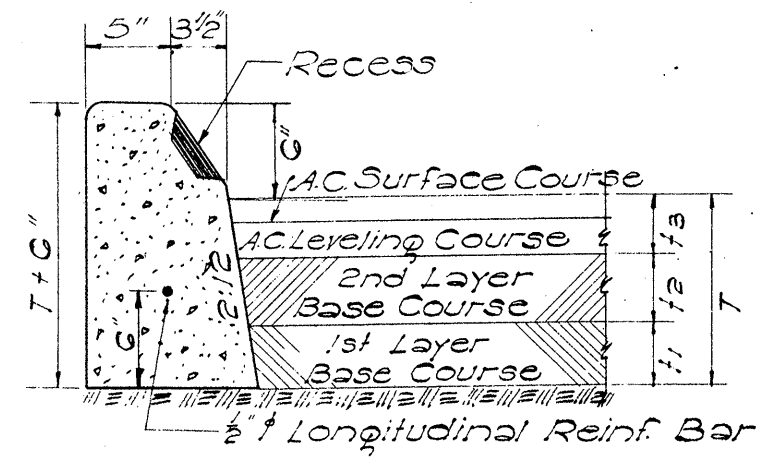


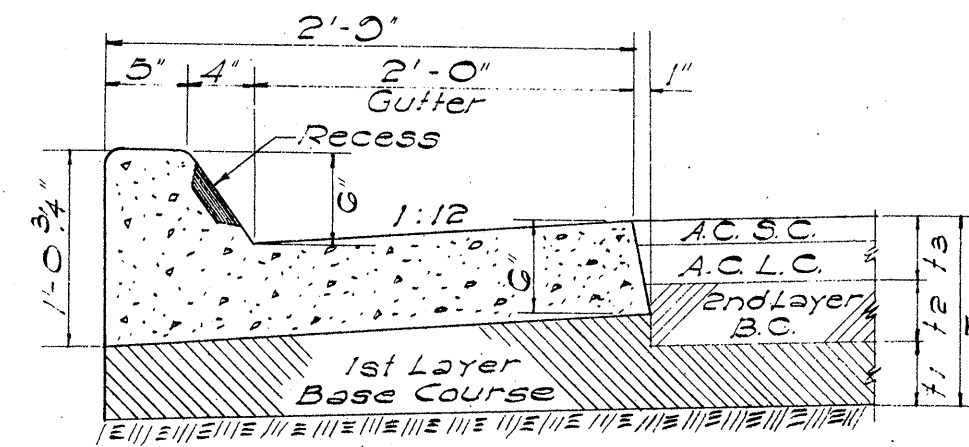
2/17/59

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	A-90-02-60 A-75-01-60	1960	13	17

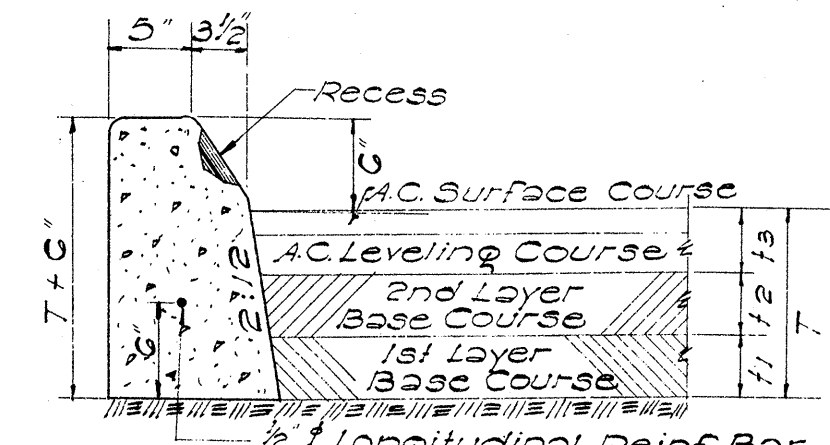
AUG. 1957



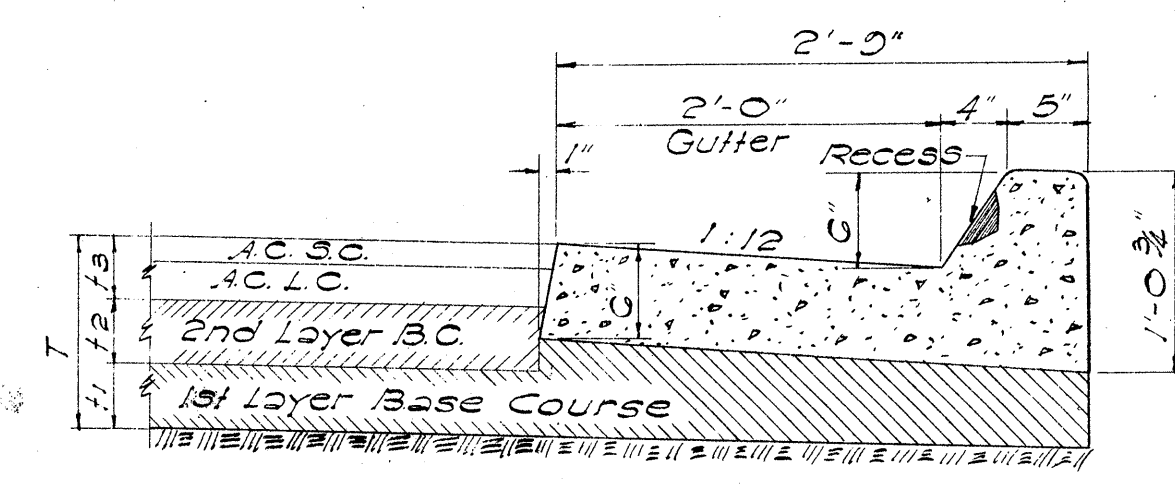
TYPE "A" & "B" CURB
SCALE: 1" = 1'-0"



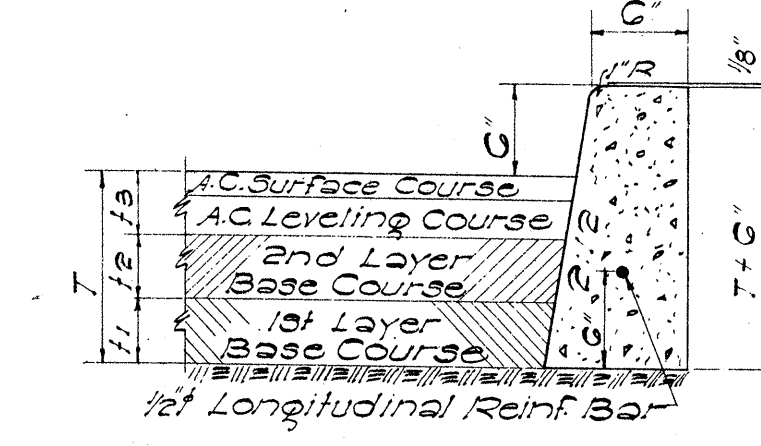
TYPE "AG" & "BG" CURB & GUTTER
SCALE: 1" = 1'-0"



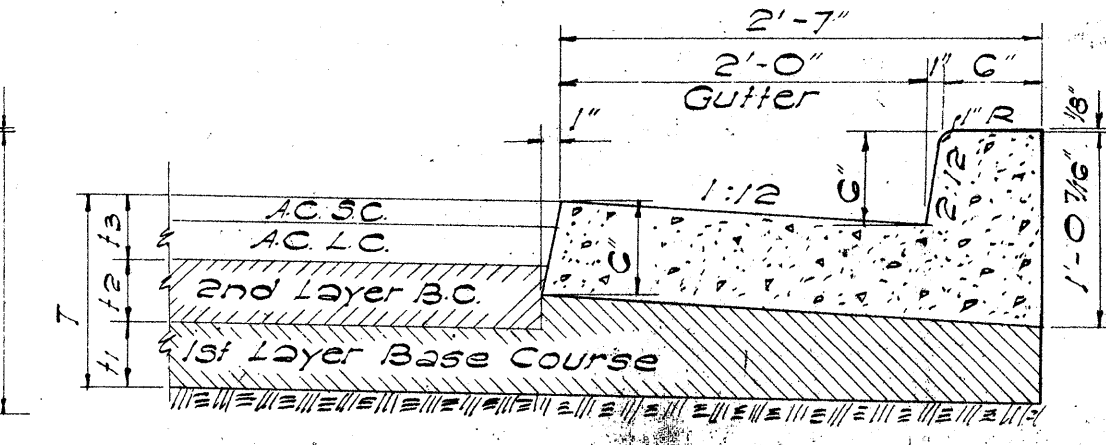
TYPE "C" CURB
SCALE: 1" = 1'-0"



TYPE "CG" CURB & GUTTER
SCALE: 1" = 1'-0"

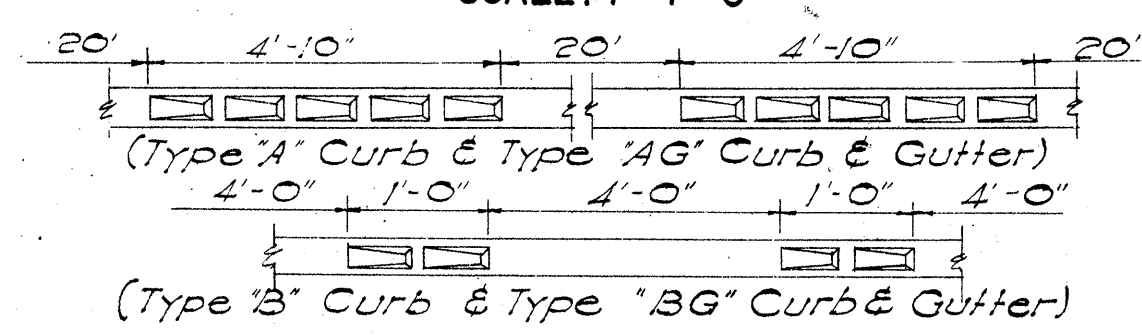


TYPE "D" CURB
SCALE: 1" = 1'-0"

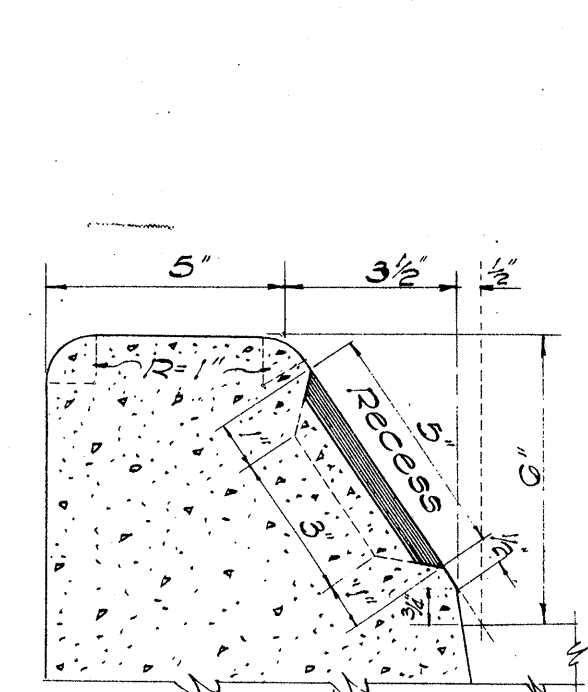


TYPE "DG" CURB & GUTTER
SCALE: 1" = 1'-0"

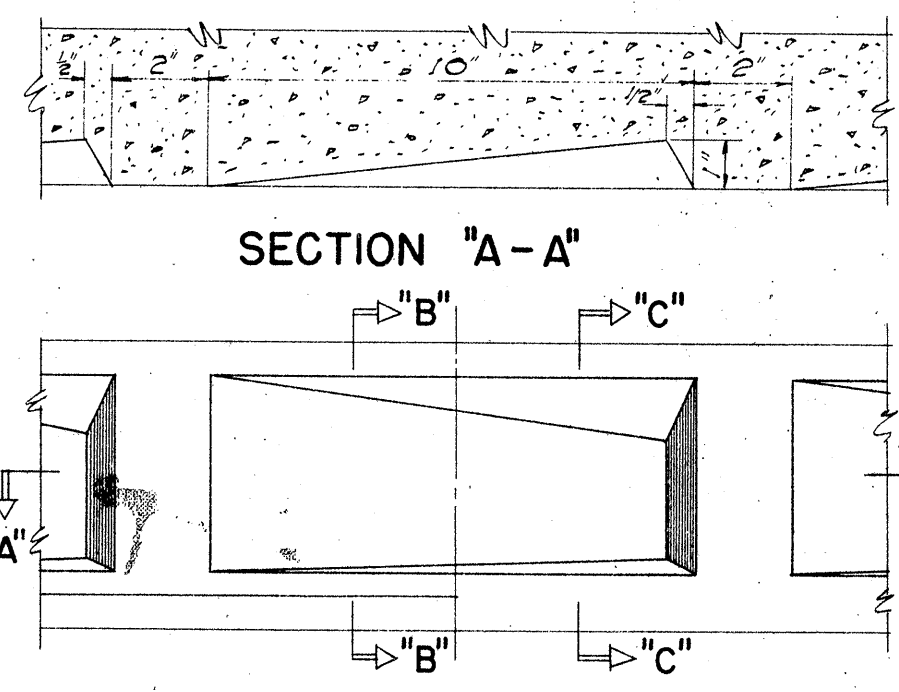
General Note Covering All Types of Curbs:
Occasionally curb rests on first layer of base course. See typical sections.



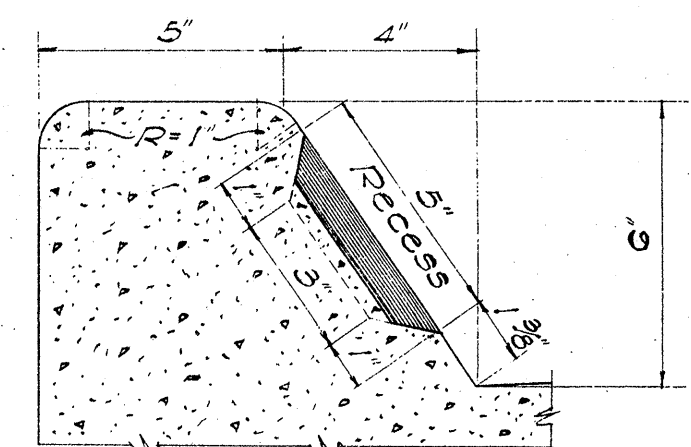
TYPE AND SPACING OF RECESSES



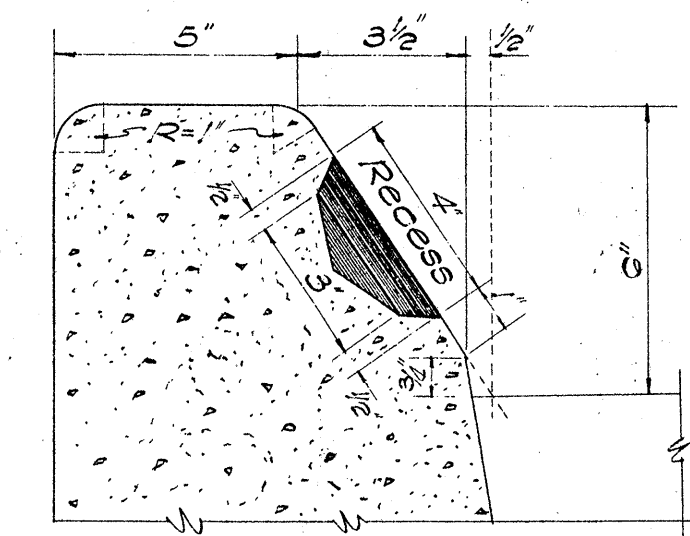
SECTION "B-B"
TYPE "A" & "B" CURB



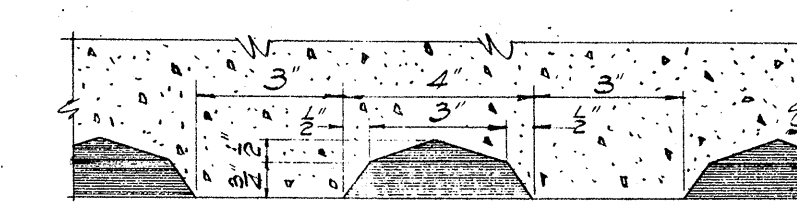
ELEVATION
SCALE: 3" = 1'-0"



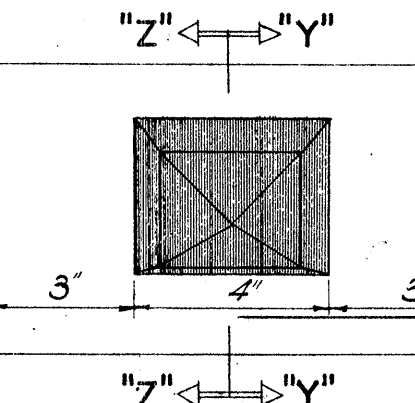
SECTION "C-C"
TYPE "AG" & "BG" CURB



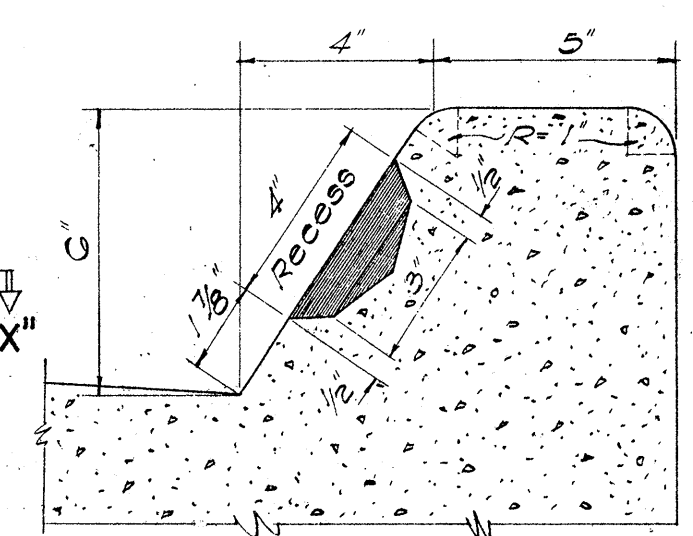
SECTION "Y-Y"
TYPE "C" CURB



SECTION "X-X"



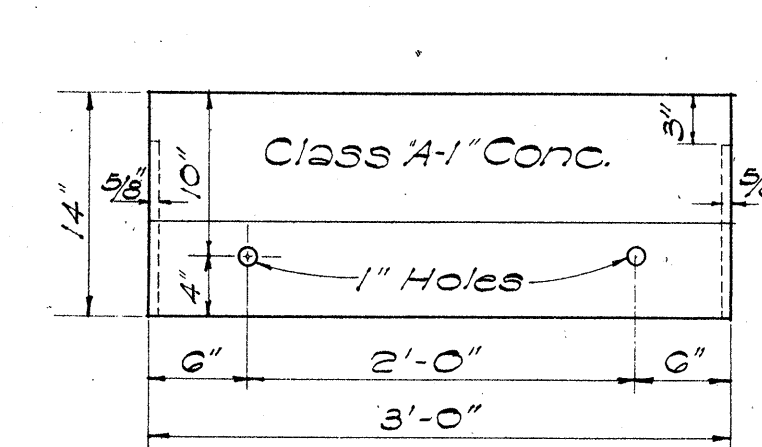
ELEVATION
SCALE: 3" = 1'-0"



SECTION "Z-Z"
TYPE "CG" CURB

- NOTES:
- Types "AG", "BG", "CG", "DG" and "EG" Concrete Curbs and Gutters are to be poured monolithically.
 - Types "A", "B", and "C" Curbs and Types "AG", "BG" and "CG" Curbs and Gutters occur at Median Strips and Traffic Islands.
 - Shaded area in Curbs are to be painted with an approved white lacquer. (One Coat)
 - All Conc. Curbs and Gutters shown herein are to be of Class "A-1" Conc. and Cast in Place.

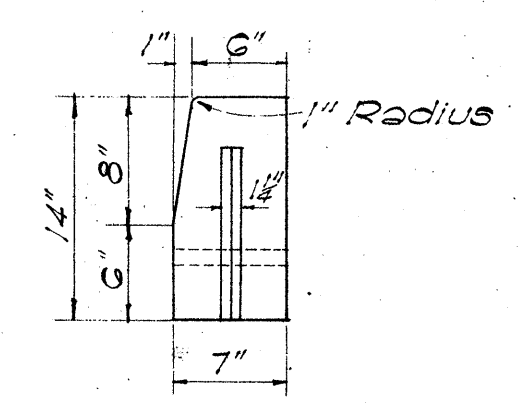
DETAILS OF CAST-IN-PLACE CONC. CURBS AND GUTTERS



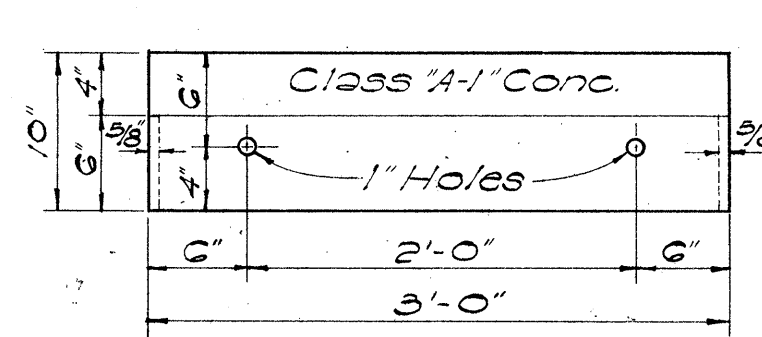
FRONT ELEV.

PRECAST CONC. CURB

SCALE: 1" = 1'-0"



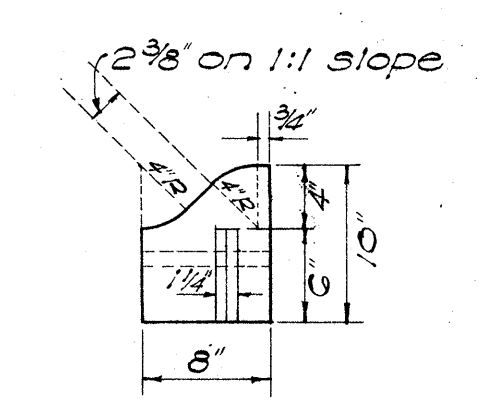
END ELEV.



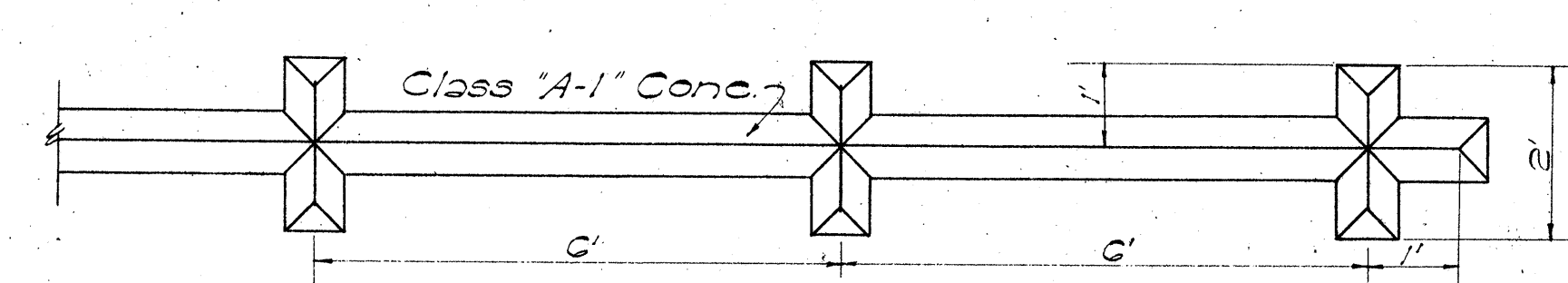
FRONT ELEV.

PRECAST CONC. ROLL CURB

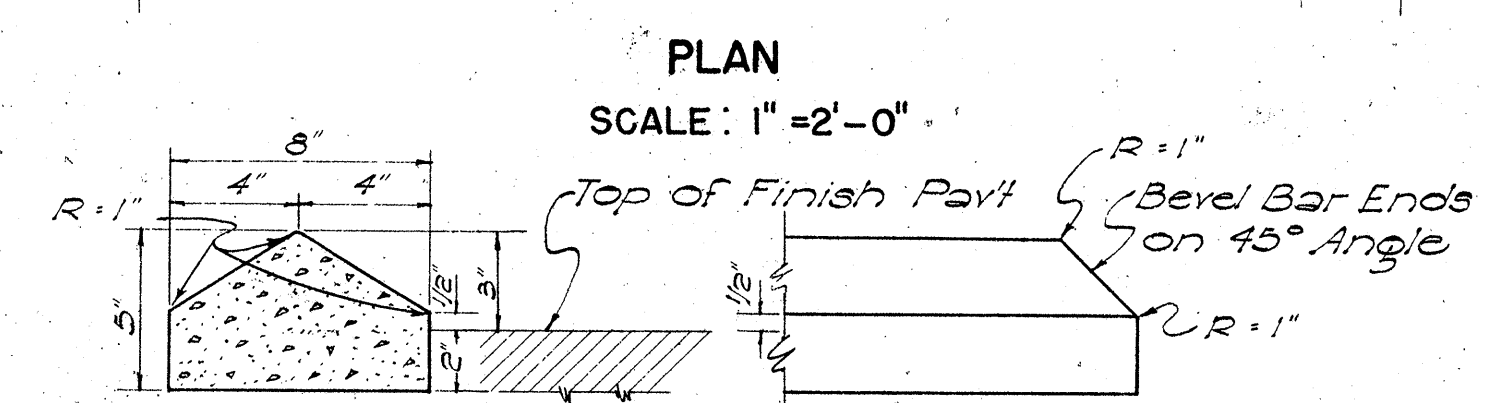
SCALE: 1" = 1'-0"



END ELEV.

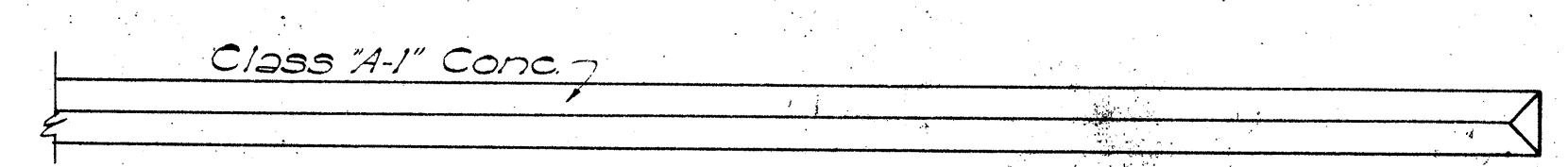


PLAN
SCALE: 1" = 2'-0"



SECTION
RAISED TRAFFIC BARS

SCALE: 1" = 6"



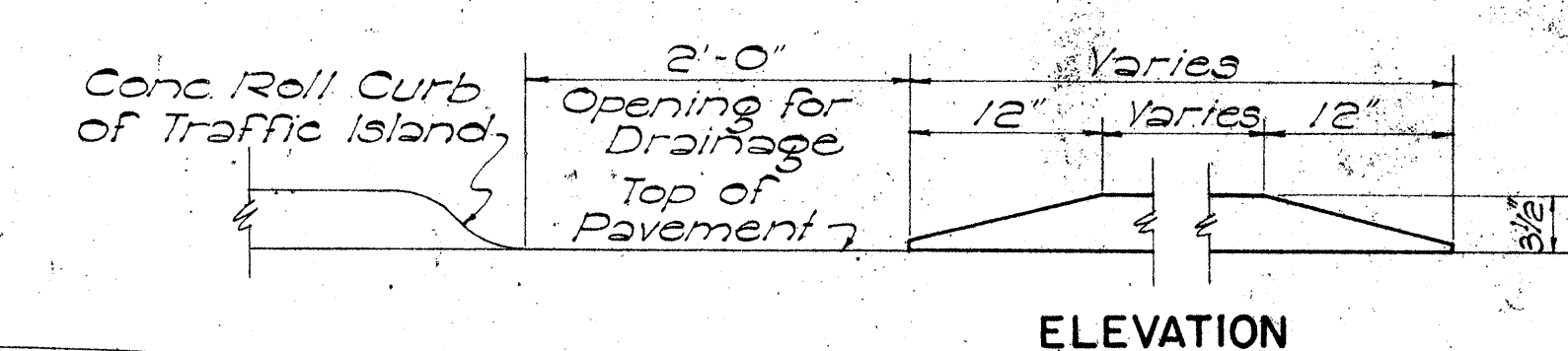
PLAN

RAISED JIGGLE BARS

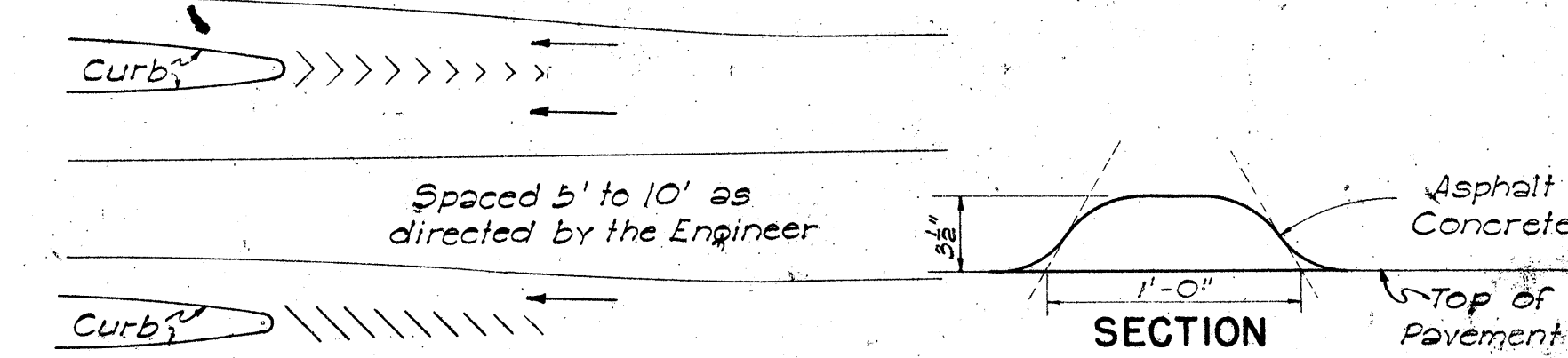
SCALE: 1" = 2'-0"

NOTE:
Section and Elevation for Jiggle Bars are same as the Traffic Bars.

NOTE:
Paint all exposed surfaces of bars with beaded white traffic lacquer.



ELEVATION



SECTION

A.C. TRAFFIC ROLL

NOT TO SCALE

At CURBED ISLAND

Spaced 5' to 10' as directed by the Engineer

Asphalt Concrete

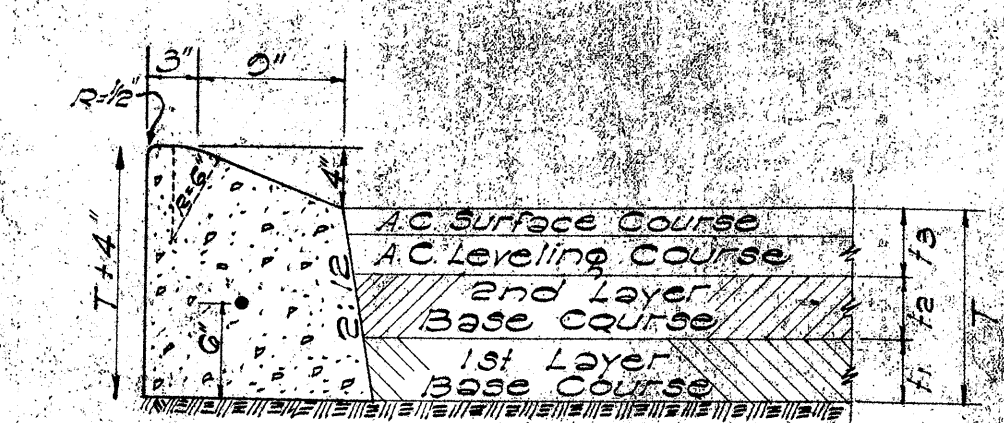
Top of Pavement

Stripping by others

Width of Strip

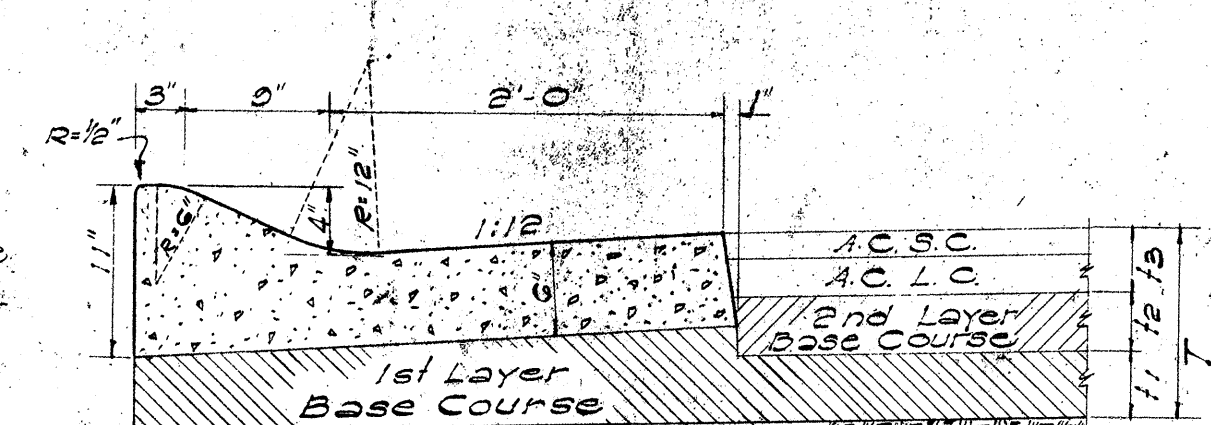
Median Strip

NOT TO SCALE



TYPE "E" CAST-IN-PLACE CONCRETE CURB

SCALE: 1" = 1'-0"



TYPE "EG" CAST-IN-PLACE CONC. CURB & GUTTER

SCALE: 1" = 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
STANDARD DETAILS
CONCRETE CURBS,
CONCRETE CURBS & GUTTERS
SCALES AS NOTED

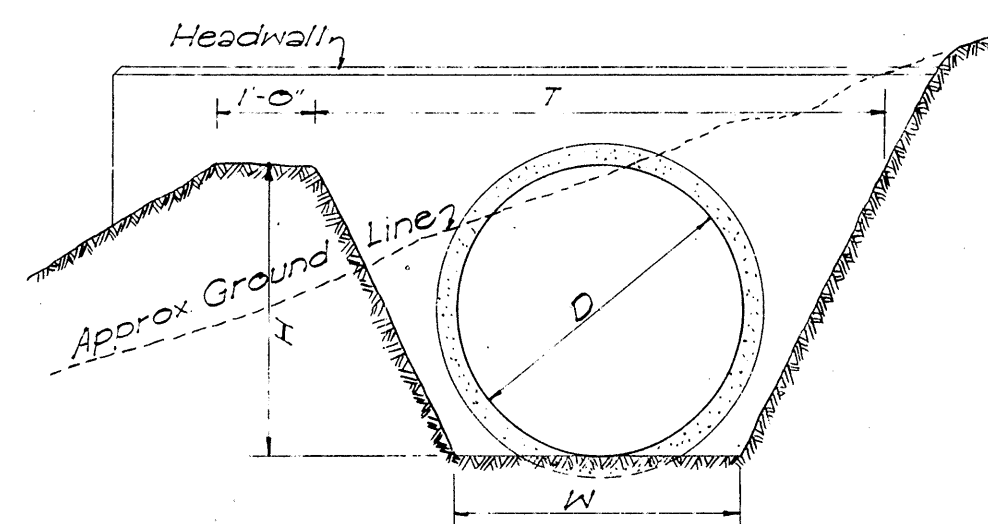
SHEET No 2 OF SHEETS

"E" and "EG" Curbs have been revised 7-26-57

DATE	2/17/59
DESIGNED BY	CS/sifo
DRAWN BY	CS/sifo
CHECKED BY	CS/sifo
APPROVED BY	CS/sifo
ORIGINAL PLAN	No.
NOTE BOOK	No.

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"	36"	2'-0"	5'-0"	
36"	36"	3'-0"	6'-0"	



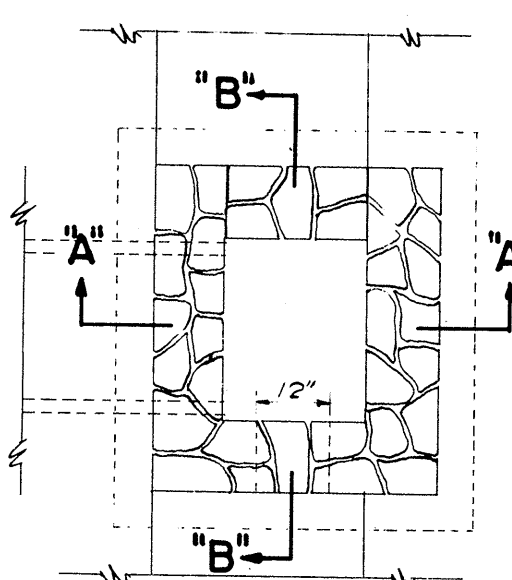
DETAIL OF OUTLET DITCH

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

DATA FOR MASONRY DROP INTAKE					Where Variables Equal
D	D	L=D+6"	Cu Yds.		
23"	18"	2'-5"	3.02		4'-6"
24"	24"	3'-0"	3.51		5'-0"
30"	30"	3'-7"	4.21		5'-6"
44"	36"	4'-2"	4.85		6'-0"

NOTE:

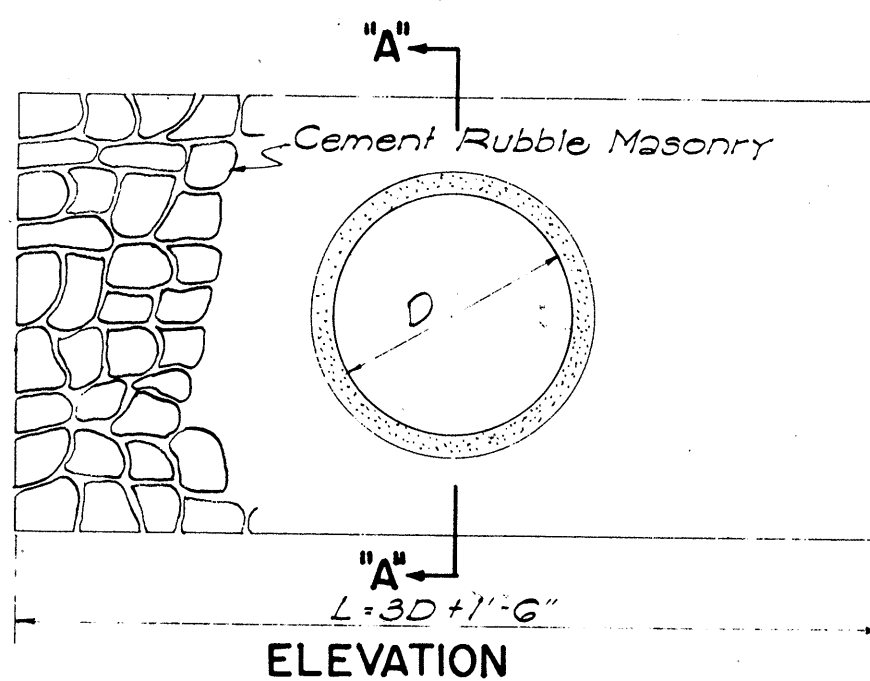
Dimension "X" is assumed as 2'-4" in figuring the above quantities.



DETAIL OF MASONRY DROP INTAKE

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

DATA-MASONRY HEADWALL					Cast-in-Place Conc. Culvert	Conc. Pipe Culvert	Corrugated Pipe Culvert
D	H	B	L		Cu Yds.	Cu Yds.	Cu Yds.
18"	3'-6"	1'-0"	6'-0"		0.85	0.05	0.03
24"	4'-0"	2'-0"	7'-6"		1.28	1.42	1.41
30"	4'-6"	2'-6"	9'-0"		1.83	2.06	2.00
36"	5'-0"	2'-6"	10'-6"		2.40	2.84	2.72



DETAIL OF MASONRY HEADWALL

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



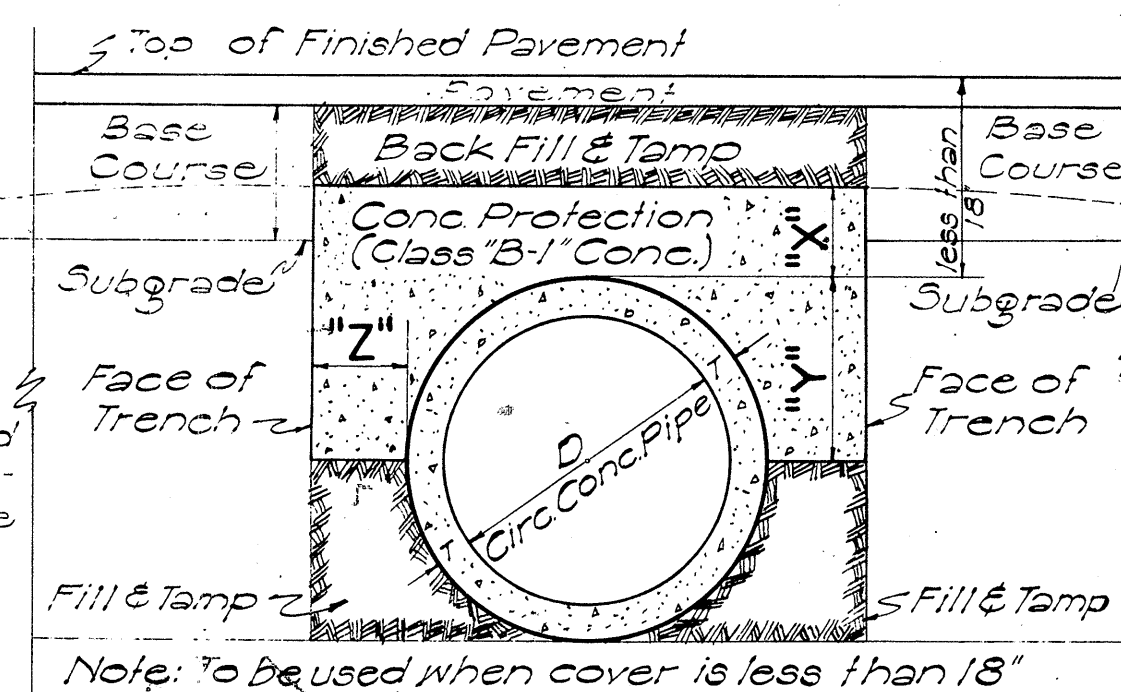
CONSTR. JOINT DETAILS

1/2" Cement mortar applied to waterproofing rough surface immediately before placing of new concrete

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

Note:

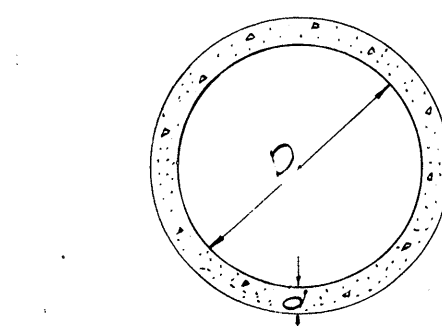
When subgrade is below top of jacket, it shall be fully compacted to this line and then re-excavated (struck) to proper subgrade. This surface shall be rolled again.



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		
10" " 42" D		
11" " 48" D		
12" " 54" D		
	$\frac{D}{2} + T$	Minimum = X Maximum pay quantity will be Z=12"

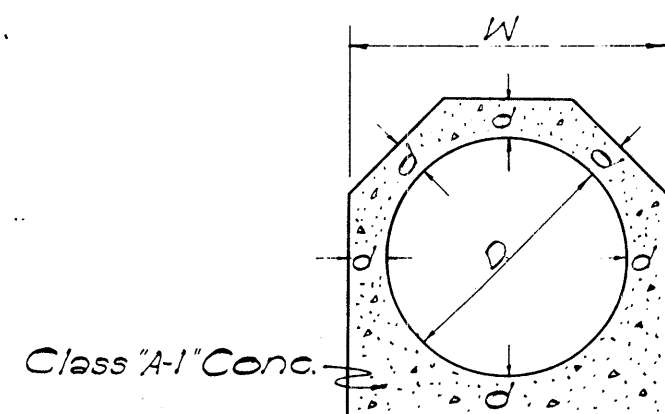
SECT. OF CULVERT WITH CONC. PROTECTION

Scale: 1" = 1'-0"

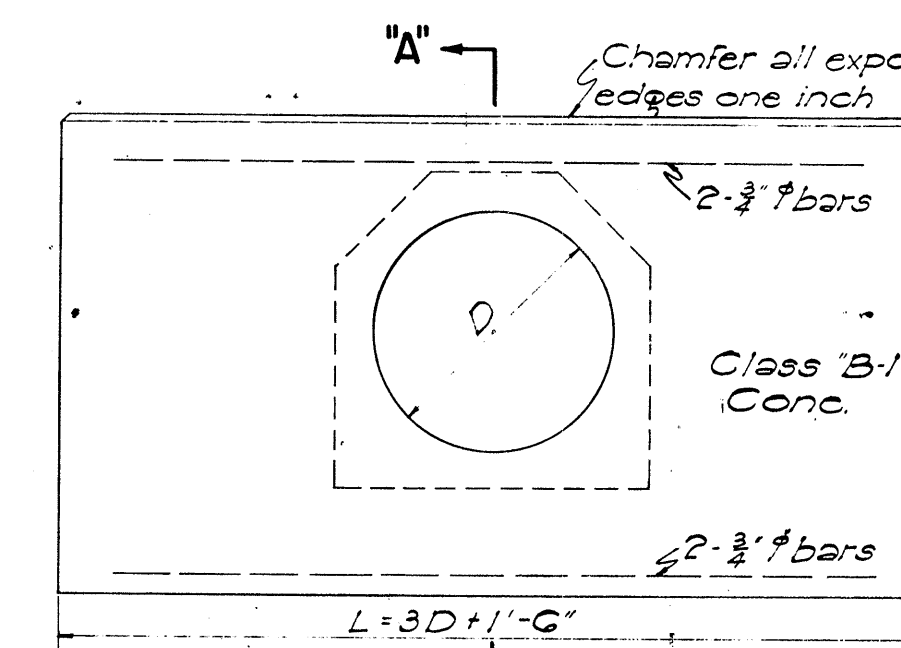
SECTION
CONC. PIPE CULVERT

NOTE:

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

CAST-IN-PLACE
CONC. CULVERT

DATA-CAST-IN-PLACE CONC. CULVERT			
D	d	W	Cu Yds. per ft.
18"	4"	2'-2"	0.11
24"	4 1/2"	2'-9"	0.14
30"	5"	3'-4"	0.19
36"	5 1/2"	3'-11"	0.26



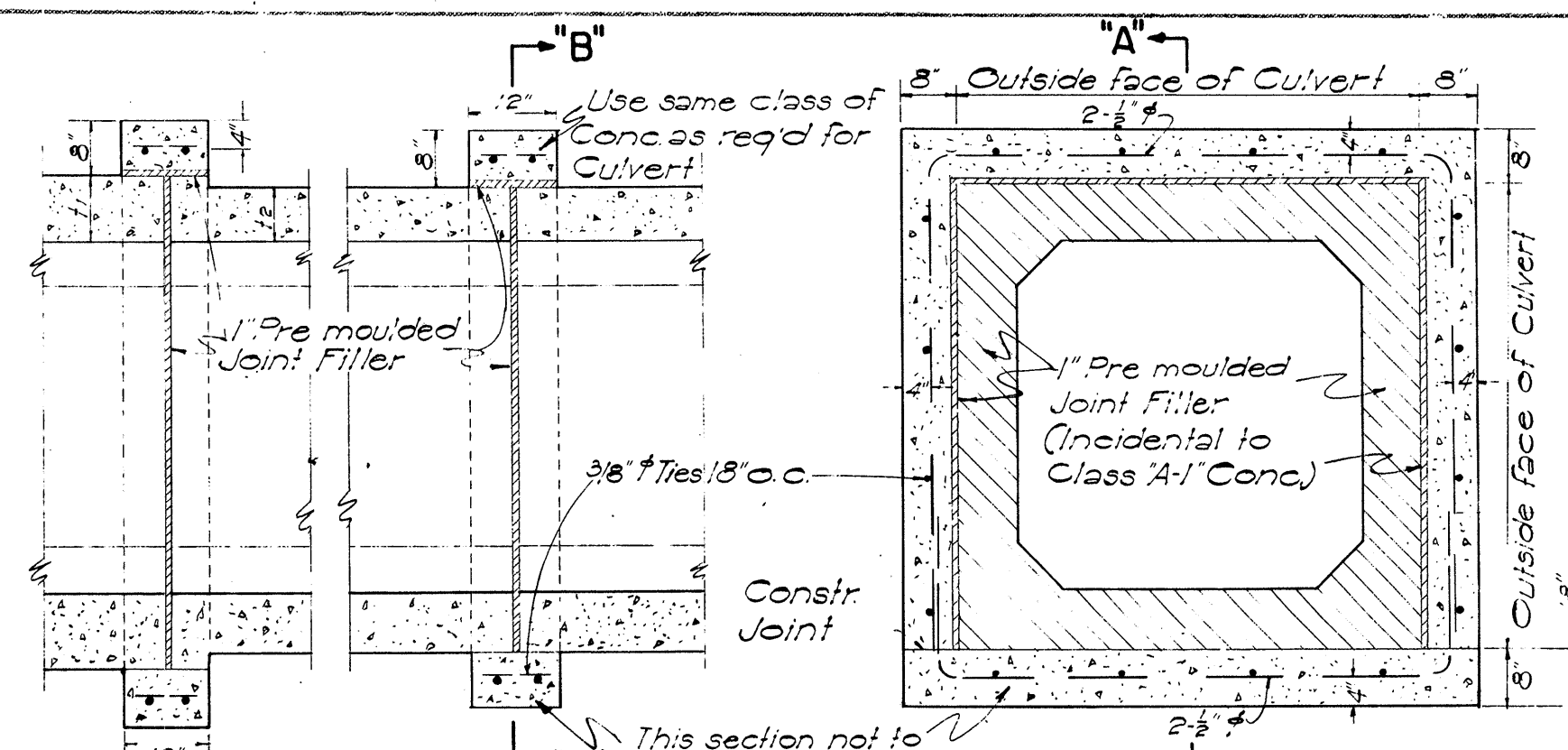
ELEVATION

SECTION "A-A"

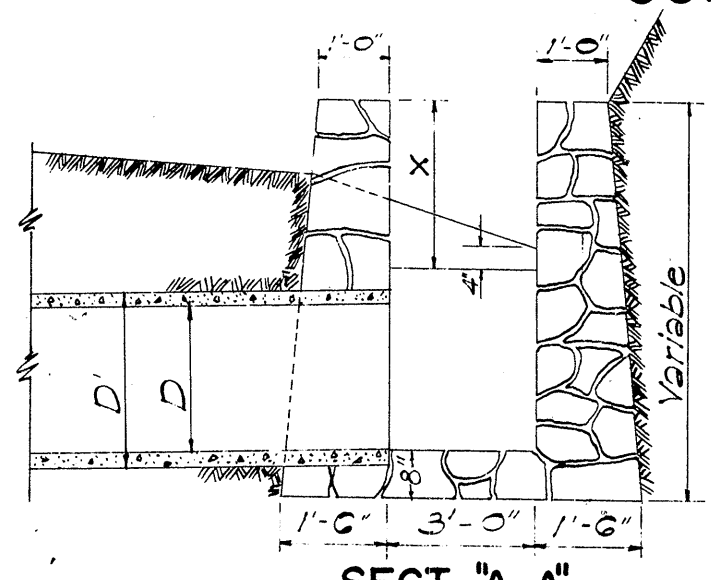
DATA FOR CONC. HEADWALL					Cast-in-Place Conc. Culvert	Conc. Pipe Culvert	Steel For One Headwall
D	B	L	H		Cu Yds.	Cu Yds.	No. of Bars Size Length Lbs.
18"	1'-6"	6'-0"	4'-0"		0.02	1.00	4 3/4" 5'-6" 33
24"	1'-6"	7'-6"	4'-6"		1.25	1.88	4 3/4" 7'-0" 42
30"	2'-0"	9'-0"	5'-0"		1.05	2.17	4 3/4" 8'-6" 51
36"	2'-0"	10'-6"	5'-6"		2.45	2.74	4 3/4" 10'-0" 60
42"	2'-6"	12'-0"	6'-0"			3.87	4 3/4" 11'-6" 69
48"	2'-6"	13'-6"	6'-6"			4.66	4 3/4" 13'-0" 78

DETAIL OF CONCRETE HEADWALL

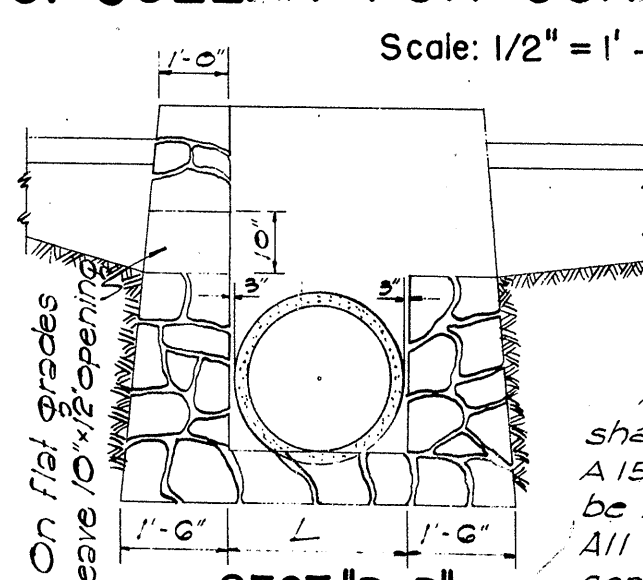
Scale: 1/2" = 1'-0"

SECTION "A-A"
CONC. COLLAR FOR CONC. BOX CULVERT

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



SECT. "A-A"



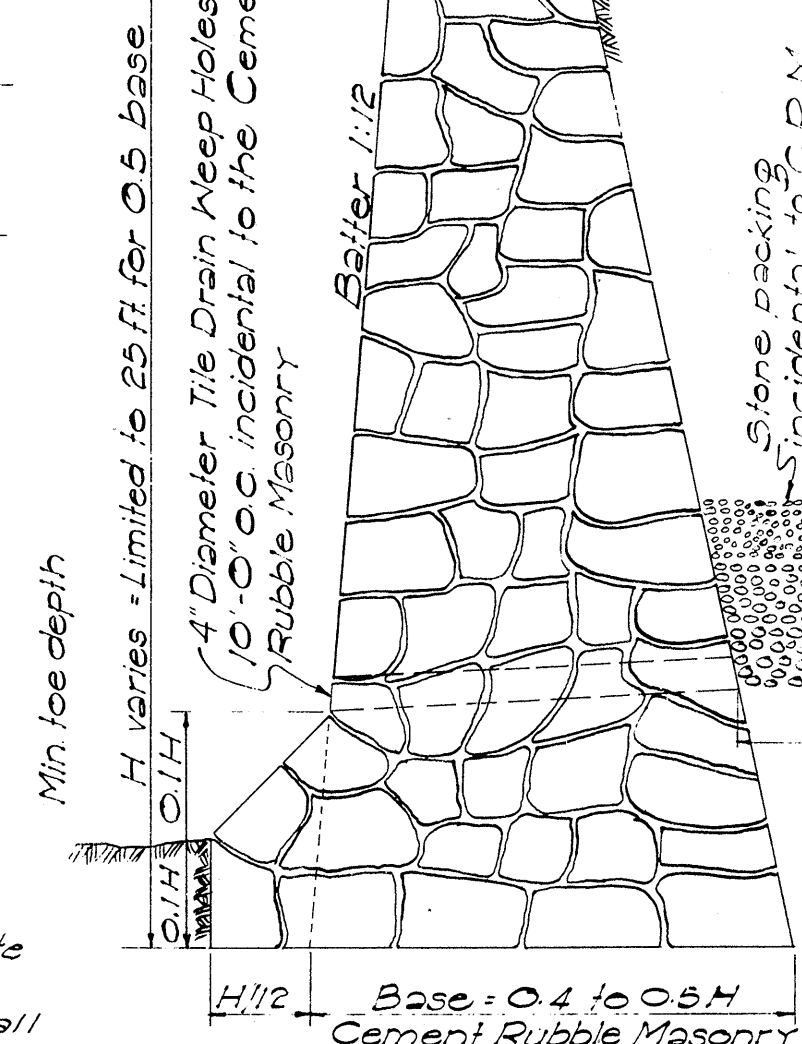
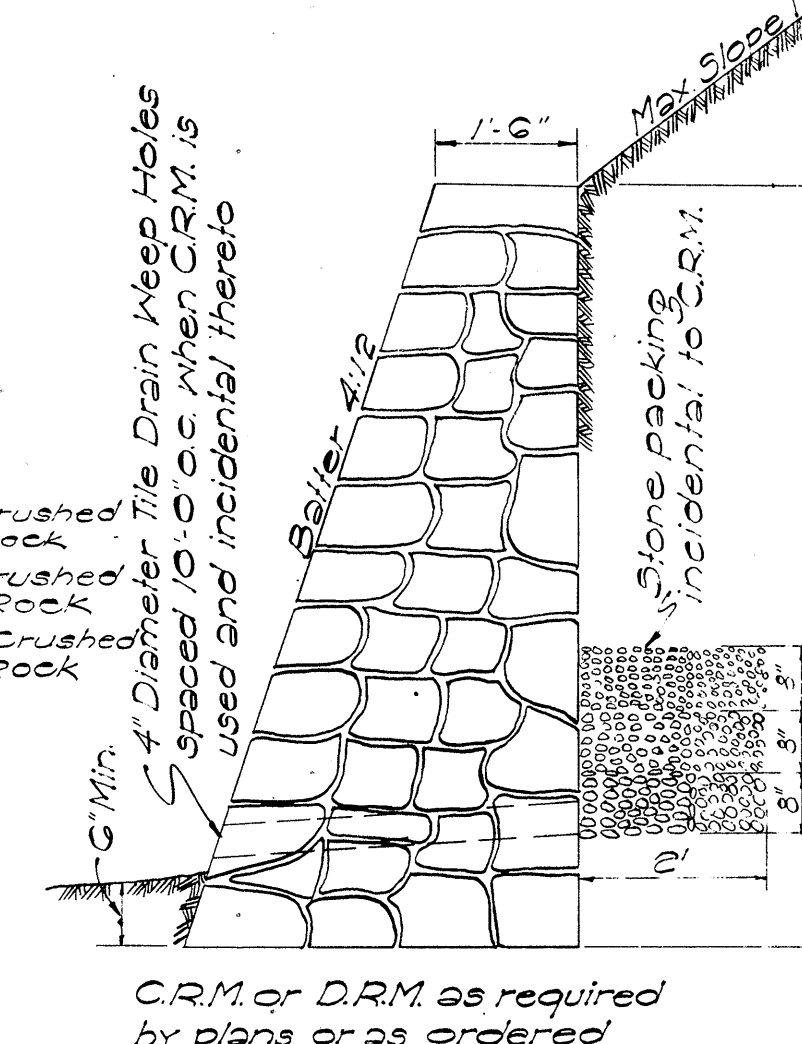
SECT. "B-B"

REINFORCING BARS

All reinforcing bars for concrete shall be Billet Steel bars, ASTM A15, intermediate grade. Steel shall be made by the open-hearth process. All bars shall be deformed type conforming to ASTM A-305.

SECTION OF HIGH CEMENT
RUBBLE MASONRY RETAINING
WALL OR SEAWALL

Min. ice depth

SECTION OF LOW
MASONRY RETAINING
WALL OR SEAWALL

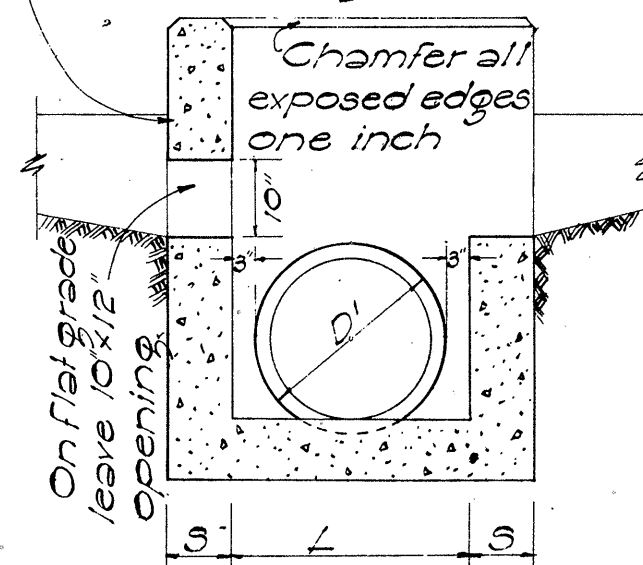
C.R.M. or D.R.M. as required by plans or as ordered

DATA-CONC. DROP INTAKE					Where Variables Equal
D	D	L=D+6"	Cu Yds.		
23"	18"	2'-5"	3.02		4'-6"
24"	24"	3'-0"	3.51		5'-0"
30"	30"	3'-7"	4.21		5'-6"
44"	36"	4'-2"	4.85		6'-0"
51"	42"	4'-9"	5.54		6'-6"
58"	48"	5'-4"	6.01		7'-0"

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

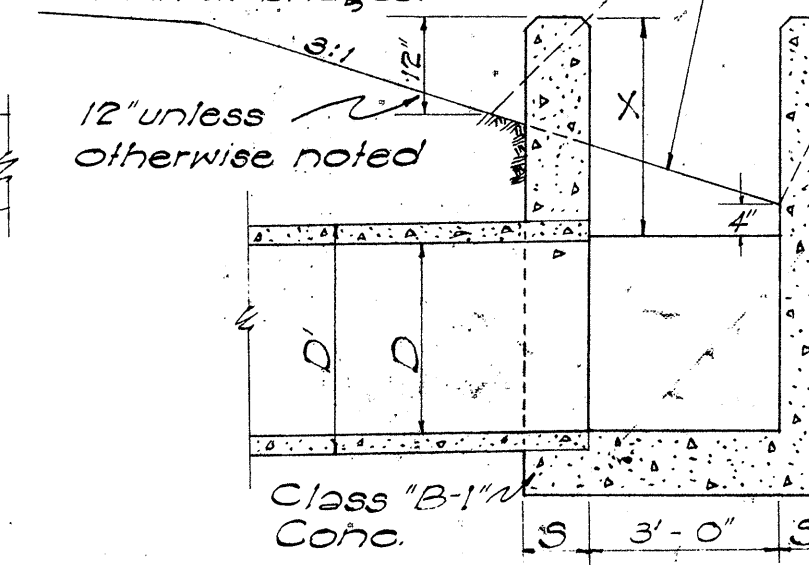
Where drainage comes from both sides lower this wall to same elevation as shown for opposite wall.

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



SECTION "B-B"

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.



SECTION "A-A"

DETAIL OF CONCRETE DROP INTAKE

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

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAIISTANDARD DETAILS
DROP INTAKES, RETAINING WALLS,
HEADWALLS, CONSTRUCTION JOINTS
SCALES AS NOTED

SHEET NO. OF SHEETS

2/17/59
4/6/59
4/28/59

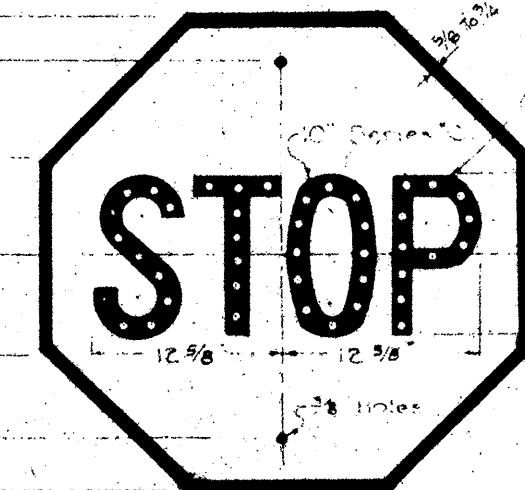
White Letters and Border on Red Background. Background may be of red reflective sheeting. Letters to be reflectorized with buttons or reflective sheeting.

Note: All Regulatory and Warning Signs Shall Have $\frac{3}{8}$ " Bolt Holes.

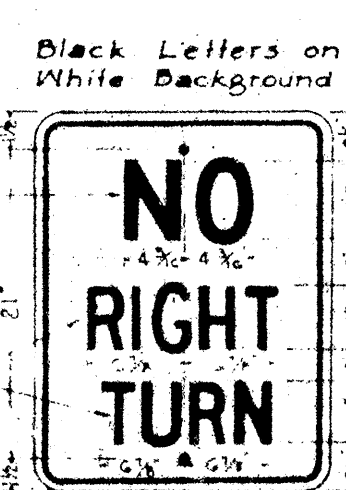
NOTE: Signs noted with an (R) designation indicate reflectorization with either buttons or reflective sheeting.

FILE NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	A-90-0260	1960	15	17

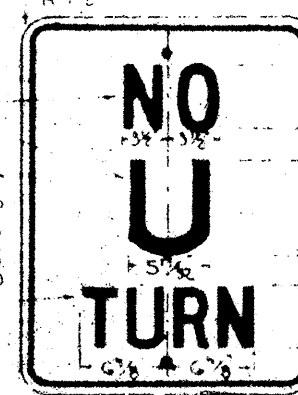
JULY 3, 1957



R-1
30" x 30"



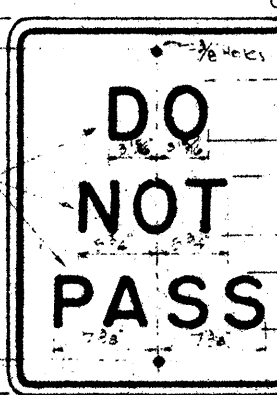
R-6
18" x 24"



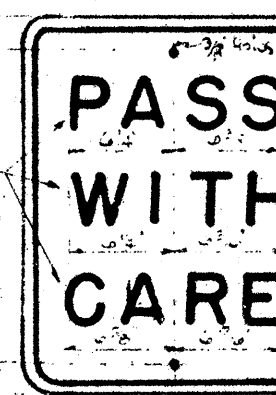
R-8
18" x 24"



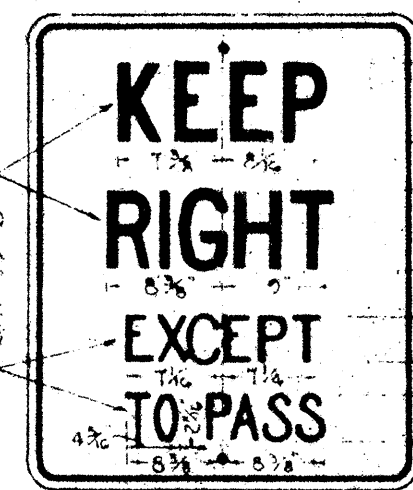
R-10
12" x 18"



R-11
18" x 24"



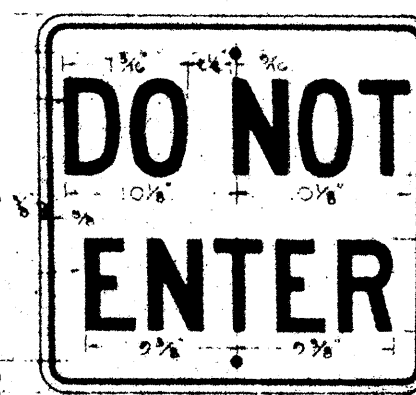
R-12
18" x 24"



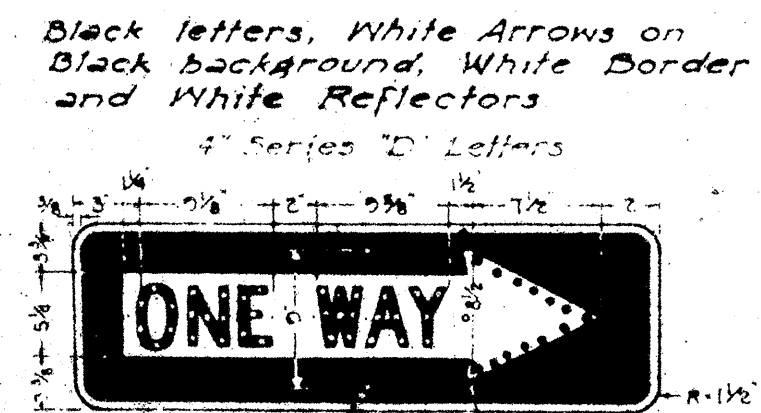
R-13
24" x 30"



R-14 (R)
18" x 24"



R-15
24" x 24"



R-16-R (R)
R-16-L (R)
36" x 12"



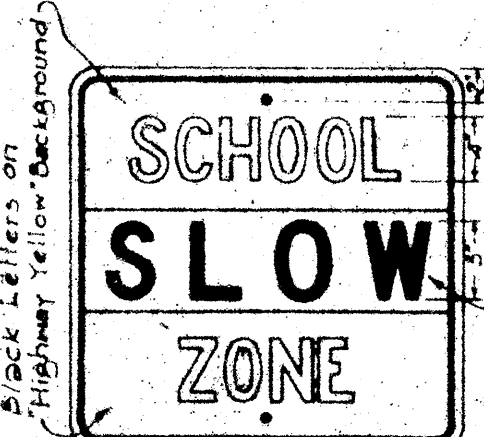
R-18
12" x 18"



R-26
12" x 18"



R-29
24" x 30"



R-41-S
24" x 24"



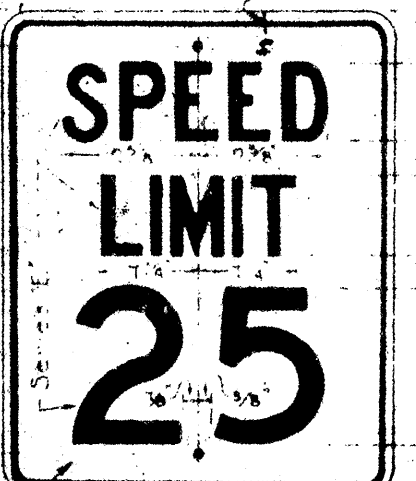
R-42-S
12" x 18"



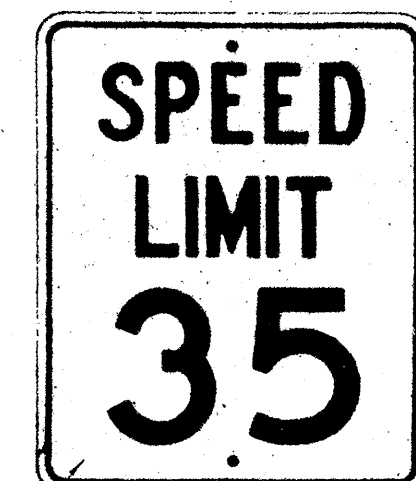
R-43-S
12" x 18"



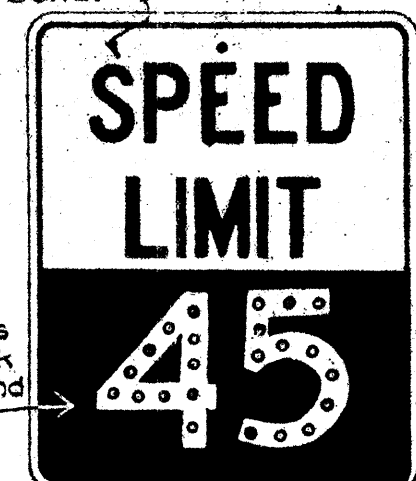
R-44-S
12" x 18"



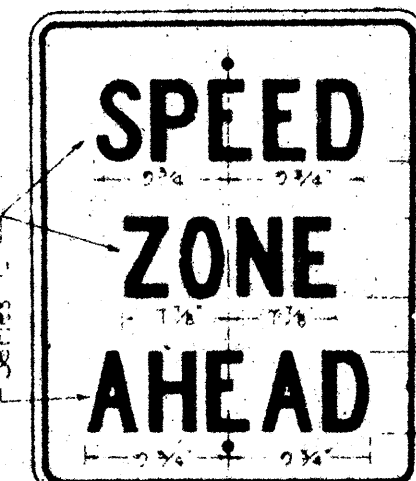
R-102-A
24" x 30"



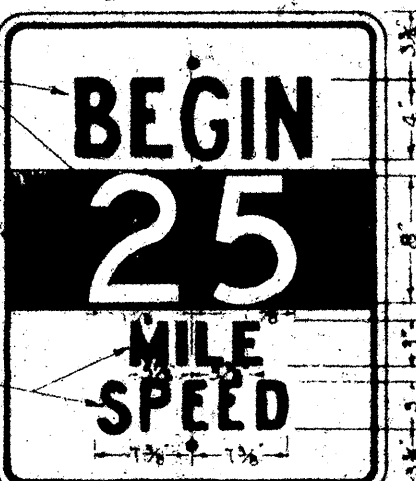
R-102-B
24" x 30"



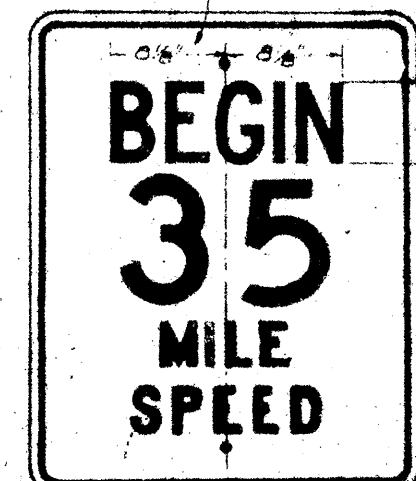
R-102-C (R)
24" x 30"



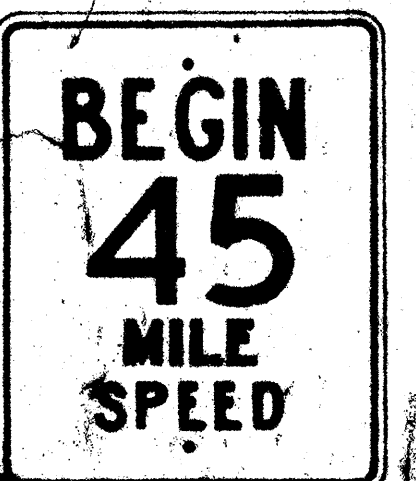
R-104
24" x 30"



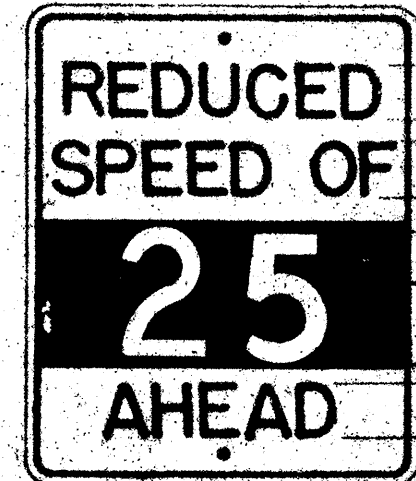
R-105-A (R)
24" x 30"



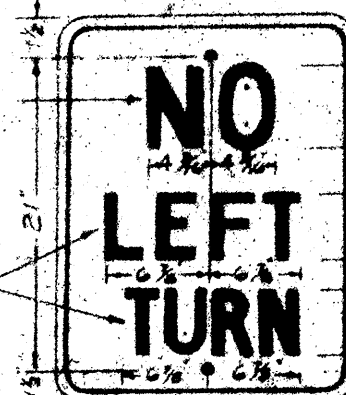
R-105-B
24" x 30"



R-105-C
24" x 30"



R-104-A
24" x 30"



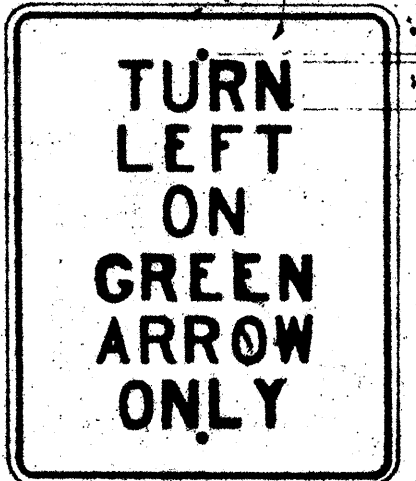
R-7
18" x 24"



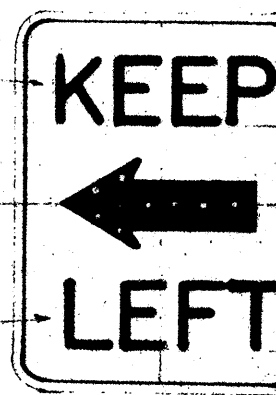
R-66
18" x 24"



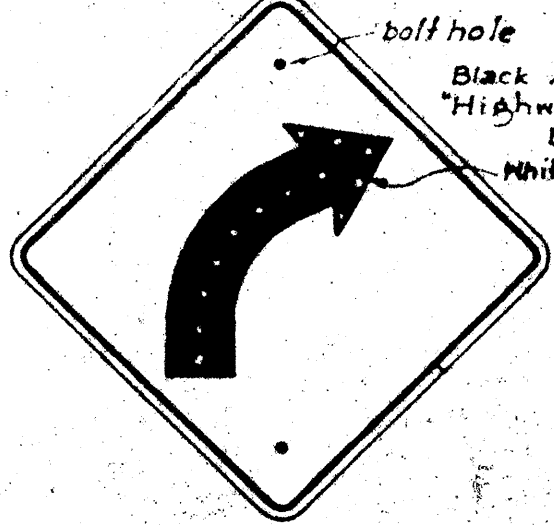
R-108
24" x 30"



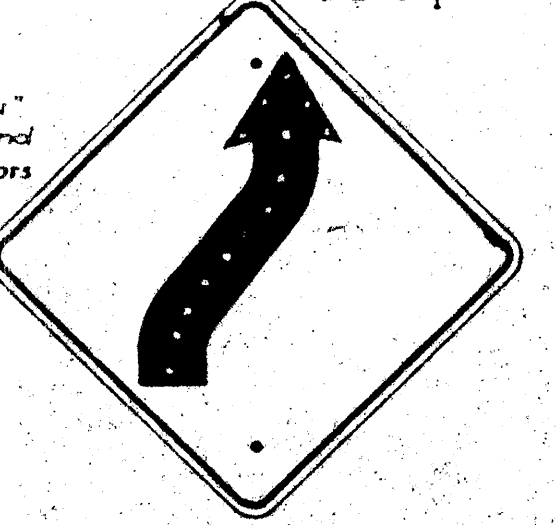
R-107-A
24" x 30"



R-14-A
24" x 24"



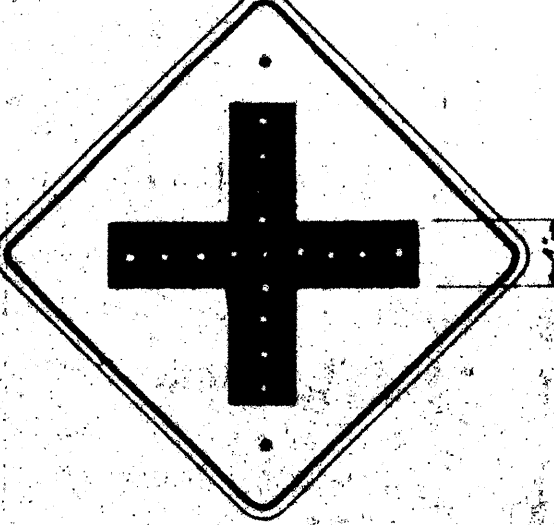
W-2-R
W-2-L
24" x 24"



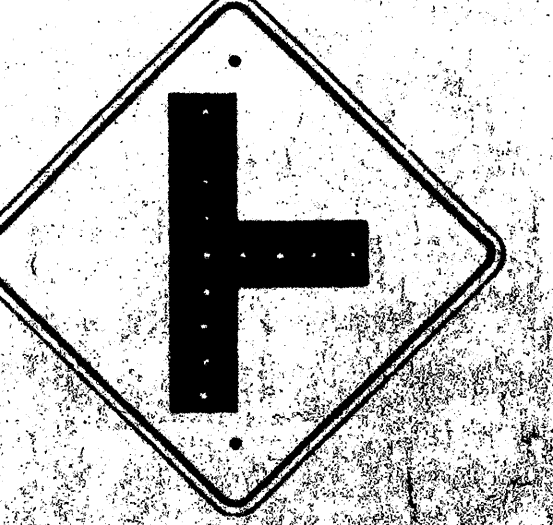
W-4-R
W-4-L
24" x 24"



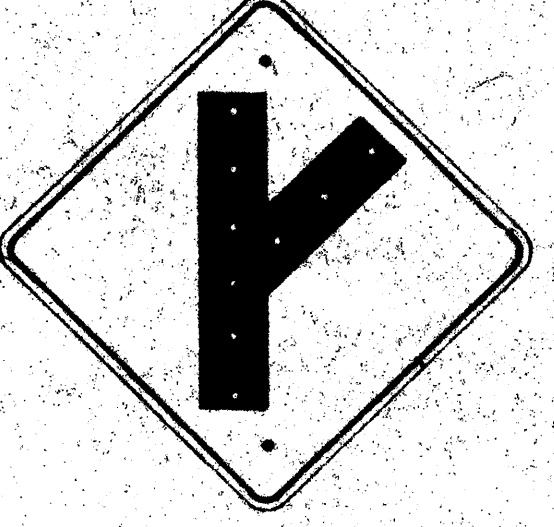
W-5-R
W-5-L
24" x 24"



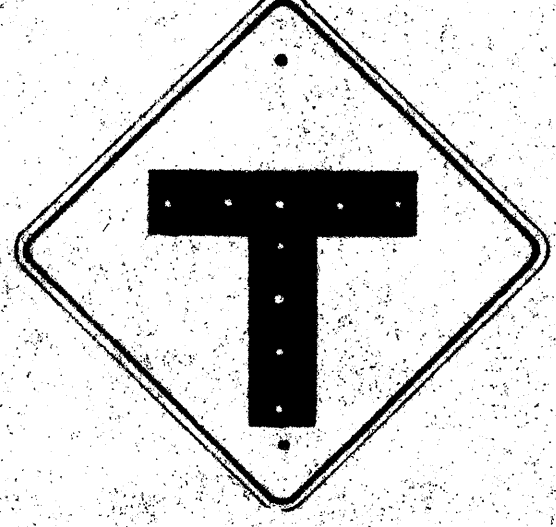
W-6
24" x 24"



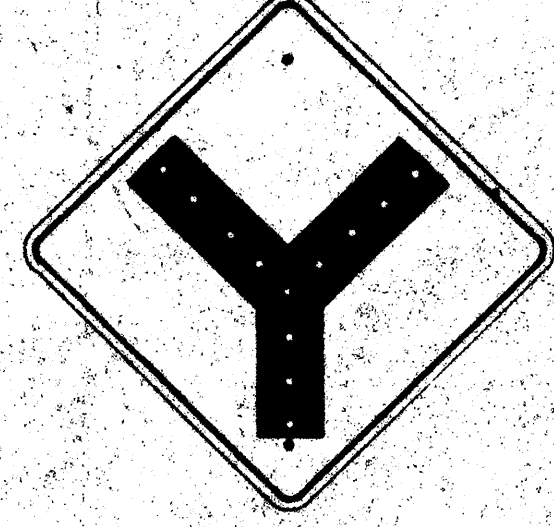
W-7
24" x 24"



W-8-R
W-8-L
24" x 24"



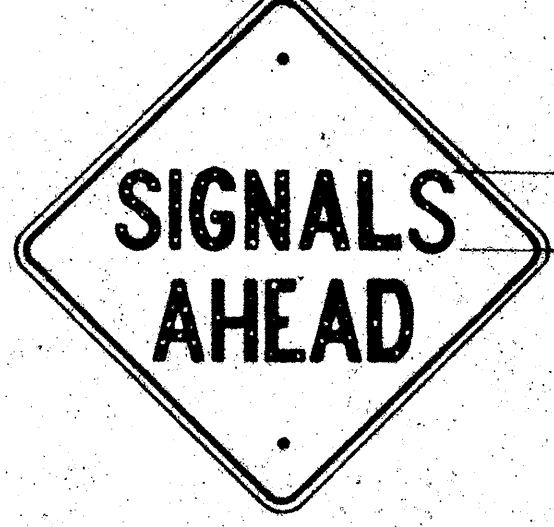
W-9
24" x 24"



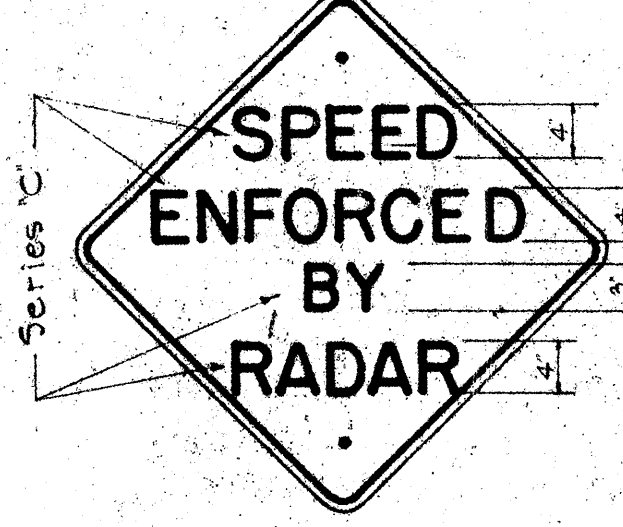
W-10
24" x 24"



W-13
24" x 24"



W-14
24" x 24"



W-40
24" x 24"



W-19
30" x 30"



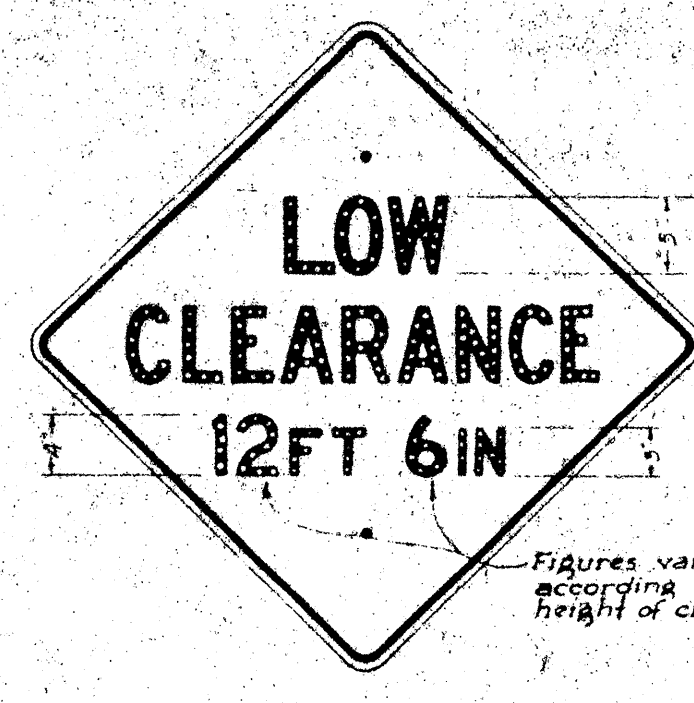
W-20
30" x 30"



W-21
30" x 30"



W-22
24" x 24"



W-24
30" x 30"



W-25
24" x 24"



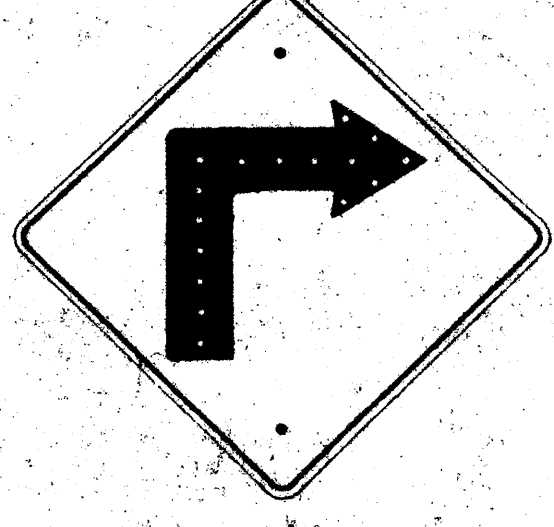
W-29
24" x 24"



W-59
24" x 24"



W-39
24" x 24"



W-1-R
W-1-L
24" x 24"

NOTE: R-104 A,B,C signs with (R) designation shall have white numerals reflectorized with buttons or reflective sheeting on a black background.

Fully reflectorized with reflective sheeting.

NOTE: R-102 A,B,C signs with (R) designation: Lower half with white numerals, reflectorized with buttons or reflective sheeting, on black background.

NOTE: R-105 A,B,C signs with (R) designation shall have white numerals, reflectorized with buttons or reflective sheeting on a black background.

Background may be made of Yellow Reflective sheeting.

Unless otherwise specified, all signs shall conform with requirements of "Manual on Uniform Traffic Control Devices for Streets and Highways."

All letters and figures shall be of size and design shown and shall conform with "Standard Alphabets for Highway Signs" as set forth by the Public Roads Administration, Federal Works Agency. Series "C" letters and Series "D" numerals shall be used except where noted.

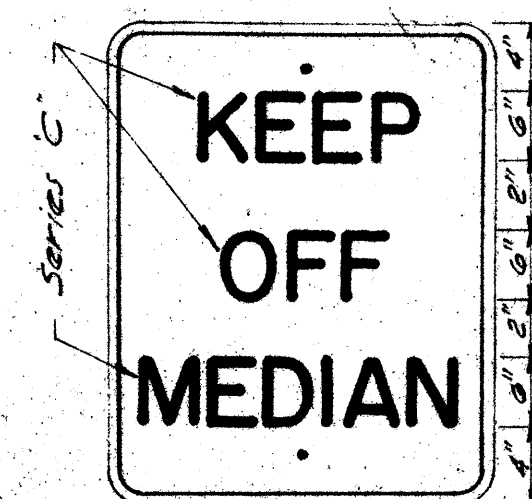
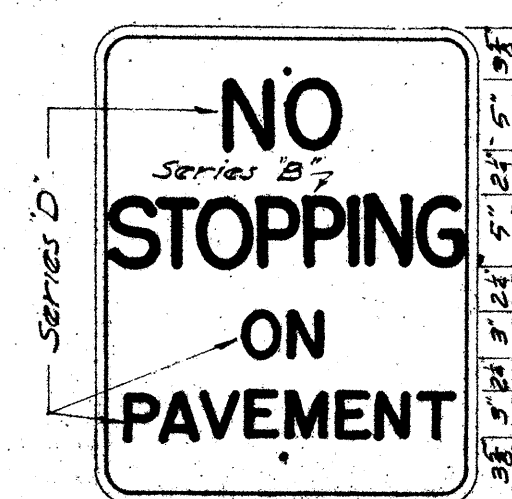
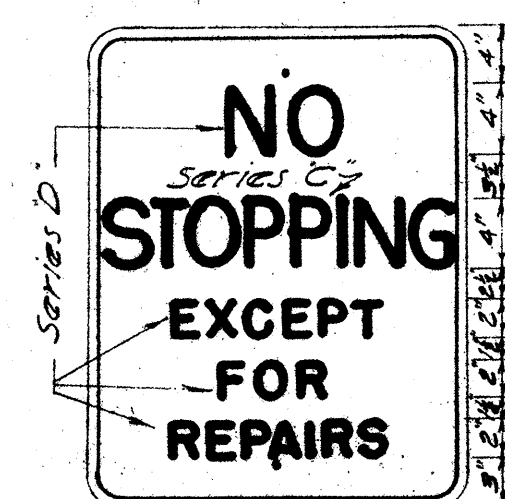
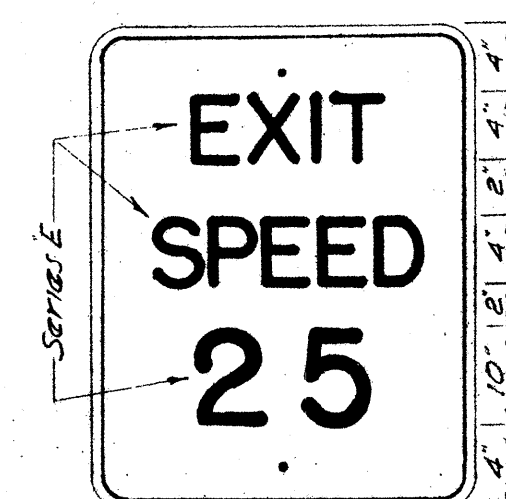
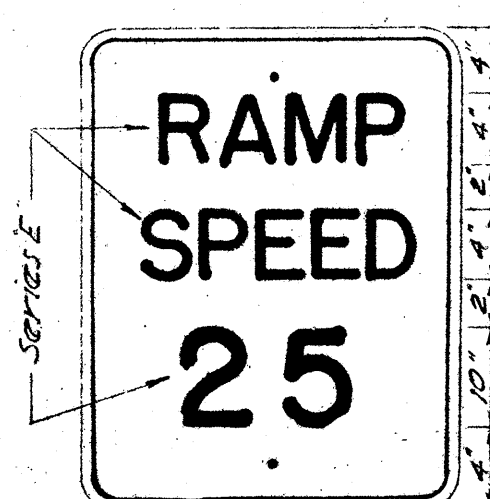
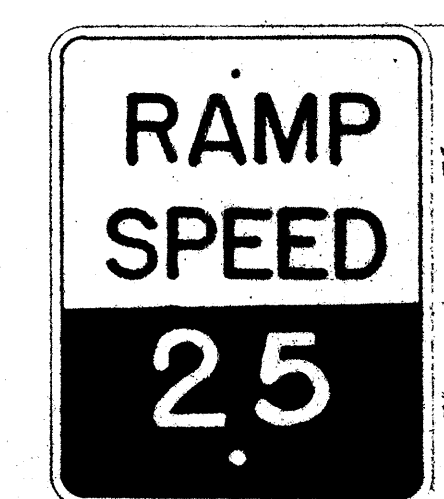
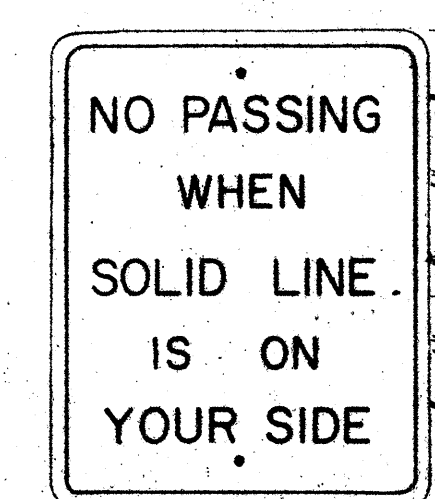
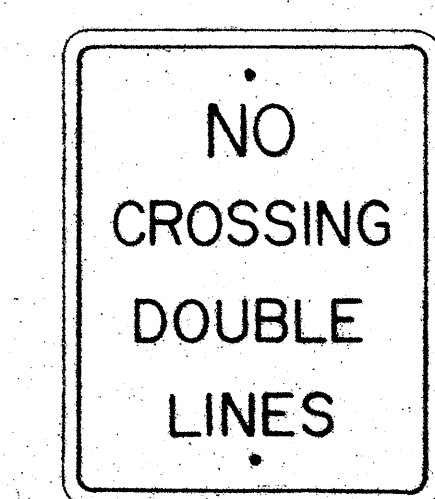
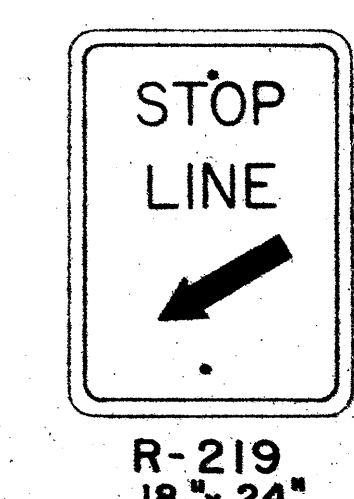
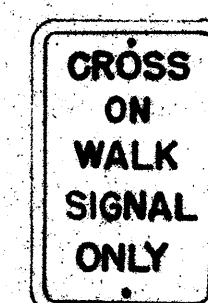
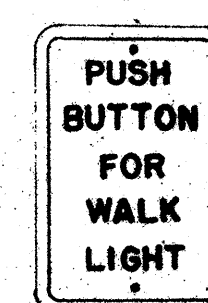
Note: All Regulatory signs shall have black letters on a white background except where noted. All Warning (W) signs shall have black letters or figures on a "Highway Yellow" background. Signs shall be similar but opposite in direction. See Specifications for Materials and Finish.

TERRITORIAL HIGHWAY DEPARTMENT	
TERRITORY OF HAWAII	
REGULATORY & WARNING SIGNS	
Scale: 1" =	April 23, 1959
APPROVED: _____	TERRITORIAL HIGHWAY ENGINEER

SHEET No. 3 OF SHEETS

Use series "C" letters on signs R-212, 213, 219, and 215.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	A-50-02-4	1950	16	17

R-40
24"x30"R-30
24"x30"R-30A
24"x30"R-202A
24"x30"R-202A(R)
24"x30"R-302A
24"x30"R-302A(R)
24"x30"R-212
24"x30"R-213
24"x30"R-219
18"x24"R-33
12"x18"R-34
12"x18"R-35
12"x18"R-36
12"x18"

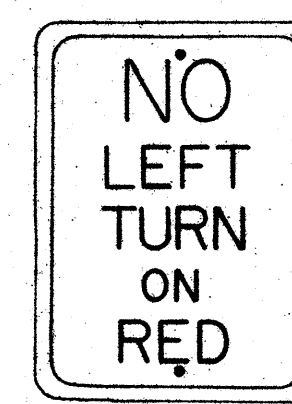
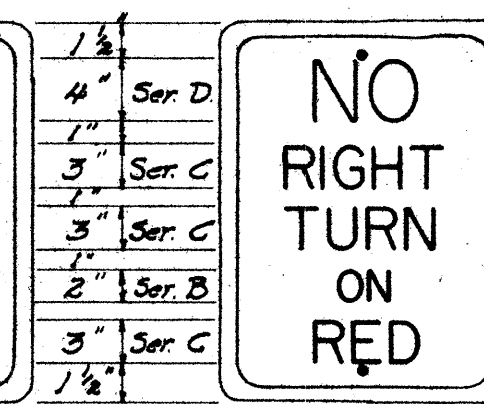
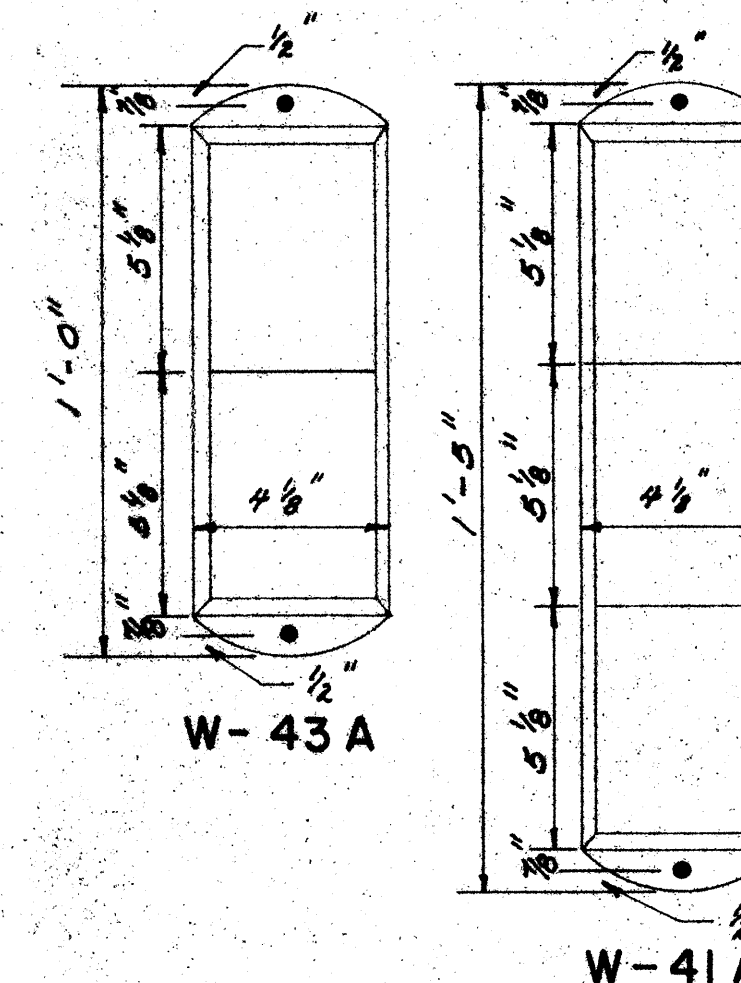
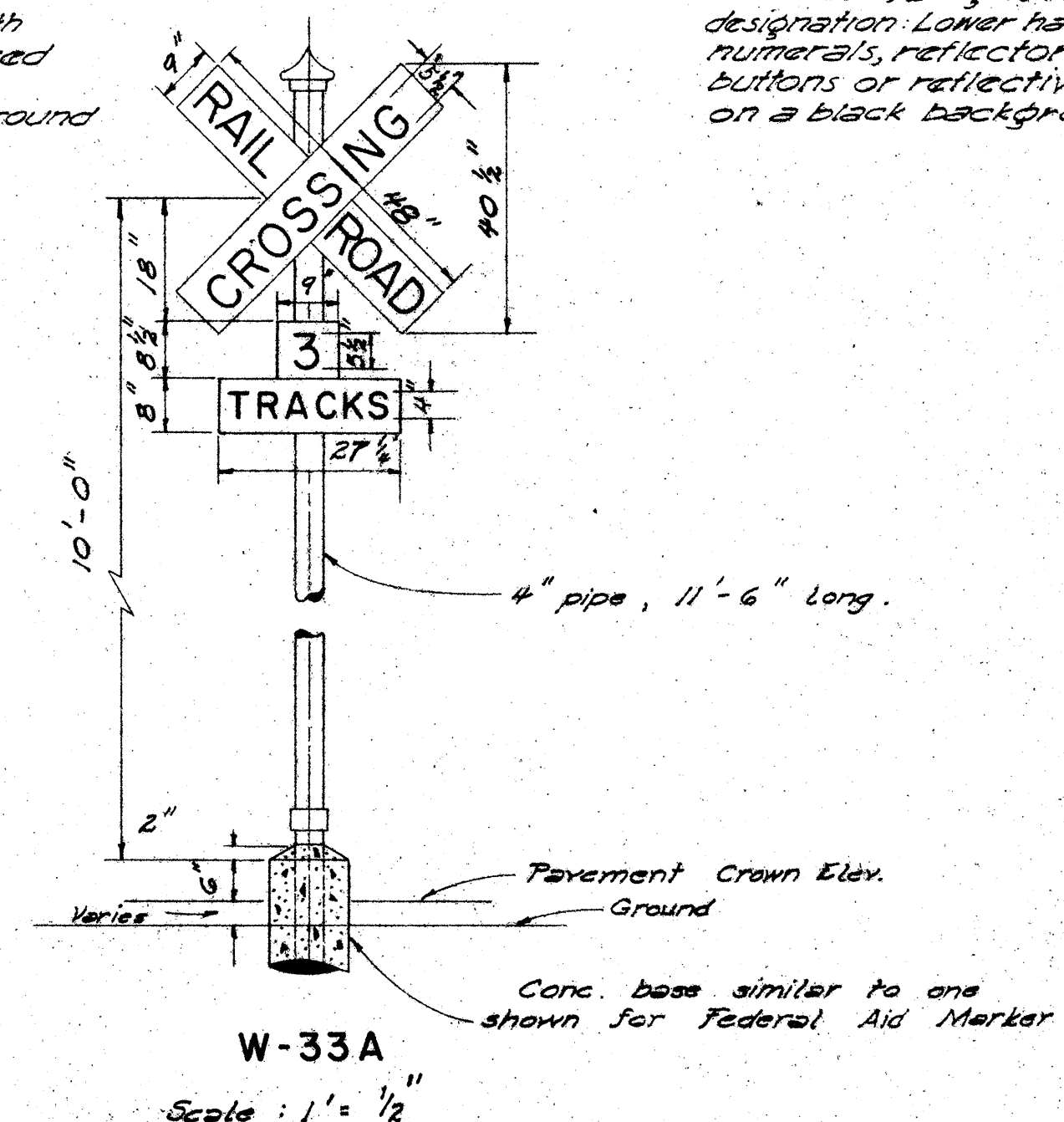
NOTE: R-202B-Numerals 35
R-202A, B signs with (R)
designation: Lower half with
white numerals, reflectorized
with buttons or reflective
sheeting on a black background.

NOTE: R-302B-Numerals 35
R-302A, B signs with (R)
designation: Lower half with white
numerals, reflectorized with
buttons or reflective sheeting
on a black background.

Note: All Regulatory and Warning Signs
shall have 1/8" bolt holes.

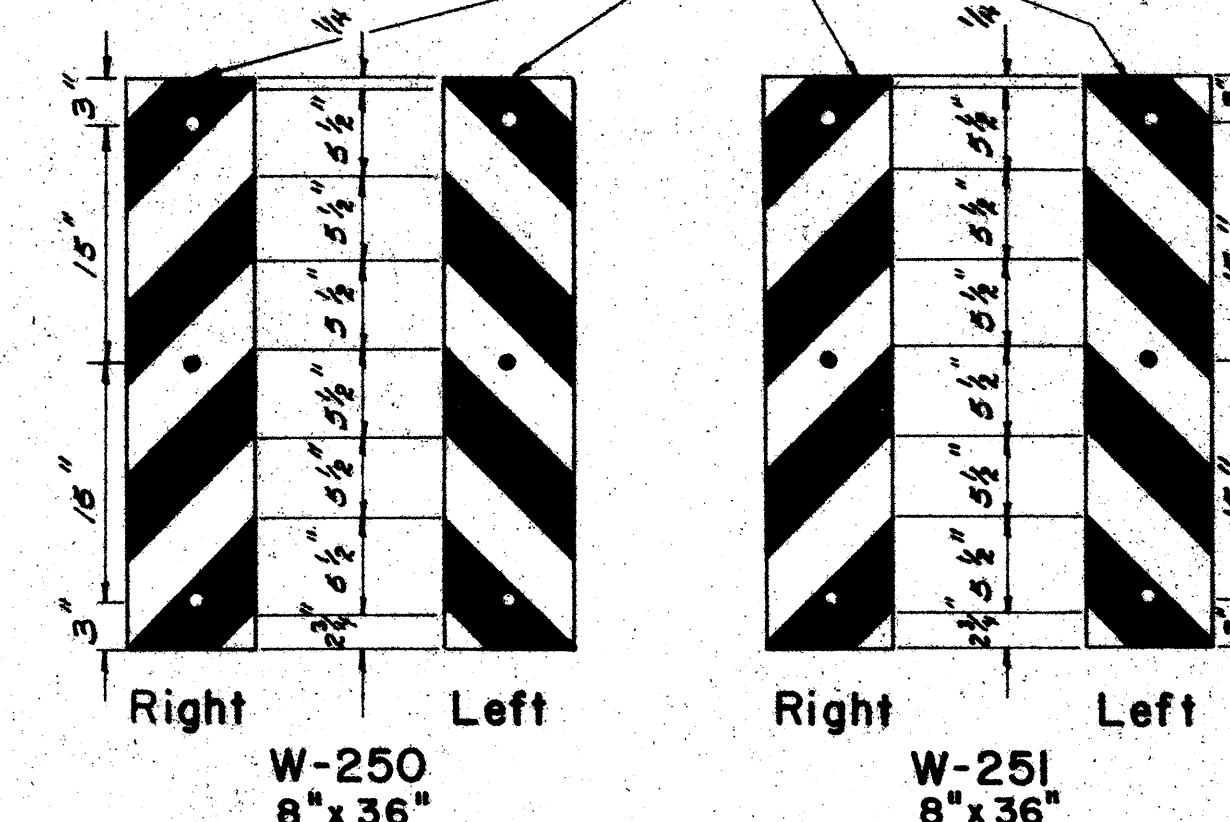
Red stripes on white reflective background.

Black stripes on white reflective background.

W-34
30"x30"R-215
30"x24"R-216
18"x24"R-217
18"x24"

REFLECTOR MARKER

Scale: 1" = 1/2"



OBSTRUCTION MARKER

Scale: 1" = 1/4"

Note:

The Reflector Marker Unit shall consist of amber or clear reflective sheeting composed of glass spheres embedded in a weather-proof synthetic sheet resin; the reflective face, of which shall be placed behind and sealed to a clear or amber weatherproof rigid plastic comprising a sealed optical system. The complete housing shall be fabricated of 3052-H34 aluminum alloy, .060 gauge and shall be provided with an anodized protective coating. Removal of the plastic delineator shall be permitted only by removal of one housing end cap. End caps shall not be removable without tools. End caps shall be interchangeable between housing sizes provided. Holes for mounting shall accommodate 1/4" carriage bolts and shall be punched to fit post having holes on 1" centers.

NOTE:

Locations and placements of signs shall conform with requirements of the Manual on Uniform Traffic Control Devices for streets and highways. All regulatory (R-series) signs shall be black letters on a white reflective background.

All warning (W-series) signs shall have black letters or figures reflectorized with white button reflectors on a highway yellow background or black letters or figures on a background made of yellow reflective material.

All letters and figures shall be of size and design shown and shall conform with Standard Alphabets for Highway Signs, BPR, Standard Highway Signs BPR and The American Association of State Highway Officials Manual for Signing and Pavement Markings of the National System of Interstate and Defense Highways, 1958.

See Specifications for Materials and Finish.

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII

REGULATORY & WARNING SIGNS

Scale: 1" = 1/4" DATE: Aug. 29, 1952.

APPROVED: STATE HIGHWAY ENGINEER

SHEET NO. OF SHEETS

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

Revised:
2/17/50
4/6/59
4/28/59
7/30/59
12/22/59

NOTE: Sign Post size has been revised 5/13/56

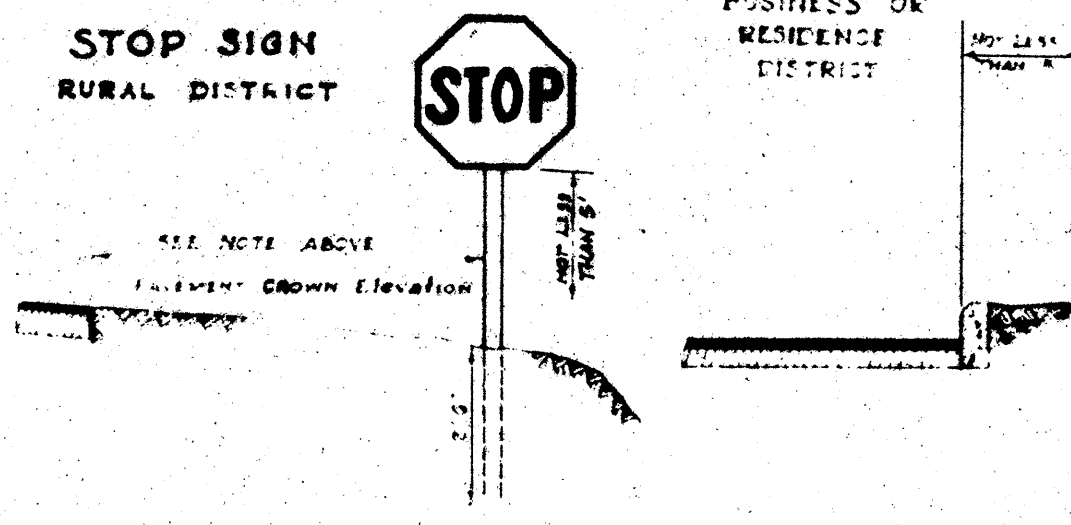
NOTE: Yield Sign has been revised 6/10/56

NOTE: Stop Sign has been revised 6/10/56

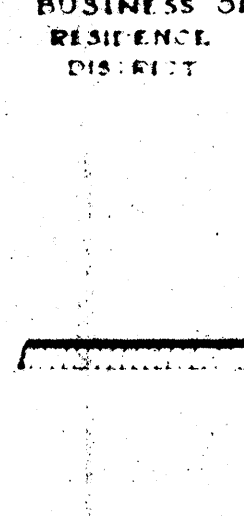
C-25 34

NOTE:
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.
Two (2) 5/8" bolt holes drilled at location shown.

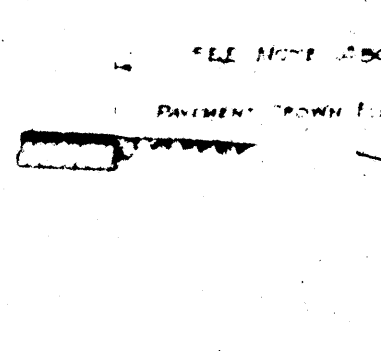
Two (2) 5/8" x 4 1/2" or 5/8" x 5" galvanized carriage bolts with nuts, two (2) 3/4" iron washers and two (2) 3/4" x 1/2" stainless steel with neoprene rubber gasket attached washers **SPEED LIMIT** shall be provided with each sign installation.



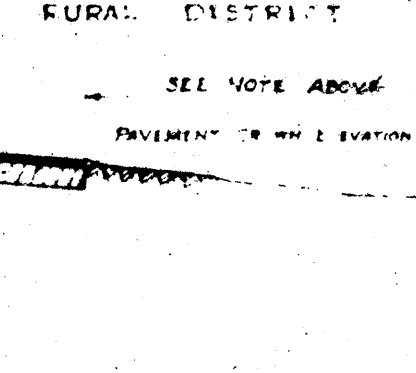
PARKING SIGN
BUSINESS OR RESIDENCE DISTRICT



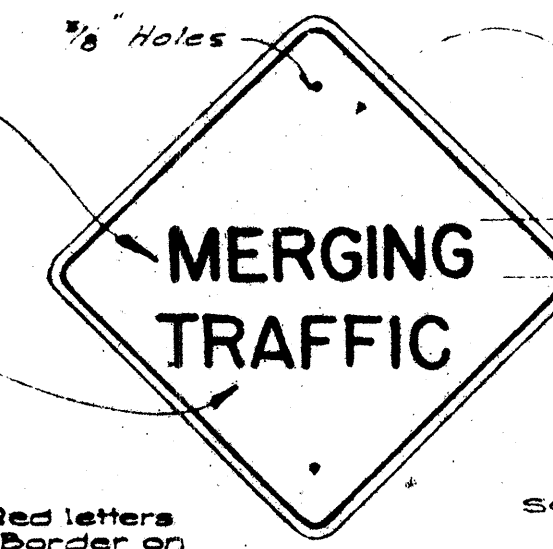
WARNING SIGN
RURAL DISTRICT



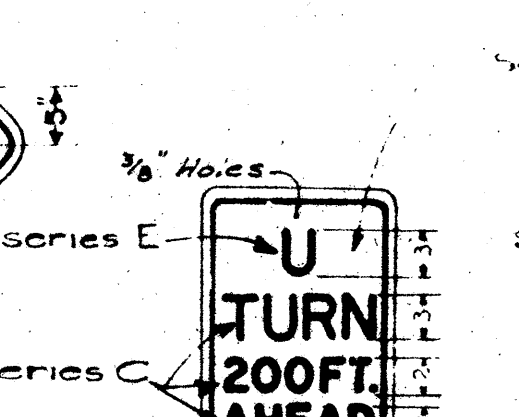
WARNING SIGN WITH ADVISORY SPEED SIGN
RURAL DISTRICT



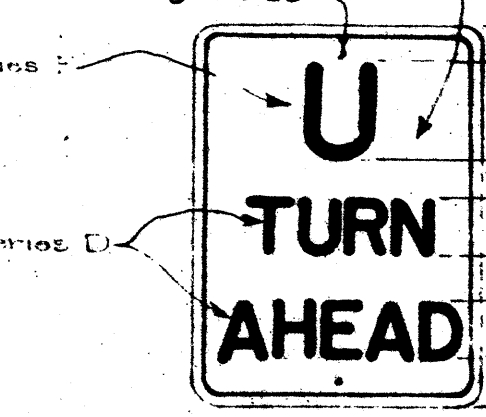
Black Letters and White Reflectors on Highway Yellow Background



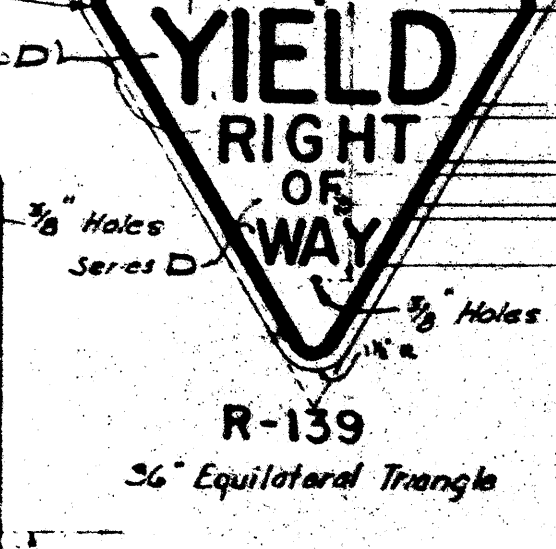
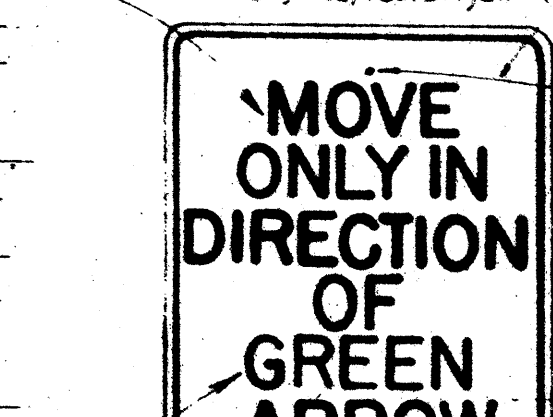
Background may be made of Yellow Reflective Coating with black lettering



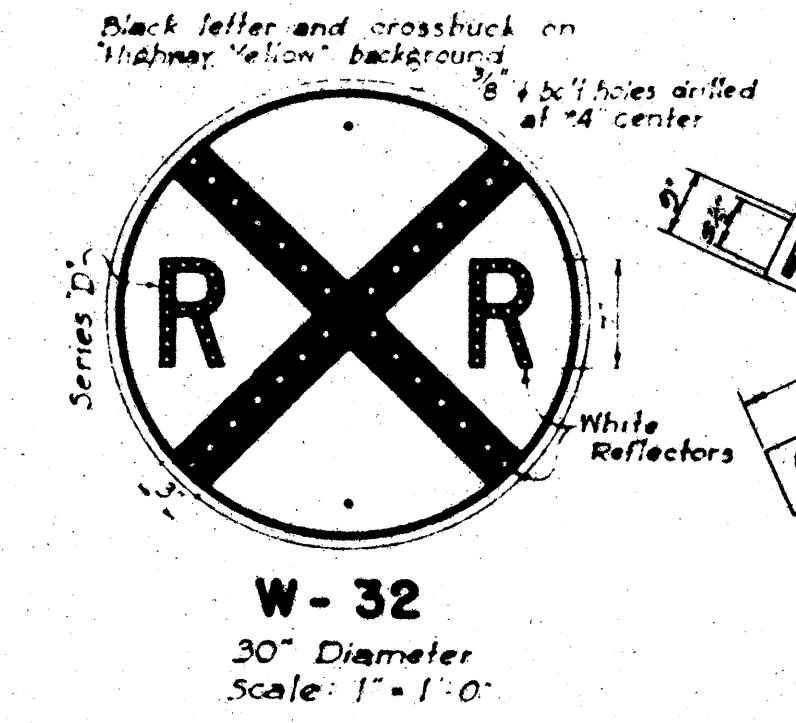
Black letters and border on background a white



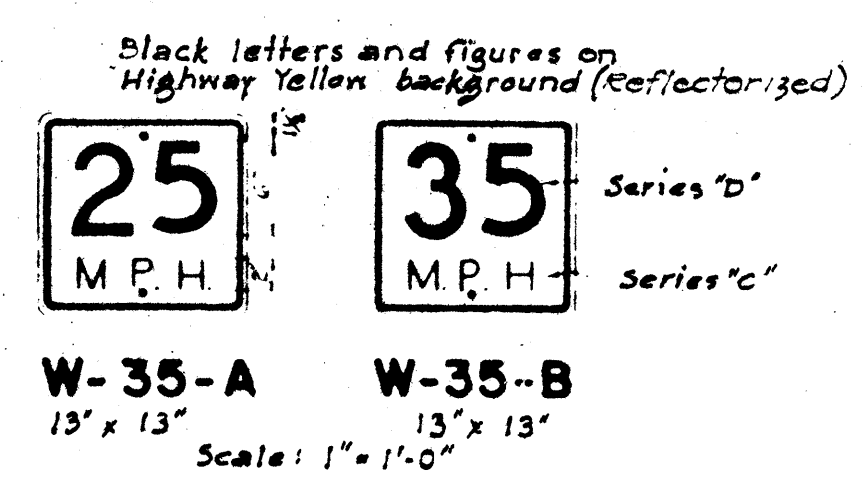
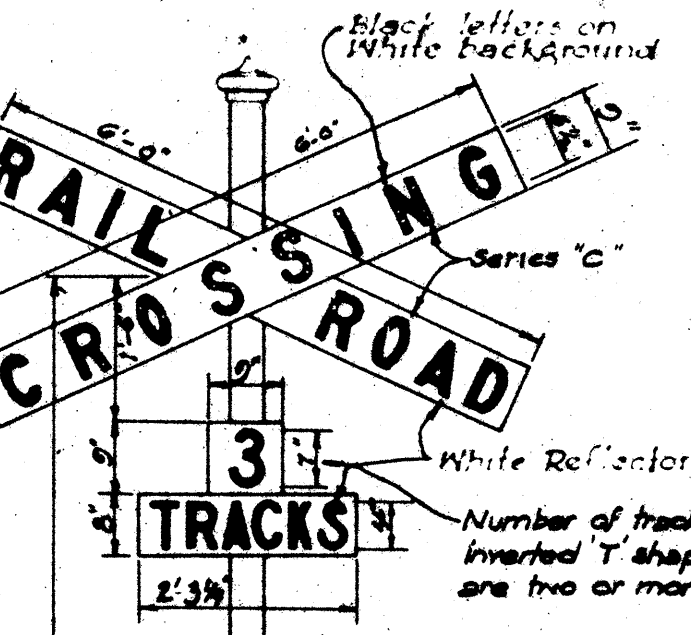
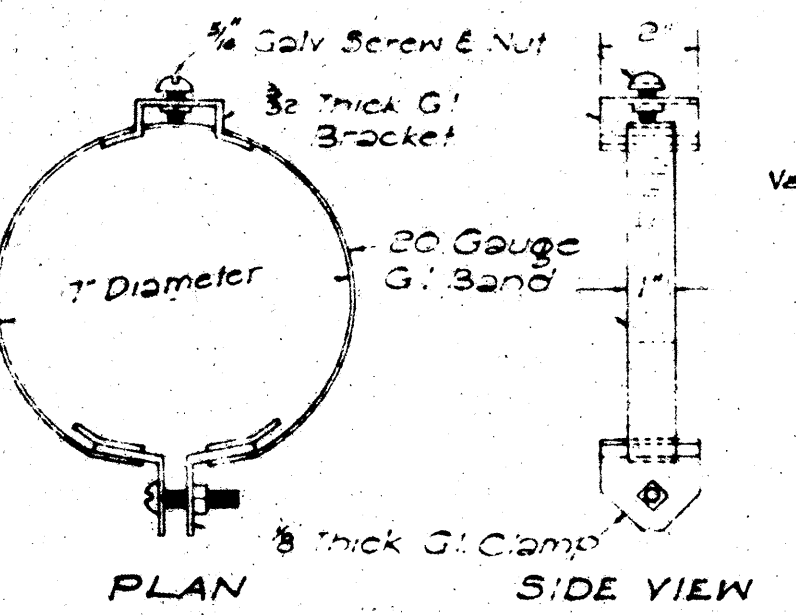
NOTE: For R-139, Black Letters on Yellow Reflective Background with Black Border and reflectorized letters with white buttons on a Yellow Back (Series D)



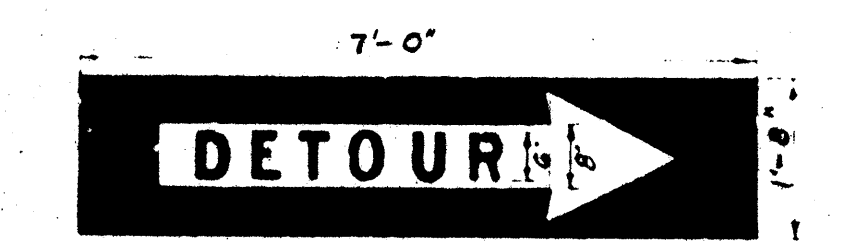
HEIGHT AND LATERAL LOCATION OF SIGNS -- TYPICAL INSTALLATIONS



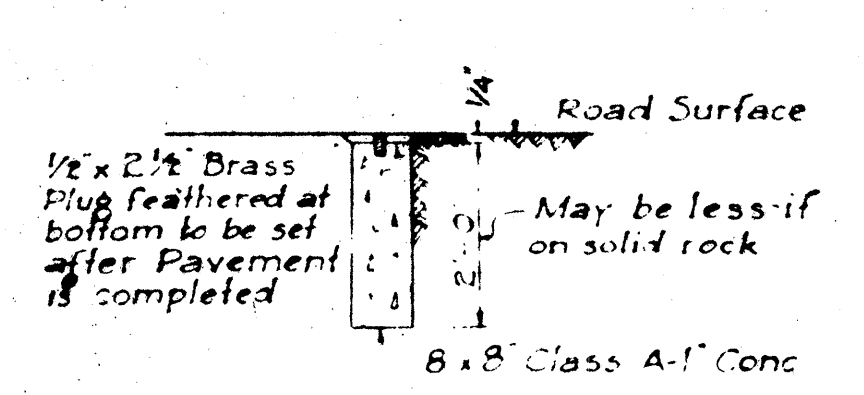
NOTE: This sign shall be placed from 300 to 500 feet from R/R intersections in rural areas and a minimum distance of 100 feet from R/R intersections in Residence or Business districts.



Black letters and figures on Highway Yellow Background (Reflectorized)

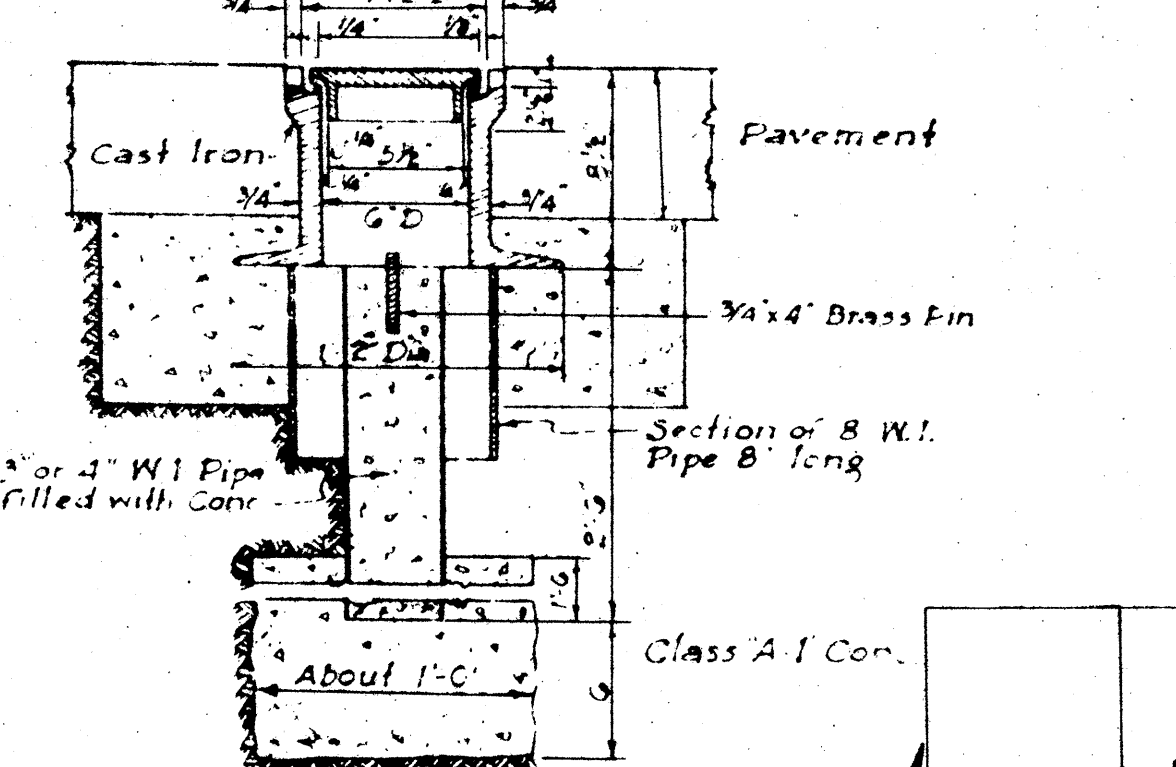
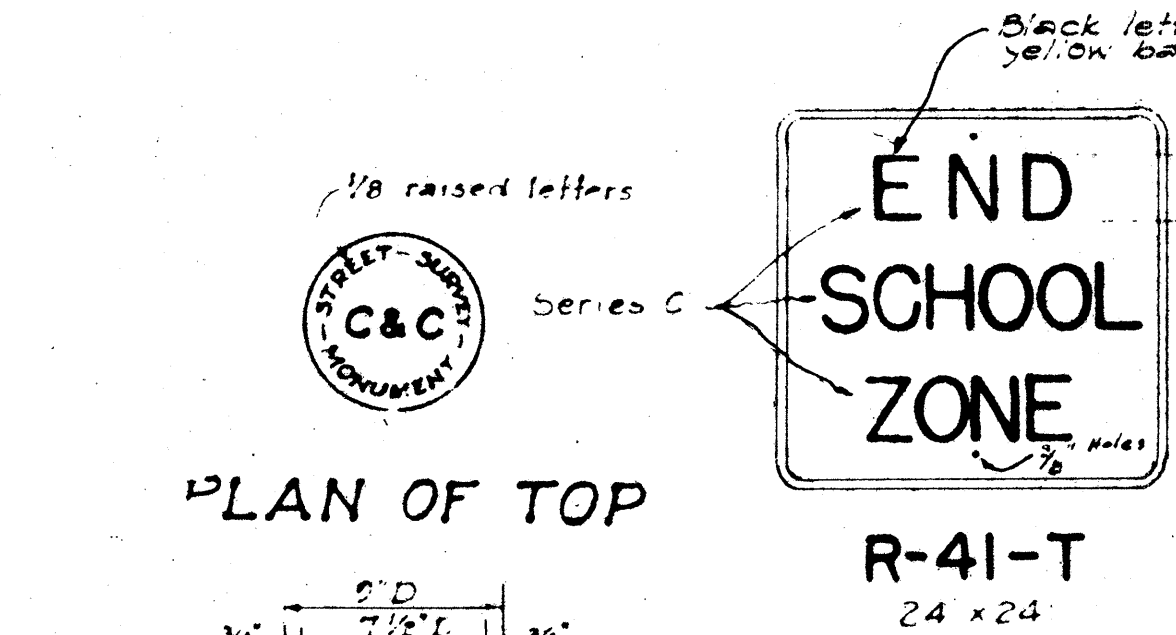


STANDARD DETOUR SIGN (REFLECTORIZED)



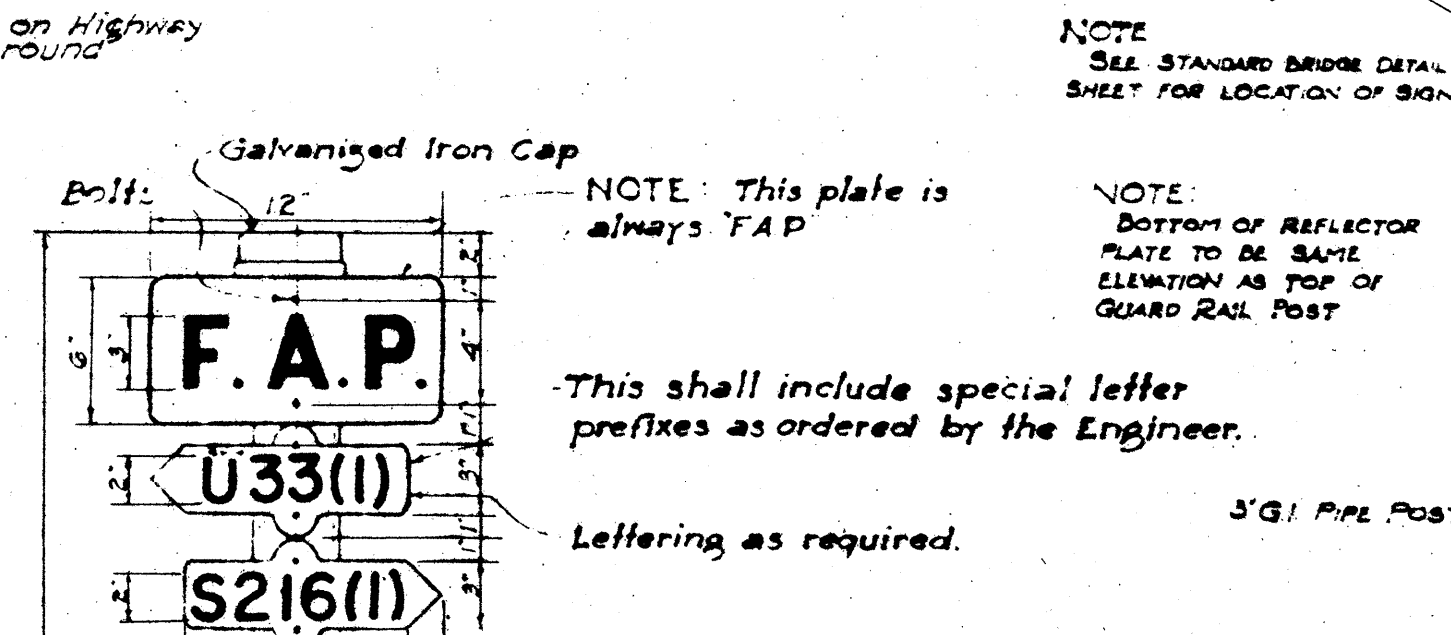
CENTER LINE MONUMENT

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



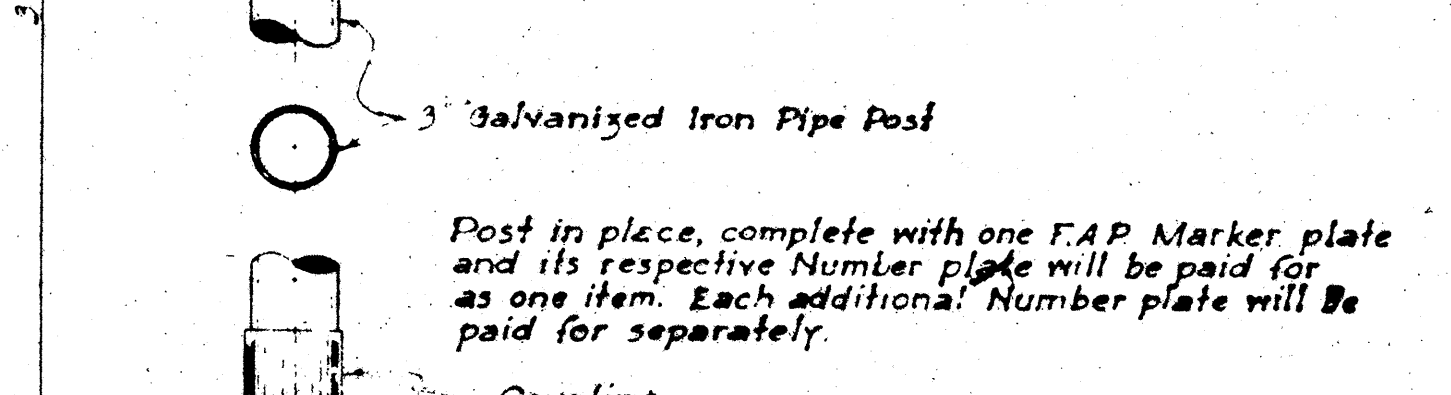
STANDARD C & C STREET SURVEY MONUMENT

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



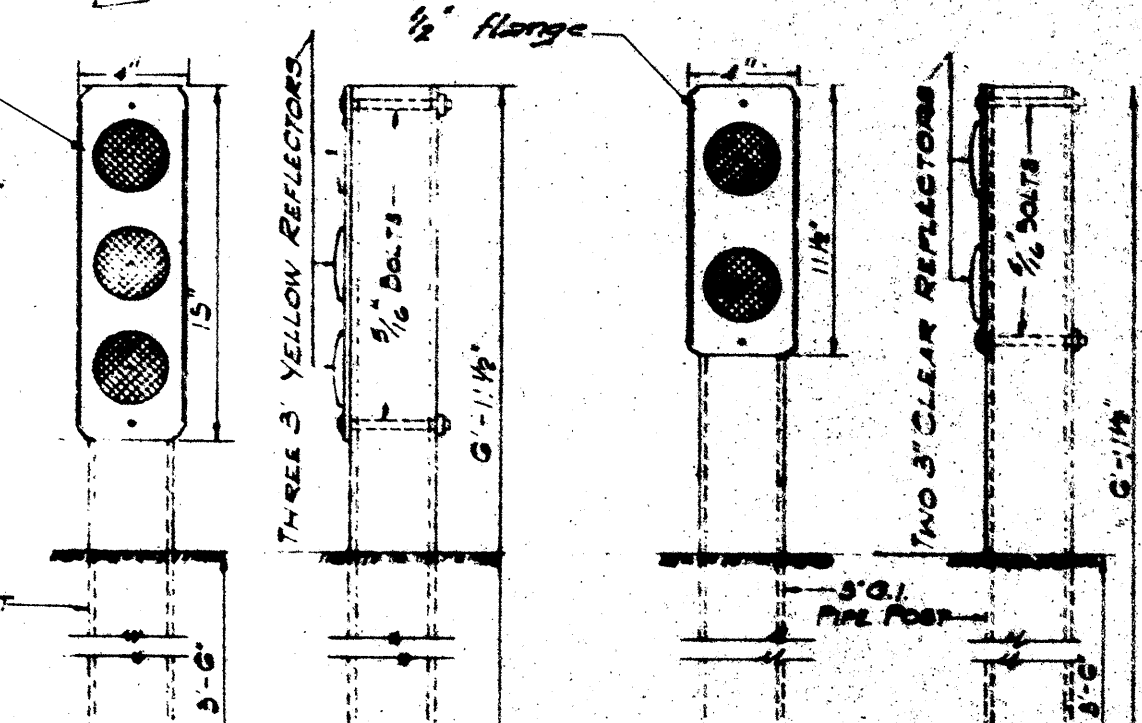
ARRANGEMENT OF MARKERS

One F.A.P. Marker and one plate shall be placed at the beginning and end of each isolated F.A. Project. Where two F.A. Projects adjoin, a single marker and two number plates shall be placed, each number plate pointing in the direction of the project to which it refers.



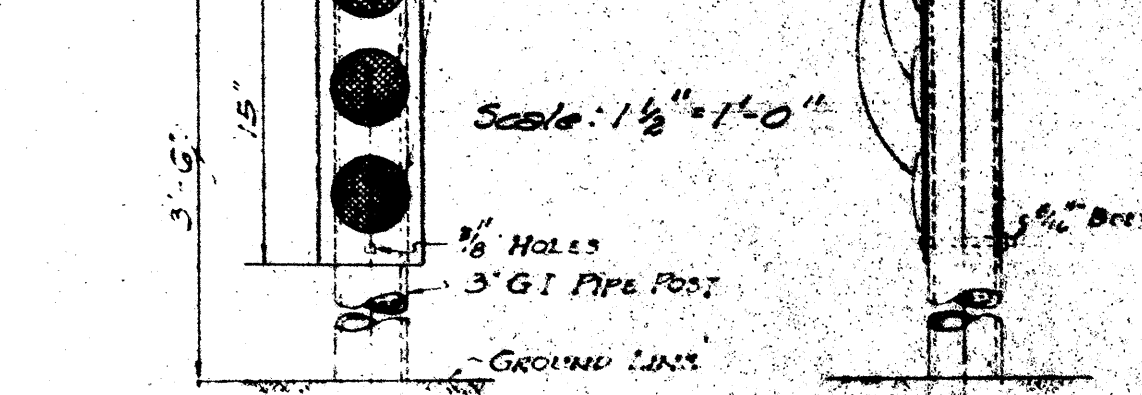
FEDERAL AID MARKER

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



ELEVATION W-41 SECTION REFLECTOR MARKER

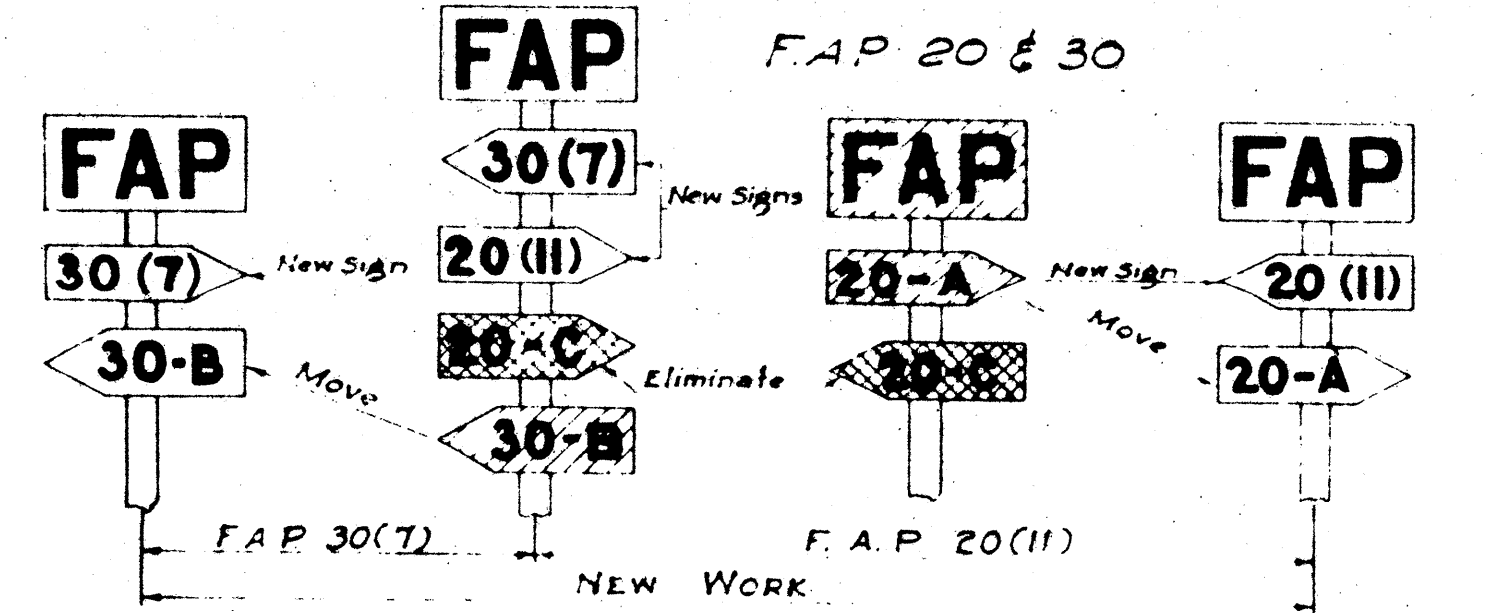
NOTE: W-44: 3-5" yellow reflectors mounted on plate. W-45: 2-5" clear reflectors mounted on plate.



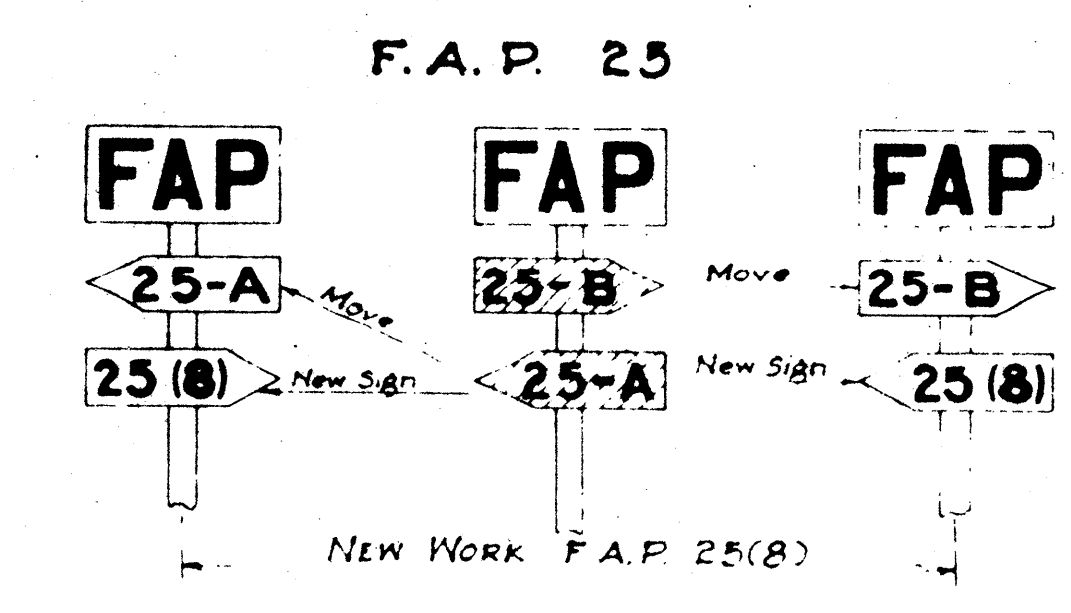
NOTE:

The Reflective Marker Unit shall include 3-3" Stimsonite amber reflex reflectors or 2-3" Stimsonite clear reflex reflectors, housed in a heavy duty 5082-134 aluminum alloy, 100 gauge unit with a separate back plate attached with 4 vandal-resistant nuts. The housing shall be provided with a protective anodized coating.

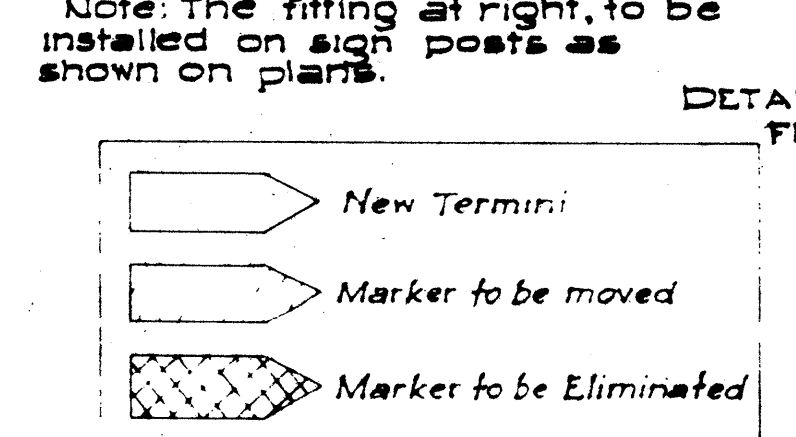
ADJUSTABLE BAND BRACKET FOR SUPPORTING TRAFFIC SIGNS ON MONOTUBE LIGHTING STANDARDS
Scale: 3/8" = 1'-0"
This product to be as shown in Catalogue No 48 of Calphale Corp or equal.



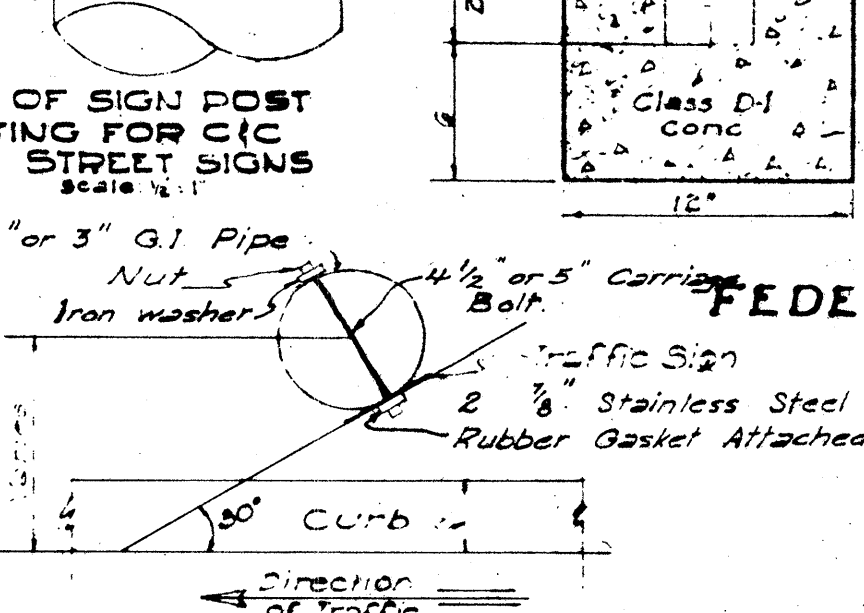
NOTE: Federal Aid Markers should be placed at the termini of suffix designated sections. Intermediate letter designated markers of adjacent sections located within the limits of new improvements should be moved to the termini of the new work.



The same procedure would be followed on each successive improvement until all markers for letter designated sections are eventually eliminated.



NOTE: The fitting at right, to be installed on sign posts as shown on plans.



DETAIL SHOWING ANGLE OF TRAFFIC SIGNS AND CURB LINE
Scale: 1" = 1'-0"

APPROVED: _____ DATE: 2/10/60
DIRECTOR

HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII
STANDARD DETAILS
F.A. MARKERS, MONUMENTS
SIGNS & LOCATION OF SIGNS
SCALES AS NOTED
SHEET OF SHEETS