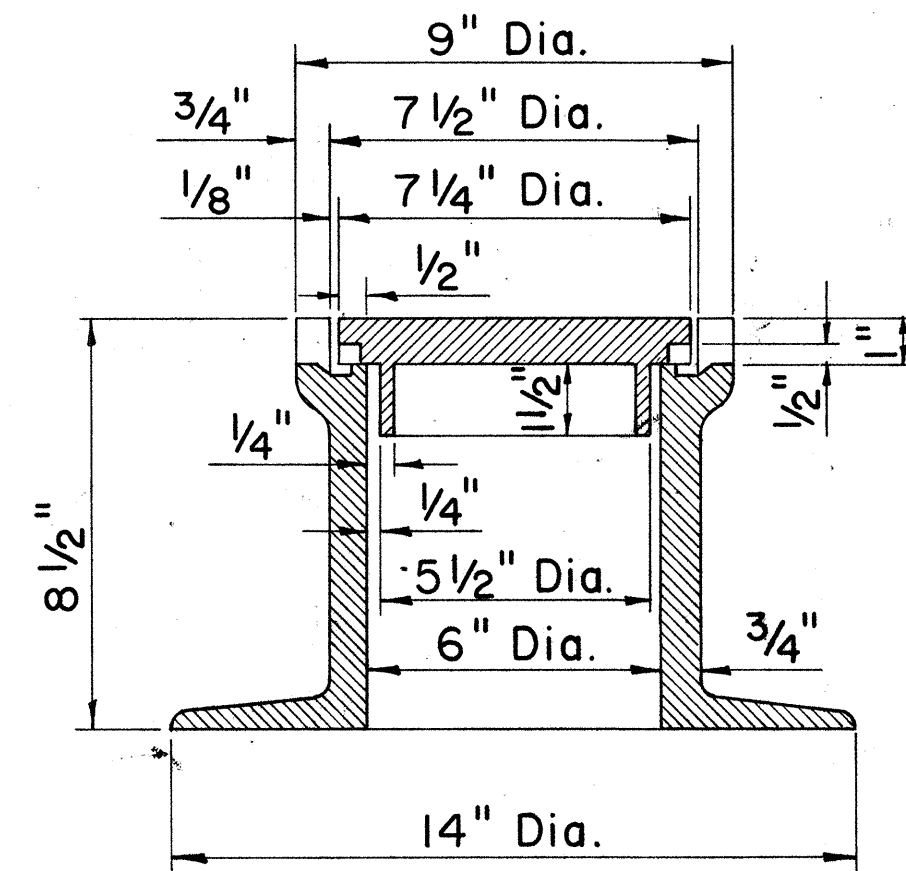
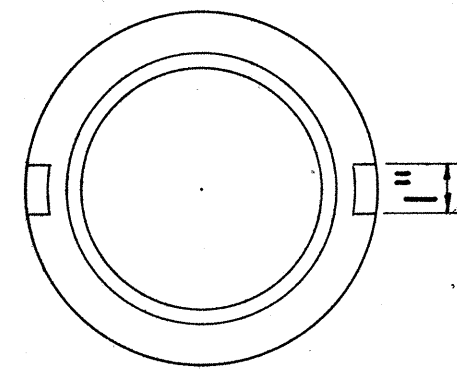
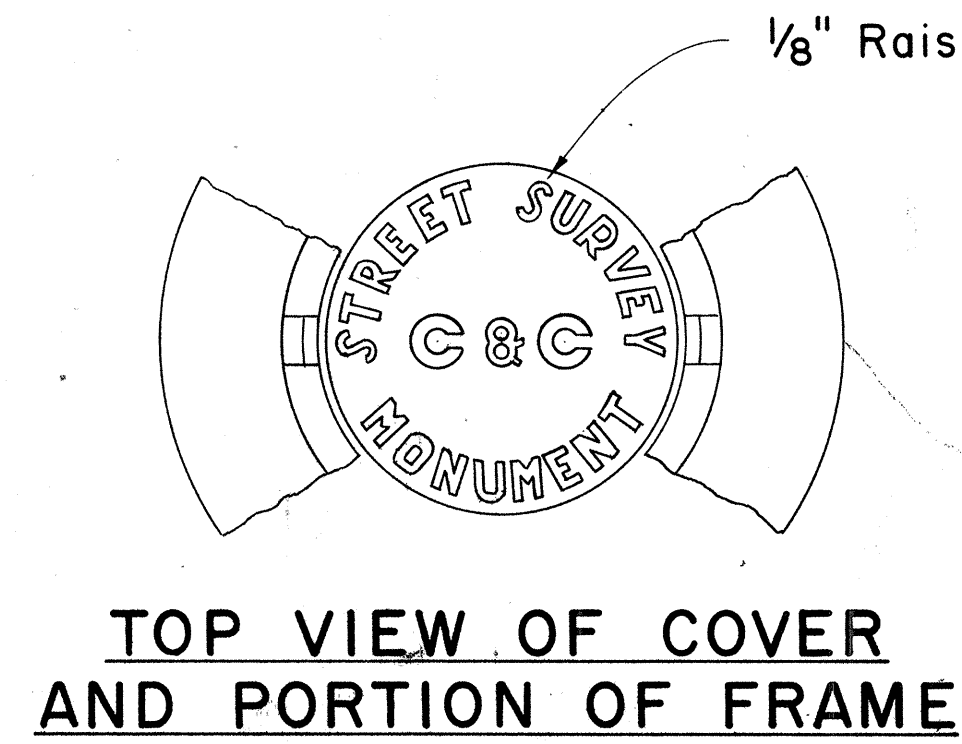
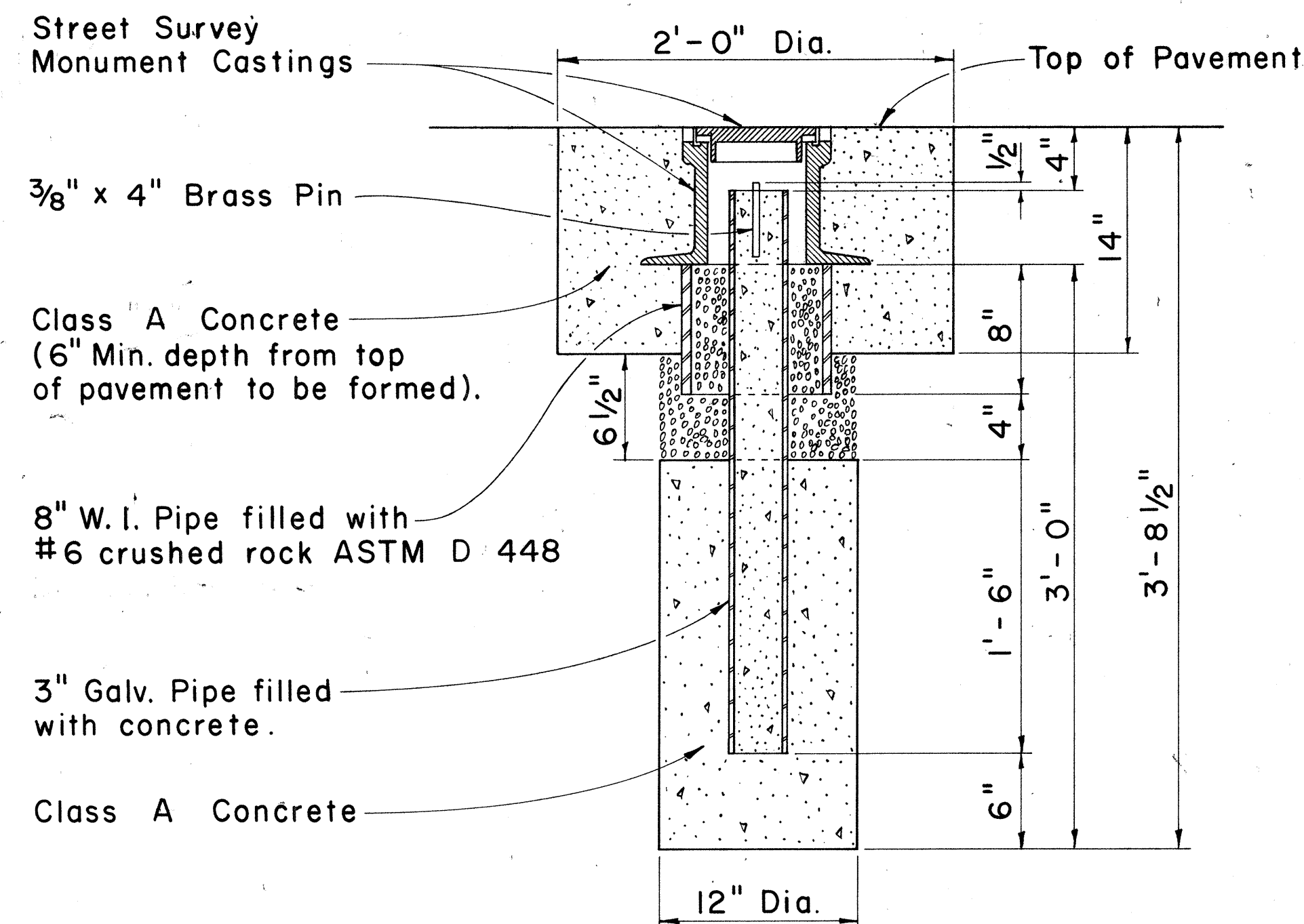


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HH5-056-1(22)	1978	7	18



STREET SURVEY MONUMENT CASTINGS

Scale: 3" = 1'-0"

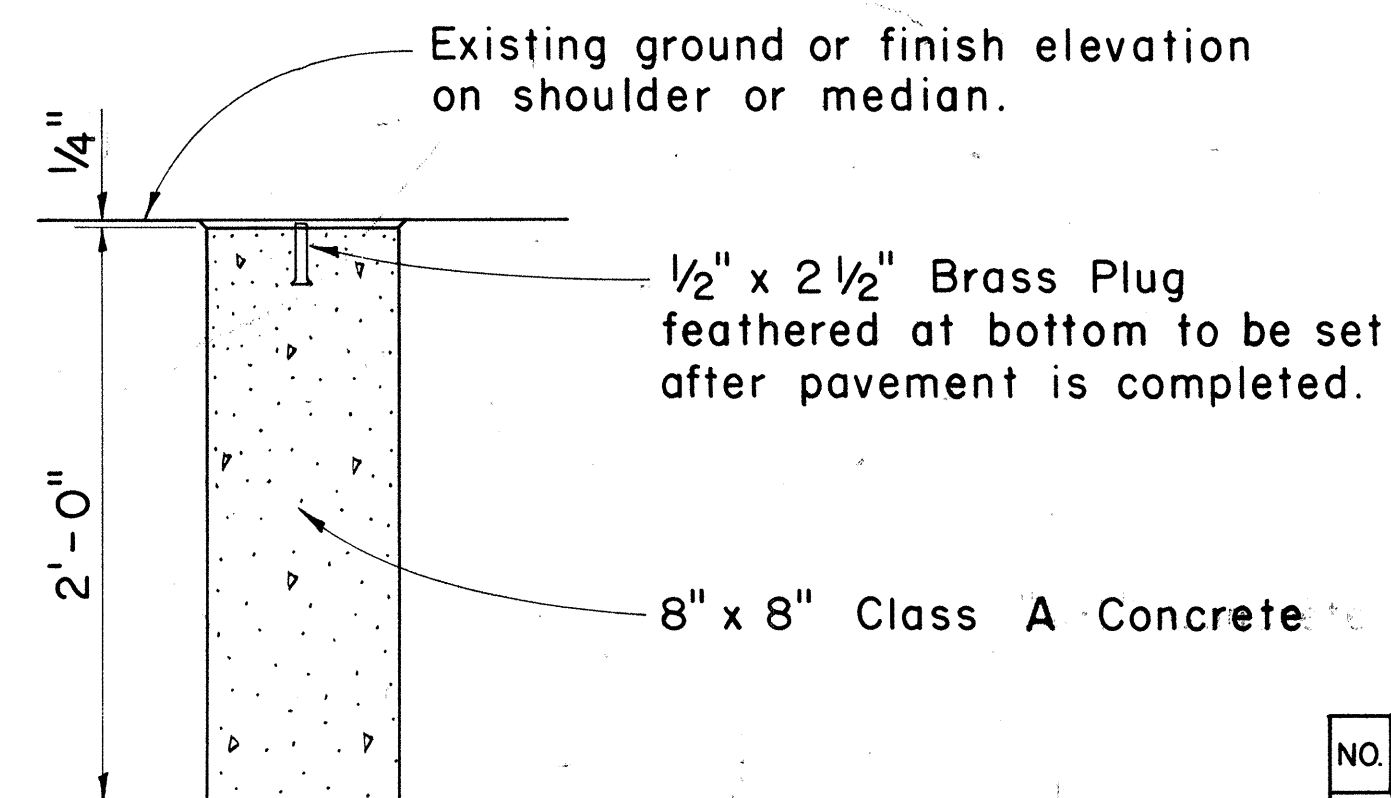


NOTE:

Where the excavation extends into solid rock the depth may be decreased if approved by the Engineer.

STREET SURVEY MONUMENT

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



DETAIL FOR CENTERLINE AND REFERENCE SURVEY MONUMENT

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

APPROVAL RECOMMENDED:

HIGHWAY DESIGN ENGINEER

12-4-69
DATE

APPROVED:

ASSISTANT CHIEF, ENGINEERING

12-10-69
DATE

NO.	REVISION	APPROVED BY	DATE

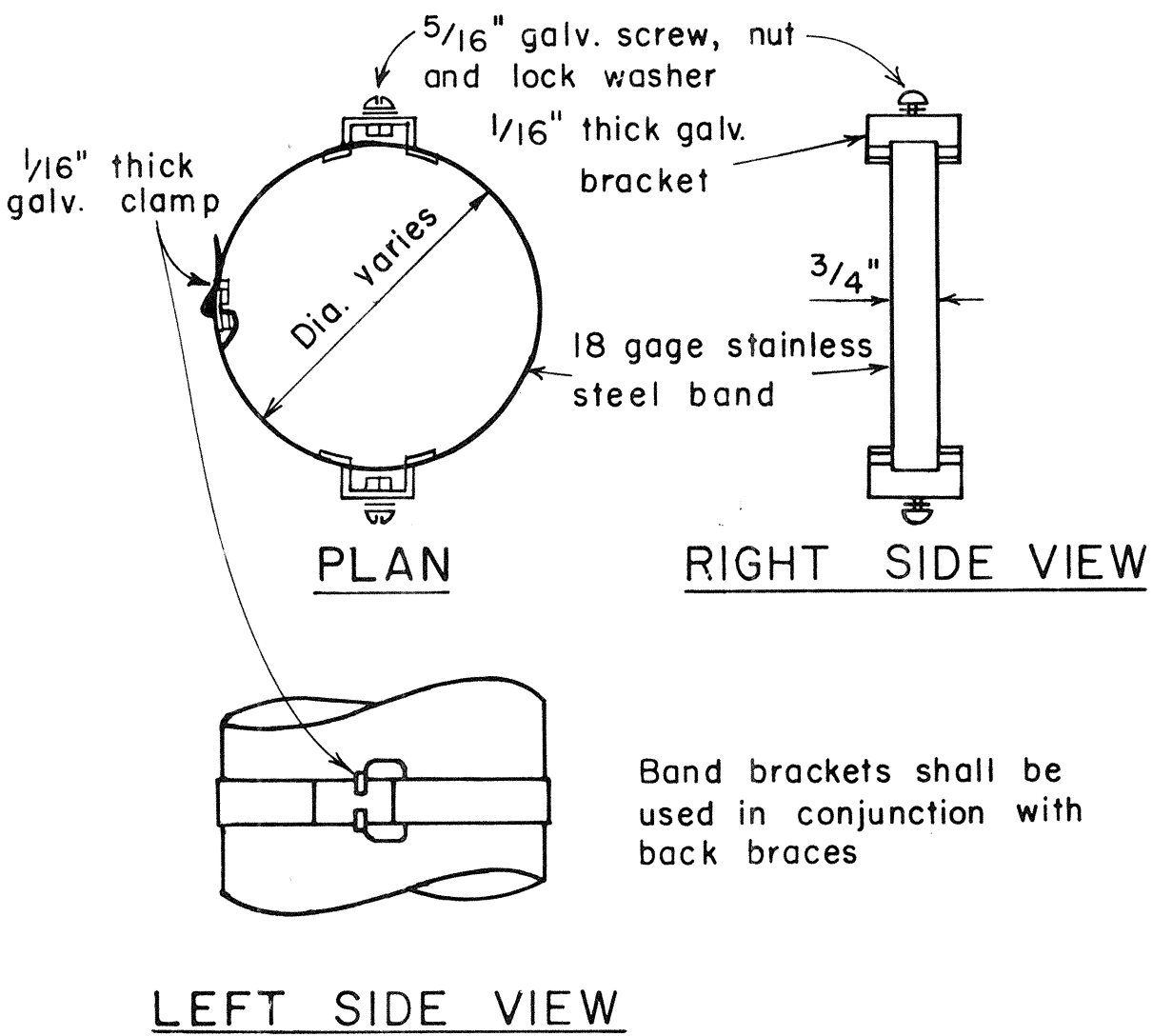
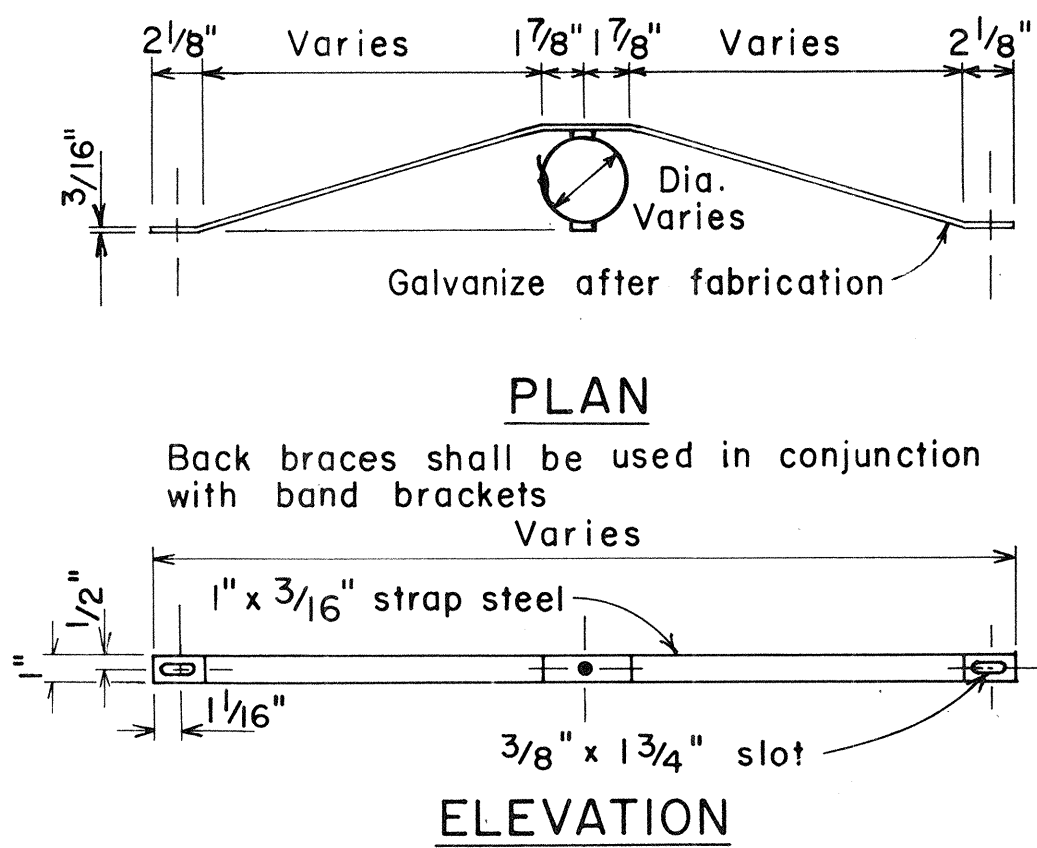
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION LAND TRANSPORTATION FACILITIES DIVISION	
STANDARD DETAILS	
CENTERLINE, REFERENCE SURVEY AND C & C STREET SURVEY MONUMENTS	
Scale: As Shown	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HH5-056-1(22)	1978	8	18

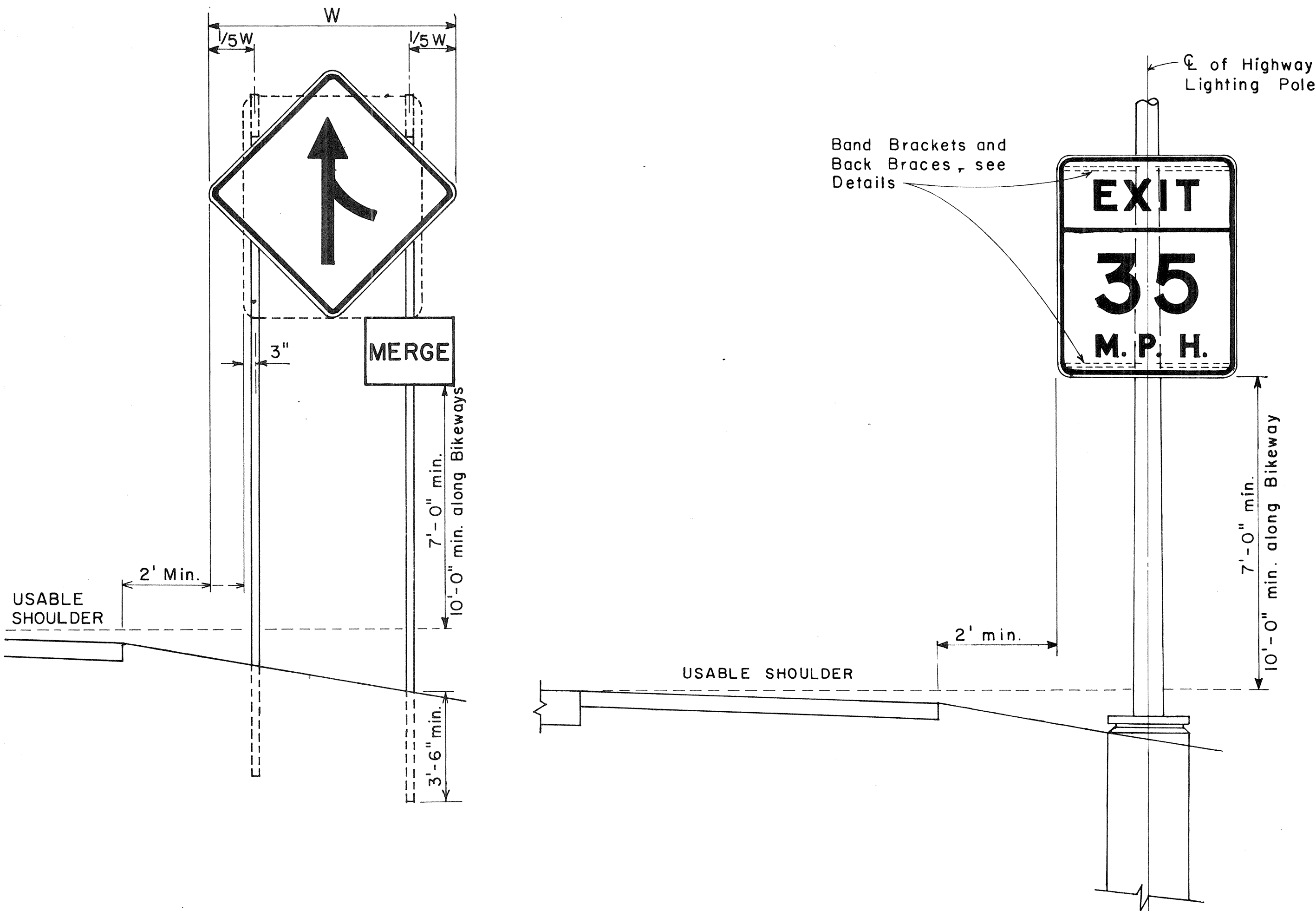
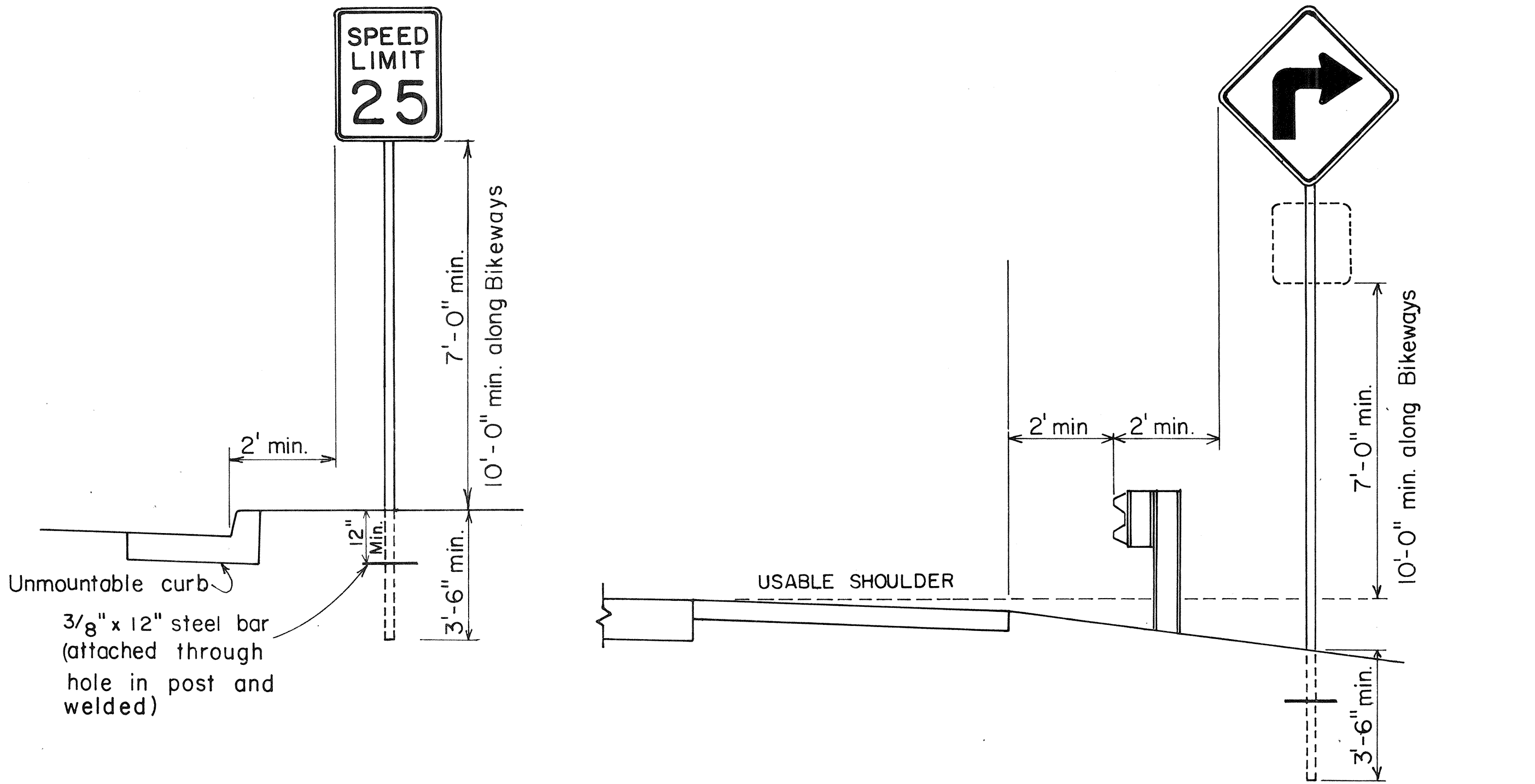
GENERAL NOTES

- Signs 48" and wider or larger than 10 sq. ft. in area shall be mounted on two sign posts.
- All signs larger than 10 sq. ft. in area or 48" inches and wider, and mounted on other than two posts supports (i.e., on highway lighting poles) shall have at least two sets of band brackets and back braces.
- All signs 28 sq. ft. in area or larger and mounted on other than two posts supports (i.e., on highway lighting poles) shall have at least three sets of band brackets and back braces.
- 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.
- Sign posts shall extend 3 1/2" above sign where required for City and County street name signs.
- (R) or (L) indicates right or left and shall be as shown on the plans.

BACK BRACE DETAILS FOR BALANCED SIGN INSTALLATION



TYPICAL BAND BRACKET FOR MOUNTING TRAFFIC SIGNS



HEIGHT AND LATERAL LOCATION OF SIGNS TYPICAL INSTALLATION

APPROVAL RECOMMENDED:
Enchi Tanaka 11/10/77
 TRAFFIC ENGINEER DATE

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

NO.	REVISION	APPROVED BY	DATE
1	Supercedes Sht. DT-100 approved 12/30/69	H.T.	11/15/77

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS
 MISCELLANEOUS SIGN DETAILS

Not to scale June, 1977

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HHB-056-1(22)	1978	10	18



CW20-1a 48" x 48"



CW20-2d 48" x 48"



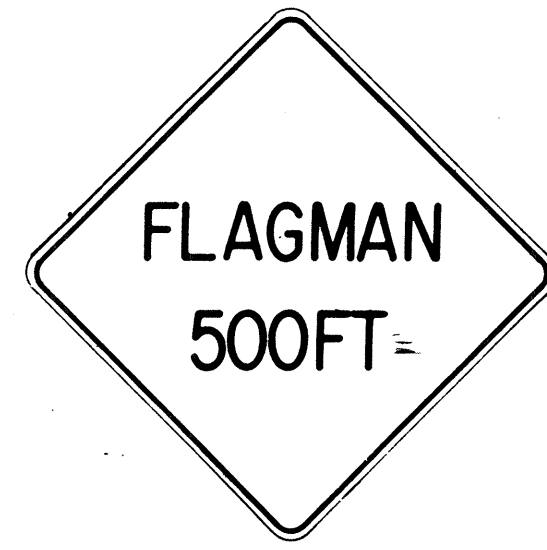
CW20-3b 48" x 48"



CW20-4d 48" x 48"



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



CW20-7c 48" x 48"



CW21-1 30" x 30"



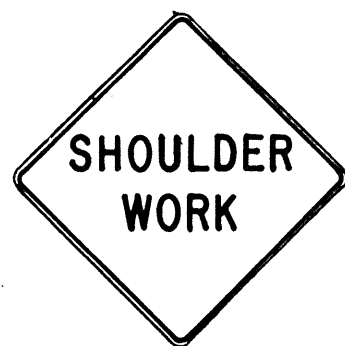
CW21-2 30" x 30"



CW21-3 36" x 36"



CW21-4 36" x 36"



CW21-5 30" x 30"



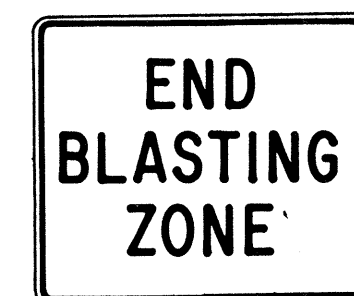
CW21-6 30" x 30"



CW22-1b 48" x 48"



CW22-2 42" x 36"



CW22-3 42" x 36"



CG 20-1(5) 60" x 36"



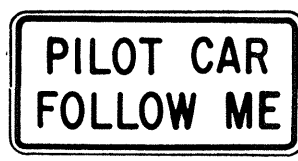
CG 20-2 60" x 24"



CM4-9(R) 30" x 24"



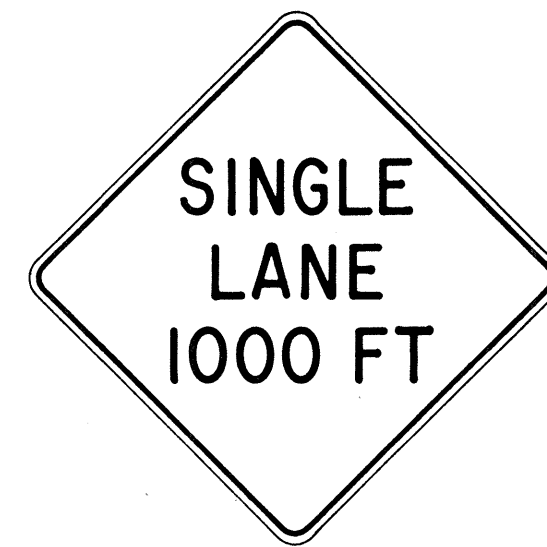
CM4-10(R) 48" x 18"



CG 20-4 36" x 18"



CW23-1 36" x 36"



CW23-2b 48" x 48"



CW23-3(R) 48" x 48"

GENERAL NOTES

- Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs," 1972, and as amended.
- All construction signs shall be reflectorized.
- All construction signs shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in () indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
- For "CW" series signs, suffixes a,b,c and d are as follows:
a-1500 FT, b-1000 FT,
c-500 FT and d-AHEAD.

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 104 Approved 12-30-69	H.T.	3/23/72
2	Revised General Note 1	H.T.	10/16/74
3	Revised General Note 2	M.H.	9-16-75
4	Revised General Note 2 and sign CG20-1(5)	H.T.	9-14-76

APPROVAL RECOMMENDED:
Erich Tanaka
TRAFFIC ENGINEER

3/21/72
DATE

APPROVED:
Walter S. Sisk
ASSISTANT CHIEF, ENGINEERING

3/23/72
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

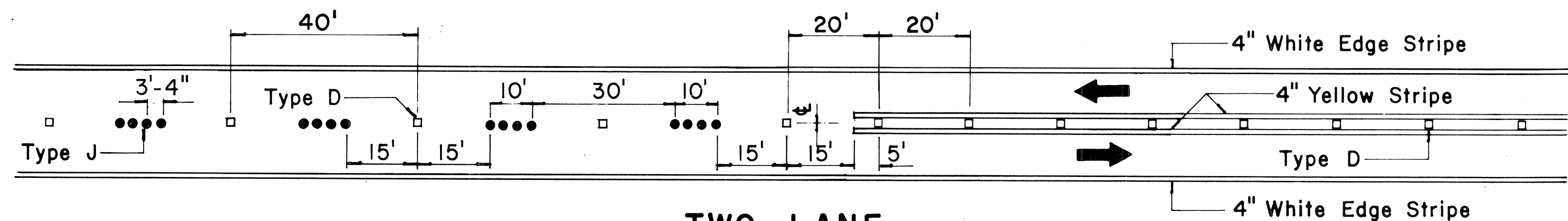
STANDARD DETAILS
CONSTRUCTION SIGNS

NOT TO SCALE

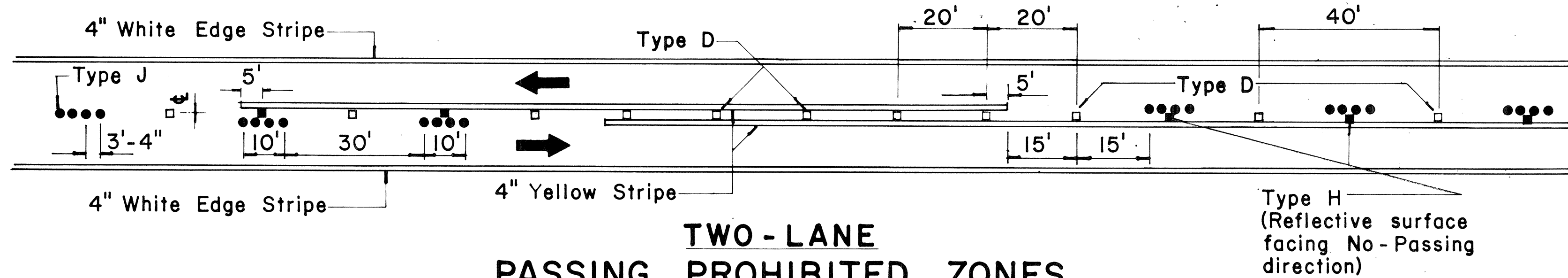
SHEET No. 4 OF 10 SHEETS DT 104

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

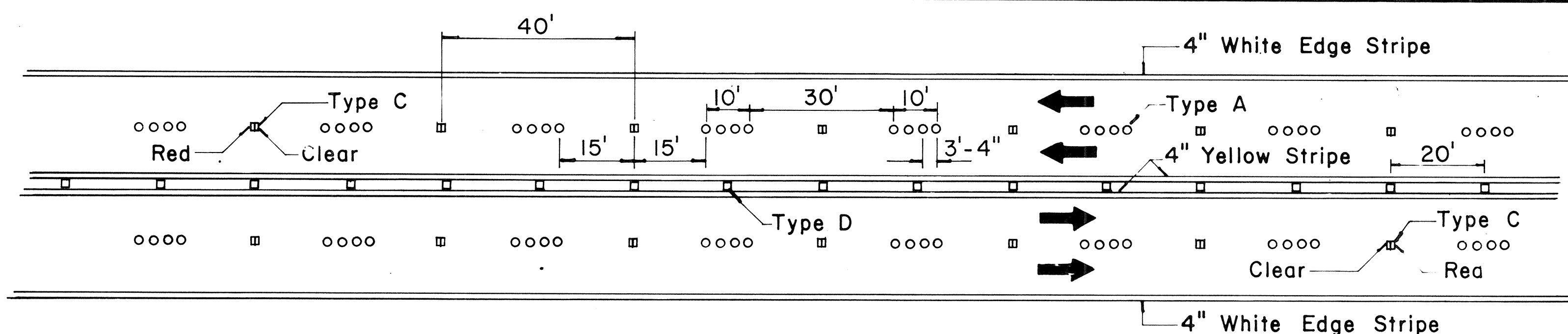
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HHG-056-1(22)	1978	11	18



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

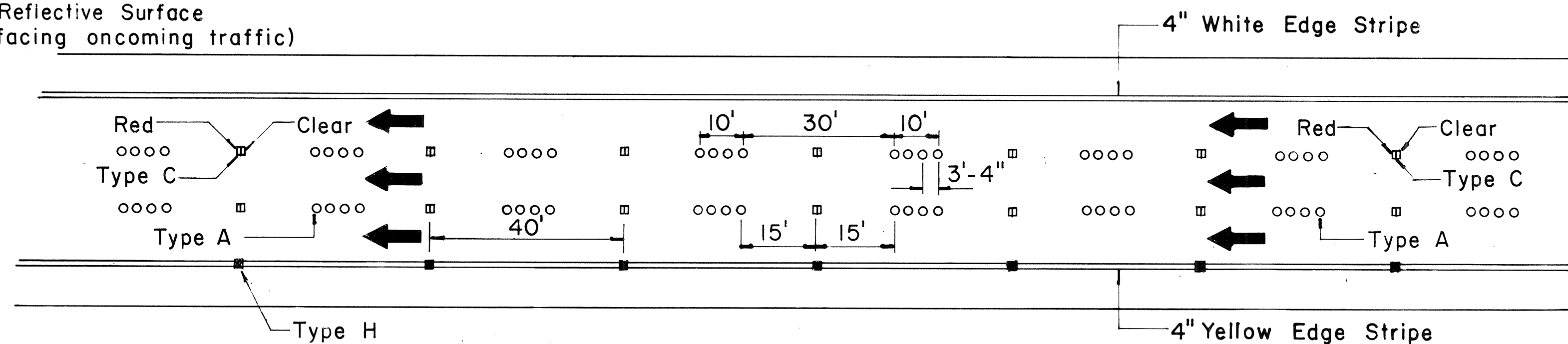


**TWO - LANE
PASSING PROHIBITED ZONES**

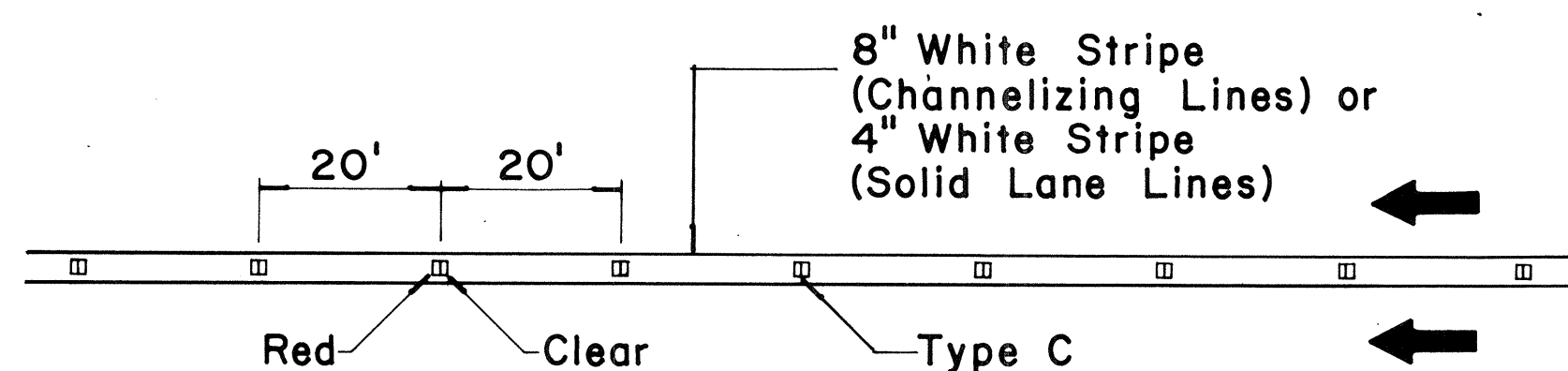


**MULTI - LANE
LANE LINES AND CENTER LINE**

NOTE: Type H
(Reflective Surface
facing oncoming traffic)

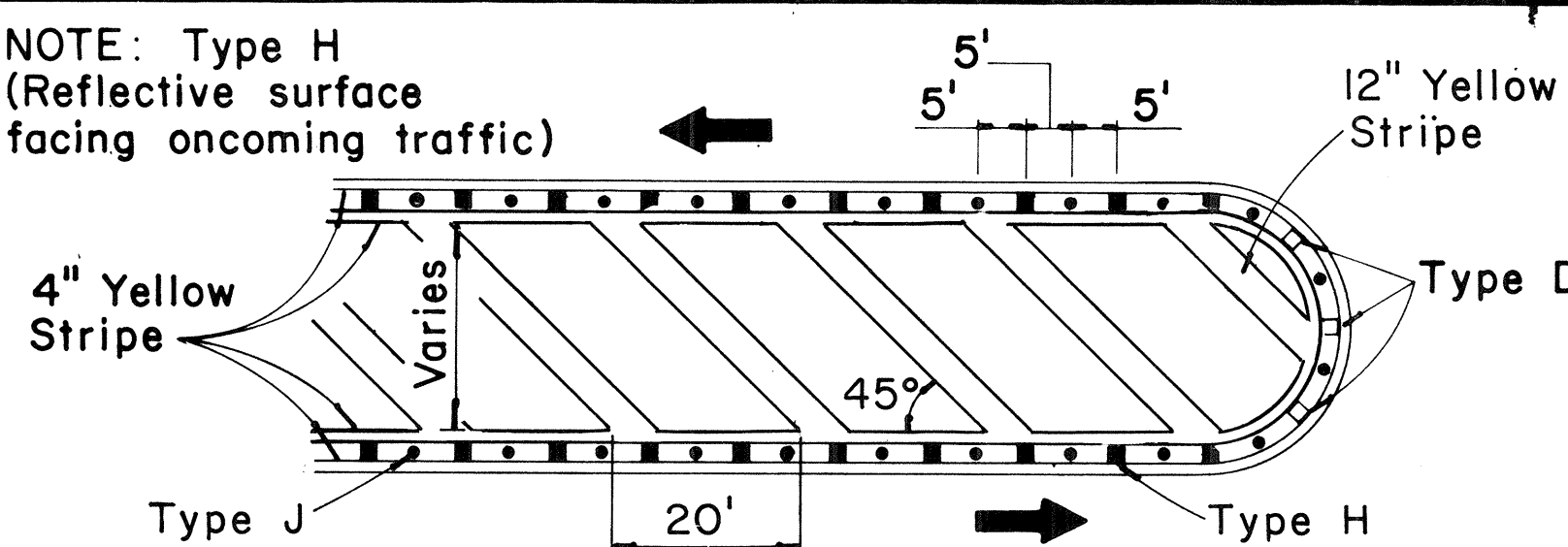


**DIVIDED HIGHWAY
AND
FREEWAY**



**CHANNELIZING LINES
OR SOLID LANE LINES**

NOTE: Type H
(Reflective surface
facing oncoming traffic)

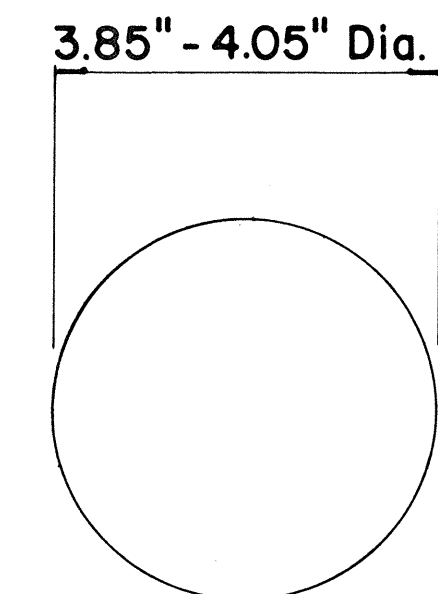


MEDIAN NOSE DELINEATION

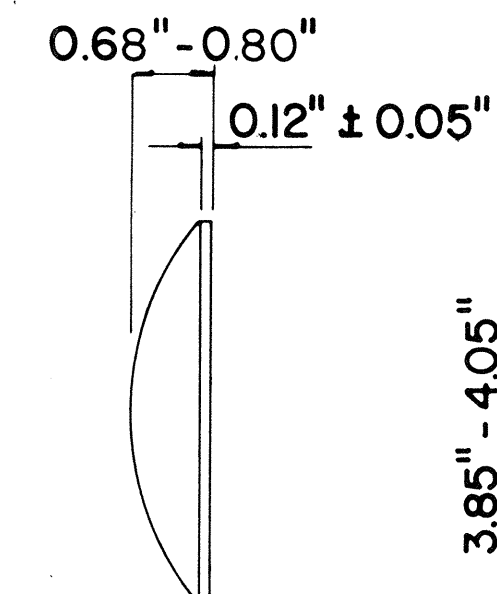
MISCELLANEOUS

TWO - LANE

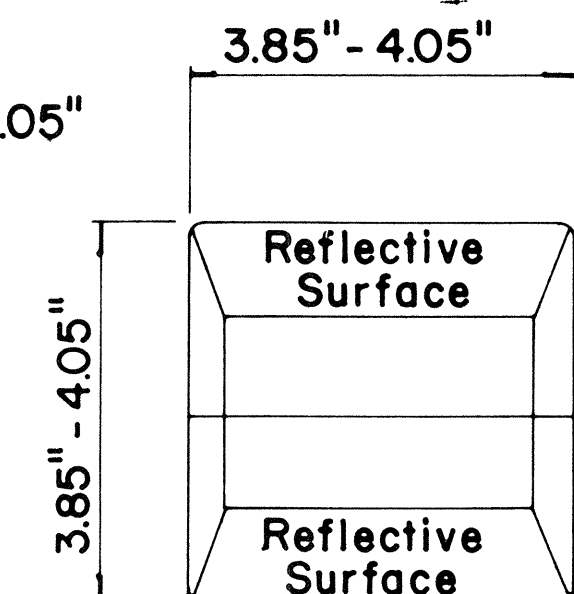
MULTI - LANE



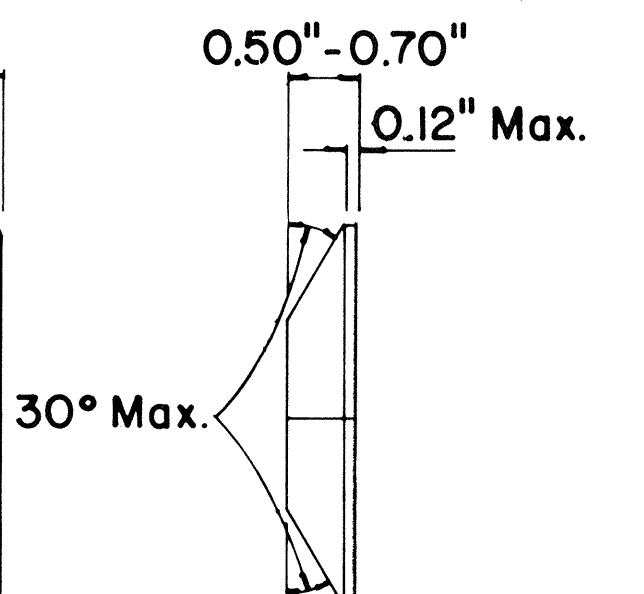
**TYPE A
NON - REFLECTIVE WHITE MARKER**



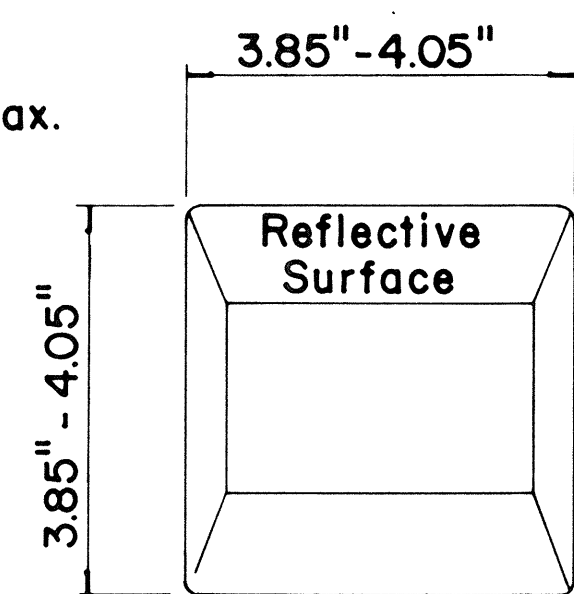
**TYPE C
RED - CLEAR REFLECTIVE MARKER**



**TYPE J
NON - REFLECTIVE YELLOW 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:
E. Ichi Tanaka
TRAFFIC ENGINEER

4/18/71
DATE

APPROVED:
Shirley S. Kato
ASSISTANT CHIEF, ENGINEERING

11/18/71
DATE

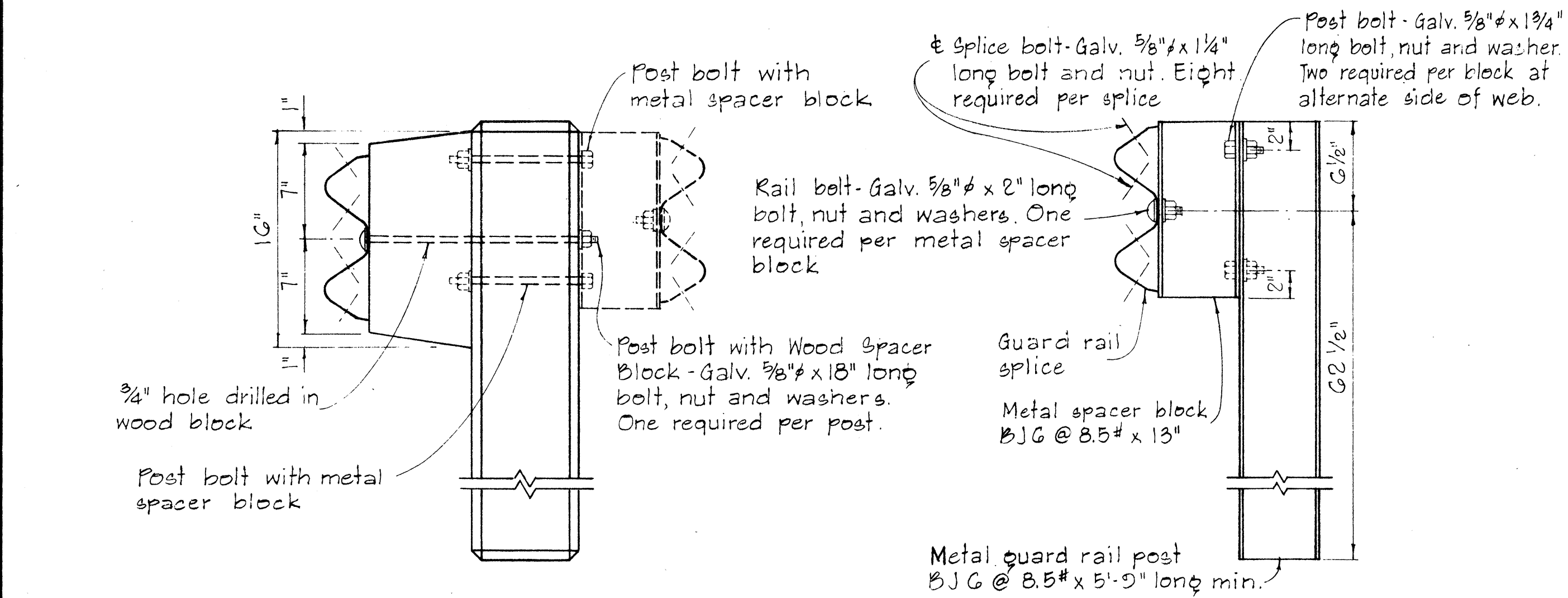
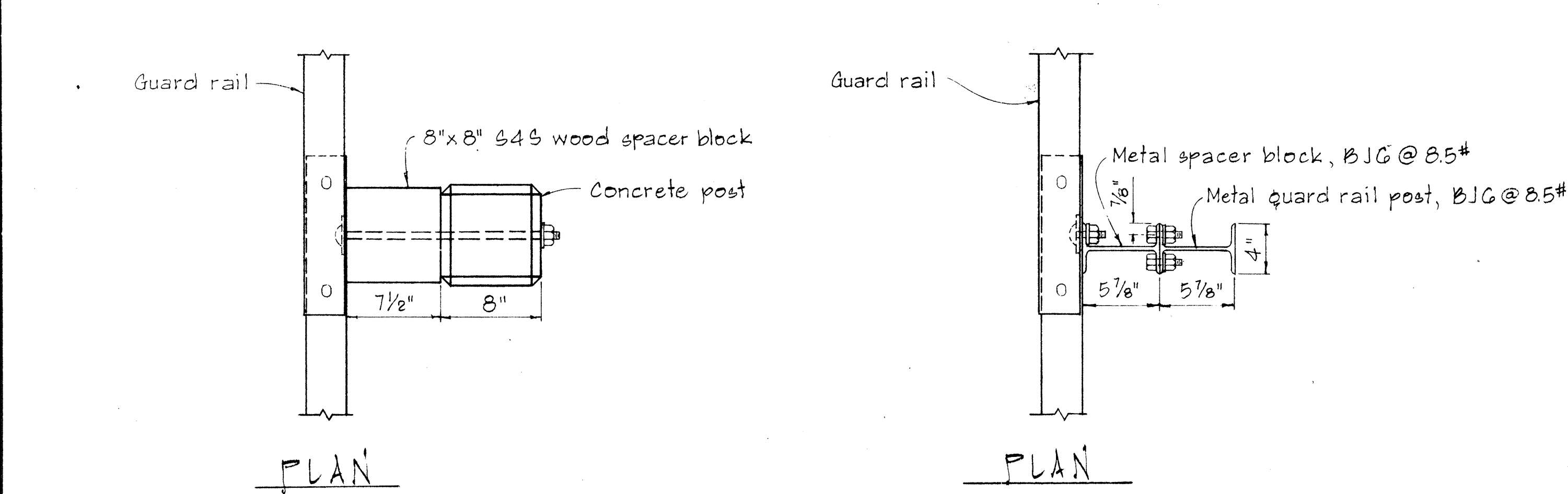
No.	REVISION	APPROVED BY	DATE
1	Add reflector marker in each line gap.	H.C.	10-21-72
2	Revised General Notes.	H.C.	10-21-72
3	Change 4" white edge stripe to 4" solid yellow edge stripe to left edge of a travel path and Add Type H Reflector Marker.	H.C.	5-22-74
4	Revised details, General Notes & Title Box.	H.C.	7-13-77
5	Revised dimensions on Type A & J Markers	H.C.	4-18-78

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS RAISED PAVEMENT MARKERS AND STRIPING

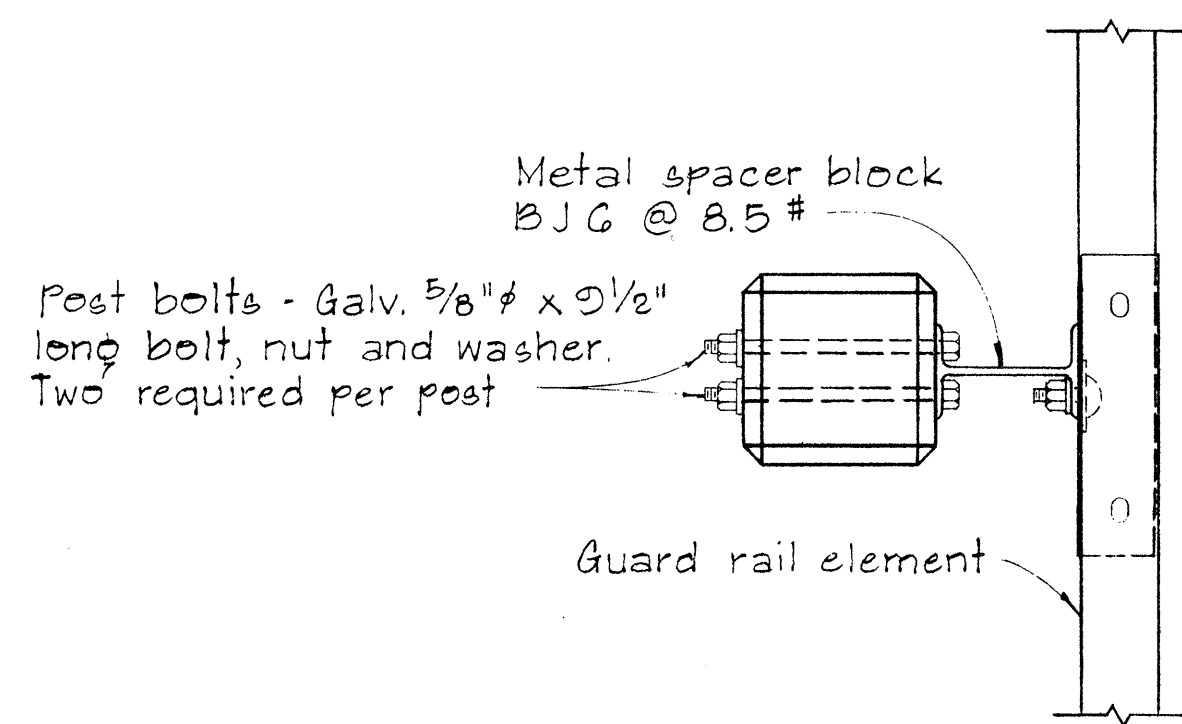
Not to Scale
October 1971
SHEET No. 5 OF 10 SHEETS DT 300

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HH5-056-1(22)	1978	12	18



SINGLE METAL GUARD RAIL ON METAL POST
WITH METAL SPACER BLOCK

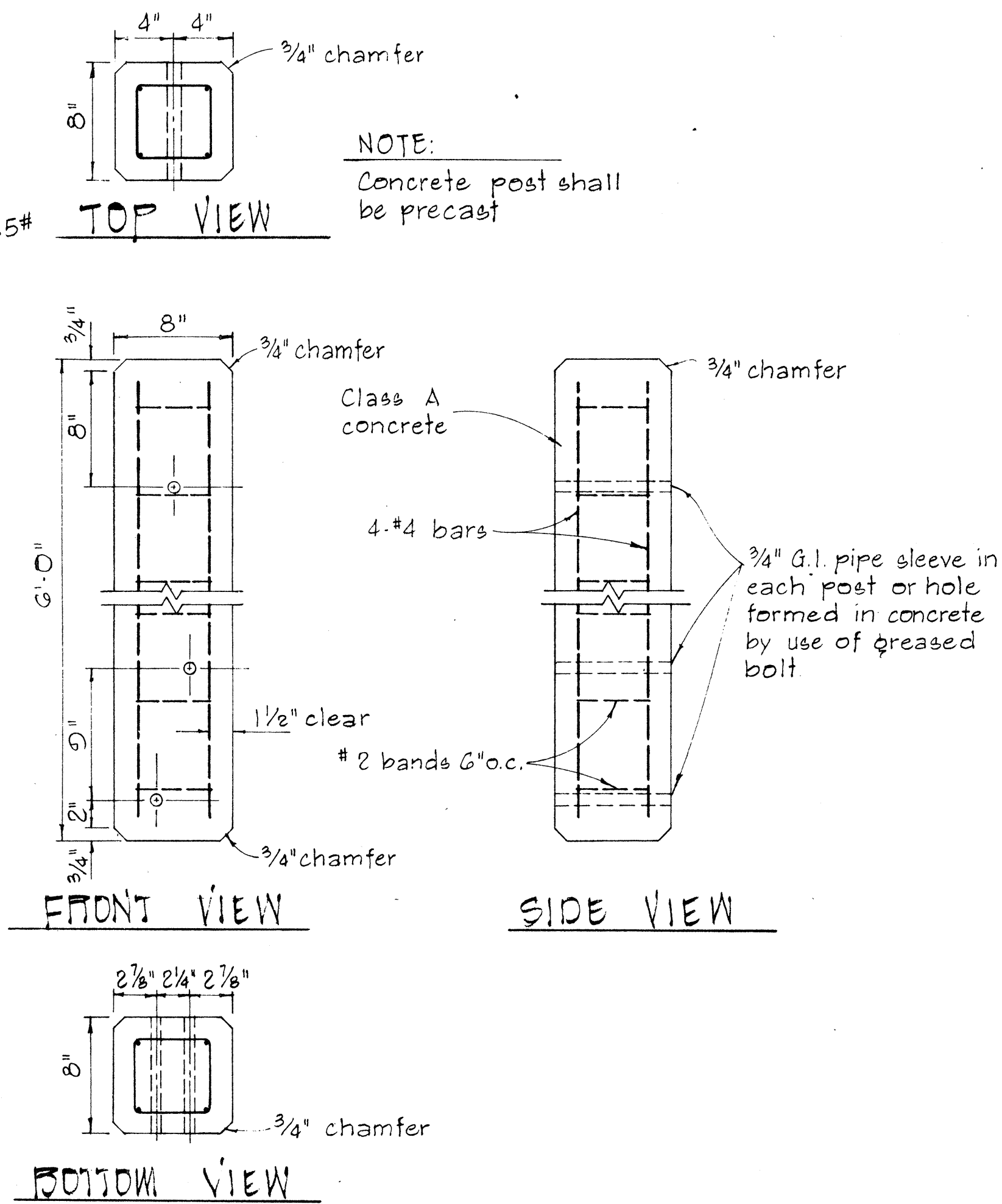
SCALE: 1 1/2" = 1'-0"



PLAN

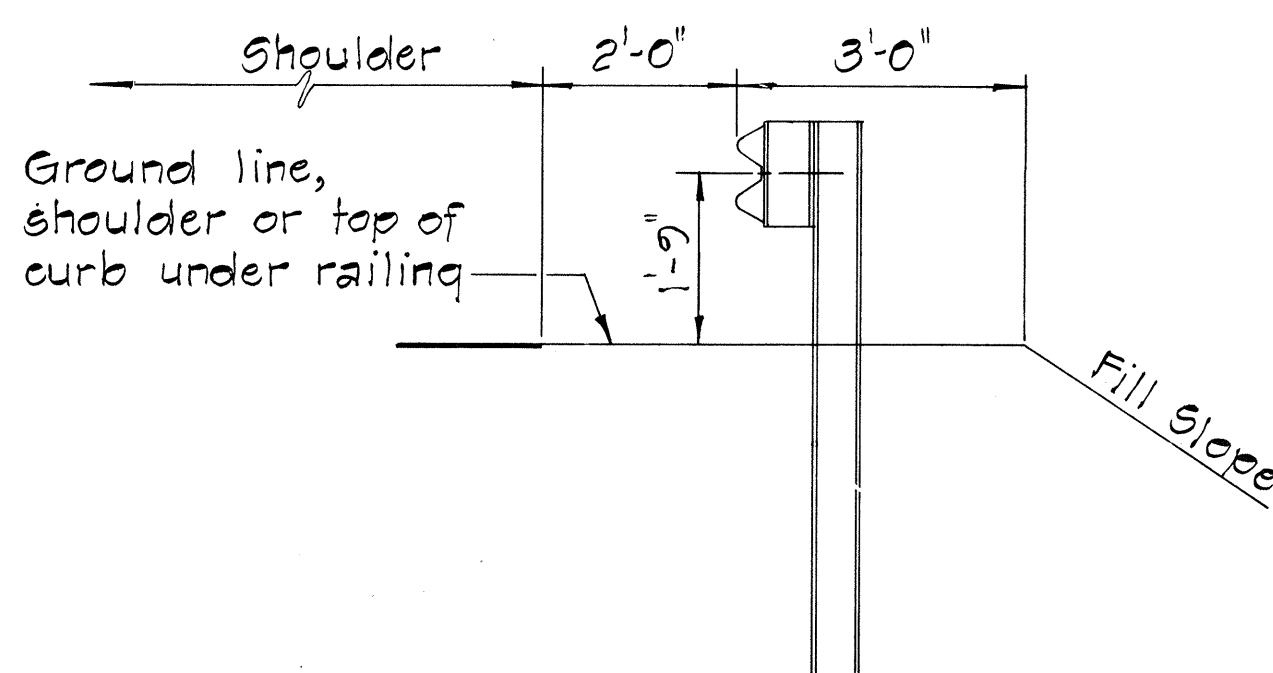
SINGLE METAL GUARD RAIL ON PRECAST
CONCRETE POST WITH WOOD OR METAL SPACER BLOCK

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



DETAIL OF CONCRETE POST

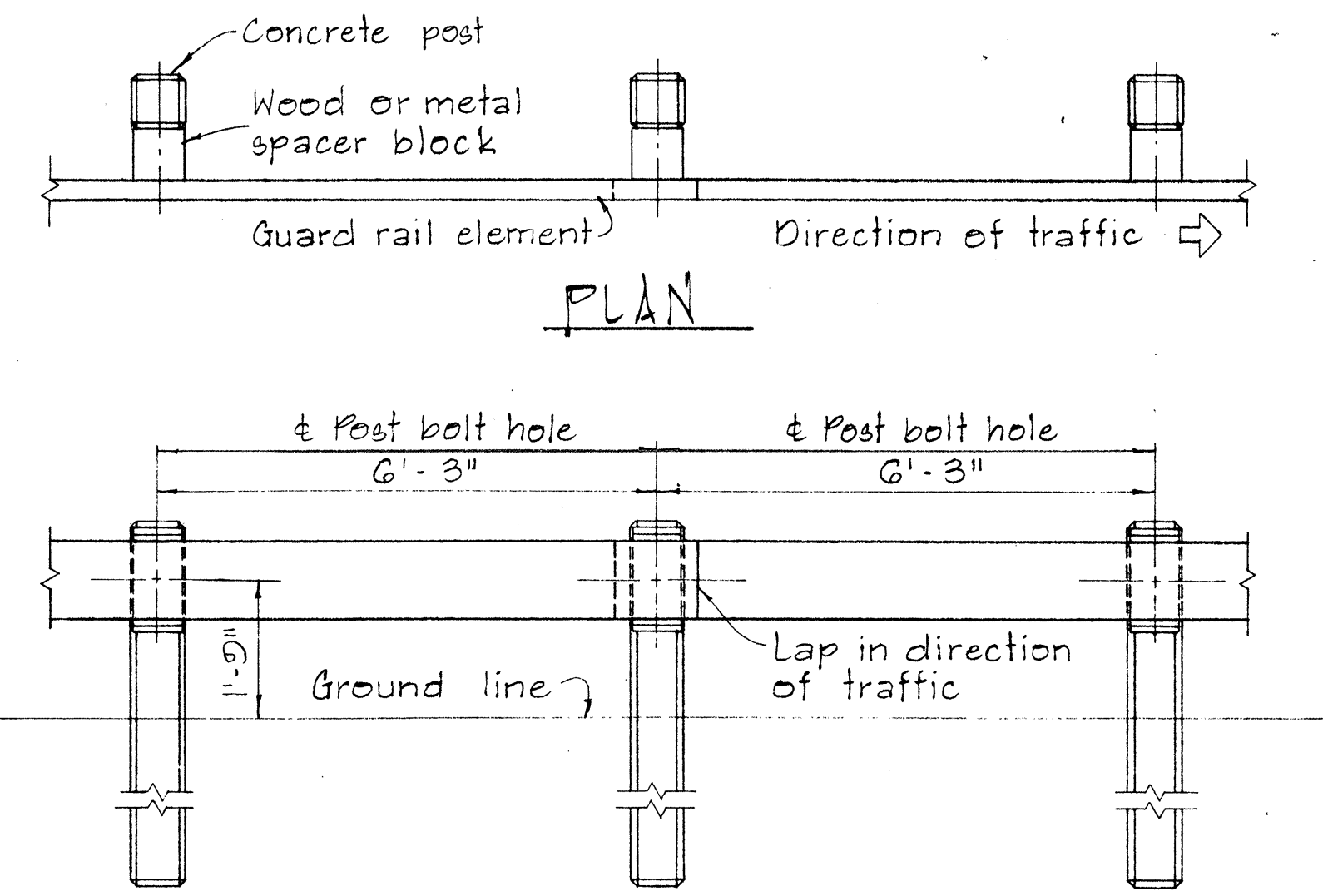
SCALE: 1 1/2" = 1'-0"



AT SHOULDER SECTION

TYPICAL METAL GUARD
RAIL DETAIL

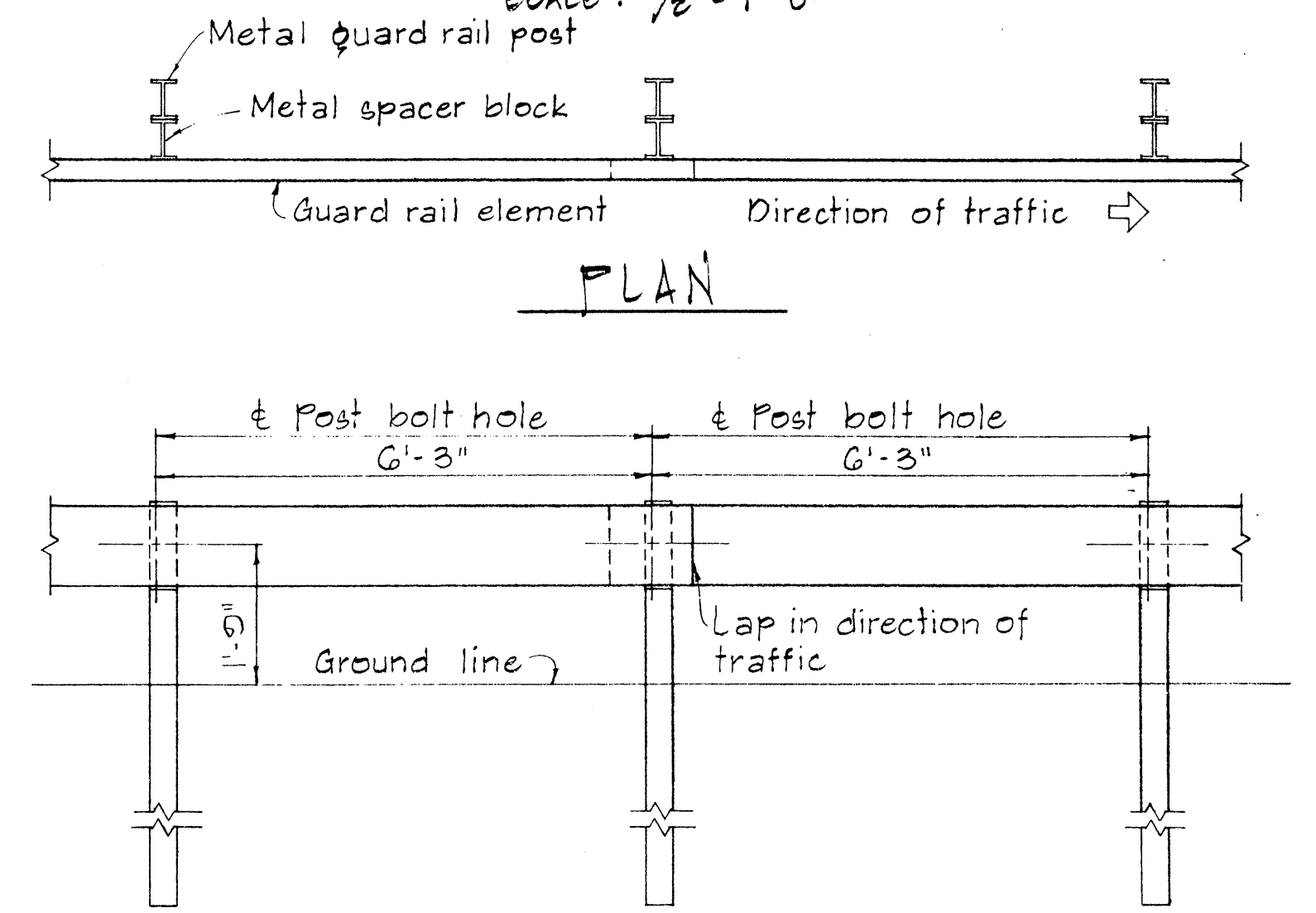
SCALE: 1/2" = 1'-0"



ELEVATION

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

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



ELEVATION

METAL GUARD RAIL ON METAL POST
WITH METAL SPACER BLOCK

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

NO.	REVISION	APPROVED BY	DATE

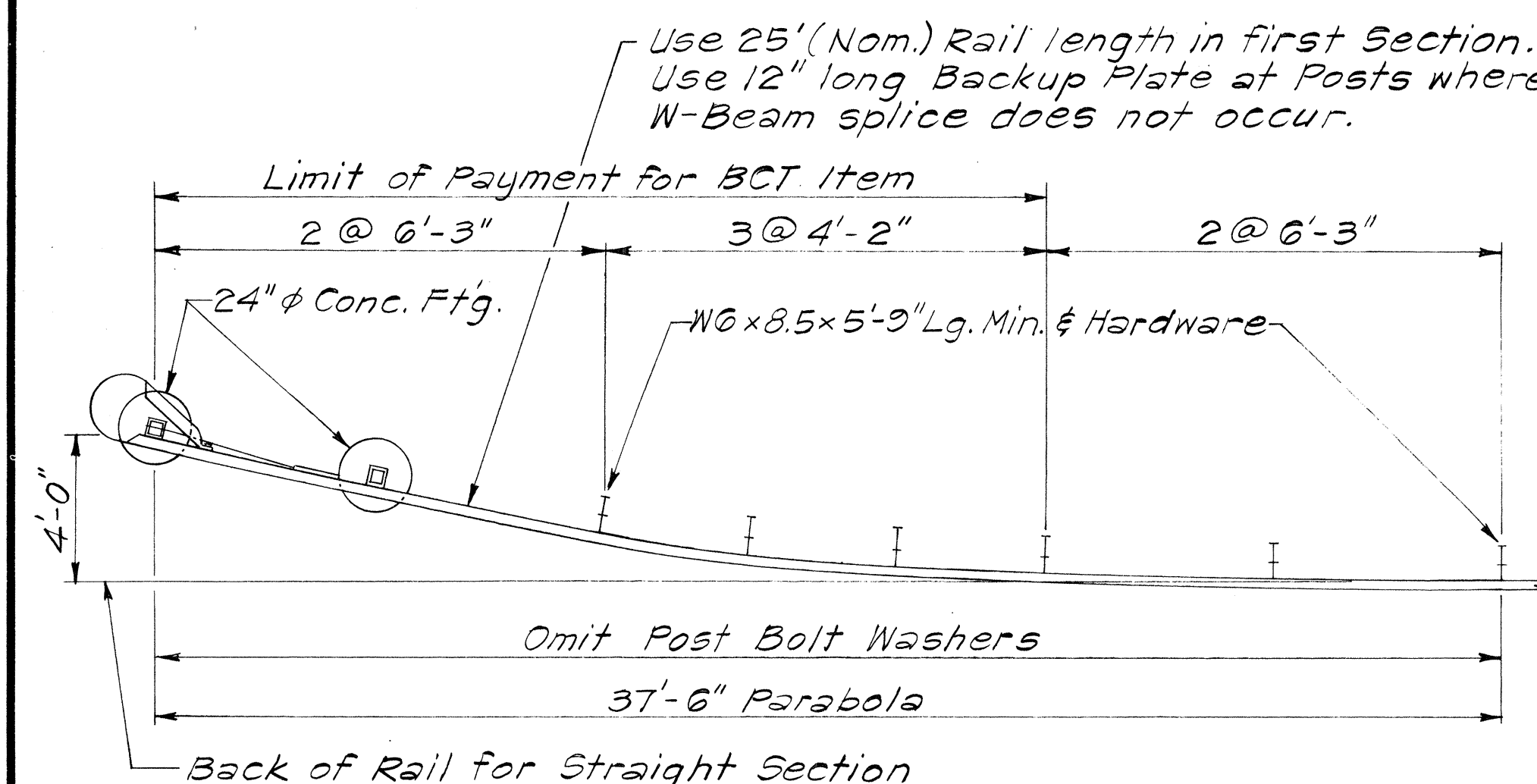
APPROVAL RECOMMENDED:
Erick Tanaka
TRAFFIC ENGINEER
12/29/69
DATE

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

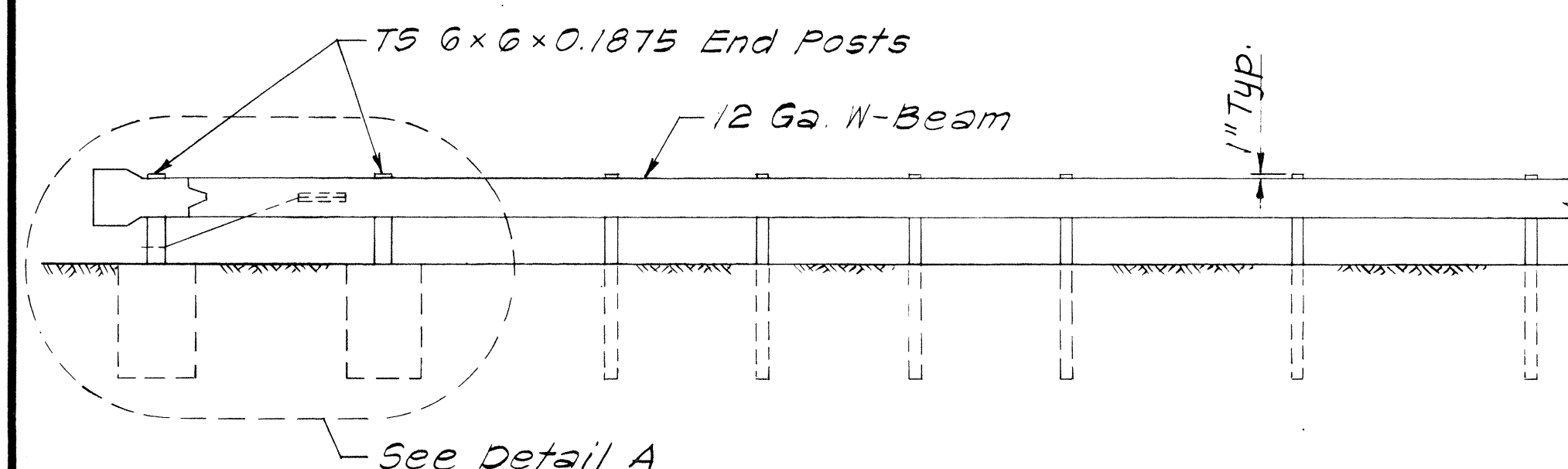
STANDARD DETAILS
METAL GUARD RAIL
SCALE: AS SHOWN
NOV. 1968

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HHS-056-1(22)	1978	14	18



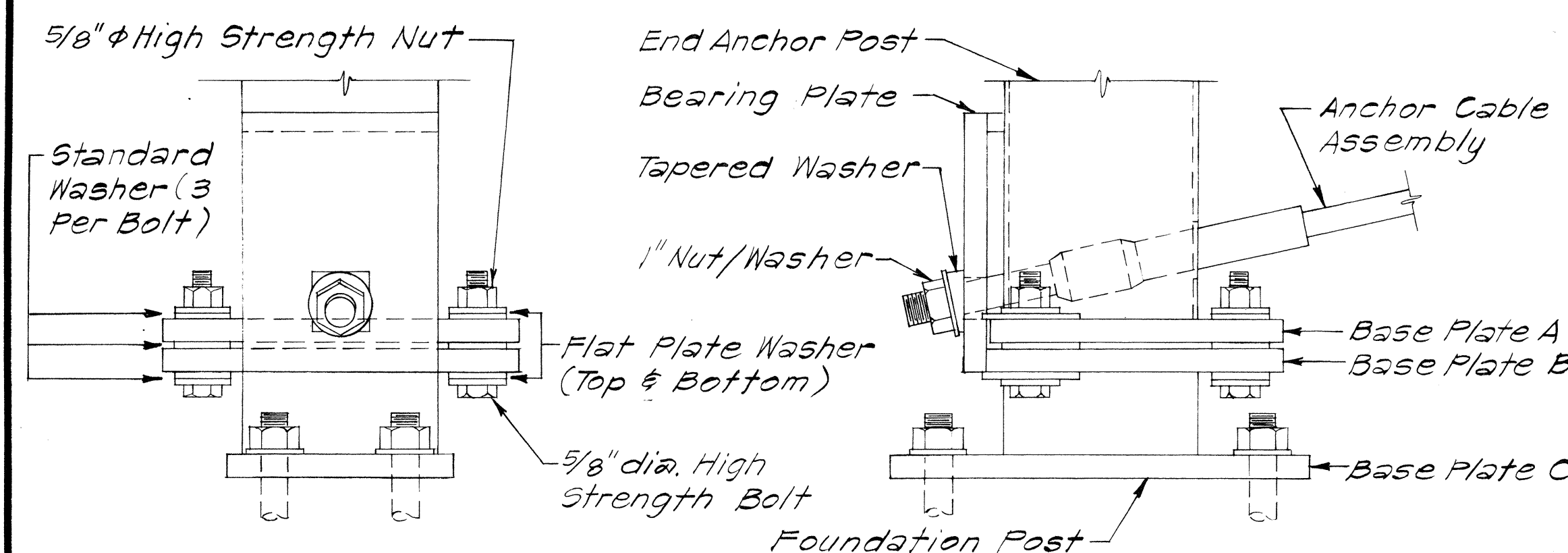
PLAN

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



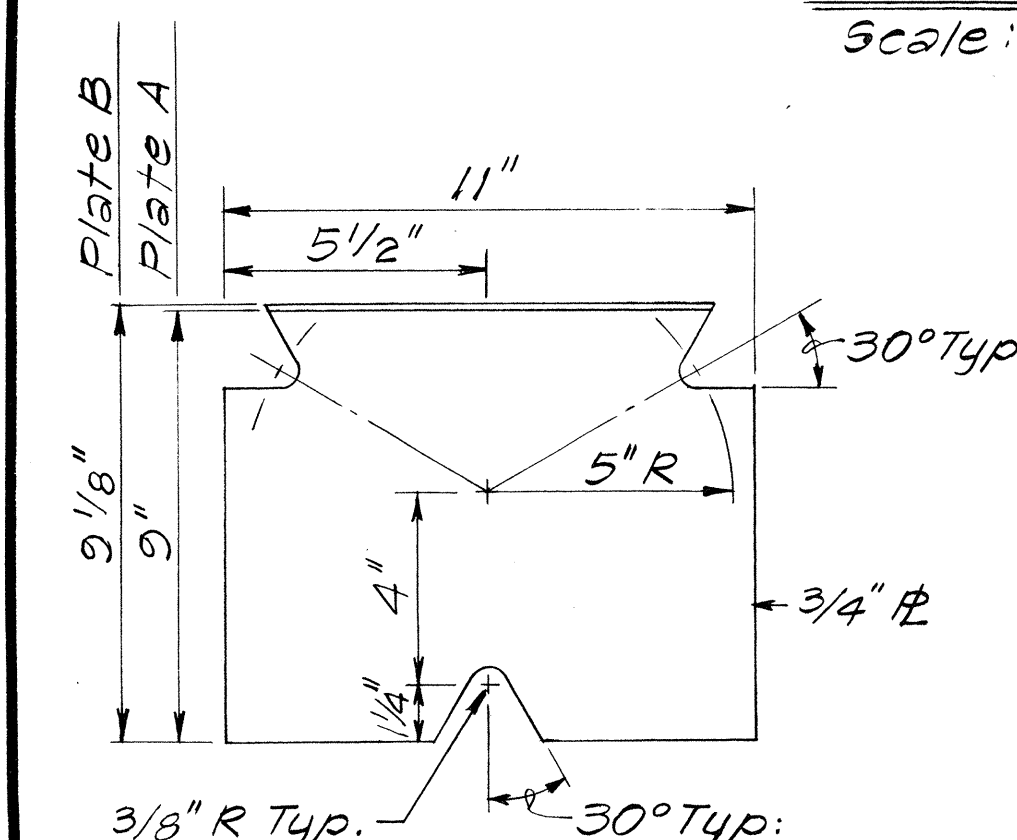
ELEVATION

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



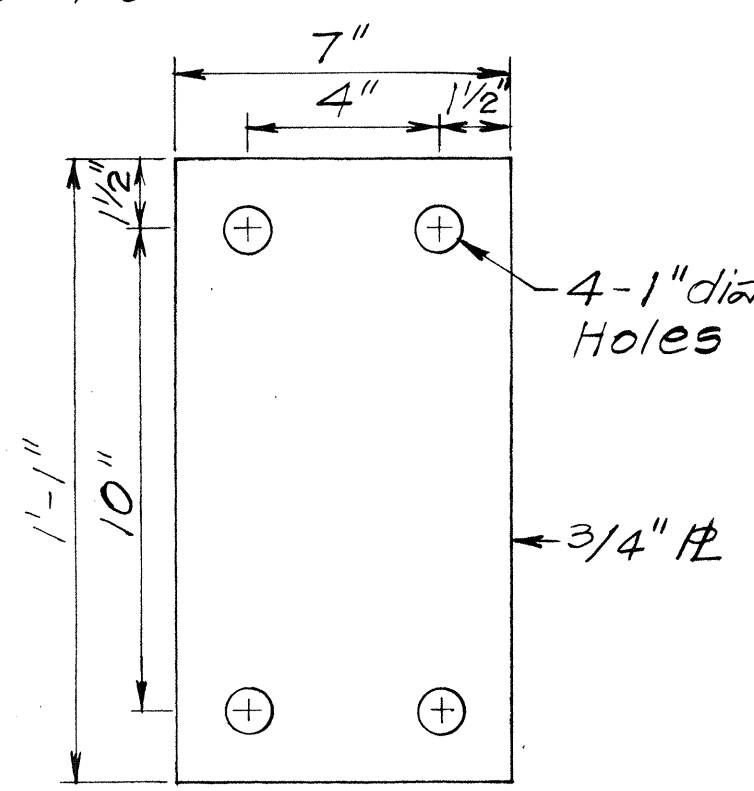
DETAIL B

Scale: 3" = 1'-0"



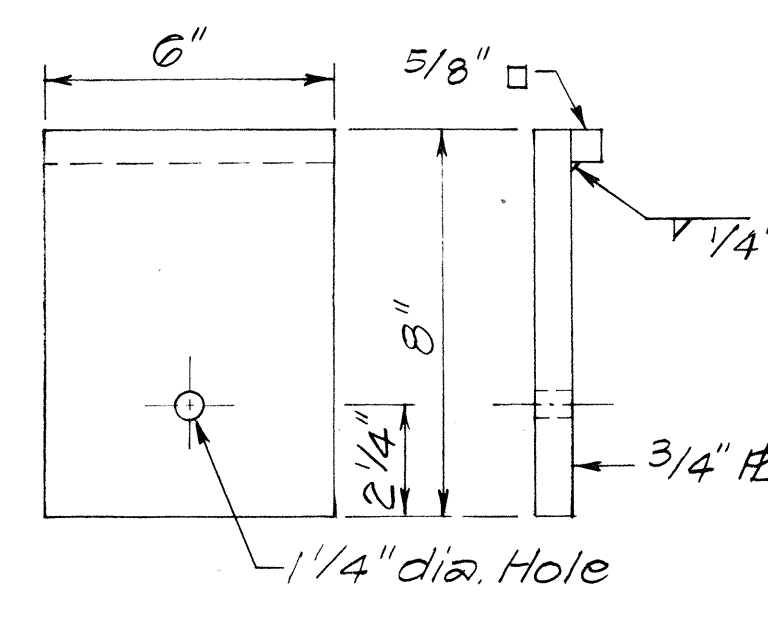
BASE PLATES A & B

Scale: 3" = 1'-0"



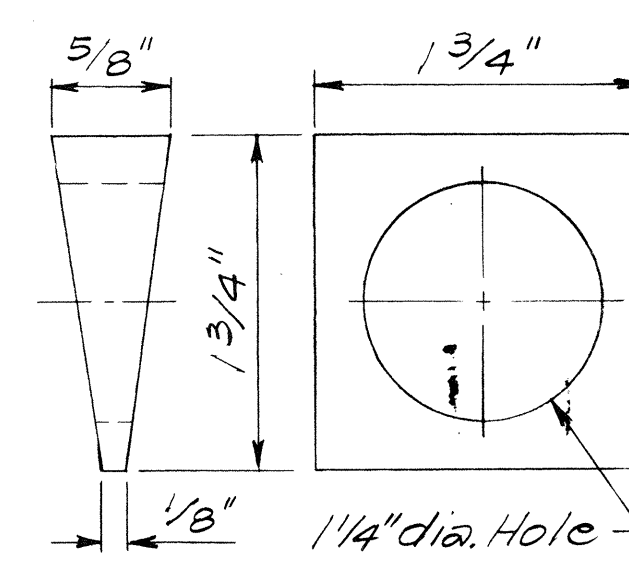
BASE PLATE C

Scale: 3" = 1'-0"



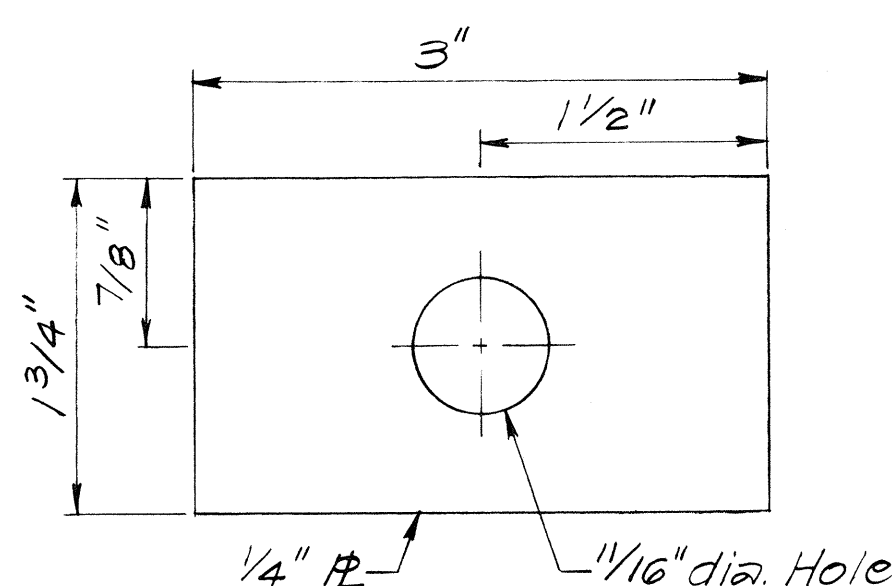
BEARING PLATE

Scale: 3" = 1'-0"



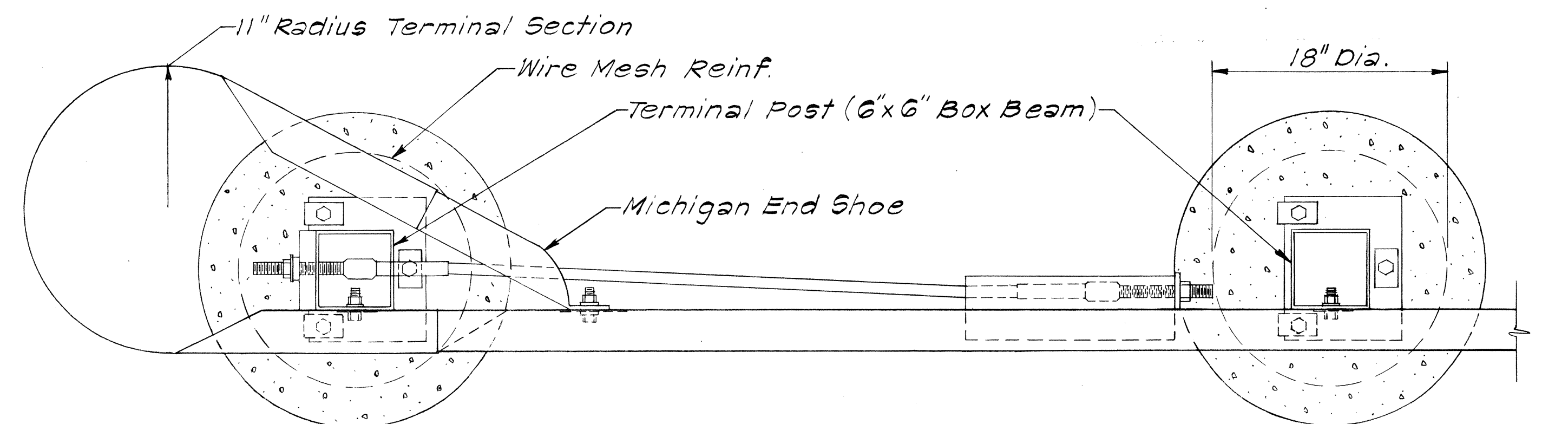
TAPERED WASHER

Scale: Full Size

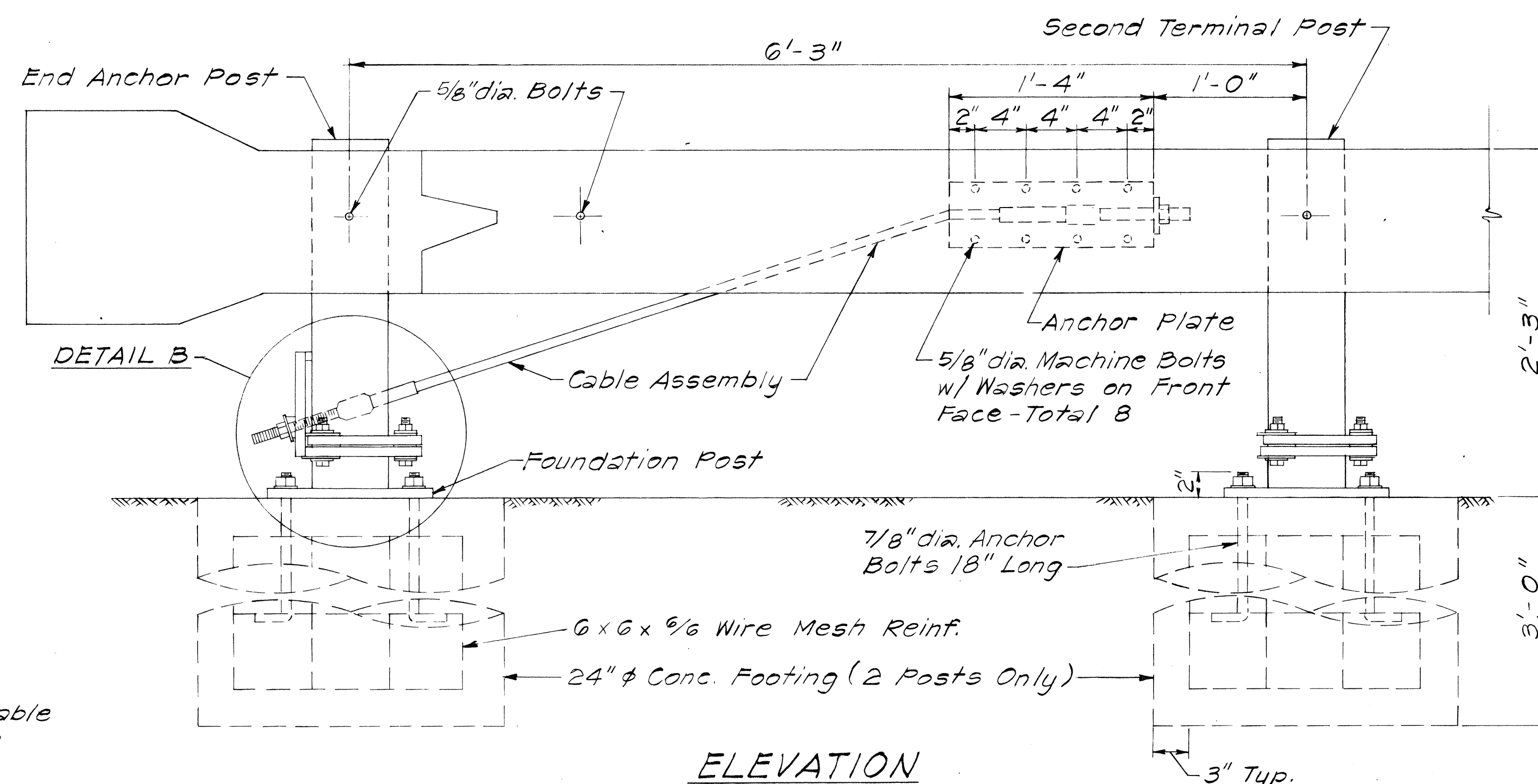


FLAT PLATE WASHER

Scale: Full Size



PLAN

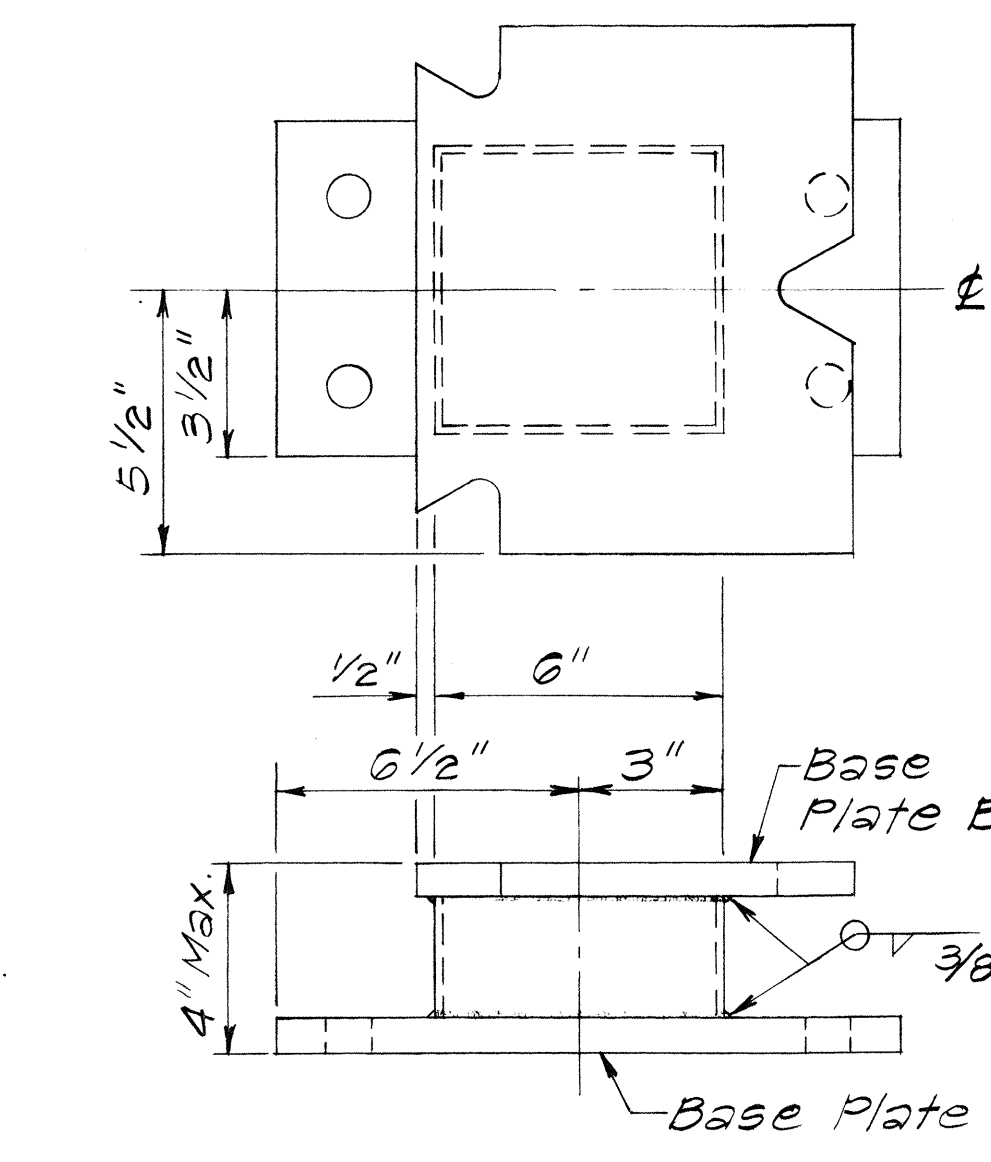


ELEVATION

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

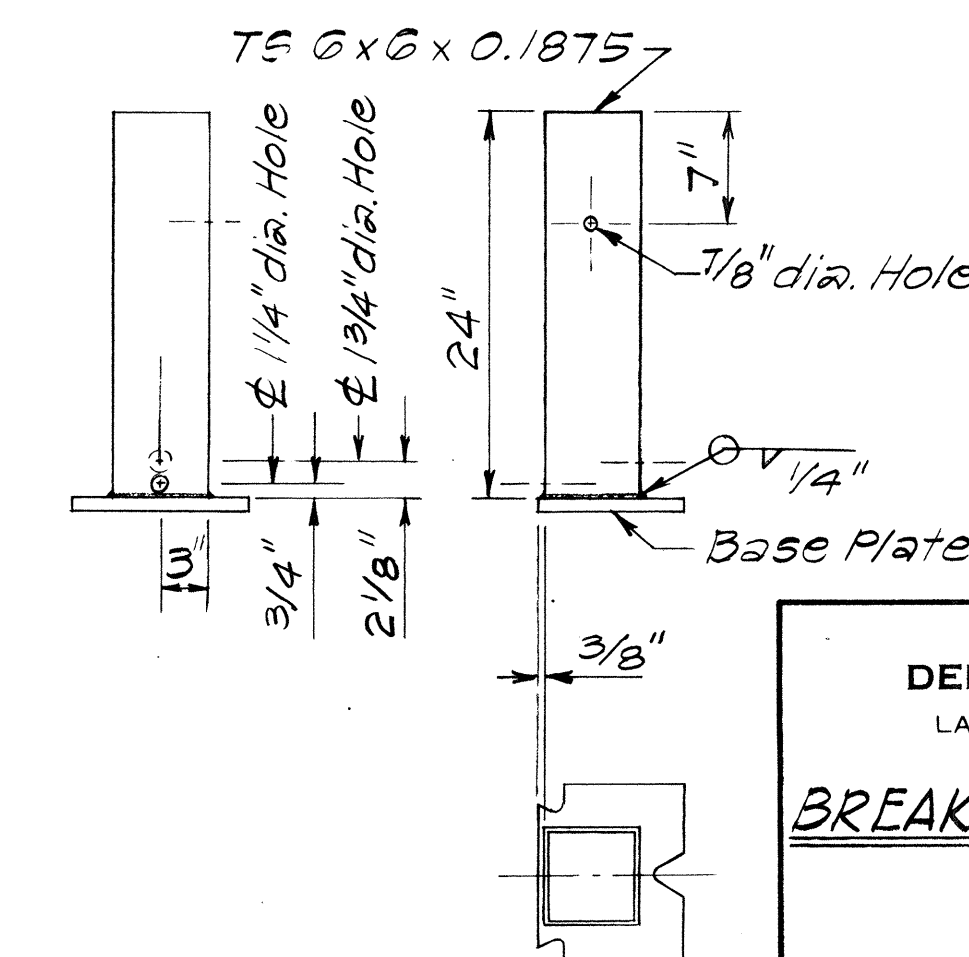
DETAIL A

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



FOUNDATION POST

Scale: 3" = 1'-0"



TERMINAL POST

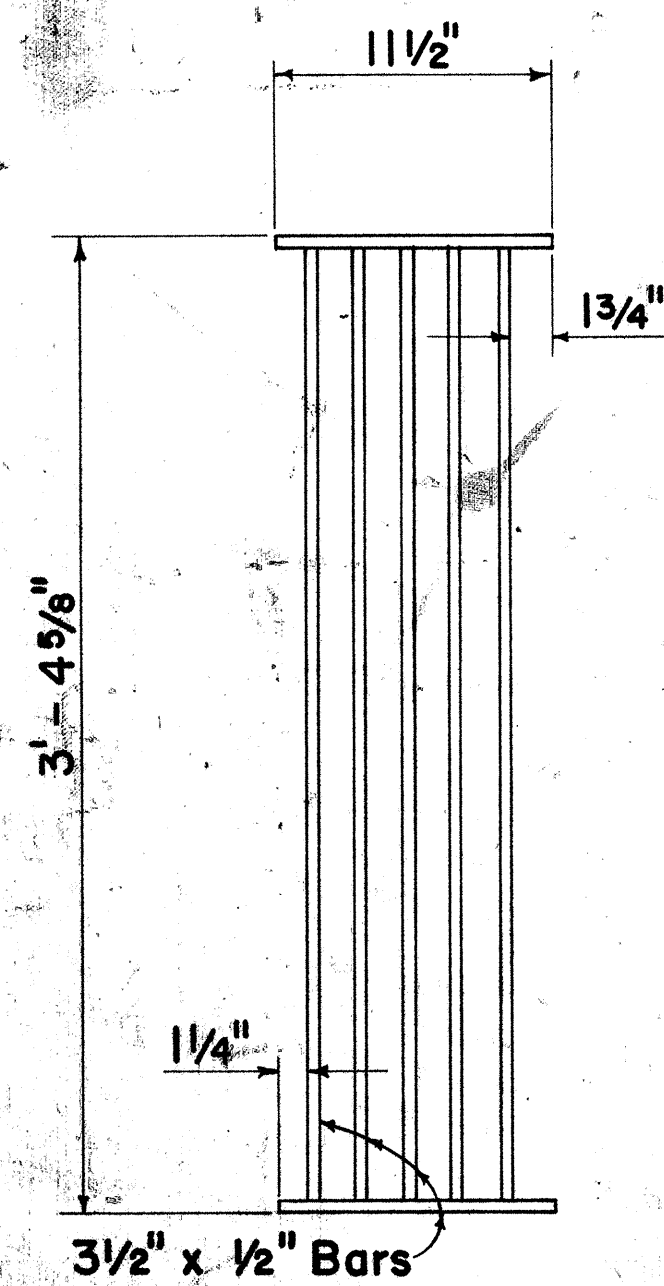
Scale: 1" = 1'-0"

NOTES:

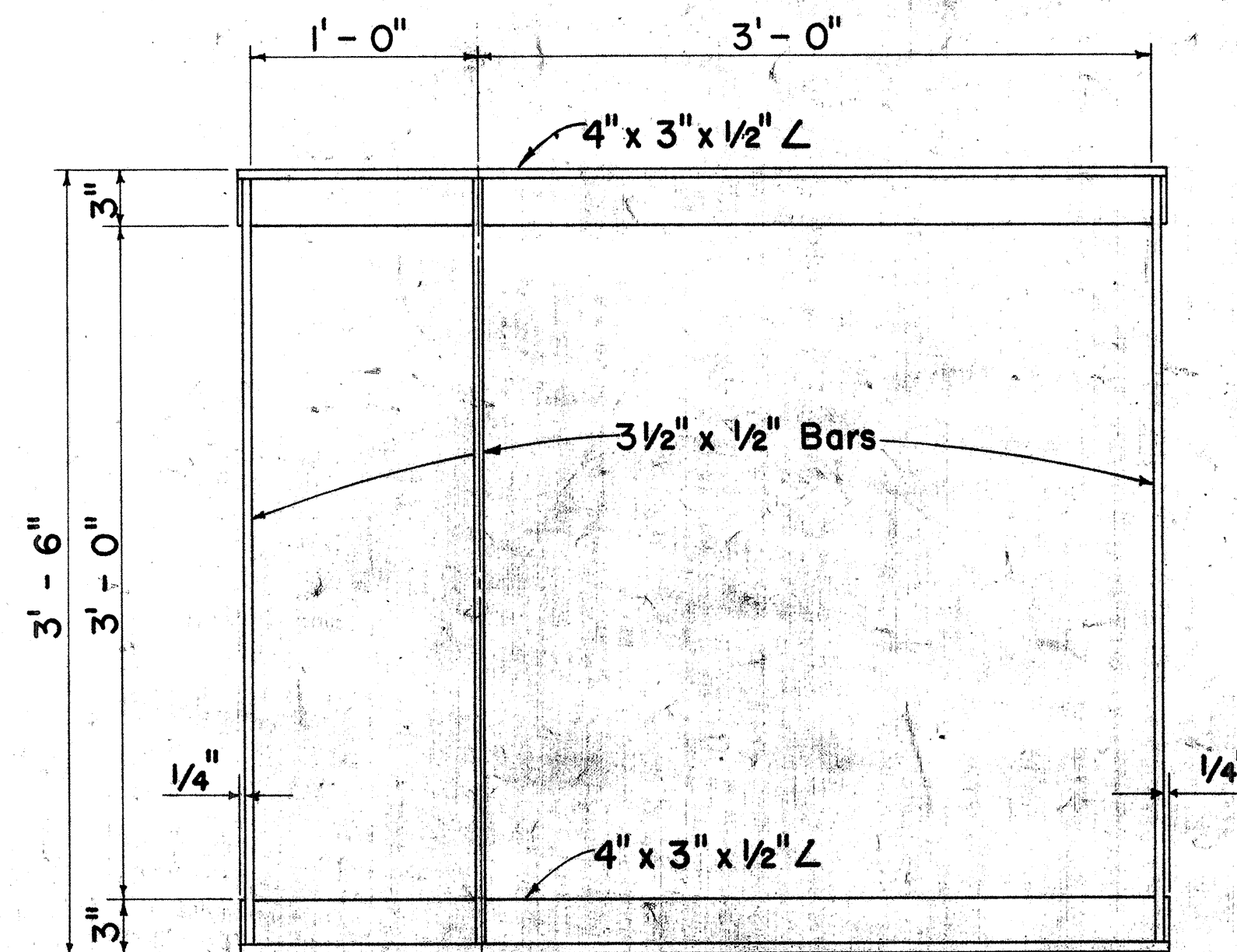
1. Anchor Plate and Anchor Cable Assembly (Standard Swaged Fitting and Stud). See Standard Detail Sheet No. DT 520.
2. Other Anchor Cable Assemblies may be used. Minimum breaking strength of Assembly should be 40,000 lbs.
3. Second Terminal Post does not require holes to accommodate Anchor Cable.
4. Slip Base Load shall be controlled with a Calibrated Torque Wrench - Torque 155-170 ft.-lbs.
5. Concrete Footing Class A.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION LAND TRANSPORTATION FACILITIES DIVISION	
BREAKAWAY CABLE TERMINAL (BCT)	
Scale: As Shown	Date:
SHEET No. 8 OF 10 SHEETS	

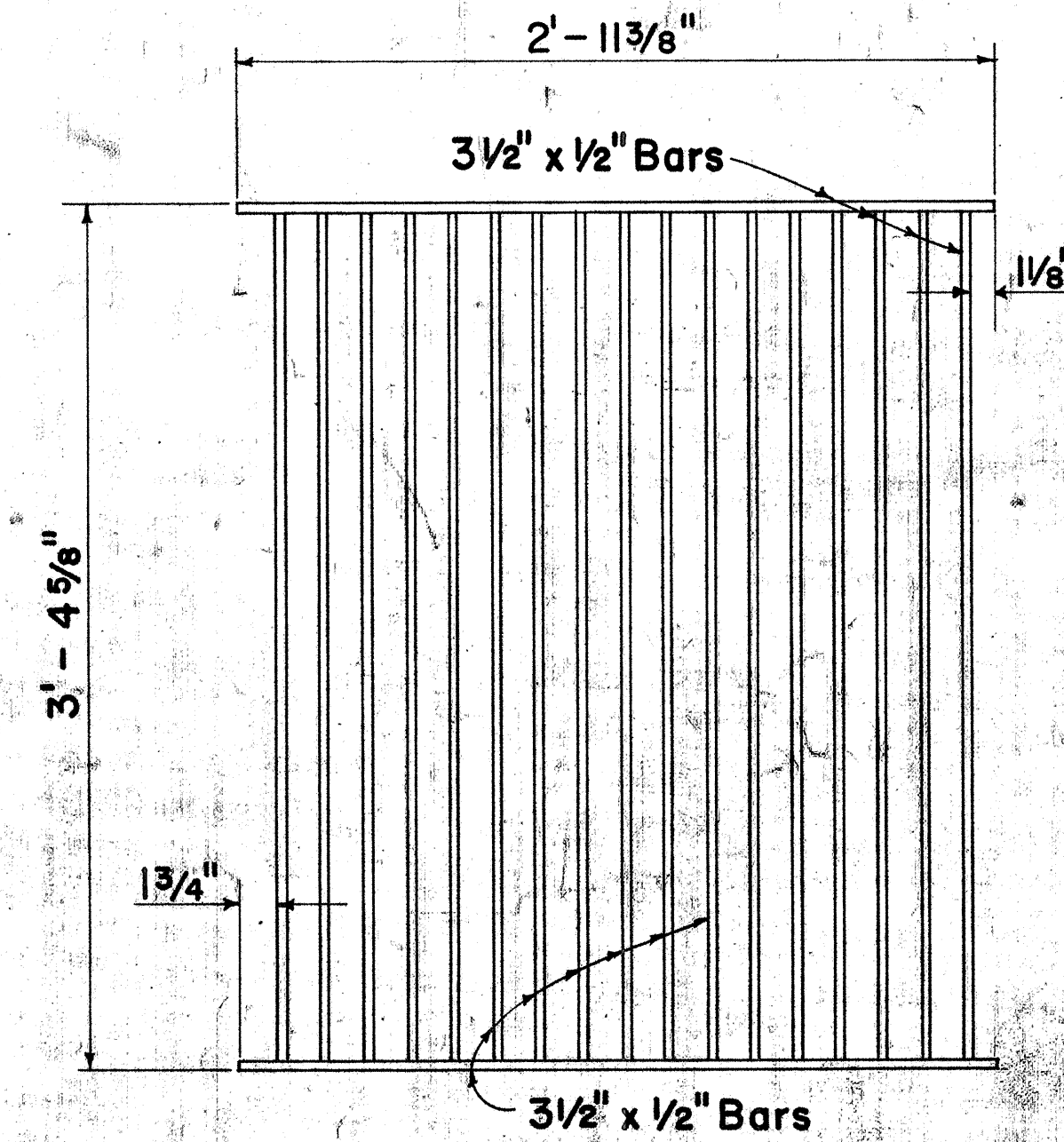
1. Grates and Frames shall be hot dip galvanized after fabrication, see specifications.
2. All welds $\frac{3}{8}$ " unless otherwise noted.
3. The Frame & Grate materials shall conform to the specifications of ASTM Designation Structural Steel A283, Grade D and the Standard Specifications.
4. Culvert shall leave Drop Intake from any position and any direction indicated by plans or ordered by the Engineer. Culverts may both enter and leave Drop Intake so that Drop Intake will act as manhole.
5. Manhole Rungs (12" o.c.) are required when "H" is greater than 4 feet 6 inches. Only one rung (16 inches from the bottom) is required if "H" is 4 feet 6 inches or less. The Manhole Rungs may be placed at any location as ordered by the Engineer.



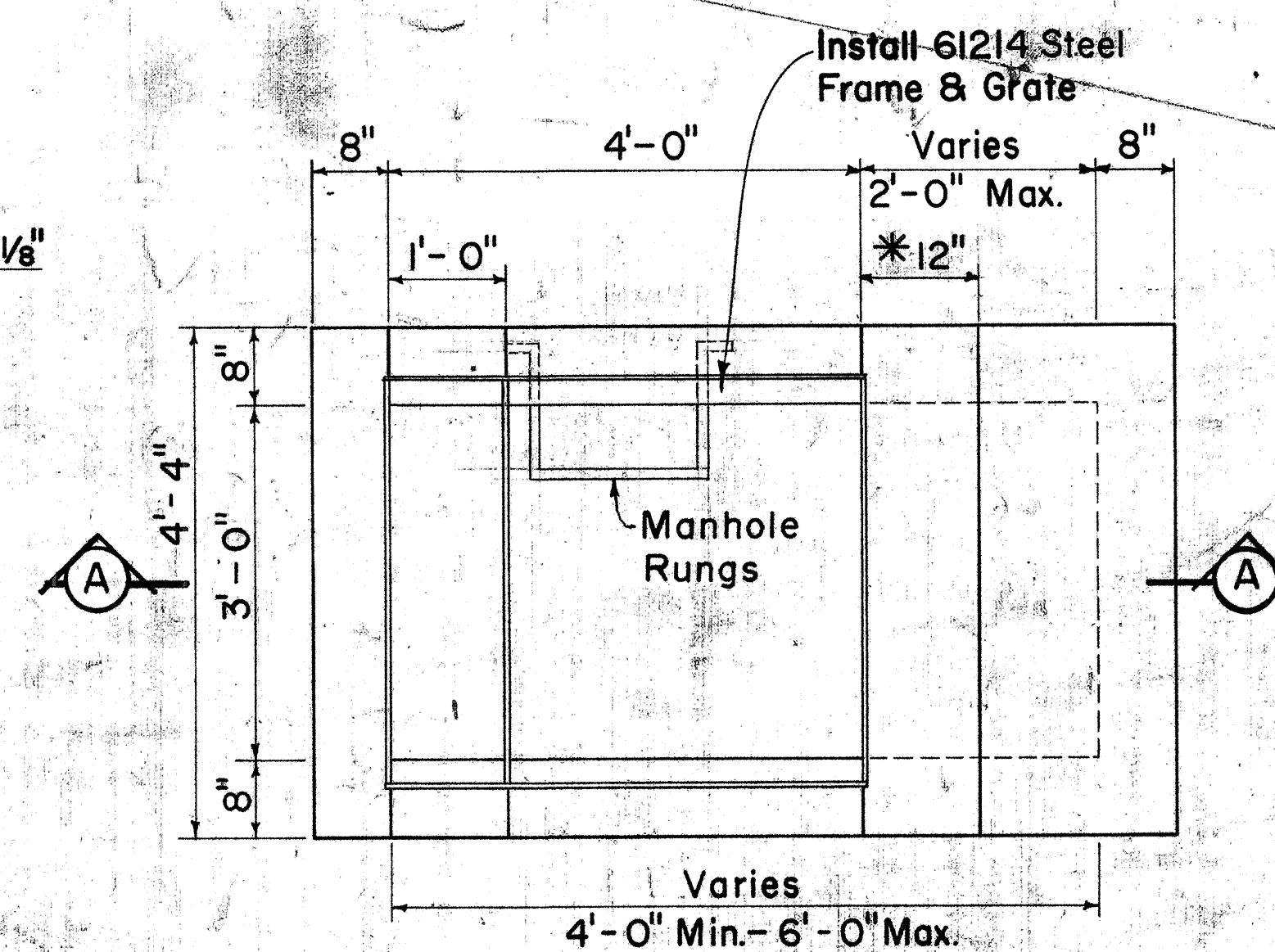
PLAN
Scale: $1\frac{1}{2}'' = 1' - 0''$



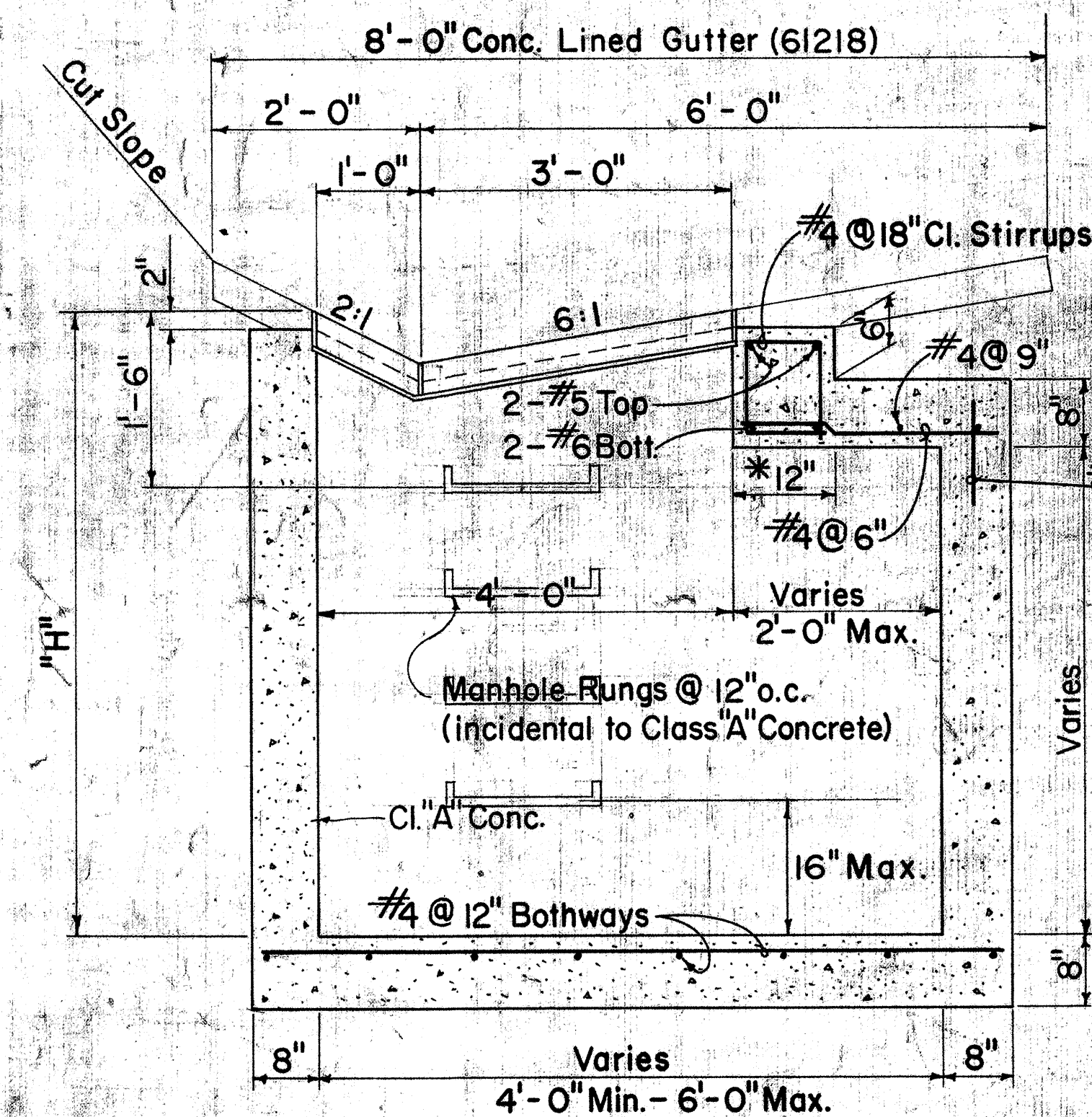
PLAN
Scale: $1\frac{1}{2}'' = 1' - 0''$



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



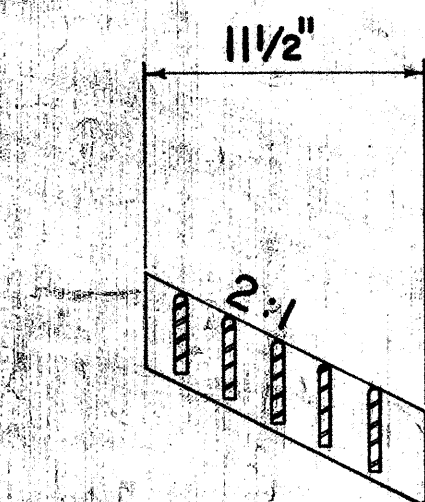
PLAN



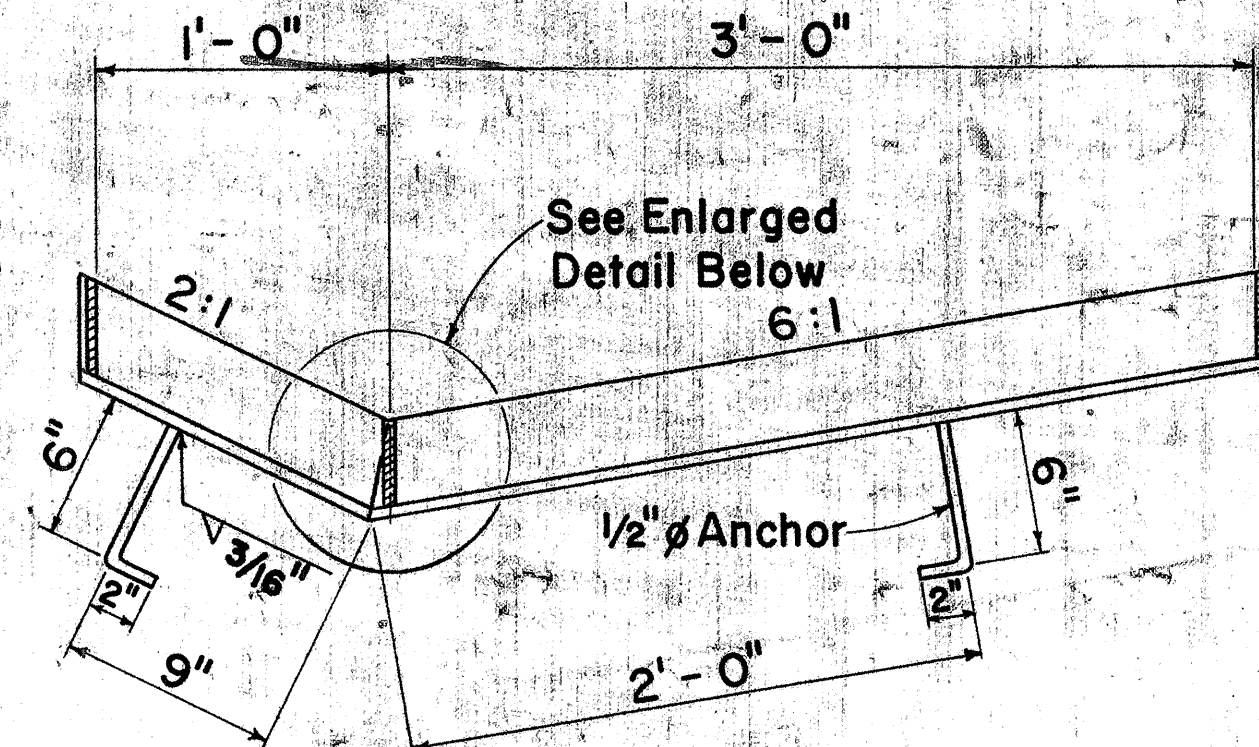
SECTION A - A

DETAIL OF 6/2/4 DROP INTAKE

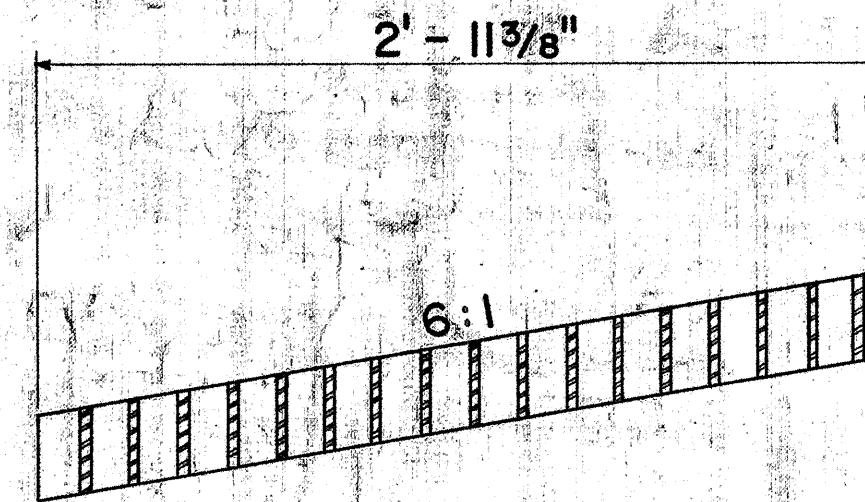
* For Minimum size box of 4'-0" only, use 8" and eliminate reinforcing steel shown in top portion.



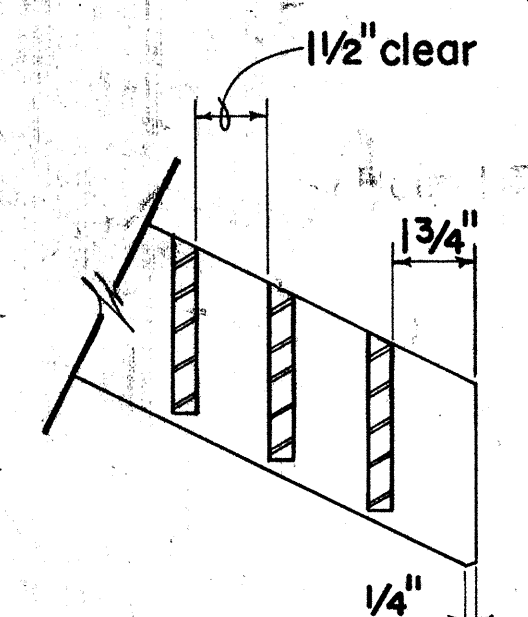
SECTION
Scale: $1\frac{1}{2}" = 1' - 0"$



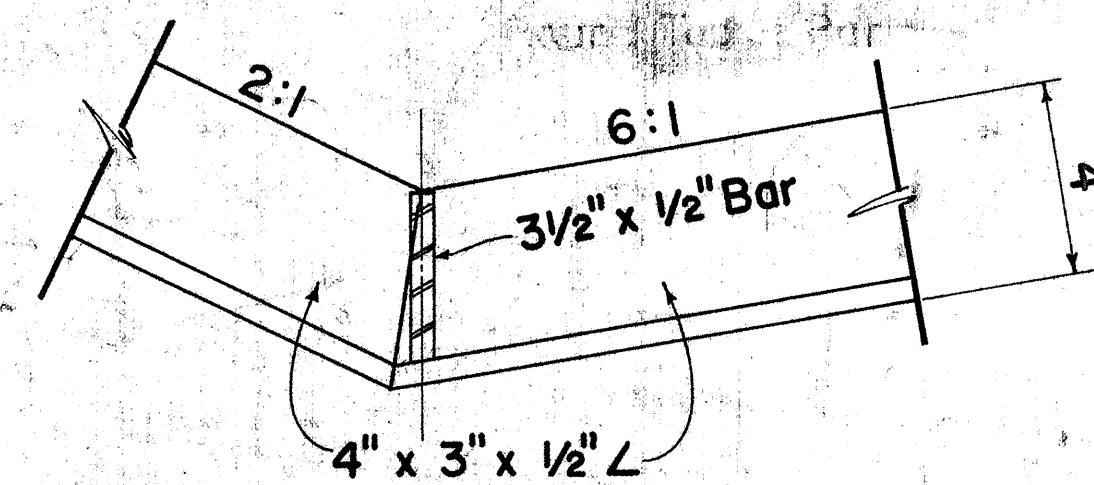
SECTION
Scale: $1\frac{1}{2}" = 1' - 0"$



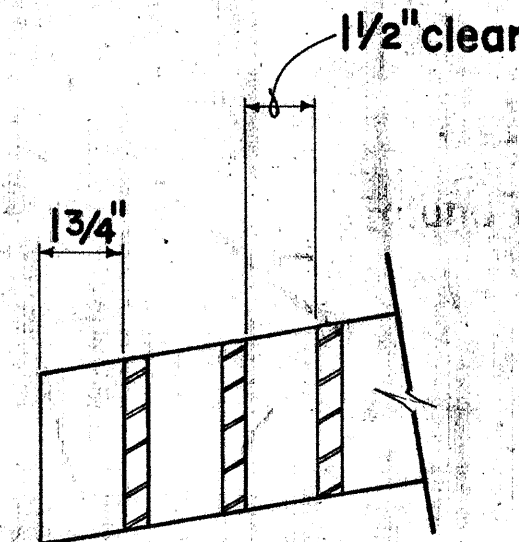
SECTION
Scale: $1\frac{1}{2}'' = 1' - 0''$



GRATE
Scale: 3" = 1' - 0"



FRAME
Scale: 3" = 1'-0"



GRATE
Scale: 3" = 1' - 0"

DETAILS OF TYPE 6214 STEEL FRAME AND GRATES

NO.	REVISION	APPROVED BY	DATE
1.	Spacing on Manhole Rungs to conform to OSHA	HT	12-1-75

APPROVAL RECOMMENDED
P. Takano 12-17-69
HYDRAULIC DESIGN ENGINEER DATE

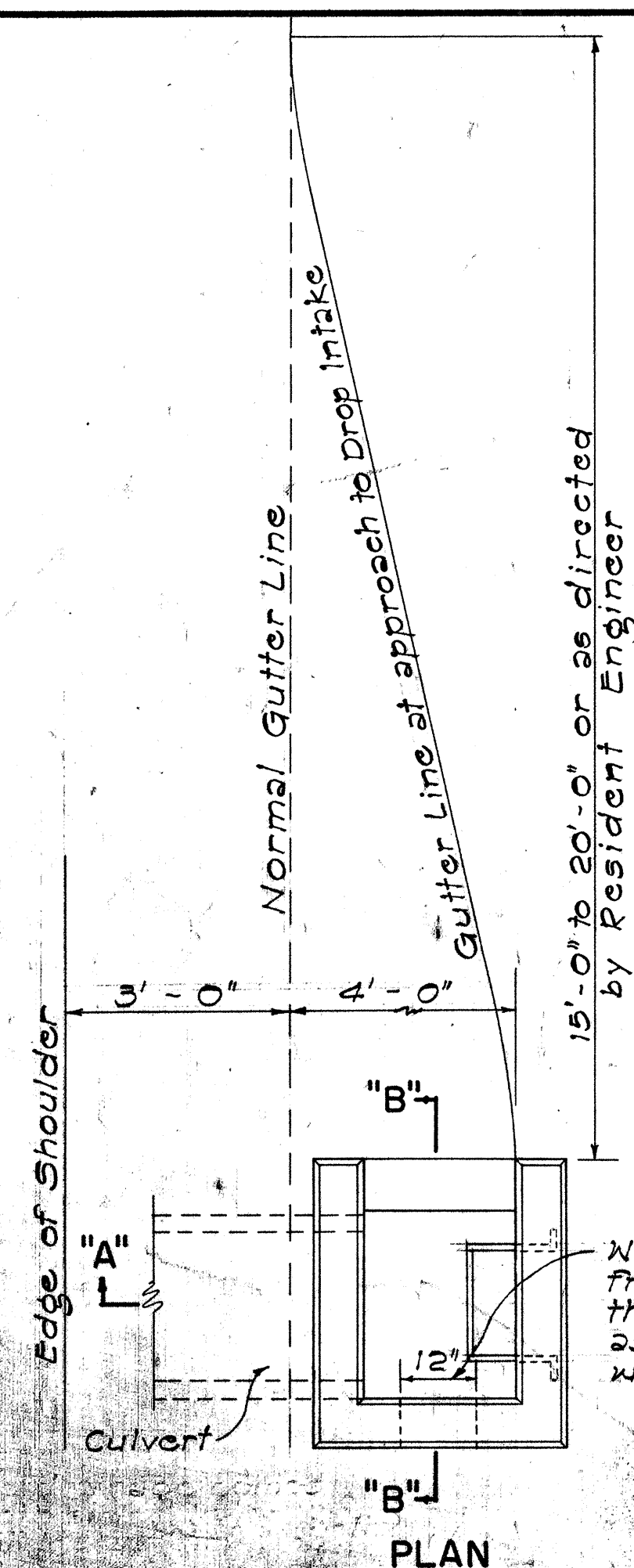
APPROVED: John J. J. J. 12-17-59
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
STANDARD DETAILS
TYPE 61214
GRATED DROP INTAKE

Scales: As Noted Date: July 1969

SHEET No 2 OF 10 SHEETS DH 9

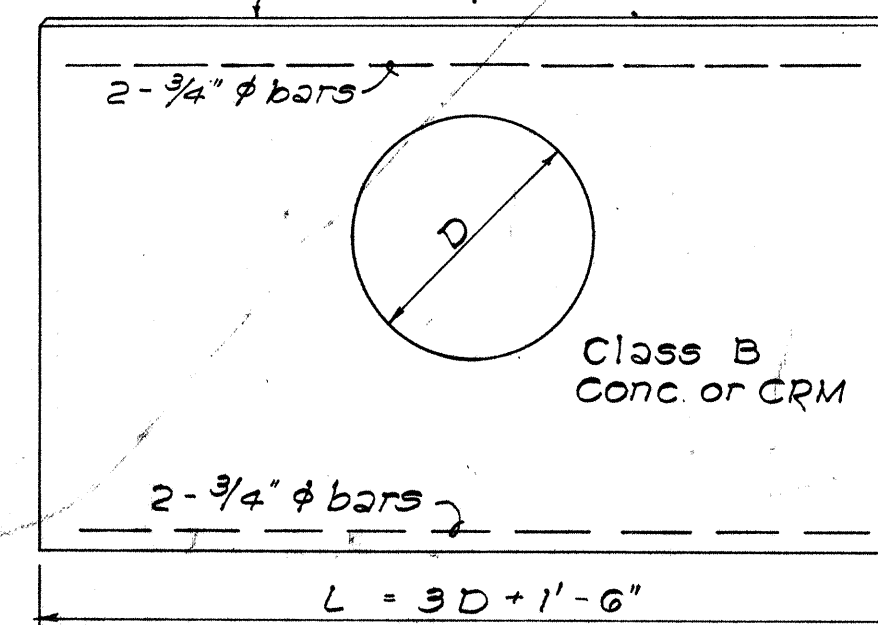
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HHS-056-1(22)	1978	16	18



DATA - CONC. DROP INTAKE	Where Variable Equals
D' D L D' + 6" S Cu. Yds.	
23" 18" 2'-5" 8" 1.41	4'-6"
30" 24" 3'-0" 8" 1.72	5'-0"
37" 30" 3'-7" 9" 2.32	5'-6"
44" 36" 4'-2" 9" 2.73	6'-0"
51" 42" 4'-9" 10" 3.54	6'-6"
58" 48" 5'-4" 10" 4.01	7'-0"

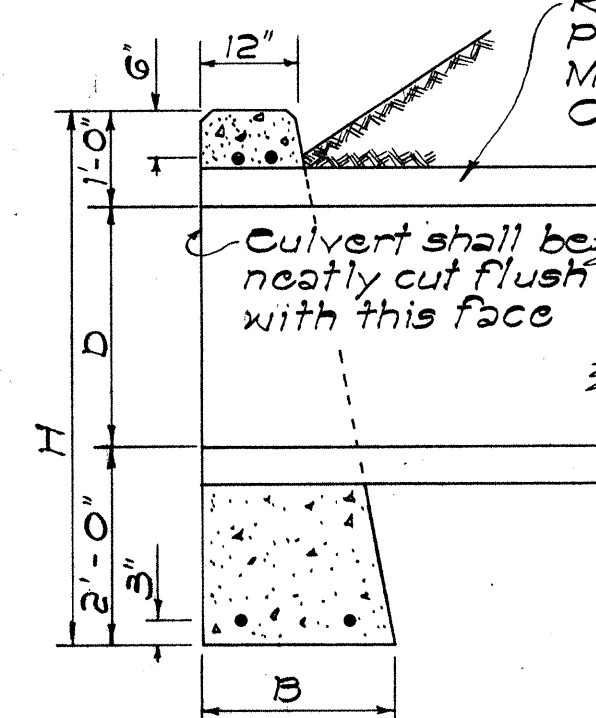
Note: Dimension "X" is assumed as 2'-4" in figuring the above quantities.

Chamfer all exposed edges one inch



ELEVATION

Reinforced Concrete Pipe or Corrugated Metal Pipe or Asbestos Cement Pipe. (See Specifications)



SECTION "A-A"

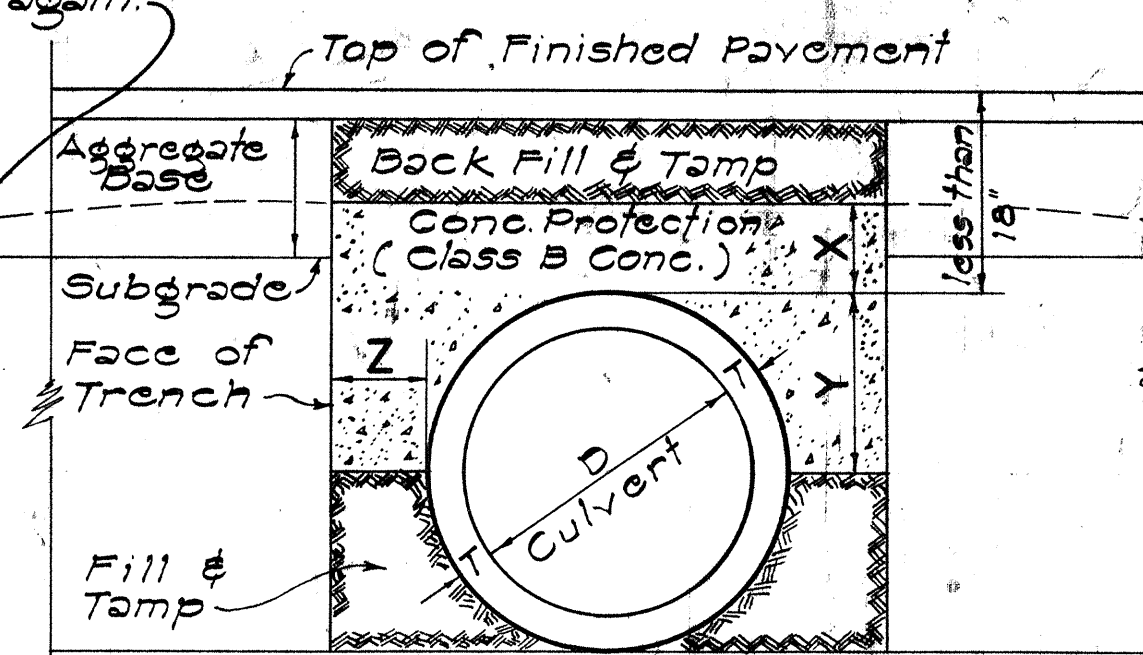
DATA FOR CONC. HEADWALL	CL. B CONC. FOR S.C.P.	CL. B CONC. FOR C.M.F.	Steel For One Headwall
D B L H Cu. Yd.	Cu. Yd.	No. of Bars Size Length Lbs.	
18" 1'-6" 6'-0" 4'-6" 1.12	1.17	4 #4 5'-6" 33	
24" 1'-6" 7'-6" 5'-0" 1.52	1.60	4 #4 7'-0" 42	
30" 2'-0" 9'-0" 5'-6" 2.36	2.49	4 #4 8'-6" 51	
36" 2'-0" 10'-6" 6'-0" 2.94	3.13	4 #4 10'-0" 60	
42" 2'-6" 12'-0" 6'-6" 4.19	4.47	4 #4 11'-6" 69	
48" 2'-6" 13'-6" 7'-0" 5.01	5.36	4 #4 13'-0" 78	

DATA - MASONRY HEADWALL	CRM FOR R.C.P.	CRM FOR C.M.F.
D B L H Cu. Yd.	Cu. Yd.	Cu. Yd.
18" 1'-9" 6'-0" 4'-6" 1.24	1.29	
24" 2'-0" 7'-6" 5'-0" 1.83	1.92	
30" 2'-3" 9'-0" 5'-6" 2.56	2.70	
36" 2'-6" 10'-6" 6'-0" 3.43	3.66	

DETAIL OF HEADWALL

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

Note: When subgrade is below top of jacket, it shall be fully compacted to this line and then re-excavated (struc. exc.) to proper subgrade. This surface shall be rolled again.

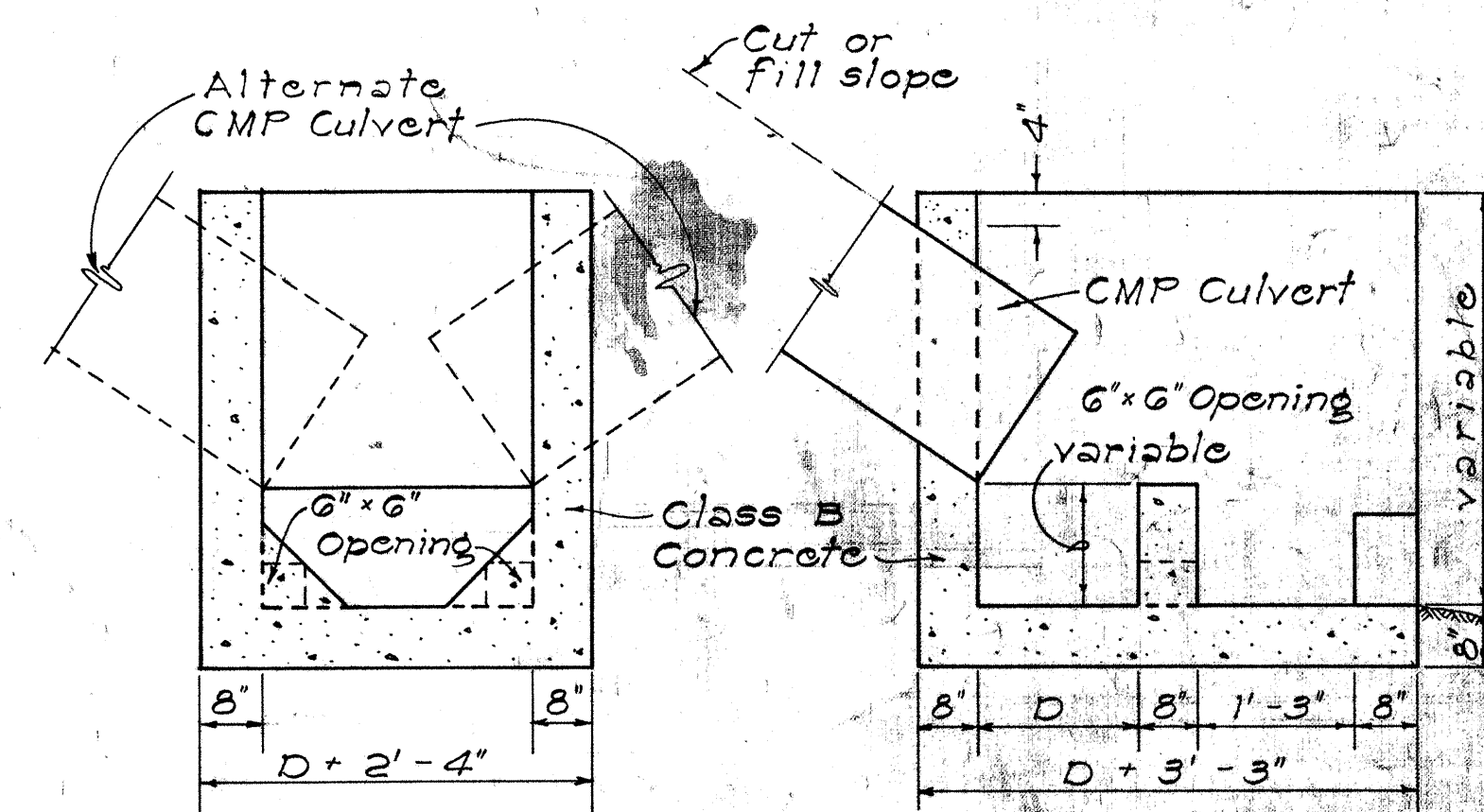


Note: To be used when cover is less than 18"

DATA FOR CONCRETE PROTECTION OVER CULVERTS	X	Y	Z
	6" for 18" D		Z must be from pipe to face of trench
	7" for 24" D		
	8" for 30" D		
	9" for 36" D		
	10" for 42" D		
	11" for 48" D		
	12" for 54" D		

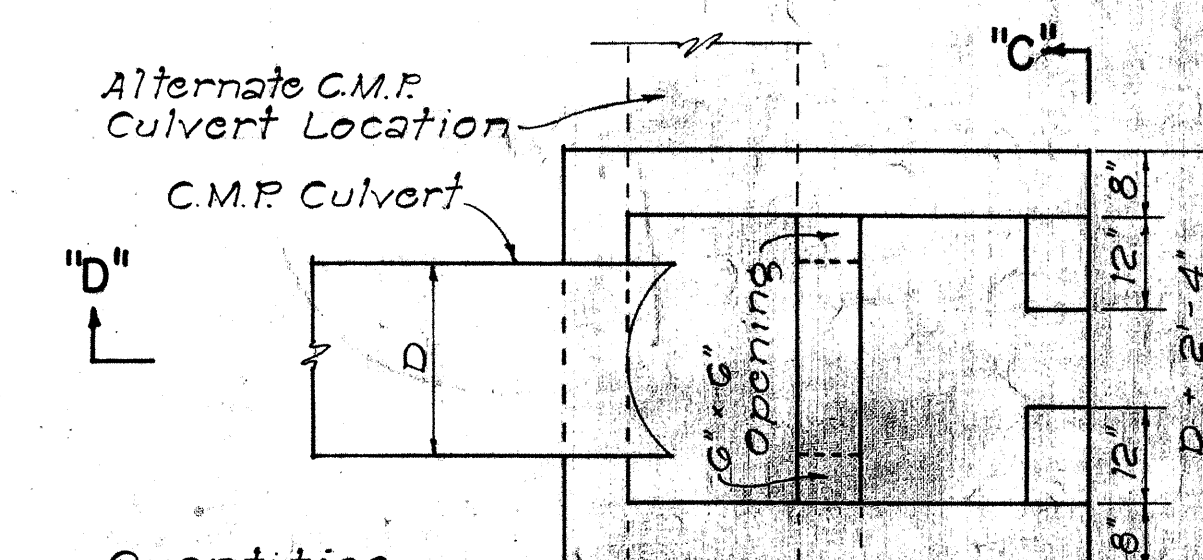
SECT. OF CULVERT WITH CONC. PROTECTION

Scale: 1" = 1'-0"



SECTION "C-C"

SECTION "D-D"



Quantities	D =	18" 24" 30"
Struc. Exc. C.Y.	33.425.1	
Cl. B Conc. C.Y.	15.1822	

DETAILS OF CONC. DROP BOX AT OUTLET OF CULVERT PIPE

NOT TO SCALE

APPROVAL RECOMMENDED

HYDRAULIC DESIGN ENGINEER

12-17-69
DATE

APPROVED

ASSISTANT CHIEF, ENGINEERING

12-17-69
DATE

NO.	REVISION	APPROVED BY	DATE
1	Spacing on Manhole Rungs to conform to OSHA.	H.T.	1-21-75

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
STANDARD DETAILS
DROP INTAKE, HEADWALL & CONCRETE PROTECTION

Scale: As Noted Date: Aug. 1967

SHEET No. 16 OF 18 SHEETS DR-10