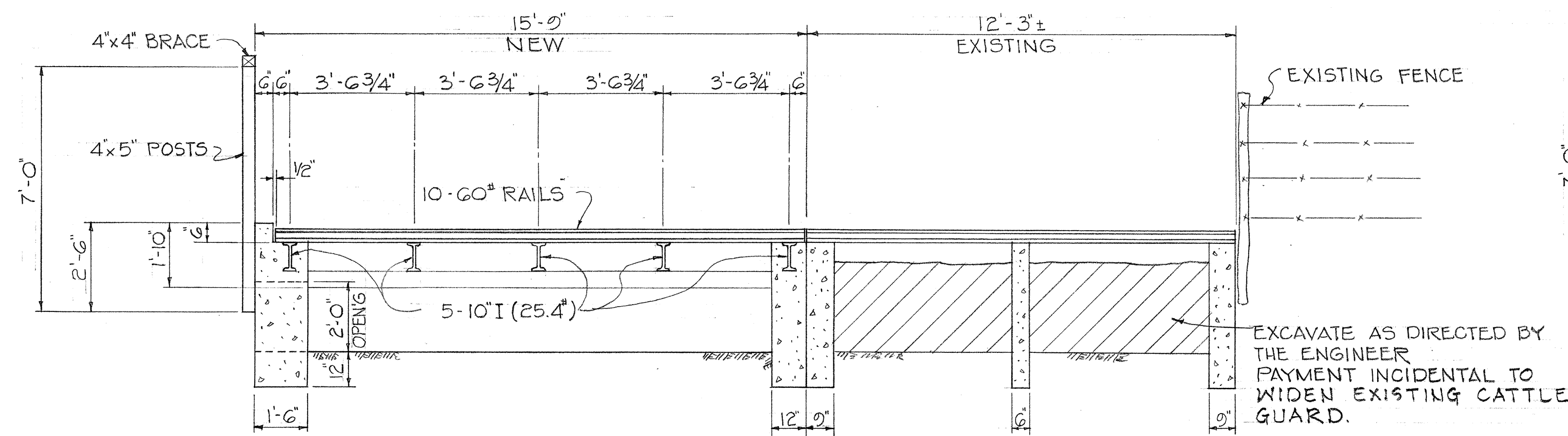
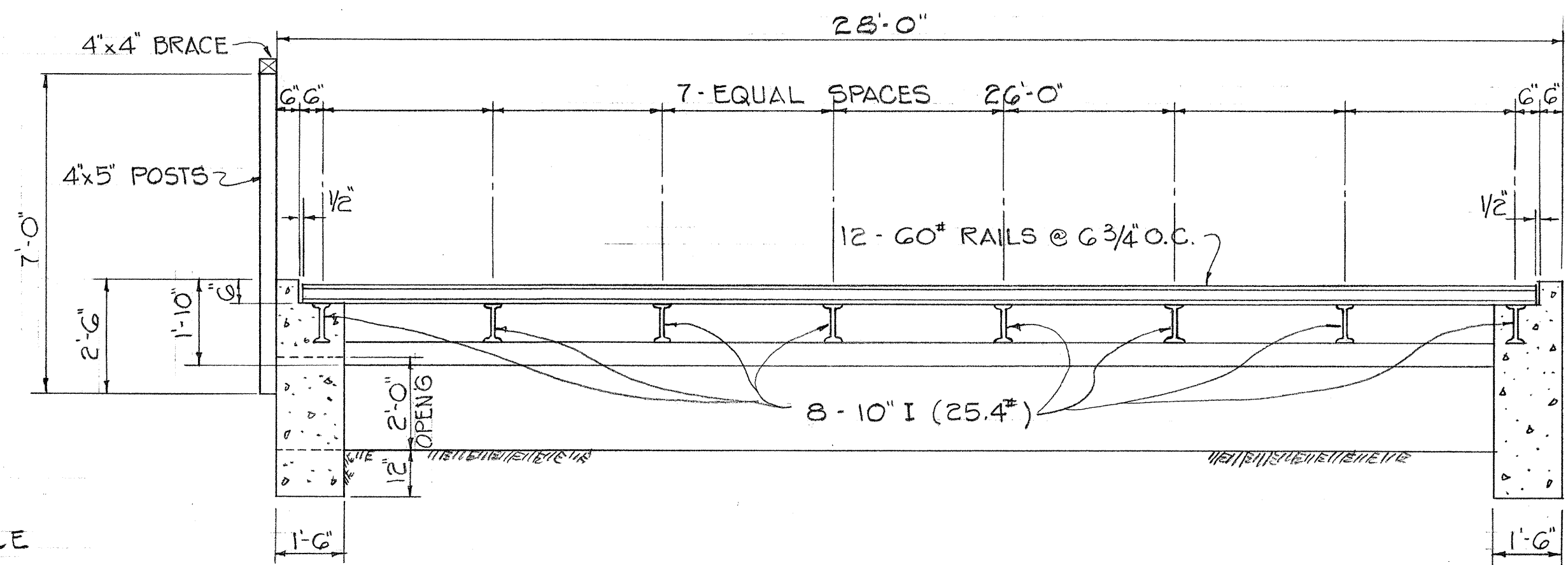


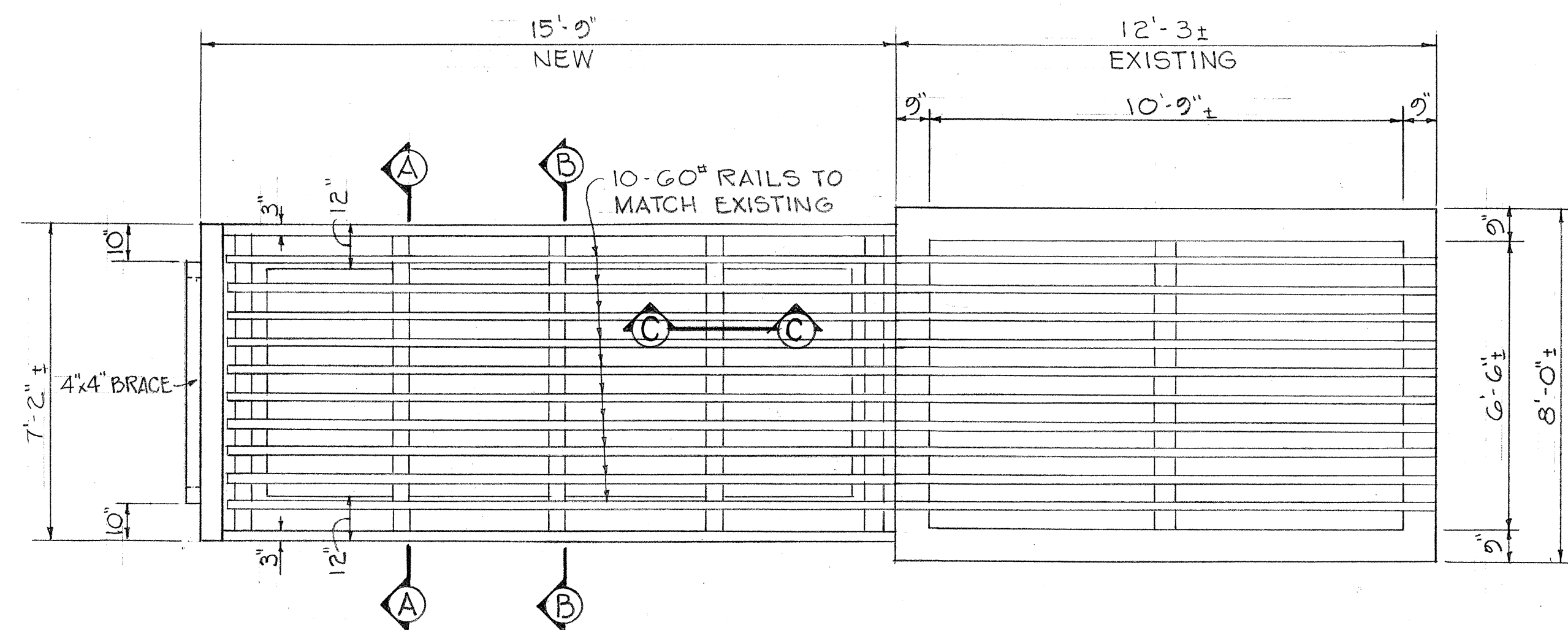
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	330C-03-70	1970	8	30



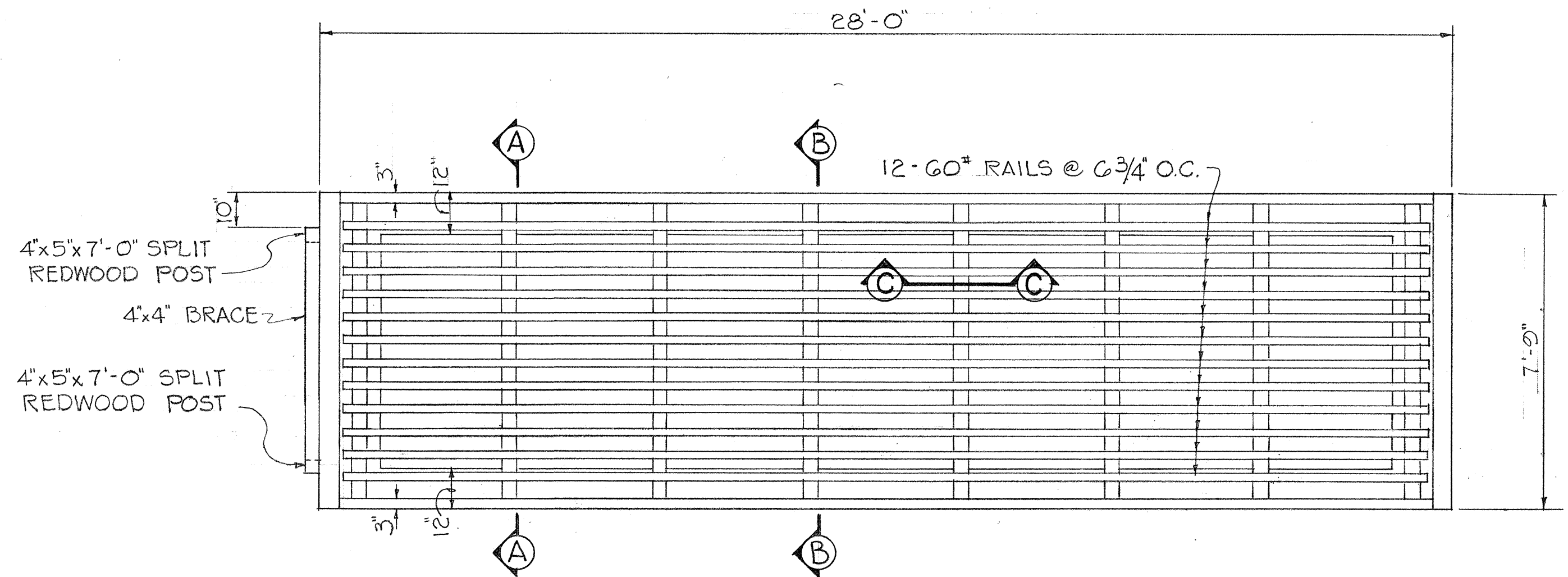
LONGITUDINAL SECTION
SCALE: 3/8" = 1'-0"



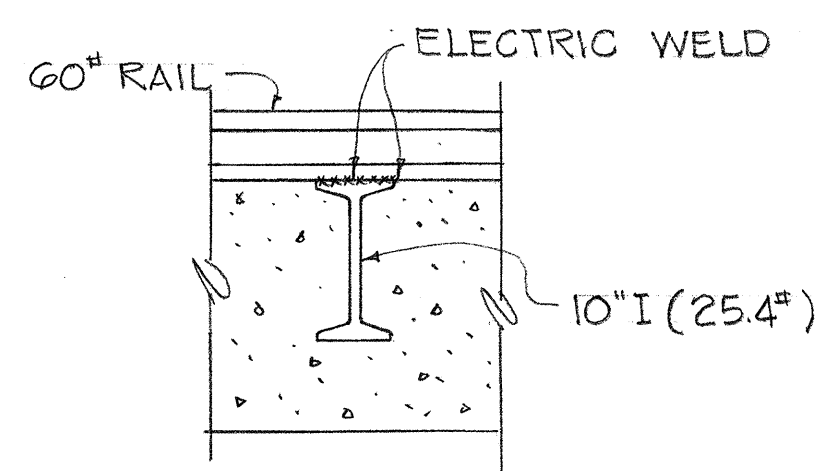
LONGITUDINAL SECTION
SCALE: 3/8" = 1'-0"



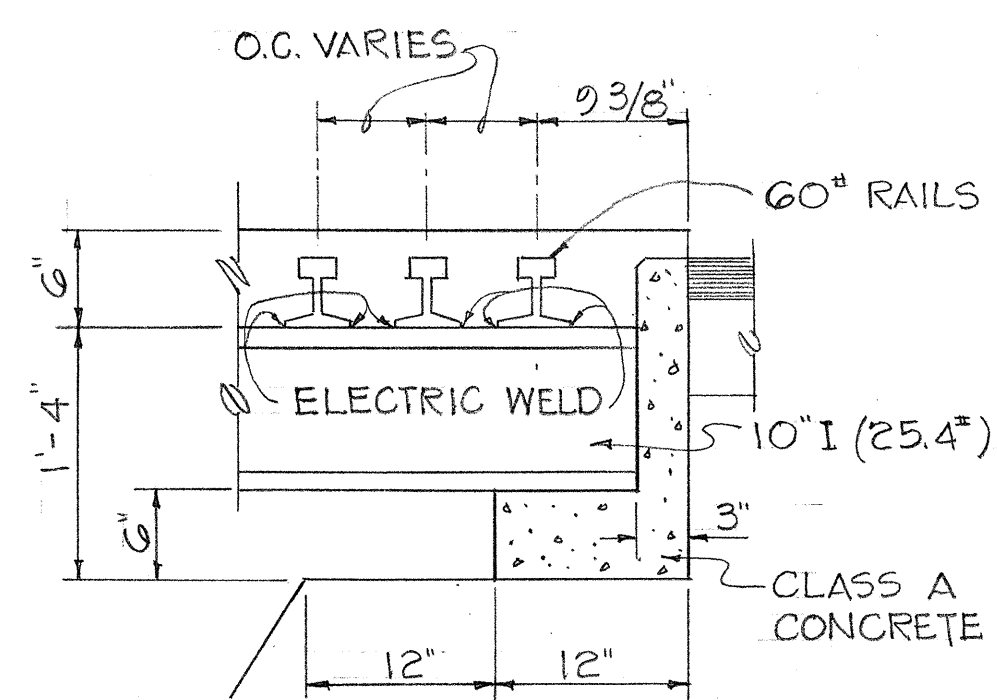
PLAN
SCALE: 3/8" = 1'-0"
STA. 73+56
WIDEN EXISTING CATTLE GUARD



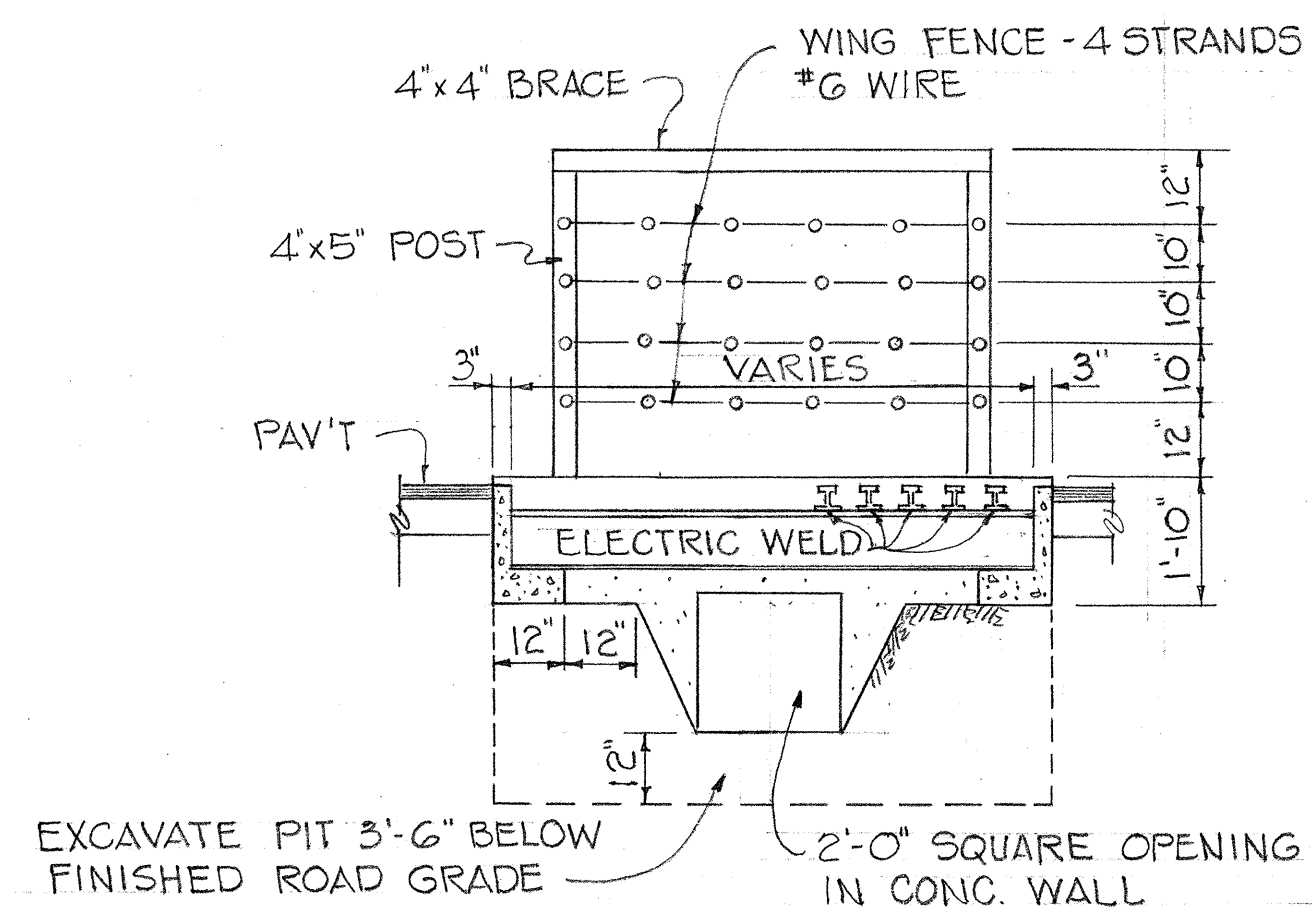
PLAN
SCALE: 3/8" = 1'-0"
STA. 177+60
INSTALL CATTLE GUARD



SECTION C-C
SCALE: 1" = 1'-0"



SECTION B-B
SCALE: 1" = 1'-0"



SECTION A-A
SCALE: 1" = 1'-0"

DETAIL OF CATTLE GUARDS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAIL OF CATTLE GUARDS

KAHEKILI HIGHWAY
HONOKOHAU STREAM TO POELUA GULCH
PROJ. NO. 330C-03-70
SCALE: AS NOTED
MARCH 1970

SHEET No. 1 OF 11 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NO. BOOK	
NO.	

The diagram illustrates the installation of a speed limit sign. A rectangular sign with the text "SPEED LIMIT 25" is mounted on a vertical post. The post is secured into a concrete base. Key dimensions and components are labeled:

- Sign Dimensions:** The sign is 12" wide and 2'-6" high.
- Post Dimensions:** The post is 7'-0" high from the base to the top of the sign.
- Base Dimensions:** The concrete base is 12" wide and 6" high.
- Sign Mounting:** The sign is attached to the post using a 3/8" x 12" steel bar (indicated by a dashed line).
- Clearance:** There is a 2' minimum clearance between the sign and the curb.
- Components:** The sign is mounted on a "Class D concrete base" and is "Unmountable curb".

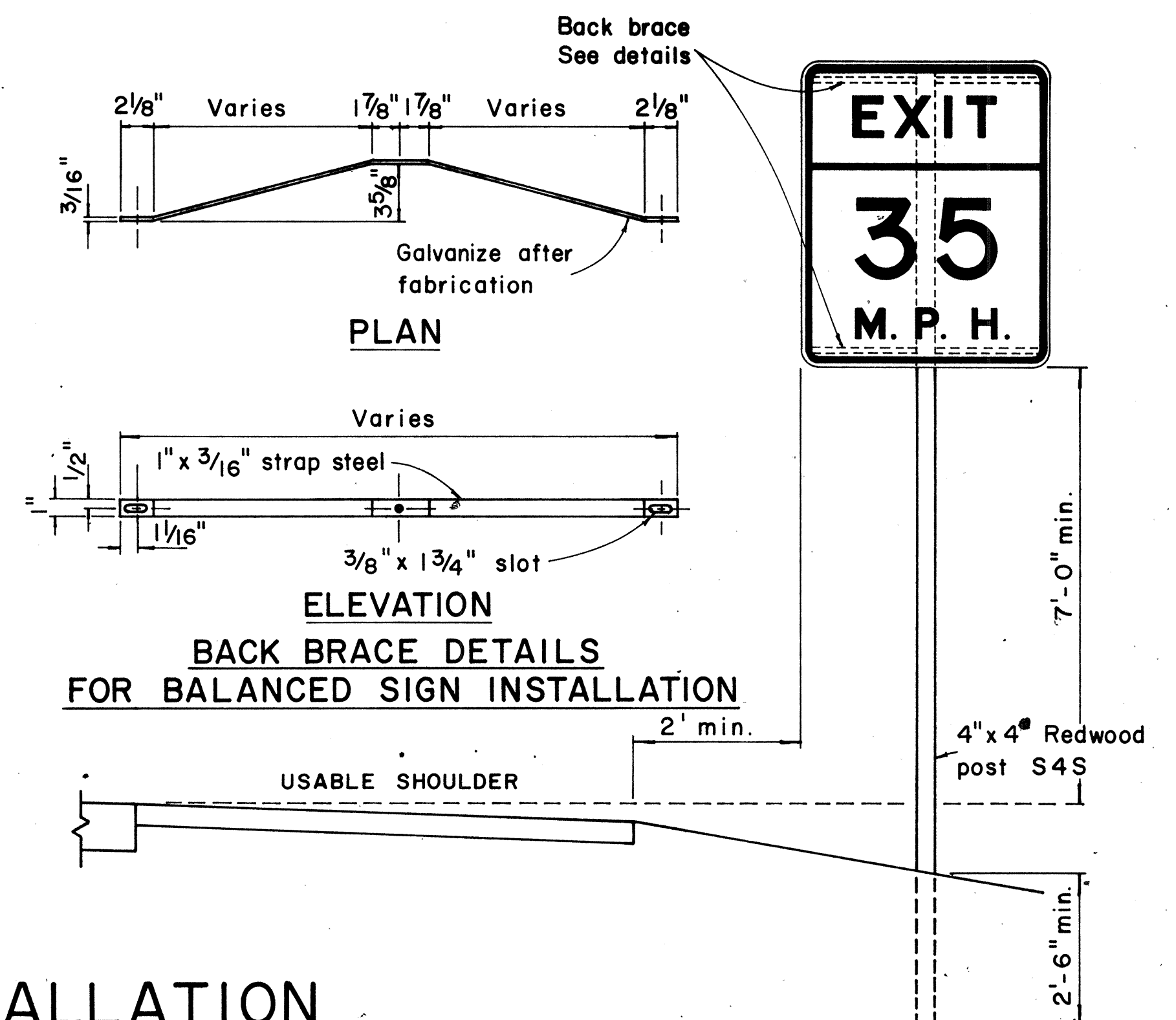
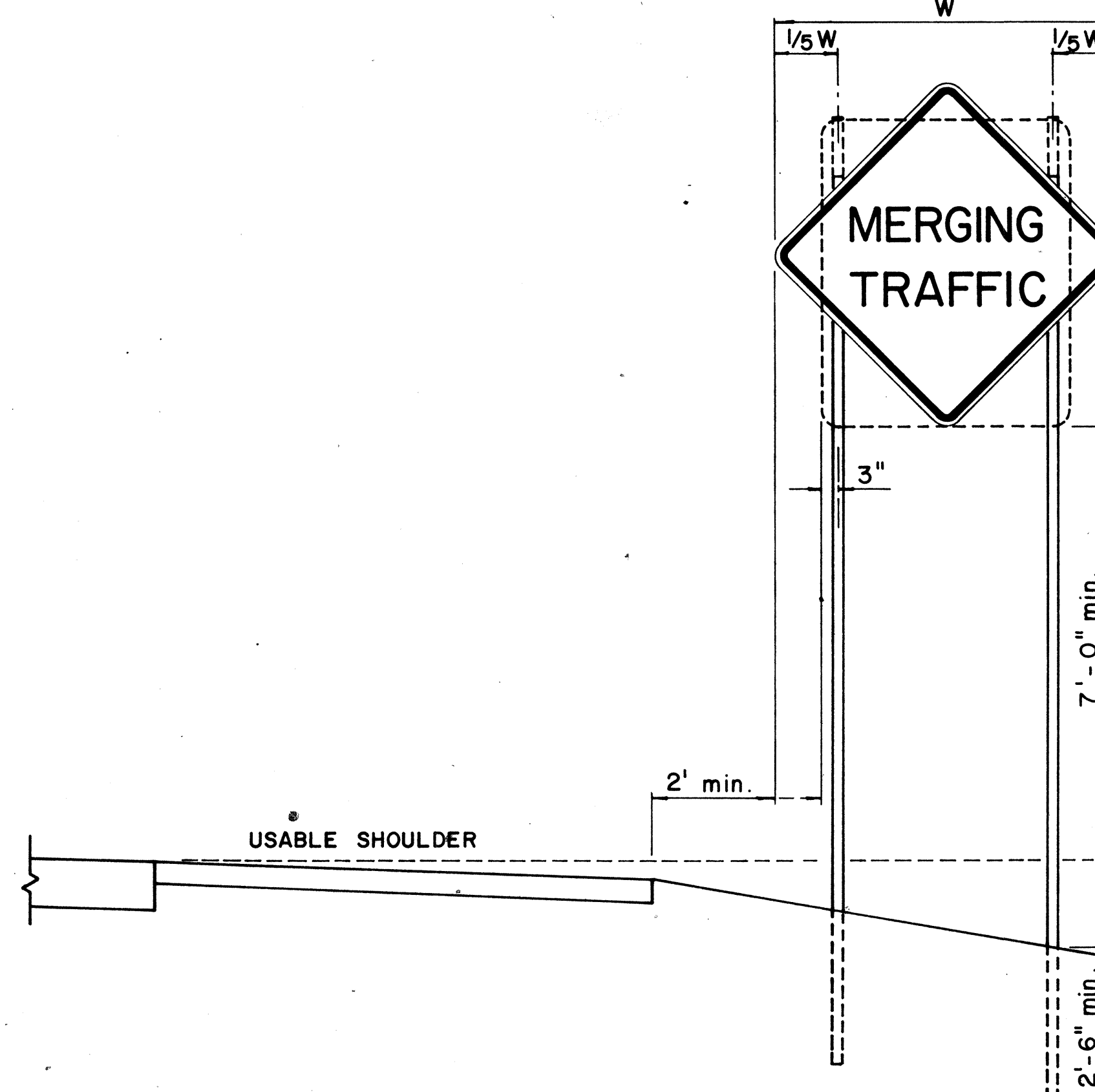
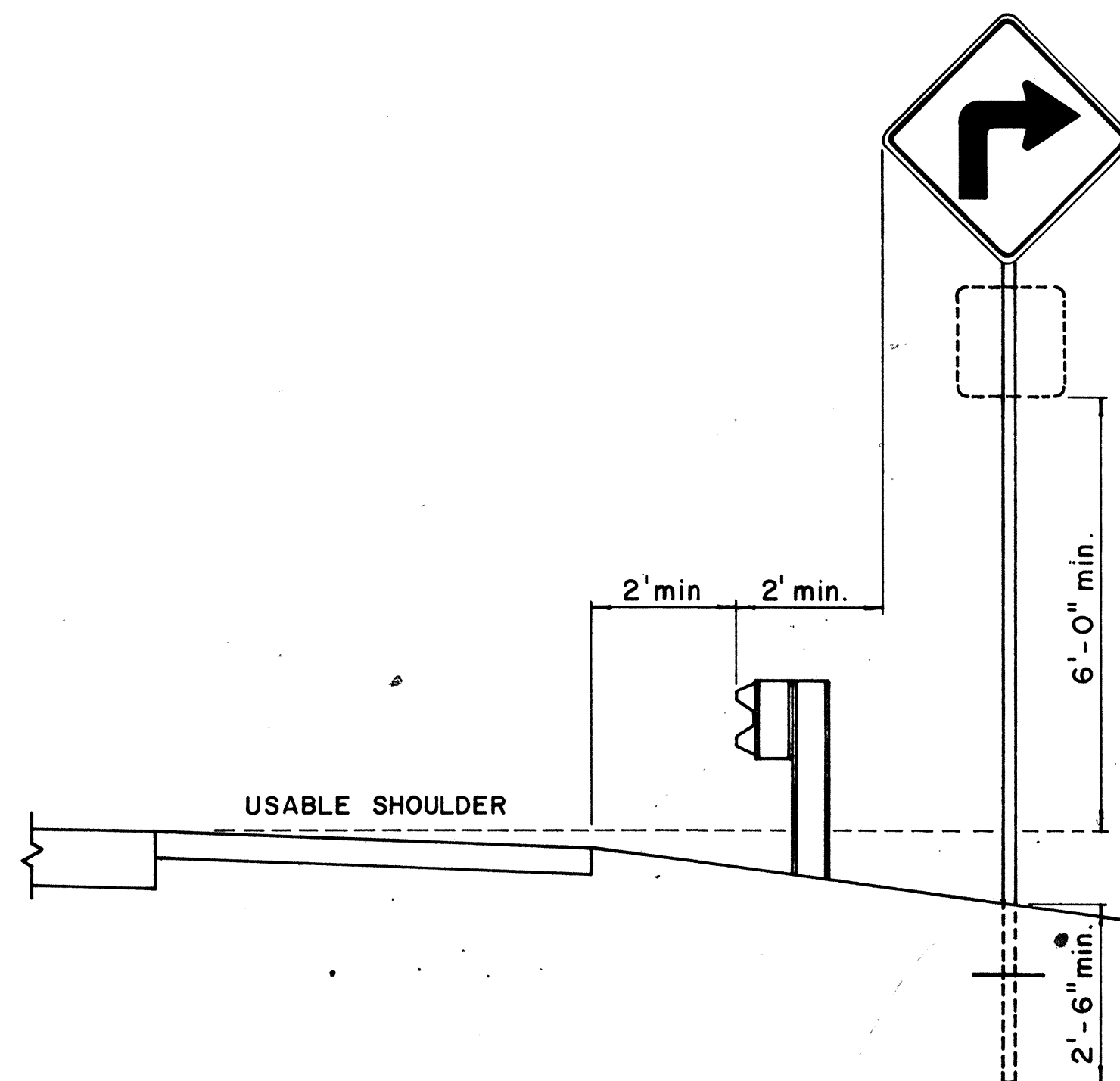
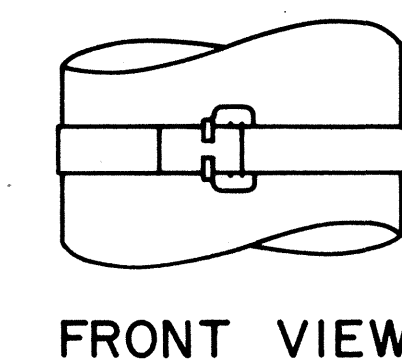
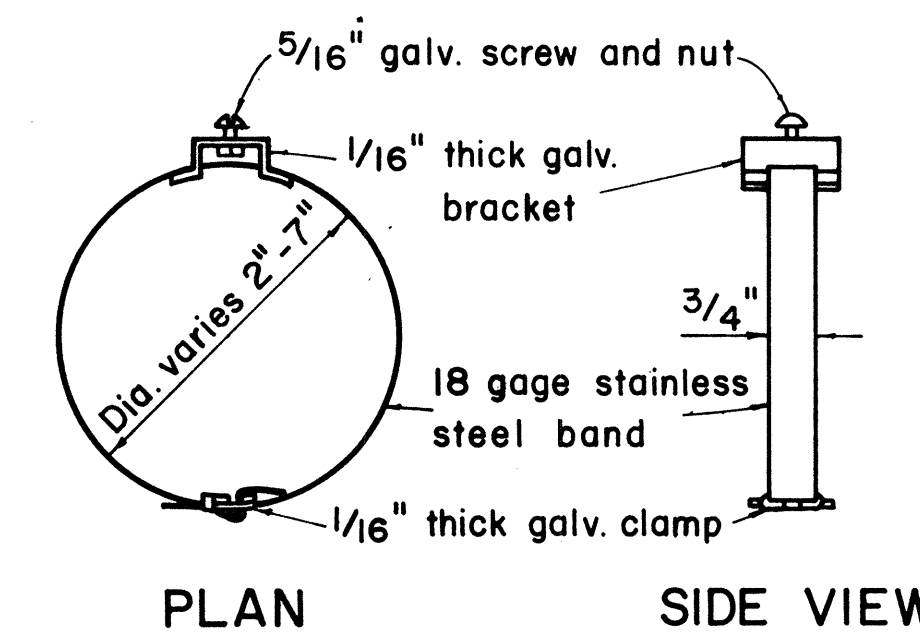
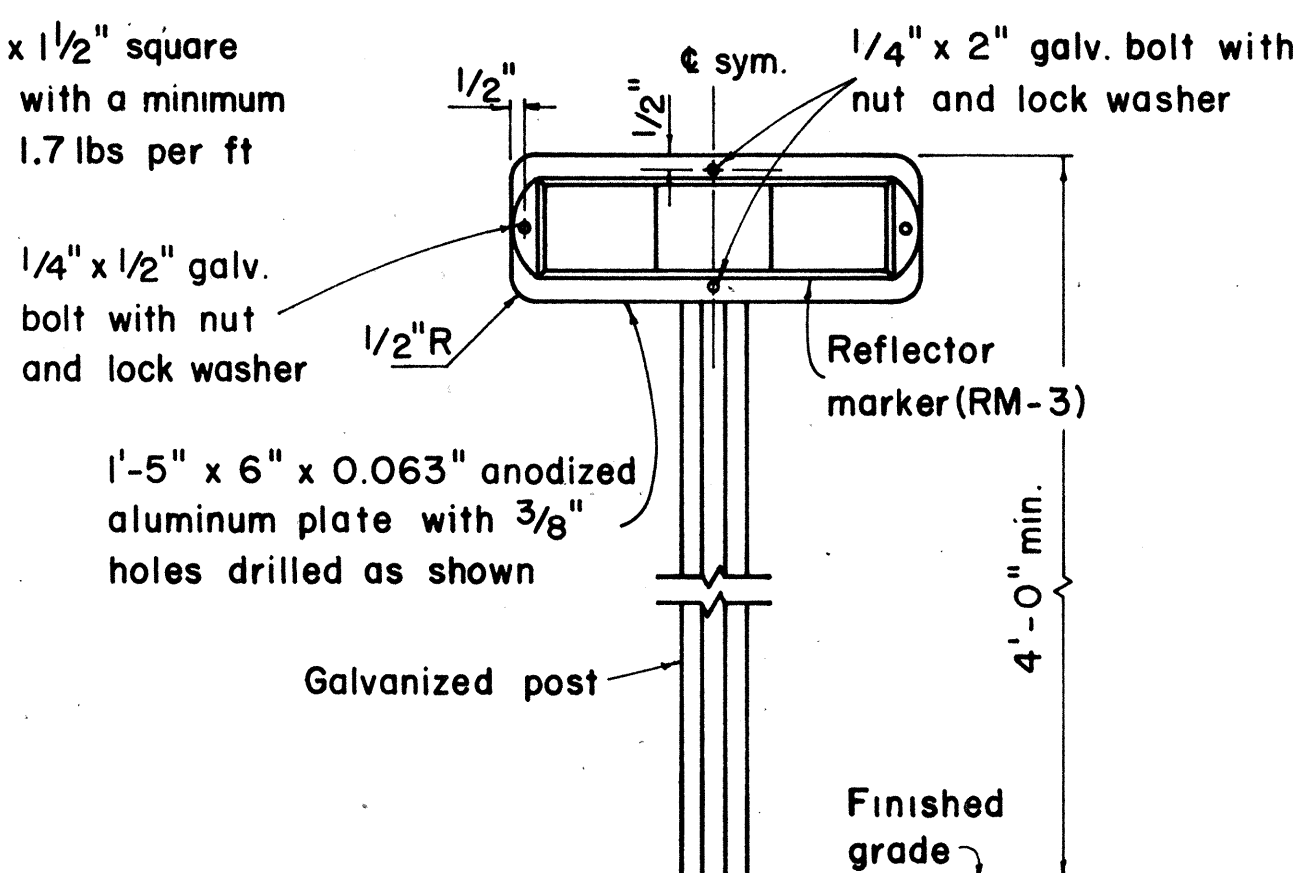
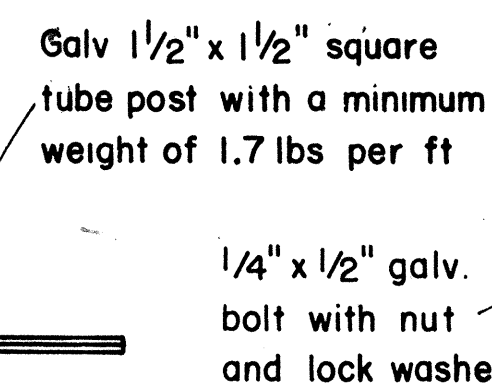
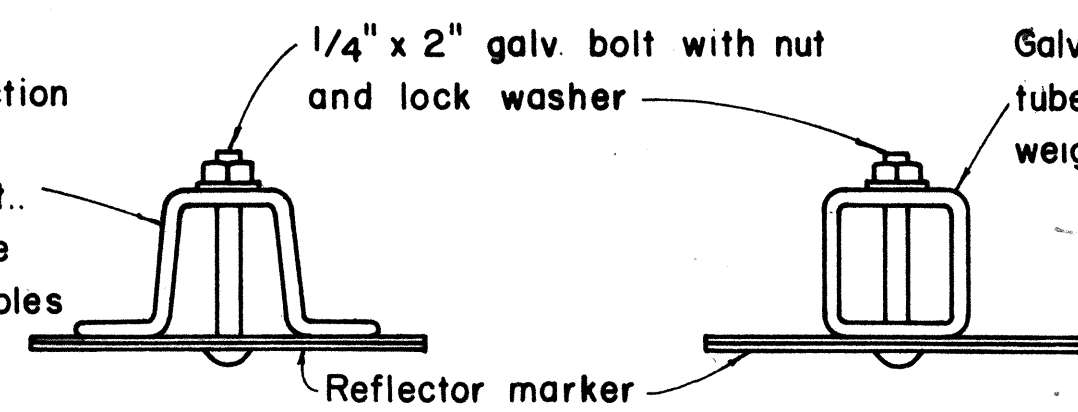
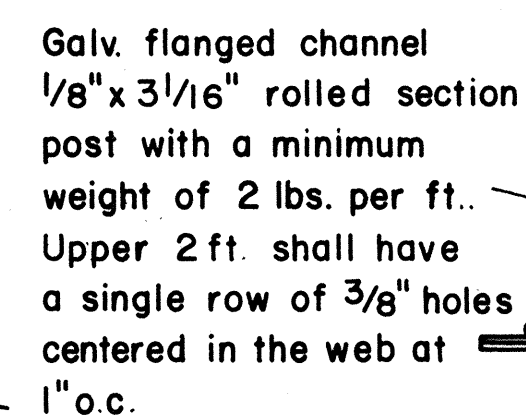


Diagram illustrating the dimensions and components of a Road Delineator:

- RM-1, 2 or 3**: Label for the top section of the delineator.
- 4'-0" min.**: Minimum height dimension for the top section.
- 2'-0"**: Dimension for the **USABLE SHOULDER** area.
- See Note**: Reference to a note regarding the shoulder dimension.
- 3'-0" min.**: Minimum height dimension for the bottom section.
- ROAD DELINEATOR**: Overall label for the device.



1. Signs 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 or 4" x 4" redwood post S4S.
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: Erich Tanaka 12/29/69
TRAFFIC ENGINEER DATE

APPROVED: _____
ASSISTANT CHIEF, ENGINEERING

12-30-69
DATE

NO.	REVISION	APPROVED BY	DATE

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

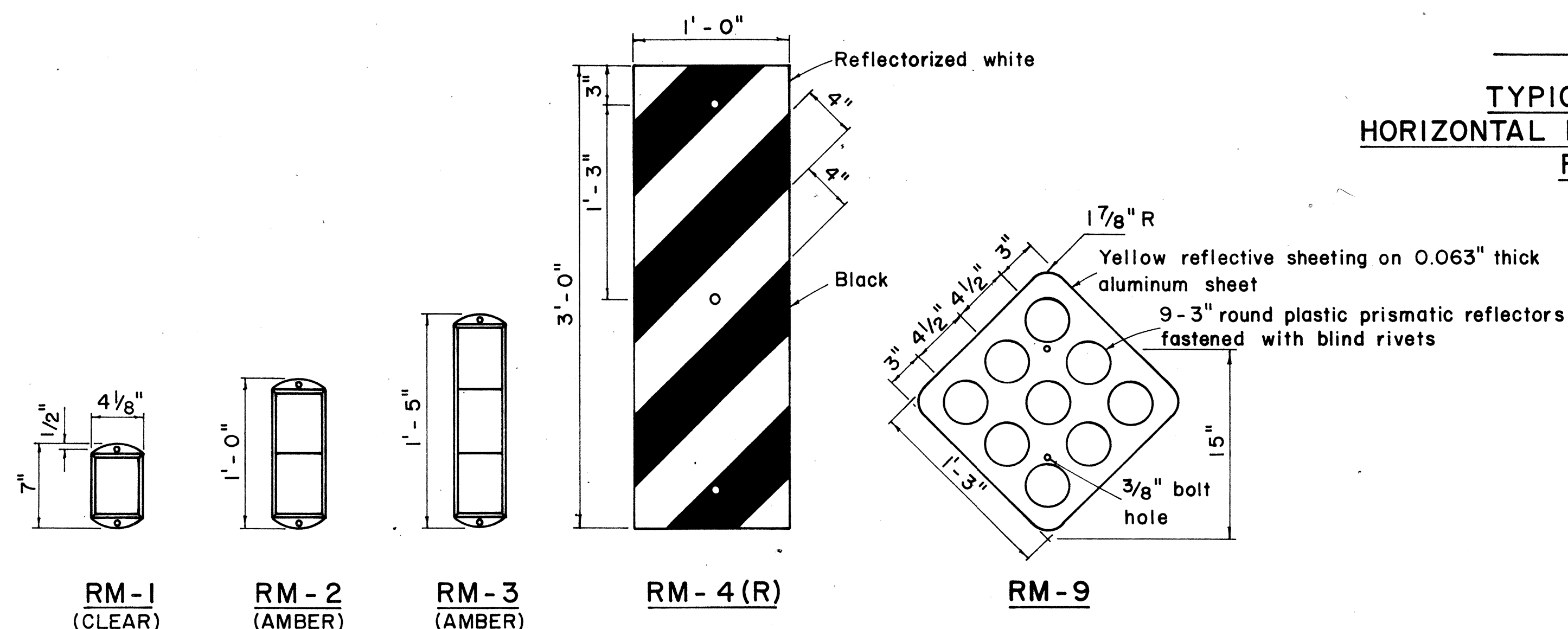
STANDARD DETAILS

MISCELLANEOUS SIGN DETAILS

Not to scale March, 1968

SHEET No. 2 OF 11 SHEETS DT 100

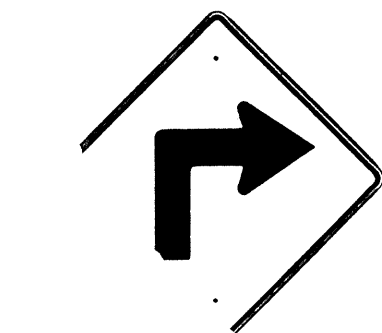
TYPICAL DETAIL
HORIZONTAL REFLECTOR MARKER
RM - 3H



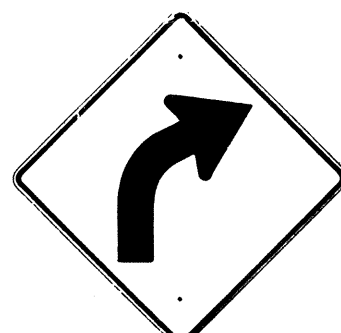
REFLECTOR MARKERS

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

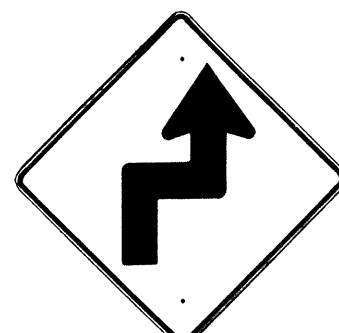
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	3300-03-70	1970	10	30



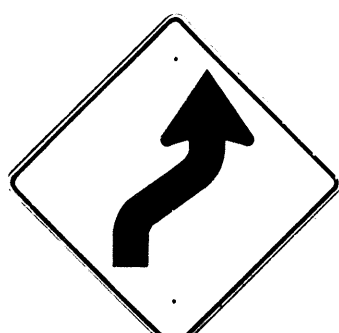
W1-1(R) 30" x 30"



W1-2(R) 30" x 30"



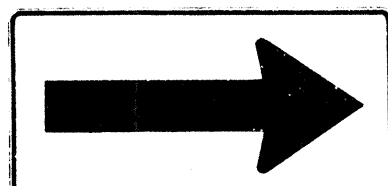
W1-3(R) 30" x 30"



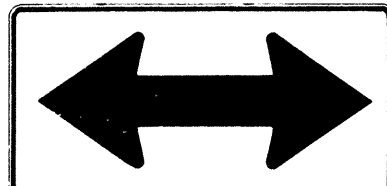
W1-4(R) 30" x 30"



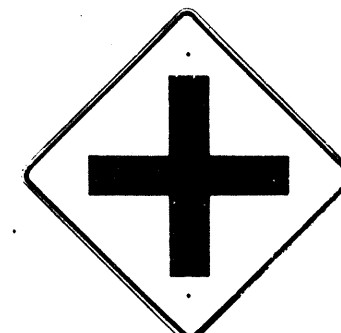
W1-5(R) 30" x 30"



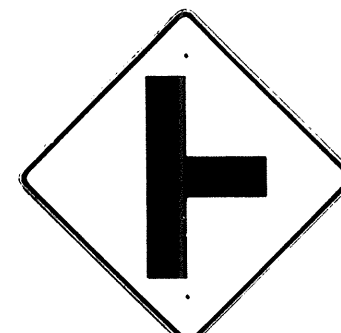
W1-6 48" x 24"



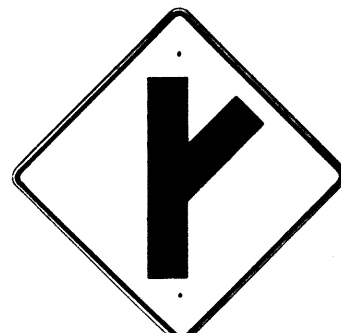
W1-7 48" x 24"



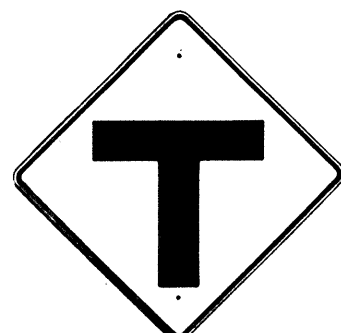
W2-1 30" x 30"



W2-2 30" x 30"



W2-3(R) 30" x 30"



W2-4 30" x 30"



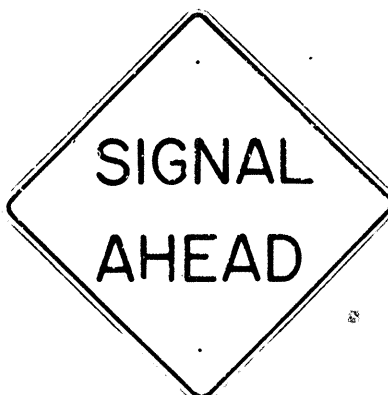
W2-5 30" x 30"



W3-1 30" x 30"



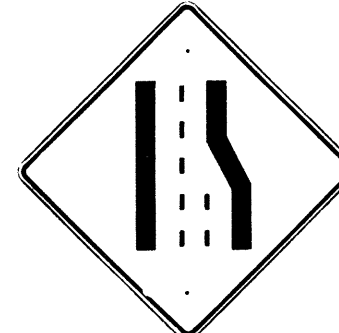
W3-2 30" x 30"



W3-3 36" x 36"



W4-1 30" x 30"
W4-1-E 36" x 36"
W4-1-I 48" x 48"



W4-2 30" x 30"
W4-2-E 36" x 36"



W5-1 30" x 30"
W5-1-E 36" x 36"



W5-2 30" x 30"



W5-3 30" x 30"



W6-1 36" x 36"



W6-2 36" x 36"



W7-1 30" x 30"



W8-1 30" x 30"



W8-2 30" x 30"



W8-3 30" x 30"



W8-4 30" x 30"



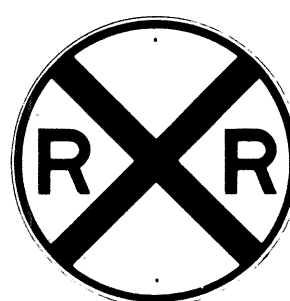
W8-5 30" x 30"



W9-1 30" x 30"



W9-2 30" x 30"



W10-1 36" DIAMETER



W11-1 30" x 30"



W11-5 30" x 30"



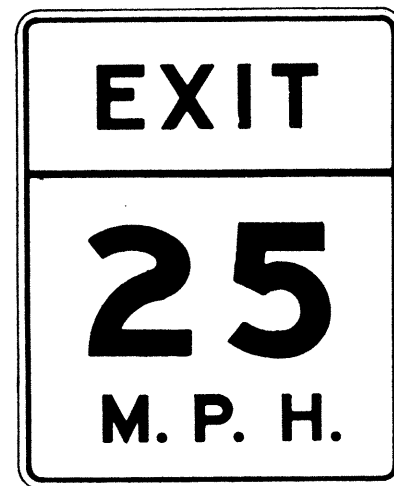
W12-2 36" x 36"



W13-1(35) 18" x 18"
W13-1(35)-E 24" x 24"



W13-2(25) 12" x 18"



W13-3(25) 48" x 60"

NOTE:

1. The shape, color, dimensions, symbols, wording, lettering and reflectorization of all signs shall be in accordance with the "Manual on Uniform Traffic Control Devices for Streets and Highways," dated June 1961 and the BPR manual "Standard Highway Signs," dated September 1961 unless otherwise specified.
2. All warning signs shall be reflectorized unless otherwise specified.
3. All warning signs shall have $\frac{3}{8}$ " bolt holes drilled at appropriate locations unless otherwise noted.
4. (R) or (L) indicates right or left and shall be as shown on the plan.
5. The suffix "E" denotes Expressway signs and "I" denotes Interstate signs.
6. For W13 sign, number in () indicates speed and shall be as shown on the plans.

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

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

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
WARNING SIGNS

 NOT TO SCALE

SHEET No. 3 OF 11 SHEETS DT 102

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	330C-03-70	1970	11	30



W 7-2 48"x48"



W 8-7 30"x30"



W 14-1 30"x30"



W 20-1a 48"x48"



W 20-2d 48"x48"



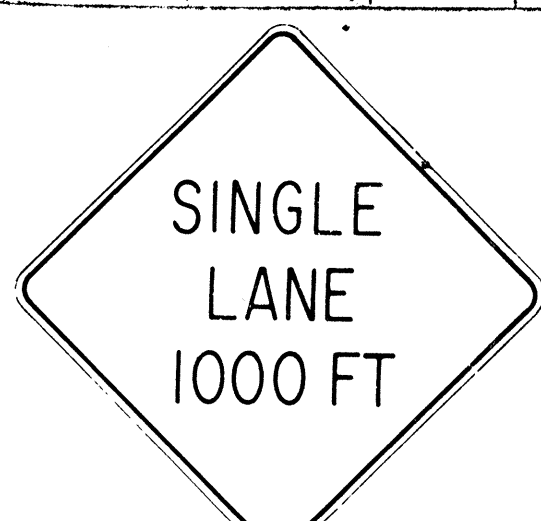
W 20-3b 48"x48"



W 20-4d 48"x48"



W 20-5d(L) 48"x48"



W 20-6b 48"x48"



W 20-7c 48"x48"



W 21-1 30"x30"



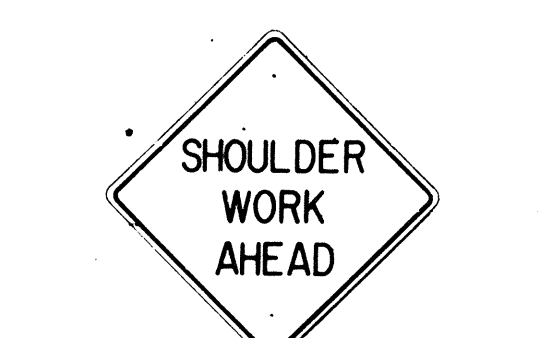
W 21-2 24"x24"



W 21-3 36"x36"



W 21-4 30"x30"



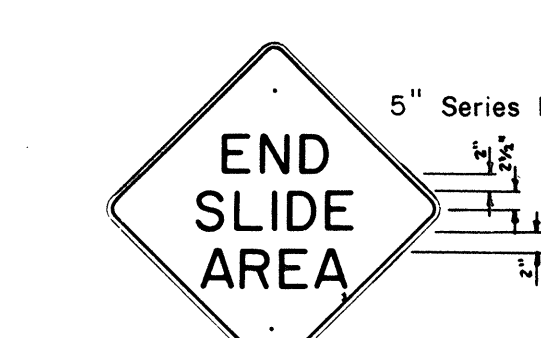
W 21-5 30"x30"



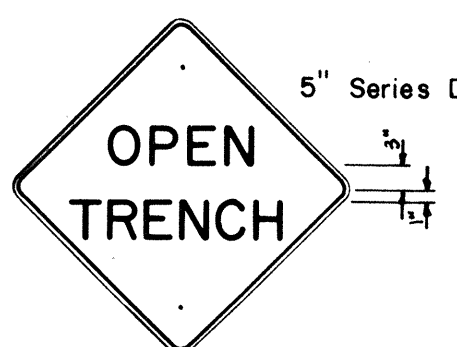
W 21-6 30"x30"



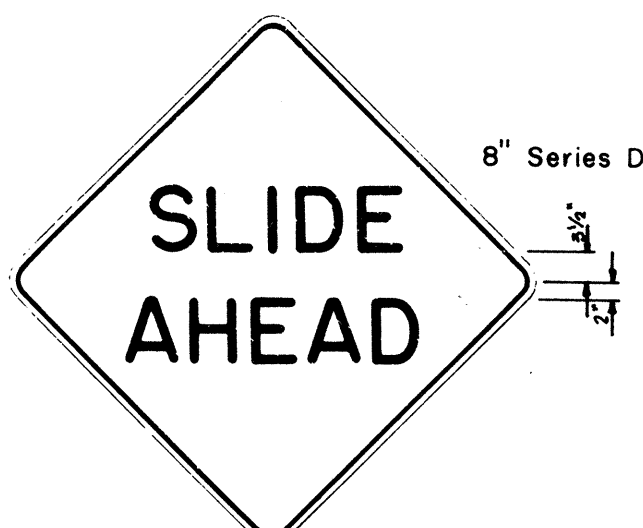
W 22-1 30"x30"



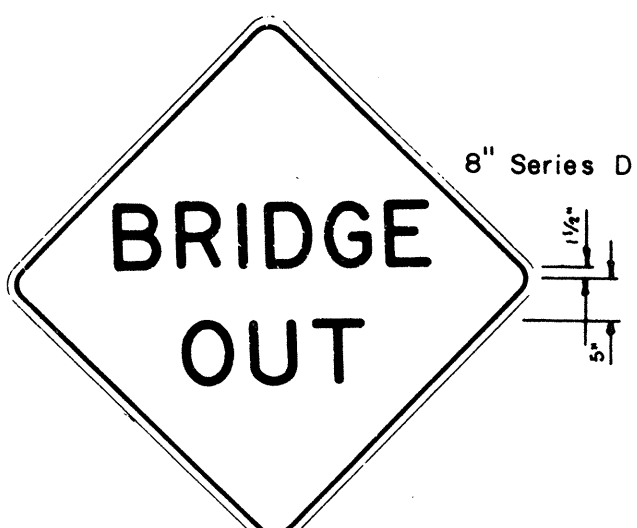
W 22-2 30"x30"



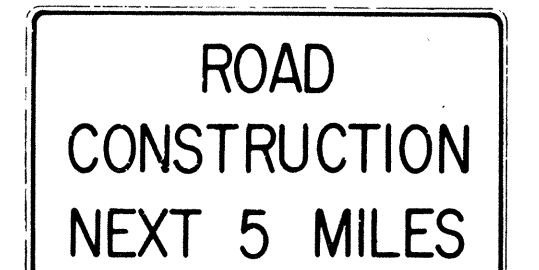
W 22-3 30"x30"



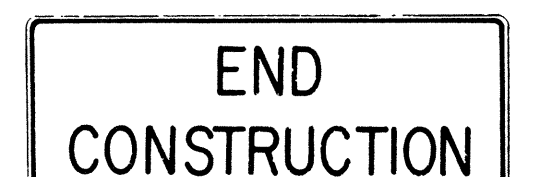
W 22-4 48"x48"



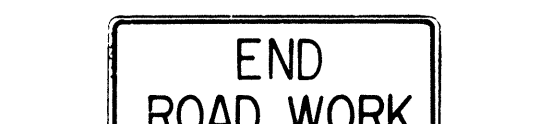
W 22-5 48"x48"



G 20-1(5) 60"x36"



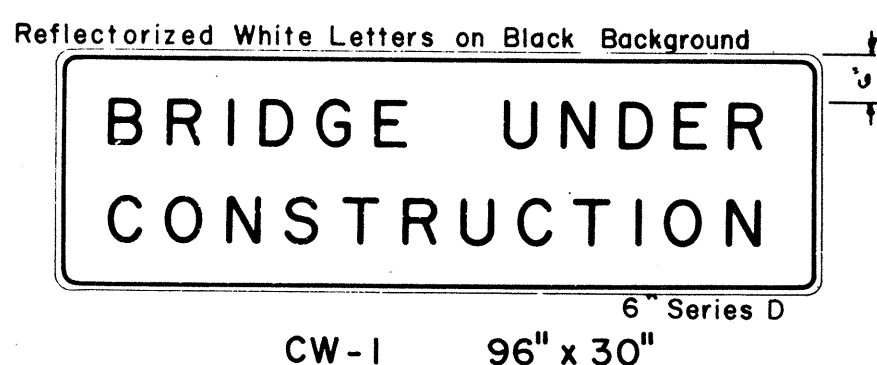
G 20-2 60"x24"



G 20-3 42"x18"



M 5-7(L) 48"x18"



CW-1 96"x30"

- NOTE:
- The shape, color, dimensions, symbols, wording, lettering and reflectorization of all signs shall be in accordance with the "Manual on Uniform Traffic Control Devices for Streets and Highways," dated June 1961 and the BPR manual "Standard Highway Signs," dated September 1961 unless otherwise specified.
 - All signs shall be reflectorized unless otherwise specified.
 - All signs shall have $\frac{3}{8}$ " bolt holes drilled at appropriate locations unless otherwise noted.
 - For W 20 series signs, suffixes a,b,c and d are as follows a 1500 FT, b 1000 FT, c 500 FT and d AHEAD
 - (R) or (L) indicates right or left and shall be as shown on the plans.
 - Number in () indicates miles and shall be as shown on the plans.

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

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

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

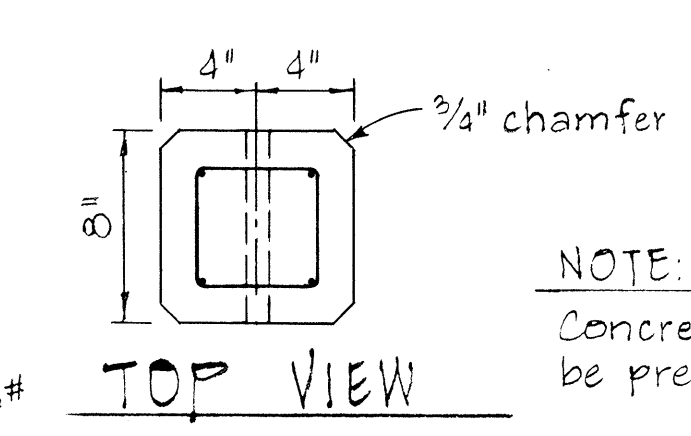
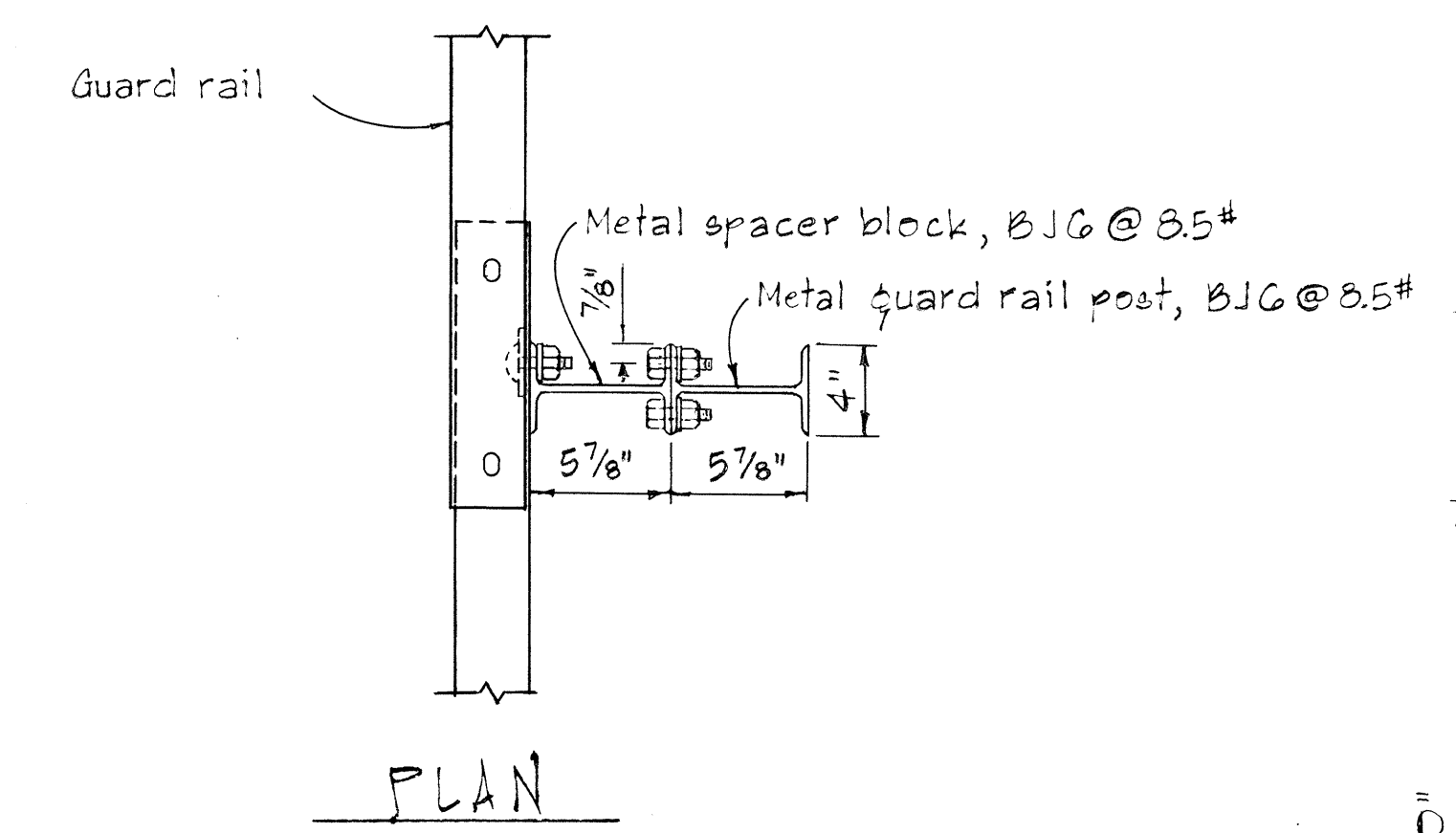
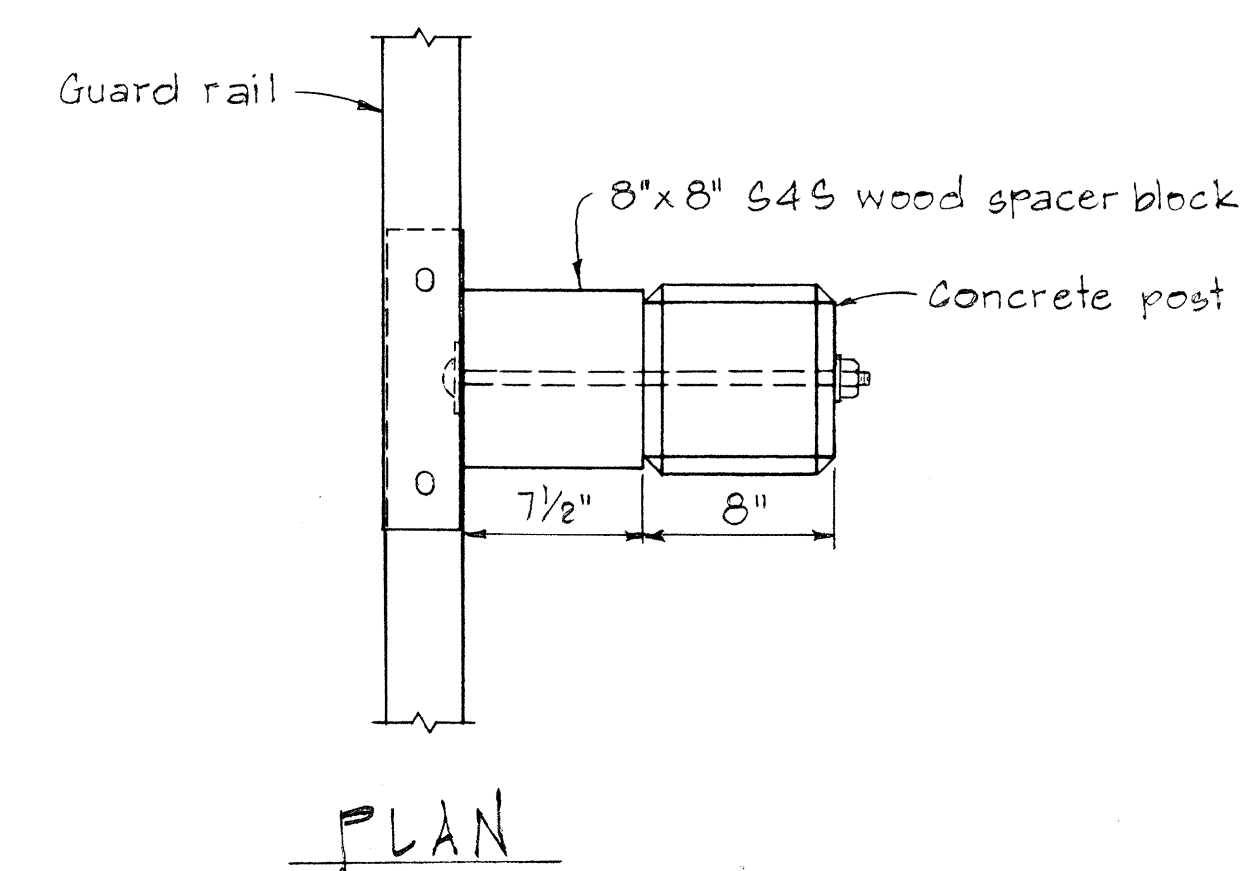
STANDARD DETAILS
CONSTRUCTION SIGNS

NOT TO SCALE

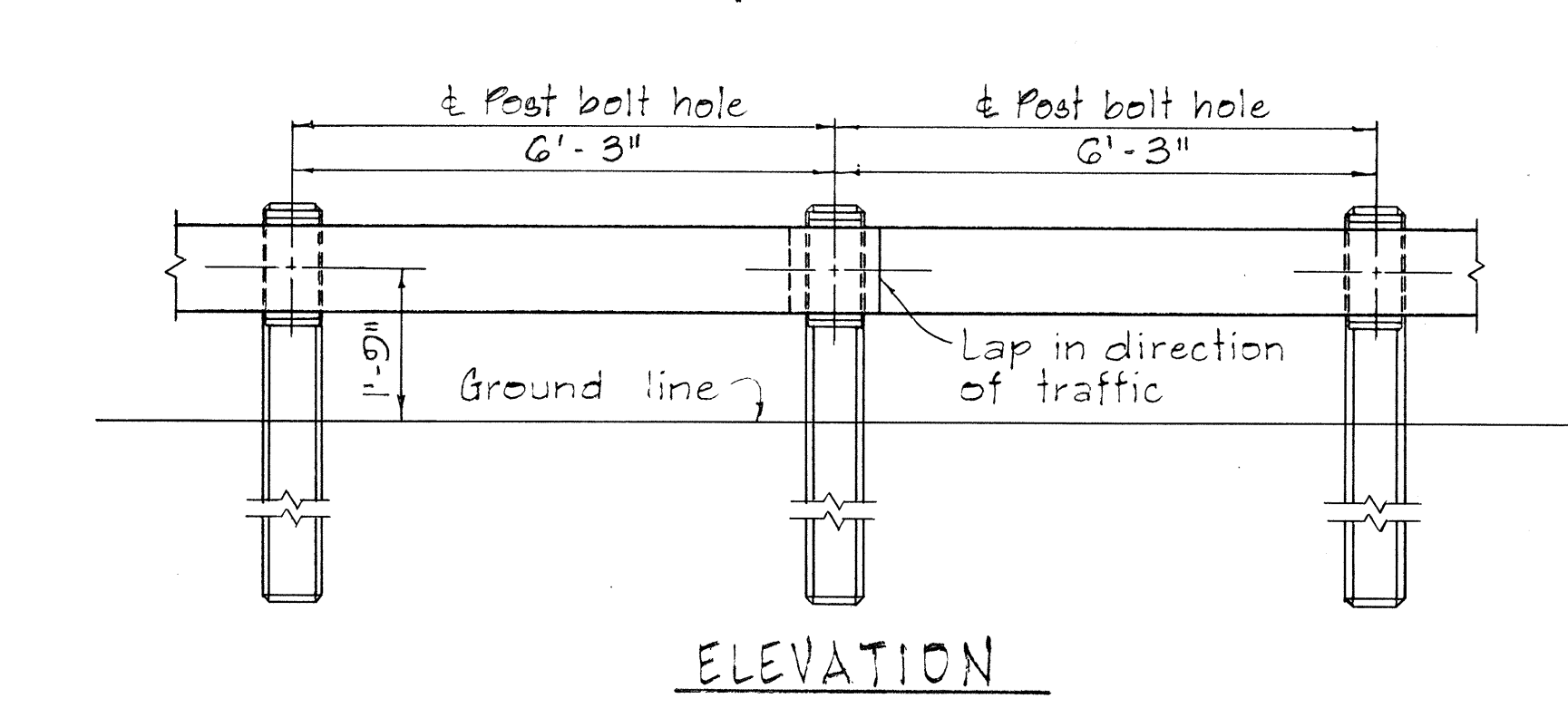
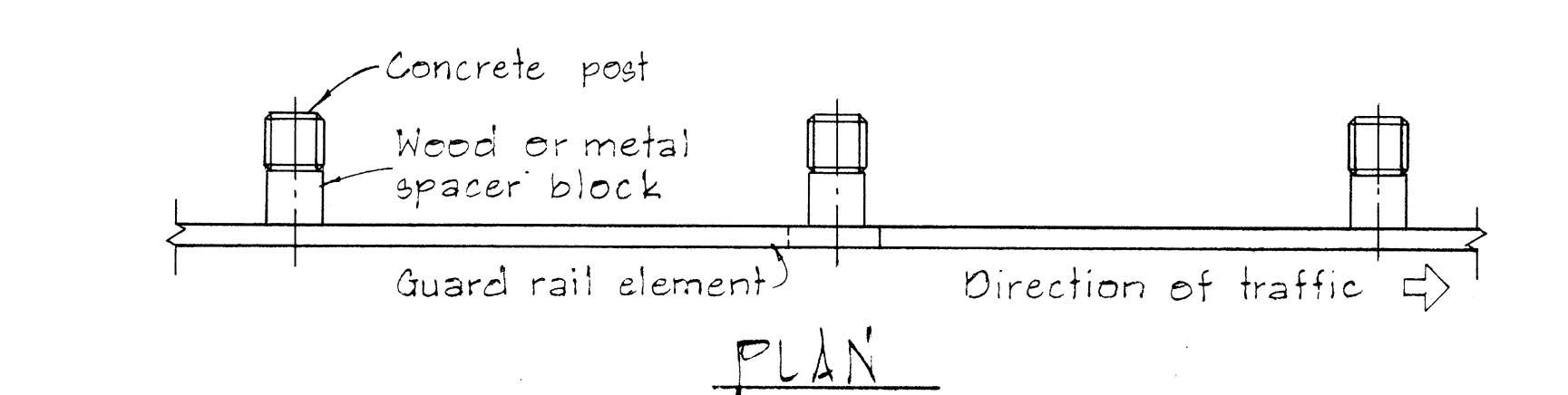
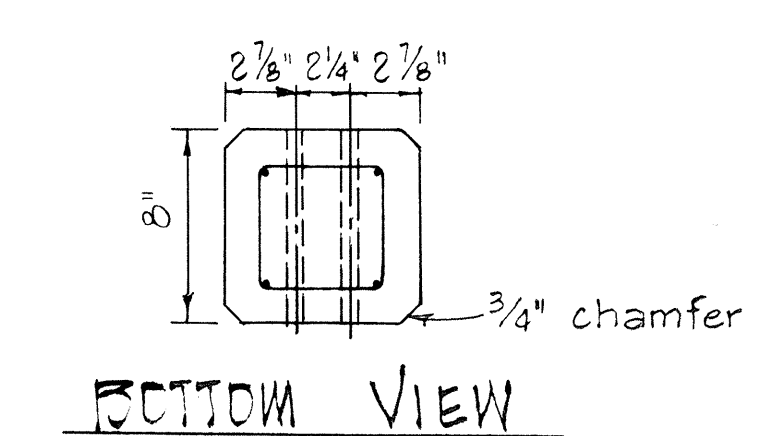
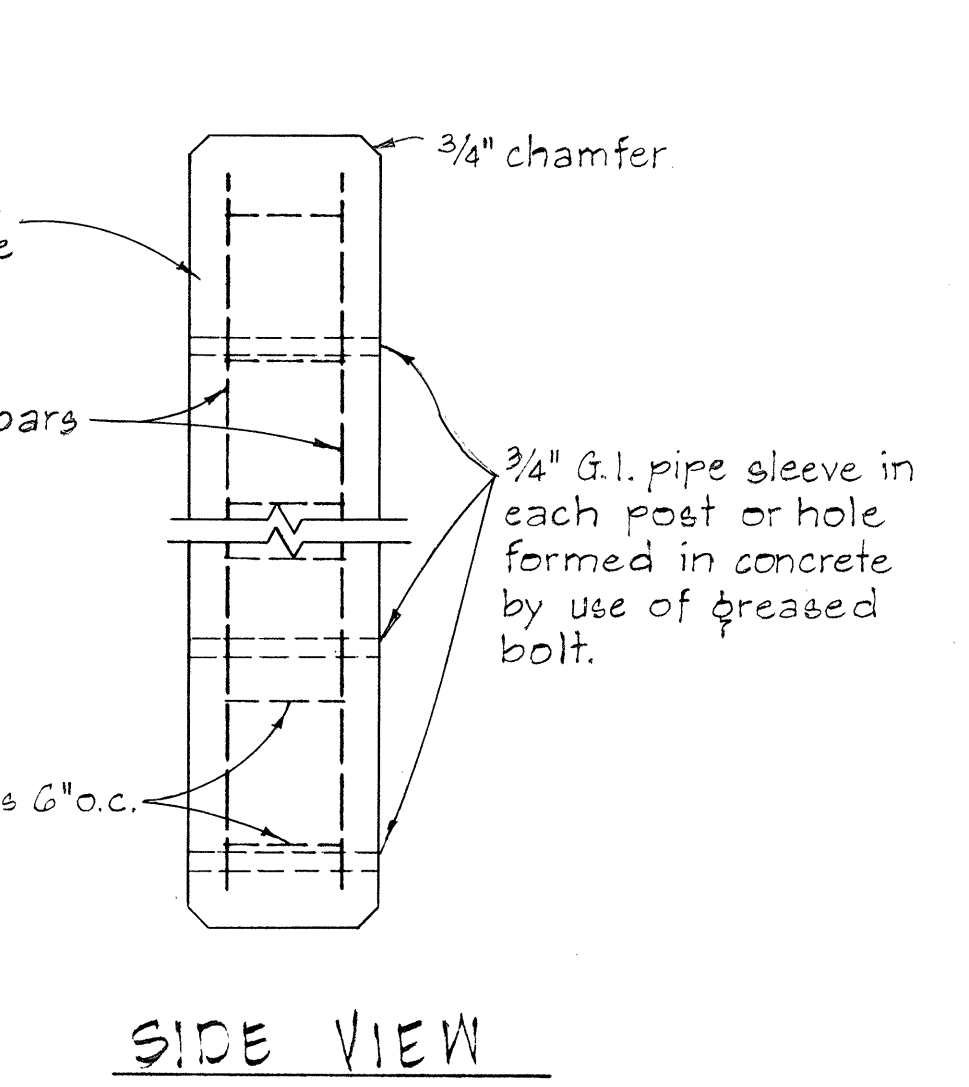
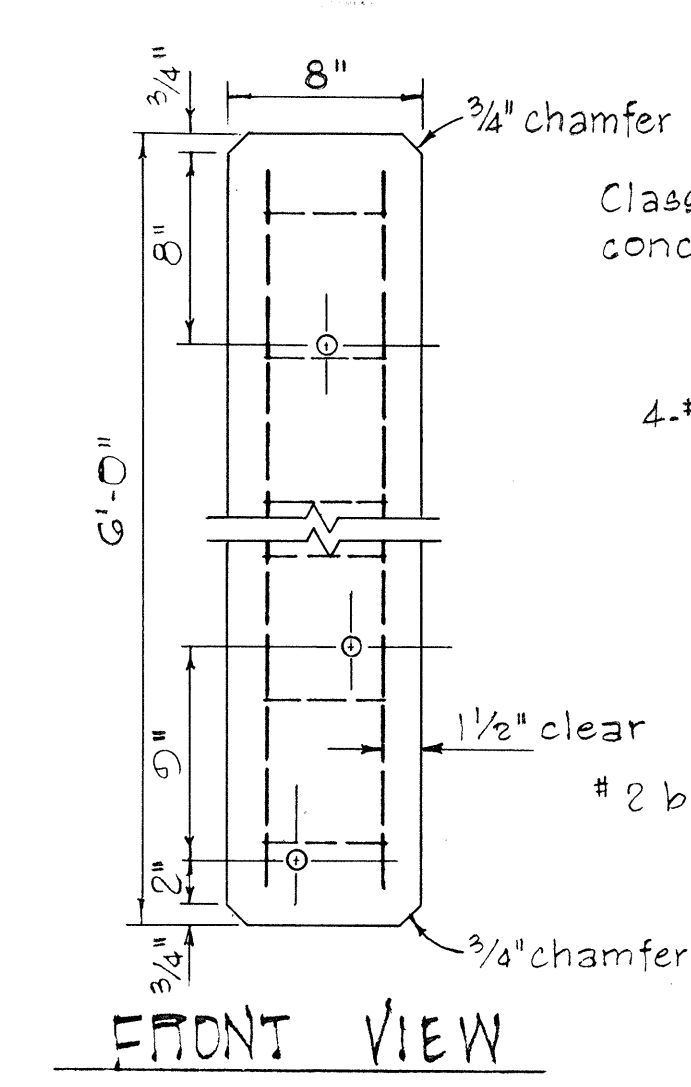
SHEET No. 4 OF 11 SHEETS DT 104

SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

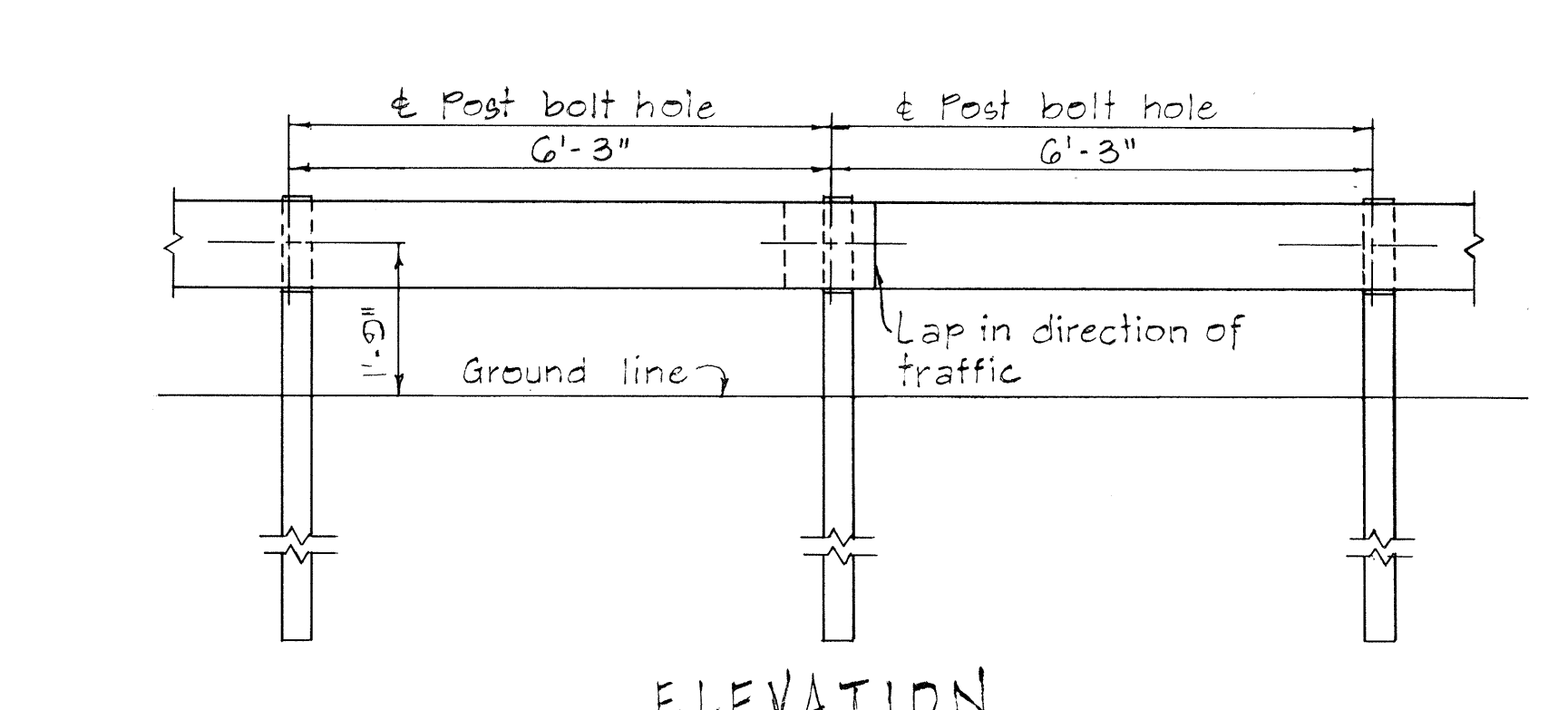
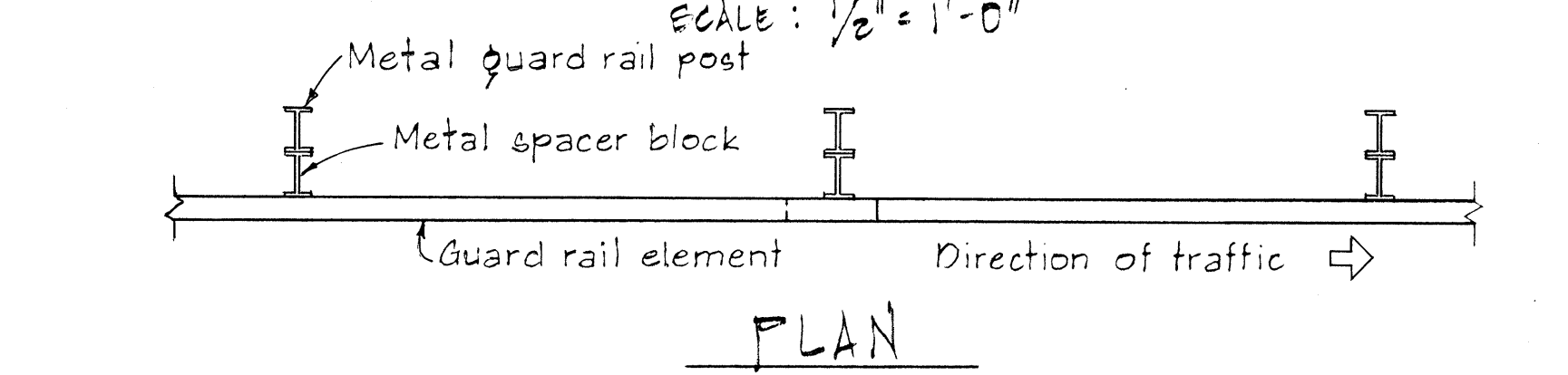
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	330C-03-70	1970	12	30



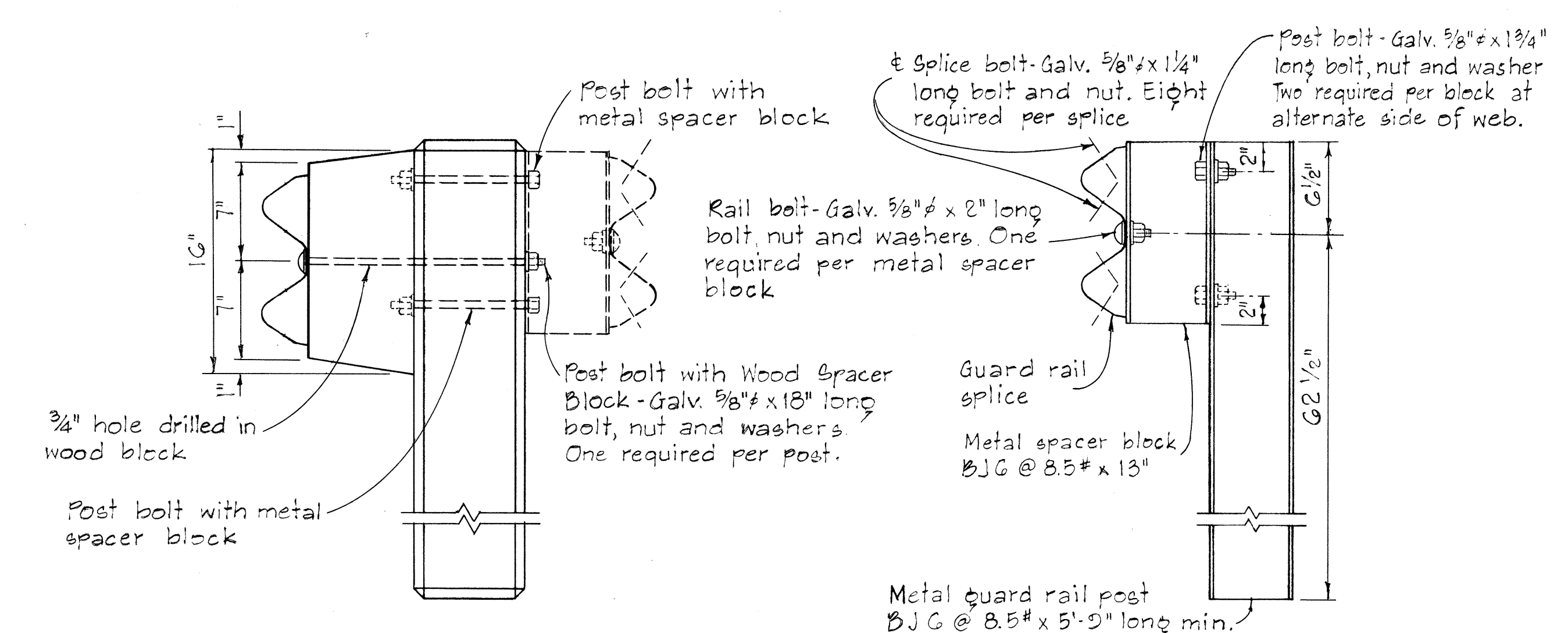
NOTE:
Concrete post shall be precast



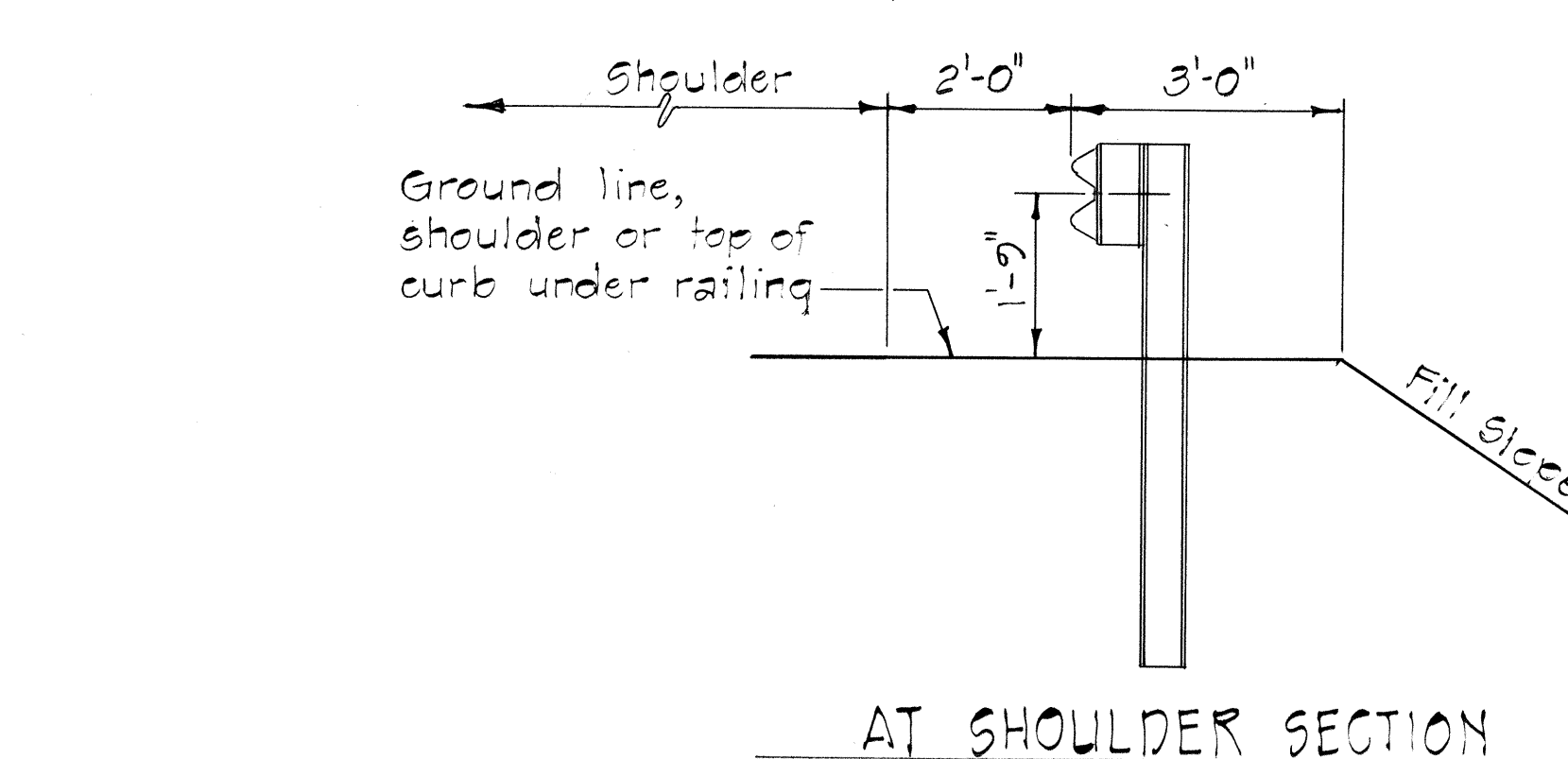
METAL GUARD RAIL ON CONCRETE POST WITH WOOD OR METAL SPACER BLOCK
SCALE: 1/2" = 1'-0"



METAL GUARD RAIL ON METAL POST WITH METAL SPACER BLOCK
SCALE: 1/2" = 1'-0"



DETAIL OF CONCRETE POST
SCALE: 1 1/2" = 1'-0"



TYPICAL METAL GUARD RAIL DETAIL
SCALE: 1/2" = 1'-0"

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

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

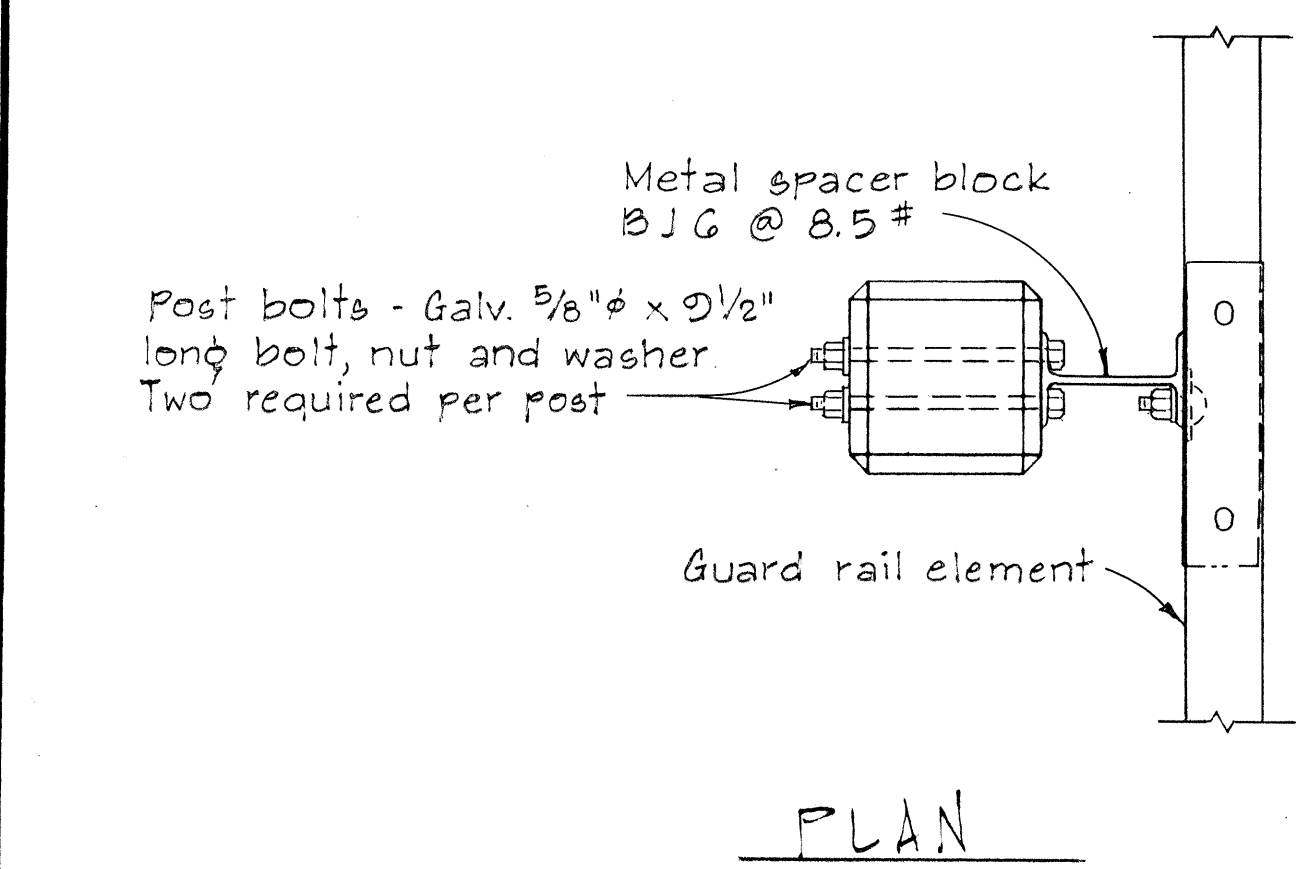
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL GUARD RAIL

SCALE: AS SHOWN
NOV. 1968
SHEET No. 5 OF 11 SHEETS DT 500

SINGLE METAL GUARD RAIL ON PRECAST CONCRETE POST WITH WOOD OR METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"



Post bolts - Galv. 5/8" x 1 1/2" long bolt, nut and washer
Two required per post

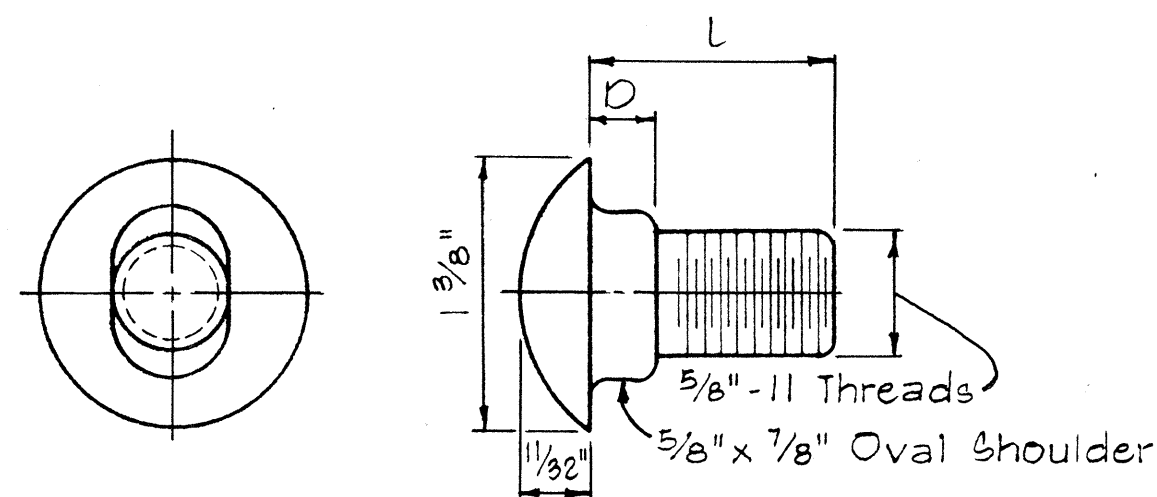
Guard rail element

SINGLE METAL GUARD RAIL ON PRECAST CONCRETE POST WITH WOOD OR METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"

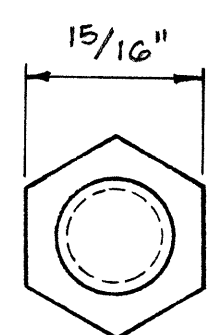
BOLT DIMENSIONS		
TYPE A BOLT		
	D	L
Splice Bolt	5/16"	1 1/4"
Post Bolt for Conc. Post w/ Double Wood Blocks	3/32"	24"
Post Bolt for Conc. Post w/ Single Wood Block	3/32"	18"
Rail Bolt for Metal Block	3/32"	2"

BOLT DIMENSIONS	
TYPE B BOLT	
	L
Post Bolt for Conc. Post w/ Metal Blocks	2 1/2"
Post Bolt for Metal Post w/ Metal Block	1 3/4"

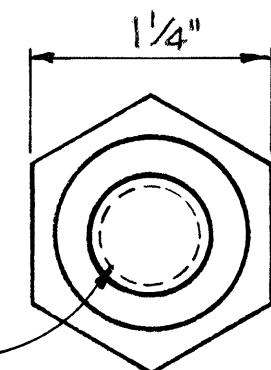
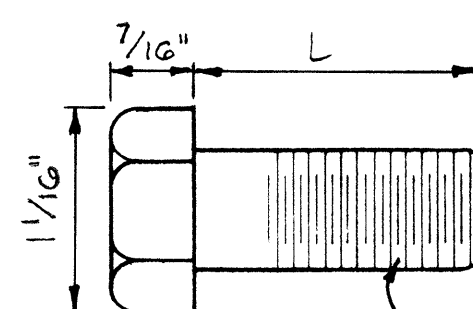
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	3306-03-70	1970	13	30



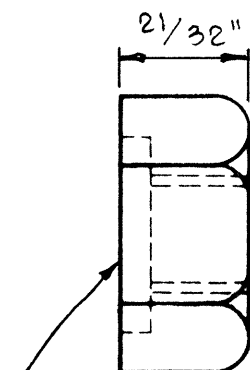
TYPE A BOLT



TYPE B BOLT

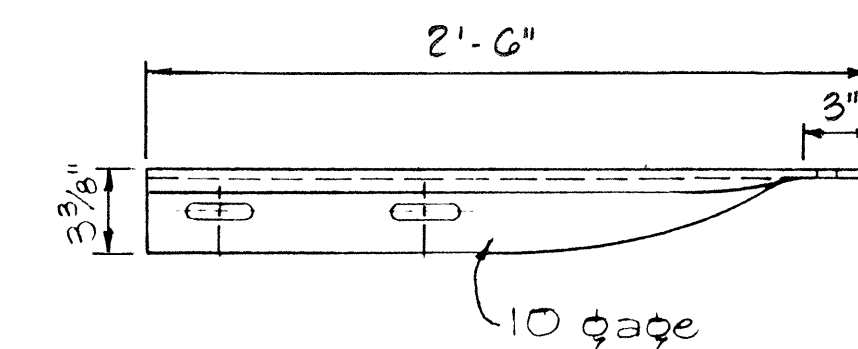


HEXAGON NUT

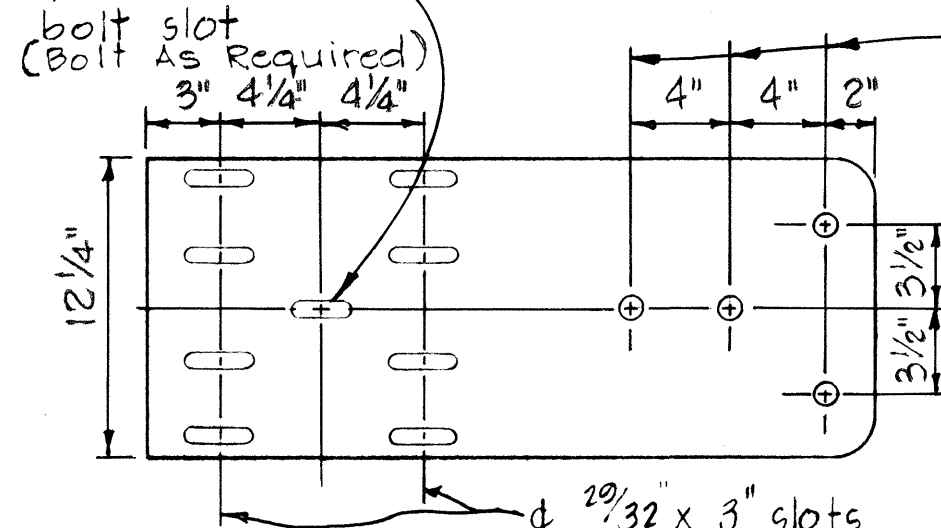


5/32" Deep x 15/16" Dia. C' Bore for Type A Bolt only.
Plain nut for Type B Bolt.

Scale: Full Size



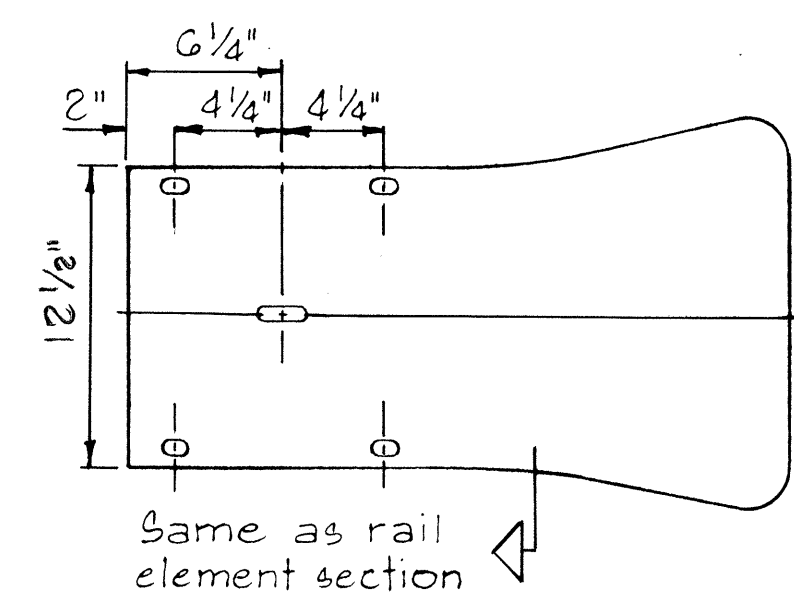
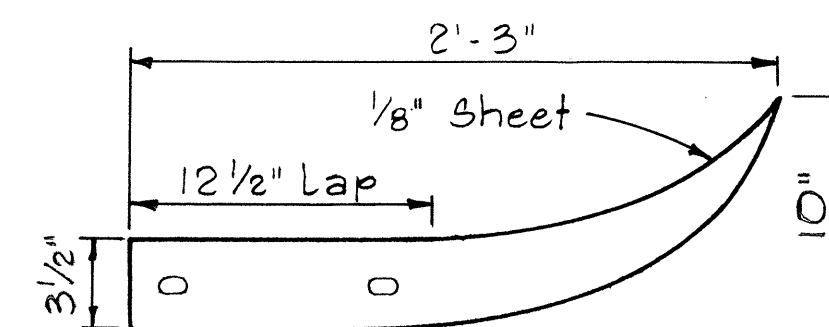
3/4" x 2 1/2" Post bolt slot as Required 3" 4 1/4" 4 1/4"



4 29/32" x 3" slots For Type A Splice Bolts

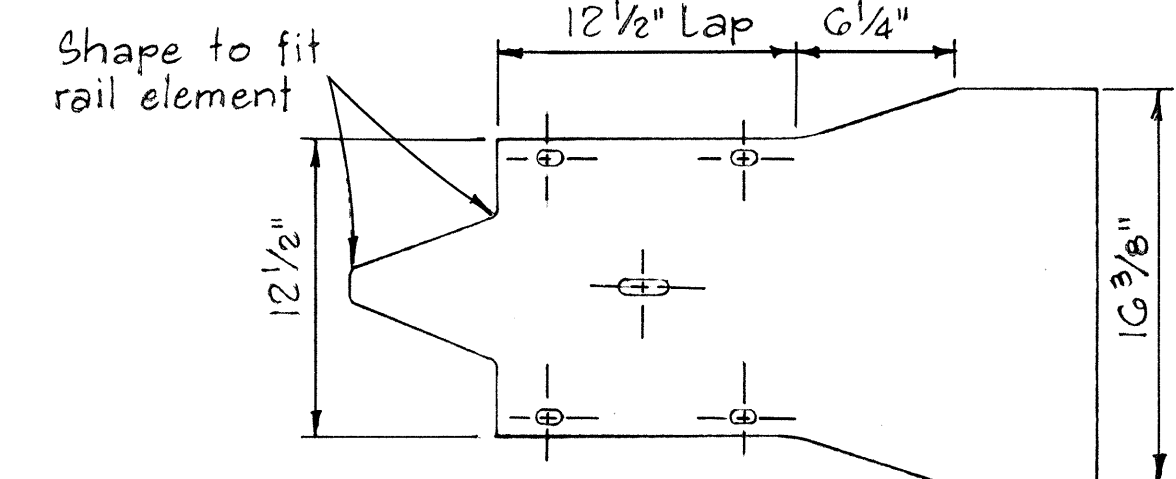
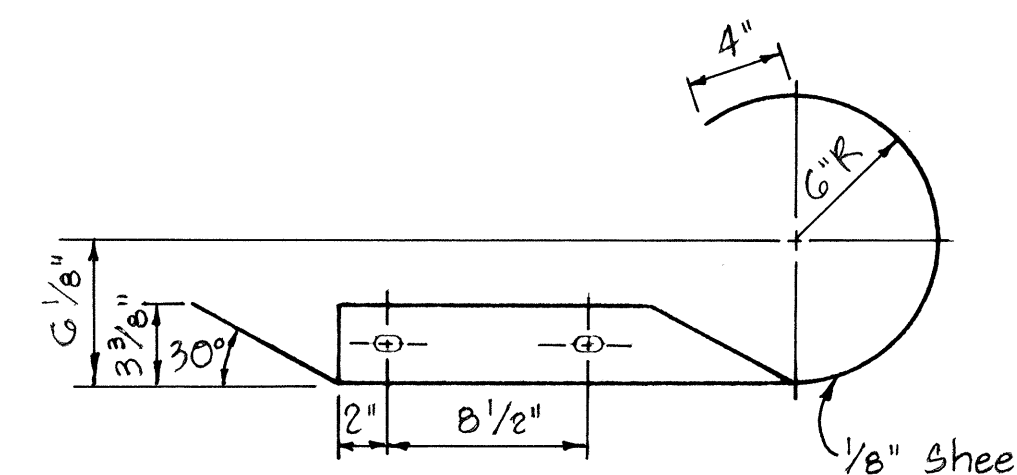
SPECIAL END SHOE

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



FLARED END

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



CURVED END

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

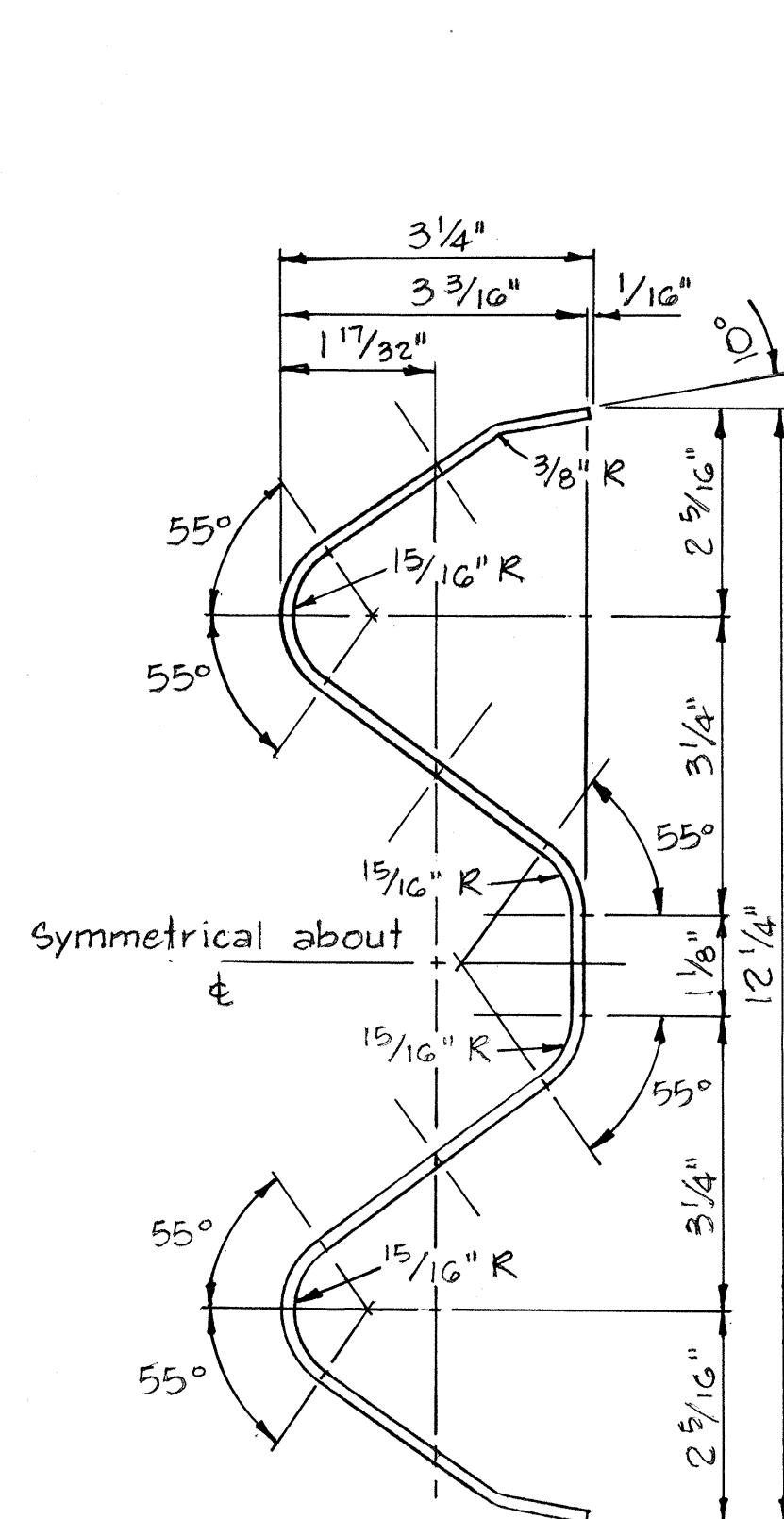
APPROVAL RECOMMENDED: *Frank Tanaka* 12/29/69
TRAFFIC ENGINEER DATE
APPROVED: *William J. Smith* 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL GUARD RAIL

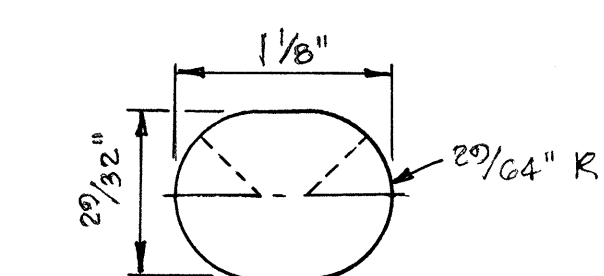
Scale: As Noted August, 1968

SHEET No. 6 OF 11 SHEETS DT 501



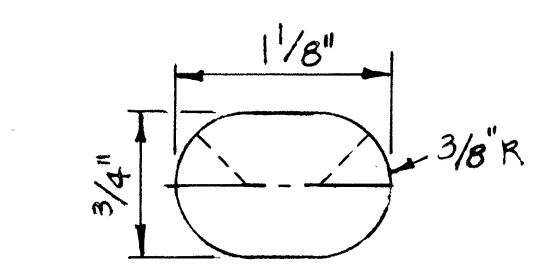
RAIL ELEMENT SECTION

Scale: 6" = 1'-0"

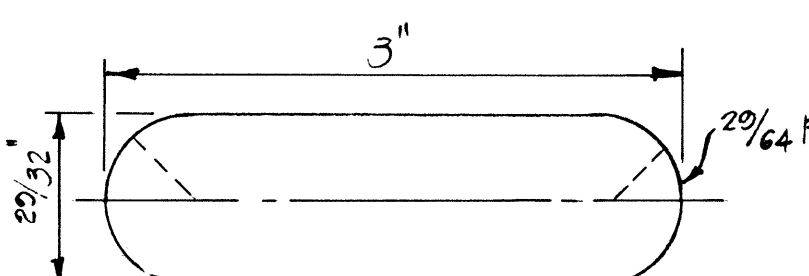


SPlice Bolt Slot

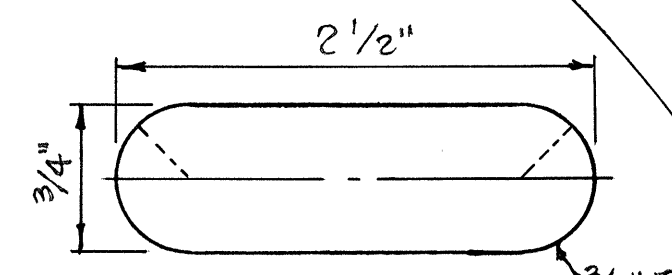
Scale: Full Size



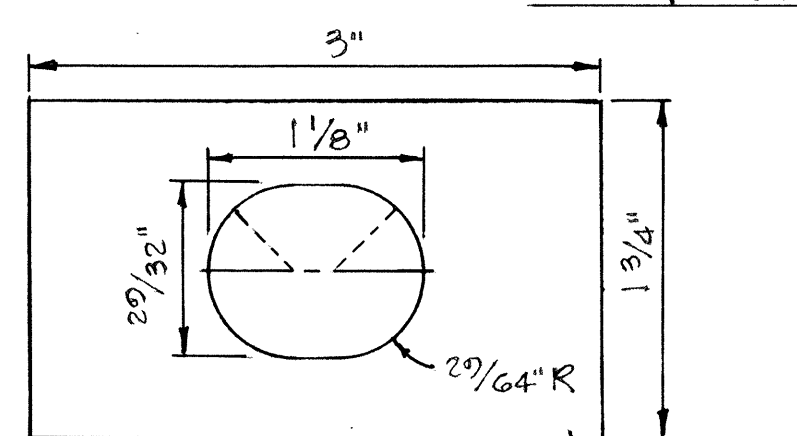
SPlice Bolt Slot FOR ALL ENDS



SPlice Bolt Slot FOR SPECIAL END SHOE



POST Bolt Slot

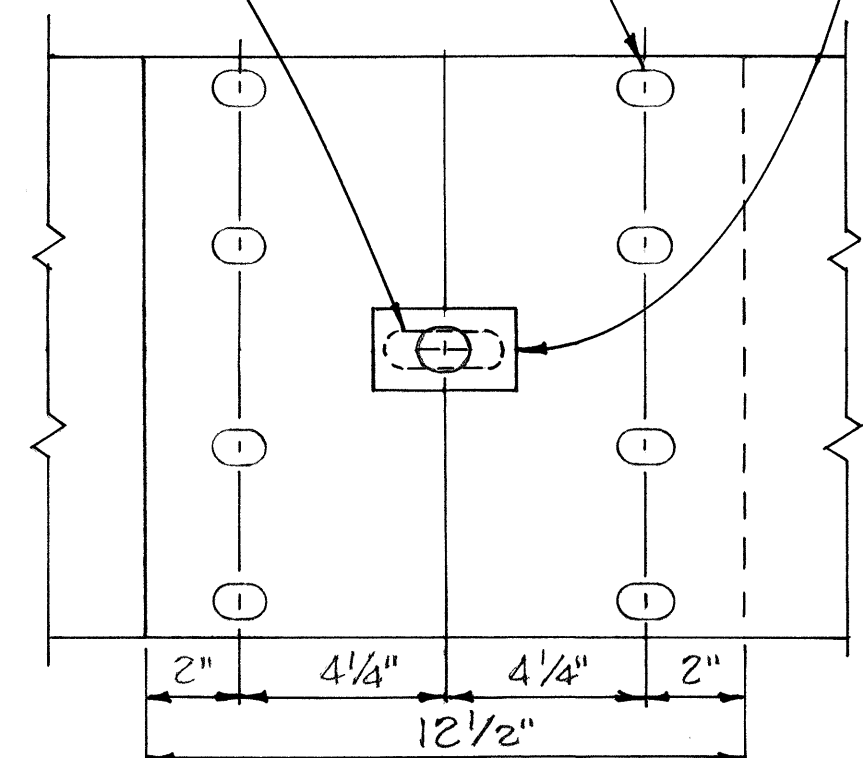


RAIL WASHER

NOTES:

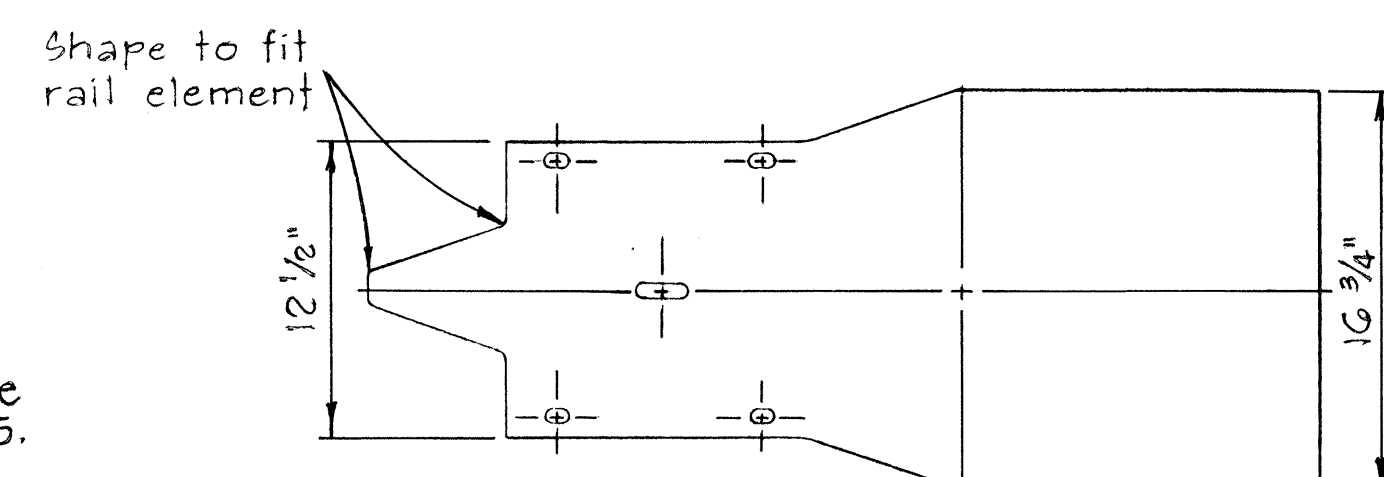
- H.S. Bolts shall conform to the requirements of ASTM A 325.
- Special End Shoe shall be fabricated from 10 Gage steel conforming to the requirements of AASHTO 180.

MEDIAN END DIMENSIONS		
TYPE OF POST AND BLOCK	W	R
Double Metal Guard Rail on Concrete Post with Wood Blocks	29 3/4"	14 7/8"
Double Metal Guard Rail on Concrete Post with Metal Blocks (BJG)	26 1/2"	13 1/4"
Double Metal Guard Rail on Metal Post with Metal Blocks (BJG)	24 3/8"	12 3/16"



RAIL SPLICE

Scale: 3" = 1'-0"



MEDIAN END

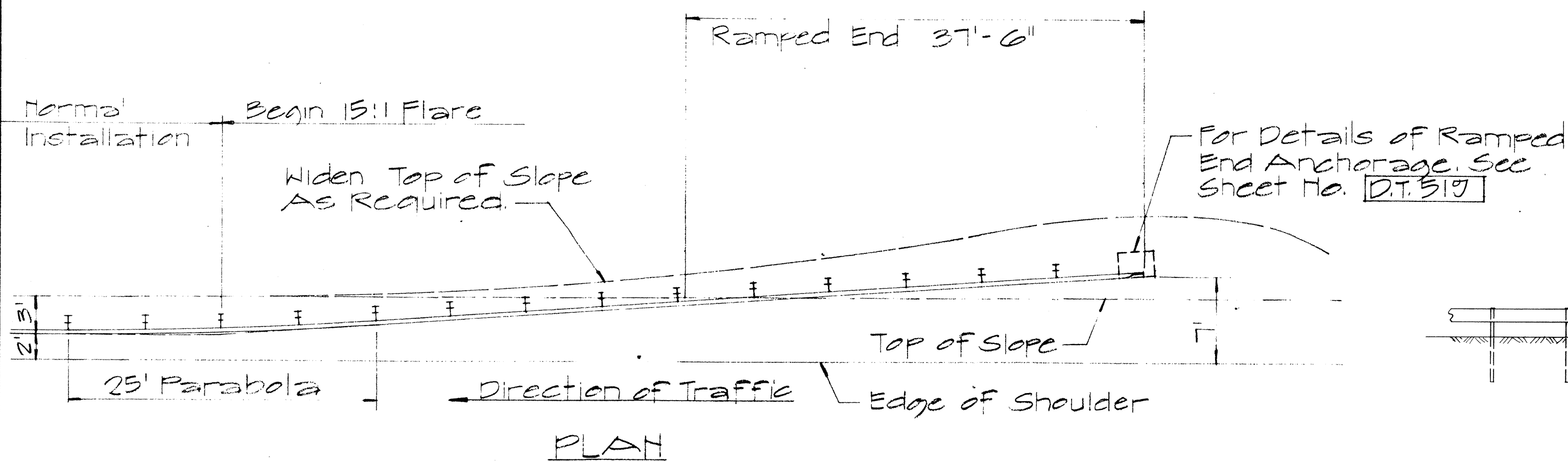
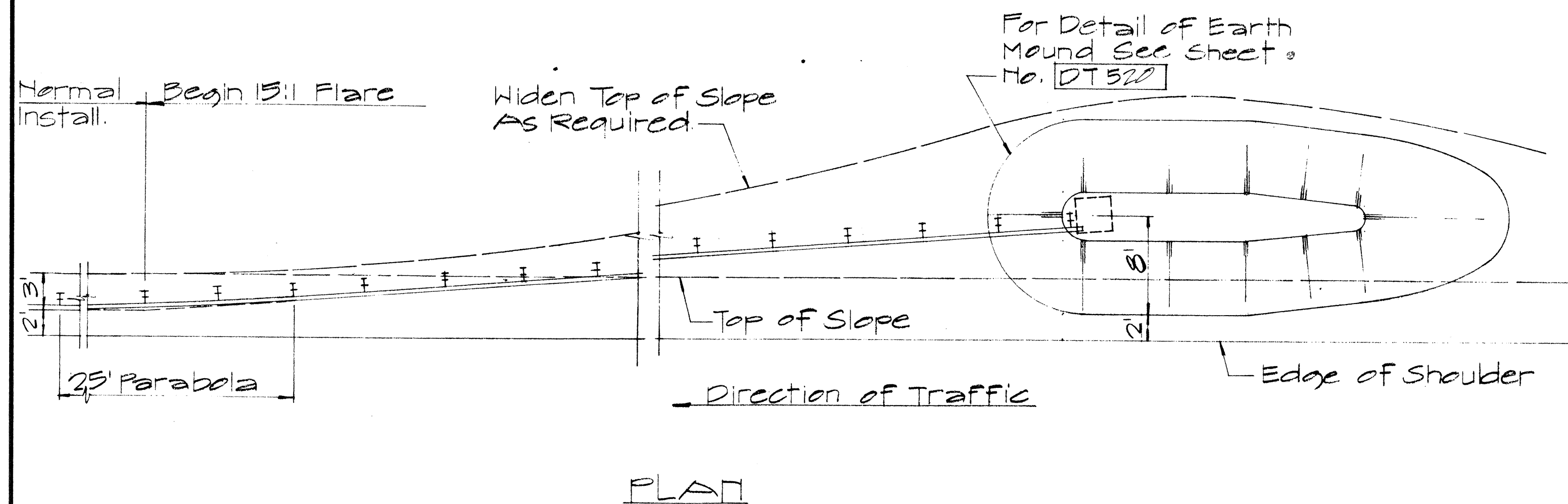
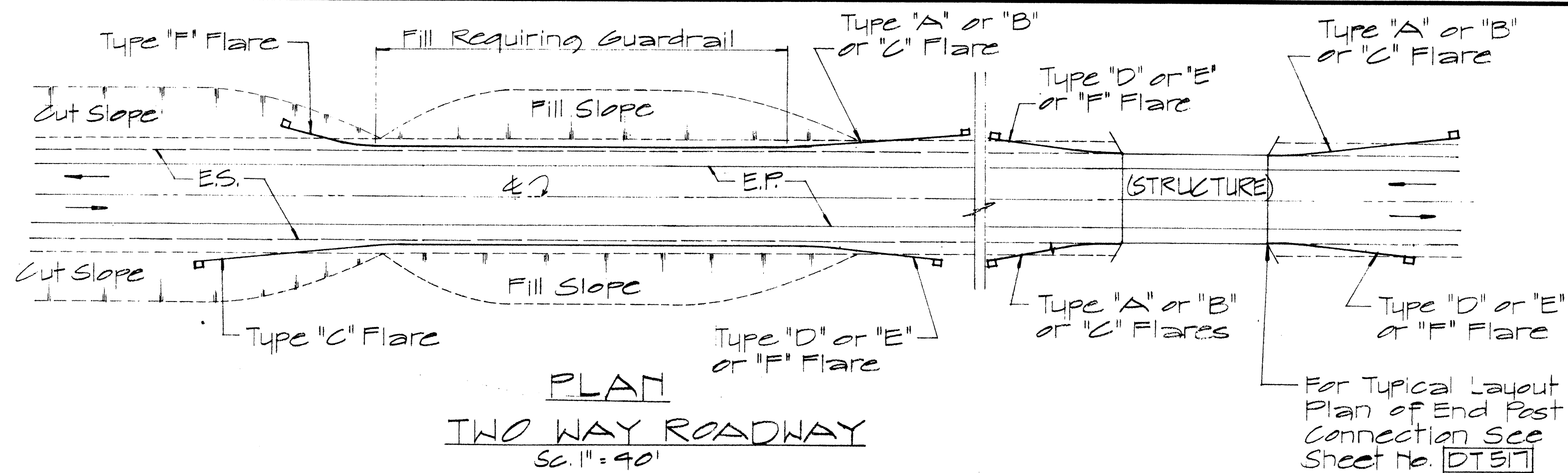
Scale: 1 1/2" = 1'-0"

NO	REVISION	APPROVED BY	DATE

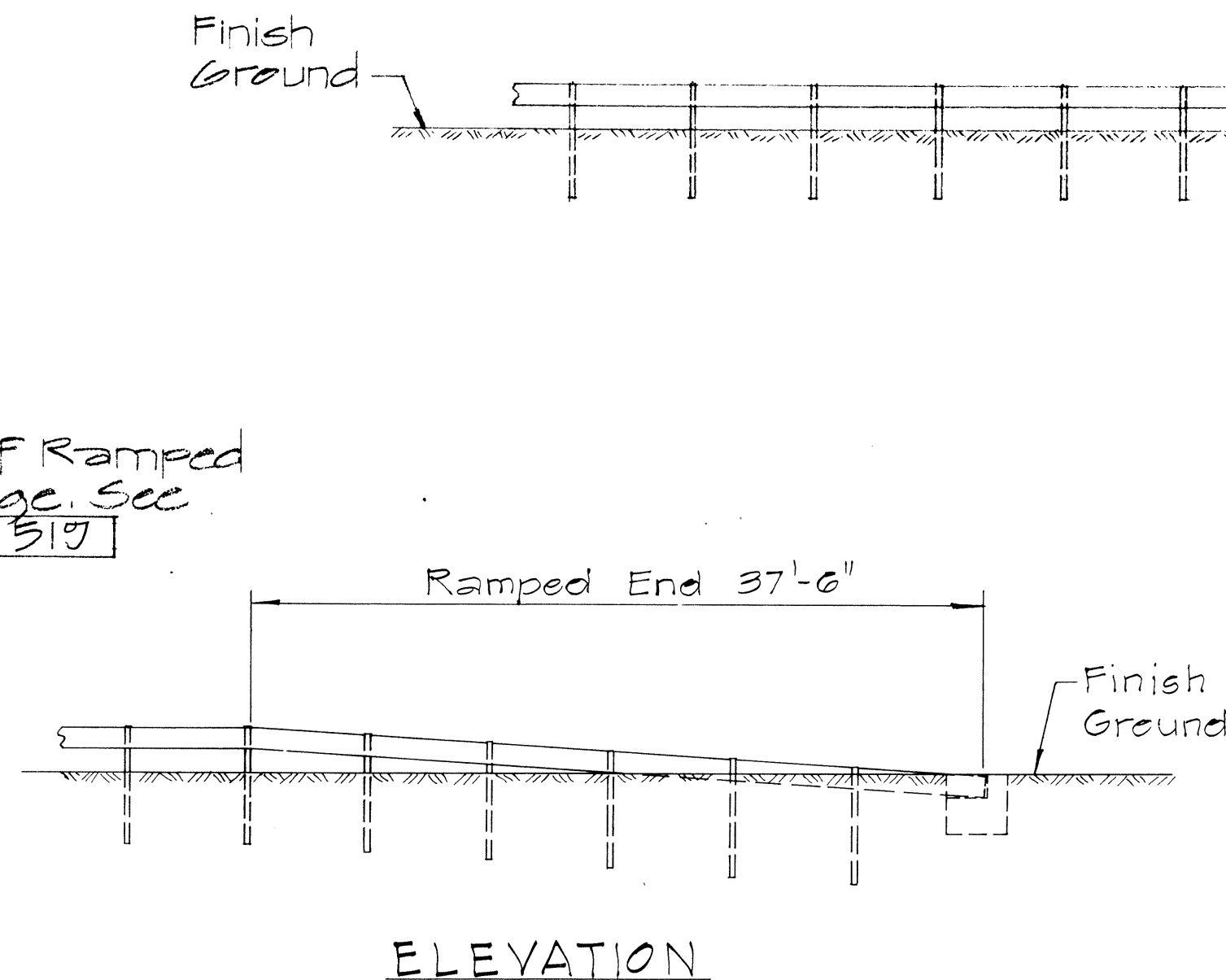
DATE	
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

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

PRINTED ON NO. 1000H CLEARPRINT

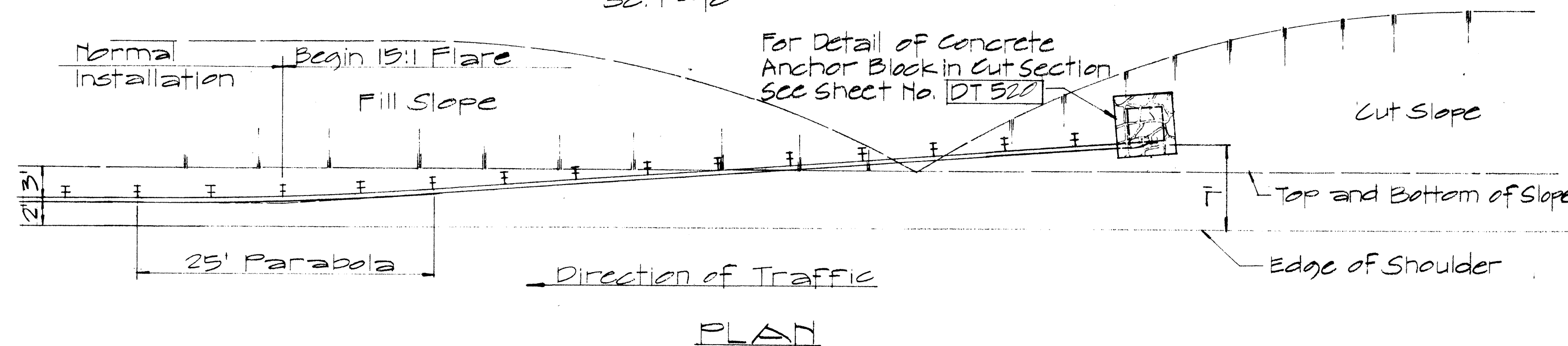
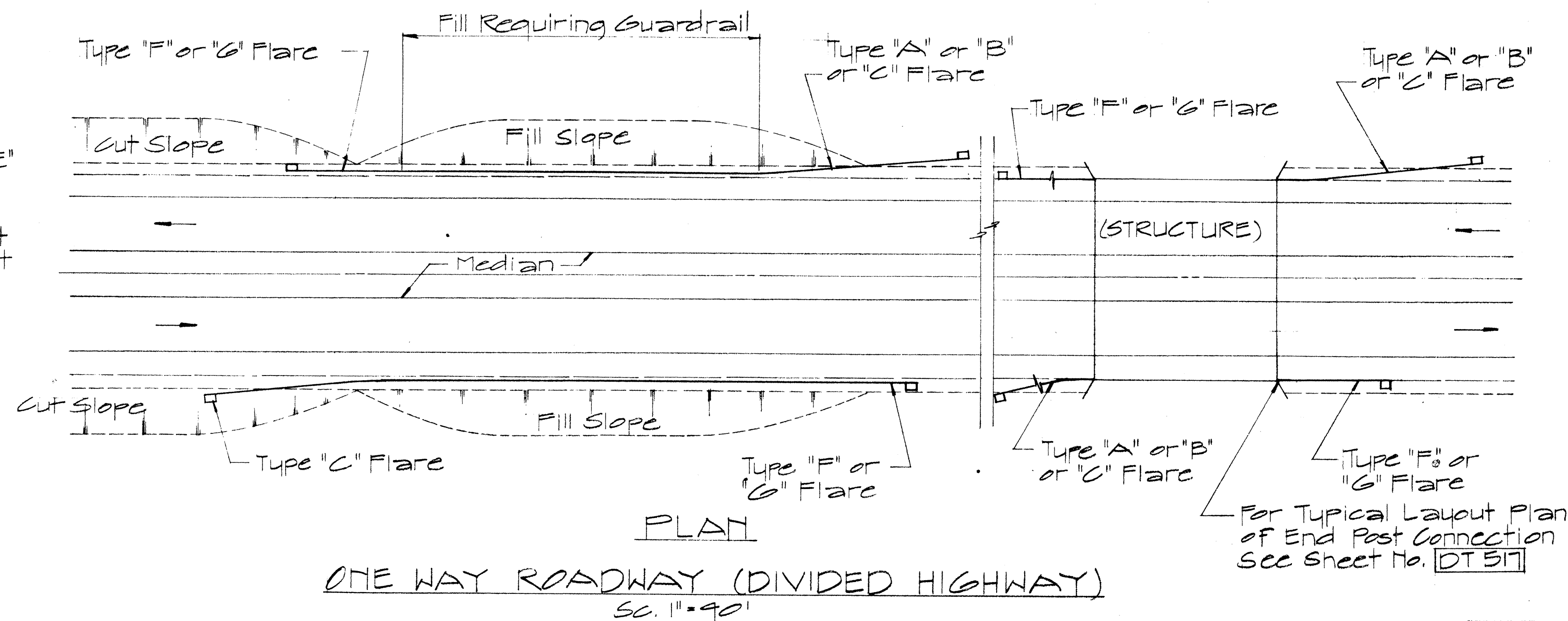


TYPE "B" FLARE
Sc. 1/8" = 1'-0"



NOTE:
Metal guard rail connection to structures requires End Post Connection. See structure plans.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	33000-03-70	1970	14	30



ELEVATION
TYPE "C" FLARE
Sc. 1/8" = 1'-0"

NO.	REVISION	APPROVED BY	DATE

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

APPROVED:
Alvin S. S. S. 12-20-69
ASSISTANT CHIEF, ENGINEERING DATE

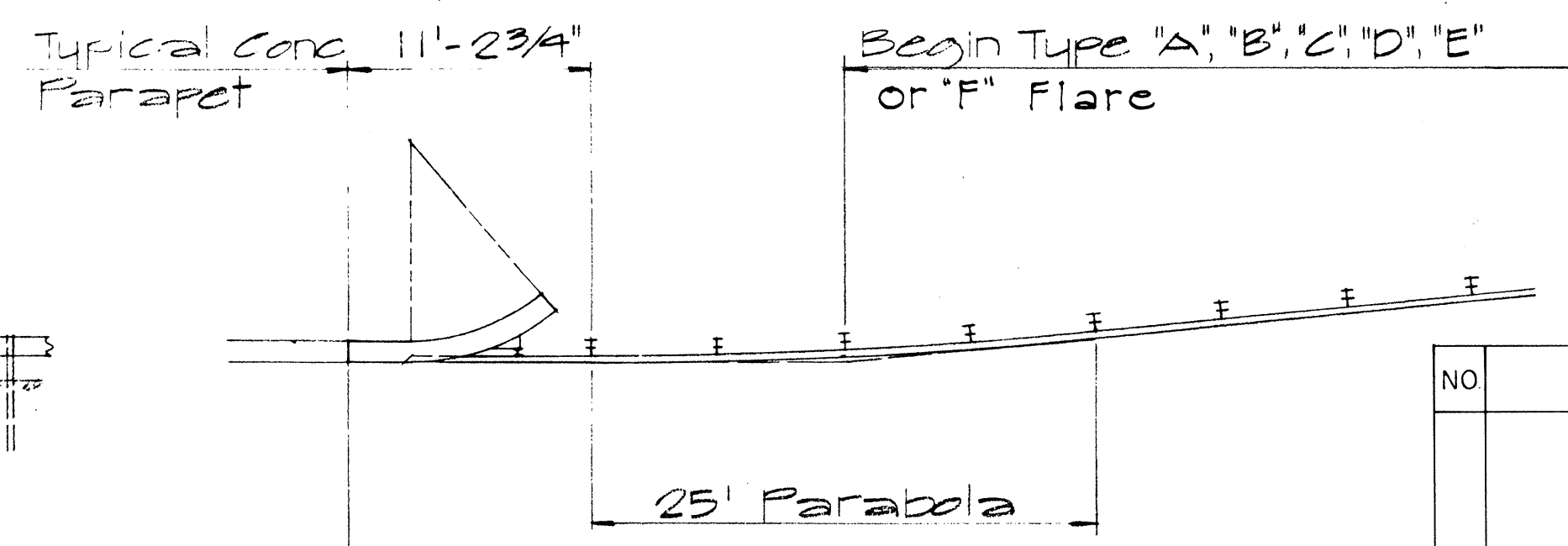
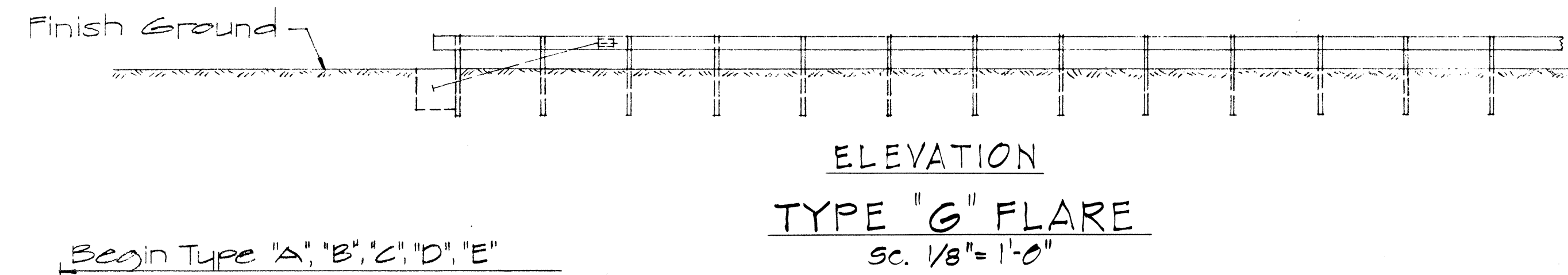
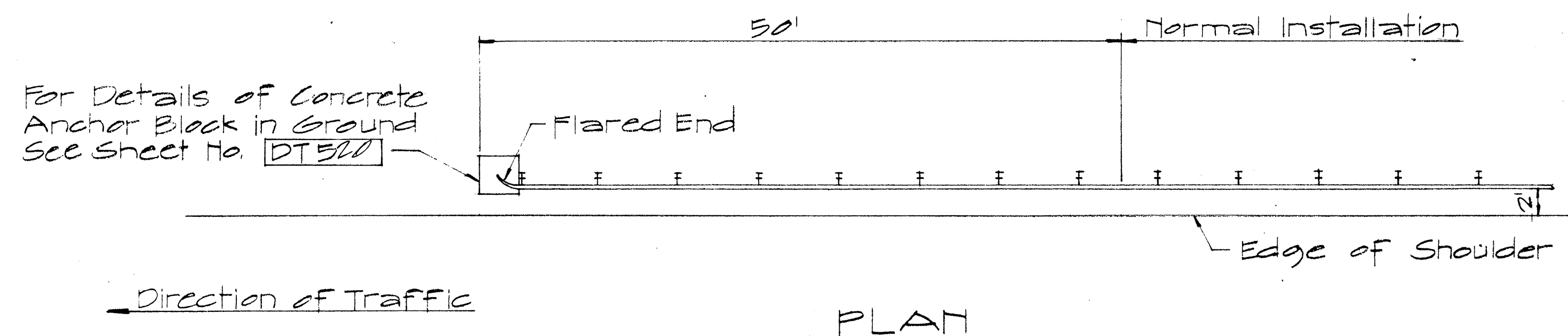
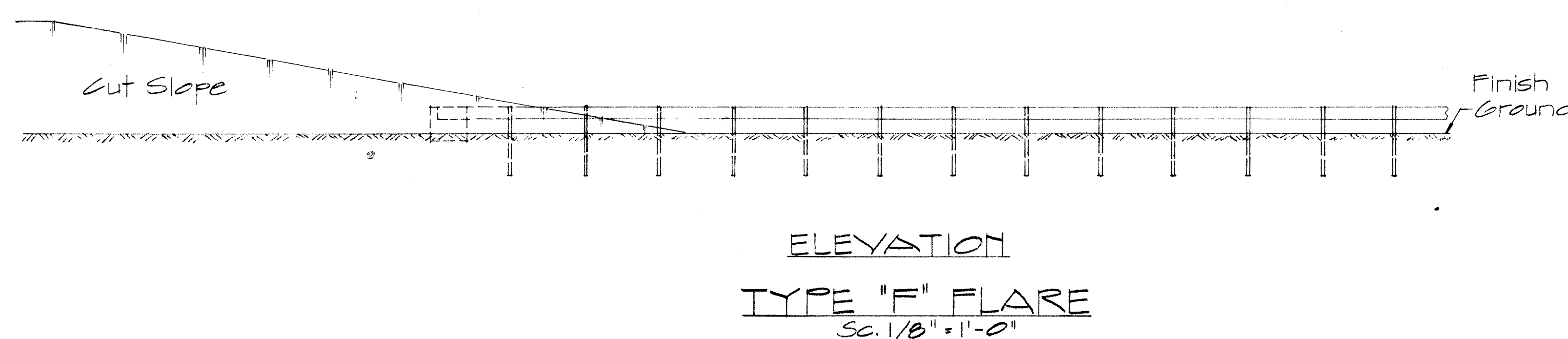
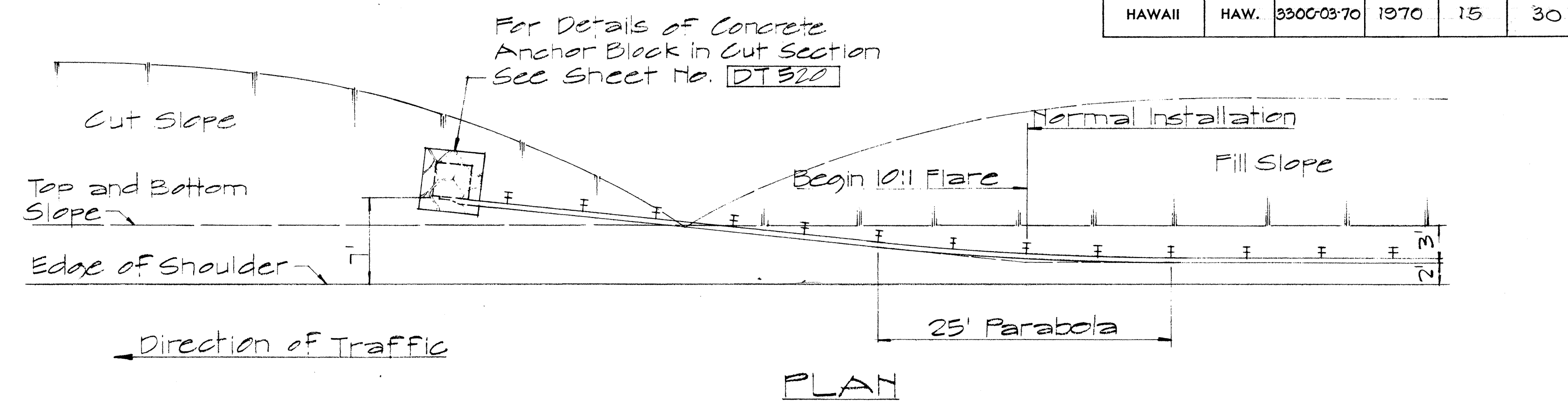
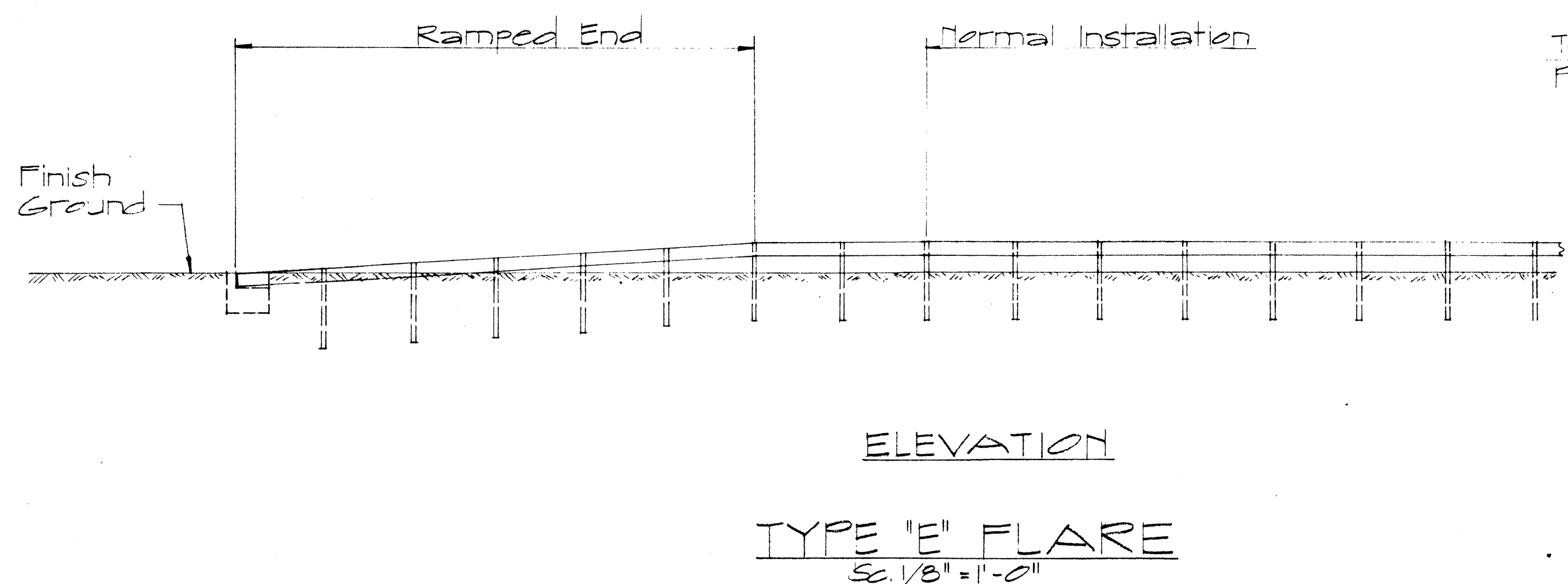
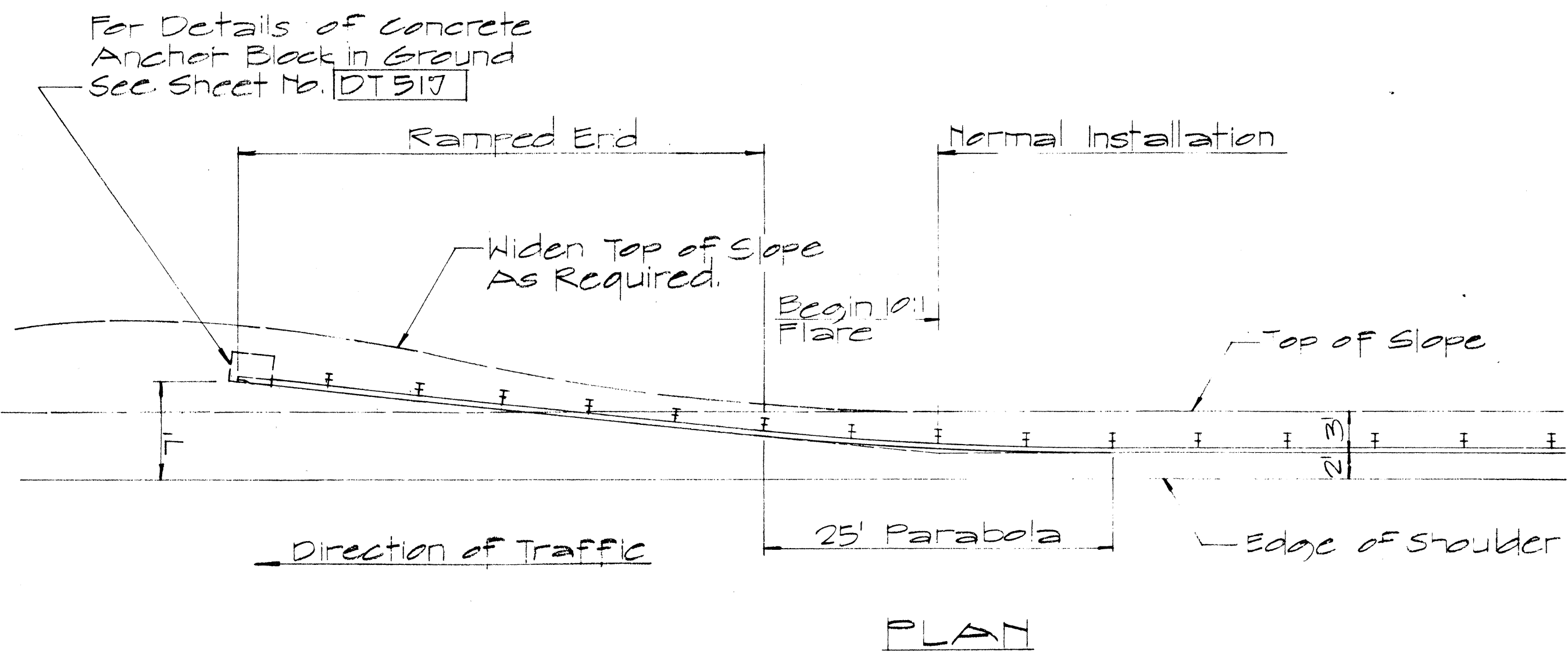
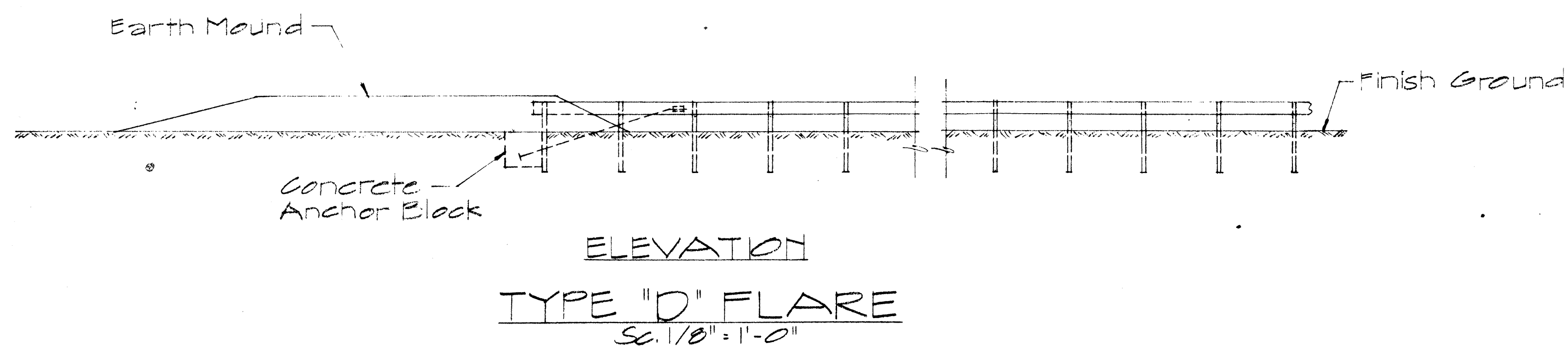
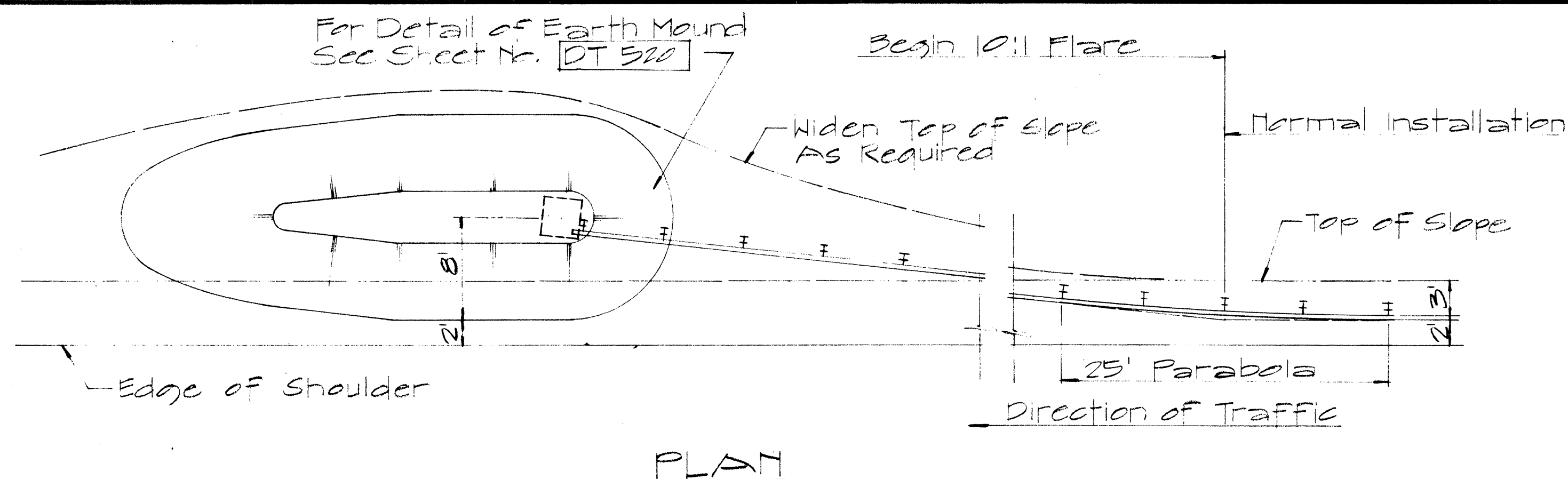
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
OF APPROACH END
FLARE - ONE & TWO
WAY ROADWAY

Sc. As Noted April 1969

SHEET No. 7 OF 11 SHEETS DT 516

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	3300-03-70	1970	15	30



TYPICAL LAYOUT PLAN OF END POST CONNECTION

Sc. 1/8" = 1'-0"

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

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

NO	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

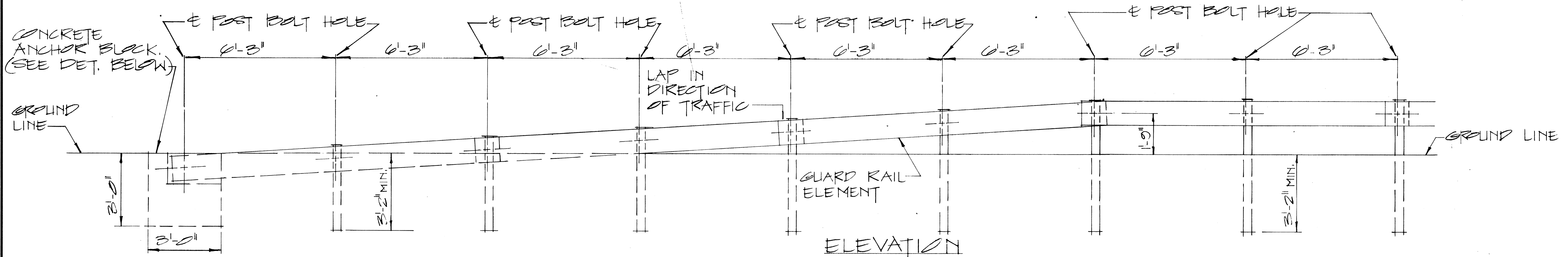
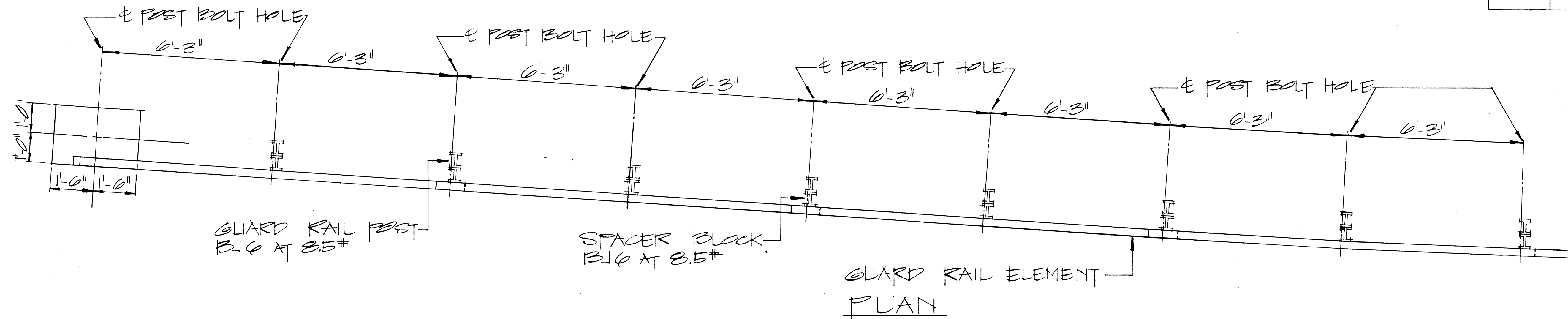
STANDARD DETAILS
 OF TRAILING END
 FLARE - ONE & TWO
 WAY ROADWAY

Sc. As Noted April 1969

SHEET No. 8 OF 11 SHEETS DT 517

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
NO.	

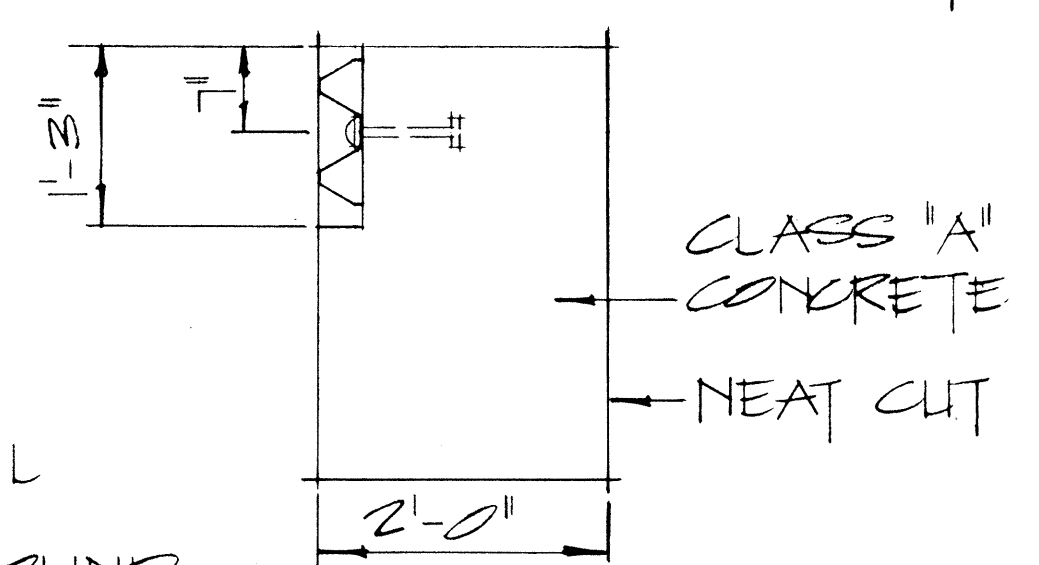
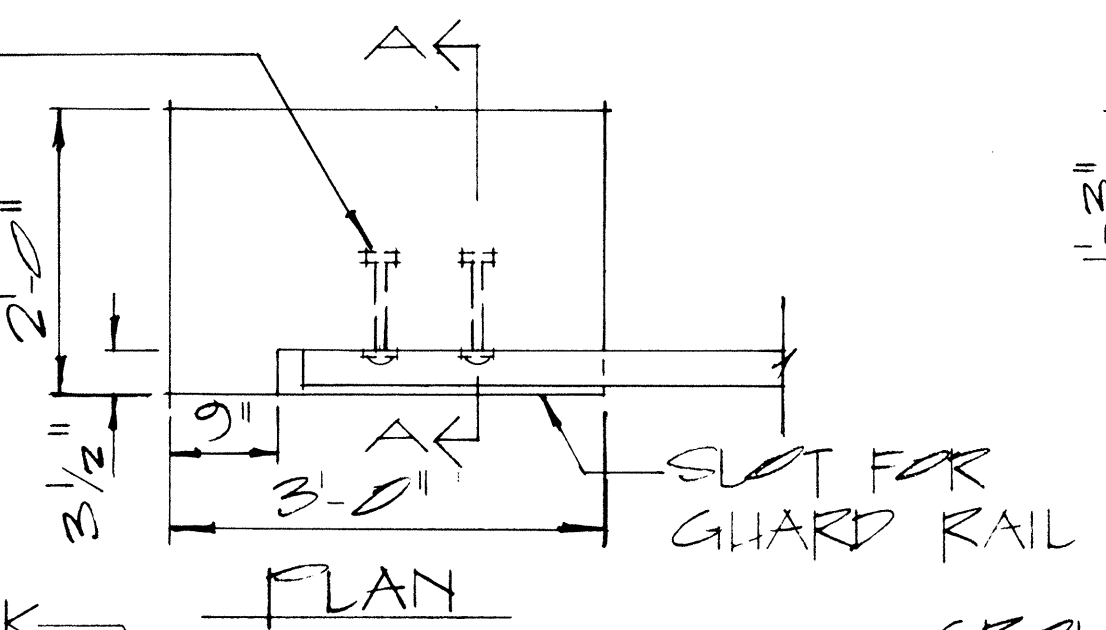
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	330C-03-70	1970	16	30



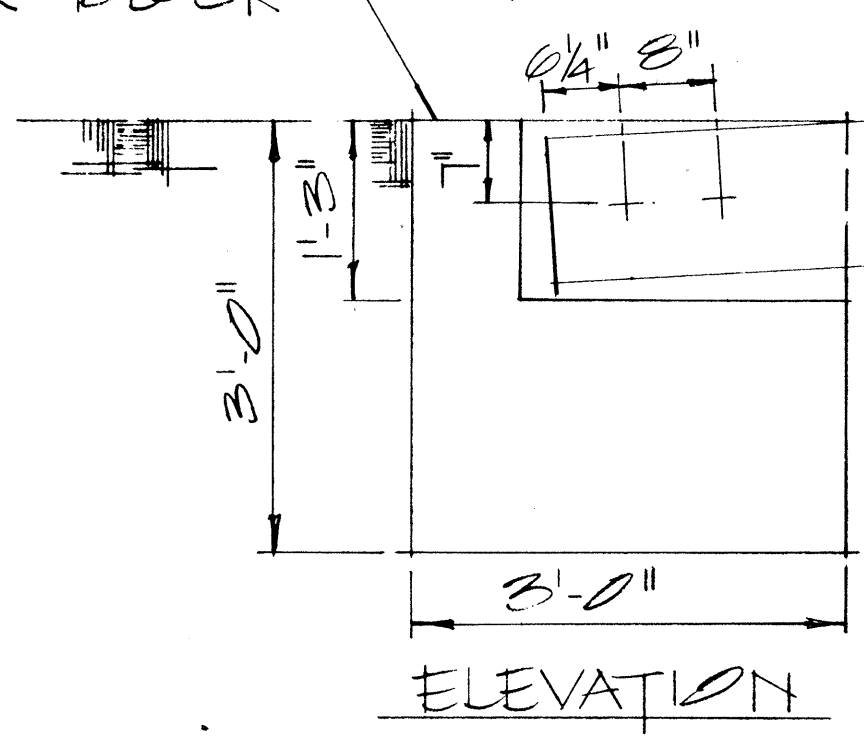
RAMP END ANCHORAGE

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

2-5/8" x 7/4" LONG BOLTS, w/ NUTS & WASHERS INCIDENTAL TO METAL GUARD RAIL. ALL METAL PIECES SHALL BE GALVANIZED.



TOP OF ANCHOR BLOCK TO BE FLUSH w/ GROUND.



NOTE: CONCRETE, EXCAVATION AND MISCELLANEOUS APPURTENANCES NECESSARY TO ANCHOR THE GUARD RAIL ENDS, SHALL BE INCIDENTAL TO THE METAL GUARD RAIL.

CONCRETE ANCHOR BLOCK

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

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

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

NO.	REVISION	APPROVED BY	DATE

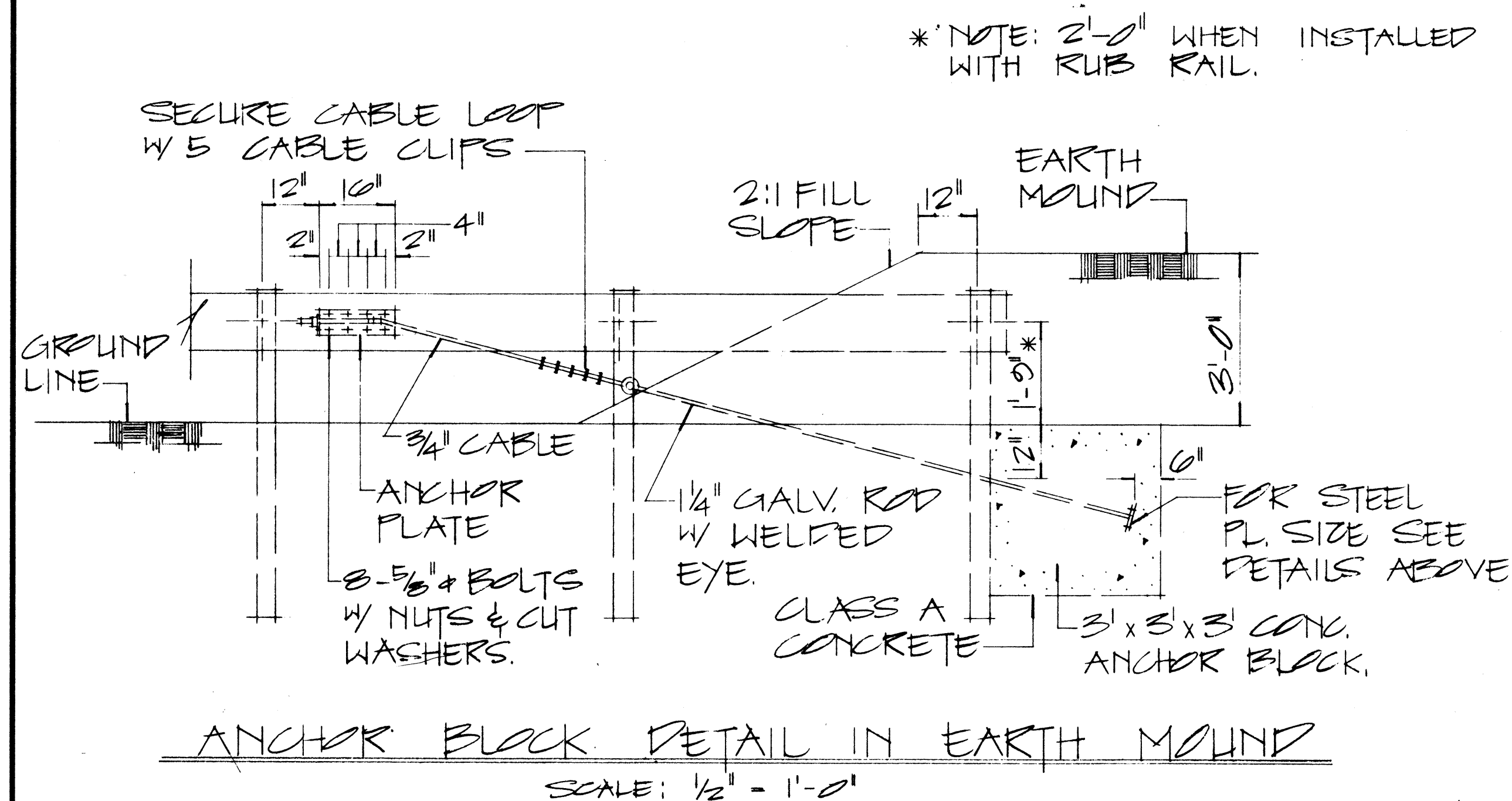
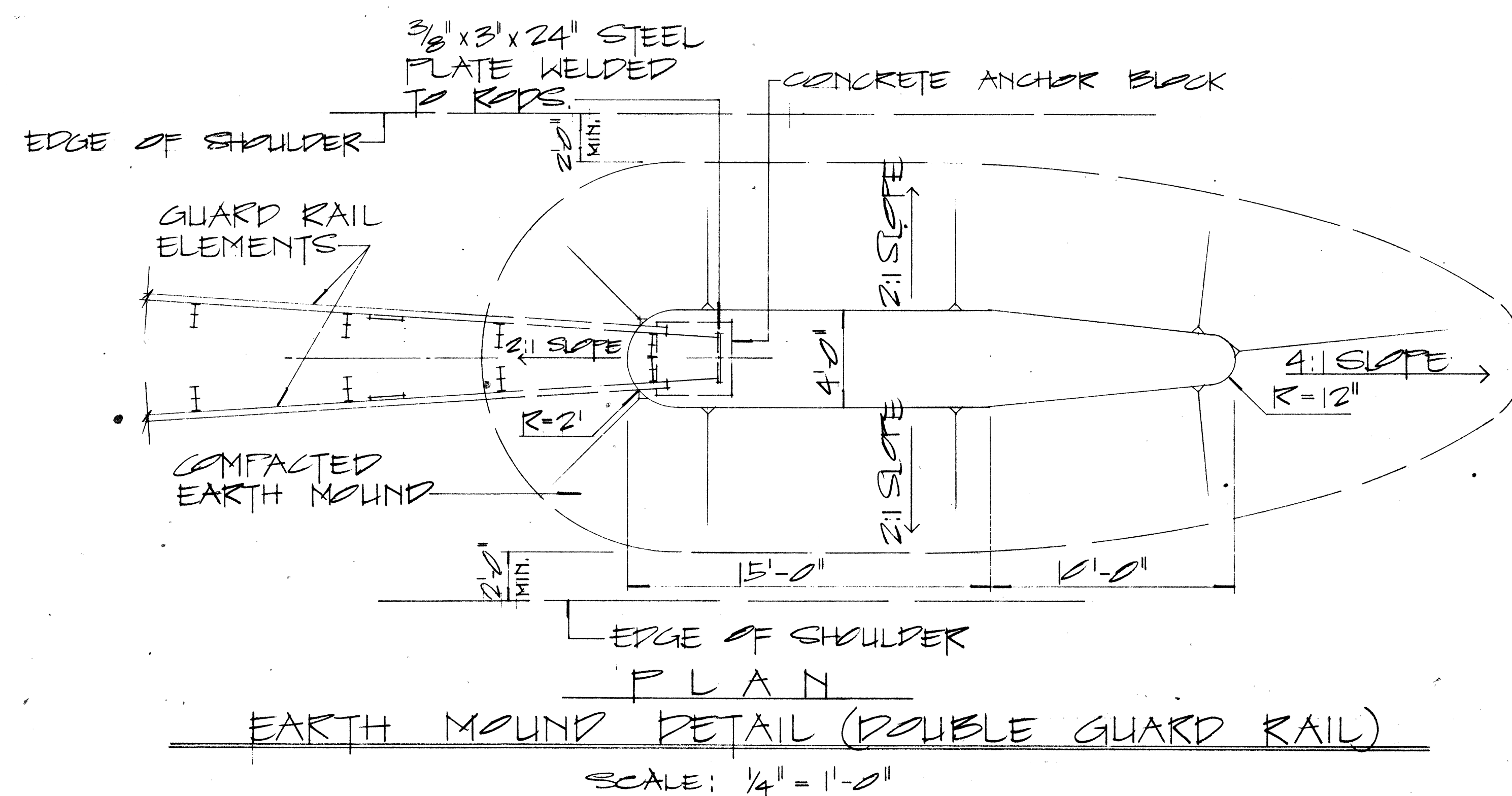
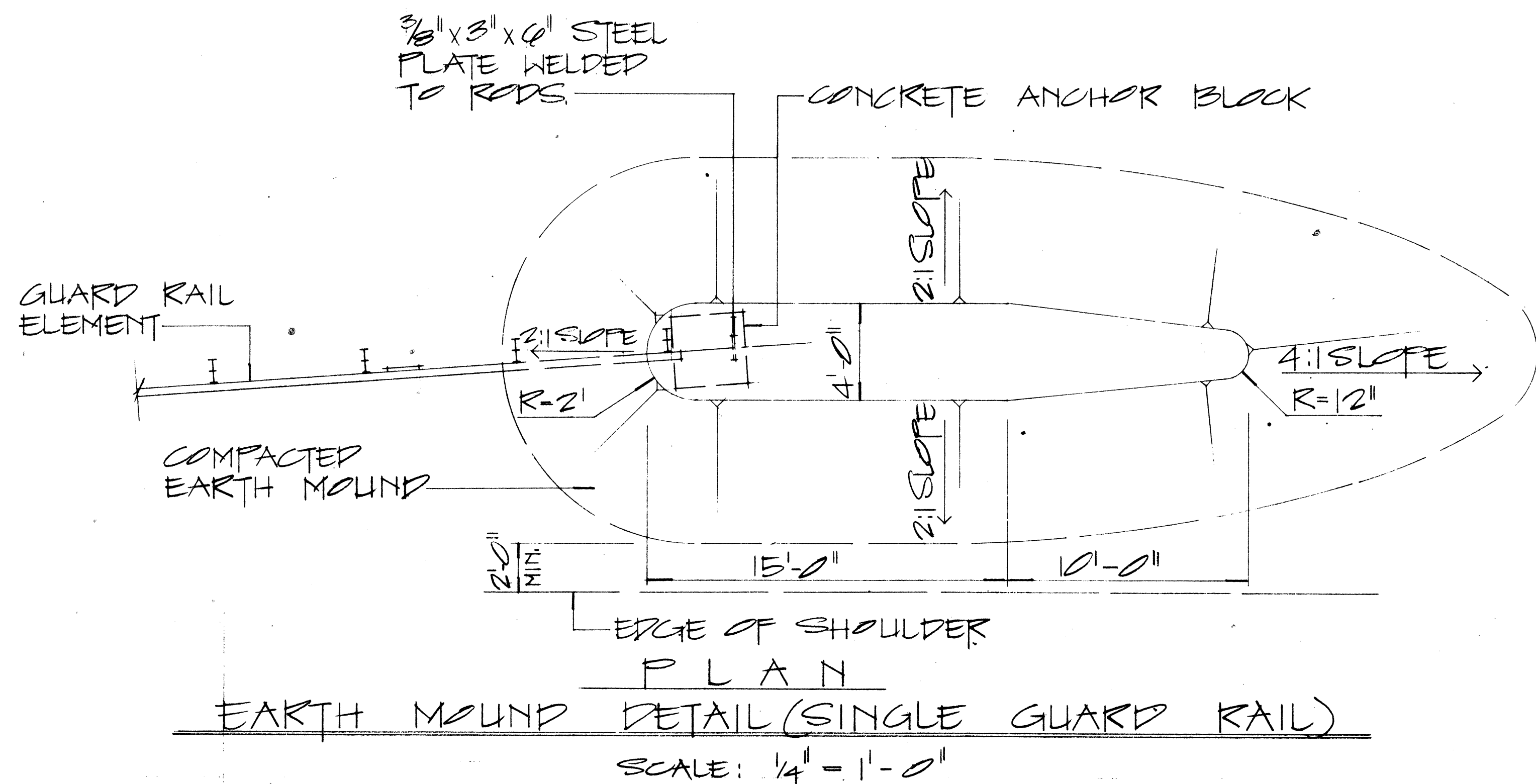
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
 GUARD RAIL, TYPE 3
 RAMP END ANCHORAGE

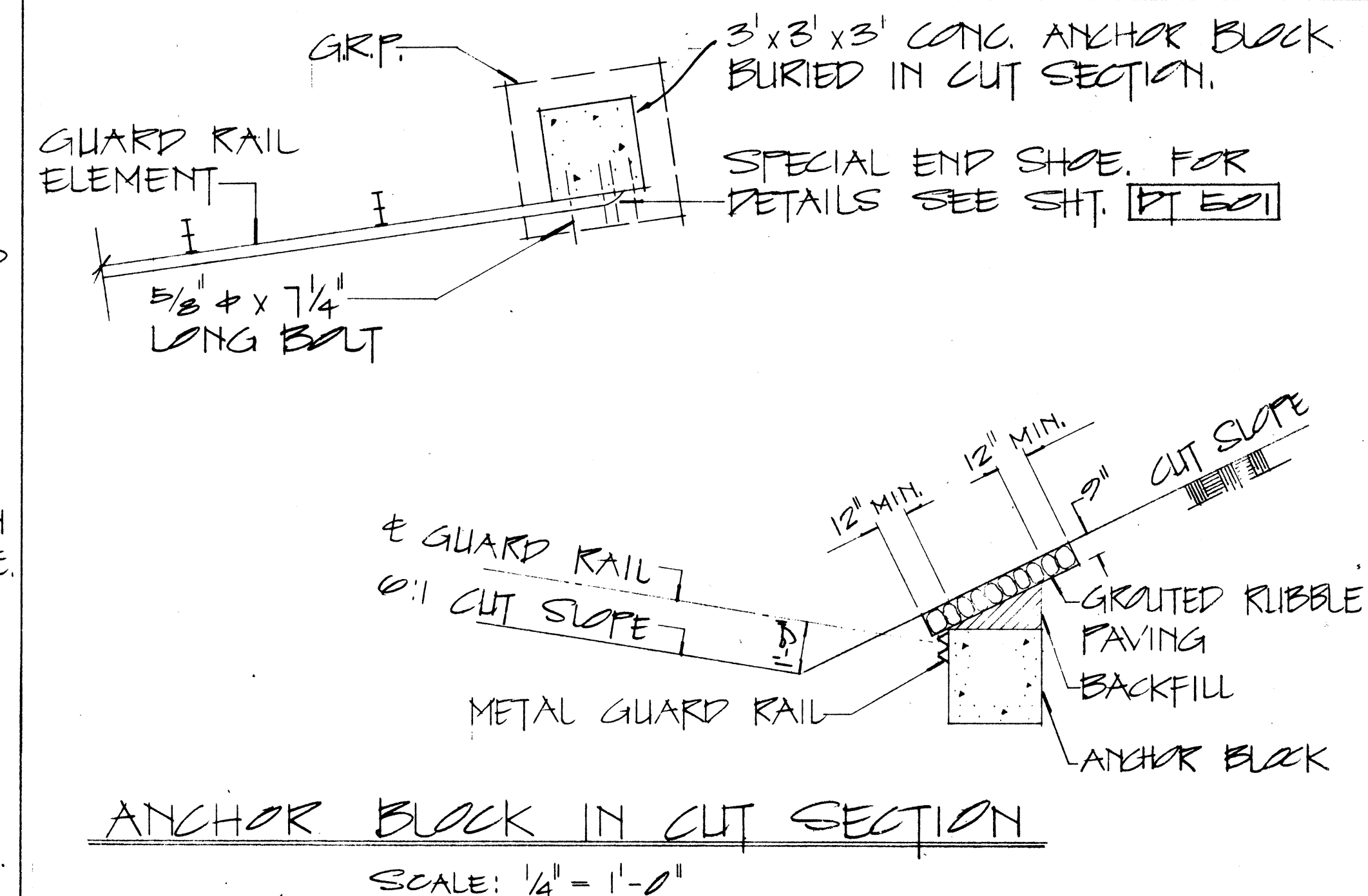
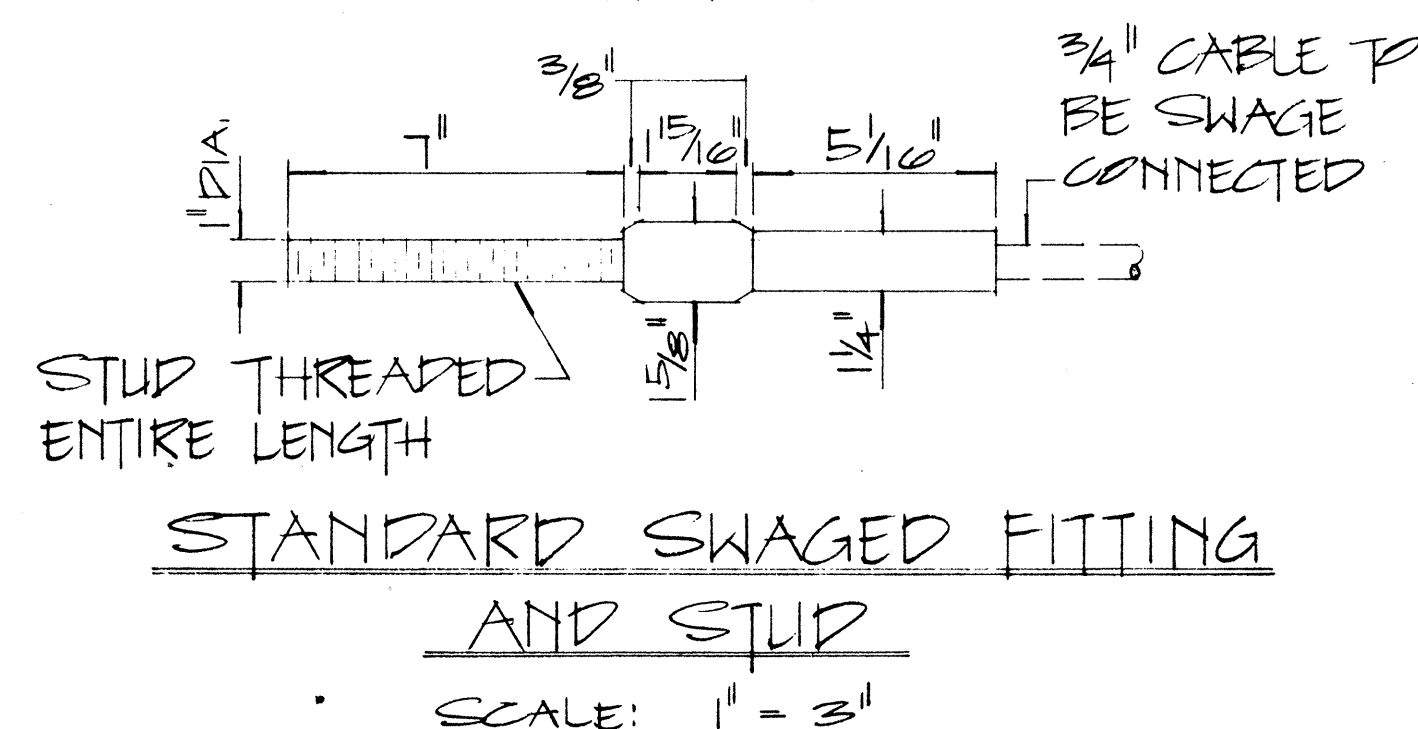
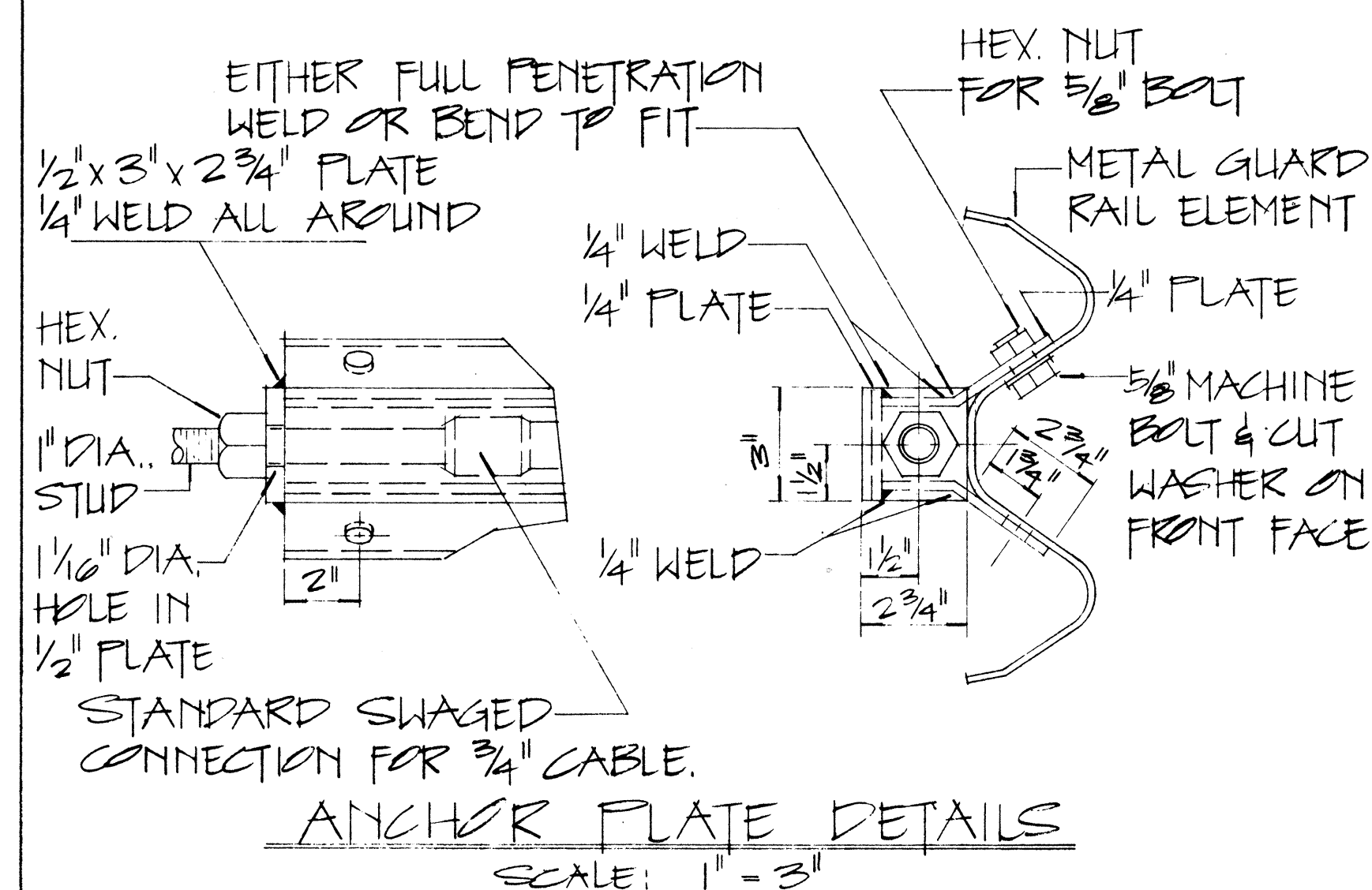
SCALE: AS SHOWN

SHEET No. 9 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	330C-03-70	1970	17	30



- NOTE:**
1. GALVANIZED ANCHOR ROD, METAL GUARD RAIL AND POST BURIED IN GROUND, SHALL BE COVERED WITH A MIN. 20-MIL THICKNESS OF COAL TAR ENAMEL, CONFORMING TO ANWA STANDARD: C 203
 2. CONCRETE, G.R.P., EXCAVATION, EARTH MOUND, ANCHOR RODS AND MISCELLANEOUS APPURTENANCES NECESSARY TO ANCHOR THE GUARD RAIL ENDS SHALL BE INCIDENTAL TO THE METAL GUARD RAIL.



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

APPROVED:
2nd 22222 12-30-69
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

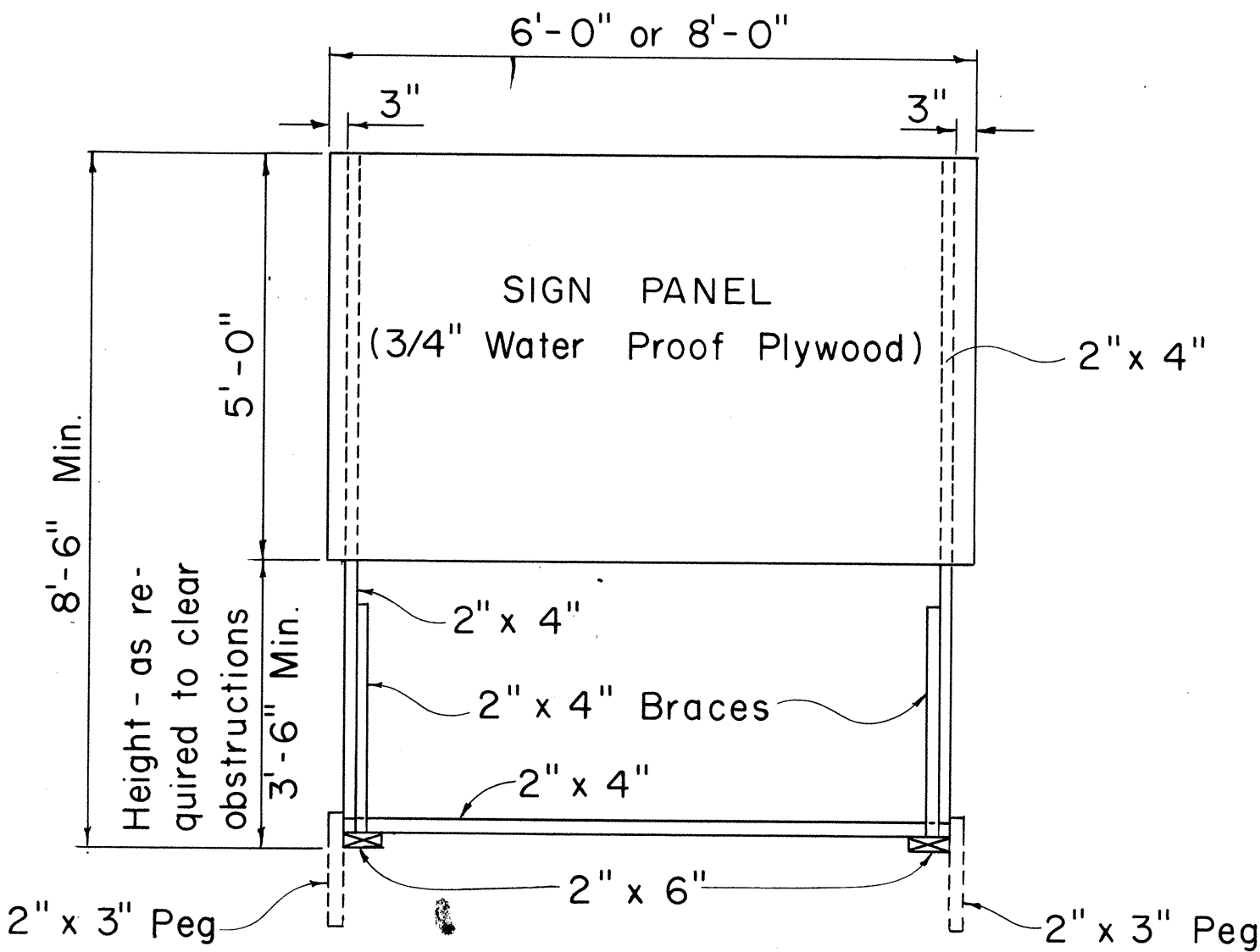
STANDARD DETAILS
EARTH MOUND AND ANCHOR BLOCK DETAILS

SCALE: AS SHOWN 01 1060

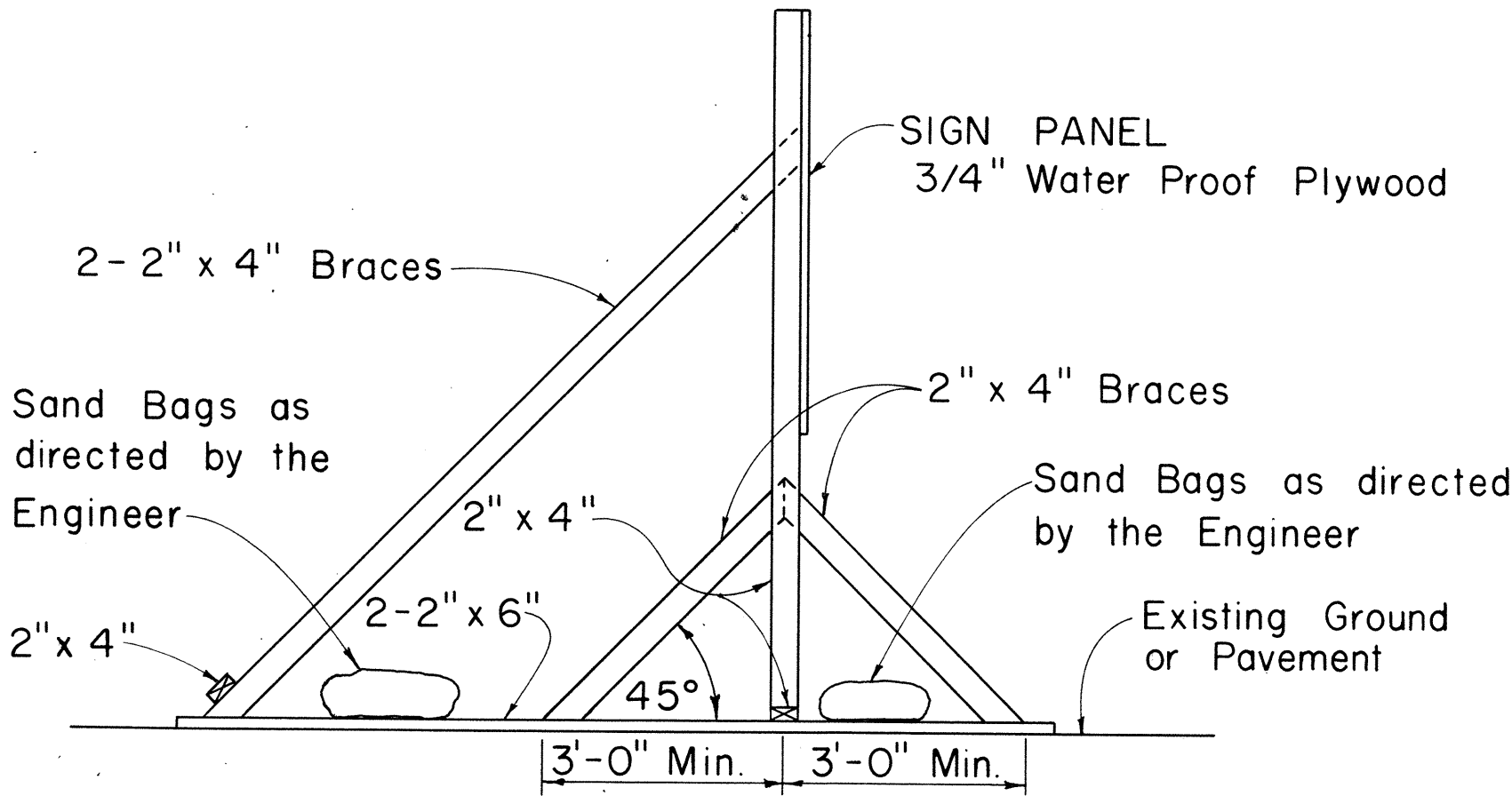
SHEET No. 10 OF 11 SHEETS 17520

DATE	
DESIGNED BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	

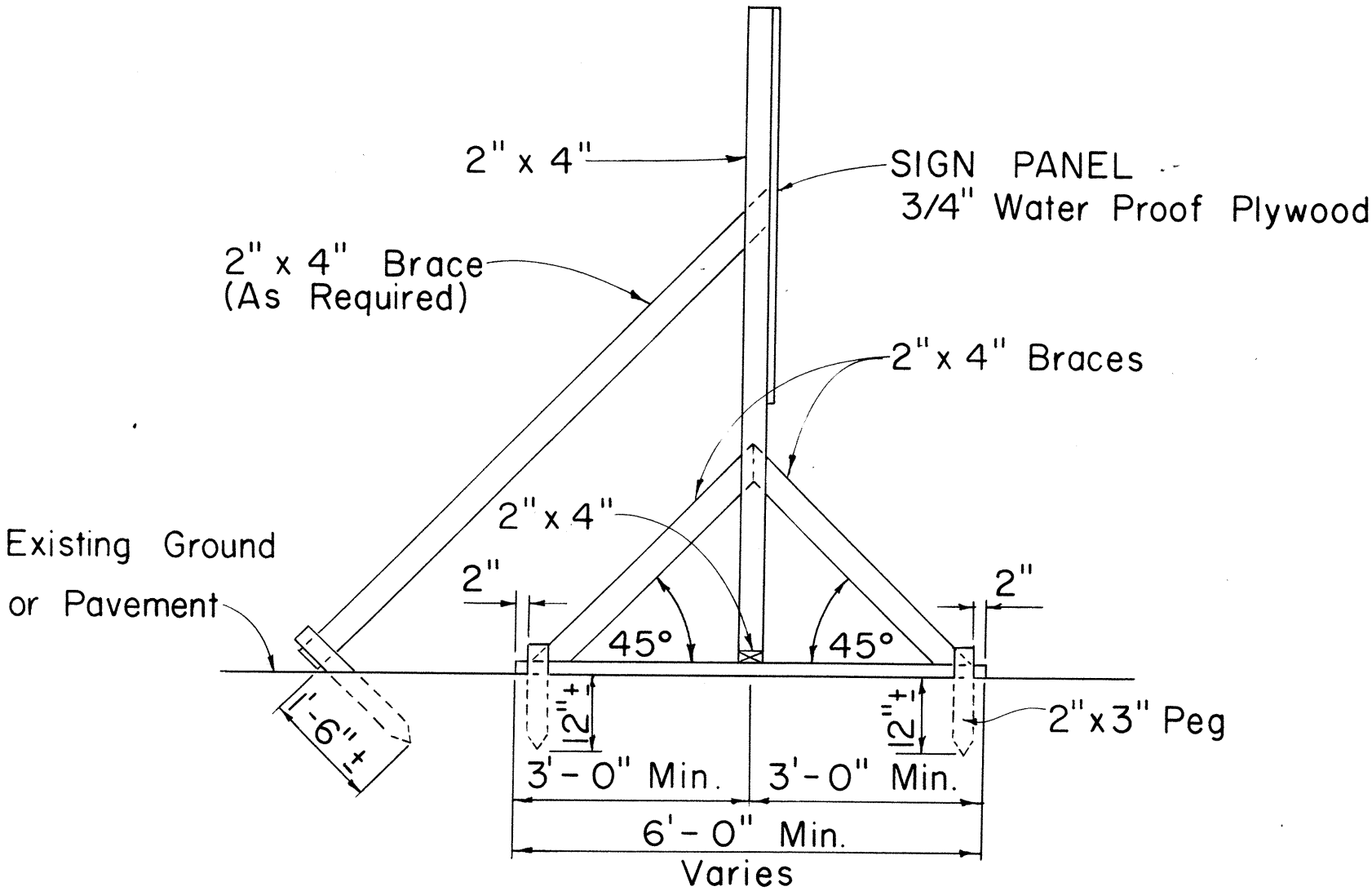
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	3300-03-70	1970	18	30



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

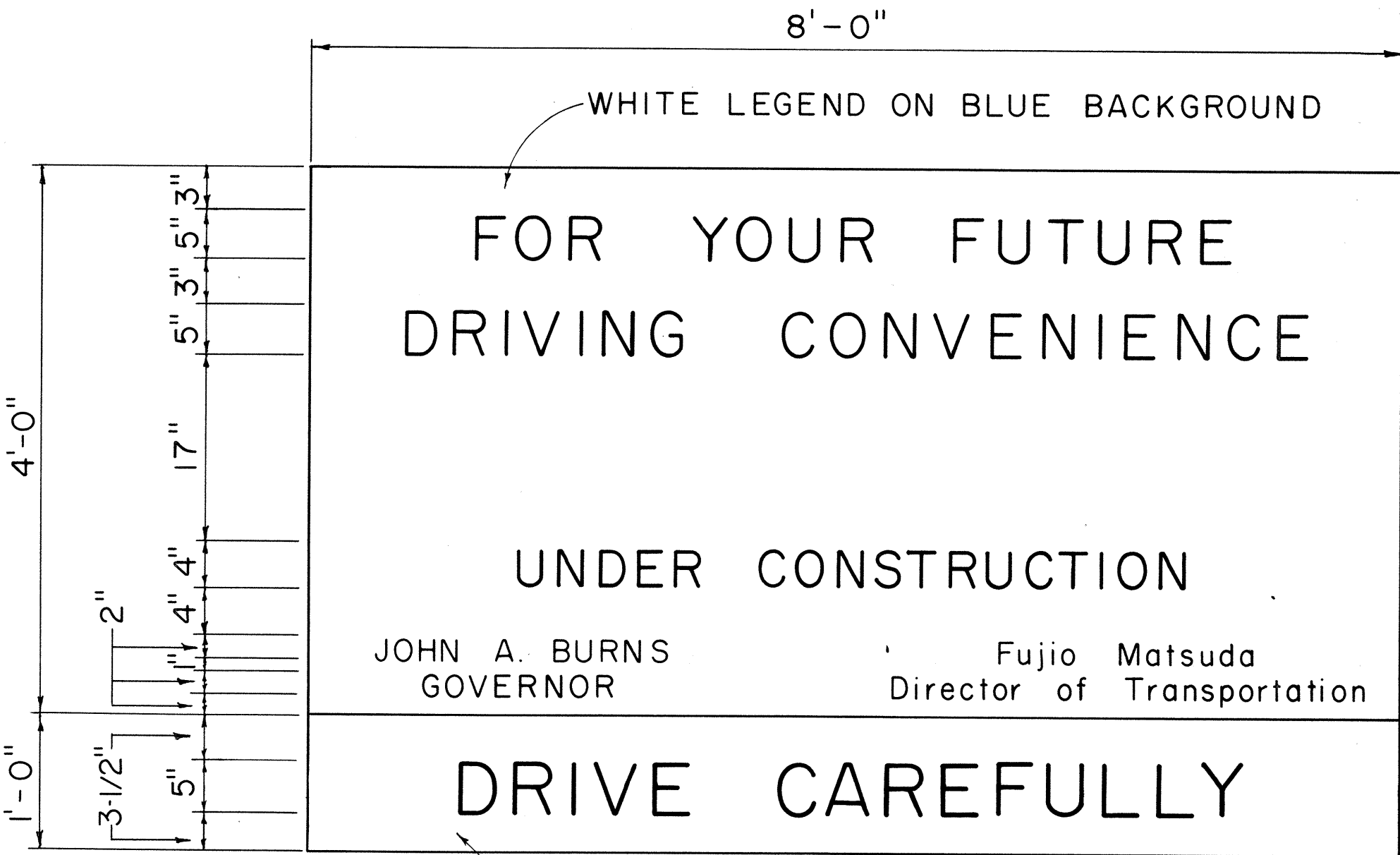


SIDE VIEW
(SIGN SUPPORT AND FRAME WEIGHTED DOWN)
Scale: 1/2" = 1'-0"



SIDE VIEW
(SIGN SUPPORT AND FRAME ANCHORED IN GROUND)
Scale: 1/2" = 1'-0"

SIGN SUPPORT AND FRAME
Scale: As Shown



BLACK LEGEND ON YELLOW BACKGROUND
USE SERIES "D" LETTERS

GENERAL NOTES

1. The sign panels will be constructed by the State and will be available for pick up by the Contractor from the State Highway Maintenance Yard.
2. The Contractor shall construct the sign supports and frames and install the sign panels at the locations shown on the plans and as ordered by the Engineer.
3. At the end of construction the Contractor shall remove the sign panels and return it to the State Highway Maintenance Yard. Sign supports and frames shall be removed and cleared from the project site.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL DETAILS

PROJECT INFORMATION SIGN

Scale: As Shown
SHEET No. 11 OF 11 SHEETS