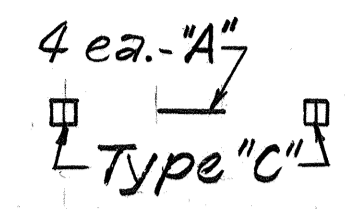
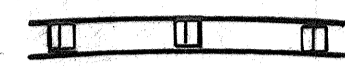


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FR078-1(25)	1984	33	52

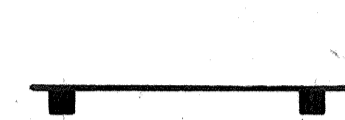
LEGENDS



4 ea. Type "A" Raised Pavement Markers with Type "C" Raised Pavement Markers at 40'-0" o.c.



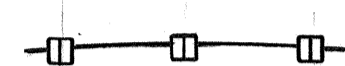
4" double white stripe (Tape) with Type "C" Raised Pavement Markers at 20'-0" o.c.



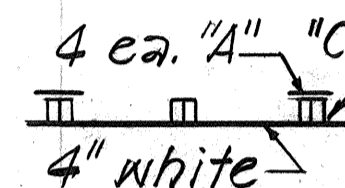
4" yellow stripe (Paint) with Type "H" Raised Pavement Markers at 40'-0" o.c. placed on traffic side of stripe.



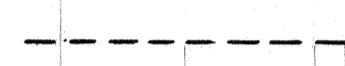
4" or 6" Edge Stripe (Tape)



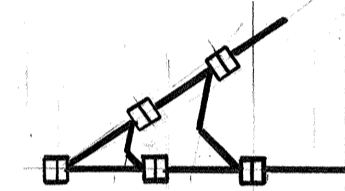
8" white stripe (Tape) with Type "C" Raised Pavement Markers 20'-0" o.c.



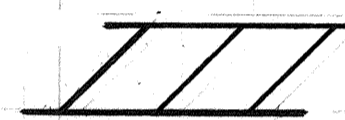
Lane Change Restriction Marking (Tape)



4" White Guide Lines (Tape). See Sht. DT 302.



Channelizing Island (Tape). See Sht. DT 302.



Traverse Shoulder Marking (Tape). See Sht. DT 302.



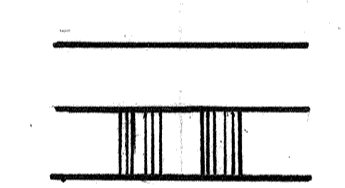
Pavement Arrow (Tape)



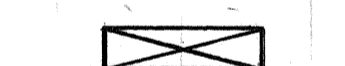
Pavement Word (Tape)



Pavement Diamond (Paint). See Sht. DT 302



Crosswalk & Stop Line. Stop Lines shall be 10'-0" from Crosswalks unless otherwise noted (Tape).



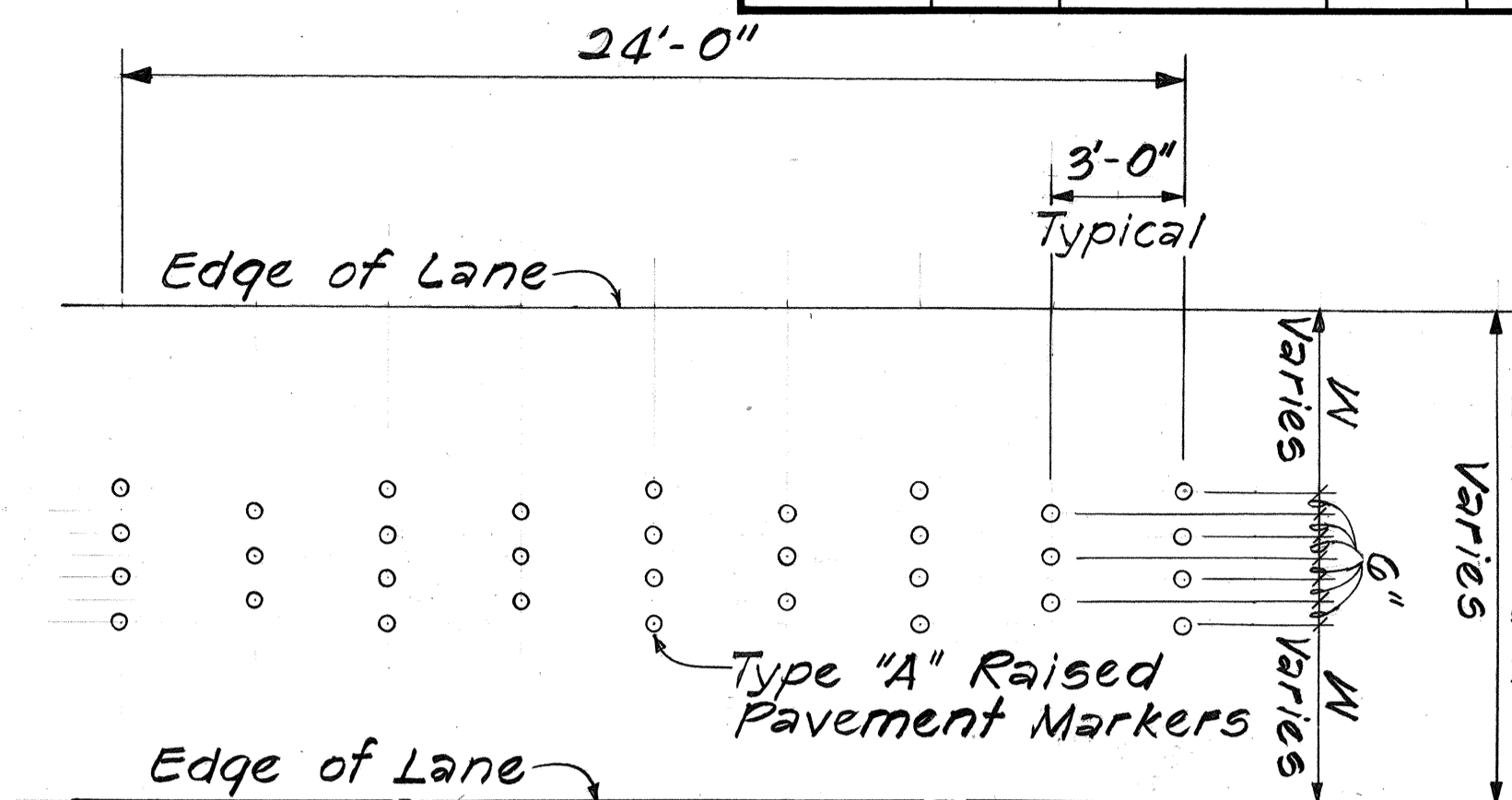
Rumble Strips



Reflector Marker (RM-1) with Flexible Delineator Post

GENERAL NOTES

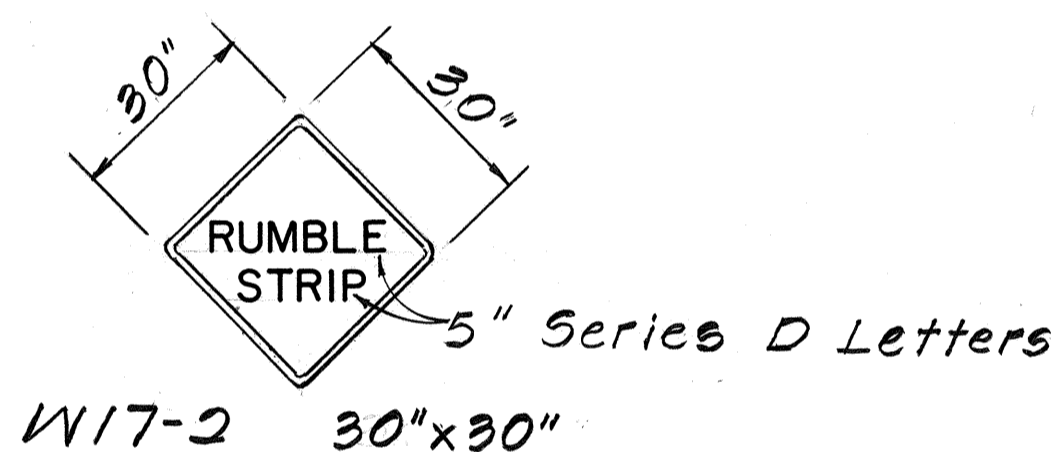
- All existing signs shall remain in place unless otherwise noted on the plans or directed by the Engineer.
- The final locations of all new signs shall be approved by the Engineer.
- Locations of all new pavement markings shall be staked out by the Contractor for approval by the Engineer prior to installation.
- Existing pavement markers, striping and markings not incorporated in the final traffic pattern shall be removed as directed by the Engineer.



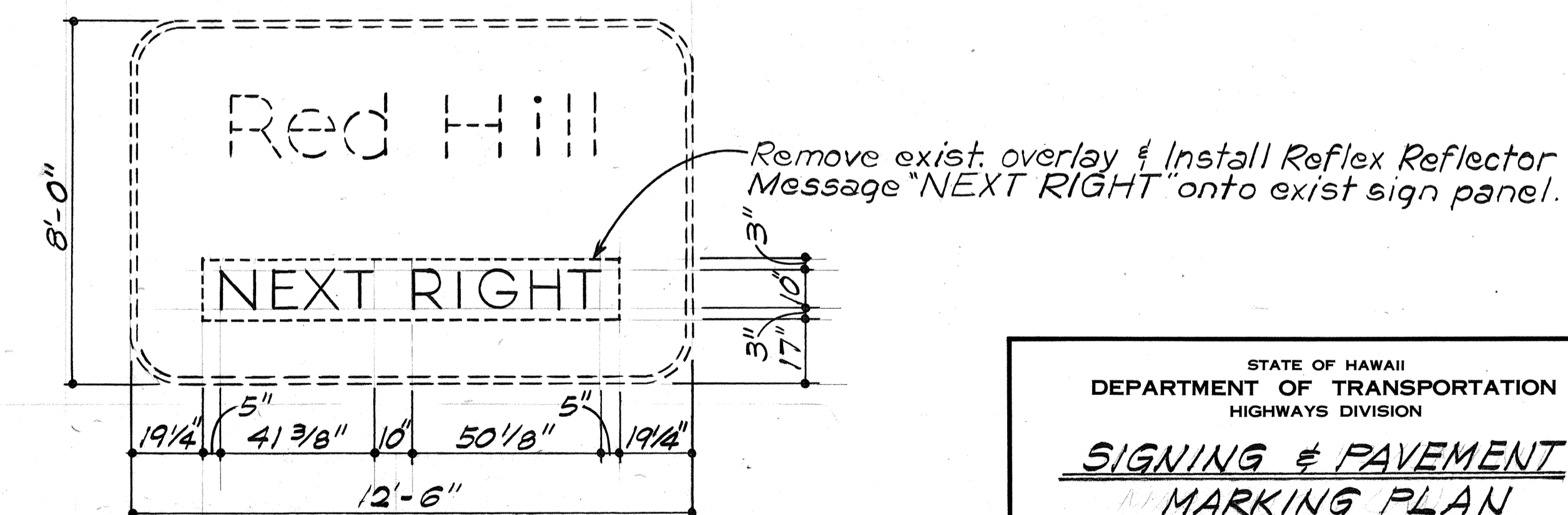
Lane Width	W
10'	3'-6"
11'	4'-0"
12'	4'-6"

RUMBLE STRIP DETAIL

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



MISC. WARNING SIGN



DIRECTIONAL SIGN DETAIL

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

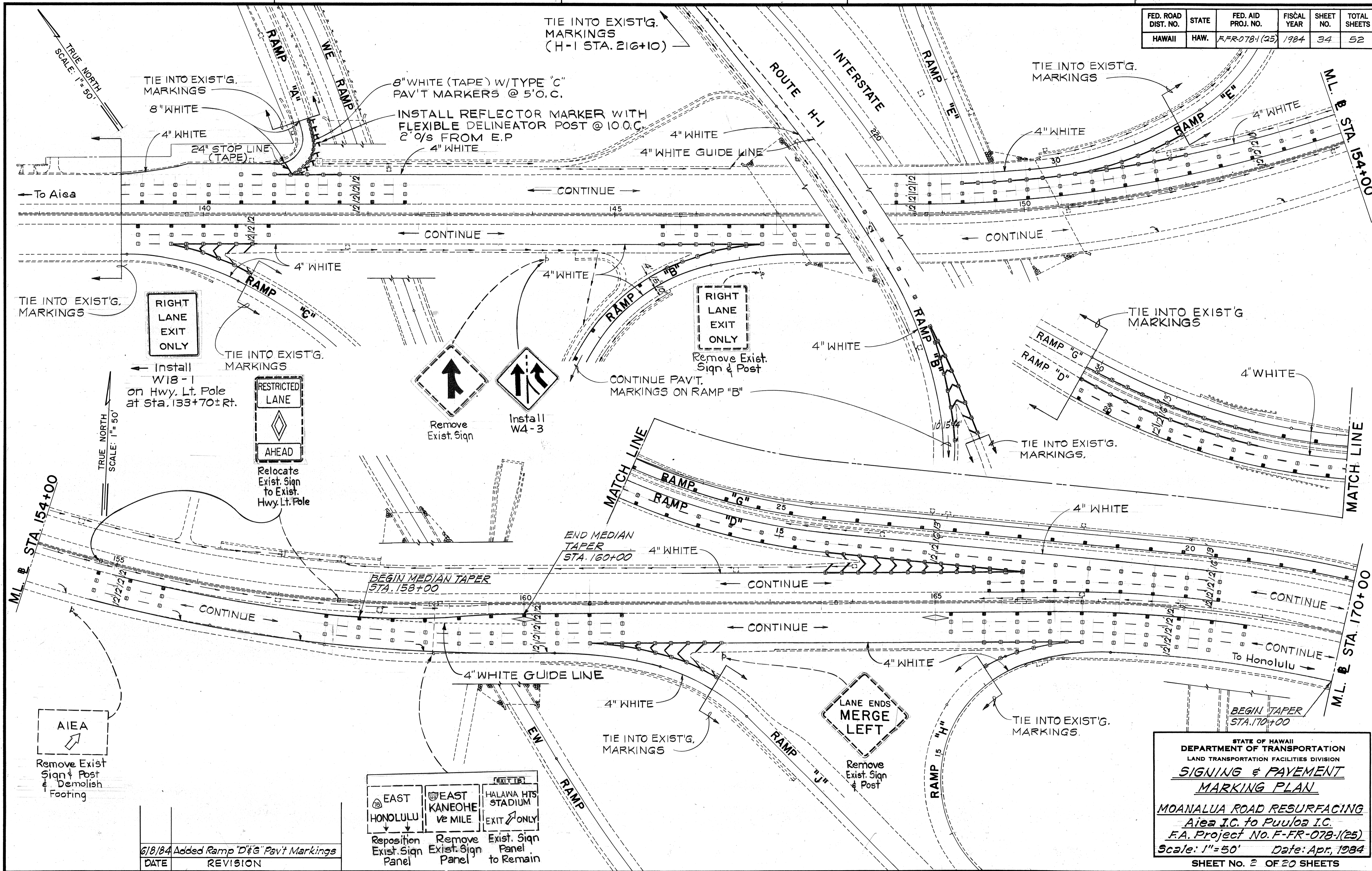
6/8/84	Revised Directional Sign Detail
DATE	REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
SIGNING & PAVEMENT MARKING PLAN
MOANALUA ROAD RESURFACING Aiea I.C. to Puuloa I.C. F.A. Project No. F-FR-078-1(25) Scale: As Shown Date: Apr, 1984
SHEET NO. 1 OF 20 SHEETS

ADD. 33

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.	F-FR-078-1(25)	1984	34	52



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

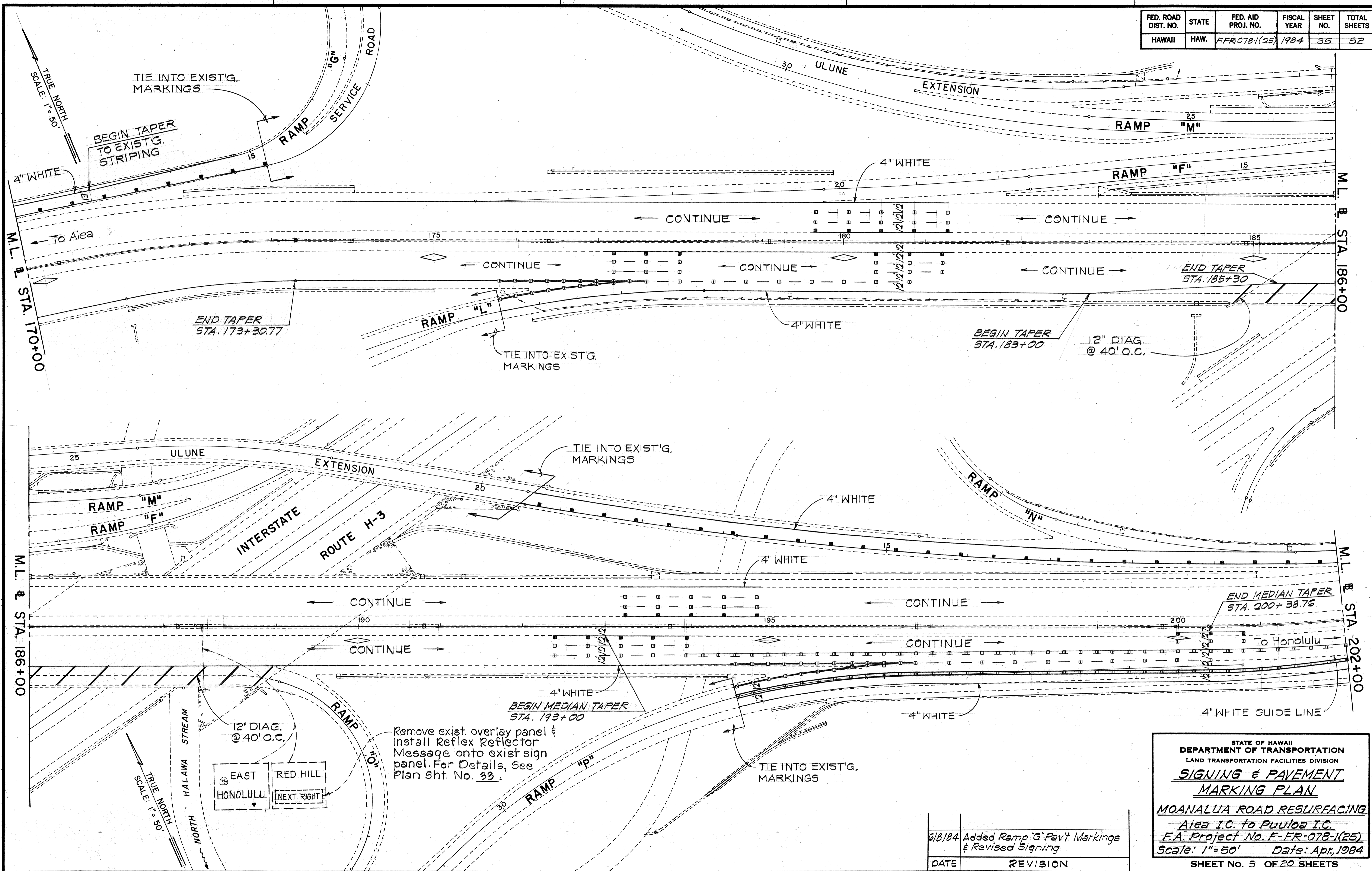
DATE	REVISION
6/8/84	Added Ramp "D" & "G" Pav't Markings

EAST HONOLULU	EAST KANEOHE 1/2 MILE	HALAWA HTS STADIUM EXIT ONLY
Reposition Exist. Sign Panel	Remove Exist. Sign Panel	Exist. Sign Panel to Remain

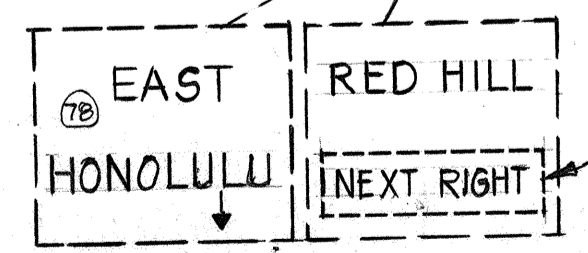
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
SIGNING & PAYEMENT MARKING PLAN
 MOANALUA ROAD RESURFACING
 Aiea I.C. to Puuloa I.C.
 F.A. Project No. F-FR-078-1(25)
 Scale: 1"=50' Date: Apr. 1984
 SHEET NO. 2 OF 20 SHEETS

ADD. 34

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FFR078-1(25)	1984	35	52



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



Remove exist. overlay panel & install Reflex Reflector Message onto exist sign panel. For Details, See Plan Sht. No. 33.

DATE	REVISION
6/8/84	Added Ramp 'G' Pav't Markings & Revised Signing

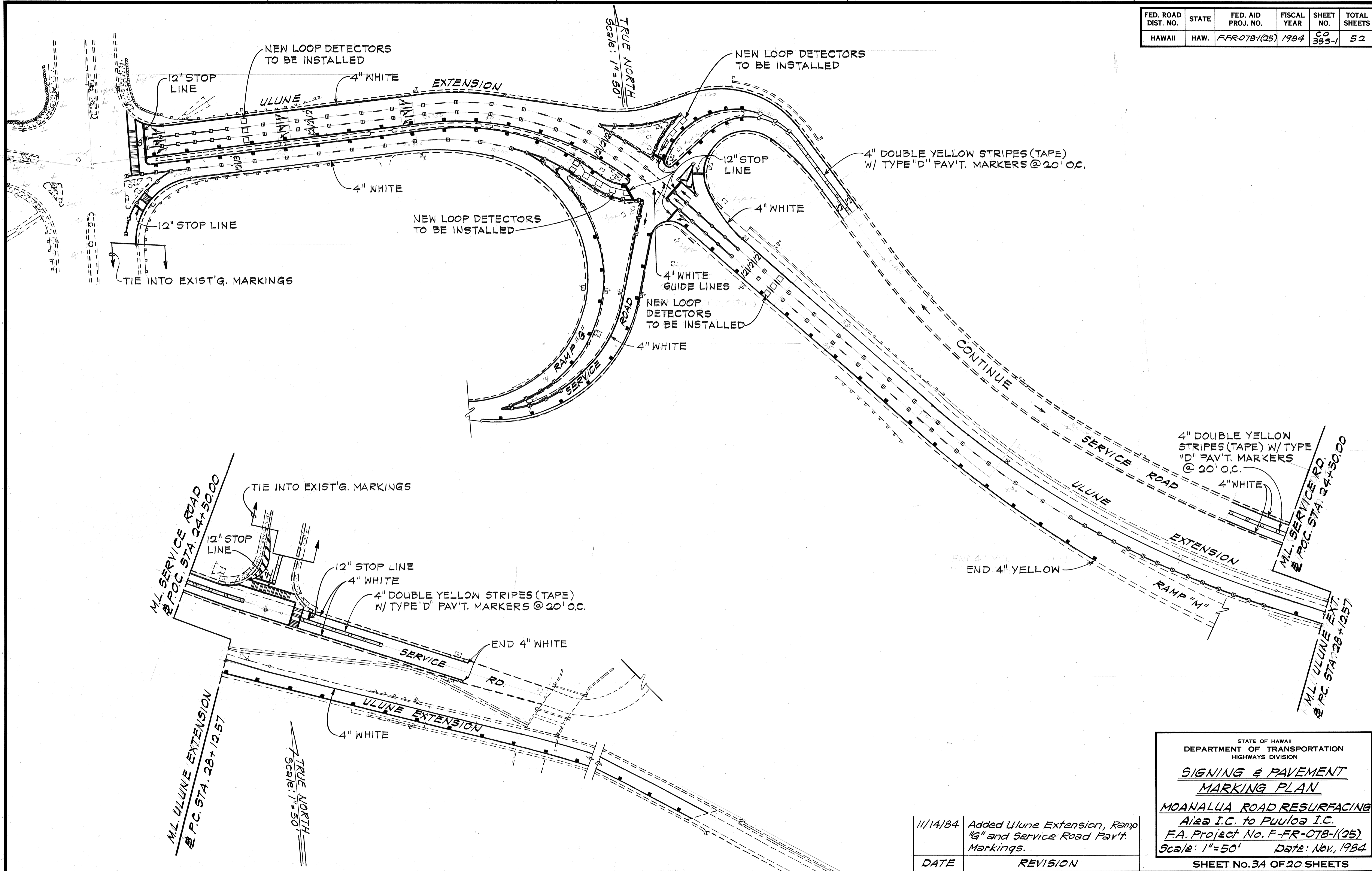
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

SIGNING & PAVEMENT MARKING PLAN

MOANALUA ROAD RESURFACING
Aiea I.C. to Puuloa I.C.
F.A. Project No. F-FR-078-1(25)
Scale: 1"=50' Date: Apr, 1984

SHEET NO. 3 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FR-078-1(25)	1984	52	52



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

DATE	REVISION
11/14/84	Added Ulune Extension, Ramp 'M' and Service Road Pav't. Markings.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

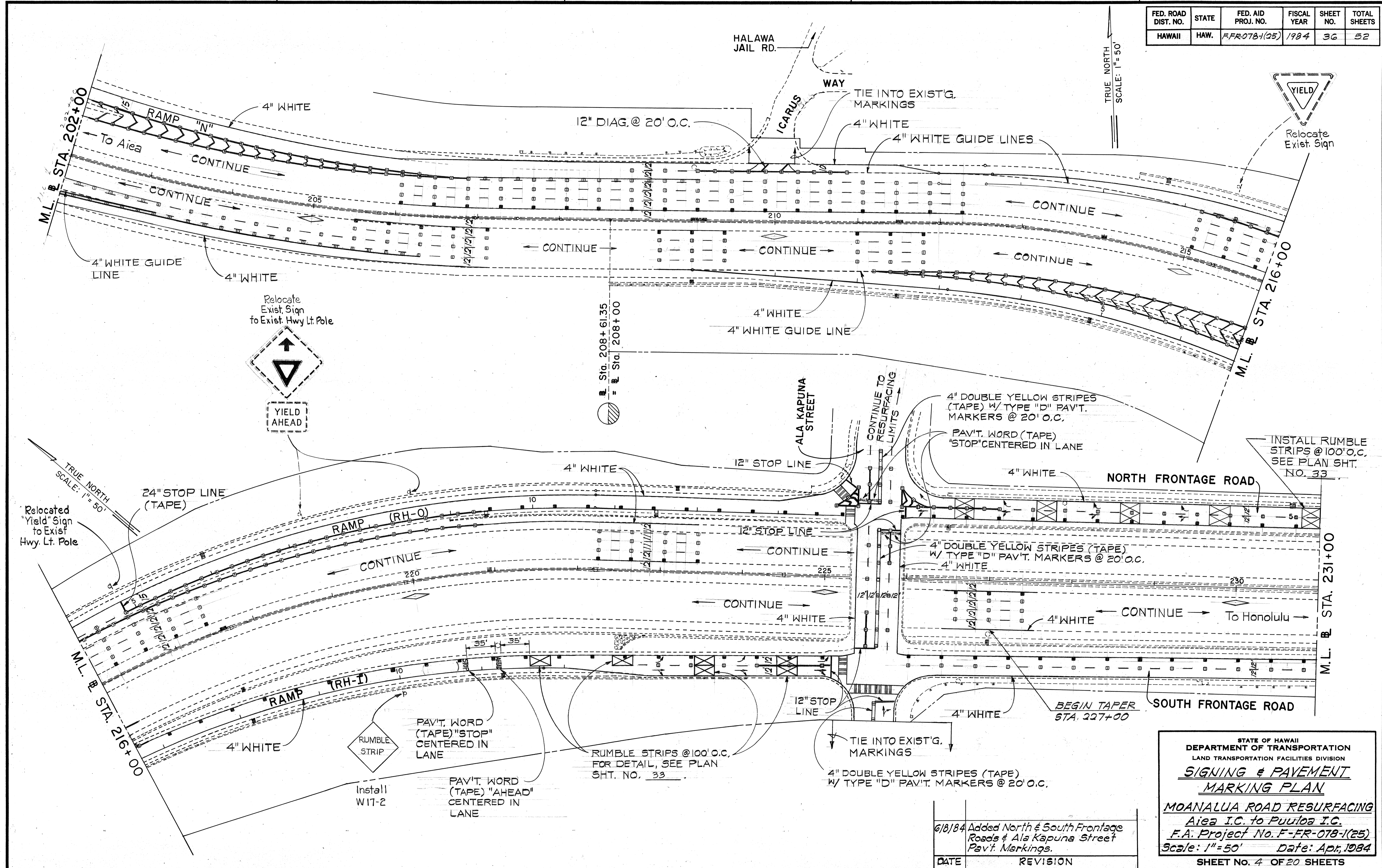
**SIGNING & PAVEMENT
MARKING PLAN**

MOANALUA ROAD RESURFACING
Aiea I.C. to Puuloa I.C.
F.A. Project No. F-FR-078-1(25)
Scale: 1"=50' Date: Nov, 1984

SHEET No. 34 OF 20 SHEETS

C035S-

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FR078-1(25)	1984	36	52



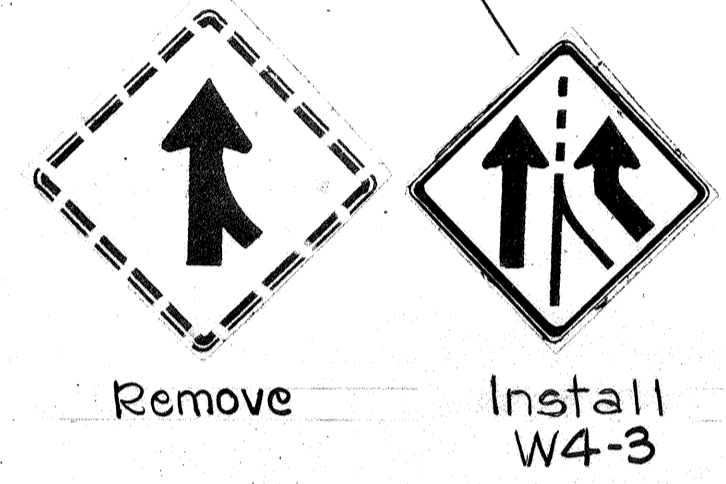
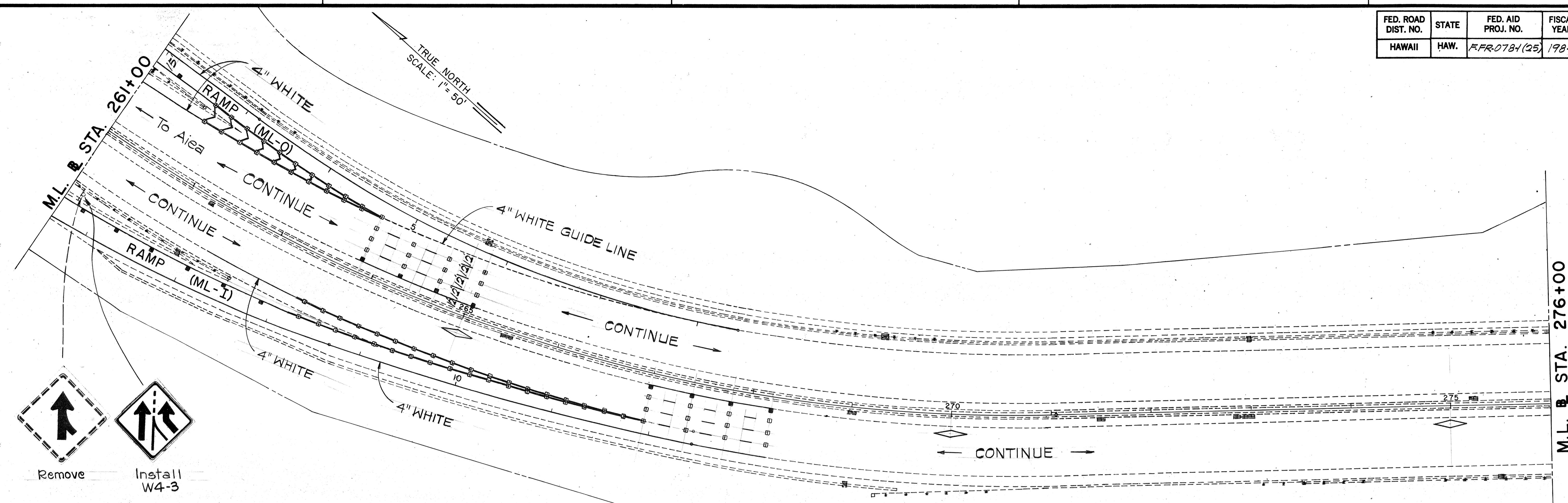
DATE	_____
ORIGINAL PLAN	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____

DATE	REVISION
6/8/84	Added North & South Frontage Roads & Ala Kapuna Street Pav't. Markings.

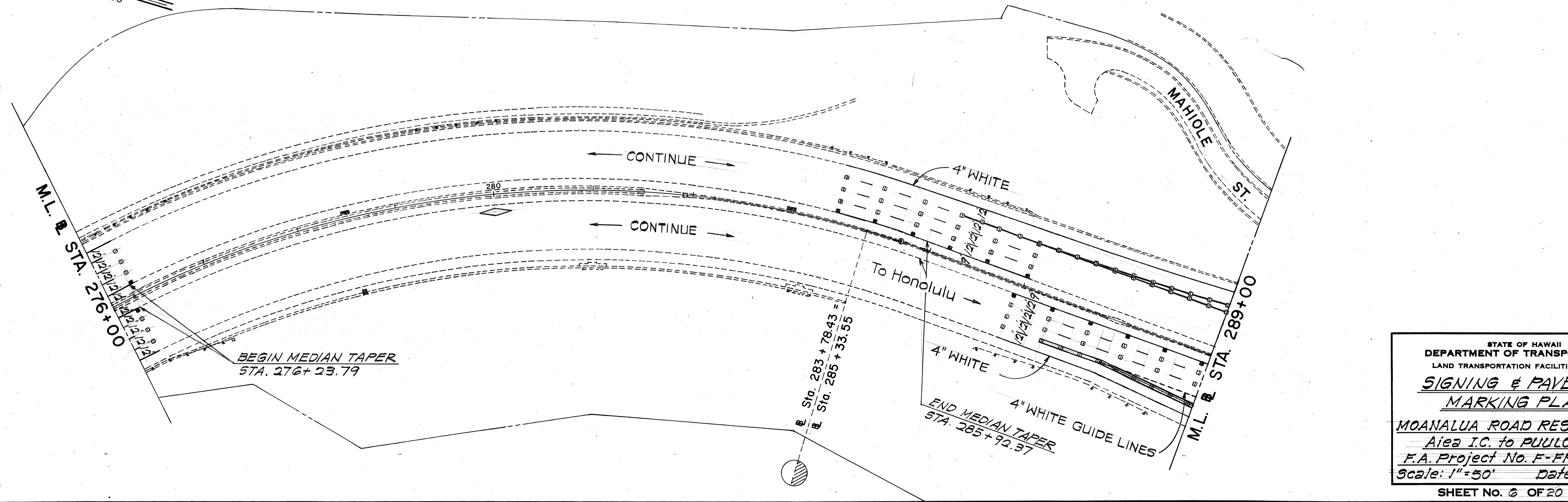
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
SIGNING & PAVEMENT
MARKING PLAN
MOANALUA ROAD RESURFACING
Aiea I.C. to Puuloa I.C.
F.A. Project No. F-FR-078-1(25)
Scale: 1"=50' Date: Apr. 1984
SHEET No. 4 OF 20 SHEETS

ADD. 36

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FR-078-1(25)	1984	38	52



TRUE NORTH
SCALE: 1" = 50'



BEGIN MEDIAN TAPER
STA. 276+23.79

END MEDIAN TAPER
STA. 285+92.37

Sta. 283+78.43 =
Sta. 285+33.55

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
**SIGNING & PAVEMENT
MARKING PLAN**
MOANALUA ROAD RESURFACING
Aiea I.C. to PUULOA I.C.
F.A. Project No. F-FR-078-1(25)
Scale: 1" = 50' Date: Apr, 1984
SHEET NO. 6 OF 20 SHEETS

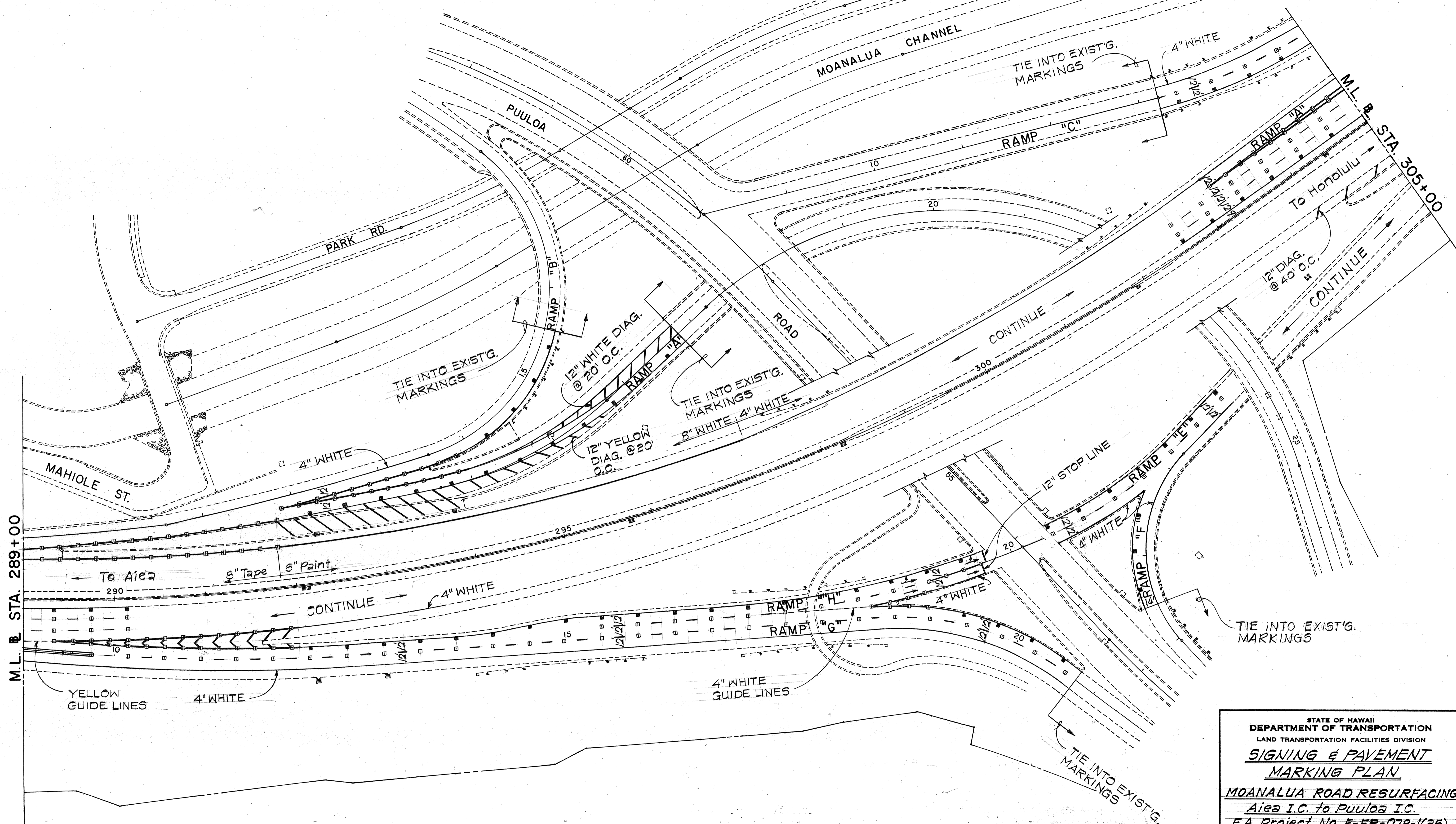
M.L. & STA. 276+00

M.L. & STA. 289+00

DATE	REVISION
6/8/84	Revised Ramp "A" Pav't. Markings & Added Ramps "E" & "F" Pav't. Markings.

TRUE NORTH
SCALE: 1" = 50'

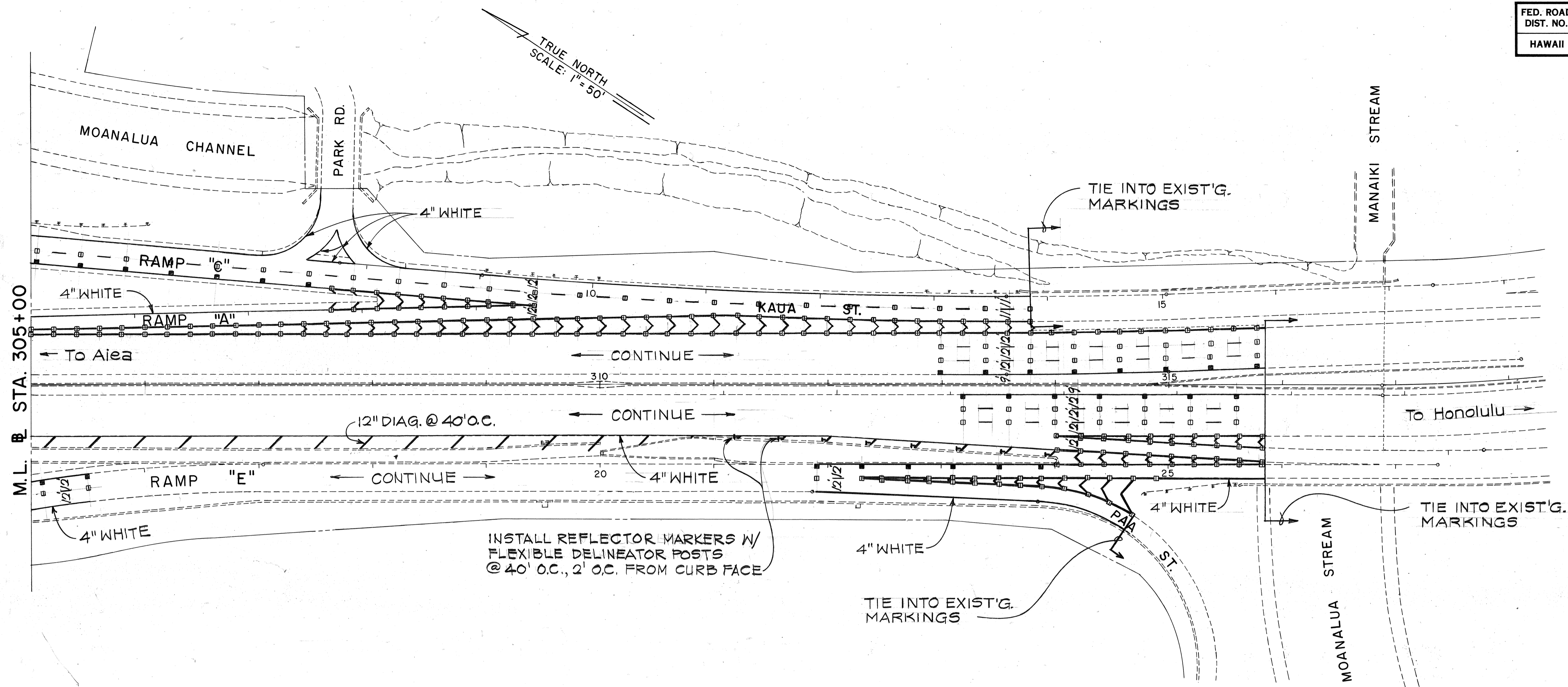
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FR-078-1(25)	1984	39	52



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
SIGNING & PAVEMENT MARKING PLAN
MOANALUA ROAD RESURFACING
Aiea I.C. to Puuloa I.C.
F.A. Project No. F-FR-078-1(25)
Scale: 1" = 50' Date: Apr, 1984
SHEET No. 7 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FR-078-1(25)	1984	40	52



INSTALL REFLECTOR MARKERS W/
FLEXIBLE DELINEATOR POSTS
@ 40' O.C., 2' O.C. FROM CURB FACE

DATE	REVISION
6/8/84	Added Ramp 'E' & Paa St. Pav't. Markings & Added RMs w/Flex. Delineator Posts.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**SIGNING & PAVEMENT
MARKING PLAN**

**MOANALUA ROAD RESURFACING
Aiea I.C. to Puuloa I.C.**
F.A. Project No. F-FR-078-1(25)
Scale: 1"=50' Date: Apr, 1984

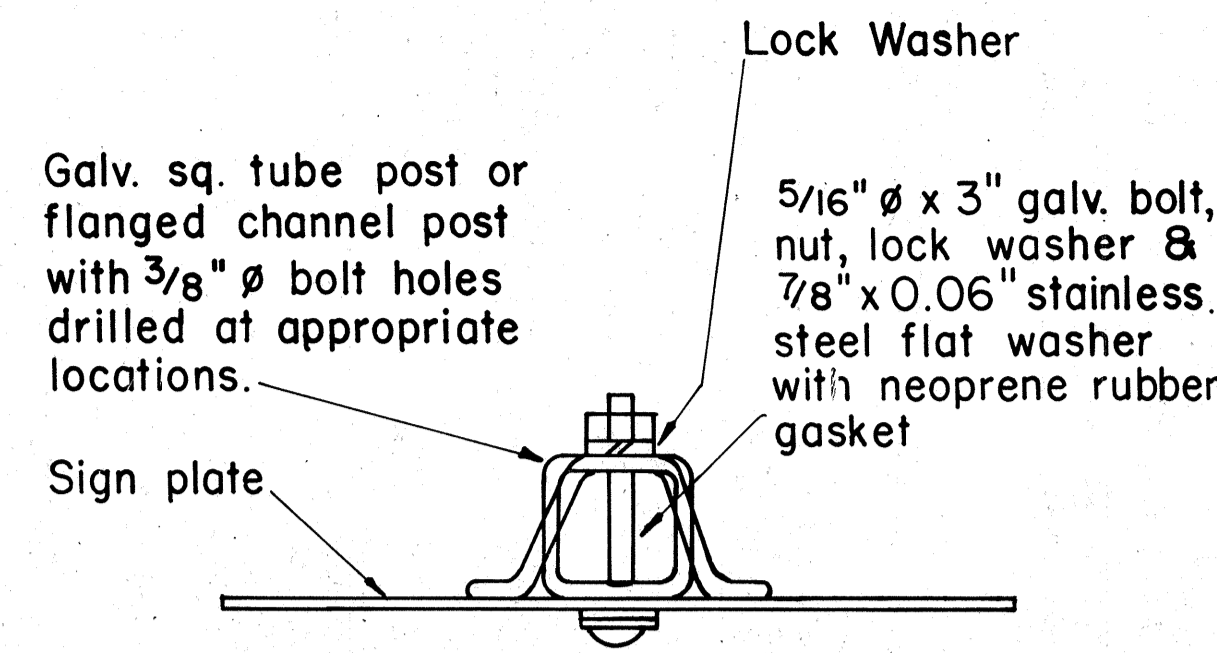
SHEET No. 8 OF 20 SHEETS

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

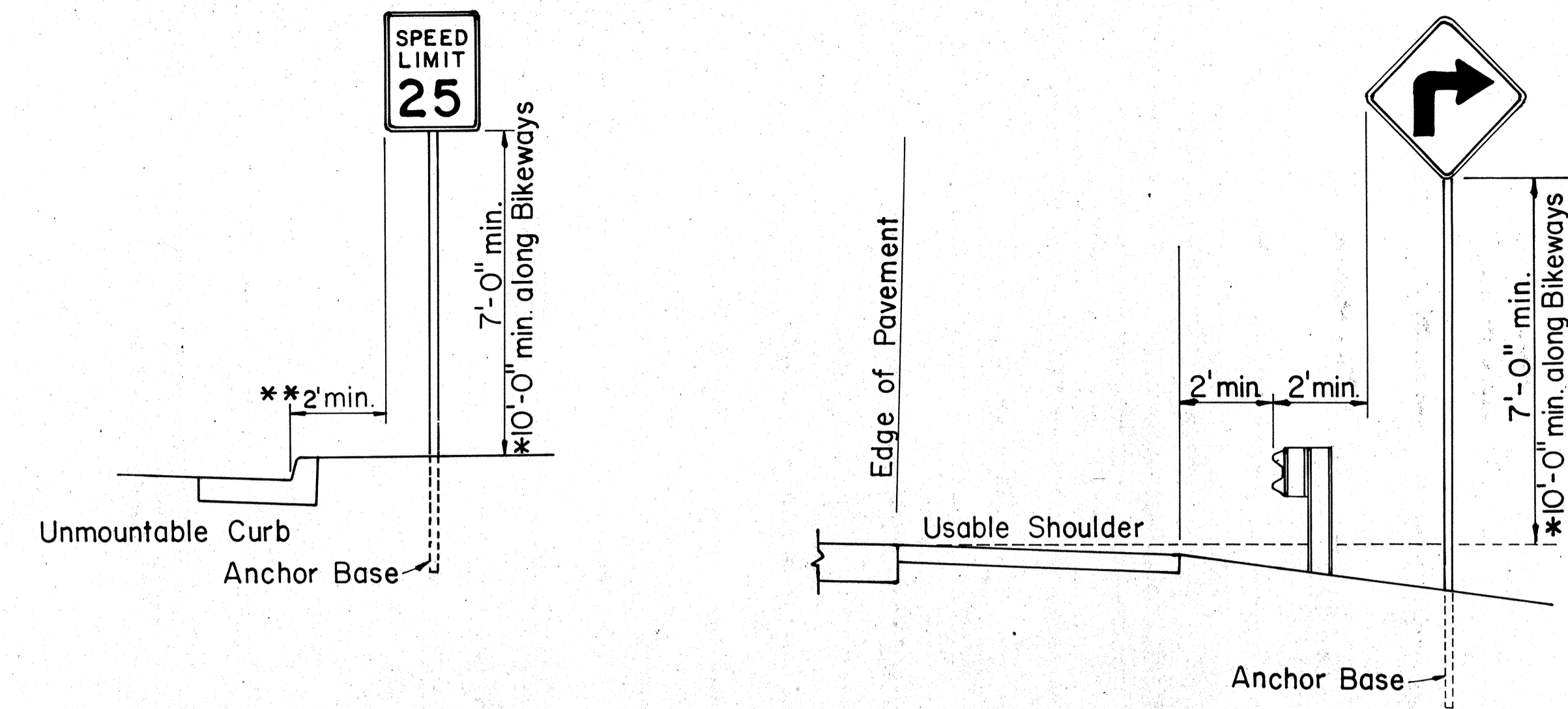
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-PR-078-1 (25)	1984	41	52

GENERAL NOTES

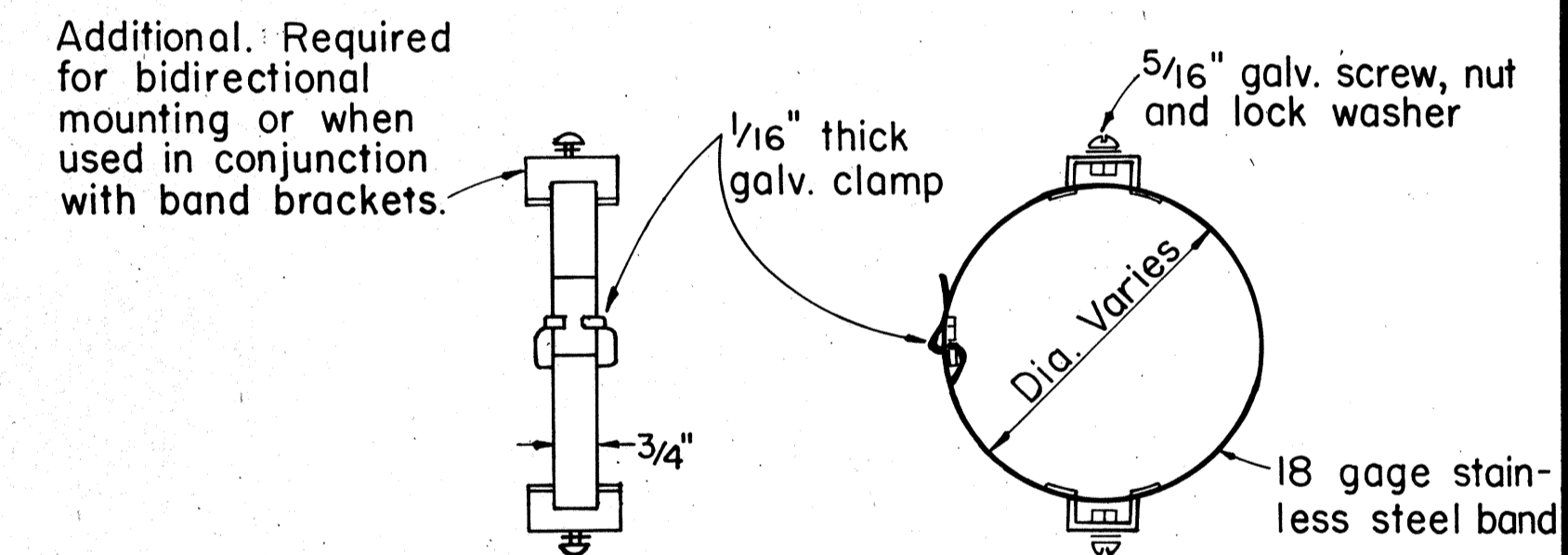
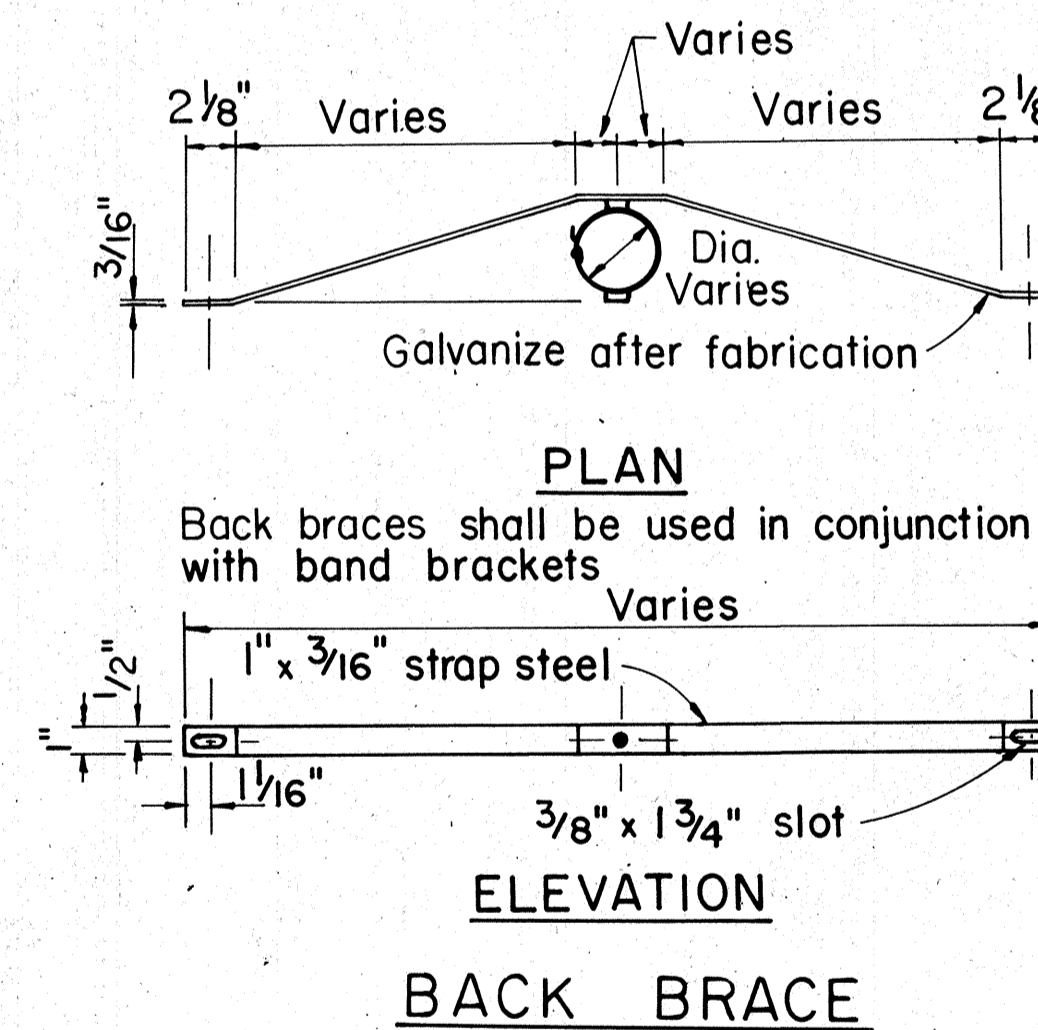
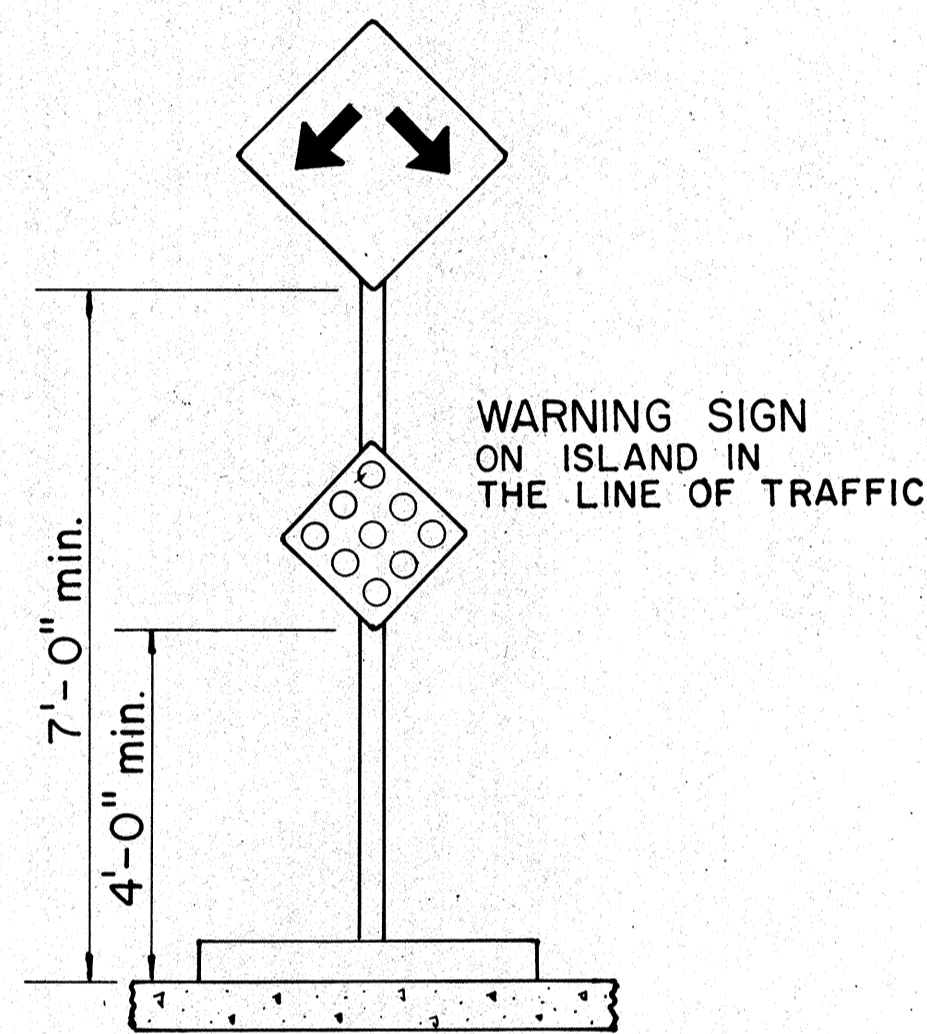
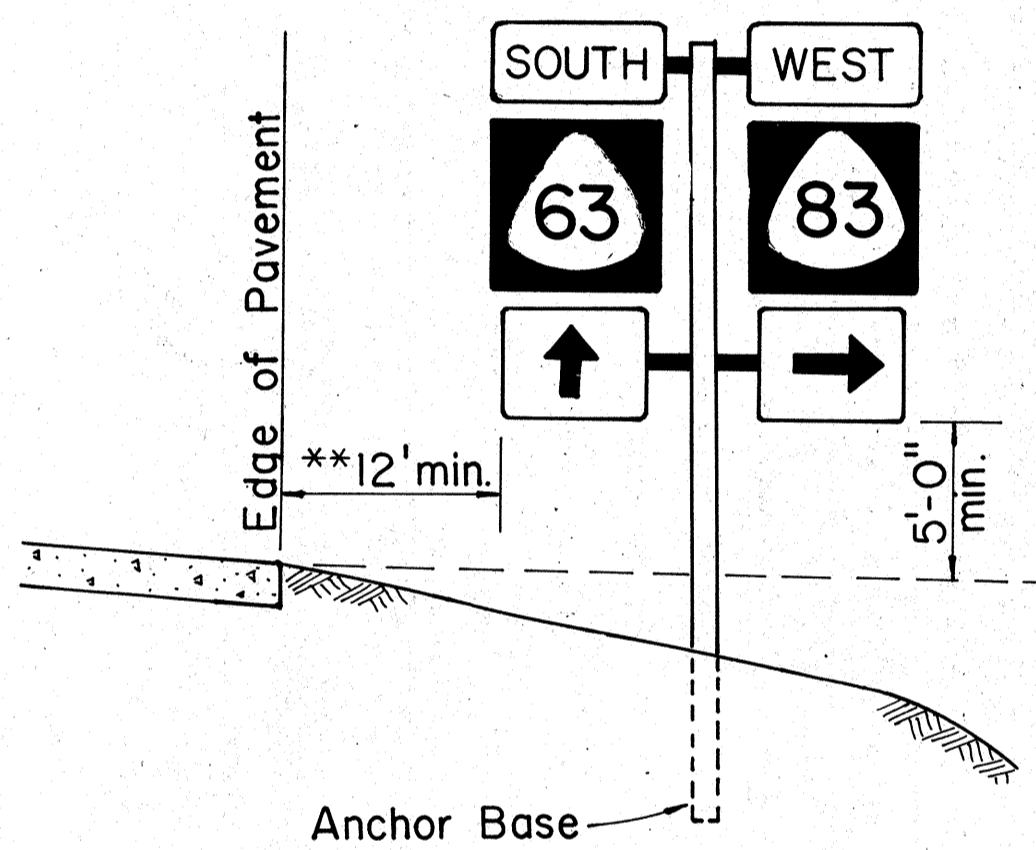
- Signs shall be placed in conformance with positions shown and described in the "Manual on Uniform Traffic Control Devices for Streets and Highways", 1978, Part II, Section 2A-21, as amended, and as supplemented herein.
- Sign 48" and wider or larger than 10 sq. ft. in area shall be mounted on two or 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



ROADSIDE ASSEMBLY RURAL DISTRICT



BAND BRACKET

APPROVAL RECOMMENDED:
Eiichi Tanaka 10/17/83
 TRAFFIC ENGINEER DATE

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

TYPICAL MOUNTING DETAILS

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

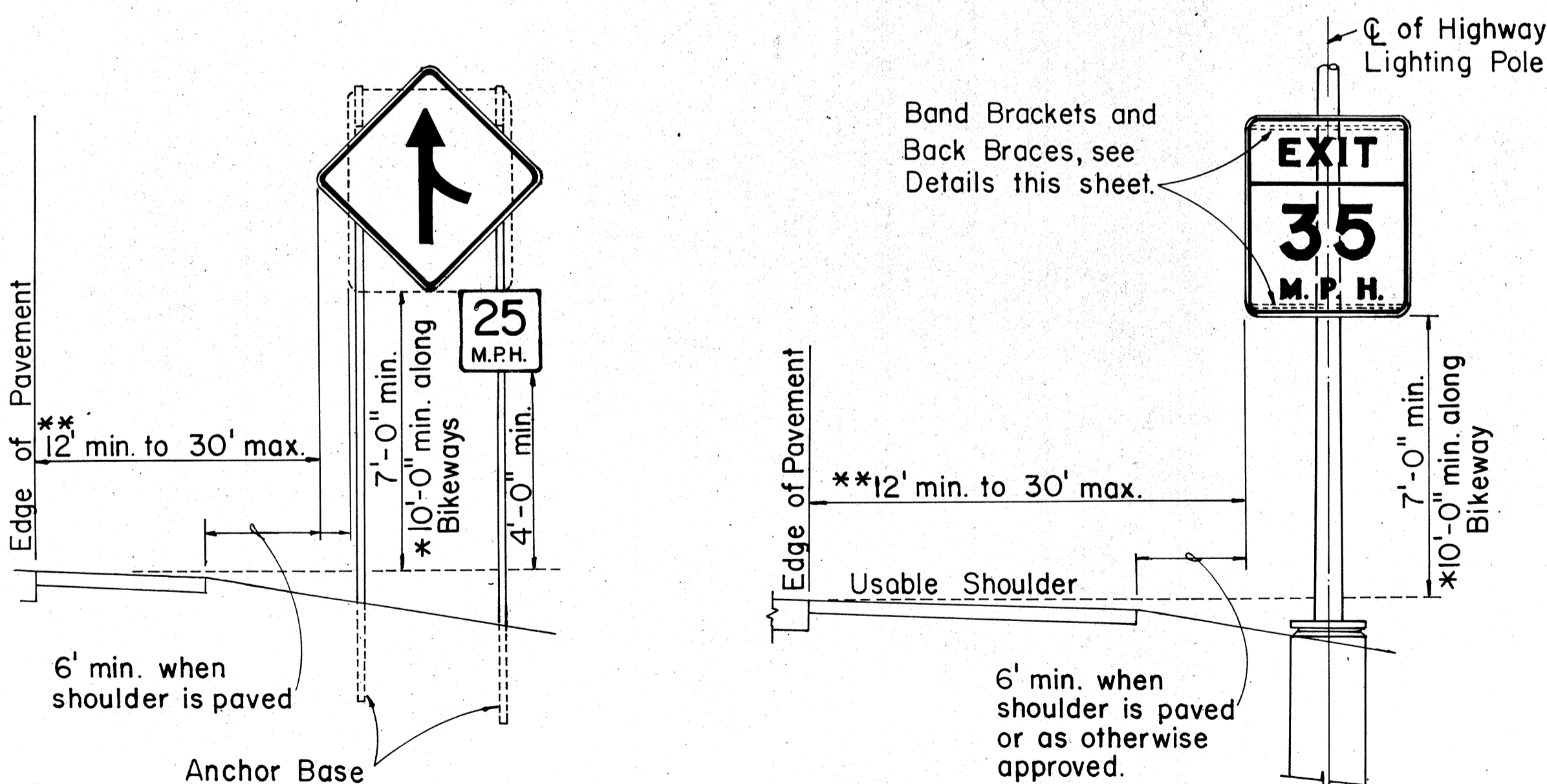
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS

MISCELLANEOUS SIGN DETAILS

Not to Scale: Oct. 1983
 SHEET NO. 41 OF 20 SHEETS DT 100

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



HEIGHT AND LATERAL LOCATION OF SIGNS TYPICAL INSTALLATION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-PR-078-1 (25)	1984	42	52

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

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

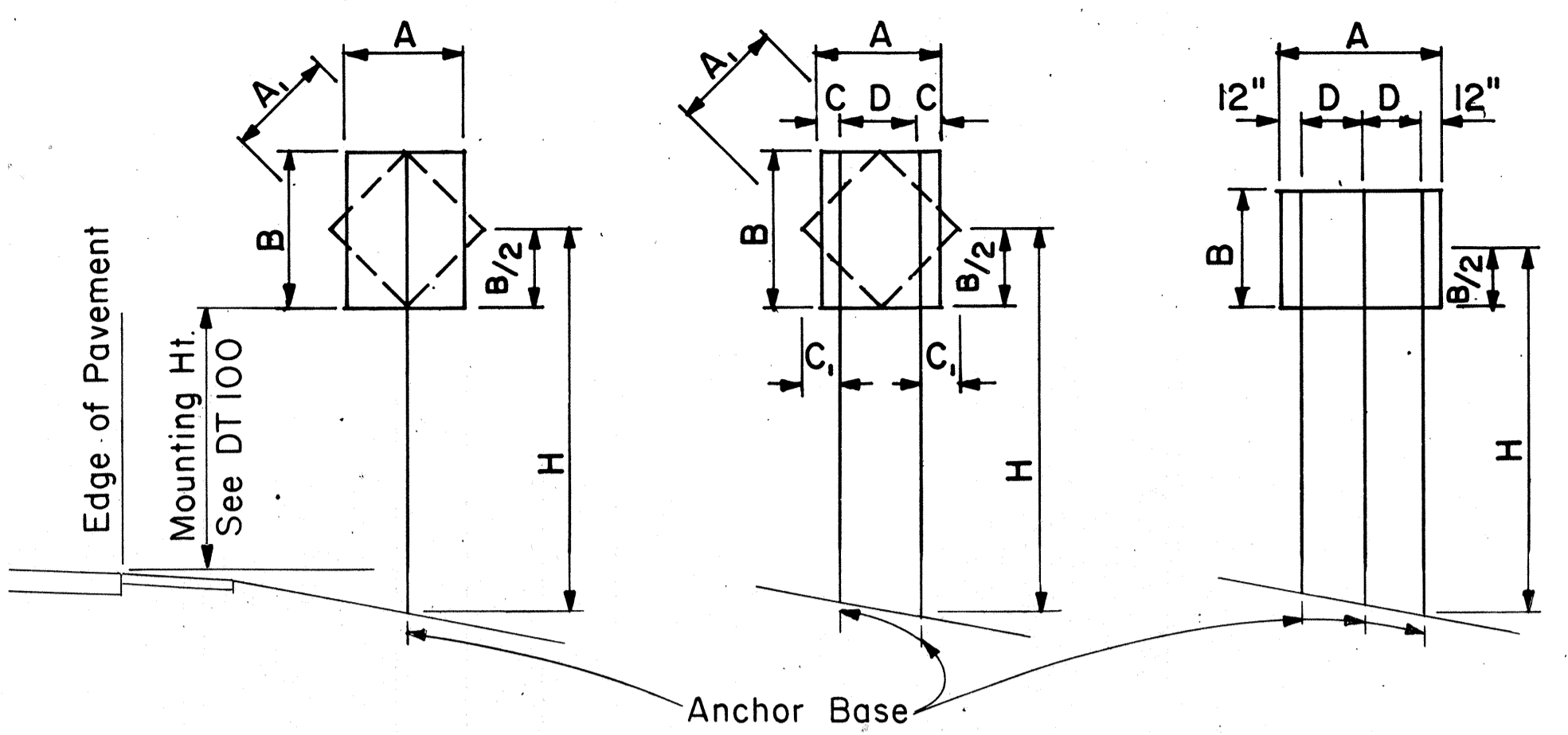
Eishi Tanaka 9/2/82
TRAFFIC ENGINEER DATE

APPROVED:
Richard J. Fisher 9/2/82
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. 10 OF 20 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

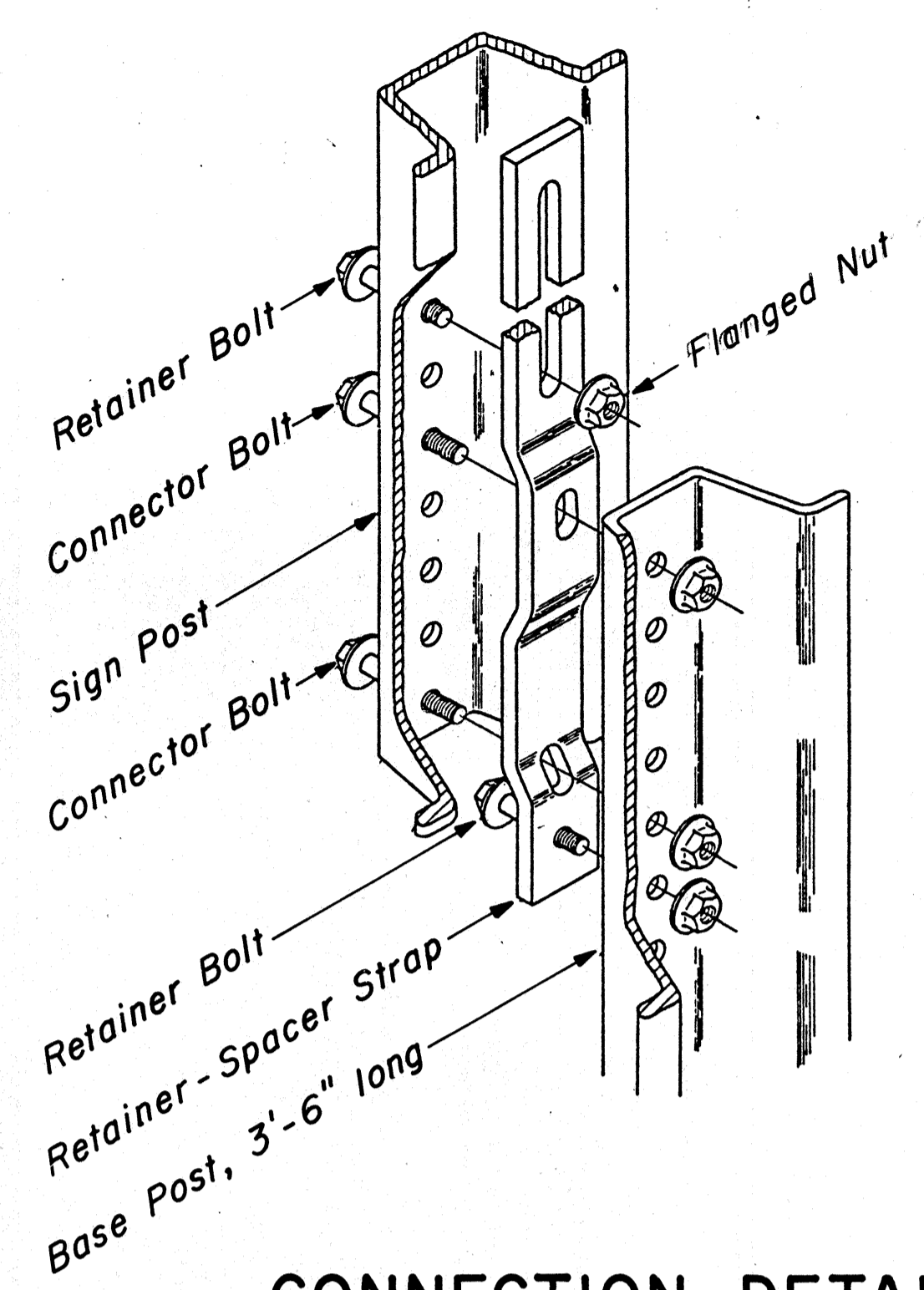
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2.50 lbs./ft.	57	8.14	7.13	6.33	5.70	5.18	4.75	
4.00 lbs./ft.	112	-	-	-	-	-	9.33	

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	

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	

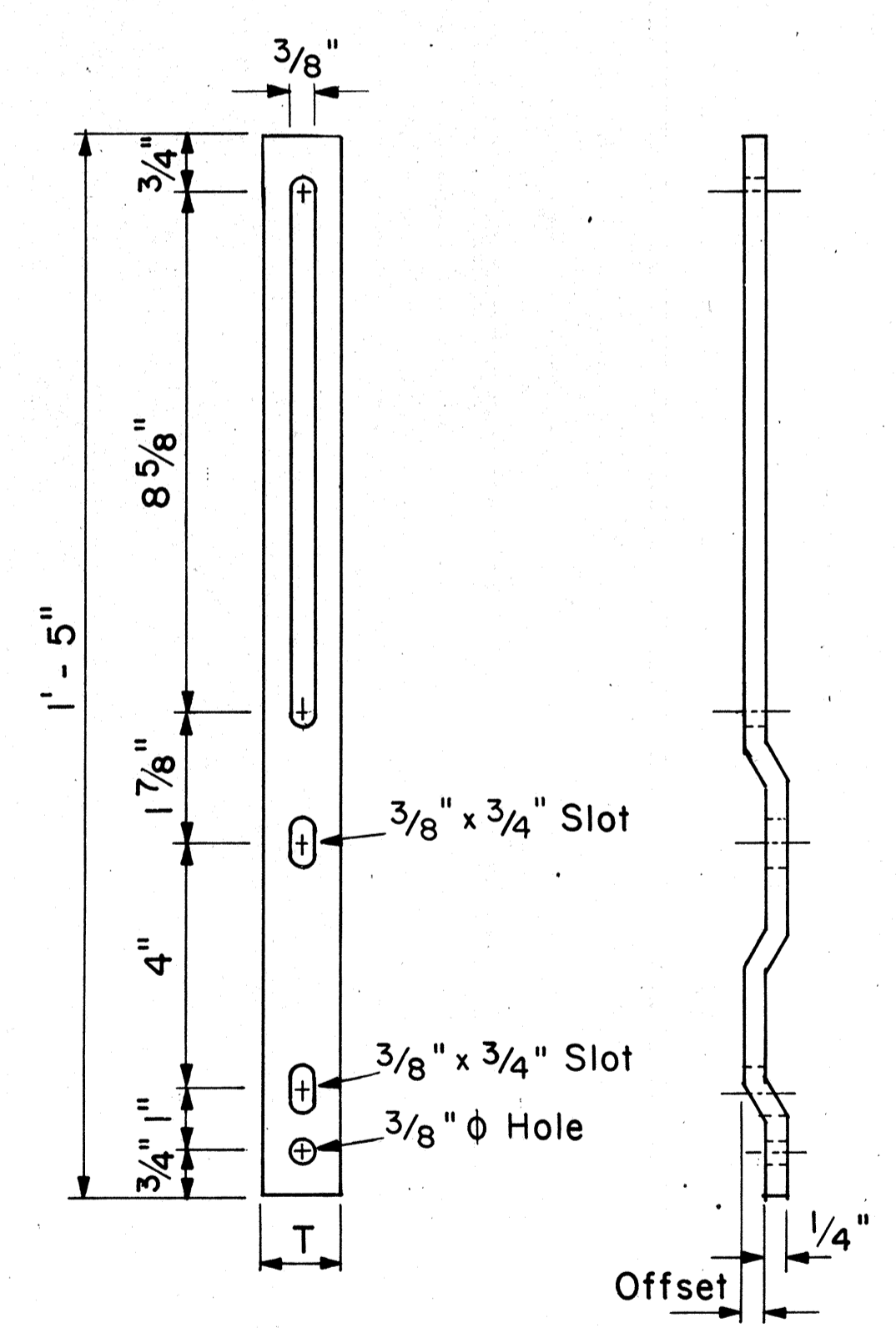
WINDLOAD CHARTS

NO.	REVISION	APPROVED BY	DATE



CONNECTION DETAIL

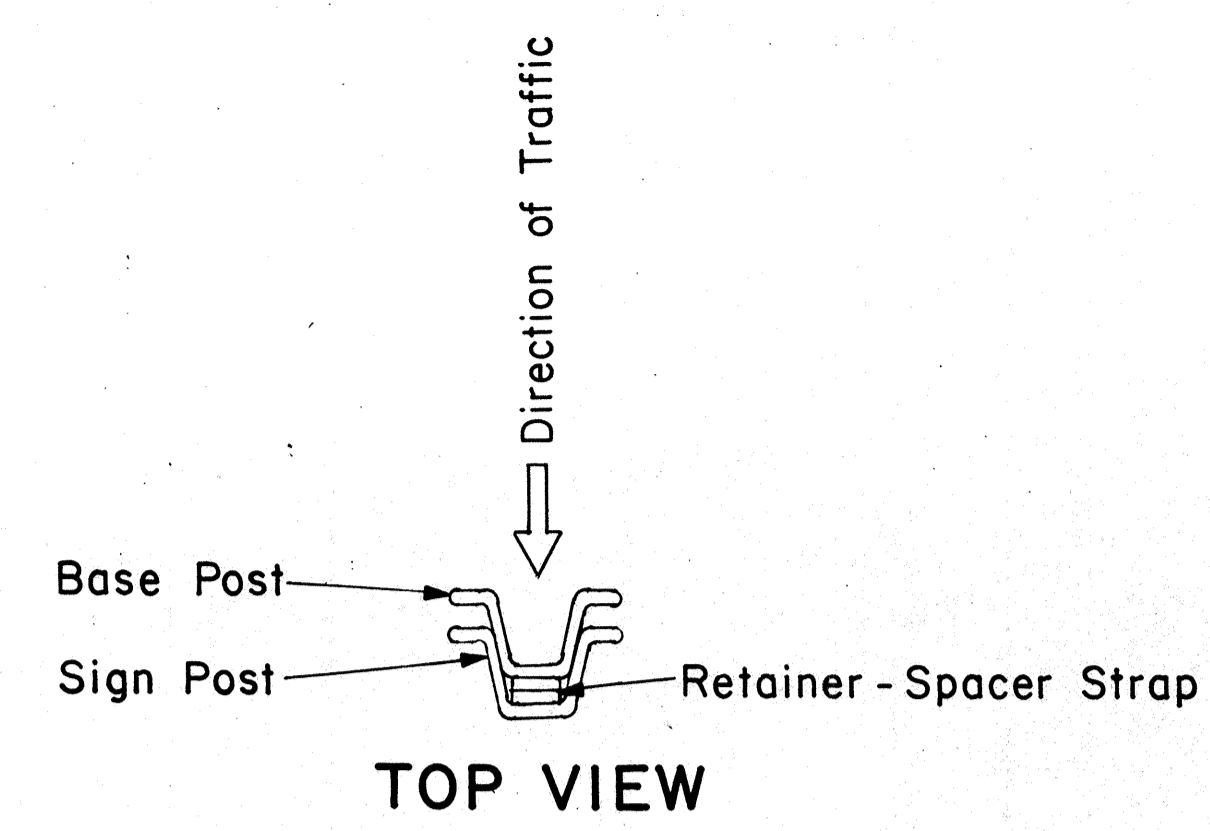
Not to Scale



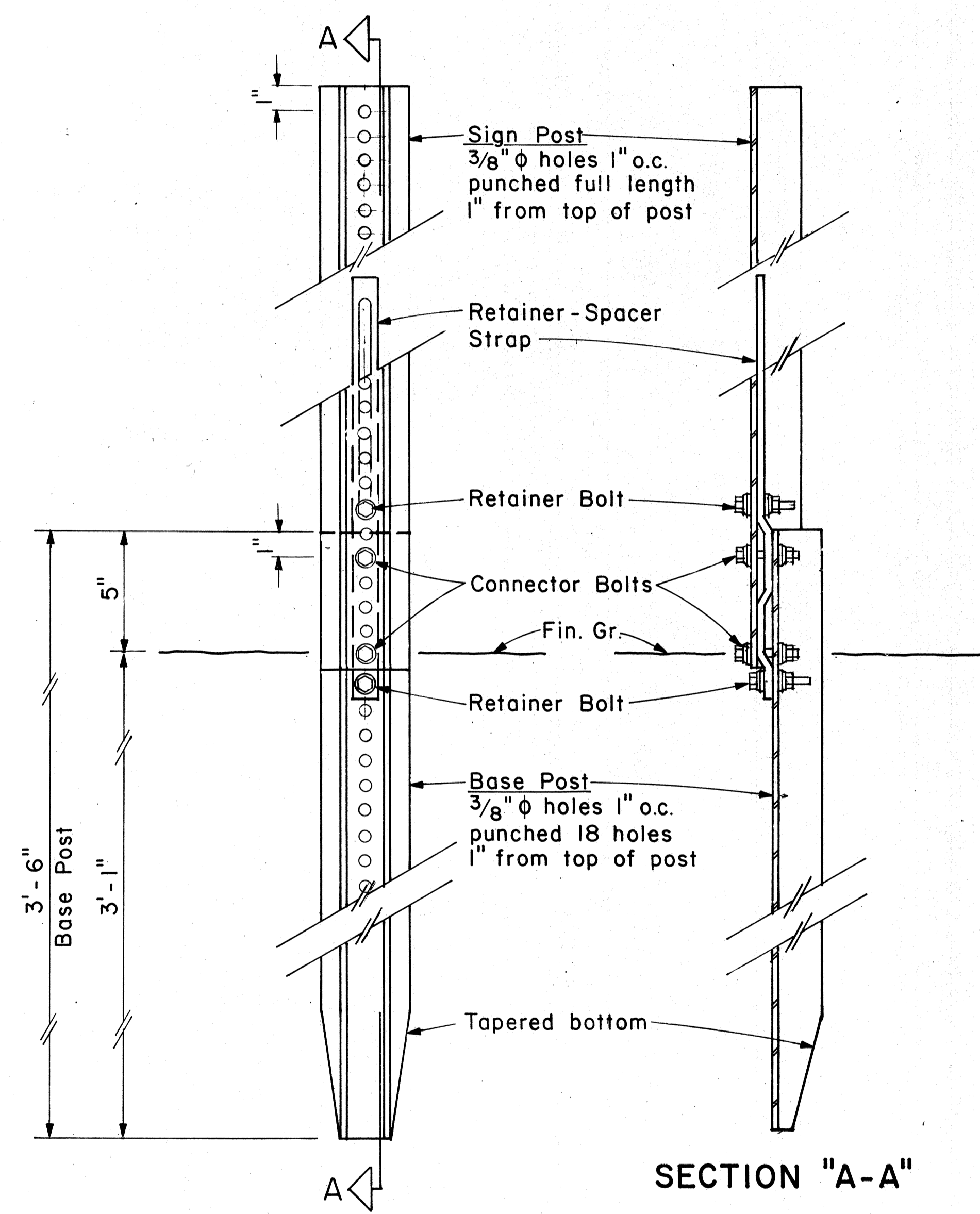
RETAINER-SPACER STRAP

Not to Scale

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



TOP VIEW



BACK VIEW

ANCHOR BASE DETAIL

Scale: 3" = 1' - 0"

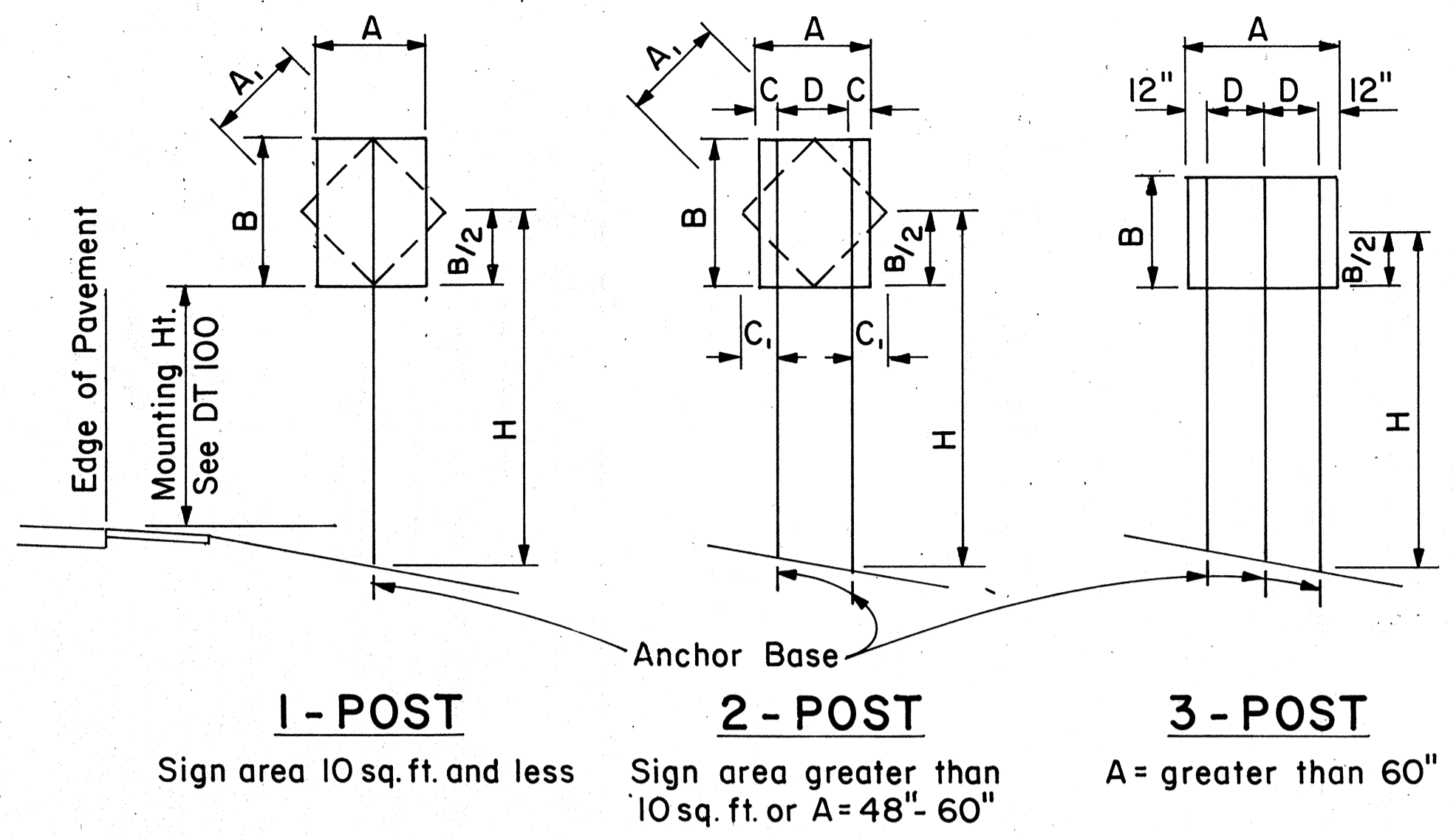
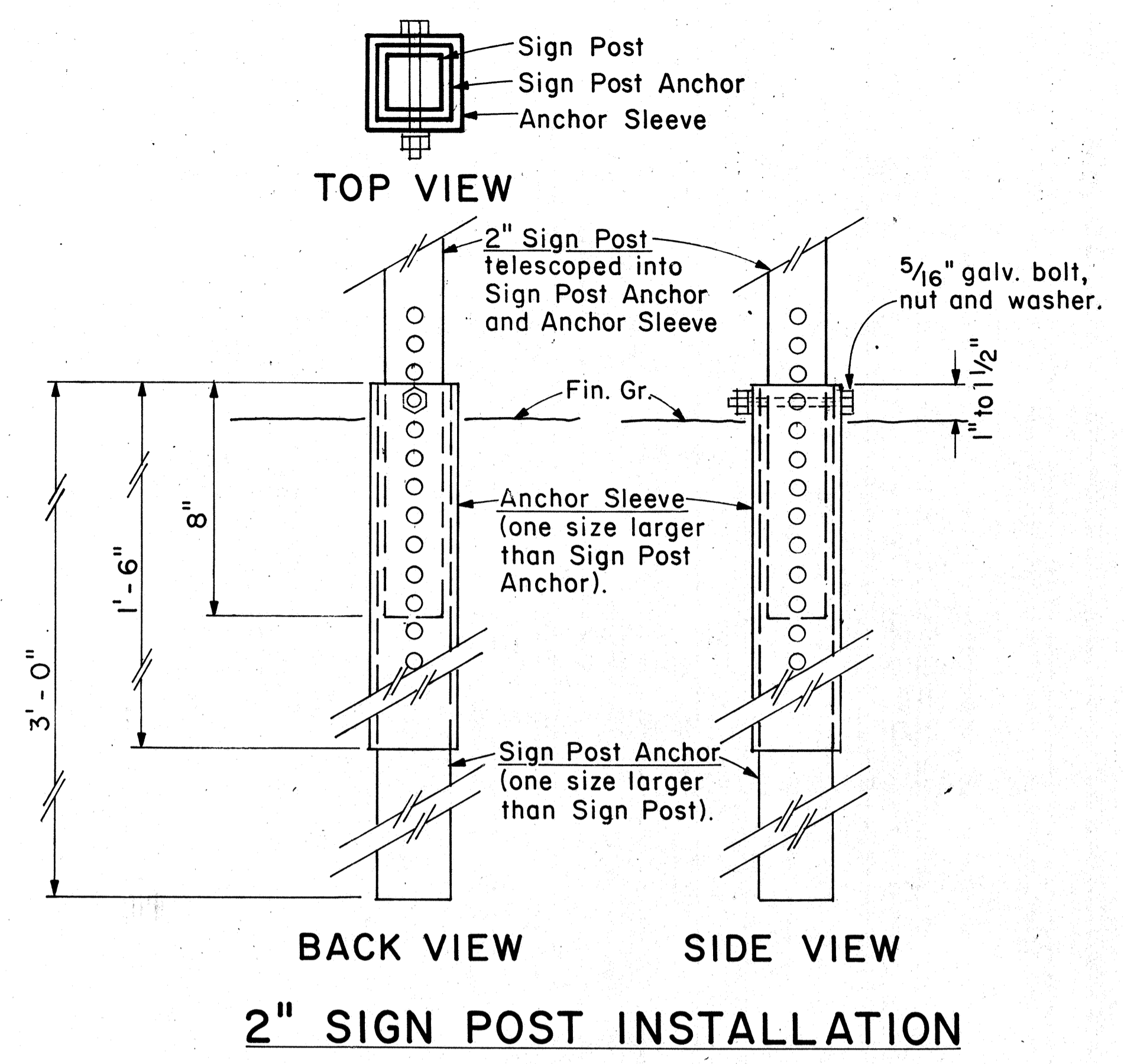
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

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

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

GENERAL NOTES

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



TYPICAL INSTALLATION

Not to Scale

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

A x B (Area, sq. ft.)

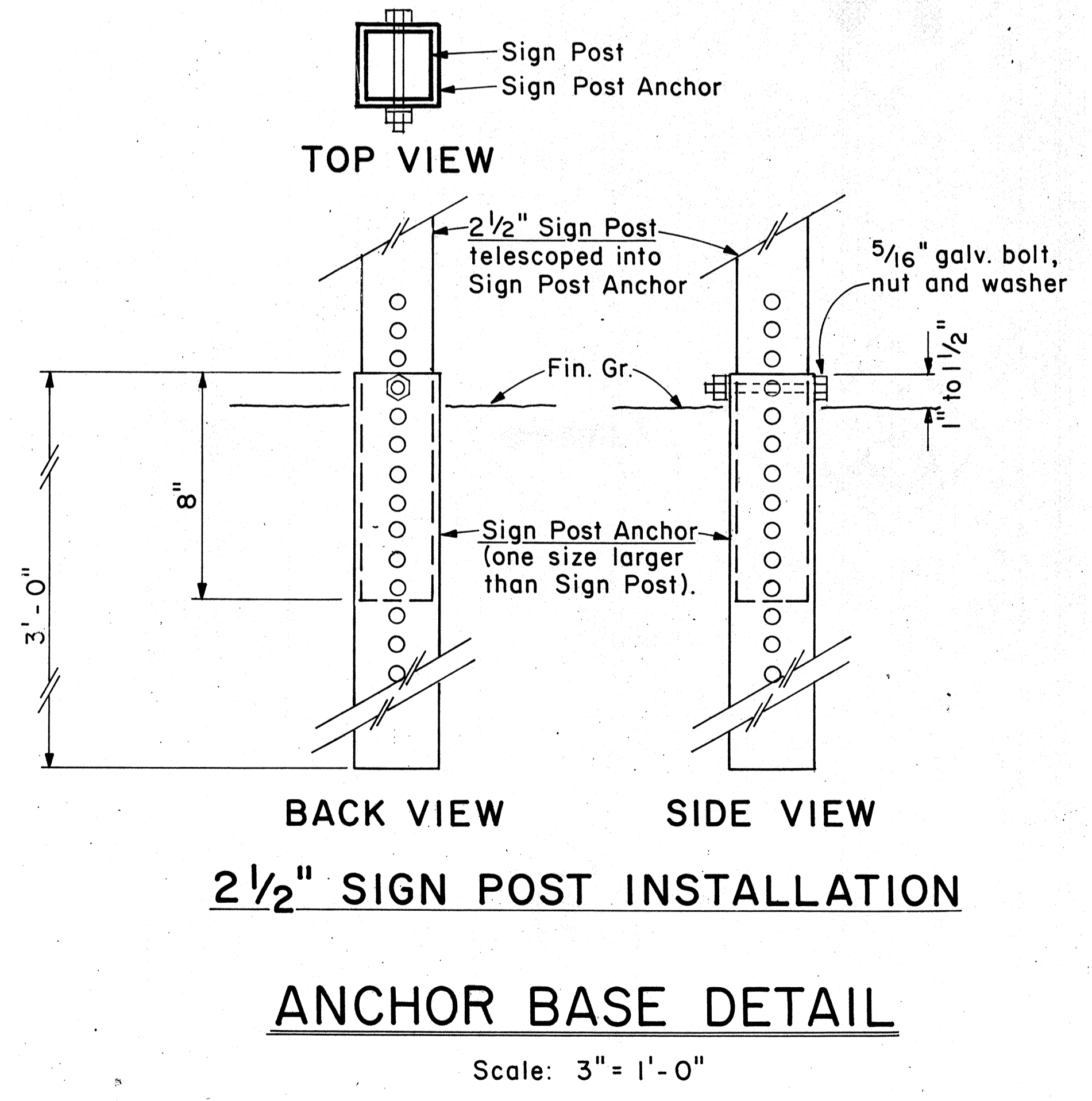
SQUARE TUBE: 2- POST INSTALLATION							
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)					
		7	8	9	10	11	12
2"	122	17.4	15.2	13.5	12.2	11.0	10.1
2 1/2"	212	30.2	26.5	23.5	21.1	19.2	17.6
2 1/2", 10 ga.	260	37.0	32.0	28.6	26.0	23.5	21.5

A x B (Area, sq. ft.)

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

A x B (Area, sq. ft.)

WINDLOAD CHARTS



NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED:
Eishi Tanaka 9/2/82
 TRAFFIC ENGINEER DATE

APPROVED:
Harold Salsishi 9/22/82
 ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
 GALVANIZED SQUARE TUBE
 SIGN POST MOUNTING

Scale: As Shown Date: Sept. 1982

SHEET NO. 11 OF 20 SHEETS DT 100B

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

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.

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"

NO PARKING ANY TIME R8-3a 24" x 24"
24" x 18"
R8-3a-A 48" x 48"

NO PEDESTRIANS 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"

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"

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

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

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

ADVANCE GREEN W15-2 24" x 24"

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

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

SCHOOL BUS STOP AHEAD S1-1 36" x 36"

S2-1 36" x 36"

S3-1 30" x 30"

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

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

SCHOOL S4-3 24" x 8"

WHEN FLASHING S4-4 24" x 10"

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

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

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

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

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

MISCELLANEOUS SIGNS

NOT TO SCALE DATE: MAY, 1978
SHEET No. 12 OF 20 SHEETS DT 103

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

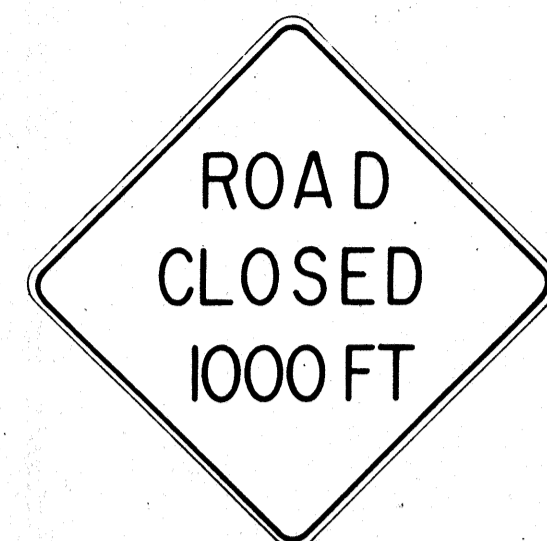
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-PR-078-1(23)	1984	45	52



CW20-1a 48"x48"



CW20-2d 48"x48"



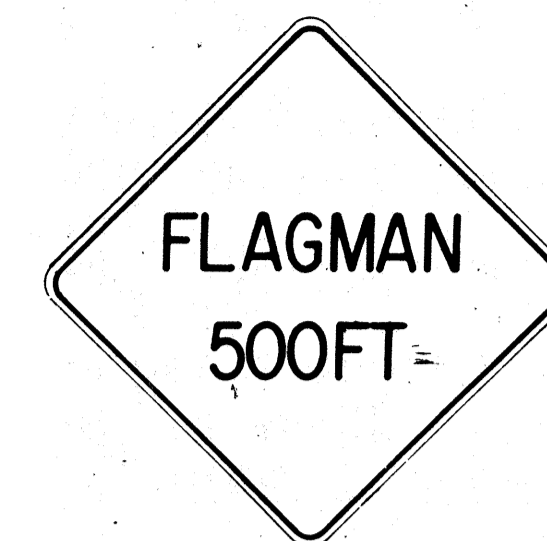
CW20-3b 48"x48"



CW20-4d 48"x48"



CW20-5d(L) 48"x48"



CW20-7c 48"x48"



CW21-1 30"x30"



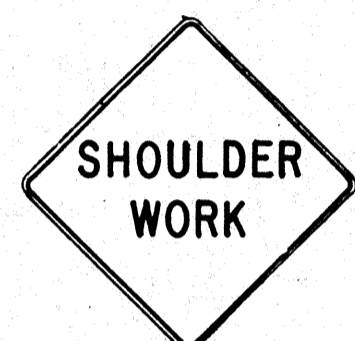
CW21-2 30"x30"



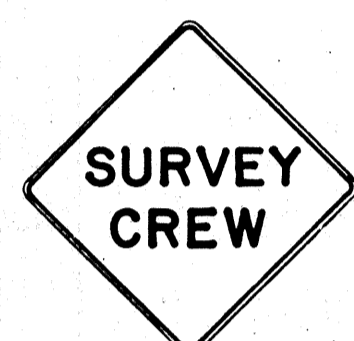
CW21-3 36"x36"



CW21-4 36"x36"



CW21-5 30"x30"



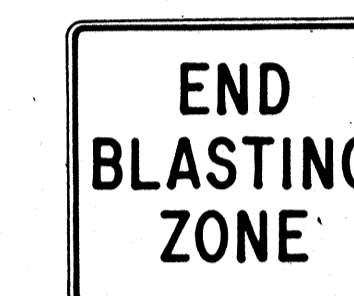
CW21-6 30"x30"



CW22-1b 48"x48"



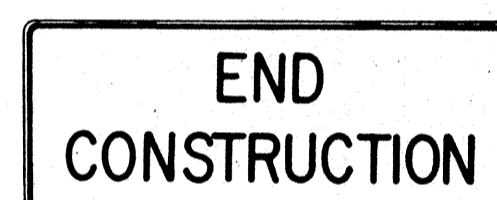
CW22-2 42"x36"



CW22-3 42"x36"



CG20-1(5) 60"x36"



CG20-2 60"x24"



CM4-9(R) 30"x24"



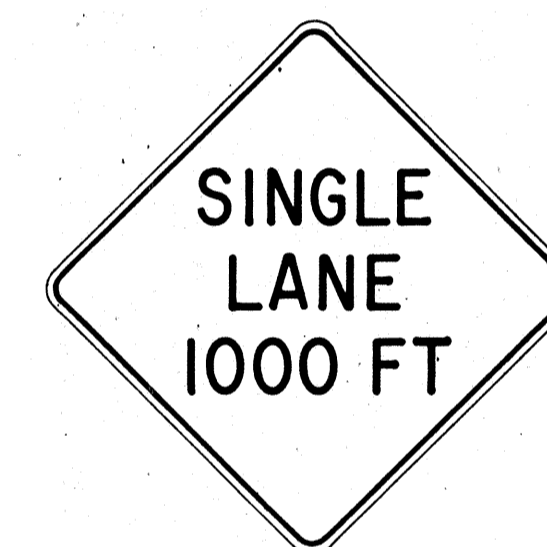
CM4-10(R) 48"x18"



CG20-4 36"x18"



CW23-1 36"x36"



CW23-2b 48"x48"



CW23-3(R) 48"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 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 3/21/72
TRAFFIC ENGINEER DATE

APPROVED:

Arthur S. 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.	10/16/74
3	Revised General Note 2	M.H.	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

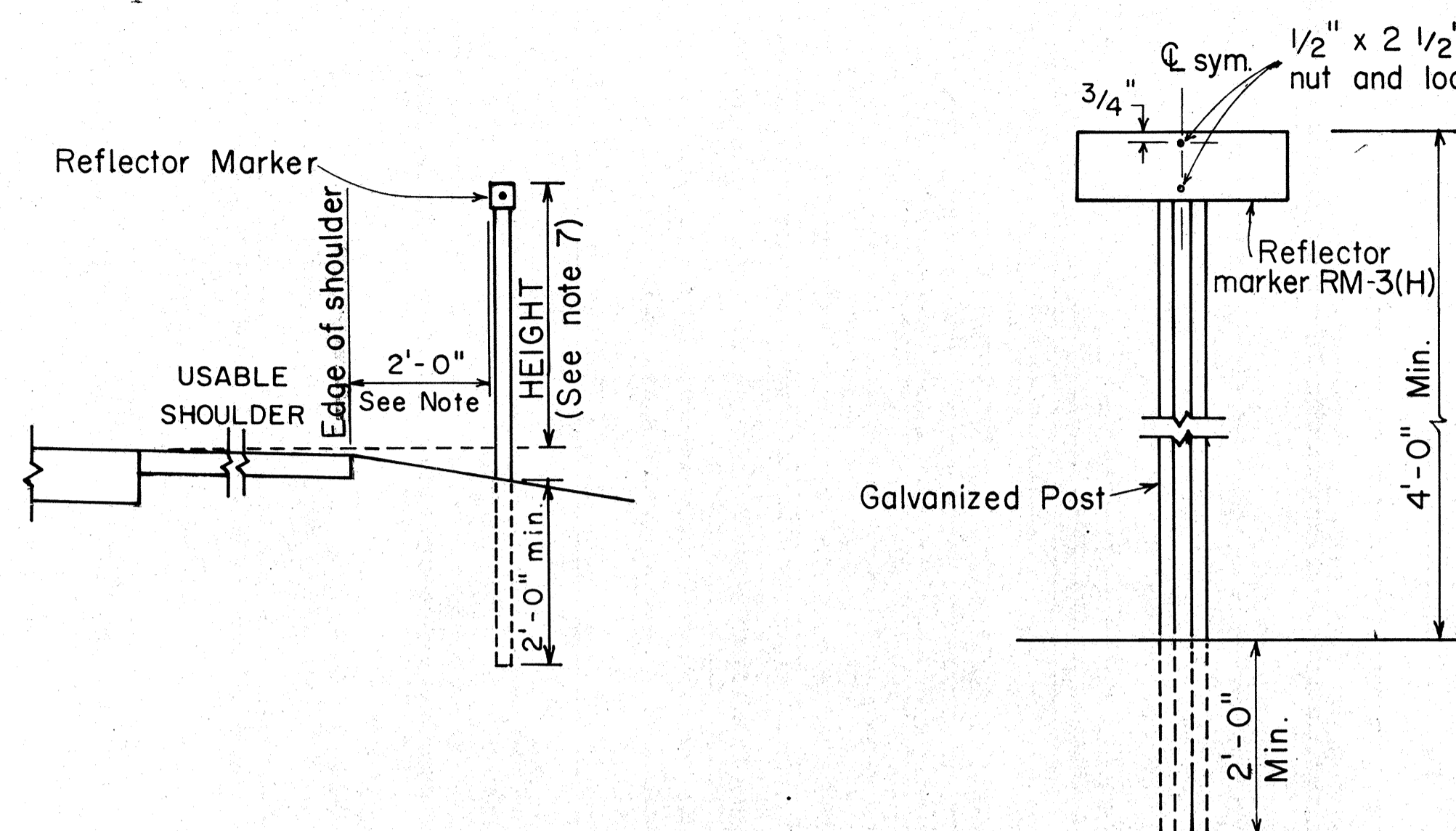
SHEET No. 13 OF 20 SHEETS DT 104

DESIGNED BY	DATE
CHECKED BY	
APPROVED BY	
DATE	

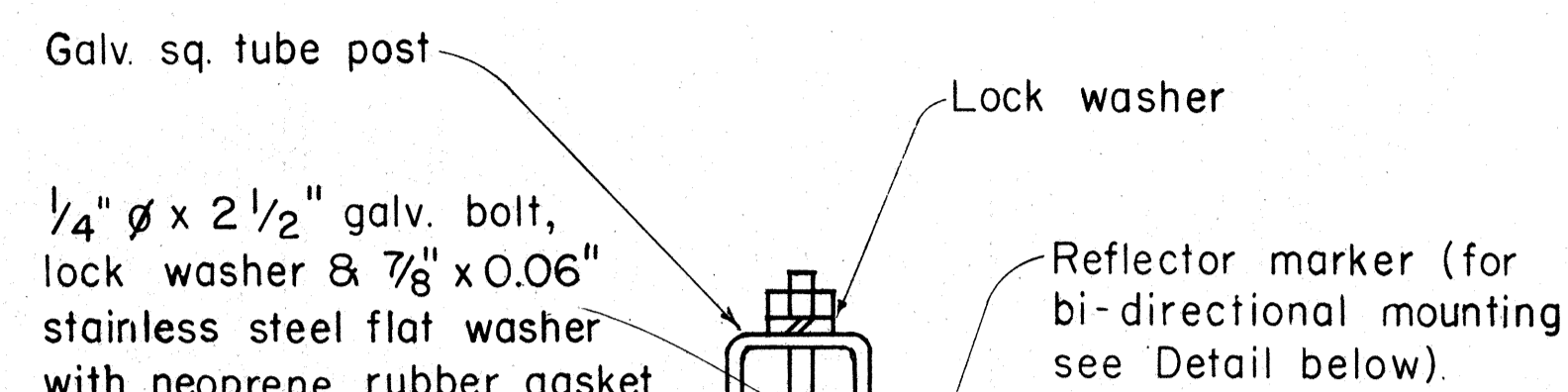
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-PR-078-1(25)	1984	46	52

GENERAL NOTES:

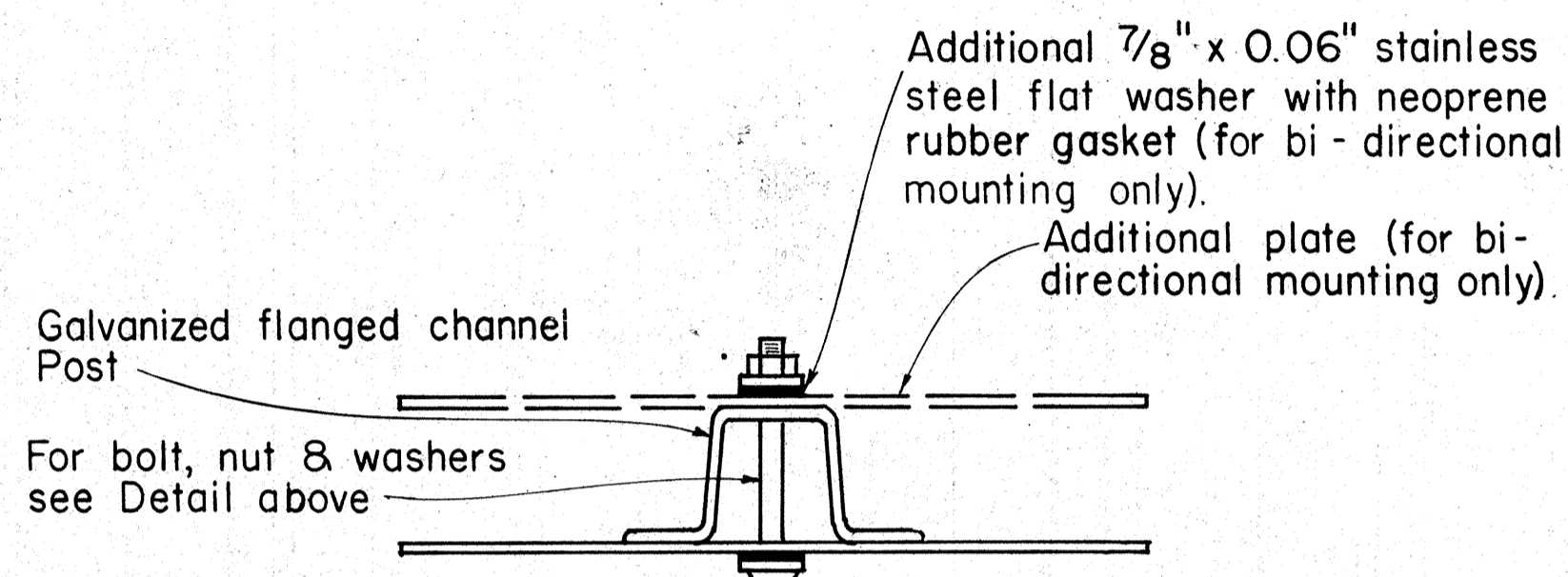
1. Clearance markers (RM-3, RM-4) shall be installed with the edge of the marker in line with the inner edge of the obstruction.
2. (R) or (L) indicates right or left and shall be as shown on the plans.
3. Reflector markers RM-1 and RM-2 shall be:
 - a) Yellow if placed along the left edge of divided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



REFLECTOR MARKER MOUNTING DETAIL

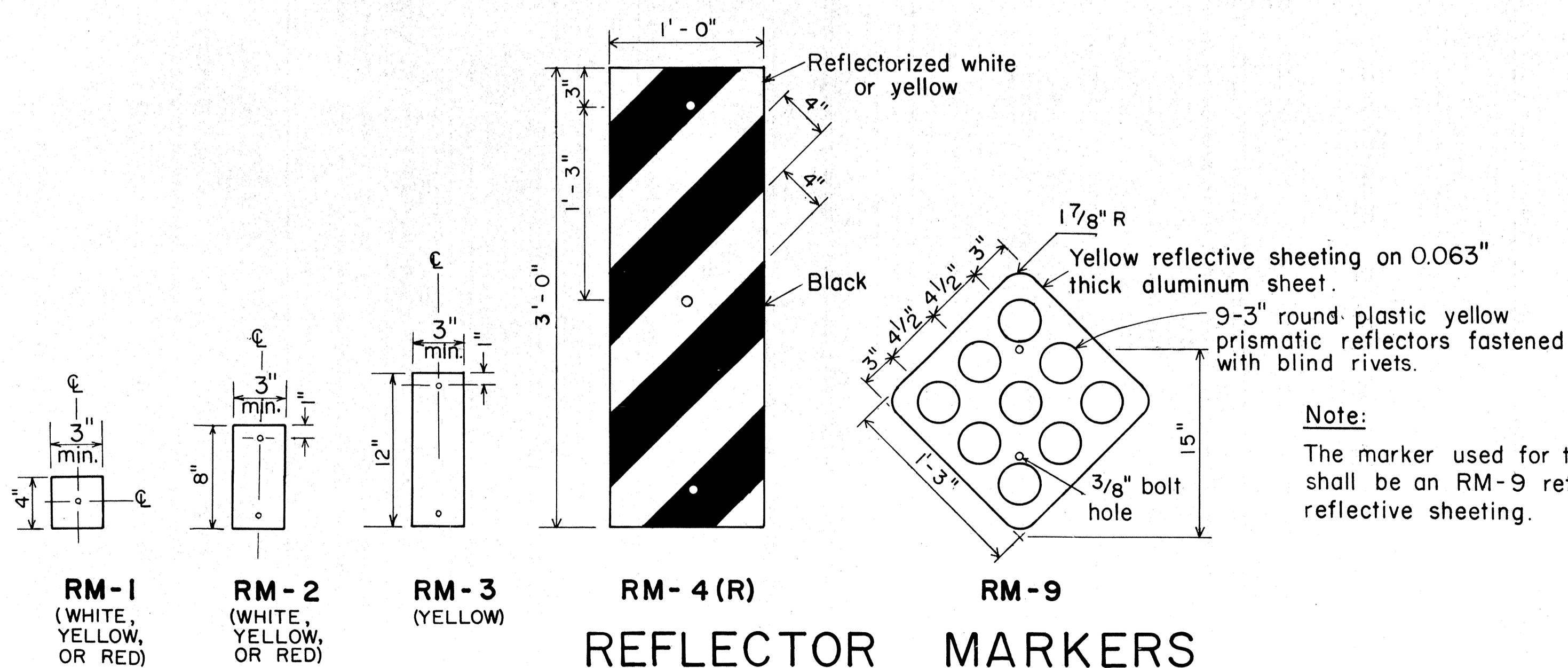


GALVANIZED SQUARE TUBE POST



GALVANIZED FLANGED CHANNEL POST

TYPICAL MOUNTING DETAILS



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

APPROVAL RECOMMENDED:
Eushe Tanaka 4/7/77
TRAFFIC ENGINEER DATE

APPROVED:
Hubert S. Sakaiwa 4/15/77
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Revised Mounting Details	H.T.	4/23/80
2	Revised General Notes, Mounting Details and Reflector Markers.	H.T.	7-28-83

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

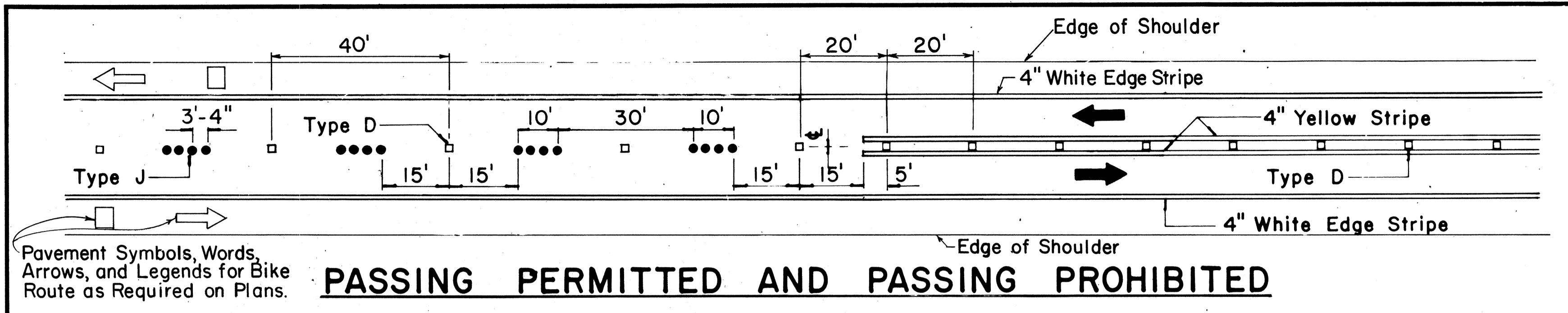
STANDARD DETAILS
MISCELLANEOUS REFLECTOR MARKERS

Not to scale June, 1977

SHEET NO. 14 OF 20 SHEETS DT 110

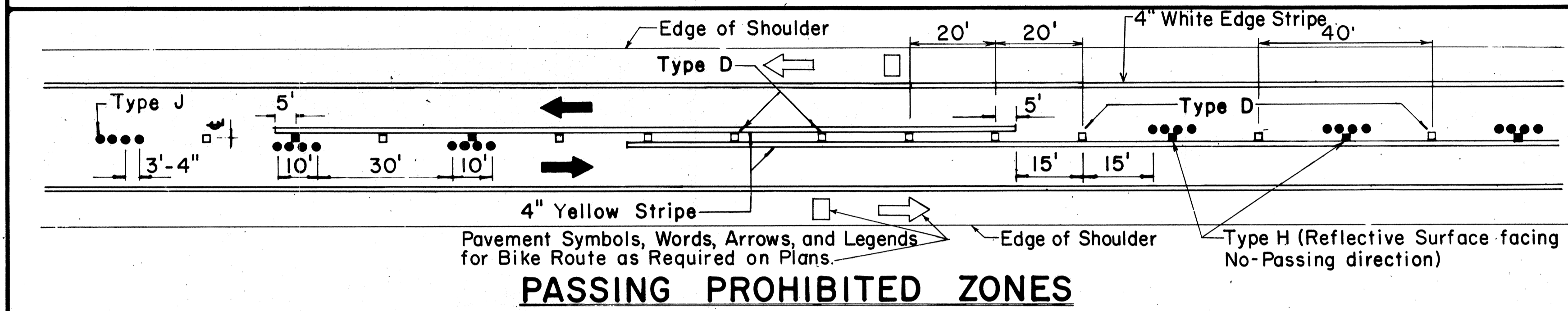
SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-PR-078-1(23)	1984	47	52



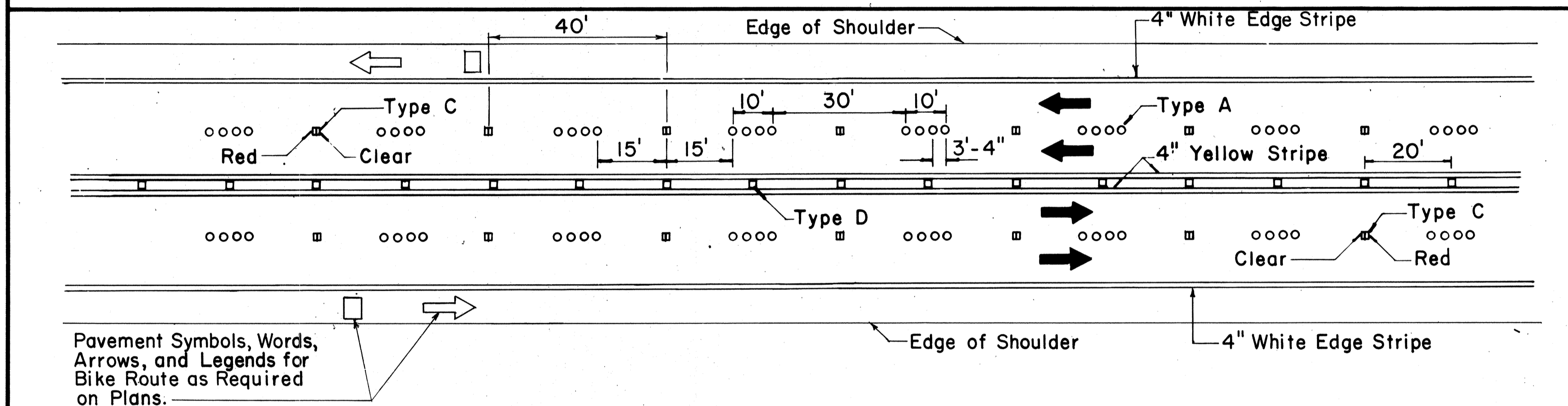
Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans.

PASSING PERMITTED AND PASSING PROHIBITED

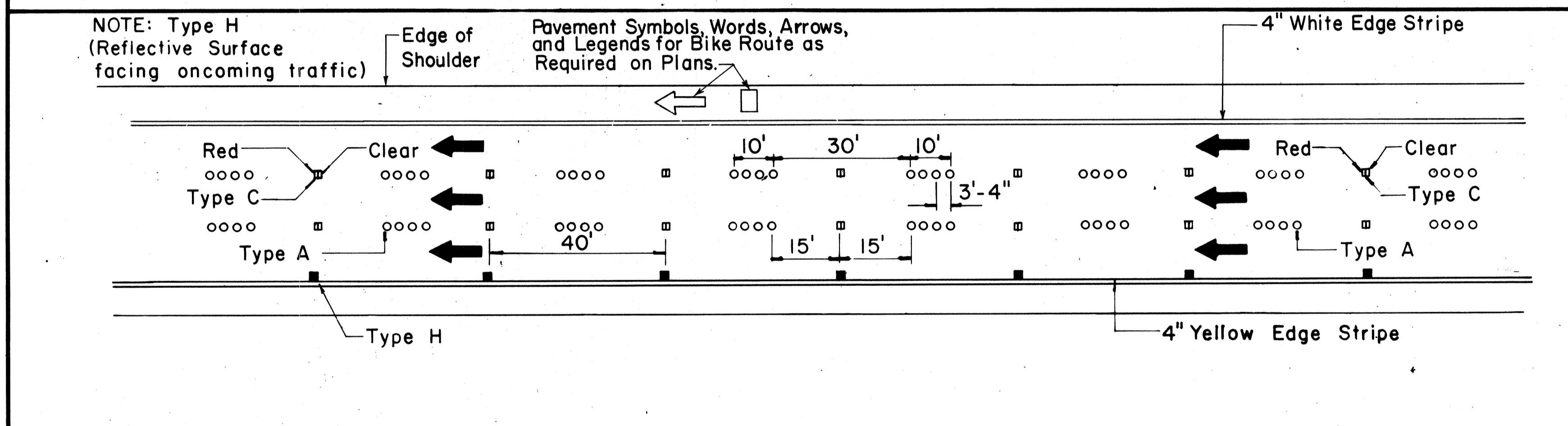


Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans.

PASSING PROHIBITED ZONES

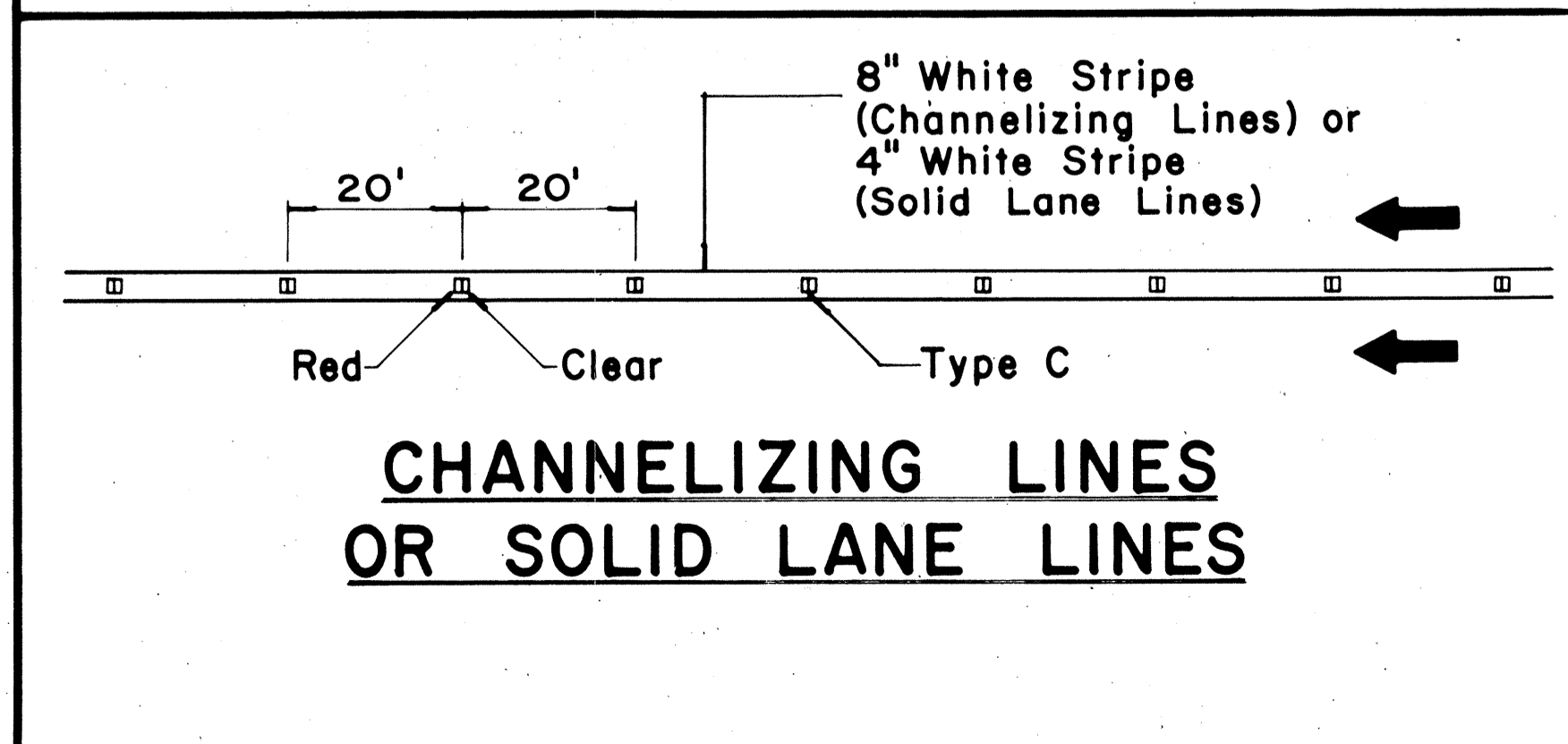


Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans.

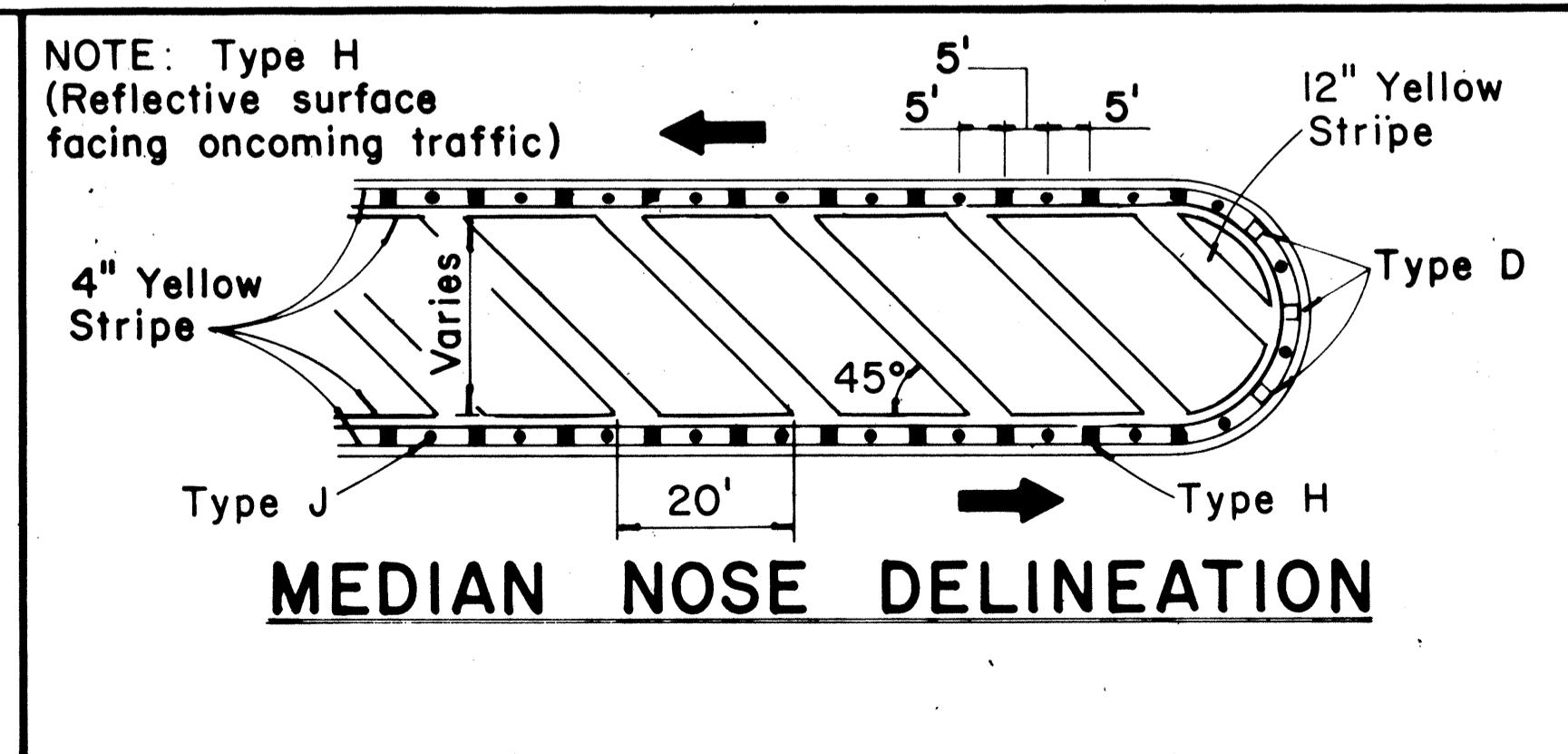


NOTE: Type H (Reflective Surface facing oncoming traffic)

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



CHANNELIZING LINES OR SOLID LANE LINES



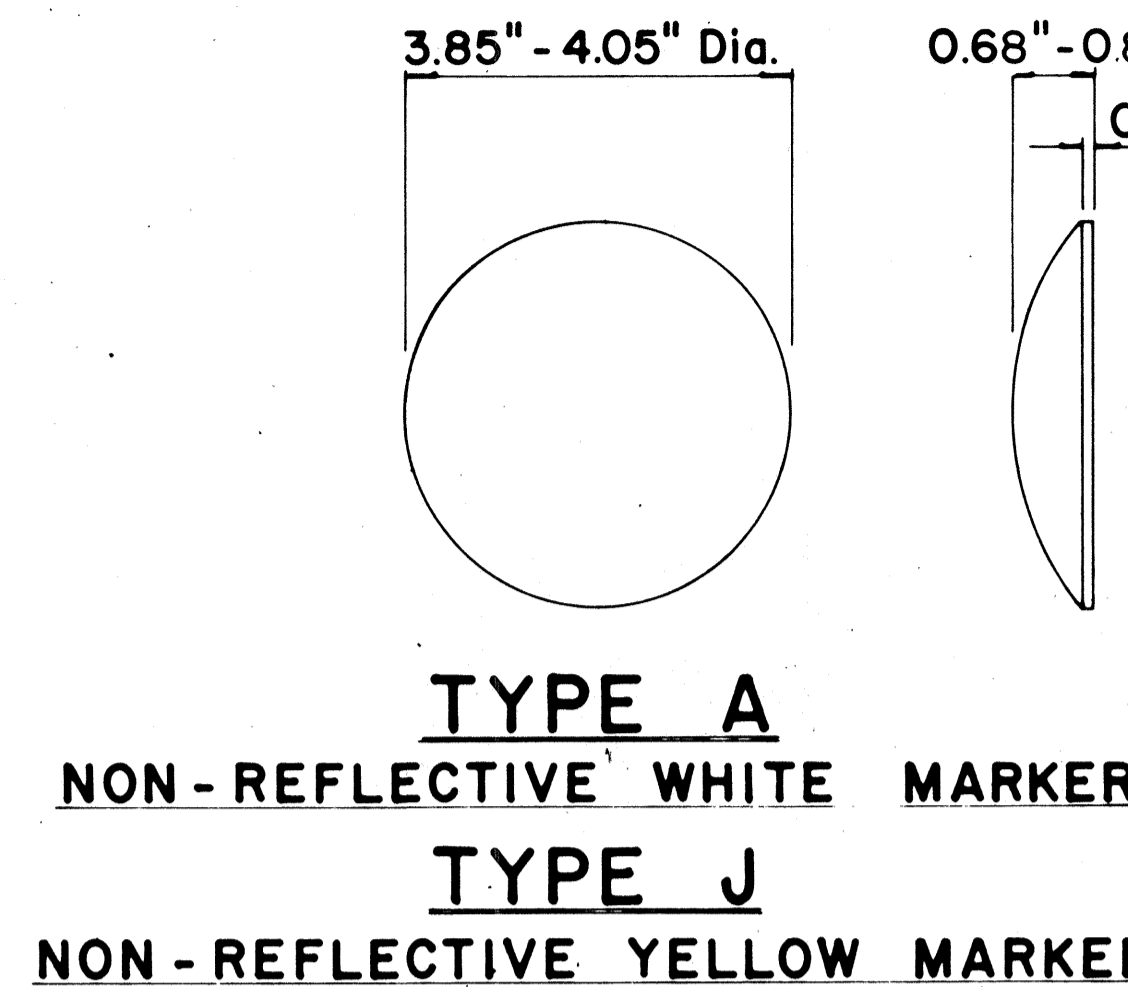
NOTE: Type H (Reflective surface facing oncoming traffic)

TWO - LANE

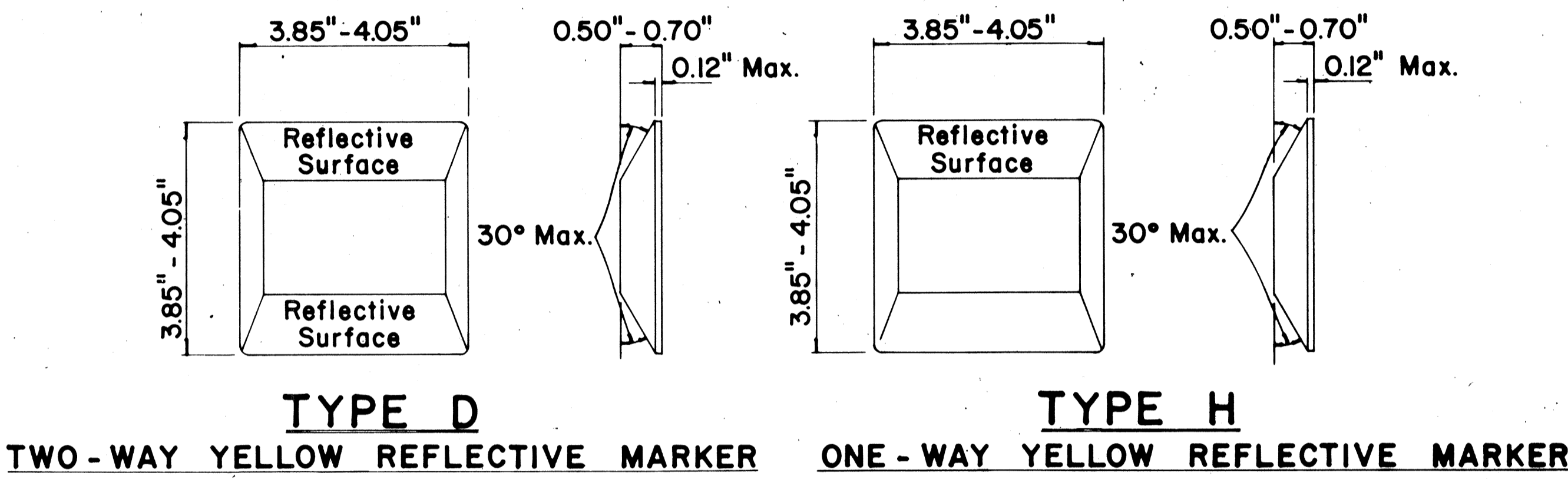
MULTI - LANE

DIVIDED HIGHWAY AND FREEWAY

MISCELLANEOUS



TYPE A
NON-REFLECTIVE WHITE MARKER
TYPE J
NON-REFLECTIVE YELLOW MARKER
TYPE C
RED-CLEAR REFLECTIVE MARKER



TYPE D
TWO-WAY YELLOW REFLECTIVE MARKER
TYPE H
ONE-WAY YELLOW REFLECTIVE MARKER

GENERAL NOTES

1. 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:

Eiichi Tanaka 1/21/78
TRAFFIC ENGINEER DATE

APPROVED:

Herbert J. Zolich 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
3	Added General Note 3. Revised left edge stripe.	H.T.	9-28-83

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

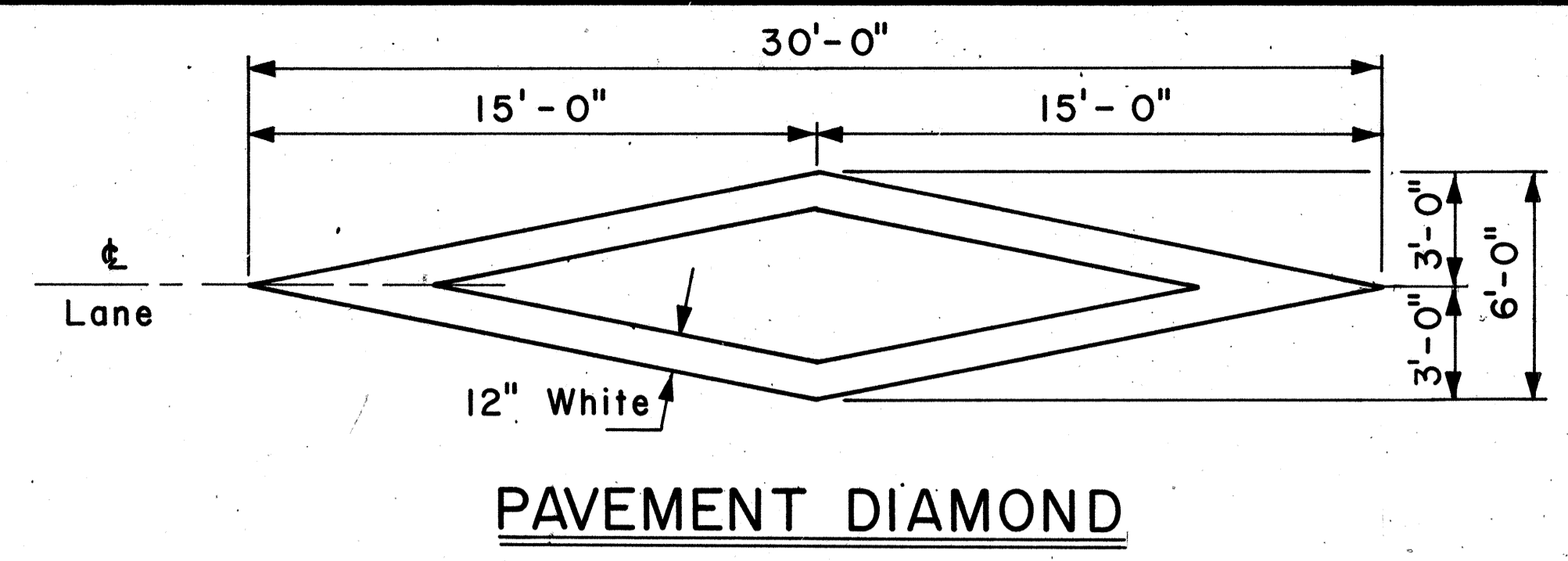
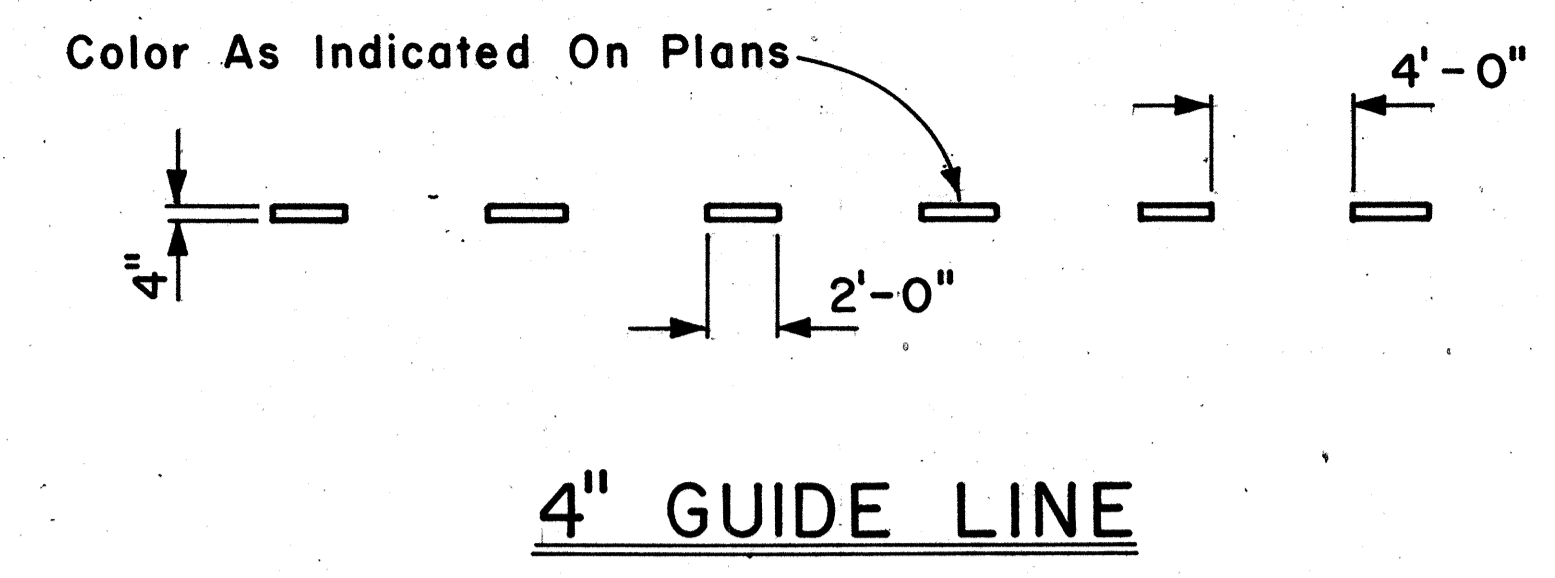
**STANDARD DETAILS
RAISED PAVEMENT MARKERS
AND STRIPING**

Not to Scale July 1978

SHEET No. 15 OF 20 SHEETS DT 300

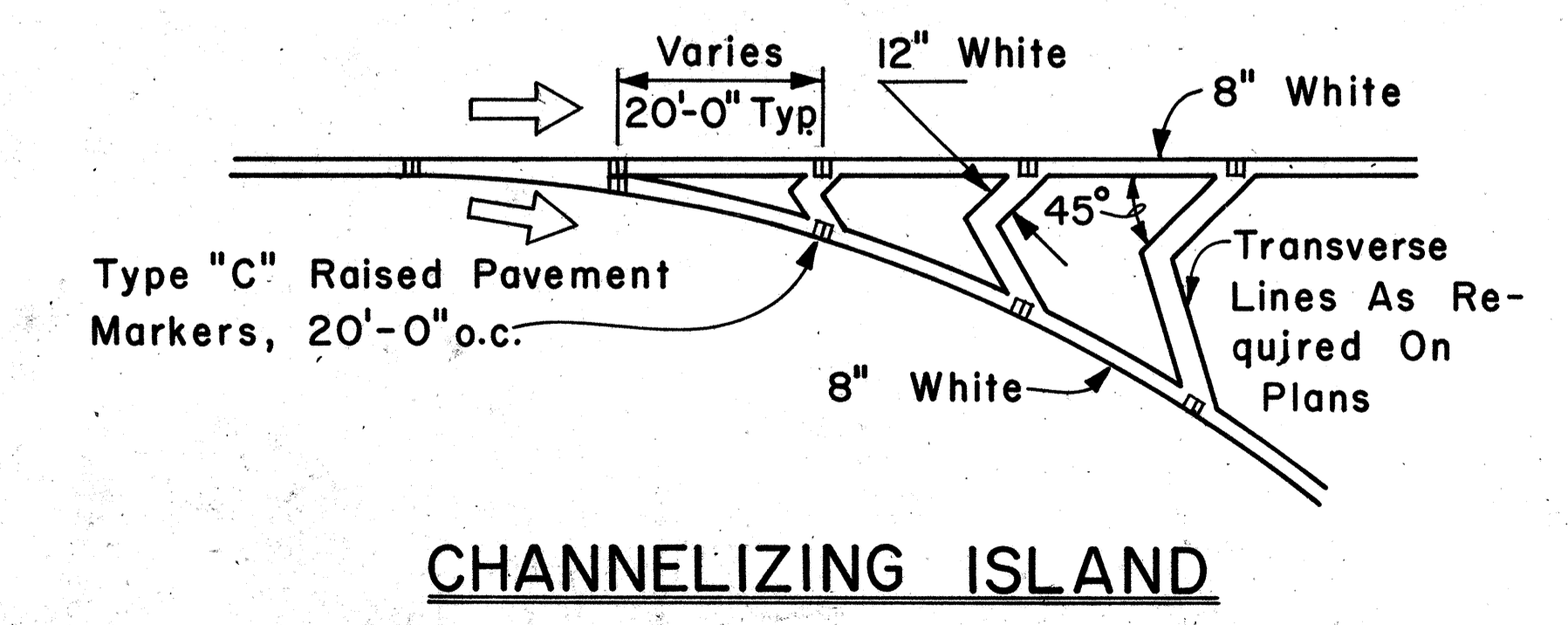
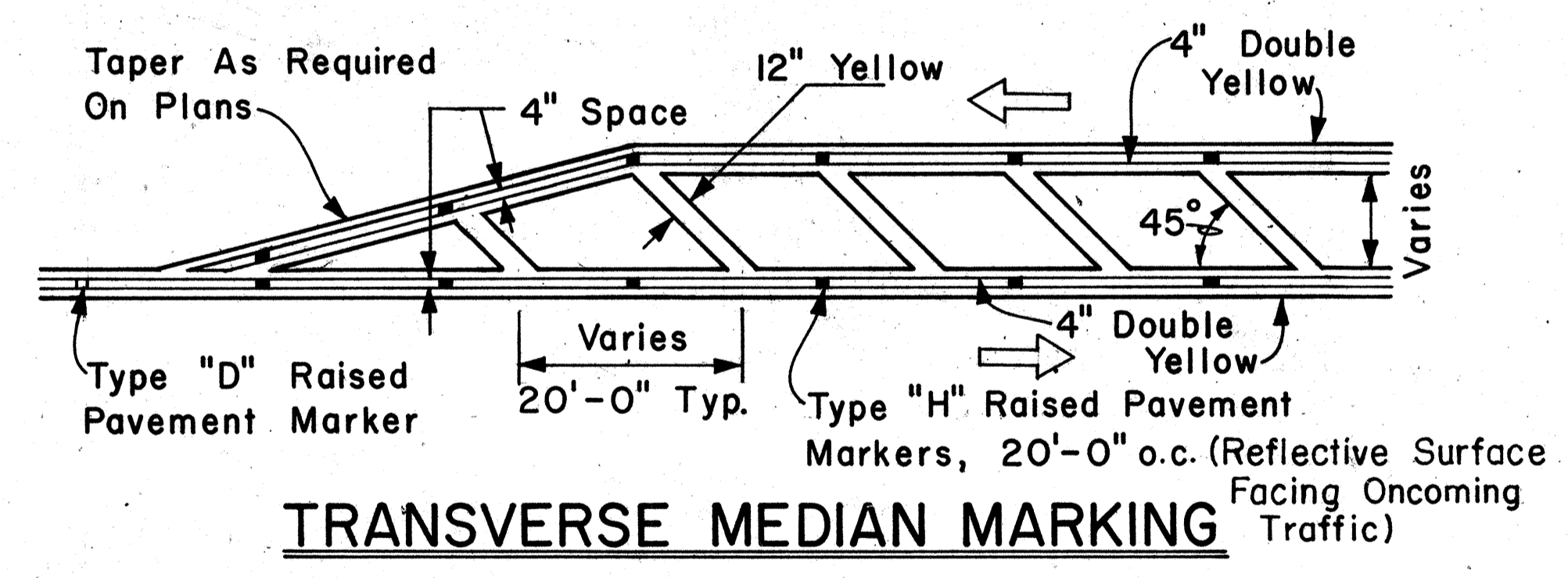
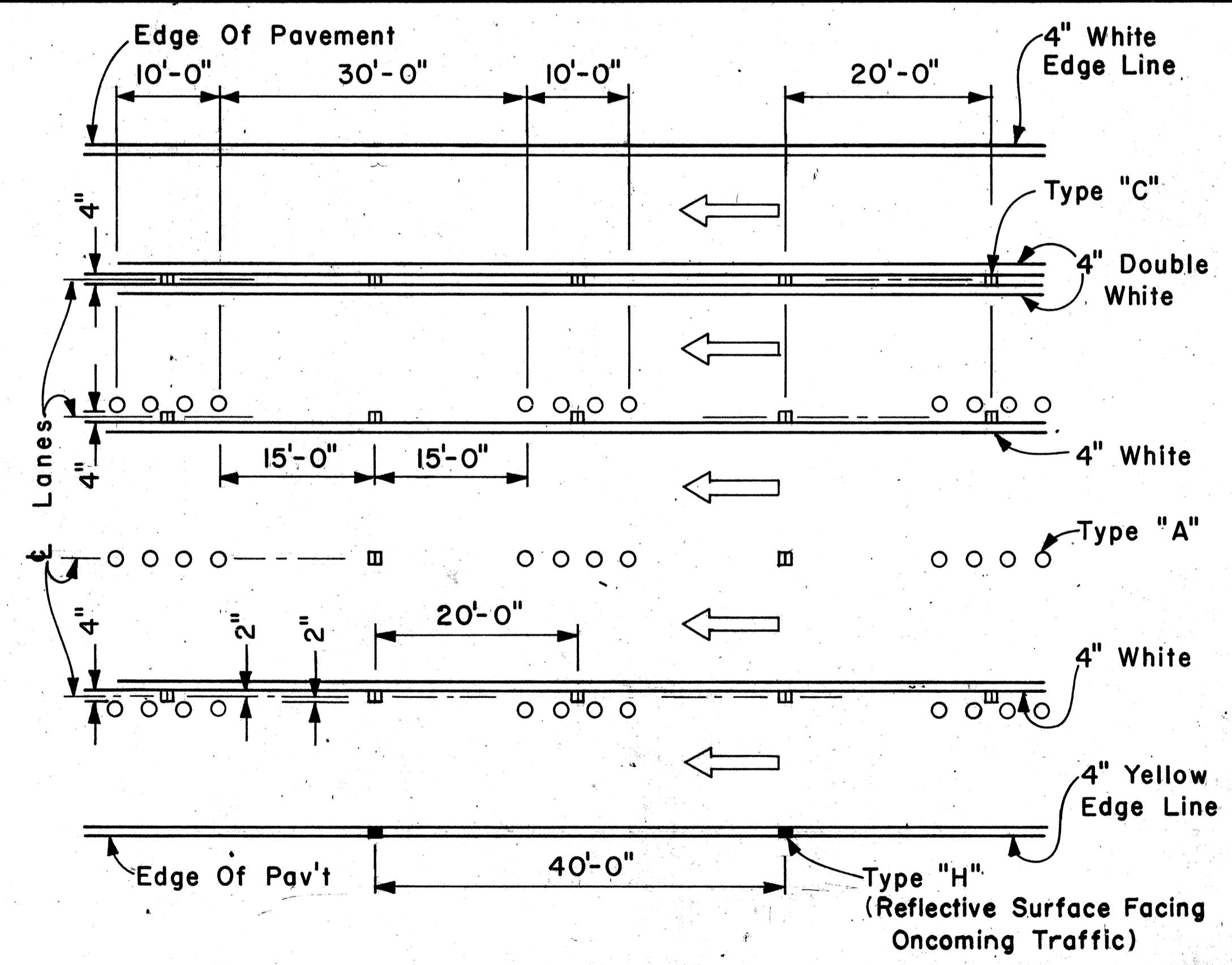
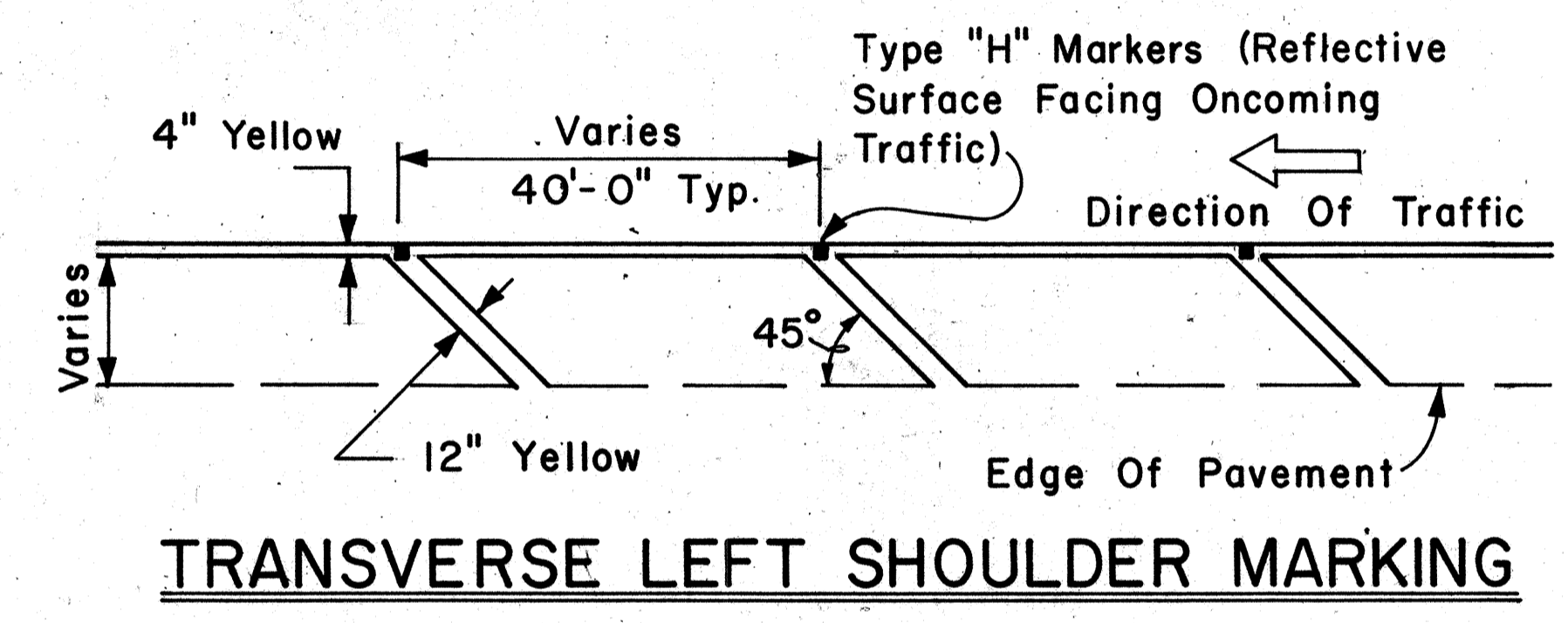
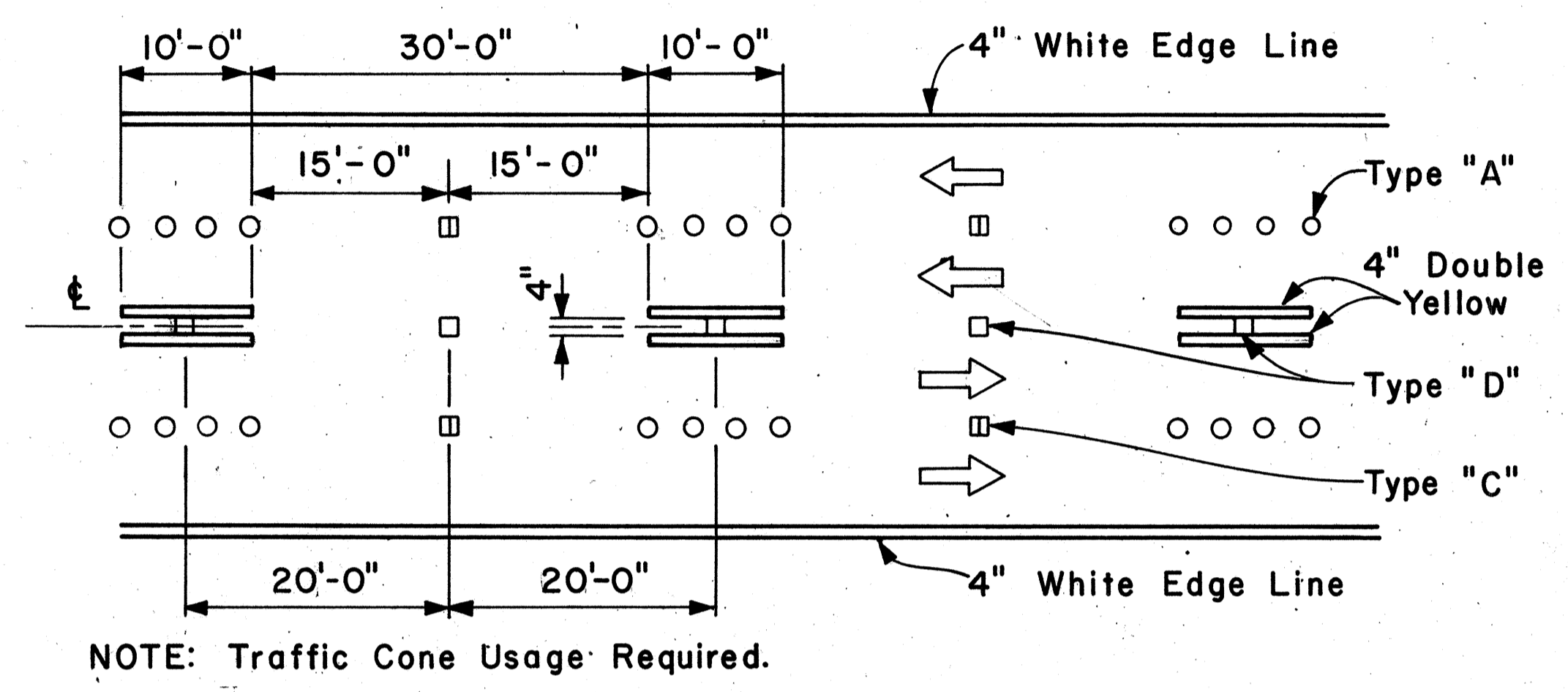
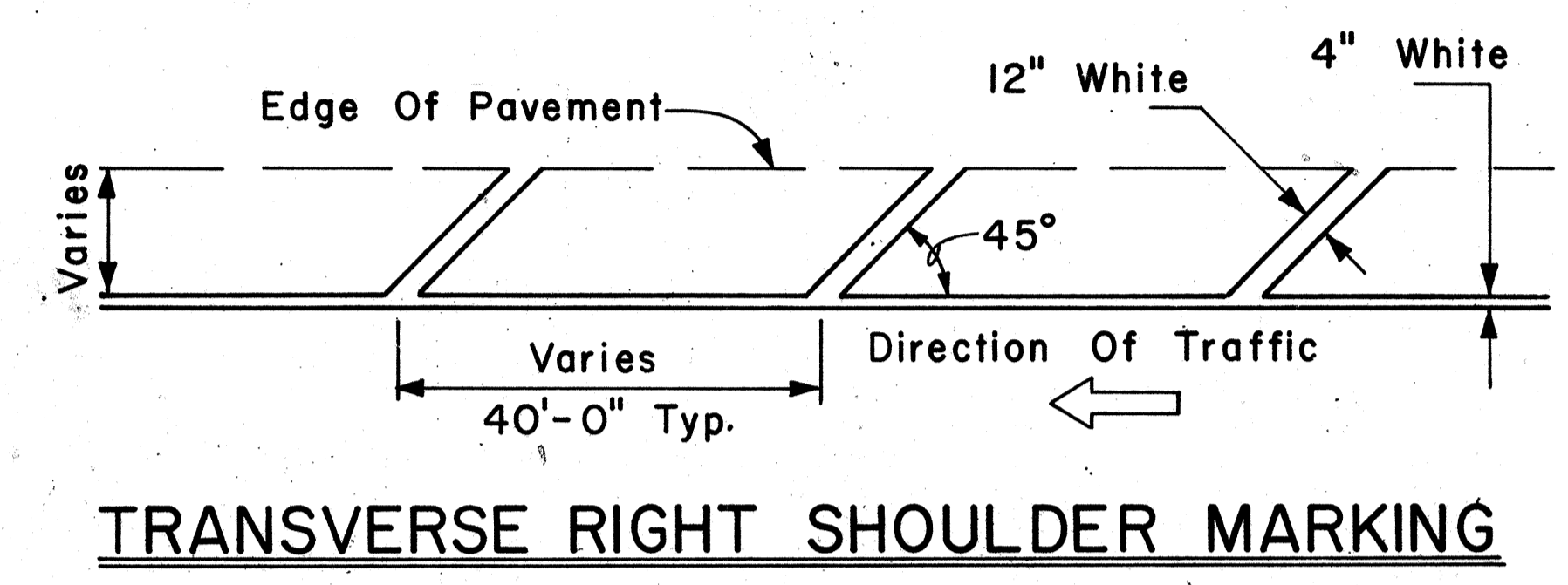
DATE	.....
SURVEY PLOTTED BY	.....
DESIGNED BY	.....
QUANTITIES BY	.....
CHECKED BY	.....
ORIGINAL PLAN	.....
NOTE BOOK	.....
No.	.....

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FPR-078-1(25)	1984	48	52



GENERAL NOTES:

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



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

APPROVED:
Robert S. Zaisch 5/2/78
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS

MISCELLANEOUS
 PAVEMENT MARKINGS

Scale: Not to Scale Date: April, 1978

SHEET No. 48 OF 20 SHEETS DT 302

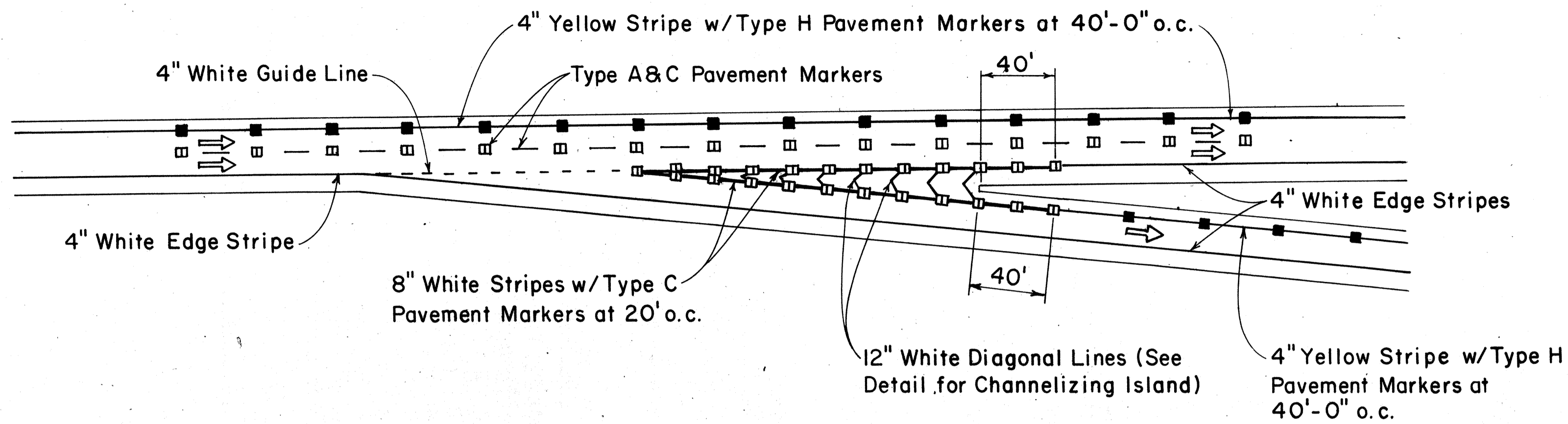
DATE: _____
 SURVEY PLOTTED BY: _____
 DRAWN BY: _____
 CHECKED BY: _____
 ORIGINAL PLAN: _____
 REVISION NO.: _____
 NOTE BOOK: _____
 QUANTITIES BY: _____
 CHECKED BY: _____
 No. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-PR-078-1(25)	1984	49	52

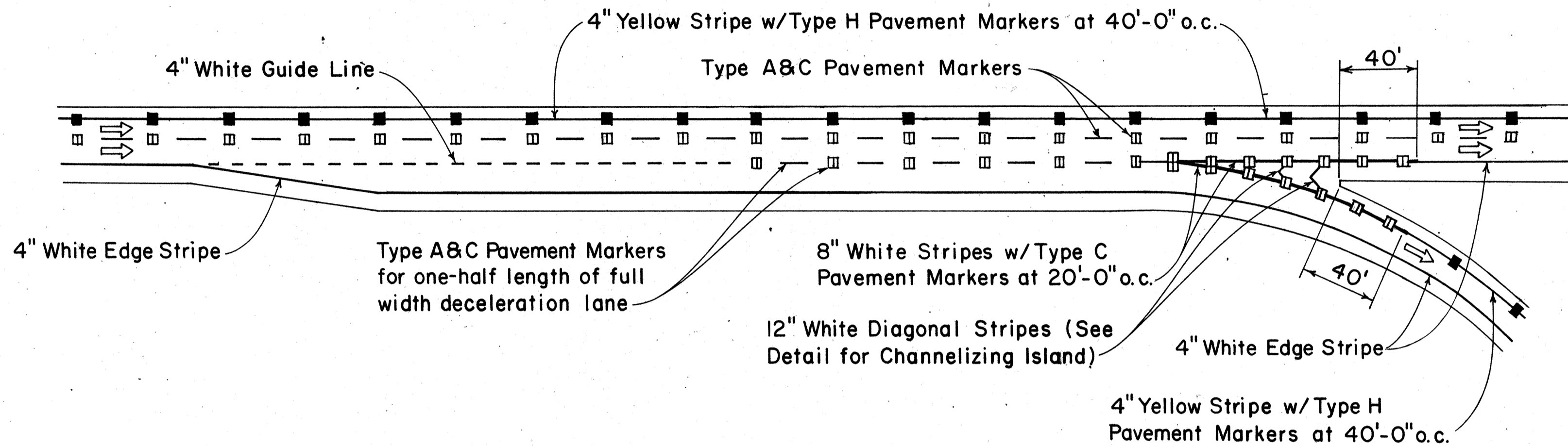
GENERAL NOTES:

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.

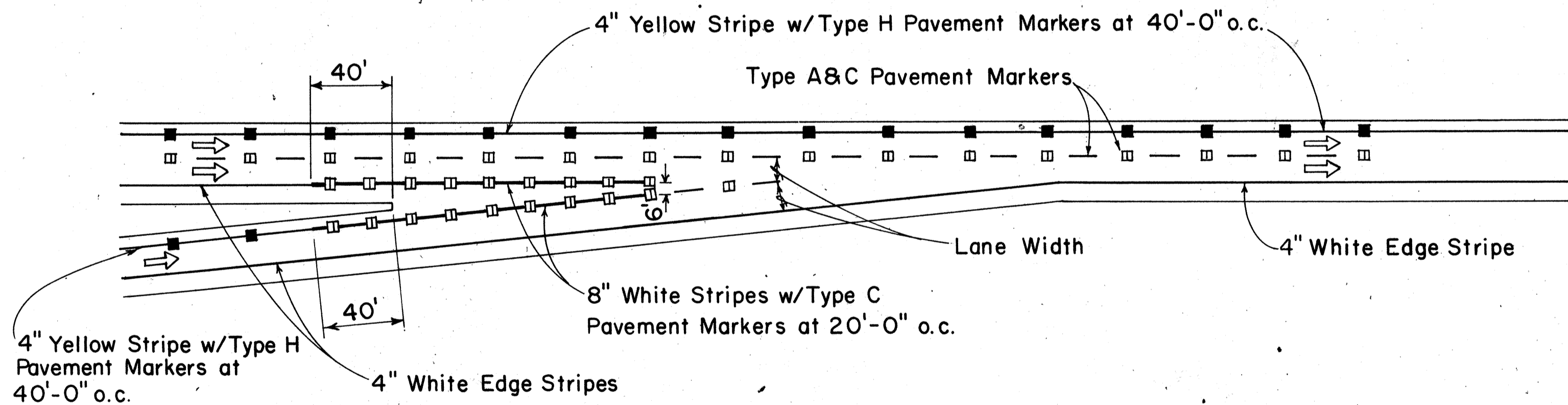
TAPERED DECELERATION LANE
TYPICAL ROADWAY EXIT MARKINGS



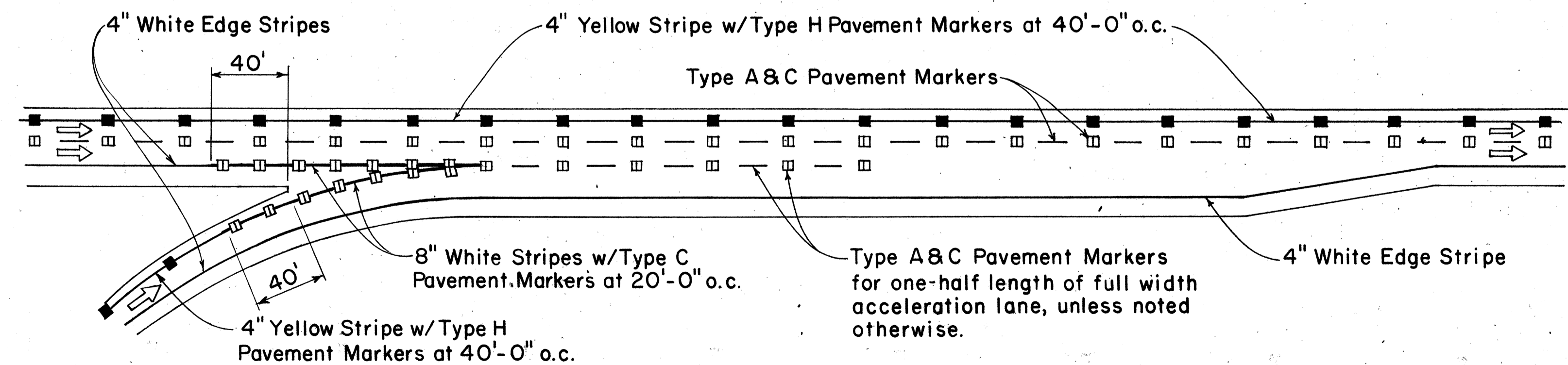
PARALLEL DECELERATION LANE
TYPICAL ROADWAY EXIT MARKINGS



TAPERED ACCELERATION LANE
TYPICAL ROADWAY ENTRANCE MARKINGS



PARALLEL ACCELERATION LANE
TYPICAL ROADWAY ENTRANCE MARKINGS



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

APPROVAL RECOMMENDED:
Eisuke Tanaka 1/21/78
TRAFFIC ENGINEER DATE

APPROVED:
Robert S. Sakai 1/24/78
ASSISTANT CHIEF, ENGINEERING DATE

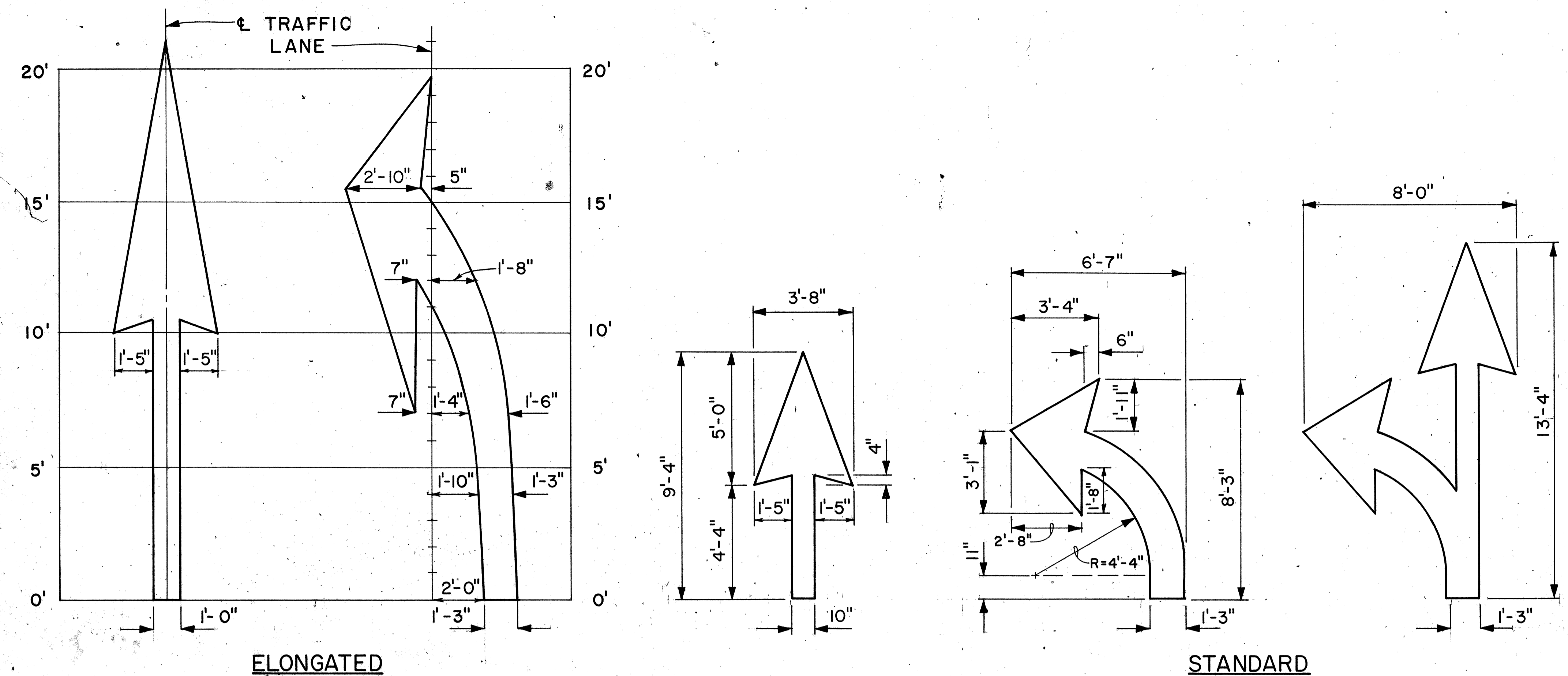
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS
MISCELLANEOUS
PAVEMENT MARKINGS

Not to Scale July 1978
SHEET No. 17 OF 20 SHEETS DT 300

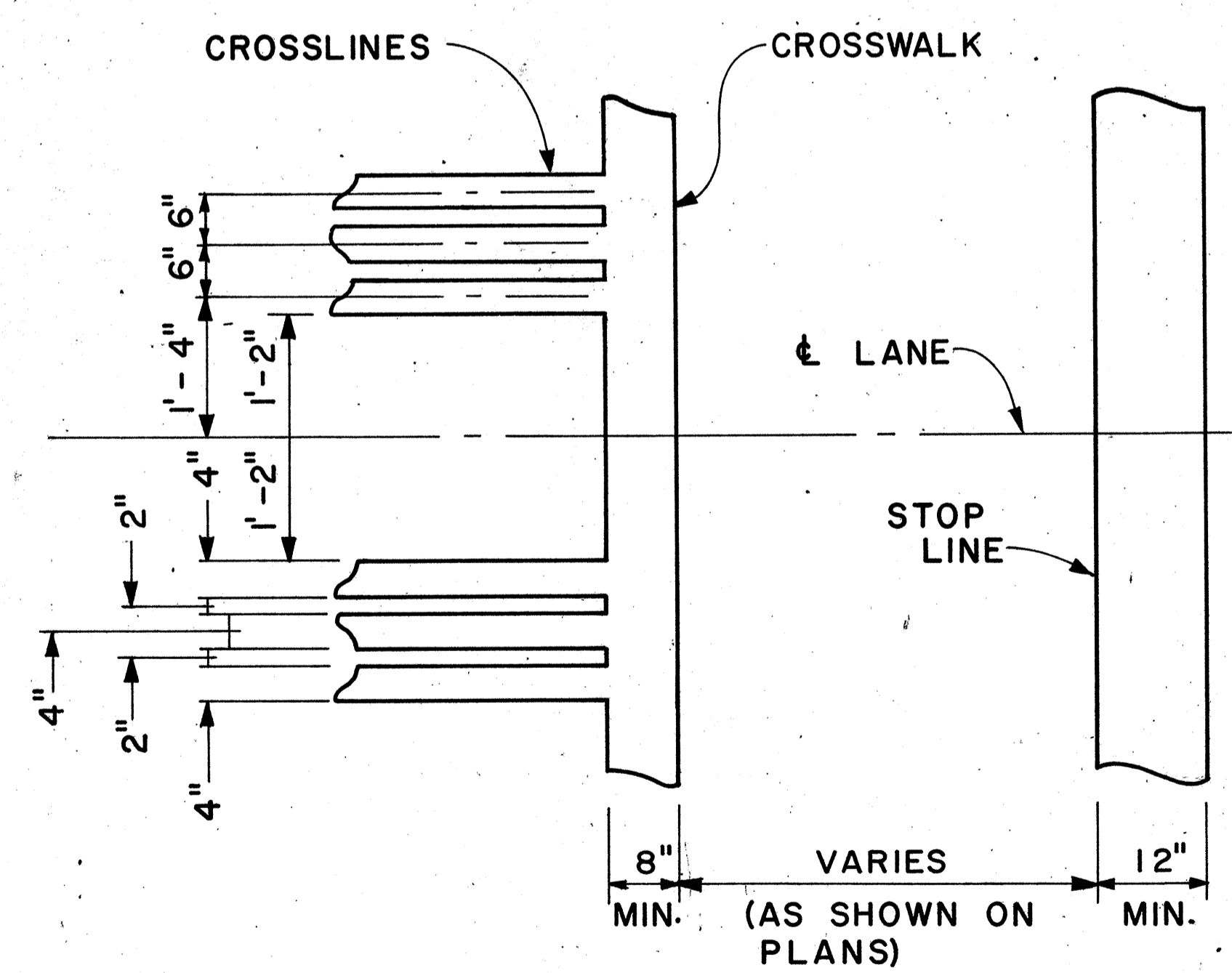
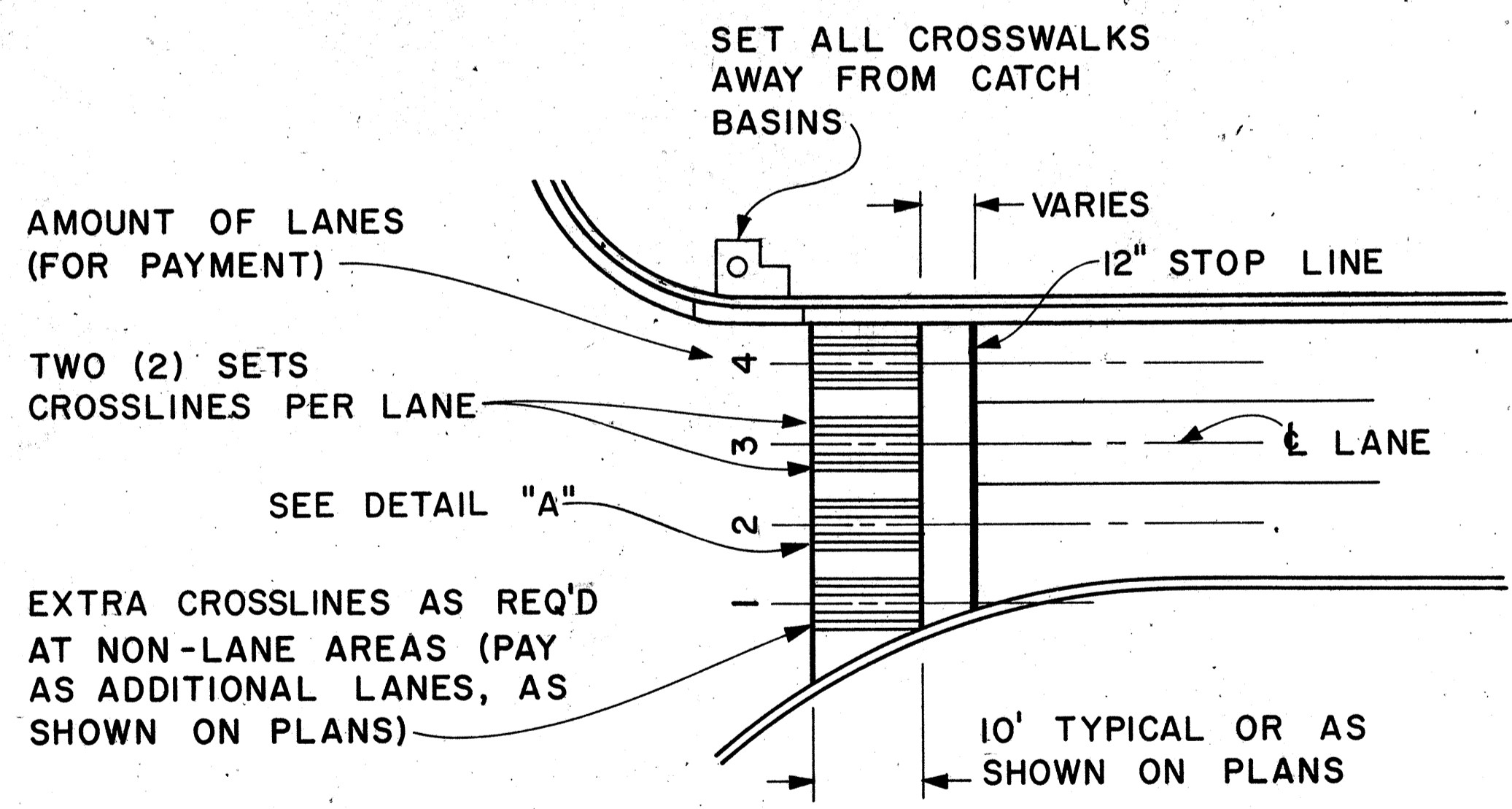
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	PR-078-1(25)	1984	50	52



PAVEMENT ARROWS
Scale: 3/8" = 1'

GENERAL NOTES:

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



CROSSWALK & STOP LINE
Scale: Not to Scale

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

APPROVED:
Andrew S. Zaleski 5/3/78
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS

MISCELLANEOUS
PAVEMENT MARKINGS

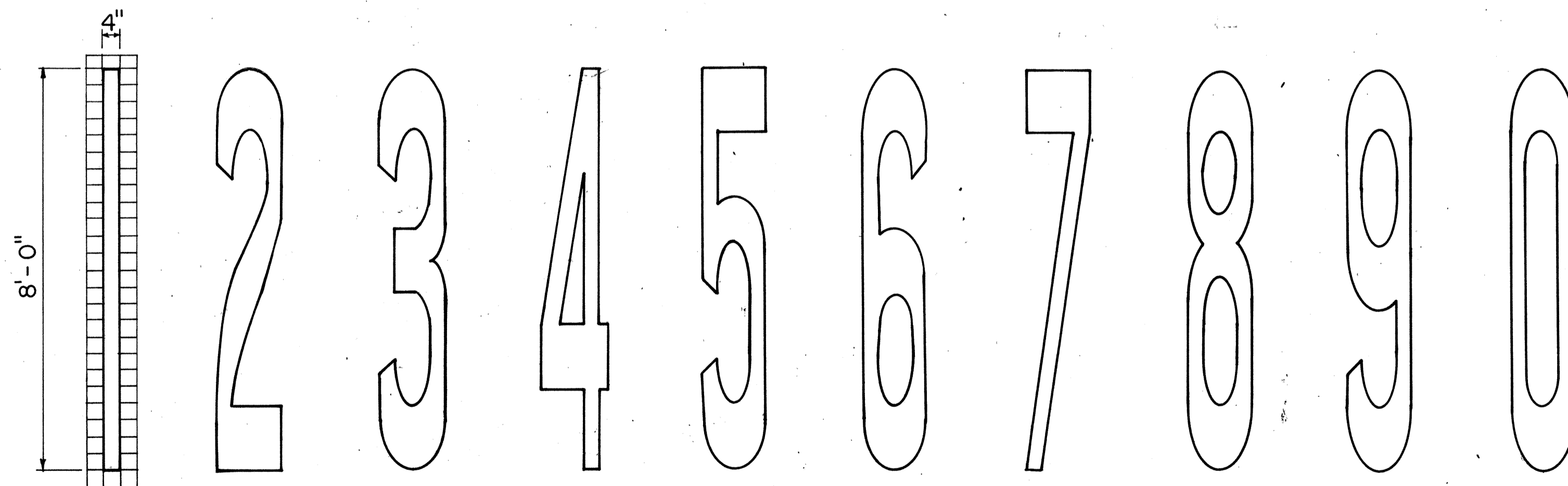
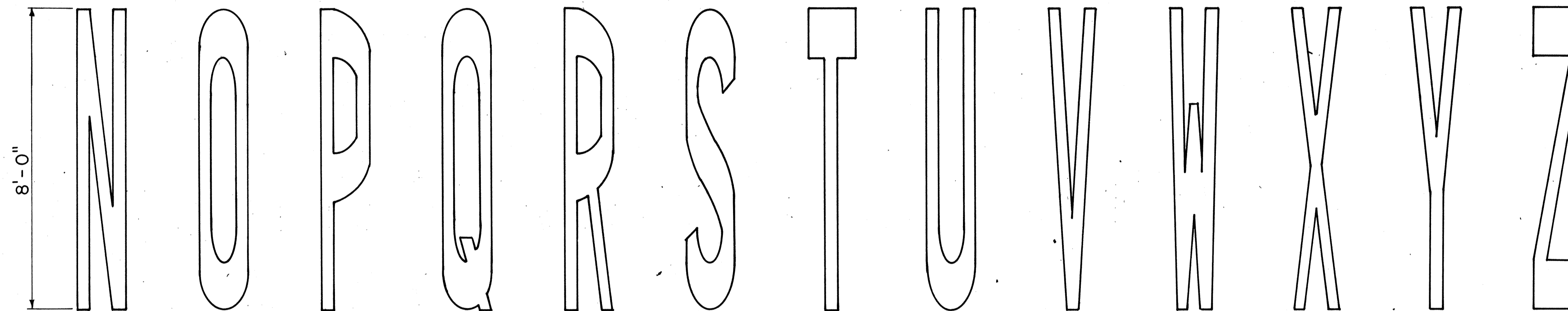
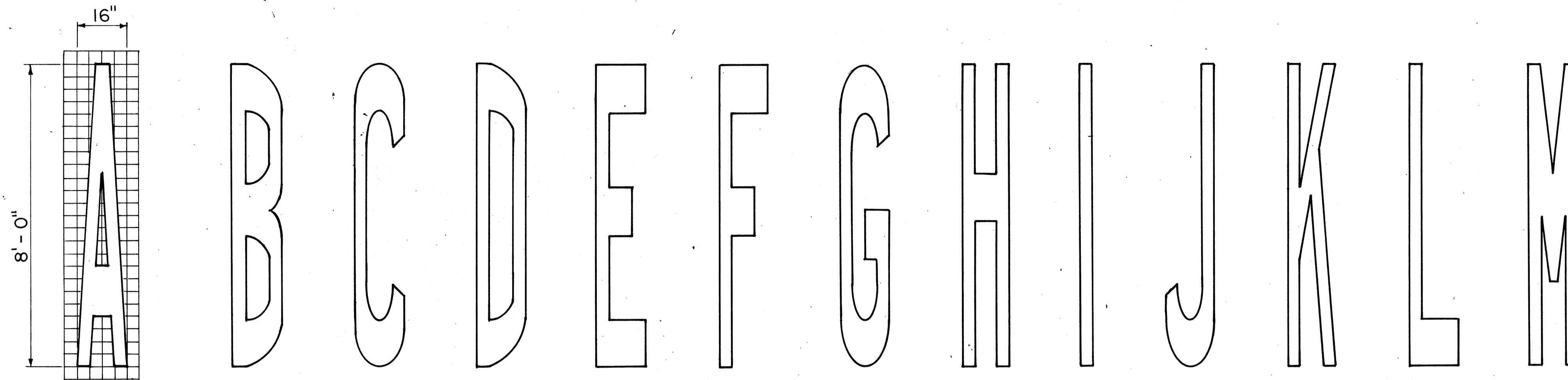
Scale: As Shown Date: March, 1978
SHEET No. 18 OF 20 SHEETS DT 306

ORIGINAL SURVEY PLOTTED BY: _____ DATE: _____
DRAWN BY: _____
TRACED BY: _____
NOTE BOOK DESIGNED BY: _____
QUANTITIES BY: _____
CHECKED BY: _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	P-PR-078-1(25)	1984	51	52

GENERAL NOTES

1. Pavement Alphabets, Numbers and Symbols shall conform to the latest edition of the FHWA publication, "Manual on Uniform Traffic Control Devices for Streets and Highways" and its amendments.
2. The characters are based on a 24x4 (height x width) grid system to facilitate enlarging. Horizontal strokes are 4 units high and verticle strokes are 1 unit wide.
3. Unless otherwise noted, the typical height and width of each character shall respectively be 8'-0" and 1'-4". The horizontal strokes shall be 16" high and the vertical strokes shall be 4" wide.
4. All pavement messages and symbols shall be laid out by the Contractor and approved by the Engineer prior to installation.



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

APPROVAL RECOMMENDED:

Eishi Tanaka
TRAFFIC ENGINEER 1/28/83
DATE

APPROVED:

S. S. Fujiyama
ASSISTANT CHIEF, ENGINEERING 1-31-83
DATE

NO.	REVISION	APPROVED BY	DATE

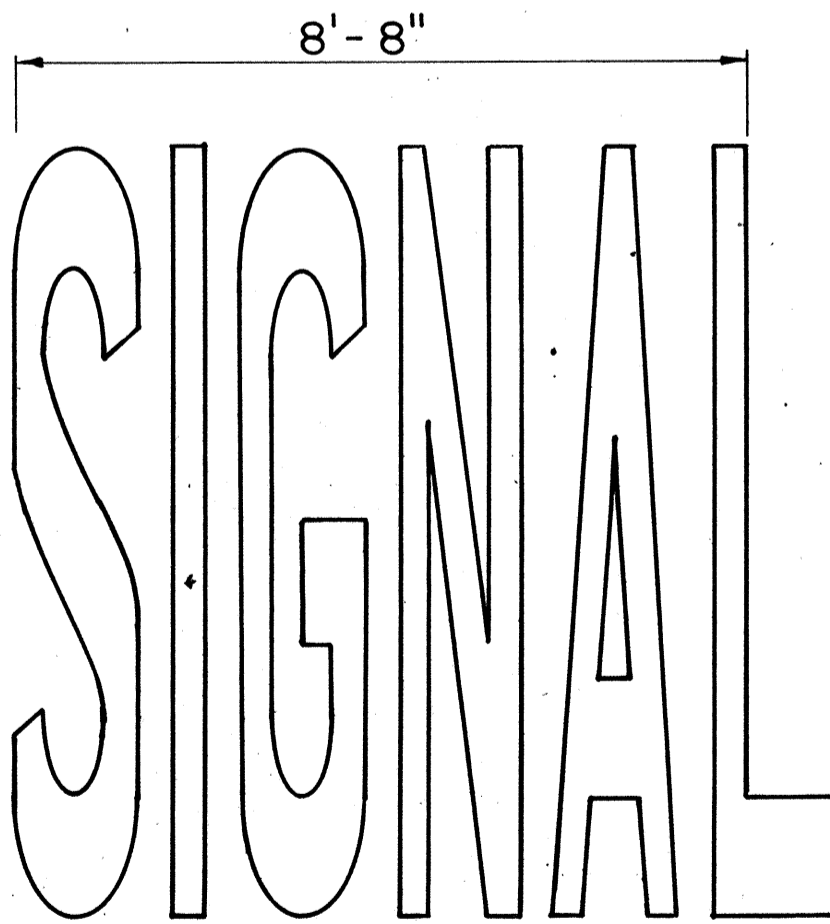
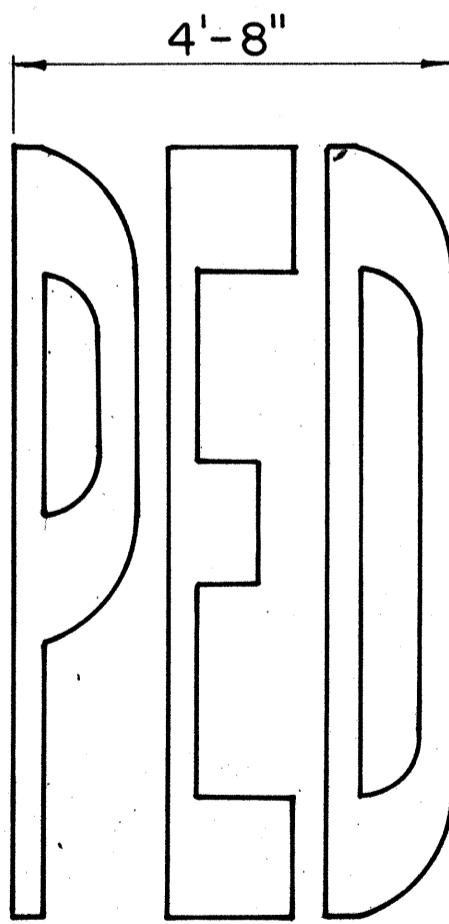
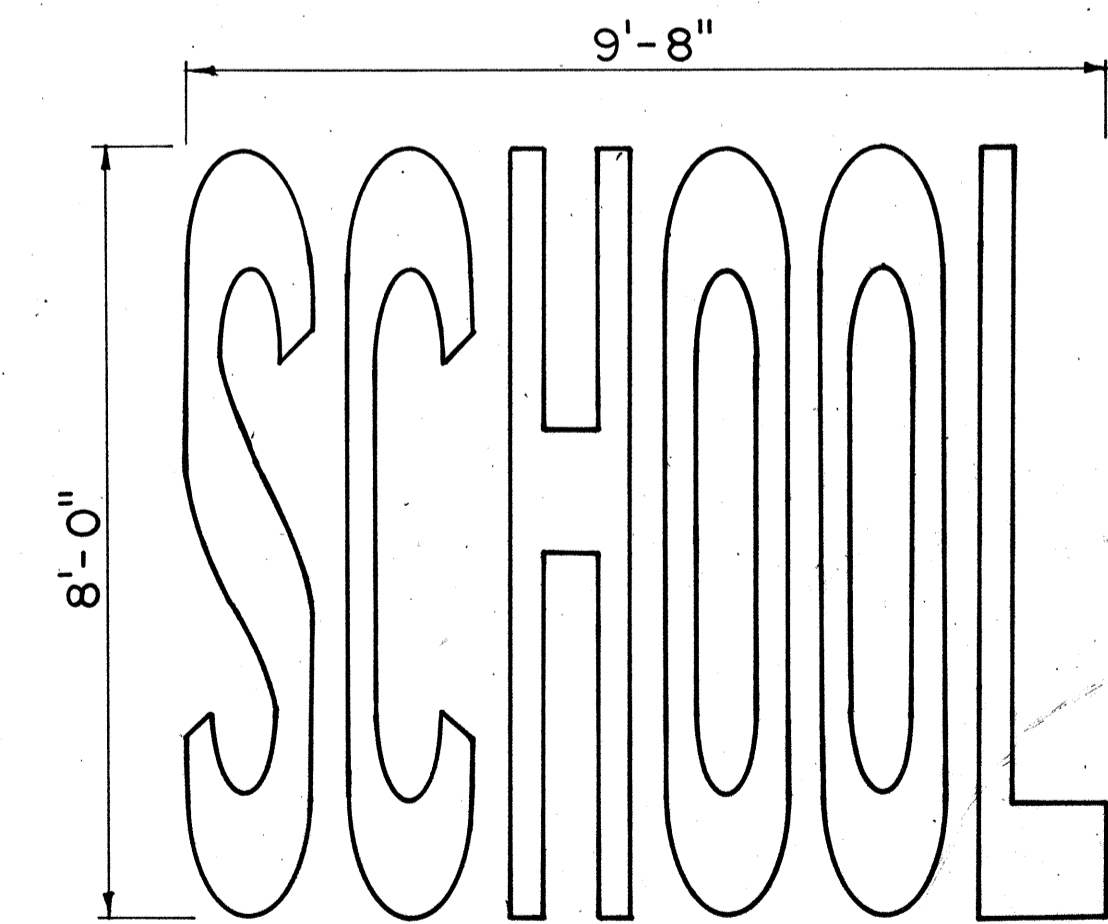
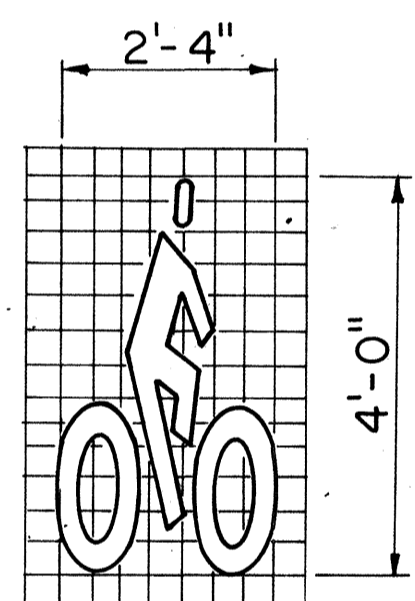
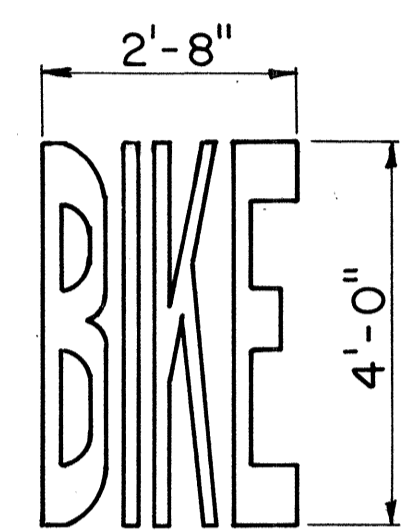
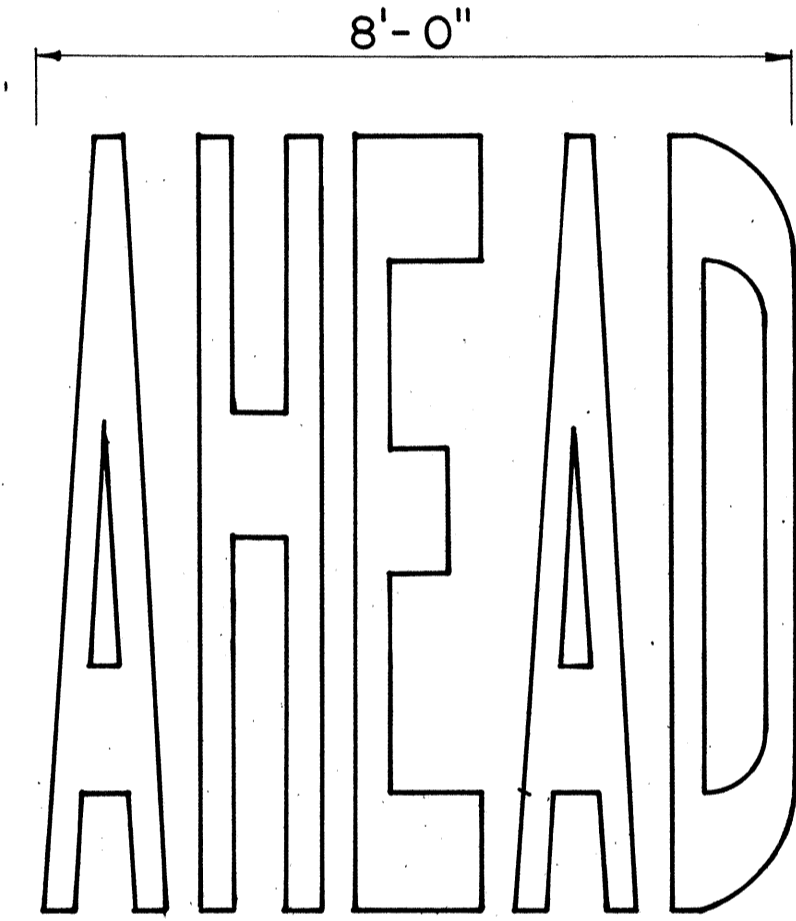
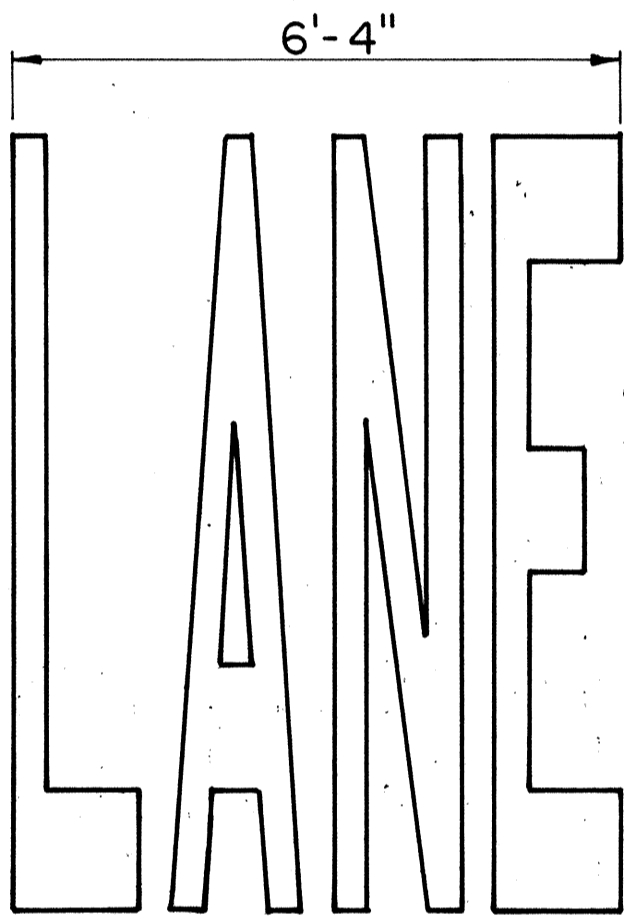
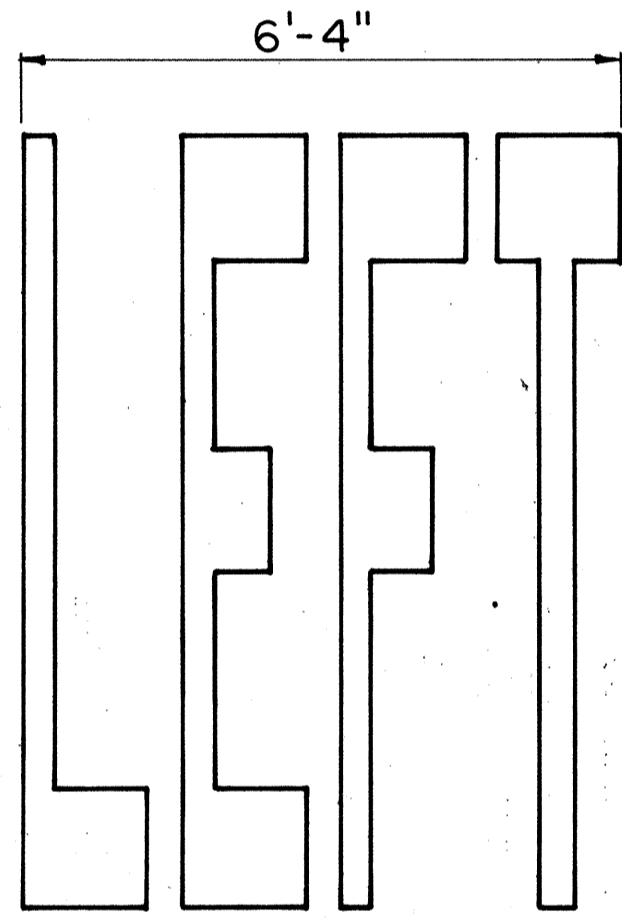
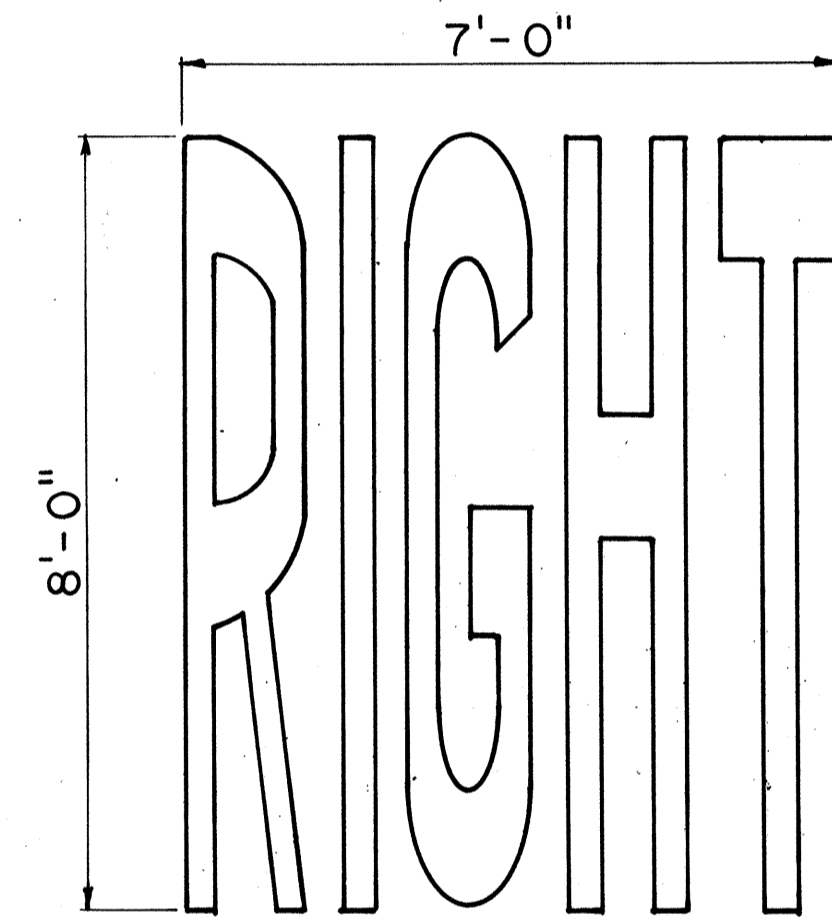
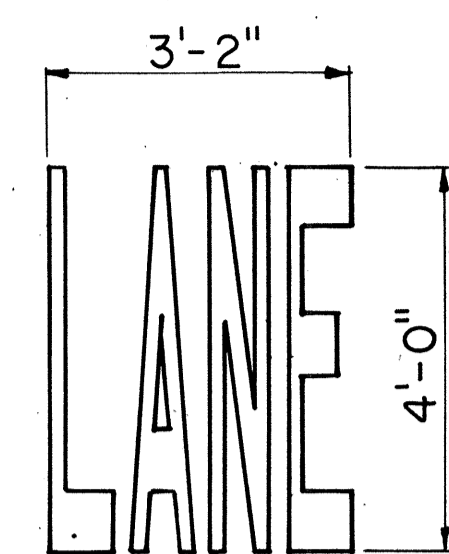
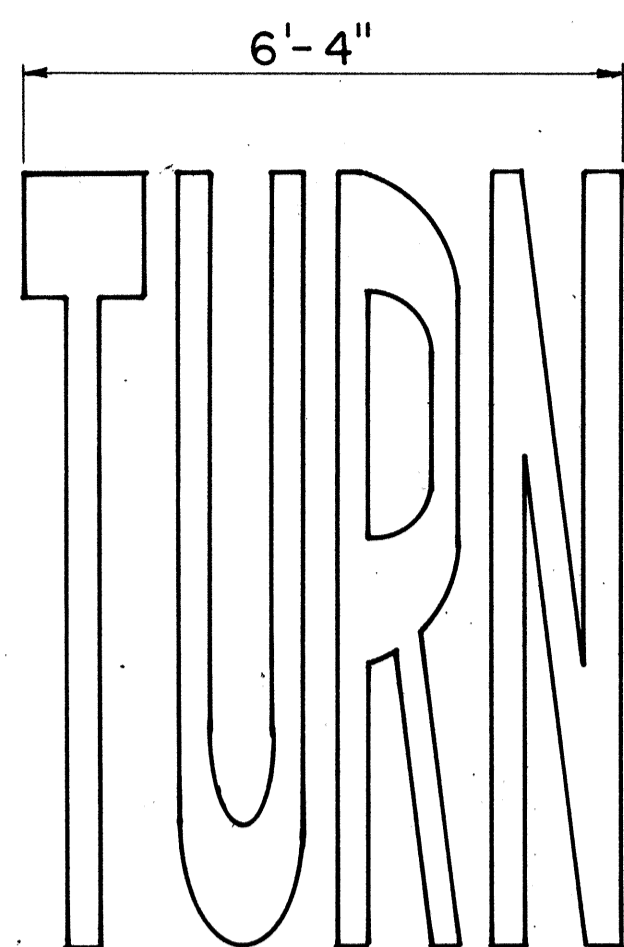
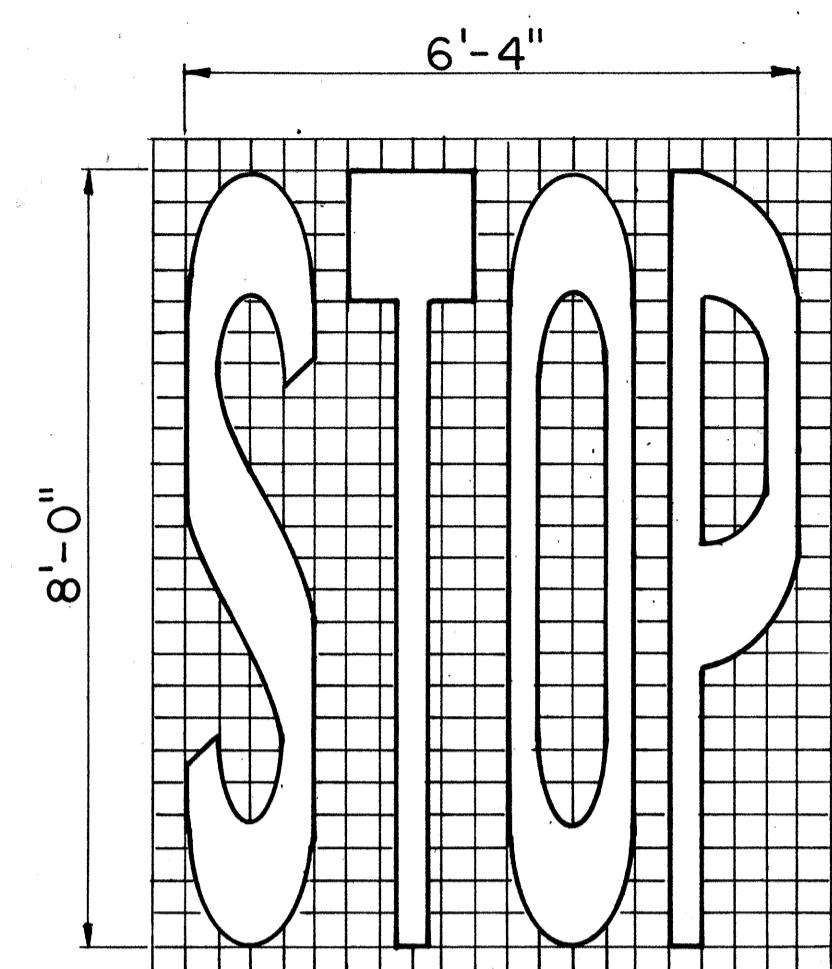
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

**PAVEMENT ALPHABETS,
NUMBERS & SYMBOLS**

Not to Scale
SHEET NO. 10 OF 20 SHEETS DT 307

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-PR-078-1(25)	1984	52	52



GENERAL NOTES

1. All messages not shown must be approved by the Engineer prior to installation.
2. The space between characters in a message shall be 1 grid unit unless otherwise shown or directed.
3. All pavement messages shall be white in color.

DATE	.....
SURVEY PLOTTED BY	.....
DRAWN BY	.....
TRACED BY	.....
QUANTITIES BY	.....
CHECKED BY	.....
NOTE PAGE	.....
No.	.....

APPROVAL RECOMMENDED:
Eiichi Tanaka
 TRAFFIC ENGINEER 1/28/83
 DATE

APPROVED:
J. Fujiyama
 ASSISTANT CHIEF, ENGINEERING 1-31-83
 DATE

NO.	REVISION	APPROVED BY	DATE

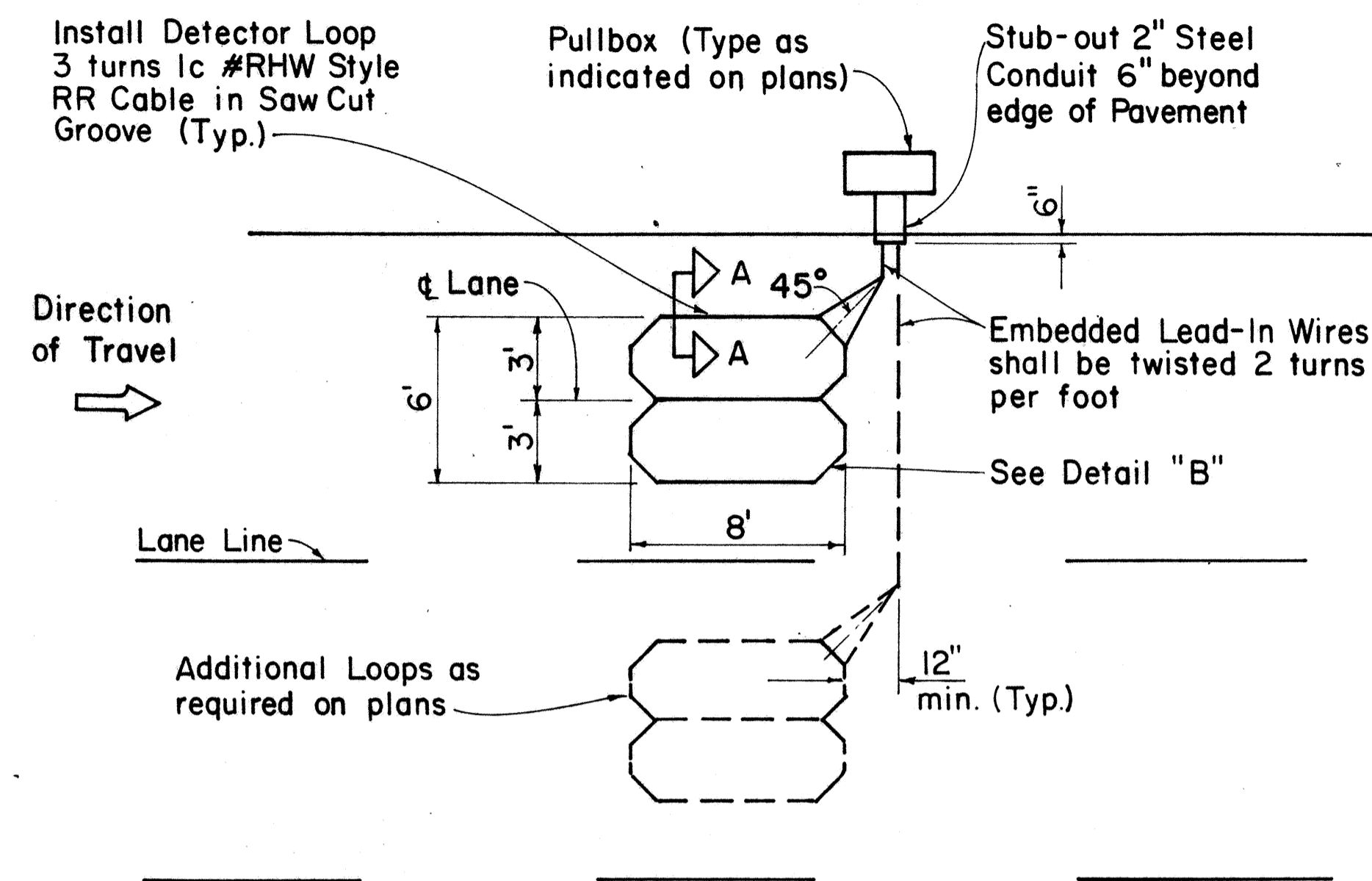
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS

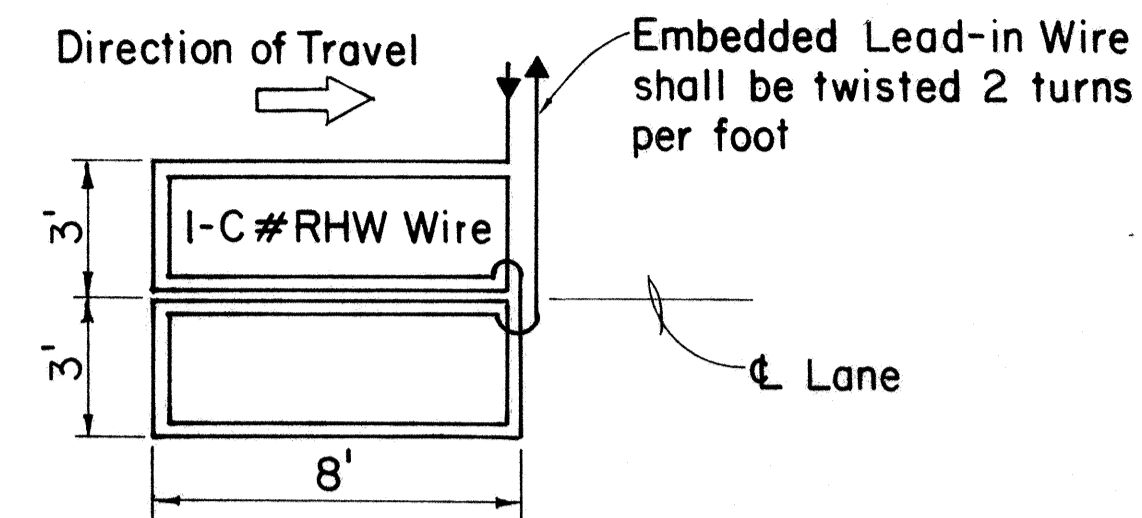
**PAVEMENT ALPHABETS,
 NUMBERS & SYMBOLS**

Not to Scale

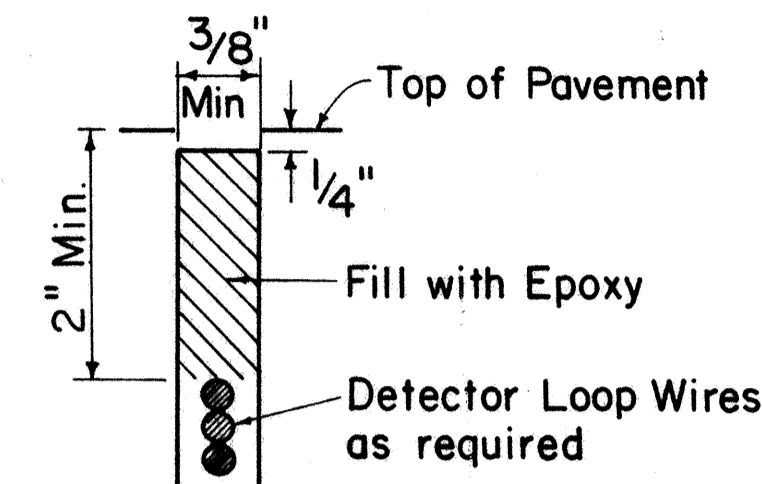
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-FR-07B-1(25)	1985	C052S-1	52



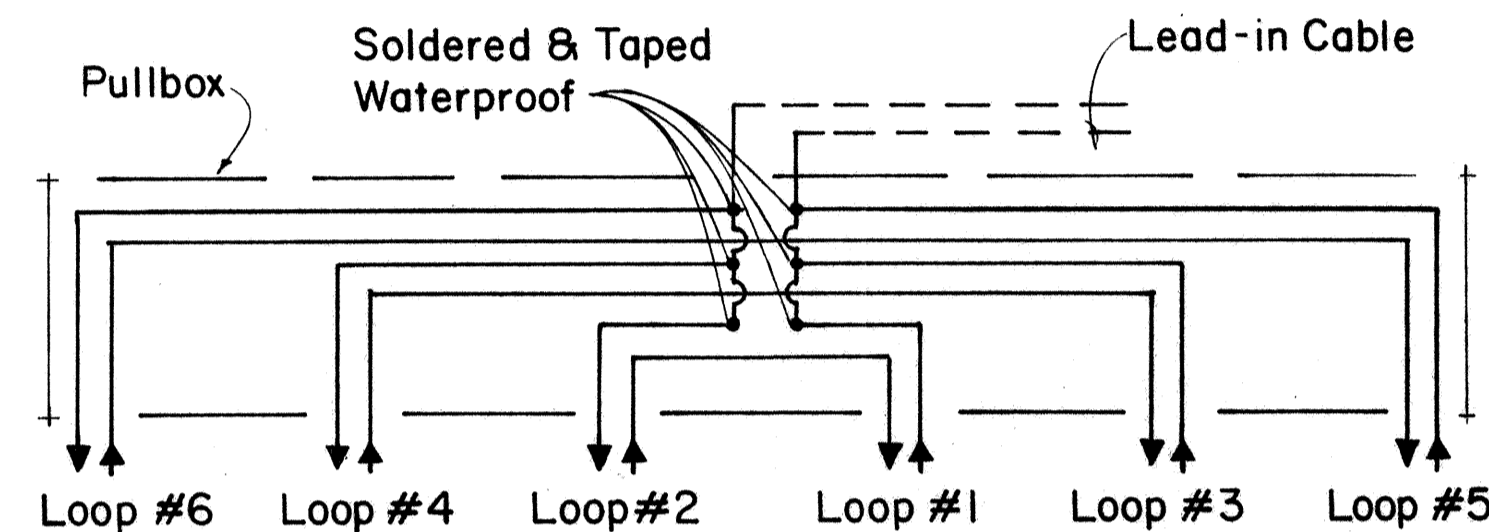
SINGLE LOOP LAYOUT



WIRING DIAGRAM

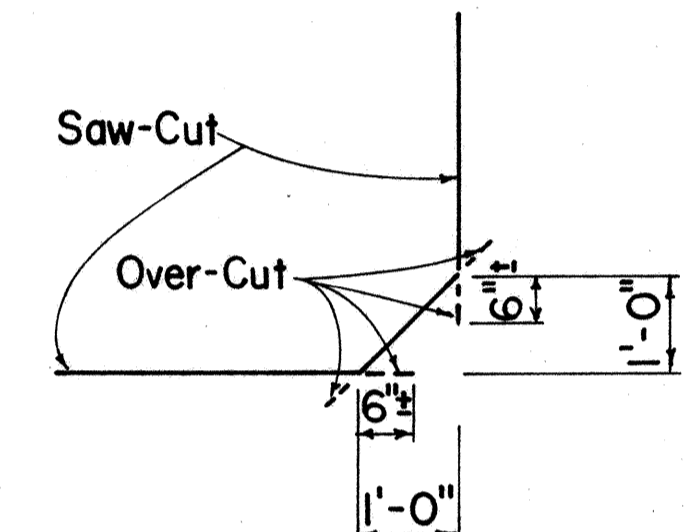


DETECTOR LOOP SAW-CUT SECTION A-A (TYPICAL)

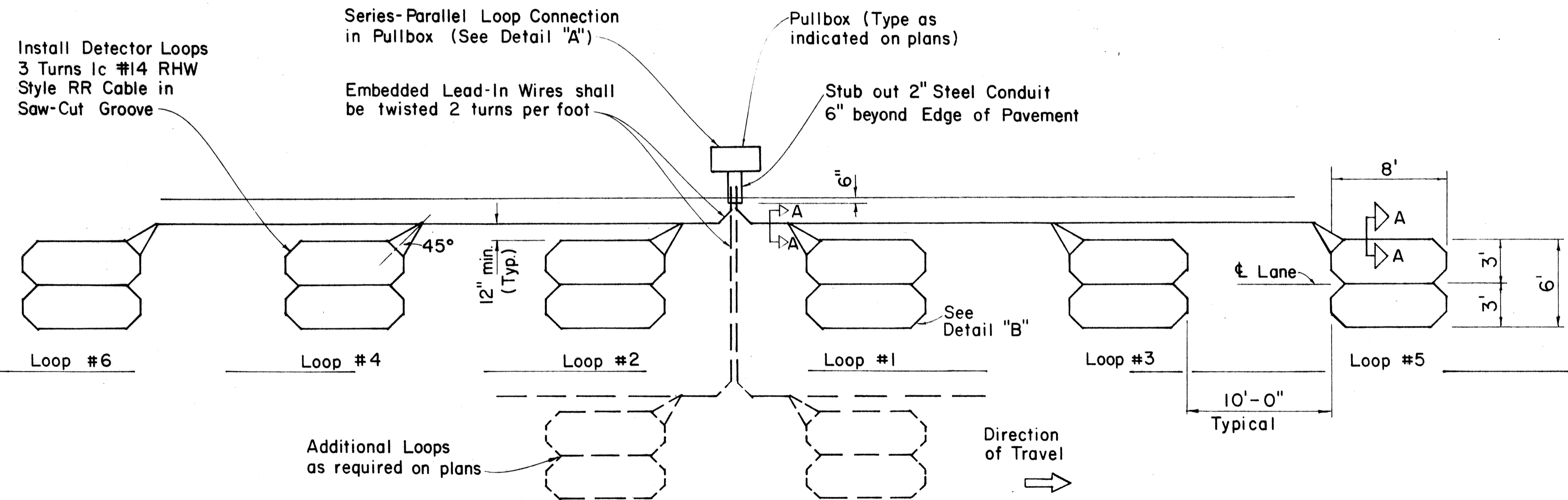


TYPICAL SERIES-PARALLEL LOOP CONNECTION

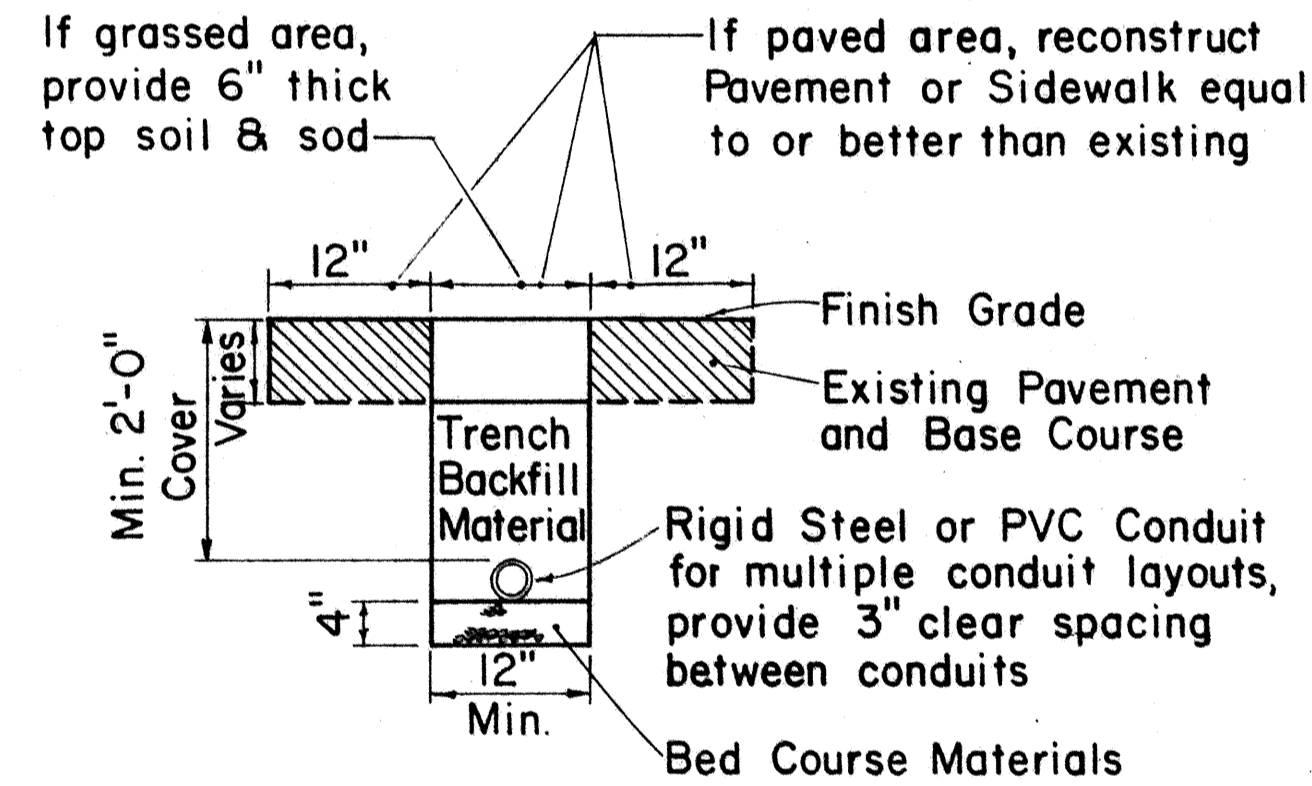
Note: Back-Fill Over-Cuts with Epoxy



DETAIL "B" SAW-CUT AT CORNERS



MULTIPLE LOOP LAYOUT



TYPICAL TRENCH SECTION FOR CONDUIT

NOTE:
1. All conduits under roadways shall be steel or PVC schedule 80. All other conduits shall be steel or PVC schedule 40.

APPROVAL RECOMMENDED:
Eiichi Tanaka 9/26/80
TRAFFIC ENGINEER DATE

APPROVED:
Shabur Safaishi 9/30/80
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Replaces Sht. DT 405 dated 3/5/76	H.I.	9/30/80
2	Revised Section A-A	H.I.	5/15/81

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

LOOP DETECTORS

Not to Scale

SHEET NO. 20A OF 20 SHEETS DT 405

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