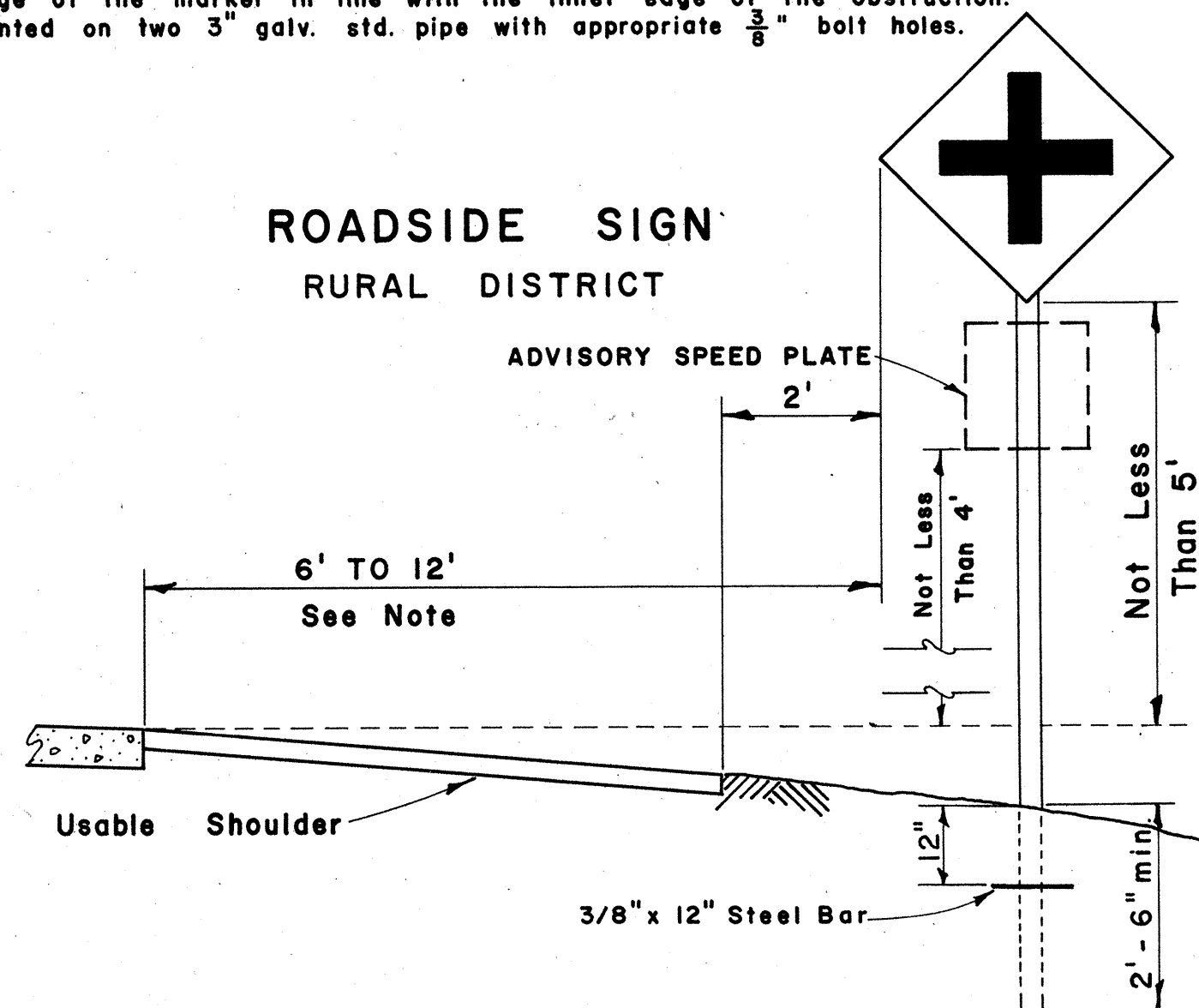
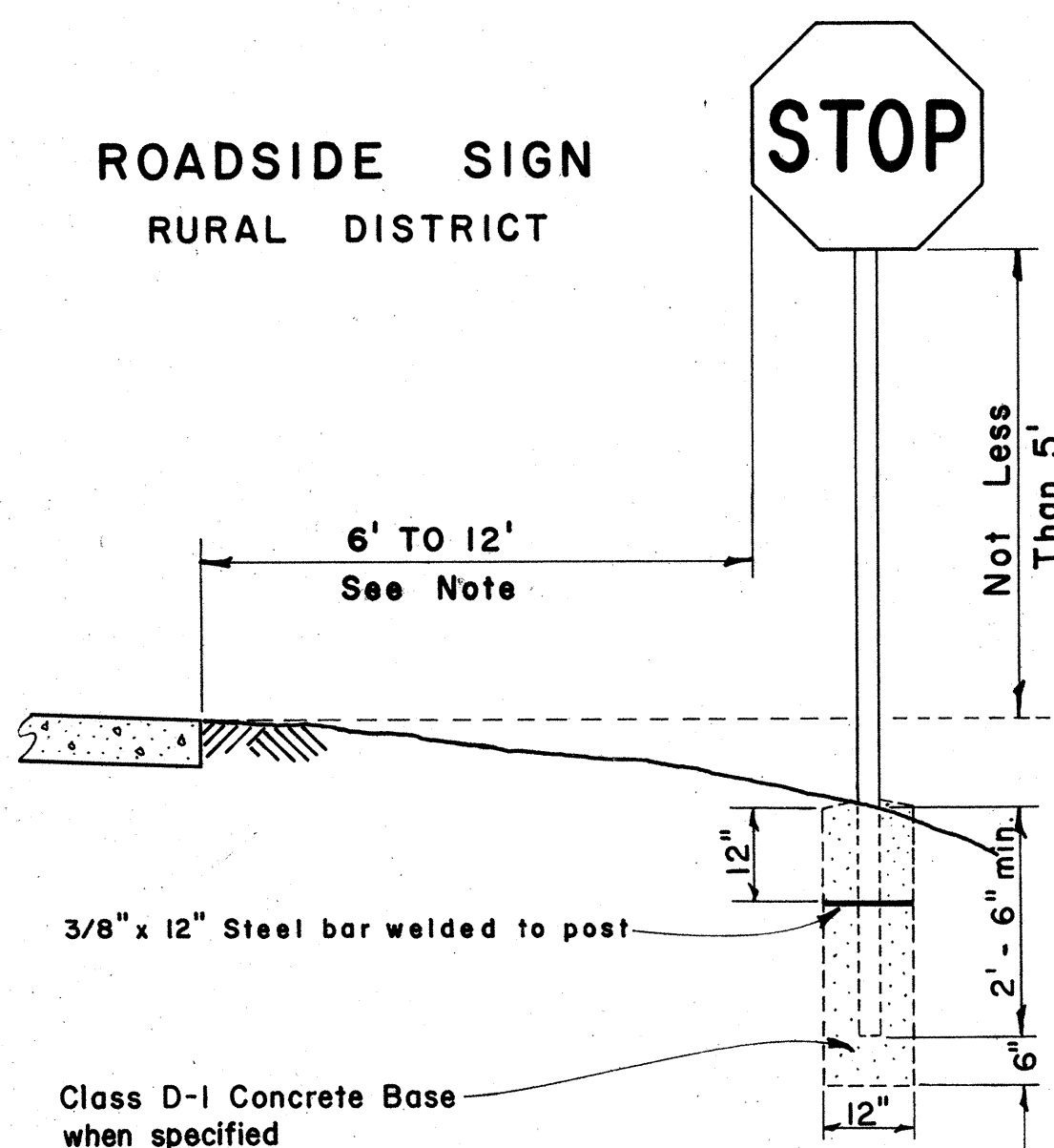
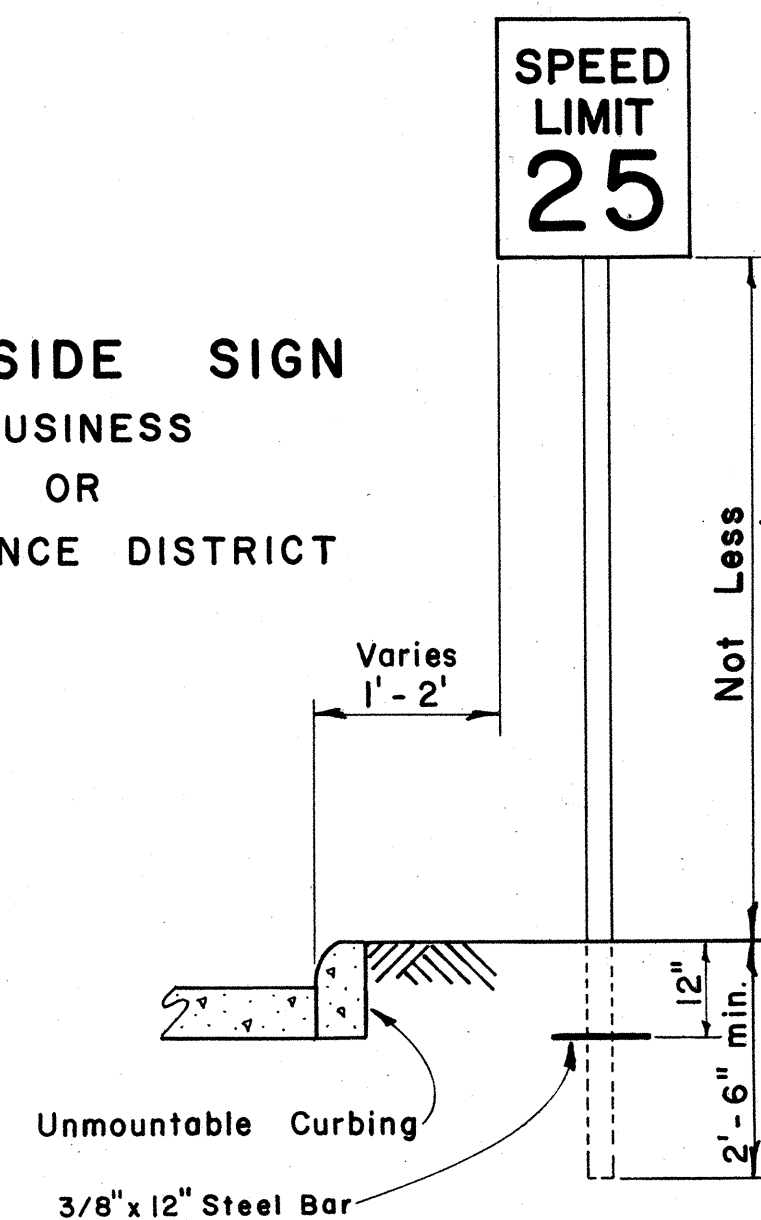


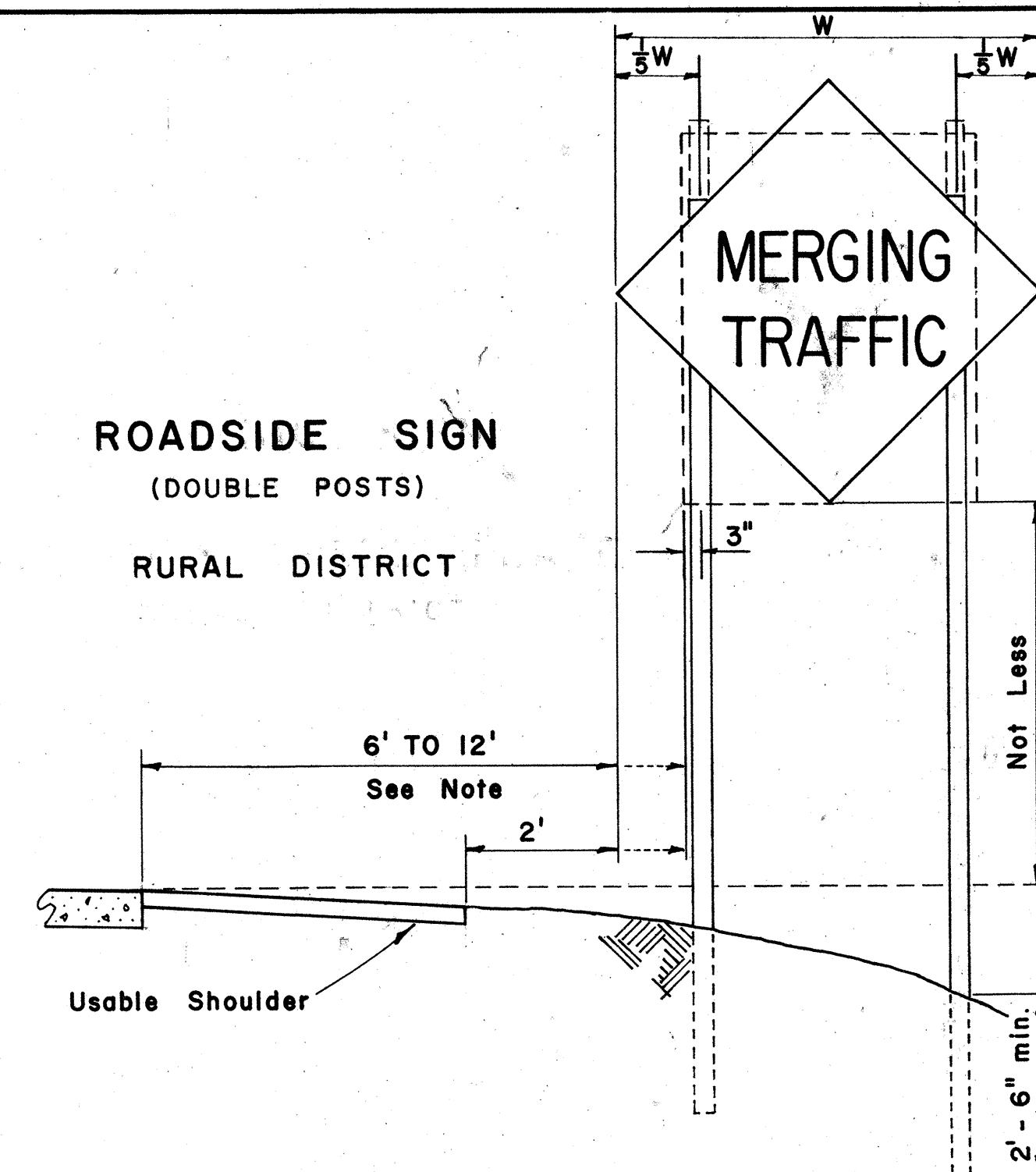
- NOTE:
1. All signs and road delineators shall be placed 2' outside the usable roadway shoulder or 1' outside unmountable curbing present and within the limits shown below.
 2. Except as noted below, sign posts shall be 3" galv. std. pipe for signs larger than 24" in any dimension and 2" galv. std. pipe for signs not over 24" in any dimension, with two $\frac{3}{8}$ " ϕ bolt holes or adjustable band brackets.
 3. Sign shall be attached to post with $\frac{5}{16}$ " galvanized carriage bolts with nuts and $\frac{7}{8}$ " x $\frac{7}{16}$ " x .120 stainless-steel washers with neoprene rubber gasket.
 4. Clearance Markers (RM-4, RM-3) shall be installed with the inside edge of the marker in line with the inner edge of the obstruction.
 5. Signs 48" and wider or larger than 10 sq. ft. in area shall be mounted on two 3" galv. std. pipe with appropriate $\frac{3}{8}$ " bolt holes.



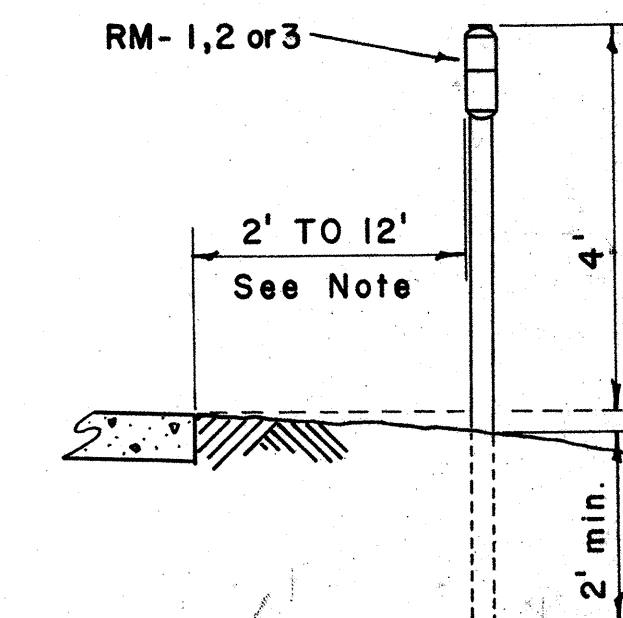
ROADSIDE SIGN
BUSINESS
OR
RESIDENCE DISTRICT



ROADSIDE SIGN
(DOUBLE POSTS)
RURAL DISTRICT

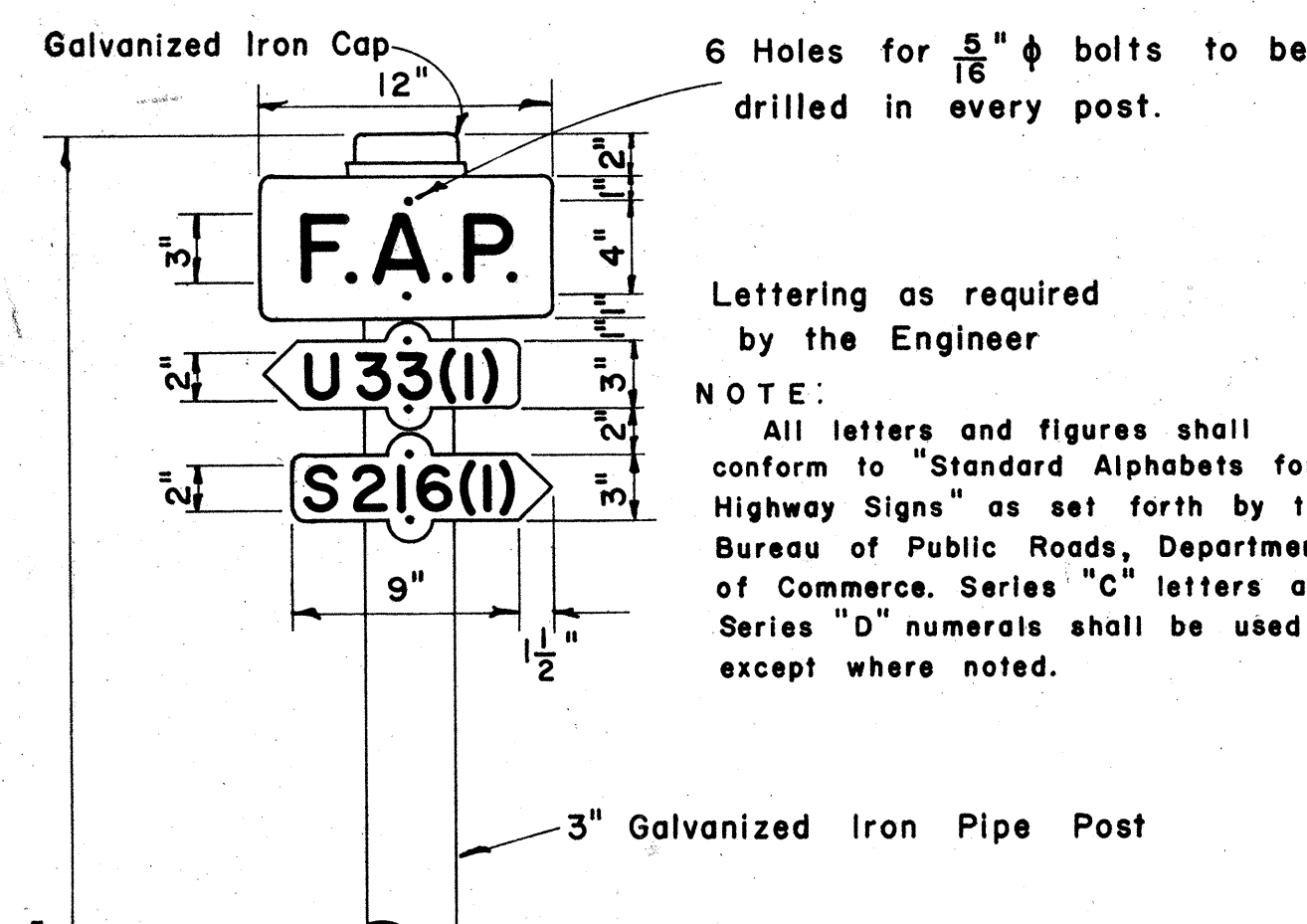


ROAD DELINEATOR



HEIGHT AND LATERAL LOCATION OF SIGNS - TYPICAL INSTALLATIONS

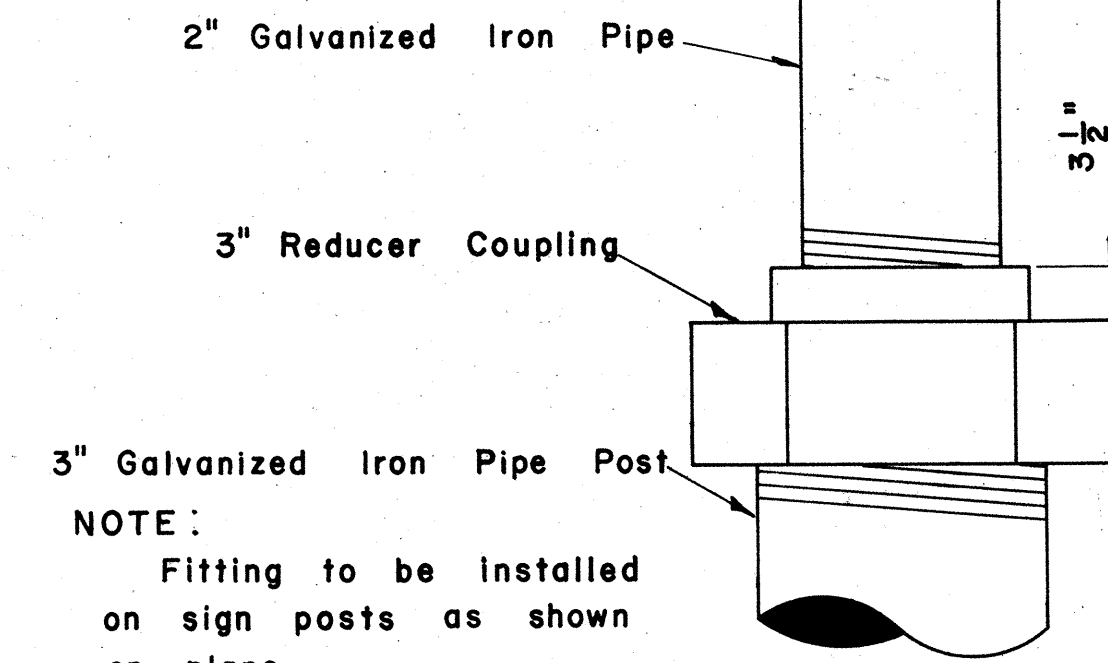
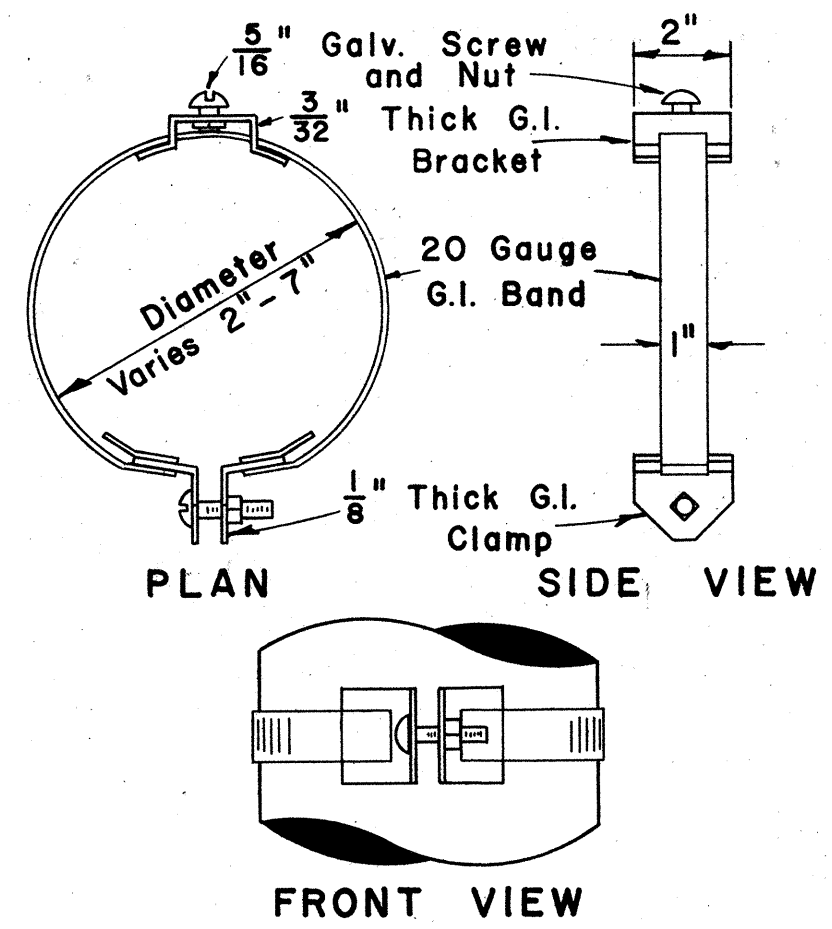
Scale: $\frac{1}{2}$ " = 1' - 0"



Lettering as required by the Engineer

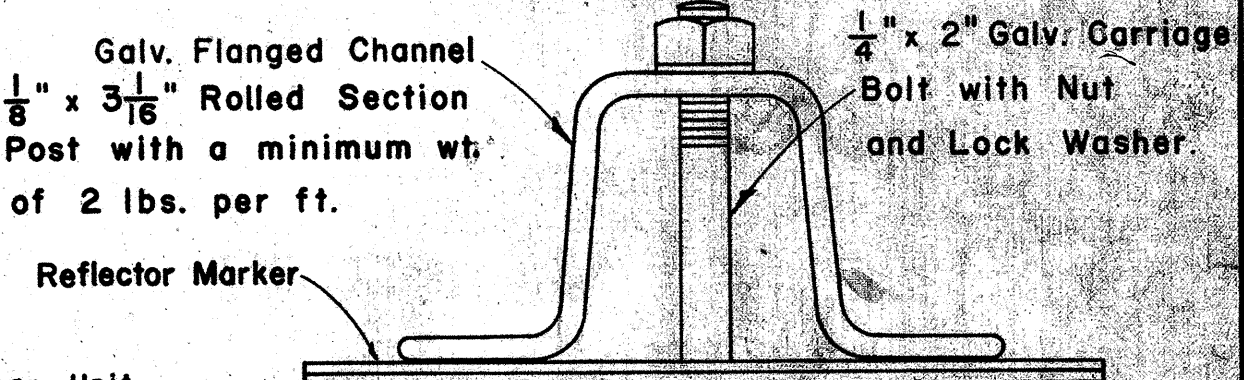
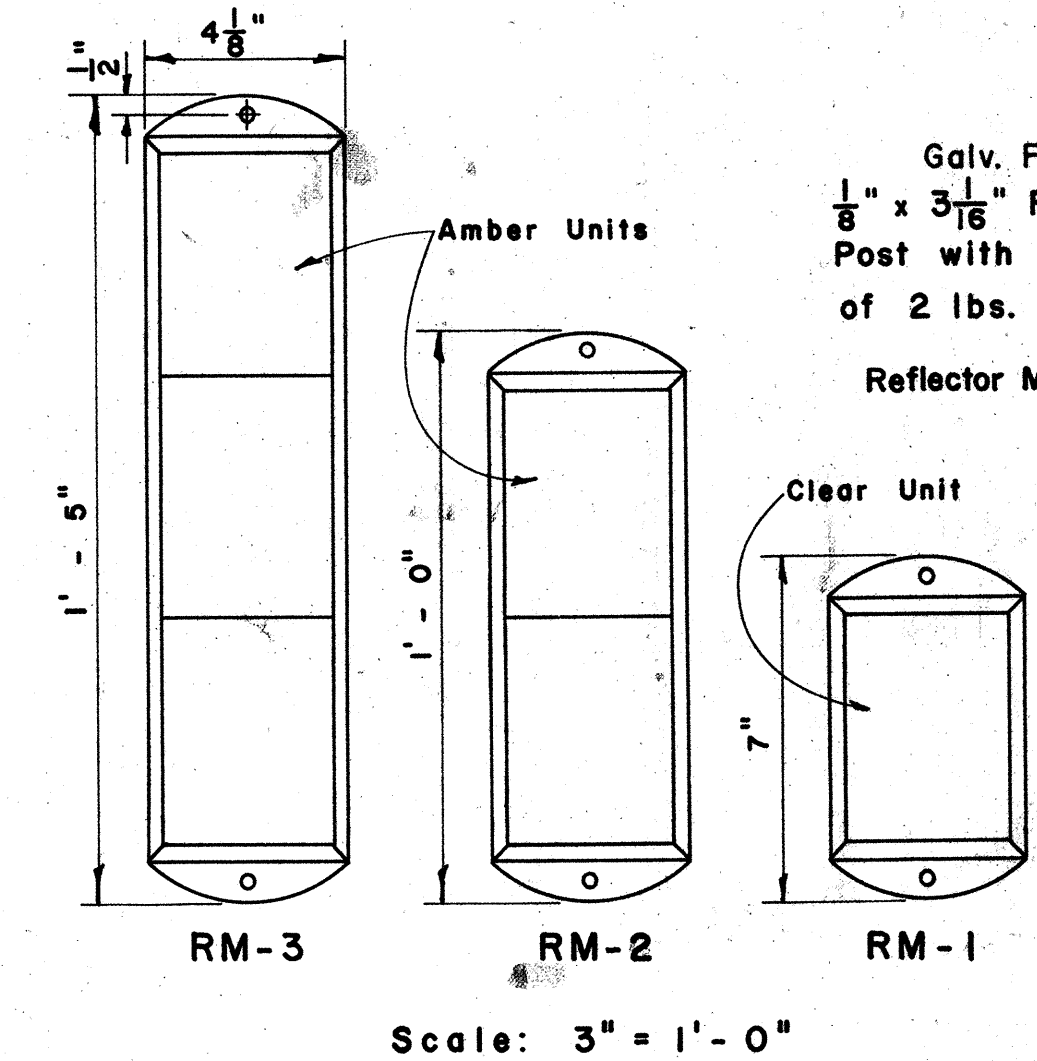
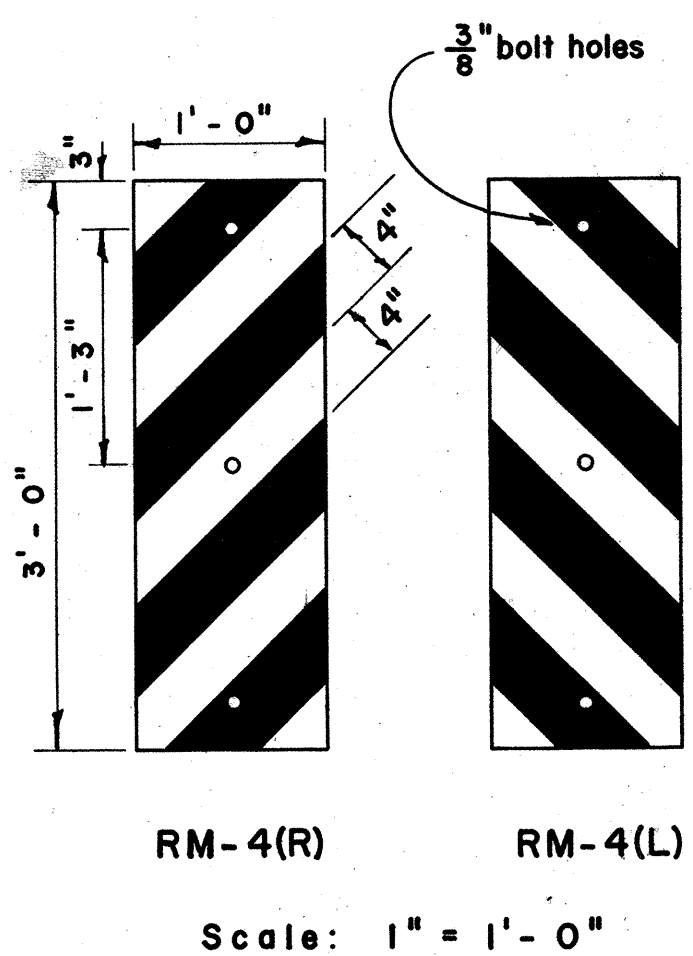
NOTE:

All letters and figures shall conform to "Standard Alphabets for Highway Signs" as set forth by the Bureau of Public Roads, Department of Commerce. Series "C" letters and Series "D" numerals shall be used except where noted.



DETAIL OF SIGN POST FITTING FOR CITY & COUNTY STREET NAME SIGNS

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

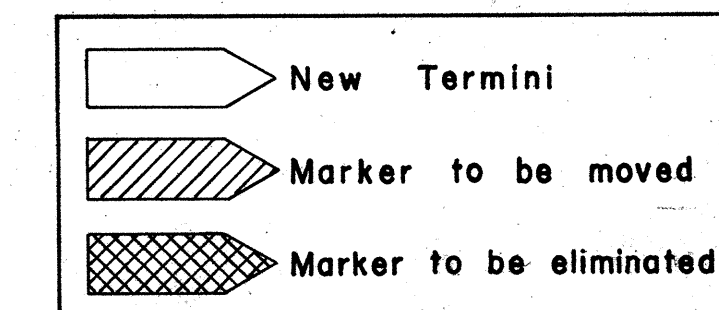


TYPICAL SECTION OF ROAD DELINEATOR
Full Size

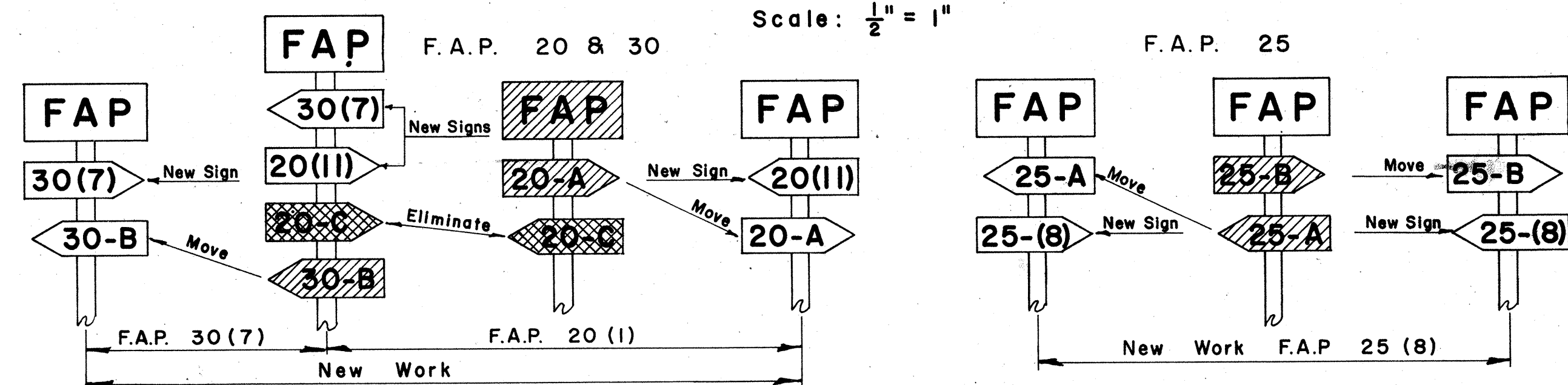
NOTE:

Reflector Units for RM-1, 2, 3 shall be 4" x 5" in size and shall consist of reflective sheeting encapsulated in acrylic plastic.

REFLECTOR MARKERS
Scale: As Shown



FEDERAL AID MARKER
Scale: $\frac{1}{2}$ " = 1' - 0"



METHOD OF MARKING F.A. PROJECTS AT OVERLAPS
(USING NUMBER SUFFIX ON NEW WORK)

APPROVED: _____ DATE: 1/22/67

DIRECTOR OF TRANSPORTATION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
F.A. MARKER
AND
MISCELLANEOUS SIGN
DETAILS
Scale: As Shown

SHEET No. 1 OF 4 SHEETS

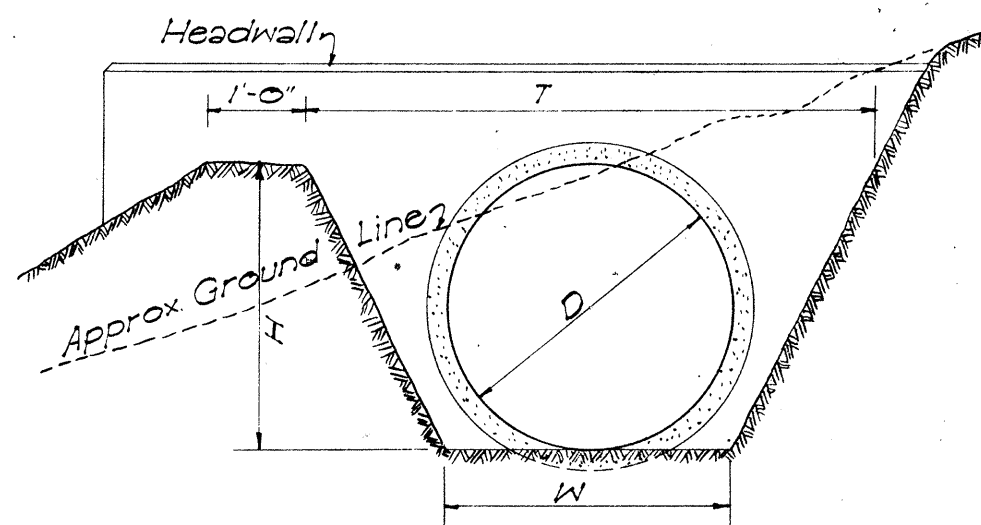
12

AUG. 1957

DATA FOR OUTLET DITCH				
D	W	H	T=H+H	
18"	24"	2'-0"	4'-0"	
24"	30"	2'-0"	4'-6"	
30"	30"	2'-6"	5'-0"	
36"	36"	3'-0"	6'-0"	

DETAIL OF OUTLET DITCH

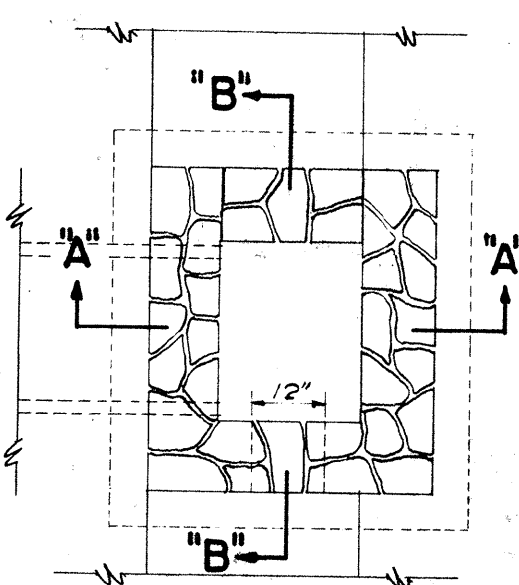
Scale: 1/2" = 1'-0"



DATA FOR MASONRY DROP INTAKE					Where Variables Equal
D	D	L=D+G	Cu. Yds.		
23"	18"	2'-5"	3.02	4'-6"	
30"	24"	3'-0"	3.61	5'-0"	
37"	30"	3'-7"	4.21	5'-6"	
44"	36"	4'-2"	4.85	6'-0"	

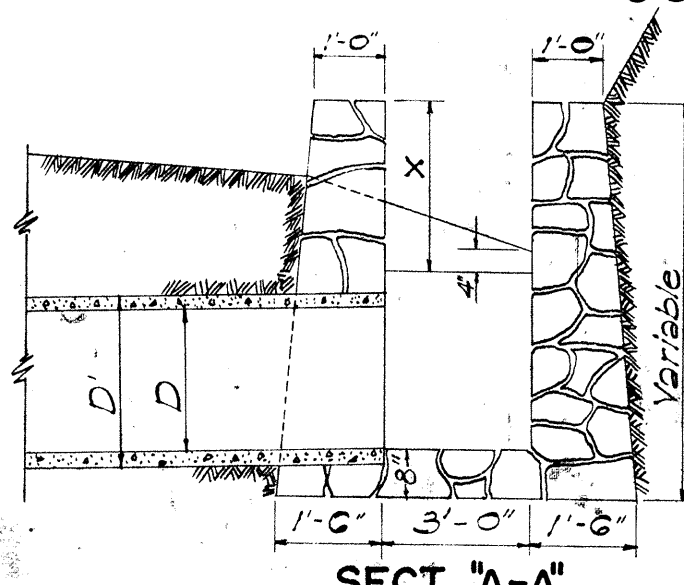
NOTE:

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

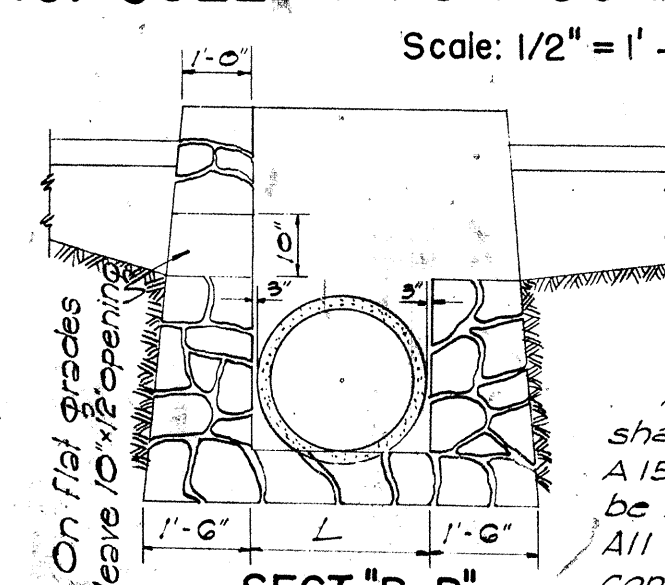


DETAIL OF MASONRY DROP INTAKE

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

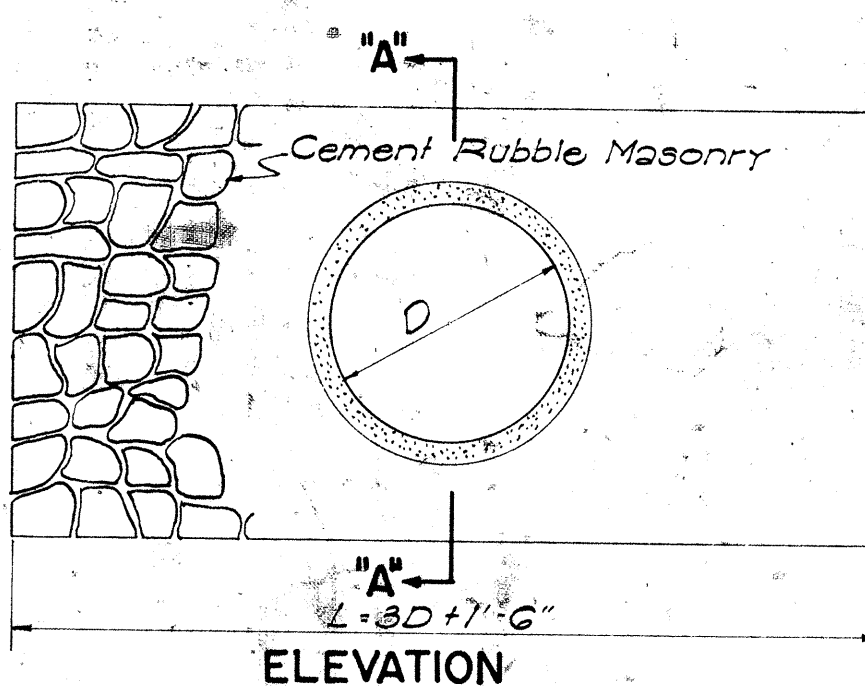


SECT. "A-A"



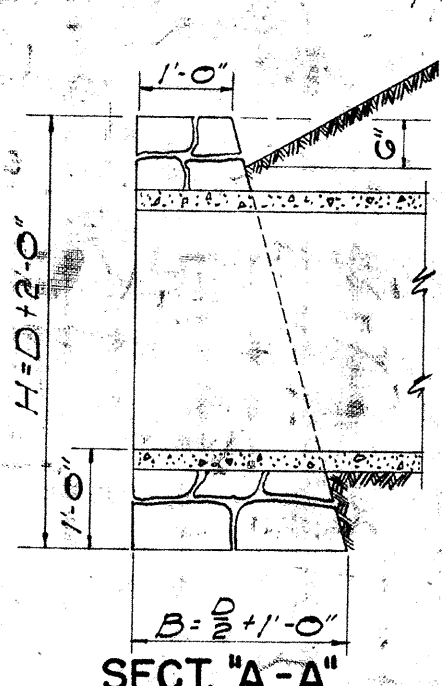
SECT. "B-B"

DATA - MASONRY HEADWALL					Where Variables Equal
D	H	B	L	Cu. Yds.	
18"	3'-6"	1'-0"	6'-0"	0.85	0.05
24"	4'-0"	2'-0"	7'-6"	1.28	1.41
30"	4'-6"	2'-3"	9'-0"	1.83	2.00
36"	5'-0"	2'-6"	10'-6"	2.40	2.72

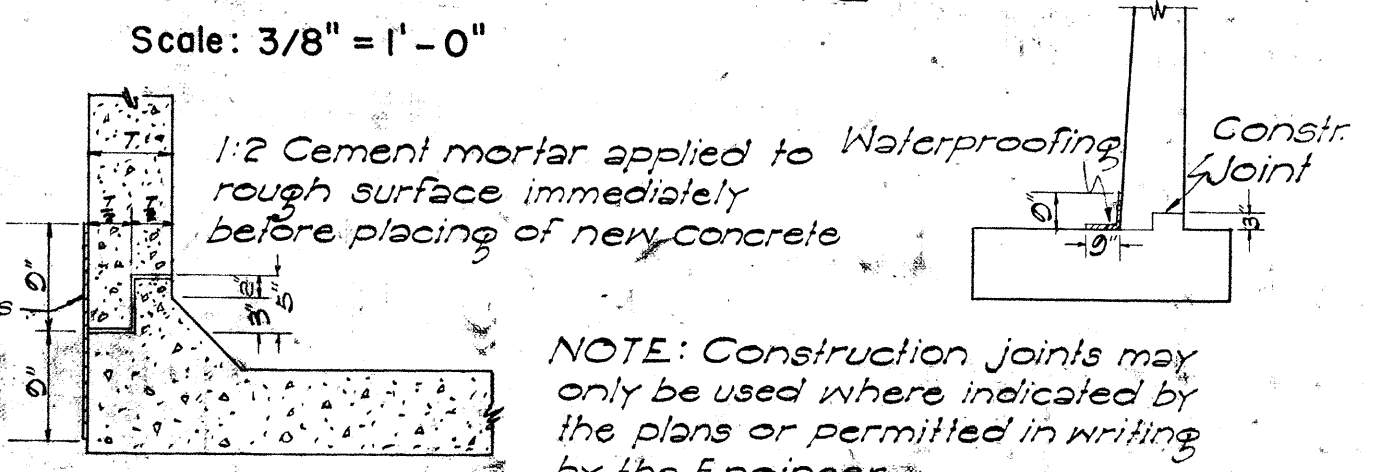


DETAIL OF MASONRY HEADWALL

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



SECT. "A-A"

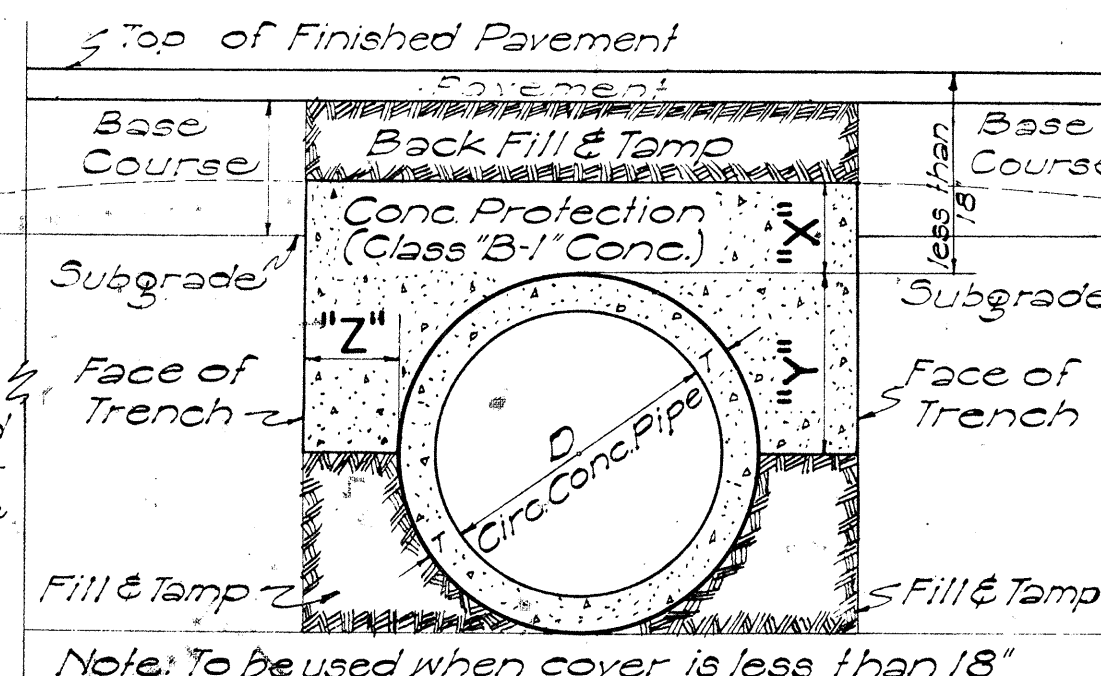


CONSTR. JOINT DETAILS

NOTE: Construction joints may only be used where indicated by the plans or permitted in writing by the Engineer.

Note:

When subgrade is below top of jacket, it shall be fully compacted to this line and then re-excavated (struck) 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" " 24"D		
8" " 30"D		
9" " 36"D	$\frac{D}{2} + T$	Minimum = X
10" " 42"D		Maximum pay quantity will be Z=12"
11" " 48"D		
12" " 54"D		

SECT. OF CULVERT WITH CONC. PROTECTION

Scale: 1" = 1'-0"

APPROVED:

DATE: Aug. 26, 1959

STATE HIGHWAY ENGINEER

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
STATE OF HAWAII

STANDARD DETAILS

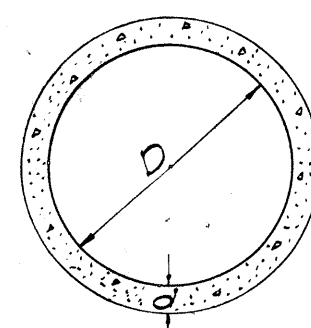
DROP INTAKES, RETAINING WALLS,
HEADWALLS, CONSTRUCTION JOINTS

SCALES AS NOTED

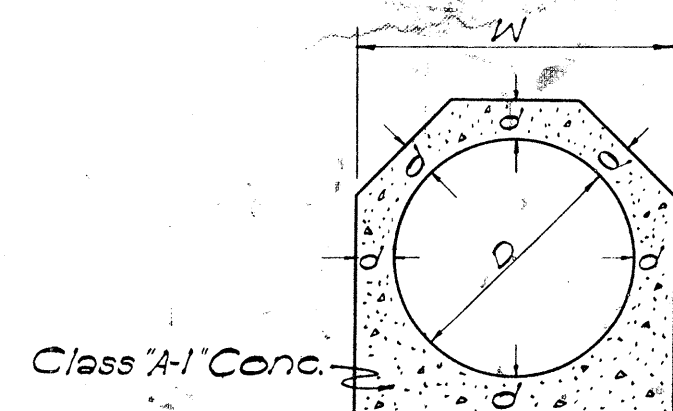
SHEET No. 3 OF 4 SHEETS

ORIGINAL PLAN
NOTES
DATE: 2/17/59
DRAWN BY: L. Calisto
CHECKED BY: L. Calisto

CONC. PIPE CULVERT

NOTE:
Thickness "d", reinforcing, and concrete used, are to conform with the approved design as provided by the Specifications.

SECTION



SECTION

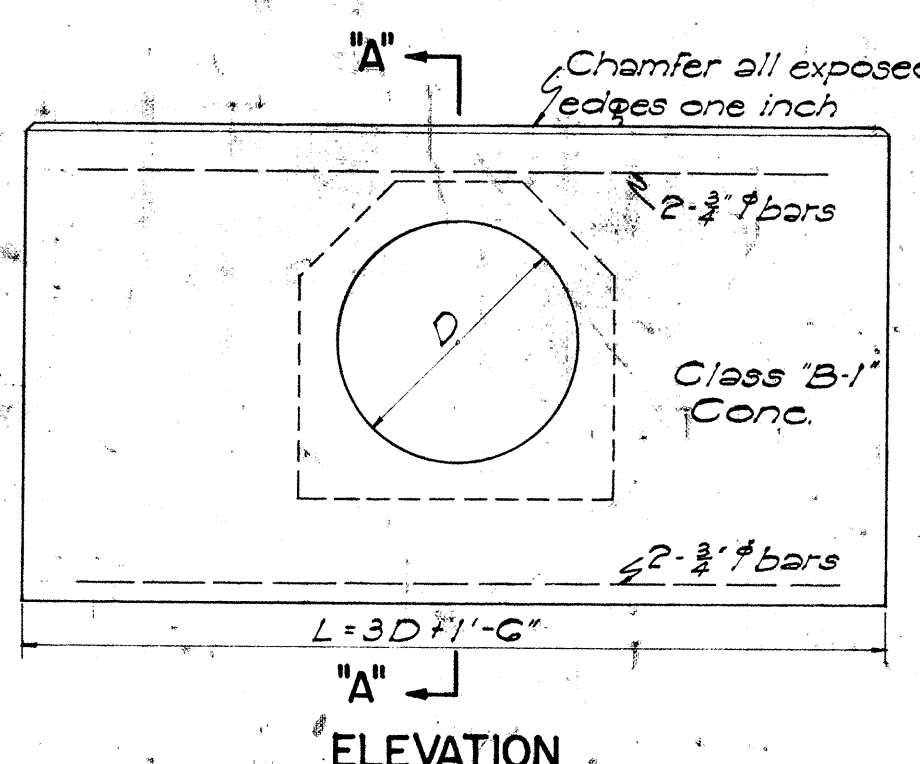
DATA - CAST-IN-PLACE CONC. CULVERT				
D	d	W	Cu. Yds. per Ft.	
18"	4"	2'-2"	0.11	
24"	4 1/2"	2'-0"	0.14	
30"	5"	3'-4"	0.19	
36"	5 1/2"	3'-11"	0.26	

CAST-IN-PLACE
CONC. CULVERT

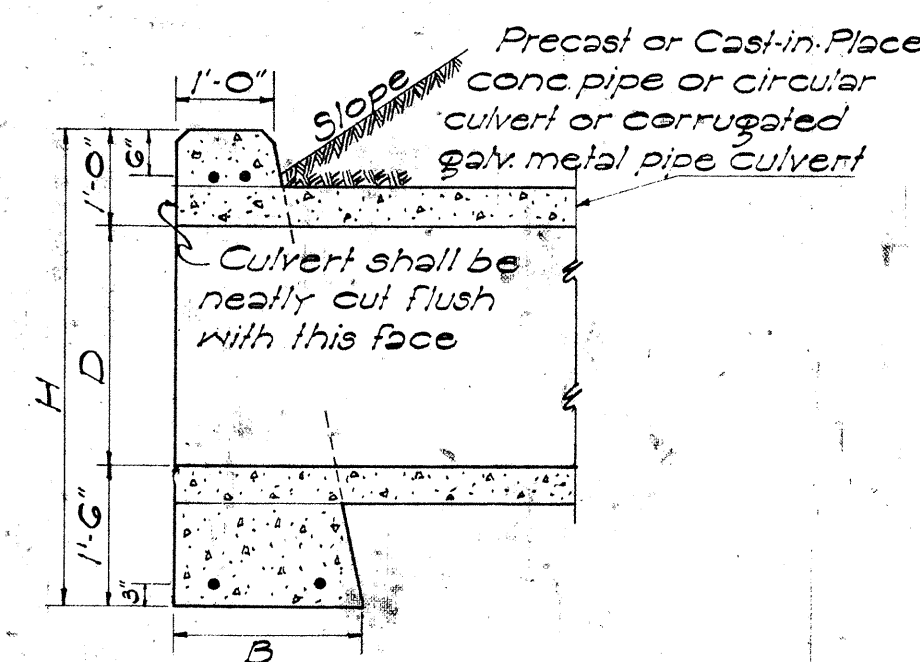
DATA FOR CONC. HEADWALL					Steel For One Headwall
D	B	L	H	Cu. Yds.	Length Lbs.
18"	1'-6"	6'-0"	4'-0"	0.92	1.00
24"	1'-6"	7'-6"	4'-6"	1.25	1.33
30"	2'-0"	9'-0"	5'-0"	1.95	2.17
36"	2'-0"	10'-6"	5'-6"	2.48	2.74
42"	2'-6"	12'-0"	6'-0"	3.87	4.26
48"	2'-6"	13'-6"	6'-6"	4.66	5.14

DETAIL OF CONCRETE HEADWALL

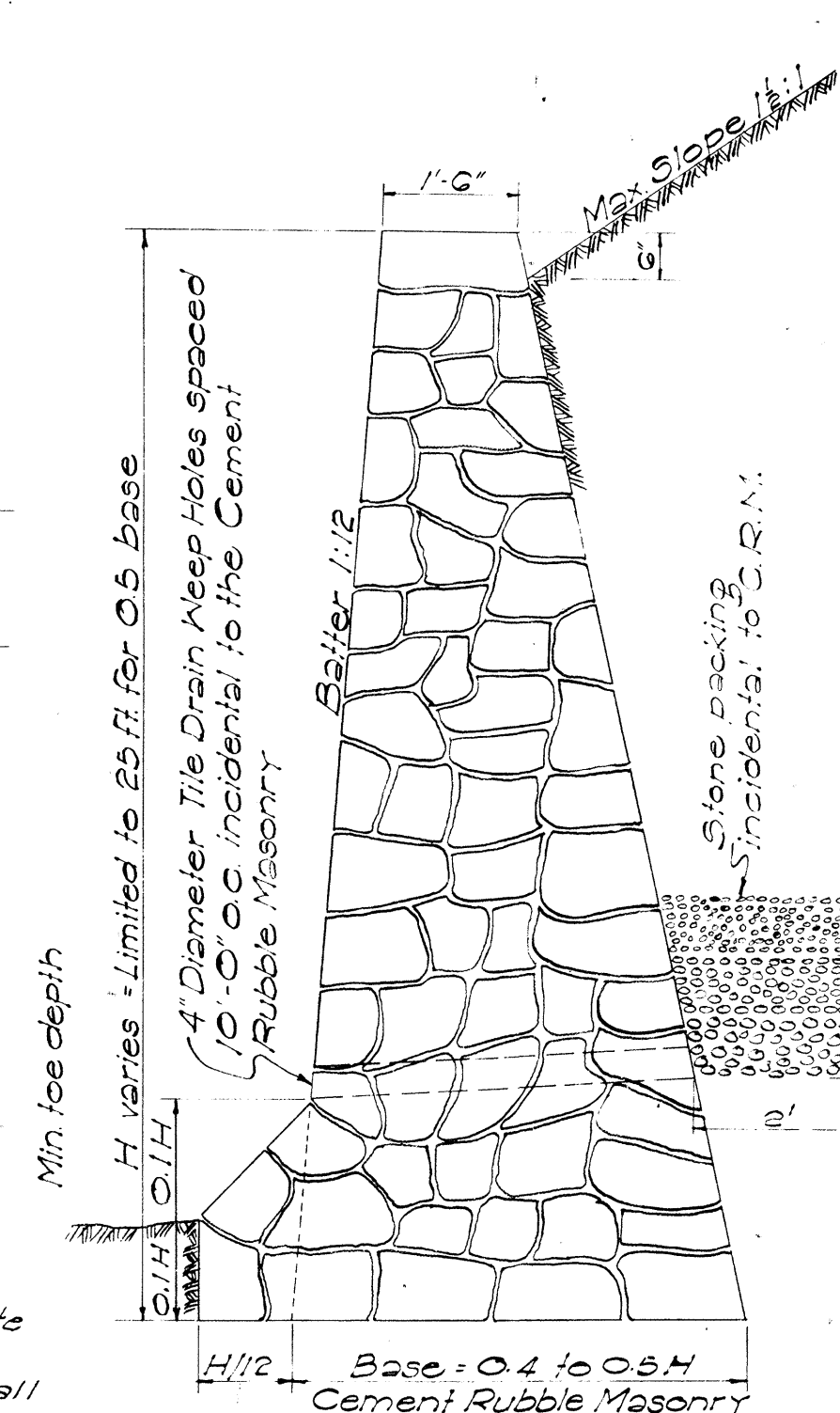
Scale: 1/2" = 1'-0"



ELEVATION



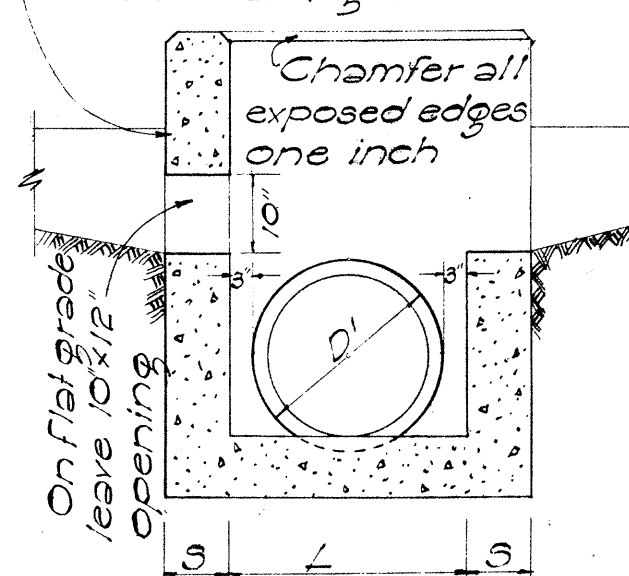
SECTION "A-A"

SECTION OF HIGH CEMENT
RUBBLE MASONRY RETAINING
WALL OR SEAWALLSECTION OF LOW
MASONRY RETAINING
WALL OR SEAWALL

DATA - CONC. DROP INTAKE					Where Variables Equal
D	D	L=D+G	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.

Note: This type of structure shall also be used for the Drop Intakes of Siphons connected with Irrigation Ditches or Flumes with appropriate changes to dimensions. In this case all joints must be made water tight.



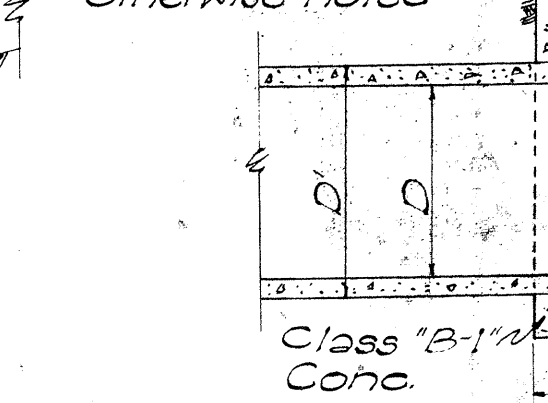
SECTION "B-B"

Where drainage comes from both sides lower this wall to same elevation as shown for opposite wall.

Excavate recess in roadway excavation slope for inlet to dimensions and form designated by Engineer. This is 'Unclassified' Excavation.

Top limits of structure excavation other than at bridges.

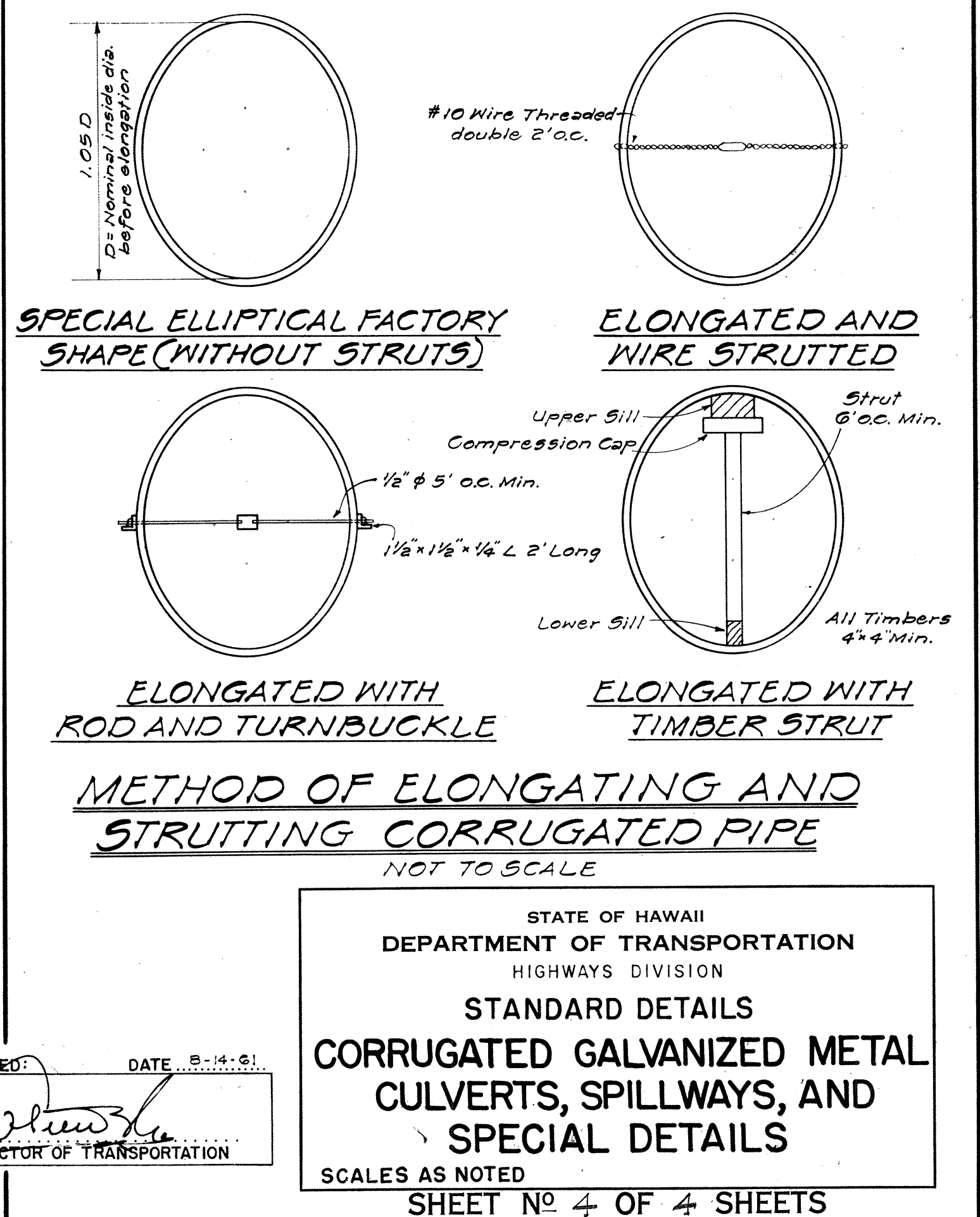
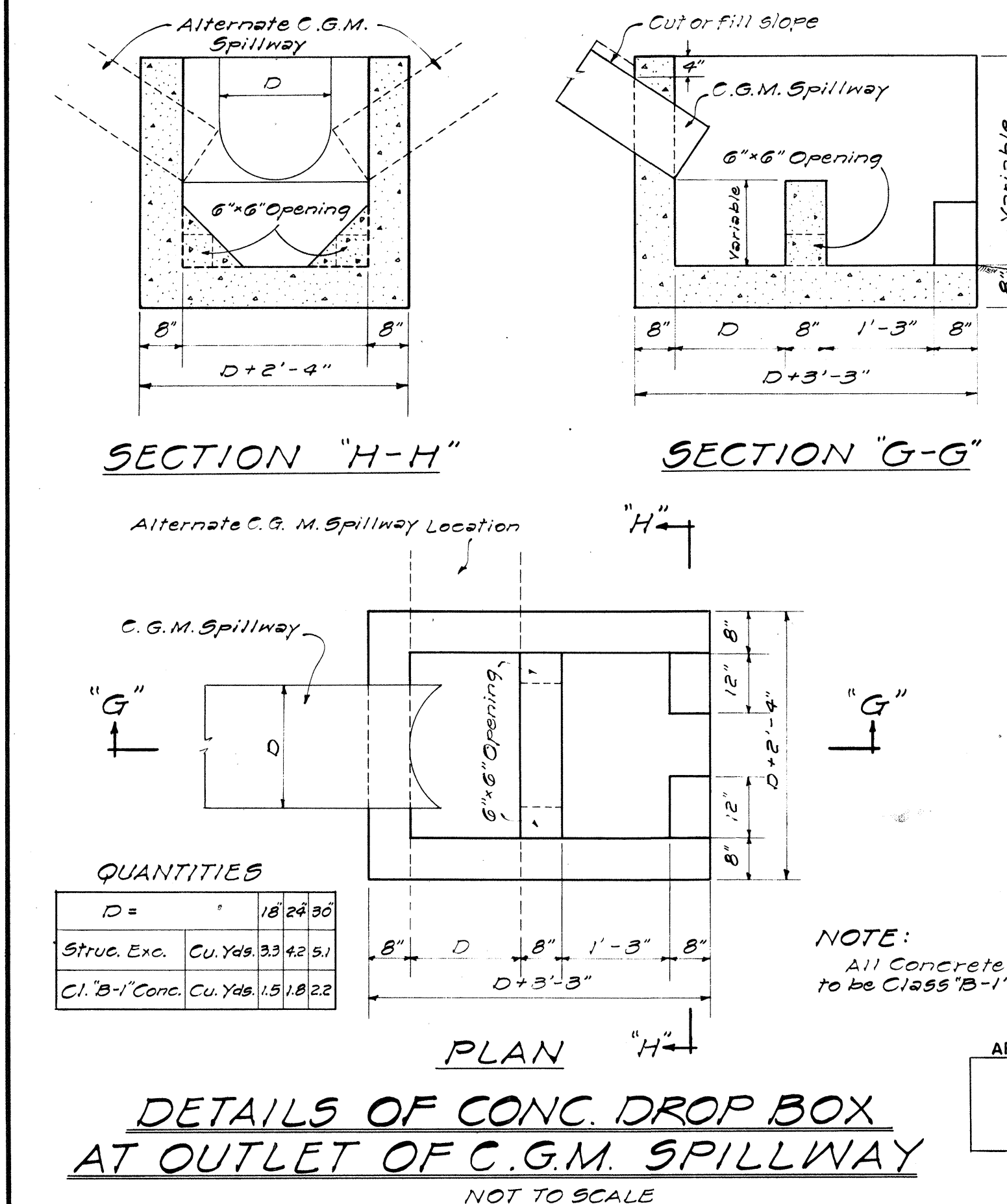
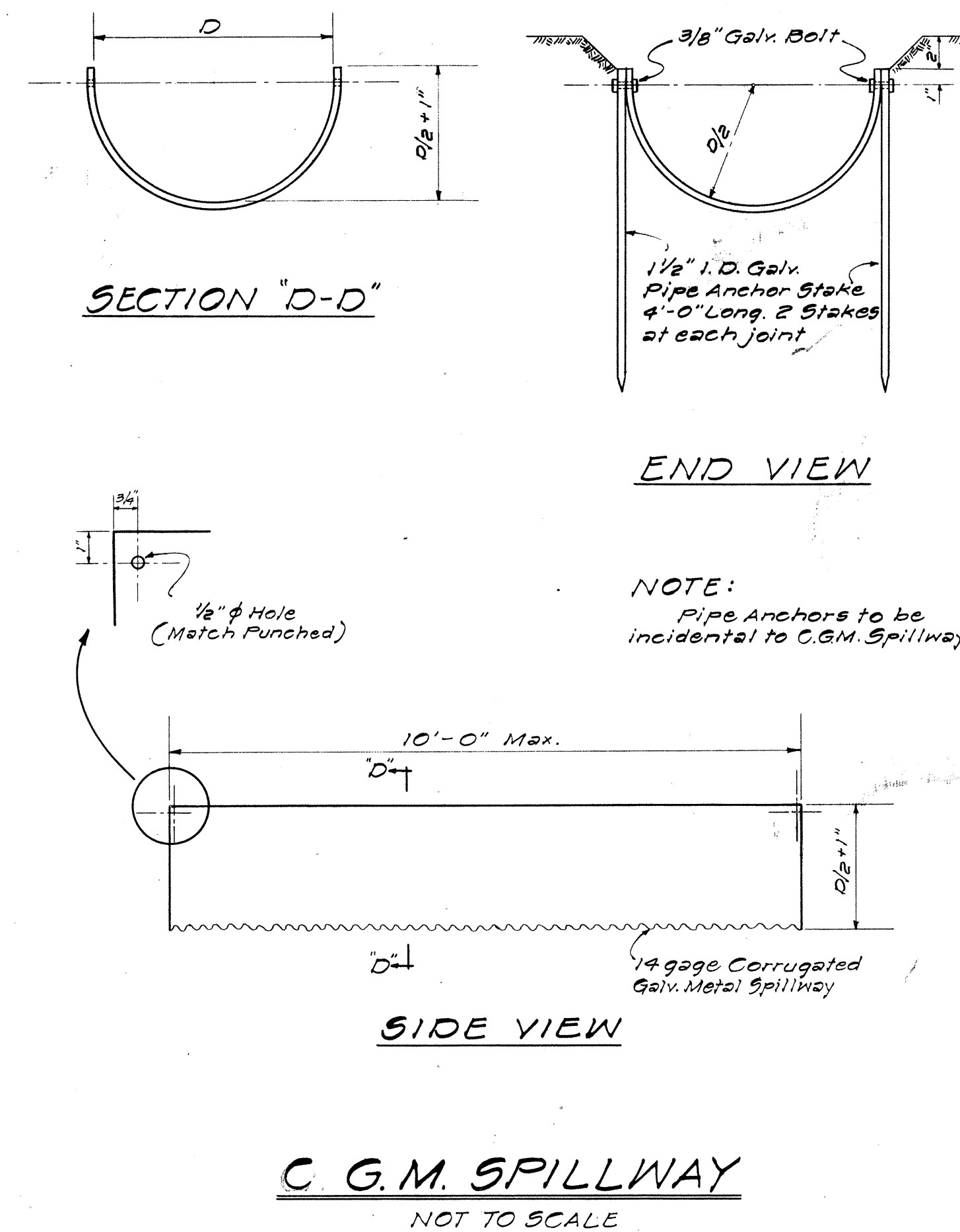
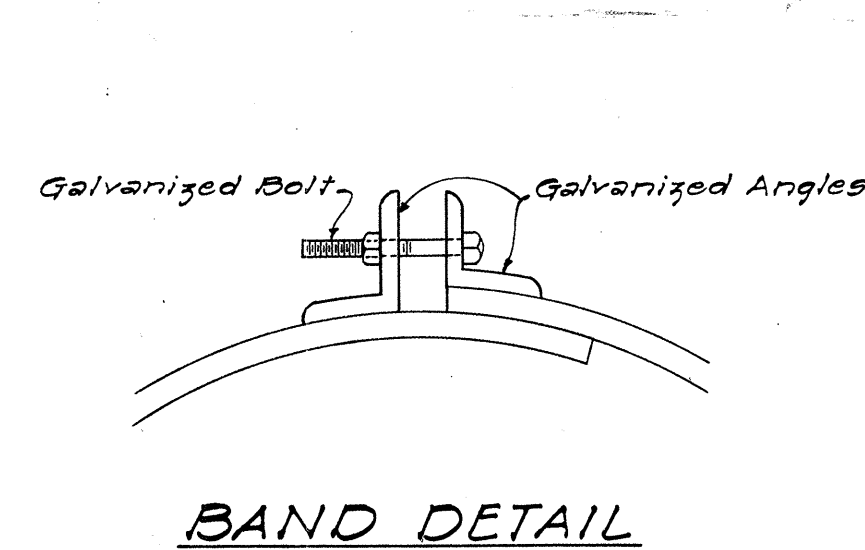
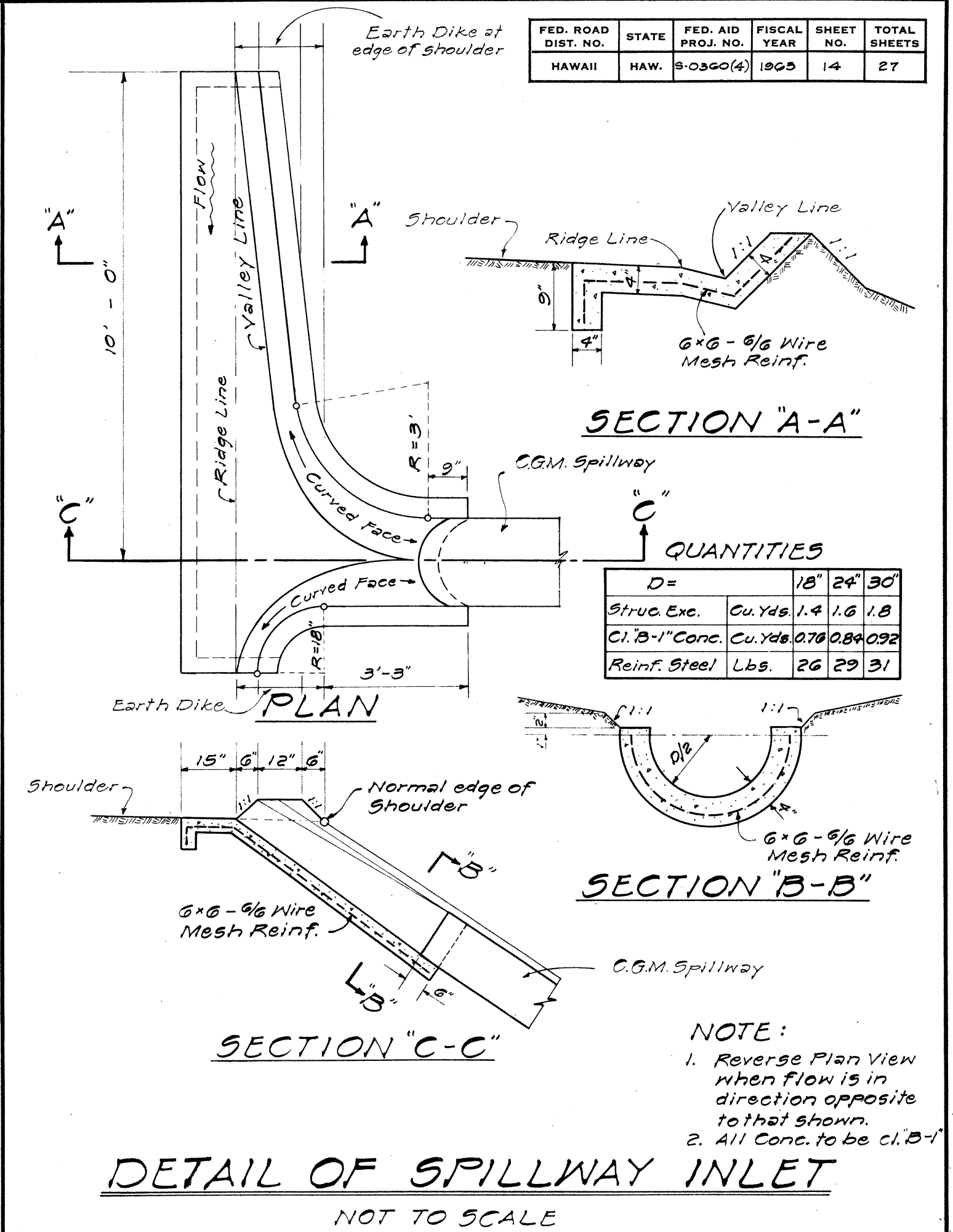
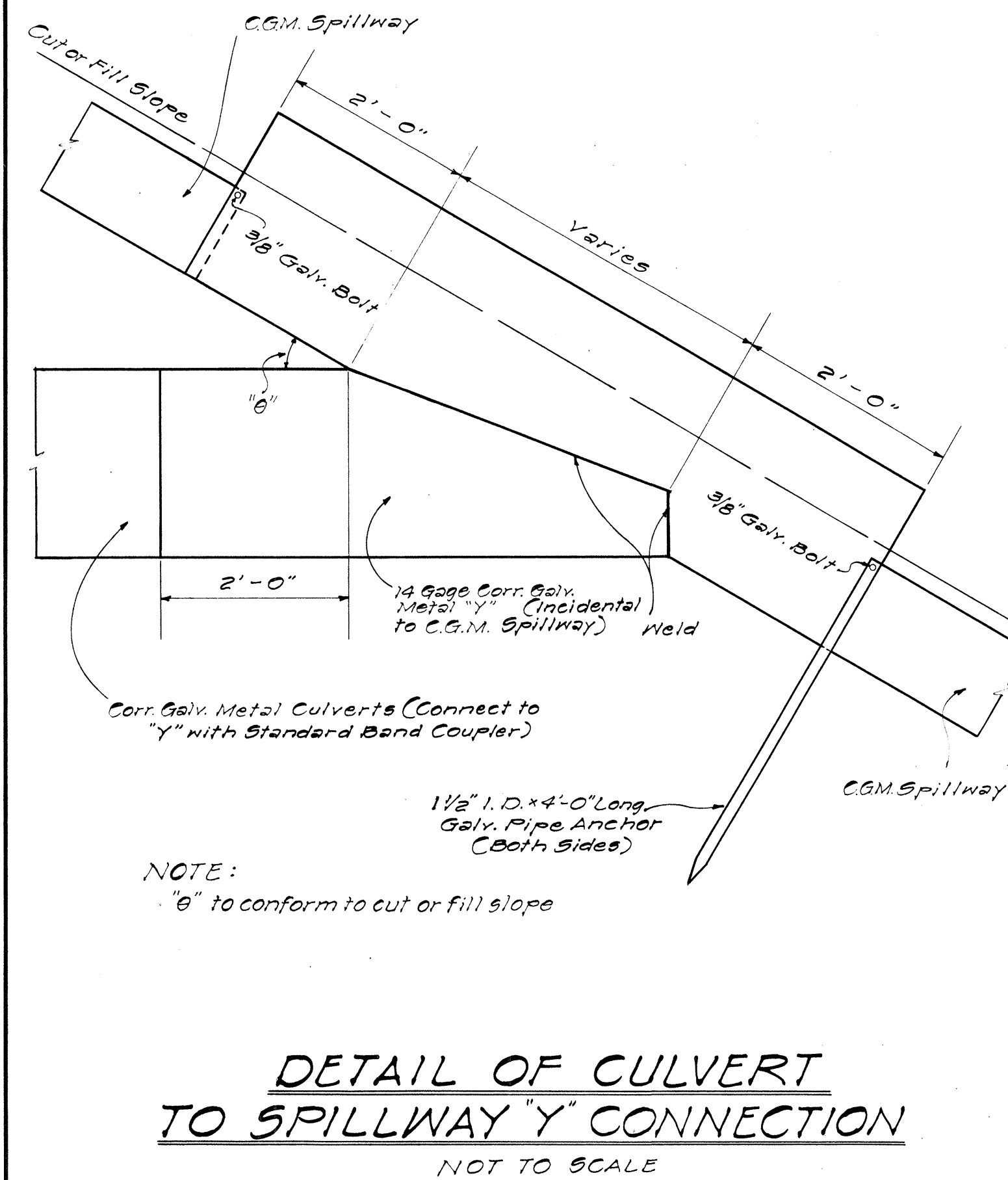
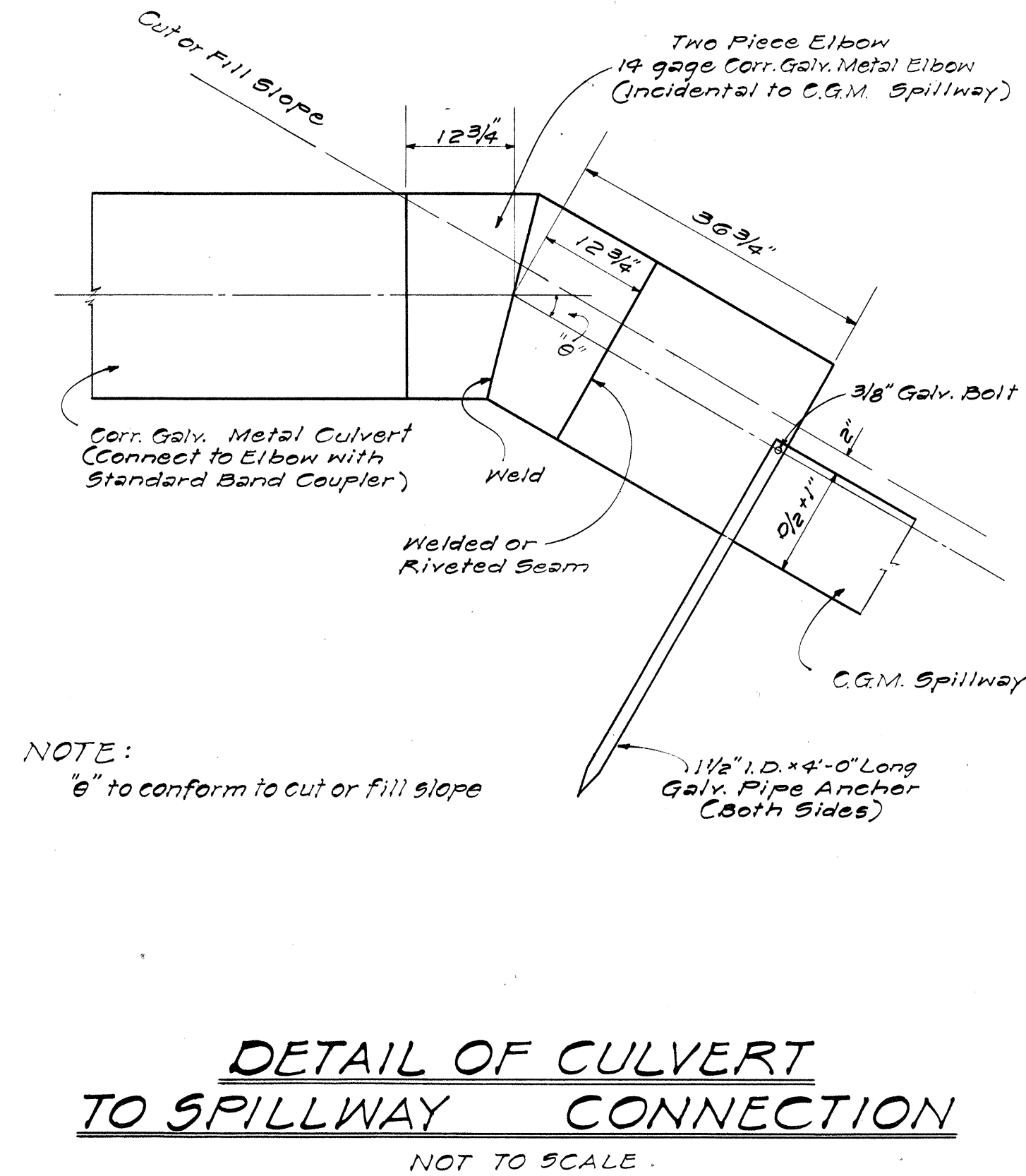
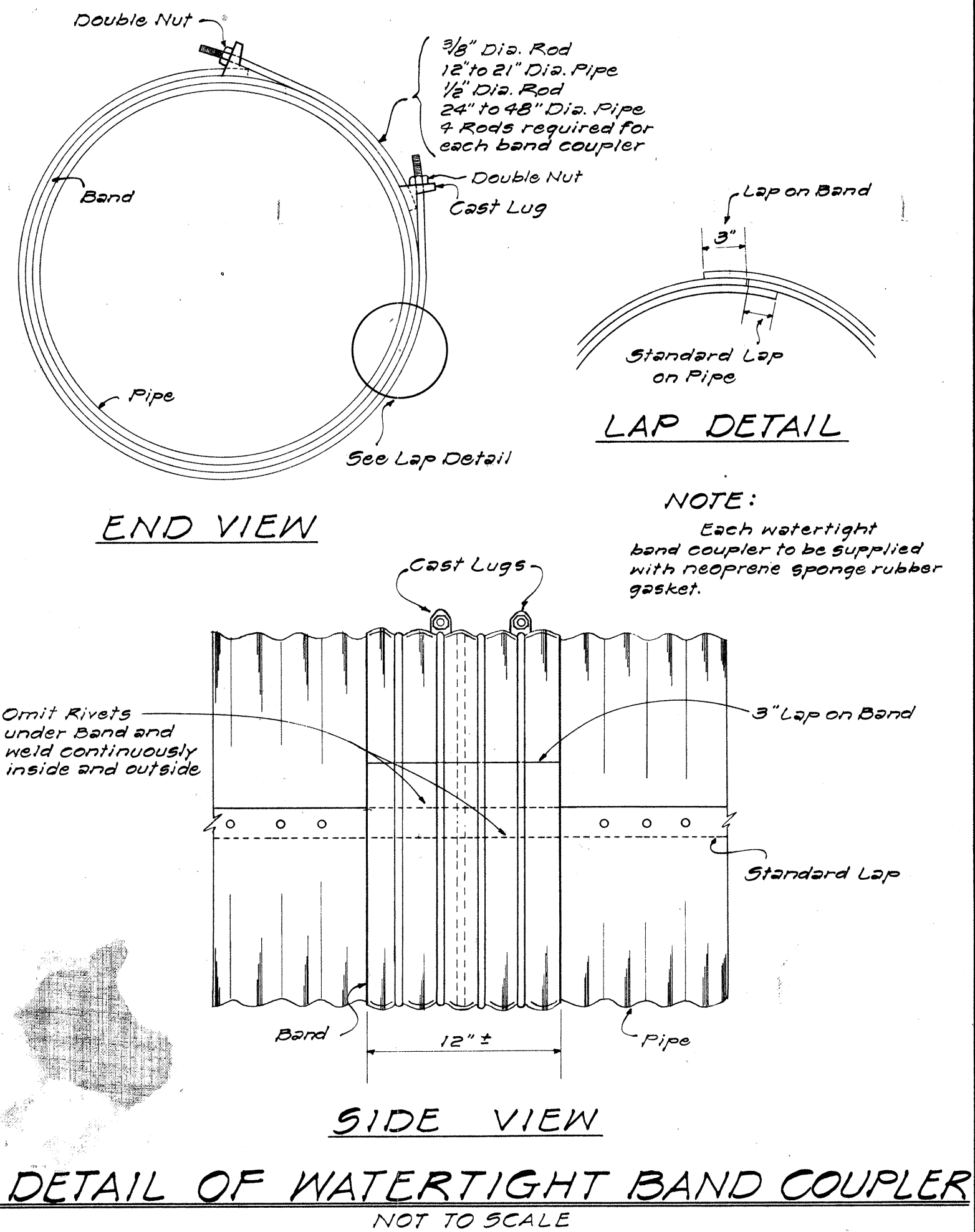
12" unless otherwise noted



SECTION "A-A"

DETAIL OF CONCRETE DROP INTAKE

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



DATE 5-24-6
DRAWN BY R. Y.
DESIGNED BY O. N.
CHECKED BY
NOTE BOOK
No.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
CORRUGATED GALVANIZED METAL
CULVERTS, SPILLWAYS, AND
SPECIAL DETAILS
SCALES AS NOTED
SHEET NO 4 OF 4 SHEETS