

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-85	1985	25	41

PAVEMENT WIDTH SCHEDULE			
APPROX. LIMITS STA. to STA.	PAVEMENT WIDTH	APPROX. LIMITS STA. to STA.	PAVEMENT WIDTH
890+00 - 909+00	18.0'	<del>1043+00 - 1058+00</del> <del>1067+00 - 1072+00</del>	<del>18.0'</del> <del>16.0'</del>
<del>909+00 - 924+50</del> <del>912+50 - 917+00</del>	<del>17.0'</del> <del>18.0'</del>	<del>1058+00 - 1060+00</del> <del>1072+00 - 1076+00</del>	<del>20.0'</del> <del>17.0'</del>
<del>924+50 - 946+50</del> <del>912+50 - 917+00</del>	<del>18.0'</del> <del>16.0'</del>	<del>1060+00 - 1067+00</del> <del>1076+00 - 1087+00</del>	<del>19.0'</del> <del>16.0'</del>
<del>946+50 - 963+50</del> <del>917+00 - 922+00</del>	<del>20.0'</del> <del>17.0'</del>	<del>1067+00 - 1070+00</del> <del>1087+00 - 1090+00</del>	<del>20.0'</del> <del>17.0'</del>
<del>963+50 - 978+50</del> <del>922+00 - 932+00</del>	<del>19.0'</del> <del>16.0'</del>	<del>1070+00 - 1083+00</del> <del>1090+00 - 1096+50</del>	<del>19.0'</del> <del>16.0'</del>
<del>978+50 - 993+00</del> <del>932+00 - 946+00</del>	<del>20.0'</del> <del>17.0'</del>	<del>1083+00 - 1089+00</del> <del>1096+50 - 1099+50</del>	<del>20.0'</del> <del>17.0'</del>
<del>993+00 - 1005+50</del> <del>946+00 - 1031+00</del>	<del>17.0'</del> <del>16.0'</del>	<del>1089+00 - 1090+00</del> <del>1099+50 - 1096+00</del>	<del>18.0'</del> <del>17.0'</del>
<del>1005+50 - 1010+00</del> <del>1031+00 - 1043+00</del>	<del>15.0'</del> <del>17.0'</del>	<del>1096+00 - 1101+00</del>	<del>17.0'</del>
<del>1010+00 - 1024+00</del> <del>1043+00 - 1049+00</del>	<del>18.0'</del>	879+65 - 890+00	20.0'
<del>1024+00 - 1030+00</del> <del>1049+00 - 1056+00</del>	<del>19.0'</del> <del>16.0'</del>		
<del>1030+00 - 1032+15</del> <del>1056+00 - 1064+00</del>	<del>21.0'</del> <del>16.0'</del>		
<del>1032+15 - 1043+00</del> <del>1064+00 - 1067+00</del>	<del>20.0'</del> <del>17.0'</del>		

NOTE: Sta. 1043+00 to Sta. 1090+00 - Leveling Course only, 1" Thick.

TRAFFIC SIGNS AND REFLECTOR MARKERS SUMMARY			
TYPE	DESCRIPTION	QUANTITY	
		W/POST	W/O POST
R2-1(15)	SPEED LIMIT SIGN	10	
W1-5 R	WINDING ROAD SIGN	2	
W1-9L	WINDING ROAD SIGN	4	
W5-2a	NARROW BRIDGE SIGN	6	
W1-8	CHEVRON ALIGNMENT SIGN	45	
W9-1	ROAD NARROWS SIGN	6	
RM-1	REFLECTOR MARKER WITH STEEL POST	23	
RM-1	REFLECTOR MARKER WITH FLEXIBLE DELINEATOR POST	205 <del>210</del>	
RM-3	REFLECTOR MARKER WITH STEEL POST	5	
RM-3	REFLECTOR MARKER WITH FLEXIBLE DELINEATOR POST	25	
W13-1(10)	ADVISORY SPEED PLATE		11

CRM WALL SCHEDULE		
APPROX. LIMITS STA. to STA.	APPROX. CRM VOL. (C.Y.)	APPROX. SHOTCRETE AREA (S.Y.)
<del>923+00± - 923+40± Lt.</del>	4	+
924+70± - 925+15± Lt. & Rt.	45.3	1322.0
<del>945+50</del> <del>944+22± - 946+15± Lt.</del>	122.6	3425.1
992+50± - 993+00± Lt.	67.4	1724.5
954+30± - 954+80± Lt.	66.1	1723.1
956+50± - 956+62± Lt.	1.7	34.7
966+25± - 966+55± Lt.	34.5	1025.2
994+15± - 994+70± Lt.	77.3	2018.6
995+75± - 996+50± Lt.	816.4	2524.5
<del>997+40±</del> 997+28± - 1001+75± Lt.	4246.3	12778.0
<del>1068+50± - 1068+75± Lt.</del>	2	6
1079+10± - 1079+41± Lt.	33.4	1620.6
1079+20± - 1079+30± Rt.	12.8	26.0
1084+37± - 1084+58± Rt.	23.6	78.8
1001+39± - 1001+73± Lt.		14.9
929+20± - 929+25± Lt.	2.6	2.2
924+98± Rt.	4.2	
TOTAL	114.2 <del>10</del> C.Y.	298.2 <del>310</del> S.Y.

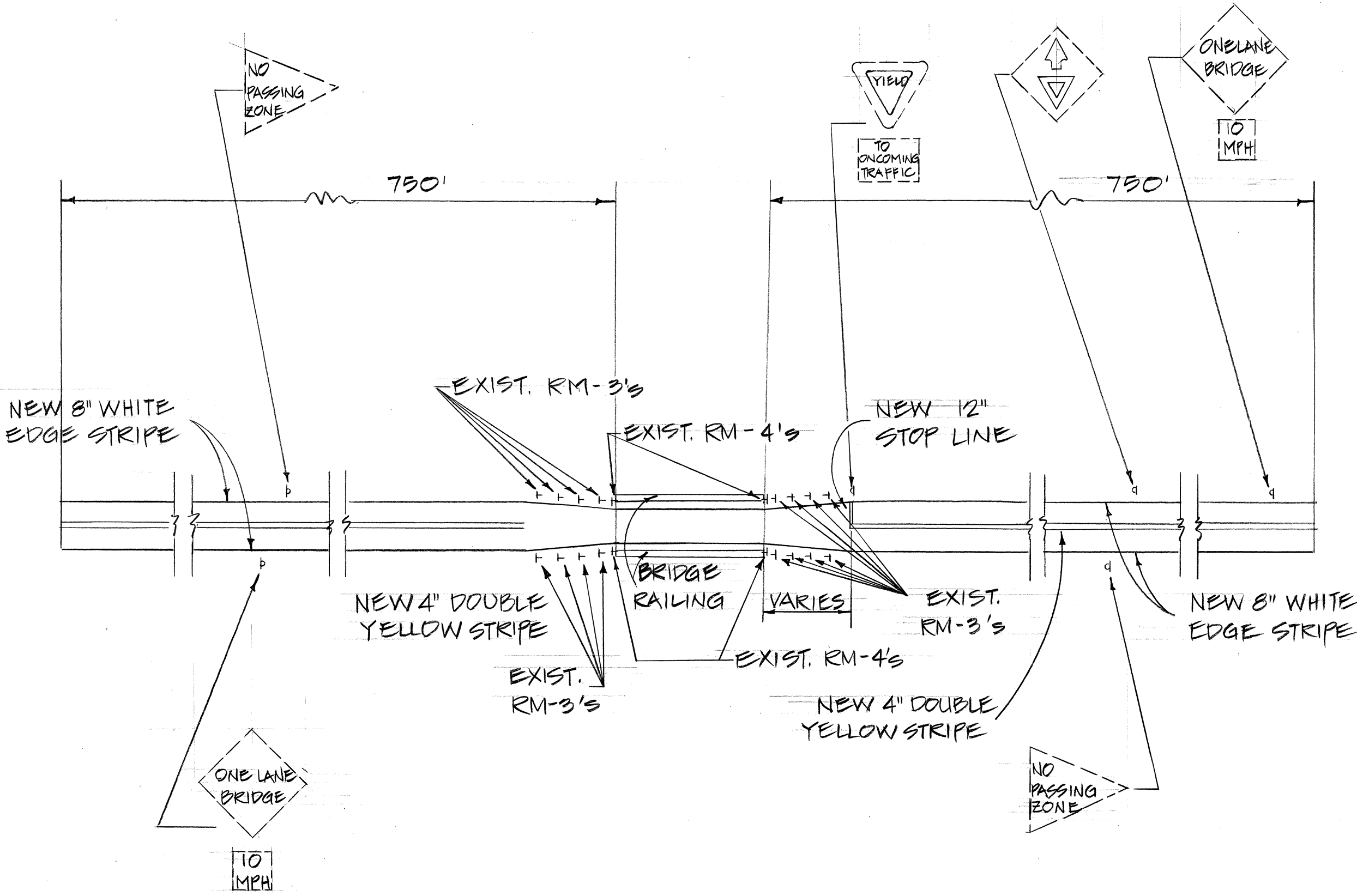
PAVEMENT MARKINGS AT BRIDGES		
BRIDGE NAMES	LANE TYPE	8" WHITE EDGE STRIPE @ BRIDGE
W. WAILUAIKI	TWO-LANE	<del>3150</del> 3124
E. WAILUAIKI	TWO-LANE	3070
KOPILIULA	ONE-LANE	<del>3150</del> 3156
PUAKAA	TWO-LANE	<del>3040</del> 3044
WAI OHUE	ONE-LANE	<del>2090</del> 1990
UNNAMED #1	ONE-LANE	<del>1640</del> 1750
UNNAMED #2	ONE-LANE	<del>160</del> 92
PAAKEA	ONE-LANE	<del>1570</del> 1542
KAPAUULA	ONE-LANE	<del>3100</del> 1500
WAIKANI	ONE-LANE	1500
TOTAL		20,470 L.P. 20,768

PAVEMENT MARKINGS SUMMARY	
DESCRIPTION	QUANTITY
PAVEMENT STRIPING - 4" DOUBLE YELLOW	<del>20,400</del> L.P. 20,315
PAVEMENT STRIPING - 8" WHITE EDGE @ BRIDGE	<del>20,470</del> L.P. 20,628
TYPE "D" PAVEMENT MARKERS	<del>1,000</del> ea. 1,005

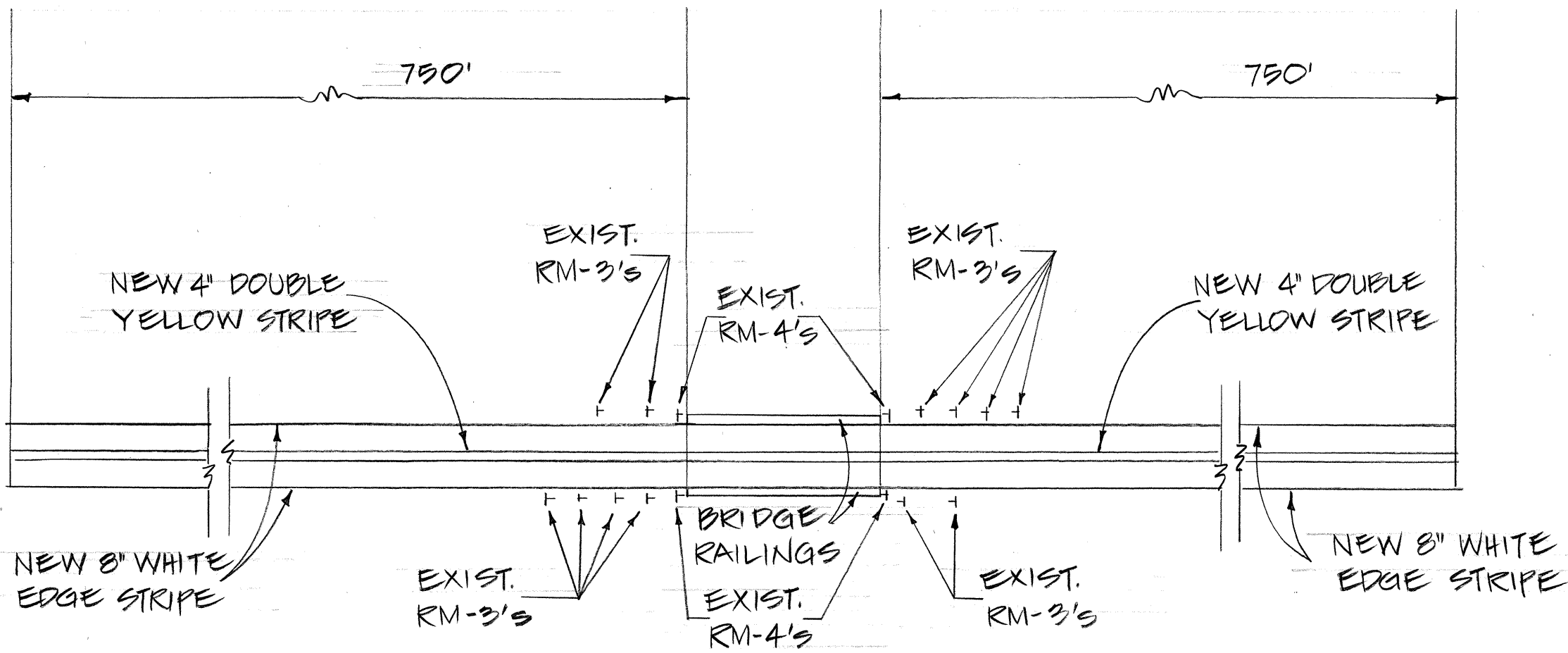
- NOTES:
- For CRM Wall Details, See Plan Sht. No. 2
  - For Traffic Sign Locations, See Plan Sht. Nos. 3-8
  - For Typical Reflector Markers Spacings, See Plan Sht. No. 26
  - For Typical Pavement Markers and Striping Details, See Plan Sht. No. 26
  - For Pavement Markings of Bridges Details, See Plan Sht. No. 26
  - CRM Wall Schedule does not include quantities for CRM headwalls which maybe located within CRM wall limits.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
PAVEMENT WIDTH, CRM WALLS, SIGNS, RM'S & PAVEMENT MARKINGS SCHEDULES AND SUMMARIES
HANA HIGHWAY IMPROVEMENTS WAILUA TOWARDS HANA, PHASE I PROJ. No. 360B-01-85 DATE: OCT. 1984
SHEET NO. 1 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-89	1989	26	41



ONE - LANE BRIDGE

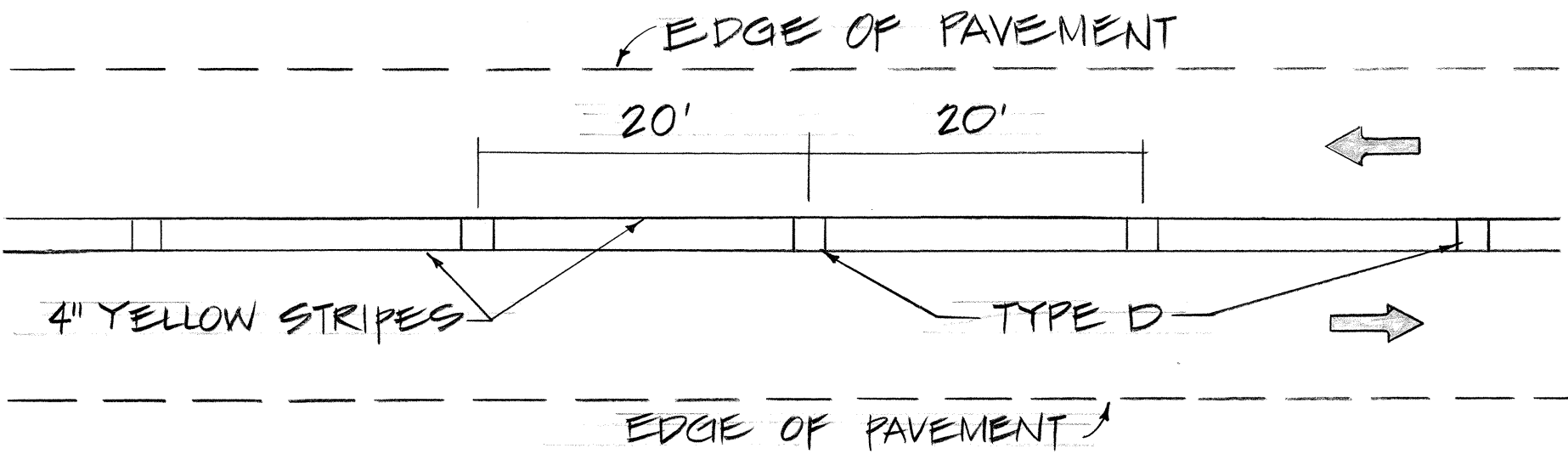


TWO - LANE BRIDGE

TYPICAL PAVEMENT MARKINGS

AT BRIDGES

NTS



TYPICAL PAVEMENT MARKERS AND STRIPING DETAIL  
Not to Scale

NOTES:

- Locations of all Pavement Markings shall be staked out by the Contractor for approval by the Engineer prior to installation.
- For additional information refer to section 629- Pavement Markers, Striping and Markings of the Special Provisions.
- For typical Reflector Marker Spacing (RM-1), See schedule below.
- Objects adjacent to the roadway such as walls, culvert headwalls, ends of guardrails, etc. shall be marked with Reflector Markers (RM-3).

REFLECTOR MARKER SCHEDULE

STA. to STA.	SPACING	STA. to STA.	SPACING
928+95 - 929+95 Lt.	20' a.c.	1037+00 - 1039+00 Lt.	20' a.c.
956+00 - 959+00 Lt.	100' a.c.	1040+00 - 1041+20 Lt.	20' a.c.
962+20 - 963+40 Lt.	20' a.c.	1064+00 - 1065+80 Lt.	30' a.c.
965+30 - 967+90 Lt.	20' a.c.	1072+00 - 1073+20 Lt.	30' a.c.
969+30 - 970+80 Lt.	30' a.c.	1073+50 - 1074+60 Lt.	20' a.c.
972+00 - 975+20 Lt.	20' a.c.	1081+00 - 1083+70 Lt.	30' a.c.
986+00 - 987+00 Lt.	20' a.c.	1086+20 - 1089+80 Lt.	20' a.c.
996+80 - 997+70 Lt.	30' a.c.	1090+90 - 1093+30 Lt.	30' a.c.
1002+10 - 1002+70 Lt.	20' a.c.	1094+30 - 1095+20 Lt.	30' a.c.
1021+20 - 1023+00 Lt.	30' a.c.	1095+50 - 1096+50 Lt.	20' a.c.
1024+30 - 1025+70 Lt.	20' a.c.	1097+15 - 1098+95 Lt.	30' a.c.
1026+10 - 1031+30 Lt.	40' a.c.	994+15 - 996+80 Lt.	20' a.c.
1034+10 - 1036+80 Lt.	30' a.c.	1011+00 - 1015+00 Rt.	20' a.c.

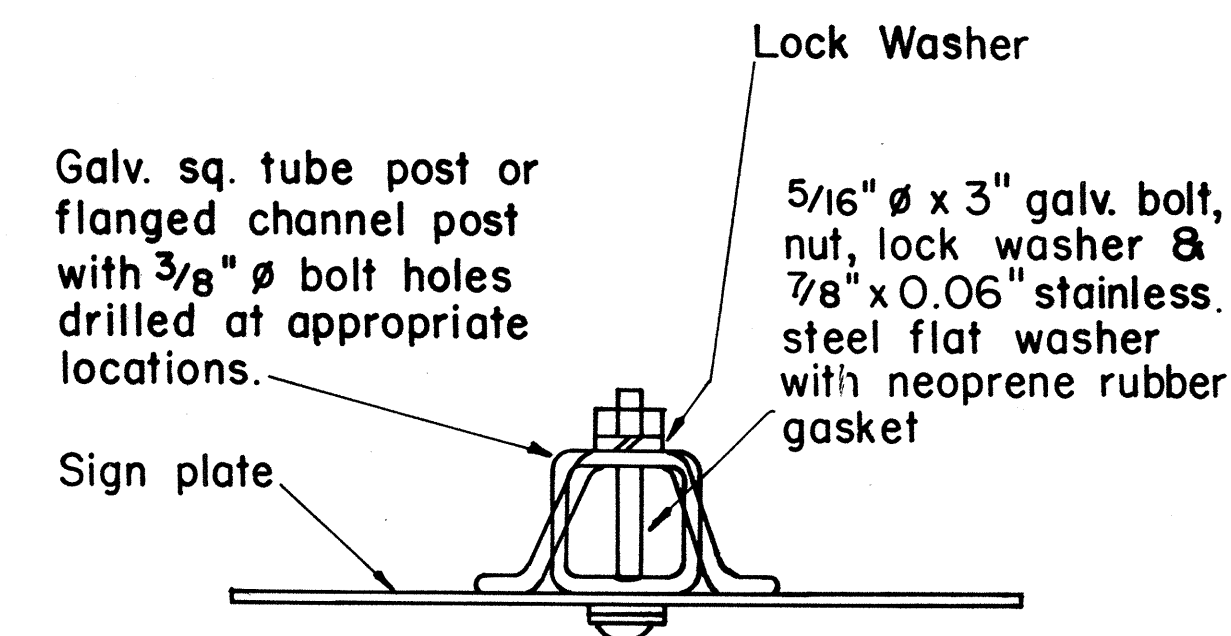
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
NOTES, PAVEMENT MARKINGS @  
BRIDGES, MARKINGS & STRIPING,  
REFLECTOR MARKER SCHEDULES  
HANA HIGHWAY IMPROVEMENTS  
WAILUA TOWARDS HANA, PHASE I  
PROJ. No. 360B-01-89  
DATE: OCT. 1984



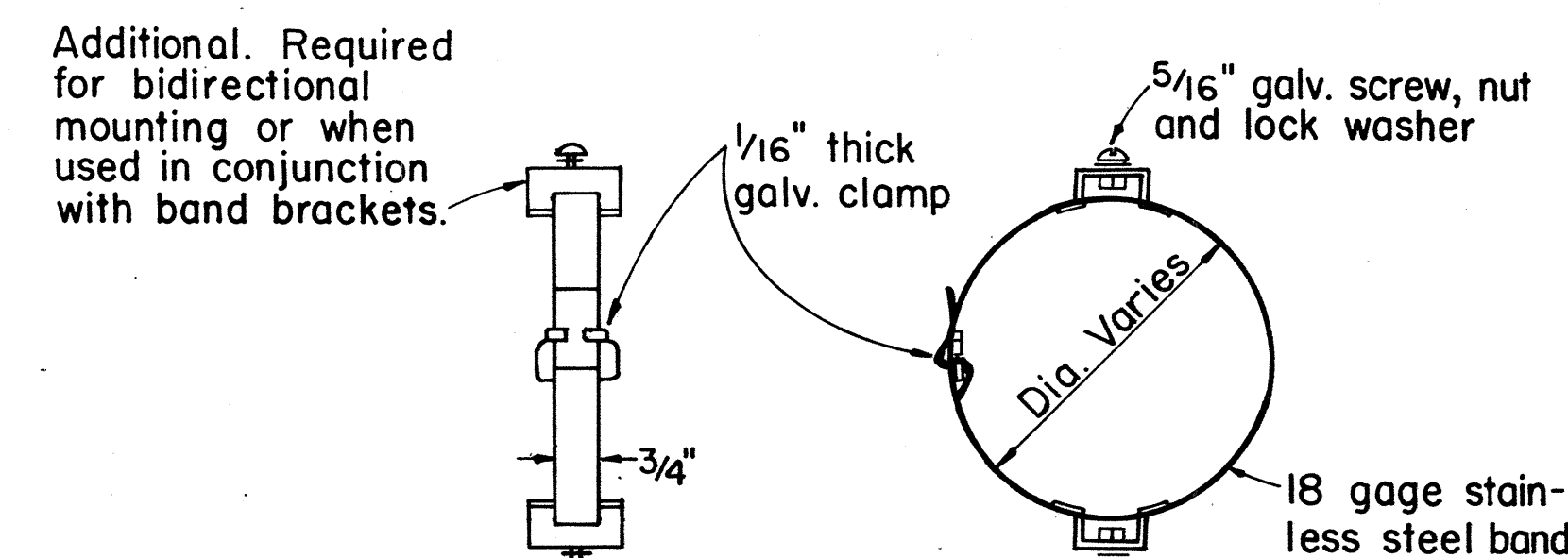
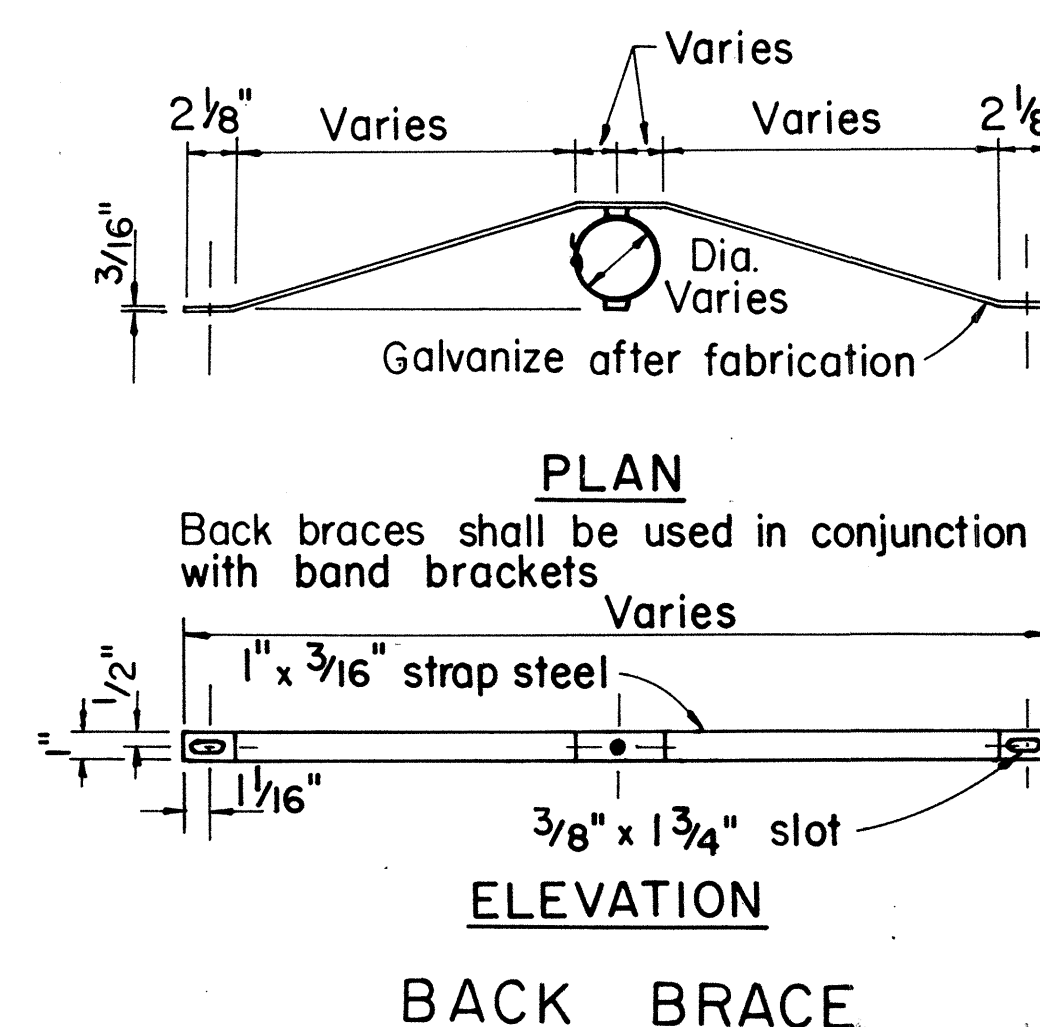
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-85	1985	27	41

# 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.
- Sign 48" and wider or larger than 10 sq. ft. in area shall be mounted on two or more sign posts except as noted below.
- Signs 48" and wider or larger than 10 sq. ft. in area may be mounted on objects other than sign posts (i.e. on highway lighting poles) as follows:
  - Signs 48" and wider but less than 10 sq. ft. in area shall be mounted with a minimum of two sets of band bracket and back braces.
  - 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 bracket 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 shown on the plans.
- See plans for special details of signs along bikeways.
- The minimum lateral distances shown are guidelines and shall be exceeded whenever possible. The Contractor shall place signs at the maximum practical lateral distance from the edge of the traveled way up to 30 feet and shall utilize protected locations whenever possible. Final locations of all signs shall be approved by the Engineer.
- Signs in medians shall be placed at midpoint of median up to a maximum distance of 30 feet from the edge of traveled way. When appropriate, signs for opposing directions shall be placed back to back.
- Anchor bases shall be installed for all signpost installations, unless otherwise shown or directed. See sheets DT 100A and DT 100B.



## GALVANIZED SQUARE TUBE OR FLANGED CHANNEL POST



## LEFT SIDE VIEW BAND BRACKET PLAN

APPROVAL RECOMMENDED:  
*Eiichi Tanaka*  
TRAFFIC ENGINEER  
DATE: 10/14/83

APPROVED:  
*P. Fujiyama*  
ASSISTANT CHIEF, ENGINEERING  
DATE: 10-18-83

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 100 approved 11/15/77	<i>[Signature]</i>	10-18-83

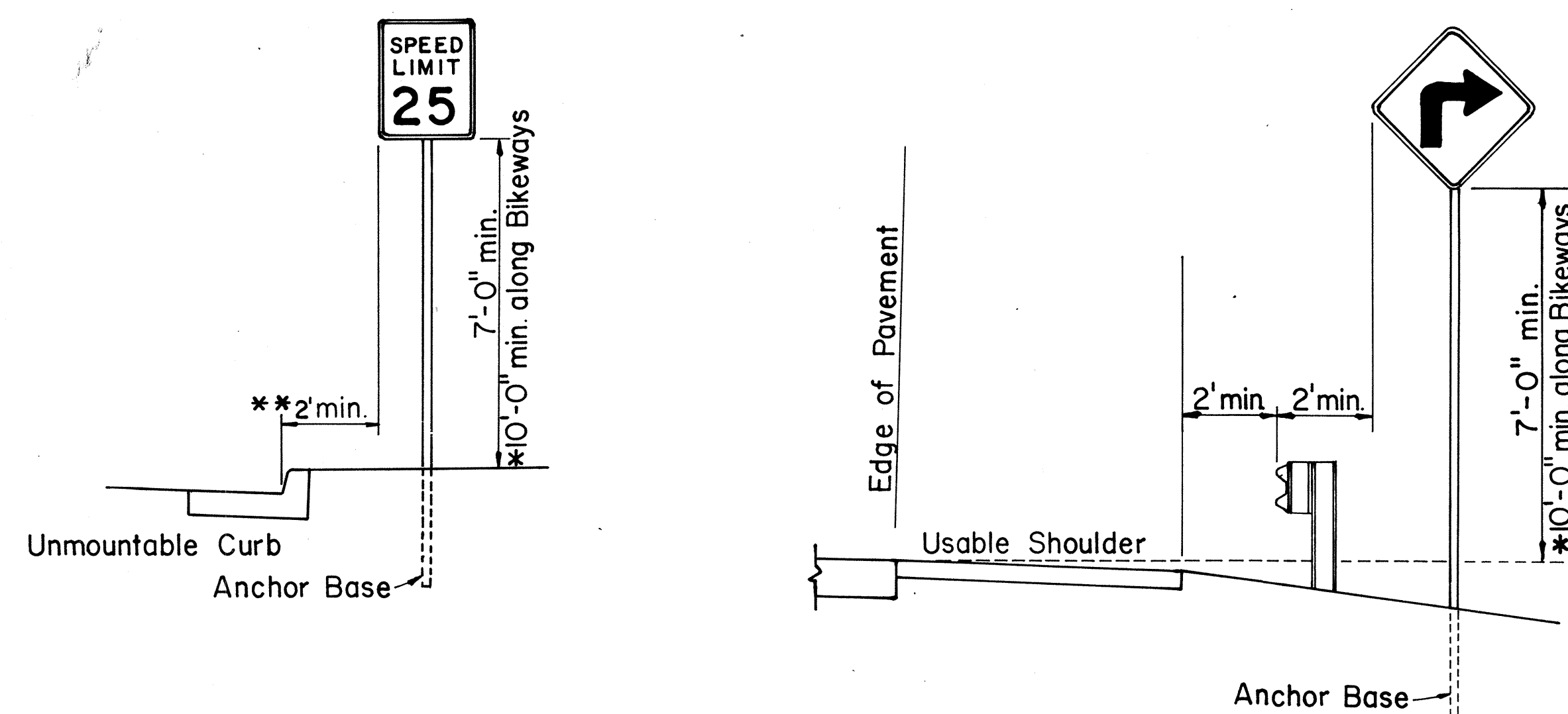
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

STANDARD DETAILS

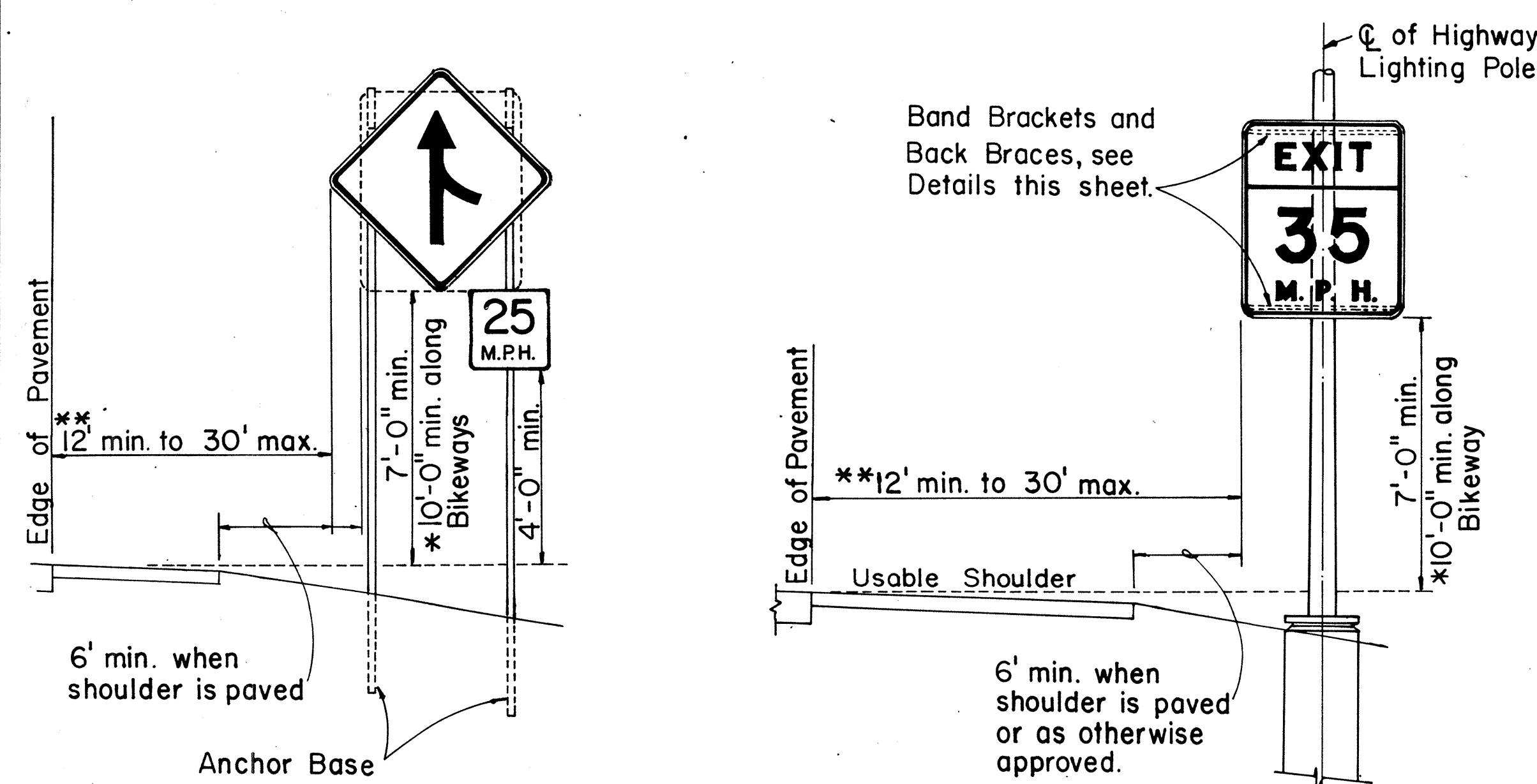
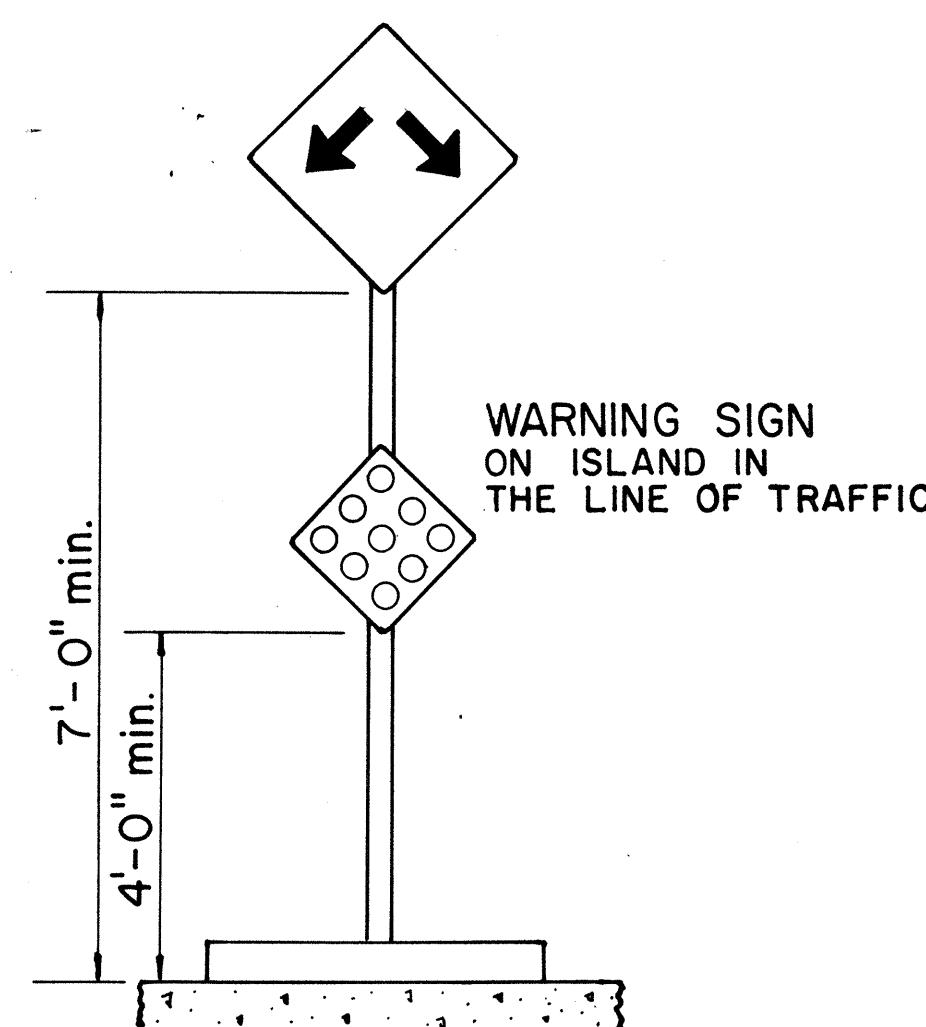
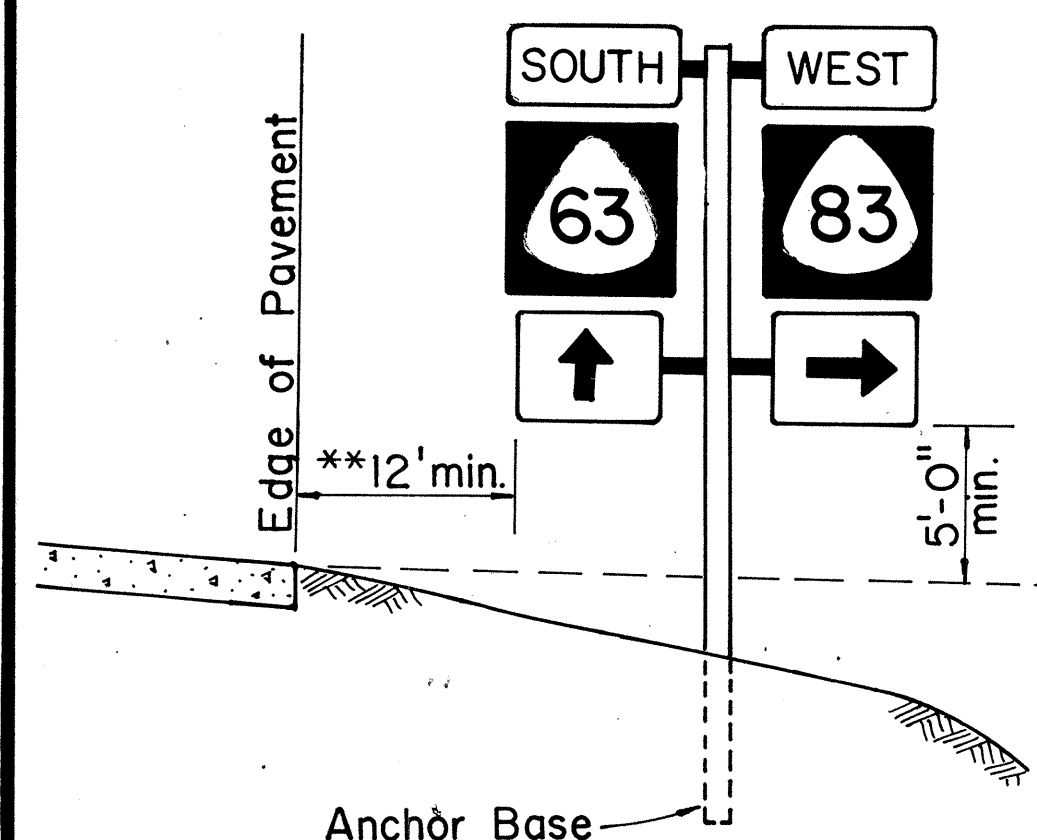
MISCELLANEOUS SIGN DETAILS

Not to Scale: Oct. 1983

SHEET NO. 3 OF 12 SHEETS DT 100



## ROADSIDE ASSEMBLY RURAL DISTRICT



## HEIGHT AND LATERAL LOCATION OF SIGNS TYPICAL INSTALLATION

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	3608-01-85	1985	28	41

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

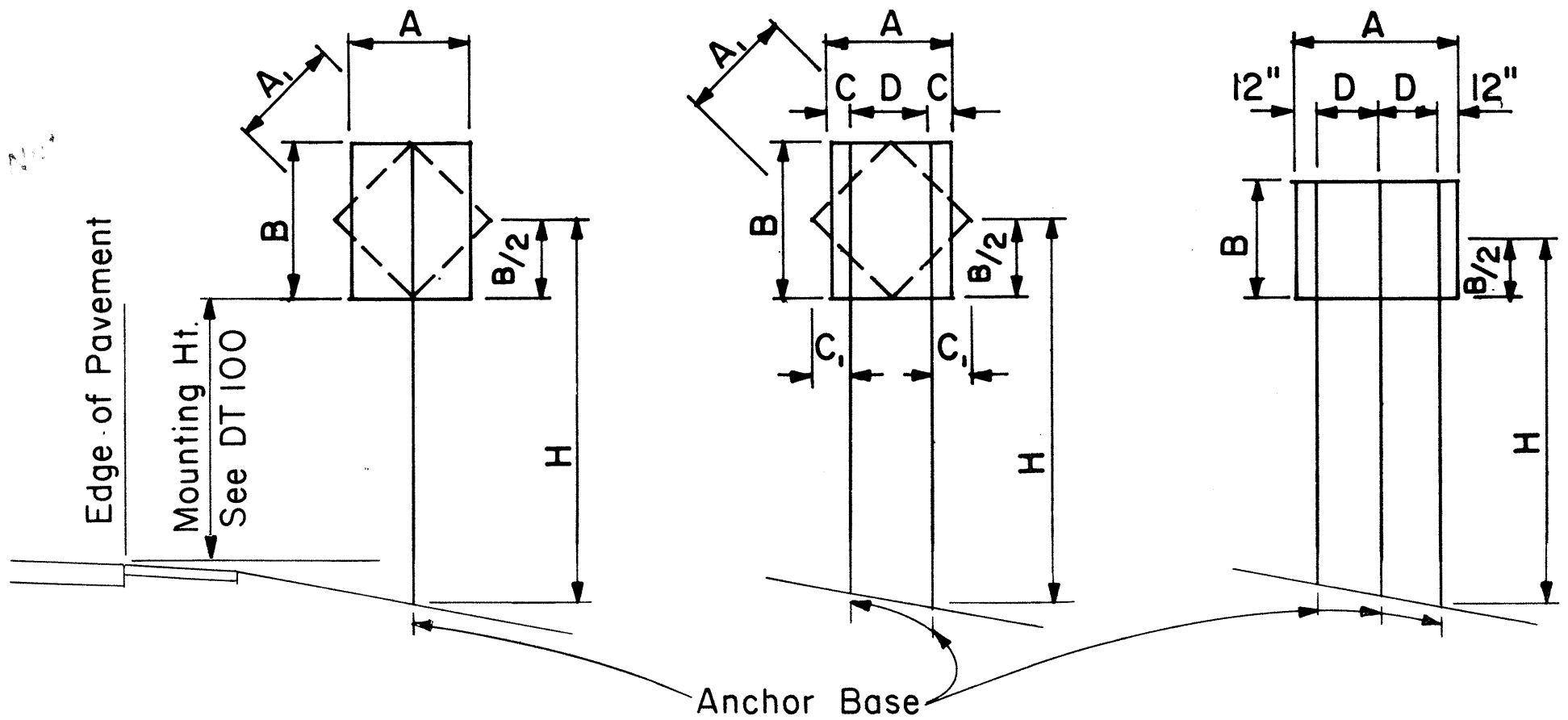
APPROVAL RECOMMENDED:

*Erich Tanaka* 9/2/82  
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. 4 OF 12 SHEETS DT 100A	



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

## TYPICAL INSTALLATION

Not to Scale

### FLANGED CHANNEL: 1-POST INSTALLATION

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

### FLANGED CHANNEL: 2-POST INSTALLATION

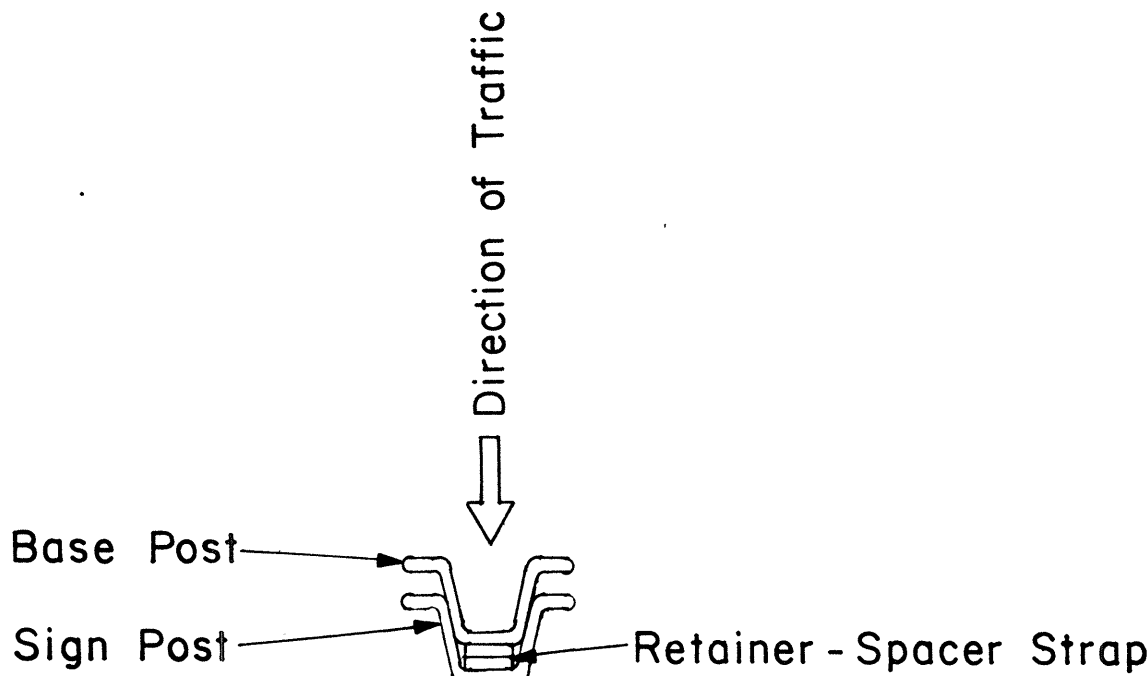
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area sq. ft.)
		7	8	9	10	11	12	
2.50 lbs./ft.	124	17.71	15.50	13.77	12.40	11.27	10.33	
4.00 lbs./ft.	241	34.43	30.13	26.78	24.10	21.91	20.08	

### FLANGED CHANNEL: 3-POST INSTALLATION

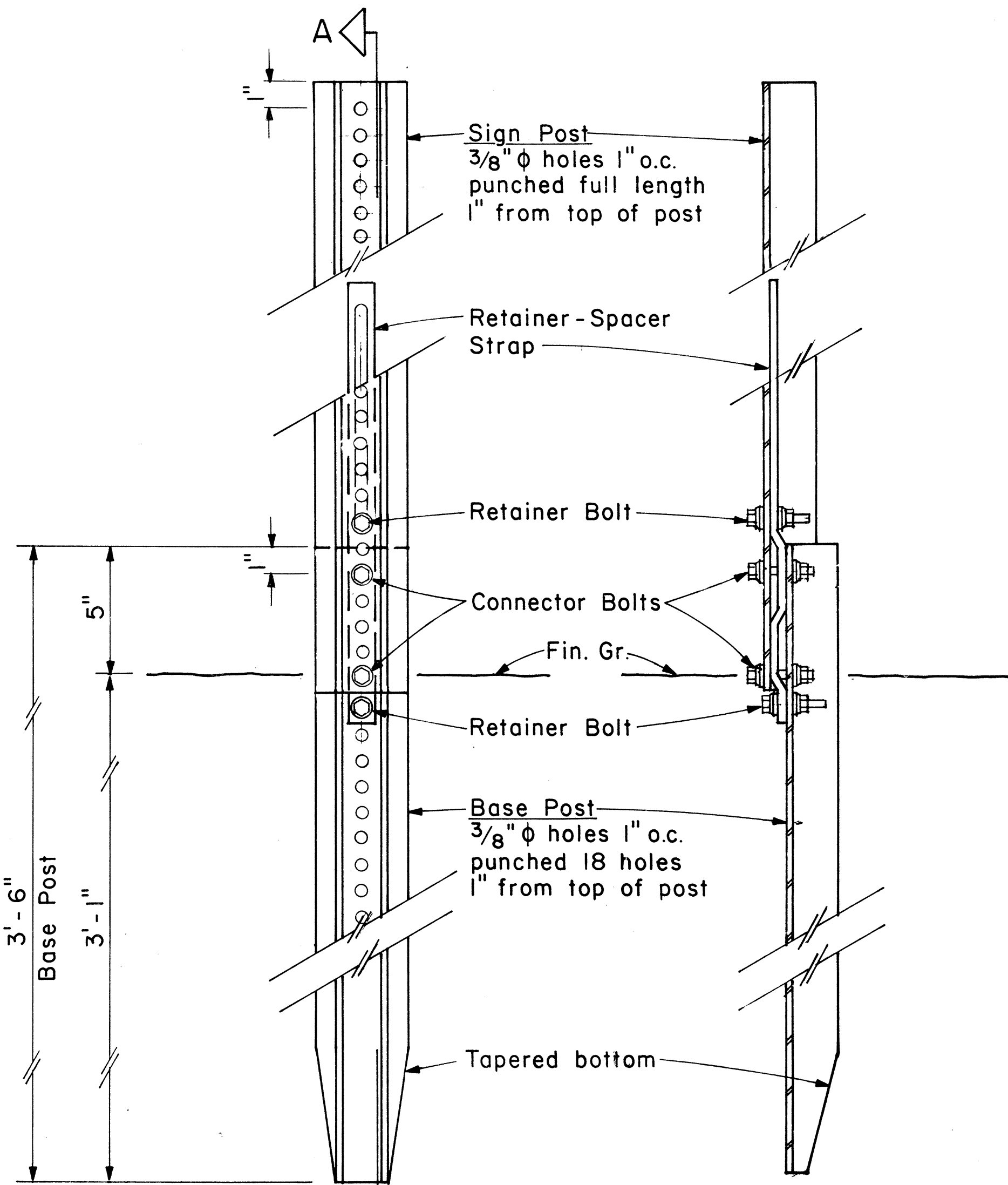
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area sq. ft.)
		7	8	9	10	11	12	
2.50 lbs./ft.	187	26.71	23.38	20.78	18.70	17.00	15.58	
4.00 lbs./ft.	362	51.71	45.25	40.22	36.20	32.91	30.17	

## WINDLOAD CHARTS

NO.	REVISION	APPROVED BY	DATE



TOP VIEW

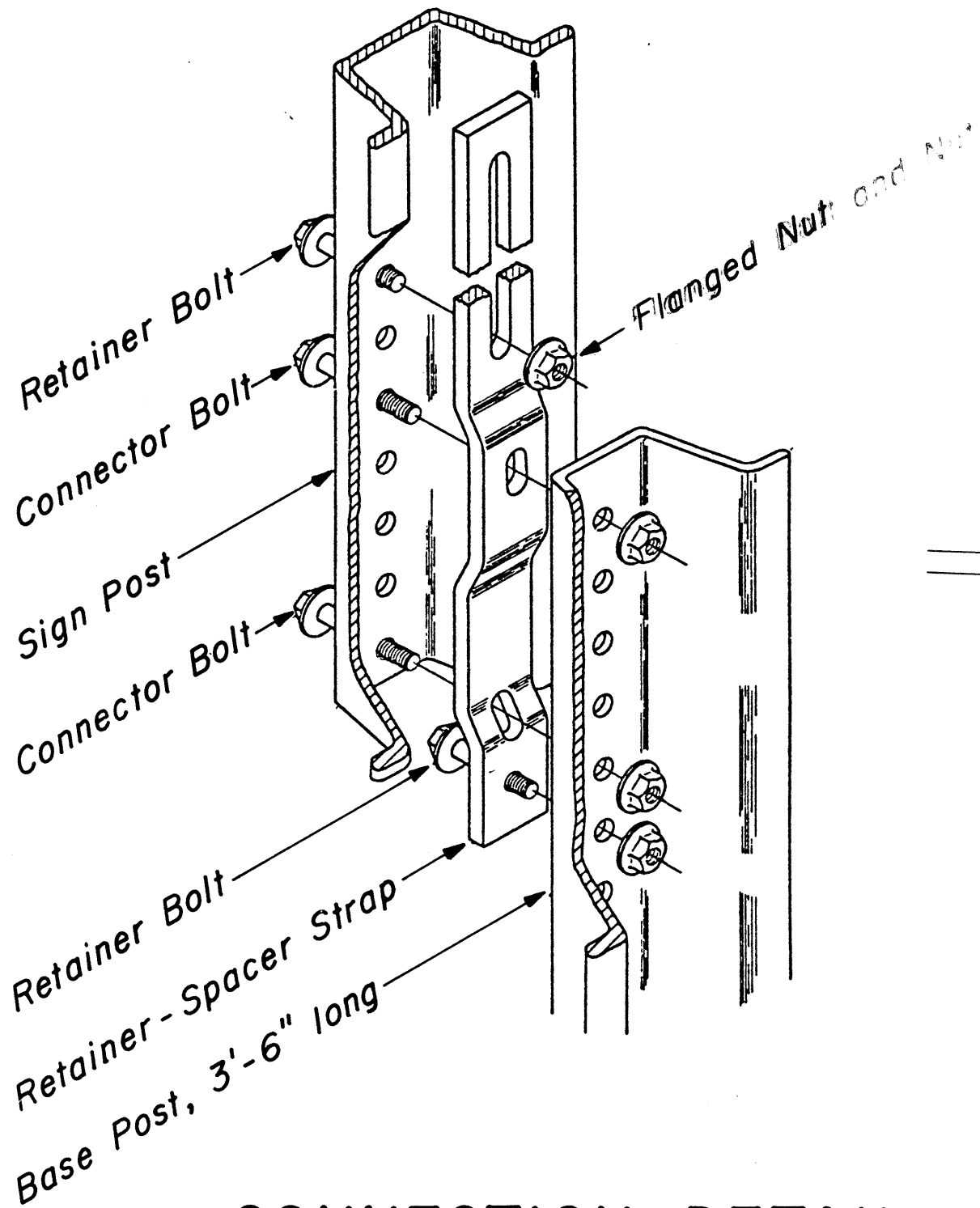


SECTION "A-A"

BACK VIEW

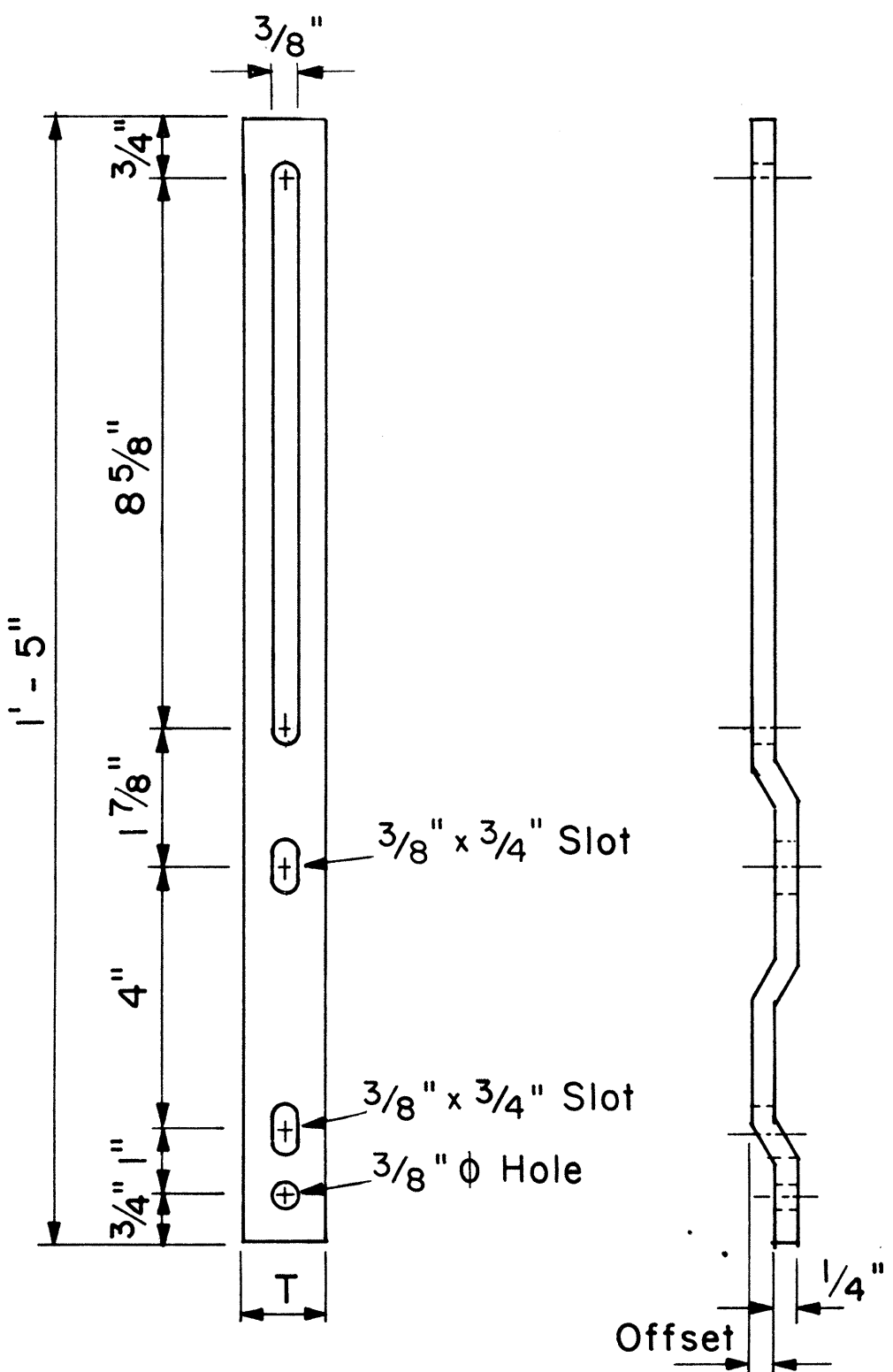
## ANCHOR BASE DETAIL

Scale: 3" = 1'-0"



## 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"

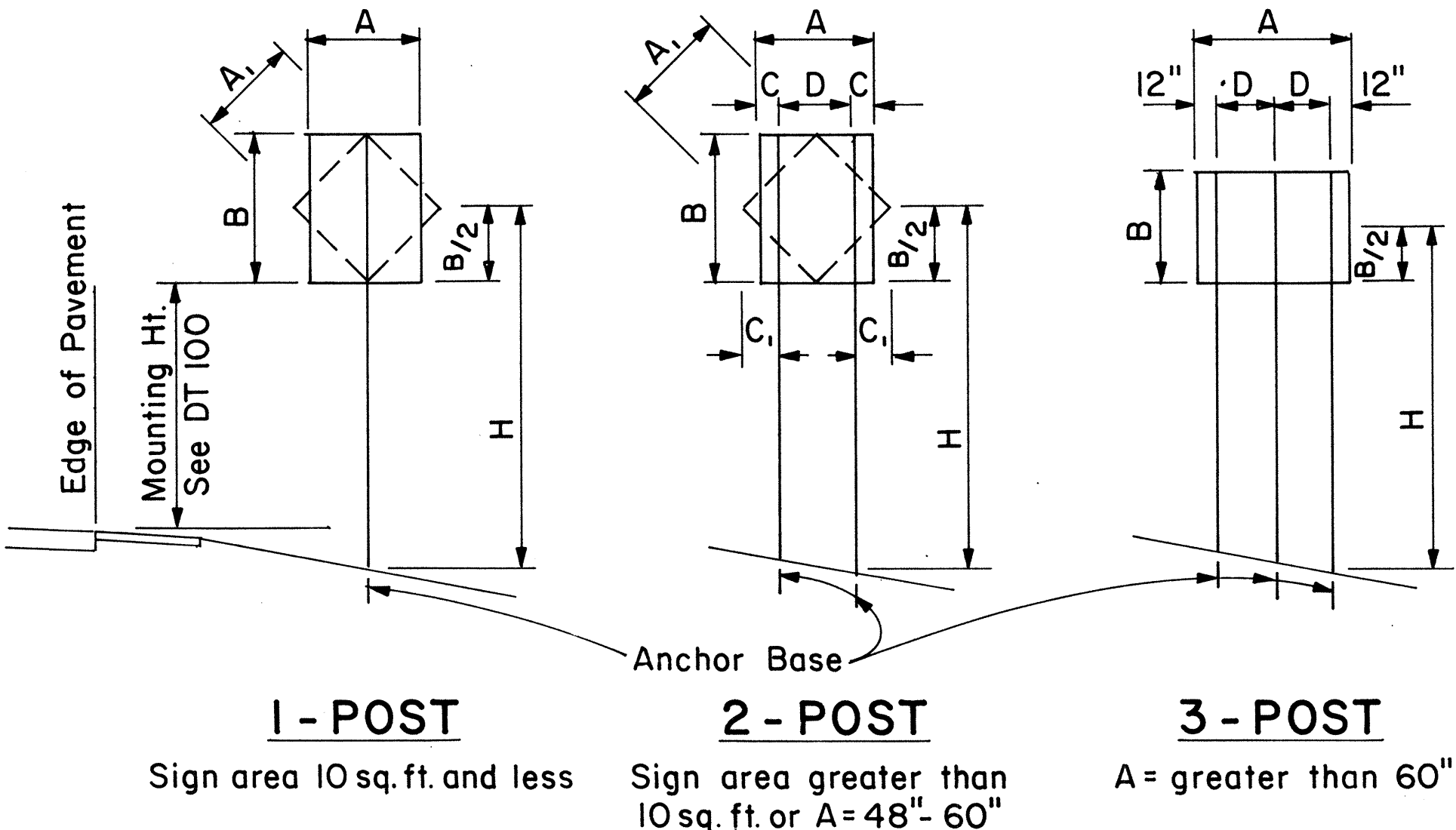
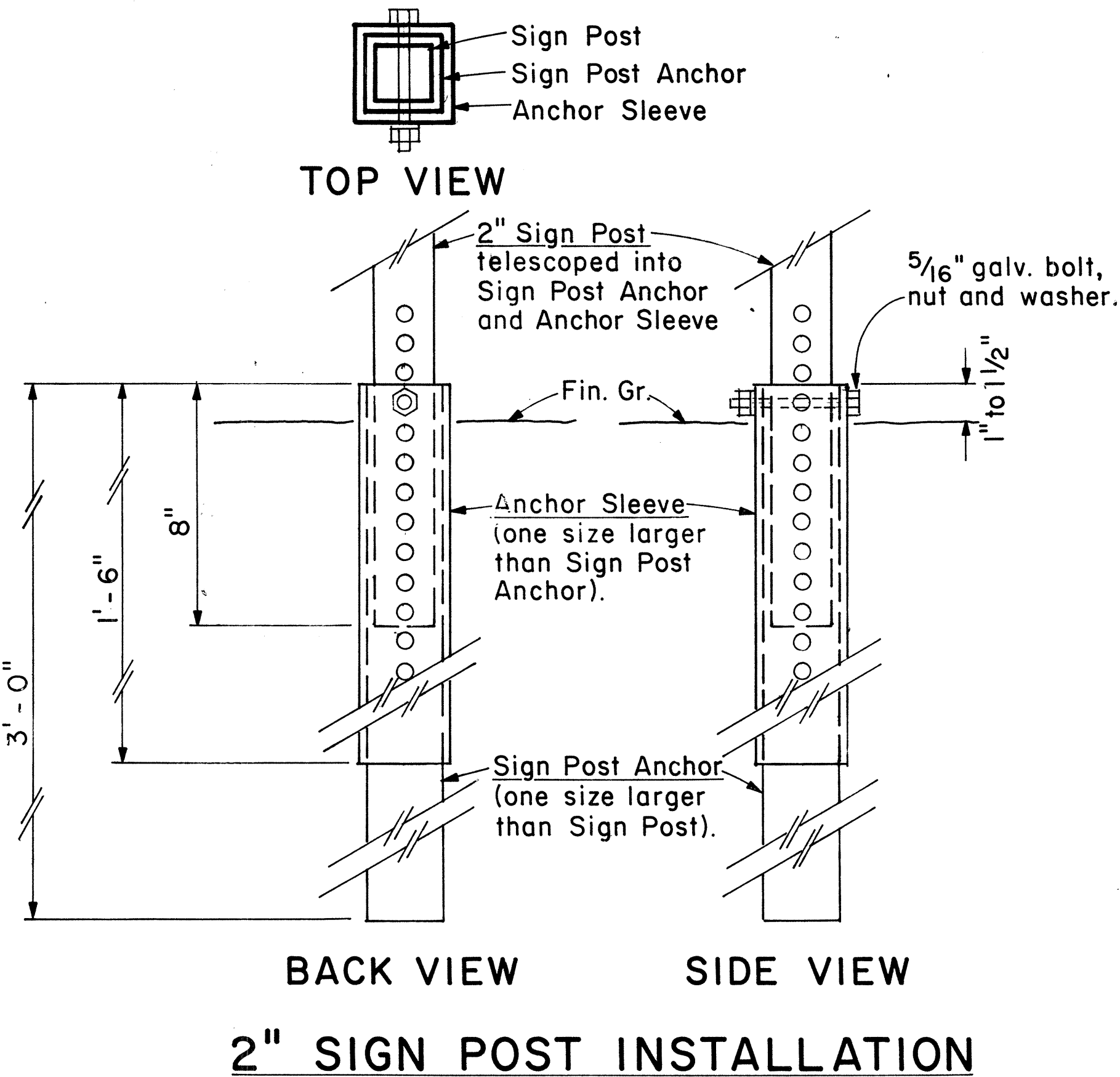
DATE	
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-85	1985	29	41

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



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.

## TYPICAL INSTALLATION

Not to Scale

SQUARE TUBE: 1- POST INSTALLATION							
Post Size	AxBxH (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

A x B  
(Area, sq.ft.)

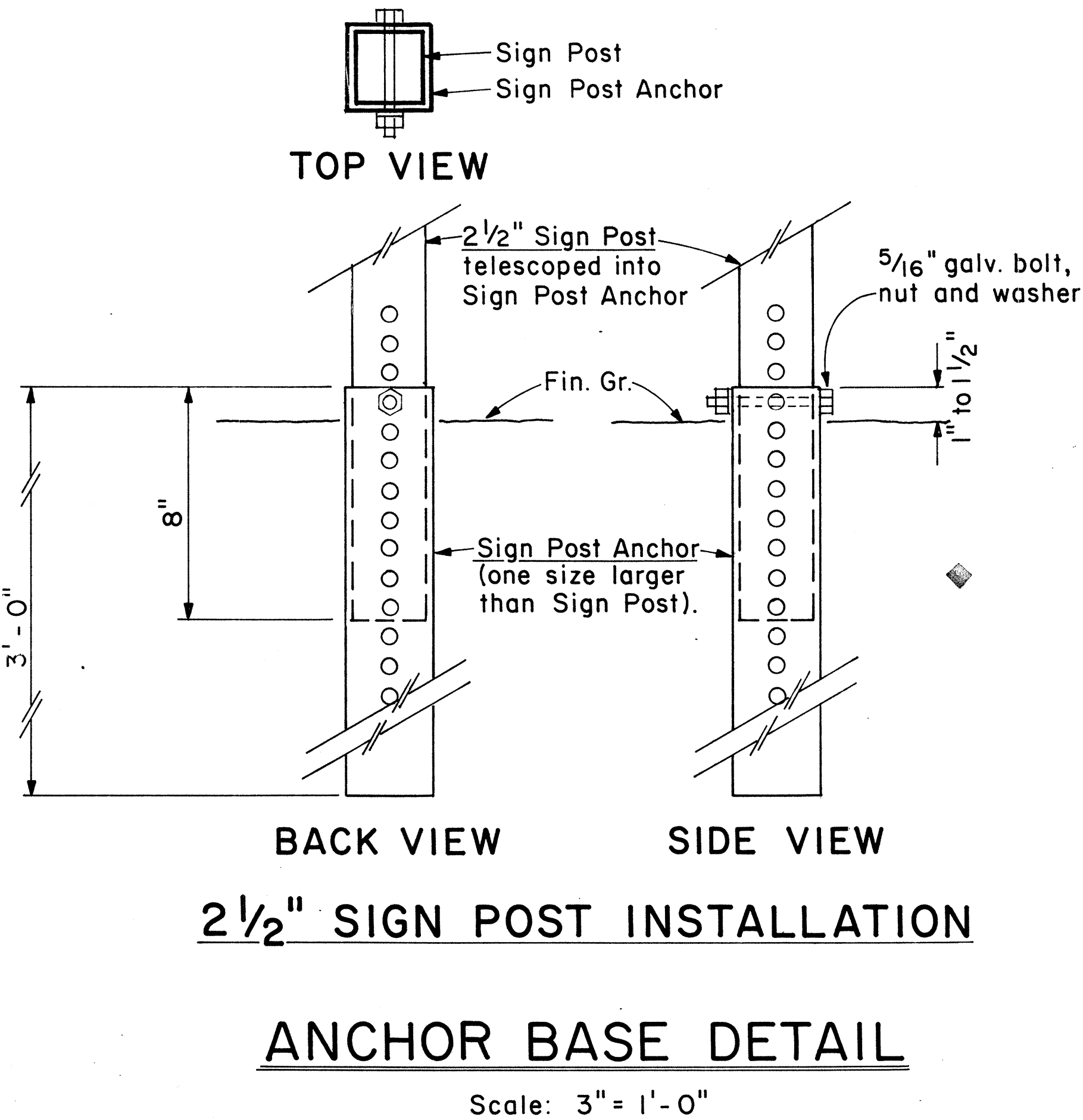
SQUARE TUBE: 2- POST INSTALLATION							
Post Size	AxBxH (Factor)	H = Ground Level to Midpoint (ft.)					
		7	8	9	10	11	12
2"	122	17.4	15.2	13.5	12.2	11.0	10.1
2 1/2"	212	30.2	26.5	23.5	21.1	19.2	17.6
2 1/2", 10 ga.	260	37.0	32.0	28.6	26.0	23.5	21.5

A x B  
(Area, sq.ft.)

SQUARE TUBE: 3- POST INSTALLATION							
Post Size	AxBxH (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

A x B  
(Area, sq.ft.)

## WINDLOAD CHARTS



APPROVAL RECOMMENDED:

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

APPROVED:

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

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

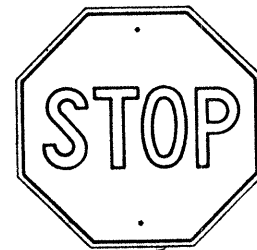
STANDARD DETAILS  
GALVANIZED SQUARE TUBE  
SIGN POST MOUNTING

Scale: As Shown
Date: Sepi 1982

SHEET No. 5 OF 12 SHEETS DT100B

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

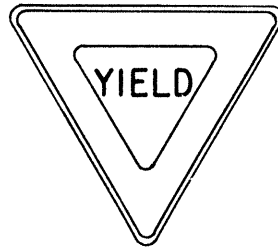
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-85	1985	36	41



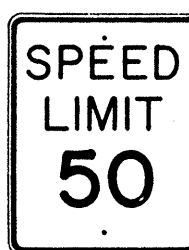
R1-1 30"x 30"  
R1-1-A 36"x 36"

4-WAY

R1-3 12" x 6"  
R1-3-A 18" x 9"



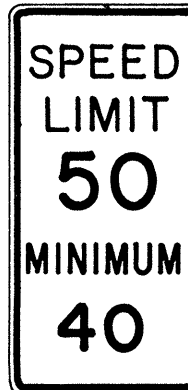
R1-2 36"x36"x36"  
R1-2-A 48"x48"x48"



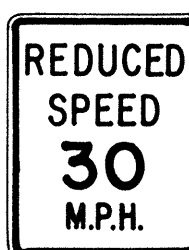
R2-1(50) 24"x 30"  
R2-1(50)-A 48"x 60"



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



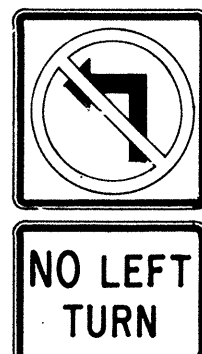
R2-4a(50/40) 24"x 48"  
R2-4a(50/40)-A 48"x 96"



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



R3-1 24"x24"  
24"x18"  
R3-1-A 48"x48"  
48"x36"



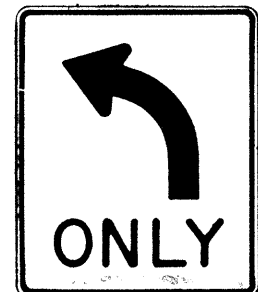
R3-2 24"x24"  
24"x18"  
R3-2-A 48"x48"  
48"x36"



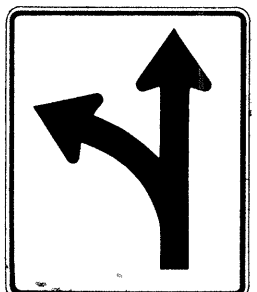
R3-3 24"x 24"  
R3-3-A 48"x 48"



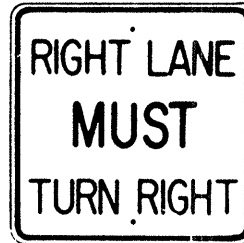
R3-4 24"x24"  
24"x18"  
R3-4-A 4"x4f"  
48"x36"



R3-5(L) 30"x36"  
R3-5(L)-A 48"x60"



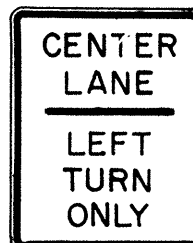
R3-6(L) 30"x36"  
R3-6(L)-A 48"x60"



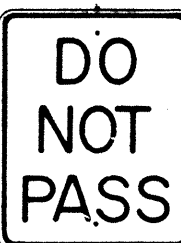
R3-7(R) 30"x30"  
R3-7(R)-A 48"x48"



R3-8(L) 30"x30"  
R3-8(L)-A 36"x36"  
R3-8(L)-B 48"x48"



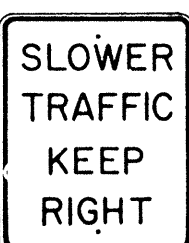
R3-9 24"x 30"



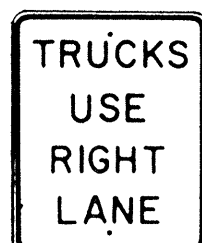
R4-1 24"x 30"



R4-2 24"x 30"



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



R4-5 24"x 30"



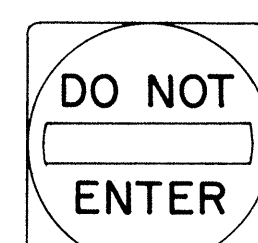
R4-6(500) 24"x 30"



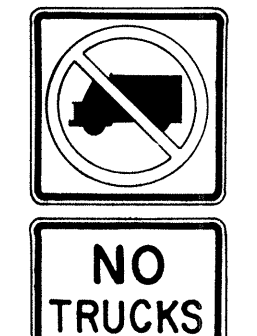
R4-7 24"x30"  
24"x18"



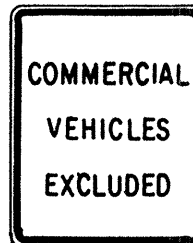
R4-8 24"x30"  
24"x18"



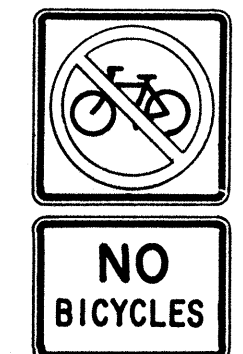
R5-1 30"x 30"  
R5-1-A 48"x 48"



R5-2 24"x24"  
24"x18"



R5-4 24"x 30"



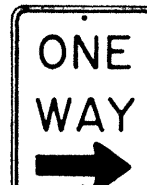
R5-6 24"x24"  
24"x18"



R5-9 36"x 24"



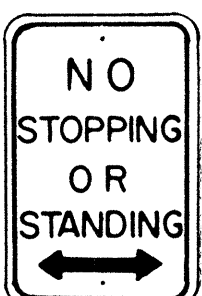
R6-1(R) 36"x12"



R6-2(R) 18"x24"



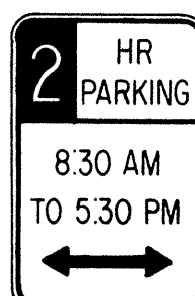
R7-1 12"x 18"  
R7-1-A 24"x 30"



R7-4 12"x18"  
R7-4-A 24"x30"



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



R7-108 12"x 18"



R7-201 12"x 6"  
R7-201-A 24"x12"



R8-1 24"x 30"



R8-2 24"x 30"



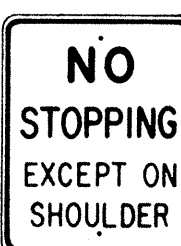
R8-3 24"x 30"



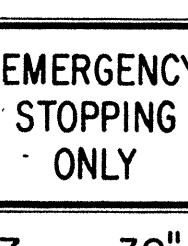
R8-4 30"x 24"  
R8-4-A 48"x 36"



R8-5 24"x 30"



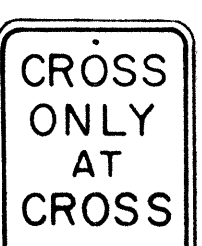
R8-6 24"x 30"



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



R9-1 18"x 24"



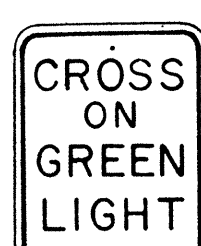
R9-2 12"x 18"



R9-3 12"x 18"



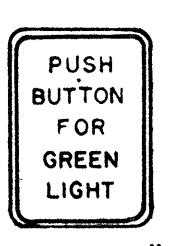
R9-4 18"x 24"



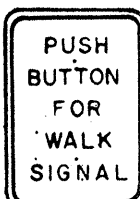
R10-1 12"x 18"



R10-2 12"x 18"



R10-3 9"x 12"



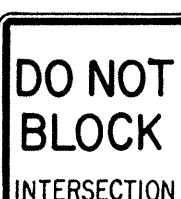
R10-4 9"x 12"



R10-5 24"x 30"



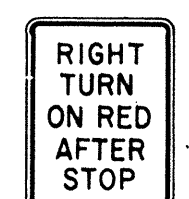
R10-6 24"x 36"



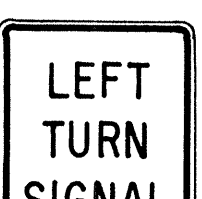
R10-7 24"x 30"



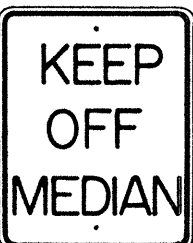
R10-8 24"x 30"



R10-9 24"x 30"



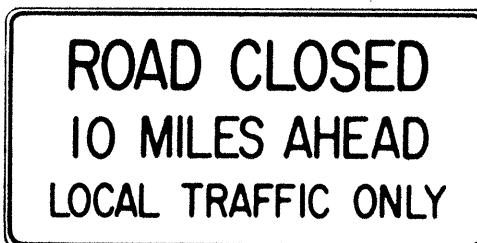
R10-10 24"x 30"



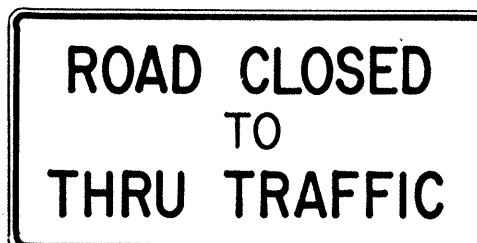
R11-1 24"x 30"



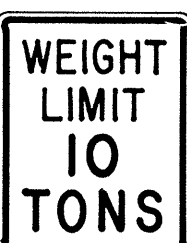
R11-2 48"x 30"



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:  
TRAFFIC ENGINEER

3/17/72  
DATE

APPROVED:  
ASSISTANT CHIEF, ENGINEERING

3-20-72  
DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 101 Approved 12-30-69	H.	8/20/72
2	Revised General Note 1.	H.	10/10/74
3	Added General Note 5	H.	8/9/75

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

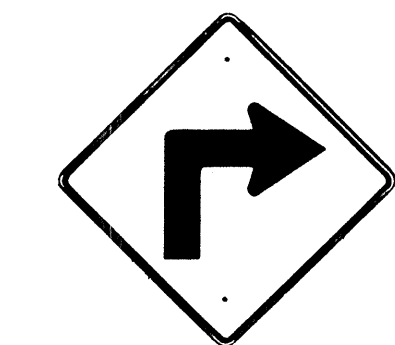
### STANDARD DETAILS REGULATORY SIGNS

NOT TO SCALE

SHEET No. 6 OF 12 SHEETS DT 101



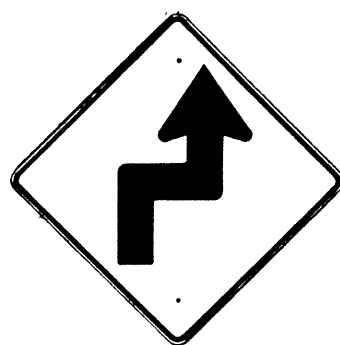
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII*	HAW.	3608-01-85	1985	31	41



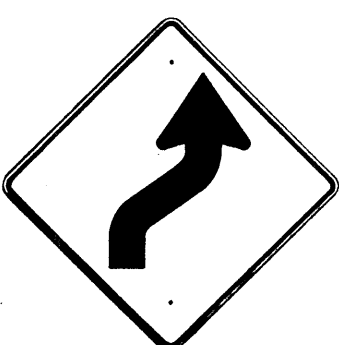
W1-1(R) 30"x 30"  
W1-1(R)-A 48"x 48"



W1-2(R) 30"x 30"  
W1-2(R)-A 48"x 48"



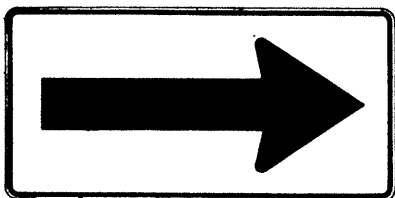
W1-3(R) 30"x 30"  
W1-3(R)-A 48"x 48"



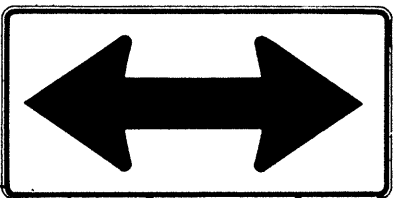
W1-4(R) 30"x 30"  
W1-4(R)-A 48"x 48"



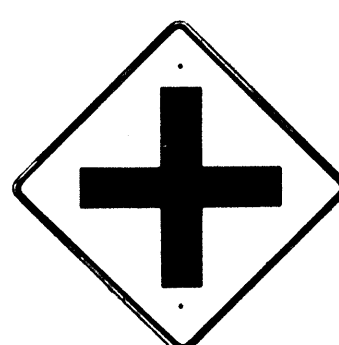
W1-5(R) 30"x 30"  
W1-5(R)-A 48"x 48"



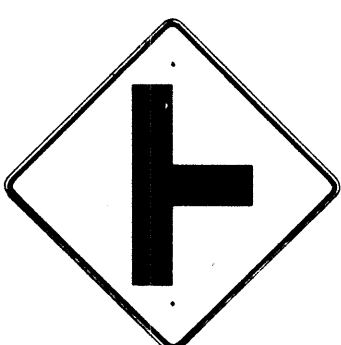
W1-6 48"x 24"



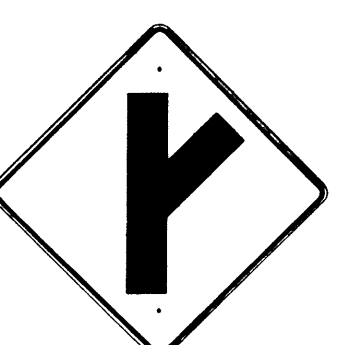
W1-7 48"x 24"



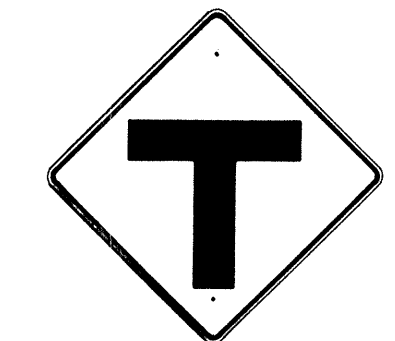
W2-1 30"x 30"  
W2-1-A 48"x 48"



W2-2 30"x 30"  
W2-2-A 48"x 48"



W2-3(R) 30"x 30"  
W2-3(R)-A 48"x 48"



W2-4 30"x 30"  
W2-4-A 48"x 48"



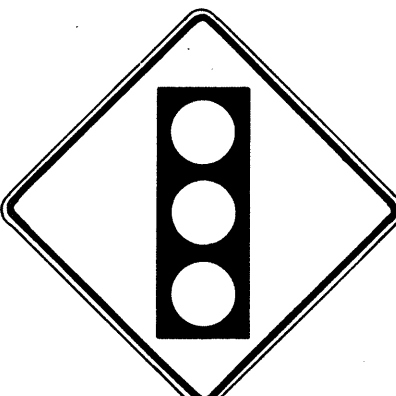
W2-5 30"x 30"  
W2-5-A 48"x 48"



W3-1 30"x 30"  
W3-1-A 36"x 36"



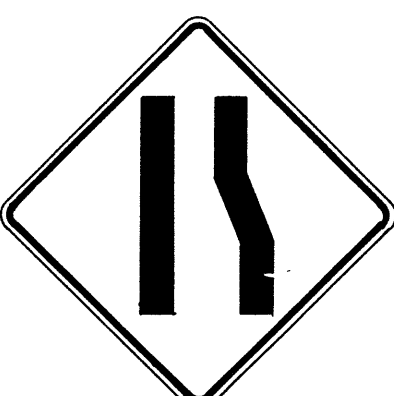
W3-2 30"x 30"  
W3-2-A 36"x 36"



SIGNAL AHEAD  
W3-3 36"x 36"  
24"x 18"



MERGE  
W4-1(R) 30"x 30"  
24"x 18"  
W4-1(R)-A 48"x 48"  
24"x 18"



W4-2(R) 36"x 36"  
W4-2(R)-A 48"x 48"



W5-1 36"x 36"



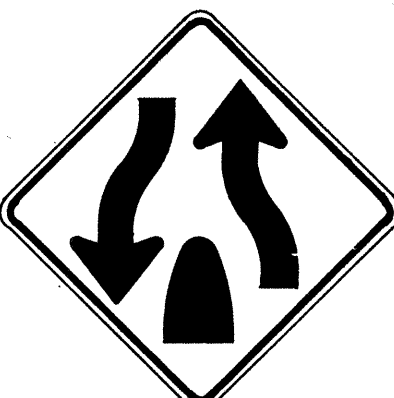
W5-2 30"x 30"  
W5-2-A 36"x 36"



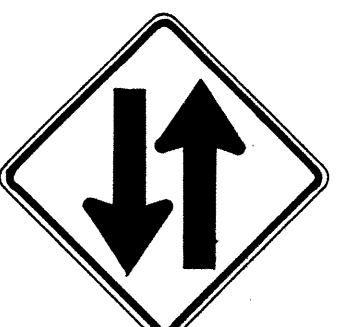
W5-3 36"x 36"



DIVIDED HIGHWAY  
W6-1 36"x 36"  
24"x 18"



DIVIDED HIGHWAY ENDS  
W6-2 36"x 36"  
24"x 18"



TWO WAY TRAFFIC  
W6-3 30"x 30"  
24"x 18"  
W6-3-A 36"x 36"  
24"x 18"  
W6-3-B 48"x 48"  
24"x 18"



HILL  
W7-1 30"x 30"  
24"x 18"  
W7-1-A 36"x 36"  
24"x 18"



W7-2 24"x 18"



W8-1 30"x 30"  
W8-1-A 36"x 36"



W8-2 30"x 30"  
W8-2-A 36"x 36"



W8-3 30"x 30"  
W8-3-A 36"x 36"



W8-4 30"x 30"  
W8-4-A 36"x 36"



SLIPPERY WHEN WET  
W8-5 30"x 30"  
24"x 18"  
W8-5-A 36"x 36"  
24"x 18"



W9-1(R) 30"x 30"  
W9-1(R)-A 36"x 36"  
W9-1(R)-B 48"x 48"



W9-2(L) 36"x 36"  
W9-2(L)-A 48"x 48"



W10-1 36" Diameter



BIKE XING  
W11-1 30"x 30"  
24"x 18"  
W11-1-A 36"x 36"  
24"x 18"



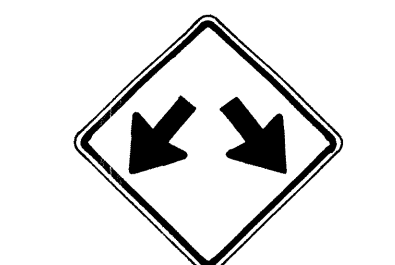
PED XING  
W11-2 30"x 30"  
24"x 18"  
W11-2-A 36"x 36"  
24"x 18"



CATTLE XING  
W11-4 30"x 30"  
24"x 18"  
W11-4-A 36"x 36"  
24"x 18"



FARM MACHINERY  
W11-5 30"x 30"  
24"x 18"  
W11-5-A 36"x 36"  
24"x 18"



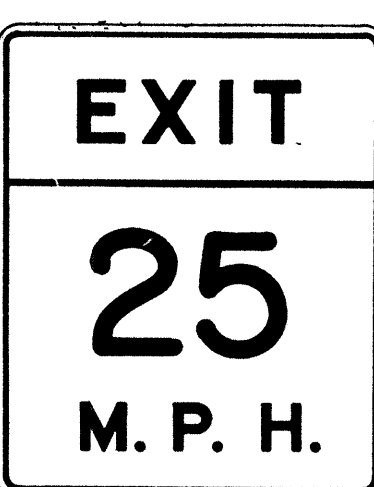
W12-1 24"x 24"  
W12-1-A 36"x 36"  
W12-1-B 48"x 48"



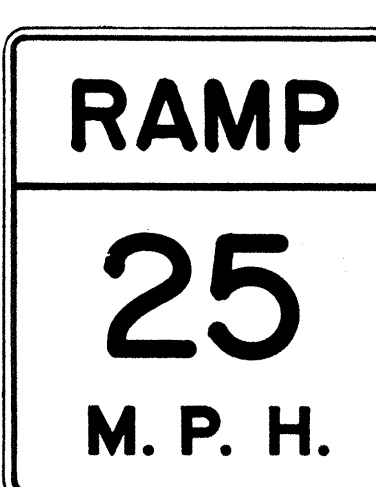
LOW CLEARANCE  
W12-2 (12'-6") 36"x 36"  
24"x 18"



W13-1(25) 18"x 18"  
W13-1(25)-A 24"x 24"



W13-2(25) 48"x 60"



W13-3(25) 48"x 60"



W14-1 30"x 30"



W14-3 36"x 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 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:  
TRAFFIC ENGINEER *Eishi Tanaka* 3/17/72  
DATE

APPROVED:  
ASSISTANT CHIEF, ENGINEERING *Walter Dalsin* 3-20-72  
DATE

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

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
<b>STANDARD DETAILS</b>
<b>WARNING SIGNS</b>
NOT TO SCALE
SHEET No. 7 OF 2 SHEETS DT 102

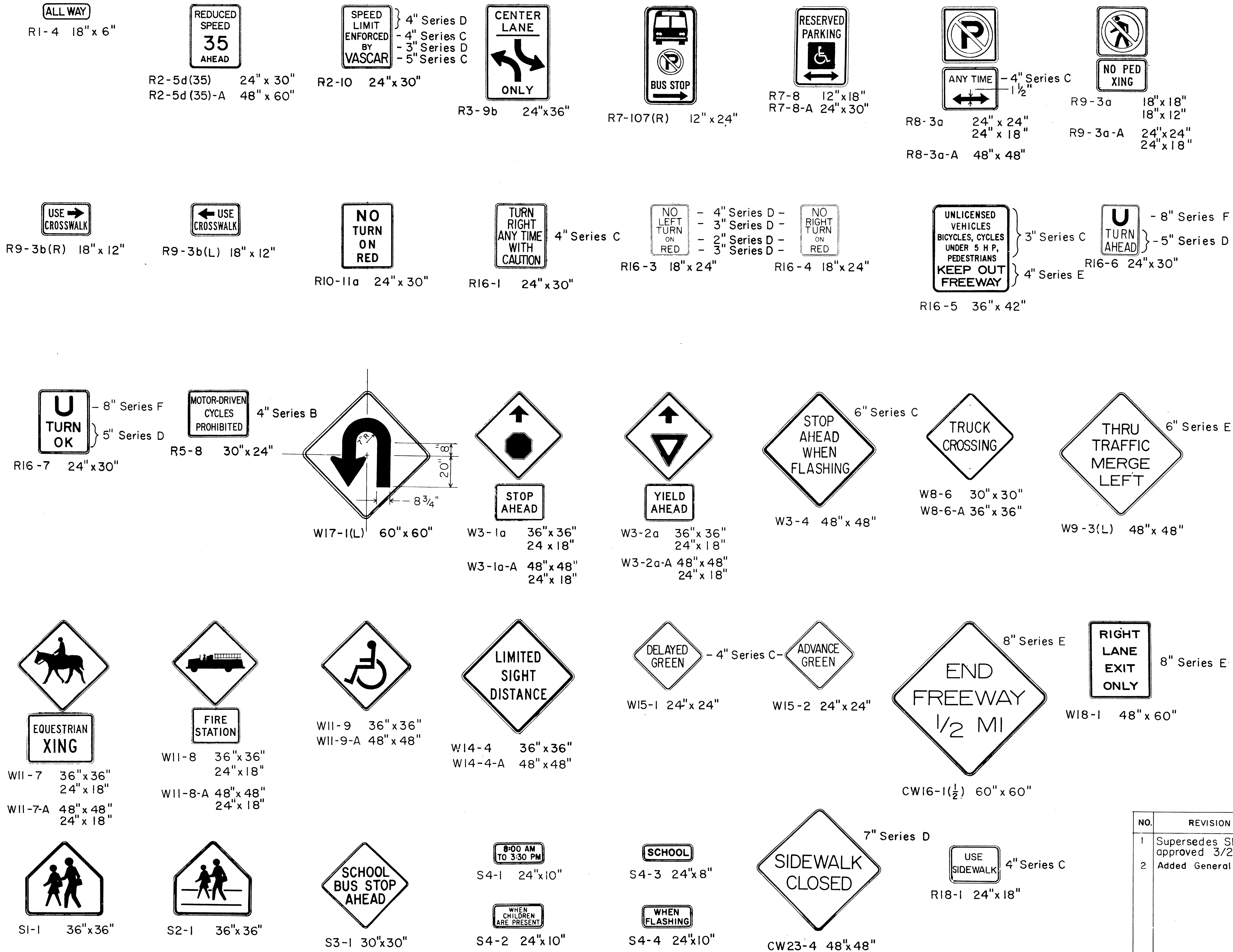
NOTE  
1. All signs shall be erected without educational plaques unless called for in the plans.

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	3608-01-85	1985	32	41

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  $\frac{3}{8}$ " 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.



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. 8 OF 12 SHEETS DT 103	



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	3608-01-85	1985	33	41



CW20-1a 48"x 48"



CW20-2d 48"x 48"



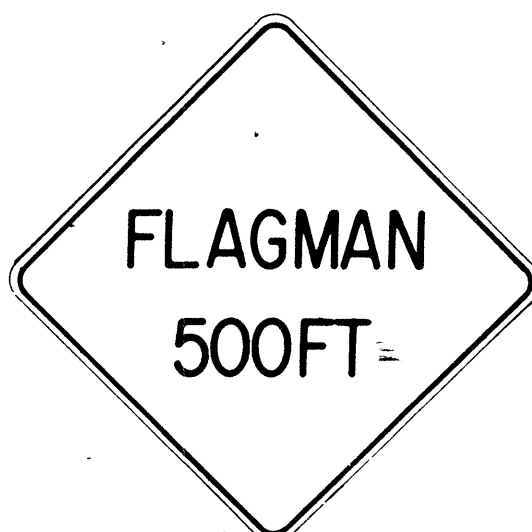
CW20-3b 48"x 48"



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"



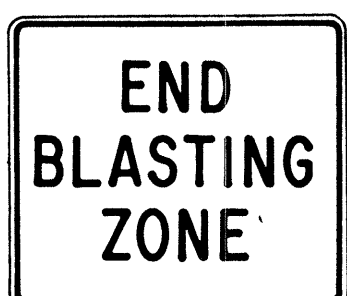
CW21-6 30"x 30"



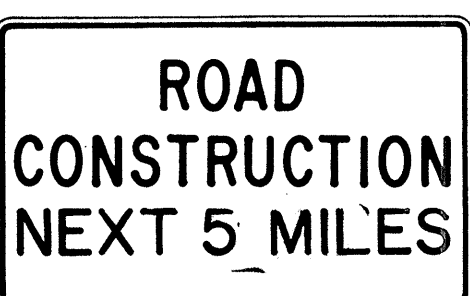
CW22-1b 48"x 48"



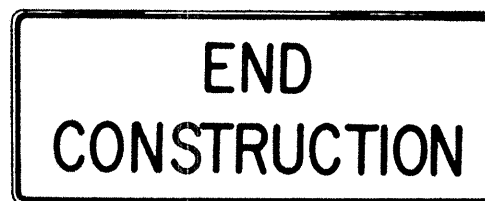
CW22-2 42"x 36"



CW22-3 42"x 36"



CG20-1(5) 60"x 36"



CG20-2 60"x 24"



CM4-9(R) 30"x 24"



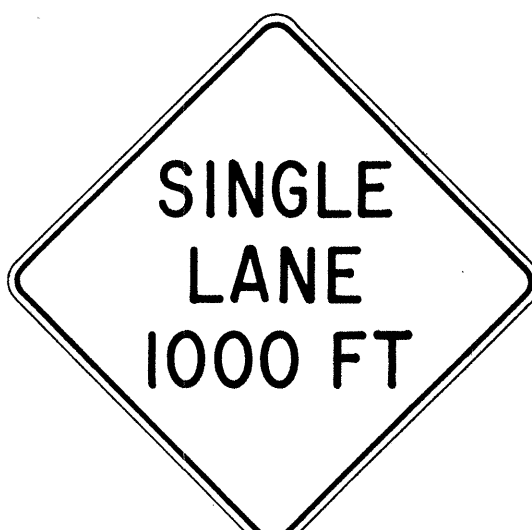
CM4-10(R) 48"x 18"



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.

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.	10/16/74
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

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

APPROVED:  
*Arthur S. S. S.* 3/23/72  
ASSISTANT CHIEF, ENGINEERING DATE

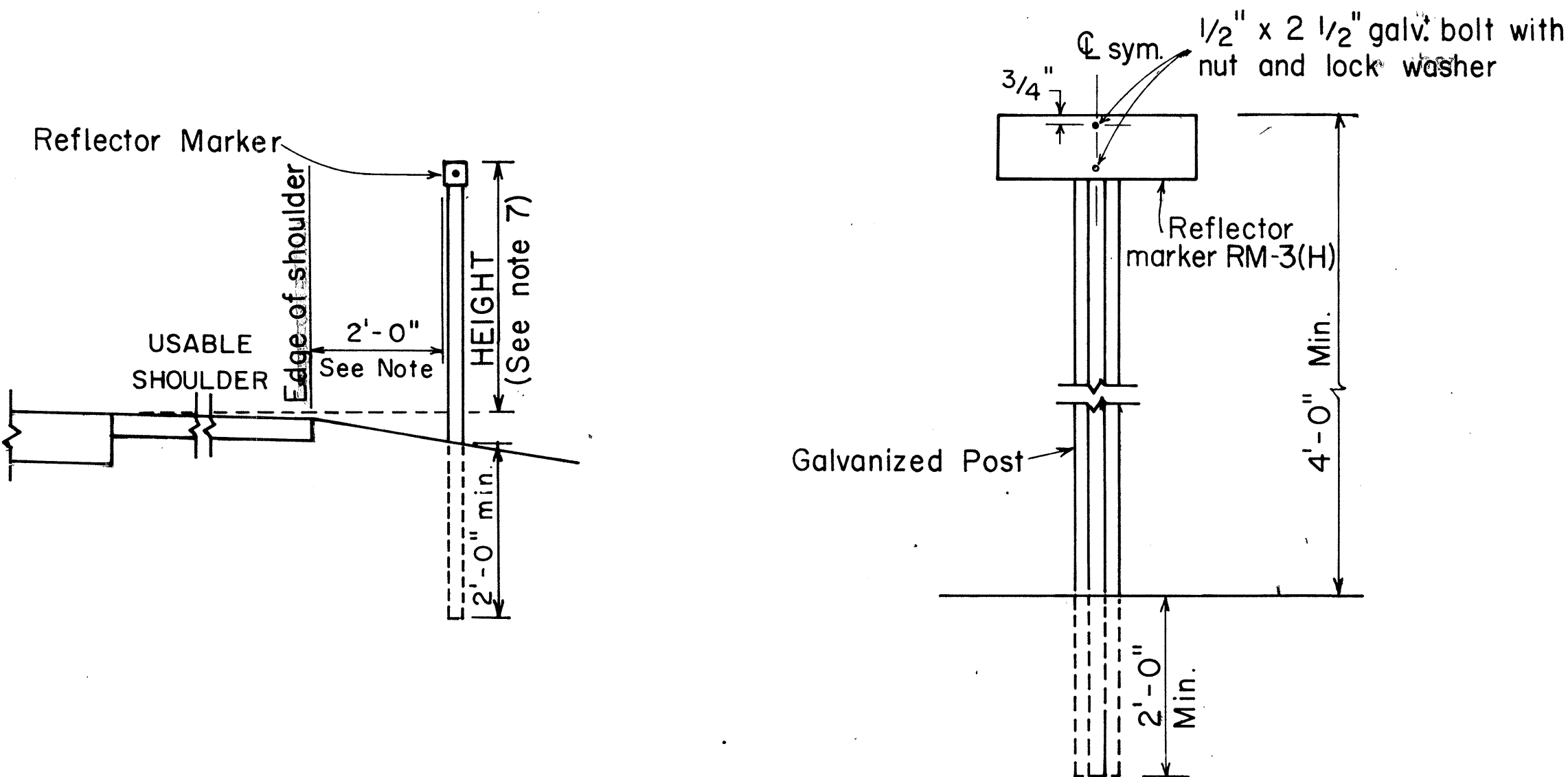
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

### STANDARD DETAILS CONSTRUCTION SIGNS

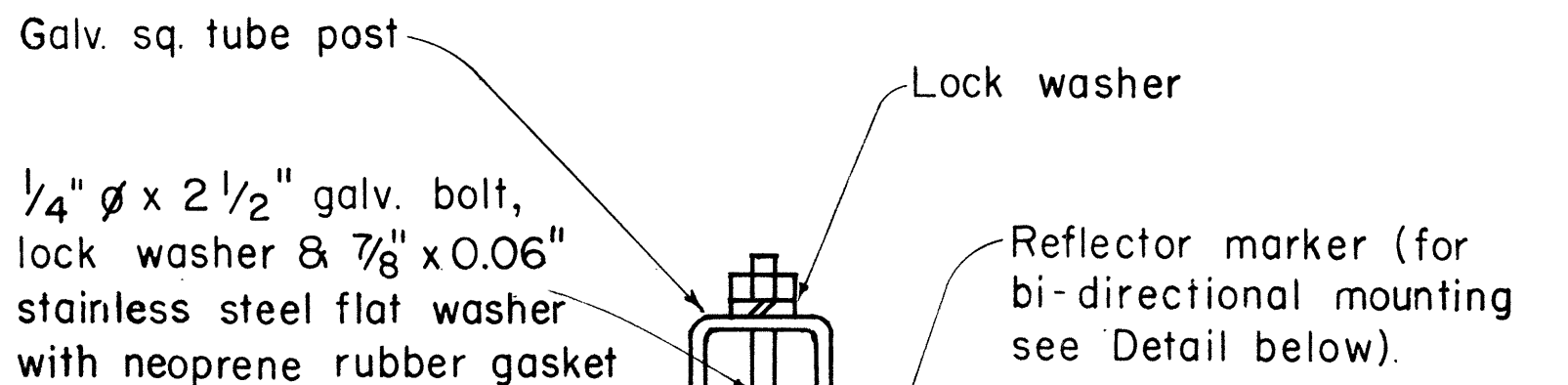
NOT TO SCALE

SHEET No. 9 OF 12 SHEETS DT 104

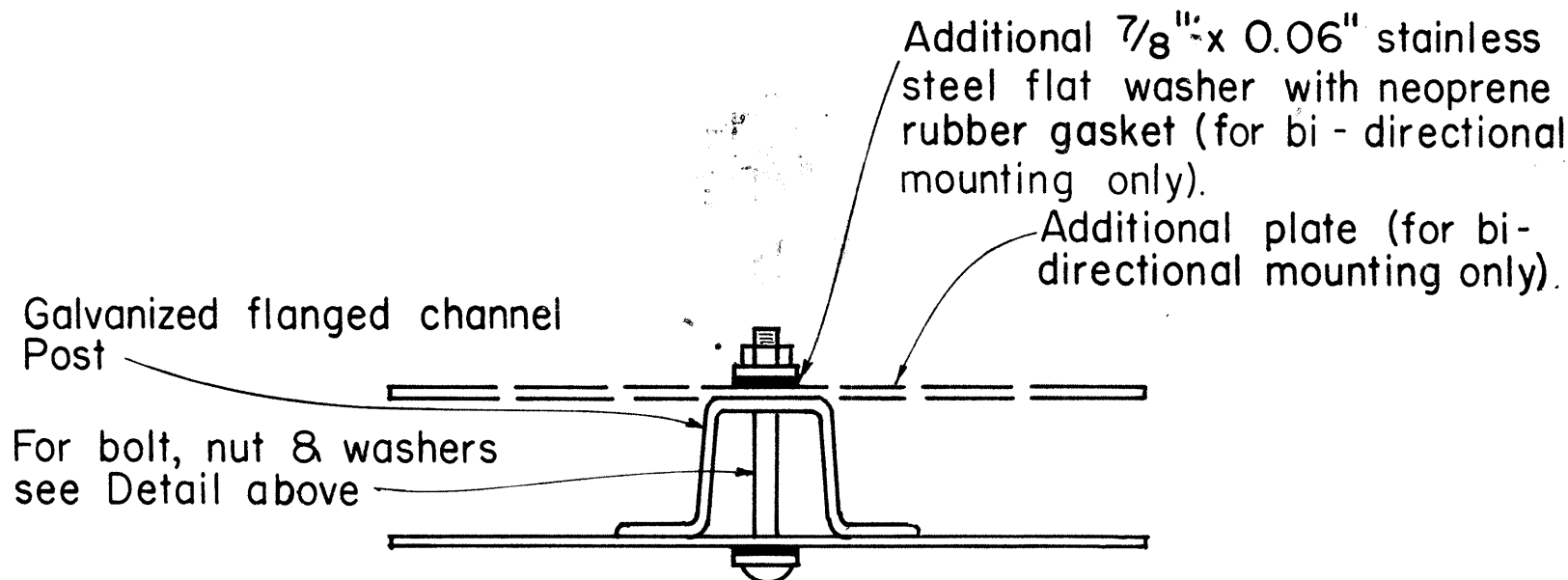
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-01-85	1985	34	41



REFLECTOR MARKER MOUNTING DETAIL



GALVANIZED SQUARE TUBE POST

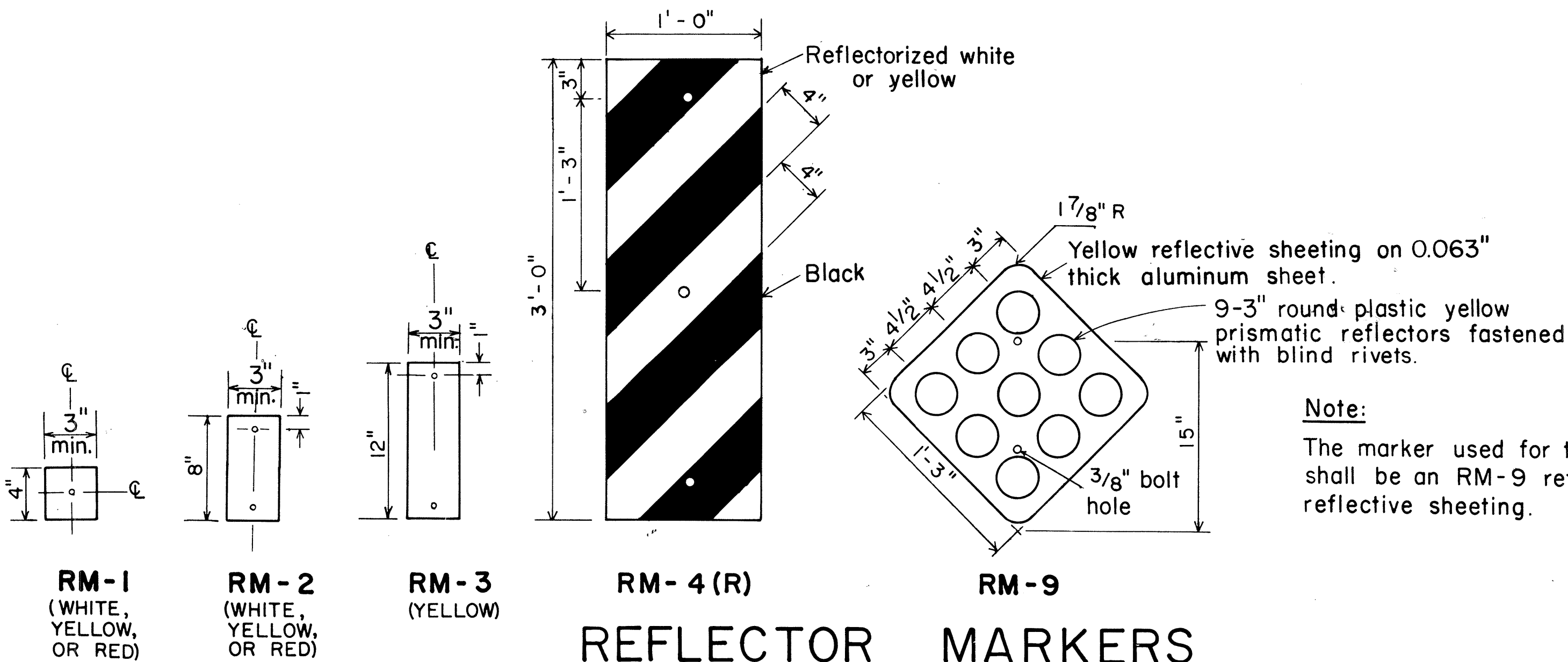


GALVANIZED FLANGED CHANNEL POST

## TYPICAL MOUNTING DETAILS

### GENERAL NOTES:

- Clearance markers (RM-3, RM-4) shall be installed with the edge of the marker in line with the inner edge of the obstruction.
- (R) or (L) indicates right or left and shall be as shown on the plans.
- Reflector markers RM-1 and RM-2 shall be:
  - Yellow if placed along the left edge of divided roadways, one-way roadways, and ramps in the direction of travel.
  - White if placed along the right edge of divided roadways, one-way roadways, and ramps in the direction of travel.
- For RM-4, the stripes shall slope downward at an angle of 45° toward the side of the obstruction that traffic is to pass.
- For reflector marker RM-9, reflective sheeting material may be used as an alternate.
- (H) indicates horizontal mounting of reflector marker.
- Height = 4'-0" min. for RM-1, RM-2 and RM-3.  
Height = 5'-6" min. for RM-4 and RM-9.
- Final locations of reflector markers shall be approved by the Engineer.



**Note:**  
The marker used for the end of a roadway shall be an RM-9 reflectorized with red reflective sheeting.

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

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

NO.	REVISION	APPROVED BY	DATE
1	Revised Mounting Details	H-1	4/25/80
2	Revised General Notes, Mounting Details and Reflector Markers.	H-1	7-28-83

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

## STANDARD DETAILS

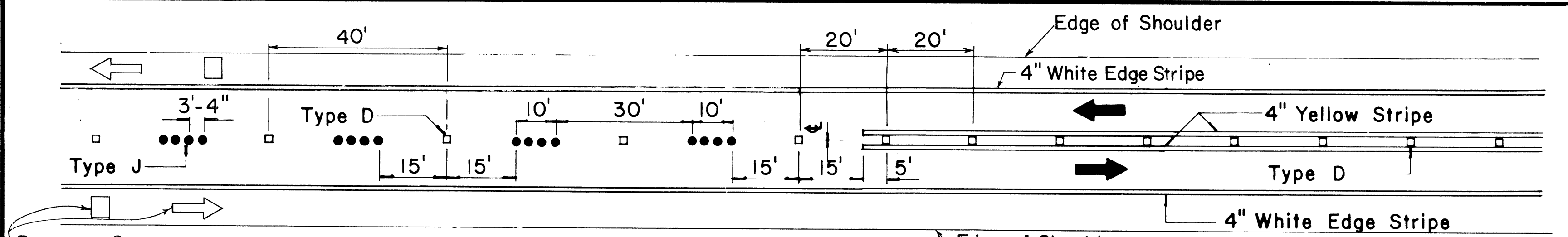
### MISCELLANEOUS REFLECTOR MARKERS

Not to scale June, 1977

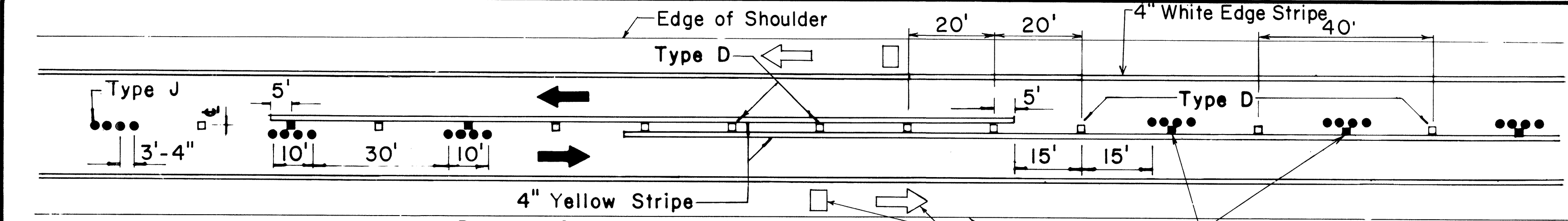
SHEET No. 10 OF 13 SHEETS DT 110



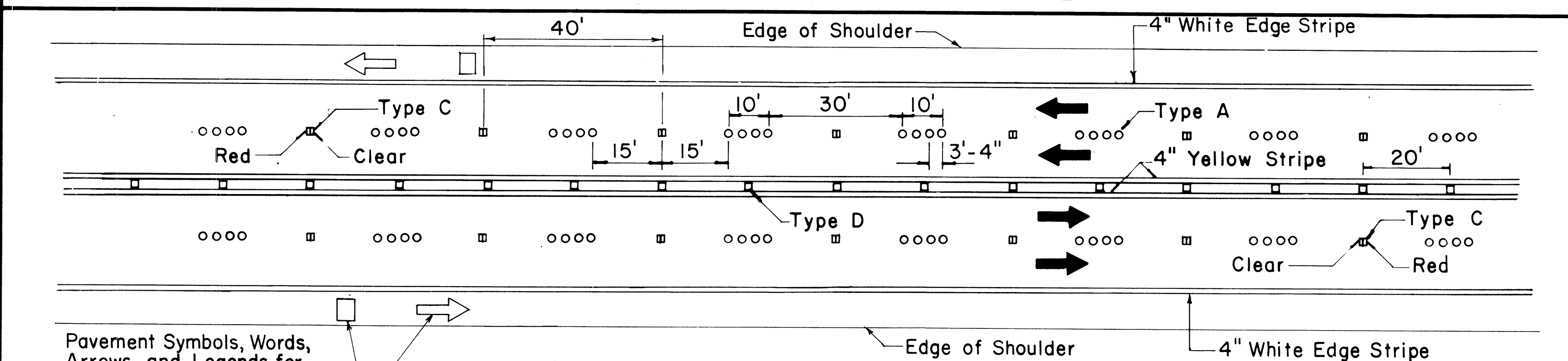
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	3108-01-85	1985	35	41



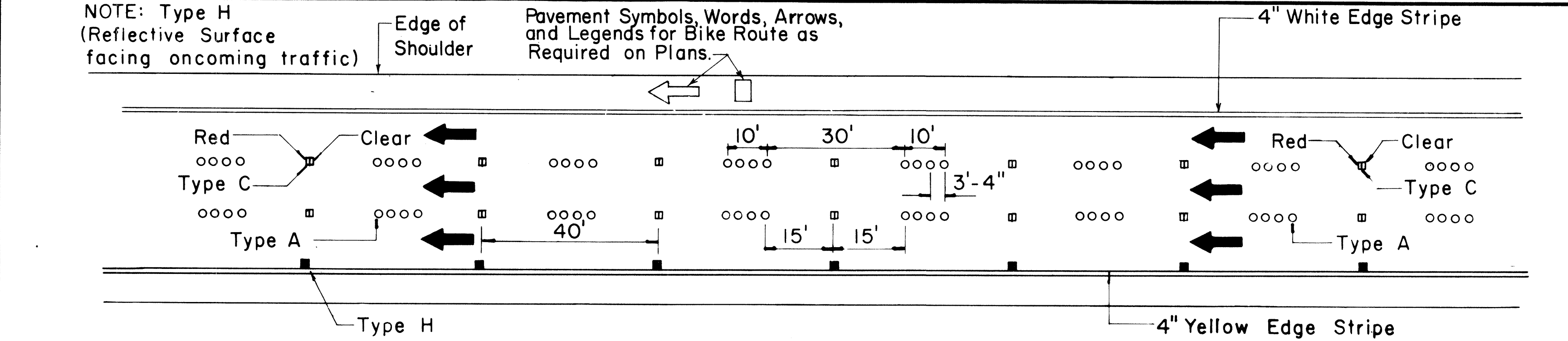
Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans. **PASSING PERMITTED AND PASSING PROHIBITED**



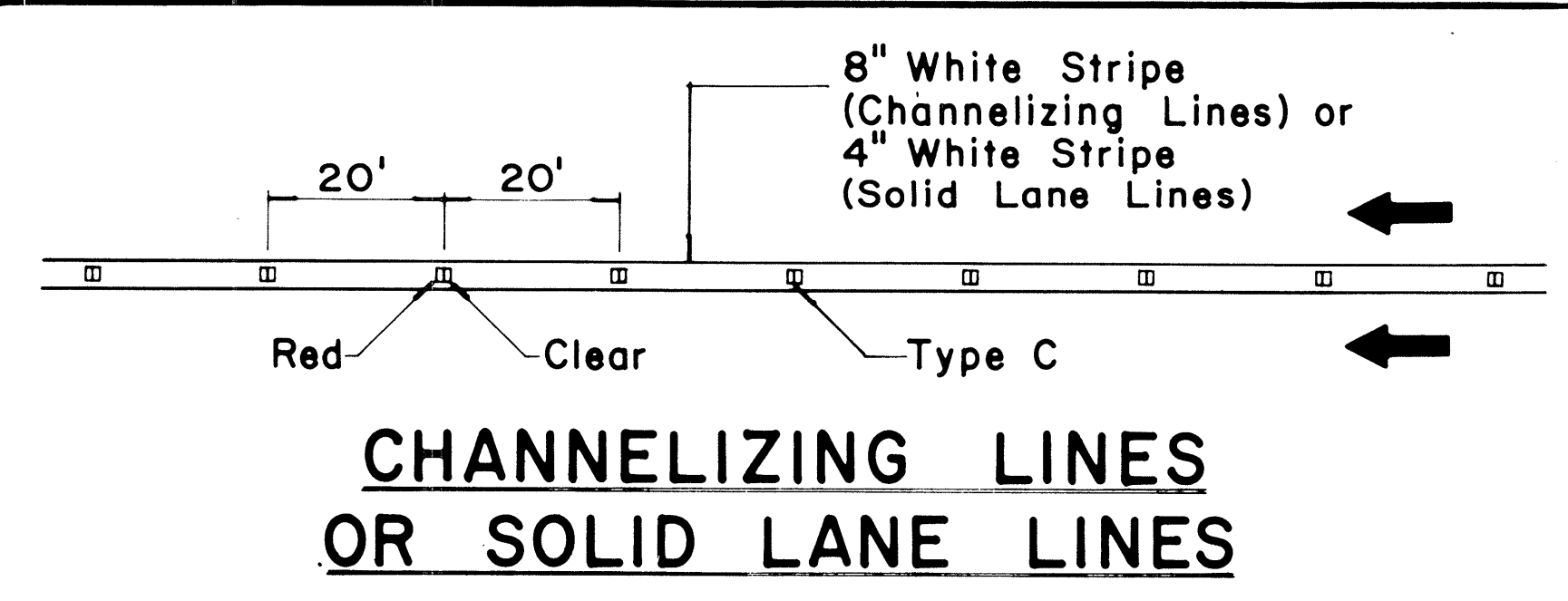
Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans. **PASSING PROHIBITED ZONES**



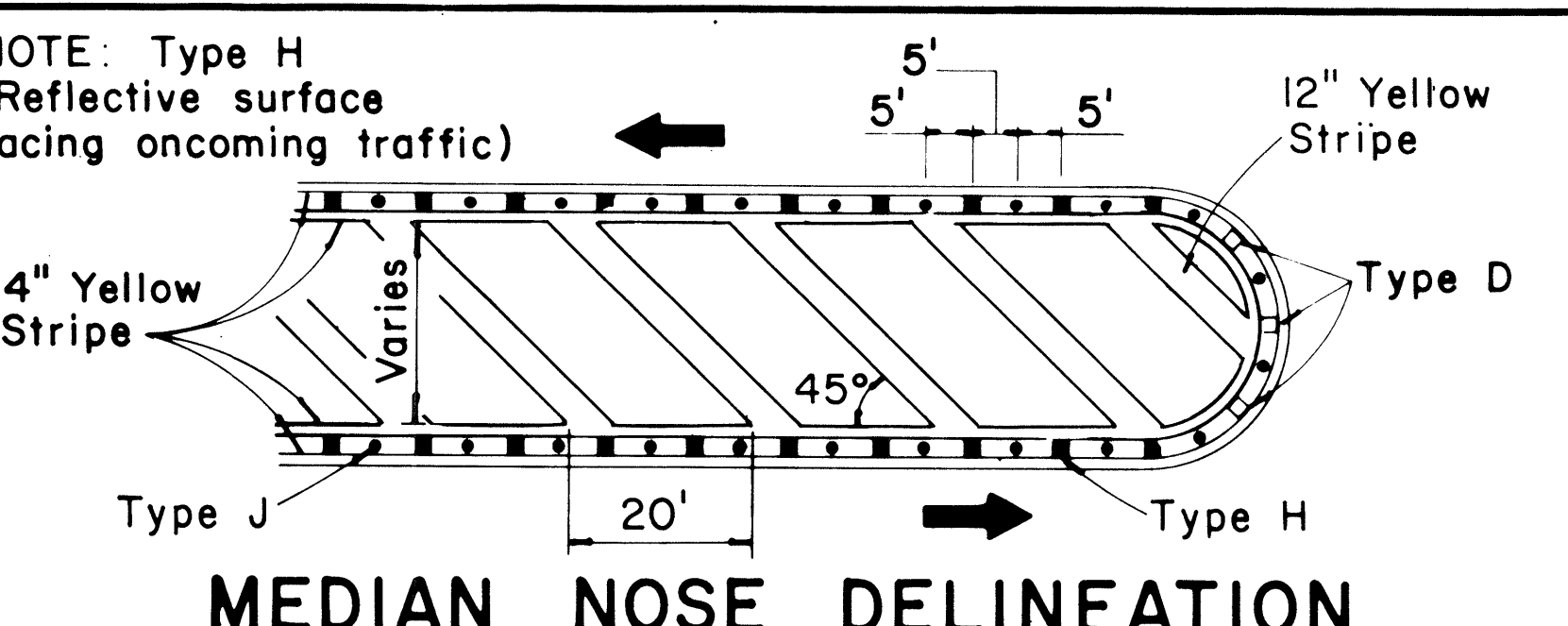
Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans.



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**



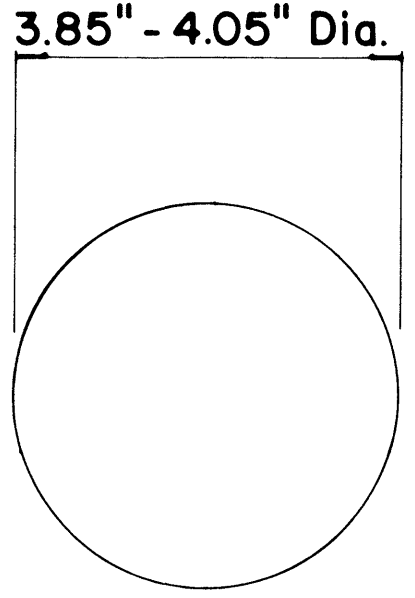
**MEDIAN NOSE DELINEATION**

TWO - LANE

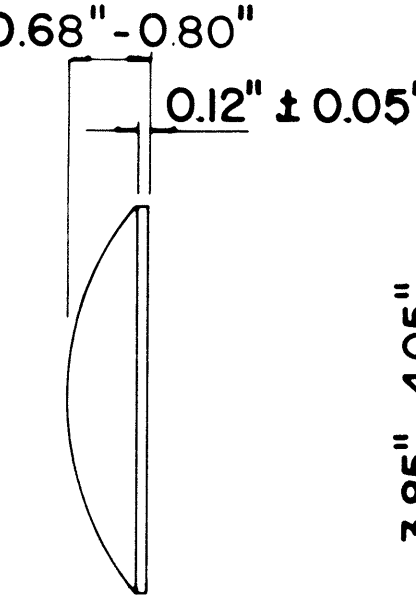
MULTI - LANE

DIVIDED HIGHWAY AND FREEWAY

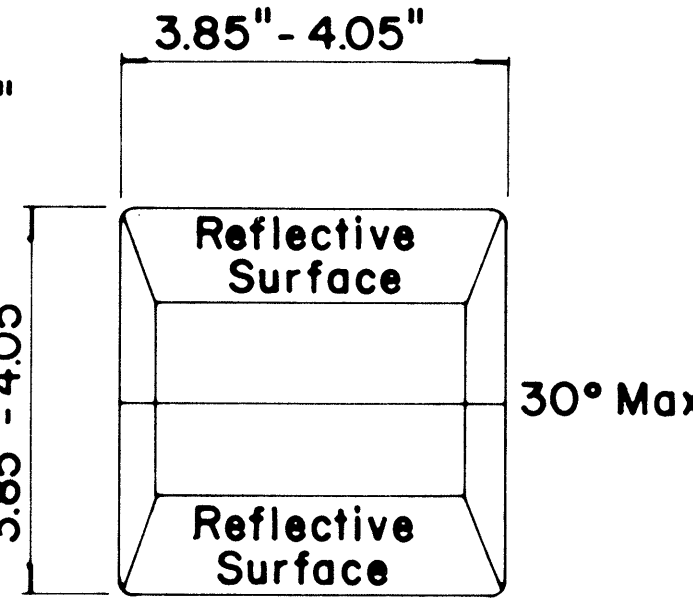
MISCELLANEOUS



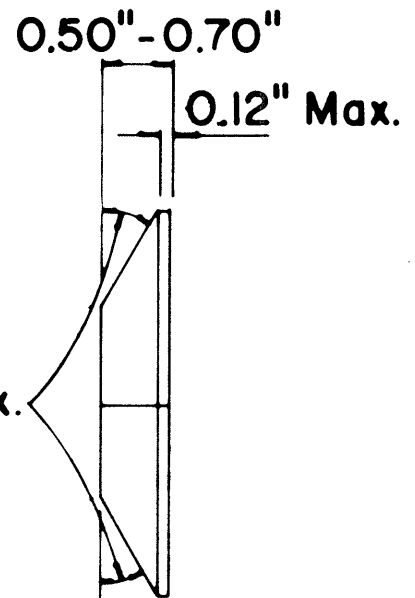
**TYPE A**  
NON-REFLECTIVE WHITE MARKER



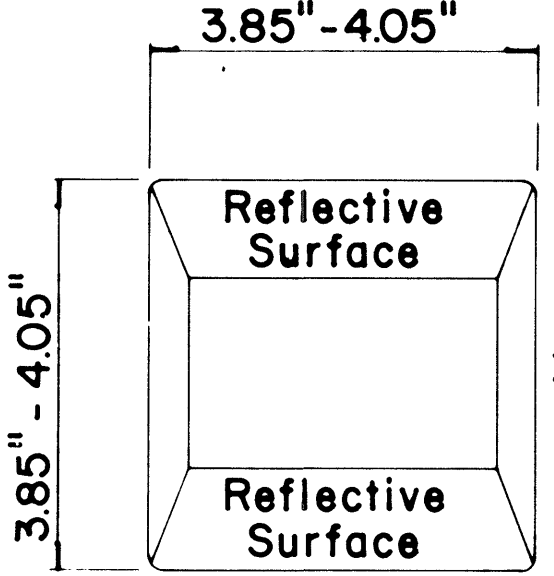
**TYPE J**  
NON-REFLECTIVE YELLOW MARKER



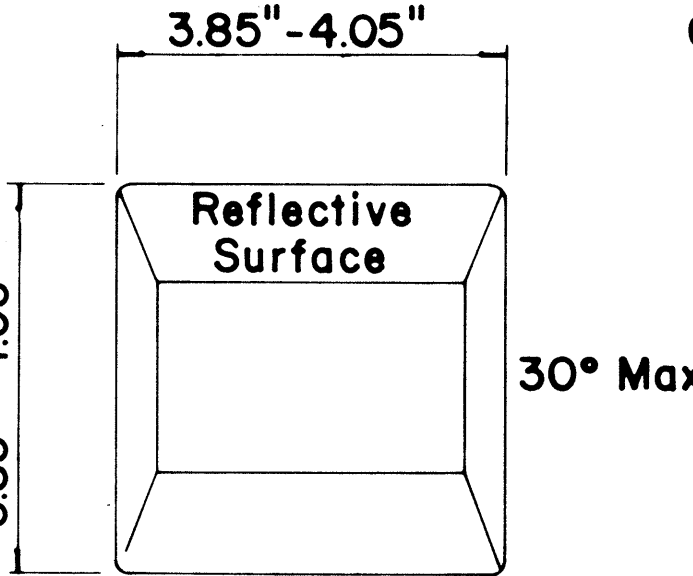
**TYPE C**  
RED-CLEAR REFLECTIVE MARKER



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



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



**GENERAL NOTES**

1. Pavement marking and striping shall conform to the latest "Manual on Uniform Traffic Control Devices for Streets and Highways," and as amended.
2. 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.
3. Edge lines shall not be continued through intersections and shall not be broken for driveways unless otherwise shown or directed.

**LEGEND**

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

APPROVAL RECOMMENDED:

*Etsuki Tanaka*  
TRAFFIC ENGINEER

7/21/78  
DATE

APPROVED:

*Robert S. Zalewski*  
ASSISTANT CHIEF, ENGINEERING

1/24/78  
DATE

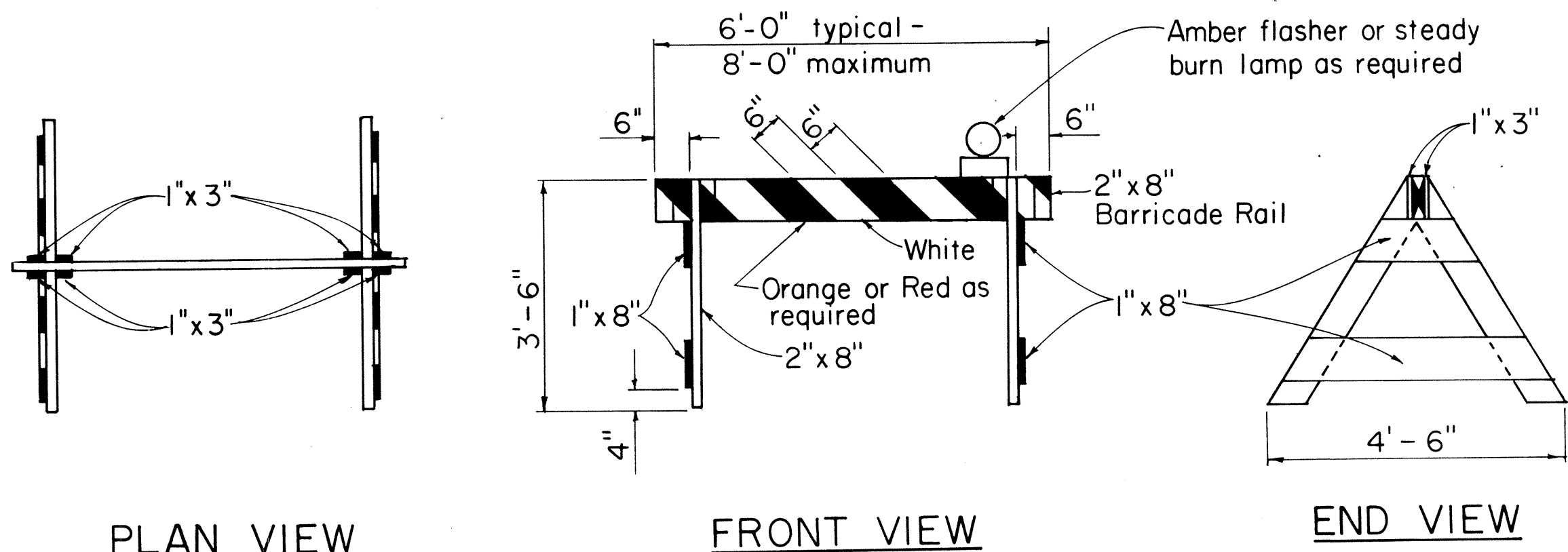
No.	REVISION	APPROVED BY	DATE
1	Supersedes DT 300 approved 11/18/71.	H.T.	1/24/78
2	Delete Type A Markers from Bike Route Delineation.	H.T.	10/15/79
3	Added General Note 3. Revised left edge stripe.	H.T.	9-28-83

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

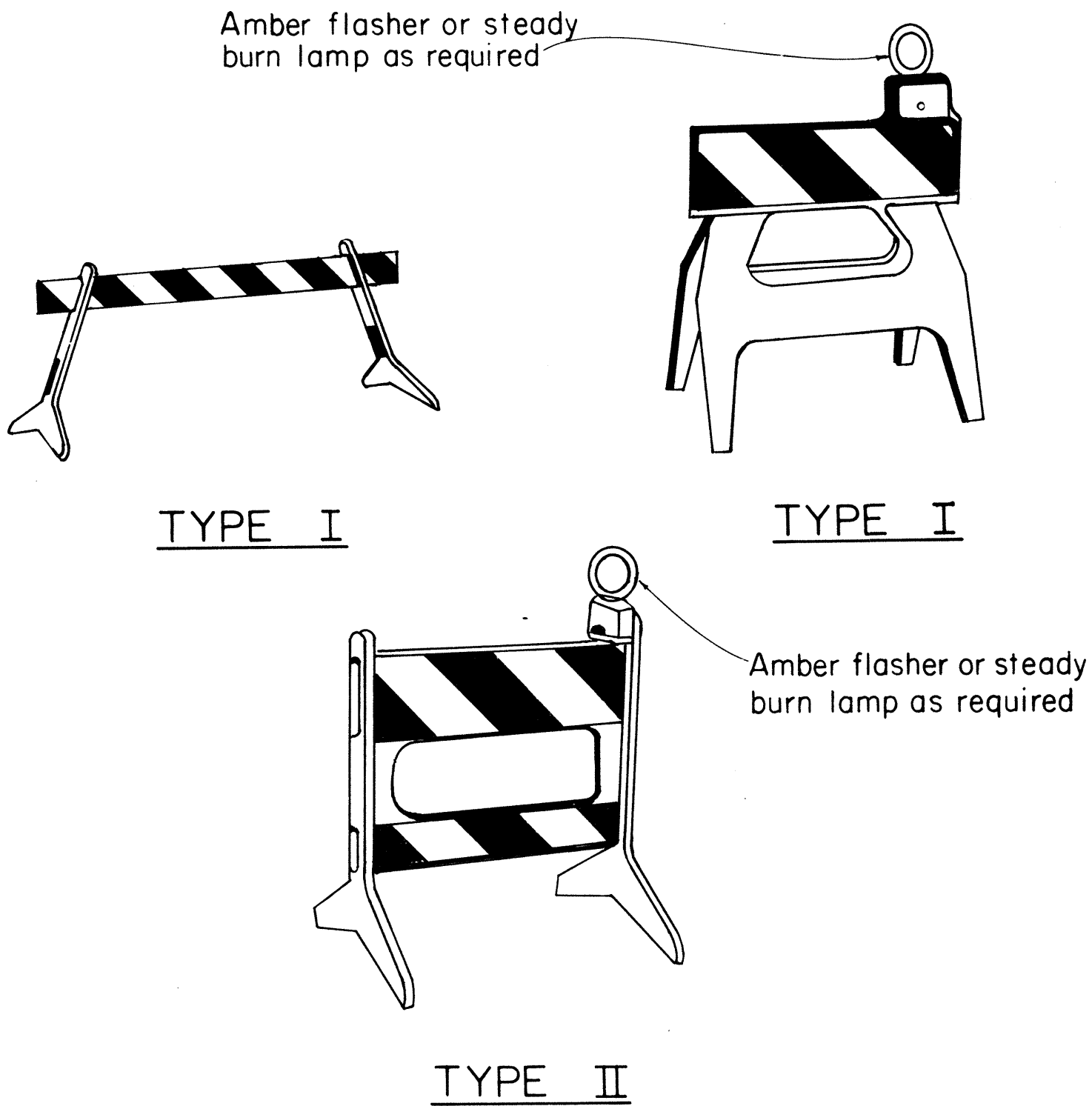
**STANDARD DETAILS**  
**RAISED PAVEMENT MARKERS**  
**AND STRIPING**

Not to Scale July 1978  
SHEET No. 11 OF 12 SHEETS DT 300

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360B-0-85	1985	36	41



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

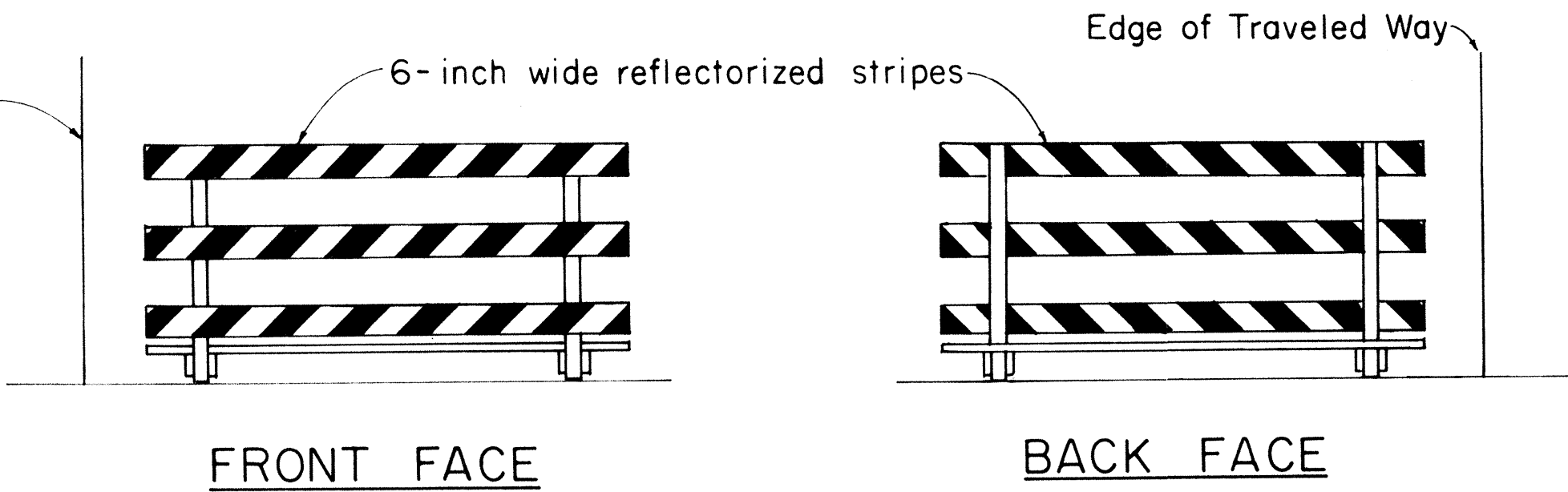


**TYPE II BARRICADE**  
Scale: 1/2" = 1'-0"

### PLASTIC MOLDED BARRICADE OPTIONS\*

Not to Scale

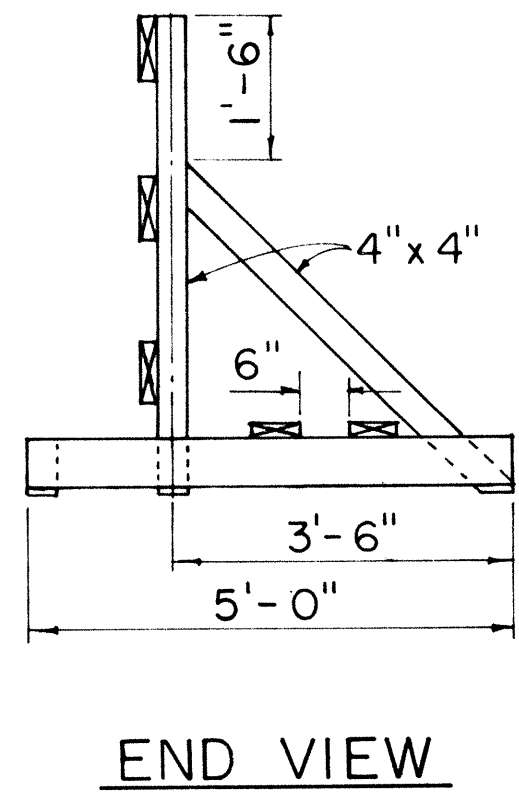
\* Shop Drawings must be submitted for approval.



### TYPICAL BARRICADE STRIPING DETAILS\*\*

Not to Scale

\*\* Similar for Types I & II



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

### GENERAL NOTES

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

DATE	10/21/81
DESIGNED BY	10/21/81
CHECKED BY	10/21/81
NOTED BY	10/21/81
QUANTITIES BY	10/21/81
TRACED BY	10/21/81
DRAWN BY	10/21/81
SURVEY PLOTTED BY	10/21/81
ORIGINAL PLAN	10/21/81
NO.	10/21/81

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

APPROVED:  
*Shirley B. Delishio* 10/23/81  
ASSISTANT CHIEF, ENGINEERING DATE

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

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**

**BARRICADES**

SCALE: As Shown

SHEET No. 2 OF 2 SHEETS DT 800