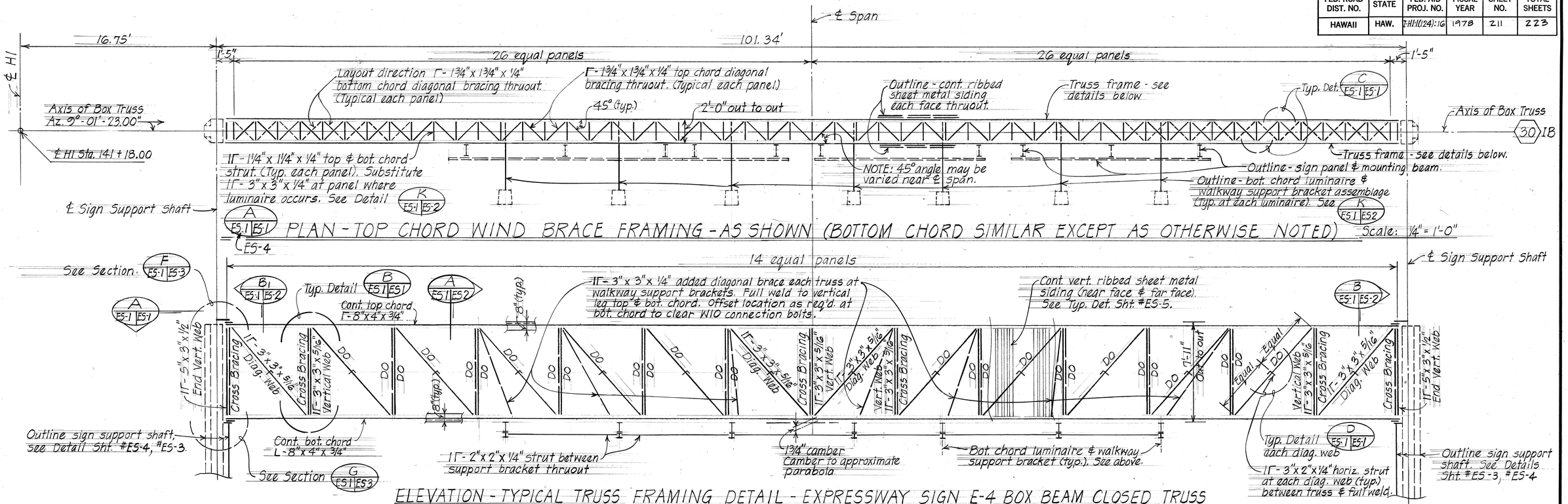
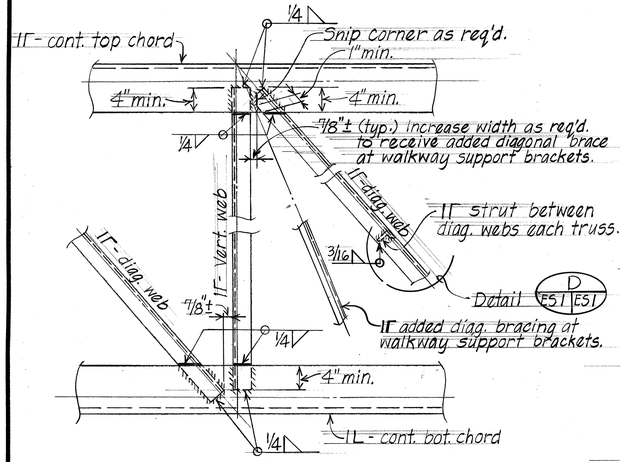
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(124):16	1978	211	223



ELEVATION - TYPICAL TRUSS FRAMING DETAIL - EXPRESSWAY SIGN E-4 BOX BEAM CLOSED TRUSS

Scale: ¼" = 1'-0"



TYPICAL DETAIL B ES-1 | ES-1

Scale: 1" = 1'-0"

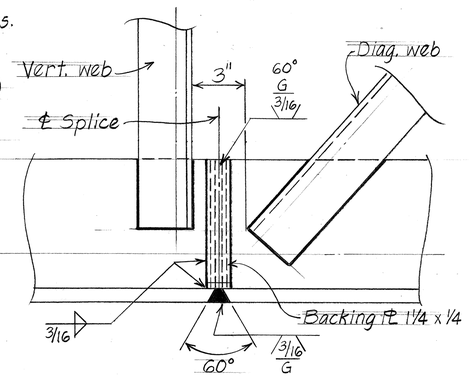
NOTE:

Splice locations of top & bottom chords at each truss shall be staggered & at alternate locations.

Indicate splice locations on shop fabrication drawings for approval.

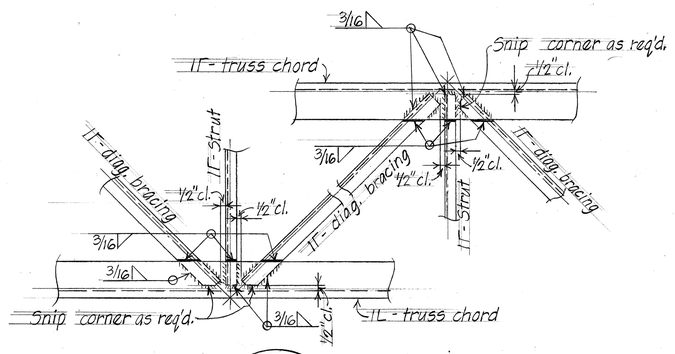
In no case shall splices be located at midspan of truss.

The splice shall be located so as not to interfere with mounting the light fixture brackets.



INTERIOR ELEVATION - TYPICAL TOP OR BOTTOM TRUSS CHORD SPLICE DETAILS

Scale: 3" = 1'-0"



TYPICAL DETAIL C ES-1 | ES-1 WIND BRACE CONNECTION (TOP CHORD AS SHOWN - BOTT. CHORD SIMILAR)

Scale: 1½" = 1'-0"

NOTES

1. For General & Design Notes, refer to Sht. #ES-4
2. Luminaire support framing; sign supports & mounting beams, refer to corresponding details Sht. #ES-2, #ES-5.
3. For location of luminaires & sign panels, refer to corresponding highway lighting & sign drawings.
4. Location of luminaire and walkway brackets may be adjusted to avoid any interference with bottom wind bracing, subject to the approval of the Engineer.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE Aug. '78
	DRAWN BY NY	" "
	TRACED BY	" "
NOTE BOOK	DESIGNED BY SA, DCO	" "
No.	QUANTITIES BY	" "
	CHECKED BY GRY	" "

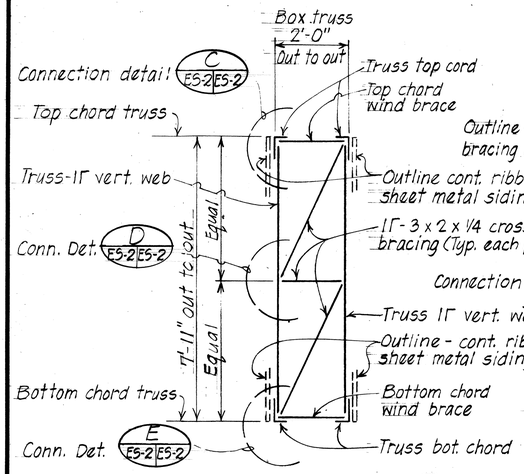
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

EXPRESSWAY SIGN E-4
BOX BEAM CLOSED TRUSS
FRAMING & TRUSS DETAILS

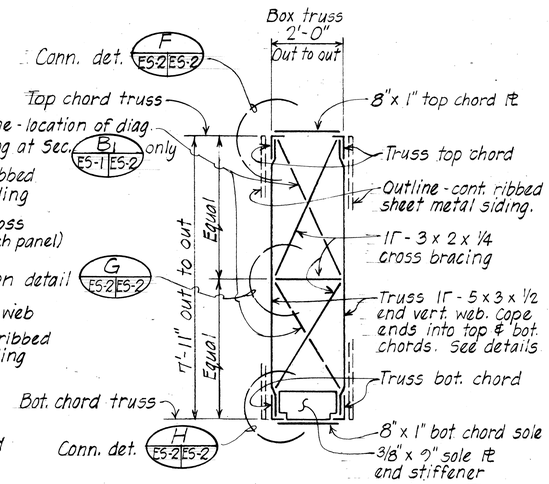
AIRPORT VIADUCT - AIRPORT INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(124):16
Scale: As Noted Date: Aug. 1978

SHEET NO. ES-1 OF 5 SHEETS

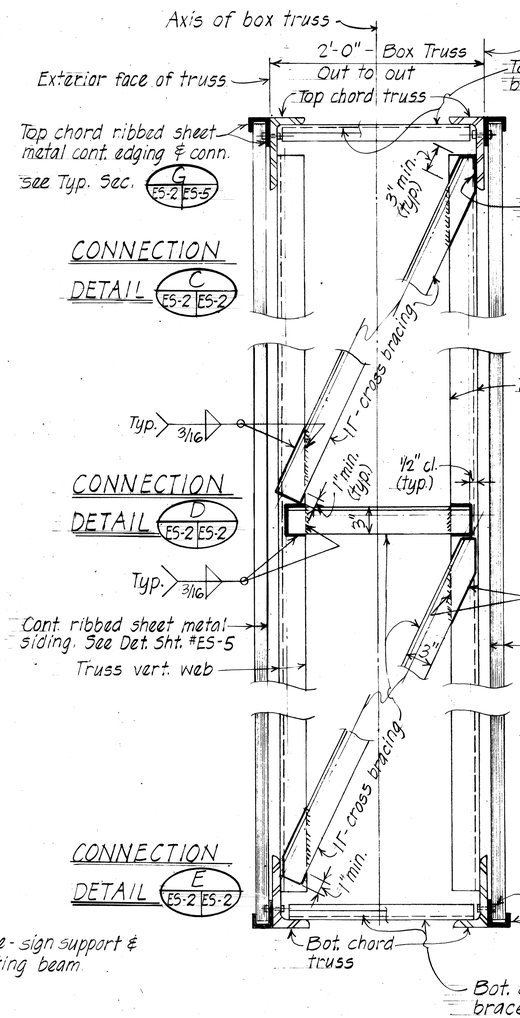
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(124):16	1978	212	223

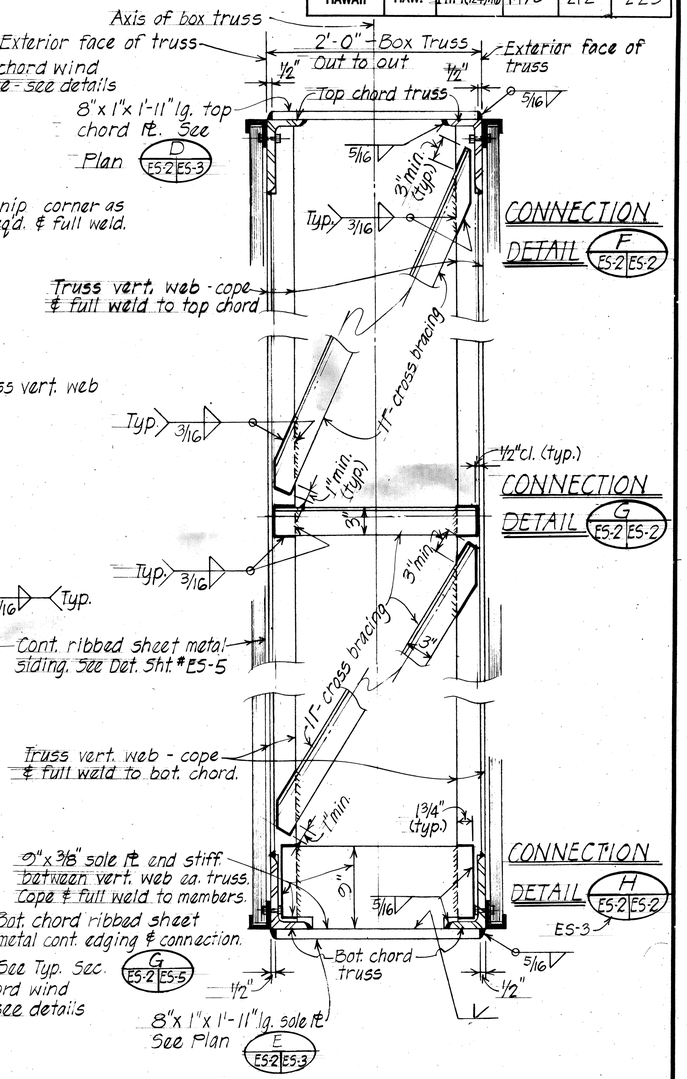


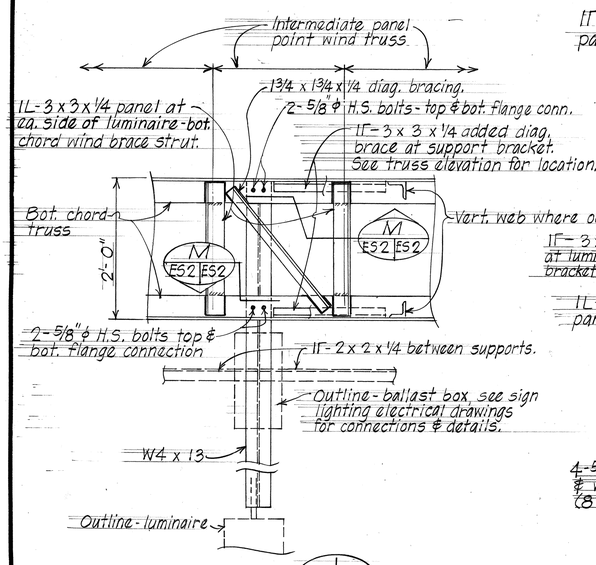
TYPICAL BOX TRUSS SECTION A ES-1 ES-2
(INTERMEDIATE CROSS BRACING DETAILS)
Scale: 1/2" = 1'-0"

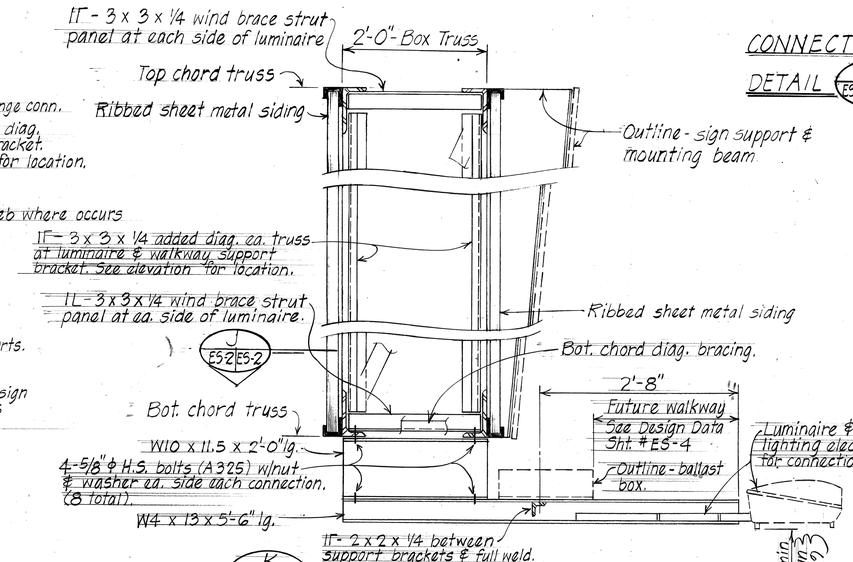


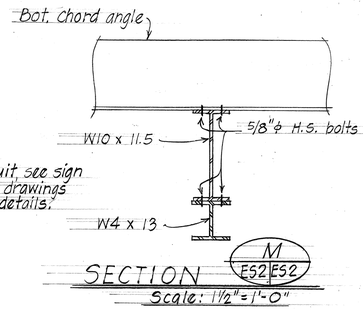
TYPICAL BOX TRUSS END SECTION B ES-1 ES-2 AS SHOWN
(SECTION B1 ES-1 ES-2 SIMILAR EXCEPT AS OTHERWISE NOTED)
(END CROSS BRACING DETAILS)











E 3 Denotes change to ADD. 212 - 12/8/78

DATE	REVISION
12/8/78	Added reference sheet number.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

EXPRESSWAY SIGN E-4
BOX BEAM CLOSED TRUSS
FRAMING DETAILS

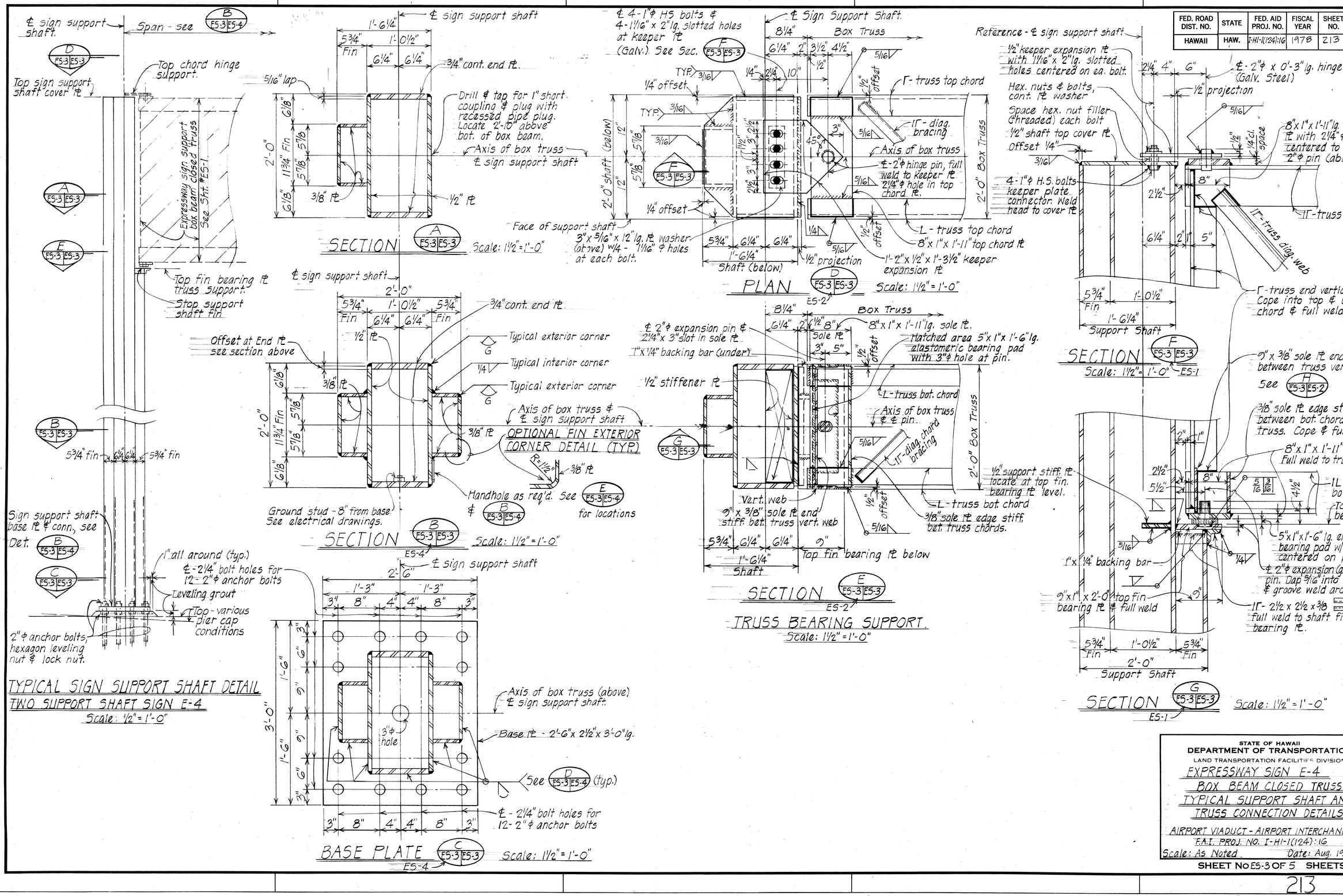
AIRPORT VIADUCT - AIRPORT INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(124):16
Scale: As Noted Date: Aug. 1978

SHEET NO. ES-2 OF 5 SHEETS

ORIGINAL PLAN		DATE	Aug. '78
		SURVEY PLOTTED BY	N.Y.
		DRAWN BY	"
		TRACED BY	"
NOTE BOOK		DESIGNED BY	SA. DCO
No.		QUANTITIES BY	"
		CHECKED BY	CRT

ADD. 212

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(124):16	1978	213	223



ORIGINAL PLAN		
NOTE BOOK	No.	

SURVEY PLOTTED BY		
DRAWN BY	NY	DATE AUG '78
TRACED BY	"	"
DESIGNED BY	SA, DGO	"
QUANTITIES BY	"	"
CHECKED BY	CRY	"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

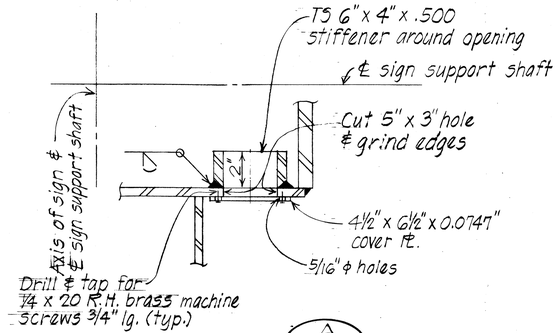
EXPRESSWAY SIGN E-4
BOX BEAM CLOSED TRUSS
TYPICAL SUPPORT SHAFT AND TRUSS CONNECTION DETAILS

AIRPORT VIADUCT - AIRPORT INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(124):16
Scale: As Noted Date: Aug. 1978

SHEET NO ES-3 OF 5 SHEETS

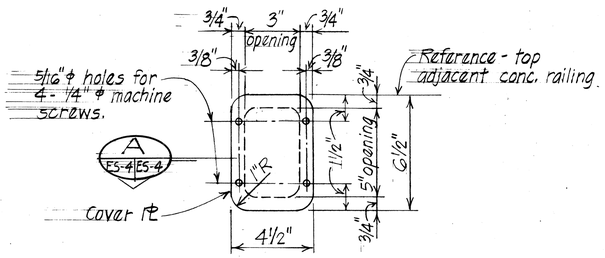
213

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(124):16	1978	214	223



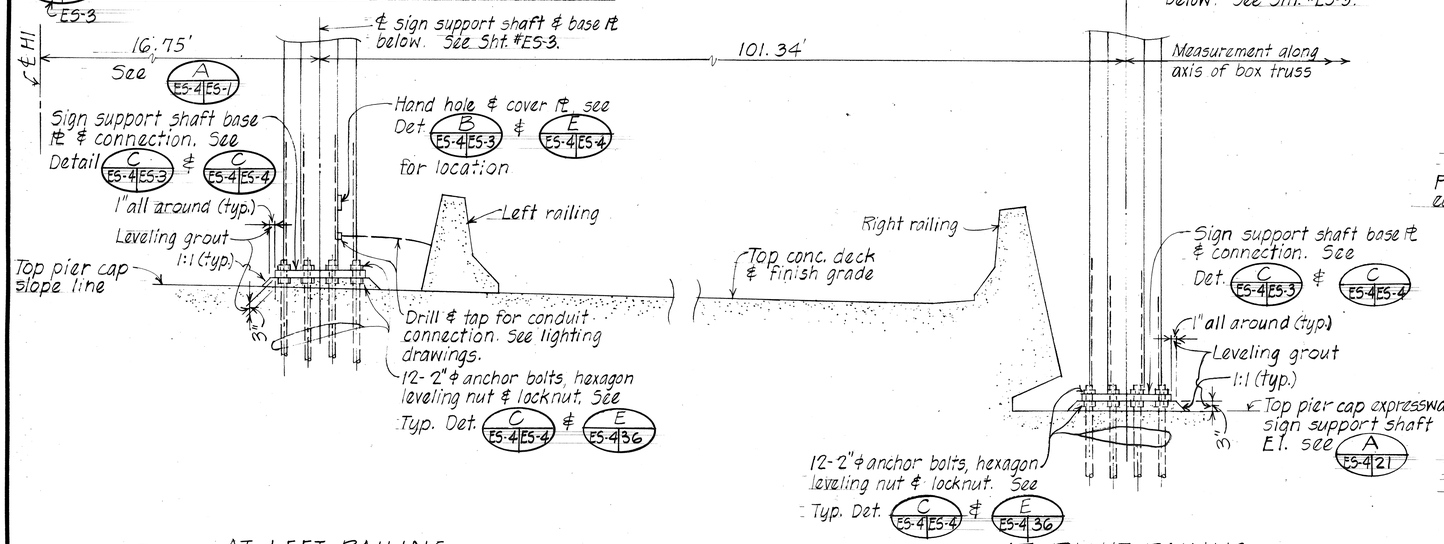
SECTION (A ES-4 | ES-4) Scale: 3" = 1'-0"

NOTE: For location of handhole at sign support shaft, see (B ES4 | ES4)



ELEVATION

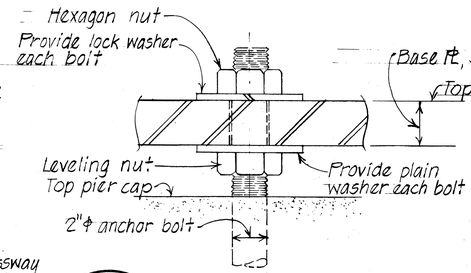
(E ES-4 | ES-4) HAND HOLE & COVER PL DETAILS



AT LEFT RAILING — AT RIGHT RAILING

(B ES-4 | ES-4) ES-3 ELEVATION - TWO SUPPORT SHAFT BASE & LOCATION DETAILS - AT SIGN E-4

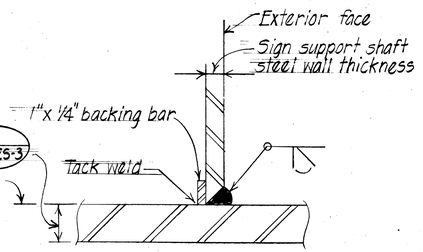
Scale: ½" = 1'-0"



(C ES-4 | ES-4) TYPICAL BASE PL ANCHOR BOLT CONNECTION DETAIL

ES-3, 36

Scale: 3" = 1'-0"



(D ES-3 | ES-4) TYPICAL SIGN SUPPORT SHAFT BASE CONNECTION DETAILS

Not to Scale

GENERAL NOTES

MATERIALS:

1. Expressway 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 & Sht. #ES-5.
2. Galvanized surfaces of expressway sign frame & supports, note-1 above shall be painted - see specifications. Pigment for final coats of exterior weatherproof enamel paints 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.

RIBBED SHEET METAL NOTES:

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

CONSTRUCTION METHOD:

1. See Standard Specifications for Road & Bridge Construction, 1976 Edition & Design Note above.

DESIGN:

AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, dated 1975.

DESIGN DATA:

Wind Loading: Normal to face of sign = 38 psf (75 mph wind)
Transverse to face of sign = 0.2 of normal force.
Walkway & Railing Load: 375 lb. max.
L.L. each bracket = 500#
Ice Load: None
Structural Steel: ASTM A-36 fy = 36,000 psi.
Anchor Bolts: ASTM A-354 GR BB.

WELDING:

All welding to be continuous welds except as otherwise noted on the plans.

GENERAL:

1. Overhead expressway sign support E-4 shall be paid as described in the special provisions.

REFERENCE:

1. Refer to Sht. #T-1, for General Notes, Symbols & Abbreviations not covered by these drawings.
2. Refer to civil drawings for location layout plans of the expressway sign..

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE AUG. '78
NOTE BOOK	DRAWN BY NZ	"
No.	TRACED BY	"
	DESIGNED BY SA, DO	"
	QUANTITIES BY	"
	CHECKED BY CRY	"

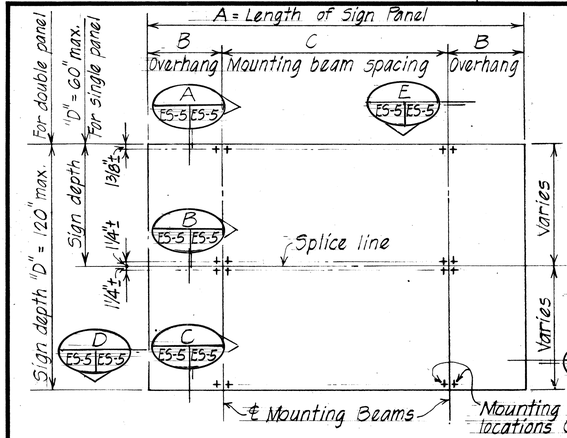
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

EXPRESSWAY SIGN E-4
BOX BEAM CLOSED TRUSS
TWO SUPPORT SHAFT LOCATION & DETAILS
GENERAL NOTES

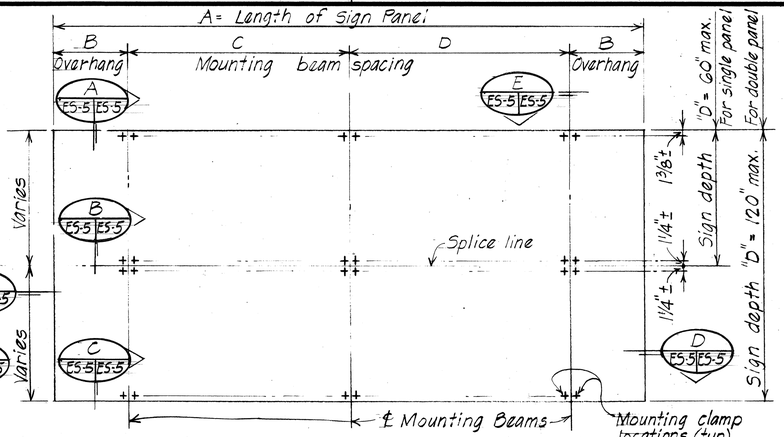
AIRPORT VIADUCT - AIRPORT INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(124):16
Scale: As Noted Date: Aug. 1978

SHEET NO ES-4 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(124):16	1978	215	223

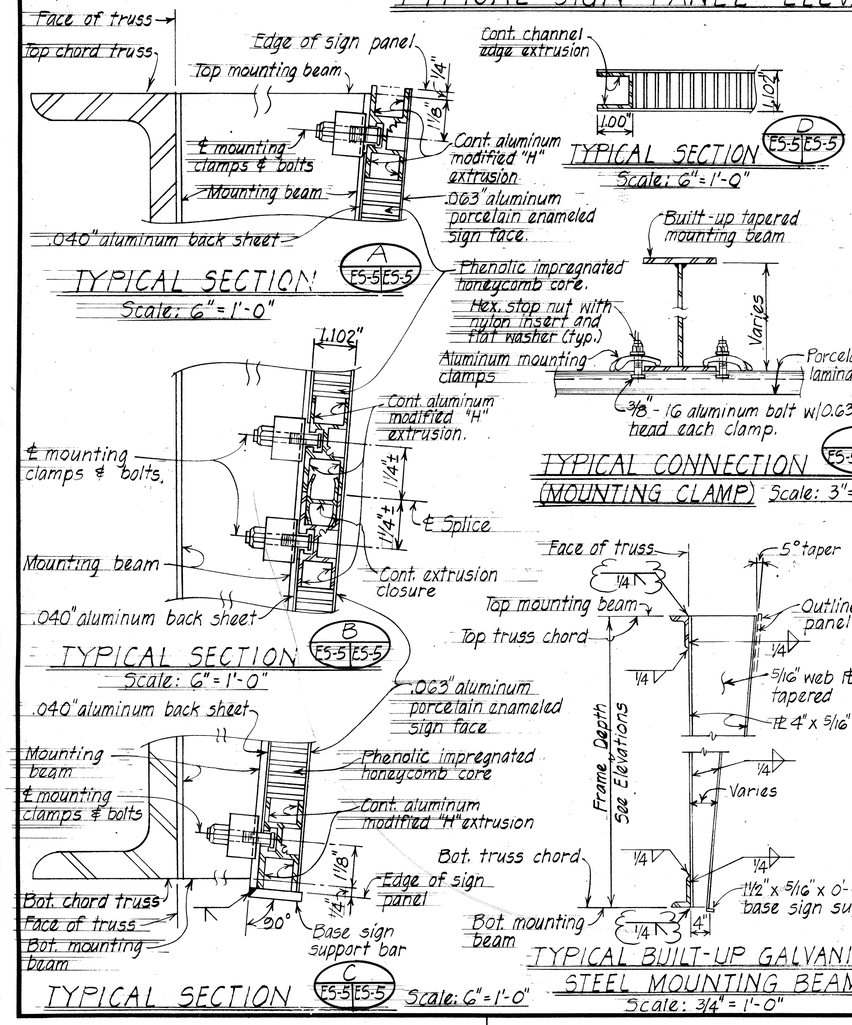


SIGN PANEL LENGTH 5'-0" TO 14'-0"



SIGN PANEL LENGTH 15'-0" TO 24'-0"

TYPICAL SIGN PANEL ELEVATIONS Not to Scale



TYPICAL SECTION A FS-5 ES-5 Scale: 6" = 1'-0"

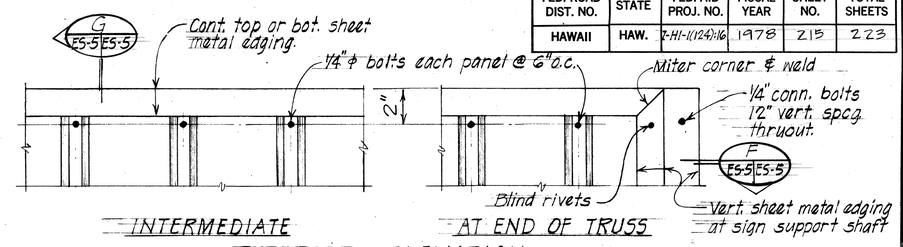
TYPICAL SECTION D FS-5 ES-5 Scale: 6" = 1'-0"

TYPICAL CONNECTION (MOUNTING CLAMP) E FS-5 ES-5 Scale: 3" = 1'-0"

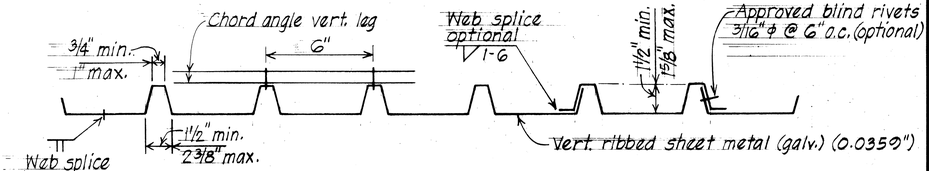
TYPICAL SECTION B FS-5 ES-5 Scale: 6" = 1'-0"

TYPICAL SECTION C FS-5 ES-5 Scale: 6" = 1'-0"

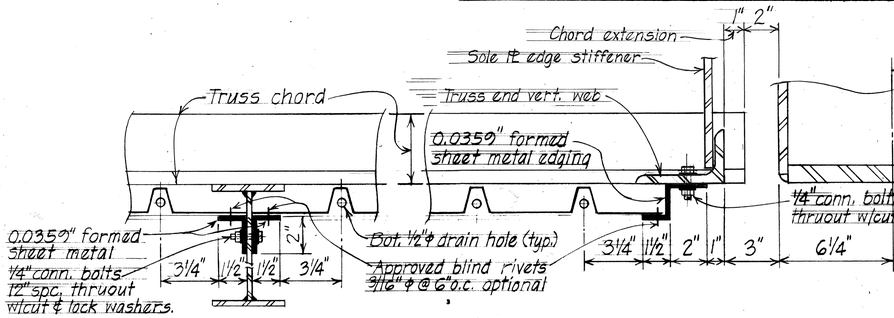
TYPICAL BUILT-UP GALVANIZED STEEL MOUNTING BEAM Scale: 3/4" = 1'-0"



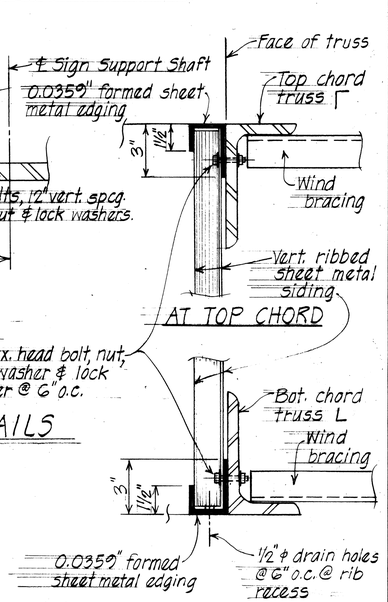
EXTERIOR ELEVATION Scale: 3" = 1'-0"



TYPICAL RIBBED SHEET METAL SECTIONS Scale: 3" = 1'-0"



AT MOUNTING BEAM



END AT SIGN SUPPORT SHAFT

TYPICAL SECTION F FS-5 ES-5 Scale: 3" = 1'-0"

TYPICAL SECTION G FS-5 ES-5 Scale: 3" = 1'-0" ES-2

TYPICAL GALVANIZED RIBBED SHEET METAL SIDING AND CONNECTION DETAILS

MOUNTING BEAM SCHEDULE

SIGN PANEL LENGTH * A	NUMBER MOUNTING BEAMS	SIGN PANEL OVERHANG B	MOUNTING BEAM SPACING C	D
6'-0"	2	6"	5'-0"	
7'-0"	2	12"	5'-0"	
8'-0"	2	12"	6'-0"	
9'-0"	2	12"	7'-0"	
10'-0"	2	18"	7'-0"	
11'-0"	2	18"	8'-0"	
12'-0"	2	24"	8'-0"	
13'-0"	2	24"	9'-0"	
13'-6"	2	24"	9'-6"	
14'-0"	2	24"	10'-0"	
15'-0"	3	6"	7'-0"	7'-0"
16'-0"	3	6"	7'-6"	7'-6"
17'-0"	3	12"	7'-6"	7'-6"
18'-0"	3	12"	8'-0"	8'-0"
19'-0"	3	12"	8'-6"	8'-6"
20'-0"	3	18"	8'-6"	8'-6"
21'-0"	3	18"	9'-0"	9'-0"
22'-0"	3	24"	9'-0"	9'-0"
23'-0"	3	24"	9'-6"	9'-6"
24'-0"	3	24"	10'-0"	10'-0"

ℰ3 Denotes changes to ADD. 215 - 12/8/78

SIGN PANEL MOUNTING NOTES:

1. *Signs longer than 24' are fabricated and mounted as adjoining single panels.
2. Laminated sign panel depths more than 60" require additional mounting clamps located 1'-4"± ea. side of panel splice line. Exact location is dependent on sign panel manufacturer.
3. Torque aluminum sign panel mounting bolt to 100 in.-Lbs.

DATE	REVISION
12/8/78	Changed weld symbol.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

EXPRESSWAY SIGN E-4
BOX BEAM CLOSED TRUSS
TYPICAL SIGN PANEL MOUNTING AND RIBBED SHEET METAL SIDING DETAILS

AIRPORT VIADUCT - AIRPORT INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(124):16
Scale: As Noted Date: Aug. 1978

SHEET NO ES-5 OF 5 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE Aug. 78
	DRAWN BY NY	" "
	TRACED BY	" "
NOTE BOOK	DESIGNED BY SA, DO	" "
No.	QUANTITIES BY	" "
	CHECKED BY CRT	" "

ADD. 215