

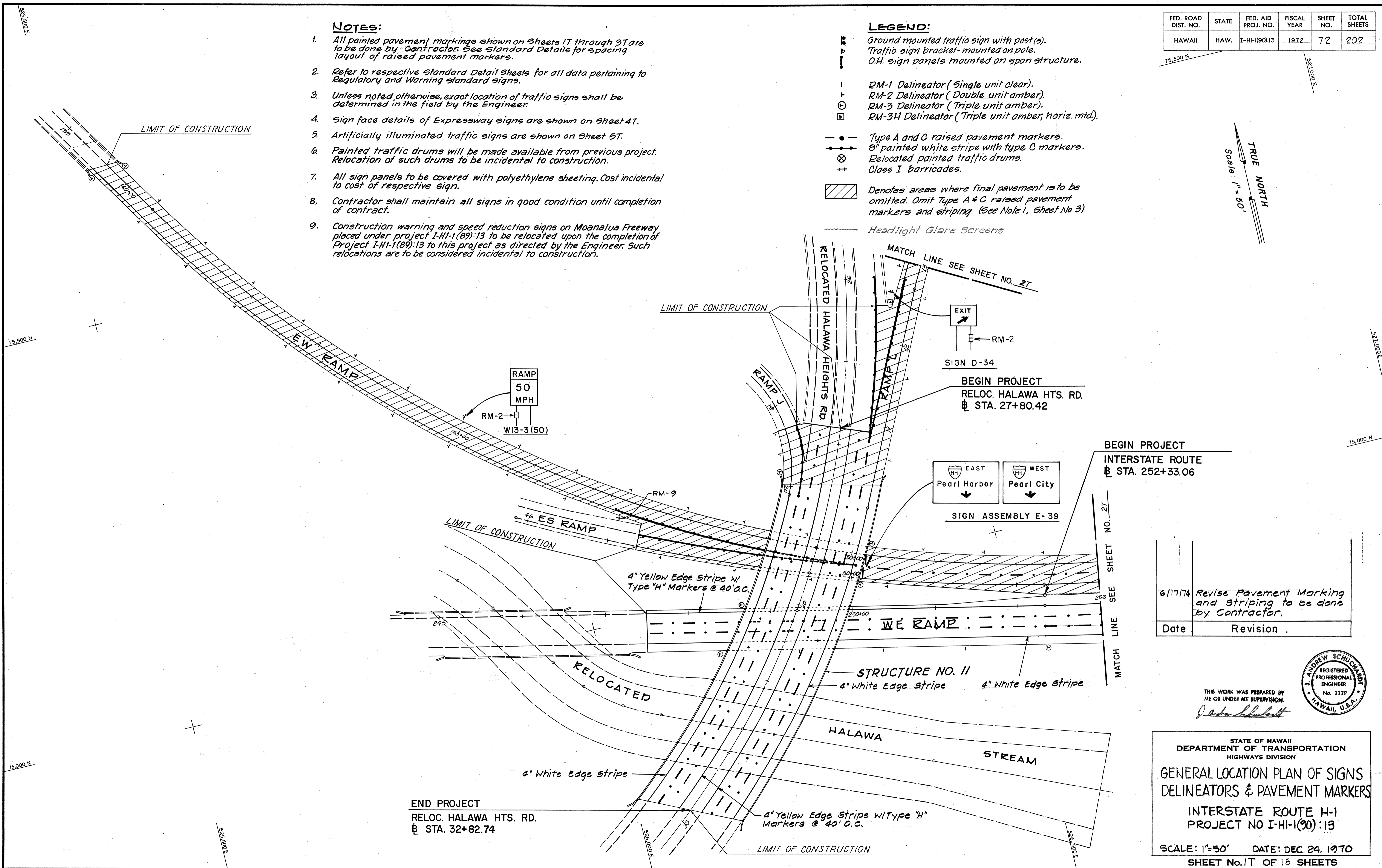
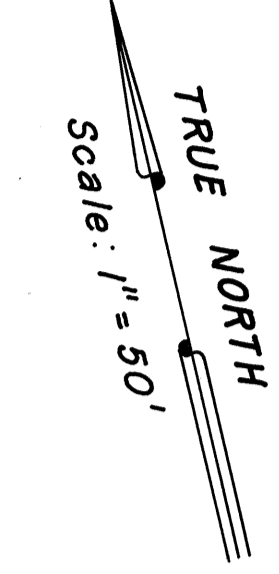
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-(90)13	1972	72	202

NOTES:

- All painted pavement markings shown on Sheets 1T through 3T are to be done by Contractor. See Standard Details for spacing layout of raised pavement markers.
- Refer to respective Standard Detail Sheets for all data pertaining to Regulatory and Warning standard signs.
- Unless noted otherwise, exact location of traffic signs shall be determined in the field by the Engineer.
- Sign face details of Expressway signs are shown on Sheet 4T.
- Artificially illuminated traffic signs are shown on Sheet 5T.
- Painted traffic drums will be made available from previous project. Relocation of such drums to be incidental to construction.
- All sign panels to be covered with polyethylene sheeting. Cost incidental to cost of respective sign.
- Contractor shall maintain all signs in good condition until completion of contract.
- Construction warning and speed reduction signs on Moanalua Freeway placed under project I-HI-1(89)13 to be relocated upon the completion of Project I-HI-1(89)13 to this project as directed by the Engineer. Such relocations are to be considered incidental to construction.

LEGEND:

- Ground mounted traffic sign with post(s).
- Traffic sign bracket-mounted on pole.
- O.H. sign panels mounted on span structure.
- RM-1 Delineator (Single unit clear).
- RM-2 Delineator (Double unit amber).
- RM-3 Delineator (Triple unit amber).
- RM-3H Delineator (Triple unit amber, horiz. mtd).
- Type A and C raised pavement markers.
- 8" painted white stripe with type C markers.
- Relocated painted traffic drums.
- Class I barricades.
- Denotes areas where final pavement is to be omitted. Omit Type A & C raised pavement markers and striping. (See Note 1, Sheet No. 3)
- Headlight Glare Screens



Date	6/17/74	Revision	Revise Pavement Marking and Striping to be done by Contractor.
------	---------	----------	--



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
J. Andrew Schuchardt

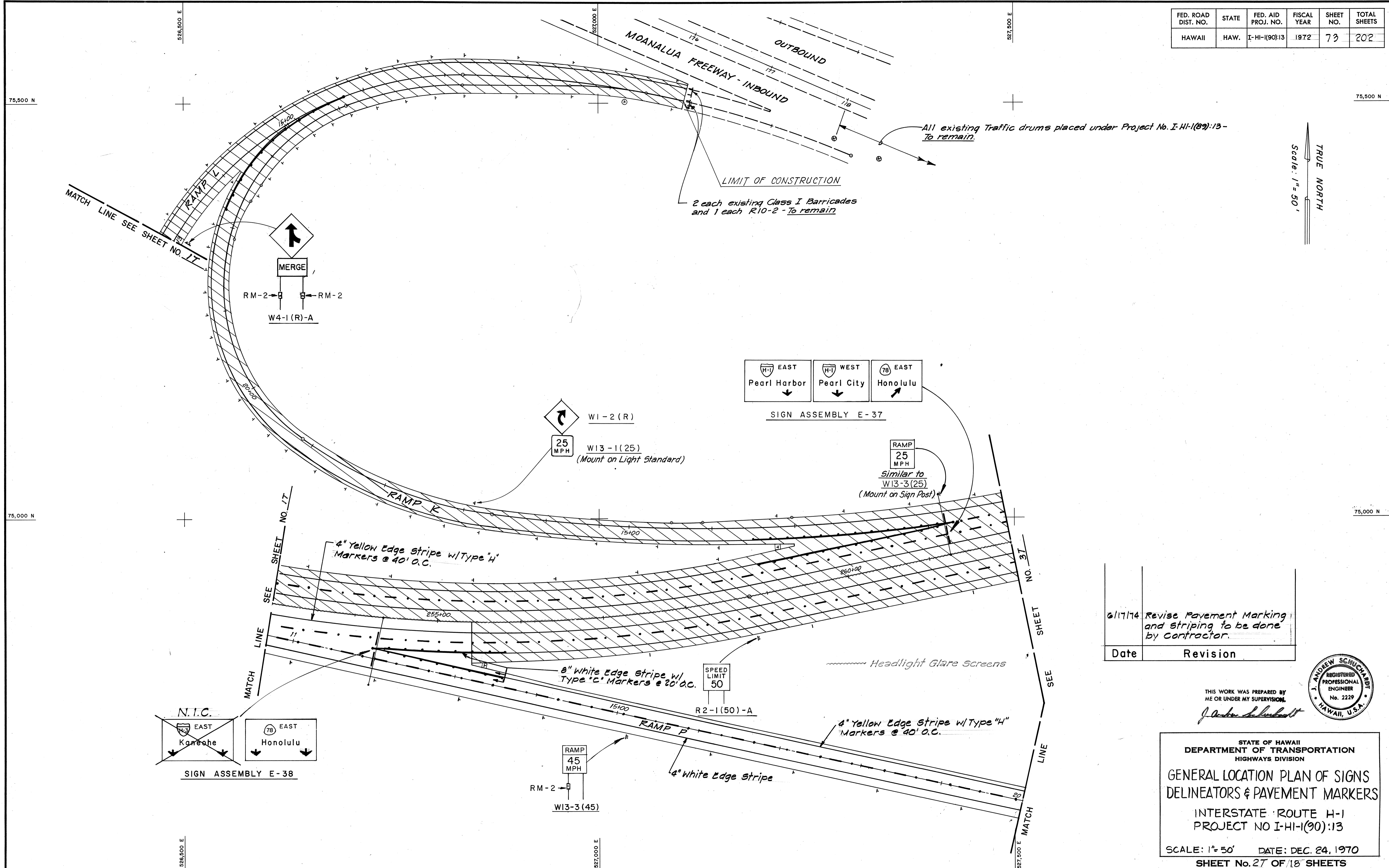
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
**GENERAL LOCATION PLAN OF SIGNS
 DELINEATORS & PAVEMENT MARKERS**
 INTERSTATE ROUTE H-1
 PROJECT NO I-HI-1(90):13
 SCALE: 1"=50' DATE: DEC. 24, 1970
 SHEET No. 1T OF 18 SHEETS

DATE	
DESIGNED BY	M. Sava
DRAWN BY	R. C. Leung
CHECKED BY	E. S. MCKAY
ORIGINAL PLAN	
NOTE BOOK	
No.	

C.O. 72

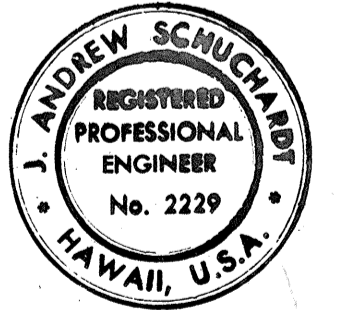
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(90):13	1972	73	202

TRUE NORTH
Scale: 1" = 50'



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

Date	Revision
6/17/74	Revise Pavement Marking and striping to be done by Contractor.



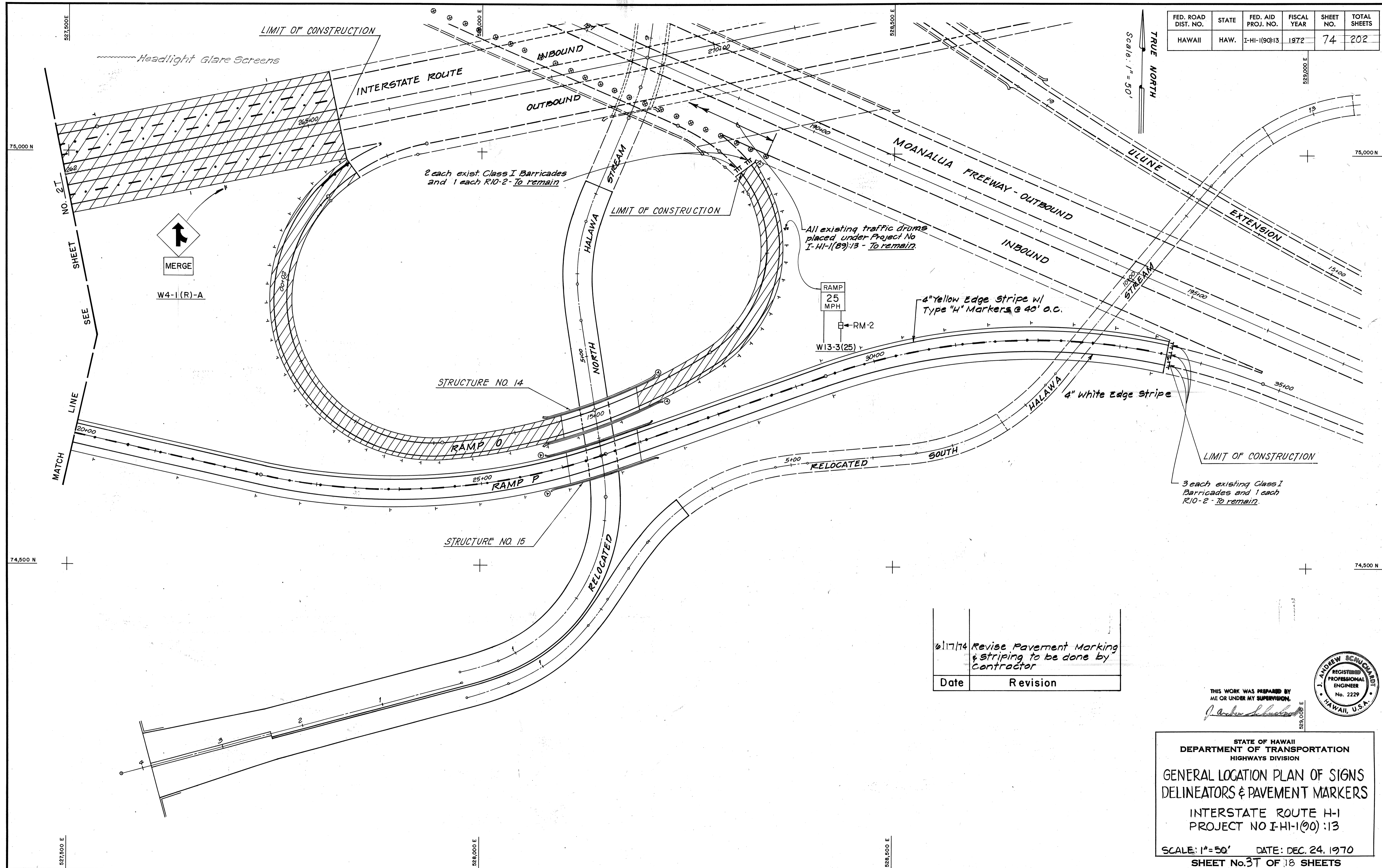
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
J. Andrew Schuchardt

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**GENERAL LOCATION PLAN OF SIGNS
DELINEATORS & PAVEMENT MARKERS**
INTERSTATE ROUTE H-1
PROJECT NO I-HI-1(90):13
SCALE: 1" = 50' DATE: DEC. 24, 1970
SHEET No. 27 OF 18 SHEETS

C.O. 73

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(90):13	1972	74	202

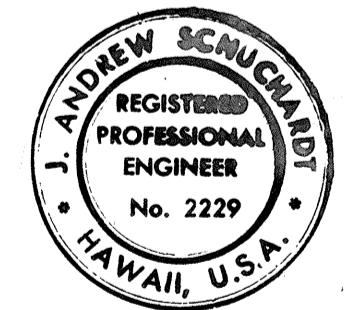
TRUE NORTH
Scale: 1" = 50'



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

6/17/74	Revise Pavement Marking & striping to be done by Contractor
Date	Revision

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
J. Andrew Schuchman



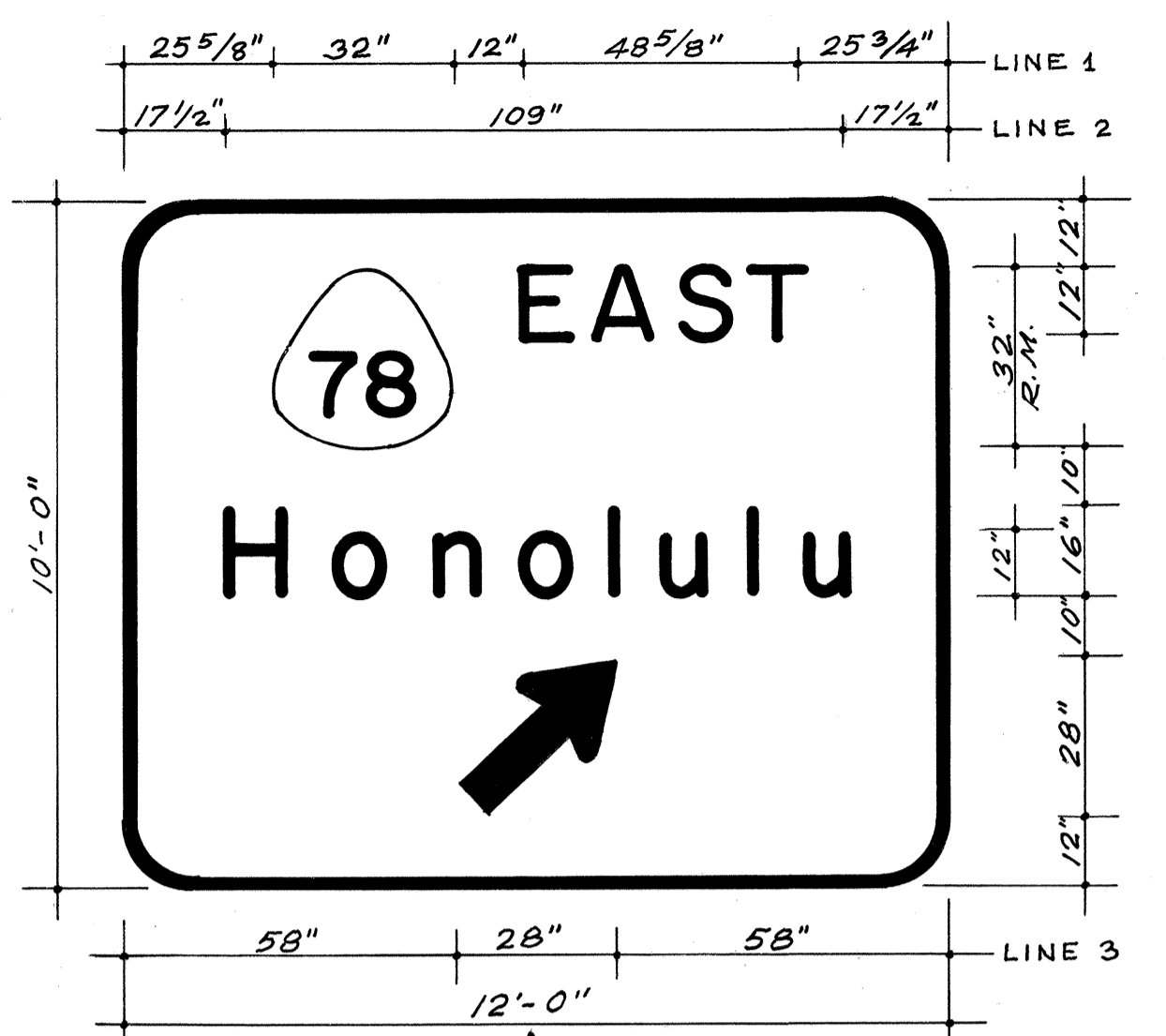
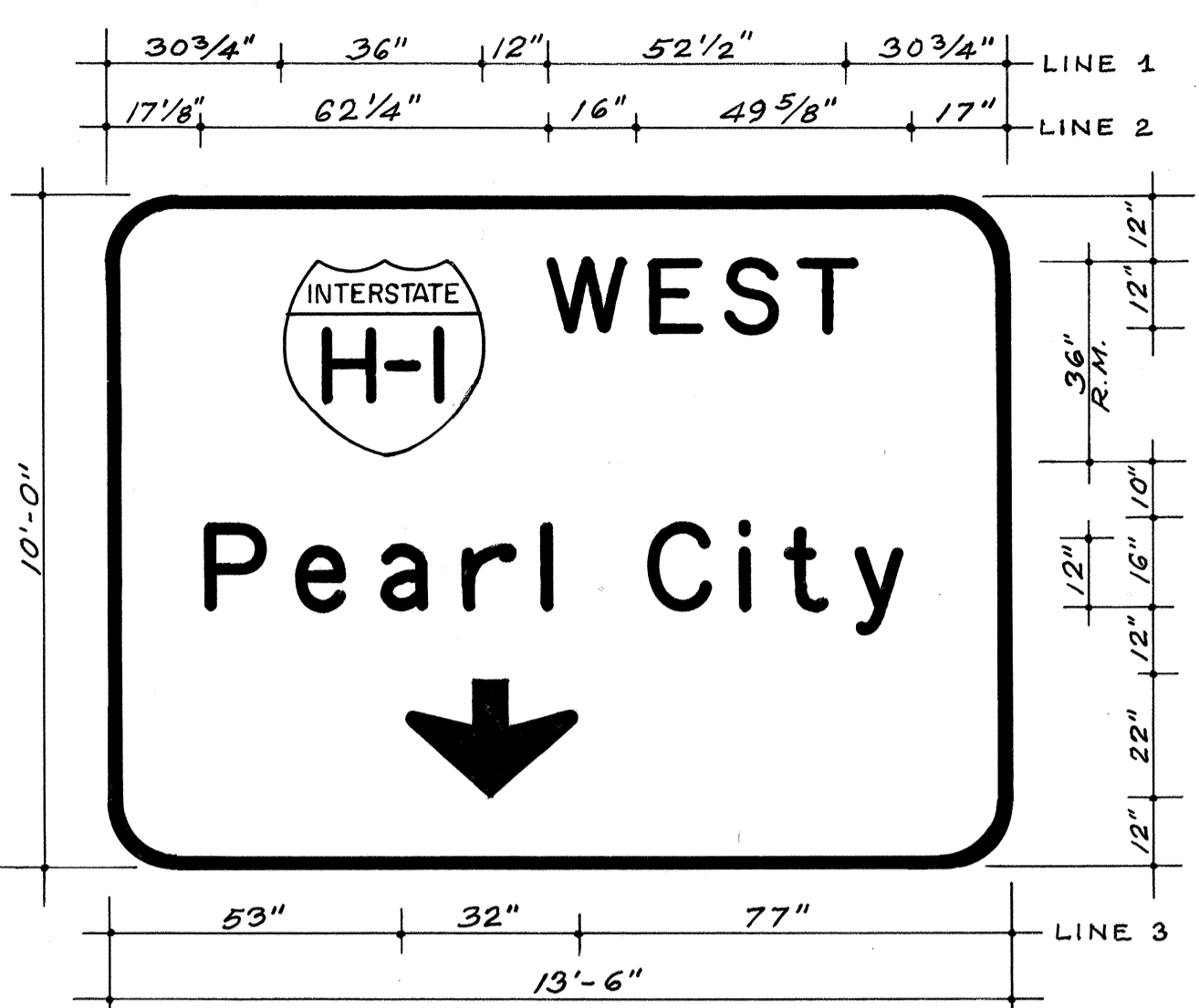
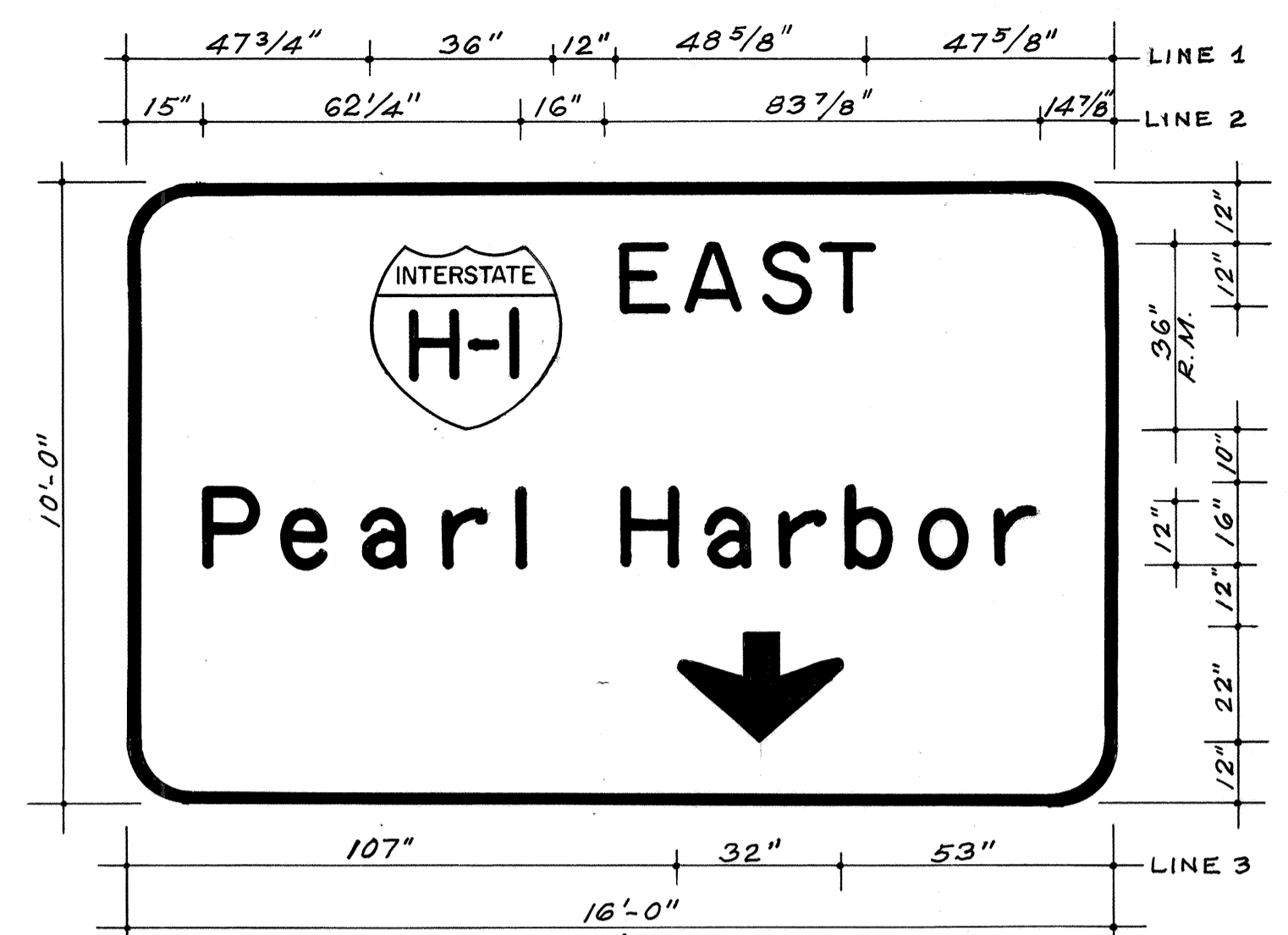
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
GENERAL LOCATION PLAN OF SIGNS
DELINEATORS & PAVEMENT MARKERS
INTERSTATE ROUTE H-1
PROJECT NO I-HI-1(90):13
SCALE: 1" = 50' DATE: DEC. 24, 1970
SHEET No. 3T OF 18 SHEETS

C. O. 8 41

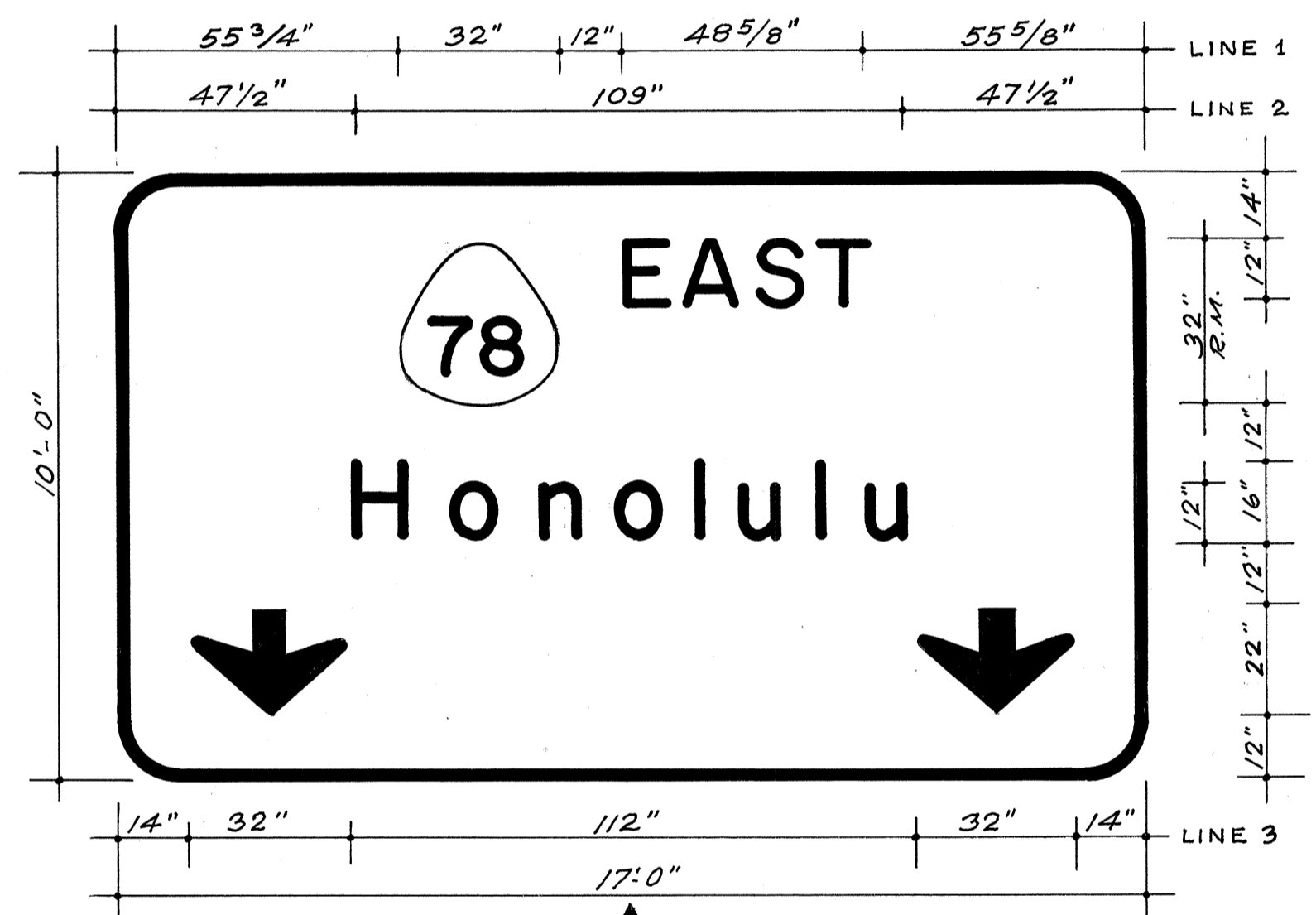
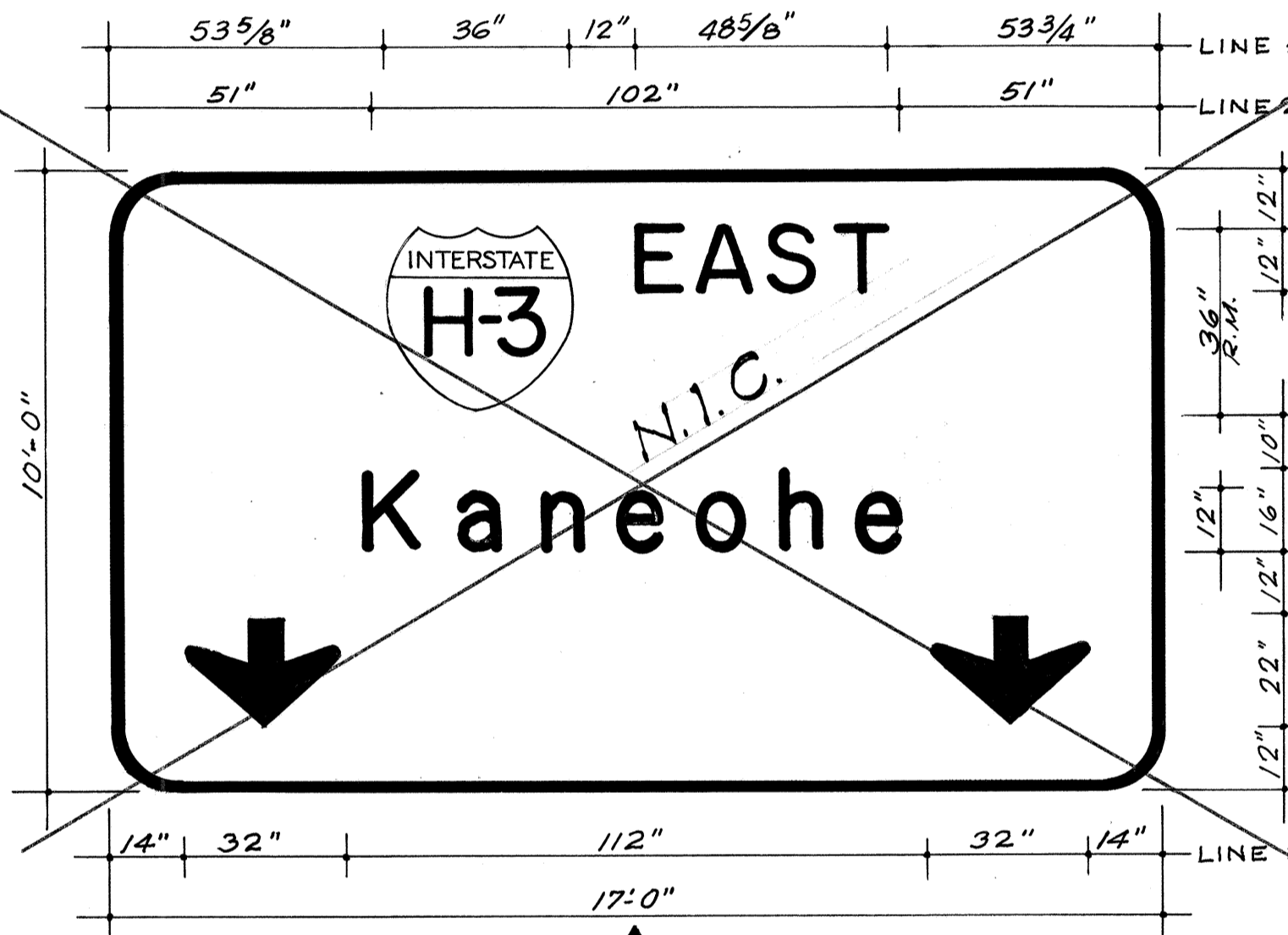
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IHI-1(90):13	1972	75	202

Notes pertaining to Expressway (E) Signs and Destination (D) Signs:

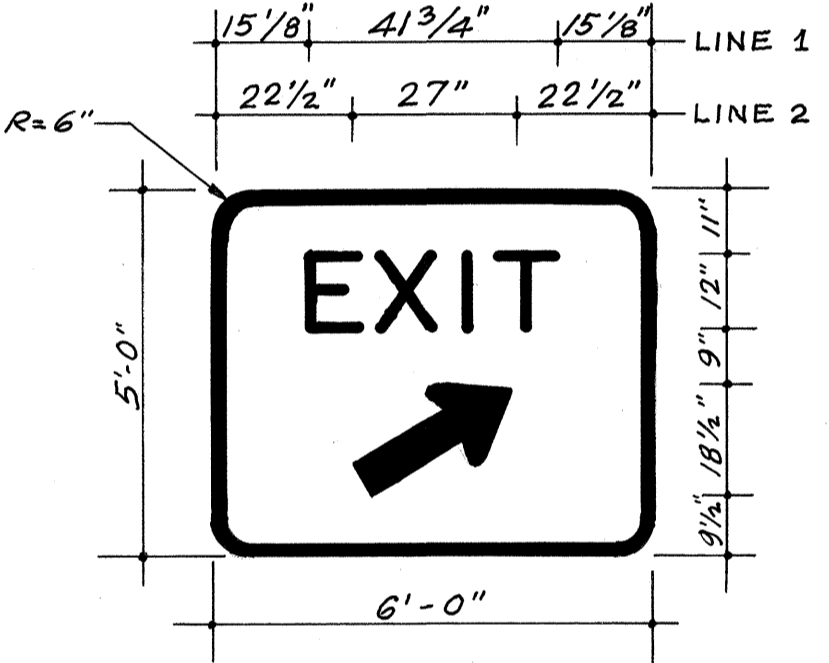
- Design of the companion upper and lower case characters, modified series "E" capital letters and digits, and inter-character spacing for line messages shall meet the requirements established by the Federal Highway Administration, U.S. Department of Transportation in the "Manual on Uniform Traffic Control Devices" 1971 Edition.
- Unless otherwise noted, sign borders and corner radii for all sign faces detailed herein shall be 2 inches wide, and 12 inches, respectively.
- State and Interstate route markers incorporated on sign panels shall conform to the dimensions as shown. Marker shape, color, letter and numeral series, etc., are to comply with those of the official marker designs on the standard detail sheets.
- All arrows shall be as prescribed for signs on the National System of Interstate and Defense Highways.
- Individual letters, numerals, symbols and borders shall be demountable and consist of:
 - Embossed aluminum cut-outs with applied silver-white reflective sheeting material; or
 - White porcelain enameled aluminum frames in which are installed plastic reflex reflectors.
- All artificially illuminated expressway signs shall have reflectorized message and border on a green porcelain enameled background. Destination signs shall be completely reflectorized with silver-white reflective sheeting for message cut-outs and border strips, and green reflective sheeting for sign background. Non-illuminated expressway sign panels shall be fabricated in accordance with specifications for destination signs.
- Fasteners: Demountable characters shall be fastened to sign panels with blind rivets. Overlay panels shall be fastened to parent sign panels with self-tapping screws as shown.
- Demountable characters, except as otherwise specified, shall be of one type on any sign panel or group of sign panels mounted on a common support, and shall include letters, numerals, arrows and borders.
- Where more than one sign panel is mounted on the same overhead sign panel support, the left to right position of sign faces of panels on the support (as viewed by approaching traffic) is repeated in the same order on this sign face detail sheet.



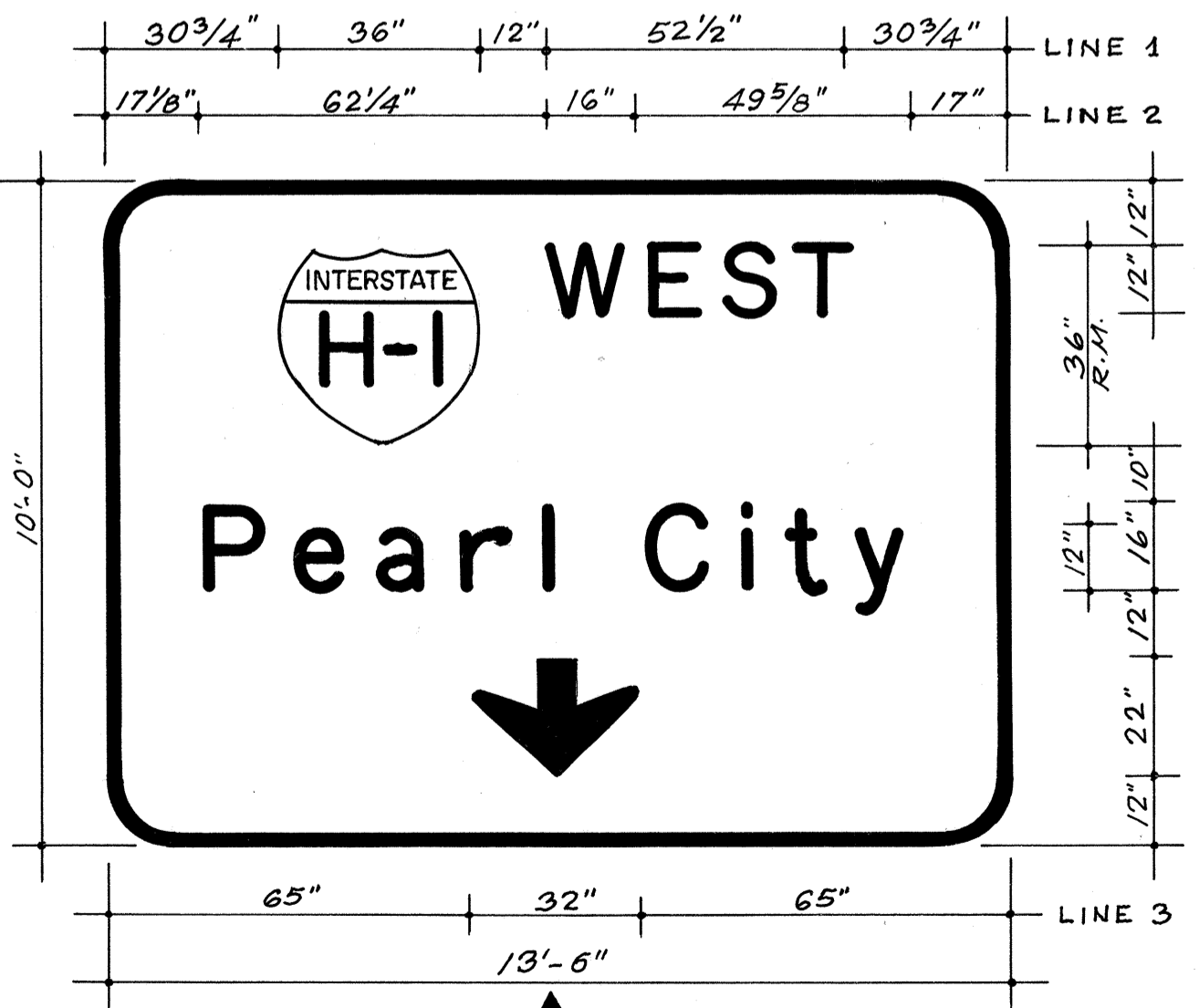
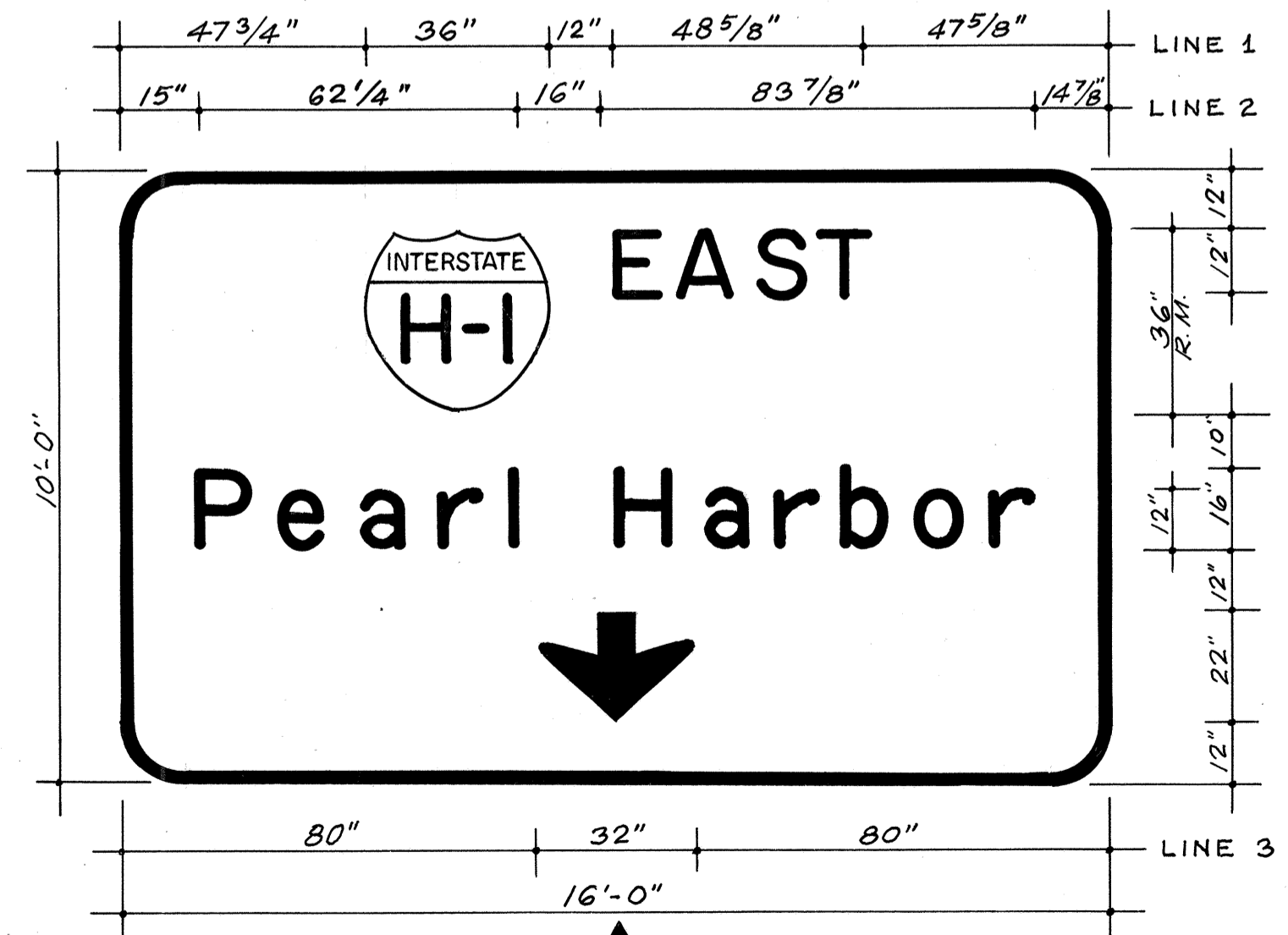
SIGN ASSEMBLY E-37
IR @ STATION 261+25



SIGN ASSEMBLY E-38
RAMP P @ STATION I2+00



SIGN D-34
RAMP L STATION I2+60



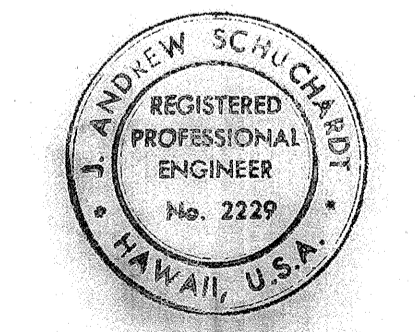
SIGN ASSEMBLY E-39
MOUNTED ON STRUCTURE No. II

TYPE	MESSAGE	QUANTITY	
		W/POST	W/O POST
W1-2(R)	(CURVED ARROW)	-	1
W4-1(R)-A	MERGE	2	-
W13-1(25)	25 M.P.H.	1	-
W13-3(25)	RAMP 25 M.P.H.	1	1
W13-3(50)	RAMP 50 M.P.H.	1	-
W13-3(45)	RAMP 45 M.P.H.	1	-
TOTAL		6	2

EXPRESSWAY SIGNS		
SIGN NO.	MESSAGE	AREA (SQ. FT.)
E-37	PEARL HARBOR, PEARL CITY, HONOLULU	415.00
E-38	N.I.C. KANEEOHE, HONOLULU	170.00
E-39	PEARL HARBOR, PEARL CITY	295.00
TOTAL		1,050.00

TYPE	MESSAGE	QUANTITY	
		W/POST	W/O POST
R2-1(50)-A	SPEED LIMIT 50	1	-
TOTAL		1	-

SIGN NO.	MESSAGE	AREA (SQ. FT.)
D-34	EXIT	30.00
TOTAL		30.00



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
REGISTERED HIGHWAYS DIVISION
SIGN FACE DETAILS & MISCELLANEOUS SIGN DETAILS
INTERSTATE ROUTE H-1
PROJECT NO. IHI-1(90):13
SCALE: AS SHOWN DATE: DEC. 24, 1970
SHEET No. 41 OF 18 SHEETS

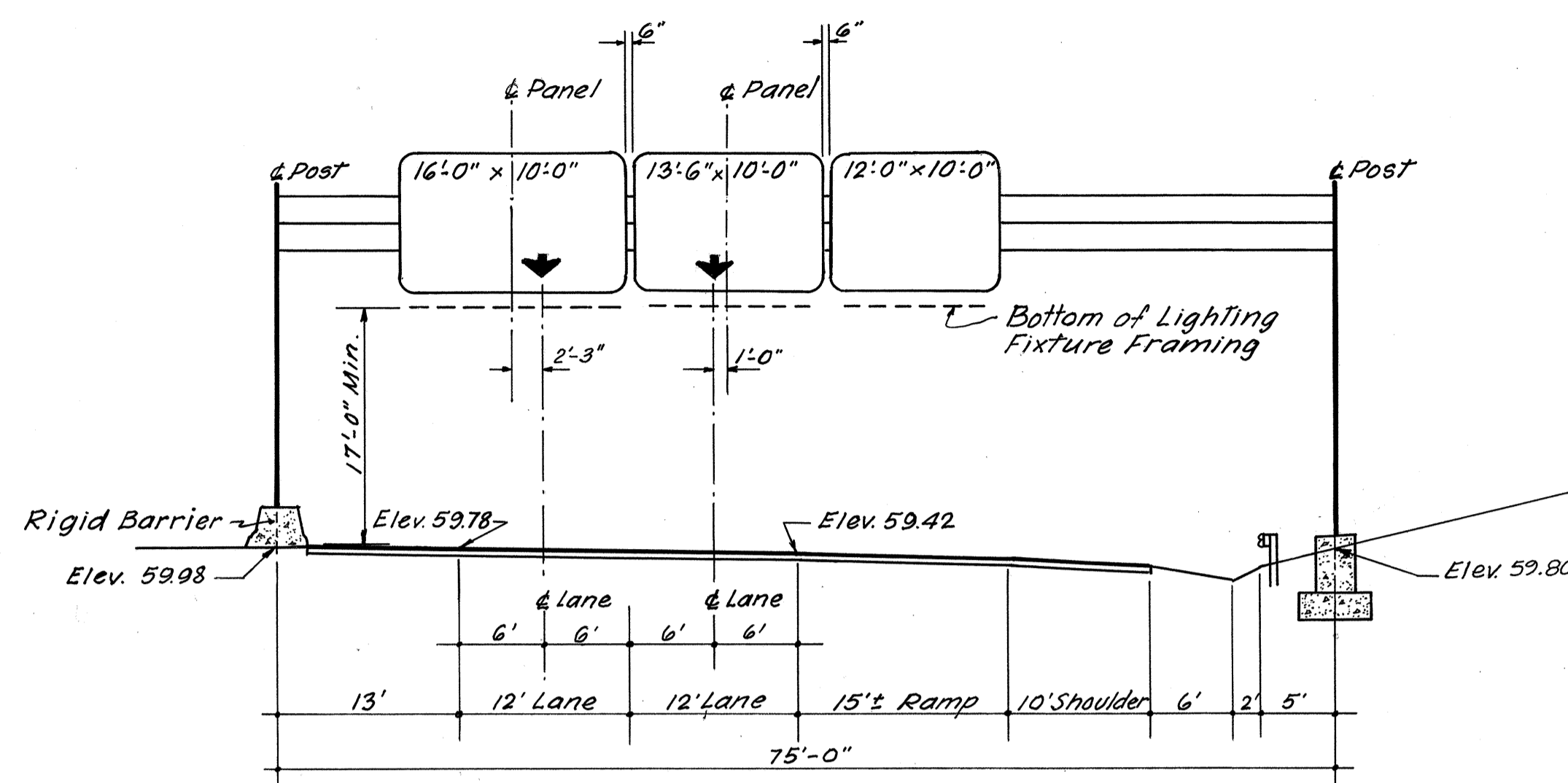
SCALE: 3/8" = 1'-0"

ORIGINAL PLAN NO. _____
DATE _____
SURVEY PLOTTED BY _____
DRAWN BY _____
CHECKED BY _____
TRACED BY _____
QUANTITIES BY _____

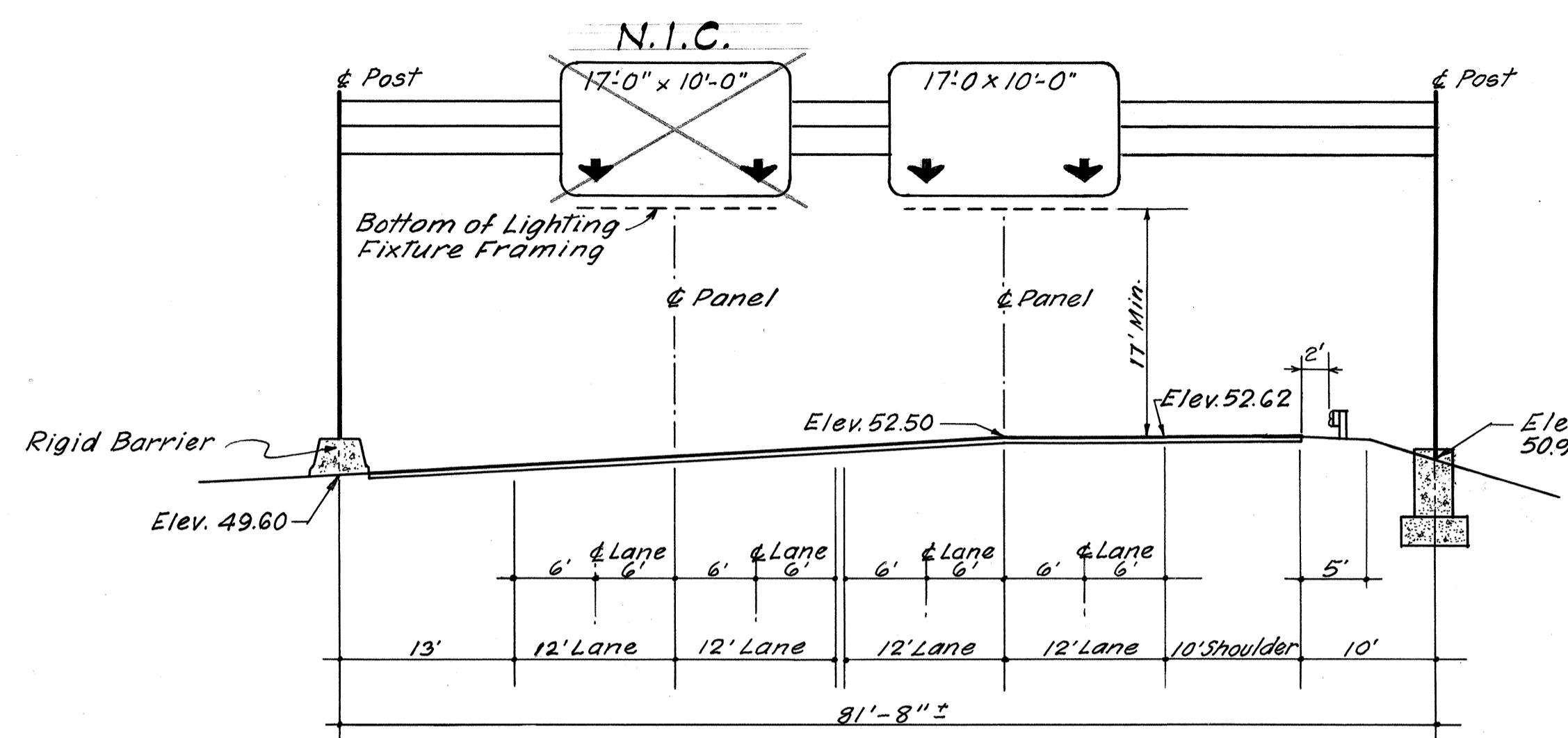
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HH(90)13	1972	76	202

NOTES:

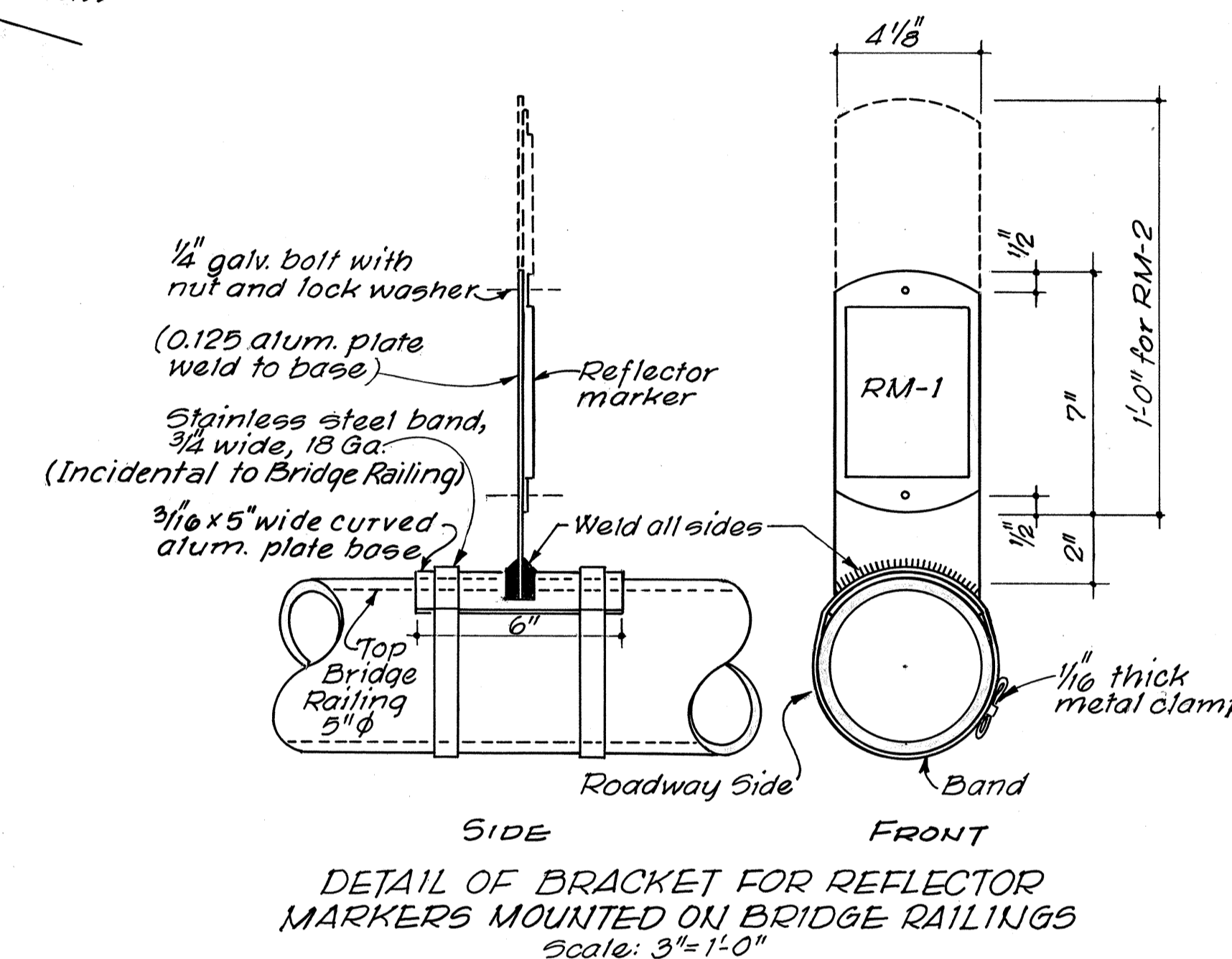
- For Sign Face Details of panels mounted on Overhead Structures, see Sheet 4T.
- For details of (A) Outrigger Brackets supporting Sign Panel Lighting Fixtures, (B) Overhead Sign Structures, (C) Structure Footings, (D) Special Concrete Median Barrier Section at Overhead Sign Structure Posts, (E) Sign Panel Brackets, see Sheets 6T through 12T and Electrical Sheet.
- See Electrical Drawings for Sign Panel Lighting Fixture Type, Installation Details, etc.
- For protective treatment of exposed Overhead Sign Structure Supports, see Special Guard Rail Installations on General Location Plans, Specifications and Standard Details.



ELEVATION SIGN ASSEMBLY E-37
IR @ STATION 261+25
Scale: 1"=10'



ELEVATION SIGN ASSEMBLY E-38
RAMP P @ STATION 12+00
Scale: 1"=10'

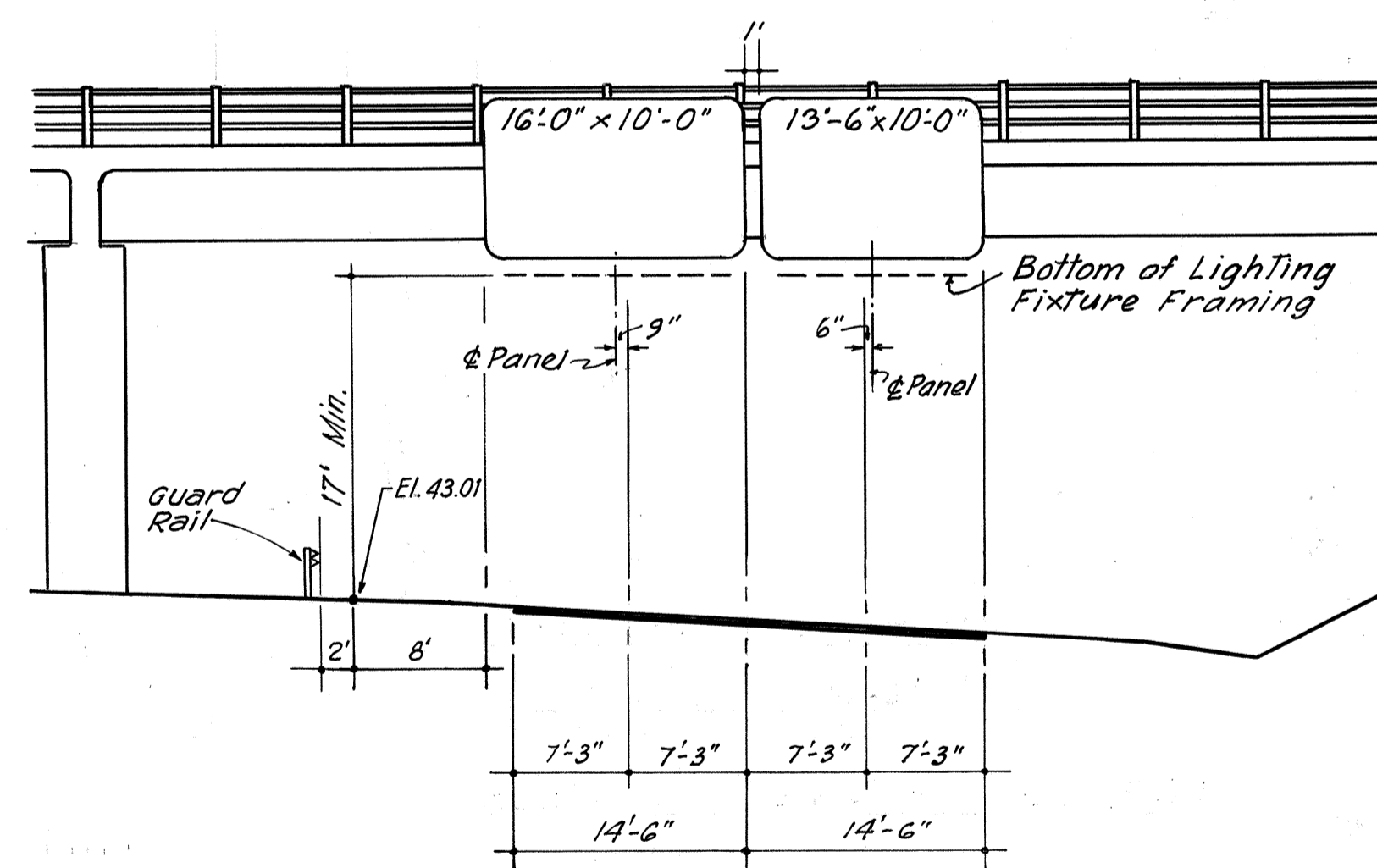


DETAIL OF BRACKET FOR REFLECTOR MARKERS MOUNTED ON BRIDGE RAILINGS
Scale: 3/4"=1'-0"

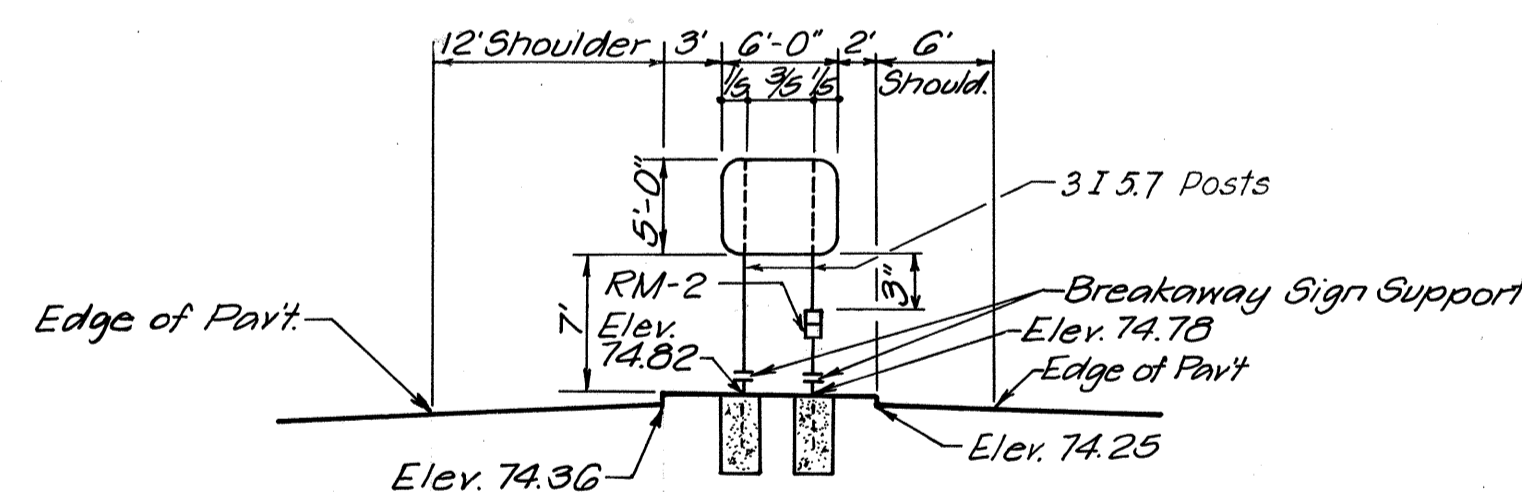
SUMMARY OF RAISED PAVEMENT MARKERS		
SHEET NO.	QUANTITY	
	TYPE A	TYPE C
1T	426	36
2T	156	27
3T	204	17
TOTAL	786	80

SHEET NO.	SUMMARY OF REFLECTOR MARKERS											
	RM-1 CLEAR		RM-2 AMBER		RM-3 AMBER		RM-3H AMBER		RM-4		RM-9	
	W/POST	W/O POST	W/POST	W/O POST	W/POST	W/O POST	W/POST	W/O POST	W/POST	W/O POST	W/POST	W/O POST
1T	3	-	34	2	8	-	1	-	-	-	-	-
2T	3	-	71	3	1	-	2	-	-	-	-	-
3T	2	-	64	7	4	-	1	-	-	-	-	-
TOTAL	8	-	169	12	13	-	4	-	-	-	-	-

NOTE: For framing details of bridge mounted signs see Sheet 125 for Structure 11.

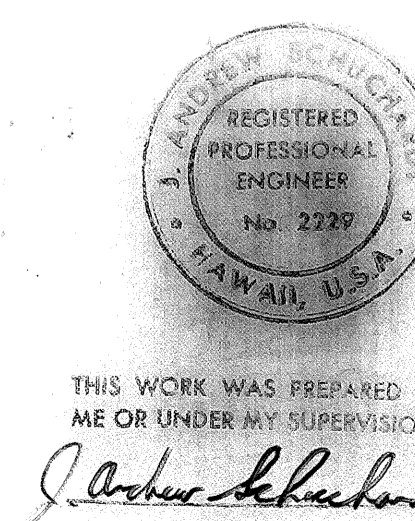


ELEVATION SIGN ASSEMBLY E-39
RAMP ES @ STA. 50+13
Scale: 1"=10'



SIGN D-34
RAMP L STA. 12+60
Scale: 1"=10'

SURVEY PLOTTED BY: _____ DATE: _____
 DRAWN BY: T. A. GARDNER / J. T. HARTZEL & C.
 DESIGNED BY: M. S. MOYER
 QUANTITIES BY: M. S. MOYER
 CHECKED BY: E. S. MOYER



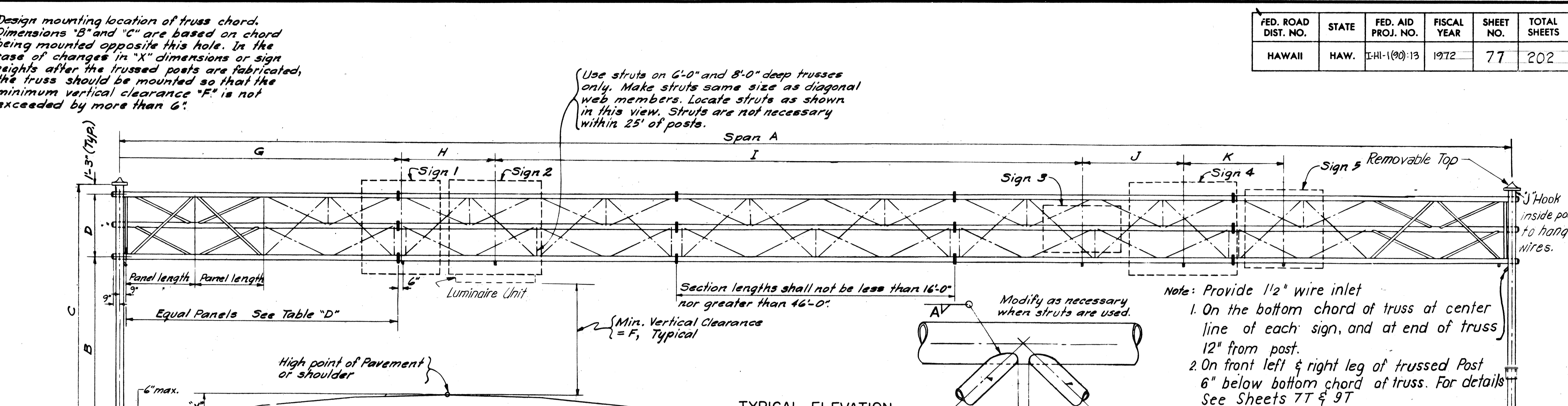
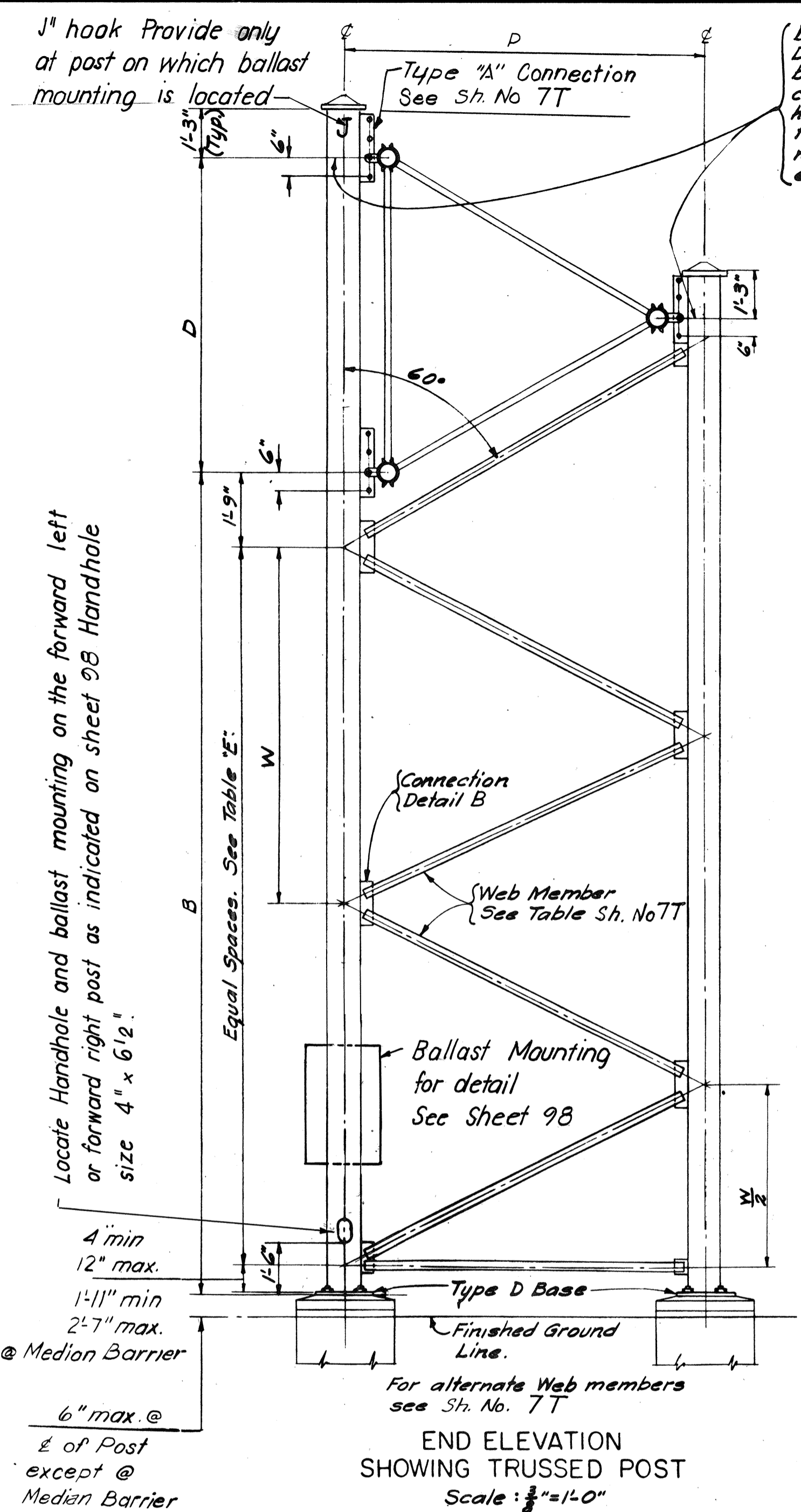
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS SIGN DETAILS

INTERSTATE ROUTE H-1
PROJECT NO I-HI-(90)13

SCALE: AS SHOWN DATE: DEC. 24, 1970
SHEET No. 51 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-(90)13	1972	77	202



NOTES

For dimensions of Type "D" bases and anchor bolts see Sh. No. 77

For Connection Detail "B" and for the alternate details of web members of trussed posts see Sheet No 77

For flanged connections and post Cap details see Sh. No. 97

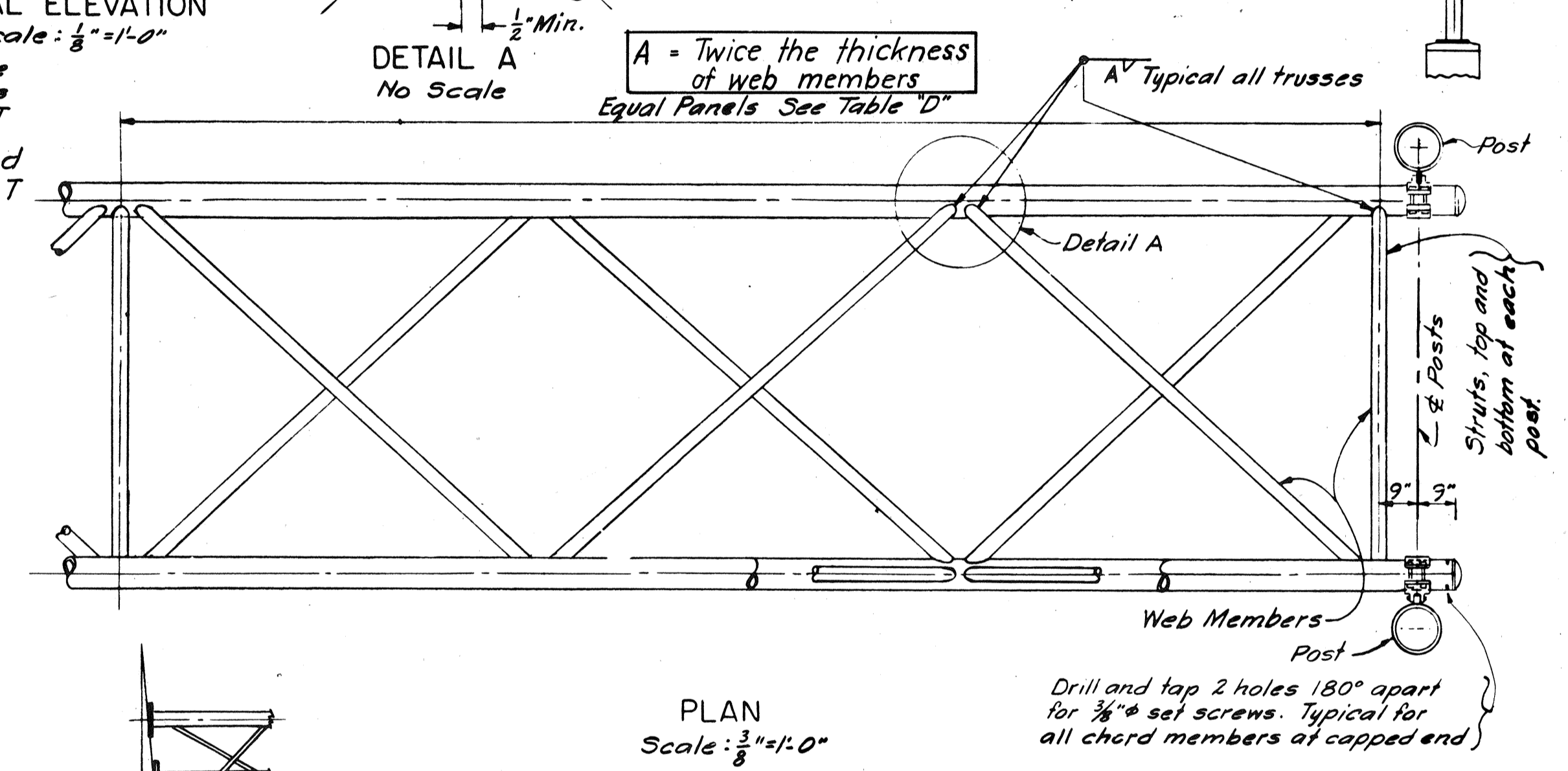
Tri-truss span and brackets are fabricated of Aluminum.

Galvanized Steel in contact with Aluminum must be separated by "Fabco" or "Fabreka" Pads.

Single and double poles, base plates and post to truss connections are fabricated of galvanized steel.

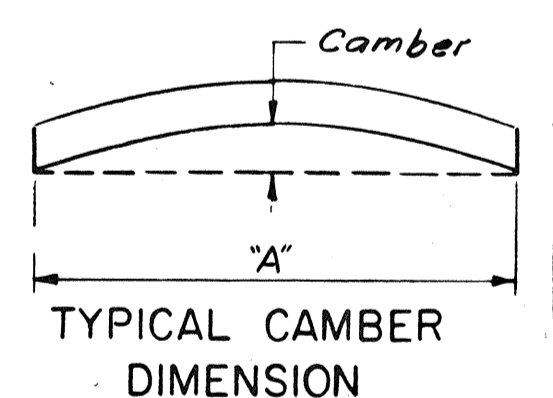
EQUIVALENT SIZES FOR TRUSSED POSTS

ASTM A53 TYPE B	ASTM A 595	ASTM A252 GRADE 3	API 5Lx 52
6" Schedule 40s	3 Gauge 6"	6" Schedule 40s	6" Schedule 40s
8" Schedule 20	3 Gauge 8"	8" Schedule 20	8" Schedule 20
8" Schedule 30	3 Gauge 8"	8" Schedule 20	8" Schedule 20
8" Schedule 40s	3 Gauge 8"	8" Schedule 20	8" Schedule 20
8" Schedule 60	0 Gauge 8"	8" Schedule 40s	8" Schedule 30
8" Schedule 80x	7+7 Gauge 8"	8" Schedule 60	8" Schedule 60
10" Schedule 20	3 Gauge 10"	10" Schedule 20	10" Schedule 20
10" Schedule 30	3 Gauge 10"	10" Schedule 20	10" Schedule 20
10" Schedule 40s	3 Gauge 11"	10" Schedule 30	10" Schedule ?
10" Schedule 60x	0 Gauge 11"	10" Schedule 60x	10" Schedule 40s
10" Schedule 80	7+3 Gauge 10"	10" Schedule 60x	10" Schedule 60x
12" Schedule 20	3 Gauge 12"	12" Schedule 20	12" Schedule 20
12" Schedule 30	3 Gauge 12"	12" Schedule 30	12" Schedule 20
12" Schedule s	0 Gauge 12"	12" Schedule 30	12" Schedule 20
12" Schedule 40.	0 Gauge 12"	12" Schedule 30	12" Schedule 30
12" Schedule x	7+7 Gauge 12"	12" Schedule 40	12" Schedule s
12" Schedule 60	7+3 Gauge 12"	12" Schedule x	12" Schedule s
12" Schedule 80	3+3 Gauge 12"	12" Schedule 60	12" Schedule x



METHOD OF OBTAINING CAMBER

Washers having the same O.D. as flanges and with holes punched for bolts may be used to obtain camber.



CAMBER DETAILS

SPAN A	CAMBER	SPAN A	CAMBER
Up to 50'	2"	125' to 150'	8"
50' to 75'	3"	150' to 170'	9"
75' to 100'	4"	170' to 190'	10"
100' to 125'	6"	190' to 210'	12"

SIGN NO	SPAN A	TYPE ①	PIPE SIZE ②	LEFT POST				P	TYPE	PIPE SIZE ②	RIGHT POST				TRUSS				SIGN 1	SIGN 2	SIGN 3	
				B	C	XL ③	P				B	C	XR ③	F	D	CHORD SIZE	WEB SIZE	G				H
	FT IN N/8			FT IN N/8	FT IN N/8	FT IN N/8	FT IN N/8	FT IN N/8			FT IN N/8	FT IN N/8	FT IN N/8	FT IN N/8	FT IN N/8	FT IN N/8	O.D. X WALL THK	O.D. X WALL THK	FT IN N/8	FT IN N/8	FT IN N/8	
E-37	75 0 0	T	8" SCH 20	20 2 5	25 5 5	-1 0 7	5 2	T	8" SCH 20	20 2 6	25 5 6	-1 0 6	17 0 0	4 0 0	4" X 5/16"	2" X 3/16"	16 9 0	15 3 0	13 3 0			
E-38	81 8 0	T	8" SCH 20	23 3 7	28 6 7	2 0 2	5 2	T	8" SCH 20	21 9 1	27 0 1	0 5 4	17 0 0	4 0 0	4" X 5/16"	2" X 3/16"	25 0 0	24 8 0				

- ① S=Single Post. T=Trussed Post.
- ② The pipe sizes listed in this column are for ASTM A53 steel. See the table "Equivalent Post Sizes" on this sheet when using another type of steel. Tapered poles may be used for the structures shown on this sheet. Modify connections to fit taper. Large end of tapered sections must have the same O.D. as the pipe specified in the table.
- ③ XL refers to the X dimension in the Typical Elev. for left post. XR refers to X dimension in "Typical Elev." for right post. This dimension to be verified by contractor in field. -107

1. indicates top of pedestal above high point of pavement.
2. The number and arrangement of panels in each section must be such that the web members' in each face of the tri truss form continuous trussing in the structure from Post to Post.
3. For details of Footings see Sh. No. 8 T.
4. For Sign Panel and Bracket details see Sh. No. 10 T
5. For Luminaire Mounting details see Sh. No. 9 T

TABLE "D"

D'	Panel Lengths	
	Min.	Max.
4'-0"	3'-6"	4'-4"
6'-0"	5'-3"	6'-9"
8'-0"	7'-2"	8'-10"

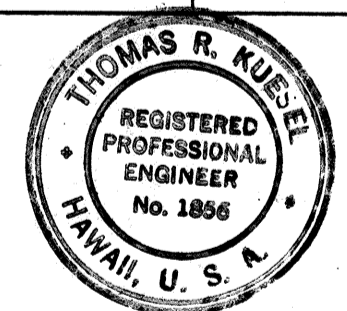
TABLE "E"

P	"W" Min.	"W" Max.
5'-2"	4'-8"	5'-8"
7'-2"	6'-8"	7'-8"
9'-2 3/4"	8'-8"	9'-8"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

OVERHEAD SIGN SUPPORT
3 CHORD TRUSS
INTERSTATE ROUTE H-1
PROJECT NO I-HI-(90)13

SCALE: AS SHOWN DATE: DEC. 24, 1970
SHEET No. 6 T OF 18 SHEETS



THIS WORK WAS PREPARED OR UNDER MY SUPERVISION

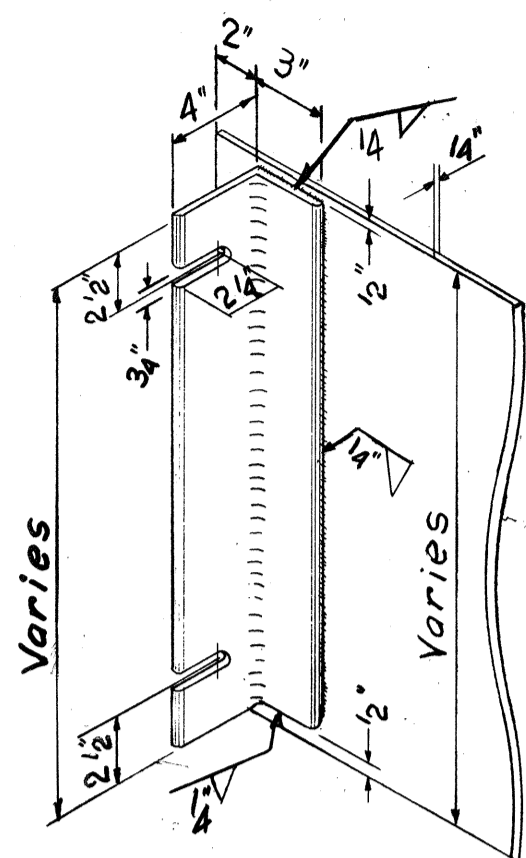
Thomas R. Kuebel

DATE: 12/22/72
DRAWN BY: J.E.P.
CHECKED BY: J.E.P.
QUANTITIES BY: J.E.P.
NOTE BOOK NO. 77722

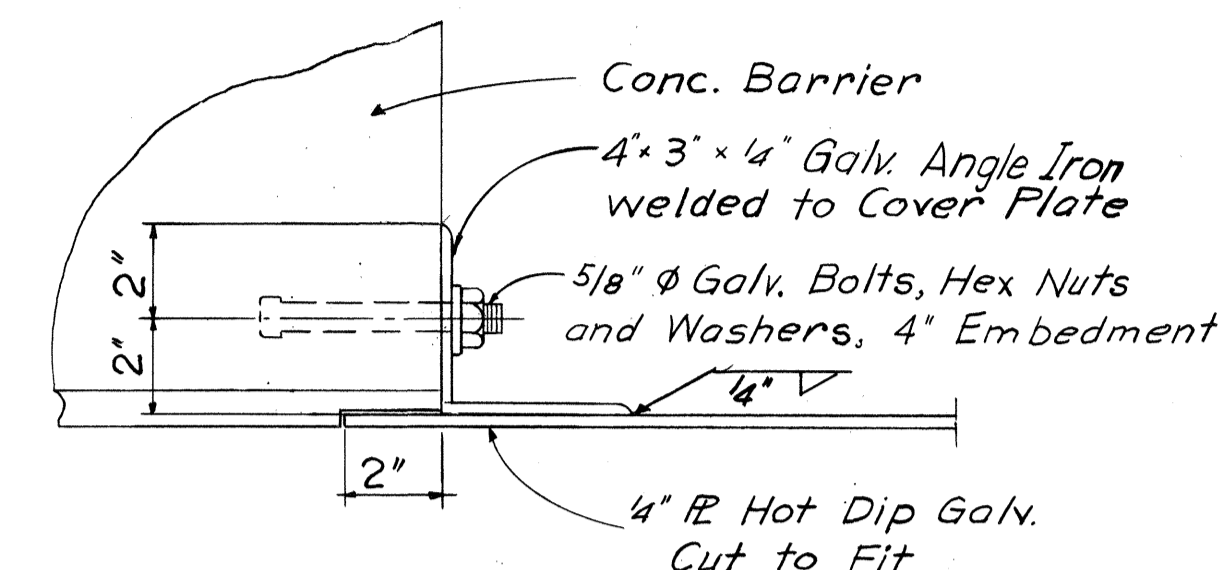
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(90):13	1972	79	202

FOUNDATION SCHEDULE						
Sign No	FTG	Rectangular Ftg. on Earth		Pedestal Vertical Reinf.	ELEV. A	ELEV. B
		Size (W×T×L)	Long Reinf. Top & Bottom			
E 37	L	5'-0"×1'-6"×13'-0"	5 #5 bars @ 12"	8 - #5 bars	61.06	54.5
E 37	R	5'-0"×1'-6"×11'-8"			61.05	54.75
E 38	L	5'-0"×1'-6"×13'-0"			50.68	44.0
E 38	R	5'-0"×1'-6"×11'-8"	5 - #5 bars @ 12"	8 - #5 bars	52.24	45.5

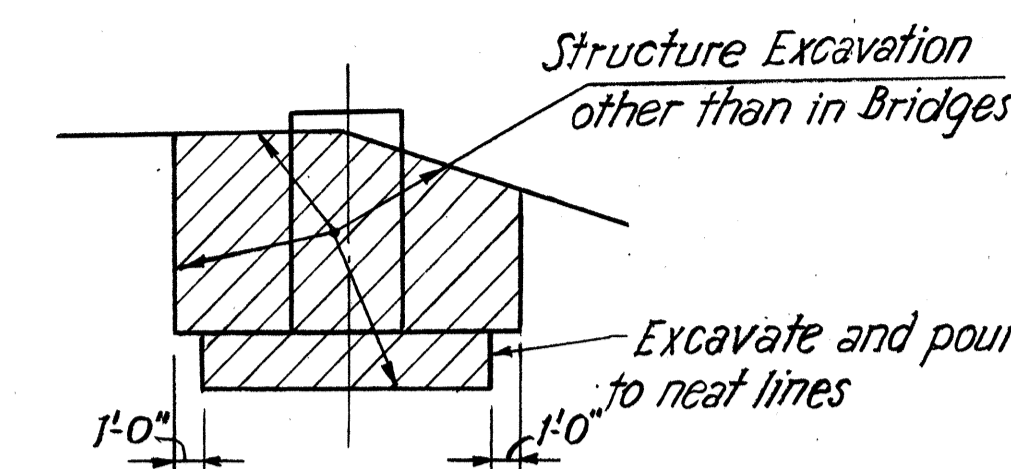
L & R refer to left and right footing when viewing signs as viewed by approaching traffic.



COVER PLATE DETAIL
Scale: 1 1/2" = 1' - 0"

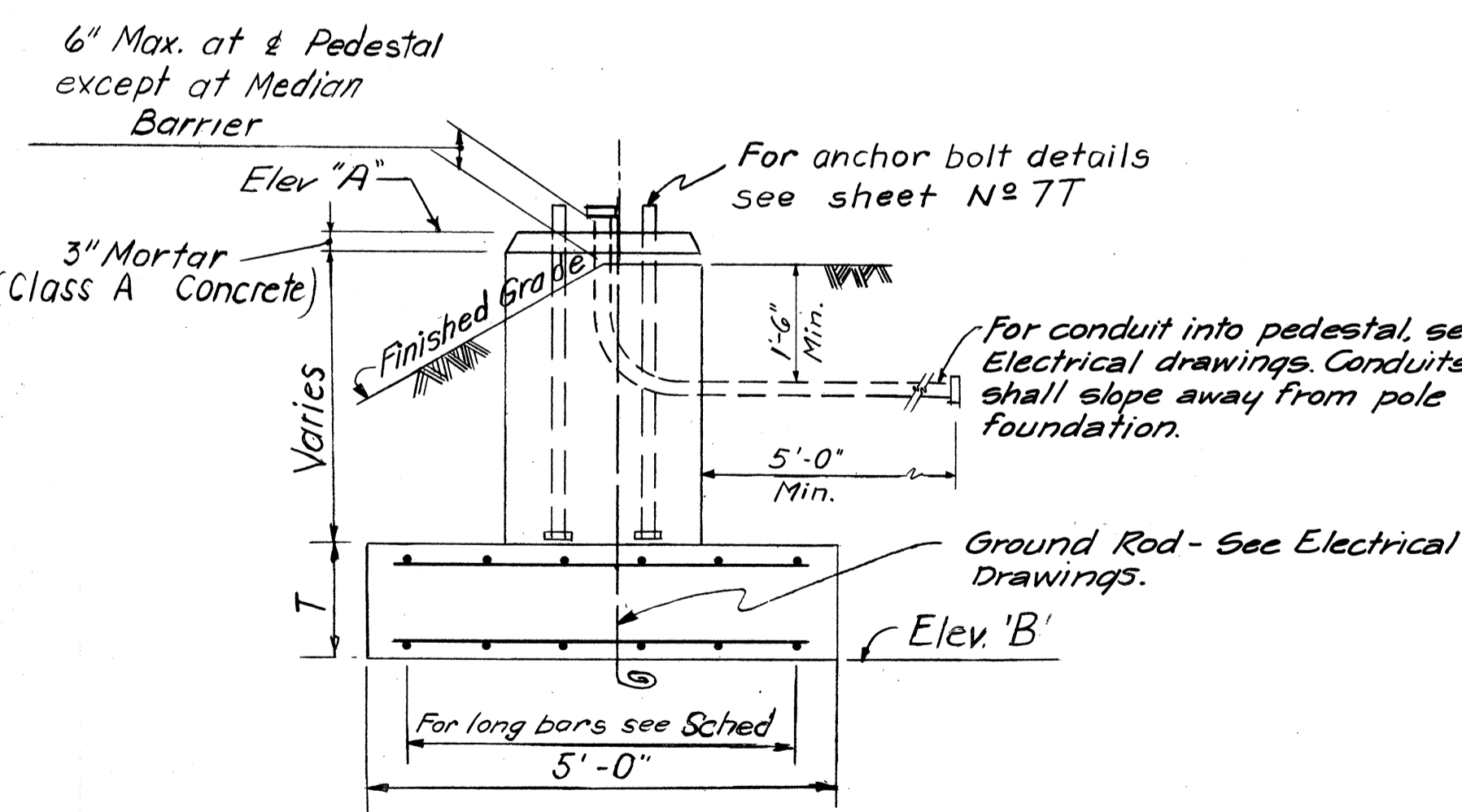
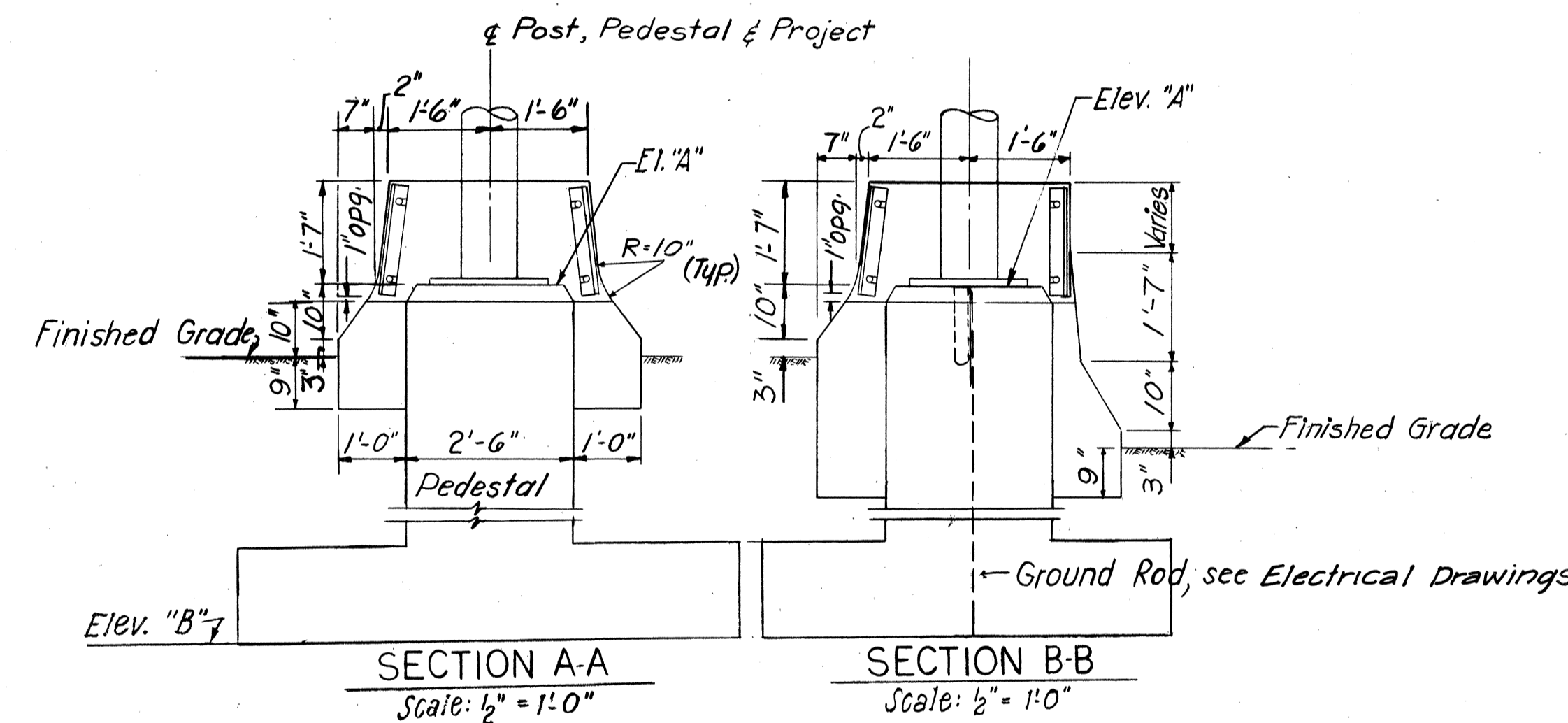
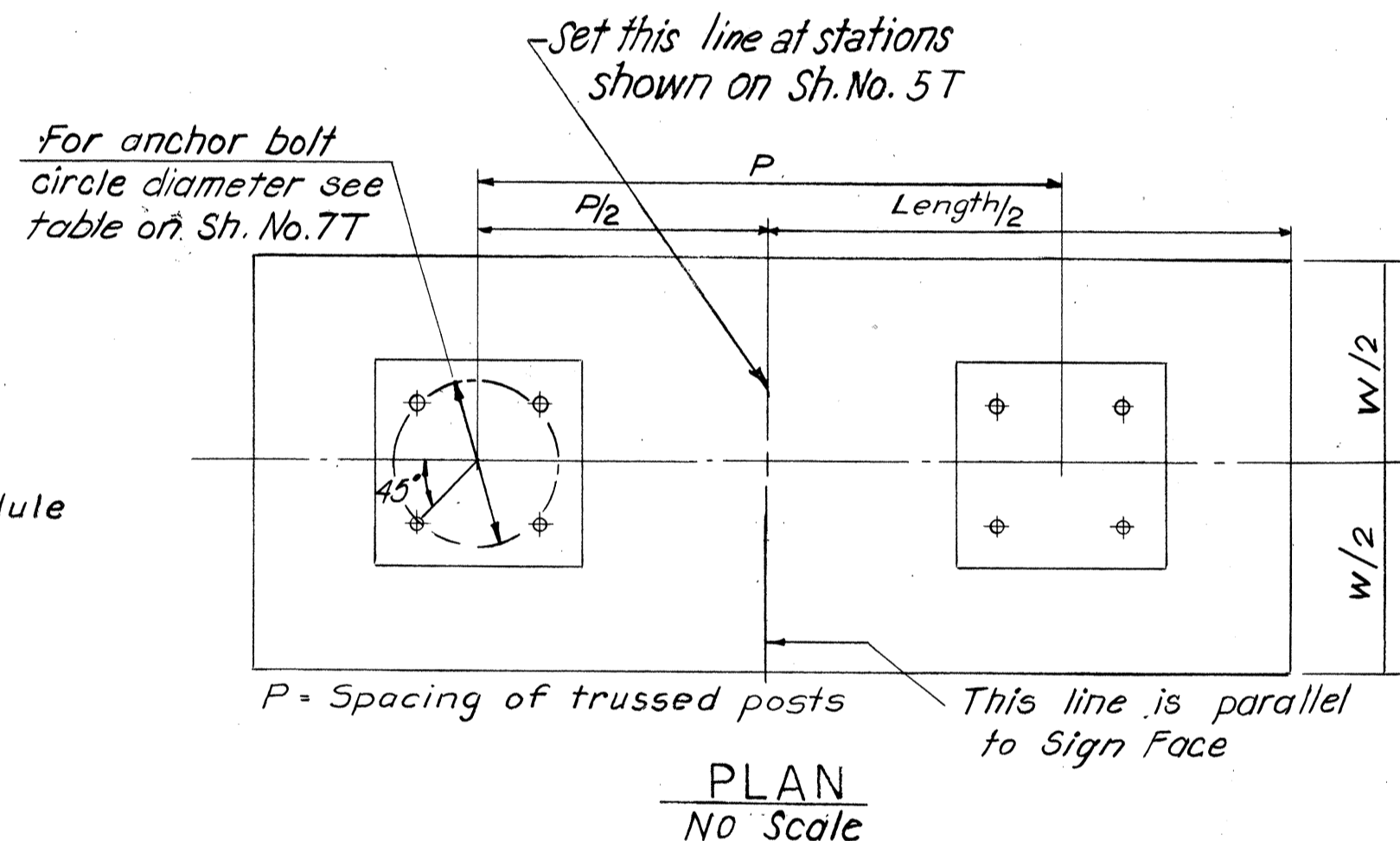
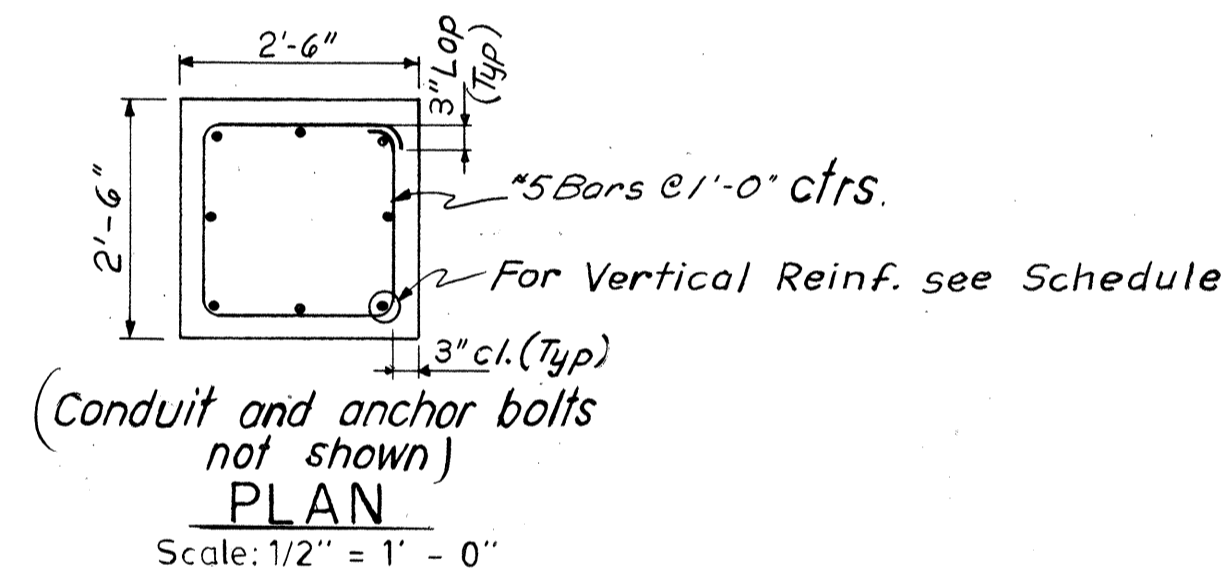


COVER PLATE ANCHOR DETAIL
Scale: 3" = 1' - 0"

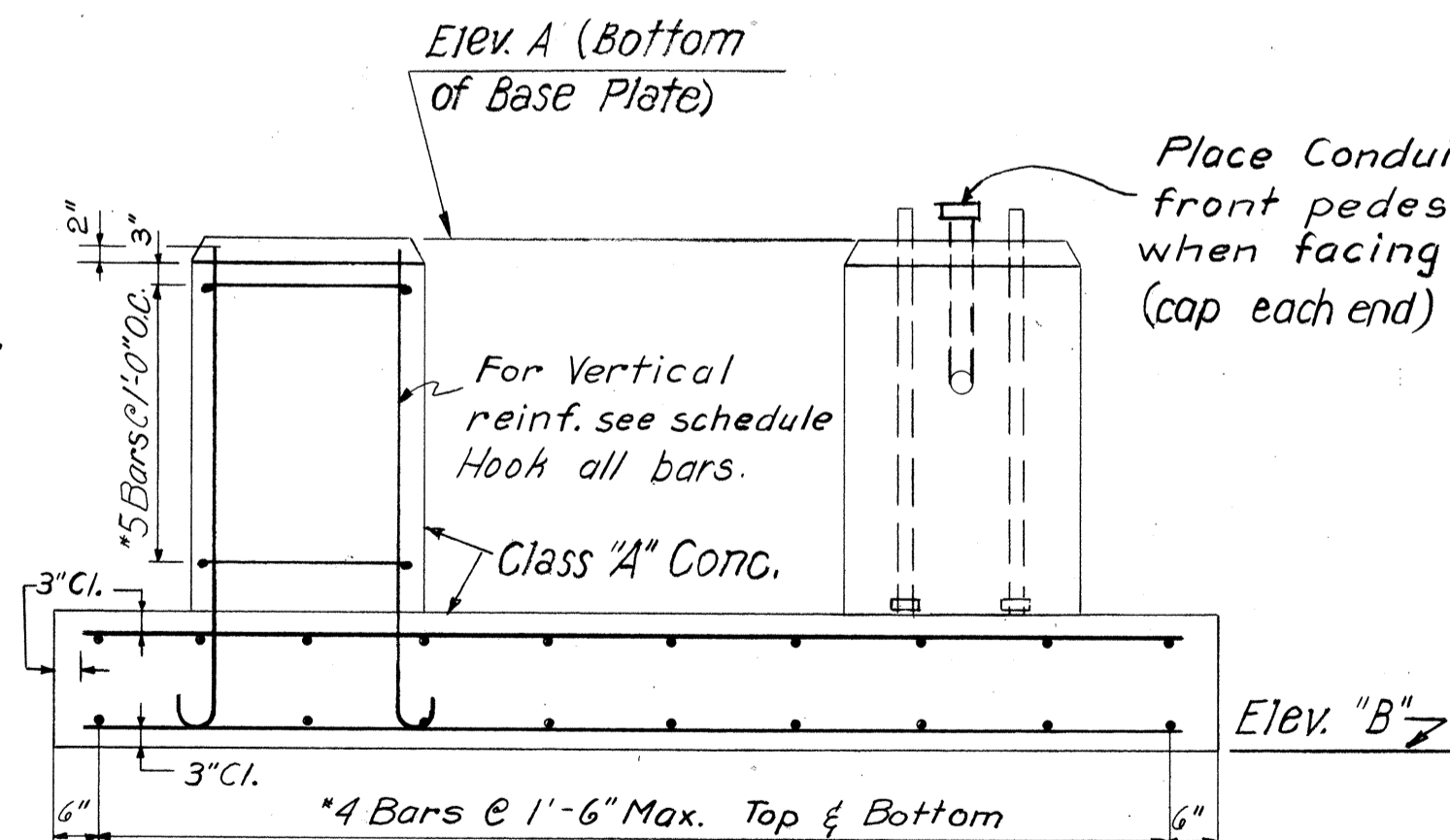


EXCAVATION PAYMENT LIMITS

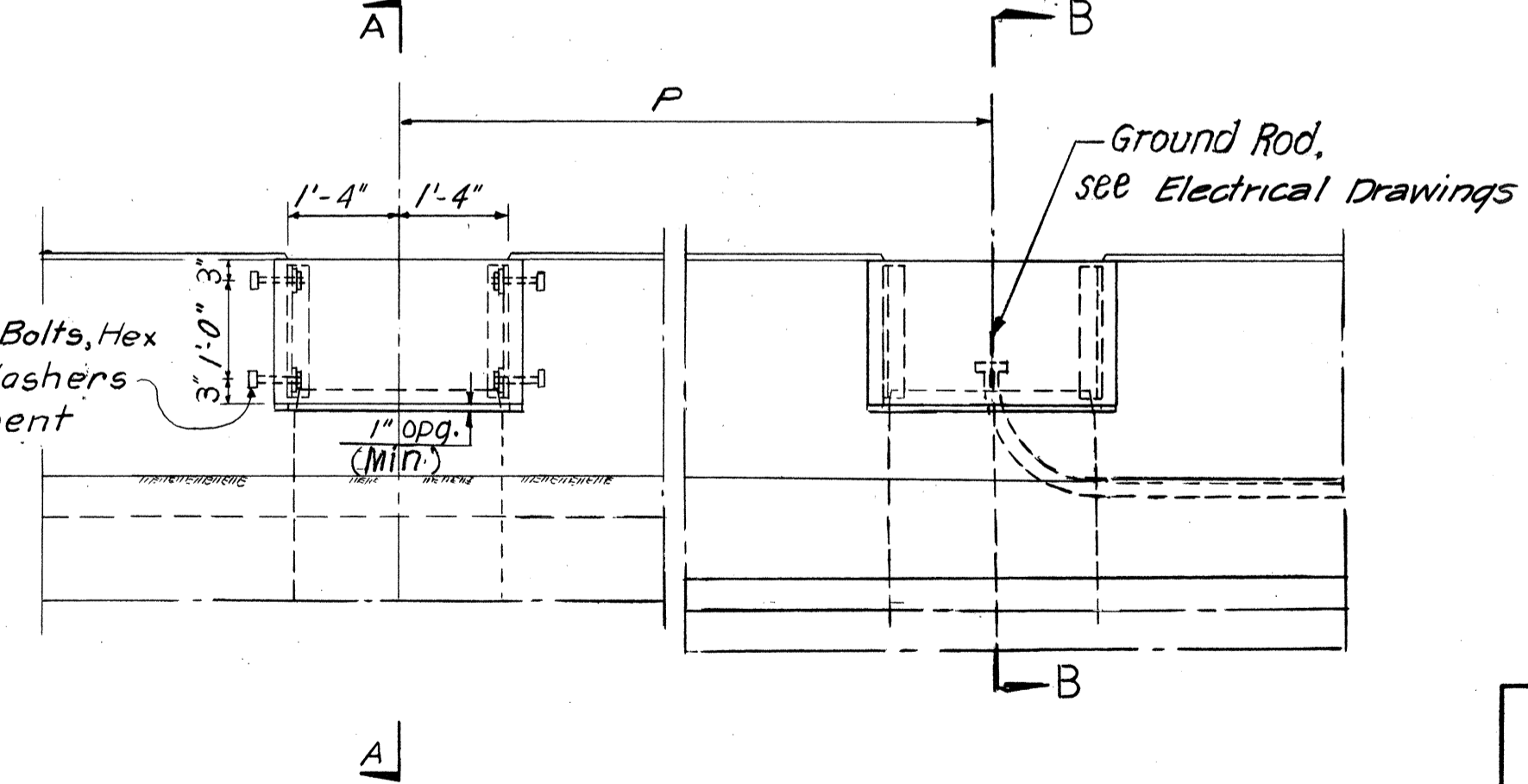
Note:
Upper limit for payment of structure shall be the lower of existing ground, finished ground, or subgrade of roadway.



END ELEVATION
No Scale

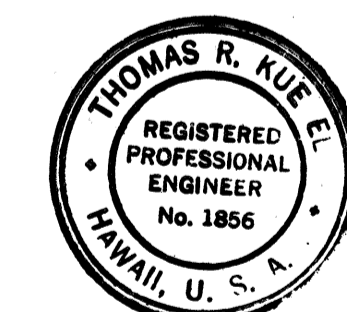


SIDE ELEVATION
No Scale



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

MEDIAN BARRIER DETAILS
For additional barrier Details, see Construction Detail Plans.

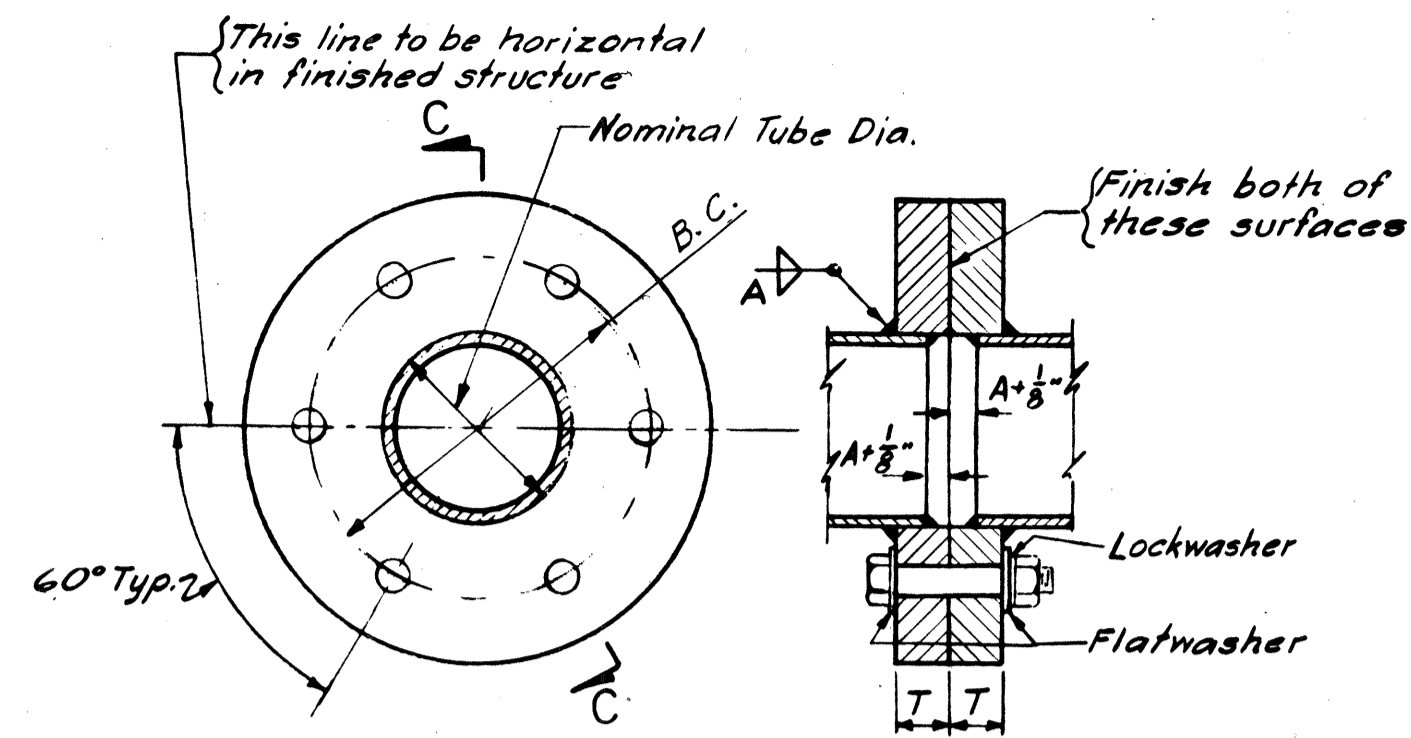


Thomas R. Kuehl

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

OVERHEAD SIGN FOUNDATIONS
INTERSTATE ROUTE H-1
PROJECT NO I-HI-1(90):13

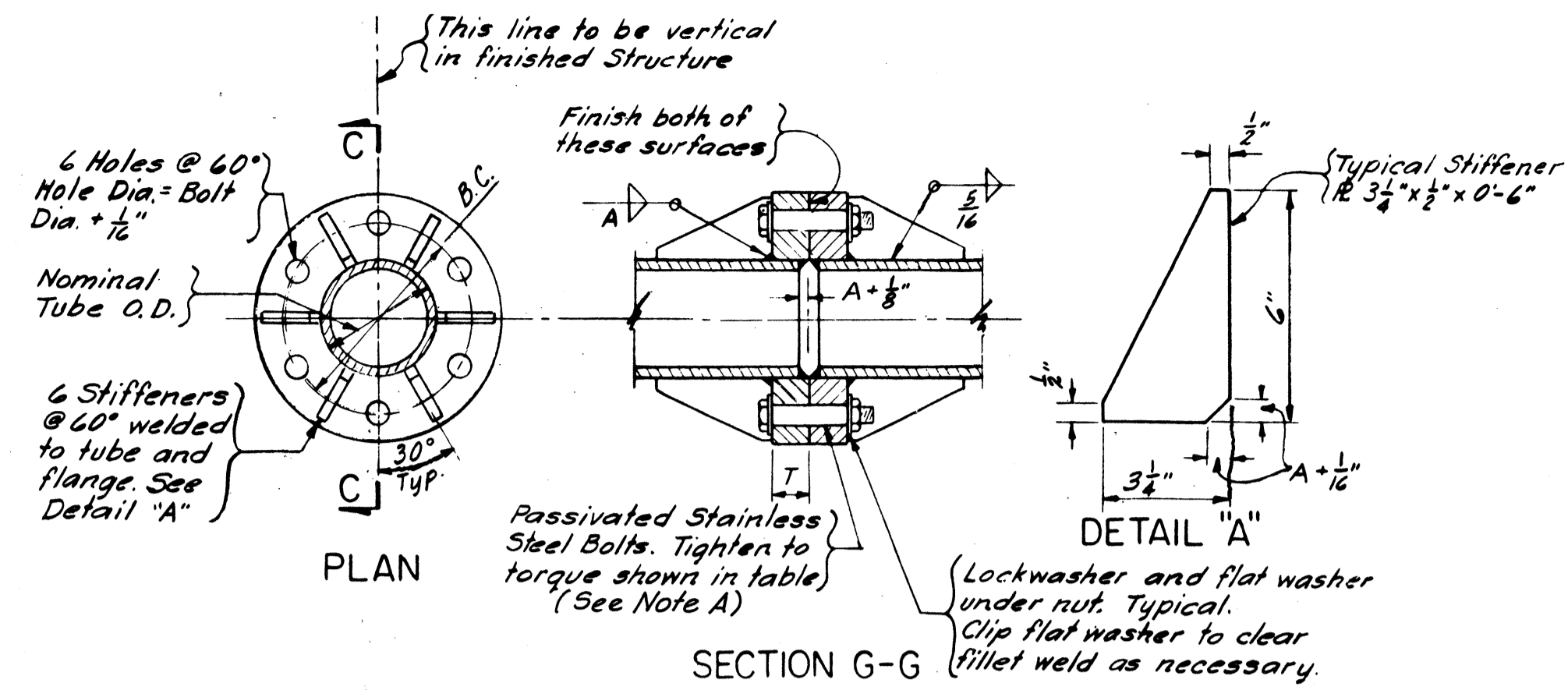
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(90):13	1972	80	202



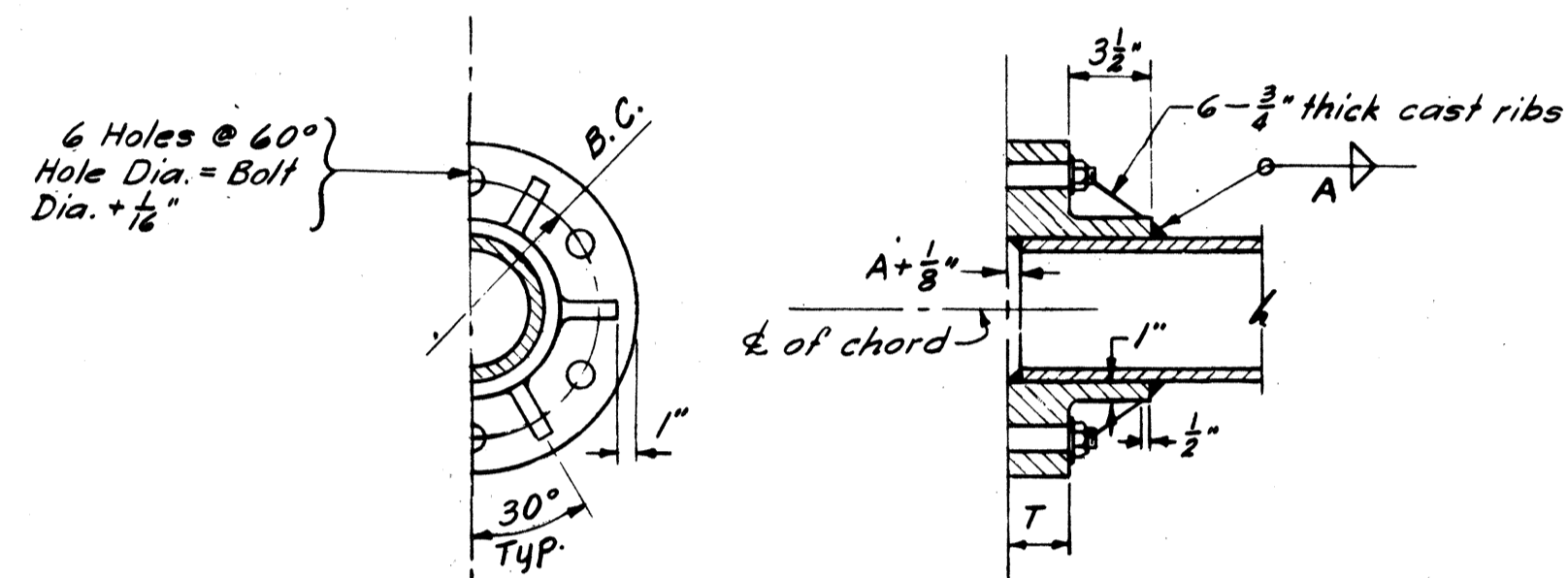
PLAN SECTION C-C
TYPE A FLANGE CONNECTION
 Scale: 3"=1'-0"
 All bolts are Passivated Stainless Steel

CHORD SIZE	FLANGE			BOLT DIA.	BOLT CIRCLE	BOLT TORQUE FT. LBS.
	"A"	O.D.	"T"*			
3" x 3/16"	3/16"	7"	3/8"	1/2"	5"	100
3" x 1/4"	1/4"	7"	3/8"	1/2"	5"	100
3" x 5/16"	5/16"	7"	3/8"	1/2"	5"	100
4" x 1/4"	1/4"	8 1/2"	3/8"	3/8"	6 1/2"	150
4" x 3/8"	3/8"	8 1/2"	3/8"	3/8"	6 1/2"	150
5" x 3/16"	3/16"	9 1/2"	1"	3/8"	7 1/2"	150
5" x 3/8"	3/8"	9 1/2"	1"	3/8"	7 1/2"	150
6" x 1/4"	1/4"	11 1/2"	1 1/4"	3/4"	9"	200
6" x 5/16"	5/16"	11 1/2"	1 1/4"	3/4"	9"	200
6" x 3/8"	3/8"	11 1/2"	1 1/4"	3/4"	9"	200
8" x 1/4"	1/4"	13 1/2"	1 1/4"	3/4"	11"	200
8" x 5/16"	5/16"	13 1/2"	1 1/4"	3/4"	11"	200
8" x 3/8"	3/8"	13 1/2"	1 1/4"	3/4"	11"	200

* Cast flanges may be used. All dimensions will be the same except that the thickness "T" shall be 1/4" greater in each case.



TYPE B FLANGE CONNECTION
FABRICATED
 Not to Scale

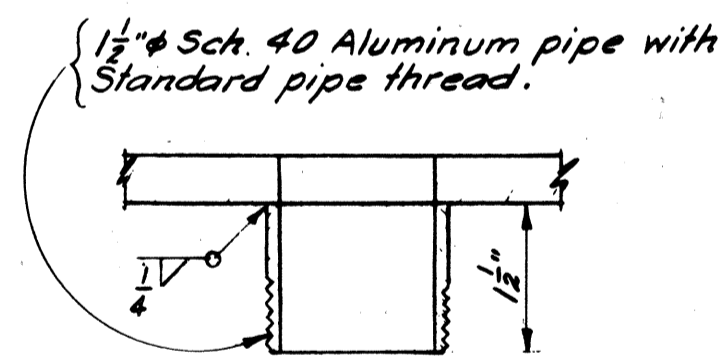


TYPE B FLANGE CONNECTION
CAST
 Not to Scale

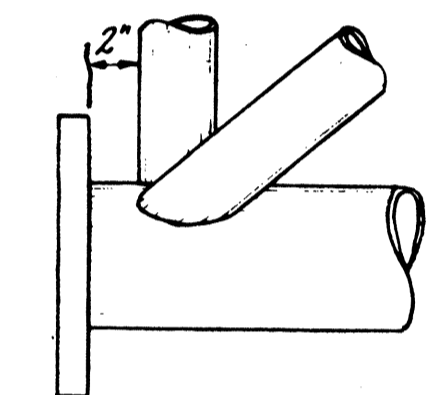
	CHORD SIZE	FLANGE			BOLT DIA.	BOLT CIRCLE	BOLT TORQUE FT. LBS.
		A	O.D.	T			
FABRICATED FLANGE	5" x 1/2"	3/8"	10 1/2"	1"	3/4"	8"	75
	6" x 1/2"	3/8"	11 1/2"	1 1/4"	3/4"	9"	75
	8" x 1/2"	3/8"	13 1/2"	1 1/4"	3/4"	11"	75
	8" x 3/8"	1/2"	13 1/2"	1 1/4"	1"	11"	100
CAST FLANGE	5" x 3/4"	3/8"	13 1/2"	1 1/4"	1"	11"	150
	5" x 1/2"	1/2"	13"	1 1/4"	3/4"	10"	100
	6" x 1/2"	1/2"	14"	1 1/2"	3/4"	11"	100
	8" x 1/2"	1/2"	16"	1 1/2"	3/4"	13"	100
CAST FLANGE	8" x 3/8"	3/8"	16"	1 1/2"	1"	13"	150
	8" x 3/4"	3/4"	16"	1 1/2"	1"	13"	200

NOTE A:

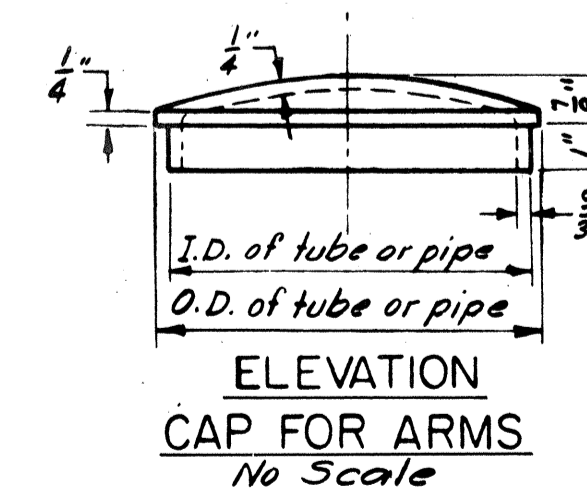
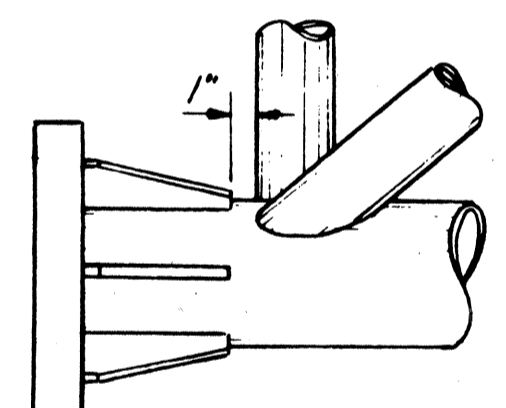
Stainless steel bolts shall conform to the Standard Specification for Alloy-Steel Bolting Materials for High-Temperature Service, ASTM Designation A193, current edition, Type B6 (AISI Type 410 with a minimum yield of 85000 psi). Nuts shall conform to the Standard Specification for Carbon and Alloy Steel Nuts for High-Pressure and High-Temperature Service, ASTM Designation A194, current edition, Type 6 (AISI Type 416). Flat washers and lock washers shall conform to the Standard Specification for Corrosion-Resisting Chromium-Nickel Steel Plate, Sheet and Strip, ASTM Designation A167, current edition, Type 304. After heat treatment all stainless steel hardware must be descaled and cleaned to conform to ASTM Designation A380-57, Descaling and Cleaning Stainless Steel Surfaces, and then passivated.



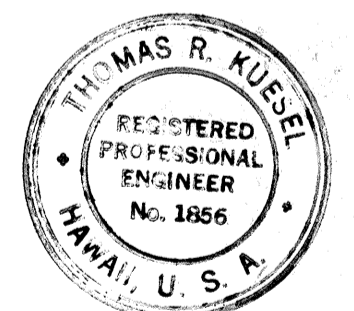
WIRE INLET DETAIL FOR
 TRUSS OR CHORD
 Scale: Half Size



TYPICAL CONNECTION
 AT FLANGE
 Not to Scale



ELEVATION
 CAP FOR ARMS
 No Scale



THIS WORK WAS PREPARED BY
 ME OR UNDER MY SUPERVISION

Thomas R. Kiesel

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

FLANGE CONNECTIONS
 INTERSTATE ROUTE H-1
 PROJECT NO I-HI-1(90):13

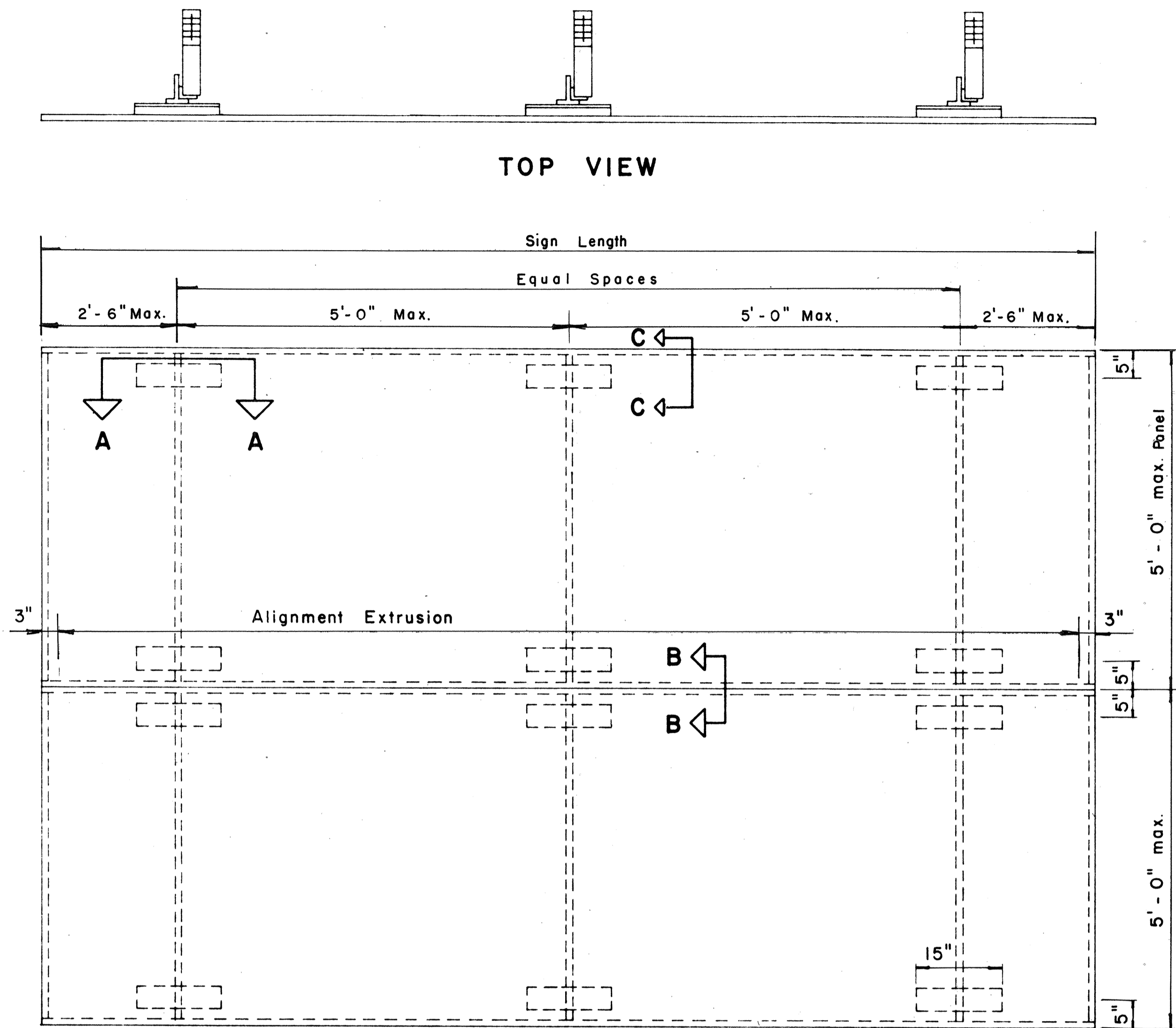
SCALE: AS SHOWN DATE: DEC. 24, 1970

SHEET No. 97 OF 18 SHEETS

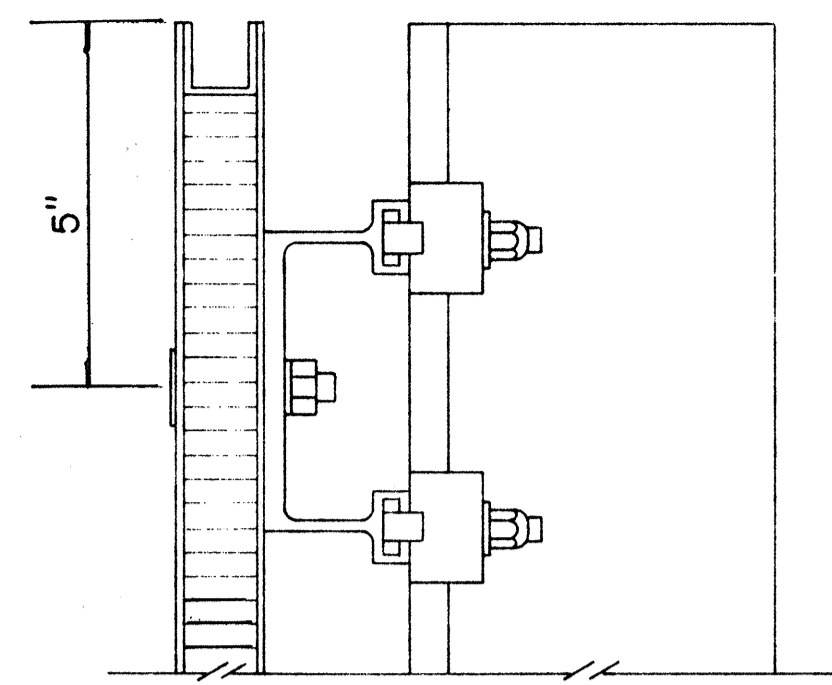
SD

DATE	2-17-70
DESIGNED BY	J. H. HANCOCK
CHECKED BY	J. H. HANCOCK
DRIVEN BY	
NOTED BY	
ORIGINAL PLAN	
NO. BOOK	

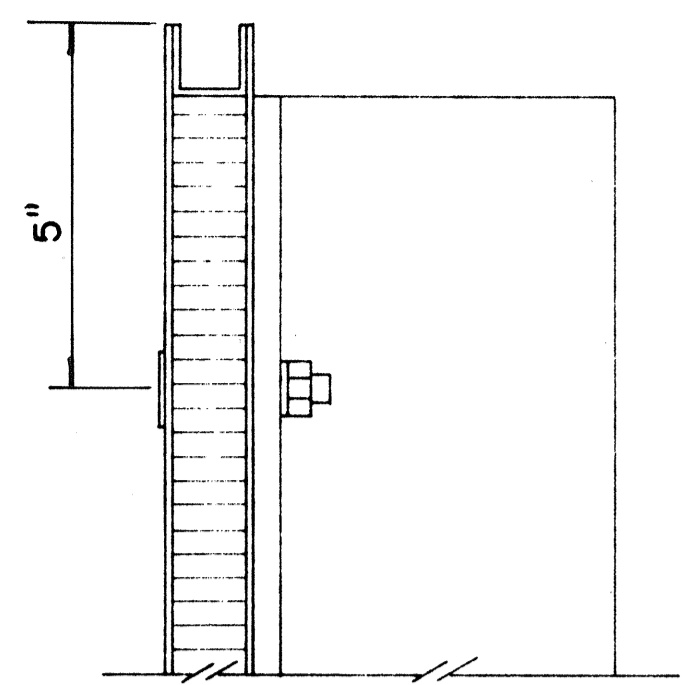
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	EHI-1(00)13	1972	8	202



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

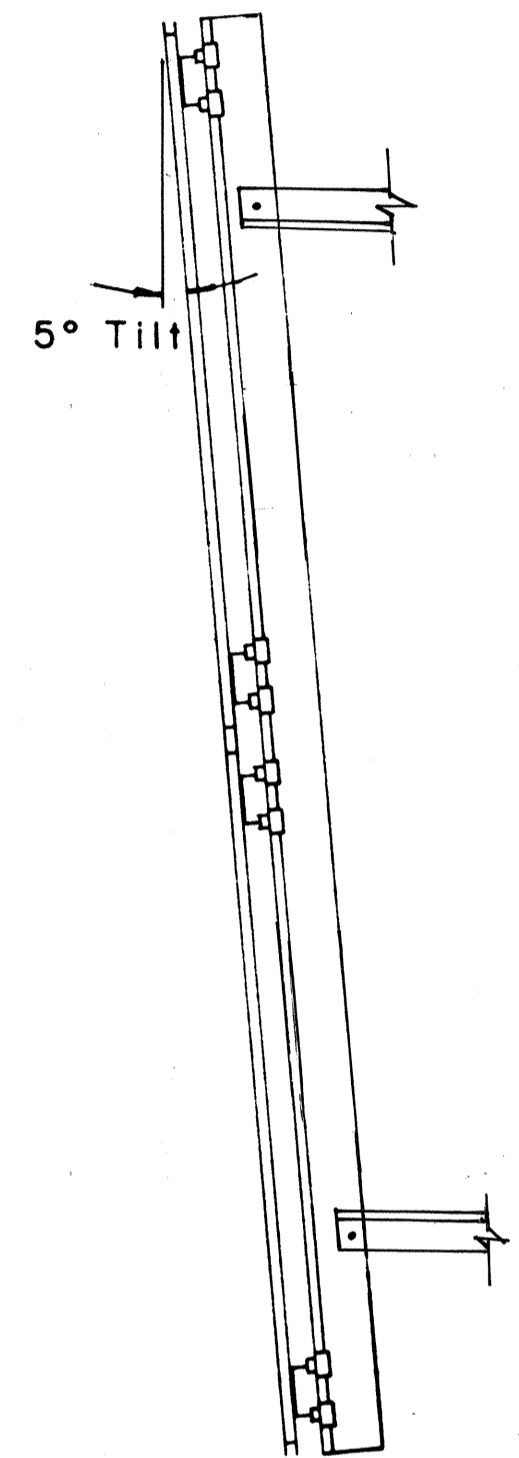


SECTION "C-C"
 Scale: $\frac{3}{8}'' = 1''$

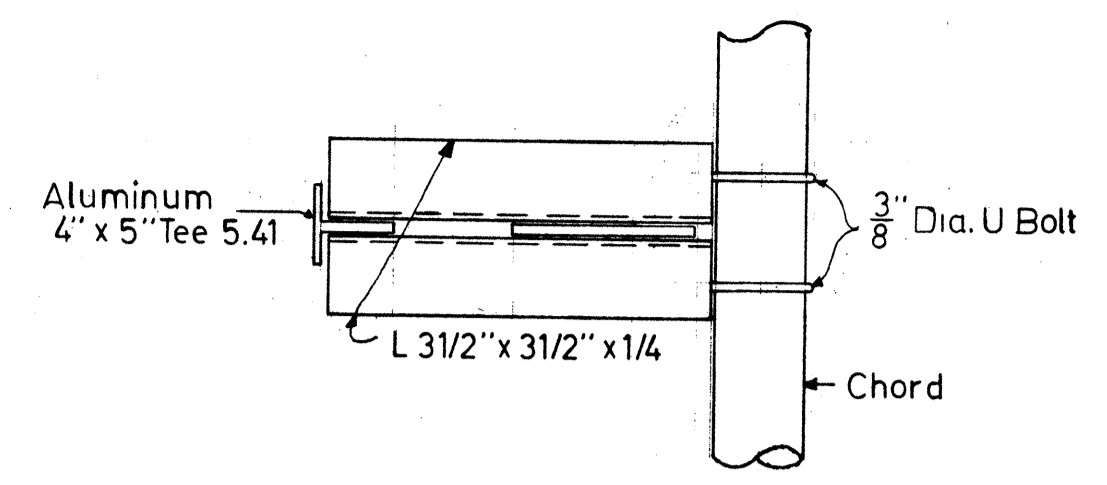


SECTION "C-C" (Alternate)
 Scale: $\frac{3}{8}'' = 1''$

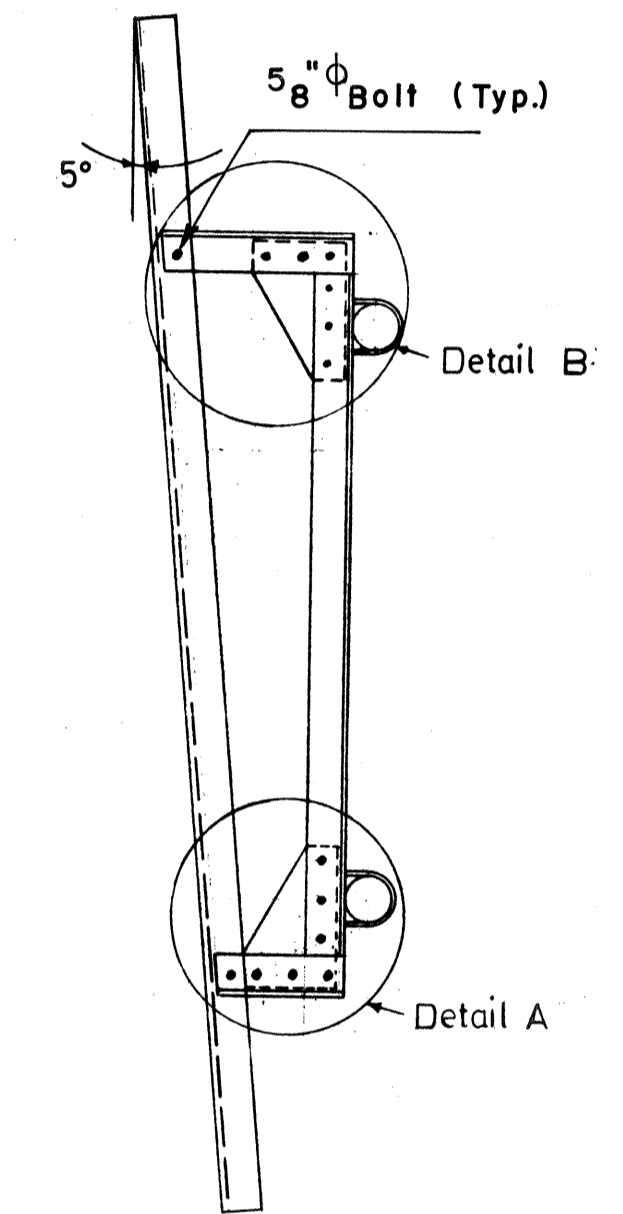
NOTE: $\frac{3}{8}$ " Dia. "U" Bolts to be Stainless Steel with hex nuts and washers.
 $\frac{5}{8}$ " Bolts to be Stainless Steel with Nuts and Lock Washers.



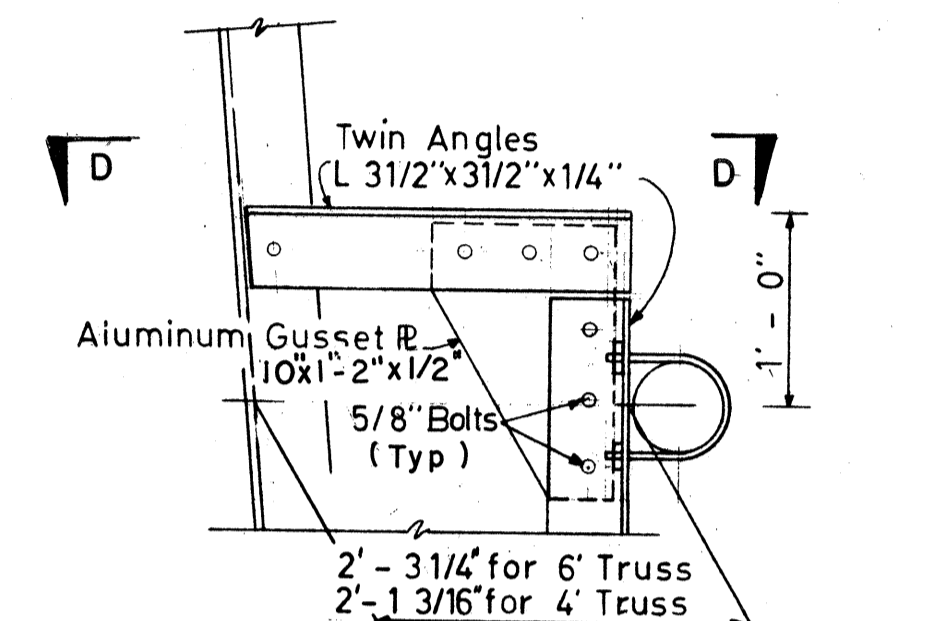
SIDE VIEW



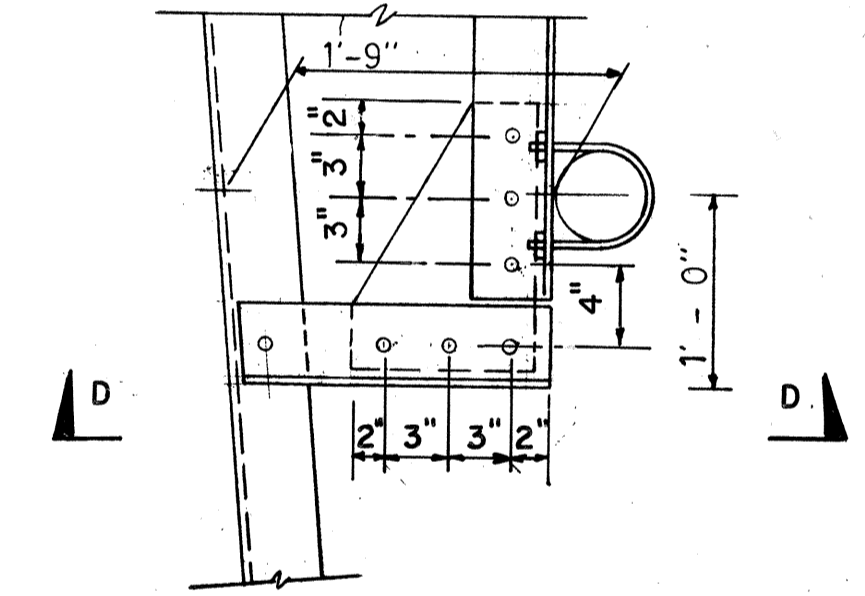
SECTION D-D
 Scale: 1" = 1' - 0"



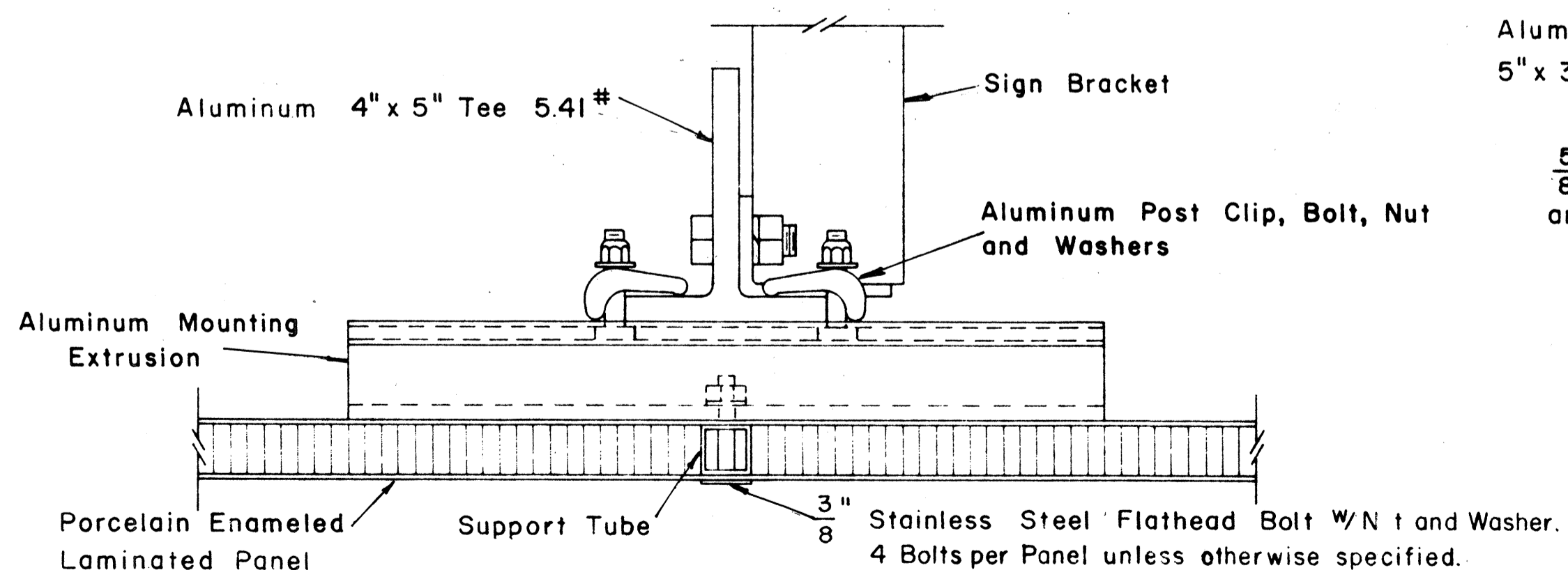
FRONT MOUNTING
 Scale: $\frac{1}{2}'' = 1' - 0''$



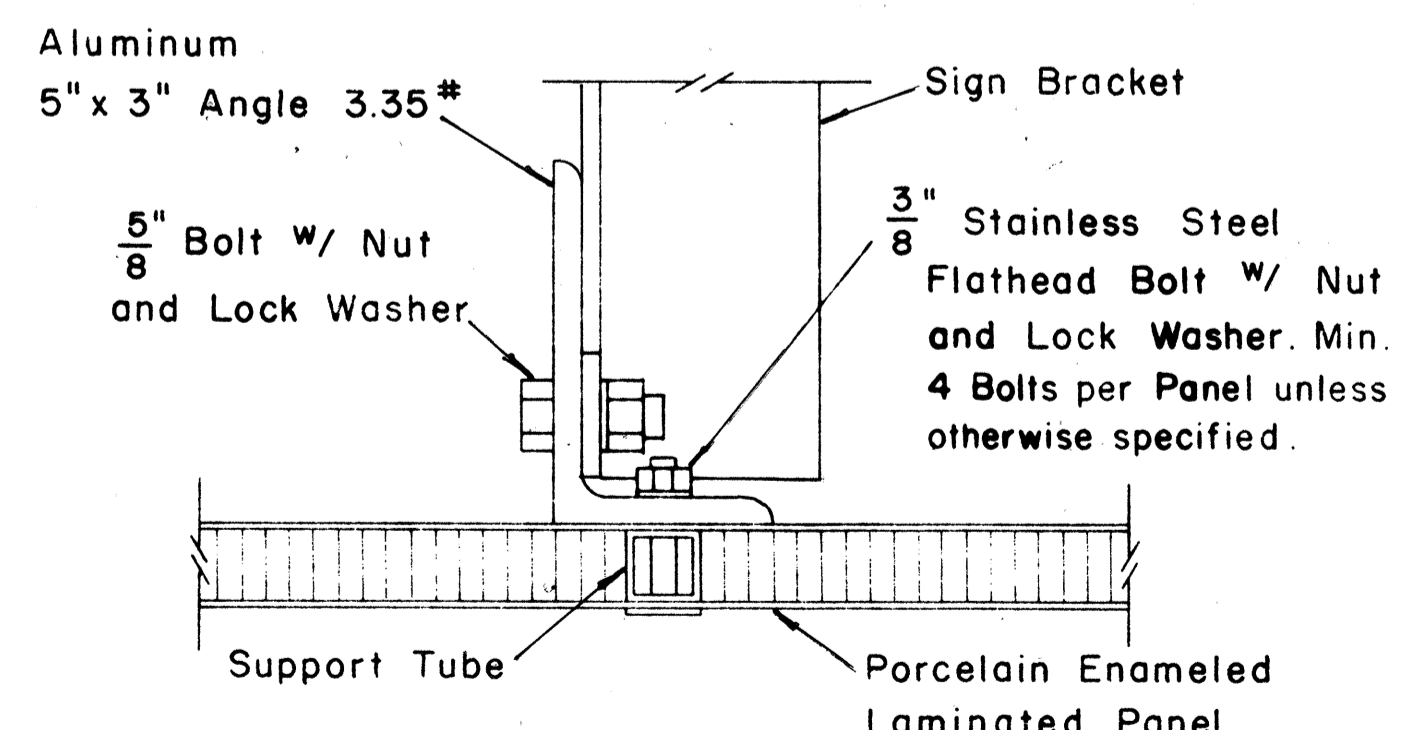
DETAIL B
 Not to Scale



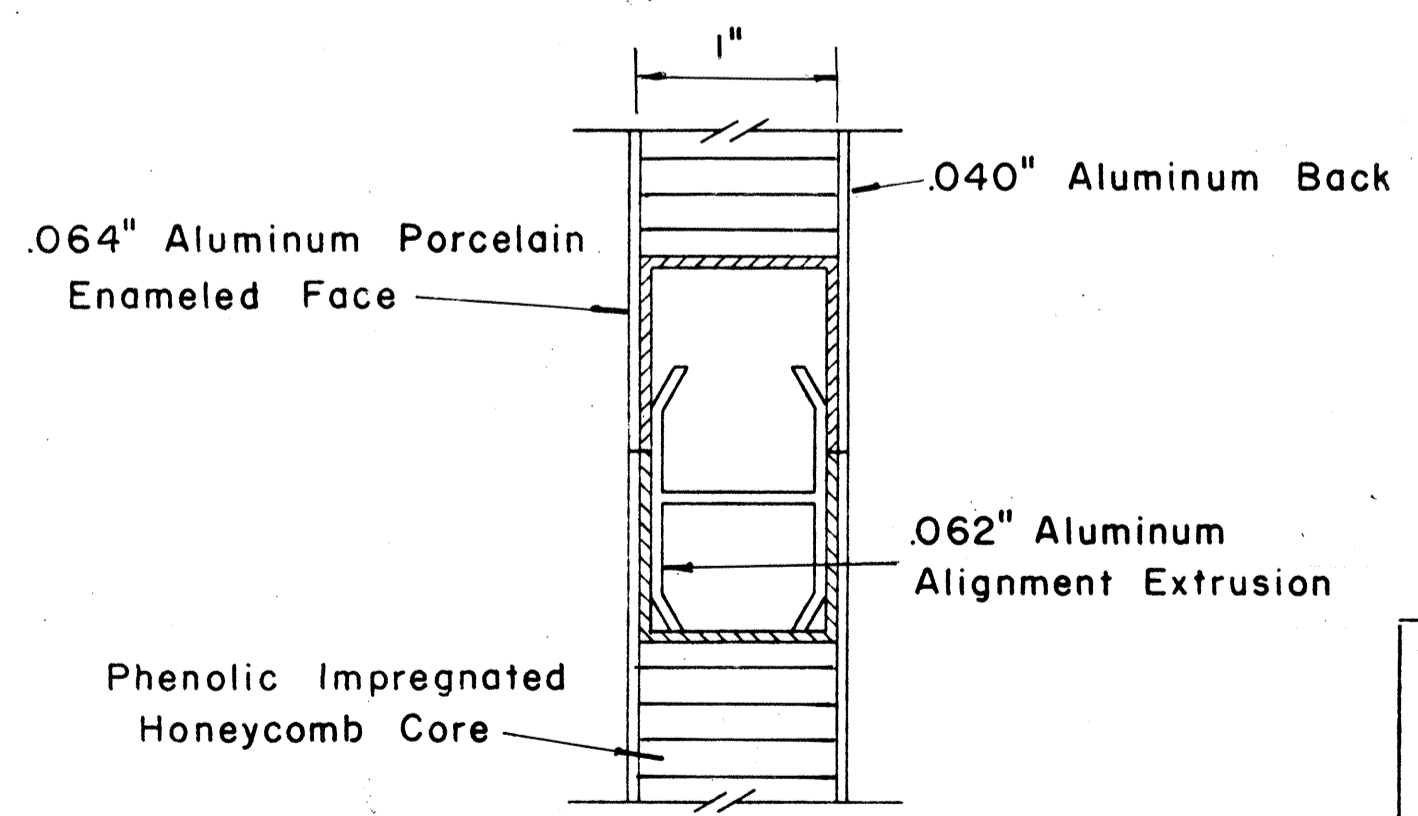
DETAIL A
 Not to Scale



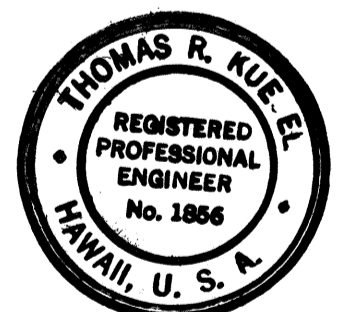
SECTION "A-A"
 Scale: $\frac{3}{8}'' = 1''$



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



CLOSURE DETAIL SECTION "B-B"
 FULL SCALE



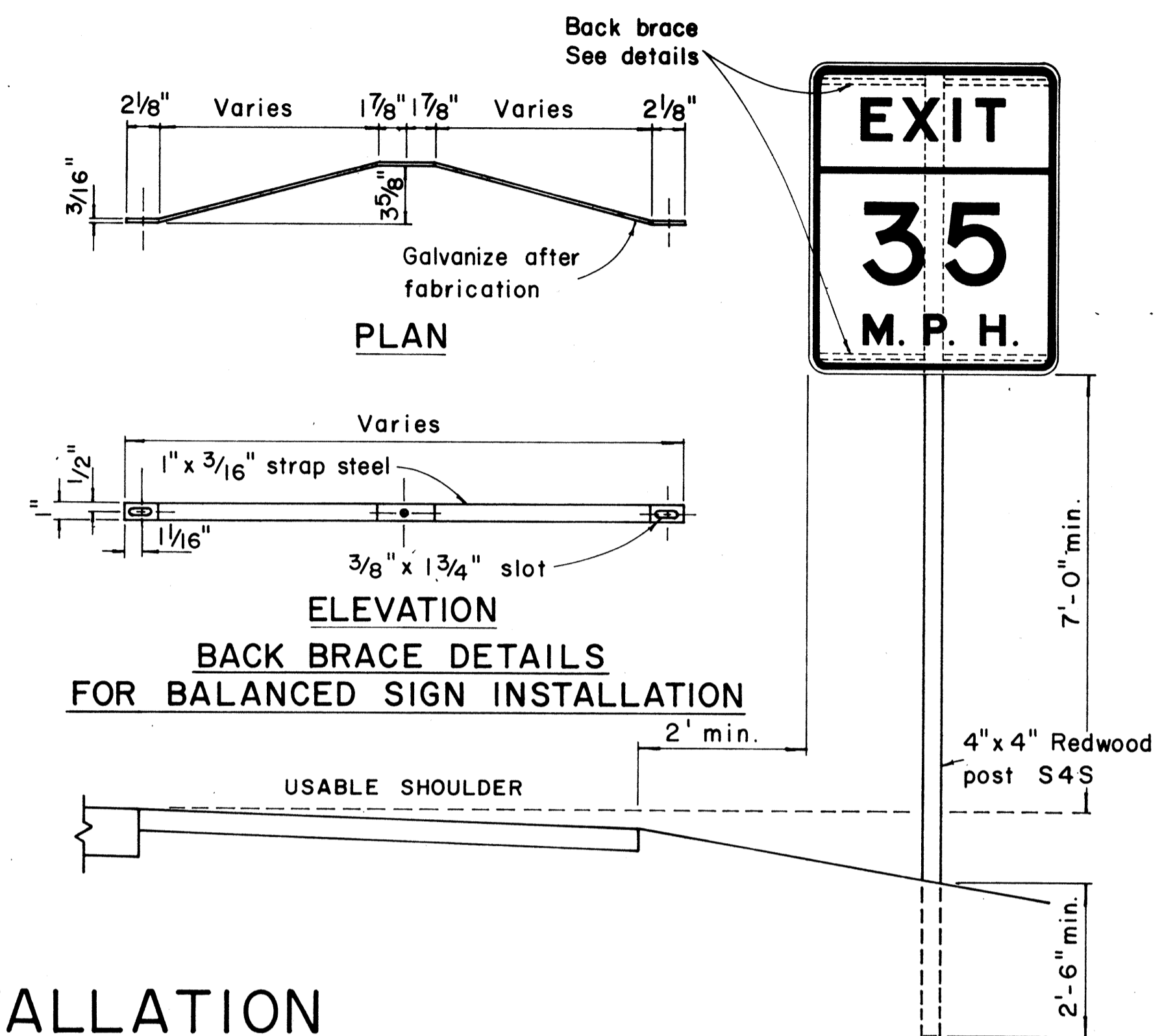
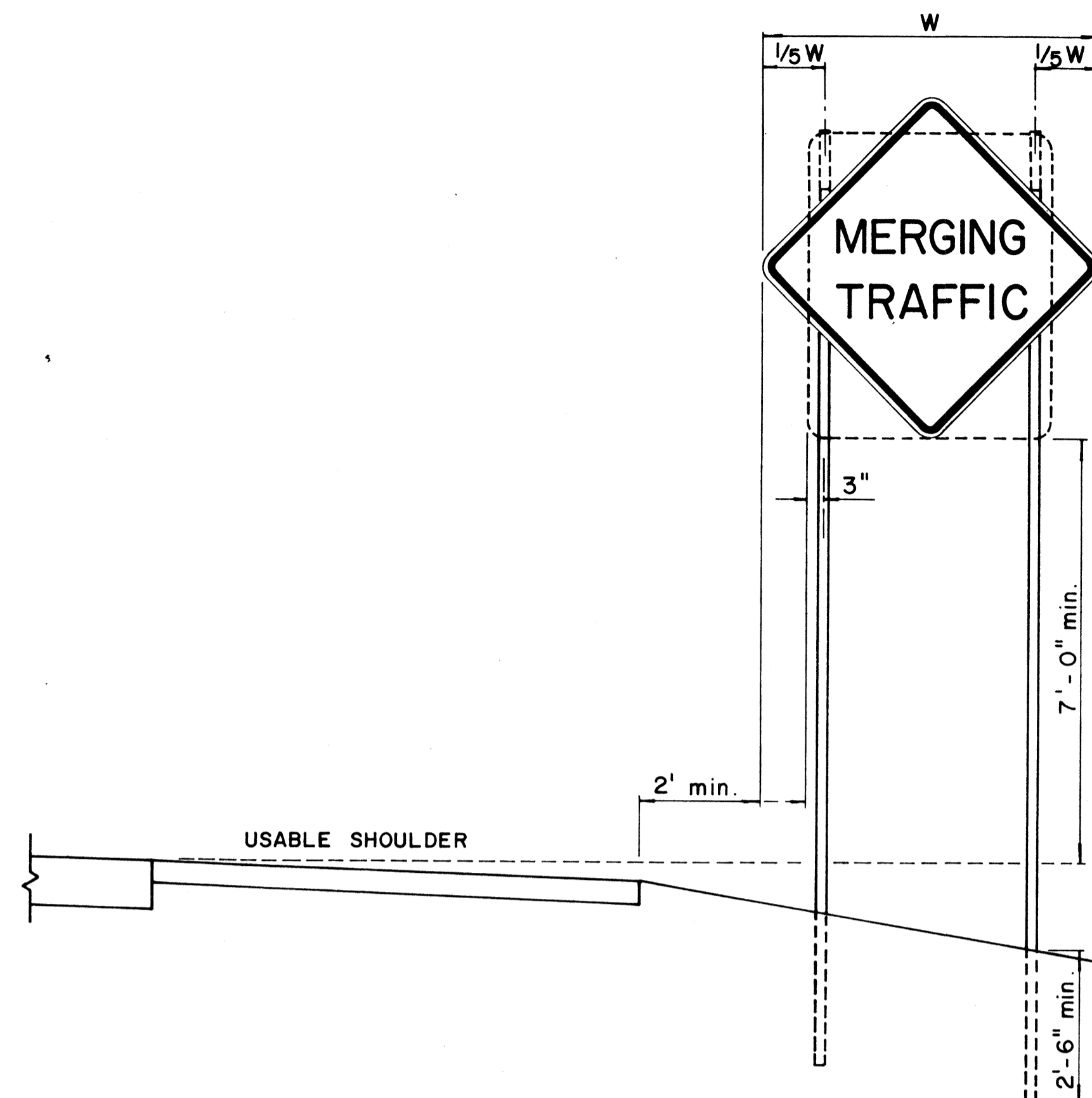
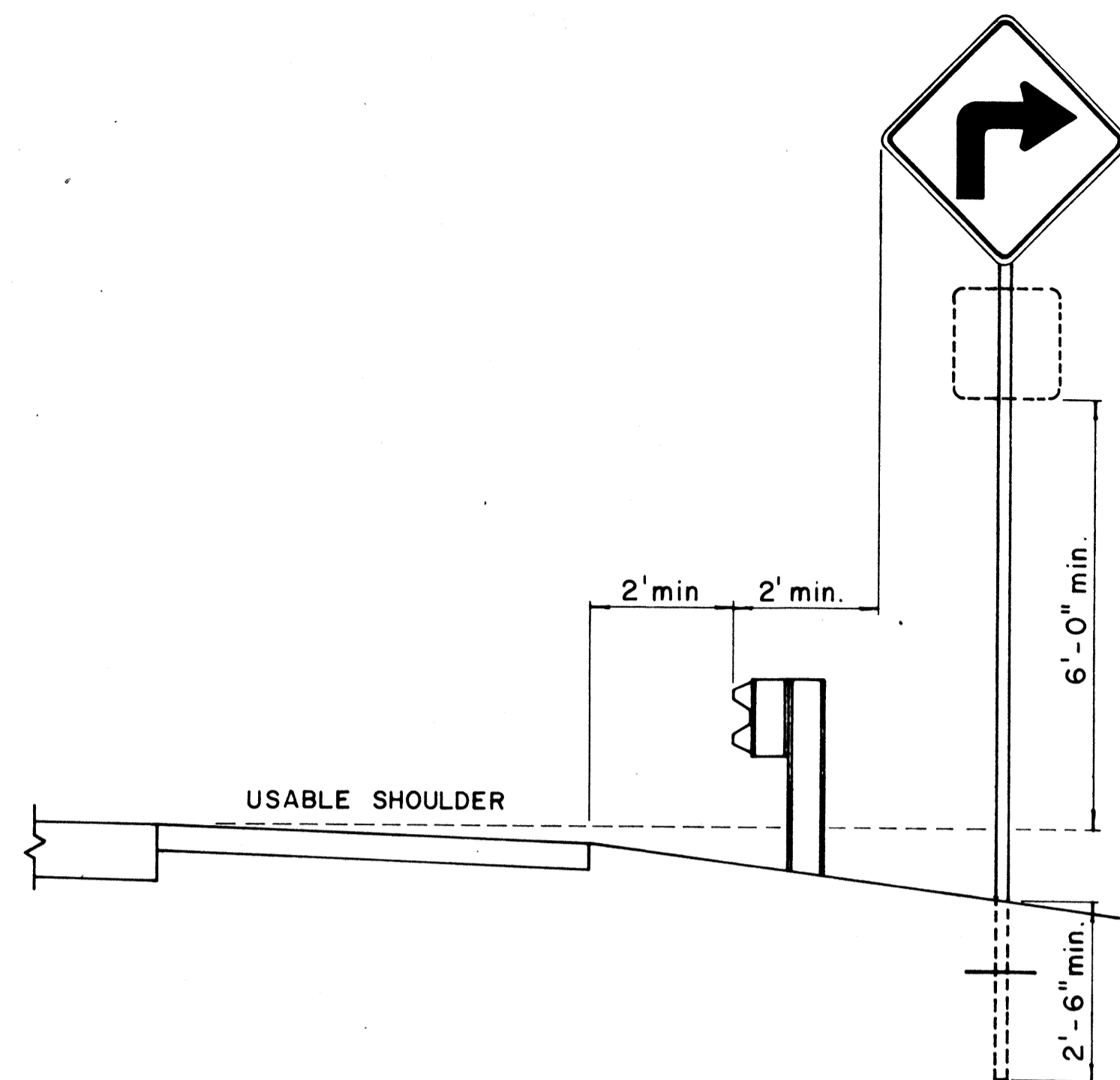
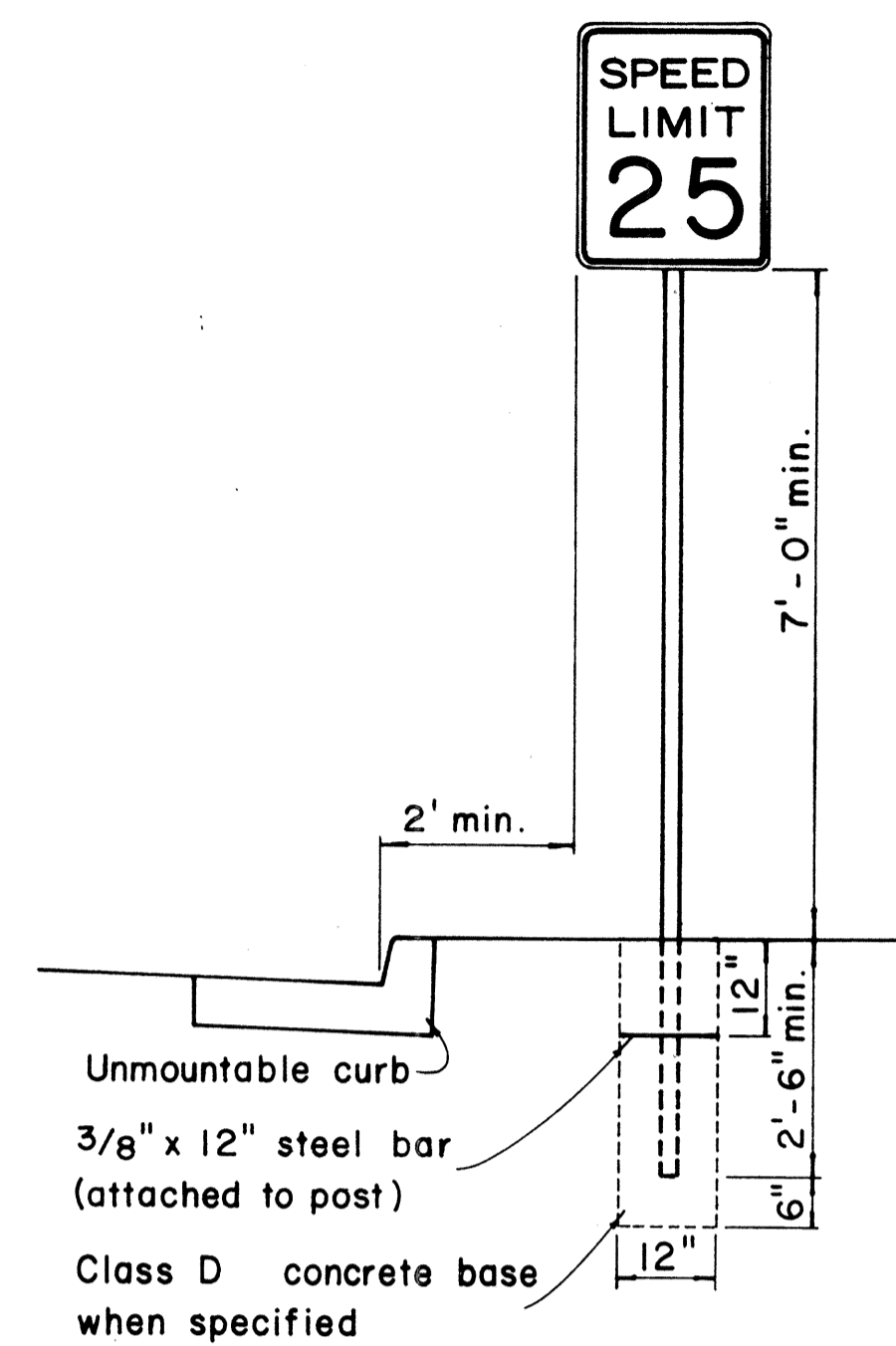
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Thomas R. Kuehl

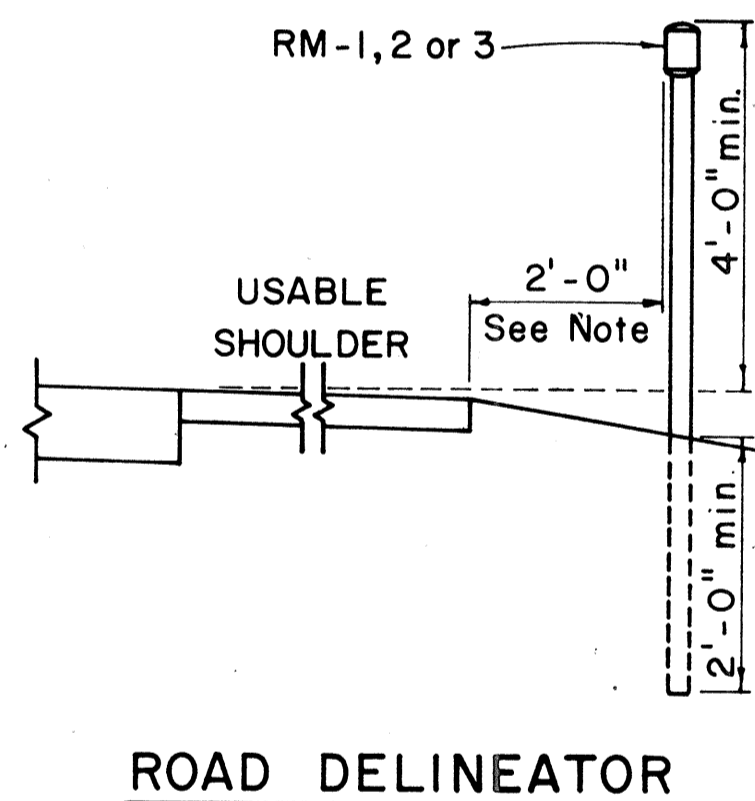
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
DETAILS
 LAMINATED ALUMINUM
 SIGN PANELS
 (OVERHEAD)
 Scale: As Shown
 SHEET No. 107 OF 18 SHEETS

DATE: 9-17-70
 CHECKED BY: J. H. HANSEN
 DESIGNED BY: M. S. K. S. K.
 TRACED BY: M. S. K. S. K.
 DRAWN BY: M. S. K. S. K.
 SUBMITTED BY: M. S. K. S. K.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-100-13	1972	82	202

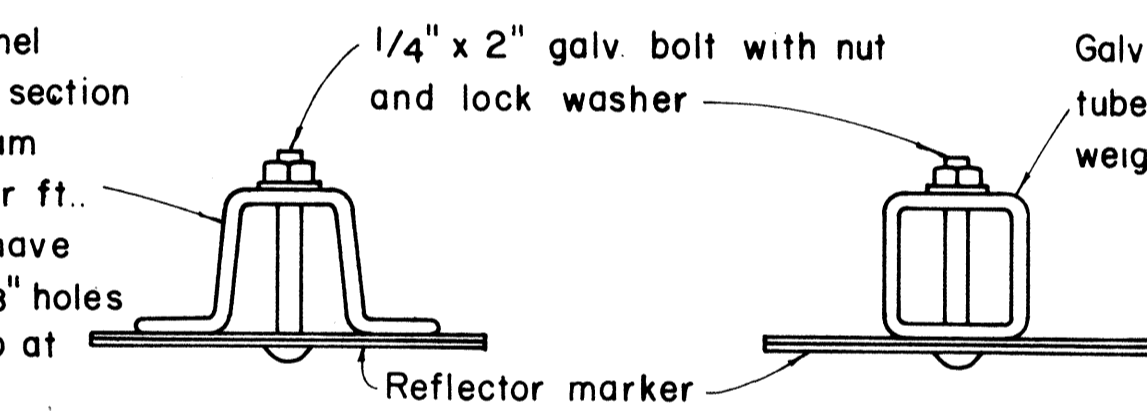


HEIGHT AND LATERAL LOCATION OF SIGNS - TYPICAL INSTALLATION



Galv. flanged channel $1/8" \times 3/16"$ rolled section post with a minimum weight of 2 lbs. per ft. Upper 2 ft. shall have a single row of $3/8"$ holes centered in the web at 1" o.c.

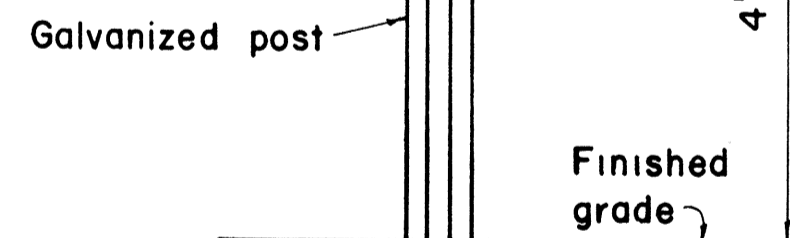
TYPICAL SECTION OF ROAD DELINEATOR



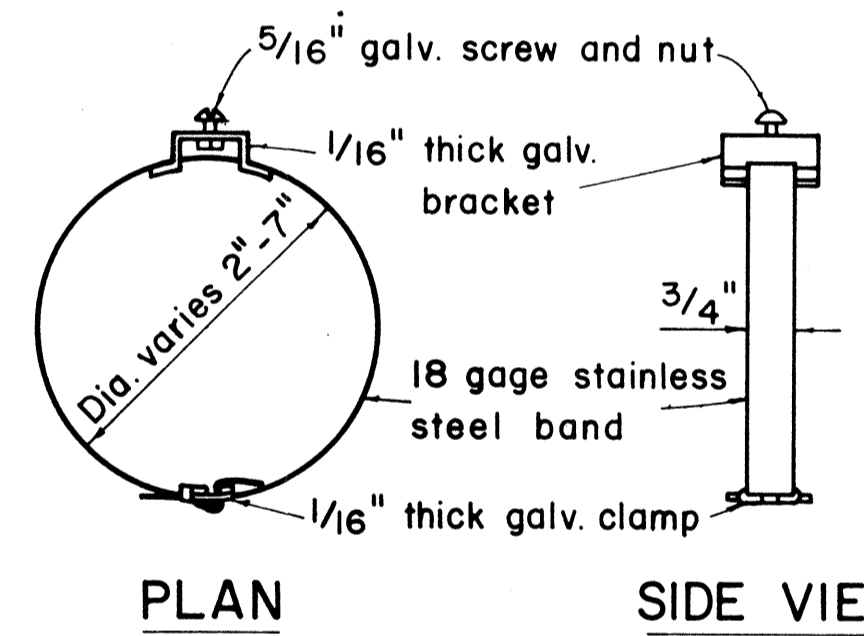
Galv. $1/2" \times 1/2"$ square tube post with a minimum weight of 1.7 lbs per ft

$1/4" \times 1/2"$ galv. bolt with nut and lock washer

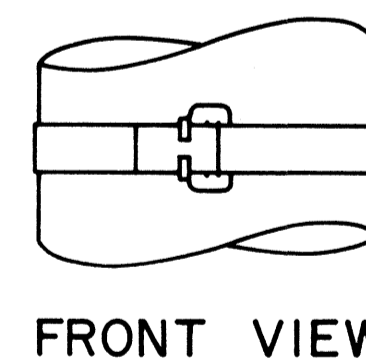
$1'-5" \times 6" \times 0.063"$ anodized aluminum plate with $3/8"$ holes drilled as shown



TYPICAL DETAIL HORIZONTAL REFLECTOR MARKER RM-3H



PLAN SIDE VIEW



FRONT VIEW

GENERAL NOTES:

- Sign posts shall be 2" galv. standard pipe or 2" x 2" galv. sq. tube post.
- Signs 48" and wider or larger than 10 sq. ft. in area shall be mounted on two 2" galv. standard pipe or two 2" x 2" galv. sq. tube post or 4" x 4" redwood post S4S.
- Signs shall be attached to post with $5/16"$ galv. bolts with nuts and $7/8"$ x 0.06 stainless steel washers with neoprene rubber gasket.
- Sign posts shall extend $3 1/2"$ above sign where required for City and County street name signs.
- Reflector markers RM-1, 2, 3 shall be glass sphere reflector markers with 4" x 5" reflector units (as shown) or plastic prismatic reflector markers with 3" diameter reflector units.
- Clearance markers (RM-3, RM-4) shall be installed with the edge of the marker in line with the inner edge of the obstruction.
- (R) or (L) indicates right or left and shall be as shown on the plans.

APPROVAL RECOMMENDED:

Etschi Tanaka 12/22/69
TRAFFIC ENGINEER DATE

APPROVED:

[Signature] 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

TYPICAL BAND BRACKET FOR MOUNTING TRAFFIC SIGNS

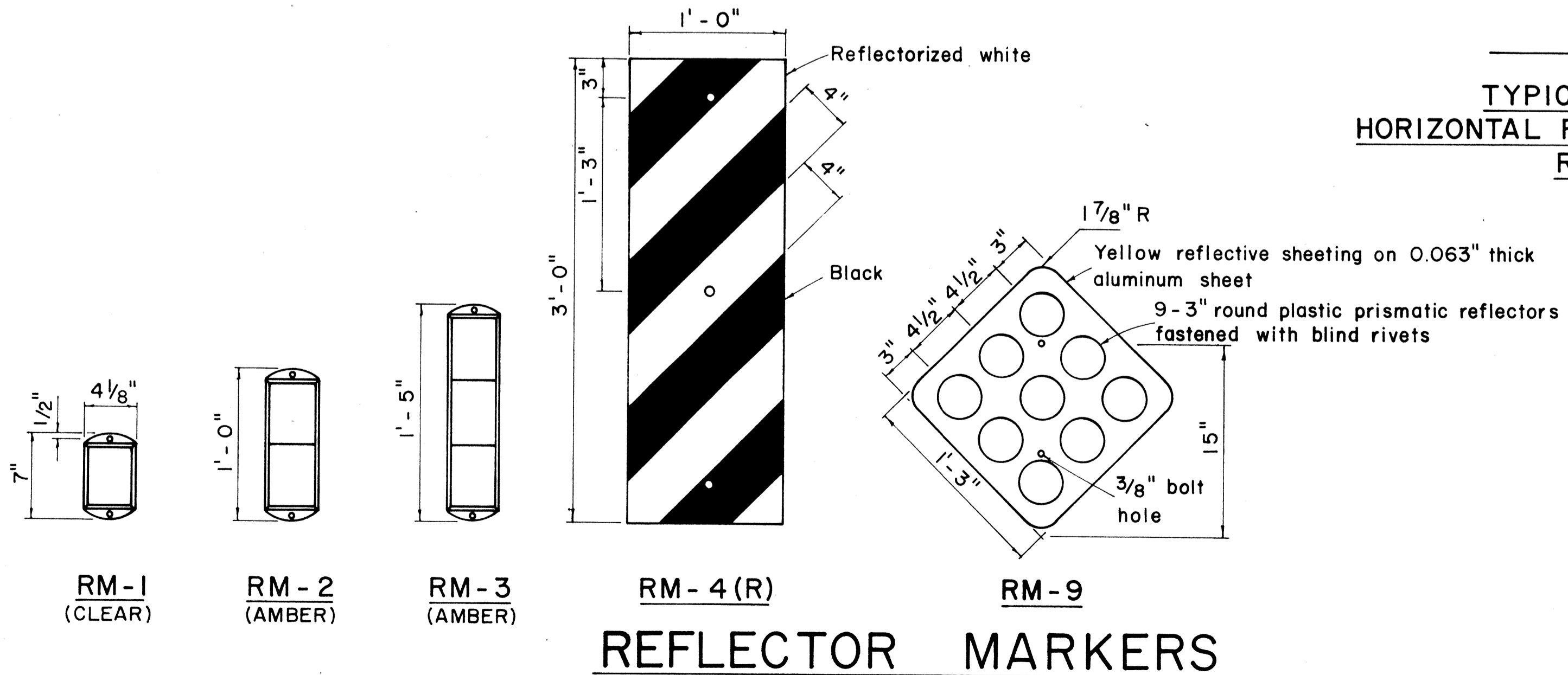
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
MISCELLANEOUS SIGN DETAILS

Not to scale March, 1968


SHEET No. 117 OF 118 SHEETS DT 100



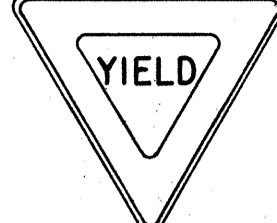
REFLECTOR MARKERS

DATE	
ORIGINAL PLAN	
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
NO.	


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(20)B	1972	83	202



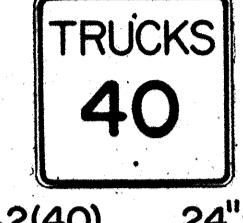
R1-1 30" x 30"
R1-1-A 36" x 36"
4-WAY
R1-3 12" x 6"
R1-3-A 18" x 9"



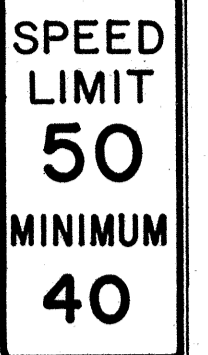
R1-2 36" x 36" x 36"
R1-2-A 48" x 48" x 48"



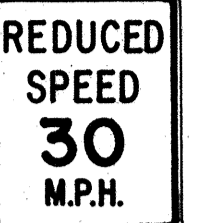
R2-1(50) 24" x 30"
R2-1(50)-A 48" x 60"




R2-2(40) 24" x 24"
R2-2(40)-A 48" x 48"




R2-4a(50/40) 24" x 48"
R2-4a(50/40)-A 48" x 96"




R2-5b(30) 24" x 30"
R2-5b(30)-A 48" x 60"



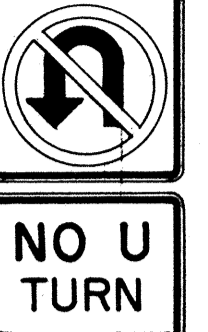
R3-1 24" x 24"
24" x 18"
R3-1-A 48" x 48"
48" x 36"




R3-2 24" x 24"
24" x 18"
R3-2-A 48" x 48"
48" x 36"



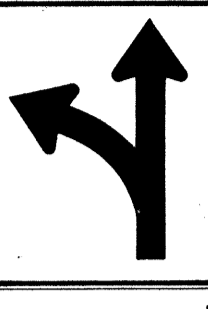
R3-3 24" x 24"
R3-3-A 48" x 48"



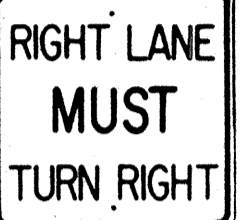
R3-4 24" x 24"
24" x 18"
R3-4-A 48" x 48"
48" x 36"




R3-5(L) 30" x 36"
R3-5(L)-A 48" x 60"



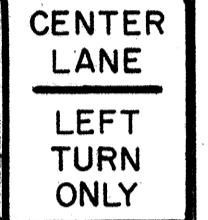
R3-6(L) 30" x 36"
R3-6(L)-A 48" x 60"



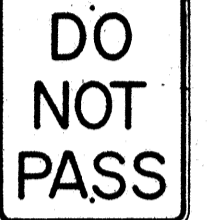
R3-7(R) 30" x 30"
R3-7(R)-A 48" x 48"




R3-8(L) 30" x 30"
R3-8(L)-A 36" x 36"
R3-8(L)-B 48" x 48"



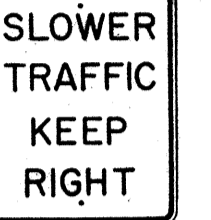
R3-9 24" x 30"



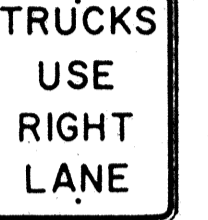
R4-1 24" x 30"



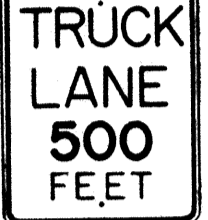
R4-2 24" x 30"



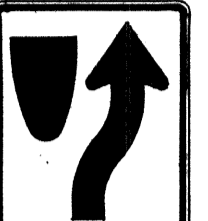
R4-3 24" x 30"
R4-3-A 48" x 60"



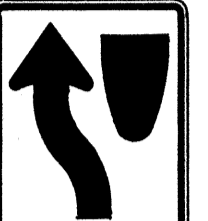
R4-5 24" x 30"




R4-6(500) 24" x 30"



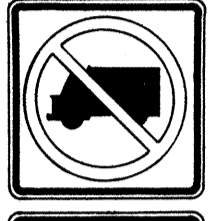
R4-7 24" x 30"
24" x 18"



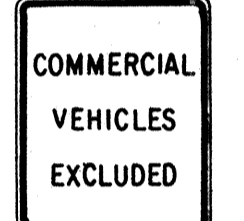
R4-8 24" x 30"
24" x 18"




R5-1 30" x 30"
R5-1-A 48" x 48"




R5-2 24" x 24"
24" x 18"




R5-4 24" x 30"




R5-6 24" x 24"
24" x 18"




R5-9 36" x 24"



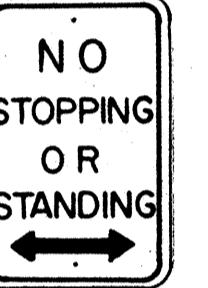
R6-1(R) 36" x 12"




R6-2(R) 18" x 24"



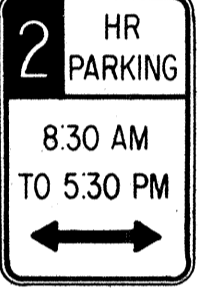
R7-1 12" x 18"
R7-1-A 24" x 30"




R7-4 12" x 18"
R7-4-A 24" x 30"



R7-107(R) 12" x 18"




R7-108 12" x 18"




R7-201 12" x 6"
R7-201-A 24" x 12"



R8-1 24" x 30"




R8-2 24" x 30"




R8-3 24" x 30"



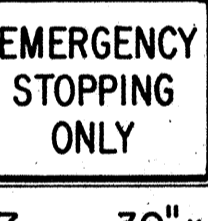
R8-4 30" x 24"
R8-4-A 48" x 36"



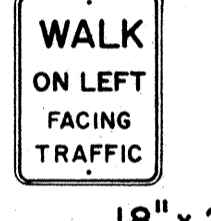
R8-5 24" x 30"



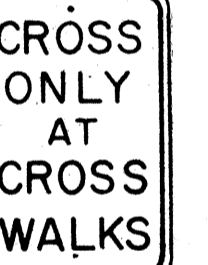
R8-6 24" x 30"




R8-7 30" x 24"
R8-7-A 48" x 36"




R9-1 18" x 24"



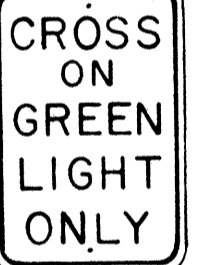
R9-2 12" x 18"




R9-3 12" x 18"



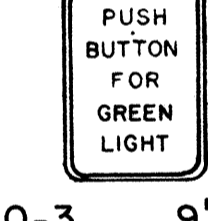
R9-4 18" x 24"




R10-1 12" x 18"




R10-2 12" x 18"




R10-3 9" x 12"



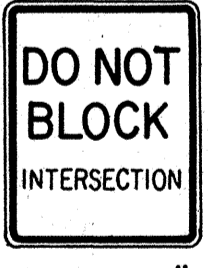
R10-4 9" x 12"




R10-5 24" x 30"



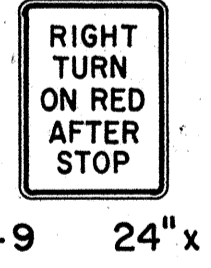
R10-6 24" x 36"




R10-7 24" x 30"




R10-8 24" x 30"




R10-9 24" x 30"



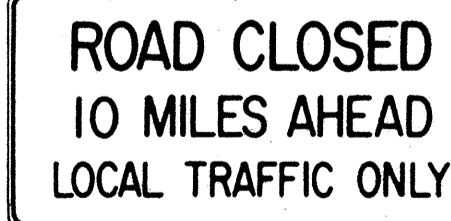
R10-10 24" x 30"



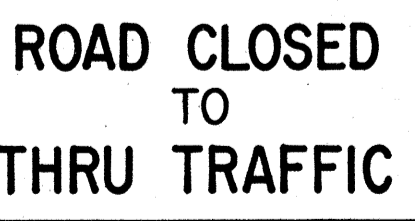
R11-1 24" x 30"



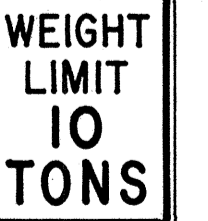
R11-2 48" x 30"



R11-3(10) 60" x 30"



R11-4 60" x 30"



R12-1(10) 24" x 30"

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."
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.

APPROVAL RECOMMENDED:
Eiichi Tanaka 3/17/72
TRAFFIC ENGINEER DATE

APPROVED:
Robert J. Davis 3-20-72
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 101 Approved 12-30-69	H.T.	3/20/72

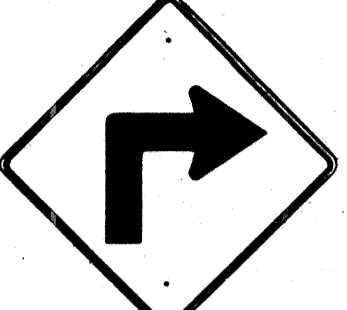

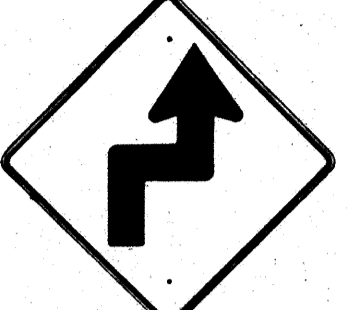
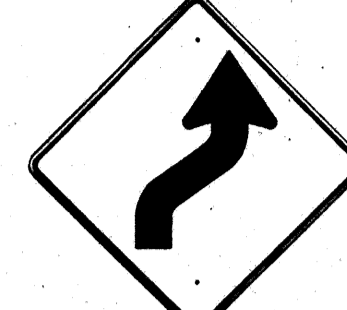
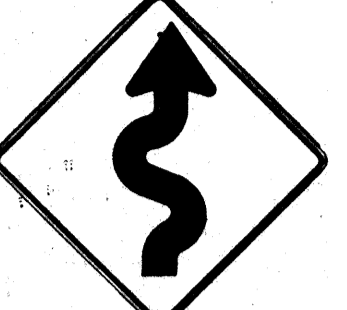
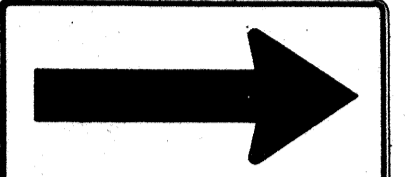
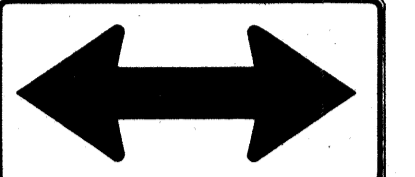
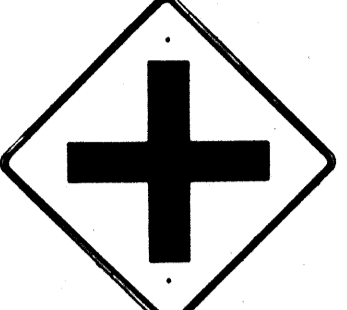
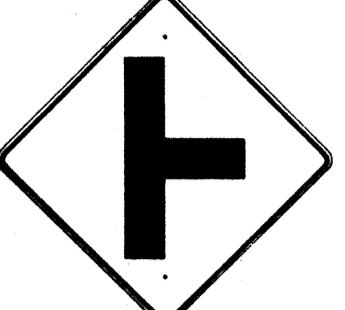
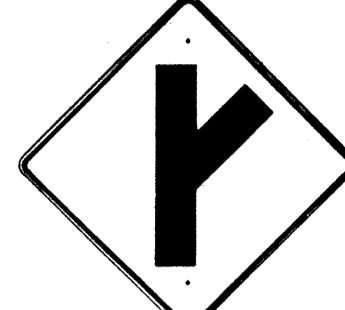
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

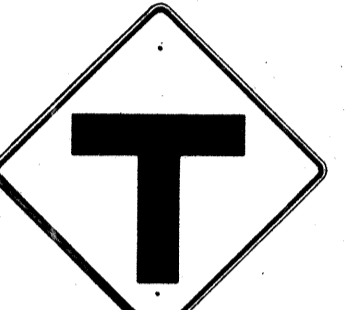



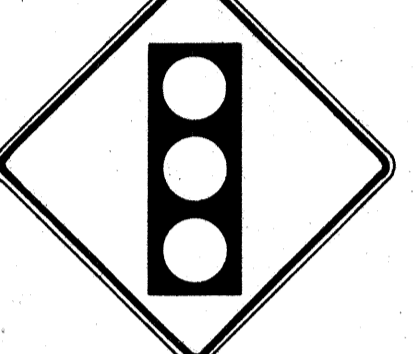

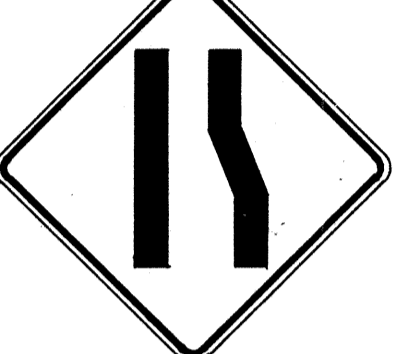



STANDARD DETAILS
REGULATORY SIGNS



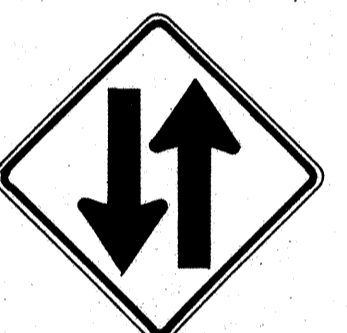







NOT TO SCALE
SHEET No. 127 OF 18 SHEETS DT 101








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

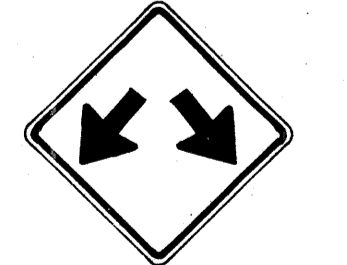


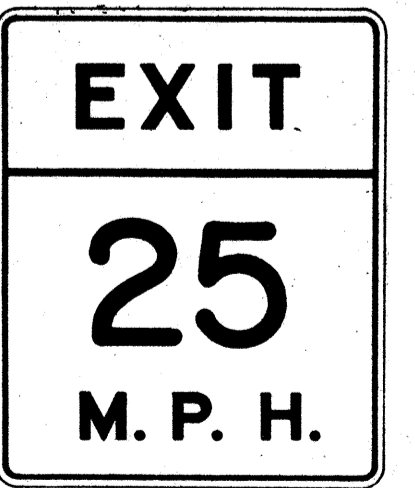
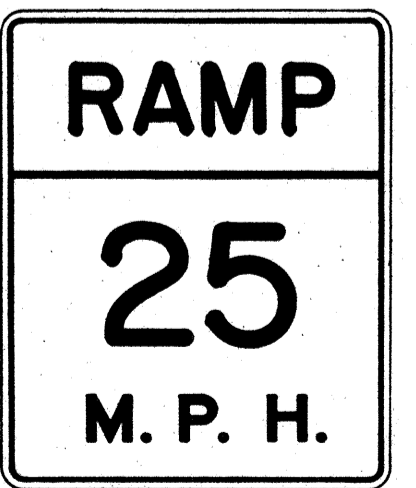


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(00)13	1972	84	202

 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"
--	---	--	---	---	---	---

 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"	 W13-2(25) 48"x60"	 W13-3(25) 48"x60"	 W14-1 30"x30"	 W14-3 36"x48"x48"
--	--	--	--	--	--	--

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."
- 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.

APPROVAL RECOMMENDED:
Erick Tamaka 3/17/72
TRAFFIC ENGINEER DATE

APPROVED:
Walter P. Sabin 3-20-72
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 102 Approved 12-30-69	H.C.	3/20/72

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

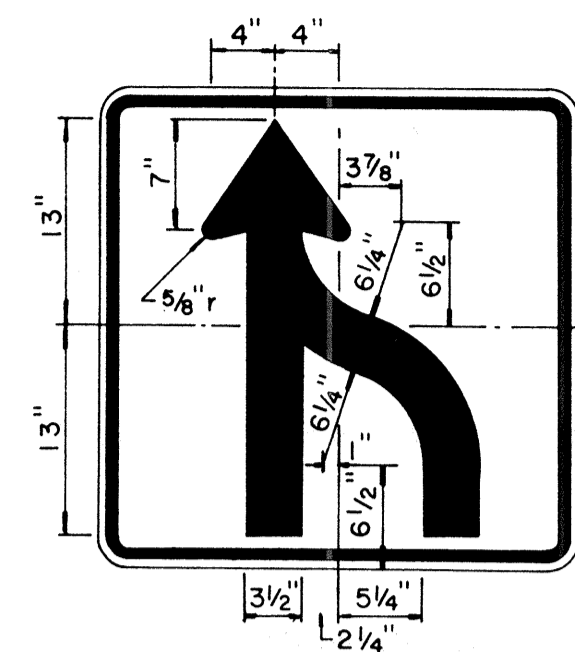
STANDARD DETAILS
WARNING SIGNS

NOT TO SCALE

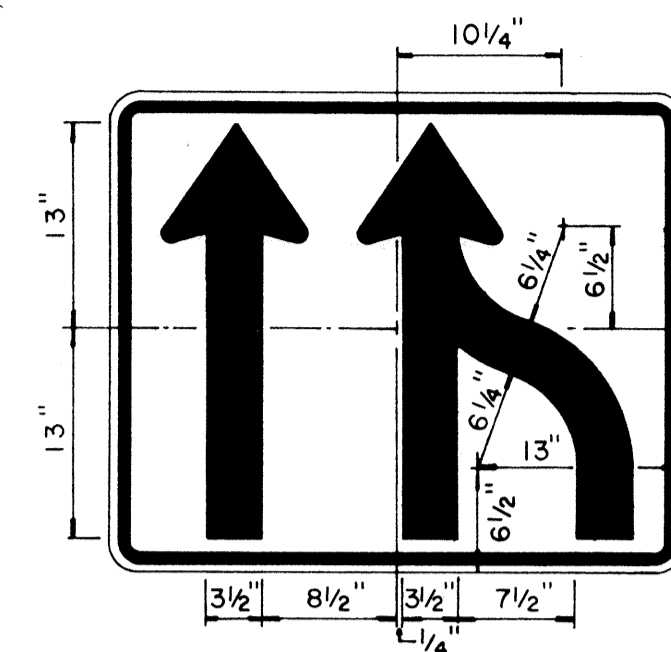
SHEET No. 137 OF 18 SHEETS DT 102

DATE _____
SURVEY PLOTTED BY _____
DRAWN BY _____
CHECKED BY _____
NOTE BOOK No. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	111(20)13	1972	85	202



R3-9 30" x 30"

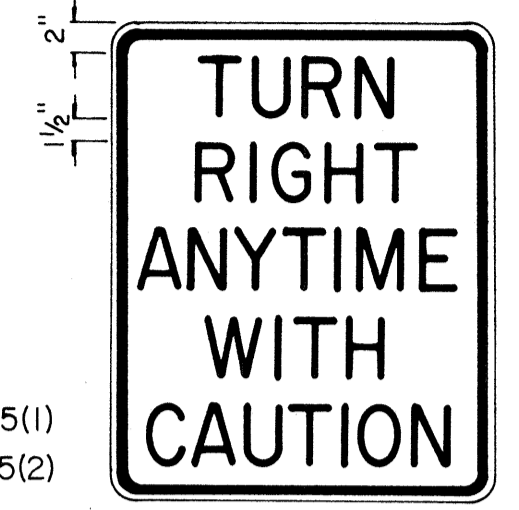


R3-10 36" x 30"

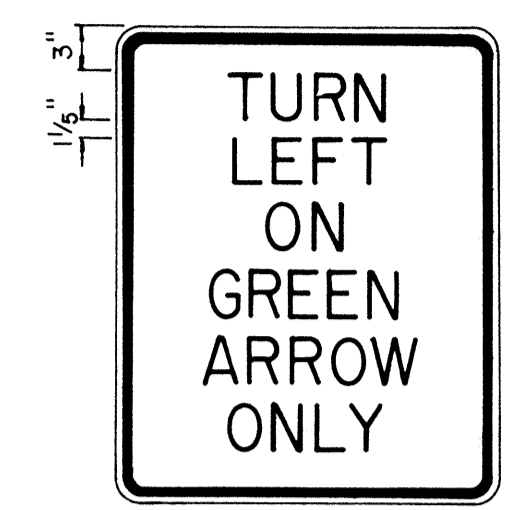


R5-5(1) 24" x 18"
R5-5(2) 36" x 24"

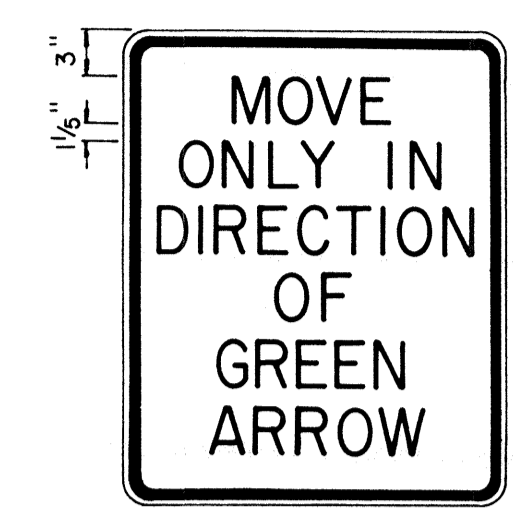
NOTE:
White legend and border
on Red background



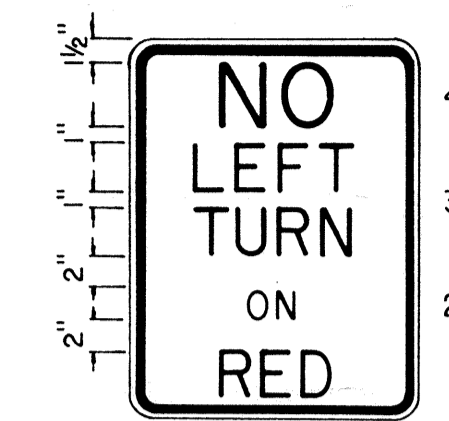
R15-1 24" x 30"



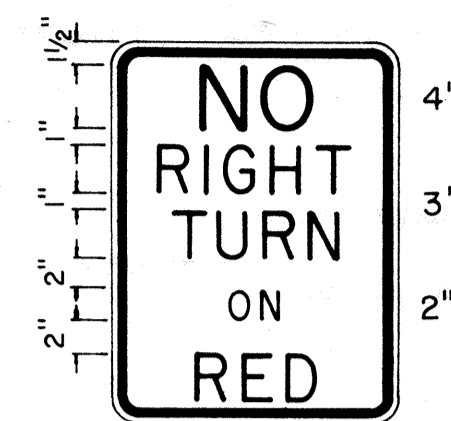
R16-1 24" x 30"



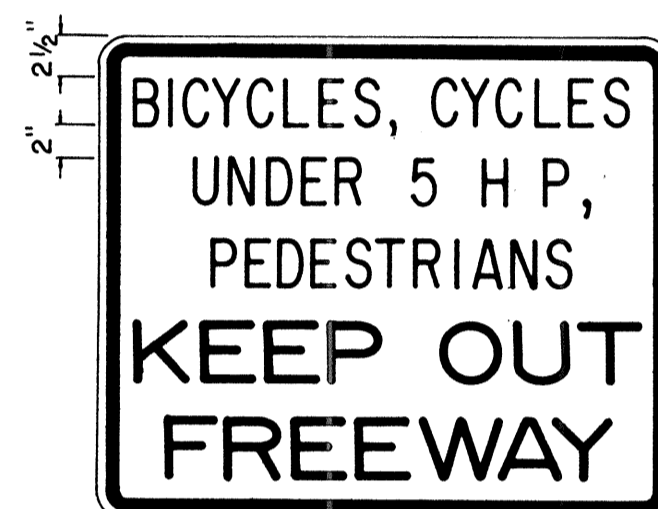
R16-2 24" x 30"



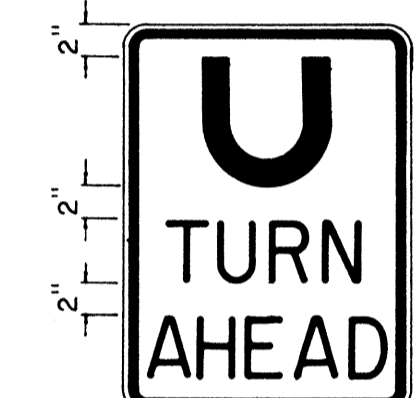
R17-1 18" x 24"



R17-2 18" x 24"



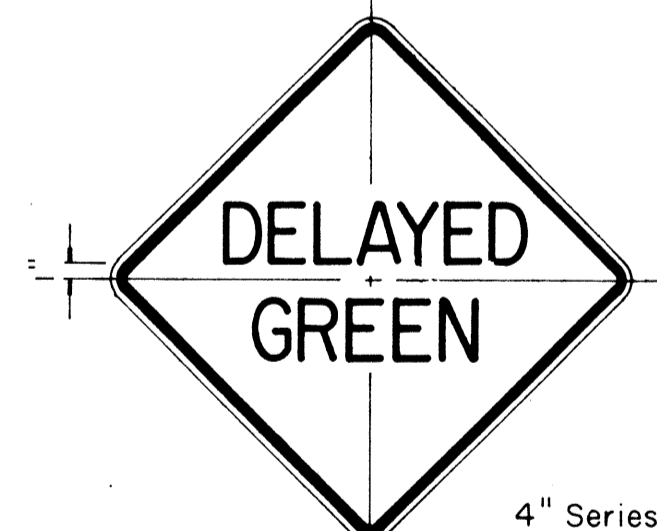
R18-1 36" x 30"



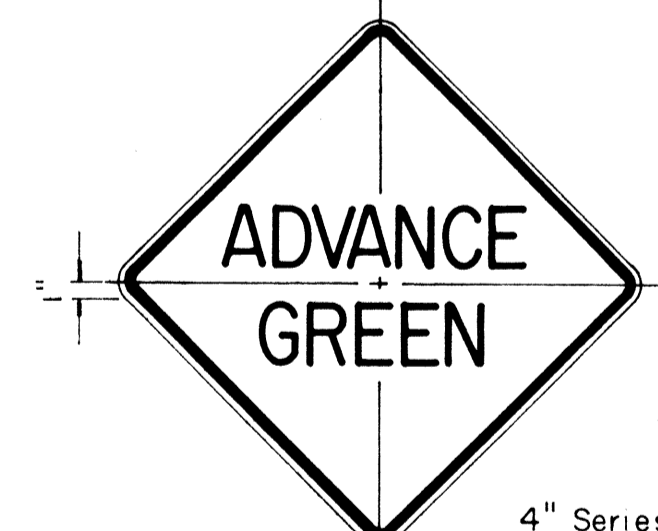
R19-1 18" x 24"



W13-4 24" x 24"



W15-1 24" x 24"



W15-2 24" x 24"

- NOTE:
- The shape, color, plate details, lettering and reflectorization of Regulatory signs (Prefix R) and Warning signs (Prefix W) shall be in accordance with the "Manual on Uniform Traffic Control Devices for Streets and Highways," dated June 1961 and the BPR manual "Standard Highway Signs," dated September 1961 unless otherwise specified.
 - All regulatory and warning signs shall be reflectorized unless otherwise specified.
 - All regulatory and warning signs shall have 3/8" bolt holes drilled at appropriate locations unless otherwise specified.

APPROVAL RECOMMENDED:
Eishi Tanaka 12/29/69
TRAFFIC ENGINEER DATE

APPROVED:
Arthur S. Sabel 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

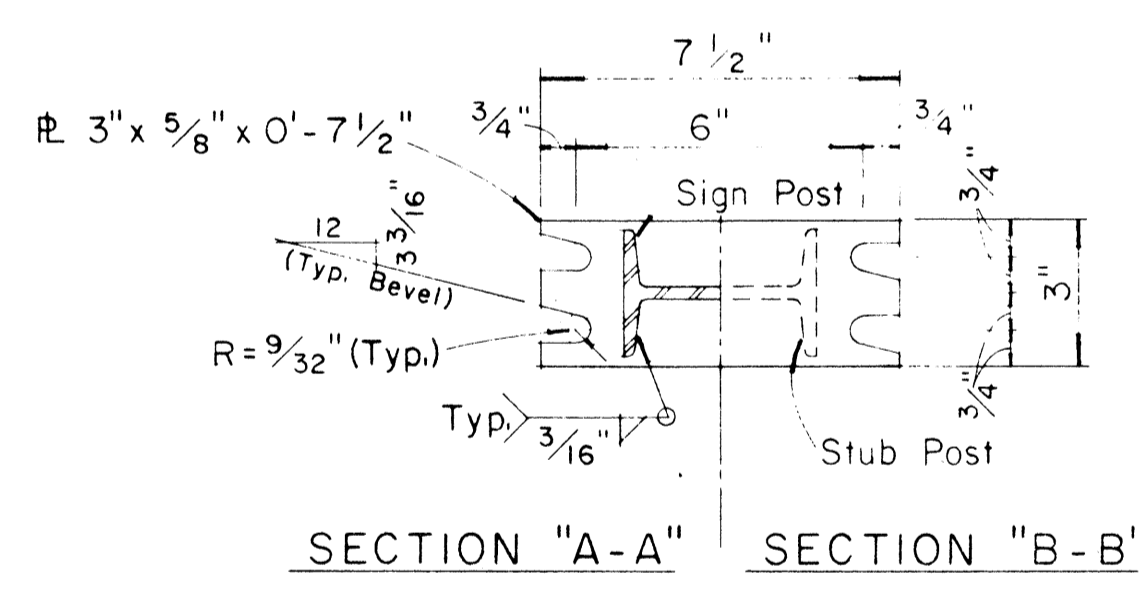
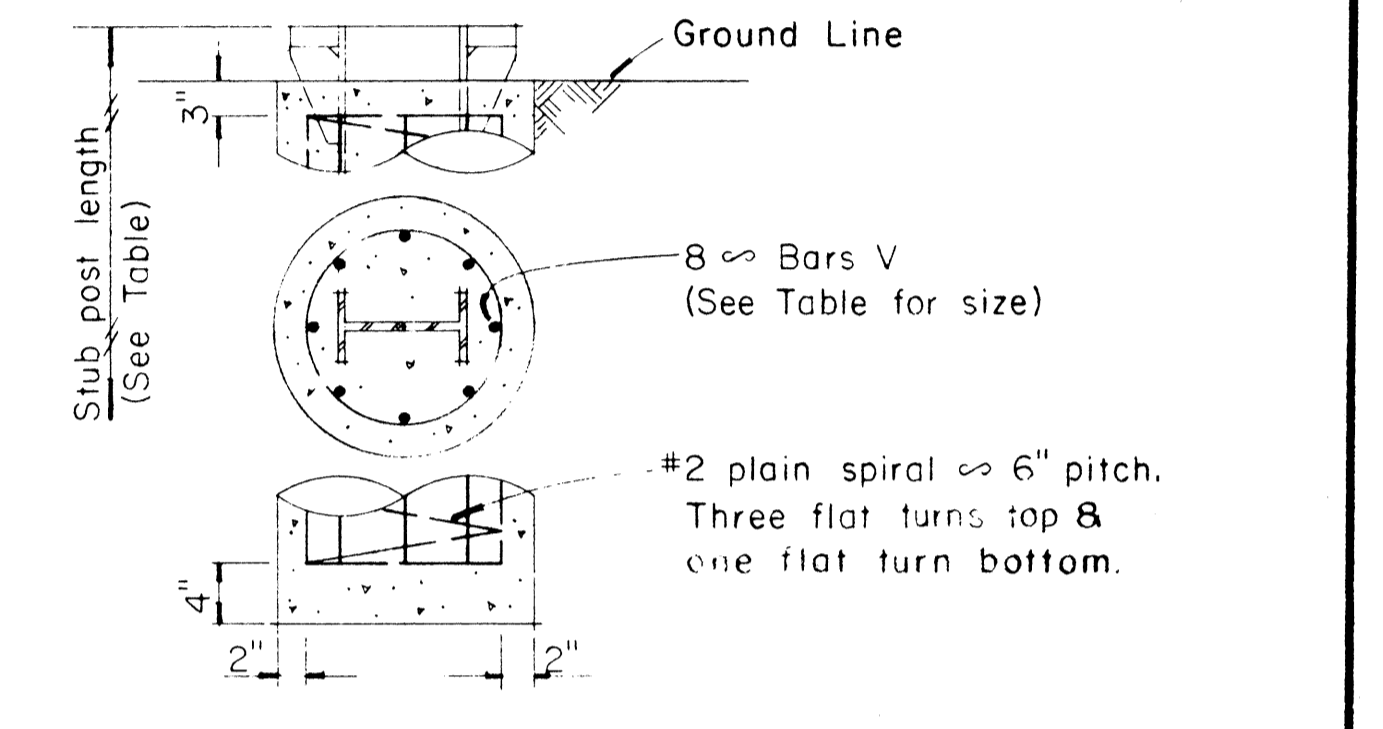
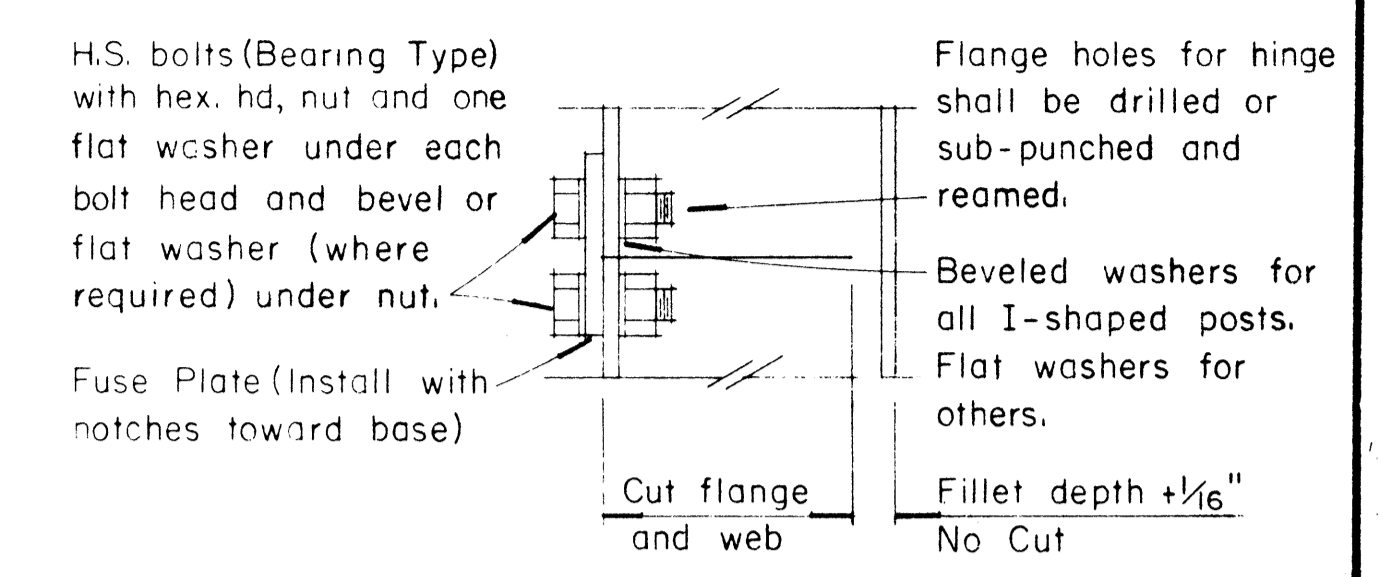
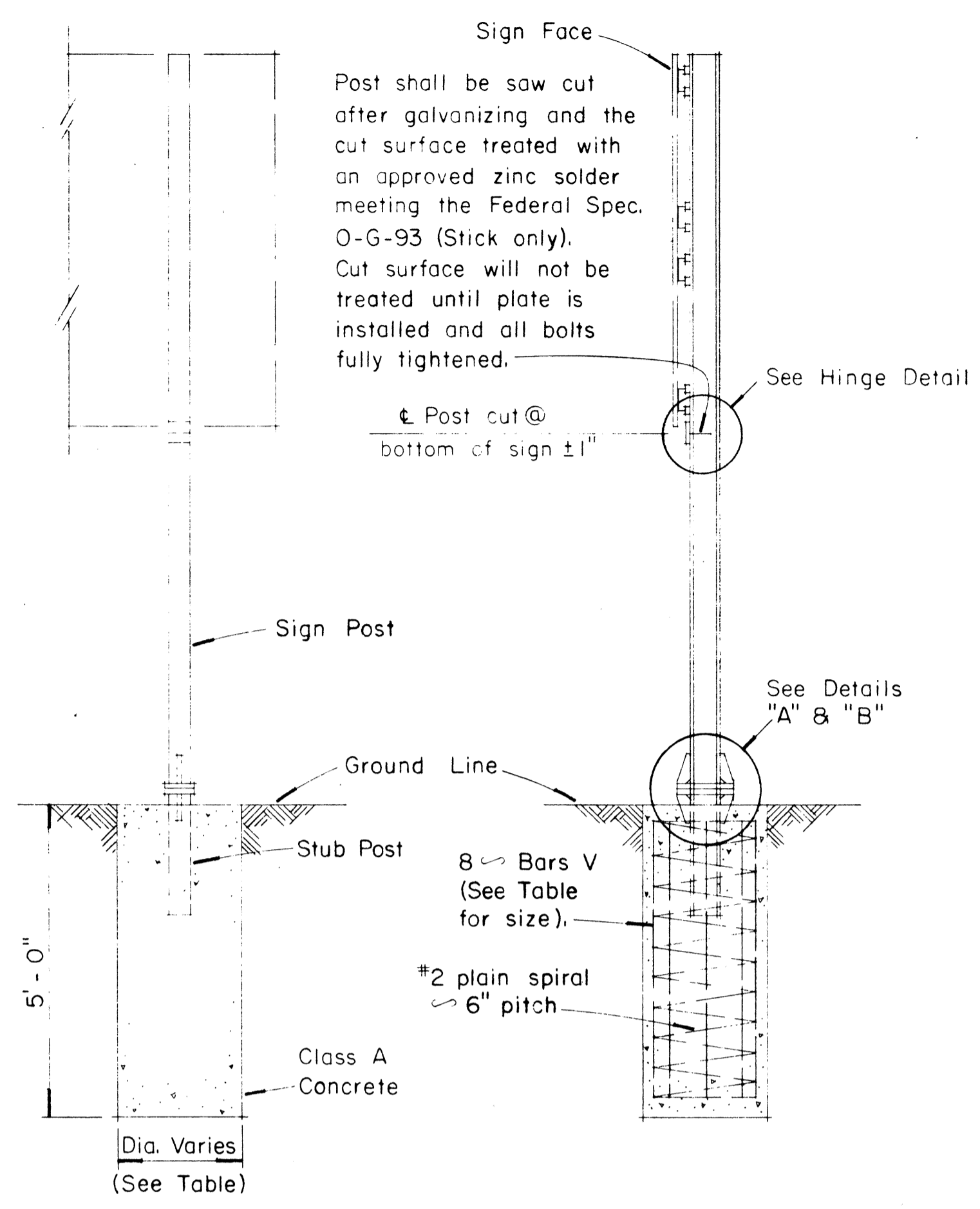
MISCELLANEOUS
REGULATORY & WARNING SIGNS

Scale: 1" = 1' - 0"

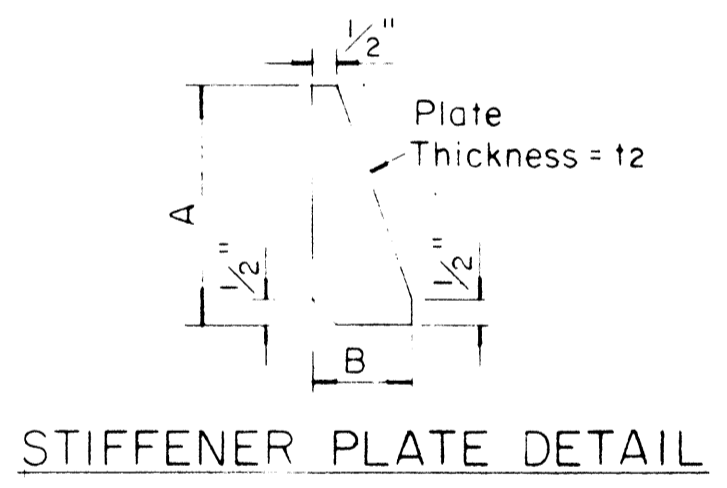
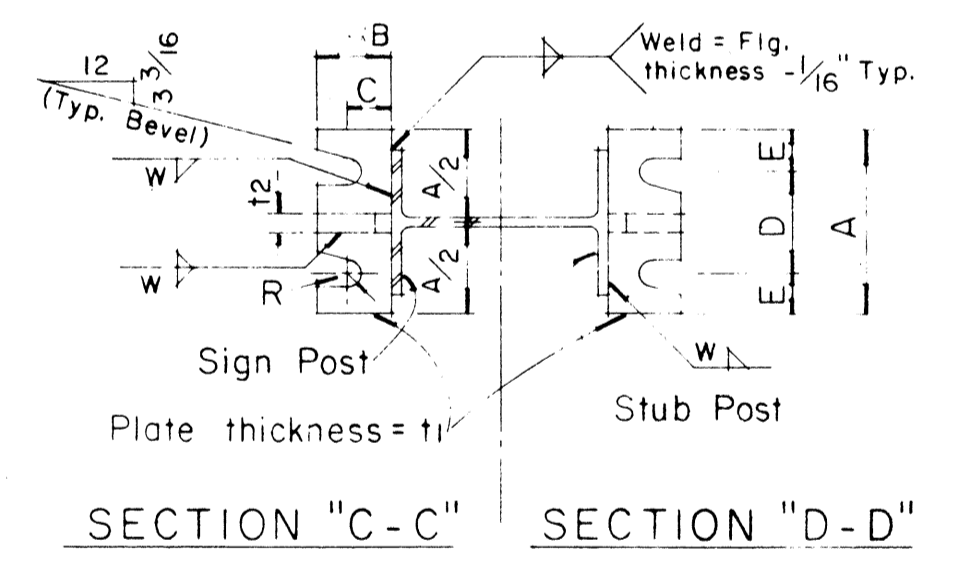
DATE: _____
SURVEY PLOTTED BY: _____
DRAWN BY: _____
DESIGNED BY: _____
QUANTITIES BY: _____
CHECKED BY: _____
ORIGINAL PLAN _____
NOTE BOOK _____
No. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-100-13	1972	86	202

Post Size	Bolt Size & Torque	BASE CONNECTION DATA TABLE										FUSE PLATE DATA TABLE										FOUNDATION DATA				
		A	B	C	D	E	t ₁	t ₂	W	R	F	G	H	J	K	L	N	d ₁	t ₃	Bolt Dia.	Wt. of each Fuse Pl.	Stub Length	Stub Projection	Footing Diameter	Bars V Size	
6 B 8.5											3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"	9/16"	1/4"	1/2"	1.09#	2'-0"	3"	2'-0"	#5	
6 B 12	5/8" ϕ x 2 3/4" Torque = 450#	5"	2"	1 1/4"	2 3/4"	1 1/8"	3/4"	1/2"	1/4"	1 1/32"	3 3/4"	2"	1 1/8"	4"	2 1/4"	7/8"	5/8"	1 1/16"	3/8"	5/8"	1.60#	2'-0"	3"	2'-0"	#5	
6 B 15.5											4 1/2"	2 1/2"	1 1/4"	6"	3 1/2"	1 1/4"	3/4"	13/16"	1/2"	3/4"	3.75#	2'-6"	3"	2'-0"	#6	
8 WF 17											4 1/2"	2 1/2"	1 1/4"	5 1/4"	2 3/4"	1 1/4"	3/4"	13/16"	1/2"	3/4"	3.27#	2'-6"	3"	2'-0"	#7	
8 WF 20											4 7/8"	2 1/2"	1 1/2"	5 1/4"	2 3/4"	1 1/4"	7/8"	15/16"	9/16"	7/8"	3.93#	3'-0"	2 1/2"	2'-0"	#8	
10 WF 21	3/4" ϕ x 3 1/2" Torque = 750#	6"	2 1/4"	1 3/8"	3 1/2"	1 1/4"	1"	3/4"	5/16"	13/32"	5 3/8"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	7/8"	15/16"	9/16"	7/8"	4.75#	3'-0"	2 1/2"	2'-0"	#9	
10 WF 25											5 3/8"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	7/8"	15/16"	9/16"	7/8"	4.79#	3'-0"	2 1/2"	2'-0"	#10	
12 WF 27											5 3/8"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	7/8"	15/16"	9/16"	7/8"	5.42#	3'-0"	2 1/2"	2'-0"	#11	
3 I 5.7	1/2" ϕ x 2 1/2" Torque = 200#	SEE DETAIL "A"										3 1/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"	9/16"	1/4"	1/2"	0.64#	1'-6"	3 1/2"	1'-6"	#5
4 I 7.7		SEE DETAIL "A"										3 1/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"	9/16"	1/4"	1/2"	0.64#	1'-6"	3 1/2"	1'-6"	#5



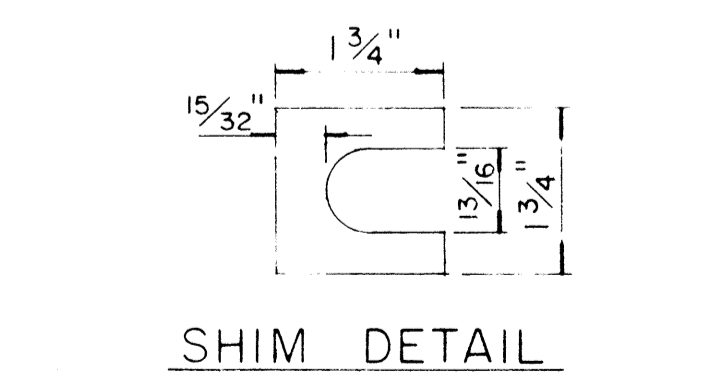
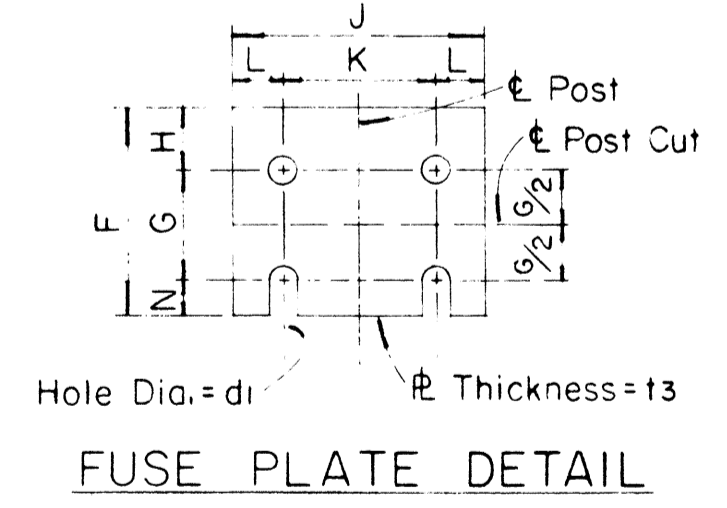
NOTE:
Sections shown are for installations on right shoulder and in gore. Reverse plate slot bevels for installations on left shoulder.



GENERAL NOTES

- Design conforms with AASHTO Specifications for the design and Construction of Structural Supports for Highway Signs.
- Materials and Fabrication shall conform to the requirements of the Standard Specifications and Special Provisions.
- All holes shall be drilled. All plate cuts shall preferably be saw cuts, however, flame cutting will be permitted provided all edges are ground. Metal projecting beyond the plane of the plate face will not be tolerated.
- Tighten the high strength bolts in the base connection only to the torque shown, do not overtighten. All bolts other than high strength bolts shall conform to ASTM A 307, Class A.
- All structural steel, bolts, nuts and washers shall be galvanized as per the Standard Specifications and Special Provisions. Structural steel to be galvanized after fabrication except as noted.
- Structural steel shall conform with the requirements of ASTM A 441.
- Galvanizing of all posts shall be projection above concrete plus 6" minimum.
- All friction fuse bolts shall be tightened in the shop following a method approved by the Engineer. Tightening shall be to such a degree as to obtain the following minimum residual tension in each bolt:

Bolt Size	Min. Tension	Bolt Size	Min. Tension
1/2" ϕ	12050 Lbs.	3/4" ϕ	28400 Lbs.
5/8" ϕ	19200 Lbs.	7/8" ϕ	36050 Lbs.



Furnish 2 @ .012" ± thick and 2 @ .032" ± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to A.S.T.M. - B 36.

APPROVAL RECOMMENDED:
Eiichi Tanaka 12/29/69
TRAFFIC ENGINEER DATE

APPROVED:
John J. Stroh 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

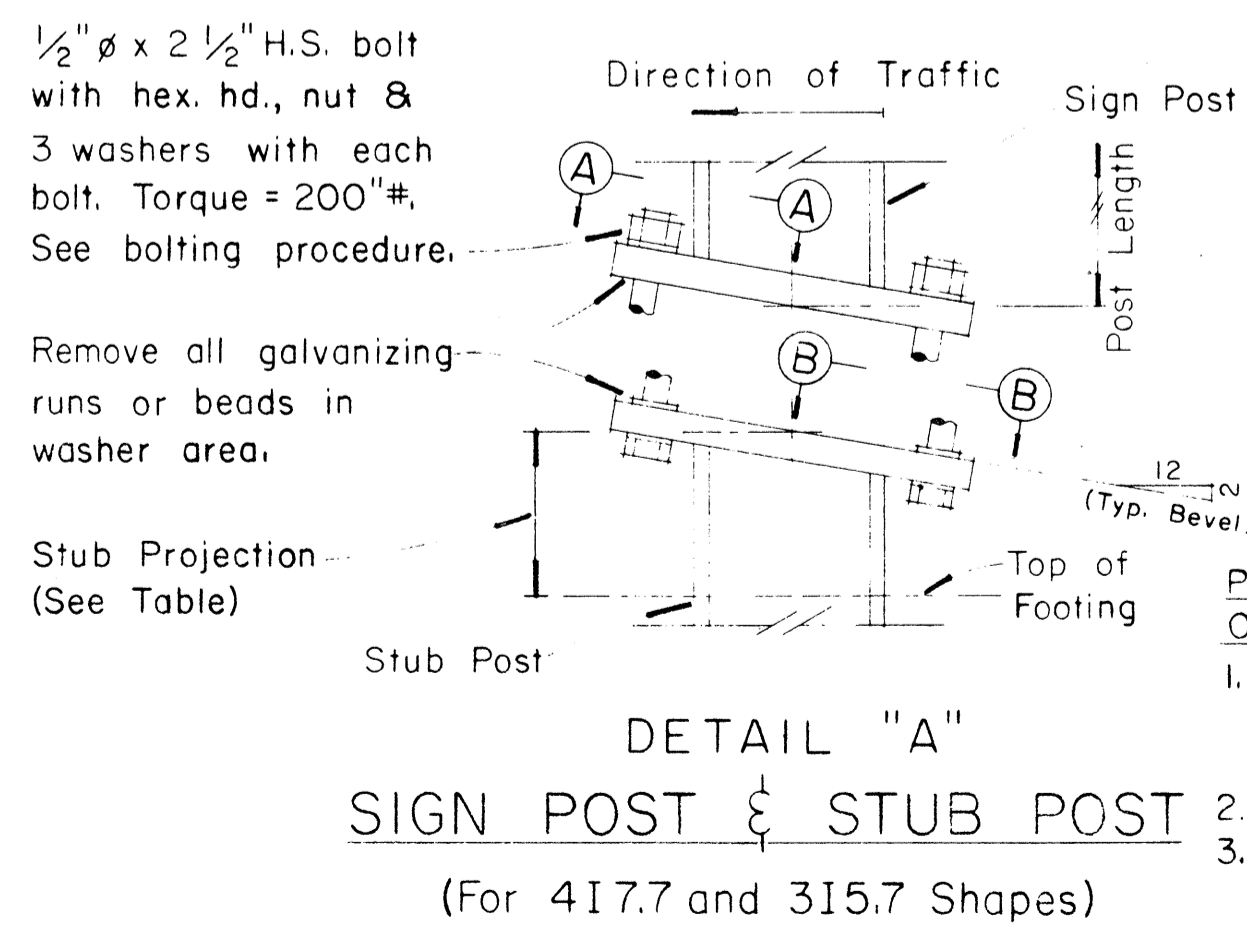
BREAK-AWAY SIGN SUPPORTS

FOR

GROUND MOUNTED GUIDE SIGNS

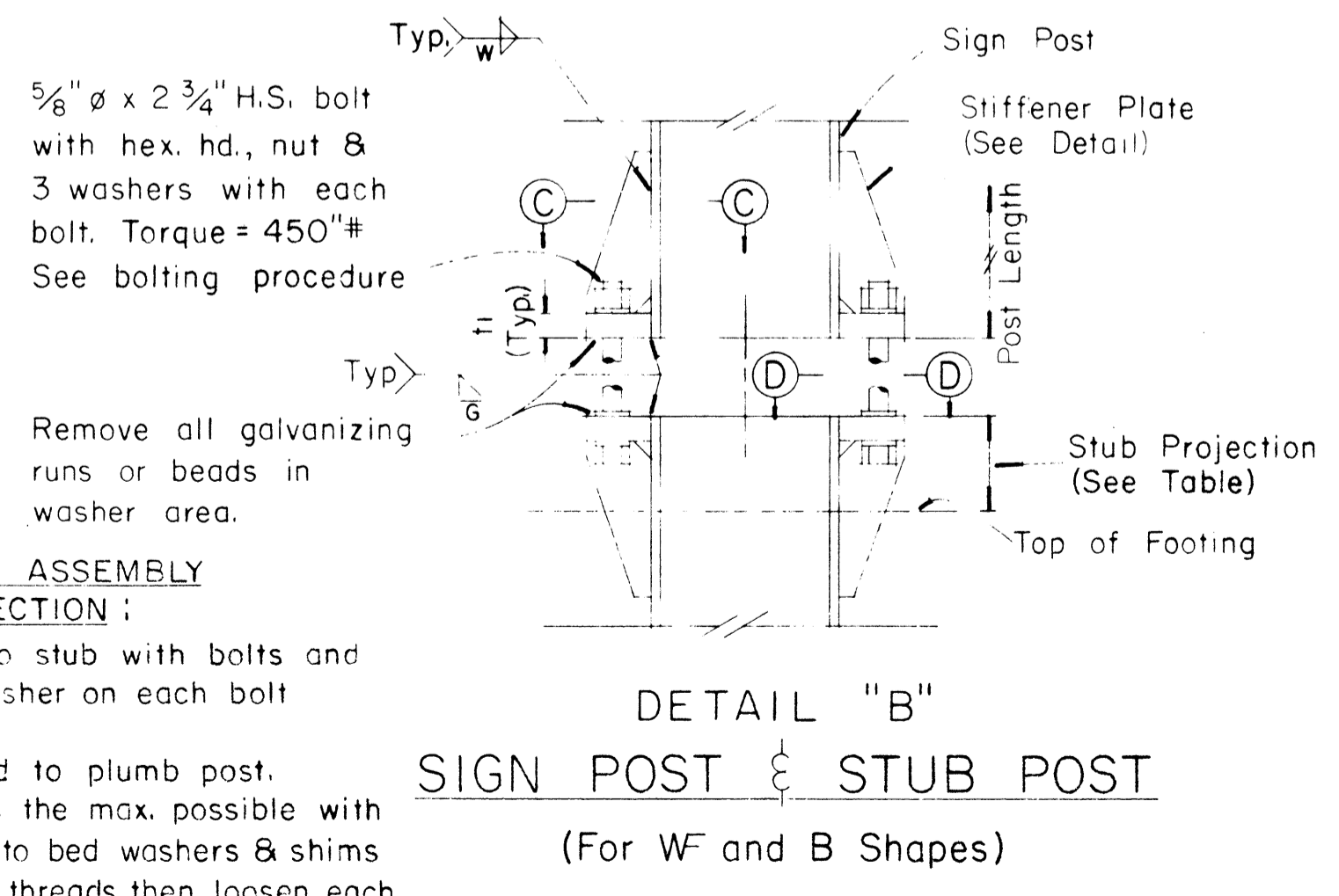
Not to Scale

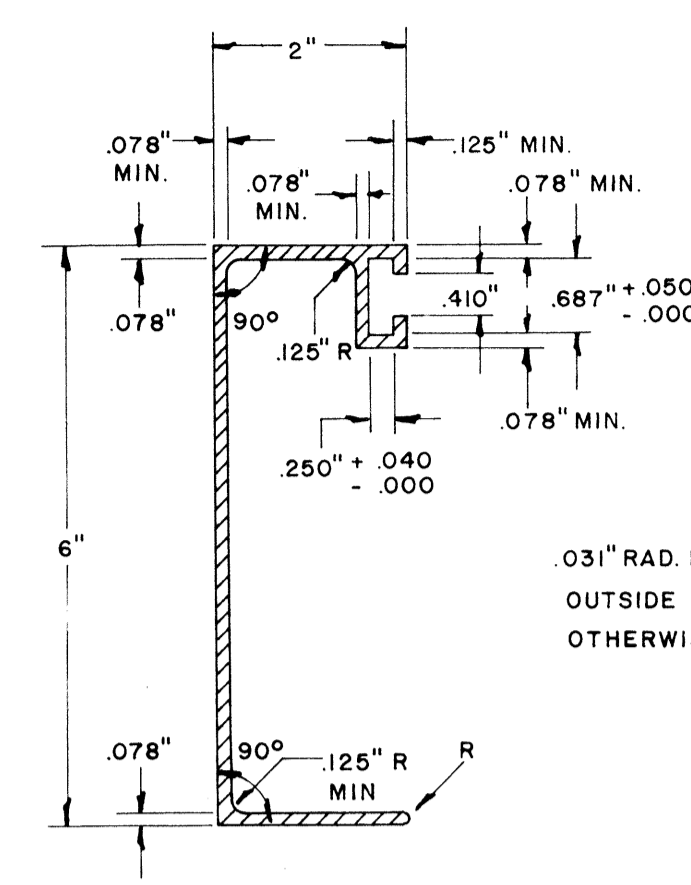
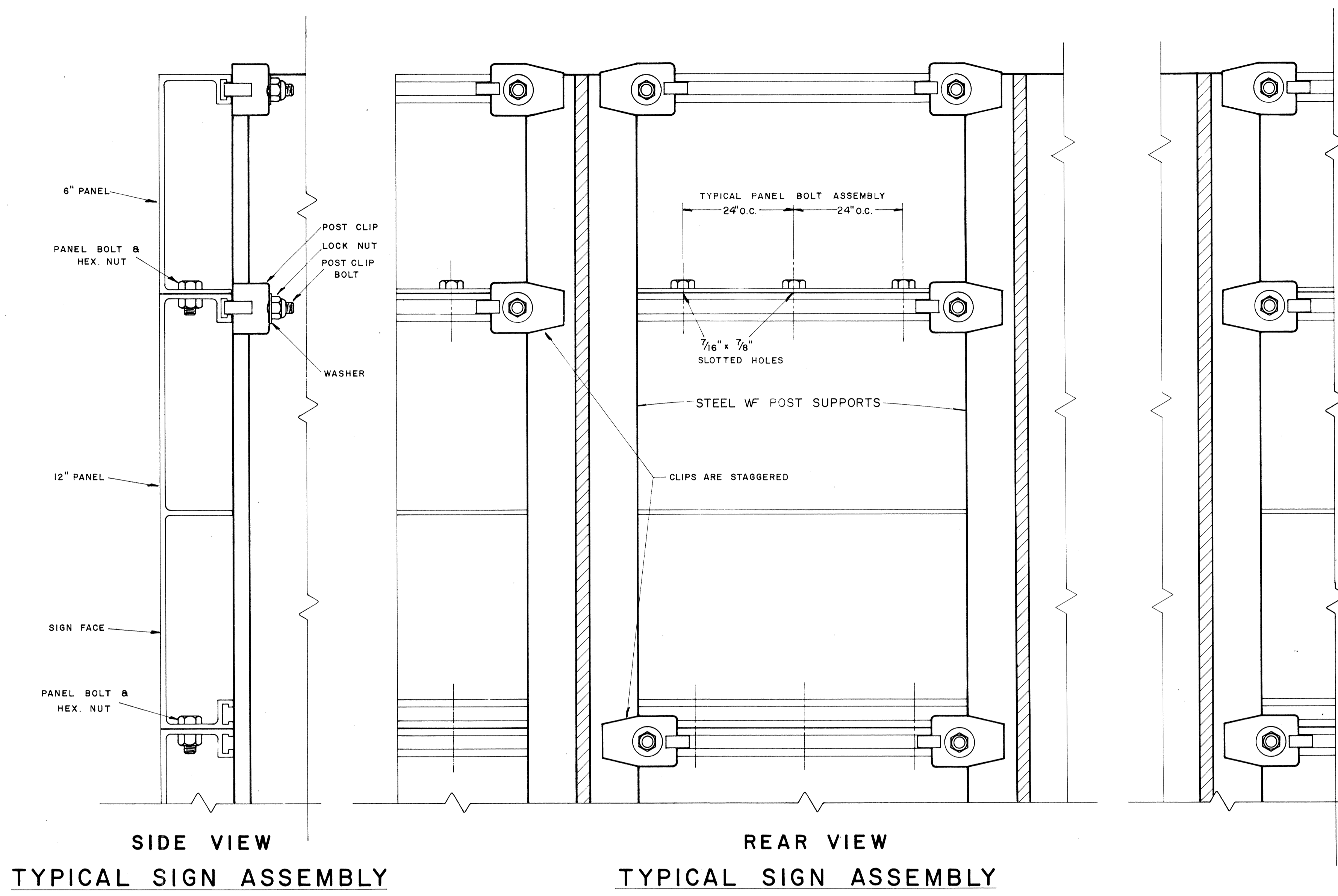
ORIGINAL PLAN
DATE: _____
DRAWN BY: _____
CHECKED BY: _____
NO. _____



PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

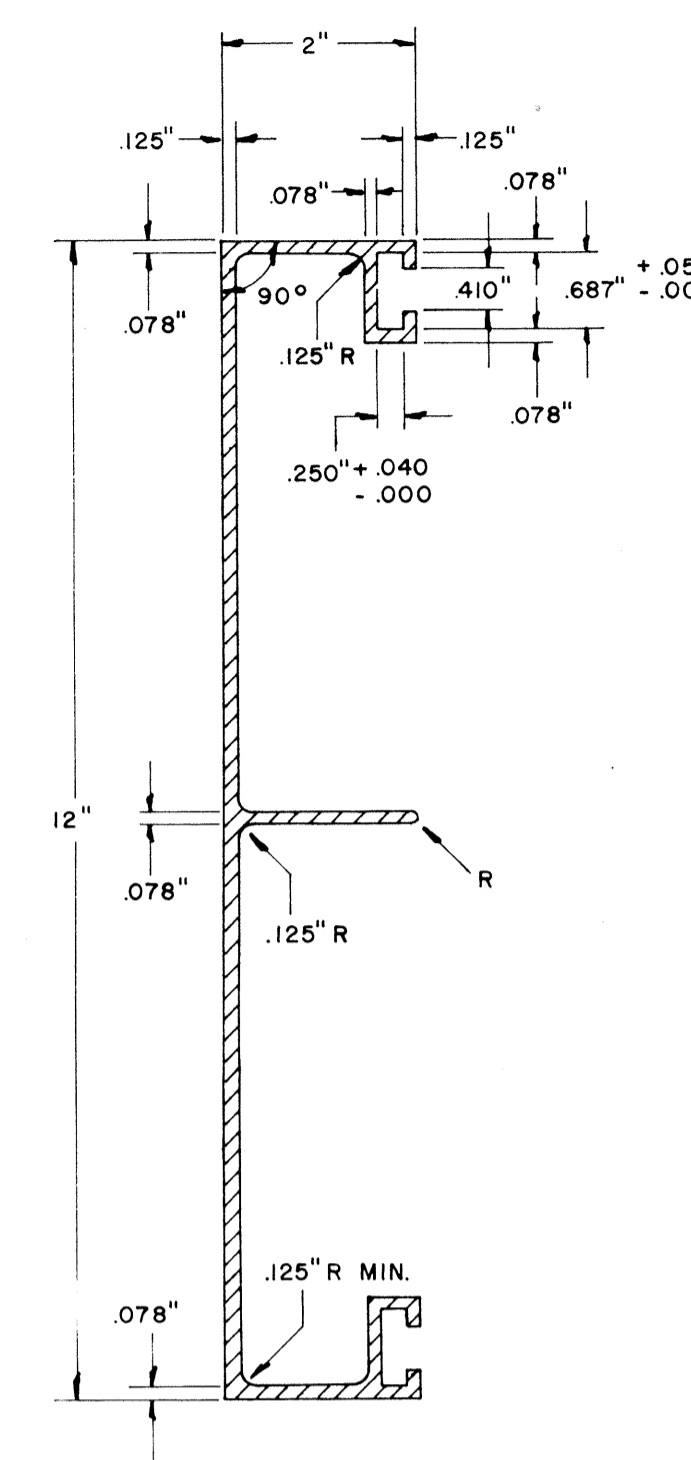
- Assemble post to stub with bolts and with one flat washer on each bolt between plates.
- Shim as required to plumb post.
- Tighten all bolts the max. possible with 12" to 15" wrench to bed washers & shims and to clean bolt threads then loosen each bolt in turn & retighten bolts in systematic order to prescribed torque. (See Table)
- Burr threads at junction with nut using a center punch to prevent nut loosening.



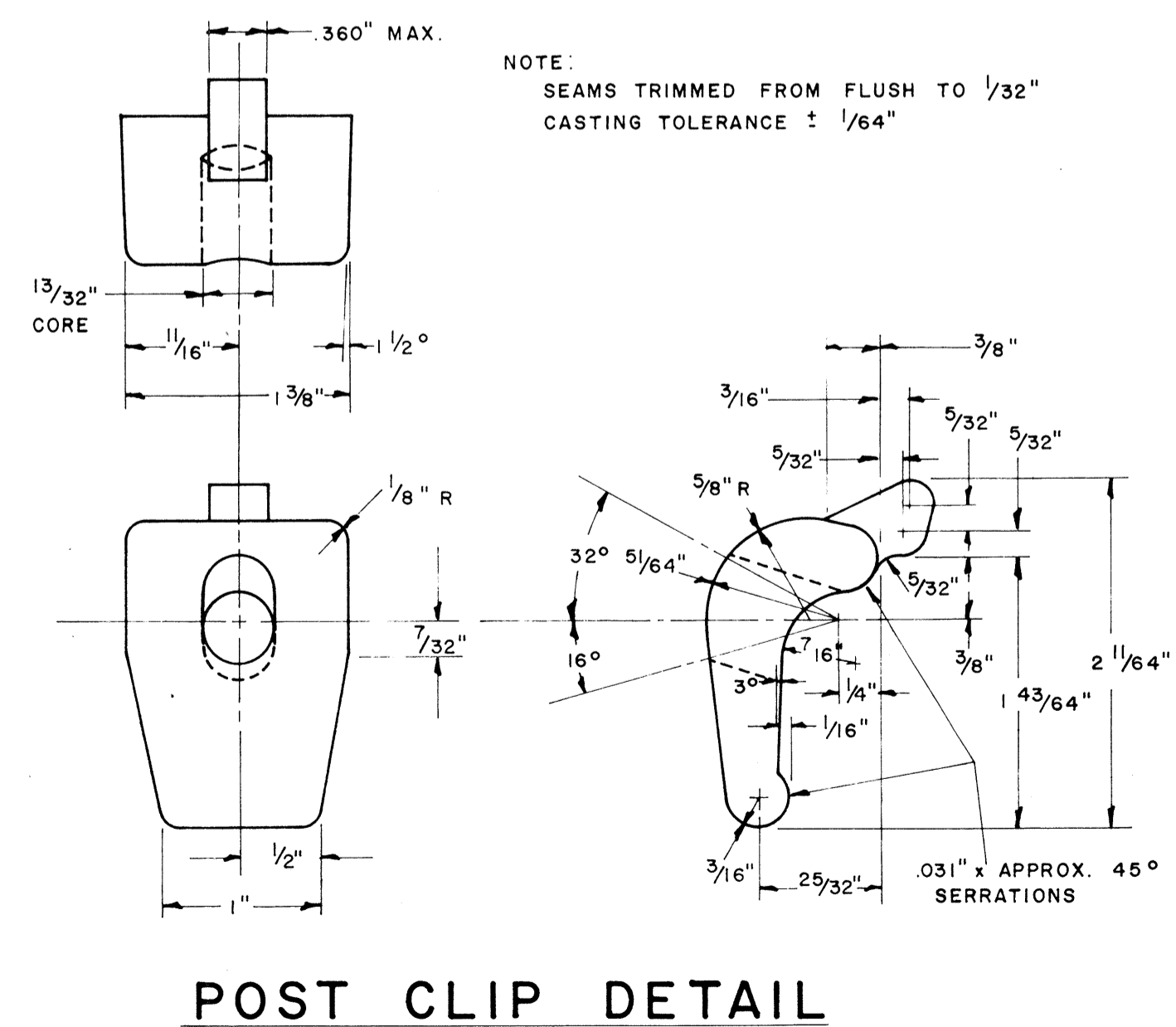


6" SIGN PANEL
WT./LINEAL FT. - 1.103 LBS. MIN.
ALLOY - 6061 - F(1)
MOMENT OF INERTIA - 0.487 MIN
MINIMUM SECTION MODULUS 0.341

SOLID EXTRUDED SIGN PANEL DETAILS

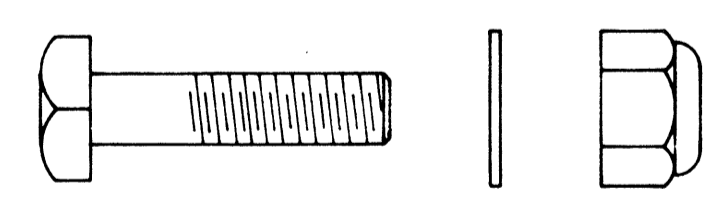


12" SIGN PANEL
WT./LINEAL FT. - 2.690 LBS. MIN.
ALLOY - 6061 - F(1)
MOMENT OF INERTIA 0.936 MIN.
MINIMUM SECTION MODULUS 0.605



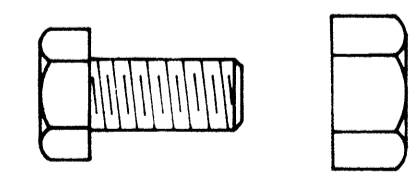
POST CLIP DETAIL

ALLOY 356 - T6



POST CLIP BOLT ASSEMBLY

3/8" - 16 x 1 3/4" LONG SQ. HD. BOLT - ALLOY 2024 - T4
3/8" - 16 LOCK NUT - ALLOY 2017 - T4
29/32" ID x 3/4" OD x .09" WASHER - ALLOY ALCLAD 2024 - T4



PANEL BOLT ASSEMBLY

3/8" - 16 x 3/4" LONG HEX. HD BOLT - ALLOY 2024 - T4
3/8" - 16 HEX. NUT - ALLOY 6061 - T6
FLAT WASHER - ALLOY ALCLAD 2024 - T4

NOTE:
Extruded Aluminum Panels to be used for Destination Signs with Reflective Sheeting Background

APPROVAL RECOMMENDED:
Eichi Tanaka 12/29/67
TRAFFIC ENGINEER DATE

APPROVED:
[Signature] 12-30-67
ASSISTANT CHIEF, ENGINEERING DATE

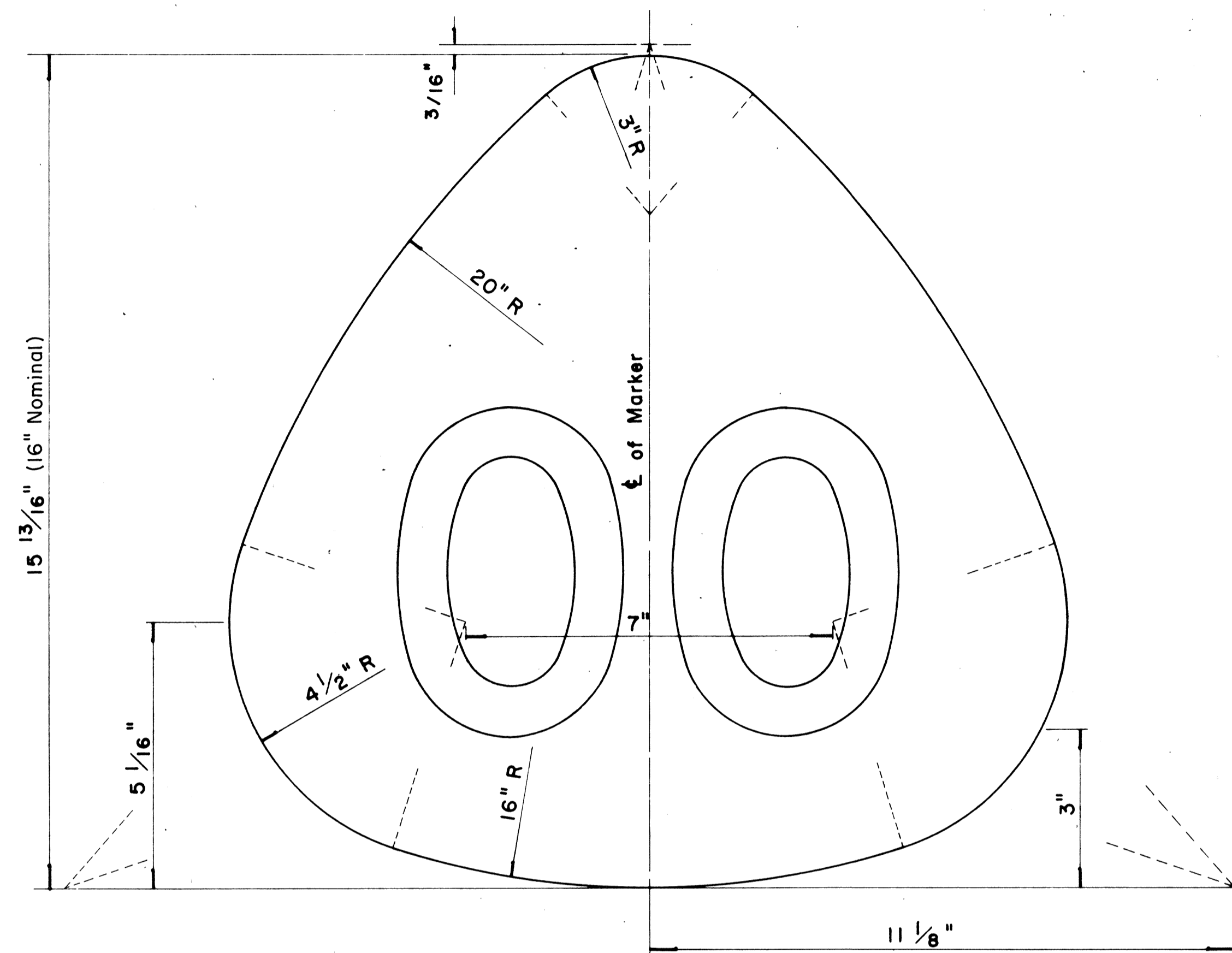
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
SOLID ALUMINUM
EXTRUDED SIGN PANEL
AND
ACCESSORY DETAILS
SCALE:

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	177-1(30)13	1972	88	202

MARKER SIZE	MULTIPLY DIMENSIONS BY	NUMERAL SIZE
16"	1	6"
21"	1.3	8"
32"	2.0	12"
42"	2.63	16"



**STATE ROUTE MARKER
FOR GUIDE SIGNS**

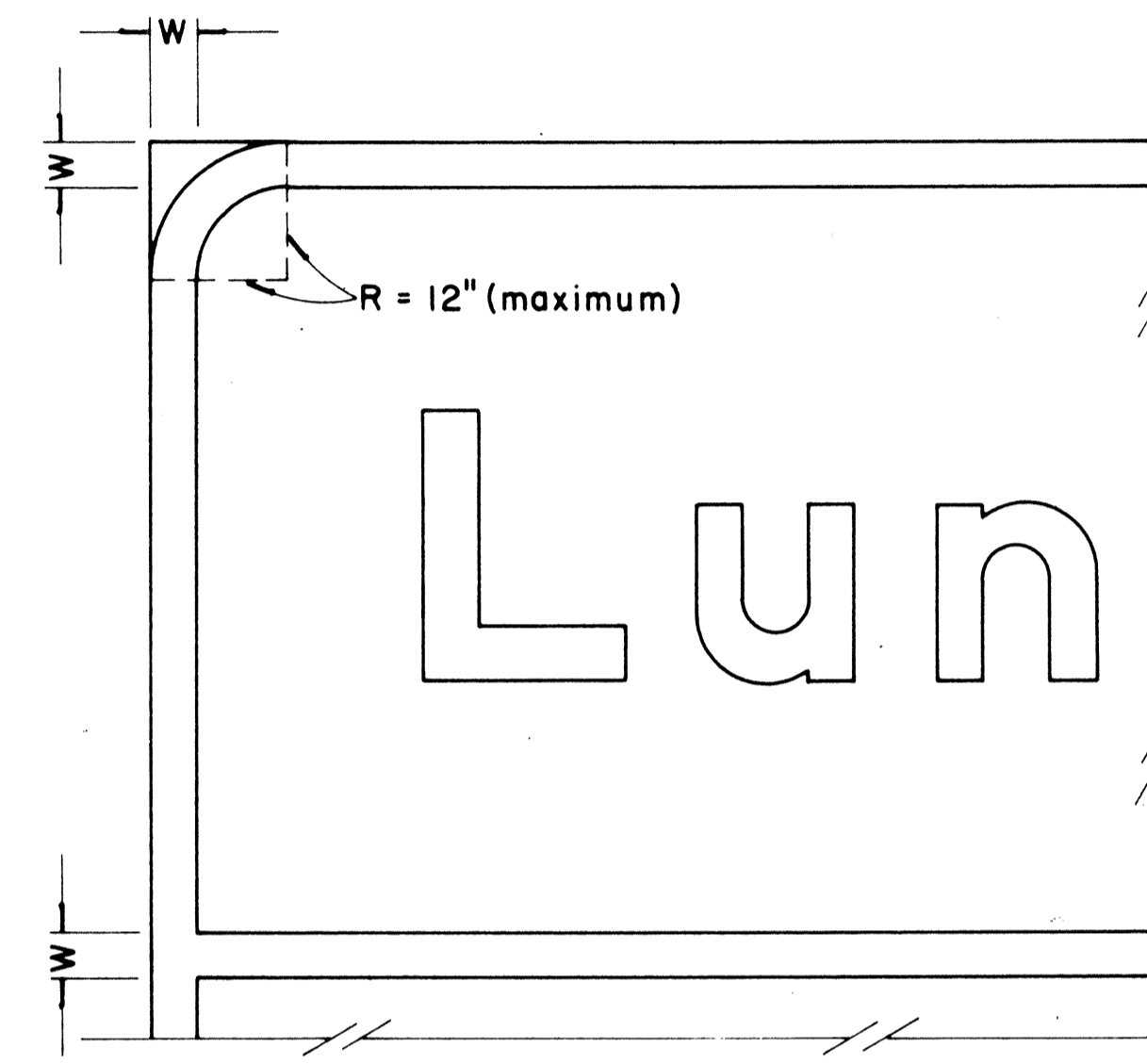
Scale: Half Size

NOTE:

- State Route Markers on Guide signs shall have black numerals on a white reflectorized background mounted on a flat aluminum cut-out.
- Numerals shall conform to the FHWA publication "Standard Alphabets for Highway Signs," 1966.
- Cut-outs shall be fastened on sign panel with aluminum blind rivets. See Standard Specifications.
- * The 16" State Route Marker shall be used only with the Construction Identification sign.

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:

- Area outside corner radius need not be trimmed.
- All borders shall be embossed cut-outs, white and reflectorized.
- All Guide signs shall have borders.

APPROVAL RECOMMENDED:

Euschi Tanaka 4/11/72
TRAFFIC ENGINEER DATE

APPROVED:

Sheldon S. Sakai 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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

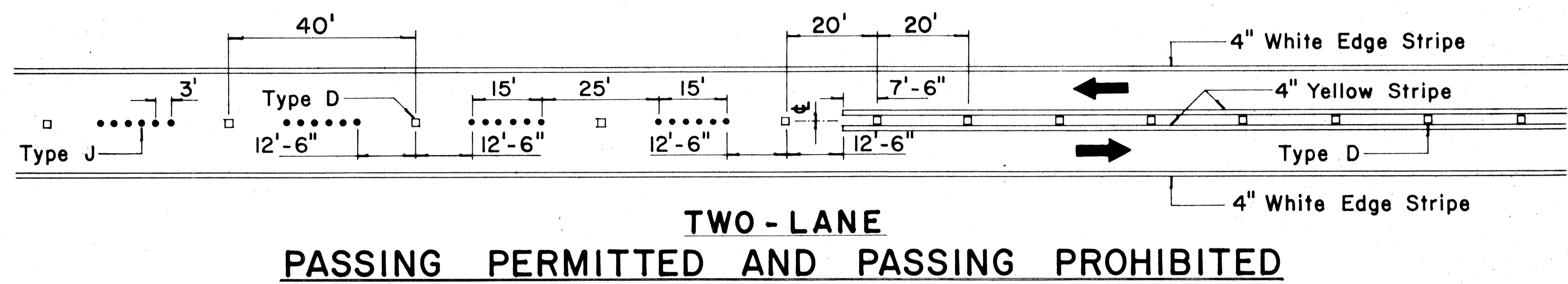
**STATE ROUTE MARKER
AND BORDER DETAIL
FOR GUIDE SIGNS**

Scale: As Shown

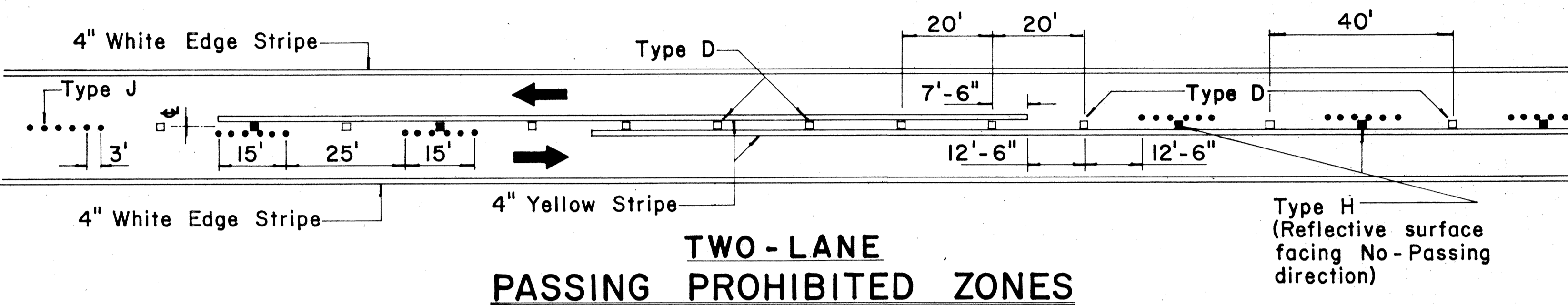
SHEET No. 177 OF 18 SHEETS DT 209

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

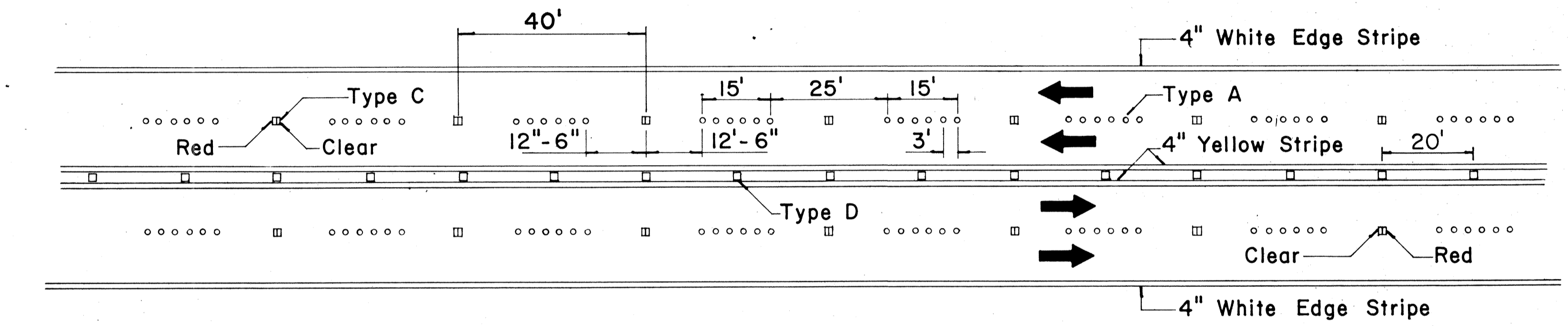
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-(70):13	1972	202	202



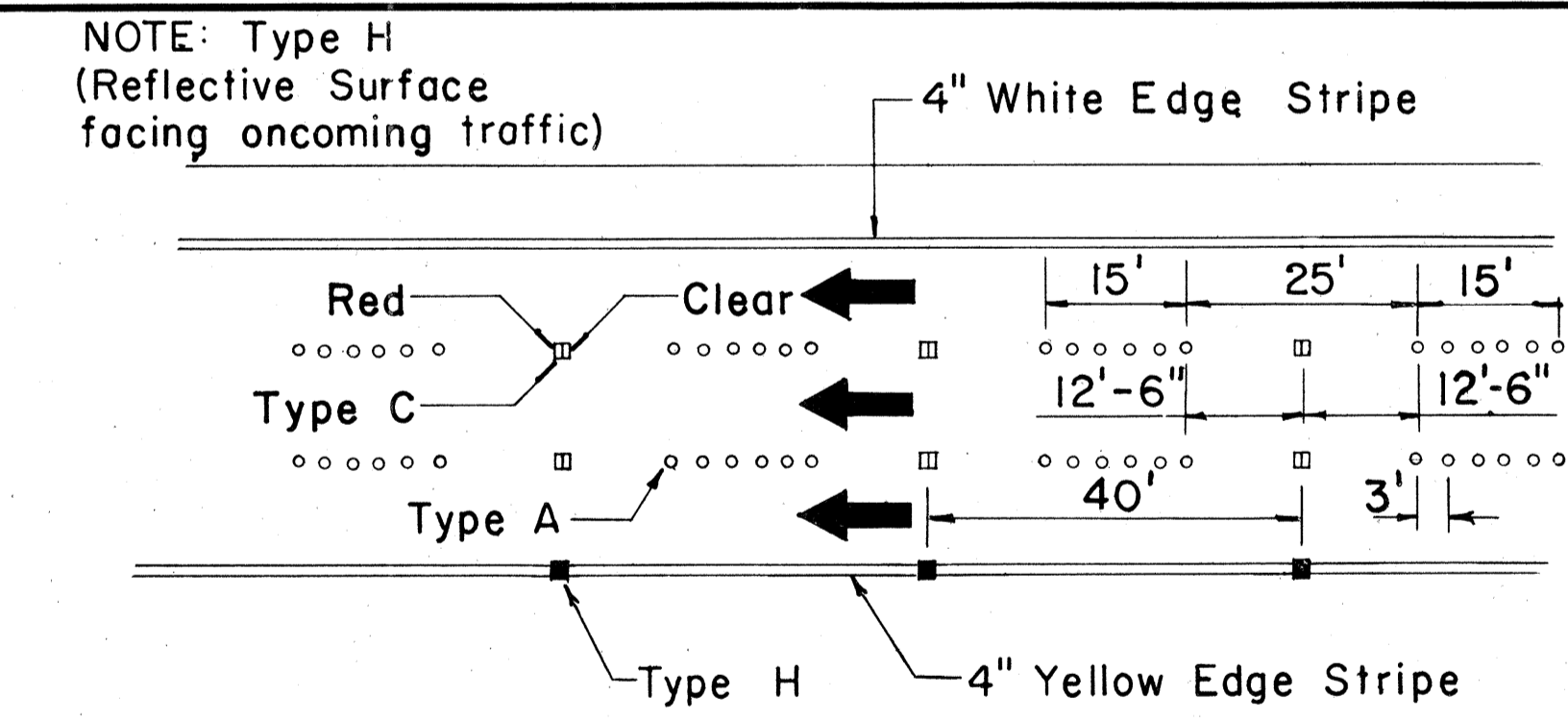
**TWO-LANE
PASSING PERMITTED AND PASSING PROHIBITED**



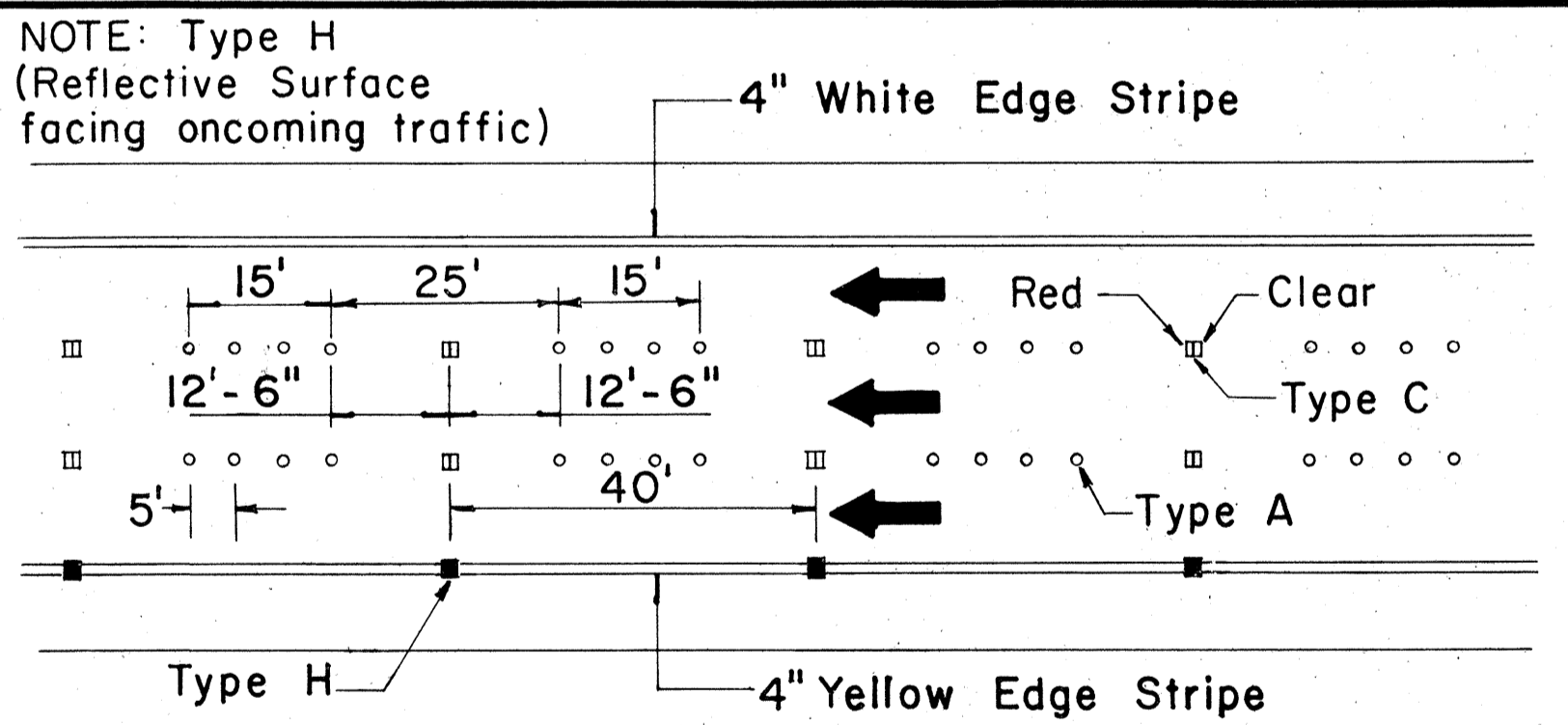
**TWO-LANE
PASSING PROHIBITED ZONES**



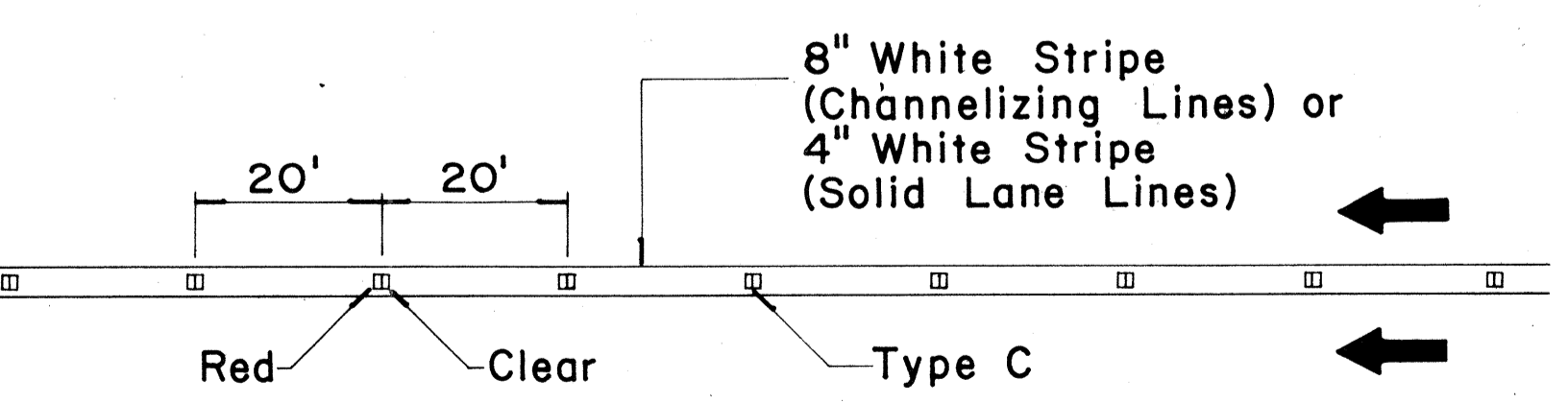
**MULTI-LANE
LANE LINES AND CENTER LINE**



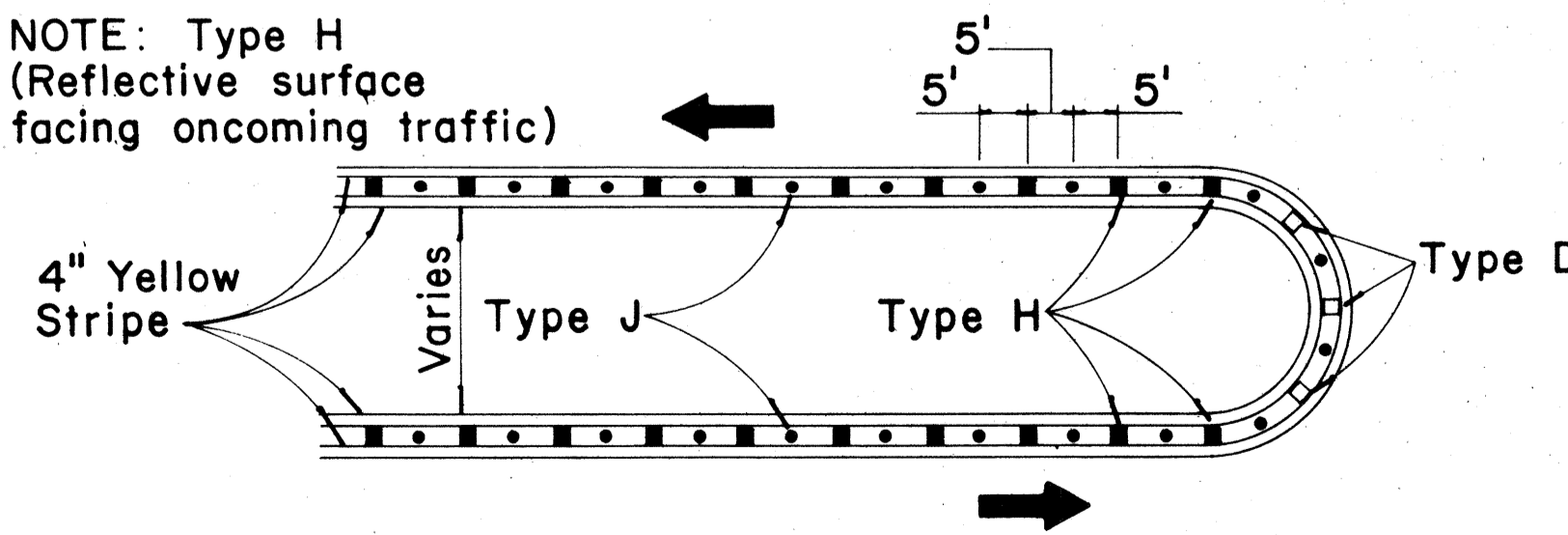
DIVIDED HIGHWAY LANE LINES



FREEWAY LANE LINES



**CHANNELIZING LINES
OR SOLID LANE LINES**



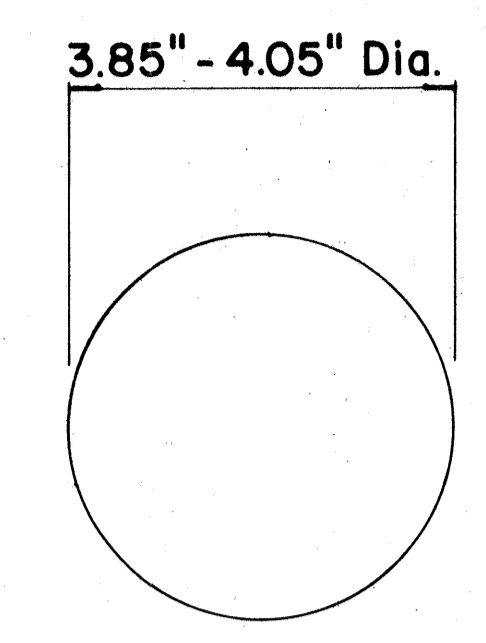
MEDIAN NOSE DELINEATION

TWO-LANE

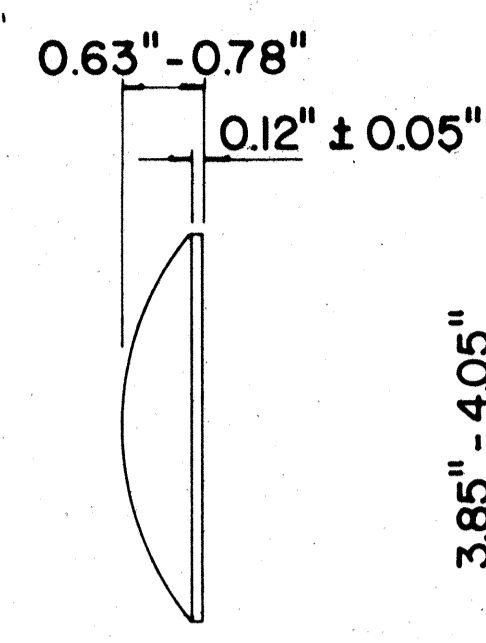
MULTI-LANE

DIVIDED HIGHWAY
AND
FREEWAY

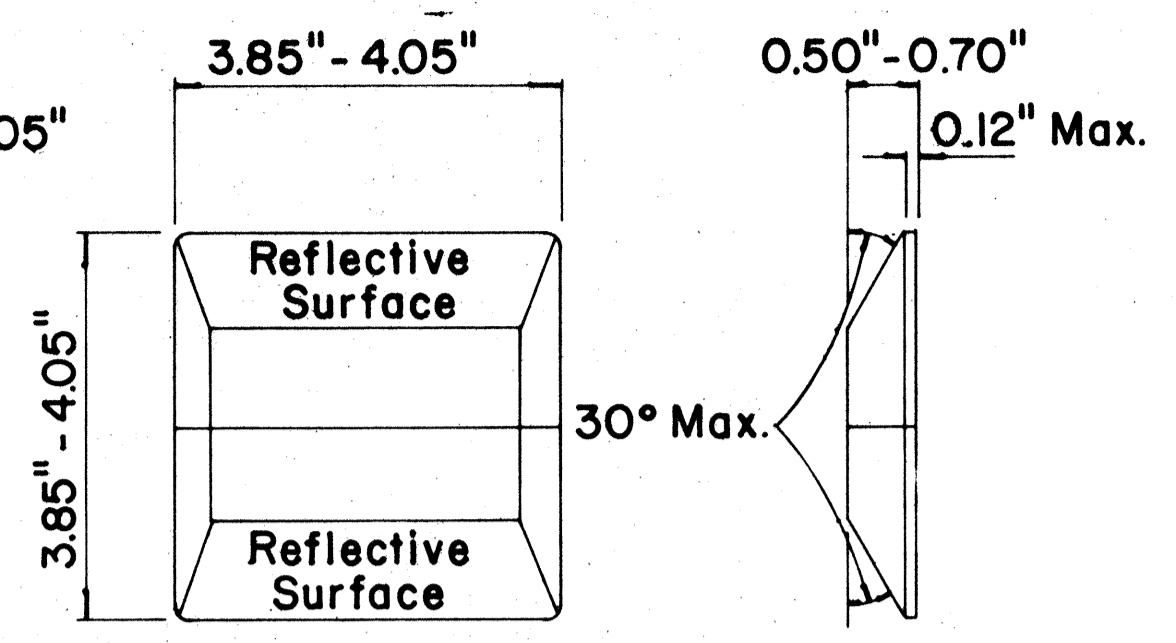
MISCELLANEOUS



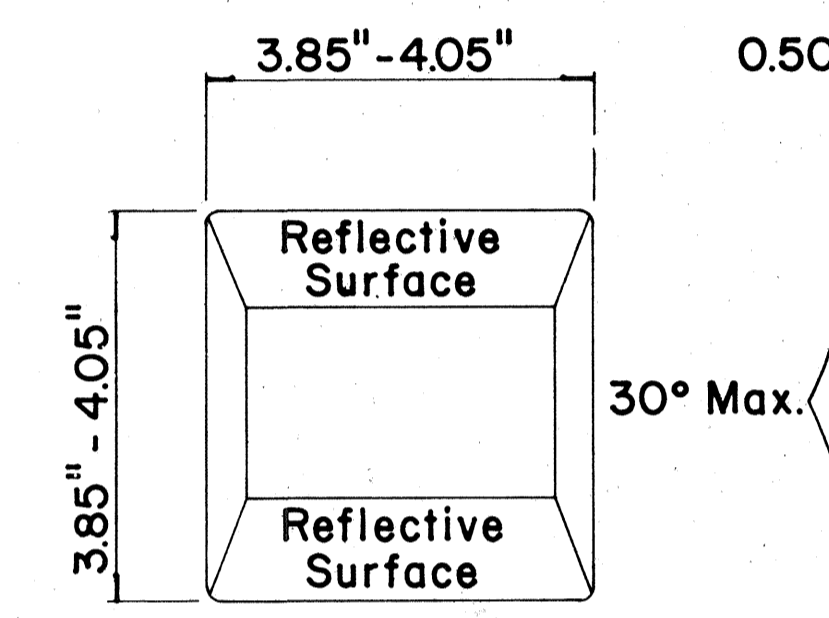
**TYPE A
NON-REFLECTIVE WHITE MARKER**



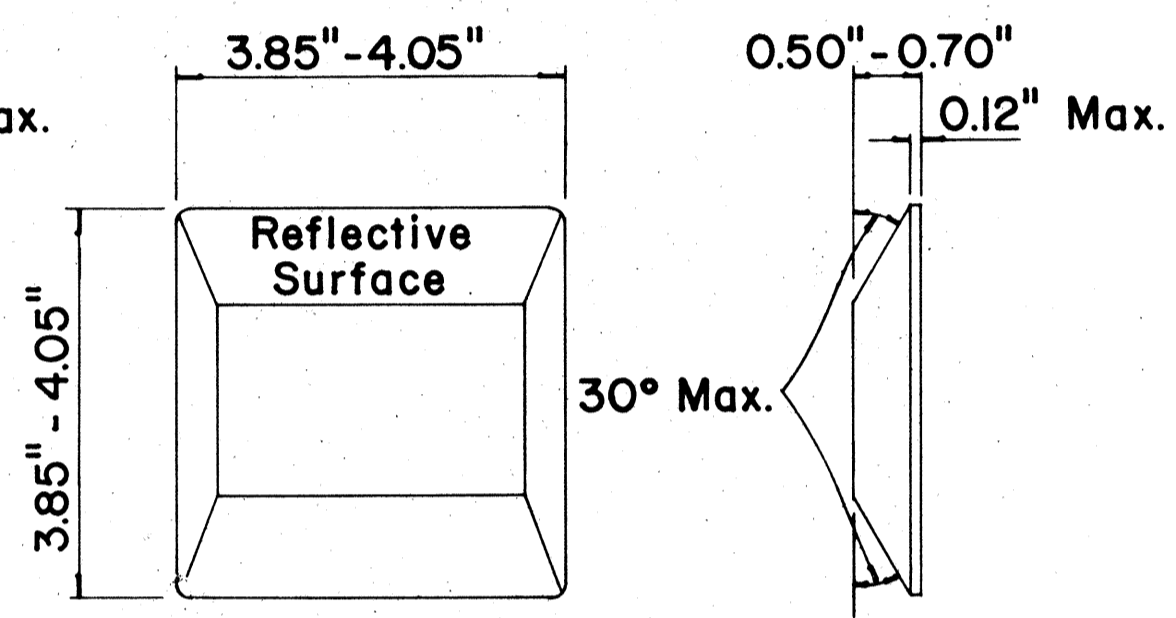
**TYPE J
NON-REFLECTIVE YELLOW MARKER**



**TYPE C
RED-CLEAR REFLECTIVE MARKER**



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



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

GENERAL NOTES

1. Painted stripes to be done by Contractor unless otherwise specified.

LEGEND

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

APPROVAL RECOMMENDED:
E. Ichi Tanaka 11/10/71
TRAFFIC ENGINEER DATE

APPROVED:
Robert Z. Zaleski 11/18/71
ASSISTANT CHIEF, ENGINEERING DATE

No.	REVISION	APPROVED BY	DATE
1	Add reflector marker in each line gap.	H.C.	10-21-72
2	Revised General Notes.	H.C.	10-21-72
3	Change 4" white edge stripe to 4" solid yellow edge stripe to left edge of a travel path and Add Type H Reflector Marker	H.C.	5-22-74

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

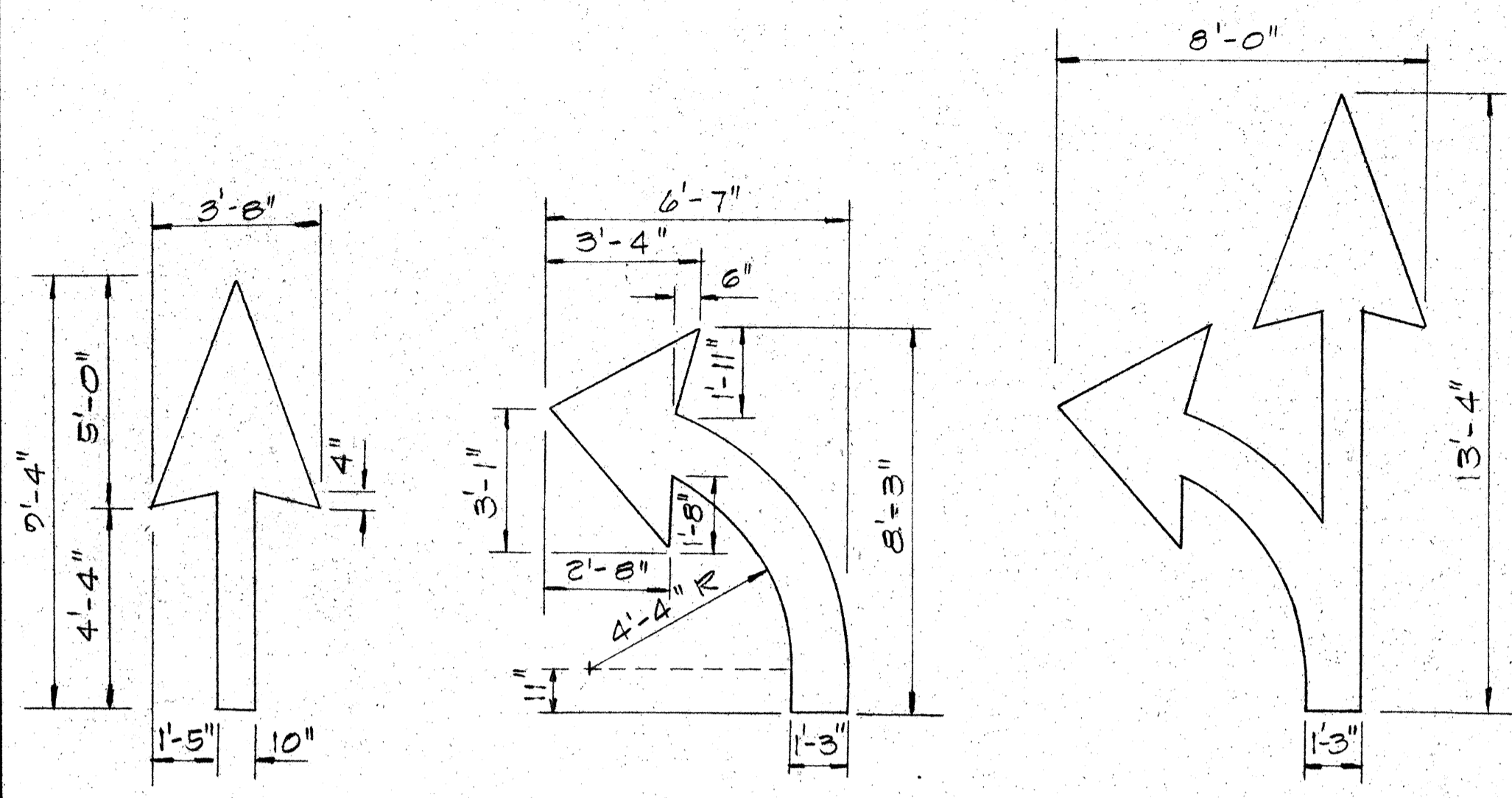
**STANDARD DETAILS
RAISED PAVEMENT MARKERS**

PROJ. NO. I-HI-(70):13

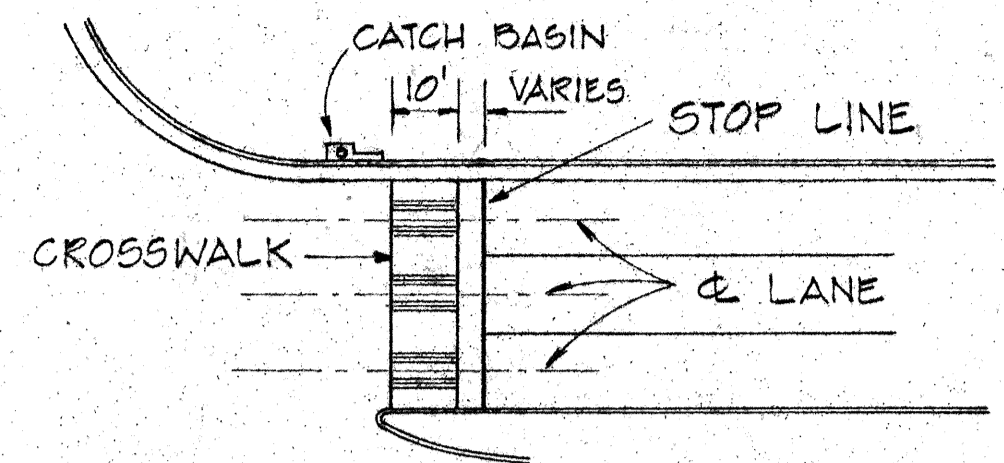
Not to Scale October 1971
SHEET No. OF SHEETS DT 300

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

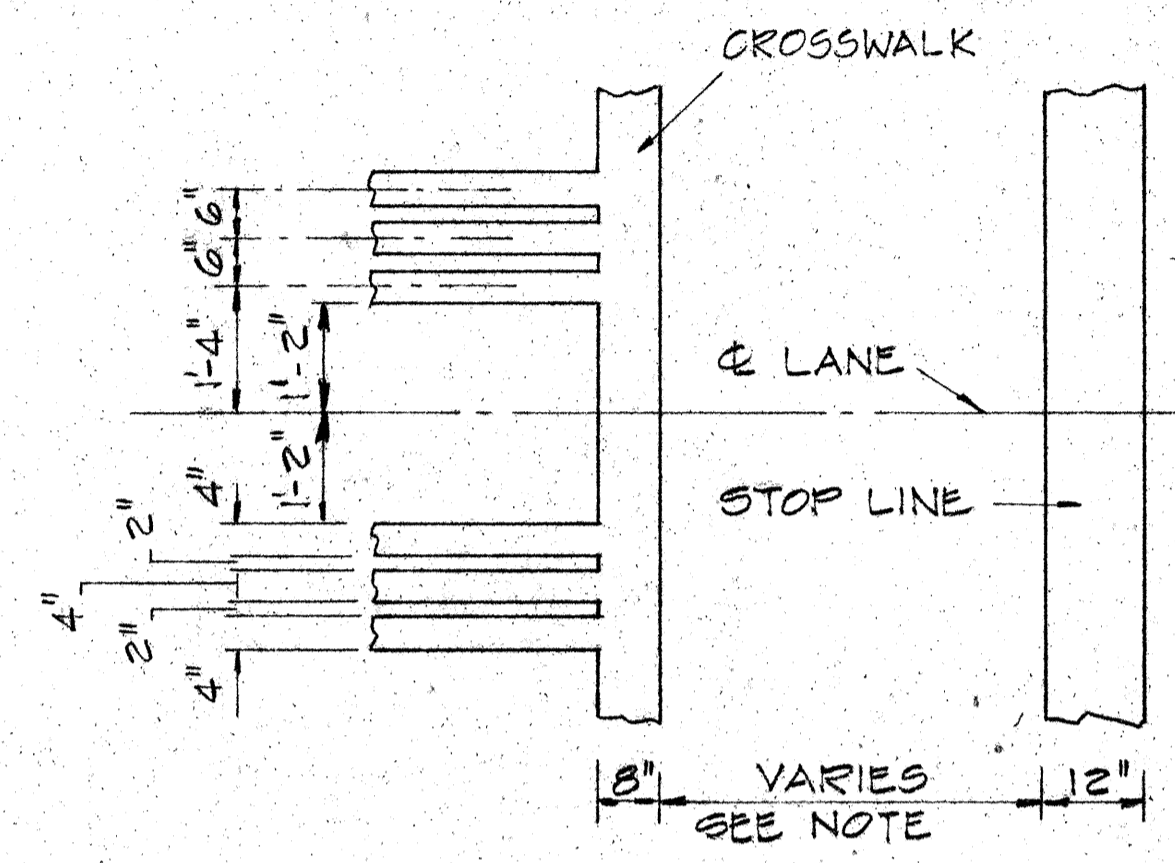
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(00):13	1972	885-2	202



PAVEMENT ARROWS
NOT TO SCALE

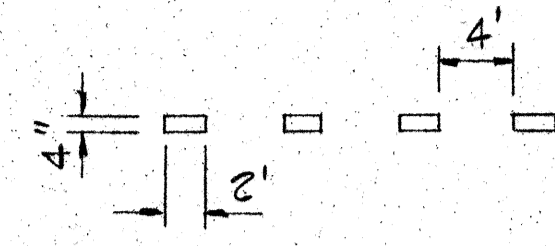


NOTE: SET ALL CROSSWALKS AWAY FROM CATCH BASINS

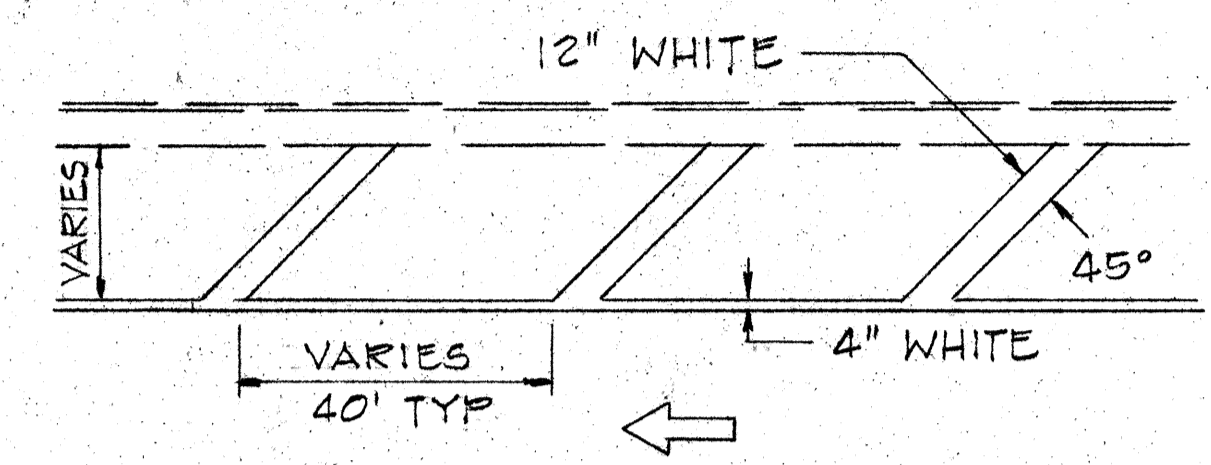


CROSSWALK & STOP LINE
NOT TO SCALE

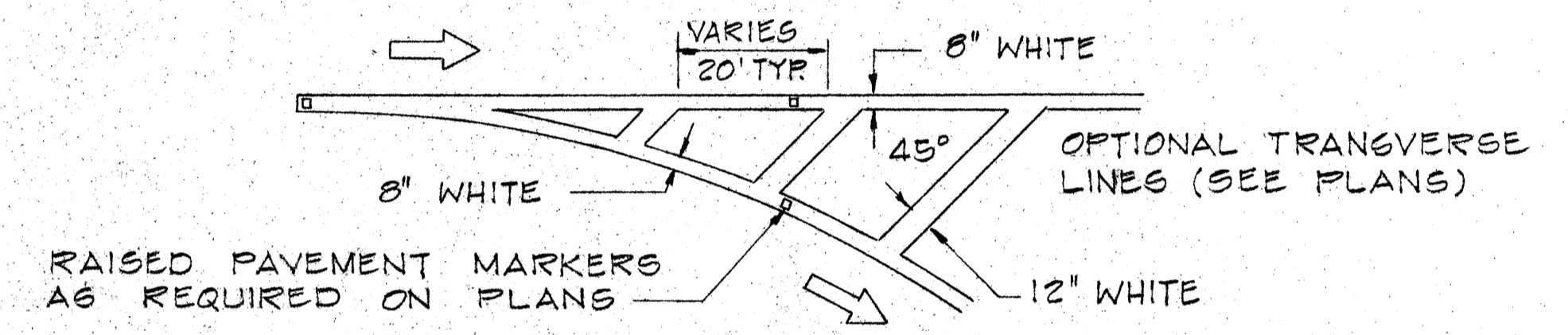
NOTE: STOP LINES AT UNSIGNALIZED INTERSECTIONS AND AT MIDDLEBLOCK CROSSWALKS SHALL BE PLACED A MINIMUM OF 10 FEET BEFORE THE CROSSWALK, HOWEVER A DISTANCE OF 20 FEET IS PREFERABLE. STOP LINES AT SIGNALIZED INTERSECTIONS SHALL BE PLACED A MINIMUM OF FOUR FEET BEFORE THE CROSSWALK.



4" WHITE GUIDE LINE
NOT TO SCALE



TRANSVERSE SHOULDER MARKING
NOT TO SCALE



CHANNELIZING ISLAND
NOT TO SCALE

GENERAL NOTES - PAVEMENT MARKINGS

1. Pavement Markings shall conform to the "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and as shown on the plans.
2. Layout of pavement markings and striping shall be done by the Contractor. Contractor shall check layout of markers & striping with the Engineer prior to performing work.
3. For additional pavement marking details see plan sht #DT 300.

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS OF PAVEMENT MARKINGS

PROJ. NO. I-HI-1(00):13

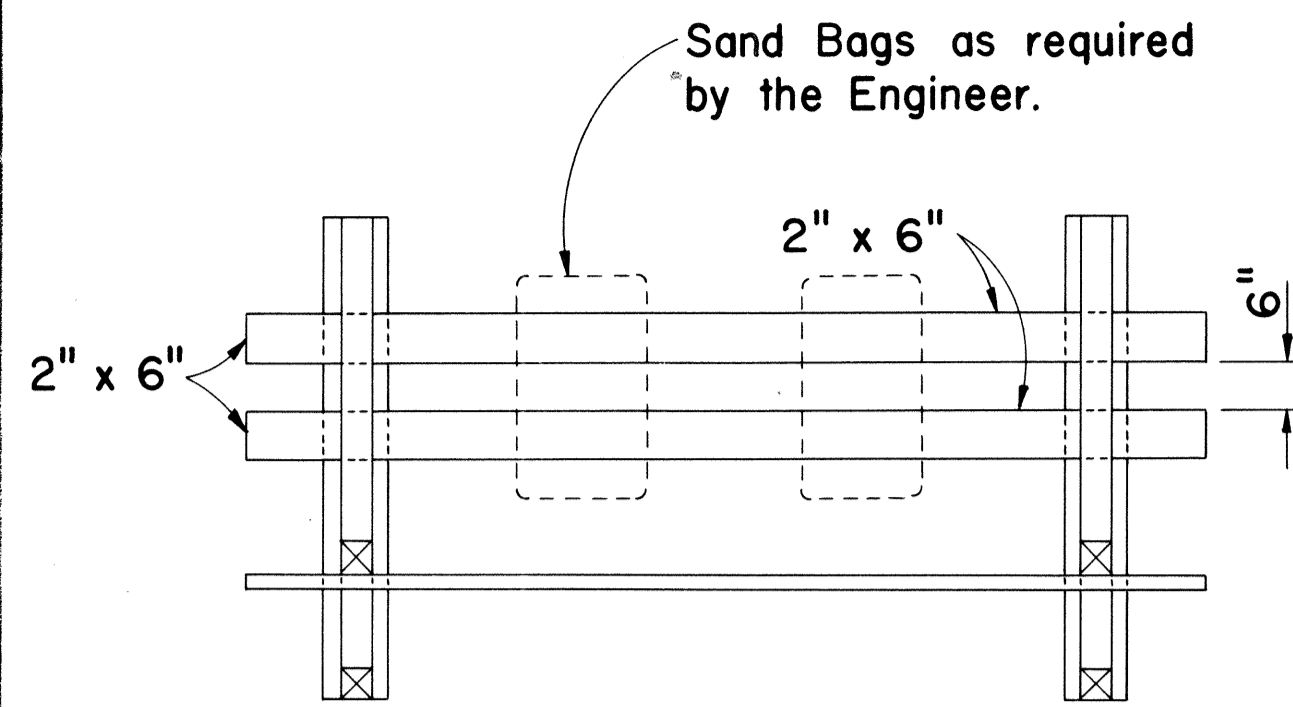
SCALE: AS SHOWN DATE:

SHEET NO. OF SHEETS

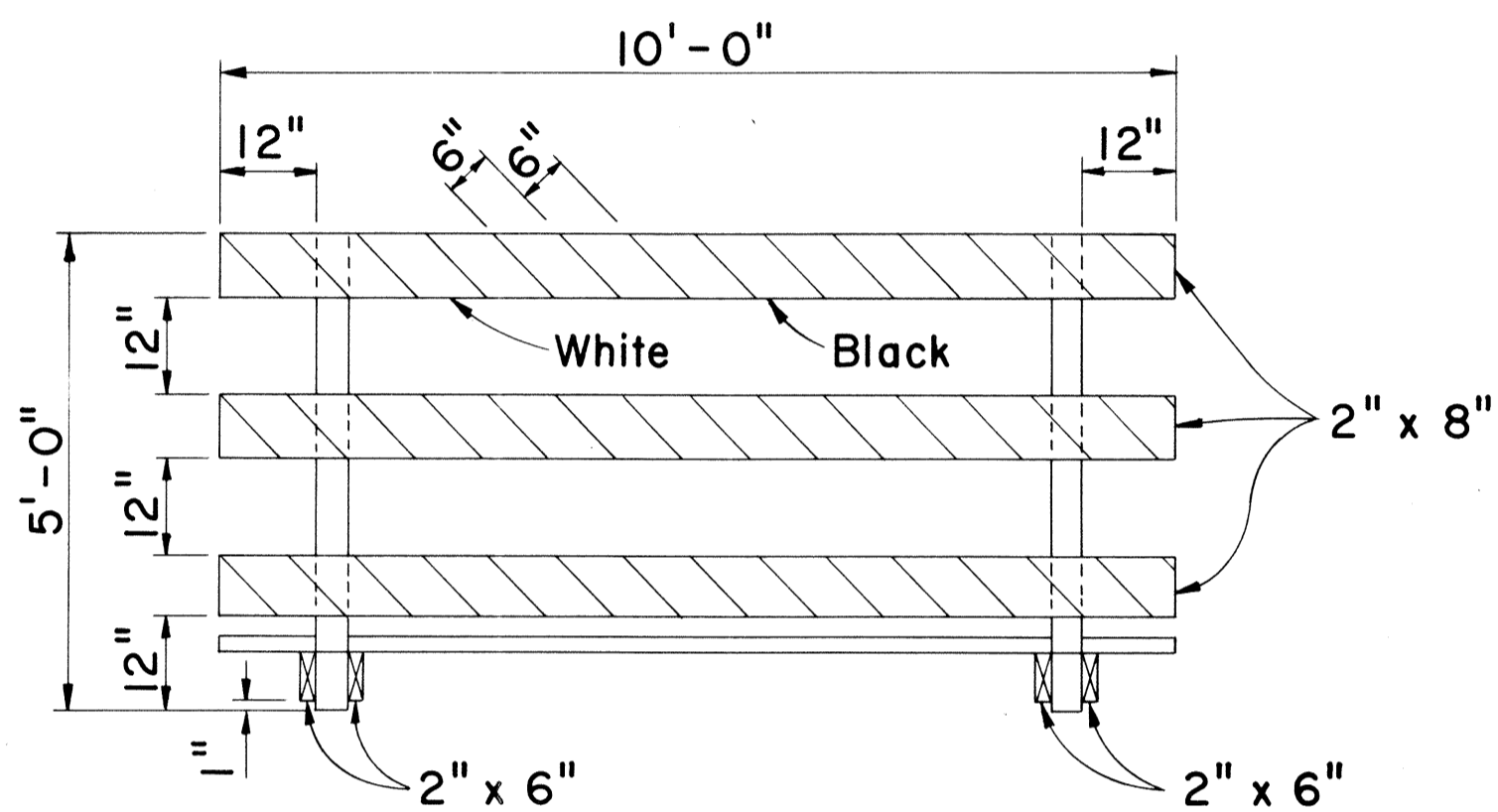
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(90)13	1972	89	202

GENERAL NOTES

1. The Contractor shall construct, install and maintain the wood barricades at the locations shown on the Plans.
2. The permanent wood barricades shall be left in place or relocated upon completion of the project as ordered by the Engineer and are to become State property.
3. The black and white stripes shall slant downward toward the side on which traffic is to pass.



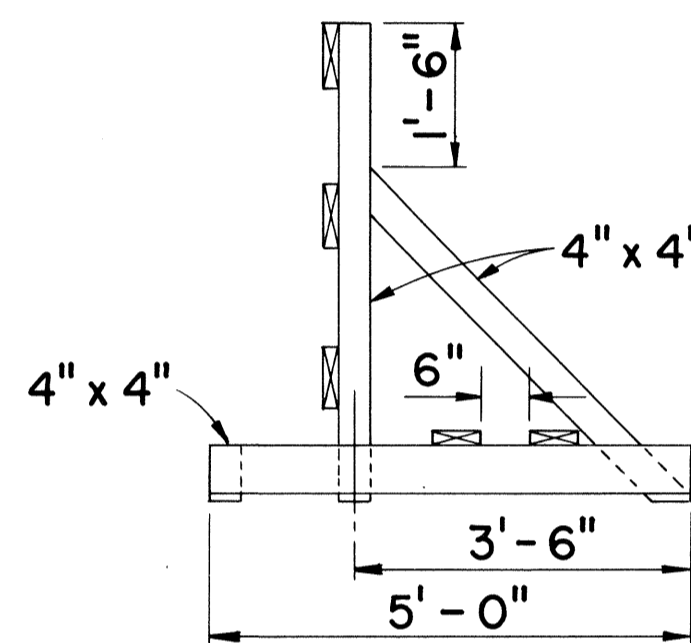
PLAN VIEW



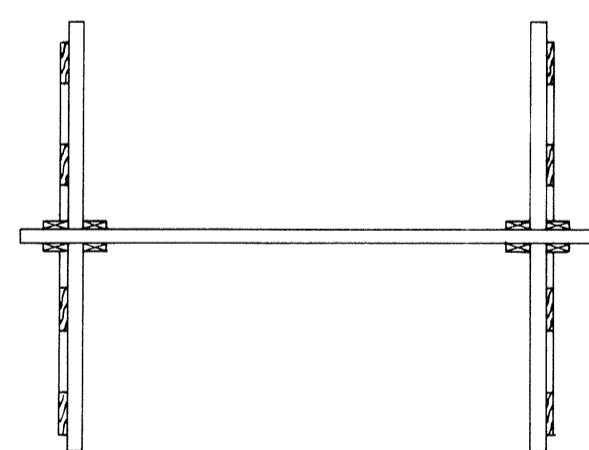
FRONT VIEW

CLASS I BARRICADE

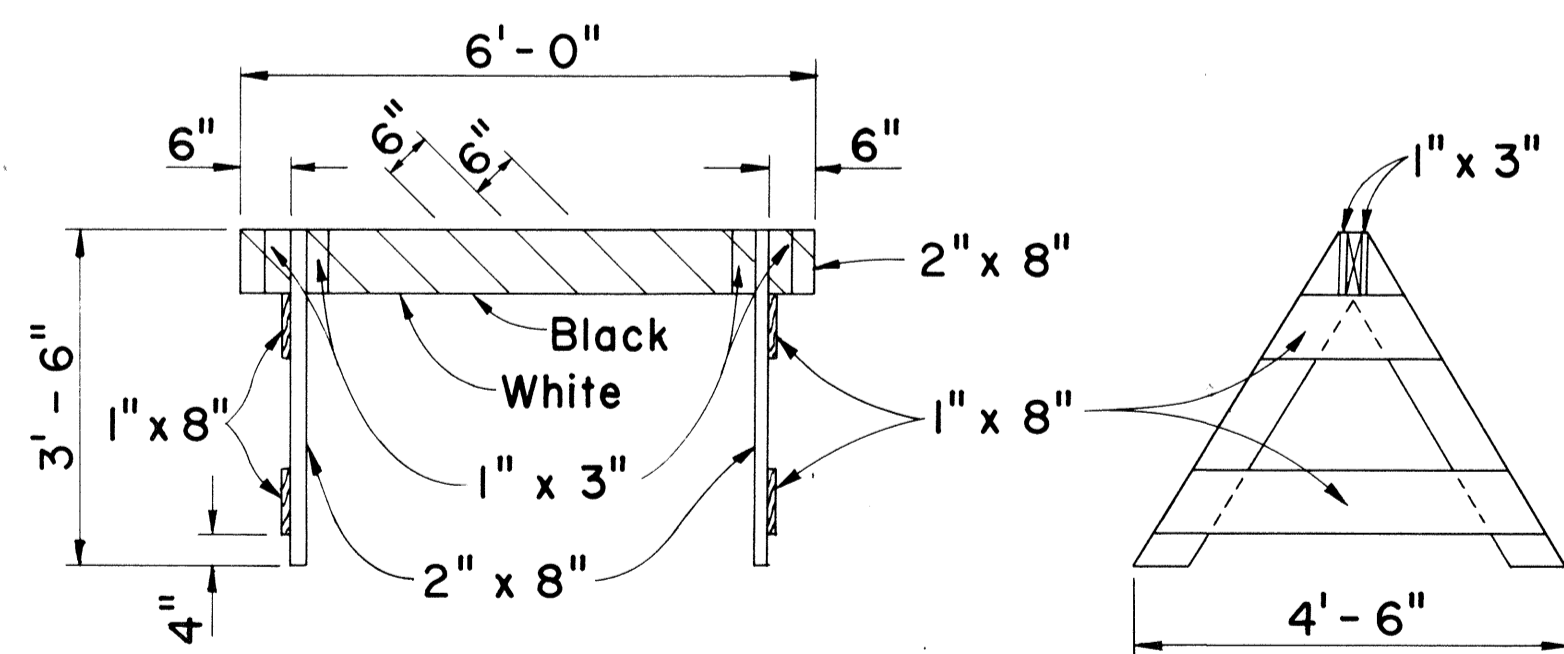
Scale: 1/2" = 1'-0"



END VIEW



PLAN VIEW

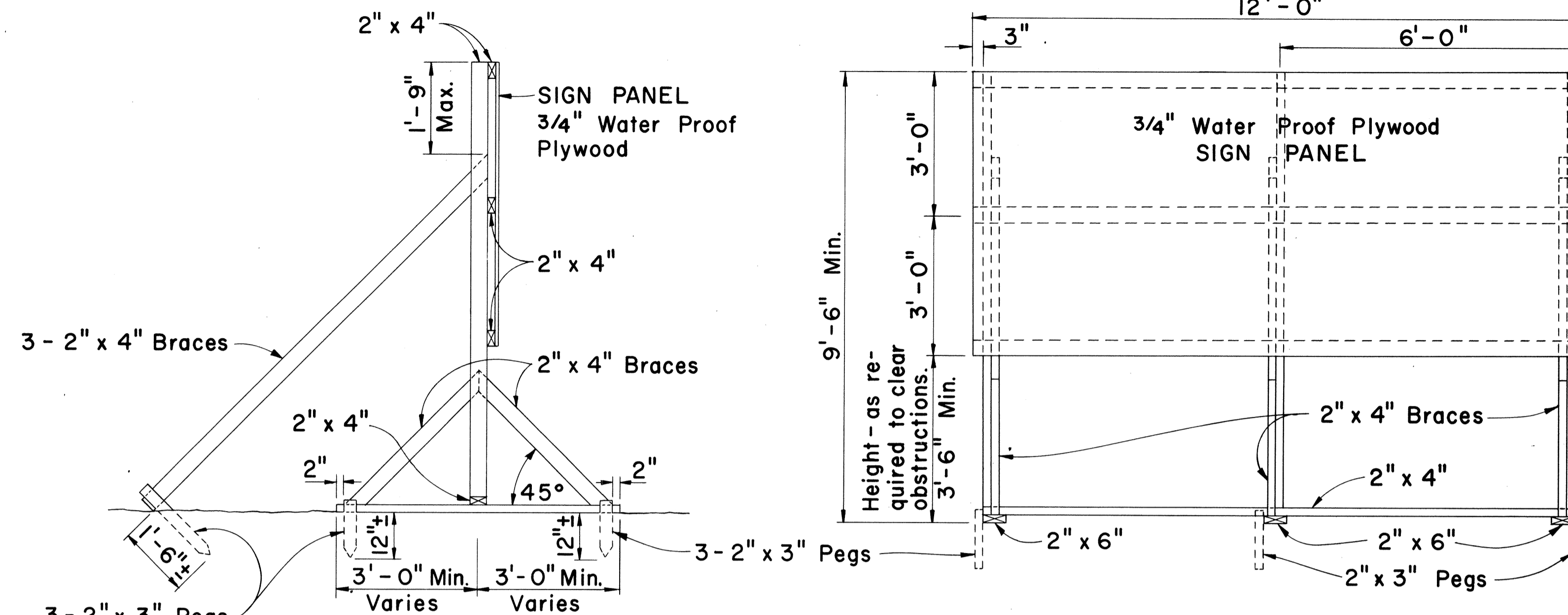


FRONT VIEW

END VIEW

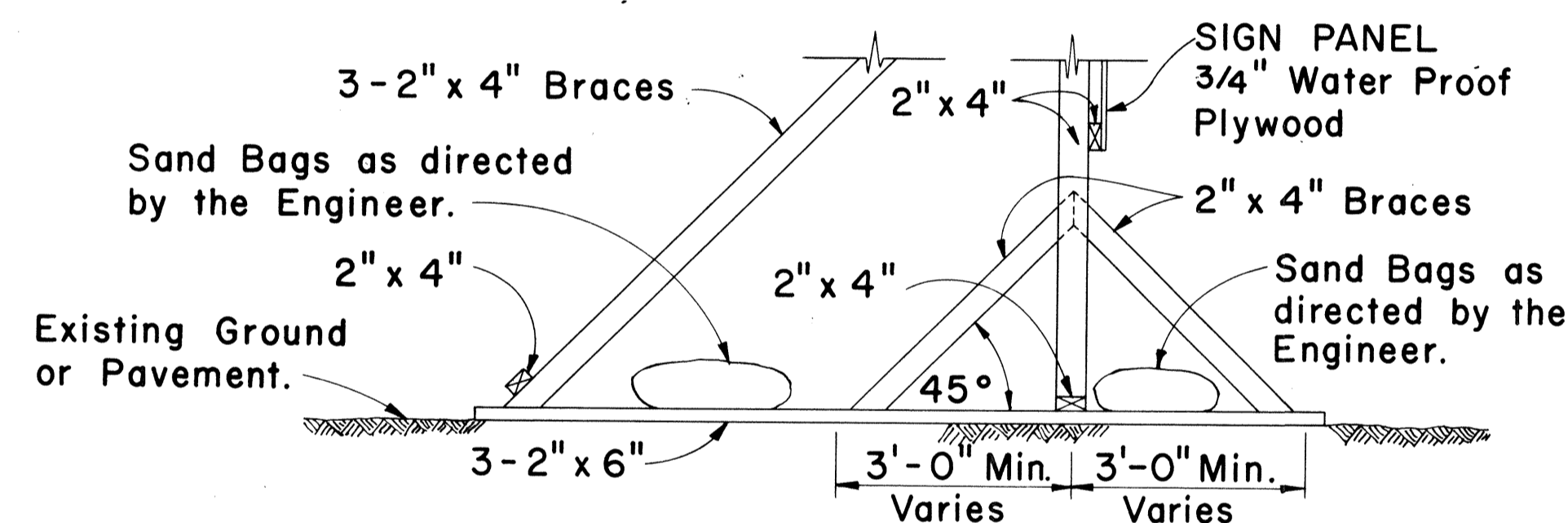
CLASS II BARRICADE

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



SIDE VIEW
(SIGN FRAME ANCHORED IN GROUND)
Scale: 1/2" = 1'-0"

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



SIDE VIEW
(SIGN FRAME WEIGHTED DOWN)
Scale: 1/2" = 1'-0"

GENERAL NOTES

1. The sign legend shall be black on white background except for the Interstate Route marker which shall be as shown on the plan.
2. The Contractor shall construct, install and maintain the project signs at the locations shown on the Plans and as ordered by the Engineer.
3. Letters shall be Series "C" of the sizes shown on the Plan and shall conform with the "Standard Alphabet for Highway Signs", Bureau of Public Roads, 1966.
4. The Contractor shall fill in the proper numerals in place of ciphers as ordered by the Engineer.

APPROVAL RECOMMENDED:

Eiichi Tanaka 12/29/69
TRAFFIC ENGINEER DATE

APPROVED:

Richard S. Smith 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

NO	REVISION	APPROVED BY	DATE
1	Reduce sign width to 12'-0"	H.T.	9-3-10
2	Delete "Bureau of Public Roads"	H.T.	9-29-10
3	Add Note No. 3 for Barricades	H.T.	5-4-71

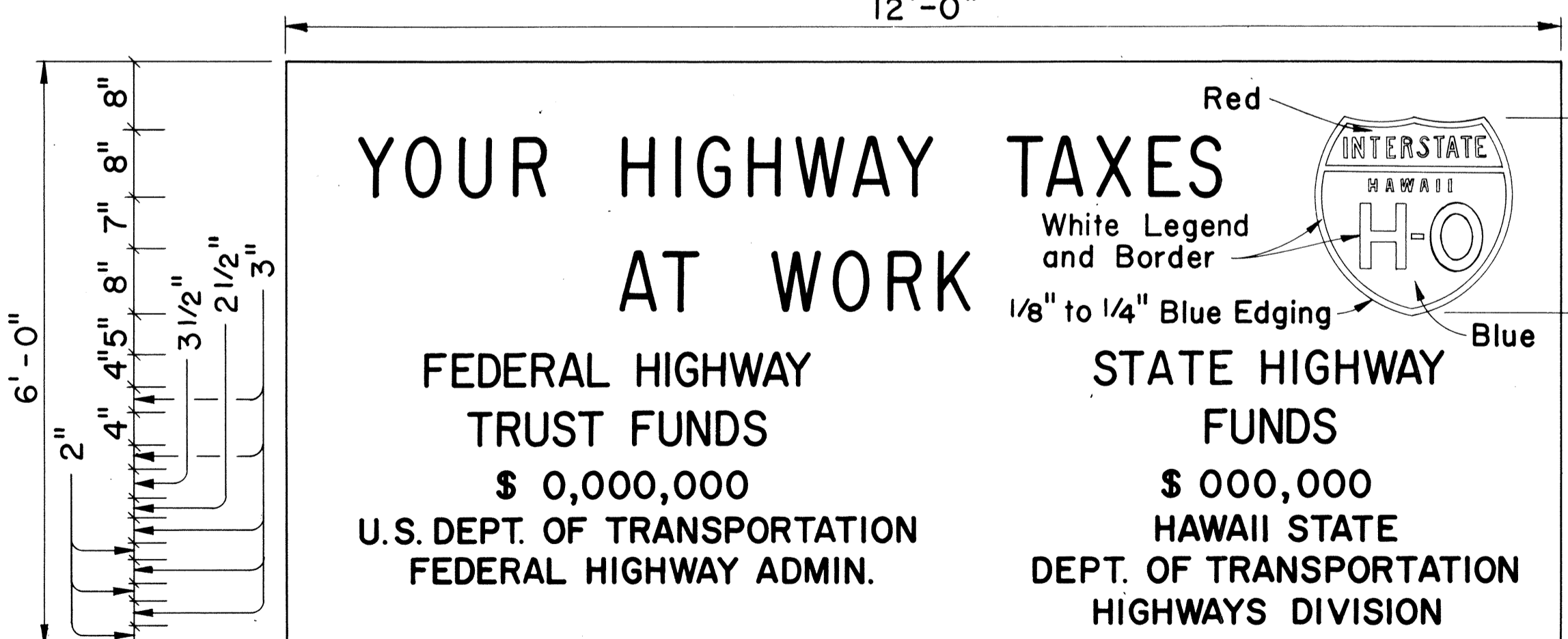
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS

CONSTRUCTION IDENTIFICATION SIGN
AND
WOOD BARRICADES

SCALE: As Shown DATE:

SHEET No. 18 OF 18 SHEETS DT 800



SIGN PANEL
Scale: 3/4" = 1'-0"

**INTERSTATE SYSTEM
CONSTRUCTION IDENTIFICATION SIGN**

Scale: As Shown

SSD

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