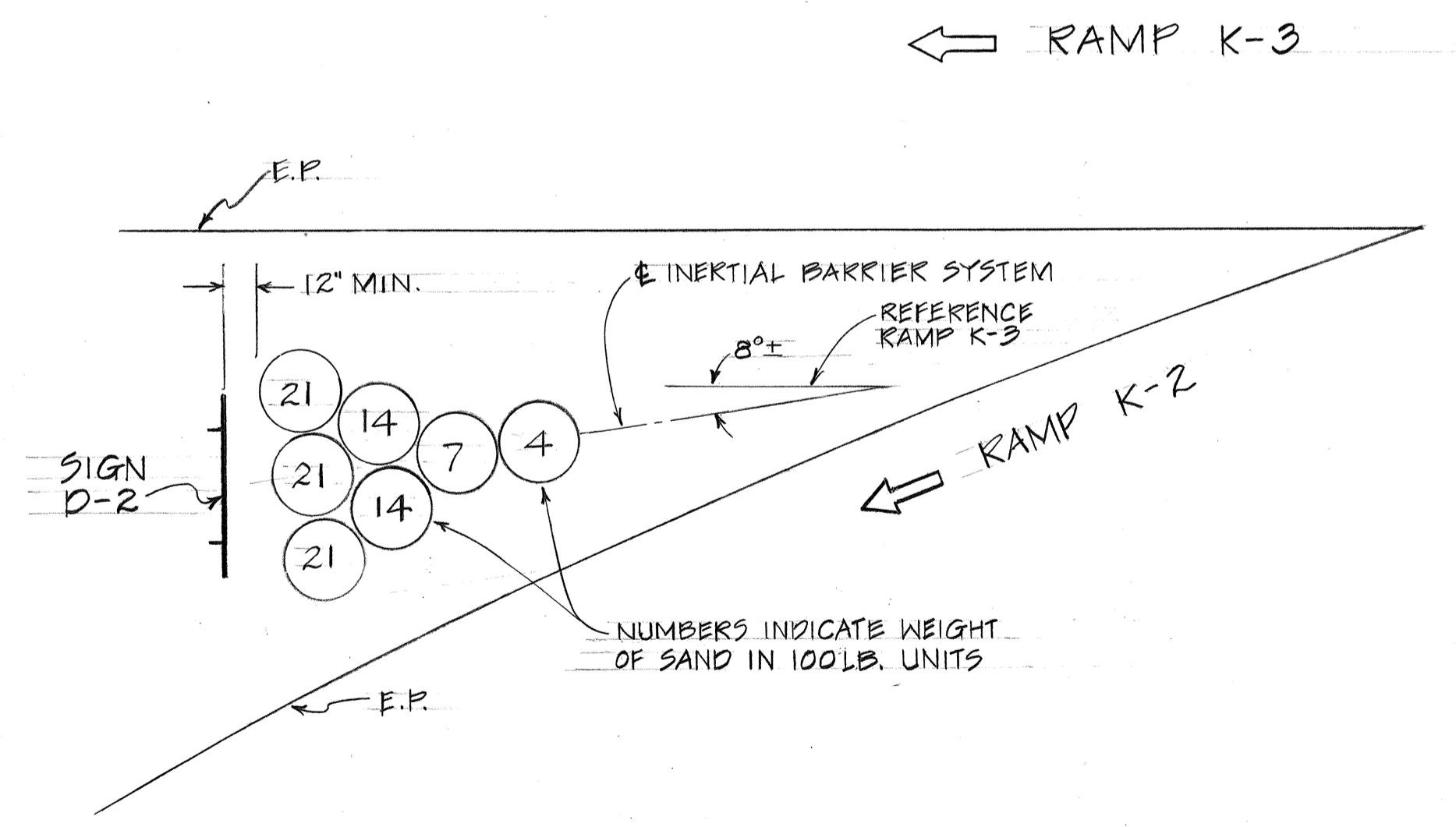
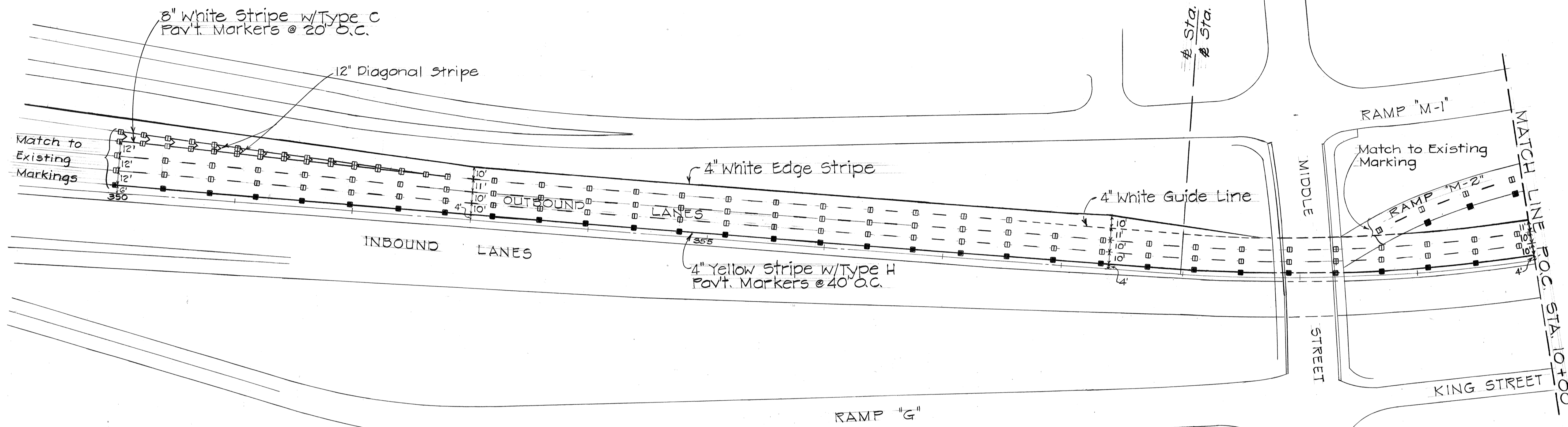


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(187)	1984	88	197

TRUE NORTH
Scale: 1"=50'



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING, MARKING PLAN

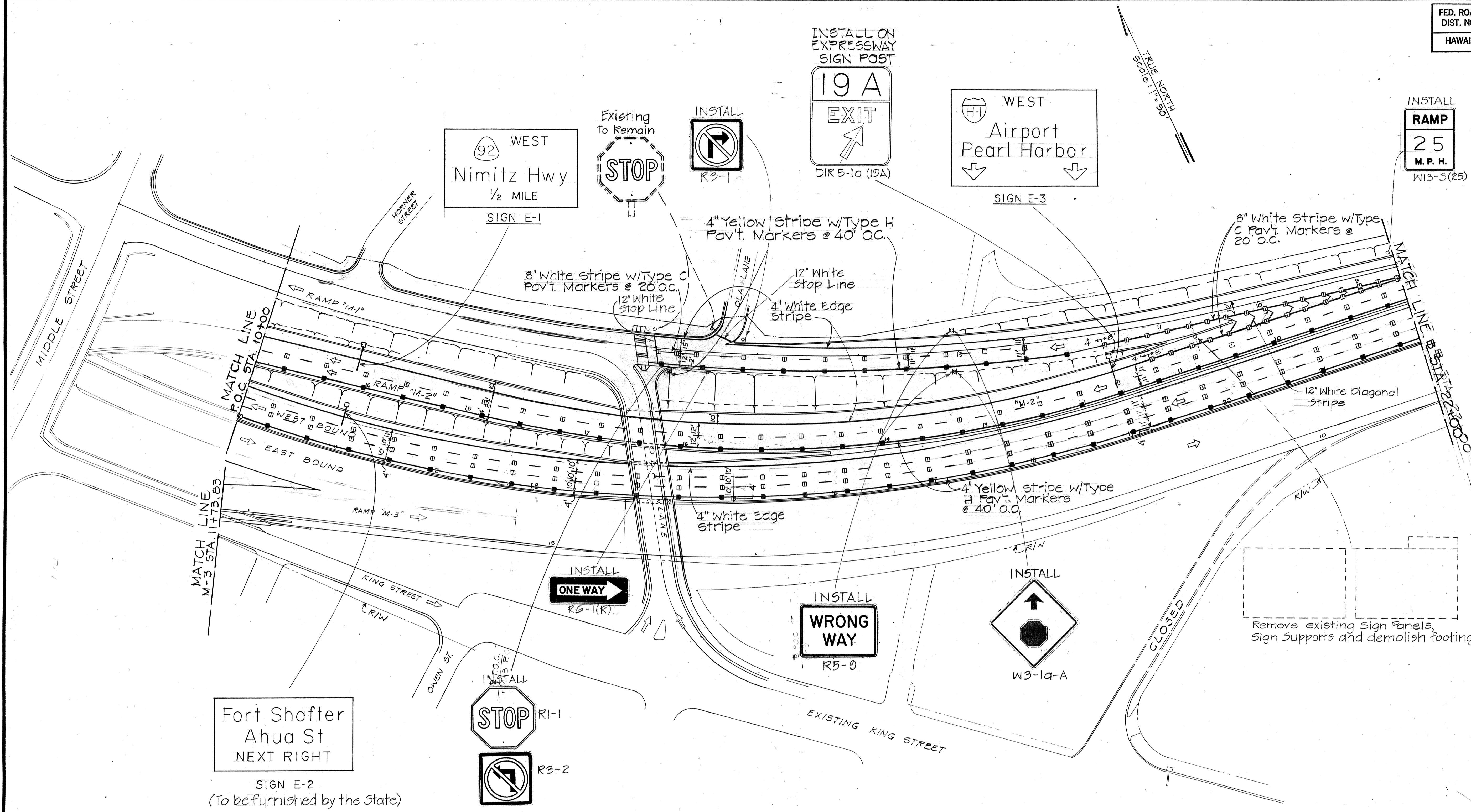
INTERSTATE H-1 IMPROVEMENTS
MIDDLE ST. TO KALIHI INTERCHANGE
WESTBOUND LANES

F.A.I. PROJ. NO. I-HI-1(187)

Scale: As Shown Date: July 1983

SHEET No. 1 OF 16 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(187)	1984	89	197



Fort Shafter
Ahua St
NEXT RIGHT
SIGN E-2
(To be furnished by the State)

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

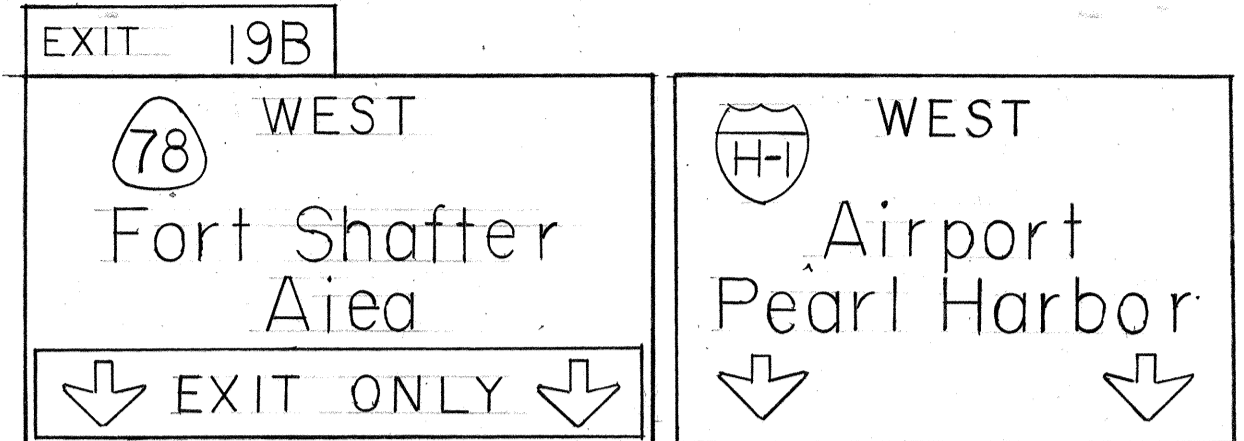
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

SIGNING, MARKING PLAN

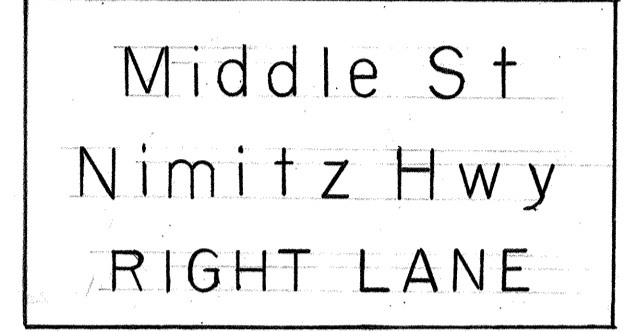
INTERSTATE H-1 IMPROVEMENTS
MIDDLE ST. TO KALIHI INTERCHANGE
WESTBOUND LANES
F.A.I. PROJ. NO. I-HI-1(187)
Scale: As Shown Date: July 1983
SHEET No. 2 OF 16 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(187)	1984	90	197

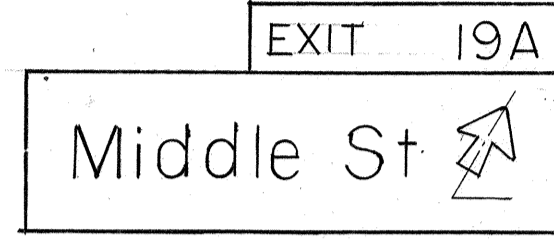
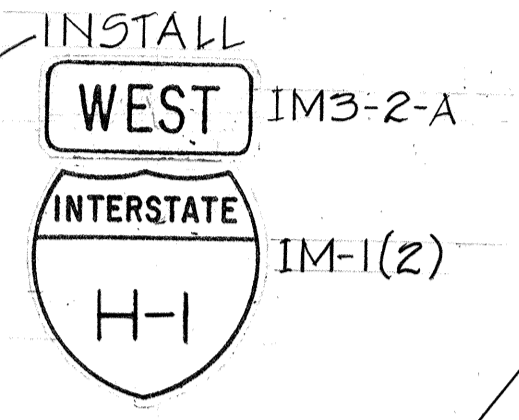
TRUE NORTH
SCALE: 1" = 50'



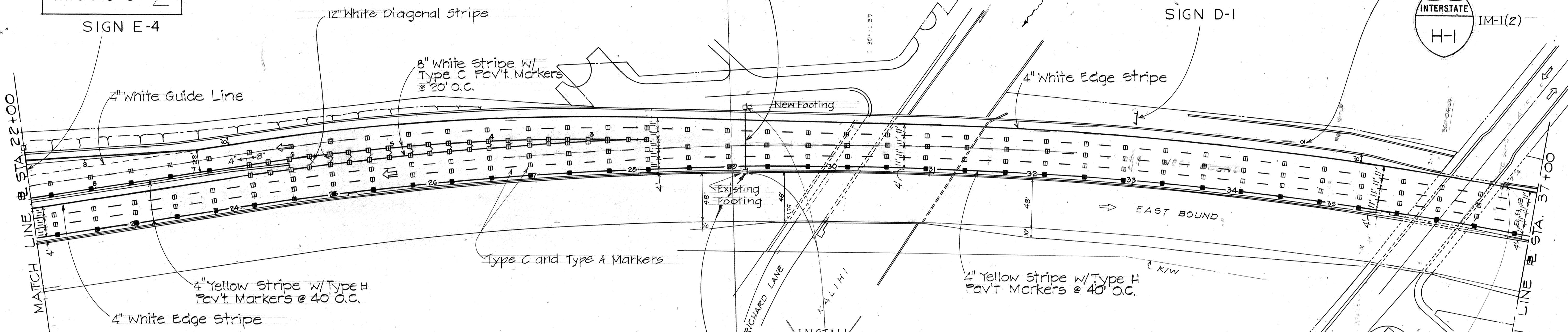
SIGN E-5 SIGN E-6



SIGN D-1

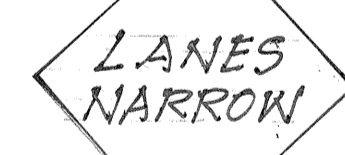


SIGN E-4

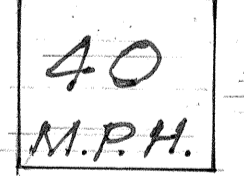


Deleted & Transferred to Plan Sheet 89

K2-1(35)-A on Sign Post INSTALL



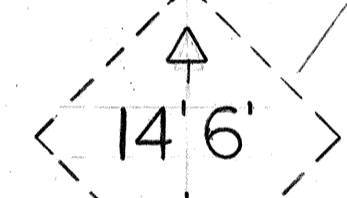
W5-1a 36" x 36"



W13-1(40)-A 24" x 24"

On Median Side Post Only

EXISTING ON ABUTMENT



LOW CLEARANCE TO REMAIN

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

SIGNING, MARKING PLAN

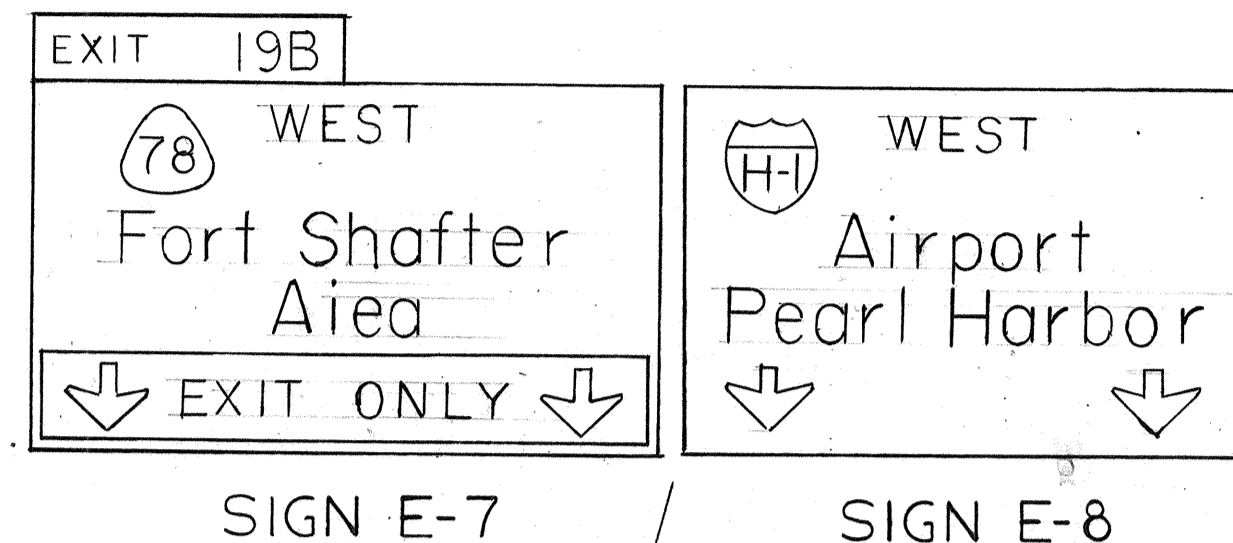
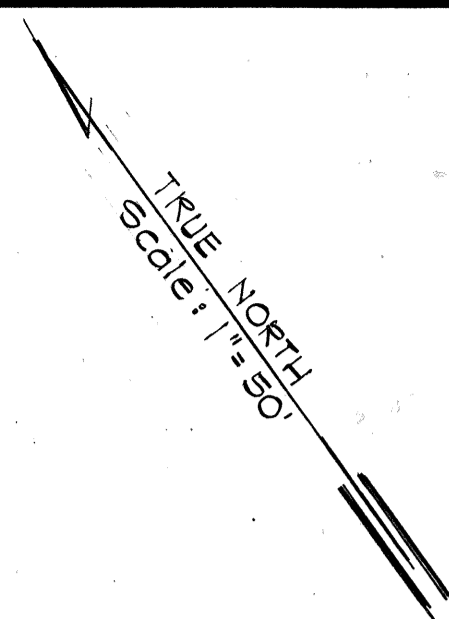
INTERSTATE H-1 IMPROVEMENTS
MIDDLE ST. TO KALIHI INTERCHANGE
WESTBOUND LANES

F.A.I. PROJ. NO. I-HI-1(187)

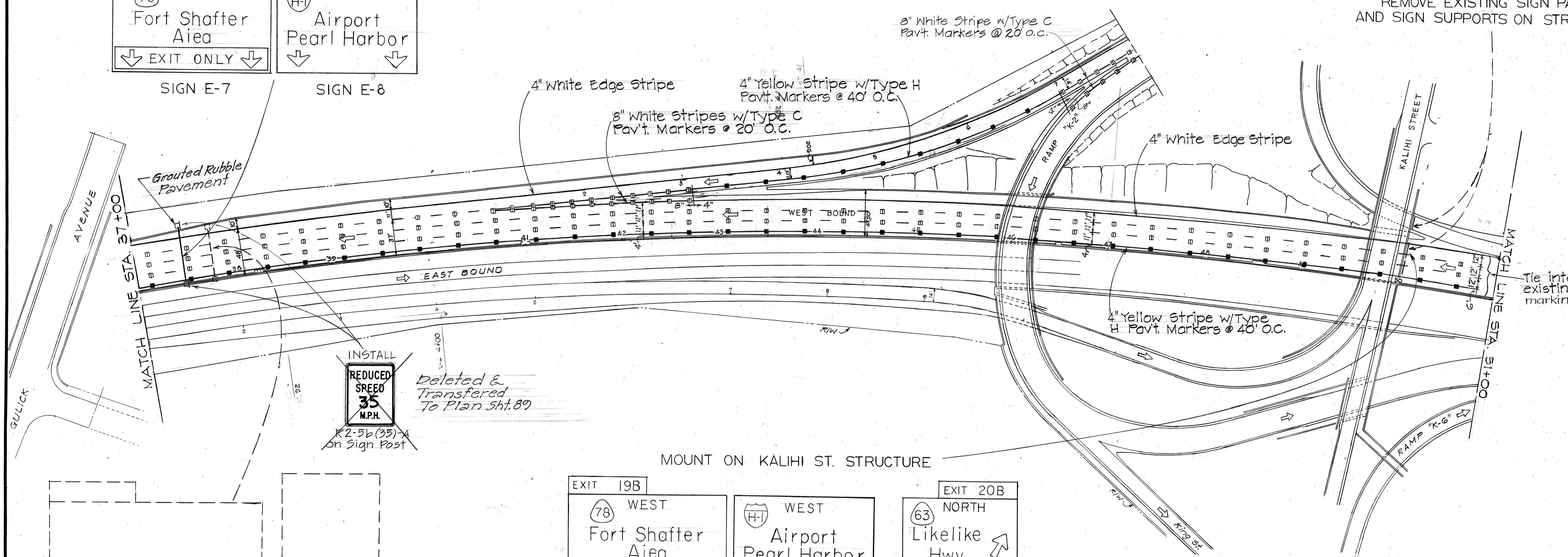
Scale: As Shown Date: July 1983

SHEET NO. 3 OF 16 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1187	1984	91	197



REMOVE EXISTING SIGN PANELS AND SIGN SUPPORTS ON STRUCTURE



INSTALL
REDUCED SPEED 35 M.P.H.
 R2-5b (35)-A
 on Sign Post

Deleted & Transferred To Plan Sht. 89



REMOVE EXISTING SIGN PANELS, SIGN SUPPORTS, AND DEMOLISH SHOULDER FOOTING. REMOVE COVER PLATE IN EXISTING MEDIAN BARRIER AND FILL OPENING WITH CONCRETE.

DATE	REVISION
4/5/84	Revised Note calling for Demolishing existing Sign Footing Sta. 37+75.

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION

SIGNING, MARKING PLAN

INTERSTATE H-1 IMPROVEMENTS
 MIDDLE ST. TO KALIHI INTERCHANGE
 WESTBOUND LANES

F.A.I. PROJ. NO. I-HI-1(187)

Scale: As Shown Date: July 1983
 SHEET No. 4 OF 16 SHEETS

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
TRACED 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.	I-HI-1(187)	1984	C.O.92	197

REMOVE EXISTING SIGN PANELS, SIGN SUPPORTS, AND DEMOLISH FOOTINGS

REMOVE EXISTING SIGN PANEL, SIGN SUPPORTS, AND DEMOLISH FOOTINGS.

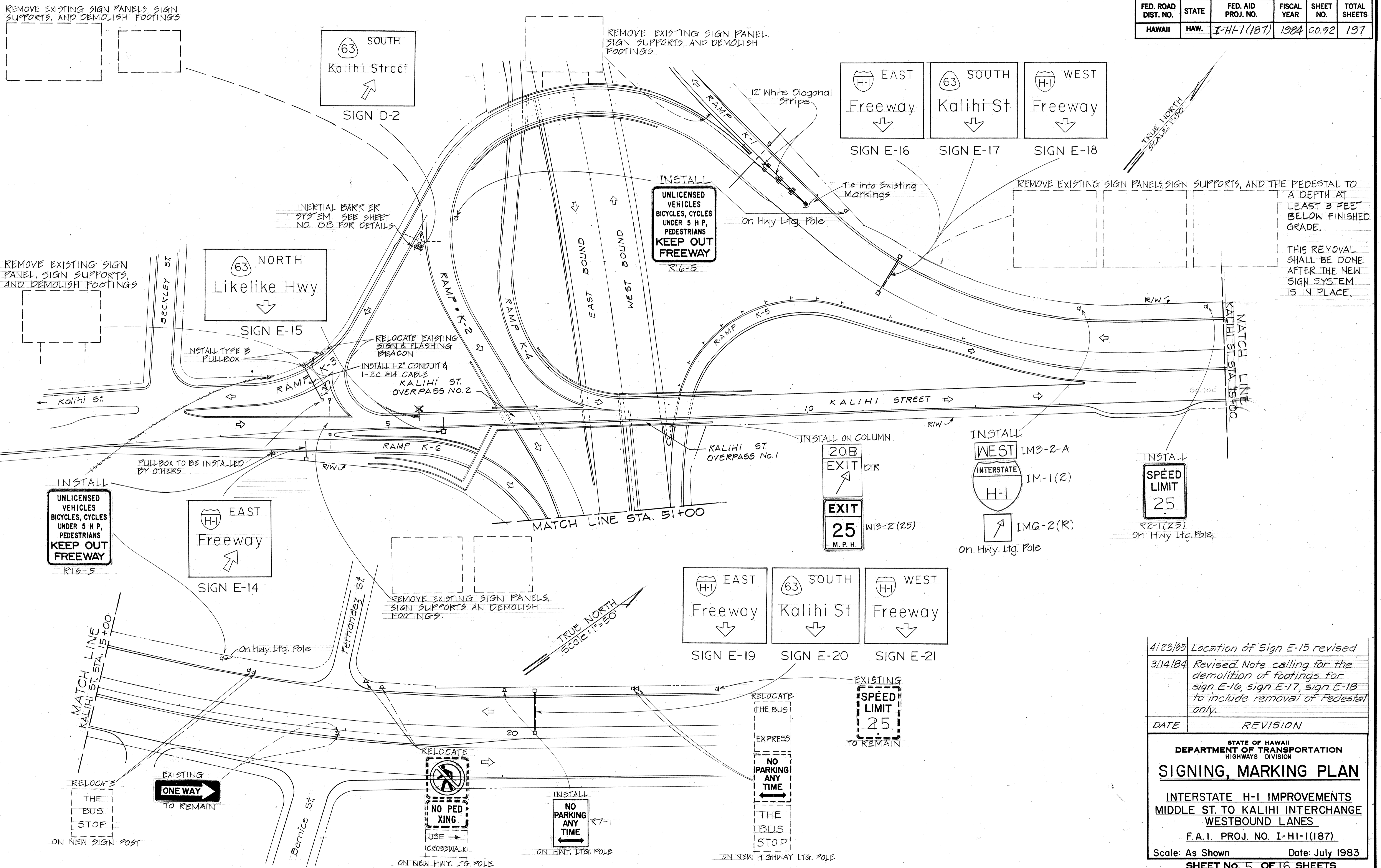
REMOVE EXISTING SIGN PANELS, SIGN SUPPORTS, AND THE PEDESTAL TO A DEPTH AT LEAST 3 FEET BELOW FINISHED GRADE.

THIS REMOVAL SHALL BE DONE AFTER THE NEW SIGN SYSTEM IS IN PLACE.

REMOVE EXISTING SIGN PANEL, SIGN SUPPORTS, AND DEMOLISH FOOTINGS

REMOVE EXISTING SIGN PANELS, SIGN SUPPORTS AN DEMOLISH FOOTINGS.

SURVEY PLOTTED BY	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	
QUANTITIES BY	
ORIGINAL PLAN No.	



DATE	REVISION
4/23/85	Location of Sign E-15 revised
3/14/84	Revised Note calling for the demolition of footings for sign E-16, sign E-17, sign E-18 to include removal of Pedestal only.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

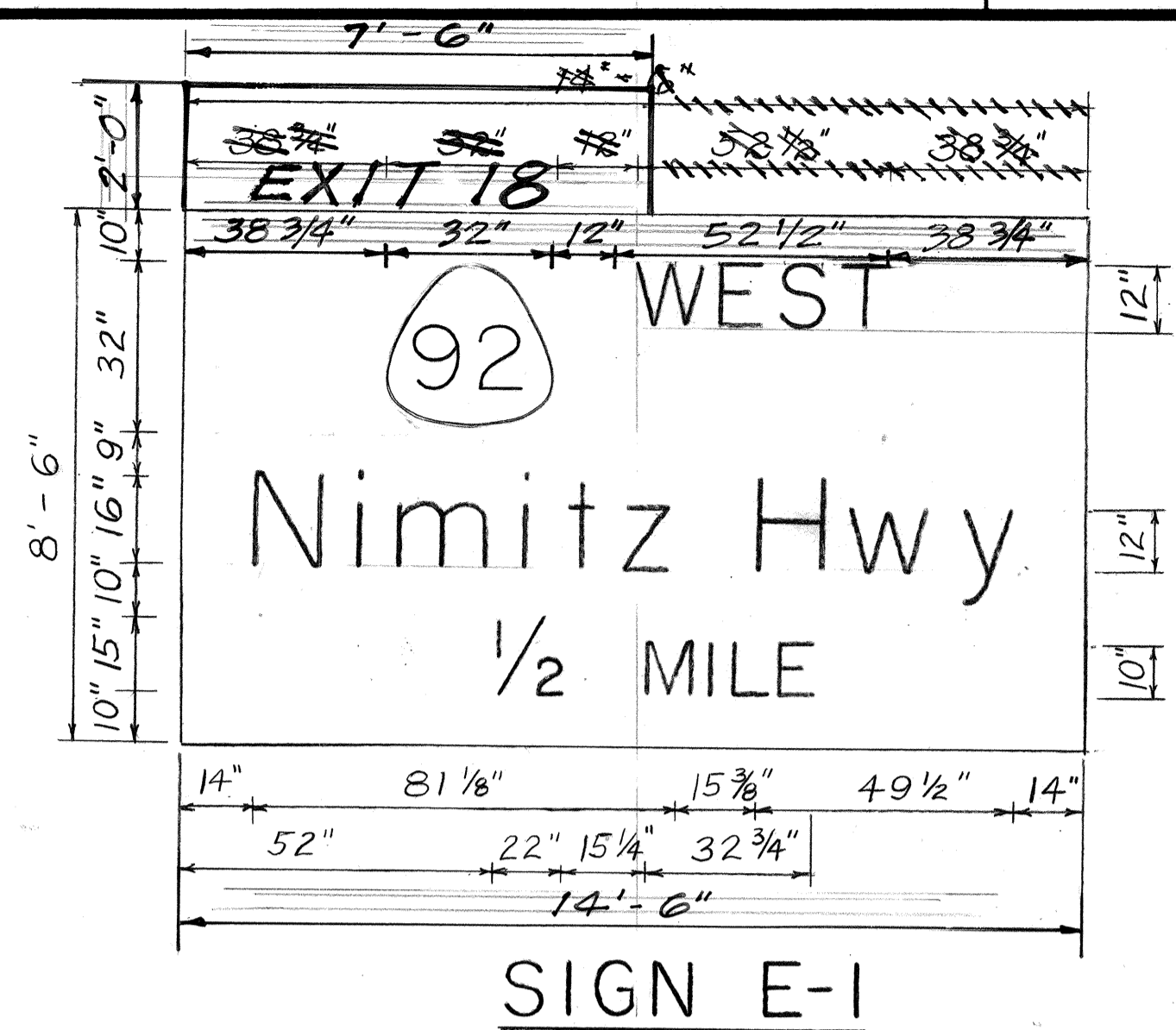
SIGNING, MARKING PLAN

INTERSTATE H-1 IMPROVEMENTS
MIDDLE ST. TO KALIHI INTERCHANGE
WESTBOUND LANES

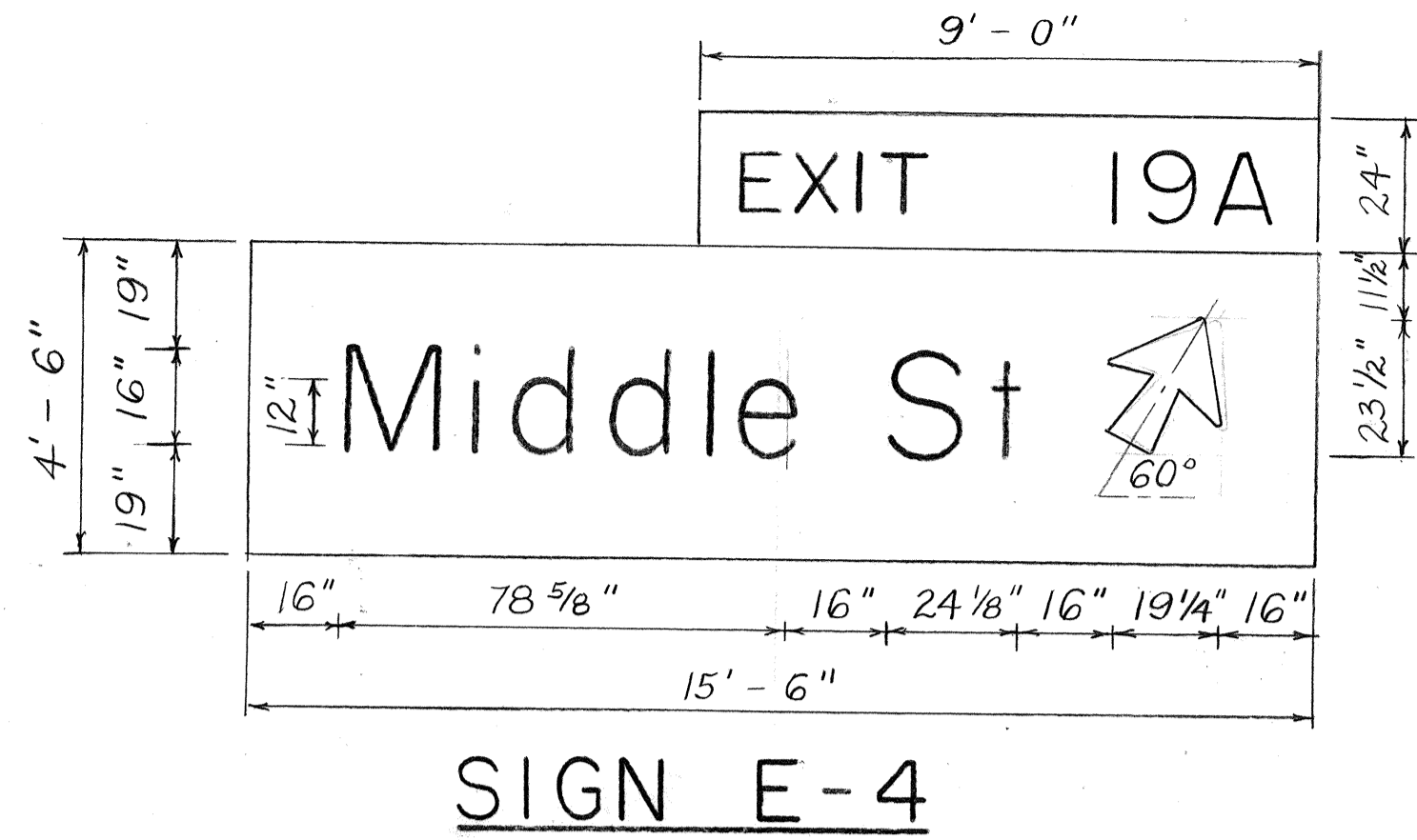
F.A.I. PROJ. NO. I-HI-1(187)

Scale: As Shown Date: July 1983
SHEET No. 5 OF 16 SHEETS

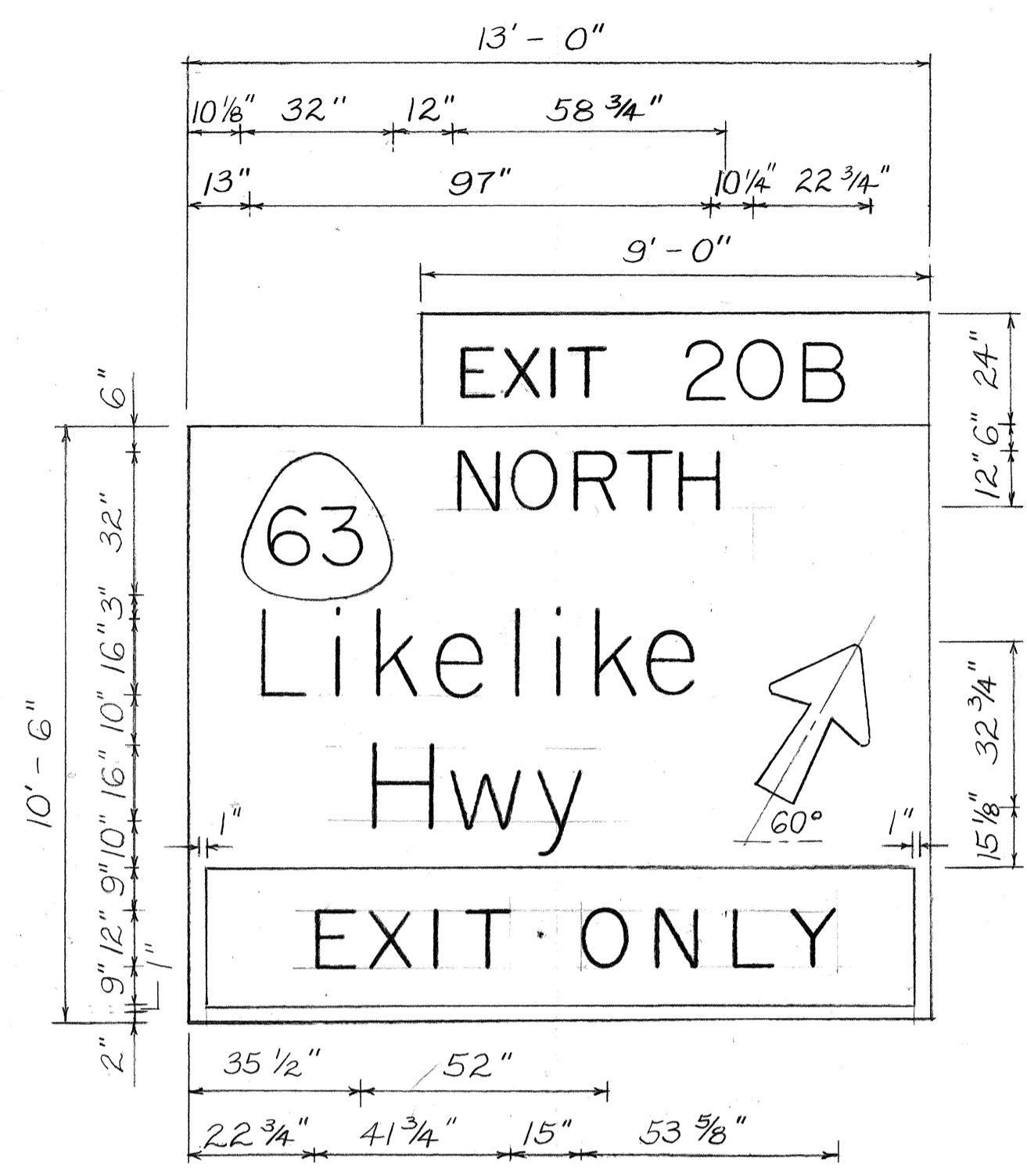
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(187)	1984	94	197



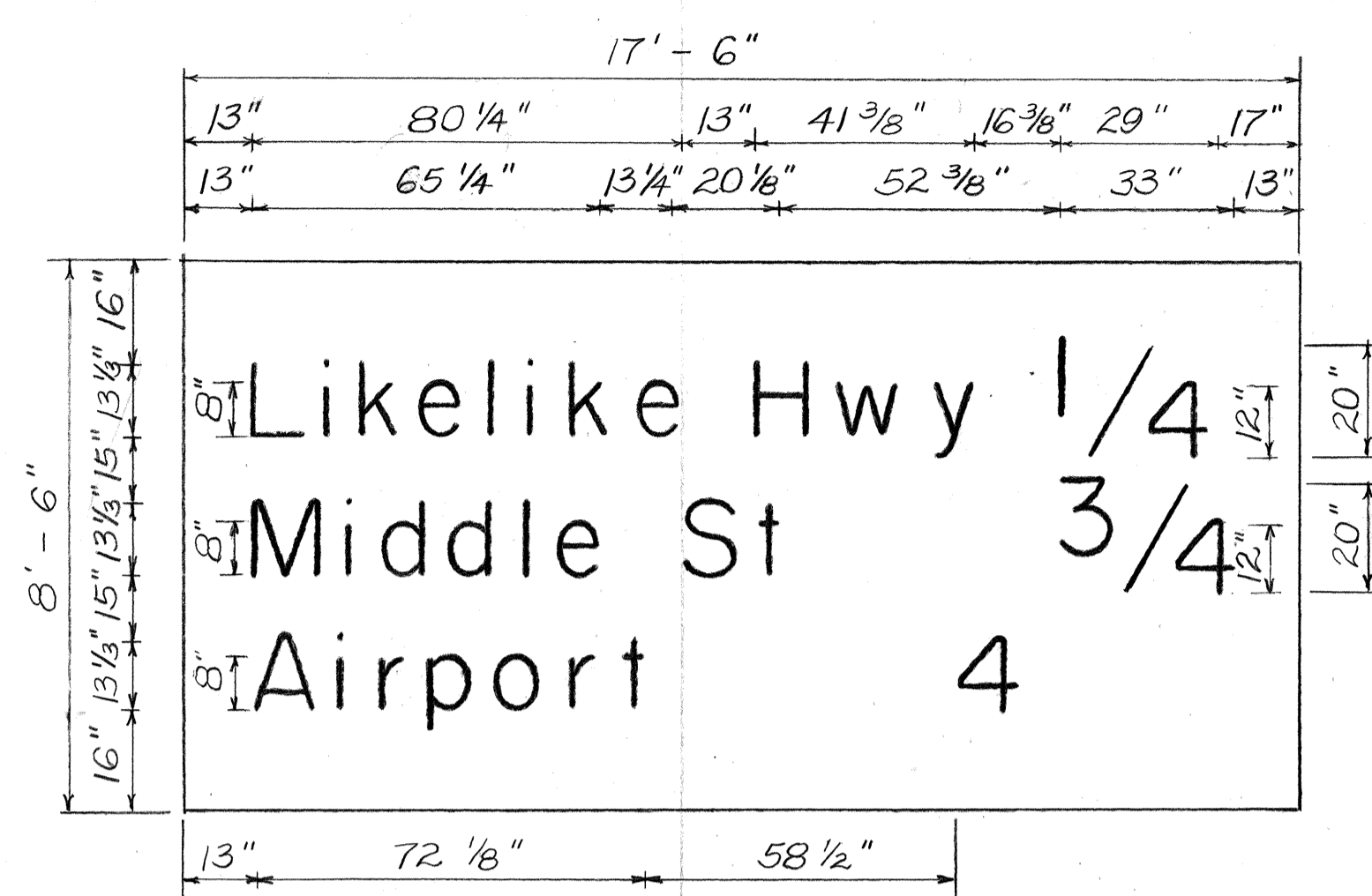
SIGN E-1



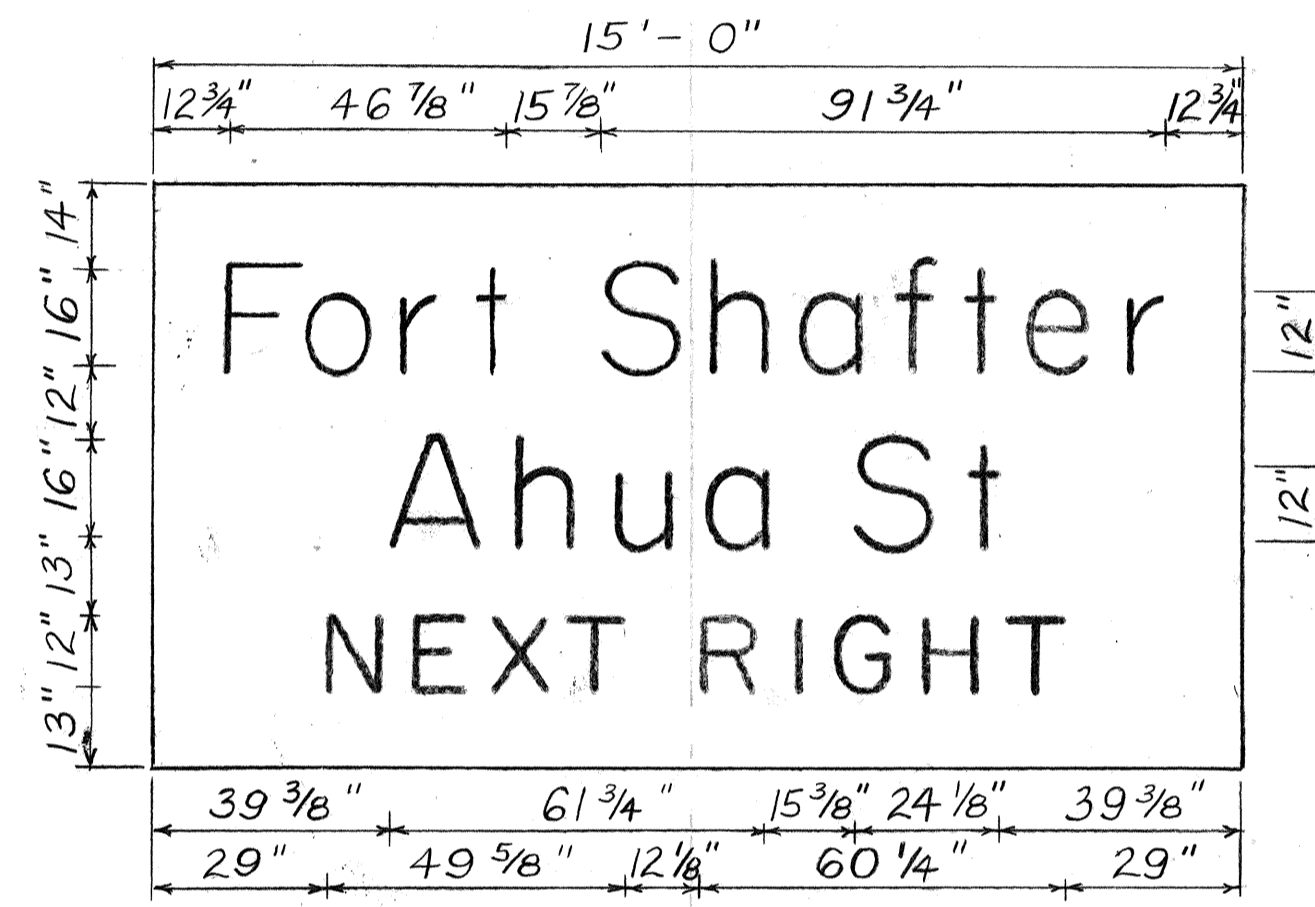
SIGN E-4



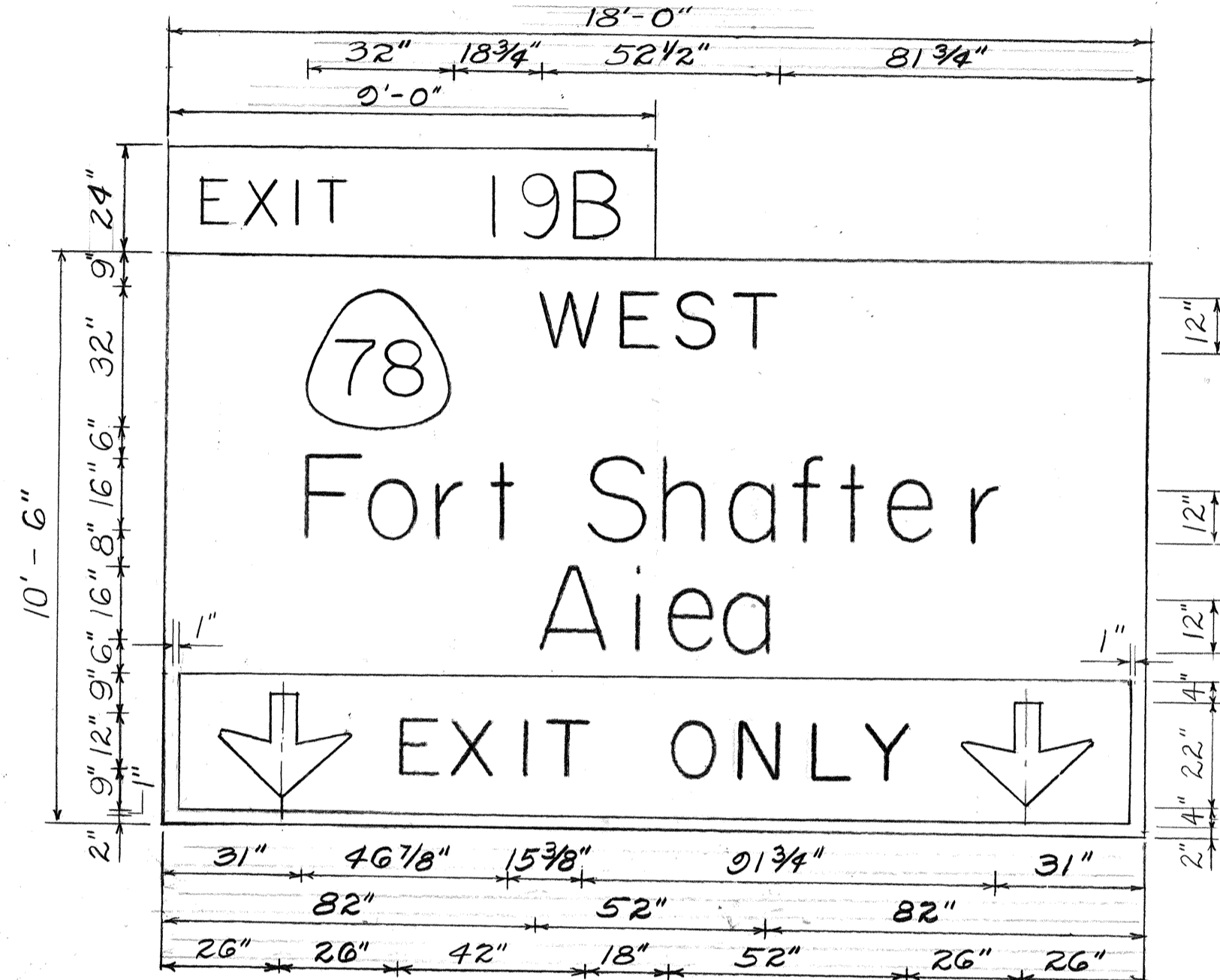
SIGN E-II



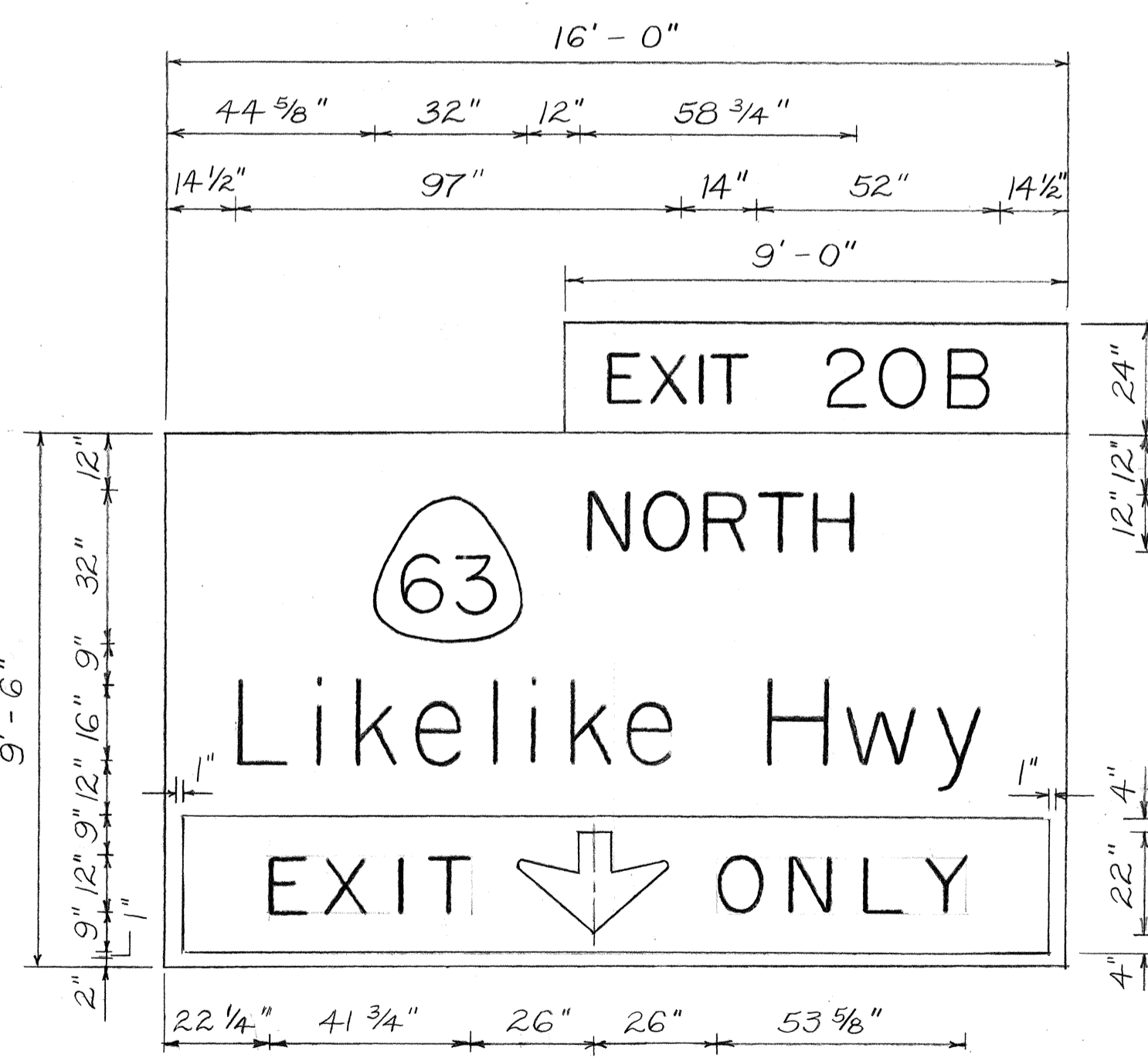
SIGN E-13



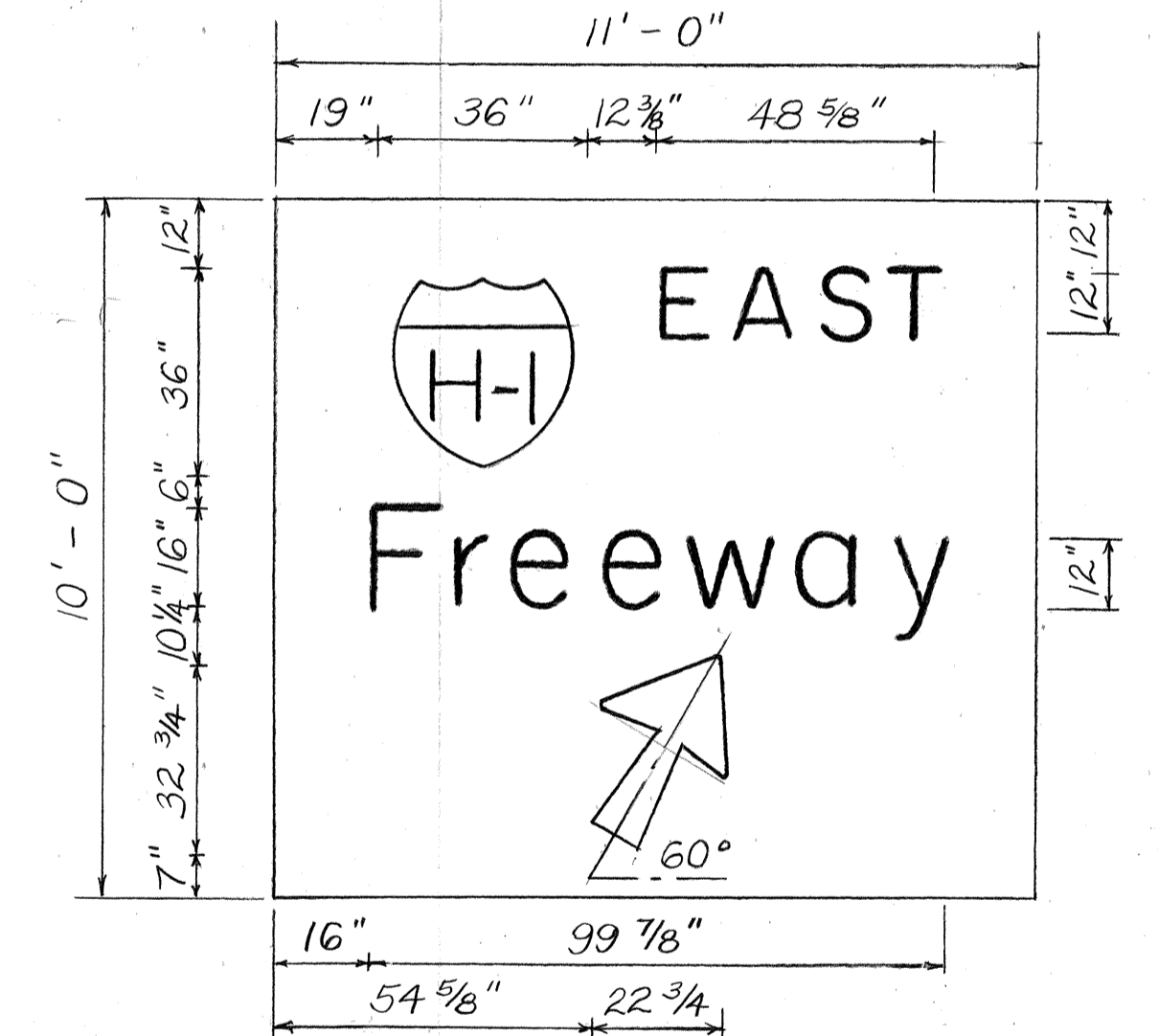
SIGN E-2



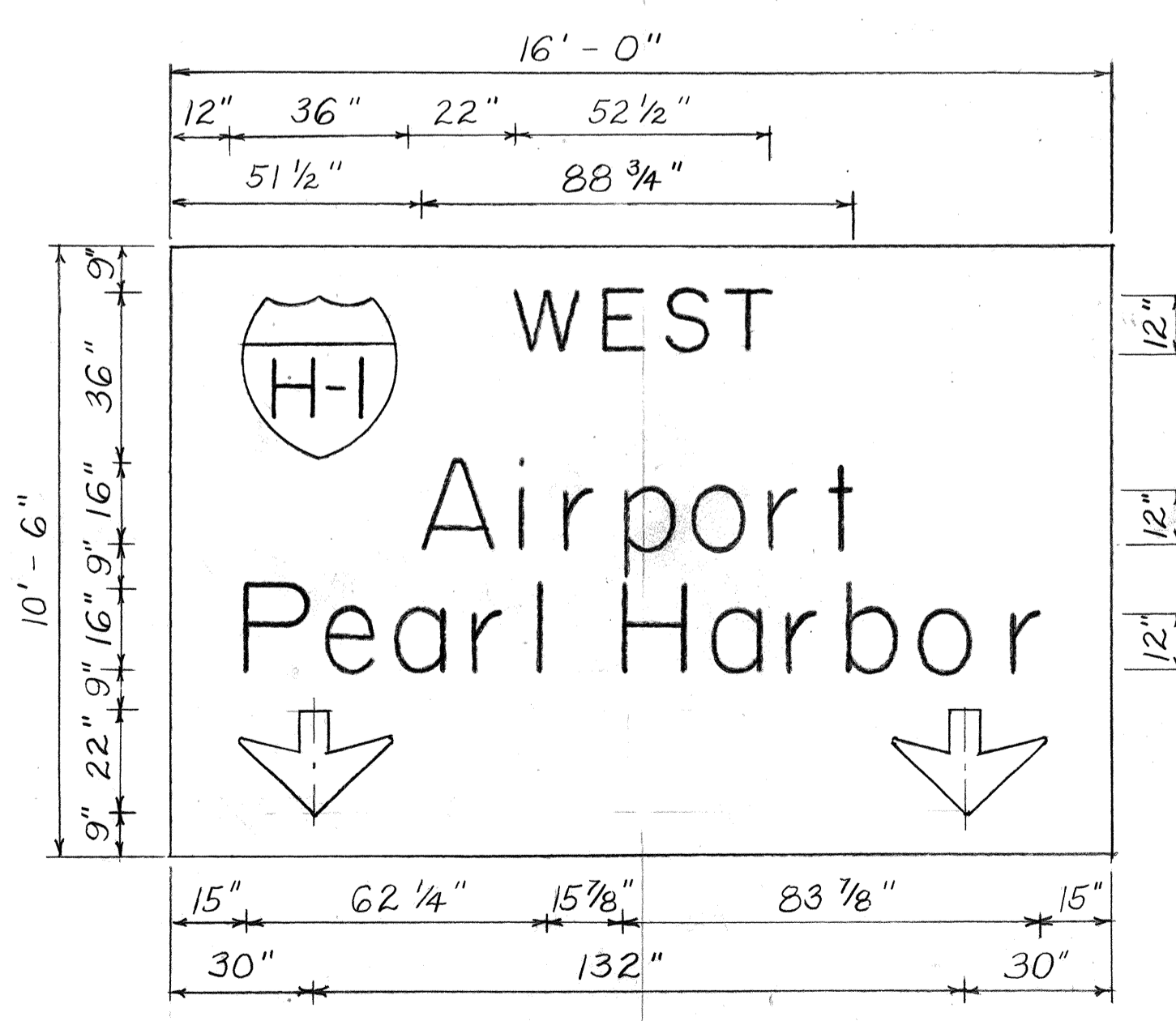
SIGN E-5, E-7 & E-9



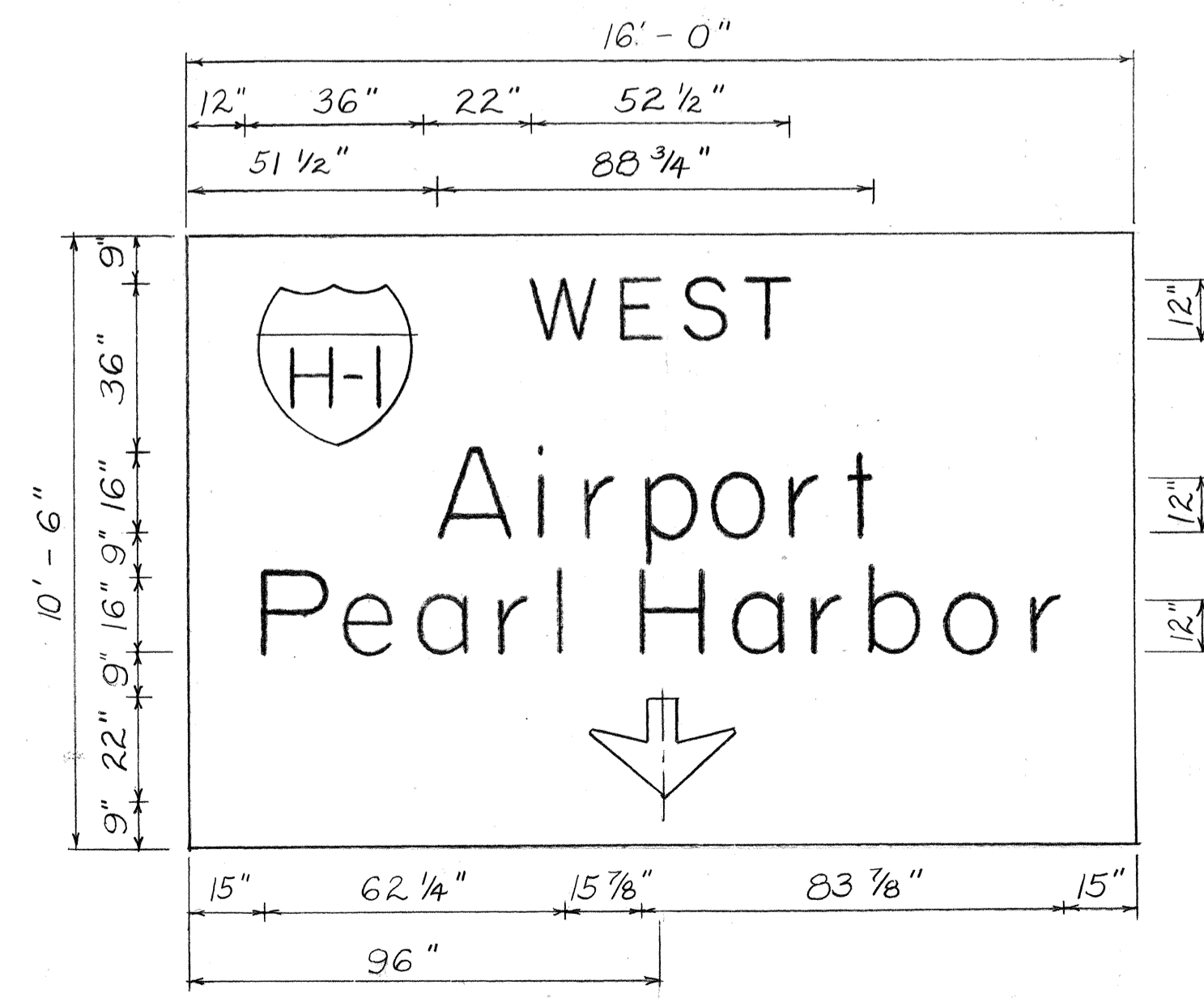
SIGN E-12



SIGN E-14



SIGN E-3, E-6 & E-8

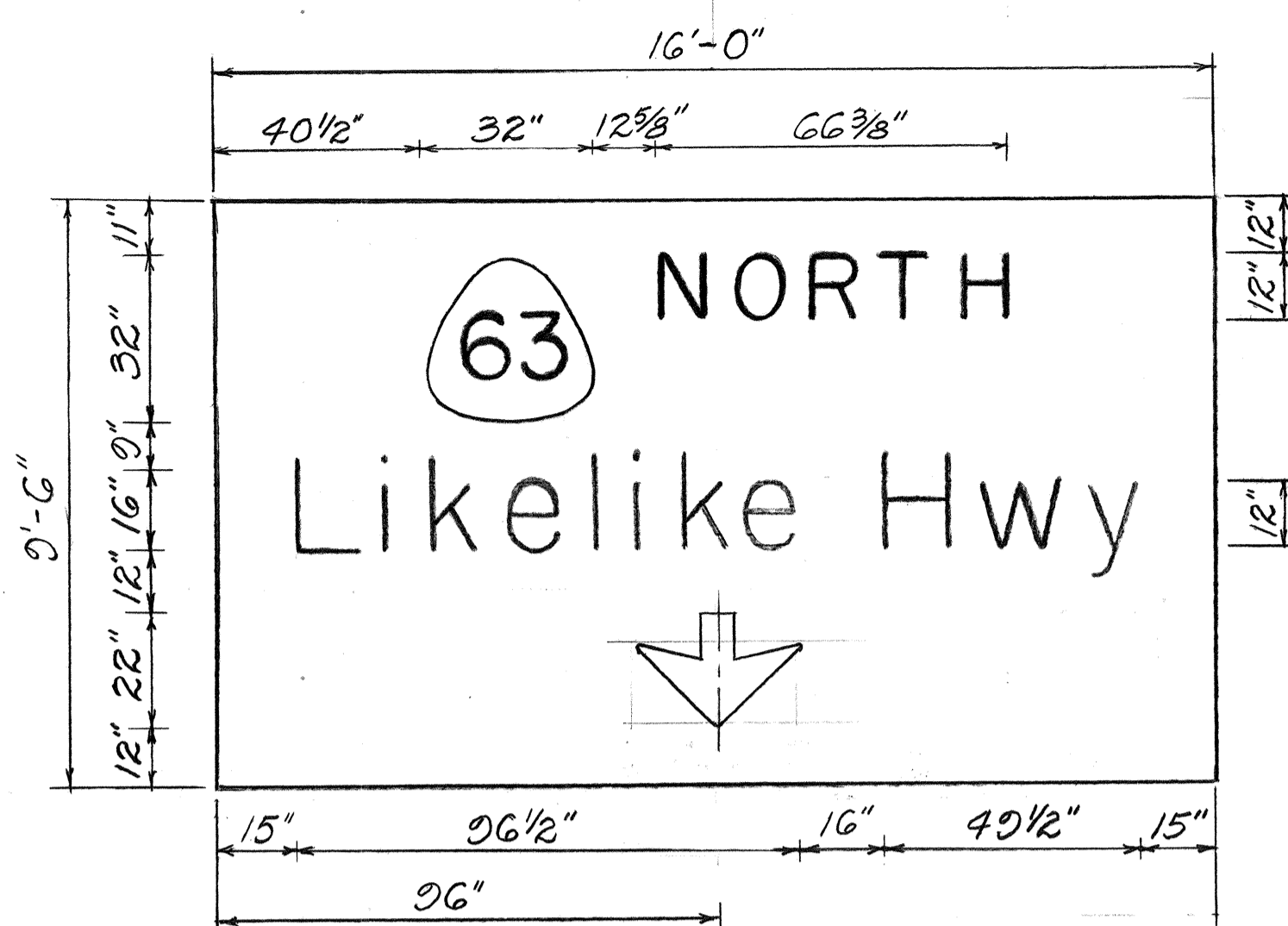


SIGN E-10

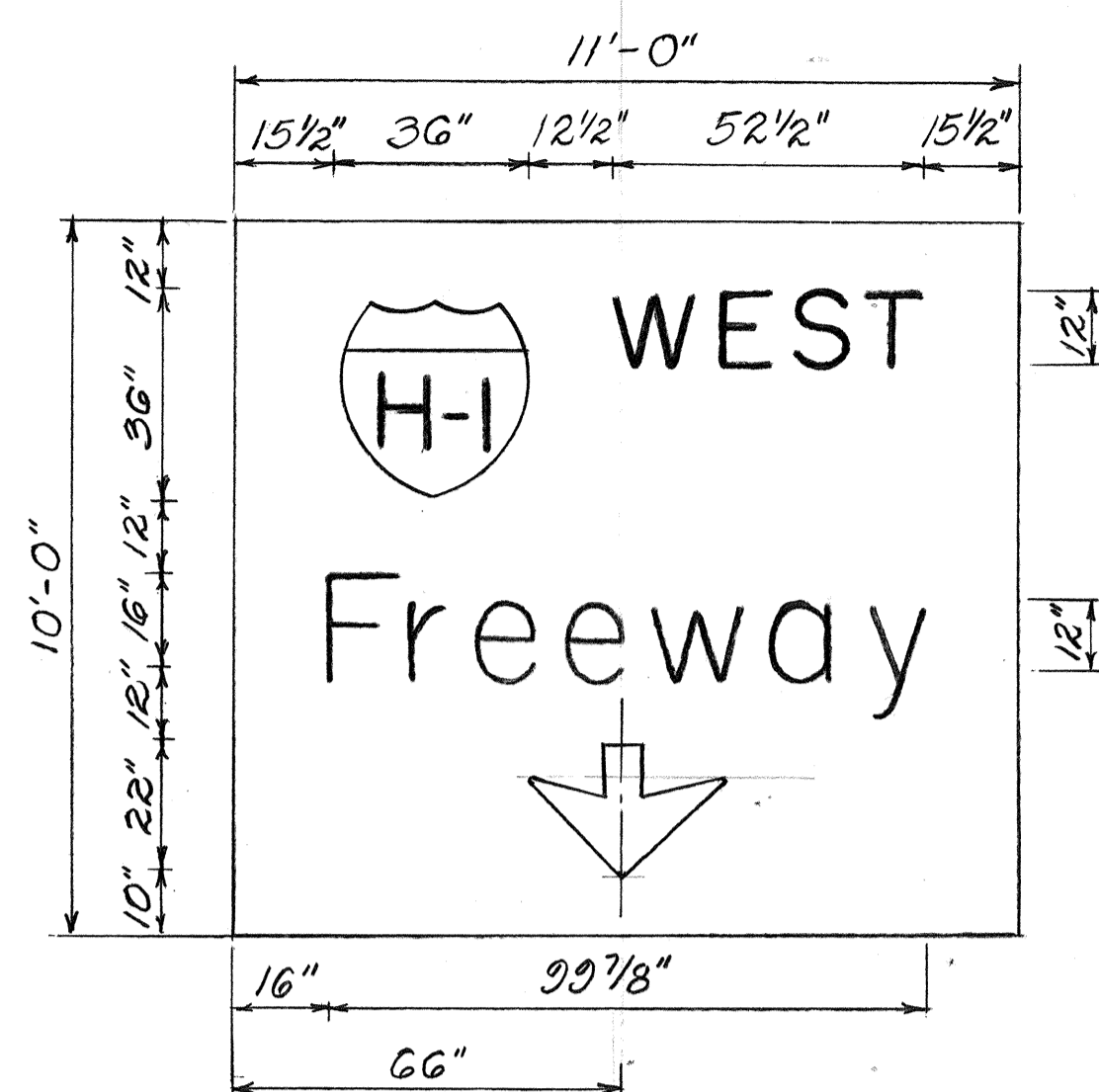
DATE	_____
DESIGNED BY	_____
DRAWN BY	_____
CHECKED BY	_____
QUANTITIES BY	_____
NOTE BOOK	_____
ORIGINAL PLAN	_____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PANEL LAYOUTS
INTERSTATE H-1 IMPROVEMENTS
MIDDLE ST. TO KALIHI INTERCHANGE
WESTBOUND LANES
F.A.I. PROJ. NO. I-HI-1(187)
Scale: 3/8" = 1'-0" Date: July 1983
SHEET No. 7 OF 16 SHEETS

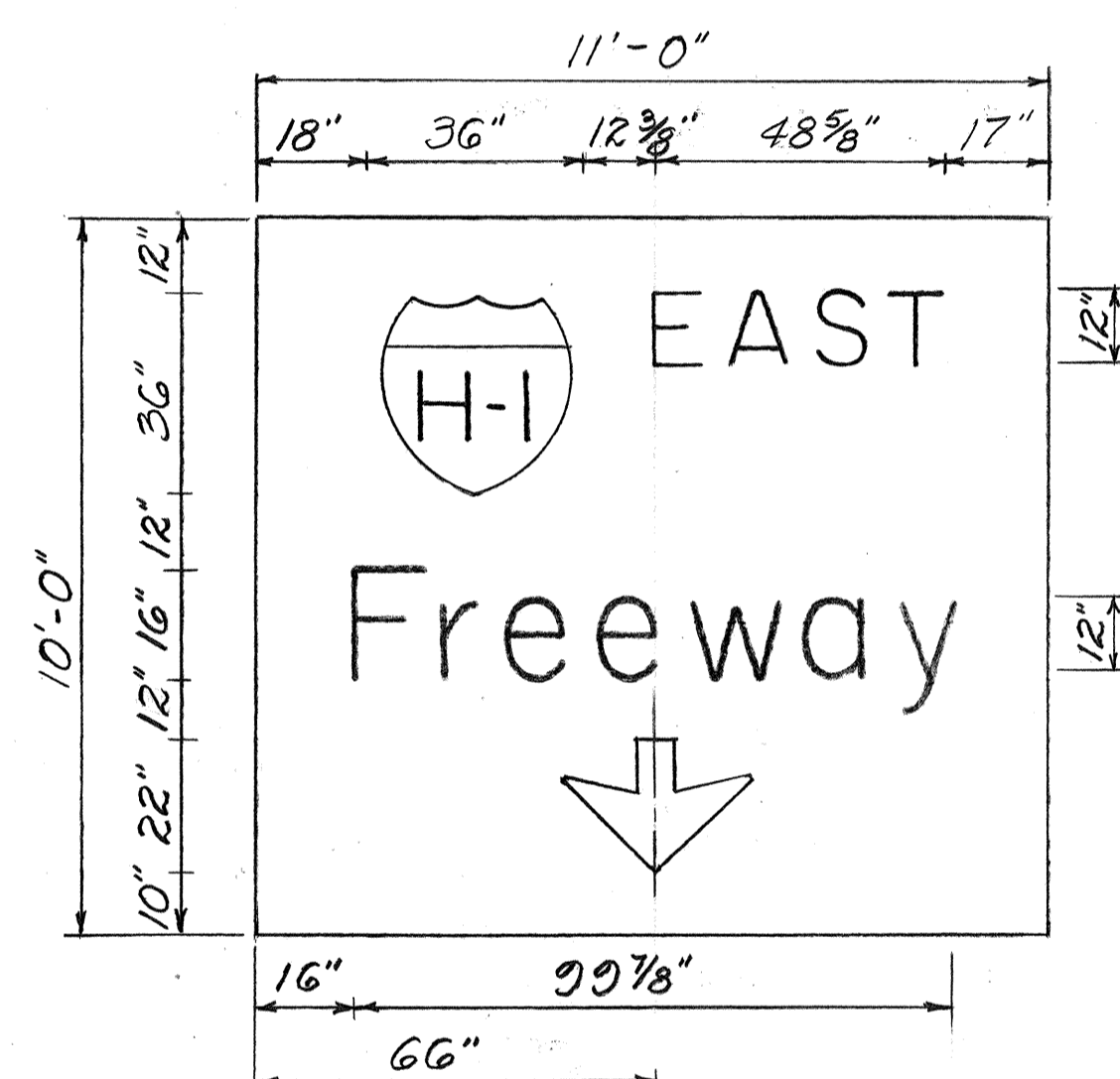
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(187)	1984	95	197



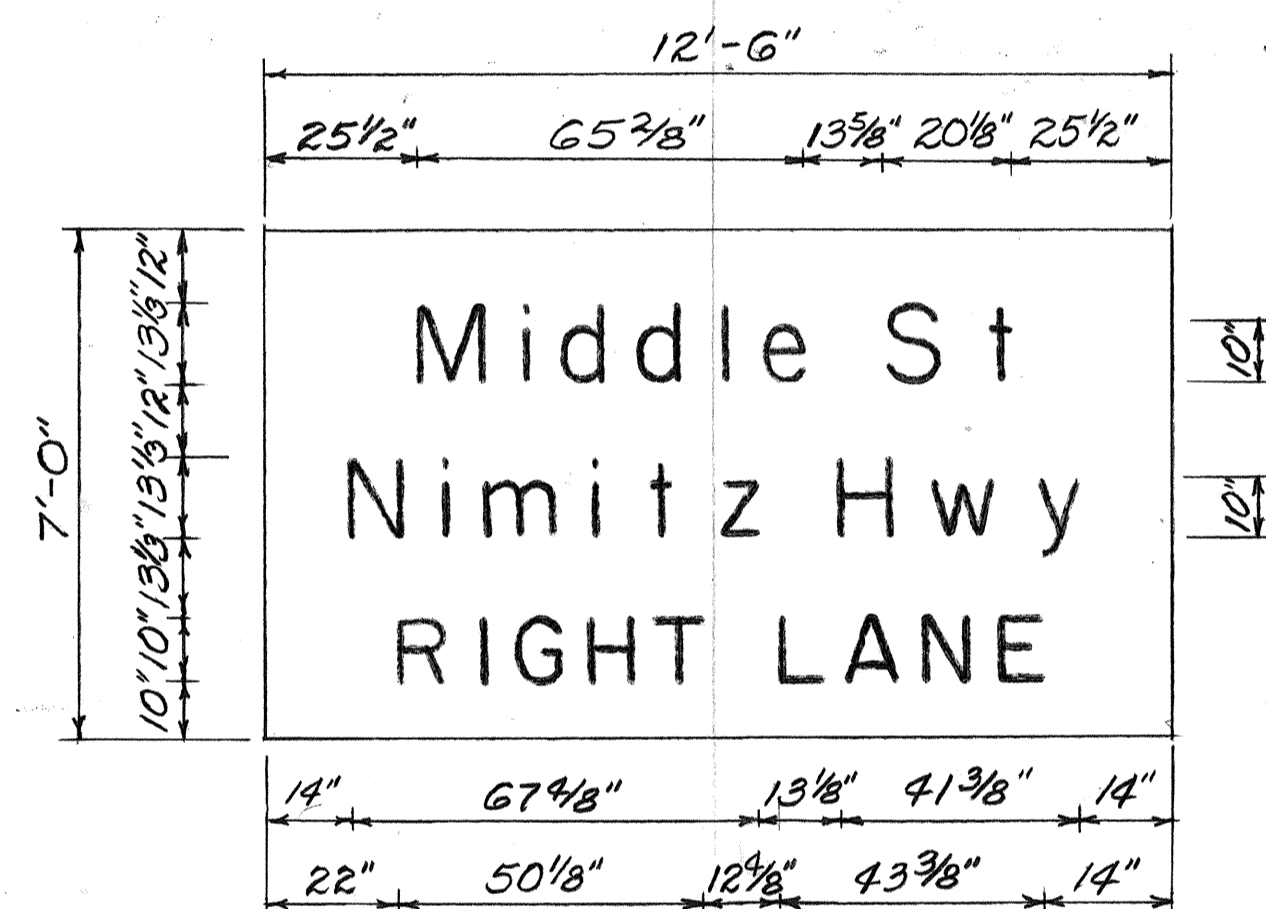
SIGN E-15



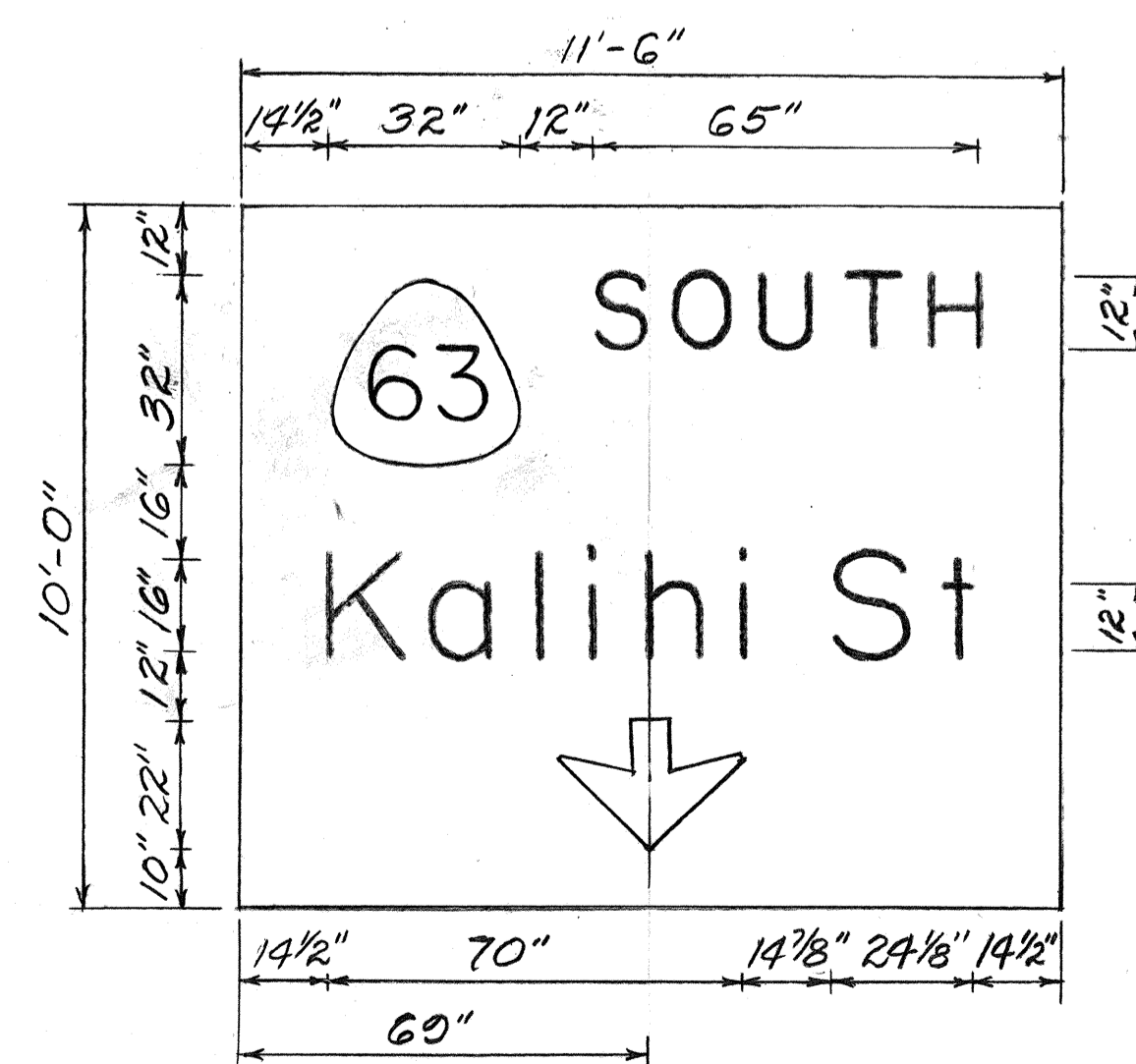
SIGN E-18 & E-21



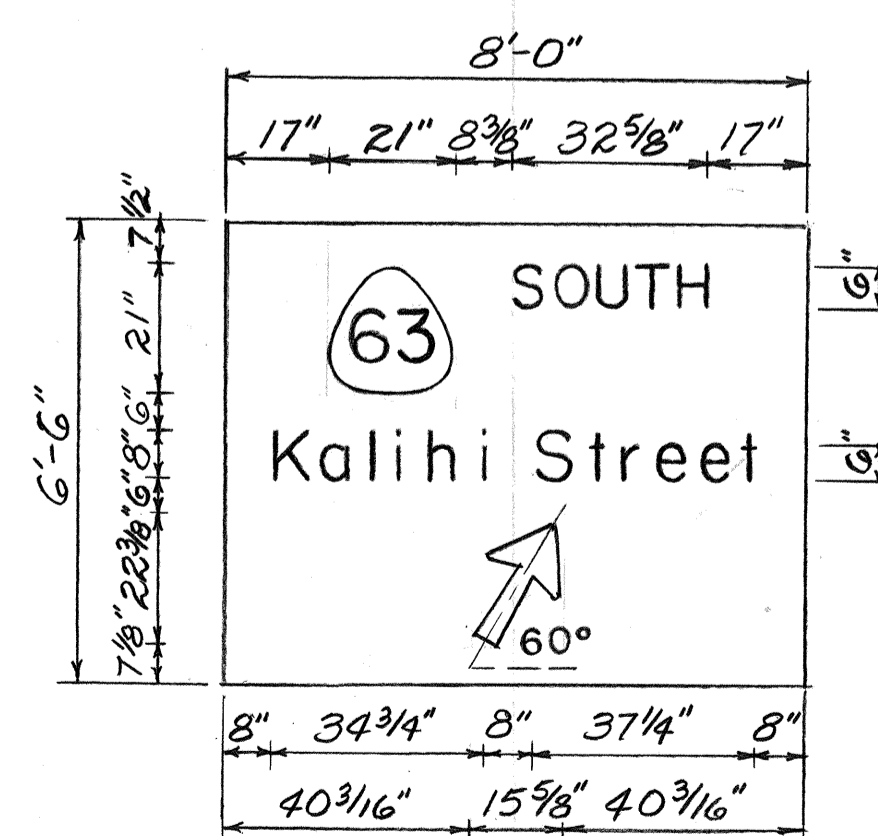
SIGN E-16 & E-19



SIGN D-1



SIGN E-17 & E-20



SIGN D-2

GENERAL NOTES

- Signs shall conform to the latest editions and amendments of the following FHWA publications:
 - "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD)
 - "Standard Highway Signs"
 - "Standard Alphabets for Highway Signs"
- Letter size:
 - When letters are all uppercase, use Series "E"
 - When initial uppercase letter is used in conjunction with lowercase letters, use Series "E" (M) for uppercase letter.
- Borders shall be 2" wide unless otherwise noted. Corner radii shall be in accordance with sheet DT 209.
- Interstate and State Route Marker symbols shall conform to details as shown on the plans and as specified in the MUTCD.
- New sign panels shall be laminated aluminum or extruded aluminum.
- For details of Exit Number Panels see sht. # 99.
- "EXIT ONLY" panels shall have a black legend on a high intensity reflectorized yellow background.
- For arrow details see sht. # 99.

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PANEL LAYOUTS

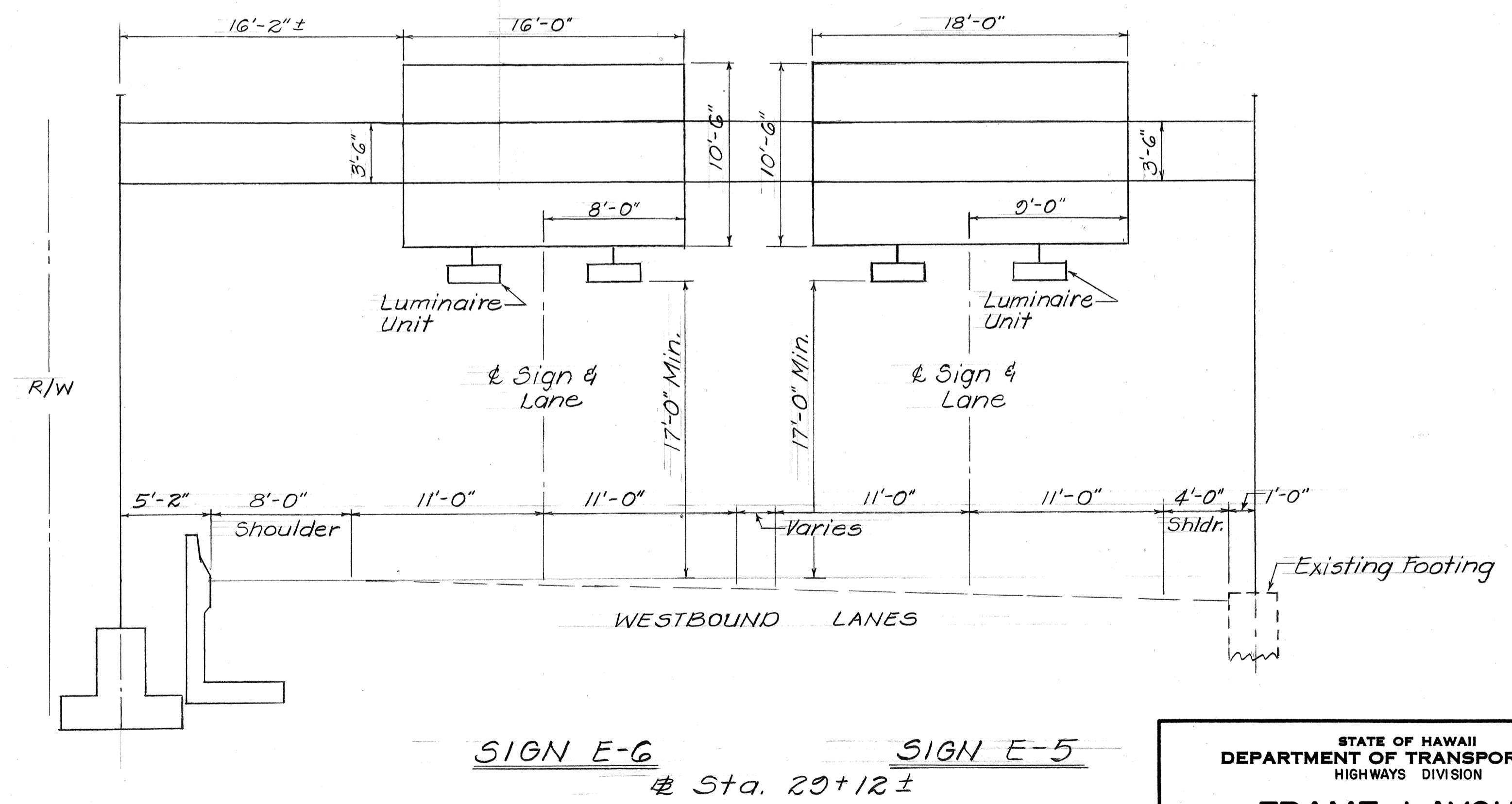
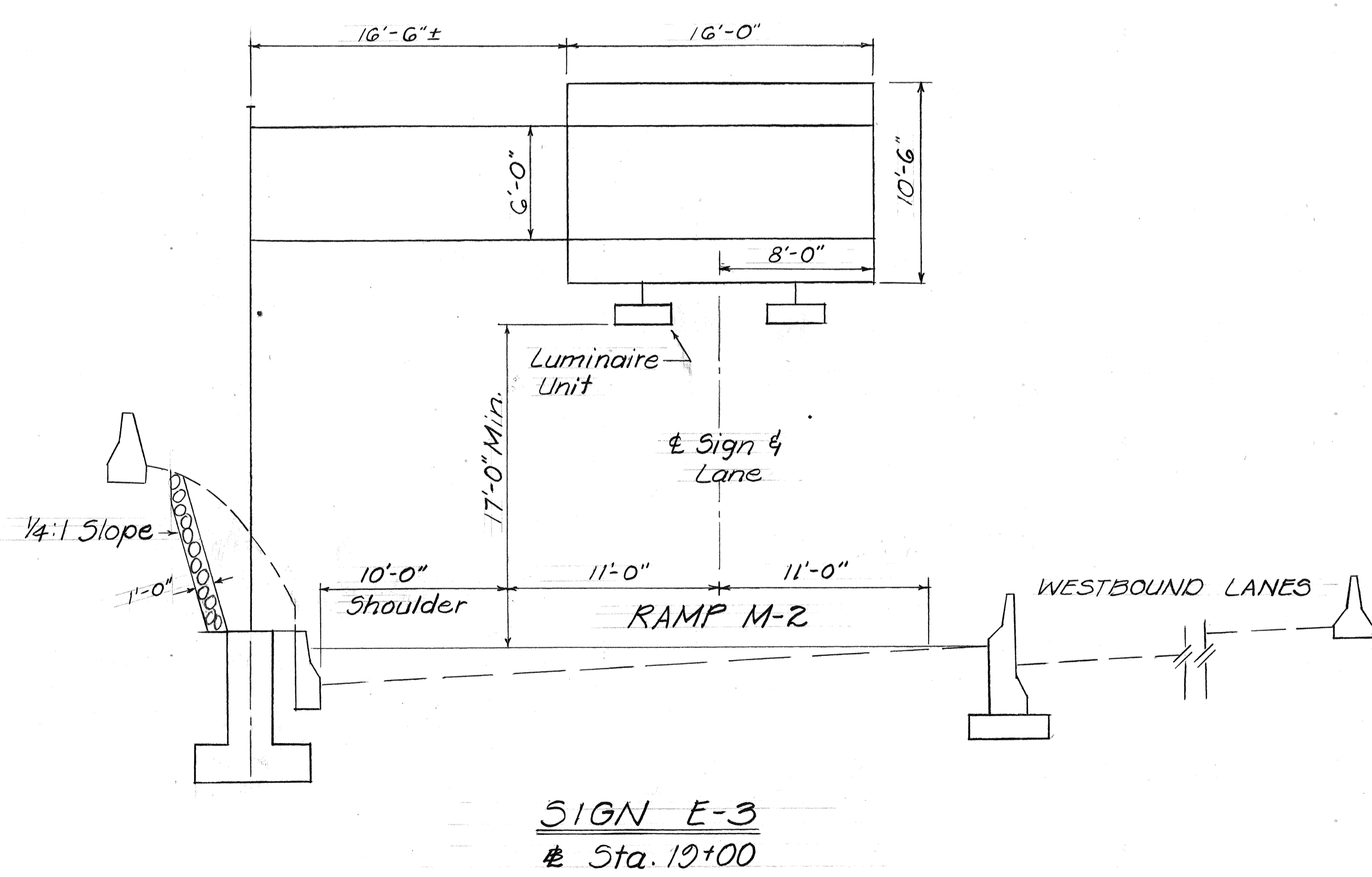
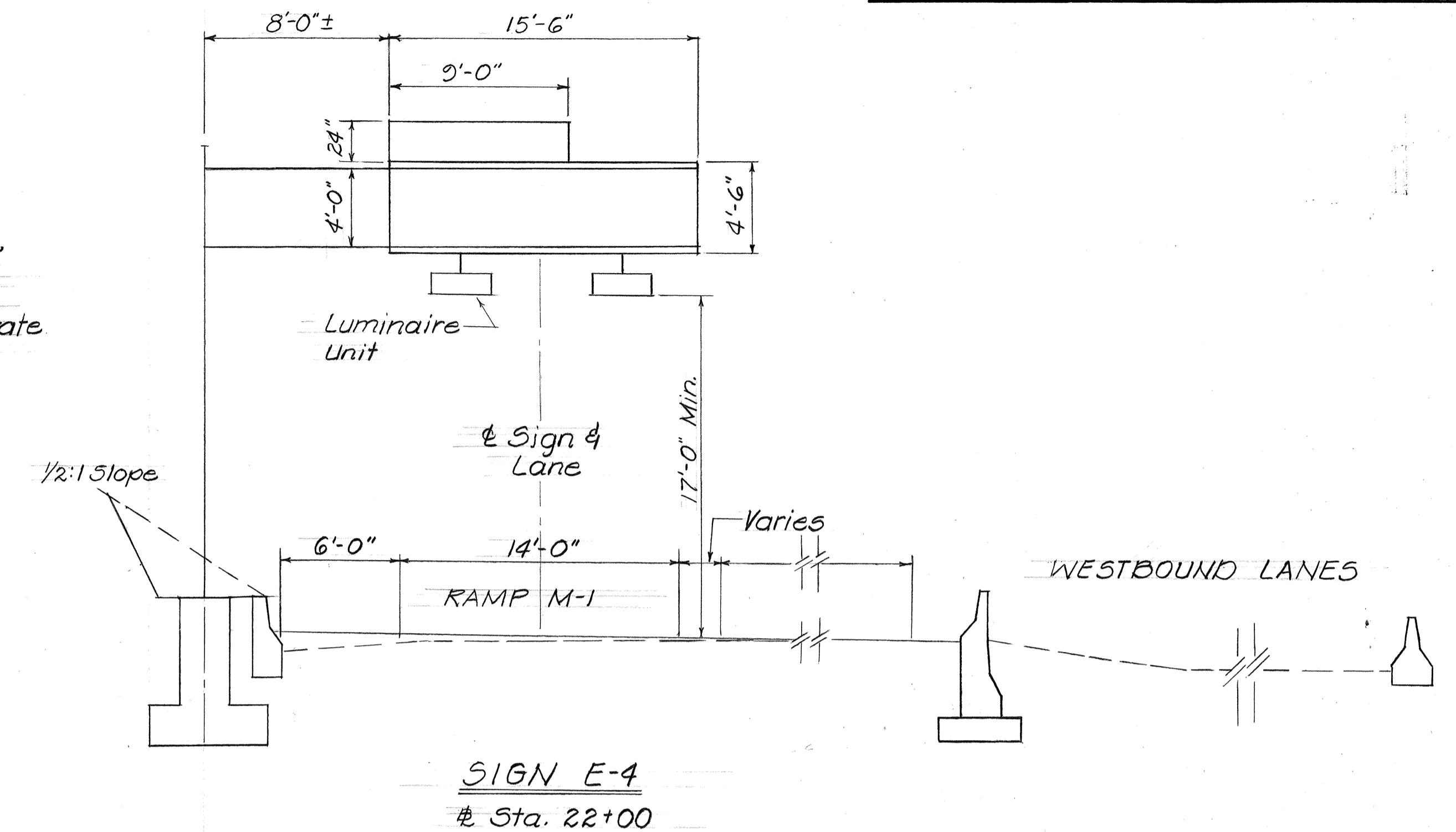
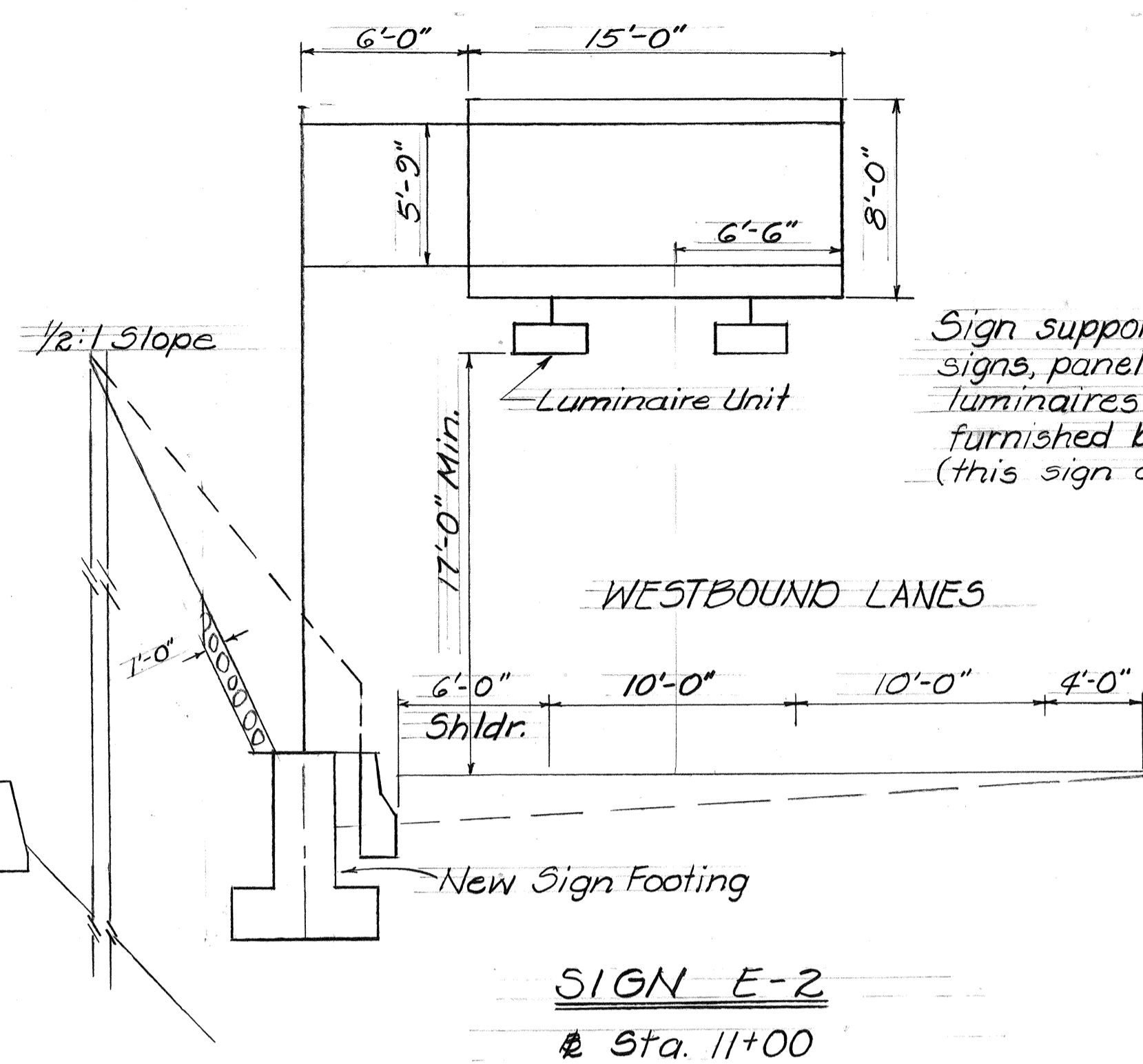
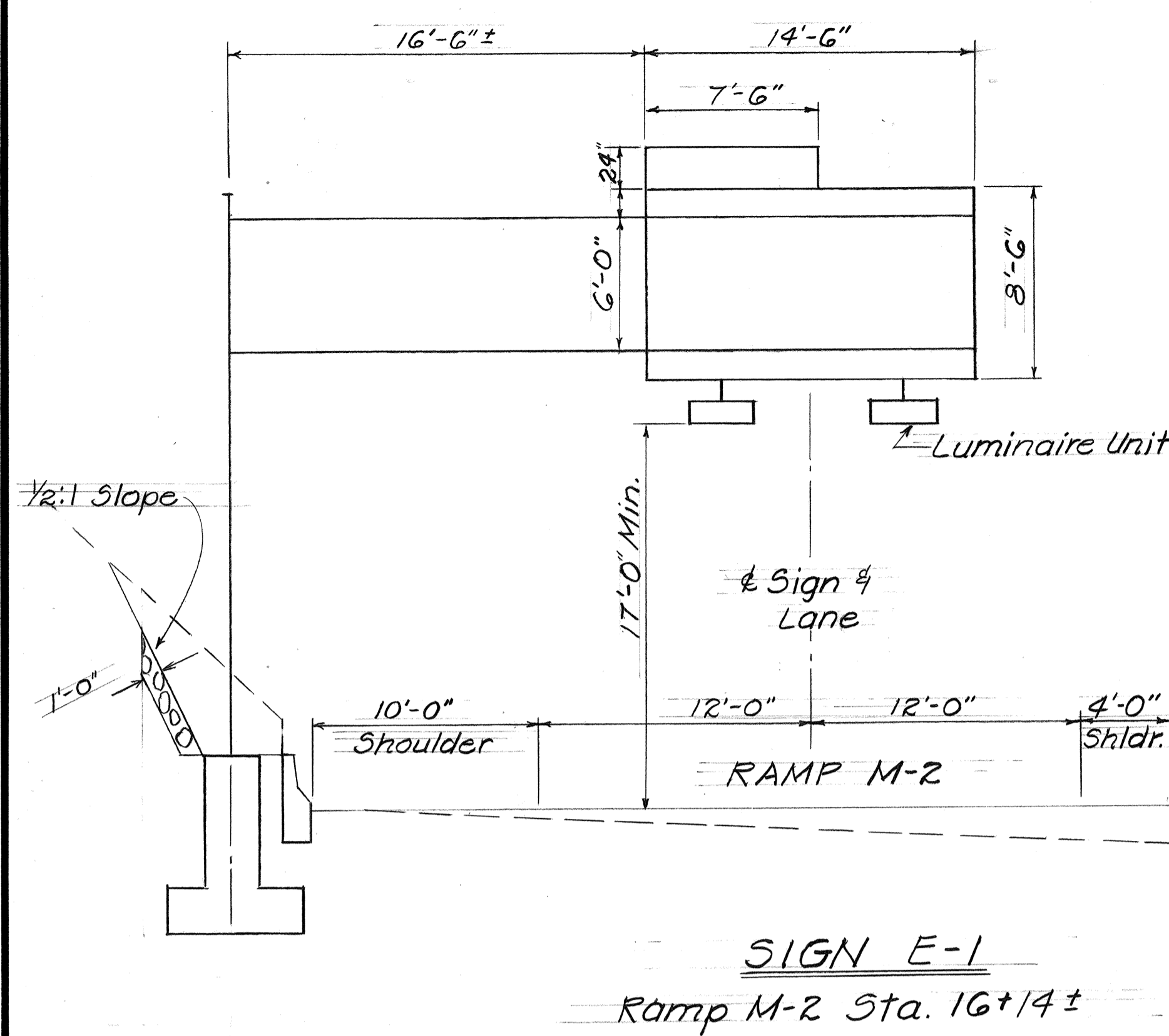
INTERSTATE H-1 IMPROVEMENTS
MIDDLE ST. TO KALIHI INTERCHANGE
WESTBOUND LANES

F.A.I. PROJ. NO. I-HI-1(187)

Scale: 3/8" = 1'-0" Date: July 1983

SHEET NO. 8 OF 16 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(187)	1984	96	197



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FRAME LAYOUTS

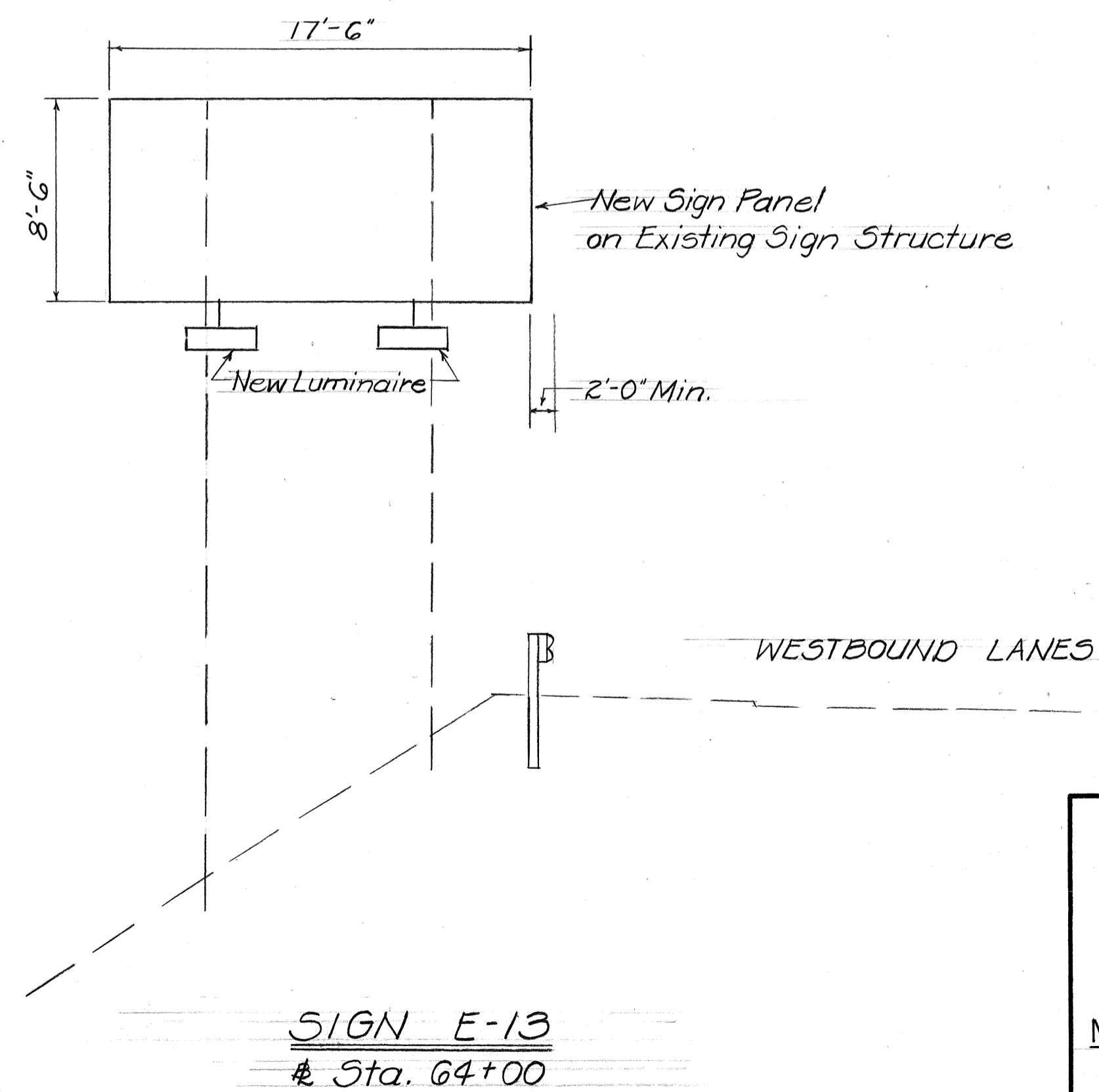
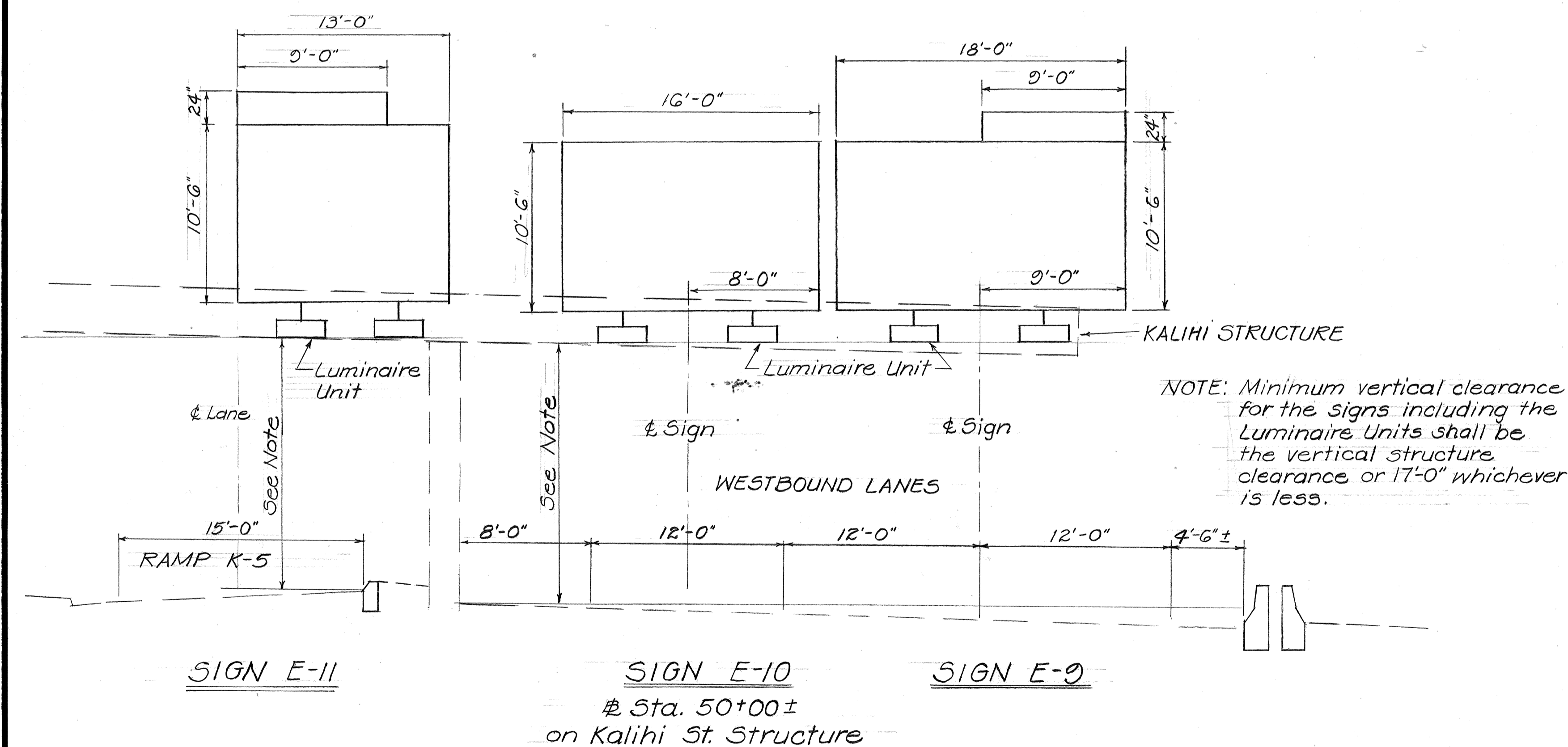
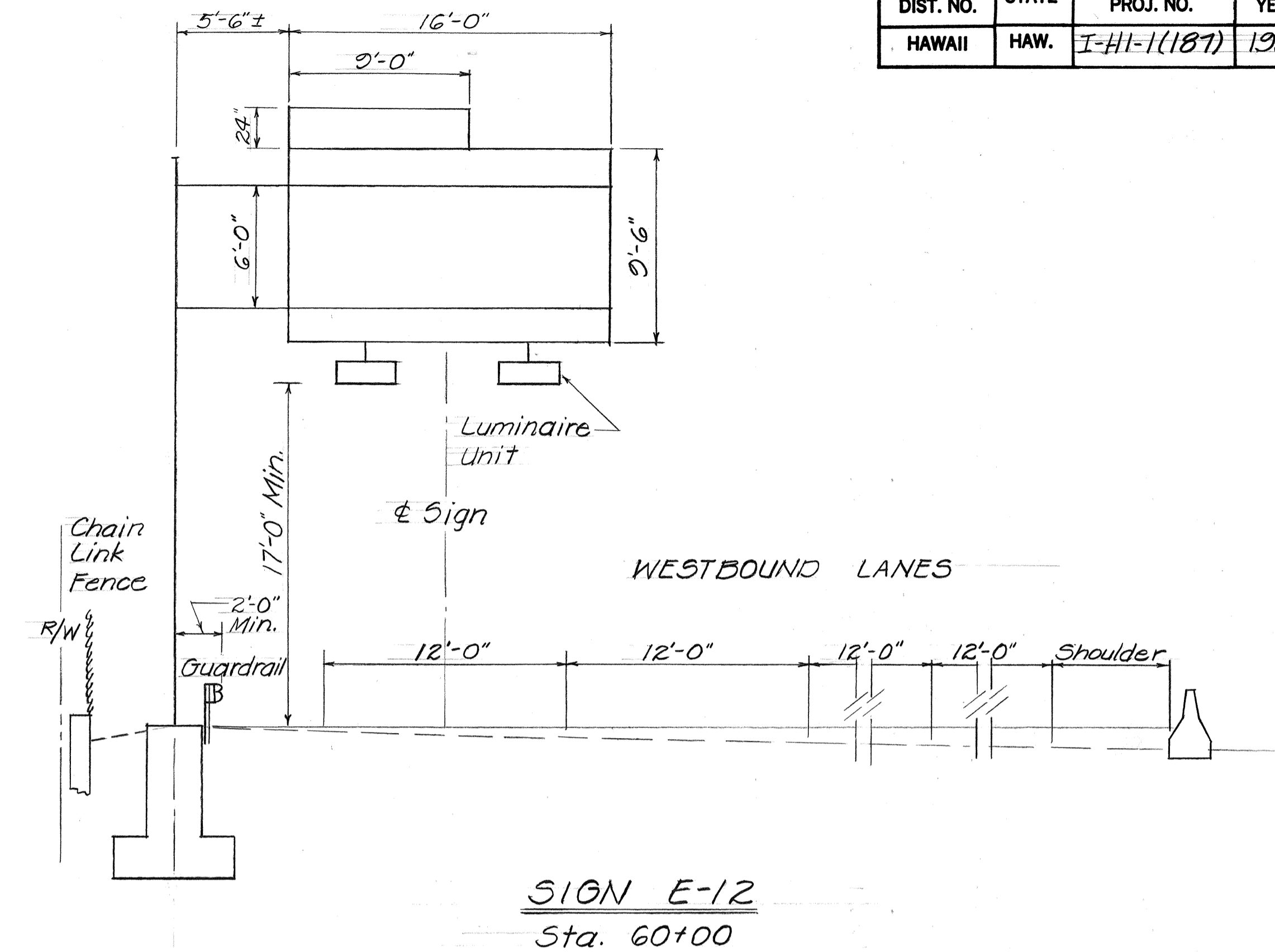
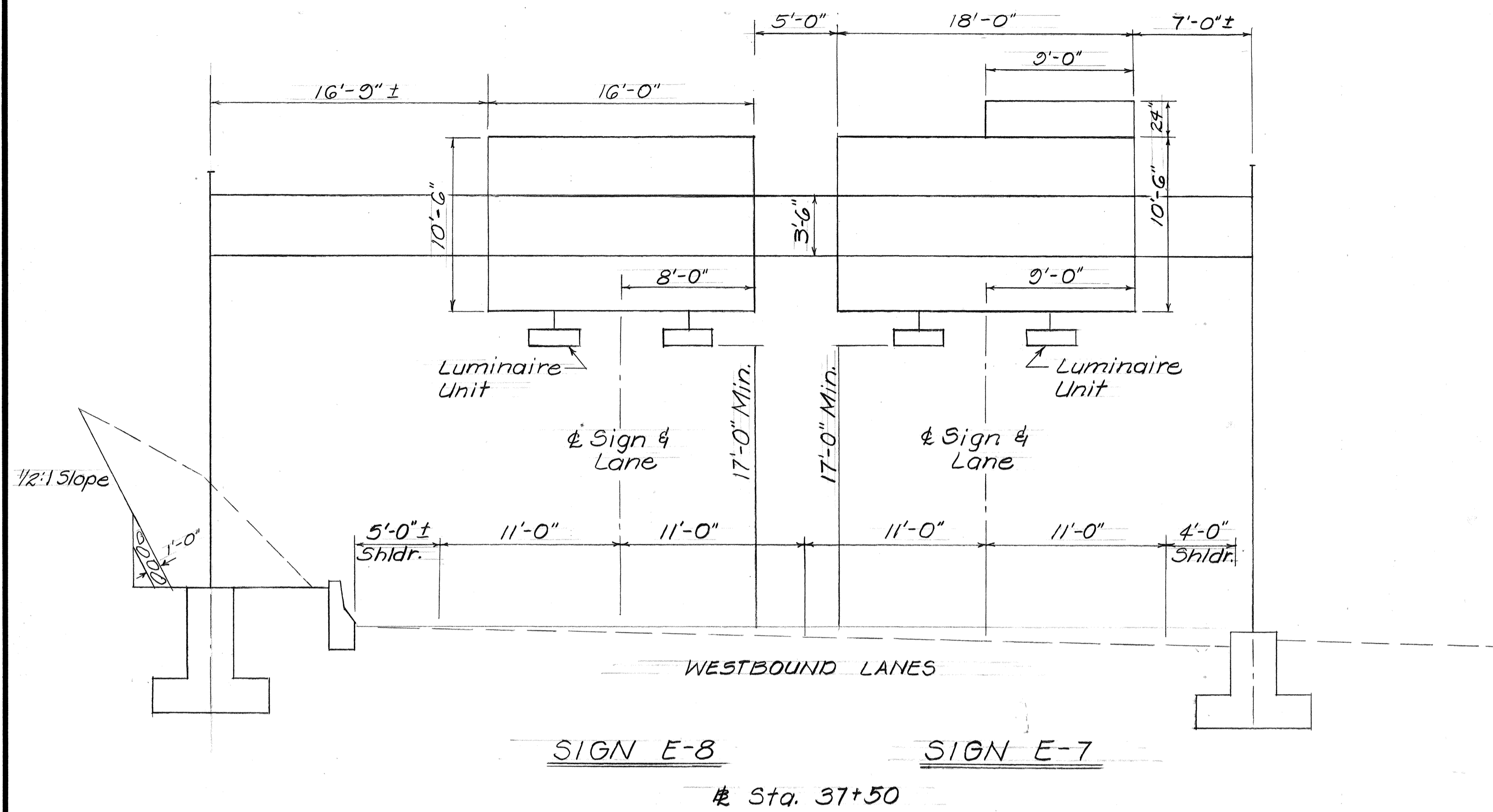
INTERSTATE H-1 IMPROVEMENTS
MIDDLE ST. TO KALIHI INTERCHANGE
WESTBOUND LANES

F.A.I. PROJ. NO. I-HI-1(187)

Scale: 3/16"=1'-0" Date: July 1983

SHEET No. 9 OF 16 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(187)	1984	97	197



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

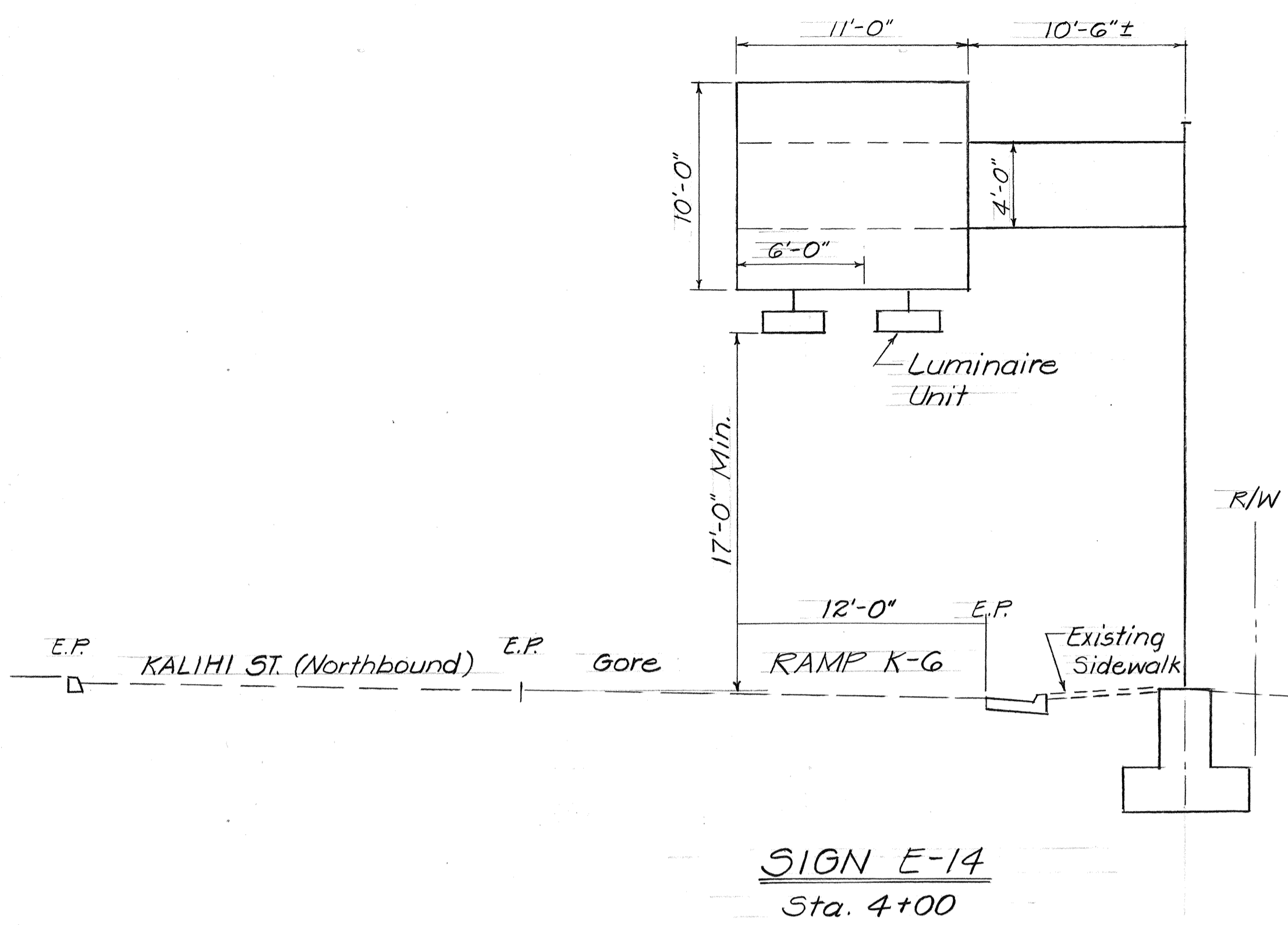
FRAME LAYOUTS

INTERSTATE H-1 IMPROVEMENTS
MIDDLE ST. TO KALIHI INTERCHANGE
WESTBOUND LANES

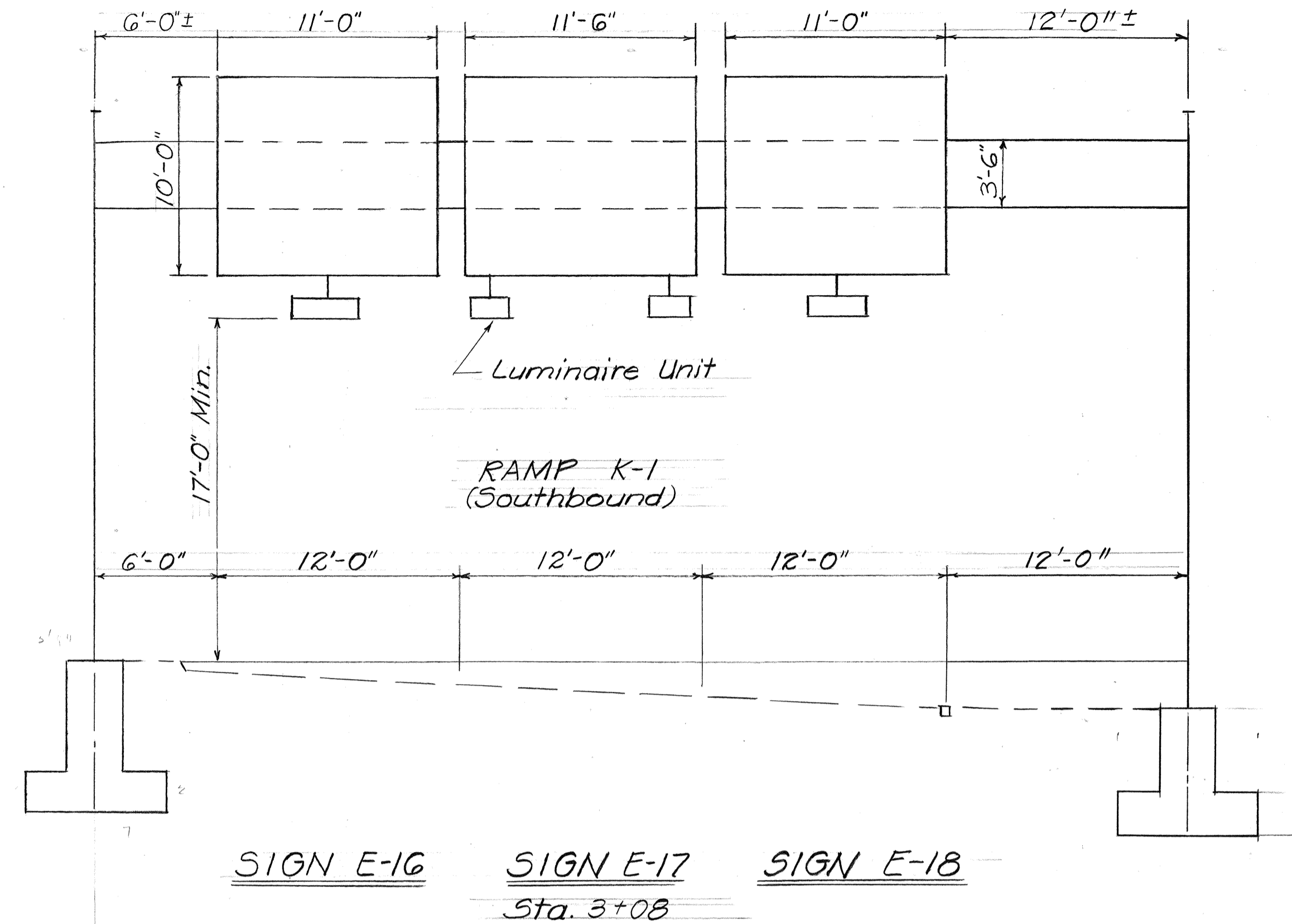
F.A.I. PROJ. NO. I-HI-1(187)

Scale: 3/16"=1'-0" Date: July 1983
SHEET No. 10 OF 16 SHEETS

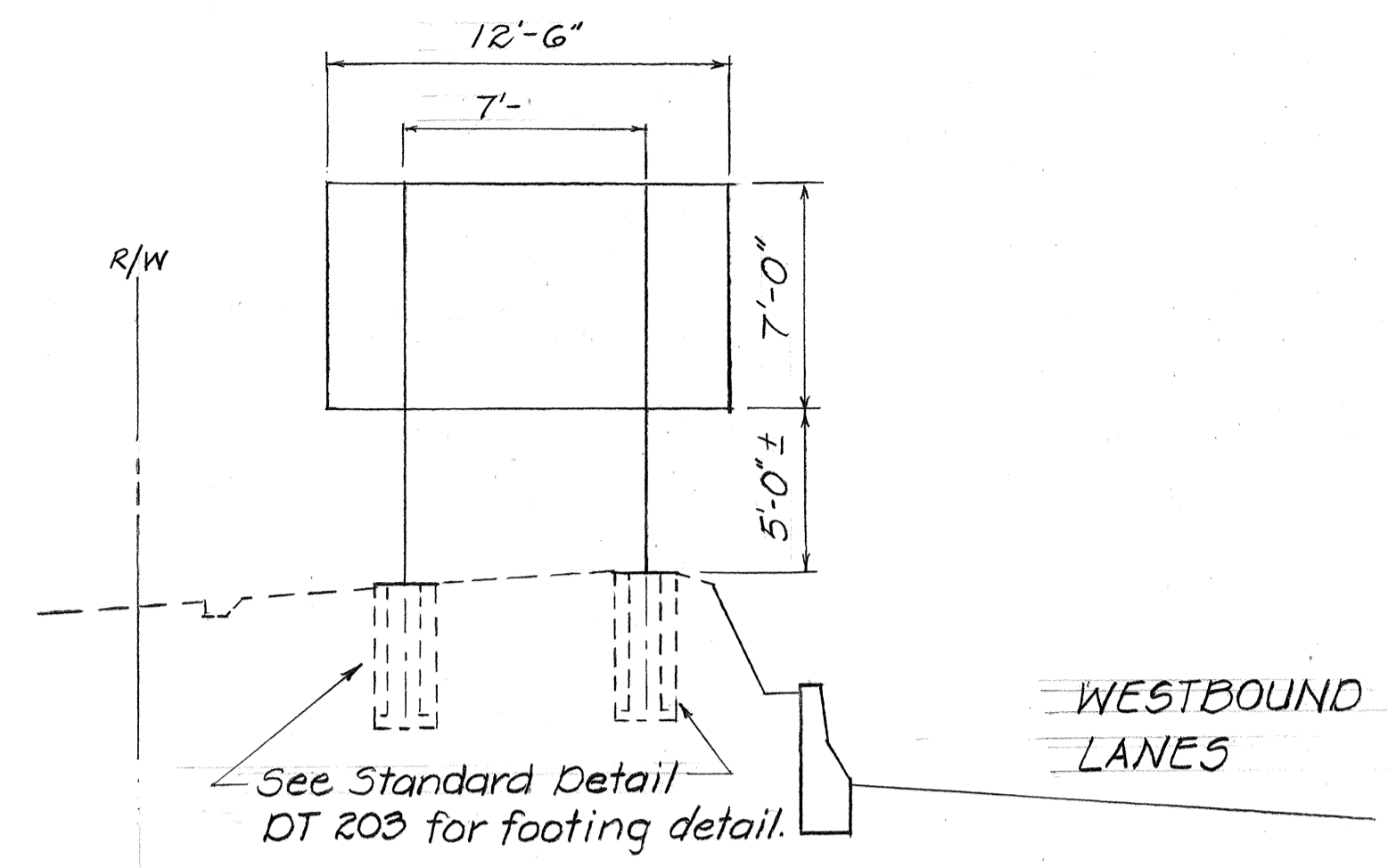
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(187)	1984	C.O.98	197



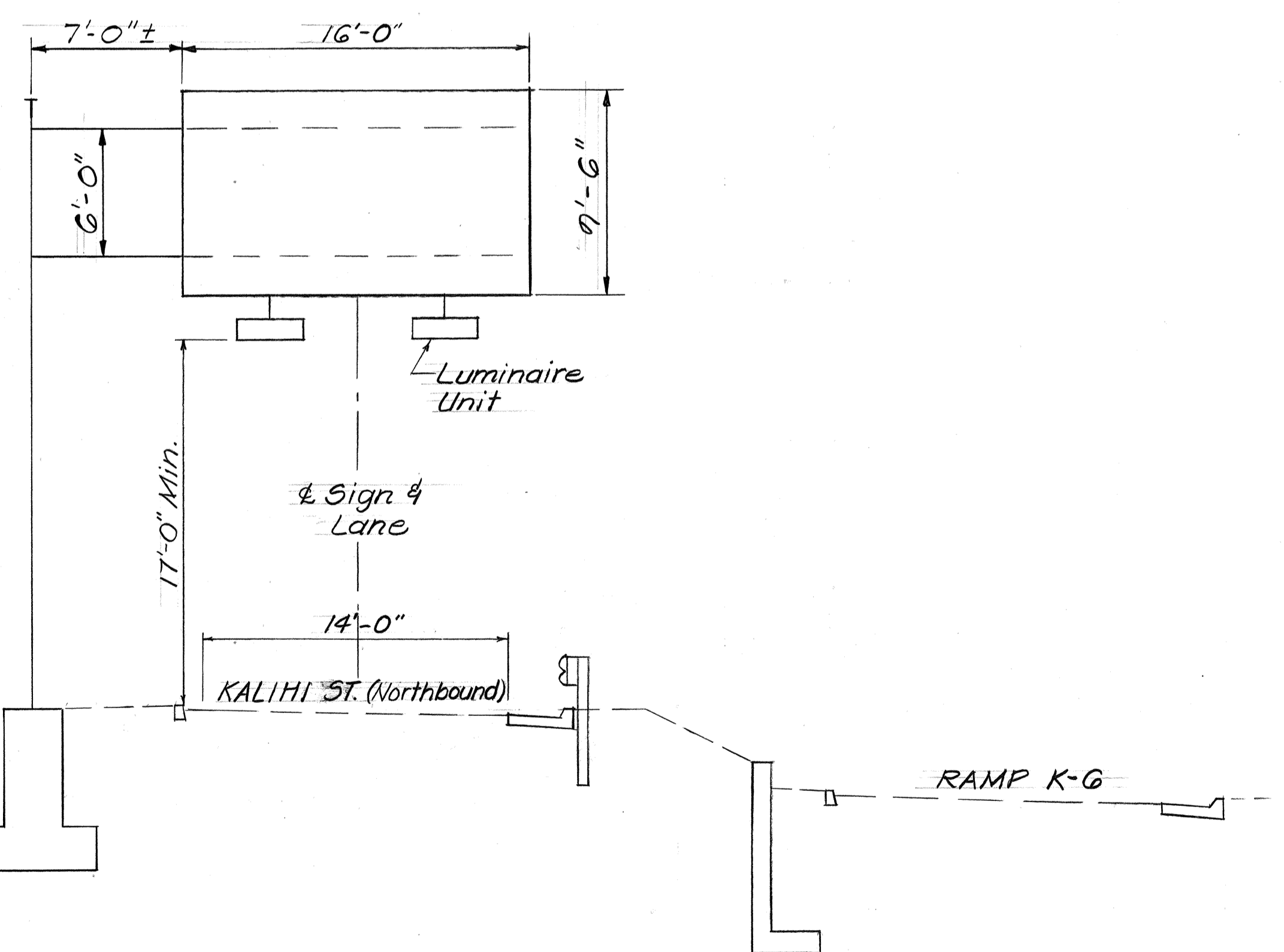
SIGN E-14
Sta. 4+00



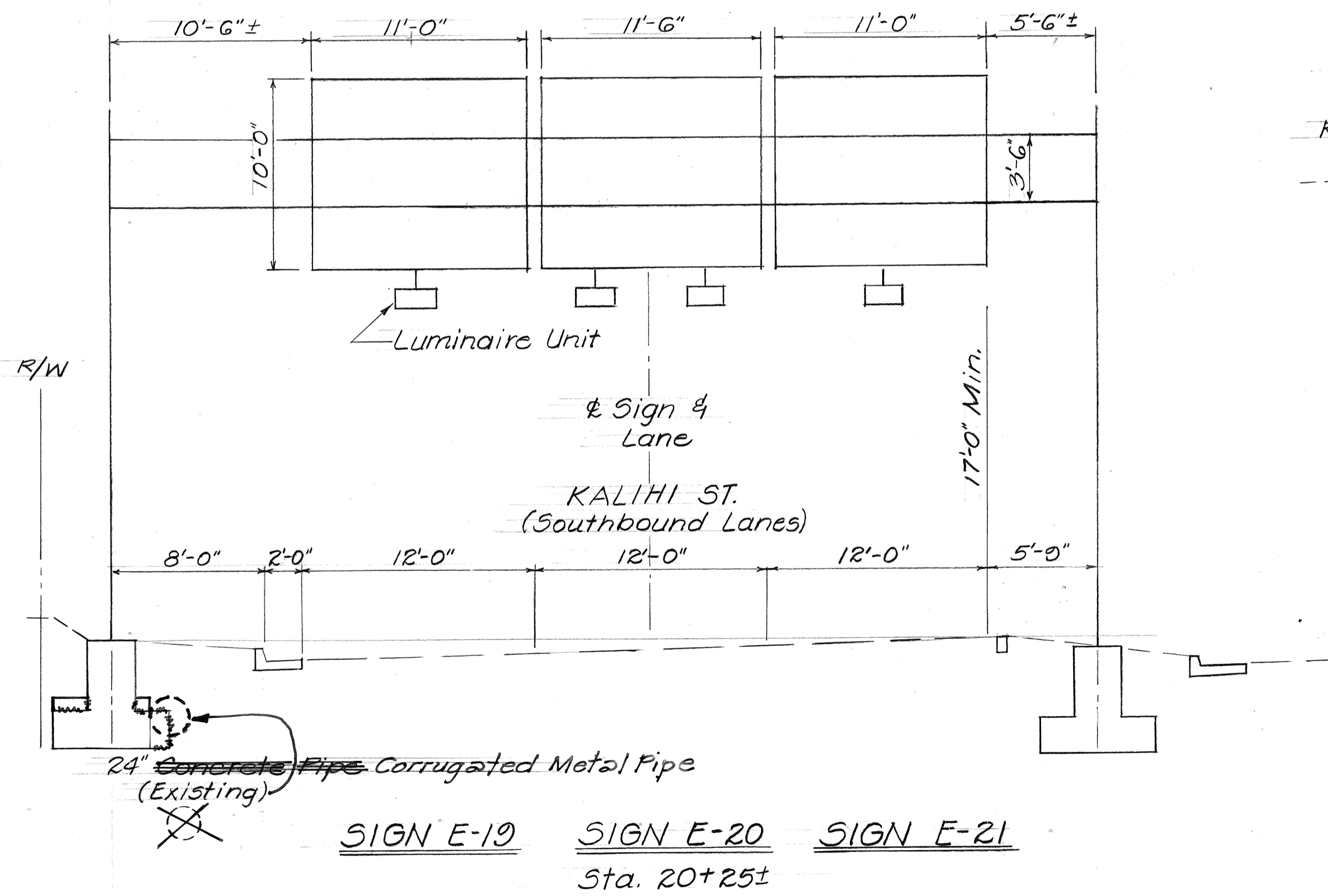
SIGN E-16 SIGN E-17 SIGN E-18
Sta. 3+08



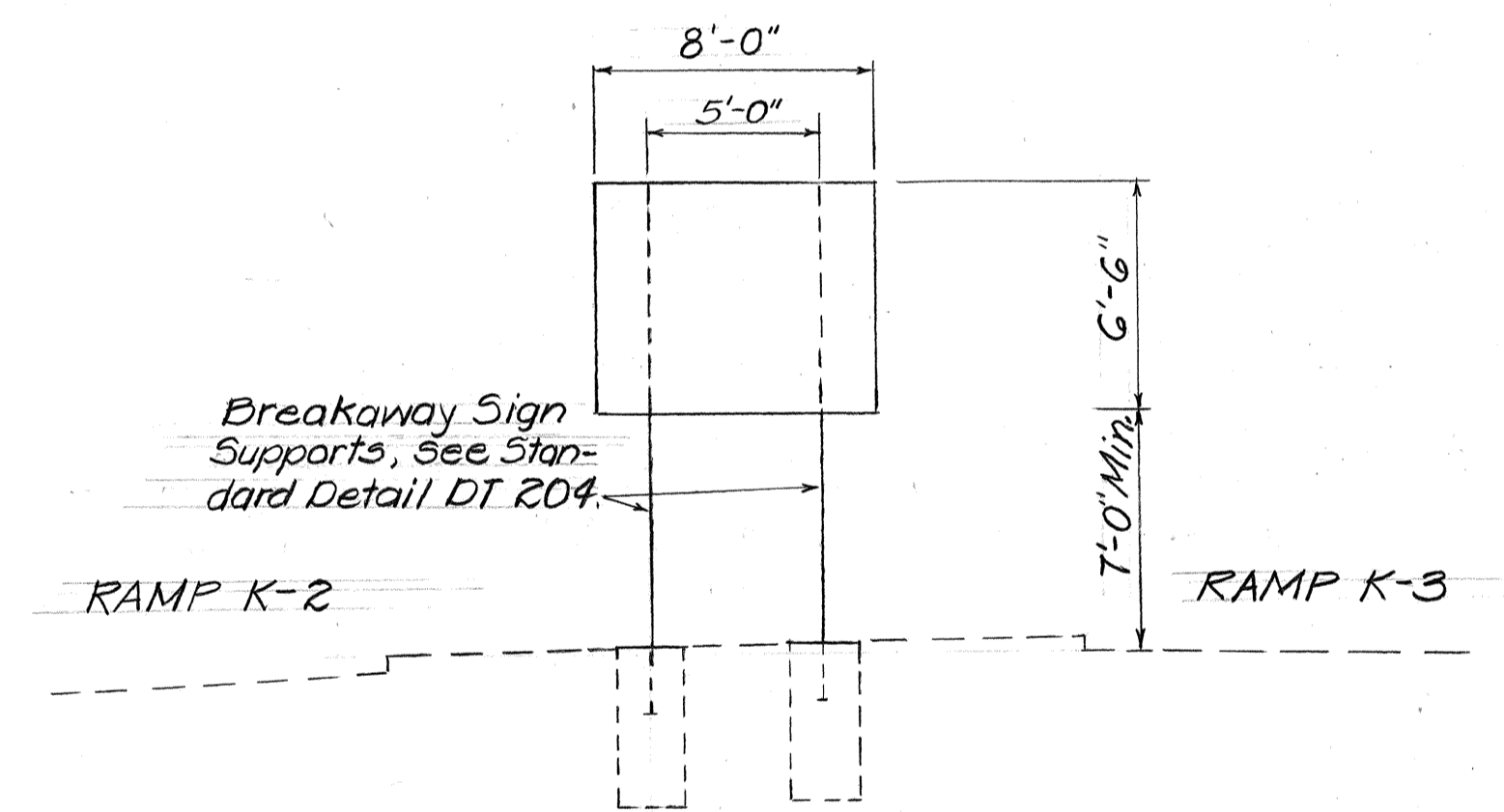
SIGN D-1
Sta. 33+00 Lt.



SIGN E-15
Sta. 5+35 ±



SIGN E-19 SIGN E-20 SIGN E-21
Sta. 20+25 ±



SIGN D-2
Ramp K-3 Sta. 1+85 Lt.

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

4/23/85	Detail for Sign E-15 revised.
3/14/84	Revised Stationing and Sign Support Span width for sign E-16, sign E-17, sign E-18.
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

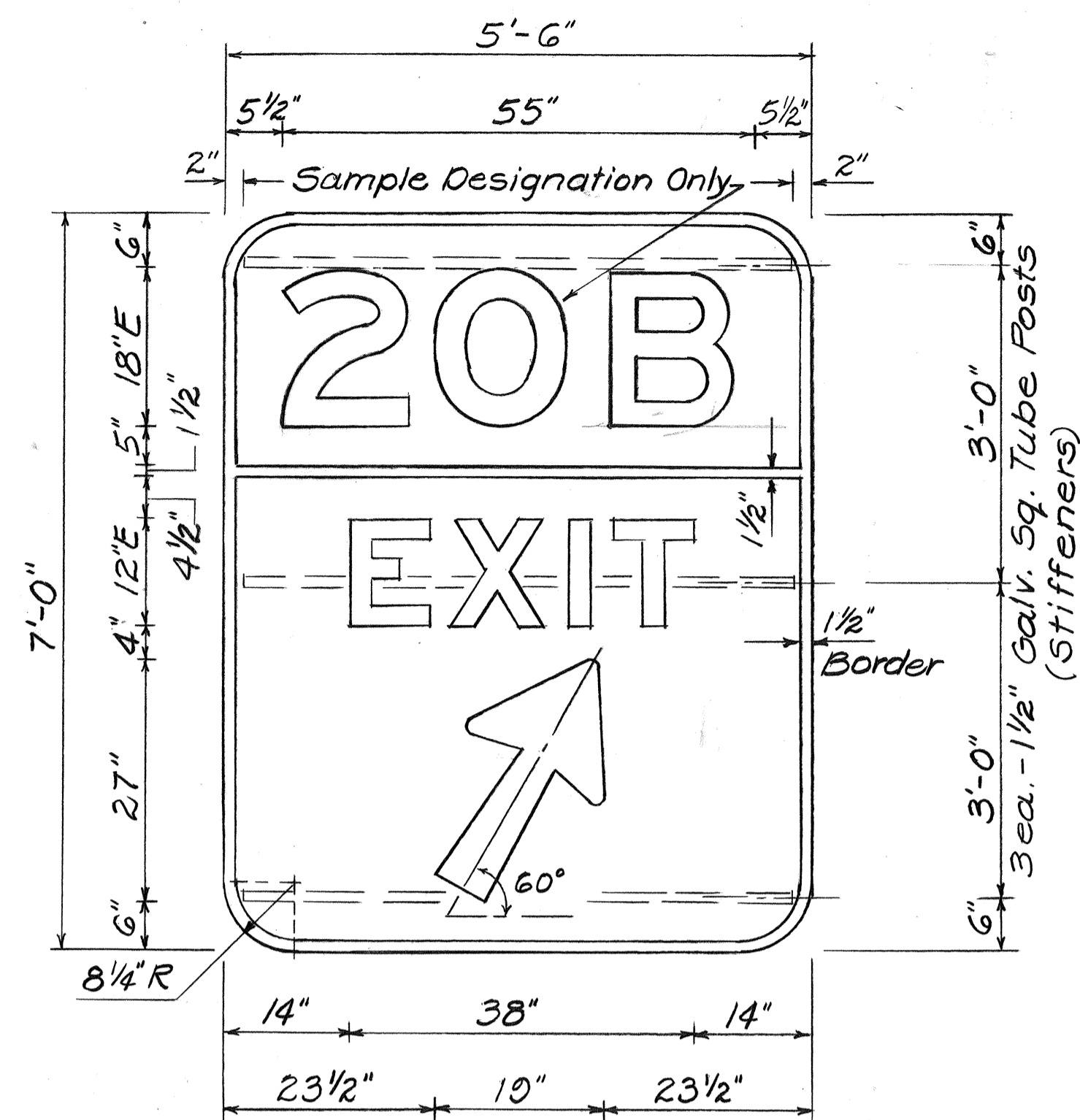
FRAME LAYOUTS

INTERSTATE H-1 IMPROVEMENTS
MIDDLE ST. TO KALIHI INTERCHANGE
WESTBOUND LANES

F.A.I. PROJ. NO. I-HI-1(187)

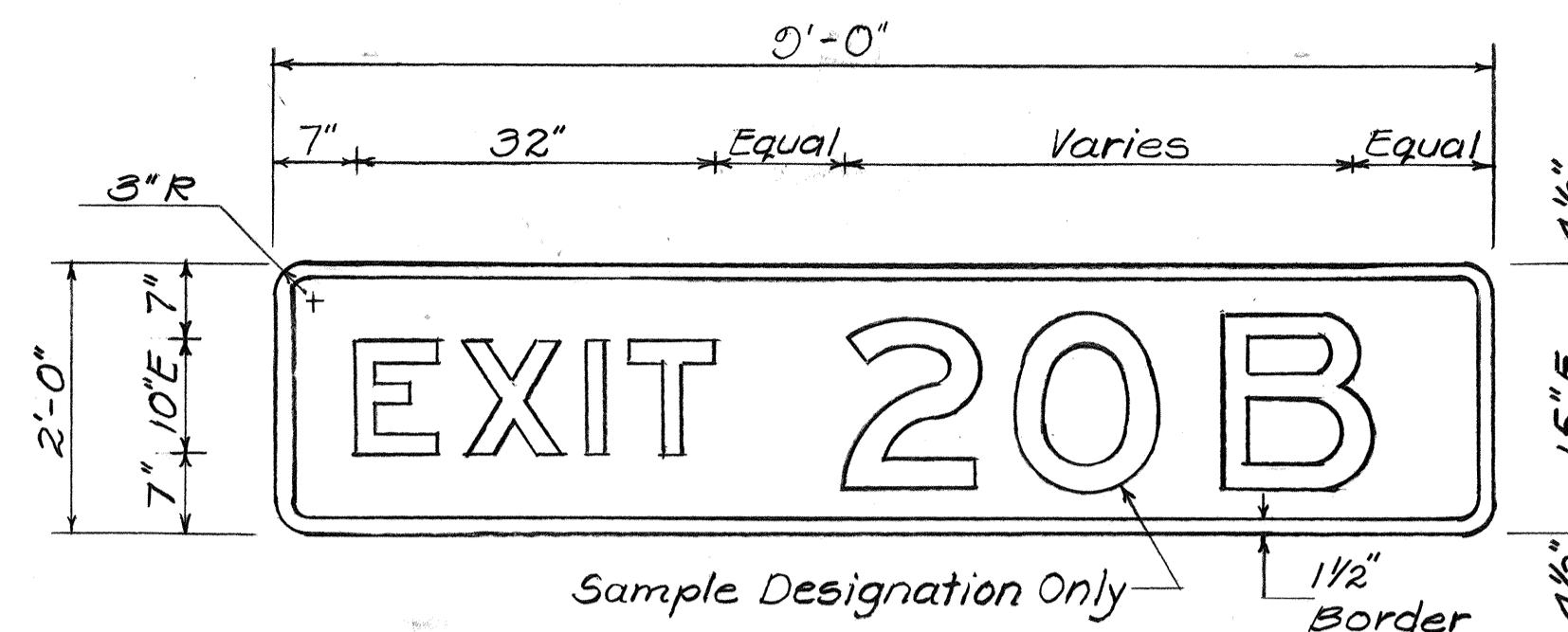
Scale: 3/16"=1'-0" Date: July 1983

SHEET NO. 11 OF 16 SHEETS

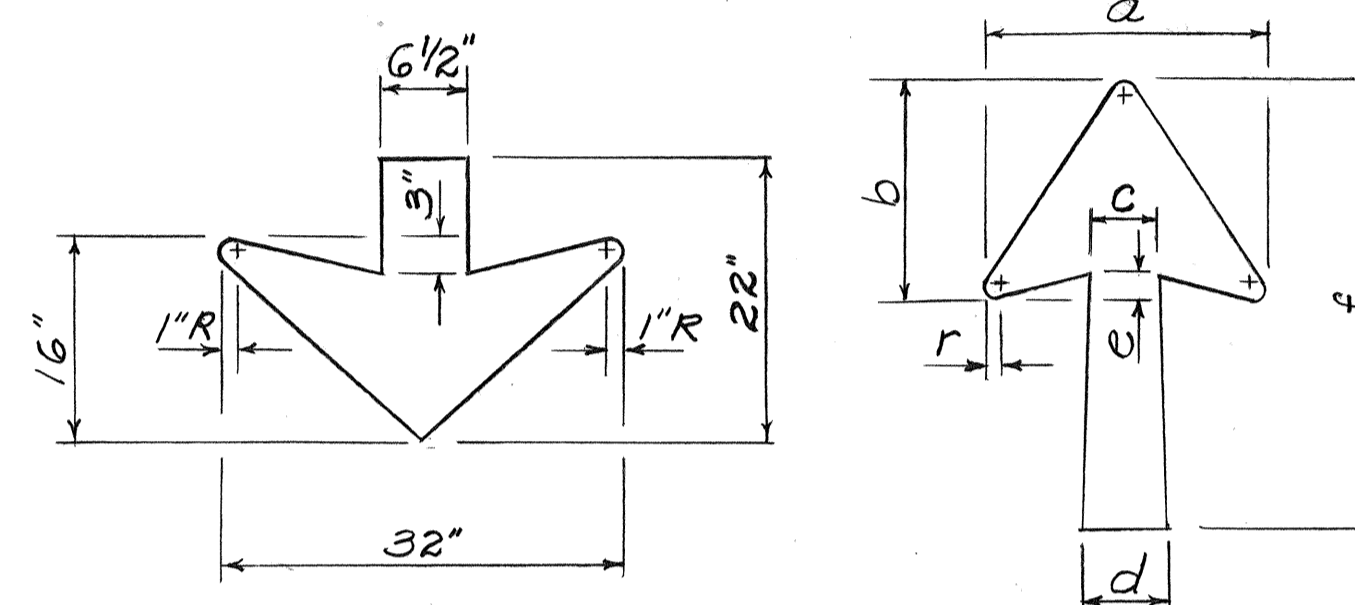


DIR. 5-1a

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

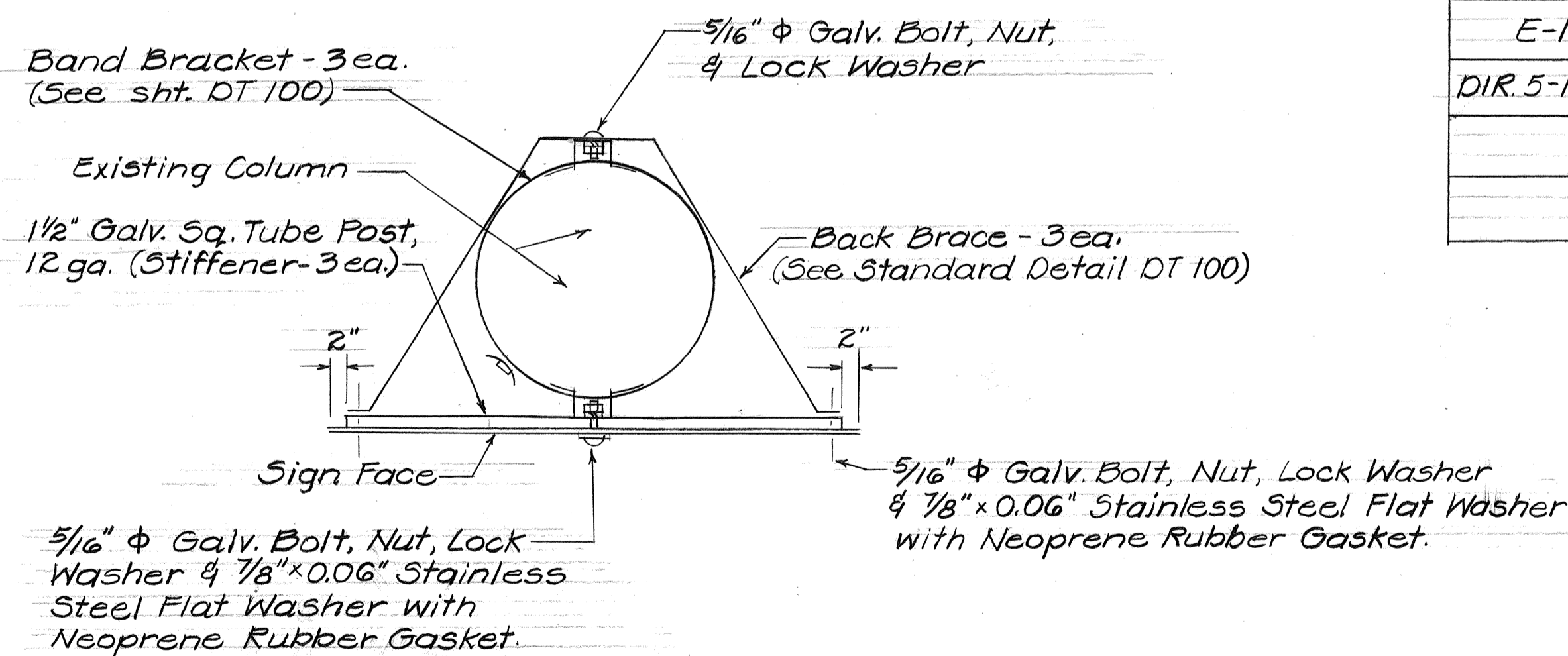


TYPICAL EXIT NUMBER SIGN
Scale: 3/4"=1'-0"



ARROW DETAIL
N.T.S.

SIGN NO.	DIMENSIONS IN INCHES						
	a	b	c	d	e	f	r
E-4	21 7/8	14 1/4	5	6 3/4	1 3/4	25	1
E-11 & E-14	22 1/4	17	5 3/8	7 1/8	1 3/4	35 5/8	1
DIR. 5-1a (10A) & (20B)	18 1/4	14	4 1/2	6	1 1/2	20 1/4	3/4
D-2	15 1/8	11 9/16	3 3/4	5	1 5/16	24 1/4	1 3/16



TOP VIEW

GORE SIGN MOUNTING DETAIL
Not to Scale

GENERAL NOTES

- Signs shall conform to the latest editions & amendments of the following FHWA publications:
 - "Manual on Uniform Traffic Control Devices for Streets & Highways" (MUTCD)
 - "Standard Highway Signs"
 - "Standard Alphabets for Highway Signs."

GORE SIGN

- Legend, borders & arrows shall be white reflective sheeting on a green reflective sheeting background.
- Sign backing shall be 0.100 inch sheet aluminum as specified in Subsection 712.20(B)(1).
- Corners of the sign panels shall be rounded to fit the border.
- Sign panels shall have 3/8" Φ bolt holes drilled at appropriate locations.
- All backing for signs 4 feet by 8 feet or less shall be of one sheet. Larger sign panels may be spliced however, the Contractor shall submit all sign splicing details to the Engineer for approval.

EXIT NUMBER SIGN

- Exit Number Sign backing shall be of the same construction and material as the Expressway Sign to which it will be attached.
- Shop drawings for the attachment of Exit Number Signs to Expressway Signs shall be submitted by the Contractor to the Engineer for approval not later than 20 days after notice to proceed.

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

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
**EXIT NUMBER SIGN
 & GORE SIGN**
 INTERSTATE H-1 IMPROVEMENTS
 MIDDLE ST. TO KALIHI INTERCHANGE
 WESTBOUND LANES
 F.A.I. PROJ. NO. I-HI-1(187)
 Scale: As Shown Date: July 1983
 SHEET No. 12 OF 16 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(187)	1984	100	197

TRAFFIC SIGN SUMMARY			
TYPE	DESCRIPTION	QUANTITY	
		w/POST	w/o POST
R1-1	STOP	1	
R2-1(25)	SPEED LIMIT		1
R2-1(35)A	SPEED LIMIT		2
R2-5b(35)A	REDUCED SPEED		2
R3-1	NO RIGHT TURN	1	1
R3-2	NO LEFT TURN		1
R5-9	WRONG WAY		2
R6-1(R)	ONE WAY	1	
R7-1	NO PARKING ANYTIME		1
R16-5	KEEP OUT FREEWAY	2	2
W3-1a-A	STOP AHEAD	2	
W13-2(25)	EXIT 25 M.P.H.		1
W13-3(25)	RAMP 25 M.P.H.	1	
CW20-1d	ROAD CONSTRUCTION AHEAD	1	
IM-1(2)	H-1	1	1
IM3-4-A	WEST		2
IMG-2(R)	↑		1

EXPRESSWAY & DESTINATION SIGN SUMMARY		
TYPE	DESCRIPTION	PANEL AREA
		(SQ. FT.)
E-1	Nimitz Hwy, 1/2 MILE	123.25
E-2	Fort Shafter, Ahua St. Next Right	To be furnished by the State
E-3	Airport, Pearl Harbor	168.00
E-4	Middle St.	69.75
E-5	Fort Shafter, Aiea	189.00
E-6	Airport, Pearl Harbor	168.00
E-7	Fort Shafter, Aiea	189.00
E-8	Airport, Pearl Harbor	168.00
E-9	Fort Shafter, Aiea	189.00
E-10	Airport, Pearl Harbor	168.00
E-11	Likelike Hwy	136.50
E-12	Likelike Hwy	152.00
E-13	Likelike Hwy 1/4, Middle St. 3/4, Airport 4	148.75
E-14	Freeway	110.00
E-15	Likelike Hwy	152.00
E-16	Freeway	110.00
E-17	Kalihi St	115.00
E-18	Freeway	110.00
E-19	Freeway	110.00
E-20	Kalihi St	115.00
E-21	Freeway	110.00
D-1	Middle St, Nimitz Hwy, Right Lane	87.5
D-2	Kalihi St.	52.00

PAVEMENT MARKING SUMMARY	
DESCRIPTION	QUANTITY
Raised Pavement Markers	
Type "A"	1,460 Each
Type "C"	510 "
Type "H"	190 "
Pavement Striping (Paint)	17,000 L.F.
4" Pavement Striping (Tape)	150 "
8" Pavement Striping (Tape)	2,700 "
12" Pavement Striping (Tape)	300 "
Crosswalk Marking (Tape)	2 Lanes

EXIT NUMBER SIGN SUMMARY		
Installed above, Sign No.	DESCRIPTION	PANEL AREA (SQ. FT.)
E-4	EXIT 19A	18.00
E-5	EXIT 19B	18.00
E-7	" "	" "
E-9	" "	" "
E-11	EXIT 20B	18.00

DIRECTIONAL SIGN SUMMARY		
TYPE	DESCRIPTION	PANEL AREA (SQ. FT.)
DIR 5-1a(19A)	EXIT 19A ↑	38.5
DIR 5-1a(20B)	EXIT 20B ↑	38.5

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

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
MISCELLANEOUS SUMMARIES
 INTERSTATE H-1 IMPROVEMENTS
 MIDDLE ST. TO KALIHI INTERCHANGE
 WESTBOUND LANES
 F.A.I. PROJ. NO. I-HI-1(187)
 Date: July 1983
 SHEET No. 13 OF 16 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(187)	1984	101	197

SINGLE SIGN POST - CANTILEVER TYPE - DOUBLE MASTARM				
SIGN NO.	STATION	CROSSARM TAPERED AT POST	POST TAPERED AT BASE	FOUNDATION TYPE
E-1	± 11+00	7 Ga. 12 1/2" O.D.	0 Ga. 18" O.D.	IV B
E-2	± 11+00 Ramp M-2	Supplied by State	Supplied by State	IV D
E-3	± 19+00	0 Ga. 12 1/2" O.D.	3+3 Ga. 18" O.D.	IV C
E-4	± 22+00	7 Ga. 10" O.D.	3 Ga. 15" O.D.	III
E-12	± 60+00	7 Ga. 12" O.D.	3+3 Ga. 16 1/2" O.D.	IV B
E-14	Kalihi St. 4+00	3 Ga. 9 1/2" O.D.	0 Ga. 16 1/2" O.D.	IV A
E-15	Kalihi St. 5+00	7 Ga. 12" O.D.	0 Ga. 18" O.D.	IV B

GENERAL NOTES

- The final positions of sign panels above the roadway shall be approved by the Engineer.
- The clearance between the highest point on the pavement and the lowest point on the overhead sign luminaires shall be 17'-0", except where noted.
- The amount and center-to-center spacing of expressway sign luminaires shall be in accordance with the luminaire manufacturer's instructions. Maximum center-to-center spacing of luminaires shall be 10'-0".
- The Contractor shall verify the locations and dimensions of existing expressway sign panels and supports.

DOUBLE SIGN POSTS - SPAN TYPE - DOUBLE MASTARM						
SIGN NO.	STATION	CROSSARM-TAPERED AT MIDSPAN	POST TAPERED		FOUNDATION	
			MED. AT BASE	SHLDR. AT BASE	MEDIAN	SHOULDER
E-5, E-6	± 29+12 ±	3 Ga. 16" O.D.	3+3 Ga. 18" O.D.	3+3 Ga. 18" O.D.	Existing	IA
E-7, E-8	± 37+50	3 Ga. 16" O.D.	3+3 Ga. 18" O.D.	3+3 Ga. 18" O.D.	IA *	IB
E-16, E-17, E-18	Ramp K-1 3+08	3 Ga. 13" O.D.	0 Ga. 18" O.D.	0 Ga. 18" O.D.	IV A	IV A
E-19, E-20, E-21	Kalihi St. 20+25 ±	3 Ga. 13" O.D.	0 Ga. 18" O.D.	0 Ga. 18" O.D.	IV A	IV A

* See Sheet No. 103 for Footing Detail, and Sheet No. C.O. 36 S-1 for Pedestal and Anchor Bolt Detail.

4/5/84	Note for Reference Sht. Nos. added for Footing, Pedestal, and Anchor Bolt Details, for Type IA Foundation; Sign No. E-7, E-8, ± Sta. 37+50.
3/14/84	Revised Ramp K-1 Stationing for sign E-16, sign E-17, sign E-18 from 2+00 to 3+08.
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**GENERAL NOTES &
SIGN POST SCHEDULE**

INTERSTATE H-1 IMPROVEMENTS
MIDDLE ST. TO KALIHI INTERCHANGE
WESTBOUND LANES

F.A.I. PROJ. NO. I-HI-1(187)

Scale: _____ Date: July 1983

SHEET No. 14 OF 16 SHEETS

C.O. 101R

DATE _____
SURVEY PLOTTED BY _____
DRAWN BY _____
TRACED 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(187)	1984	103	197

NOTES:

DESIGN SPECIFICATIONS:

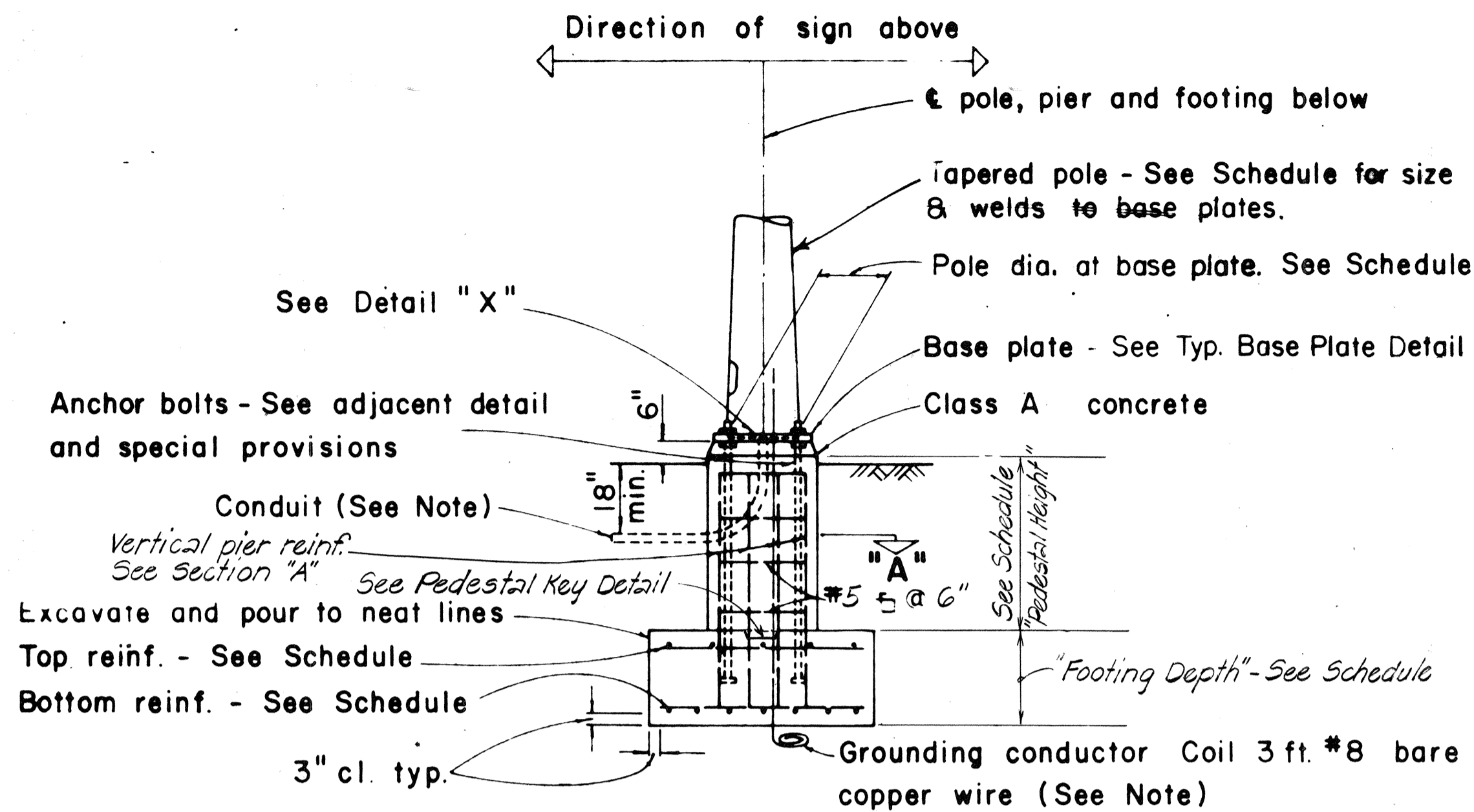
AASHTO, Standard Specifications For Structural Support: For Highway Signs, Luminaires And Traffic Signals 1975, including subsequent interim specifications.

MATERIALS:

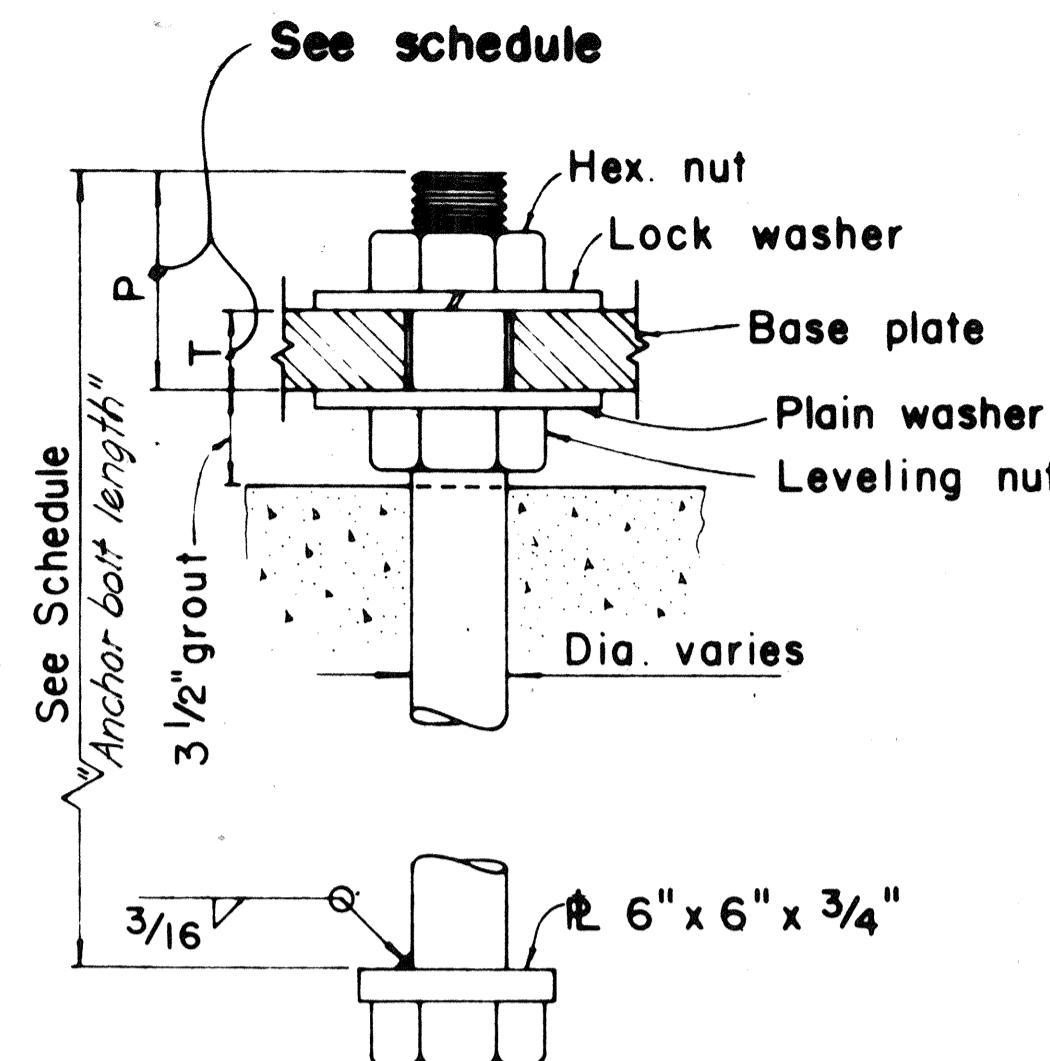
1. Reinforced Concrete - Class A
2. Reinforcing Steel - ASTM A615 Grade 40
3. Anchor bolts - ASTM A193-B7 (Sign E-2) ASTM A449 (All others)

CONSTRUCTION REQUIREMENTS:

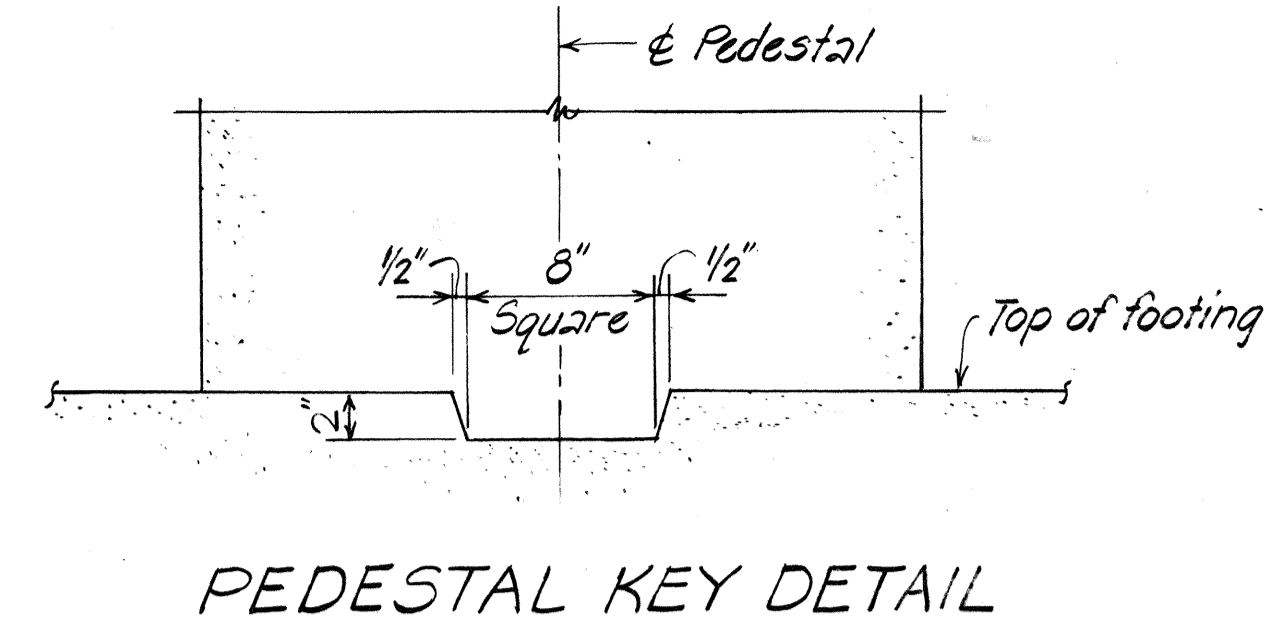
1. Refer to Standard Specifications for Road and Bridge Construction (Hawaii 1976) and Special Provisions.
2. Total number of conduits into pole foundation as indicated on Lighting plans. Conduits shall slope away from pole foundation. Conduit shall stub out 5'-0" min. for direct burial entry.
3. Grounding conductor shall be bonded to sign support.



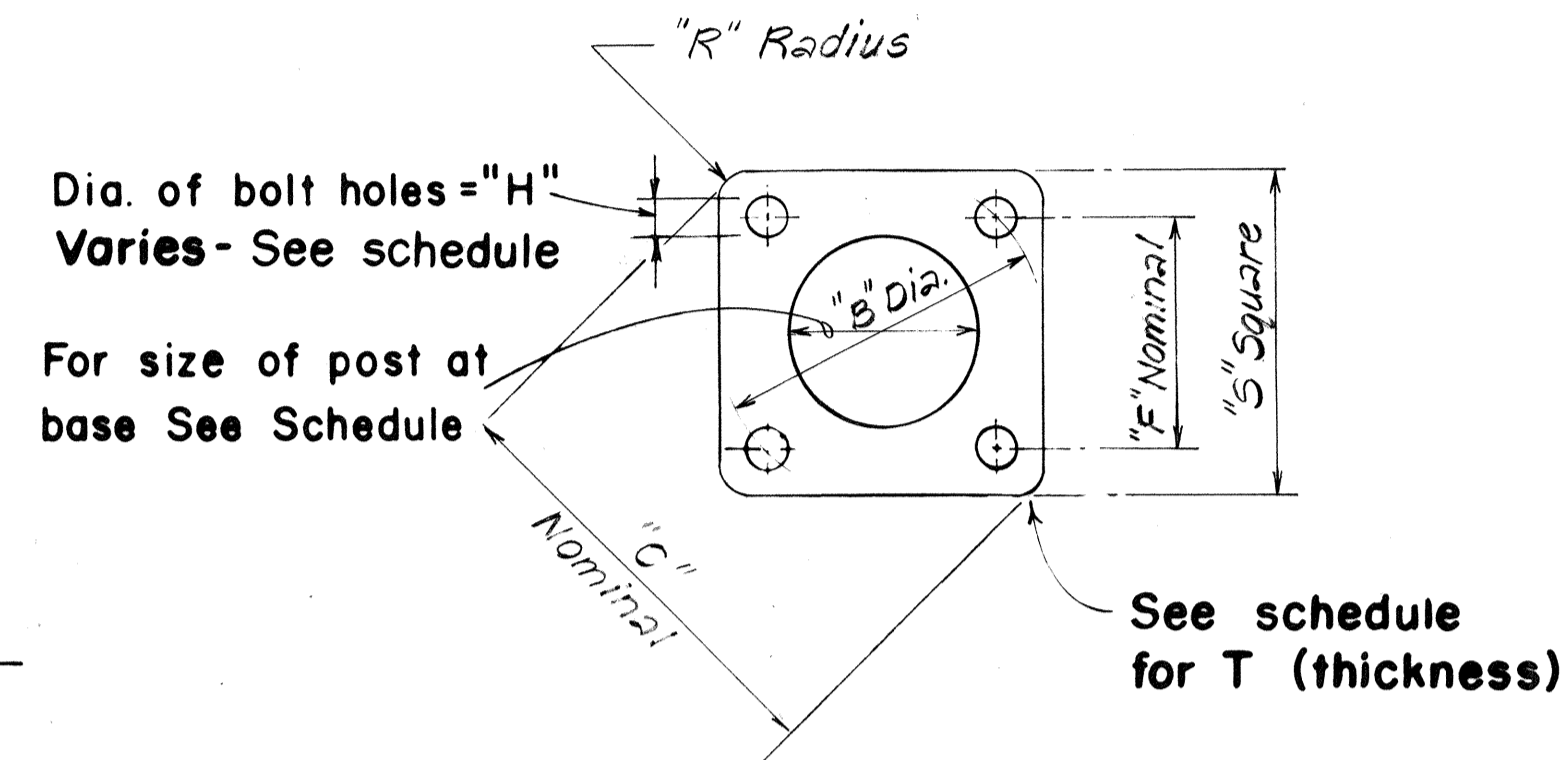
TYPICAL POLE FOUNDATION DETAIL



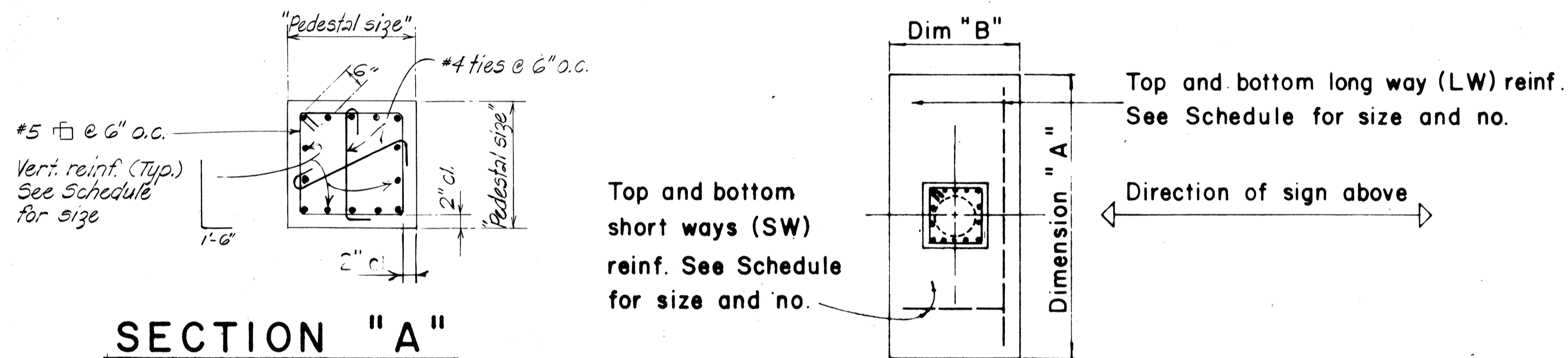
TYPICAL ANCHOR BOLT 4 REQ'D



PEDESTAL KEY DETAIL

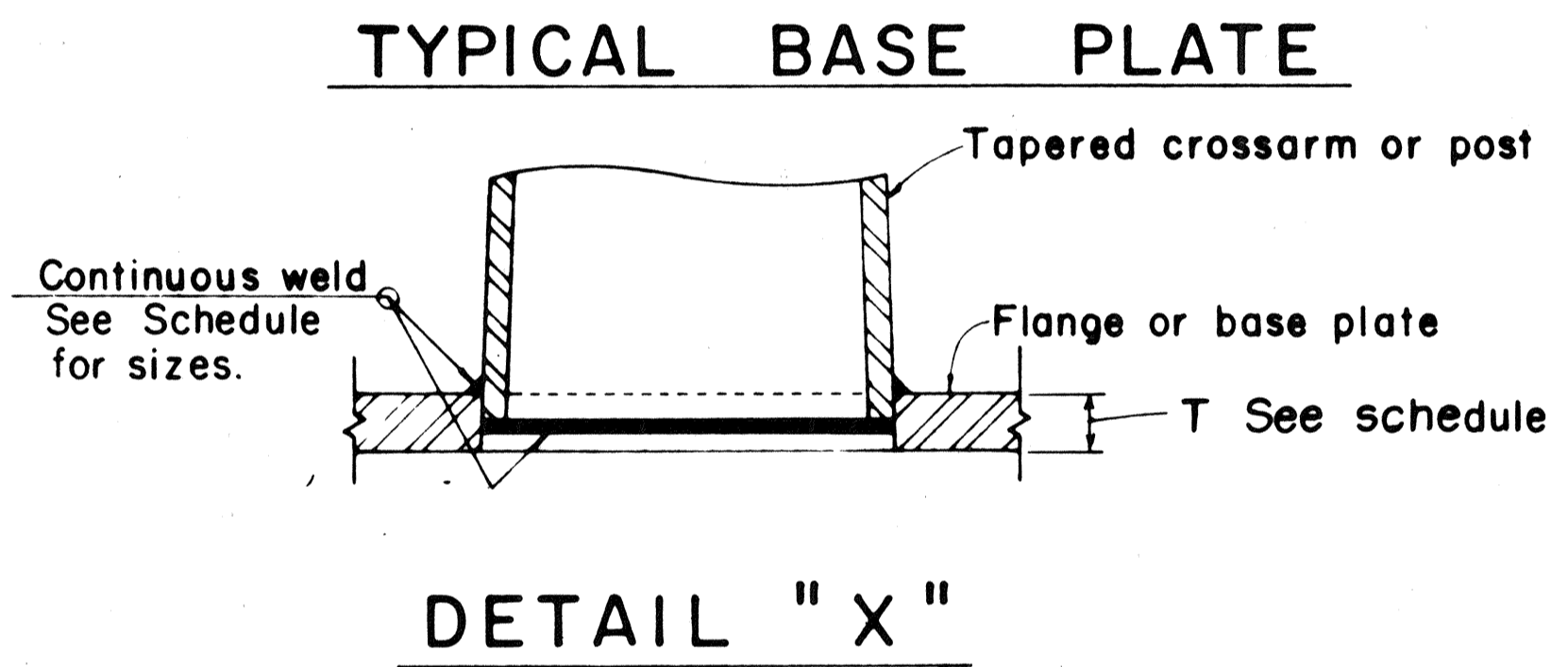


TYPICAL BASE PLATE

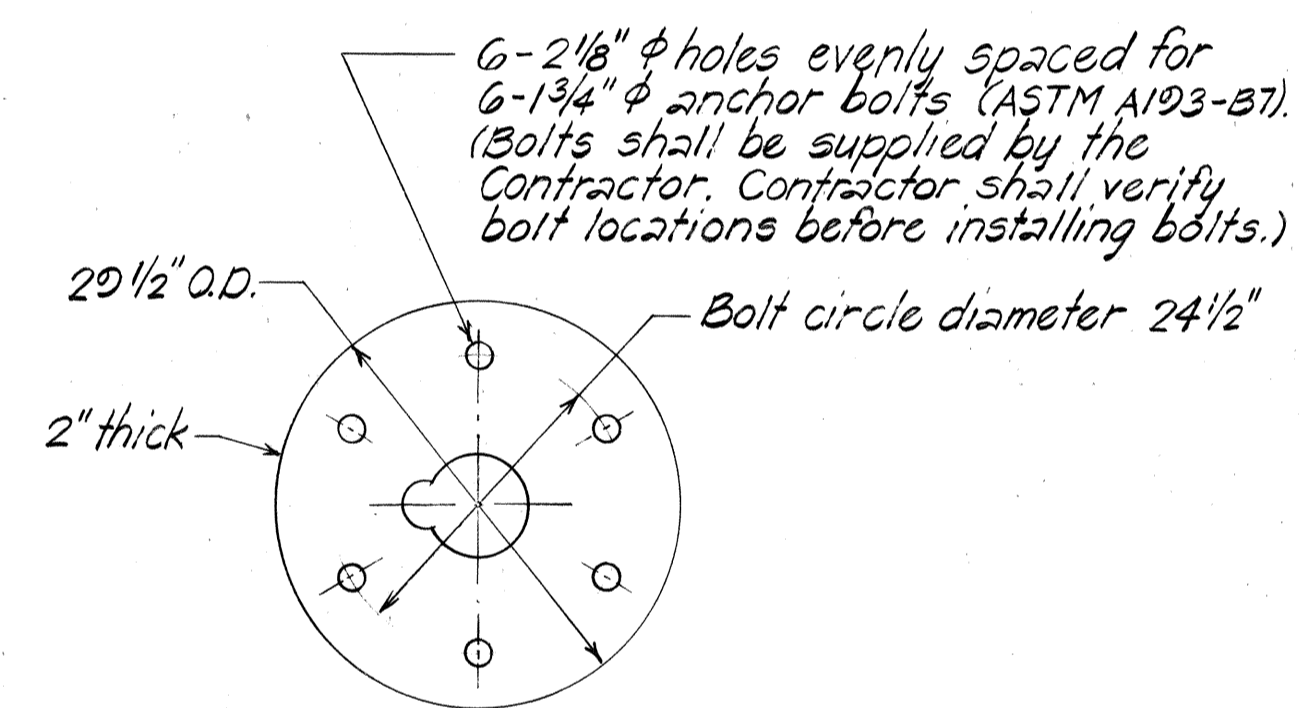


SECTION "A" (TYPICAL FOR ALL SIGNS)

TYPICAL FOOTING DETAIL



DETAIL "X"



BASE PLATE: (Supplied by State)

DETAIL "E-2" (STA. 11+00 RAMP M-2 SIGN E-2)

FOUNDATION SCHEDULE

TYPE	FOOTING				PEDESTAL			ANCHOR BOLT LENGTH			
	DIMENSION		DEPTH	BOT REINF		TOP REINF					
	A	B		L.W.	S.W.	L.W.	S.W.				
III	10'-0"	5'-0"	2'-0"	5-#8	11-#4	5-#5	11-#4	2'-6"	5'-6"	14-#9	7'-3"
IV-A	12'-0"	6'-0"	2'-0"	7-#9	13-#4	7-#5	13-#4	2'-9"	3'-9"	14-#10	5'-6"
IV-B	12'-0"	6'-0"	2'-0"	7-#9	13-#4	7-#5	13-#4	2'-9"	5'-6"	14-#10	7'-3"
IV-C	12'-0"	7'-0"	2'-0"	8-#9	13-#4	8-#5	13-#4	2'-9"	5'-6"	14-#11	7'-3"
IV-D	12'-0"	6'-0"	2'-0"	7-#9	13-#4	7-#5	13-#4	3'-3"	5'-6"	14-#10	7'-6"
V-A	14'-0"	7'-0"	2'-0"	8-#11	19-#4	8-#6	15-#4	2'-9"	3'-0"	14-#10	5'-6"
V-B	14'-0"	7'-0"	2'-0"	8-#11	19-#4	8-#6	15-#4	2'-9"	5'-6"	14-#10	7'-3"

BASE PLATE SCHEDULE

POST GA. NO.	BASE SIZE O.D.	B	C	F	H	P	R	S	T	BOLT DIA.	* FILLET WELD SIZES
3	15"	22'	28 5/8"	15 1/2"	2 3/8"	4"	4 5/8"	23"	2"	2"	1/4"
0	16 1/2"	23 1/2"	30 1/2"	16 5/8"	2 5/8"	4 3/4"	5"	24 1/2"	2 1/2"	2 1/4"	5/16"
3+3	16 1/2"	23 1/2"	30 1/2"	16 5/8"	3 3/8"	6"	5"	24 1/2"	3"	3"	1/2"
0	18"	25 1/2"	33"	18"	2 5/8"	4 3/4"	5 1/2"	26 1/2"	2 1/2"	2 1/4"	5/16"
3+3	18"	25 1/2"	33"	18"	3 3/8"	6"	5 1/2"	26 1/2"	3"	3"	1/2"
3/16"	17.56"	BASE R SUPPLIED BY STATE				8"	SEE DETAIL "E-2"			1 3/4"	—

* Build up inside fillet welds to full throat thickness.

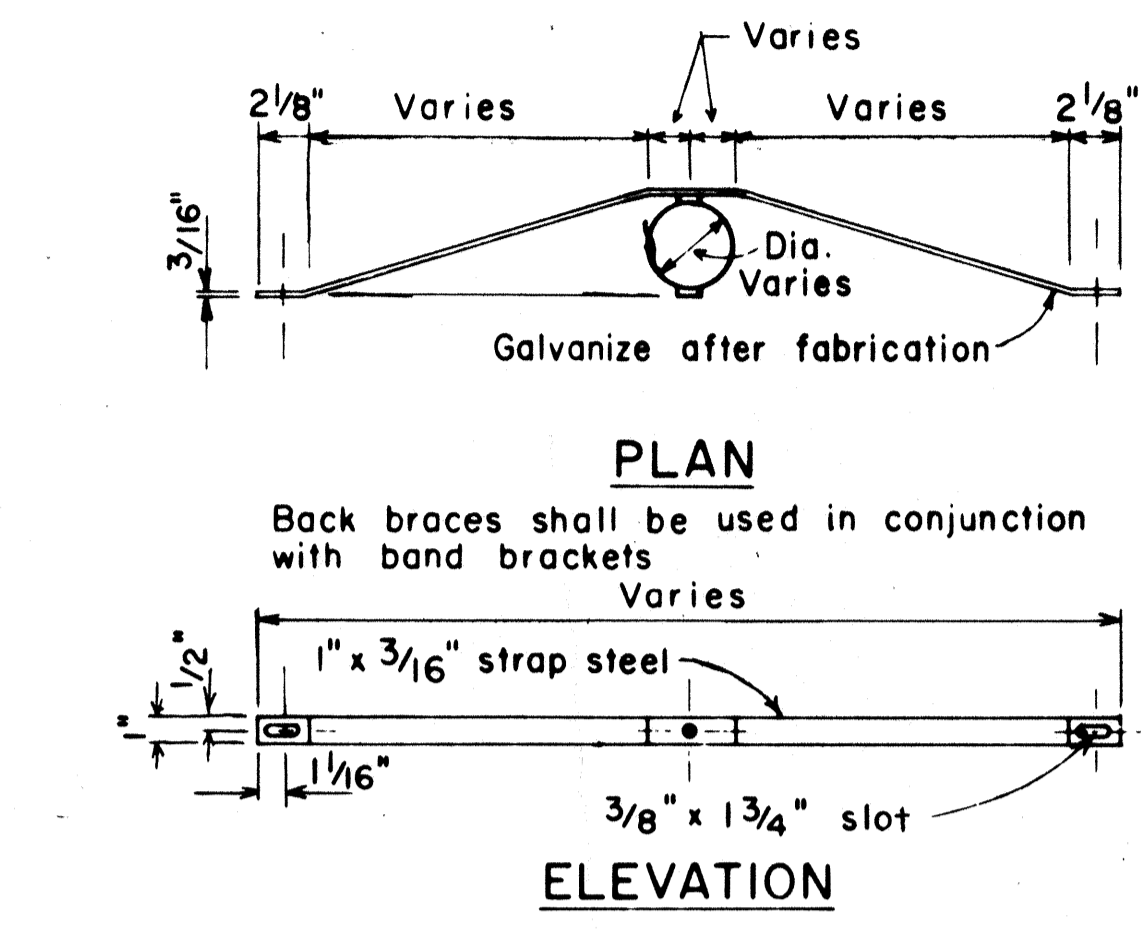
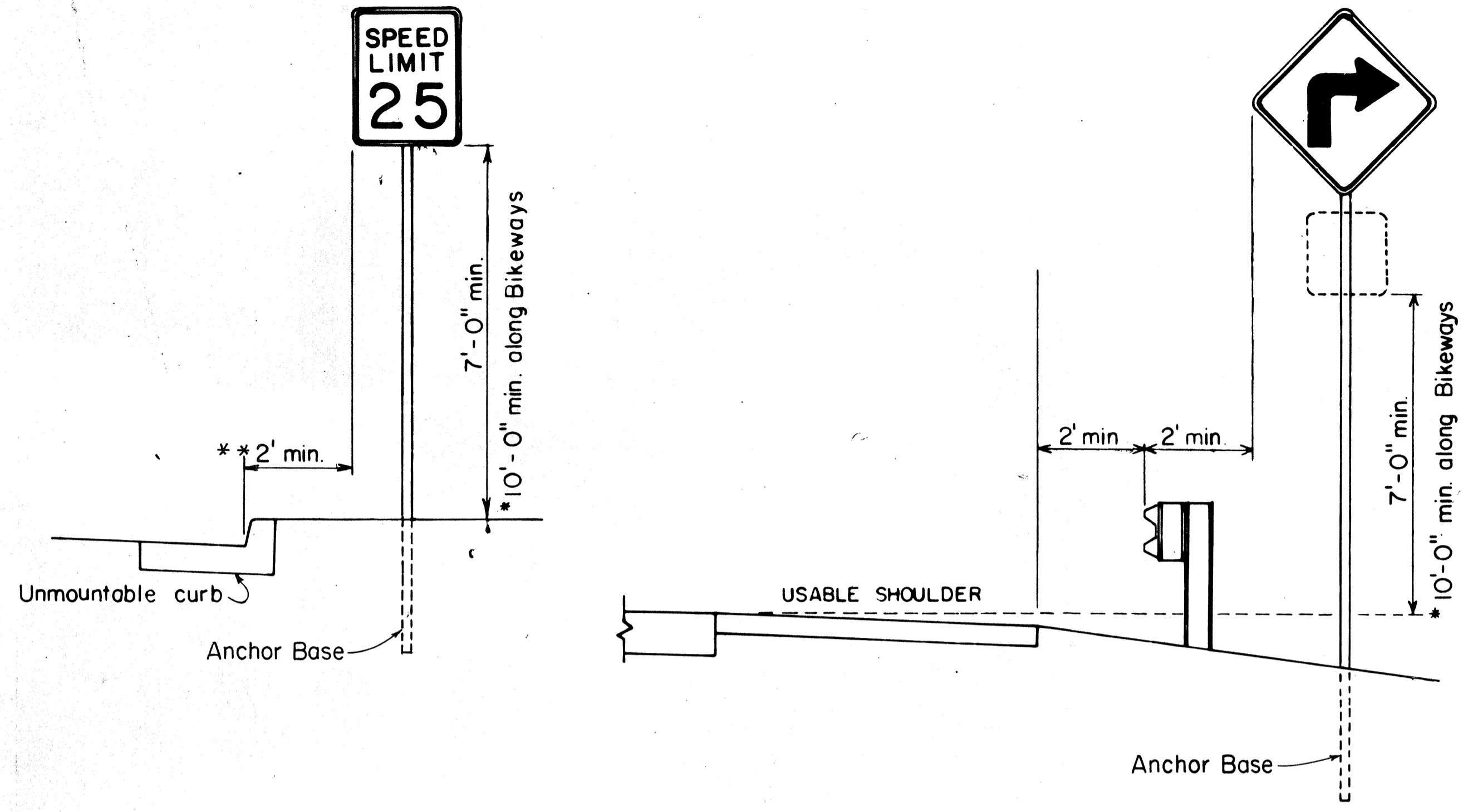
DRAWN BY: []
 CHECKED BY: []
 DESIGNED BY: []
 QUANTITY BY: []
 DATE: []
 ORIGINAL PLAN []
 NOTE BOOK []

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
EXPRESSWAY SIGN BASE PLATE
AND FOUNDATION DETAILS
INTERSTATE HI IMPROVEMENTS
MIDDLE STREET TO KALIHI INTERCHANGE
WESTBOUND LANES
F.A.I. PROJ. NO. I-HI-1(187)
 NOT TO SCALE Date: June 1983
SHEET No. 16 OF 16 SHEETS

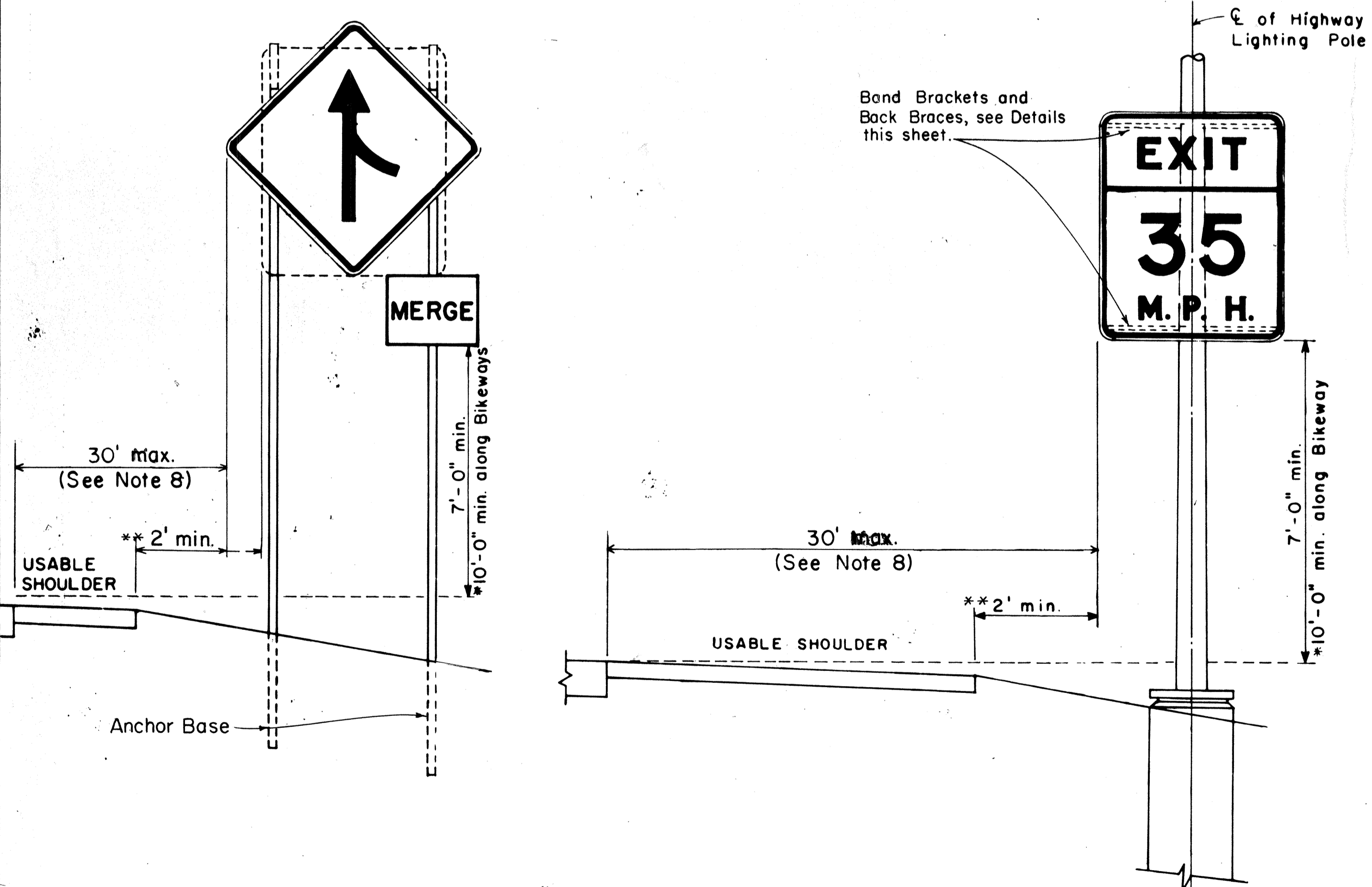
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(187)	1984	104	197

GENERAL NOTES

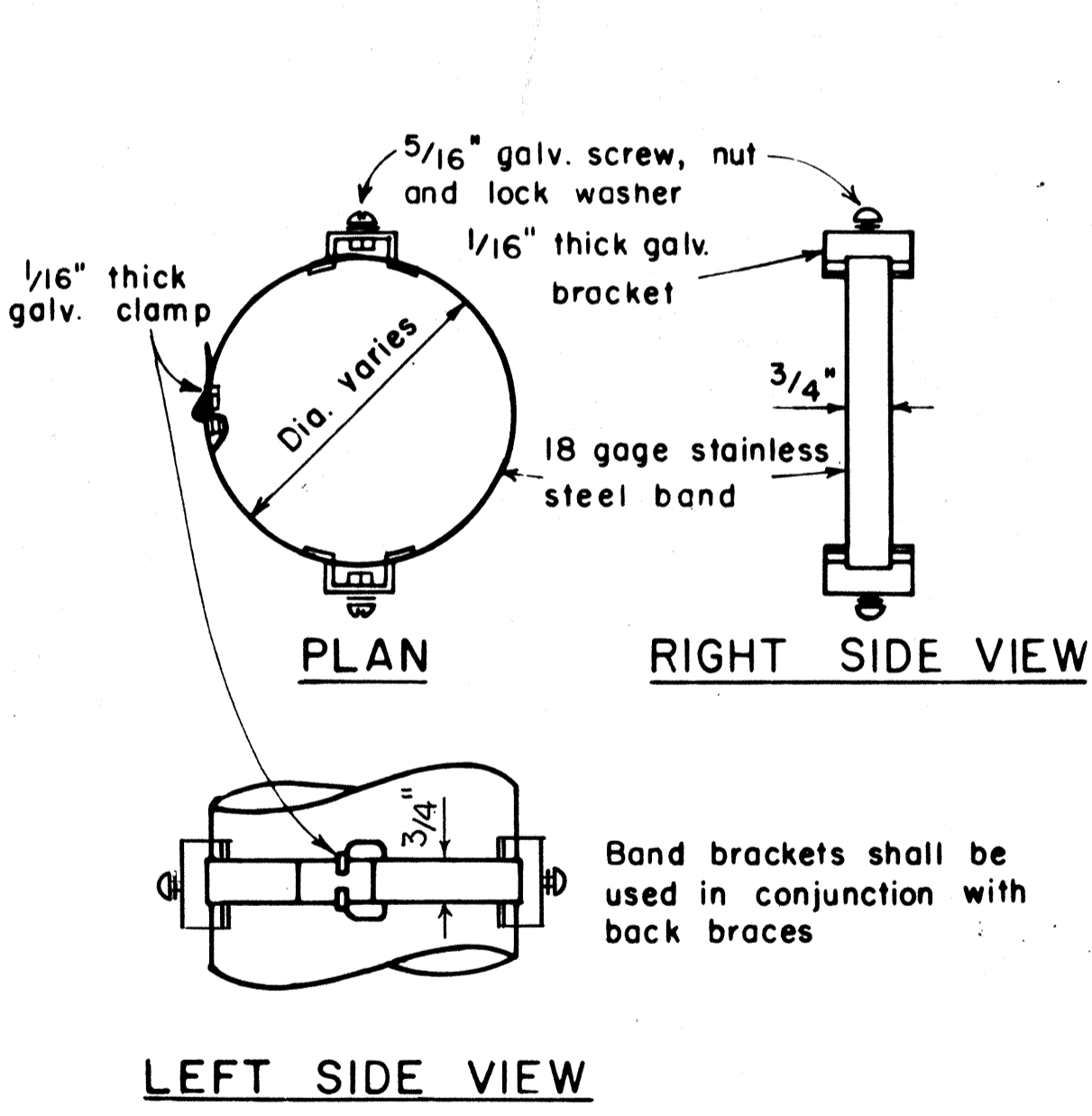
1. Signs shall be placed in conformance with positions shown and described in the "Manual on Uniform Traffic Control Devices for Streets and Highways", 1978, Part II, Section 2A-21, as amended, and as supplemented herein.
2. Signs 48" and wider or larger than 10 sq. ft. in area shall be mounted on two sign posts except as noted below.
3. 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:
 - a. 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.
 - b. Signs larger than 28 sq. ft. in area shall be mounted with a minimum of three sets of band brackets and back braces.
4. All parking restriction signs with arrows shall be mounted 45° to the line of traffic flow.
5. Sign posts shall extend 3/2" above each sign, where required, for attachment of City and County street name signs.
6. (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.
9. 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.
10. Anchor bases shall be installed for all signpost installations, unless otherwise shown or directed. See sheets DT 100A and DT 100B.



BACK BRACE DETAILS FOR BALANCED SIGN INSTALLATION



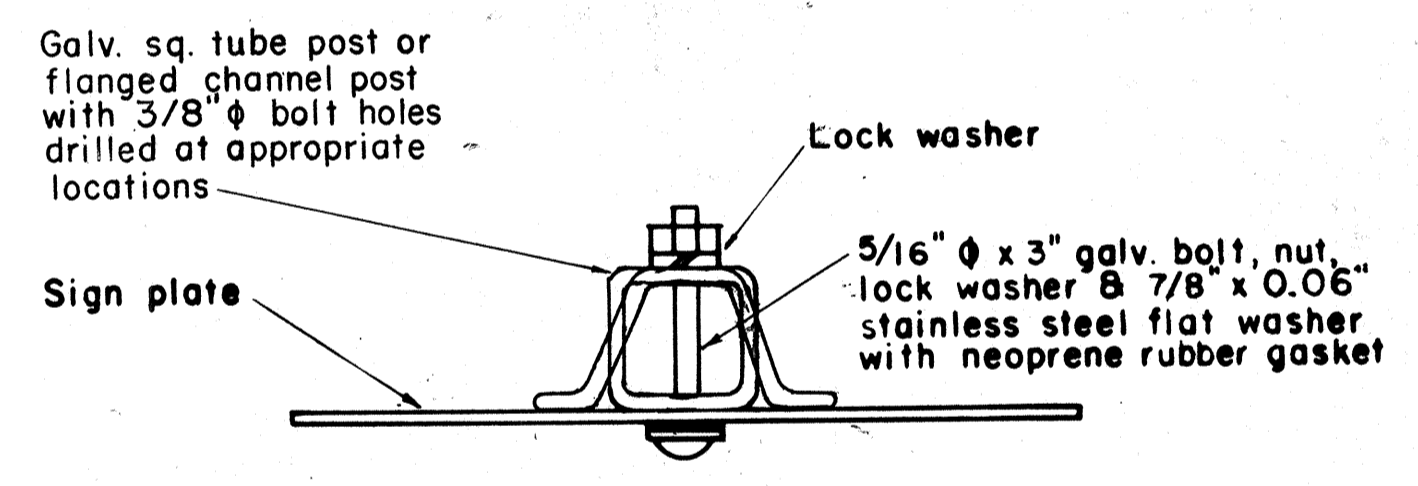
HEIGHT AND LATERAL LOCATION OF SIGNS TYPICAL INSTALLATION



BAND BRACKET

TYPICAL MOUNTING DETAILS

NOT TO SCALE



GALVANIZED SQUARE TUBE OR FLANGED CHANNEL POST

APPROVAL RECOMMENDED:
Eishi Tanaka 11/10/77
 TRAFFIC ENGINEER DATE

APPROVED:
Harbert S. Sakai 11/15/77
 ASSISTANT CHIEF, ENGINEERING DATE

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.	5/8/79
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.	9/22/82

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
 MISCELLANEOUS SIGN DETAILS

Not to scale June, 1977

DATE: _____
 SURVEY ELABORATED BY: _____
 DRAWN BY: _____
 TRACED BY: _____
 DESIGNED BY: _____
 QUANTITIES BY: _____
 CHECKED BY: _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H-11(187)	1984	105	191

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 = $A \times B \times H$
 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:

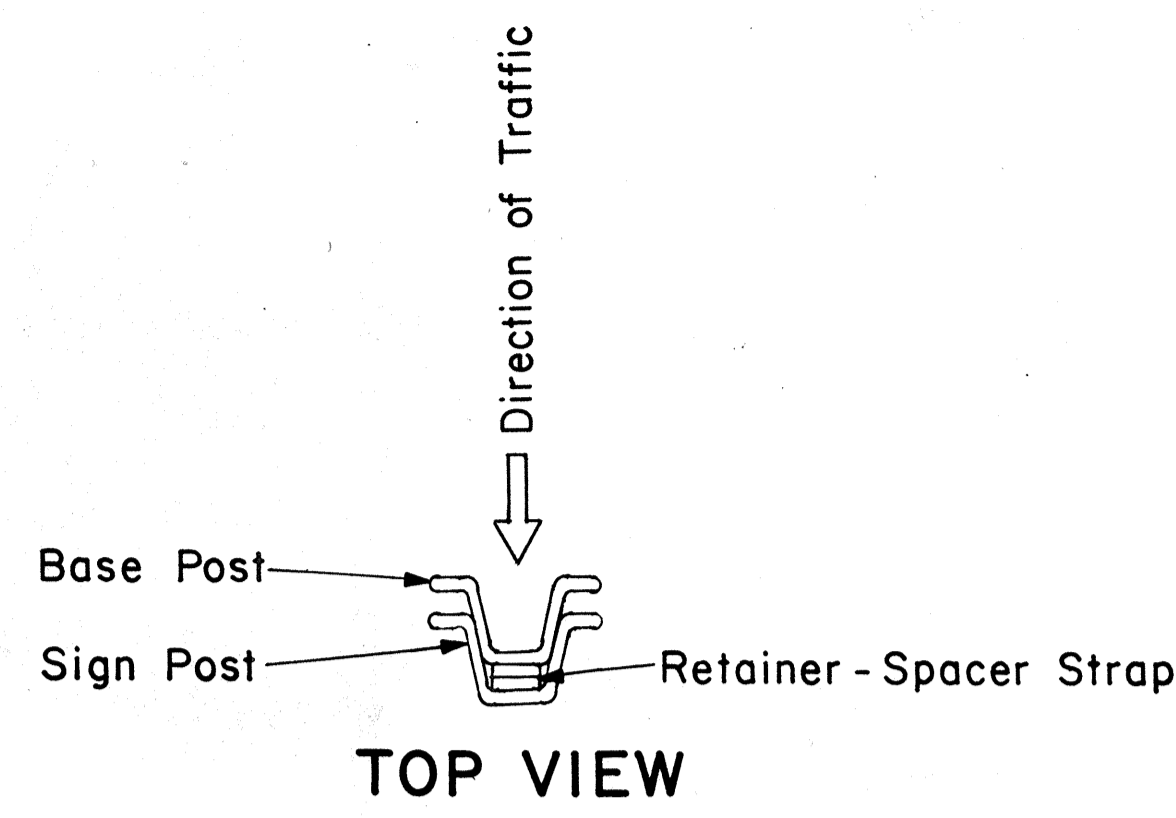
Eishi Tanaka 9/21/82
 TRAFFIC ENGINEER DATE

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

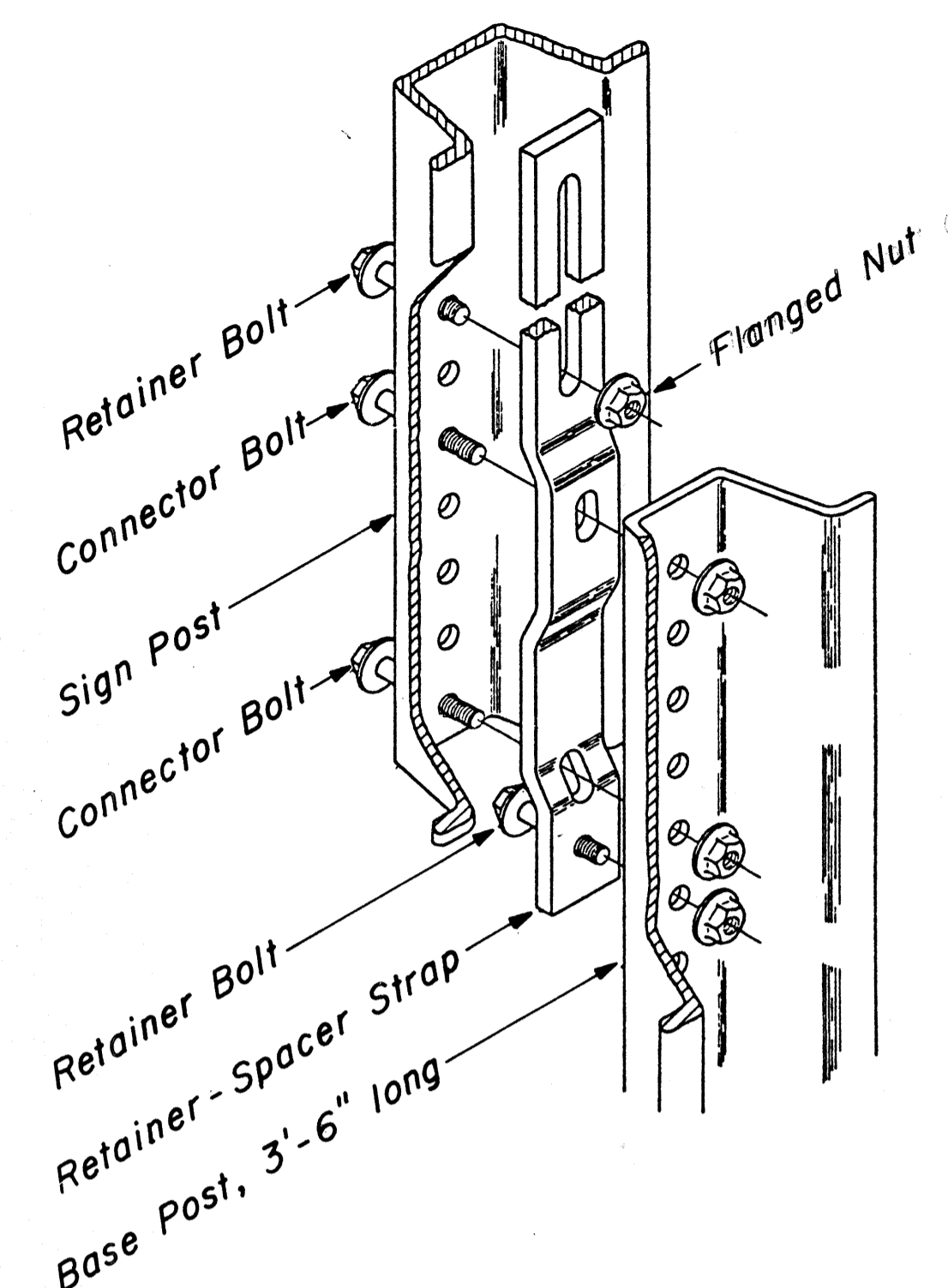
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
 GALVANIZED FLANGED CHANNEL
 SIGN POST MOUNTING

Scale: As Shown Date: Sept. 1982
 SHEET No. 2 OF 25 SHEETS DT 100A

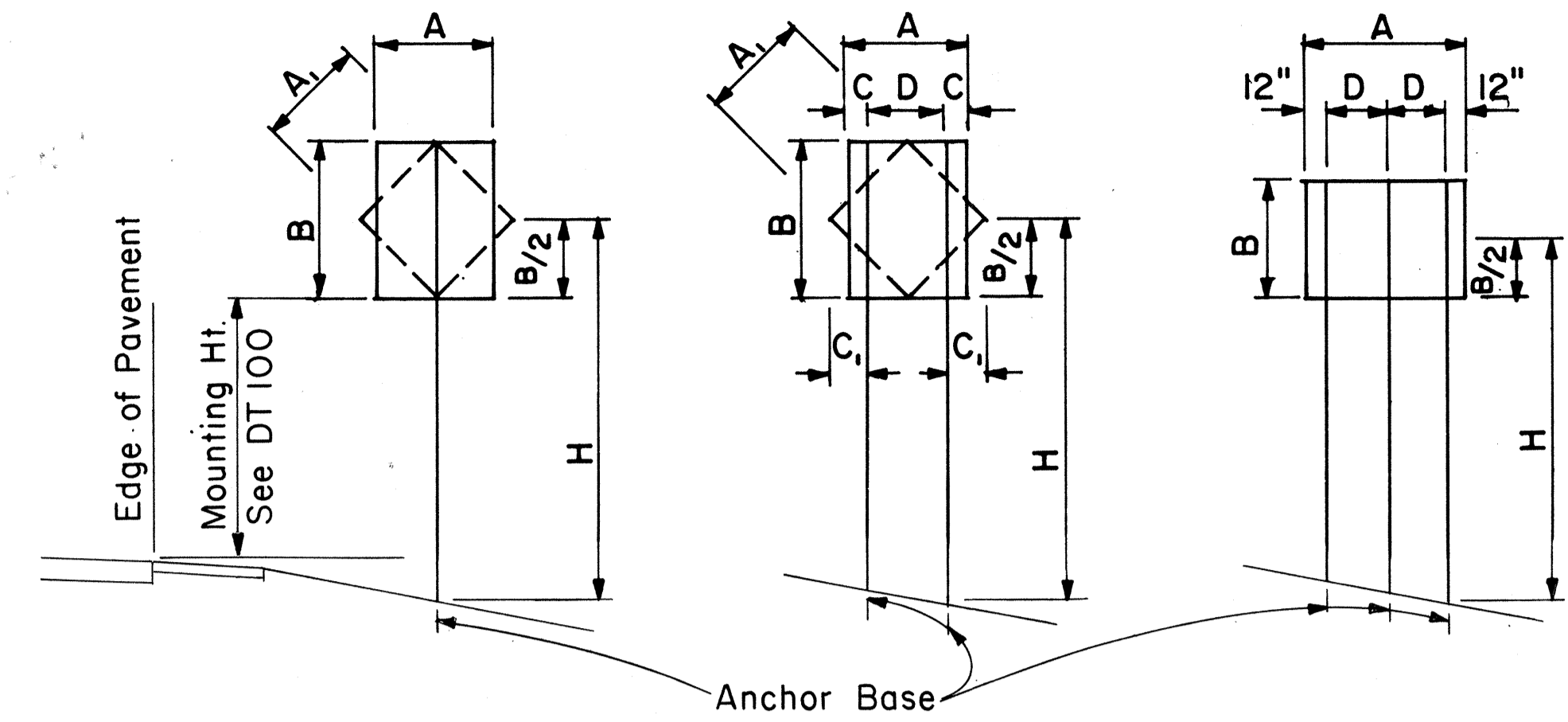


TOP VIEW



CONNECTION DETAIL

Not to Scale



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.)					
		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

A x B (Area, sq. ft.)

FLANGED CHANNEL: 2-POST INSTALLATION

Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (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

A x B (Area, sq. ft.)

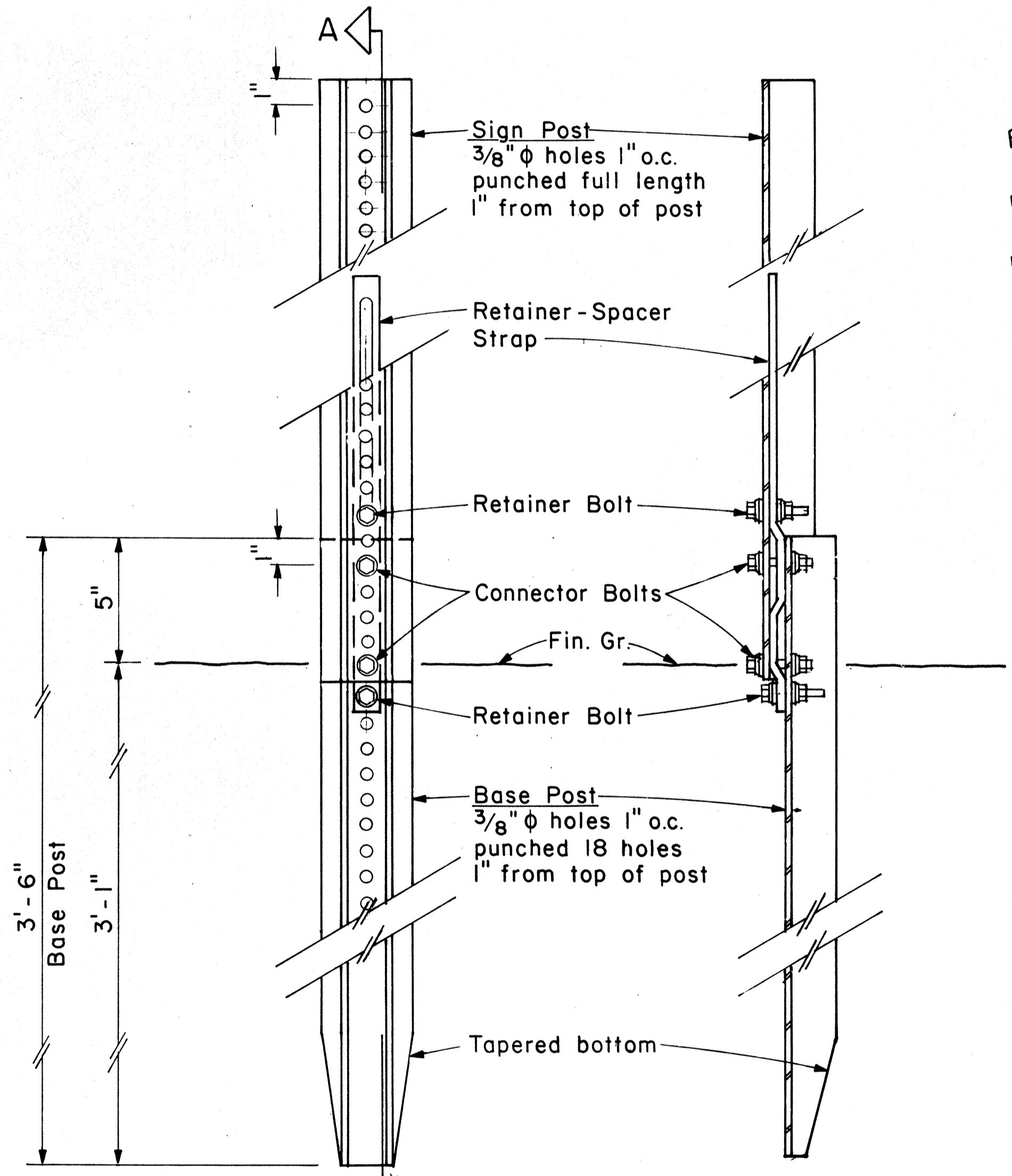
FLANGED CHANNEL: 3-POST INSTALLATION

Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (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

A x B (Area, sq. ft.)

WINDLOAD CHARTS

NO.	REVISION	APPROVED BY	DATE

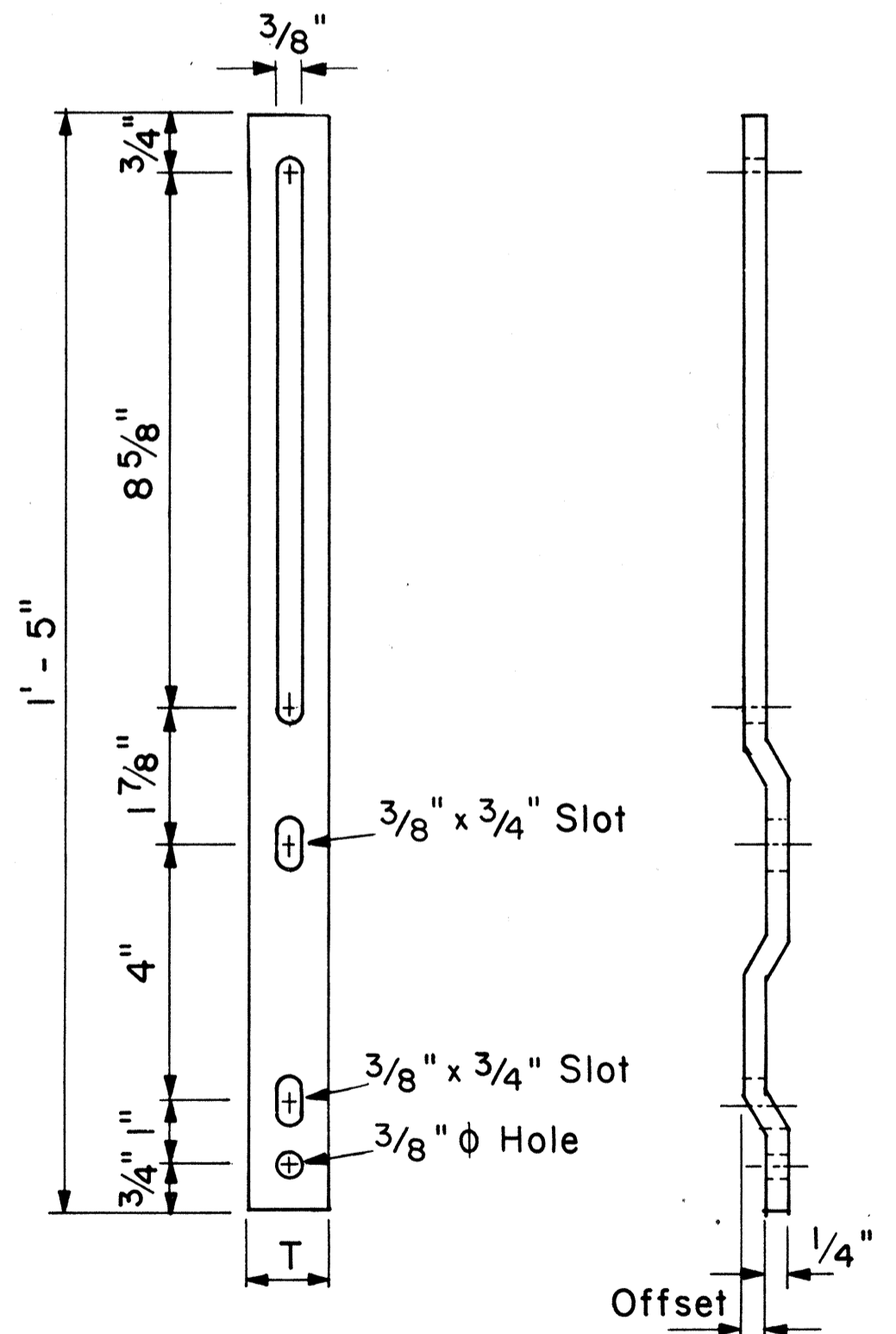


SECTION "A-A"

BACK VIEW

ANCHOR BASE DETAIL

Scale: 3" = 1'-0"



RETAINER-SPACER STRAP

Not to Scale

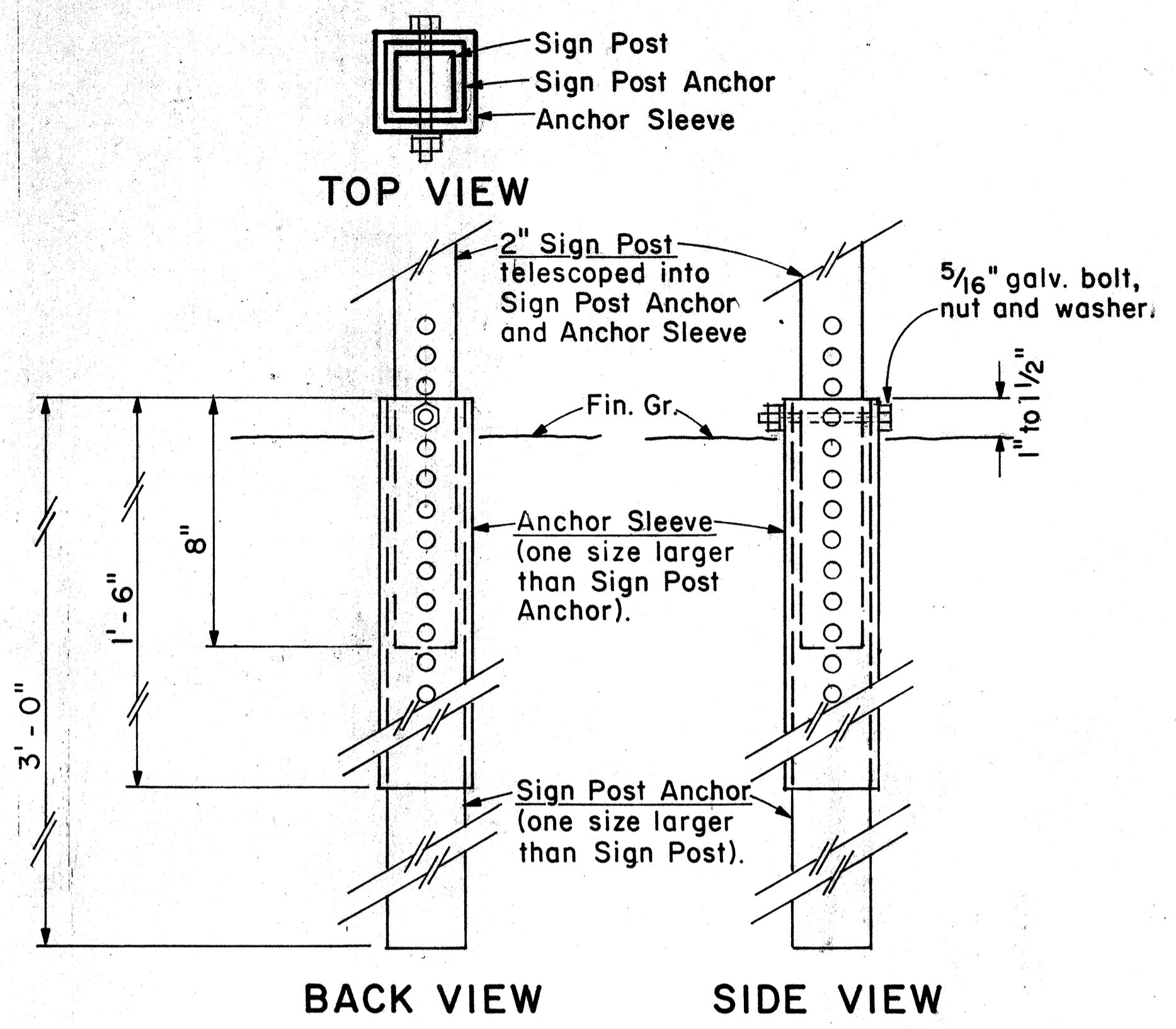
RETAINER-SPACER STRAP

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

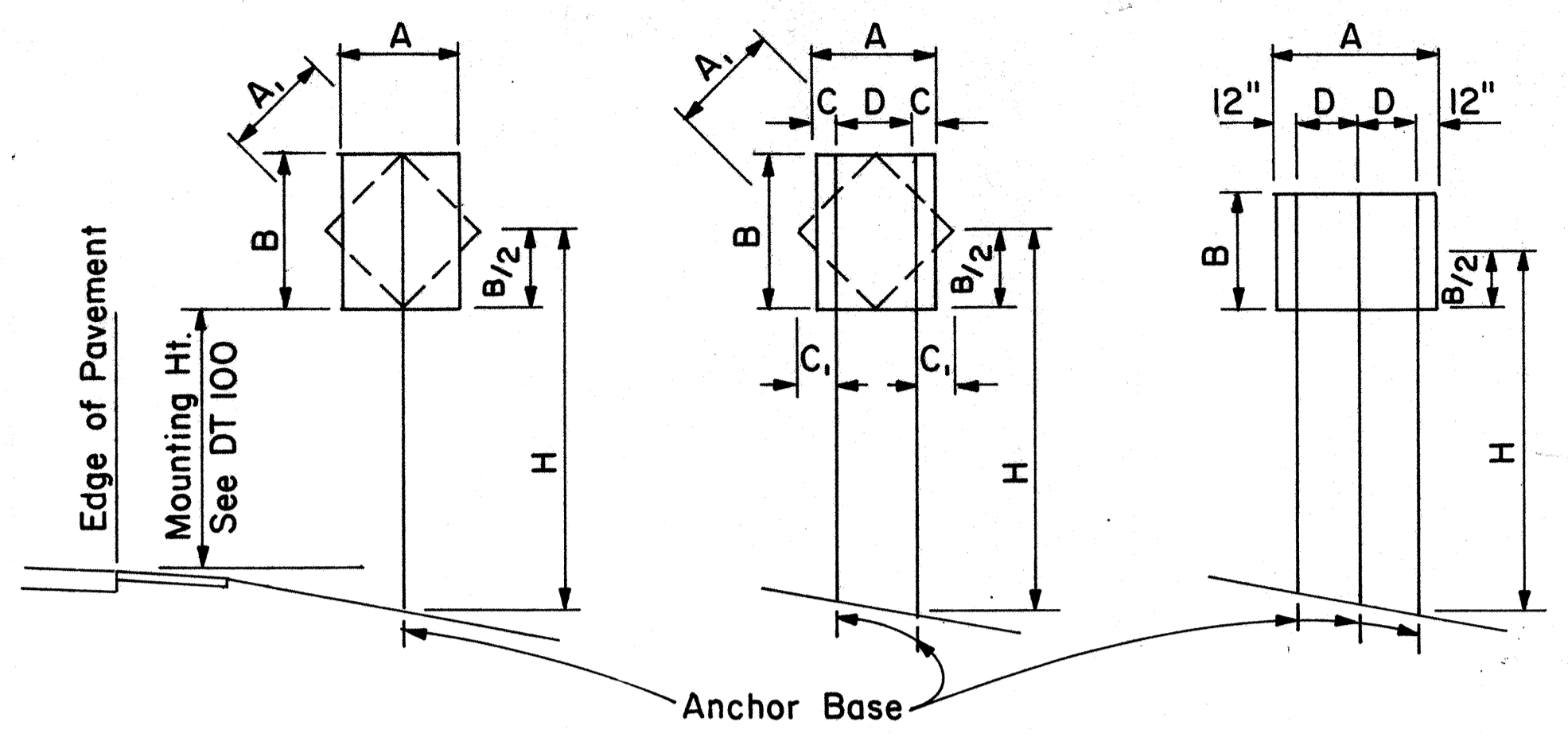
SURVEY PLOTTED BY: _____ DATE: _____
 DRAWN BY: _____
 TRACED BY: _____
 DESIGNED BY: _____
 QUANTITIES BY: _____
 CHECKED BY: _____
 No. _____

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:
 $Factor = A \times B \times H$
Therefore, if sign area (A x B) is known,
Maximum H = $\frac{Factor}{sign\ area(A \times B)}$
and if H is known,
Maximum sign area (A x B) = $\frac{Factor}{H}$



2" SIGN POST INSTALLATION



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 ₁	C	C ₁
36"	6"	-
48"	9"	19"
60"	12"	24"

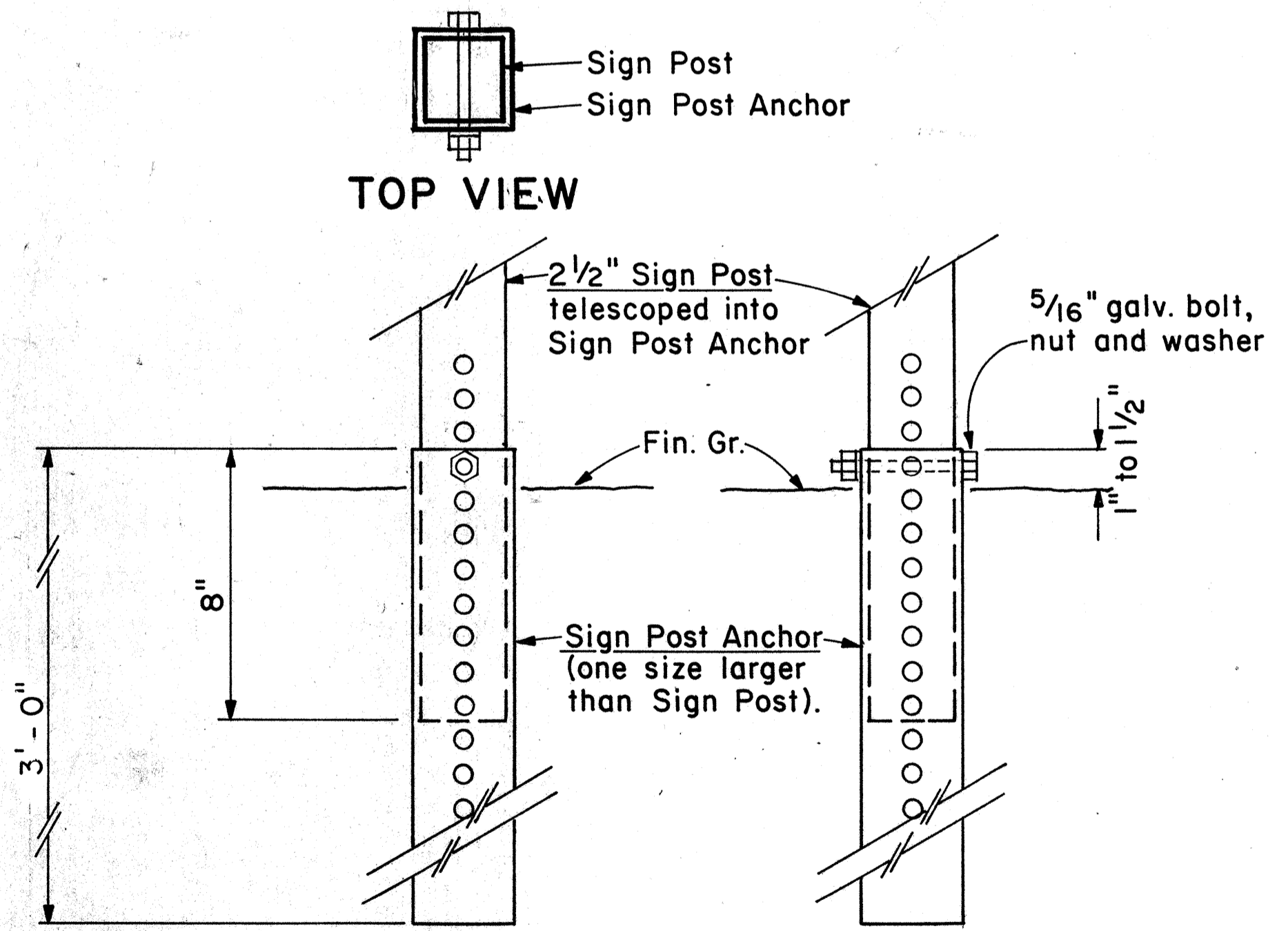
NOTE: Frame stiffeners are required when D is greater than 24". See Gen. Note 2.

SQUARE TUBE: 1- POST INSTALLATION								
Post Size	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"	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	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"	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	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"	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



2 1/2" SIGN POST INSTALLATION

ANCHOR BASE DETAIL

Scale: 3" = 1'-0"

APPROVAL RECOMMENDED:
Eishi Tanaka 9/21/82
TRAFFIC ENGINEER DATE
APPROVED:
Albert Salaschi 9/22/82
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	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. 3 OF 25 SHEETS DT100B

DATE _____
SURVEY PLOTTED 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(187)	1984	107	197

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:
Etsuki Tanaka 3/17/72
 TRAFFIC ENGINEER DATE

APPROVED:
Robert J. ... 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
2	Revised General Note 1.	H.T.	10/10/74
3	Added General Note 5	H.T.	6/9/79

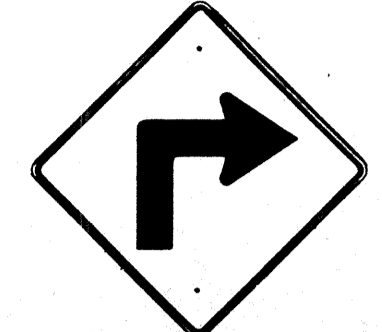


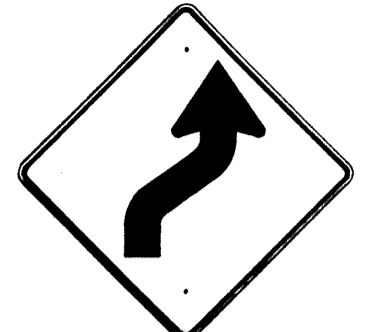
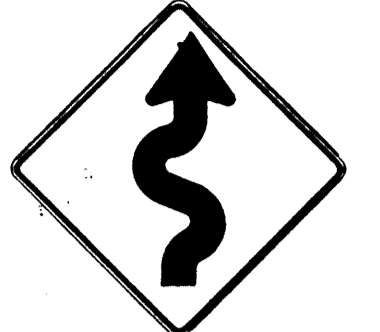
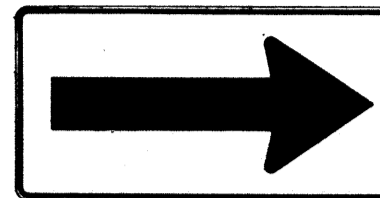
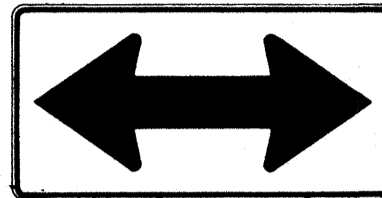
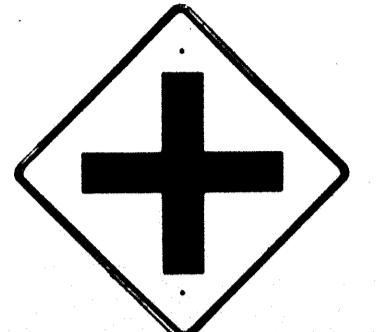
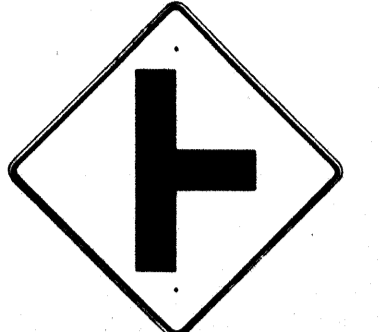
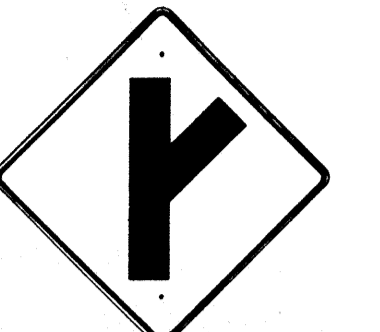
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

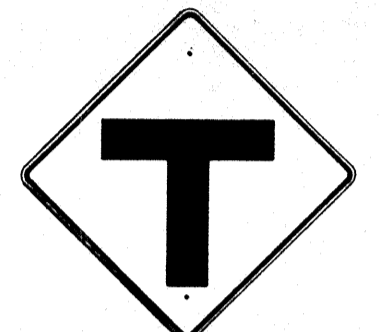



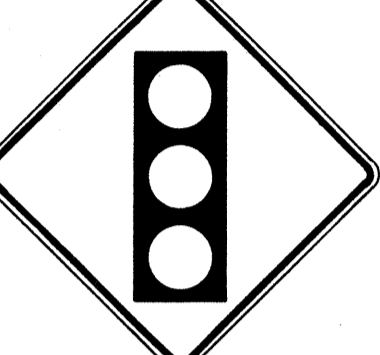

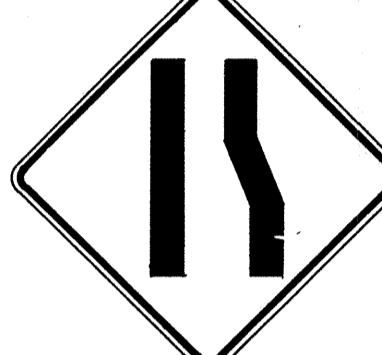



STANDARD DETAILS
REGULATORY SIGNS











NOT TO SCALE
 SHEET No. 4 OF 25 SHEETS DT 101








DATE: _____
 DESIGNED BY: _____
 CHECKED BY: _____
 ORIGINAL PLAN NO. _____
 NOTE BOOK NO. _____

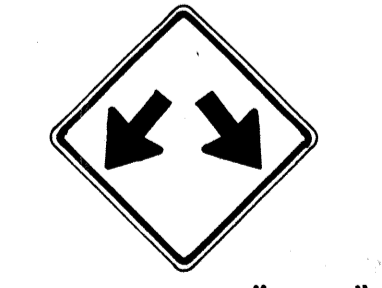


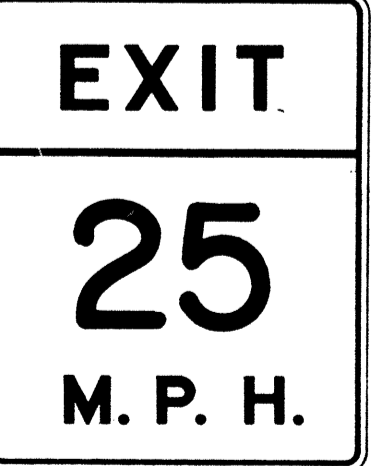
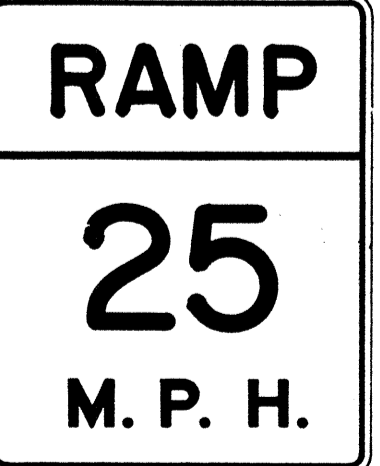


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H-1(18)	1984	108	197

 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"
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 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"
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 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"
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 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"
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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:
Emilio Tanaka 3/17/72
 TRAFFIC ENGINEER DATE

APPROVED:
Robert D. Sisk 3-20-72
 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.F.	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. 5 OF 25 SHEETS DT 102

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

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.	I-HI-1(187)	1984	109	197

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"x6"

REDUCED SPEED
35
AHEAD
R2-5d(35) 24"x30"
R2-5d(35)-A 48"x60"

SPEED LIMIT ENFORCED BY VASCAR
4" Series D
4" Series C
3" Series D
5" Series C
R2-10 24"x30"

CENTER LANE ONLY
R3-9b 24"x36"

BUS STOP
R7-107(R) 12"x24"

RESERVED PARKING
R7-8 12"x18"
R7-8-A 24"x30"

ANY TIME
4" Series C
1 1/2"
R8-3a 24"x24"
24"x18"
R8-3a-A 48"x48"

NO PED XING
R9-3a 18"x18"
18"x12"
R9-3a-A 24"x24"
24"x18"

USE CROSSWALK
R9-3b(R) 18"x12"

USE CROSSWALK
R9-3b(L) 18"x12"

NO TURN ON RED
R10-11a 24"x30"

TURN RIGHT ANY TIME WITH CAUTION
4" Series C
R16-1 24"x30"

NO LEFT TURN ON RED
4" Series D -
3" Series D -
2" Series D -
3" Series D -
R16-3 18"x24"

NO RIGHT TURN ON RED
R16-4 18"x24"

UNLICENSED VEHICLES BICYCLES, CYCLES UNDER 5 H.P., PEDESTRIANS KEEP OUT FREEWAY
3" Series C
4" Series E
R16-5 36"x42"

U TURN AHEAD
8" Series F
5" Series D
R16-6 24"x30"

U TURN OK
8" Series F
5" Series D
R16-7 24"x30"

MOTOR-DRIVEN CYCLES PROHIBITED
4" Series B
R5-8 30"x24"

W17-1(L) 60"x60"

STOP AHEAD
W3-1a 36"x36"
24"x18"
W3-1a-A 48"x48"
24"x18"

YIELD AHEAD
W3-2a 36"x36"
24"x18"
W3-2a-A 48"x48"
24"x18"

STOP AHEAD WHEN FLASHING
6" Series C
W3-4 48"x48"

TRUCK CROSSING
W8-6 30"x30"
W8-6-A 36"x36"

THRU TRAFFIC MERGE LEFT
6" Series E
W9-3(L) 48"x48"

EQUESTRIAN XING
W11-7 36"x36"
24"x18"
W11-7-A 48"x48"
24"x18"

FIRE STATION
W11-8 36"x36"
24"x18"
W11-8-A 48"x48"
24"x18"

W11-9 36"x36"
W11-9-A 48"x48"

LIMITED SIGHT DISTANCE
W14-4 36"x36"
W14-4-A 48"x48"

DELAYED GREEN
4" Series C
W15-1 24"x24"

ADVANCE GREEN
W15-2 24"x24"

END FREEWAY 1/2 MI
8" Series E
CW16-1(1/2) 60"x60"

RIGHT LANE EXIT ONLY
8" Series E
W18-1 48"x60"

S1-1 36"x36"

S2-1 36"x36"

SCHOOL BUS STOP AHEAD
S3-1 30"x30"

8:00 AM TO 3:30 PM
S4-1 24"x10"
WHEN CHILDREN ARE PRESENT
S4-2 24"x10"

SCHOOL
S4-3 24"x8"
WHEN FLASHING
S4-4 24"x10"

SIDEWALK CLOSED
7" Series D
CW23-4 48"x48"

USE SIDEWALK
4" Series C
R18-1 24"x18"

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT103 approved 3/20/72	H.T.	5/2/78
2	Added General Note 6	H.T.	11/9/78

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

APPROVED:
Harold Z. Zakechis 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. 6 OF 25 SHEETS DT 103

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-11-1(187)	1984	110	197



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"



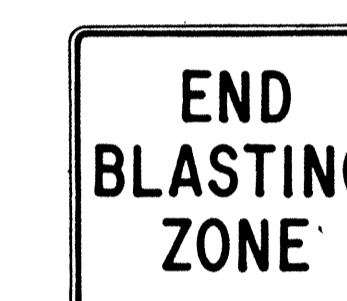
CW21-6 30" x 30"



CW22-1b 48" x 48"



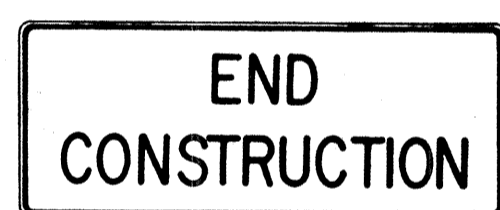
CW22-2 42" x 36"



CW22-3 42" x 36"



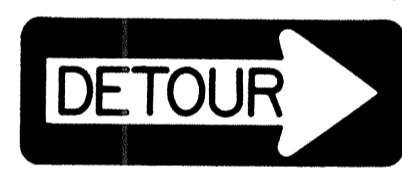
CG20-1(5) 60" x 36"



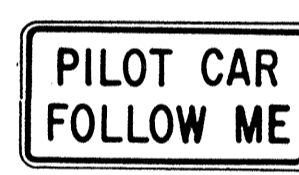
CG20-2 60" x 24"



CM4-9(R) 30" x 24"



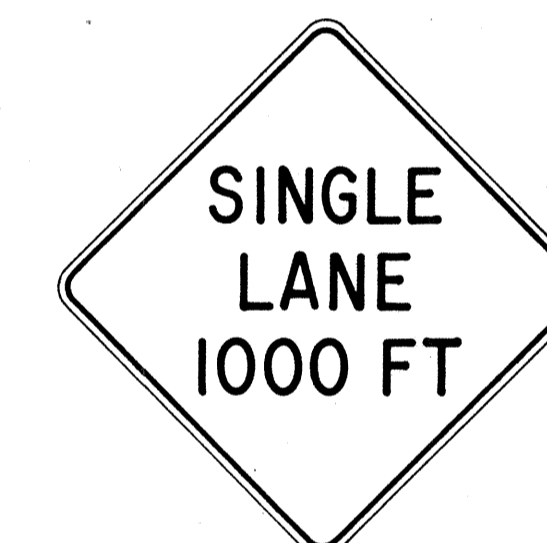
CM4-10(R) 48" x 18"



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:
Eishi Tanaka 3/21/72
TRAFFIC ENGINEER DATE

APPROVED:
Shuler Saleid 2/23/72
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 104 Approved 12-30-69	H.T.	3/23/72
2	Revised General Note 1	H.T.	10/10/74
3	Revised General Note 2	H.T.	9-16-75
4	Revised General Note 2 and sign CG20-1(5)	H.T.	9-14-76

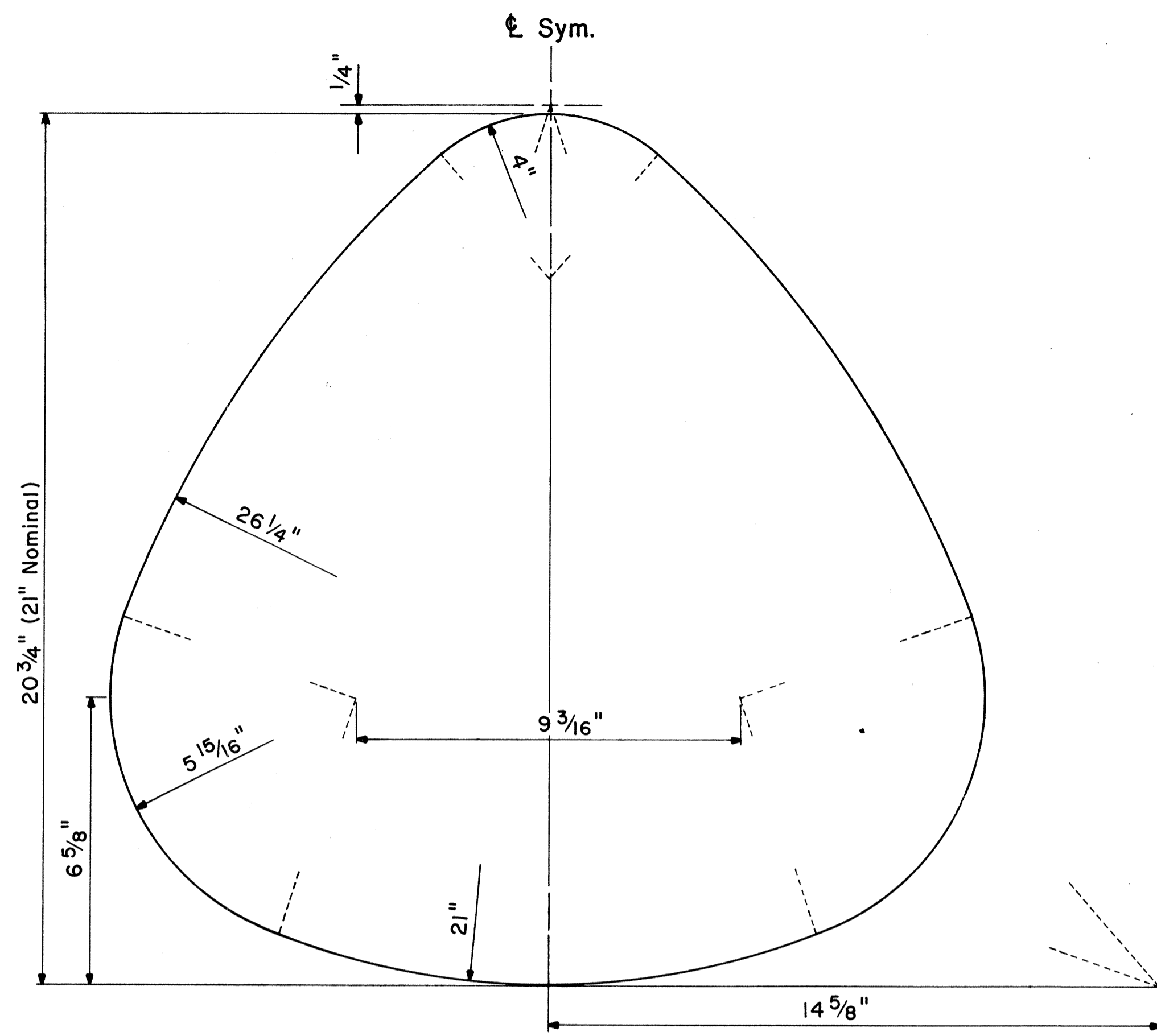
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
CONSTRUCTION SIGNS

NOT TO SCALE

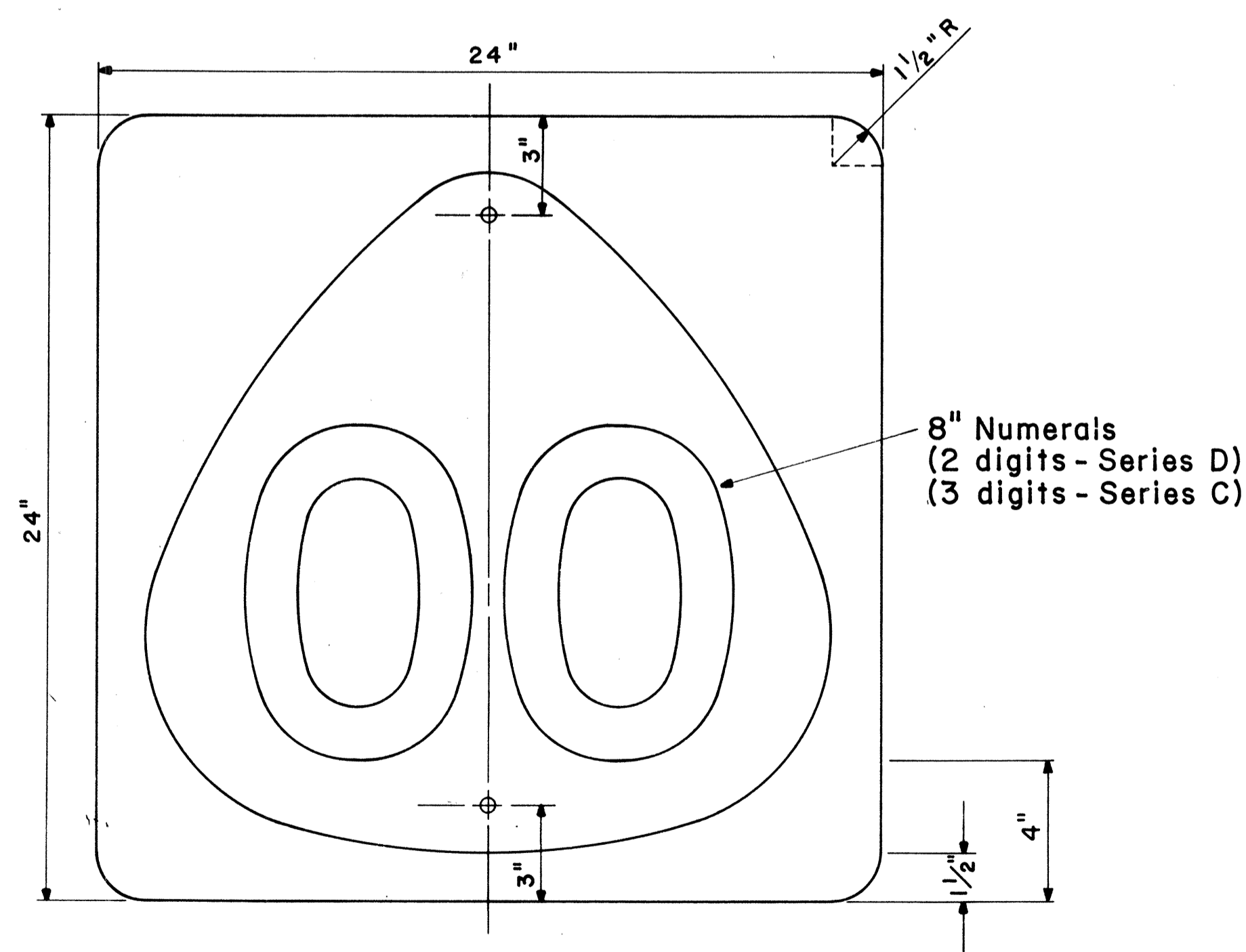
SURVEY PLOTTED BY	DATE
DRAWN BY	" "
FILED BY	" "
QUANTITIES BY	" "
CHECKED BY	" "
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(137)	1984	111	197



STATE ROUTE MARKER DETAIL

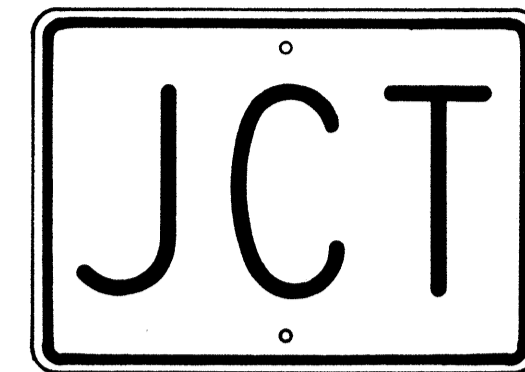
Not to Scale



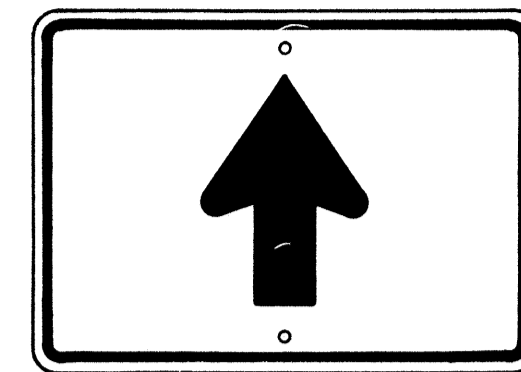
STATE ROUTE MARKER

M1-6 (00) 24" x 24"

Scale: 1/4" = 1"



M2-1 21" x 15"



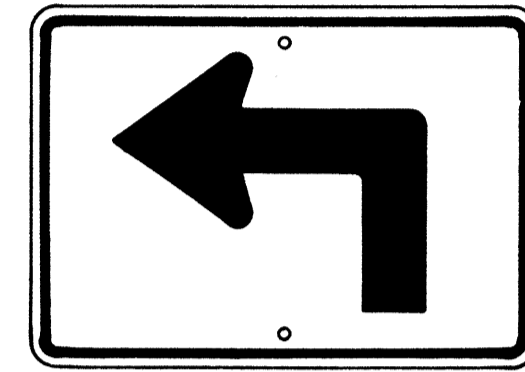
M6-3 21" x 15"



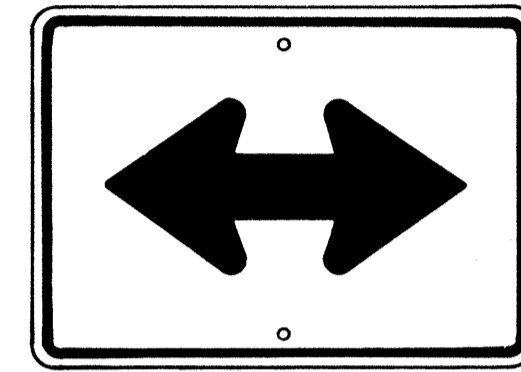
M3-1 24" x 12"
M3-1-A 36" x 18"



M4-1 24" x 12"



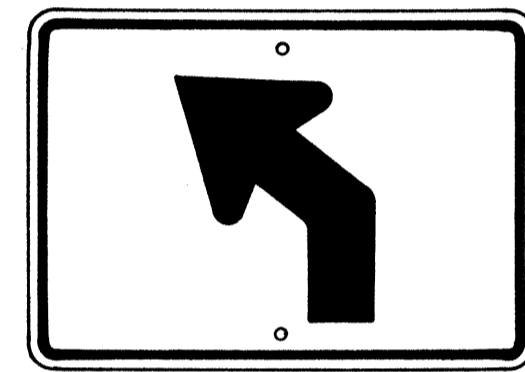
M5-1(L) 21" x 15"



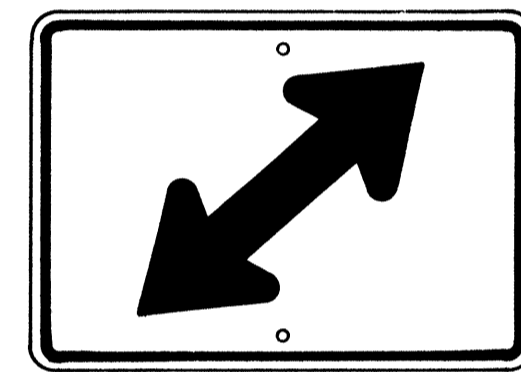
M6-4 21" x 15"



M4-2 24" x 12"



M5-2(L) 21" x 15"



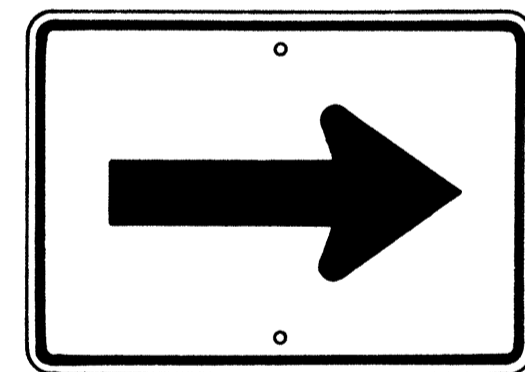
M6-5(R) 21" x 15"



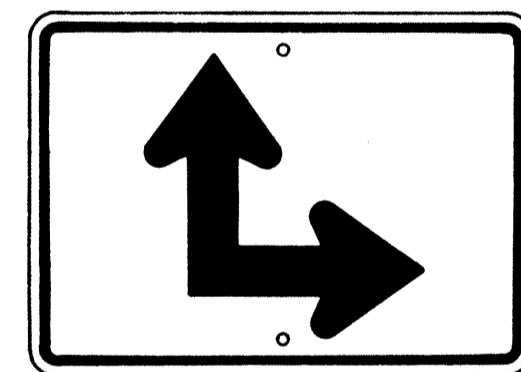
M4-3 24" x 12"



M4-5 24" x 12"



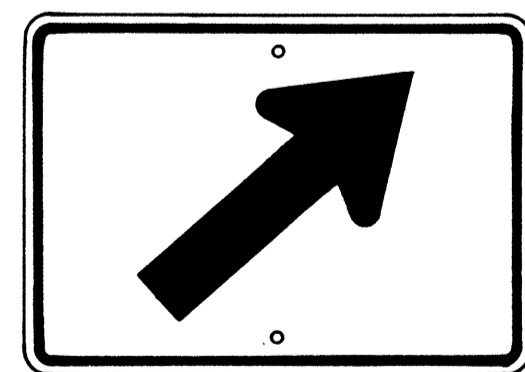
M6-1 21" x 15"



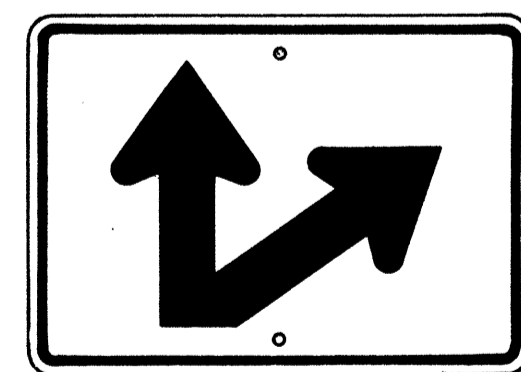
M6-6(R) 21" x 15"



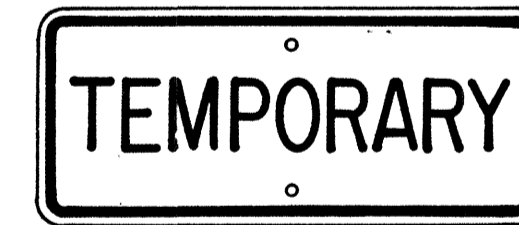
M4-6 24" x 12"



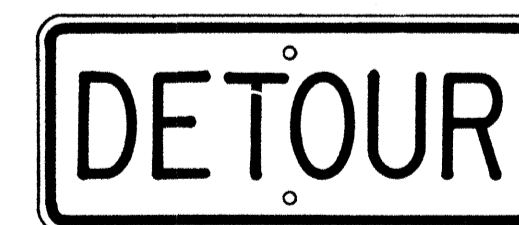
M6-2(R) 21" x 15"



M6-7(R) 21" x 15"



M4-7 24" x 12"



M4-8 24" x 12"

GENERAL NOTES

1. Marker details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, "Standard Alphabets for Highway Signs," 1966, and "Standard Highway Signs," 1972, and as amended.
2. All markers shall be reflectorized unless otherwise specified.
3. All markers shall have 3/8" bolt holes drilled at appropriate locations.
4. Numerals in () indicates numerals to be inserted for marker message. (R) or (L) indicates right or left.
5. Sign message of Cardinal Direction Marker (M3 series) shall be denoted by the following:
 - M3-1 : NORTH
 - M3-2 : EAST
 - M3-3 : SOUTH
 - M3-4 : WEST
6. Markers prefixed with "IM" on the plans shall have a white legend on a blue background.

APPROVAL RECOMMENDED:

Erich Tanaka 6/6/72
TRAFFIC ENGINEER DATE

APPROVED:

Robert S. Sakai 6-1-72
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 105 Approved 12-30-69	HT	6/11/72
2	Revised General Note 1	HT	10/16/74

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

**STANDARD DETAILS
STATE ROUTE MARKER
AND AUXILIARY MARKERS**

Scale: As Shown

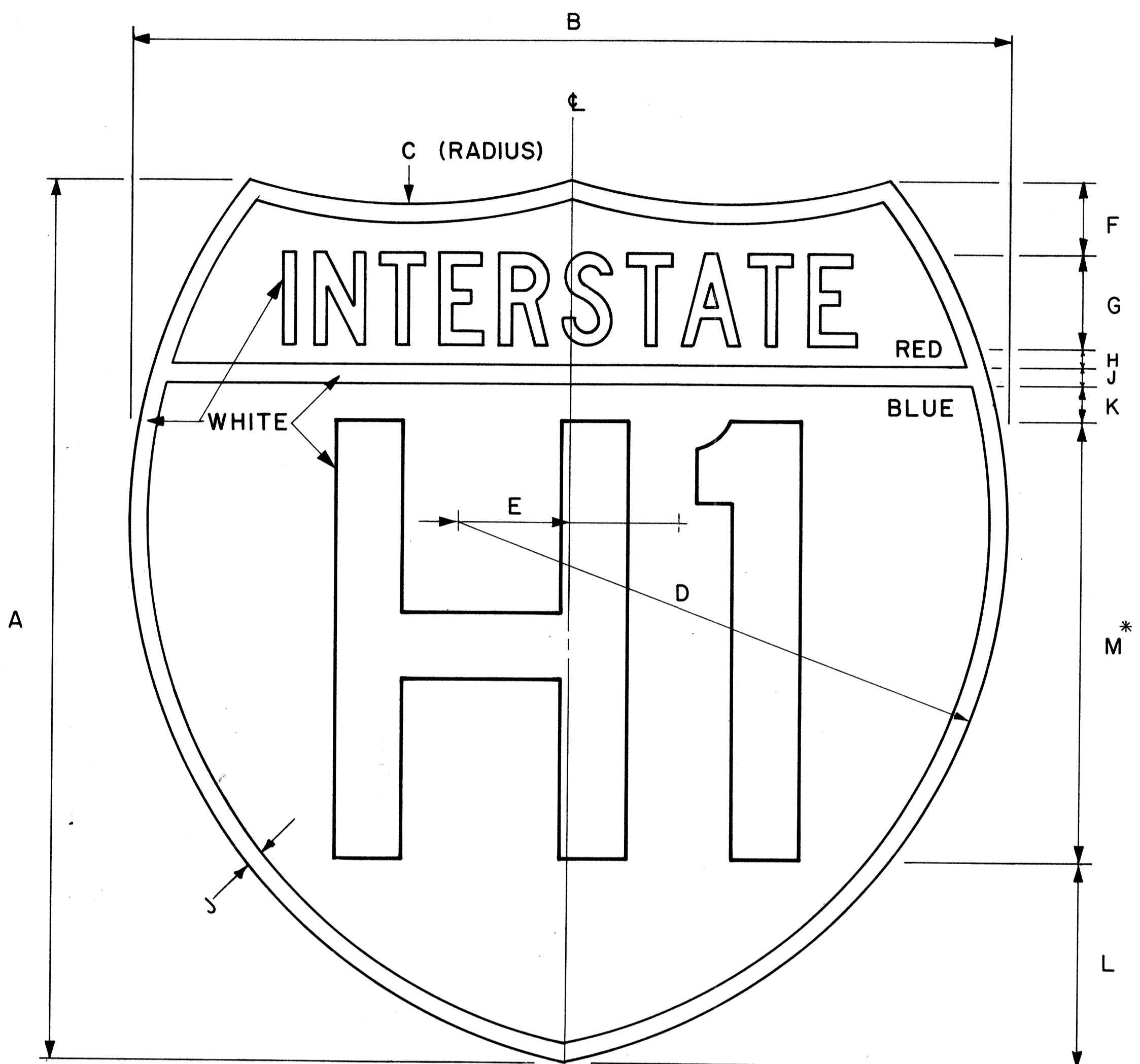
SHEET No 8 OF 25 SHEETS DT 105

AUXILIARY MARKERS

Not to Scale

SURVEY PLOTTED BY	DATE
PLAN	
TRACED 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(187)	1984	112	197



GENERAL NOTES

- Interstate route marker details shall conform to the latest FHWA publications:
 - "Manual on Uniform Traffic Control Devices for Streets and Highways," and as amended.
 - "Standard Alphabets for Highway Signs," and as amended.
 - "Standard Highway Signs," and as amended.
- All Interstate route markers shall be reflectorized with reflective sheeting.
- All Interstate route markers shall have 3/8" bolt holes drilled at appropriate locations unless otherwise specified.
- The Interstate route marker shall be a cut-out shield in a red, white and blue design as shown on the plans.

INTERSTATE ROUTE MARKER
IM-1()
 Scale: 3/8" = 1"

INTERSTATE ROUTE MARKER SCHEDULE (INCHES)												
SIZE ()	A	B	C	D	E	F	G	H	J	K	L	M
1	24	24	15	15	3	2	2 1/2 C	1/2	1/2	1	5 1/2	12D
2	36	36	22 1/2	22 1/2	4 1/2	3	3 3/4 C	3/4	3/4	1 1/2	8 1/4	18D
3	48	48	30	30	6	4	5 C	1	1	2	11	24D

* If letters and numerals cannot be accommodated within available space, Series C letters may be used.

APPROVAL RECOMMENDED:

Eishi Tanaka 4/17/78
 TRAFFIC ENGINEER DATE

APPROVED:

Harold S. Rakeishi 4/18/78
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Replaces DT106 Approved 12/30/69.	H.T.	4-18-78

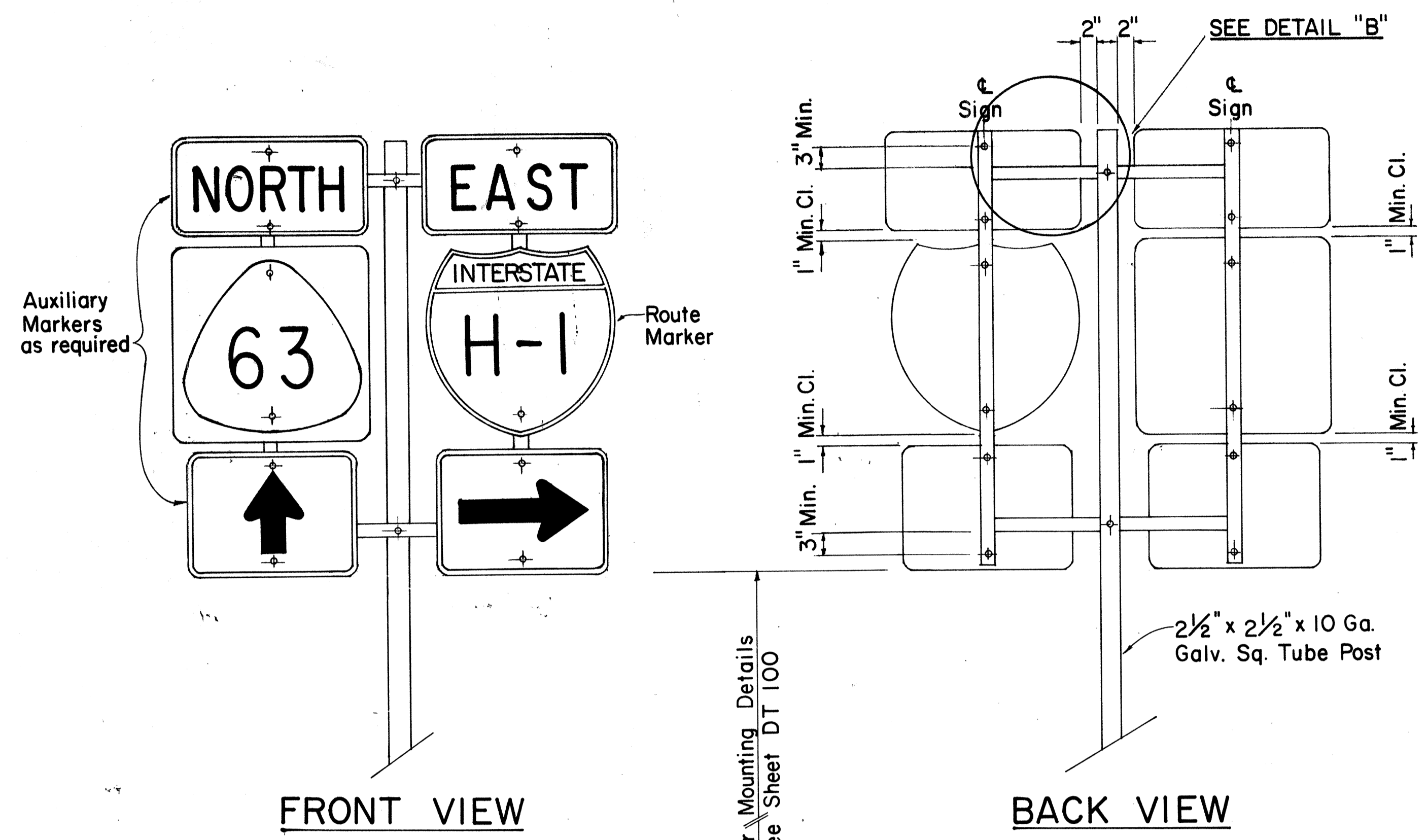
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS
INTERSTATE ROUTE MARKER

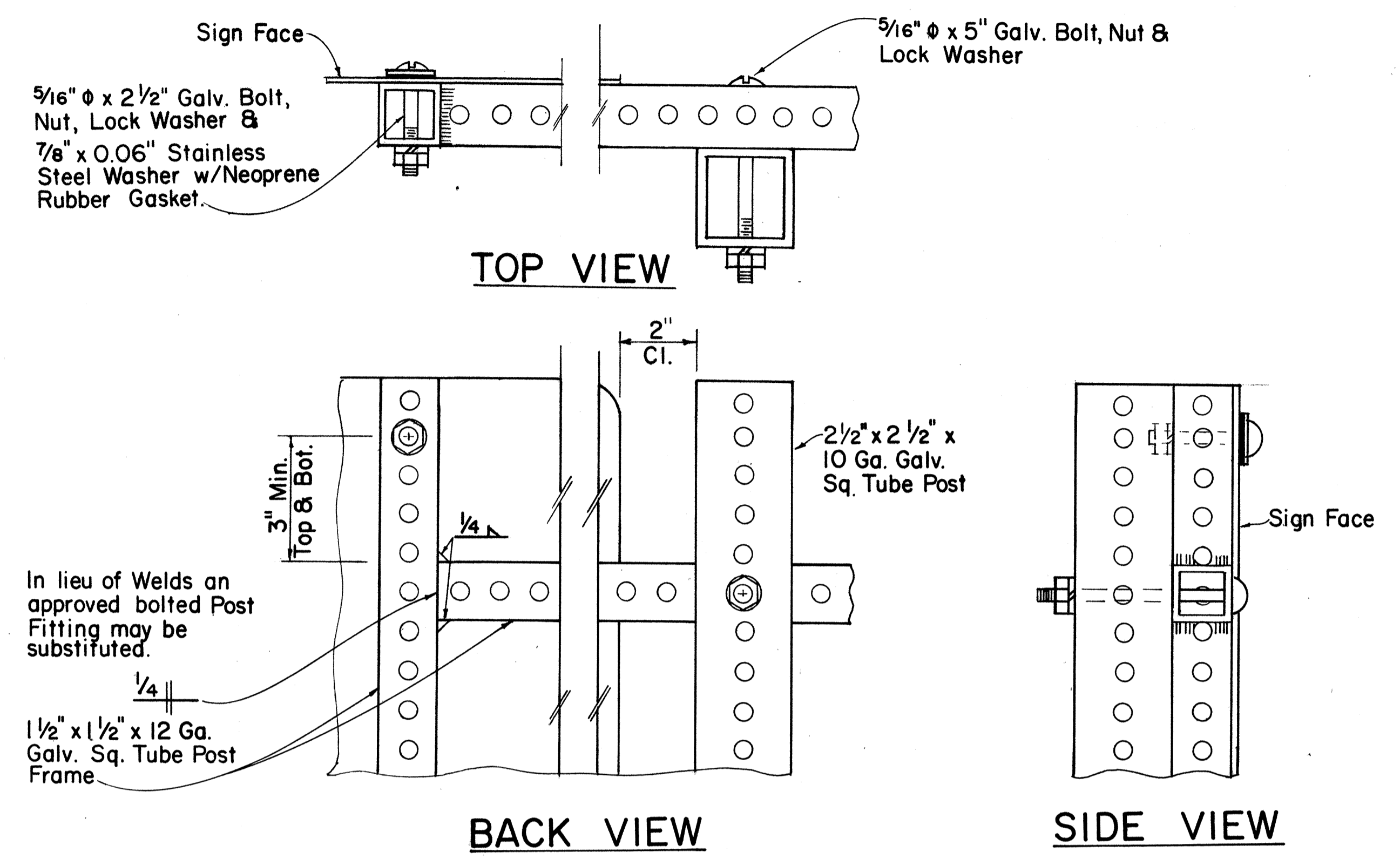
Scale: 3/8" = 1" Date: January, 1978
 SHEET No. 9 OF 25 SHEETS DT106

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

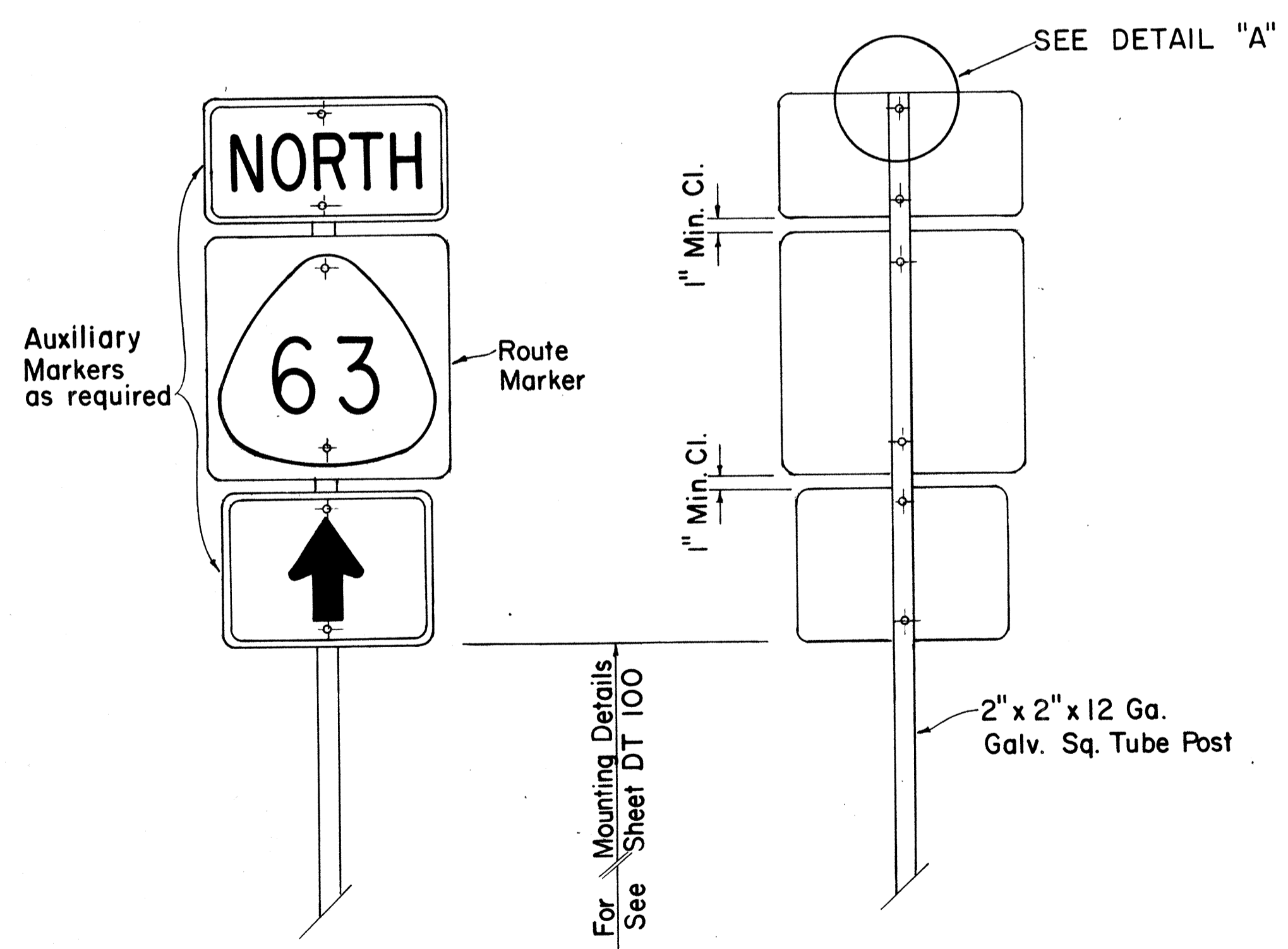
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(87)	1984	113	197



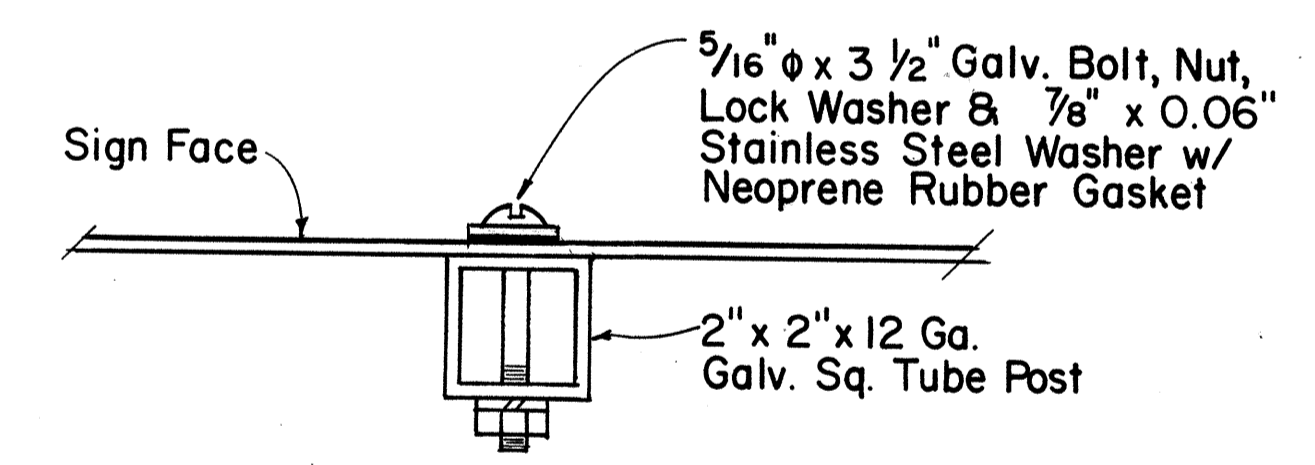
TYPE "B" ASSEMBLY
SCALE: 1" = 1'-0"



DETAIL "B"
SCALE: 3/8" = 1"



TYPE "A" ASSEMBLY
SCALE: 1" = 1'-0"



DETAIL "A"
SCALE: 3/8" = 1"

APPROVAL RECOMMENDED:
 Eiichi Tanaka 1/31/80
TRAFFIC ENGINEER DATE

APPROVED:
 Herbert Zaleski 1/31/80
ASSISTANT CHIEF, ENGINEERING DATE

NO	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 107 dated 12/30/69.	H.T.	1/31/80

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
ROUTE MARKER
ASSEMBLIES

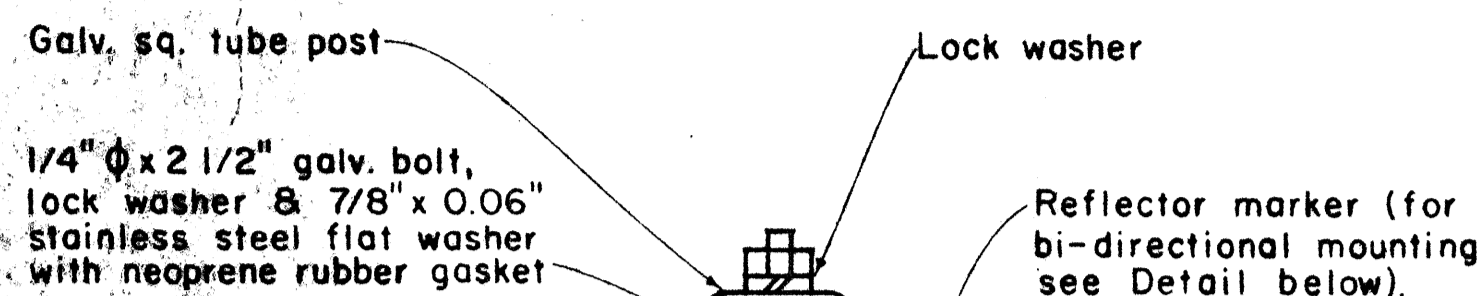
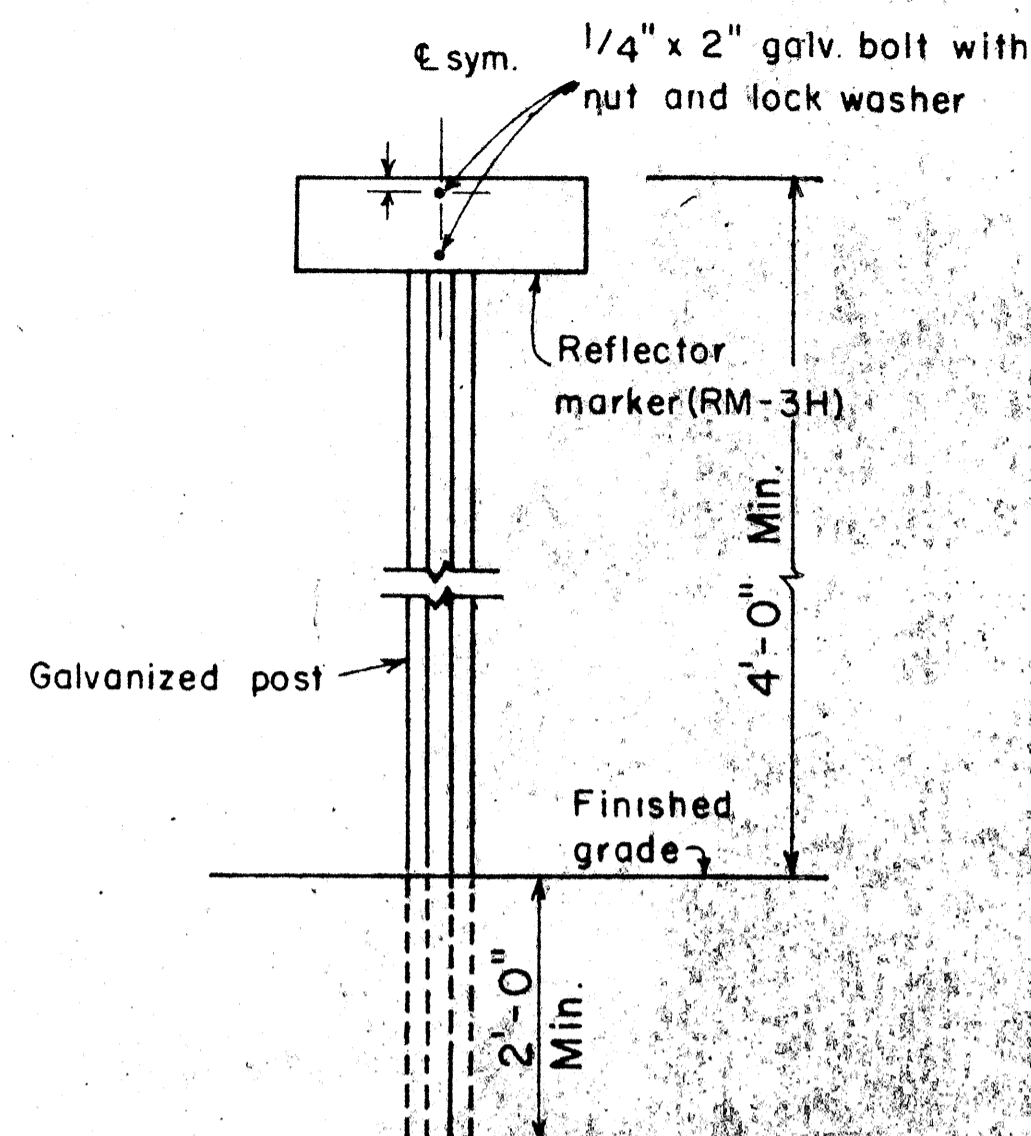
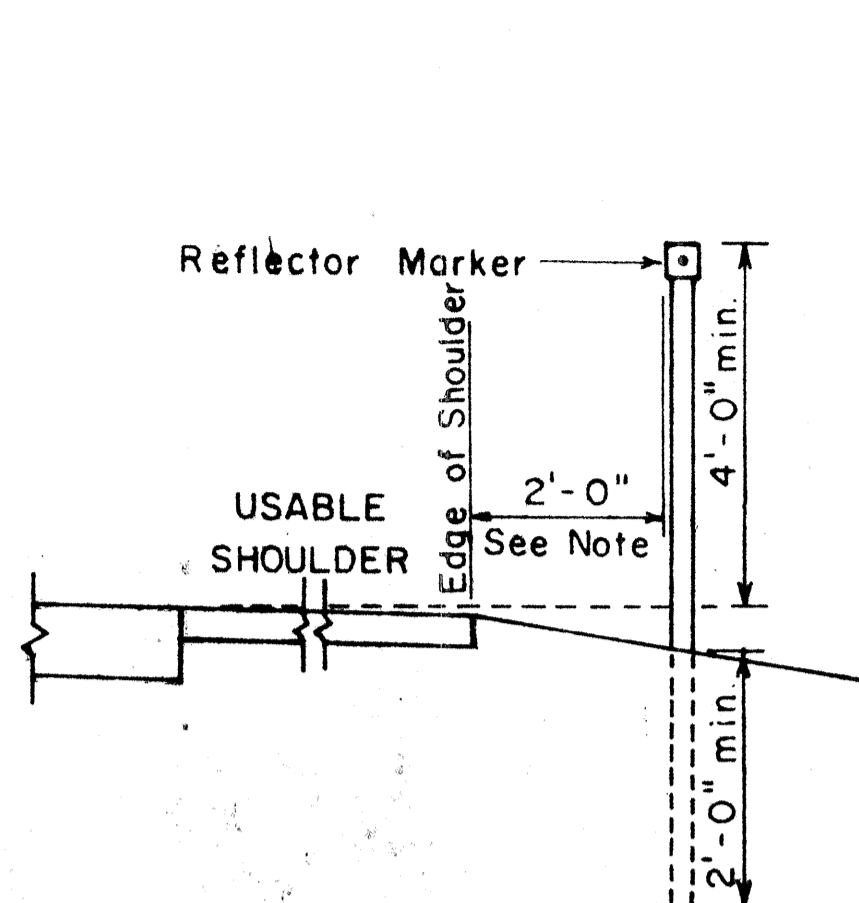
SCALE: AS SHOWN
SHEET NO. 10 OF 25 SHEETS DT 107

DATE: _____
DRAWN BY: _____
DESIGNED BY: _____
QUANTITIES BY: _____
CHECKED BY: _____

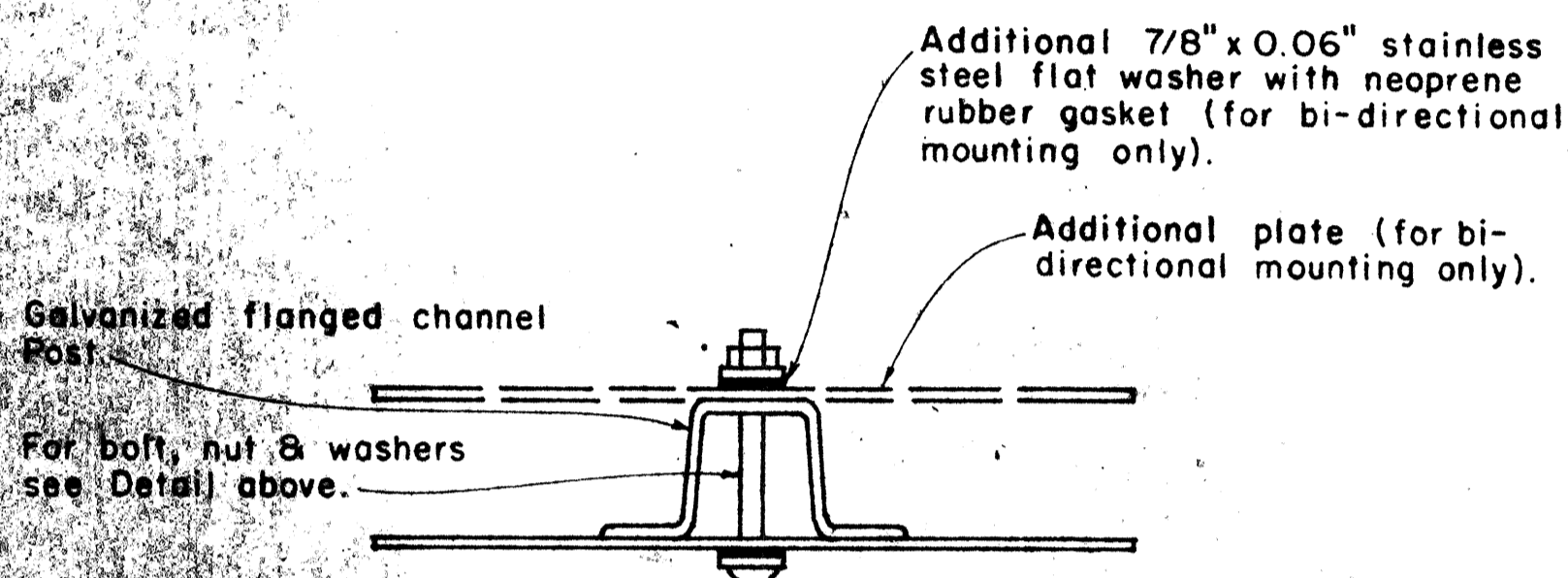
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-117-1(187)	1984	114	197

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.



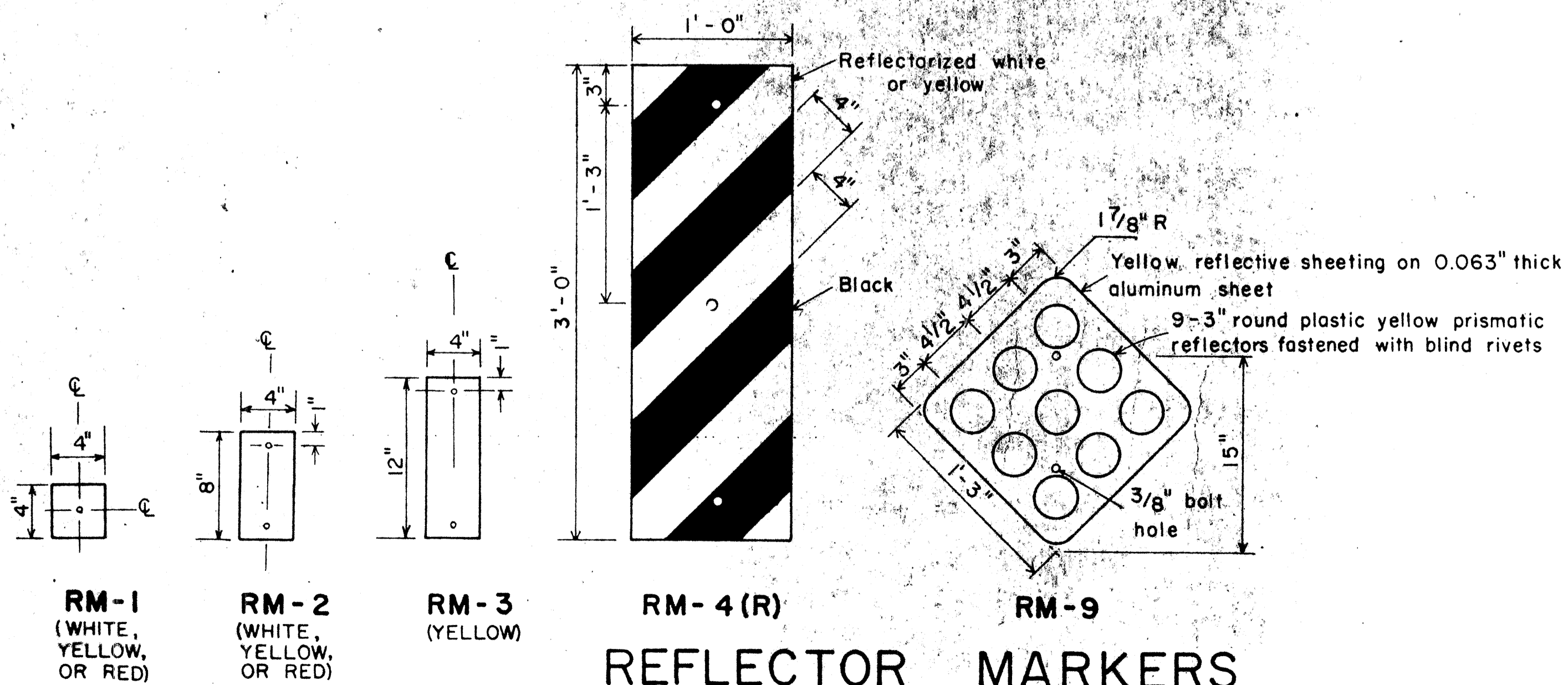
GALVANIZED SQUARE TUBE POST



GALVANIZED FLANGED CHANNEL POST

TYPICAL MOUNTING DETAILS

REFLECTOR MARKER MOUNTING DETAIL



REFLECTOR MARKERS

APPROVAL RECOMMENDED:
Enoch Tanaka 11/7/77
 TRAFFIC ENGINEER DATE

APPROVED:
Herbert S. Sakai 11/16/77
 ASSISTANT CHIEF, ENGINEERING DATE

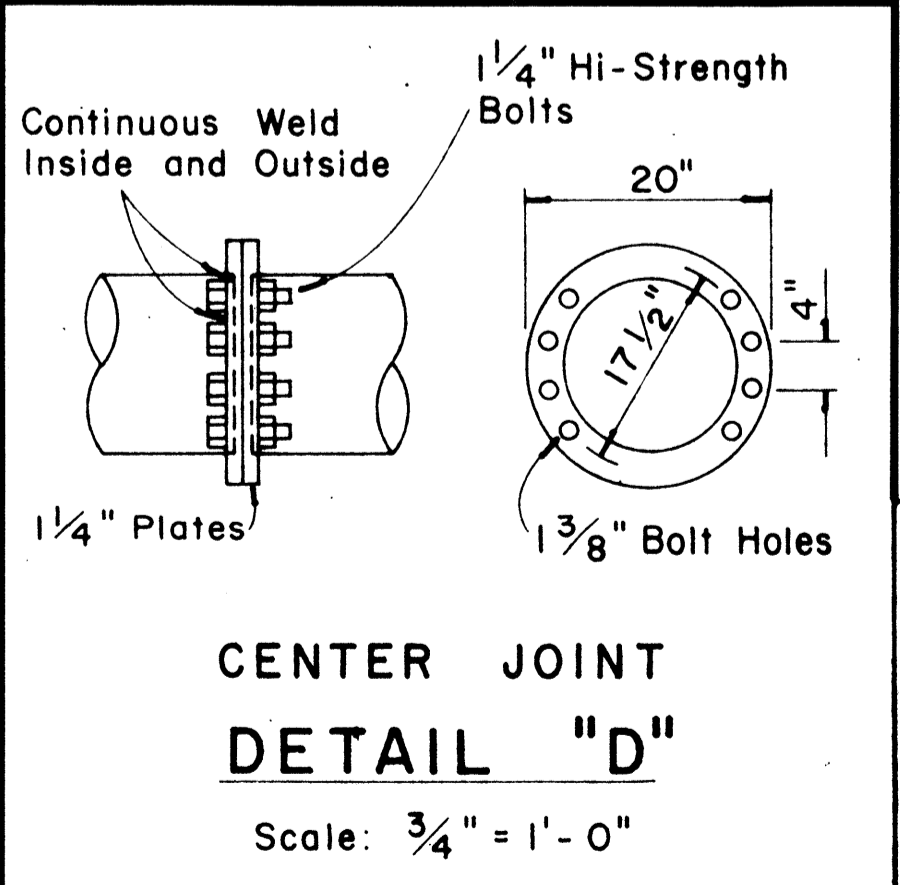
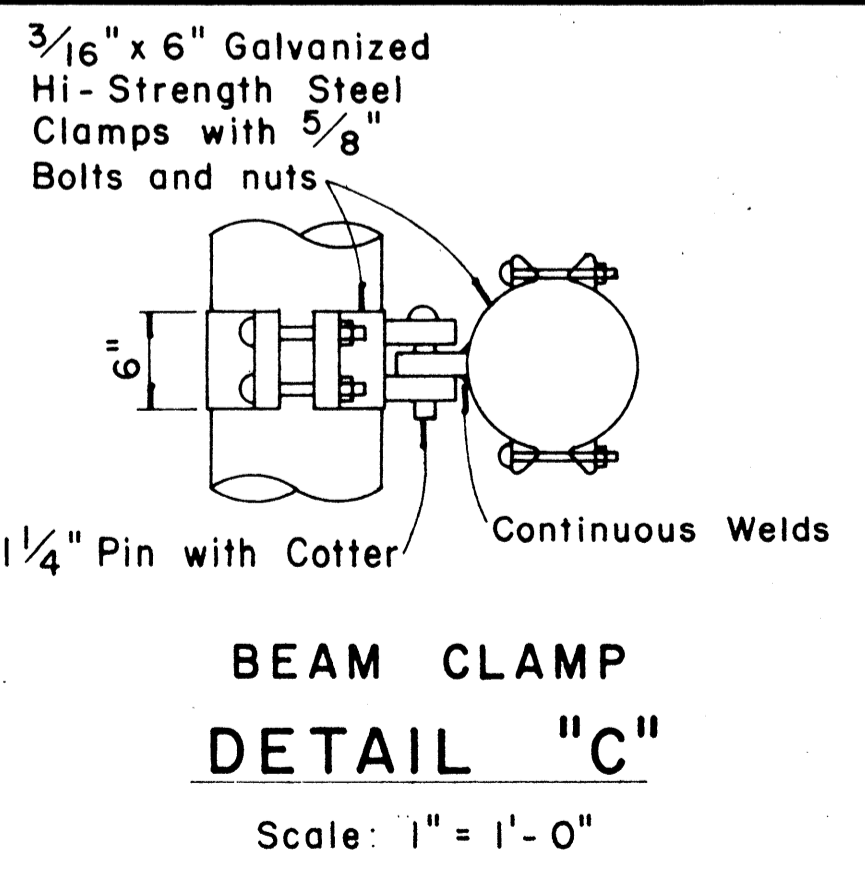
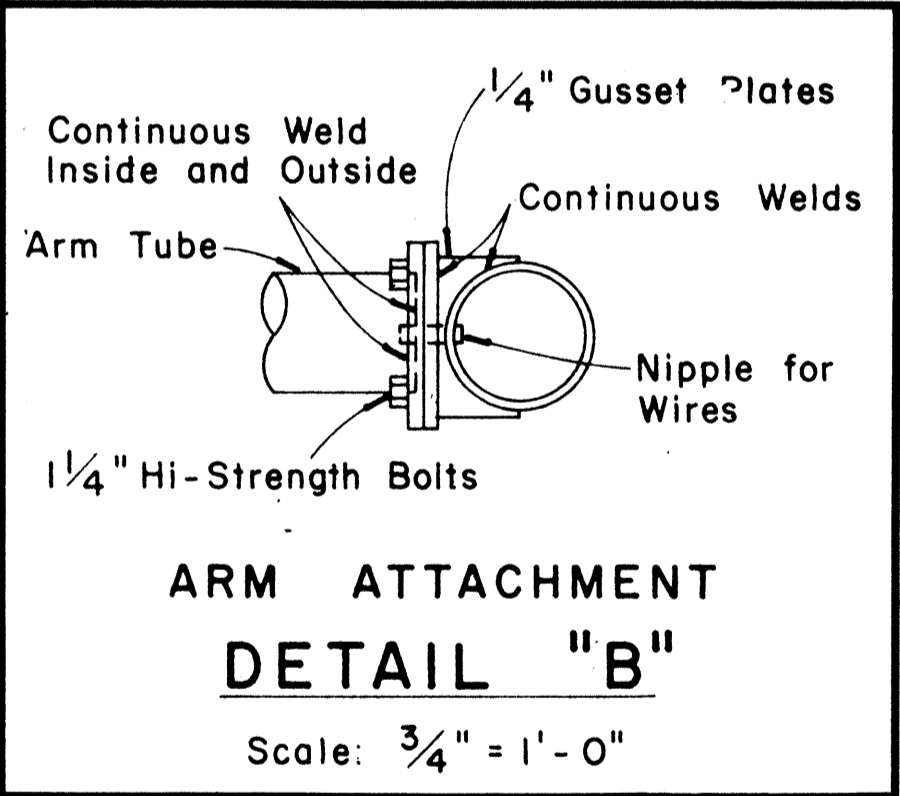
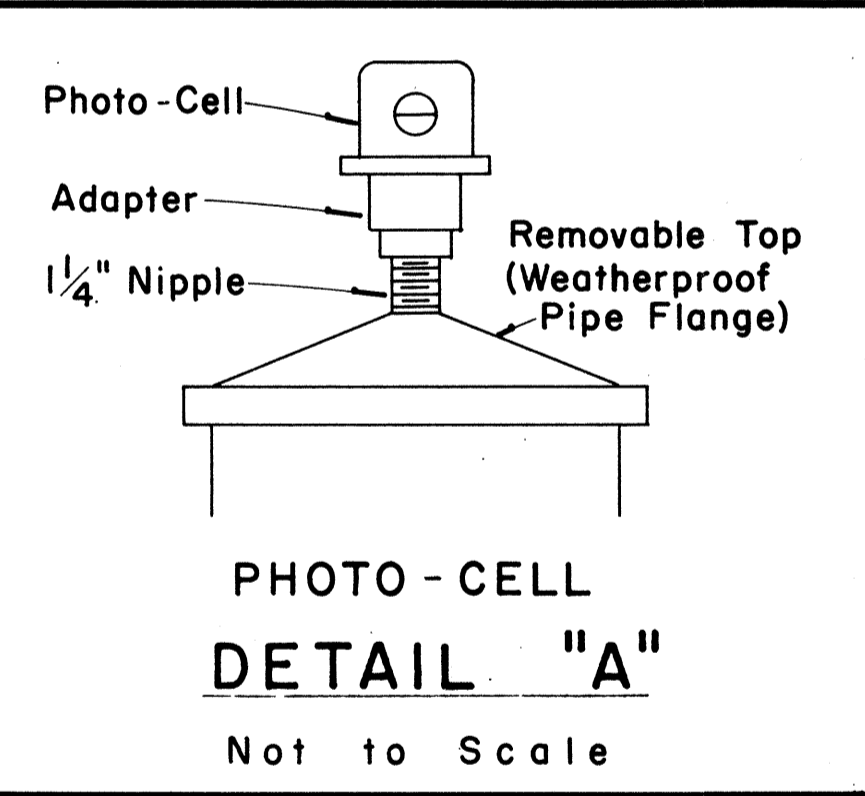
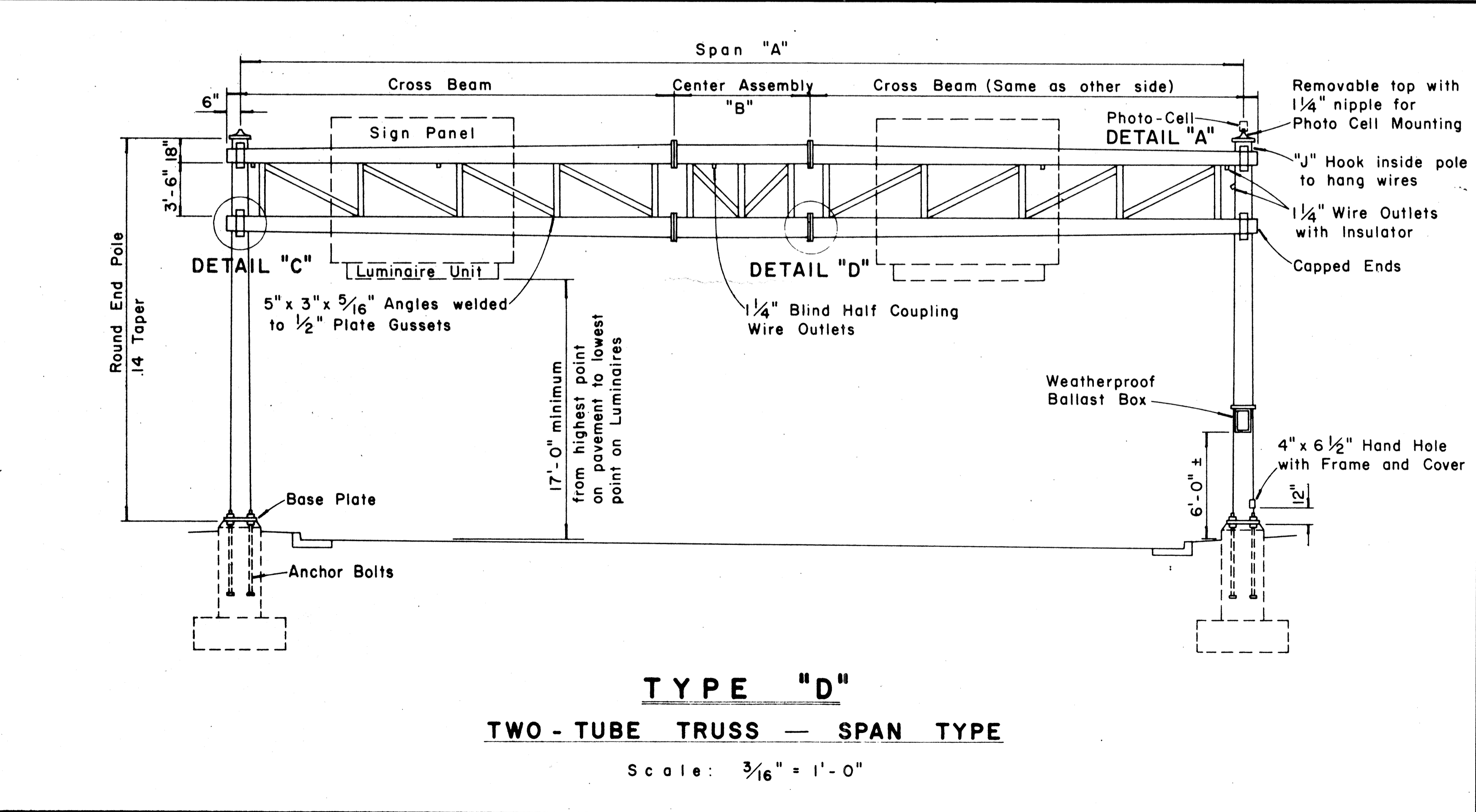
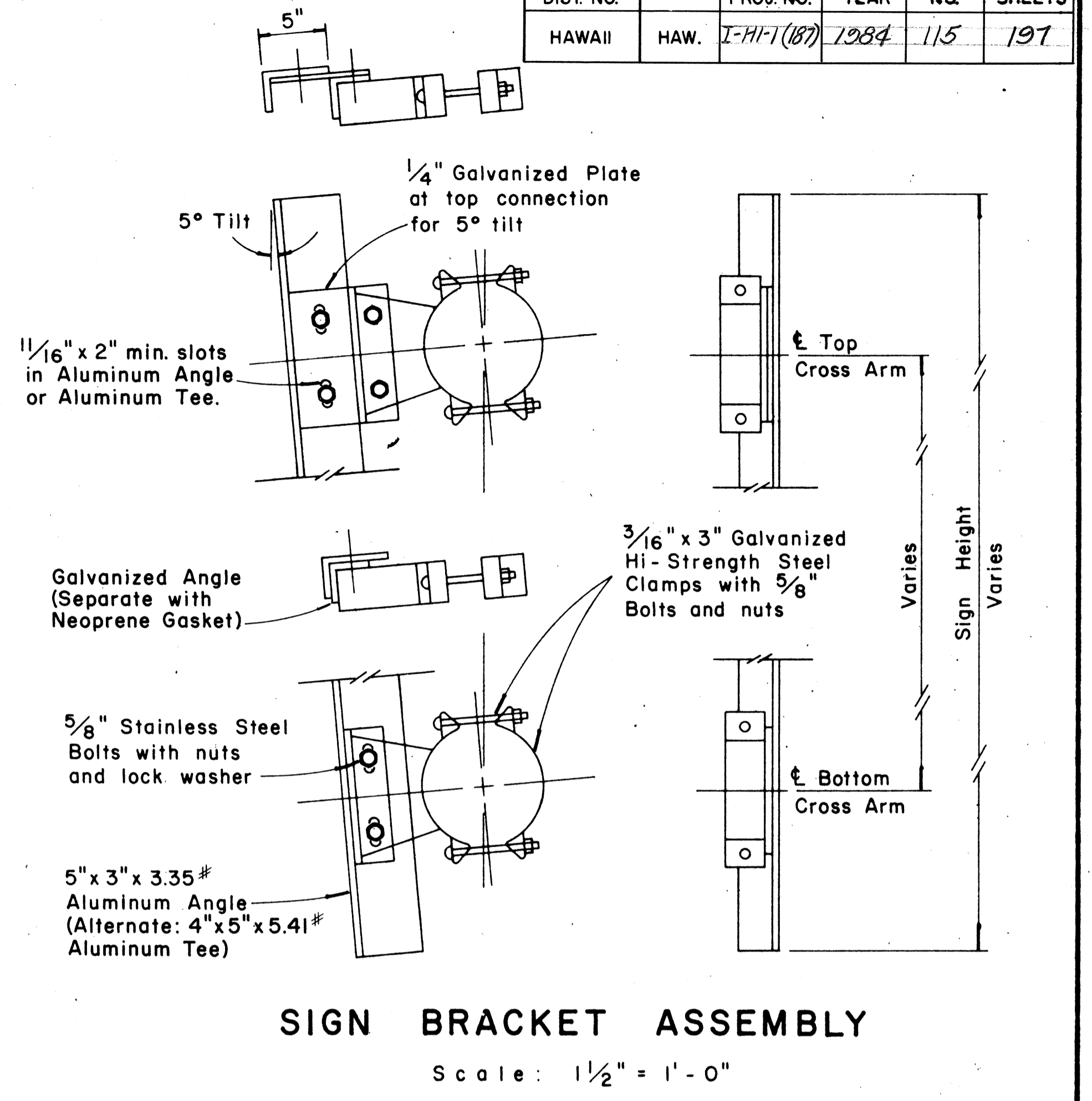
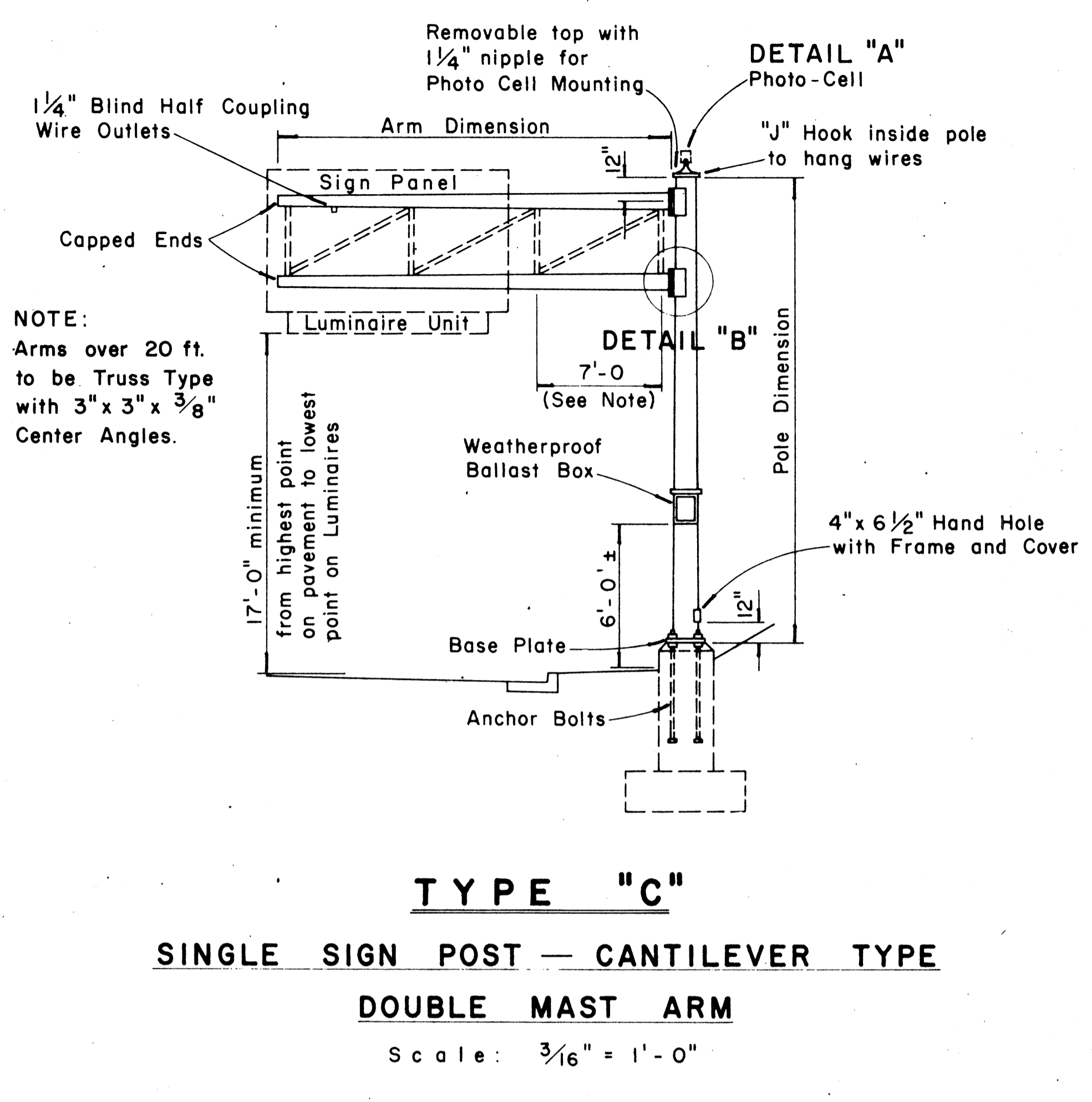
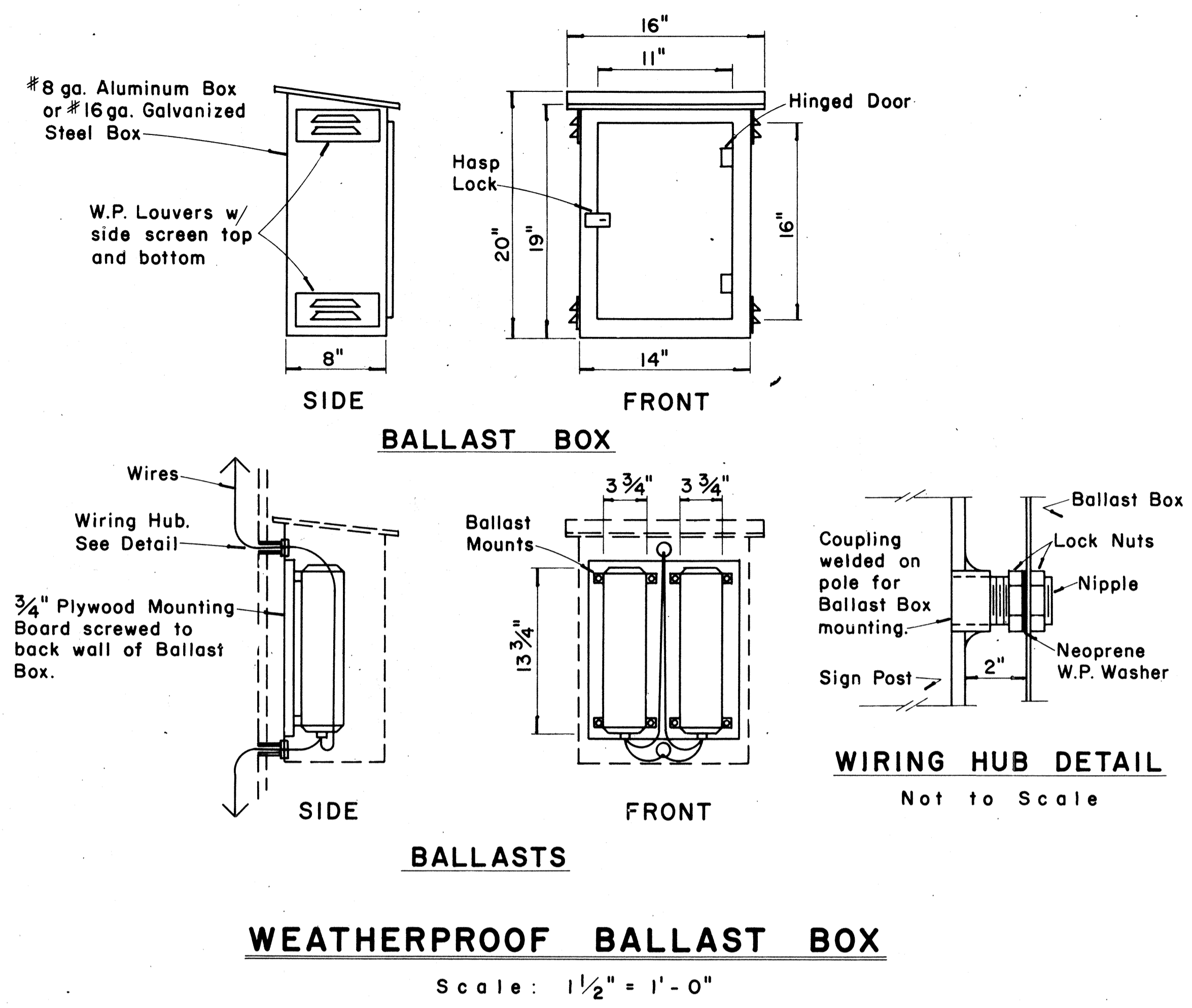
NO.	REVISION	APPROVED BY	DATE
1	Revised Mounting Details	H.M.	4/25/86

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
 MISCELLANEOUS REFLECTOR MARKERS

Not to scale June, 1977

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(87)	1984	115	197



APPROVAL RECOMMENDED:
Eishi Tanaka 12/29/83
 TRAFFIC ENGINEER DATE

APPROVED:
John S. S. S. 12-30-83
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

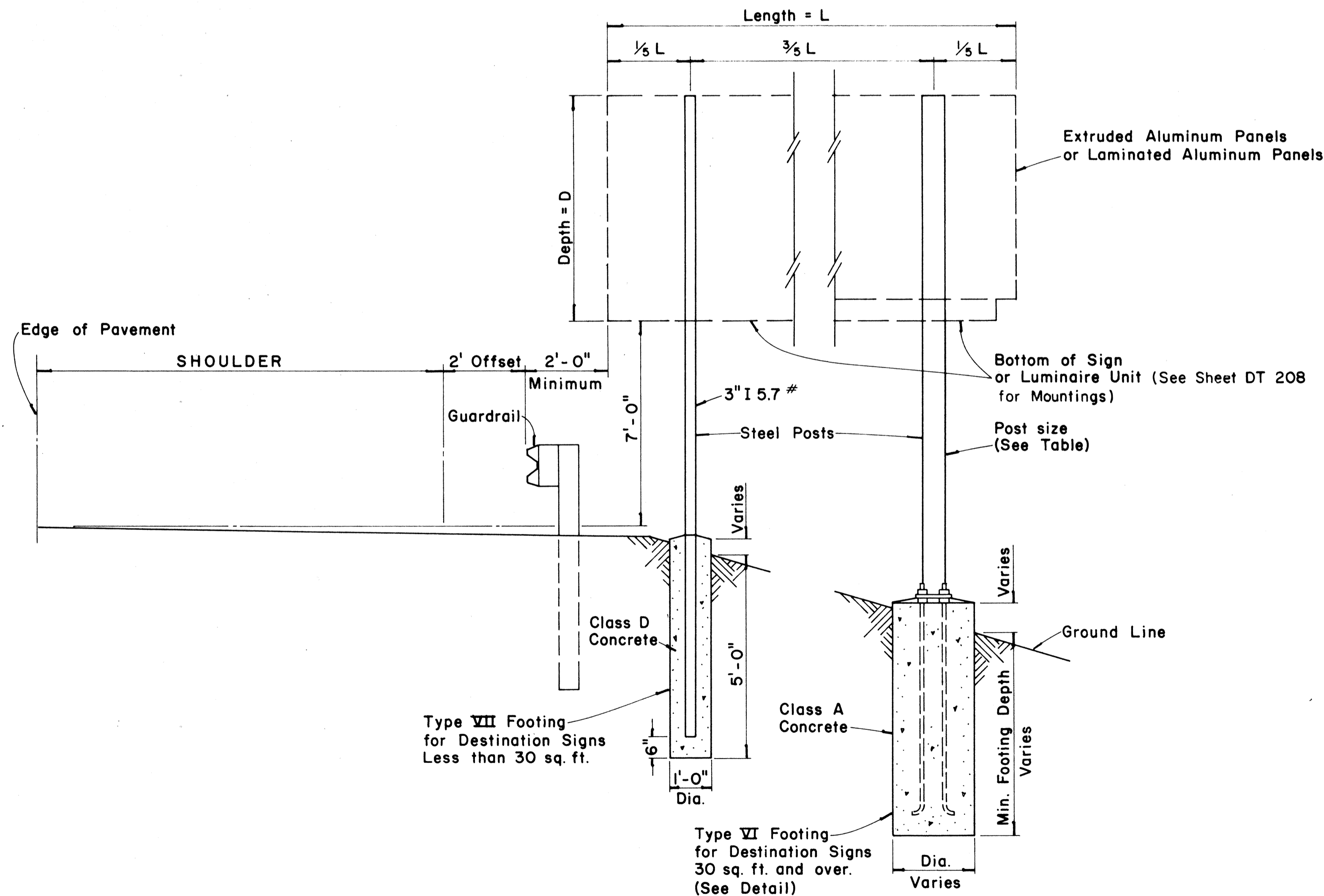
STANDARD DETAILS
OVERHEAD SIGN SUPPORTS

Scale: As Shown
 SHEET No. 12 OF 25 SHEETS - DT 200

SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
DATE	

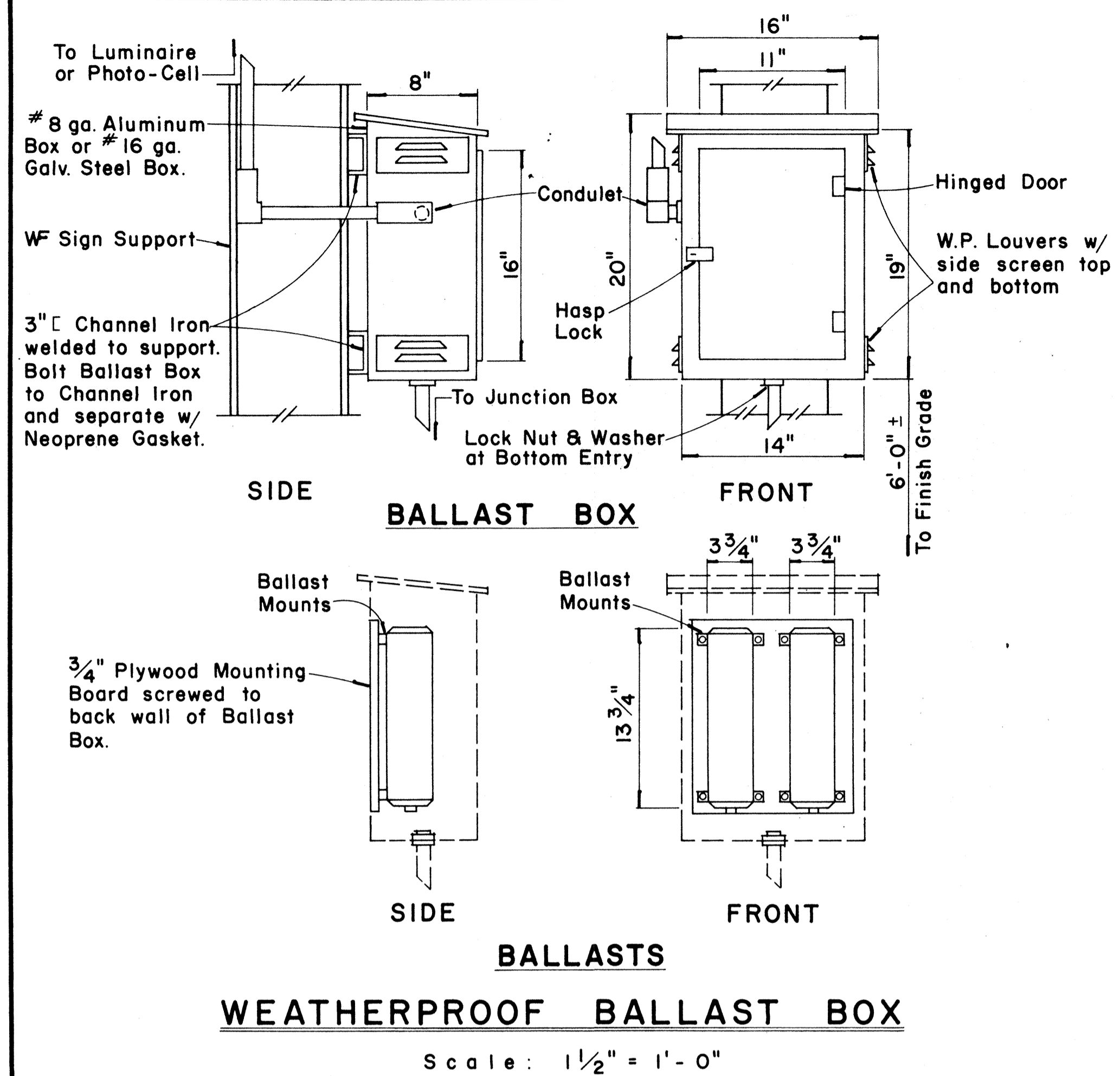
* For moment calculations only. Post shall be from top of foundation to top of sign.
 ** For fills with side slopes flatter than 4:1, Minimum Footing Depth shall be 4½ feet.

POST SIZE	MAXIMUM SIGN AREA	POST HEIGHT TOP OF FOUNDATION TO CENTER OF SIGN *	DIMENSIONS											ANCHOR BOLT DIA.	MINIMUM FOOTING DEPTH		
			H	J	K	M	N	O	P	S	T	U	V		W	CUT	FILL**
8 J 10	50 sq. ft.	14'	14"	5"	24"	17¼"	15½"	6"	1¼"	9"	6"	10"	2"	1"	1½" Ø	4½'	4½'
8 WF 24	90 sq. ft.	21'															5'
8 WF 35	190 sq. ft.	15'	16½"	6¾"	30"	20"	1¾"	6"	1¾"	11¾"	6½"	10"	1¾"	1"	1¼" Ø	6'	7'
10 WF 45	190 sq. ft.	25'															
10 WF 45	200 sq. ft.	25'															
12 WF 50	230 sq. ft.	25'															
12 WF 50	250 sq. ft.	23'															



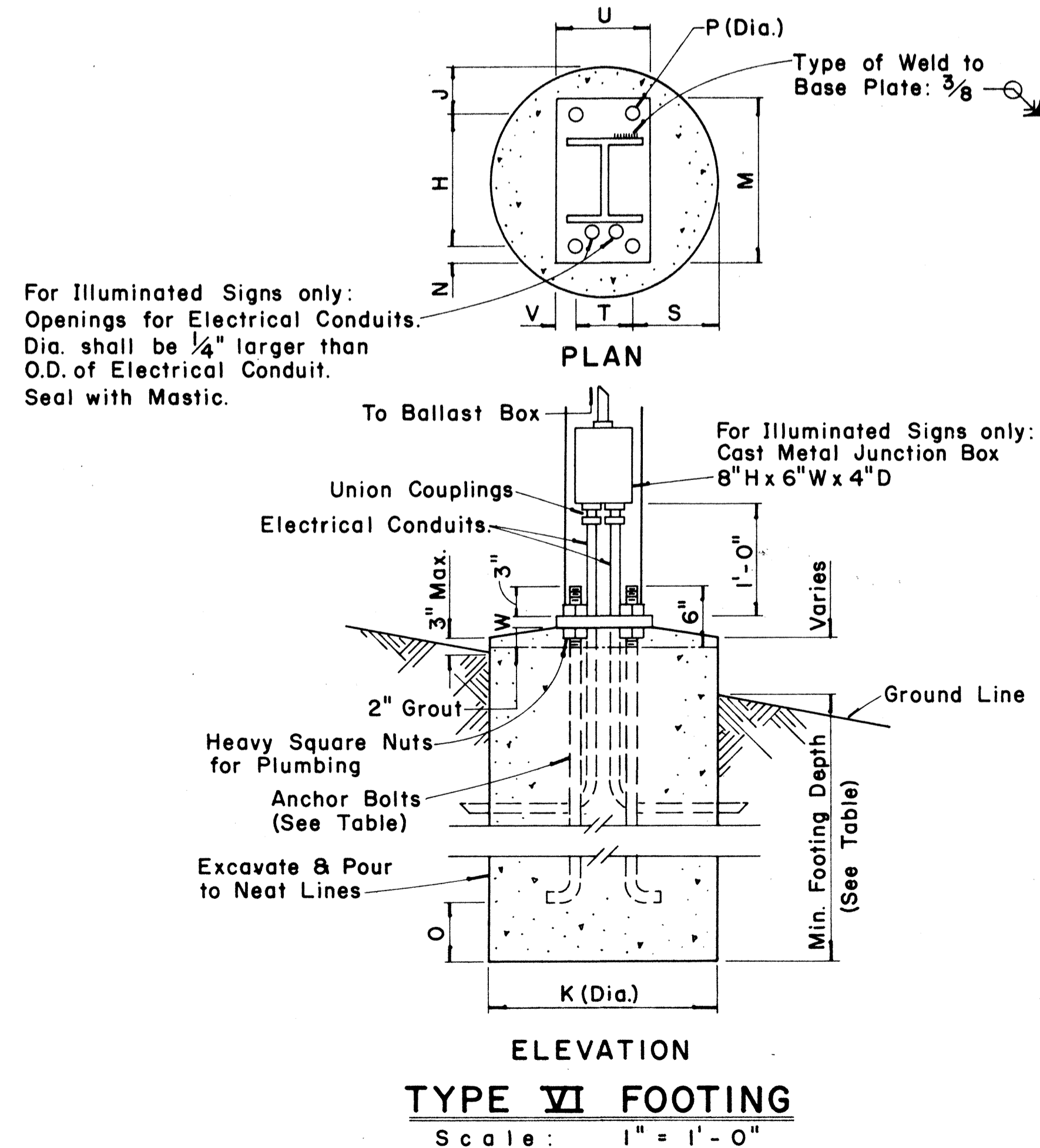
TYPICAL DESTINATION & GROUND MOUNTED EXPRESSWAY SIGN

Not to Scale



WEATHERPROOF BALLAST BOX

Scale: 1½" = 1'-0"



TYPE VI FOOTING

Scale: 1" = 1'-0"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FEH-1(187)	1984	117	197

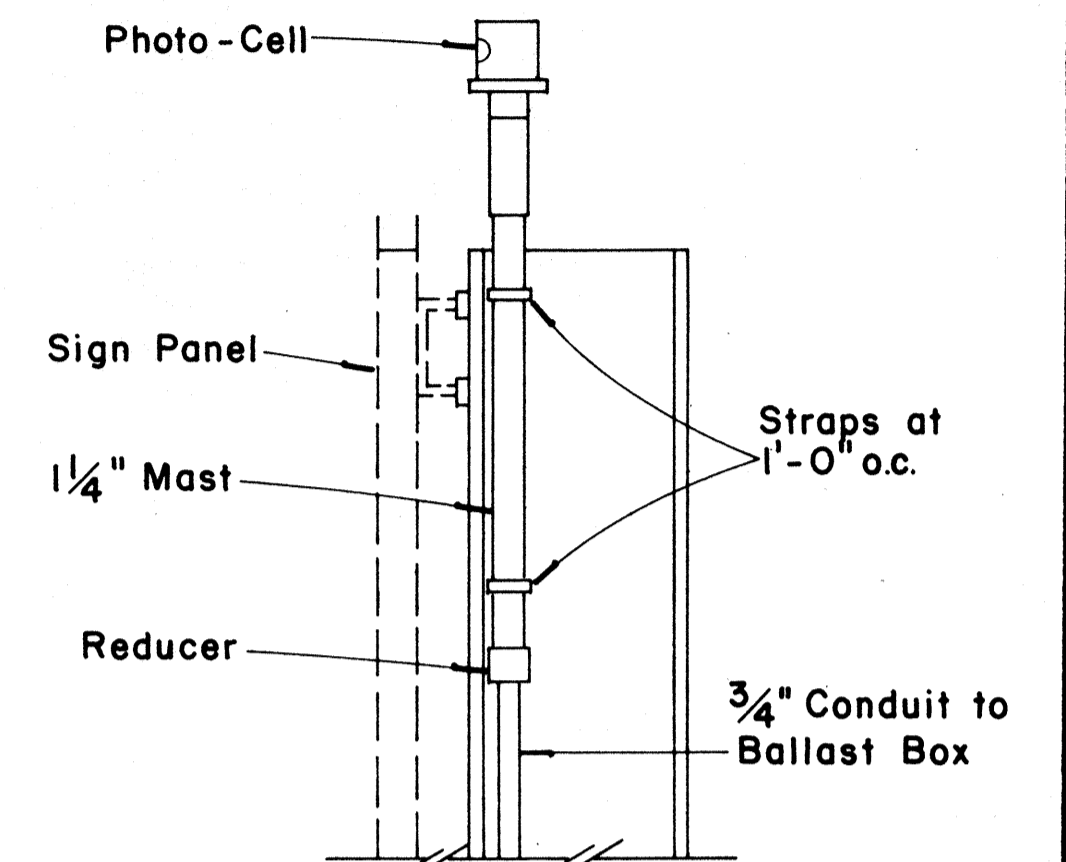


PHOTO-CELL DETAIL

Scale: 1½" = 1'-0"

APPROVAL RECOMMENDED:
Eishi Tanaka 12/29/62
 TRAFFIC ENGINEER DATE

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

NO.	REVISION	APPROVED BY	DATE
1	Add note for luminaire mounting.	H.T.	6/3/80

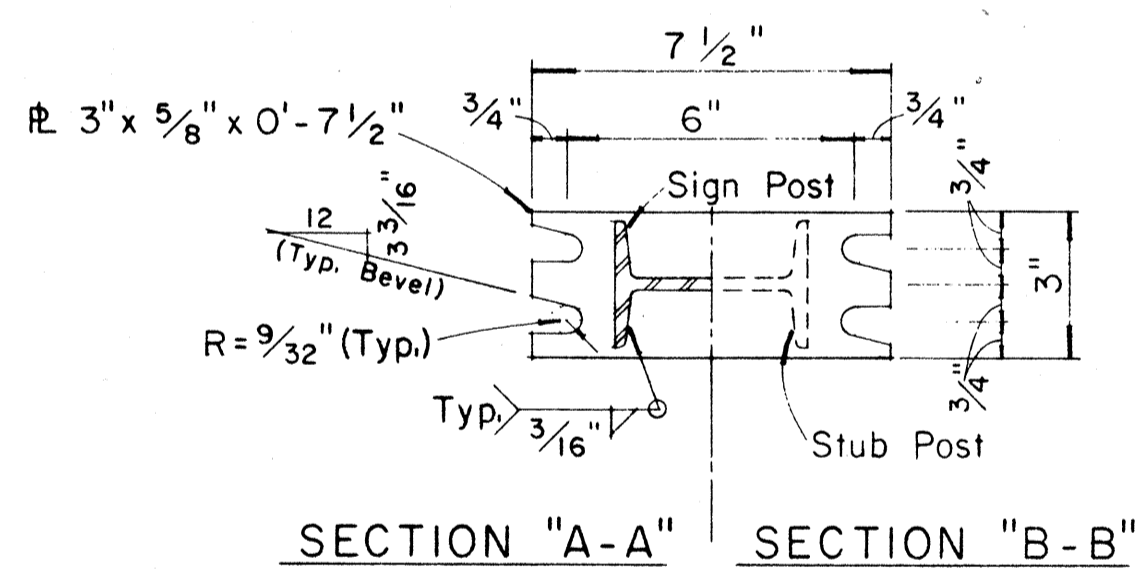
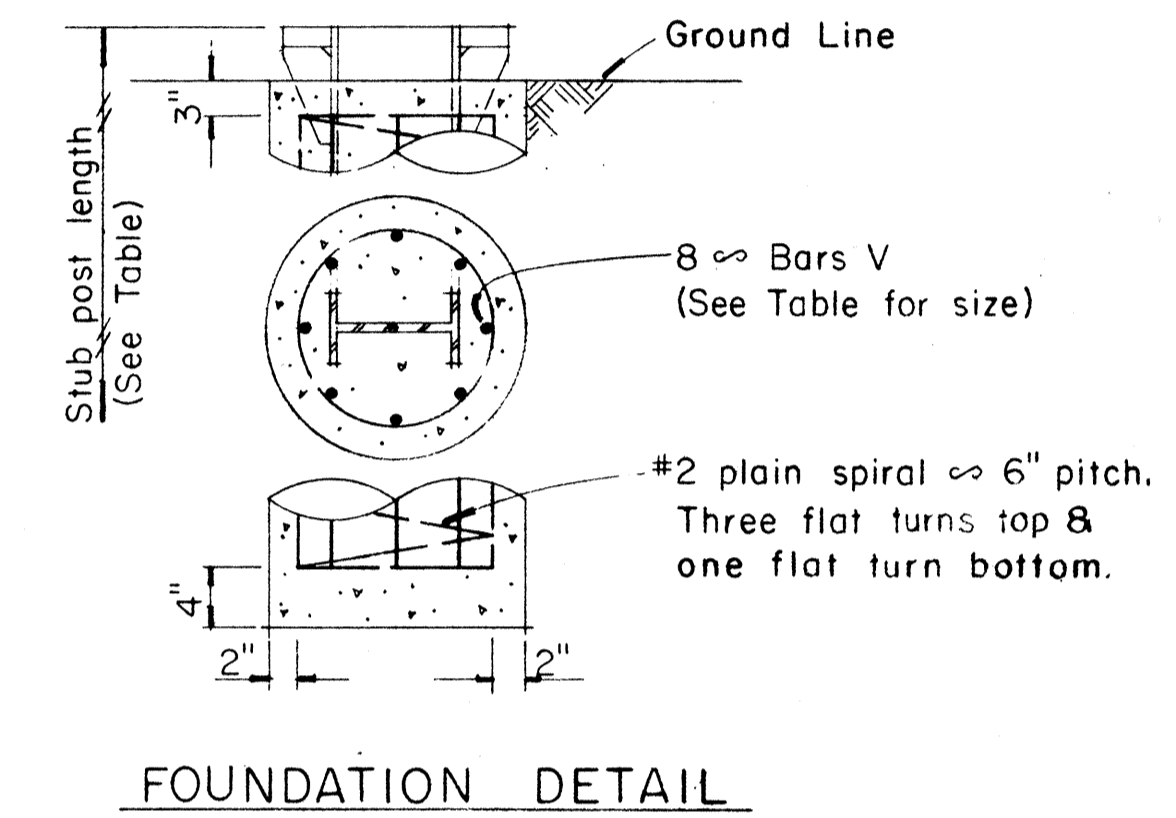
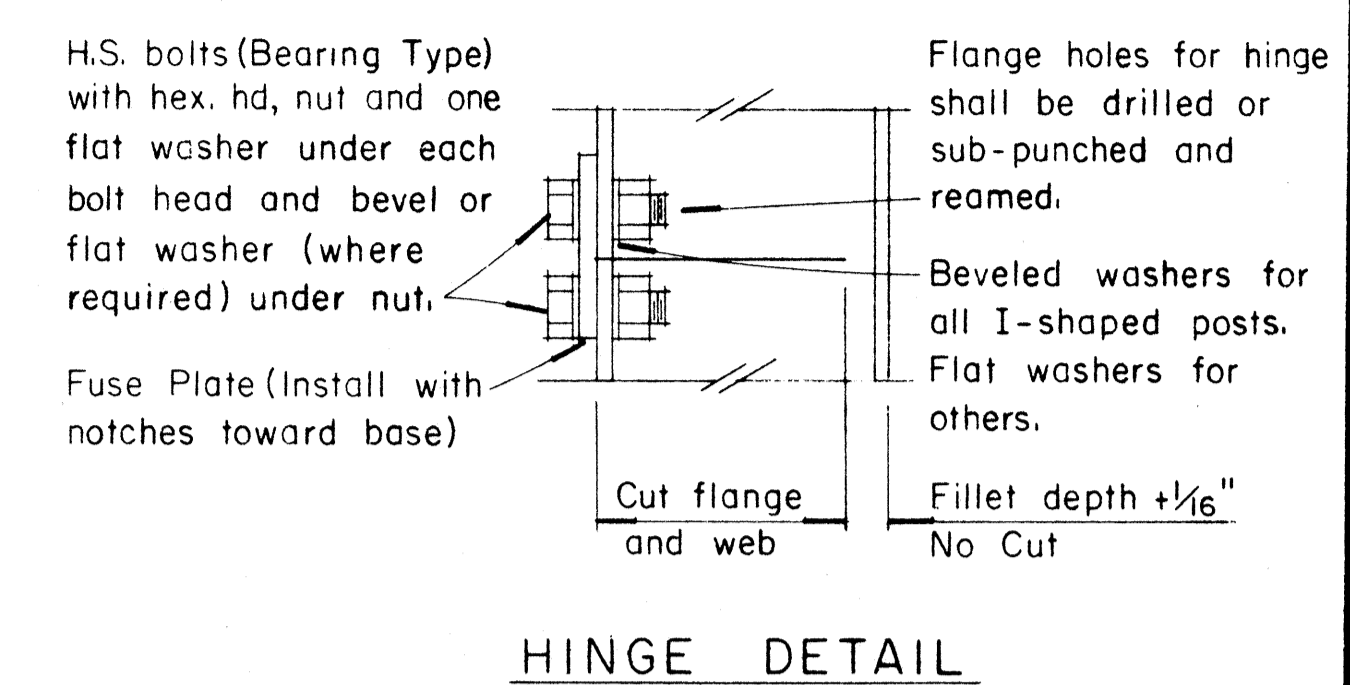
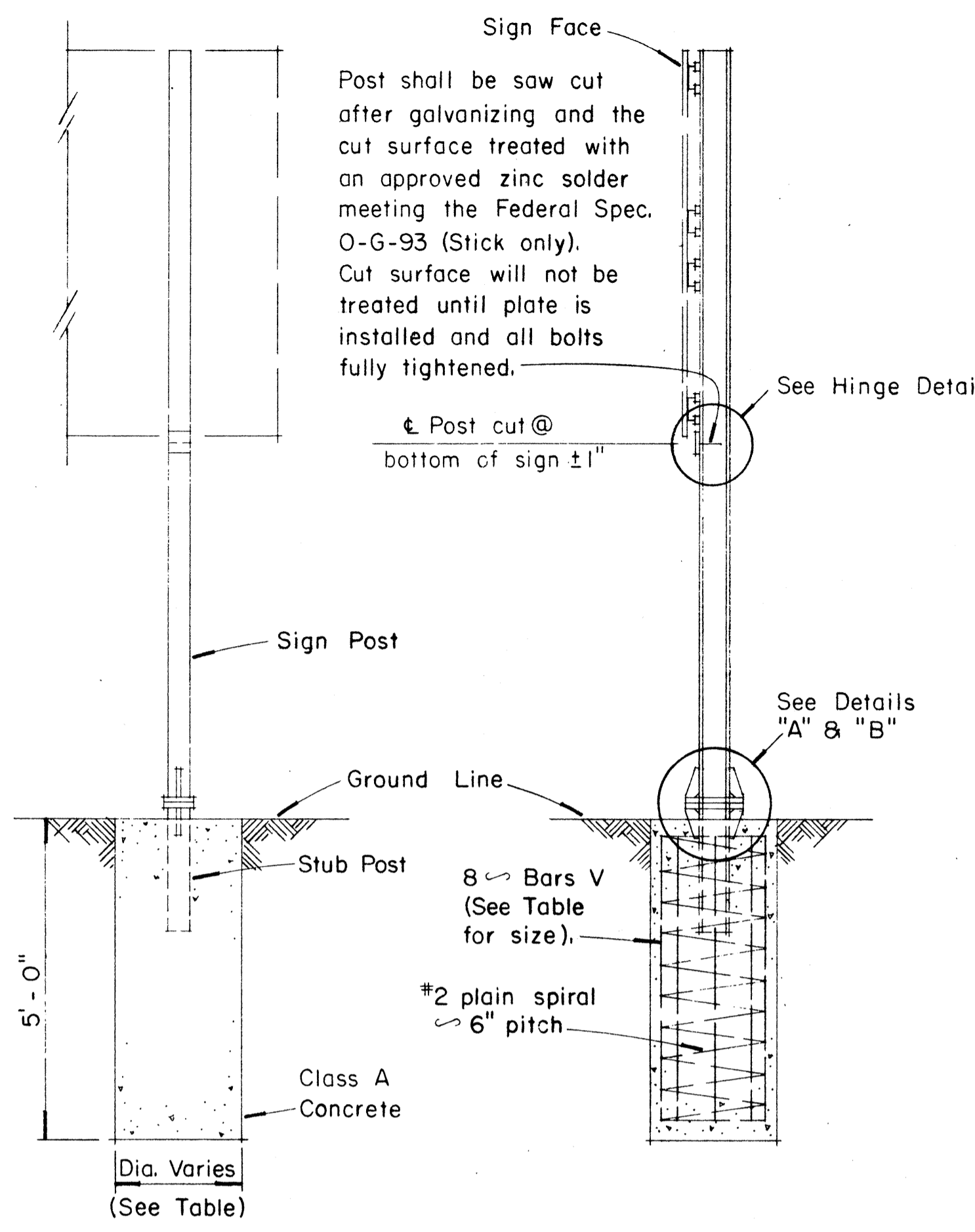
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
STANDARD DETAILS
DESTINATION & GROUND MOUNTED EXPRESSWAY SIGNS

Scale: As Shown

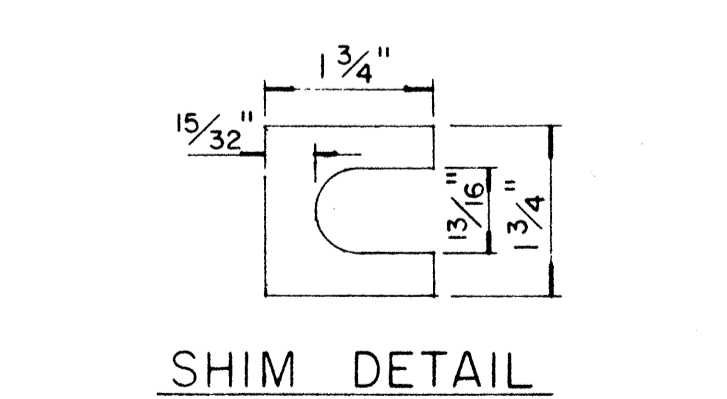
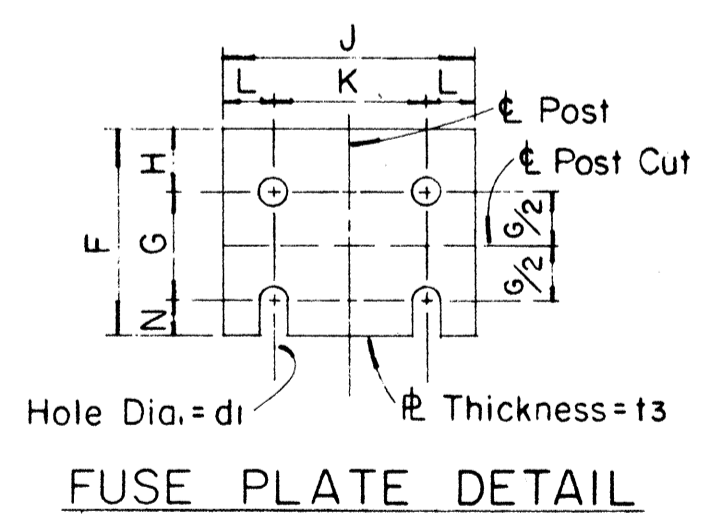
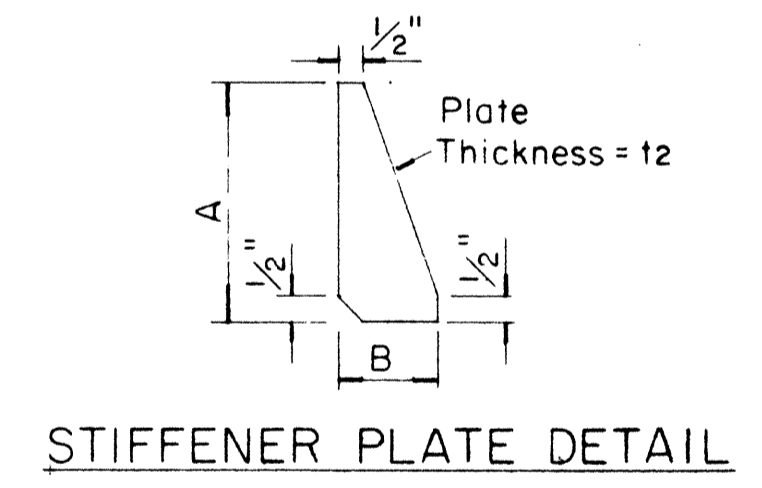
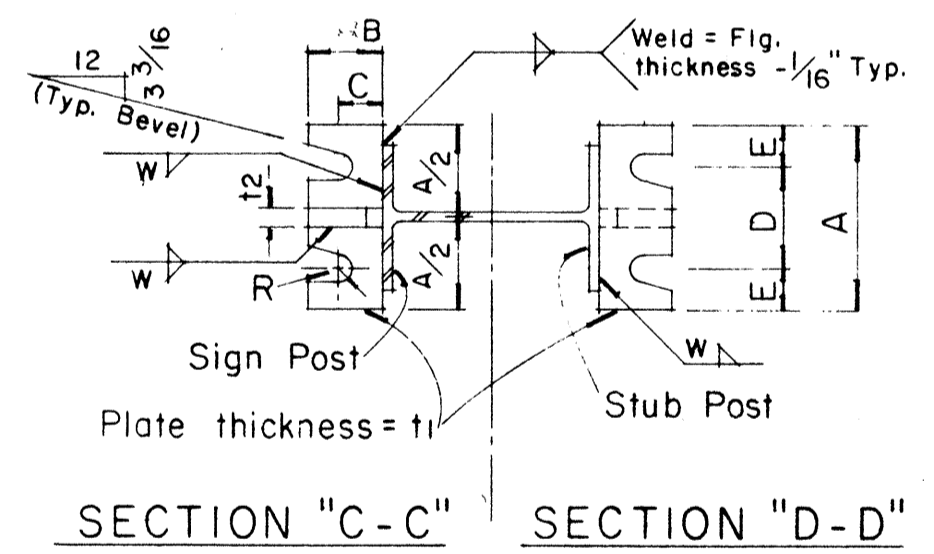
SHEET No. 14 OF 25 SHEETS DT 203

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-111(81)	1984	118	197

Post Size	Bolt Size & Torque	BASE CONNECTION DATA TABLE										FUSE PLATE DATA TABLE								FOUNDATION DATA						
		A	B	C	D	E	t1	t2	W	R	F	G	H	J	K	L	N	d1	t3	Bolt Dia.	Wt. of each Fuse #	Stub Length	Stub Projection	Footing Diameter	Bars V Size	
6 B 8.5	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 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"	9/16"	1/4"	1/2" ϕ	1.09#	2'-0"	3"	2'-0"	#5	
6 B 12											3 3/4"	2"	1 1/8"	4"	2 1/4"	7/8"	5/8"	1/16"	3/8"	5/8" ϕ	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" ϕ	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" ϕ	3.27#	2'-6"	3"	2'-0"	#7	
8 WF 20	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"	4 7/8"	2 1/2"	1 1/2"	5 1/4"	2 3/4"	1 1/2"	7/8"	15/16"	9/16"	7/8" ϕ	3.93#	3'-0"	2 1/2"	2'-0"	#8	
10 WF 21											5 3/8"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	7/8"	15/16"	9/16"	7/8" ϕ	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" ϕ	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" ϕ	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" ϕ	0.64#	1'-6"	3 1/2"	1'-6"	#5
4 I 7.7		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" ϕ	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 shall conform 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 to the requirements of ASTM A 441.
- Galvanize all of the post projecting above the concrete plus 6 inches 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.
- Supplemental Sign shall not be installed below the Breakaway Hinges.

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

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

NO.	REVISION	APPROVED BY	DATE
1	Added General Note No. 9	H.T.	6/3/80

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

BREAK-AWAY SIGN SUPPORTS

FOR

GROUND MOUNTED GUIDE SIGNS

Not to Scale

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.

Furnish 2-0.012" ± thick and 2-0.032" ± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to ASTM -B 36.

DATE: _____

ORIGINAL PLAN _____

NO. _____

DESIGNED BY _____

CHECKED BY _____

QUANTITIES BY _____

DATE: _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(187)	1984	119	197

(OVERHEAD SIGNS)
SUPPORT SPACING TABLE

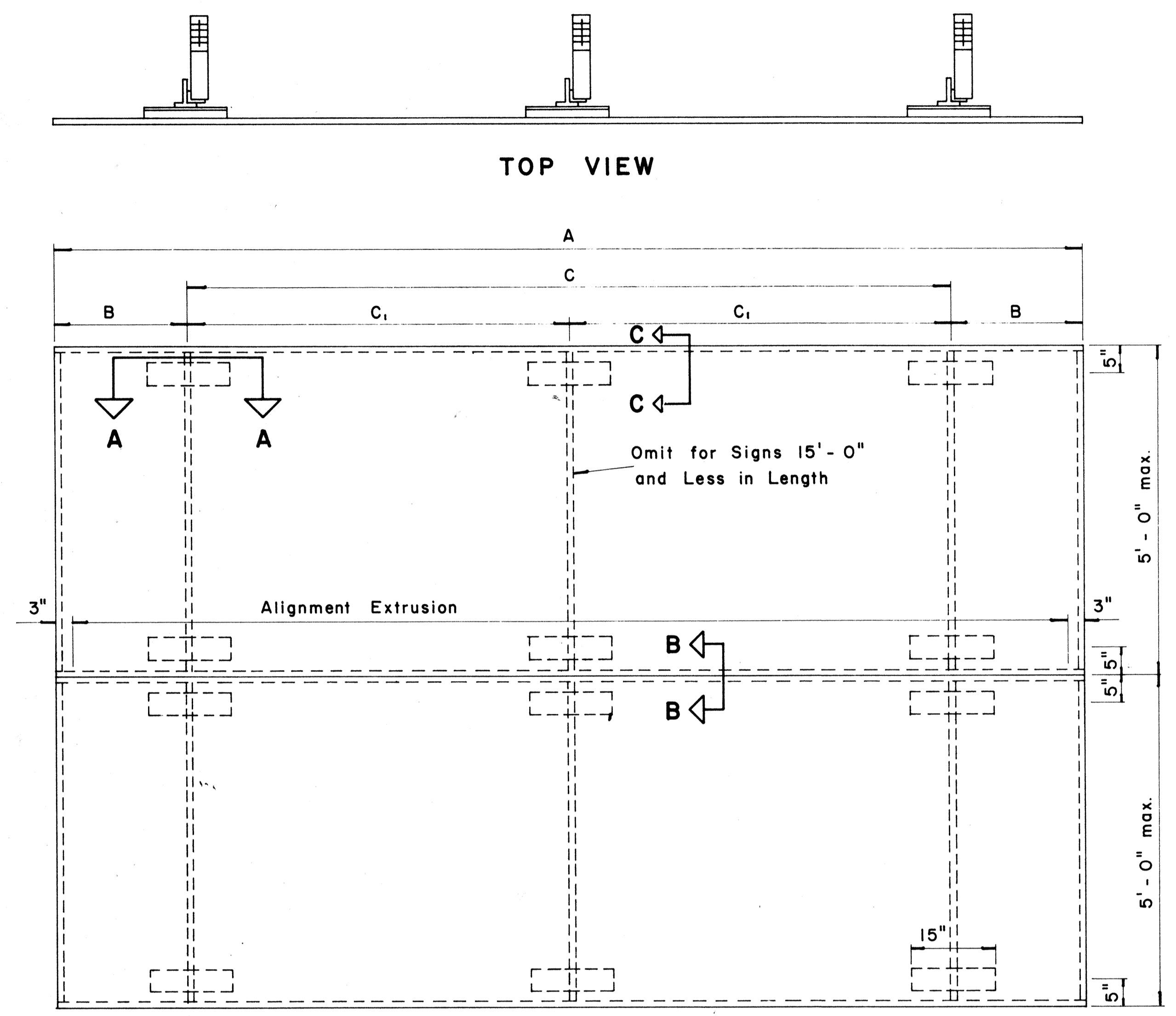
PANEL THICK.	LENGTH OF SIGN A	NO. OF SUPPORTS	OVERHANG B	SUPPORT SPACING C or C ₁
1"	6'-0"	2	12"	48"
1"	6'-6"	2	15"	48"
1"	7'-0"	2	15"	54"
1"	7'-6"	2	18"	54"
1"	8'-0"	2	18"	60"
1"	8'-6"	2	20"	62"
1"	9'-0"	2	22"	64"
1"	9'-6"	2	23"	68"
1"	10'-0"	2	24"	72"
1"	10'-6"	2	24"	78"
1"	11'-0"	2	24"	84"
1"	11'-6"	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 12/29/69
TRAFFIC ENGINEER DATE

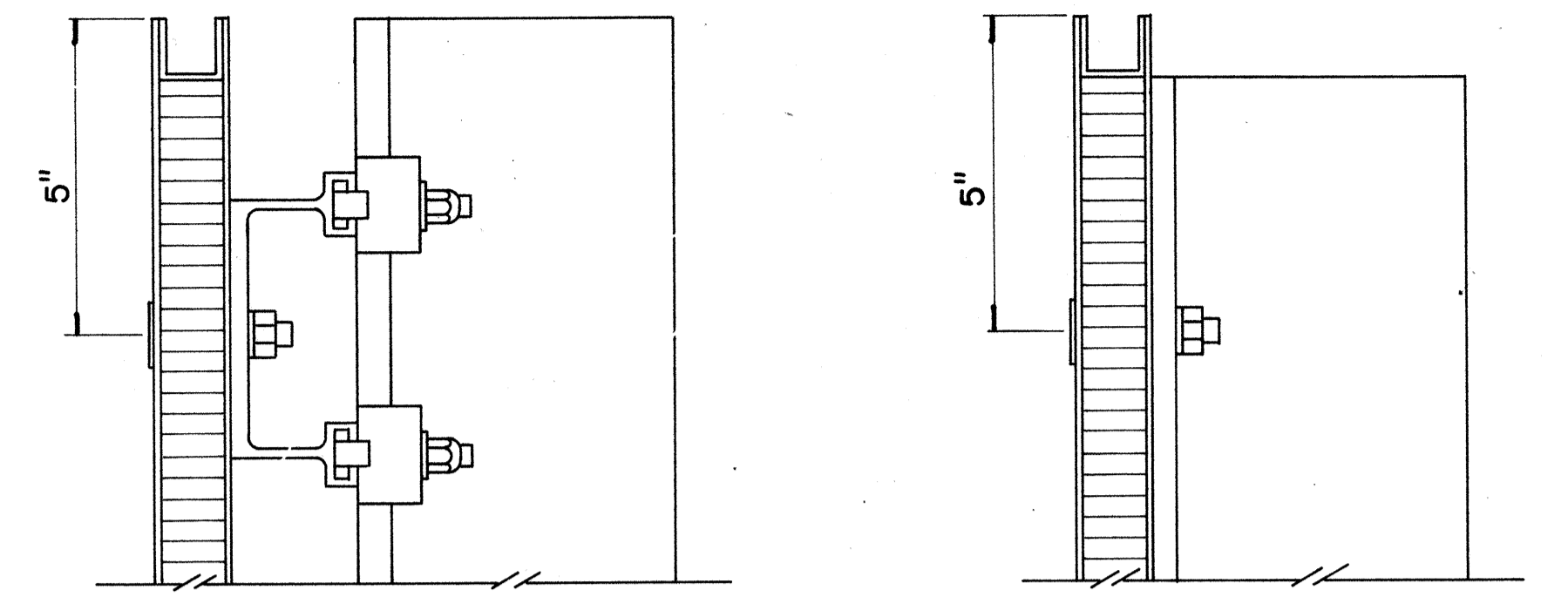
APPROVED:
[Signature] 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

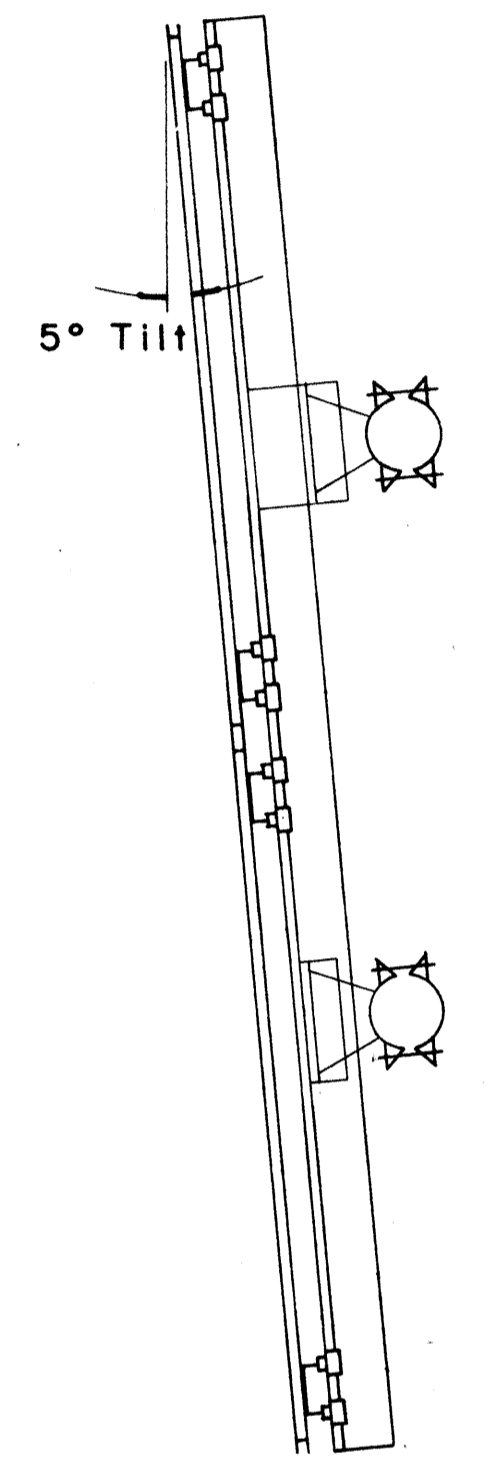
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
STANDARD DETAILS
LAMINATED ALUMINUM
SIGN PANELS
(OVERHEAD)
Scale: As Shown



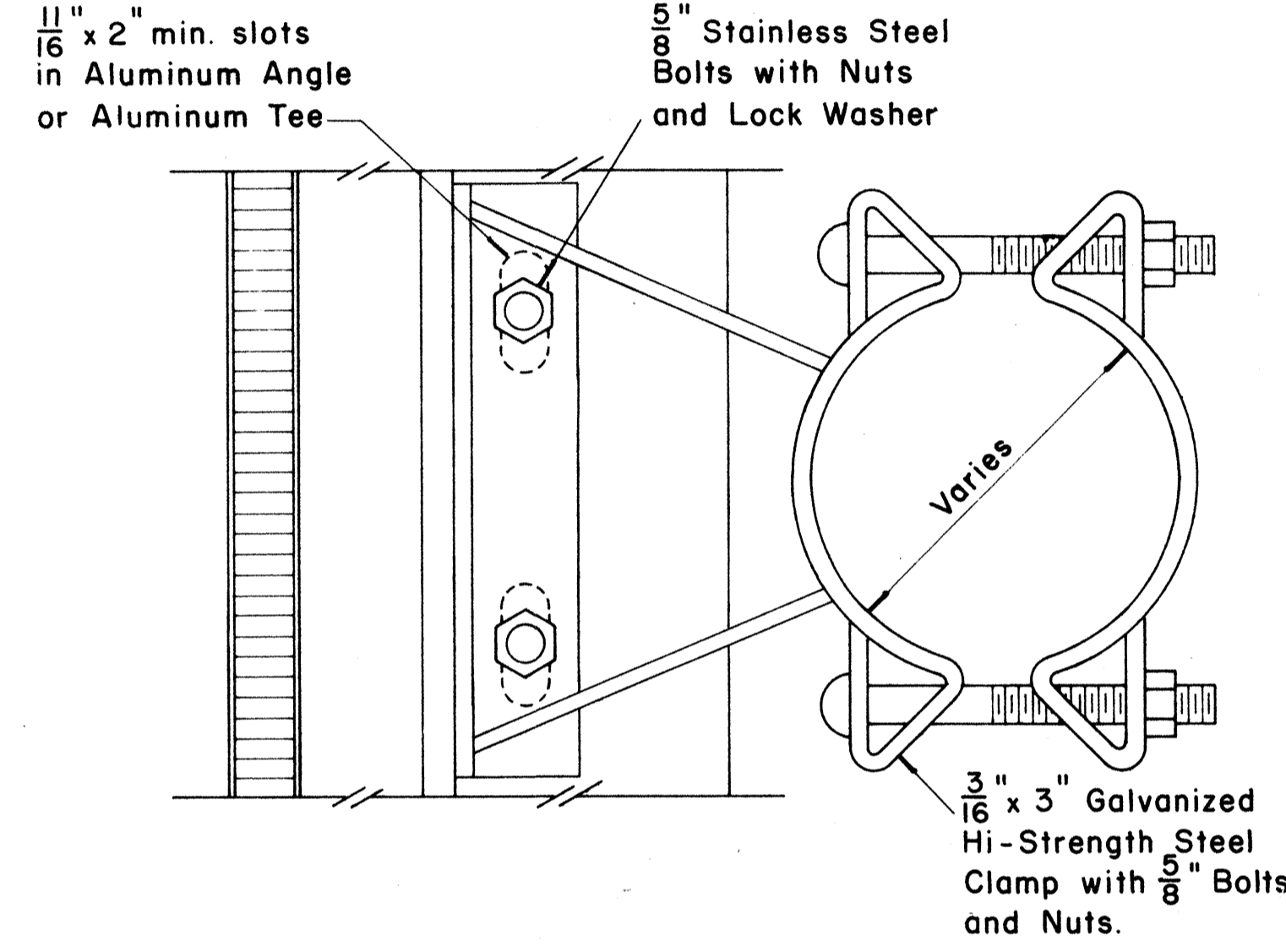
TYPICAL SIGN ASSEMBLY
Scale: $\frac{3}{4}$ " = 1'-0"



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

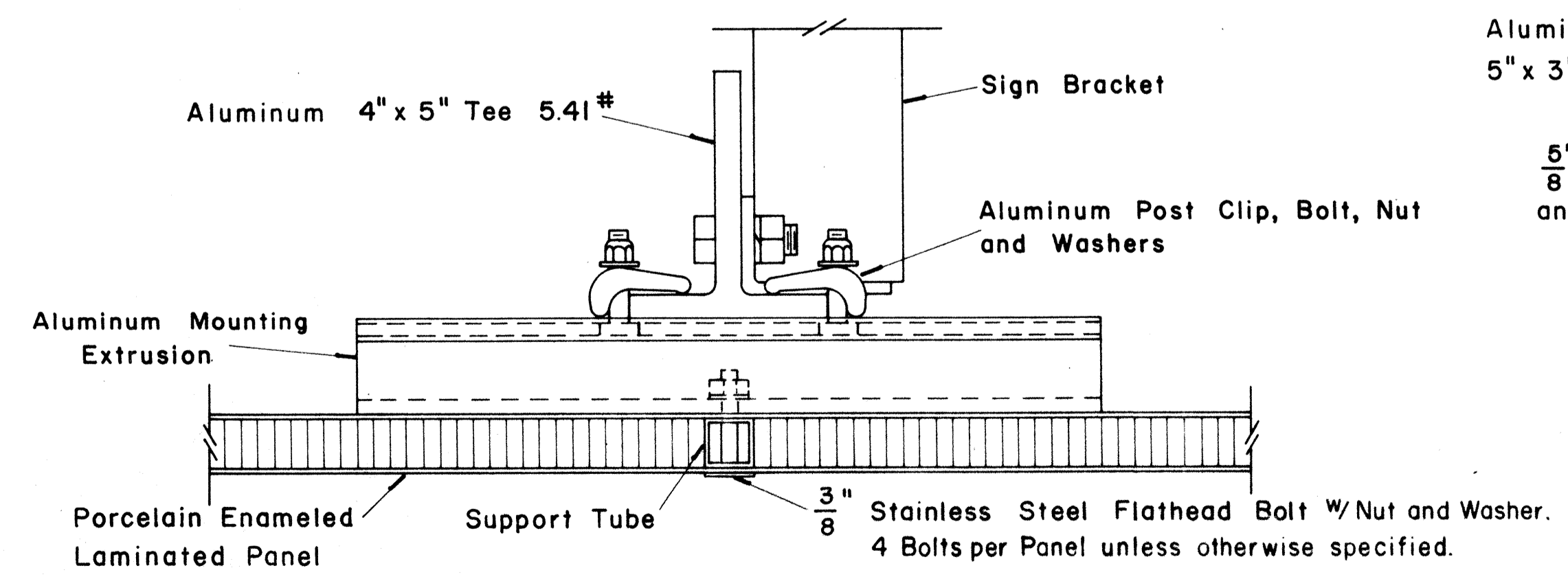


SIDE VIEW

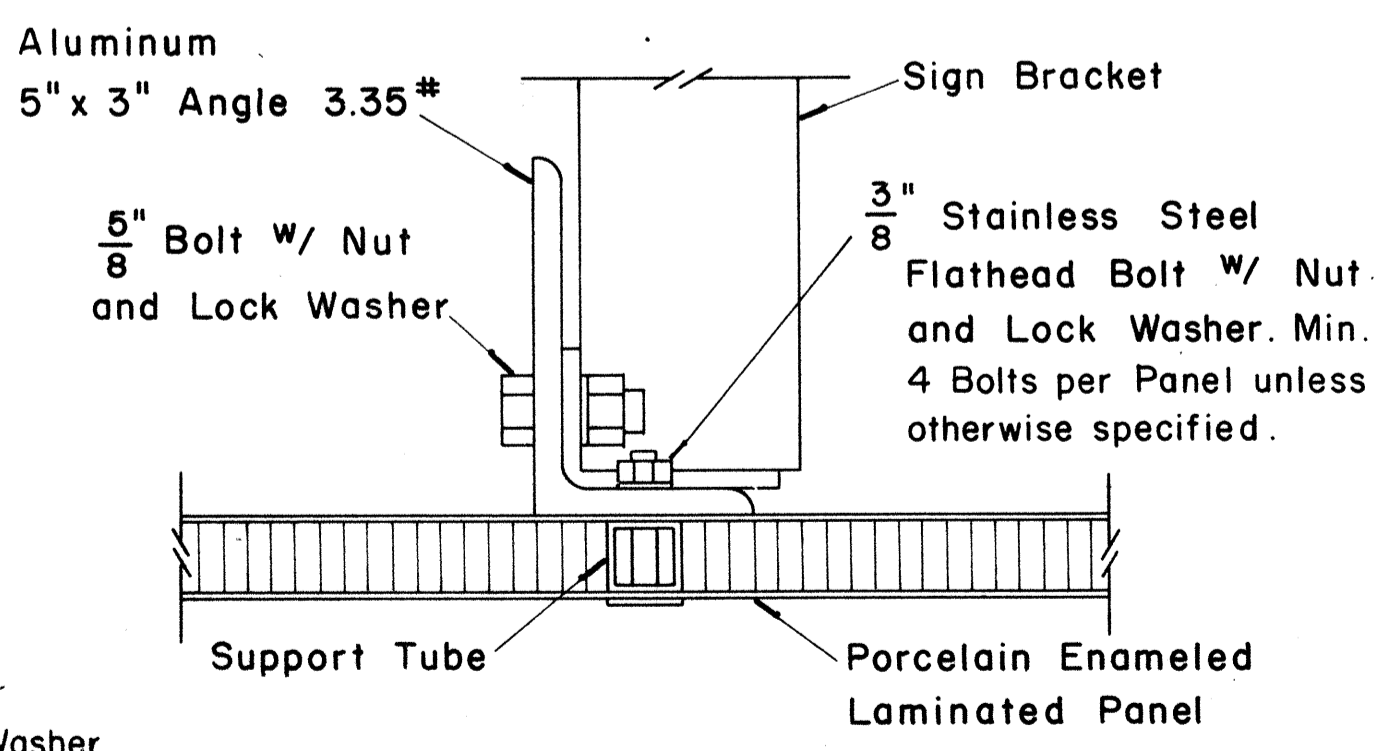


SIGN BRACKET ASSEMBLY
Scale: $\frac{3}{8}$ " = 1"

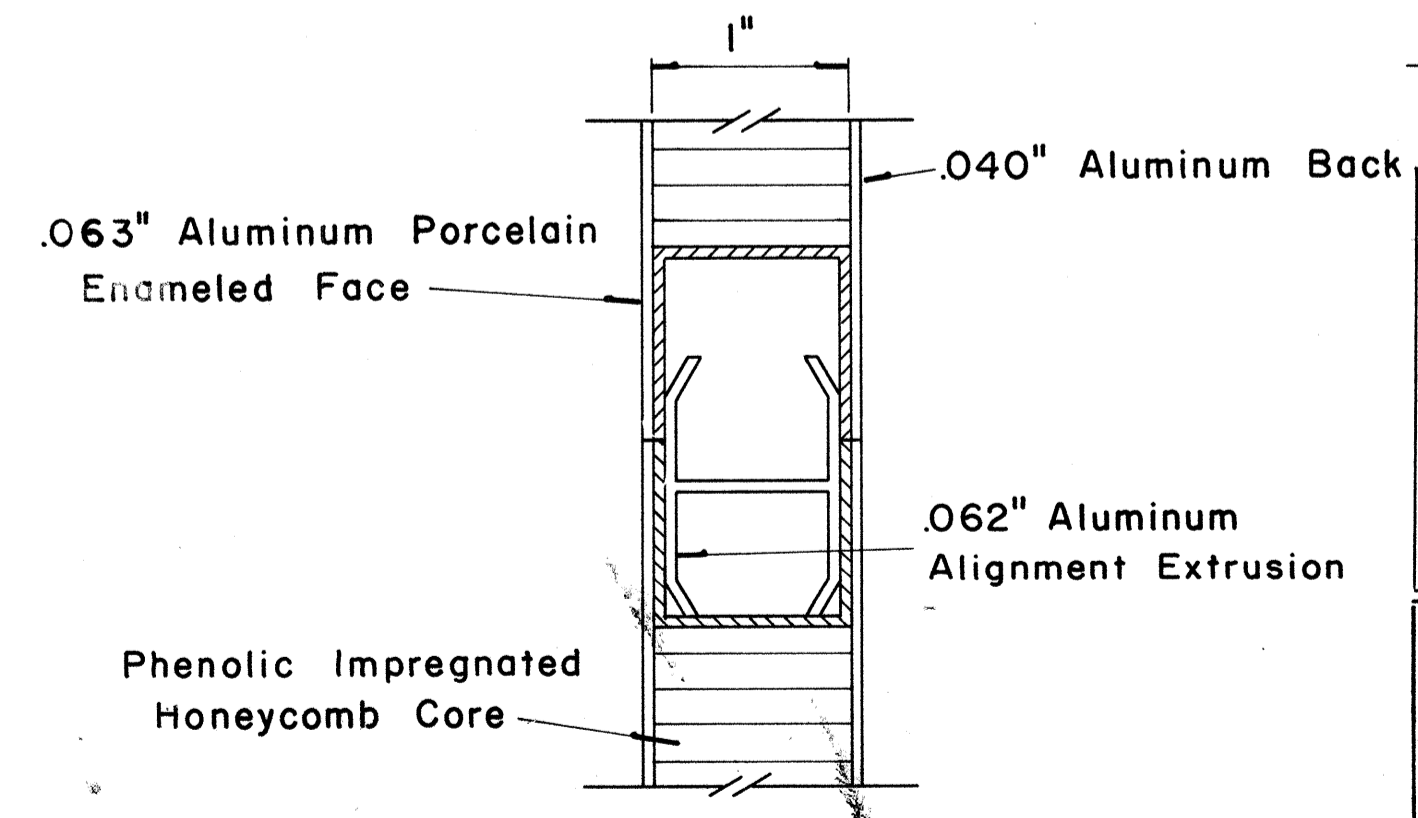
NOTE: For additional details of Sign Bracket Assembly, see Standard Detail Sheet "Overhead Sign Supports."



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



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



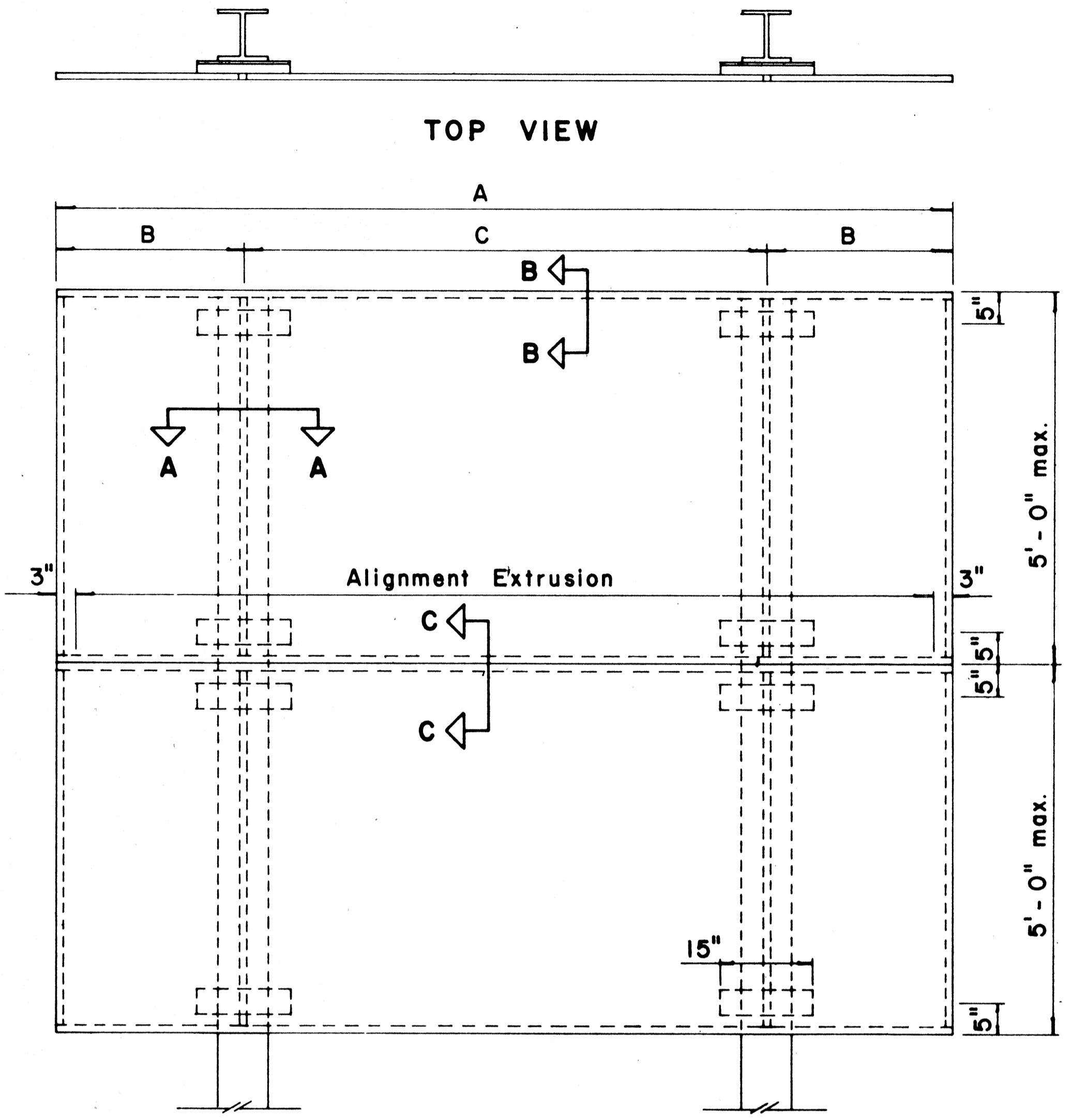
CLOSURE DETAIL SECTION "B-B"
FULL SCALE

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	[HI-1(187)]	1984	120	197

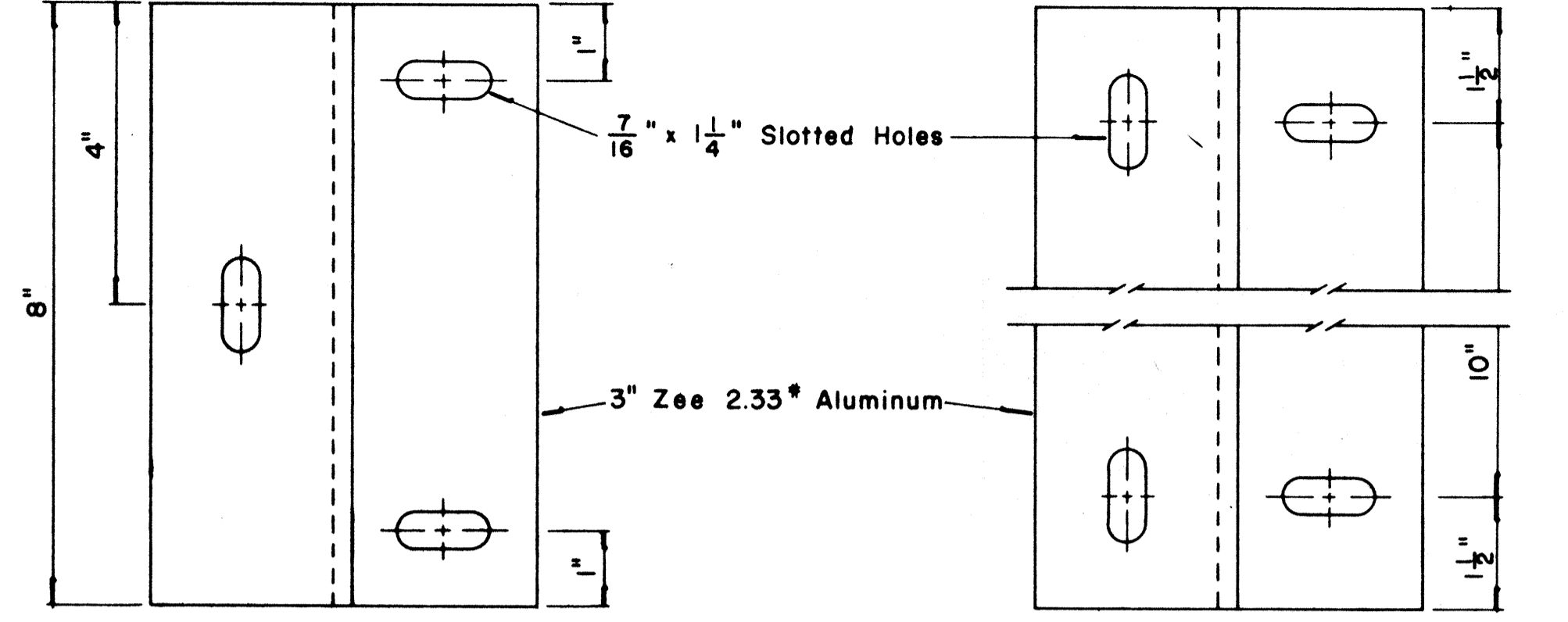
(GROUND MOUNTED SIGNS)
SUPPORT SPACING TABLE

PANEL THICK.	LENGTH OF SIGN A	NO. OF SUPPORTS	OVERHANG B	SUPPORT SPACING C
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"
2.5"	15'-6"	2	36"	114"
2.5"	16'-0"	2	39"	114"
2.5"	16'-6"	2	39"	120"
2.5"	17'-0"	2	39"	126"
2.5"	17'-6"	2	42"	126"
2.5"	18'-0"	2	42"	132"
2.5"	18'-6"	2	45"	132"
2.5"	19'-0"	2	45"	138"
2.5"	19'-6"	2	45"	144"
2.5"	20'-0"	2	48"	144"
2.5"	20'-6"	2	48"	150"
2.5"	21'-0"	2	51"	150"
2.5"	21'-6"	2	51"	156"
2.5"	22'-0"	2	51"	162"
2.5"	22'-6"	2	54"	162"
2.5"	23'-0"	2	54"	168"
2.5"	23'-6"	2	54"	174"
2.5"	24'-0"	2	57"	174"



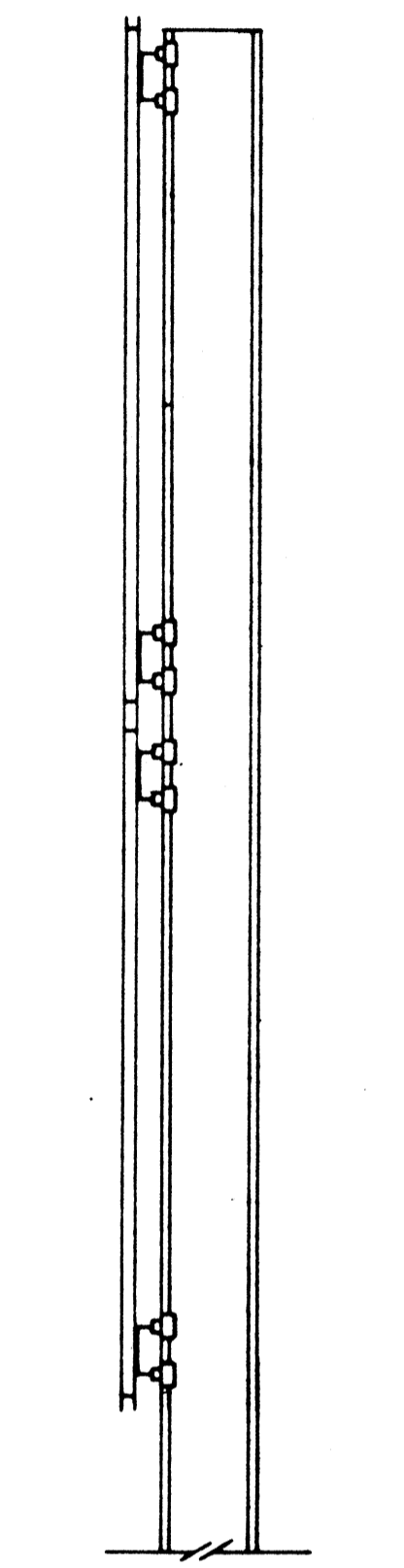
TYPICAL SIGN ASSEMBLY

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

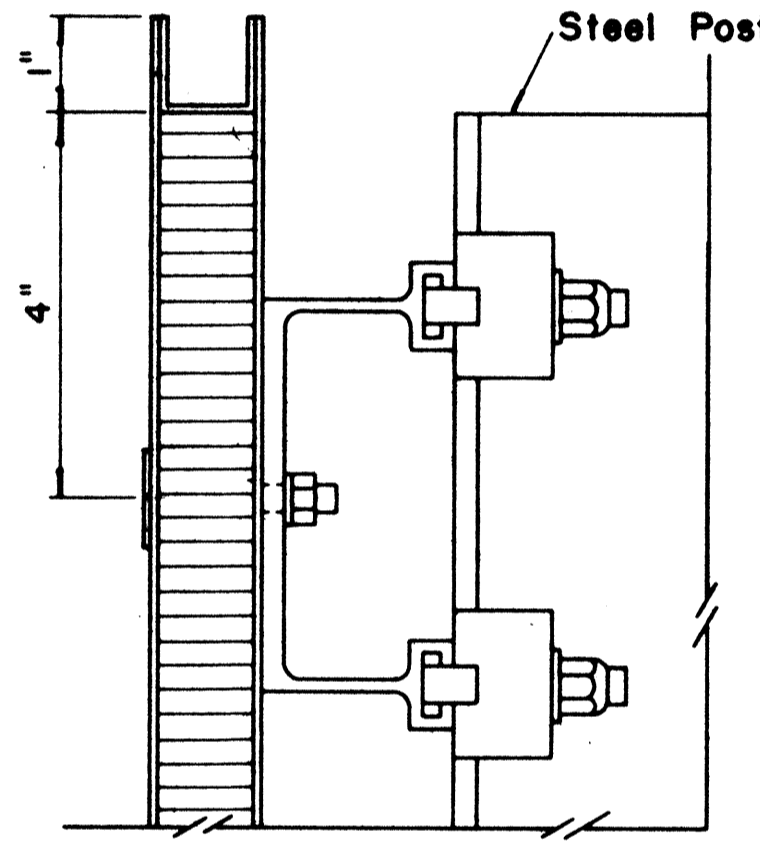


ZEE MOUNTING DETAILS

Scale: 1/2" = 1"

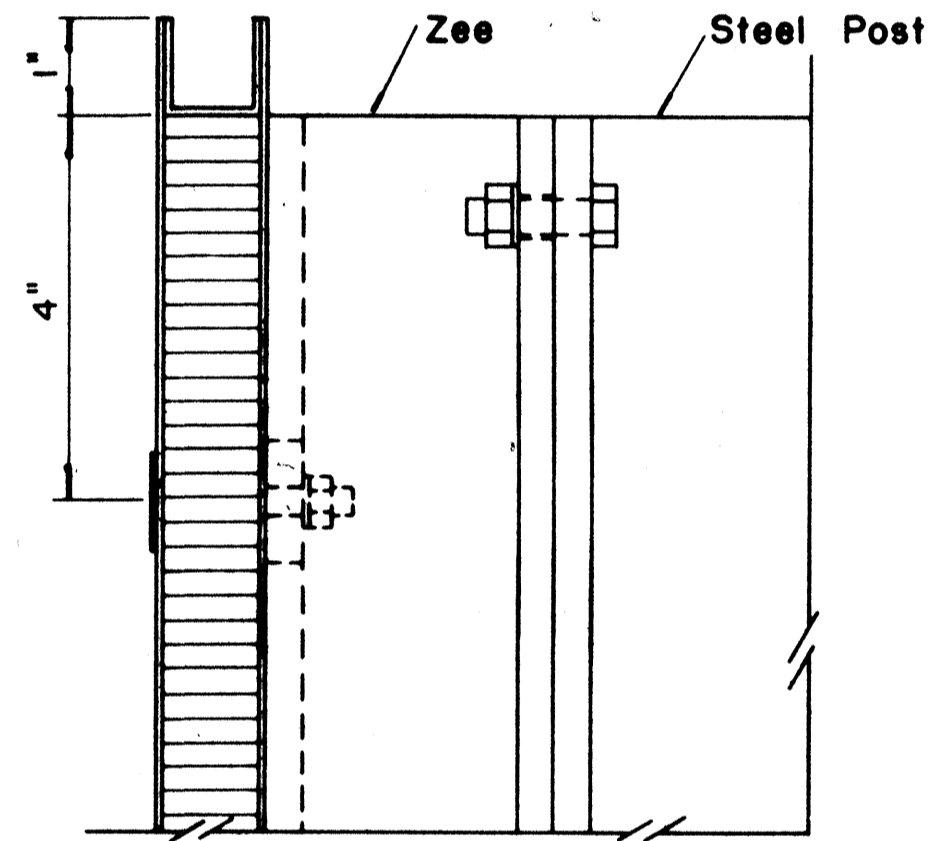


SIDE VIEW



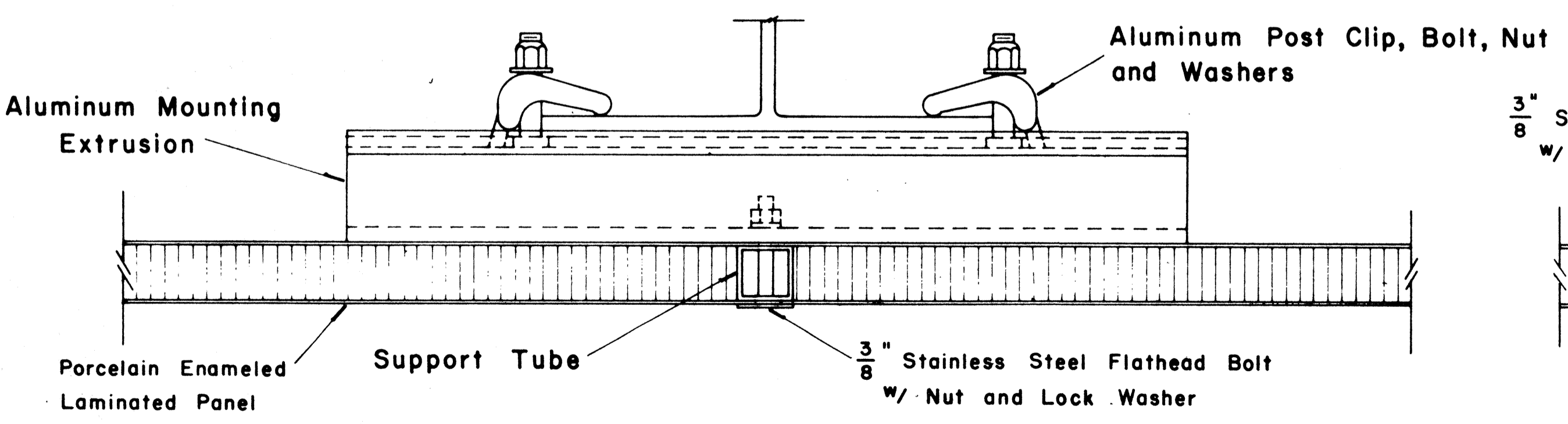
SECTION "B-B"

Scale: 1/2" = 1"



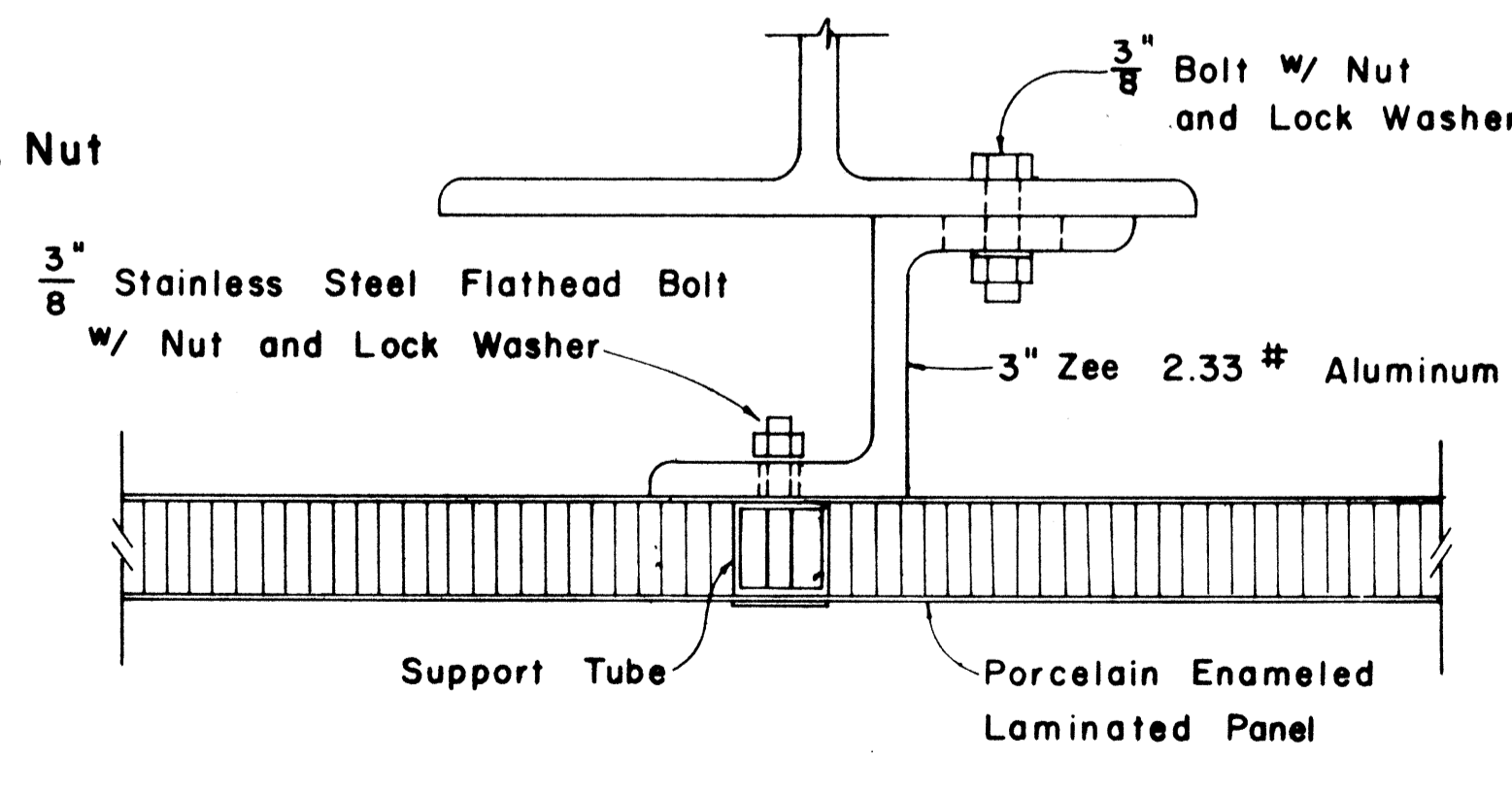
SECTION "B-B" (Alternate)

Scale: 1/2" = 1"



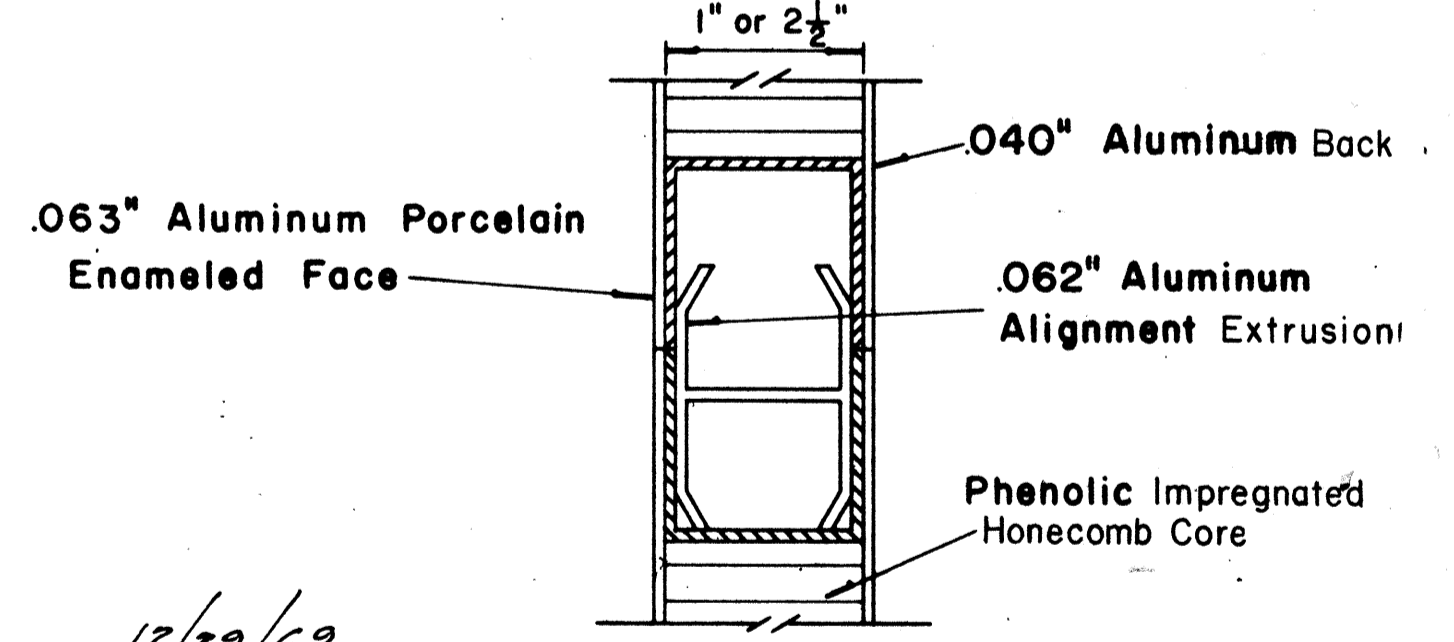
SECTION "A-A"

Scale: 1/2" = 1"



SECTION "A-A" (Alternate)

Scale: 1/2" = 1"



CLOSURE DETAIL SECTION "C-C"

FULL SCALE

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

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

NO.	REVISION	APPROVED BY	DATE

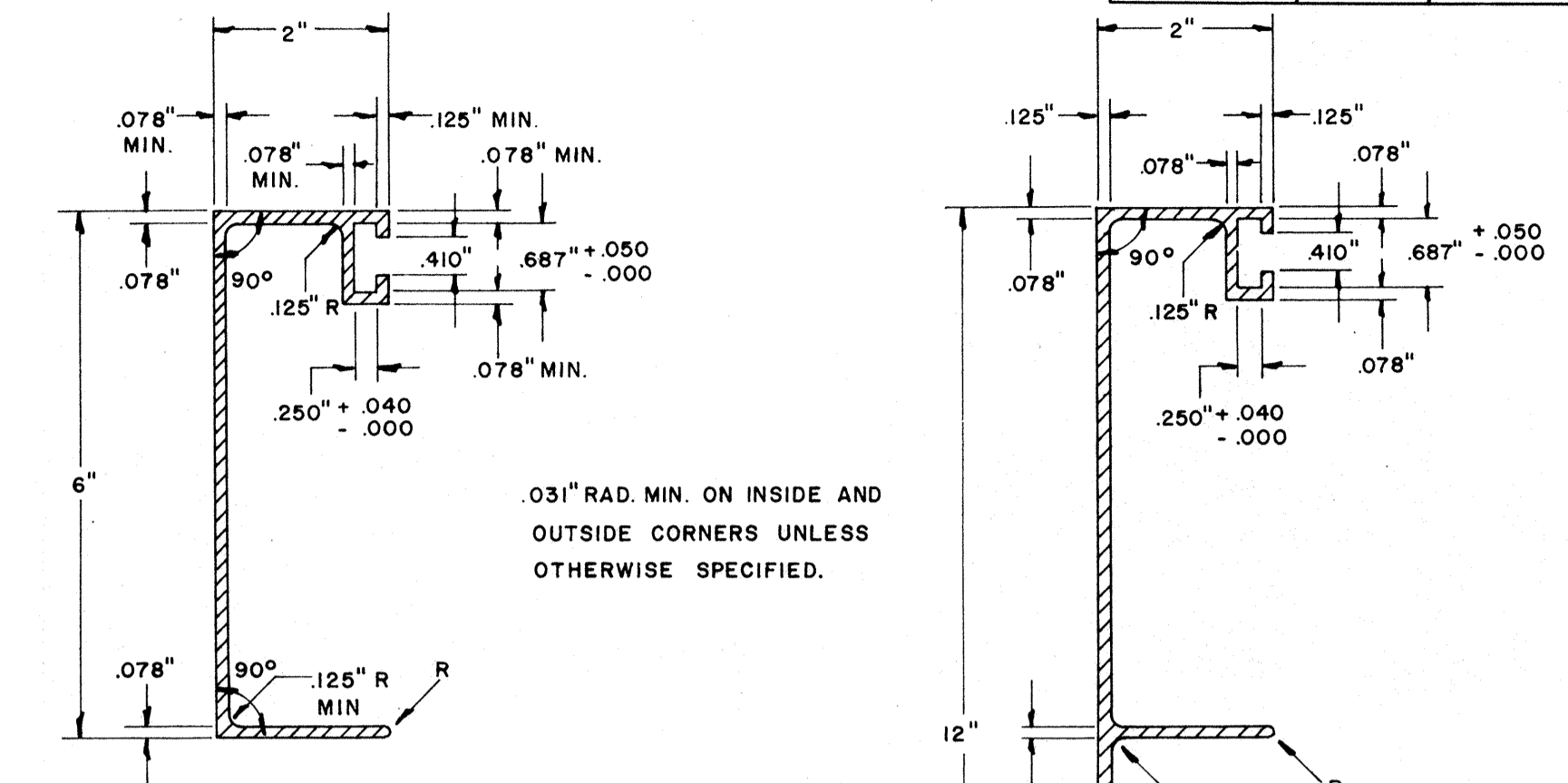
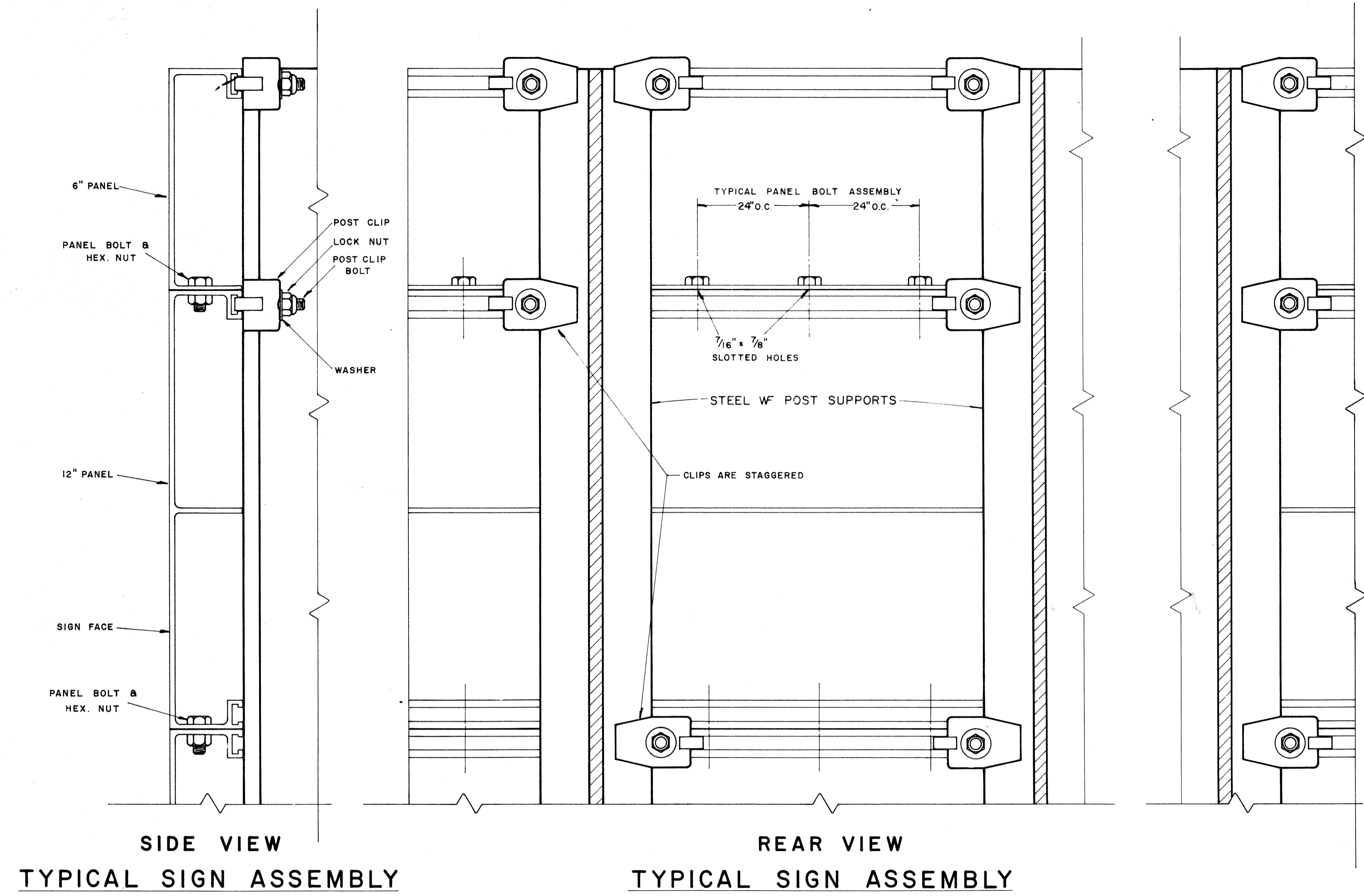
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS
LAMINATED ALUMINUM
SIGN PANELS
(GROUND MOUNTED)

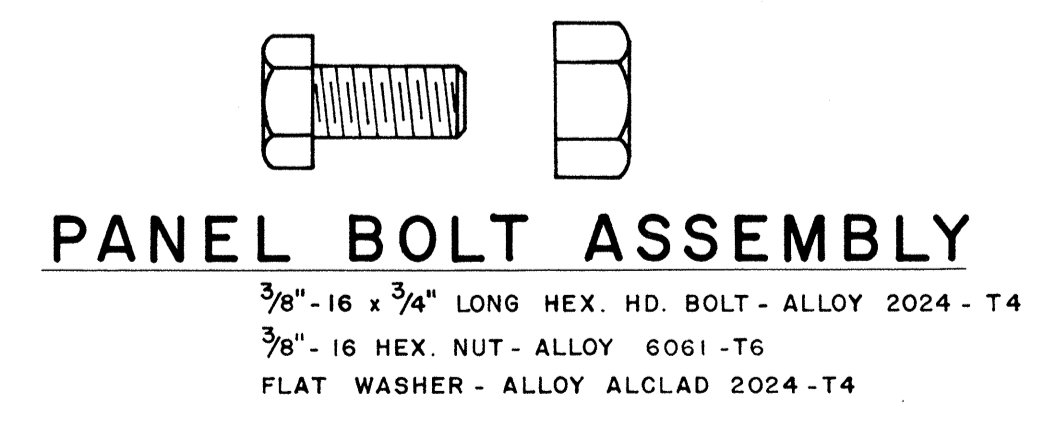
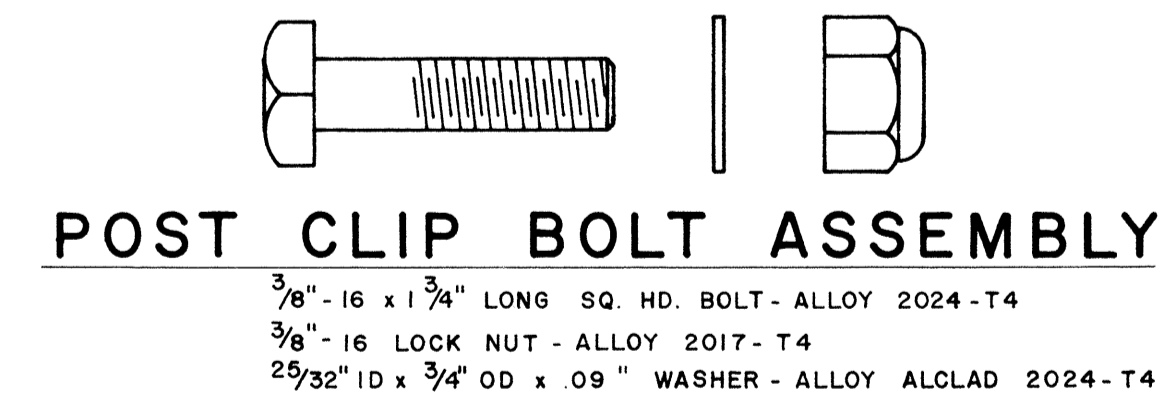
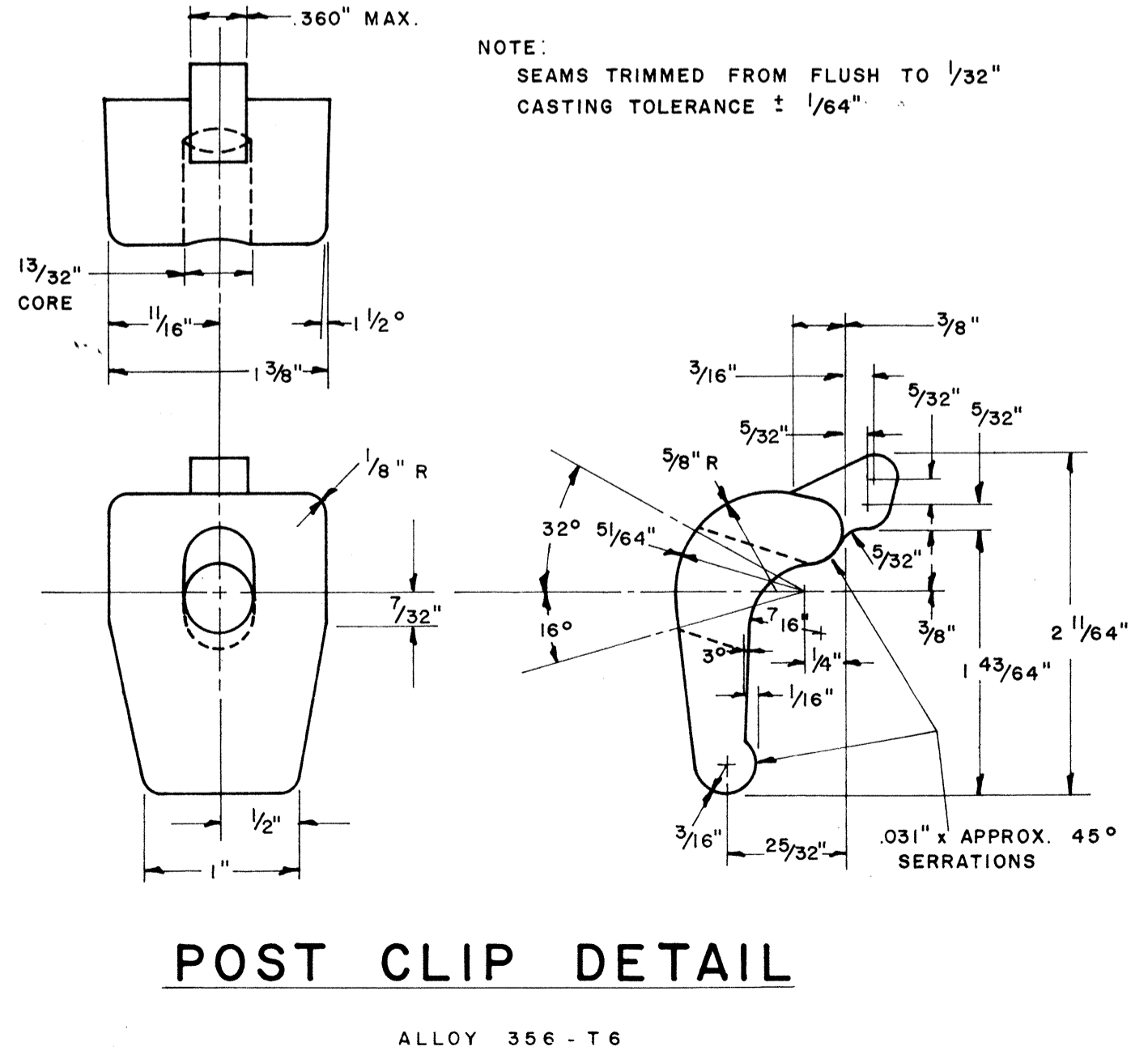
Scale: As Shown

SURVEY PLATTED BY
 DRAWN BY
 CHECKED BY
 ORIGINAL PLANS
 NOTE BOOK
 No.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-11-1187	1984	121	197



**SOLID EXTRUDED SIGN
PANEL DETAILS**



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

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

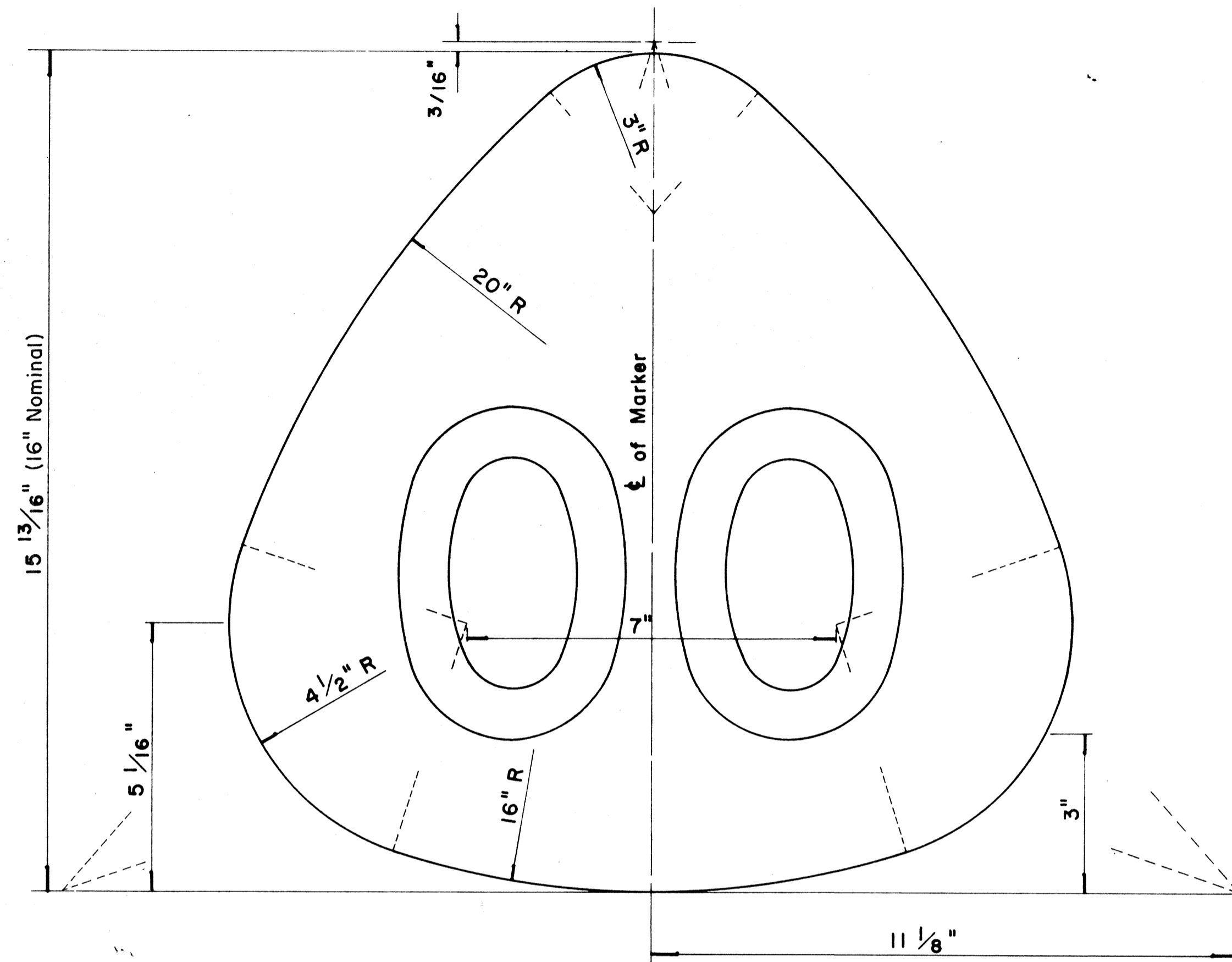
APPROVED:
[Signature] 12-20-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

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

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

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**

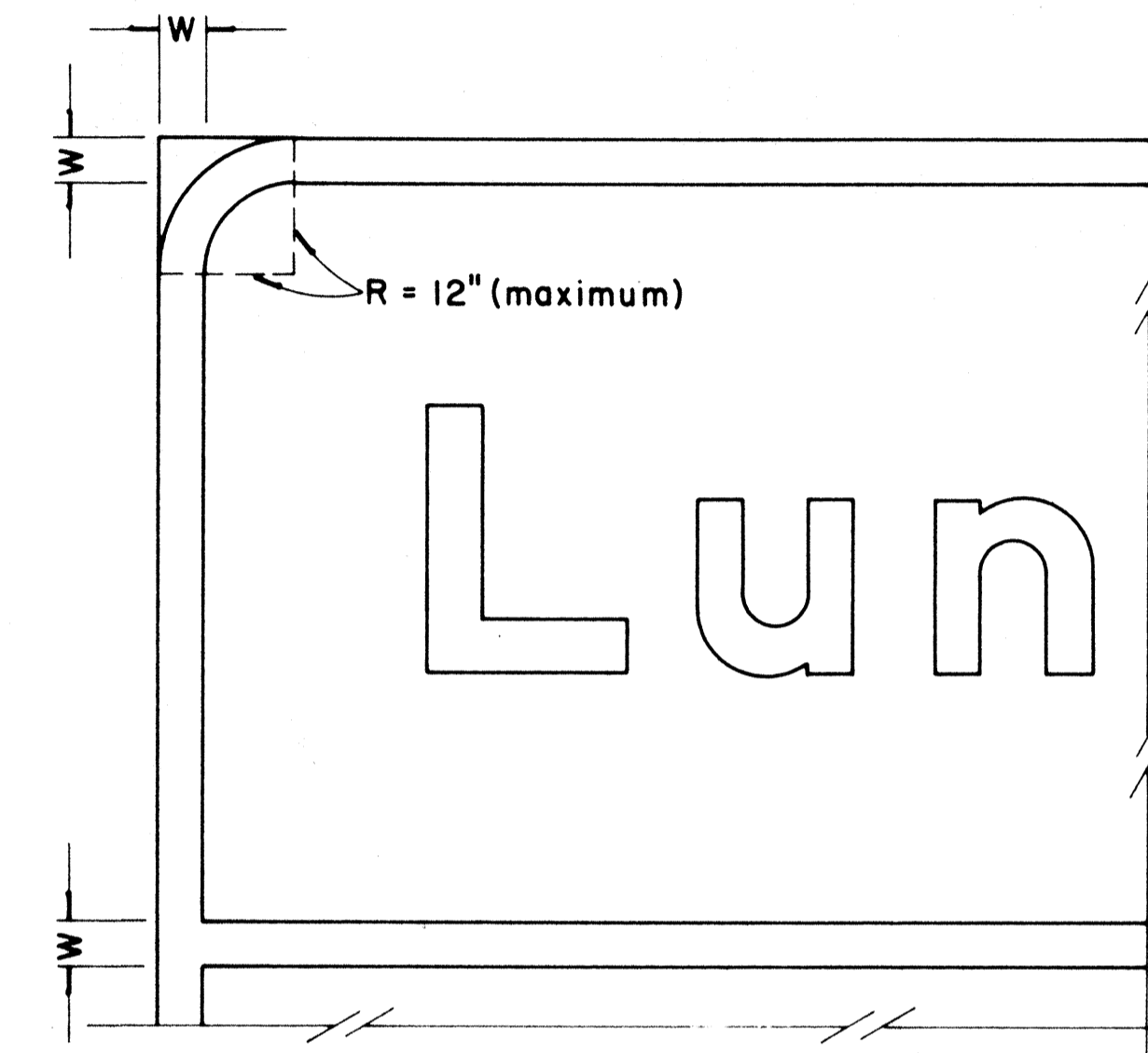
Scale: Half Size

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.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-11-1(187)	1984	122	197

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:

Eishi Tanaka 4/12/72
TRAFFIC ENGINEER DATE

APPROVED:

Mulu S. Sakshi 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.	9-14-76

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

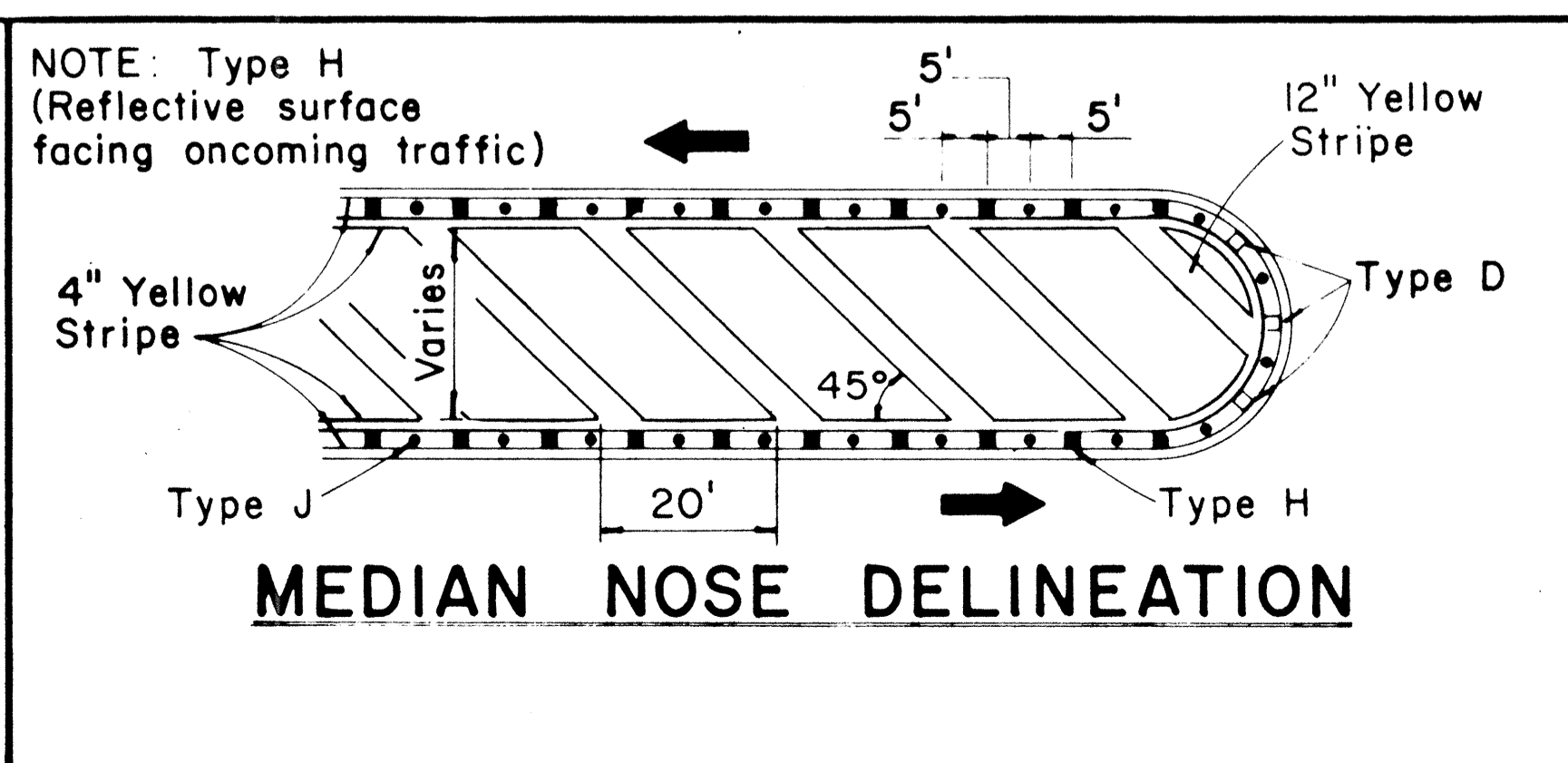
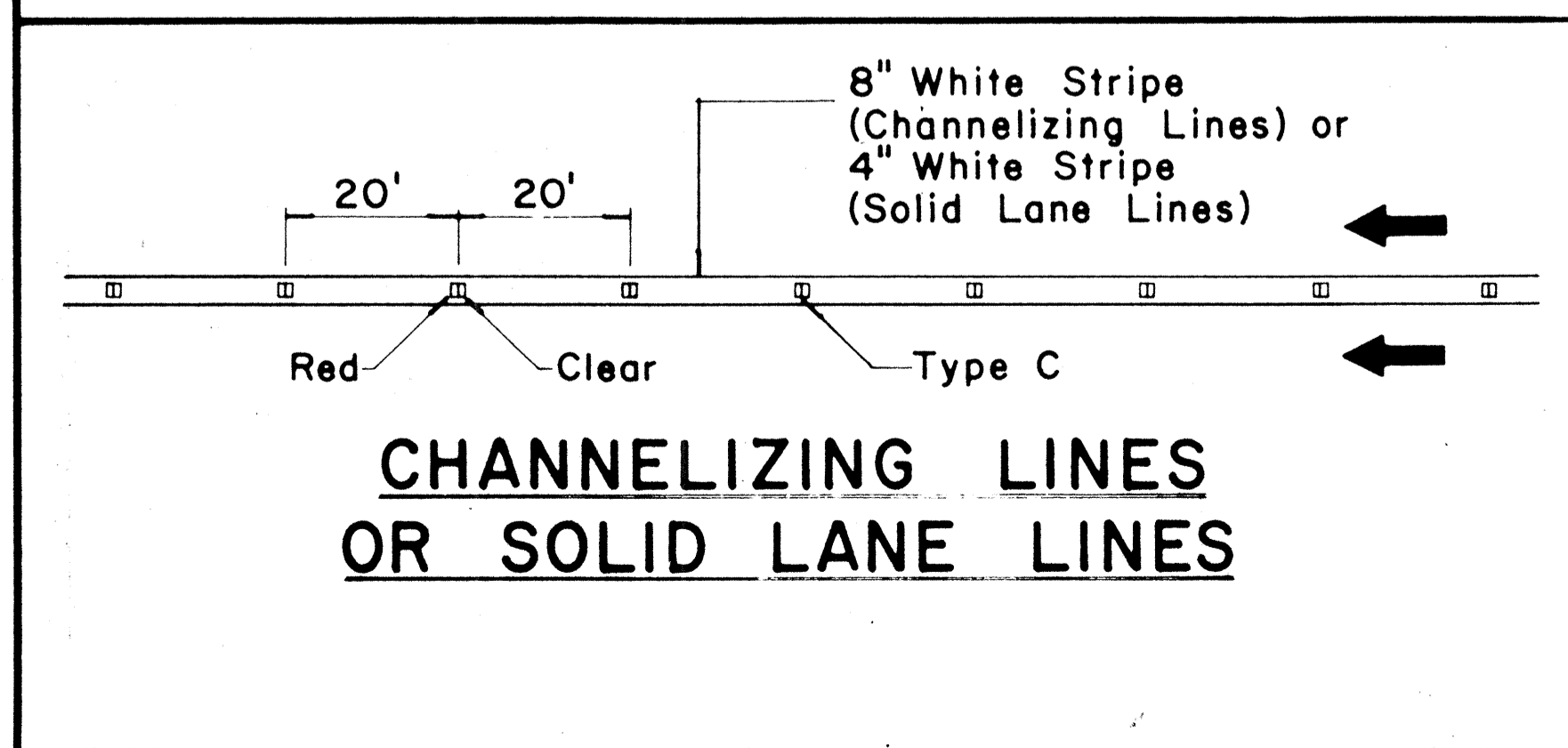
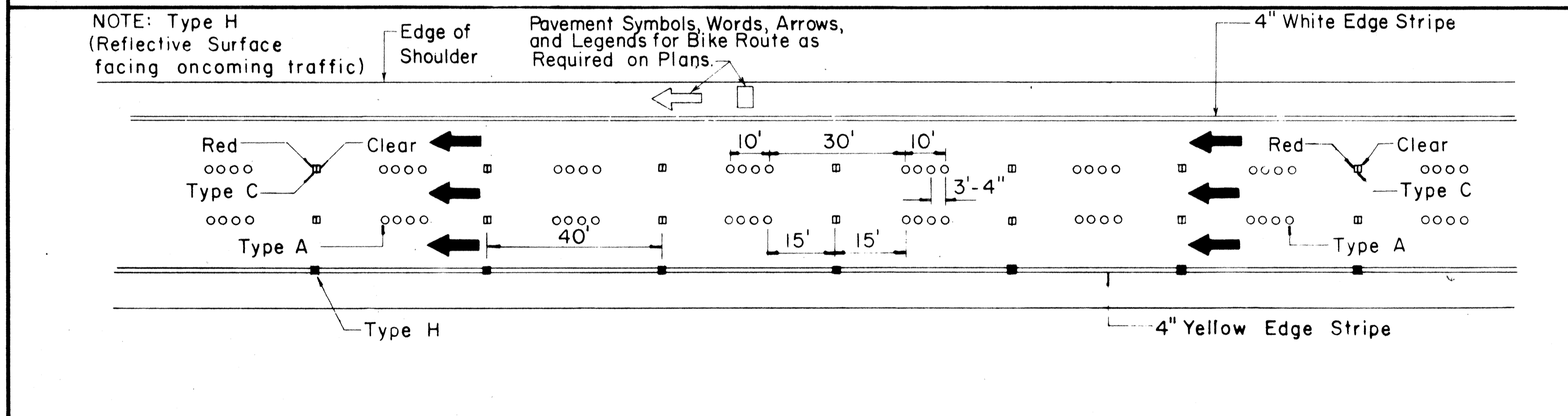
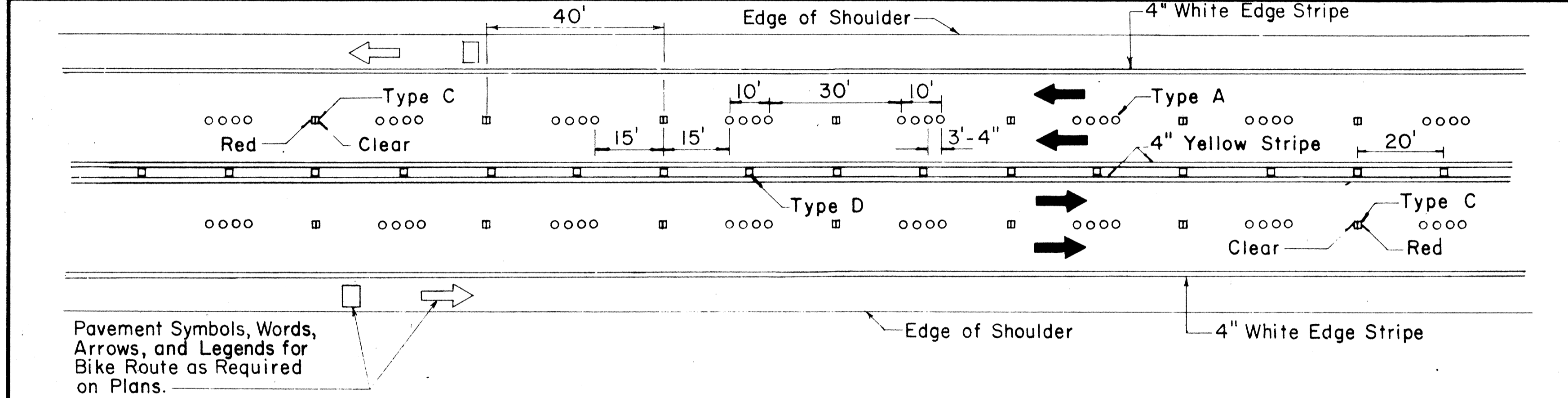
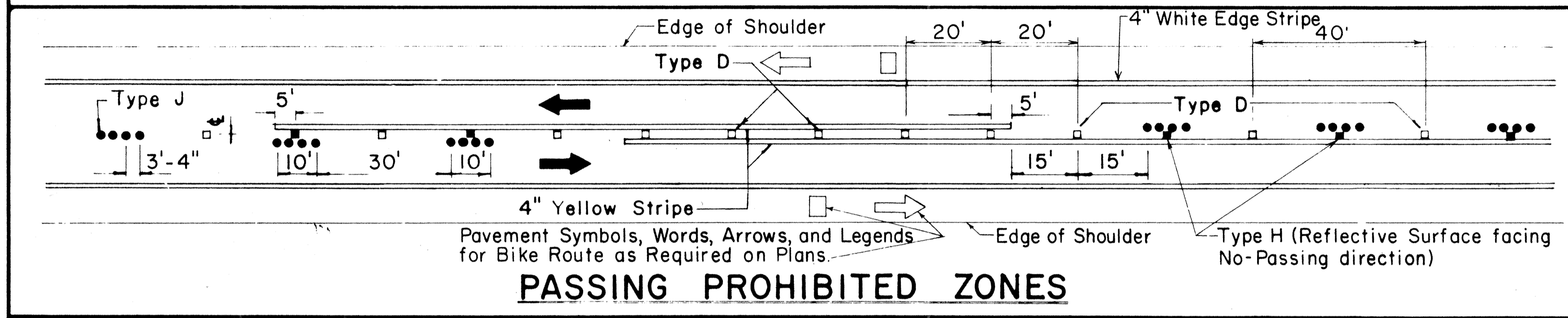
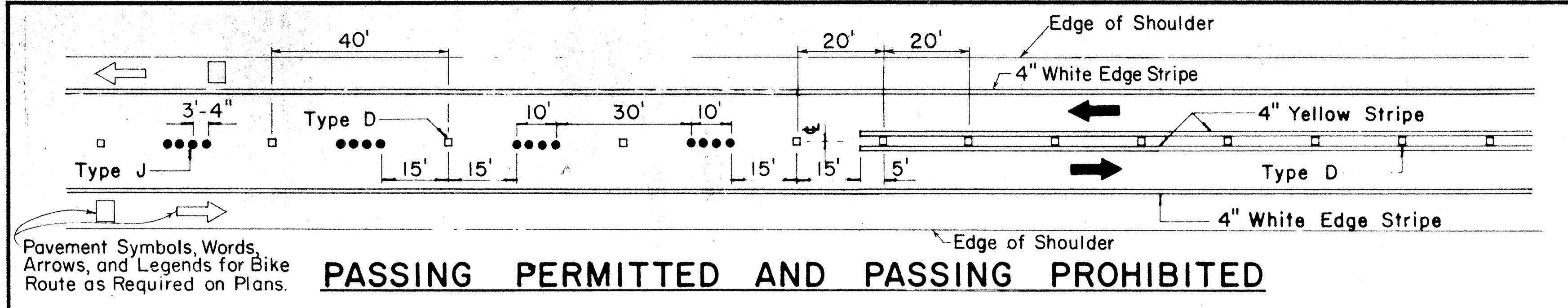
STANDARD DETAILS

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

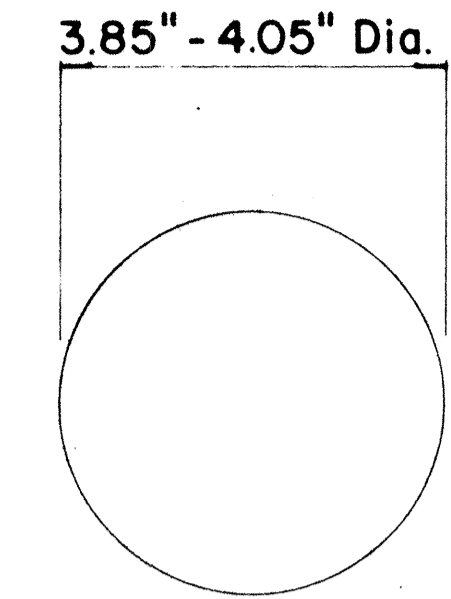
Scale: As Shown

ORIGINAL PLAN	DATE
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

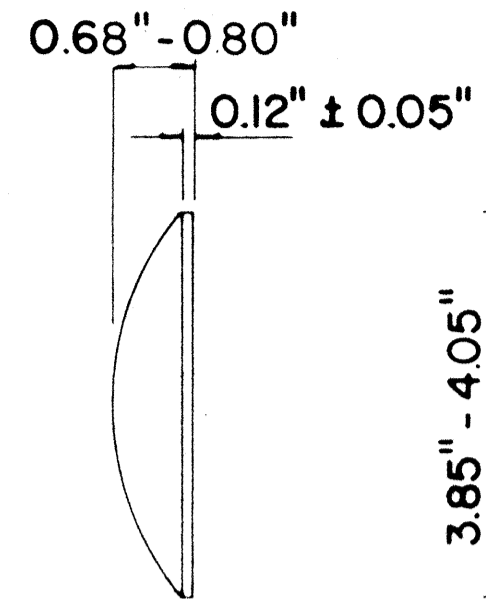
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-111(187)	1984	123	197



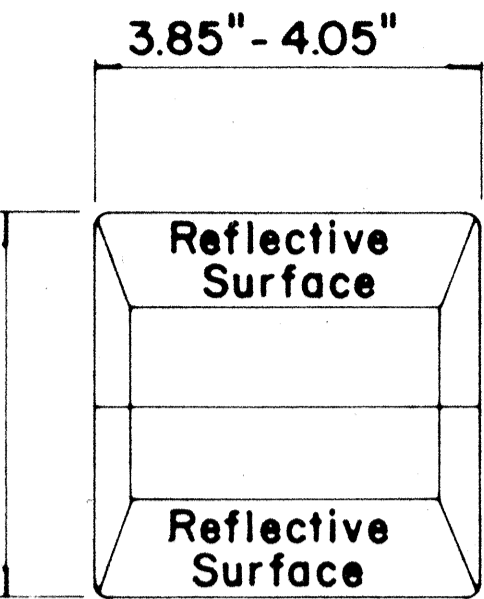
TWO - LANE
MULTI - LANE
DIVIDED HIGHWAY AND FREEWAY
MISCELLANEOUS



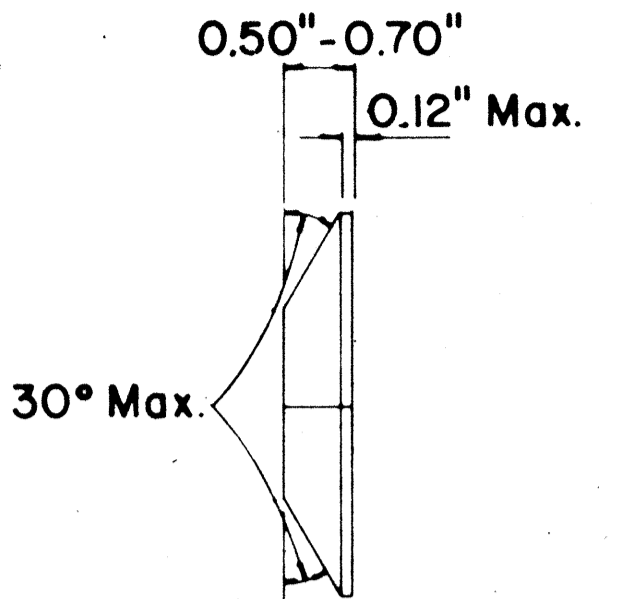
TYPE A
NON-REFLECTIVE WHITE MARKER



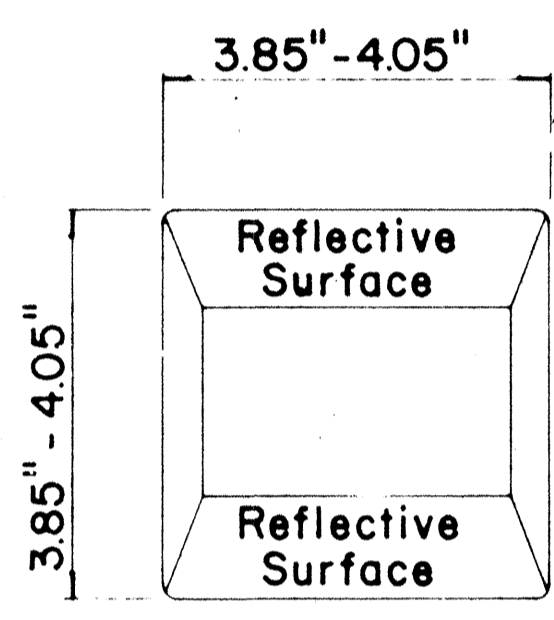
TYPE J
NON-REFLECTIVE YELLOW MARKER



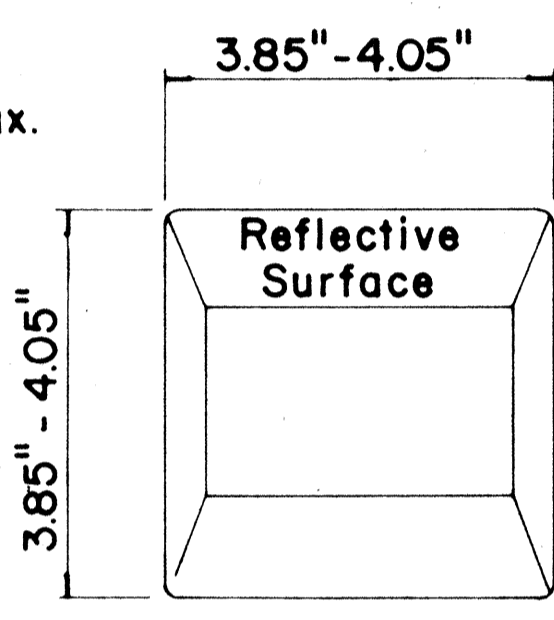
TYPE C
RED-CLEAR REFLECTIVE MARKER



TYPE H
ONE-WAY YELLOW 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:
Eiichi Tanaka 7/21/78
TRAFFIC ENGINEER DATE

APPROVED:
Robert Z. Zakeishi 1/24/78
ASSISTANT CHIEF, ENGINEERING DATE

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

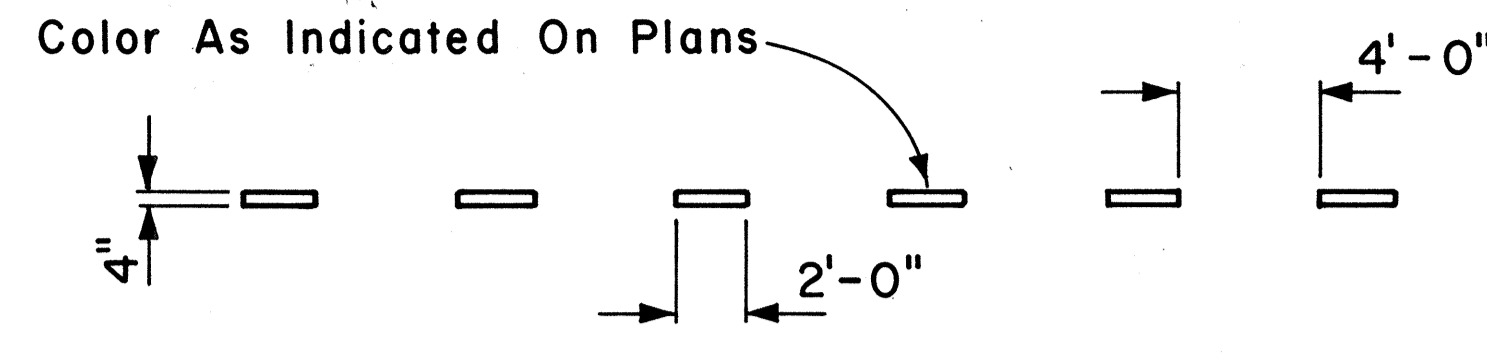
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
RAISED PAVEMENT MARKERS
AND STRIPING

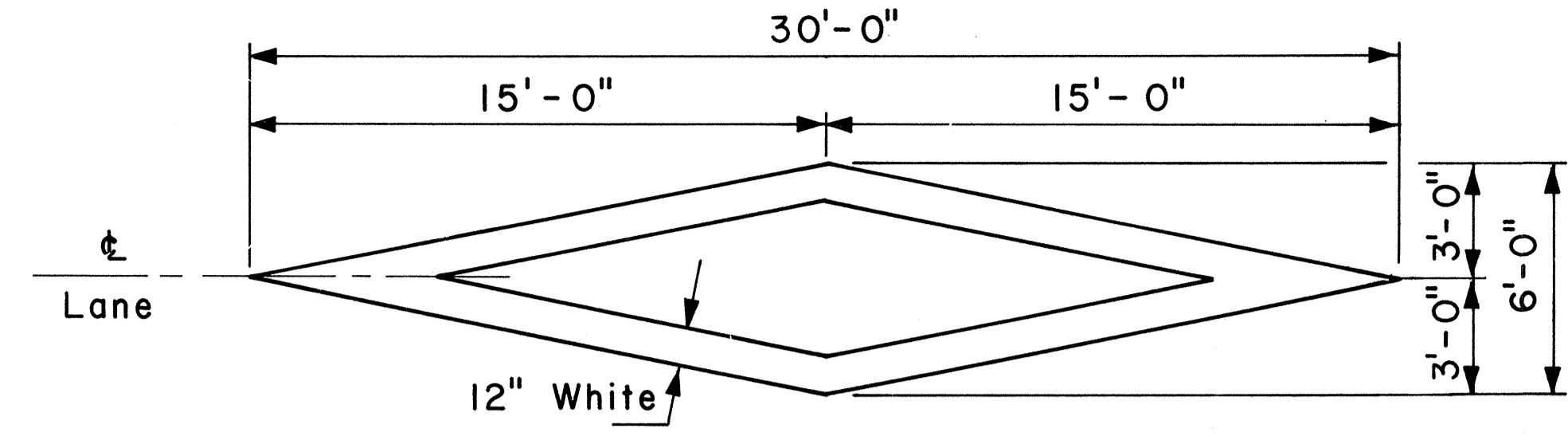
Not to Scale July 1978
SHEET No. 20 OF 25 SHEETS DT 300

DATE
SURVEY PLOTTED BY
ORIGINAL PLAN
DESIGNED BY
NOTE BOOK
QUANTITIES BY
CHECKED BY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	Z-11-1(187)	1984	124	197



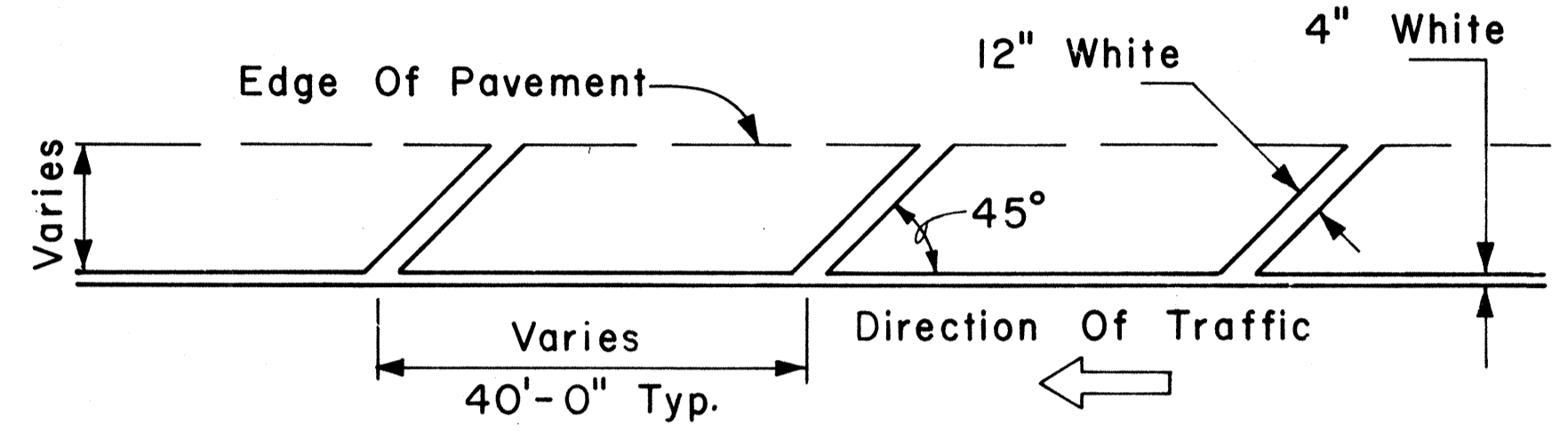
4" GUIDE LINE



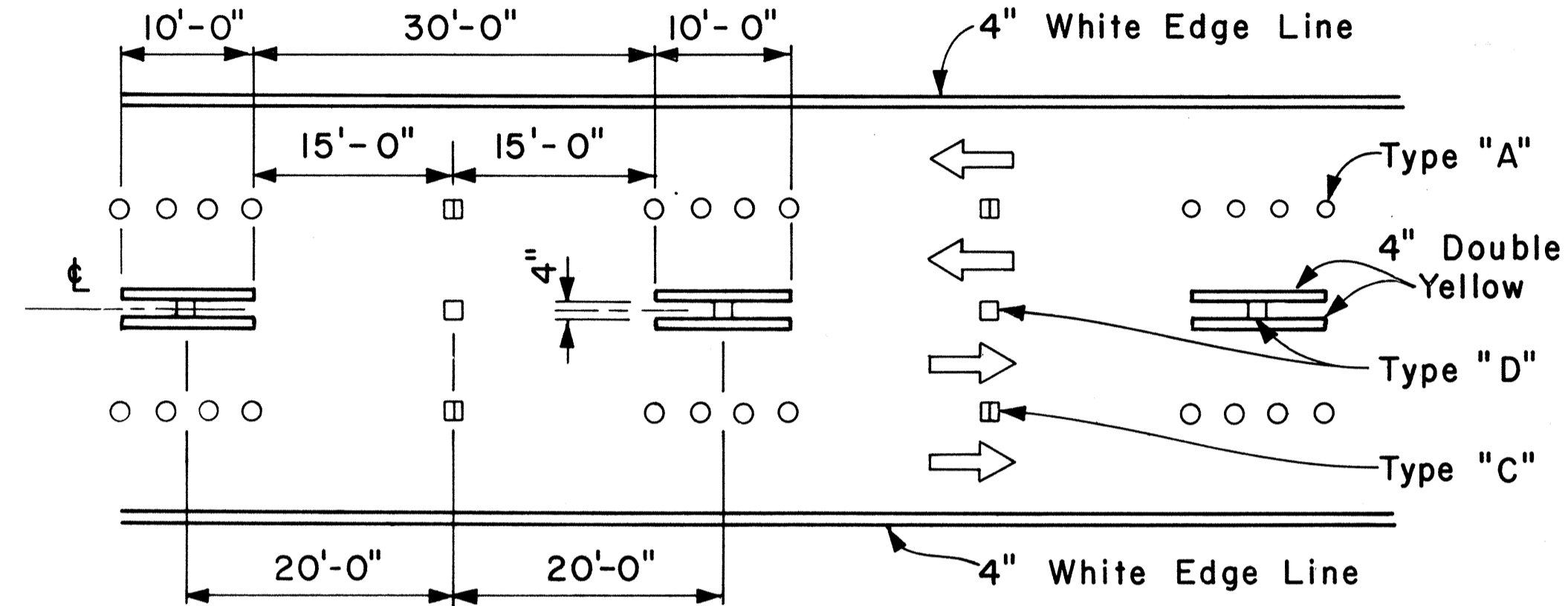
PAVEMENT DIAMOND

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.

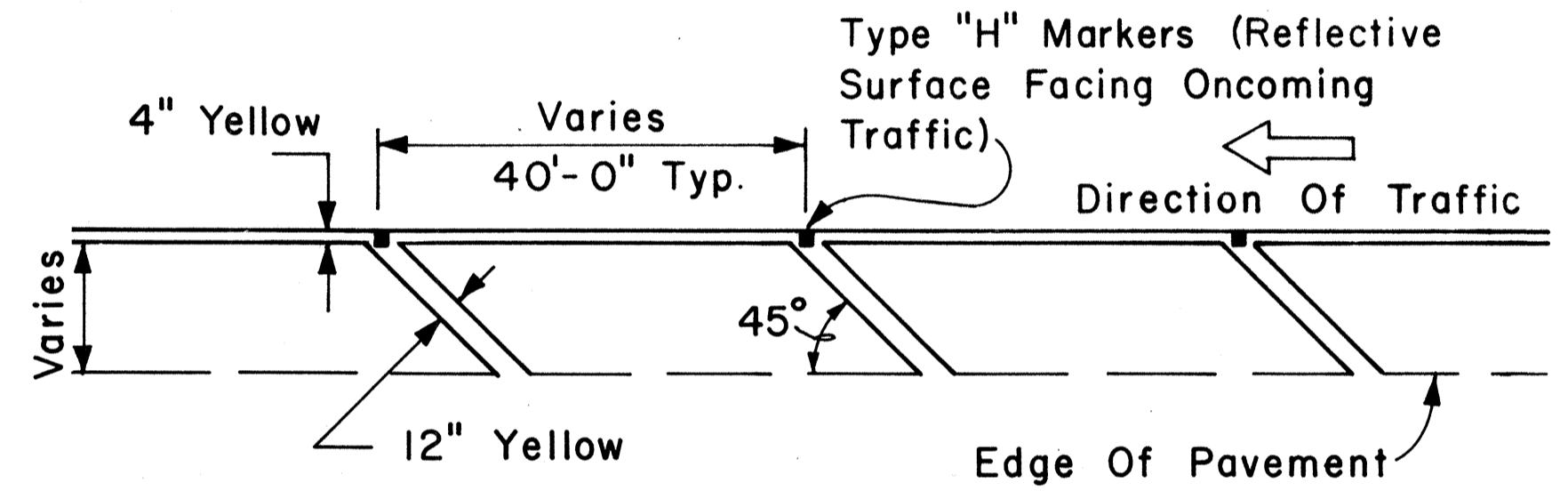


TRANSVERSE RIGHT SHOULDER MARKING

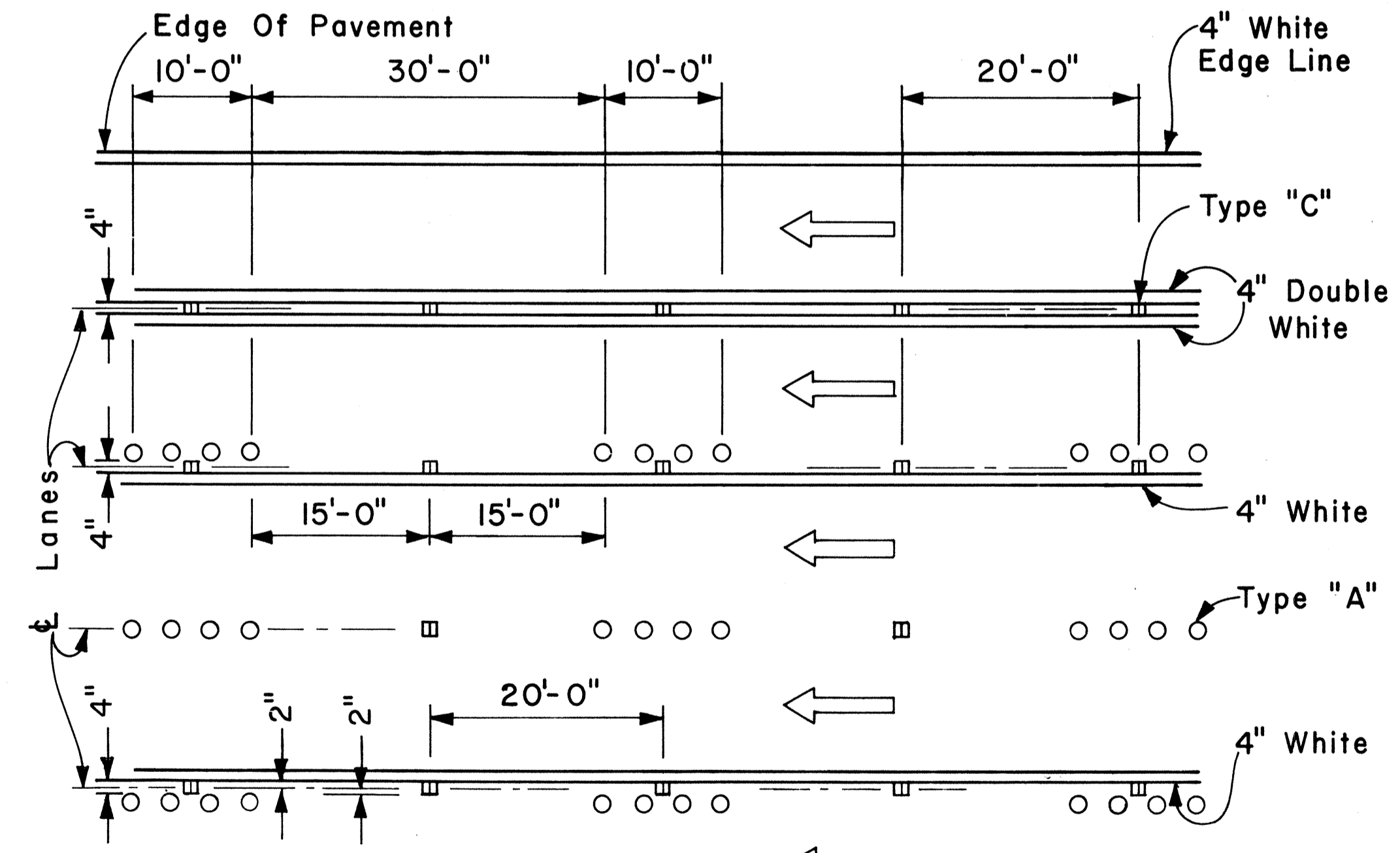


MULTI-LANE REVERSIBLE LANES

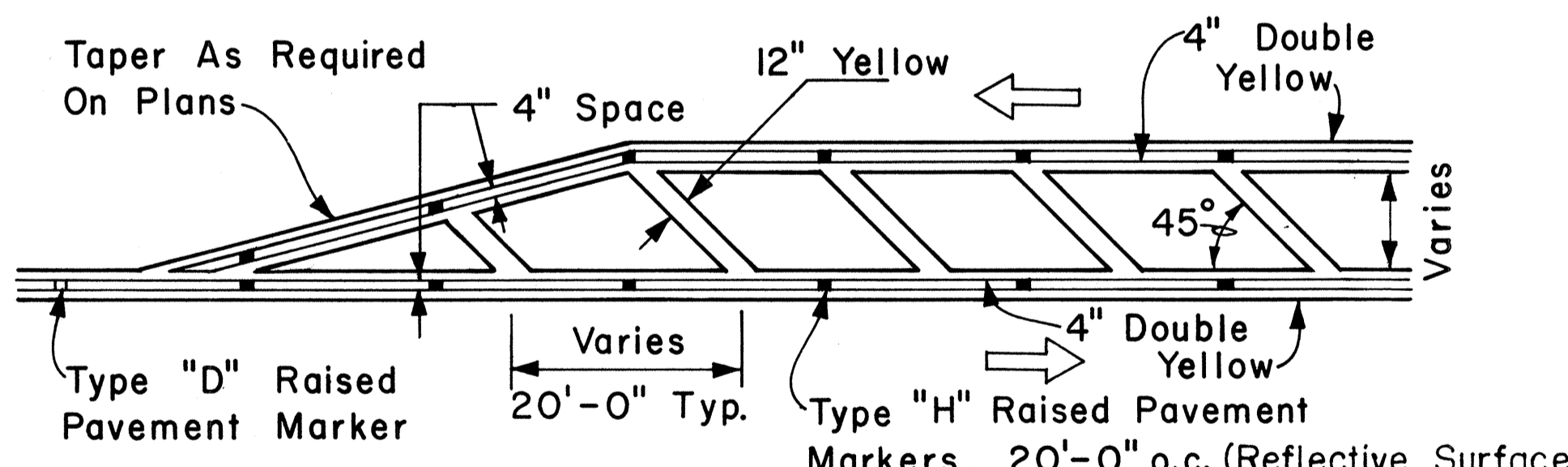
NOTE: Traffic Cone Usage Required.



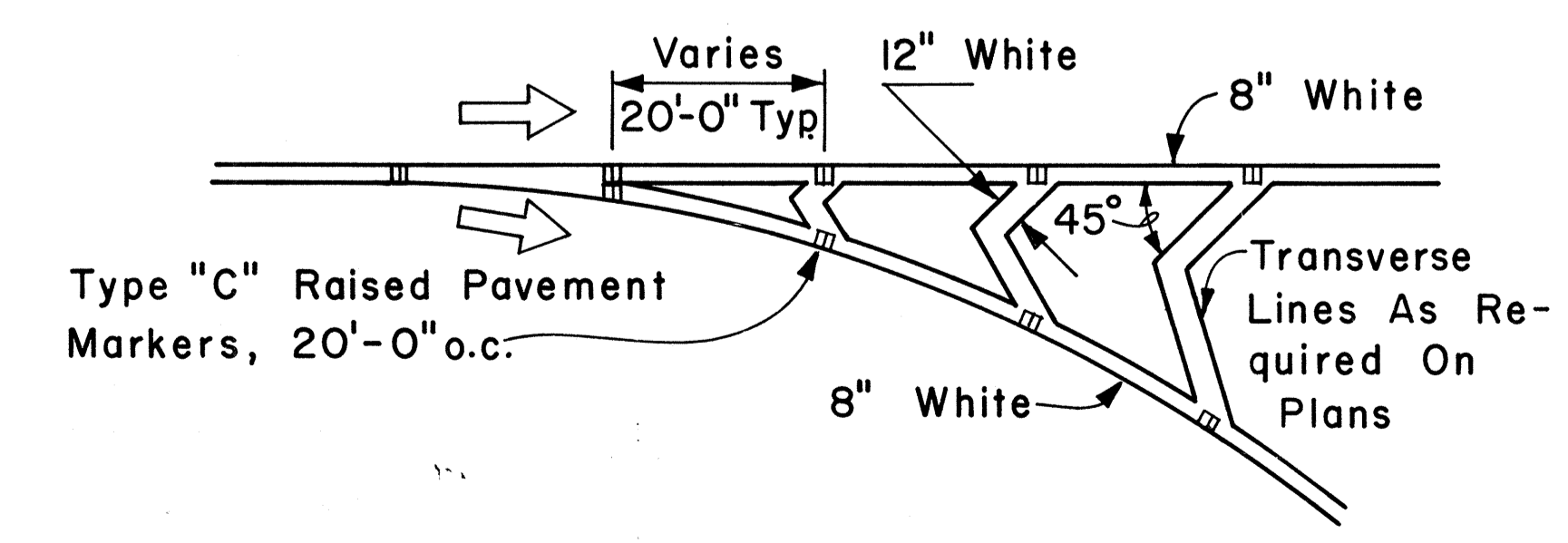
TRANSVERSE LEFT SHOULDER MARKING



MULTI-LANE LANE CHANGE RESTRICTION ZONES



TRANSVERSE MEDIAN MARKING



CHANNELIZING ISLAND

APPROVAL RECOMMENDED:
E. Ichi Tanaka 5/2/78
 TRAFFIC ENGINEER DATE

APPROVED:
Harbor 2. Zaki 5/2/78
 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. 21 OF 25 SHEETS DT 302

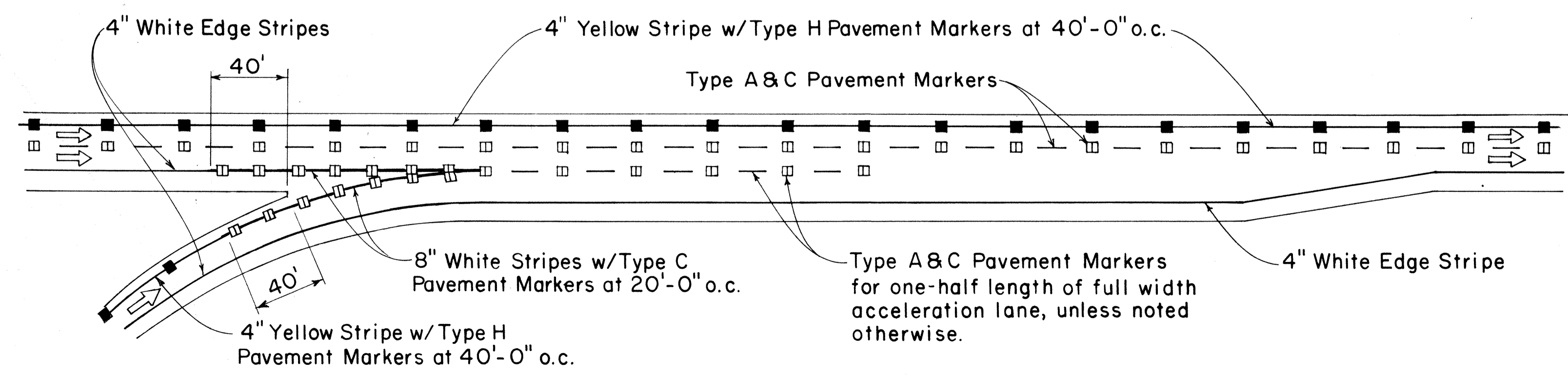
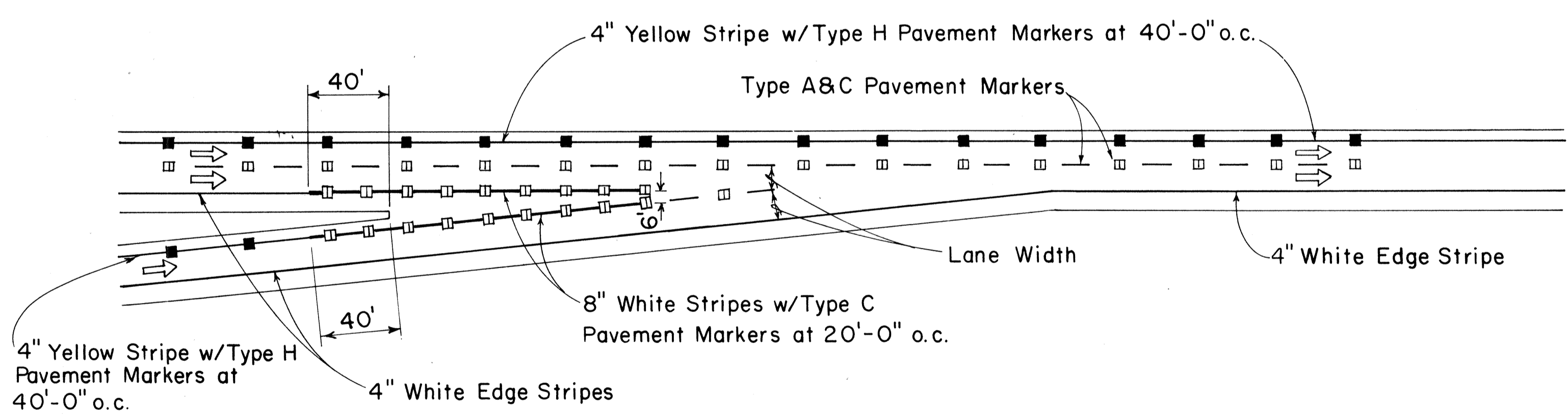
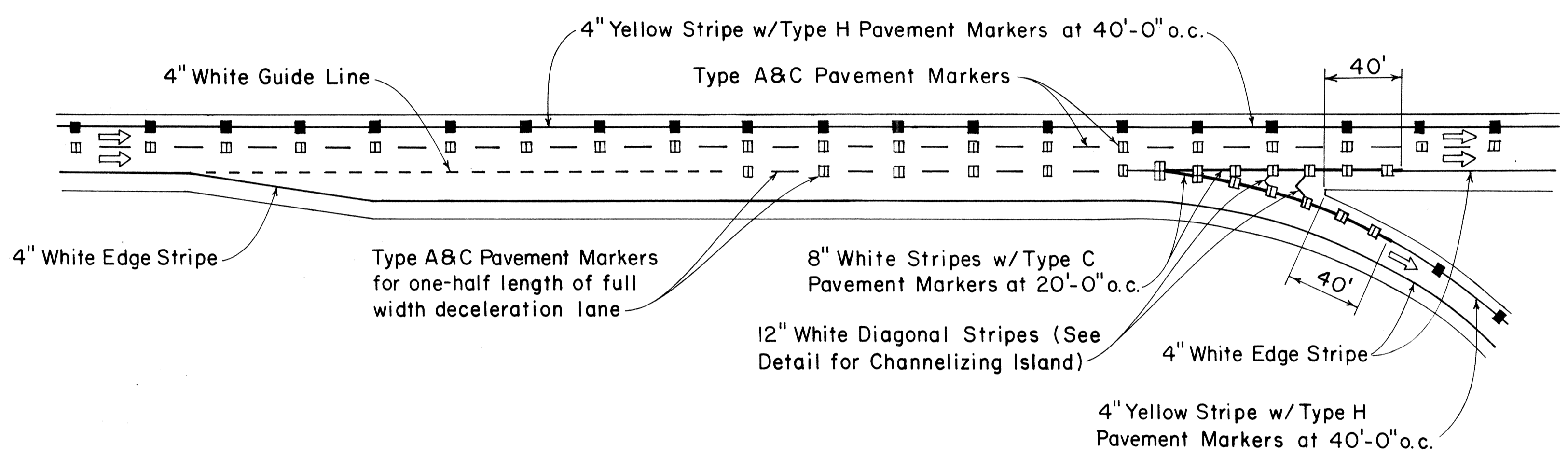
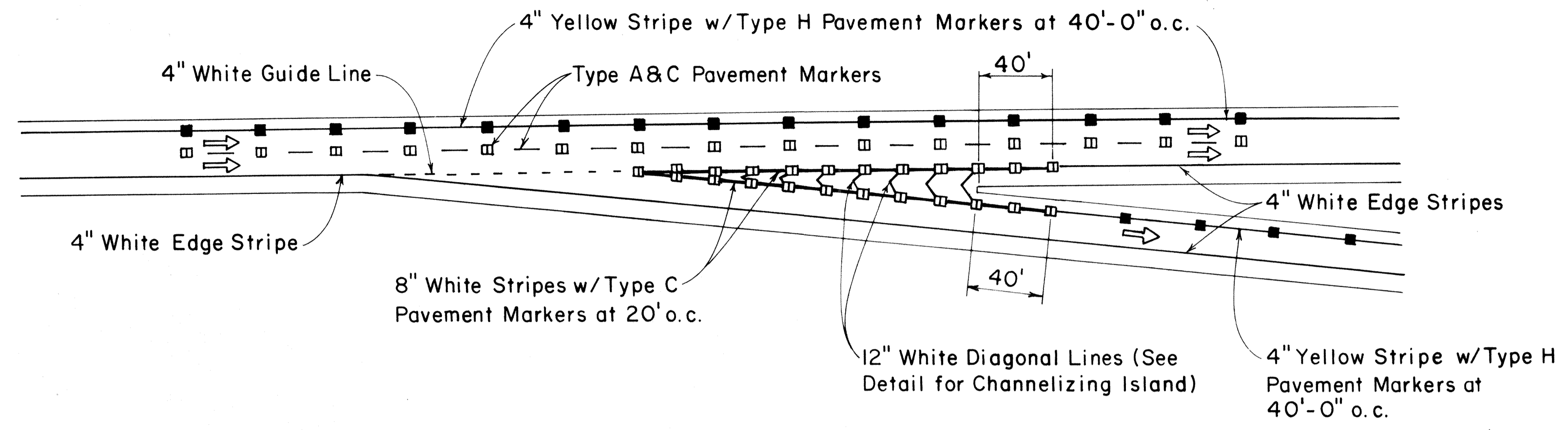
DATE: _____
 SURVEY PLOTTED BY: _____
 DRAWN BY: _____
 TRACED BY: _____
 DESIGNED BY: _____
 QUANTITIES BY: _____
 CHECKED BY: _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	LHI-1080	1984	125	197

GENERAL NOTES:

1. Pavement Markings 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 details, see sheet DT 300.

TAPERED DECELERATION LANE
 PARALLEL DECELERATION LANE
 TAPERED ACCELERATION LANE
 PARALLEL ACCELERATION LANE
 TYPICAL ROADWAY EXIT MARKINGS
 TYPICAL ROADWAY ENTRANCE MARKINGS



ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	
NO.	

APPROVAL RECOMMENDED:
Eisuke Tanaka 7/21/78
 TRAFFIC ENGINEER DATE

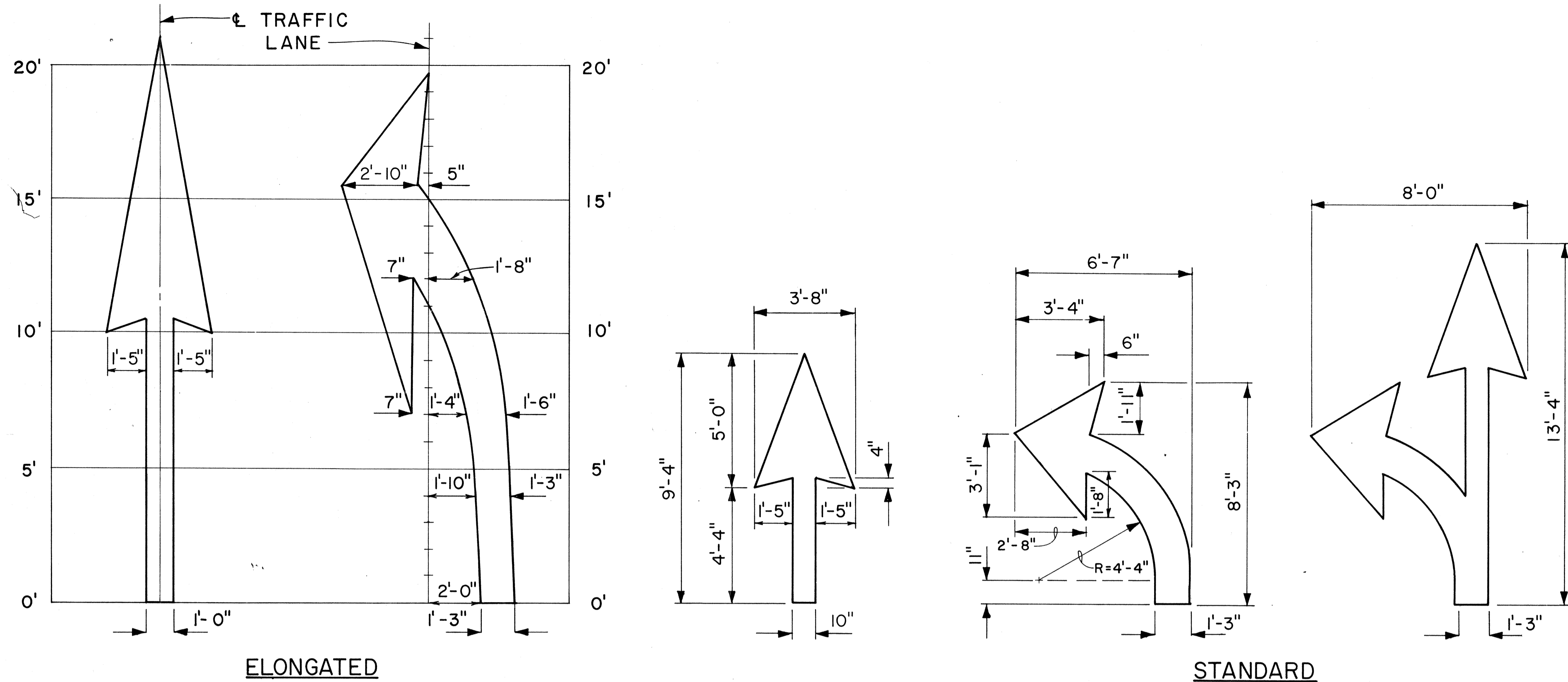
APPROVED:
Robert D. Sakai 7/24/78
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

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

Not to Scale July 1978
 SHEET NO. 22 OF 25 SHEETS DT 304

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7-HI-1(187)	1984	126	197

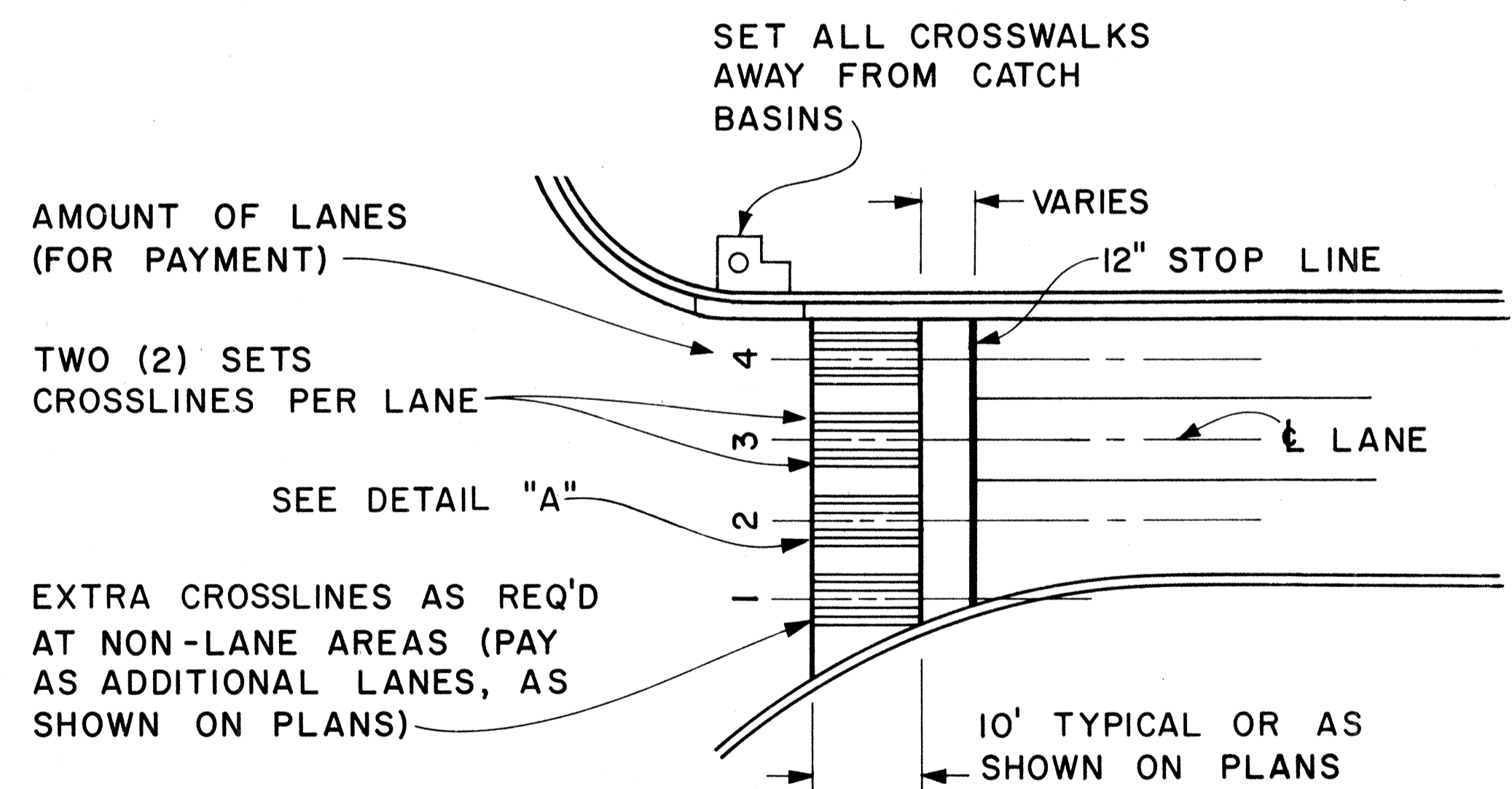


PAVEMENT ARROWS

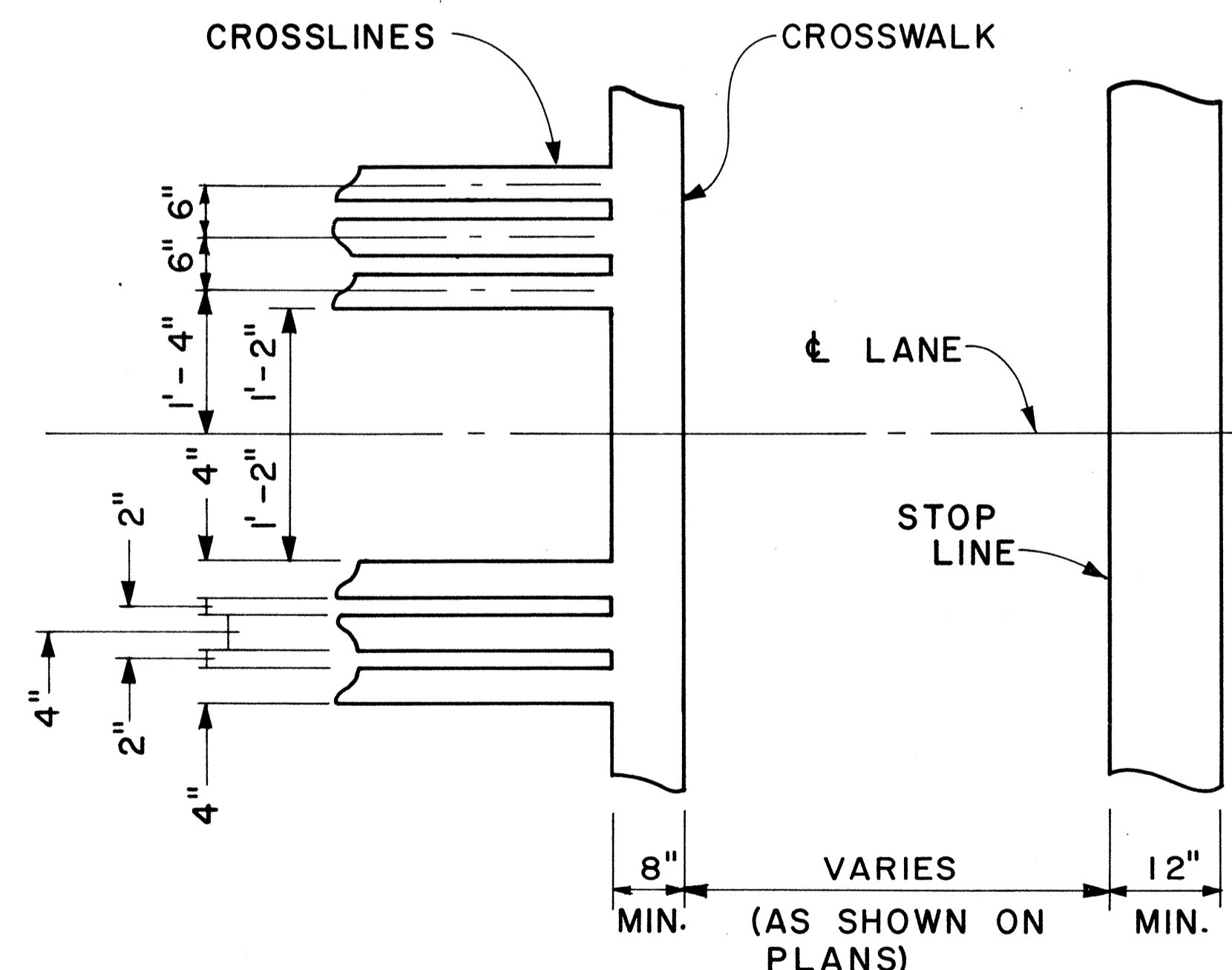
Scale: 3/8" = 1'

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

APPROVAL RECOMMENDED:
Erichu Tanaka 5/2/78
 TRAFFIC ENGINEER DATE

APPROVED:
Harbor 2. Zaleski 5/3/78
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION

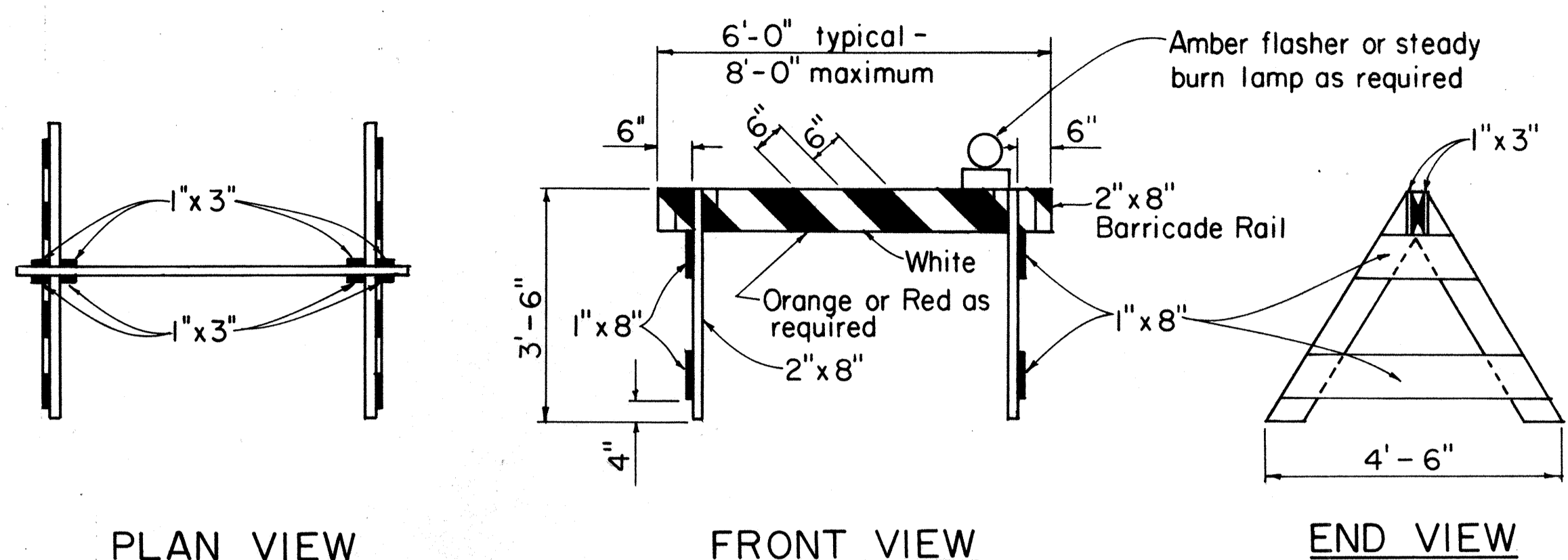
STANDARD DETAILS

MISCELLANEOUS
 PAVEMENT MARKINGS

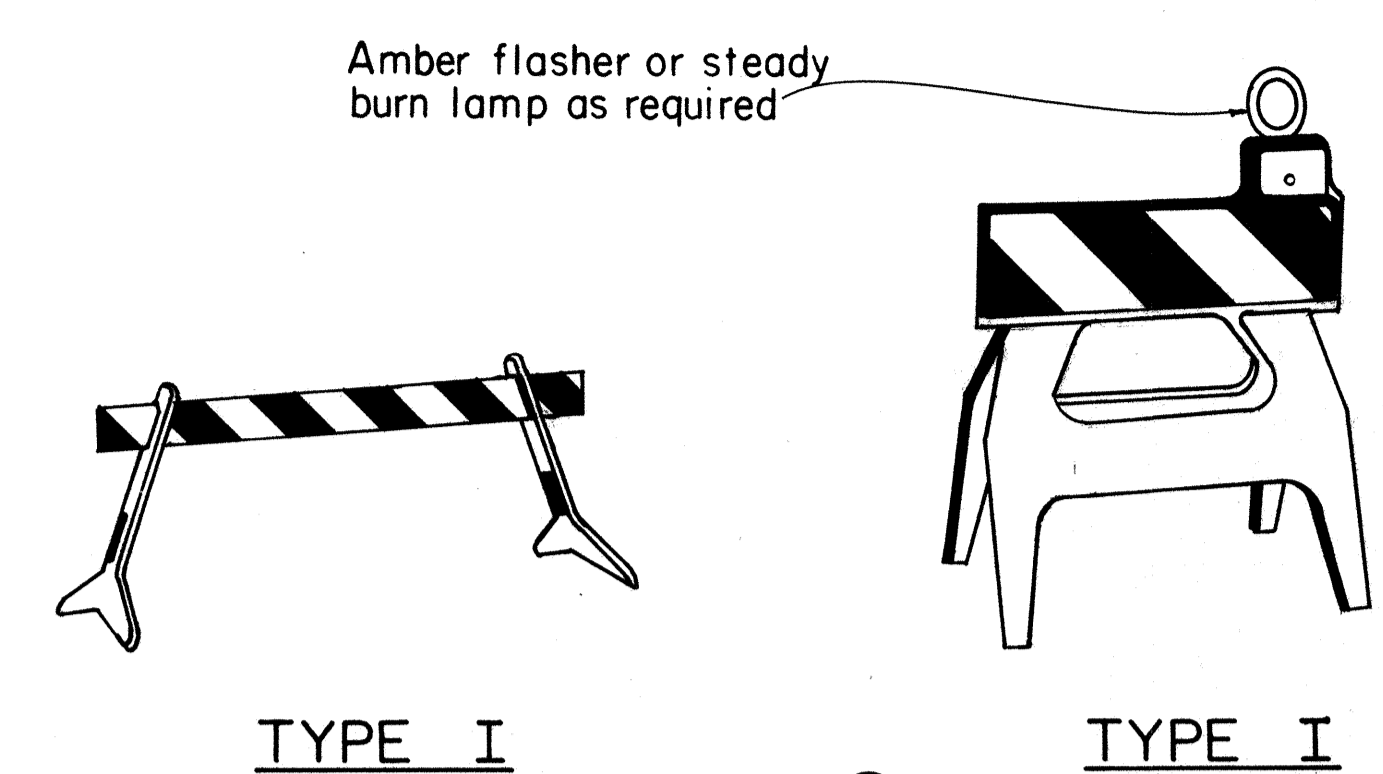
Scale: As Shown Date: March, 1978
 SHEET No. 23 OF 25 SHEETS DT 306

DATE: _____
 SURVEY PLOTTED BY: _____
 TRACED BY: _____
 DESIGNED BY: _____
 QUANTITIES BY: _____
 CHECKED BY: _____

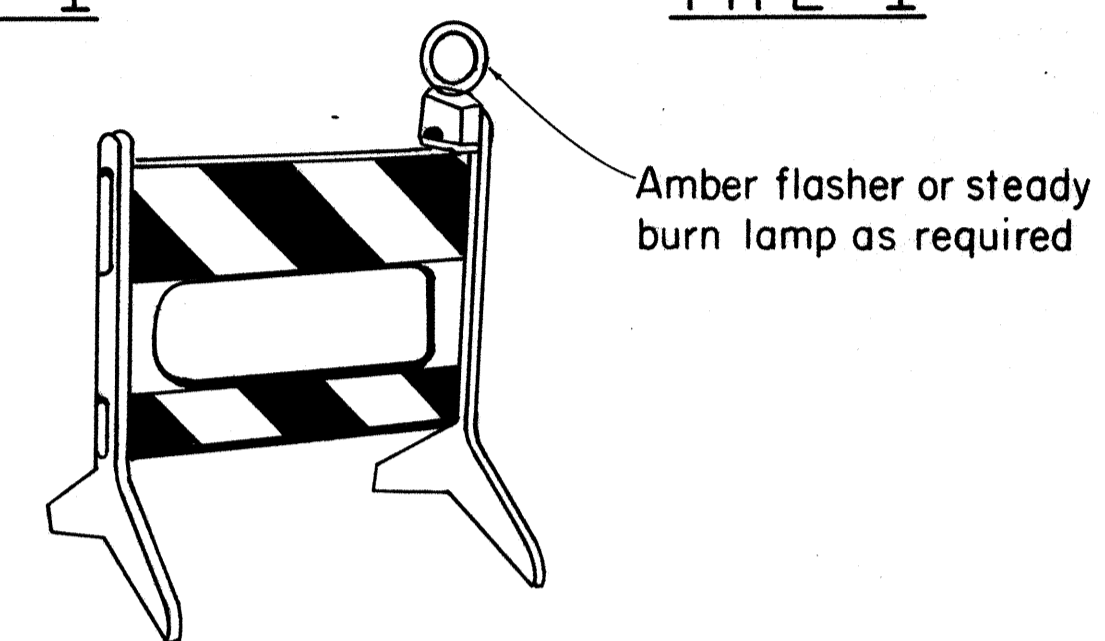
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-11-1(081)	1984	128	127



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



TYPE I

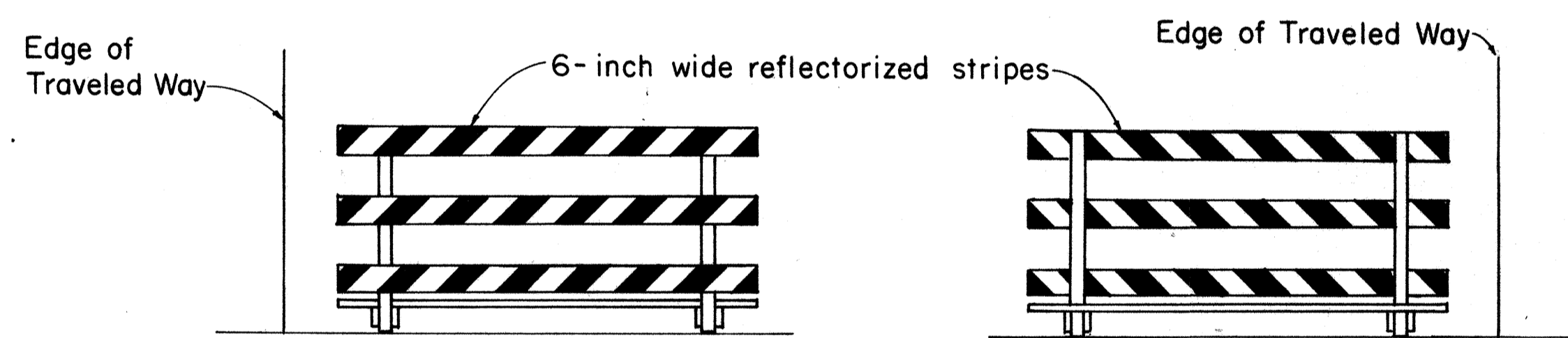


TYPE II

PLASTIC MOLDED BARRICADE OPTIONS*

Not to Scale

* Shop Drawings must be submitted for approval.



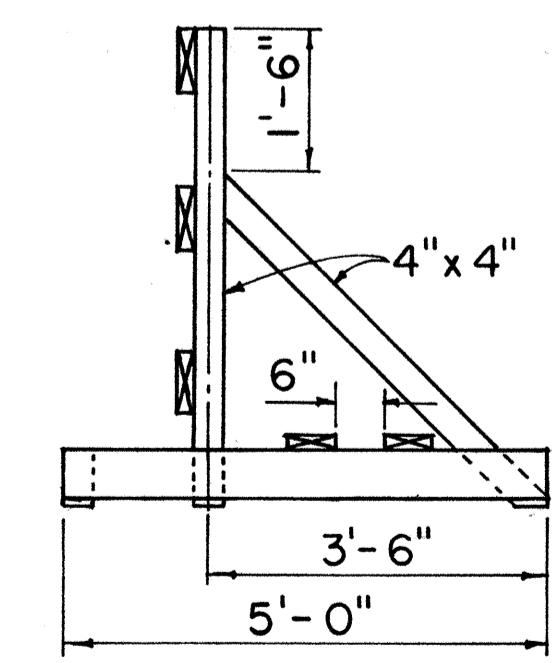
FRONT FACE

BACK FACE

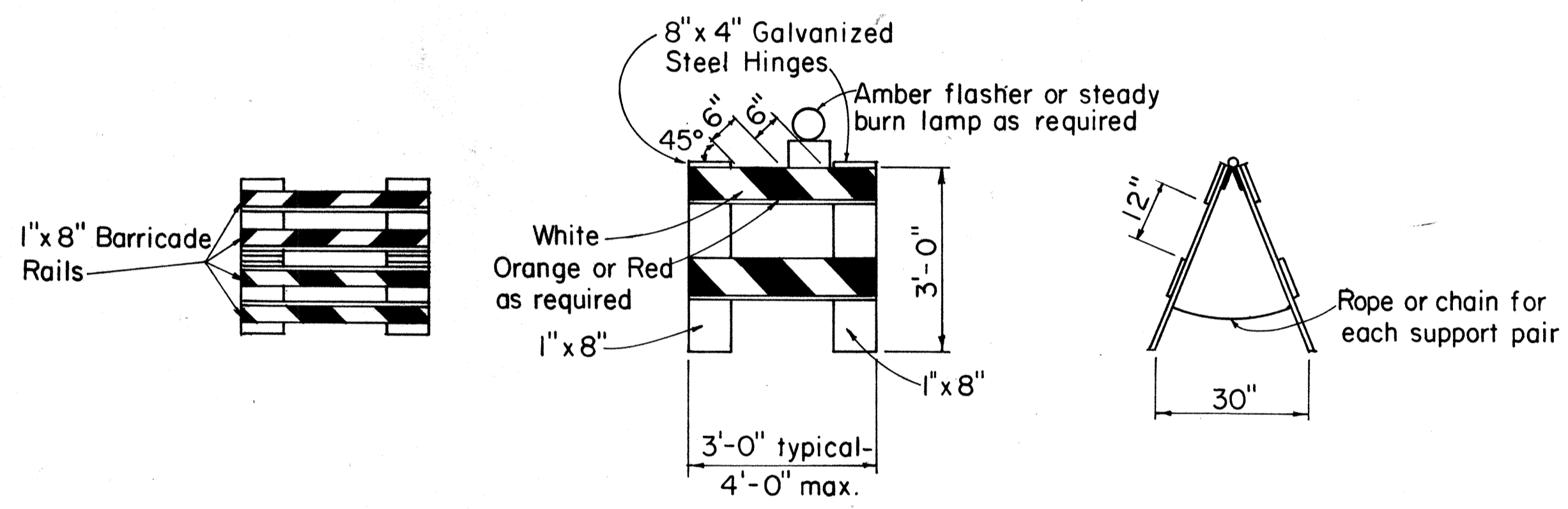
TYPICAL BARRICADE STRIPING DETAILS**

Not to Scale

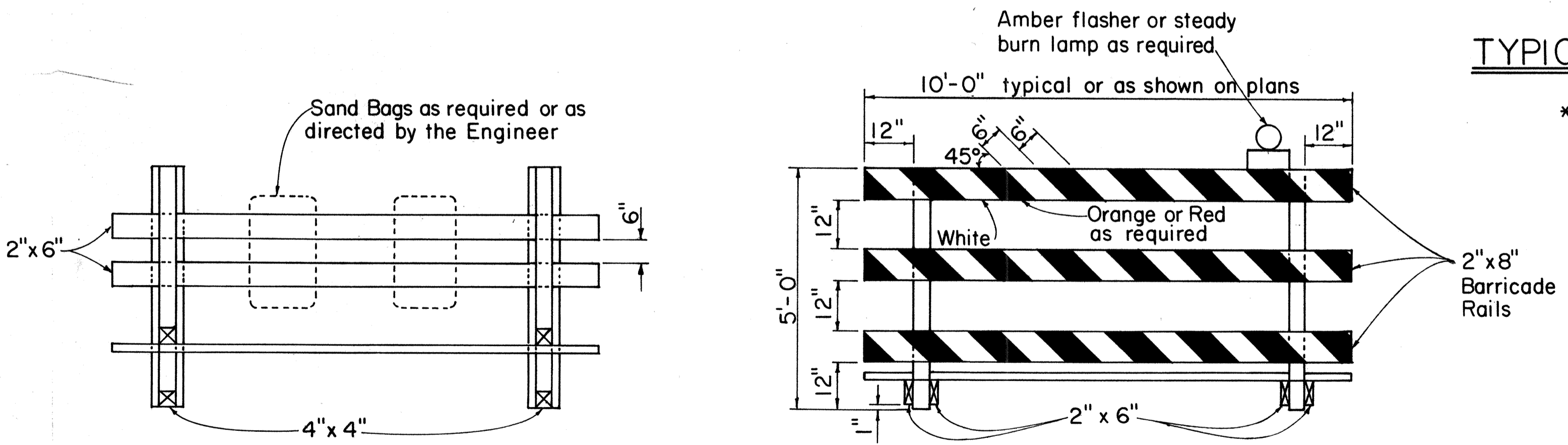
** Similar for Types I & II



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.

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

APPROVAL RECOMMENDED:
Etsuki Tanaka 10/21/81
TRAFFIC ENGINEER DATE

APPROVED:
Albert S. Delizhis 10/23/81
ASSISTANT CHIEF, ENGINEERING DATE

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

BARRICADES

SCALE: As Shown