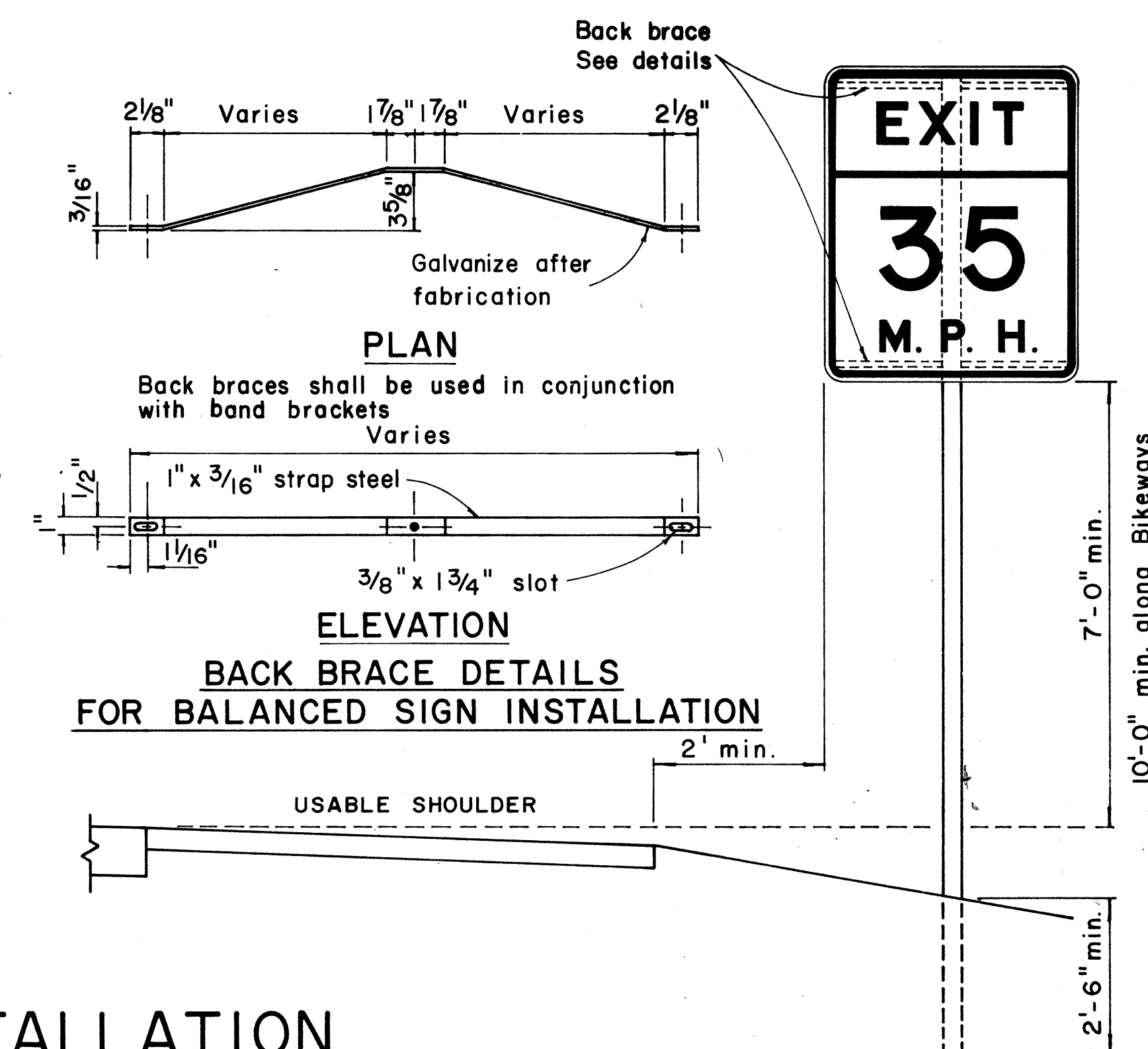
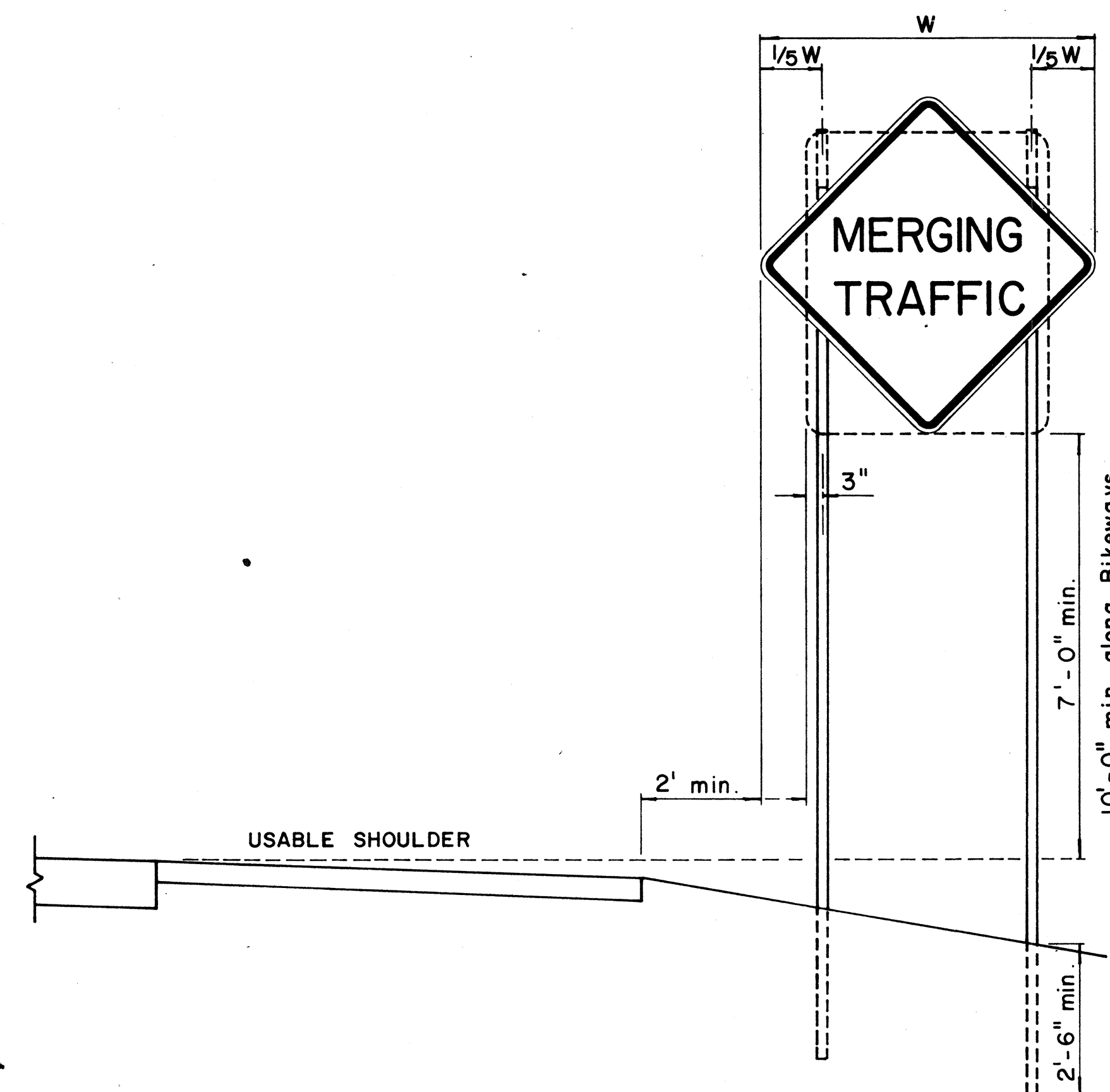
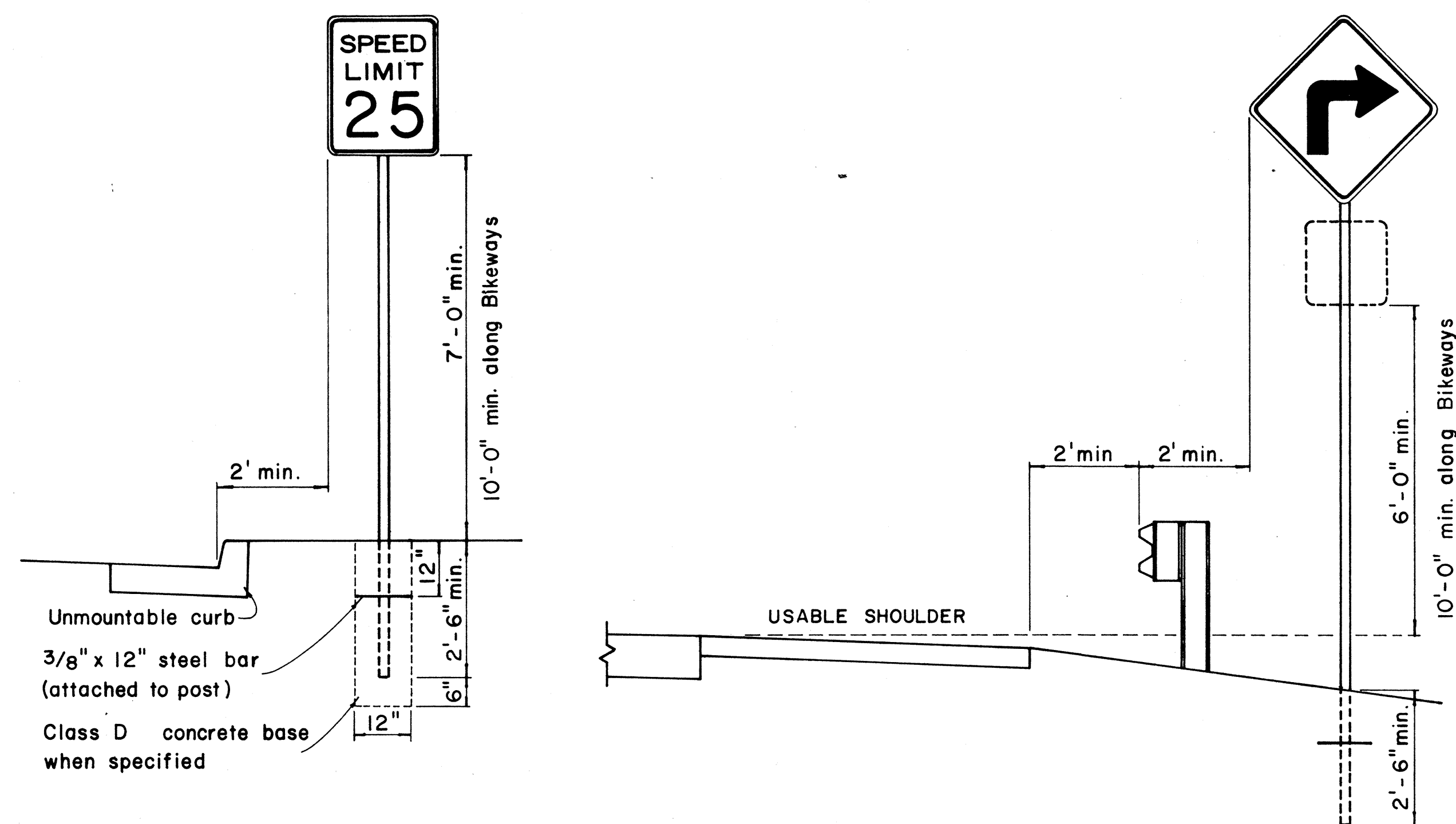
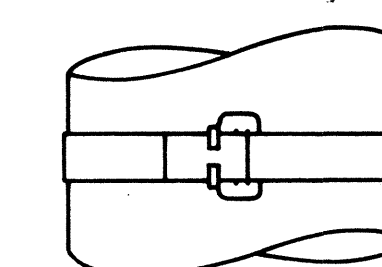
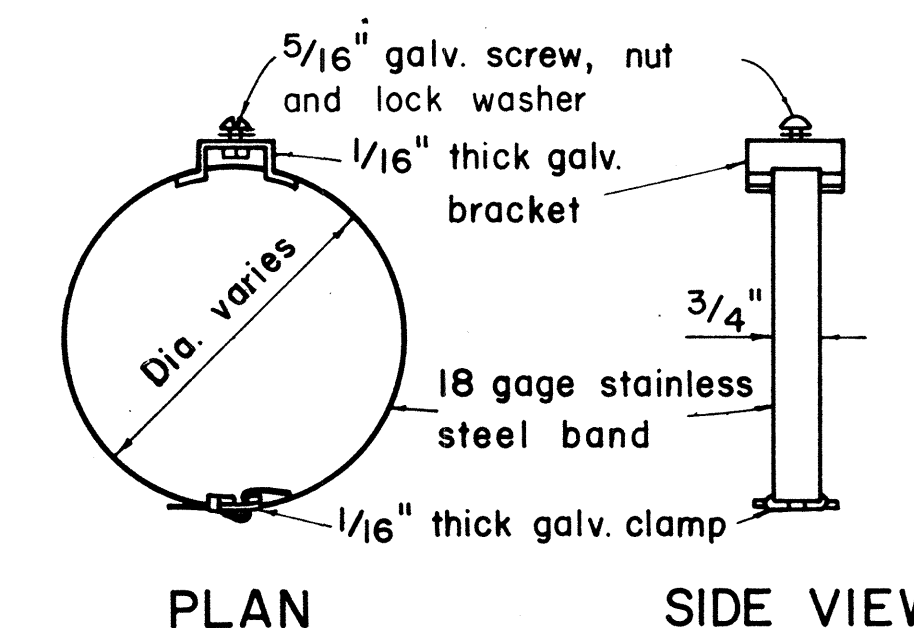
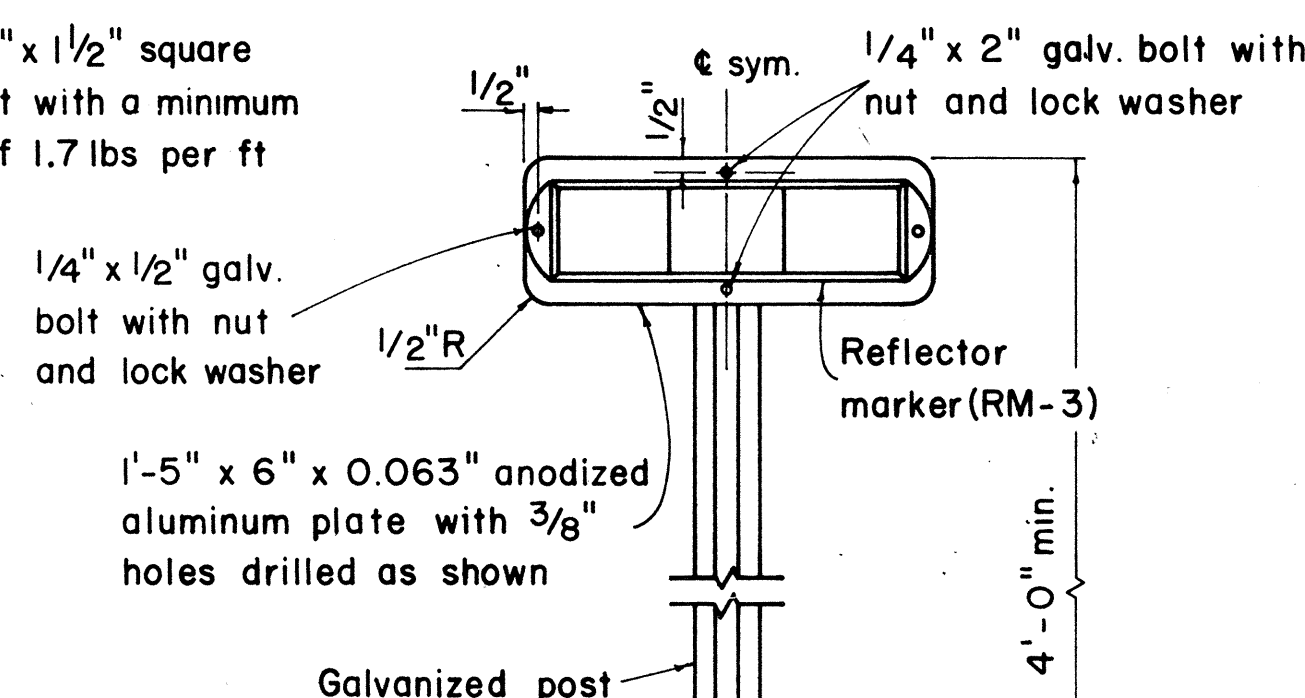
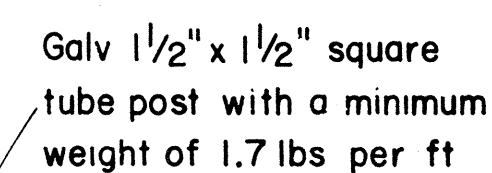
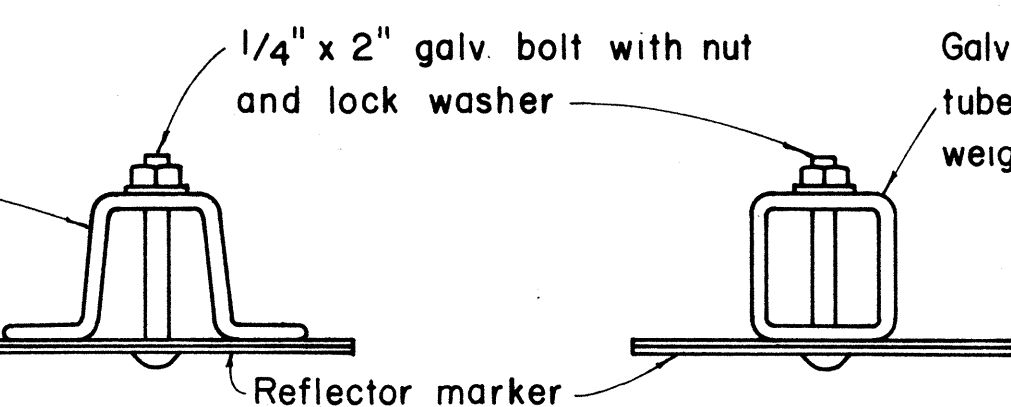
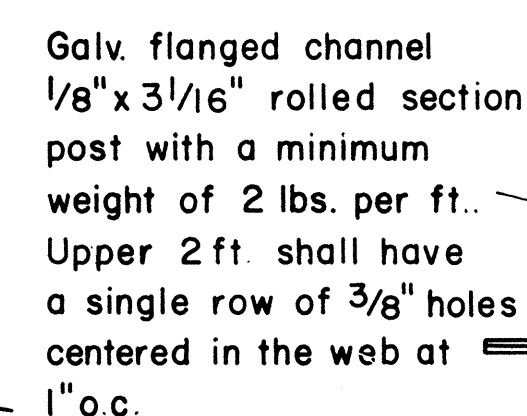
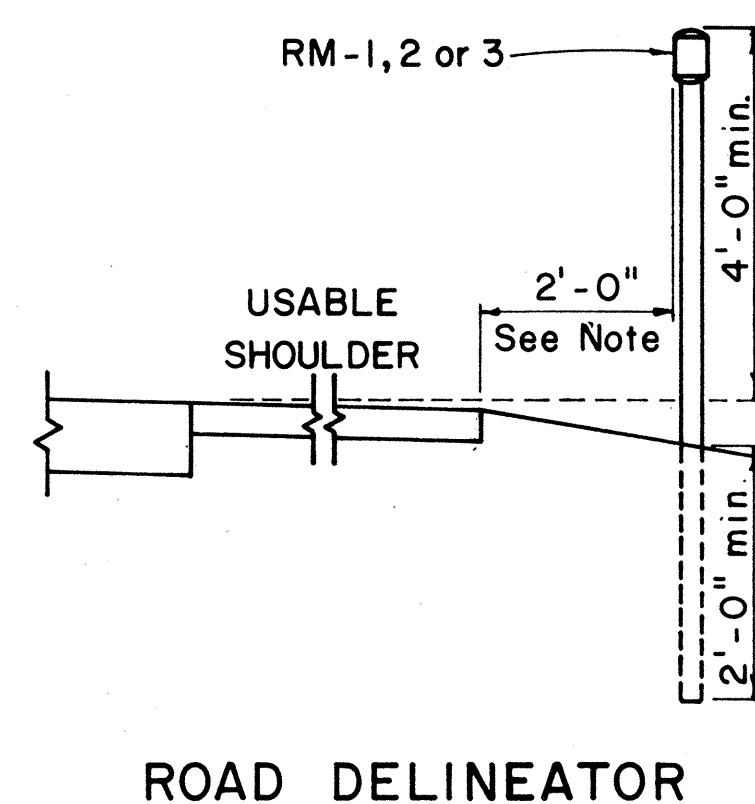


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ROS- 0300(1)	1977	20	29



HEIGHT AND LATERAL LOCATION OF SIGNS - TYPICAL INSTALLATION



Band brackets shall be used in conjunction with back braces

GENERAL NOTES:

1. Sign posts shall be 2" galv. standard pipe or 2" x 2" galv. sq. tube post.
2. 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.
3. Signs shall be attached to post with 5/16" galv. bolts with nuts and 7/8" x 0.06 stainless steel washers with neoprene rubber gasket.
4. Sign posts shall extend 3 1/2" above sign where required for City and County street name signs.
5. 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.
6. Clearance markers (RM-3, RM-4) shall be installed with the edge of the marker in line with the inner edge of the obstruction.
7. (R) or (L) indicates right or left and shall be as shown on the plans.

APPROVAL RECOMMENDED:

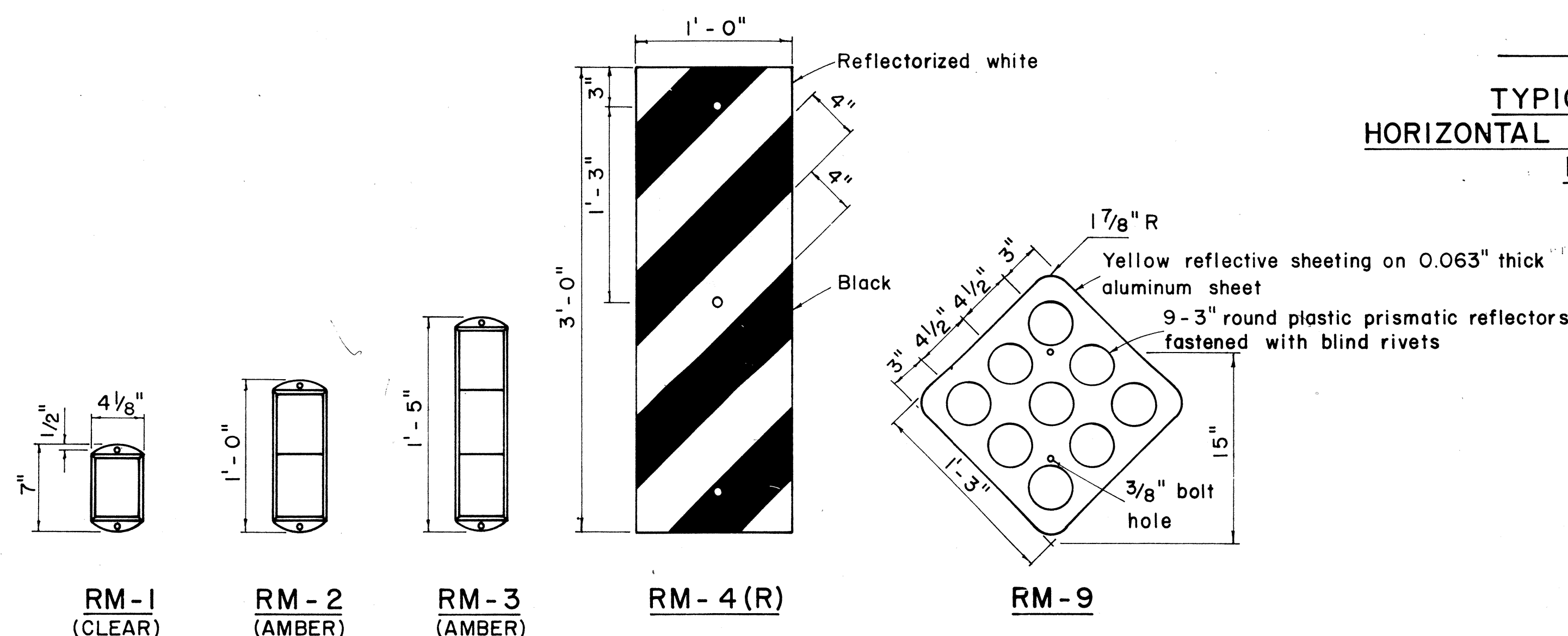
Eiichi Tanaka
TRAFFIC ENGINEER

12/29/6
DATE

APPROVED:

Assistant Chief Engineering

12-30-69
DATE



REFLECTOR MARKERS

TYPICAL BAND BRACKET FOR MOUNTING TRAFFIC SIGNS

NO	REVISION	APPROVED BY	DATE
I.	Revised Details.	H.f.	9-14.

**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

STANDARD DETAILS

MISCELLANEOUS SIGN DETAILS

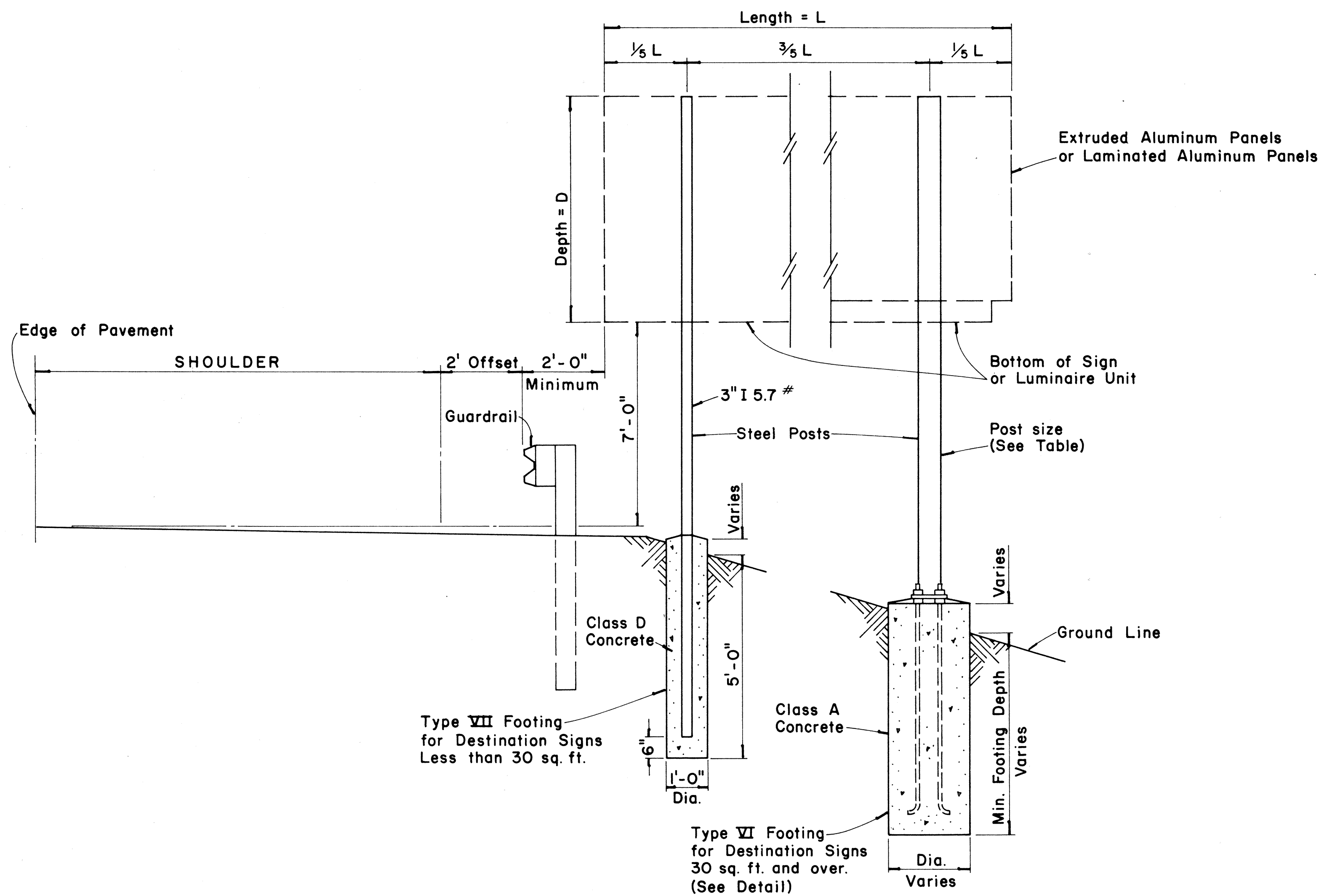
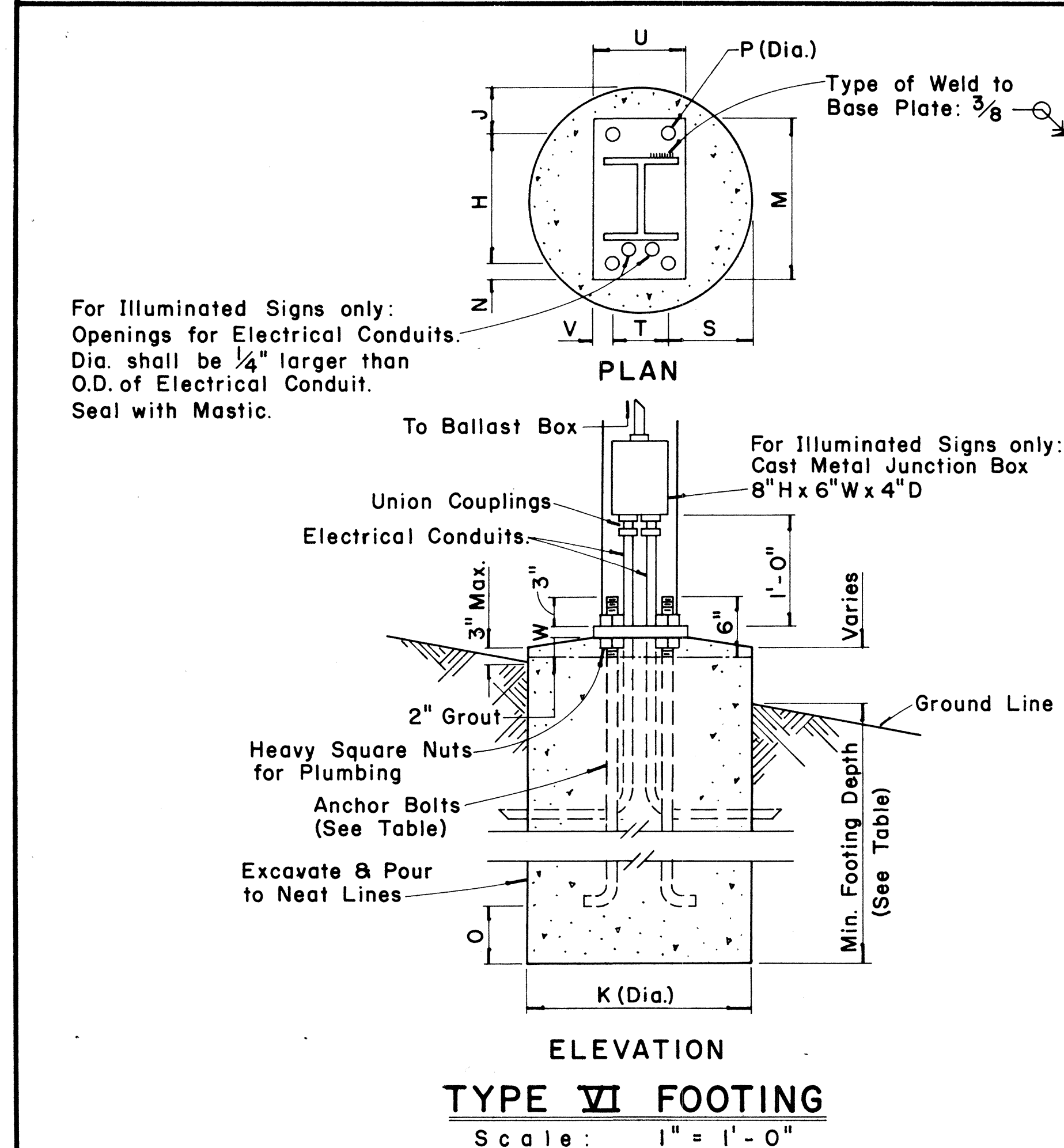
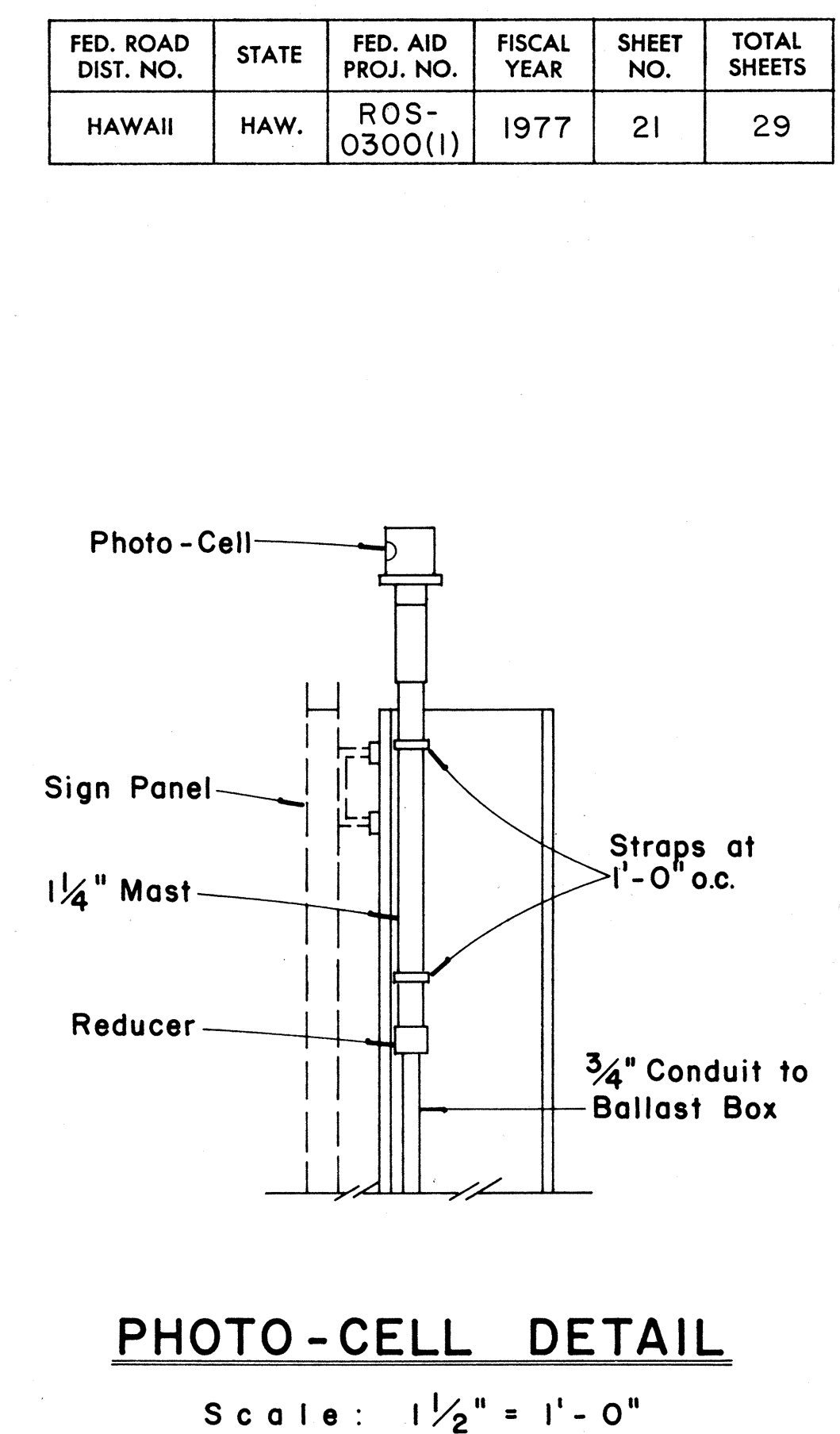
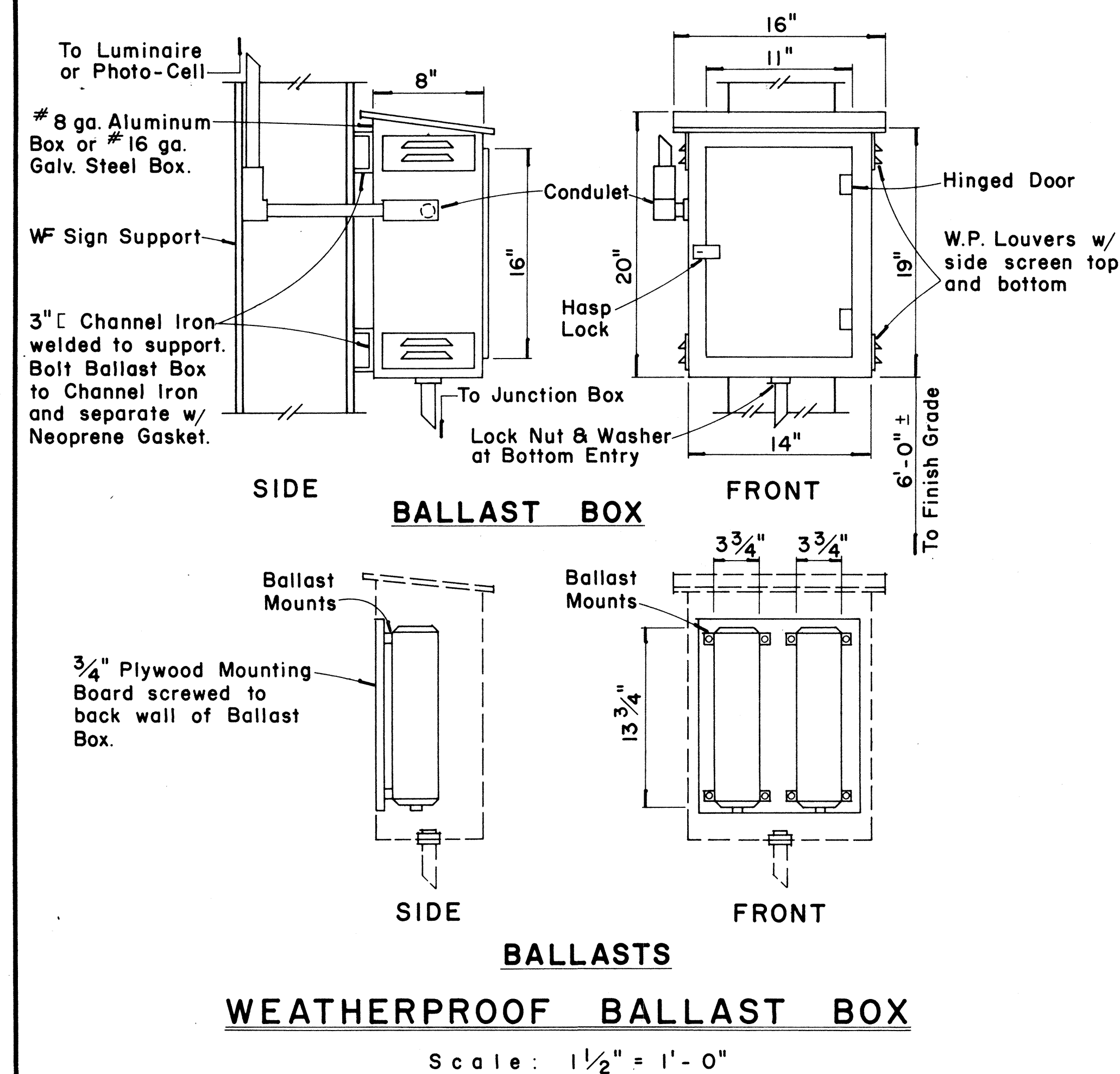
Not to scale

March, 1968

SHEET No. 1 OF 9 SHEETS DT 100

* 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"	17½"	15½"	6"	1¼"	9"	6"	10"	2"	1"	1½"Ø	4½'	4½'
8 WF 24	90 sq. ft.	21'	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	5'
8 WF 35	190 sq. ft.	15'	16½"	6¾"	30"	20"	1¾"	6"	1¾"	11¾"	6½"	10"	1¾"	1"	1¼"Ø	6'	7'
10 WF 45	190 sq. ft.	25'	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
10 WF 45	200 sq. ft.	25'	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
12 WF 50	230 sq. ft.	25'	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
12 WF 50	250 sq. ft.	23'	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓



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

APPROVED:
John J. Salvo 12-29-62
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

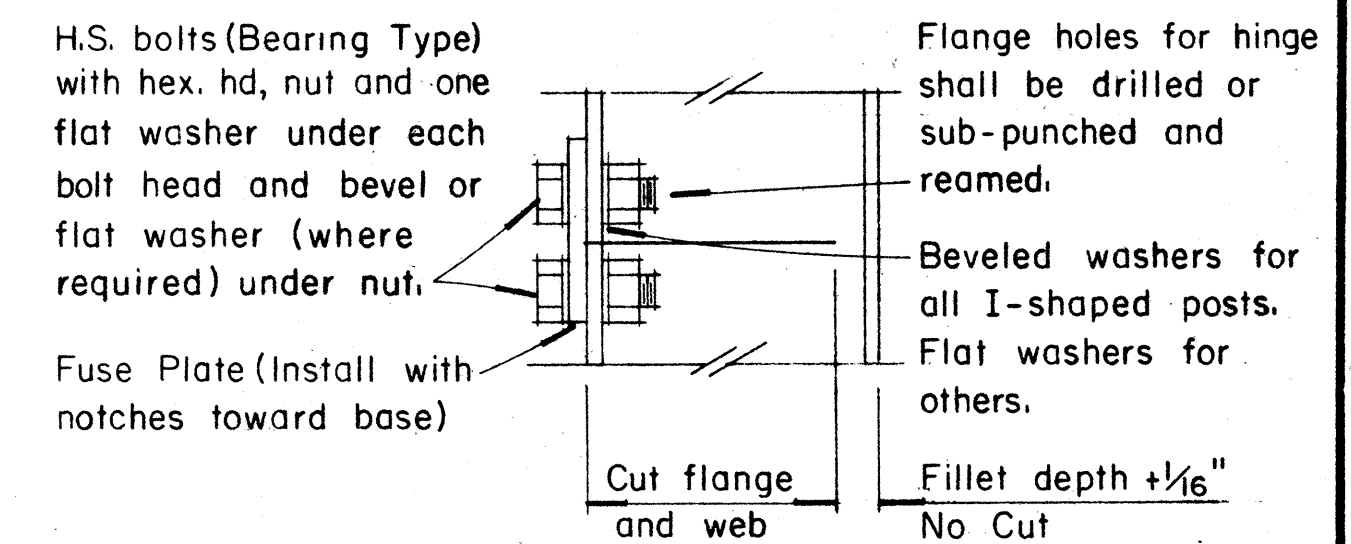
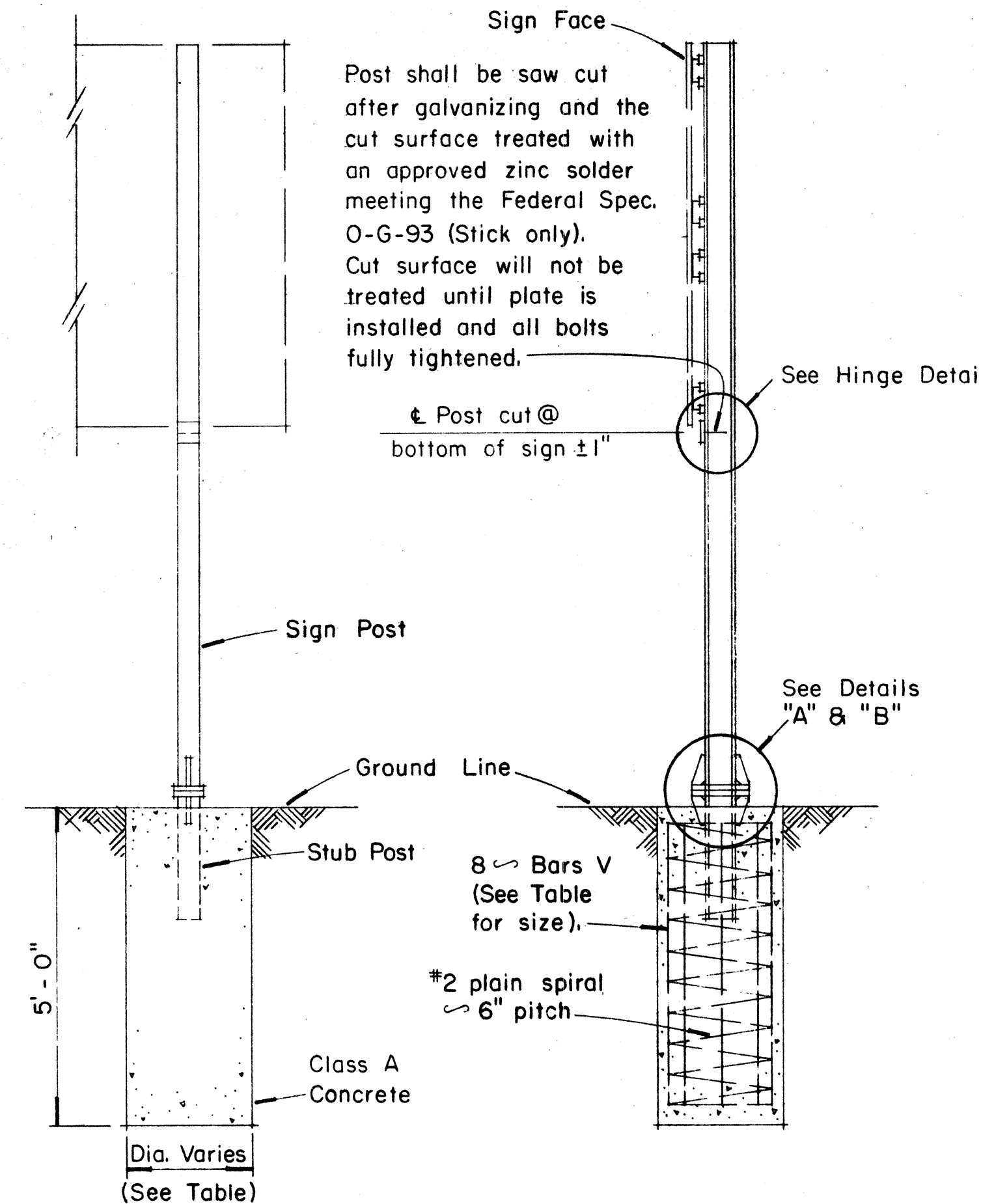
STANDARD DETAILS
DESTINATION & GROUND MOUNTED
EXPRESSWAY SIGNS

Scale: As Shown
 SHEET No. 2 OF 9 SHEETS DT 203

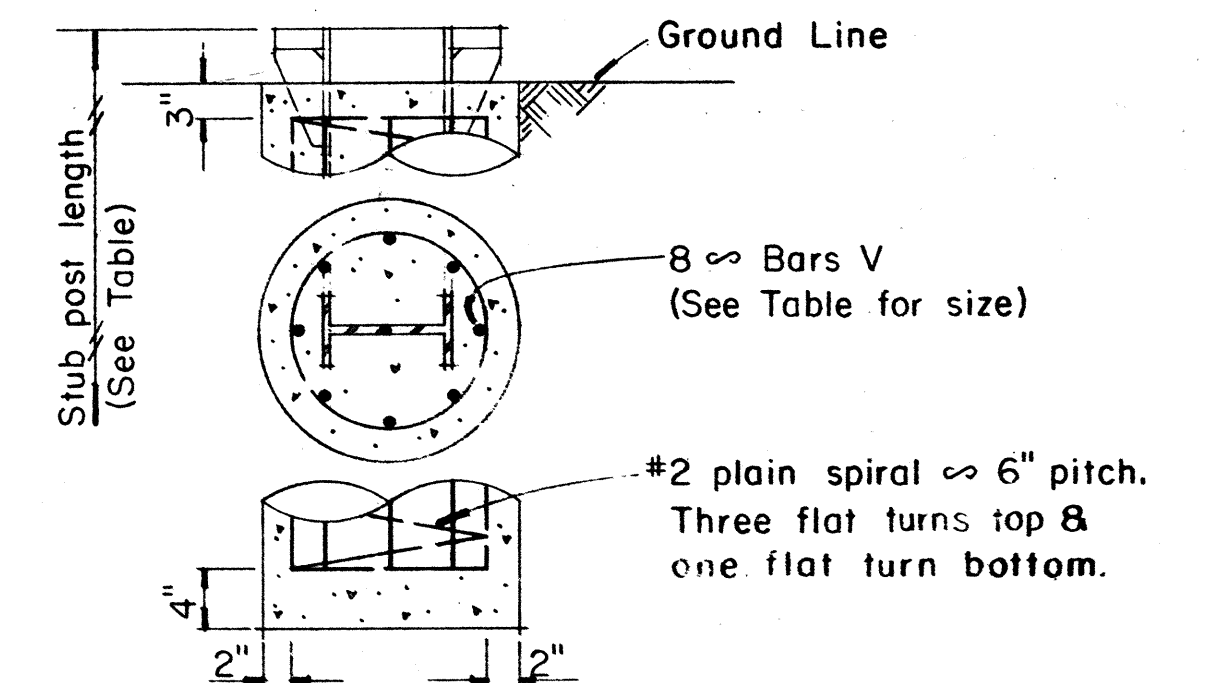
ORIGINAL PLAN
 SURVEY PLATTED BY
 DRAWN BY
 DESIGNED BY
 NOTE BOOK
 QUANTITIES BY
 CHECKED BY
 No.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ROS-0300(1)	1977	22	29

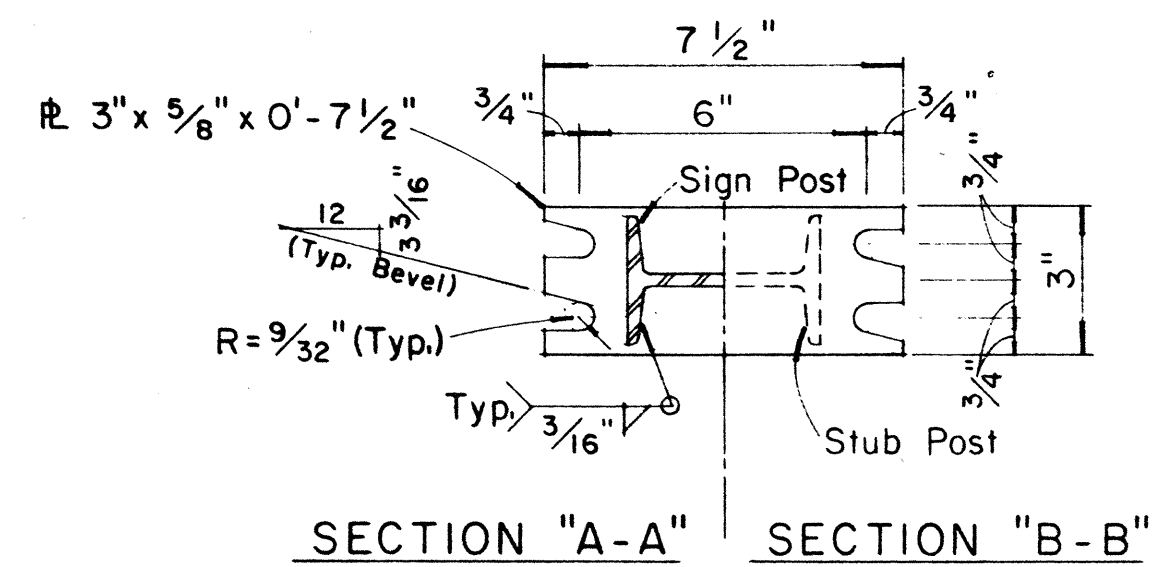
	BASE CONNECTION DATA TABLE										FUSE PLATE DATA TABLE										FOUNDATION DATA				
Post Size	Bolt Size & Torque	A	B	C	D	E	t1	t2	W	R	F	G	H	J	K	L	N	d1	t3	Bolt Dia.	Wt. of each Fuse Pl.	Stub Length	Stub Projection	Footing Diameter	Bars V Size
6 B 8.5	5/8" ϕ x 2 3/4" Torque = 450*#	5"	2"	1 1/4"	2 3/4"	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"	13/16"	1/2"	3/4" ϕ	3.75*	2'-6"	3"	2'-0"	#6
8 WF 17											4 1/2"	2 1/2"	1 1/4"	5 1/4"	2 3/4"	1 1/4"	3/4"	13/16"	1/2"	3/4" ϕ	3.27*	2'-6"	3"	2'-0"	#7
8 WF 20	3/4" ϕ x 3 1/2" Torque = 750*#	6"	2 1/4"	1 3/8"	3 1/2"	1 1/4"	1"	3/4"	5/16"	13/32"	4 7/8"	2 1/2"	1 1/2"	5 1/4"	2 3/4"	1 1/4"	7/8"	15/16"	9/16"	7/8" ϕ	3.93*	3'-0"	2 1/2"	2'-0"	#8
10 WF 21											5 3/8"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	7/8"	15/16"	9/16"	7/8" ϕ	4.75*	3'-0"	2 1/2"	2'-0"	#9
10 WF 25											5 3/8"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	7/8"	15/16"	9/16"	7/8" ϕ	4.79*	3'-0"	2 1/2"	2'-0"	#10
12 WF 27											5 3/8"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	7/8"	15/16"	9/16"	7/8" ϕ	5.42*	3'-0"	2 1/2"	2'-0"	#11
3 I 5.7	1/2" ϕ x 2 1/2" Torque = 200*#	SEE DETAIL "A"									3 1/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"	9/16"	1/4"	1/2" ϕ	0.64*	1'-6"	3 1/2"	1'-6"	#5
4 I 7.7	Torque = 200*#										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



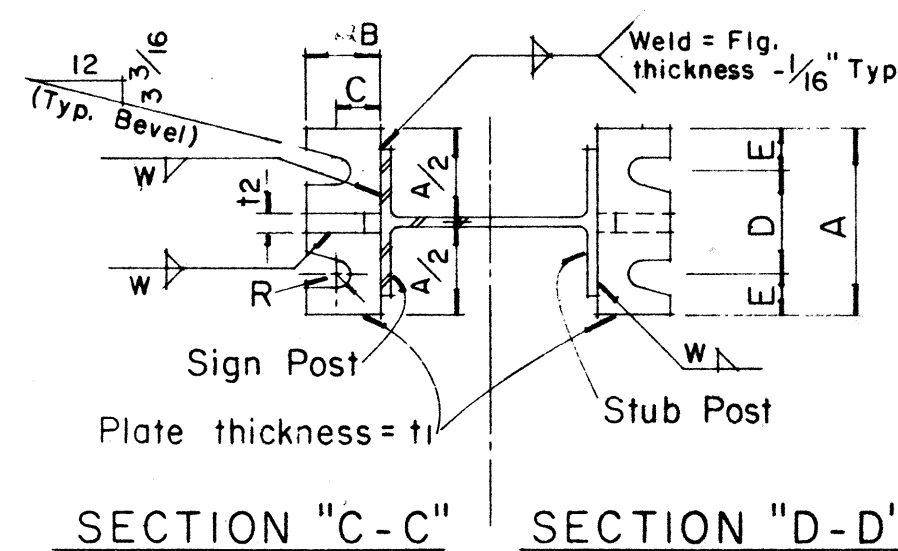
HINGE DETAIL



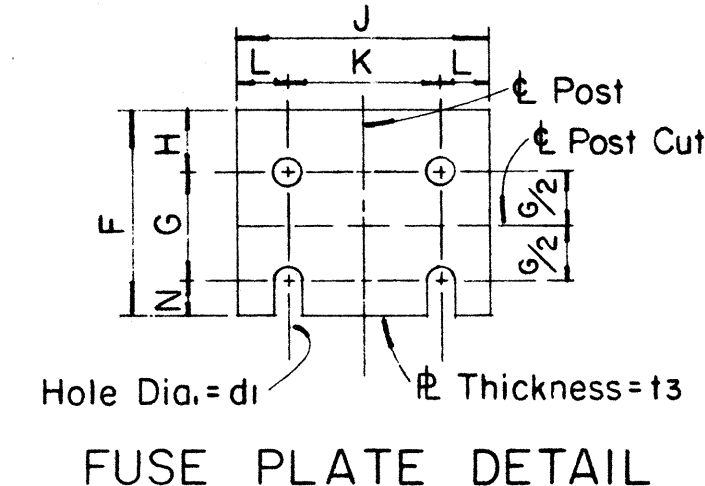
FOUNDATION DETAIL



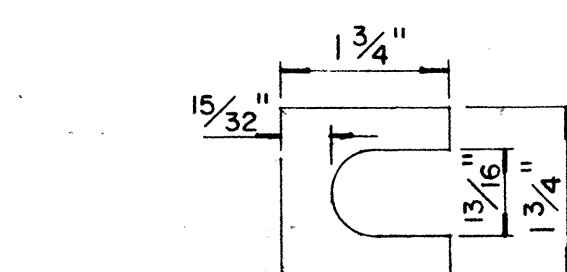
NOTE:
Sections shown are for installations on right shoulder and in gore. Reverse plate slot bevels for installations on left shoulder.



STIFFENER PLATE DETAIL



FUSE PLATE DETAIL



SHIM DETAIL

Furnish 2 ϕ .012" $\pm$ thick and 2 ϕ .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:

Erich Tanaka
TRAFFIC ENGINEER
12/29/69
DATE

APPROVED:

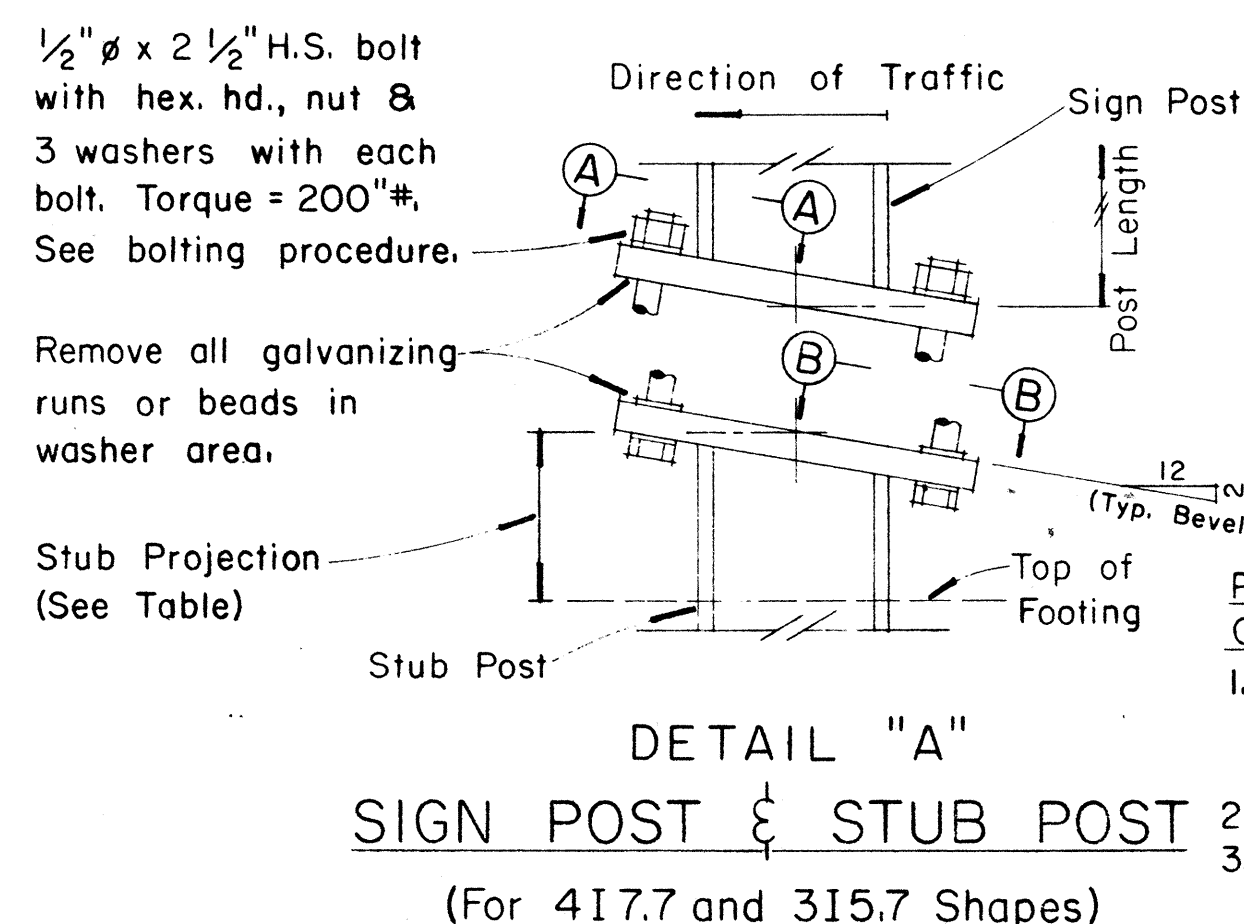
John J. J. J.
ASSISTANT CHIEF, ENGINEERING
12-30-69
DATE

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. 3 OF 7 SHEETS DT204

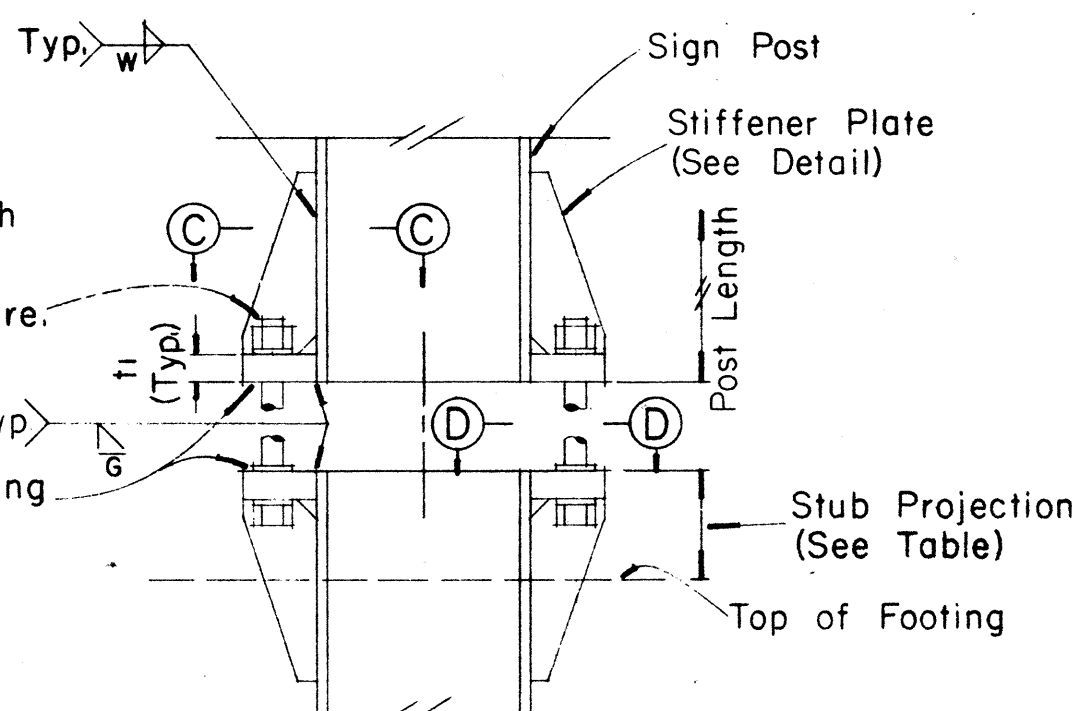


DETAIL "A"
SIGN POST & STUB POST

(For 417.7 and 315.7 Shapes)

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.



DETAIL "B"
SIGN POST & STUB POST

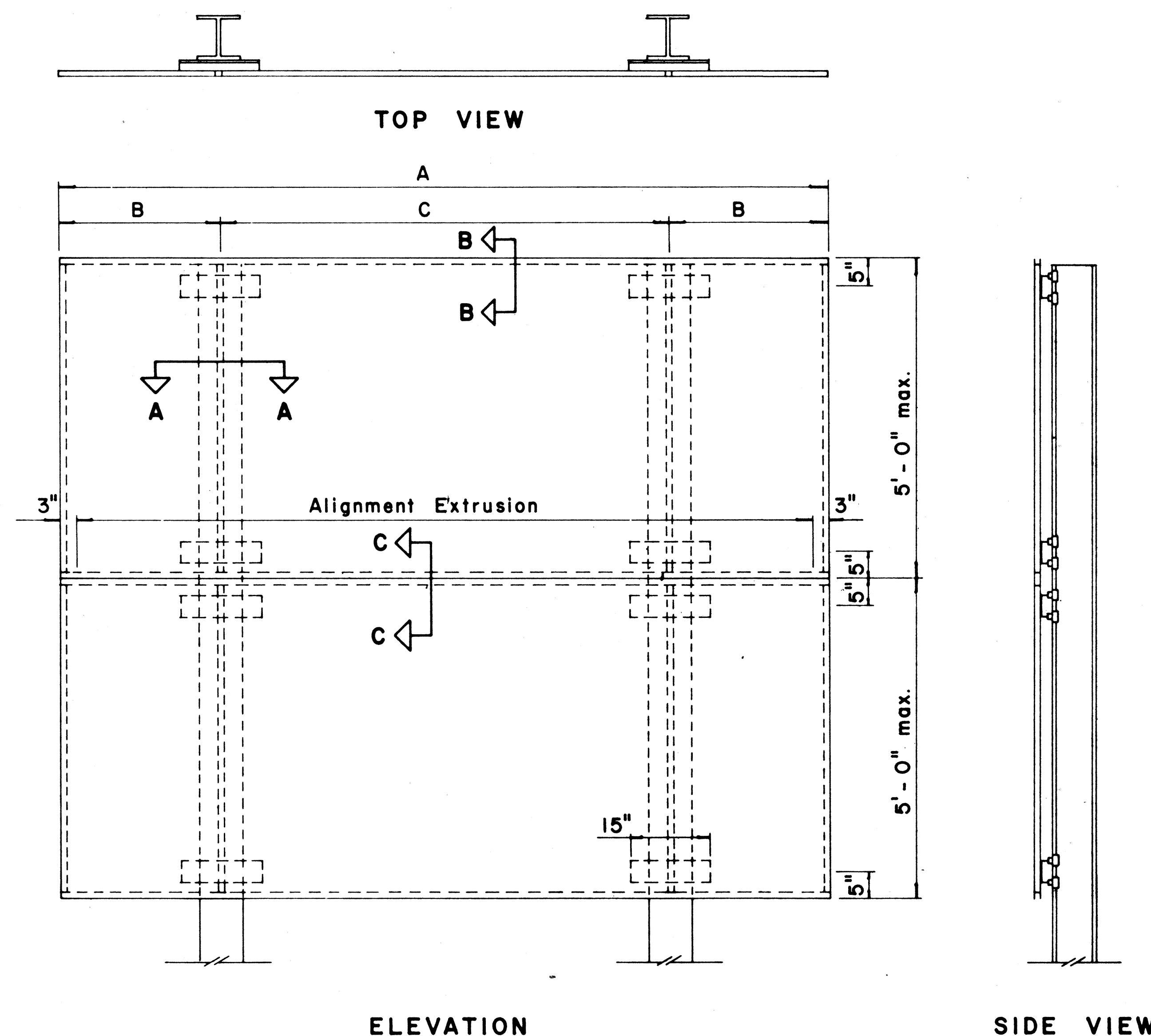
(For W and B Shapes)

DATE	*****
DESIGNED BY	
DRAWN BY	
CHECKED BY	
NOTED BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ROS-0300(1)	1977	23	29

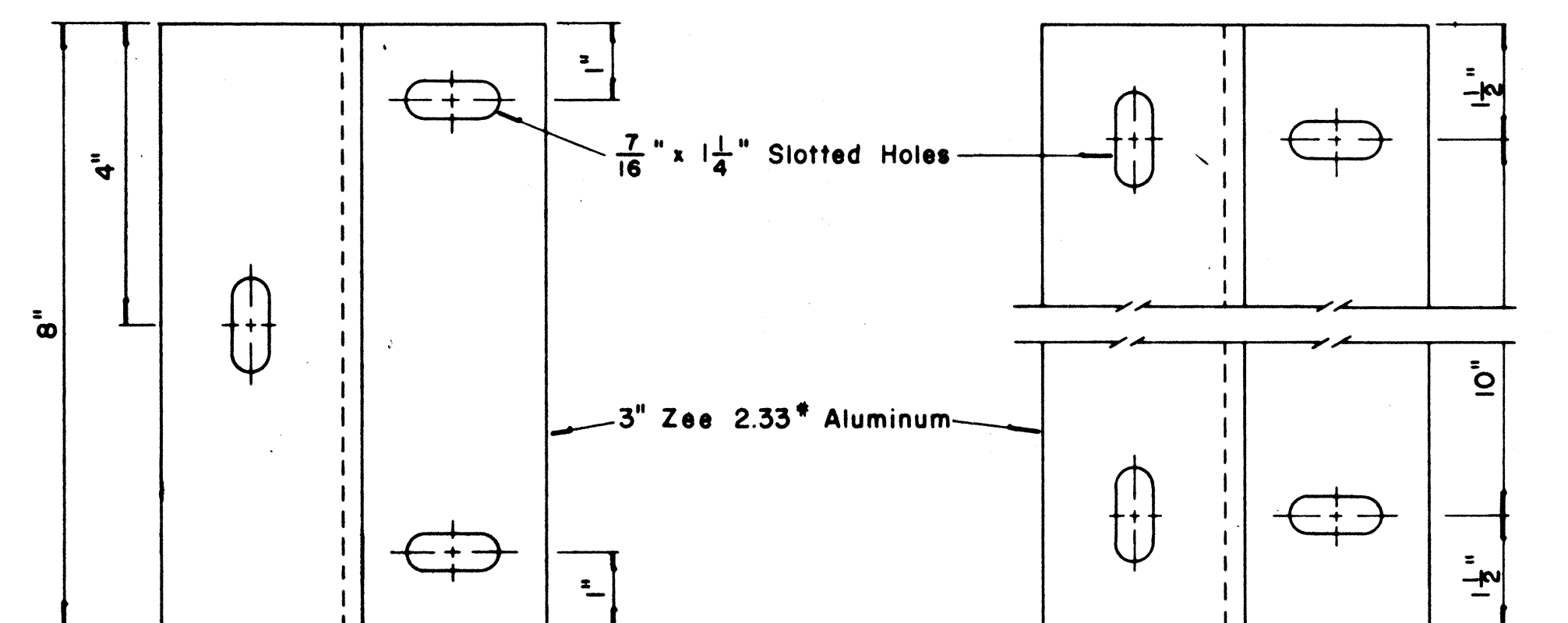
(GROUND MOUNTED SIGNS)
SUPPORT SPACING TABLE

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



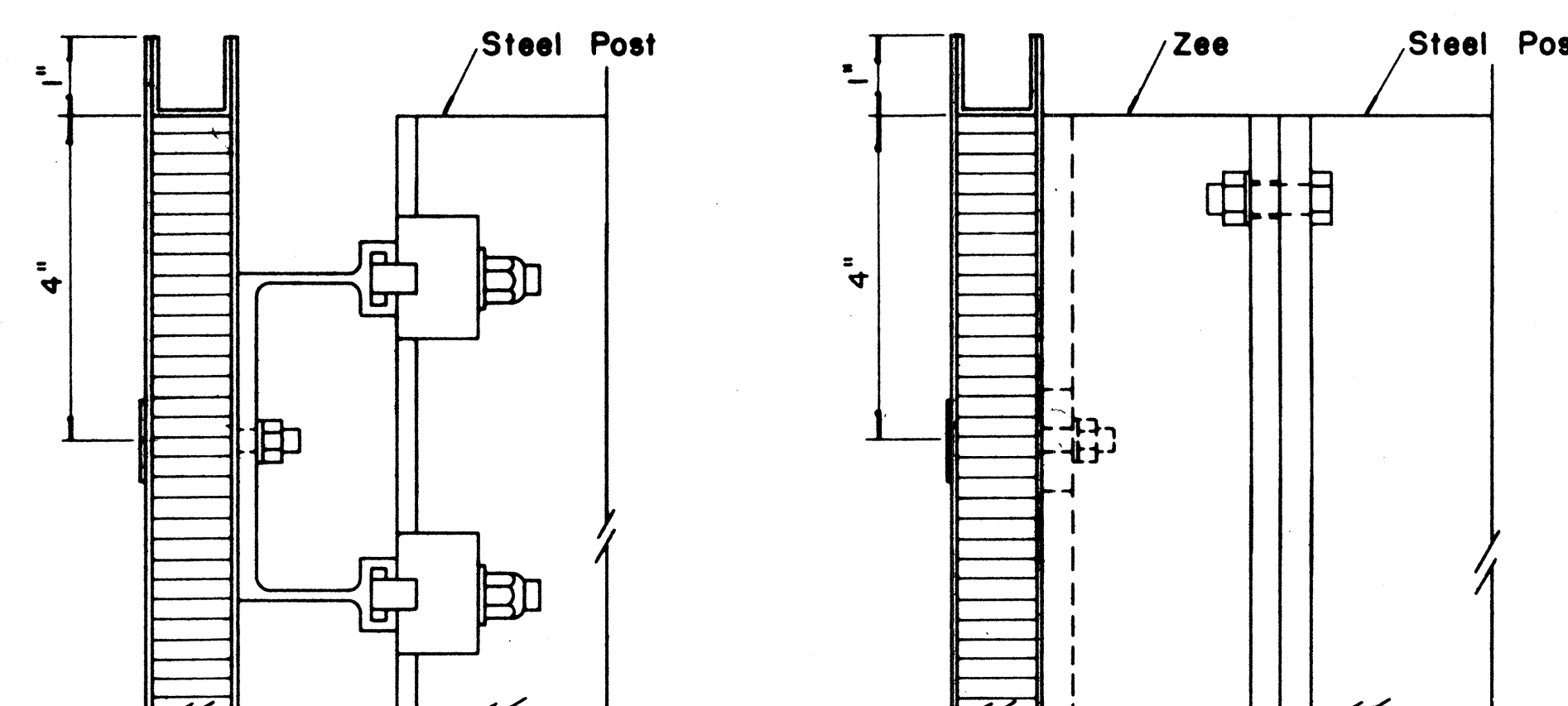
TYPICAL SIGN ASSEMBLY

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



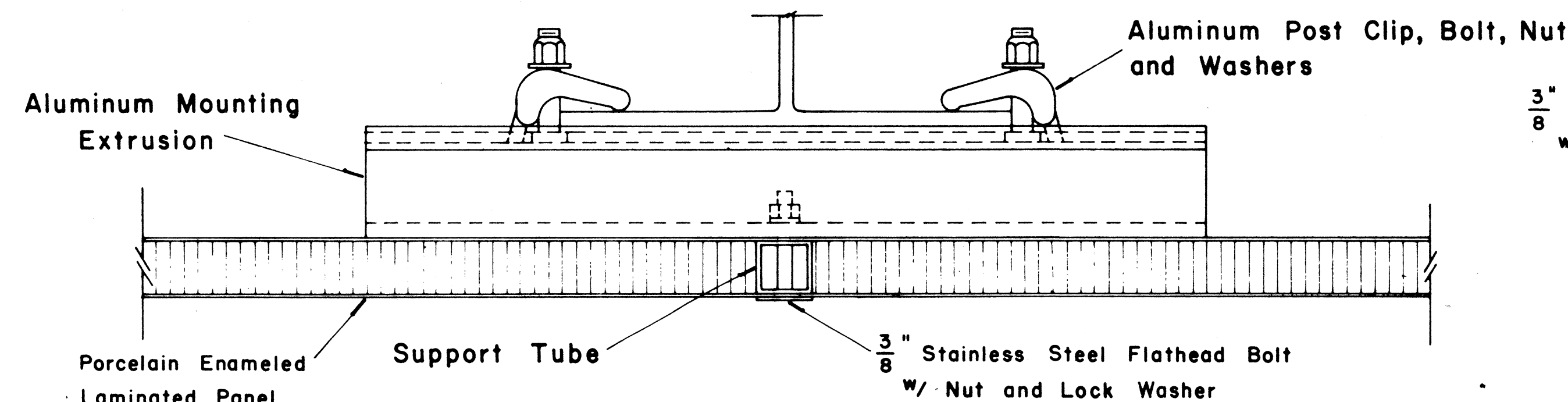
ZEE MOUNTING DETAILS

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

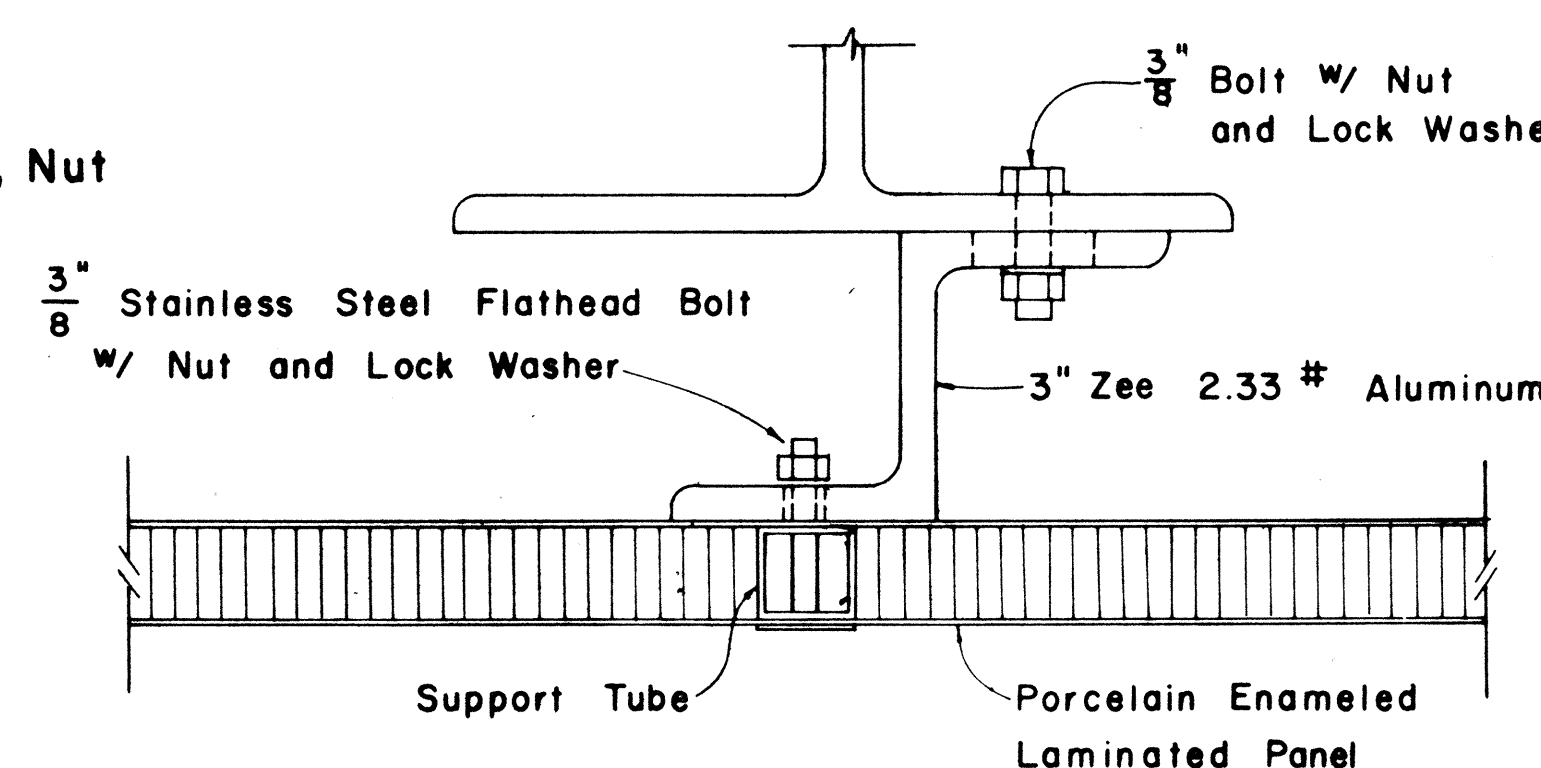


Scale: $\frac{1}{2}$ " = 1"

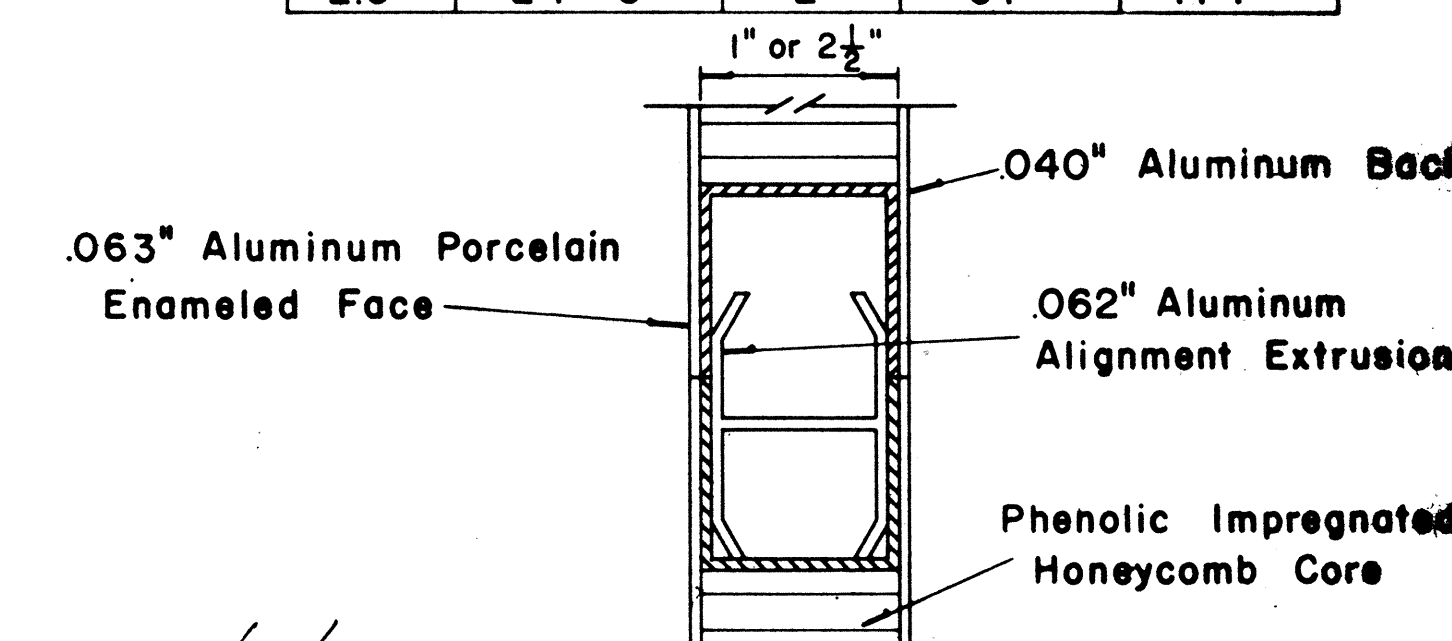
Scale: $\frac{1}{2}$ " = 1"



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



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



FULL SCALE

APPROVAL RECOMMENDED:

Erich Tanaka
TRAFFIC ENGINEER

12/29/69
DATE

APPROVED:

Andy S. S. S.
ASSISTANT CHIEF, ENGINEERING

12-29-69
DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

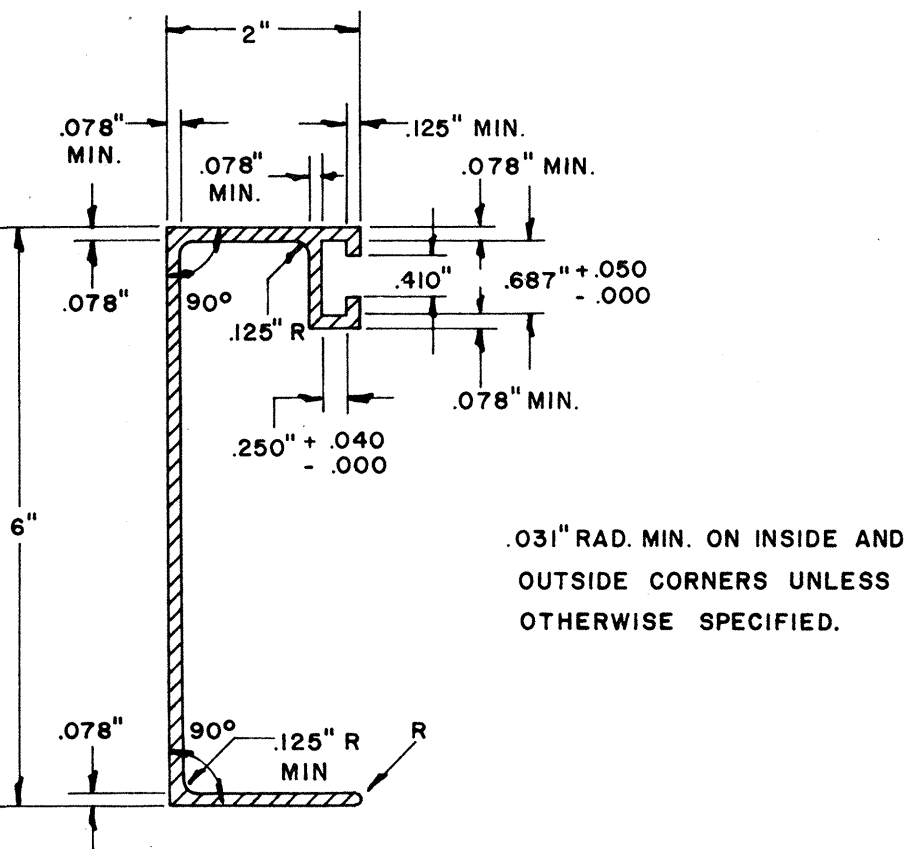
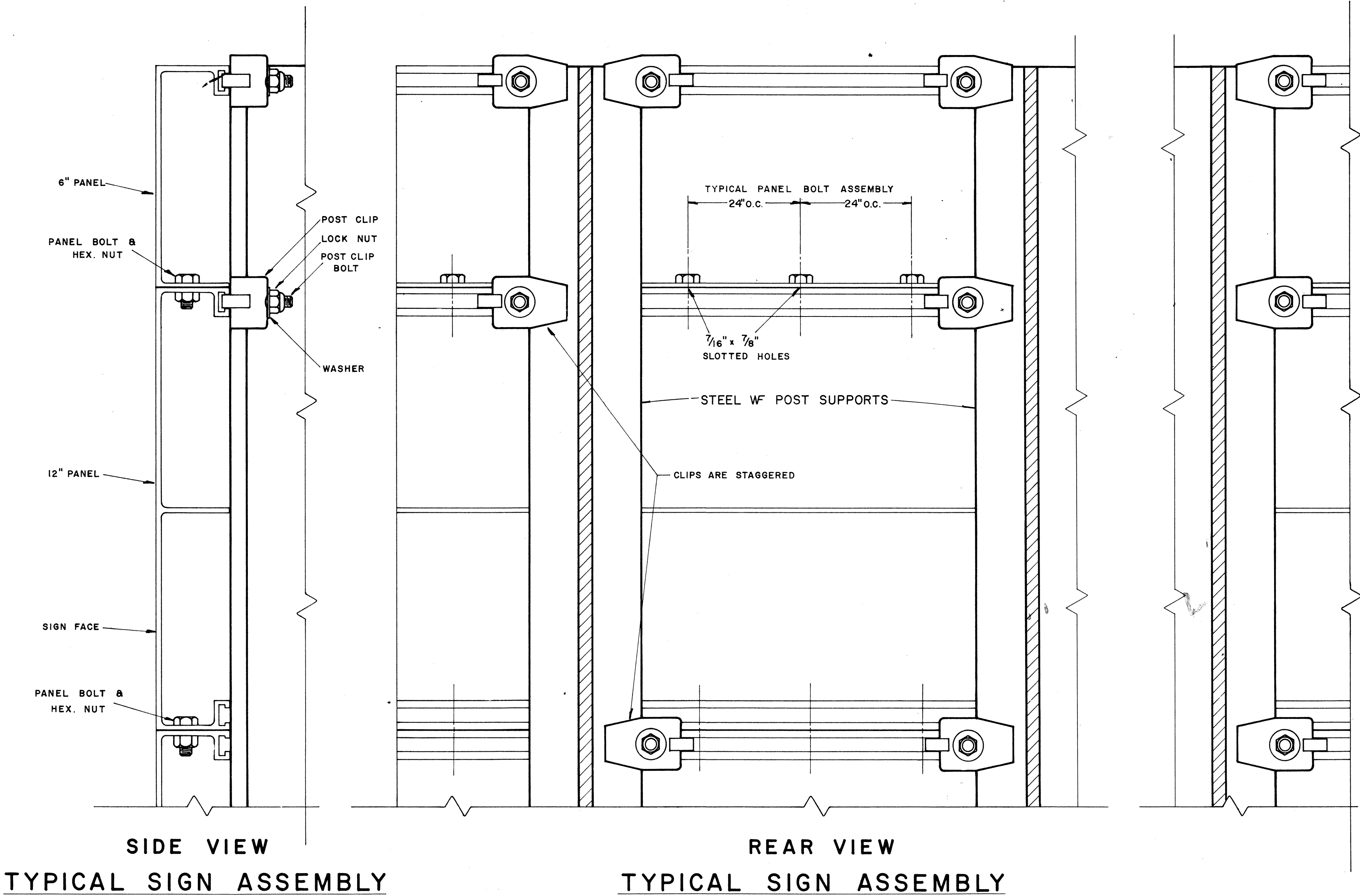
STANDARD DETAILS
LAMINATED ALUMINUM
SIGN PANELS
(GROUND MOUNTED)

Scale: As Shown

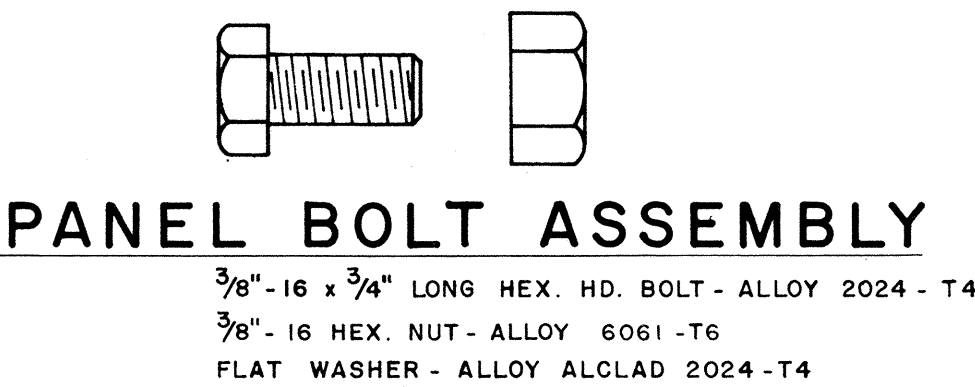
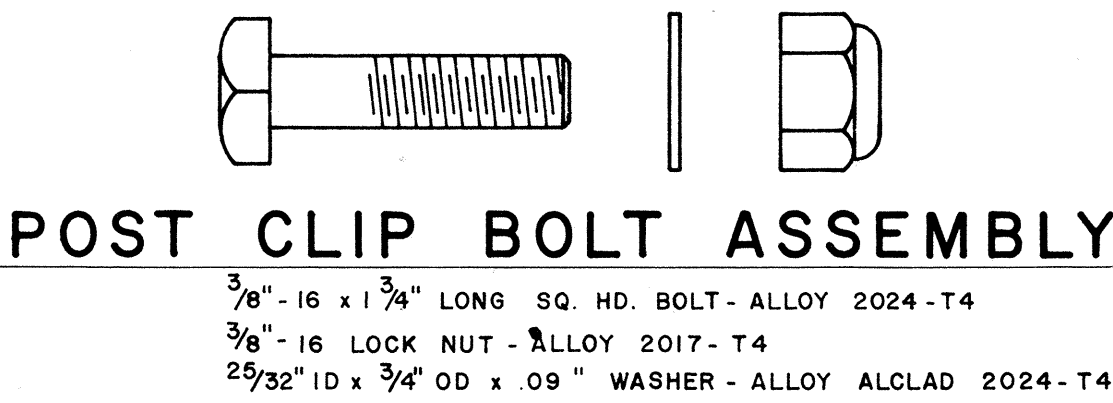
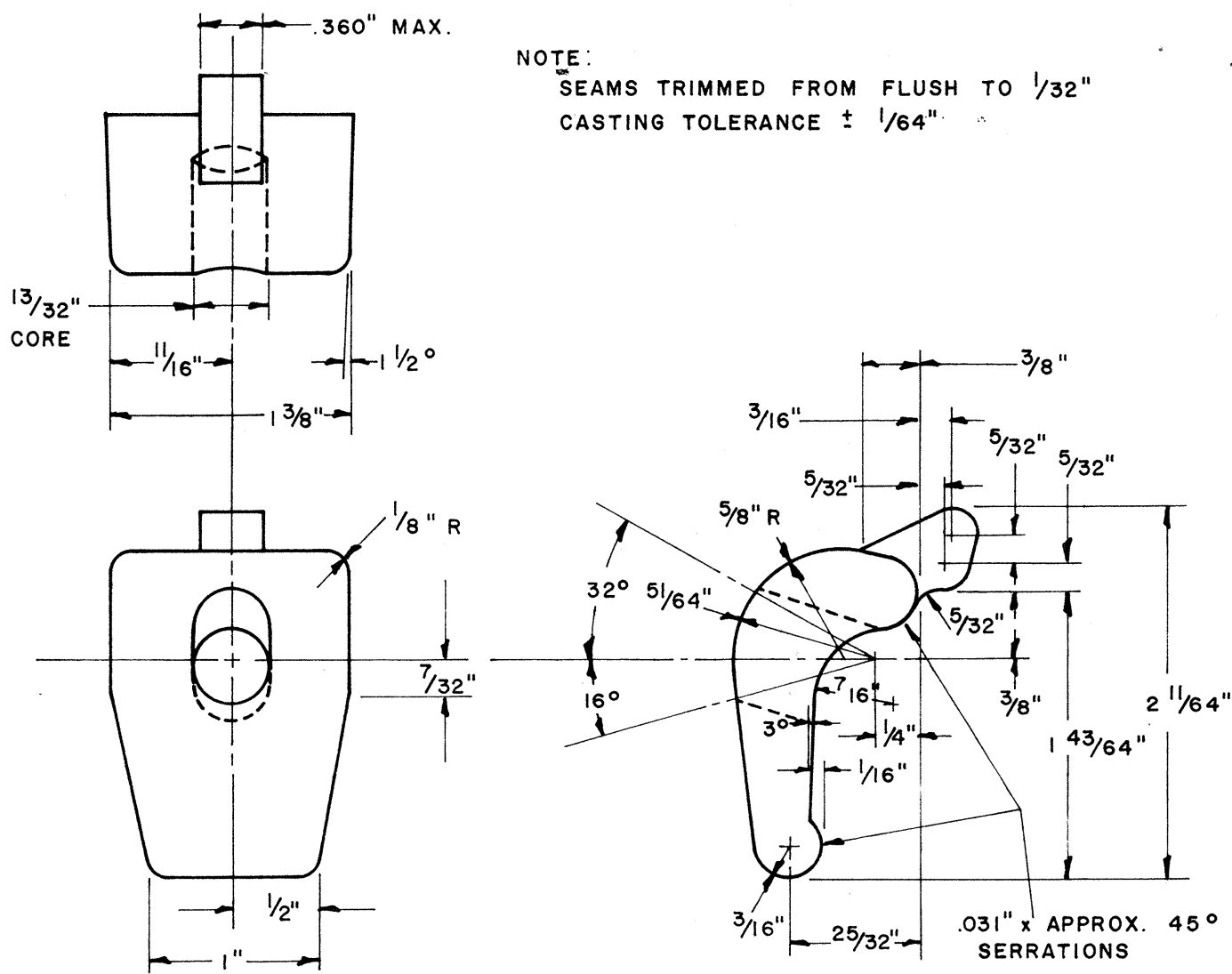
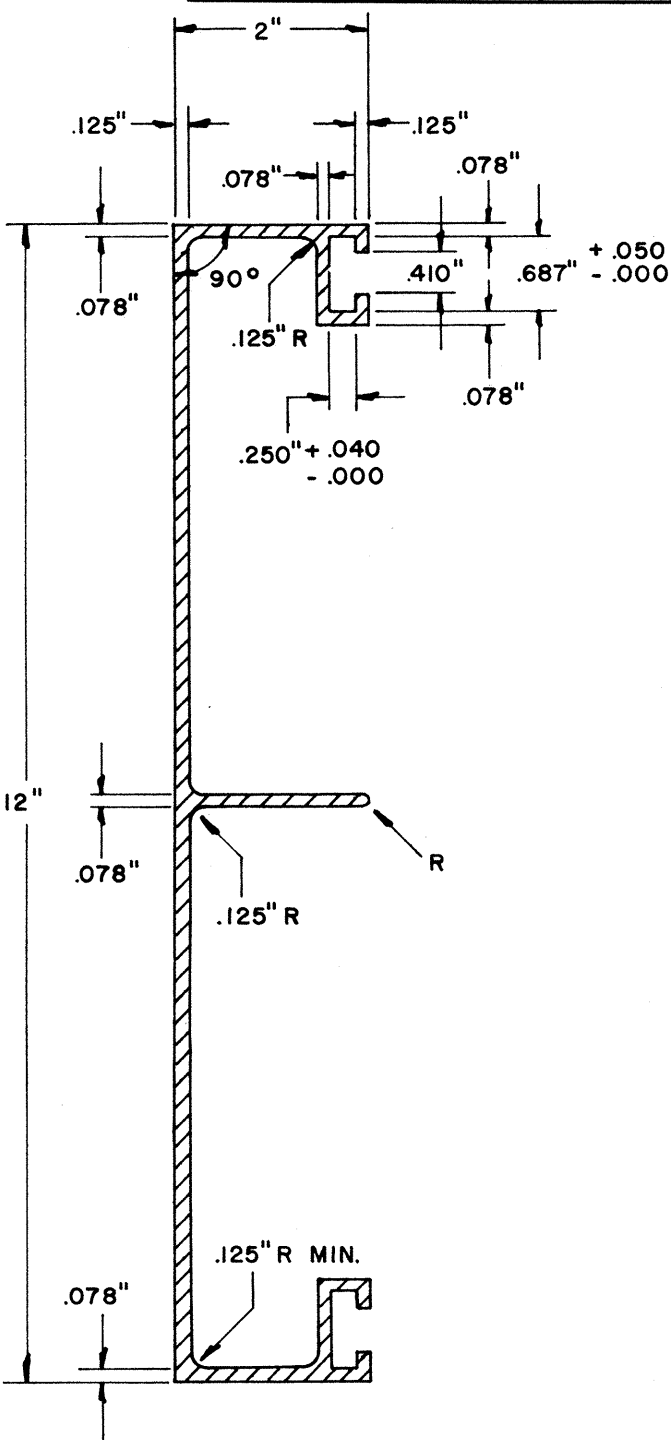
SHEET No. 4 OF 9 SHEETS DT 206

ORIGINAL PLAN
DRAWN BY
DESIGNED BY
CHECKED BY
DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ROS-0300(1)	1977	24	29



SOLID EXTRUDED SIGN PANEL DETAILS



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

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

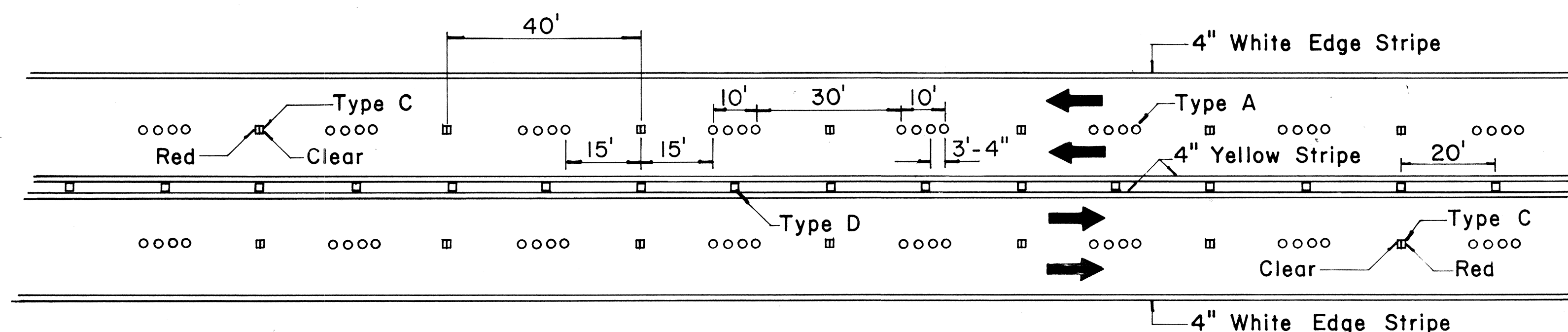
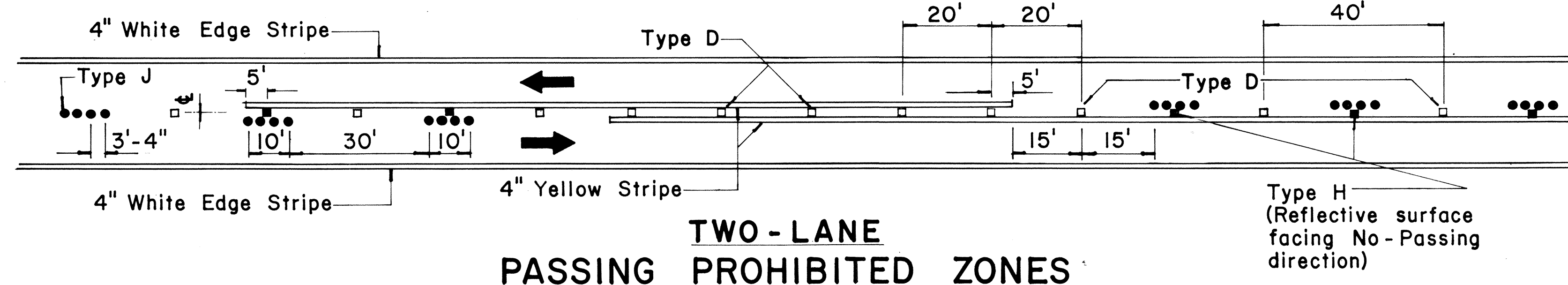
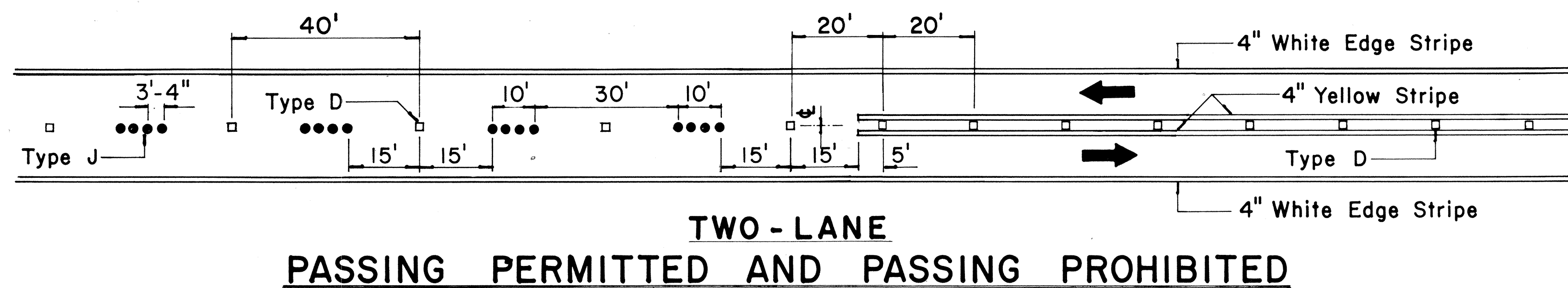
APPROVED:
Assistant Chief, Engineering
ASSISTANT CHIEF, ENGINEERING
DATE 12-30-62

NO.	REVISION	APPROVED BY	DATE

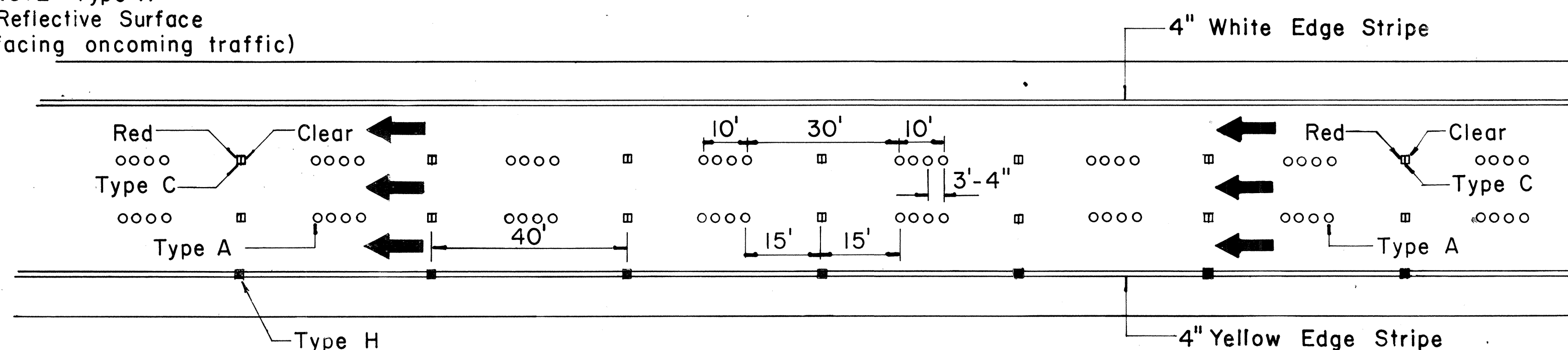
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION STANDARD DETAILS SOLID ALUMINUM EXTRUDED SIGN PANEL AND ACCESSORY DETAILS SCALE:
--

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ROS - 0300(I)	1977	25	29



NOTE: Type H
(Reflective Surface
facing oncoming traffic)

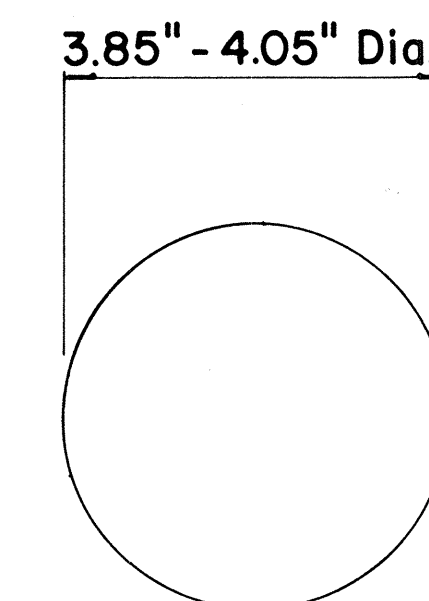


TWO - LANE

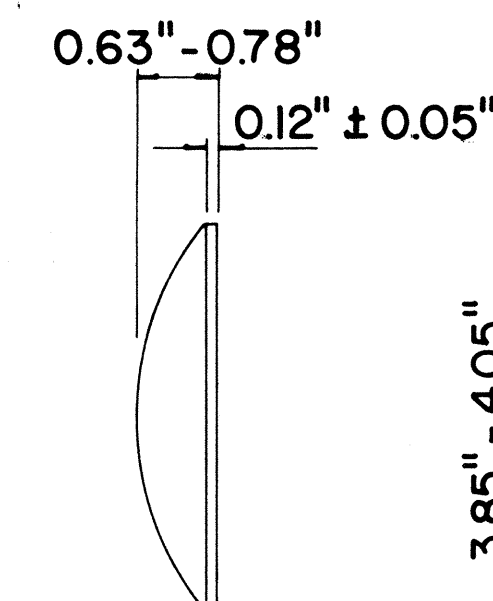
MULTI - LANE

**DIVIDED HIGHWAY
AND
FREEWAY**

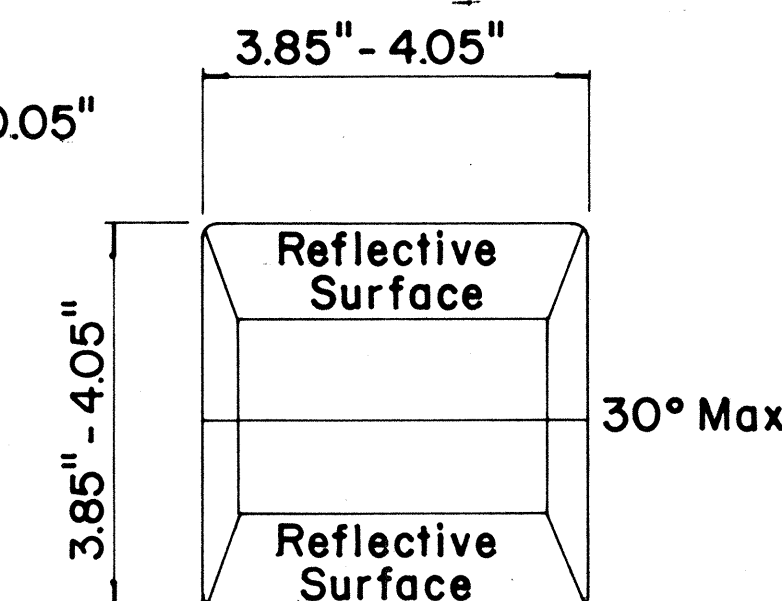
MISCELLANEOUS



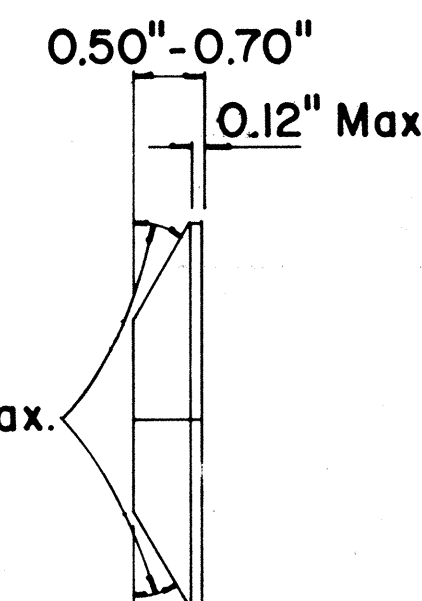
**TYPE A
NON - REFLECTIVE WHITE MARKER**



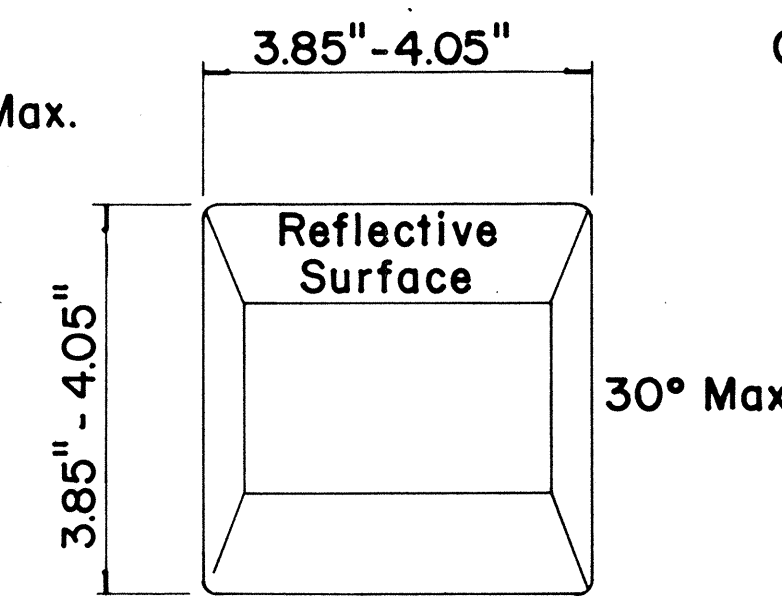
**TYPE J
NON - REFLECTIVE YELLOW MARKER**



**TYPE C
RED - CLEAR REFLECTIVE MARKER**



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



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

GENERAL NOTES

- Pavement marking and striping shall conform to the latest "Manual on Uniform Traffic Control Devices for Streets and Highways," and as amended.
- Layout and installation of pavement marking and striping shall be done by the Contractor. The Contractor shall check the layouts with the Engineer prior to performing work.

LEGEND

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

APPROVAL RECOMMENDED:

Erich Tanaka
TRAFFIC ENGINEER

11/18/71
DATE

APPROVED:

Hubert Zakeish
ASSISTANT CHIEF, ENGINEERING

11/18/71
DATE

No.	REVISION	APPROVED BY	DATE
1	Add reflector marker in each line gap.	H.T.	10-21-72
2	Revised General Notes.	H.T.	10-21-72
3	Change 4" white edge stripe to 4" solid yellow edge stripe to left edge of a travel path and Add Type H Reflector Marker.	H.T.	5-22-74
4	Revised details, General Notes & Title Box.	H.T.	1-15-77

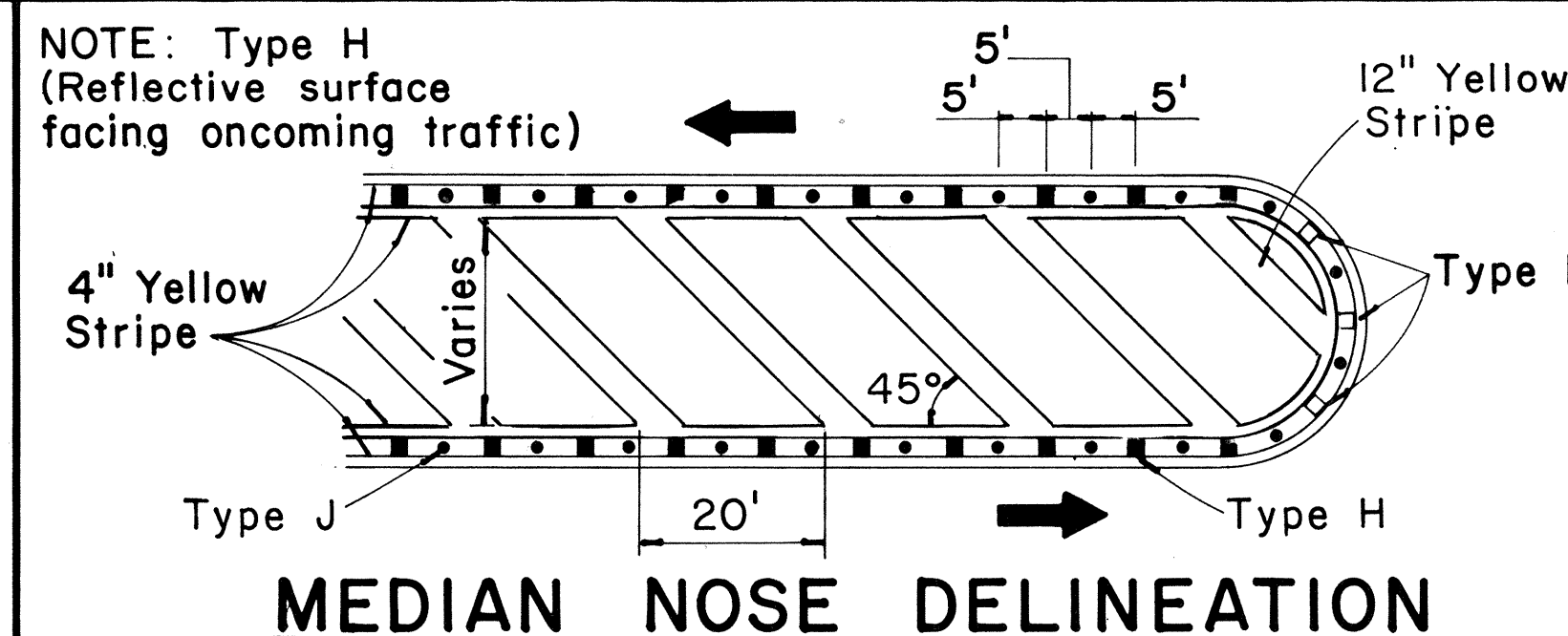
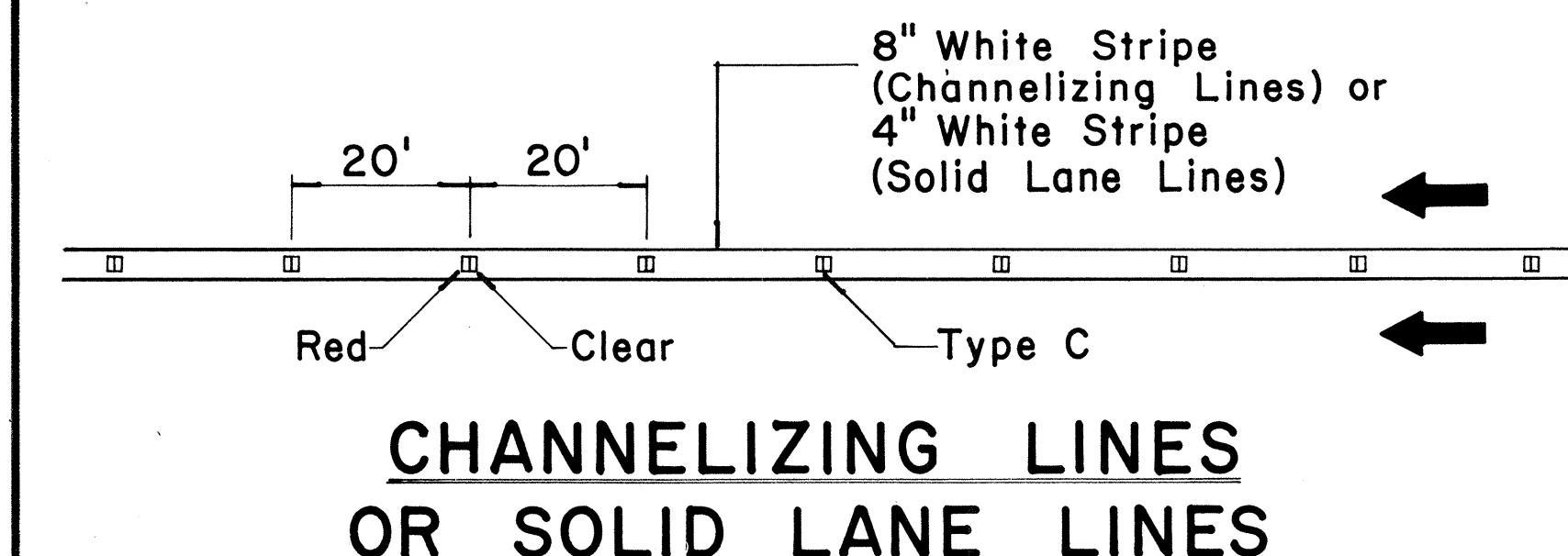
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS RAISED PAVEMENT MARKERS AND STRIPING

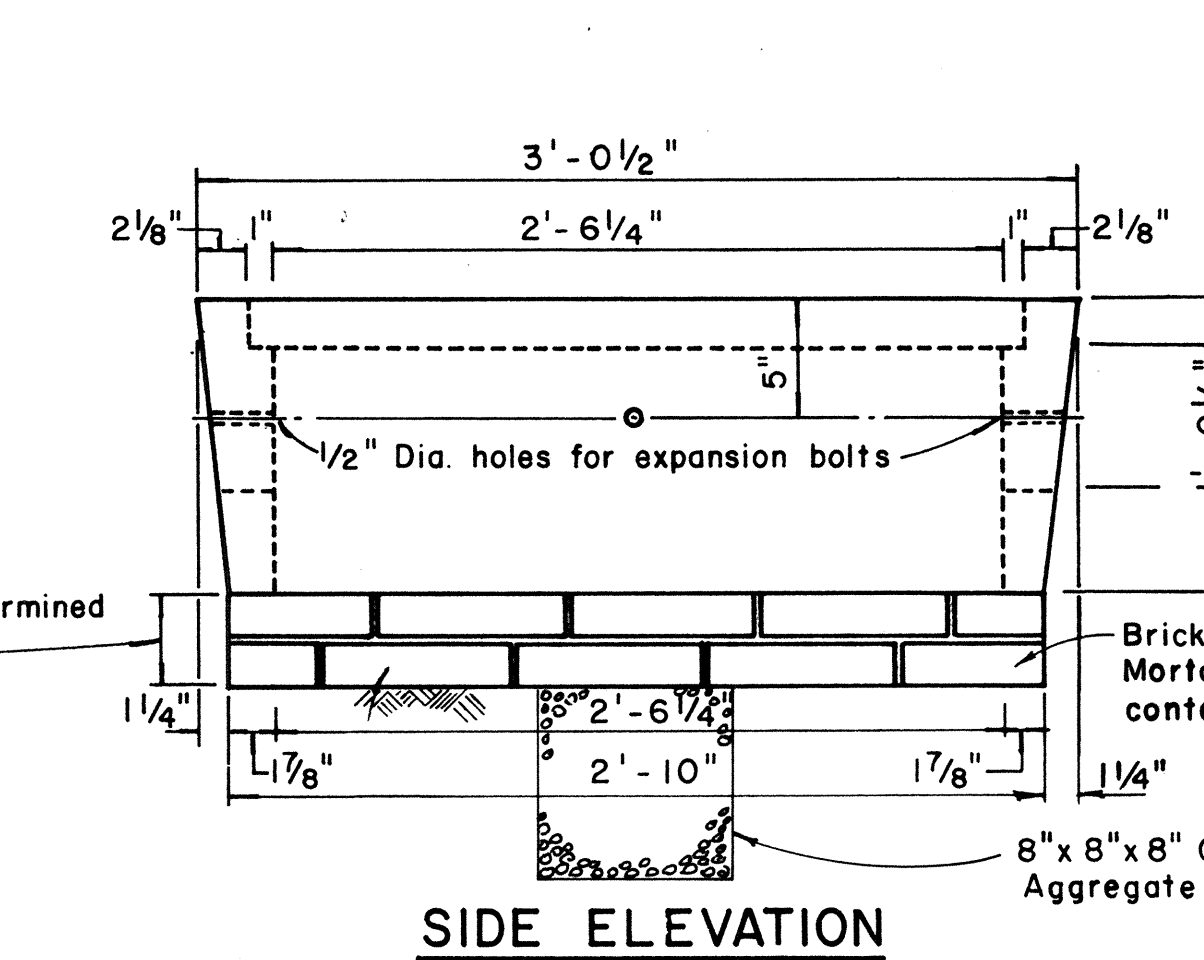
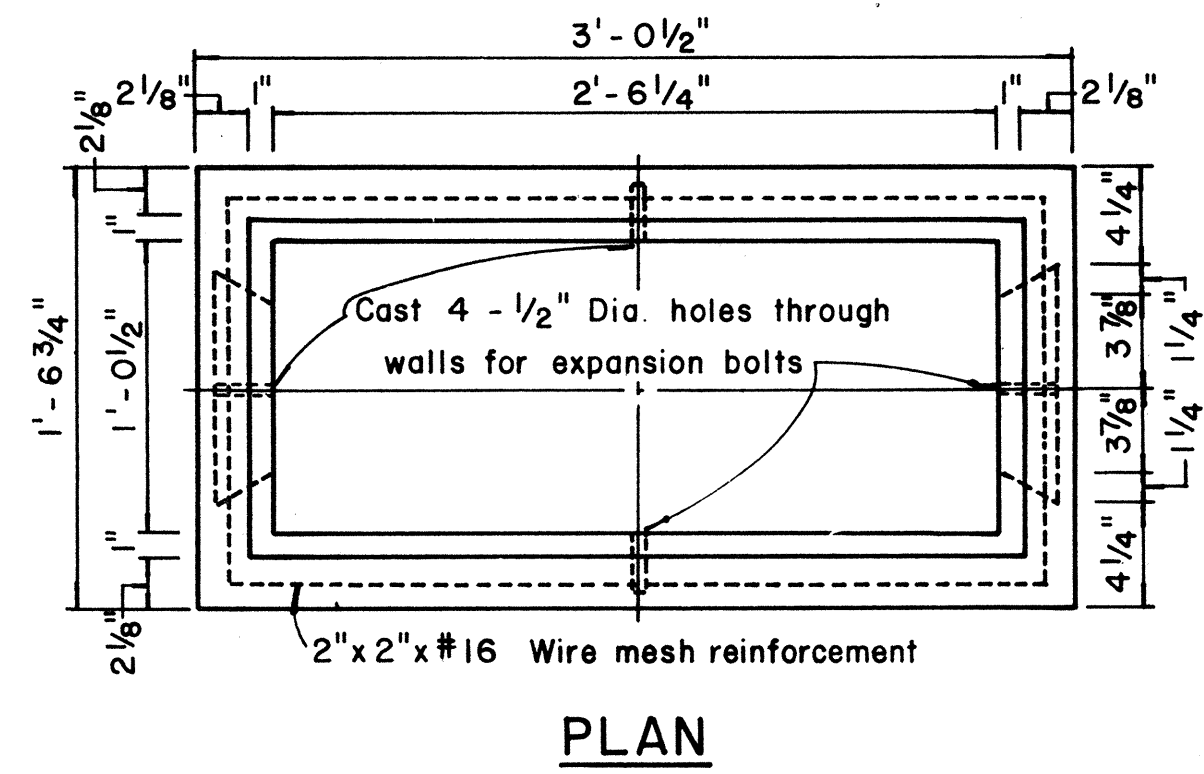
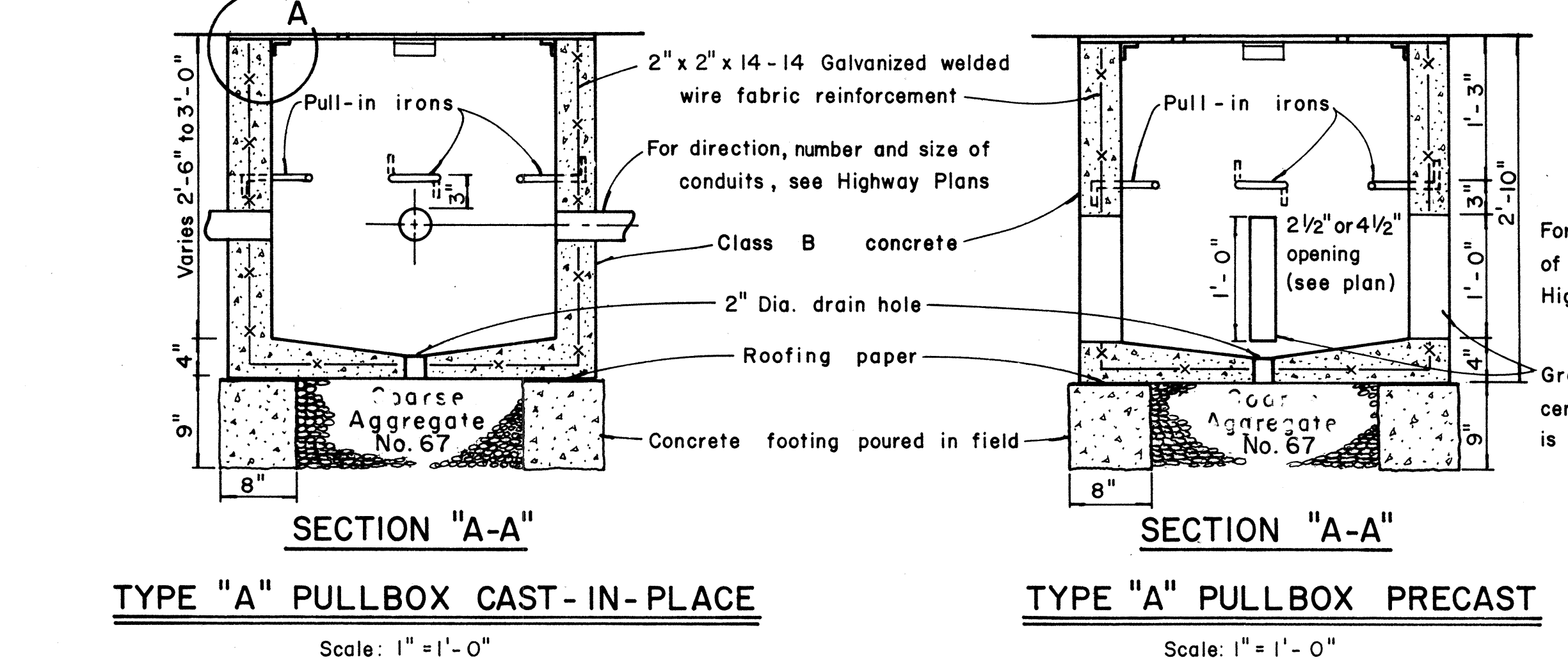
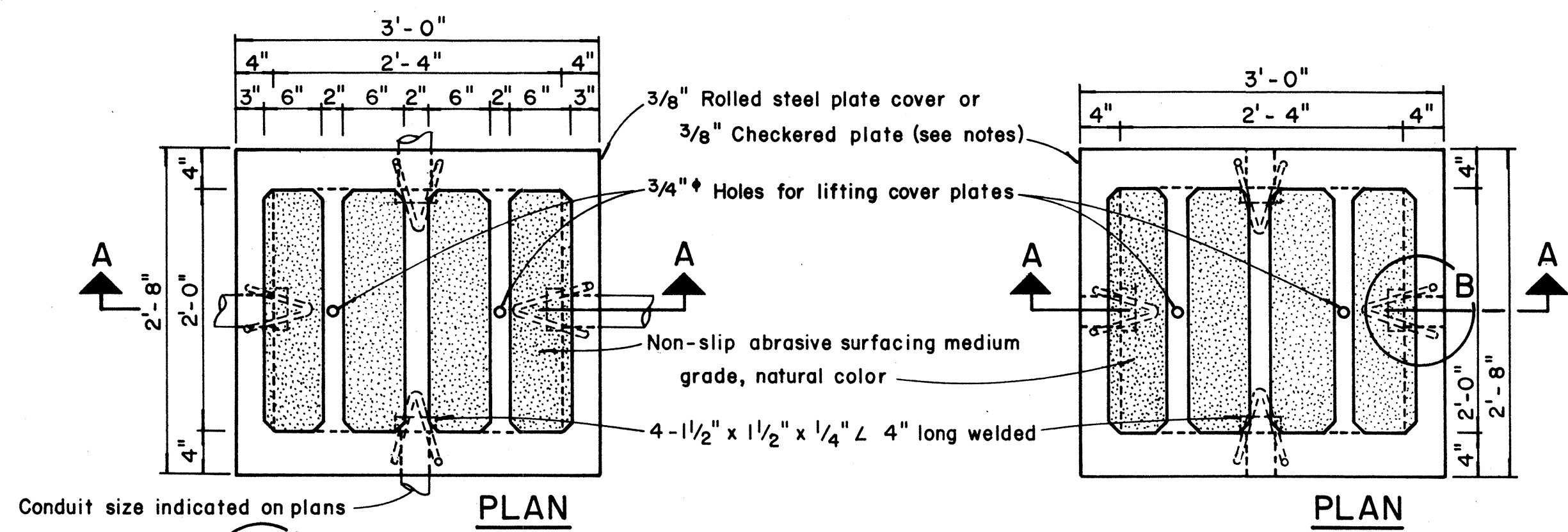
Not to Scale October 1971

SHEET No. 6 OF 9 SHEETS DT 300

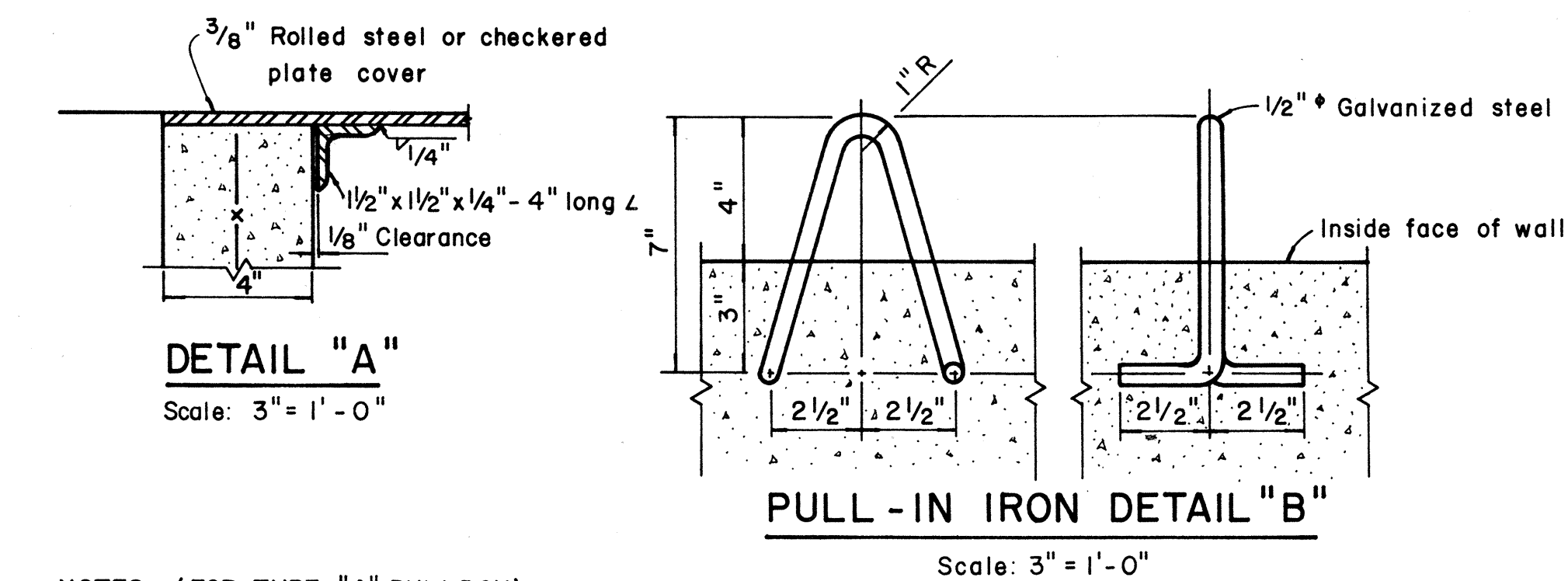
DATE	
DESIGNED BY	
CHECKED BY	
NO.	



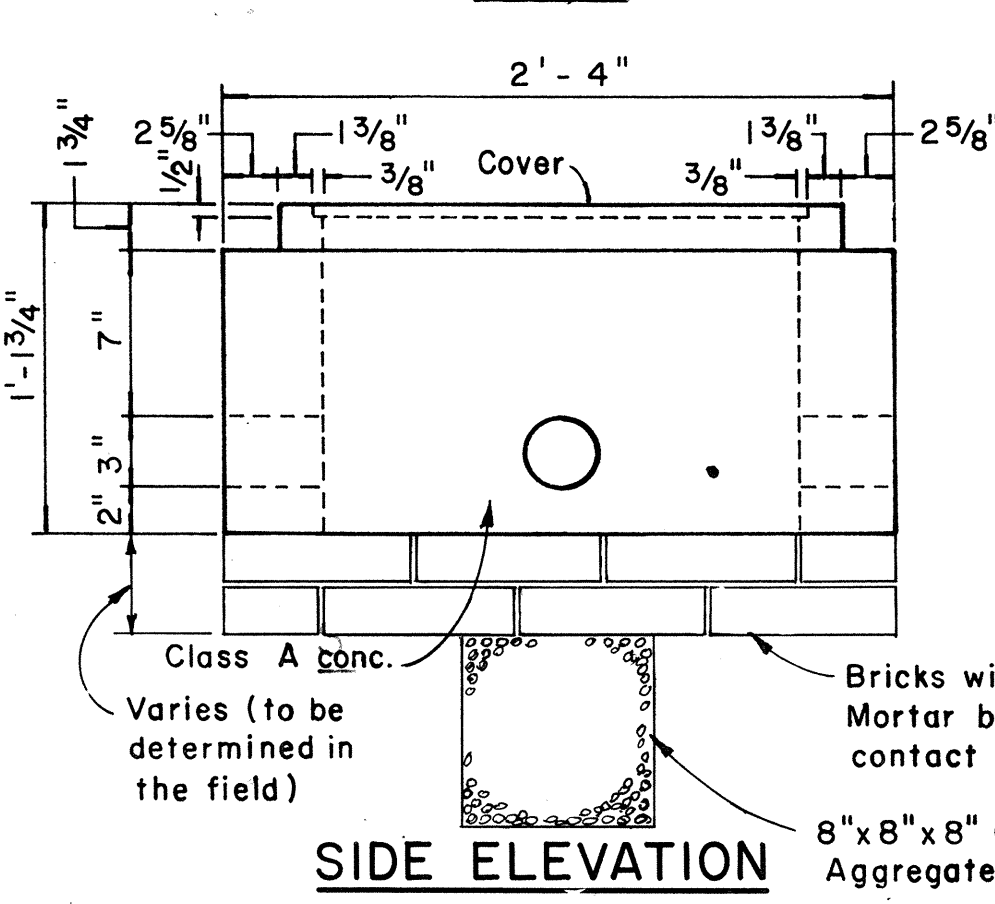
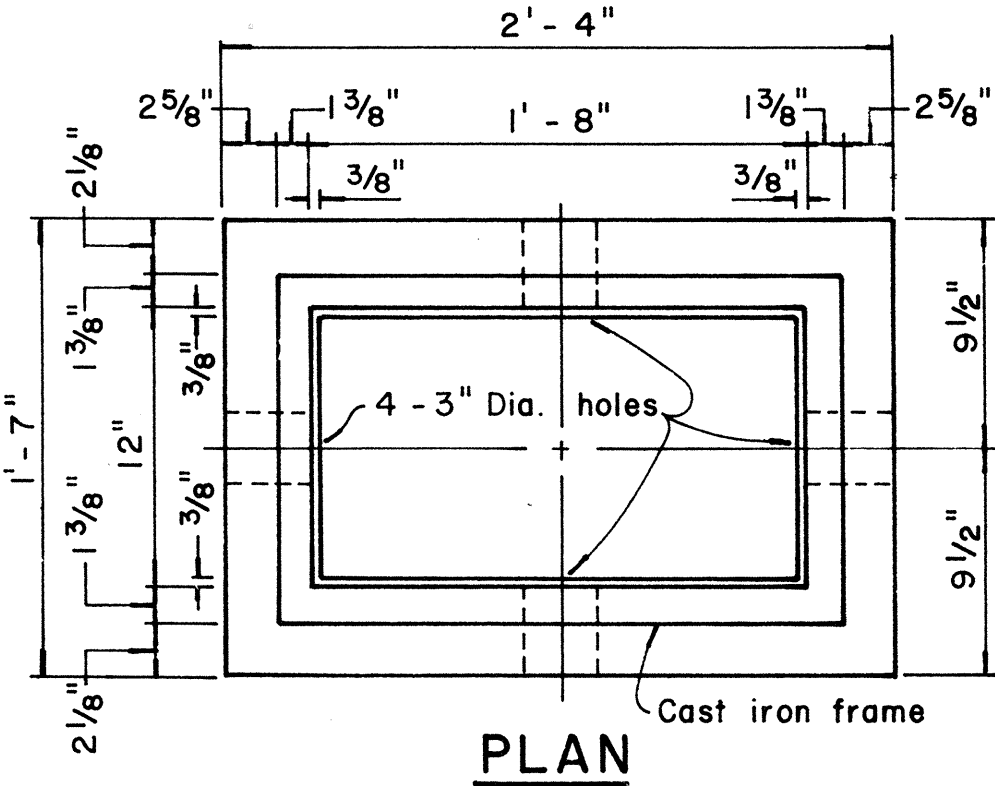
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ROS-0300(1)	1977	26	29



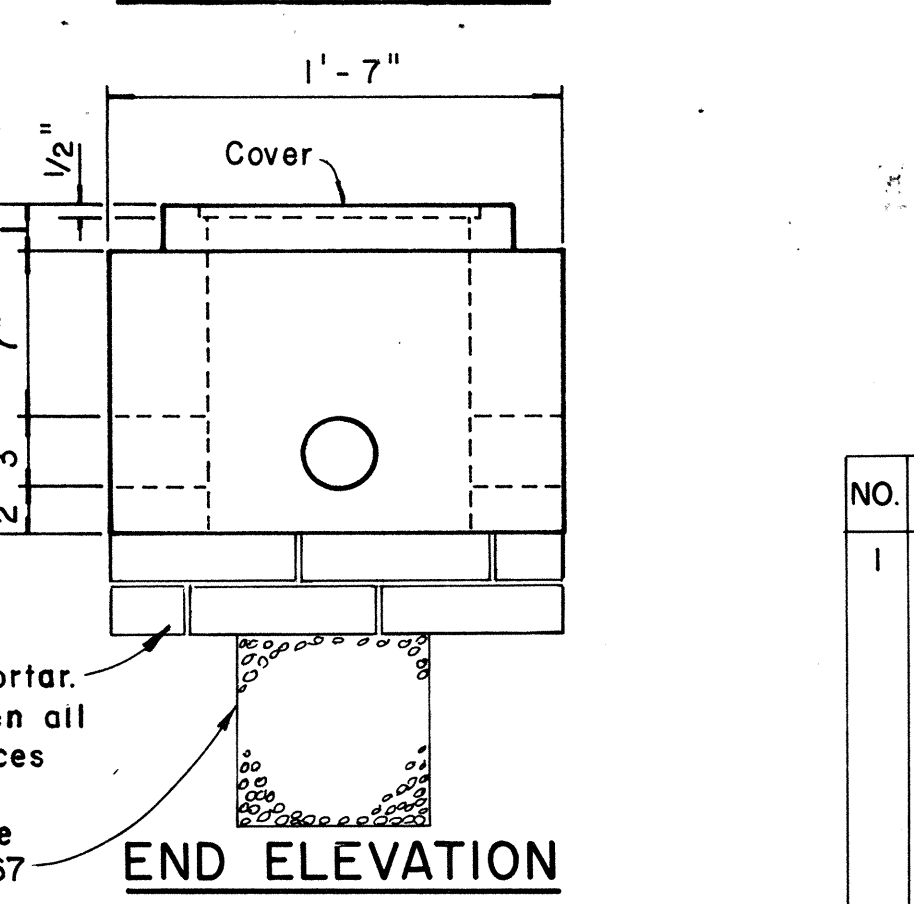
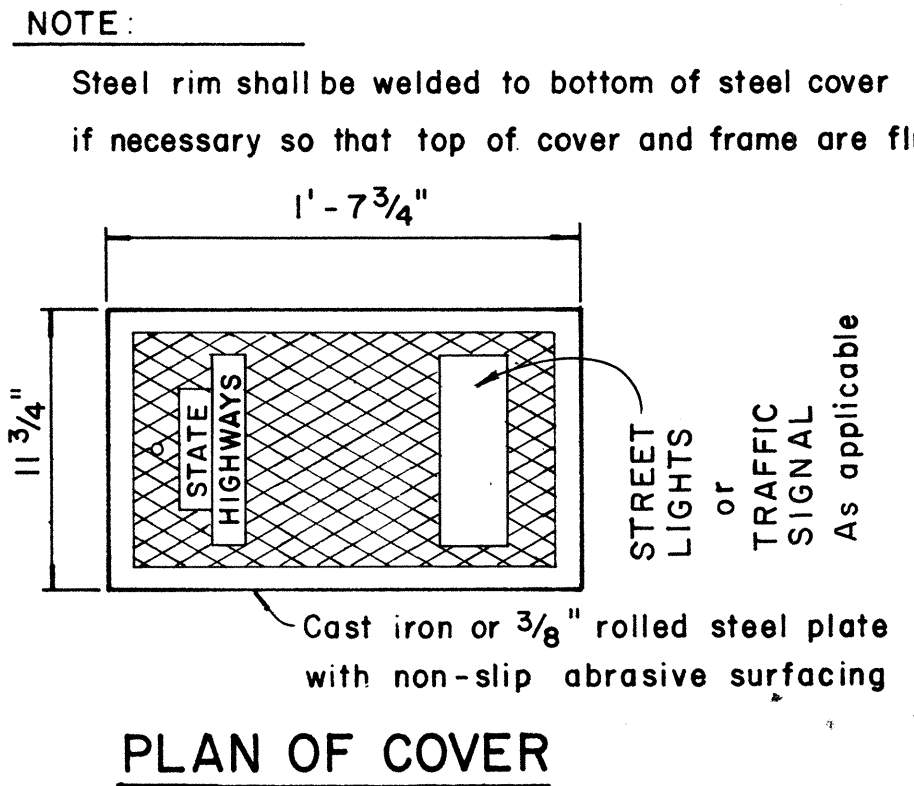
TYPE "C" PULLBOX
Scale: 1/2" = 1'-0"



- NOTES: (FOR TYPE "A" PULLBOX)
- 3/8" Rolled steel plate cover with non-slip abrasive surfacing medium grade, natural color shall be used on all pullboxes located on sidewalk areas where pedestrians are walking.
 - 3/8" Checkered plate cover shall be used on all pullboxes located in median areas and other locations where there are no pedestrians walking.
 - Pull irons shall be placed opposite each conduit slot.
 - Covers on all pullboxes located in sidewalk areas shall be set flush with the concrete sidewalk.
 - Each pullbox shall have a pair of pull irons opposite each other for lifting purposes.

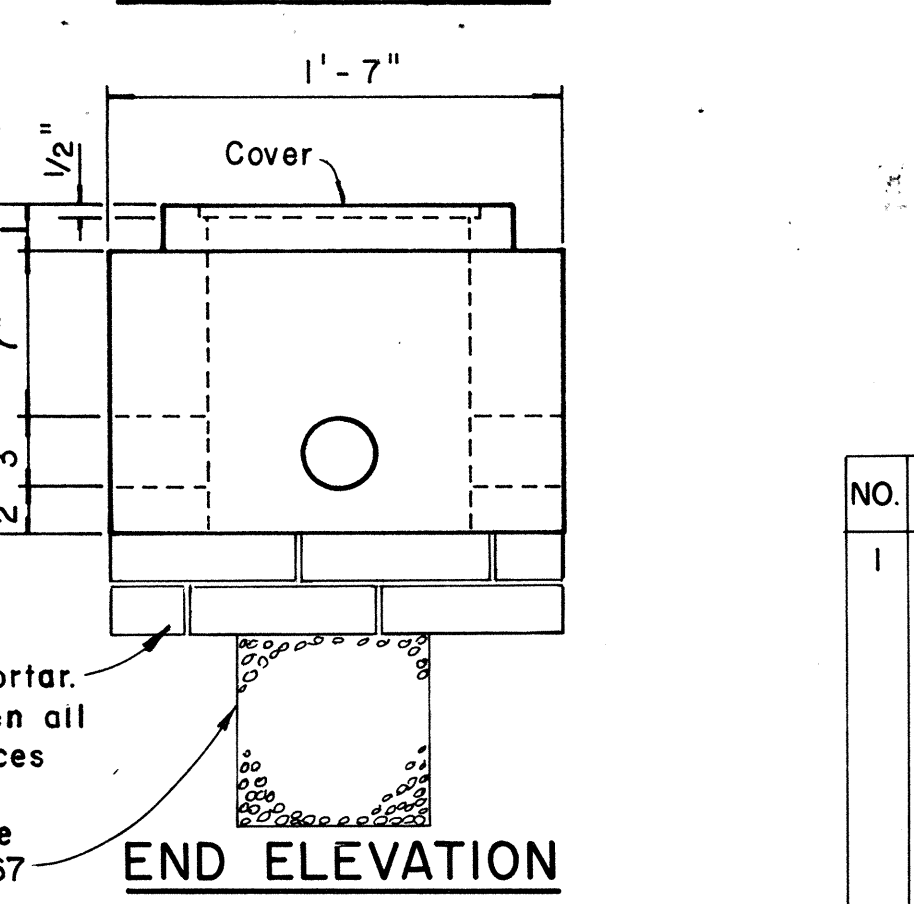
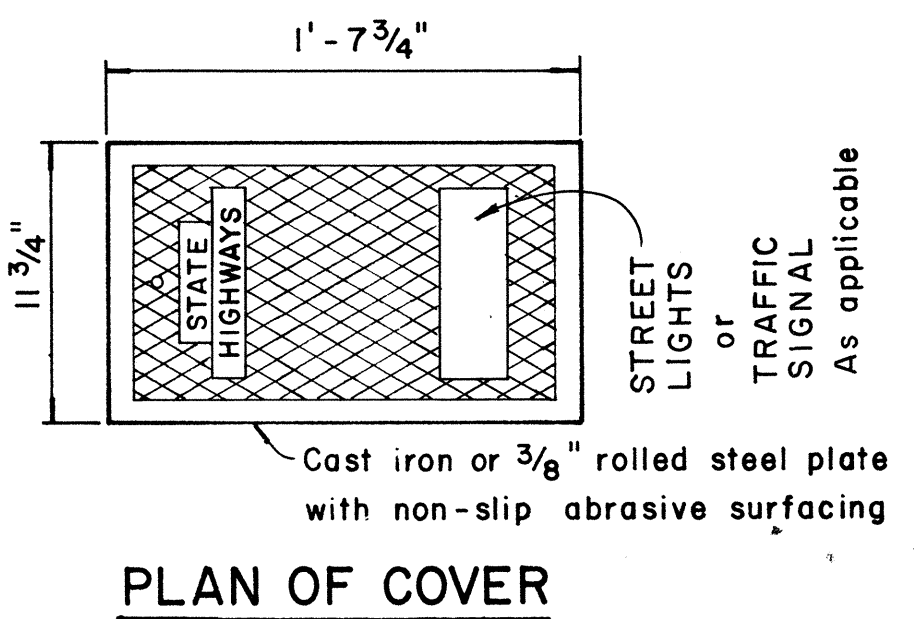


TYPE "B" PULLBOX
Scale: 1/2" = 1'-0"

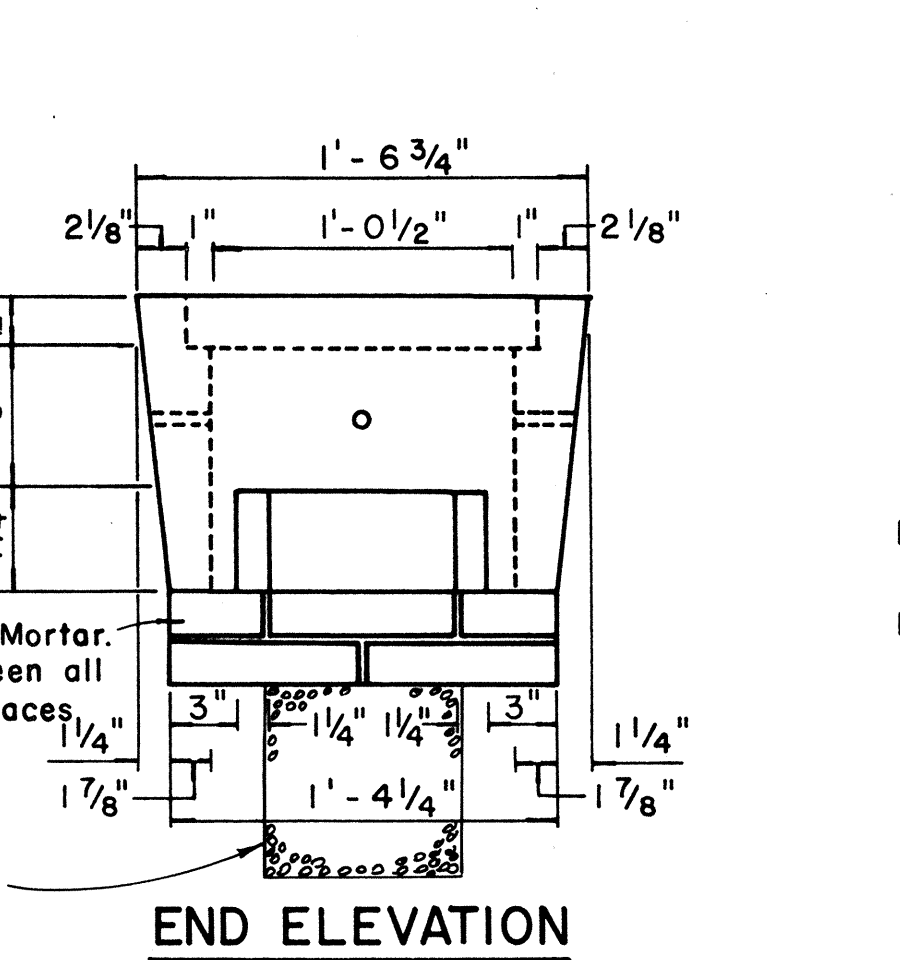
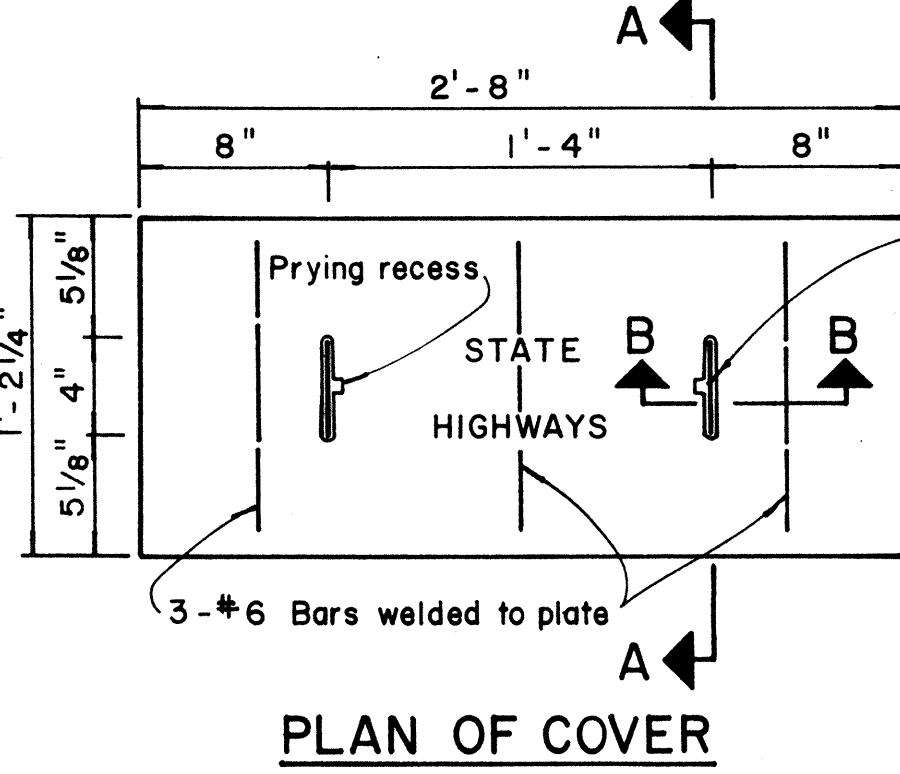


TYPE "B" PULLBOX
Scale: 1/2" = 1'-0"

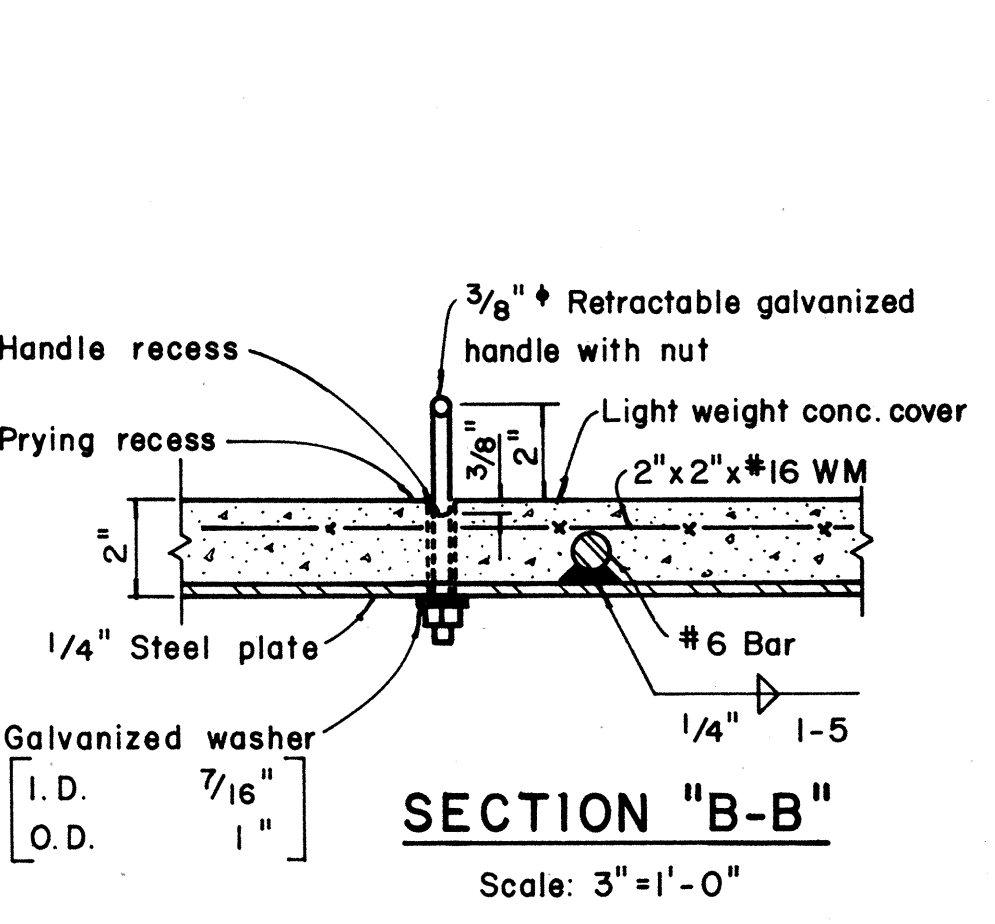
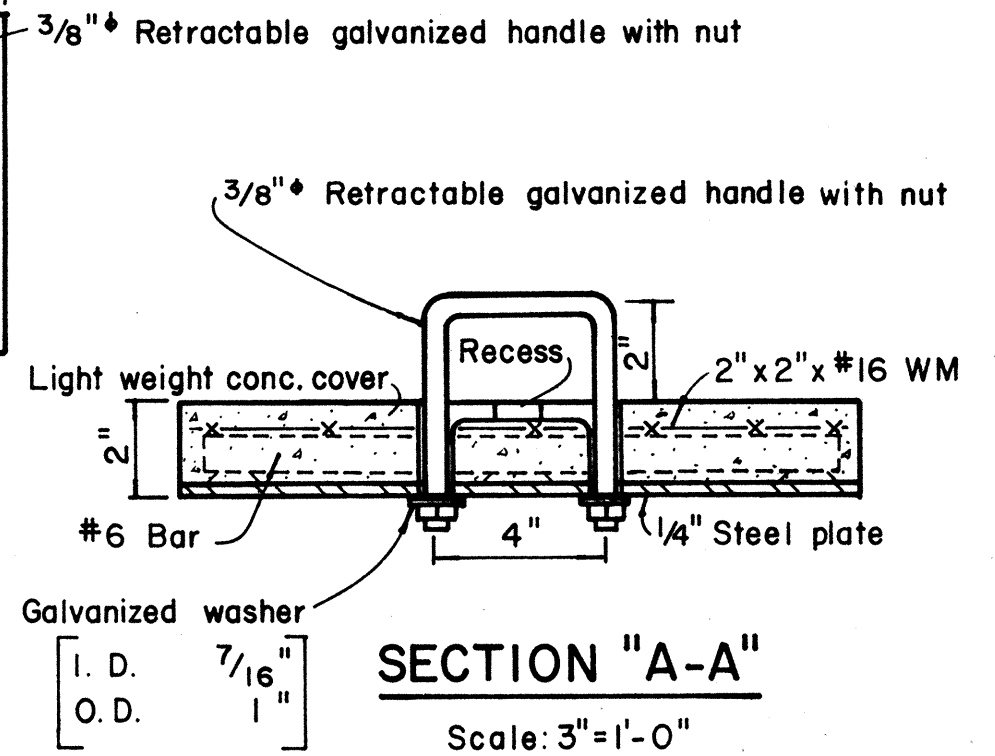
NOTE:
Steel rim shall be welded to bottom of steel cover if necessary so that top of cover and frame are flush.



TYPE "B" PULLBOX
Scale: 1/2" = 1'-0"



TYPE "C" PULLBOX
Scale: 1/2" = 1'-0"



TYPE "C" PULLBOX
Scale: 1/2" = 1'-0"

APPROVAL RECOMMENDED:
TRAFFIC ENGINEER
DATE: 12-1-62

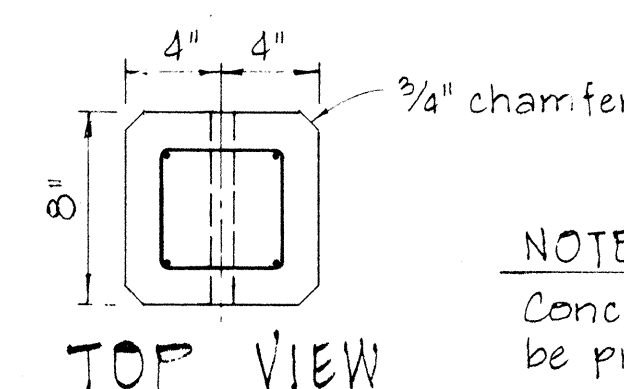
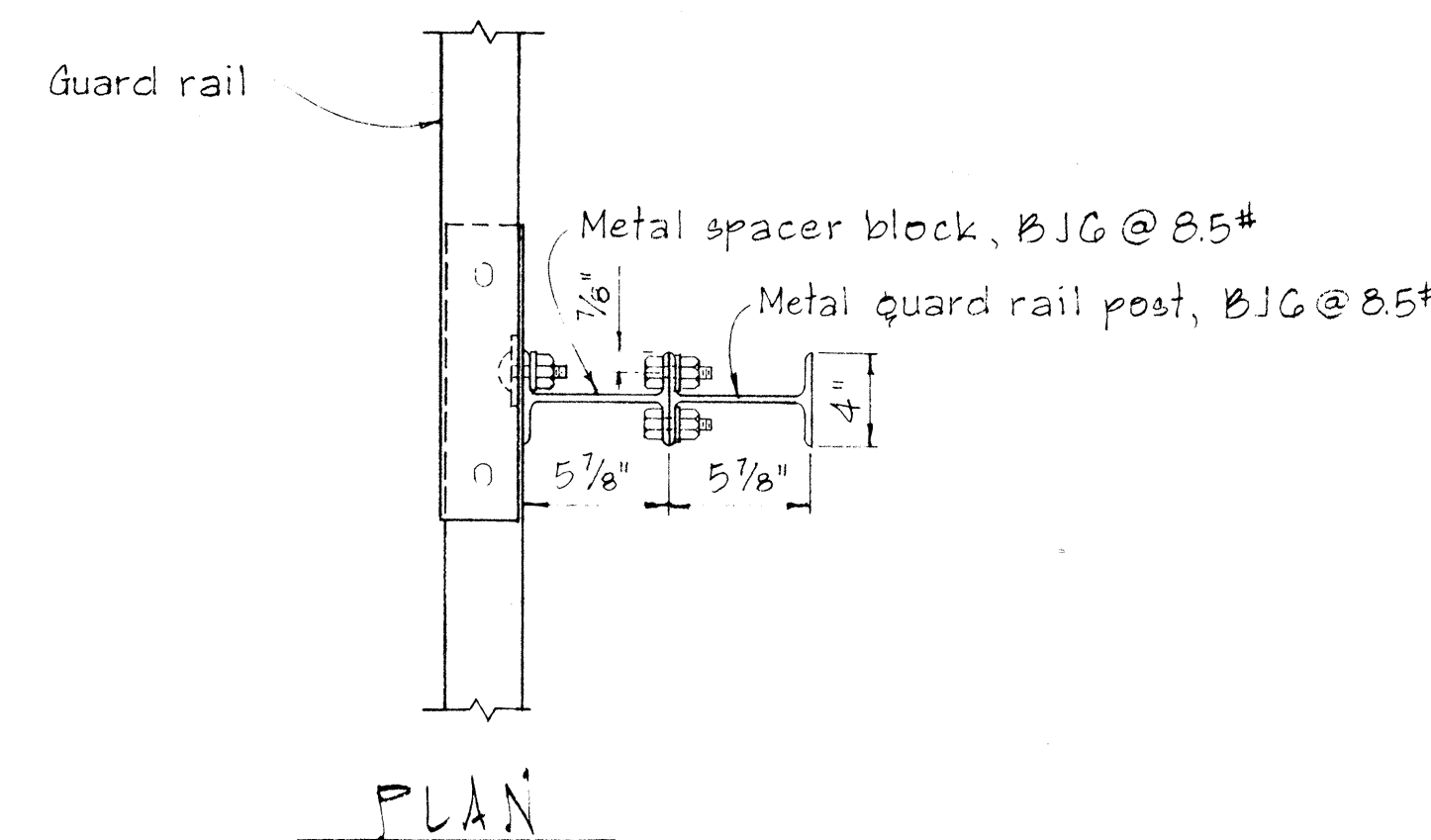
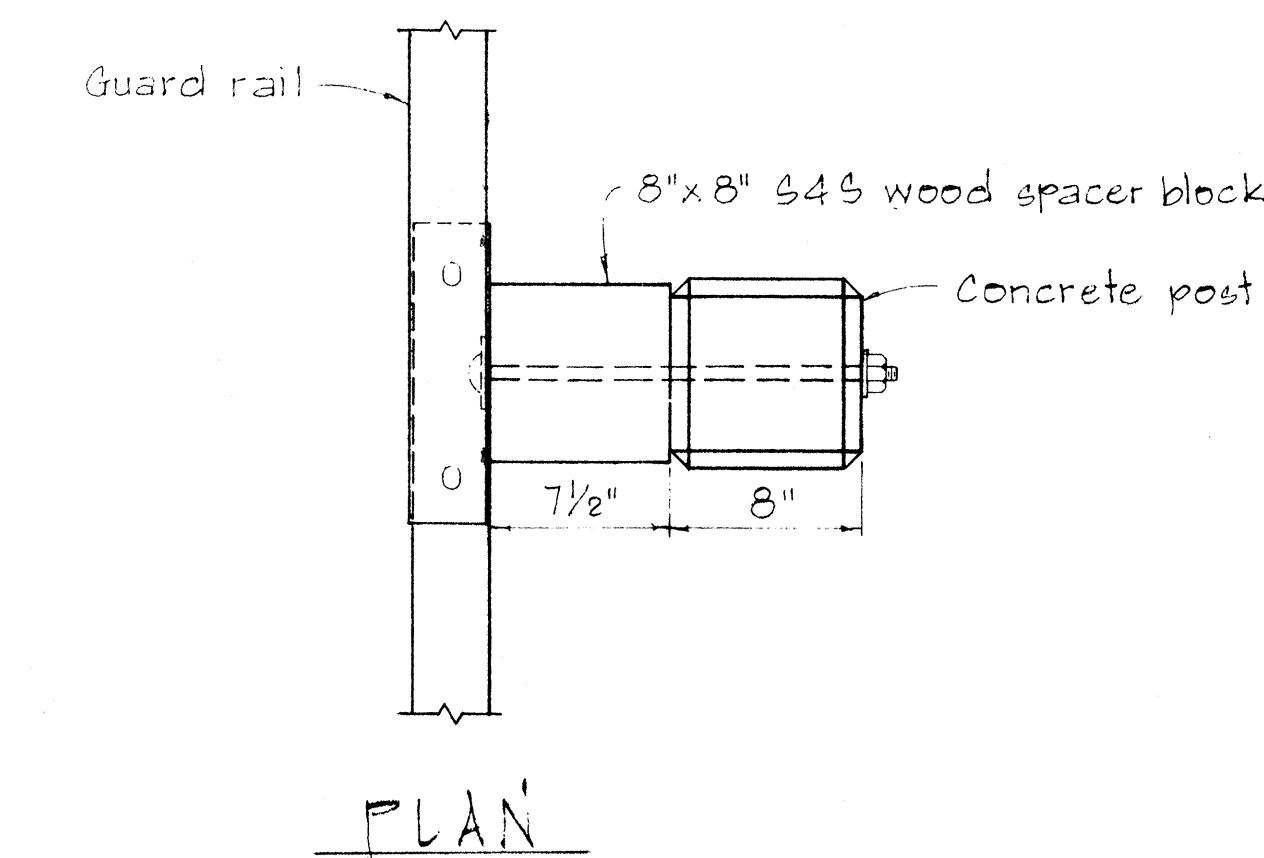
APPROVED:
ASSISTANT CHIEF, ENGINEERING
DATE: 12-30-69

NO.	REVISION	APPROVED BY	DATE
1	Revised Type B & C Pullbox details	H.T.	3-5-76

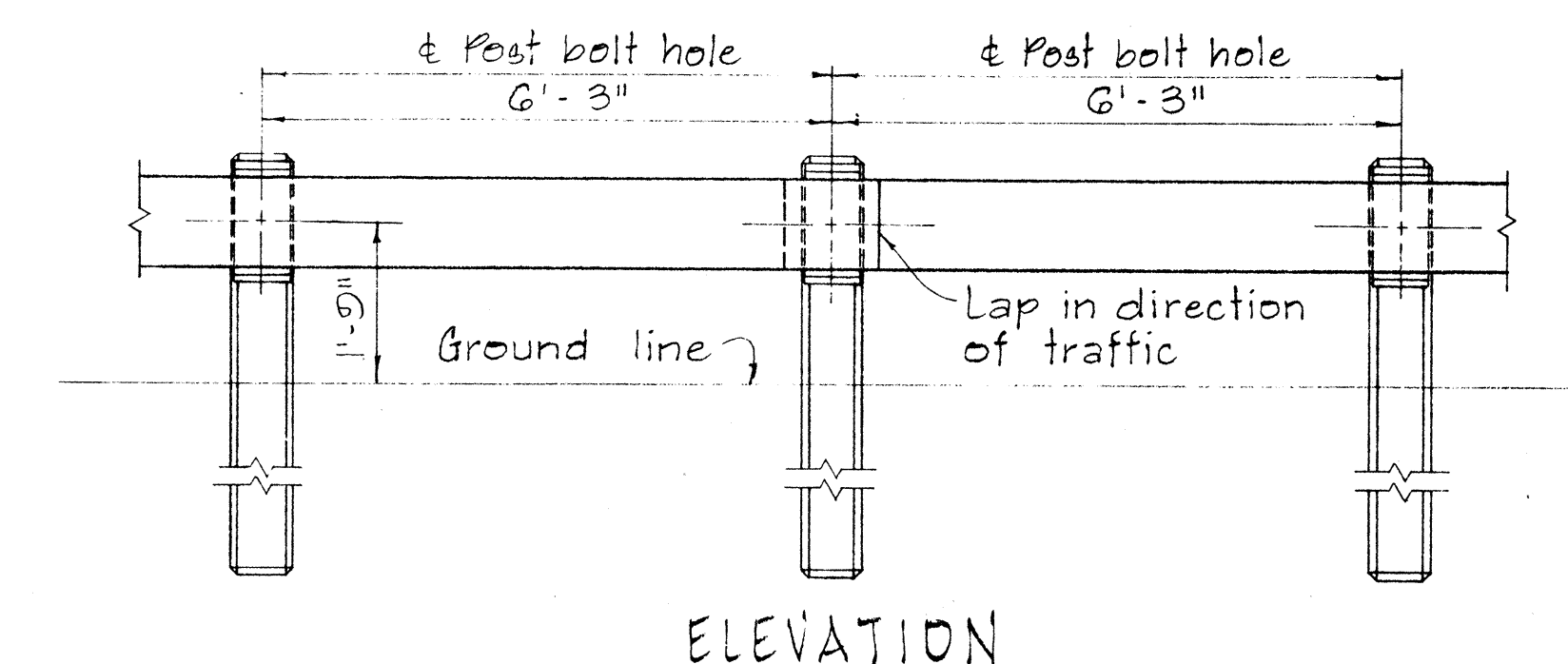
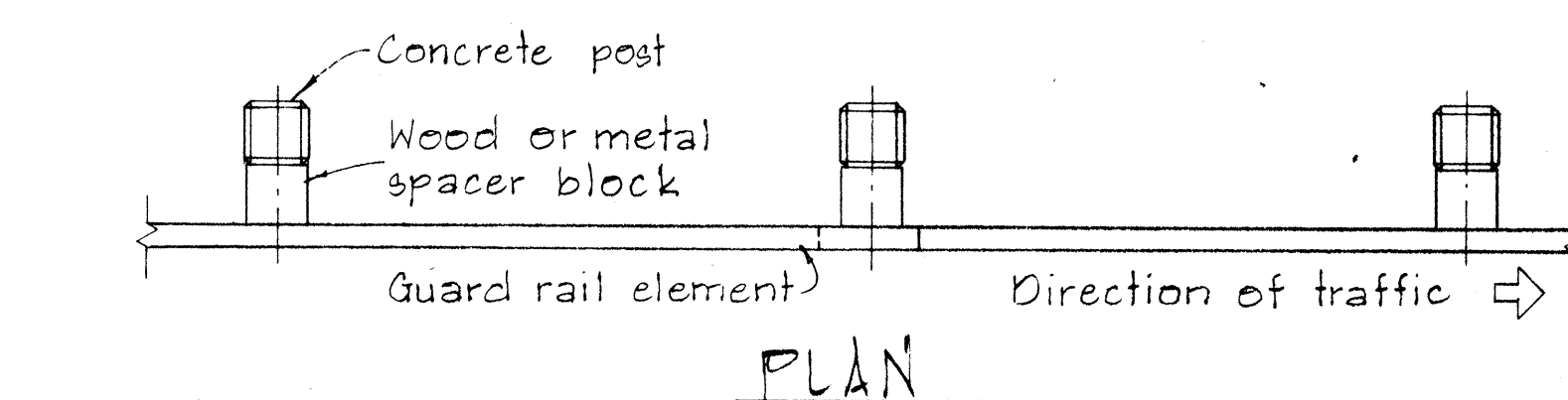
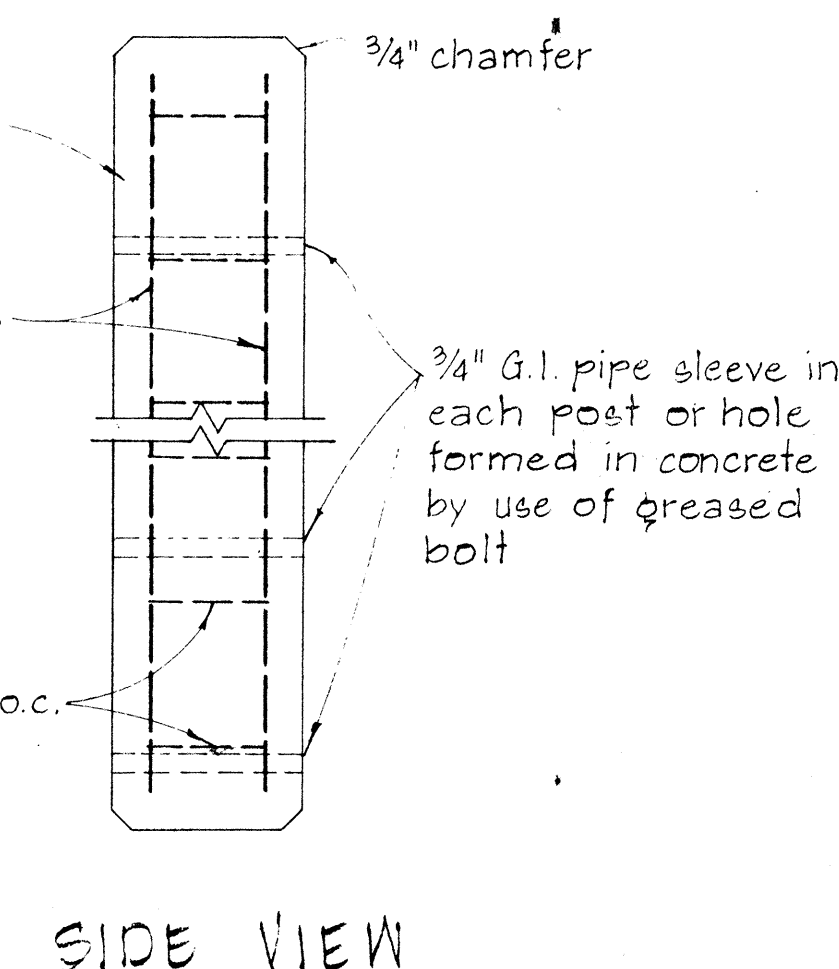
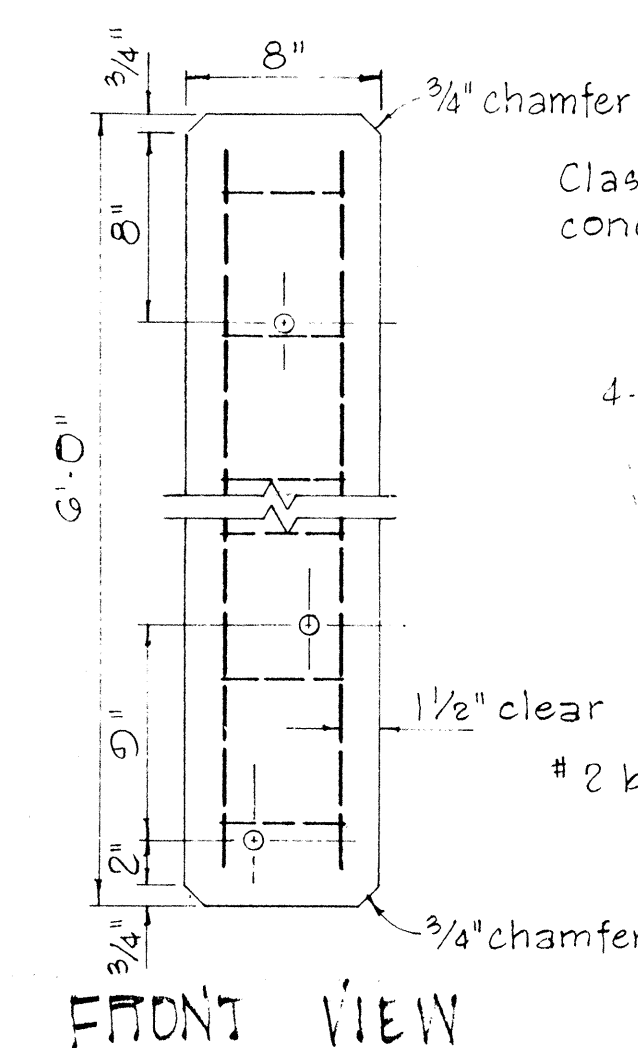
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
PULLBOXES
Scale as noted Date
SHEET No. 7 OF 7 SHEETS DT 401

DATE	DESIGNED BY	CHECKED BY
PLAN	NOTED BY	QUANTITIES BY
ORIGINAL	REVISION	REVISION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ROS- 0300(1)	1977	27	29

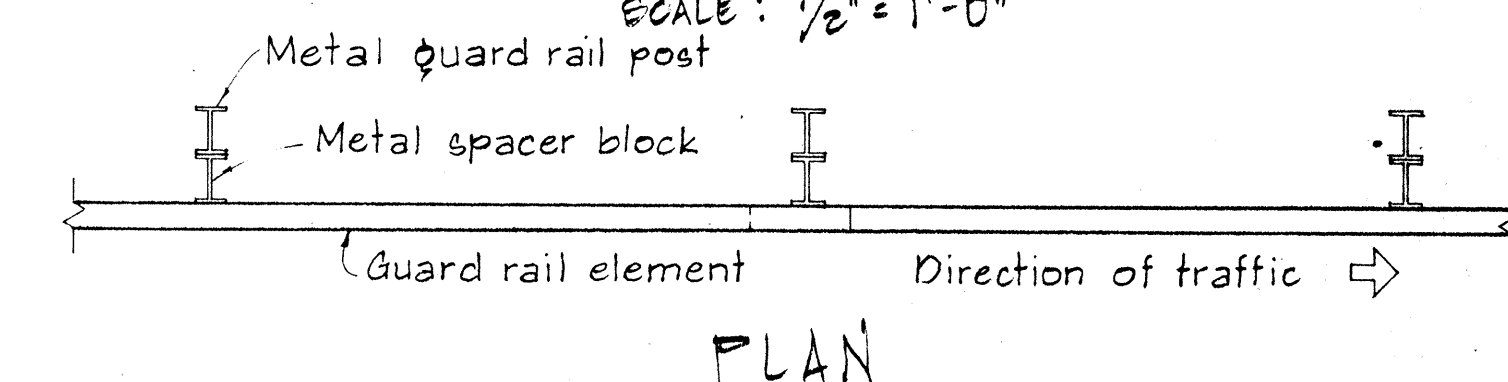


NOTE:
Concrete post shall
be precast

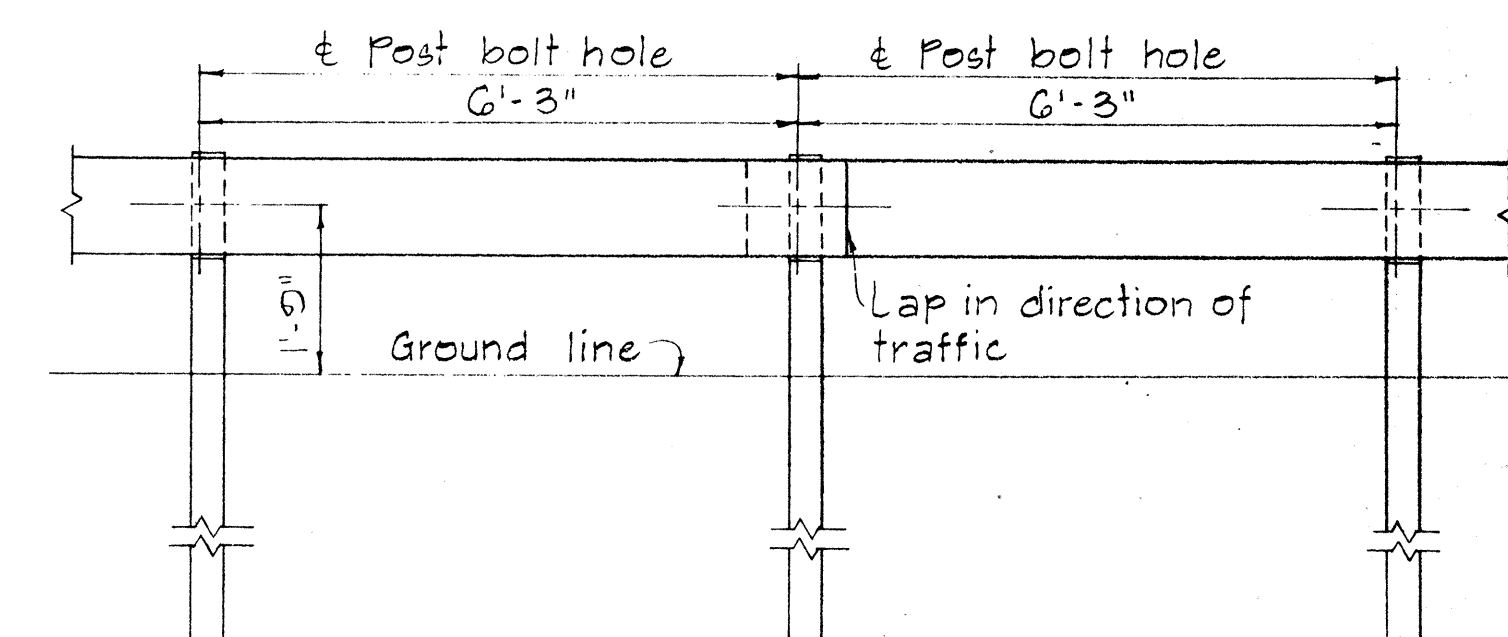


METAL GUARD RAIL ON CONCRETE POST
WITH WOOD OR METAL SPACER BLOCK.

SCALE: $\frac{1}{2}'' = 1'-0''$

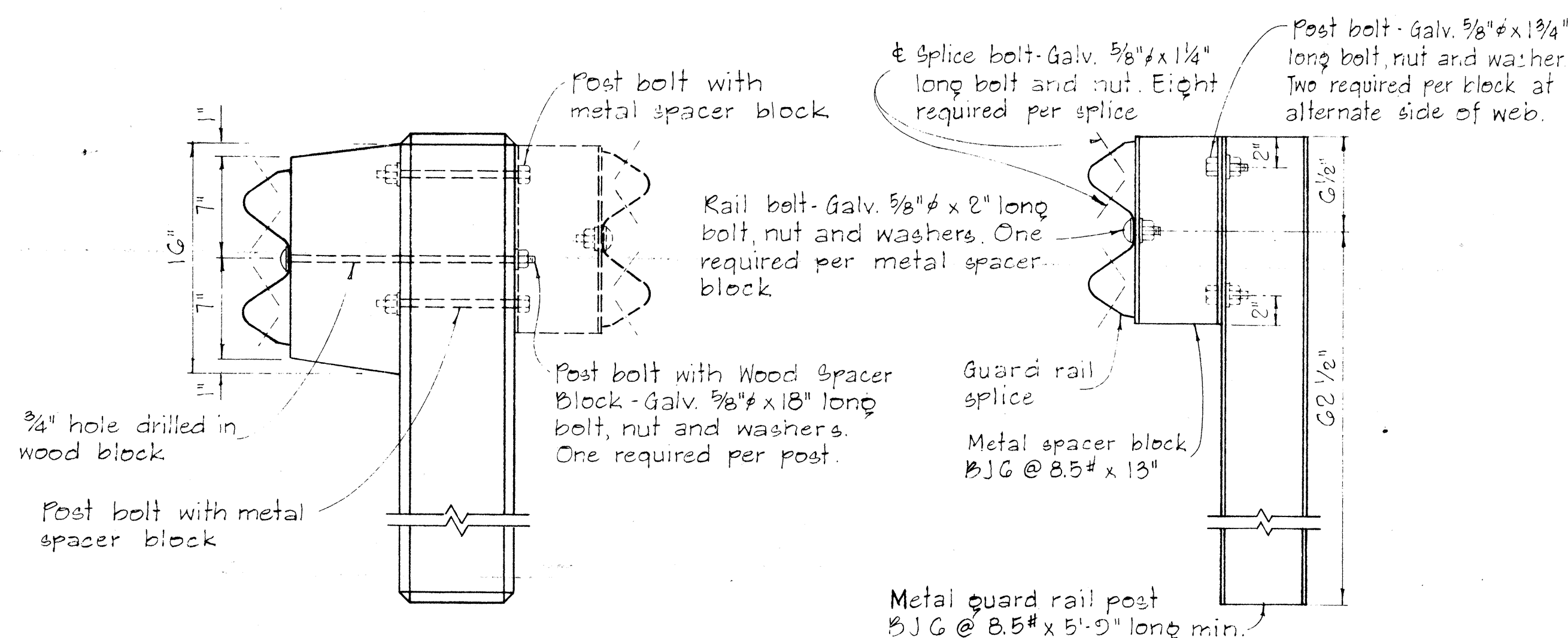


PLAN



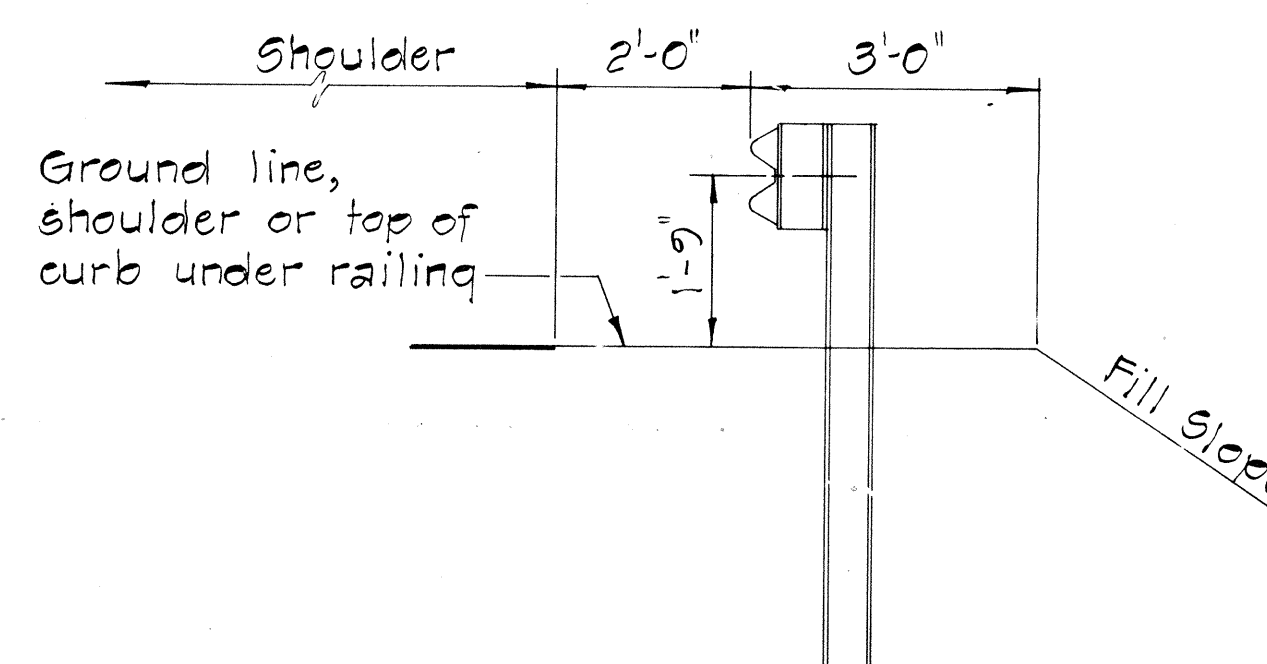
ELEVATION
METAL GUARD RAIL ON METAL POST

METAL SPACER BLOCK
SCALE: $\frac{1}{2}" = 1'-0"$



SINGLE METAL GUARD RAIL ON METAL POST
WITH METAL SPACER BLOCK

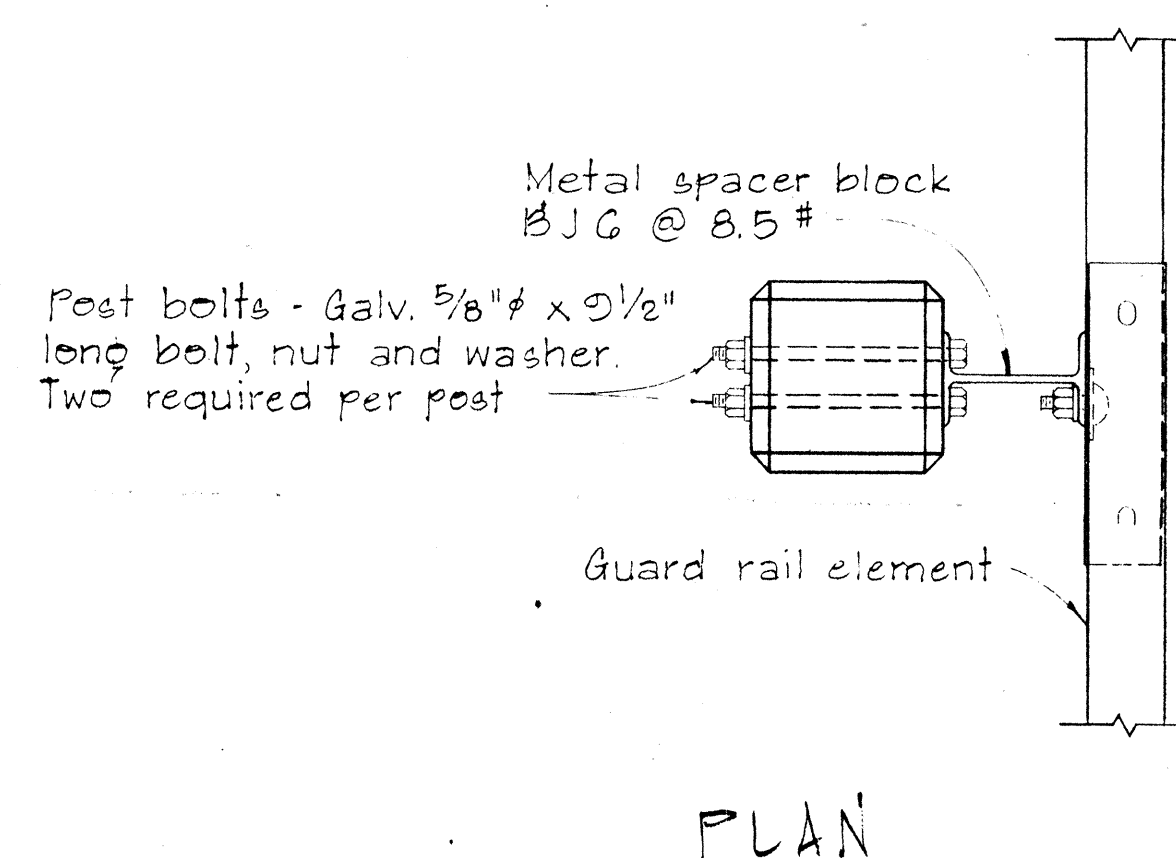
SCALE: $1\frac{1}{2}'' = 1'-0''$



AT SHOULDER SECTION

TYPICAL METAL GUARD RAIL DETAIL

SCALE: $\frac{1}{2}'' = 1'-0''$



SINGLE METAL GUARD RAIL ON PRECAST
CONCRETE POST WITH WOOD OR METAL SPACER BLOCK.

SCALE: $1\frac{1}{2}'' = 1'-0''$

APPROVAL RECOMMENDED:
Eichi Tanaka
TRAFFIC ENGINEER

12/29/69
DATE

APPROVED: Hubert J. Zelen
ASSISTANT CHIEF, ENGINEERING

12-30-60
DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS
METAL GUARD RAIL

SCALE : AS SHOWN

NOV 1968

SHEET No. 8 OF 9 SHEETS		PT 500
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