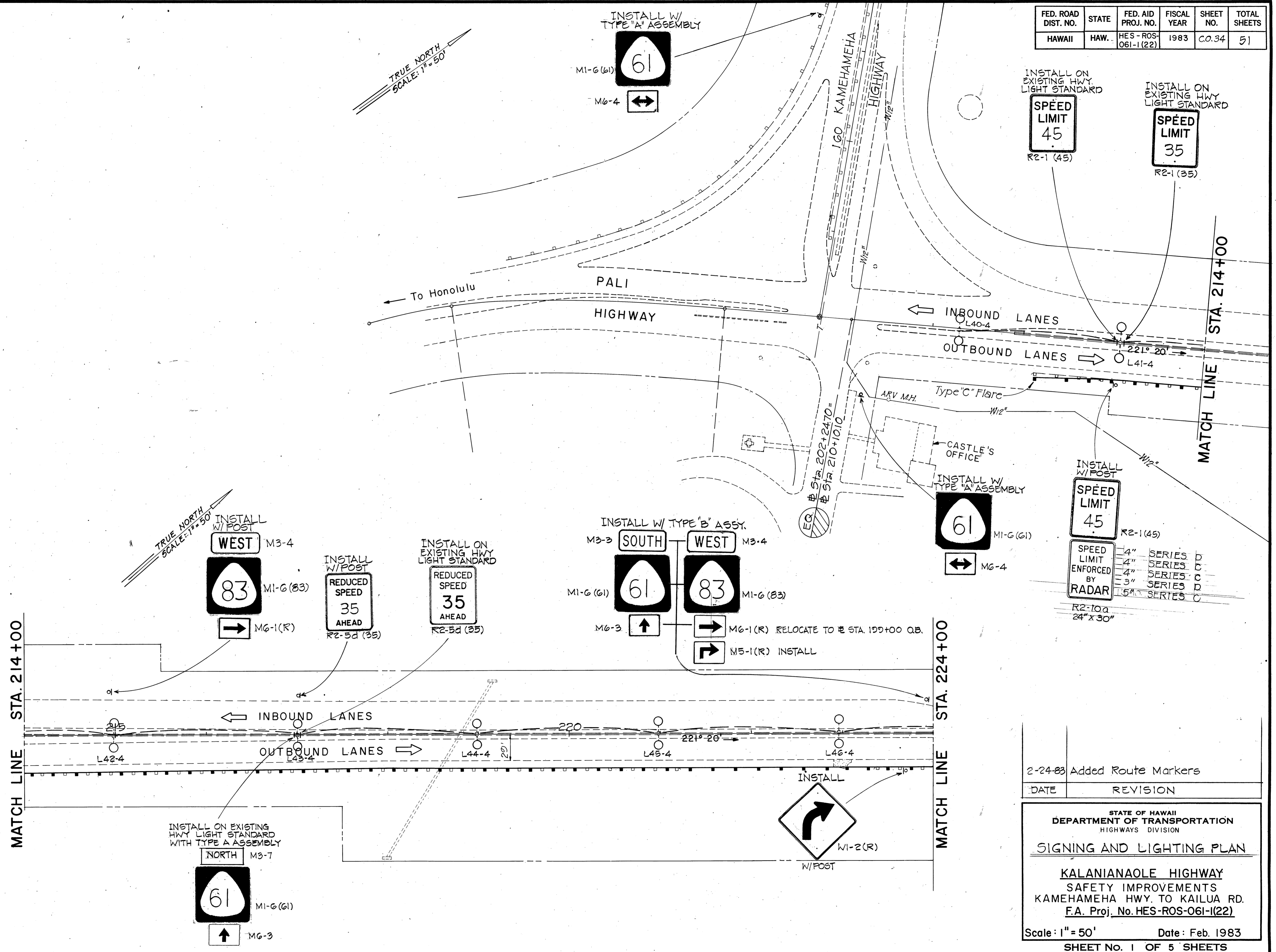


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-1(22)	1983	C.O.34	51

TRUE NORTH  
SCALE: 1" = 50'



2-24-83	Added Route Markers
DATE	REVISION

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGNING AND LIGHTING PLAN**

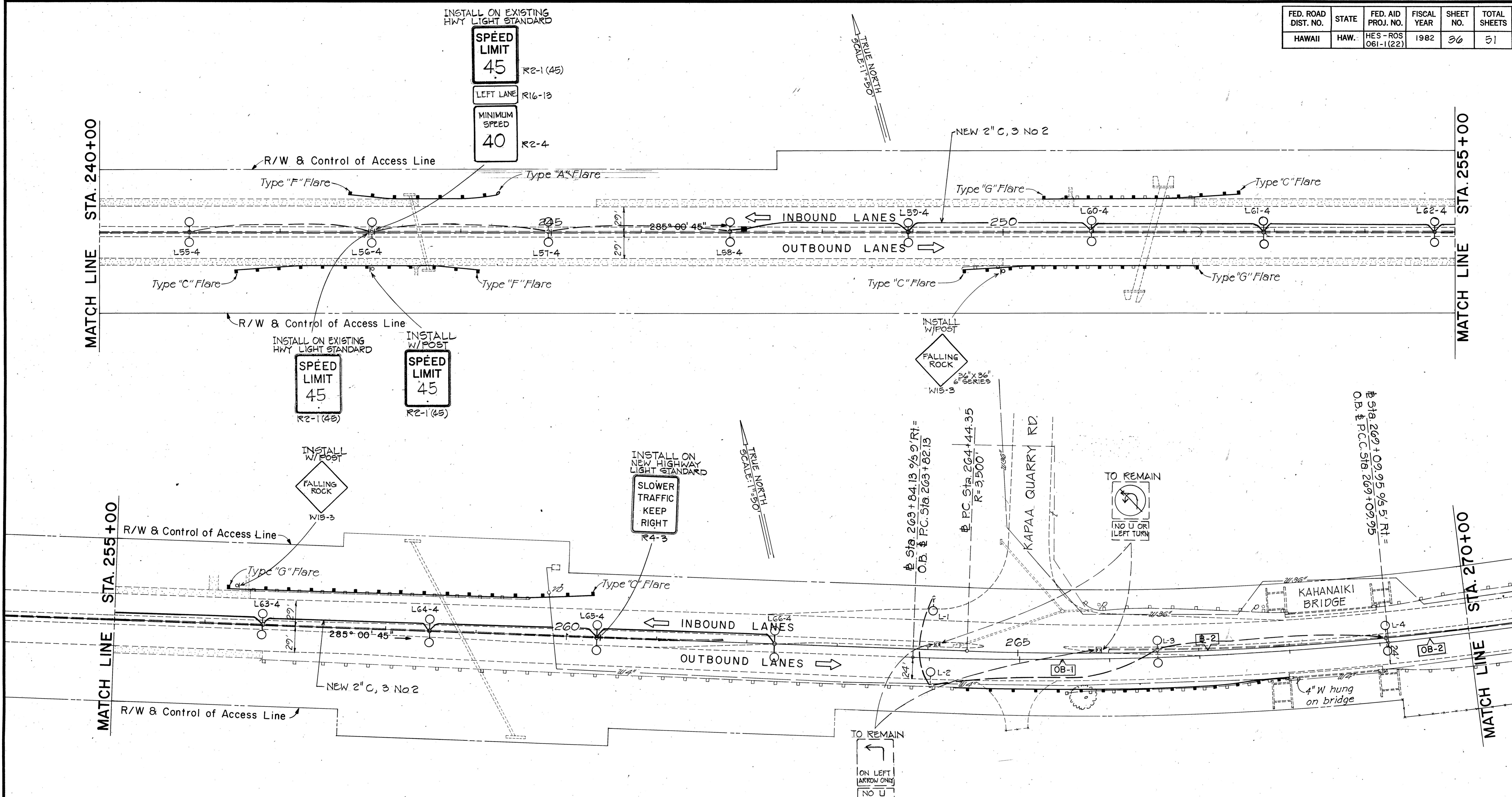
**KALANIANA'OLE HIGHWAY**  
SAFETY IMPROVEMENTS  
KAMEHAMEHA HWY. TO KAILUA RD.  
F.A. Proj. No. HES-ROS-061-1(22)

Scale: 1" = 50'      Date: Feb. 1983  
SHEET NO. 1 OF 5 SHEETS

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



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-1(22)	1982	36	51

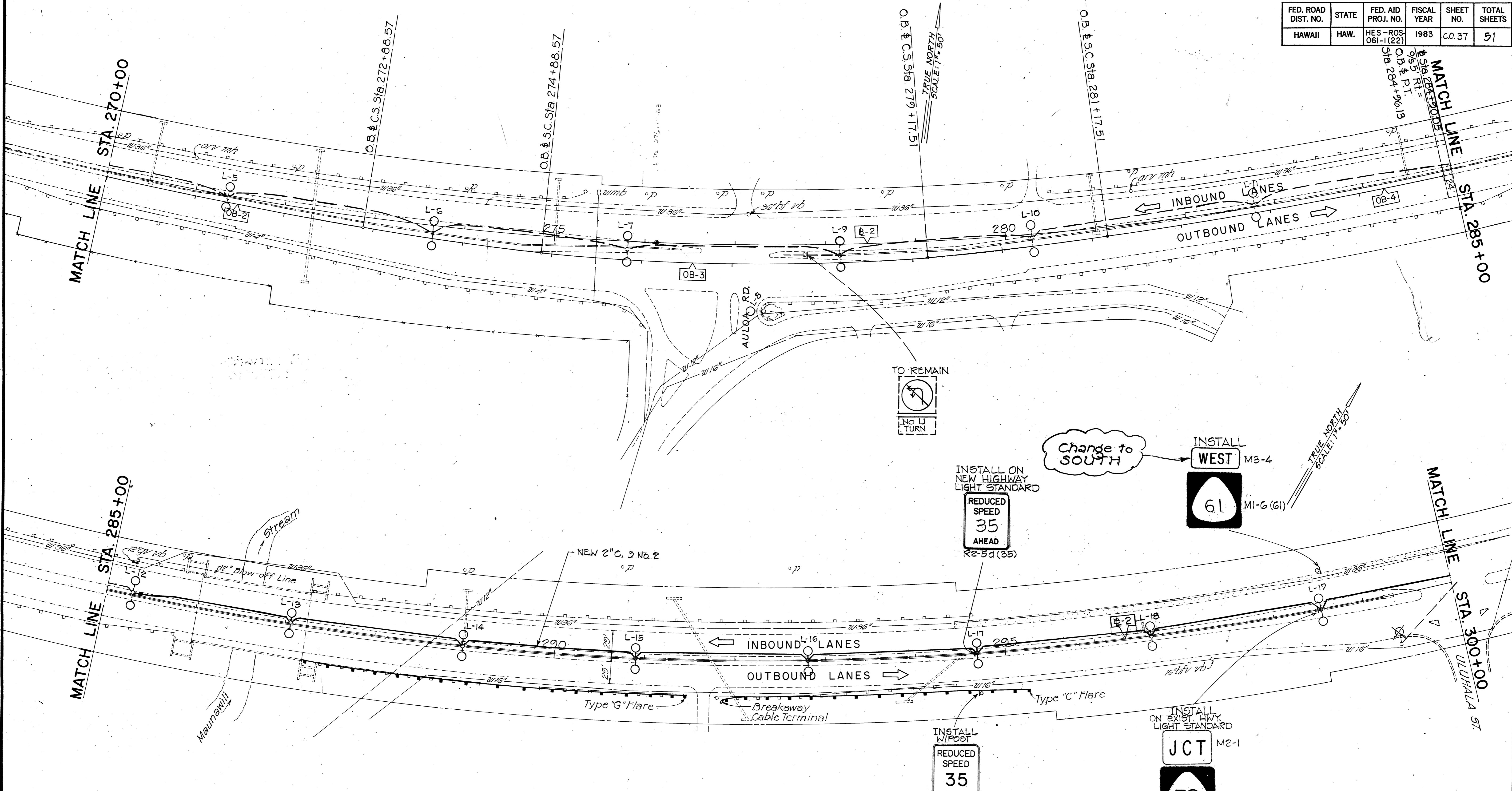


DATE: \_\_\_\_\_  
 SURVEY PLOTTED BY: \_\_\_\_\_  
 ORIGINAL PLAN: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 NO. \_\_\_\_\_

CURVE DATA			
CURVE	OB-2	OB-1	OB-2
Δ	64° 33' 30"	7° 37' 19"	4° 17' 53"
R	3500.00'	3967.73'	5047.18'
T	2210.83'	264.30'	189.40'
C	3738.31'	527.43'	378.53'
L <sub>c</sub>	3943.64'	527.82'	378.62'

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**SIGNING AND LIGHTING PLAN**  
 KALANIANA'OLE HIGHWAY  
 SAFETY IMPROVEMENTS  
 KAMEHAMEHA HWY. TO KAILUA RD.  
 F.A. Proj. No. HES-ROS-061-1(22)  
 Scale: 1" = 50'      Date: \_\_\_\_\_  
 SHEET No. 3 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-1(22)	1983	C.O. 37	51



Change to SOUTH  
 INSTALL WEST M3-4  
 MI-6 (61)

INSTALL ON NEW HIGHWAY LIGHT STANDARD  
 REDUCED SPEED 35 AHEAD R2-5d (35)

INSTALL ON EXIST. HWY. LIGHT STANDARD  
 JCT M2-1  
 MI-6 (72)

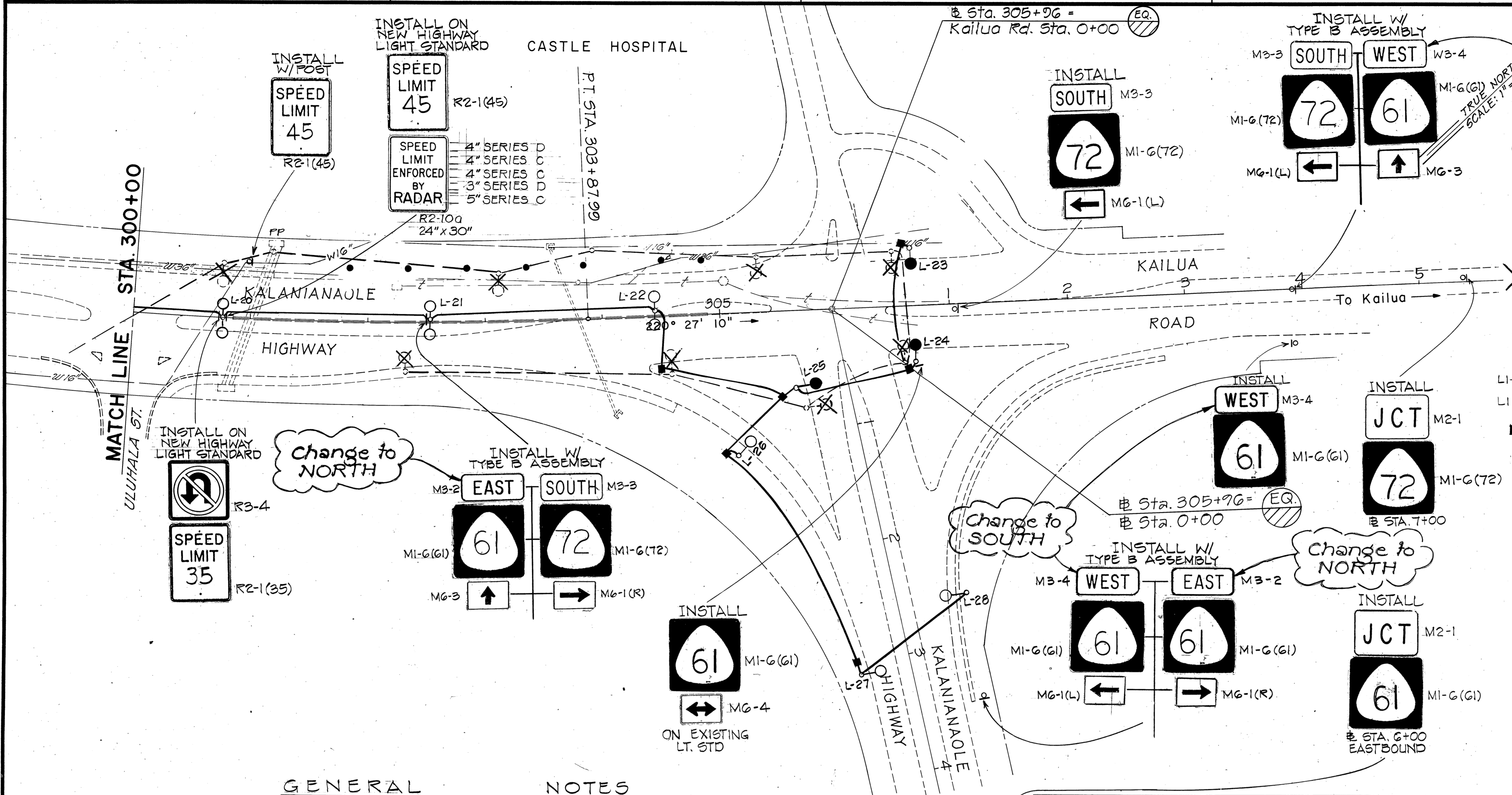
CURVE DATA				
CURVE	OB-2	OB-3	OB-4	
Δ	64° 33' 30"	4° 17' 53"	10° 13' 48"	4° 17' 53"
R	3500.00'	5047.18'	2402.40'	5047.18'
T	2210.83'	189.40'	215.04'	189.40'
C	3738.31'	378.53'	428.37'	378.53'
L <sub>c</sub>	3943.64'	378.62'	428.94'	378.62'

2-24-83	Added Route Markers
DATE	REVISION

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
 SIGNING AND LIGHTING PLAN  
 KALANIANA'OLE HIGHWAY  
 SAFETY IMPROVEMENTS  
 KAMEHAMEHA HWY. TO KAILUA RD.  
 F.A. Proj. No. HES-ROS-061-1(22)  
 Scale: 1" = 50' Date: Feb. 1983  
 SHEET No. 4 OF 5 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-1(22)	1983	C.O. 38	51



- ### LEGEND
- NEW 250 W HIGH PRESSURE SODIUM LAMP LUMINAIRE, MULTIPLE CIRCUIT, 240/480 V BALLAST, MEDIUM/SEMI-CUTOFF/TYPE II, ON EXISTING HIGHWAY LUMINAIRE STANDARD.
  - NEW 250 W HIGH PRESSURE SODIUM LAMP LUMINAIRE, MULTIPLE CIRCUIT, 240/480V BALLAST, ANCHOR BASE, MEDIUM/SEMI-CUTOFF/TYPE II, ON NEW HIGHWAY LUMINAIRE STANDARD.
  - ⊗ STANDARD, LUMINAIRE, AND FOOTINGS TO BE REMOVED.
  - NEW 150 W HIGH PRESSURE SODIUM LAMP LUMINAIRE, MULTIPLE CIRCUIT 240/480V BALLAST, ANCHOR BASE, MEDIUM/SEMI-CUTOFF/TYPE II, ON NEW HIGHWAY LUMINAIRE STANDARD.
  - L1-4 4 = 4 FEET MAST ARM
  - L1 L1 = STREET LIGHT NO. 1 ON 10 FEET MAST ARM
  - NEW TYPE "B" PULLBOX
  - RESILIENT DELINEATOR POSTS W/ REFLECTIVE SHEETING
  - SIGN INSTALLED ON POST

### GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DIMENSIONS OF THE EXISTING EQUIPMENT AND FACILITIES.
2. ALL EXISTING SIGN SHOWN OR NOT SHOWN ON THE PLANS ARE TO REMAIN UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. REFER TO THE RESPECTIVE STANDARD DETAILS SHEET FOR ALL DATA PERTAINING TO STANDARD REGULATORY AND WARNING SIGNS.
4. EXACT LOCATIONS OF TRAFFIC SIGNS SHALL BE APPROVED BY THE ENGINEER.
5. ALL NEW SIGNS INSTALLED ON PIPE POSTS. LIGHT STANDARDS ARE TO BE MOUNTED WITH BAND BRACKETS.
6. CONDUITS SHALL BE GALVANIZED STEEL OR PVC PLASTIC CONDUITS EXCEPT RISERS INTO BASES AND EXPOSED CONDUITS SHALL BE GALVANIZED STEEL.
7. ALL ABANDONED HIGHWAY LIGHTING CONCRETE FOUNDATIONS AND EXISTING SIGN FOOTINGS SHALL BE REMOVED UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS CONTRACT ITEMS.
8. THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL MAINTENANCE SECTION, DEPARTMENT OF TRANSPORTATION, STATE HIGHWAYS DIVISION, 72 HOURS IN ADVANCE BEFORE COMMENCING INSTALLATION OF HIGHWAY LIGHTING SYSTEM, PHONE: 548-4077.
9. CONTRACTOR TO STENCIL DATE OF INSTALLATION AT THE BOTTOM OF PHOTO CELL.
10. THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL MAINTENANCE SECTION, DEPARTMENT OF TRANSPORTATION, STATE HIGHWAYS DIVISION, 72 HOURS IN ADVANCE BEFORE DOING WORK AT THE KAILUA SIDE OF WAIMANALO JUNCTION, THE STATE WILL DISCONNECT AND RERUN CIRCUITS AT THE KAILUA SIDE OF WAIMANALO JUNCTION.
11. THE CONTRACTOR SHALL STRIPE 4" WHITE EDGE STRIPE AT THE STATIONS LISTED IN THE SCHEDULE FOR ASPHALT CONCRETE SHOULDERS FOR BOTH OUTBOUND AND INBOUND LANES.
12. SEAL CONDUITS W/ DUCT SEAL AFTER INSTALLATION OF HIGHWAY LIGHT CABLES.
13. HIGHWAY LIGHT CABLE SHIELDS SHALL BE GROUNDED TO GROUND RODS.

### SUMMARY OF ROUTE MARKERS TO BE INSTALLED

TYPE	MESSAGE	QUANTITY	
		SHT 1	SHT 5
M1-G (61)	(61)	4	4
M1-G (72)	(72)		2
M1-G (83)	(83)	1	1
M3-2	EAST		2
M3-3	SOUTH	1	2
M3-4	WEST	1	2
M3-7	NORTH	1	1
M6-1 (R)	→	1	2
M6-1 (L)	←		2
M6-3	↑	2	2
M6-4	↔	2	2
			31

### SUMMARY OF REGULATORY & WARNING SIGNS TO BE INSTALLED

TYPE	MESSAGE	QUANTITY		
		W/POST	W/O POST	ON HWY LIGHTING STD
R2-1 (35)	SPEED LIMIT 35			2
R2-1 (45)	SPEED LIMIT 45	3		4
R2-4	MINIMUM SPEED 40			1
R2-5d(35)	REDUCED SPEED 35 AHEAD	2		2
R2-10a	SPEED LIMIT ENFORCED BY RADAR		1	1
R3-4	NO U TURN			1
R4-3	SLOWER TRAFFIC KEEP RIGHT			1
R16-13	LEFT LANE			1
W1-2 (R)	→	1		
W15-3	FALLING ROCK	3		
	TOTAL	9	1	13

2-24-83 Added Route Markers  
 DATE REVISION

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

### SIGNING AND LIGHTING PLAN

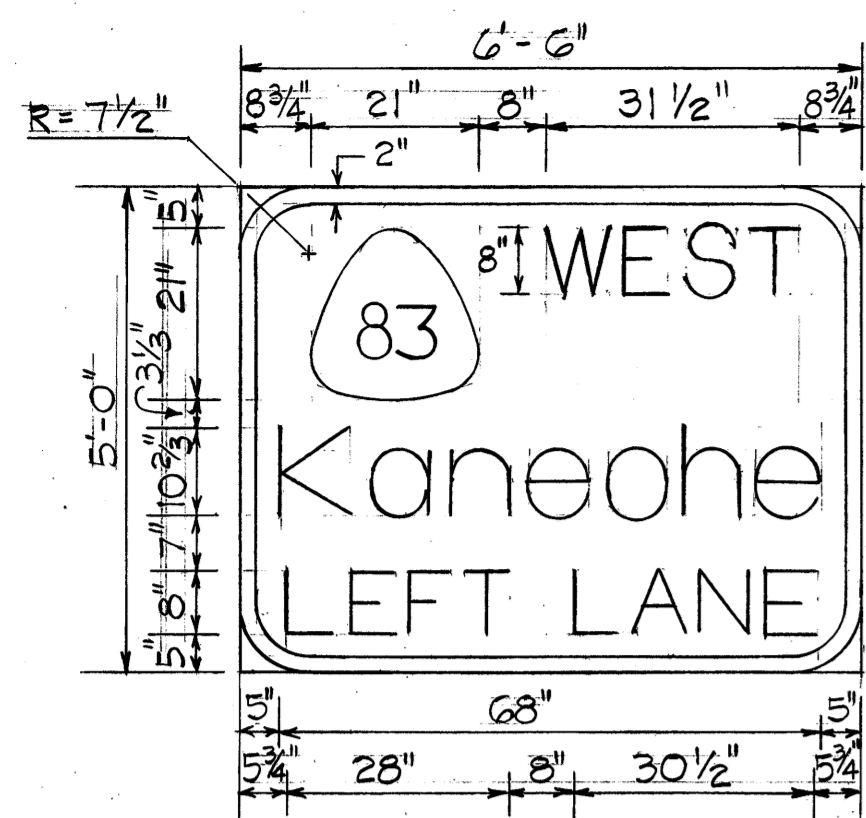
**KALANIANA'OLE HIGHWAY**  
 SAFETY IMPROVEMENTS  
 KAMEHAMEHA HWY. TO KAILUA RD.  
 F.A. Proj. No. HES-ROS-061-1(22)

Scale: 1" = 50' Date: Feb. 1983  
 SHEET No. 5 OF 5 SHEETS

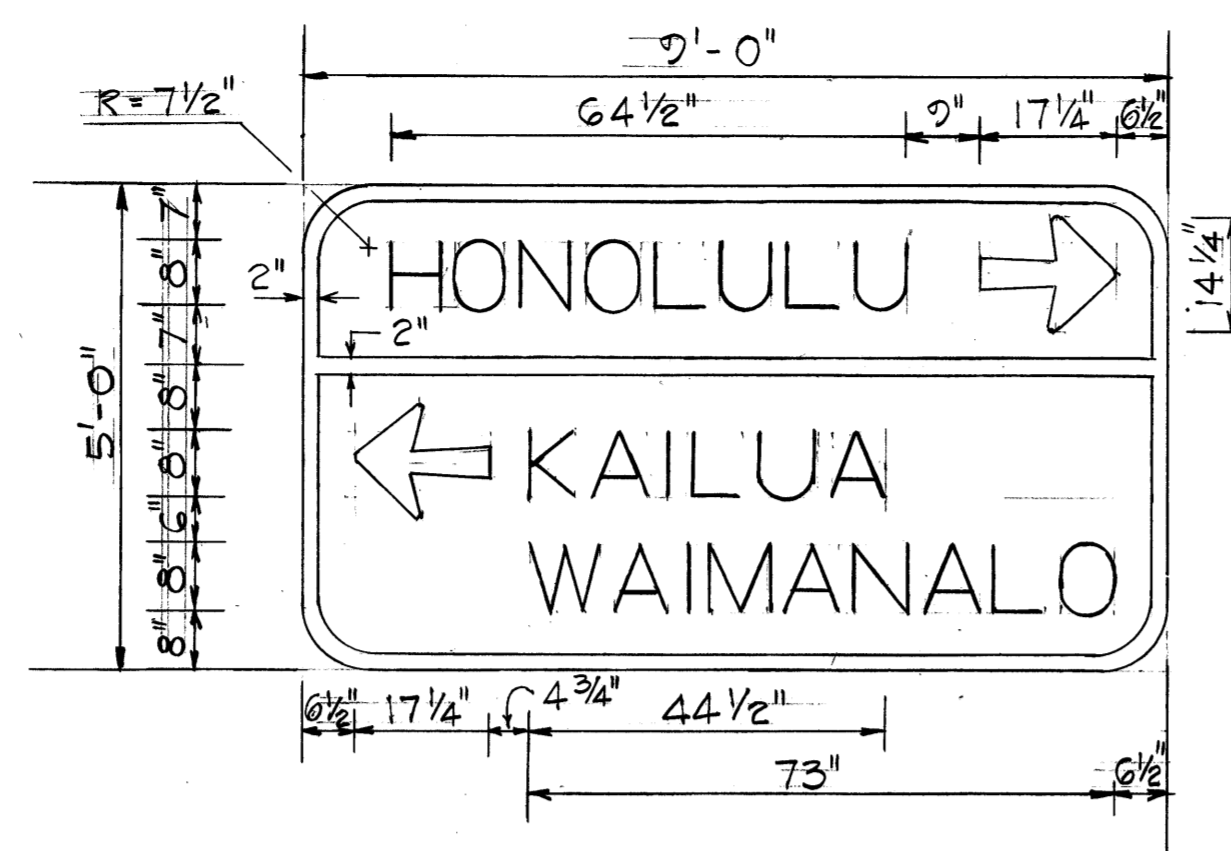
SURVEY PLOTTED BY: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_  
 TRACED BY: \_\_\_\_\_  
 QUANTITIES BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 ORIGINAL PLAN NO. \_\_\_\_\_  
 NOTE BOOK NO. \_\_\_\_\_



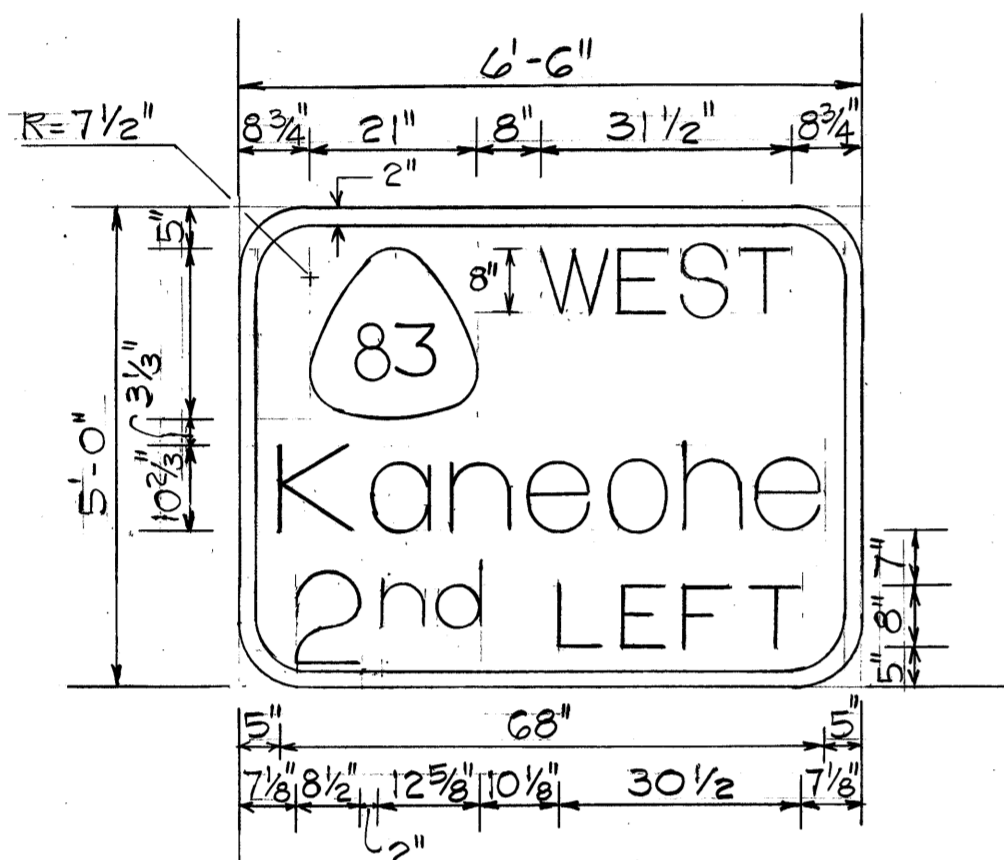
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-R05-061-1(22)	1983	C.O. 38 52	51



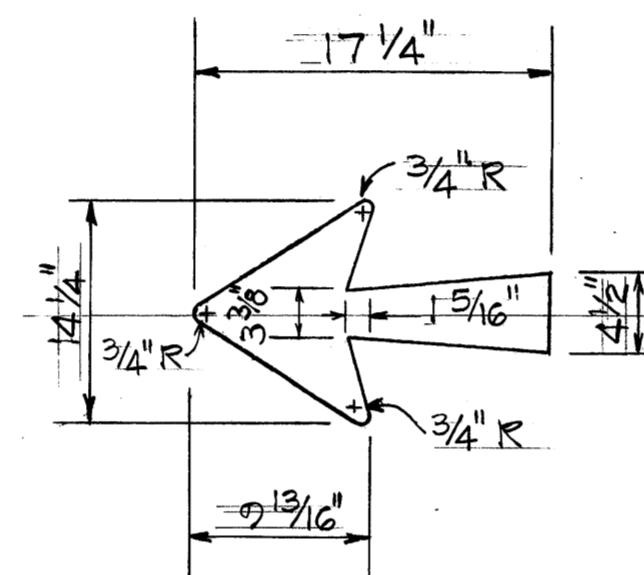
D-1



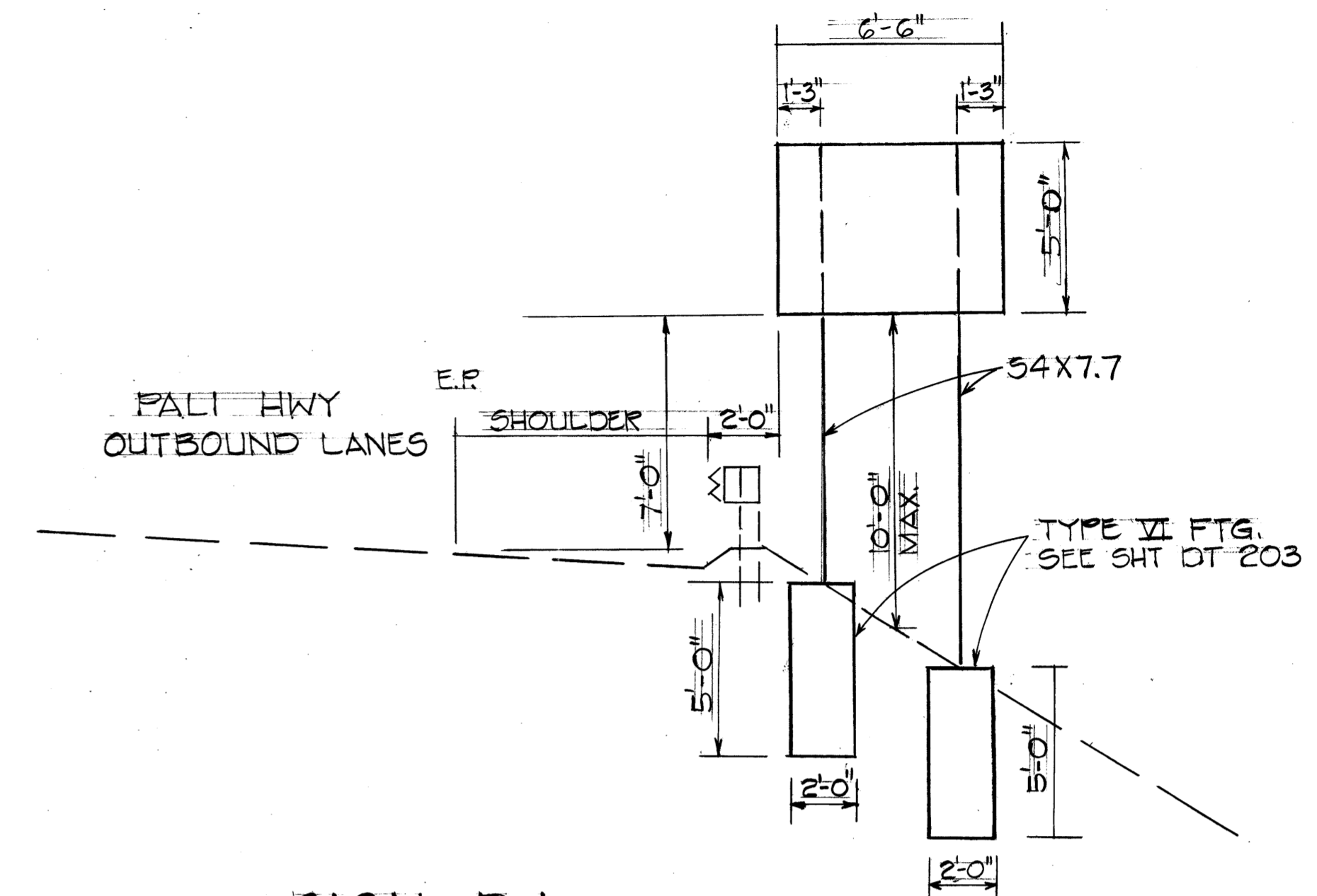
D-2



DIR-1



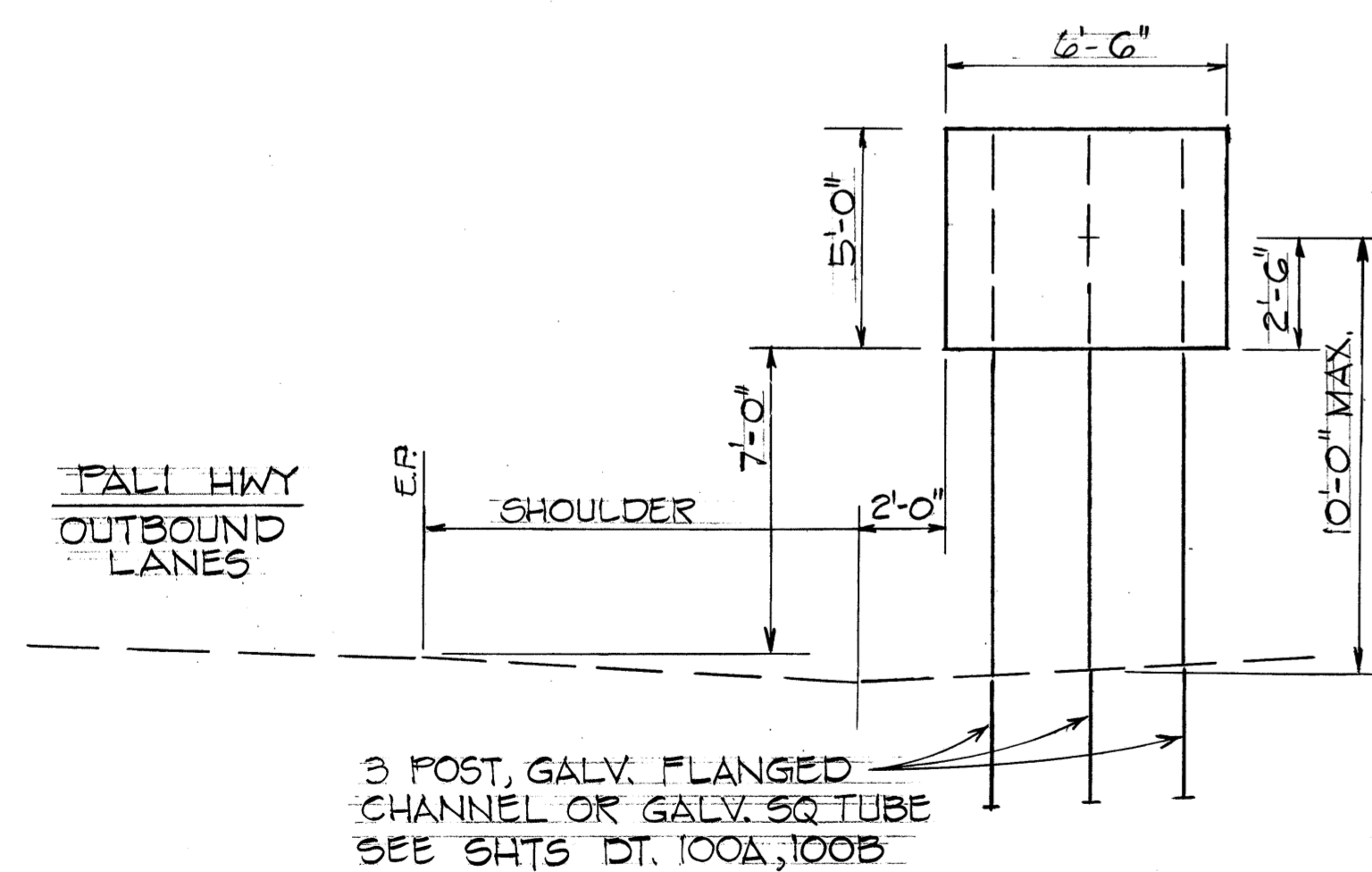
ARROW DETAILS



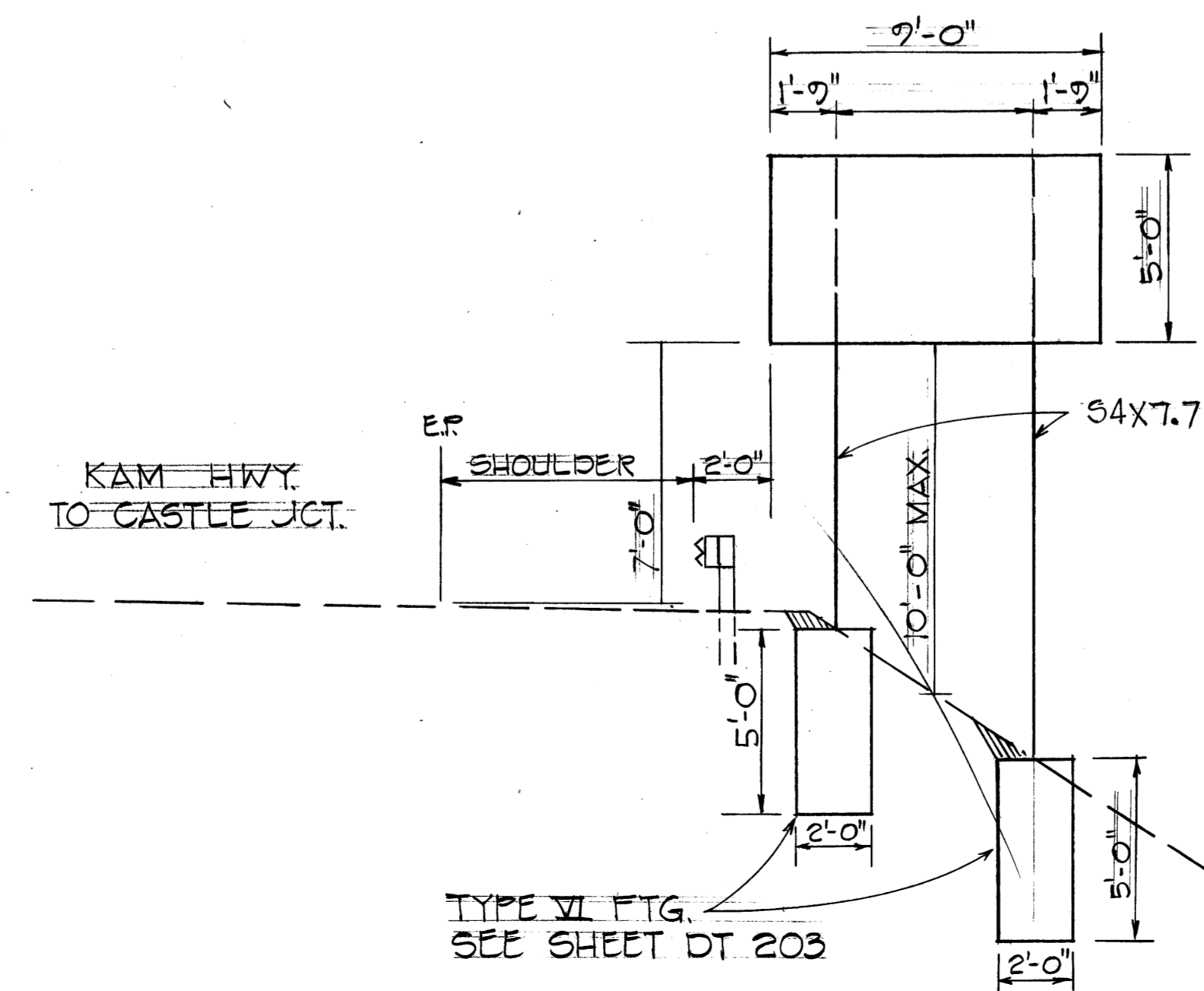
SIGN D-1  
PALI HWY @ STA. 179+00 RT.

GENERAL NOTES

- SIGNS SHALL CONFORM TO THE LATEST EDITIONS & AMENDMENTS OF THE FOLLOWING FHWA PUBLICATIONS:
  - "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET & HIGHWAYS", (MUTCD)
  - "STANDARD HIGHWAY SIGNS.
  - "STANDARD ALPHABETS FOR HIGHWAY SIGNS"
- USE SERIES "E" (M) NUMERALS & LETTERS.
- THE FINAL LOCATIONS OF SIGNS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- SIGNS SHALL BE REFLECTORIZED IN ACCORDANCE WITH SUBSECTION 712.20 (A)(1), REFLECTORIZATION OF THE SPECIAL PROVISIONS.
- PANELS FOR D-1 & D-2 SHALL CONFORM TO SHTS DT 206 OR DT 207.
- PANEL FOR DIR-1 SHALL BE 0.100" SHT. ALUMINUM.
- ANCHOR BASES SHALL BE INSTALLED FOR ALL SIGNPOST INSTALLATIONS, UNLESS OTHERWISE SHOWN OR DIRECTED. SEE SHEETS DT 100A AND DT 100B.



SIGN DIR-1  
@ STA. 188+00 ± RT.



SIGN D-2  
KAM HWY @ STA. 155+80 ± RT.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
LAND TRANSPORTATION FACILITIES DIVISION  
**SIGNING DETAILS**  
KALANIANA'OLE HIGHWAY  
SAFETY IMPROVEMENTS  
KAMEHAMEHA HWY TO KAILUA RD.  
I.A. PROJ. NO. HES-R05-061-1(22)

SCALE: AS SHOWN DATE: FEB. 1983  
SHEET No. OF SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-R05-061-1(22)	1983	60-385-3	51

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

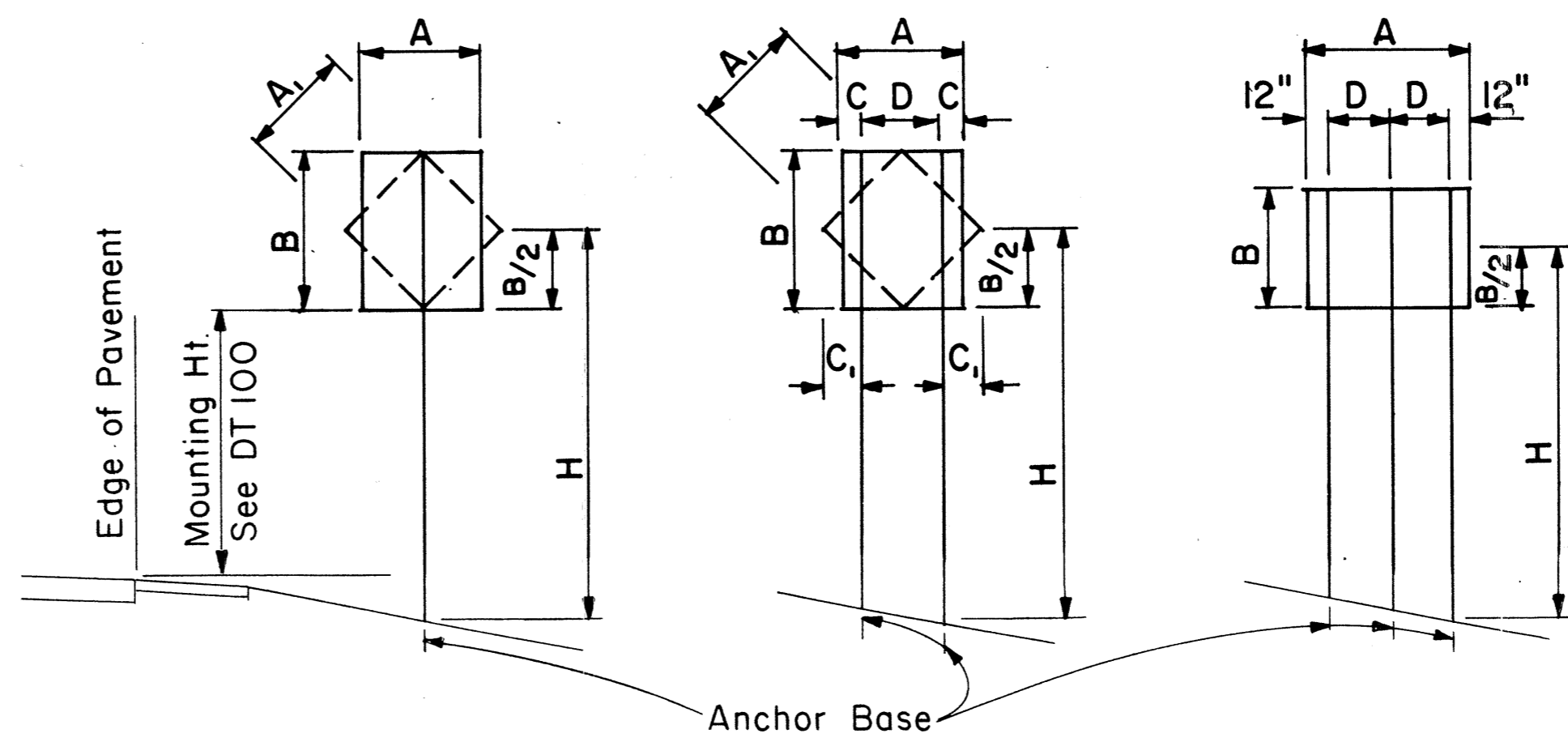
NOTE: Frame stiffeners are required when D is greater than 24". See Gen. Note 4.

### GENERAL NOTES

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

APPROVAL RECOMMENDED:  
*Eishi Tanaka* 9/21/82  
TRAFFIC ENGINEER DATE  
APPROVED:  
*Shirley J. Robinson* 10/23/82  
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
STANDARD DETAILS  
GALVANIZED FLANGED CHANNEL  
SIGN POST MOUNTING  
Scale: As Shown Date: Feb. 1983



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

### TYPICAL INSTALLATION

Not to Scale

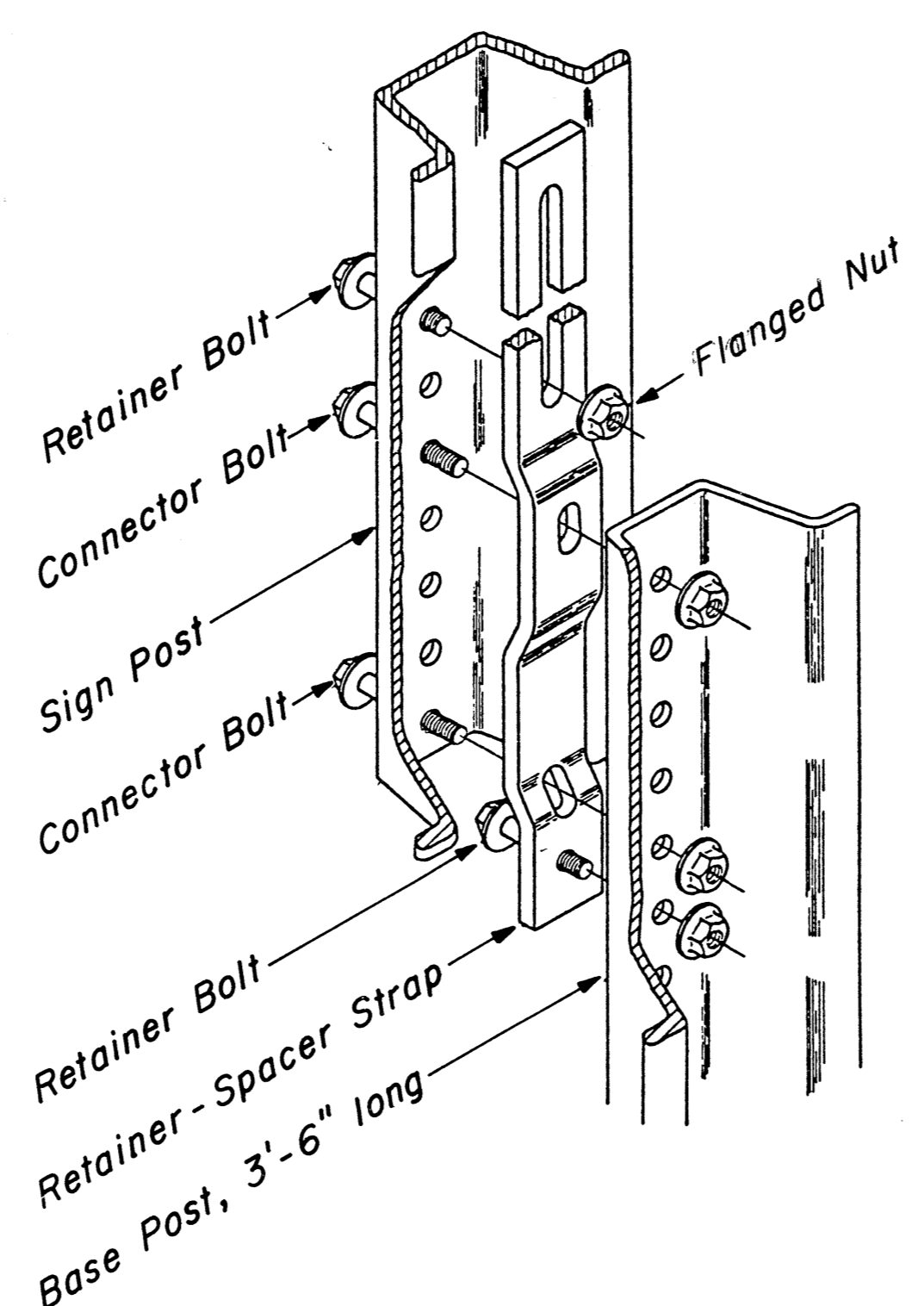
FLANGED CHANNEL: 1-POST INSTALLATION								
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2.50 lbs./ft.	57	8.14	7.13	6.33	5.70	5.18	4.75	
4.00 lbs./ft.	112	-	-	-	-	-	9.33	

FLANGED CHANNEL: 2-POST INSTALLATION								
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2.50 lbs./ft.	124	17.71	15.50	13.77	12.40	11.27	10.33	
4.00 lbs./ft.	241	34.43	30.13	26.78	24.10	21.91	20.08	

FLANGED CHANNEL: 3-POST INSTALLATION								
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2.50 lbs./ft.	187	26.71	23.38	20.78	18.70	17.00	15.58	
4.00 lbs./ft.	362	51.71	45.25	40.22	36.20	32.91	30.17	

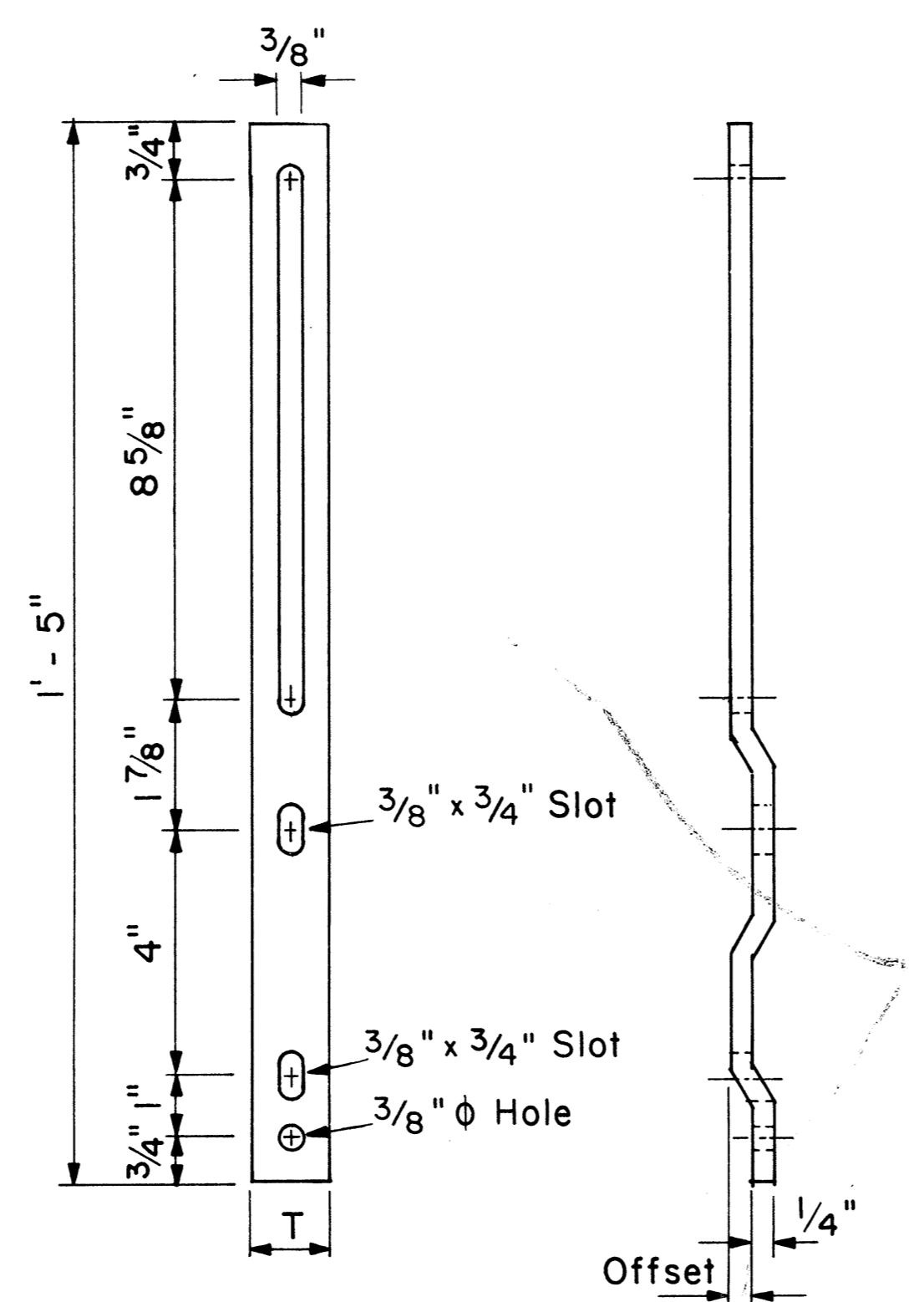
### WINDLOAD CHARTS

NO.	REVISION	APPROVED BY	DATE



### CONNECTION DETAIL

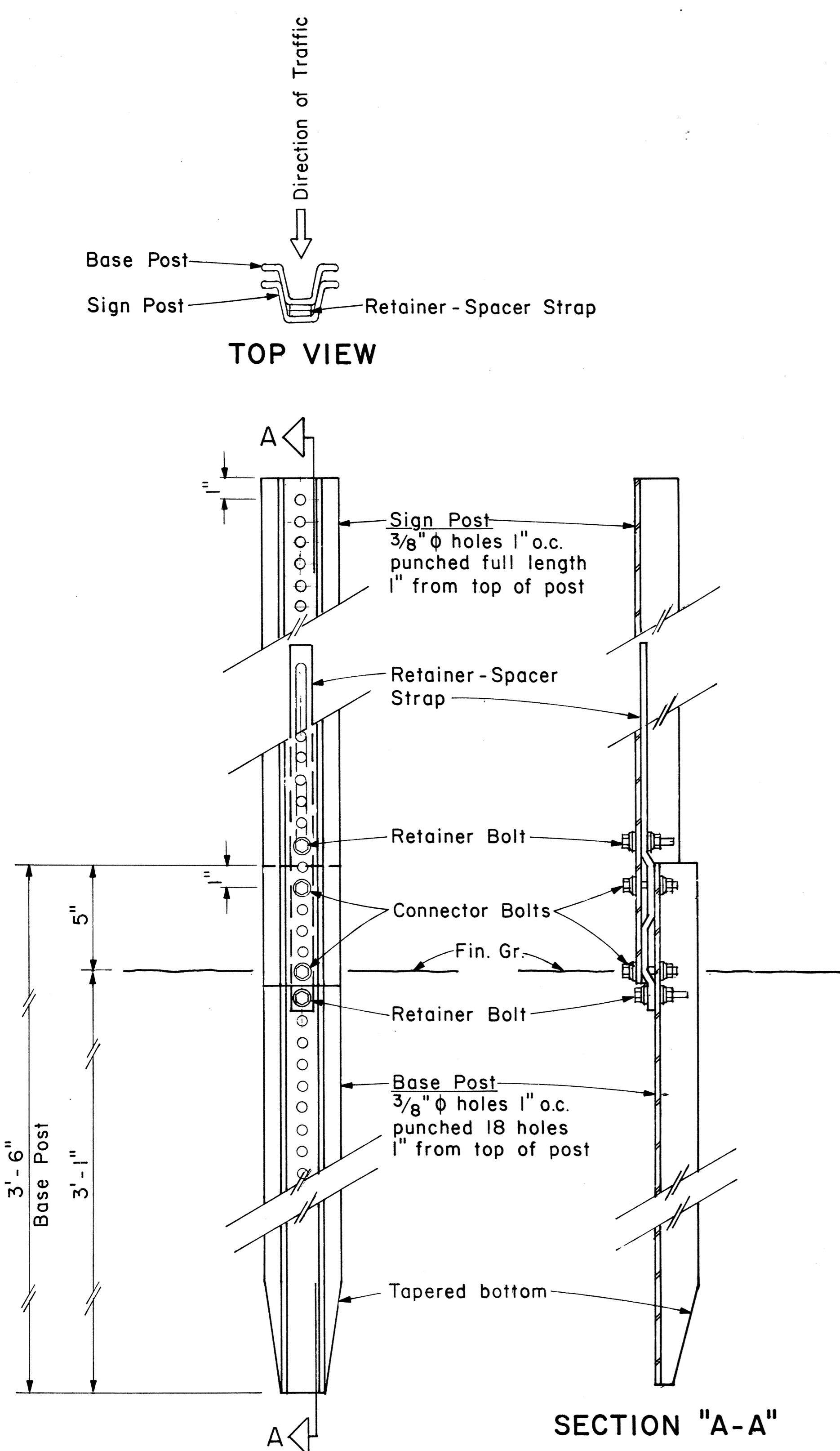
Not to Scale



### 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"



### BACK VIEW

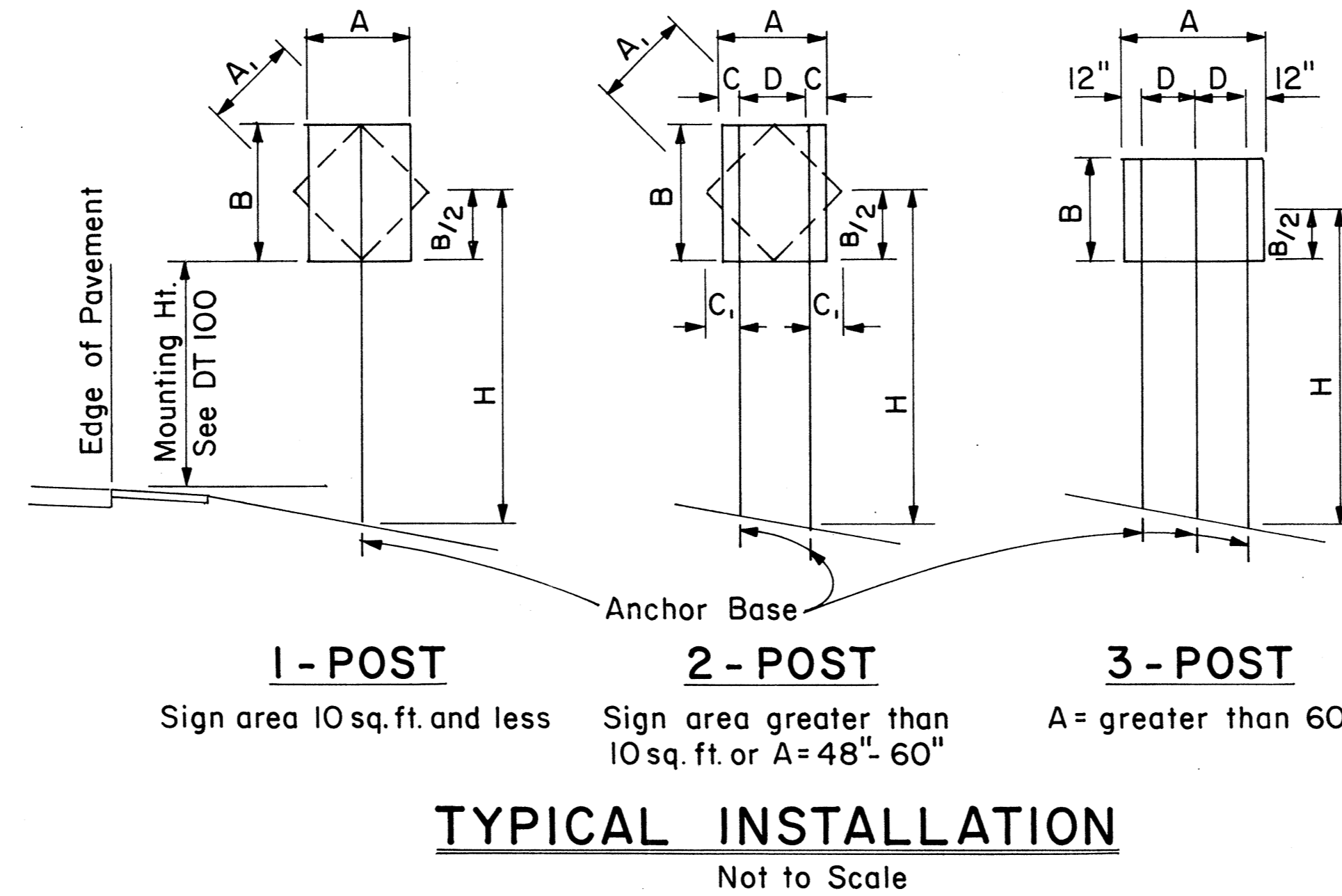
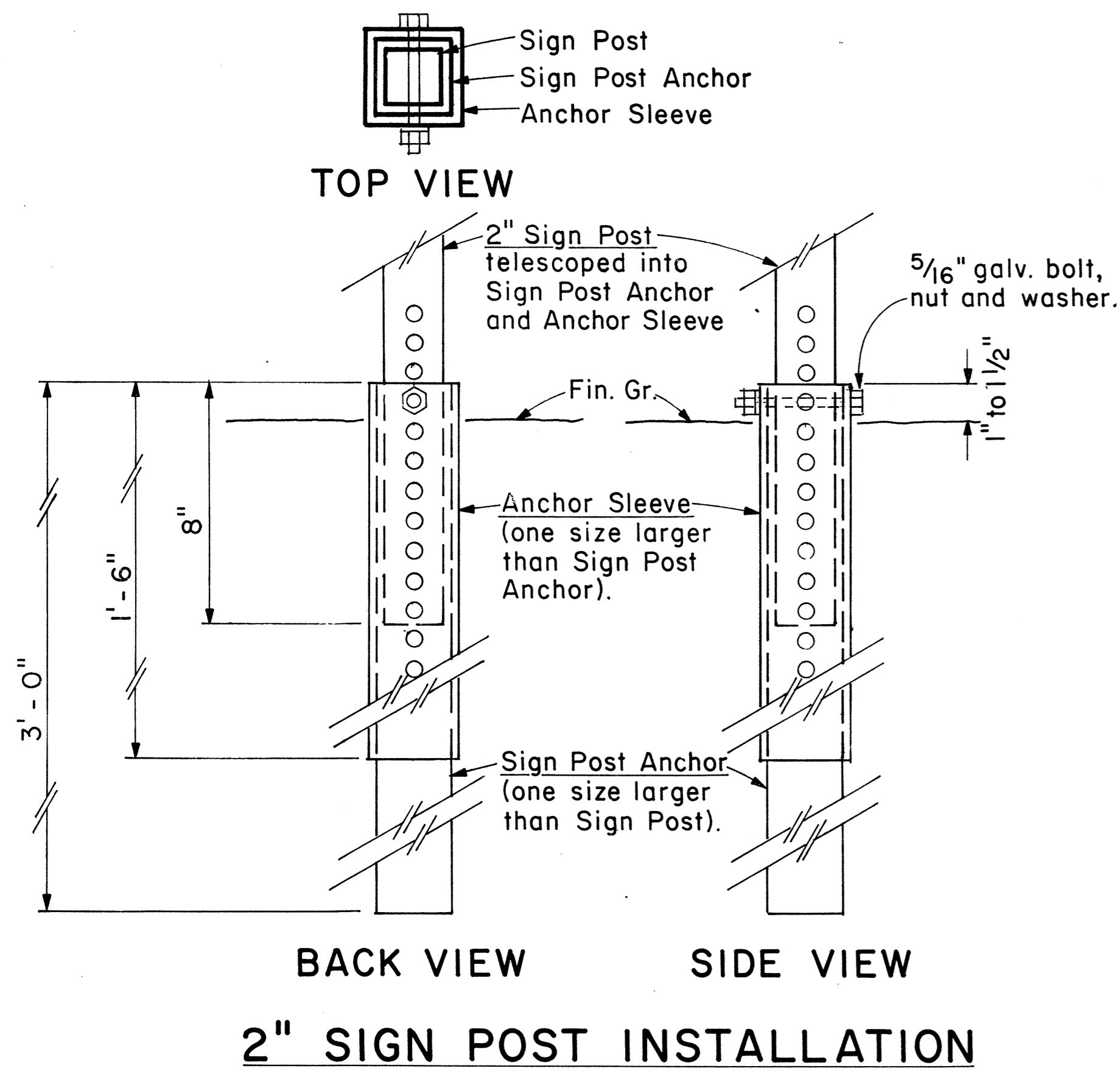
### ANCHOR BASE DETAIL

Scale: 3" = 1'-0"

SURVEY ELICITED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 ORIGINAL PLAN: \_\_\_\_\_  
 NOTE BOOK: \_\_\_\_\_  
 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  $\frac{7}{16}$ "  $\phi$  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,  
 $Maximum\ sign\ area\ (A \times B) = \frac{Factor}{H}$



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

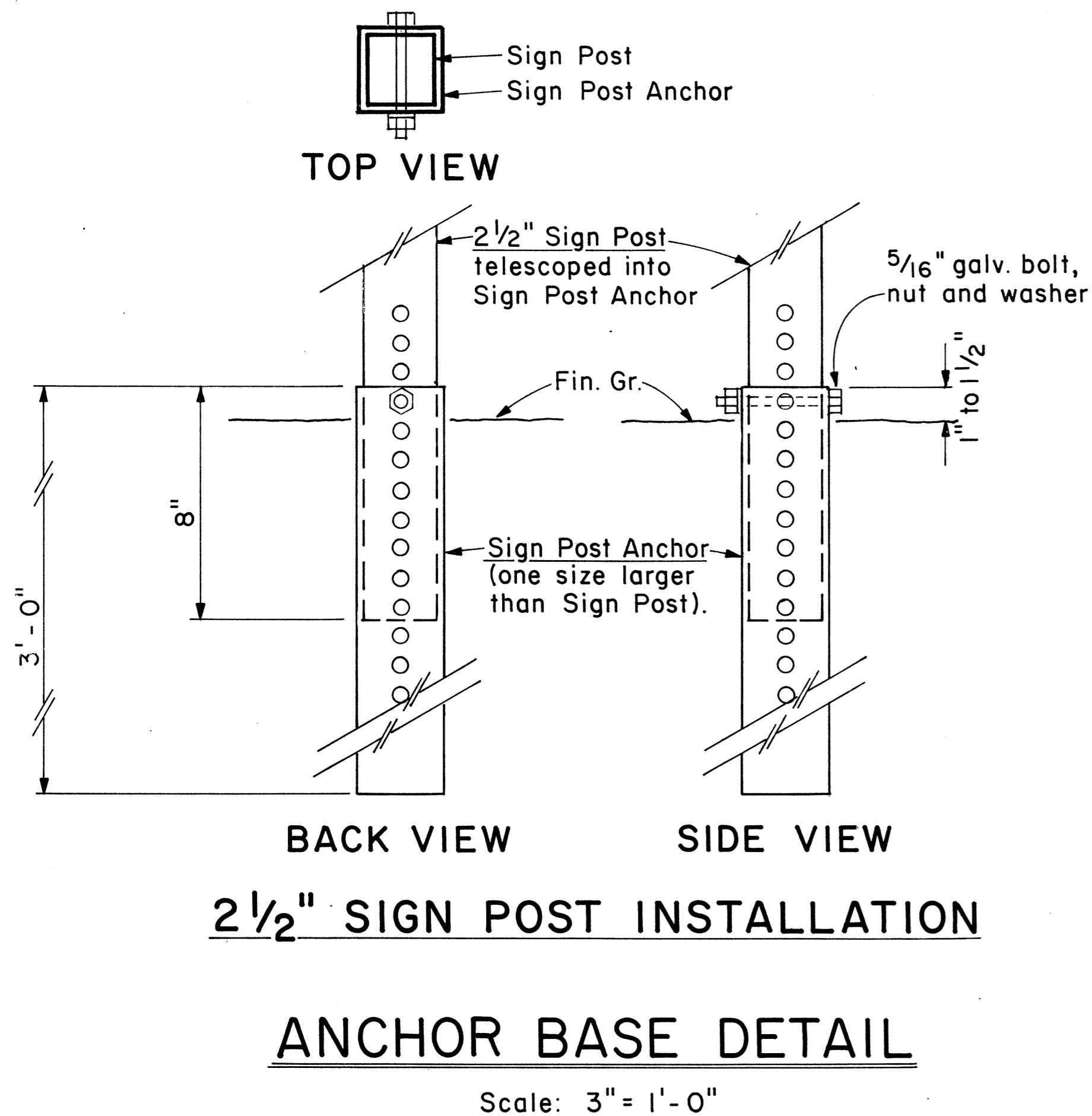
NOTE: Frame stiffeners are required when D is greater than 24". See Gen. Note 2.

SQUARE TUBE: 1- POST INSTALLATION							
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)					
		7	8	9	10	11	12
2"	62	8.8	7.7	6.8	6.1	5.6	4.8
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.)					
		7	8	9	10	11	12
2"	122	17.4	15.2	13.5	12.2	11.0	10.1
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.)					
		7	8	9	10	11	12
2"	183	26.0	22.8	20.3	18.2	16.6	15.2
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



### ANCHOR BASE DETAIL

Scale: 3" = 1'-0"

APPROVAL RECOMMENDED:  
*Eishi Tanaka* 9/2/82  
TRAFFIC ENGINEER DATE  
APPROVED:  
*Robert Sakishi* 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

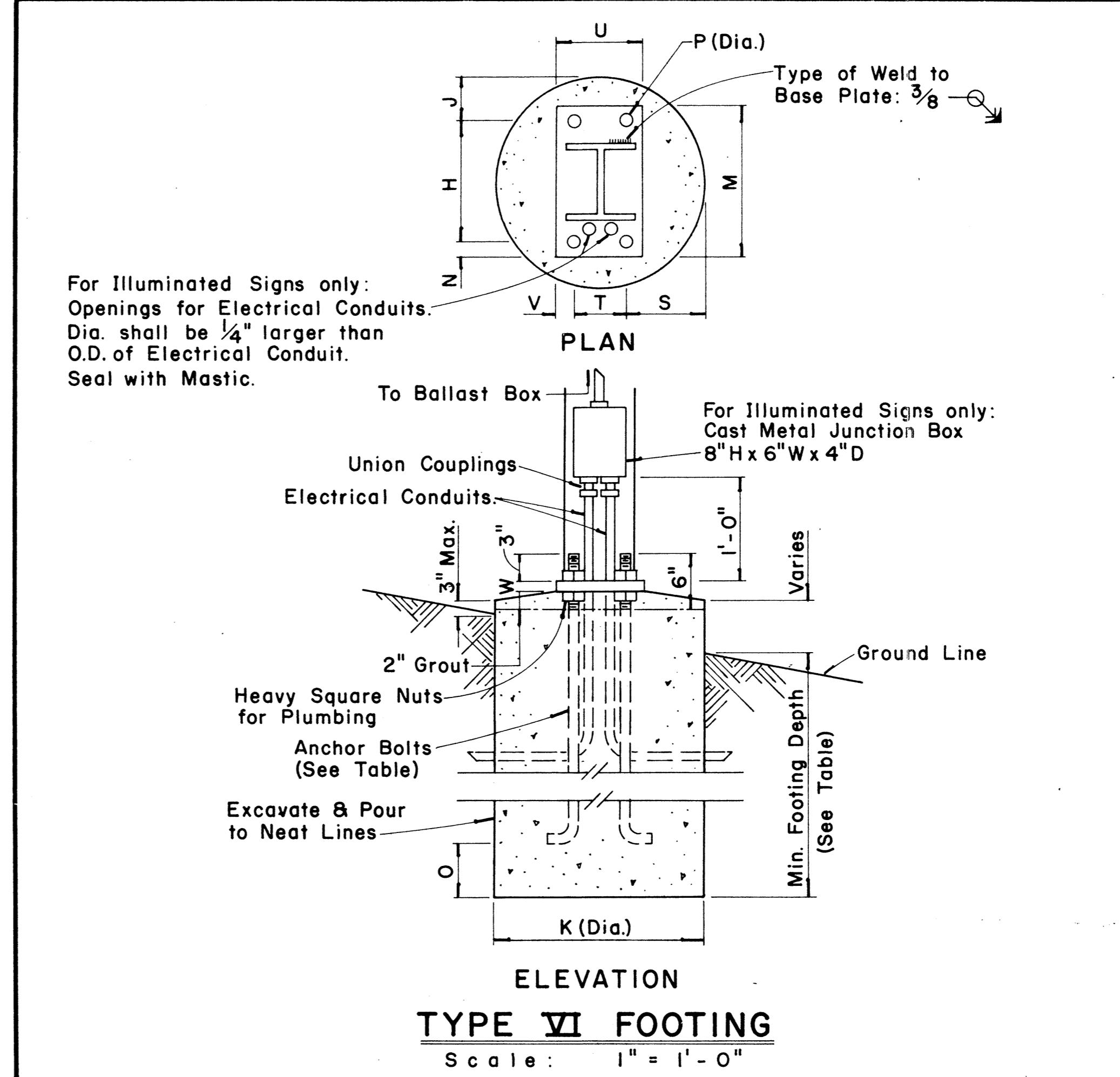
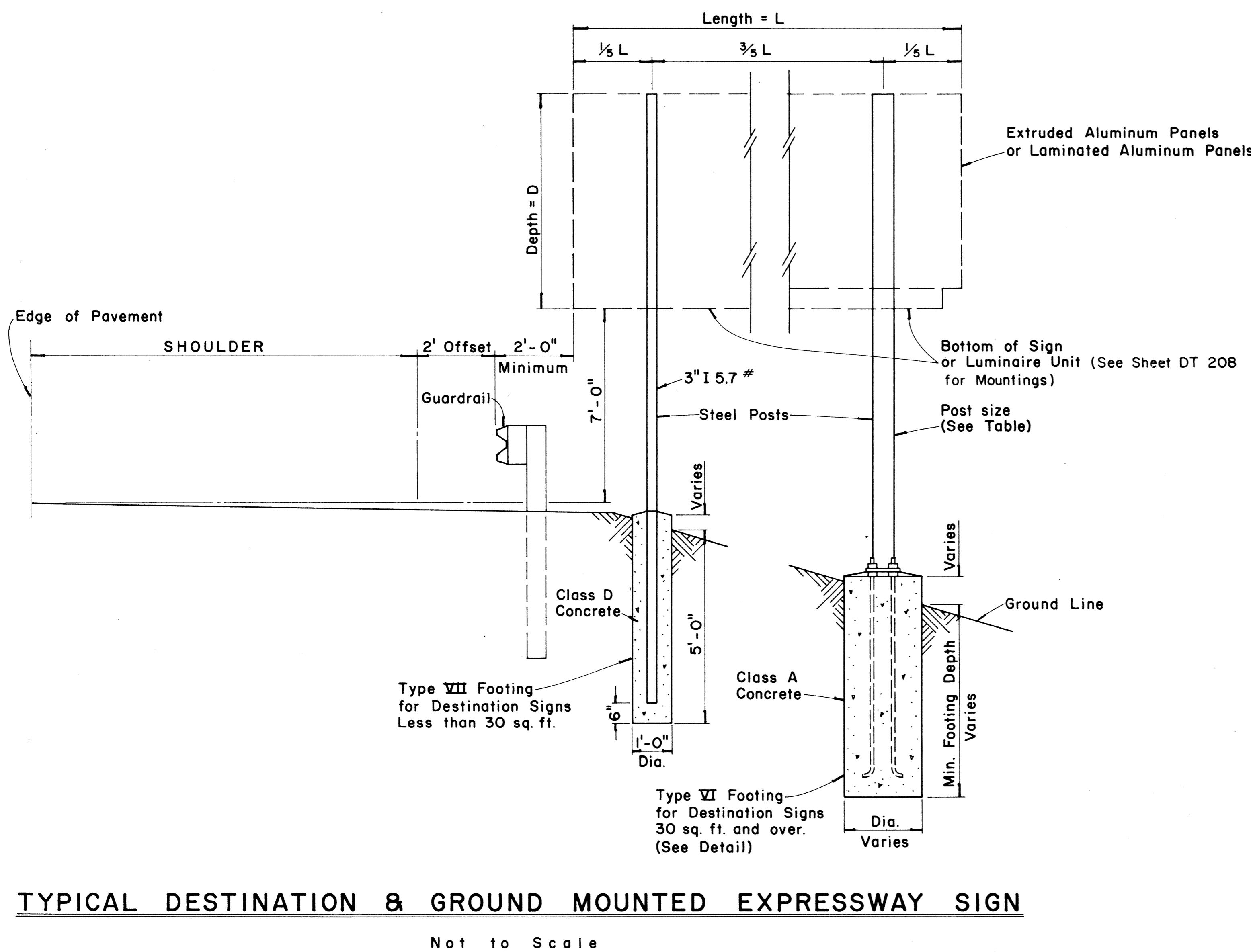
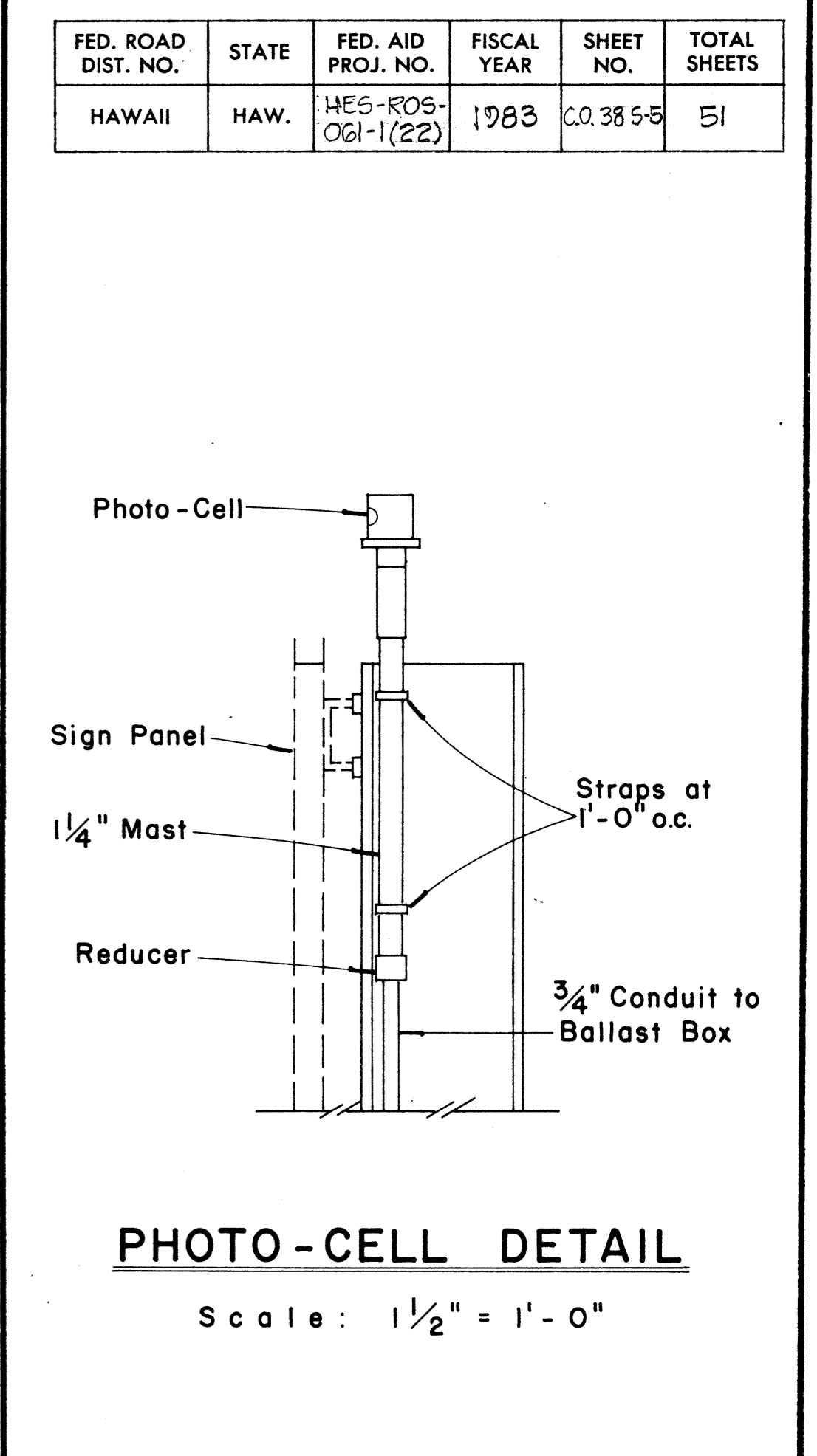
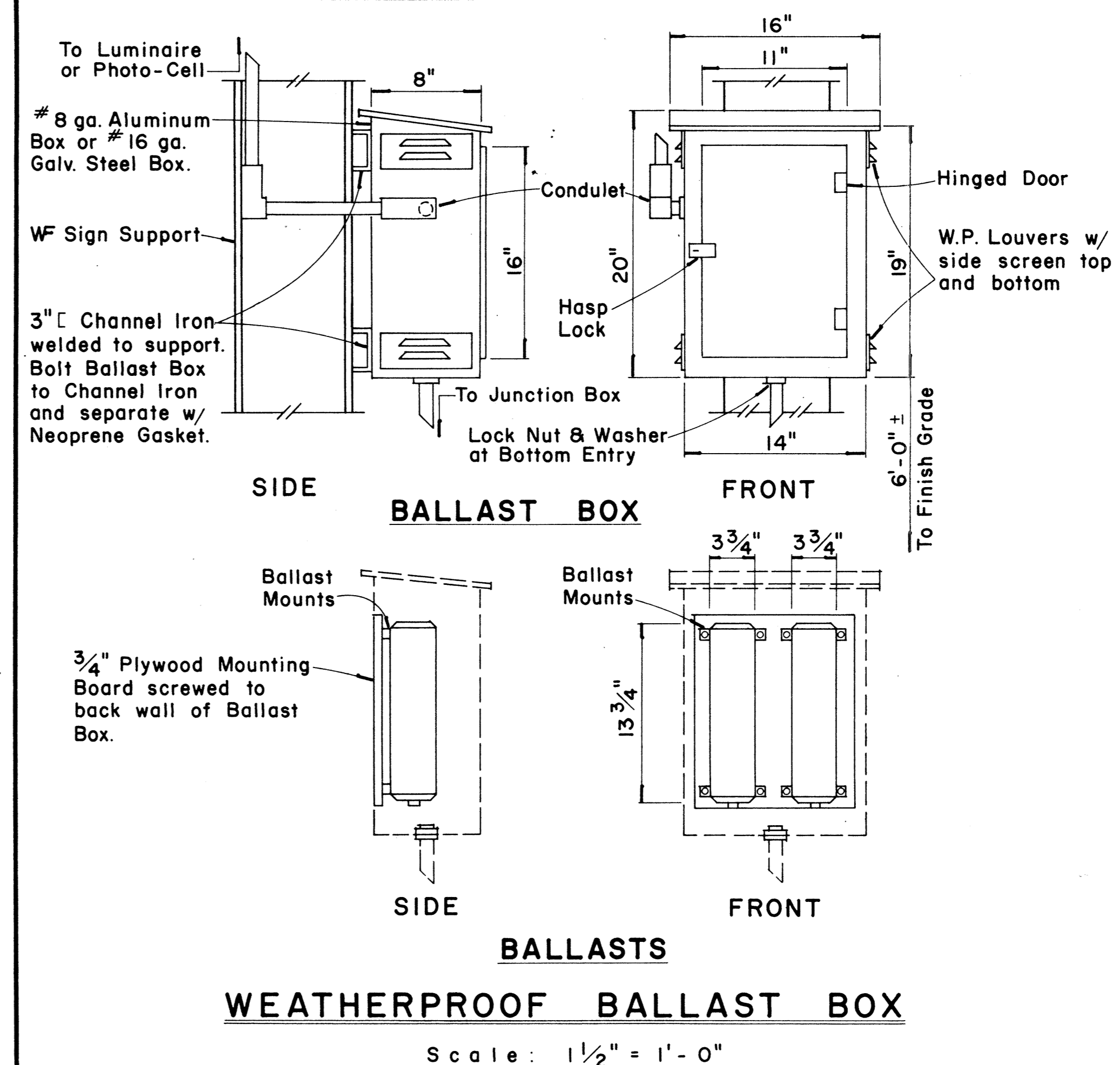
Scale: As Shown Date: Feb. 1983

SHEET No. OF SHEETS DT100B

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

\* 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 4 1/2 feet.

DATA TABLE FOR TYPE VI FOOTING																		
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 J10	50 sq. ft.	14'	14"	5"	24"	17 1/4"	1 5/8"	6"	1 1/4"	9"	6"	10"	2"	1"	1 1/8" ø	4 1/2'	4 1/2'	
8 WF24	90 sq. ft.	21'															5'	
8 WF35	190 sq. ft.	15'	16 1/2"	6 3/4"	30"	20"	1 3/4"	6"	1 3/8"	11 3/4"	6 1/2"	10"	1 3/4"	1"	1 1/4" ø	6'	7'	
10 WF45	190 sq. ft.	25'																
10 WF45	200 sq. ft.	25'																
12 WF50	230 sq. ft.	25'														7'		
12 WF50	250 sq. ft.	23'																



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

APPROVED:  
*John S. Salzedo* 12-29-69  
 ASSISTANT CHIEF, ENGINEERING DATE

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

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 LAND TRANSPORTATION FACILITIES DIVISION

**STANDARD DETAILS**  
**DESTINATION & GROUND MOUNTED**  
**EXPRESSWAY SIGNS**

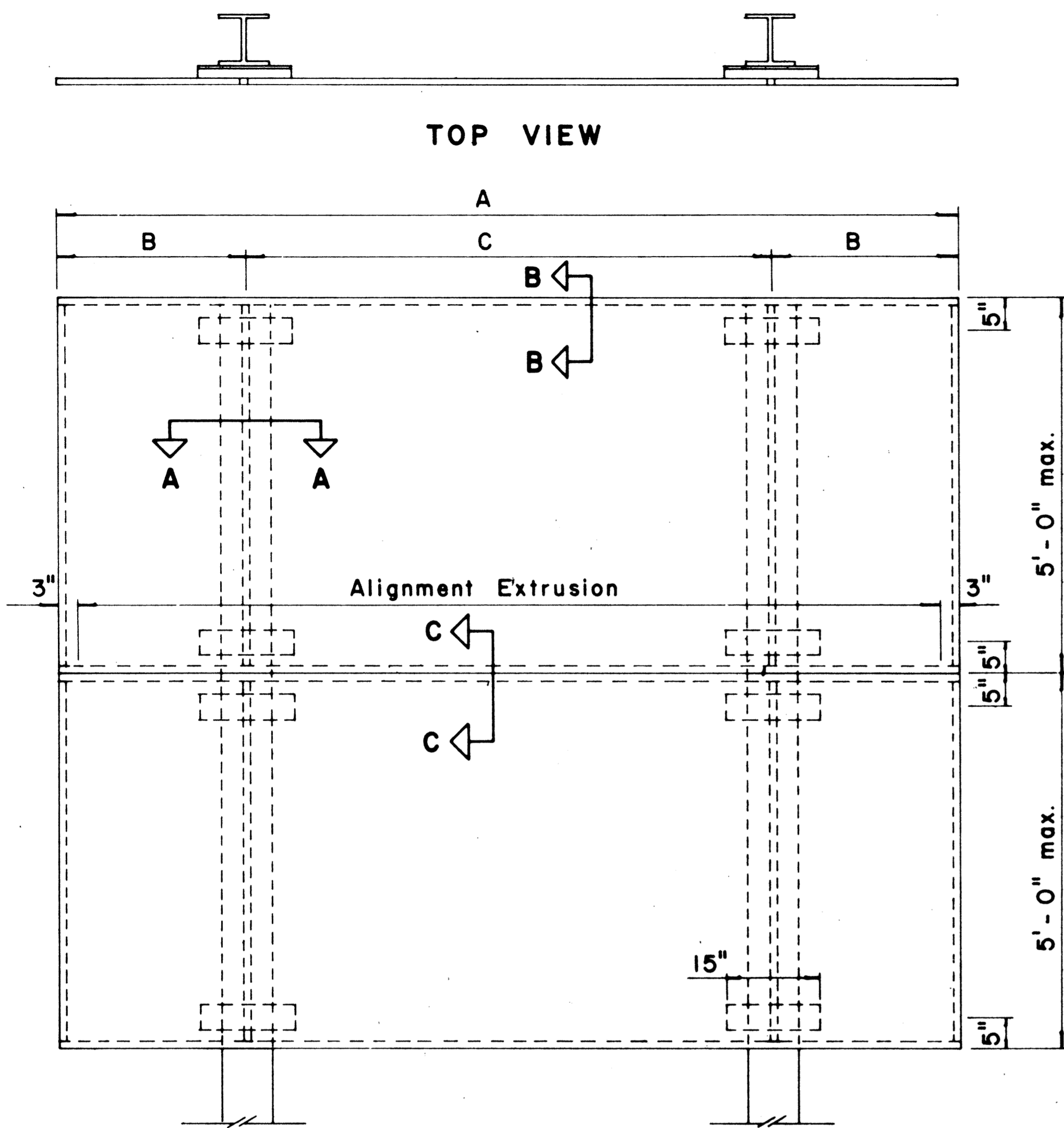
Scale: As Shown  
 SHEET No. OF SHEETS DT 203

DATE \_\_\_\_\_  
 SURVEY PLOTTED BY \_\_\_\_\_  
 PLAN \_\_\_\_\_  
 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.	HES-ROS-061-1(22)	1983	C.038 5-6	51

(GROUND MOUNTED SIGNS)  
SUPPORT SPACING TABLE

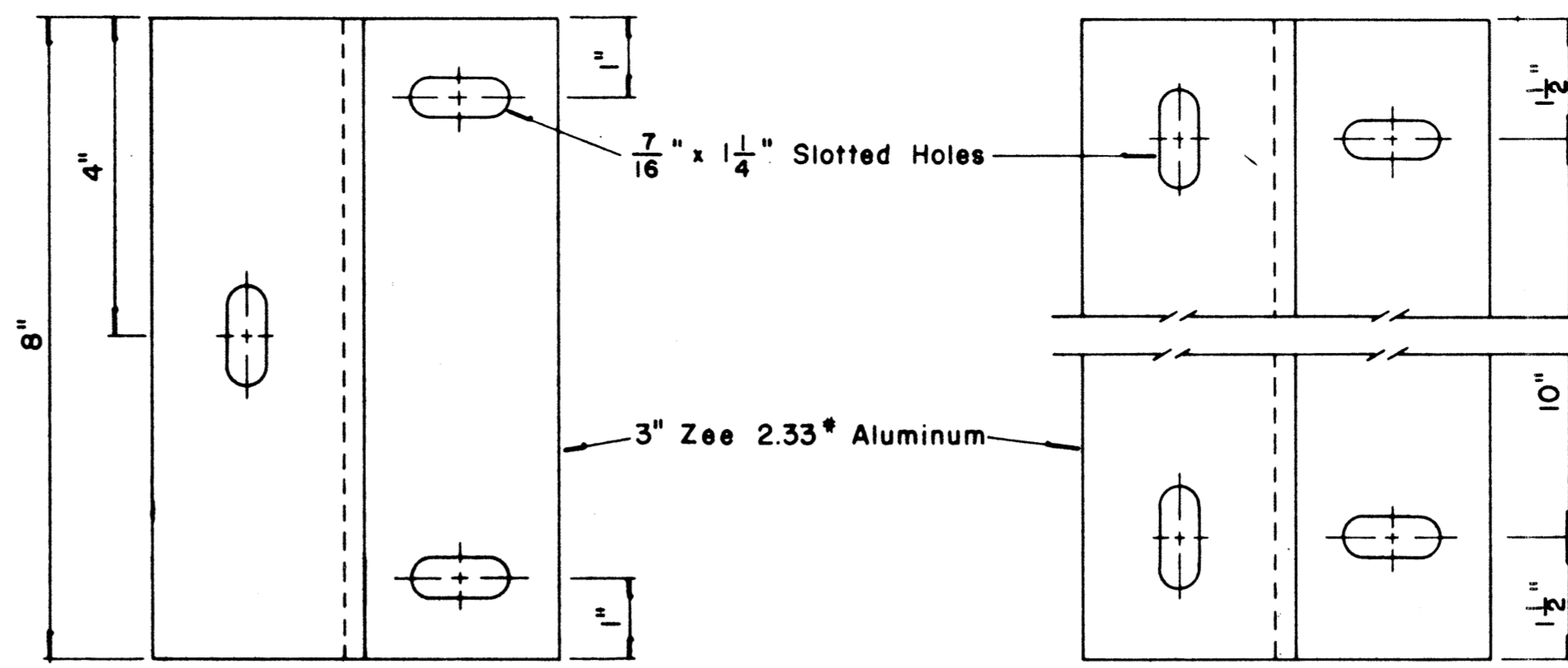
PANEL THICK.	LENGTH OF SIGN		OVERHANG	SUPPORT SPACING
	A	B		
1"	6'-0"	2	12"	48"
1"	6'-6"	2	15"	48"
1"	7'-0"	2	15"	54"
1"	7'-6"	2	18"	54"
1"	8'-0"	2	18"	60"
1"	8'-6"	2	20"	62"
1"	9'-0"	2	22"	64"
1"	9'-6"	2	23"	68"
1"	10'-0"	2	24"	72"
1"	10'-6"	2	24"	78"
1"	11'-0"	2	24"	84"
1"	11'-6"	2	27"	84"
1"	12'-0"	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"



ELEVATION

TYPICAL SIGN ASSEMBLY

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

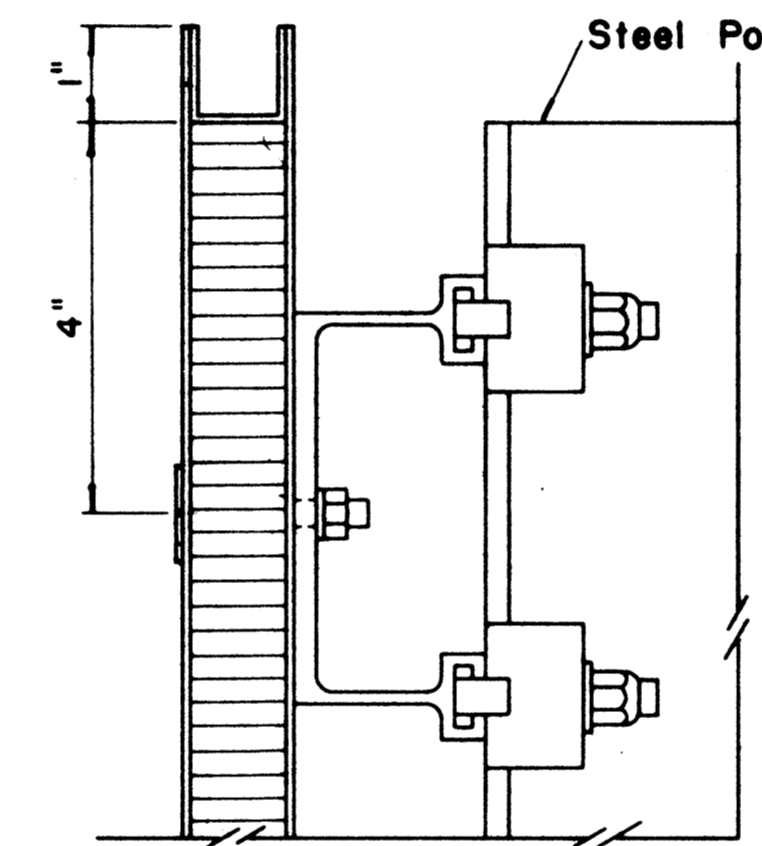


END MOUNTING

INTERMEDIATE MOUNTING

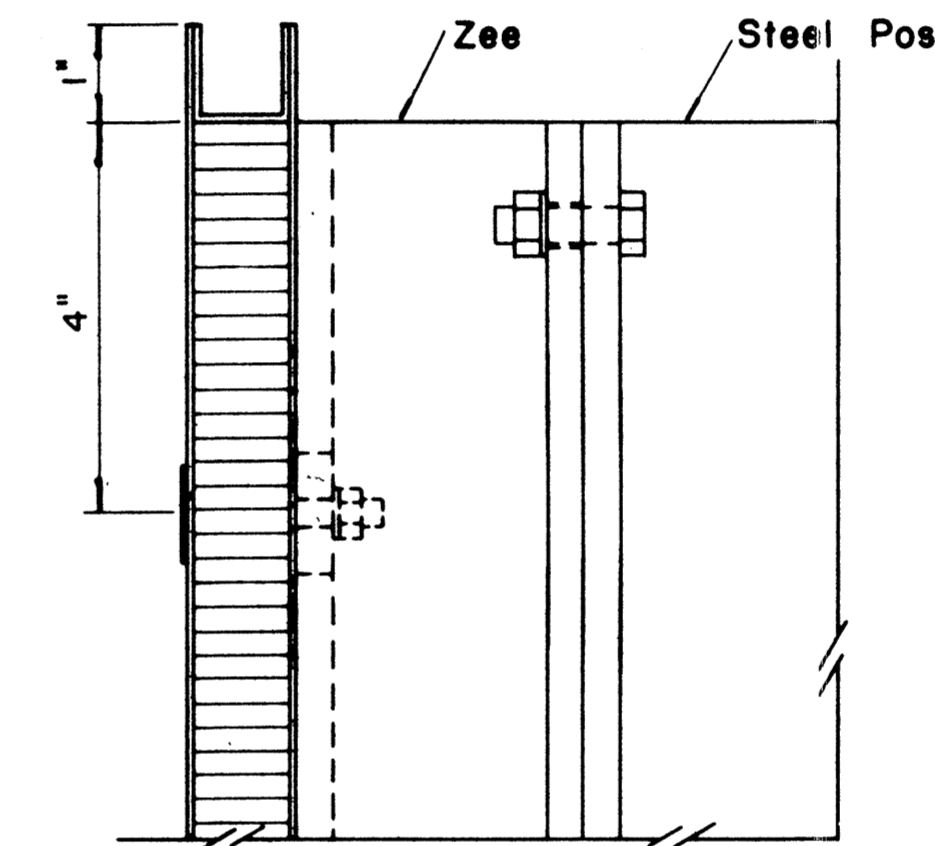
ZEE MOUNTING DETAILS

Scale:  $\frac{1}{2}$ " = 1"



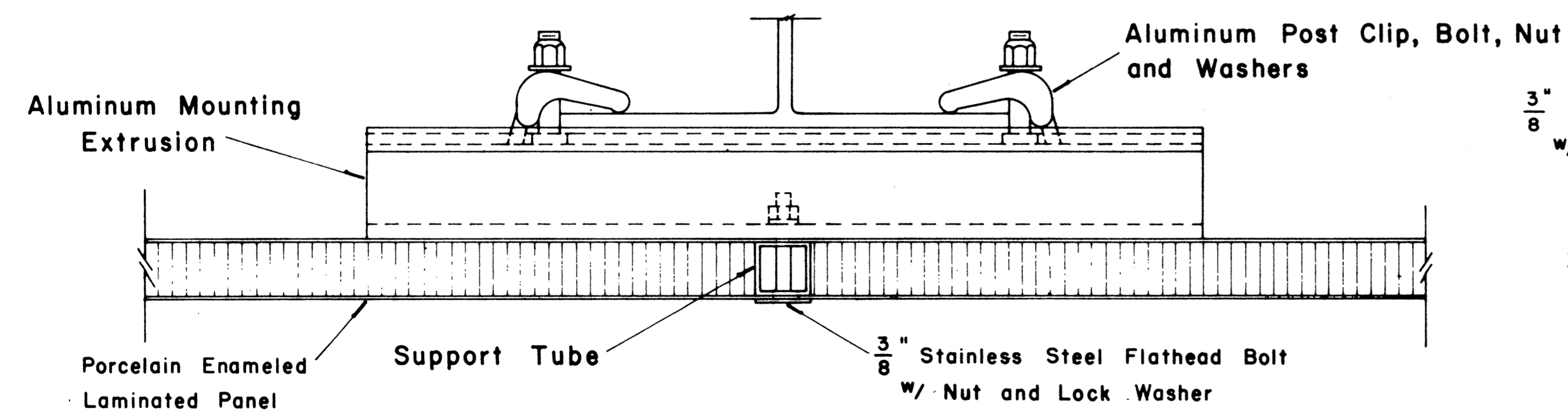
SECTION "B-B"

Scale:  $\frac{1}{2}$ " = 1"



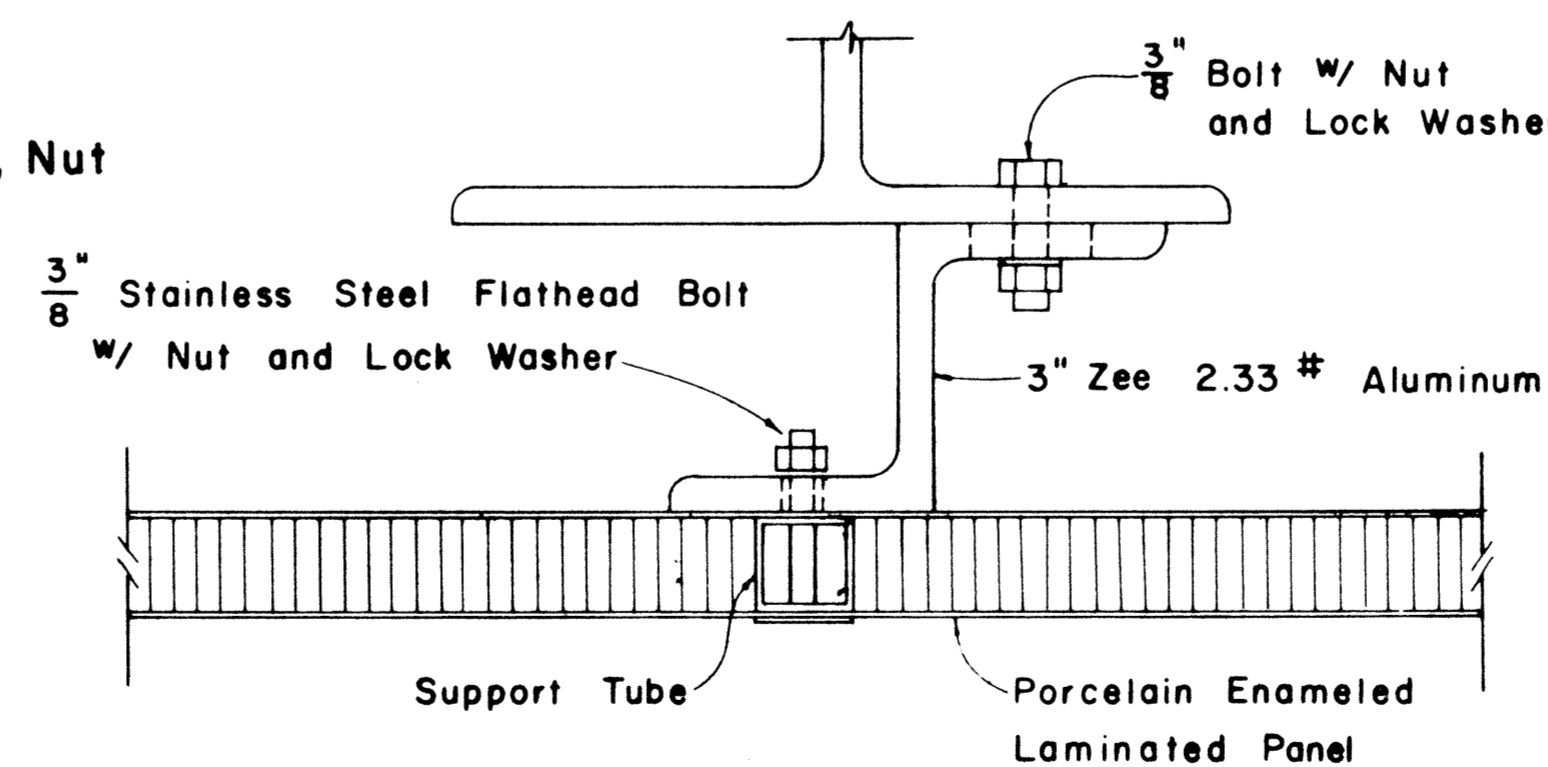
SECTION "B-B" (Alternate)

Scale:  $\frac{1}{2}$ " = 1"



SECTION "A-A"

Scale:  $\frac{1}{2}$ " = 1"



SECTION "A-A" (Alternate)

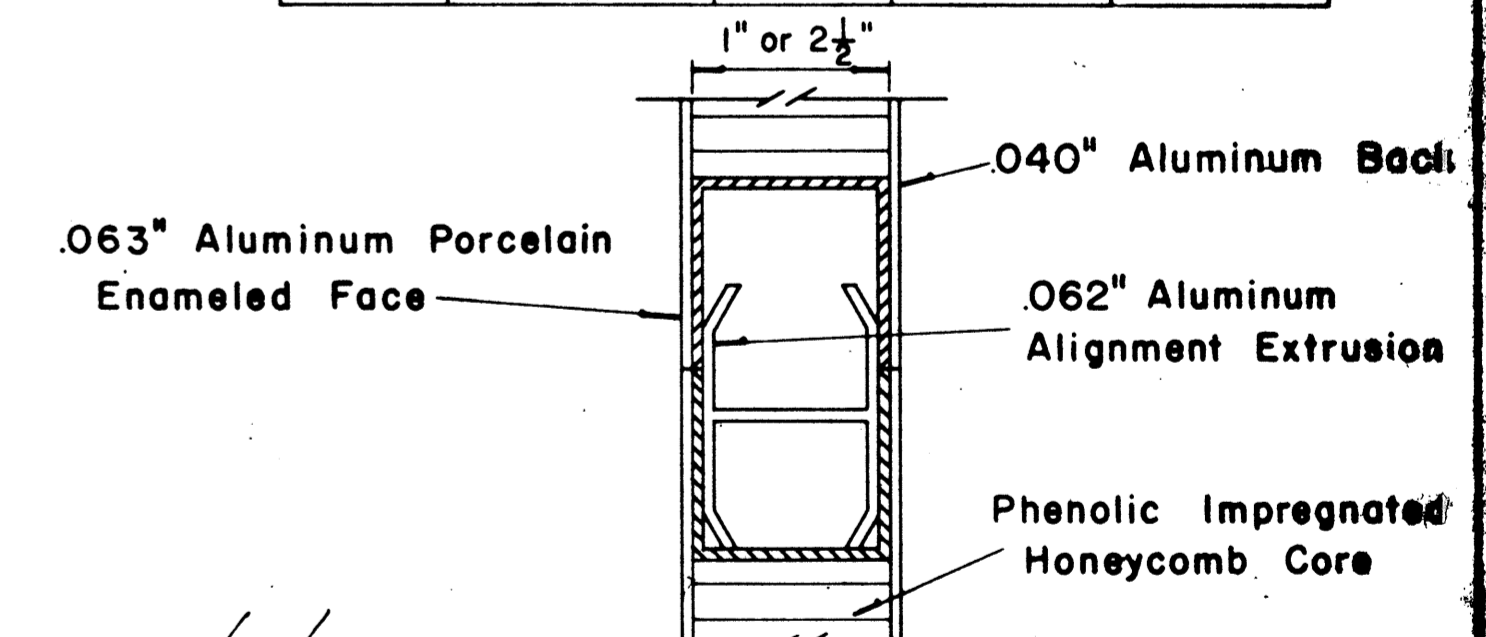
Scale:  $\frac{1}{2}$ " = 1"

APPROVAL RECOMMENDED:

*Etschi Tanaka*  
TRAFFIC ENGINEER 12/29/69 DATE

APPROVED:

*John J. ...*  
ASSISTANT CHIEF, ENGINEERING 12-30-69 DATE



CLOSURE DETAIL SECTION "C-C"

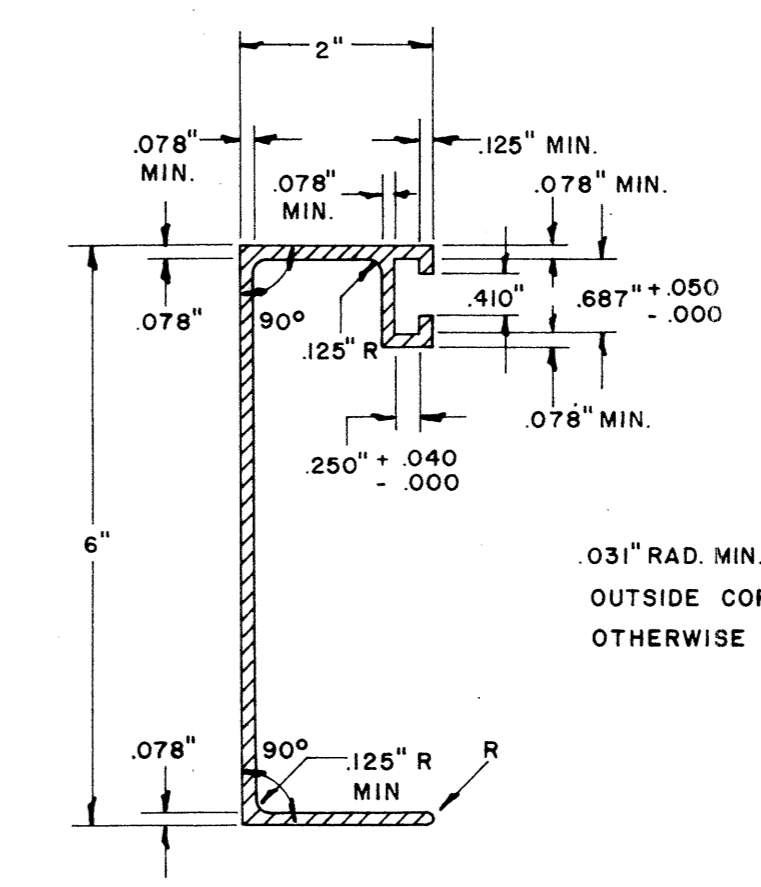
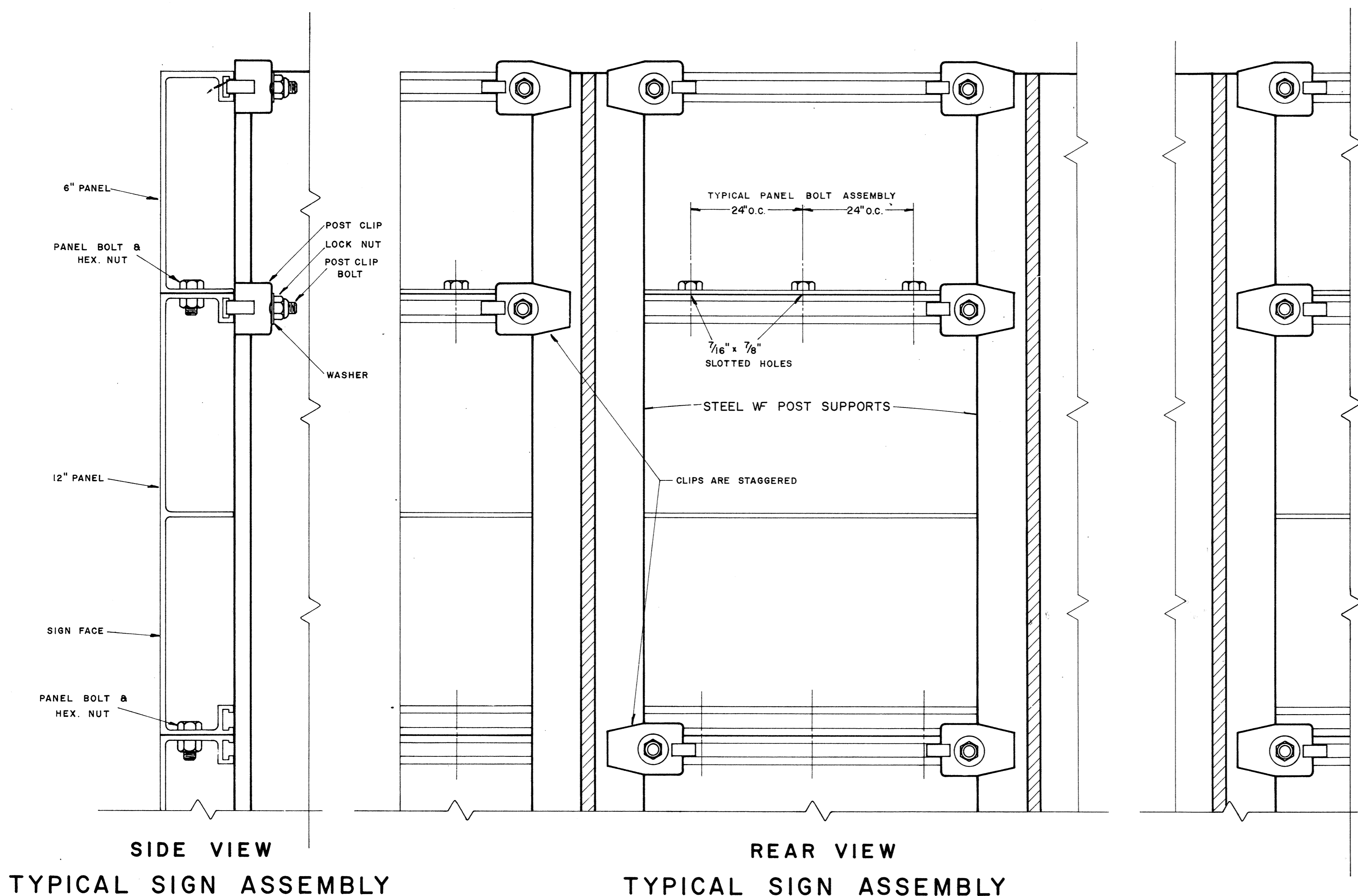
FULL SCALE

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

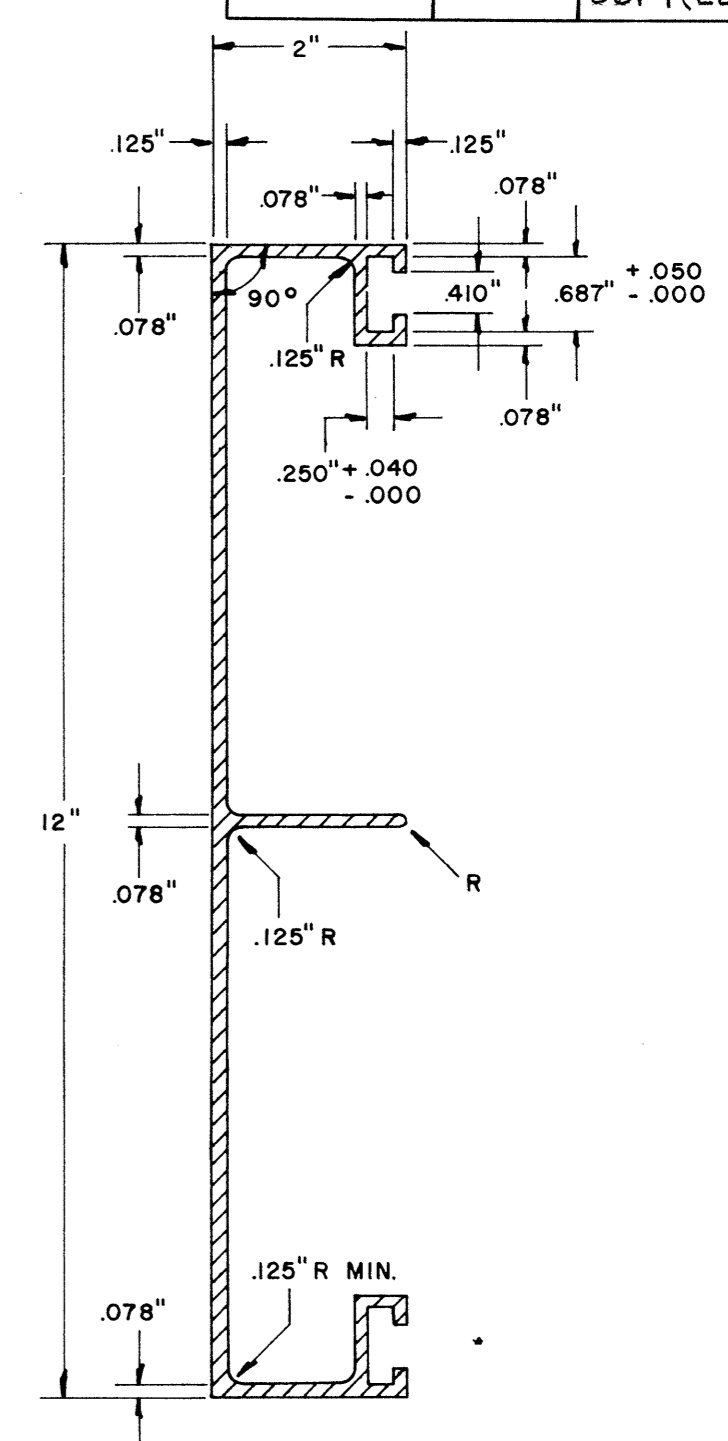
SURVEY PLOTTED BY: DATE: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 ORIGINAL PLAN: \_\_\_\_\_  
 NOTE BOOK: \_\_\_\_\_  
 No. \_\_\_\_\_

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-R05-061-1(22)	1983	C03857	51

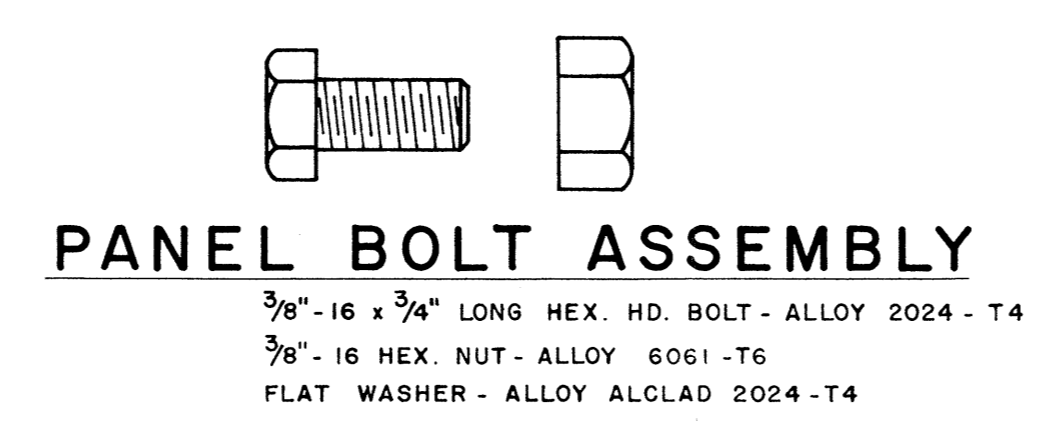
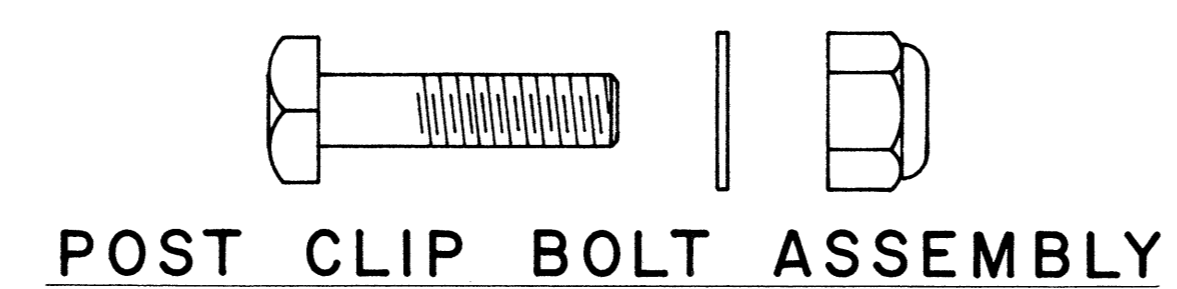
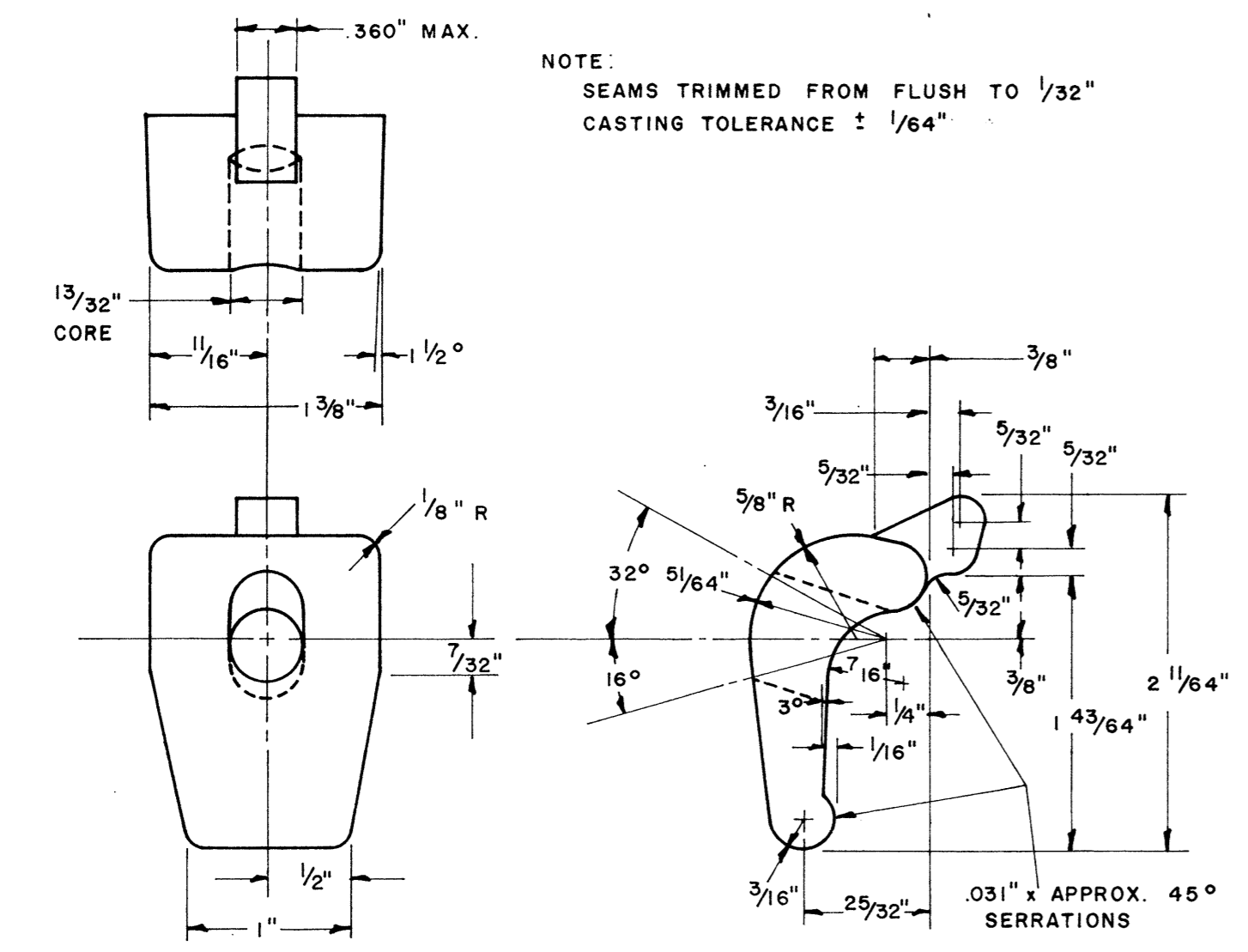


**6" SIGN PANEL**  
WT./LINEAL FT. - 1.103 LBS. MIN.  
ALLOY - 6061 - F(1)  
MOMENT OF INERTIA - 0.487 MIN  
MINIMUM SECTION MODULUS 0.341

**SOLID EXTRUDED SIGN PANEL DETAILS**



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



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

APPROVAL RECOMMENDED:  
*Erich Tanaka* 12/29/82  
TRAFFIC ENGINEER DATE

APPROVED:  
*John S. [Signature]* 12-30-82  
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:

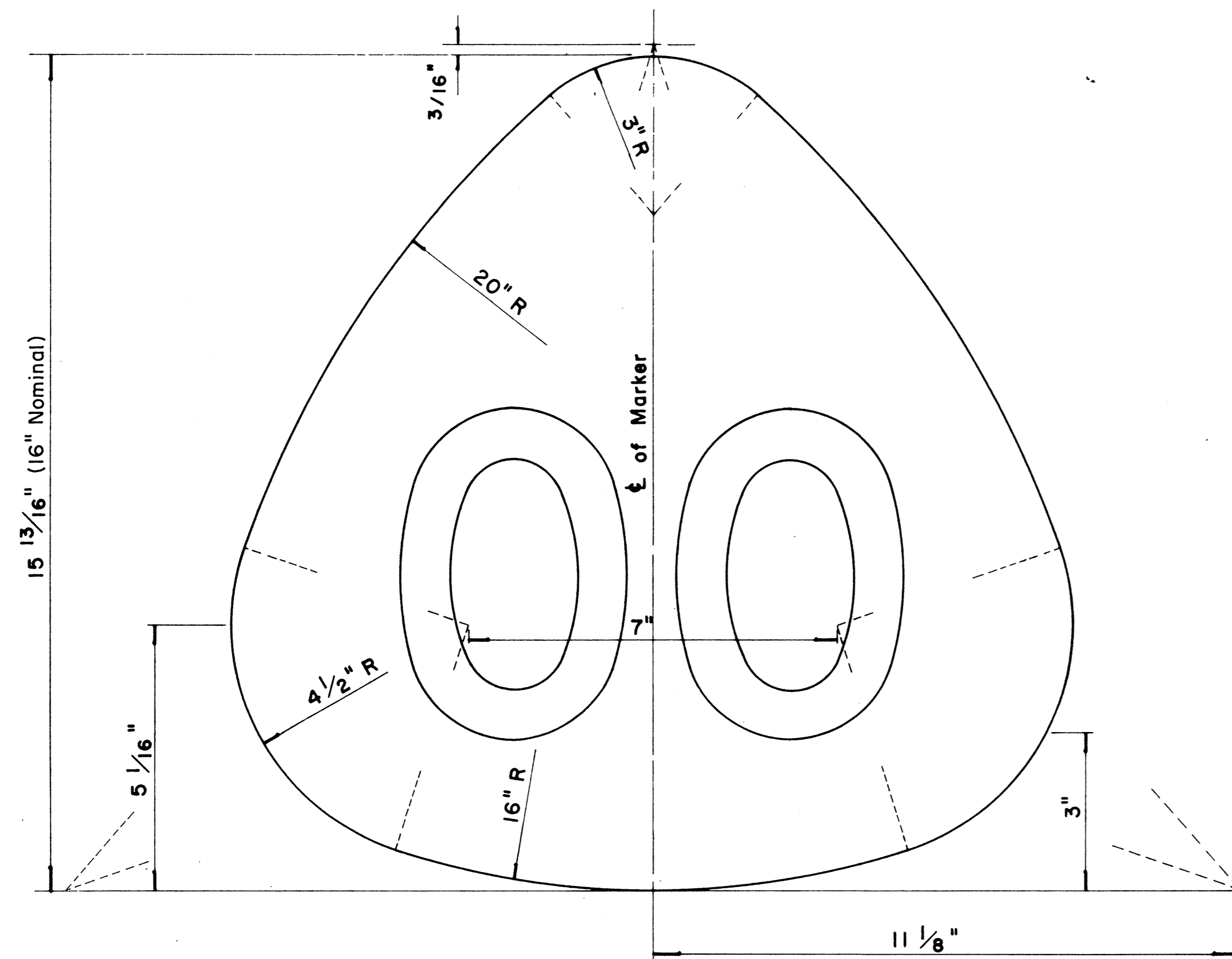
DATE  
DESIGNED BY  
DRAWN BY  
QUANTITIES BY  
NOTE BOOK  
CHECKED BY  
ORIGINAL PLAN  
NO.

**POST CLIP DETAIL**

ALLOY 356 - T6

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-R05-061-1(22)	1983	003858	51

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"	



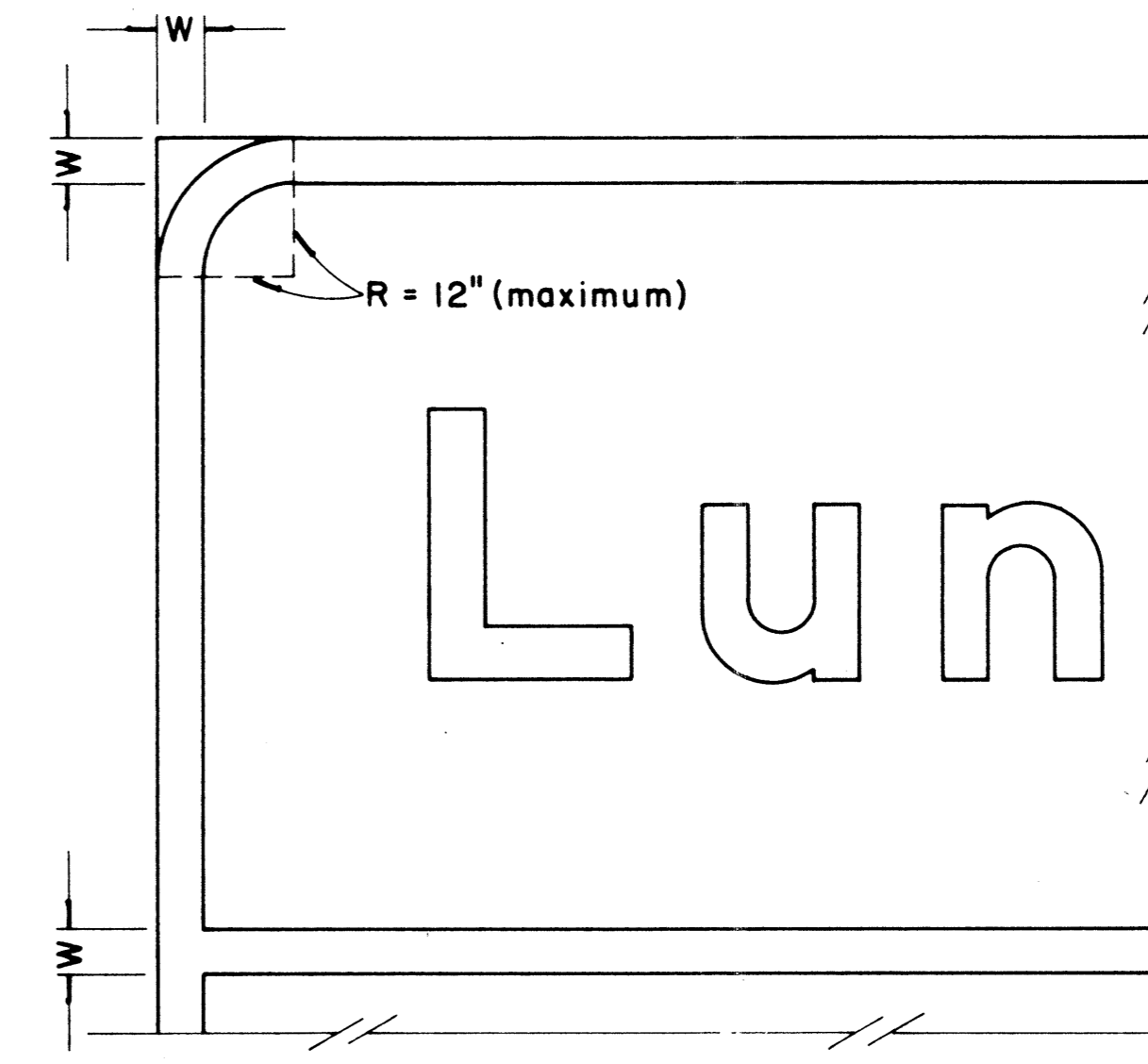
**STATE ROUTE MARKER  
FOR GUIDE SIGNS**

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.

RADII 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:  
*Eiichi Tanaka* 4/11/72  
 TRAFFIC ENGINEER DATE

APPROVED:  
*Shuji S. Sakai* 4/12/72  
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 209 Approved 12-30-69	H.T.	4/12/72
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

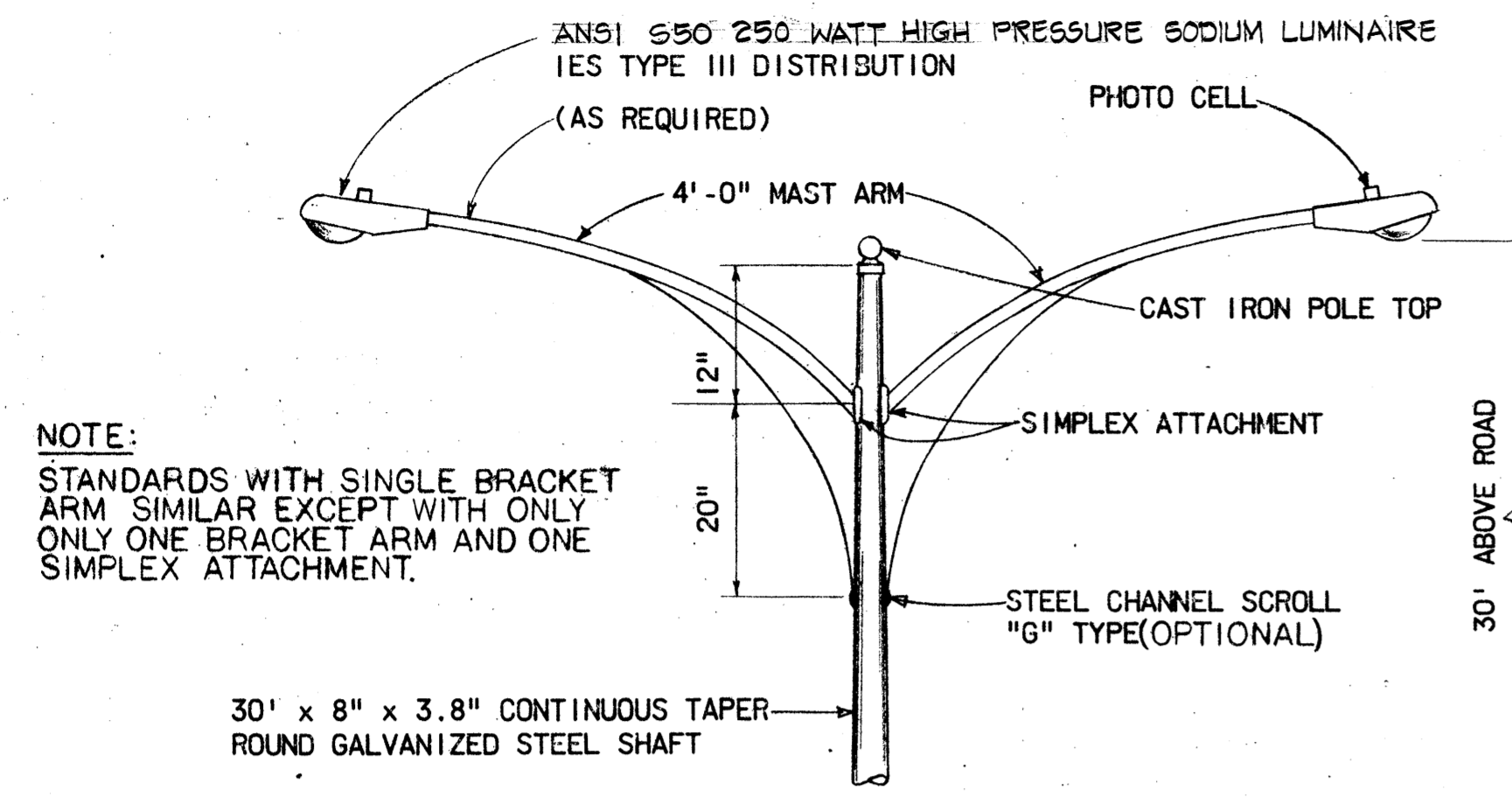
SHEET No. OF SHEETS DT 209

C.O. 38 S-8

DATE	_____
DESIGNED BY	_____
TRACED BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____

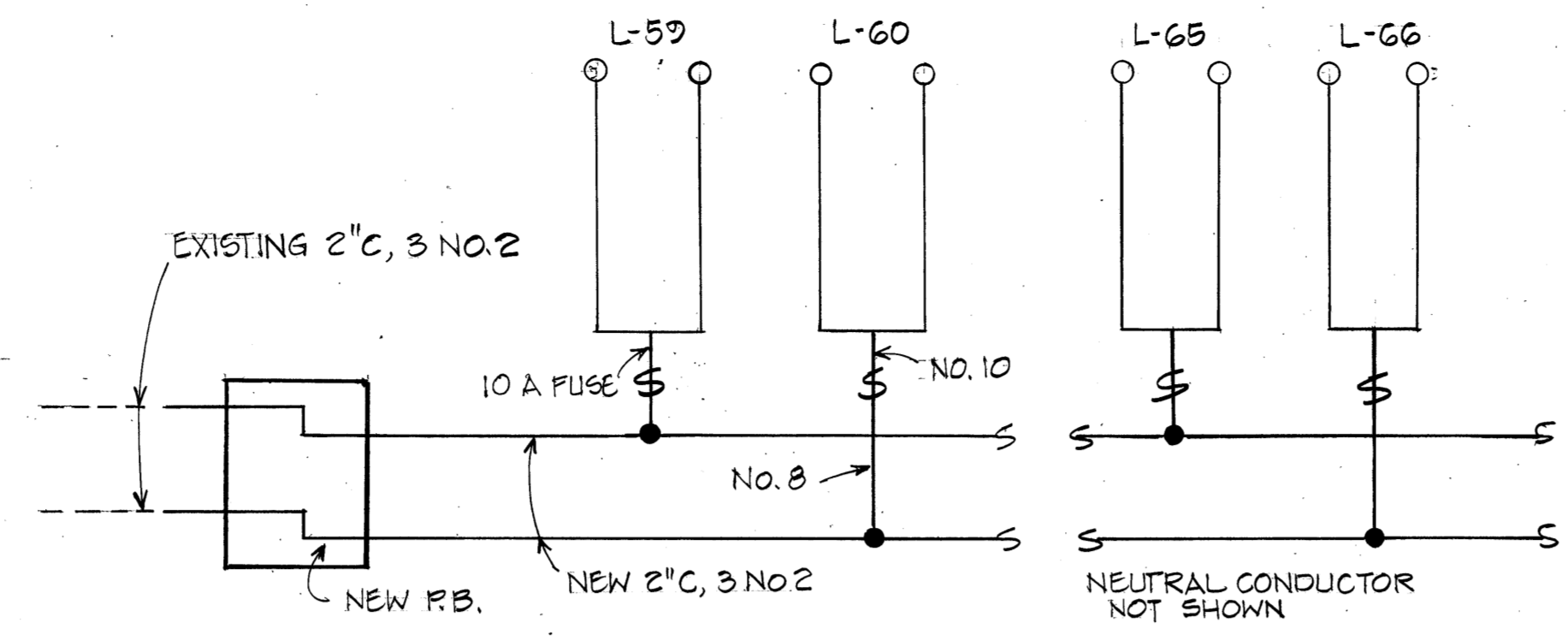


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-1(22)	1982	39	51

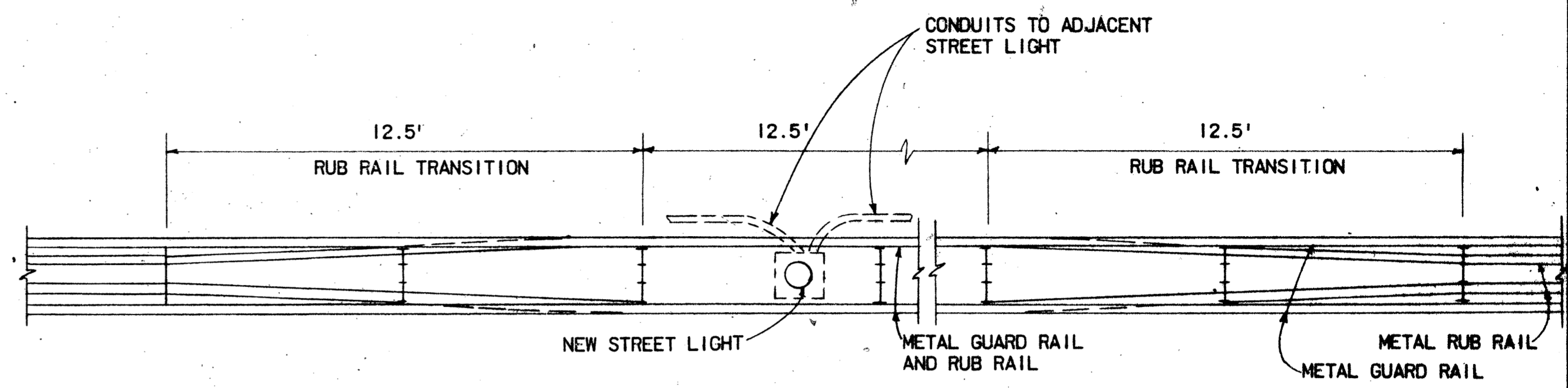


NOTE:  
STANDARDS WITH SINGLE BRACKET ARM SIMILAR EXCEPT WITH ONLY ONE BRACKET ARM AND ONE SIMPLEX ATTACHMENT.

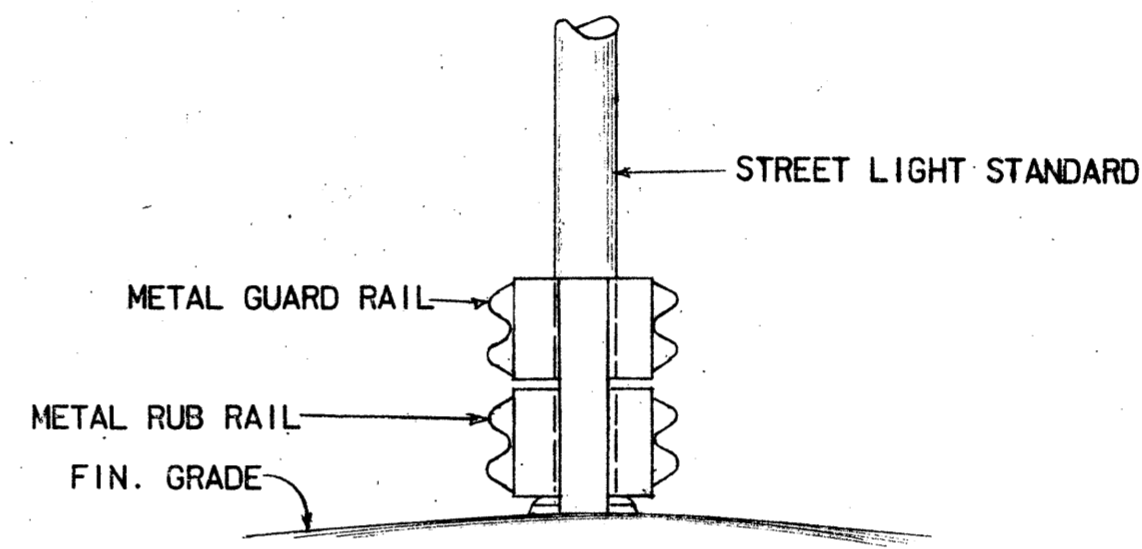
FOUR FEET MAST ARM DETAIL  
N.T.S. A  
10



SINGLE LINE DIAGRAM FOR NEW HIGHWAY LIGHTS  
PALI HWY TO KAILUA DRIVE IN THEATER

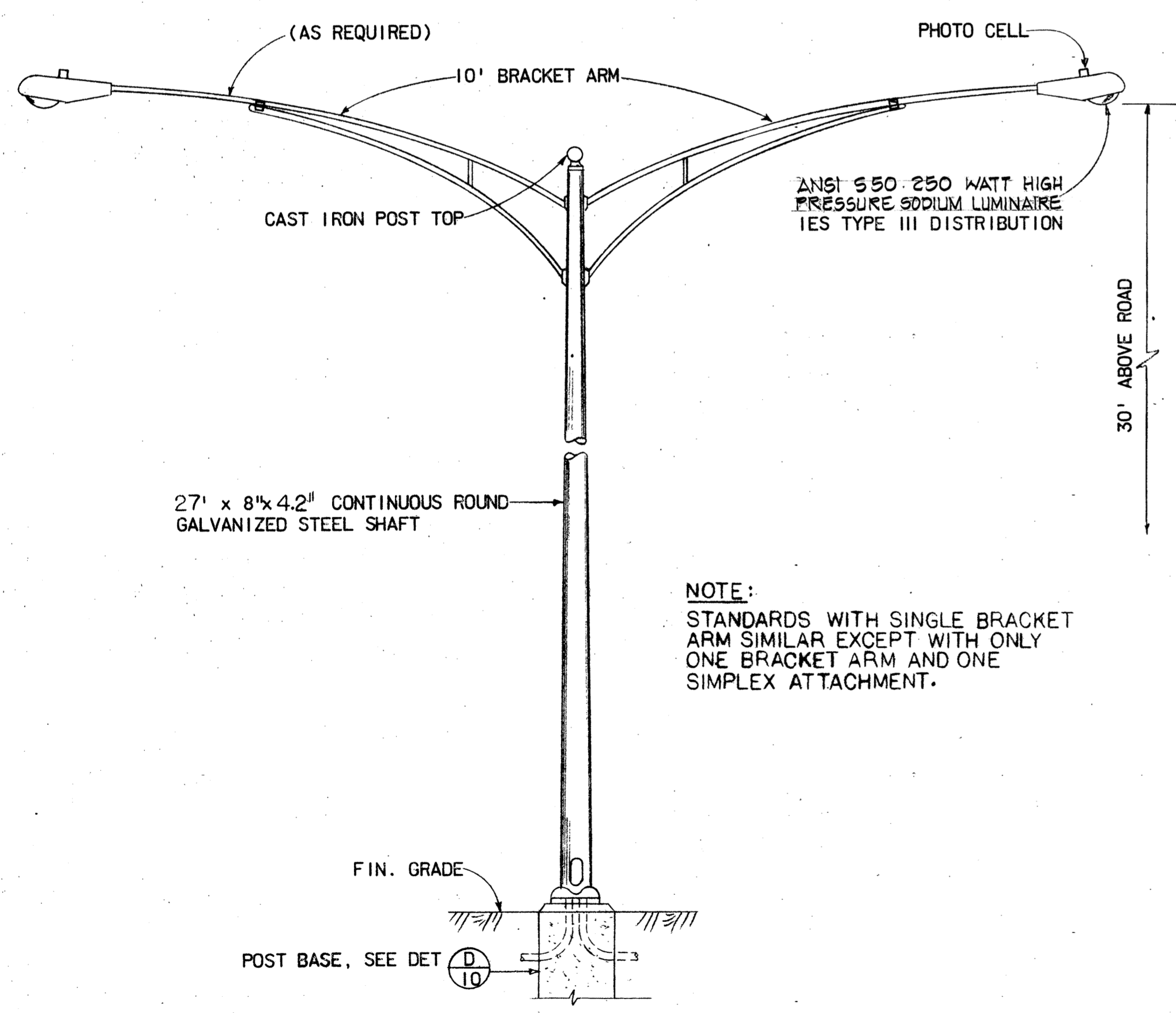


TYPICAL DETAIL OF RECONSTRUCTED METAL GUARD RAIL AT NEW STREET LIGHT STANDARD  
SCALE: 1" = 3'-0"



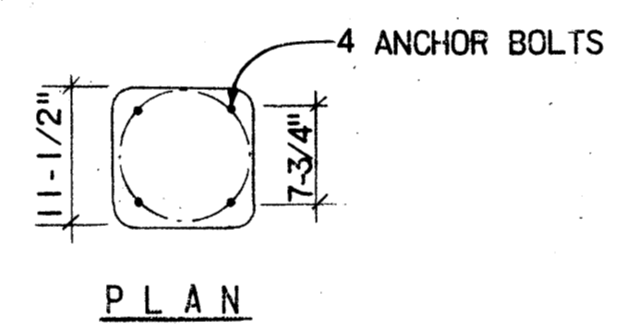
TYPICAL SECTION OF RECONSTRUCTED METAL GUARD RAIL AT NEW ST. LT. STANDARD  
SCALE: 1/2" = 1'-0"

- NOTES FOR RECONSTRUCTING GUARD RAILS
- IT IS INTENDED THAT THE CONTRACTOR SHALL MAKE USE OF ALL POST, RAILS, SPACER BLOCKS AND FITTINGS SALVAGED FROM THE EXISTING GUARD RAIL THAT HAVE NOT DETERIORATED, IN THE ENGINEER'S OPINION, TO AN EXTENT PRECLUDING THEIR USE IN THE RECONSTRUCTED GUARD RAIL.
  - RECONSTRUCTED GUARD RAIL SHALL BE DONE AND PAID FOR IN ACCORDANCE WITH SECTION 606 - GUARD RAIL.
  - ADDITIONAL SPACER BLOCKS REQUIRED SHALL BE INCIDENTAL TO RECONSTRUCTION OF GUARD RAIL.
  - AT THE END OF EACH DAYS WORK, THE CONTRACTOR SHALL REINSTALL THE EXISTING GUARDRAIL AT THE WORK LOCATION.

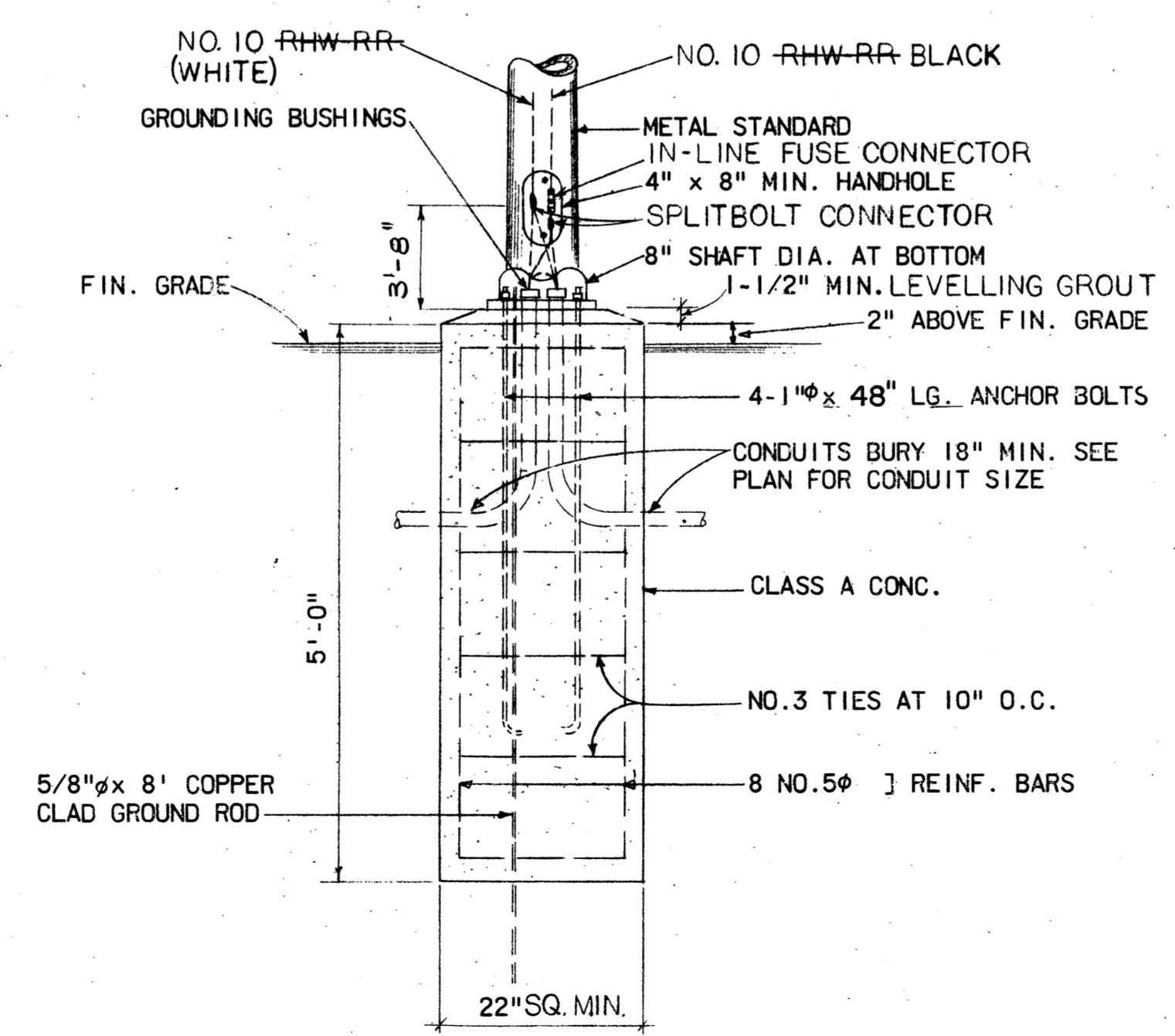


NOTE:  
STANDARDS WITH SINGLE BRACKET ARM SIMILAR EXCEPT WITH ONLY ONE BRACKET ARM AND ONE SIMPLEX ATTACHMENT.

STREET LIGHT STANDARD WITH 10 FEET BRACKET ARM DETAIL  
N.T.S. C  
10

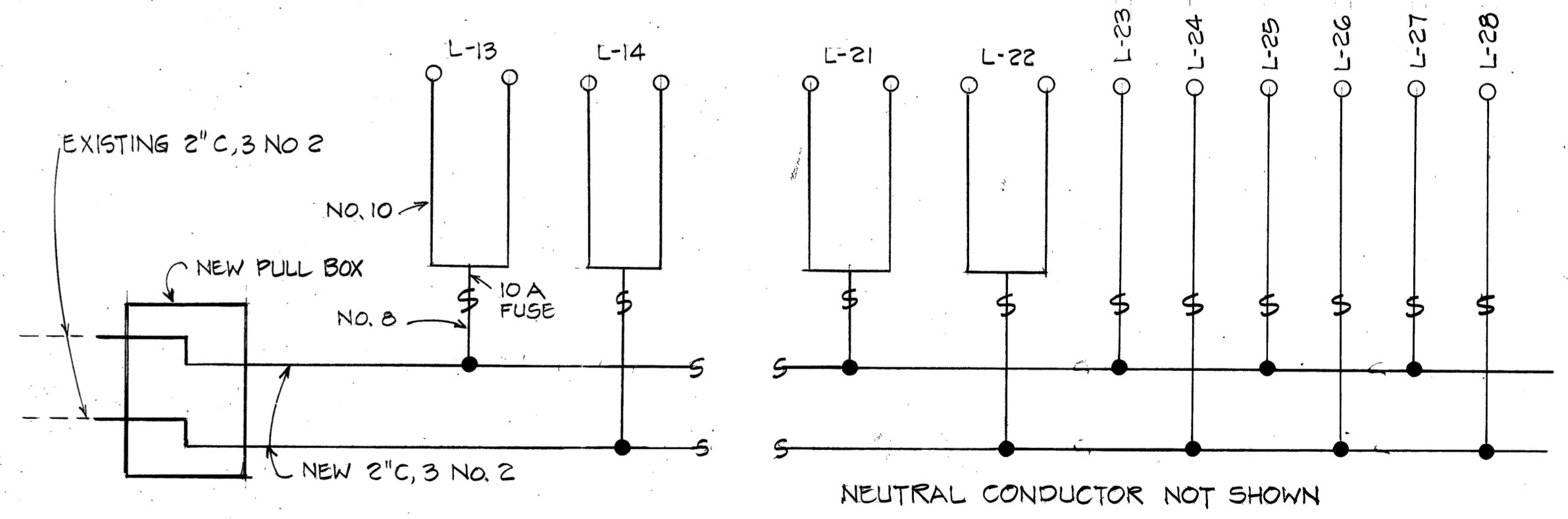


PLAN



SECTION

CONC. POLE BASE FOR LT. STANDARD W/O TRANS. BASE DETAIL  
N.T.S. D  
10



SINGLE LINE DIAGRAM FOR NEW HIGHWAY LIGHTS  
KAILUA DRIVE IN THEATER TO WAIMANALO JUNCTION

DATE	
DESIGNED BY	
CHECKED BY	
NO. 10	

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

LIGHTING DETAILS

KALANIANA'OLE HIGHWAY  
SAFETY IMPROVEMENTS  
KAMEHAMEHA HWY TO KAILUA RD.  
F.A. Proj. No. HES-ROS-061-1(22)

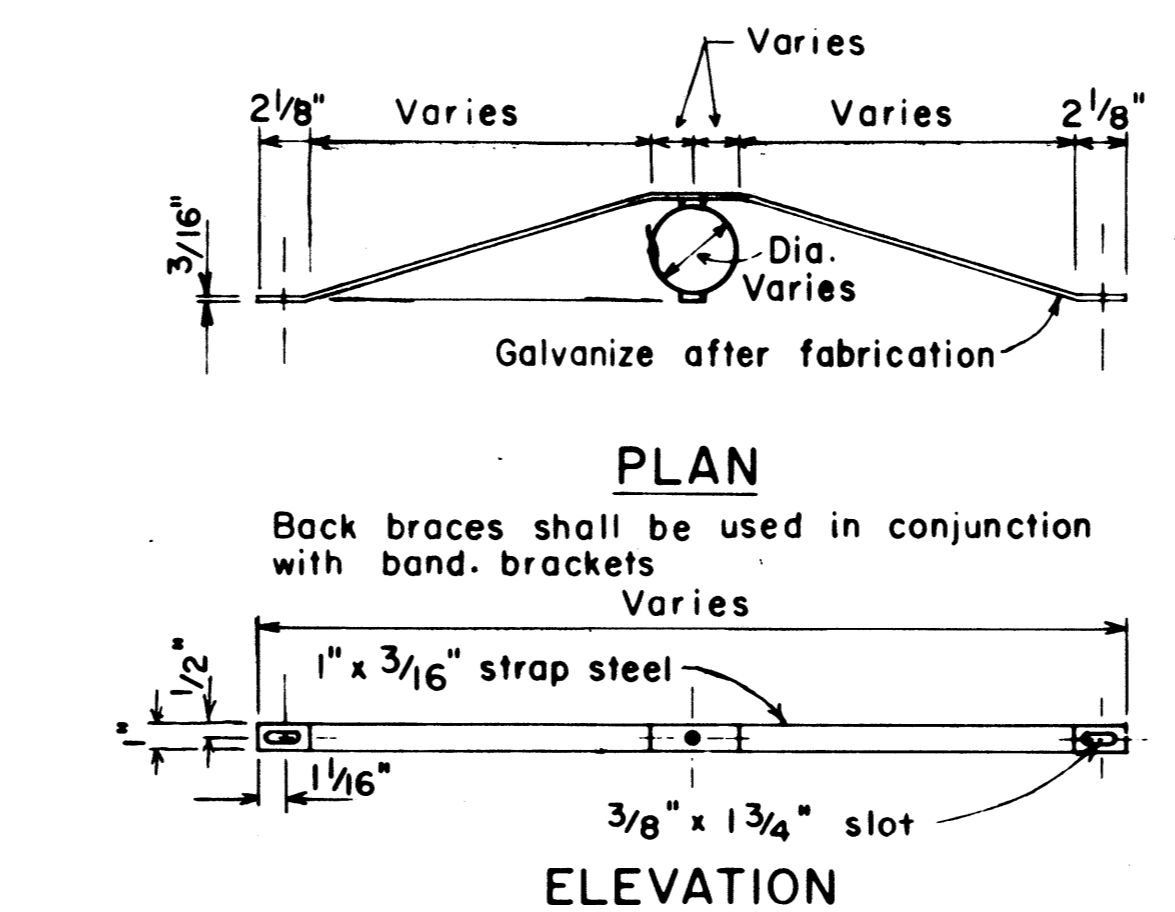
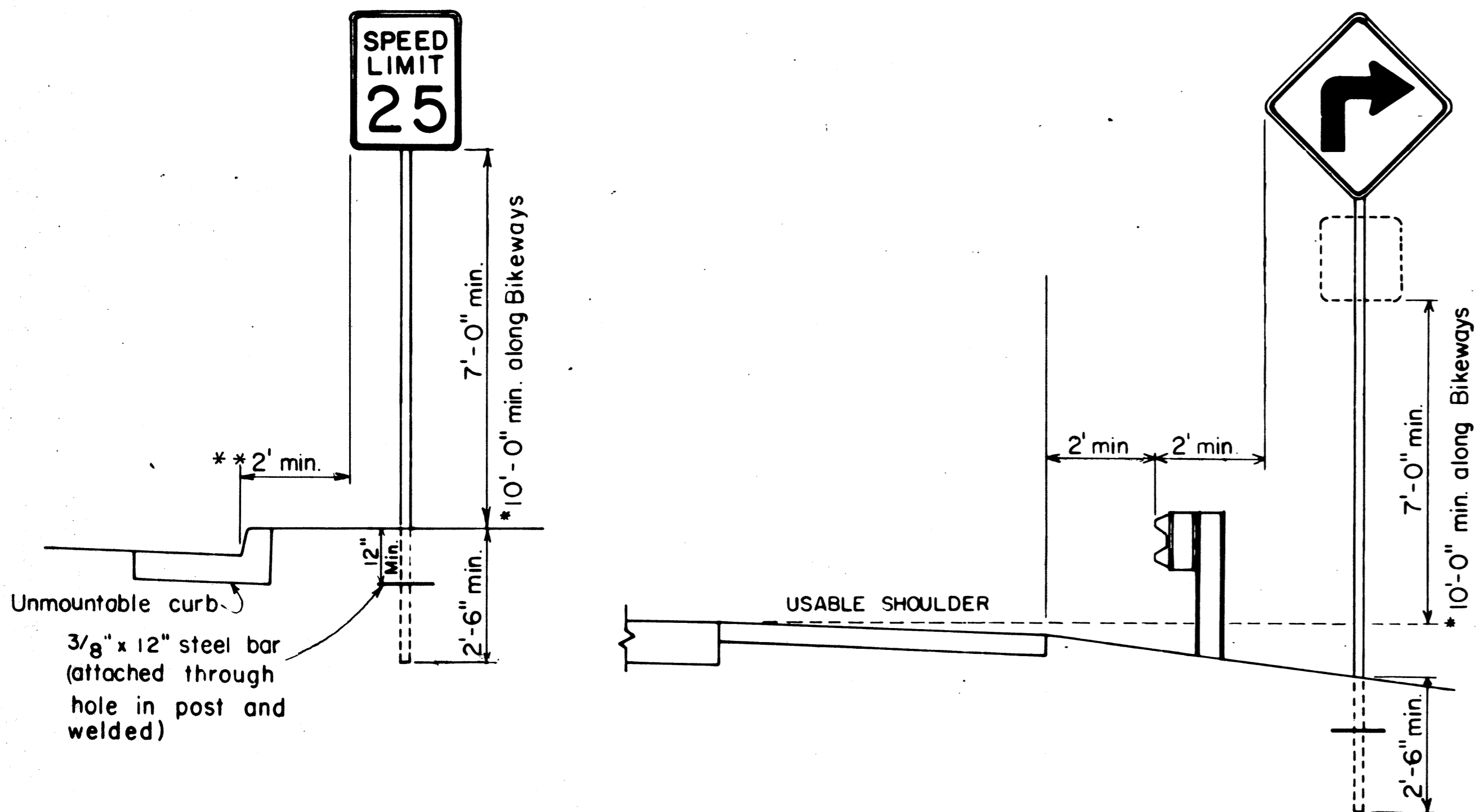
Scale: As Noted Date:

SHEET No. OF SHEETS

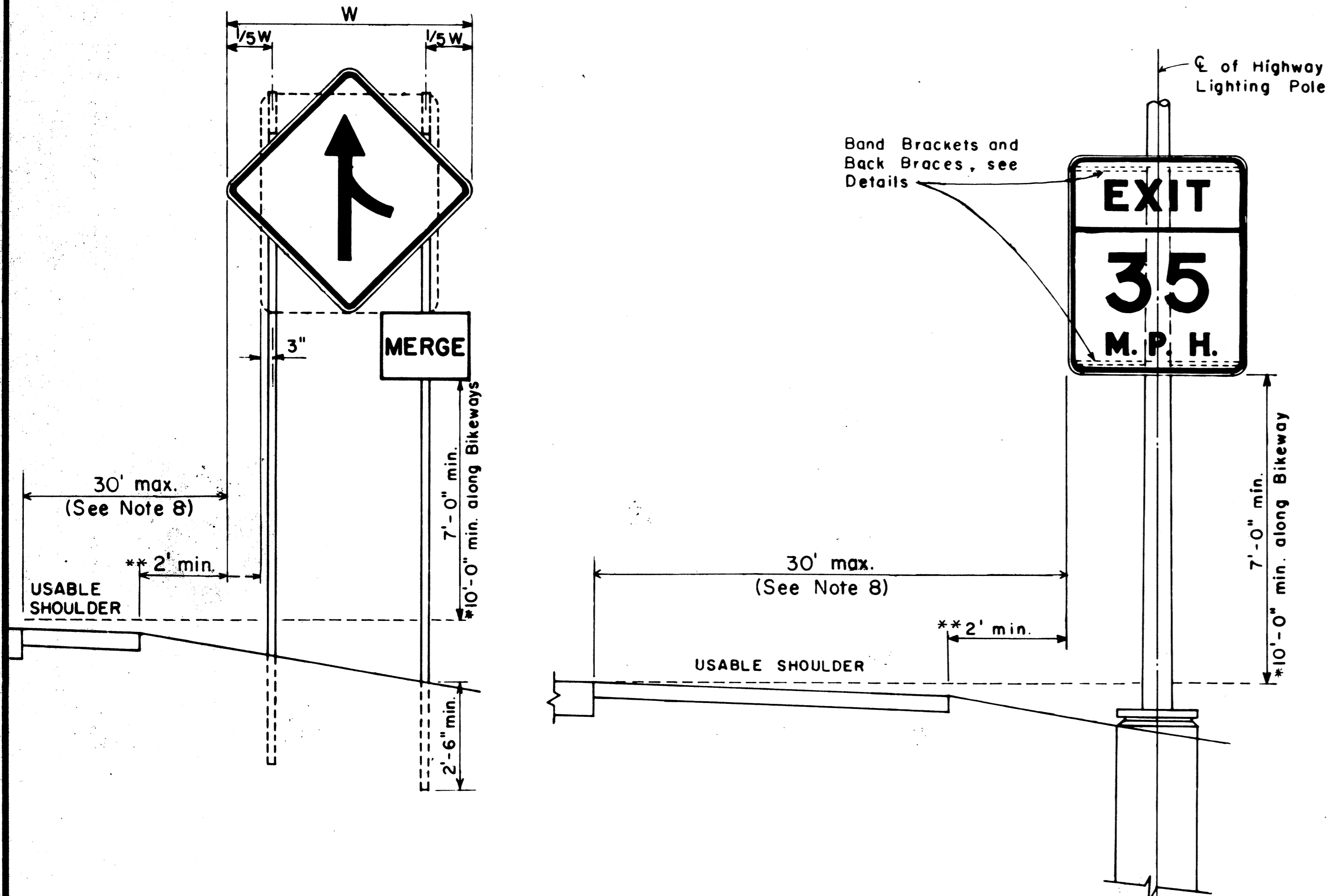
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-(22)	1982	40	51

**GENERAL NOTES**

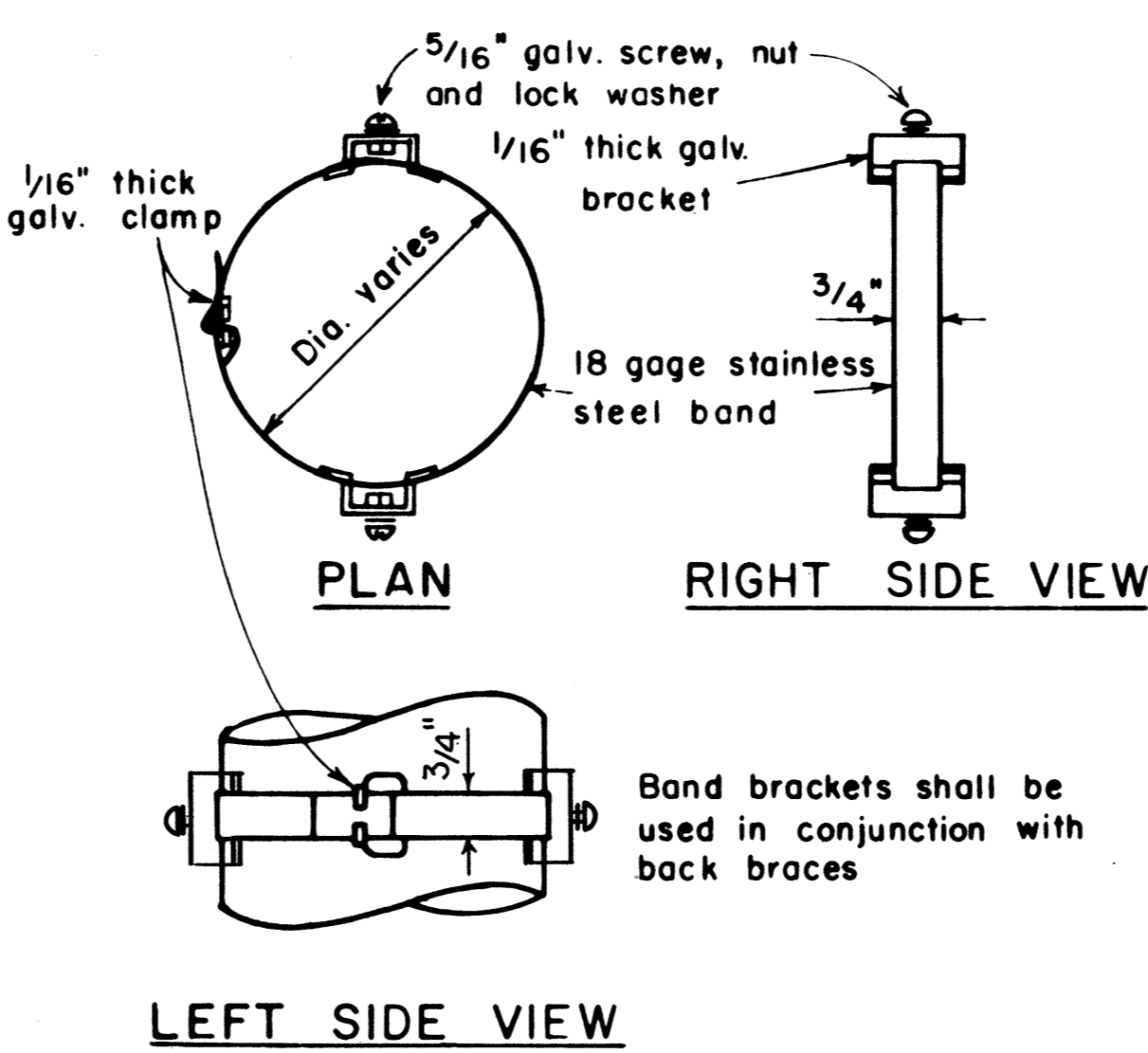
- Signs shall be placed in conformance with positions shown and described in the "Manual on Uniform Traffic Control Devices for Streets and Highways", 1978, Part II, Section 2A-21, as amended, and as supplemented herein.
- Signs 48" and wider or larger than 10 sq. ft. in area shall be mounted on two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



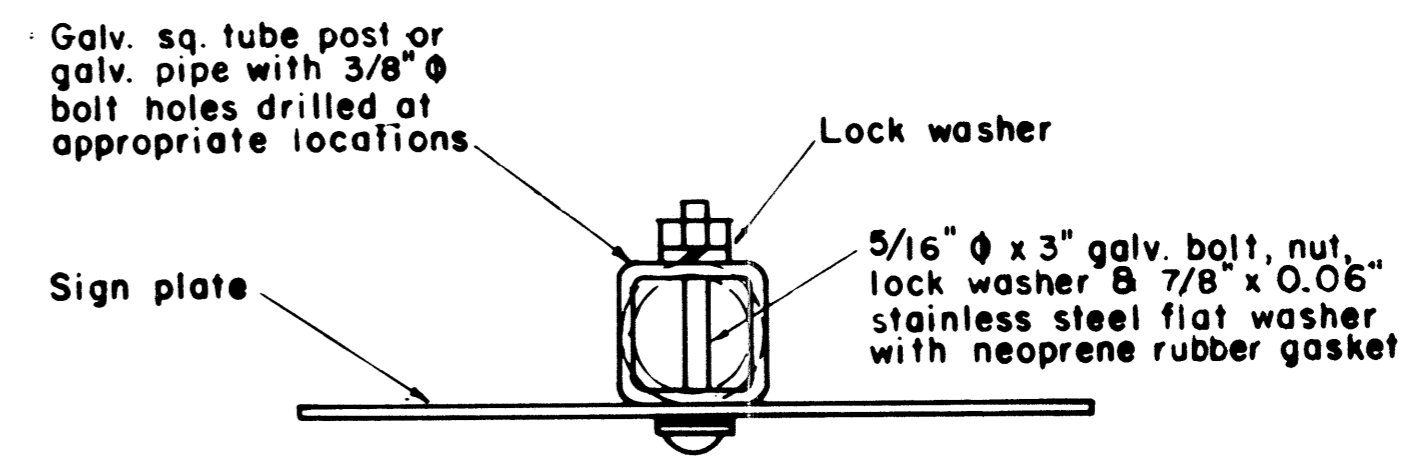
**BACK BRACE DETAILS FOR BALANCED SIGN INSTALLATION**



**HEIGHT AND LATERAL LOCATION OF SIGNS TYPICAL INSTALLATION**



**BAND BRACKET**



**GALVANIZED SQUARE TUBE POST (OR GALVANIZED PIPE)**

**TYPICAL MOUNTING DETAILS**

NOT TO SCALE

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

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

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.	5/18/79
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

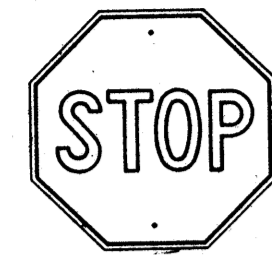
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**  
MISCELLANEOUS SIGN DETAILS

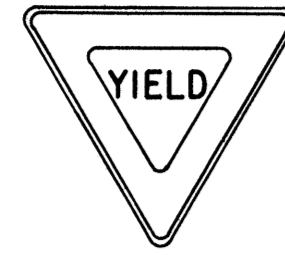
Not to scale  
June, 1977

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-1(22)	1982	41	51



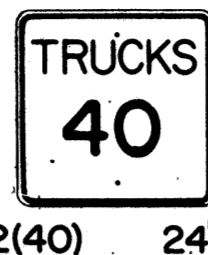
R1-1 30" x 30"  
R1-1-A 36" x 36"  
4-WAY  
R1-3 12" x 6"  
R1-3-A 18" x 9"



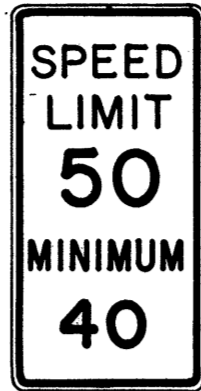
R1-2 36" x 36" x 36"  
R1-2-A 48" x 48" x 48"



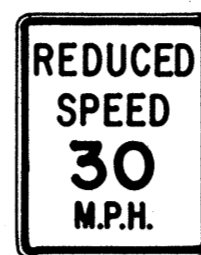
R2-1(50) 24" x 30"  
R2-1(50)-A 48" x 60"



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



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



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



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



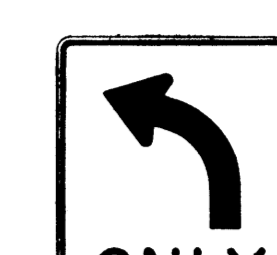
R3-2 24" x 24"  
24" x 18"  
R3-2-A 48" x 48"  
48" x 36"



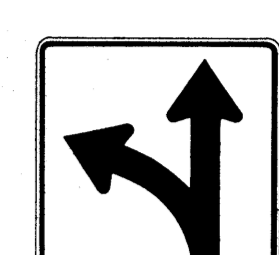
R3-3 24" x 24"  
R3-3-A 48" x 48"



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



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



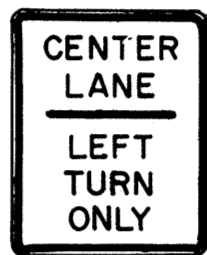
R3-6(L) 30" x 36"  
R3-6(L)-A 48" x 60"



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



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



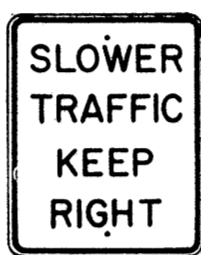
R3-9 24" x 30"



R4-1 24" x 30"



R4-2 24" x 30"



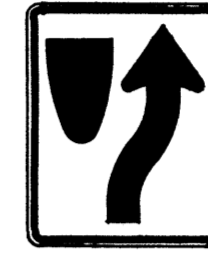
R4-3 24" x 30"  
R4-3-A 48" x 60"



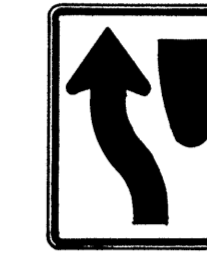
R4-5 24" x 30"



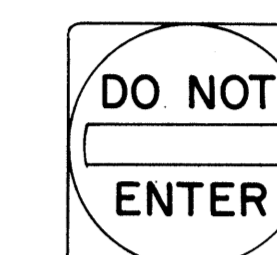
R4-6(500) 24" x 30"



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



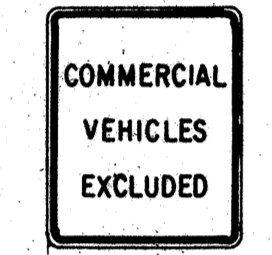
R4-8 24" x 30"  
24" x 18"



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



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



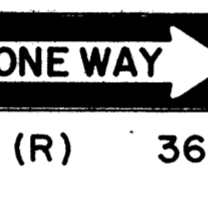
R5-4 24" x 30"



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



R5-9 36" x 24"



R6-1 (R) 36" x 12"



R6-2(R) 18" x 24"



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



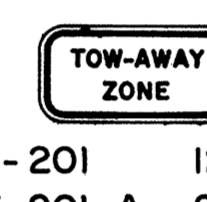
R7-4 12" x 18"  
R7-4-A 24" x 30"



R7-1(7(R)) 12" x 18"



R7-108 12" x 18"



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



R8-1 24" x 30"



R8-2 24" x 30"



R8-3 24" x 30"



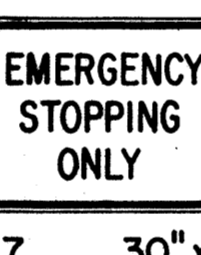
R8-4 30" x 24"  
R8-4-A 48" x 36"



R8-5 24" x 30"



R8-6 24" x 30"



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



R9-1 18" x 24"



R9-2 12" x 18"



R9-3 12" x 18"



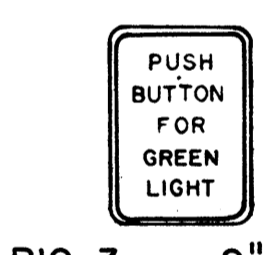
R9-4 18" x 24"



R10-1 12" x 18"



R10-2 12" x 18"



R10-3 9" x 12"



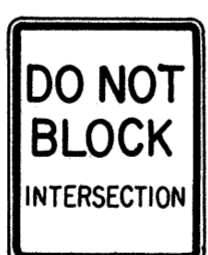
R10-4 9" x 12"



R10-5 24" x 30"



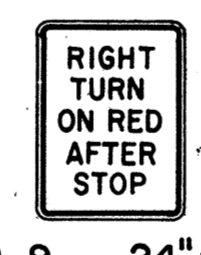
R10-6 24" x 36"



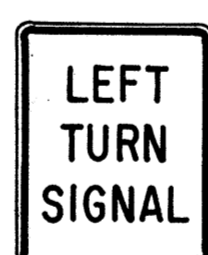
R10-7 24" x 30"



R10-8 24" x 30"



R10-9 24" x 30"



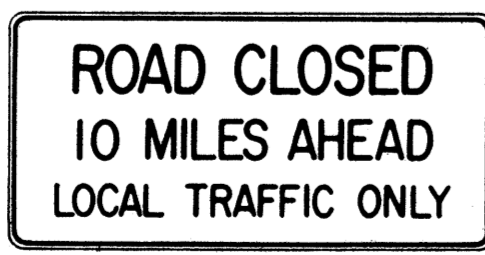
R10-10 24" x 30"



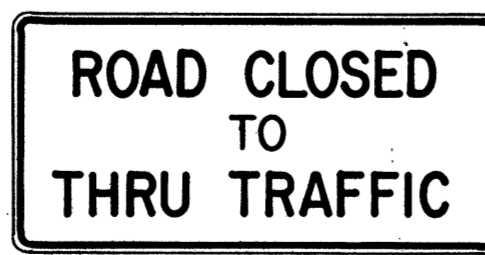
R11-1 24" x 30"



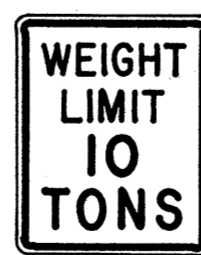
R11-2 48" x 30"



R11-3(10) 60" x 30"



R11-4 60" x 30"



R12-1(10) 24" x 30"

### GENERAL NOTES

- 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 regulatory signs shall be reflectorized unless otherwise specified.
- All regulatory 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.
- All signs shall be erected without educational plaques unless called for in the plans.

APPROVAL RECOMMENDED:  
*Euski Tanaka* 3/17/72  
TRAFFIC ENGINEER DATE

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

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 101 Approved 12-30-69	H.I.	3/20/72
2	Revised General Note 1.	H.I.	10/16/74
3	Added General Note 5	H.I.	8/9/79

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

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

NOT TO SCALE

SHEET No. OF SHEETS DT 101

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII*	HAW.	HES-ROS-061-1(22)	1982	42	51

W1-1(R) 30"x30" W1-1(R)-A 48"x48"	W1-2(R) 30"x30" W1-2(R)-A 48"x48"	W1-3(R) 30"x30" W1-3(R)-A 48"x48"	W1-4(R) 30"x30" W1-4(R)-A 48"x48"	W1-5(R) 30"x30" W1-5(R)-A 48"x48"	W1-6 48"x24"	W1-7 48"x24"	W2-1 30"x30" W2-1-A 48"x48"	W2-2 30"x30" W2-2-A 48"x48"	W2-3(R) 30"x30" W2-3(R)-A 48"x48"

W2-4 30"x30" W2-4-A 48"x48"	W2-5 30"x30" W2-5-A 48"x48"	W3-1 30"x30" W3-1-A 36"x36"	W3-2 30"x30" W3-2-A 36"x36"	W3-3 36"x36" 24"x18"	W4-1(R) 30"x30" 24"x18" W4-1(R)-A 48"x48" 24"x18"	W4-2(R) 36"x36" W4-2(R)-A 48"x48"	W5-1 36"x36"	W5-2 30"x30" W5-2-A 36"x36"	W5-3 36"x36"

W6-1 36"x36" 24"x18"	W6-2 36"x36" 24"x18"	W6-3 30"x30" 24"x18"	W6-3-A 36"x36" 24"x18"	W6-3-B 48"x48" 24"x18"	W7-1 30"x30" 24"x18"	W7-1-A 36"x36" 24"x18"	W7-2 24"x18"	W8-1 30"x30" W8-1-A 36"x36"	W8-2 30"x30" W8-2-A 36"x36"	W8-3 30"x30" W8-3-A 36"x36"	W8-4 30"x30" W8-4-A 36"x36"	W8-5 30"x30" 24"x18"	W8-5-A 36"x36" 24"x18"				

W9-1(R) 30"x30" W9-1(R)-A 36"x36" W9-1(R)-B 48"x48"	W9-2(L) 36"x36" W9-2(L)-A 48"x48"		W10-1 36" Diameter	W11-1 30"x30" 24"x18"	W11-1-A 36"x36" 24"x18"	W11-2 30"x30" 24"x18"	W11-2-A 36"x36" 24"x18"	W11-4 30"x30" 24"x18"	W11-4-A 36"x36" 24"x18"	W11-5 30"x30" 24"x18"	W11-5-A 36"x36" 24"x18"

W12-1 24"x24"	W12-1-A 36"x36"	W12-1-B 48"x48"	W12-2(12'-6") 36"x36" 24"x18"	W13-1(25) 18"x18"	W13-1(25)-A 24"x24"	W13-2(25) 48"x60"	W13-3(25) 48"x60"	W14-1 30"x30"	W14-3 36"x48"x48"

**GENERAL NOTES**

- Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs," 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:  
*Evelyn Tanaka* 3/17/12  
 TRAFFIC ENGINEER DATE

APPROVED:  
*Walter Belsin* 3-20-12  
 ASSISTANT CHIEF, ENGINEERING DATE

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

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

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

NOT TO SCALE

SHEET No. OF SHEETS DT 102

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

DATE \_\_\_\_\_  
 SURVEY PLOTTED BY \_\_\_\_\_  
 PLAN \_\_\_\_\_  
 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.	HES-ROS-061-1(22)	1982	43	51

**General Notes**

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

**ALL WAY** R1-4 18" x 6"

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

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

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

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

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

**ANY TIME** } 4" Series C  
- 1 1/2" R8-3a 24" x 24"  
24" x 18"  
R8-3a-A 48" x 48"

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

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

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

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

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

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

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

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

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

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

**U TURN AHEAD** W17-1(L) 60" x 60"

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

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

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

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

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

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

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

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

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

**ADVANCE GREEN** W15-2 24" x 24"

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

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

**SCHOOL BUS STOP AHEAD** S4-1 24" x 10"  
S4-2 24" x 10"

**SCHOOL** S4-3 24" x 8"  
S4-4 24" x 10"

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

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

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

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

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT103 approved 3/20/72	H.T.	5/3/78
2	Added General Note 6	H.T.	11/9/79

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**

MISCELLANEOUS SIGNS

NOT TO SCALE DATE: MAY, 1978  
SHEET No. OF SHEETS DT 103

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-1(22)	1982	44	51



CW20-1a 48"x 48"



CW20-2d 48"x 48"



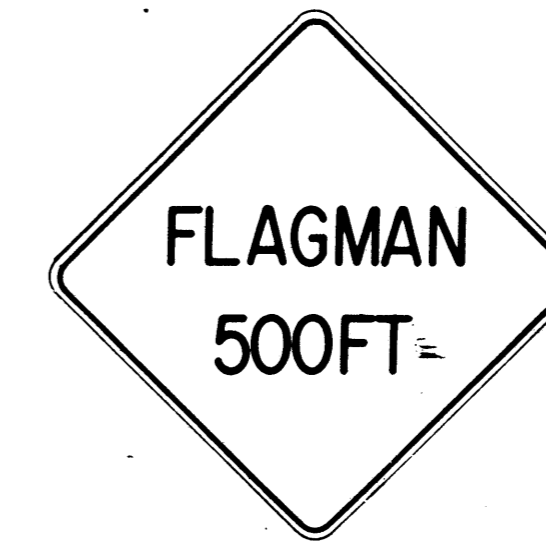
CW20-3b 48"x 48"



CW20-4d 48"x 48"



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



CW20-7c 48"x 48"



CW21-1 30"x 30"



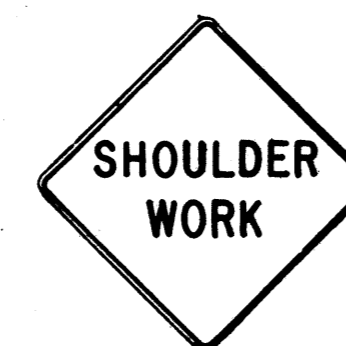
CW21-2 30"x 30"



CW21-3 36"x 36"



CW21-4 36"x 36"



CW21-5 30"x 30"



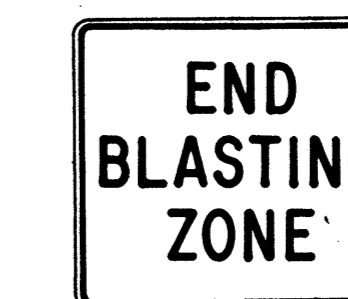
CW21-6 30"x 30"



CW22-1b 48"x 48"



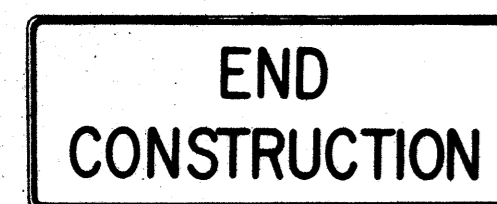
CW22-2 42"x 36"



CW22-3 42"x 36"



CG20-1(5) 60"x 36"



CG20-2 60"x 24"



CM4-9(R) 30"x 24"



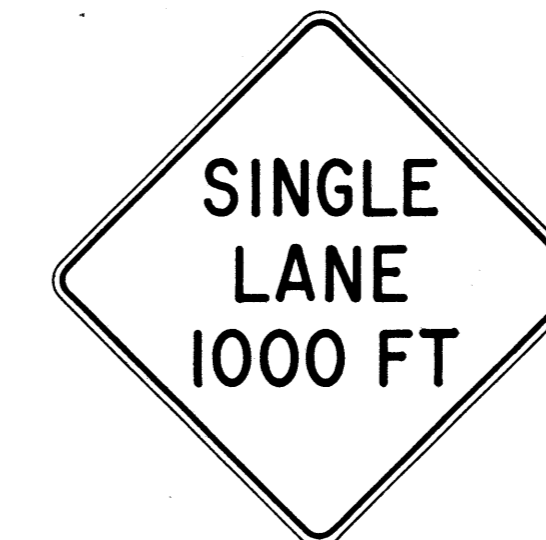
CM4-10(R) 48"x 18"



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:  
*Evelyn Tanaka* 3/23/72  
 TRAFFIC ENGINEER DATE

APPROVED:  
*Arthur Salsich* 3/23/72  
 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

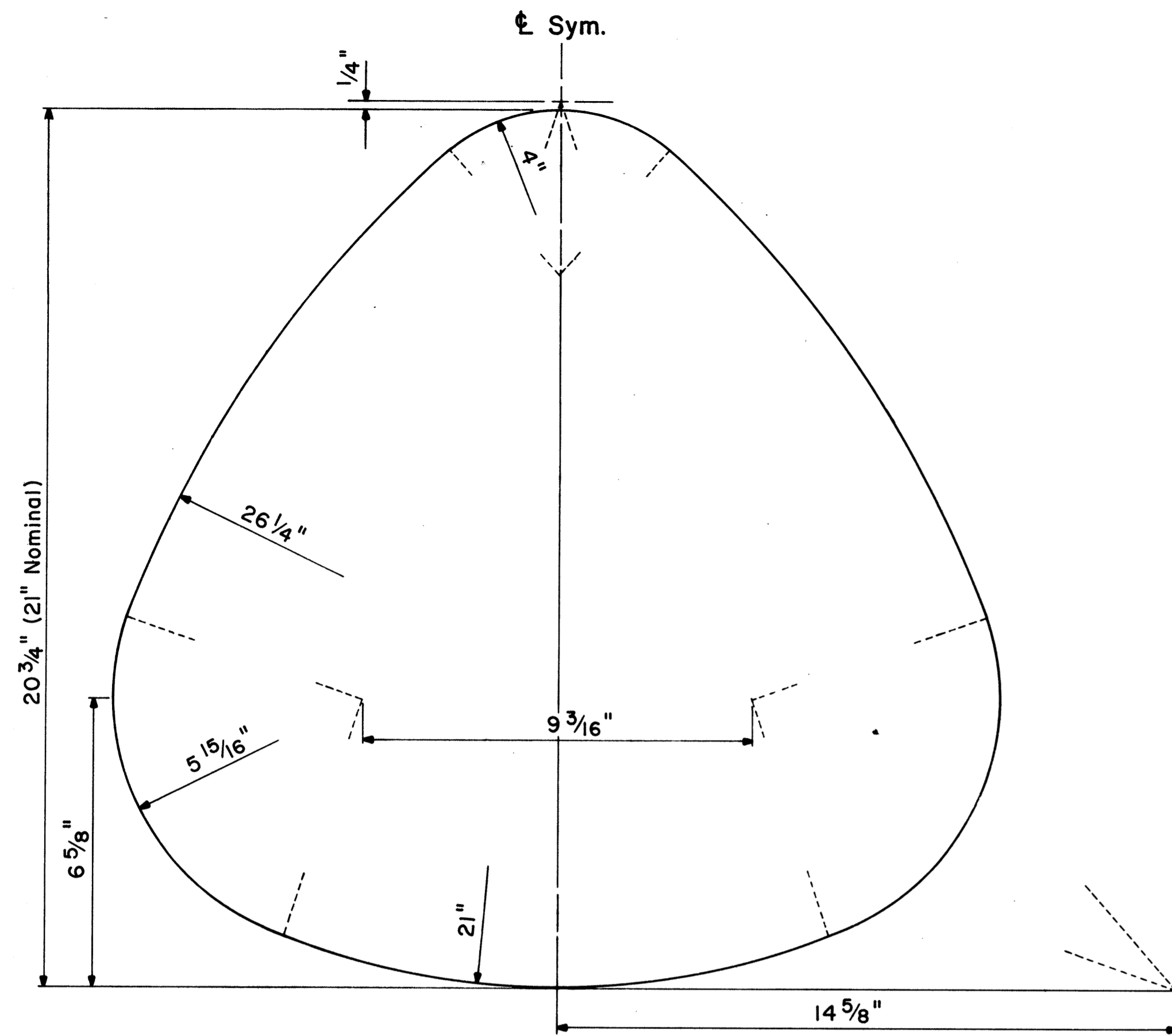
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

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

NOT TO SCALE

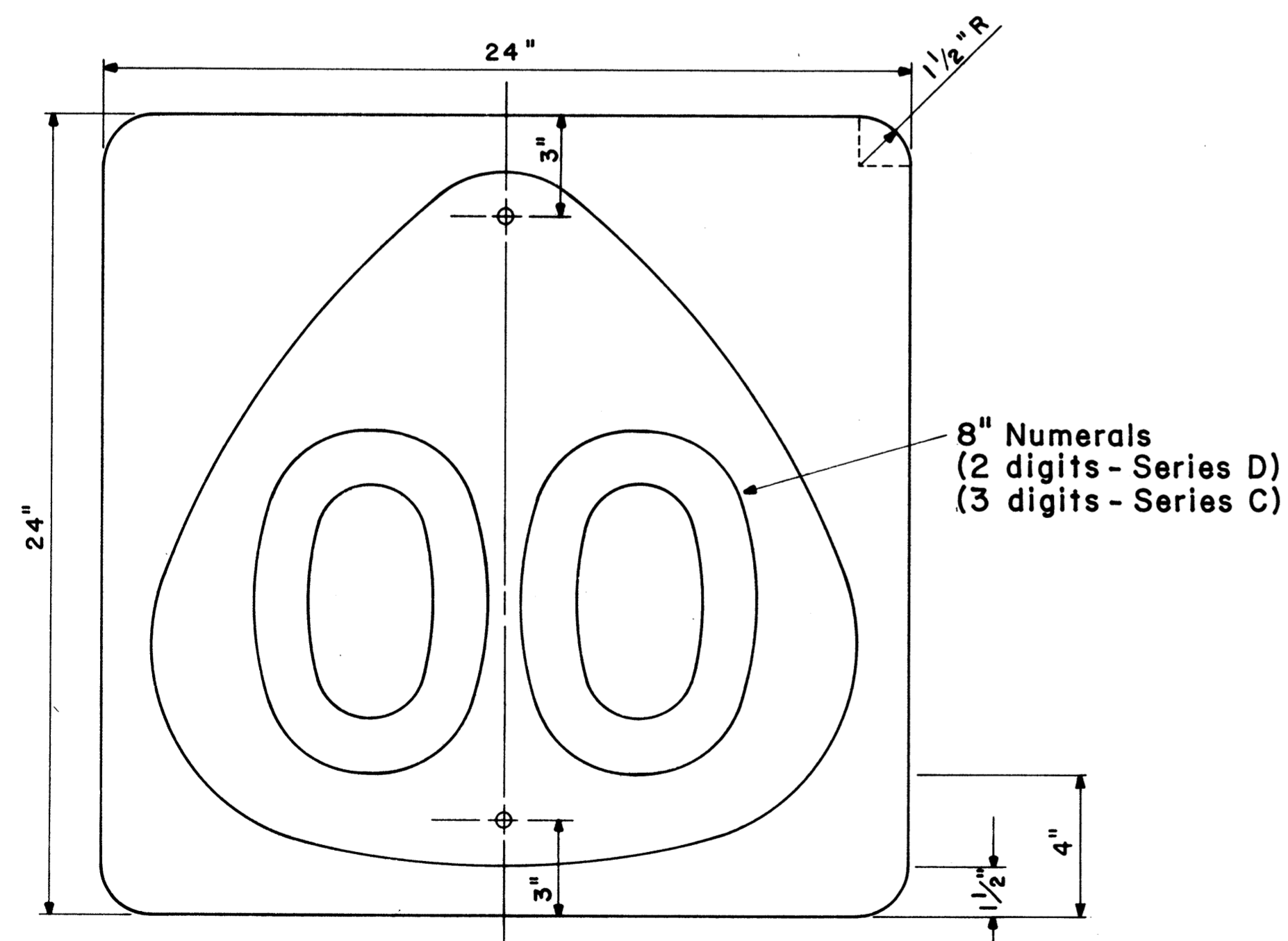
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-1(22)	1982	45	51



**STATE ROUTE MARKER DETAIL**

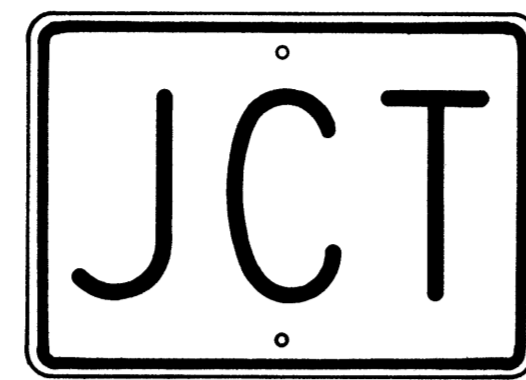
Not to Scale



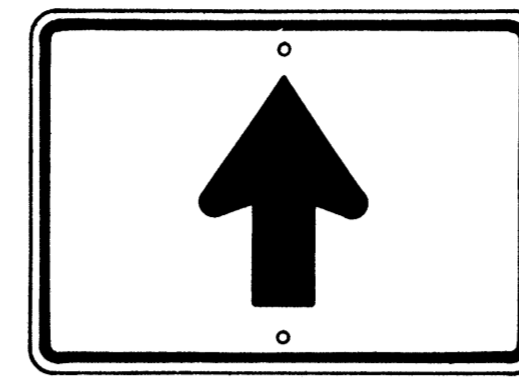
**STATE ROUTE MARKER**

MI-6(00) 24" x 24"

Scale: 1/4" = 1"



M2-1 21" x 15"



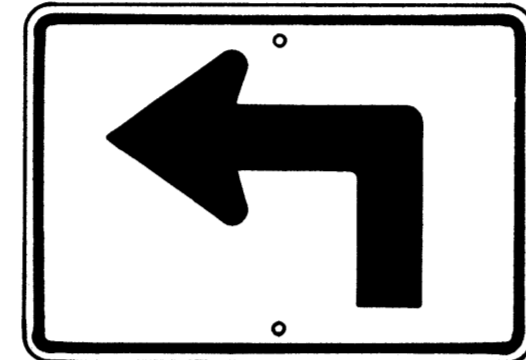
M6-3 21" x 15"



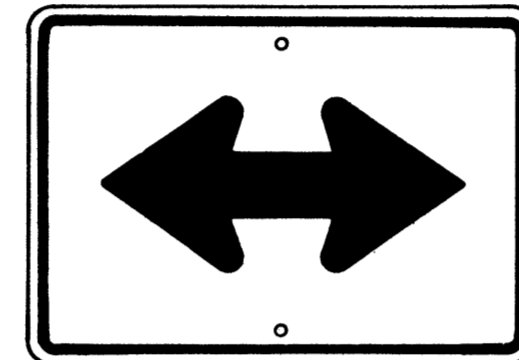
M3-1 24" x 12"  
M3-1-A 36" x 18"



M4-1 24" x 12"



M5-1(L) 21" x 15"



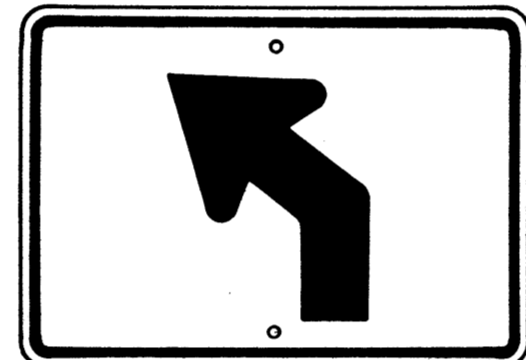
M6-4 21" x 15"



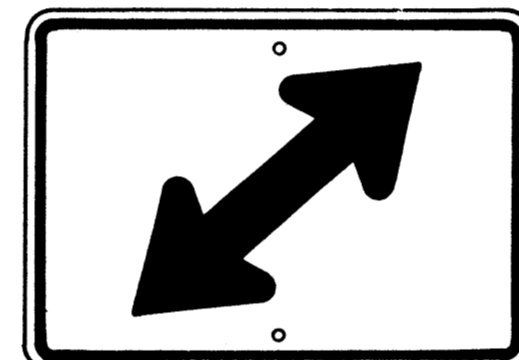
M4-2 24" x 12"



M4-3 24" x 12"



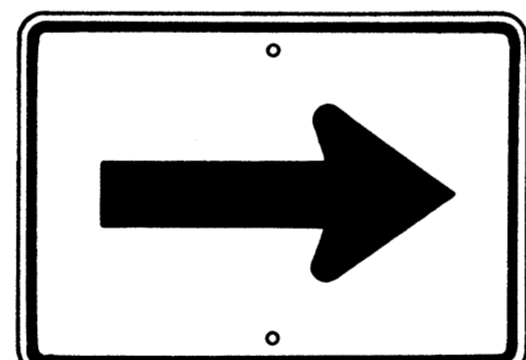
M5-2(L) 21" x 15"



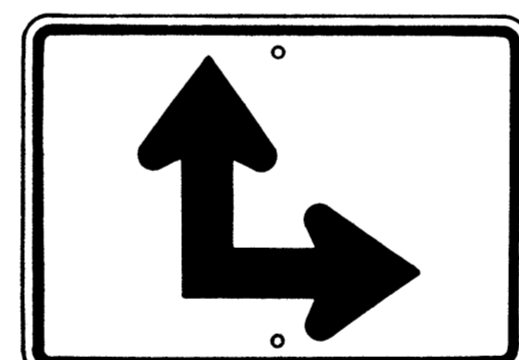
M6-5(R) 21" x 15"



M4-5 24" x 12"



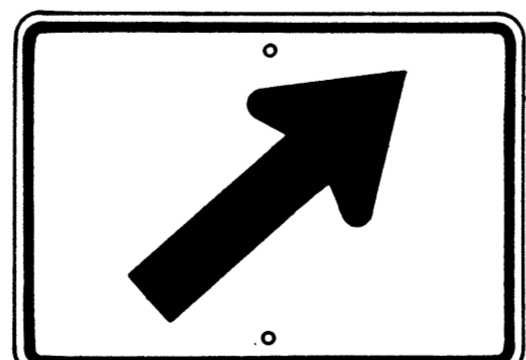
M6-1 21" x 15"



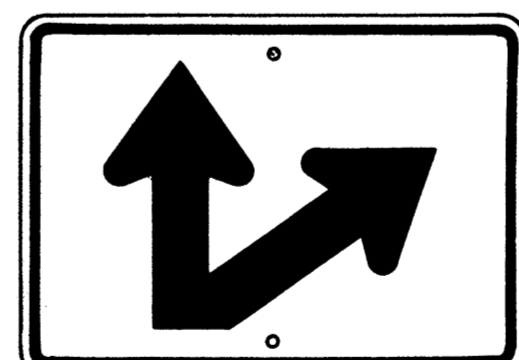
M6-6(R) 21" x 15"



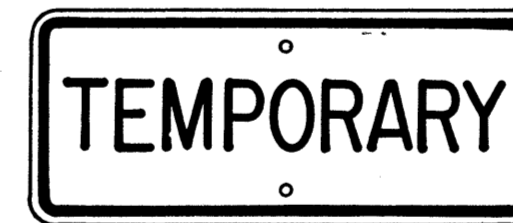
M4-6 24" x 12"



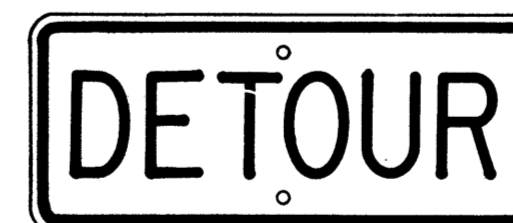
M6-2(R) 21" x 15"



M6-7(R) 21" x 15"



M4-7 24" x 12"



M4-8 24" x 12"

**GENERAL NOTES**

- 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.
- All markers shall be reflectorized unless otherwise specified.
- All markers shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in ( ) indicates numerals to be inserted for marker message. (R) or (L) indicates right or left.
- 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
- Markers prefixed with "IM" on the plans shall have a white legend on a blue background.

**AUXILIARY MARKERS**

Not to Scale

APPROVAL RECOMMENDED:  
*Erich Tanaka* 6/6/72  
 TRAFFIC ENGINEER DATE

APPROVED:  
*Shelton S. Makini* 6-1-72  
 ASSISTANT CHIEF, ENGINEERING DATE

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

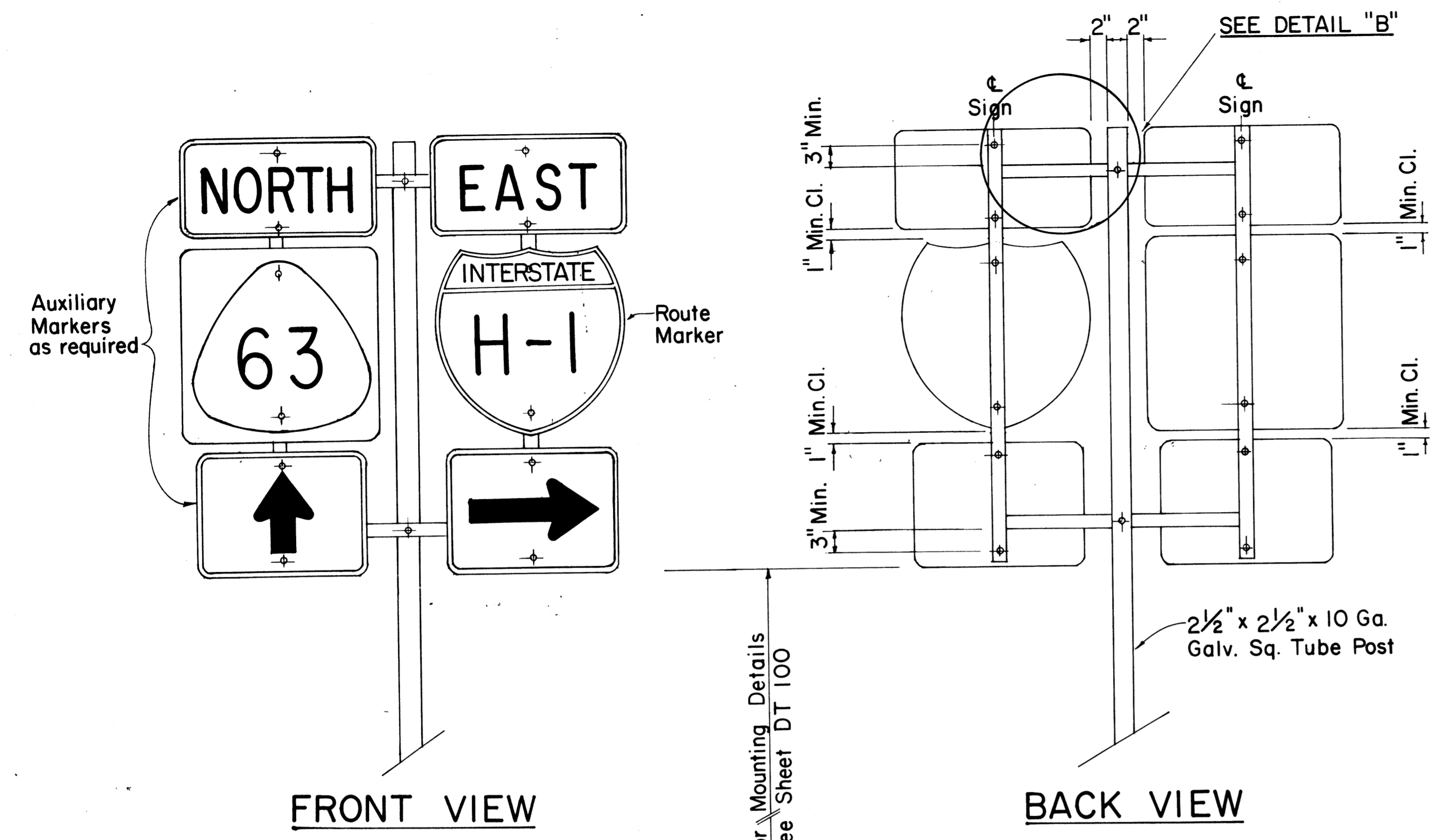
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

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

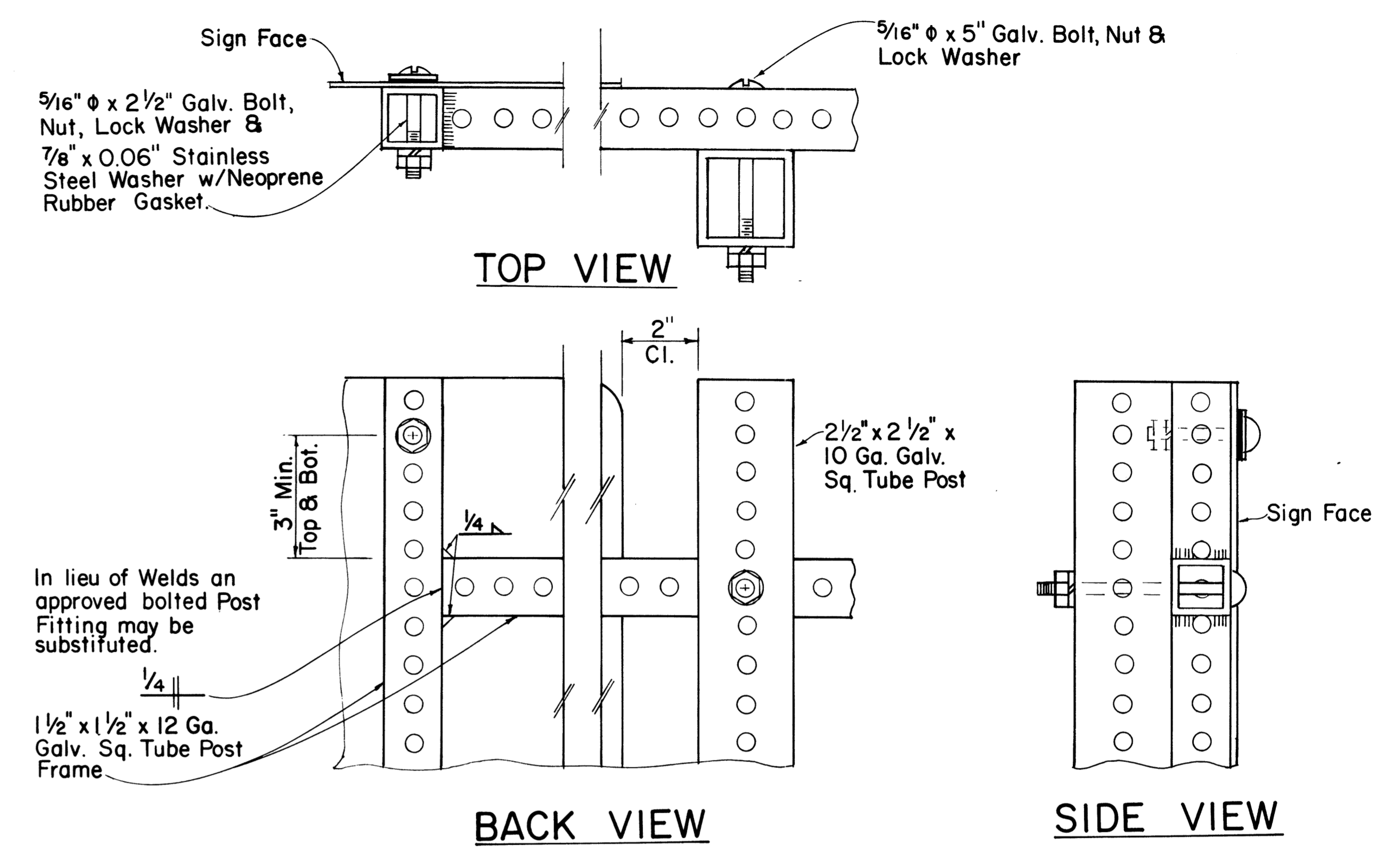
Scale: As Shown  
 SHEET NO. OF SHEETS DT105

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

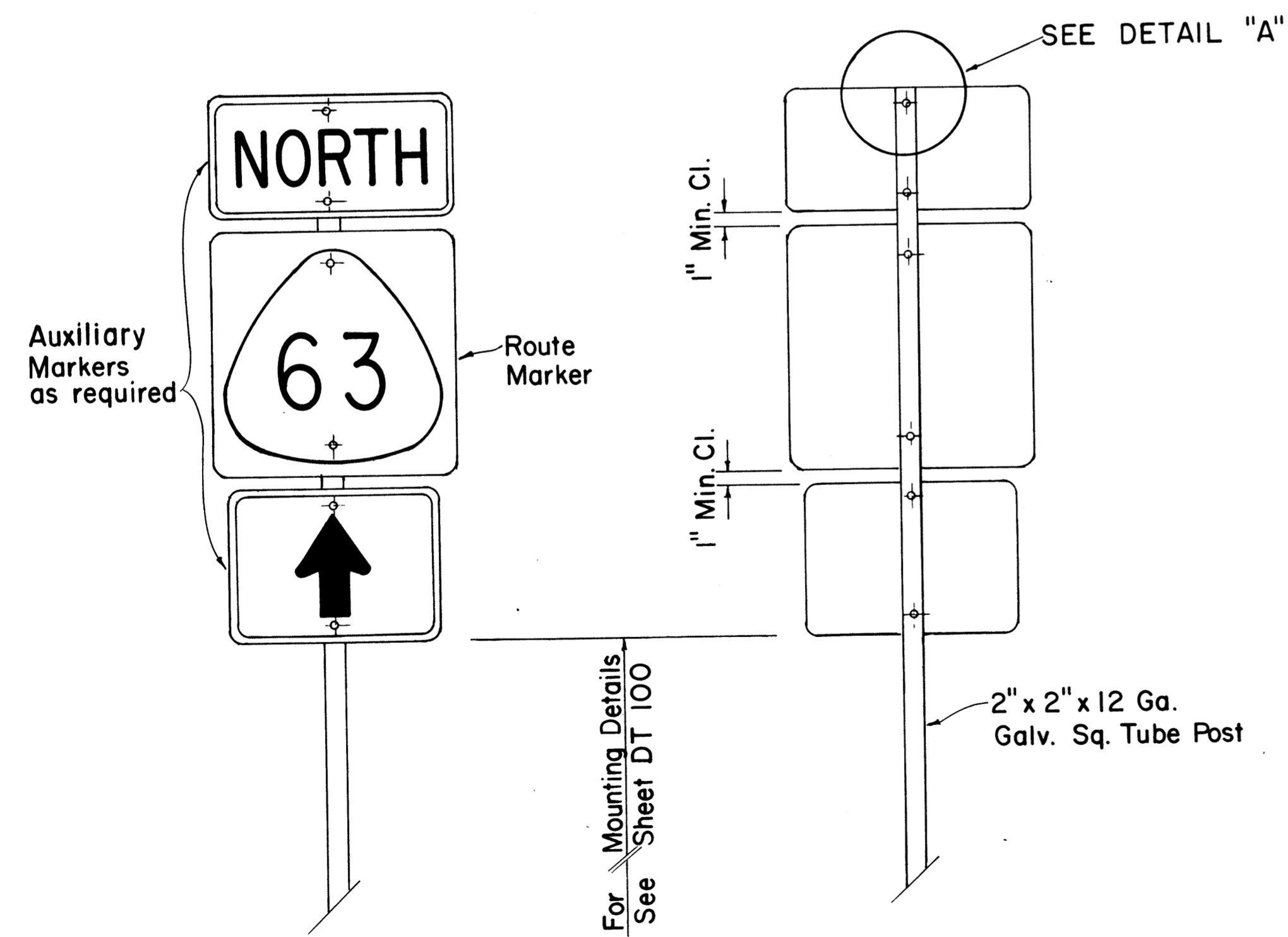
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-1(22)	1982	40	51



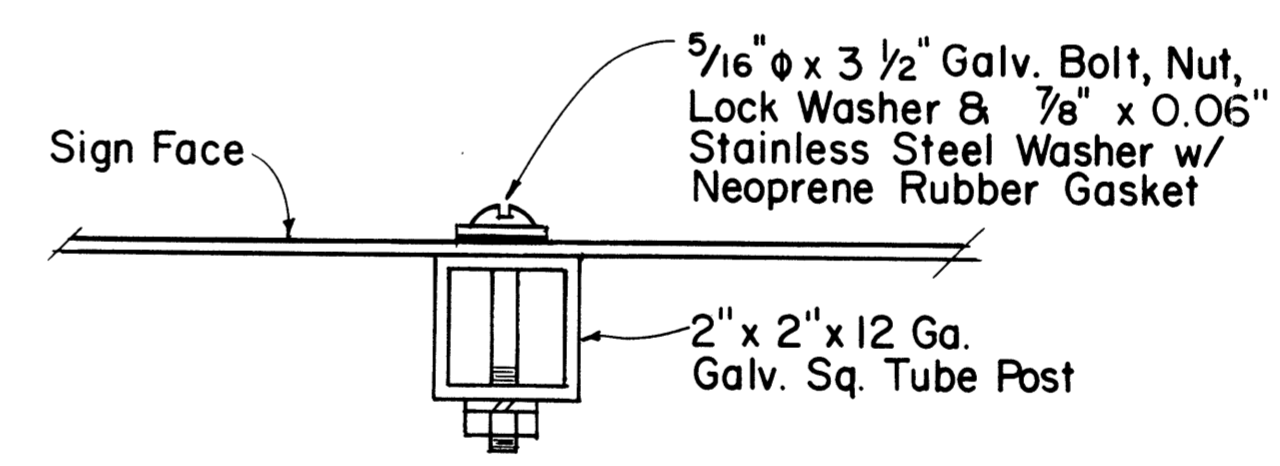
**TYPE "B" ASSEMBLY**  
SCALE: 1" = 1'-0"



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



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



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

APPROVAL RECOMMENDED:  
*Eiichi Tanaka* 7/31/80  
TRAFFIC ENGINEER DATE

APPROVED:  
*Herbert Zaleski* 7/31/80  
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 107 dated 12/30/69.	H.T.	7/31/80

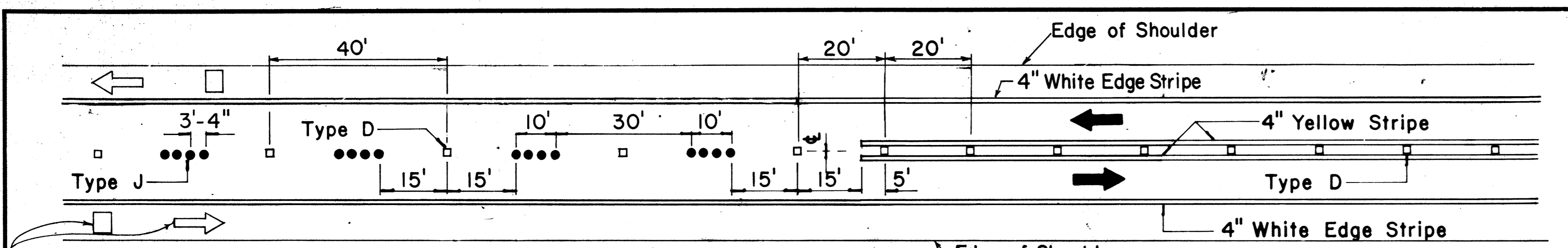
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**  
**ROUTE MARKER**  
**ASSEMBLIES**

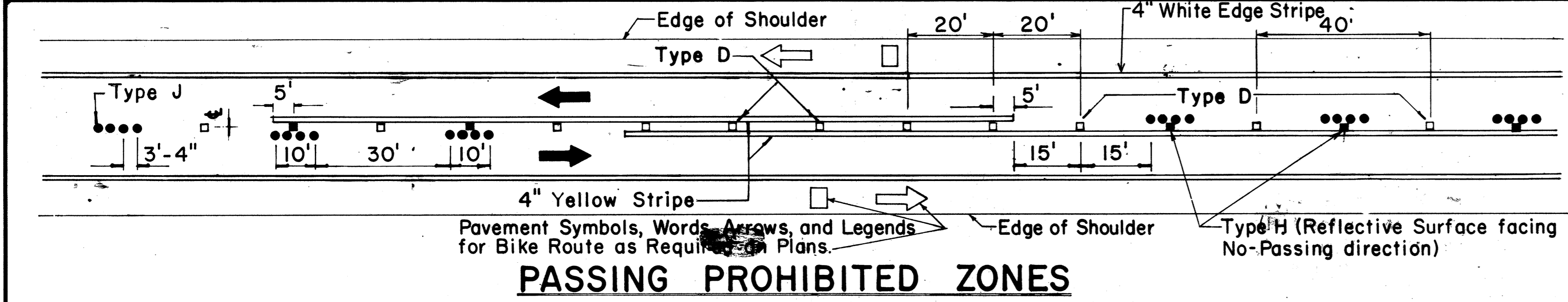
SCALE: AS SHOWN

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

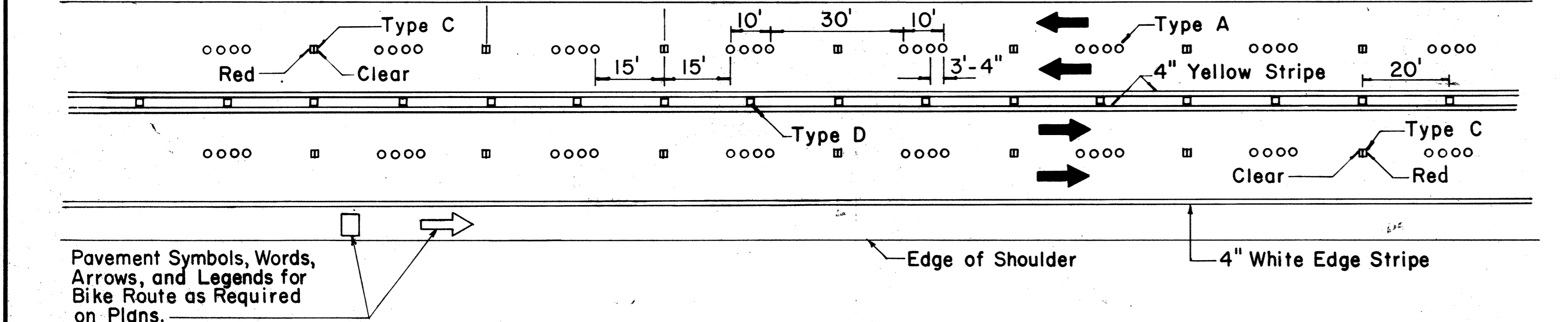
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-06-1(22)	1982	47	51



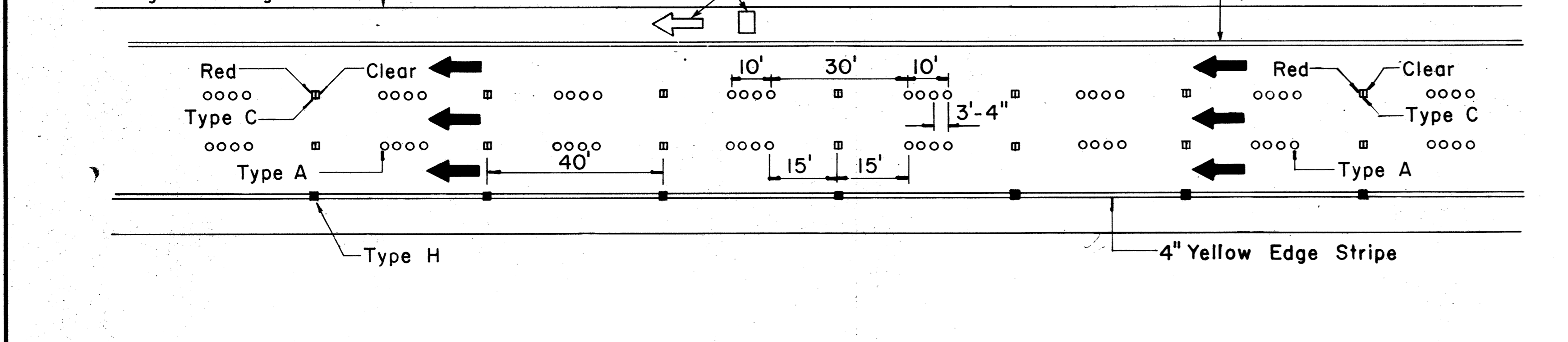
Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans. **PASSING PERMITTED AND PASSING PROHIBITED**



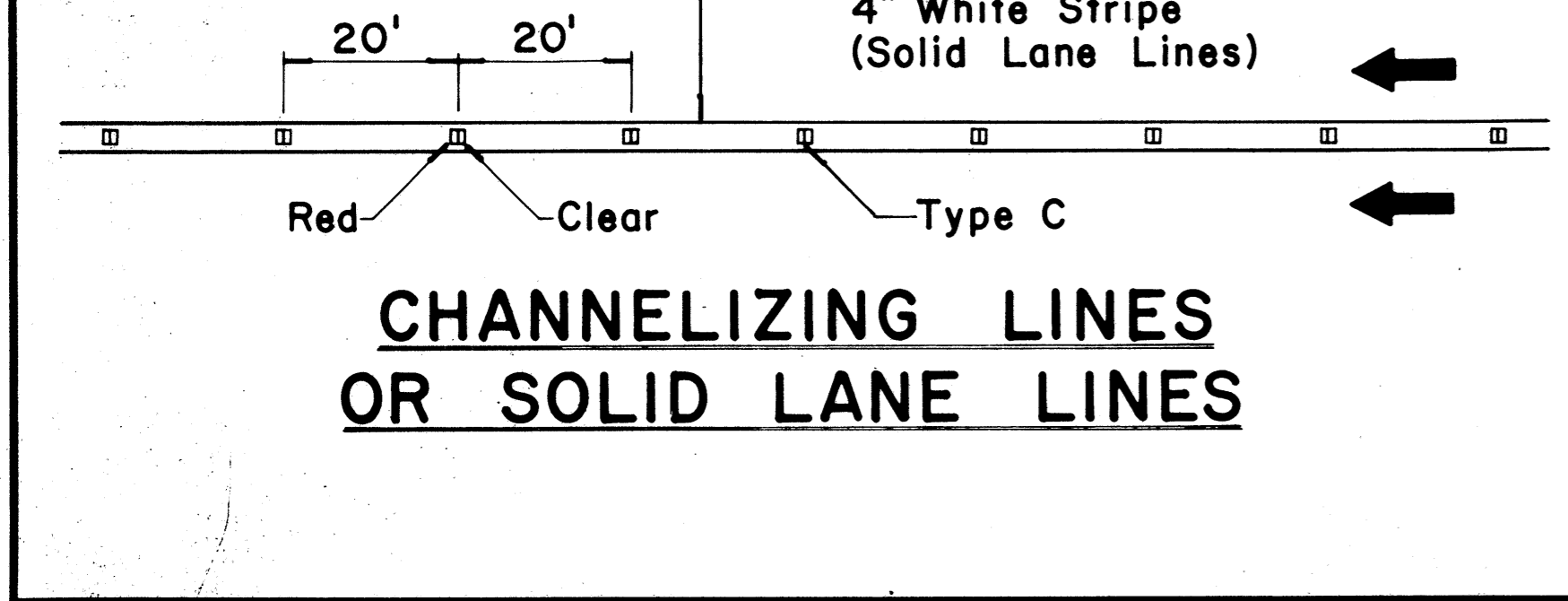
Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans. **PASSING PROHIBITED ZONES**



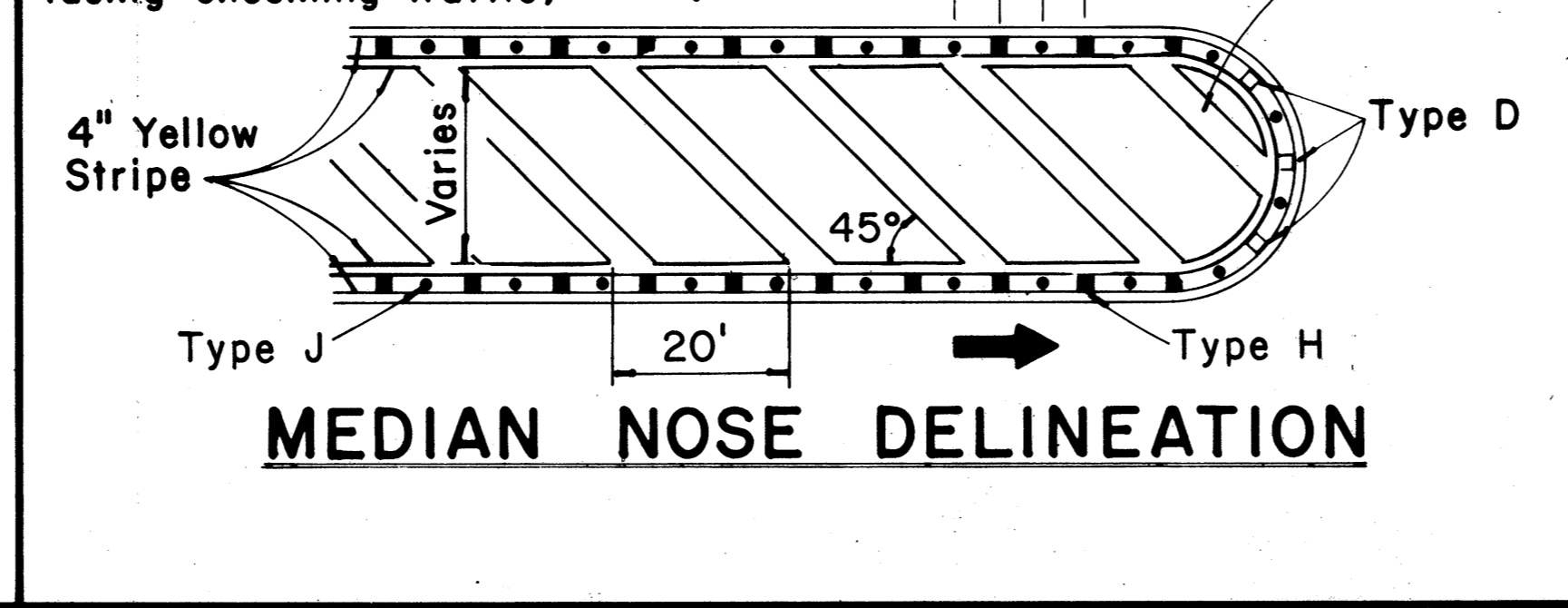
Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans.



NOTE: Type H (Reflective Surface facing oncoming traffic) Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans.

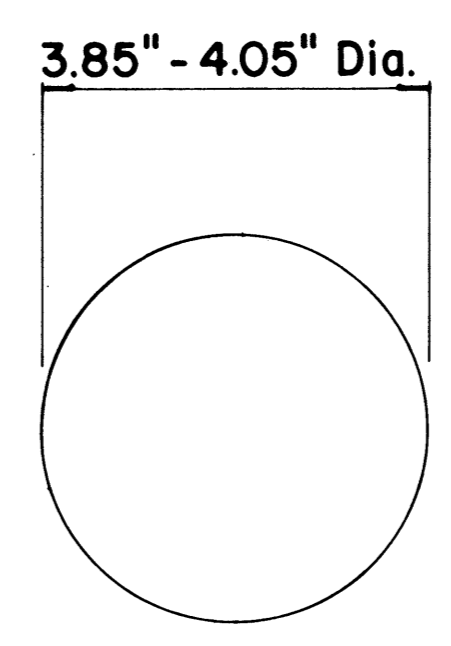


**CHANNELIZING LINES OR SOLID LANE LINES**



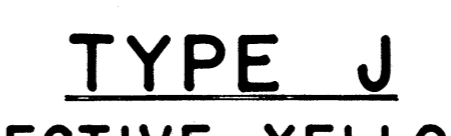
**MEDIAN NOSE DELINEATION**

TWO - LANE  
MULTI - LANE  
DIVIDED HIGHWAY AND FREEWAY  
MISCELLANEOUS



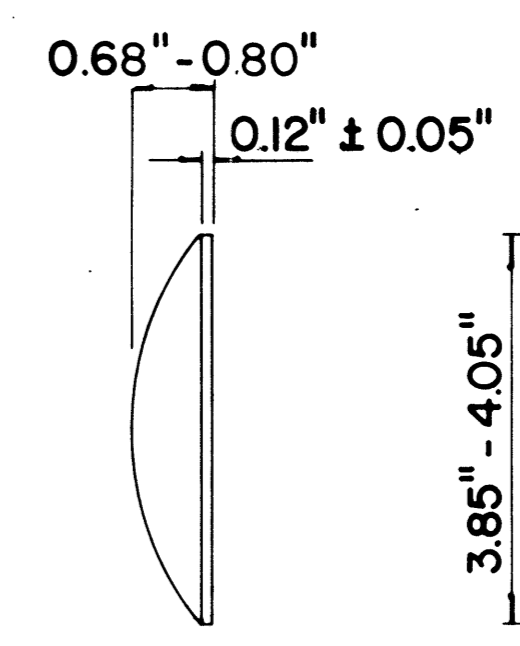
**TYPE A**

NON-REFLECTIVE WHITE MARKER



**TYPE J**

NON-REFLECTIVE YELLOW MARKER



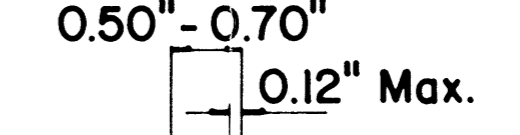
**TYPE C**

RED-CLEAR REFLECTIVE MARKER



**TYPE D**

TWO-WAY YELLOW REFLECTIVE MARKER



**TYPE H**

ONE-WAY YELLOW REFLECTIVE MARKER

**GENERAL NOTES**

- 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:  
*Etsuki Tanaka* 7/21/78  
TRAFFIC ENGINEER DATE

APPROVED:  
*Robert S. Zelenka* 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

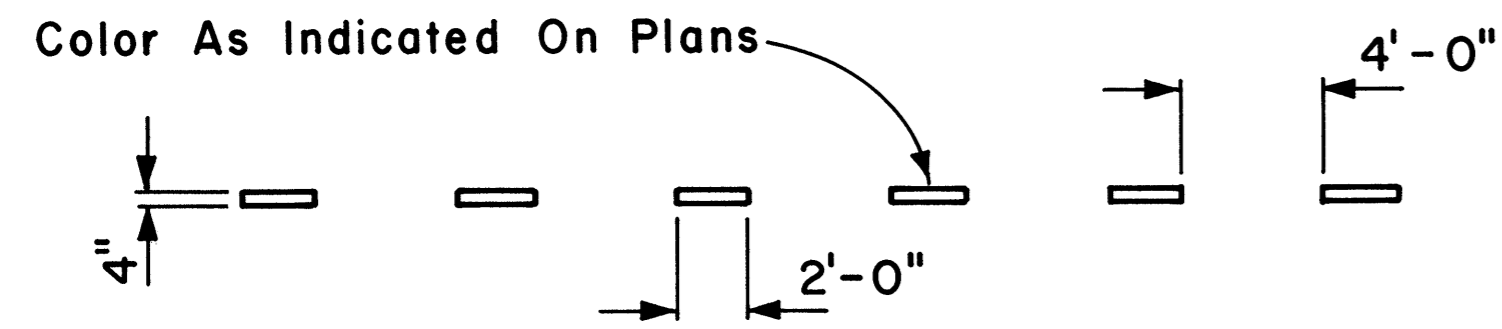
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

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

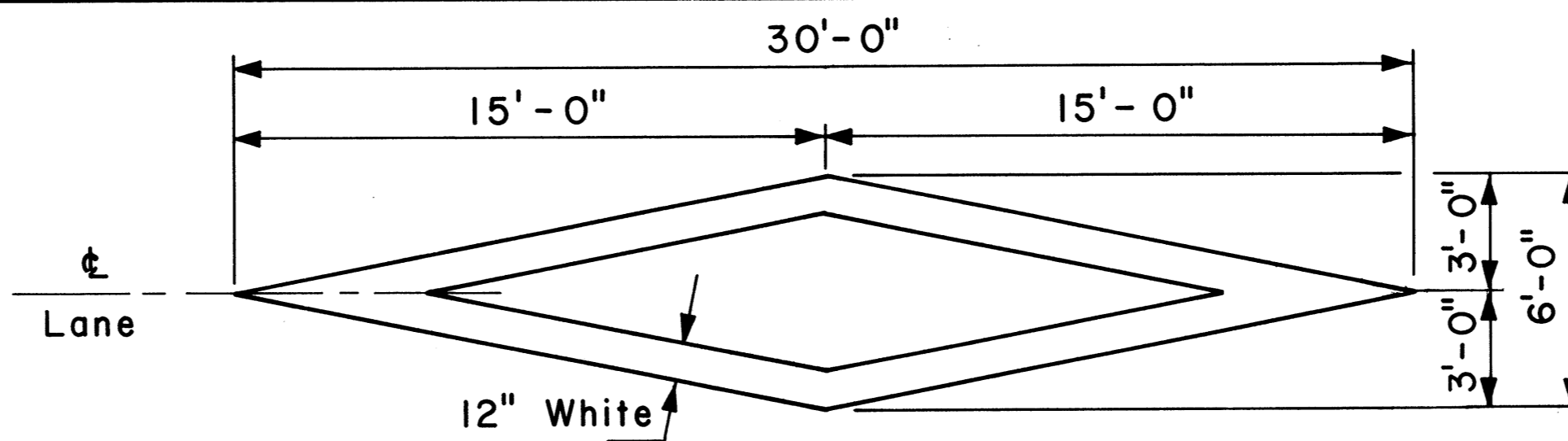
Not to Scale July 1978  
SHEET No. OF SHEETS DT 300

DATE  
SURVEY PLOTTED BY  
DRAWN BY  
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.	HES-R0S-061-1(22)	1982	48	51



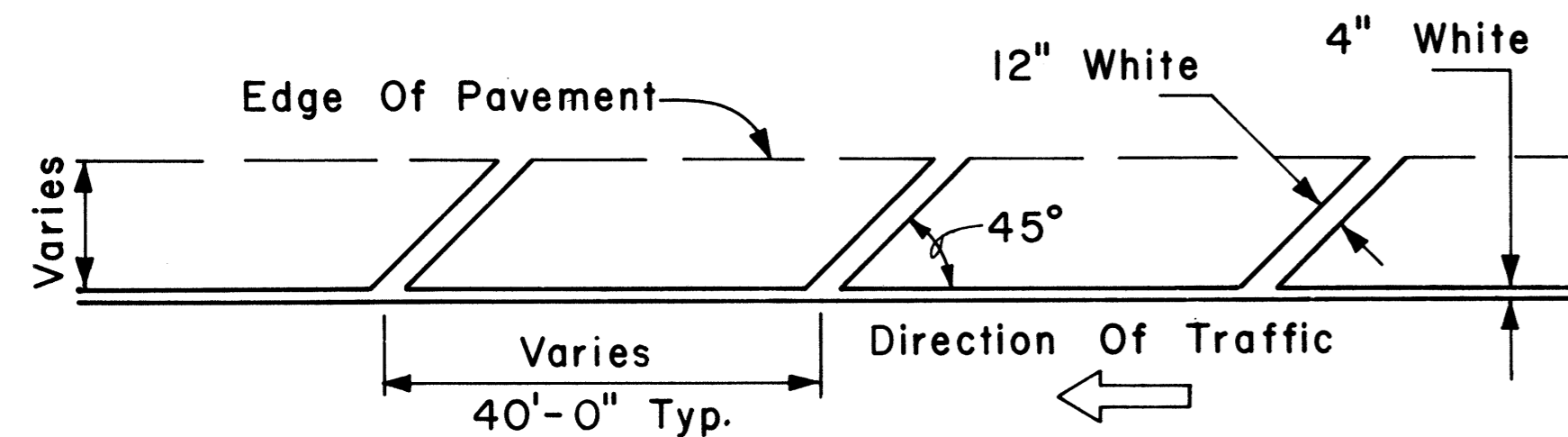
**4" GUIDE LINE**



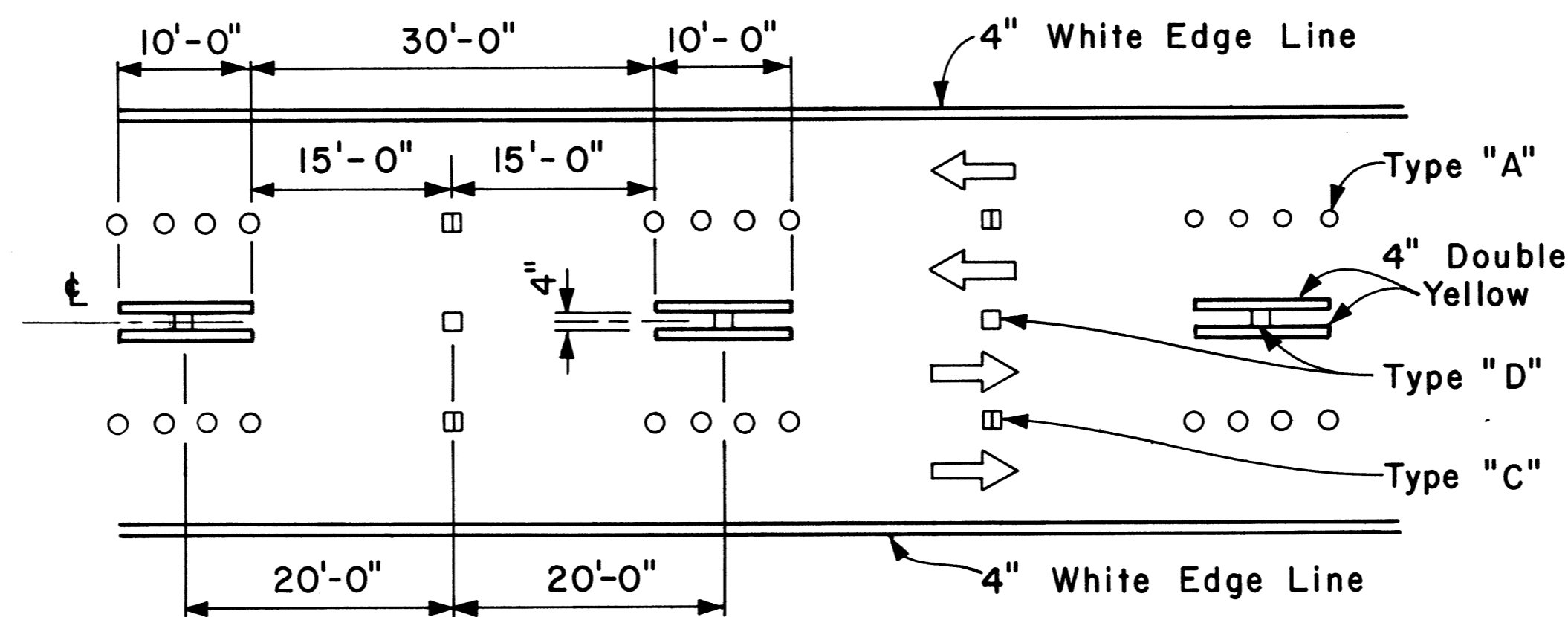
**PAVEMENT DIAMOND**

**GENERAL NOTES:**

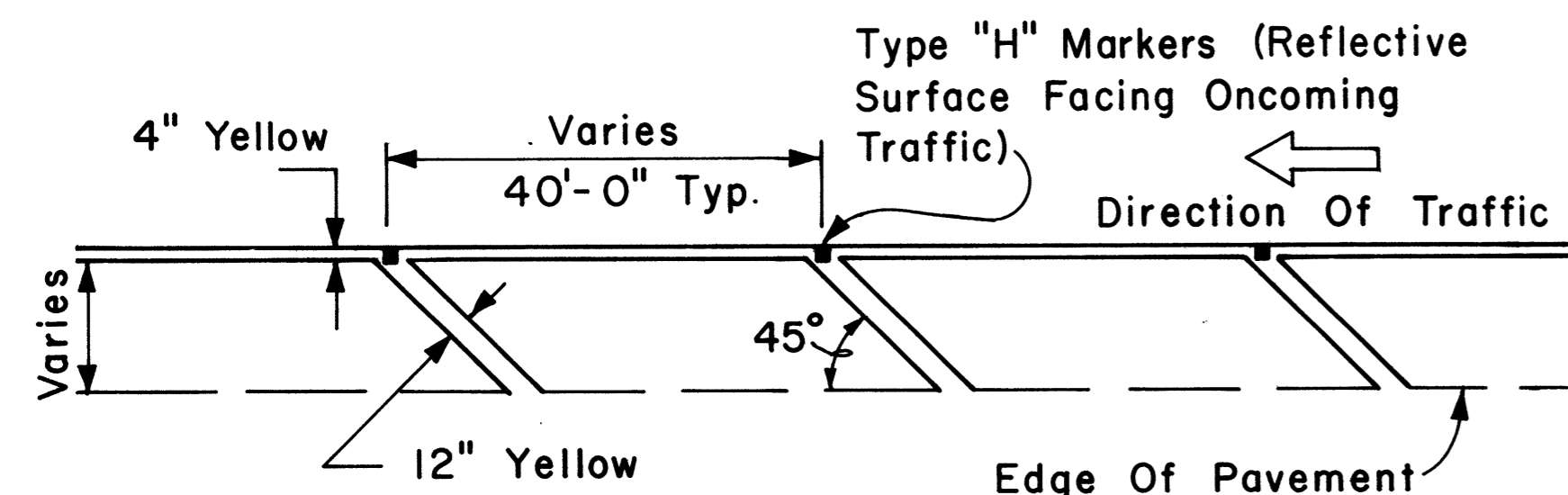
1. Pavement marking and striping shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," by the FHWA, and as amended.
2. Layout of pavement markings and striping shall be done by the Contractor. The Contractor shall check layout of markings and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



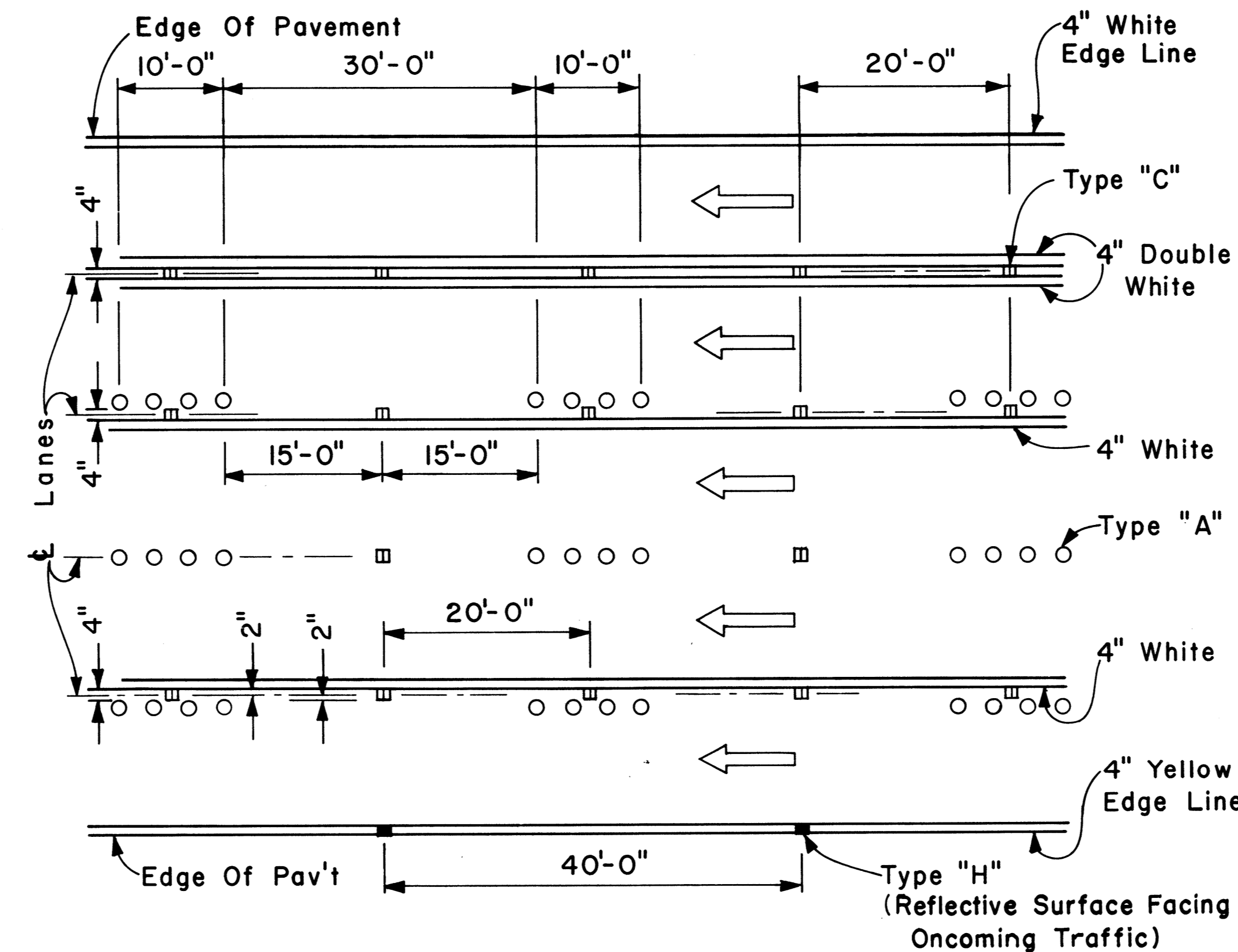
**TRANSVERSE RIGHT SHOULDER MARKING**



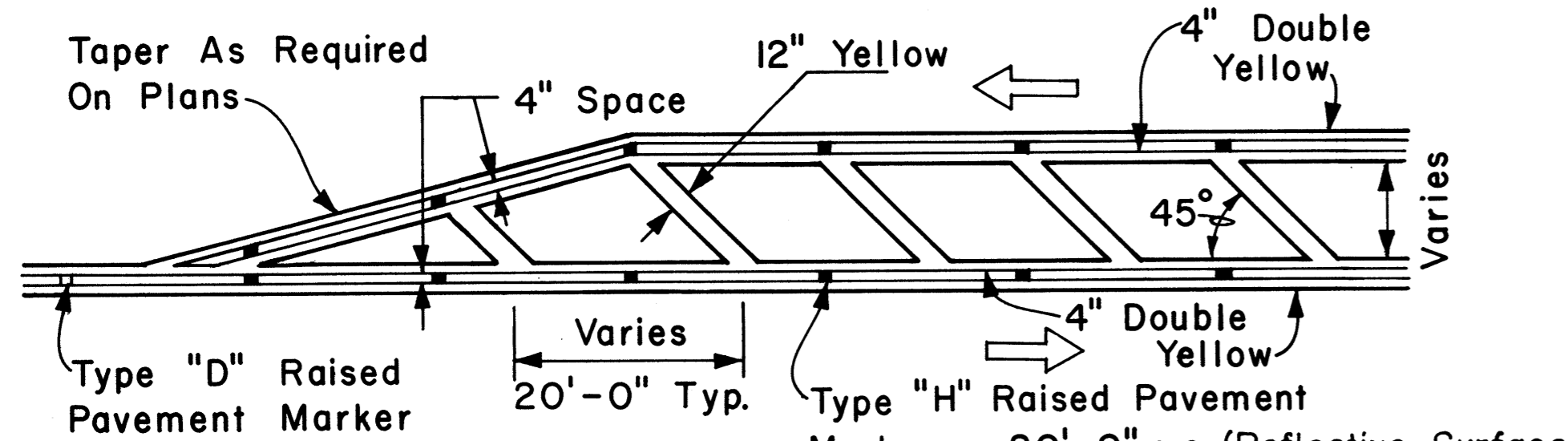
**MULTI-LANE REVERSIBLE LANES**



**TRANSVERSE LEFT SHOULDER MARKING**



**MULTI-LANE LANE CHANGE RESTRICTION ZONES**



**TRANSVERSE MEDIAN MARKING**

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

APPROVED:  
*Robert S. Zakeiah* 5/3/78  
 ASSISTANT CHIEF, ENGINEERING DATE

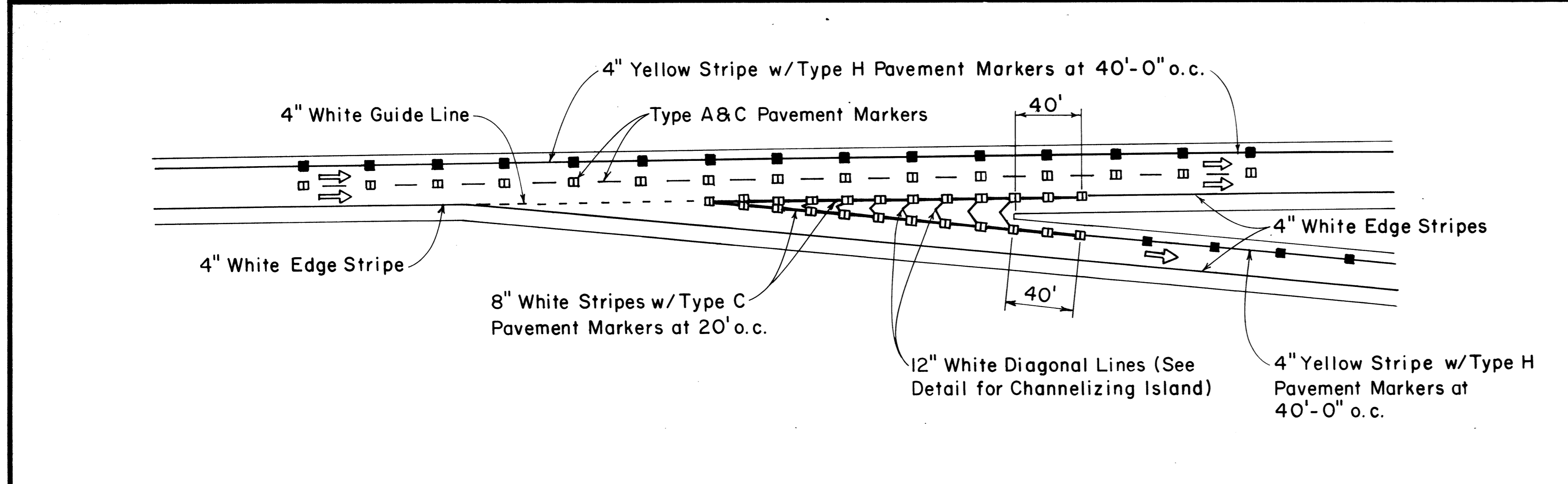
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 LANE HIGHWAYS DIVISION  
**STANDARD DETAILS**  
 MISCELLANEOUS  
 PAVEMENT MARKINGS  
 Scale: Not to Scale Date: April, 1978  
 SHEET No. OF SHEETS DT 302

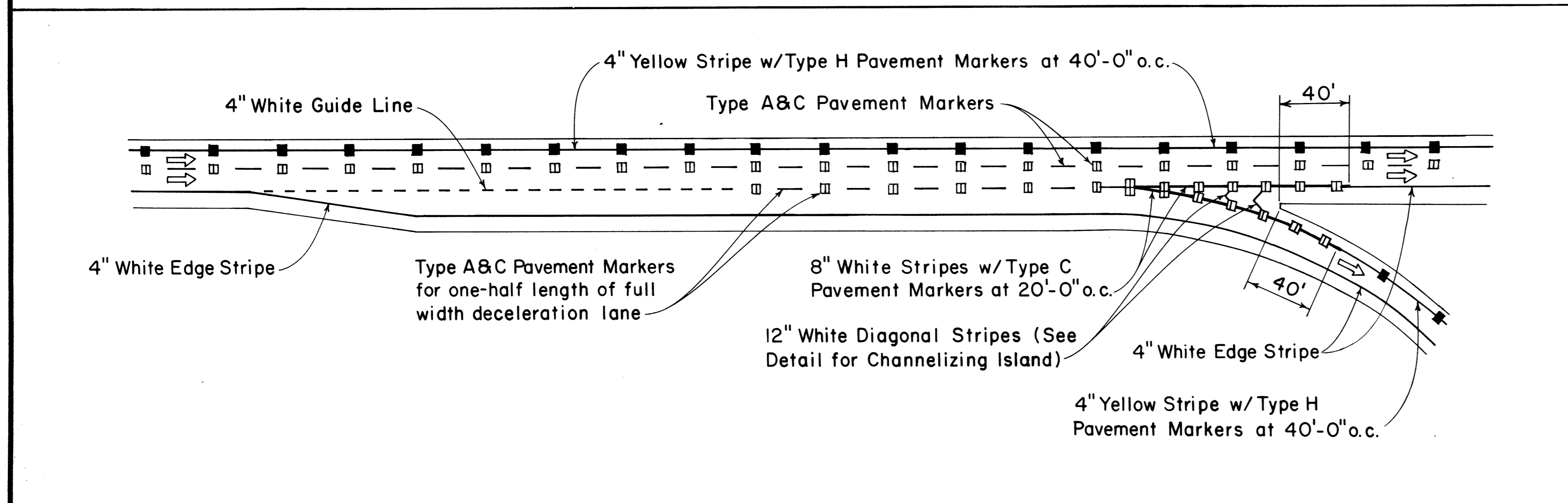
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-1(22)	1982	49	51

**GENERAL NOTES:**

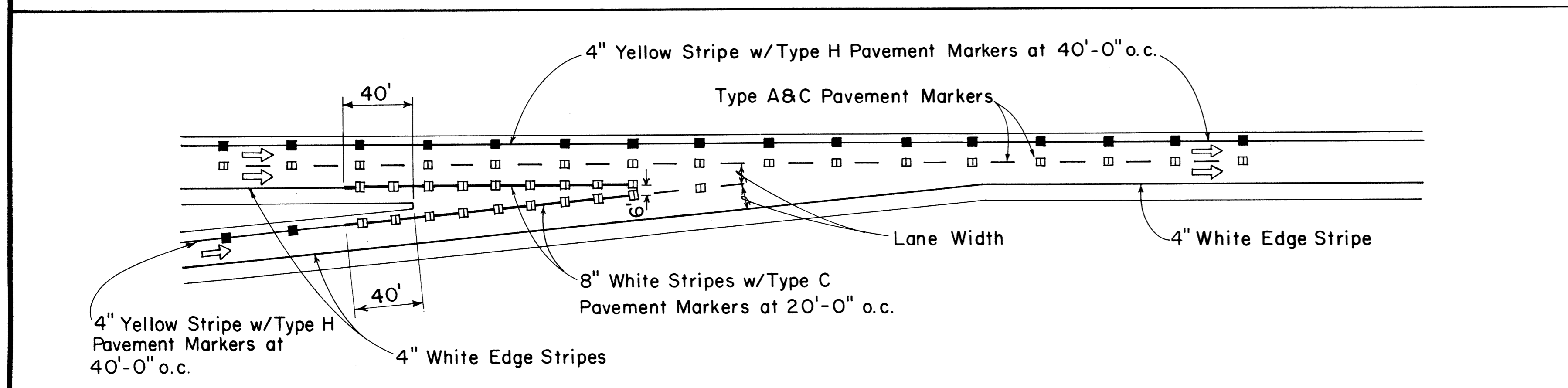
1. Pavement Markings and Striping shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," by the FHWA, and as amended.
2. Layout of Pavement Markings and Striping shall be done by the Contractor. The Contractor shall check layout of markings and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



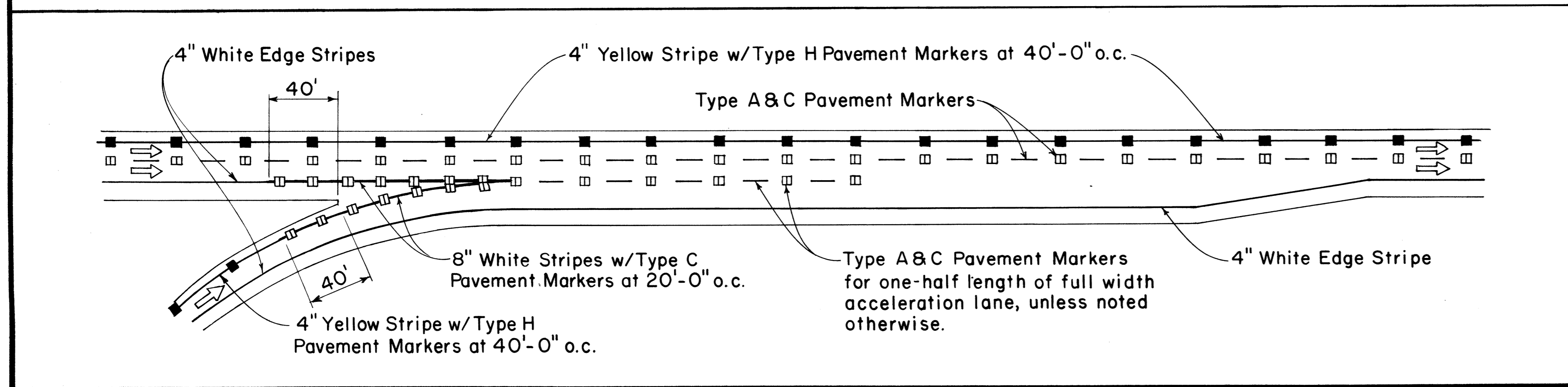
TAPERED DECELERATION LANE  
TYPICAL ROADWAY EXIT MARKINGS



PARALLEL DECELERATION LANE  
TYPICAL ROADWAY EXIT MARKINGS



TAPERED ACCELERATION LANE  
TYPICAL ROADWAY ENTRANCE MARKINGS



PARALLEL ACCELERATION LANE  
TYPICAL ROADWAY ENTRANCE MARKINGS

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

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

APPROVED:  
*Robert S. Rakeish* 7/24/78  
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 LAND AND TRANSPORTATION DIVISION'S DIVISION

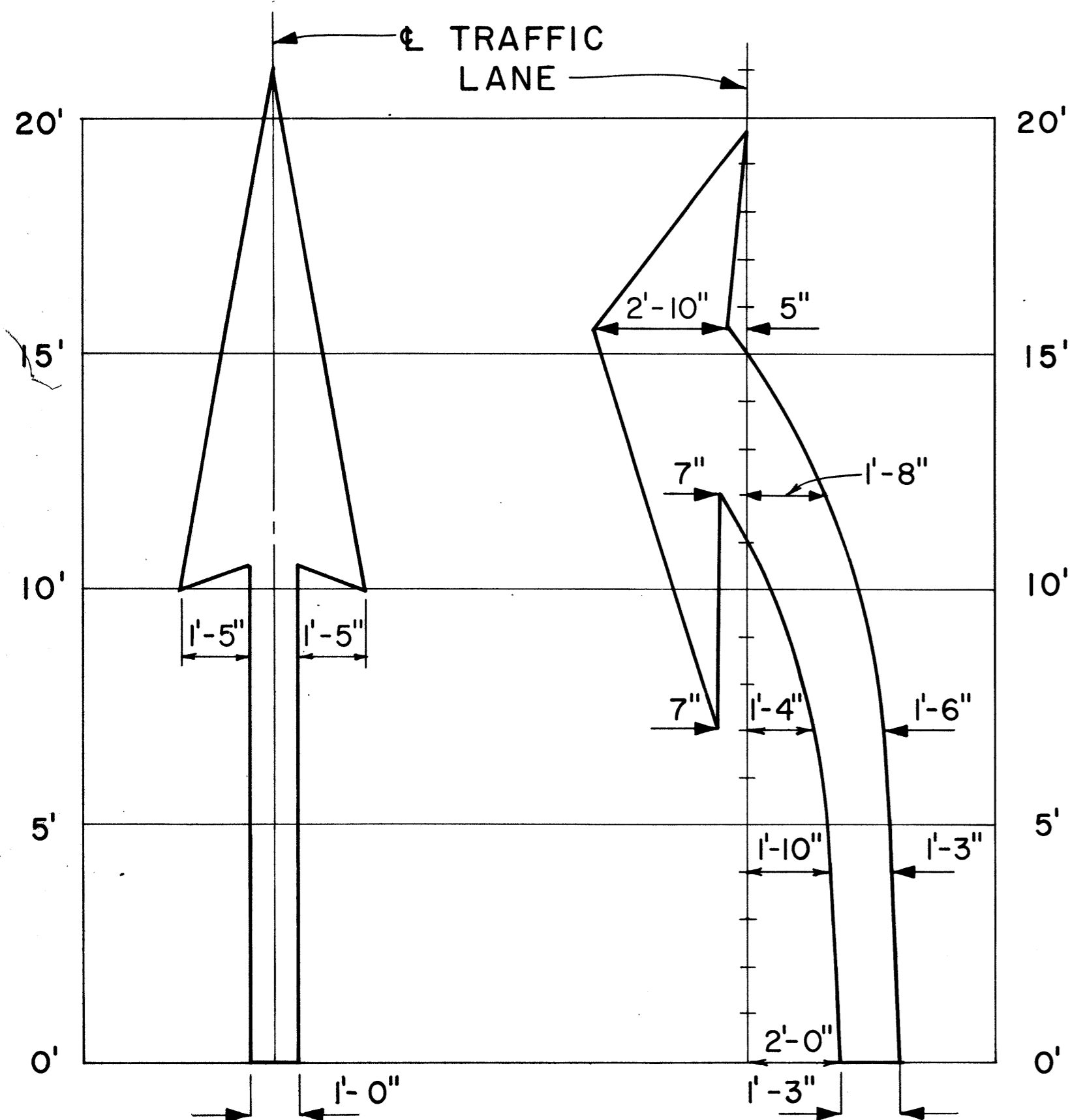
**STANDARD DETAILS**  
**MISCELLANEOUS**  
**PAVEMENT MARKINGS**

Not to Scale July 1978  
 SHEET No. OF SHEETS DT 304

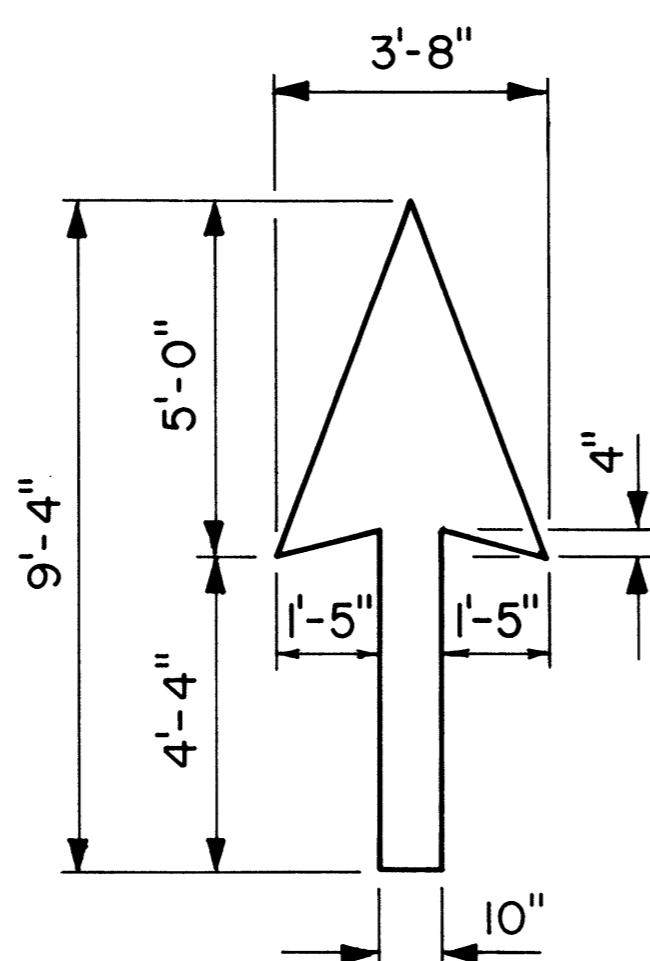
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-1(22)	1982	50	51

**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.



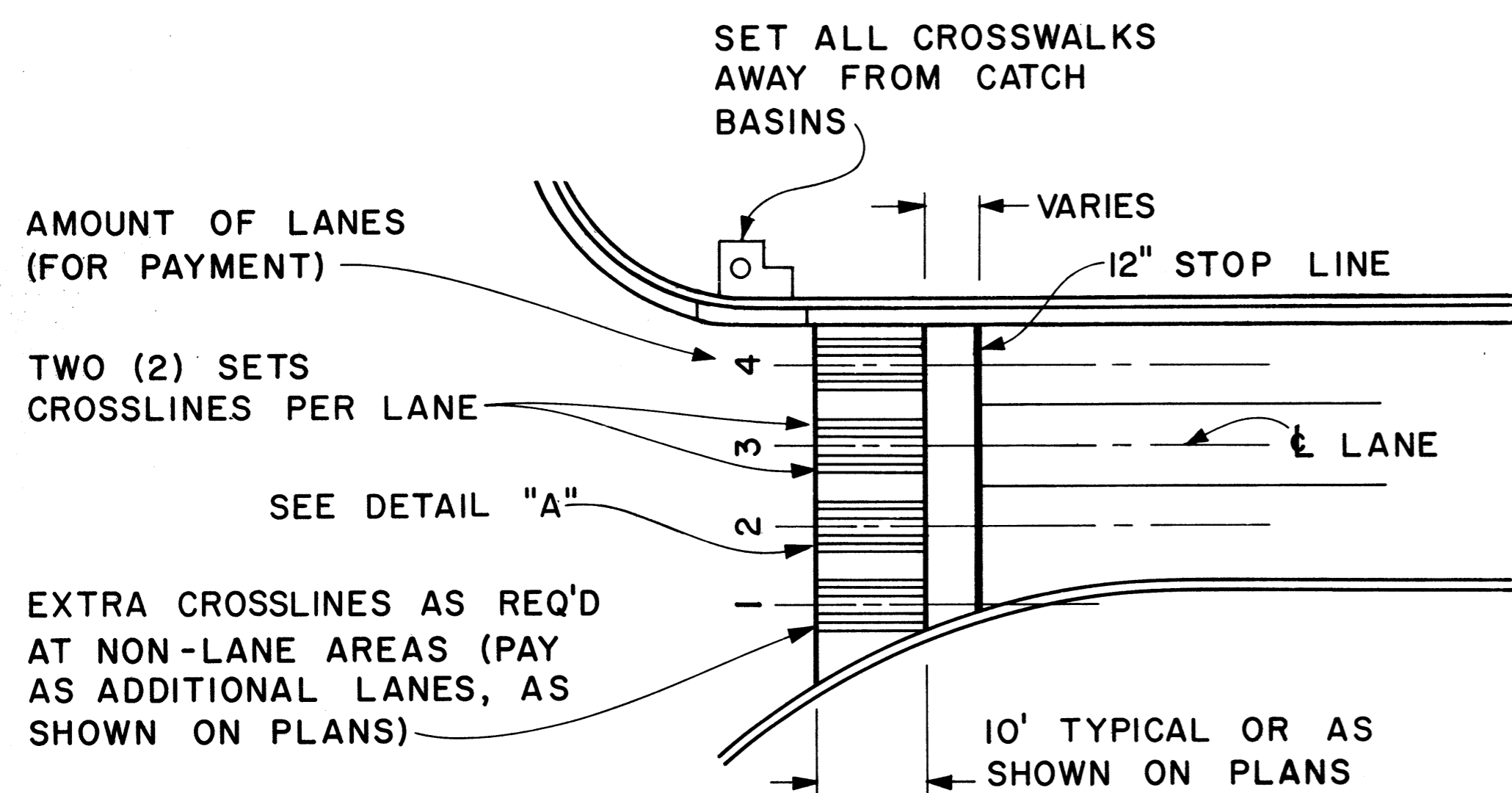
**ELONGATED**



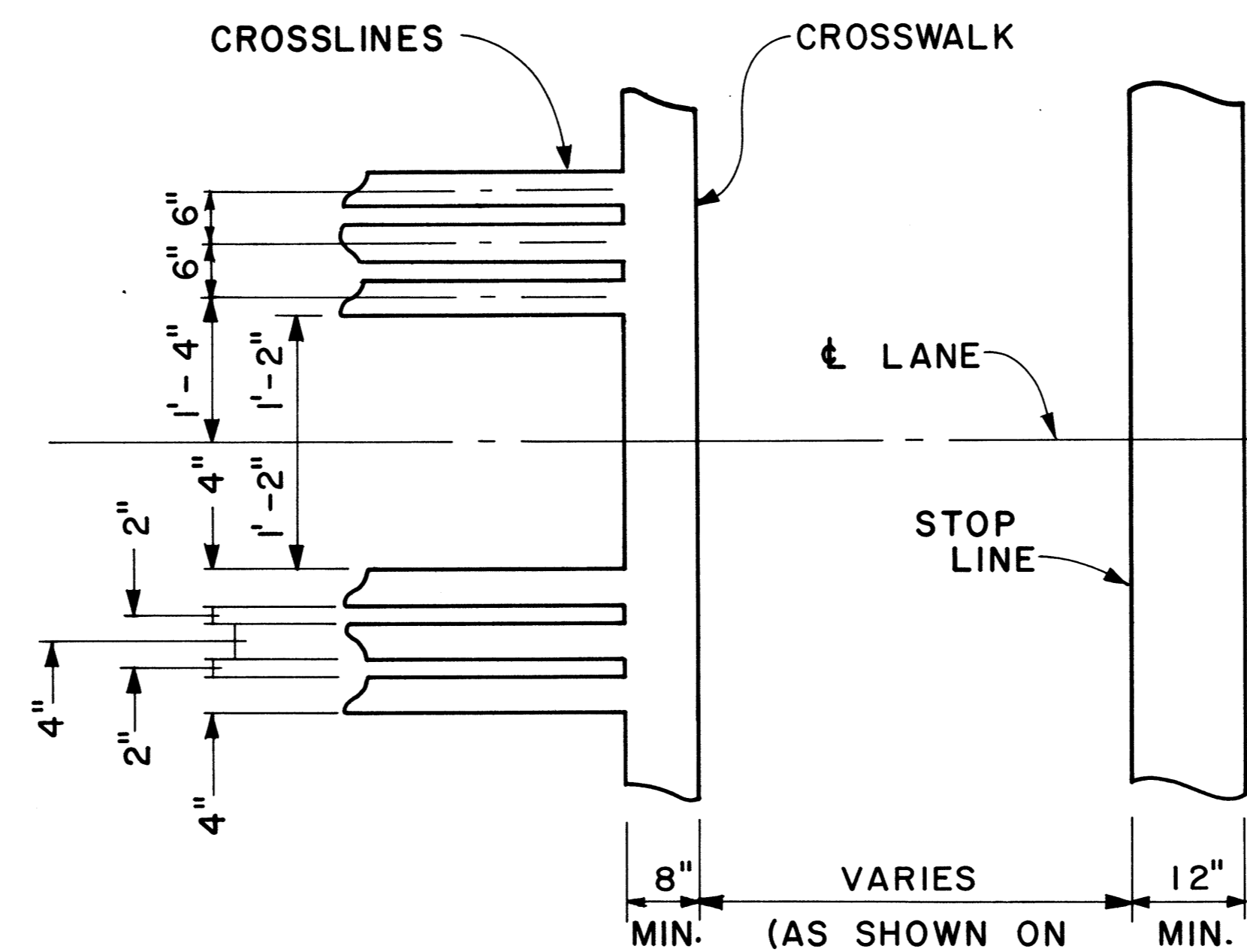
**STANDARD**

**PAVEMENT ARROWS**

Scale: 3/8" = 1'



**PLAN**



**DETAIL "A"**

**CROSSWALK & STOP LINE**

Scale: Not to Scale

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

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

APPROVED:  
*Harbert S. Sakai* 5/13/78  
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAY DIVISION

**STANDARD DETAILS**

MISCELLANEOUS  
 PAVEMENT MARKINGS

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

