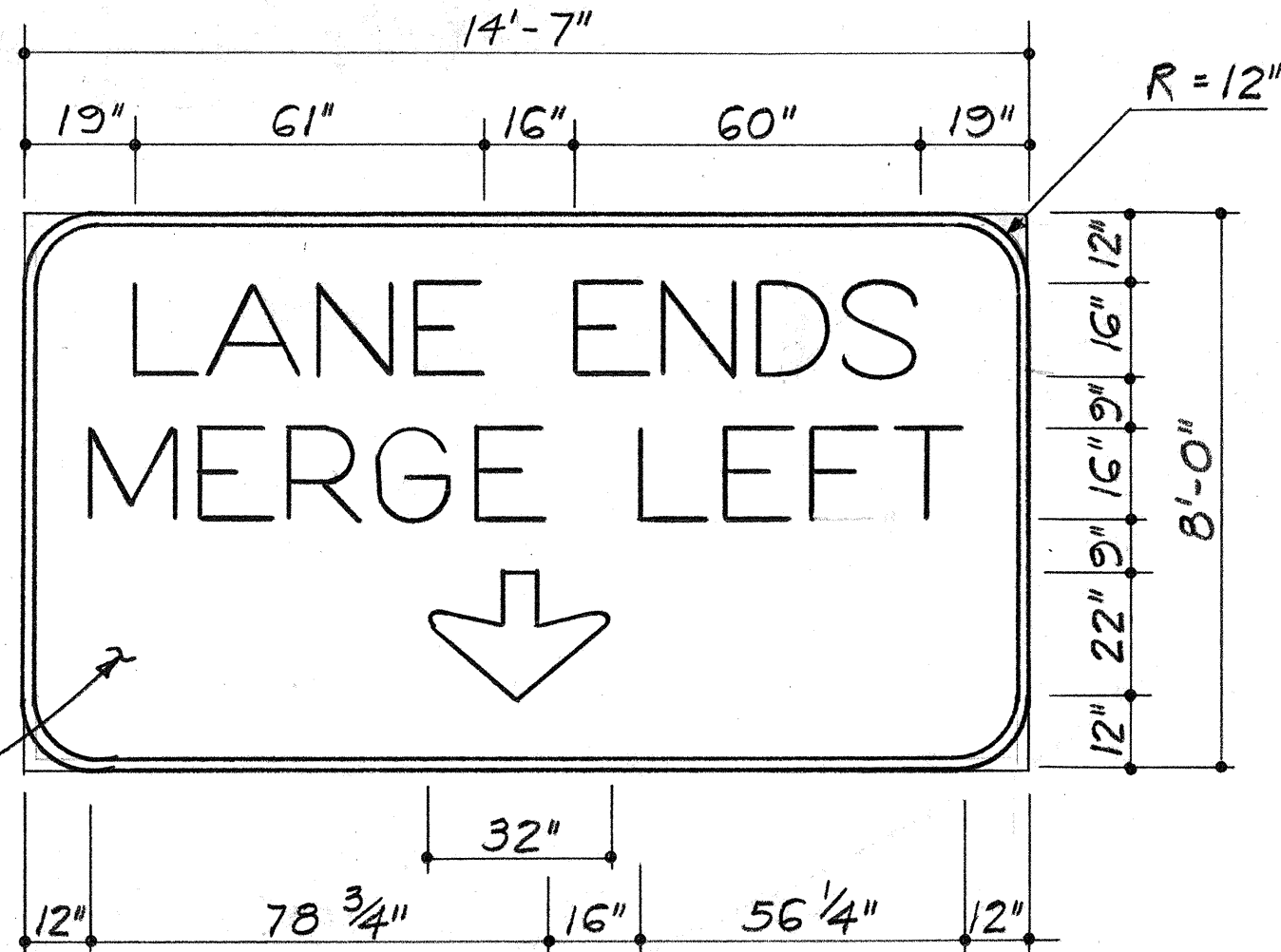


SIGN ASSEMBLY E-34
Scale: 3/8" = 1'-0"



"EXIT ONLY" DETAIL
N.T.S.

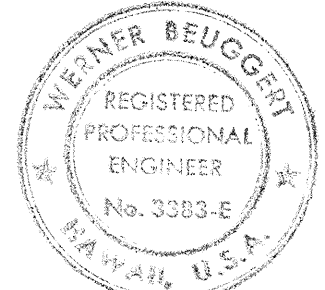
Orange Background



OVERLAY PANEL FOR E-33
Scale: 3/8" = 1'-0"

NOTES:

1. Alphabetical characters shall be uppercase or lowercase, as shown, and shall have Series E dimensions & spacings in accordance with the FHWA Publication "Standard Alphabets for Highway Signs", Bureau of Public Roads, 1966.
2. Cover of sign panels shall be 1/4" thick exterior grade plywood, or other material approved by the Engineer. Exposed surface shall be painted gray. Payment for sign covers shall be considered incidental to various contract items.
3. Overlay Panels shall be of .008-inch thick sheet aluminum and shall be of the same color & reflectorization as sign panel, unless shown otherwise. Payment will be made under "Temporary Overlay Panel".



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HIGHWAYS DIVISION

SIGN FACE DETAILS

INTERSTATE ROUTE H-1
PROJECT NO. I-HI-1 (168):17

SCALE: AS SHOWN DATE: 8/17/81
SHEET NO. P-5 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(168):17	1982	19	145

GENERAL NOTES

DESIGN:
AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, current edition.

DESIGN DATA:
Wind Loading: Normal to face of sign (75 mph wind) 52 psf, E-33
Transverse to face of sign = 0.2 of normal force. 46 psf, E-34

Walkways: See sheet No. ES-4
Ice Load: None
Structural Steel: ASTM A-36 fy = 36,000 psi.
High Strength Bolts: ASTM A 325 (Friction - Type Connection)

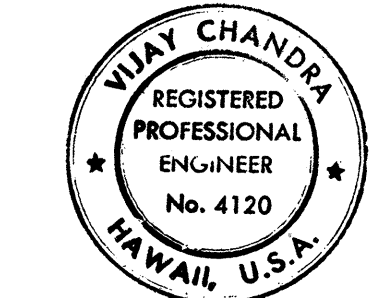
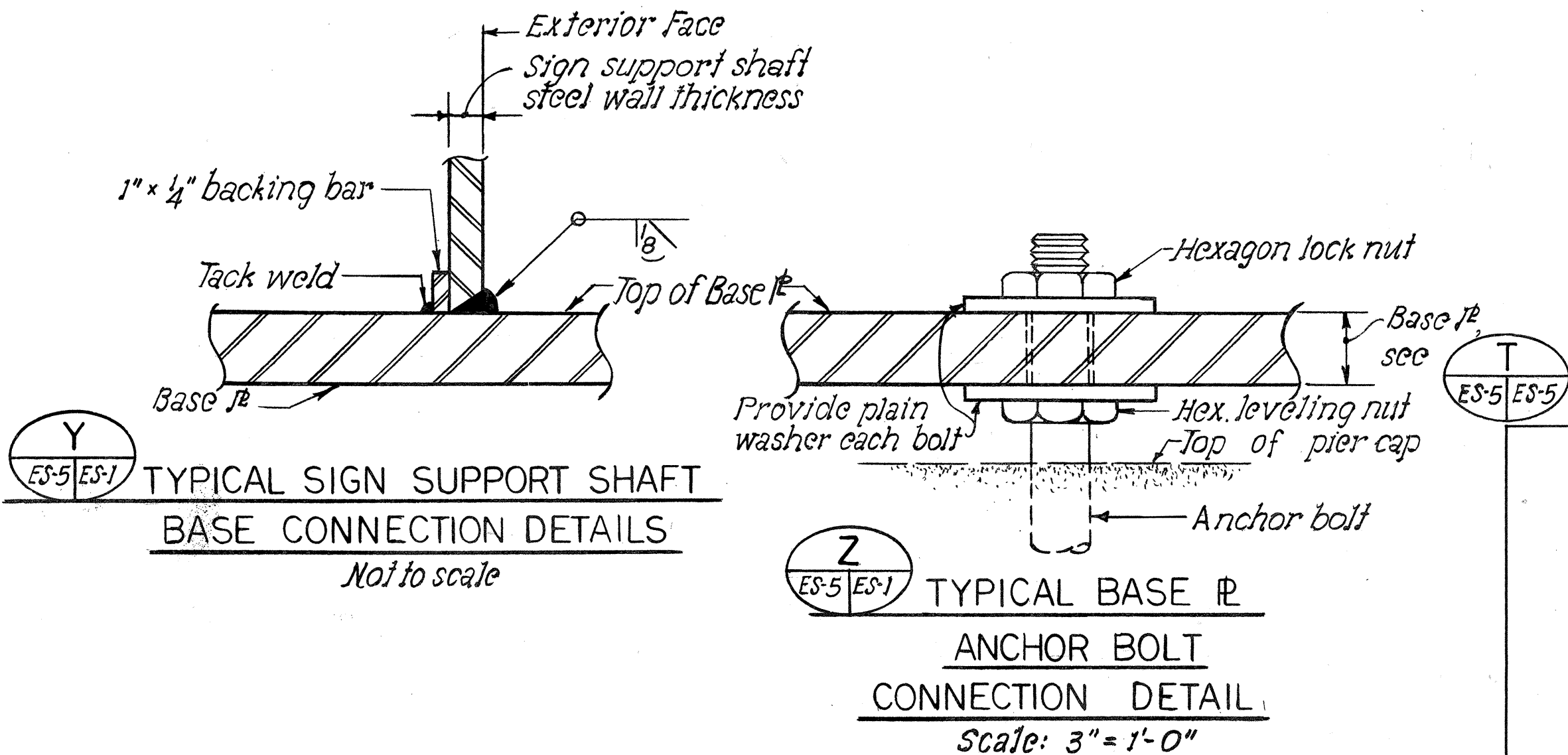
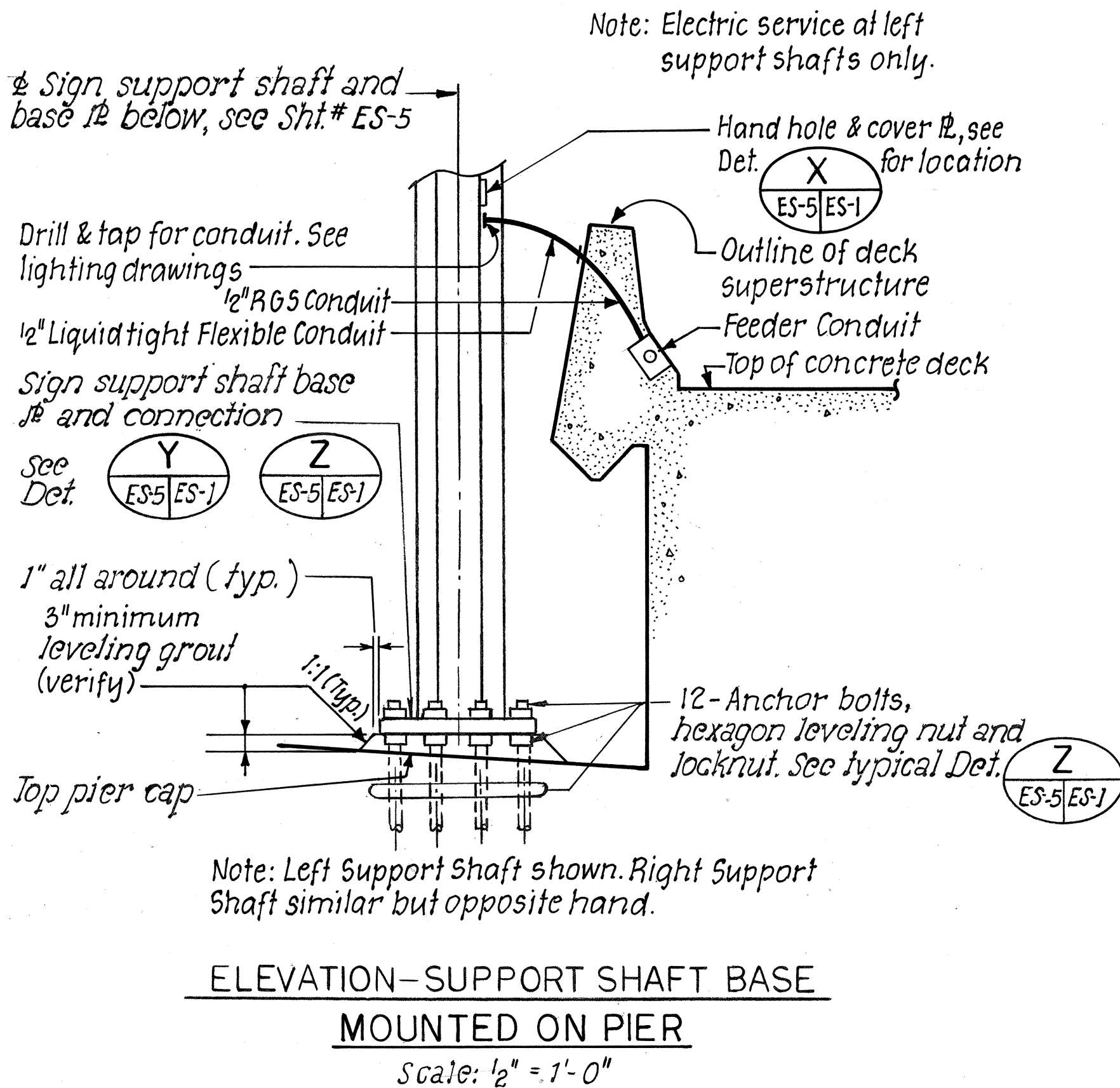
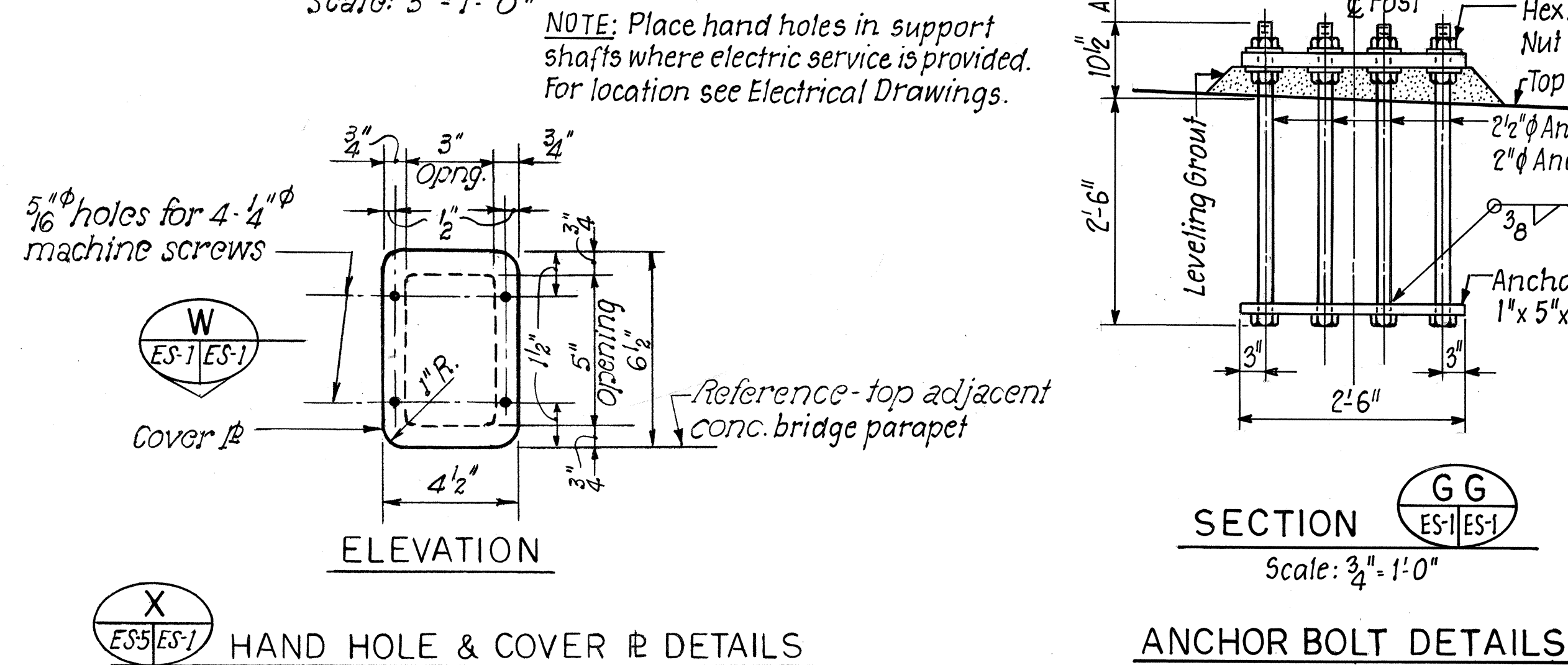
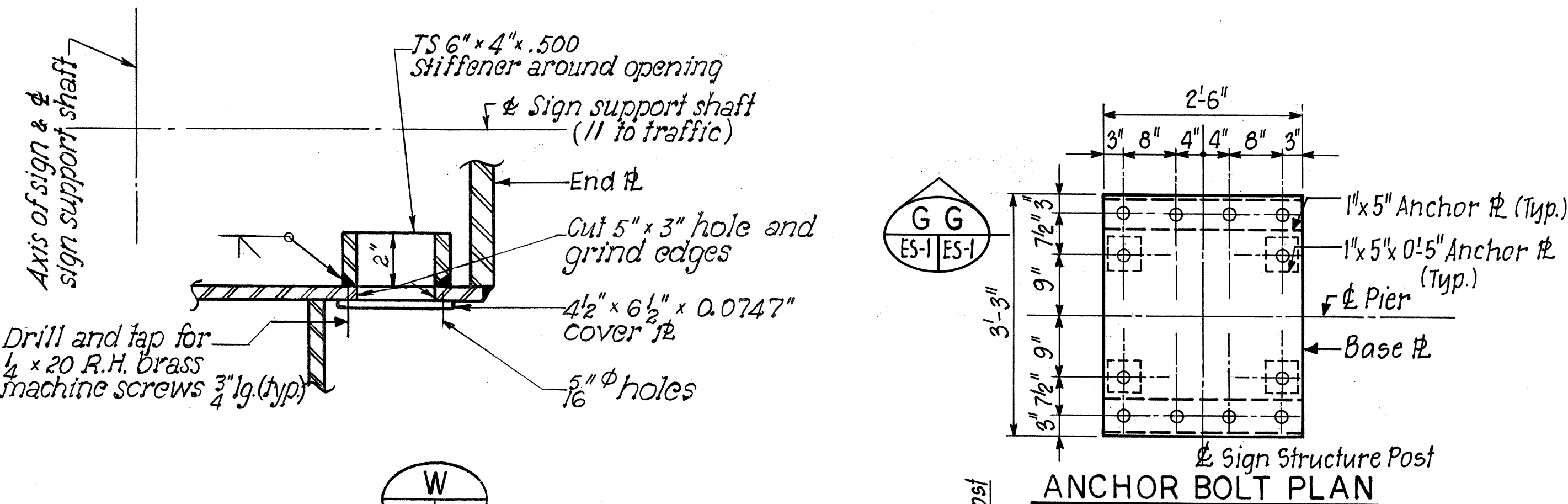
WELDING:
All welding to be continuous welds and as noted on the plans.

GENERAL:
1. Before preparation of shop drawings for the sign support frame structures, the Contractor shall verify in the field, the exact location of each of the anchor bolts and the shelf elevation at the top of the pier caps.
2. Payment for overhead sign supports E-33 and E-34 shall be made as described in the special provisions.
3. All sign structures are viewed in the direction of traffic.

REFERENCE:
1. Refer to civil drawings for General Notes, Symbols & Abbreviations not covered by these drawings.
2. Refer to civil drawings for location layout plans of signs E-33 and E-34.

- MATERIALS:
1. Sign support box truss members & supporting shafts; sheet metal siding & edgings; connection bolts; nut & washers; to be structural steel. All surfaces shall be hot dipped galvanized after fabrication prior to painting. See Specifications & "Ribbed Sheet Metal Notes" on Sheet No. ES-6
 2. Galvanized surfaces of expressway sign frame & supports (Note-1 above) shall be painted, see specifications. Pigment for final coats of exterior weatherproof enamel to be determined by the Engineer.
 3. Aluminum members and surfaces in contact with structural steel shall be isolated with neoprene material as directed by the Engineer.
 4. Contact surfaces in high strength (H.S.) bolt connections shall not be painted. The galvanizing on these surfaces shall be lightly scored by wire brushing prior to assembly.
 5. H.S. Bolts shall be galvanized, furnished and installed in conformance with current ASTM A325 with lubricated nuts.
 6. Leveling Grout shall be non-shrink and non-metallic.

- CONSTRUCTION METHOD:
1. See Hawaii Standard Specifications for Road & Bridge Construction, 1976 Edition and AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, current edition.



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Vijay Chandra
Signature

STATE OF HAWAII
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SIGNS E-33 AND E-34
SUPPORT SHAFT BASE & DETAILS
GENERAL NOTES

KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-HI-1(168):17
SCALE: AS NOTED DATE: 8/17/81

SHEET No. ES-1 OF 6 SHEETS

NOTE: For elevation at bottom of base plates, see Table on Sheet No. ES-2.

1'-5" Wind Bracing Panel Spacing - see Table below 1'-5"
 Layout direction
 bot. chord diagonal bracing
 throughout. (Typical each panel)
 See table
 Axis of box truss
 1" - 1" x 1" x 1/4" top & bot. chord strut
 (Typical each panel).
 2'-0" out to out
 Span
 Panel Typ.
 Outline - cont. ribbed
 sheet metal siding
 each face throughout
 Truss frame - see
 details below
 Top chord
 diagonal bracing throughout
 (Typical each panel)
 See table
 Truss frame - see
 details below
 Typical Detail F
ES-2 | ES-3

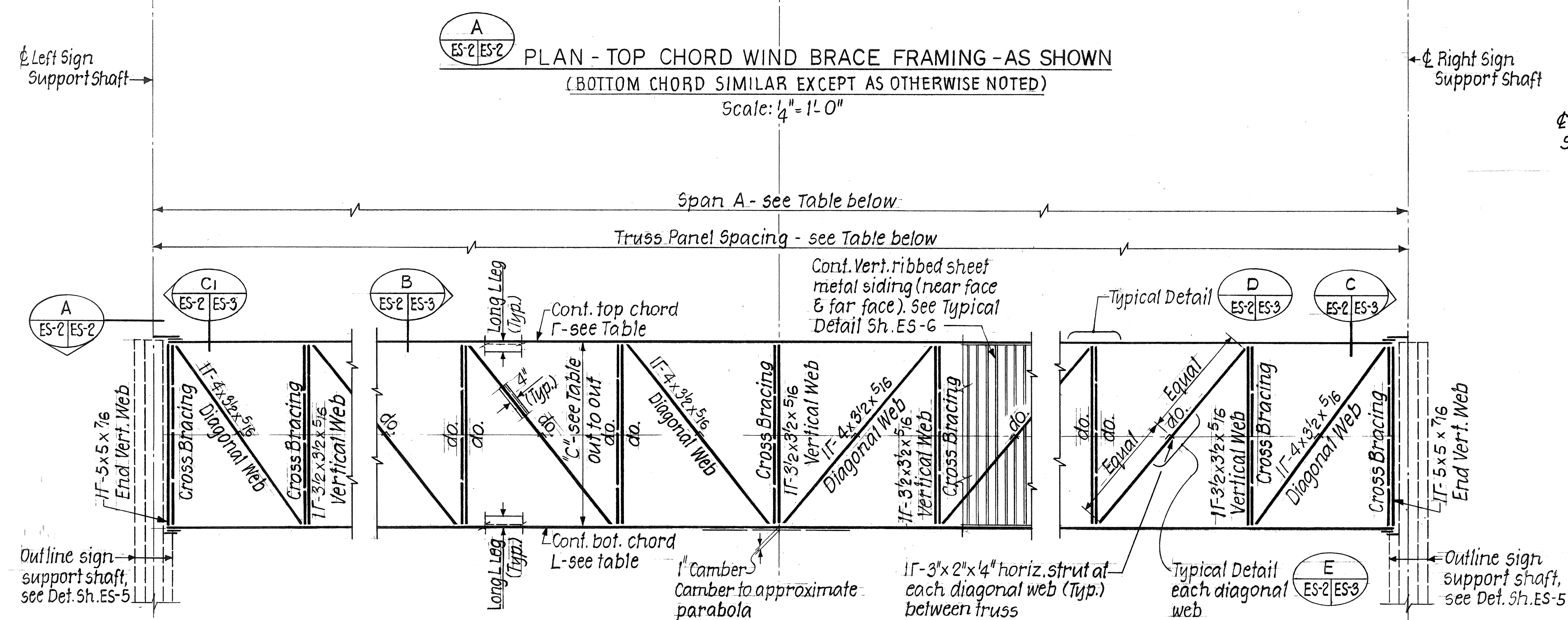


SIGN STRUCTURE LOCATION DIAGRAMS

Not to Scale

NOTES:

1. For General & Design Notes, refer to Sh. No. ES-1.
2. Luminaire support framing; sign supports & mounting beams not shown. Refer to corresponding details Sh. No ES-3, ES-4 & ES-6. For additional details, refer to corresponding highway lighting & sign drawings.



ELEVATION - TYPICAL TRUSS FRAMING DETAIL - BOX BEAM CLOSED TRUSS

Scale: $\frac{1}{4}'' = 1'-0''$

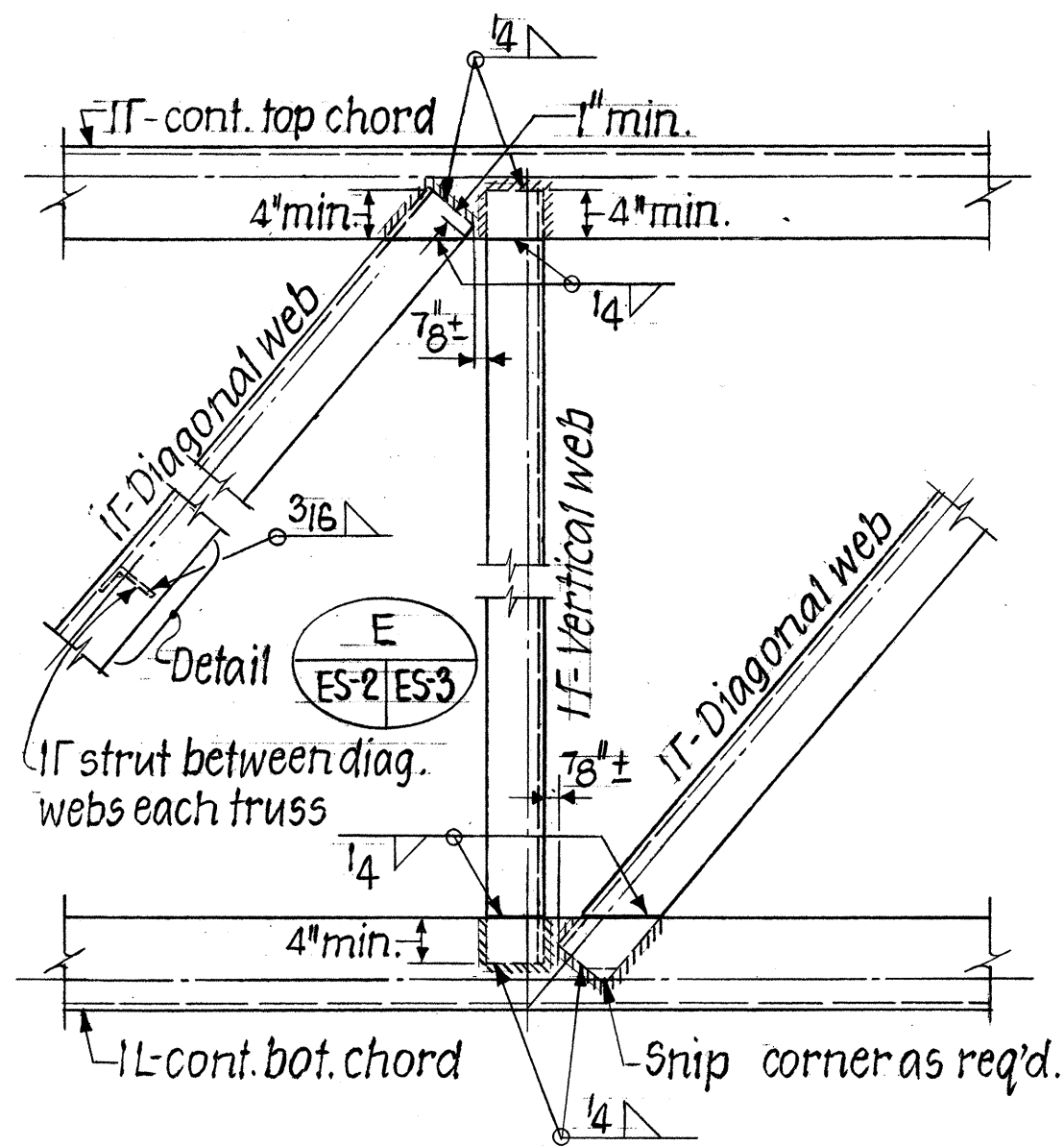
[illegible]

Vijay chandra
Signature

SCALE: AS NOTED DATE: 8/17/81

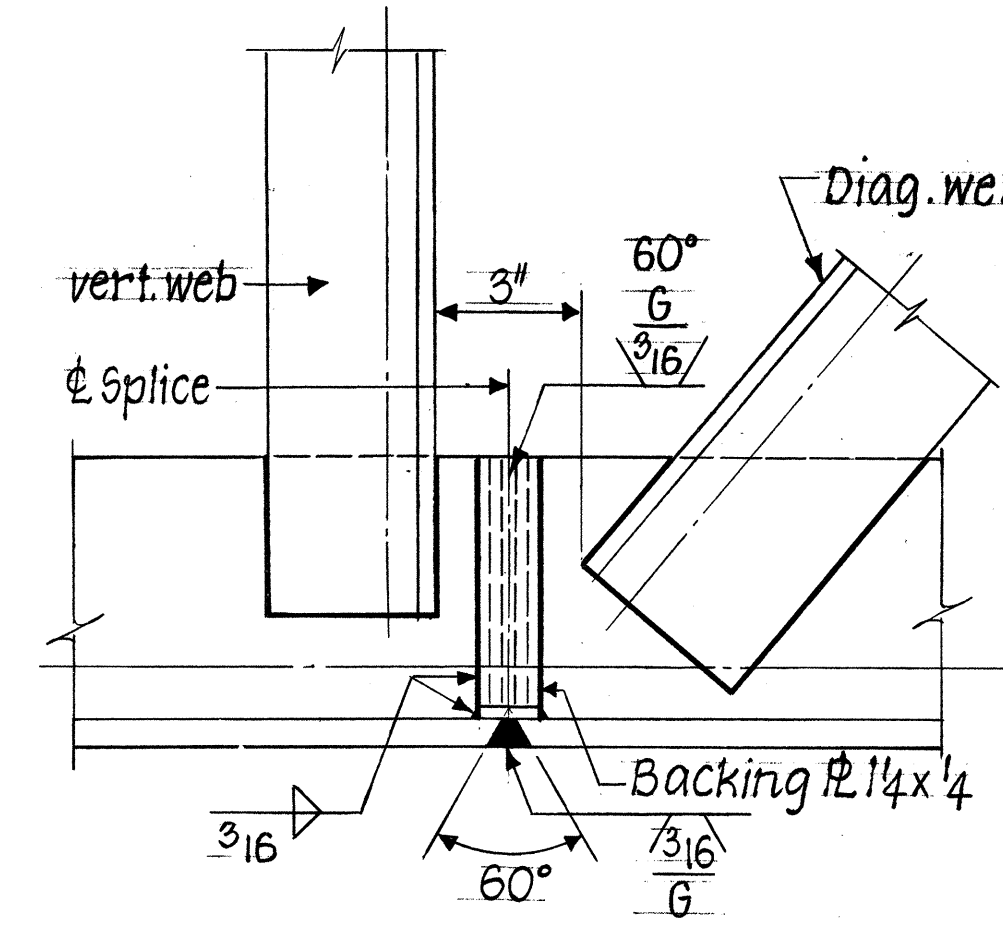
SHEET No. ES-2 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(168)-17	1982	21	145

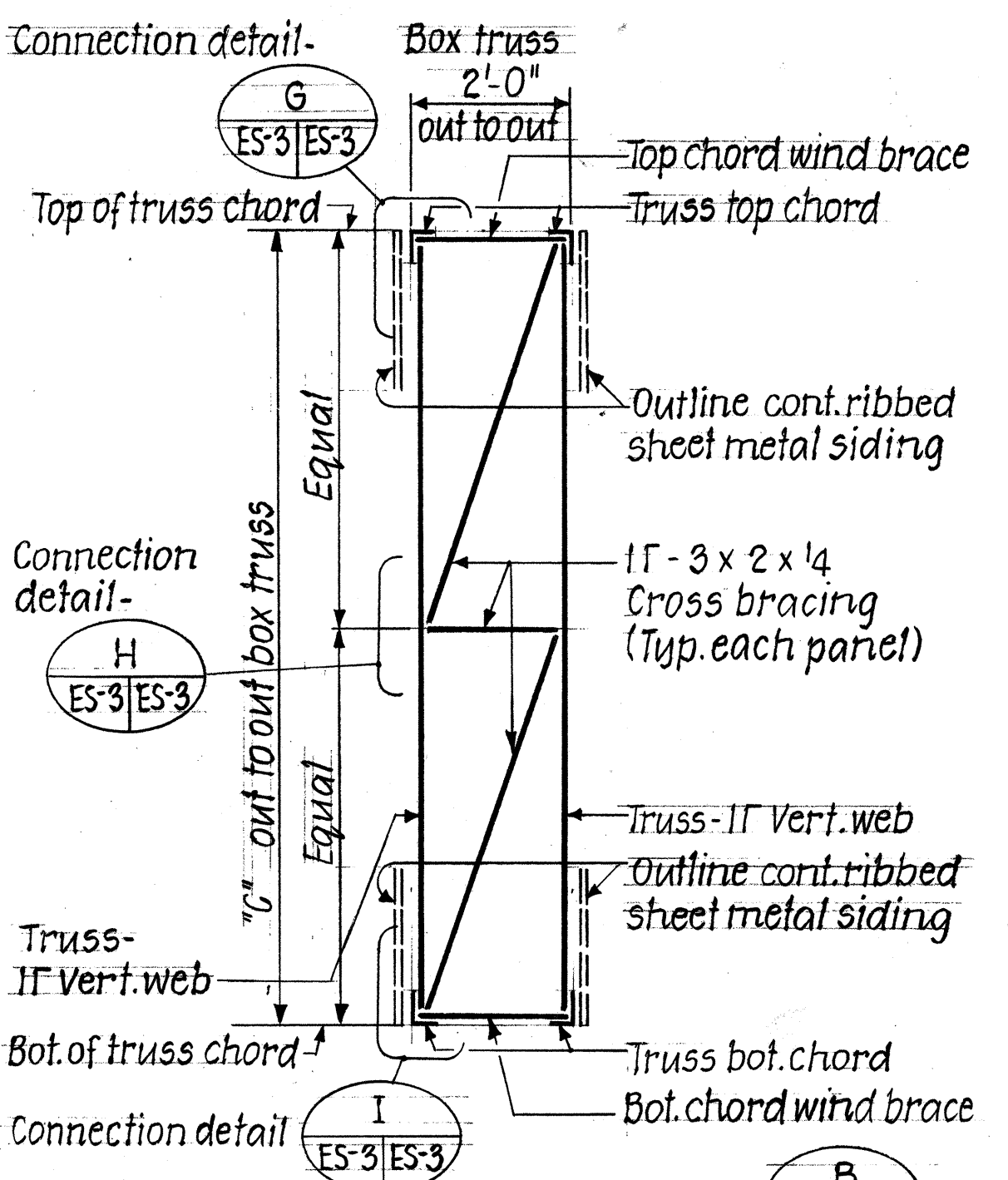
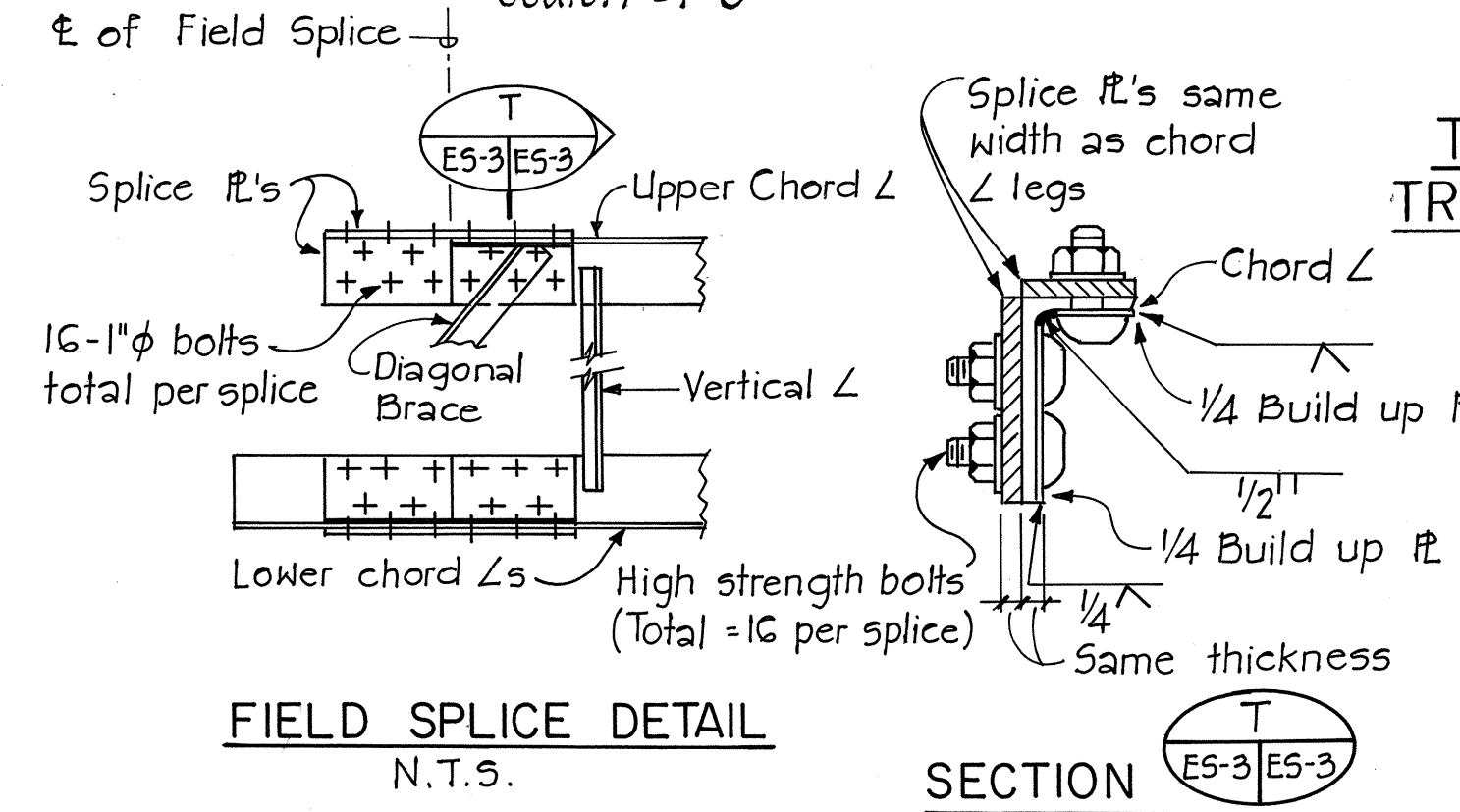


TYPICAL DETAIL E-2/ES-3
Scale: 1"=1'-0"

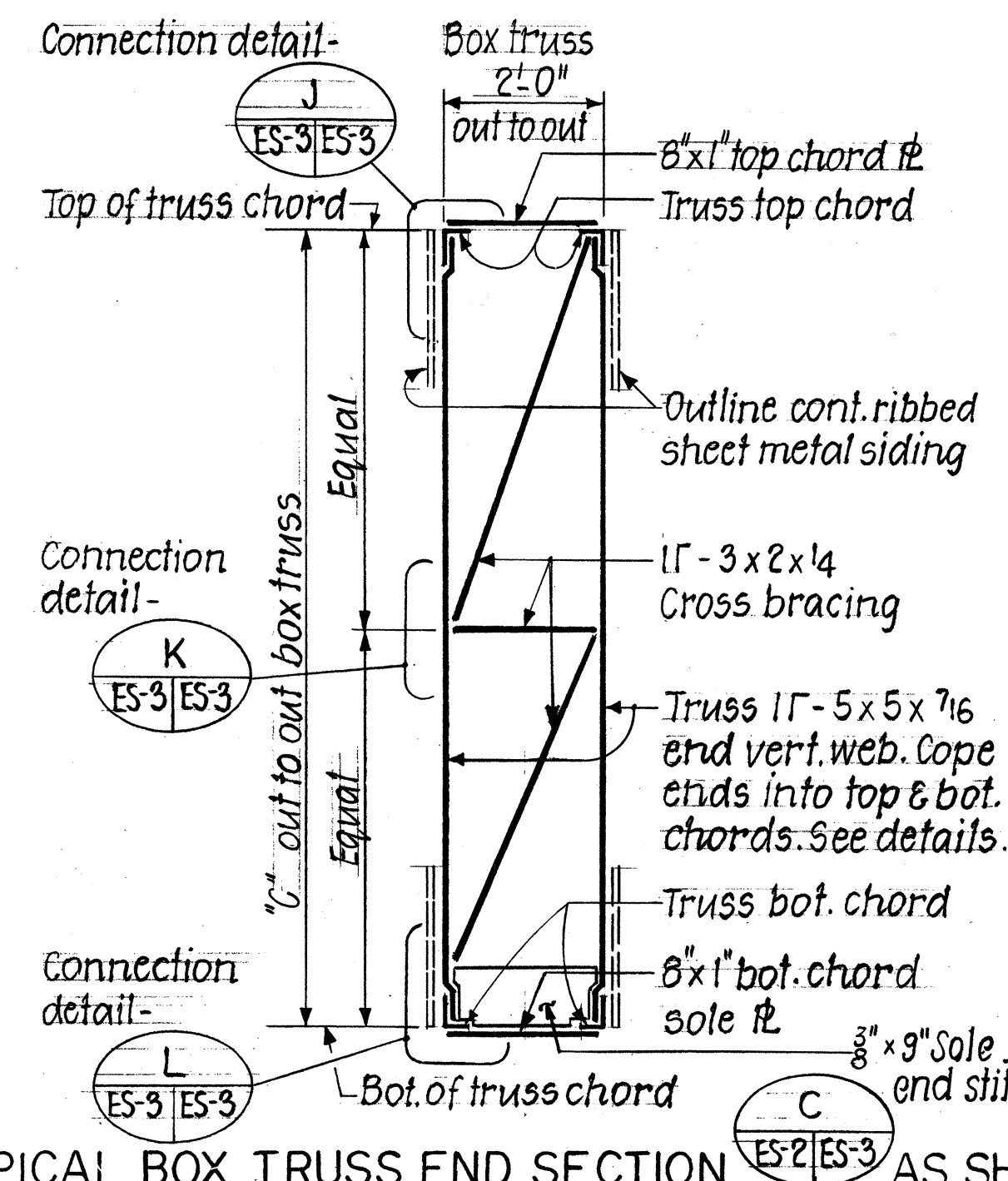
NOTE:
Splice locations of top and bottom chords at each truss shall be staggered and at alternate locations. Indicate splice locations on shop fabrication drawings for approval. In no case shall splices be located at midspan of truss. The splice shall be located so as not to interfere with mounting the light fixture brackets.



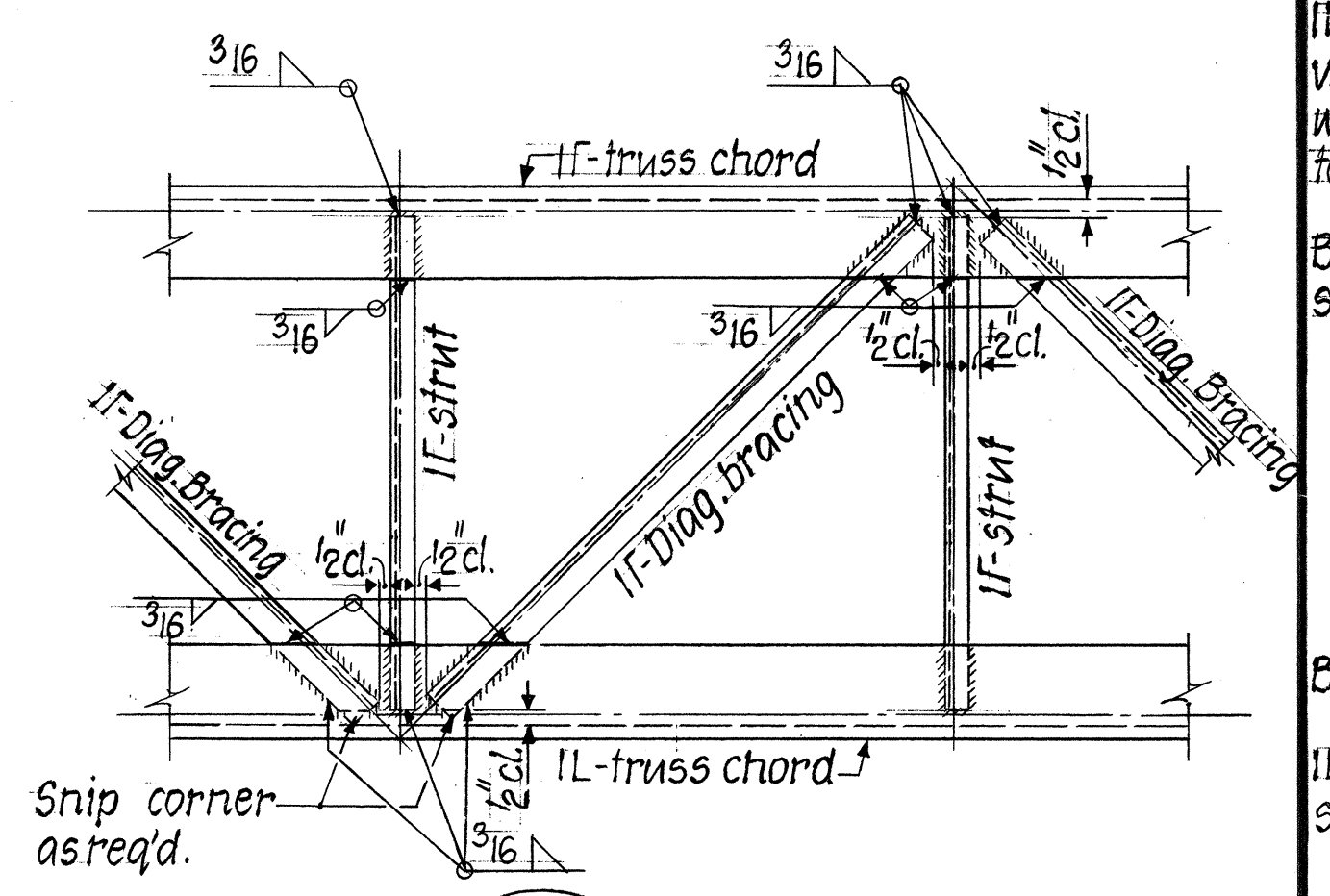
INTERIOR ELEVATION -
TYP SHOP TOP OR BOTTOM
TRUSS CHORD SPLICE DETAILS
Scale: 3"=1'-0"



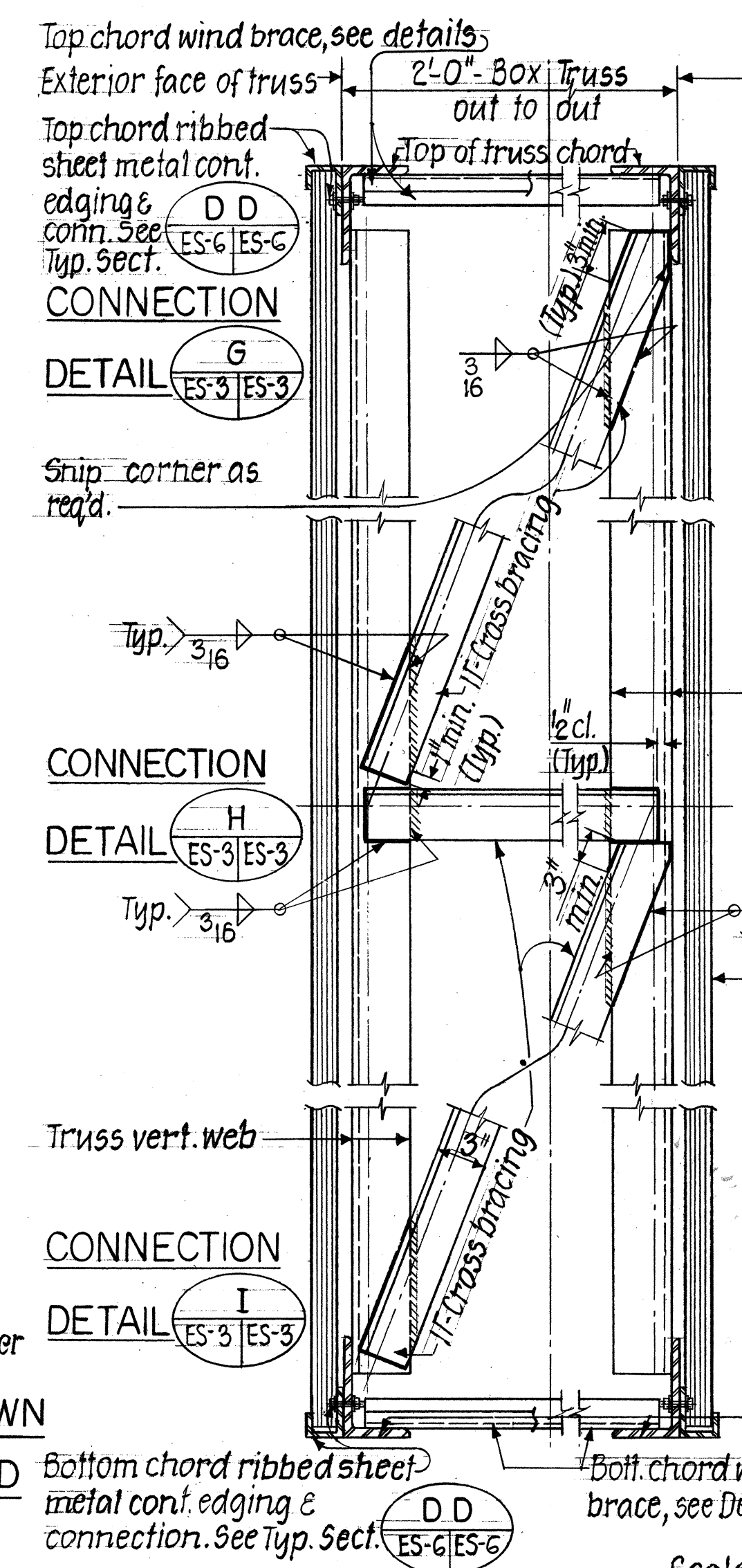
TYPICAL BOX TRUSS SECTION
(INTERMEDIATE CROSS BRACING DETAILS)
Scale: 1/2"=1'-0"



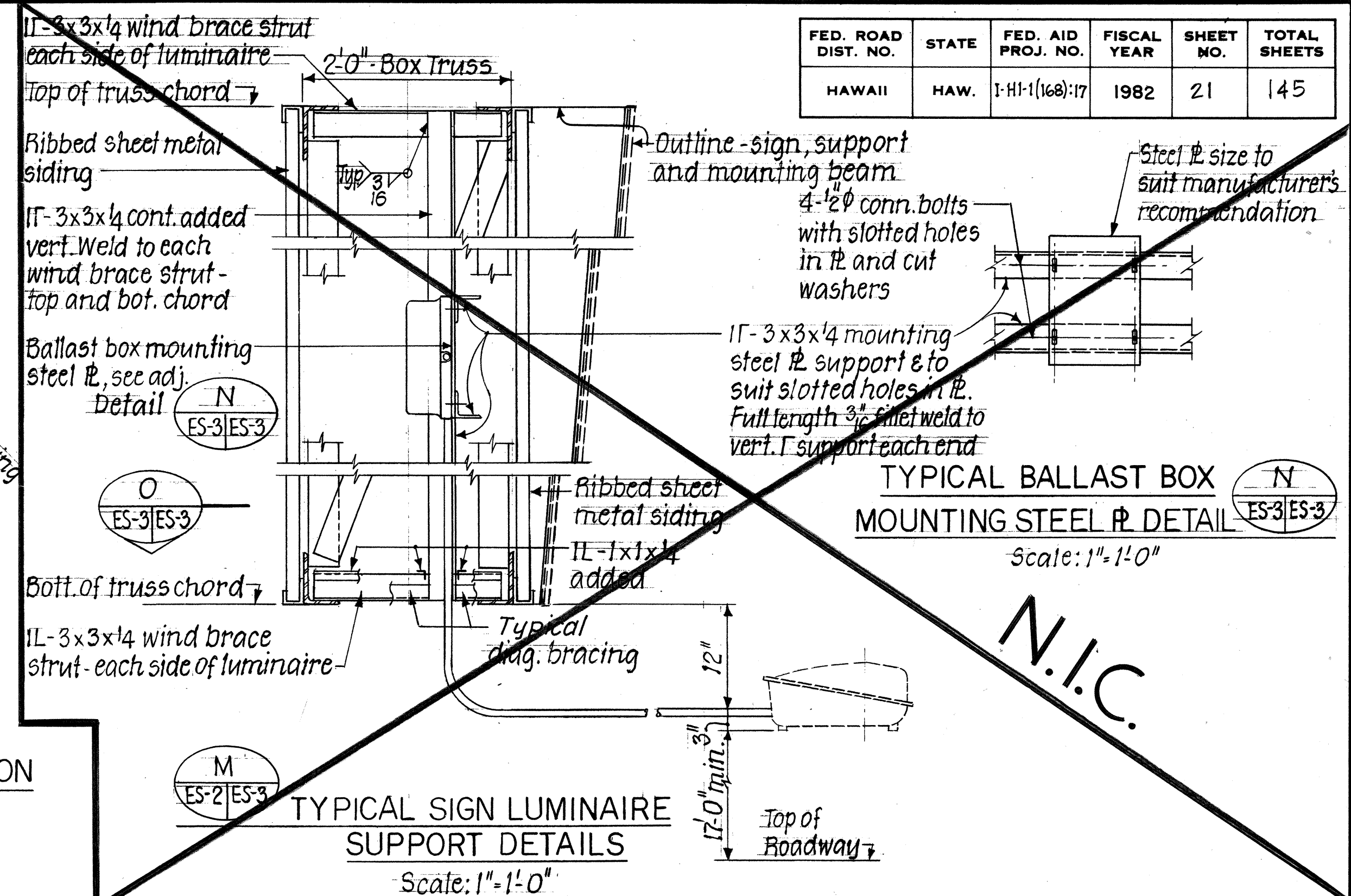
TYPICAL BOX TRUSS END SECTION AS SHOWN
SECTION C-1 ES-2/ES-3 SIMILAR EXCEPT OPPOSITE HAND
(END CROSS BRACING DETAILS)
Scale: 1/2"=1'-0"



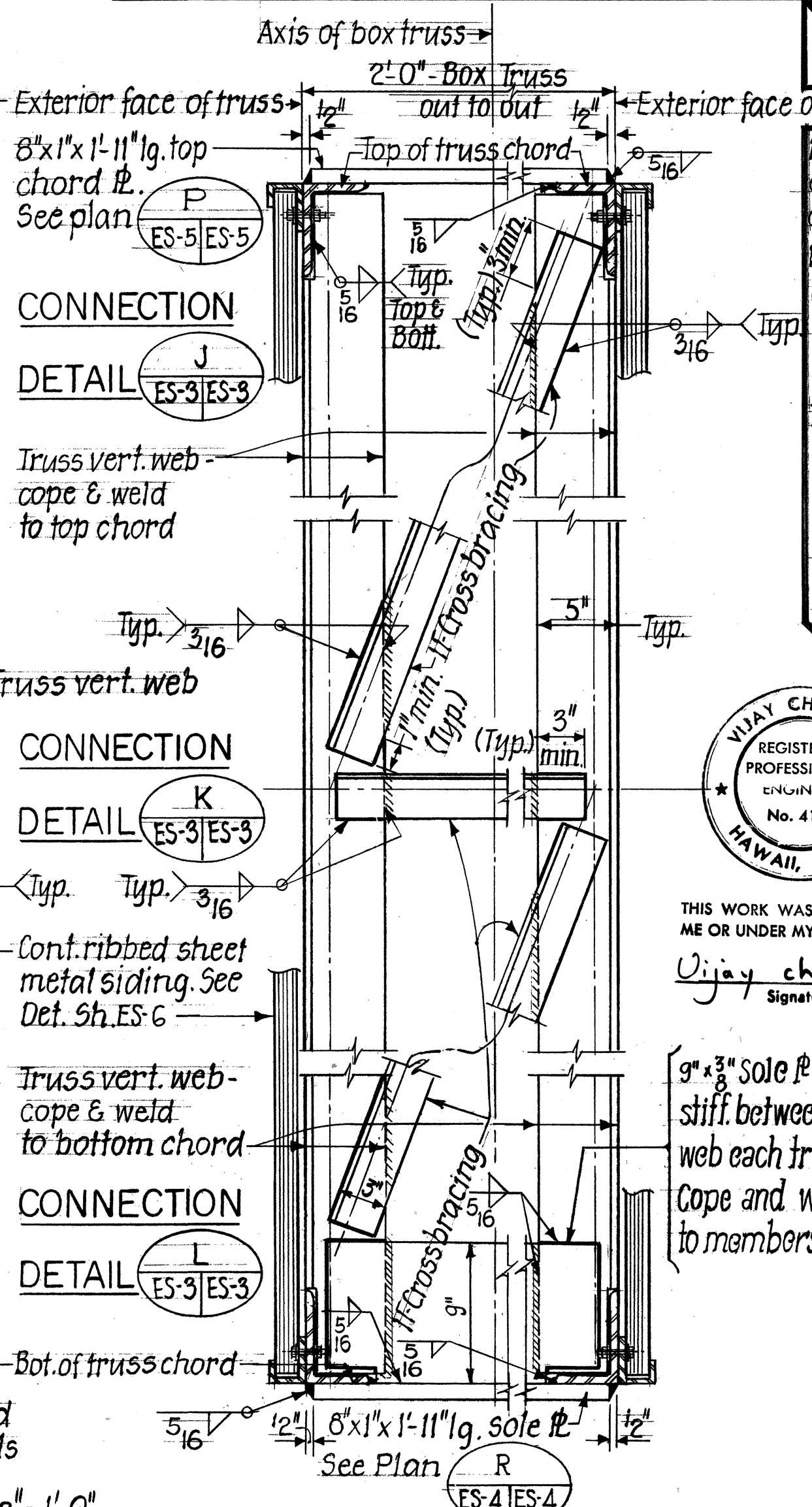
TYPICAL DETAIL E-2/ES-3 WIND BRACE CONNECTION
(TOP CHORD SHOWN - BOT. CHORD SIMILAR)
Scale: 1/2"=1'-0"



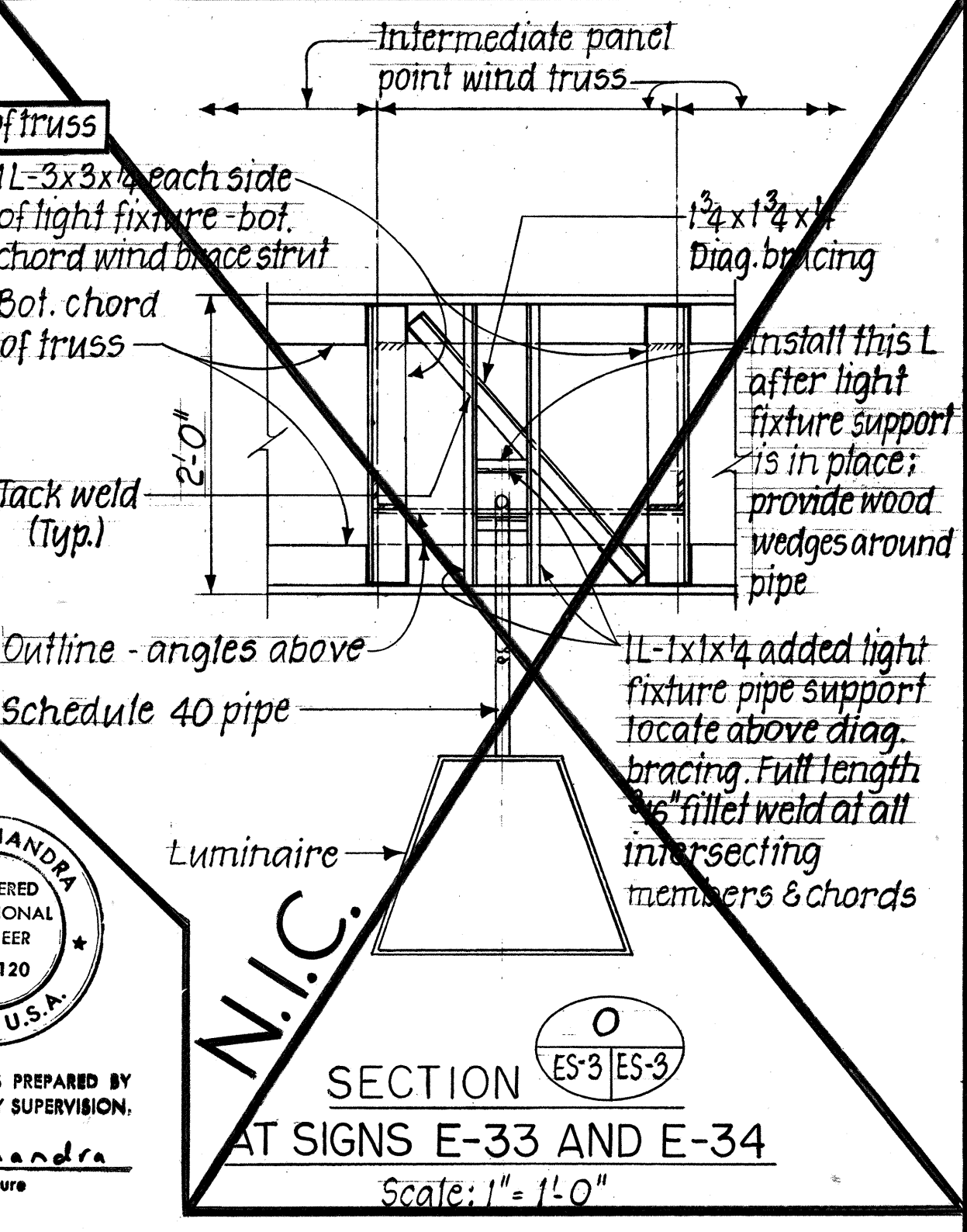
Bottom chord ribbed sheet metal cont. edging & connection. See Typ. Sect. D-D ES-6/ES-6
Scale: 1/2"=1'-0"



TYPICAL SIGN LUMINAIRE SUPPORT DETAILS
Scale: 1"=1'-0"



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



SECTION E-3/ES-3
AT SIGNS E-33 AND E-34
Scale: 1"=1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNS E-33 AND E-34
BOX BEAM CLOSED TRUSS
TRUSS DETAILS

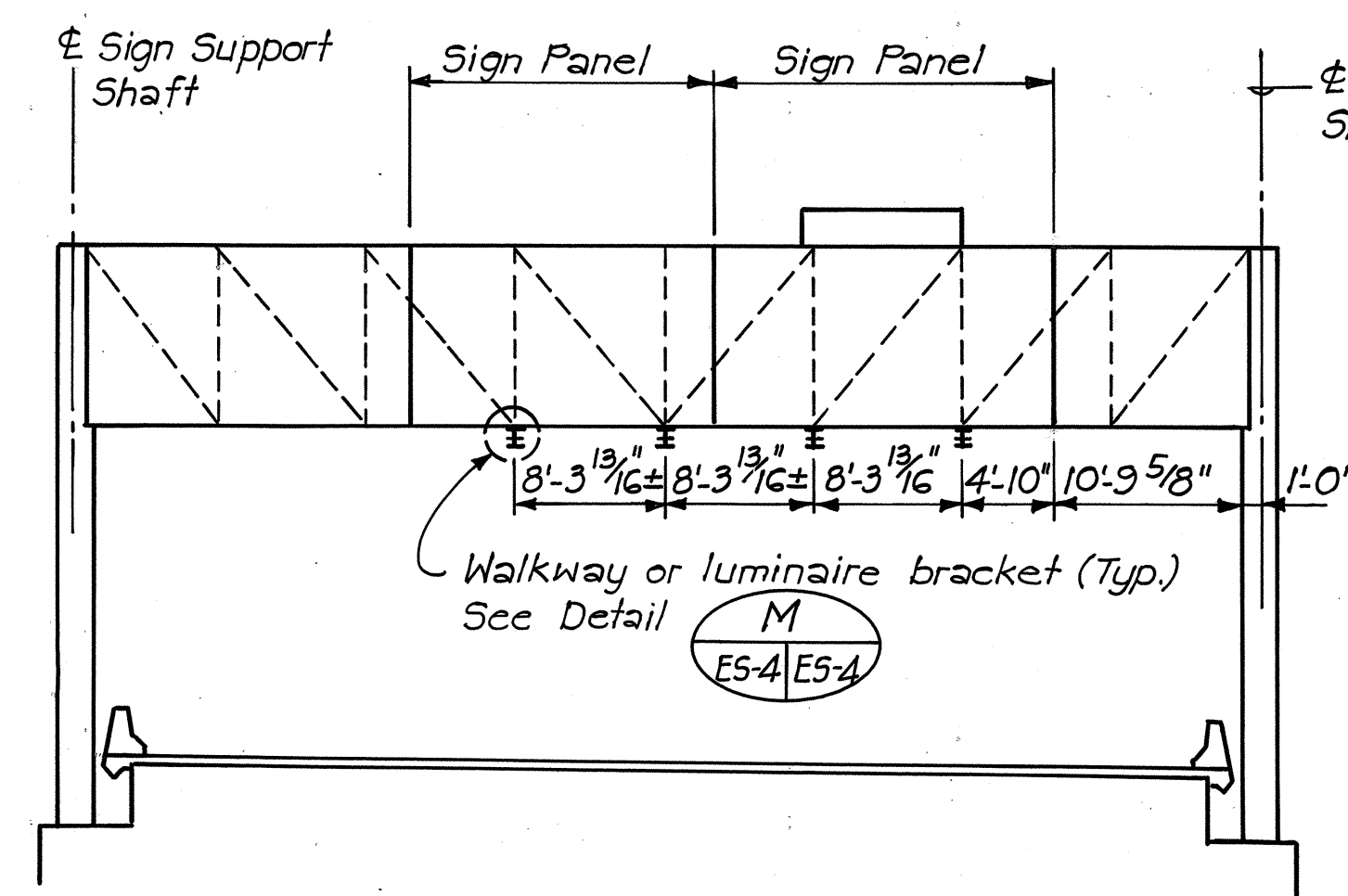
KEEHI INTERCHANGE
F.A.I. PROJ. NO. 1-HI-1(168)-17
SCALE: AS NOTED
DATE: 8/17/81

SHEET NO. ES-3 OF 6 SHEETS

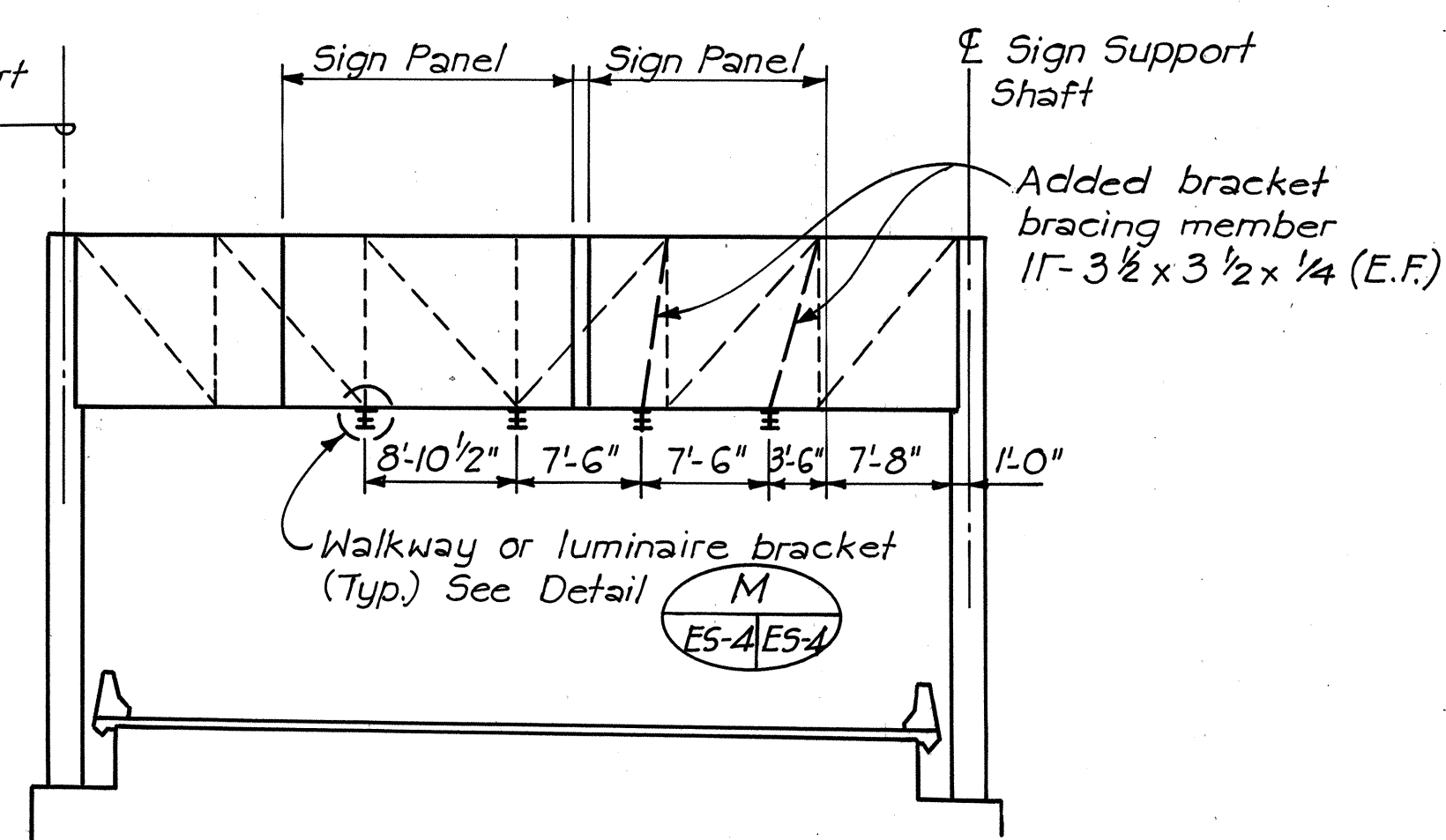
ORIGINAL PLAN
DATE: 2-77
DRAWN BY: PATRICIA MALKIN
CHECKED BY: J.B. TIMONEY
NOTED BY: J.S. WAGER
QUANTITIES BY: J.S. WAGER

VIVAY CHANDRA
REGISTERED PROFESSIONAL ENGINEER
No. 4120
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Vijay chandra
Signature

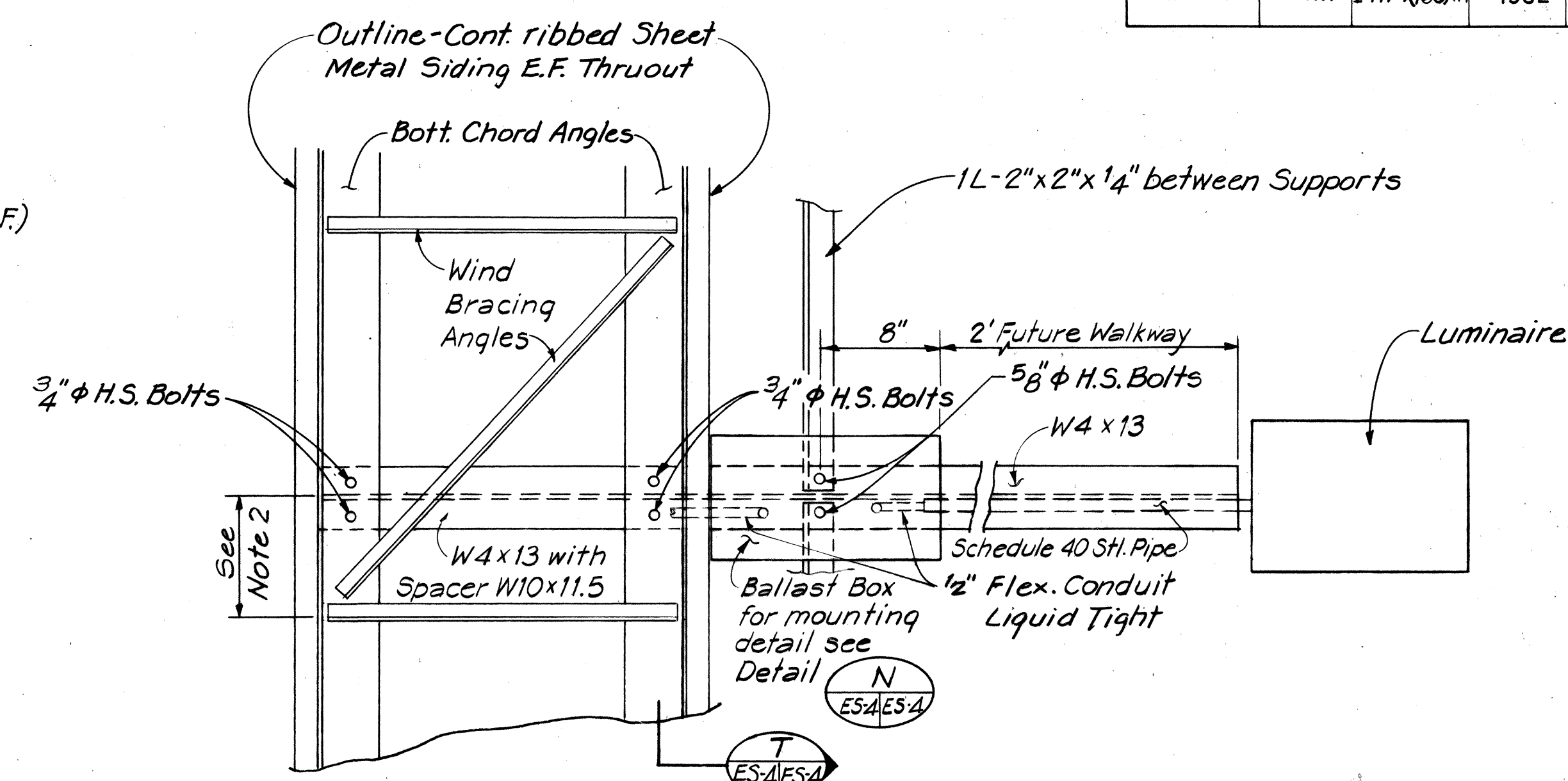
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(168)17	1982	22	145



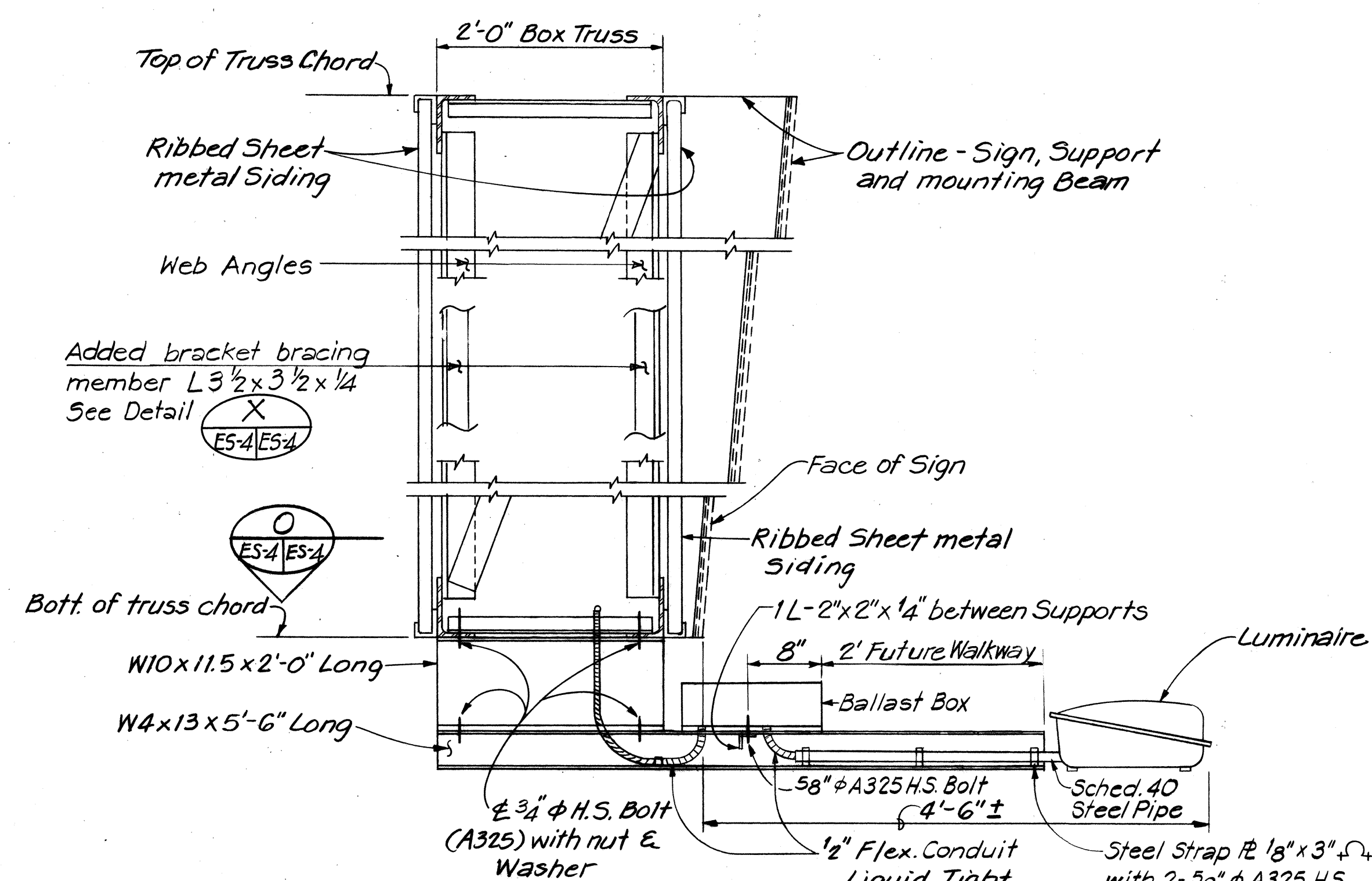
SIGN E-33 ELEVATION
Scale: 1" = 10'-0"



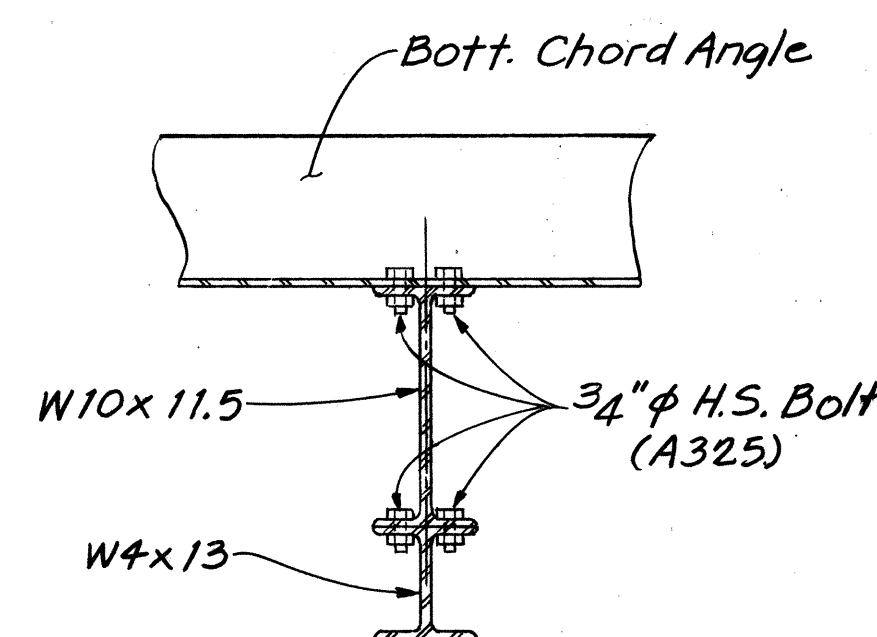
SIGN E-34 ELEVATION
Scale: 1" = 10'-0"



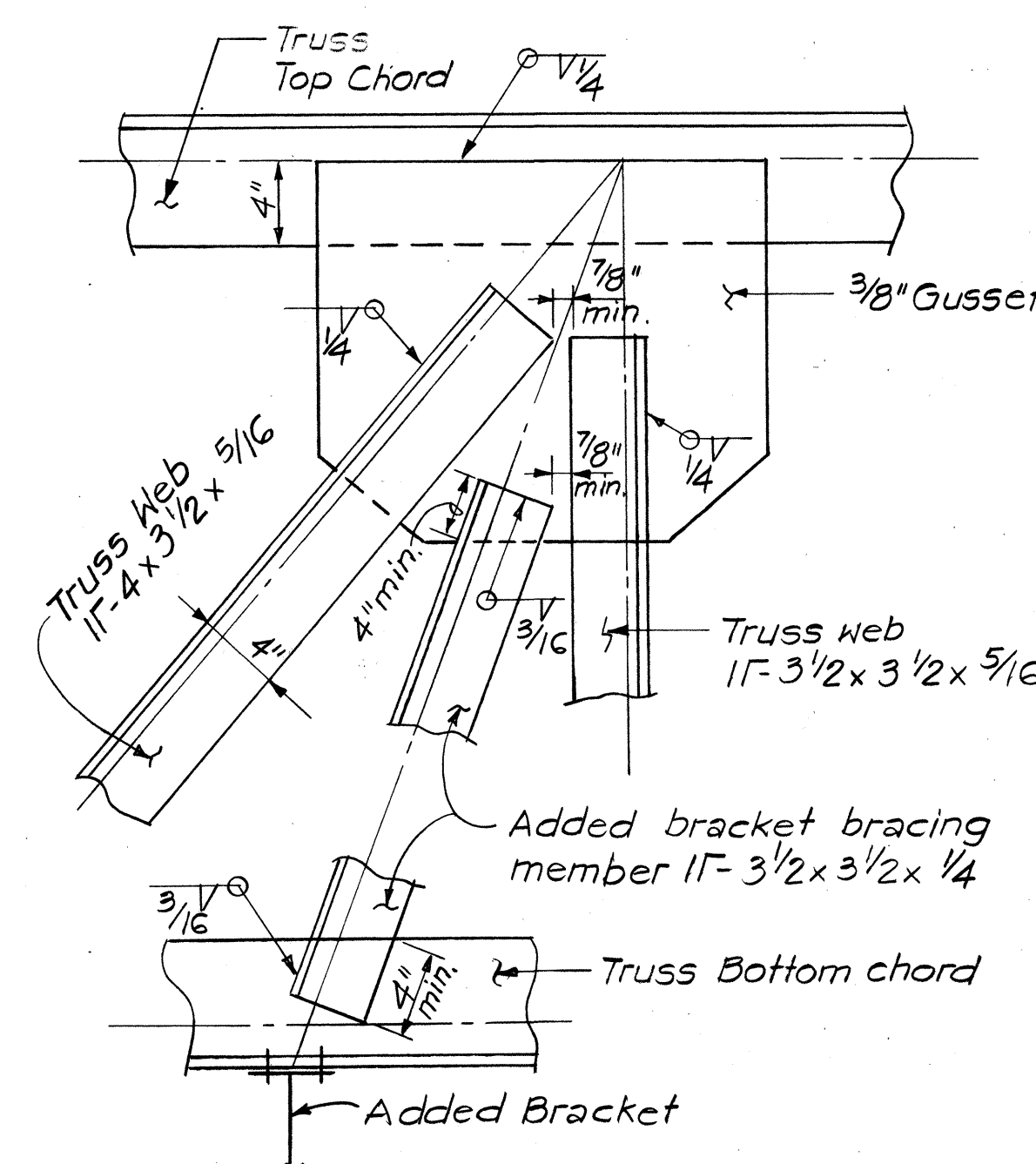
SECTION O ES-4/ES-4
Scale: 1 1/2" = 1'-0"



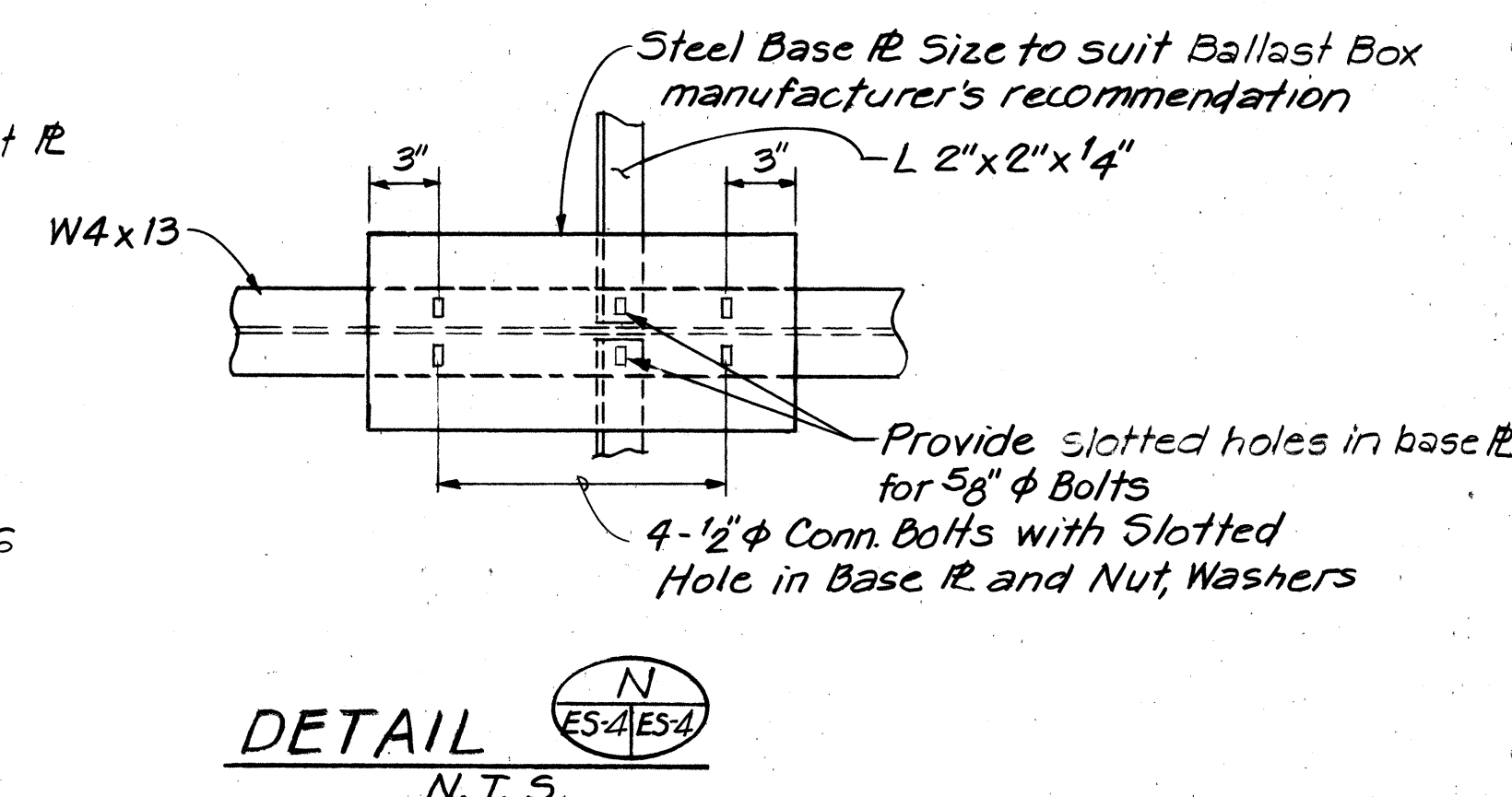
DETAIL M ES-4/ES-4 - TYPICAL SIGN LUMINAIRE AND WALKWAY SUPPORT DETAILS
Scale: 1" = 1'-0"



SECTION T ES-4/ES-4
Scale: 3" = 1'-0"



DETAIL X ES-4/ES-4 - Typical Detail where bracket bracing member added between panel points of truss chord.
Scale: 1 1/2" = 1'-0"

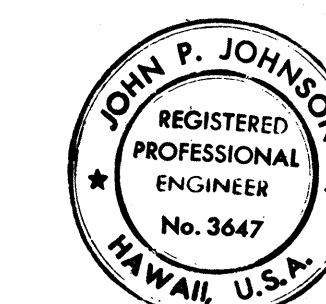


DETAIL N ES-4/ES-4
N.T.S.

NOTES:

1. For General Notes see Sheet No. ES-1
2. Locations of Sign Luminaires and Walkway Brackets may be adjusted to avoid any interference with bottom wind bracing subject to the Approval of the Engineer.
3. Load of walkway and railing on each bracket shall not exceed 375 Lbs.
4. Live load on each bracket = 500 Lbs.

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
CHECKED BY	_____
NO.	_____



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John P. Johnson

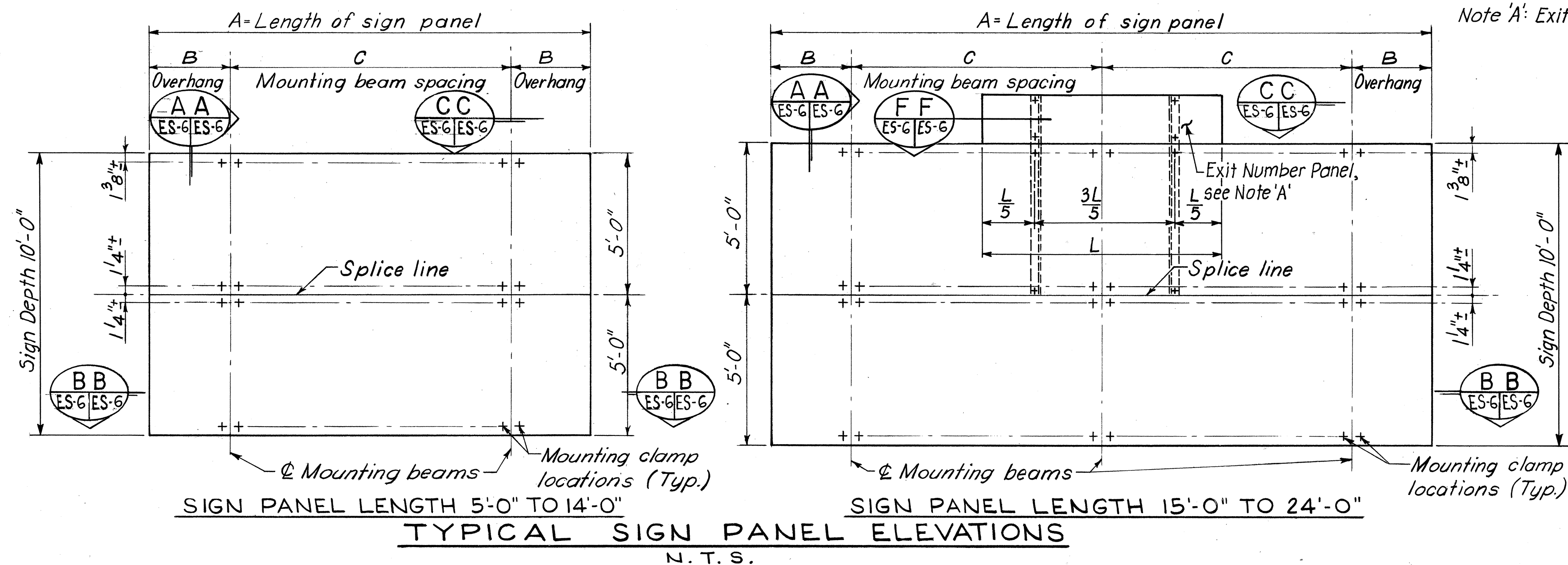
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOX BEAM CLOSED TRUSS
TRUSS DETAILS

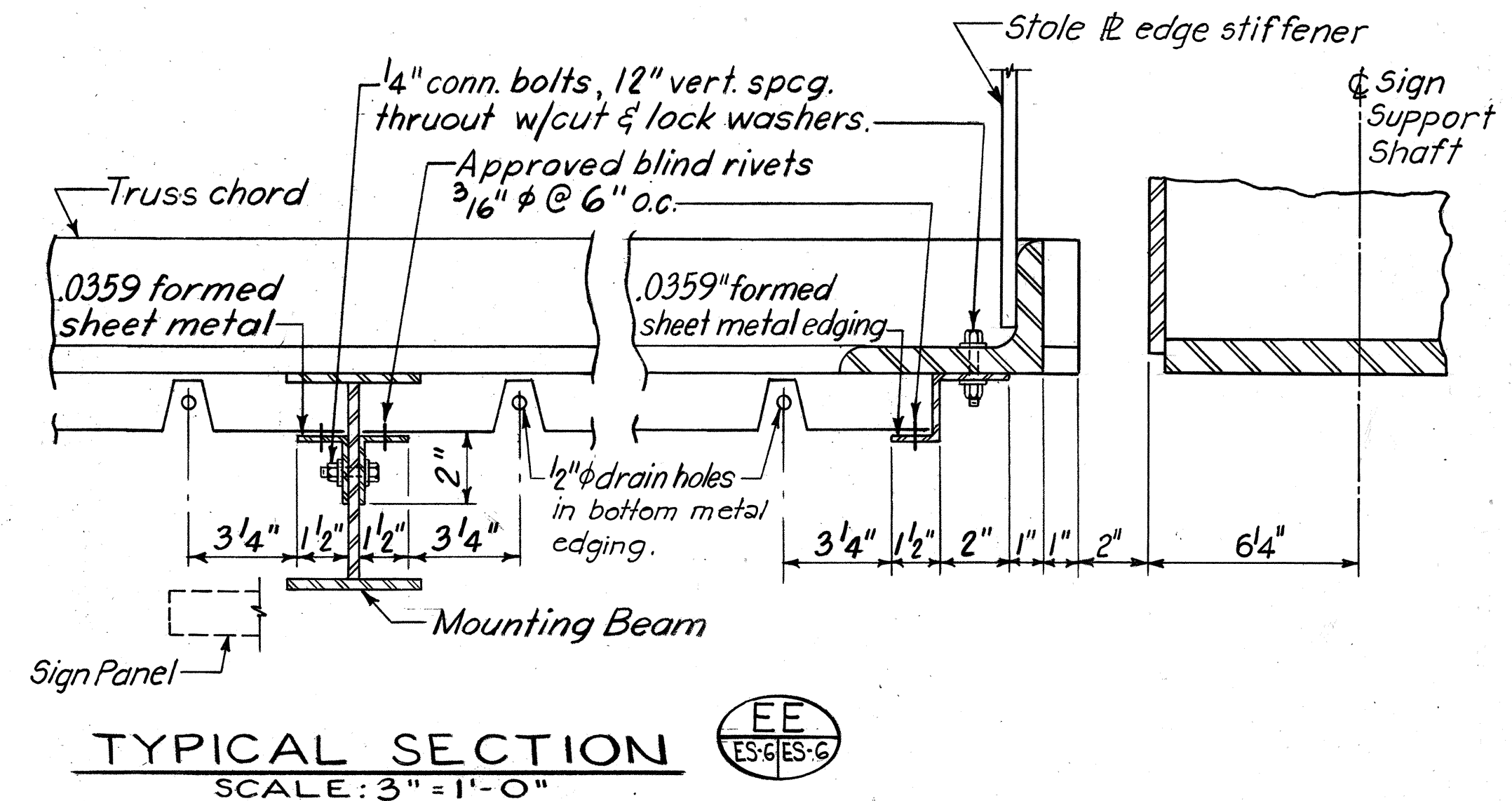
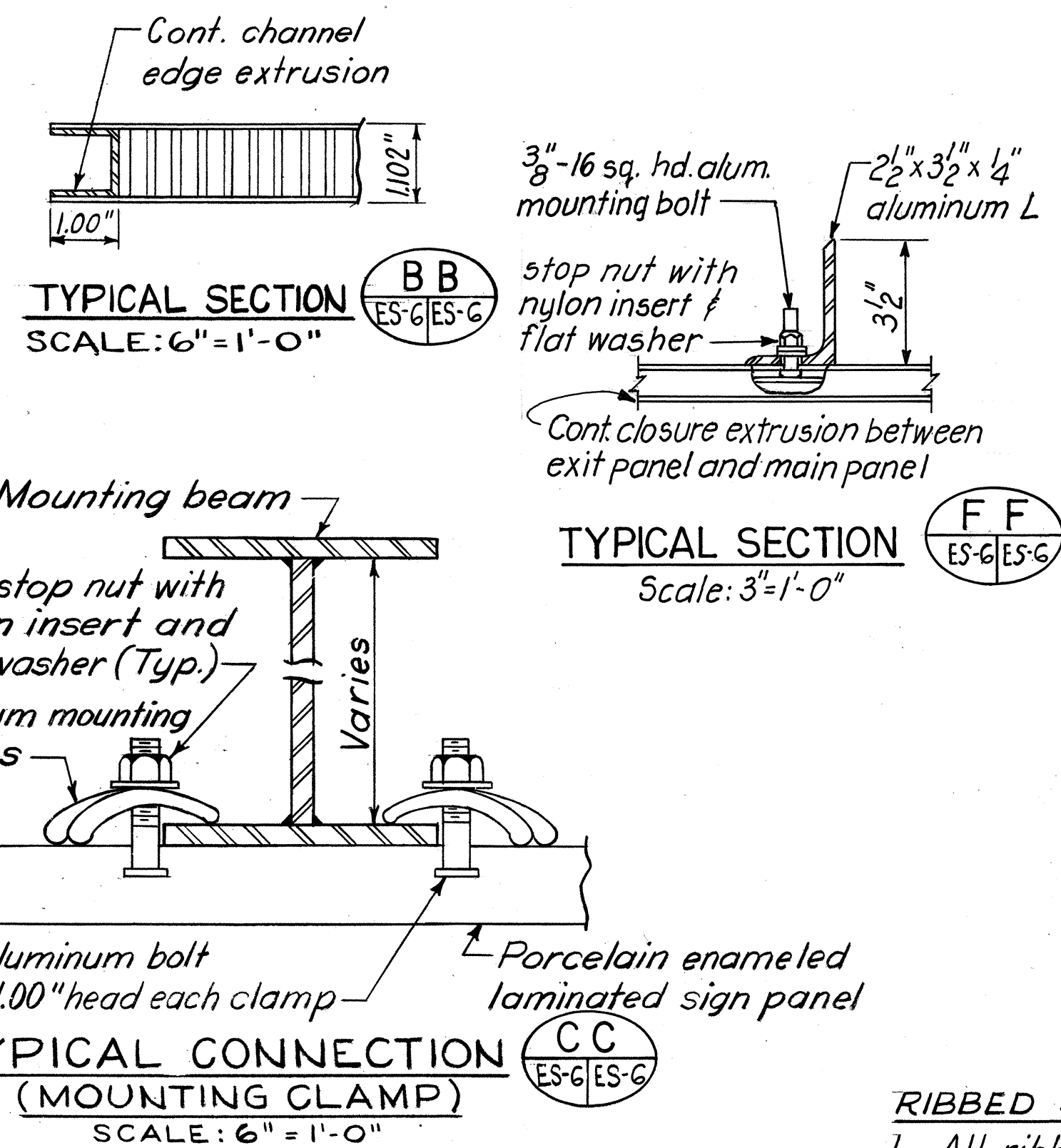
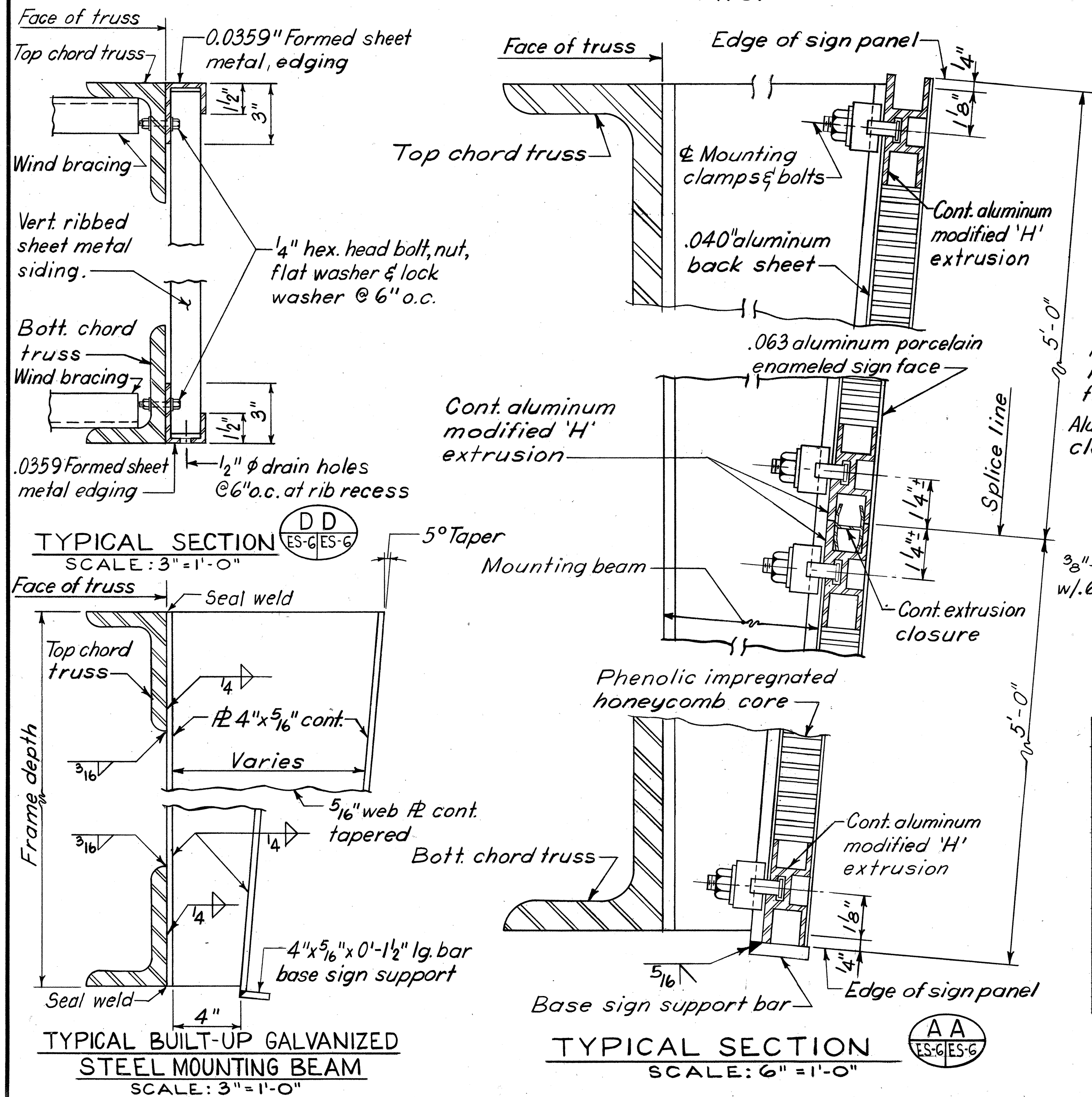
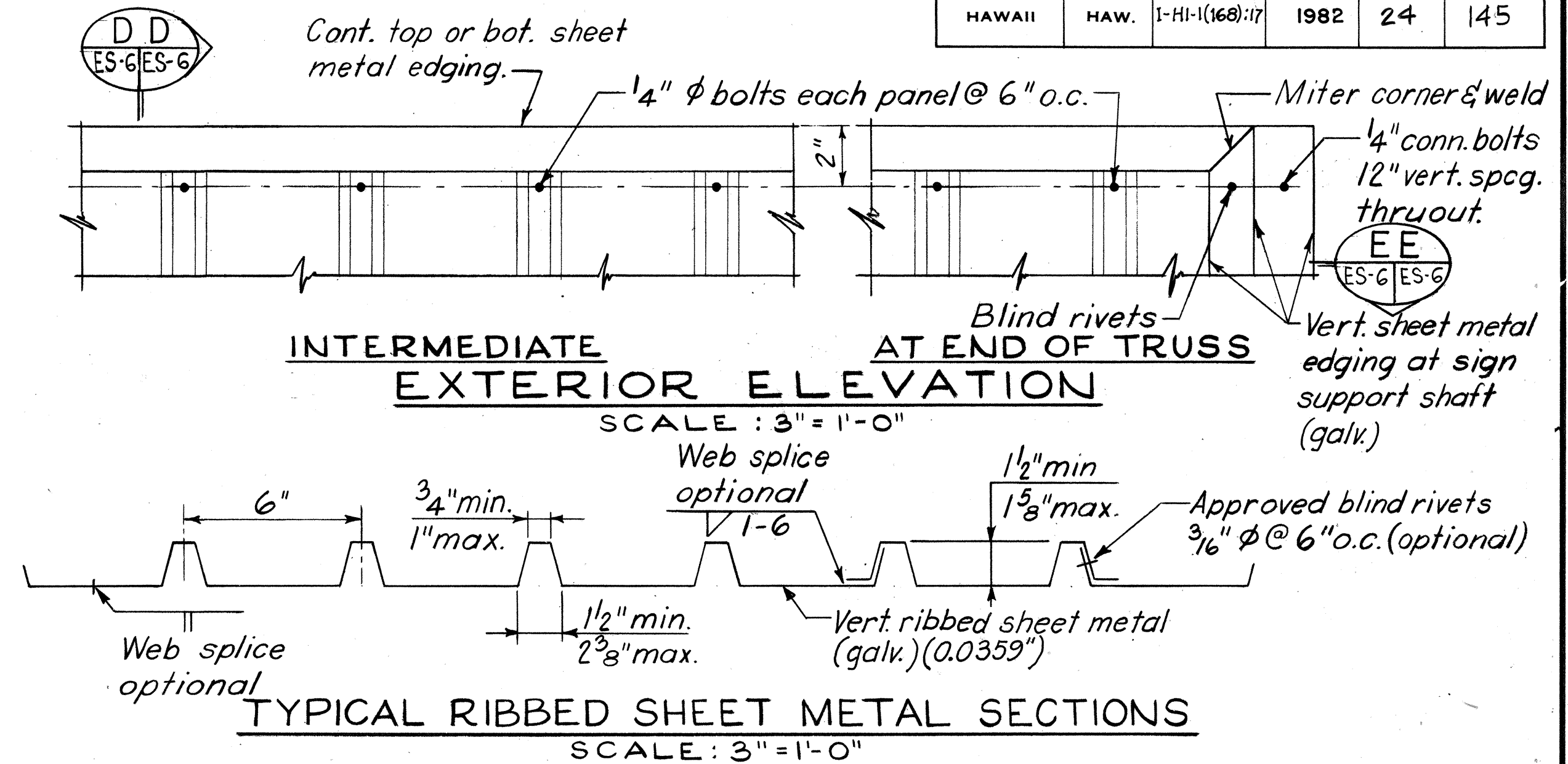
KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1 (168) 17
SCALE: AS NOTED DATE: 8/17/81

SHEET NO. ES-4 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(168):17	1982	24	145



Note 'A': Exit Number Panels (where required) to be of same material as main sign panels.



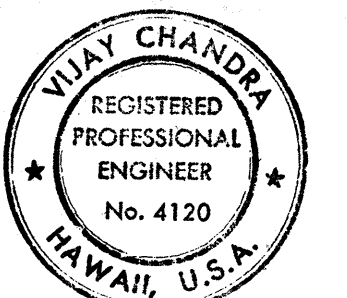
RIBBED SHEET METAL NOTES

- All ribbed sheet metal and formed edging shall be galvanized steel conforming to ASTM Designation: A446, Grade A; G165 Coating Designation in conformance with ASTM Designation: A525.
- Connection bolts, nuts and washers to be galvanized steel ASTM A307

SIGN PANEL MOUNTING NOTES

- Laminated panel sign depths more than 60" require additional mounting clamps located 14"± ea. side of panel splice line. Exact location is dependent on sign panel manufacturer.
- Torque aluminum sign panel mounting bolt to 100 in.-lbs.

MOUNTING BEAM SCHEDULE			
SIGN PANEL LENGTH	NUMBER MOUNTING BEAMS	SIGN PANEL OVERHANG	MOUNTING BEAM SPACING
A	B	C	
14'-0"	2	2'-0"	10'-0"
17'-0"	3	1'-0"	7'-6"
19'-0"	3	1'-0"	8'-6"



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Vijay Chandra
Signature

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNS E-33 AND E-34

TYPICAL SIGN PANEL MOUNTING & RIBBED SHEET METAL SIDING DETAILS

KEEHI INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(168):17
SCALE: AS NOTED
DATE: 8/17/81

SHEET No. ES-6 OF 6 SHEETS