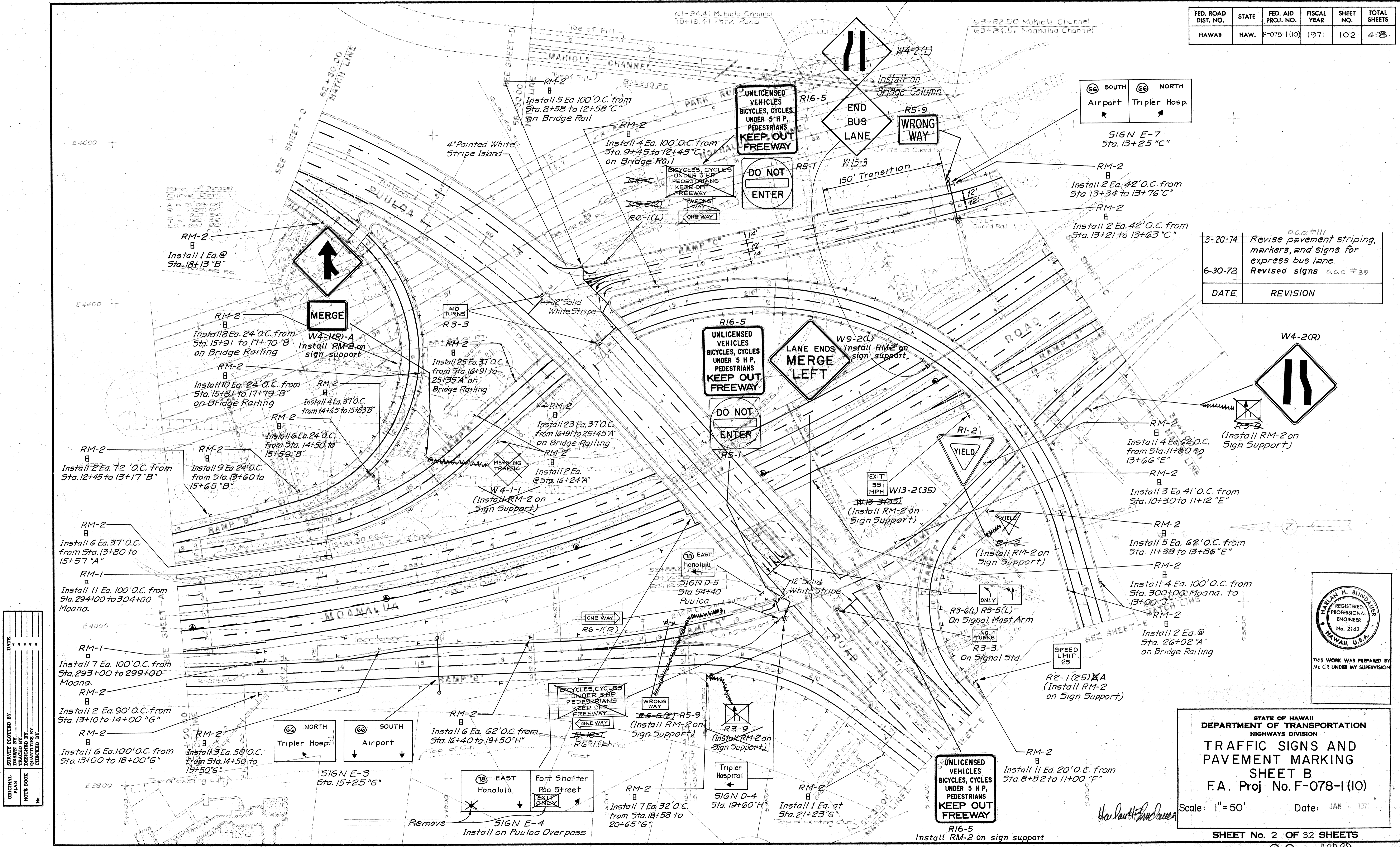
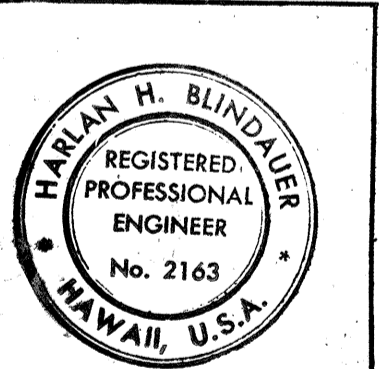


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	102	418



DATE	REVISION
3-20-74	Revise pavement striping, markers, and signs for express bus lane. c.c.o.#111
6-30-72	Revised signs c.c.o.#89



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNS AND PAVEMENT MARKING
SHEET B
F.A. Proj No. F-078-1(10)

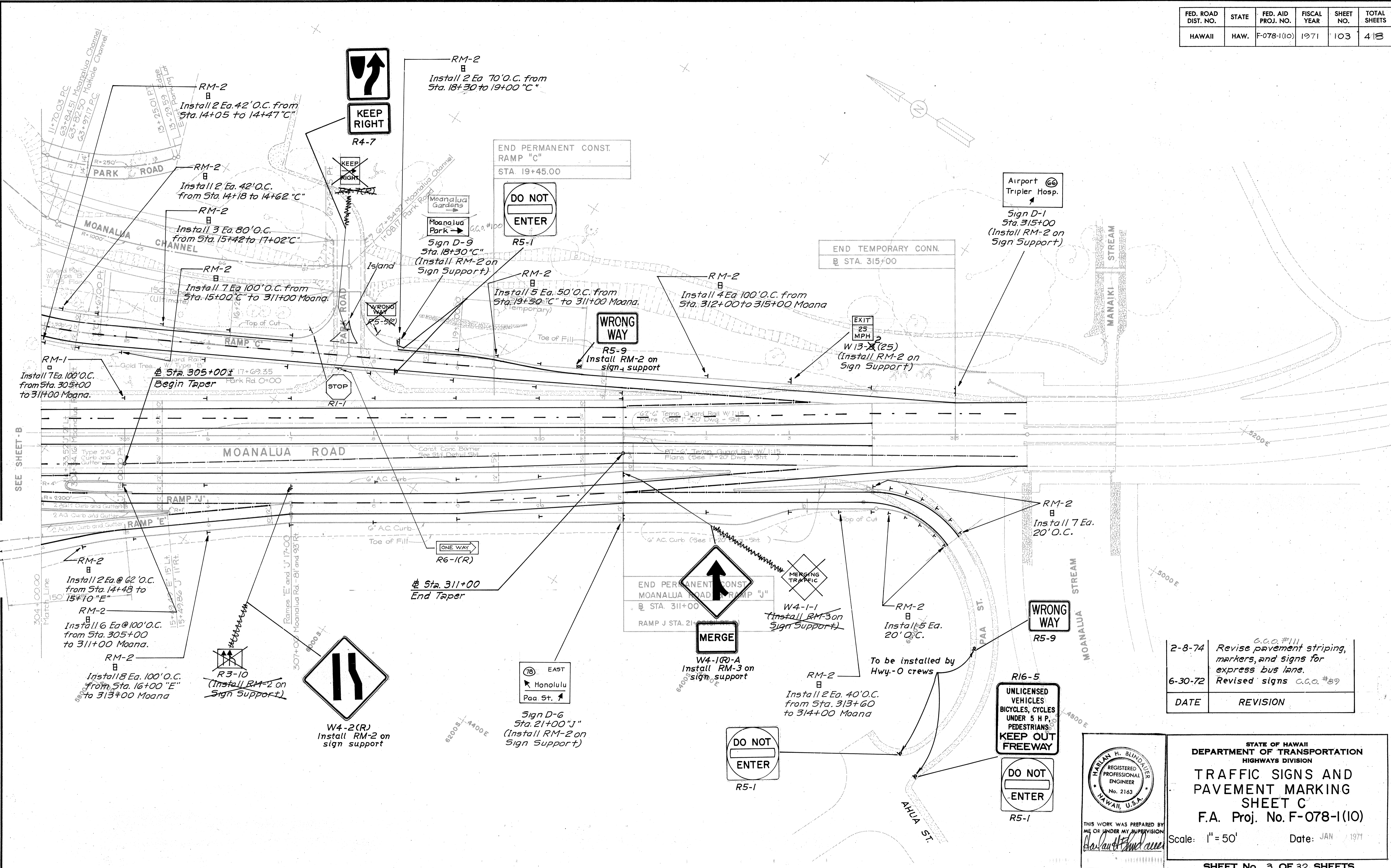
Scale: 1" = 50' Date: JAN 1971

SHEET No. 2 OF 32 SHEETS

C.O. 102

DATE	BY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	103	418



DATE	_____
SURVEY PLATTED BY	_____
DRAWN BY	_____
TRACED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
NO.	_____

DATE	REVISION
2-8-74	Revise pavement striping, markers, and signs for express bus lane. c.c.o. #111
6-30-72	Revised signs c.c.o. #89

HARLAN H. BLINDAUER
REGISTERED PROFESSIONAL ENGINEER
No. 2163
HAWAII, U.S.A.

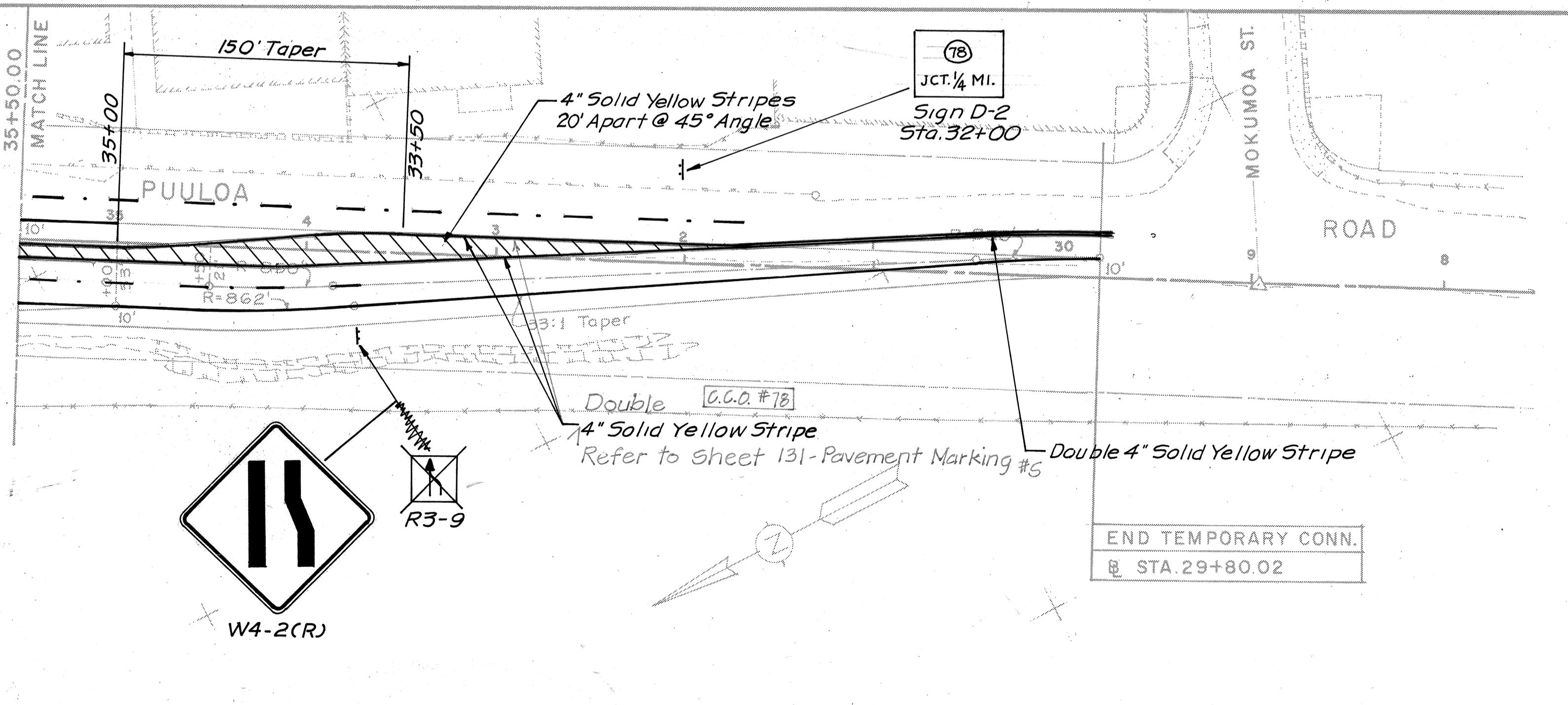
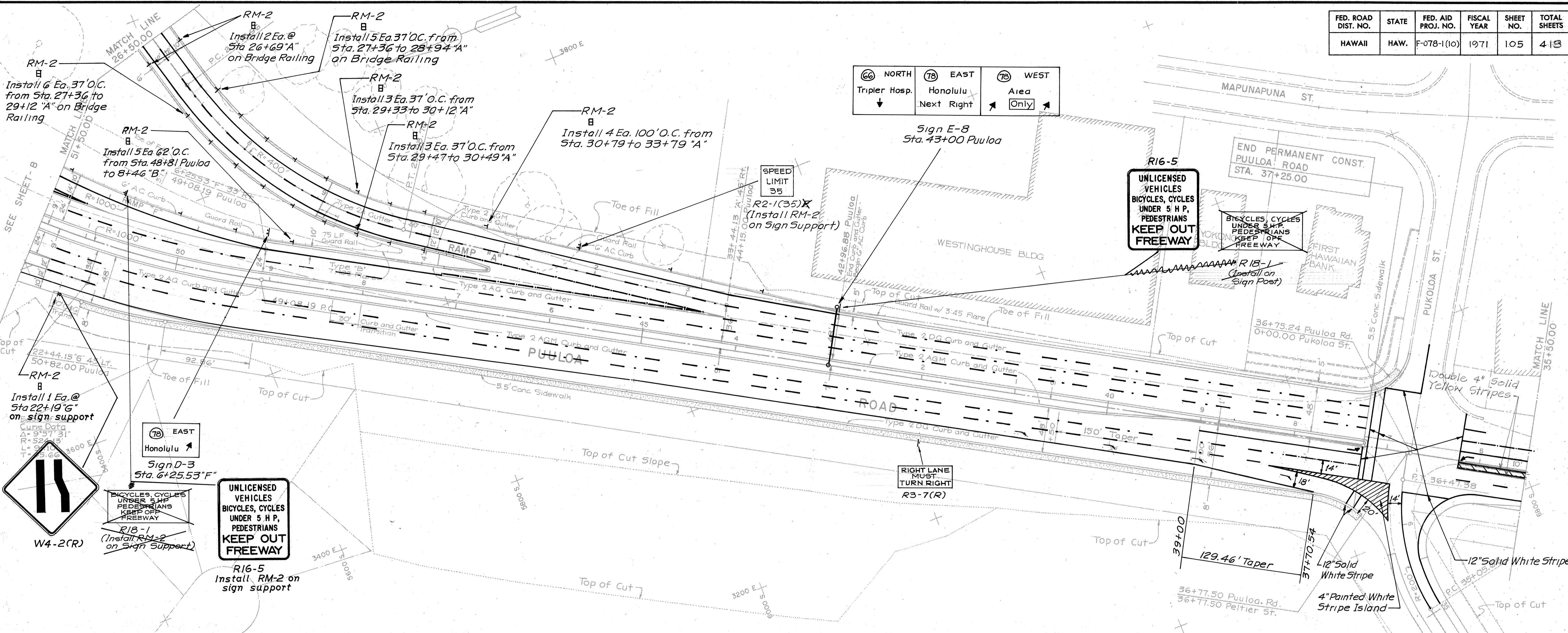
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Harlan H. Blindauer

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNS AND PAVEMENT MARKING
SHEET C
F.A. Proj. No. F-078-1(10)

Scale: 1" = 50' Date: JAN 1971

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	105	413



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

DATE	REVISION
6-30-72	Revised signs C.C.O. #39

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Harlan H. Blindauer

DANIEL, MANN, JOHNSON, & MENDENHALL OF HAWAII
WARD PLAZA • 210 WARD AVENUE • HONOLULU, HAWAII 96814

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

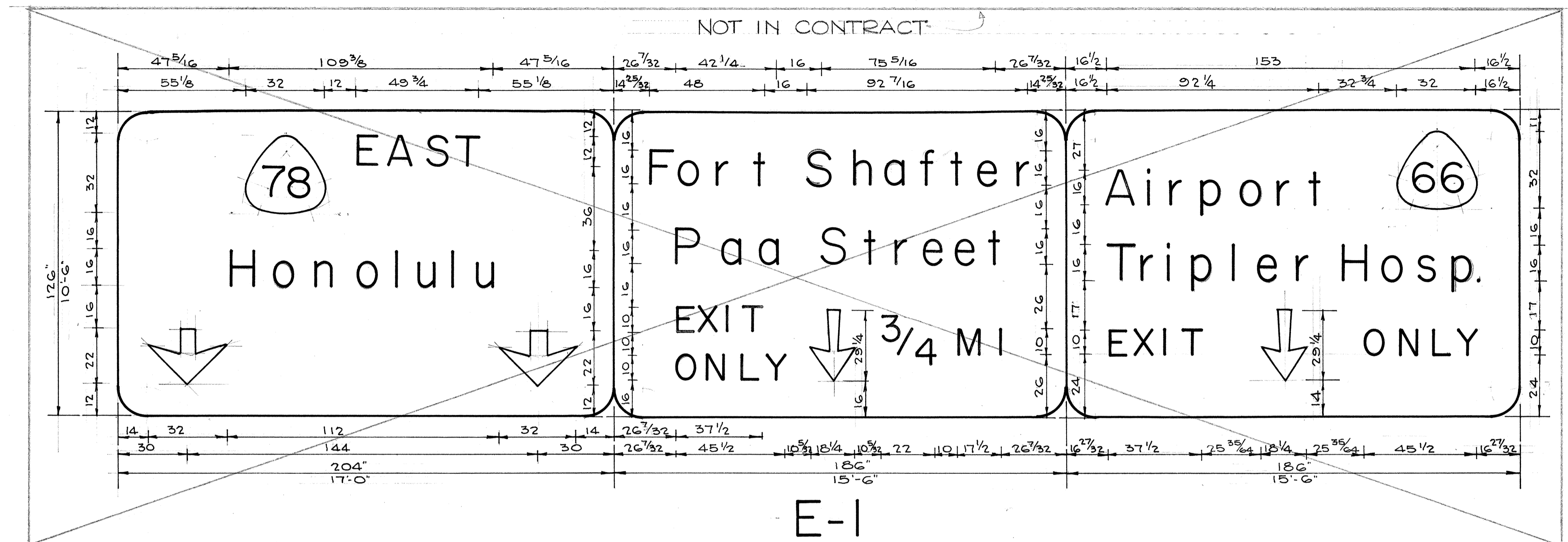
TRAFFIC SIGNS AND PAVEMENT MARKING
SHEET E
F.A. Proj. No. F-078-1(10)

Scale: 1" = 50' Date: JAN 1971

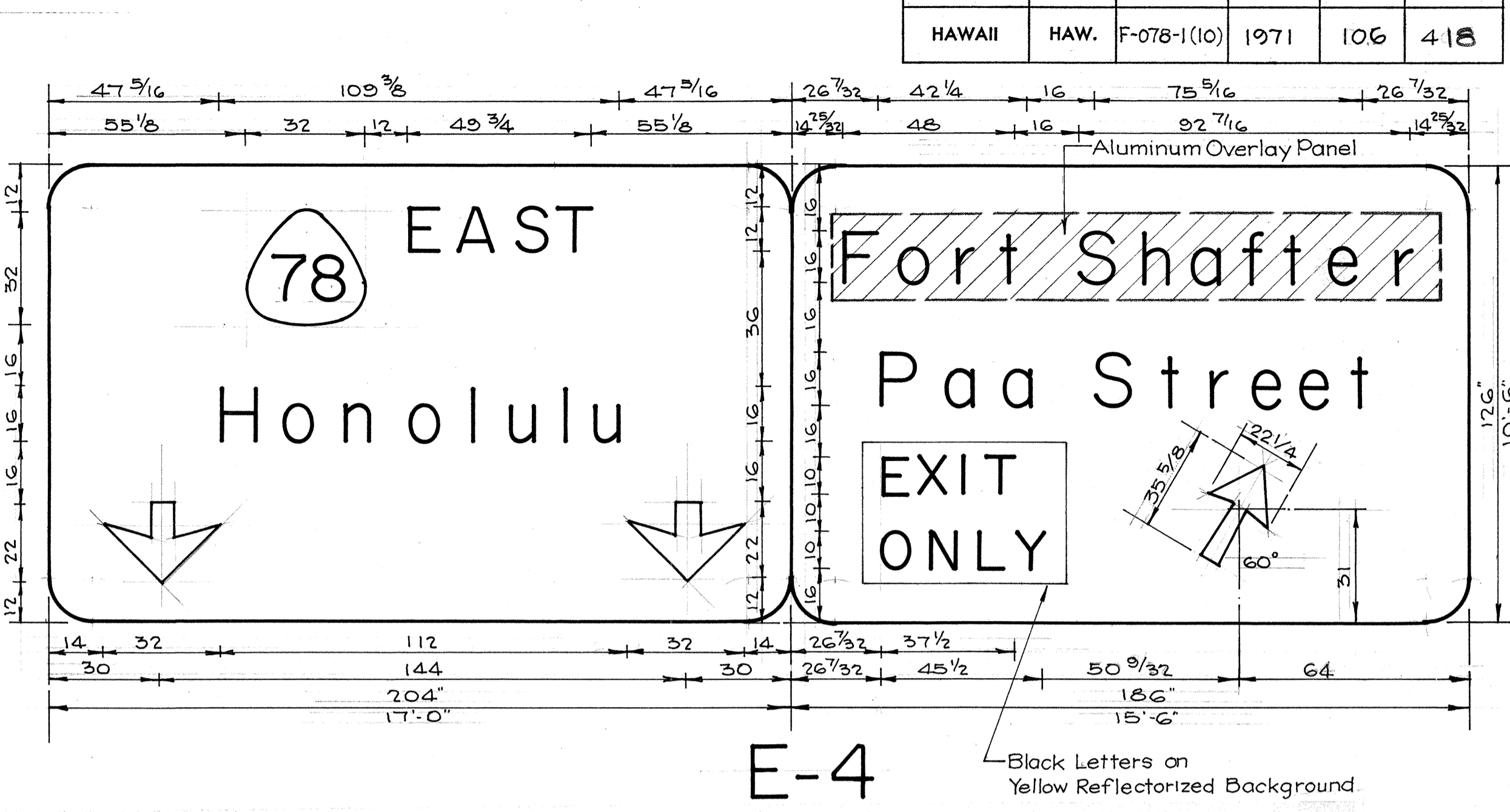
SHEET No. 5 OF 32 SHEETS

C.O. 105

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	106	418



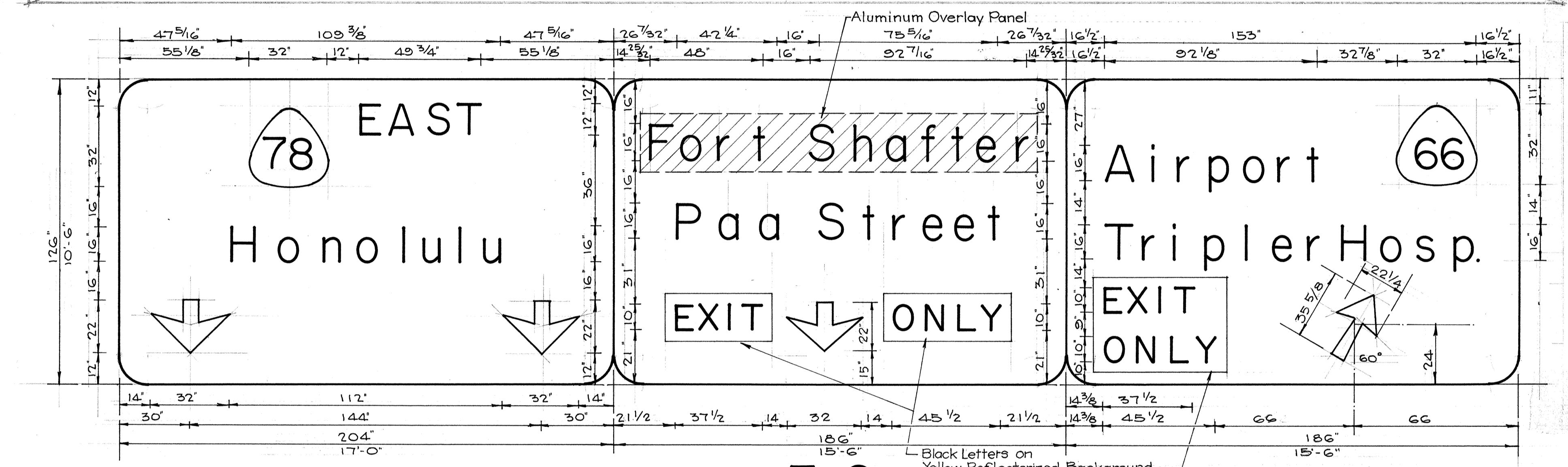
E-1



E-4

Black Letters on Yellow Reflectorized Background

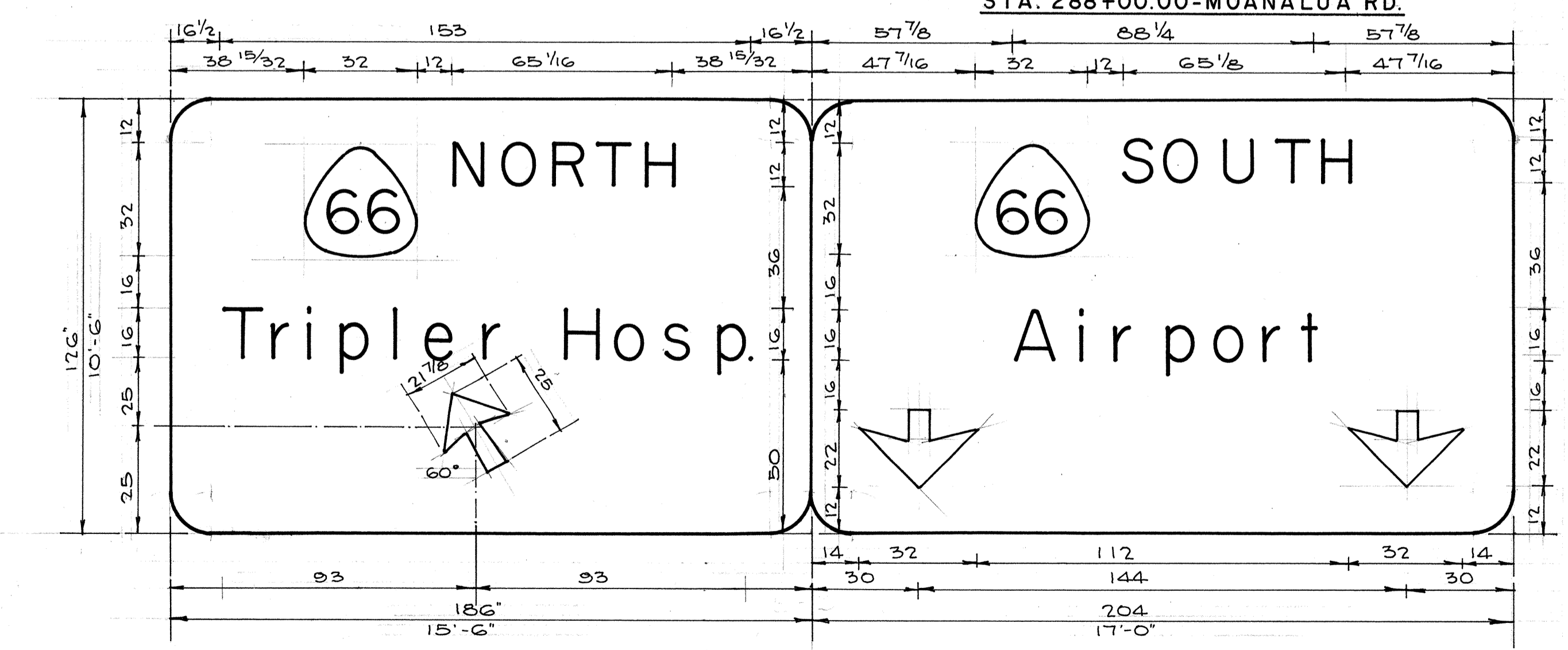
STA. 298+50± - MOANALUA ROAD
(Mount on Puuloa Overpass)



E-2

Black Letters on Yellow Reflectorized Background

STA. 288+00.00 - MOANALUA RD.

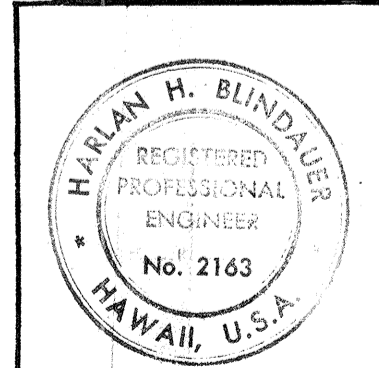


E-3

STA. 15+25.00 - RAMP "G"

SUMMARY OF E-SIGNS		
Sign No.	Message	Area (Sq. Ft.)
E-2	Honolulu, Paa, Airport, Tripler	504.00
E-3	Tripler, Airport	341.25
E-4	Honolulu, Paa	341.25
E-7	Airport, Tripler	288.75
E-8	Tripler, Honolulu, Area	450.00
Total		1925.25

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



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Hanlan H. Blindlies

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

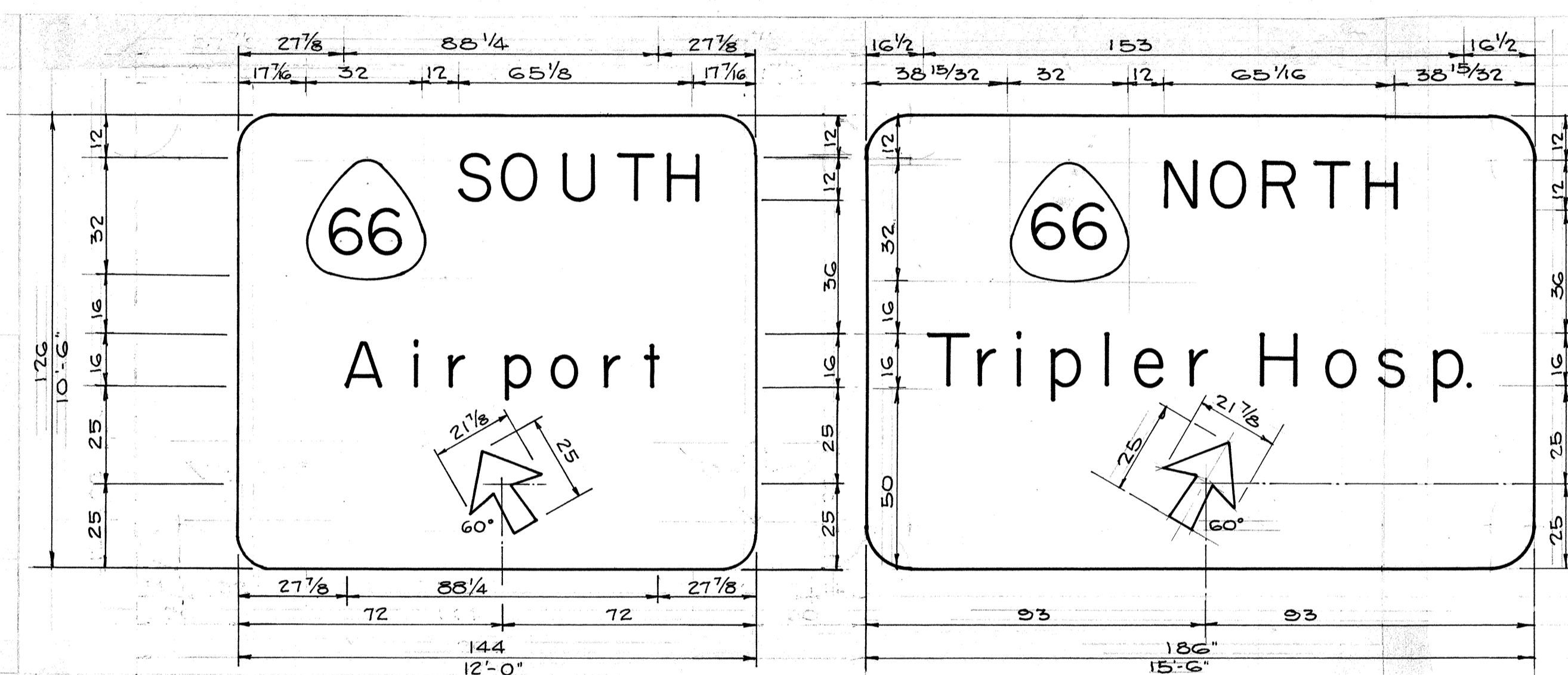
E-PANEL LAYOUT

F.A. Proj No. F-078-1(10)
Scale: 1" = 32" Date: JAN 1971

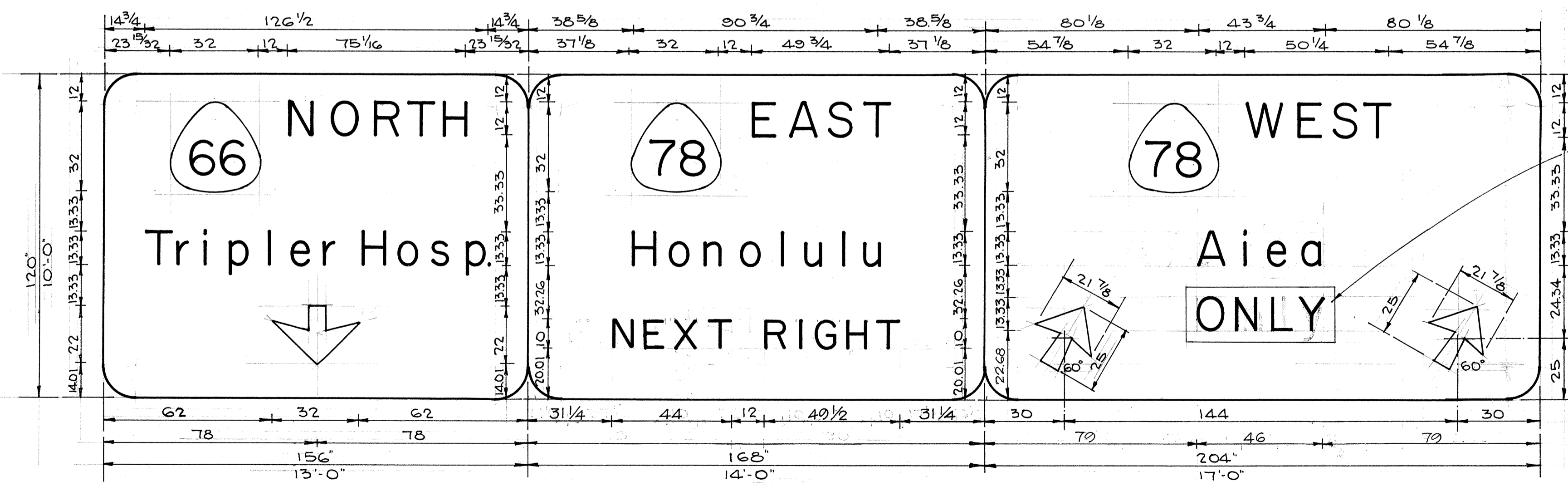
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	107	418

GENERAL NOTES

1. Sign message shall be lettered in upper case according to Standard Alphabets for Highway Signs; Bureau of Public Roads, 1952, and lower case according to Standard Lower Case Alphabets for Highway Signs; Bureau of Public Roads, 1962. Use Series E modified letters unless otherwise noted.
2. Arrows, borders and route markers shall conform with details as shown on plans.
3. Letters, numerals, symbols and borders shall be demountable aluminum cutouts with white reflective sheeting or clear reflex reflectors, and shall be fastened on the sign panel with blind rivets. See Special Provisions.
4. Destination Signs (D) shall have white reflective sheeting on aluminum cutout on green reflective sheeting background.
5. Expressway Signs (E) shall either white reflective sheeting on aluminum cut-out or clear reflex reflectors set in white porcelain enameled aluminum cut-outs. Background for the expressway signs shall be green porcelain enamel.
6. Overlay panels shall be aluminum sheeting 0.063" thick covered with green porcelain enamel.



E-7
STA. 13+25.00 RAMP "C"



E-8
STA. 43+00.00 - PUULOA RD.

Black Letters on
Yellow ReflectORIZED
Background

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

HIRSHAN H. BLINDLIER
REGISTERED
PROFESSIONAL
ENGINEER
No. 2163
HAWAII, U.S.A.

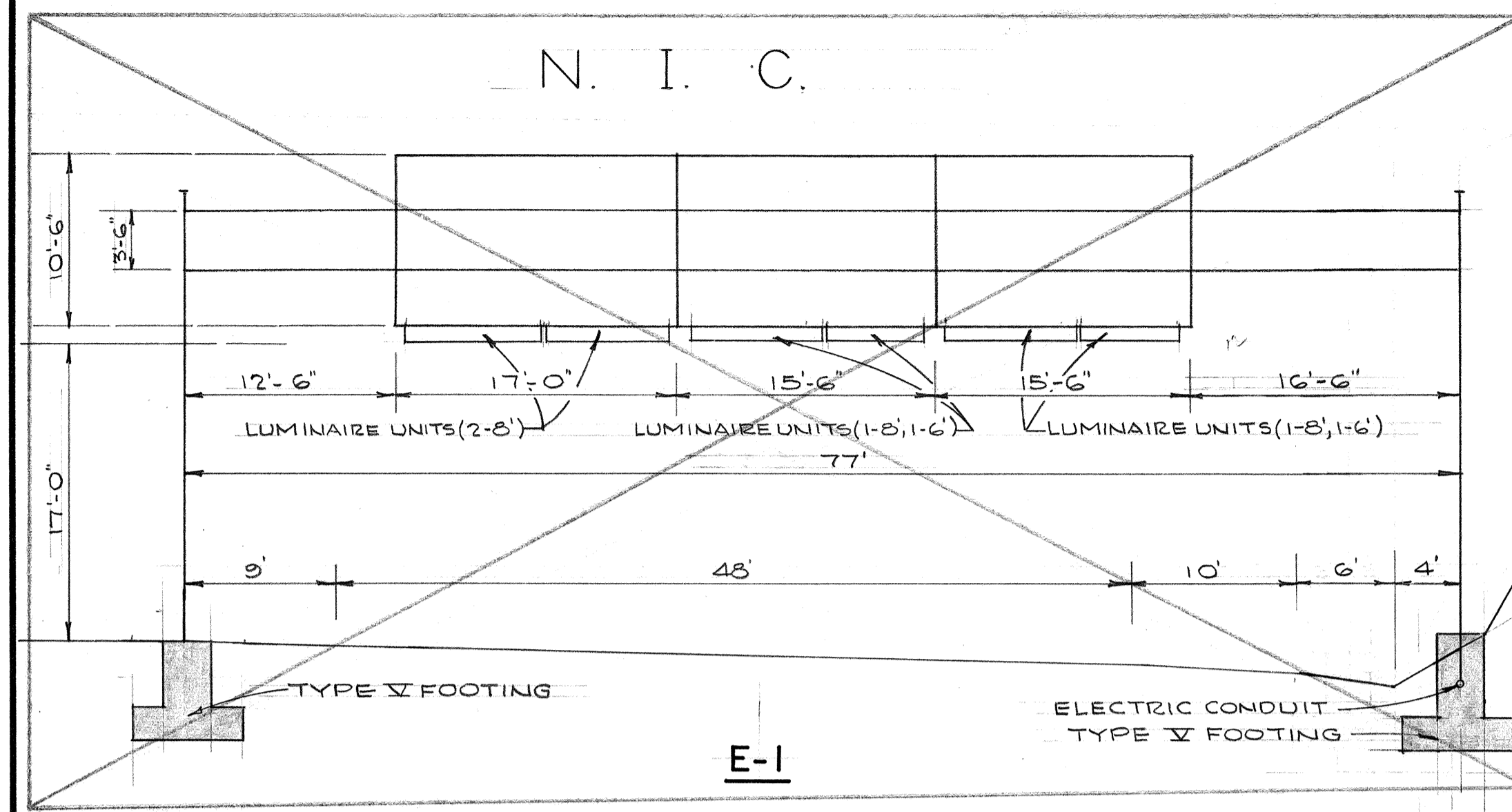
THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION
Hirshan H. Blindlier

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

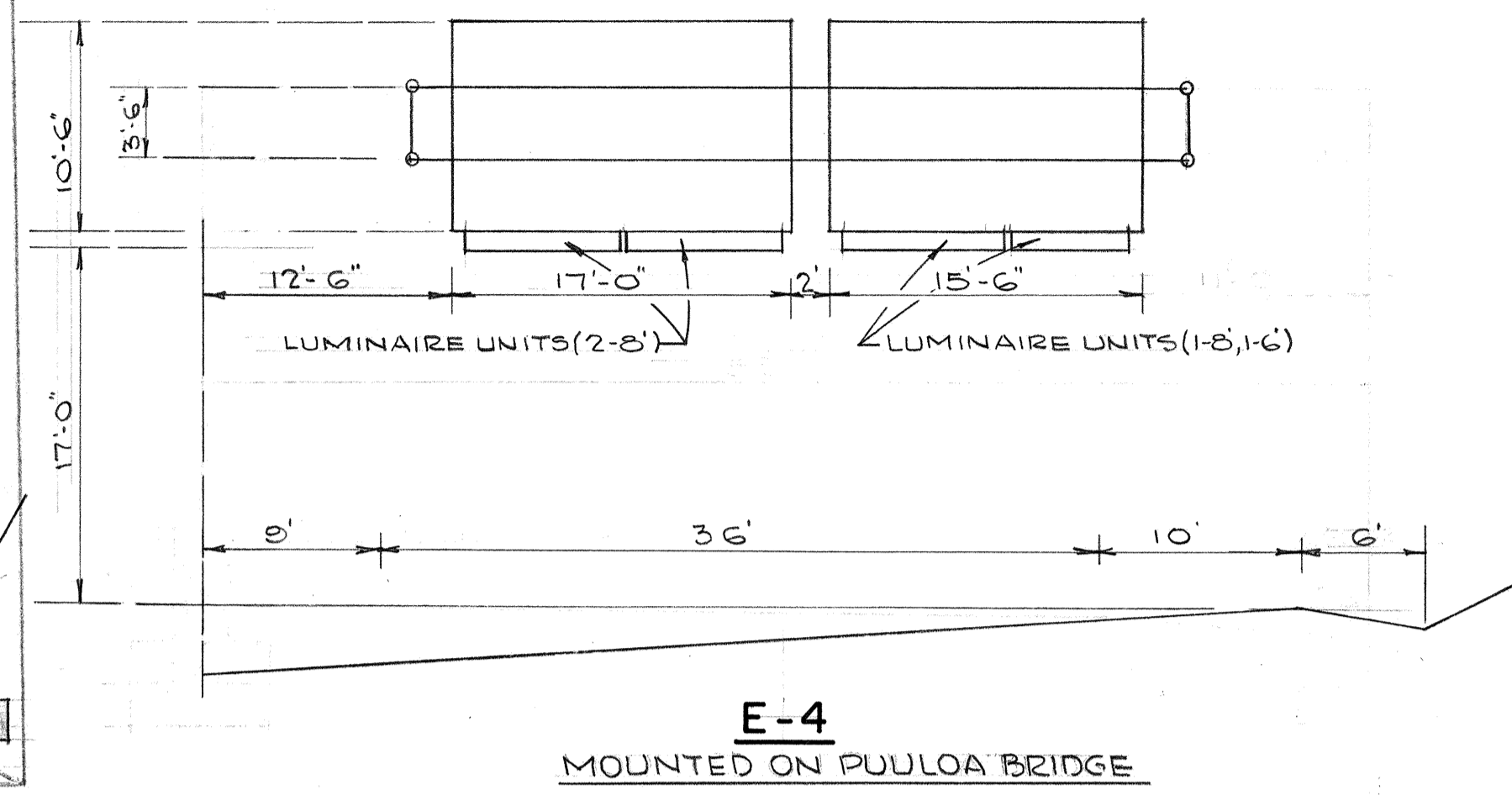
E-PANEL LAYOUT

F.A. Proj No. F-078-1(10)
Scale: 1" = 32" Date: JAN 1971

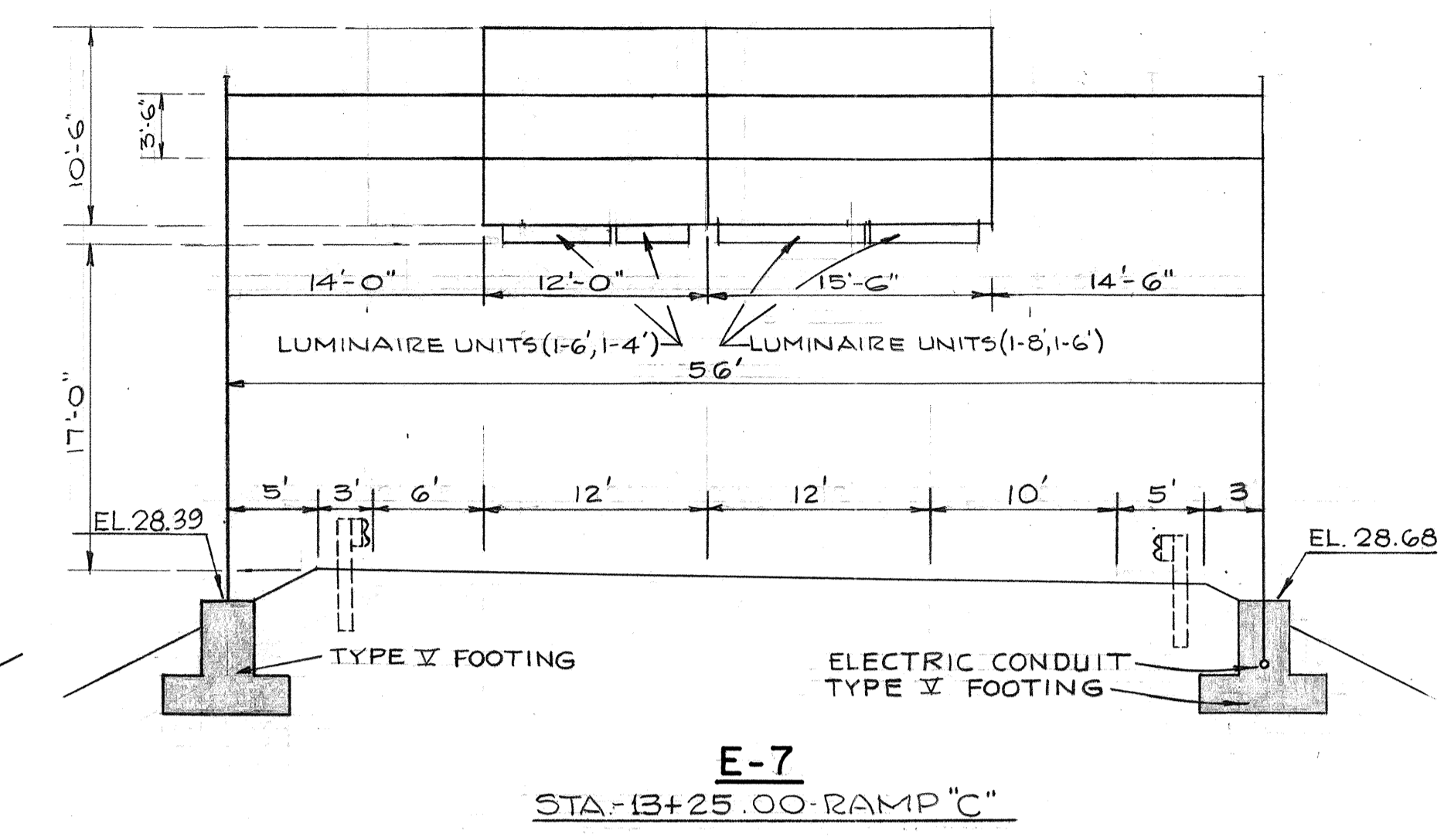
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	109	418



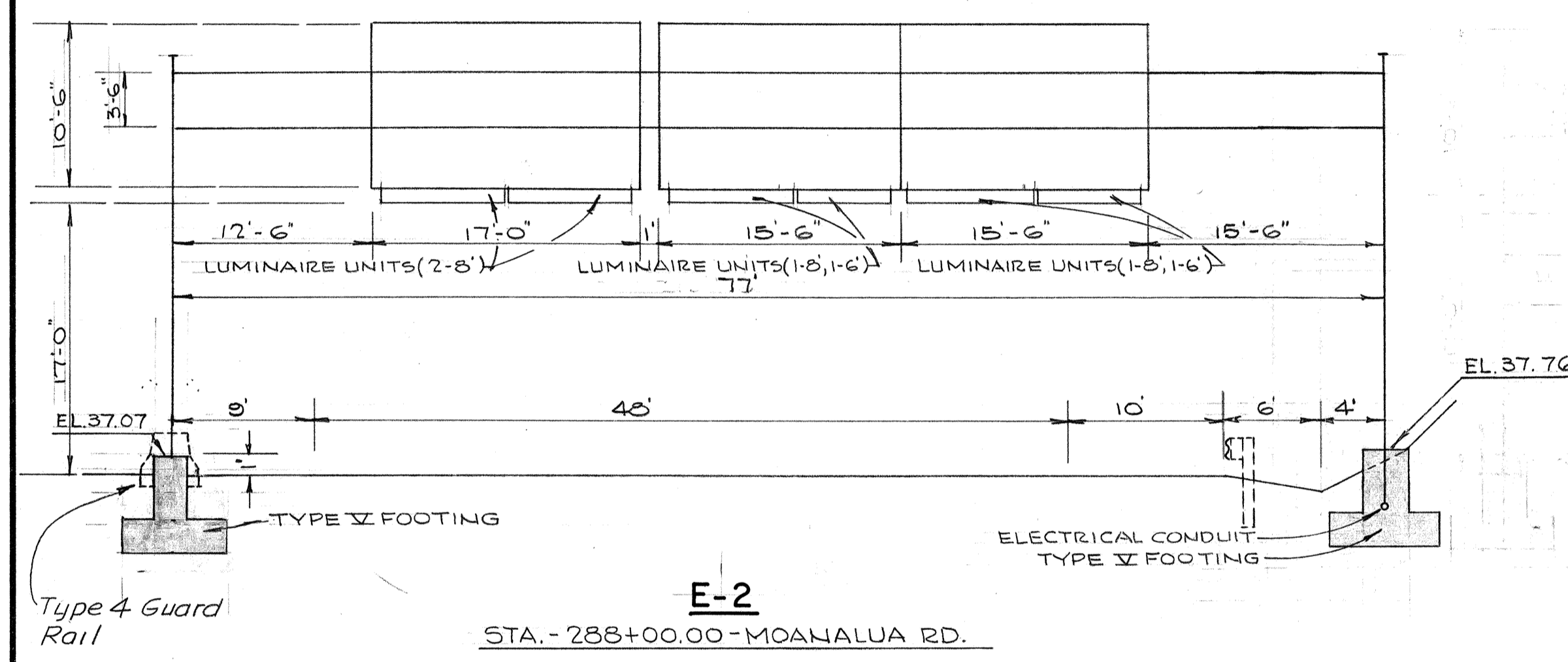
E-1



E-4
MOUNTED ON PUULO'A BRIDGE

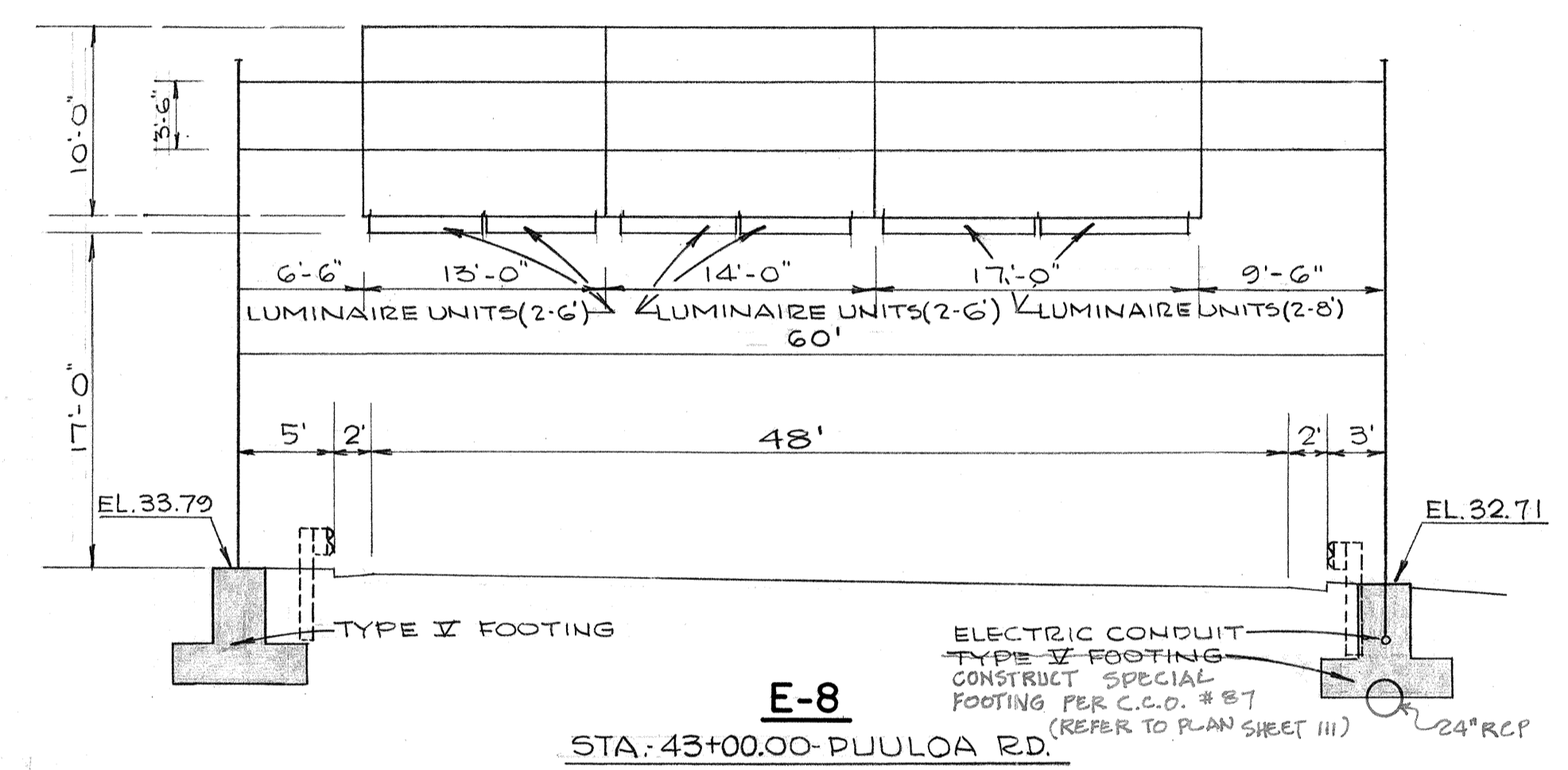


E-7
STA-13+25.00-RAMP "C"



E-2

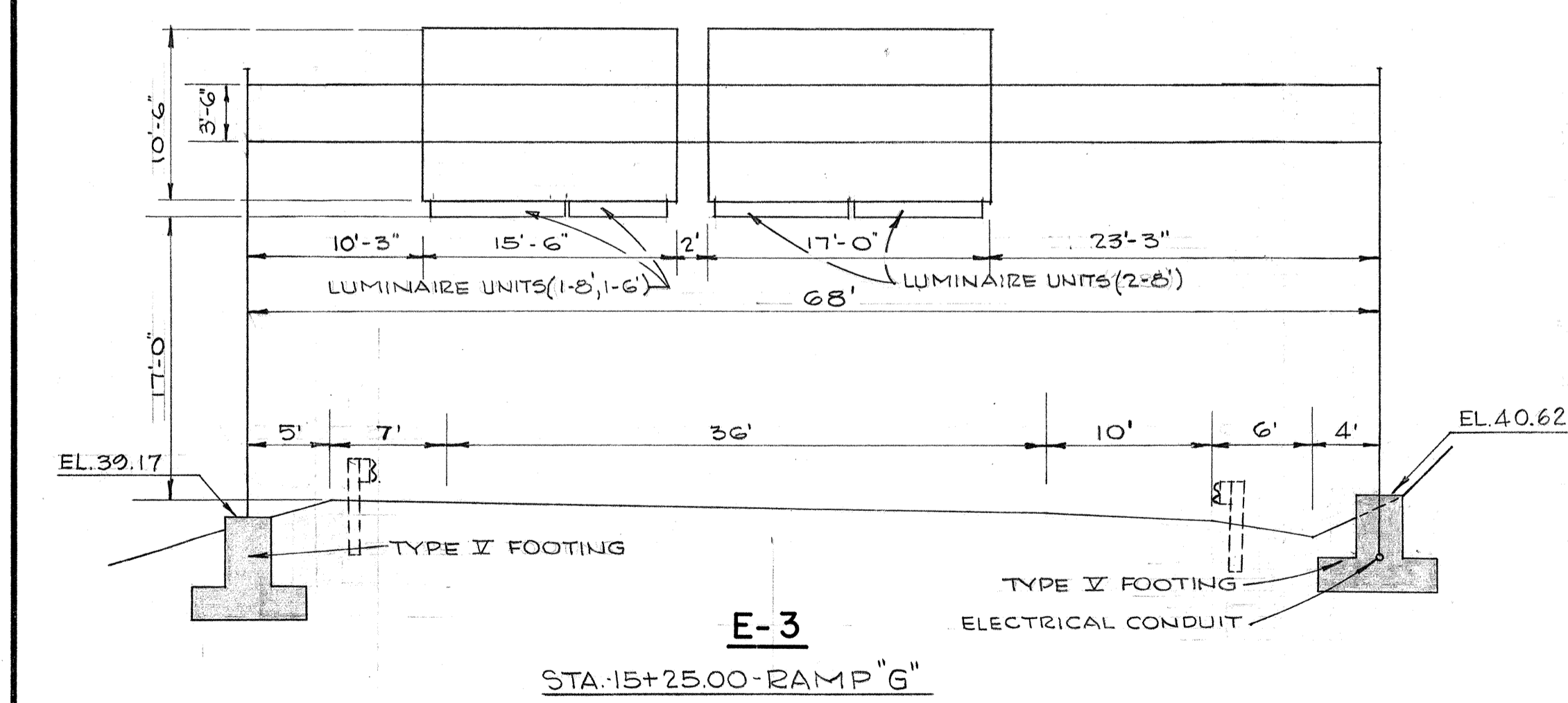
STA-288+00.00-MOANALUA RD.



E-8

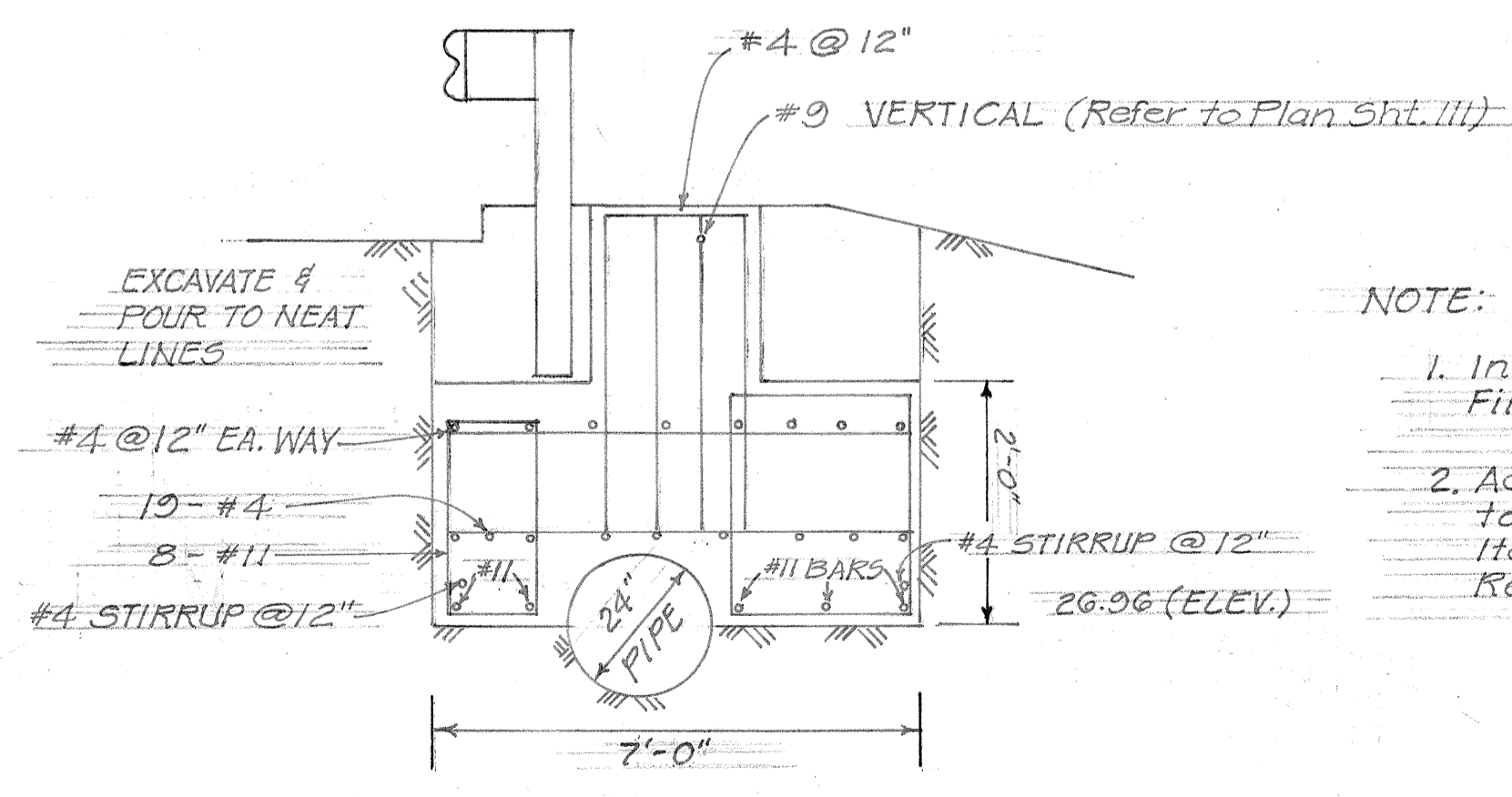
STA-43+00.00-PUULO'A RD.

NOTE:
Signs are shown in direction of travel regardless of stationing.



E-3

STA-15+25.00-RAMP "G"



E-8

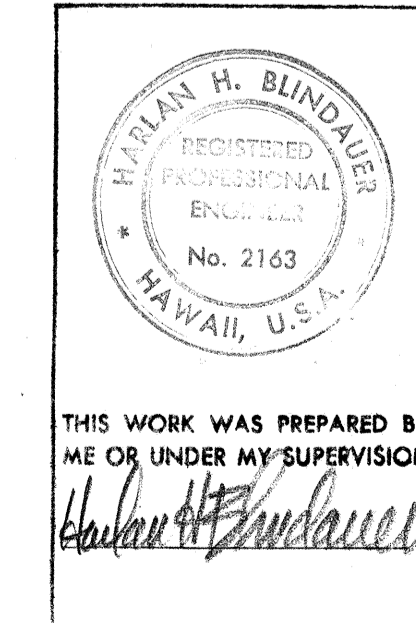
FIG. AT PUULO'A RD. STA. 43+00

- NOTE:
1. Install 1/2" Premolded Joint Filler over Top Half of Pipe.
 2. Additional Steel & Concrete to be Paid under Contract Item Nos. 602.101 & 603.001 Respectively.

F-U-078-1(10)
PUULO'A INTERCHANGE

C.C.O. #87
9-11-73

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



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

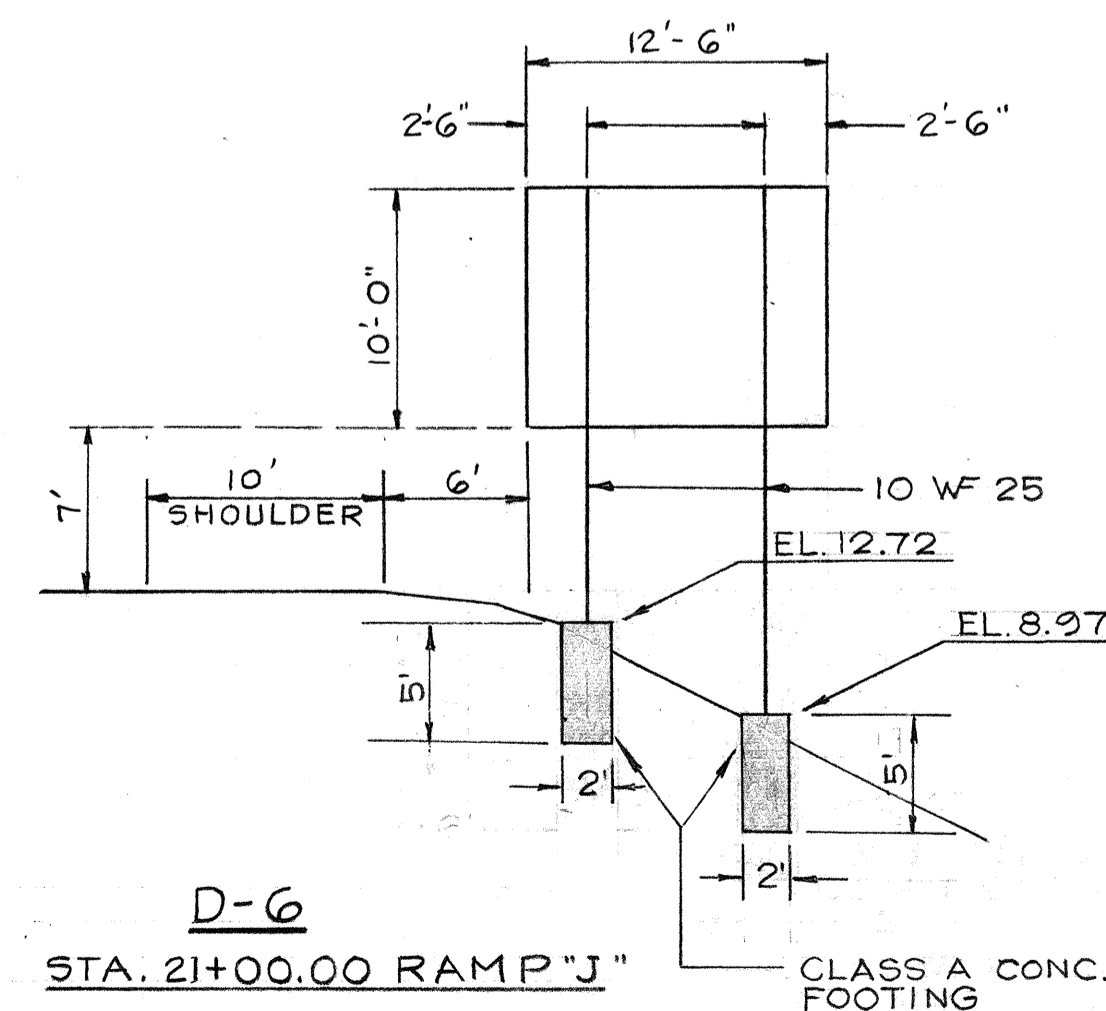
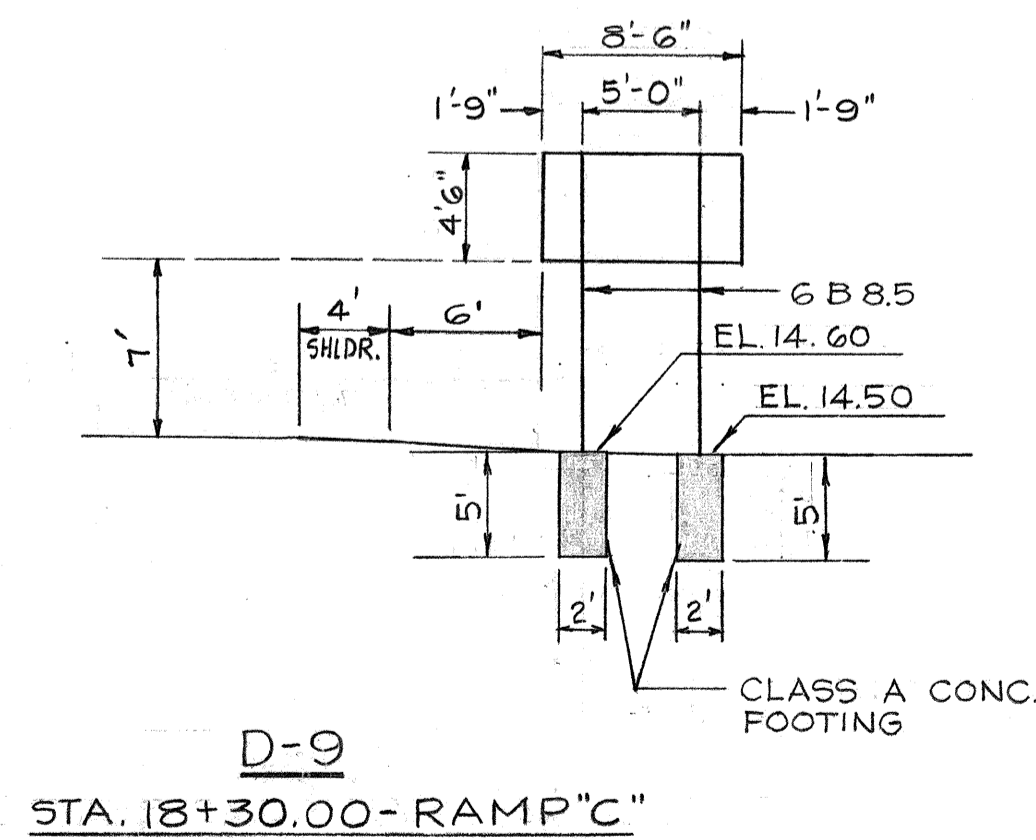
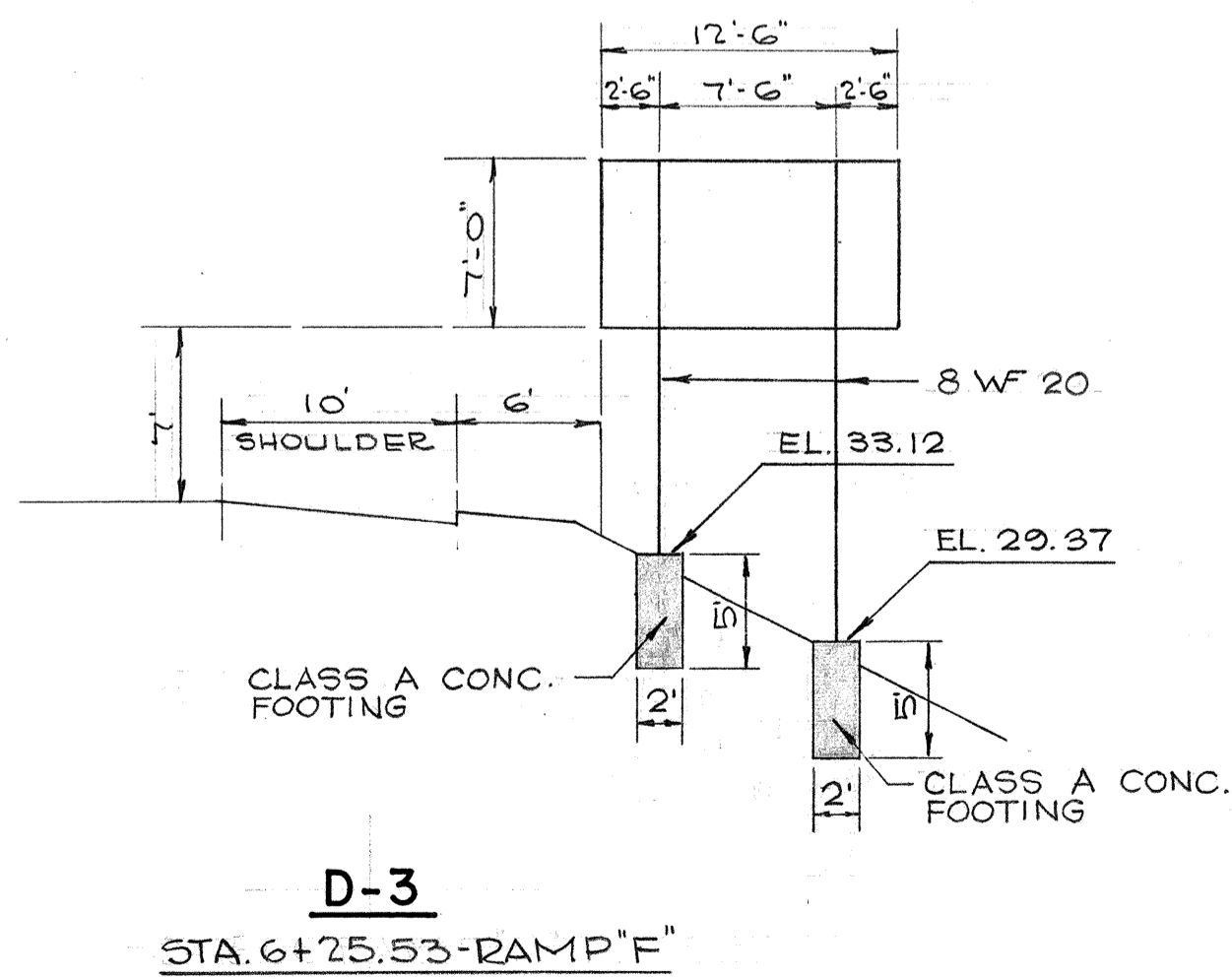
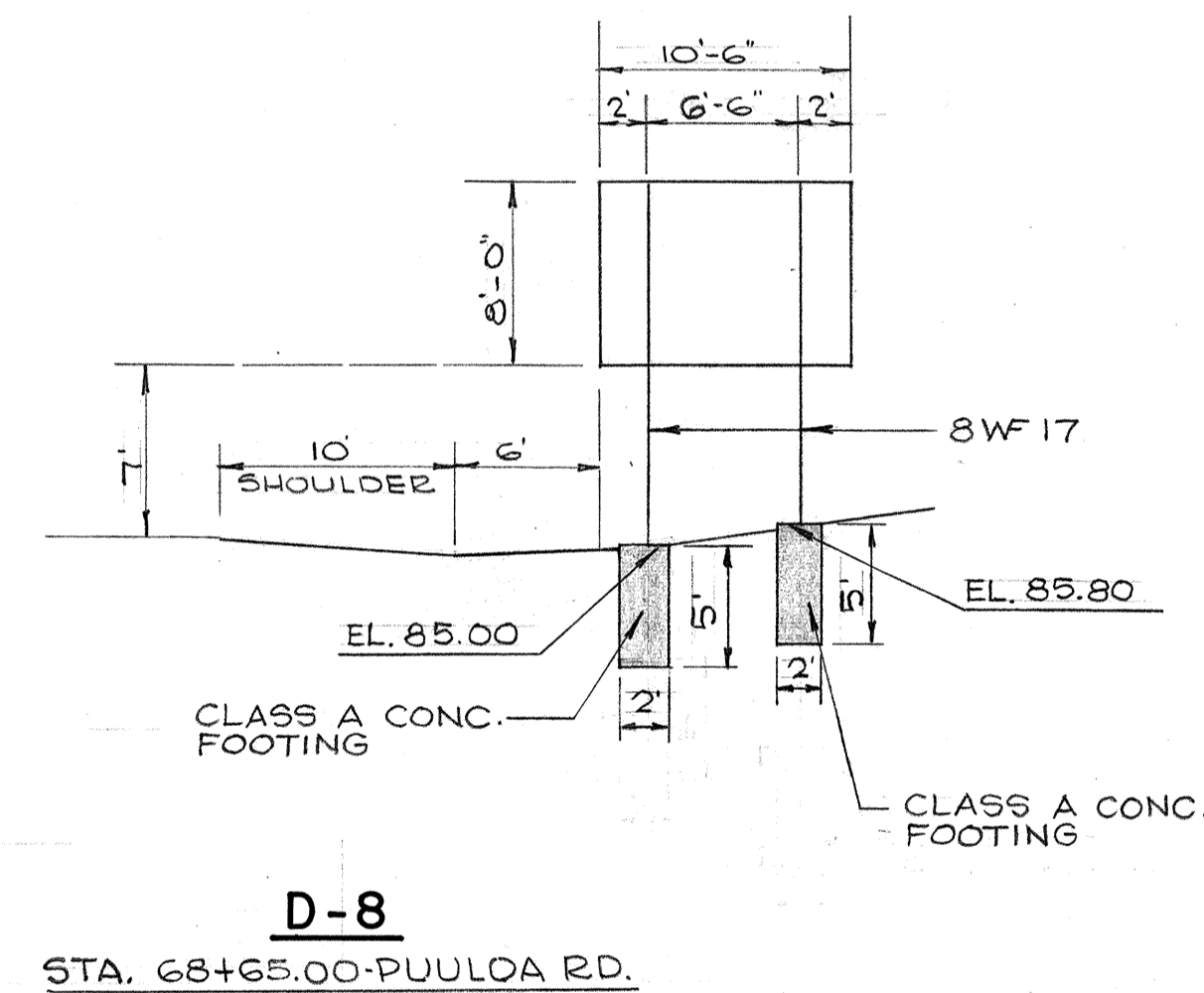
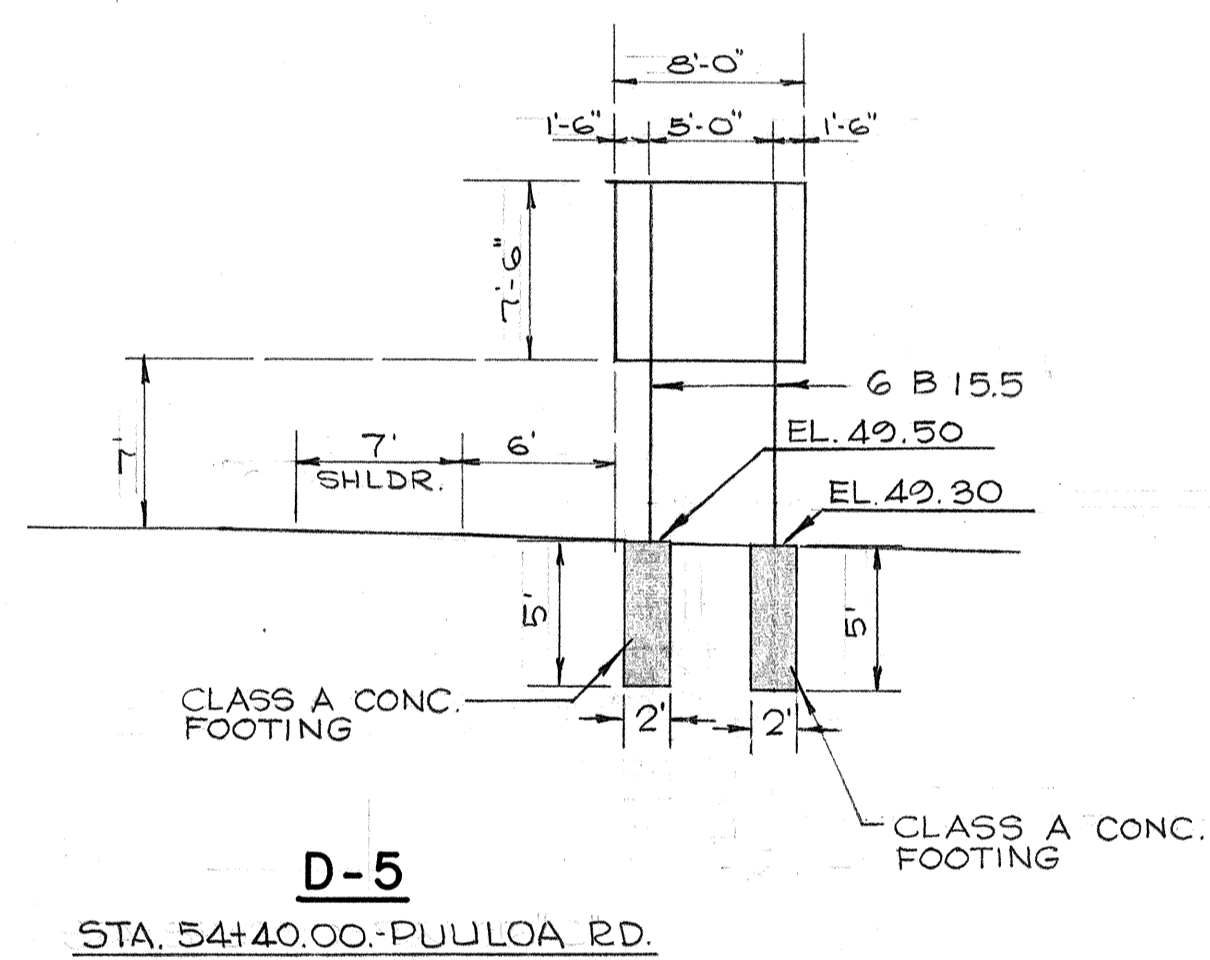
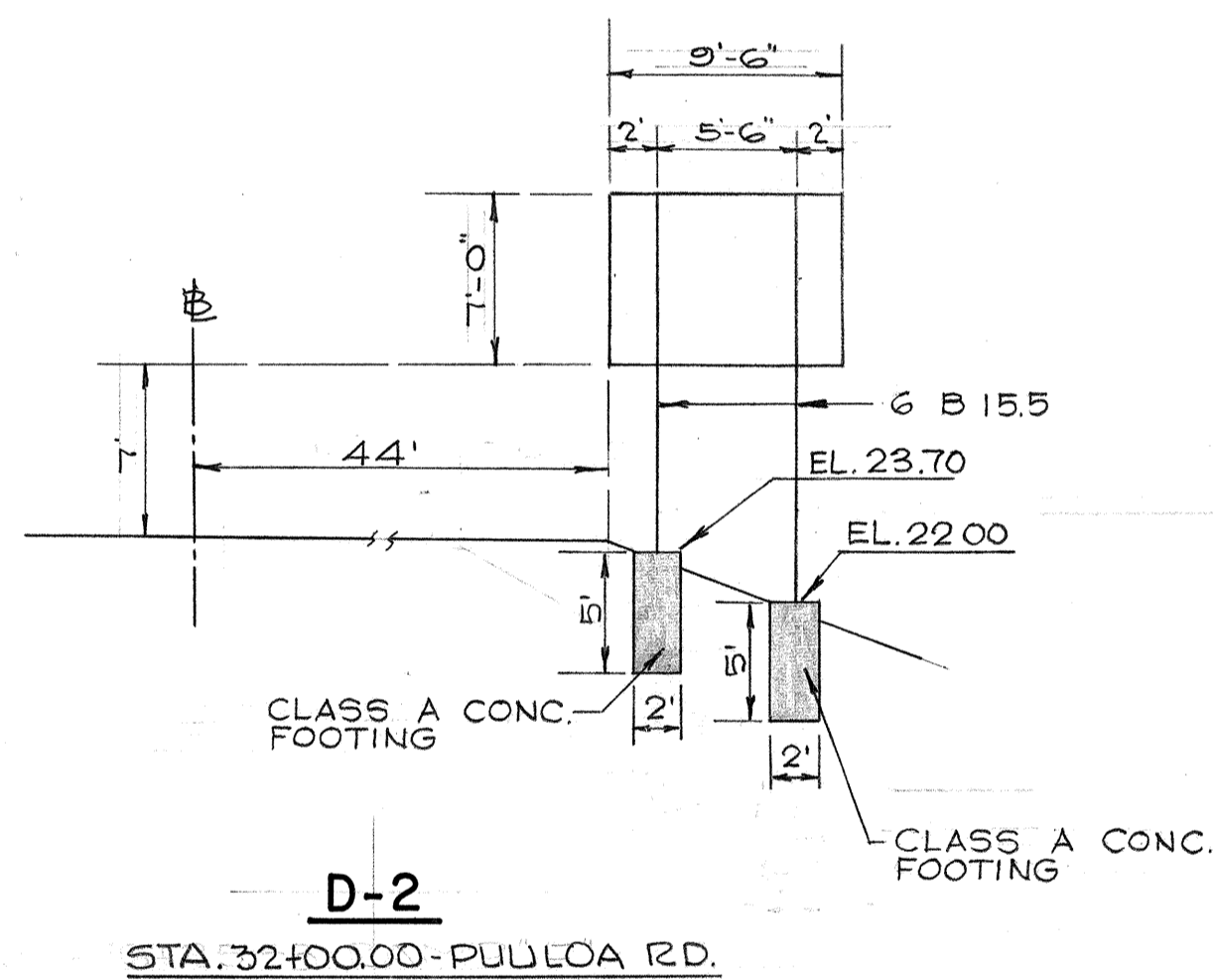
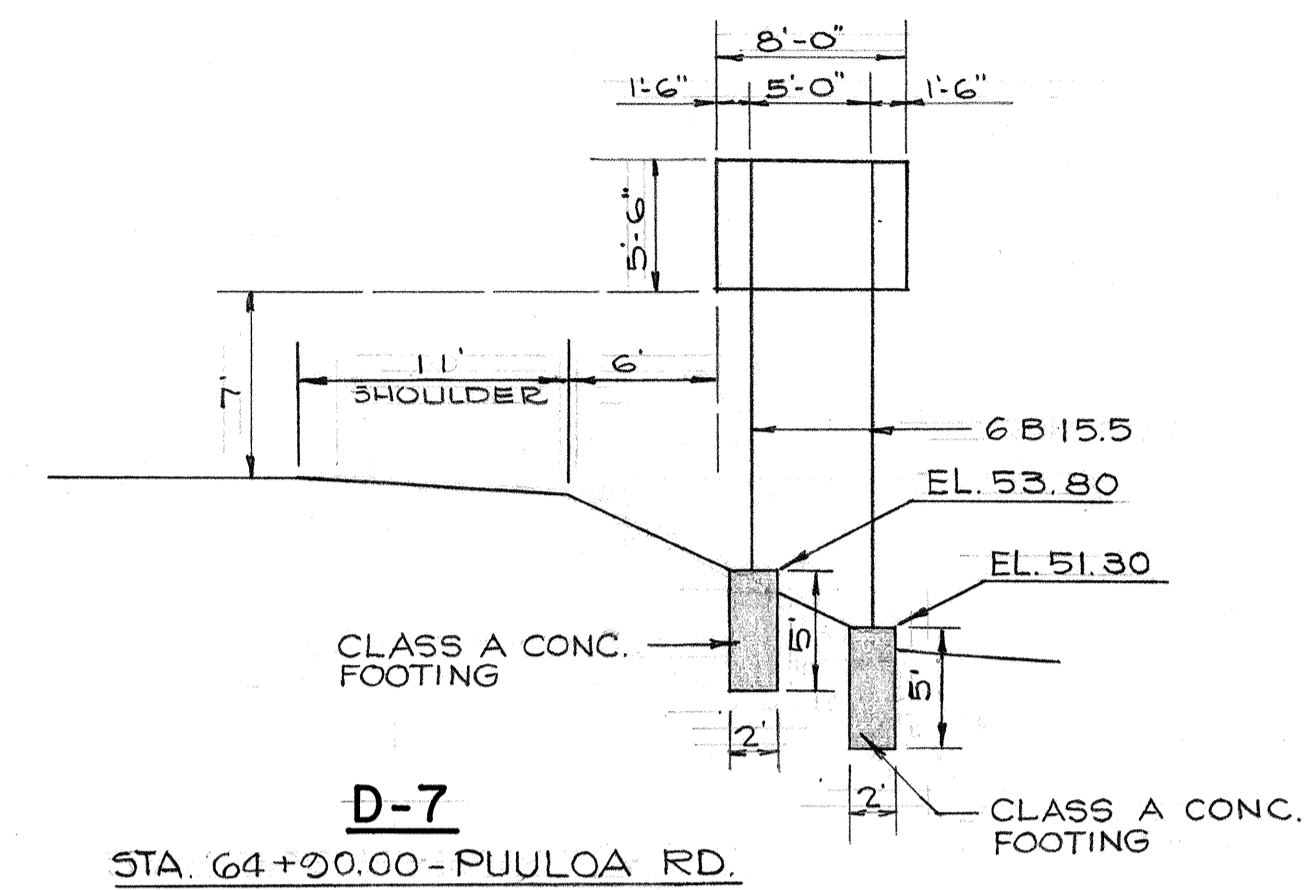
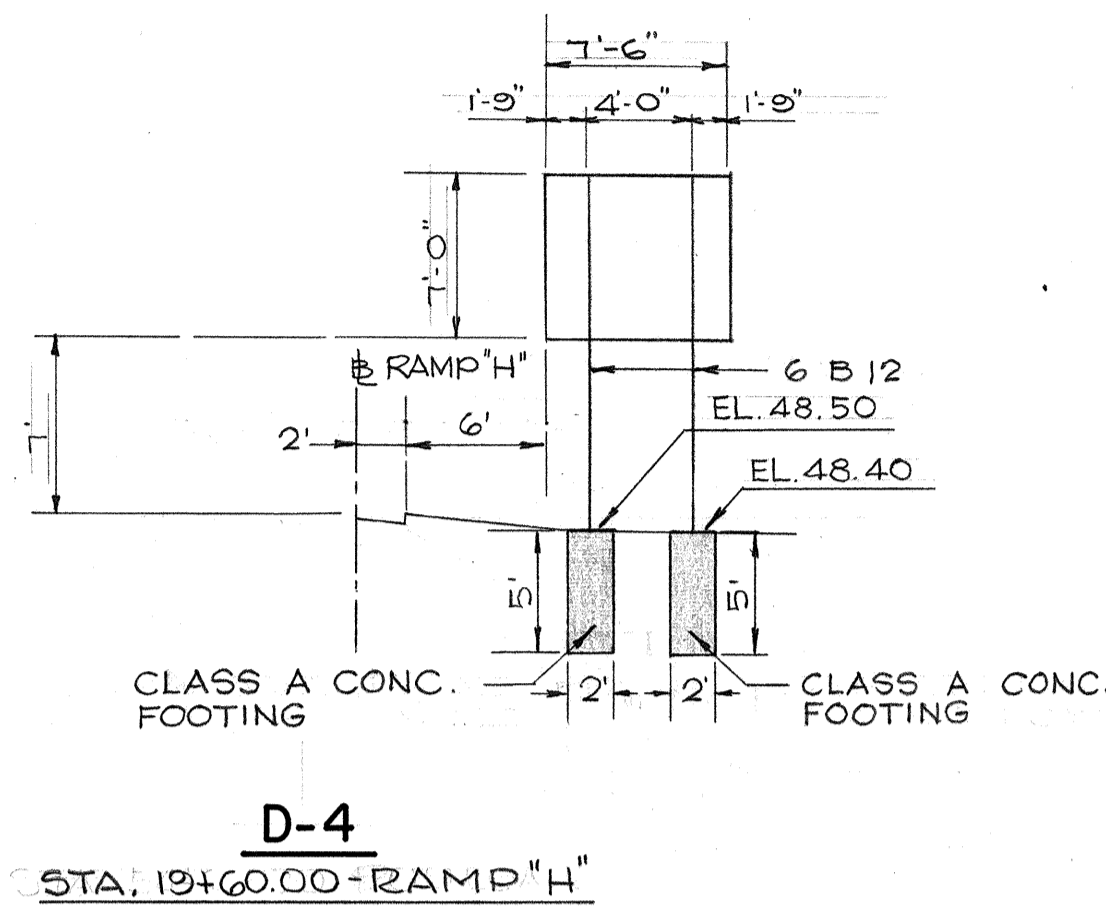
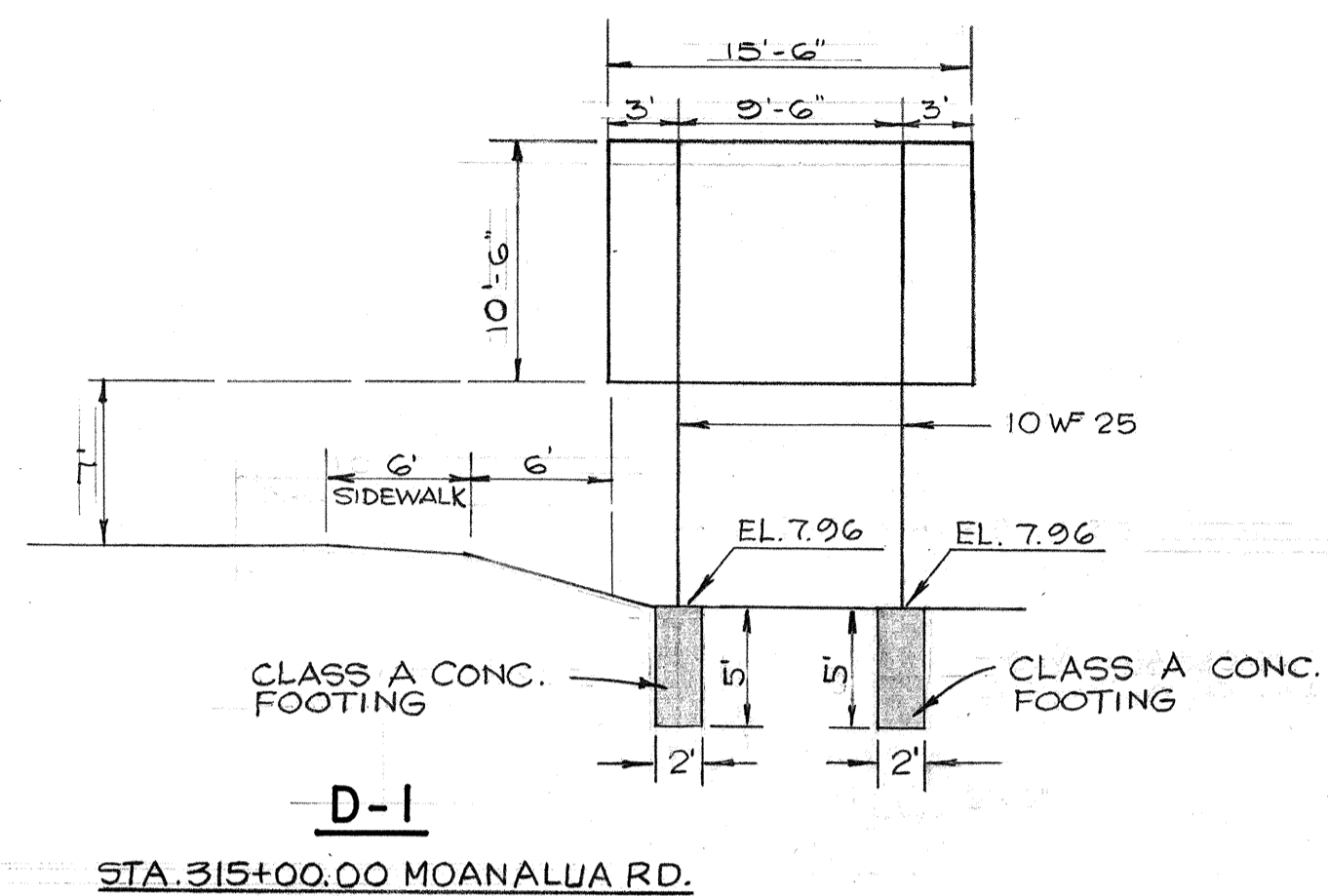
FRAME LAYOUT

F.A. Proj. No. F-078-1(10)

Scale - 1"=8' Date: JAN 1971

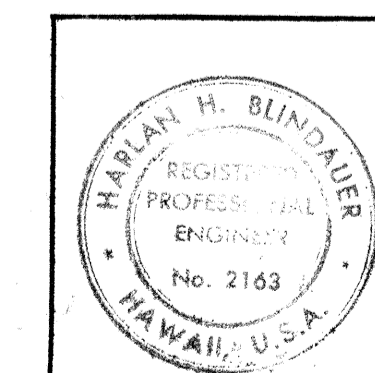
SHEET No. 9 OF 32 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	110	418



NOTE:
1. Signs are shown in direction of travel regardless of stationing.
2. Use break-away sign supports for all "D" signs.

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



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Harlan H. Blindauer

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

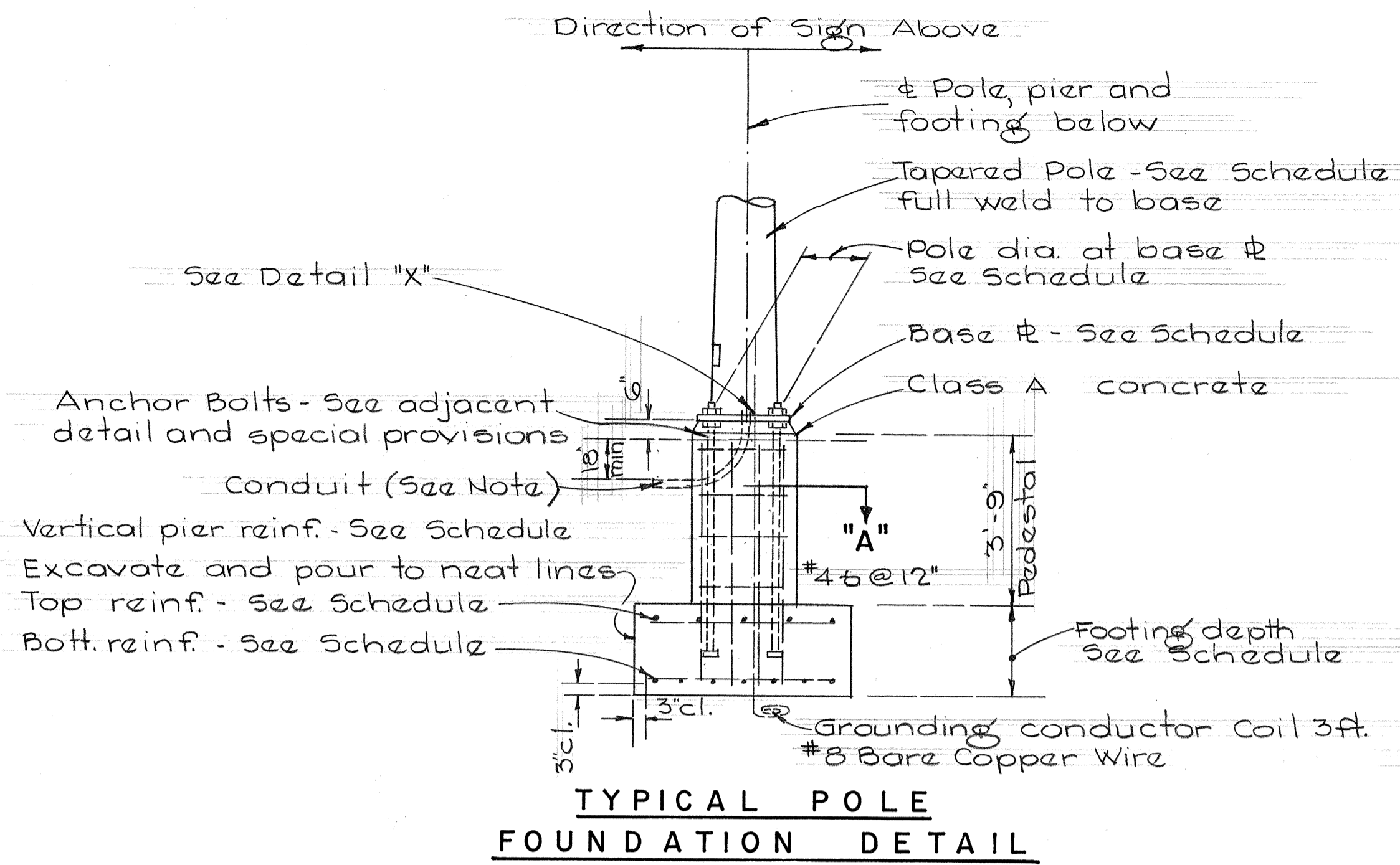
FRAME LAYOUT

F.A. Proj. No. F-078-1(10)

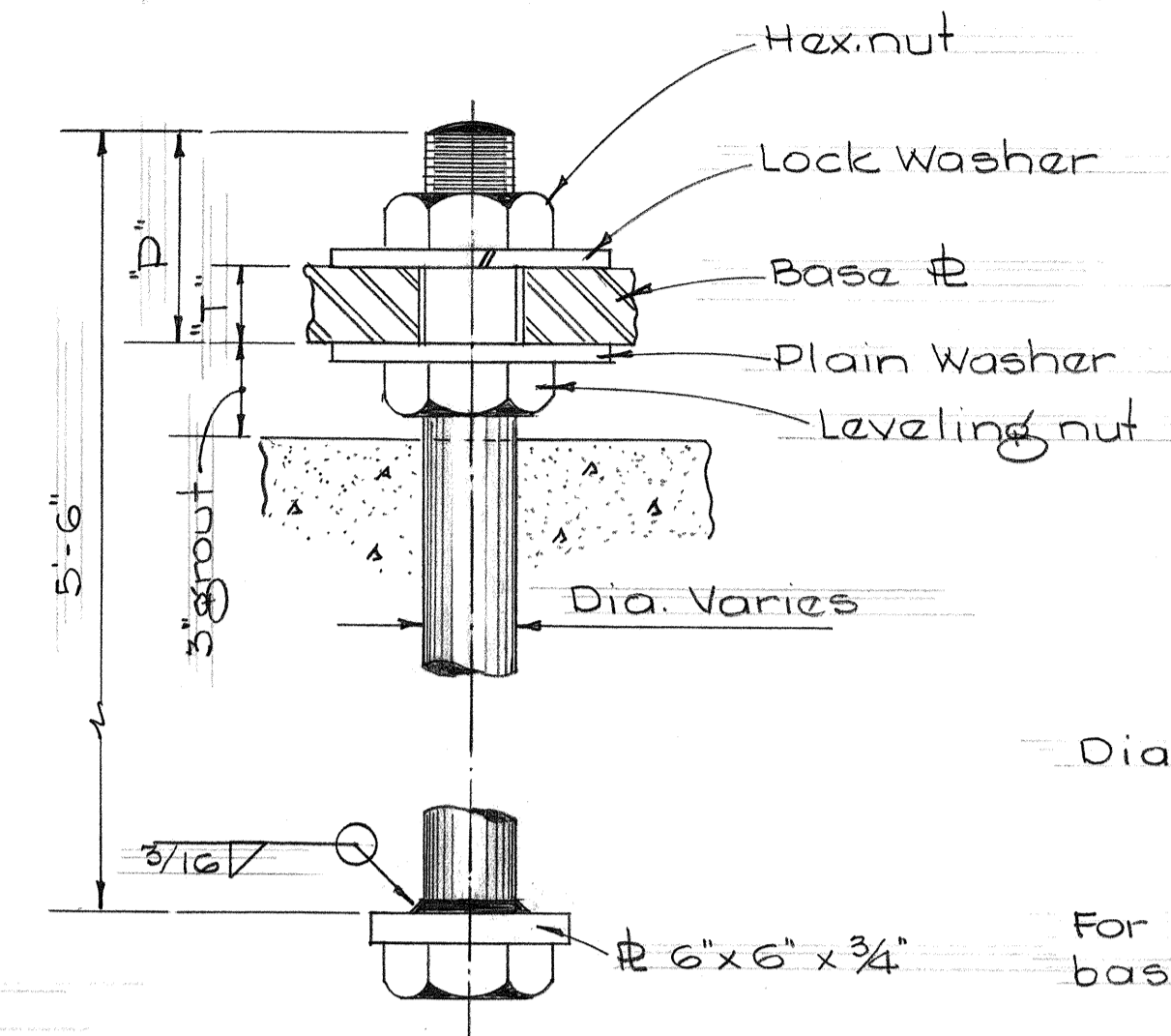
Scale - 1"=8' Date: JAN 1971

SHEET No. 10 OF 32 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	111	418

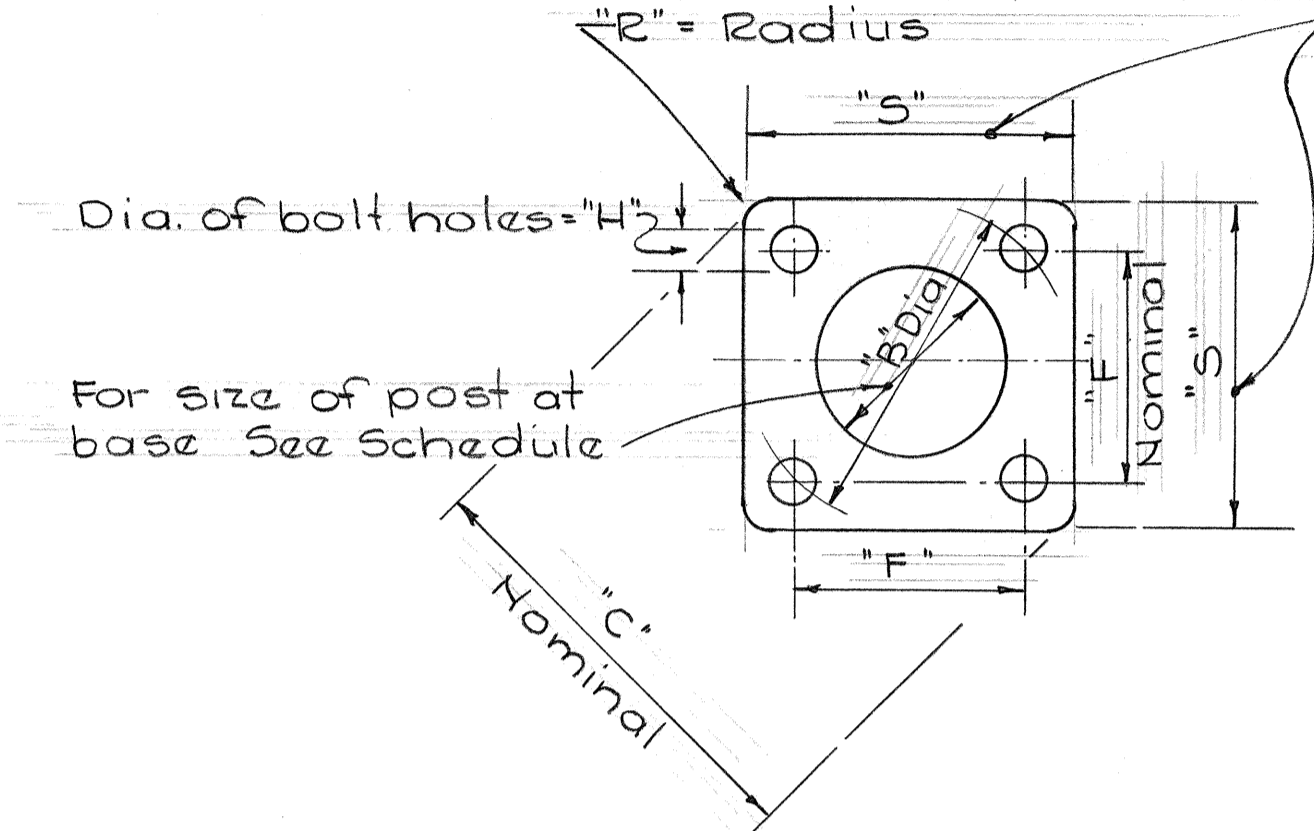


TYPICAL POLE FOUNDATION DETAIL

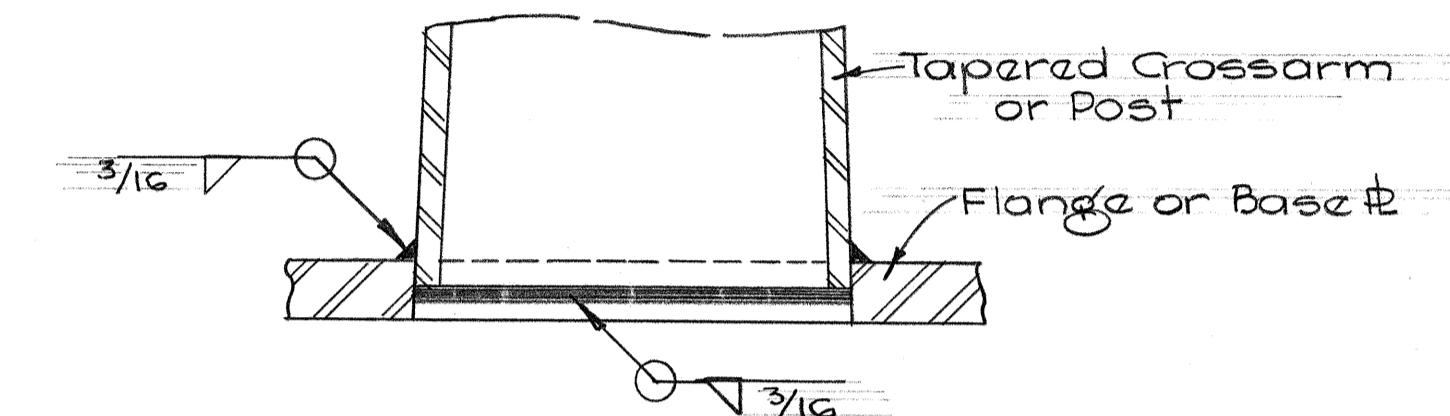


TYPICAL ANCHOR BOLT 4 REQ'D.

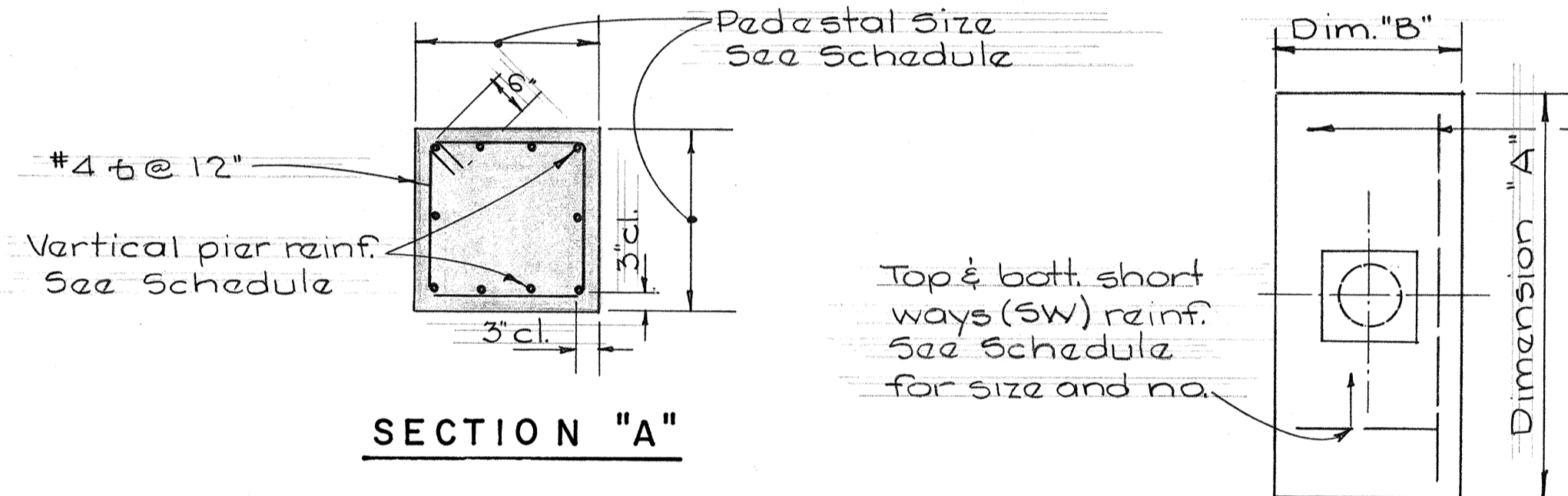
Gage No	Post Dia	B	C	F	H	D	R	S	T	Bolt Dia
3 & 3	15	22	28 3/8	15 1/2	2 7/8	8	4 5/8	24 1/2	2 1/2	2 1/2
3 & 3	18	25 1/2	33	18	3 3/8	8	5 1/2	26 1/2	3	3
0 & 0	15	23 1/2	30 1/2	16 3/8	3 3/8	9	5	24 1/2	3	3



TYPICAL BASE PLATE



DETAIL "X"



TYPICAL FOOTING PLAN

Type	Dimension		Depth	Bott. Reinf.		Top Reinf.		Pedestal	
	A	B		L.W	S.W	LW	SW	Size	Vert. Reinf.
I	7'-0"	3'-0"	2'-0"	3-#4	8-#4	#4 @ 12" Each Way		1'-11"	10-#5
II	9'-0"	4'-6"	2'-0"	6-#6	10-#4	Do		2'-6"	10-#7
III	10'-0"	5'-0"	2'-0"	5-#8	11-#4	Do		2'-6"	10-#8
IV	12'-0"	6'-0"	2'-0"	7-#9	13-#4	Do		2'-9"	10-#10
V	14'-0"	7'-0"	2'-0"	8-#11	19-#4	Do		2'-9"	10-#11

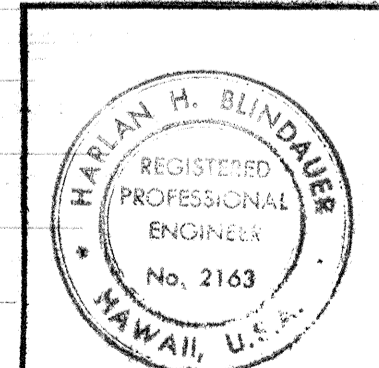
Sign No	Station	Cross Beams	Center Section B	Post		Base Plate	Footing	
				*Left	*Right		Left & Right	Anchor Bolts
E-2	288+00 Moana.	3 Ga @ 14.25' x 30'-0"	312 @ 14.238' OD x 18'-0"	3 & 3 Ga. 18" x 25'-6"	3 & 3 Ga. 18" x 25'-0"	26 1/2" x 26 1/2" x 3"	Type V	8 - 3" φ
E-3	15+25 Ramp "G"	3 Ga @ 14.25' x 34'-6"	None	0 & 0 Ga. 15" x 27'-6"	0 & 0 Ga. 15" x 26'-0"	24 1/2" x 24 1/2" x 3"	Type V	8 - 3" φ
E-4	298+50 Moana.	Mount on Structure	None	None	None	None	None	None
E-7	13+25 Ramp "C"	3 Ga @ 14.25' x 28'-6"	None	3 & 3 Ga. 15" x 28'-6"	3 & 3 Ga. 15" x 28'-0"	24 1/2" x 24 1/2" x 2 1/2"	Type V	8 - 2 1/2" φ
E-8	43+00 Puuloa	3 Ga @ 14.25' x 30'-0"	None	3 & 3 Ga. 18" x 26'-6"	3 & 3 Ga. 18" x 27'-6"	26 1/2" x 26 1/2" x 3"	Type V	8 - 3" φ

* Note: Lt. & Rt. sides are as seen by driver, regardless of stationing.

SPECIAL FOOTING PER C.C.O. #87 (REFER TO OPPOSITE PAGE)

Sign No	Station	Post Size	
		Left	Right
D-1	315+00 Moanalua	10 W 25 x 20'-0"	10 W 25 x 20'-0"
D-2	32+00 Puuloa	6 B 155 x 15'-0"	6 B 155 x 17'-0"
D-3	6+25.53 Ramp "F"	8 W 20 x 16'-6"	8 W 20 x 20'-6"
D-4	19+60 Ramp "H"	6 B 12 x 15'-0"	6 B 12 x 15'-0"
D-5	54+40 Puuloa	6 B 155 x 15'-0"	6 B 155 x 15'-0"
D-7	64+90 Puuloa	6 B 155 x 17'-0"	6 B 155 x 19'-6"
D-8	68+65 Puuloa	8 W 17 x 15'-0"	8 W 17 x 14'-6"
D-9	18+30 Ramp "C"	6 B 85 x 12'-6"	6 B 85 x 12'-6"
D-6	21+00 Ramp "J"	10 W 25 x 18'-0"	10 W 25 x 22'-0"
Total Length		144.0 Lin. Ft.	156.0 Lin. Ft.

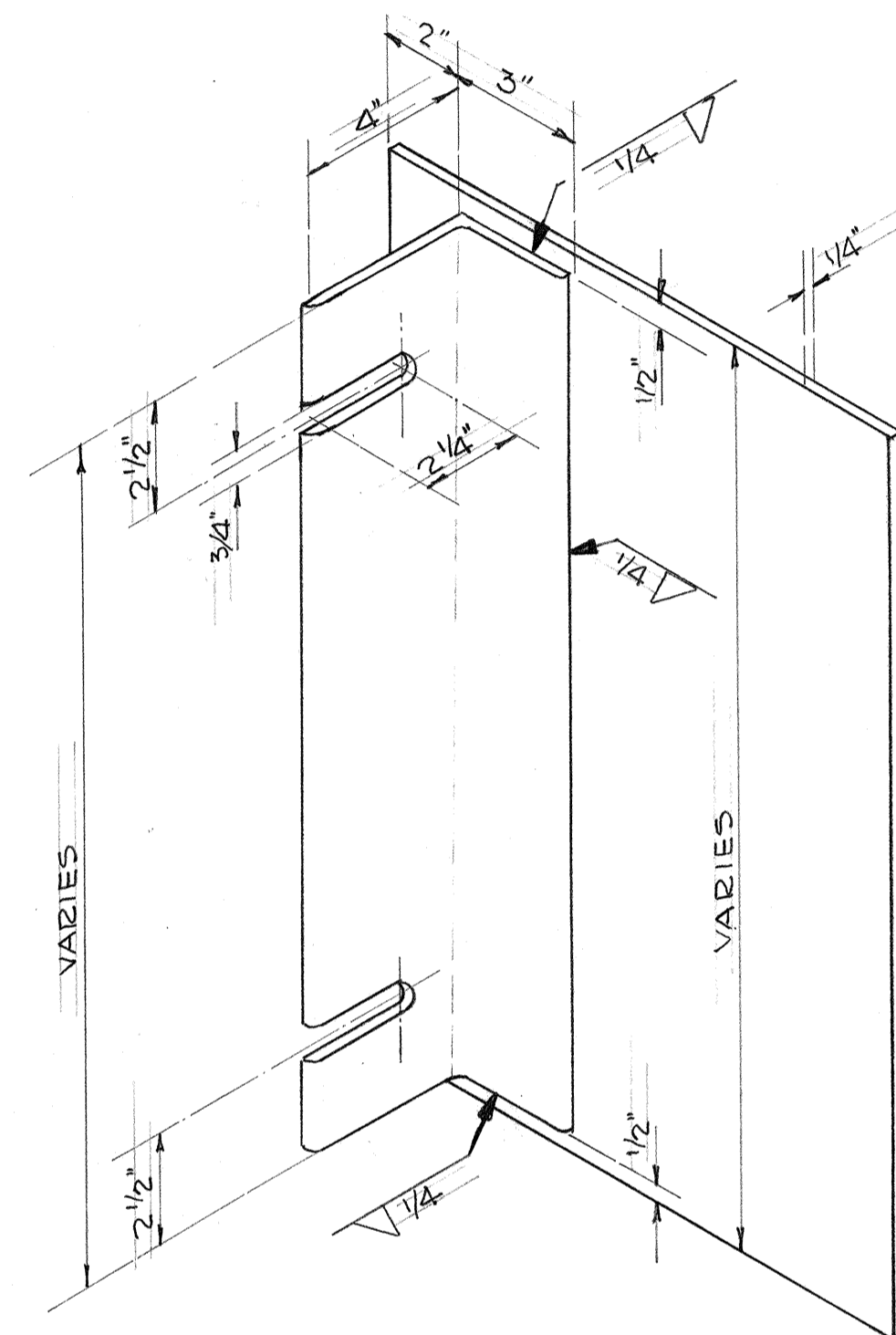
DATE: _____
 SURVEY PLOTTED BY: _____
 DRAWN BY: _____
 TRACED BY: _____
 QUANTITIES BY: _____
 CHECKED BY: _____
 ORIGINAL PLAN NOTE BOOK No. _____



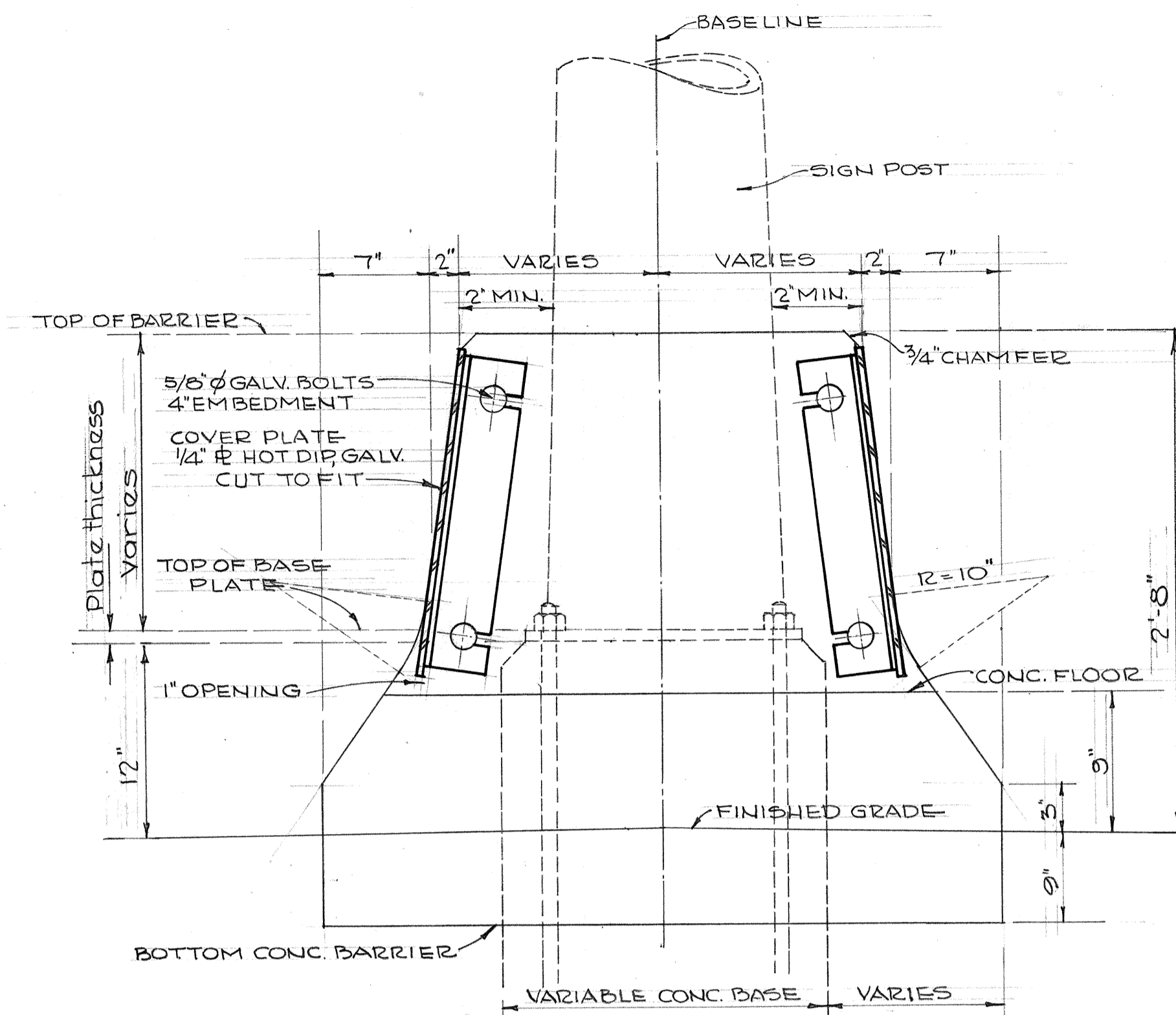
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
 HIRSHAN H. BLINDAUER

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
**POSTS AND CROSSARMS
 DETAIL & SCHEDULE
 FOR SIGNS**
 F.A. Proj. No. F-078-1(10)
 Scale - as shown Date: JAN 1971

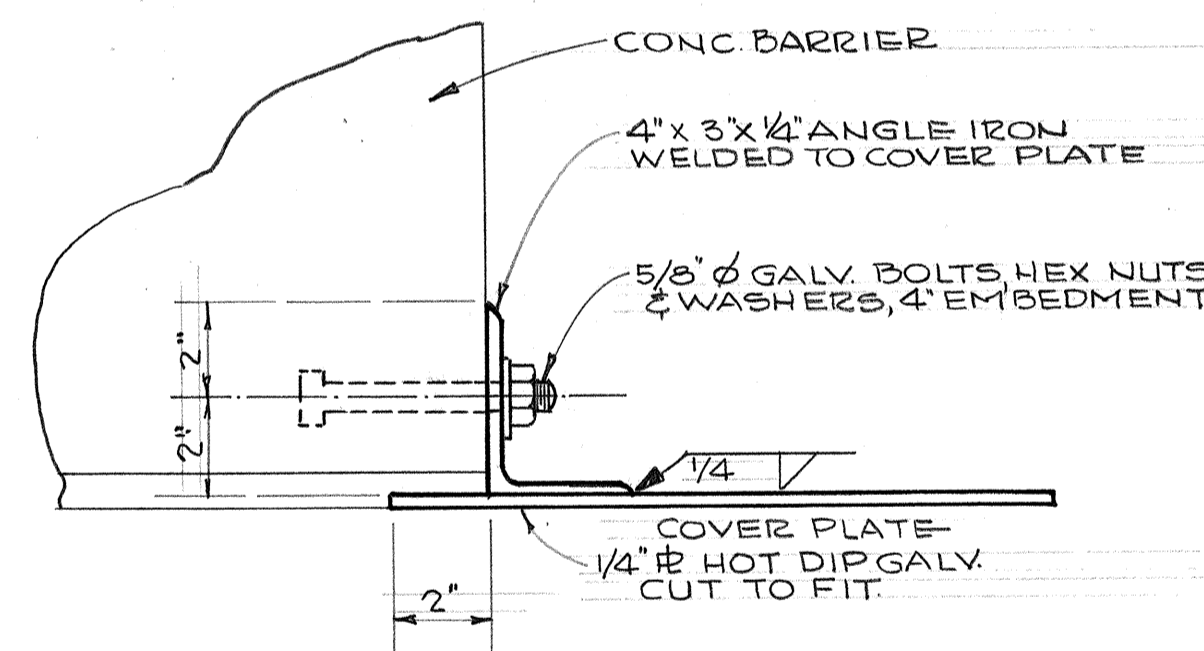
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	113	418



ANGLE IRON COVER PLATE DETAIL
SCALE - 3" = 1'-0"



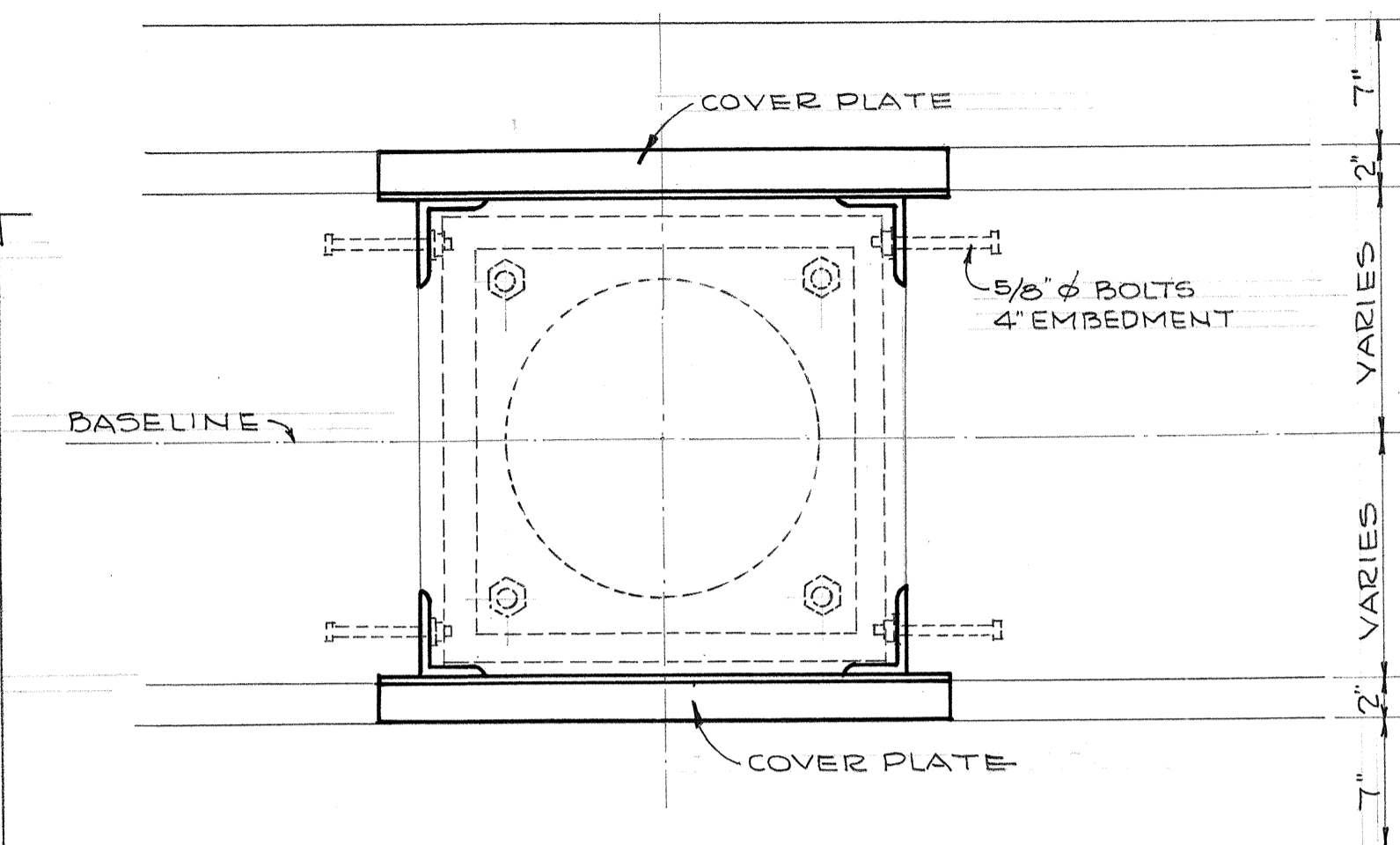
SECTION "A"- "A"
SCALE - 1/2" = 1'-0"



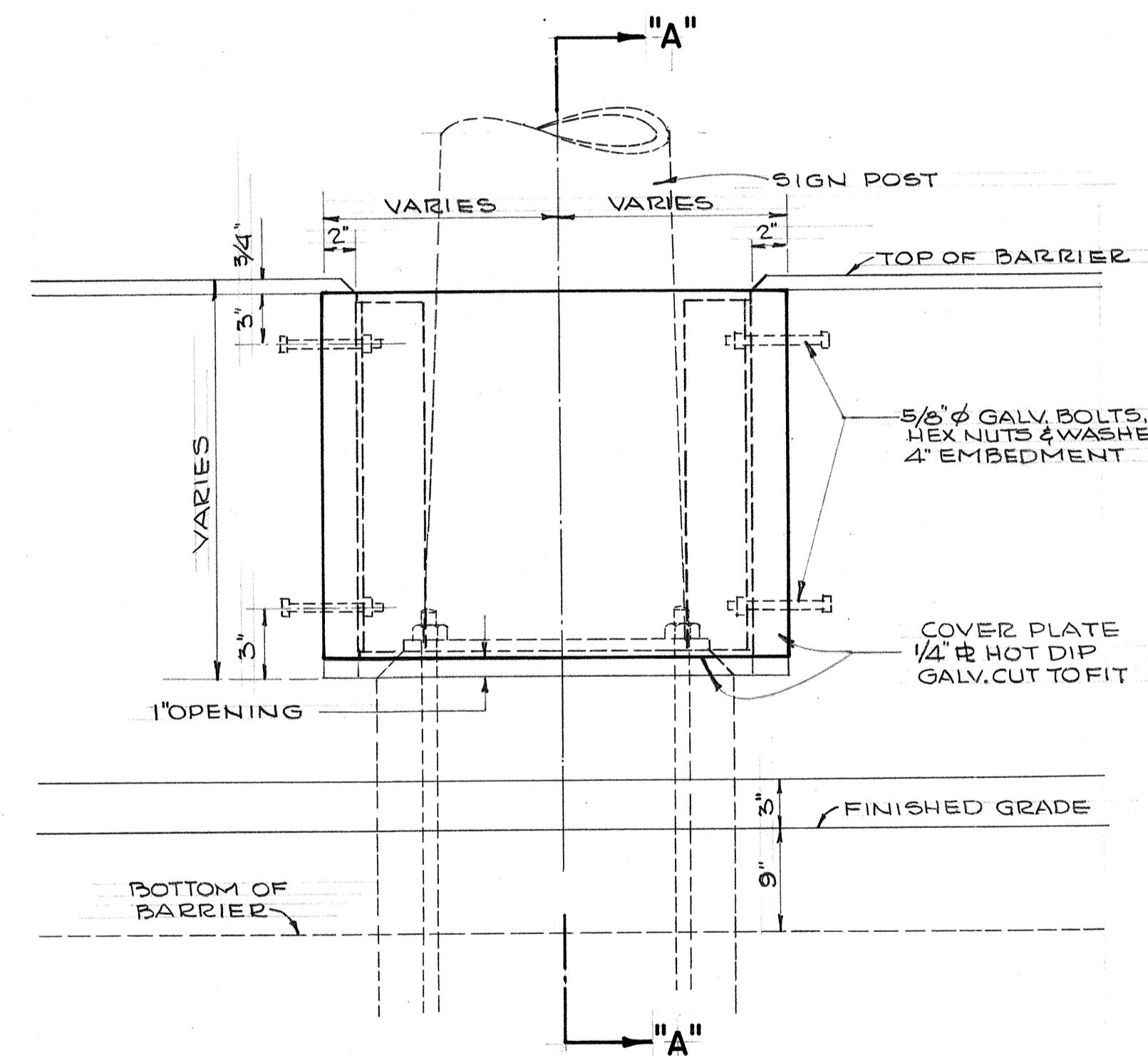
COVER PLATE ANCHOR DETAIL
SCALE - 3" = 1'-0"

NOTE:

1. Constructing Concrete Barrier at Expressway Sign Pole bases shall consist of all work and materials necessary for constructing the Barrier as shown on the plans. Furnishing and installing the steel cover plate, angle iron, bolts, nuts, washers and all other appurtenances necessary to complete the work shall be considered incidental to Concrete Median Barrier and no extra payment shall be made.
2. The length and width of the steel cover plate shall be determined in the field.
3. Refer to Concrete Barrier details for dimensions.

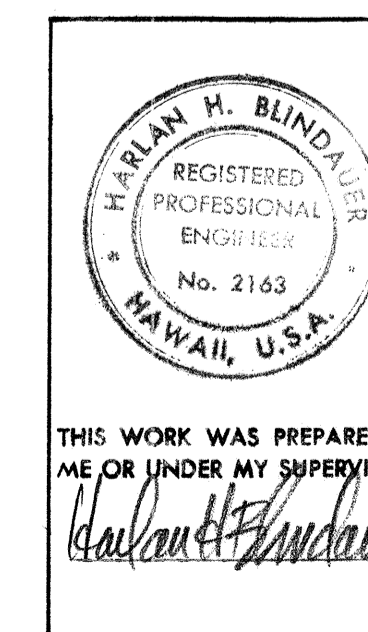


PLAN
SCALE - 1/2" = 1'-0"



ELEVATION
SCALE - 1/2" = 1'-0"

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

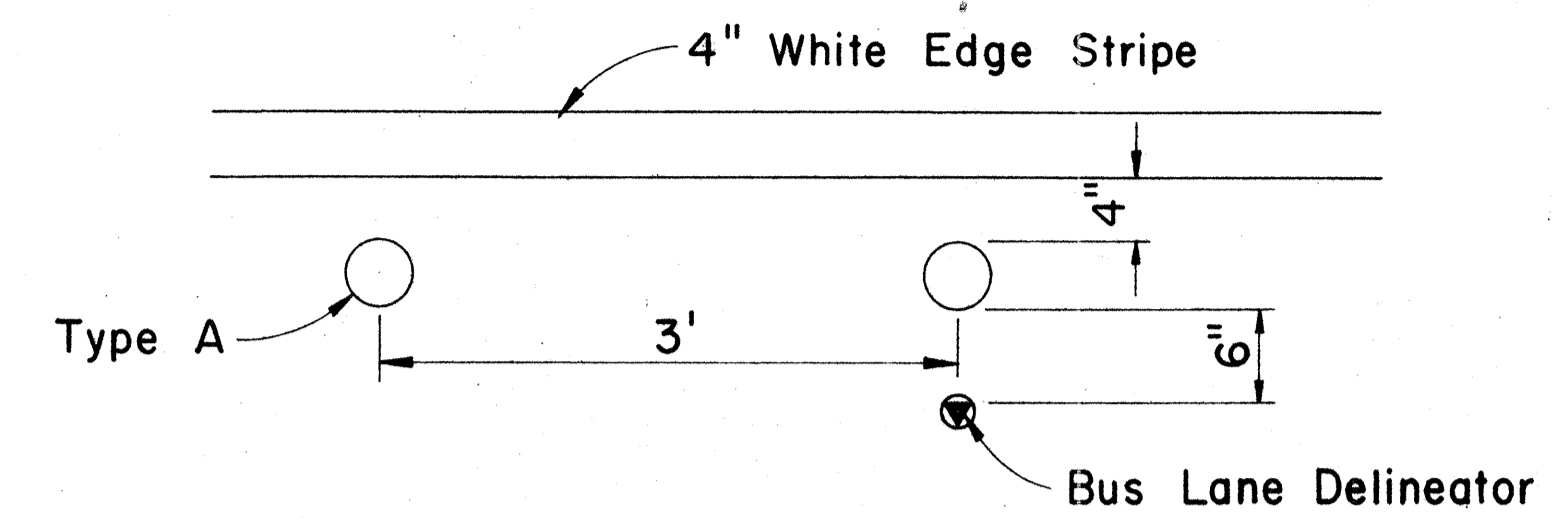
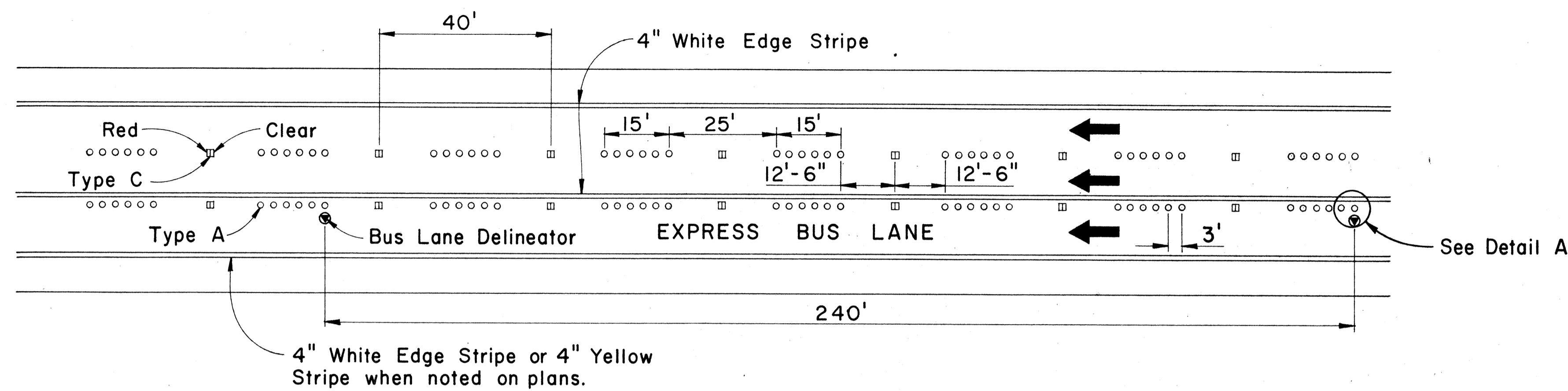


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**CONCRETE BARRIER
AT EXPRESSWAY SIGN POLE**

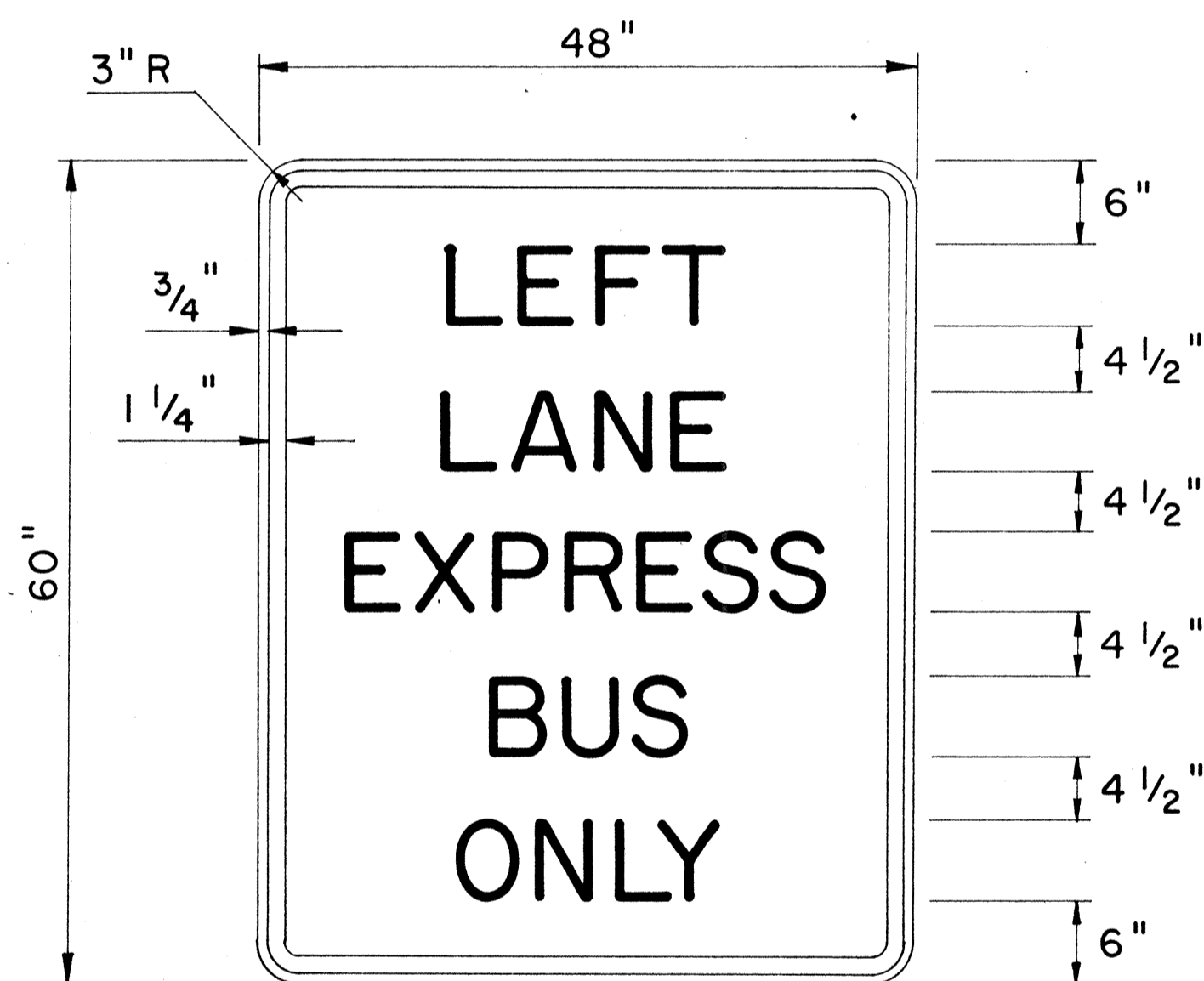
F.A. Proj. No. F-078-1(10)
Scale-as shown Date: JAN 1971

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.				

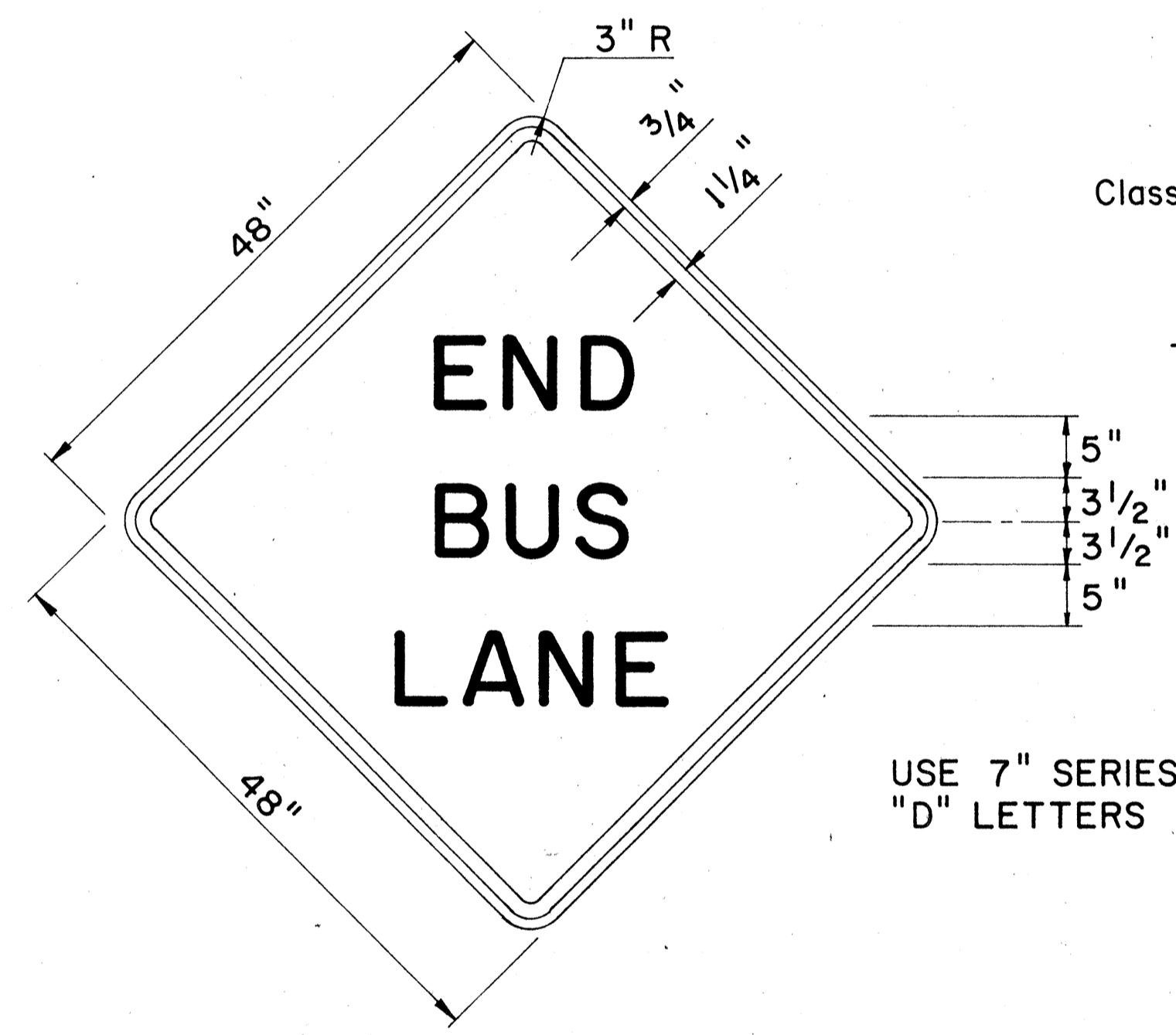


DETAIL A
Scale: 1" = 1'-0"

FREEWAY LANE LINES WITH EXPRESS BUS LANE
Not To Scale



R17-2
USE 6" SERIES "D" LETTERS



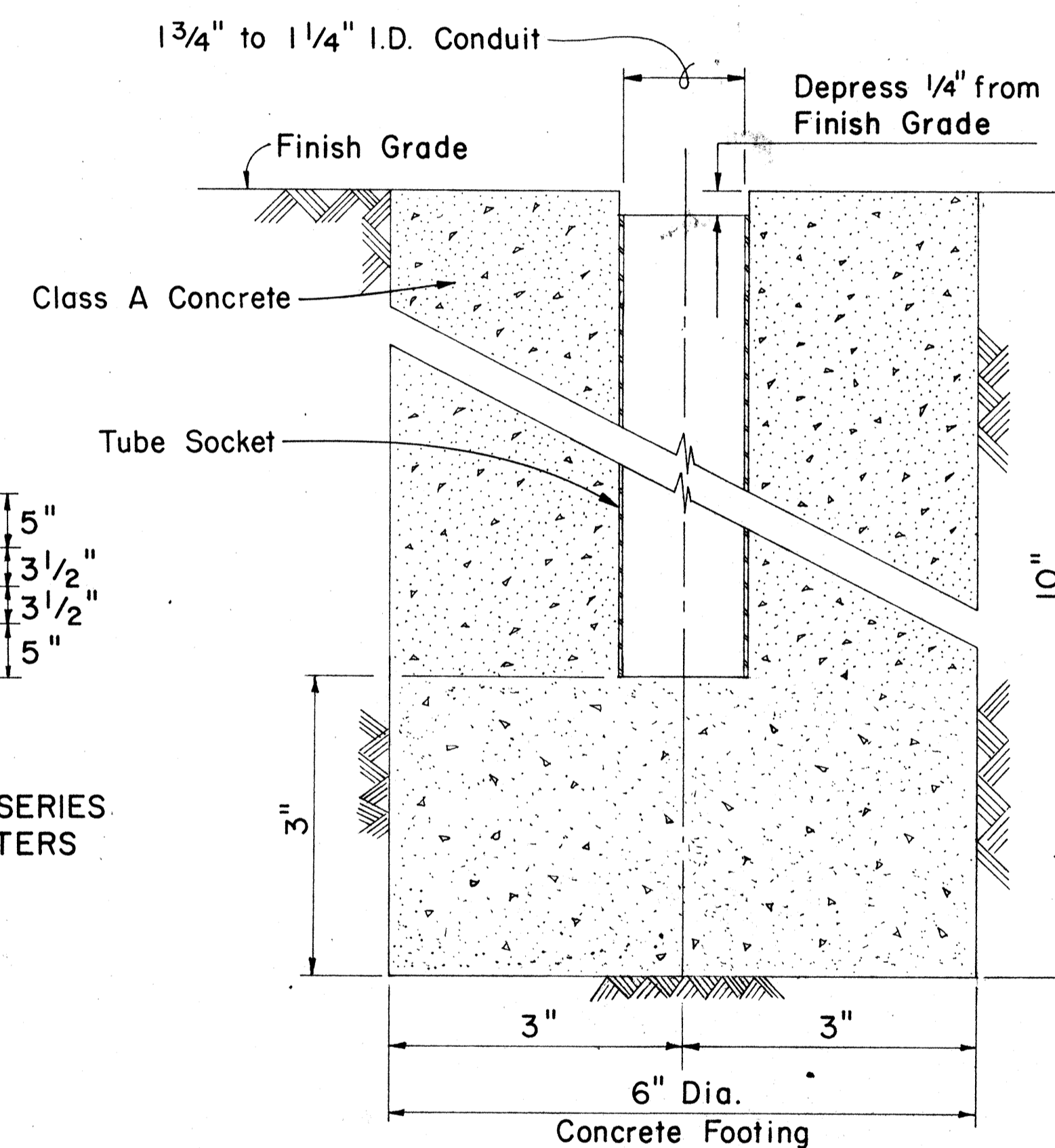
USE 7" SERIES "D" LETTERS

W15-3

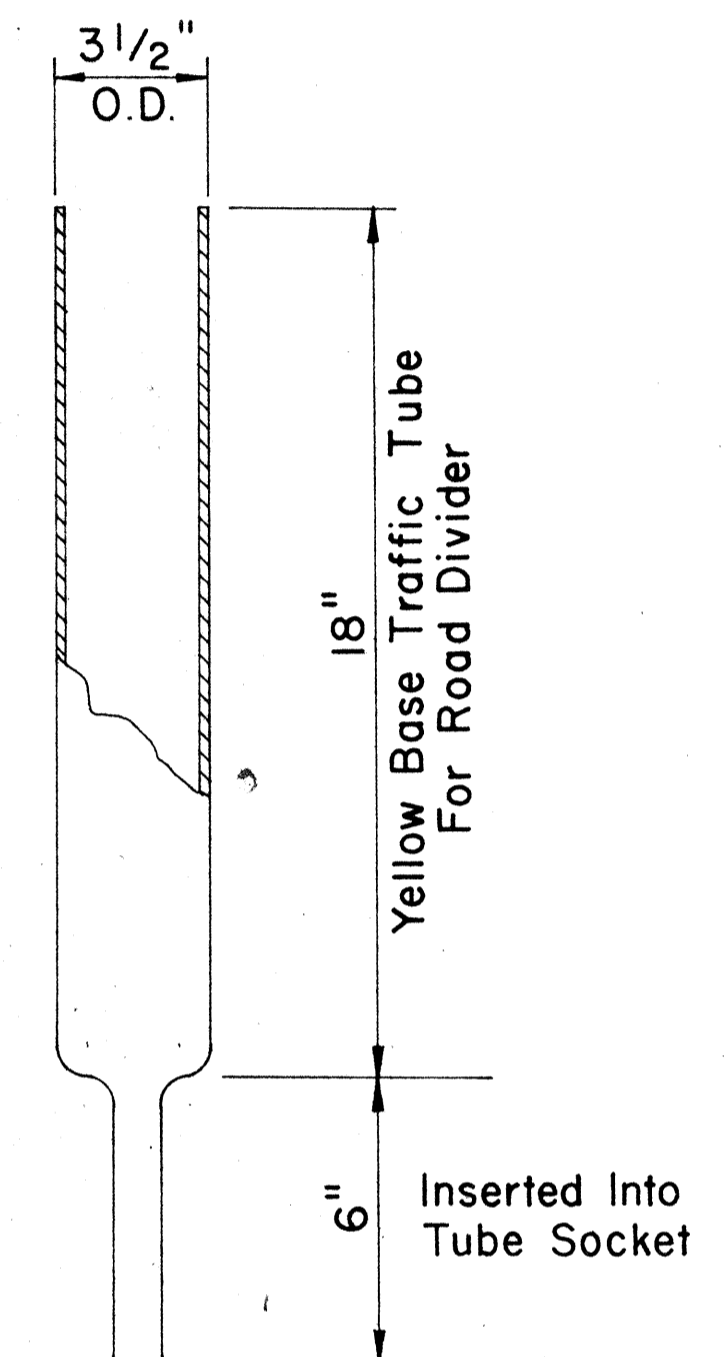
MISCELLANEOUS REGULATORY & WARNING SIGNS

GENERAL NOTES:

1. Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs."
2. Regulatory Sign (R17-2) and Warning Sign (W15-3) shall be reflectorized unless otherwise specified and shall have 3/8" bolt holes drilled at appropriate locations.
3. For Mounting Details see Standard Detail Sheet (DT-100) and Detail on sheet no. C.O. 114 S-2
4. Contractor to check for snug fit of Bus Lane Delineator in Tube Socket prior to installation.



TUBE SOCKET
Scale: 3/4" = 1"



DETACHABLE BUS LANE DELINEATOR
Scale: 1/4" = 1"

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**MISC. PAVEMENT MARKING
AND SIGNING DETAILS**

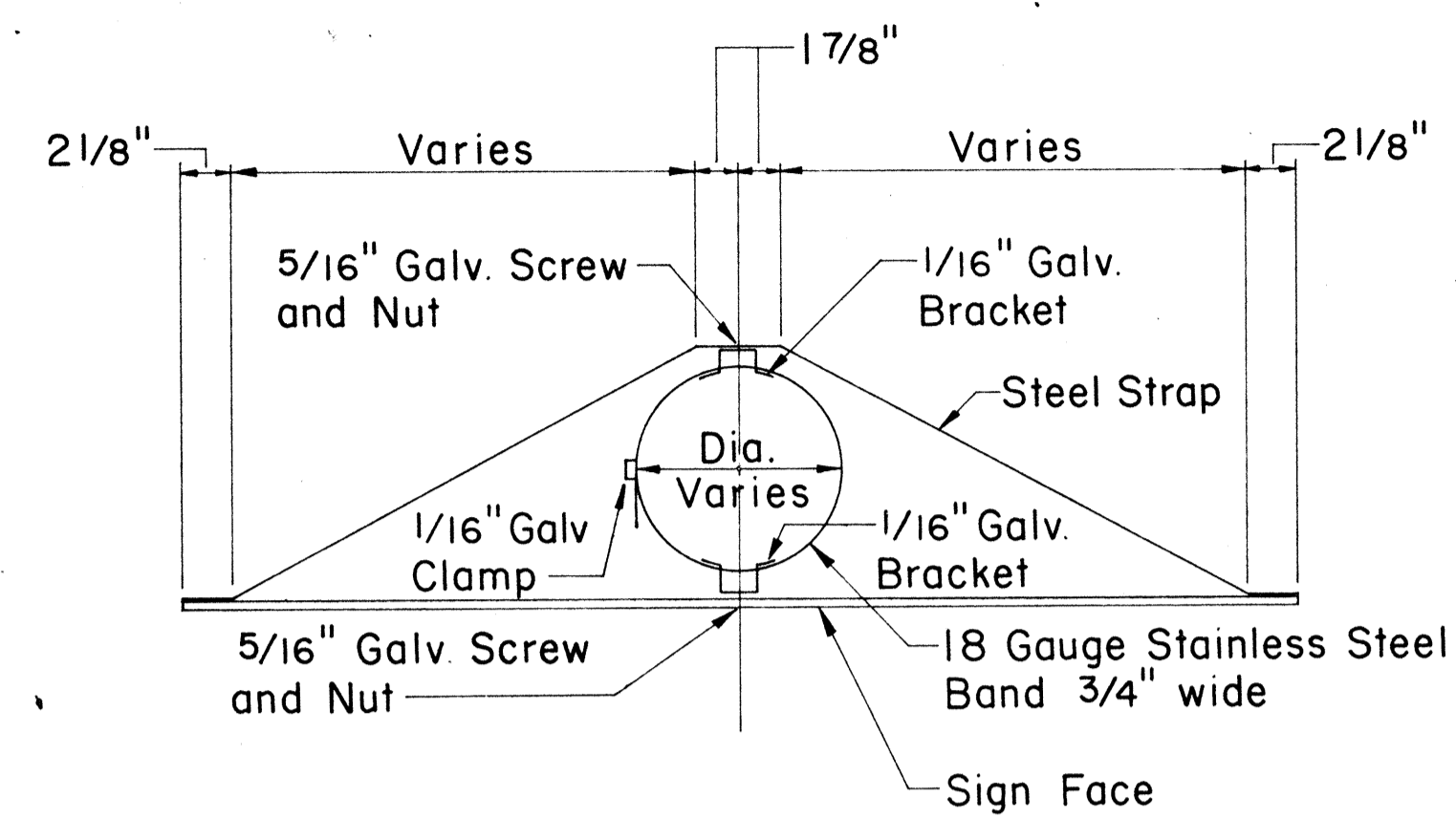
F.A. PROJ. No. F-078-1(10)

Scale: As Noted

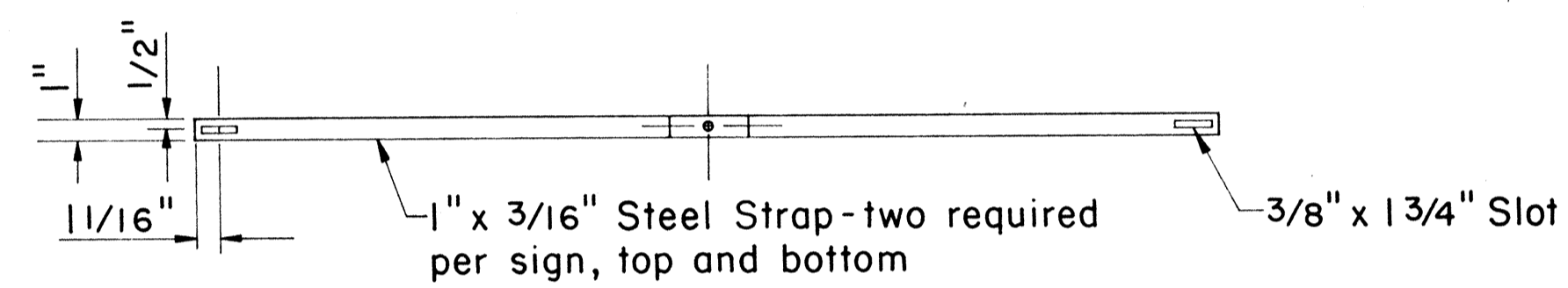
SHEET No. 114 OF 32 SHEETS

C.O. 114 S-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.				



TOP



FRONT

MOUNTING DETAIL FOR SIGNS RI7-2 AND WI5-3

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

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

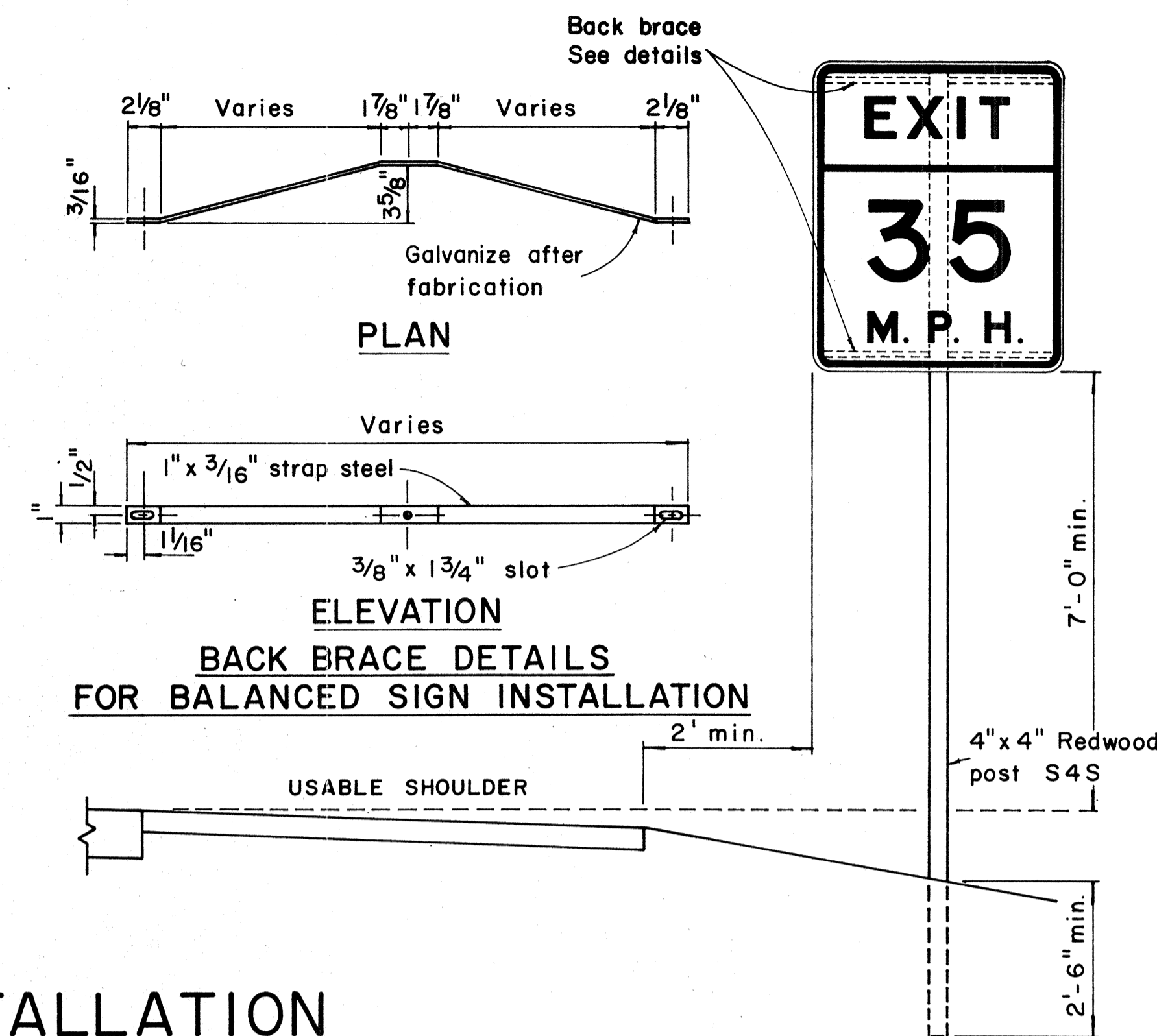
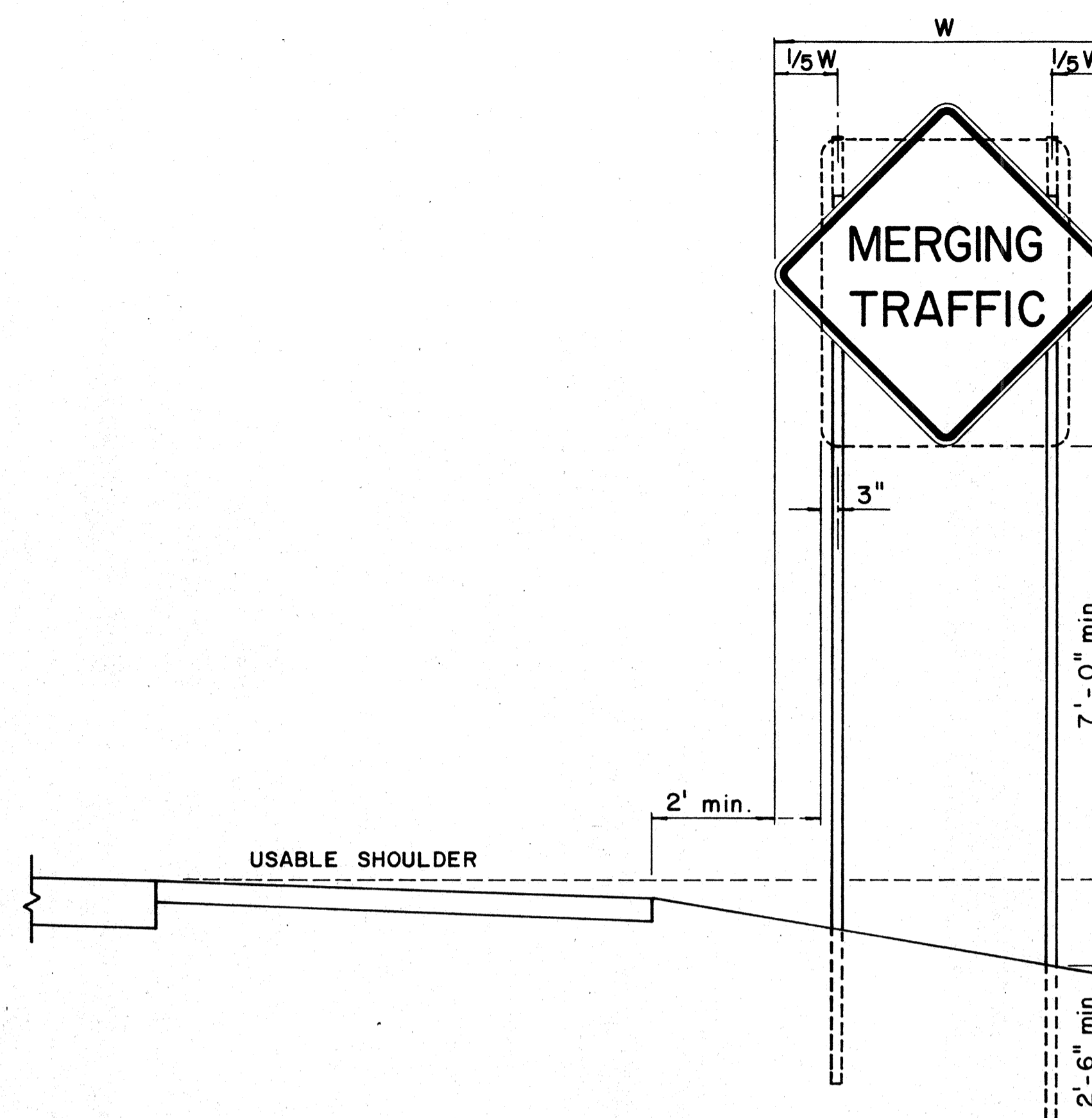
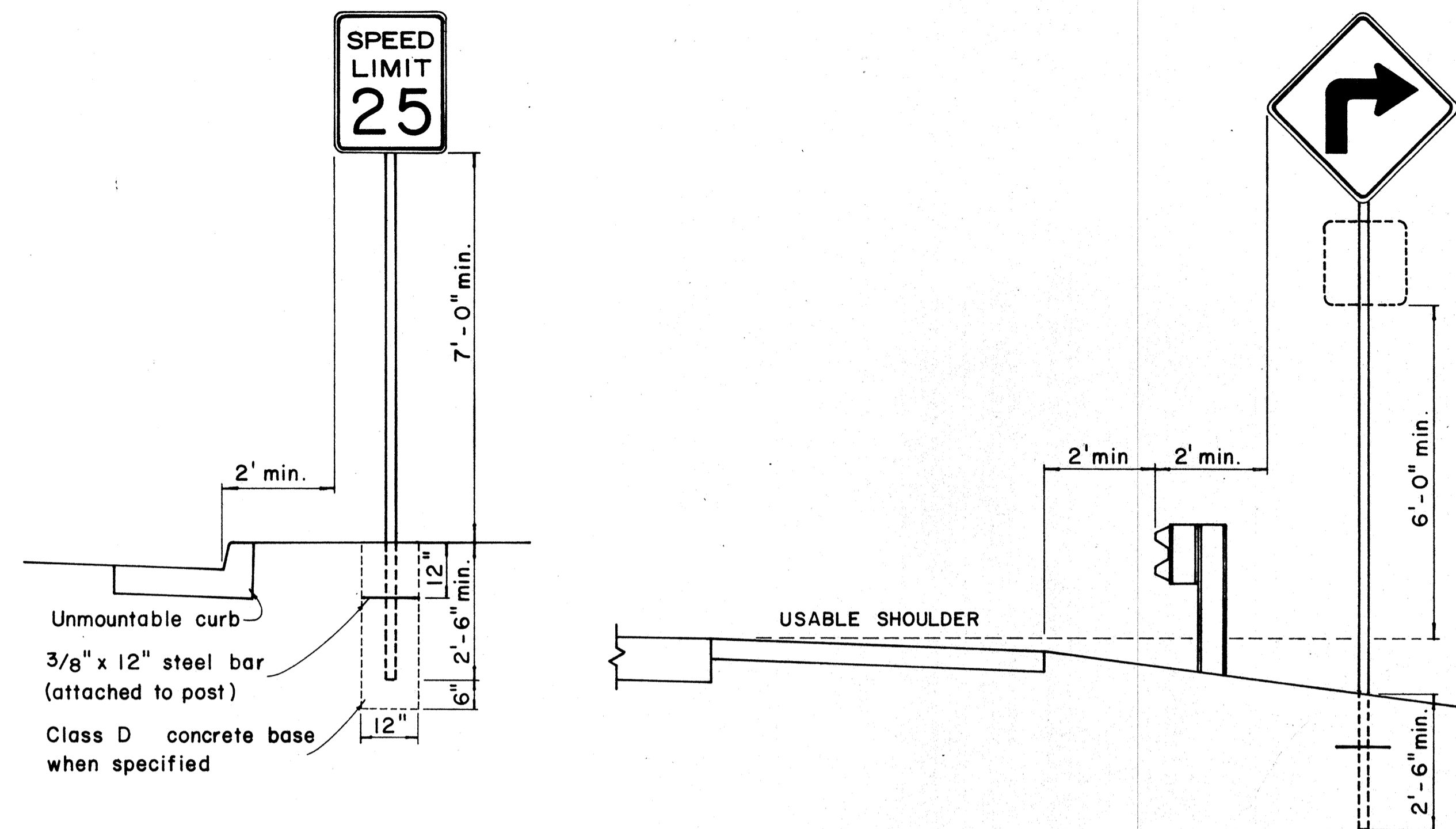
**MISCELLANEOUS
SIGNING DETAIL**

F.A. PROJ. No. F-07B-1(10)

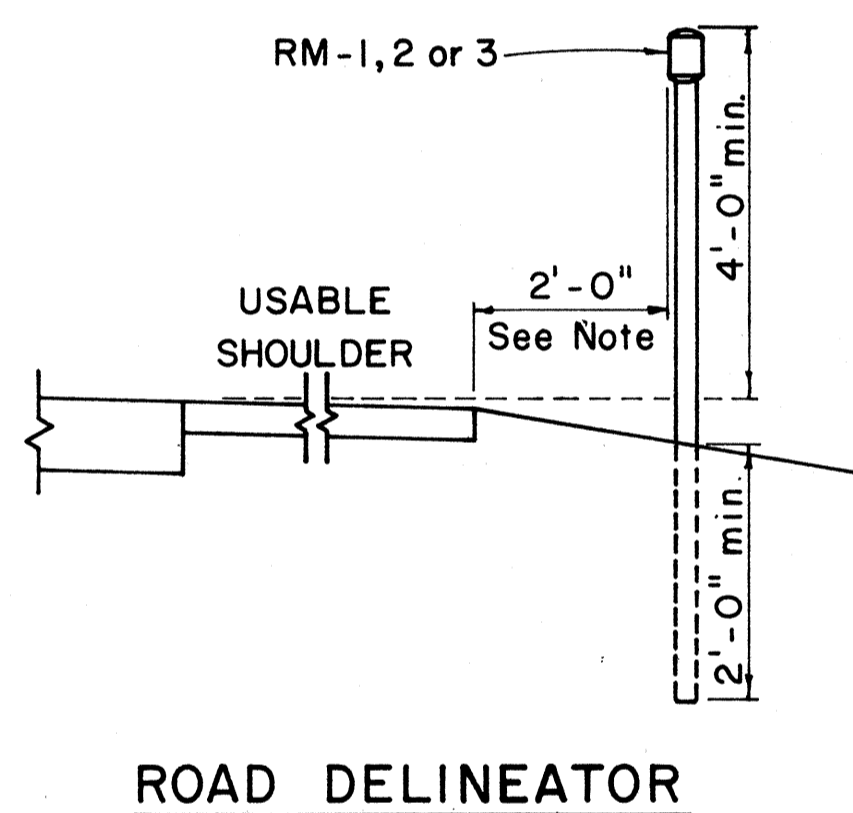
SCALE: AS NOTED

SHEET No. 143 OF 32 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	115	418

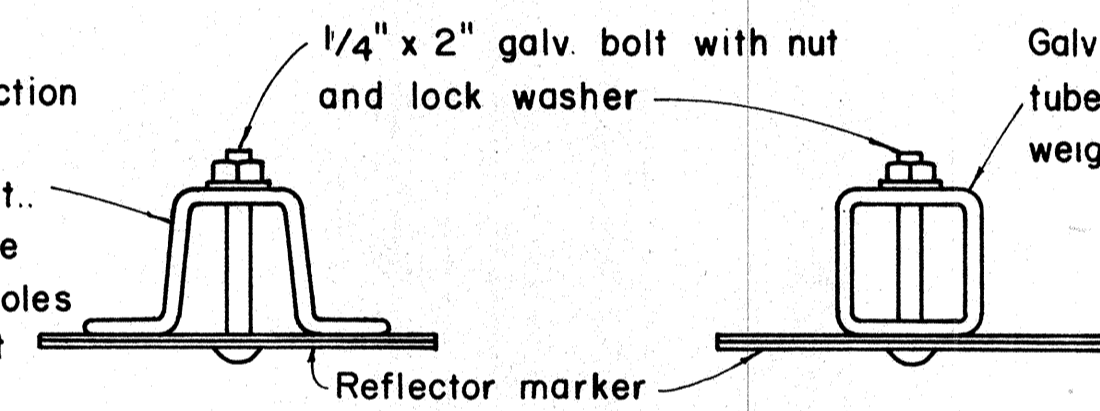


HEIGHT AND LATERAL LOCATION OF SIGNS - TYPICAL INSTALLATION



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

TYPICAL SECTION OF ROAD DELINEATOR

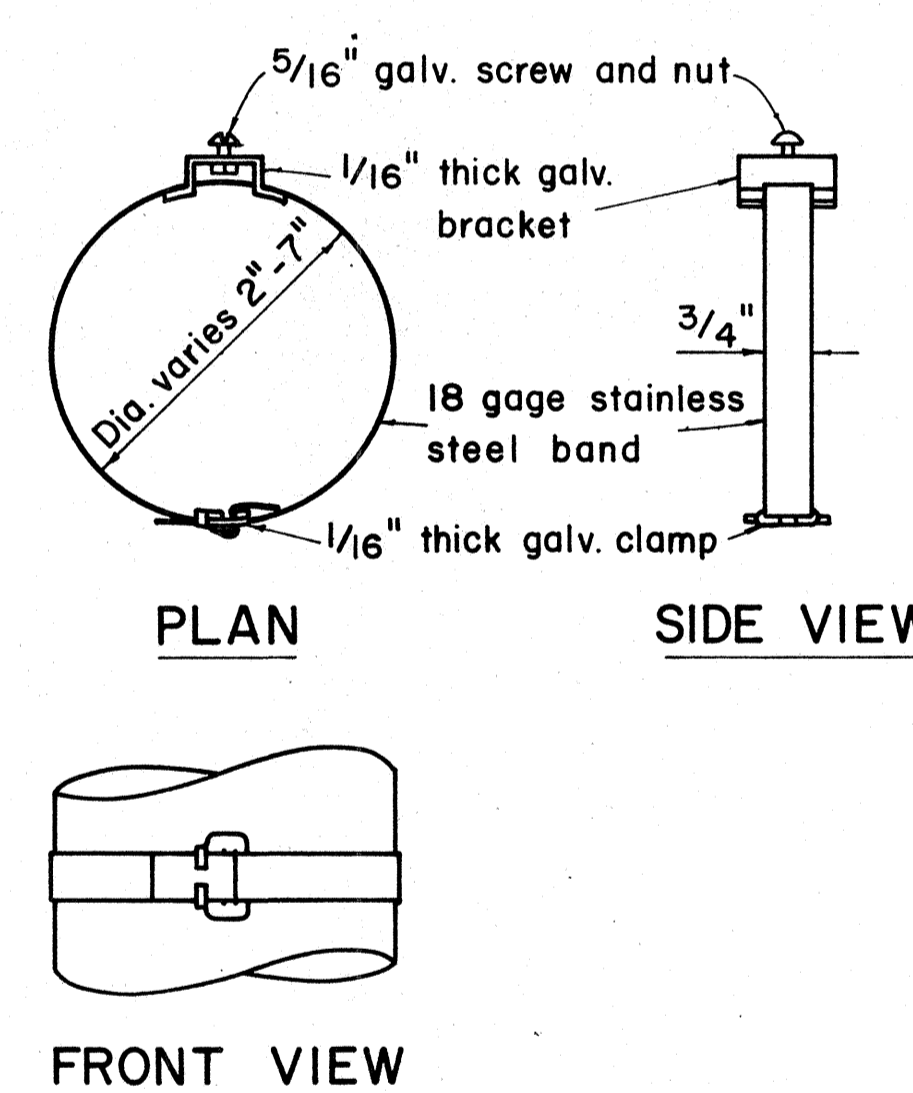
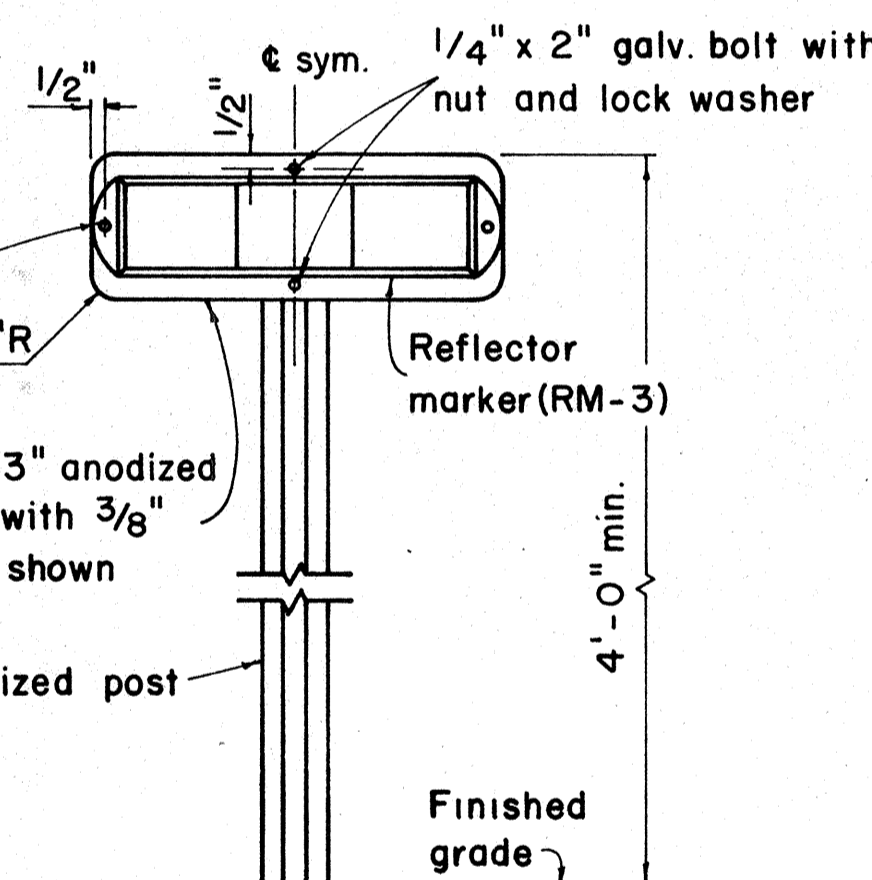


Galv $1/2" \times 1/2"$ square tube post with a minimum weight of 1.7 lbs per ft

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

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

TYPICAL DETAIL HORIZONTAL REFLECTOR MARKER RM-3H



TYPICAL BAND BRACKET FOR MOUNTING TRAFFIC SIGNS

GENERAL NOTES:

- Sign posts shall be 2" galv. standard pipe or 2" x 2" galv. sq. tube post.
- Signs 48" and wider or larger than 10 sq. ft. in area shall be mounted on two 2" galv. standard pipe or two 2" x 2" galv. sq. tube post or 4" x 4" redwood post S4S.
- Signs shall be attached to post with $5/16"$ galv. bolts with nuts and $7/8" \times 0.063$ stainless steel washers with neoprene rubber gasket.
- Sign posts shall extend $3/2"$ above sign where required for City and County street name signs.
- Reflector markers RM-1, 2, 3 shall be glass sphere reflector markers with 4" x 5" reflector units (as shown) or plastic prismatic reflector markers with 3" diameter reflector units.
- Clearance markers (RM-3, RM-4) shall be installed with the edge of the marker in line with the inner edge of the obstruction.
- (R) or (L) indicates right or left and shall be as shown on the plans.

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

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

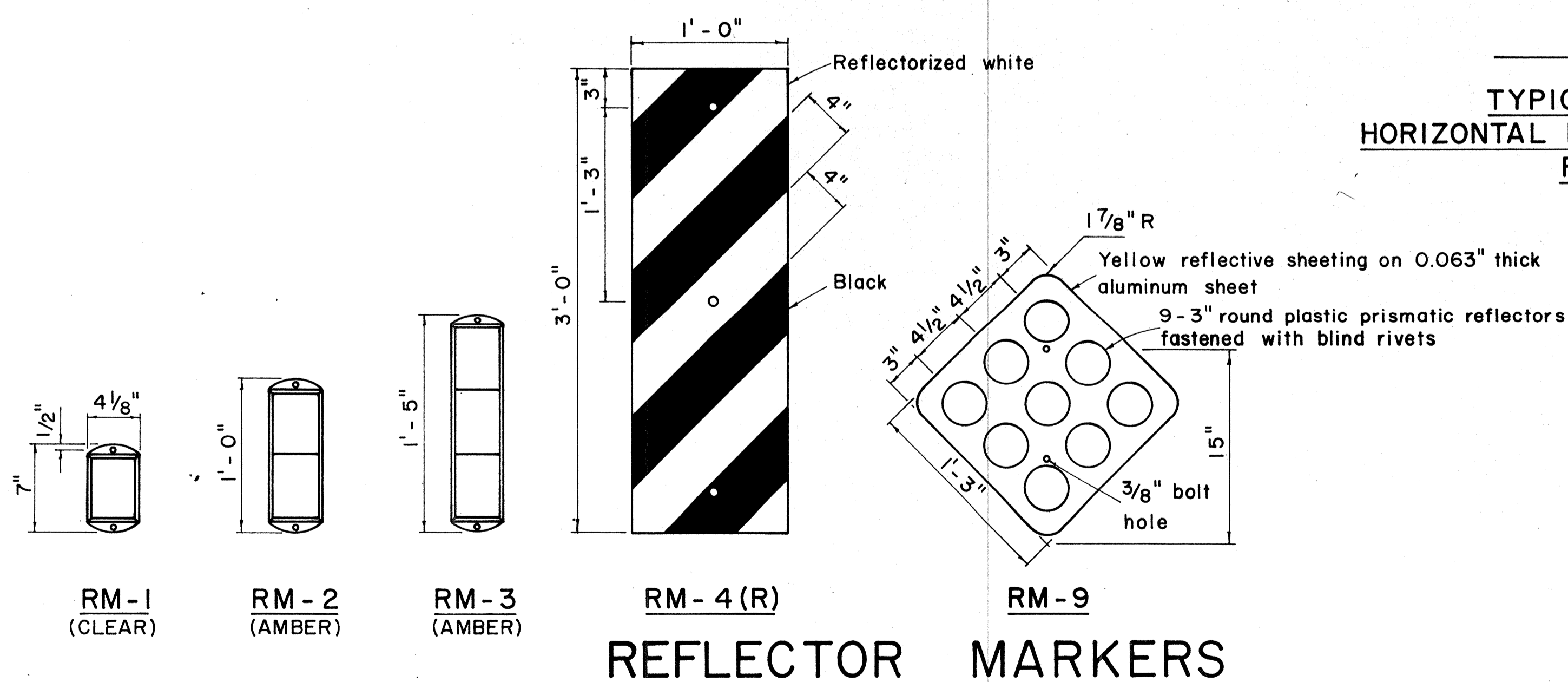
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
 MISCELLANEOUS SIGN DETAILS

Not to scale March, 1968

DATE	
DESIGNED BY	
CHECKED BY	
NO.	



REFLECTOR MARKERS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1972	CO.116	418

 R1-1 30" x 30" R1-1-A 36" x 36" 4-WAY R1-3 12" x 6" R1-3-A 18" x 9"	 R1-2 36" x 36" x 36" R1-2-A 48" x 48" x 48"	 R2-1(50) 24" x 30" R2-1(50)-A 48" x 60"	 R2-2(40) 24" x 24" R2-2(40)-A 48" x 48"	 R2-4a(50/40) 24" x 48" R2-4a(50/40)-A 48" x 96"	 R2-5b(30) 24" x 30" R2-5b(30)-A 48" x 60"	 R3-1 24" x 24" 24" x 18" R3-1-A 48" x 48" 48" x 36"	 R3-2 24" x 24" 24" x 18" R3-2-A 48" x 48" 48" x 36"	 R3-3 24" x 24" R3-3-A 48" x 48"	 R3-4 24" x 24" 24" x 18" R3-4-A 48" x 48" 48" x 36"	 R3-5(L) 30" x 36" R3-5(L)-A 48" x 60"	 R3-6(L) 30" x 36" R3-6(L)-A 48" x 60"
 R3-7(R) 30" x 30" R3-7(R)-A 48" x 48"	 R3-8(L) 30" x 30" R3-8(L)-A 36" x 36" R3-8(L)-B 48" x 48"	 R3-9 24" x 30"	 R4-1 24" x 30"	 R4-2 24" x 30"	 R4-3 24" x 30" R4-3-A 48" x 60"	 R4-5 24" x 30"	 R4-6(500) 24" x 30"	 R4-7 24" x 30" 24" x 18"	 R4-8 24" x 30" 24" x 18"	 R5-1 30" x 30" R5-1-A 48" x 48"	 R5-2 24" x 24" 24" x 18"
 R5-4 24" x 30"	 R5-6 24" x 24" 24" x 18"	 R5-9 36" x 24"	 R6-1(R) 36" x 12"	 R6-2(R) 18" x 24"	 R7-1 12" x 18" R7-1-A 24" x 30"	 R7-4 12" x 18" R7-4-A 24" x 30"	 R7-107(R) 12" x 18"	 R7-108 12" x 18"	 R7-201 12" x 6" R7-201-A 24" x 12"	 R8-1 24" x 30"	 R8-2 24" x 30"
 R8-3 24" x 30"	 R8-4 30" x 24" R8-4-A 48" x 36"	 R8-5 24" x 30"	 R8-6 24" x 30"	 R8-7 30" x 24" R8-7-A 48" x 36"	 R9-1 18" x 24"	 R9-2 12" x 18"	 R9-3 12" x 18"	 R9-4 18" x 24"	 R10-1 12" x 18"	 R10-2 12" x 18"	 R10-3 9" x 12"
 R10-4 9" x 12"	 R10-5 24" x 30"	 R10-6 24" x 36"	 R10-7 24" x 30"	 R10-8 24" x 30"	 R10-9 24" x 30"	 R10-10 24" x 30"					
 R11-1 24" x 30"	 R11-2 48" x 30"	 R11-3(10) 60" x 30"	 R11-4 60" x 30"	 R12-1(10) 24" x 30"							

GENERAL NOTES

1. Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs."
2. All regulatory signs shall be reflectorized unless otherwise specified.
3. All regulatory signs shall have 3/8" bolt holes drilled at appropriate locations.
4. Numerals in () indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.

APPROVAL RECOMMENDED:

 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 C.C.O. #89	H.C.	3/20/72

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

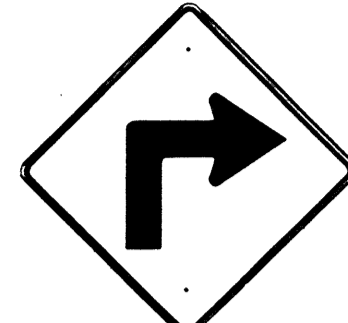
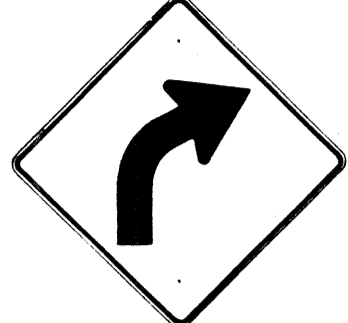
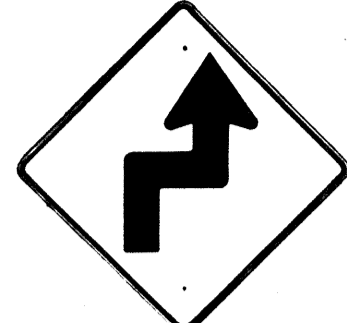
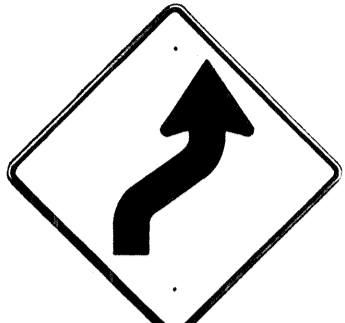

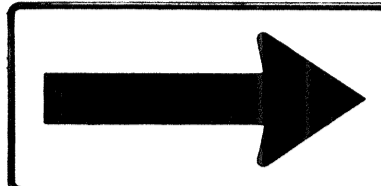
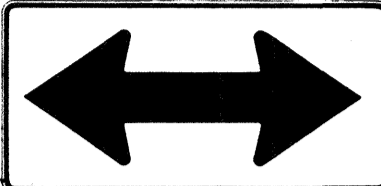
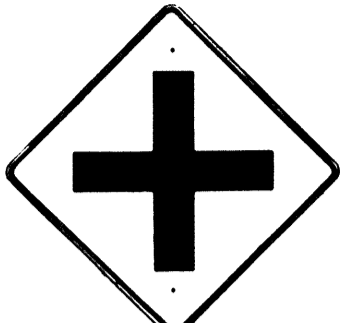
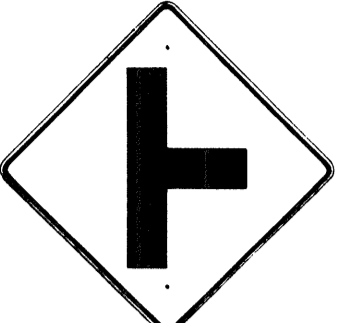
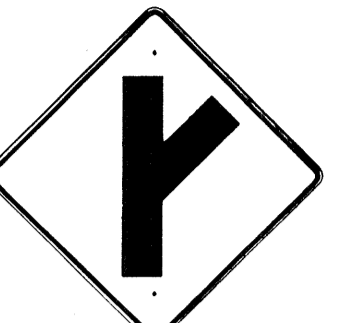
STANDARD DETAILS
REGULATORY SIGNS

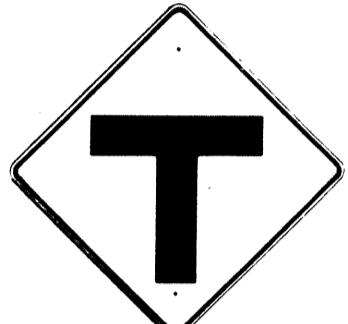



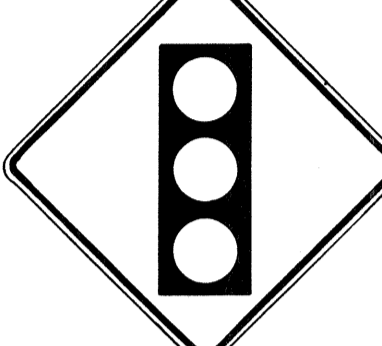

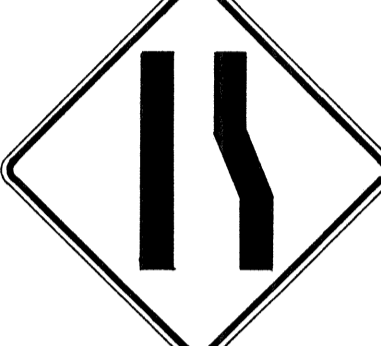



NOT TO SCALE











THIS SHEET SUPERSEDES SHEET NO. 116




DATE
 SURVEY PLOTTED BY
 DRAWN 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-078-I(10)	1972	C.O.117	418



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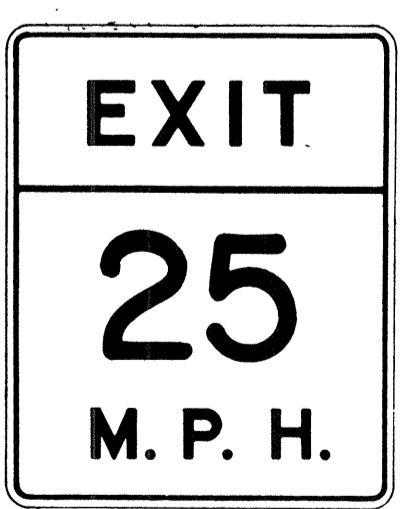
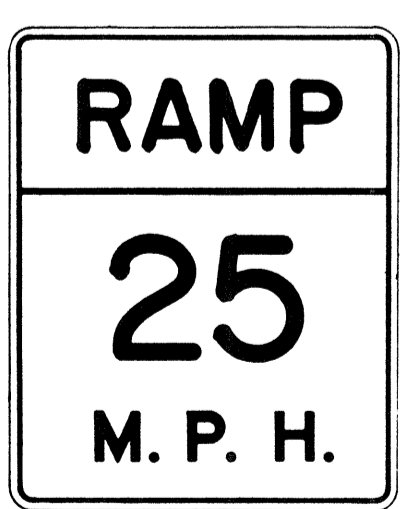


 W2-4 30"x30" W2-4-A 48"x48"	 W2-5 30"x30" W2-5-A 48"x48"	 W3-1 30"x30" W3-1-A 36"x36"	 W3-2 30"x30" W3-2-A 36"x36"	 W3-3 36"x36" 24"x18"	 W4-1(R) 30"x30" 24"x18" W4-1(R)-A 48"x48" 24"x18"	 W4-2(R) 36"x36" W4-2(R)-A 48"x48"	 W5-1 36"x36"	 W5-2 30"x30" W5-2-A 36"x36"	 W5-3 36"x36"
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 W6-1 36"x36" 24"x18"	 W6-2 36"x36" 24"x18"	 W6-3 30"x30" 24"x18" W6-3-A 36"x36" 24"x18" W6-3-B 48"x48" 24"x18"	 W7-1 30"x30" 24"x18" W7-1-A 36"x36" 24"x18"	 W7-2 24"x18"	 W8-1 30"x30" W8-1-A 36"x36"	 W8-2 30"x30" W8-2-A 36"x36"	 W8-3 30"x30" W8-3-A 36"x36"	 W8-4 30"x30" W8-4-A 36"x36"	 W8-5 30"x30" 24"x18" W8-5-A 36"x36" 24"x18"
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 W9-1(R) 30"x30" W9-1(R)-A 36"x36" W9-1(R)-B 48"x48"	 W9-2(L) 36"x36" W9-2(L)-A 48"x48"	 W10-1 36" Diameter
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 W11-1 30"x30" 24"x18" W11-1-A 36"x36" 24"x18"	 W11-2 30"x30" 24"x18" W11-2-A 36"x36" 24"x18"	 W11-4 30"x30" 24"x18" W11-4-A 36"x36" 24"x18"	 W11-5 30"x30" 24"x18" W11-5-A 36"x36" 24"x18"
---	---	---	---

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

- Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs."
- All warning signs shall be reflectorized unless otherwise specified.
- All warning signs shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in () indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
- Signs prefixed with "CW" on the plans shall indicate orange and black construction signs.

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

APPROVED:
Hubert Palsin 3-20-72
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 102 Approved 12-30-69 C.C.O.#89	H.T.	3/20/72

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
WARNING SIGNS

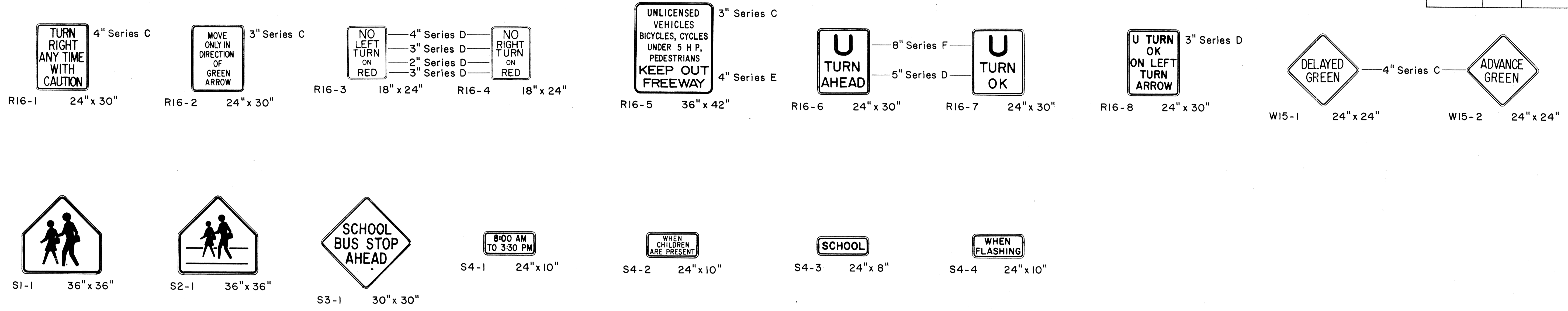
NOT TO SCALE

SHEET No. OF SHEETS DT 102

THIS SHEET SUPERSEDES SHEET NO. 117

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1972	C.O.118	418



GENERAL NOTES

1. Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs."
2. All regulatory and warning signs shall be reflectorized unless otherwise specified.
3. All regulatory and warning signs shall have 3/8" bolt holes drilled at appropriate locations.
4. Numerals in () indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.

APPROVAL RECOMMENDED:
Eiichi Tanaka 3/17/72
 TRAFFIC ENGINEER DATE
 APPROVED:
Shigeru Zatsich 3-20-72
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 103 Approved 12-30-69 C.O. #89	H.T.	3/20/72

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
STANDARD DETAILS
MISCELLANEOUS
REGULATORY & WARNING SIGNS
 NOT TO SCALE
 SHEET No. OF SHEETS DT 103

THIS SHEET SUPERSEDES SHEET NO. 118

SURVEY PLATTED BY _____ DATE _____
 DESIGNED BY _____
 NOTE BOOK _____
 QUANTITIES BY _____
 CHECKED BY _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1 (10)	1971	119	418



W7-2 48" x 48"



W8-7 30" x 30"



W14-1 30" x 30"



W20-1a 48" x 48"



W20-2d 48" x 48"



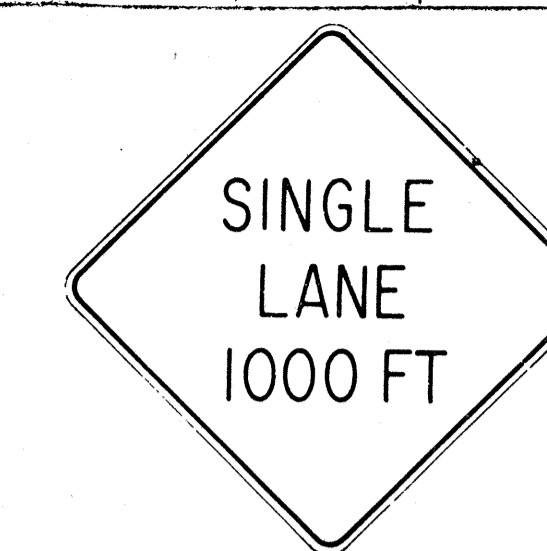
W20-3b 48" x 48"



W20-4d 48" x 48"



W20-5d(L) 48" x 48"



W20-6b 48" x 48"



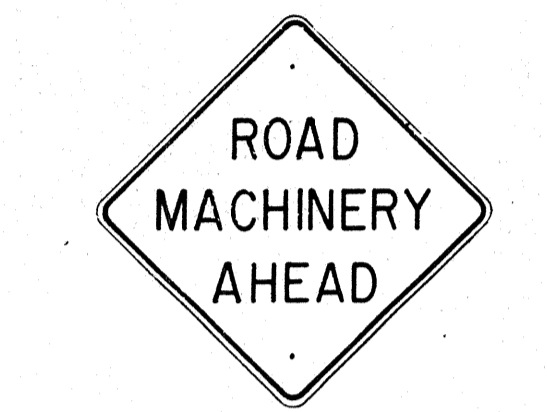
W20-7c 48" x 48"



W21-1 30" x 30"



W21-2 24" x 24"



W21-3 36" x 36"



W21-4 30" x 30"



W21-5 30" x 30"



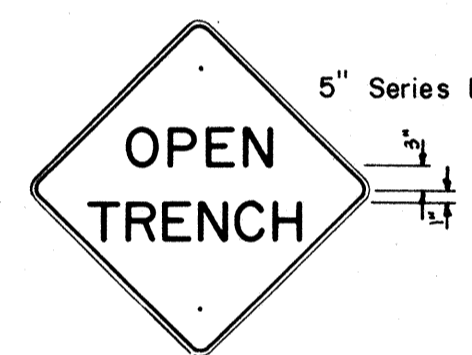
W21-6 30" x 30"



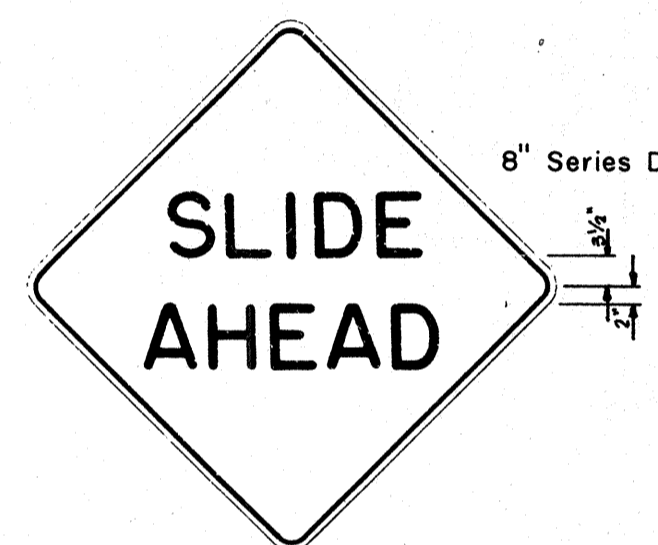
W22-1 30" x 30"



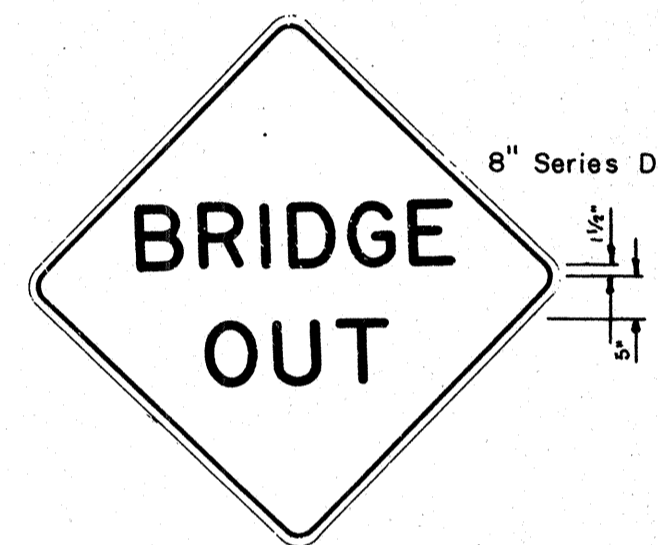
W22-2 30" x 30"



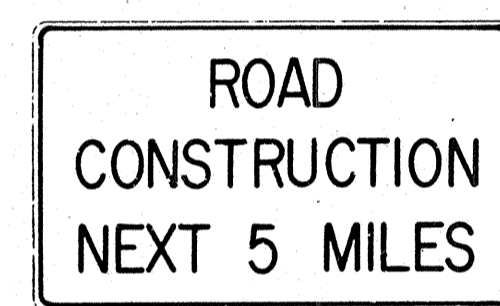
W22-3 30" x 30"



W22-4 48" x 48"



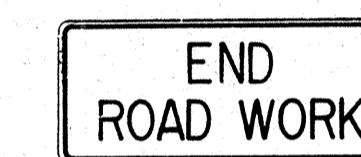
W22-5 48" x 48"



G20-1(5) 60" x 36"



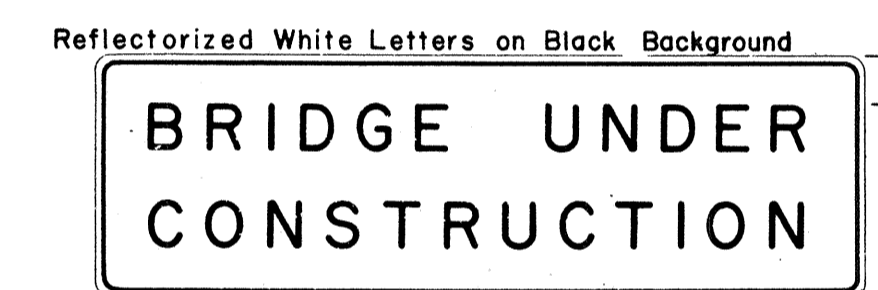
G20-2 60" x 24"



G20-3 42" x 18"



M5-7(L) 48" x 18"



CW-1 96" x 30"

NOTE:

- The shape, color, dimensions, symbols, wording, lettering and reflectorization of all signs shall be in accordance with the "Manual on Uniform Traffic Control Devices for Streets and Highways," dated June 1961 and the BPR manual "Standard Highway Signs," dated September 1961 unless otherwise specified.
- All signs shall be reflectorized unless otherwise specified.
- All signs shall have 3/8" bolt holes drilled at appropriate locations unless otherwise noted.
- For W20 series signs, suffixes a,b,c and d are as follows a 1500 FT, b 1000 FT, c 500 FT and d AHEAD
- (R) or (L) indicates right or left and shall be as shown on the plans.
- Number in () indicates miles and shall be as shown on the plans.

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

APPROVAL RECOMMENDED:

Etschi Tanaka
TRAFFIC ENGINEER 12/29/69
DATE

APPROVED:

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

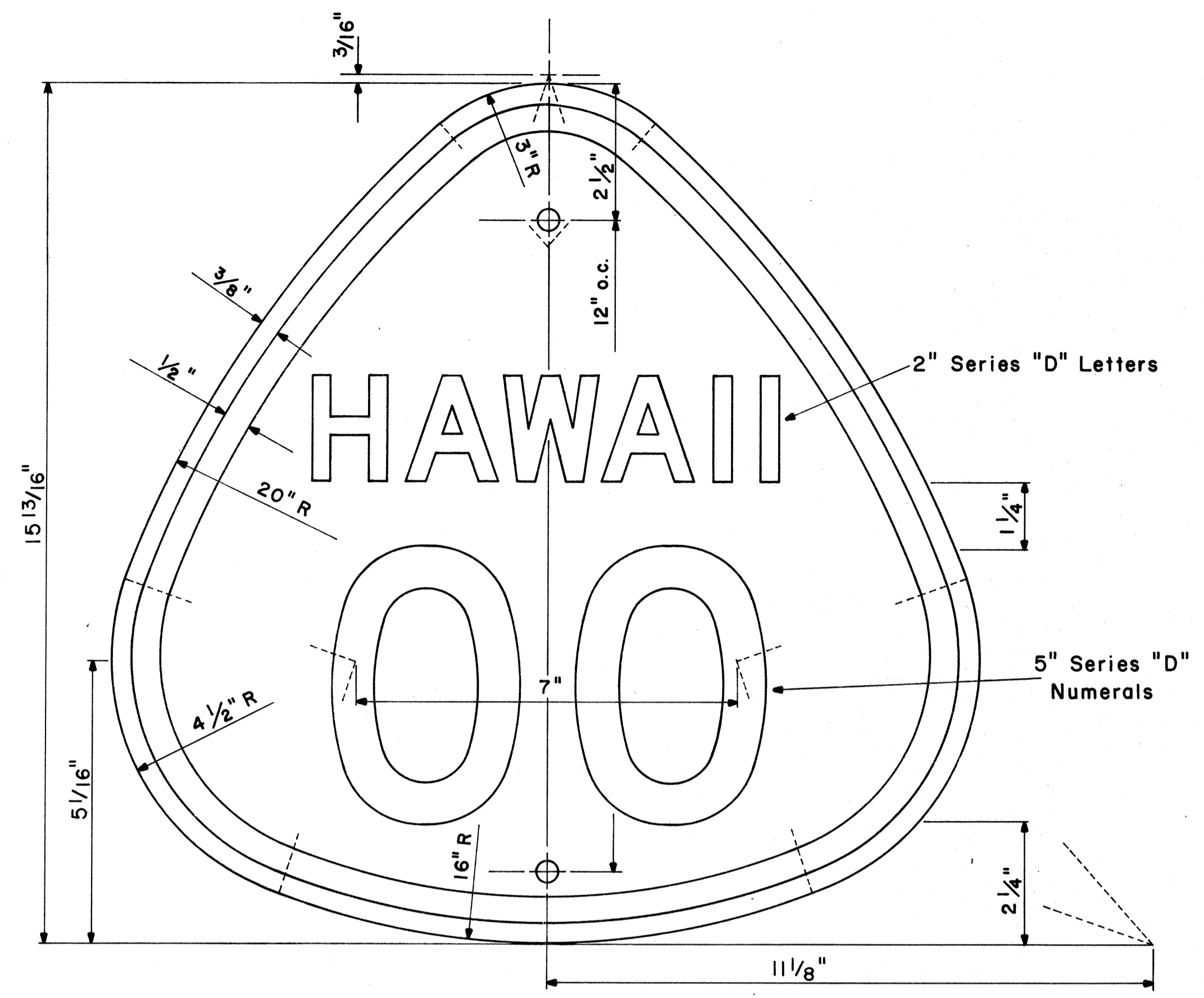
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

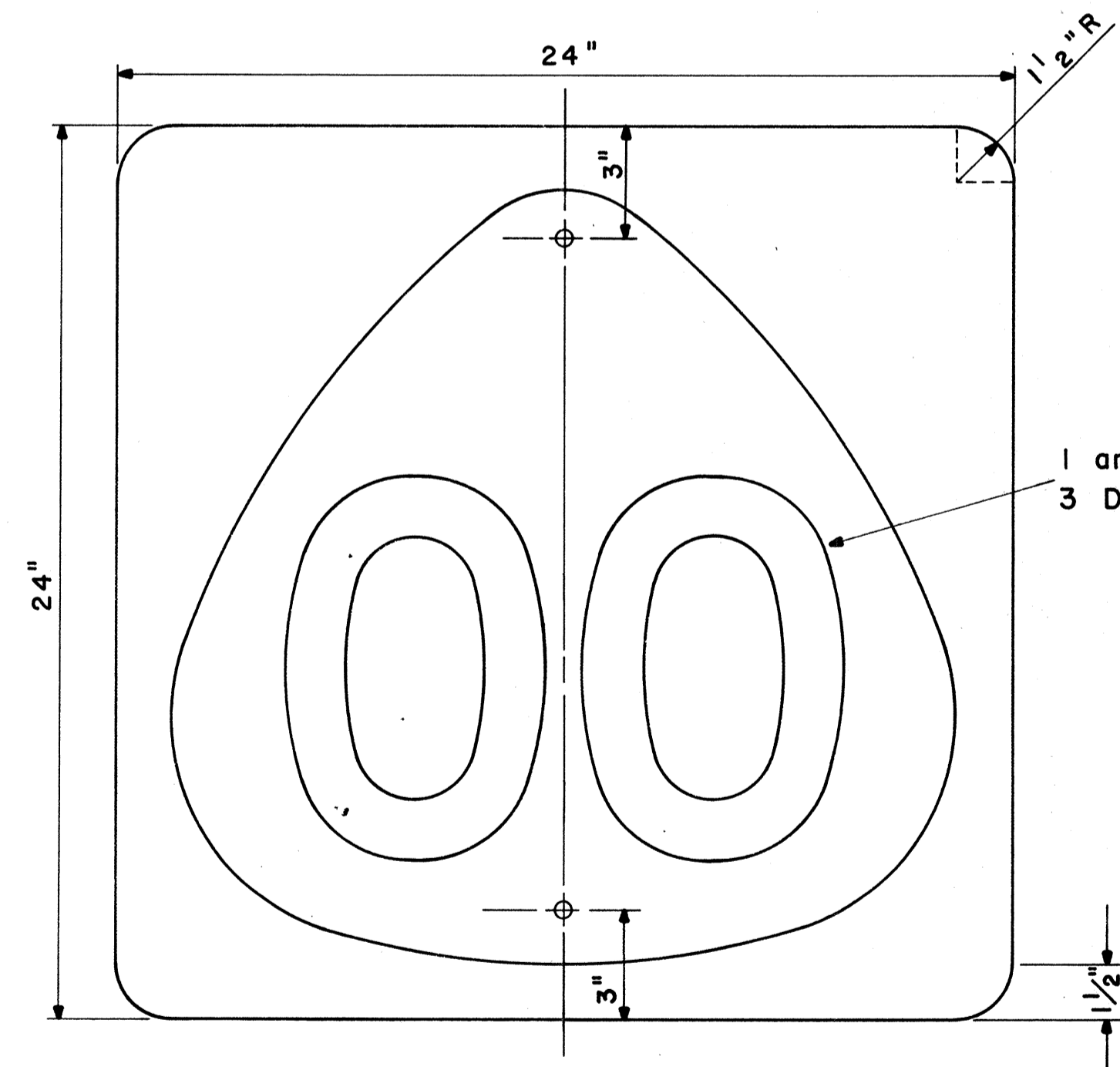
CONSTRUCTION SIGNS

NOT TO SCALE



**STATE ROUTE MARKER
MI-3(OO)**

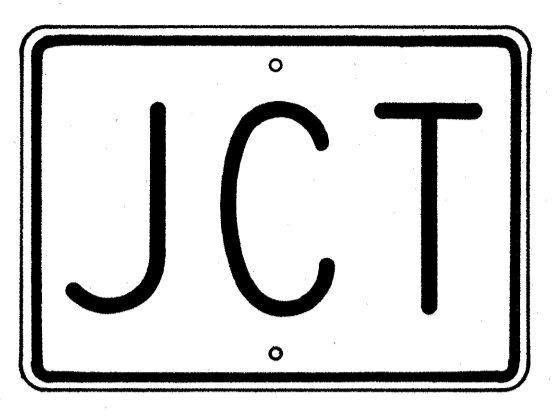
Scale: 1/2" = 1"



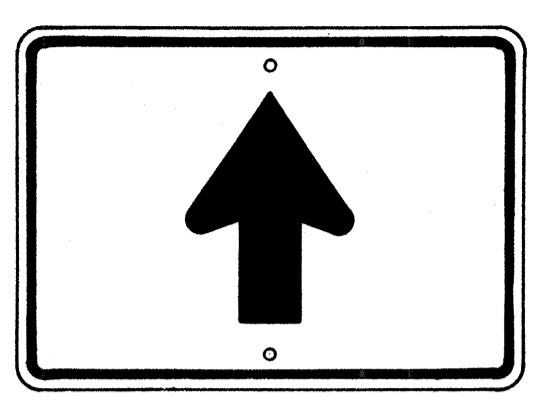
**STATE ROUTE MARKER
MI-4(OO)**

Scale: 1/4" = 1"

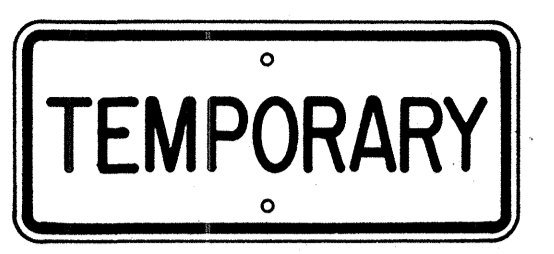
NOTE:
Multiply all dimensions of State Route Marker MI-3 by 1.3 for the dimensions of the shield for MI-4.



M2-1
21" x 15"



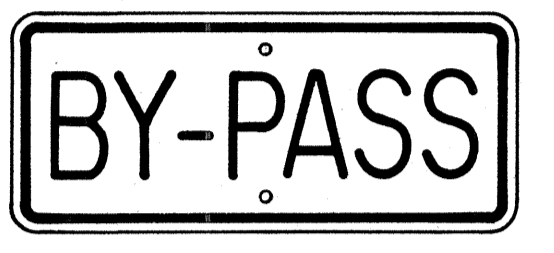
M4-3
21" x 15"



M5-1
21" x 9"



M5-2
21" x 9"



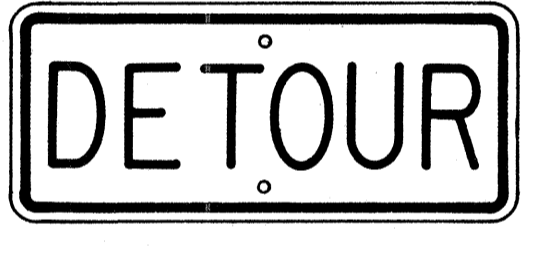
M5-3
21" x 9"



M5-4
21" x 9"



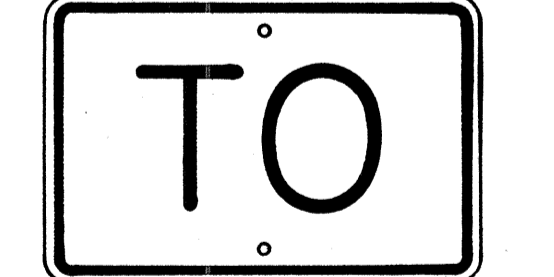
M5-5
21" x 9"



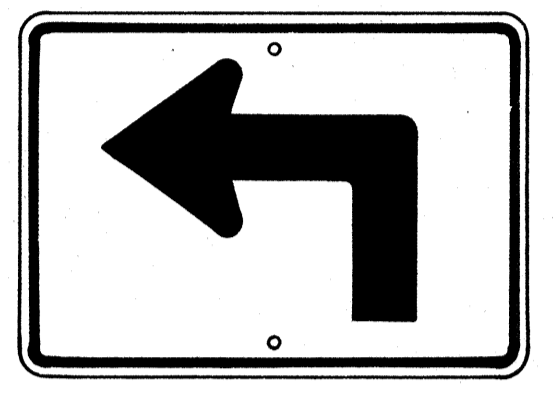
M5-6
21" x 9"



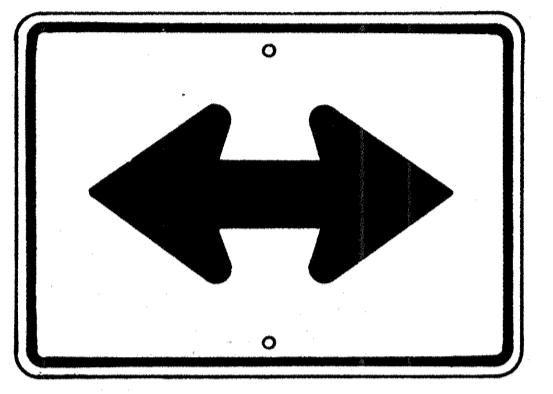
M6-1-N
21" x 9"
(See Note 6)



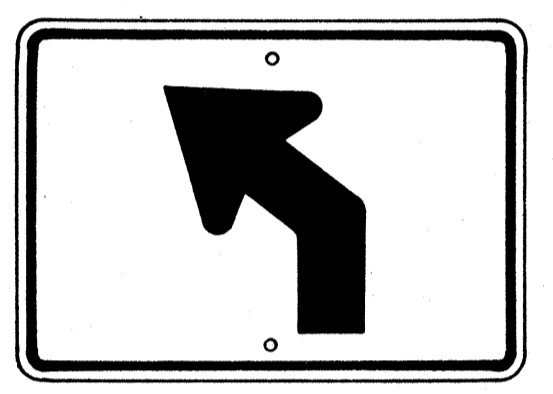
M7-1
18" x 12"



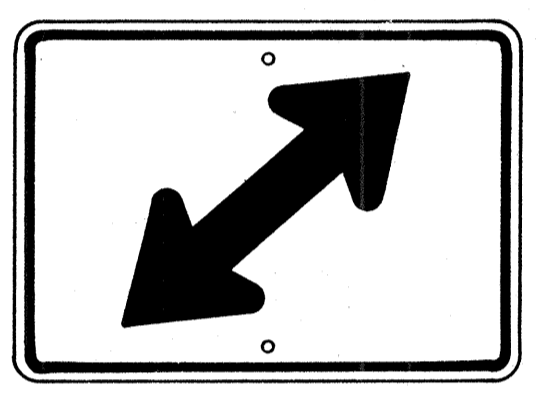
M3-1-L
* M3-1-R
21" x 15"



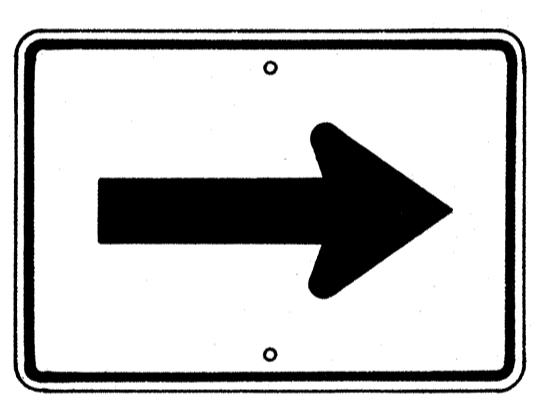
M4-4
21" x 15"



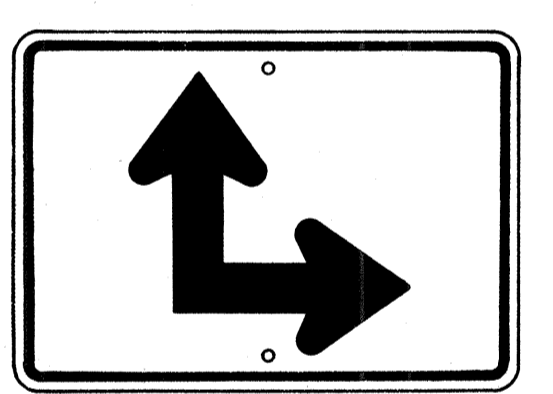
M3-2-L
* M3-2-R
21" x 15"



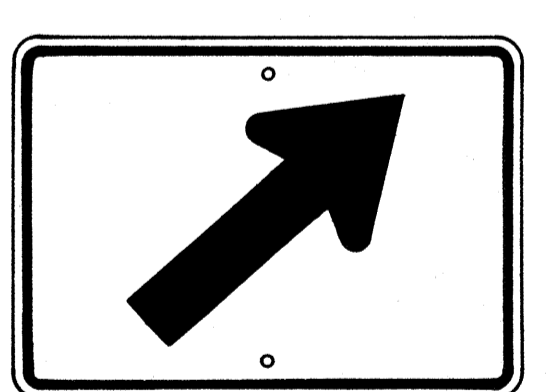
M4-5-R
* M4-5-L
21" x 15"



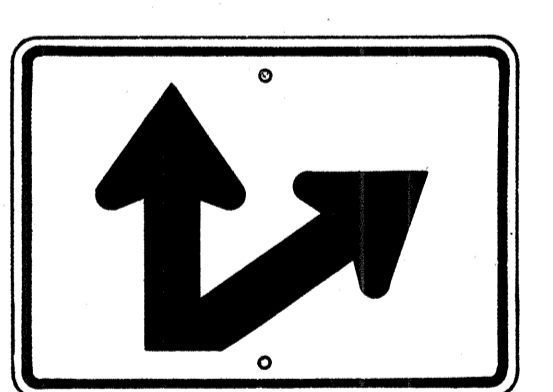
M4-1
21" x 15"



M4-6-R
* M4-6-L
21" x 15"



M4-2-R
* M4-2-L
21" x 15"



M4-7-R
* M4-7-L
21" x 15"

AUXILIARY MARKERS

Scale: 1/8" = 1"

* NOTE:
Signs shall be similar but opposite in direction.

GENERAL NOTES

- The shape, color, dimensions, symbols, wording, lettering and reflectorizing of all signs shall be in accordance with the "Manual on Uniform Traffic Control Devices for Streets and Highways," dated June 1961 and the BPR manual "Standard Highway Signs," dated September 1961, unless otherwise specified.
- All letters and figures shall conform to the manual "Standard Alphabets for Highway Signs," Dept. of Commerce, Bureau of Public Roads, 1966
- All markers shall be reflectorized unless otherwise specified.
- All markers shall have 3/8" bolt holes drilled at appropriate locations unless otherwise specified.
- All markers shall have a black legend on a white background unless otherwise specified.
- Sign message of Cardinal Direction Marker (M6-1) shall be denoted by the following suffixes:
M6-1-N : NORTH
M6-1-E : EAST
M6-1-S : SOUTH
M6-1-W : WEST
- Auxiliary markers denoted with the suffix "I": (M4-1-I) shall have a white legend on a blue background.
- Cardinal Direction Marker (M6-1) with suffix I (3) shall have a white legend on a blue background and shall be 30" x 15" in size.
- For MI-3 and MI-4 signs, number in () indicates route number and shall be as shown on the plan.

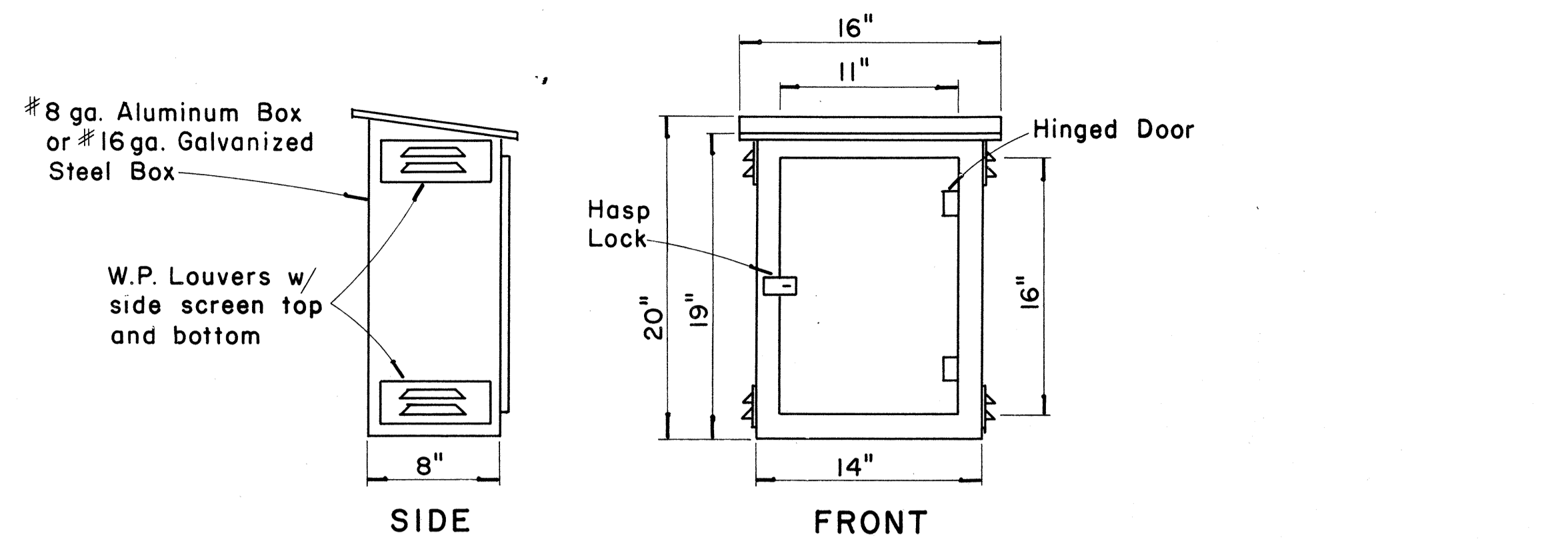
APPROVAL RECOMMENDED:
Eishi Tanaka 12/20/69
TRAFFIC ENGINEER DATE

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

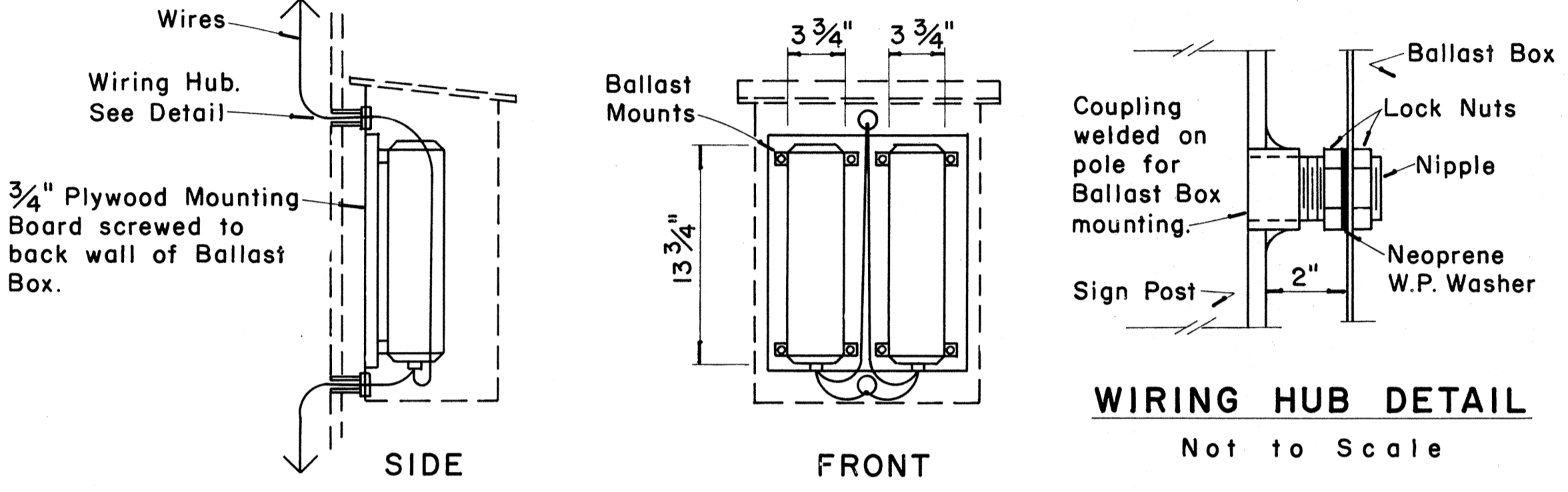
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
STATE ROUTE MARKERS
AND
AUXILIARY MARKERS
Scale: As Noted
SHEET NO. 20 OF 32 SHEETS DT 105

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



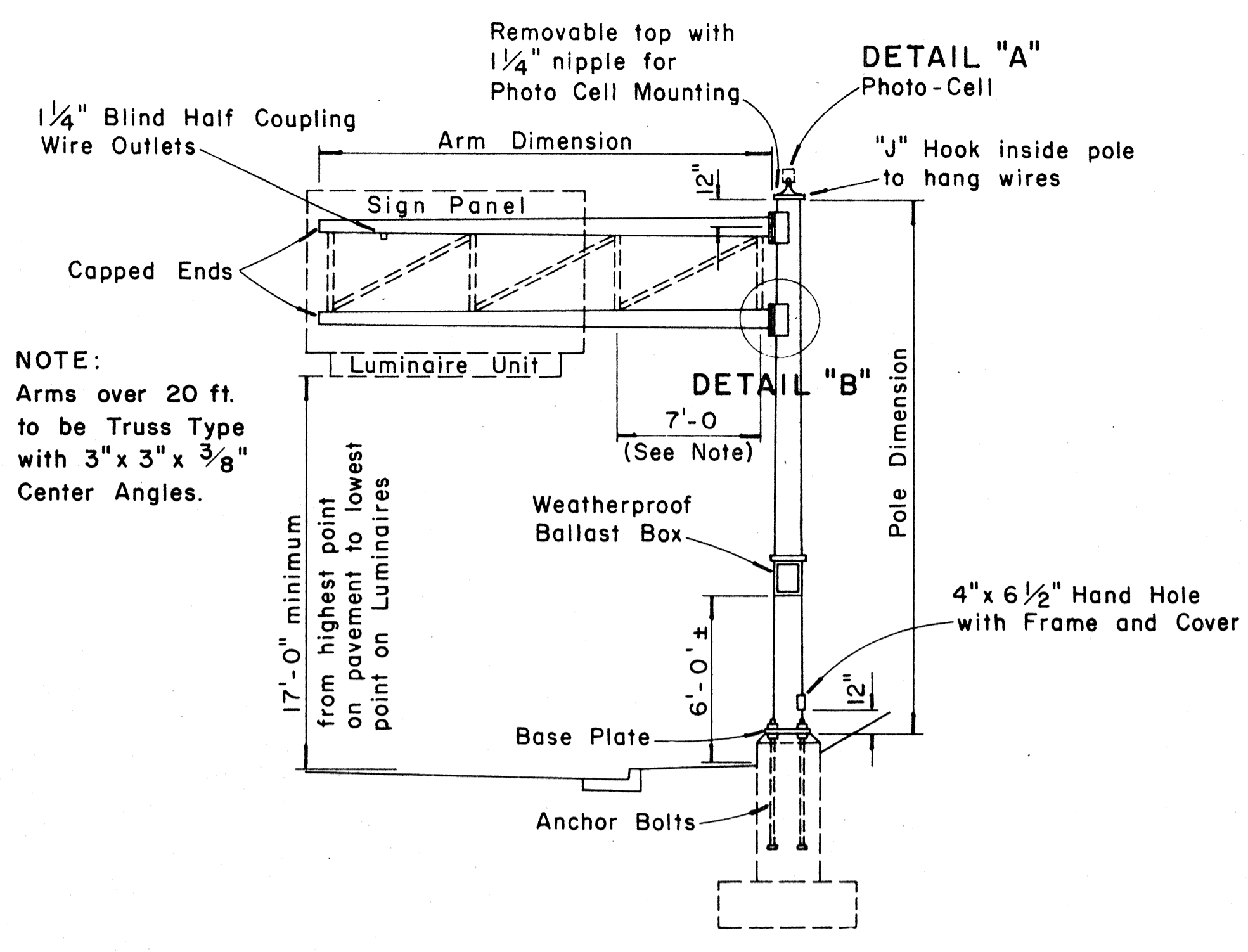
BALLAST BOX



BALLASTS

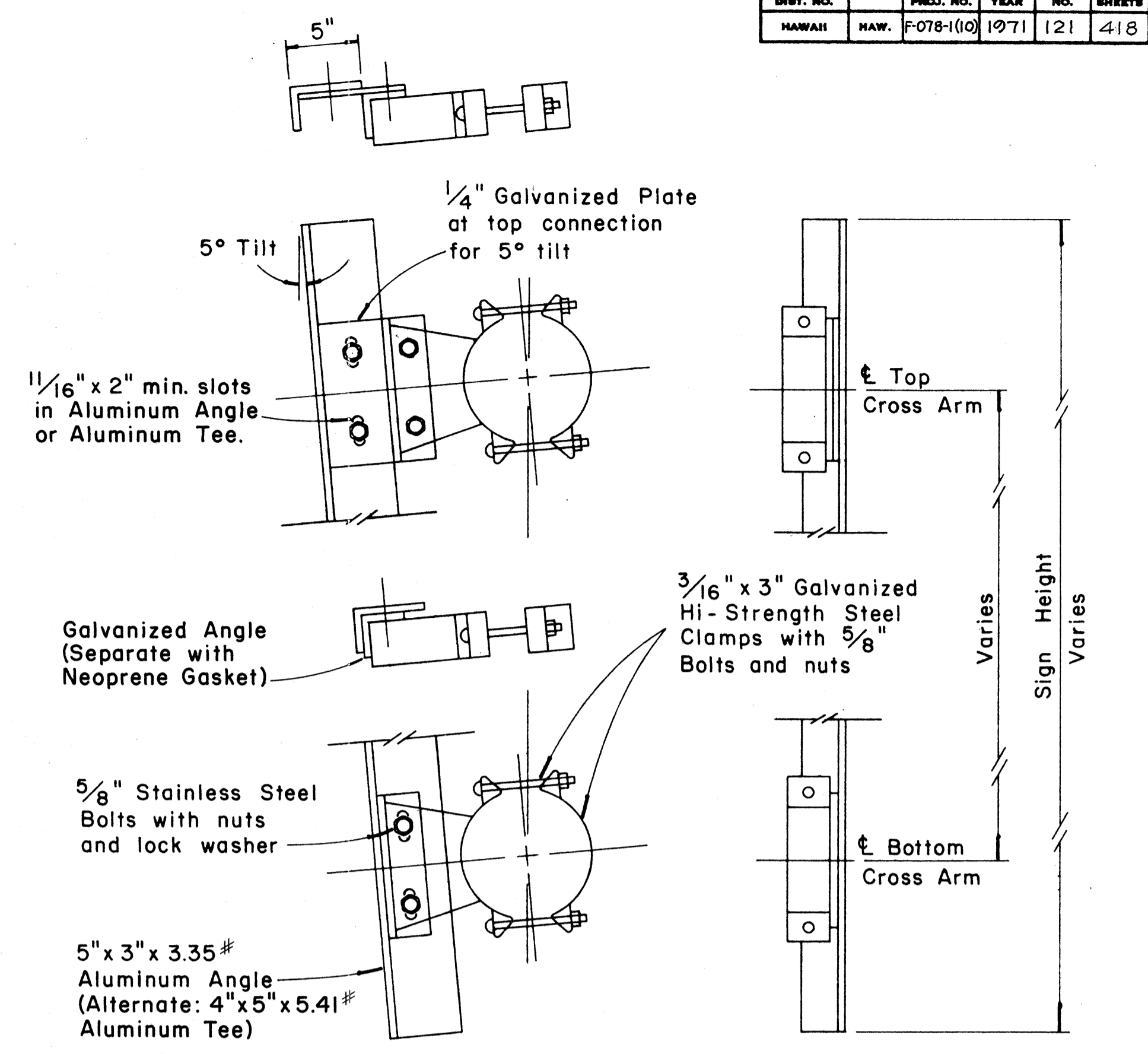
WEATHERPROOF BALLAST BOX

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



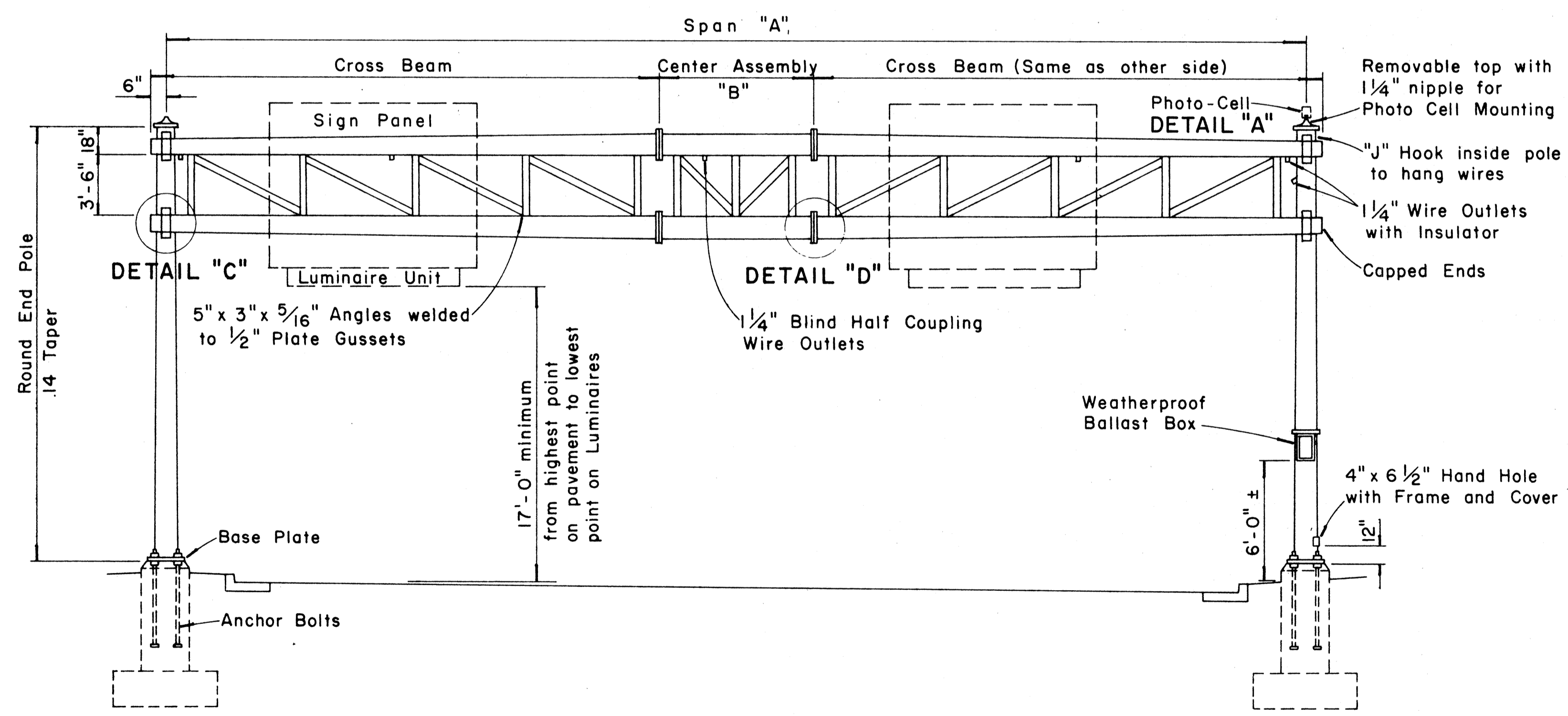
TYPE "C"
SINGLE SIGN POST — CANTILEVER TYPE
DOUBLE MAST ARM

Scale: 3/16" = 1'-0"



SIGN BRACKET ASSEMBLY

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



TYPE "D"
TWO - TUBE TRUSS — SPAN TYPE

Scale: 3/16" = 1'-0"

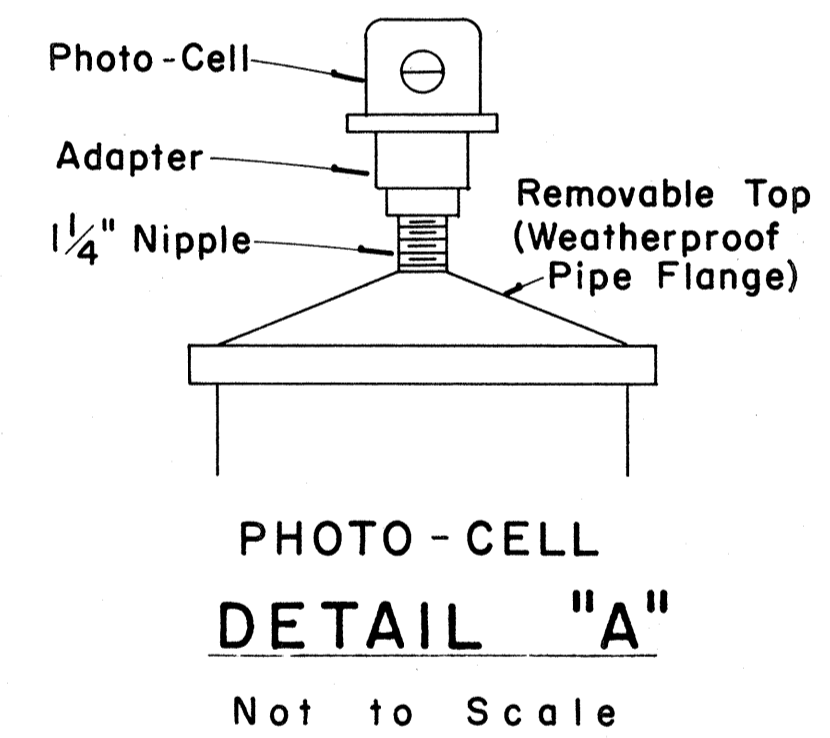
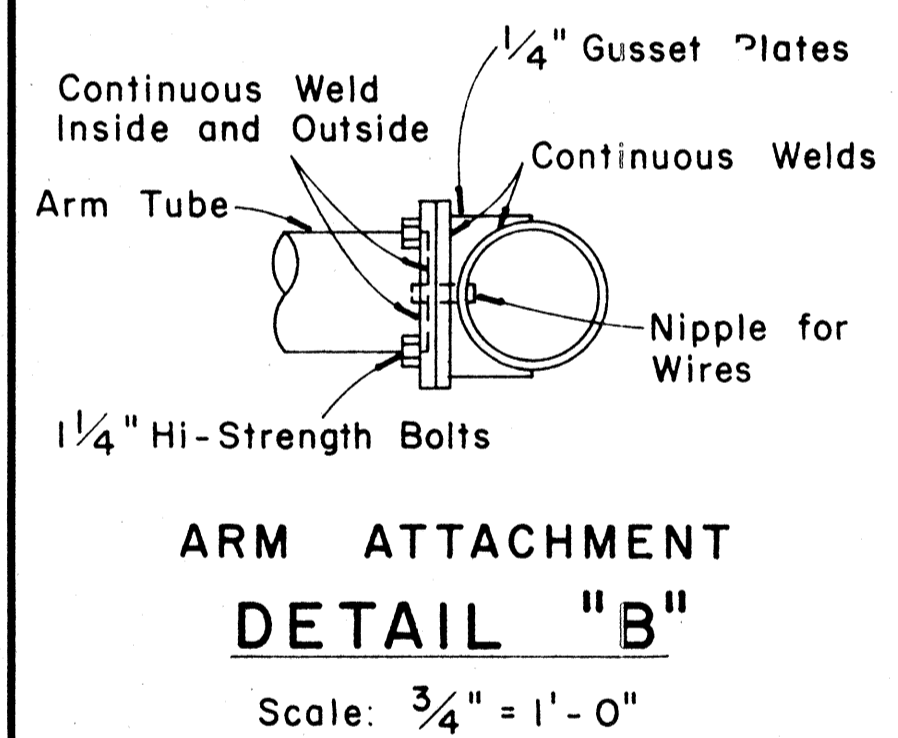


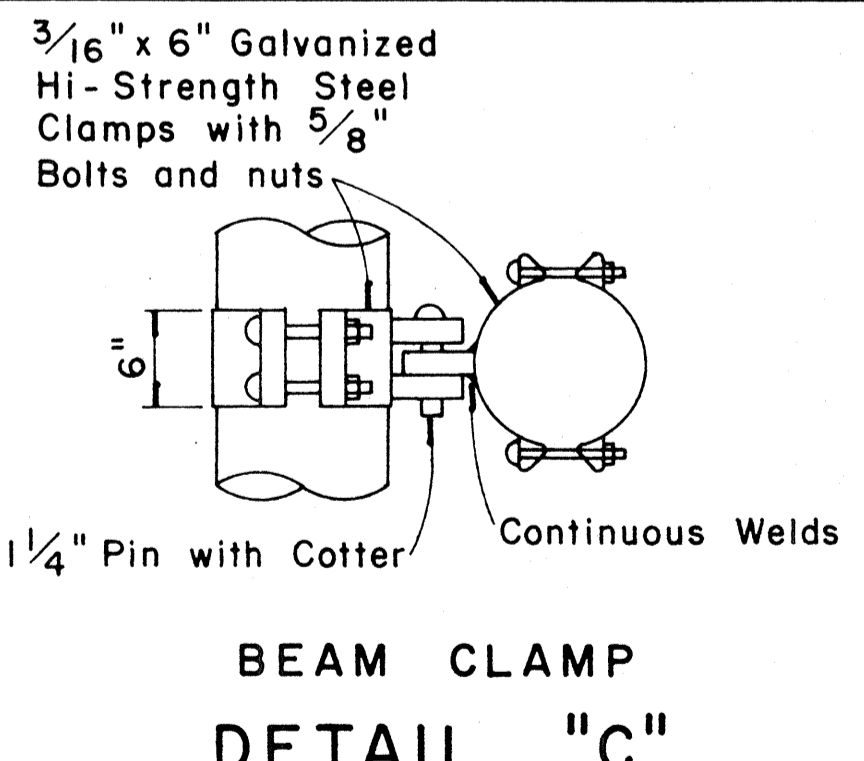
PHOTO-CELL
DETAIL "A"

Not to Scale



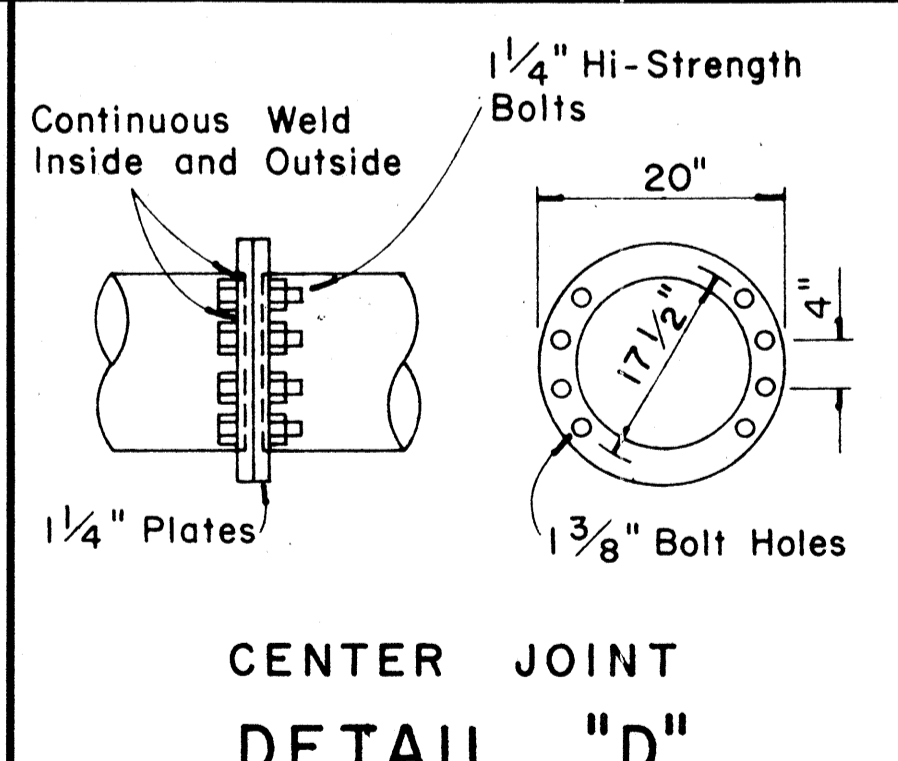
ARM ATTACHMENT
DETAIL "B"

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



BEAM CLAMP
DETAIL "C"

Scale: 1" = 1'-0"



CENTER JOINT
DETAIL "D"

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

APPROVAL RECOMMENDED:
Erich Tanaka 12/23/69
TRAFFIC ENGINEER DATE

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

NO.	REVISION	APPROVED BY	DATE

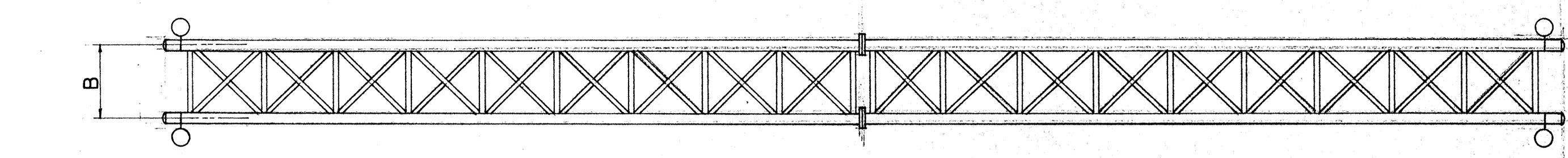
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
OVERHEAD SIGN SUPPORTS

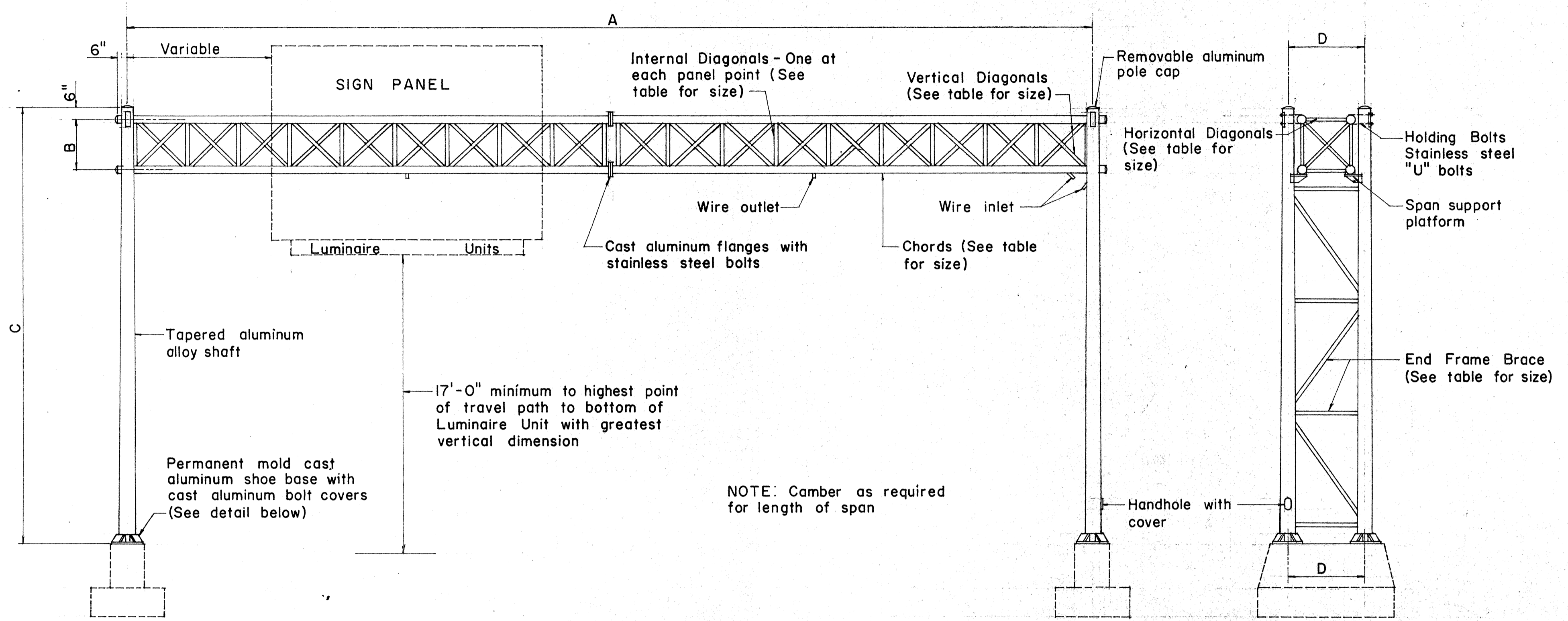
Scale As Shown
SHEET No. 21 OF 32 SHEETS DT 200

DATE
DESIGNED BY
DRAWN BY
CHECKED BY
NOTED BY

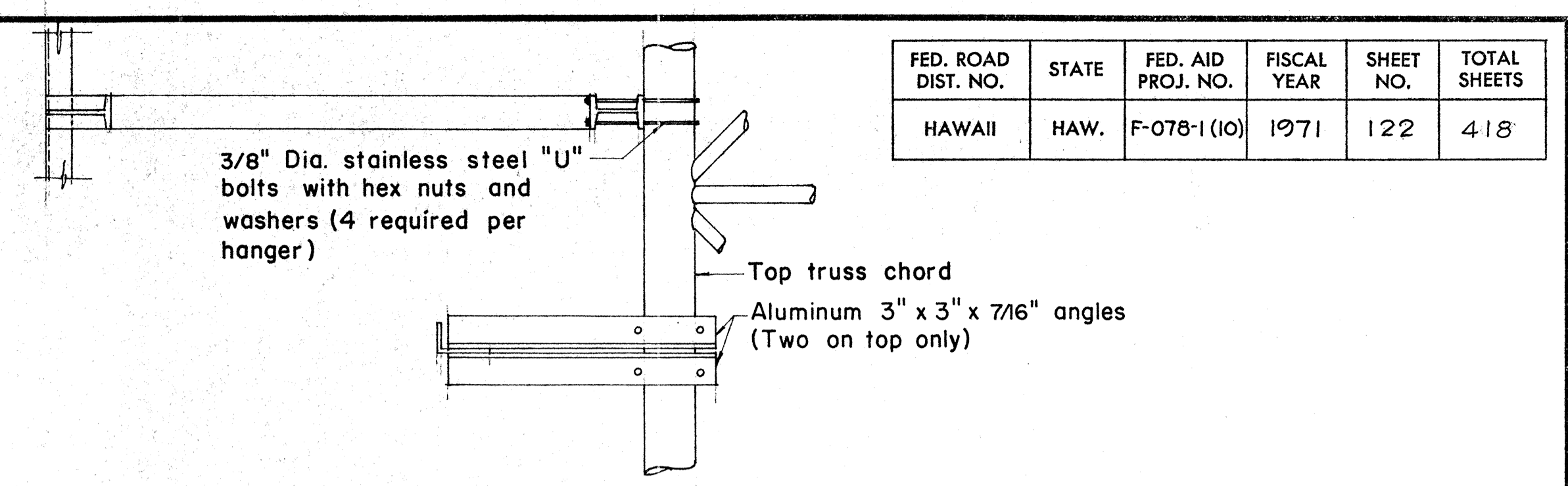
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1 (10)	1971	122	418



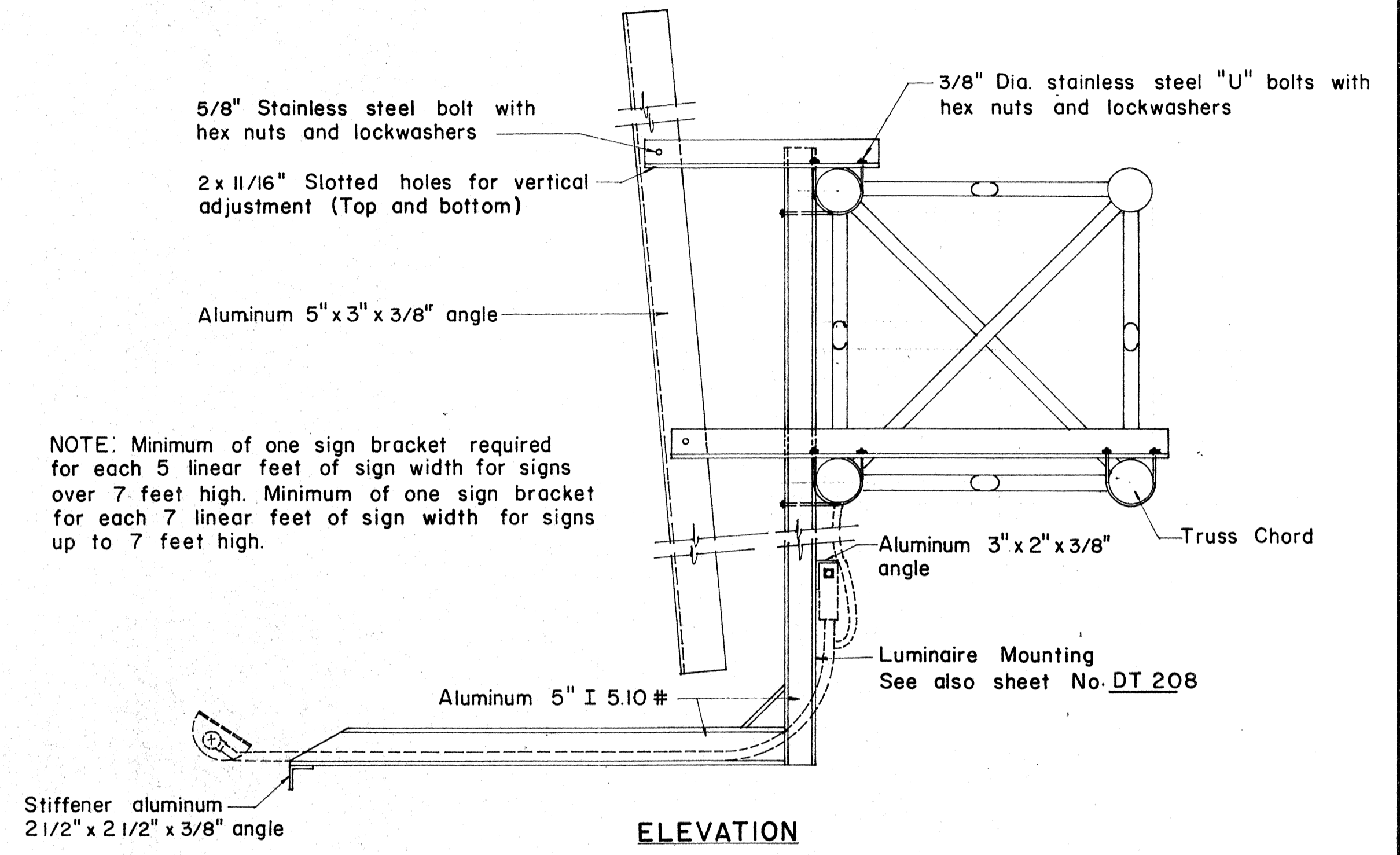
PLAN



ELEVATION
TYPE "F"



PLAN

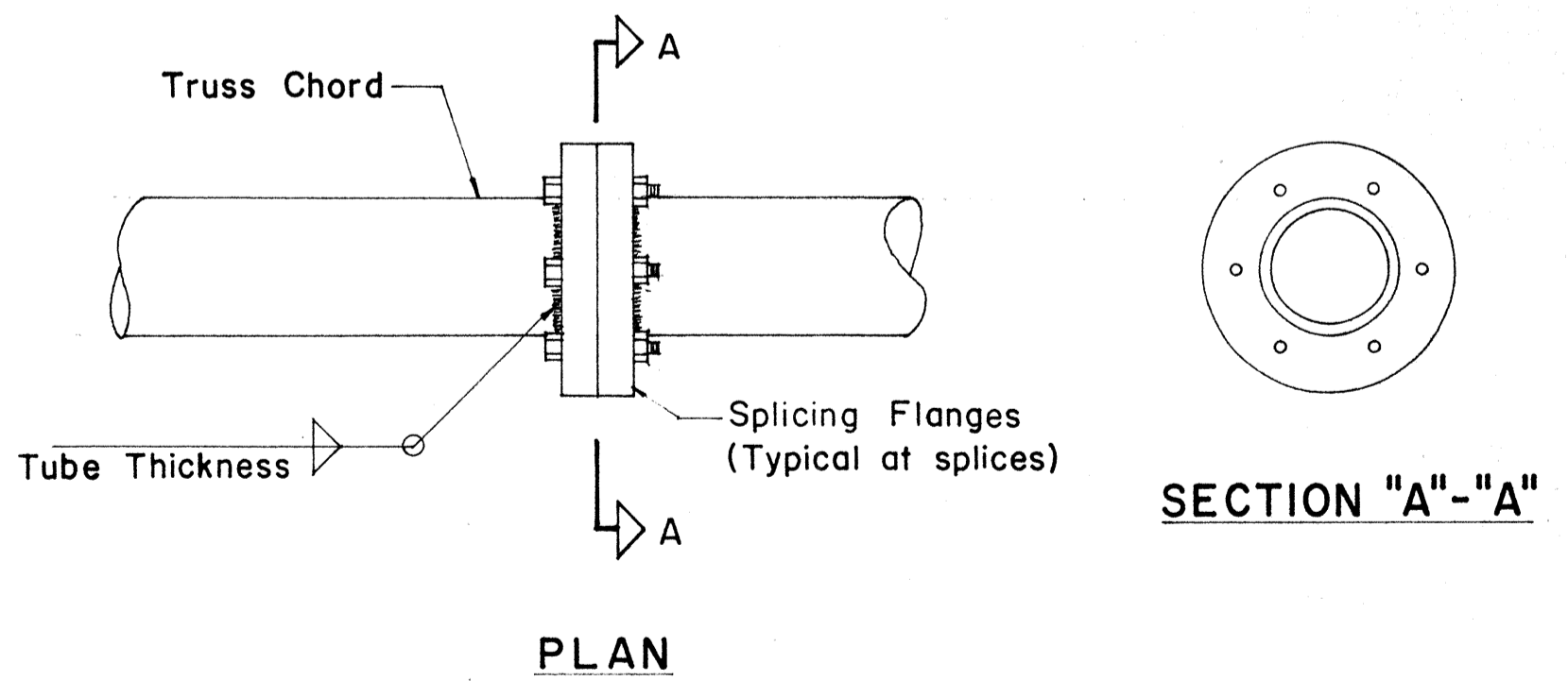


ELEVATION

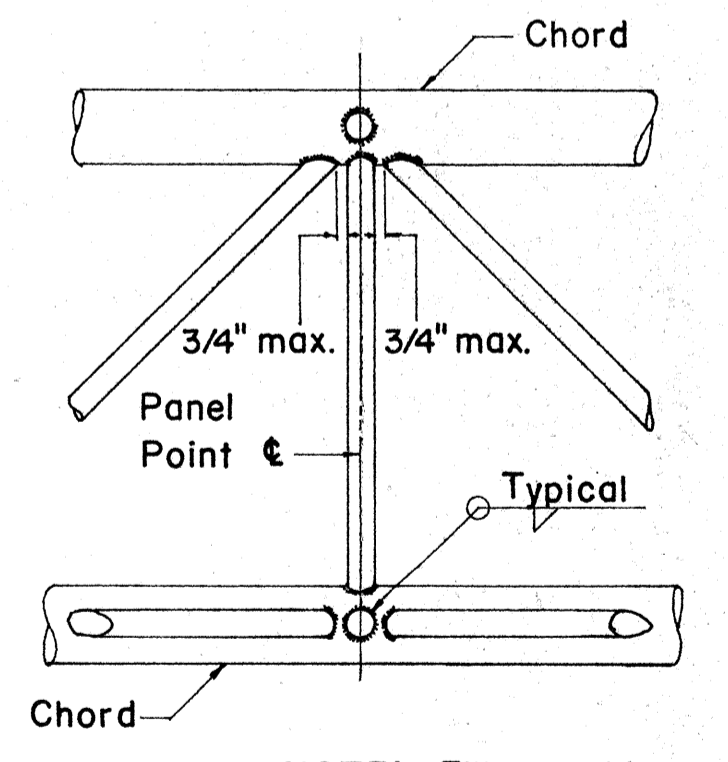
SIGN BRACKET ASSEMBLY

NOTE: Minimum of one sign bracket required for each 5 linear feet of sign width for signs over 7 feet high. Minimum of one sign bracket for each 7 linear feet of sign width for signs up to 7 feet high.

SIGN NO.	A	B	C	D	E	F	SPAN SECTIONS REQ'D.	CHORD SIZE	END FRAME SHAFT SIZE AND TAPER	VERTICAL DIAGONAL SIZE	HORIZONTAL DIAGONAL SIZE	INTERNAL DIAGONAL SIZE	END FRAME BRACE SIZE	BOLT CIRCLE DIA.	ANCHORAGE

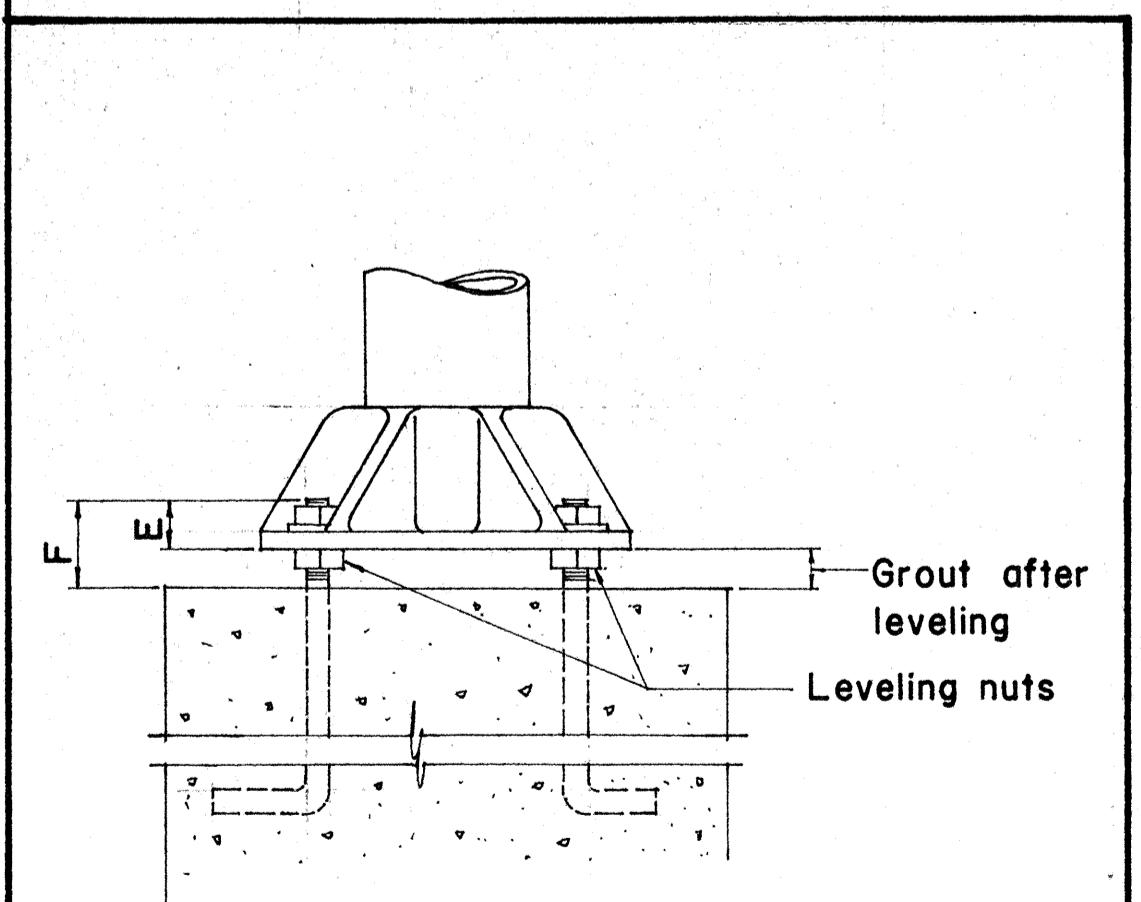


DETAIL OF CHORD SPLICES



TYPICAL JOINT DET.

NOTE: Fillet weld size to be tube thickness plus 1/16".



DETAIL OF BASE

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

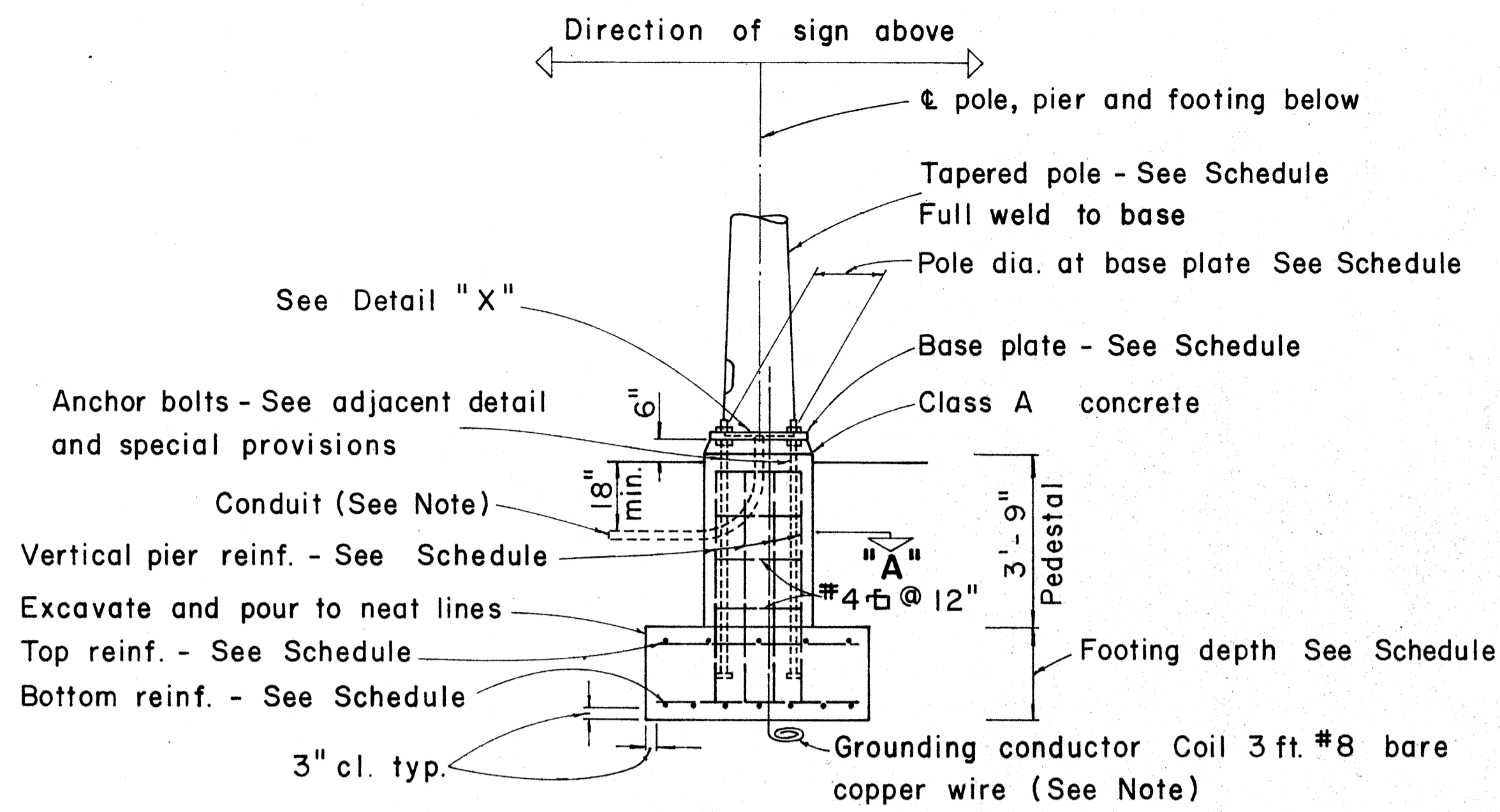
APPROVED:
[Signature] 12/29/69
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

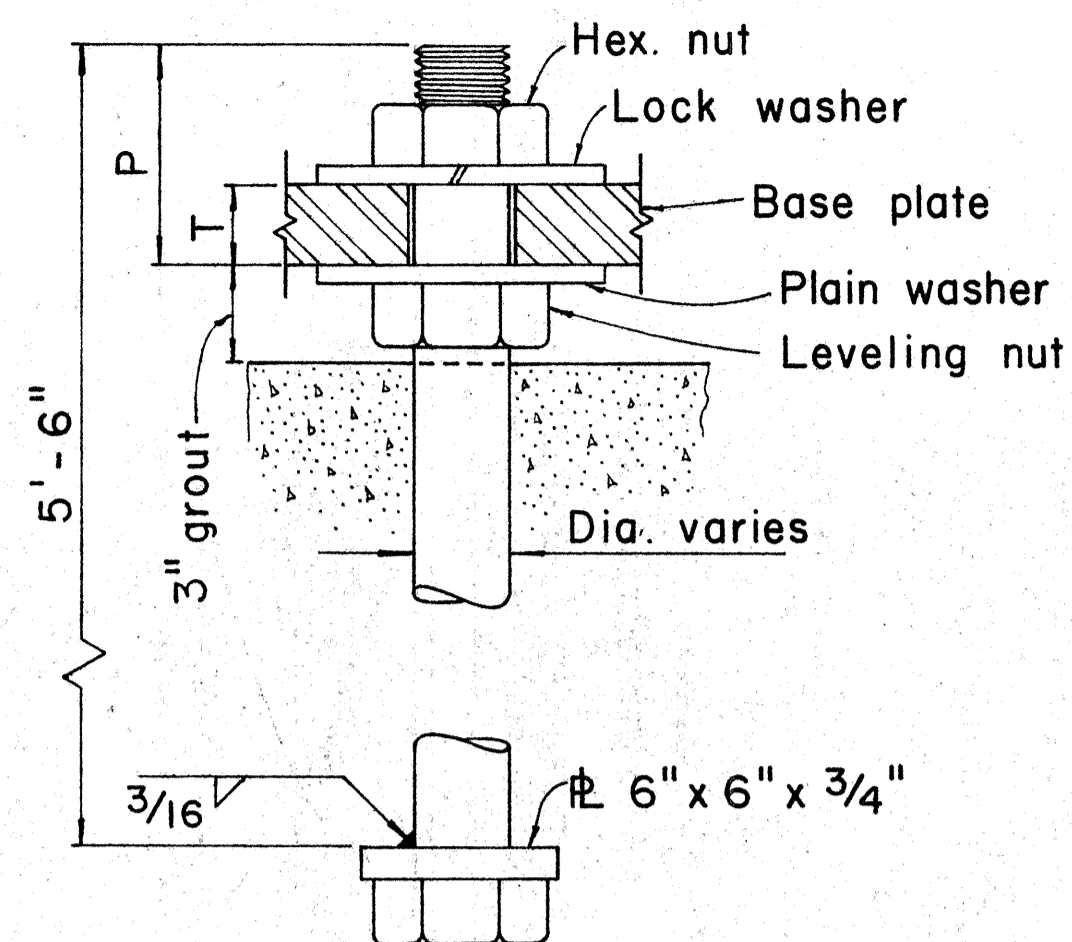
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TYPE "F"
OVERHEAD SIGN SUPPORT
BOX TRUSS TYPE
ALUMINUM

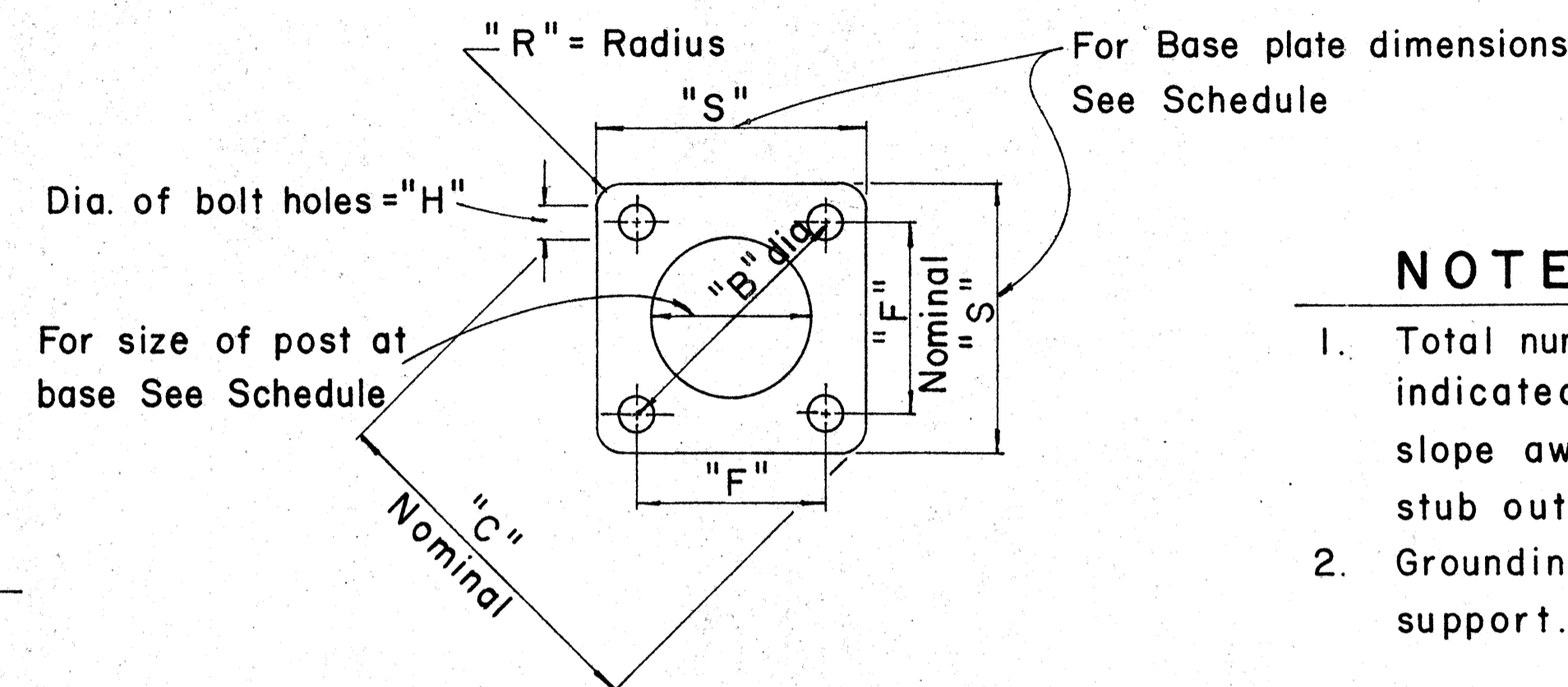
DATE: _____
 SURVEY PLOTTED BY: _____
 DRAWN BY: _____
 DESIGNED BY: _____
 QUANTITIES BY: _____
 CHECKED BY: _____



TYPICAL POLE FOUNDATION DETAIL



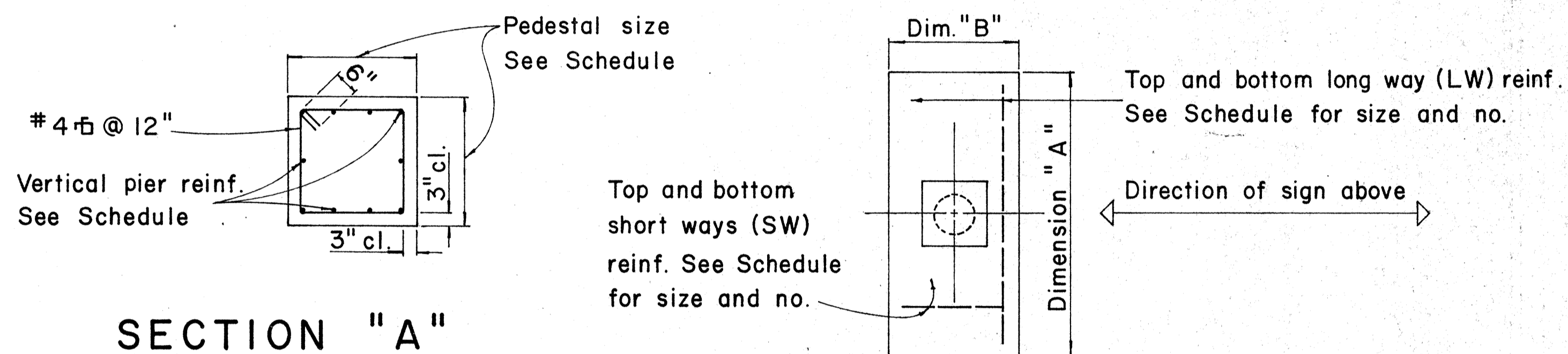
TYPICAL ANCHOR BOLT 4 REQ'D



TYPICAL BASE PLATE

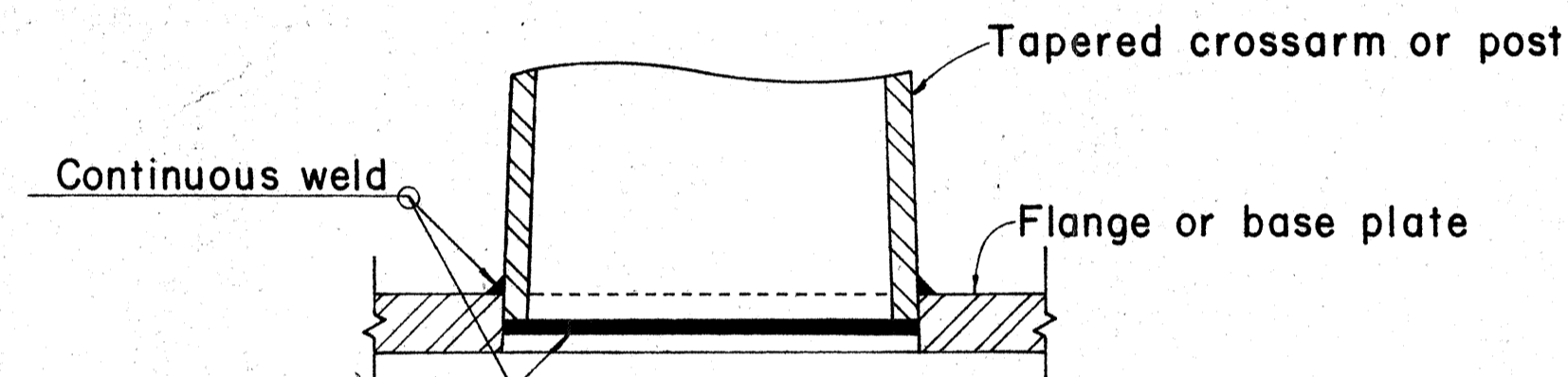
NOTE:

- Total number of conduits into pole foundation as indicated on Lighting plans. Conduits shall slope away from pole foundation. Conduit shall stub out 5'-0" min. for direct burial entry.
- Grounding conductor shall be bonded to sign support.



SECTION "A"

TYPICAL FOOTING DETAIL



DETAIL "X"

FOUNDATION SCHEDULE

Type	Dimension		Depth	Bot Reinf.		Top Reinf.		Pedestal	
	A	B		L. W.	S. W.	L. W.	S. W.	Size	Vert. Reinf.
I	7'-0"	3'-0"	2'-0"	3-#6	8-#4	#4 @ 12 each way		1'-11"	10-#5
II	9'-0"	4'-6"	2'-0"	6-#6	10-#4	Do.		2'-6"	10-#7
III	10'-0"	5'-0"	2'-0"	5-#8	11-#4	Do.		2'-6"	10-#8
IV	12'-0"	6'-0"	2'-0"	7-#9	13-#4	Do.		2'-9"	10-#10
V	14'-0"	7'-0"	2'-0"	8-#11	19-#4	Do.		2'-9"	10-#11

APPROVAL RECOMMENDED:

Eishi Tanaka 12/29/69
TRAFFIC ENGINEER DATE

APPROVED:

John P. ... 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Foundation Schedule	H.C.	8/14/70

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

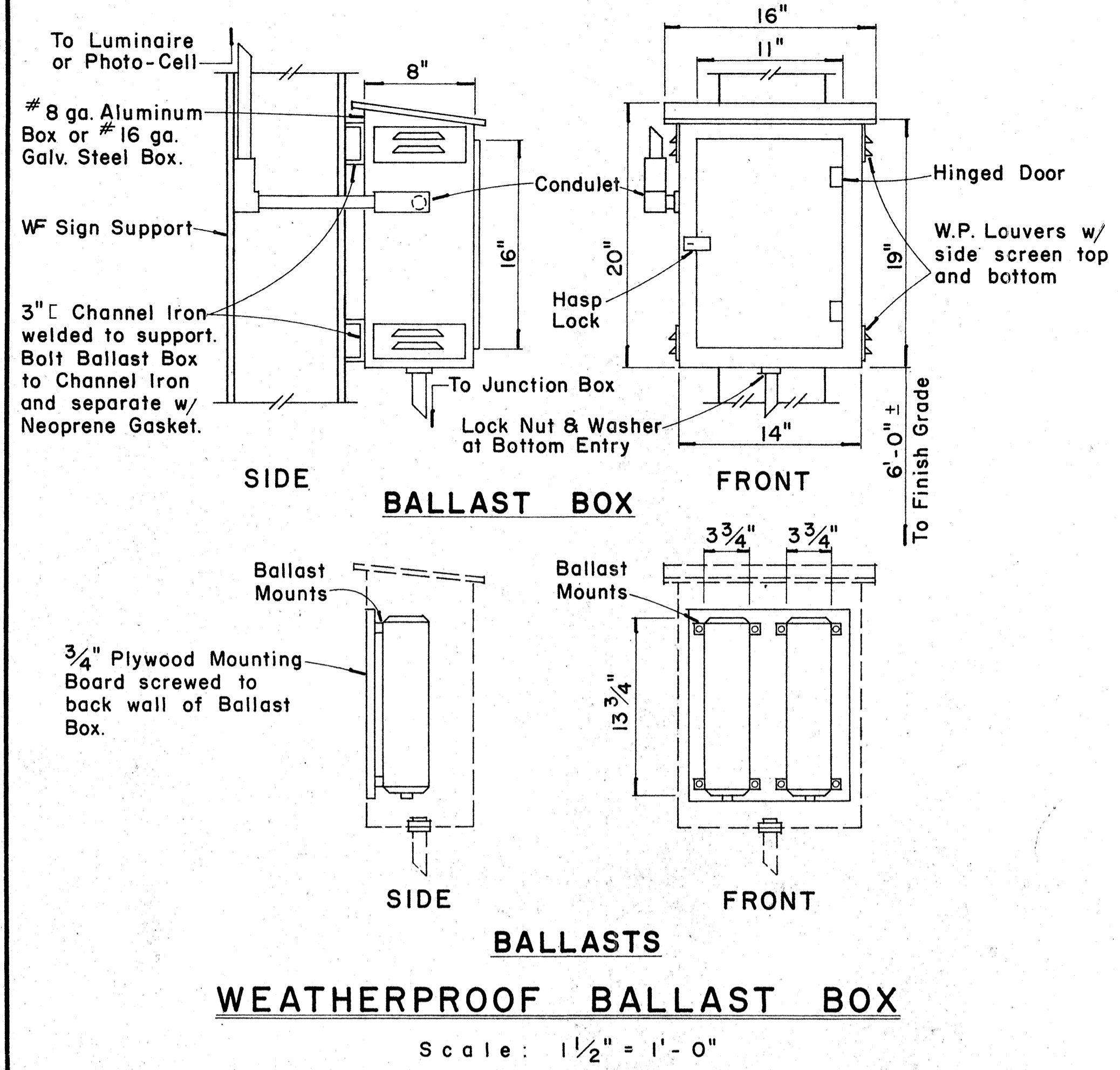
DETAILS & SCHEDULES

NOT TO SCALE

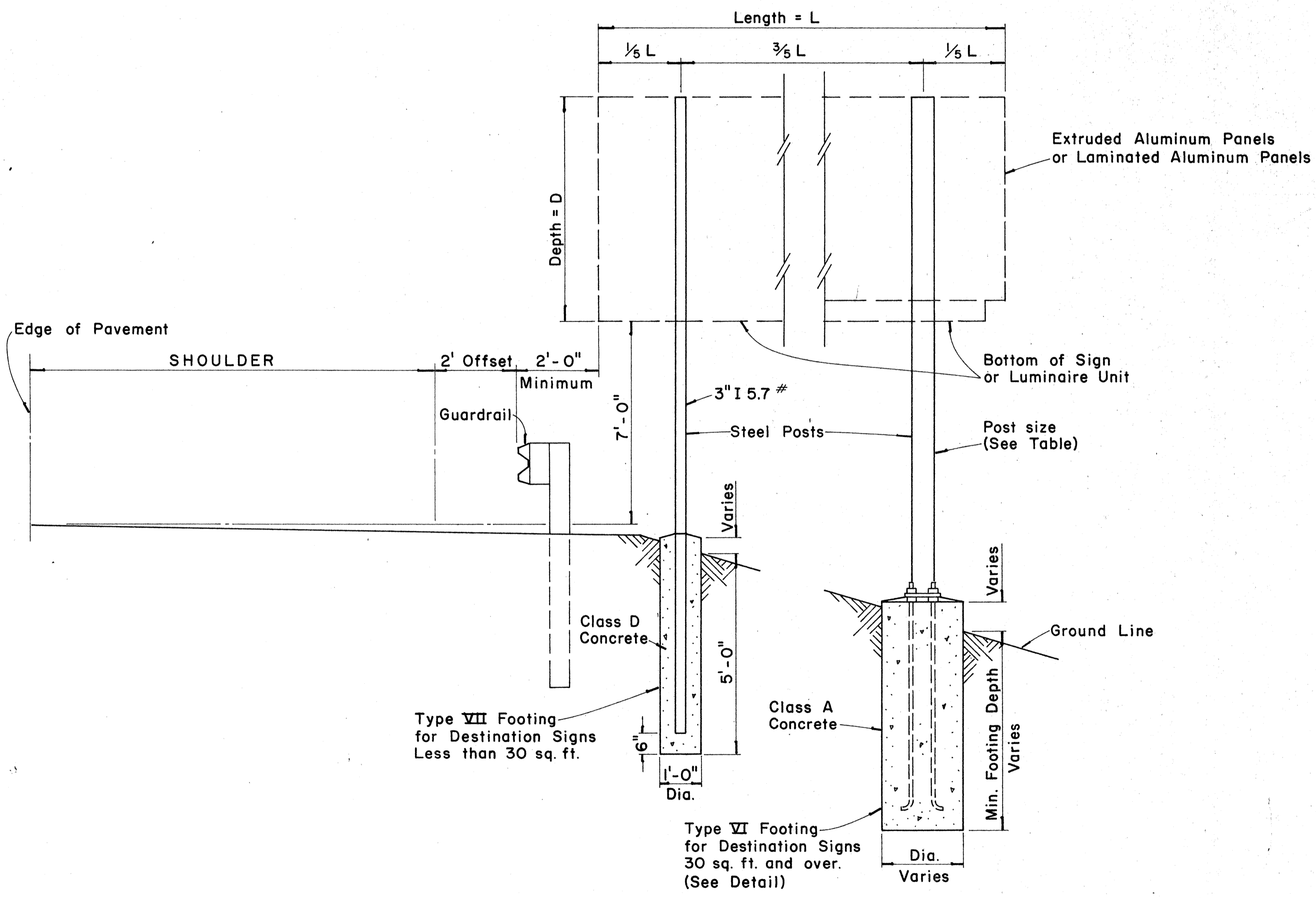
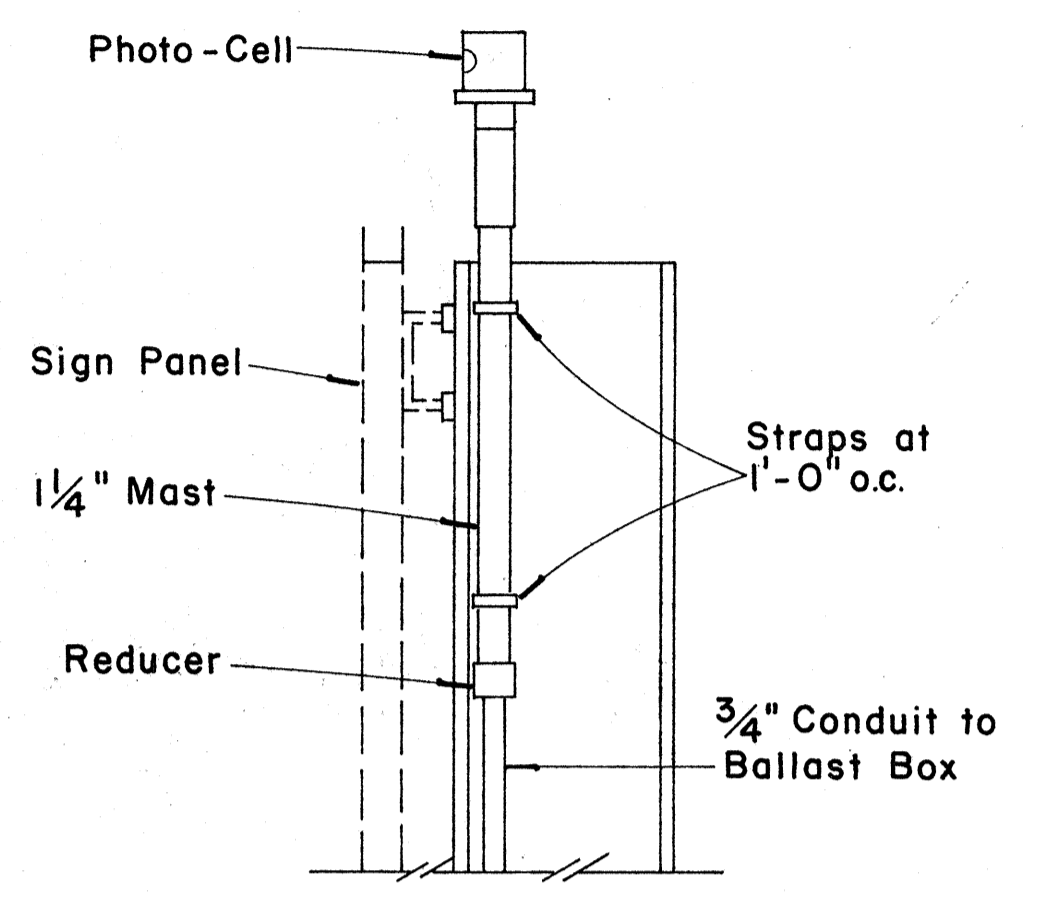
SHEET No. 23 OF 32 SHEETS DT 202

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

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

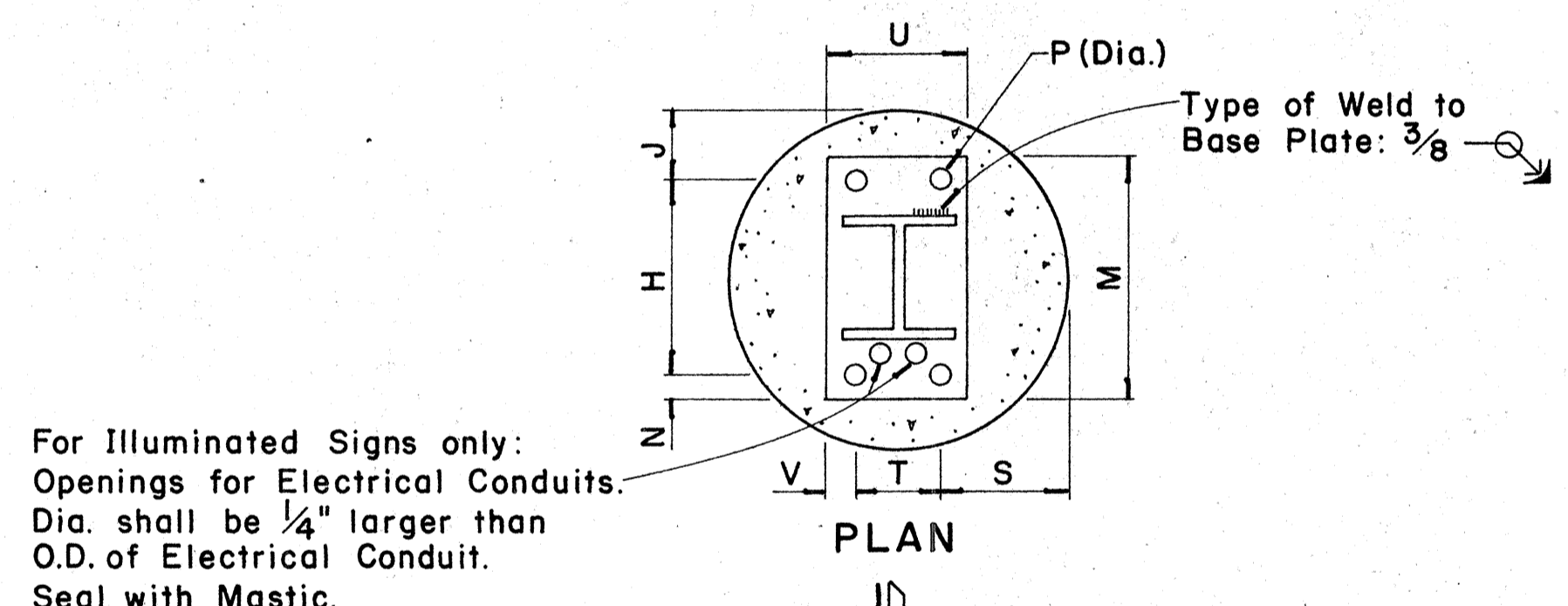


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	124	418

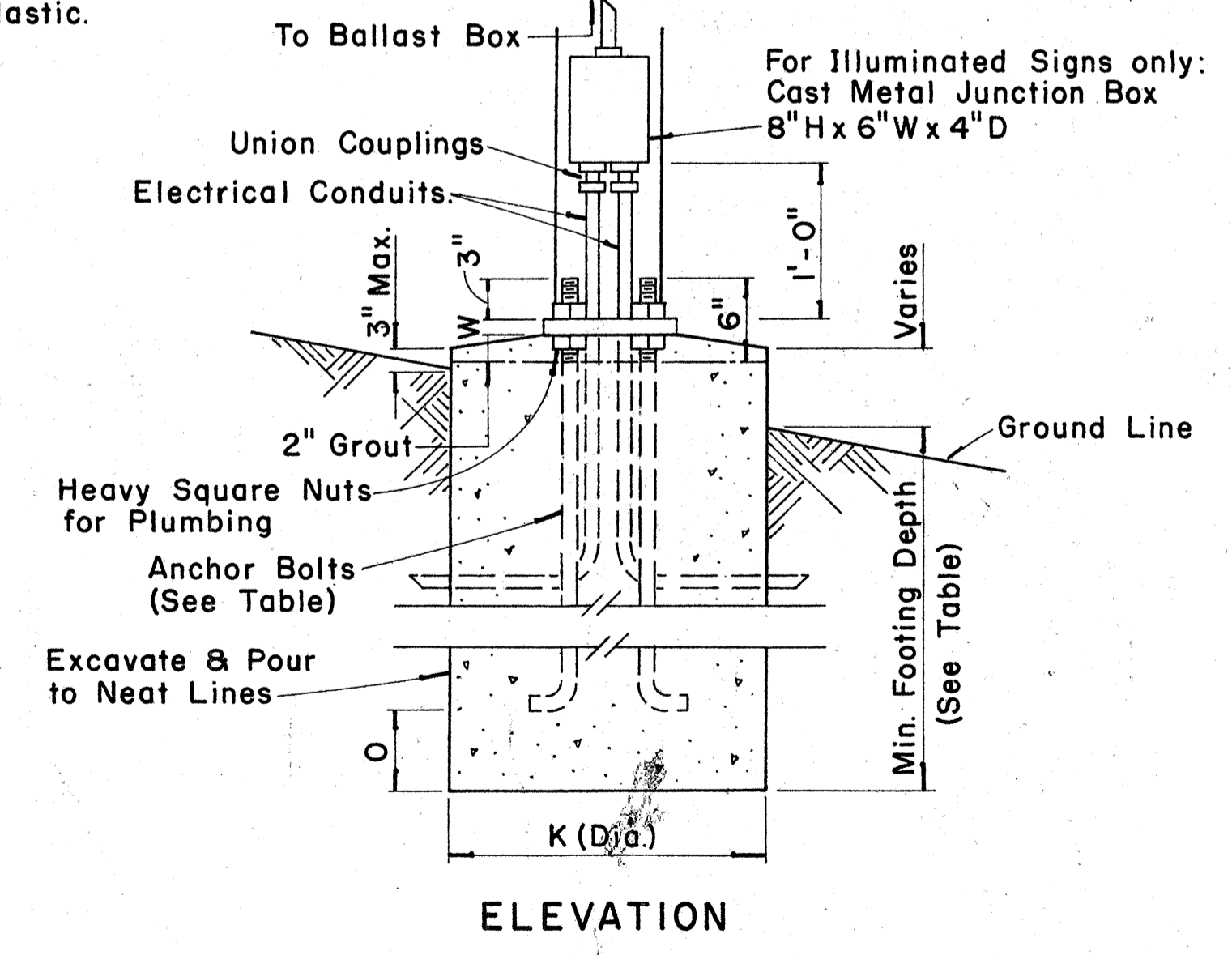


TYPICAL DESTINATION & GROUND MOUNTED EXPRESSWAY SIGN

Not to Scale



For Illuminated Signs only: Openings for Electrical Conduits. Dia. shall be ¼" larger than O.D. of Electrical Conduit. Seal with Mastic.



ELEVATION
TYPE VI FOOTING
Scale: 1" = 1'-0"

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

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

NO.	REVISION	APPROVED BY	DATE

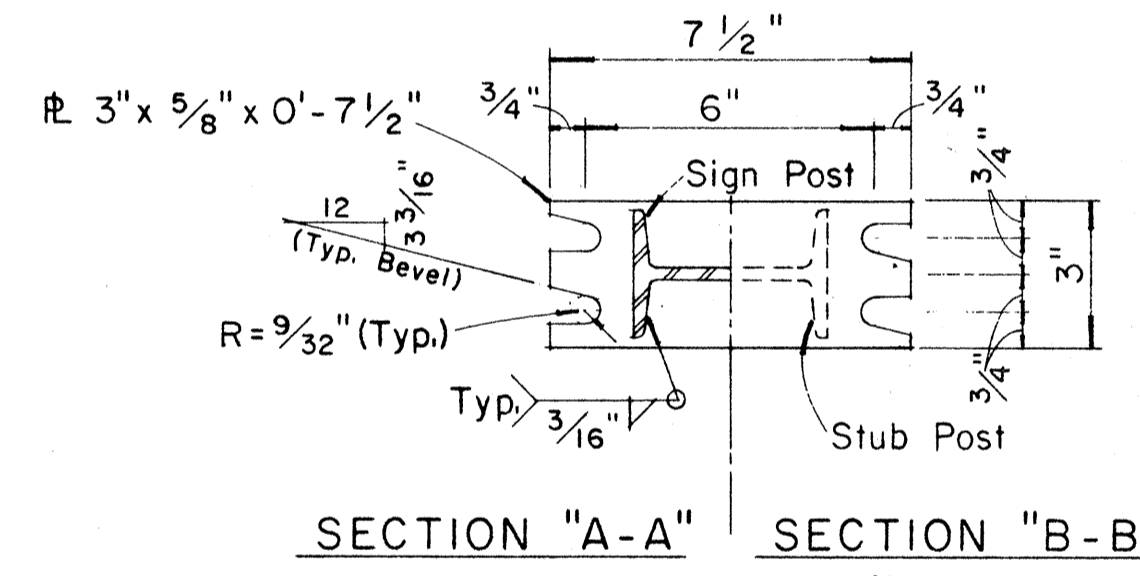
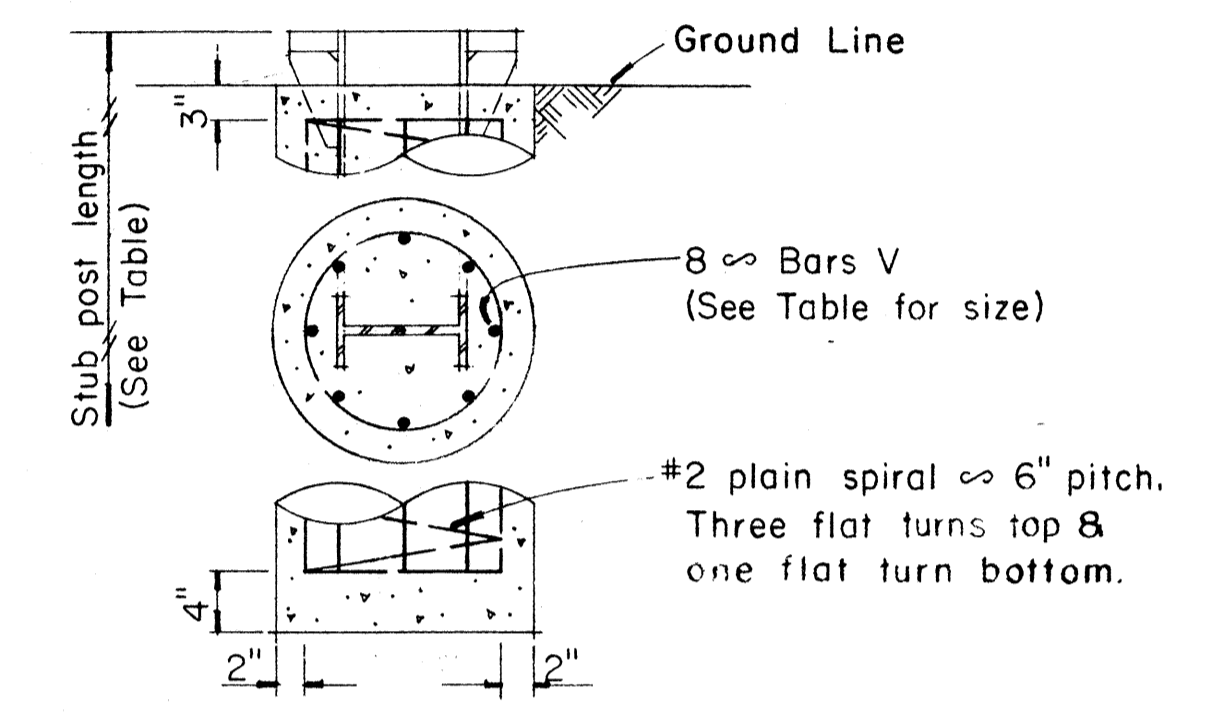
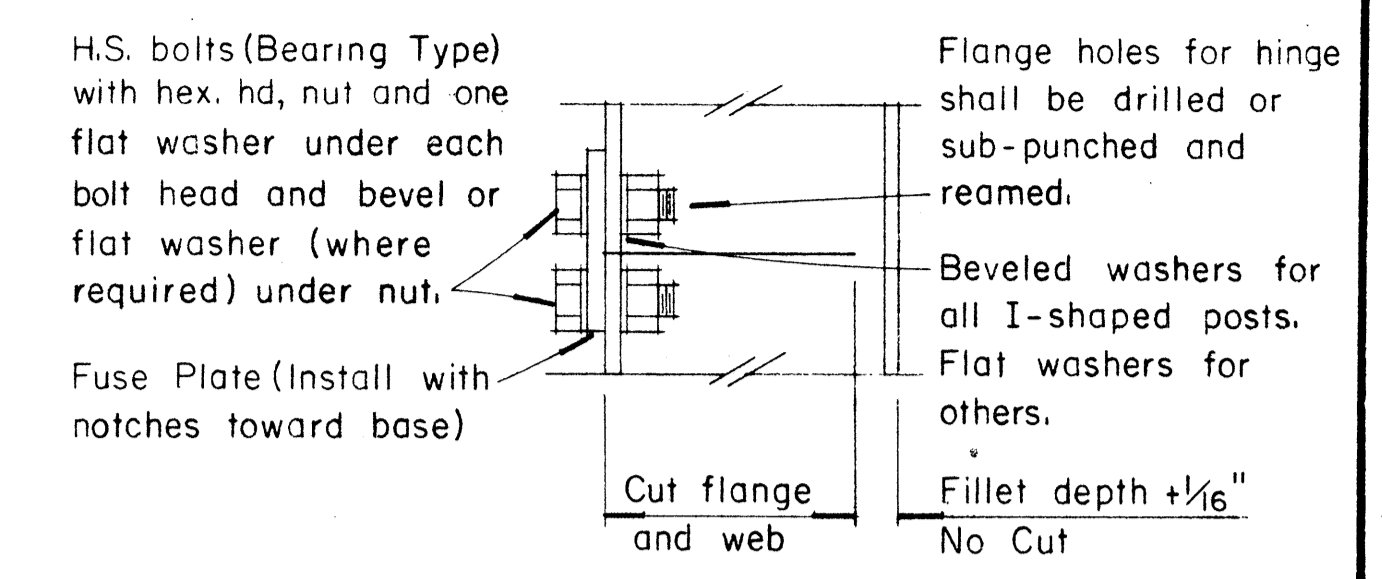
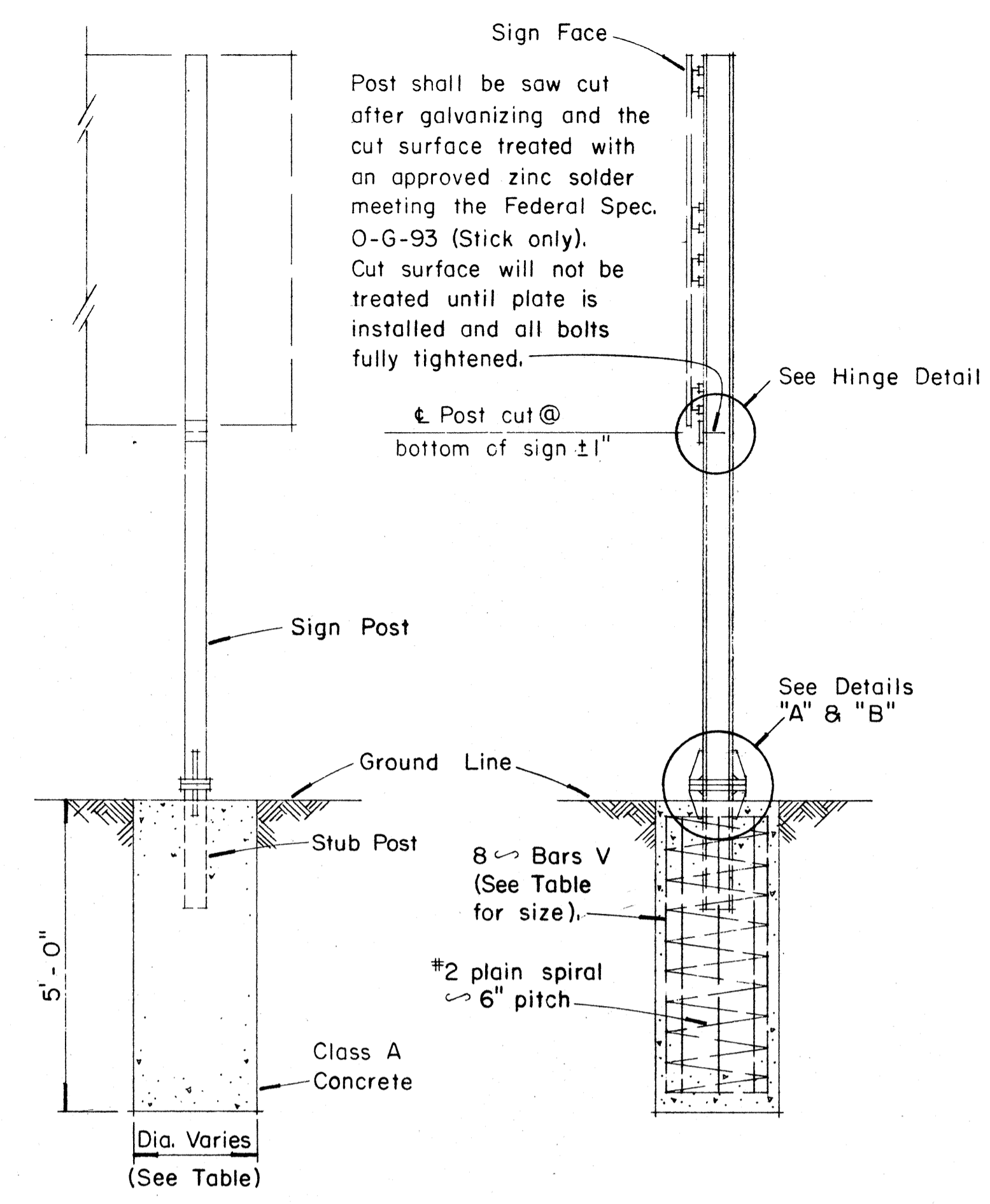
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
 STANDARD DETAILS
 DESTINATION & GROUND MOUNTED
 EXPRESSWAY SIGNS

Scale: As Shown
 SHEET No. 24 OF 32 SHEETS DT 203

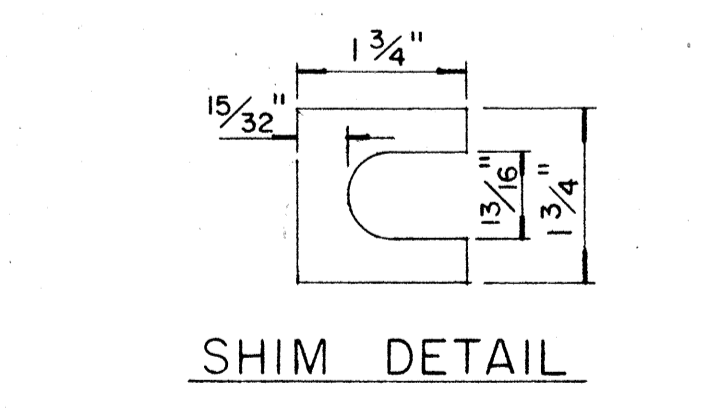
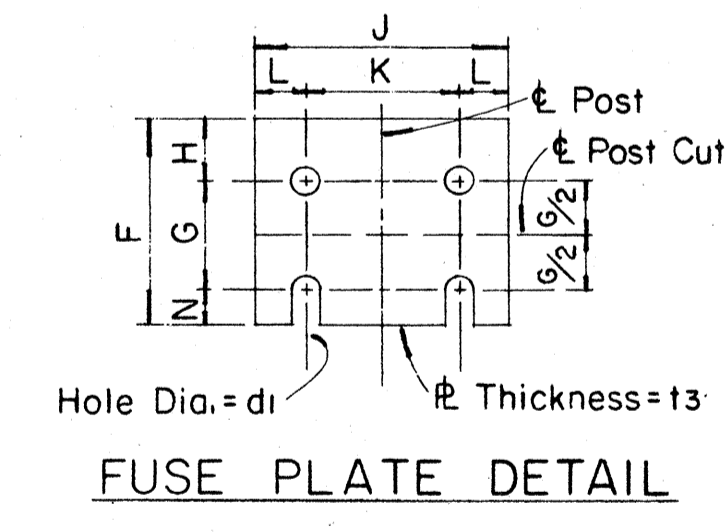
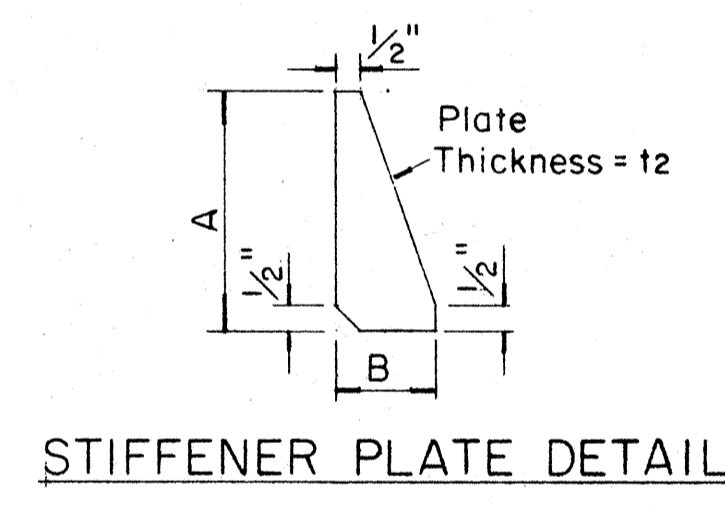
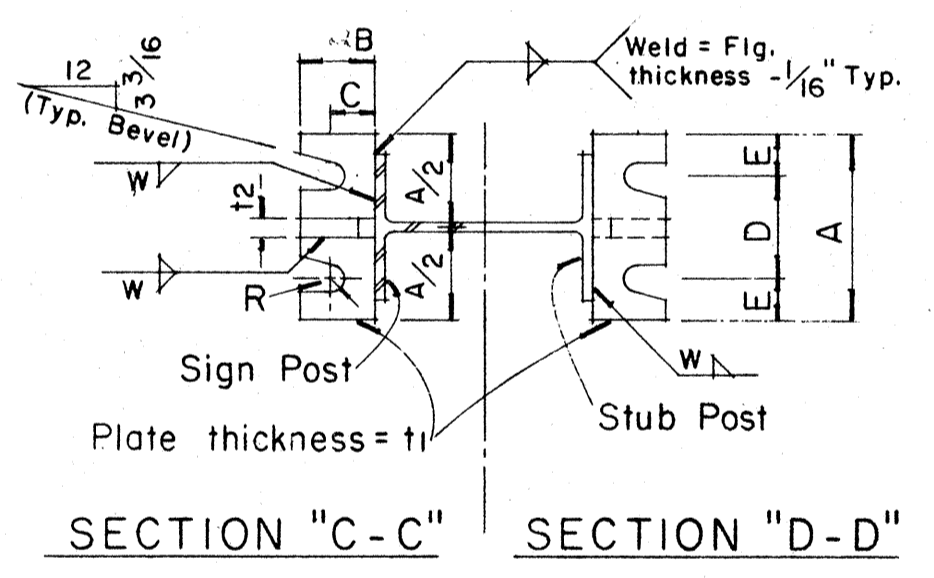
SURVEY PLATTED BY: _____ DATE: _____
 ORIGINAL DRAWN BY: _____
 PLAN TRACED BY: _____
 NOTE BOOK DESIGNED BY: _____
 No. CHECKED BY: _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	125	418

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



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



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

GENERAL NOTES

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

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

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

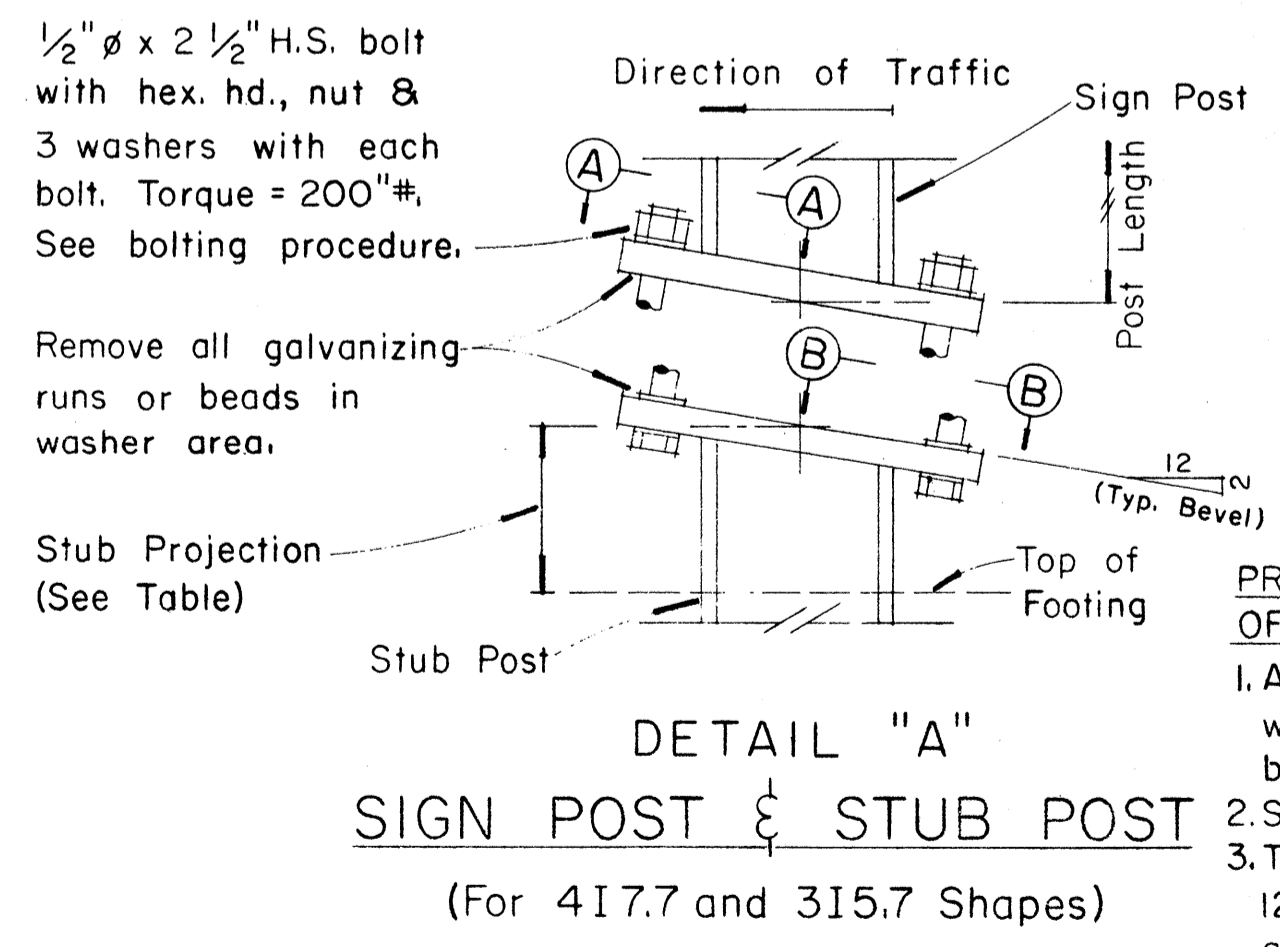
APPROVED:
John J. ... 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
BREAK-AWAY SIGN SUPPORTS
FOR
GROUND MOUNTED GUIDE SIGNS

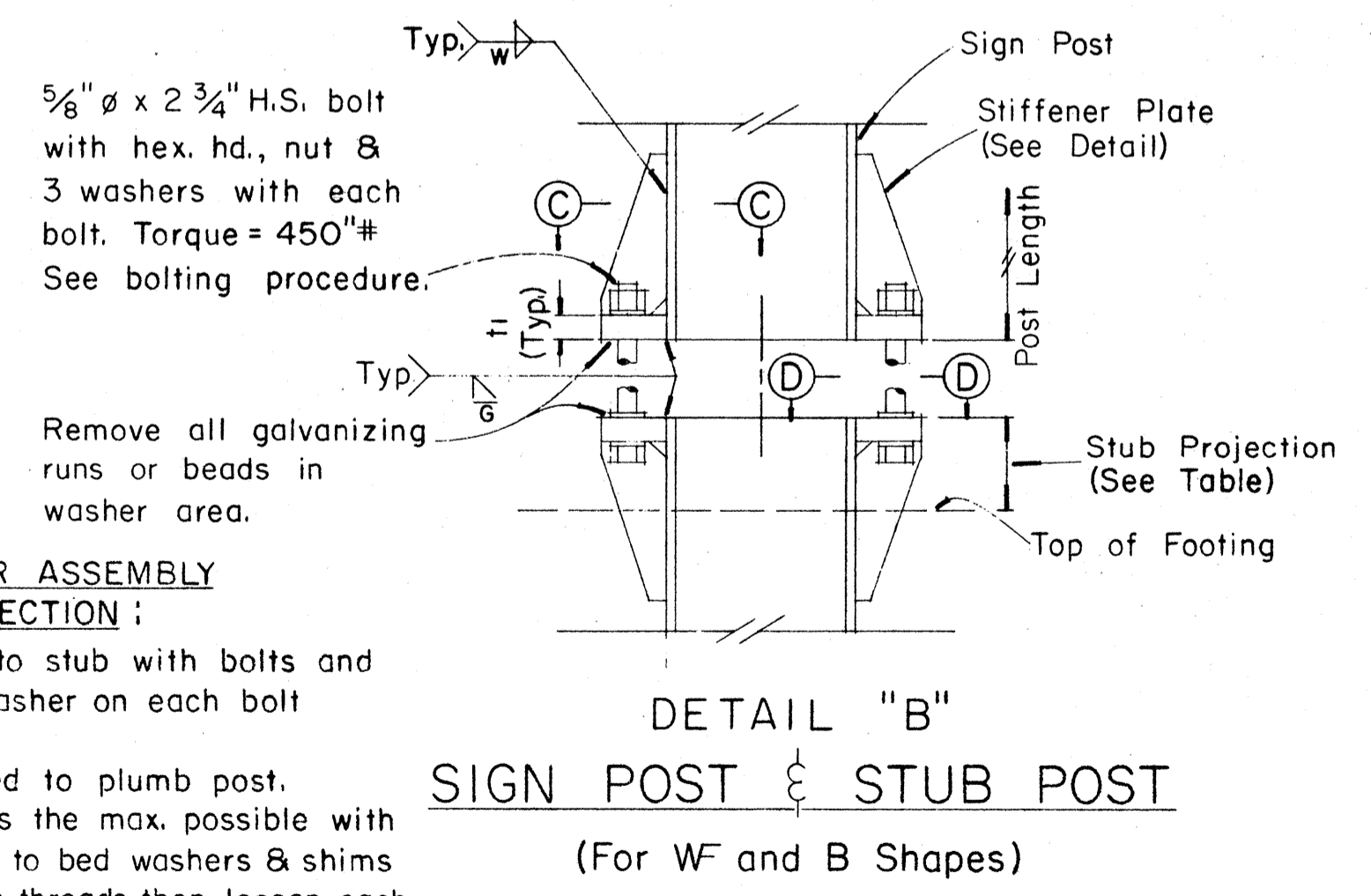
Not to Scale
SHEET No. 25 OF 32 SHEETS DT204

DATE
SURVEY PLATTED BY
DRAWN BY
CHECKED BY
ORIGINAL PLAN
NOTE BOOK
No.



PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

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



(OVERHEAD SIGNS)
SUPPORT SPACING TABLE

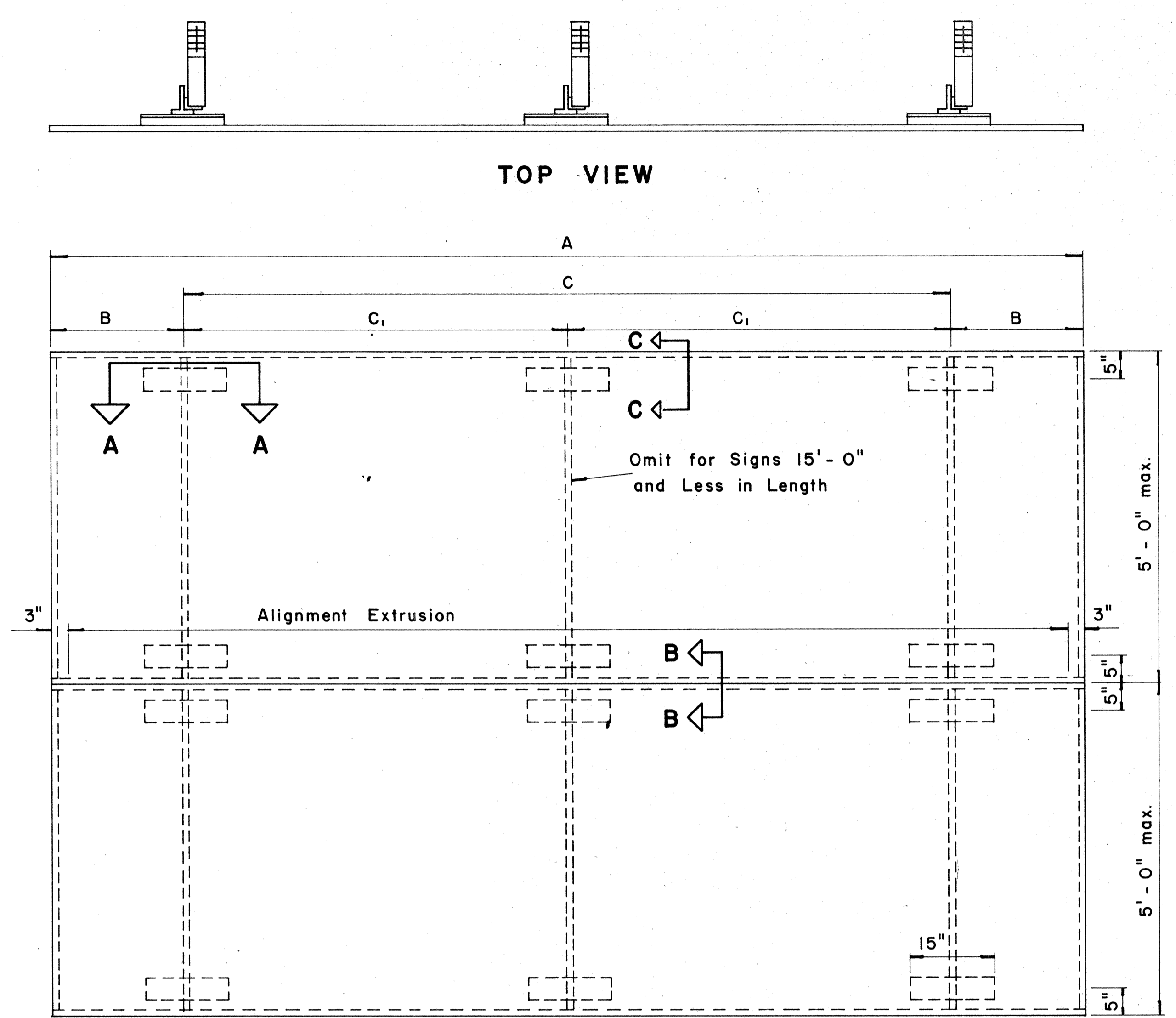
PANEL THICK.	LENGTH OF SIGN A	NO. OF SUPPORTS	OVERHANG B	SUPPORT SPACING C or C ₁
1"	6'-0"	2	12"	48"
1"	6'-6"	2	15"	48"
1"	7'-0"	2	15"	54"
1"	7'-6"	2	18"	54"
1"	8'-0"	2	18"	60"
1"	8'-6"	2	20"	62"
1"	9'-0"	2	22"	64"
1"	9'-6"	2	23"	68"
1"	10'-0"	2	24"	72"
1"	10'-6"	2	24"	78"
1"	11'-0"	2	24"	84"
1"	11'-6"	2	27"	84"
1"	12'-0"	2	30"	84"
1"	12'-6"	2	30"	90"
1"	13'-0"	2	30"	96"
1"	13'-6"	2	30"	102"
1"	14'-0"	2	30"	108"
1"	14'-6"	2	36"	102"
1"	15'-0"	2	36"	108"
1"	15'-6"	3	24"	69"
1"	16'-0"	3	24"	72"
1"	16'-6"	3	24"	75"
1"	17'-0"	3	24"	78"
1"	17'-6"	3	24"	81"
1"	18'-0"	3	24"	84"
1"	18'-6"	3	27"	84"
1"	19'-0"	3	27"	87"
1"	19'-6"	3	27"	90"
1"	20'-0"	3	30"	90"
1"	20'-6"	3	30"	93"
1"	21'-0"	3	30"	96"
1"	21'-6"	3	33"	96"
1"	22'-0"	3	36"	96"
1"	22'-6"	3	36"	99"
1"	23'-0"	3	36"	102"
1"	23'-6"	3	36"	105"
1"	24'-0"	3	36"	108"

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

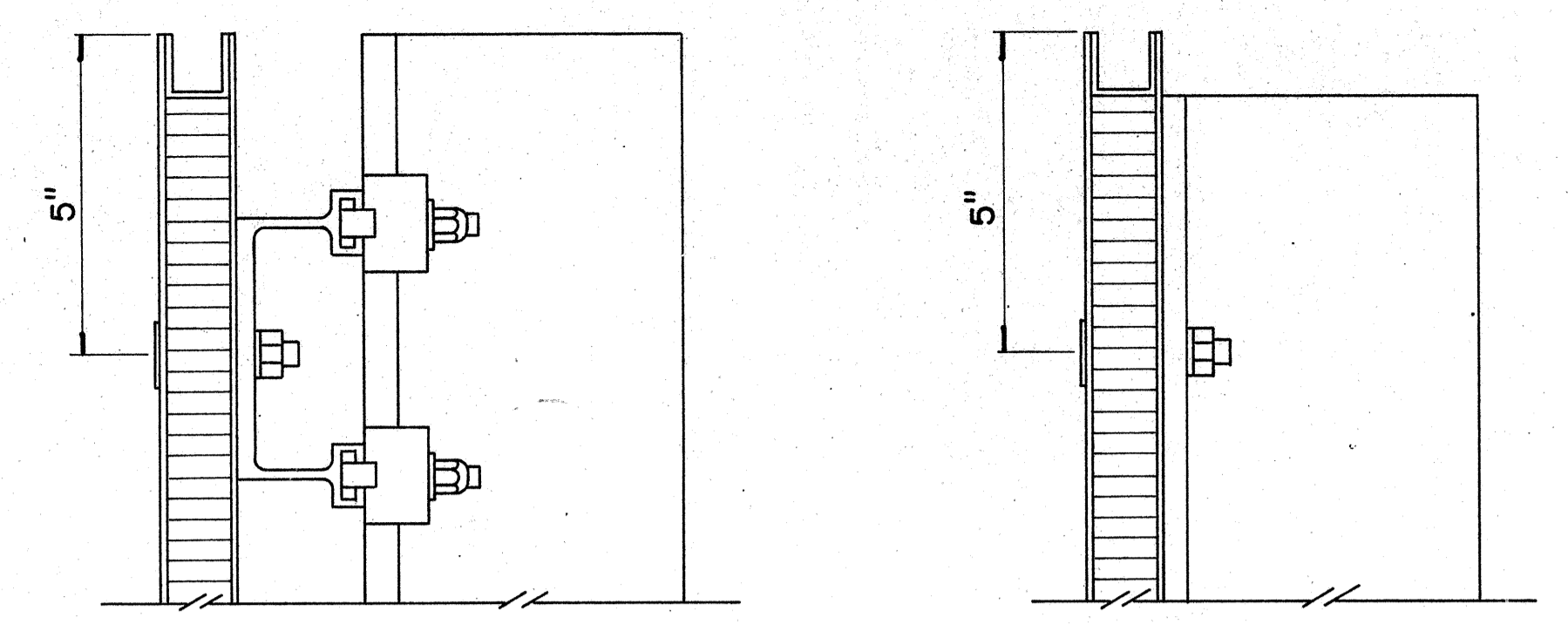
APPROVED:
[Signature] 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

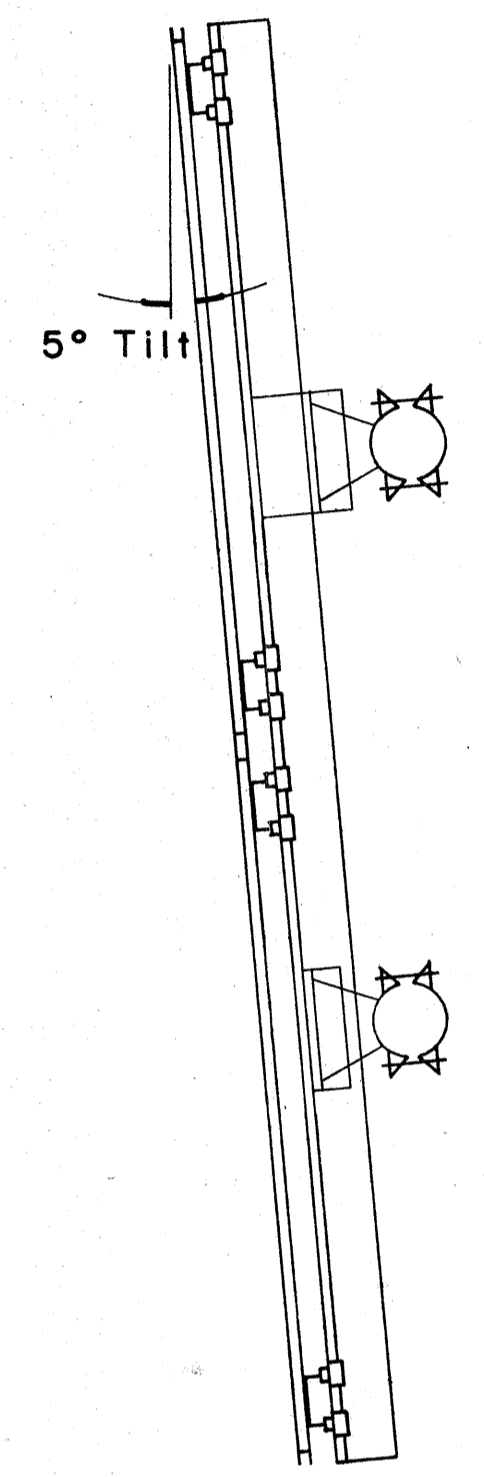
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
LAMINATED ALUMINUM
SIGN PANELS
(OVERHEAD)
Scale: As Shown



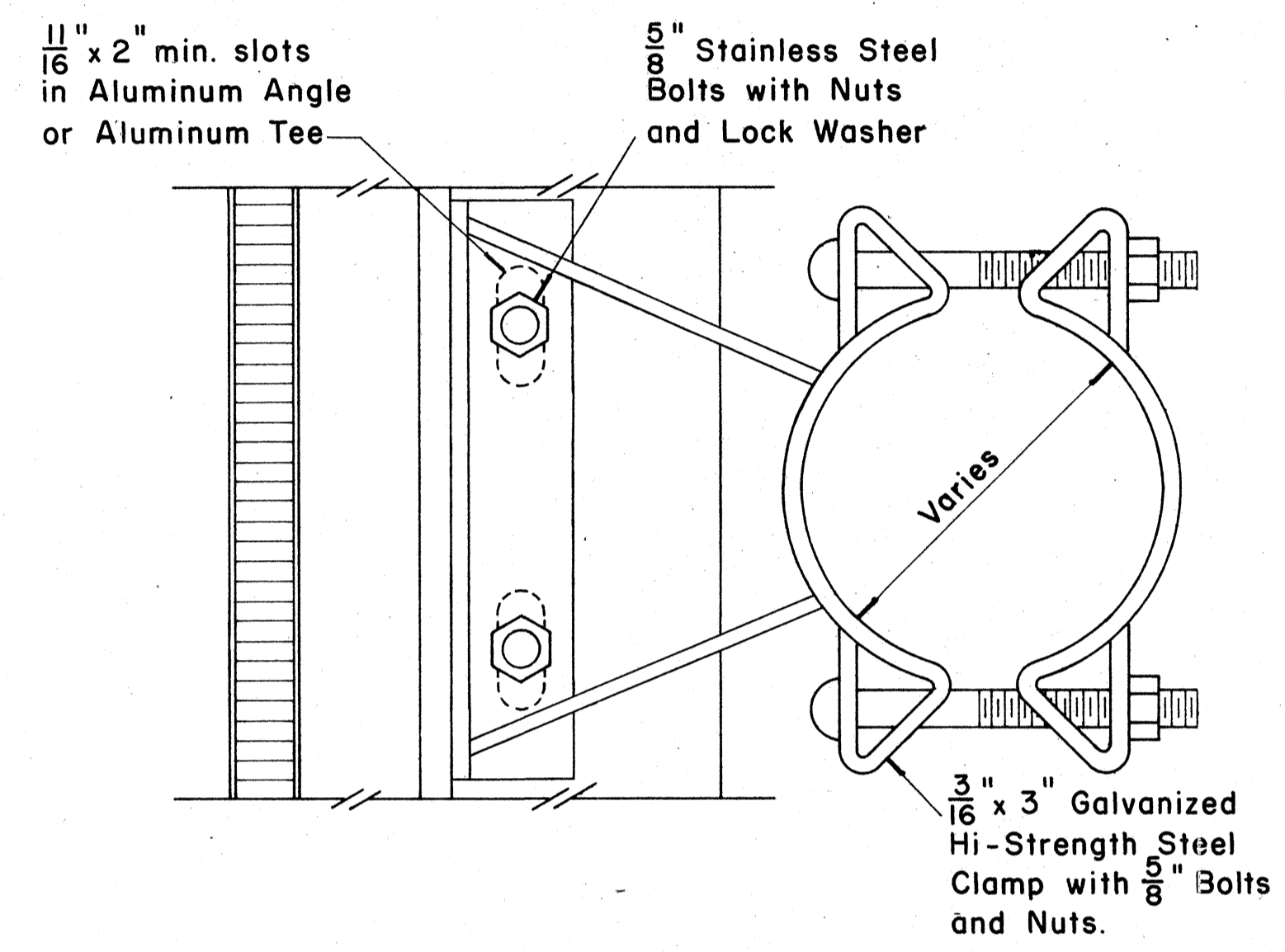
TYPICAL SIGN ASSEMBLY
Scale: $\frac{3}{4}$ " = 1'-0"



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

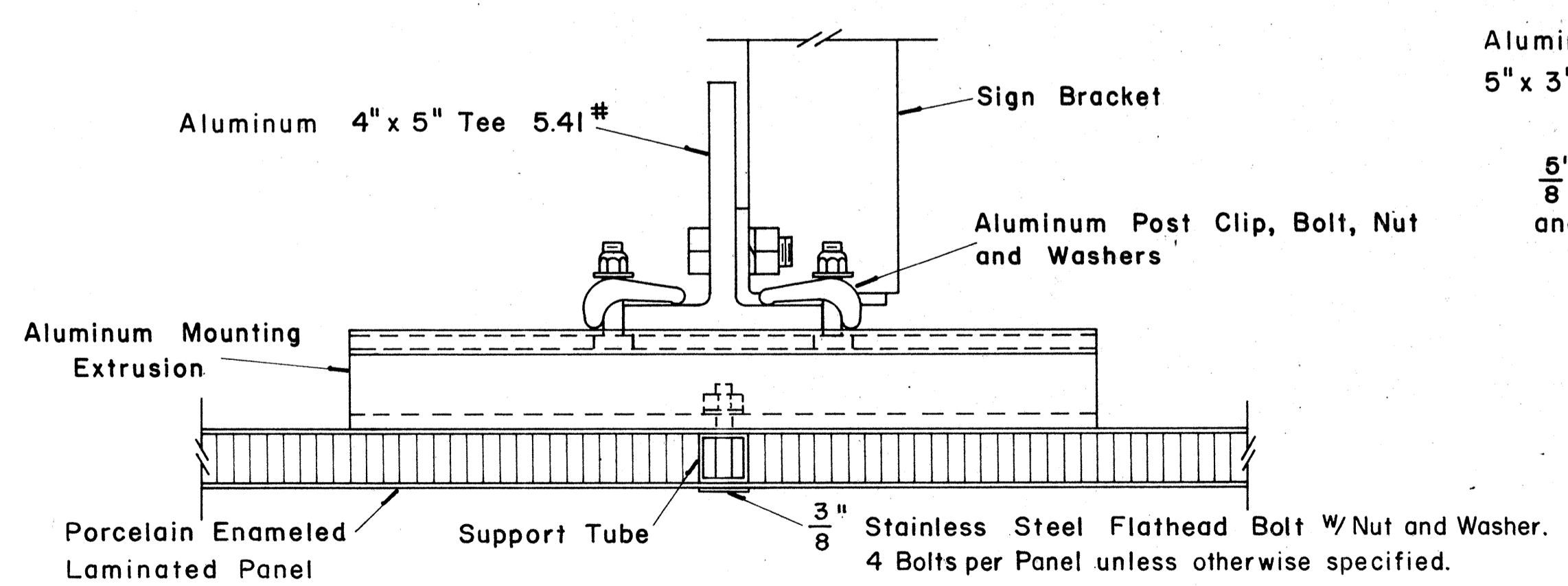


SIDE VIEW

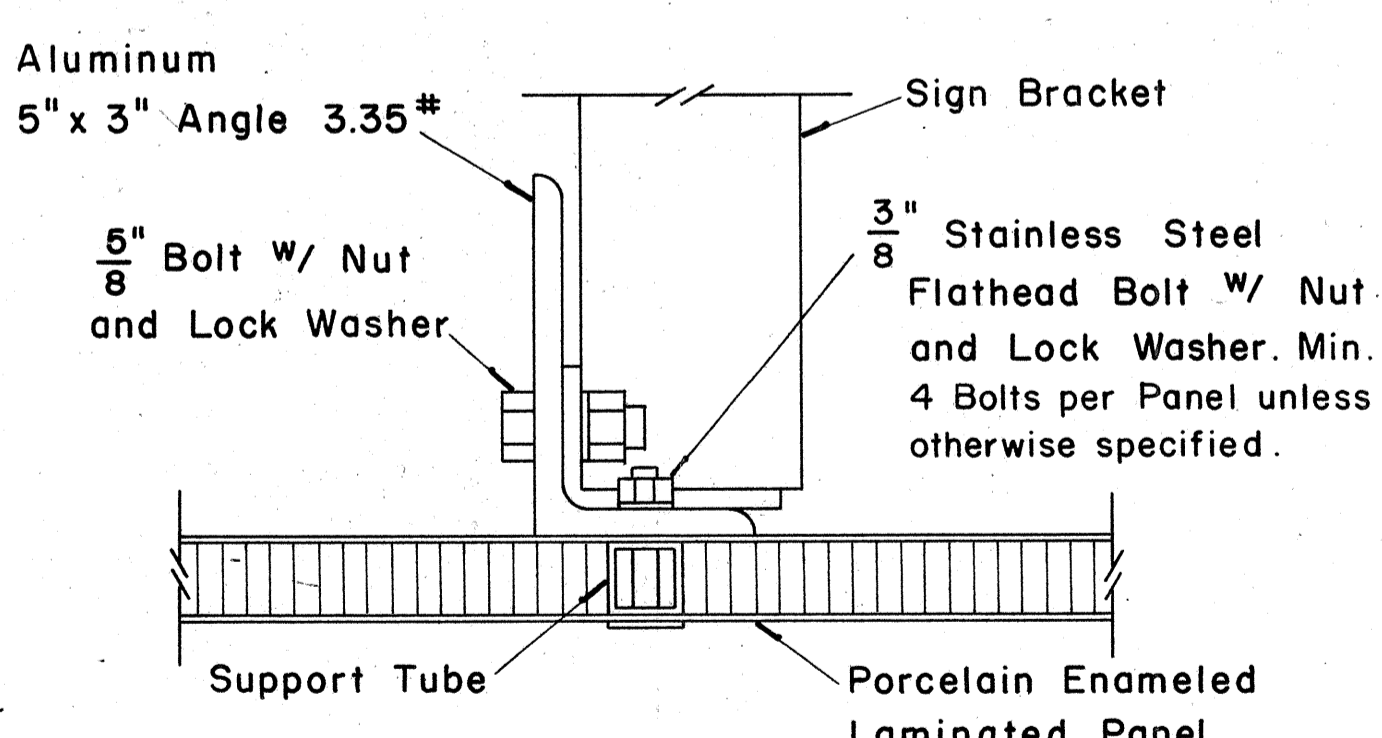


SIGN BRACKET ASSEMBLY
Scale: $\frac{3}{8}$ " = 1"

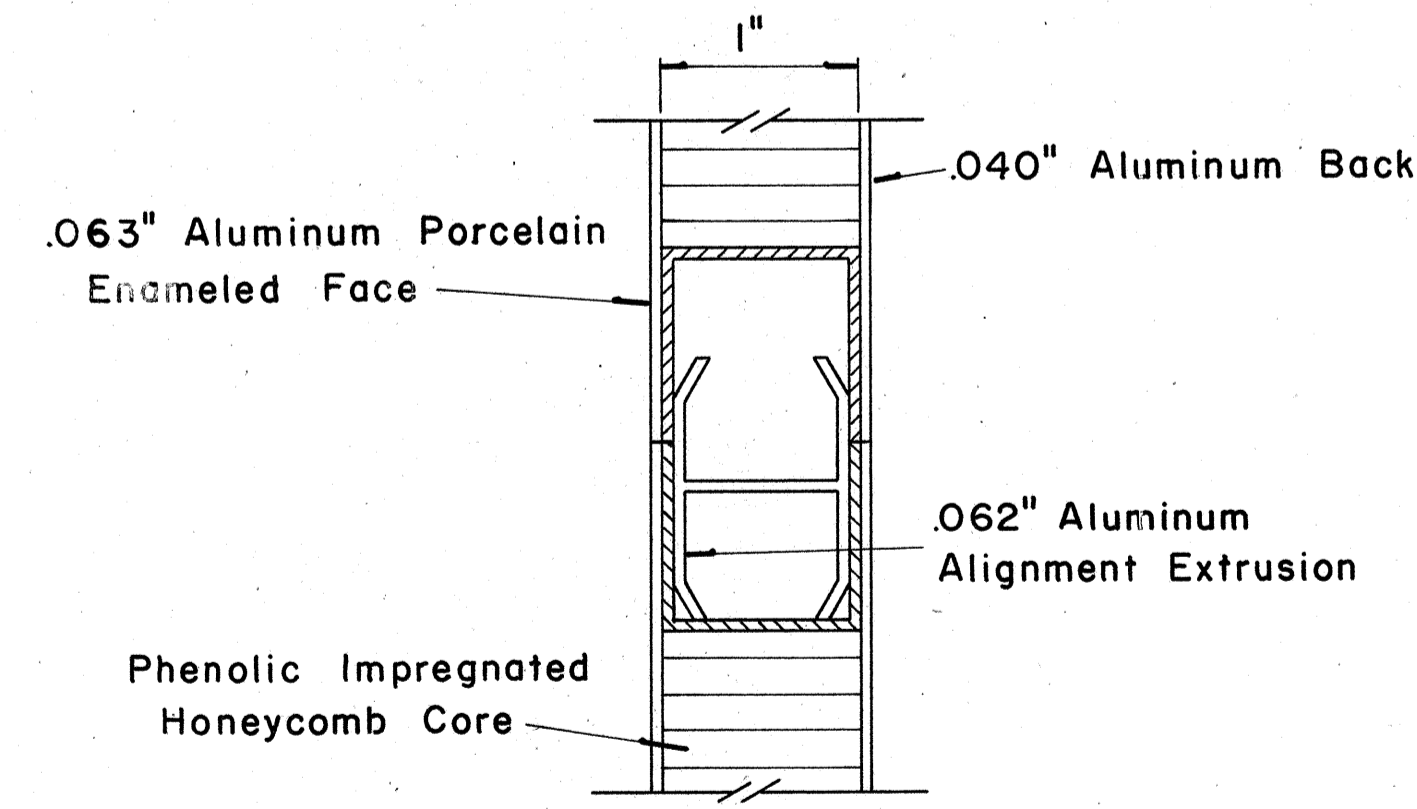
NOTE: For additional details of Sign Bracket Assembly, see Standard Detail Sheet "Overhead Sign Supports."



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



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

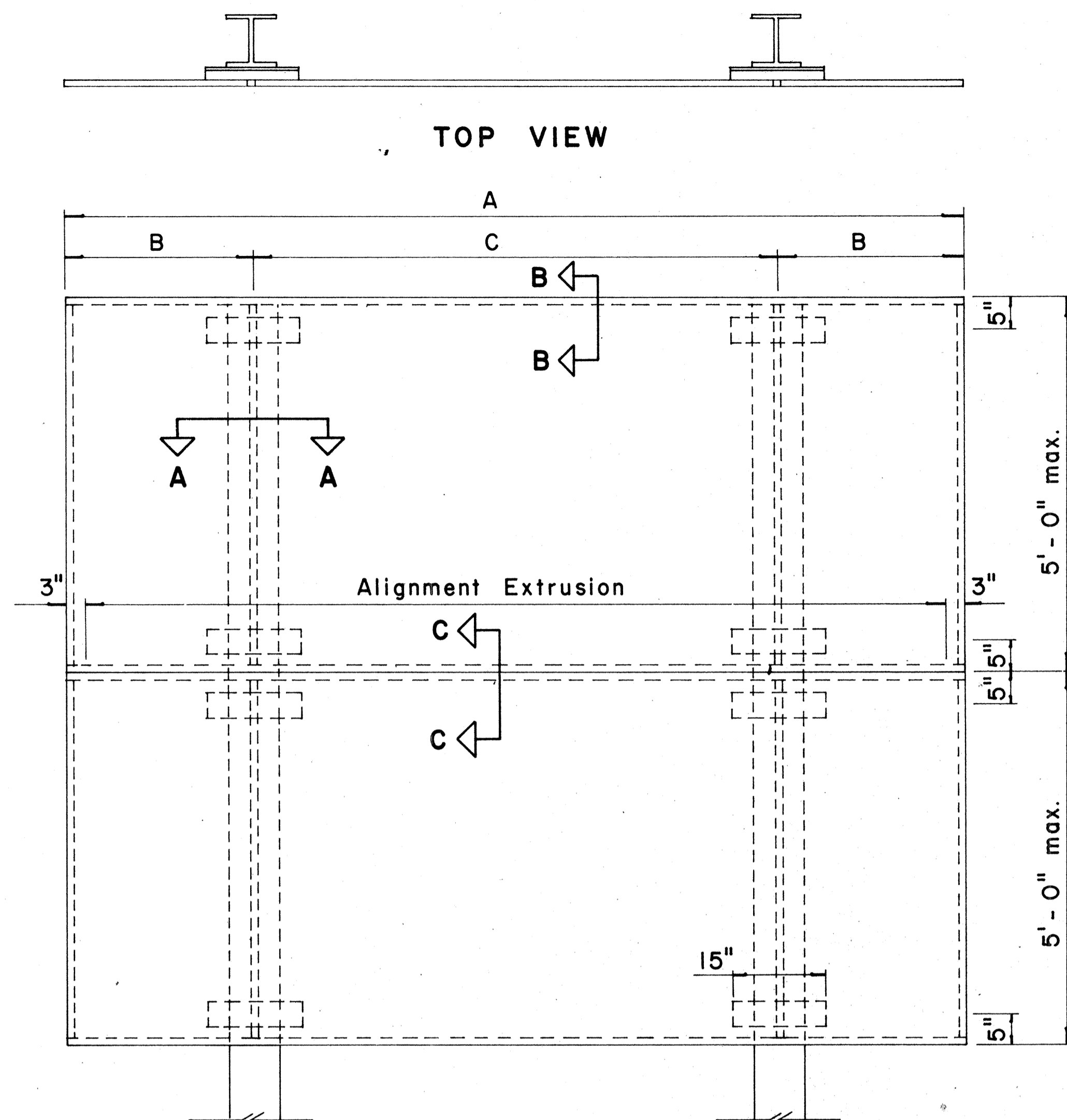


CLOSURE DETAIL SECTION "B-B"
FULL SCALE

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

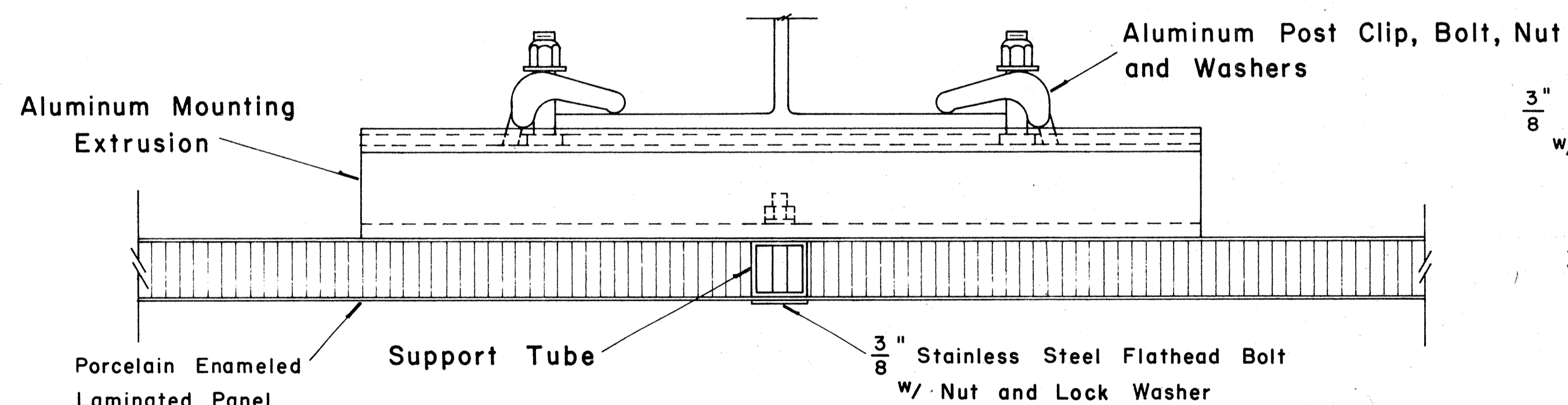
(GROUND MOUNTED SIGNS)
SUPPORT SPACING TABLE

PANEL THICK.	LENGTH OF SIGN	NO. OF SUPPORTS	OVERHANG		SUPPORT SPACING
			A	B	
1"	6'-0"	2	12"		48"
1"	6'-6"	2	15"		48"
1"	7'-0"	2	15"		54"
1"	7'-6"	2	18"		54"
1"	8'-0"	2	18"		60"
1"	8'-6"	2	20"		62"
1"	9'-0"	2	22"		64"
1"	9'-6"	2	23"		68"
1"	10'-0"	2	24"		72"
1"	10'-6"	2	24"		78"
1"	11'-0"	2	24"		84"
1"	11'-6"	2	27"		84"
1"	12'-0"	2	30"		84"
1"	12'-6"	2	30"		90"
1"	13'-0"	2	30"		96"
1"	13'-6"	2	30"		102"
1"	14'-0"	2	30"		108"
1"	14'-6"	2	36"		102"
1"	15'-0"	2	36"		108"
2.5"	15'-6"	2	36"		114"
2.5"	16'-0"	2	39"		114"
2.5"	16'-6"	2	39"		120"
2.5"	17'-0"	2	39"		126"
2.5"	17'-6"	2	42"		126"
2.5"	18'-0"	2	42"		132"
2.5"	18'-6"	2	45"		132"
2.5"	19'-0"	2	45"		138"
2.5"	19'-6"	2	45"		144"
2.5"	20'-0"	2	48"		144"
2.5"	20'-6"	2	48"		150"
2.5"	21'-0"	2	51"		150"
2.5"	21'-6"	2	51"		156"
2.5"	22'-0"	2	51"		162"
2.5"	22'-6"	2	54"		162"
2.5"	23'-0"	2	54"		168"
2.5"	23'-6"	2	54"		174"
2.5"	24'-0"	2	57"		174"



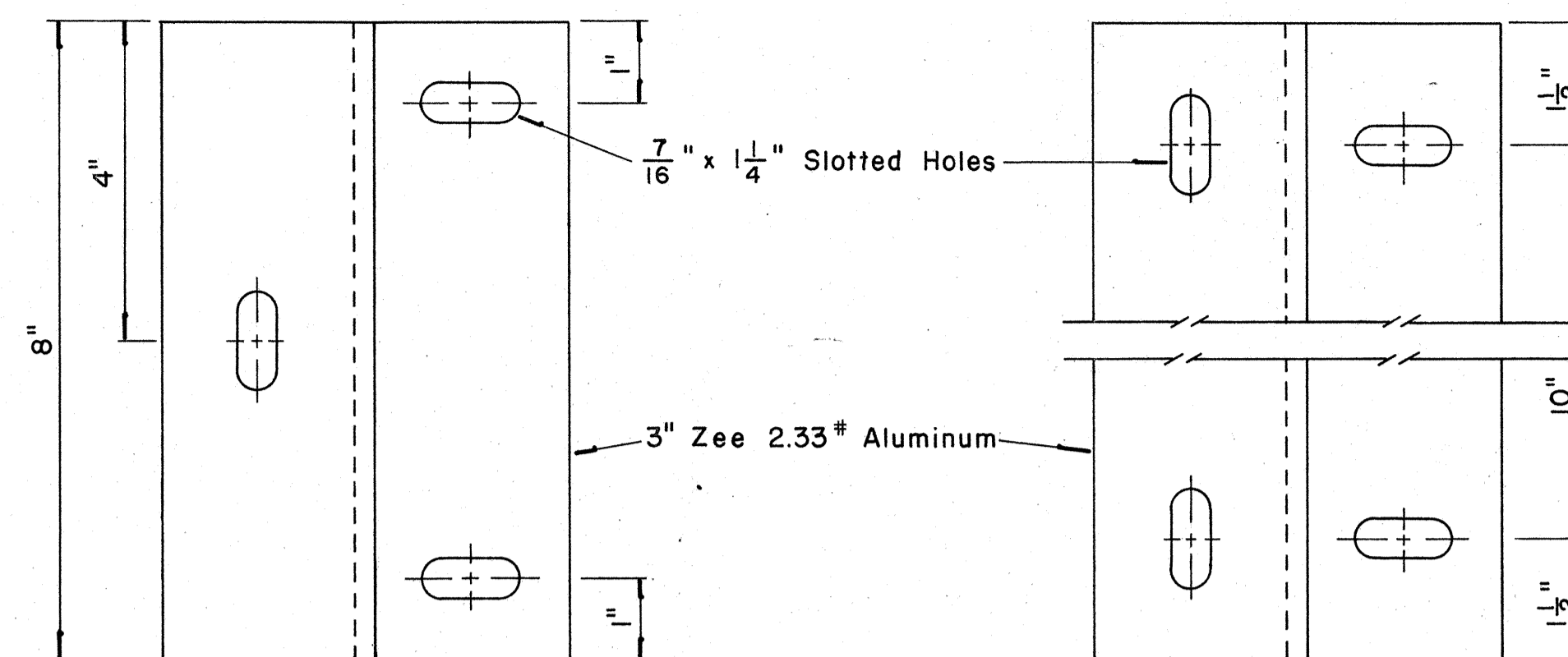
TYPICAL SIGN ASSEMBLY

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



SECTION "A-A"

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

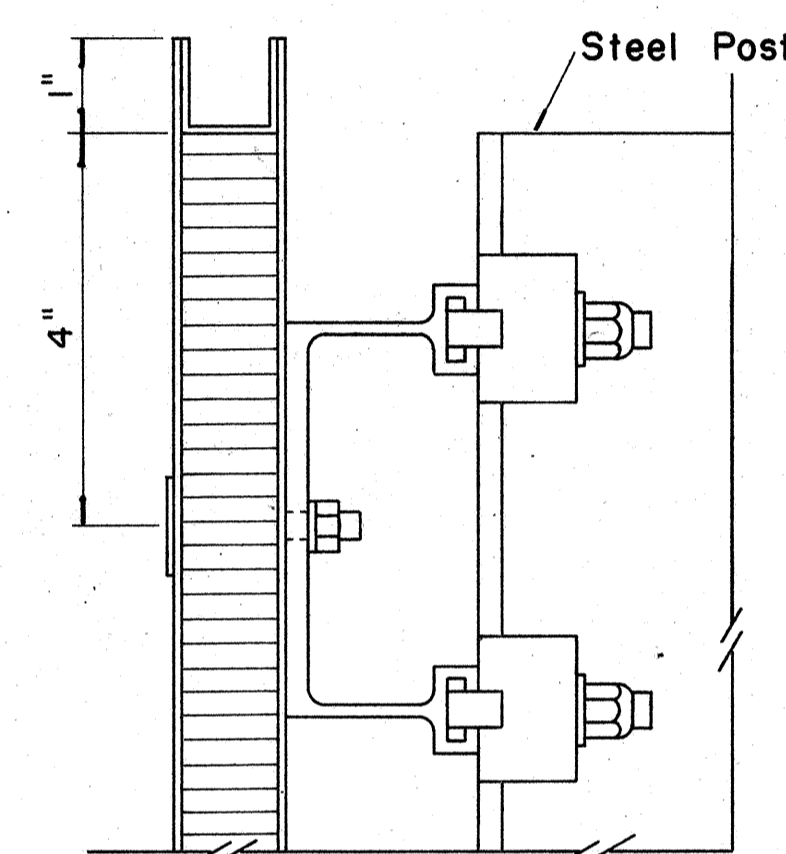


END MOUNTING

INTERMEDIATE MOUNTING

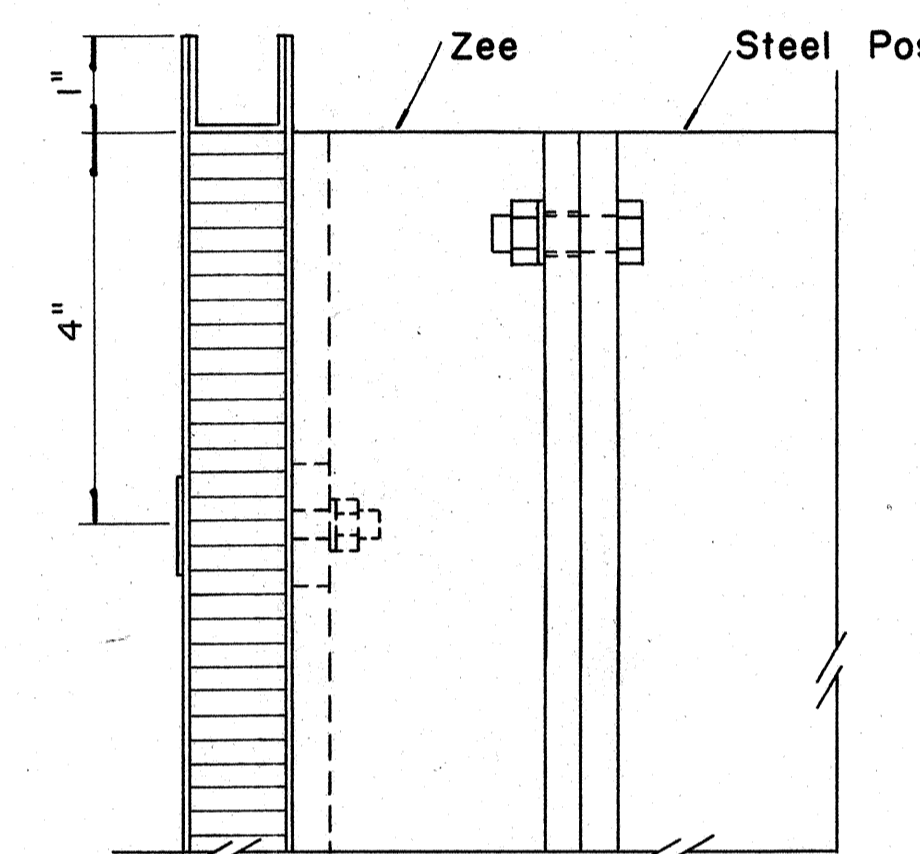
ZEE MOUNTING DETAILS

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



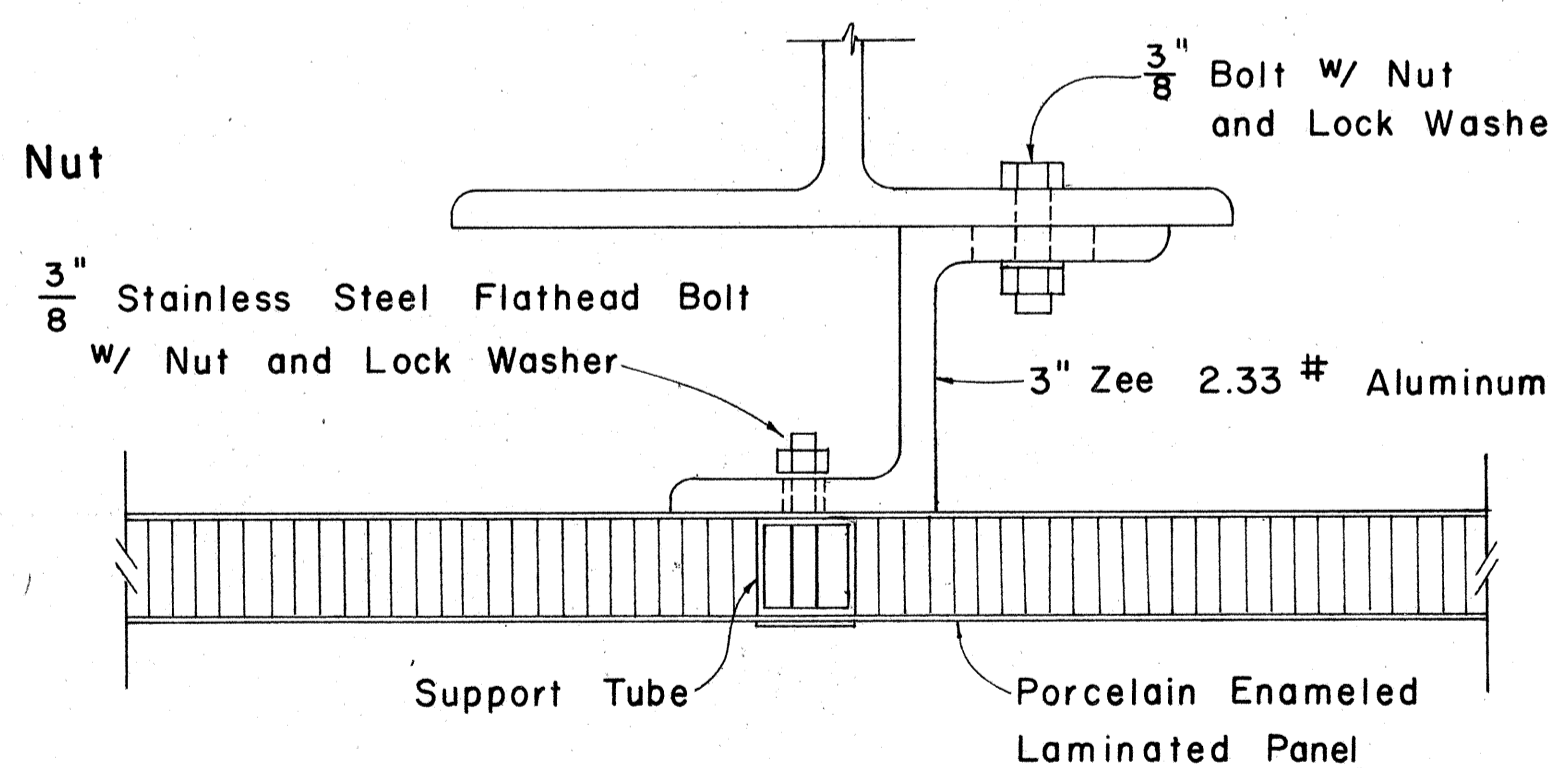
SECTION "B-B"

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



SECTION "B-B" (Alternate)

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



SECTION "A-A" (Alternate)

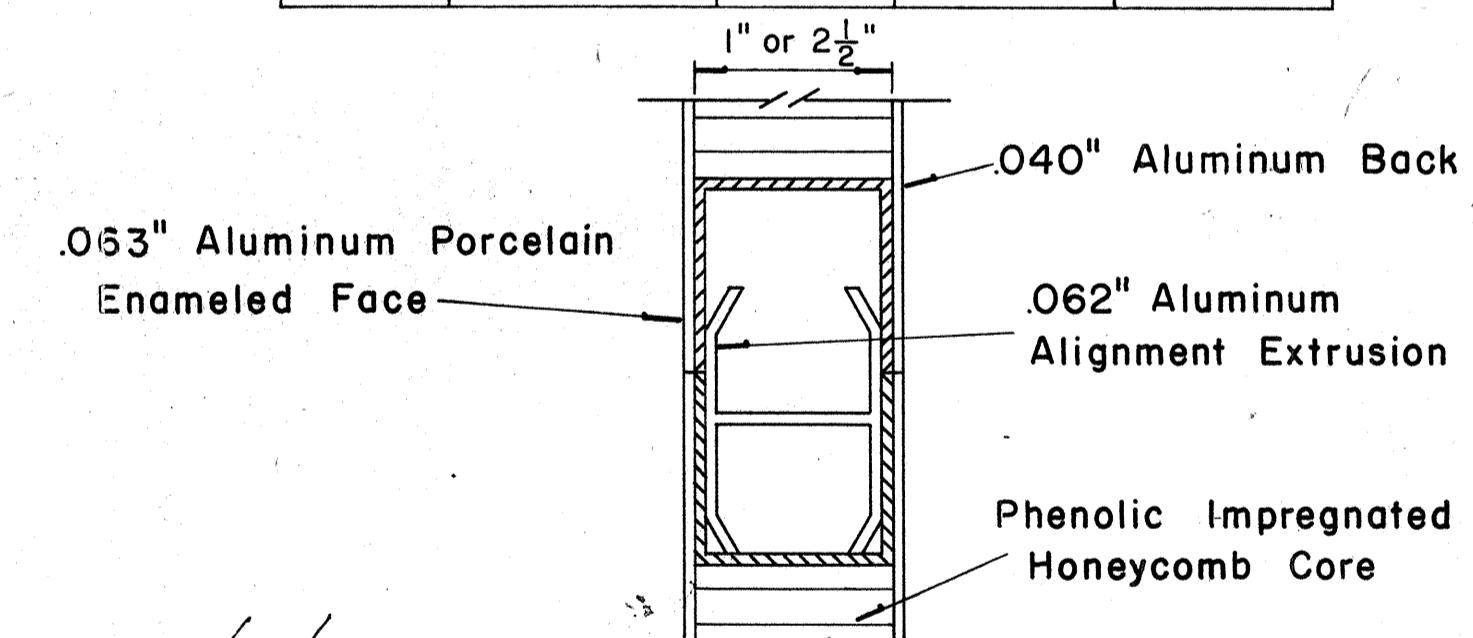
Scale: $\frac{1}{2}$ " = 1"

APPROVAL RECOMMENDED:

Eischi Tanaka 12/29/69
TRAFFIC ENGINEER DATE

APPROVED:

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



CLOSURE DETAIL SECTION "C-C"

FULL SCALE

NO.	REVISION	APPROVED BY	DATE

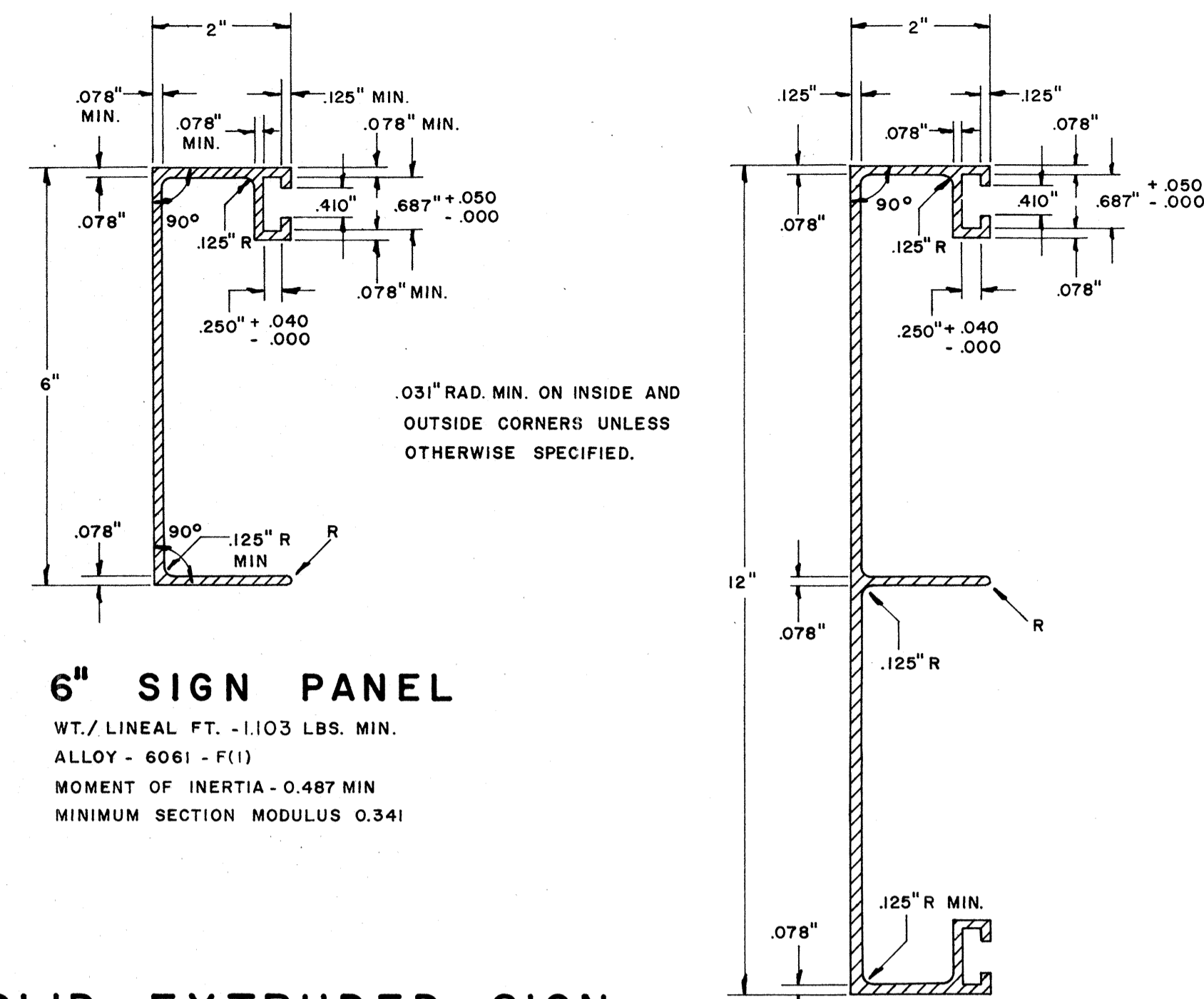
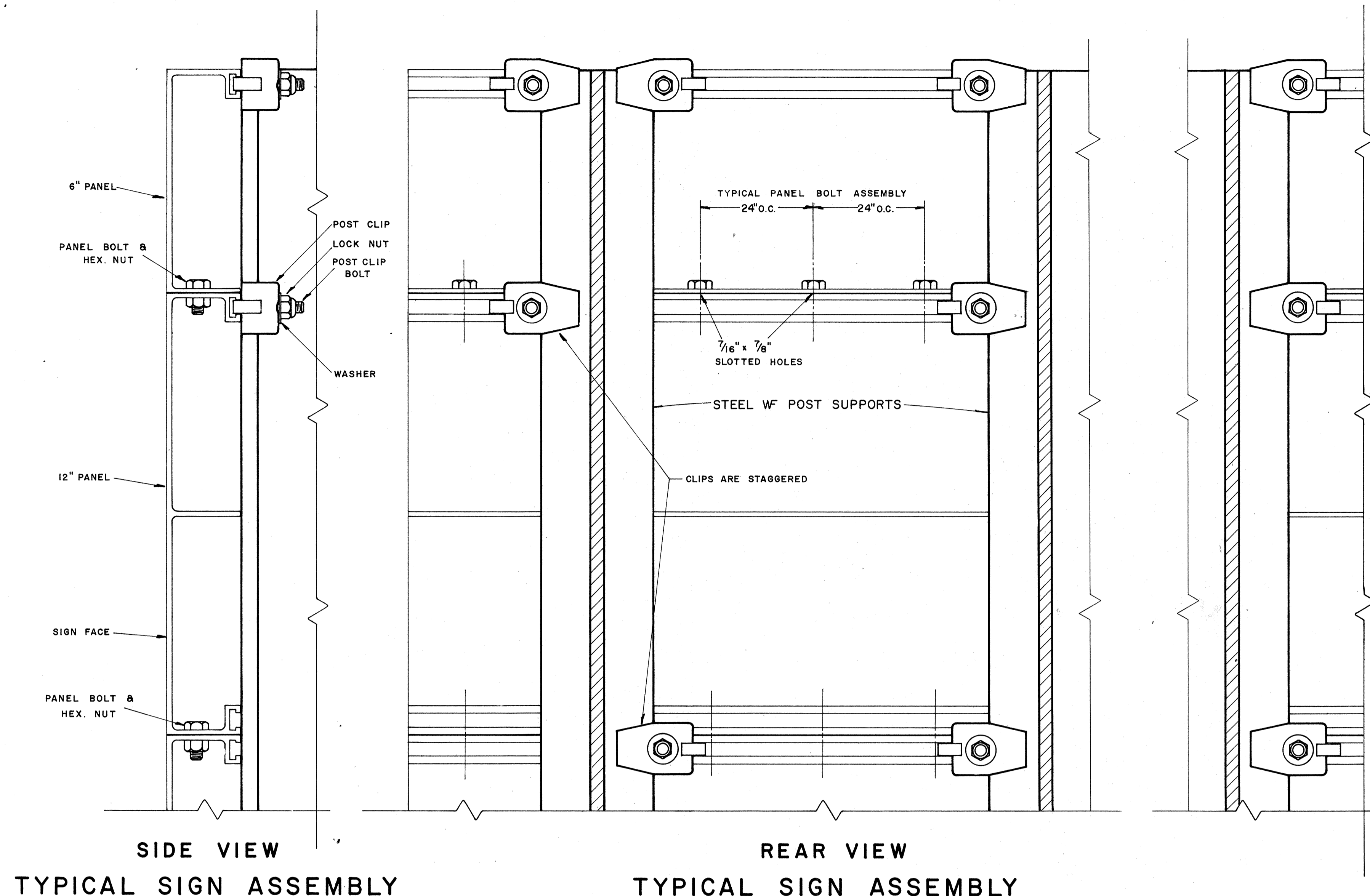
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
LAMINATED ALUMINUM
SIGN PANELS
(GROUND MOUNTED)

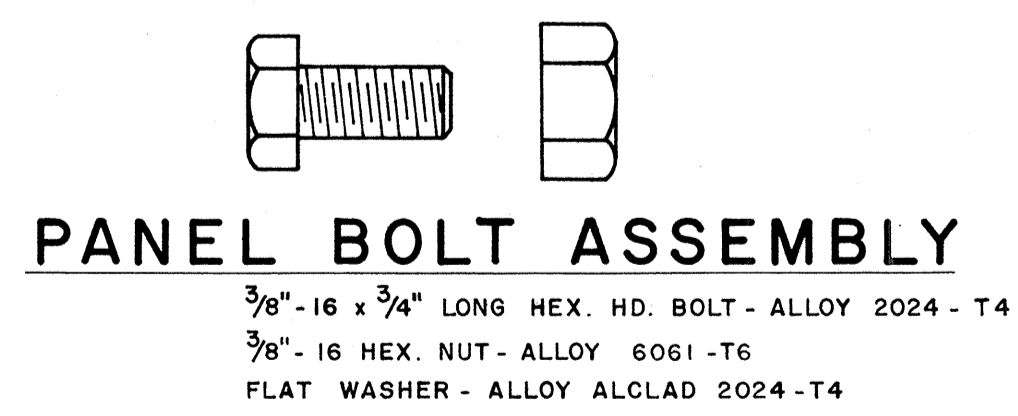
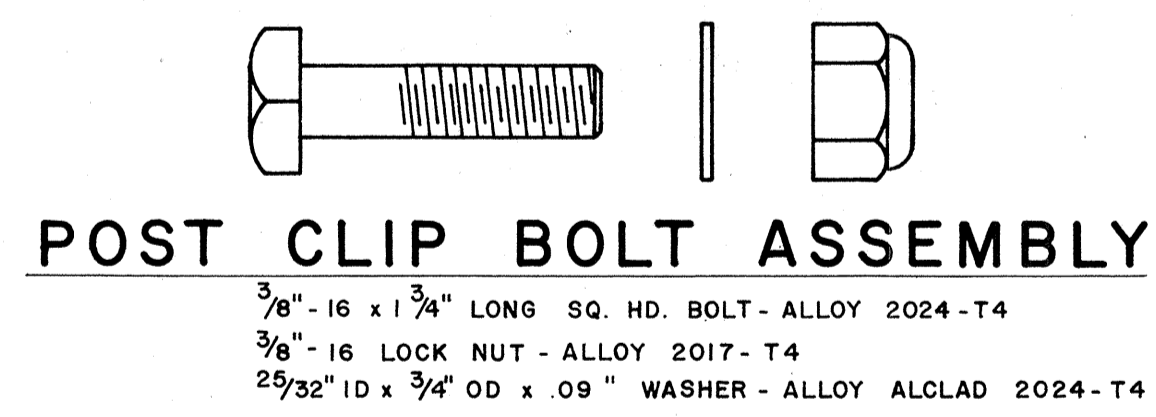
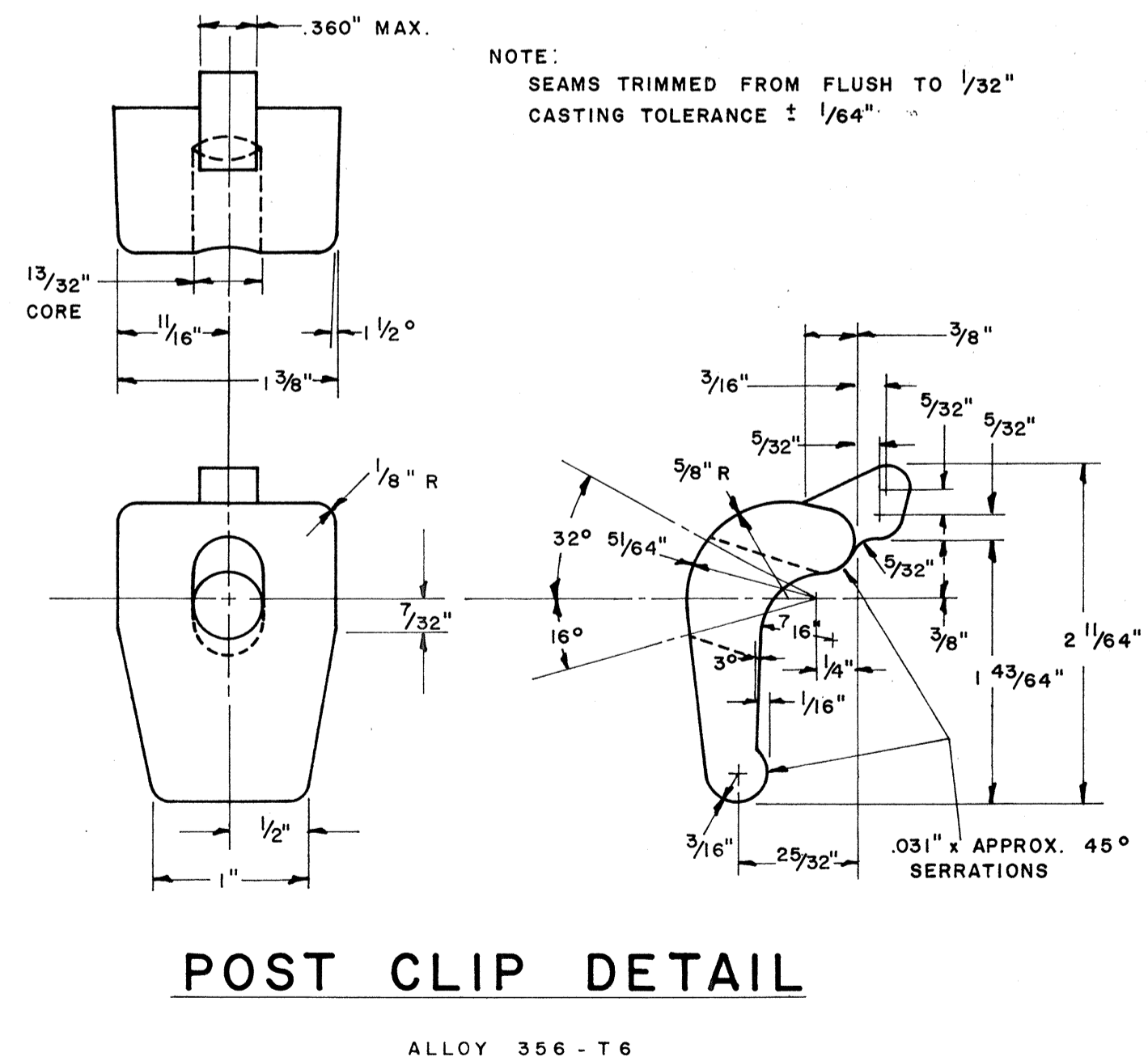
Scale: As Shown

SHEET No. 27 OF 32 SHEETS DT 206

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



SOLID EXTRUDED SIGN PANEL DETAILS



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

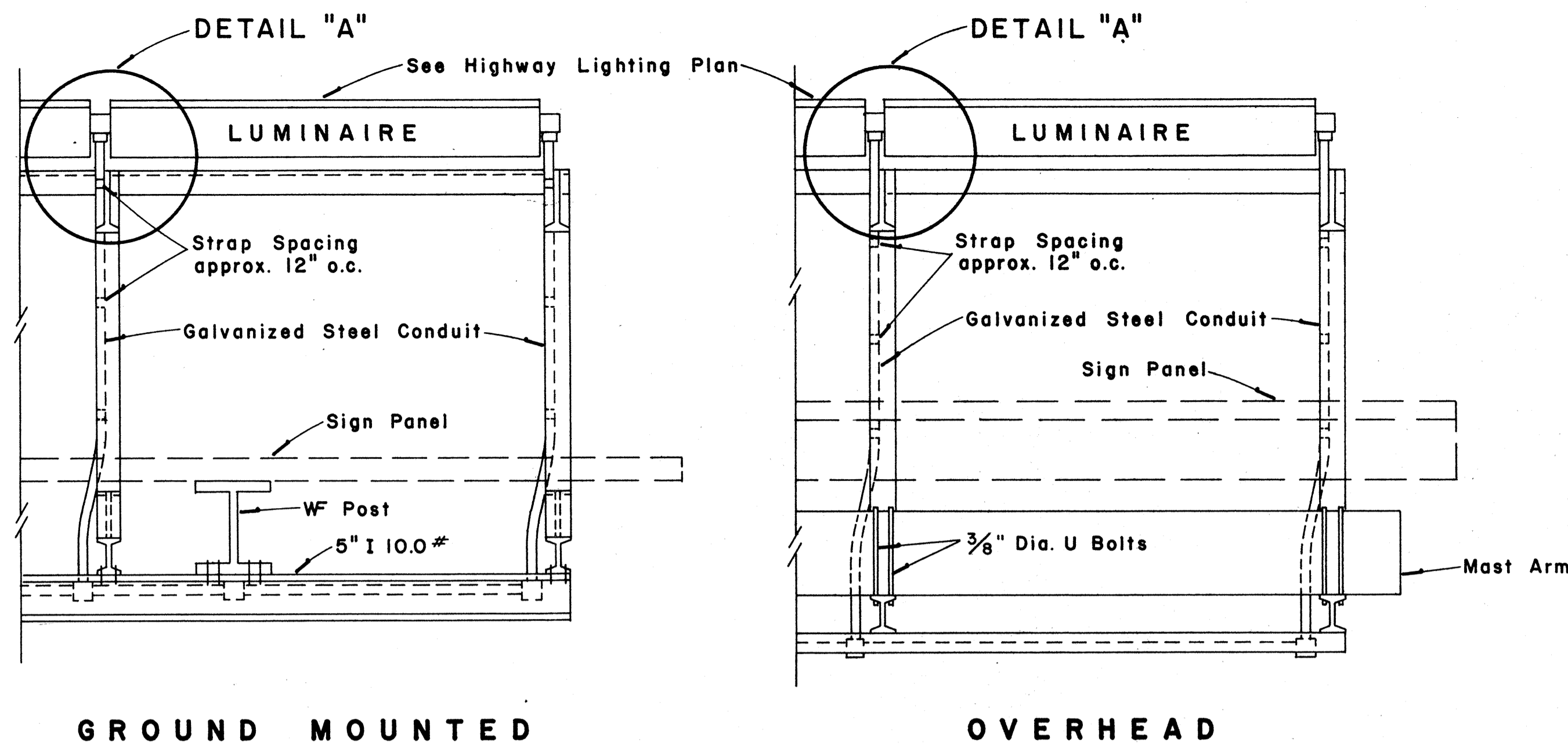
APPROVAL RECOMMENDED:
Etschi Tanaka 12/29/69
TRAFFIC ENGINEER DATE

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

NO.	REVISION	APPROVED BY	DATE

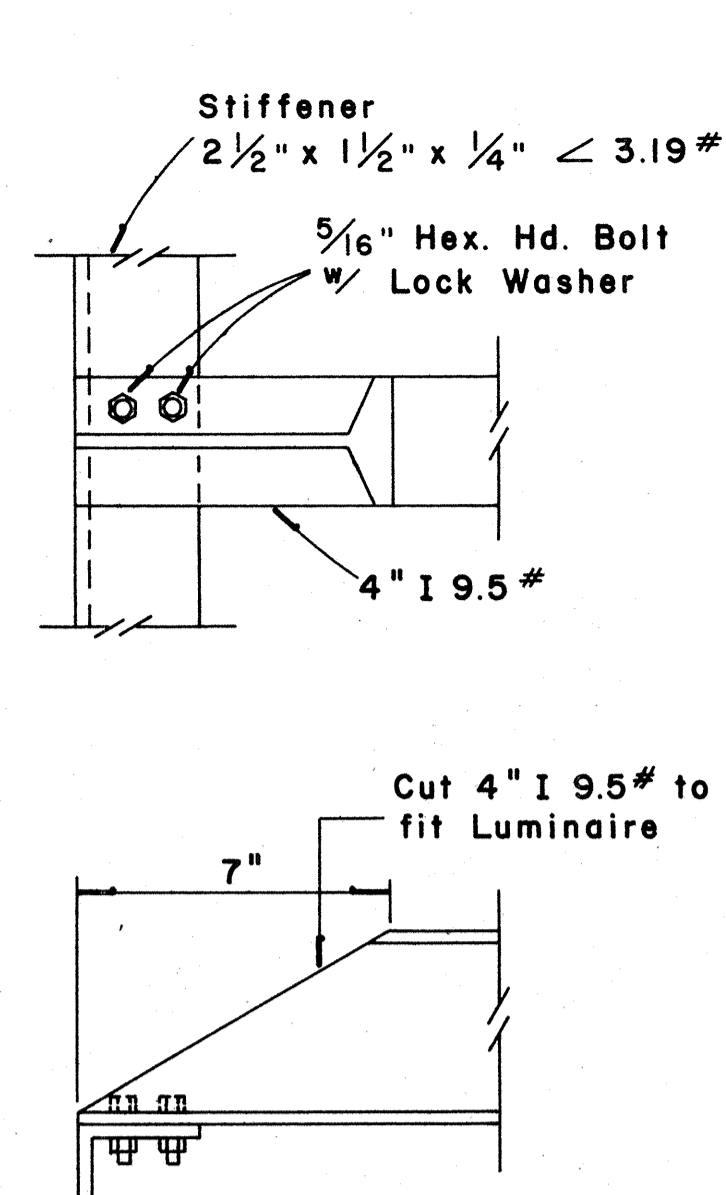
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
SOLID ALUMINUM
EXTRUDED SIGN PANEL
AND
ACCESSORY DETAILS
SCALE:

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



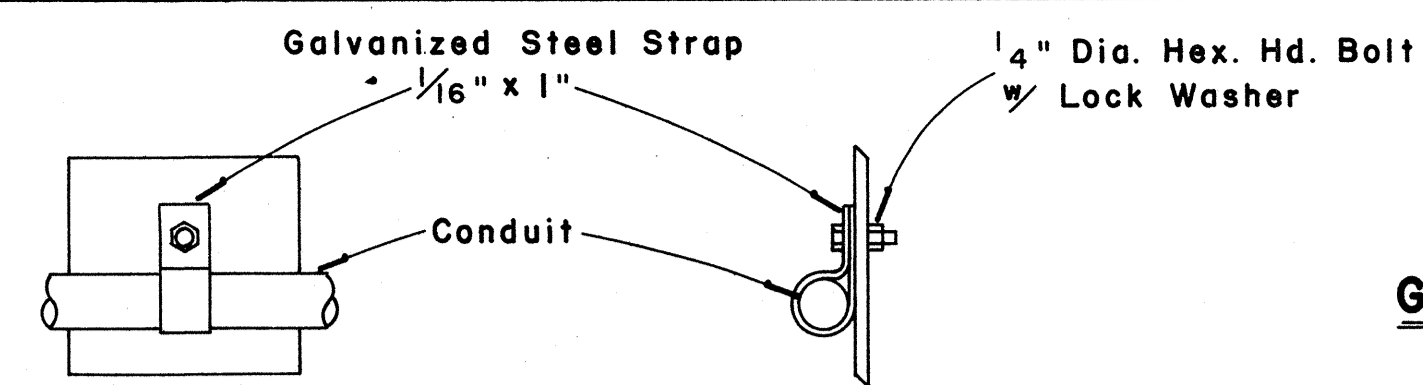
TOP VIEW
LUMINAIRE MOUNTING

Scale: 1" = 1'-0"



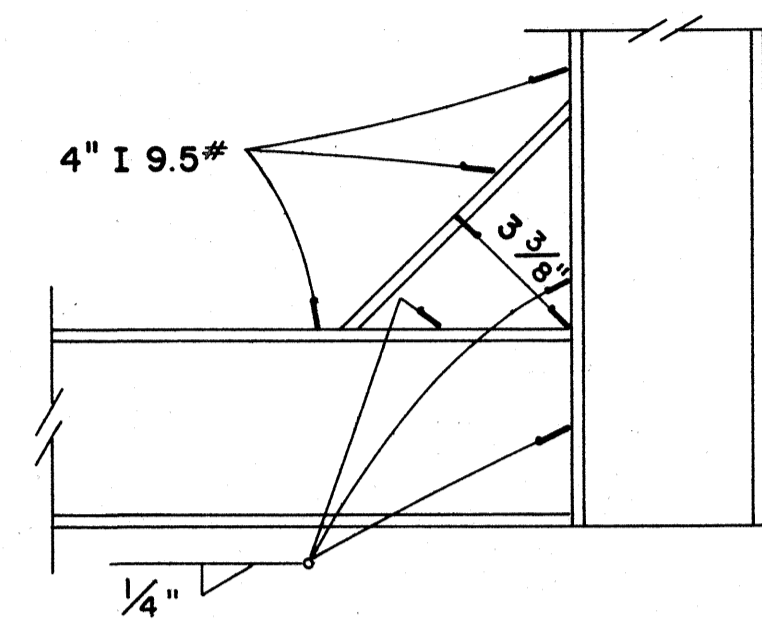
DETAIL "A"

Scale: 3" = 1'-0"



CONDUIT STRAP DETAIL

Scale: 3" = 1'-0"

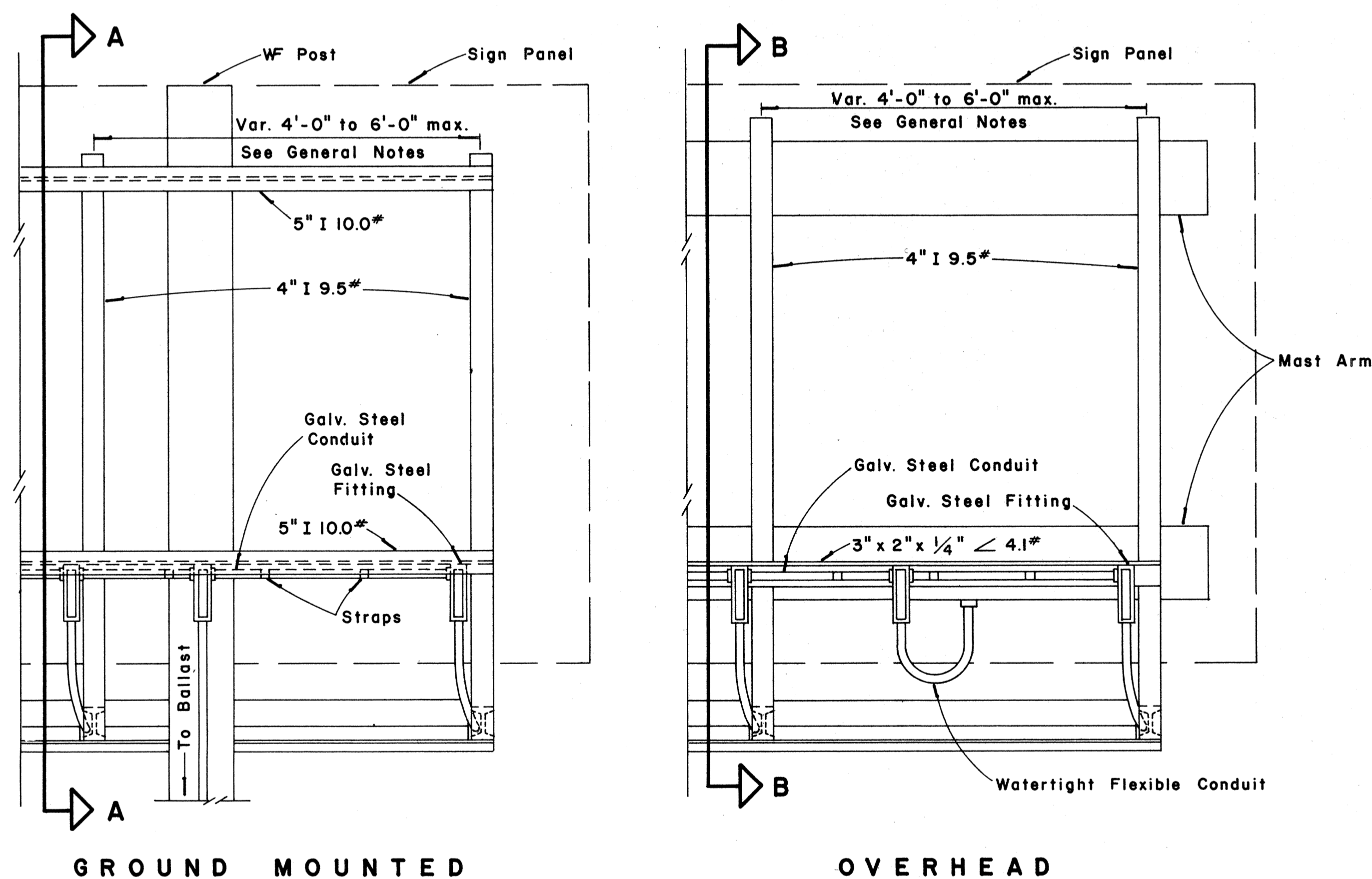


DETAIL "B"

Scale: 3" = 1'-0"

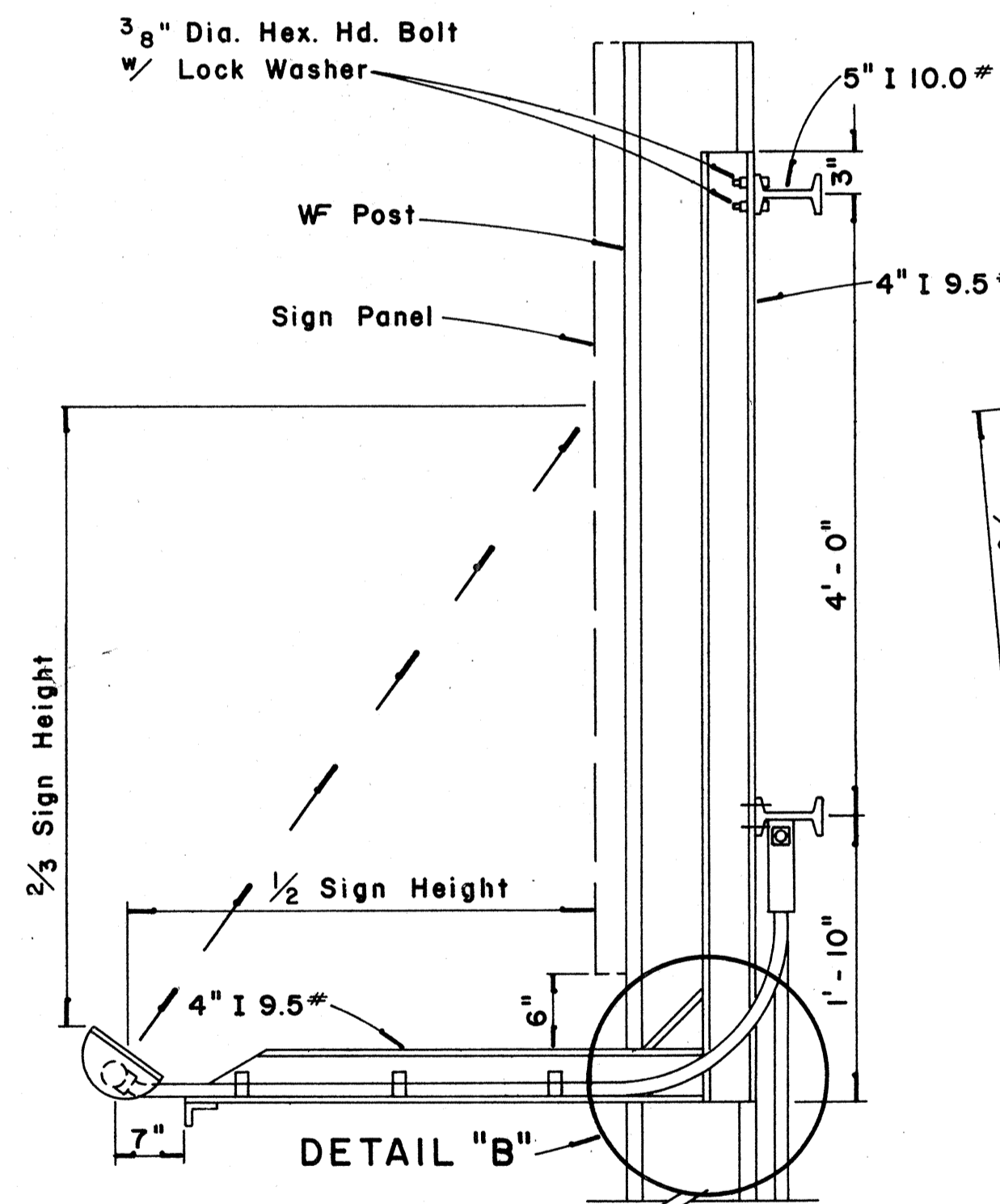
GENERAL NOTES

1. Conduit sizes: 3/4" diameter for one or two Luminaire Units, 1" diameter for three or more Luminaire Units.
2. Fluorescent Fixtures shall be installed as recommended by the manufacturer.
3. Luminaire brackets shall be spaced to fit 4'-0" to 6'-0" luminaires with fittings. Eight feet (8'-0") luminaires shall have an additional bracket at midpoint.
4. All parts of the bracket shall be hot-dip galvanized, prime coated with a suitable primer and painted with three coats of dark green enamel.



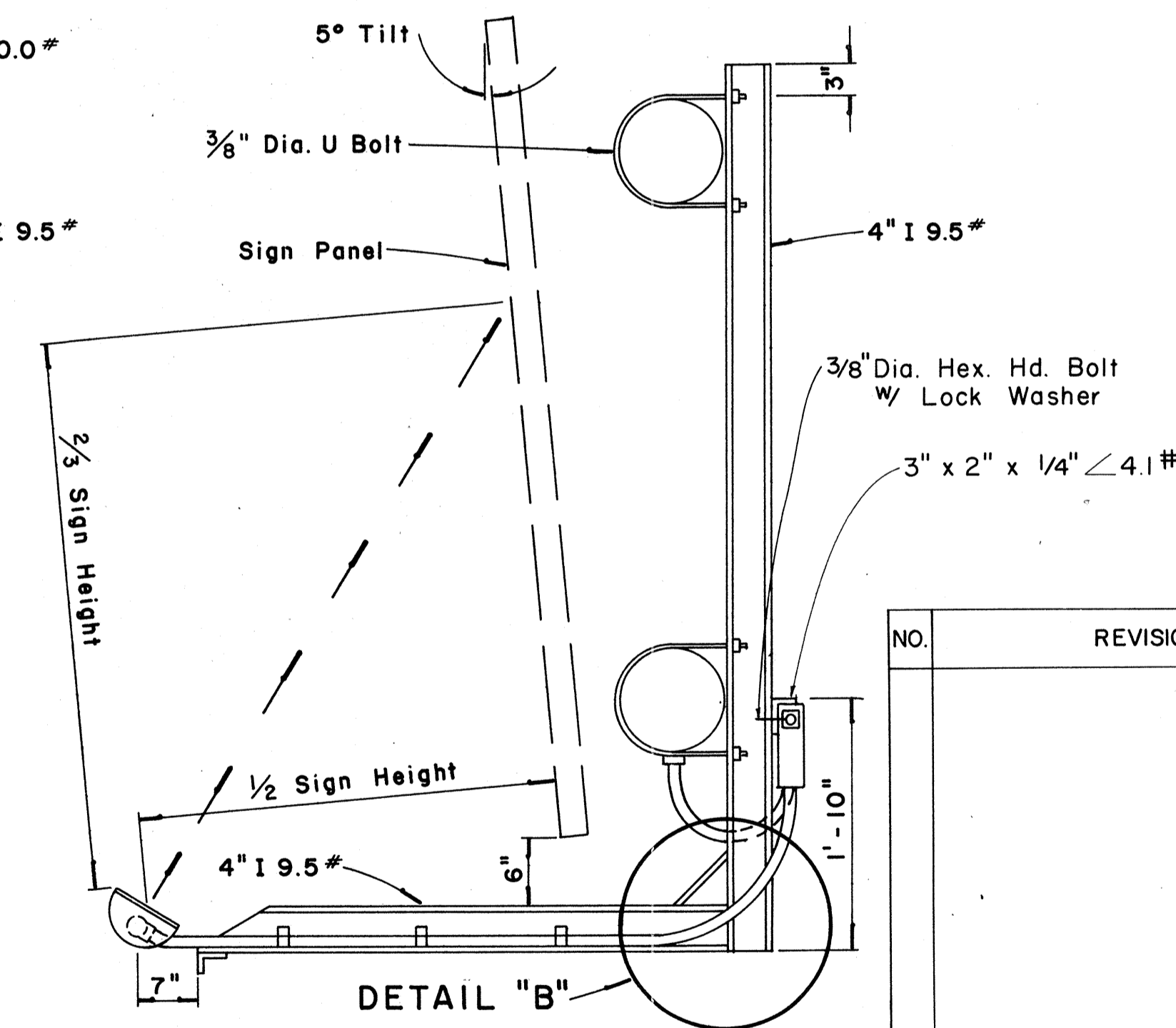
REAR VIEW
LUMINAIRE MOUNTING

Scale: 1" = 1'-0"



SECTION "A-A"

Scale: 1" = 1'-0"



SECTION "B-B"

Scale: 1" = 1'-0"

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

APPROVED:
[Signature] 12/29/69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

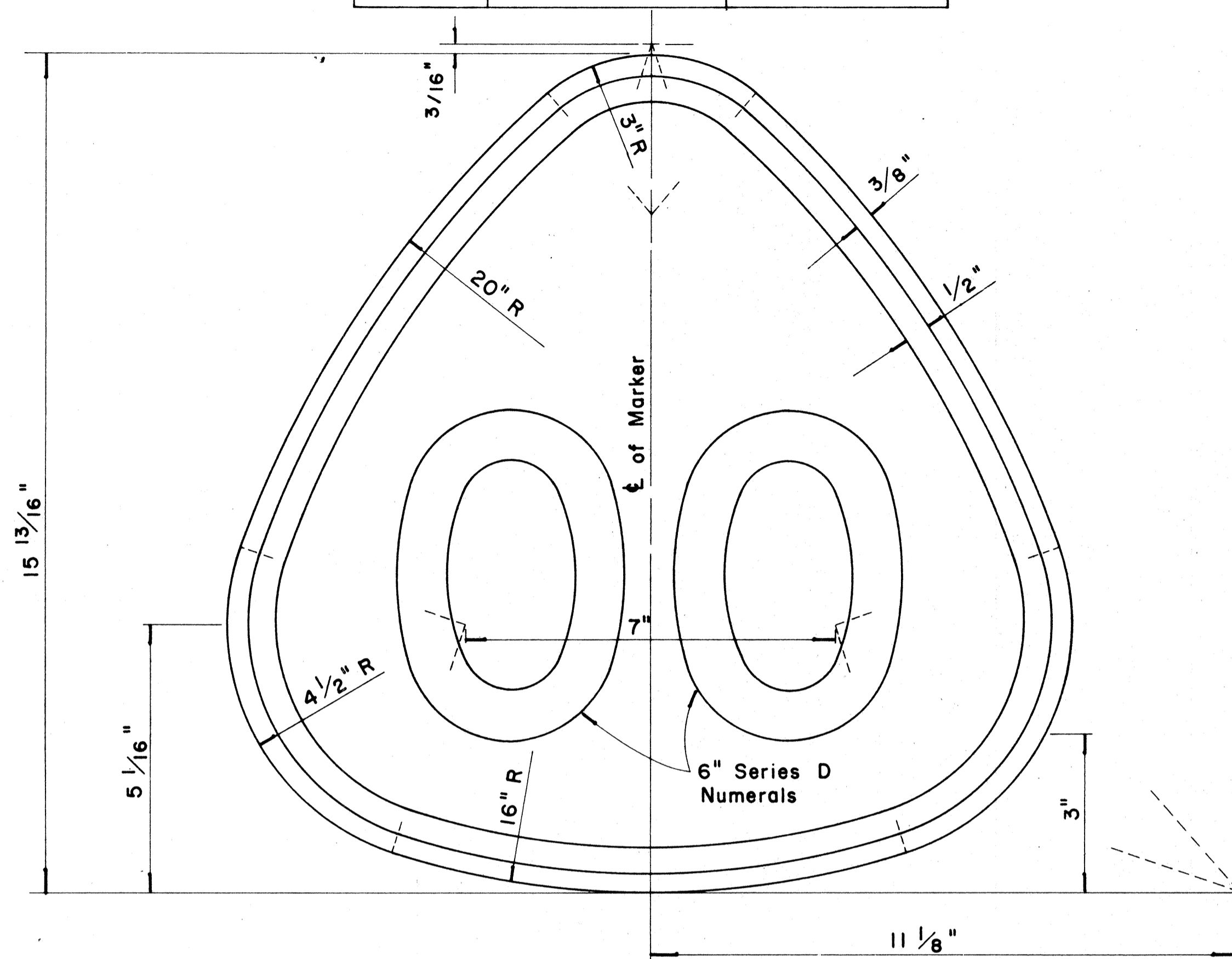
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**EXPRESSWAY SIGNS
LUMINAIRE MOUNTINGS**

Scale: As Shown
SHEET No. 29 OF 32 SHEETS DT 208

DATE
SURVEY PLATTED BY
DRAWN BY
DESIGNED BY
NOTED BOOK
QUANTITIES BY
CHECKED BY
No.

Shield Size	Multiply Dimensions by	Numeral Size
16"	1	6" Series D
21"	1.3	8" Series D
32"	2.0	12" Series D
42"	2.63	15" Series D
48"	3	18" Series D



**STATE ROUTE MARKER
FOR
DESTINATION & EXPRESSWAY SIGNS**

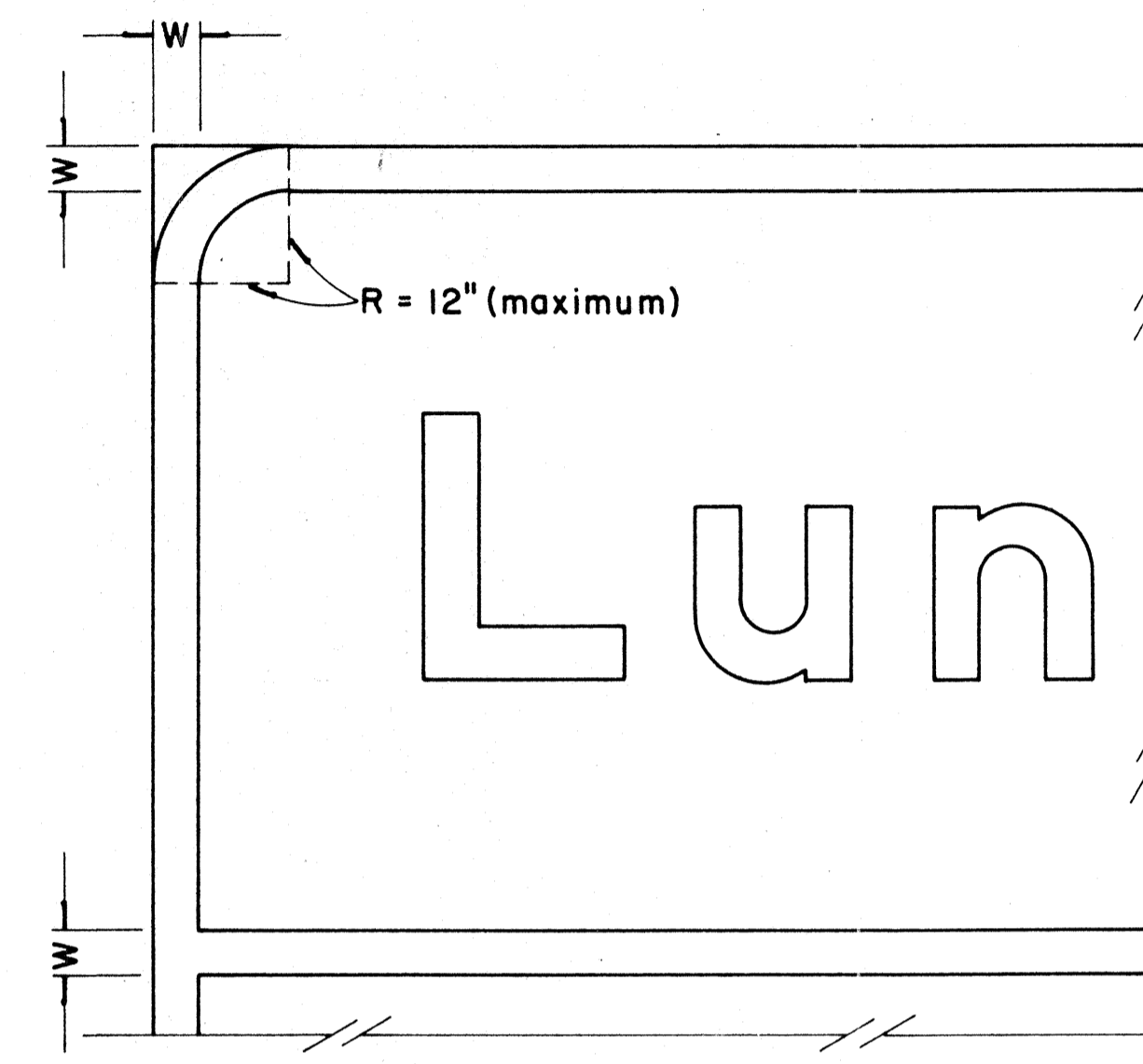
Scale: Half Size

NOTE:

1. State Route Markers on Destination and Expressway signs shall have black numerals and borders on a white reflectorized background mounted on a flat aluminum cut-out.
2. All numerals shall be Series "D" from the "Standard Alphabets for Highway Signs," Bureau of Public Roads, 1966.
3. All Cut-outs shall be fastened on sign panel with Aluminum blind rivets. See Standard Specification.

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

RADI FOR SIGNS		
Least Dimension of Sign	W	R
2'- 0" to 4'- 6"	2"	3"
4'- 9" to 5'- 6"	2"	6"
5'- 9" to 7'- 6"	2"	9"
7'- 9" and greater	2"	12"



**BORDER DETAIL
FOR
DESTINATION & EXPRESSWAY SIGNS**

No Scale

NOTE:

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

APPROVAL RECOMMENDED:

Etsuki Tanaka 12/29/69
TRAFFIC ENGINEER DATE

APPROVED:

John S. Selig 12/30/69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

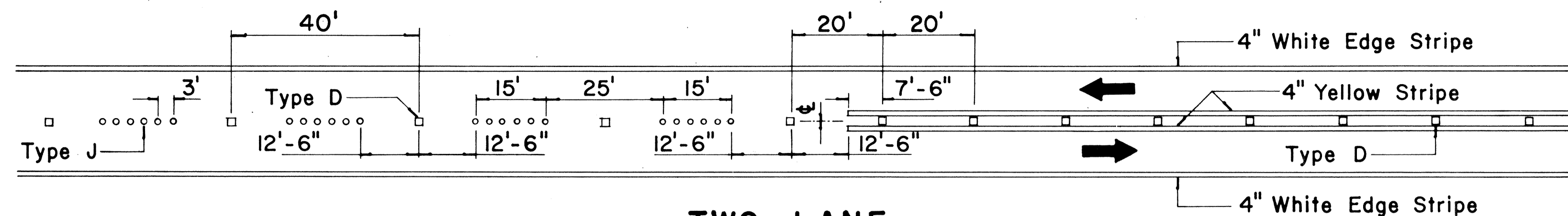
DESTINATION & EXPRESSWAY SIGNS

**STATE ROUTE MARKER
AND
BORDER DETAIL**

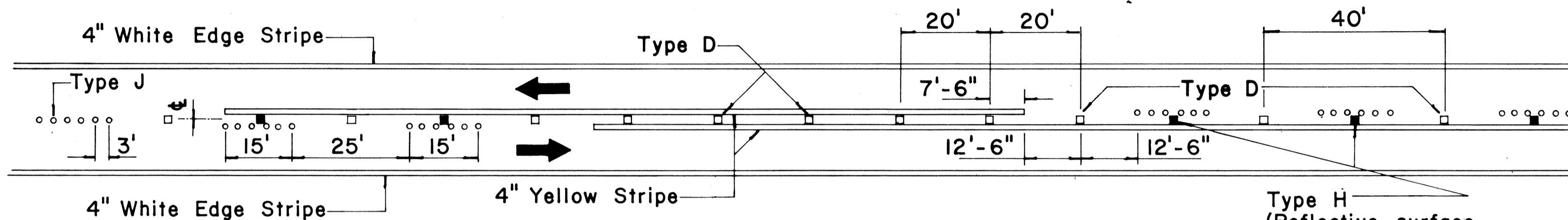
Scale: As Shown

SHEET No. 30 OF 32 SHEETS DT 209

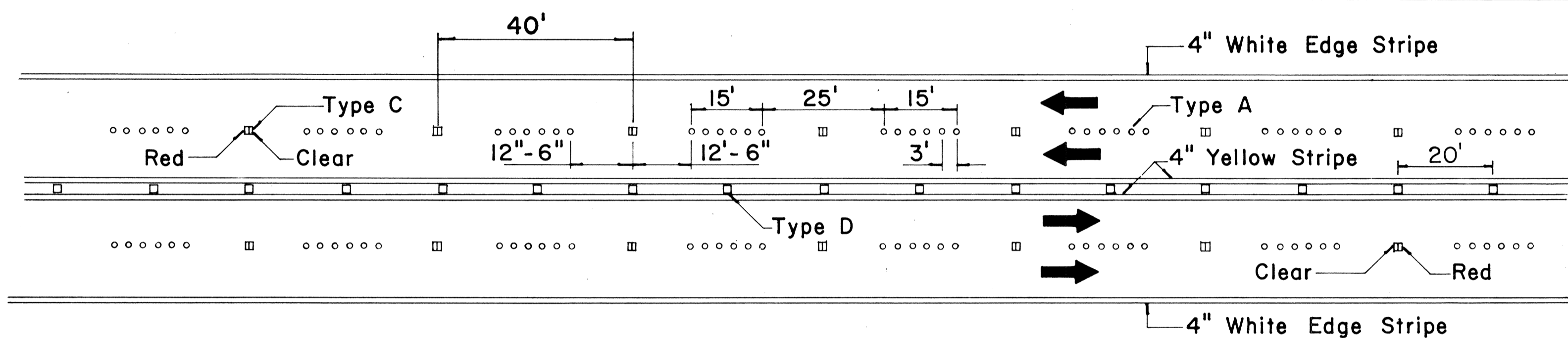
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(10)	1971	CO.131	418



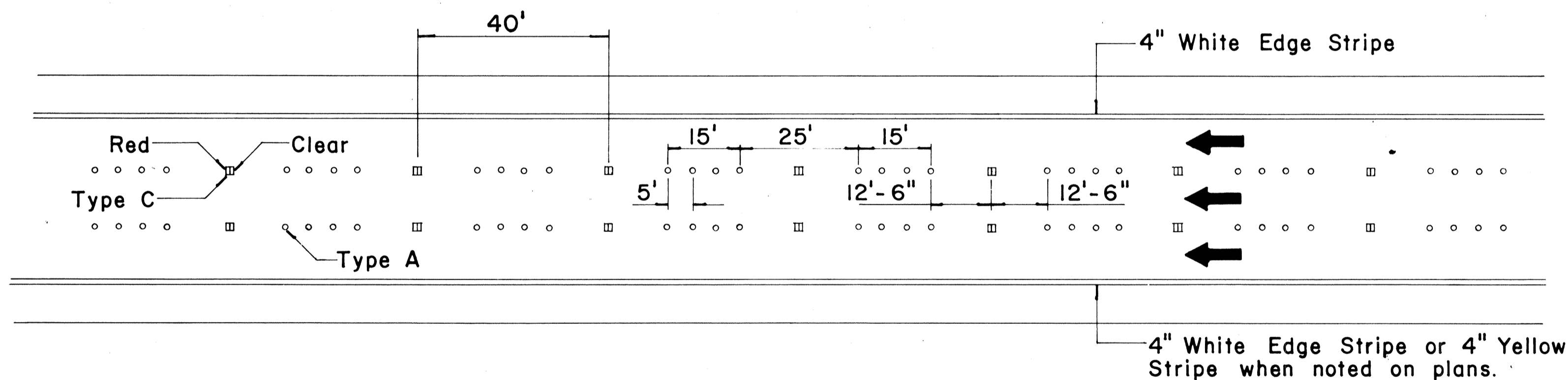
**TWO-LANE
PASSING PERMITTED AND PASSING PROHIBITED**



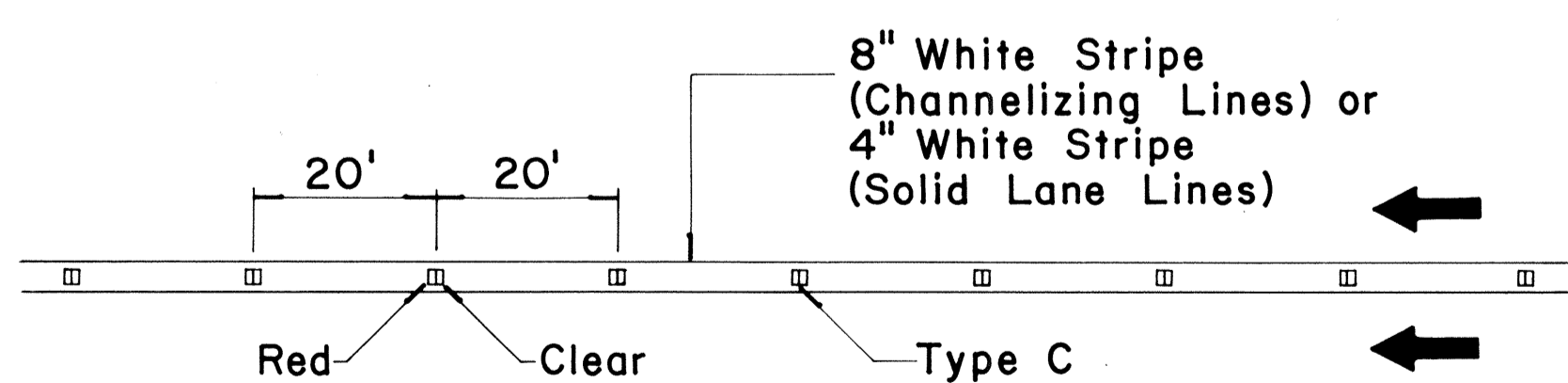
**TWO-LANE
PASSING PROHIBITED ZONES**



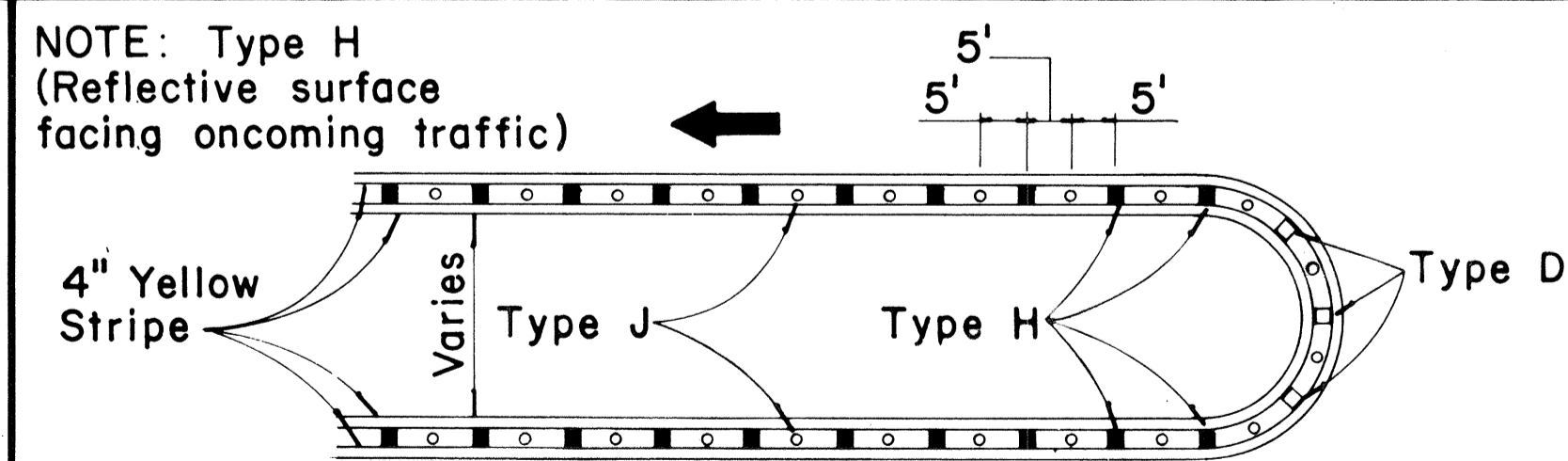
**MULTI-LANE
LANE LINES AND CENTER LINE**



FREEWAY LANE LINES



**CHANNELIZING LINES
OR SOLID LANE LINES**



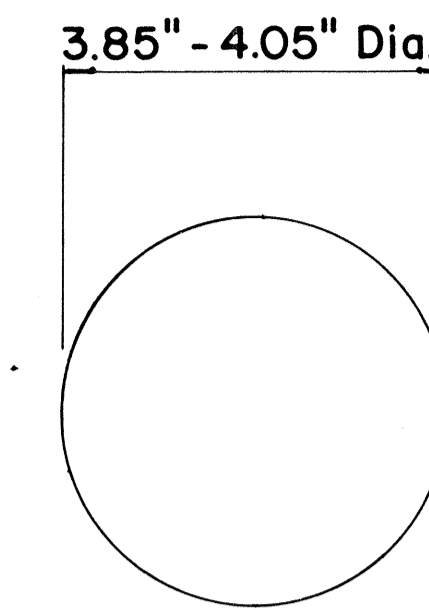
MEDIAN NOSE DELINEATION

TWO - LANE

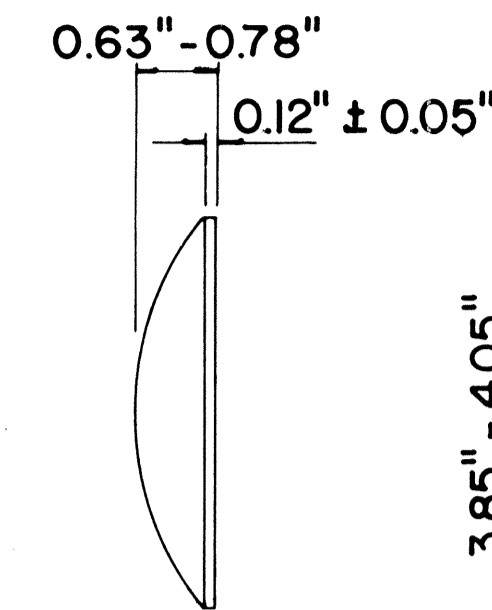
MULTI - LANE

FREEWAY

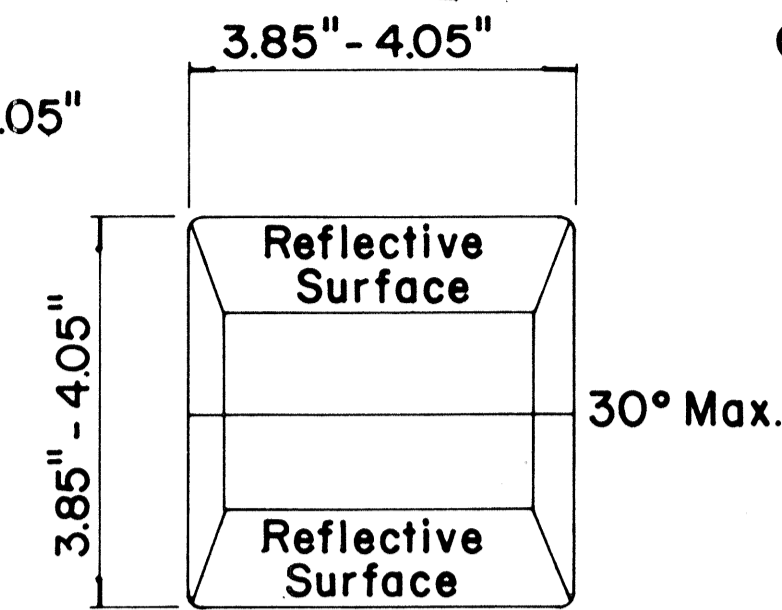
MISCELLANEOUS



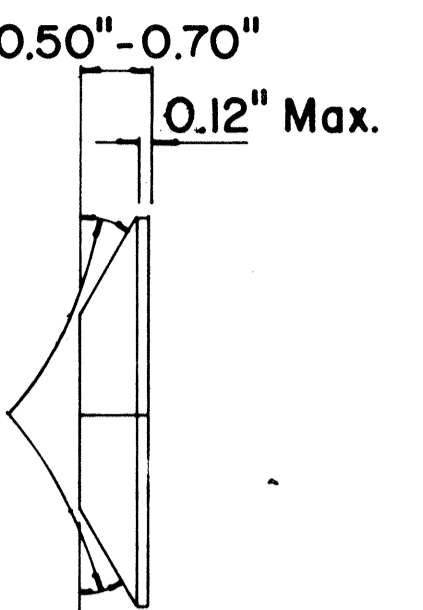
**TYPE A
NON-REFLECTIVE WHITE MARKER**



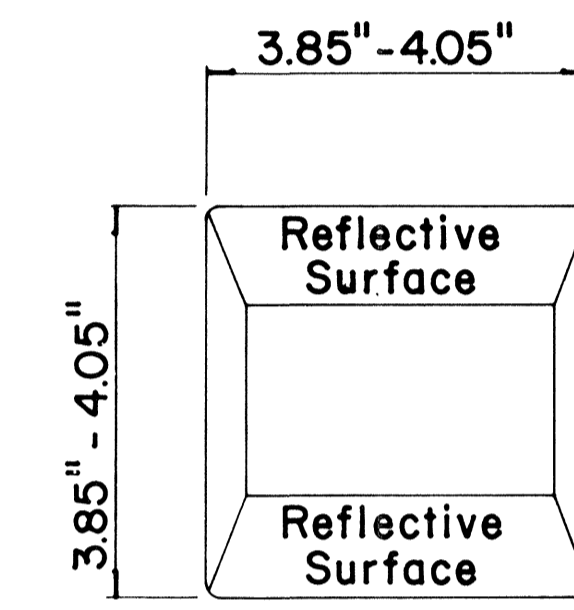
**TYPE J
NON-REFLECTIVE YELLOW MARKER**



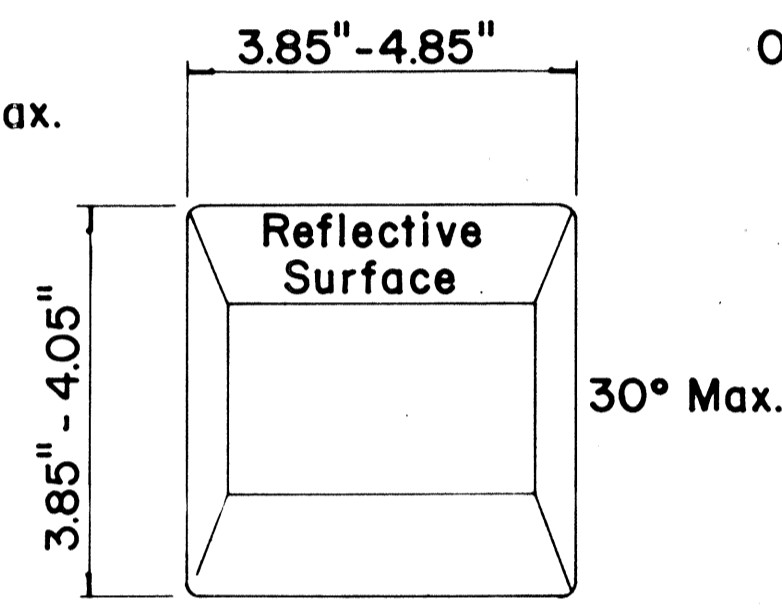
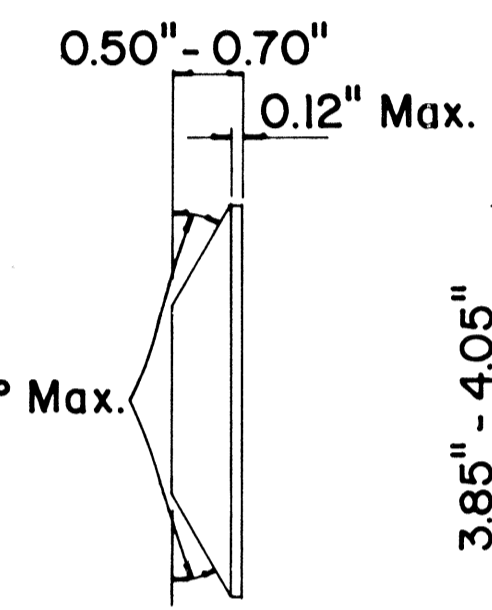
**TYPE C
RED-CLEAR REFLECTIVE MARKER**



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



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



GENERAL NOTES

1. Painted stripes to be done by State forces unless otherwise specified.

APPROVAL RECOMMENDED:
Erich Tanaka 11/18/71
TRAFFIC ENGINEER DATE

APPROVED:
Harold Kato 11/18/71
ASSISTANT CHIEF, ENGINEERING DATE

No.	REVISION	APPROVED BY	DATE
1	Add reflector marker in each line gap.	H.C.	10-21-72
2	Revised General Notes.	H.C.	10-21-72

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**STANDARD DETAILS
RAISED PAVEMENT MARKERS**

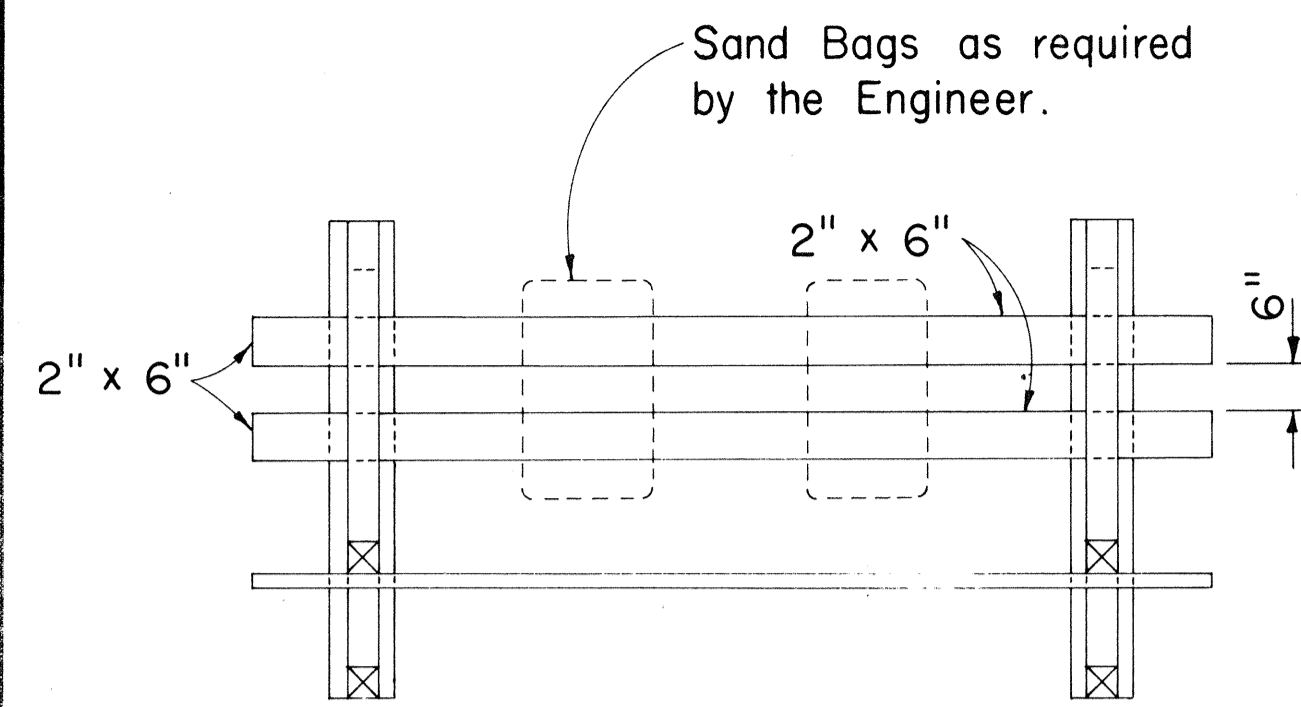
Not to Scale October 1971

SHEET No. 31 OF 32 SHEETS DT 300

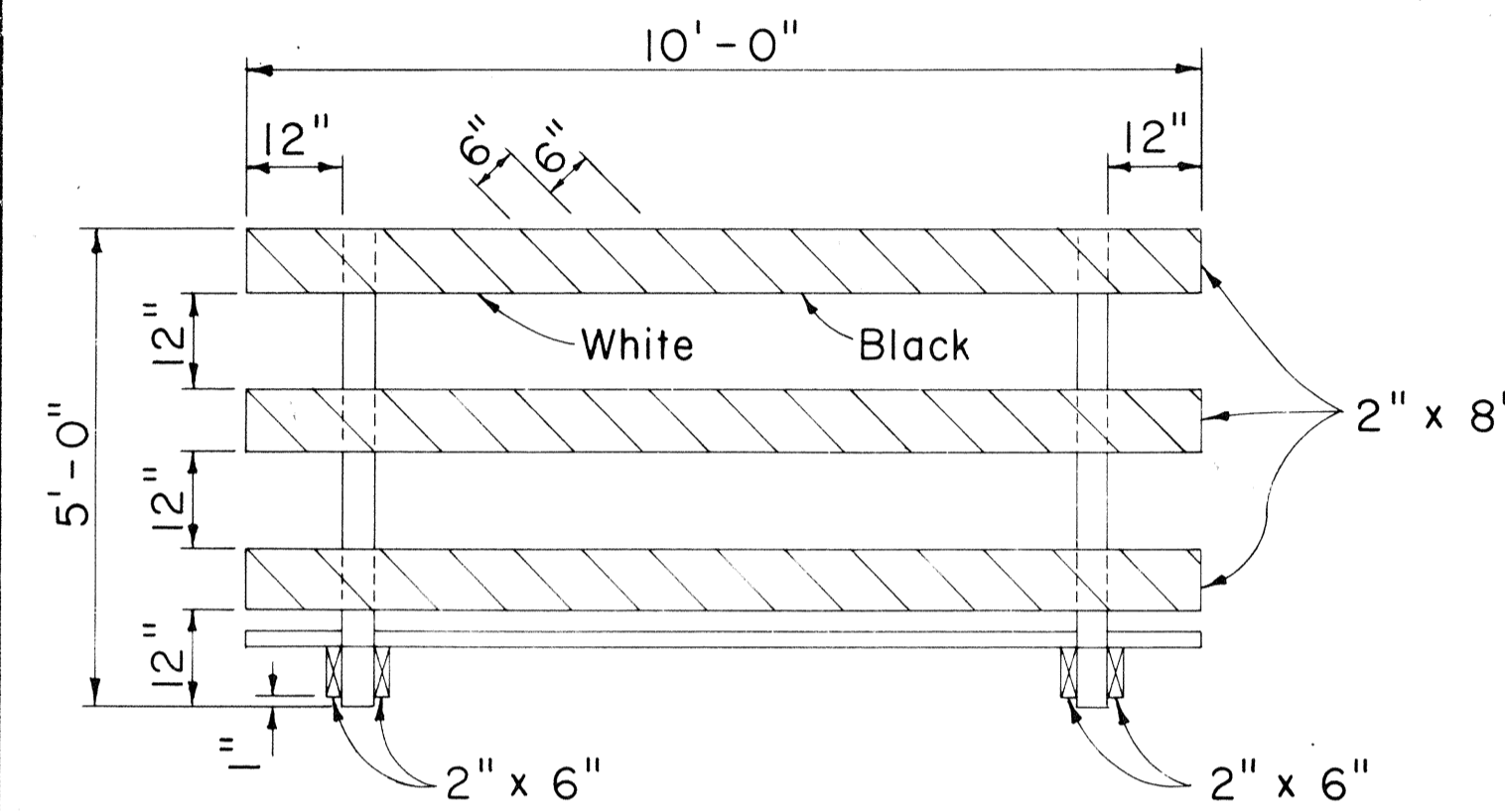
C.O.131

DATE
DRAWN BY
CHECKED BY
DESIGNED BY
NOTED BY
NO.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-078-1(0)	1971	132	418



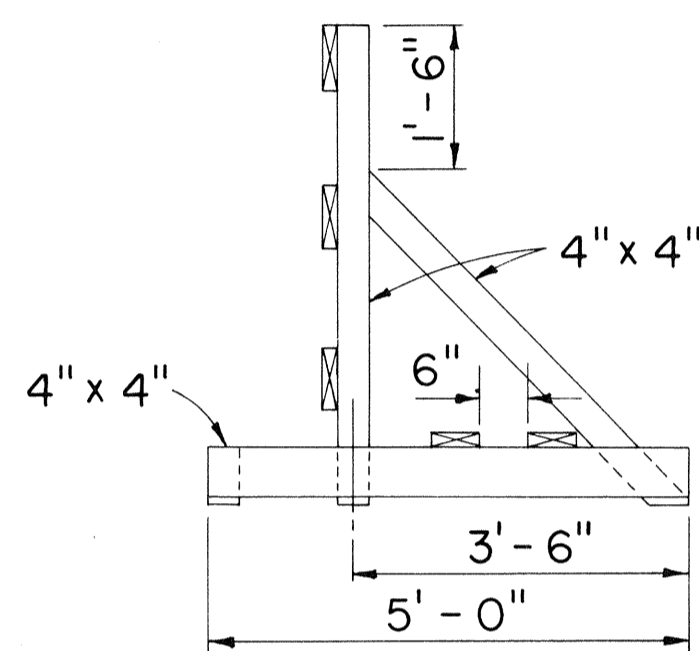
PLAN VIEW



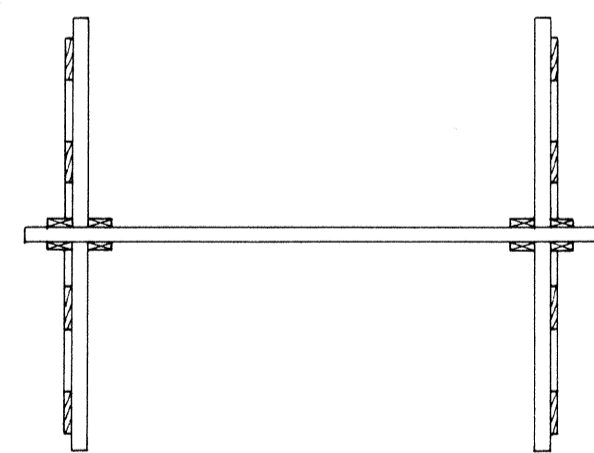
FRONT VIEW

CLASS I BARRICADE

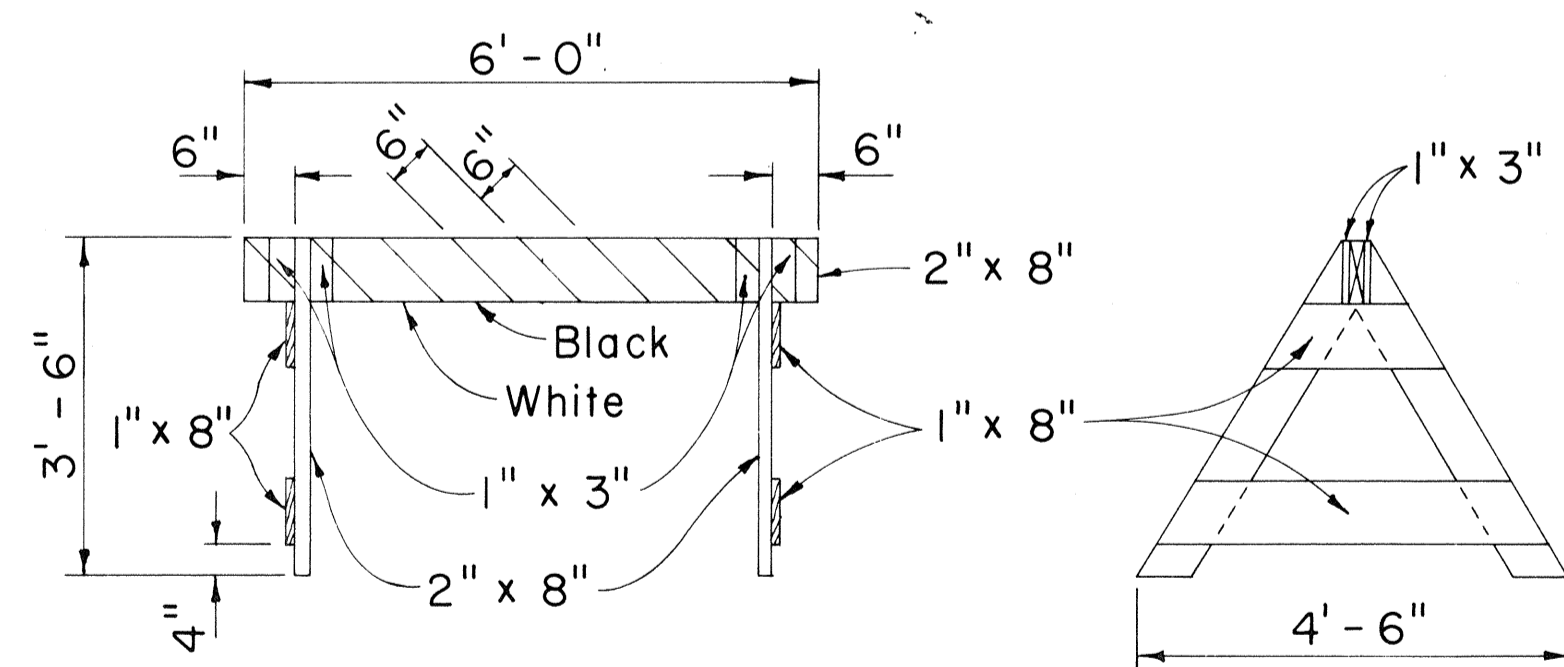
Scale: 1/2" = 1'-0"



END VIEW



PLAN VIEW



FRONT VIEW

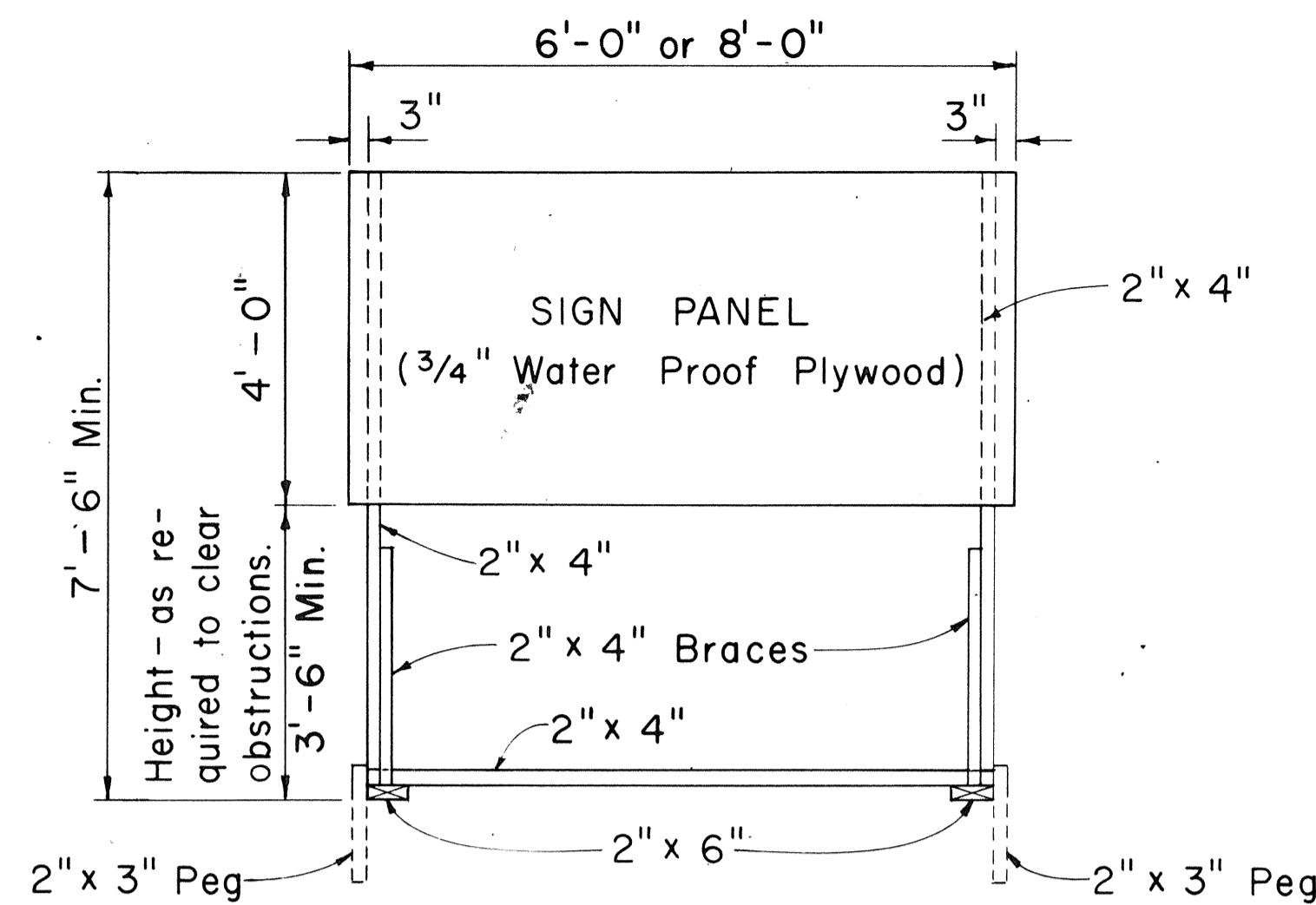
END VIEW

CLASS II BARRICADE

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

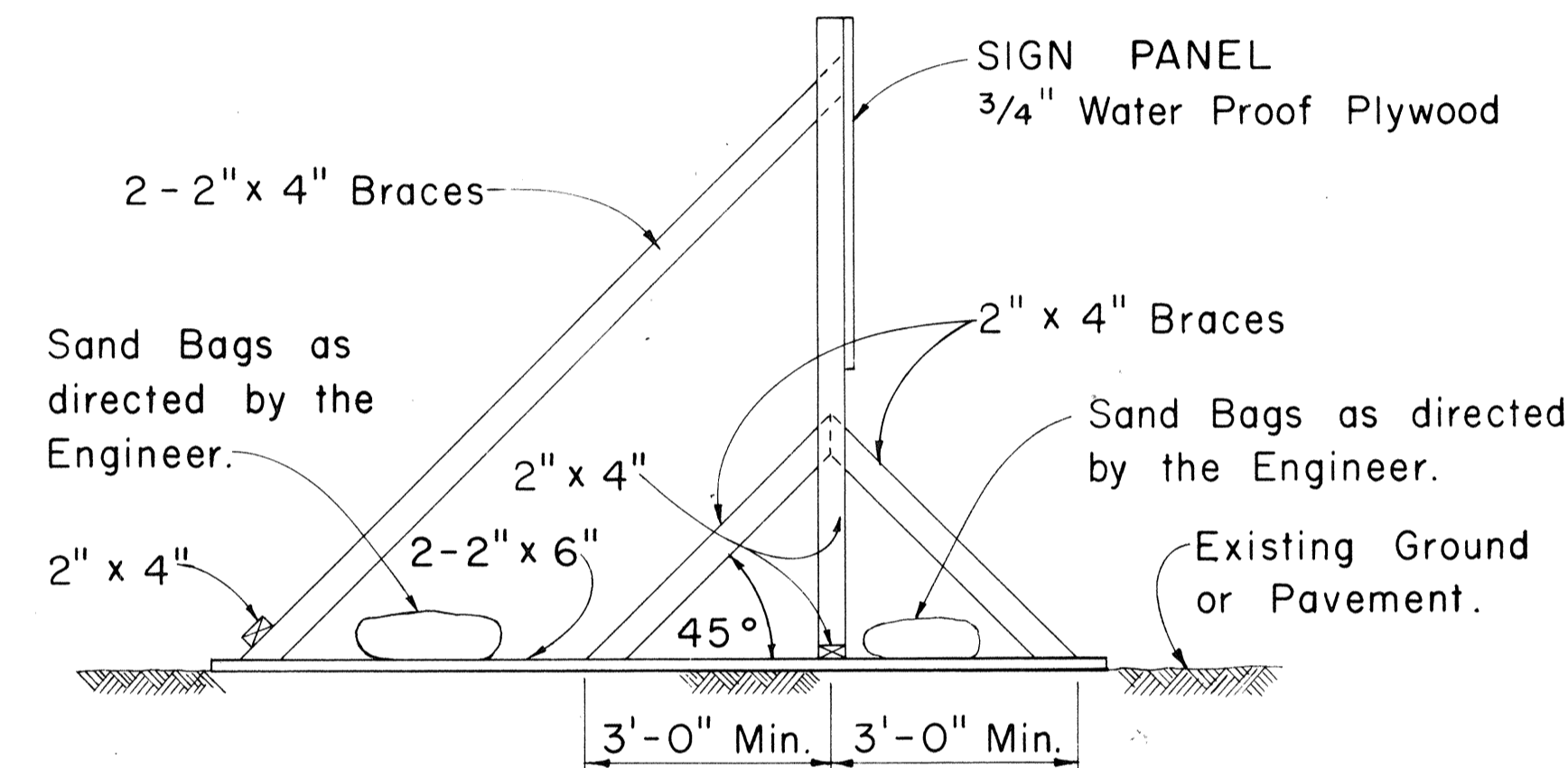
GENERAL NOTES

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



FRONT VIEW

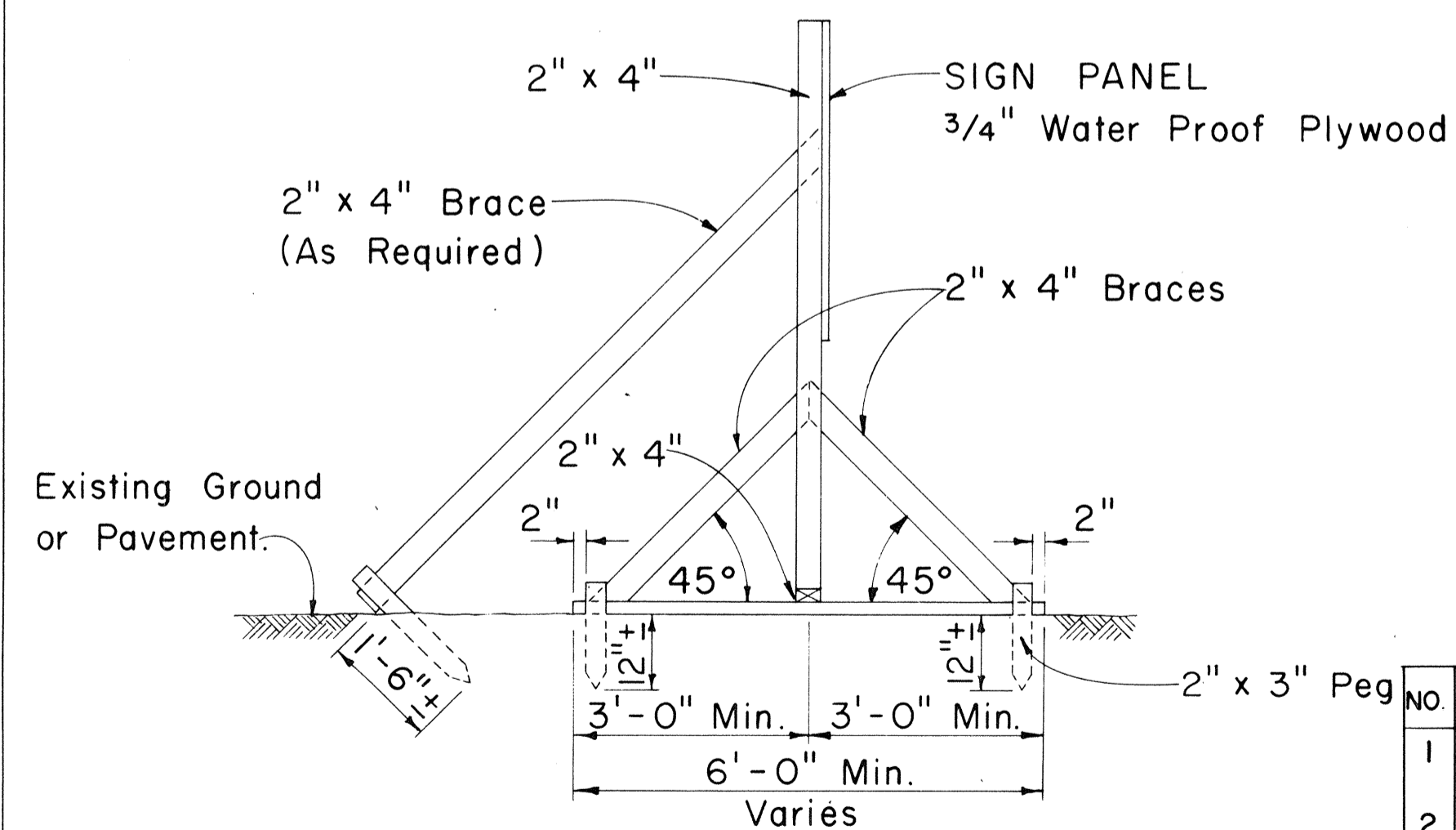
Scale: 1/2" = 1'-0"



SIDE VIEW

(SIGN FRAME WEIGHTED DOWN)

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



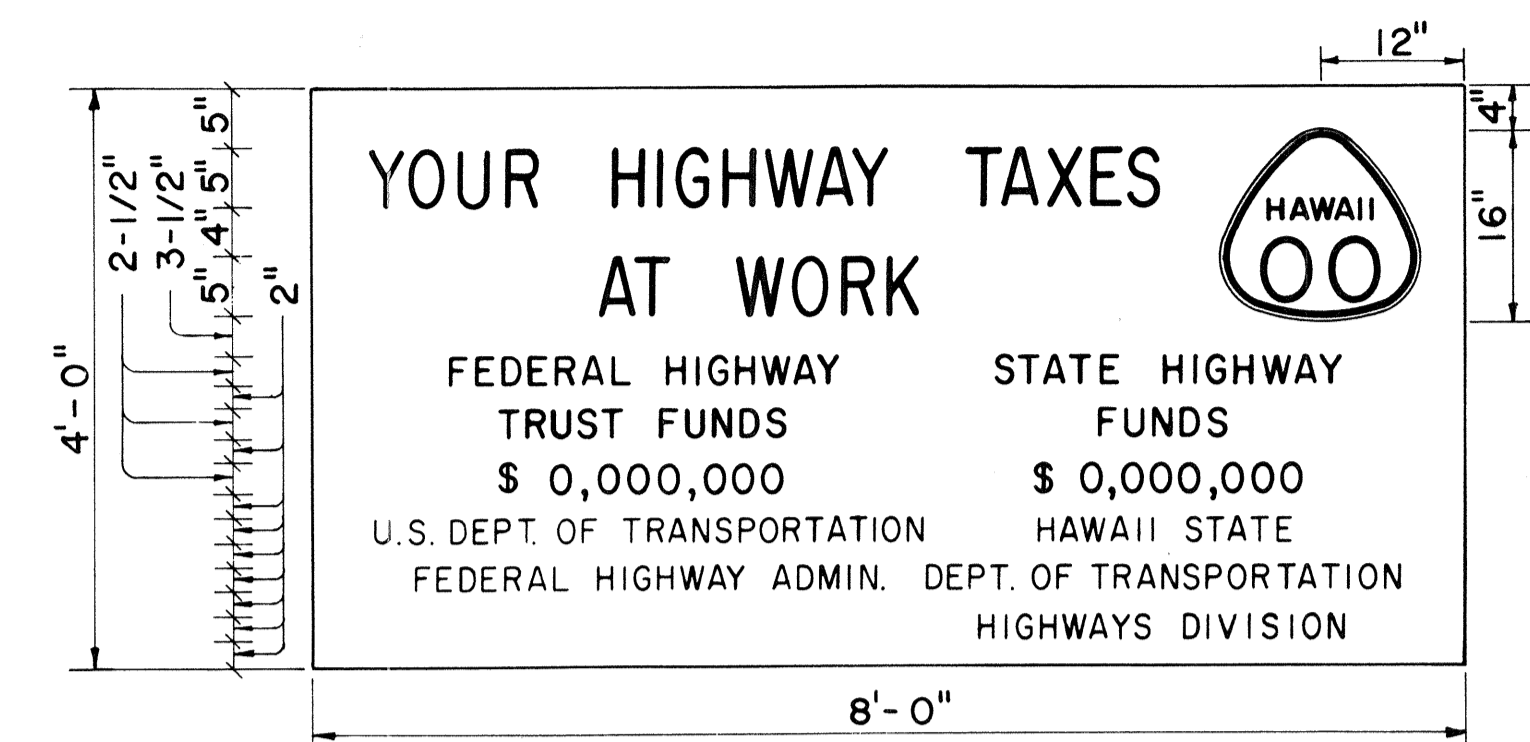
SIDE VIEW

(SIGN FRAME ANCHORED IN GROUND)

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

CONSTRUCTION IDENTIFICATION SIGN

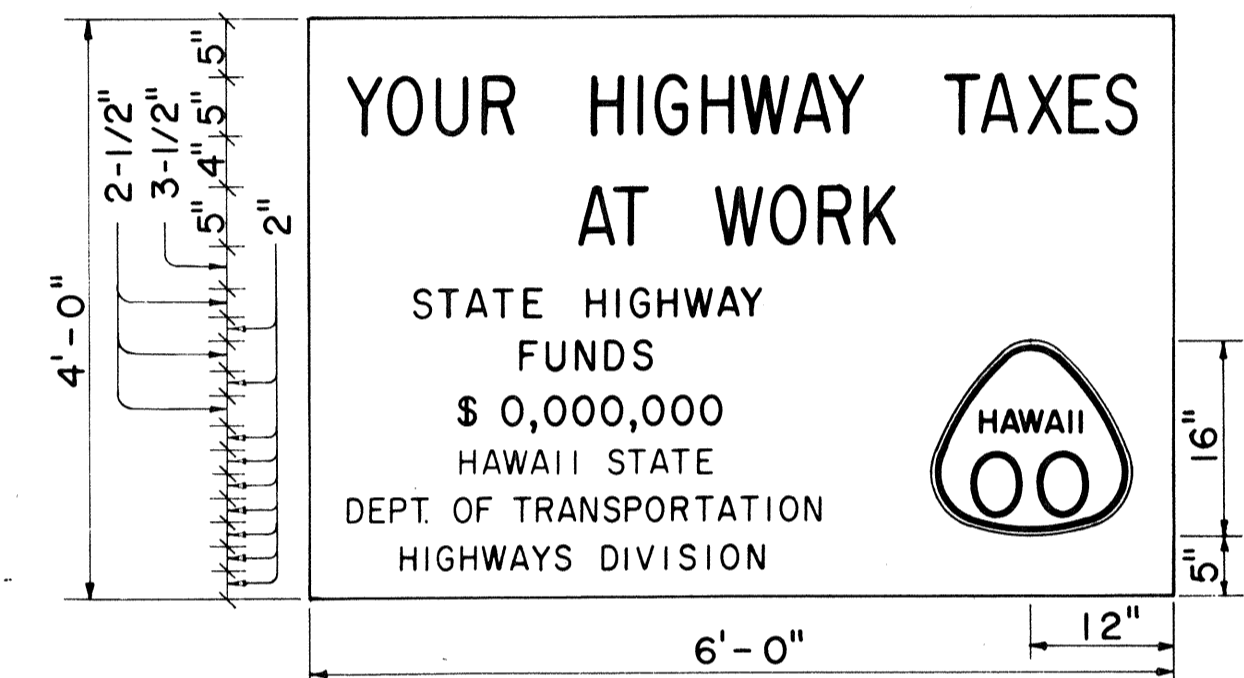
Scale: As Shown



SIGN PANEL

PRIMARY AND SECONDARY SYSTEMS

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



SIGN PANEL

NON-FEDERAL AID PROJECT

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

GENERAL NOTES

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

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

APPROVED:
John J. S. S. S. 12/30/69
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Delete "Bureau of Public Roads"	H.T.	4-29-70
2	Add Note No.3 for Barricades	H.T.	5-4-71

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TYPICAL DETAILS
 CONSTRUCTION IDENTIFICATION SIGN
 AND
 WOOD BARRICADES

Scale: As Shown Date:

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