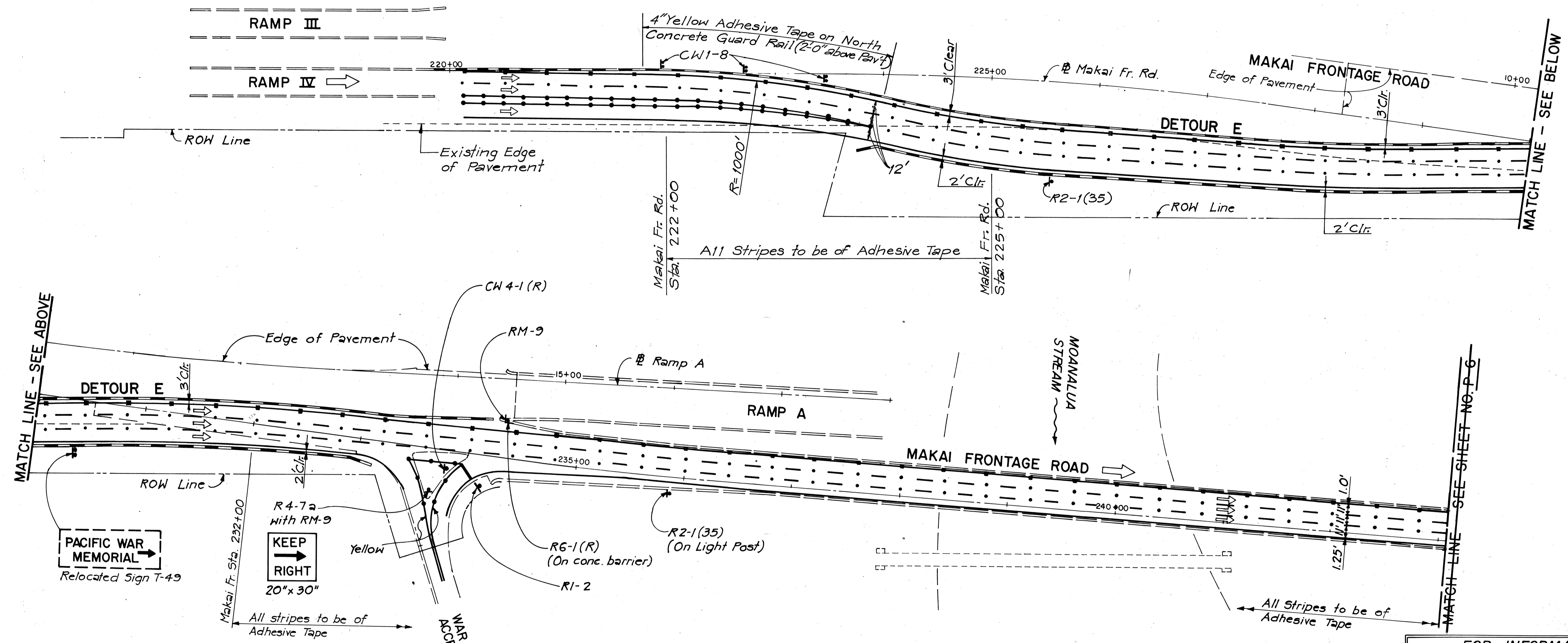


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(132).17	1983	28	122

**NOTES:**  
 1. For General Notes see Sheet No. ~~P-6~~.

- LEGEND**
- 4" White Stripe (unless shown otherwise)
  - 8" White Stripe with Type C Markers @ 20'
  - 4" Yellow Stripe with Type H Markers @ 40'
  - 4" Double Yellow Stripe with Type H Markers @ 20'
  - - - 4" White Stripe, 10' long, with Type C Markers @ 40'
  - 4" Type A Markers & Type C Markers @ 40'
  - Type C Markers @ 40'
  - 12" White Stop Line
  - - - 4" White Guide Line (unless shown otherwise)
  - ◀ ▶ New or Relocated Sign
  - ◊ Pavement Diamond
  - Standard Pavement Arrows
  - ▬ Crosswalk & Stop Line
  - ⊥ Reflector Marker, Type RM-1
  - ⊥ Reflector Marker, Type RM-2
  - △ Traffic Delineator (Tube)
  - ▬ Type III Barricade
  - ▬ Portable Concrete Guard Rail
  - ← Direction of Traffic
  - ▨ Rumble Strip (See Detail Sheet No. —)

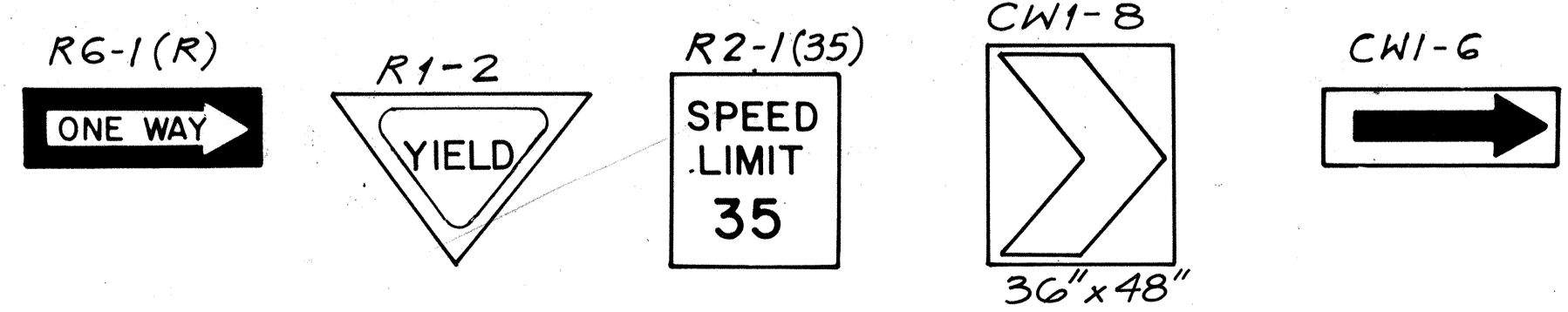
TRUE NORTH  
 SCALE: 1" = 50'



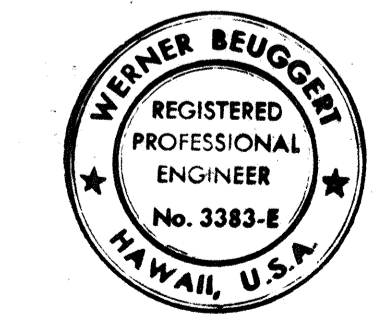
MATCH LINE - SEE ABOVE

MATCH LINE - SEE SHEET NO. P-6

SURVEY PLOTTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 NO. \_\_\_\_\_



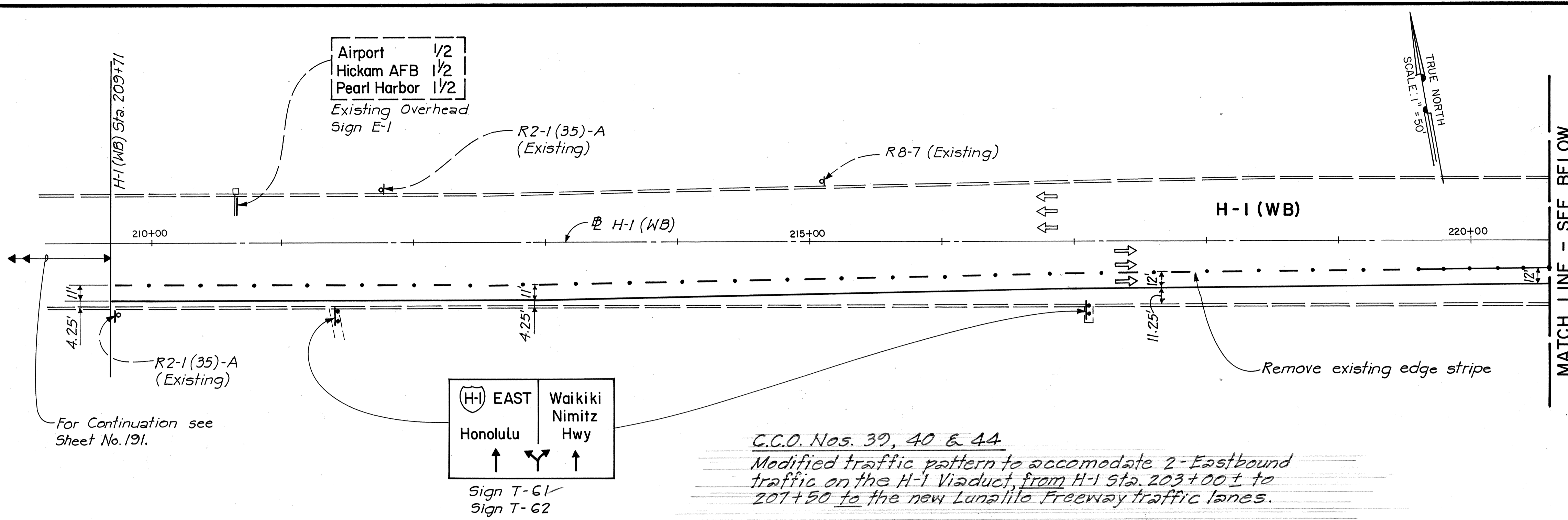
**N. I. C.**  
 ALL WORK ON THIS SHEET  
 WILL BE PERFORMED BY OTHERS.



THIS WORK WAS PREPARED BY  
 ME OR UNDER MY SUPERVISION  
*Werner Beugger*

FOR INFORMATION ONLY NOT FOR CONSTRUCTION	
7/15/83	Revised Detour E Alignment. Deleted Detour F.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION TRAFFIC PATTERN <sup>®</sup> <b>SIGNING &amp; PAVEMENT MARKINGS</b> <b>PHASE I B</b>	
INTERSTATE ROUTE H-1 PROJECT NO. I-HI-1 (133).17	
SCALE: 1" = 50'	DATE: 4/30/81
SHEET NO. P-1 OF P-8 SHEETS	

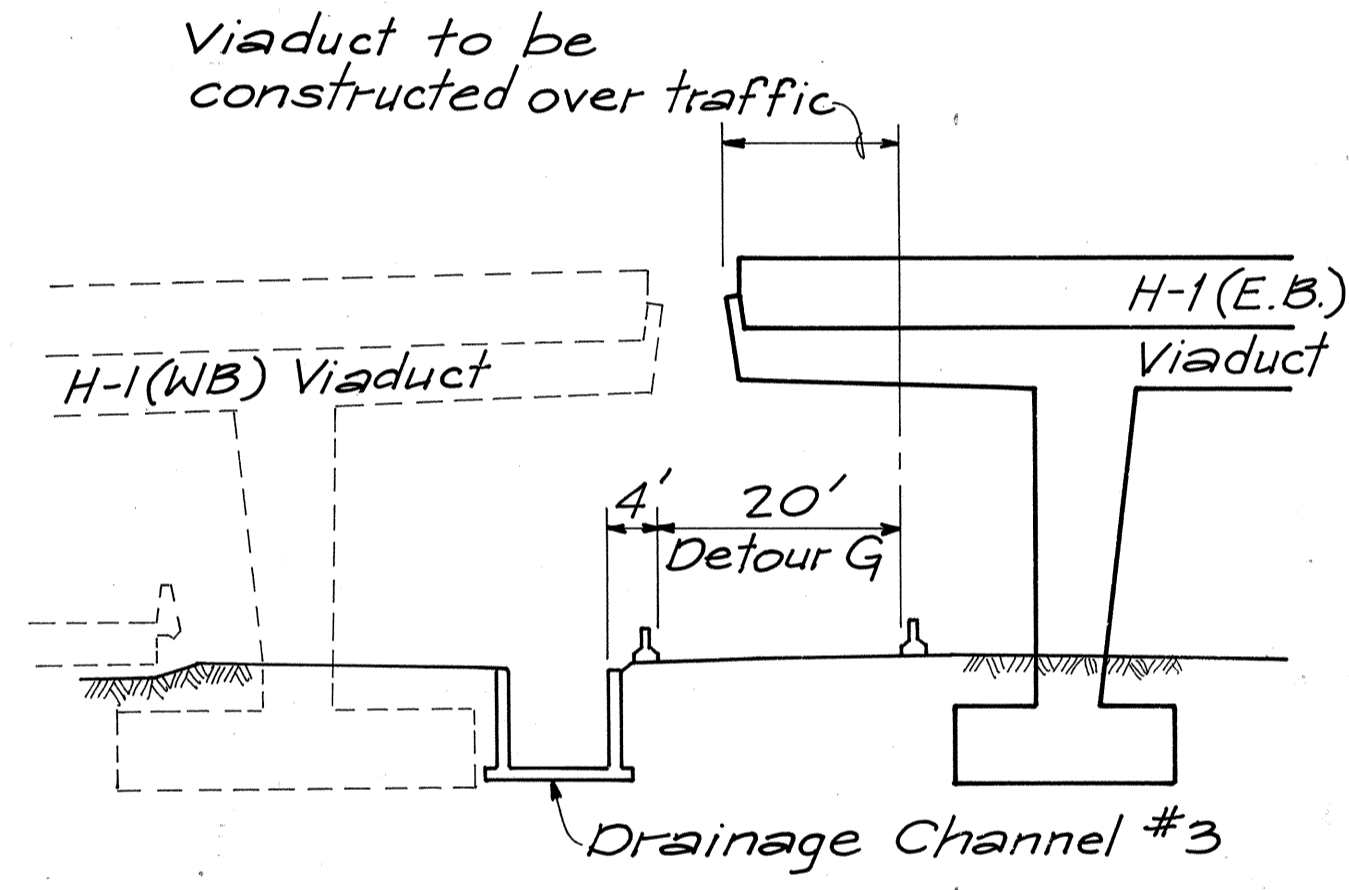
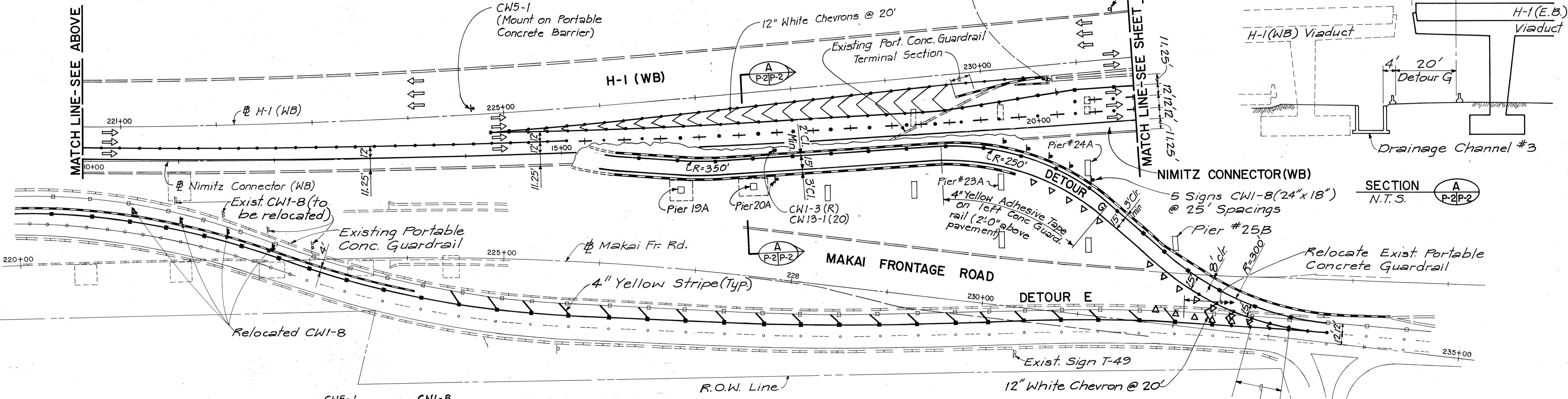
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(132):17	1983	29	192



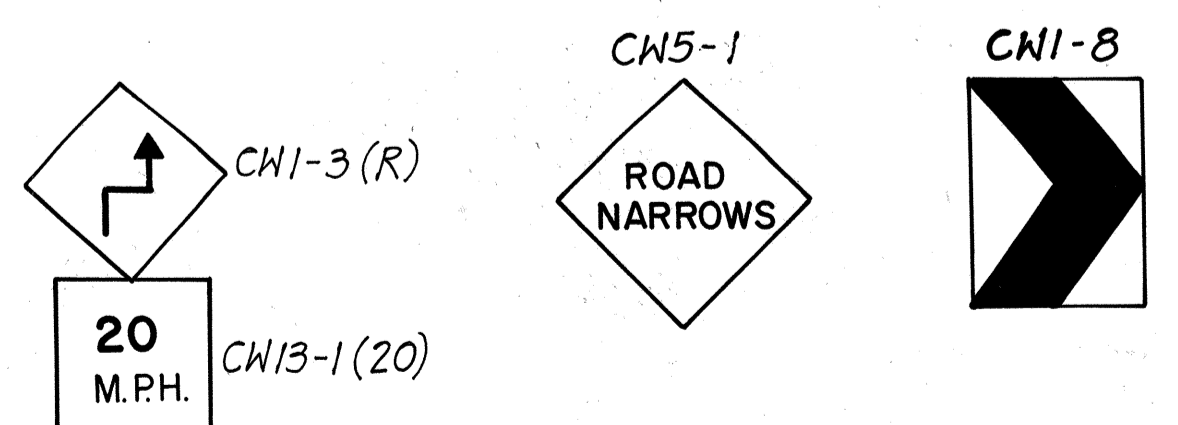
MATCH LINE - SEE BELOW

- NOTES:**
- For General Notes see sheet No. P-4
  - For Legend see Sheet No. P-3
  - Existing Intersection of Lagoon Drive and Frontage Roads:  
The following work related to the right turn lane from Lagoon Drive to Waikiki shall be done at the time of Traffic Pattern Change:
    - Delete the first right turn after the Waikiki Loop Intersection by making the right edge stripe continuous and by placing barricades. (Traffic to Waikiki should then make the right turn under H-1 (WB) Viaduct.)
    - Remove ground mounted destination sign located at east side of Lagoon Drive.

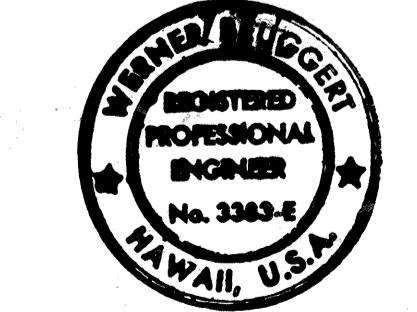
**C.C.O. Nos. 39, 40 & 44**  
Modified traffic pattern to accommodate 2-Eastbound traffic on the H-1 Viaduct, from H-1 Sta. 203+00 to 207+50 to the new Lunalilo Freeway traffic lanes.



SECTION A  
N.T.S. P-2/P-2



DATE	REVISIONS
7/19/84	Added Detour E and Terminal of Detours E and G.



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*Walter Higgins*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
TRAFFIC PATTERN ©  
**SIGNING & PAVEMENT MARKINGS  
PHASE II**

INTERSTATE ROUTE H-1  
PROJECT NO. I-HI-1 (132):17

SCALE: 1" = 50' DATE: 11/16/81  
SHEET No. P-2 OF 8 SHEETS

SURVEY PLOTTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 ORIGINAL PLAN: \_\_\_\_\_  
 TRACED BY: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 NOTE BOOK NO.: \_\_\_\_\_

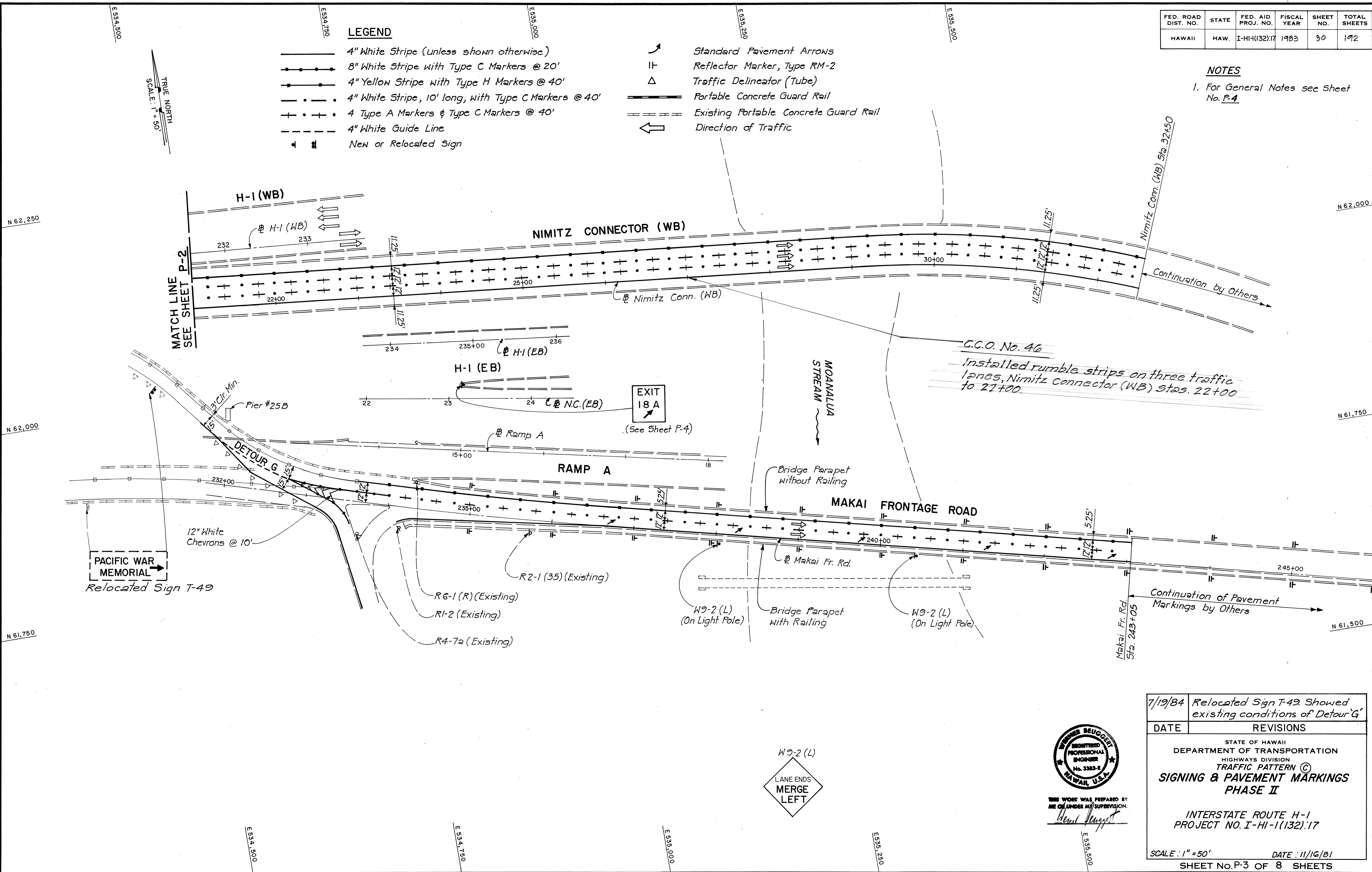
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(132):17	1993	30	192

**NOTES**  
 1. For General Notes see Sheet No. P-4

**LEGEND**

- 4" White Stripe (unless shown otherwise)
- 8" White Stripe with Type C Markers @ 20'
- 4" Yellow Stripe with Type H Markers @ 40'
- . - . 4" White Stripe, 10' long, with Type C Markers @ 40'
- + . + . 4 Type A Markers & Type C Markers @ 40'
- - - - 4" White Guide Line
- ■ New or Relocated Sign
- ↗ Standard Pavement Arrows
- ||-|| Reflector Marker, Type RM-2
- △ Traffic Delineator (Tube)
- Portable Concrete Guard Rail
- - - Existing Portable Concrete Guard Rail
- ← Direction of Traffic

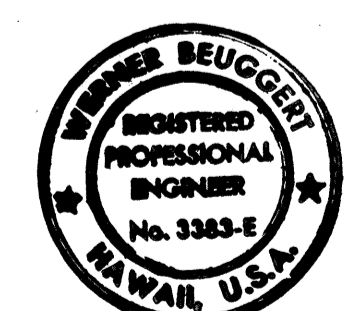
TRUE NORTH  
 SCALE: 1" = 50'



C.C.O. No. 46  
 Installed rumble strips on three traffic lanes, Nimitz Connector (WB) Stas. 22+00 to 27+00.

PACIFIC WAR MEMORIAL  
 Relocated Sign T-49

W3-2 (L)  
 LANE ENDS  
 MERGE LEFT



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 Werner Beugger

DATE	REVISIONS
7/19/84	Relocated Sign T-49. Showed existing conditions of Detour G.

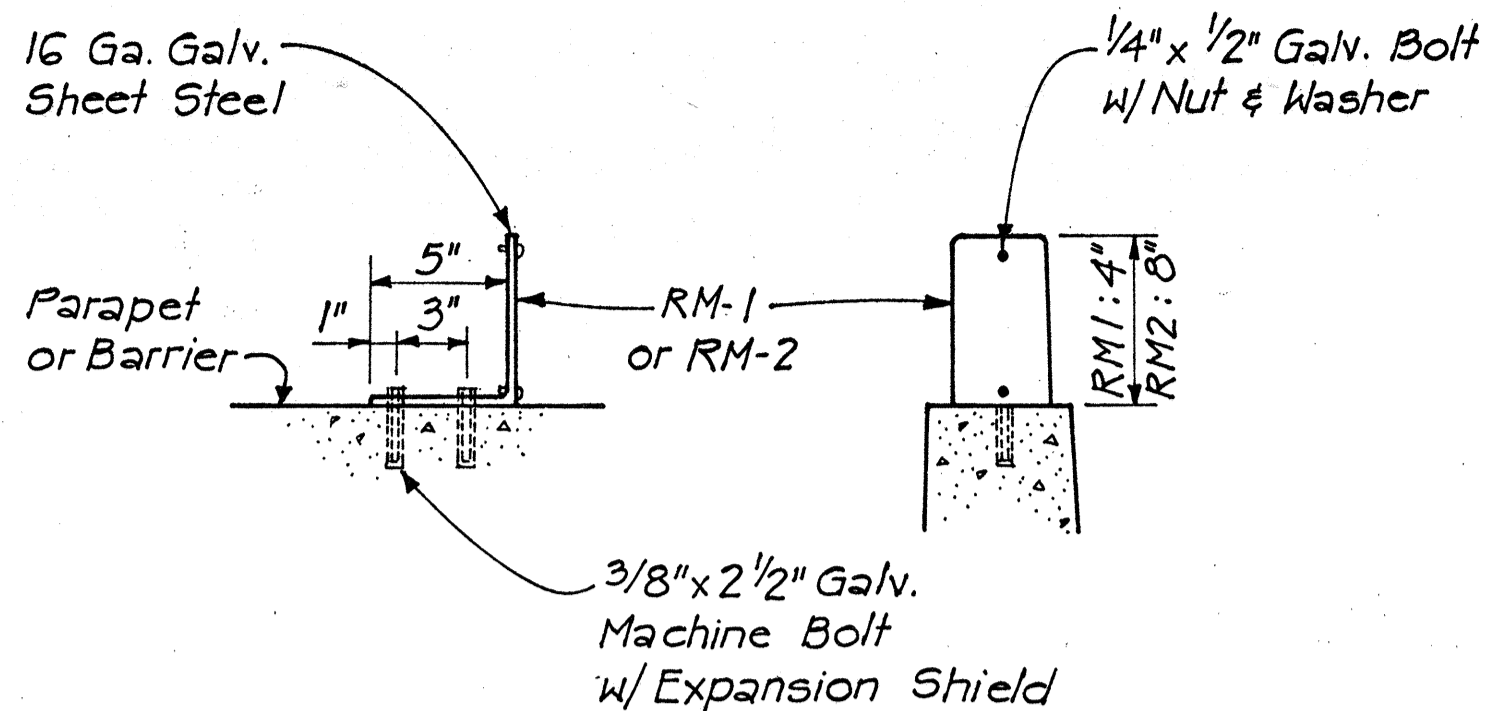
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
 TRAFFIC PATTERN ©  
**SIGNING & PAVEMENT MARKINGS**  
 PHASE II

INTERSTATE ROUTE H-1  
 PROJECT NO. I-HI-1(132):17

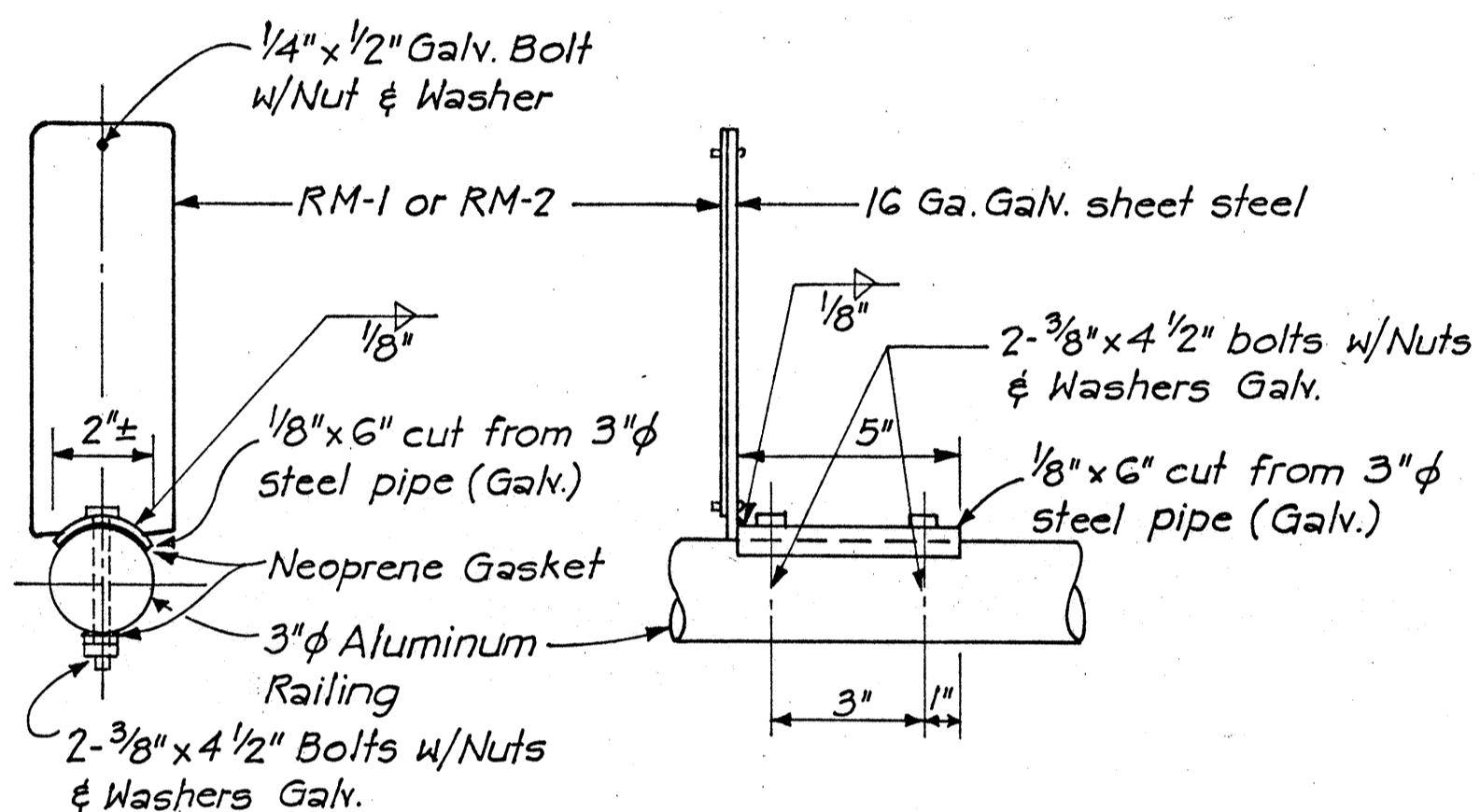
SCALE: 1" = 50' DATE: 11/16/81  
 SHEET No. P-3 OF 8 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(132)-II	1983	31	.192

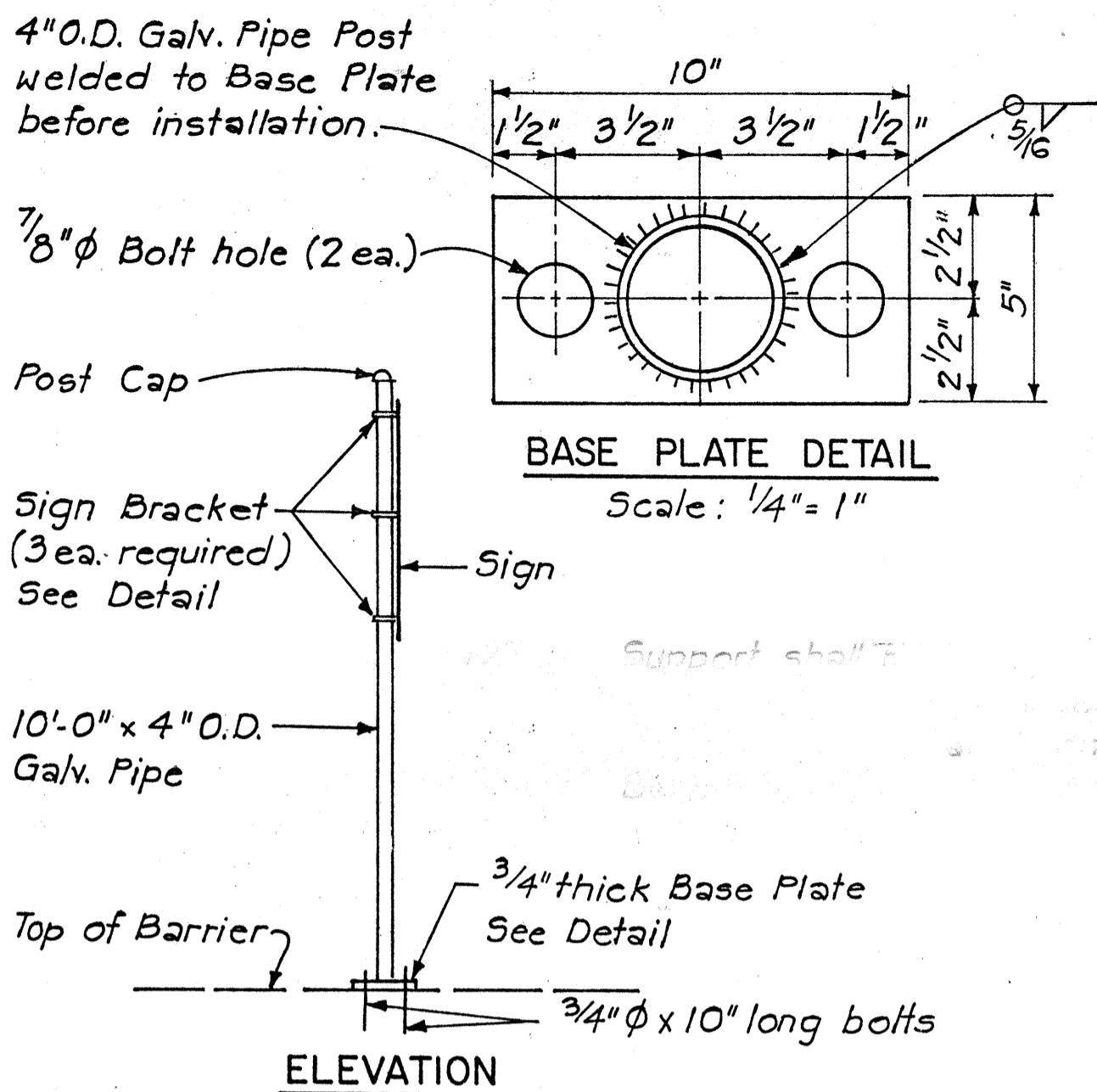


**PARAPET OR BARRIER MOUNTED REFLECTOR MARKER**  
Scale: 1/2" = 1'-0"



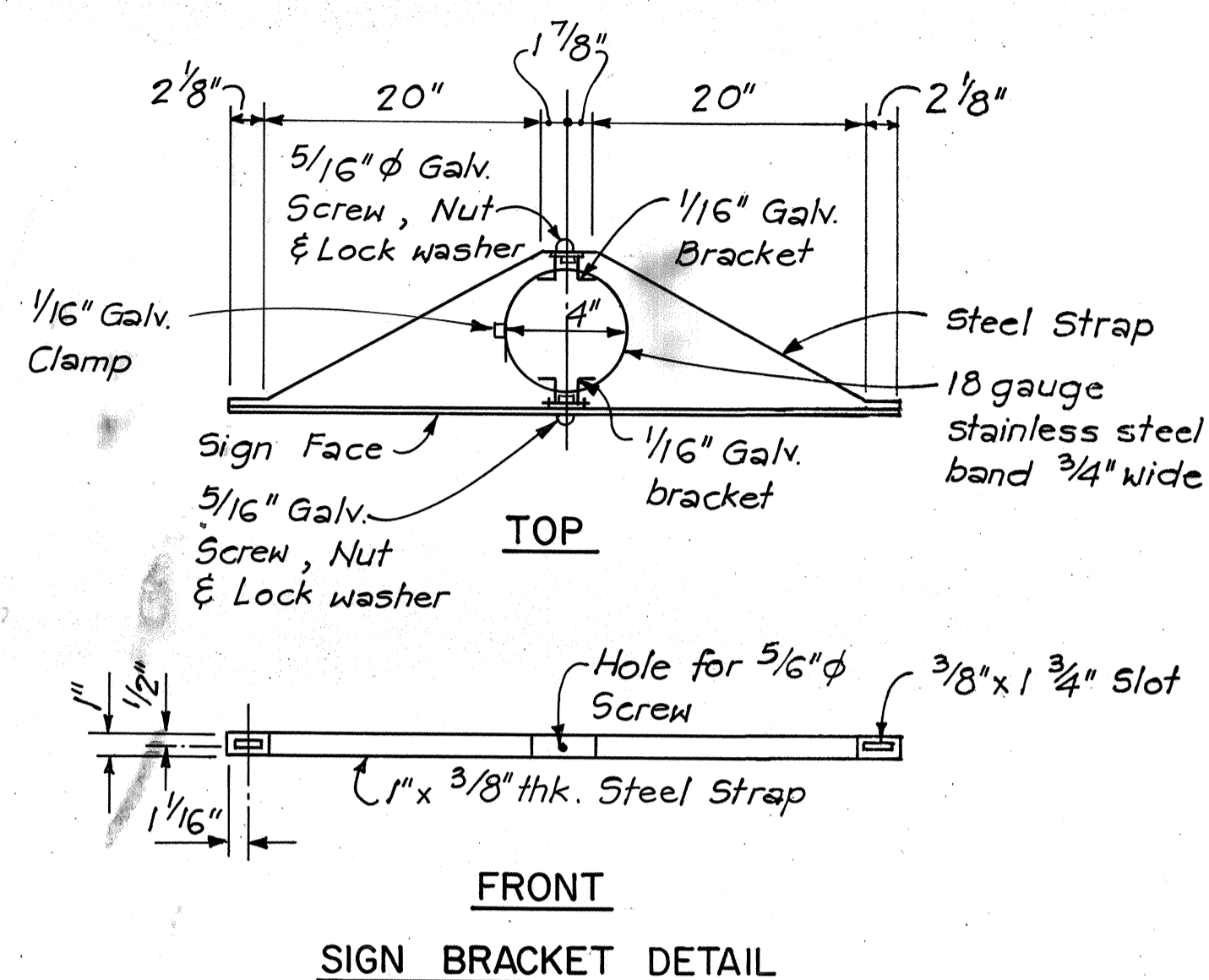
**NOTE:** Contractor has the option to install 3/4" wide, 18 gage stainless steel bands with 1/16" thick stainless steel clamp in lieu of 3/8" x 4 1/2" bolts

**RAILING MOUNTED REFLECTOR MARKER**  
N.T.S.

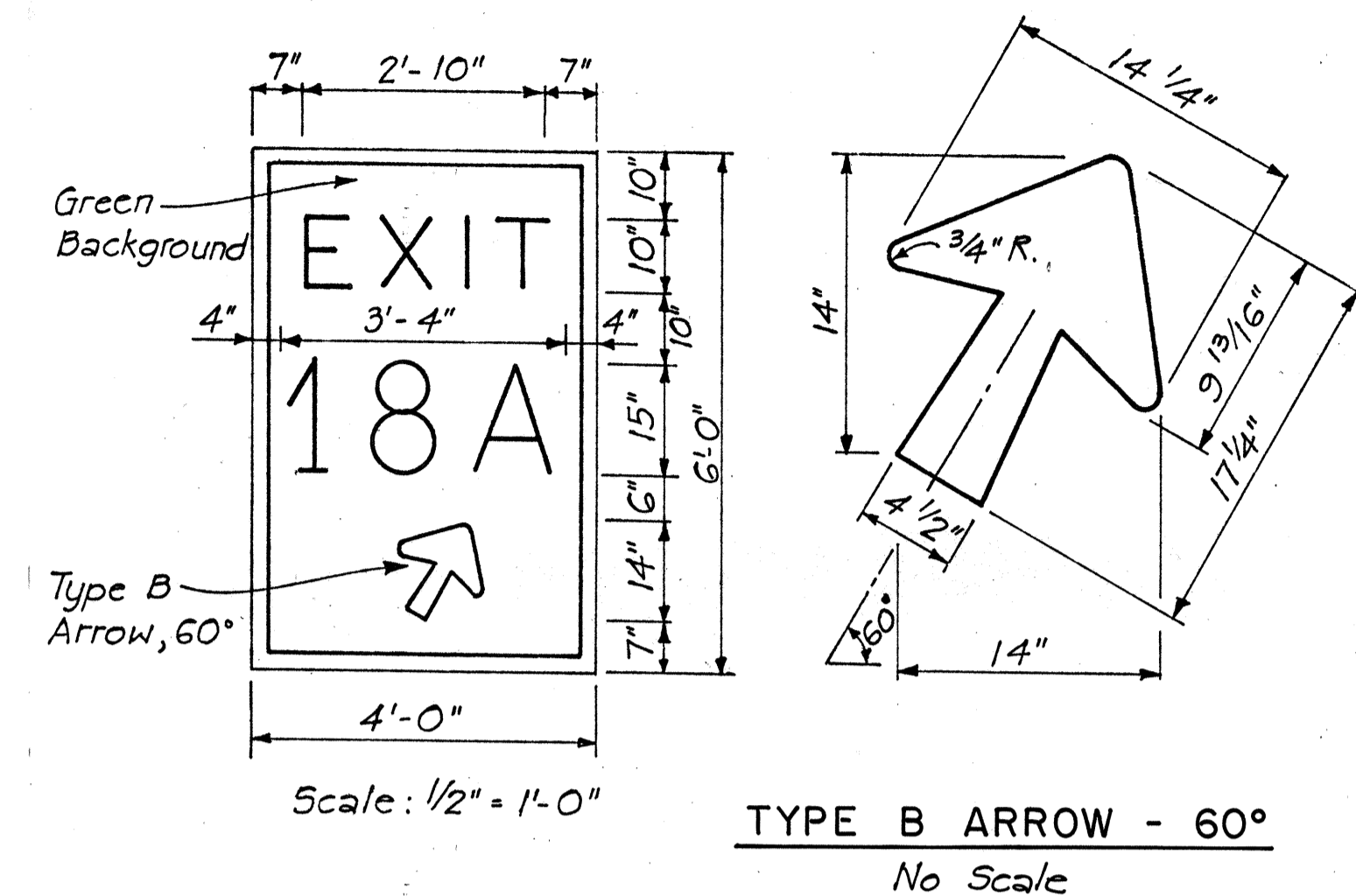


**SUPPORT FOR SIGN "EXIT 18A"**  
N.T.S.

**NOTES:** 1. Support shall be painted in accordance with the requirements for Overhead Sign Supports.  
2. Sign "EXIT 18A" will be paid under "Regulatory & Warning Sign (Greater than 10 square feet) with Post on Parapet."



**SIGN BRACKET DETAIL**



**PANEL FOR SIGN "EXIT 18A"**

**GENERAL PAVEMENT MARKING NOTES**

- All pavement marking stripes and arrows shall be of Preformed Pavement Marking Tape (Adhesive Tape) and shall be of the following type:
  - a) Temporary:
    - H-1 (WB) Viaduct
    - Nimitz Conn. (WB) Viaduct
    - Detour G
  - b) Permanent:
    - Makai Frontage Road Structure

**GENERAL SIGNING NOTES**

- Signs, Traffic Delineators, and Barricade Warning Lights shall conform to FHWA Publications, "Manual on Uniform Traffic Control Devices", 1978 and "Standard Highway Signs", 1972 and as amended.
- Unless noted otherwise, exact locations of Signs and Delineators will be determined by the Engineer.
- Existing and reusable Signs, Signs from storage, and Traffic Delineators shall be reset at locations shown on the plans, and as directed by the Engineer. Payment for resetting Traffic Delineators shall be considered incidental to various contract items.
- Contractor is responsible for maintaining new and existing Signs, Barricades and Delineators in good condition during Life of Project.
- Superfluous Signs, Barricades, Overlay Panels & Portable Concrete Guard Rails and Delineators shall be removed & stored on site as directed by the Engineer. Payment shall be considered incidental to various contract items.
- Necessary traffic control devices required for the temporary closure of lanes, detours during working day and any other work that may temporary obstruct any portion of the roadway shall be considered incidental to various contract items.

\* C.C.O. No. 47

Furnished and installed  
"Construction Grade" temporary  
performed pavement marking tape

**SUMMARY OF MISCELLANEOUS ITEMS**

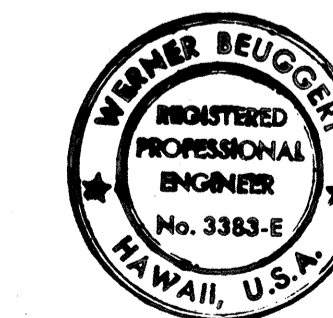
ITEM	QUANTITY		
	SHT. P-2	SHT. P-3	TOTAL
Type A Pavement Marker	72	312	384
Type C Pavement Marker	131	90	221
Type H Pavement Marker	16	58	74
Type RM-2 Reflector Marker, Parapet or Railing Mounted	0	24	24
Reset Destination Signs	1	0	1
Traffic Delineators	5	7	12

**NOTE:** Shown quantities of signs, barricades and delineators are for bidding purposes only. Contractor shall establish the actual number to be furnished based on reusable material available from site and storage, and as directed by the Engineer.

**SIGNING SUMMARY**

TYPE	MESSAGE	QUANTITY	
		W/P	WO/P
CW1-3(R)	↗	2	0
CW1-8	↘	5	0
CW5-1	ROAD NARROWS	1	0
CW13-1(20)	20 M.P.H.	2	0
W9-2(L)	LANE ENDS MERGE LEFT	0	2
EXIT 18A		1	0
TOTAL NEW SIGNS		9	2
TOTAL RESET SIGNS		2	0

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



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ME OR UNDER MY SUPERVISION  
Werner Bruegger

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
LAND TRANSPORTATION FACILITIES DIVISION

**MISCELLANEOUS DETAILS**

INTERSTATE ROUTE H-1  
PROJECT NO. I-HI-1(132):17

SCALE: AS SHOWN DATE: 11/16/81  
SHEET NO. P-4 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(132):17	1983	32	192

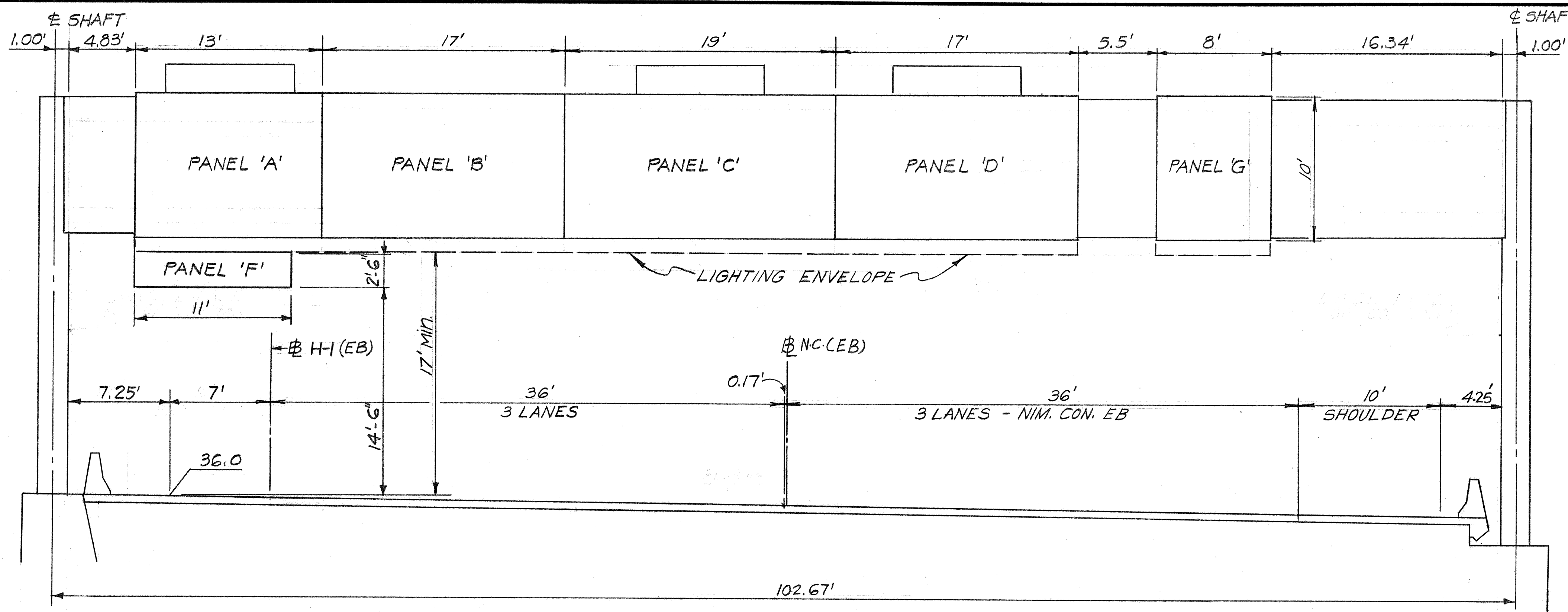
**NOTES FOR DESTINATION SIGNS**

**A. GENERAL**

- 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
- BORDERS & SEPARATION LINES SHALL HAVE A WIDTH OF 2 INCHES. CORNER RADIUS OF BORDERS SHALL BE AS SPECIFIED ON STANDARD DETAIL PLANS.
- COVER OF SIGN PANELS SHALL BE OF 1/4" THICK EXTERIOR GRADE PLYWOOD, OR OTHER MATERIAL APPROVED BY THE ENGINEER. EXPOSED SURFACE SHALL BE PAINTED GRAY. PAYMENT FOR SIGN COVERS WILL BE CONSIDERED INCIDENTAL TO VARIOUS CONTRACT ITEMS.
- OVERLAY PANELS SHALL BE OF 0.08-INCH THICK SHEET ALUMINUM & SHALL BE OF THE SAME COLOR & REFLECTORIZATION AS SIGN PANEL UNLESS SHOWN OTHERWISE. PAYMENT WILL BE MADE UNDER "TEMPORARY OVERLAY PANEL"

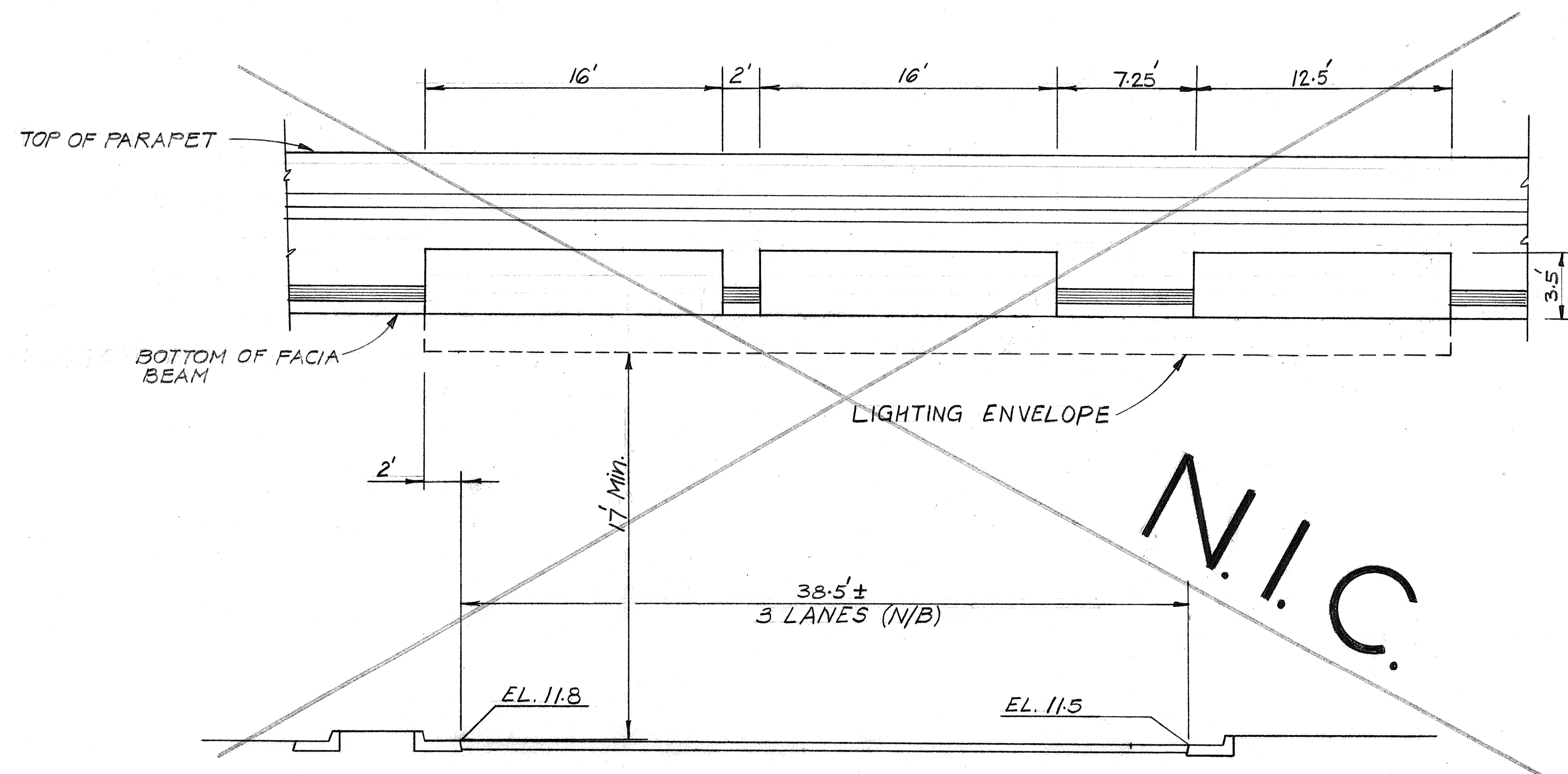
**B. TEMPORARY DESTINATION SIGNS (T-DESIGNATION)**

- TYPE OF SIGN SUPPORT WILL BE AT THE CONTRACTOR'S OPTION, SUBJECT TO THE APPROVAL BY THE ENGINEER. PAYMENT FOR SIGN SUPPORT IS CONSIDERED TO BE INCIDENTAL TO "PANEL FOR TEMPORARY DESTINATION SIGN."
- MATERIAL FOR SIGN PANEL SHALL BE 3/4" THICK, EXTERIOR GRADE FIR PLYWOOD. CONTRACTOR MAY SUBMIT ALTERNATIVE MATERIAL SUBJECT TO APPROVAL BY THE ENGINEER.
- PAYMENT FOR REMOVAL AND DISPOSAL OF SUPERFLUOUS SIGNS SHALL BE CONSIDERED INCIDENTAL TO VARIOUS CONTRACT ITEMS.



**SIGN ASSEMBLY E-29**

H-1(EB) STA. 223 +52.73  
N.T.S.



**SIGN ASSEMBLY E-24**

LAGOON DR. STA. 10+28.71±  
N.T.S.

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

3/26/86 Changed size of Panel 'D' and added Panel 'G' on Sign Assembly E-29.

DATE REVISION

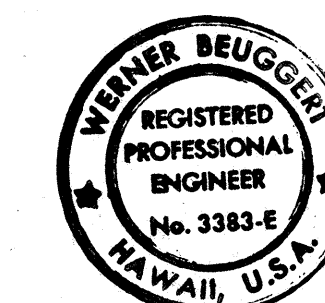
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGN PANEL LOCATION**

INTERSTATE ROUTE H-1  
PROJECT NO. I-HI-1 (132):17

SCALE: AS SHOWN DATE: 11/16/81

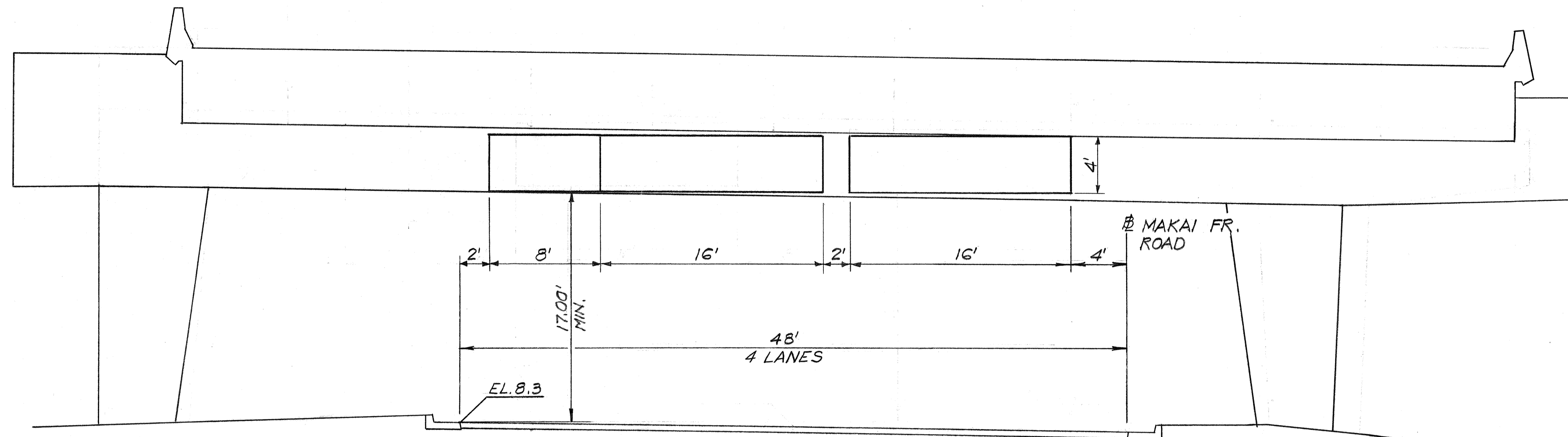
SHEET No P-5 OF 8 SHEETS



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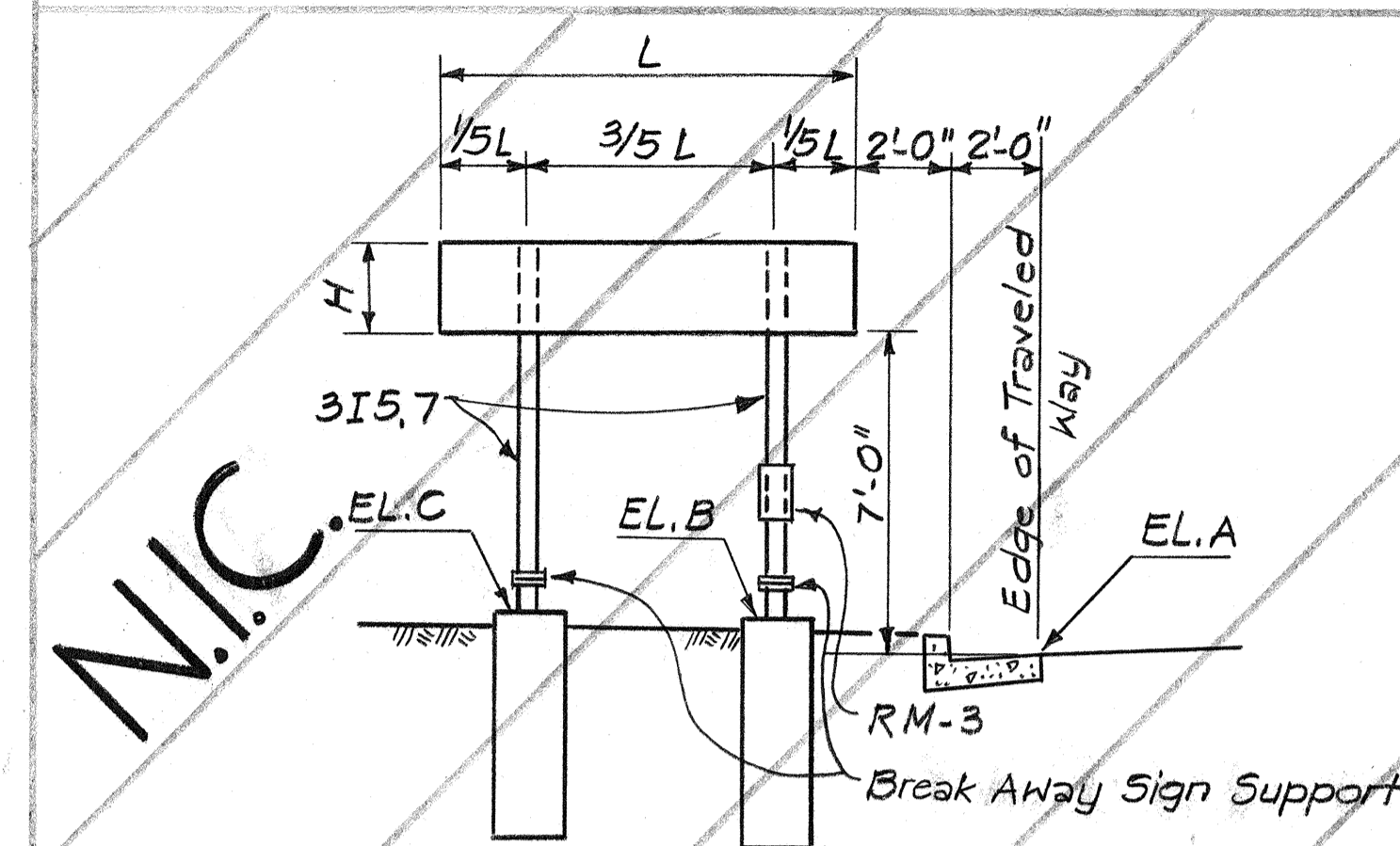
*Werner Deuggert*

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(32):17	1983	33	192



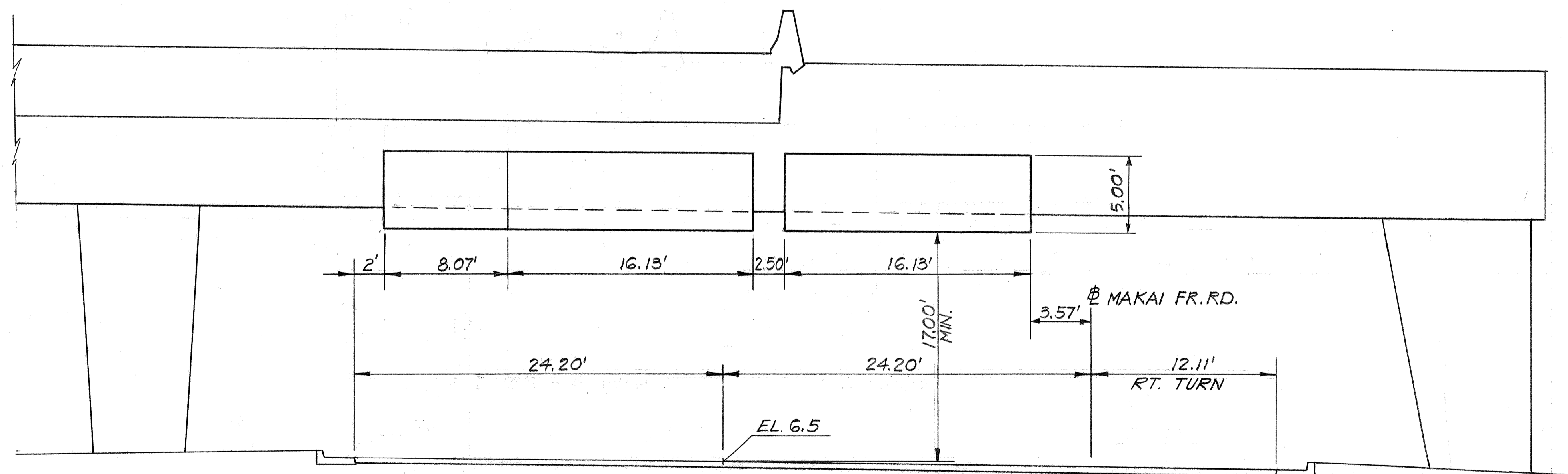
**SIGN ASSEMBLY E-27**

MAKAI FR. RD. STA. 223+52.84 ±  
N.T.S.



SIGN	L	H	EL. A	EL. B	EL. C	STATION
E-4	9'-0"	2'-0"	10.5	11.1	12.1	Mauka Fr. Rd. 215+40±, left
E-5	6'-6"	3'-0"	8.6	9.1	9.2	Mauka Fr. Rd. 218+95±, left
E-10	9'-0"	2'-0"	11.6	12.1	12.1	Mauka Fr. Rd. 215+40±, right
E-11	6'-6"	3'-0"	9.4	10.0	9.2	Mauka Fr. Rd. 219+40±, right
E-25	6'-0"	3'-0"	11.7	12.3	12.1	Makai Fr. Rd. 214+40±, left
E-26	8'-0"	2'-0"	10.0	10.4	10.1	Makai Fr. Rd. 218+40±, left
E-32	8'-6"	2'-6"	5.9	6.5	6.3	Makai Fr. Rd. 223+20±, right

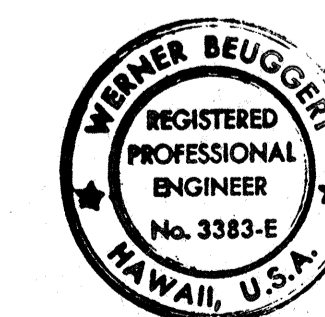
**SUPPORT FOR GROUND MOUNTED SIGNS**  
N.T.S.



**SIGN ASSEMBLY E-31**

MAKAI FR. RD. STA. 229+30.98  
N.T.S.

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



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ME OR UNDER MY SUPERVISION.  
*Werner Beugett*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGN PANEL LOCATION**

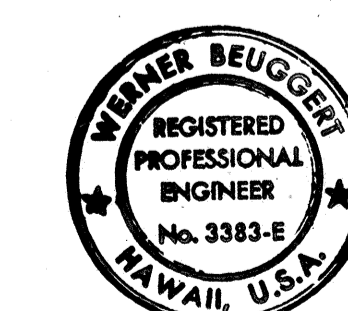
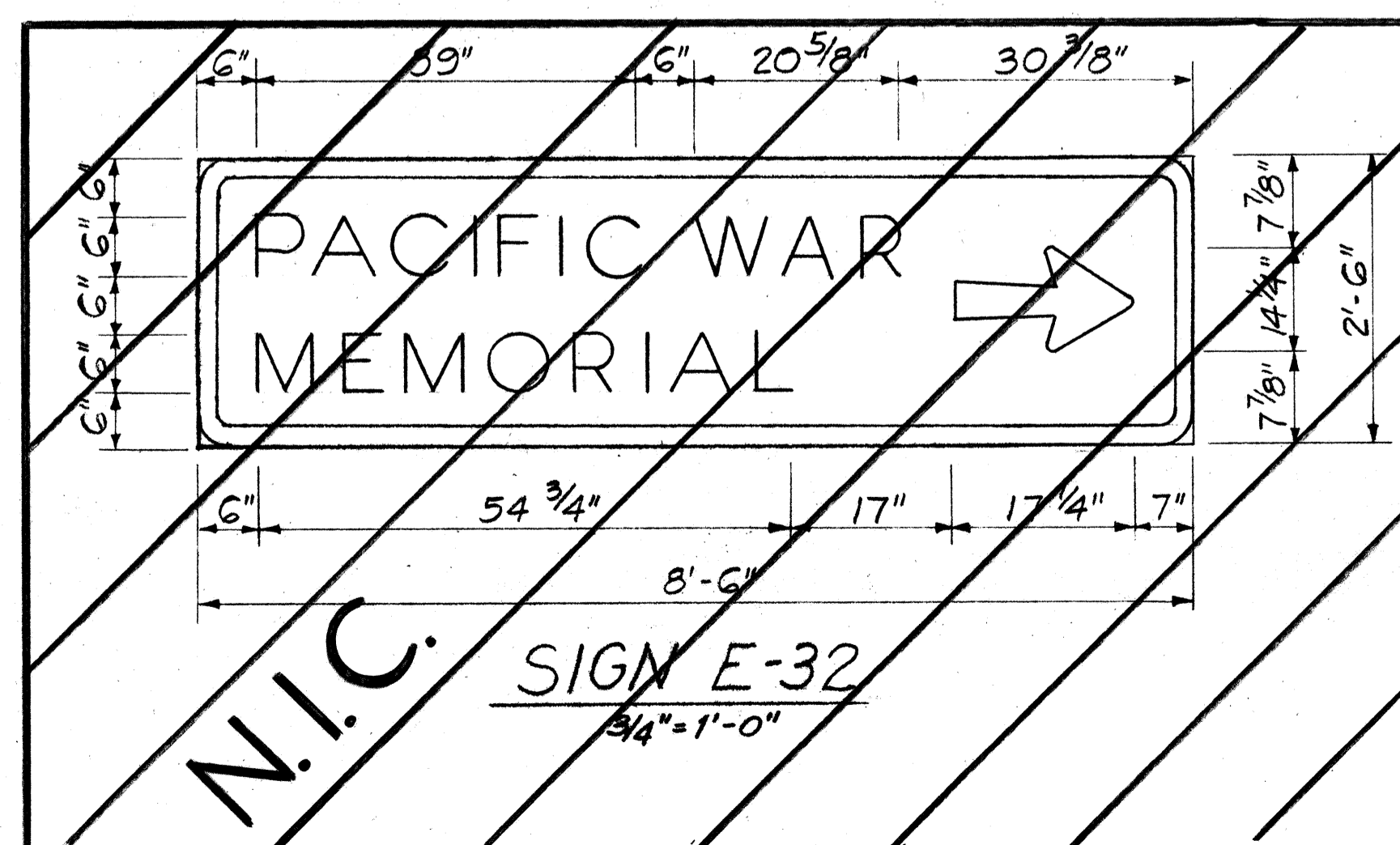
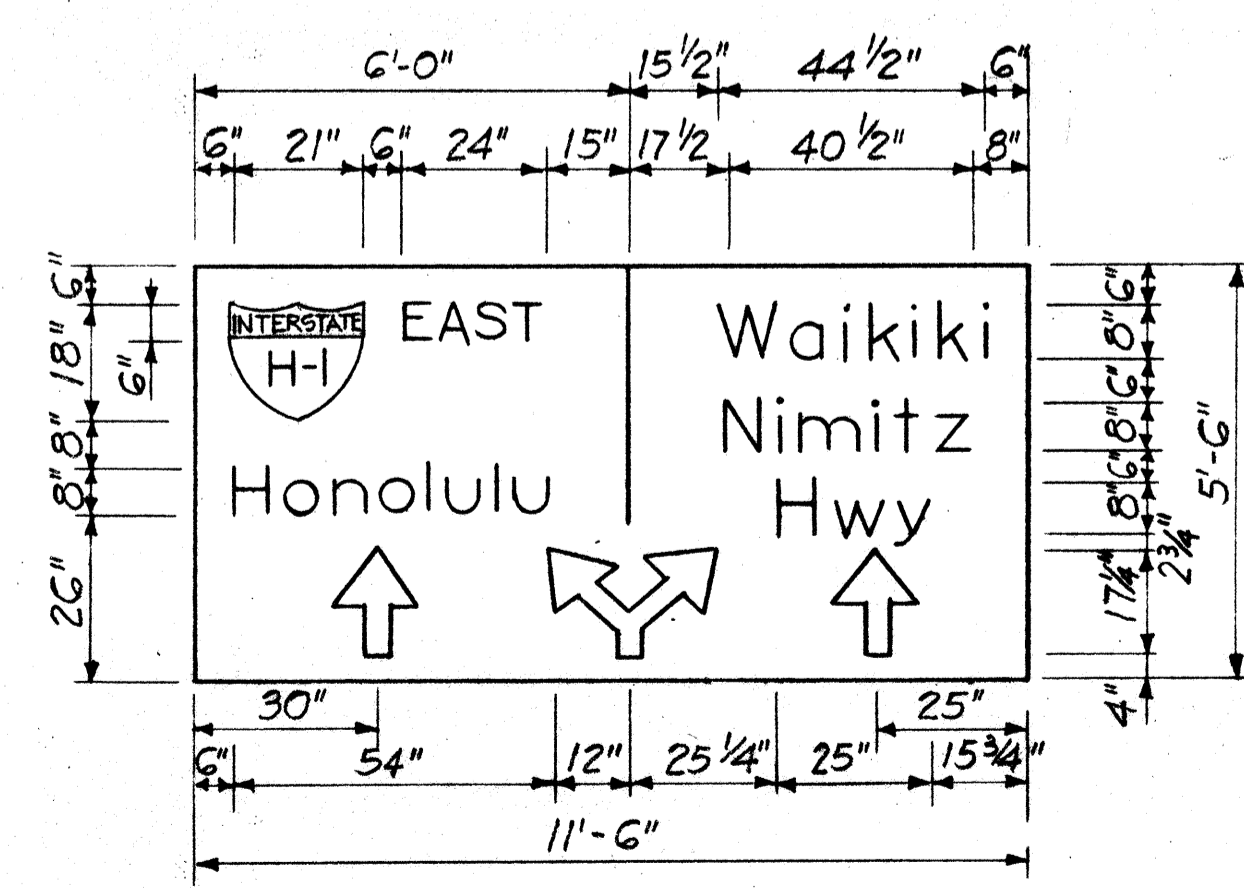
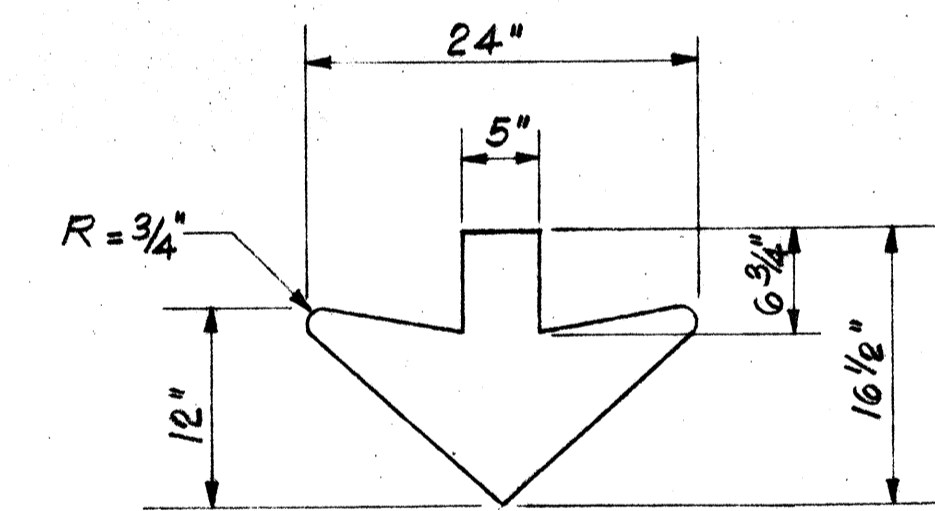
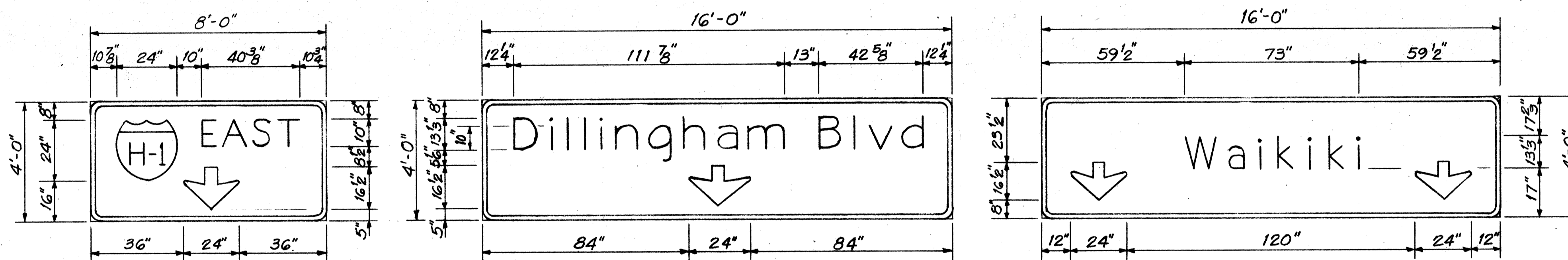
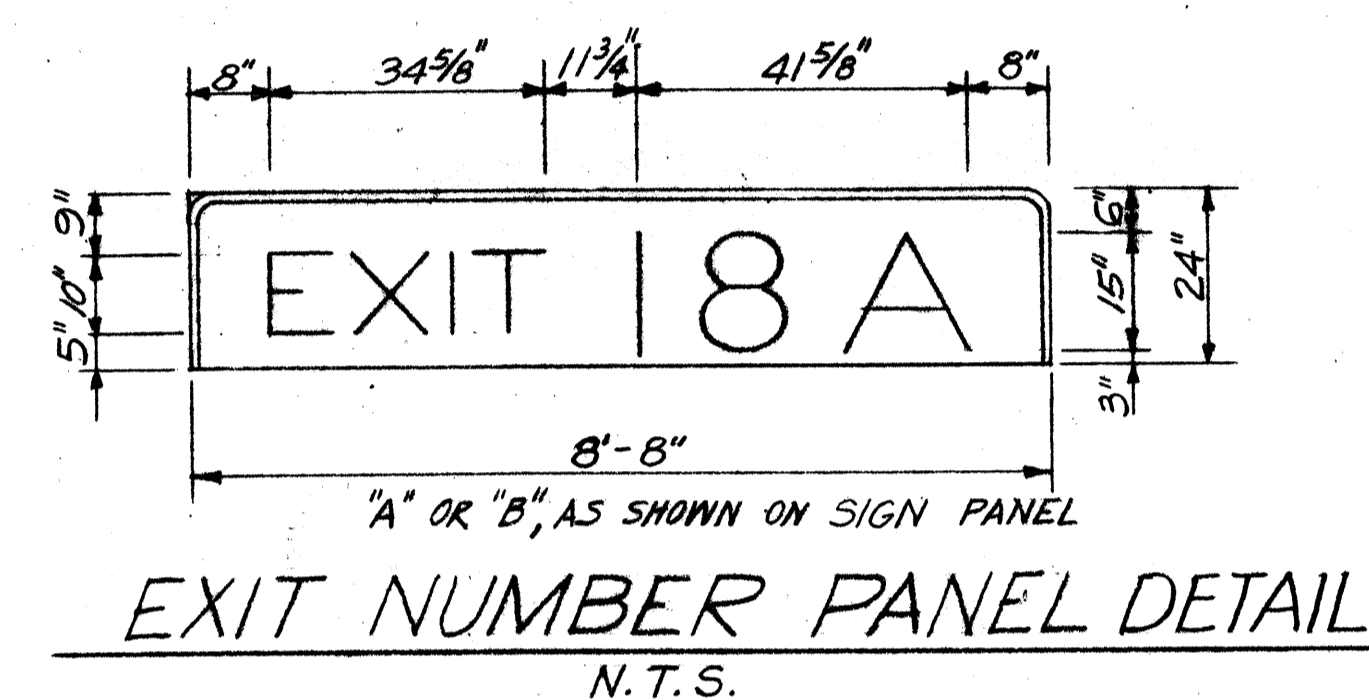
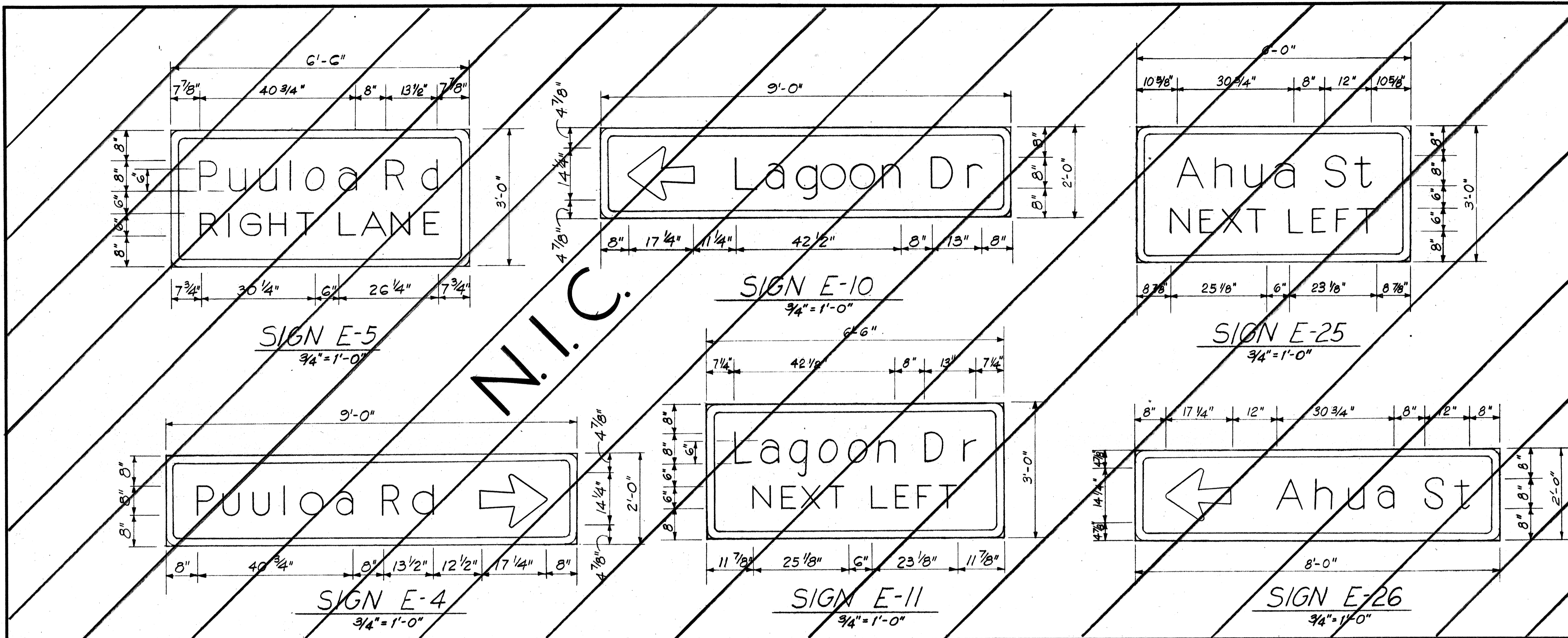
INTERSTATE ROUTE H-1  
PROJECT NO. I-HI-1 (32):17

SCALE: AS SHOWN DATE: 11/16/81

SHEET NO. P.6 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(132)17	1983	34	192

NOTE:  
FOR DESTINATION SIGN NOTES  
SEE SHEET P-5



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Werner Beugger

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

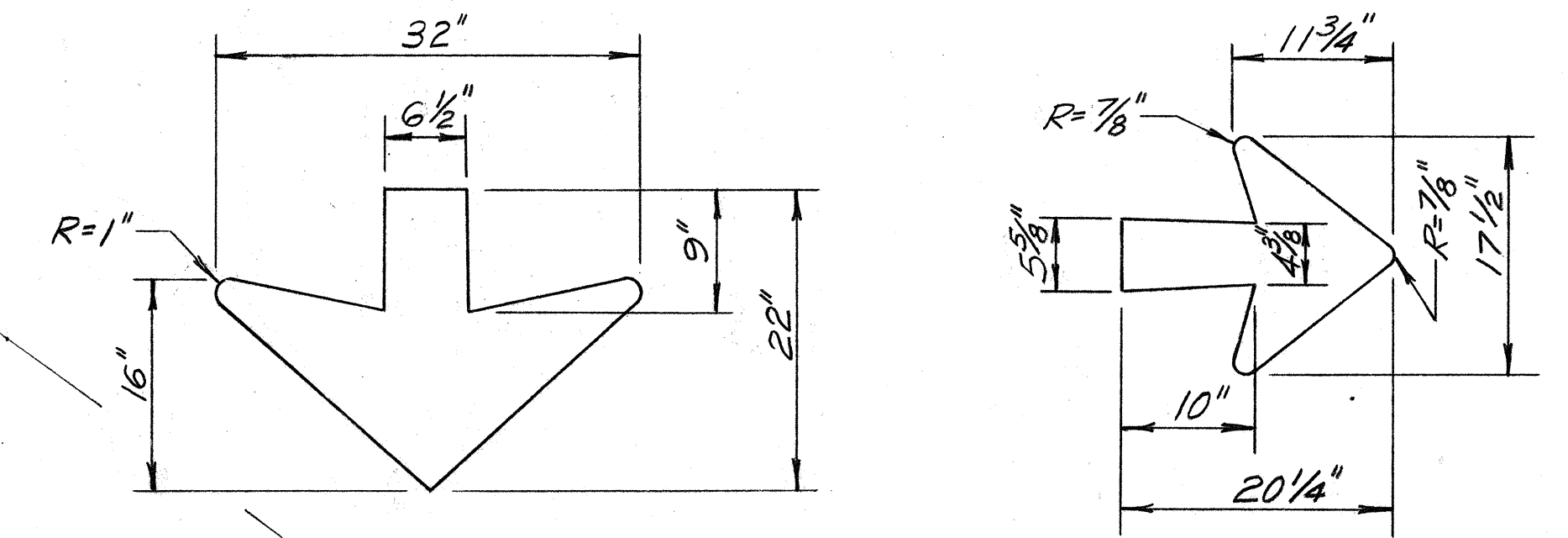
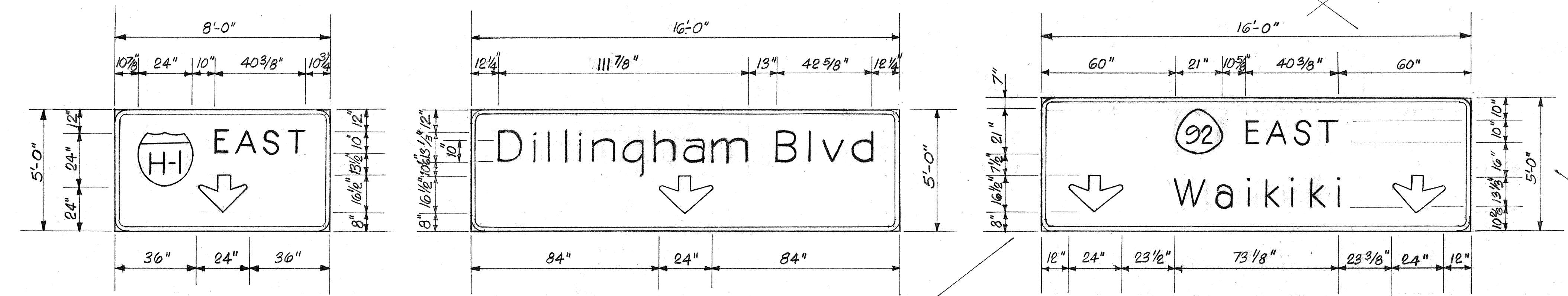
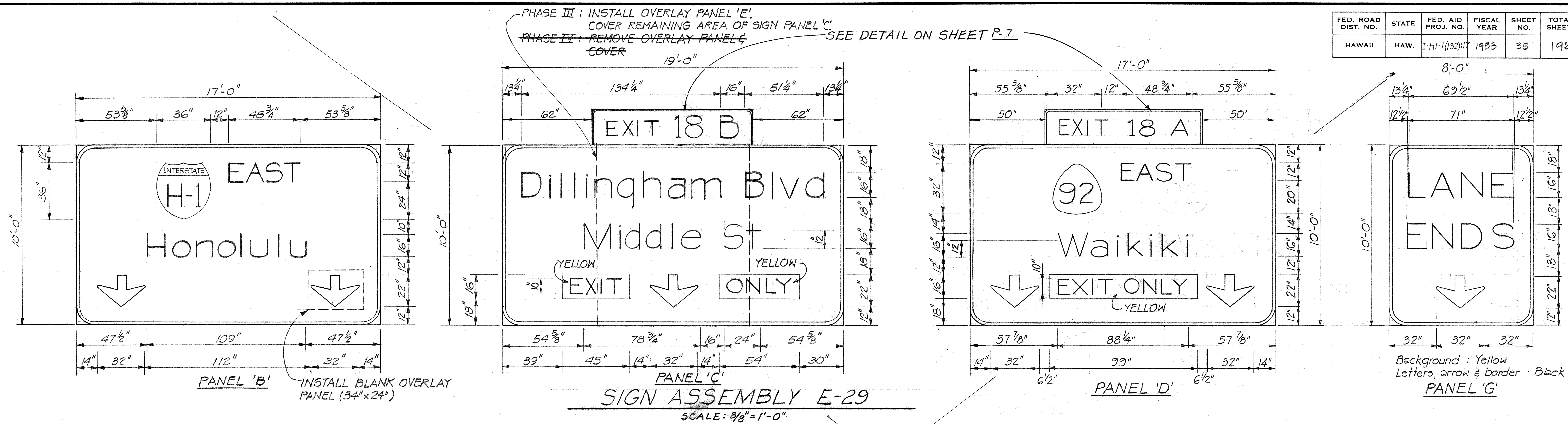
**SIGN PANEL LAYOUT**

INTERSTATE ROUTE H-1  
PROJECT NO. I-HI-1 (132):17

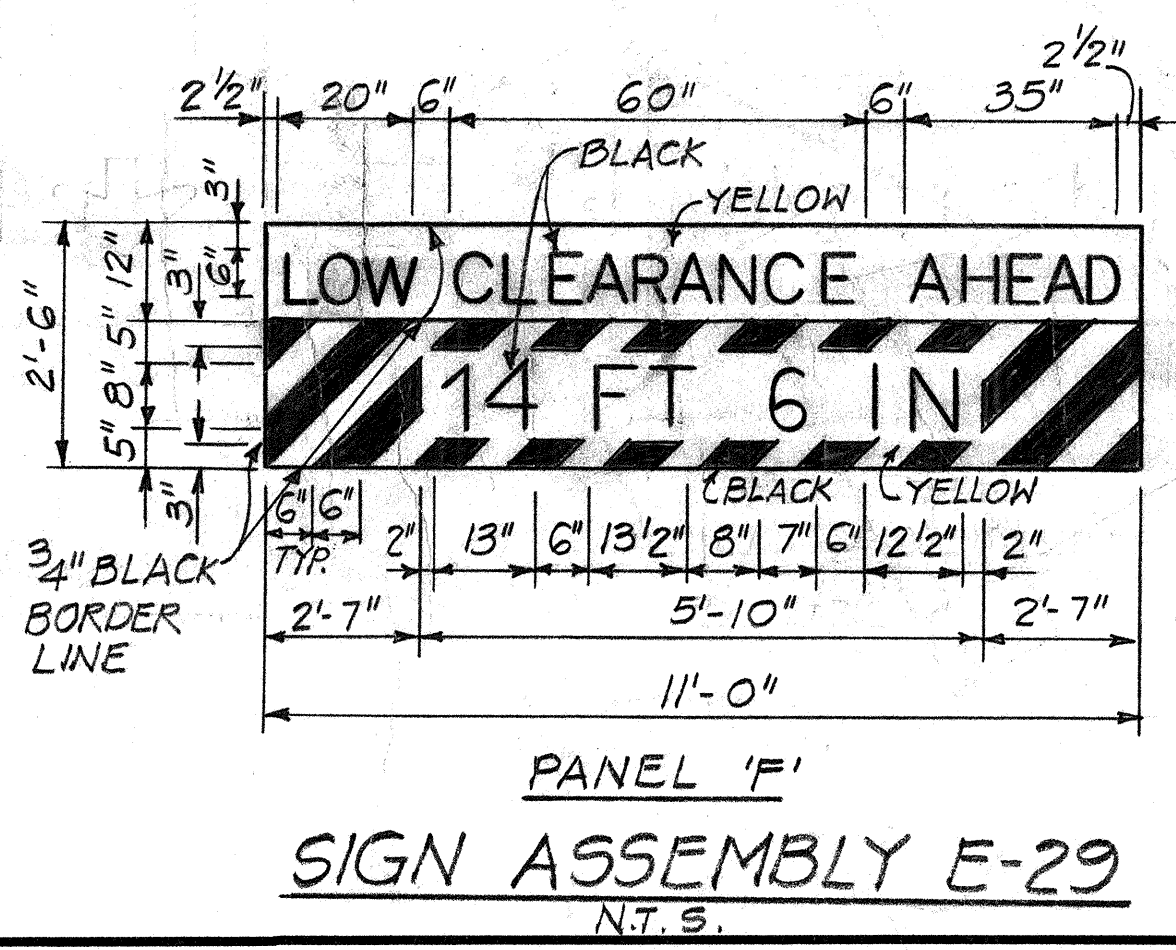
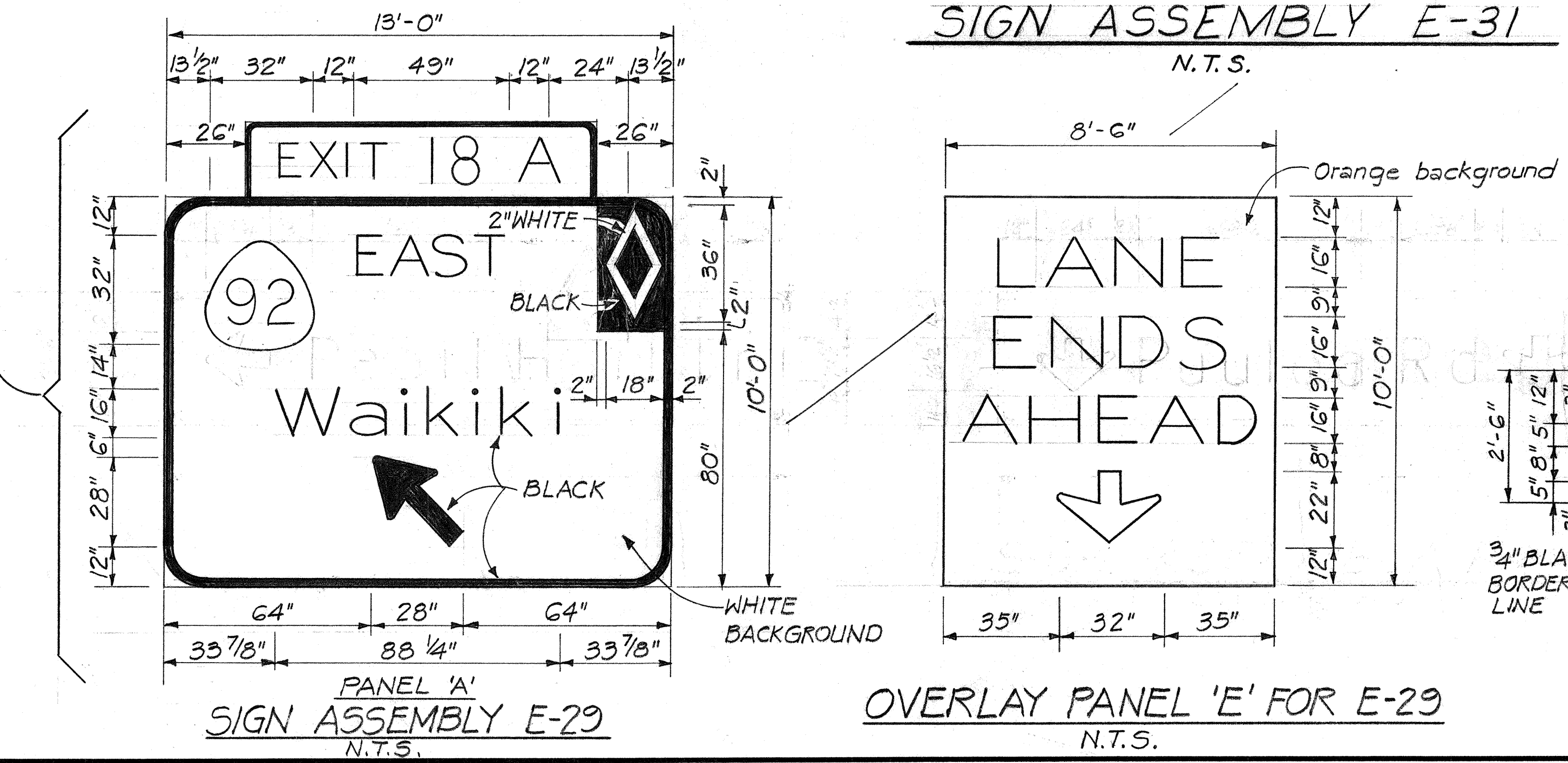
SCALE: AS SHOWN DATE: 11/16/81  
SHEET NO. P.7 OF 8 SHEETS

DATE \_\_\_\_\_  
SURVEY PLOTTED BY \_\_\_\_\_  
DRAWN BY \_\_\_\_\_  
TRACED BY \_\_\_\_\_  
NOTE BOOK QUANTITIES BY \_\_\_\_\_  
CHECKED BY \_\_\_\_\_  
NO. \_\_\_\_\_

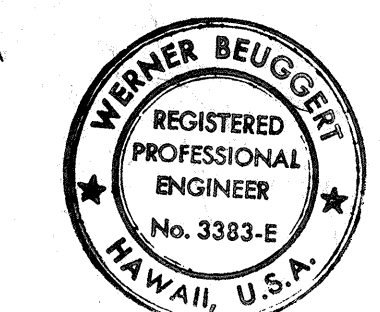
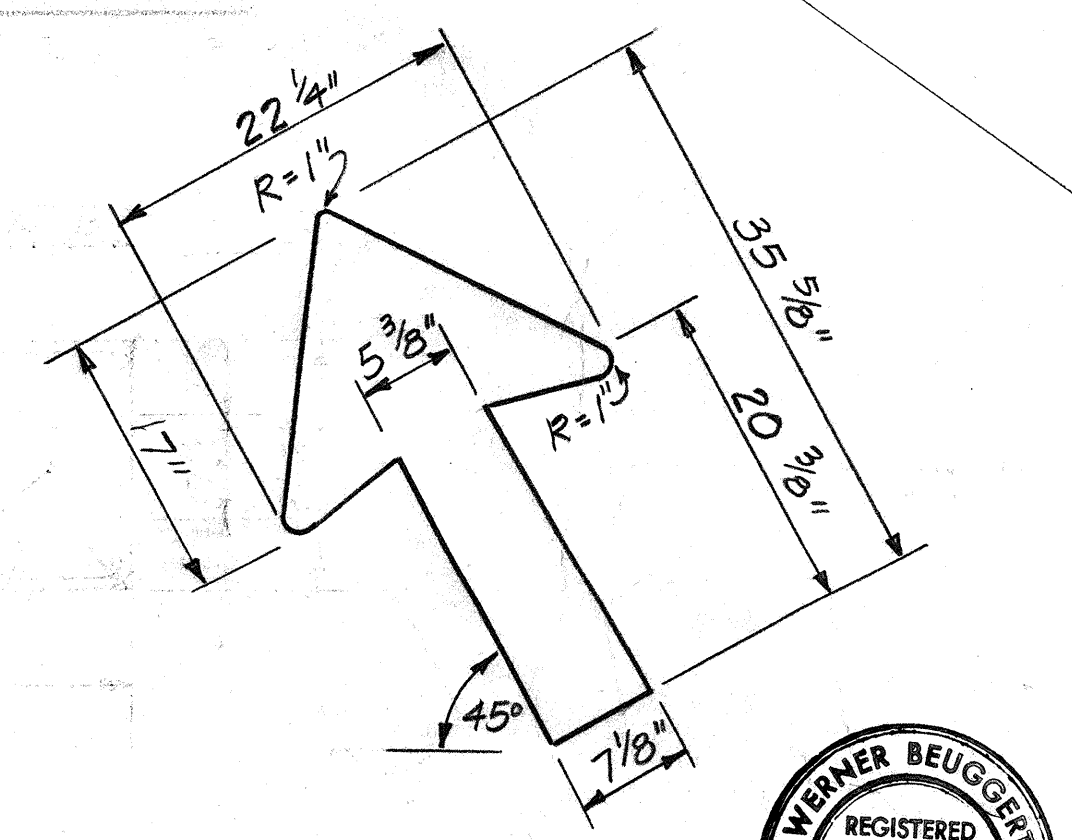
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(132):17	1983	35	192



~~DELETE THIS SHEET~~  
~~REVISED 4/4/86~~



NOTE :  
FOR DESTINATION SIGN NOTES  
SEE SHEET No. P-5.



THIS WORK WAS PREPARED BY  
ME OR UNDER MY SUPERVISION.

3/26/86	Changed size of Panel 'D' and added Panel 'G' on Sign Assembly E-29.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
<b>SIGN PANEL LAYOUT</b>	
INTERSTATE ROUTE H-1 PROJECT NO. I-HI-1 (132):17	
SCALE: AS SHOWN	DATE: 11/16/81
SHEET NO. P-8 OF 8 SHEETS	

DATE	PLOTTED BY
	DRAWN BY
	DESIGNED BY
	QUANTITIES BY
	CHECKED BY
	NO.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(132)-17	1985	56	192

**GENERAL NOTES**

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

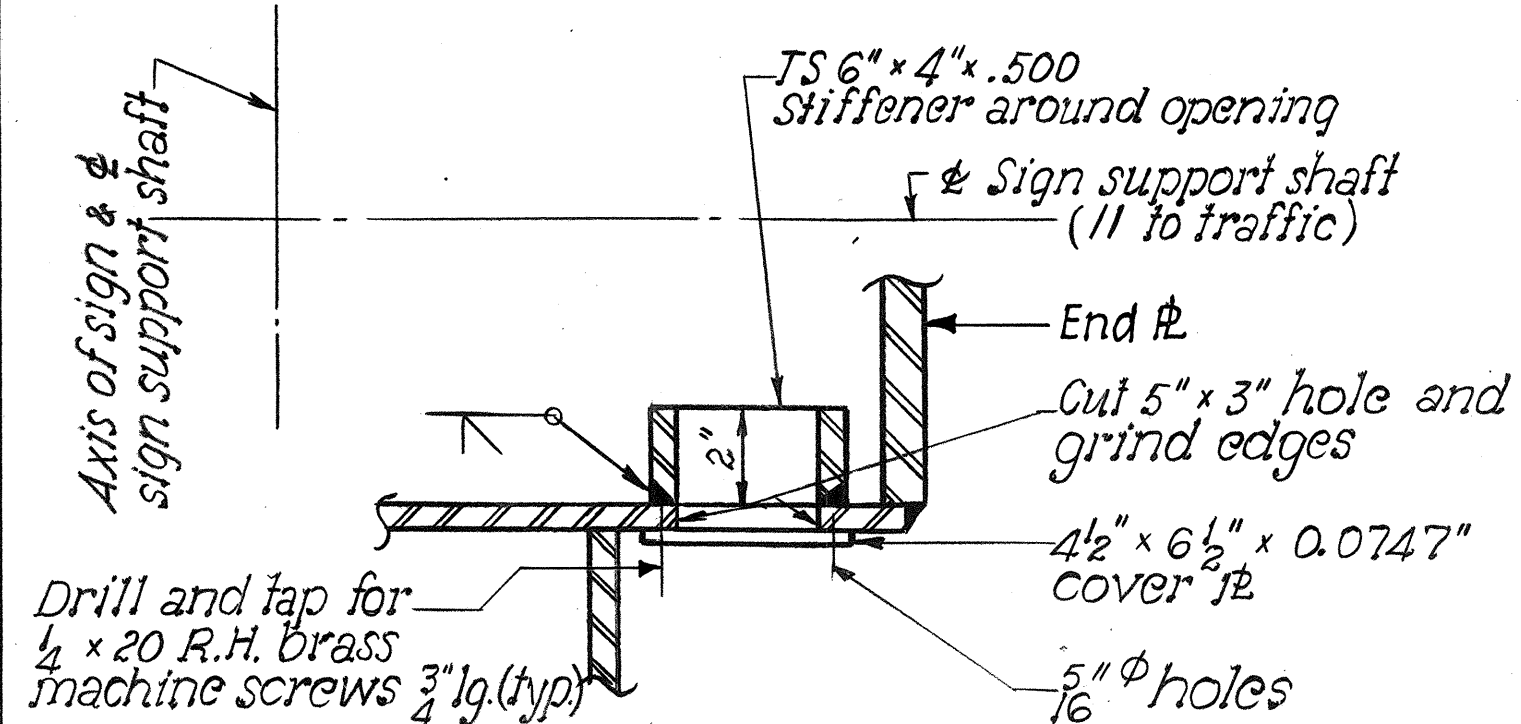
**DESIGN DATA:**  
Wind Loading: Normal to face of sign (75mph wind): 30psf, E-27 & E-31  
Transverse to face of sign: 52psf, E-29.  
Ice Load: None  
Structural Steel: ASTM A-36 fy = 36,000psi.  
High Strength Bolts: ASTM A 325 (Friction - Type Connection)

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

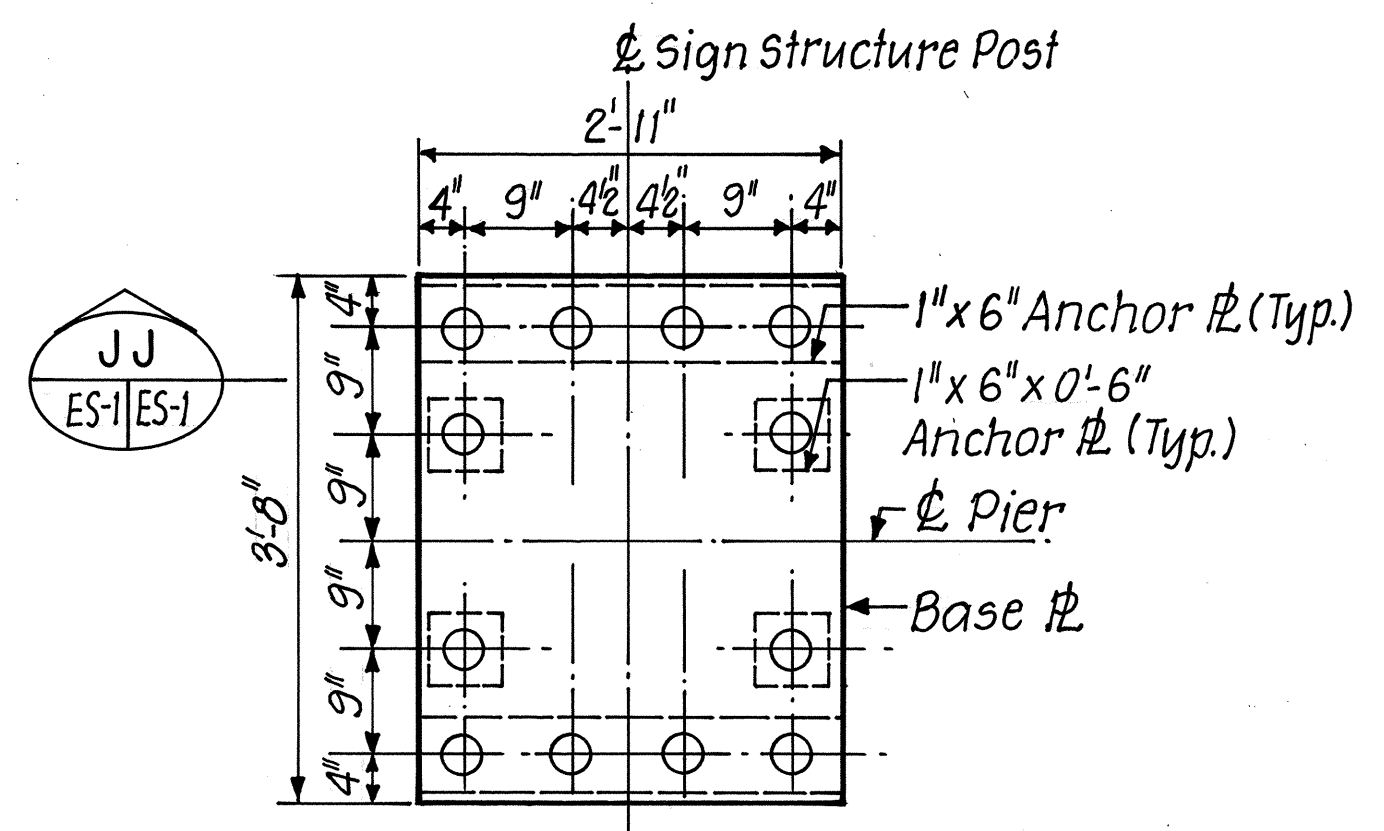
**WELDING:**  
All welding to be continuous welds and as noted on the plans.

**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-27, E-29 & E-31 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 Sign Panel location plans of signs E-27, E-29 and E-31.



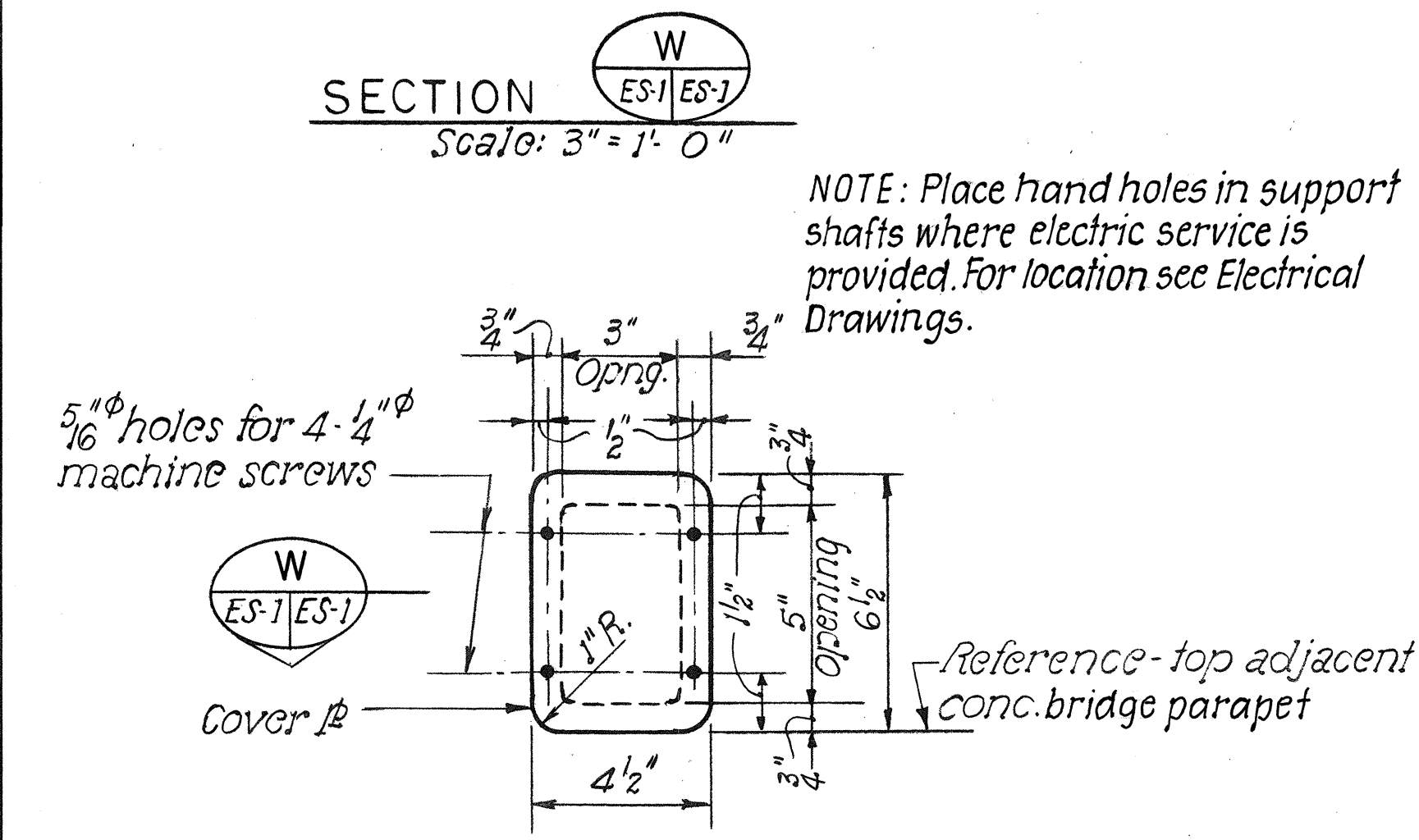
**SECTION W**  
Scale: 3" = 1'-0"



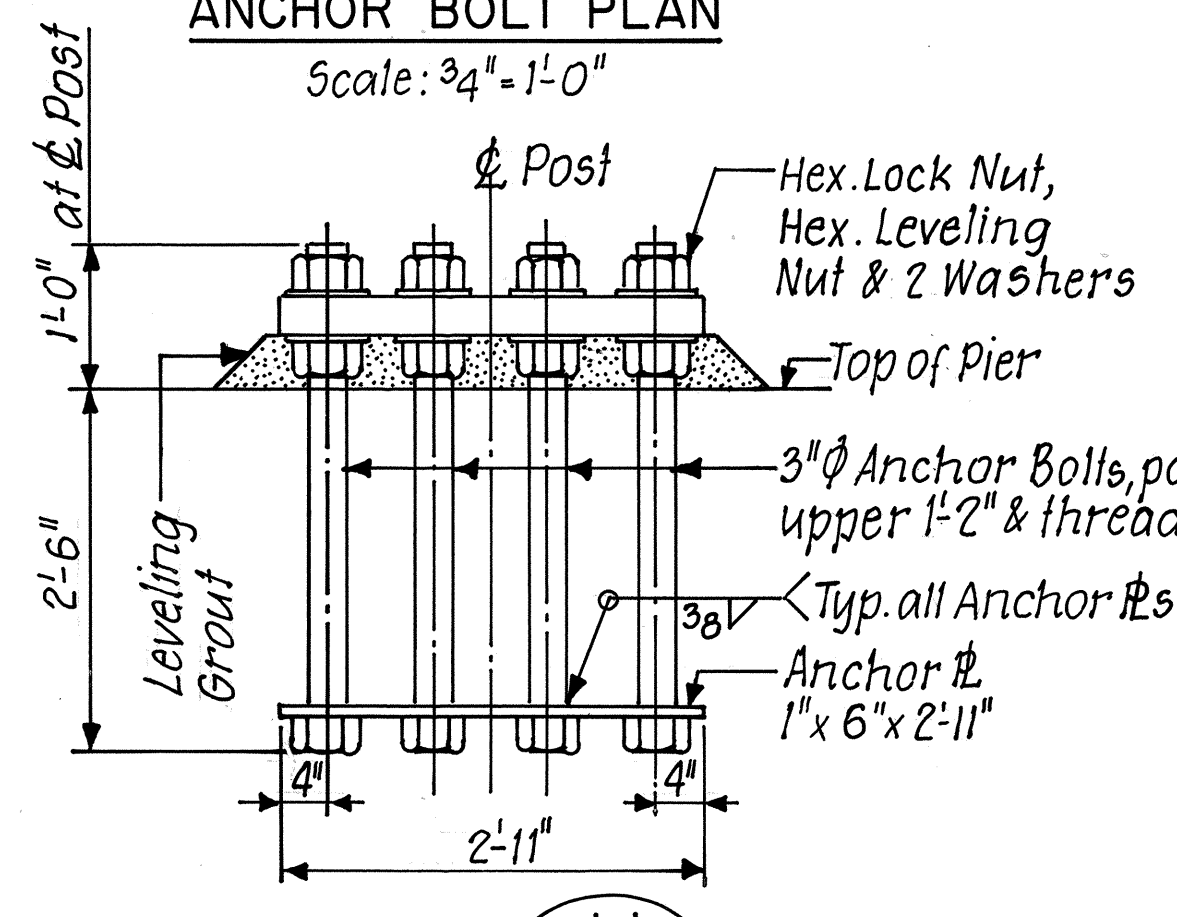
**ANCHOR BOLT PLAN**  
Scale: 3/4" = 1'-0"

- 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. Anchor Bolts to be ASTM A307, galvanized.
  7. 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.



**ELEVATION**

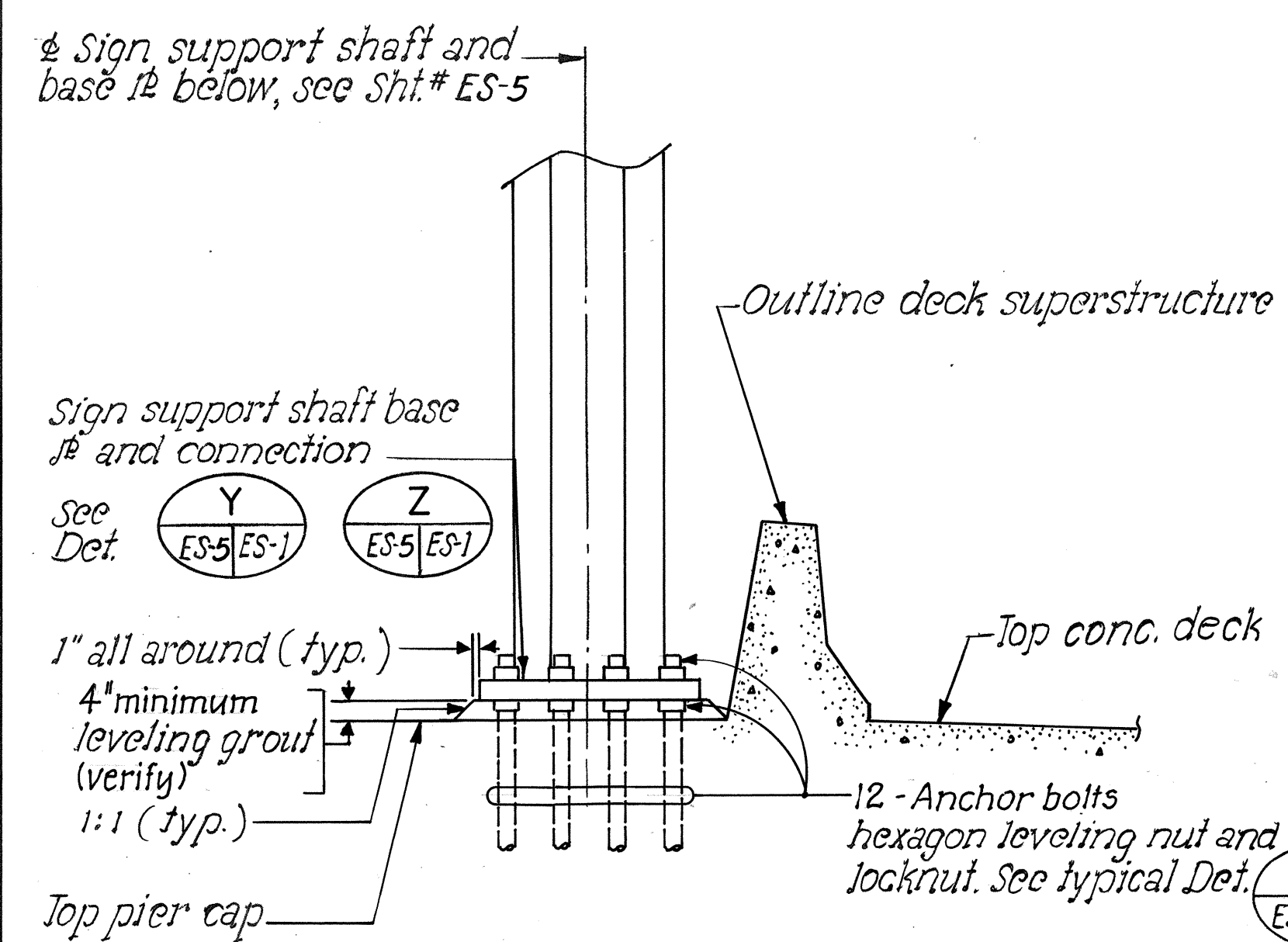


**SECTION JJ**  
Scale: 3/4" = 1'-0"

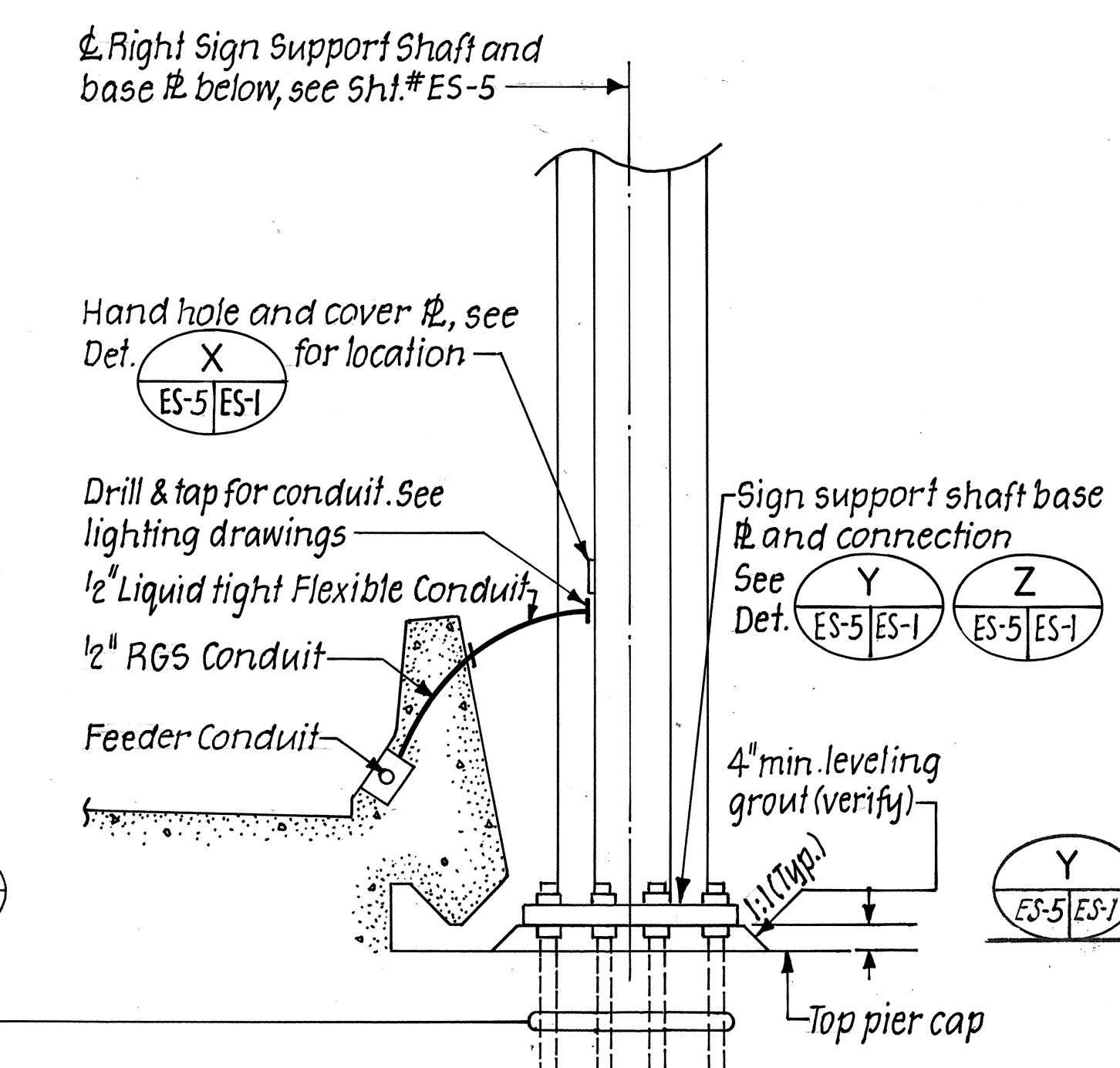
**ANCHOR BOLT DETAILS**

**SECTION X**  
Scale: 3" = 1'-0"

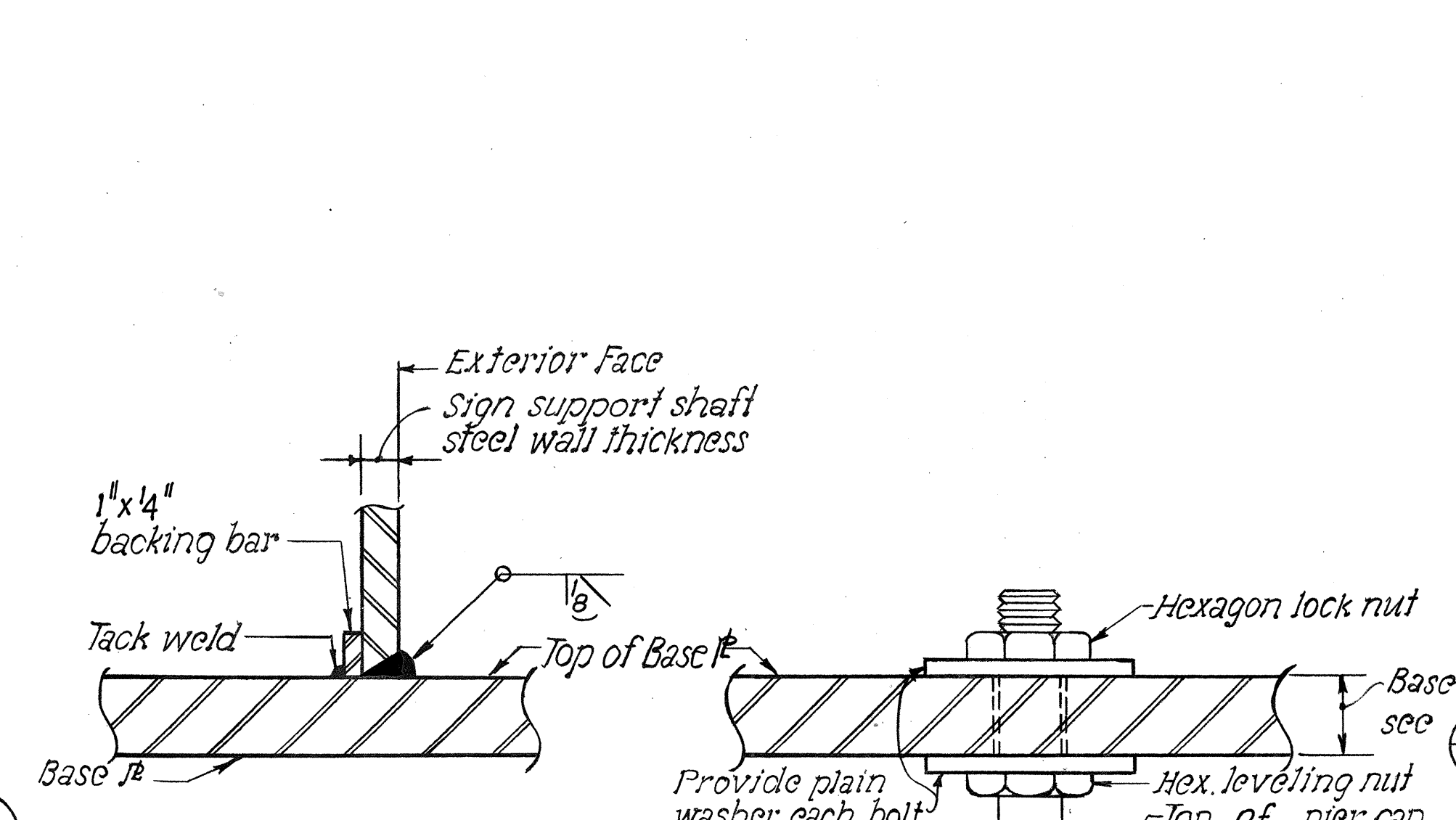
**HAND HOLE & COVER FLANGE DETAILS**



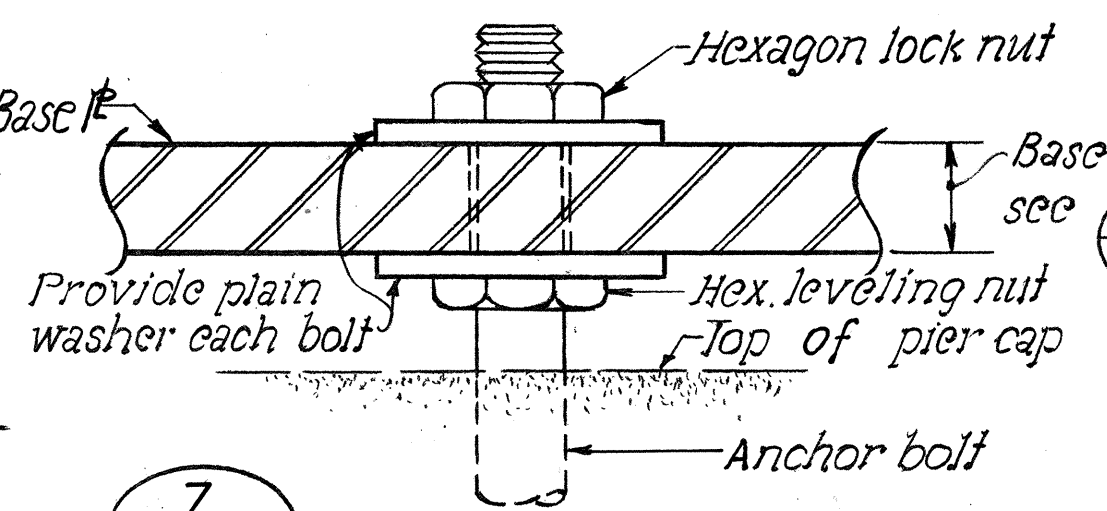
**LEFT SUPPORT**



**RIGHT SUPPORT**



**TYPICAL SIGN SUPPORT SHAFT BASE CONNECTION DETAILS**  
Not to scale

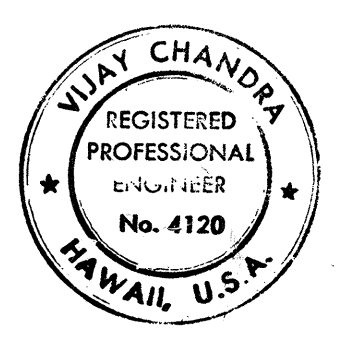


**TYPICAL BASE FLANGE ANCHOR BOLT CONNECTION DETAIL**  
Scale: 3" = 1'-0"

**SIGN E-29**  
**ELEVATION - SUPPORT SHAFT BASES**  
Scale: 1/2" = 1'-0"

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

SURVEY PLOTTED BY	DATE	2-77
DRAWN BY	S. SHERMAN	
DESIGNED BY	S. MACER	
QUANTITIES BY	S. MACER	
CHECKED BY	S. MACER	
ORIGINAL PLAN		
NOTE BOOK		
NO.		



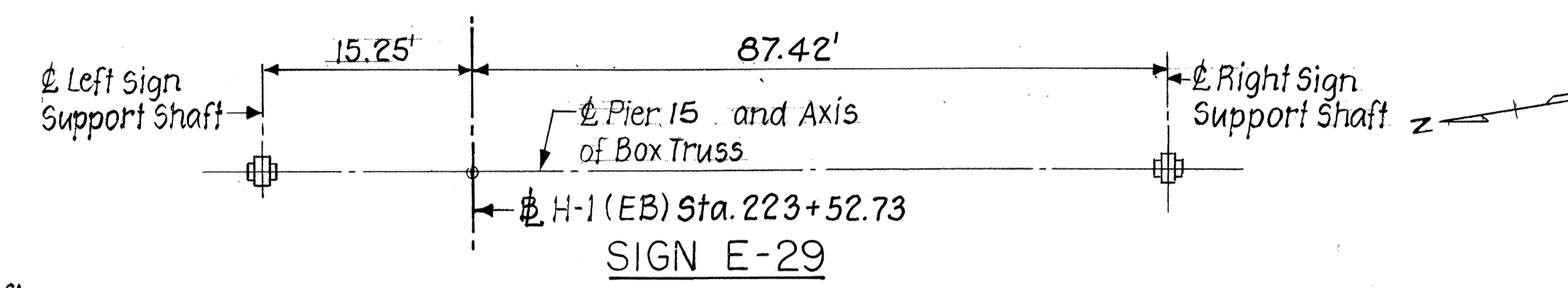
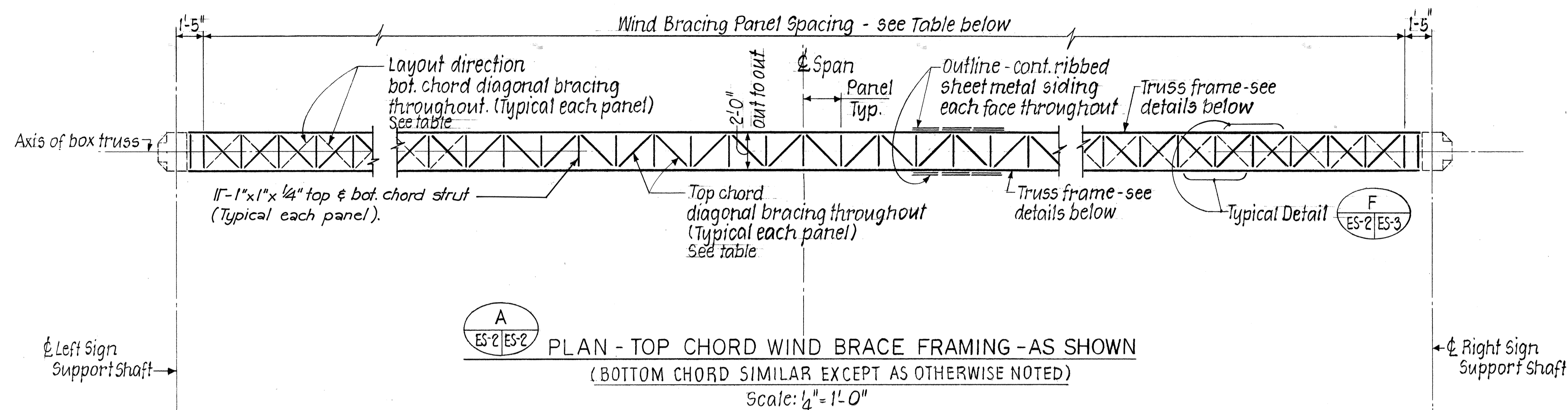
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
Vijay Chandra  
Signature

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGNS E-27, E-29 AND E-31**  
SUPPORT SHAFT BASE & DETAILS  
GENERAL NOTES

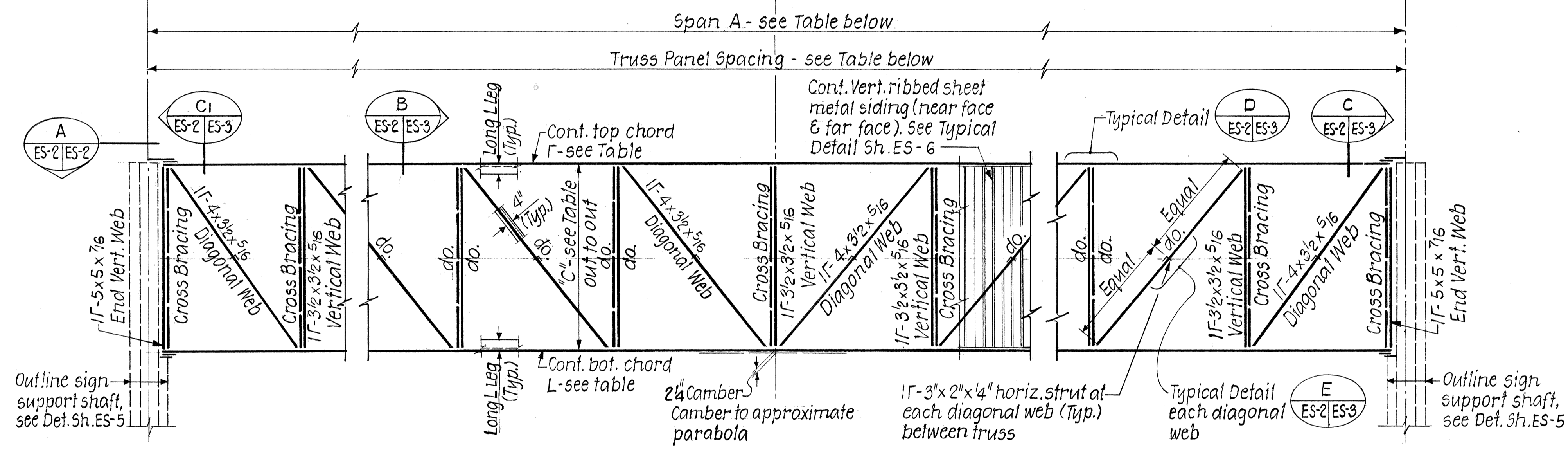
KEEHI INTERCHANGE  
F.A.I. PROJ. NO. 1-HI-1 (132)-17  
SCALE: AS NOTED DATE: 11/16/81  
SHEET No. ES-1 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(132):17	1983	37	192



SIGN STRUCTURE LOCATION DIAGRAM  
Not to Scale

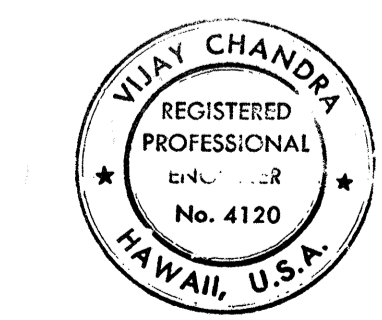
- NOTES:**
1. For General & Design Notes, refer to Sh. No. ES-1.
  2. Luminaire support framing; sign supports & mounting beams not shown. Refer to corresponding details Sh. No. ES-3, ES-4 & ES-6. For additional details, refer to corresponding highway lighting & sign drawings.



ELEVATION - TYPICAL TRUSS FRAMING DETAIL - BOX BEAM CLOSED TRUSS  
Scale: 1/4" = 1'-0"

IDENTIFICATION NO.	SPAN A	LEFT POST B SHEET ES-5	RIGHT POST B SHEET ES-5	TRUSS DEPTH C	TRUSS PANELS SPACING	TRUSS			WIND BRACING PANEL SPACING	DIAG. BRACING TOP & BOTTOM CHORDS	ELEVATION BOTTOM OF BASE PLATES	
						TOP & BOTTOM CHORD SIZE	VERT. WEB SIZE	DIAG. WEB SIZE			LEFT POST	RIGHT POST
E-29	102'-8"	27'-8 1/4"	30'-11 1/8"	9'-11 1/2"	12 equal panels @ 8'-6 1/16" (-) = 102'-8"	L8 x 6 x 7 8	L3 1/2 x 3 1/2 x 5 16	L4 x 3 1/2 x 5 16	50 equal panels @ 2'-0" (-) = 99'-10"	L2 x 2 x 4	36.48	33.24

DATE	2-77
SURVEY PLOTTED BY	A. WALKIN
DRAWN BY	P. PATRICK
DESIGNED BY	C. TSAI
QUANTITIES BY	J. B. TIMONEY
CHECKED BY	J. B. TIMONEY
ORIGINAL PLAN	
NOTE BOOK	
NO.	



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
Vijay Chandra  
Signature

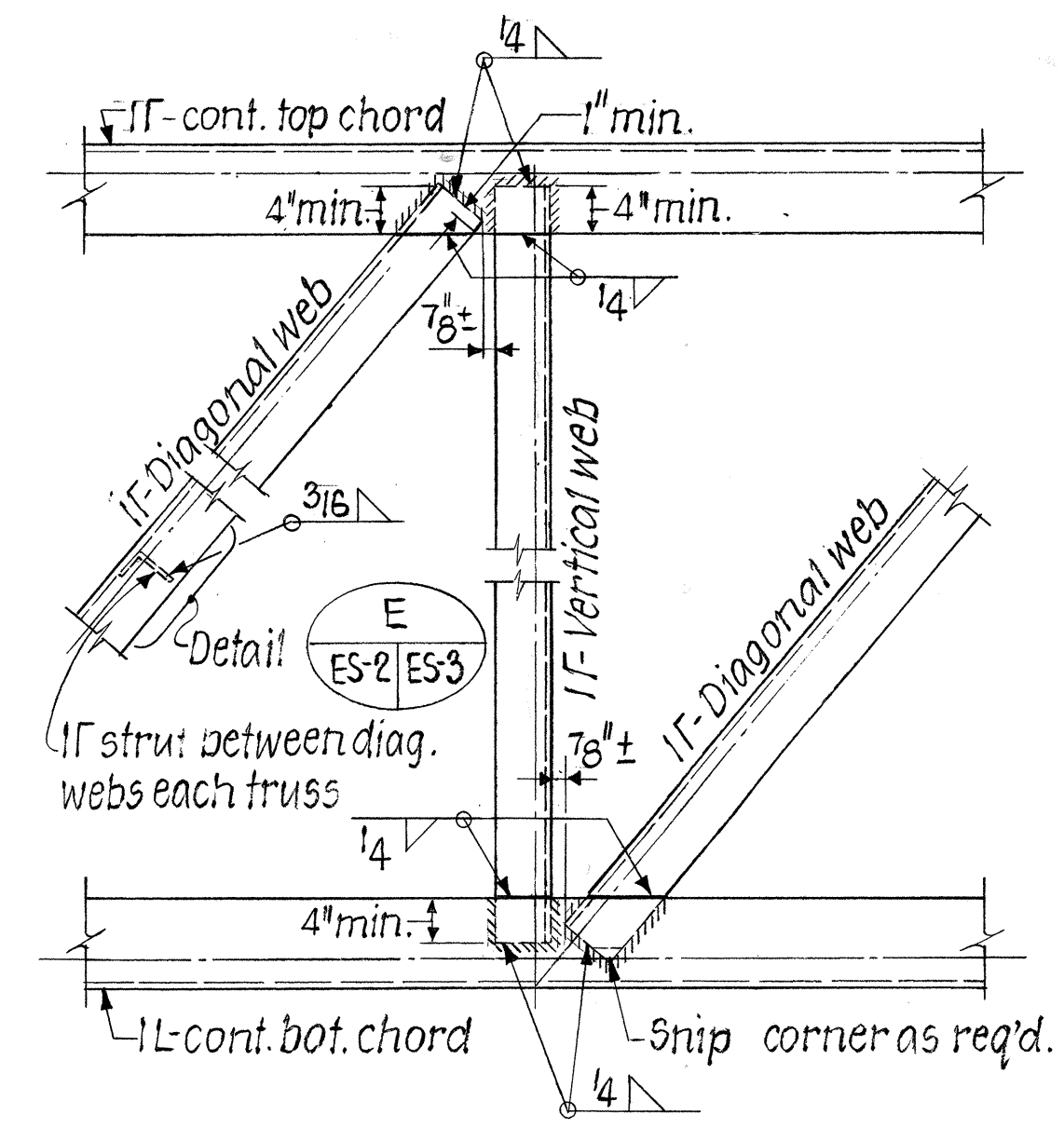
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGN E-29**  
BOX BEAM CLOSED TRUSS  
FRAMING DETAILS

KEEHI INTERCHANGE  
F.A.I. PROJ. NO. 1-HI-1 (132):17  
SCALE: AS NOTED DATE: 11/6/81

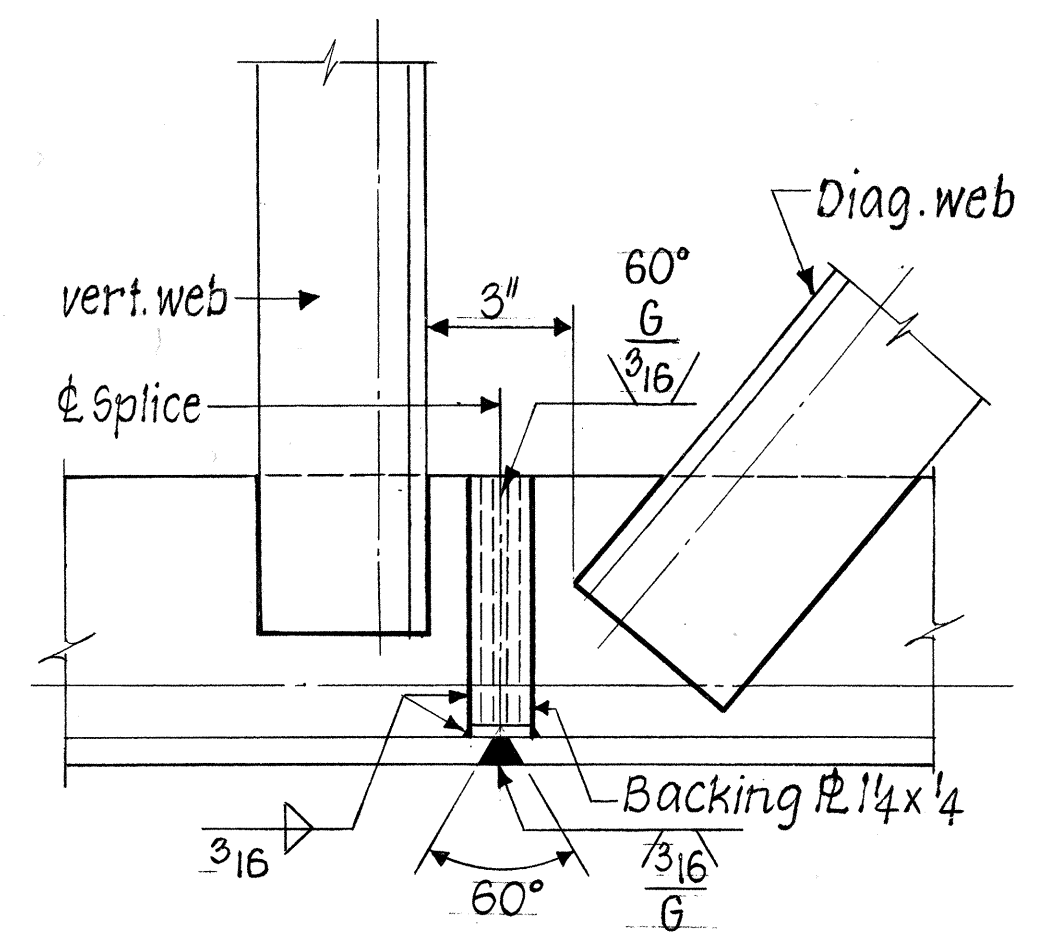
SHEET NO. ES-2 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(132)-17	1983	38	192

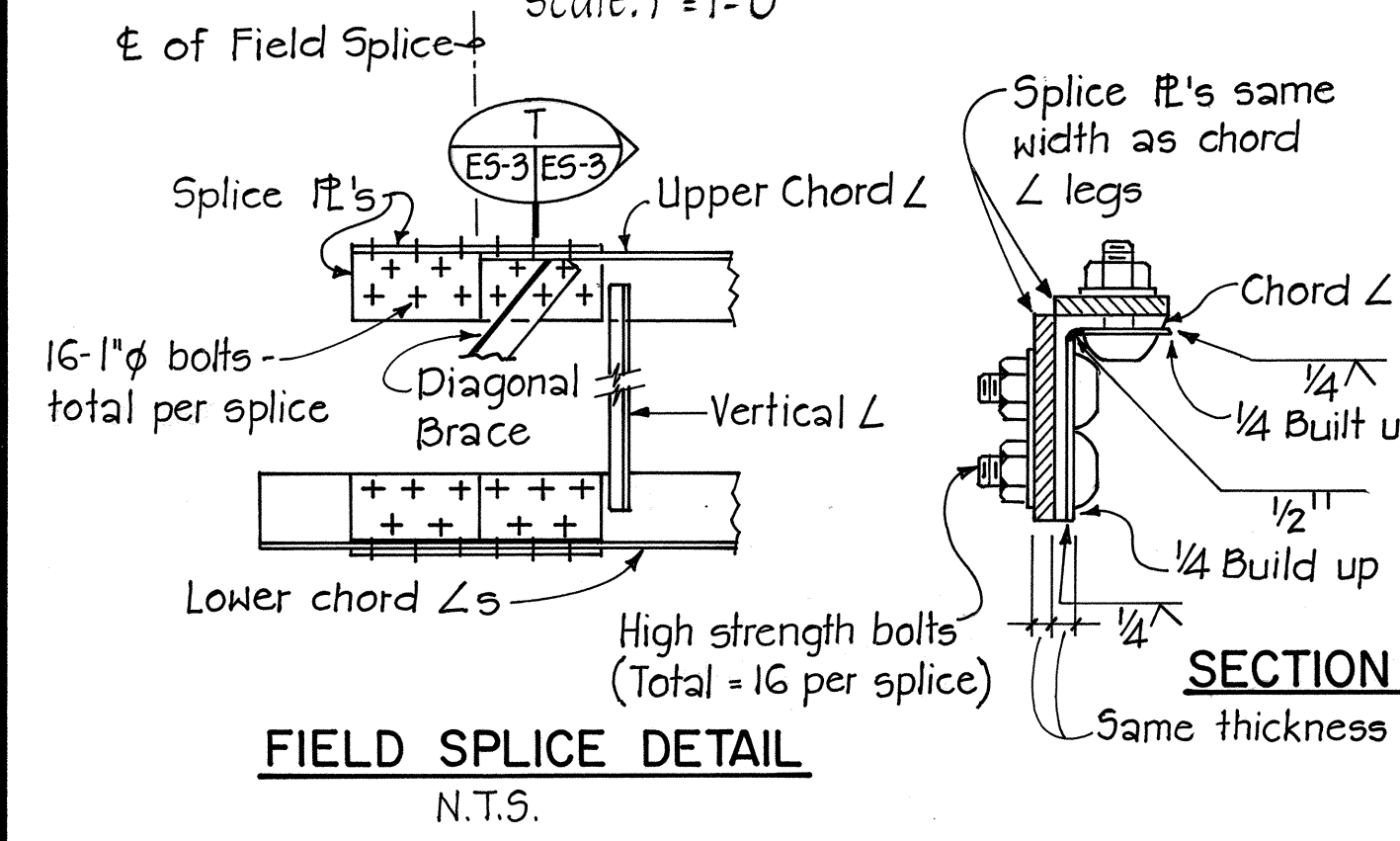


**TYPICAL DETAIL**  
Scale: 1" = 1'-0"

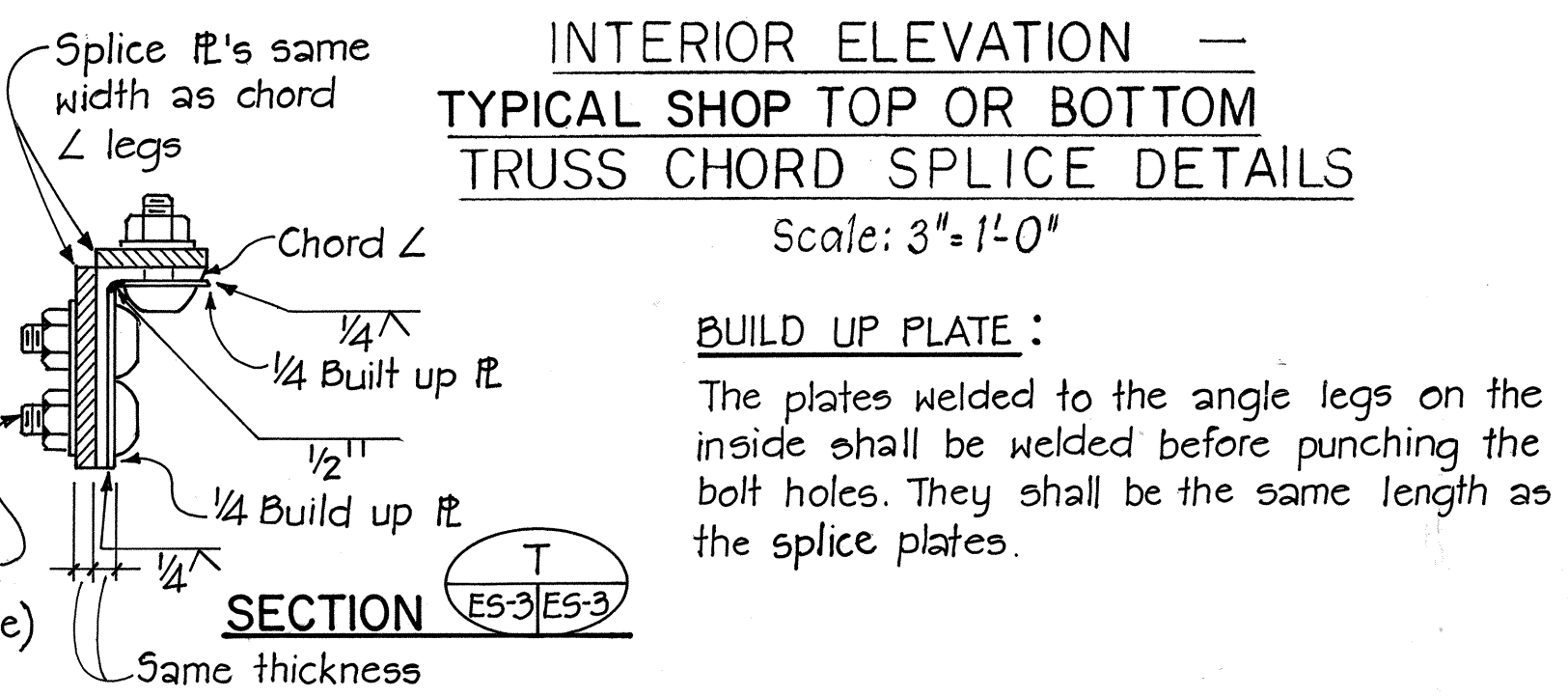
**NOTE:**  
Splice locations of top and bottom chords at each truss shall be staggered and at alternate locations. Indicate splice locations on shop fabrication drawings for approval. In no case shall splices be located at midspan of truss. The splice shall be located so as not to interfere with mounting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



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

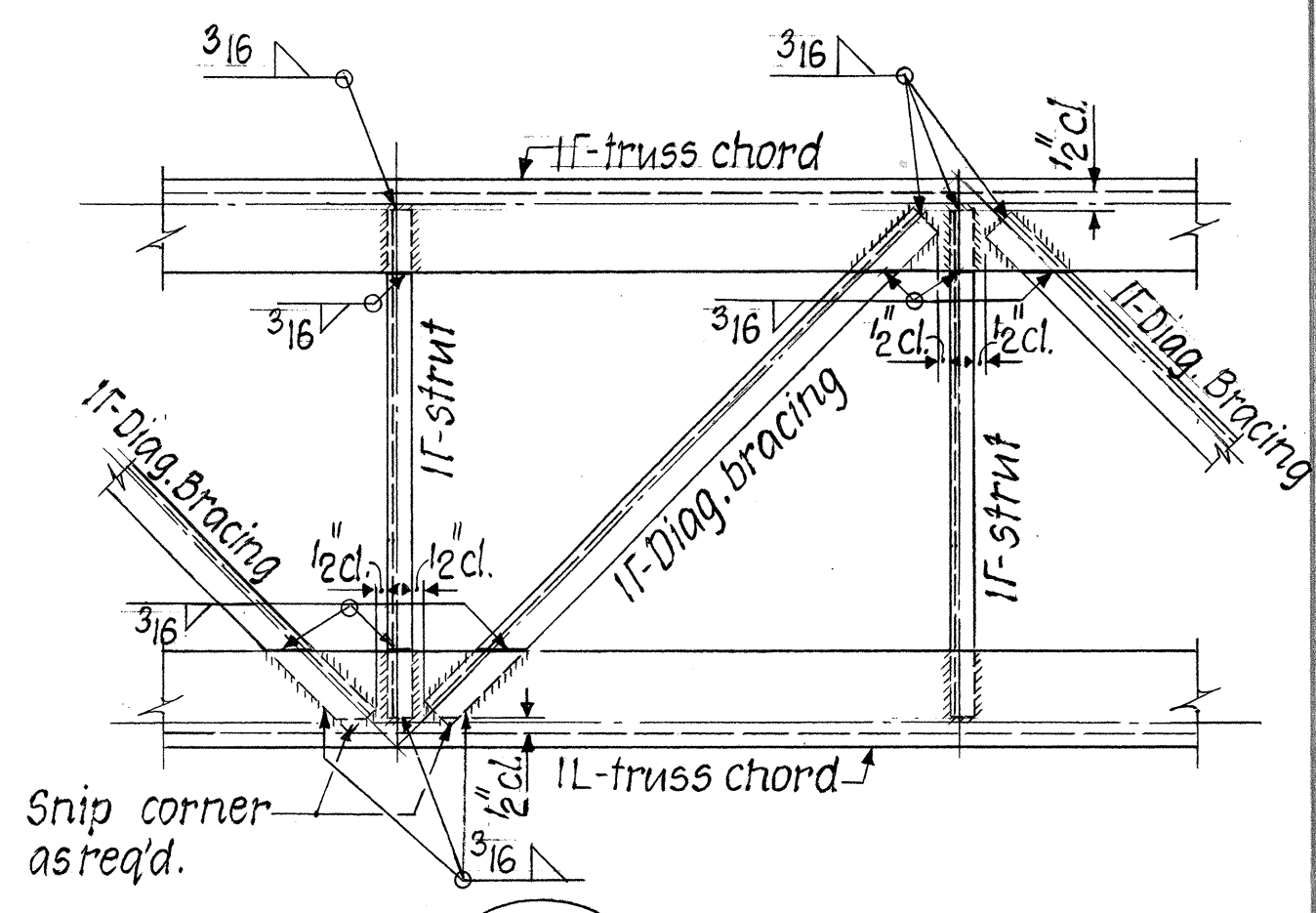


**FIELD SPLICE DETAIL**  
N.T.S.

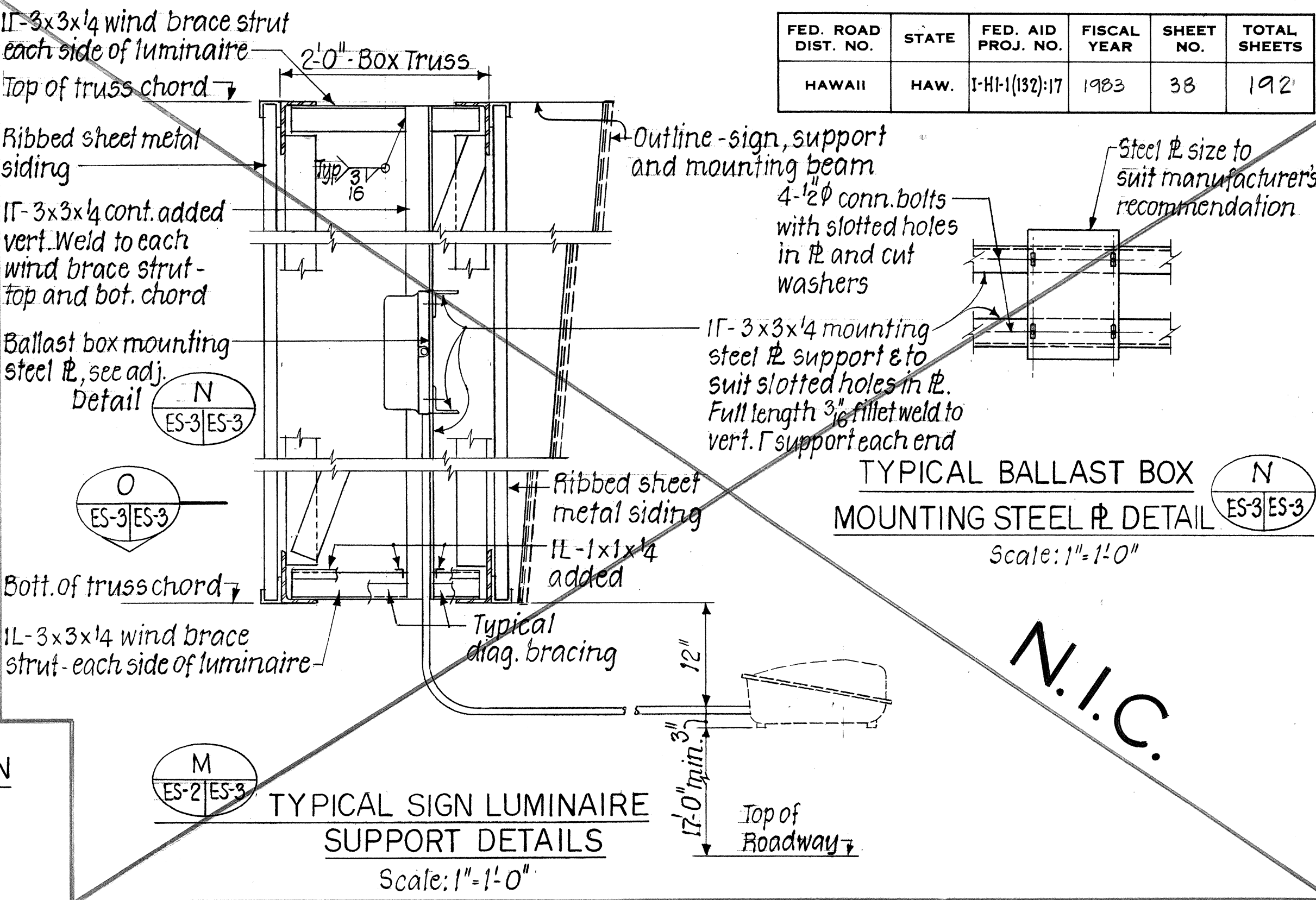


**SECTION**  
Scale: 3" = 1'-0"

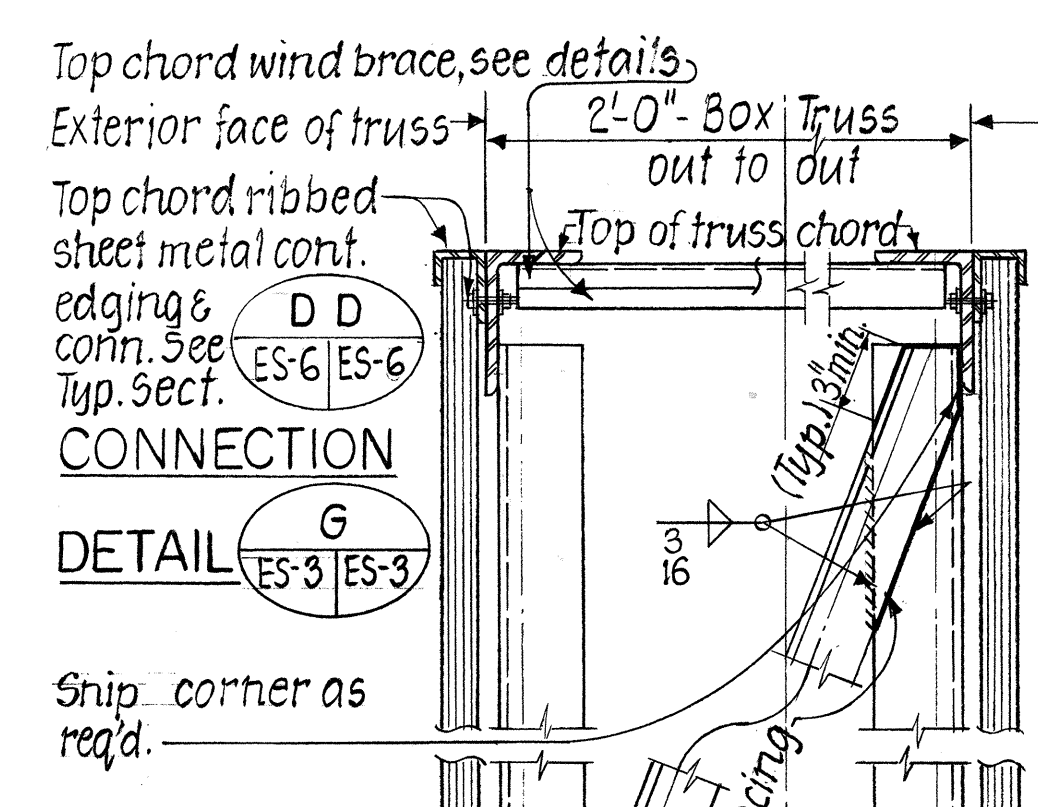
**BUILD UP PLATE:**  
The plates welded to the angle legs on the inside shall be welded before punching the bolt holes. They shall be the same length as the splice plates.



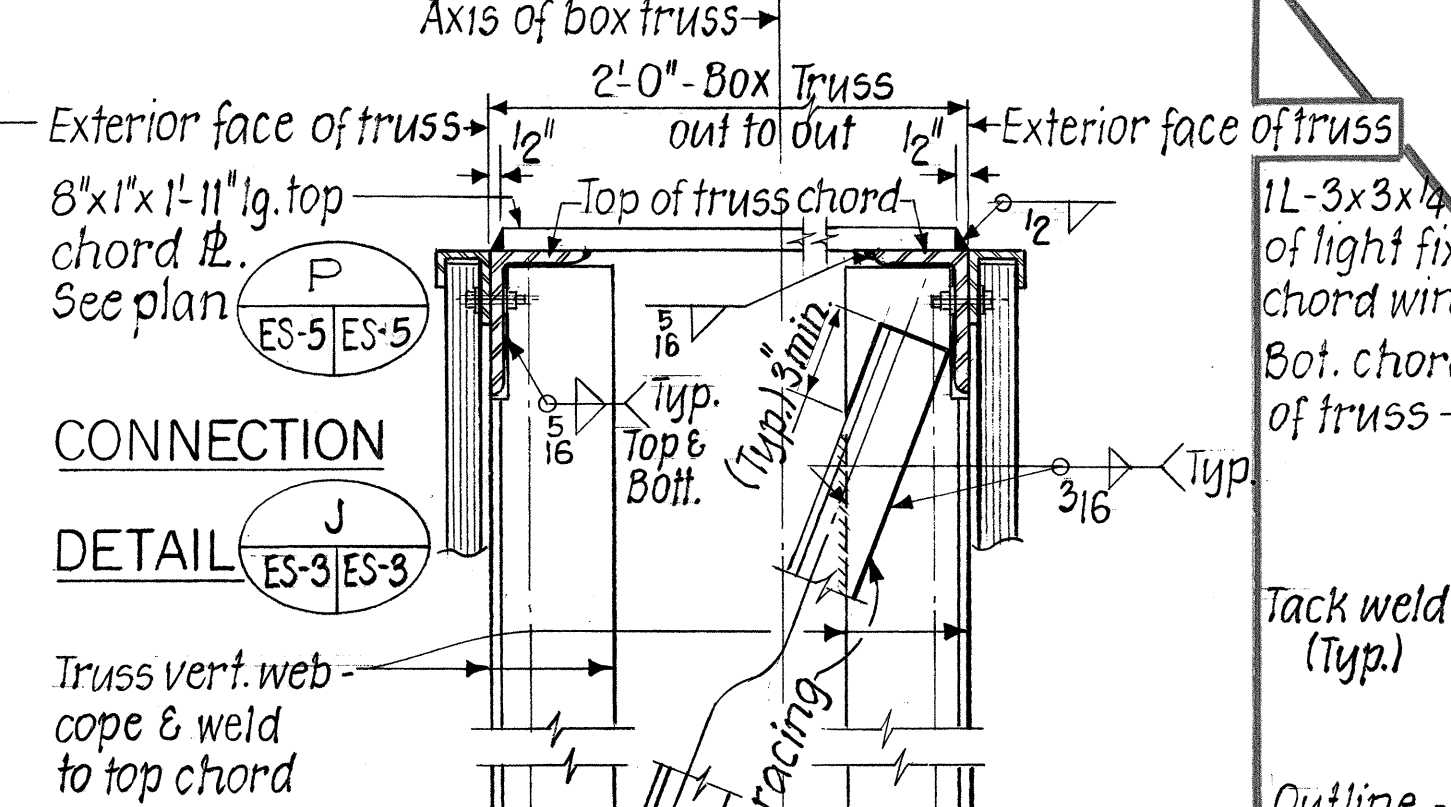
**TYPICAL DETAIL WIND BRACE CONNECTION**  
(TOP CHORD SHOWN - BOTT. CHORD SIMILAR)  
Scale: 1/2" = 1'-0"



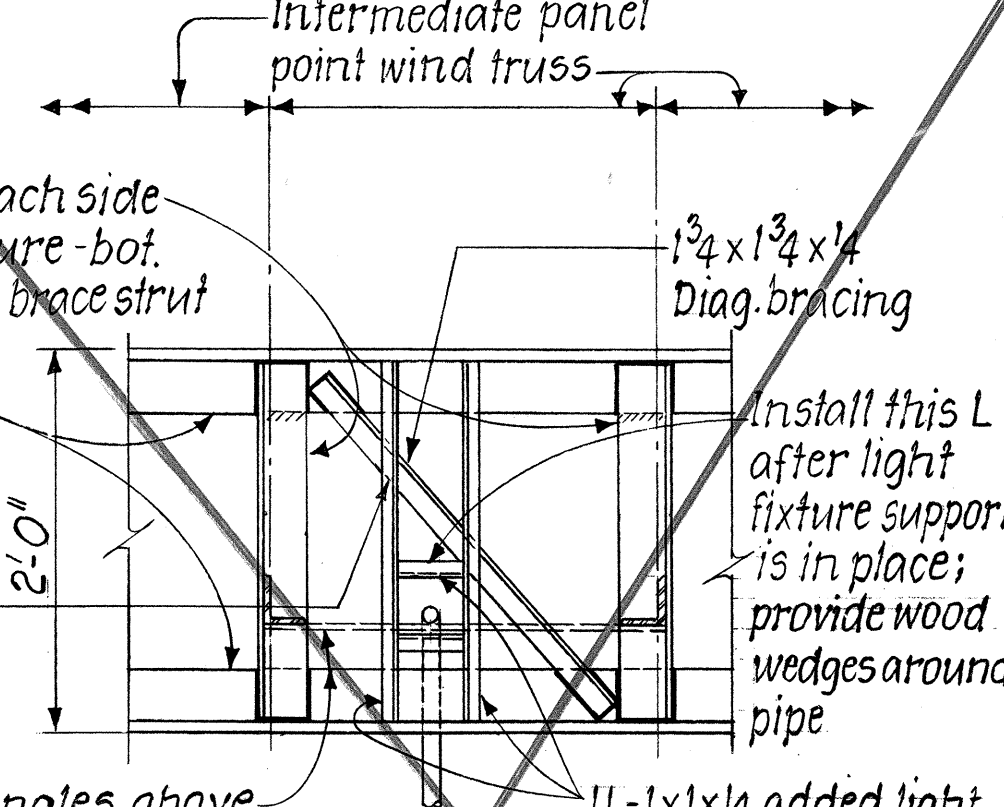
**TYPICAL SIGN LUMINAIRE SUPPORT DETAILS**  
Scale: 1" = 1'-0"



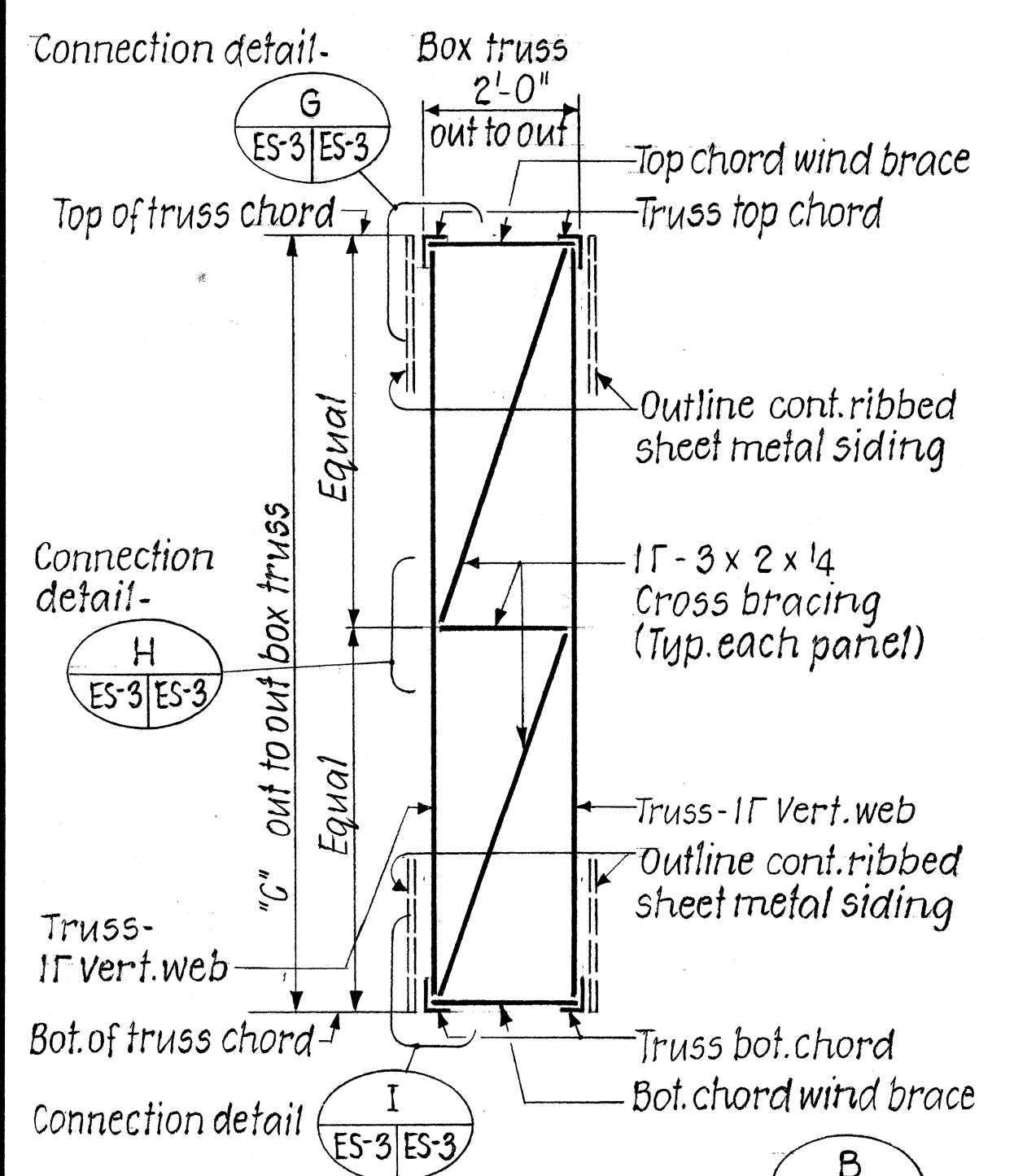
**CONNECTION DETAIL G**  
Scale: 1/2" = 1'-0"



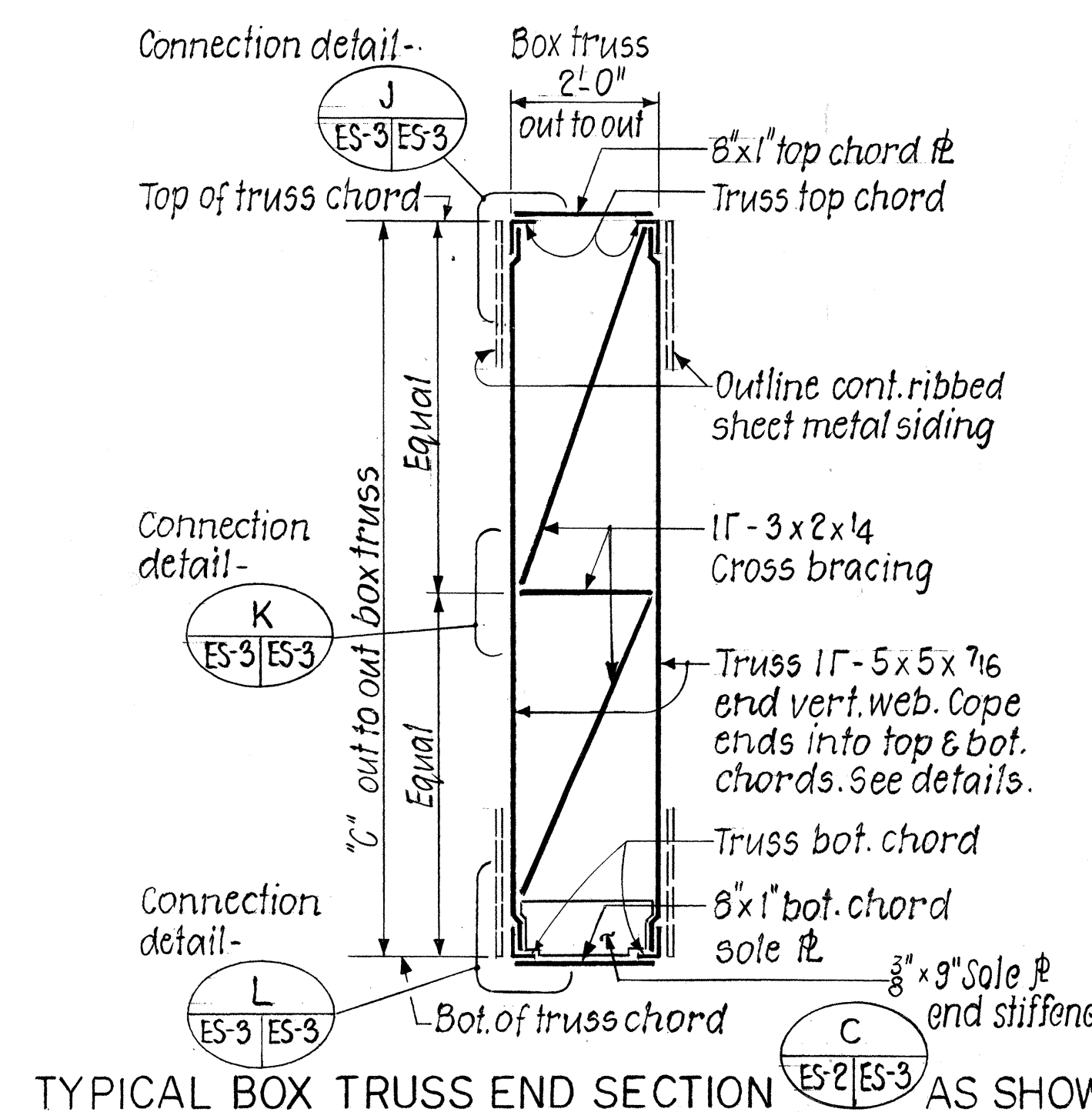
**CONNECTION DETAIL J**  
Scale: 1/2" = 1'-0"



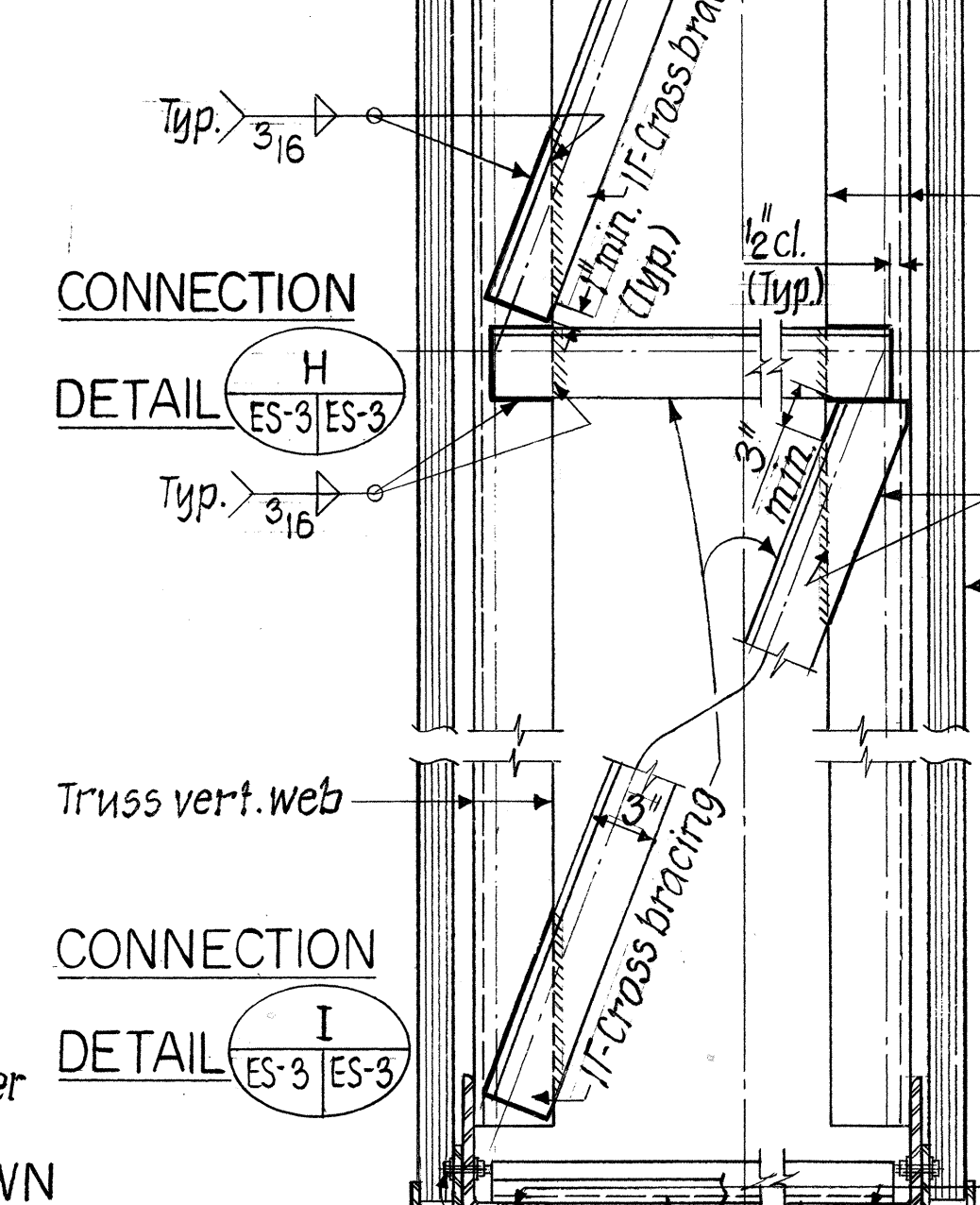
**SECTION O**  
Scale: 1" = 1'-0"



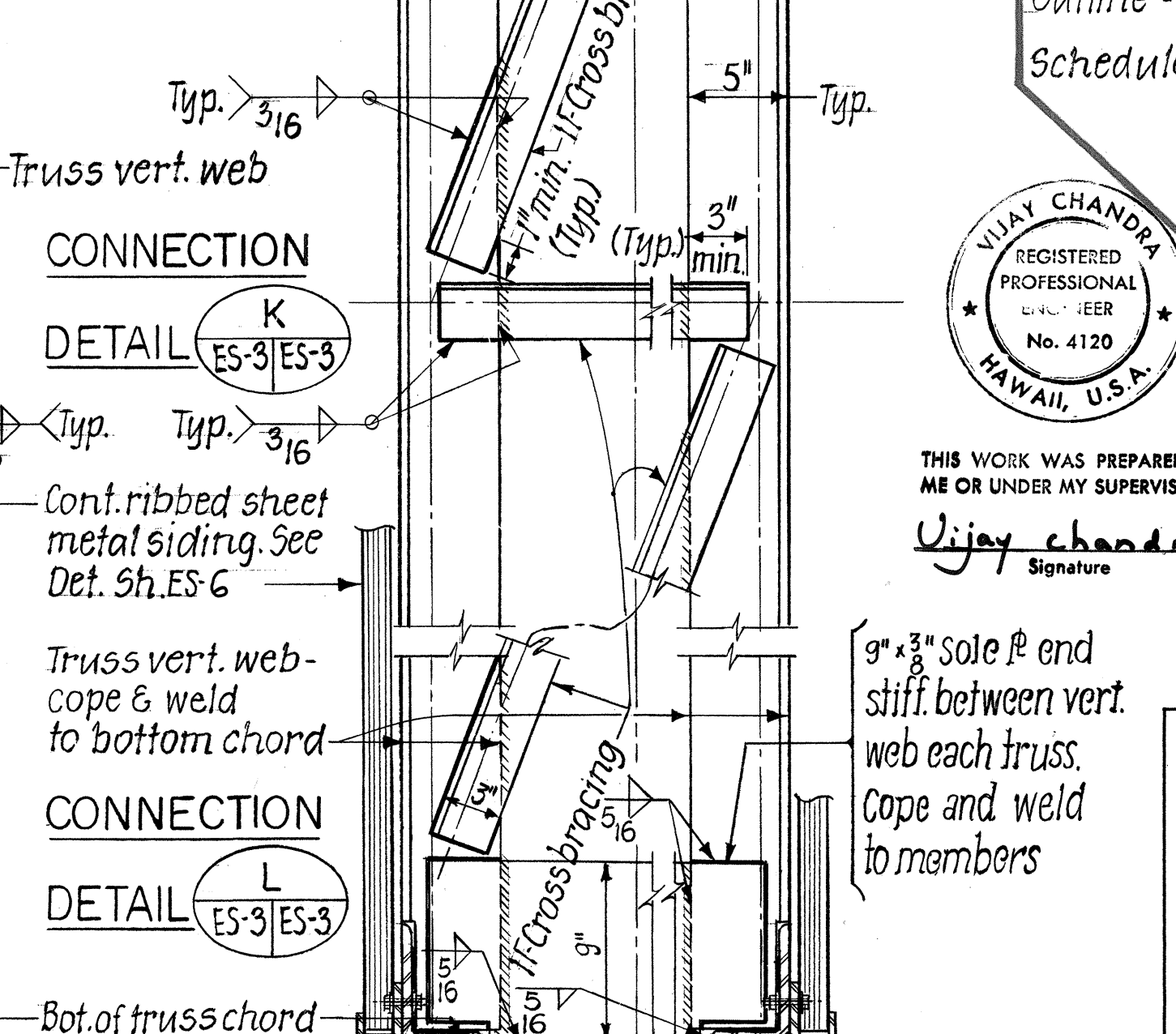
**TYPICAL BOX TRUSS SECTION**  
(INTERMEDIATE CROSS BRACING DETAILS)  
Scale: 1/2" = 1'-0"



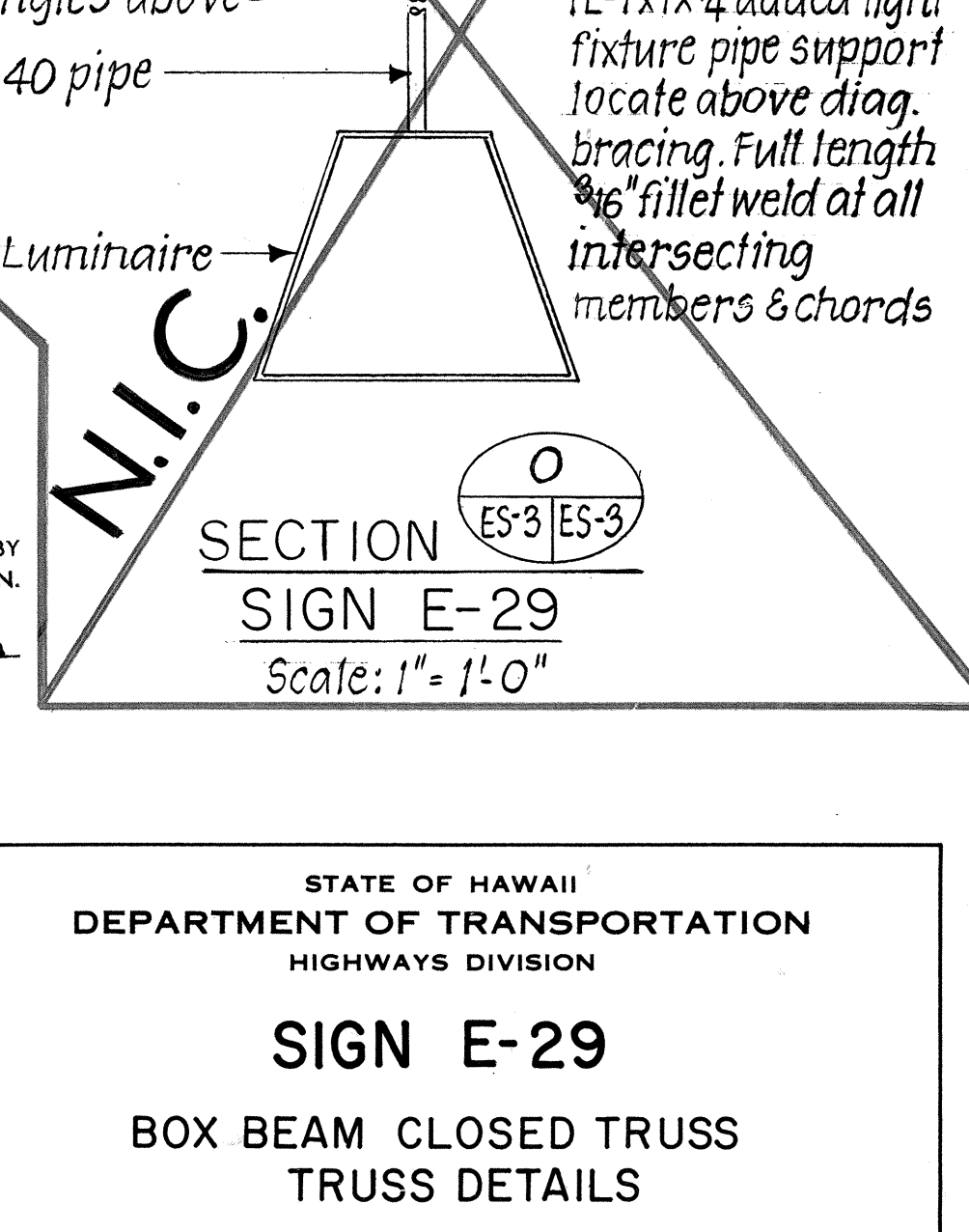
**TYPICAL BOX TRUSS END SECTION AS SHOWN**  
SECTION C (ES-2/ES-3) SIMILAR EXCEPT OPPOSITE HAND  
(END CROSS BRACING DETAILS)  
Scale: 1/2" = 1'-0"



**CONNECTION DETAIL H**  
Scale: 1/2" = 1'-0"



**CONNECTION DETAIL K**  
Scale: 1/2" = 1'-0"



**SECTION R**  
Scale: 1/2" = 1'-0"

DATE	2-77
SURVEY PLOTTED BY	PATRICIA MALIKIN
DRAWN BY	C. TSAI
DESIGNED BY	J.B. TIMONEY
CHECKED BY	J.B. TIMONEY
ORIGINAL PLAN	
NOTE BOOK	
NO.	

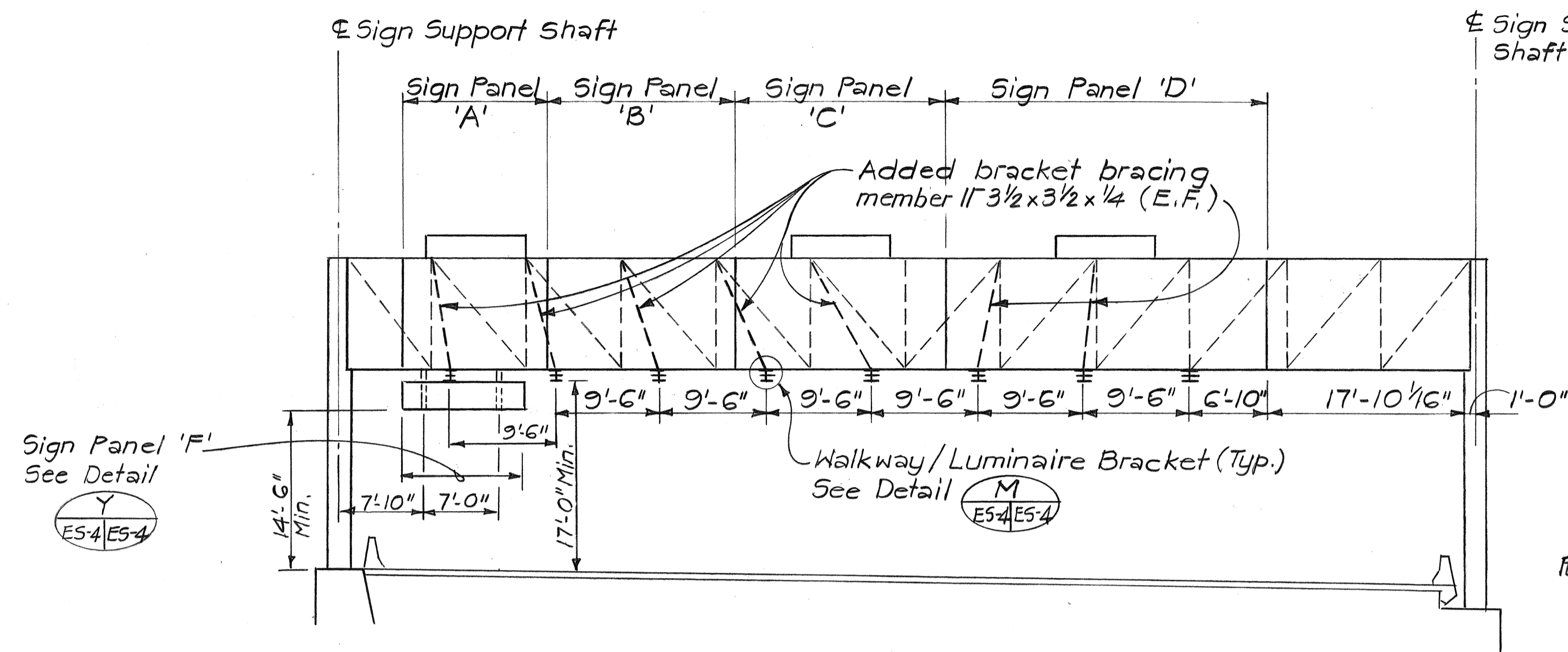
**VILAY CHANDRA**  
REGISTERED PROFESSIONAL ENGINEER  
No. 4120  
HAWAII, U.S.A.  
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
*Vilay Chandra*  
Signature

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

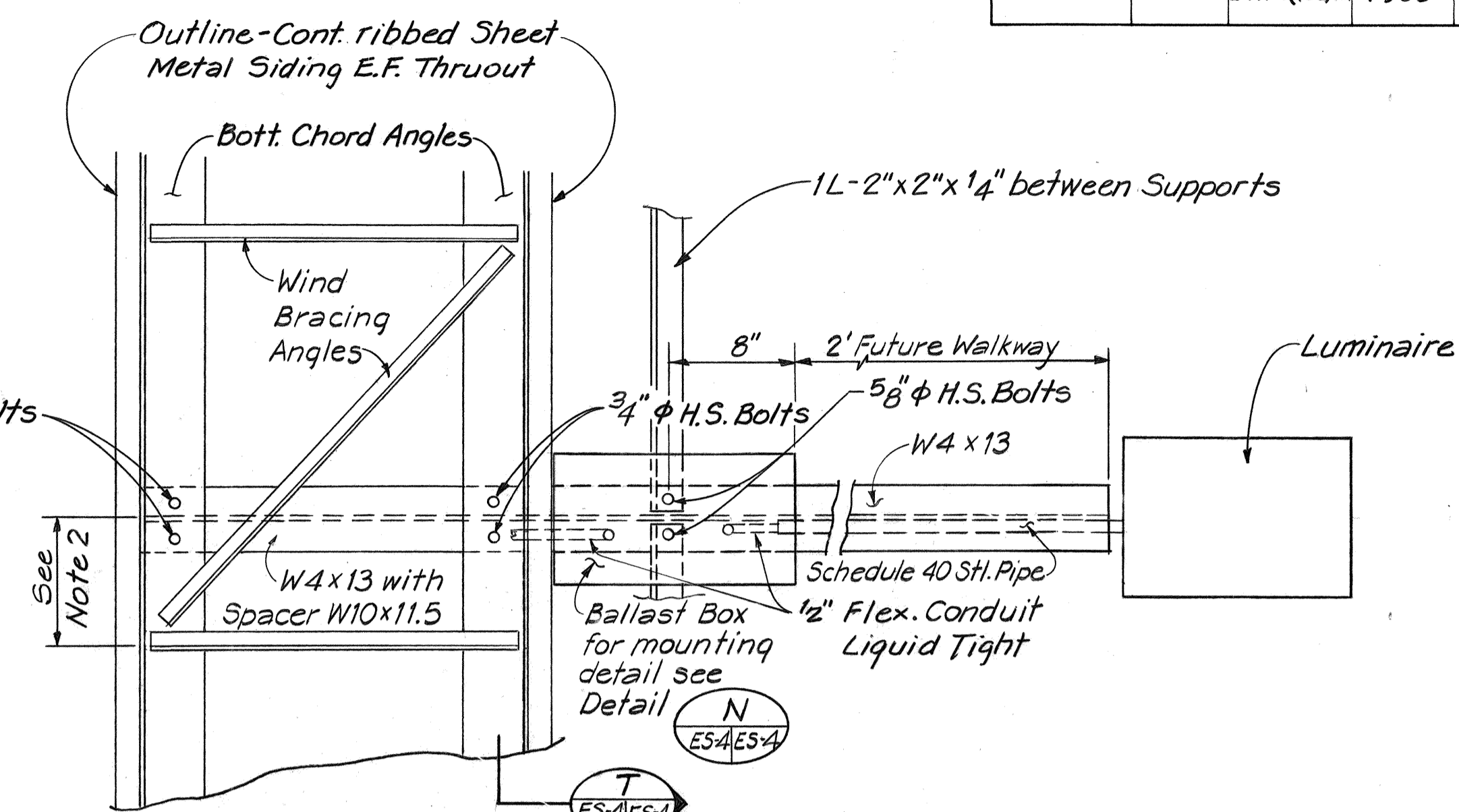
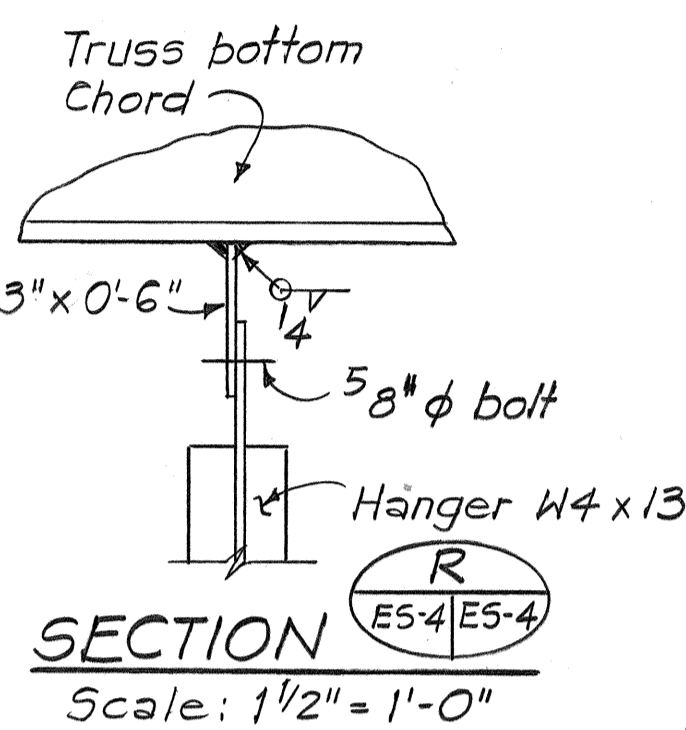
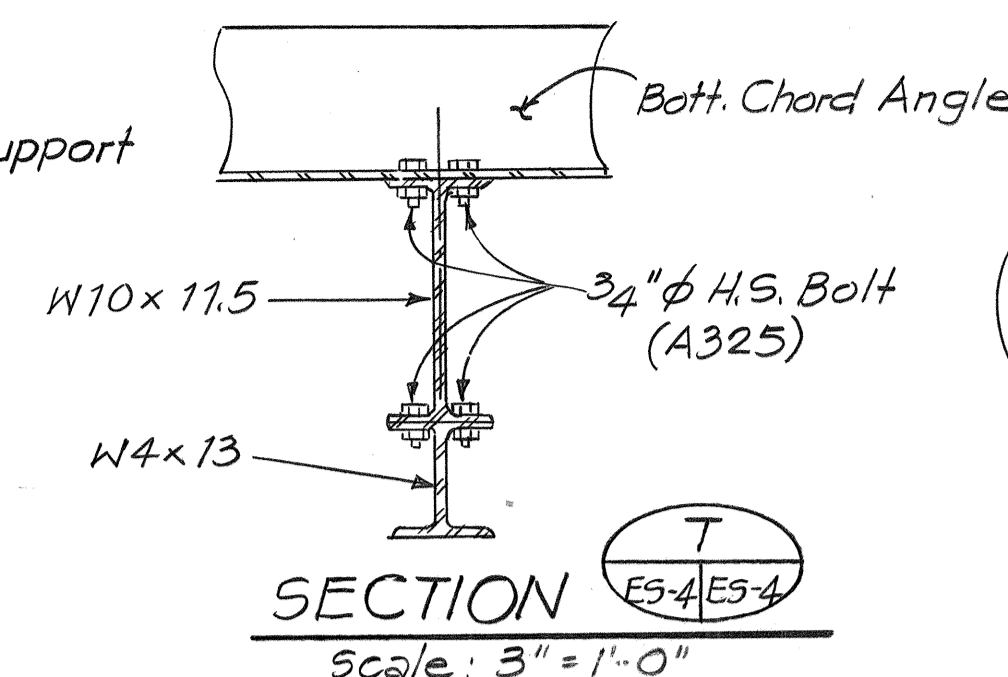
**SIGN E-29**  
BOX BEAM CLOSED TRUSS TRUSS DETAILS

KEEHI INTERCHANGE  
F.A.I. PROJ. NO. 1-HI-1 (132)-17  
SCALE: AS NOTED DATE: 11/16/81  
SHEET NO. ES-3 OF 7 SHEETS

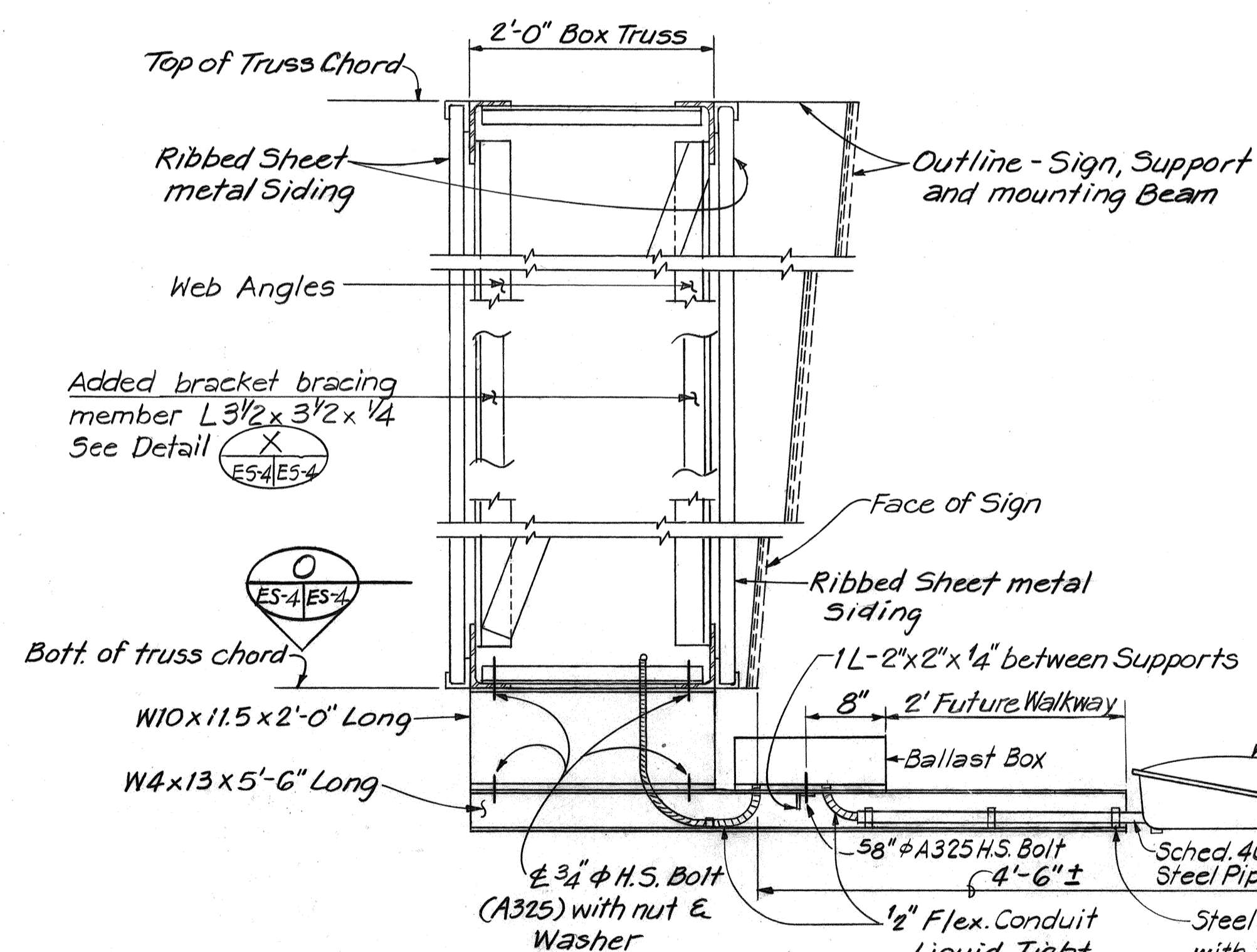
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(132)17	1983	39	192



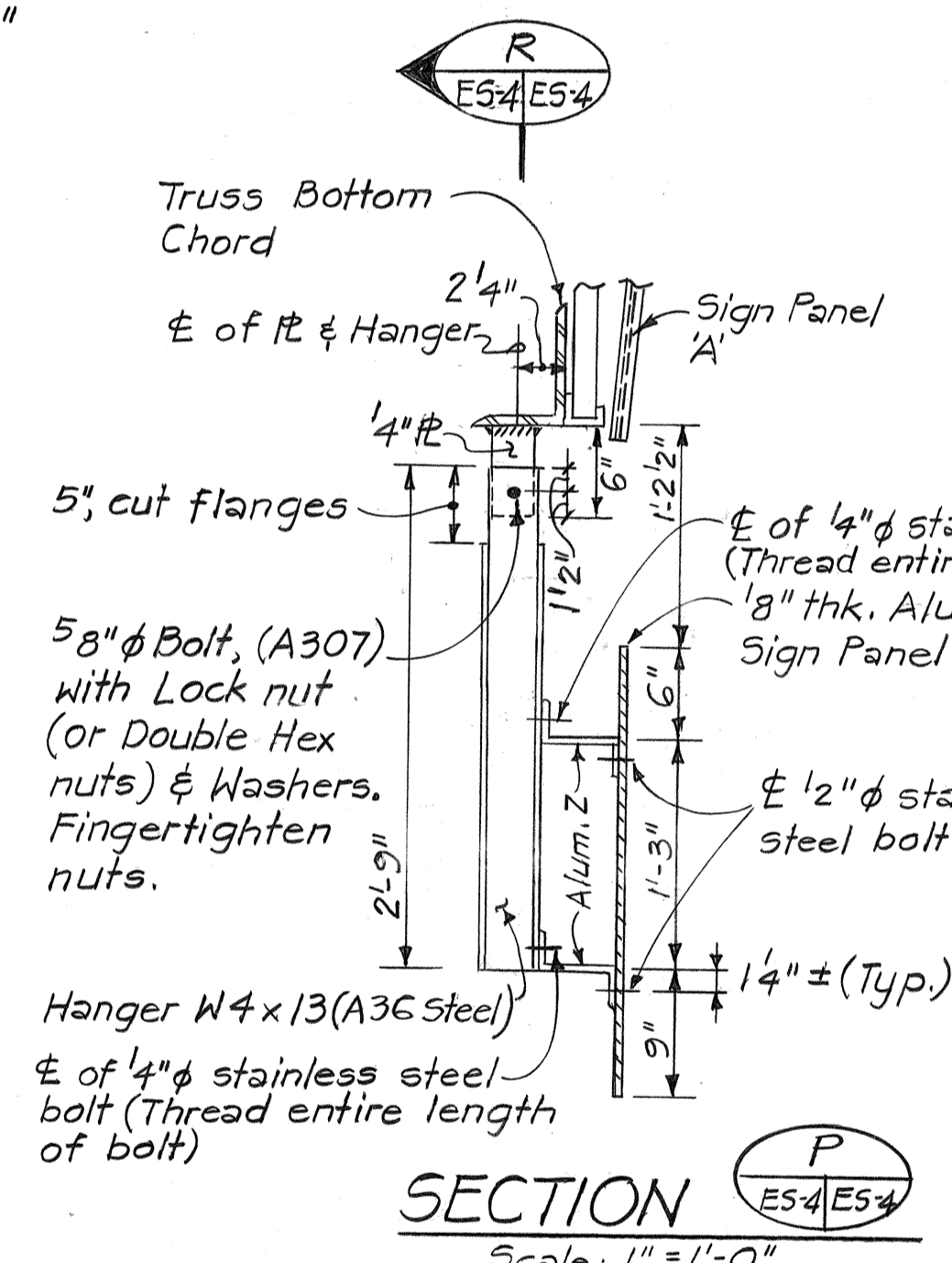
**SIGN E-29 ELEVATION**  
Scale: 1" = 10'-0"



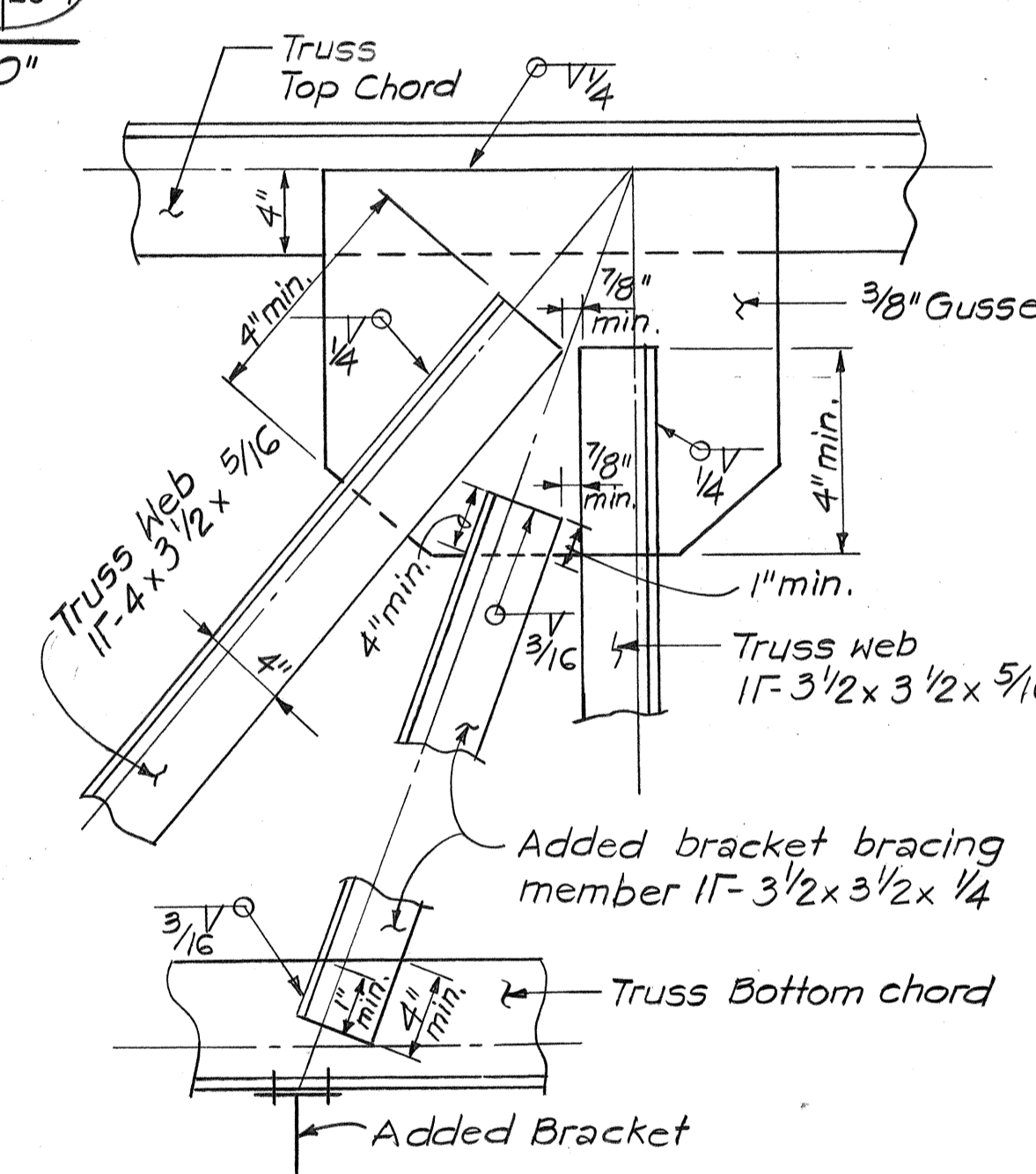
**SECTION O**  
Scale: 1 1/2" = 1'-0"



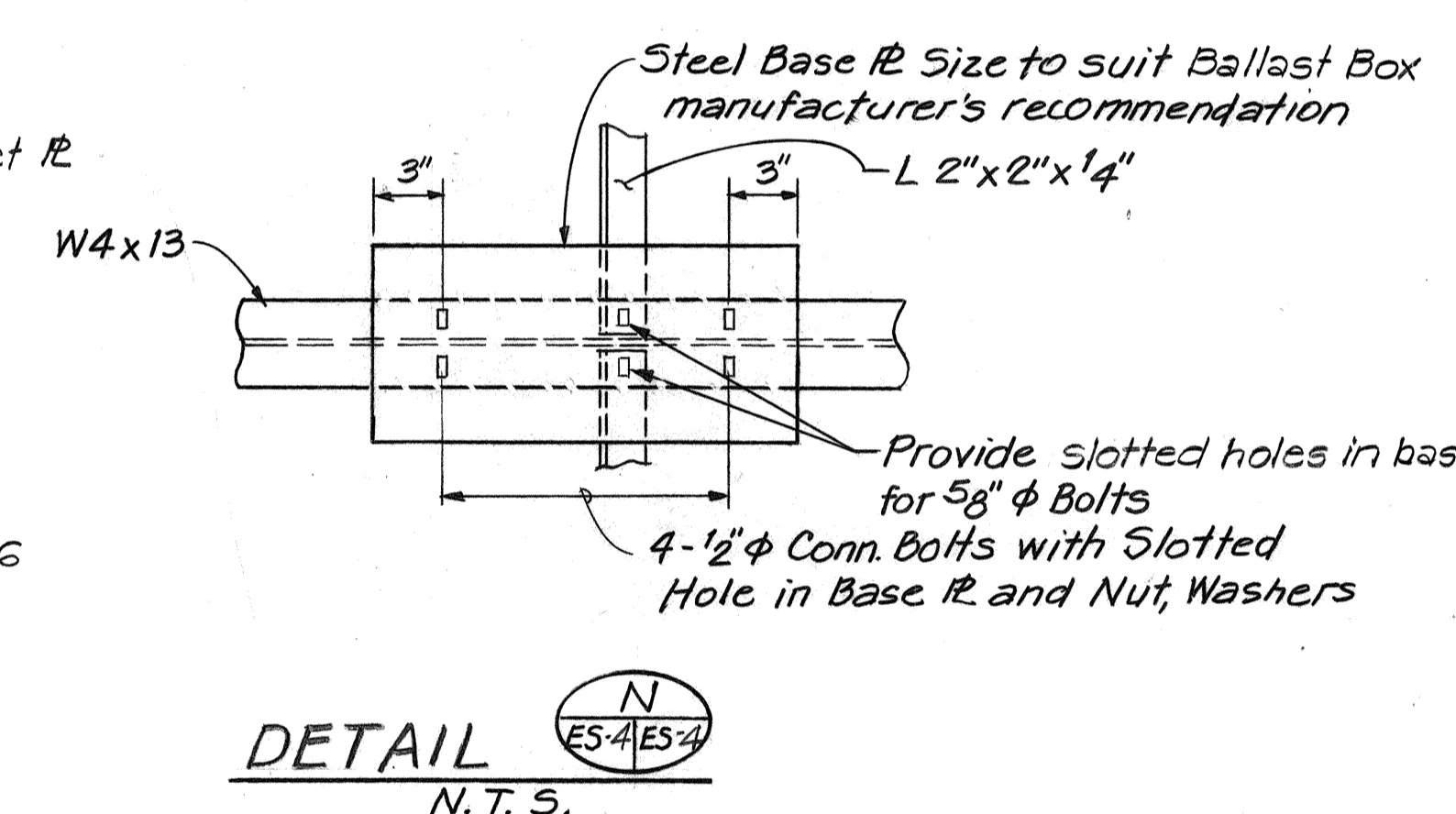
**DETAIL M TYPICAL SIGN LUMINAIRE AND WALKWAY SUPPORT DETAILS**  
Scale: 1" = 1'-0"



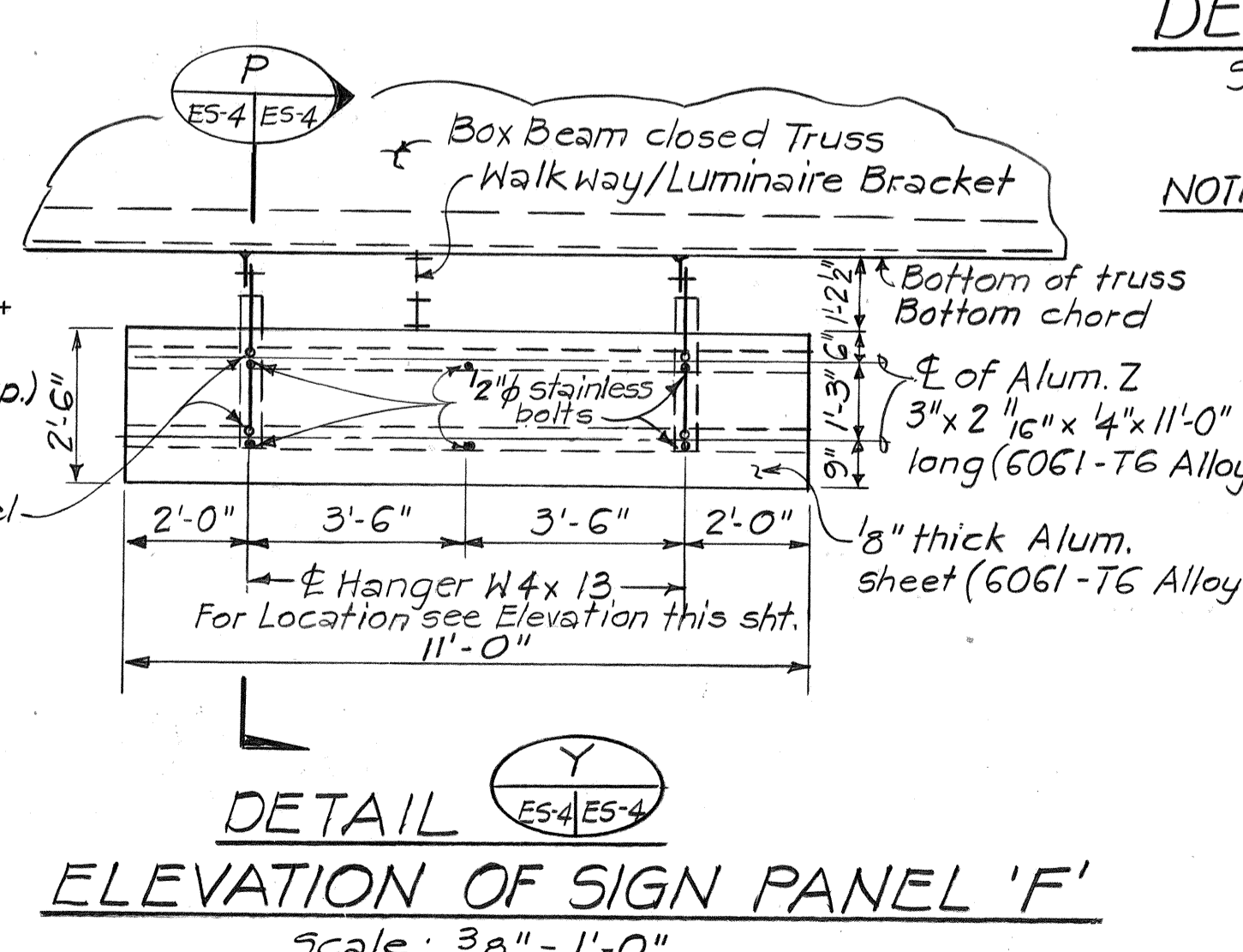
**SECTION P**  
Scale: 1" = 1'-0"



**DETAIL X**  
Scale: 1 1/2" = 1'-0"



**DETAIL N**  
N.T.S.



**DETAIL Y ELEVATION OF SIGN PANEL 'F'**  
Scale: 3/8" = 1'-0"

- NOTES:**
1. For General Notes see Sheet No. ES-1.
  2. Locations of Sign Luminaires & Walkway Brackets may be adjusted to avoid any interference with bottom wind bracing subject to the Approval of the Engineer.
  3. Load of Walkway & railing on each bracket shall not exceed 375 Lbs.
  4. Live load on each bracket = 500 Lbs.
  5. All structural steel, steel pipe, steel strap, connection bolts & nuts in luminaire and walkway supports shall be hot dipped galvanized after fabrication.
  6. For Details of Sign Panels 'A', 'B', 'C' & 'D' see sheet No. ES-6.

JOHN P. JOHNSON  
REGISTERED PROFESSIONAL ENGINEER  
No. 3647  
HAWAII, U.S.A.

THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
John P. Johnson

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGN E-29**  
BOX BEAM CLOSED TRUSS  
TRUSS DETAILS

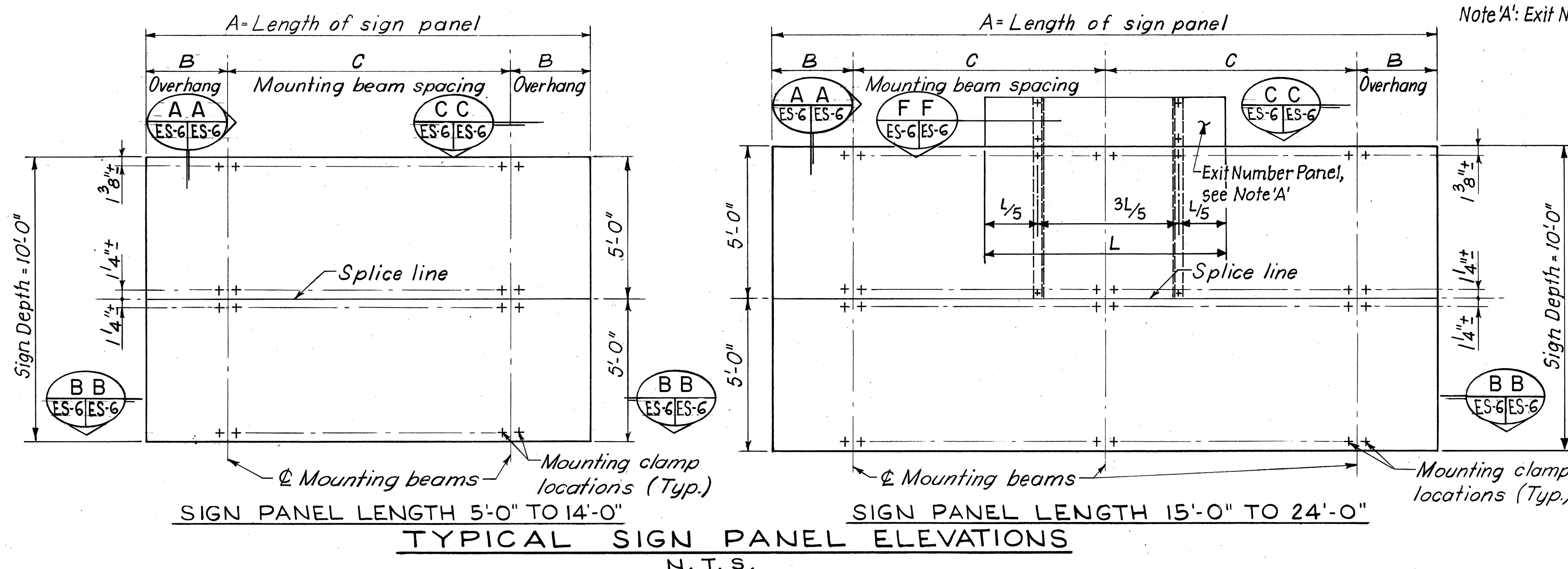
KEEHI INTERCHANGE  
F.A.I. PROJ. NO. I-HI-1 (132) 17  
SCALE: AS NOTED DATE: 11/16/81

SHEET NO. ES-4 OF 7 SHEETS

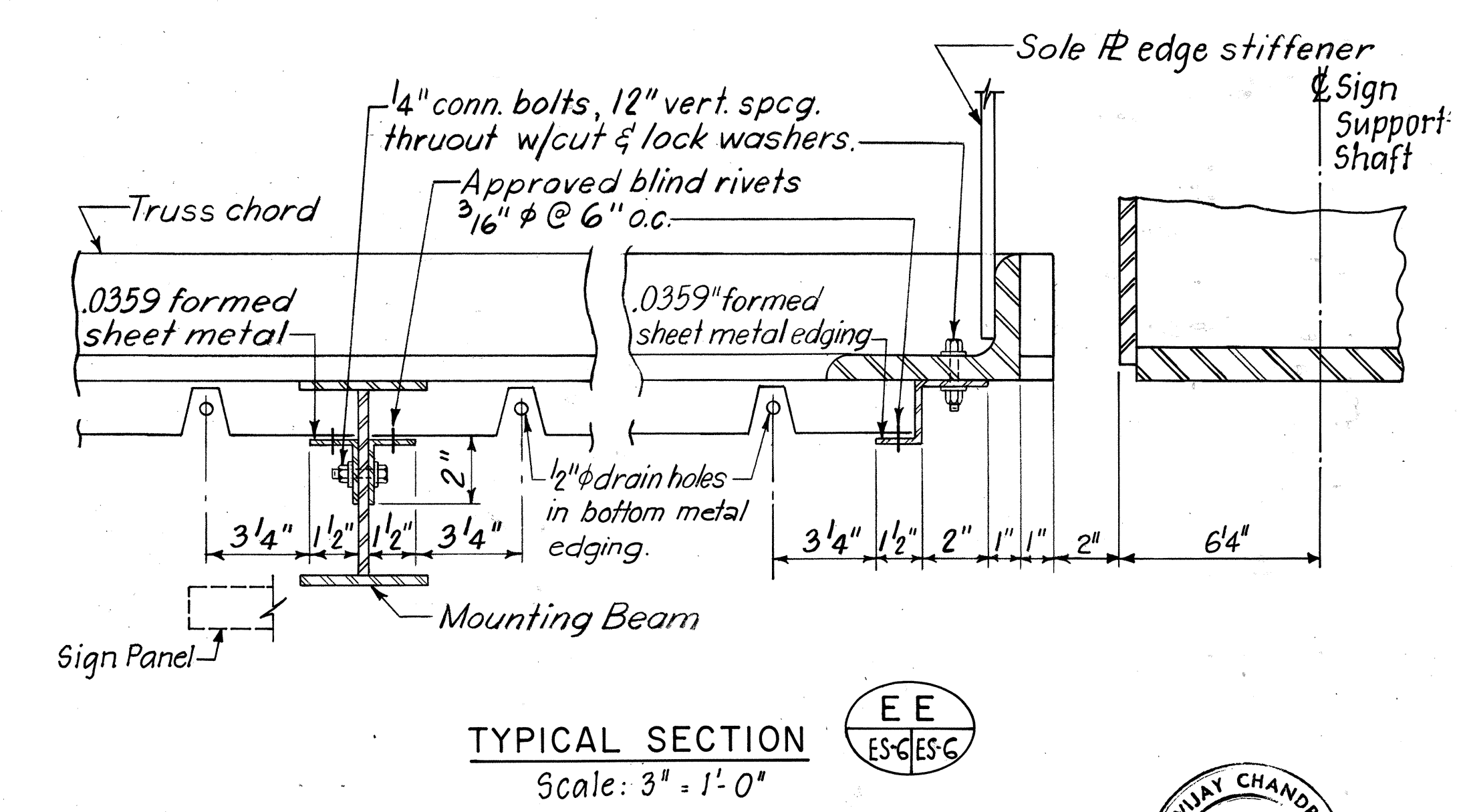
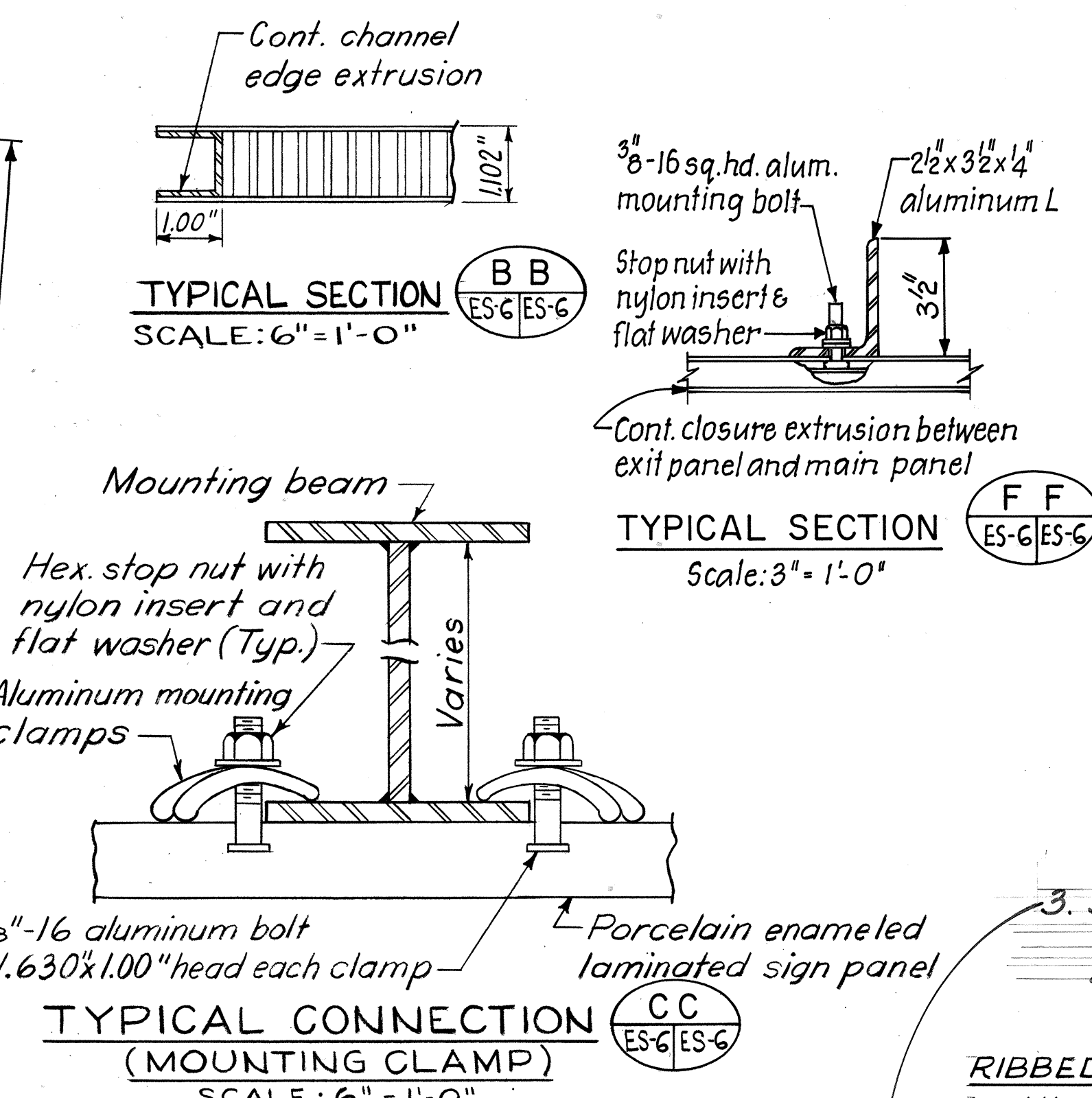
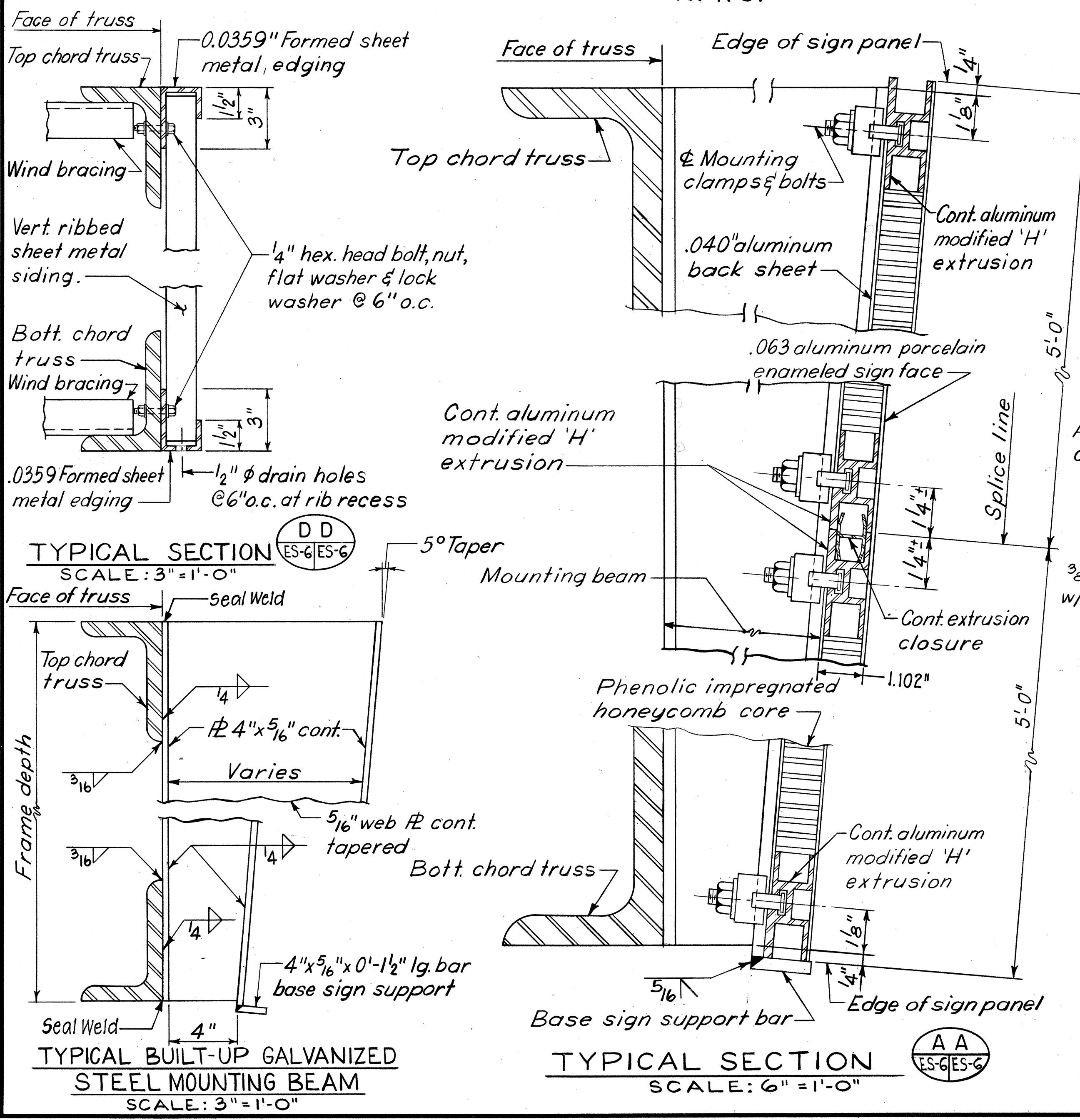
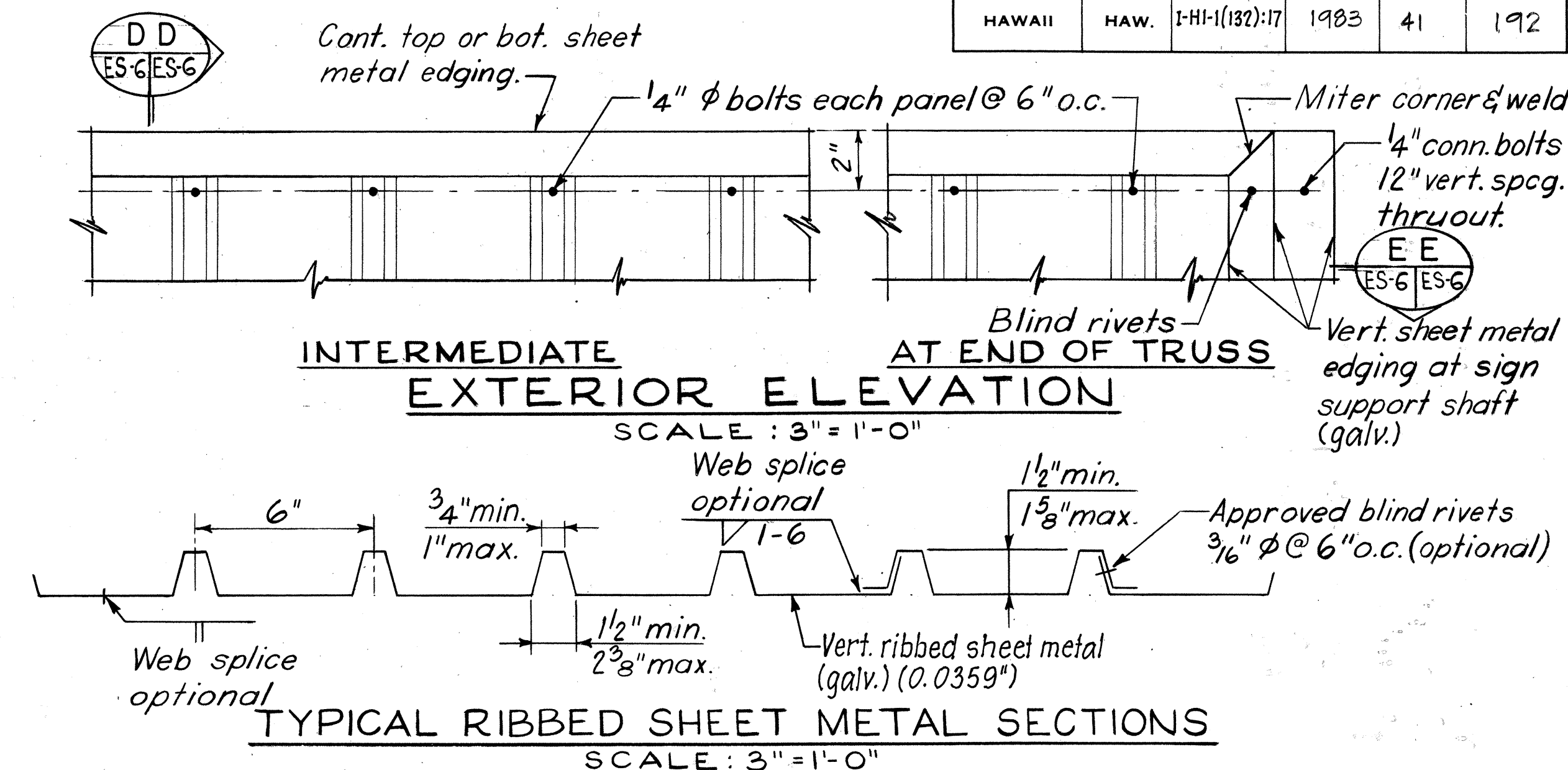
SURVEY PLOTTED BY  
DATE  
DRAWN BY  
DESIGNED BY  
NOTE BOOK  
QUANTITIES BY  
CHECKED BY  
NO.



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(132):17	1983	41	192



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



\* Signs longer than 24' are fabricated and mounted as adjoining single panels.

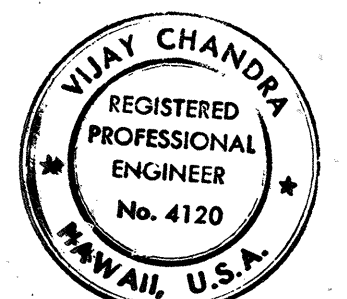
MOUNTING BEAM SCHEDULE			
SIGN PANEL LENGTH *	NUMBER MOUNTING BEAMS	SIGN PANEL OVERHANG	MOUNTING BEAM SPACING
A	B	C	
5'-0"	2	6"	4'-0"
17'-0"	3	1'-0"	7'-6"
19'-0"	3	1'-0"	8'-6"
24'-0"	3	2'-0"	10'-0"
13'-0"	2	2'-0"	9'-0"

NOTE: For additional Sign Details see sheet No. ES-4.

3. Solid aluminum extruded sign panels may be furnished in lieu of laminated aluminum 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.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
Vijay Chandra  
Signature

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGN E-29**

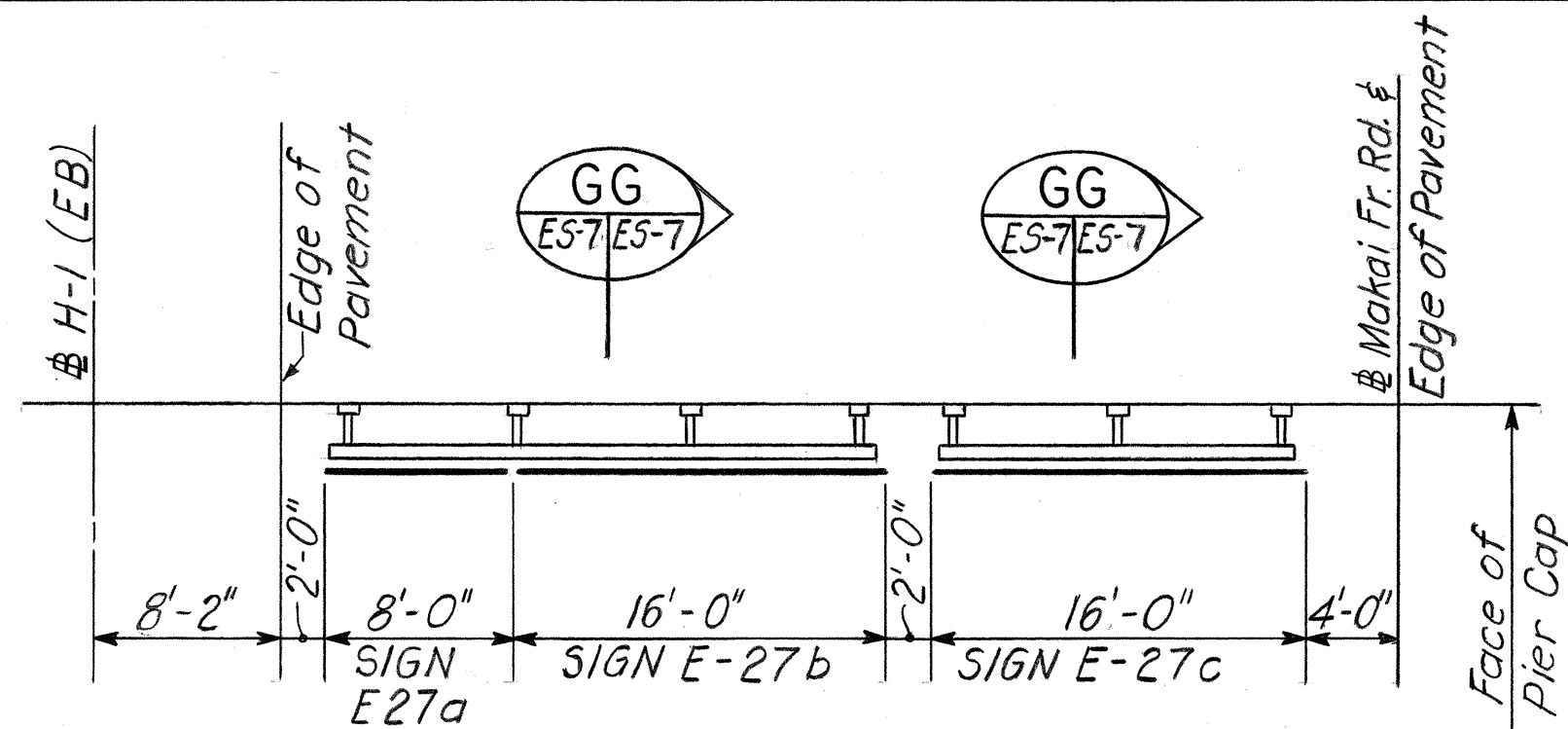
TYPICAL SIGN PANEL MOUNTING & RIBBED SHEET METAL SIDING DETAILS

KEEHI INTERCHANGE  
F.A.I. PROJ. NO. I-HI-1 (132):17  
SCALE: AS NOTED DATE: 11/16/81

SHEET No. ES-6 OF 7 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	2-77
TRACED BY	
QUANTITIES BY	
CHECKED BY	
NOTE BOOK NO.	

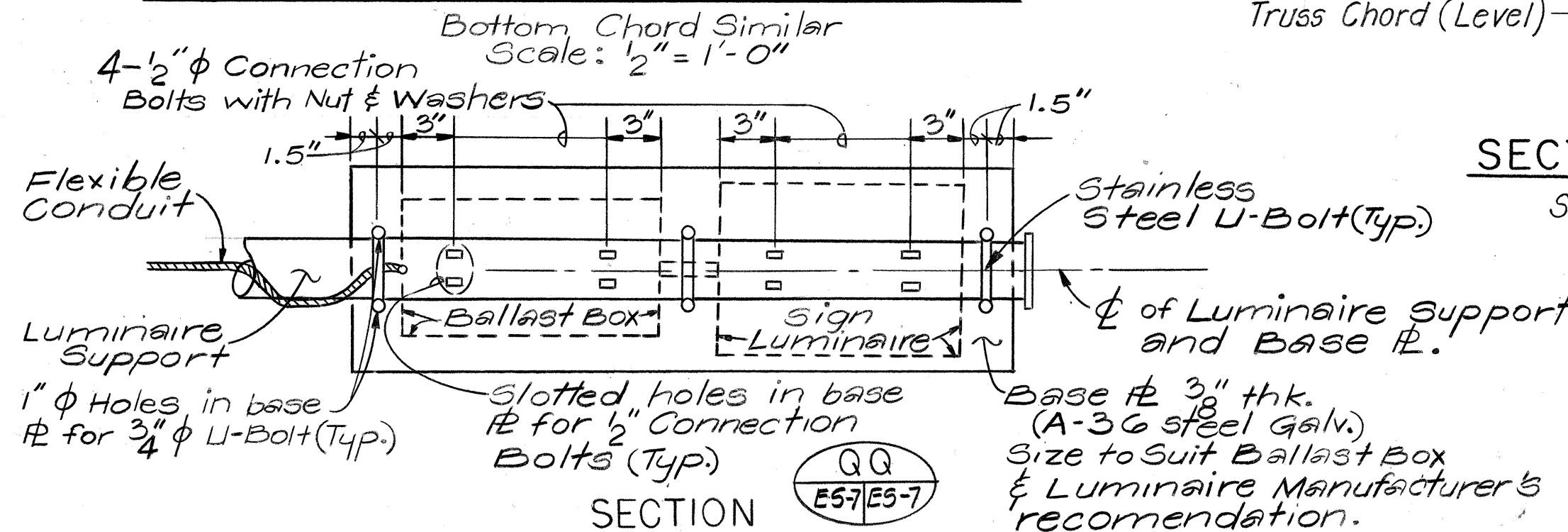
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(132):17	1983	42	192



PLAN - SIGN E-27  
Scale: 1/8"=1'-0"

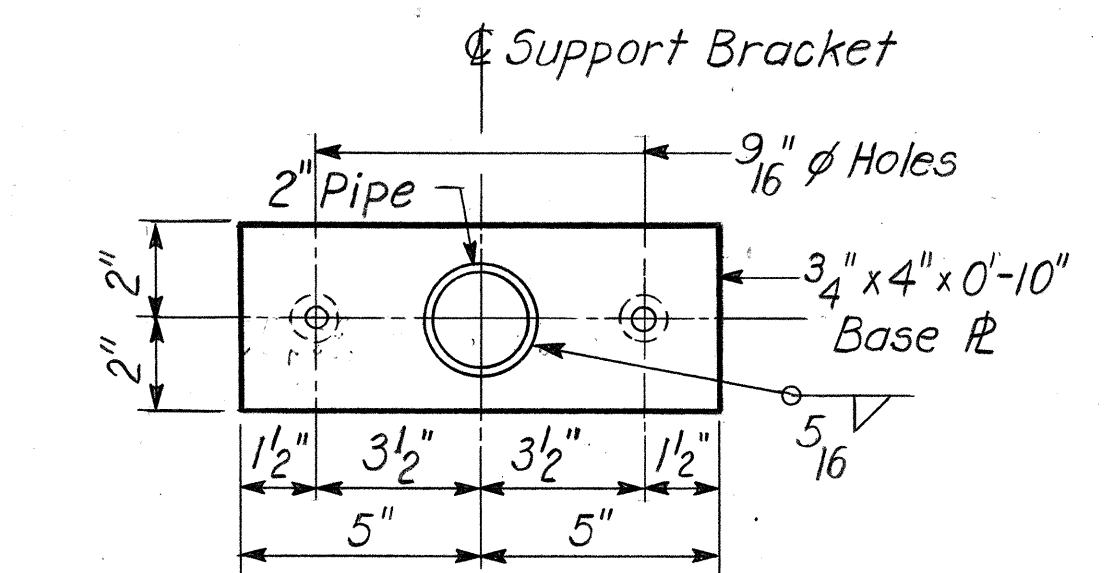
SIGN E-27a & E-27b 3 Spaces e 7'-6" = 22'-6" (4 Brackets)  
SIGN E-27c 2 Spaces e 7'-3" = 14'-6" (3 Brackets)

PLAN OF TOP CHORD FRAMING - SIGN E-27  
Scale: 1/2"=1'-0"



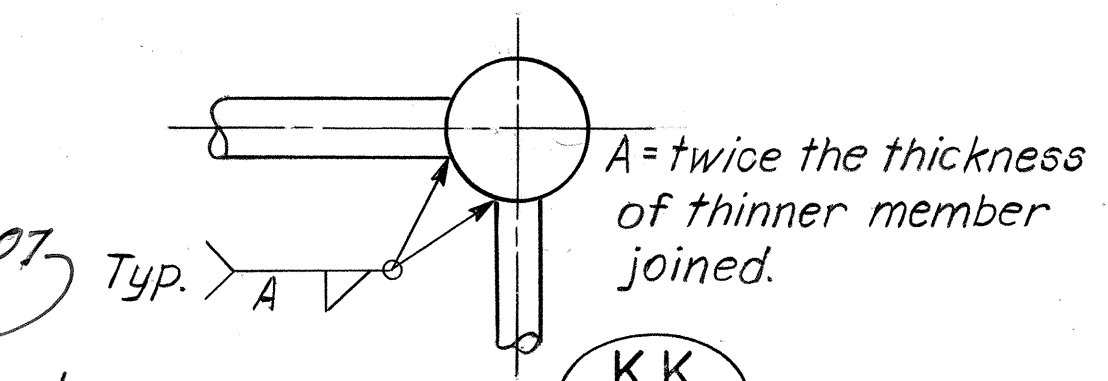
SECTION GG ES-7/ES-7  
Scale: 3/4"=1'-0"

- NOTES:
- For details of sign panels and connections see Standard Sheet No. DT-205 & DT-200.
  - Connection of sign panel to vertical support members to be located to clear sign bracket assembly connection to supporting truss.
  - All pipe members to be welded at joints. See Detail "KK".
  - Std. Pipe to be A.S.T.M. A501 or A.S.T.M. A53 galvanized & painted. See General Notes on Sheet No. E5-1.
  - 1/2" x 5/2" concrete insert & bolt assembly (galv.) to have minimum ultimate tensile strength of 7,000 lbs. and minimum ultimate shear strength of 4,500 lbs.
  - Concrete insert and bolt assemblies shall be installed to clear all reinforcing bars in pier cap.
  - Bracket anchorage base plates to be A36 Steel, galvanized.
  - All structural steel, steel pipe, connection bolts & nuts in luminaire supports shall be galvanized after fabrication.

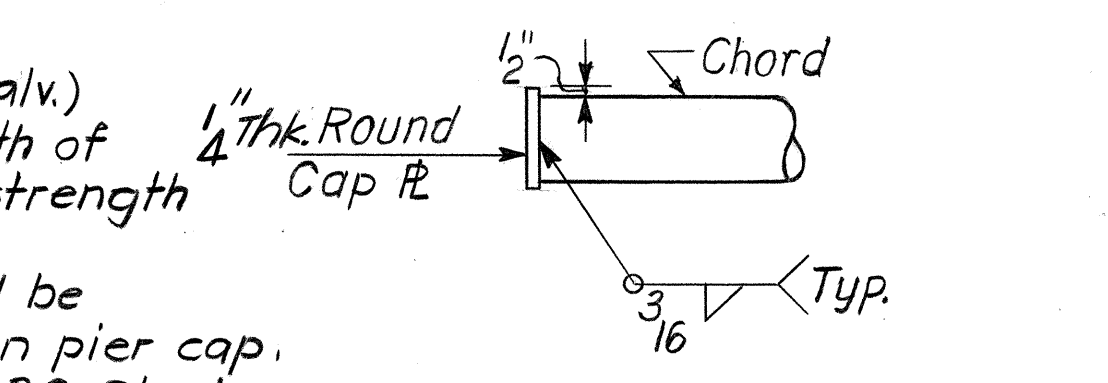


TYPICAL BRACKET ANCHORAGE  
Scale: 3/8"=1'-0"

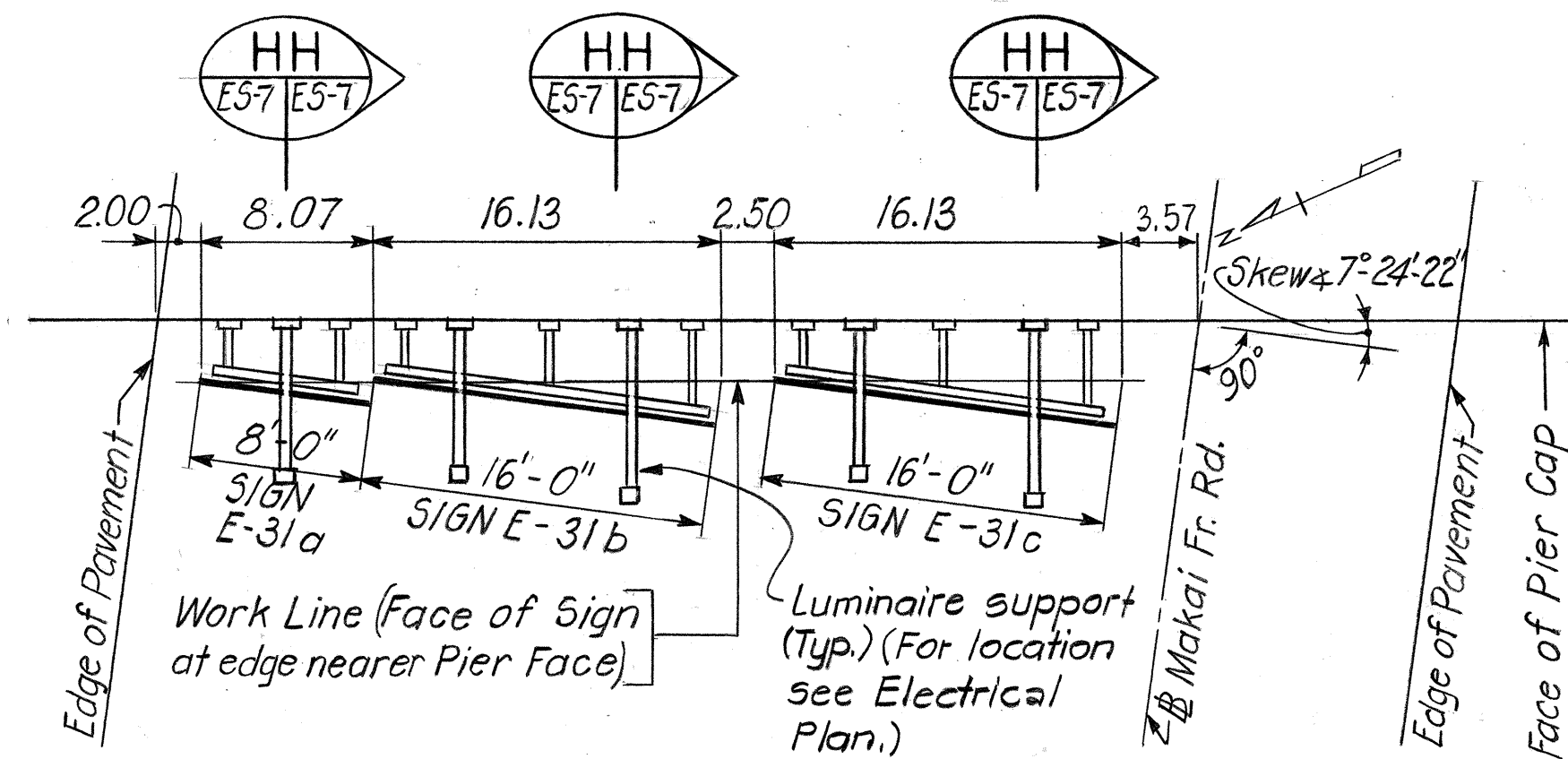
Note "A":  
Lower bracket anchorage as shown above. Upper bracket anchorage to have long dimension vertical. Provide 2-1/2" x 5/2" concrete insert & bolt assemblies for either lower bracket or upper bracket, for location see Civil Drawings.



TYPICAL WELDING DETAIL  
Scale: 1/2"=1'-0"

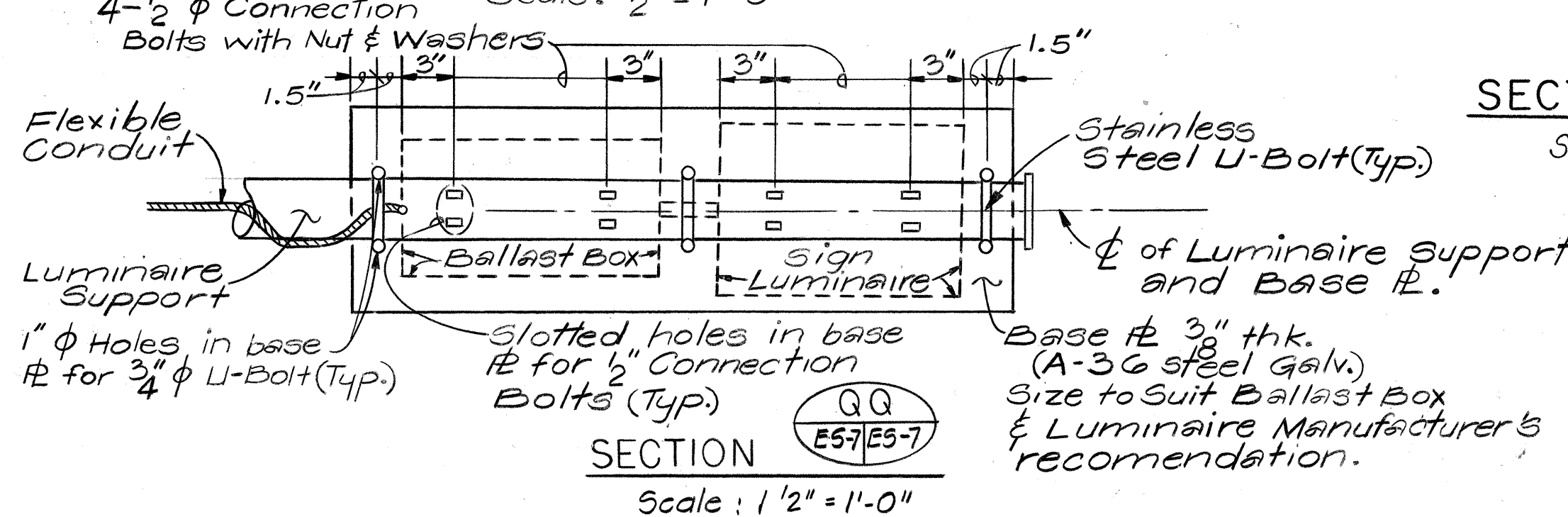


CHORD CAP DETAIL  
Scale: 1/2"=1'-0"

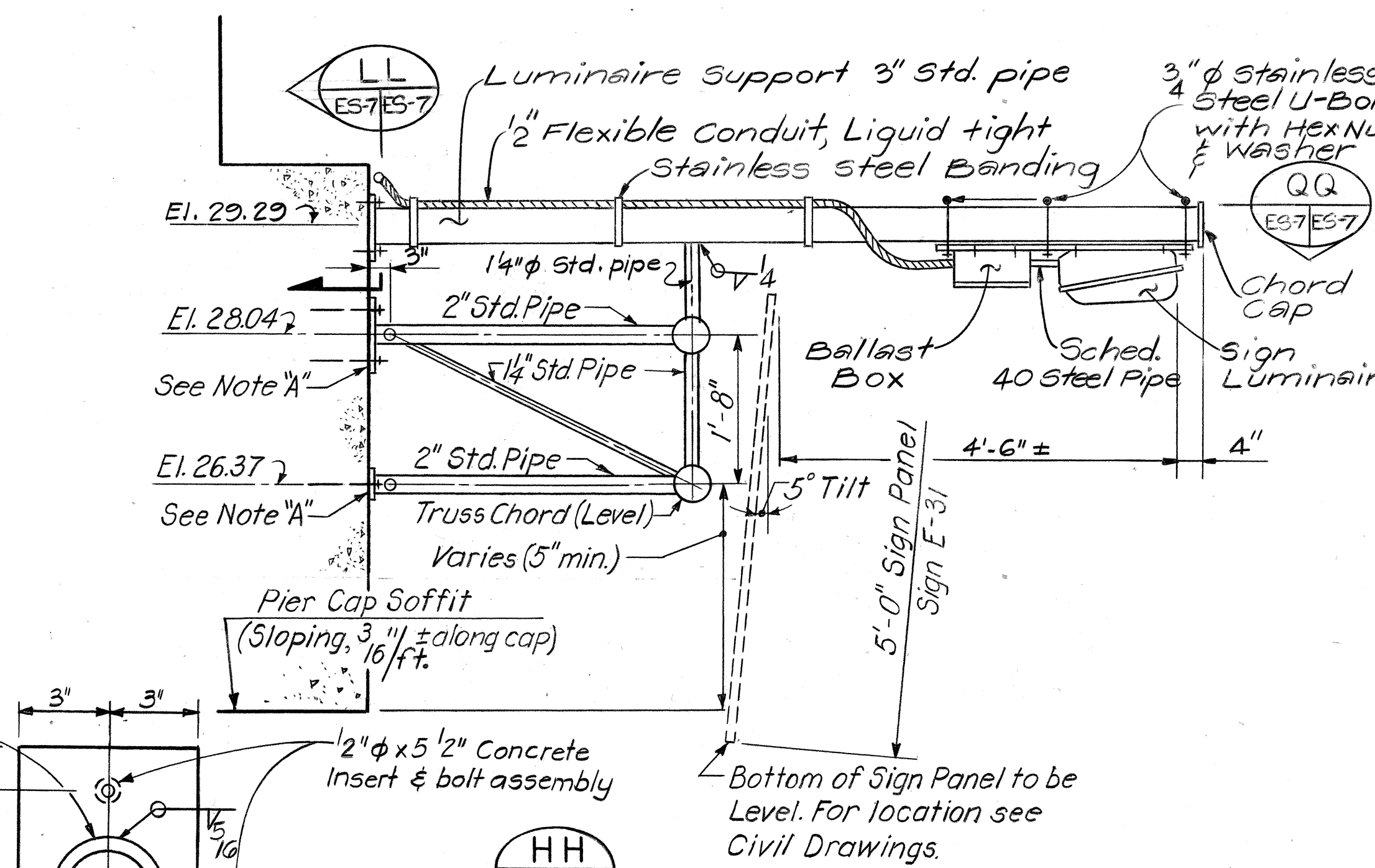


PLAN - SIGN E-31  
Scale: 1/8"=1'-0"

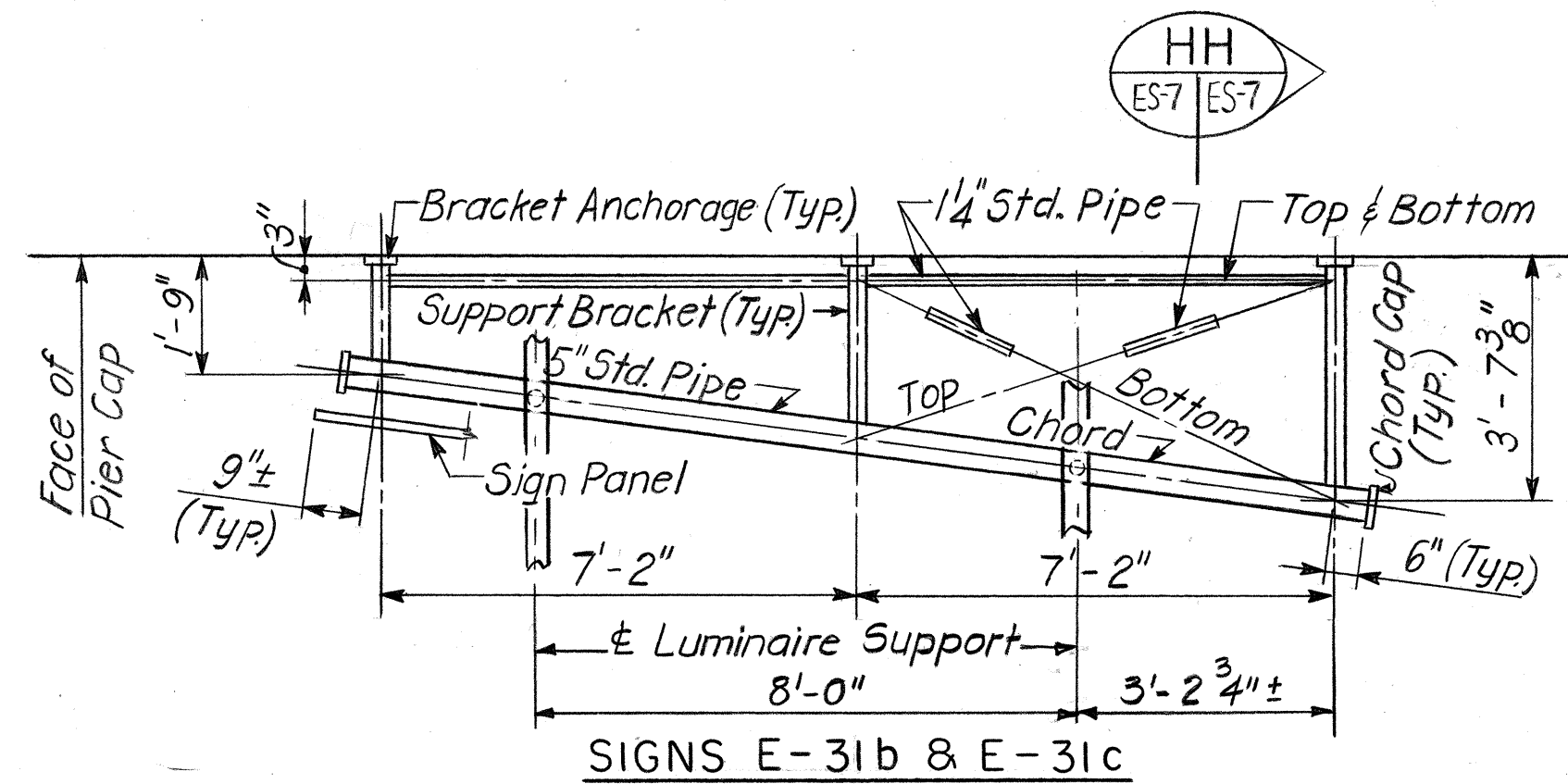
PLAN OF TOP & BOTTOM CHORD FRAMING - SIGN E-31  
Scale: 3/4"=1'-0"



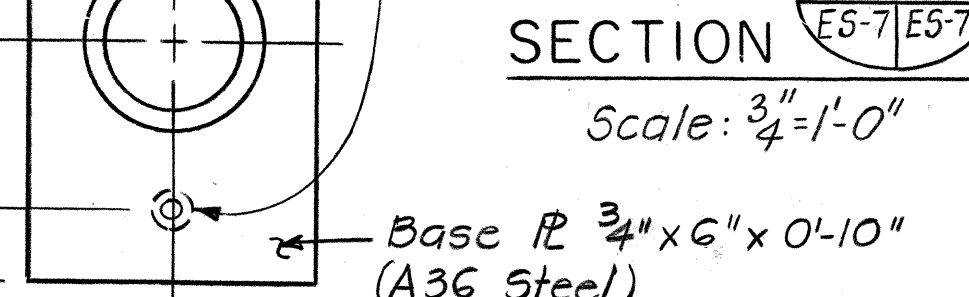
SECTION HH ES-7/ES-7  
Scale: 3/4"=1'-0"



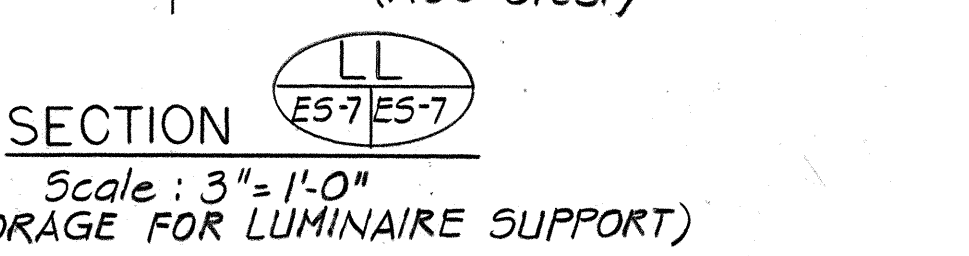
SECTION LL ES-7/ES-7  
Scale: 3/4"=1'-0"



PLAN OF TOP & BOTTOM CHORD FRAMING SIGN E-31a  
Scale: 3/8"=1'-0"



SECTION HH ES-7/ES-7  
Scale: 3/4"=1'-0"



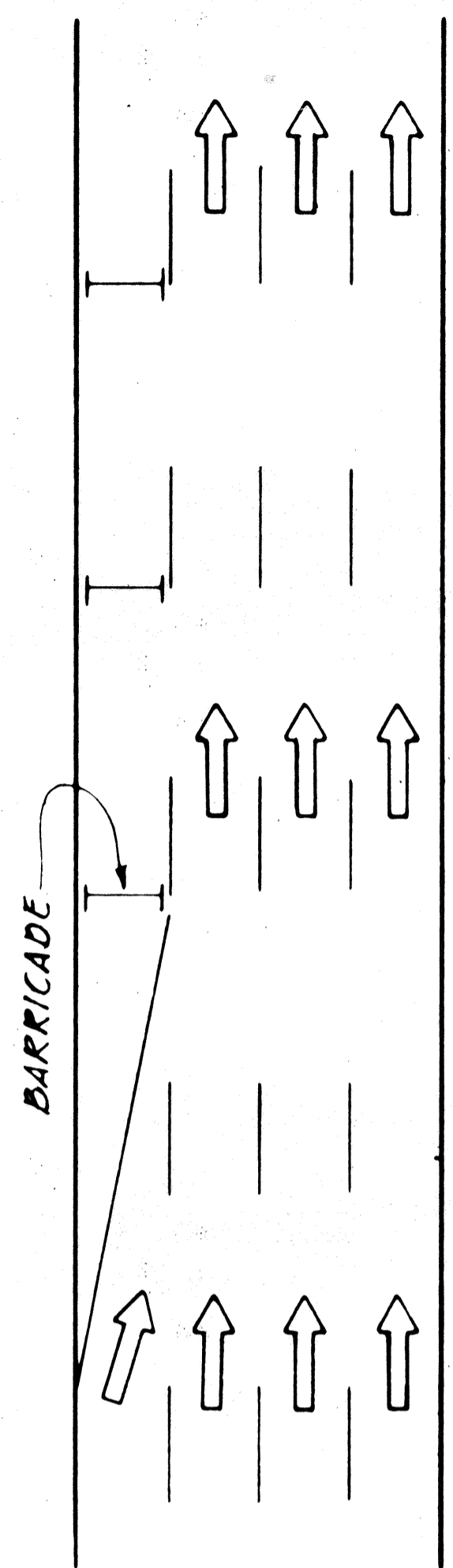
SECTION LL ES-7/ES-7  
Scale: 3/4"=1'-0"

DATE: 2-77  
DRAWN BY: L. MUCHA  
CHECKED BY: S. MUELLER  
QUANTITIES BY: J.B. TIMIDREY  
NO.:

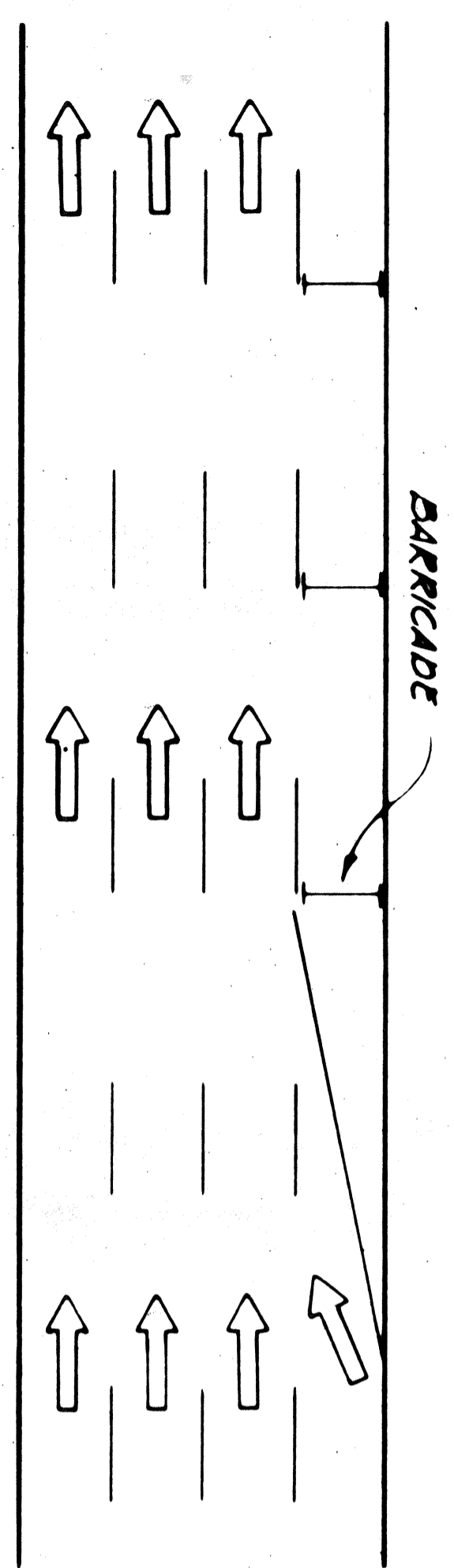
WILLY CHANDRA  
REGISTERED PROFESSIONAL ENGINEER  
No. 4120  
HAWAII, U.S.A.  
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
Willy Chandra  
Signature

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**SIGNS E-27 & E-31**  
SIGNS MOUNTED ON PIER CAP FACES  
DETAILS OF SUPPORT STRUCTURE  
KEEHI INTERCHANGE  
F.A.I. PROJ. NO. I-HI-1(132):17  
SCALE: AS NOTED DATE: 11/16/81  
SHEET No. ES-7 OF 7 SHEETS

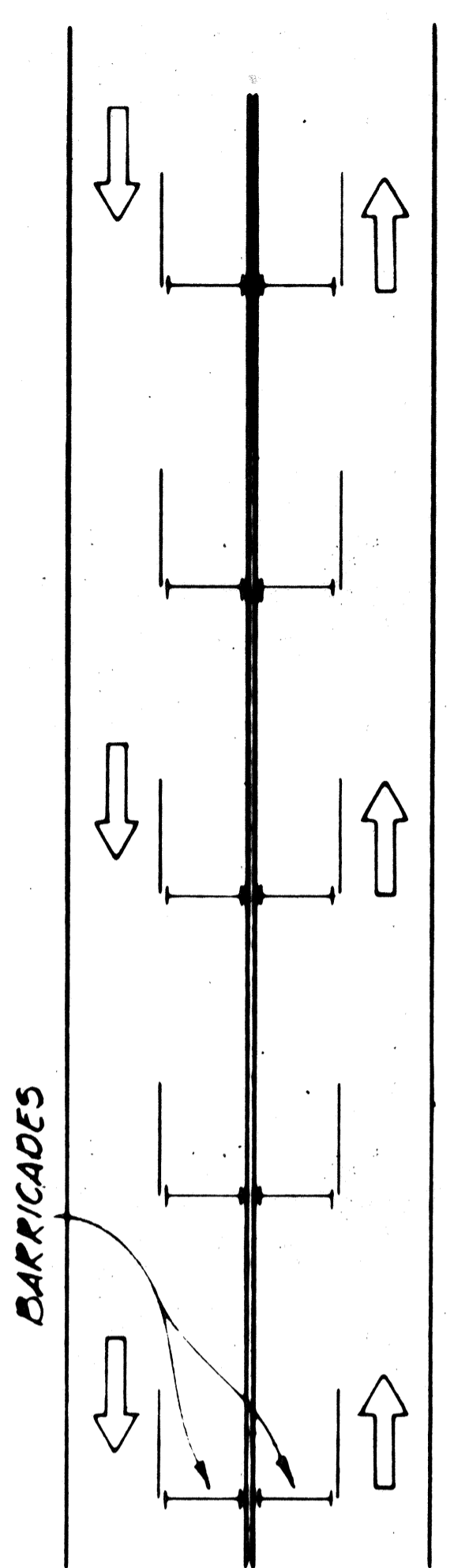
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(132):17	1983	43	192



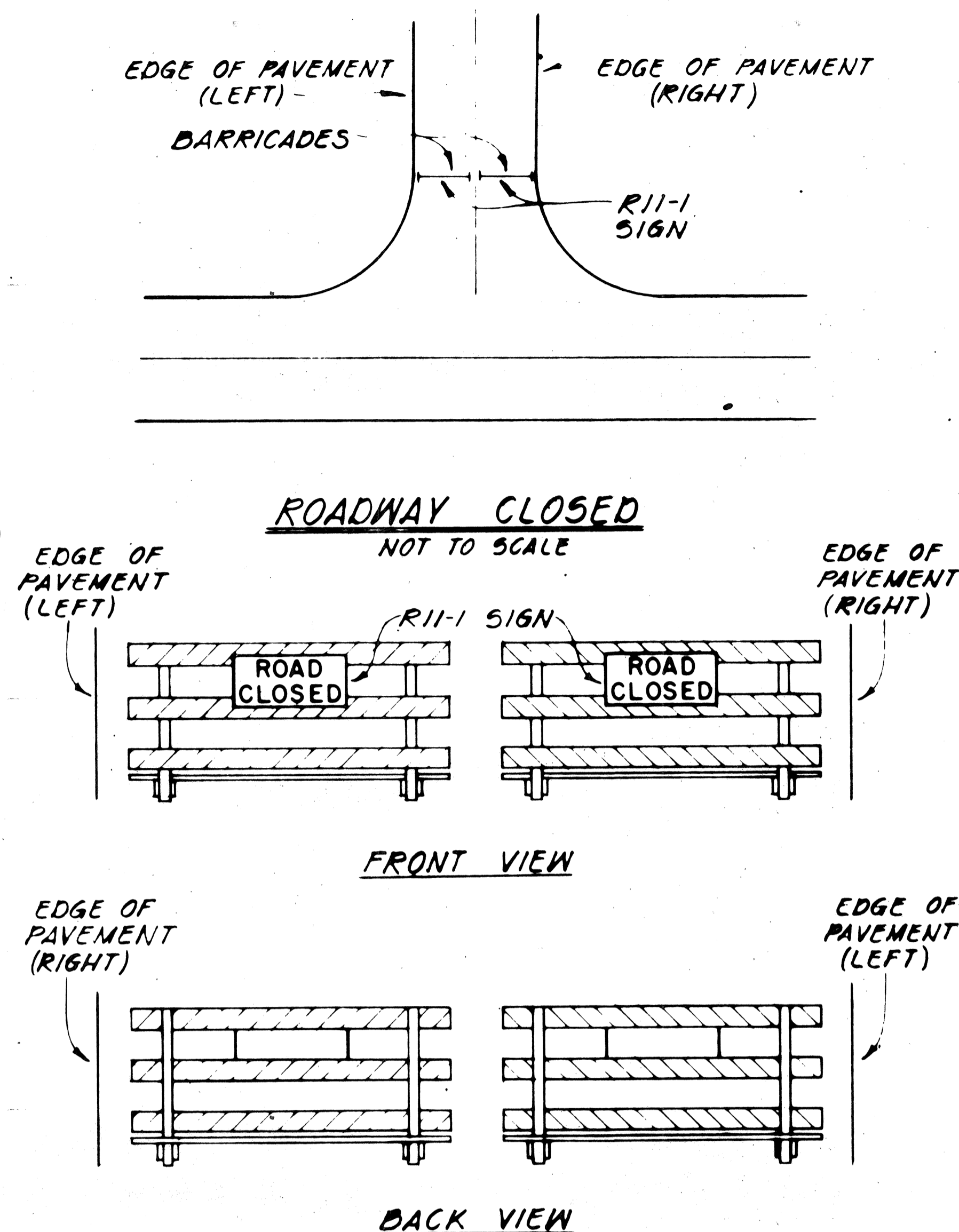
ROADWAY DELINEATION TO THE RIGHT  
NOT TO SCALE



ROADWAY DELINEATION TO THE LEFT  
NOT TO SCALE

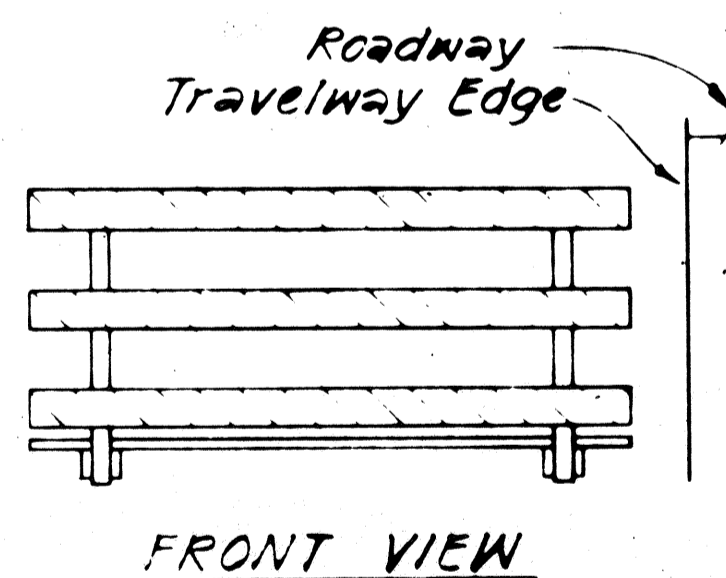


ROADWAY DELINEATION FOR 2-WAY TRAFFIC  
NOT TO SCALE

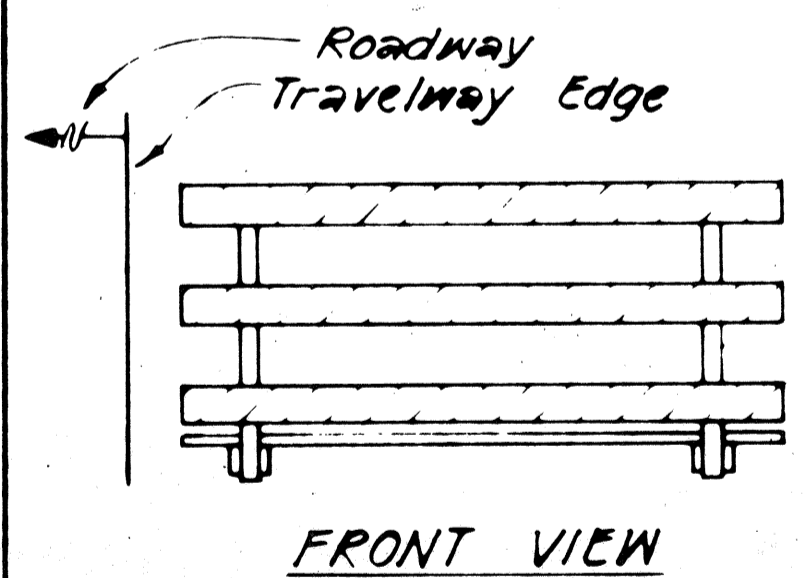


BARRICADE STRIPING ARRANGEMENT  
NOT TO SCALE

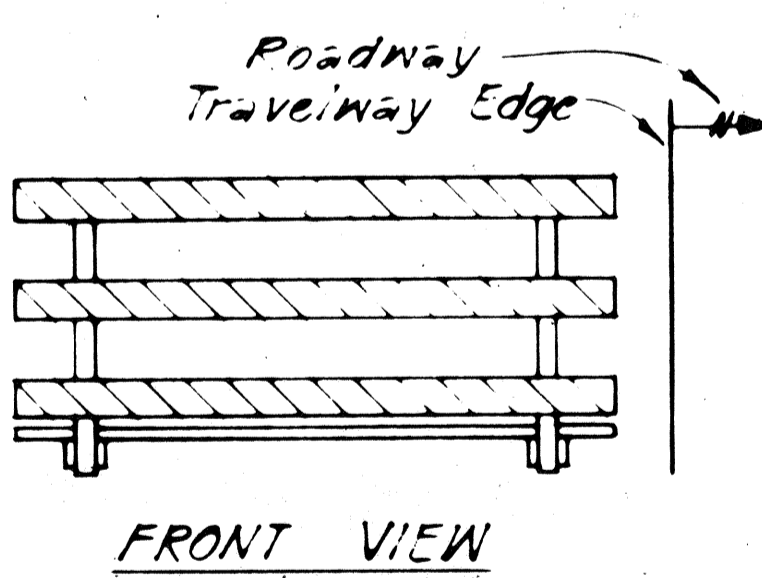
DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
APPROVED BY	



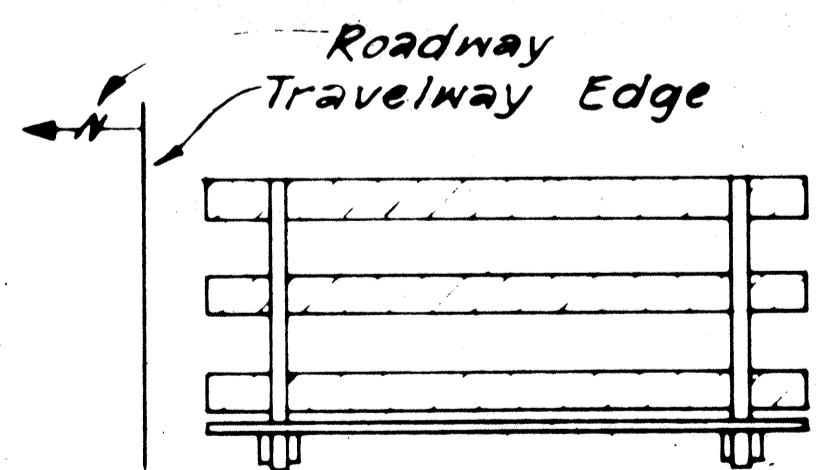
FRONT VIEW



FRONT VIEW

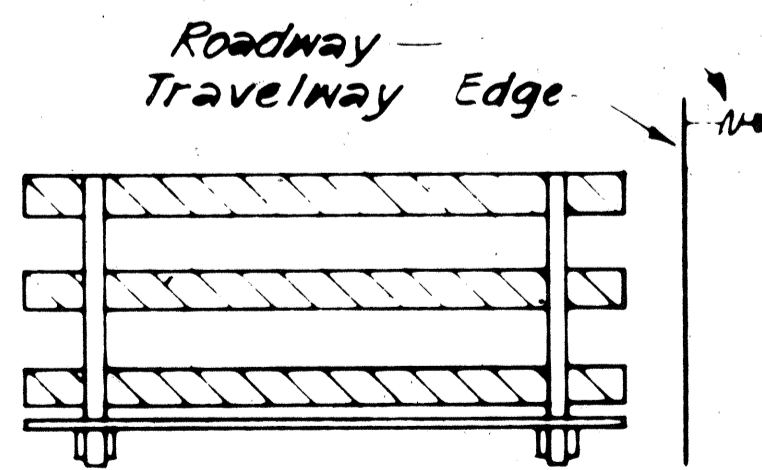


FRONT VIEW



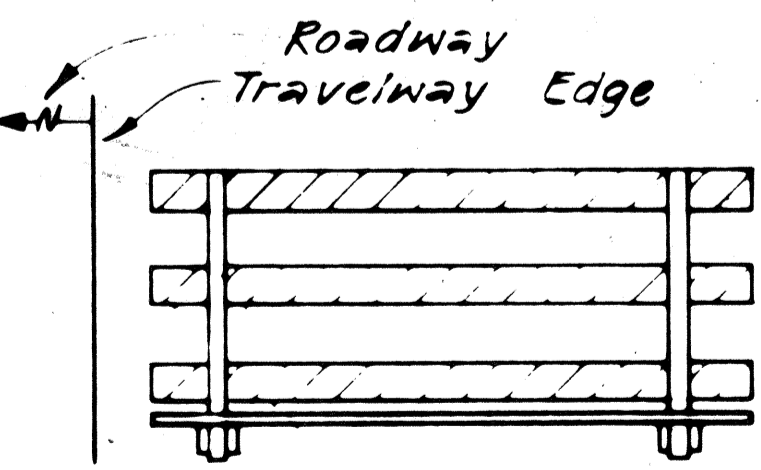
BACK VIEW

BARRICADE STRIPING ARRANGEMENT  
NOT TO SCALE



BACK VIEW

BARRICADE STRIPING ARRANGEMENT  
NOT TO SCALE



BACK VIEW

BARRICADE STRIPING ARRANGEMENT  
NOT TO SCALE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
*Werner Beuggert*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

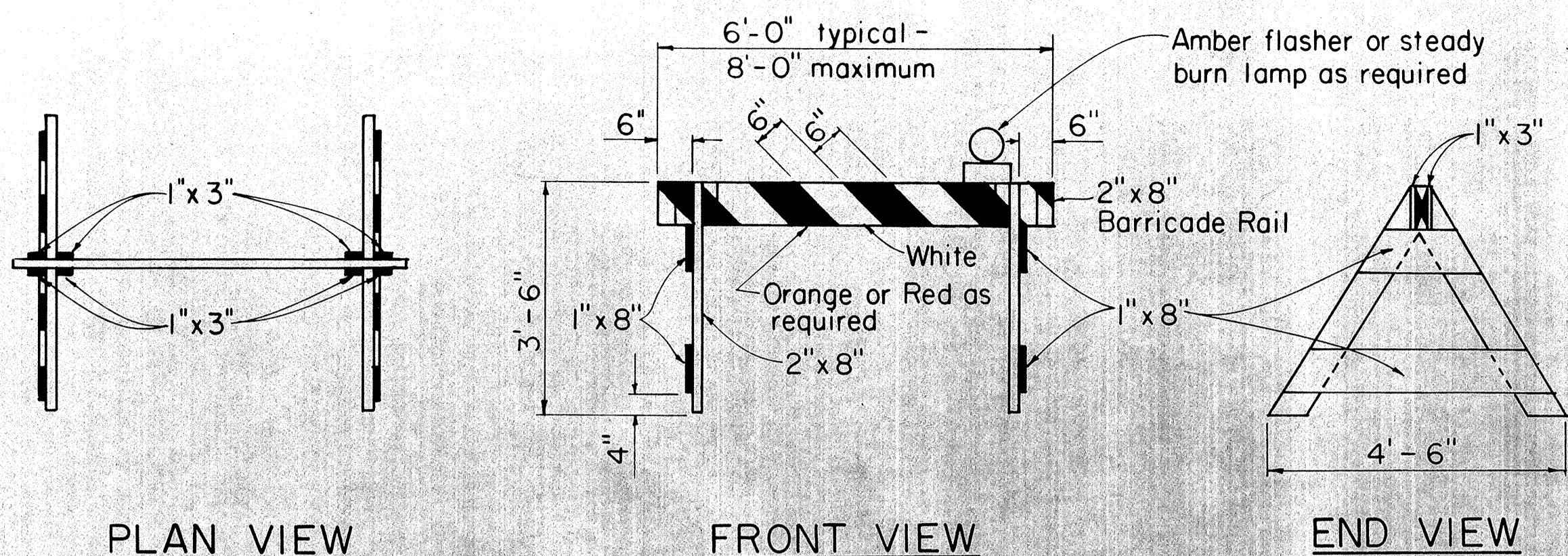
**TYPICAL DETAILS**  
BARRICADE STRIPING DETAILS

INTERSTATE ROUTE H-1  
PROJECT NO. I-HI-1 (132):17

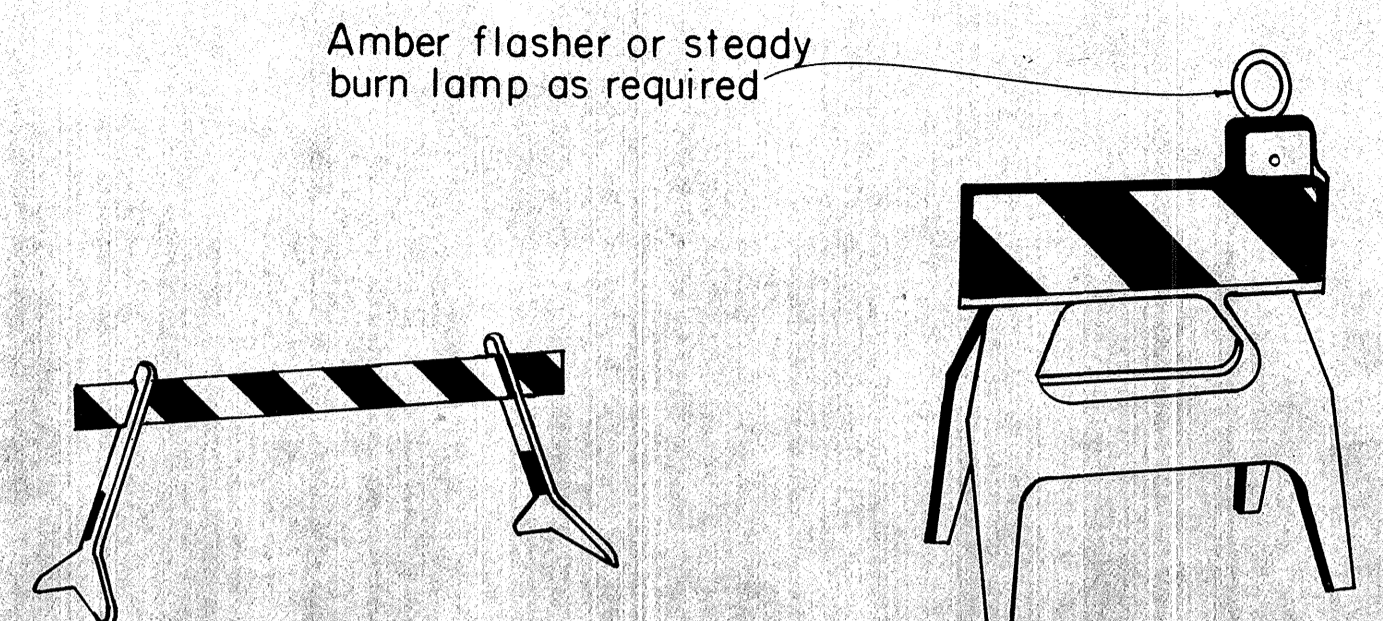
SCALE: AS SHOWN      DATE: 8/17/81

SHEET No. F-1 OF 14 SHEETS

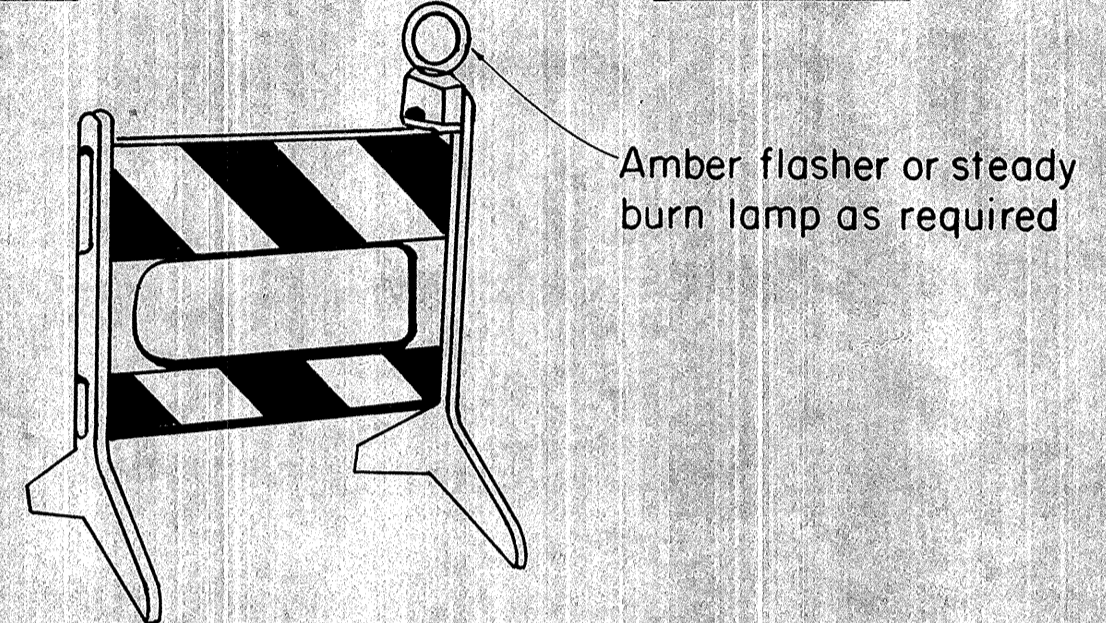
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HI-1(32)17	1983	44	192



**TYPE I BARRICADE**  
Scale: 1/2" = 1'-0"



**TYPE I**

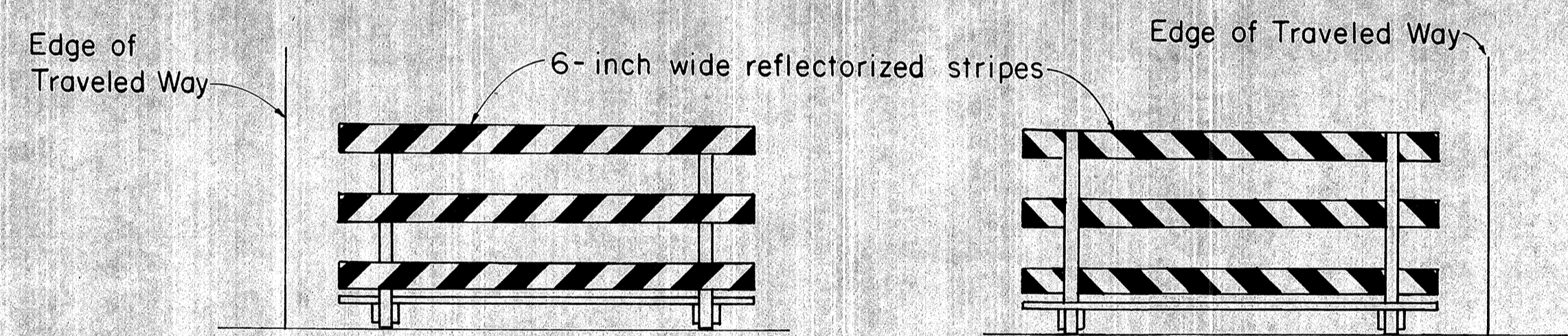


**TYPE II**

**PLASTIC MOLDED BARRICADE OPTIONS\***

Not to Scale

\* Shop Drawings must be submitted for approval.



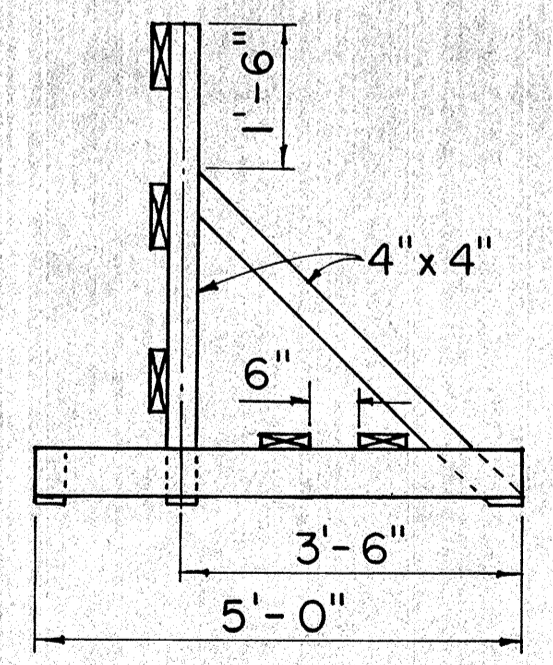
**FRONT FACE**

**BACK FACE**

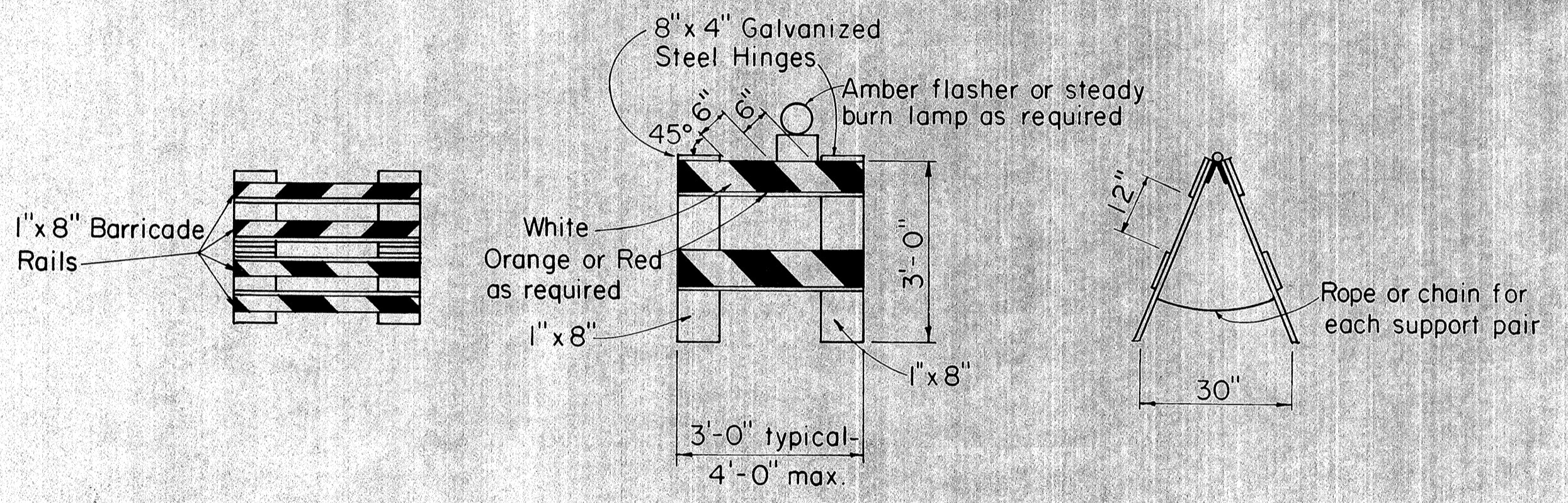
**TYPICAL BARRICADE STRIPING DETAILS\*\***

Not to Scale

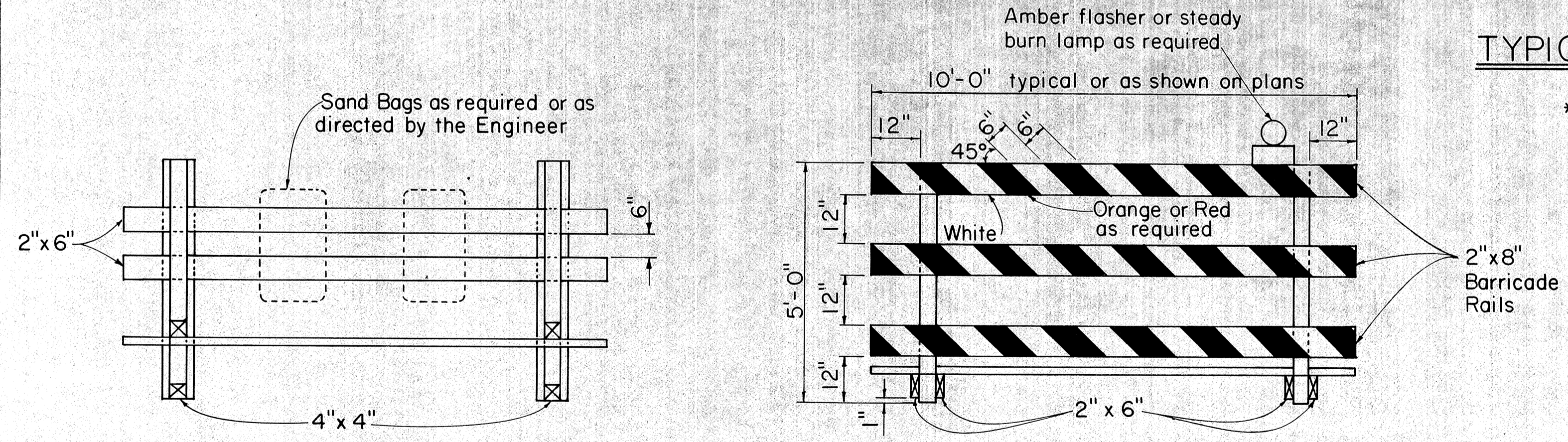
\*\* Similar for Types I & II



**END VIEW**



**TYPE II BARRICADE**  
Scale: 1/2" = 1'-0"



**TYPE III BARRICADE**  
Scale: 1/2" = 1'-0"

**GENERAL NOTES**

1. The front and back faces of each barricade rail shall be reflectorized with stripes sloping downward toward the same side (traveled way) of each barricade.
2. Contractor may submit alternate barricade designs for approval.
3. Sandbags or other approved weights shall not be placed on top of any striped rail.
4. The Contractor is directed to Section 626.

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
QUANTITIES BY	_____
NO.	_____

APPROVAL RECOMMENDED:  
*Eishi Tanaka* 10/21/81  
TRAFFIC ENGINEER DATE

APPROVED:  
*Shuhei S. S. S. S.* 10/23/81  
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supercedes DT 800 Approved 12/30/69	H.T.	10/23/81

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**

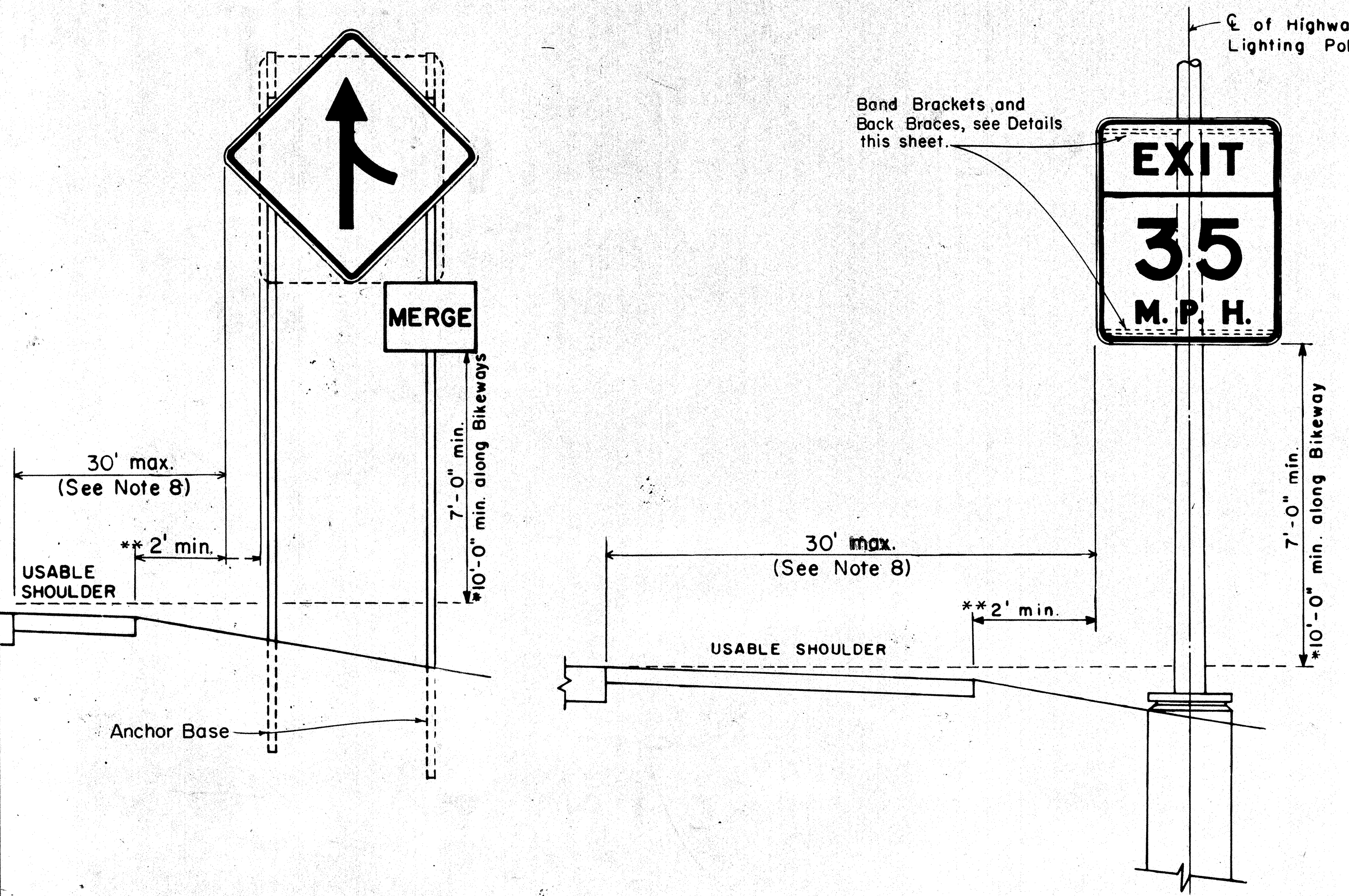
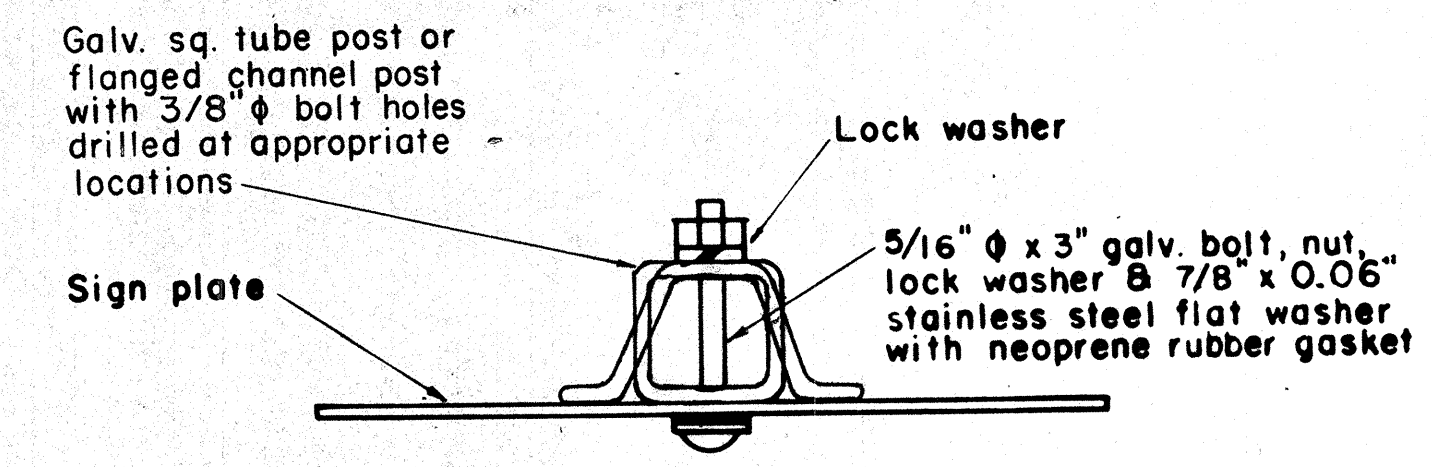
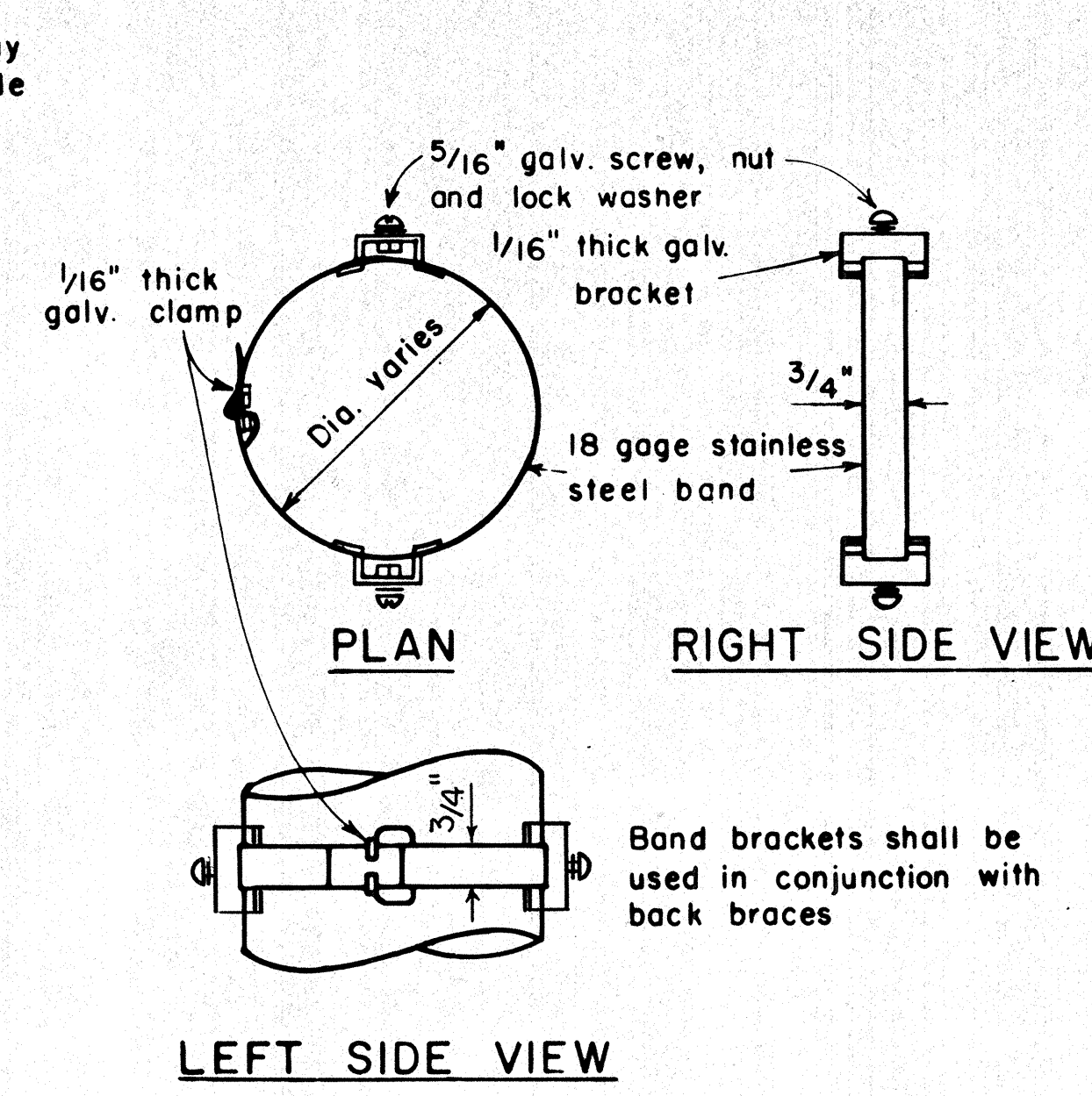
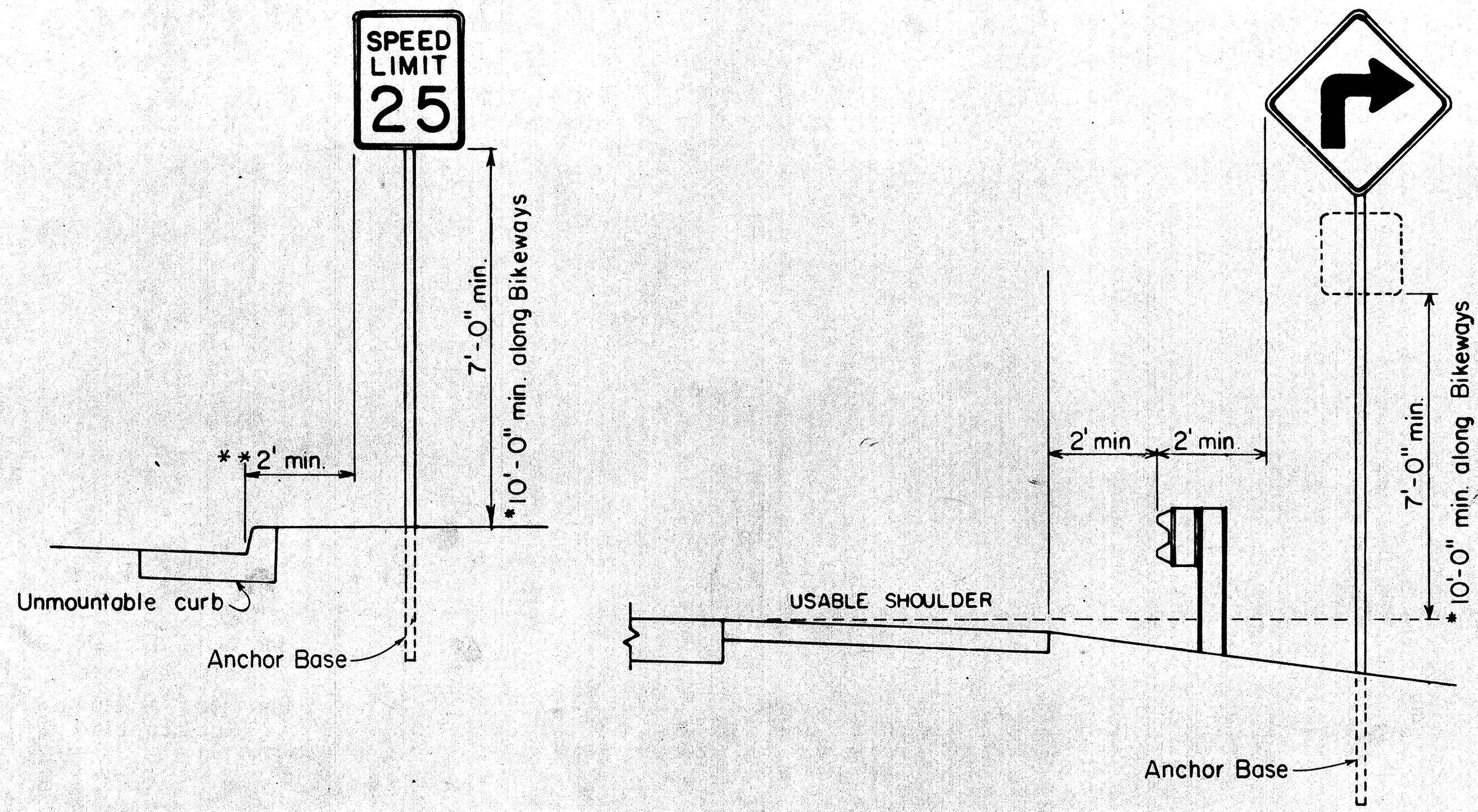
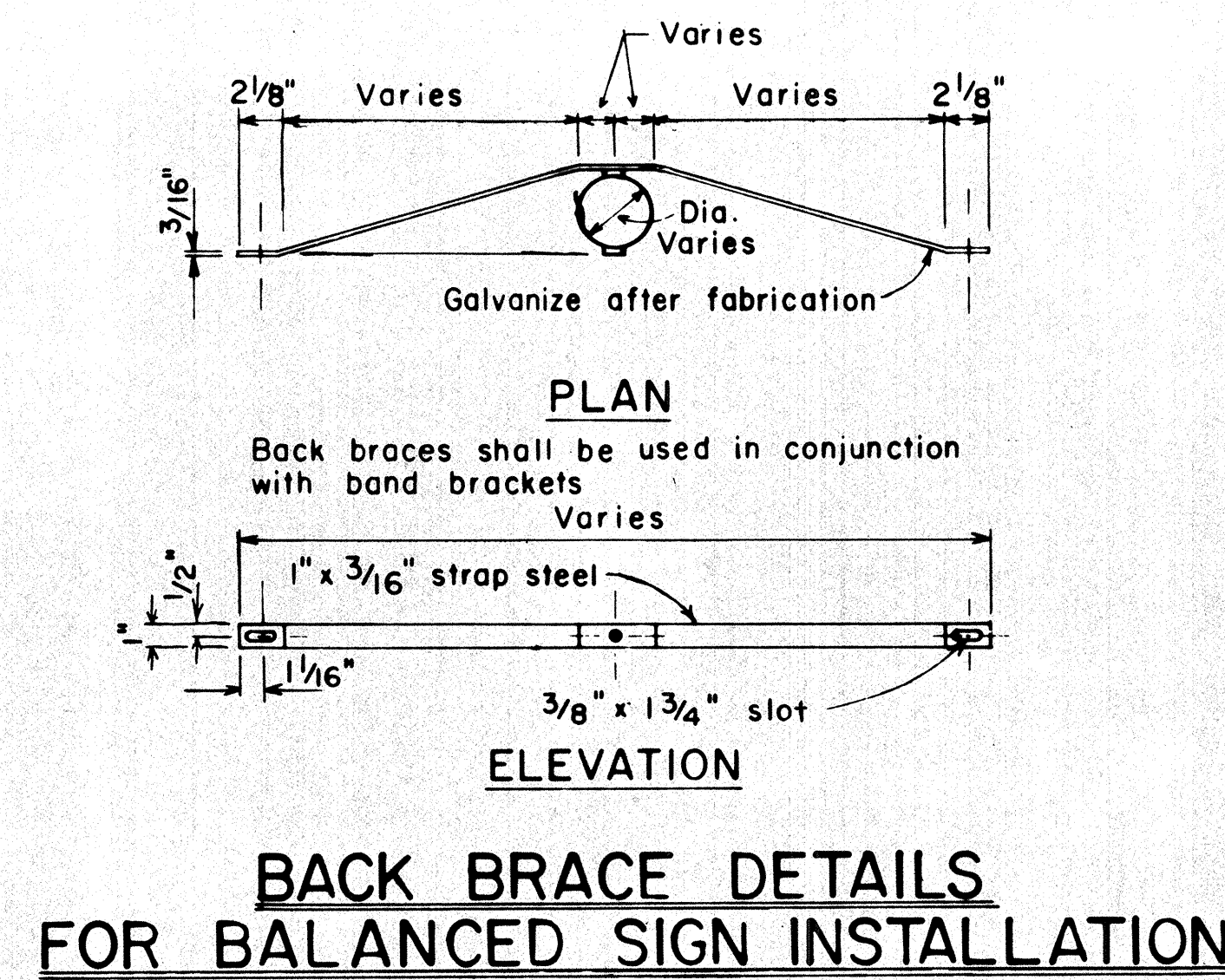
**BARRICADES**

SCALE: As Shown  
SHEET No. F-2 OF 14 SHEETS DT 800

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-(132)17	1983	45	192

**GENERAL NOTES**

- Signs shall be placed in conformance with positions shown and described in the "Manual on Uniform Traffic Control Devices for Streets and Highways", 1978, Part II, Section 2A-21, as amended, and as supplemented herein.
- Signs 48" and wider or larger than 10 sq. ft. in area shall be mounted on two sign posts except as noted below.
- Signs 48" and wider or larger than 10 sq. ft. in area may be mounted on other than two sign posts (i.e. on highway lighting poles) as follows:
  - Signs larger than 10 sq. ft. and less than 28 sq. ft. in area shall be mounted with a minimum of two sets of band brackets and back braces.
  - Signs larger than 28 sq. ft. in area shall be mounted with a minimum of three sets of band brackets and back braces.
- All parking restriction signs with arrows shall be mounted 45° to the line of traffic flow.
- Sign posts shall extend 3 1/2" above each sign, where required, for attachment of City and County street name signs.
- (R) or (L) indicates right or left and shall be shown on the plans.
- \* 7. See plans for special details of signs along bikeways.
- \*\* 8. The minimum lateral distances shown are guidelines and shall be exceeded whenever possible. The Contractor shall place signs at the maximum practical lateral distance from the edge of the traveled way up to 30 feet and shall utilize protected locations whenever possible. Final locations of all signs shall be approved by the Engineer.
- Signs in medians shall be placed at midpoint of median up to a maximum distance of 30 feet from the edge of traveled way. When appropriate, signs for opposing directions shall be placed back to back.
- Anchor bases shall be installed for all signpost installations, unless otherwise shown or directed. See sheets DT 100A and DT 100B.



**TYPICAL MOUNTING DETAILS**  
NOT TO SCALE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT-100 approved 12/30/69	H.T.	11/15/77
2	Revised depth of signpost	H.T.	5/2/79
3	Added Notes No. 8 & No. 9	H.T.	5/15/79
4	Revised Gen. Note #4 & Mounting Details	H.T.	4/23/80
5	Revised General Notes, Lateral Sign Locations and Mounting Details	H.T.	5/15/81
6	Added Note 10. Minor revisions to notes and details.	H.T.	4/22/82

APPROVAL RECOMMENDED:  
*Etsuki Tanaka* 11/10/77  
TRAFFIC ENGINEER DATE

APPROVED:  
*Herbert S. Gabeis* 11/15/77  
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**  
MISCELLANEOUS SIGN DETAILS

Not to scale June, 1977

SHEET NO. F-3 OF 14 SHEETS DT 100

DATE: \_\_\_\_\_  
SURVEY PLATTED BY: \_\_\_\_\_  
ORIGINAL PLAN DRAWN BY: \_\_\_\_\_  
NOTE BOOK DESIGNED BY: \_\_\_\_\_  
QUANTITIES BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
No. \_\_\_\_\_

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(132):17	1983	45A	193

A or A,	C	C,
36"	6"	-
48"	9"	19"
60"	12"	24"

NOTE: Frame stiffeners are required when D is greater than 24". See Gen. Note 4.

**GENERAL NOTES**

- Sign posts and base posts shall be flanged channel type structural steel conforming to ASTM A 499 and galvanized in accordance with ASTM A 123.  
**NOMINAL DIMENSIONS:**  
2.50 lbs./ft. - 3.125" x 1.562"  
4.00 lbs./ft. - 3.500" x 1.750"
- Retainer - Spacer Strap shall be AISI 1020 steel and galvanized in accordance with ASTM A 123.
- Retainer and Connector Bolts shall be 5/16 - 18 UNC x 1.75" long hex. head, integral flange conforming to ASTM A 354 Grade BC. Nuts shall be 5/16 - 18 UNC hex. head, integral flange conforming to ASTM A 563 Grade D. All bolts and nuts shall be cadmium plated per Federal spec. QQP 416 B, Class 2, Type 2.
- All accessories, fittings and stiffener details (as required) shall be submitted to Engineer for approval 20 days prior to installation.
- For additional details see sht. DT 100.
- Basic formulas for use with the windload charts:  
Factor = A x B x H  
Therefore, if sign area (A x B) is known,  
Maximum H =  $\frac{\text{Factor}}{\text{sign area (A x B)}}$   
and if H is known,  
Maximum sign area (A x B) =  $\frac{\text{Factor}}{H}$

APPROVAL RECOMMENDED:

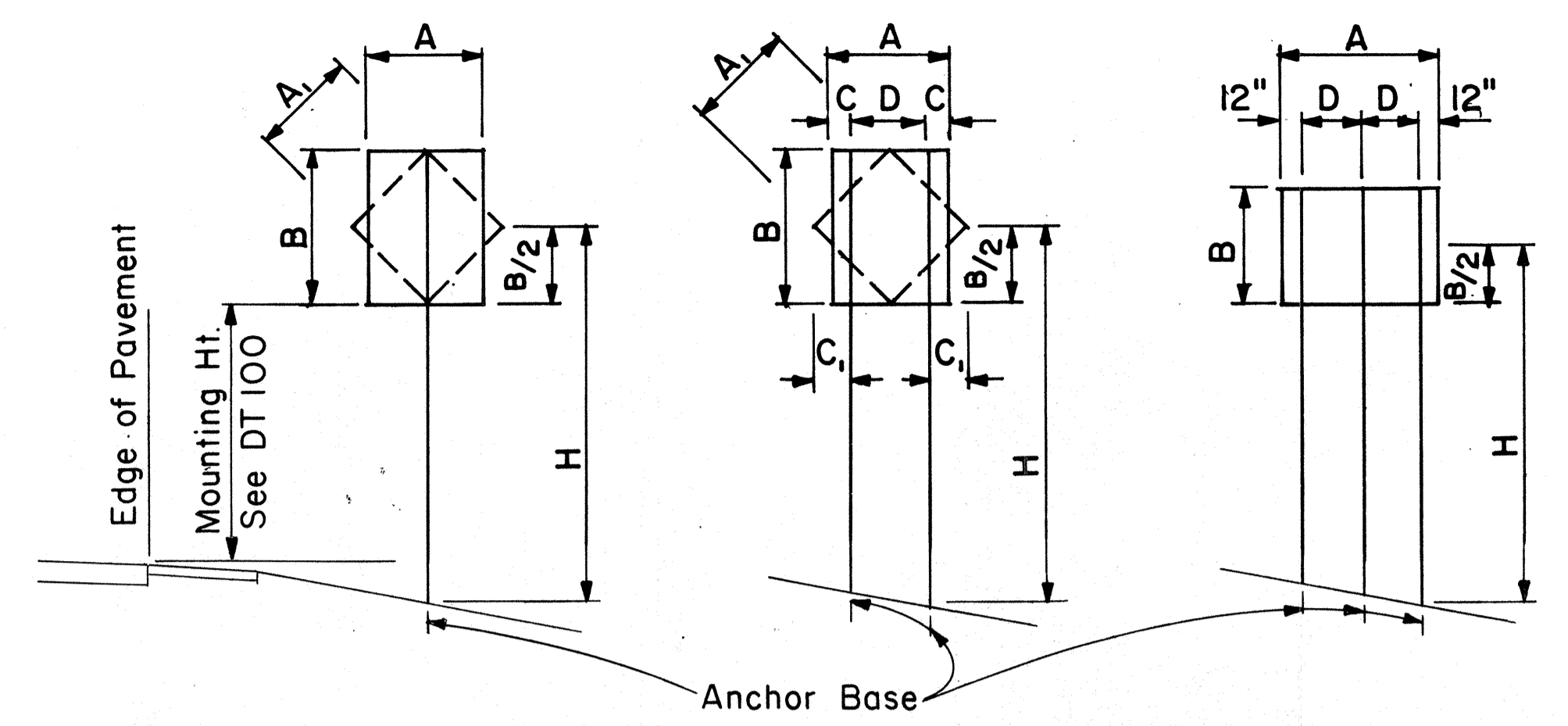
*Eiichi Tanaka* 9/21/82  
TRAFFIC ENGINEER DATE

APPROVED:  
*Robert S. S. S.* 9/22/82  
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**  
**GALVANIZED FLANGED CHANNEL**  
**SIGN POST MOUNTING**

Scale: As Shown Date: Sept. 1982



**1-POST** Sign area 10 sq. ft. and less  
**2-POST** Sign area greater than 10 sq. ft. or A = 48" - 60"  
**3-POST** A = greater than 60"

**TYPICAL INSTALLATION**

Not to Scale

**FLANGED CHANNEL: 1-POST INSTALLATION**

Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2.50 lbs./ft.	57	8.14	7.13	6.33	5.70	5.18	4.75	-
4.00 lbs./ft.	112	-	-	-	-	-	9.33	

**FLANGED CHANNEL: 2-POST INSTALLATION**

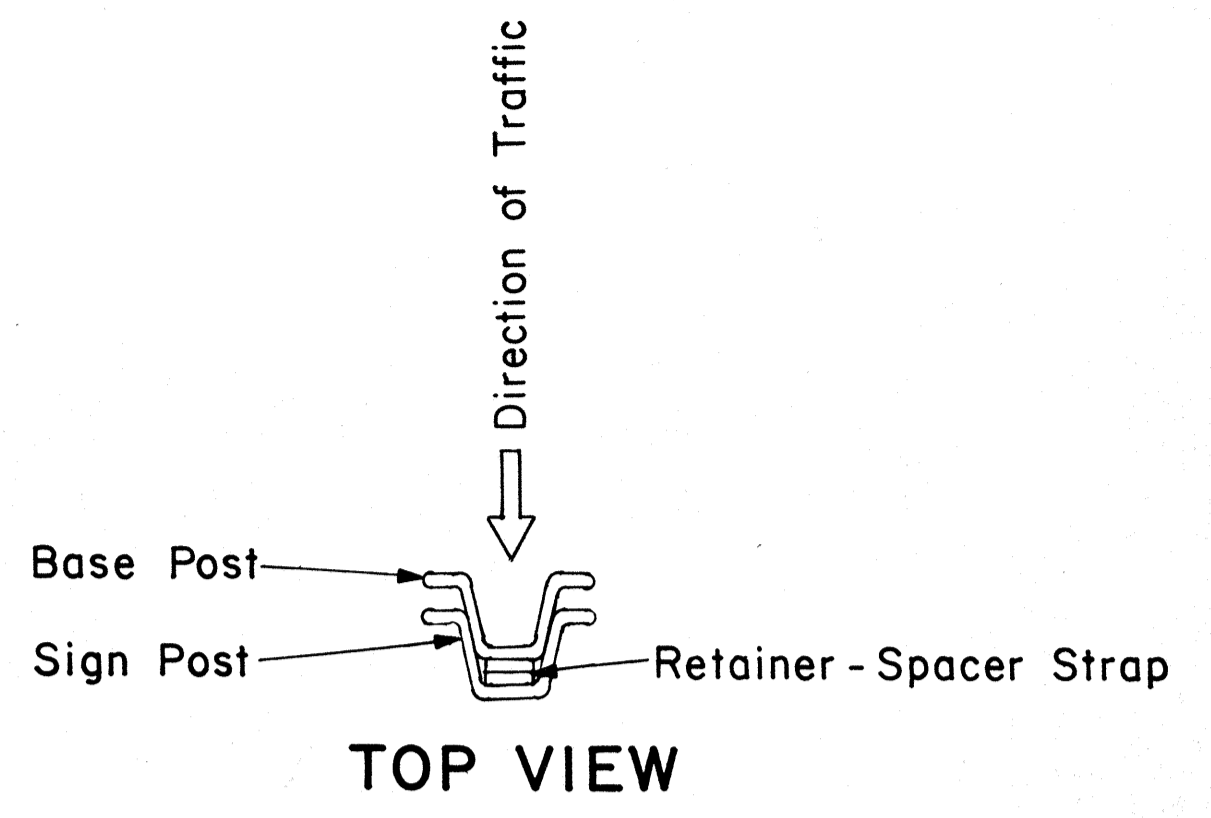
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2.50 lbs./ft.	124	17.71	15.50	13.77	12.40	11.27	10.33	-
4.00 lbs./ft.	241	34.43	30.13	26.78	24.10	21.91	20.08	

**FLANGED CHANNEL: 3-POST INSTALLATION**

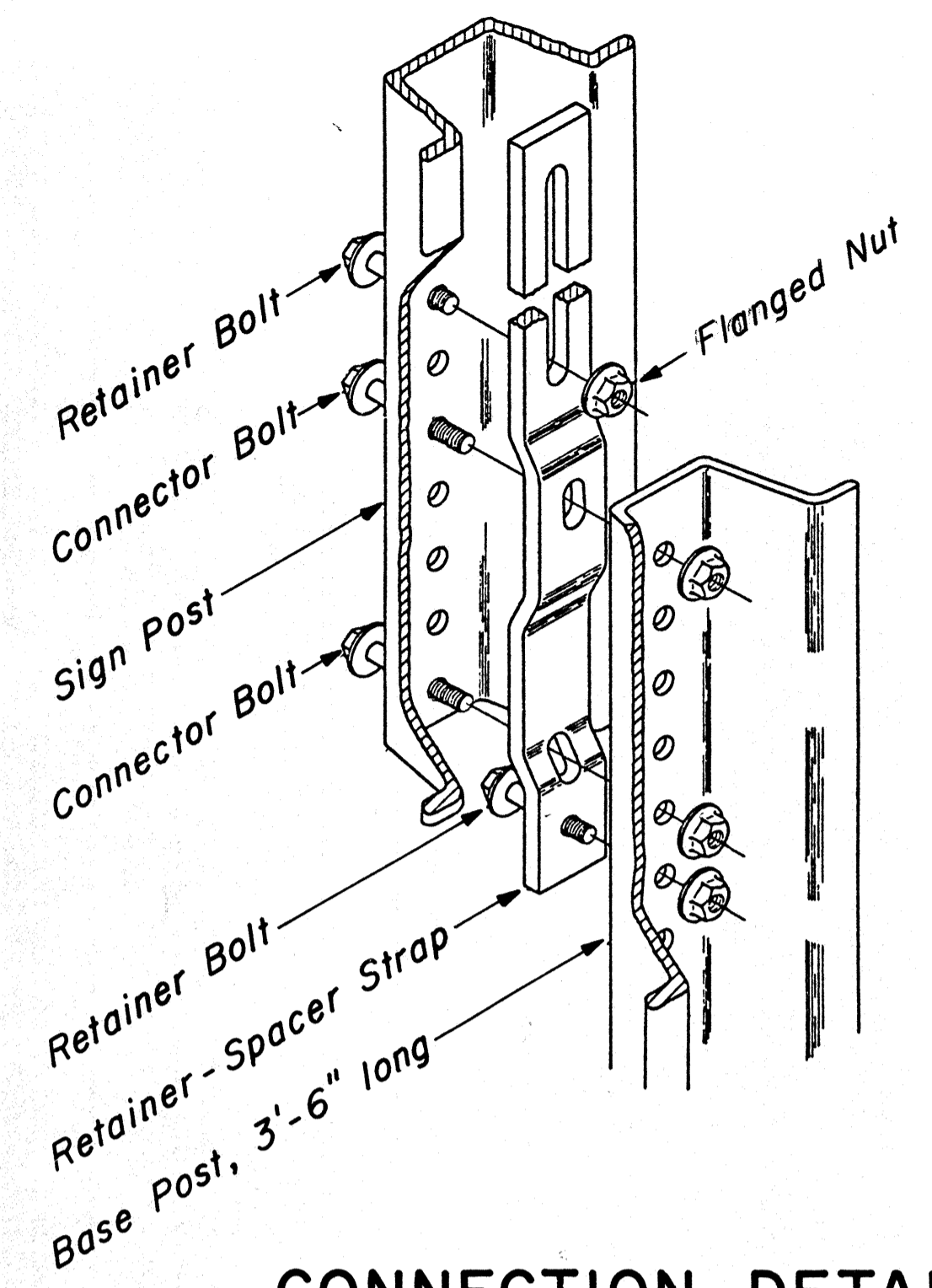
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2.50 lbs./ft.	187	26.71	23.38	20.78	18.70	17.00	15.58	-
4.00 lbs./ft.	362	51.71	45.25	40.22	36.20	32.91	30.17	

**WINDLOAD CHARTS**

NO.	REVISION	APPROVED BY	DATE

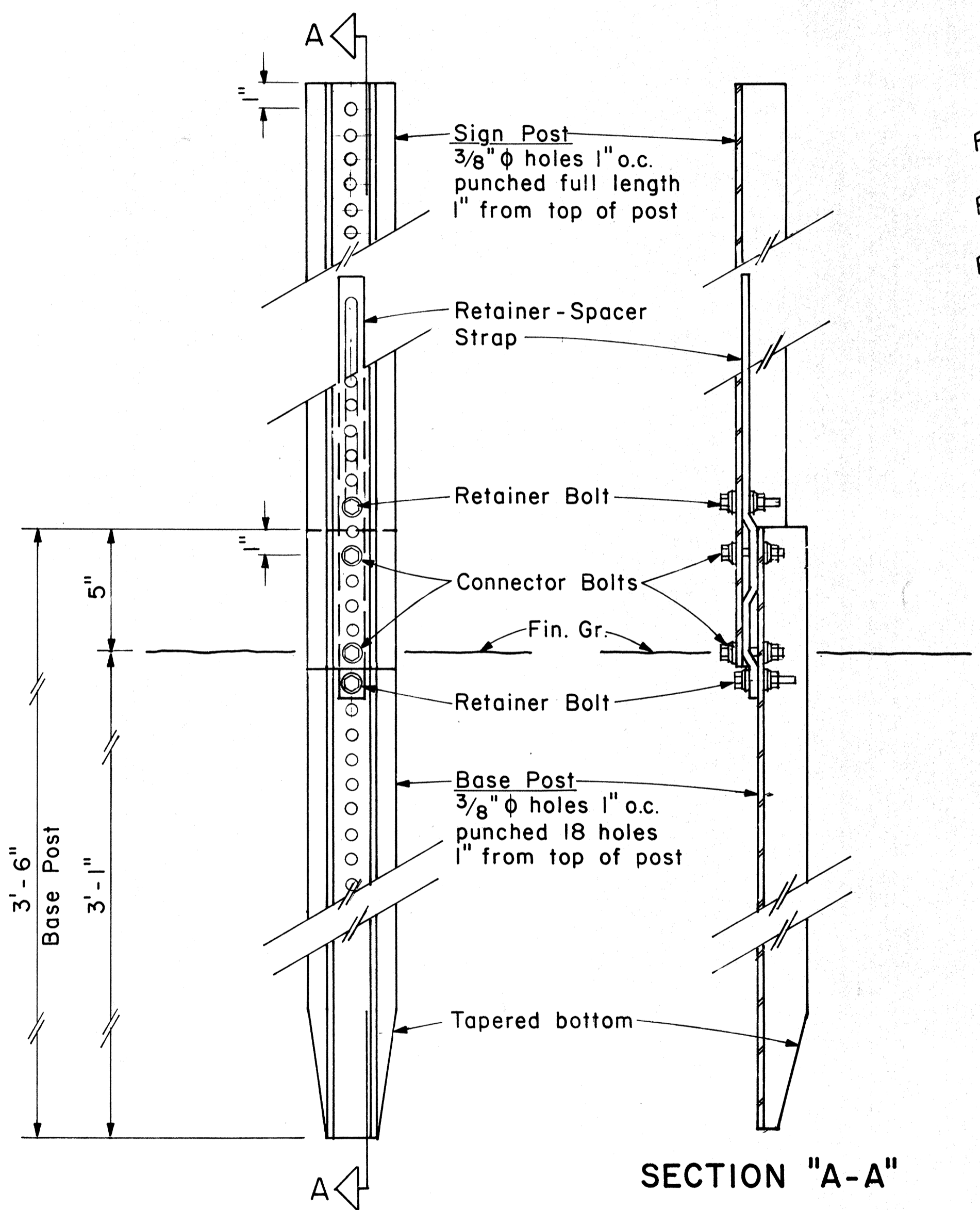


**TOP VIEW**



**CONNECTION DETAIL**

Not to Scale

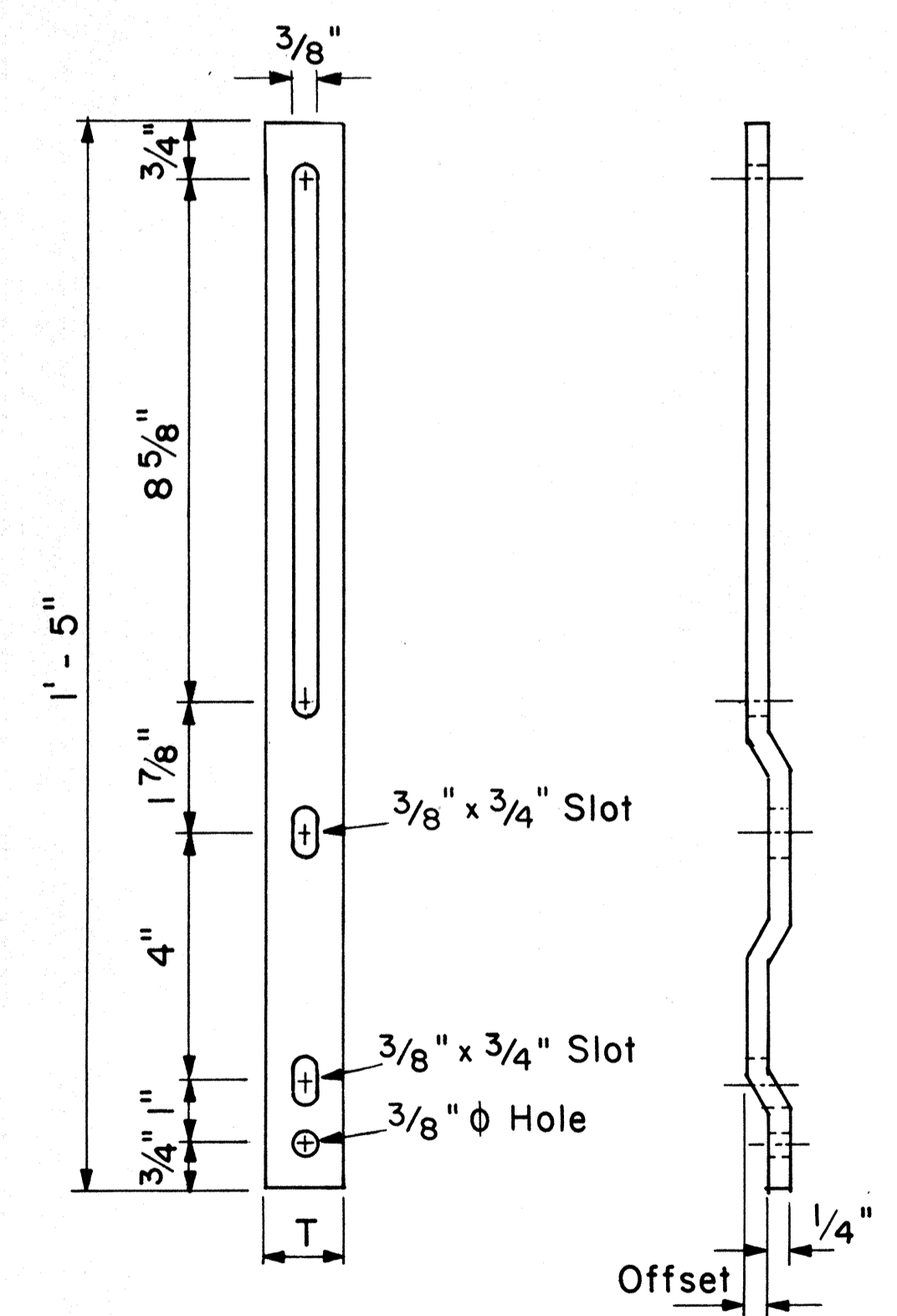


**SECTION "A-A"**

**BACK VIEW**

**ANCHOR BASE DETAIL**

Scale: 3" = 1'-0"



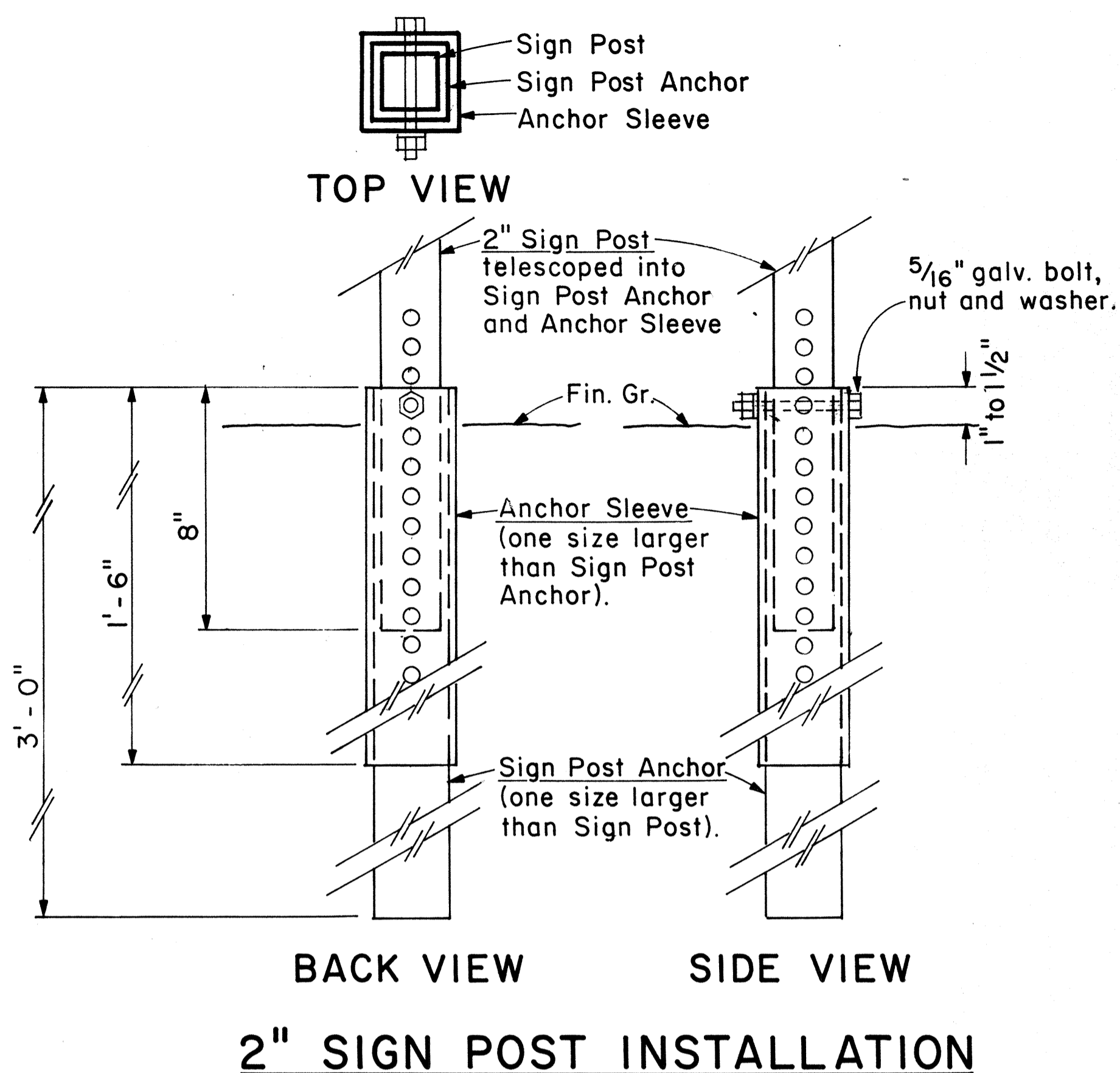
**RETAINER-SPACER STRAP**

Not to Scale

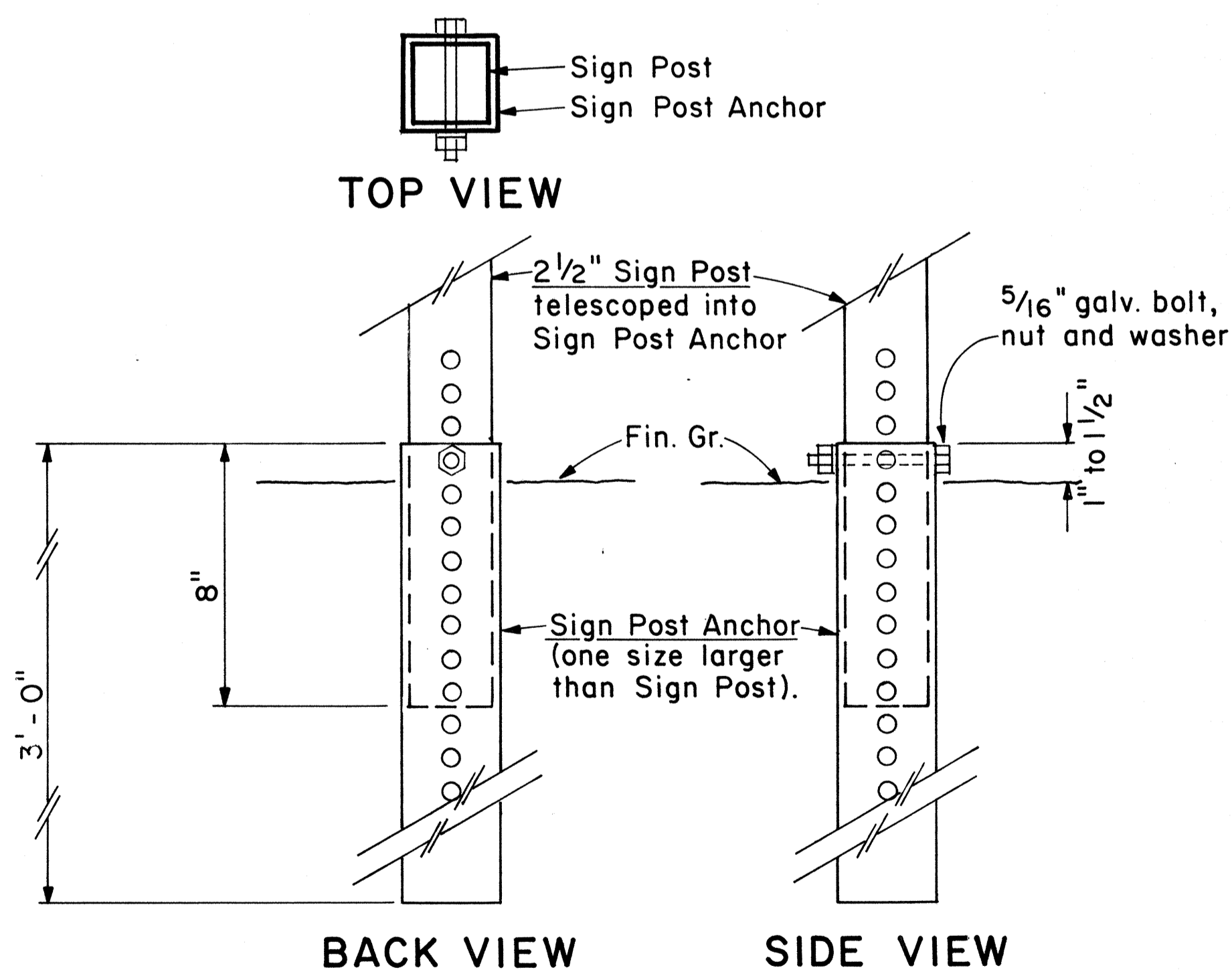
**RETAINER-SPACER STRAP**

Post Size	T	Offset
2.50 lbs./ft.	1.00"	0.145"
4.00 lbs./ft.	1.12"	0.280"

ORIGINAL SURVEY PLOTTED BY: DATE: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
TRACED BY: \_\_\_\_\_  
DESIGNED BY: \_\_\_\_\_  
QUANTITIES BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
No. \_\_\_\_\_



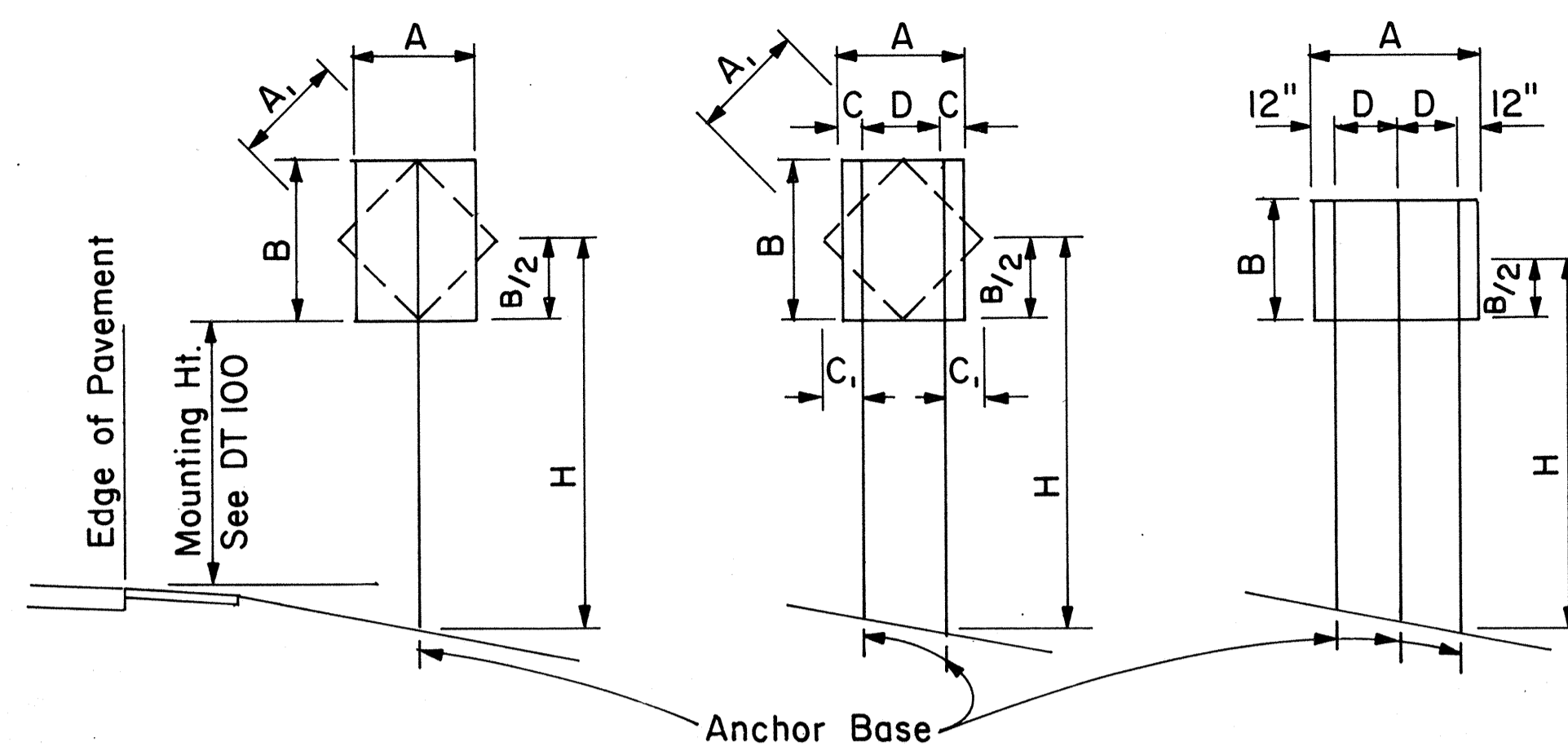
**2" SIGN POST INSTALLATION**



**2 1/2" SIGN POST INSTALLATION**

**ANCHOR BASE DETAIL**

Scale: 3" = 1'-0"



**1 - POST** Sign area 10 sq. ft. and less  
**2 - POST** Sign area greater than 10 sq. ft. or A=48"-60"  
**3 - POST** A= greater than 60"

**TYPICAL INSTALLATION**

Not to Scale

A or A <sub>1</sub>	C	C <sub>1</sub>
36"	6"	-
48"	9"	19"
60"	12"	24"

NOTE: Frame stiffeners are required when D is greater than 24". See Gen. Note 2.

**SQUARE TUBE: 1- POST INSTALLATION**

Post Size	AxBxH (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2"	62	8.8	7.7	6.8	6.1	5.6	4.8	A x B (Area, sq. ft.)
2 1/2"	107	-	-	-	-	9.6	8.8	

**SQUARE TUBE: 2- POST INSTALLATION**

Post Size	AxBxH (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2"	122	17.4	15.2	13.5	12.2	11.0	10.1	A x B (Area, sq. ft.)
2 1/2"	212	30.2	26.5	23.5	21.1	19.2	17.6	
2 1/2", 10 ga.	260	37.0	32.0	28.6	26.0	23.5	21.5	

**SQUARE TUBE: 3- POST INSTALLATION**

Post Size	AxBxH (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2"	183	26.0	22.8	20.3	18.2	16.6	15.2	A x B (Area, sq. ft.)
2 1/2"	318	45.4	39.5	35.2	31.5	28.8	26.5	
2 1/2", 10 ga.	388	55.0	48.5	43.0	38.5	35.0	32.0	

**WINDLOAD CHARTS**

NO.	REVISION	APPROVED BY	DATE

**GENERAL NOTES**

- Square tube sign posts shall conform to Subsection 713.11(C) Square Tube Posts of the Specifications.
- All accessories, fittings and stiffener details (as required) shall be submitted to Engineer for approval 20 days prior to installation.
- Square tube posts shall be perforated with 7/16" φ holes, 1" o.c., 4 sides, along entire length of post.
- All posts shall be 12 gage unless otherwise specified or shown on the plans.
- For additional details see sht. DT 100.
- Basic formulas for use with the windload charts:  
Factor = A x B x H  
Therefore, if sign area (A x B) is known,  
Maximum H =  $\frac{\text{Factor}}{\text{sign area (A x B)}}$   
and if H is known,  
Maximum sign area (A x B) =  $\frac{\text{Factor}}{H}$

APPROVAL RECOMMENDED:

*Eishi Tanaka* 9/21/82  
TRAFFIC ENGINEER DATE

APPROVED:

*Harbor Sakaiishi* 9/22/82  
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

STANDARD DETAILS  
GALVANIZED SQUARE TUBE  
SIGN POST MOUNTING

Scale: As Shown Date: Sept. 1982  
SHEET NO. F-38 OF 14 SHEETS DT 100B

DATE: \_\_\_\_\_  
SURVEY PLOTTED BY: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
ORIGINAL PLAN: \_\_\_\_\_  
NOTE BOOK: \_\_\_\_\_  
No. \_\_\_\_\_

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(132)	1983	46	192

**GENERAL NOTES**

1. Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs," 1972, and as amended.
2. All regulatory signs shall be reflectorized unless otherwise specified.
3. All regulatory signs shall have 3/8" bolt holes drilled at appropriate locations.
4. Numerals in ( ) indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
5. All signs shall be erected without educational plaques unless called for in the plans.

APPROVAL RECOMMENDED:  
*Eisaku Tanaka* 3/11/72  
 TRAFFIC ENGINEER DATE

APPROVED:  
*Robert Zetsler* 3-20-72  
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1.	Supersedes Sht. DT 101 Approved 12-30-69.	H.T.	3/10/72
2.	Revised General Note 1.	H.T.	10/14/74
3.	Added General Note 5.	H.T.	6/9/79

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

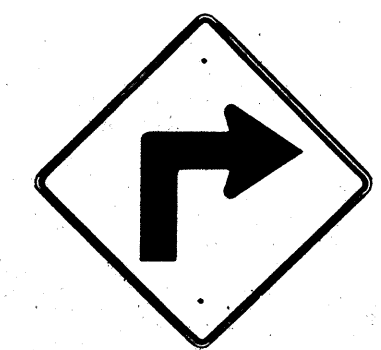

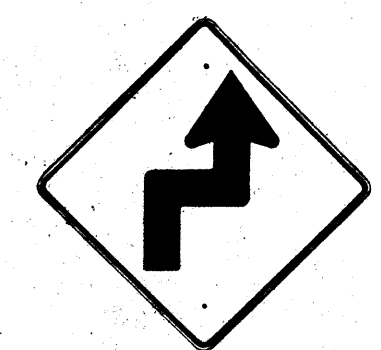
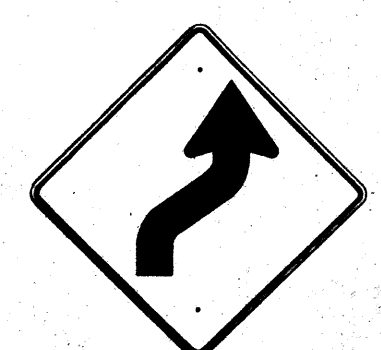
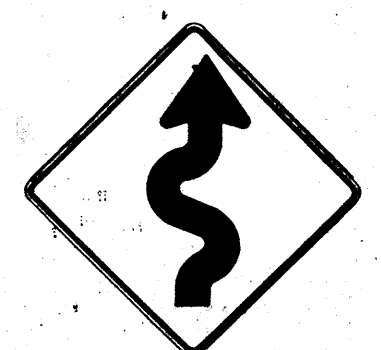
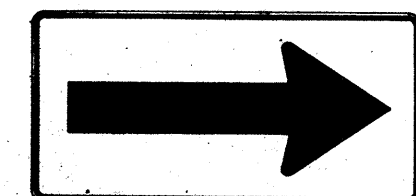
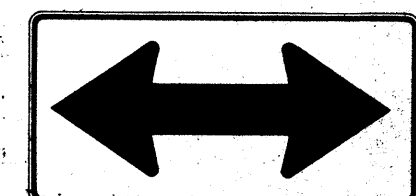
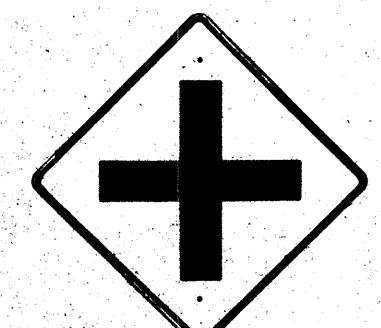
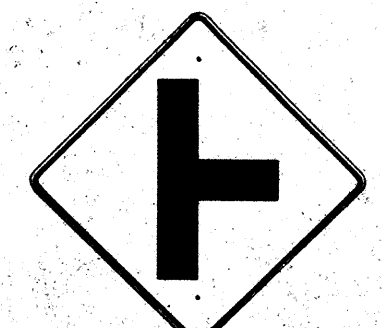
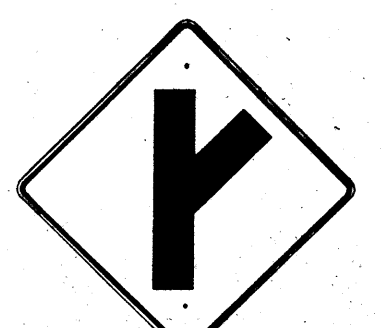
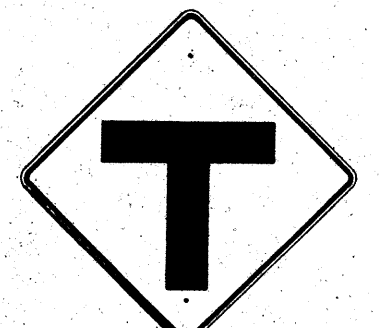
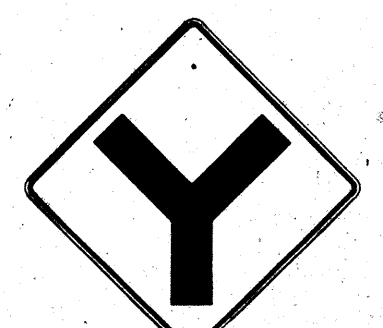


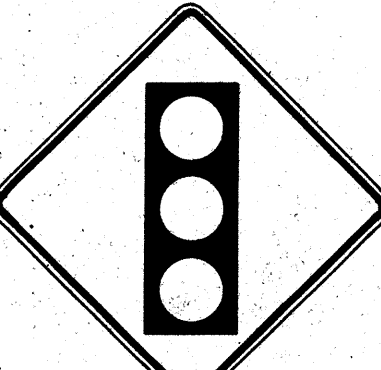

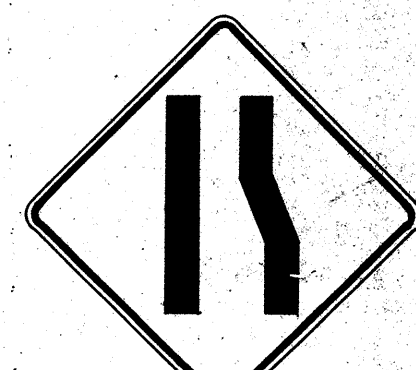




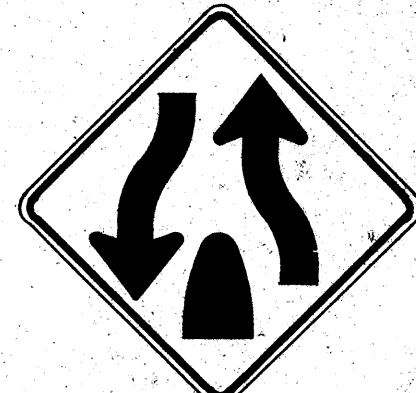
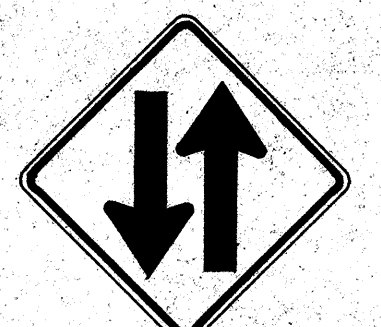
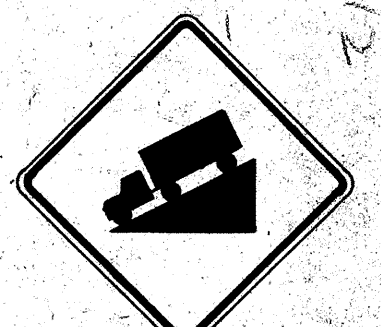













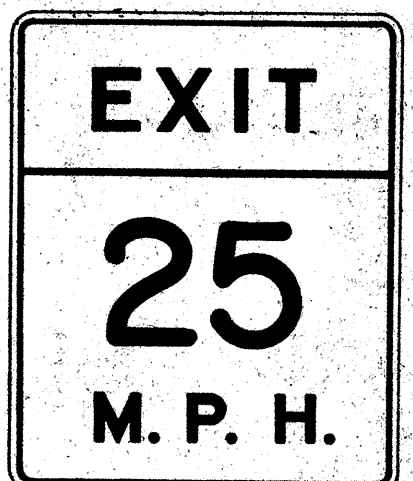
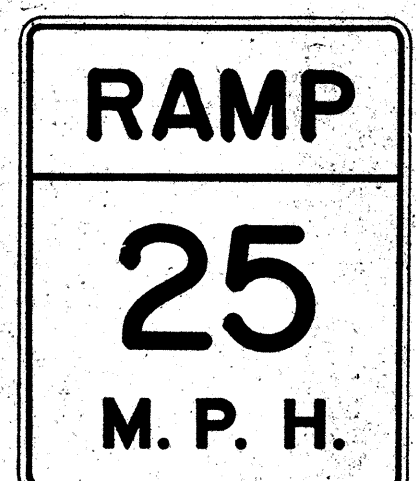


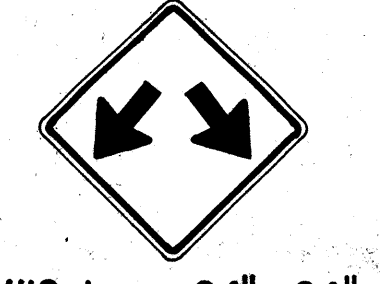


**STANDARD DETAILS**  
**REGULATORY SIGNS**

NOT TO SCALE

DATE: \_\_\_\_\_  
 ORIGINAL PLAN: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_  
 QUANTITIES BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII*	HAW.	1-HI-1(132):17	1983	47	192

DATE \_\_\_\_\_  
 SURVEY PLOTTED BY \_\_\_\_\_  
 PLAN TRACKED BY \_\_\_\_\_  
 DESIGNED BY \_\_\_\_\_  
 QUANTITIES BY \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_  
 No. \_\_\_\_\_

 W1-1(R) 30"x30" W1-1(R)-A 48"x48"	 W1-2(R) 30"x30" W1-2(R)-A 48"x48"	 W1-3(R) 30"x30" W1-3(R)-A 48"x48"	 W1-4(R) 30"x30" W1-4(R)-A 48"x48"	 W1-5(R) 30"x30" W1-5(R)-A 48"x48"	 W1-6 48"x24"	 W1-7 48"x24"	 W2-1 30"x30" W2-1-A 48"x48"	 W2-2 30"x30" W2-2-A 48"x48"	 W2-3(R) 30"x30" W2-3(R)-A 48"x48"	
 W2-4 30"x30" W2-4-A 48"x48"	 W2-5 30"x30" W2-5-A 48"x48"	 W3-1 30"x30" W3-1-A 36"x36"	 W3-2 30"x30" W3-2-A 36"x36"	 W3-3 36"x36" 24"x18"	 W4-1(R) 30"x30" 24"x18" W4-1(R)-A 48"x48" 24"x18"	 W4-2(R) 36"x36" W4-2(R)-A 48"x48"	 W5-1 36"x36"	 W5-2 30"x30" W5-2-A 36"x36"	 W5-3 36"x36"	
 W6-1 36"x36" 24"x18"	 W6-2 36"x36" 24"x18"	 W6-3 30"x30" 24"x18" W6-3-A 36"x36" 24"x18" W6-3-B 48"x48" 24"x18"	 W7-1 30"x30" 24"x18" W7-1-A 36"x36" 24"x18"	 W7-2 24"x18"	 W8-1 30"x30" W8-1-A 36"x36"	 W8-2 30"x30" W8-2-A 36"x36"	 W8-3 30"x30" W8-3-A 36"x36"	 W8-4 30"x30" W8-4-A 36"x36"	 W8-5 30"x30" 24"x18" W8-5-A 36"x36" 24"x18"	
 W9-1(R) 30"x30" W9-1(R)-A 36"x36" W9-1(R)-B 48"x48"	 W9-2(L) 36"x36" W9-2(L)-A 48"x48"	 W10-1 36" Diameter	 W11-1 30"x30" 24"x18" W11-1-A 36"x36" 24"x18"	 W11-2 30"x30" 24"x18" W11-2-A 36"x36" 24"x18"	 W11-4 30"x30" 24"x18" W11-4-A 36"x36" 24"x18"	 W11-5 30"x30" 24"x18" W11-5-A 36"x36" 24"x18"	 W13-2(25) 48"x60"	 W13-3(25) 48"x60"	 W14-1 30"x30"	 W14-3 36"x48"x48"
 W12-1 24"x24" W12-1-A 36"x36" W12-1-B 48"x48"	 W12-2(12'-6") 36"x36" 24"x18"	 W13-1(25) 18"x18" W13-1(25)-A 24"x24"								

**GENERAL NOTES**

- Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs," 1972, and as amended.
- All warning signs shall be reflectorized unless otherwise specified.
- All warning signs shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in ( ) indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
- Signs prefixed with "CW" on the plans shall indicate orange and black construction signs, and shall be reflectorized.

APPROVAL RECOMMENDED:  
*Eddie Tanaka* 3/17/82  
 TRAFFIC ENGINEER DATE

APPROVED:  
*Shadrach Dalside* 3-20-82  
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 102 Approved 12-30-69	H.T.	3/20/72
2	Revised General Note 1	H.T.	10/16/74
3	Revised General Note 5	M.H.	9-16-75
4	Revised General Note 5	H.T.	9-14-76
5	Added Note 1	H.T.	11-7-79

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**STANDARD DETAILS**  
**WARNING SIGNS**

NOT TO SCALE  
 SHEET No. F-5 OF 14 SHEETS DT 102

**NOTE**  
 1. All signs shall be erected without educational plaques unless called for in the plans.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H-11-1(B2)17	1983	48	192

General Notes

- Sign details shall conform to the latest editions of the following FHWA publications:
  - "Standard Alphabets for Highway Signs," and as amended.
  - "Standard Highway Signs," and as amended.
  - "Manual on Uniform Traffic Control Devices for Streets and Highways," and as amended.
- All signs shall be reflectorized with reflective sheeting, unless otherwise specified.
- All signs shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in ( ) indicate numerals to be inserted for sign message. (R) or (L) indicates right or left.
- Signs prefixed with "CW" on the plans shall indicate orange and black construction signs, and shall be reflectorized with reflective sheeting.
- All signs shall be erected without educational plaques unless called for in the plans.

ALL WAY  
R1-4 18"x 6"

REDUCED SPEED  
35  
AHEAD  
R2-5d(35) 24" x 30"  
R2-5d(35)-A 48" x 60"

SPEED LIMIT ENFORCED BY VASCAR  
4" Series D  
- 4" Series C  
- 3" Series D  
- 5" Series C  
R2-10 24" x 30"

CENTER LANE ONLY  
R3-9b 24" x 36"

BUS STOP  
R7-107(R) 12" x 24"

RESERVED PARKING  
R7-8 12" x 18"  
R7-8-A 24" x 30"

ANY TIME  
1 1/2" Series C  
R8-3a 24" x 24"  
24" x 18"  
R8-3a-A 48" x 48"

NO PED XING  
R9-3a 18" x 18"  
18" x 12"  
R9-3a-A 24" x 24"  
24" x 18"

USE CROSSWALK  
R9-3b(R) 18" x 12"

USE CROSSWALK  
R9-3b(L) 18" x 12"

NO TURN ON RED  
R10-11a 24" x 30"

TURN RIGHT ANY TIME WITH CAUTION  
4" Series C  
R16-1 24" x 30"

NO LEFT TURN ON RED  
- 4" Series D  
- 3" Series D  
- 2" Series D  
- 3" Series D  
R16-3 18" x 24"

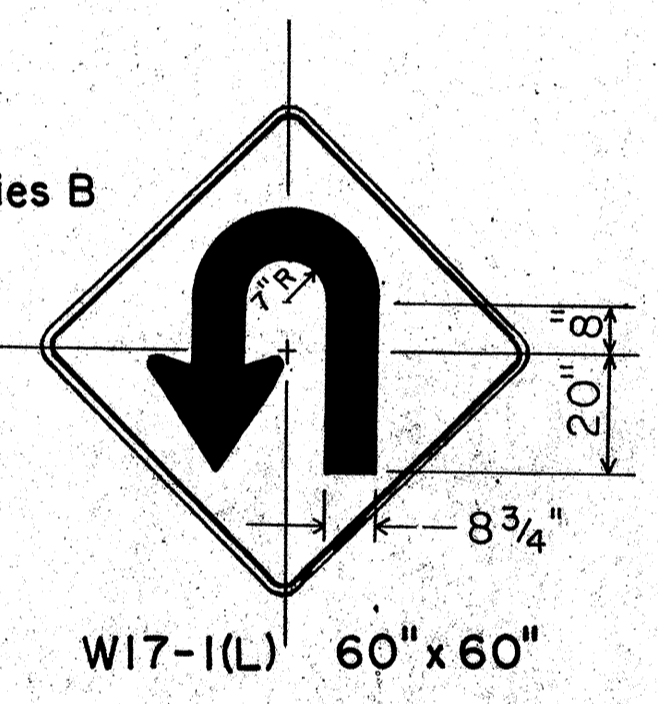
NO RIGHT TURN ON RED  
R16-4 18" x 24"

UNLICENSED VEHICLES BICYCLES, CYCLES UNDER 5 H.P., PEDESTRIANS KEEP OUT FREEWAY  
3" Series C  
4" Series E  
R16-5 36" x 42"

U TURN AHEAD  
- 8" Series F  
- 5" Series D  
R16-6 24" x 30"

U TURN OK  
8" Series F  
5" Series D  
R16-7 24" x 30"

MOTOR-DRIVEN CYCLES PROHIBITED  
4" Series B  
R5-8 30" x 24"



STOP AHEAD  
W3-1a 36" x 36"  
24" x 18"  
W3-1a-A 48" x 48"  
24" x 18"

YIELD AHEAD  
W3-2a 36" x 36"  
24" x 18"  
W3-2a-A 48" x 48"  
24" x 18"

STOP AHEAD WHEN FLASHING  
6" Series C  
W3-4 48" x 48"

TRUCK CROSSING  
W8-6 30" x 30"  
W8-6-A 36" x 36"

THRU TRAFFIC MERGE LEFT  
6" Series E  
W9-3(L) 48" x 48"

EQUESTRIAN XING  
W11-7 36" x 36"  
24" x 18"  
W11-7-A 48" x 48"  
24" x 18"

FIRE STATION  
W11-8 36" x 36"  
24" x 18"  
W11-8-A 48" x 48"  
24" x 18"

W11-9 36" x 36"  
W11-9-A 48" x 48"

LIMITED SIGHT DISTANCE  
W14-4 36" x 36"  
W14-4-A 48" x 48"

DELAYED GREEN  
4" Series C  
W15-1 24" x 24"

ADVANCE GREEN  
W15-2 24" x 24"

END FREEWAY 1/2 MI  
8" Series E  
CW16-1(1/2) 60" x 60"

RIGHT LANE EXIT ONLY  
8" Series E  
W18-1 48" x 60"

SI-1 36" x 36"

S2-1 36" x 36"

SCHOOL BUS STOP AHEAD  
S3-1 30" x 30"

8:00 AM TO 3:30 PM  
S4-1 24" x 10"

WHEN CHILDREN ARE PRESENT  
S4-2 24" x 10"

SCHOOL  
S4-3 24" x 8"

WHEN FLASHING  
S4-4 24" x 10"

SIDEWALK CLOSED  
7" Series D  
CW23-4 48" x 48"

USE SIDEWALK  
4" Series C  
R18-1 24" x 18"

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 103 approved 3/20/72	H-T	5/2/78
2	Added General Note 6	H-T	11/9/78

APPROVAL RECOMMENDED:  
*Etsuki Tanaka* 5/2/78  
TRAFFIC ENGINEER DATE

APPROVED:  
*Arthur Z. Zafra* 5/2/78  
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**

MISCELLANEOUS SIGNS

NOT TO SCALE DATE: MAY, 1978  
SHEET No. F-6 OF 14 SHEETS. DT 103

DATE \_\_\_\_\_  
SURVEY PLOTTED BY \_\_\_\_\_  
DRAWN BY \_\_\_\_\_  
DESIGNED BY \_\_\_\_\_  
NOTE BOOK QUANTITIES BY \_\_\_\_\_  
CHECKED BY \_\_\_\_\_  
No. \_\_\_\_\_

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(152)17	1983	49	192



CW20-1a 48"x 48"



CW20-2d 48"x 48"



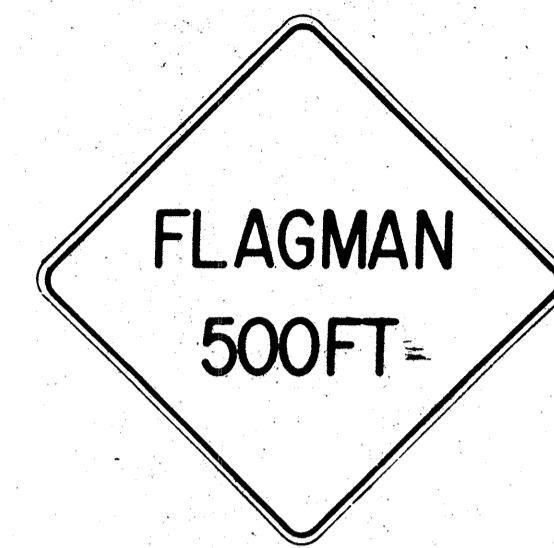
CW20-3b 48"x 48"



CW20-4d 48"x 48"



CW20-5d(L) 48"x 48"



CW20-7c 48"x 48"



CW21-1 30"x 30"



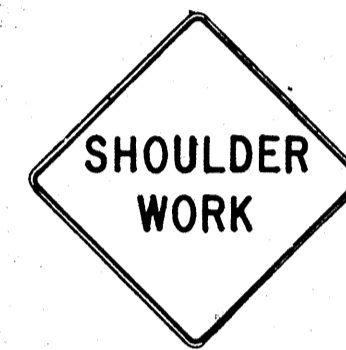
CW21-2 30"x 30"



CW21-3 36"x 36"



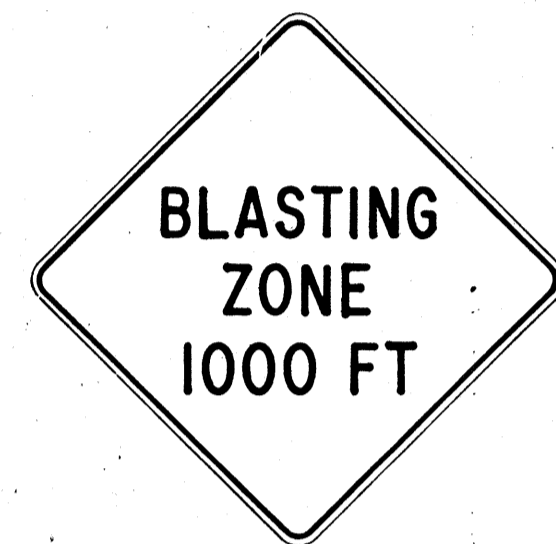
CW21-4 36"x 36"



CW21-5 30"x 30"



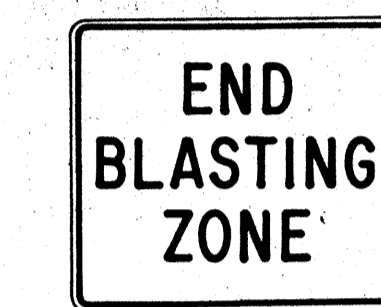
CW21-6 30"x 30"



CW22-1b 48"x 48"



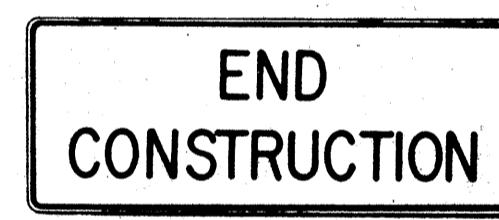
CW22-2 42"x 36"



CW22-3 42"x 36"



CG20-1(5) 60"x 36"



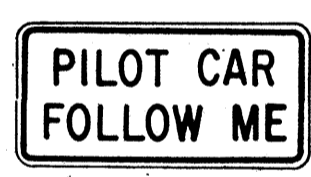
CG20-2 60"x 24"



CM4-9(R) 30"x 24"



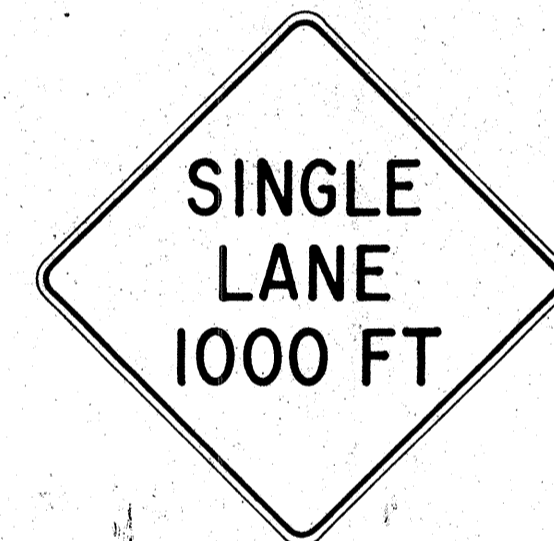
CM4-10(R) 48"x 18"



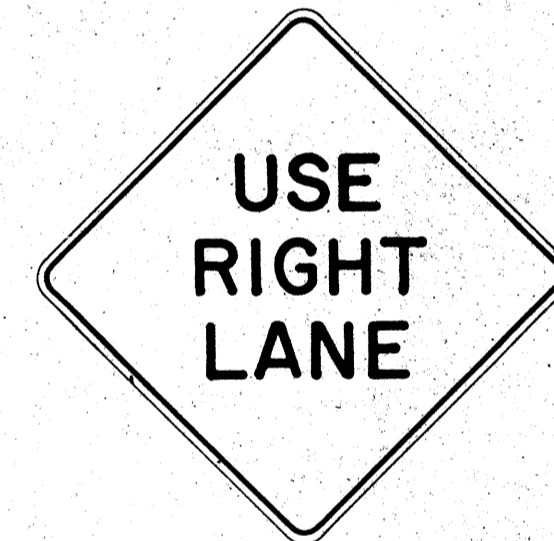
CG20-4 36"x 18"



CW23-1 36"x 36"



CW23-2b 48"x 48"



CW23-3(R) 48"x 48"

**GENERAL NOTES**

- Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs," 1972, and as amended.
- All construction signs shall be reflectorized.
- All construction signs shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in ( ) indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
- For "CW" series signs, suffixes a,b,c and d are as follows:  
a-1500 FT, b-1000 FT, c-500 FT and d-AHEAD.

APPROVAL RECOMMENDED:  
*Erich Tanaka* 3/21/72  
TRAFFIC ENGINEER DATE

APPROVED:  
*Walter Saleh* 3/23/72  
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 104 Approved 12-30-69	H.C.	3/25/72
2	Revised General Note 1	H.C.	10/10/74
3	Revised General Note 2	M.H.	9-16-75
4	Revised General Note 2 and sign CG20-1(5)	H.C.	9-14-76

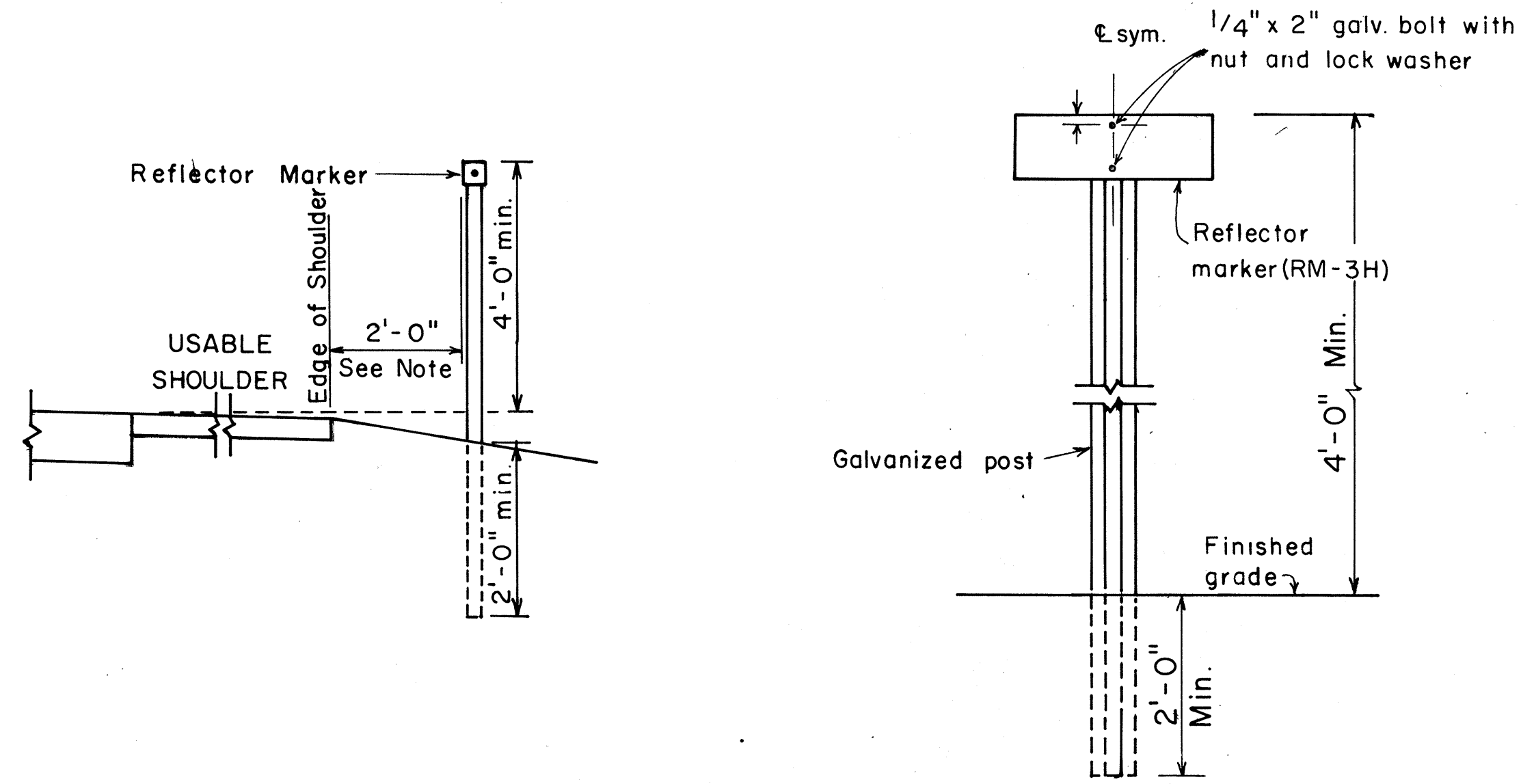
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**  
**CONSTRUCTION SIGNS**

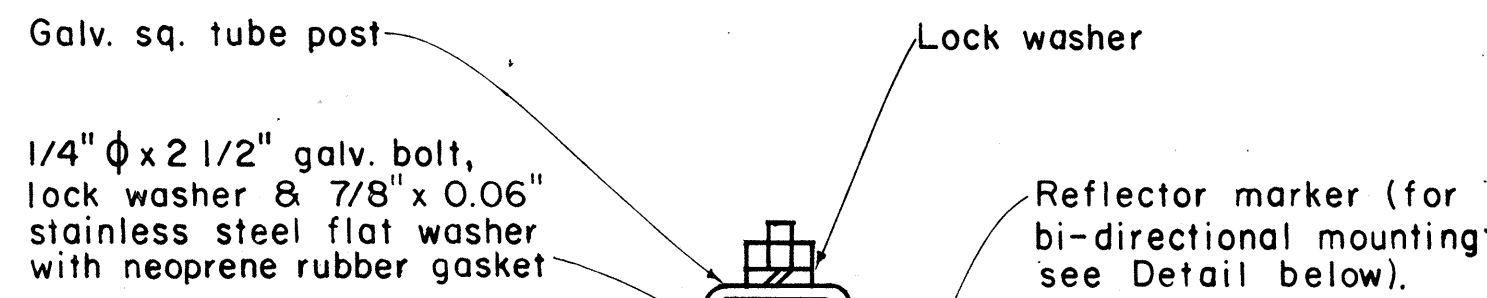
NOT TO SCALE

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

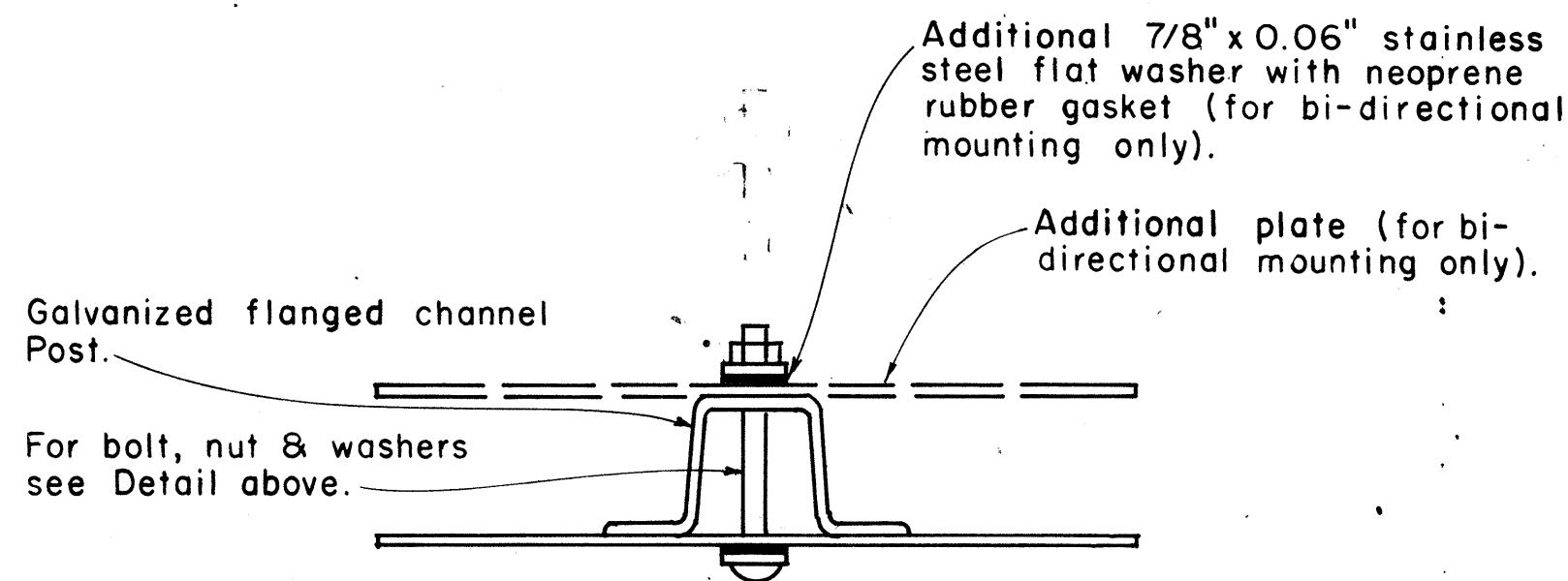
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H1-(192)47	1983	50	192



**REFLECTOR MARKER MOUNTING DETAIL**



**GALVANIZED SQUARE TUBE POST**

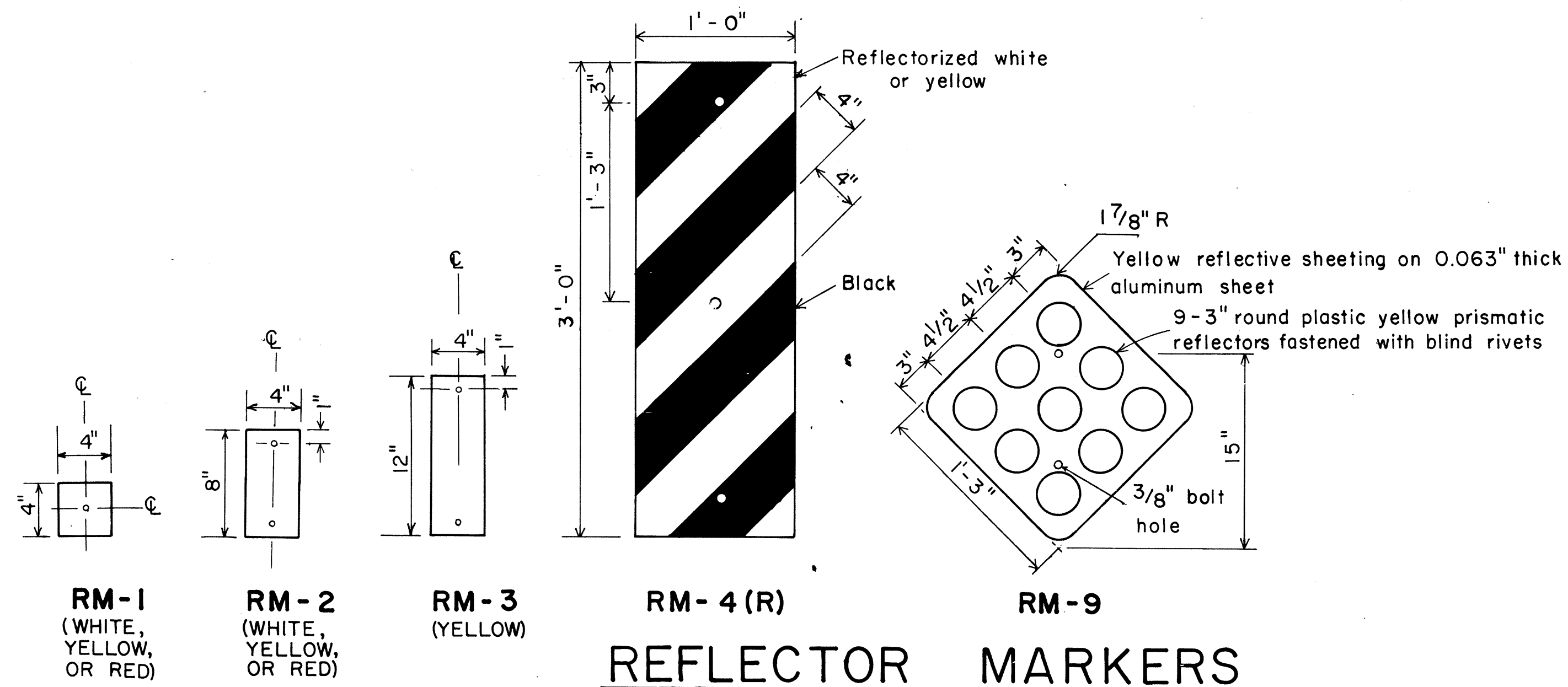


**GALVANIZED FLANGED CHANNEL POST**

**TYPICAL MOUNTING DETAILS**

**GENERAL NOTES:**

1. Clearance markers (RM-3, RM-4) shall be installed with the edge of the marker in line with the inner edge of the obstruction.
2. (R) or (L) indicates right or left and shall be as shown on the plans.
3. Reflector markers RM-1 and RM-2 shall be:
  - a) Yellow if placed along the left edge of divided roadways, one-way roadways, and ramps in the direction of travel.
  - b) White if placed along the right edge of divided roadways, one-way roadways, and ramps in the direction of travel.
4. For reflector marker RM-9, reflective sheeting material may be used as an alternate.
5. For RM-4, the stripes shall slope downward at an angle of 45° in the direction of traffic.



**REFLECTOR MARKERS**

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

APPROVAL RECOMMENDED:  
*Eishi Tanaka* 11/7/77  
 TRAFFIC ENGINEER DATE

APPROVED:  
*Herbert A. Sakai* 11/15/77  
 ASSISTANT CHIEF, ENGINEERING DATE

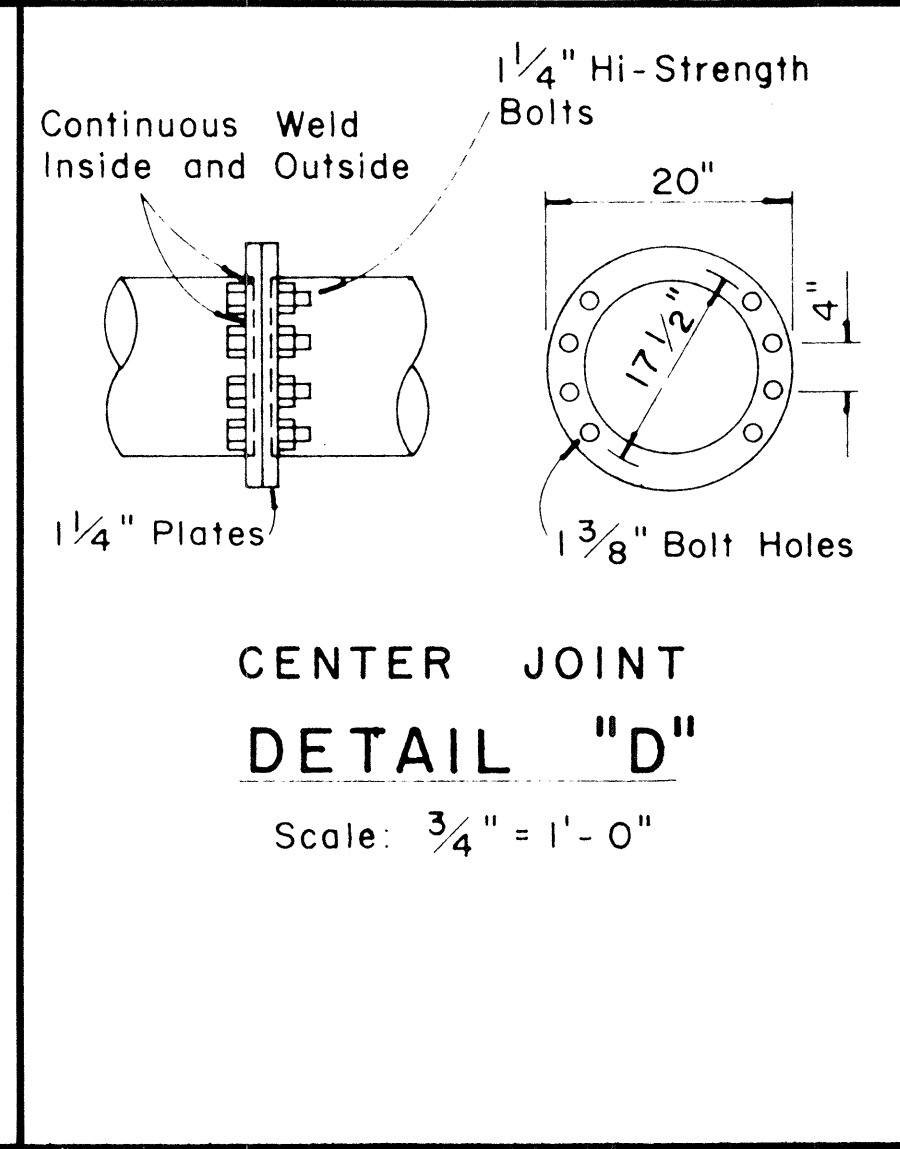
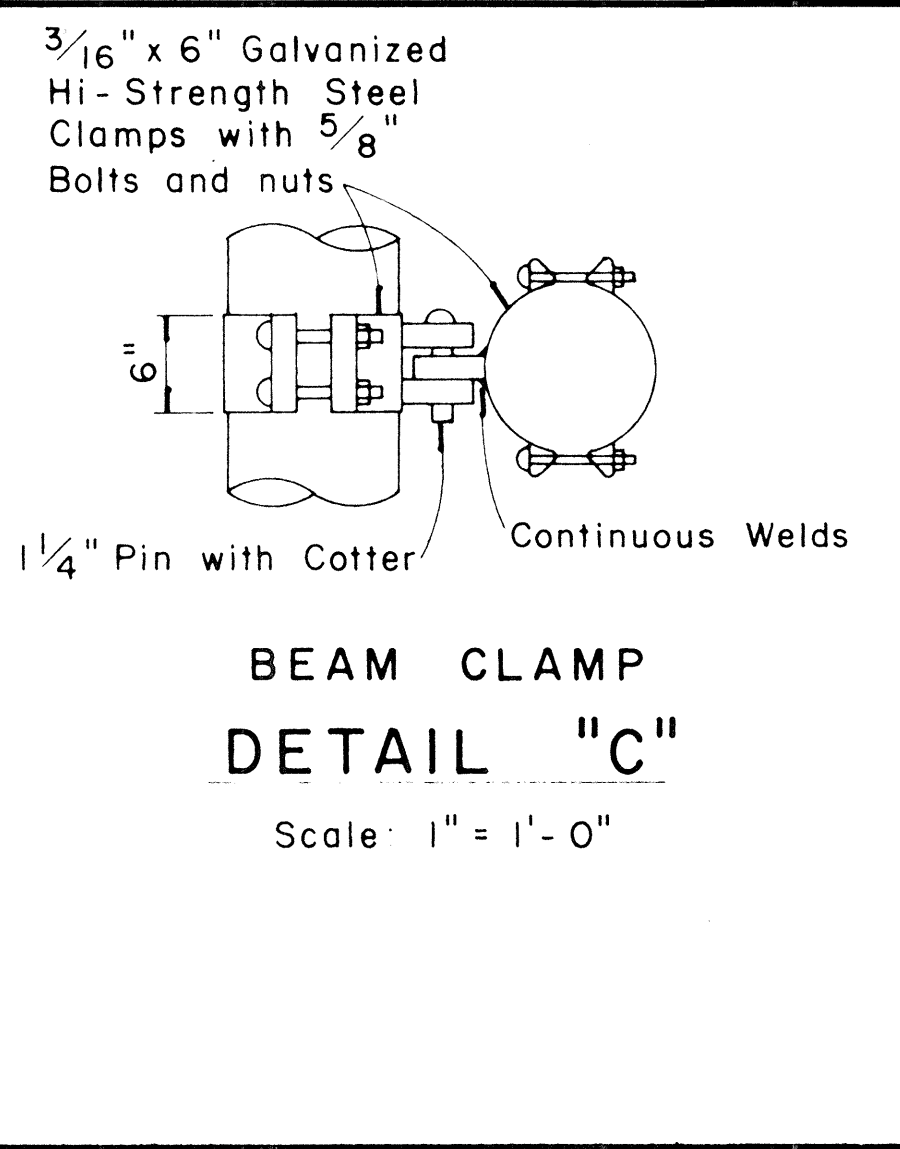
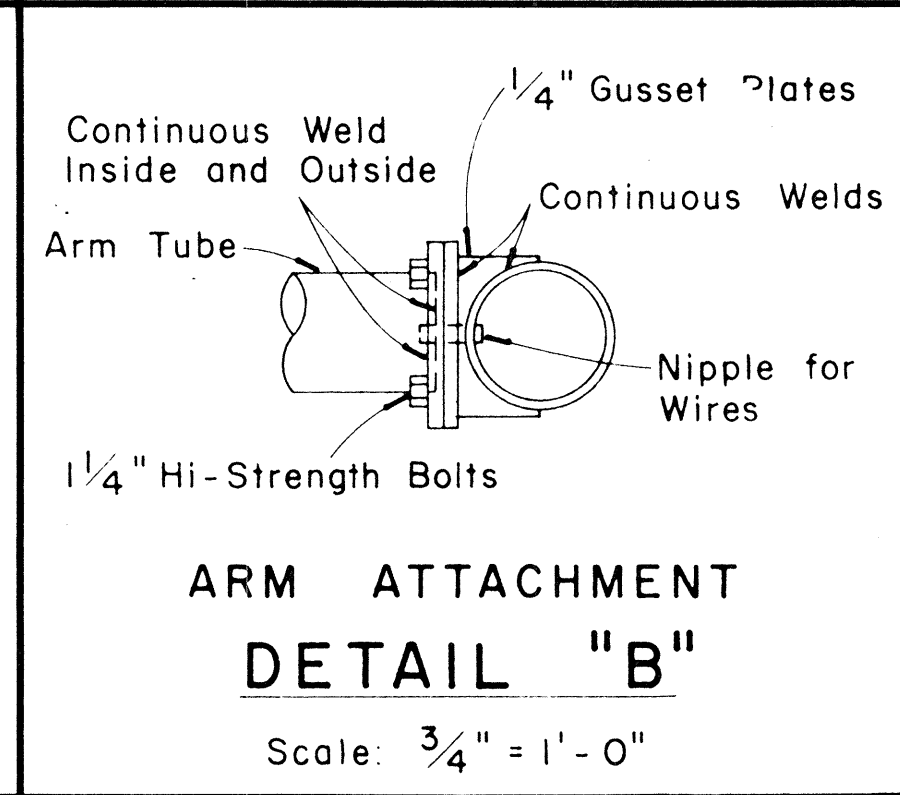
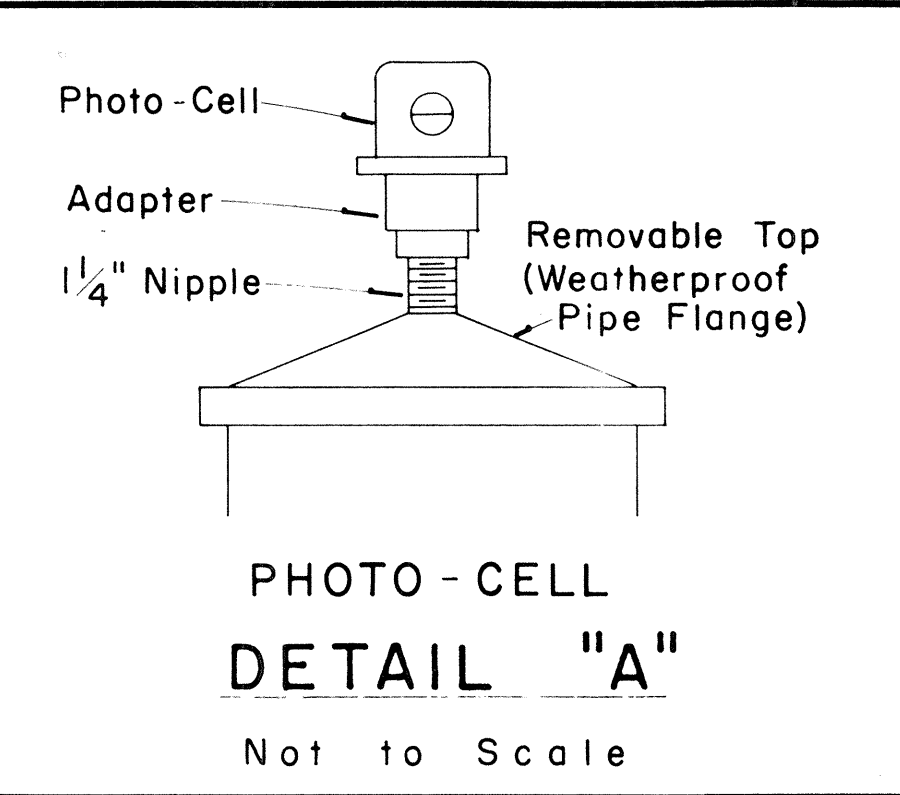
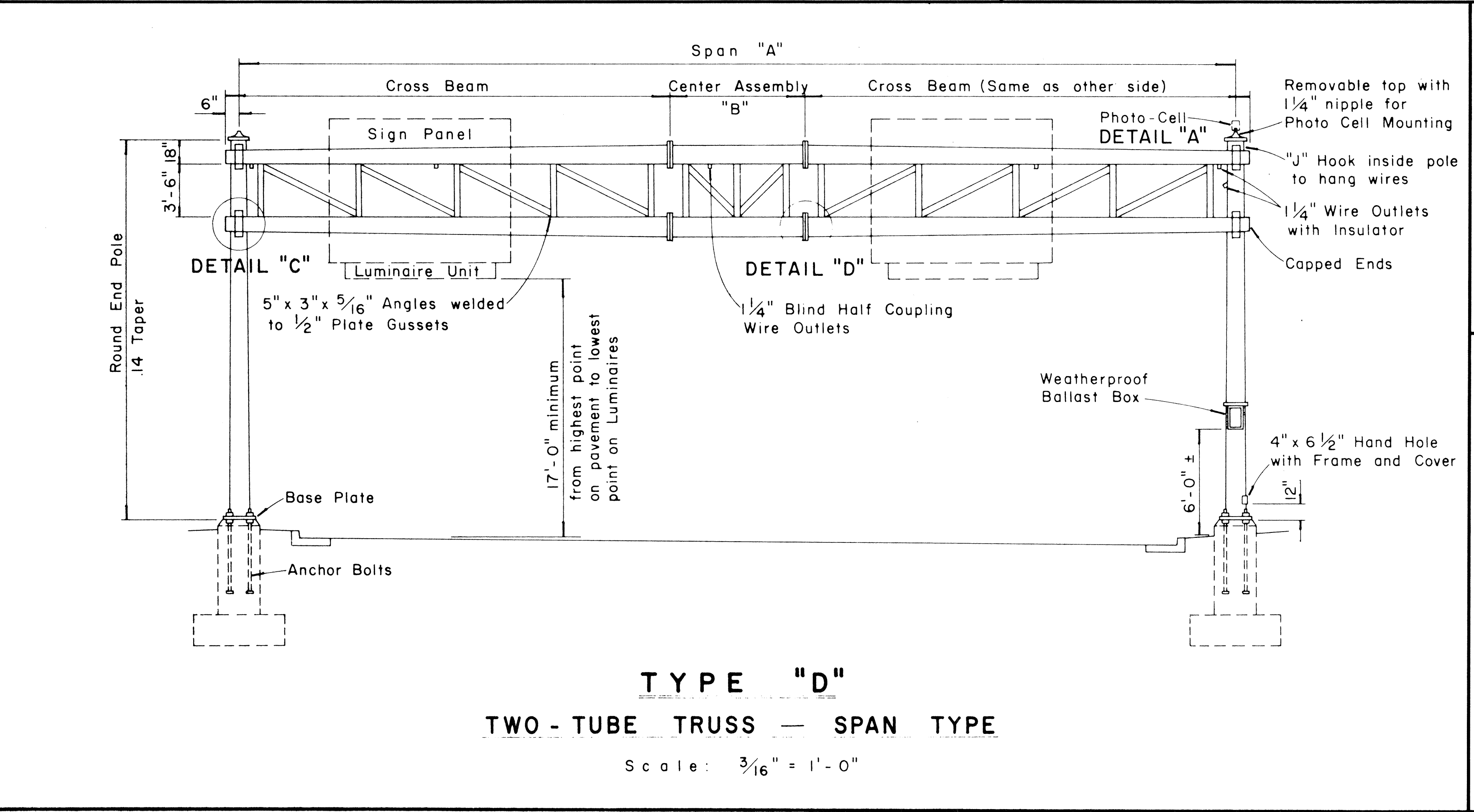
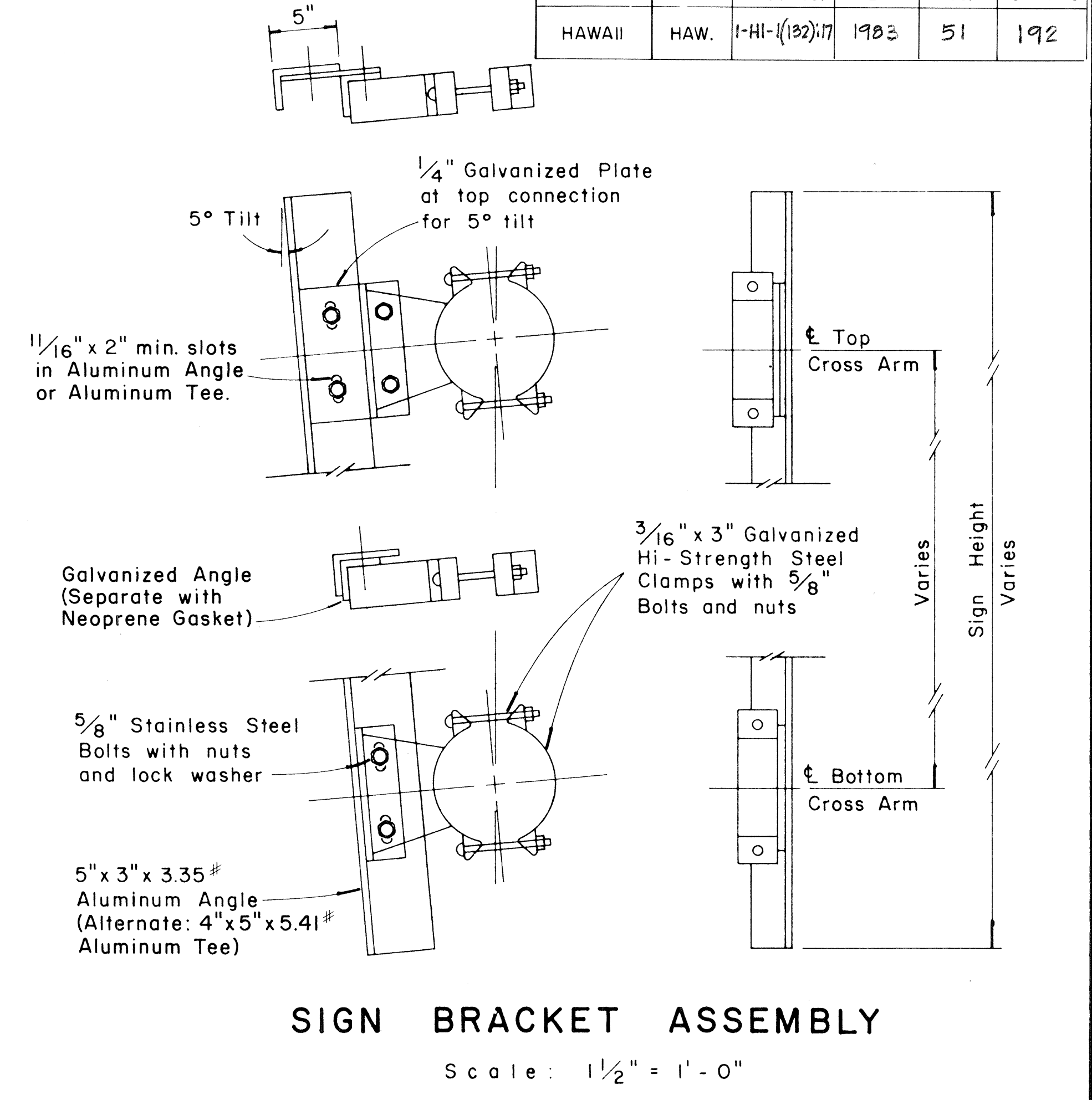
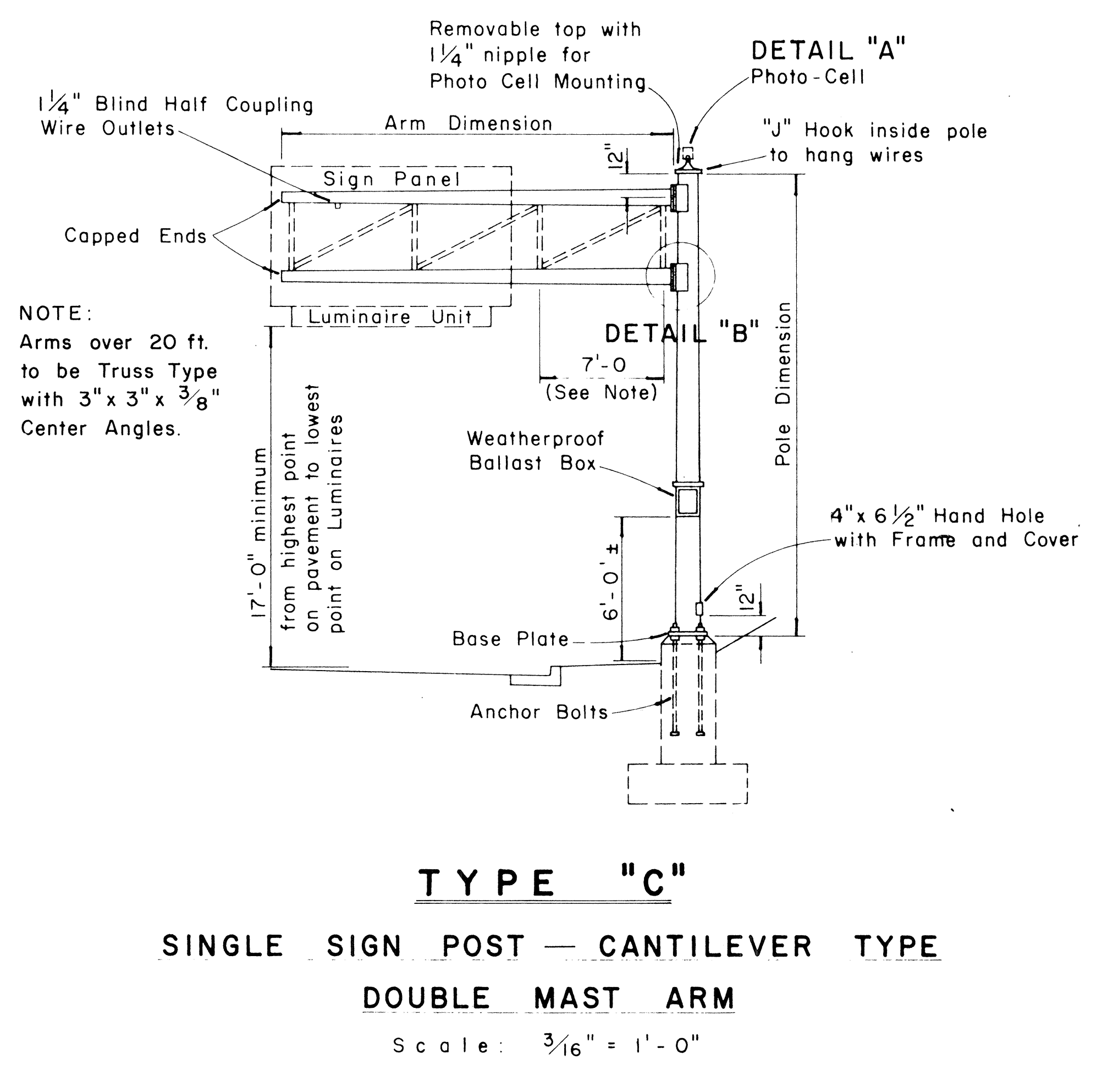
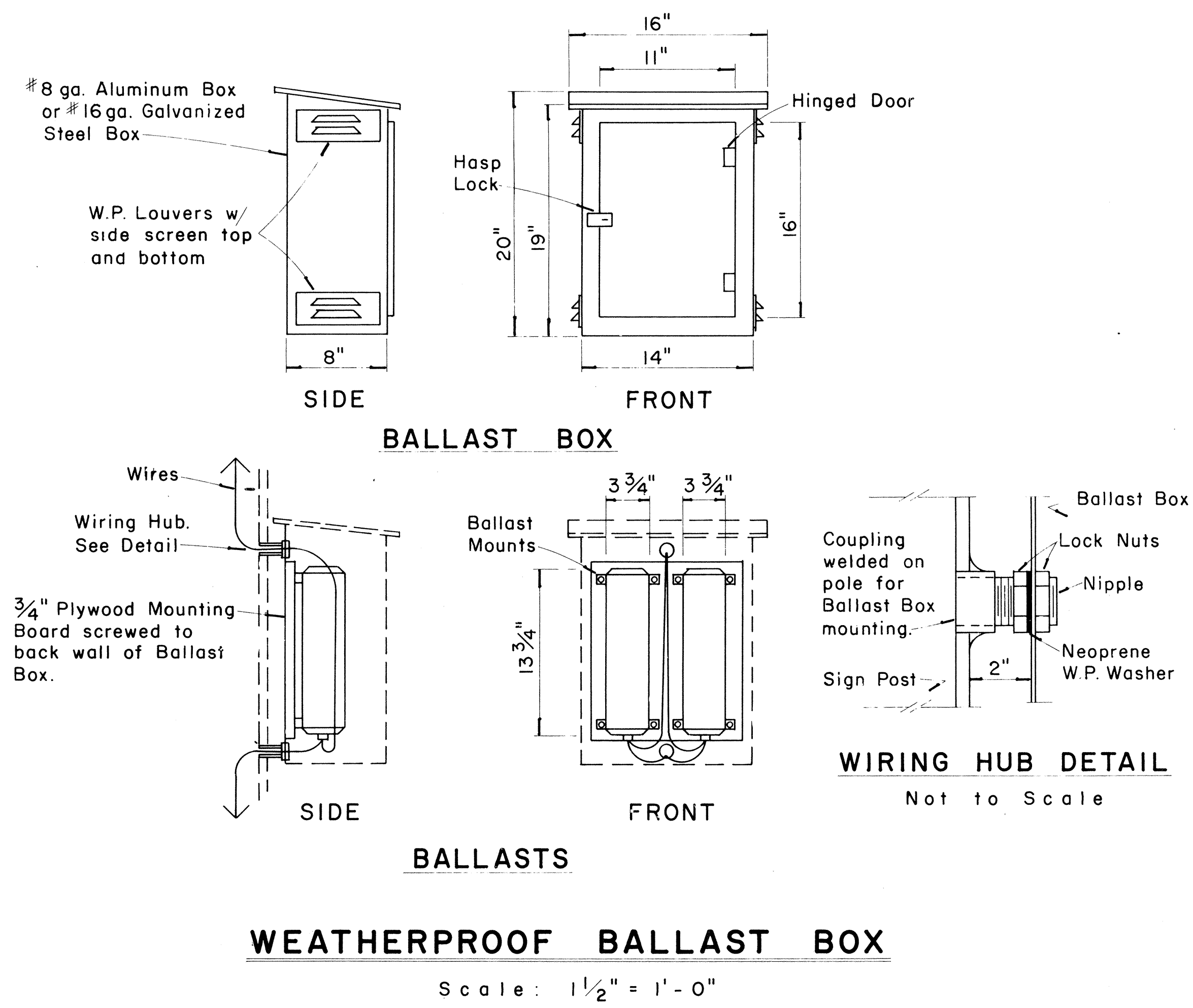
NO.	REVISION	APPROVED BY	DATE
1	Revised Mounting Details	H.T.	4/23/80

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**STANDARD DETAILS**  
 MISCELLANEOUS REFLECTOR MARKERS

Not to scale June, 1977  
 SHEET No. F-8 OF 14 SHEETS DT 110

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(132)17	1983	51	192



APPROVAL RECOMMENDED:  
*Erich Tanaka* 12/29/69  
 TRAFFIC ENGINEER DATE

APPROVED:  
*John S. S. S.* 12-30-69  
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**STANDARD DETAILS**  
**OVERHEAD SIGN SUPPORTS**

Scale As Shown  
 SHEET No. F-9 OF 14 SHEETS DT 200

DATE: \_\_\_\_\_  
 SURVEY PLOTTED BY: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 ORIGINAL PLAN: \_\_\_\_\_  
 NOTE BOOK: \_\_\_\_\_  
 No. \_\_\_\_\_

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(122)17	1983	52	192

(OVERHEAD SIGNS)  
SUPPORT SPACING TABLE

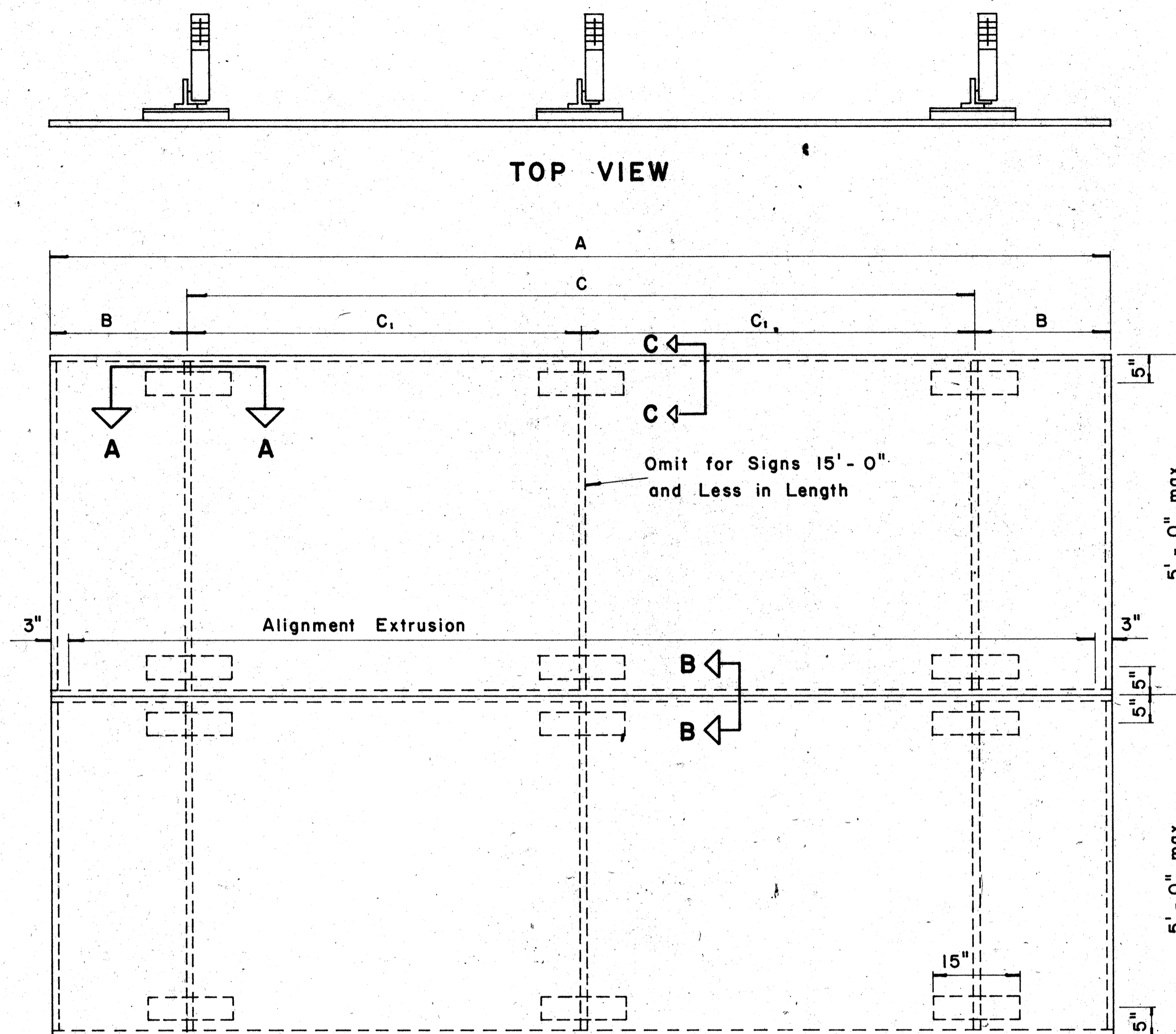
PANEL THICK.	LENGTH OF SIGN A	NO. OF SUPPORTS	OVERHANG B	SUPPORT SPACING C or C <sub>1</sub>
1"	6'-0"	2	12"	48"
1"	6'-6"	2	15"	48"
1"	7'-0"	2	15"	54"
1"	7'-6"	2	18"	54"
1"	8'-0"	2	18"	60"
1"	8'-6"	2	20"	62"
1"	9'-0"	2	22"	64"
1"	9'-6"	2	23"	68"
1"	10'-0"	2	24"	72"
1"	10'-6"	2	24"	78"
1"	11'-0"	2	24"	84"
1"	11'-6"	2	27"	84"
1"	12'-0"	2	30"	84"
1"	12'-6"	2	30"	90"
1"	13'-0"	2	30"	96"
1"	13'-6"	2	30"	102"
1"	14'-0"	2	30"	108"
1"	14'-6"	2	36"	102"
1"	15'-0"	2	36"	108"
1"	15'-6"	3	24"	69"
1"	16'-0"	3	24"	72"
1"	16'-6"	3	24"	75"
1"	17'-0"	3	24"	78"
1"	17'-6"	3	24"	81"
1"	18'-0"	3	24"	84"
1"	18'-6"	3	27"	84"
1"	19'-0"	3	27"	87"
1"	19'-6"	3	27"	90"
1"	20'-0"	3	30"	90"
1"	20'-6"	3	30"	93"
1"	21'-0"	3	30"	96"
1"	21'-6"	3	33"	96"
1"	22'-0"	3	36"	96"
1"	22'-6"	3	36"	99"
1"	23'-0"	3	36"	102"
1"	23'-6"	3	36"	105"
1"	24'-0"	3	36"	108"

APPROVAL RECOMMENDED:  
*Eishi Tanaka*  
TRAFFIC ENGINEER 12/23/63  
DATE

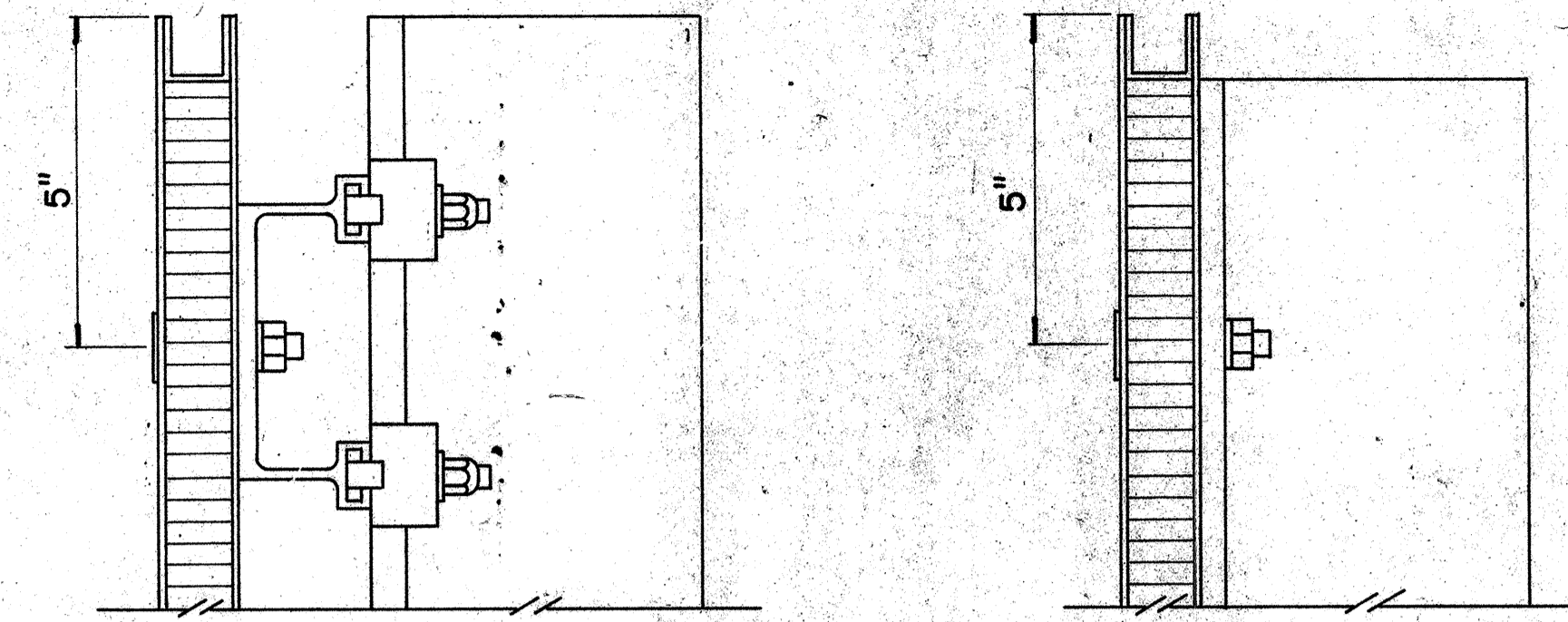
APPROVED:  
*[Signature]*  
ASSISTANT CHIEF, ENGINEERING 12-30-63  
DATE

NO.	REVISION	APPROVED BY	DATE

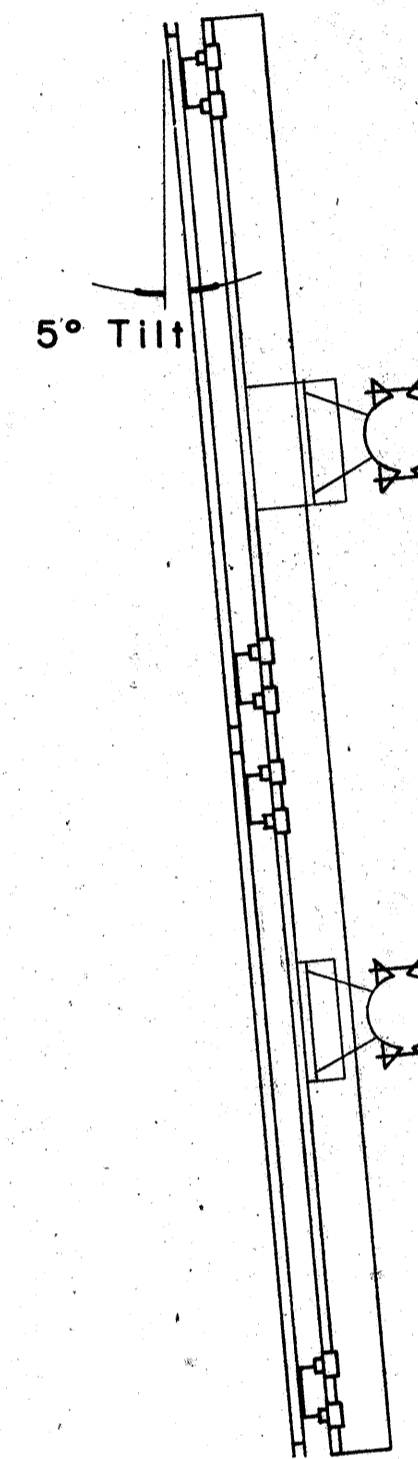
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
LAND TRANSPORTATION FACILITIES DIVISION  
**STANDARD DETAILS**  
LAMINATED ALUMINUM  
SIGN PANELS  
(OVERHEAD)  
Scale: As Shown



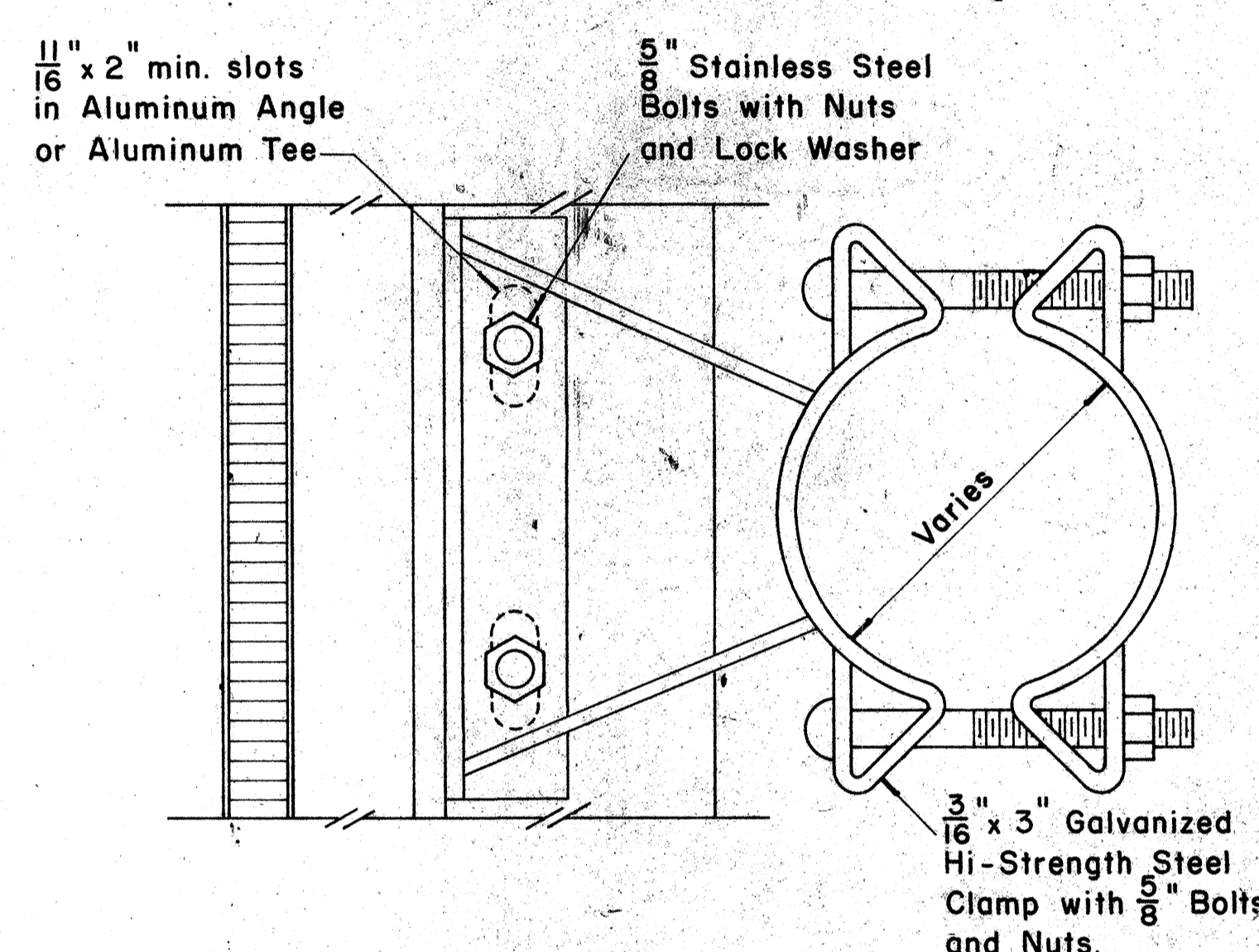
TYPICAL SIGN ASSEMBLY  
Scale:  $\frac{3}{4}$ " = 1'-0"



SECTION "C-C" SECTION "C-C" (Alternate)  
Scale:  $\frac{3}{8}$ " = 1"

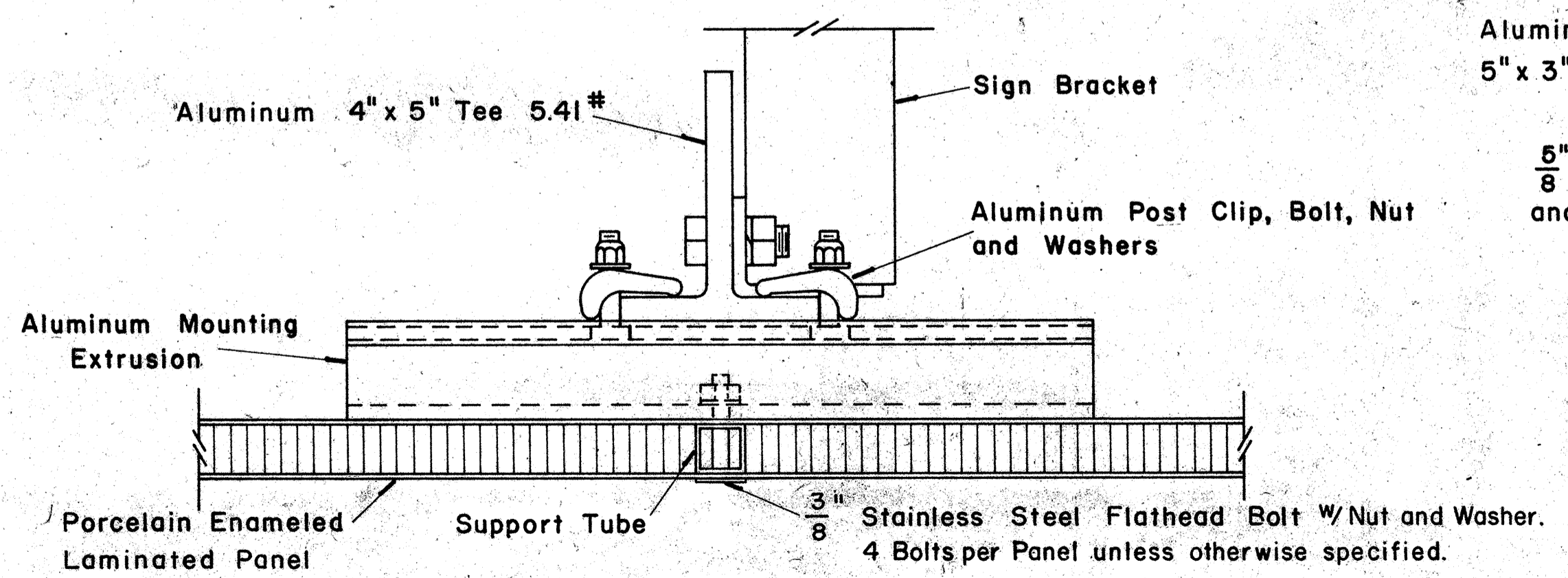


SIDE VIEW

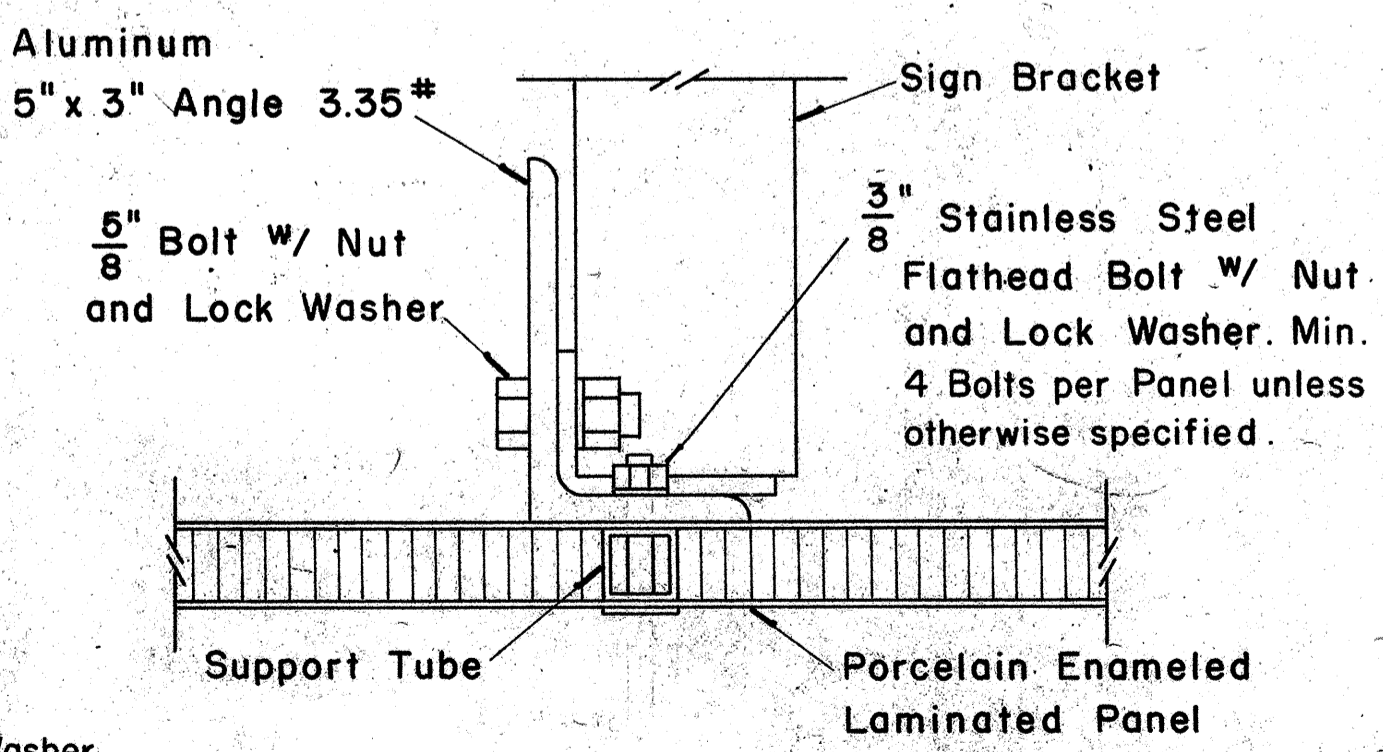


SIGN BRACKET ASSEMBLY  
Scale:  $\frac{3}{8}$ " = 1"

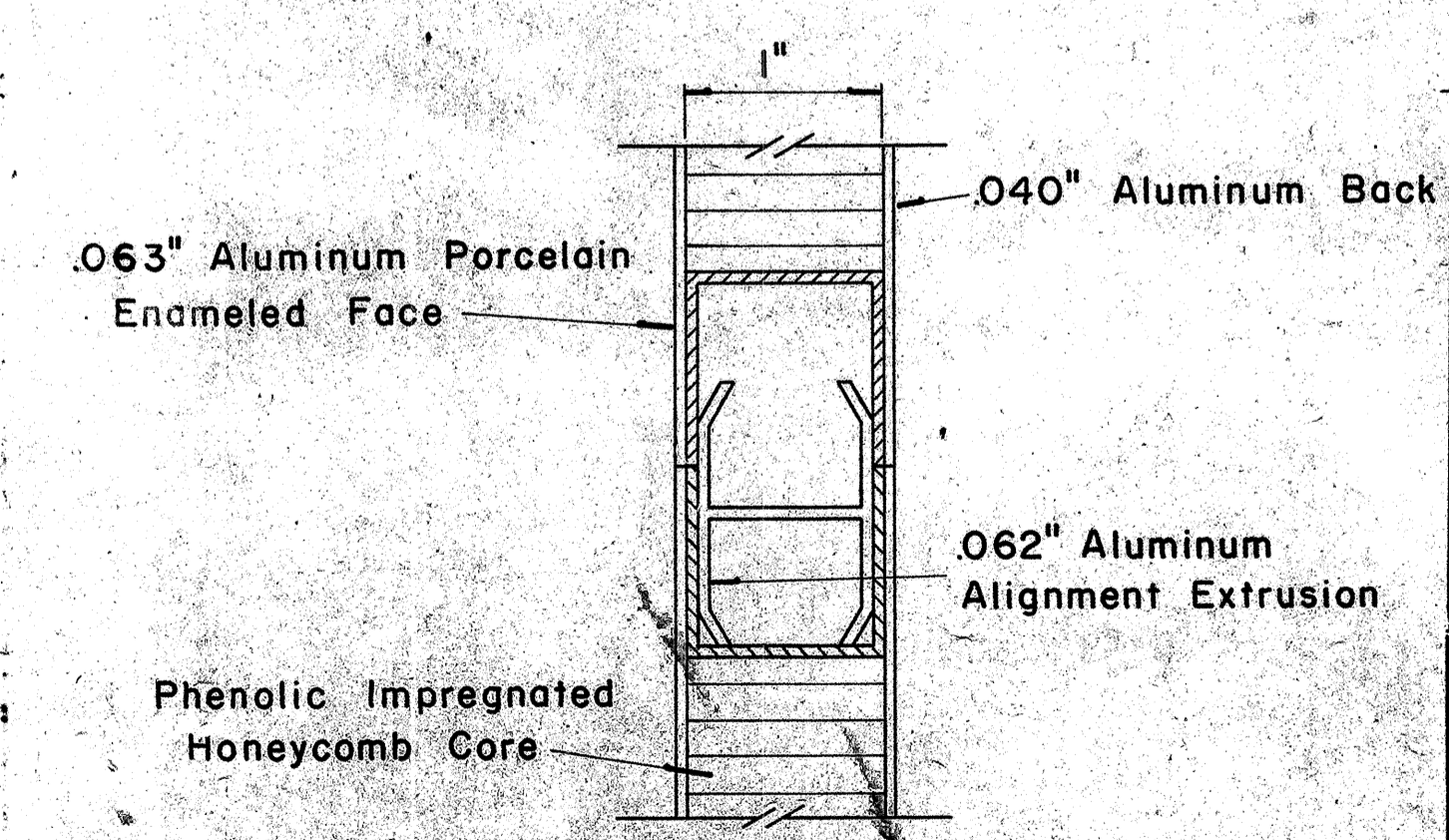
NOTE: For additional details of Sign Bracket Assembly, see Standard Detail Sheet "Overhead Sign Supports."



SECTION "A-A" (Alternate)  
Scale:  $\frac{3}{8}$ " = 1"



SECTION "A-A" (Alternate)  
Scale:  $\frac{3}{8}$ " = 1"



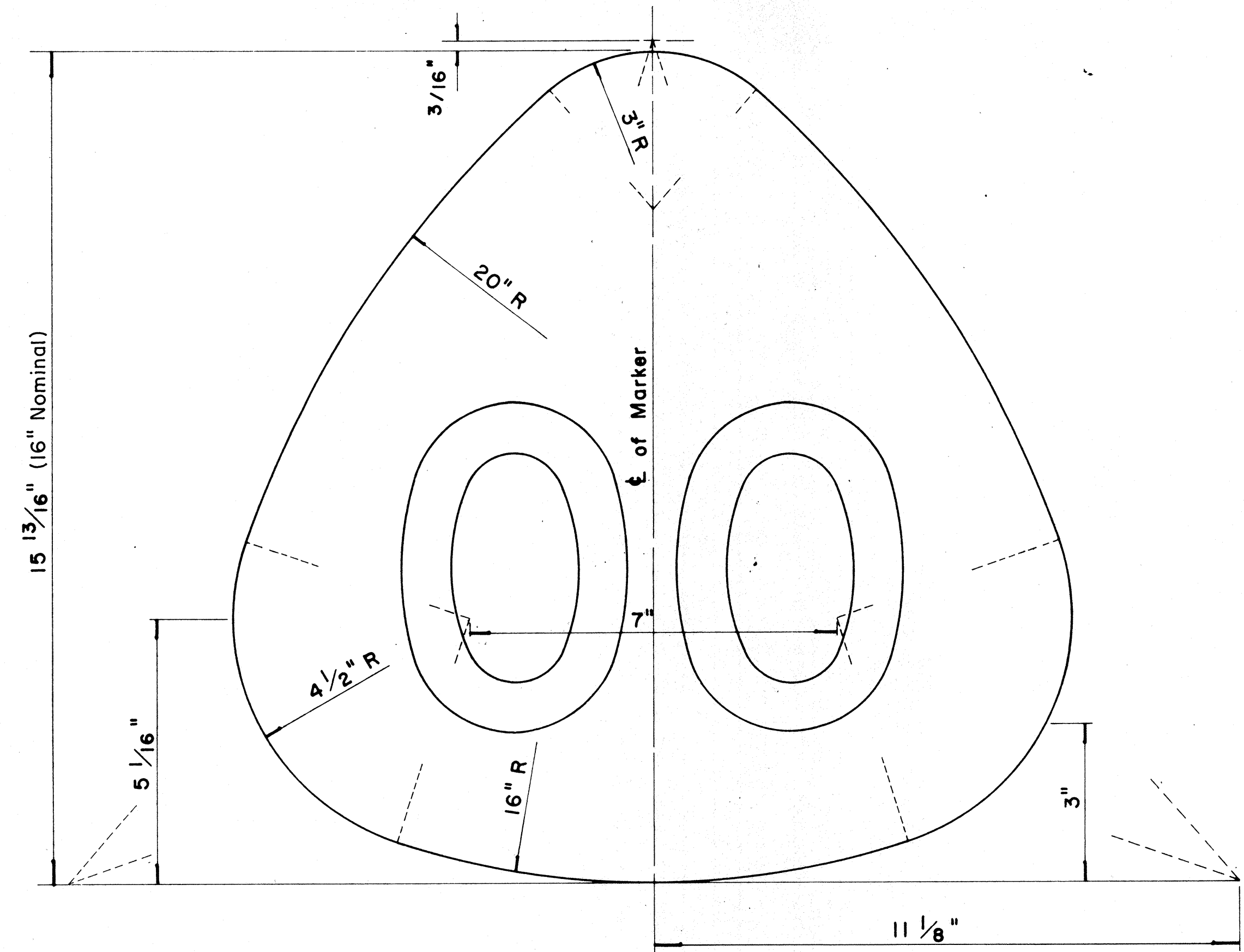
CLOSURE DETAIL SECTION "B-B"  
FULL SCALE

DATE  
DRAWN BY  
CHECKED BY  
DESIGNED BY  
QUANTITIES BY  
CONCRETE BY



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(132)-17	1983	53	192

MARKER SIZE	MULTIPLY DIMENSIONS BY	NUMERAL SIZE	
		2 Digit - Series D	3 Digit - Series C
21"	1.3	8"	
32"	2.0	12"	
42"	2.63	16"	



**STATE ROUTE MARKER  
FOR GUIDE SIGNS**

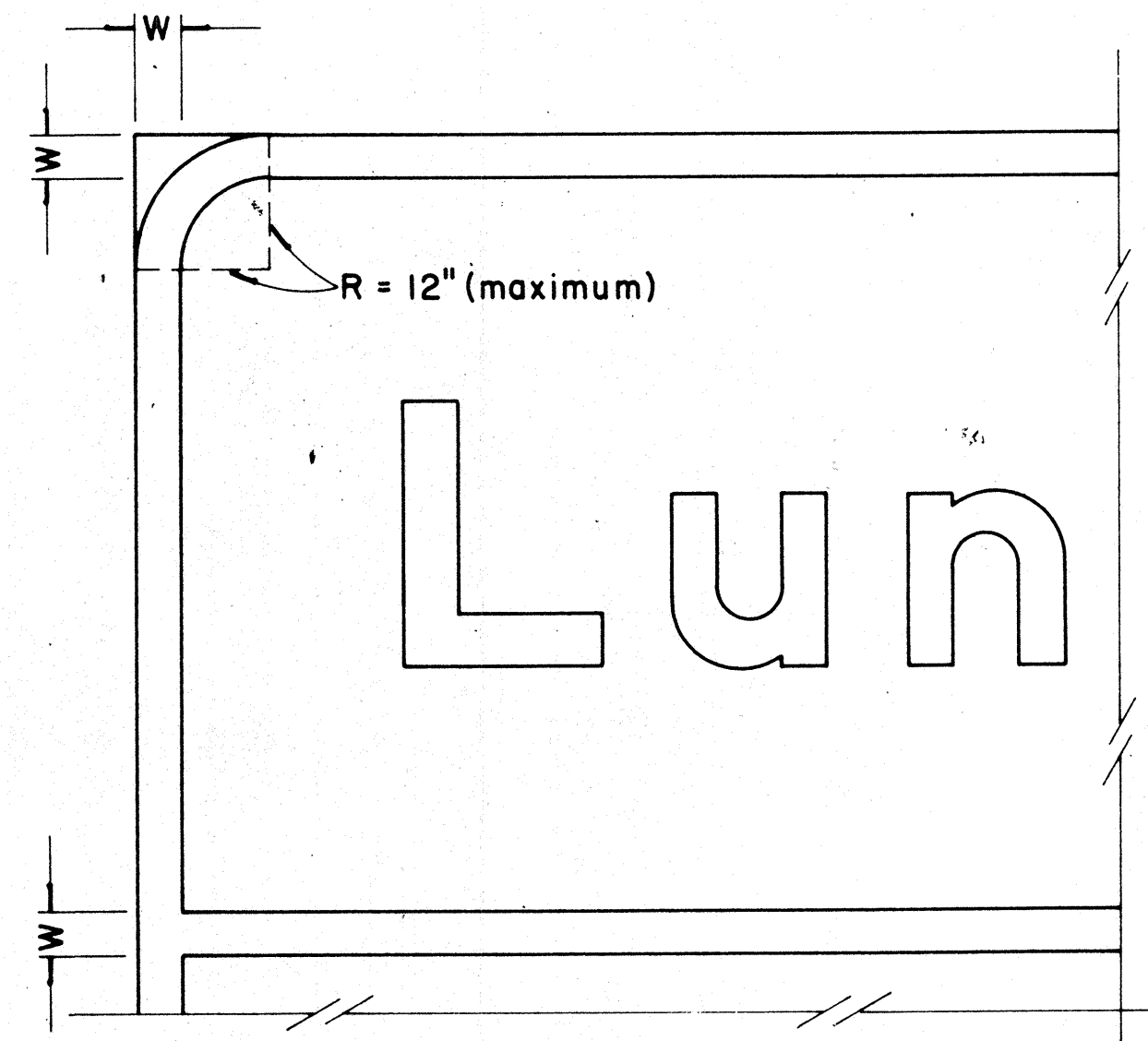
Scale: Half Size

**NOTE:**

1. State Route Markers on Guide signs shall have black numerals on a white reflectorized background mounted on a flat aluminum cut-out.
2. Numerals shall conform to the FHWA publication "Standard Alphabets for Highway Signs," 1966.
3. Cut-outs shall be fastened on sign panel with aluminum blind rivets. See Standard Specifications.

DESIGNED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	

RADI FOR SIGNS		
Least Dimension of Sign	W	R
2'- 0" to 4'- 6"	2"	3"
4'- 9" to 5'- 6"	2"	6"
5'- 9" to 7'- 6"	2"	9"
7'- 9" and greater	2"	12"



**BORDER DETAIL  
FOR GUIDE SIGNS**

Not to Scale

**NOTE:**

1. Area outside corner radius need not be trimmed.
2. All borders shall be white reflectorized cut-outs.
3. All Guide signs shall have borders.

APPROVAL RECOMMENDED:

*Etsuko Tanaka* 4/11/72  
TRAFFIC ENGINEER DATE

APPROVED:

*Mulu Z. Salehi* 4/12/72  
ASSISTANT CHIEF, ENGINEERING DATE

NO	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 209 Approved 12-30-69	H.T.	4/12/72
2	Revised Notes and Schedules	H.T.	9-14-70

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
LAND TRANSPORTATION FACILITIES DIVISION

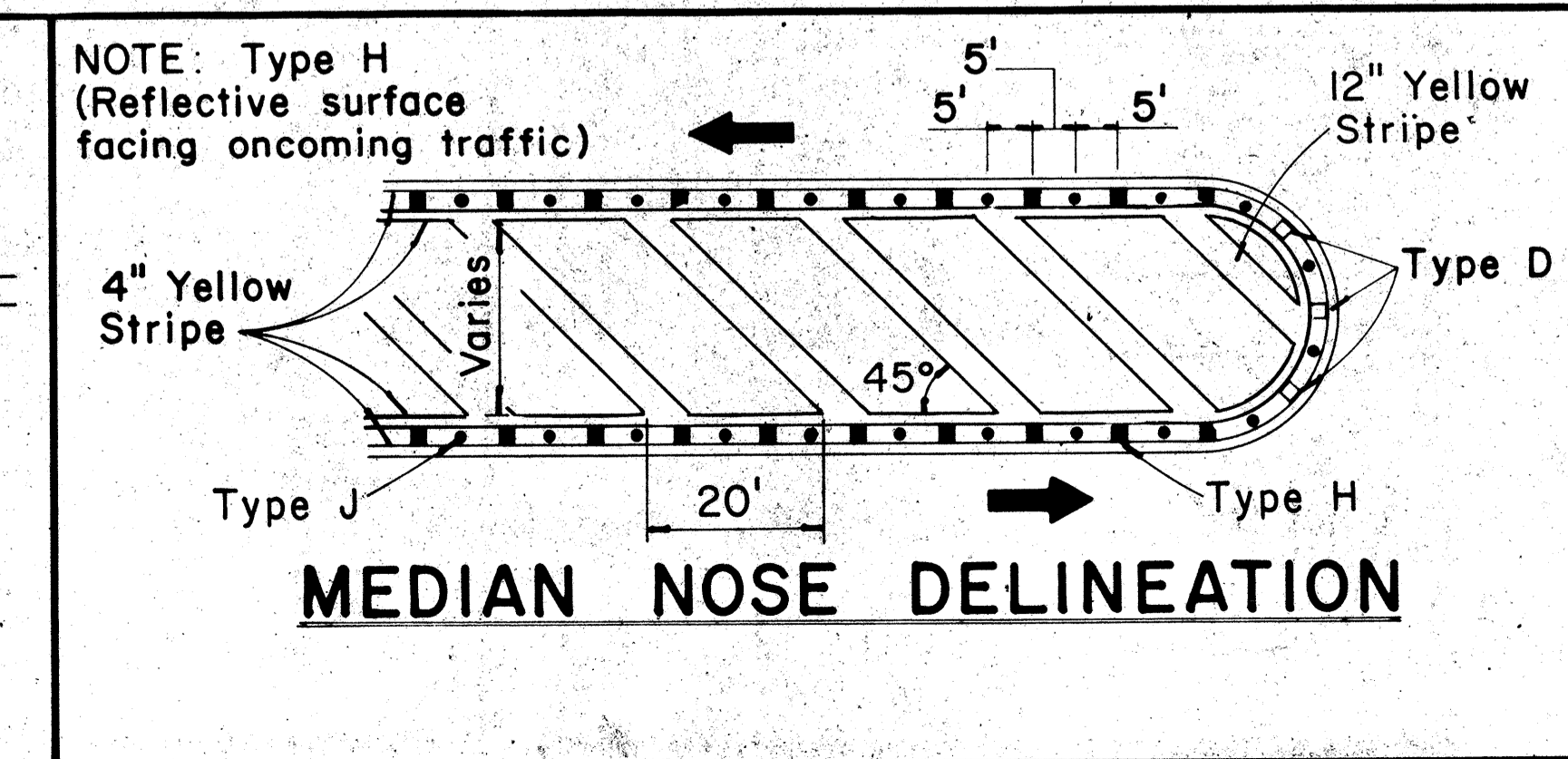
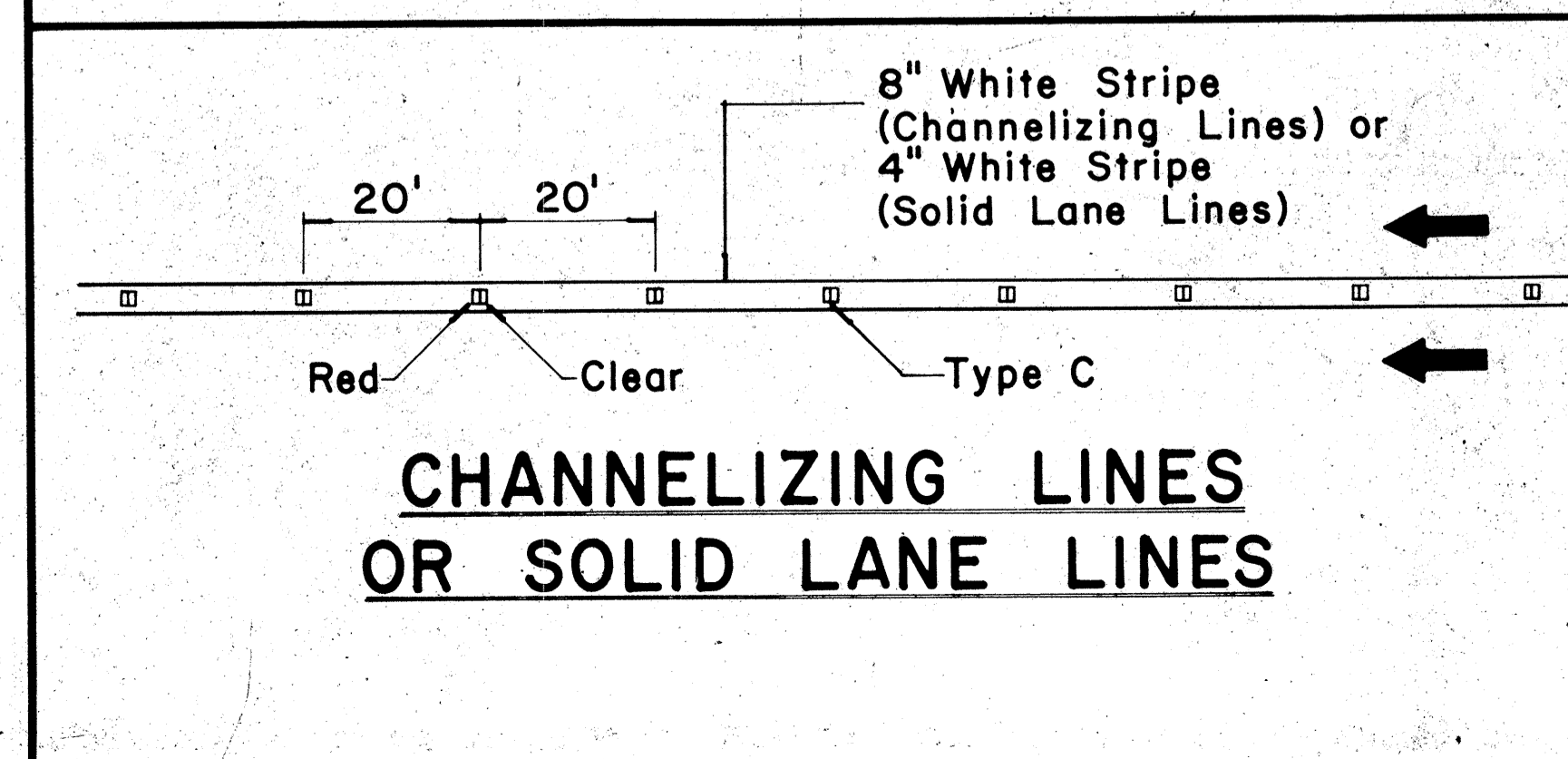
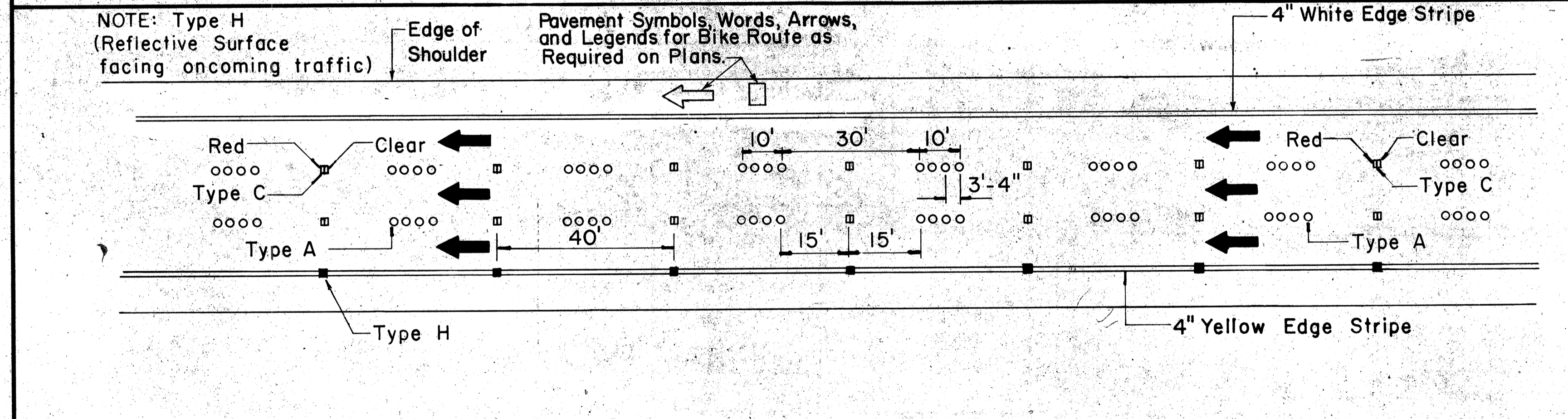
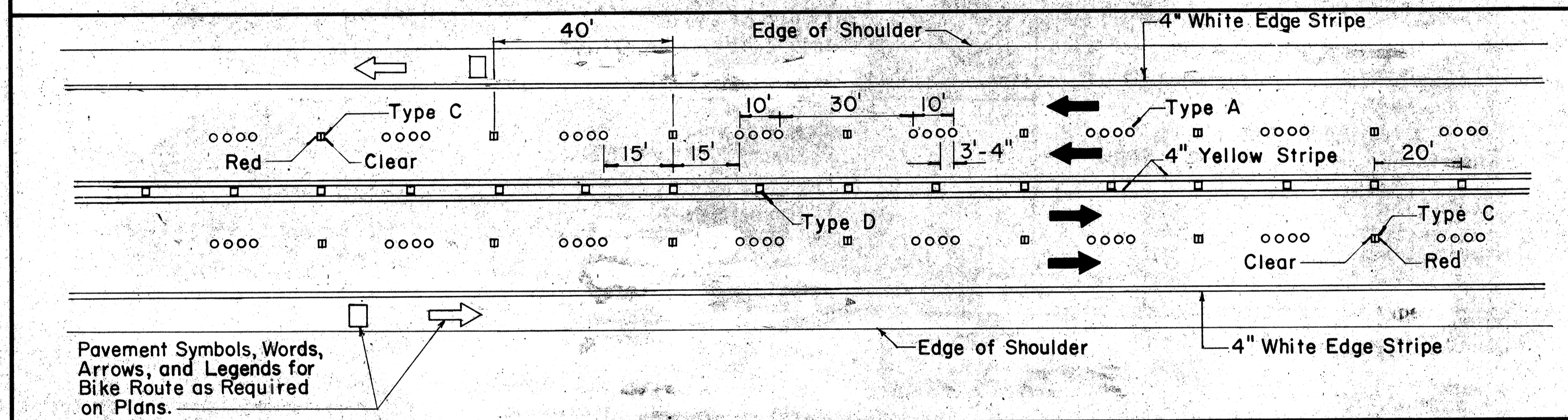
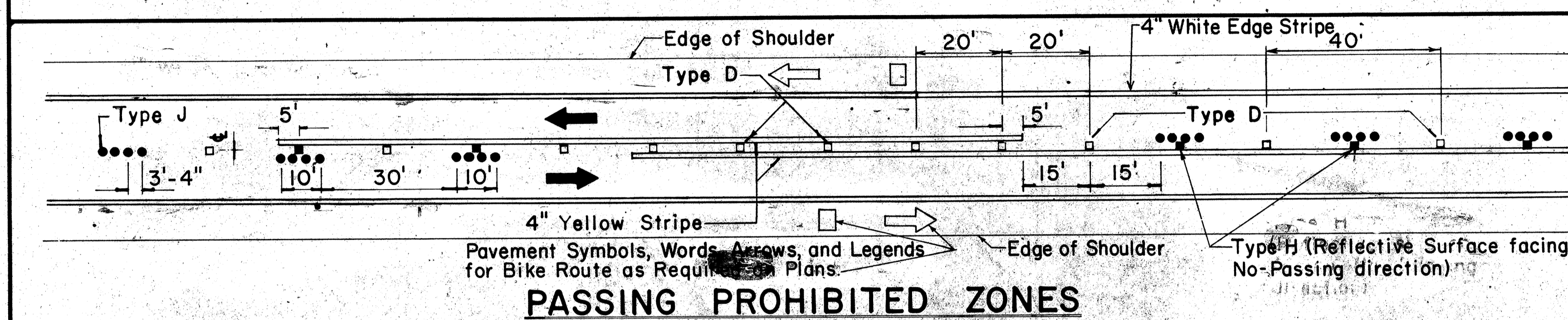
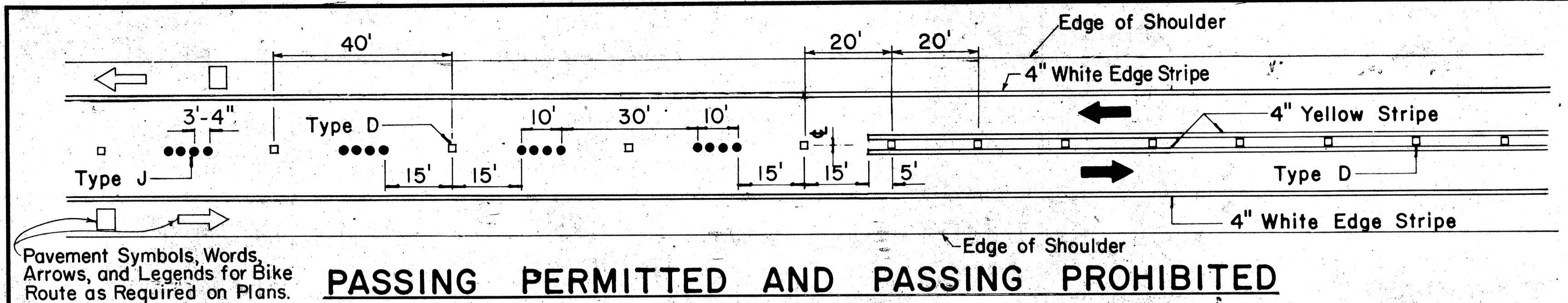
**STANDARD DETAILS**

**STATE ROUTE MARKER  
AND BORDER DETAIL  
FOR GUIDE SIGNS**

Scale: As Shown

SHEET No. F-11 OF 14 SHEETS DT 209

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H-1(192)117	1983	54	192

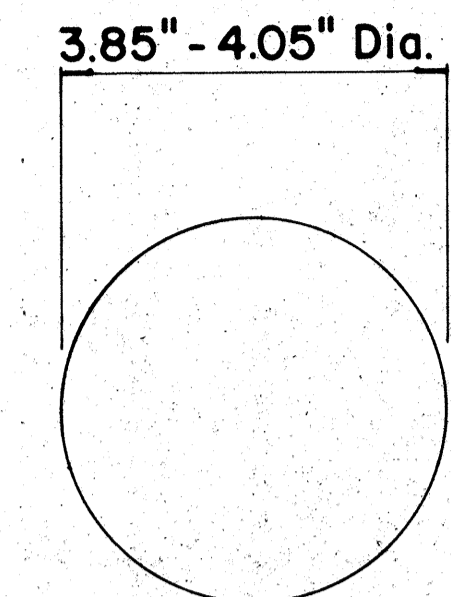


TWO - LANE

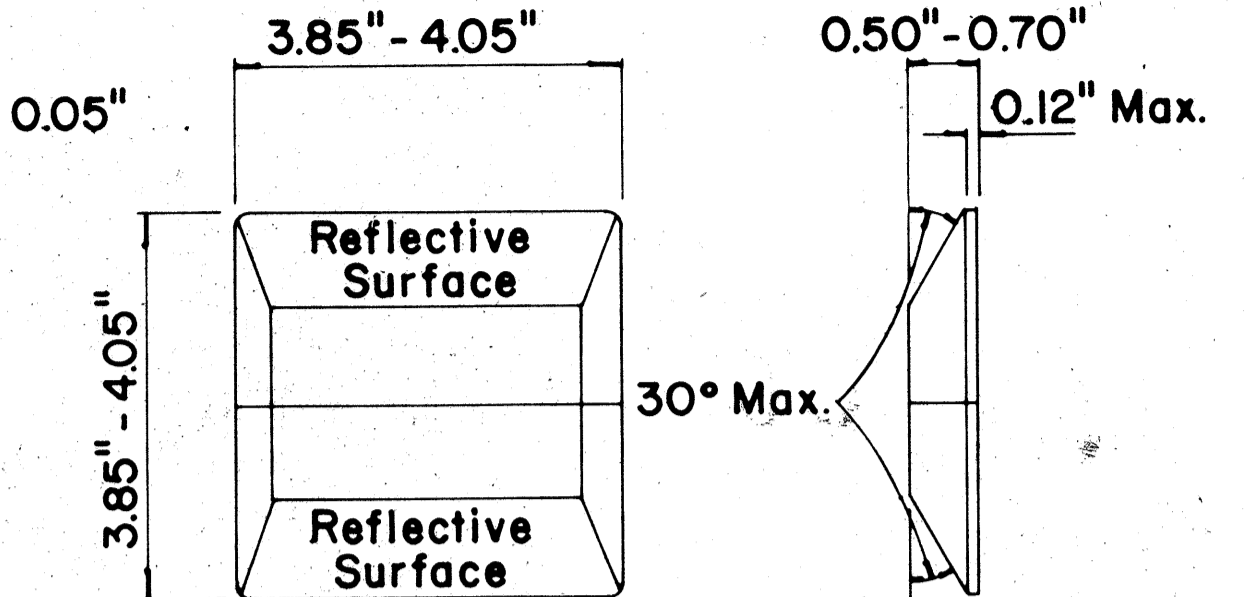
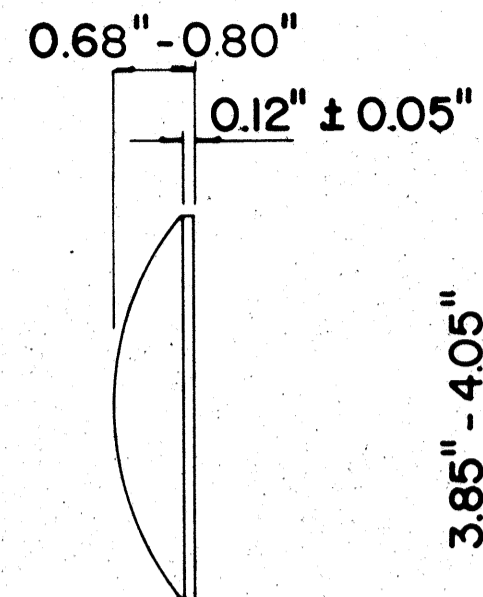
MULTI - LANE

DIVIDED HIGHWAY AND FREEWAY

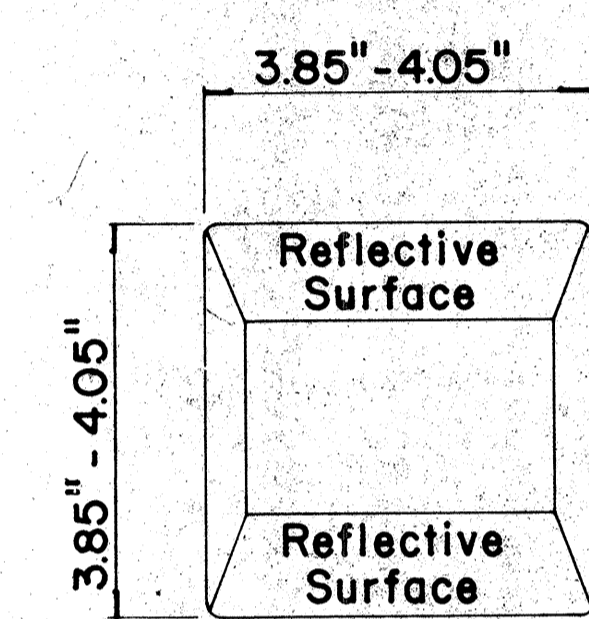
MISCELLANEOUS



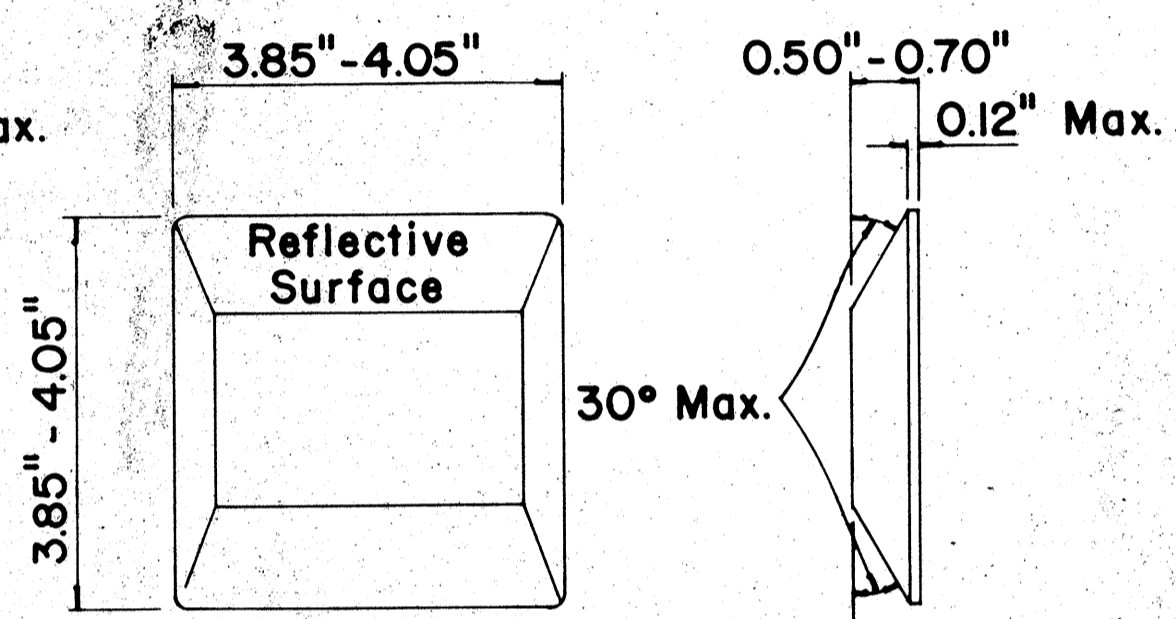
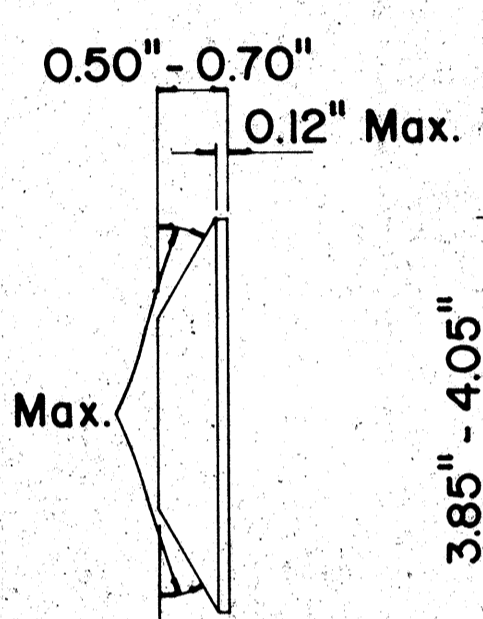
**TYPE A**  
NON-REFLECTIVE WHITE MARKER  
**TYPE J**  
NON-REFLECTIVE YELLOW MARKER



**TYPE C**  
RED-CLEAR REFLECTIVE MARKER



**TYPE D**  
TWO-WAY YELLOW REFLECTIVE MARKER



**TYPE H**  
ONE-WAY YELLOW REFLECTIVE MARKER

**GENERAL NOTES**

- Pavement marking and striping shall conform to the latest "Manual on Uniform Traffic Control Devices for Streets and Highways," and as amended.
- Layout and installation of pavement marking and striping shall be done by the Contractor. The Contractor shall check the layouts with the Engineer prior to performing work.

**LEGEND**

- Type A
- ◻ Type C
- ◻ Type D
- Type H
- Type J

APPROVAL RECOMMENDED:  
*Eischi Tanaka* 7/21/78  
TRAFFIC ENGINEER DATE

APPROVED:  
*Harold J. Zalewski* 7/24/78  
ASSISTANT CHIEF, ENGINEERING DATE

No.	REVISION	APPROVED BY	DATE
1	Supersedes DT 300 approved 11/18/71.	H.T.	7/24/78
2	Delete Type A Markers from Bike Route Delineation.	H.T.	10/15/79

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

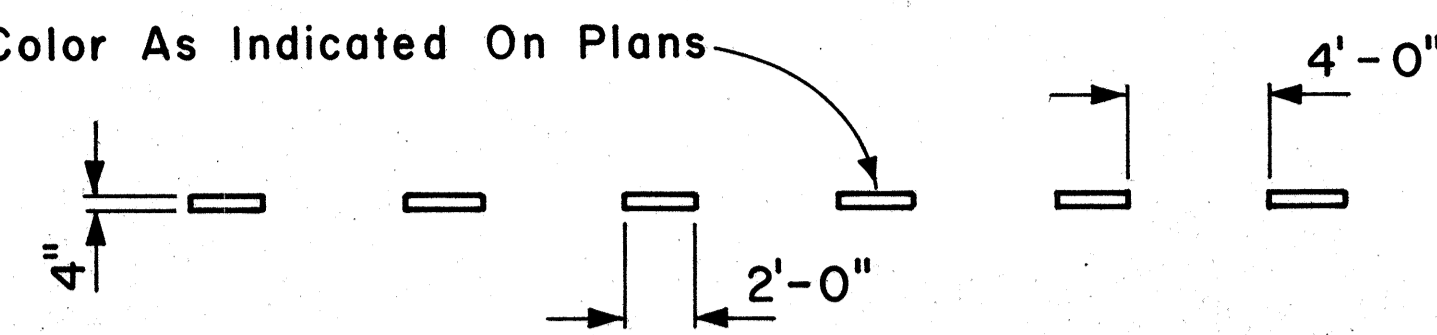
**STANDARD DETAILS**  
**RAISED PAVEMENT MARKERS**  
**AND STRIPING**

Not to Scale July 1978  
SHEET No. F-12 OF 14 SHEETS DT 300

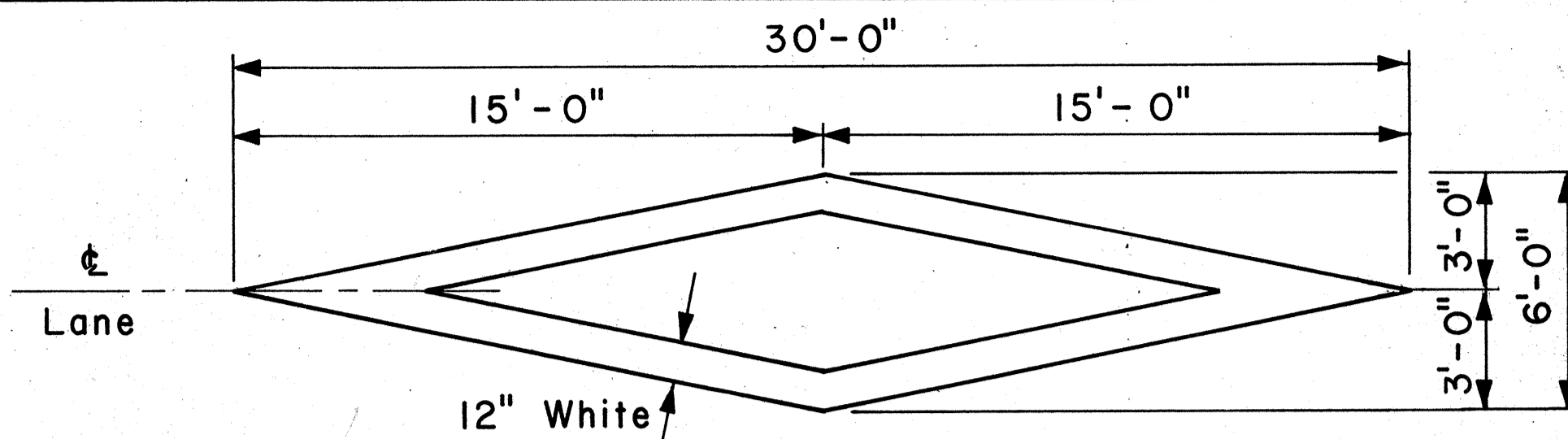
DATE  
SURVEY PLATTED BY  
DRAWN BY  
DESIGNED BY  
QUANTITIES BY  
CHECKED BY  
ORIGINAL PLAN  
NOTE BOOK  
No.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1(132)17	1983	55	192

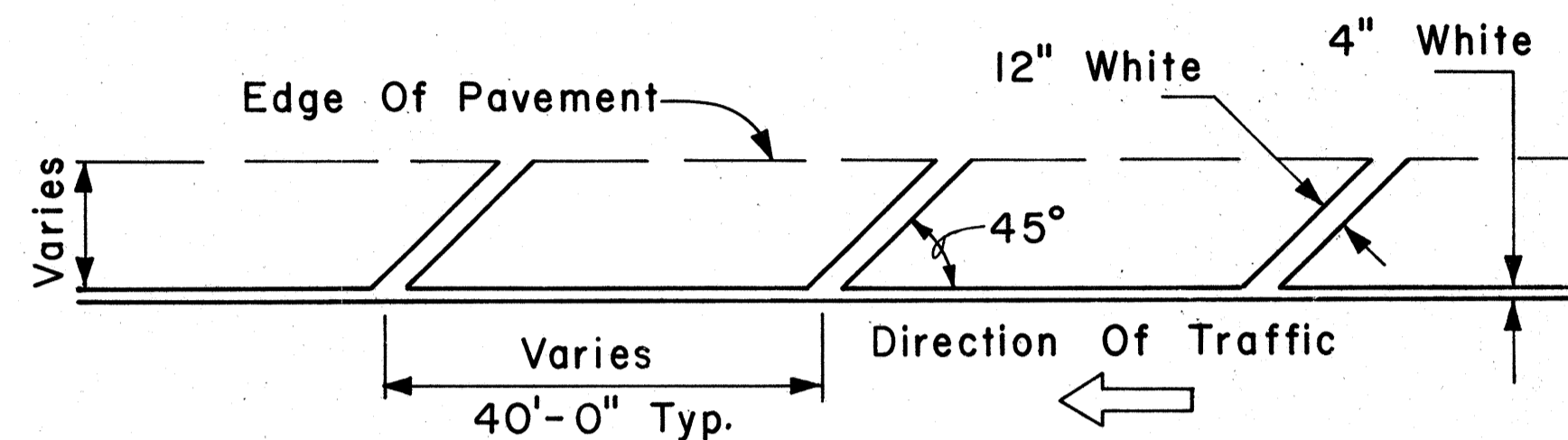
Color As Indicated On Plans



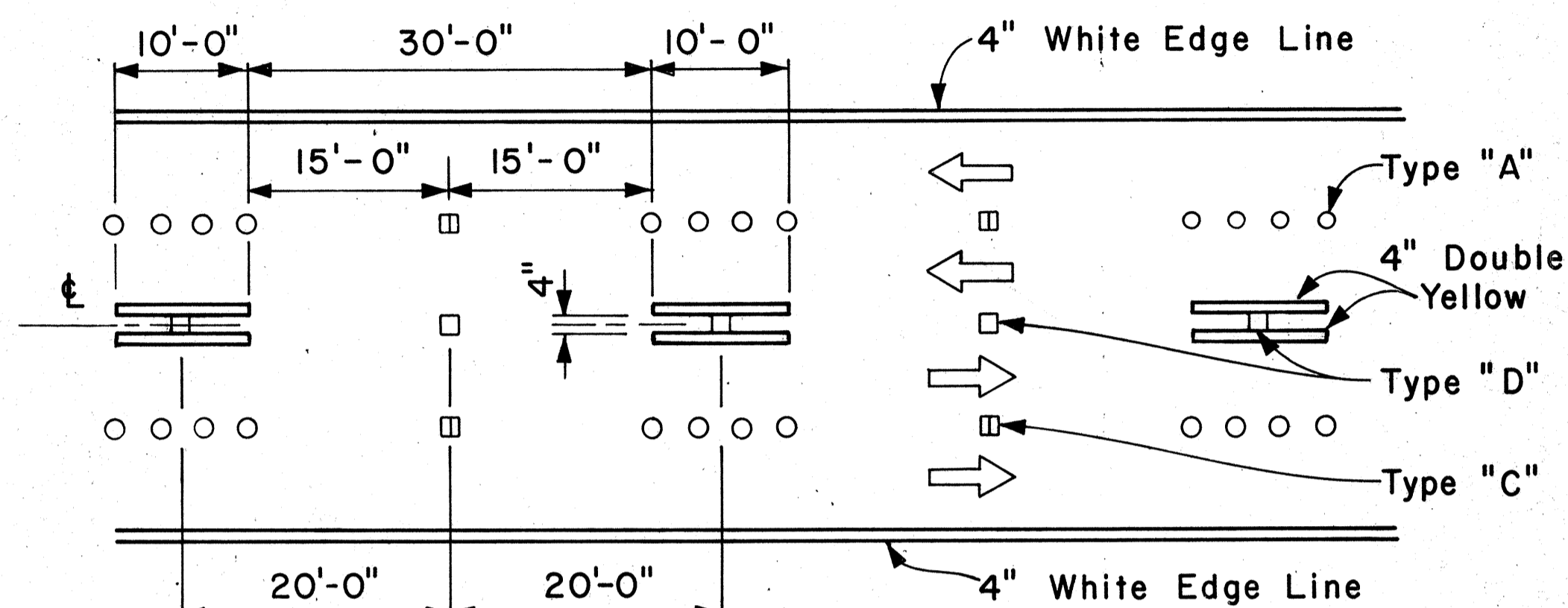
**4" GUIDE LINE**



**PAVEMENT DIAMOND**

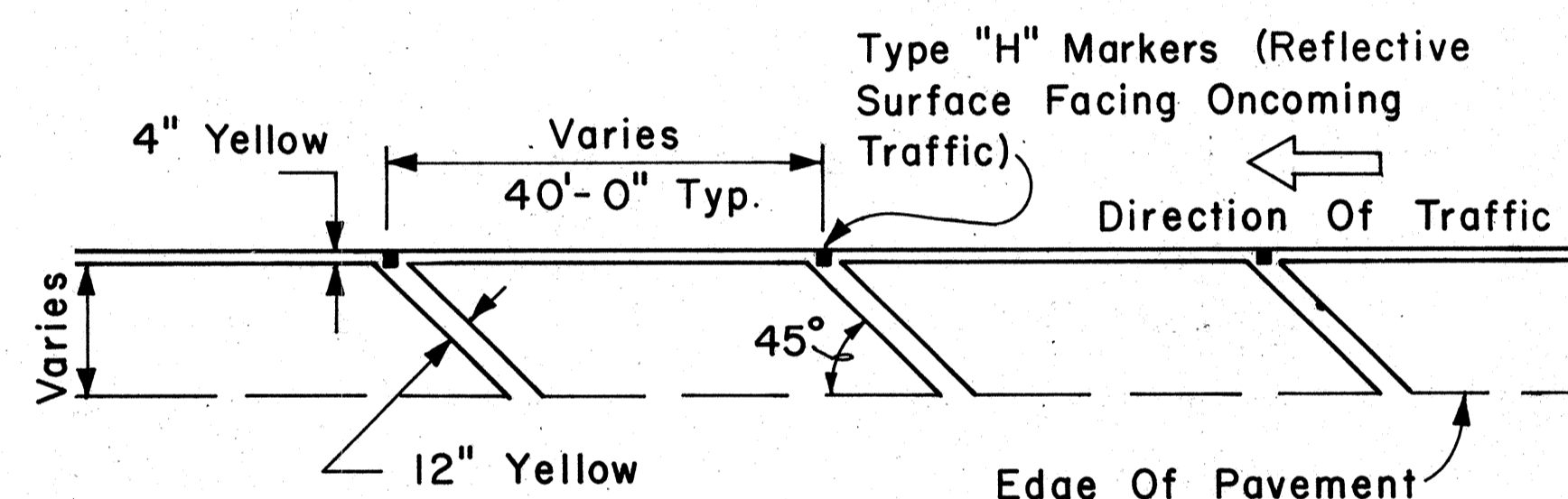


**TRANSVERSE RIGHT SHOULDER MARKING**

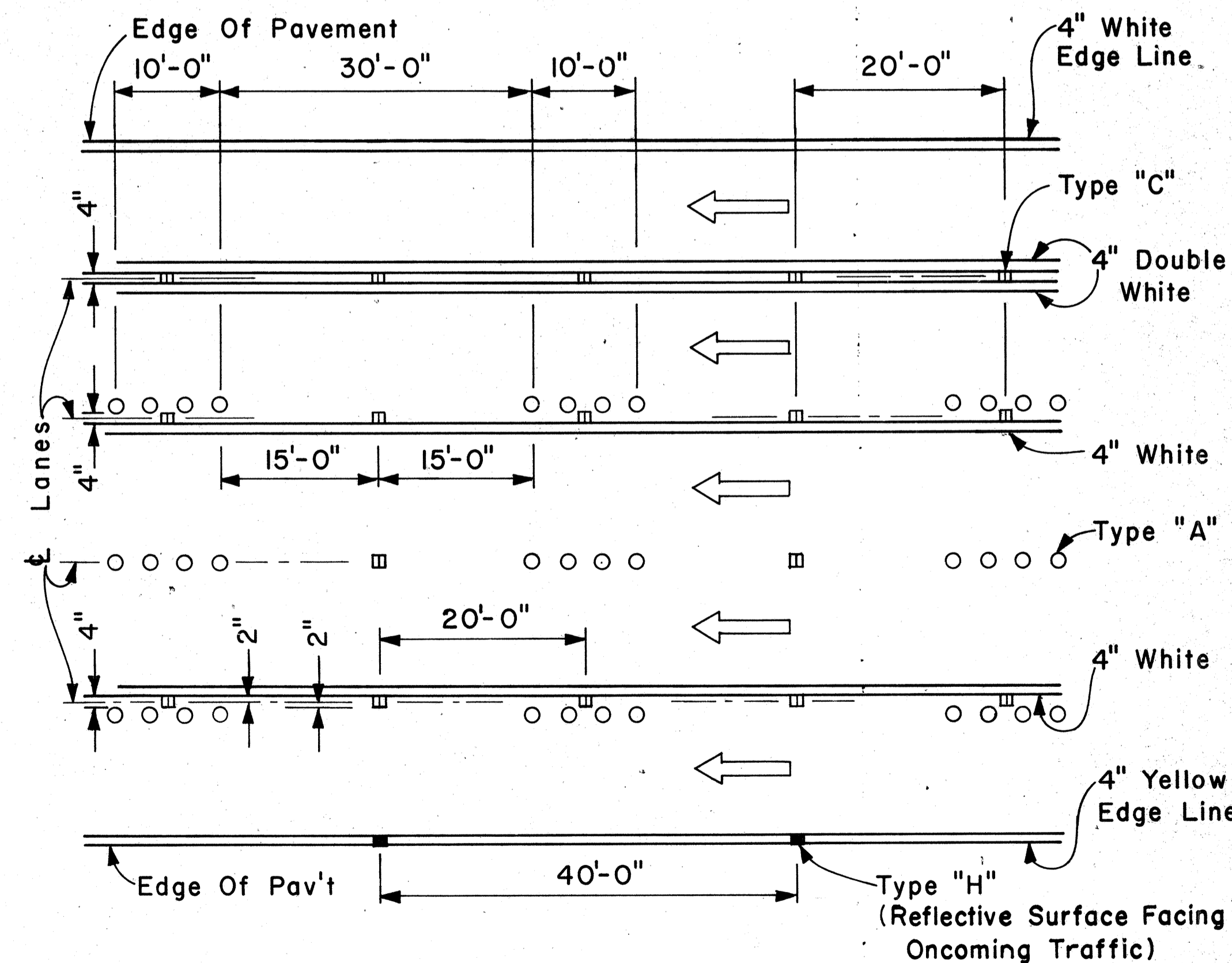


NOTE: Traffic Cone Usage Required.

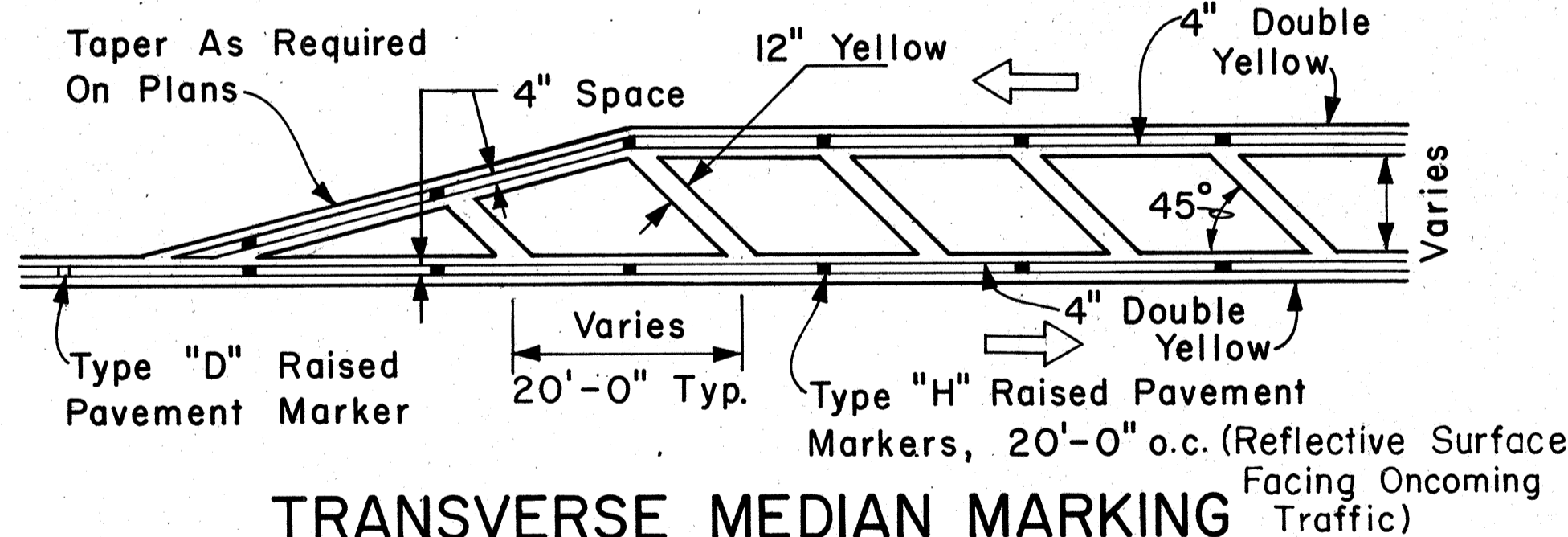
**MULTI-LANE REVERSIBLE LANES**



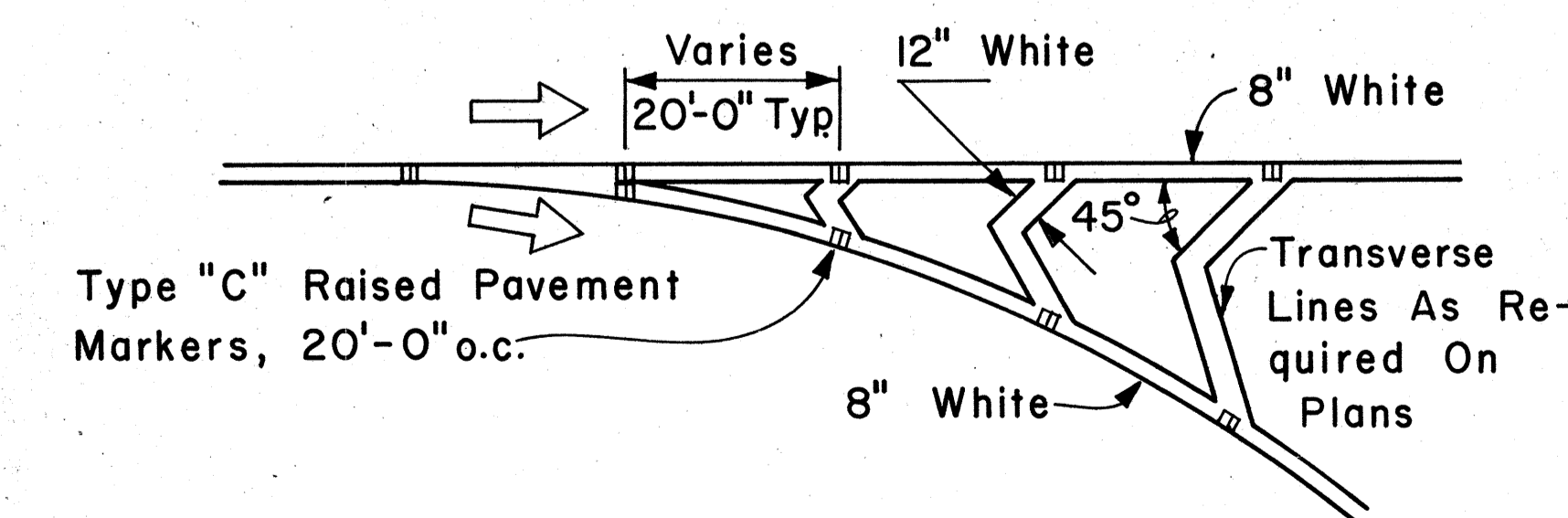
**TRANSVERSE LEFT SHOULDER MARKING**



**MULTI-LANE LANE CHANGE RESTRICTION ZONES**



**TRANSVERSE MEDIAN MARKING**



**CHANNELIZING ISLAND**

**GENERAL NOTES:**

1. Pavement marking and striping shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," by the FHWA, and as amended.
2. Layout of pavement markings and striping shall be done by the Contractor. The Contractor shall check layout of markings and striping with the Engineer prior to performing work.
3. For additional pavement marking details, see sheet DT 300.

APPROVAL RECOMMENDED:  
*Eishi Tanaka* 5/2/78  
 TRAFFIC ENGINEER DATE

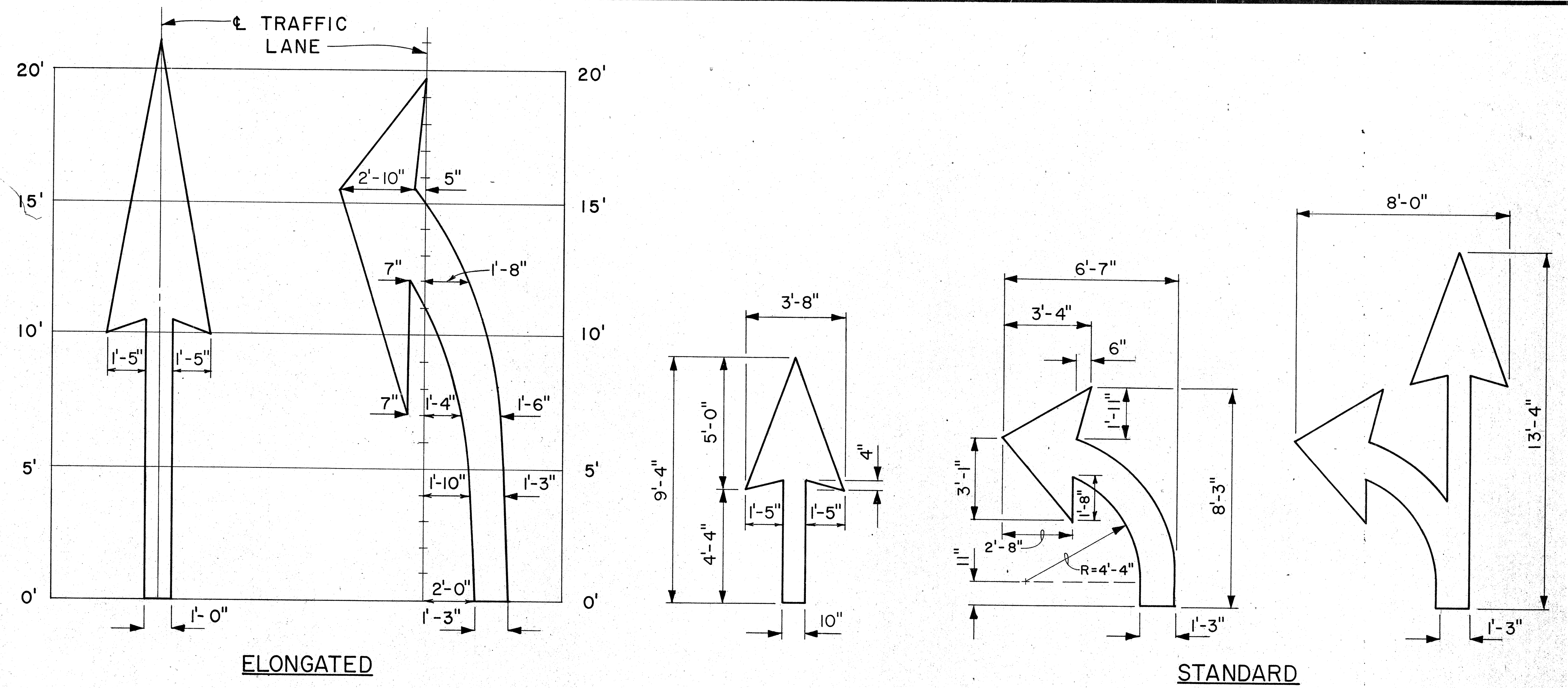
APPROVED:  
*Robert Z. Zalewski* 5/3/78  
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 LAND TRANSPORTATION FACILITIES DIVISION  
**STANDARD DETAILS**  
 MISCELLANEOUS  
 PAVEMENT MARKINGS  
 Scale: Not to Scale Date: April, 1978  
 SHEET NO. F-13 OF 14 SHEETS DT 302

SURVEY PLOTTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_  
 NOTE BOOK: \_\_\_\_\_  
 QUANTITIES BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 No. \_\_\_\_\_

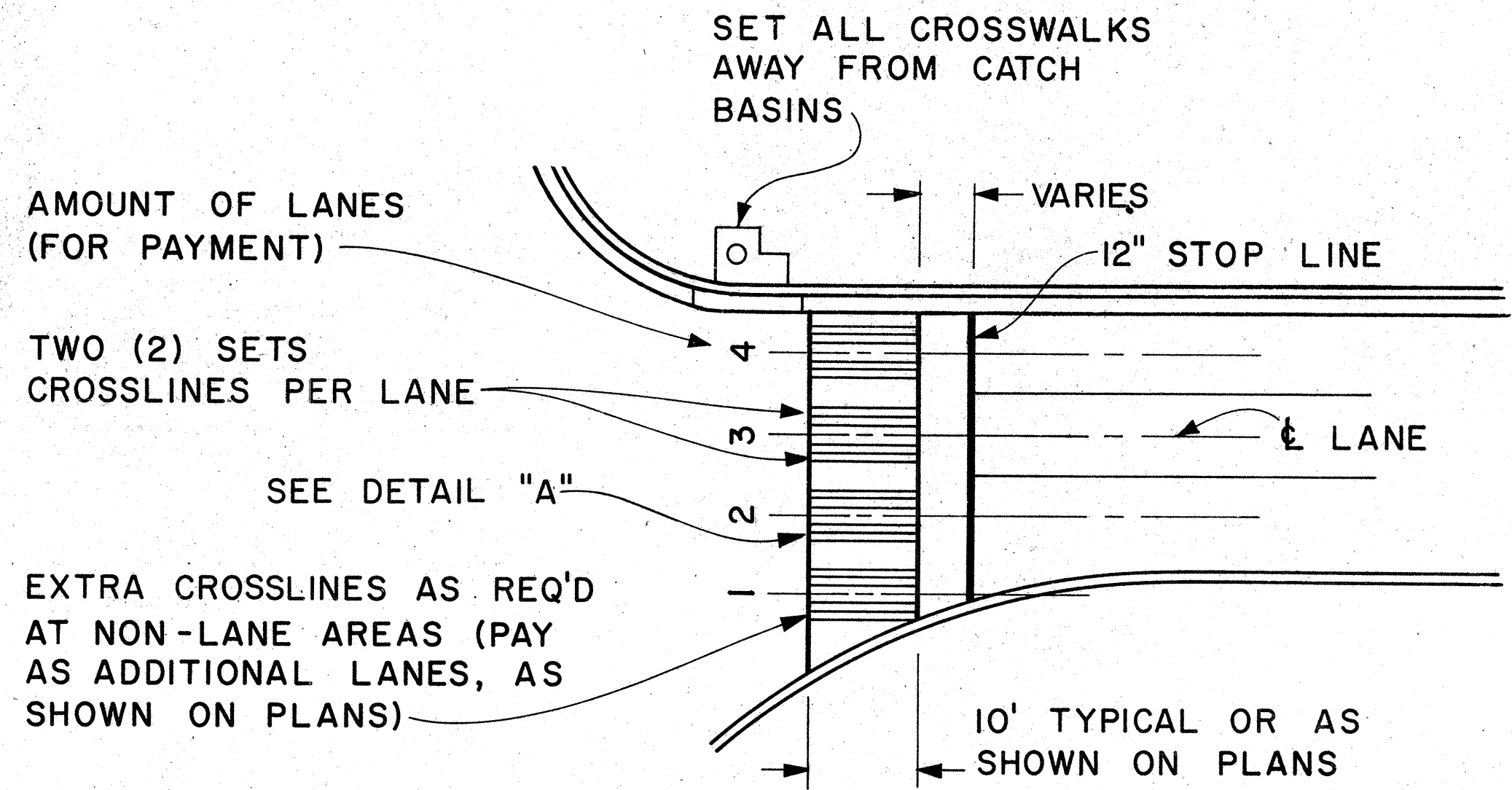
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-11-1(132):17	1983	56	192



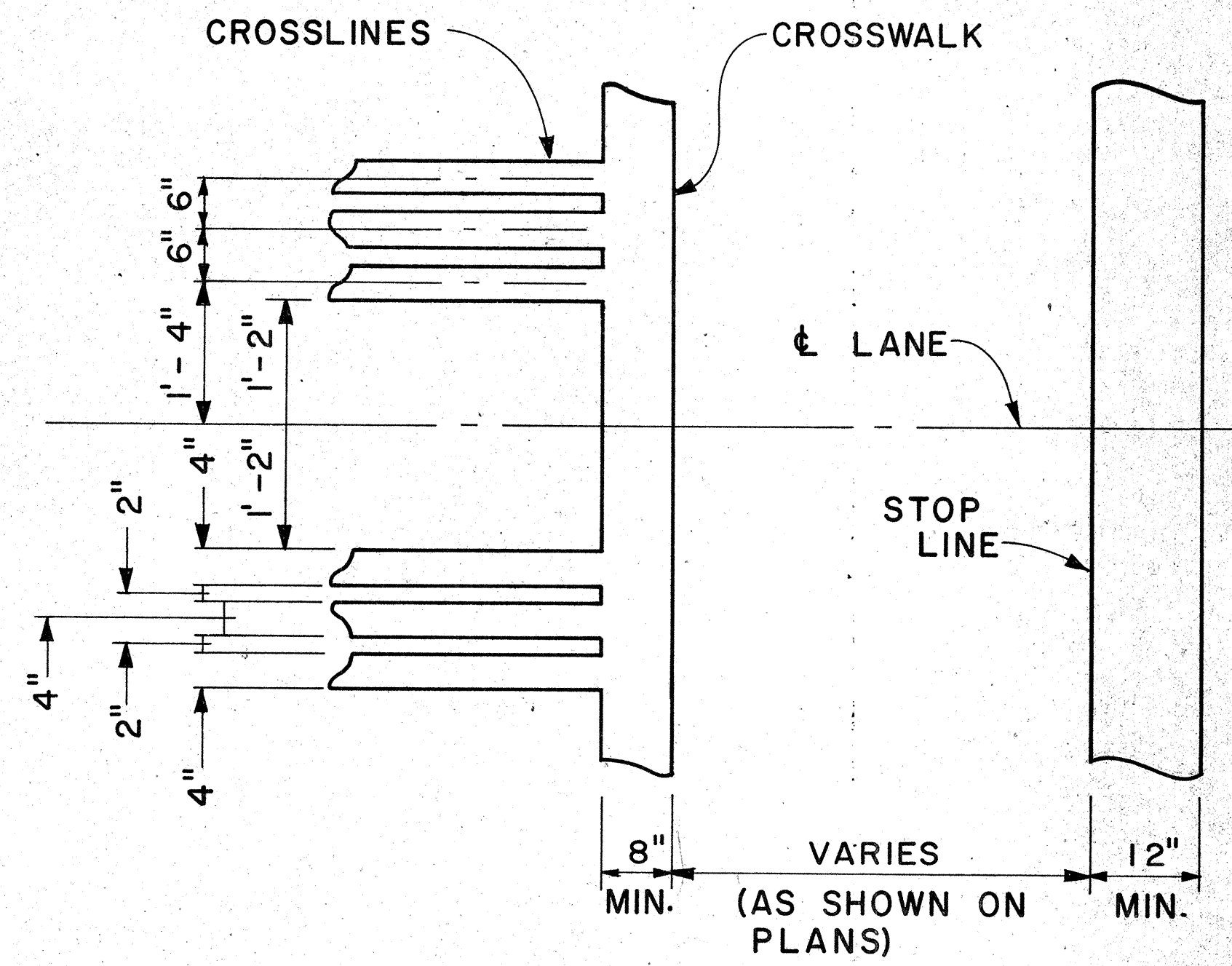
**PAVEMENT ARROWS**  
Scale: 3/8" = 1'

**GENERAL NOTES:**

1. Pavement marking and striping shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," by the FHWA, and as amended.
2. Layout of pavement markings and striping shall be done by the Contractor. The Contractor shall check layout of markings and striping with the Engineer prior to performing work.
3. For additional pavement marking details, see sheet DT 300.



**PLAN**



**DETAIL "A"**

**CROSSWALK & STOP LINE**  
Scale: Not to Scale

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

APPROVAL RECOMMENDED:  
*Eichi Tanaka* 5/2/78  
TRAFFIC ENGINEER DATE

APPROVED:  
*Harbert S. Sakai* 5/3/78  
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
LAND TRANSPORTATION FACILITIES DIVISION  
**STANDARD DETAILS**  
MISCELLANEOUS  
PAVEMENT MARKINGS

Scale: As Shown Date: March, 1978  
SHEET No. F-14 OF 14 SHEETS DT 306