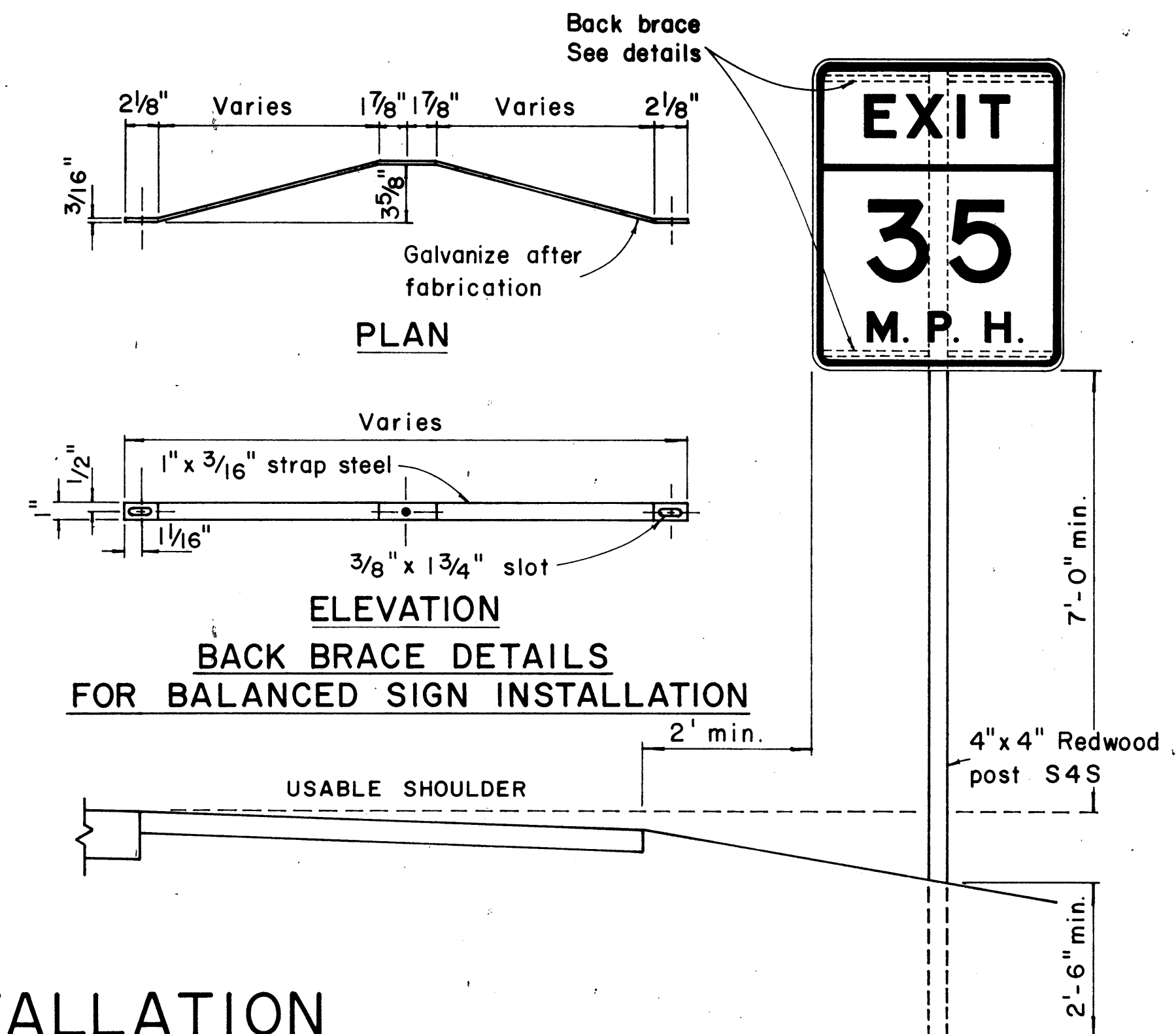
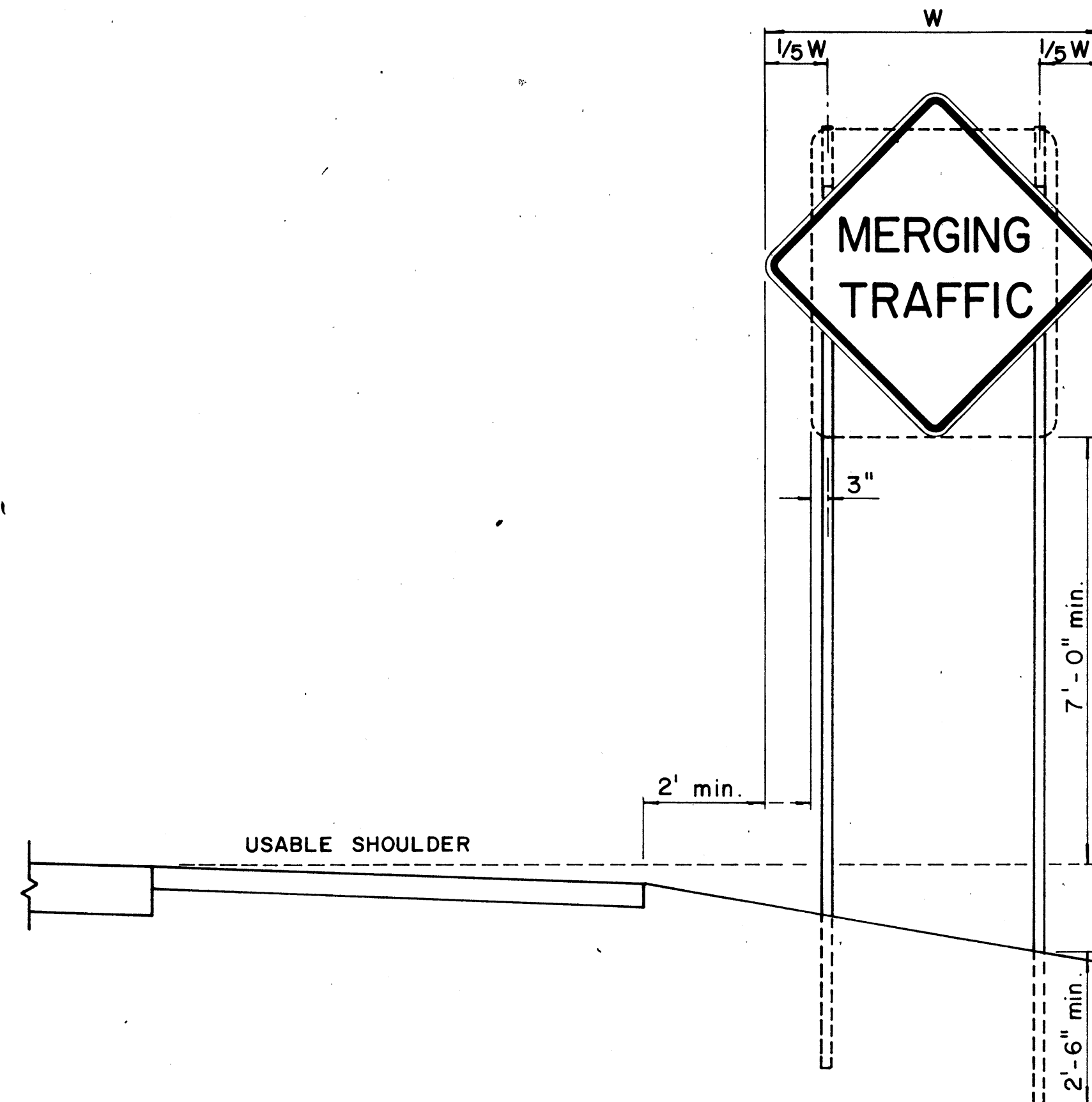
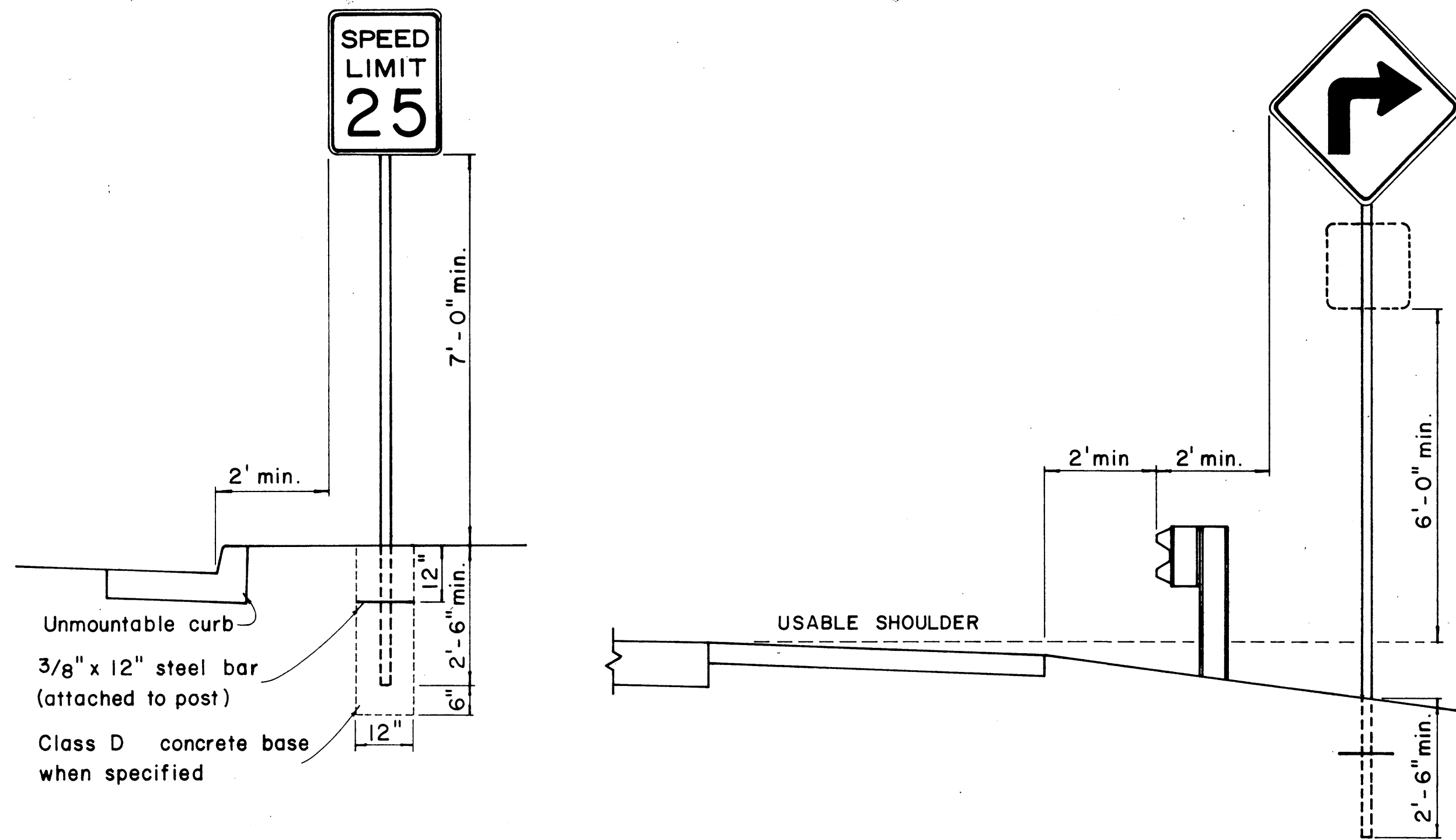
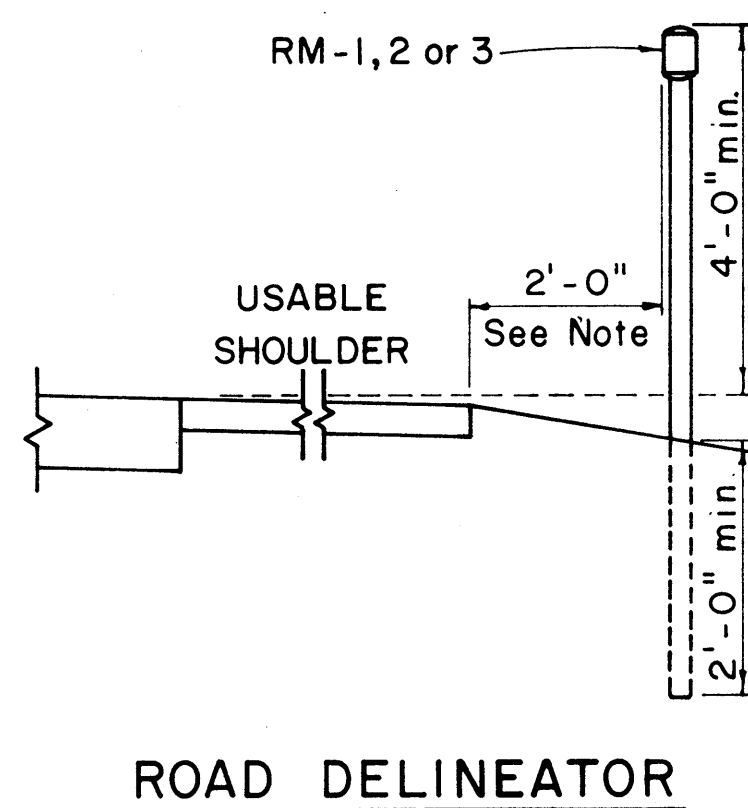


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	63A-11-71 63H-01-71	1972	8	16

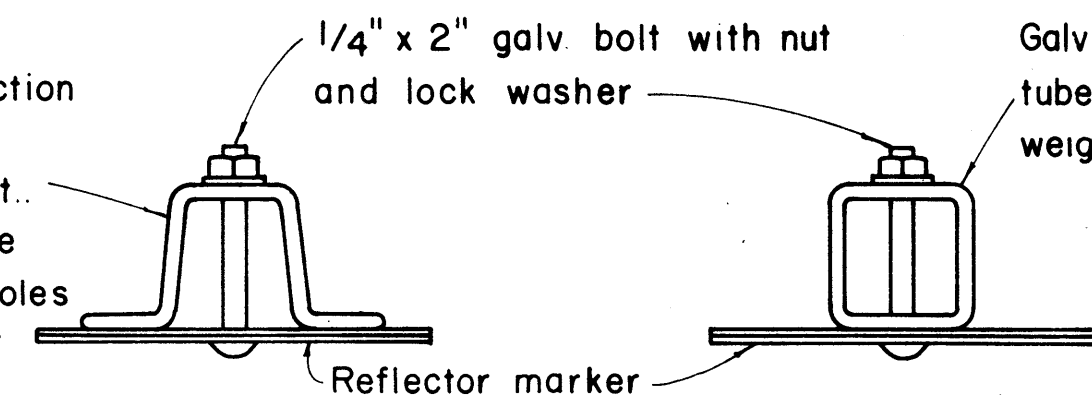


HEIGHT AND LATERAL LOCATION OF SIGNS - TYPICAL INSTALLATION



Galv. flanged channel
1/8" x 3/16" rolled section
post with a minimum
weight of 2 lbs. per ft.
Upper 2 ft. shall have
a single row of 3/8" holes
centered in the web at
1" o.c.

TYPICAL SECTION OF ROAD DELINEATOR



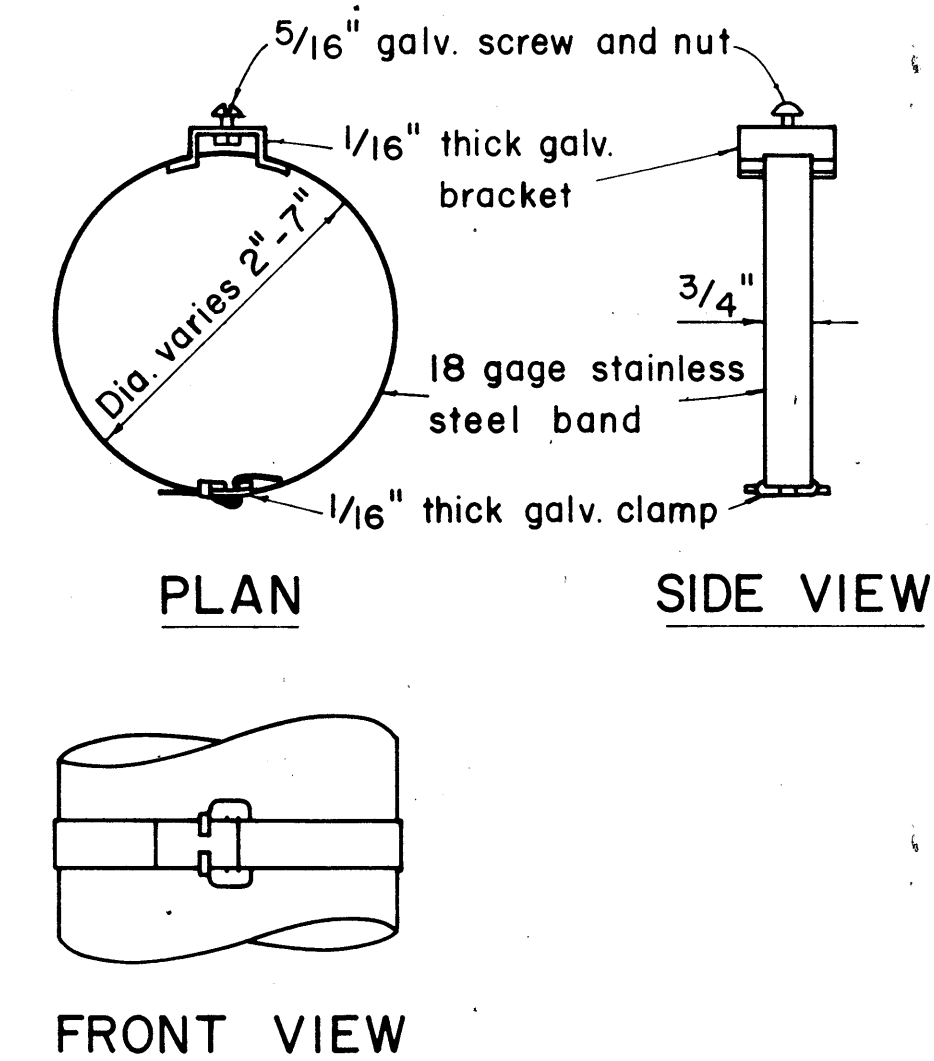
Galv. 1 1/2" x 1 1/2" square
tube post with a minimum
weight of 1.7 lbs per ft

1/4" x 1/2" galv.
bolt with nut
and lock washer

1'-5" x 6" x 0.063" anodized
aluminum plate with 3/8"
holes drilled as shown

Galvanized post

TYPICAL DETAIL
HORIZONTAL REFLECTOR MARKER
RM-3H



TYPICAL BAND BRACKET FOR
MOUNTING TRAFFIC SIGNS

GENERAL NOTES:

- Sign posts shall be 2" galv. standard pipe or 2" x 2" galv. sq. tube post.
- 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.
- 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.
- 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.
- Clearance markers (RM-3, RM-4) shall be installed with the edge of the marker in line with the inner edge of the obstruction.
- (R) or (L) indicates right or left and shall be as shown on the plans.

APPROVAL RECOMMENDED:
E. J. Tanaka 12/29/69
TRAFFIC ENGINEER DATE

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

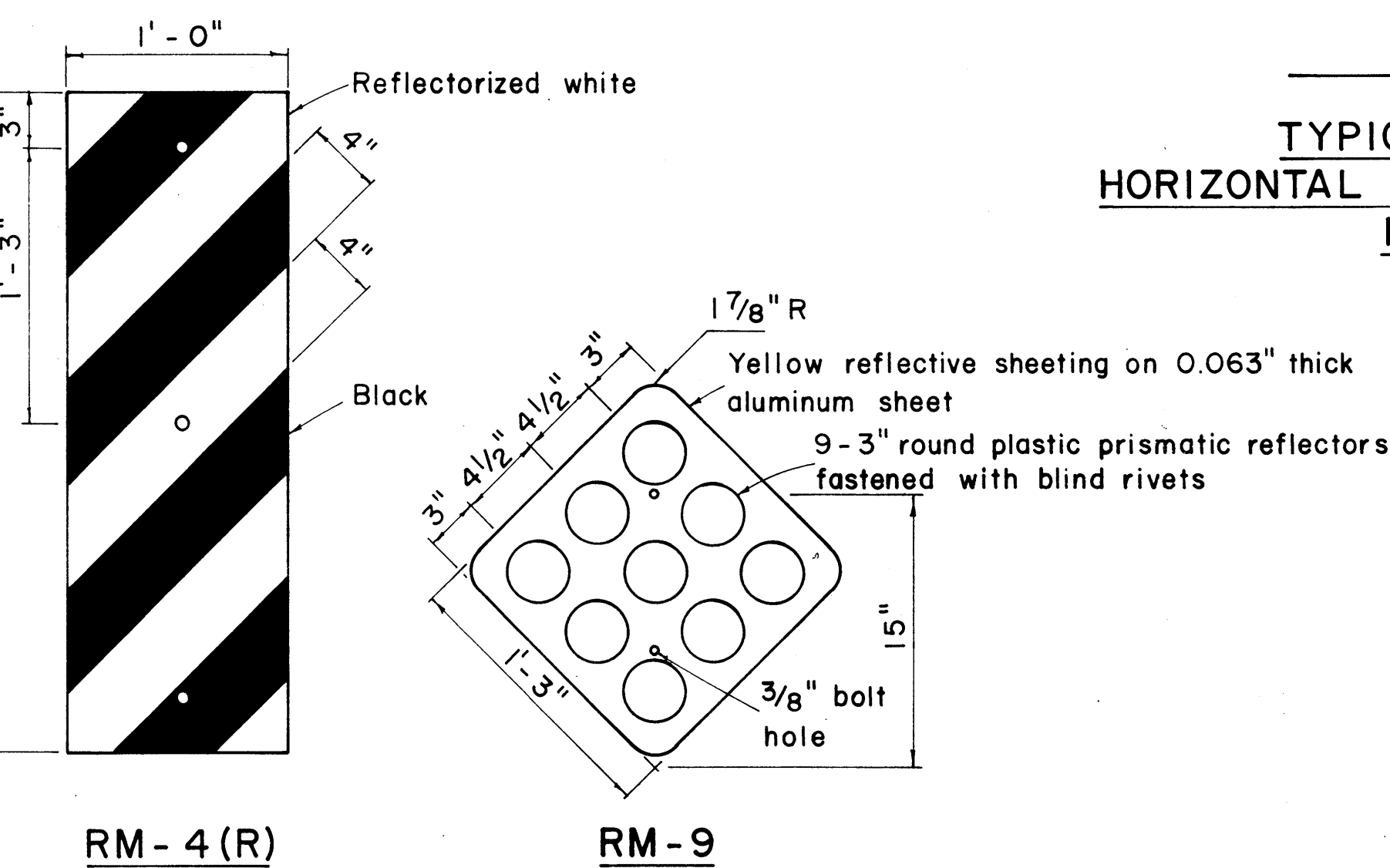
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
MISCELLANEOUS SIGN DETAILS

Not to scale March, 1968

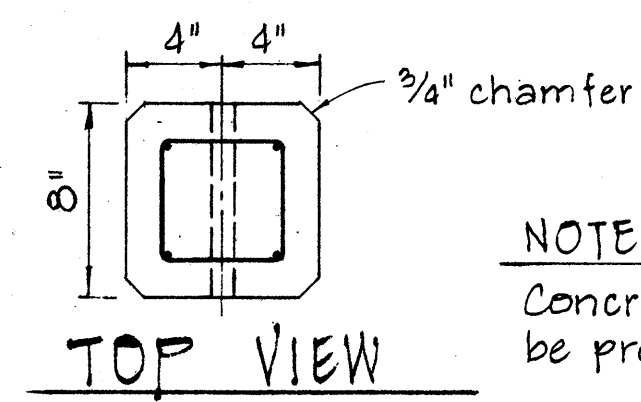
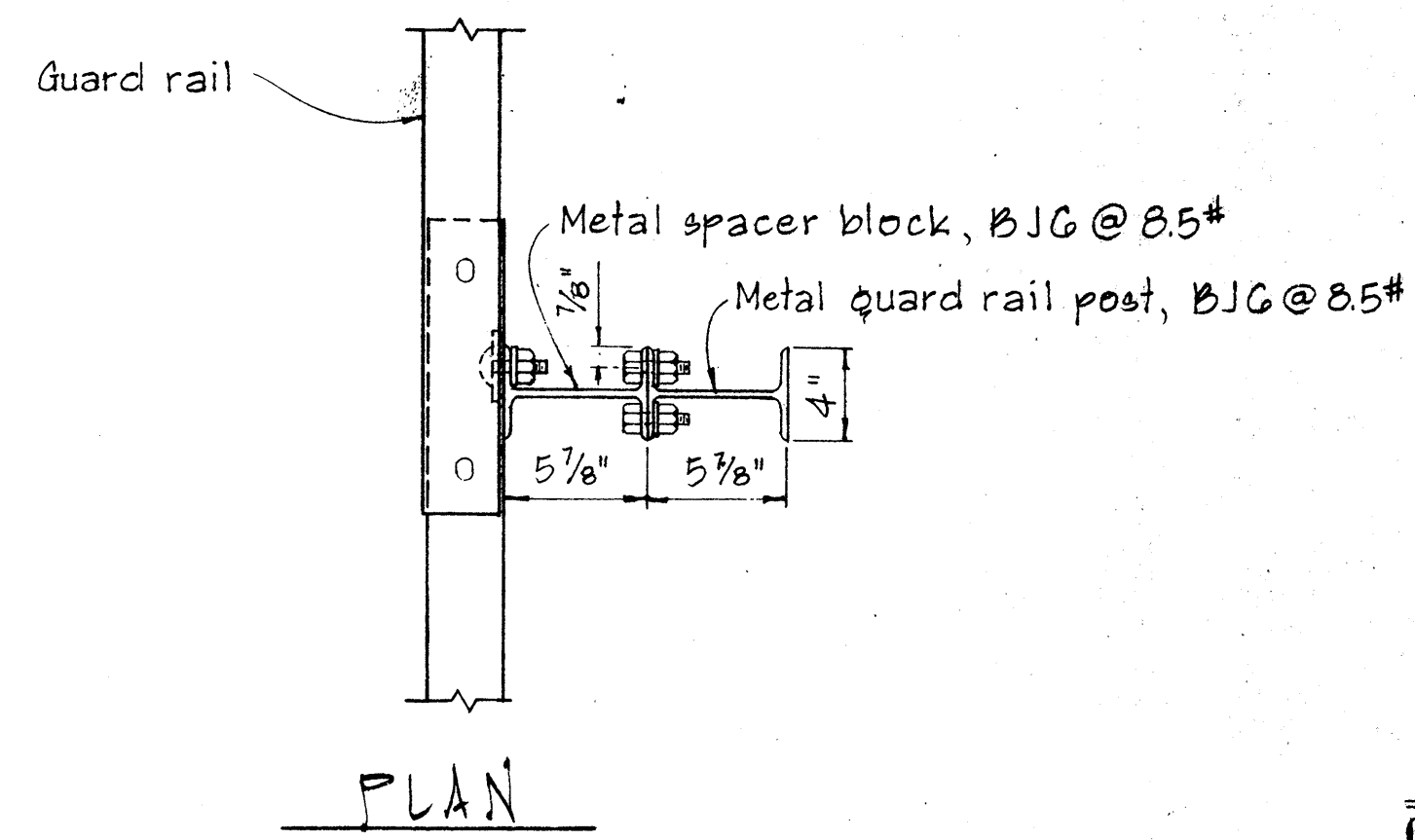
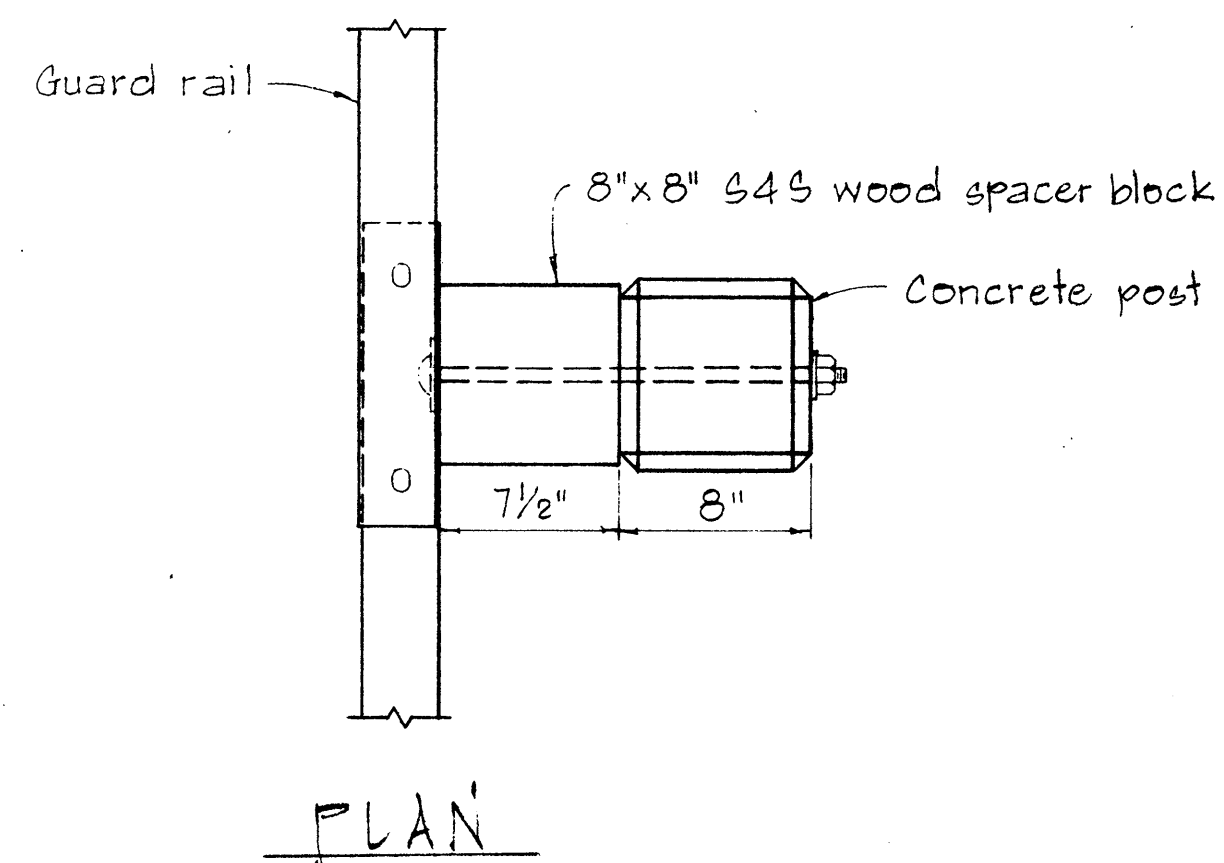
SHEET No. 1 OF 2 SHEETS DT 100



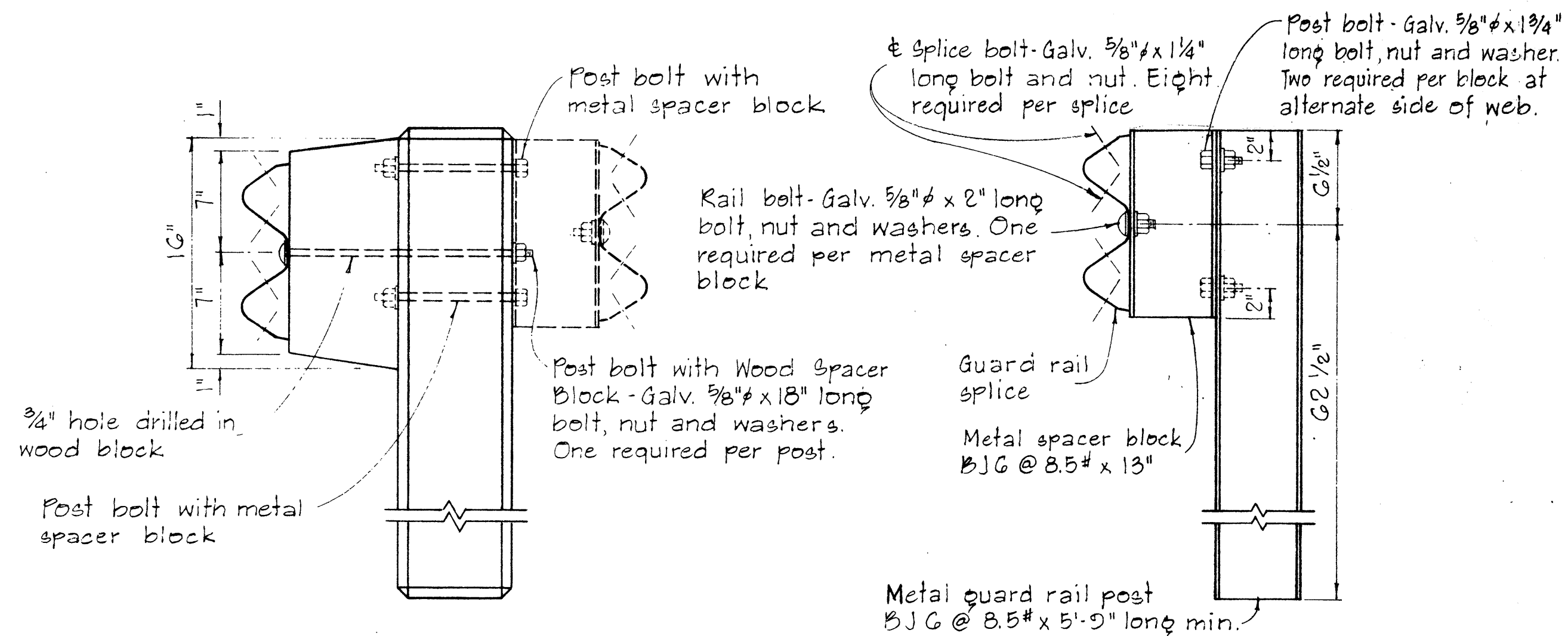
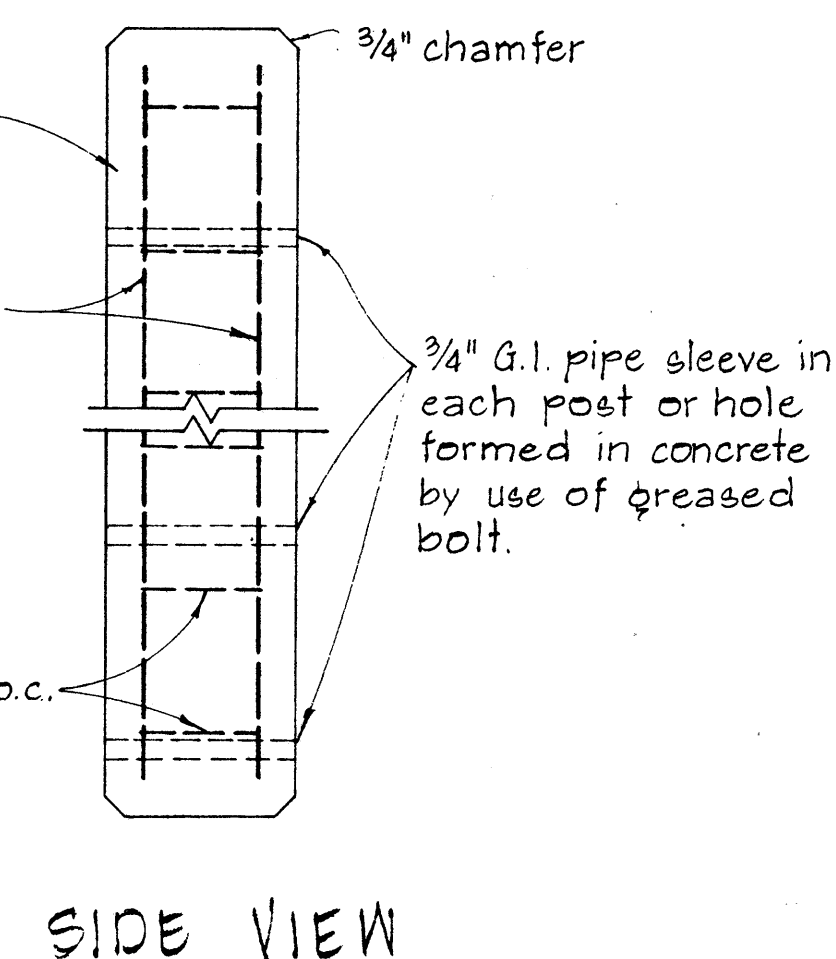
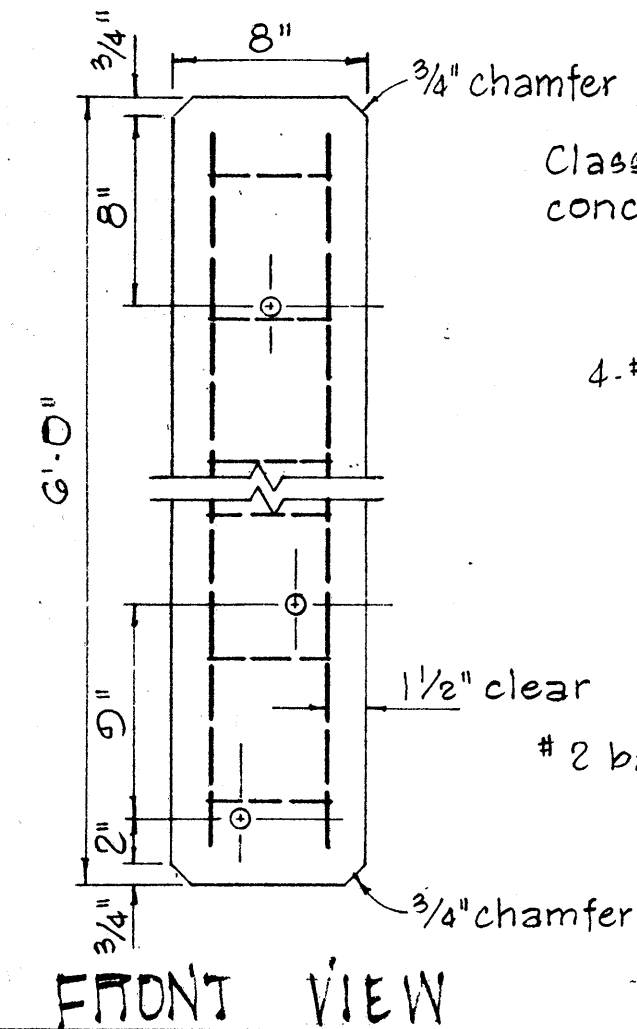
REFLECTOR MARKERS

ORIGINAL PLAN	DATE
TRACED BY	
NOTED BY	
CHECKED BY	

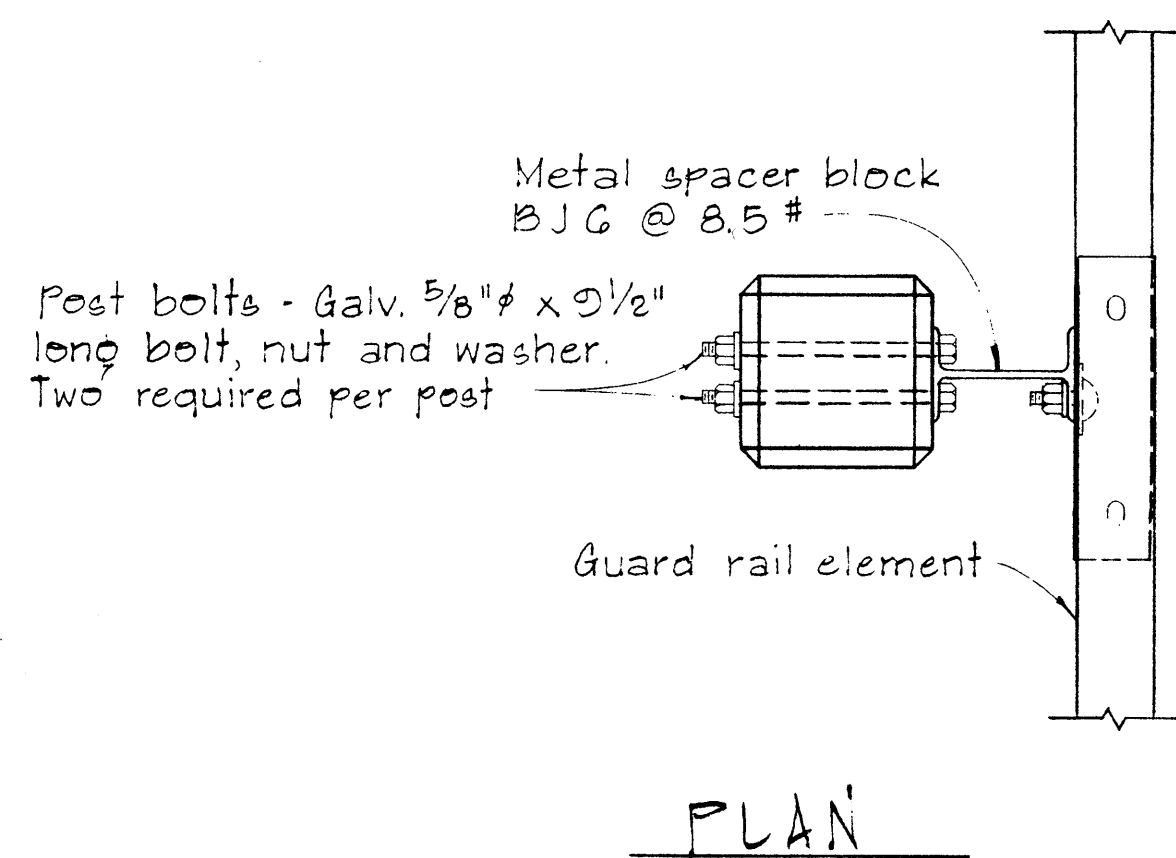
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	23A-11-71 23H-01-71	1972	2	16



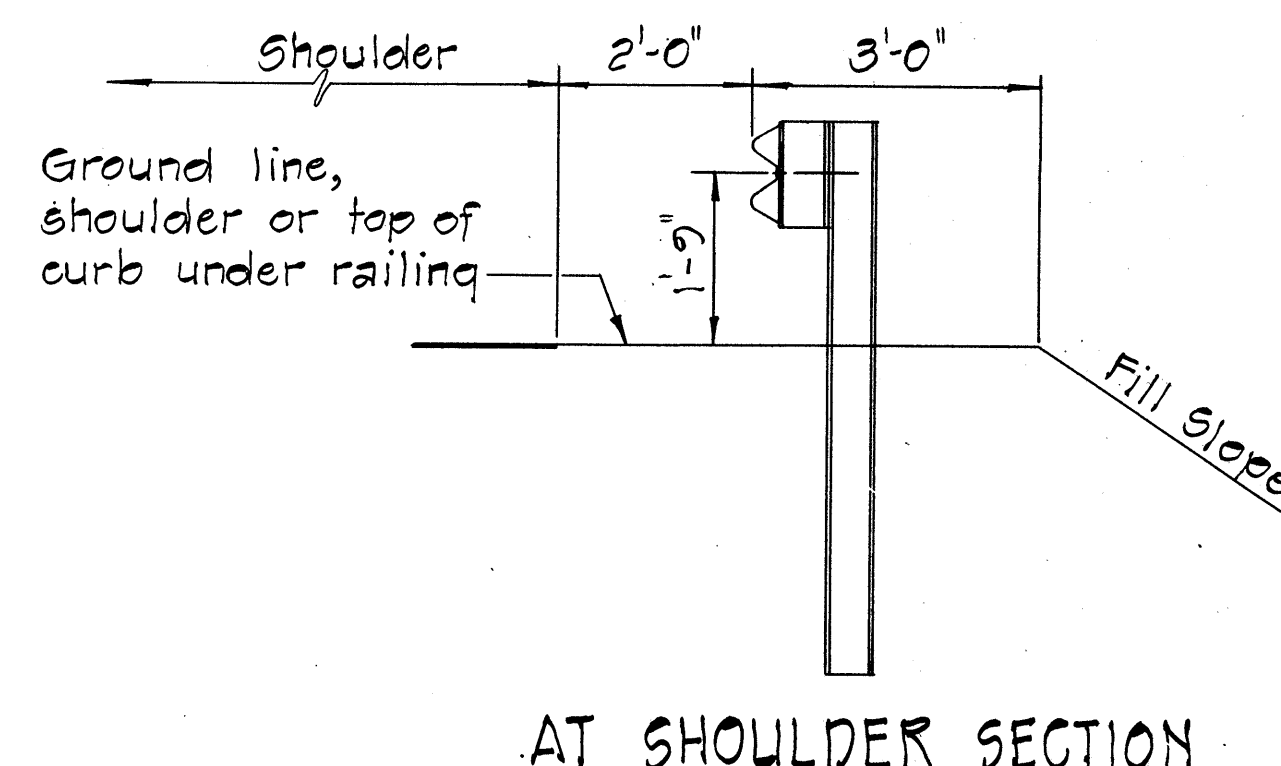
NOTE:
Concrete post shall be precast



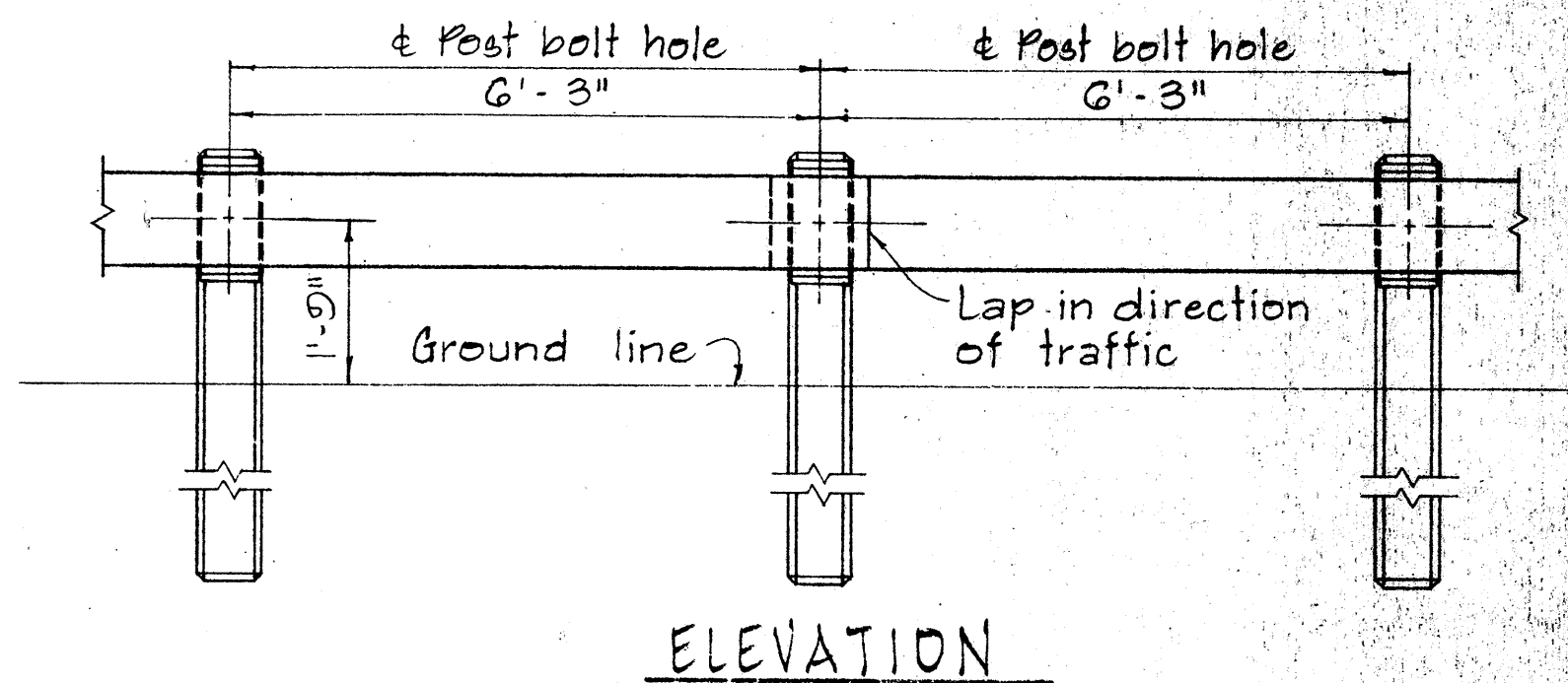
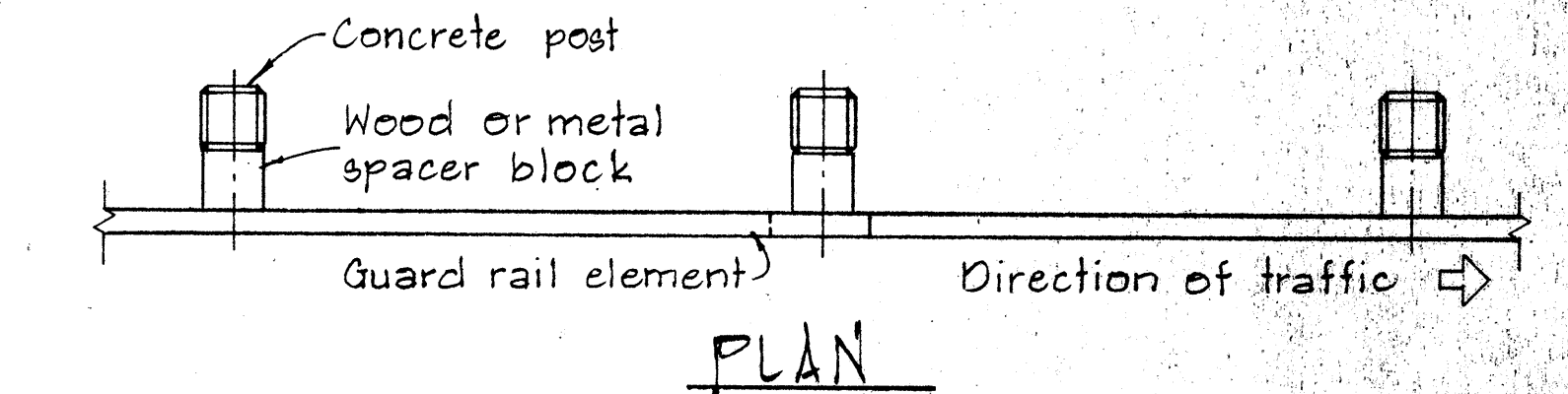
SINGLE METAL GUARD RAIL ON METAL POST
WITH METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"



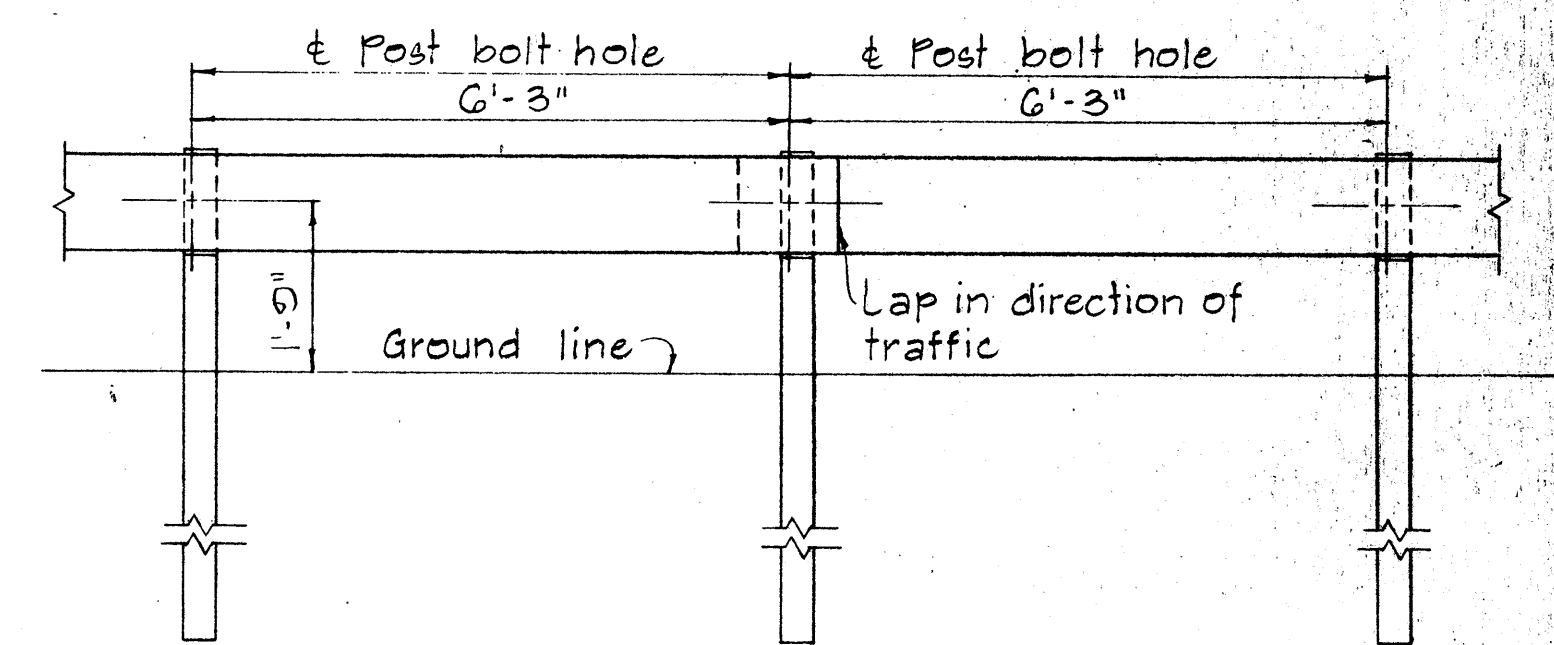
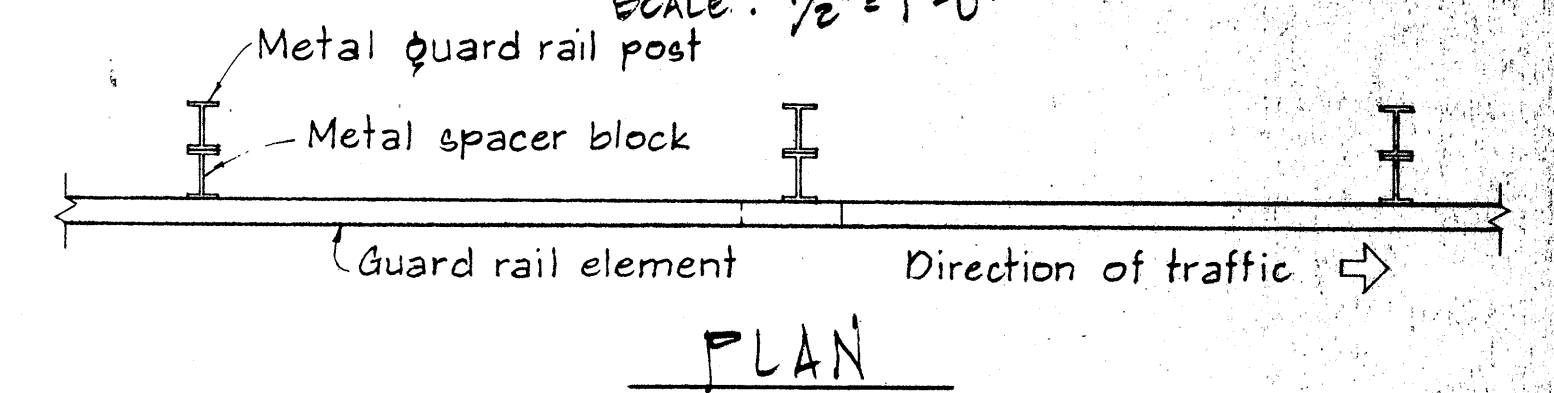
SINGLE METAL GUARD RAIL ON PRECAST
CONCRETE POST WITH WOOD OR METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"



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



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"

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. 2 OF 2 SHEETS DT 500

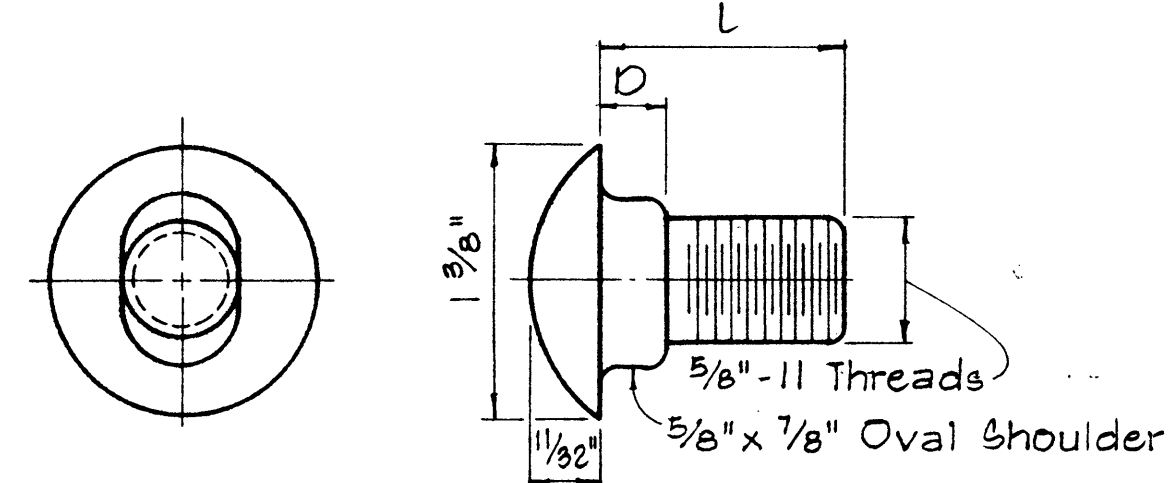
APPROVAL RECOMMENDED:
Evelyn Tanaka
TRAFFIC ENGINEER 12/29/62
DATE

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

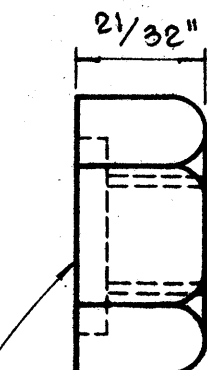
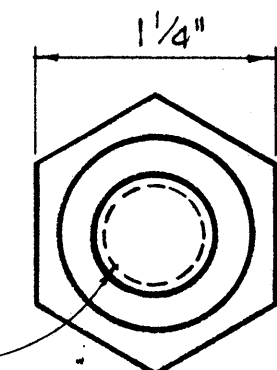
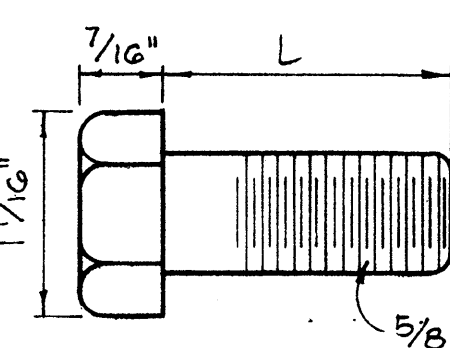
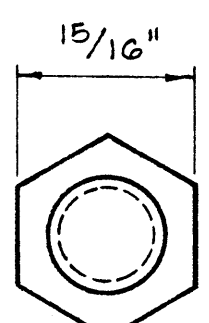
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	23A-11-71 03H-01-71	1972	10	12

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	9 1/2"
Post Bolt for Metal Post w/ Metal Block	1 3/4"



TYPE A BOLT



TYPE B BOLT

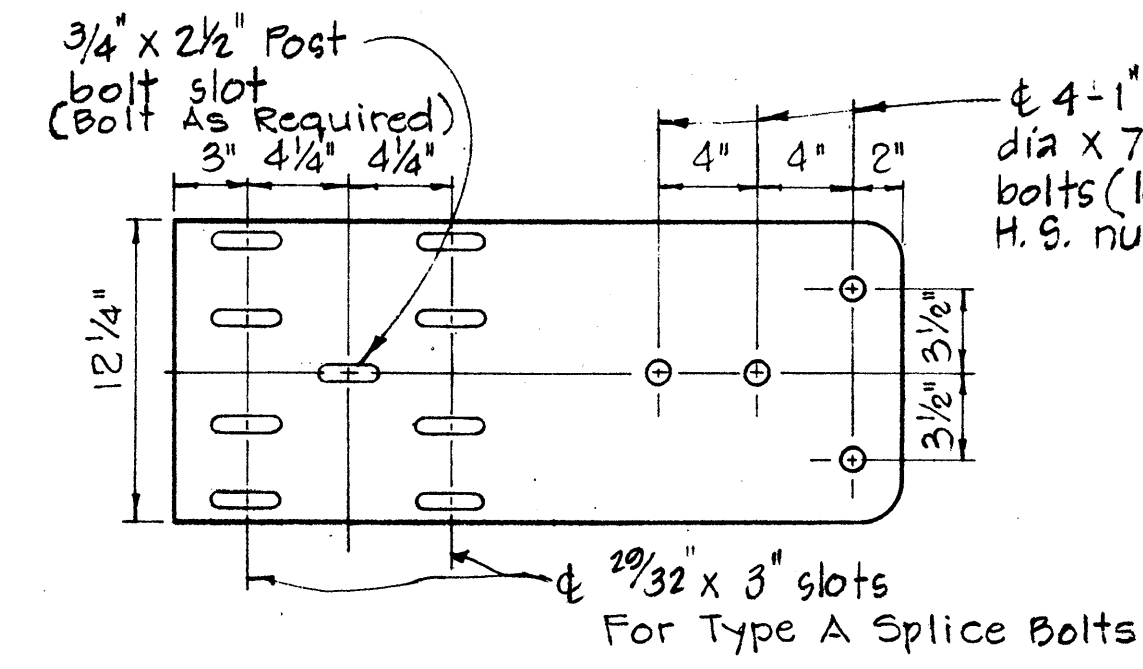
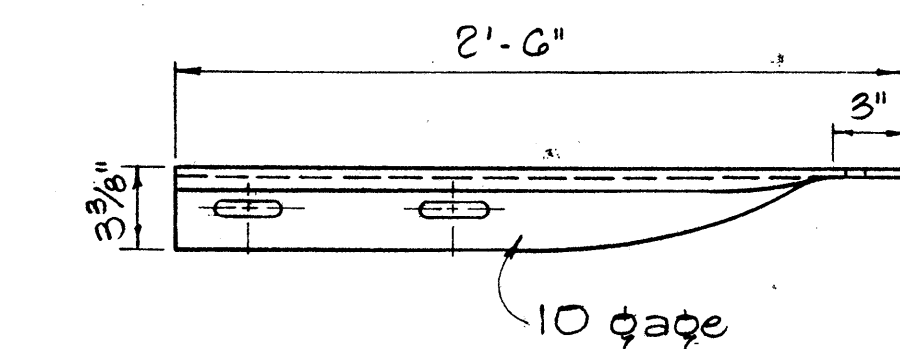
5/32" Deep x 15/16" Dia. C' Bore for Type A Bolt only.
Plain nut for Type B Bolt.

SPUCE RAIL AND POST BOLTS

Scale: Full Size

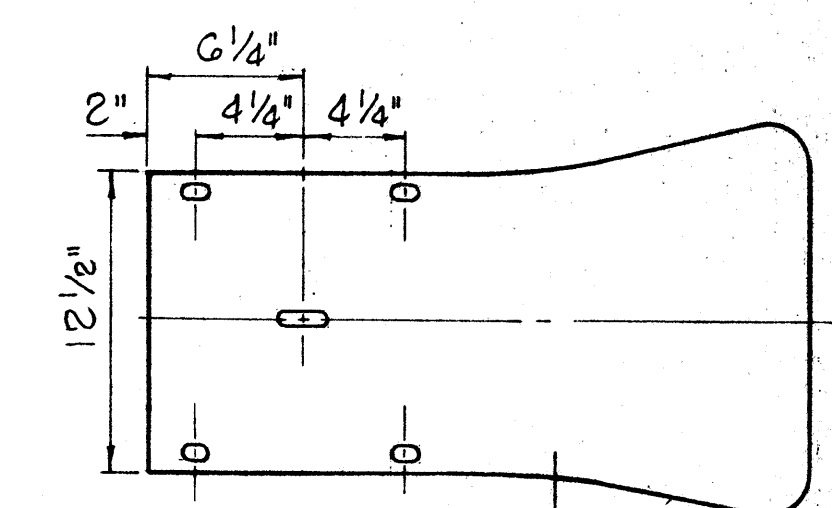
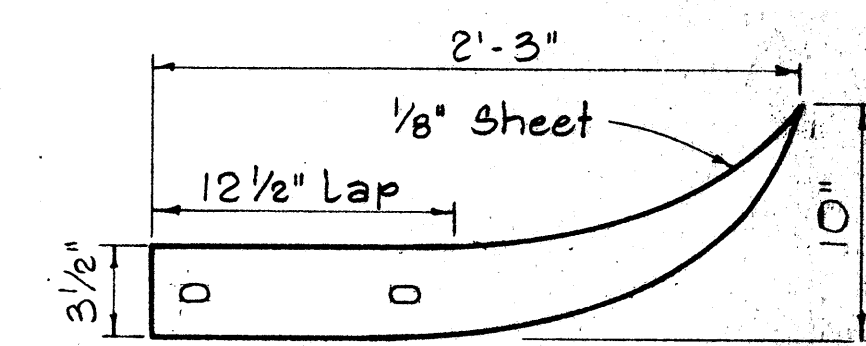
HEXAGON NUT

Scale: Full Size



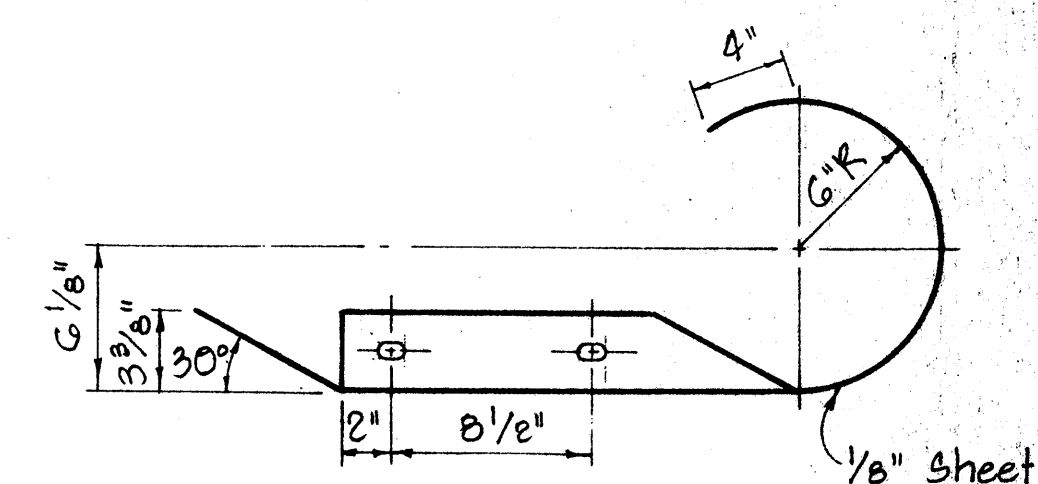
SPECIAL END SHOE

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



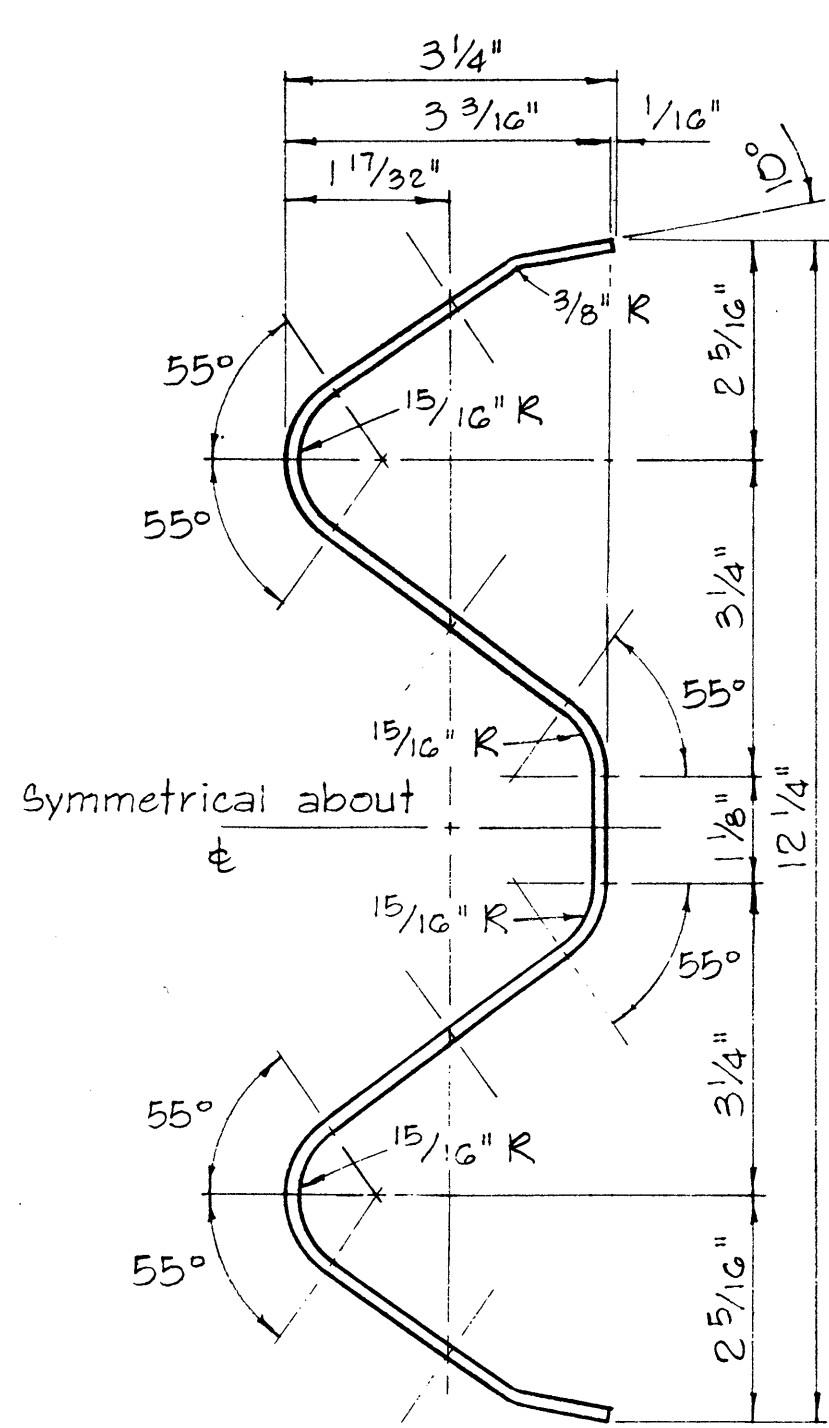
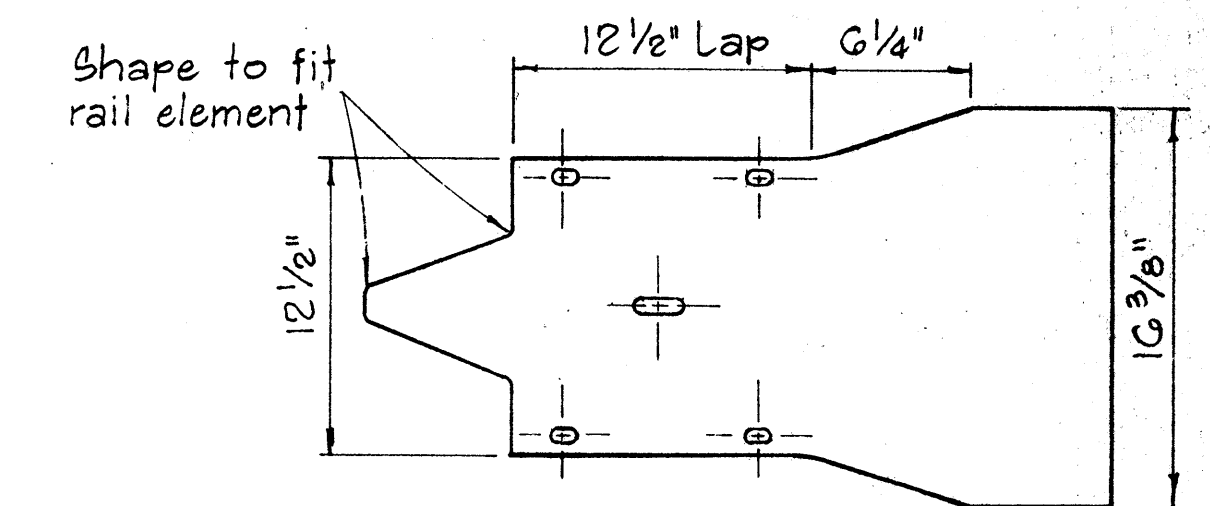
FLARED END

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



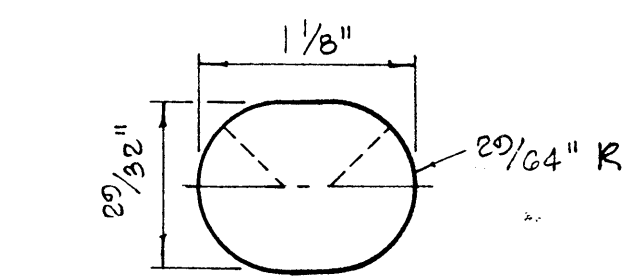
CURVED END

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



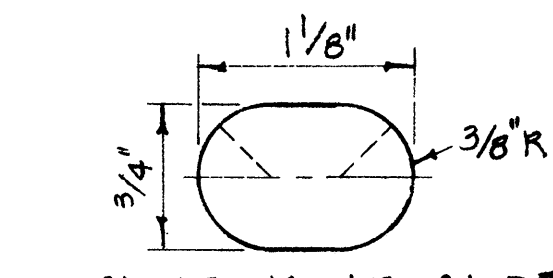
RAIL ELEMENT SECTION

Scale: 6" = 1'-0"

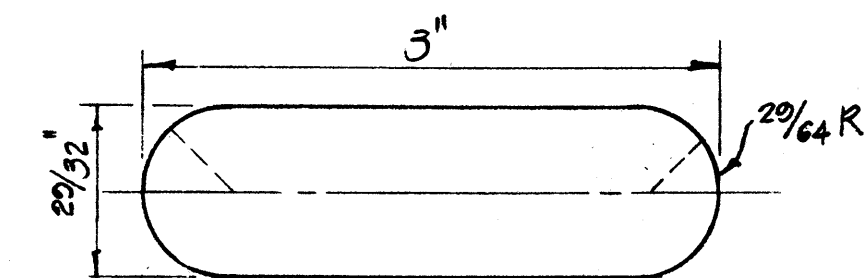


SPUCE BOLT SLOT

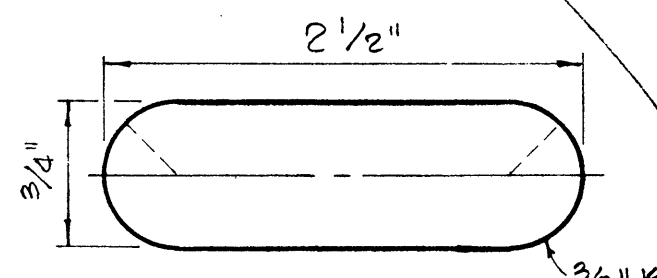
Scale: Full Size



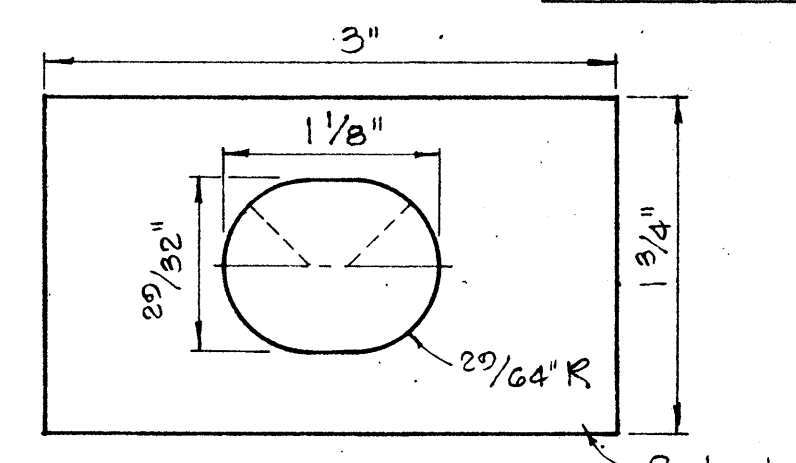
SPUCE BOLT SLOT FOR ALL ENDS



SPUCE BOLT SLOT FOR SPECIAL END SHOE



POST BOLT SLOT

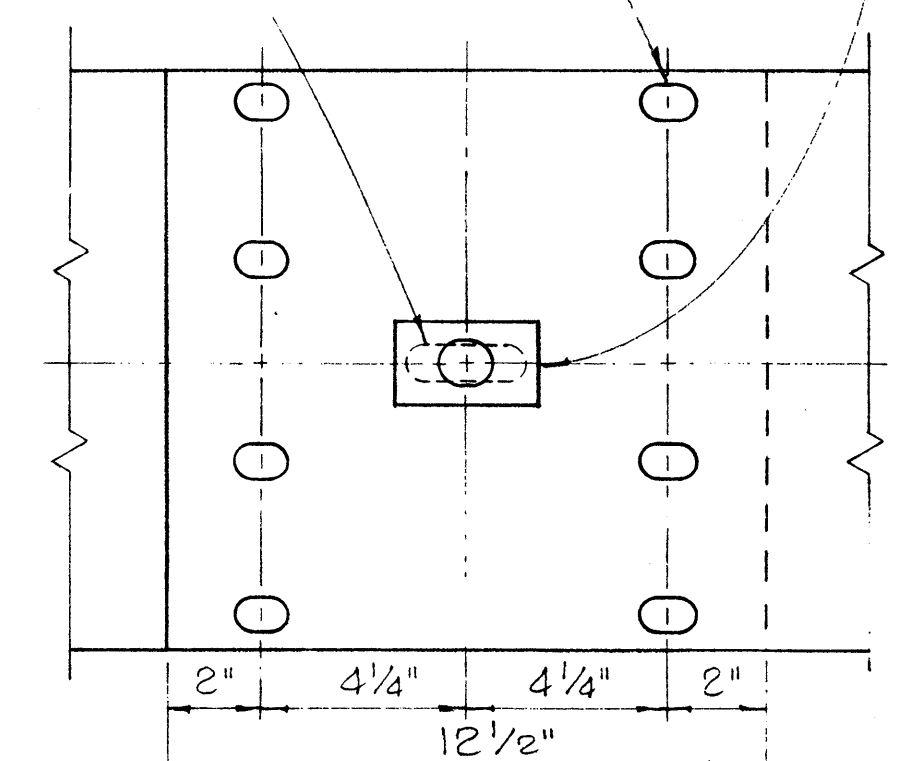


RAIL WASHER

NOTES:

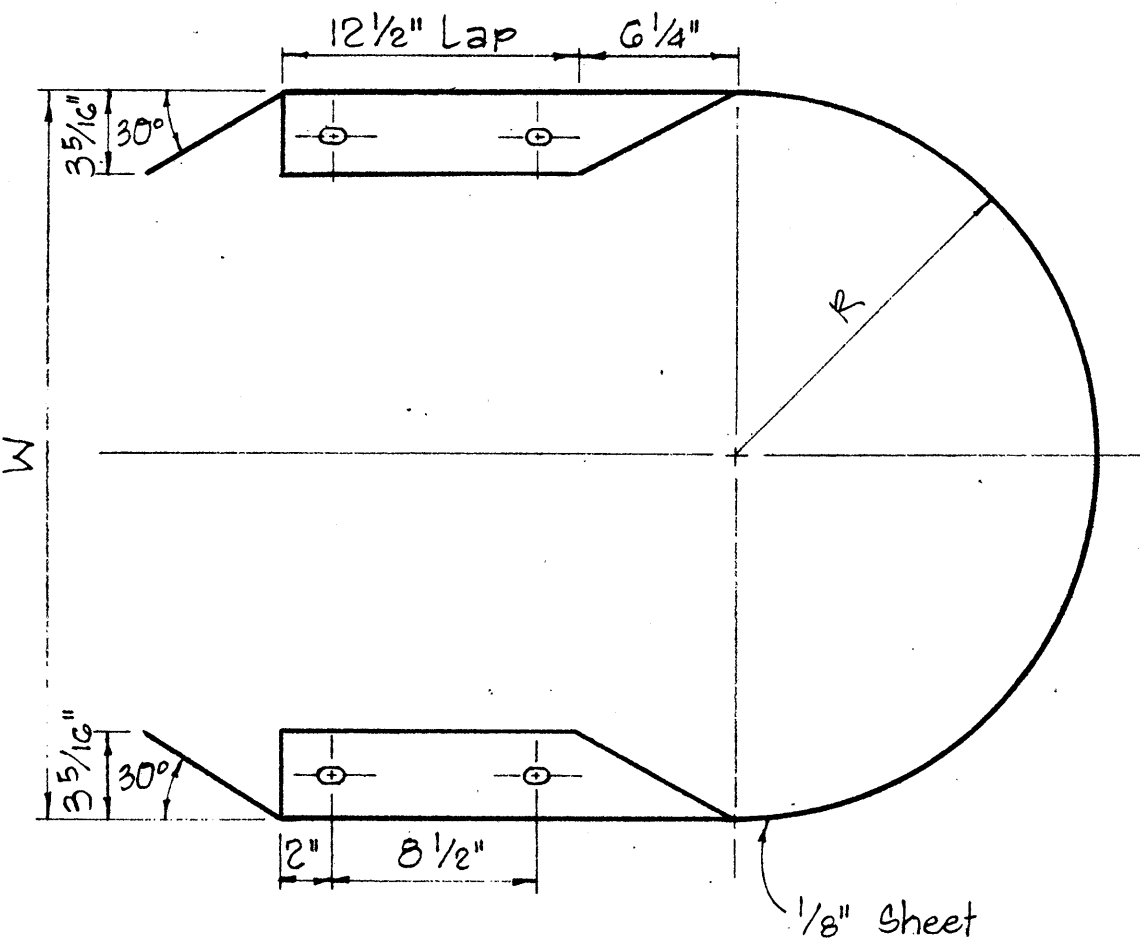
1. H.S. Bolts shall conform to the requirements of ASTM A 325.
2. Special End Shoe shall be fabricated from 10 Gage steel conforming to the requirements of AASHO 180.

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 (BJ6)	26 1/2"	13 1/4"
Double Metal Guard Rail on Metal Post with Metal Blocks (BJ6)	24 3/8"	12 3/16"



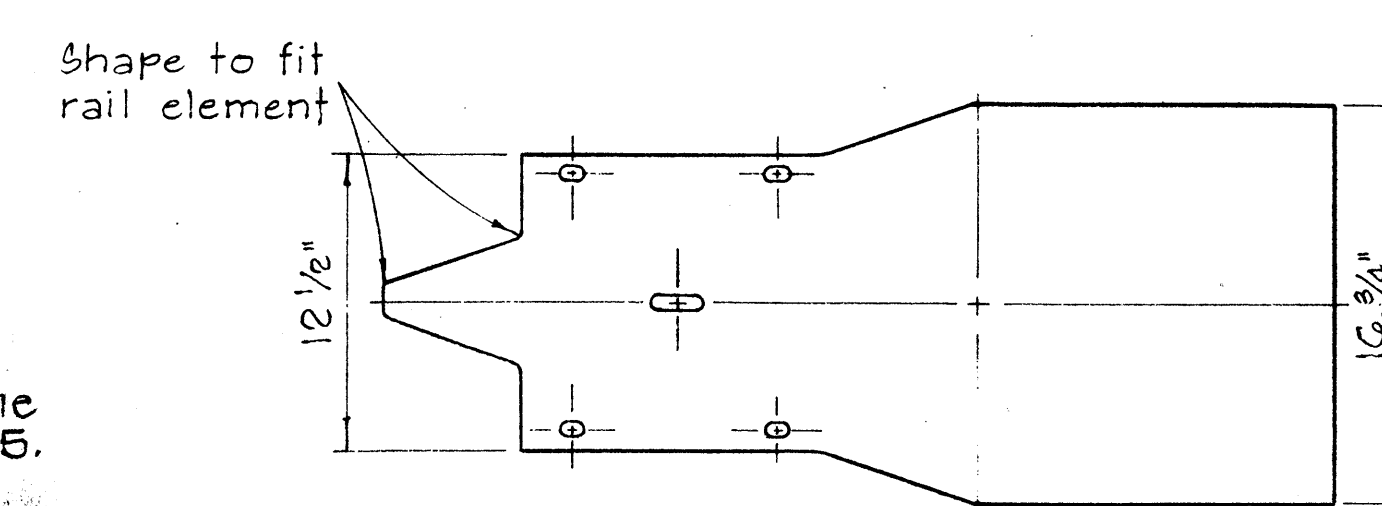
RAIL SPUCE

Scale: 3" = 1'-0"



MEDIAN END

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



NO	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED:
TRAFFIC ENGINEER
APPROVED:
ASSISTANT CHIEF, ENGINEERING

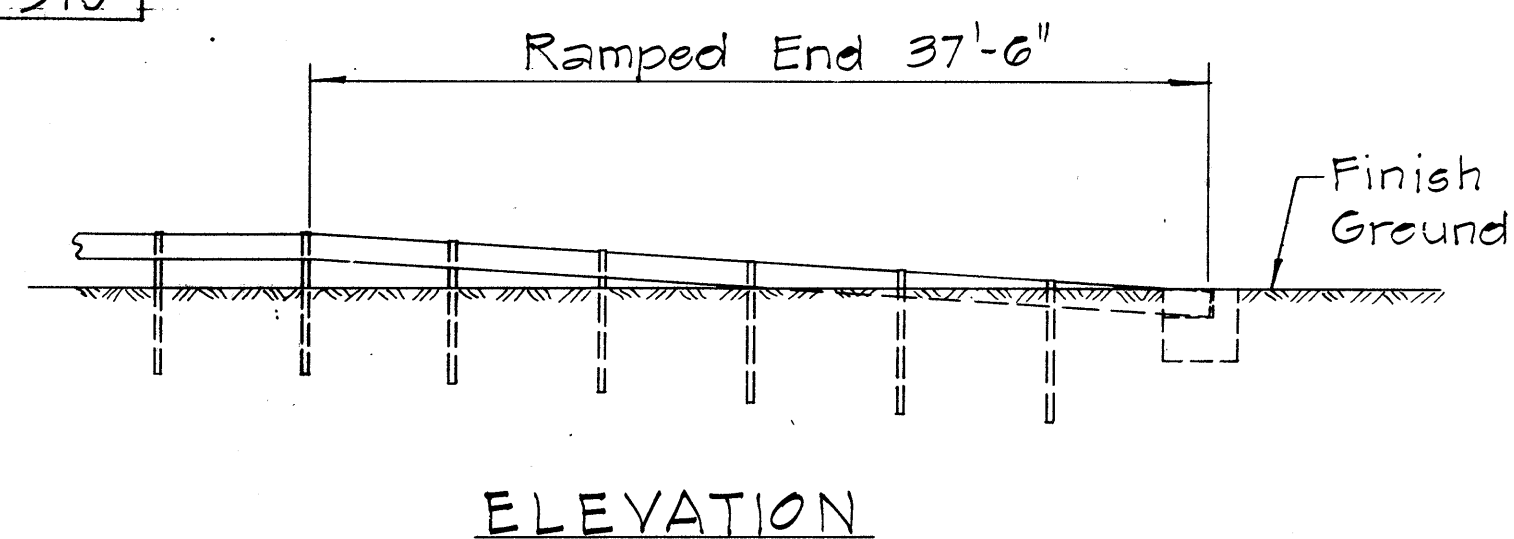
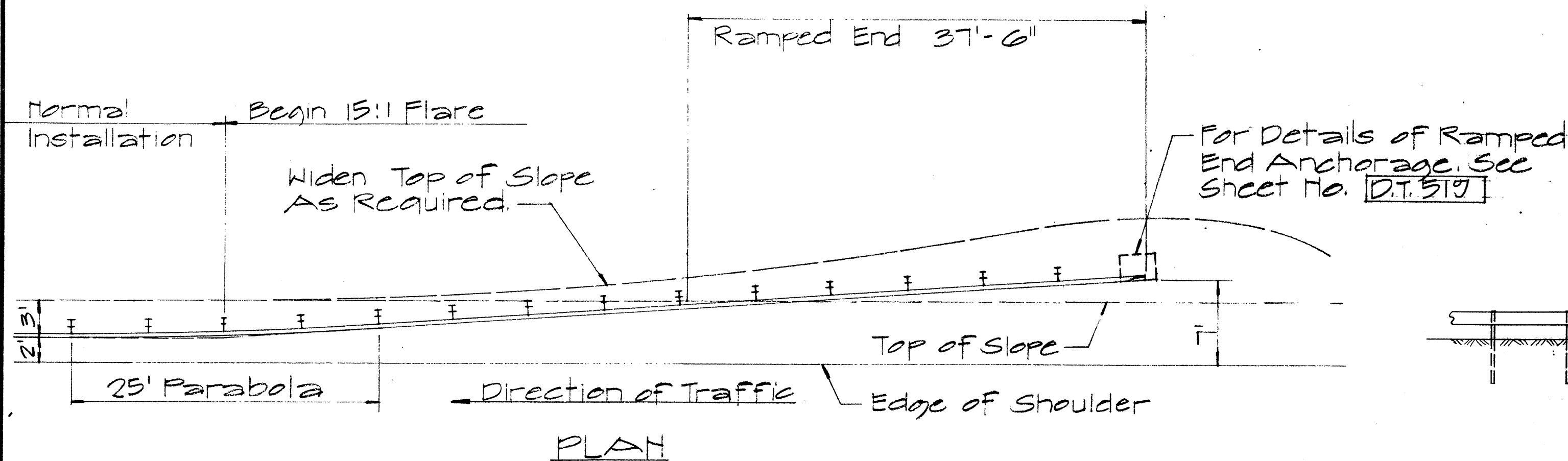
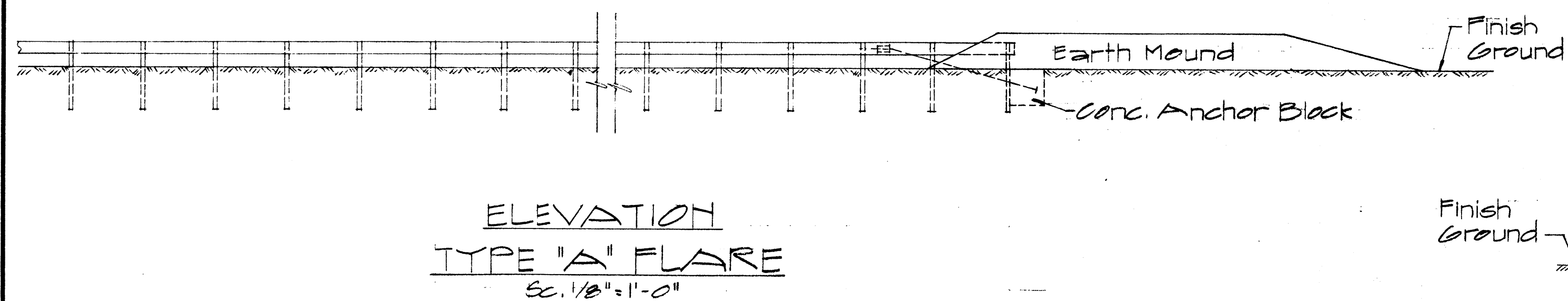
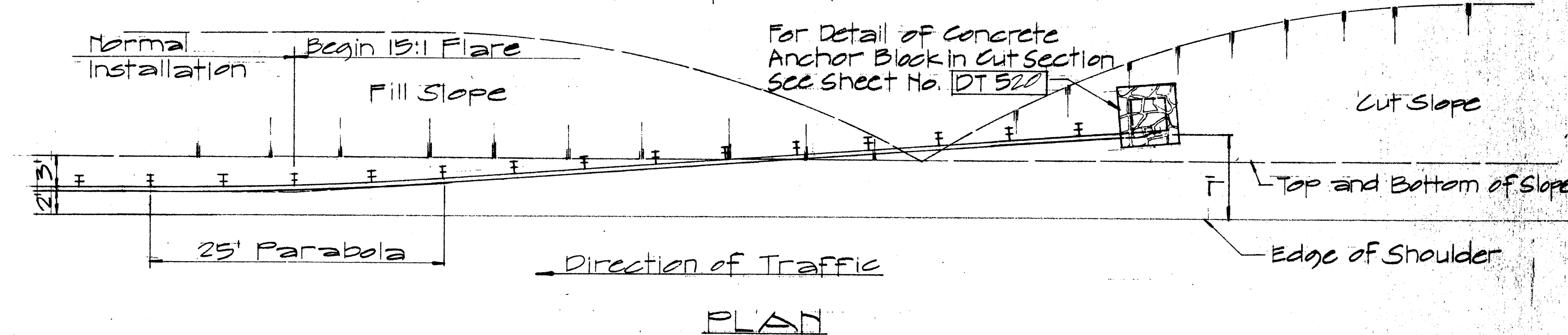
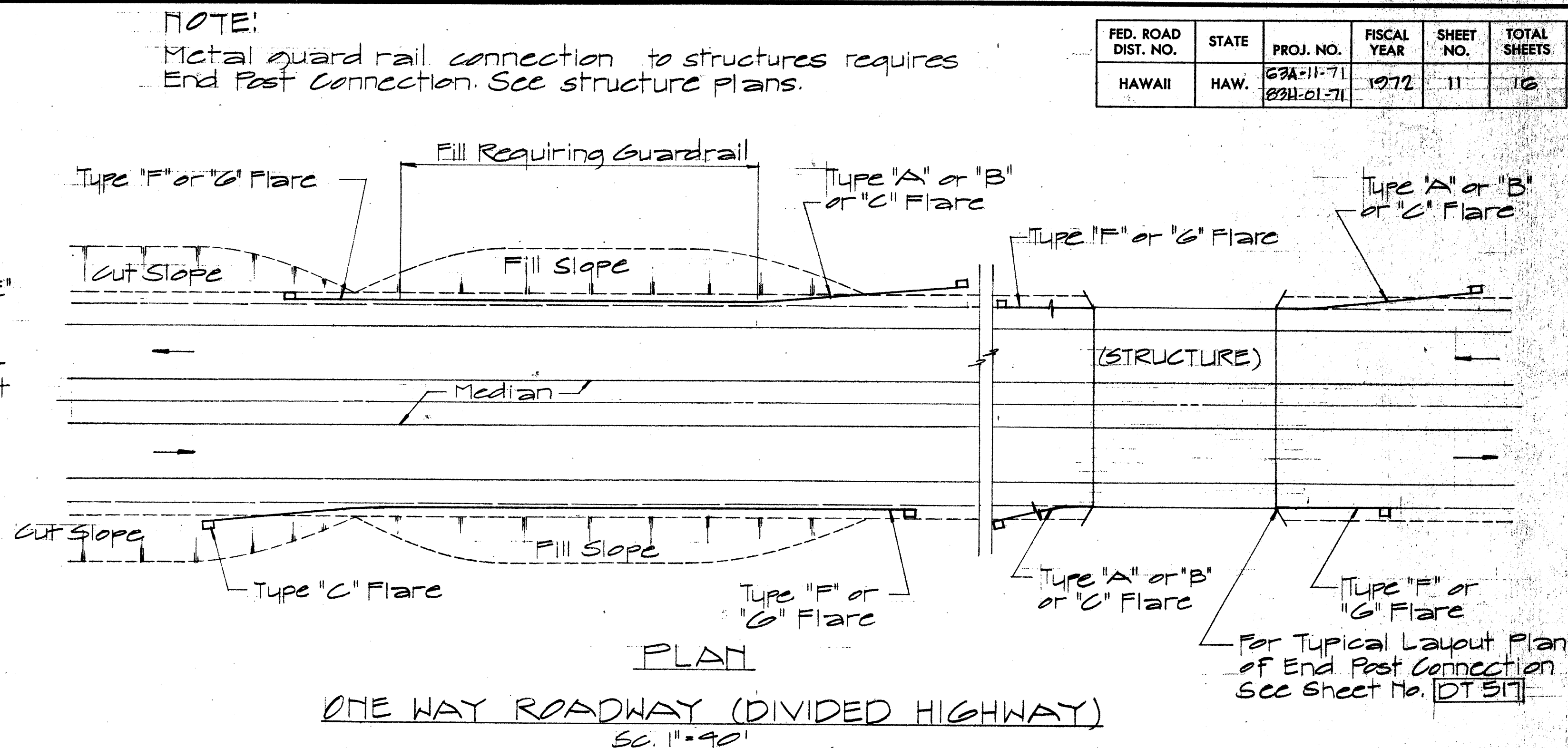
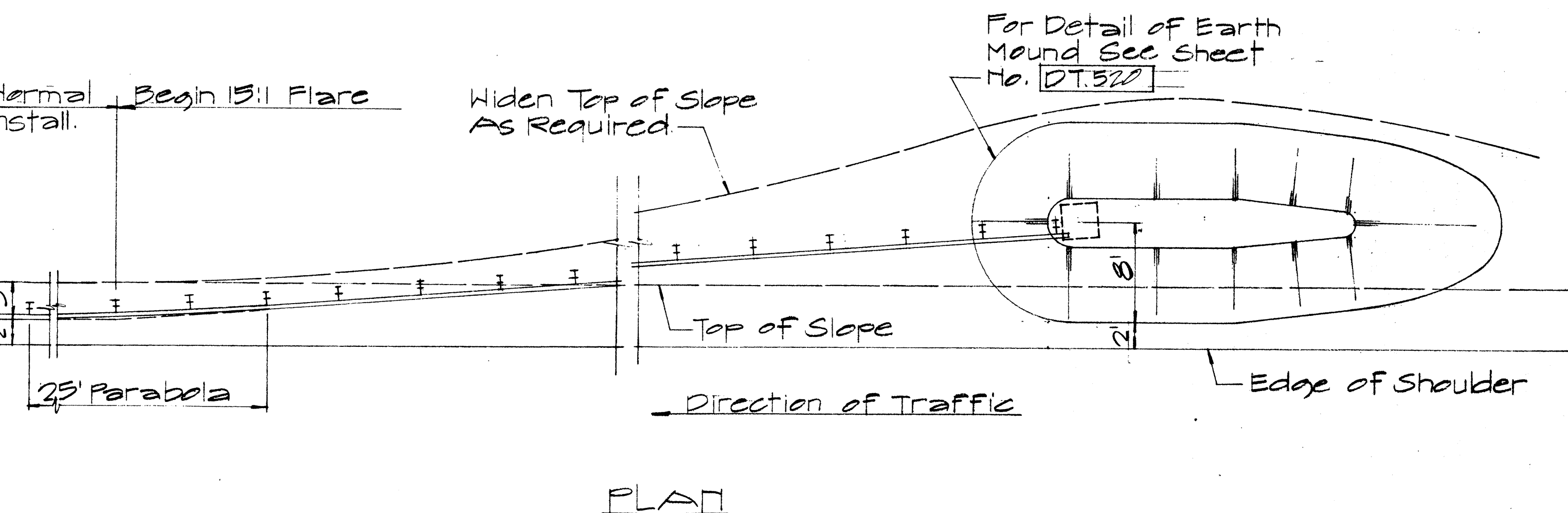
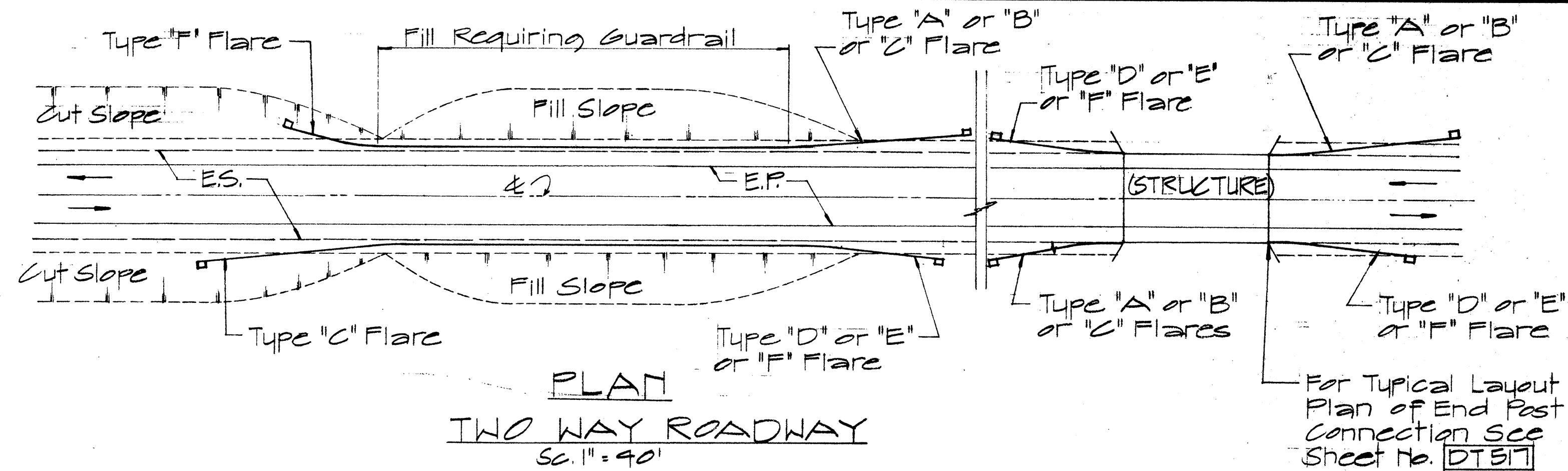
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL GUARD RAIL

Scale: As Noted August, 1968

SHEET No. 3 OF 7 SHEETS DT 501

DATE
DRAWN BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
ORIGINAL PLAN
NOTE BOOK
No.



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

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED:
Traffic Engineer
12/29/69
DATE

APPROVED:
Assistant Chief, Engineering
12-30-69
DATE

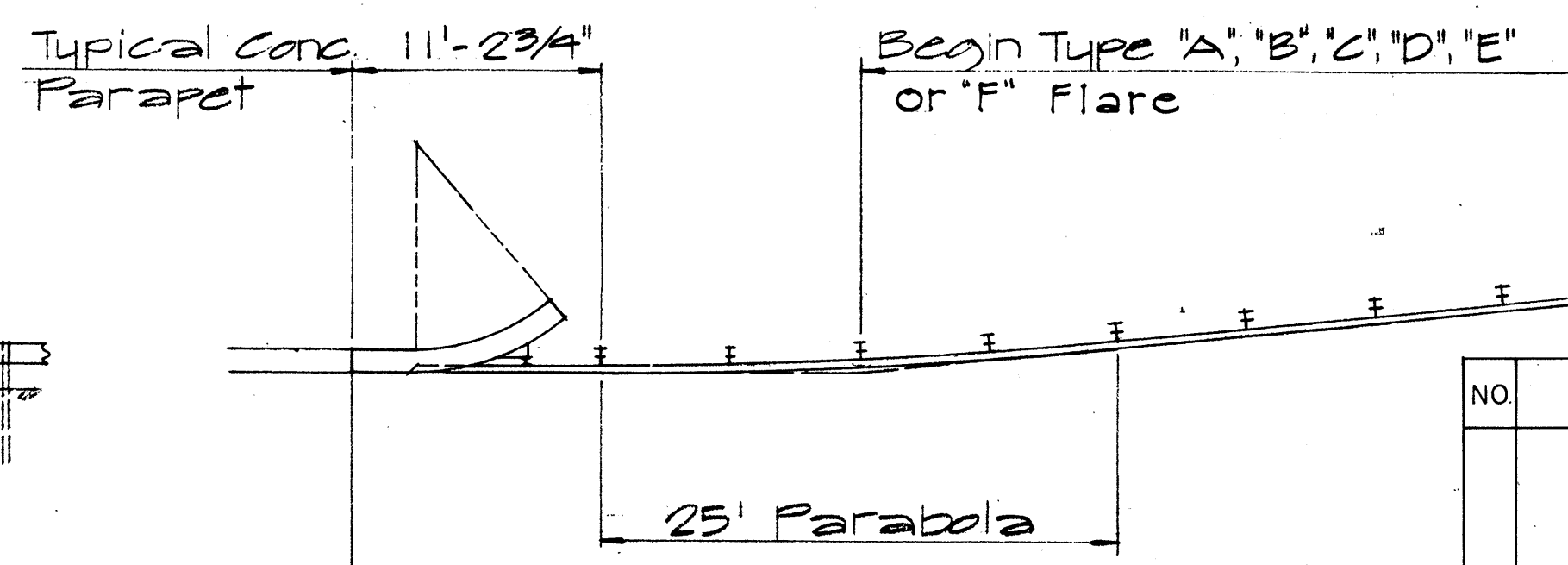
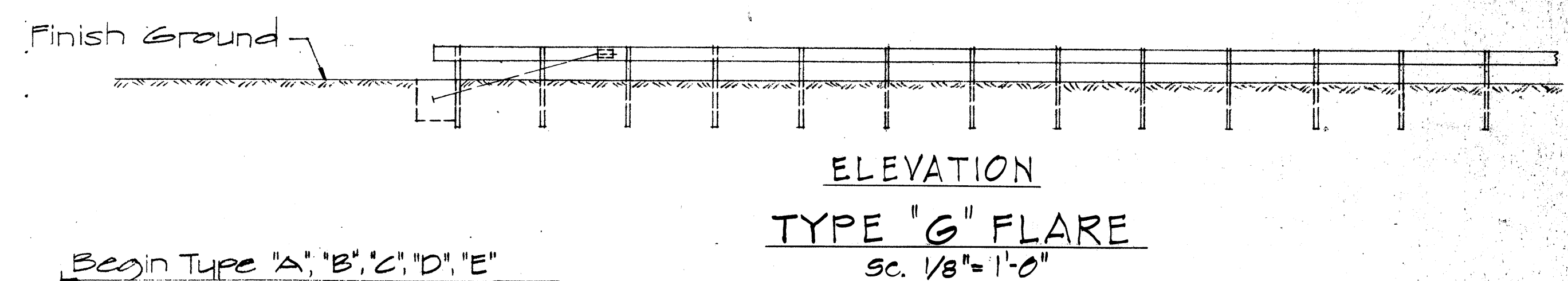
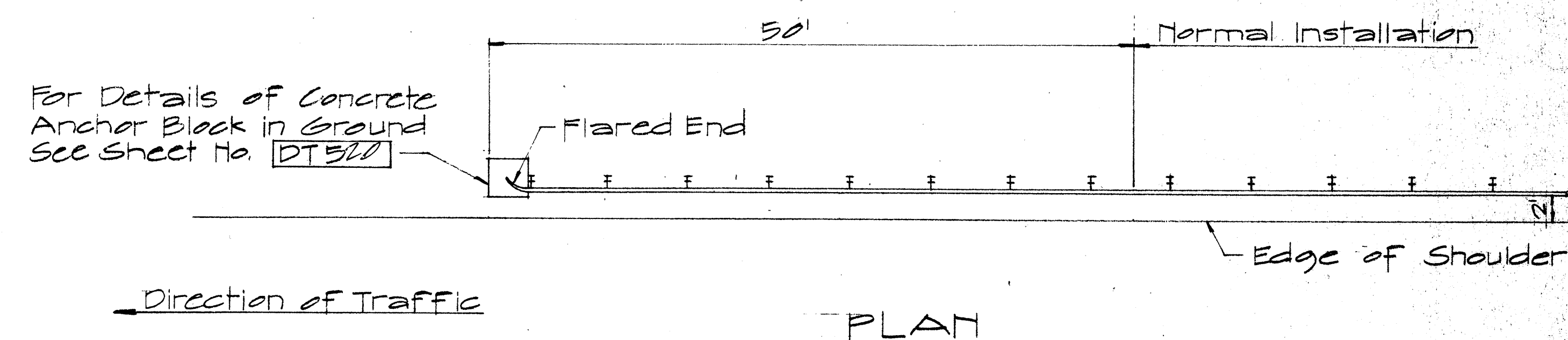
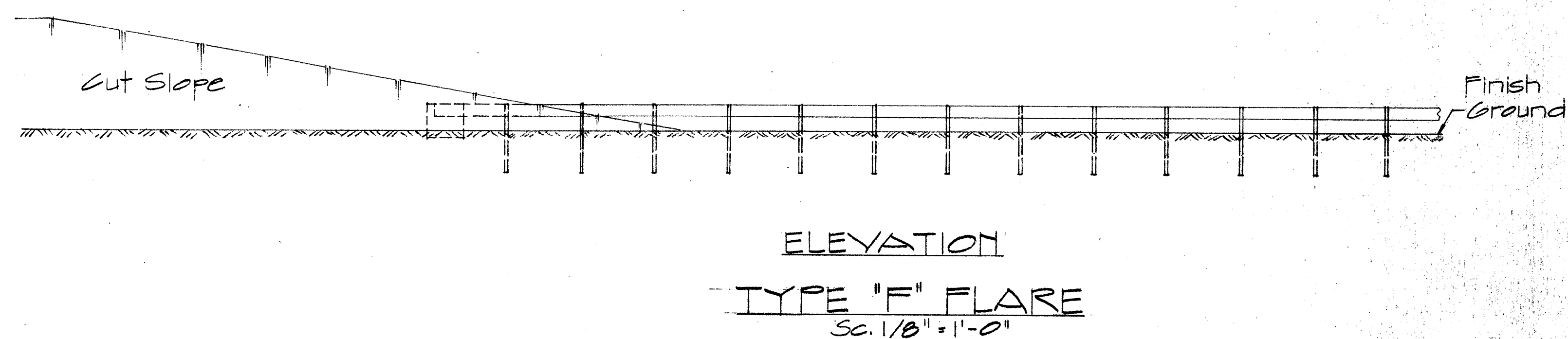
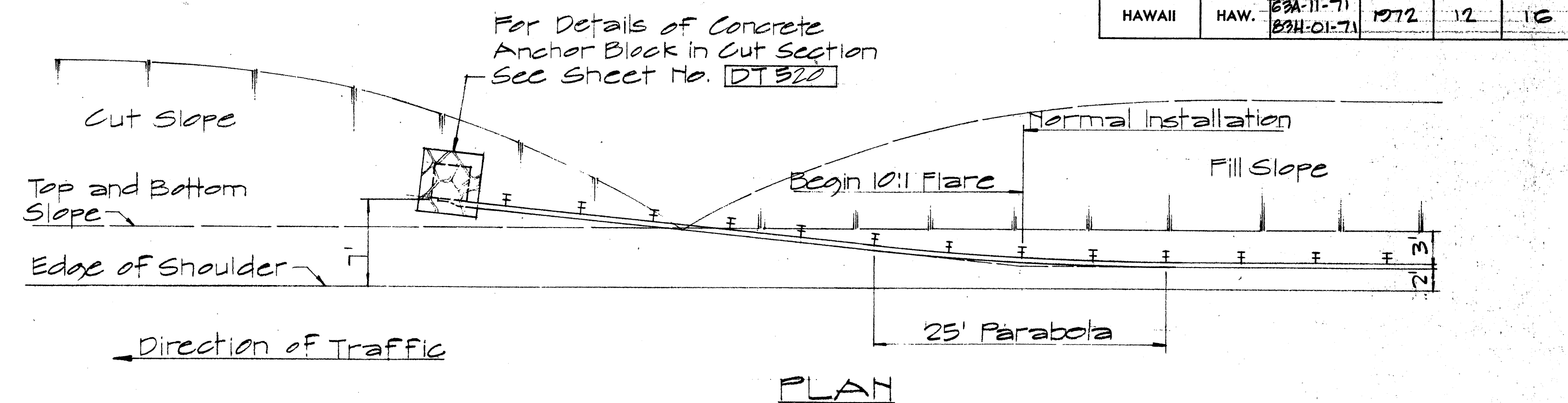
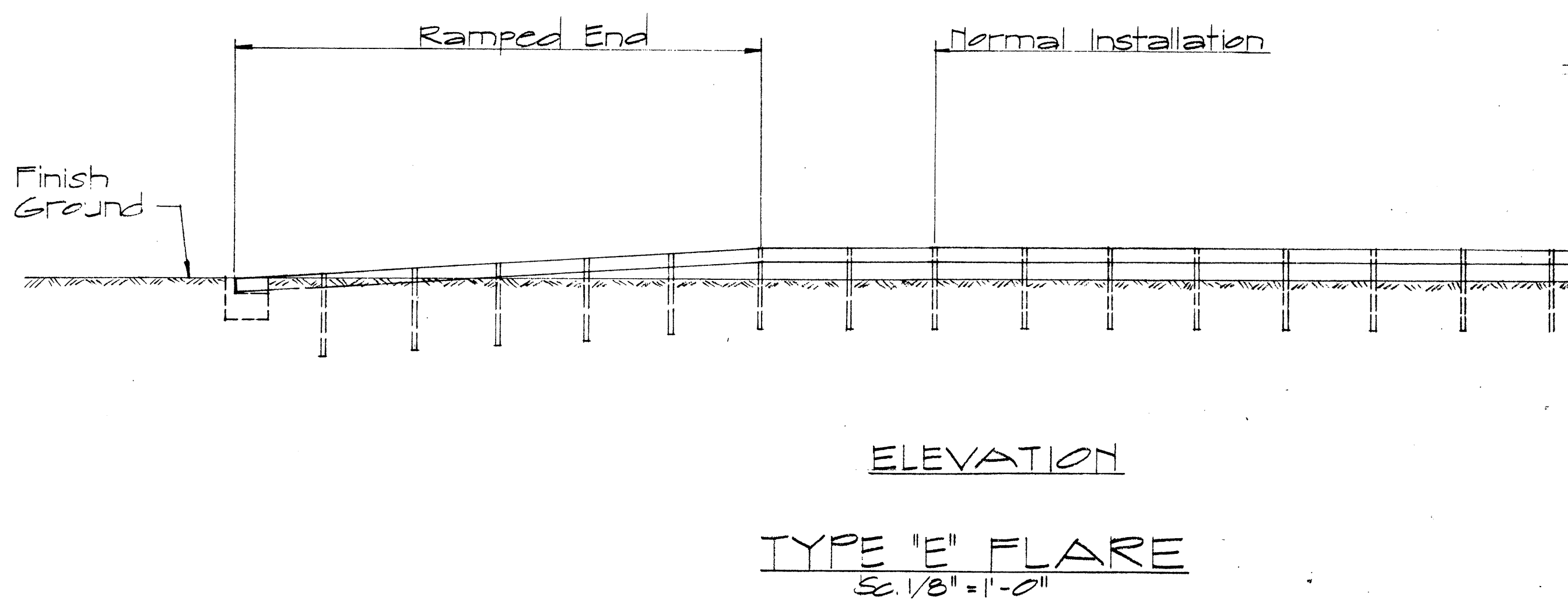
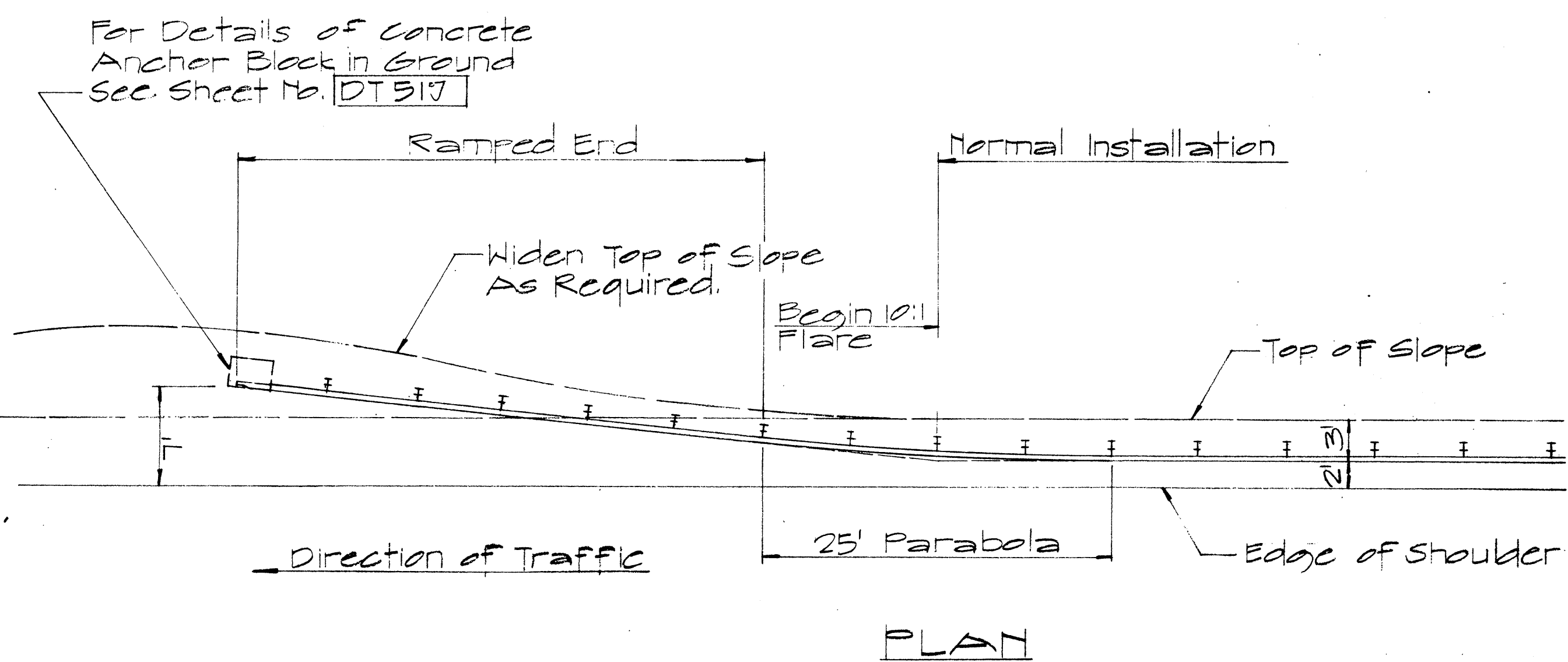
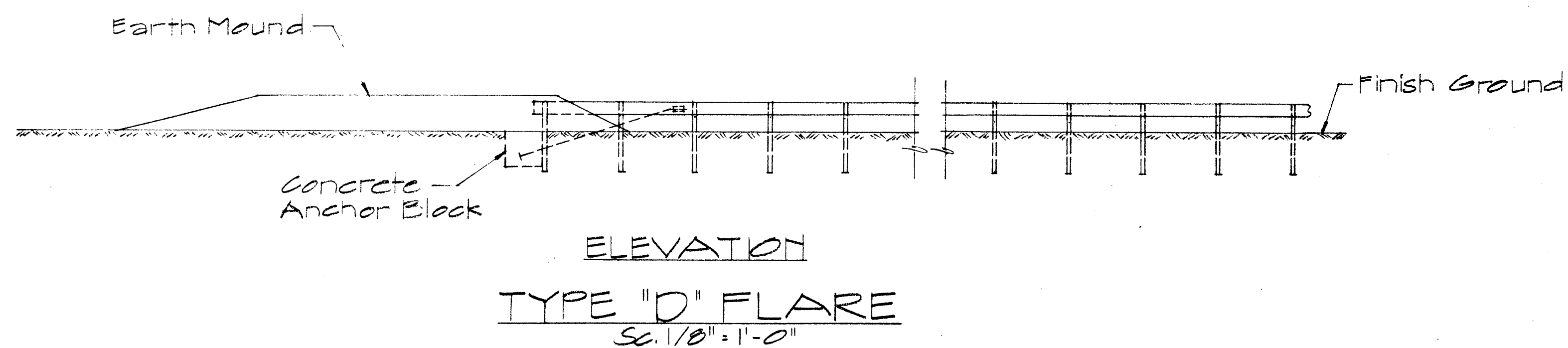
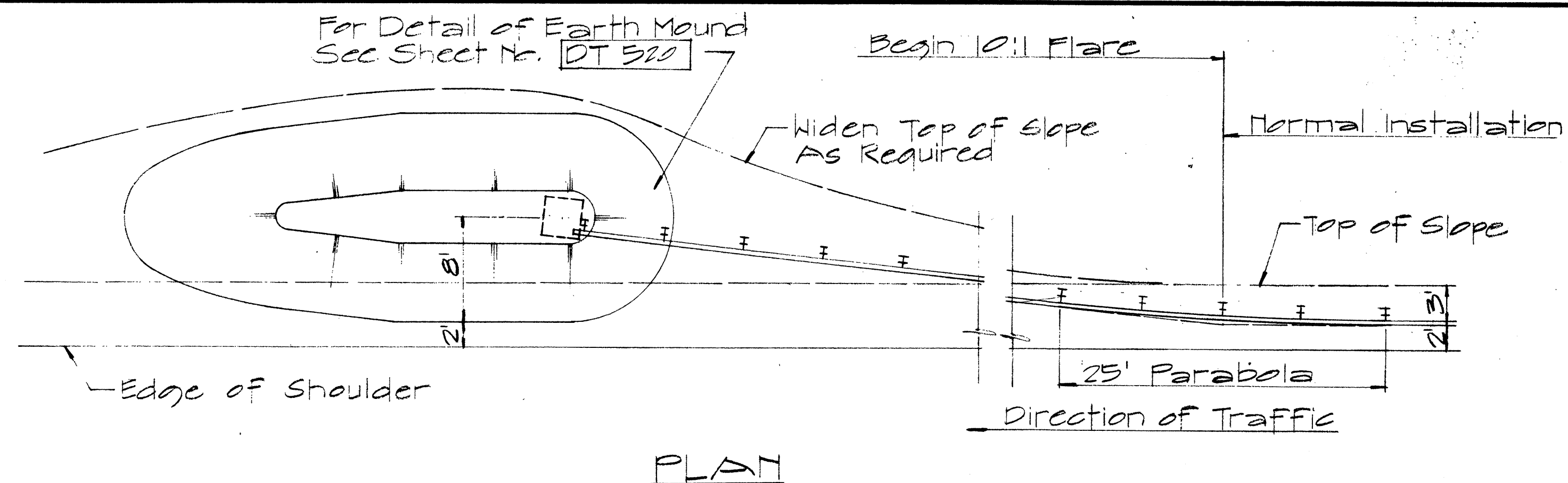
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
OF APPROACH END
FLARE - ONE & TWO
WAY ROADWAY
Sc. As Noted April 1969
SHEET No. 4 OF 9 SHEETS DT 516

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	63A-11-71 2311-01-71	1972	11	16

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	63A-11-71 63H-01-71	1972	12	16



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

APPROVED:
W. J. J. J. 12-29-69
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

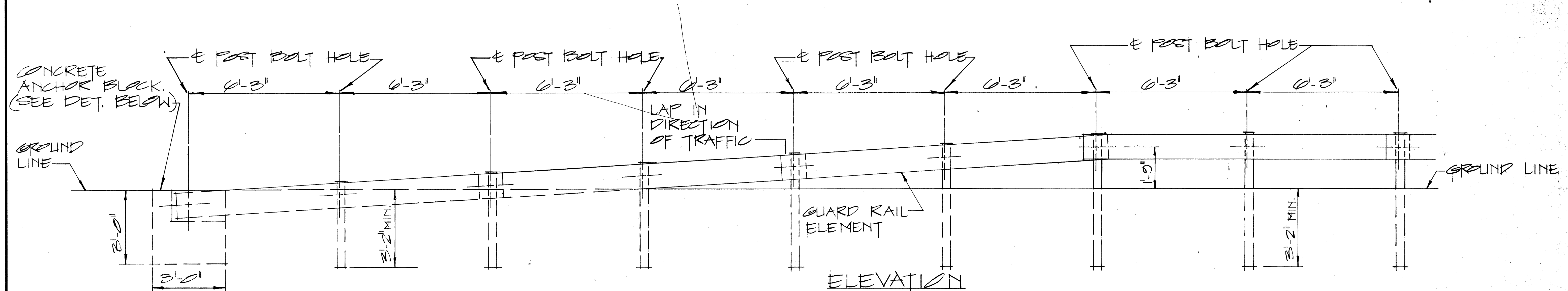
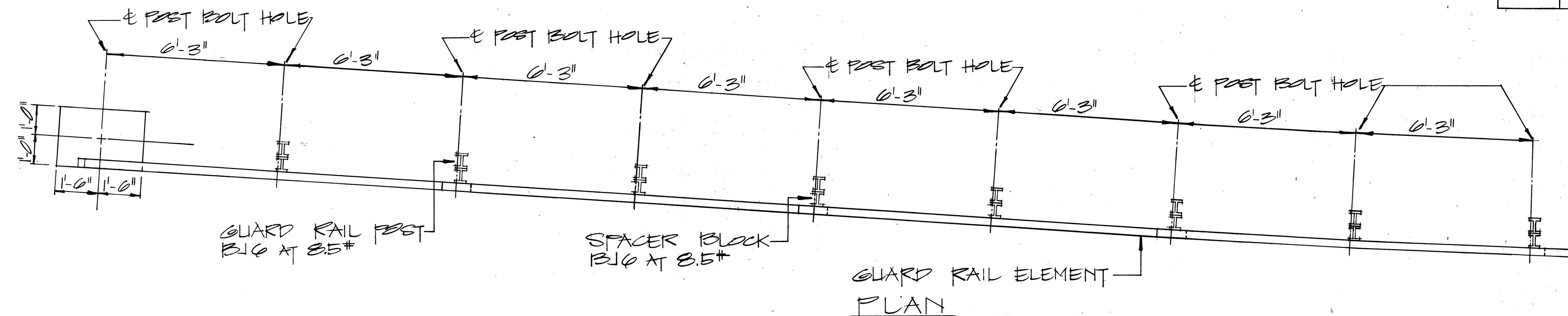
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

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

Sc. As Noted April 1969

SHEET No. 5 OF 9 SHEETS DT 517

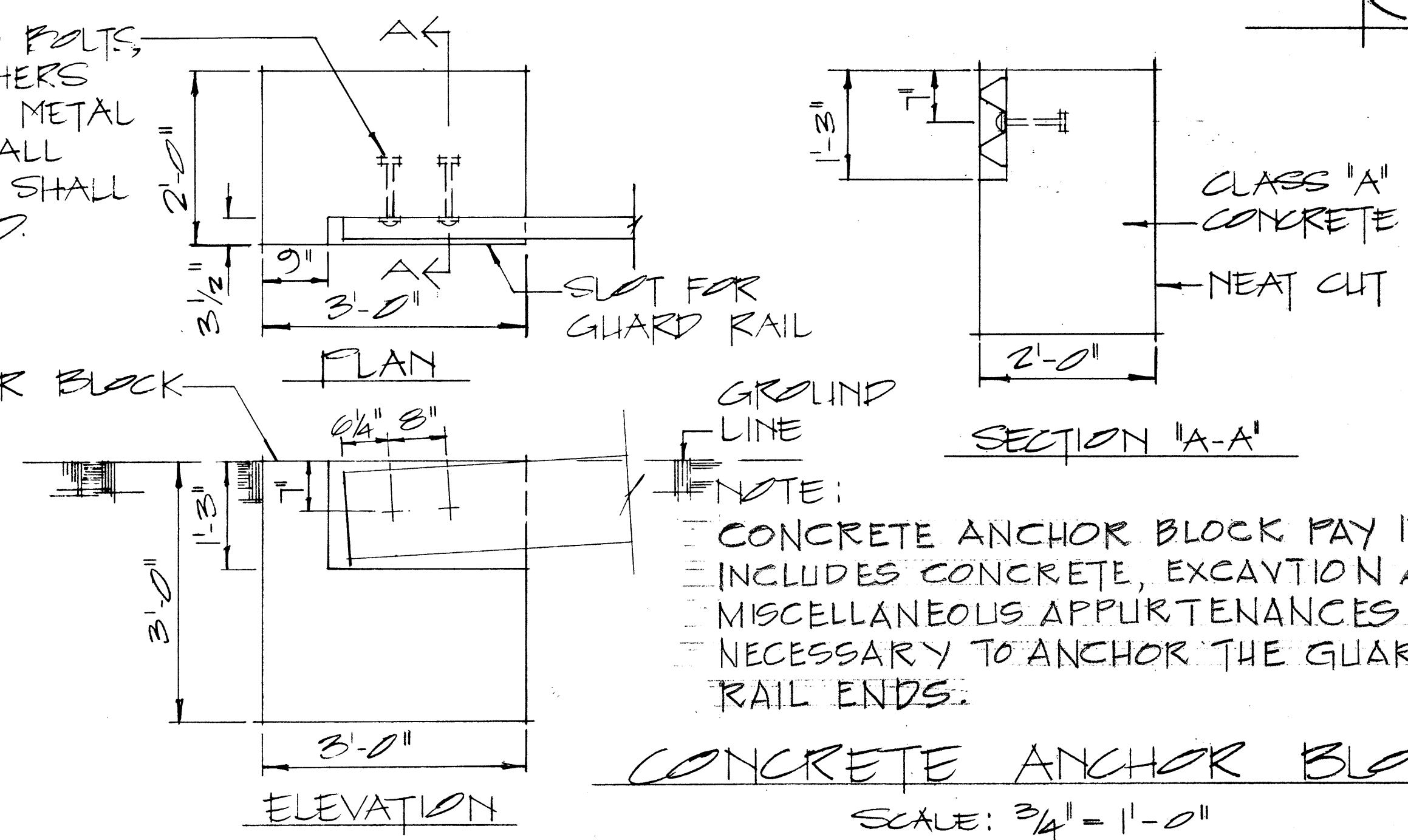
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	69A-11-71 89H-01-71	1972	13	16



RAMP END ANCHORAGE

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

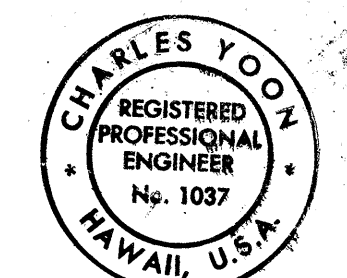
2-5/8" x 7/4" LONG BOLTS, W/ NUTS & WASHERS INCIDENTAL TO METAL GUARD RAIL. ALL METAL PIECES SHALL BE GALVANIZED.



NOTE:
CONCRETE ANCHOR BLOCK PAY ITEM INCLUDES CONCRETE, EXCAVATION AND MISCELLANEOUS APPURTENANCES NECESSARY TO ANCHOR THE GUARD RAIL ENDS.

CONCRETE ANCHOR BLOCK

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



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Charles Yoon

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS

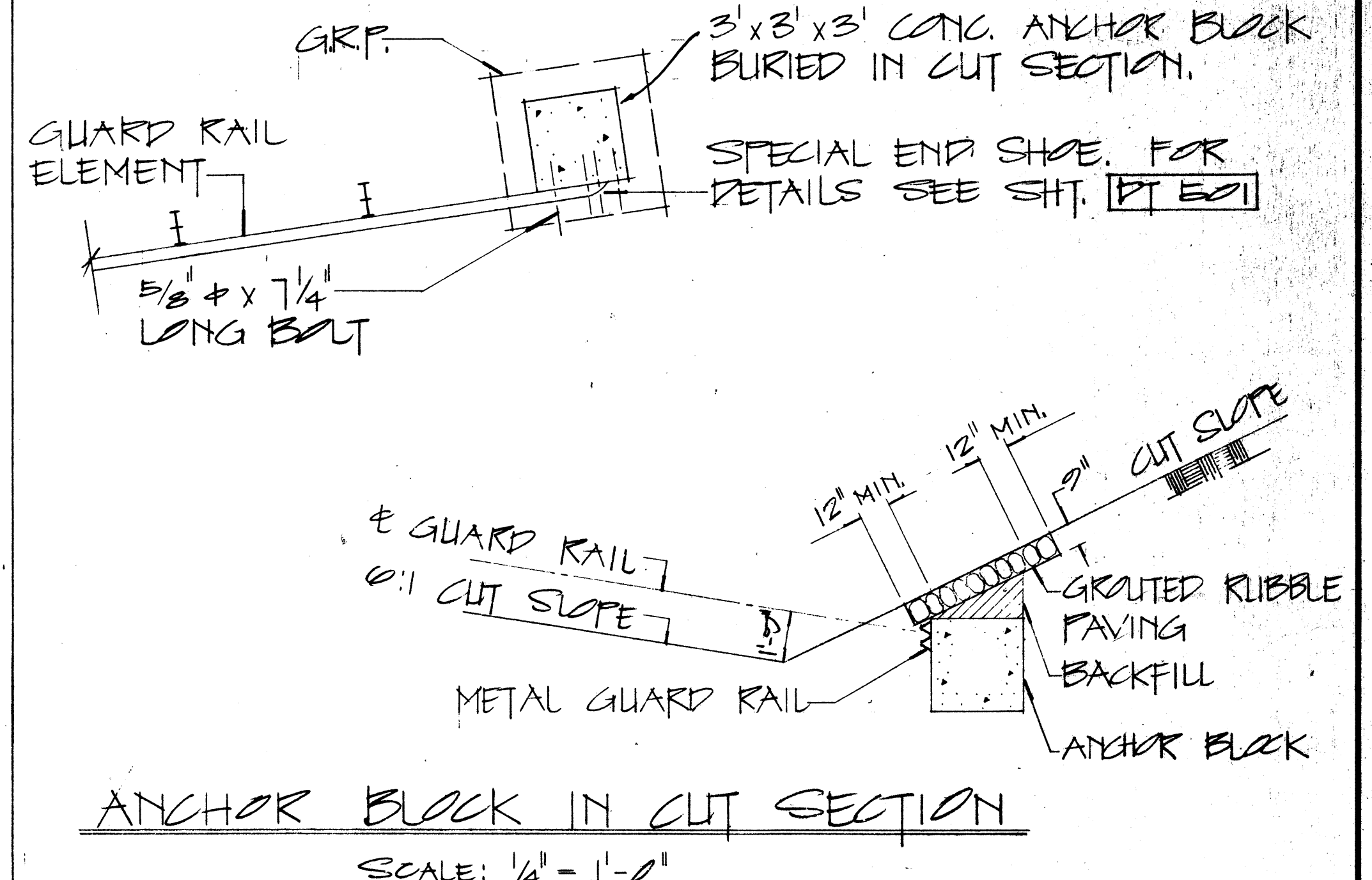
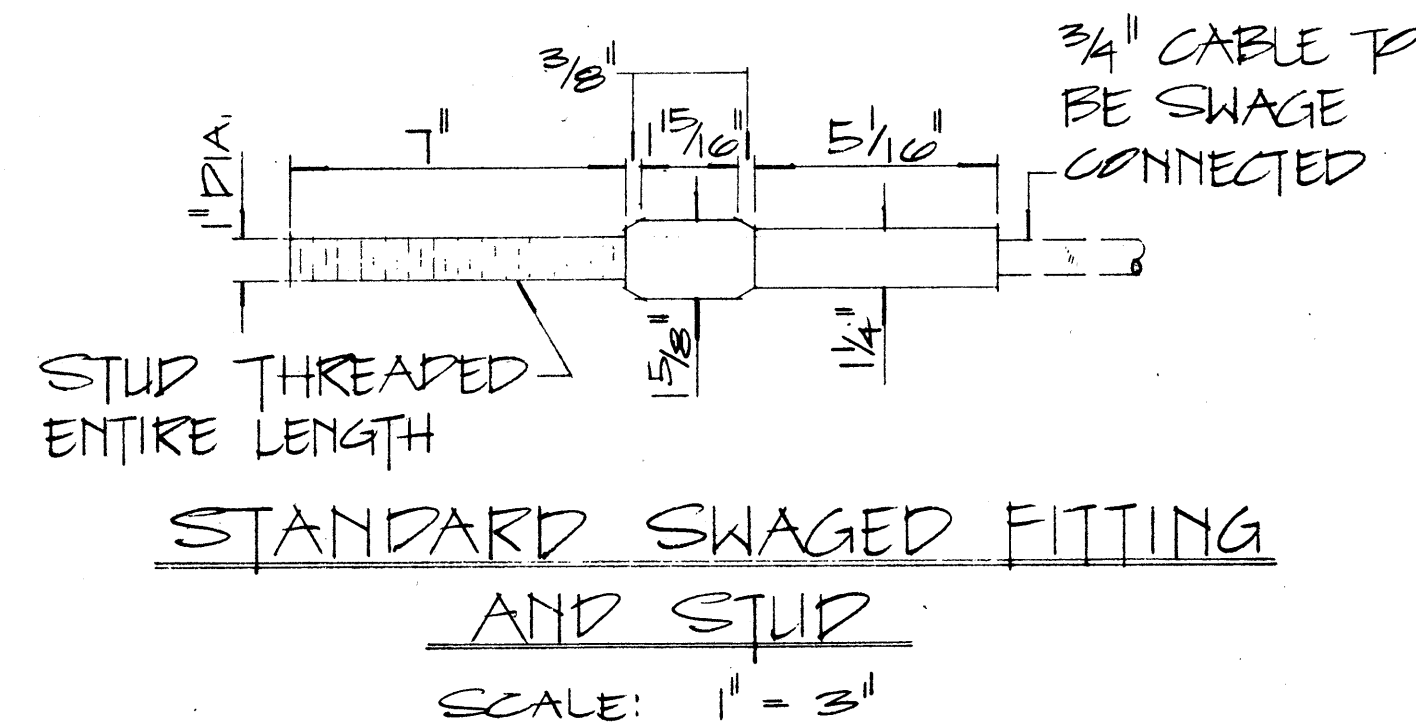
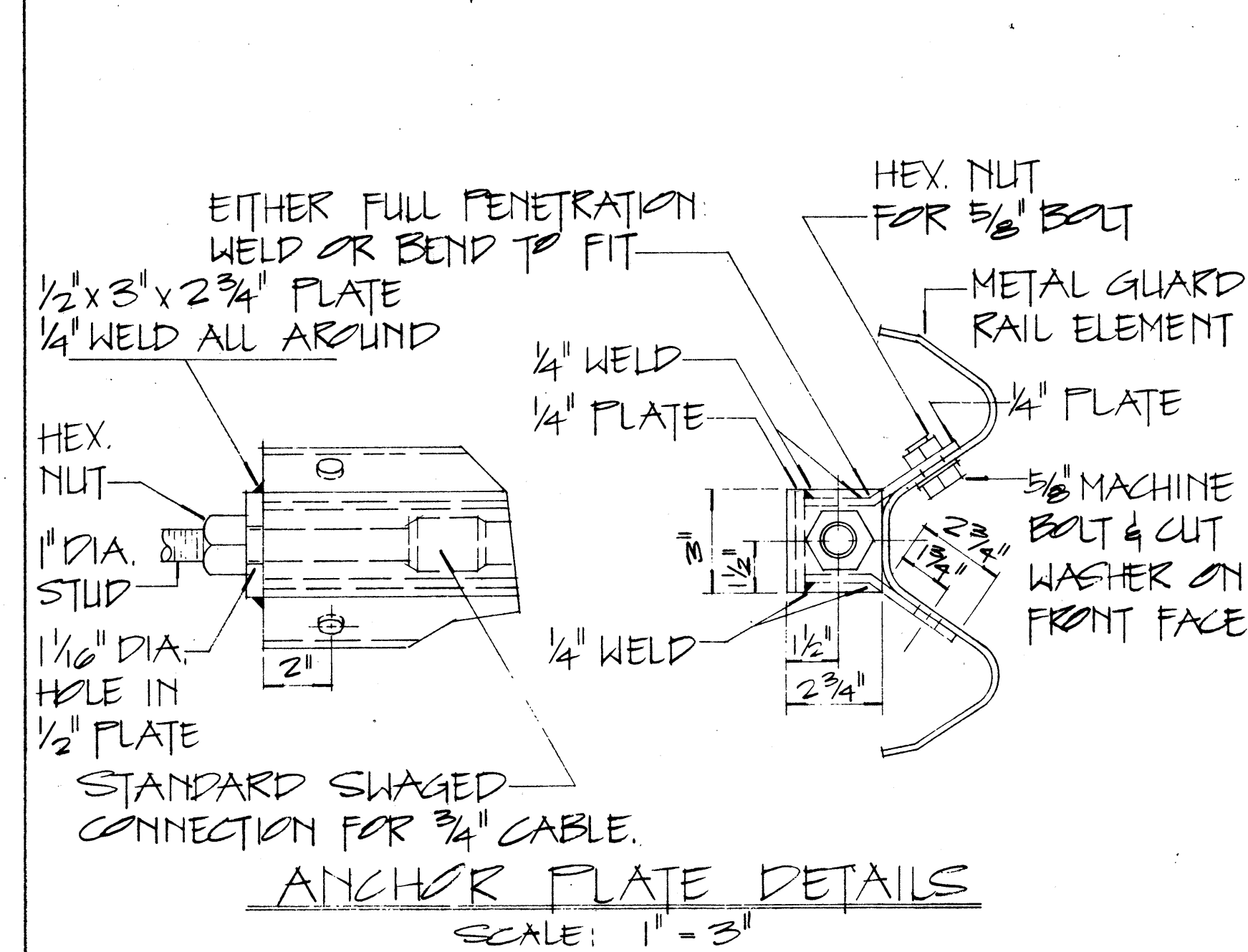
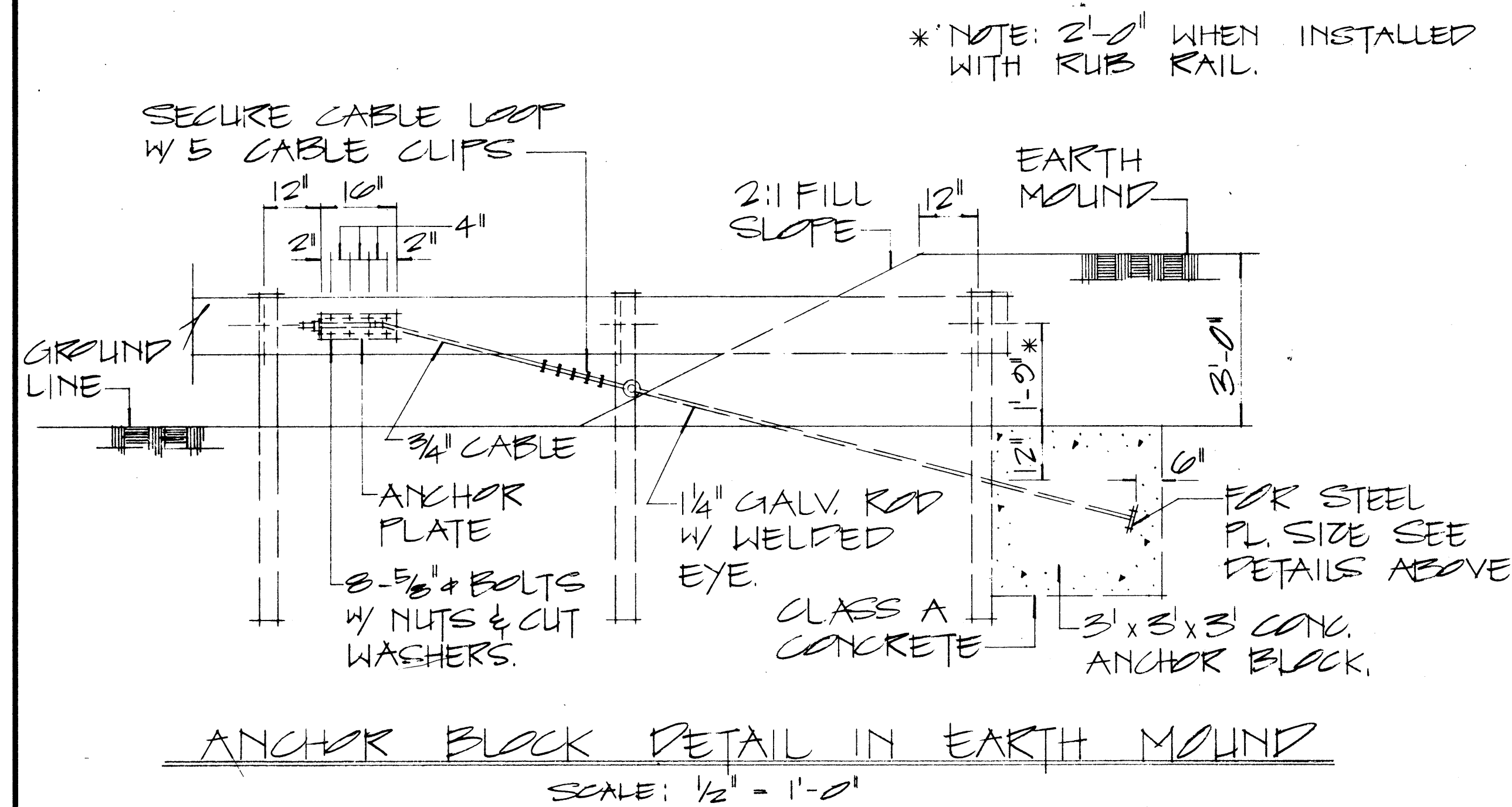
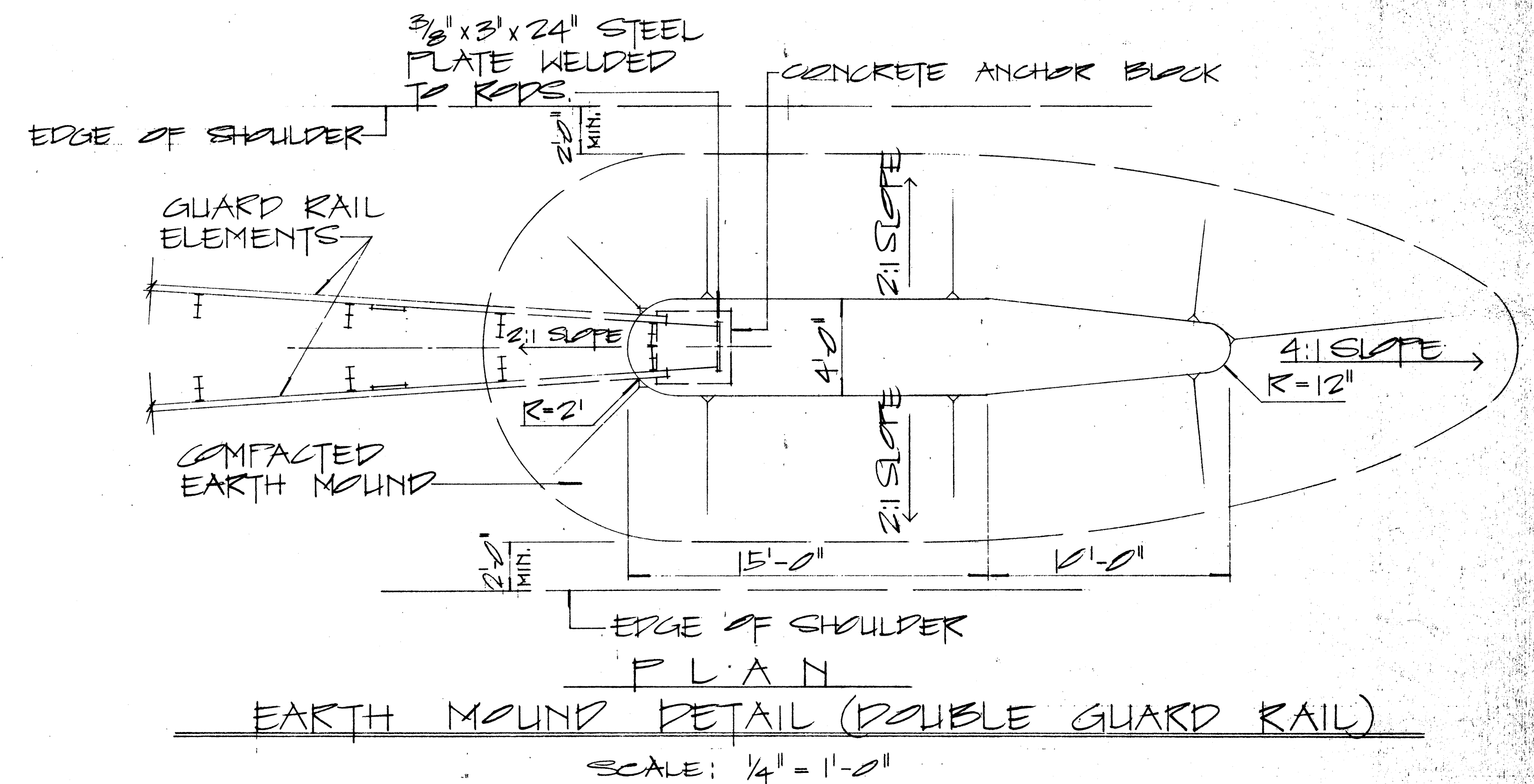
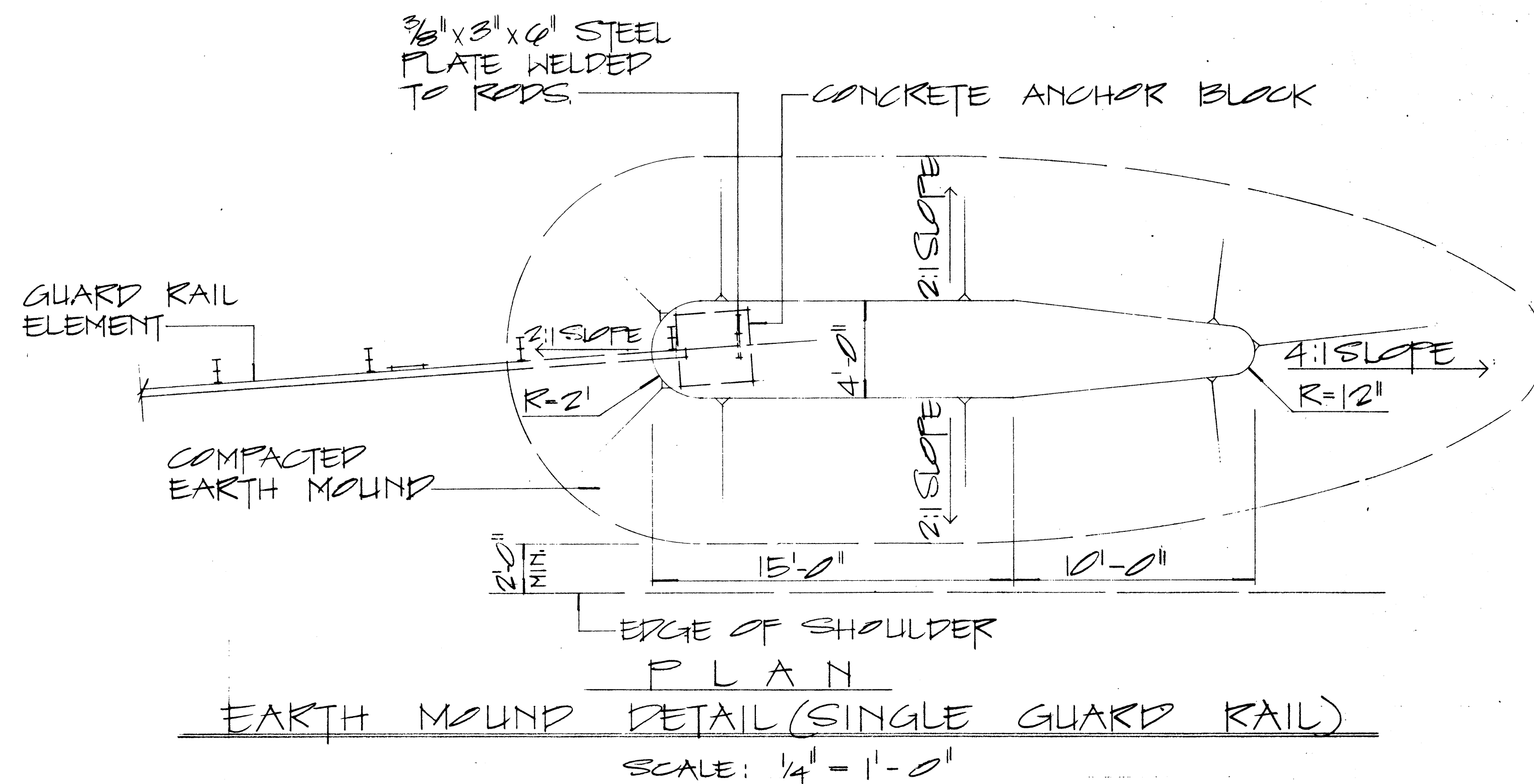
GUARD RAIL, TYPE 3
RAMP END ANCHORAGE

SCALE: AS SHOWN

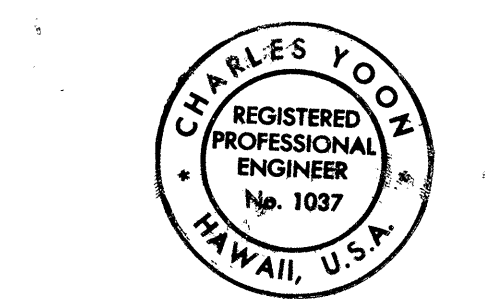
SHEET No. 6 OF 9 SHEETS DT519

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	89A-11-71 89H-01-71	1972	14	16



- 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 ANCHOR BLOCK PAY ITEM INCLUDES: CONCRETE, GRP, EXCAVATION, EARTH MOUND, ANCHOR RODS AND MISCELLANEOUS APPURTENANCES NECESSARY TO ANCHOR THE GUARD RAIL ENDS.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Charles Yoon

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

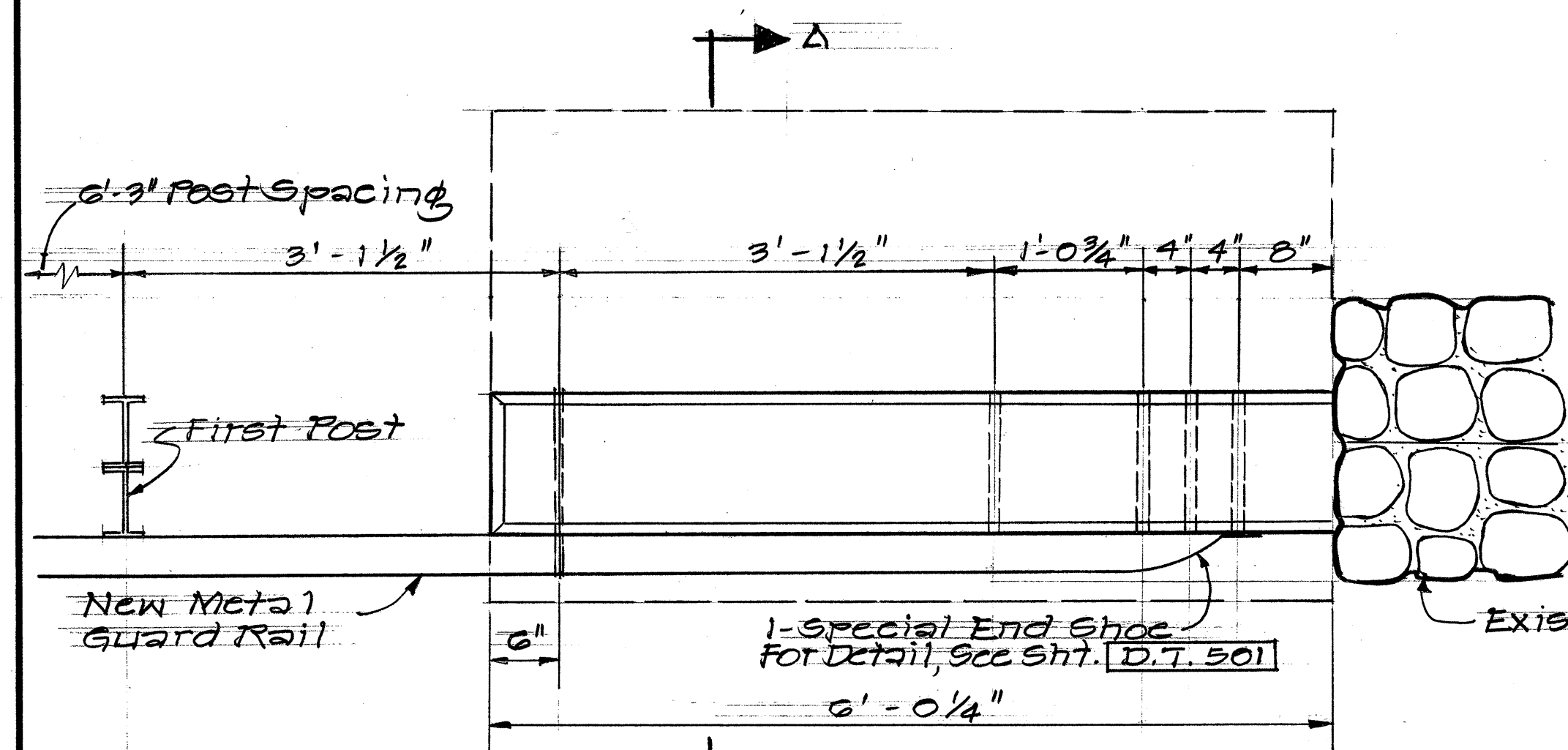
TYPICAL DETAILS

EARTH MOUND AND ANCHOR BLOCK DETAILS

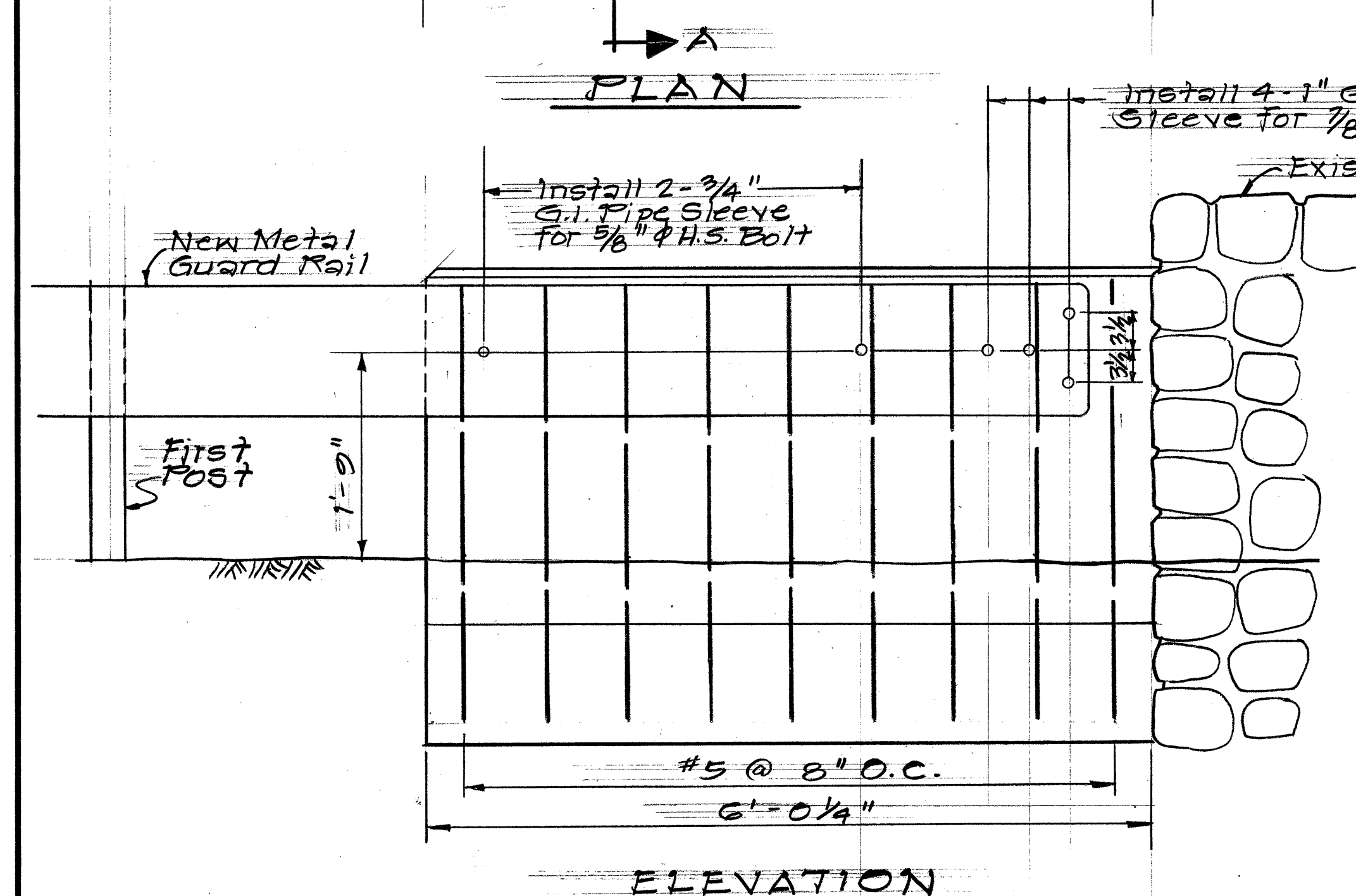
SCALE: AS SHOWN

SHEET No. 7 OF 9 SHEETS PT 520

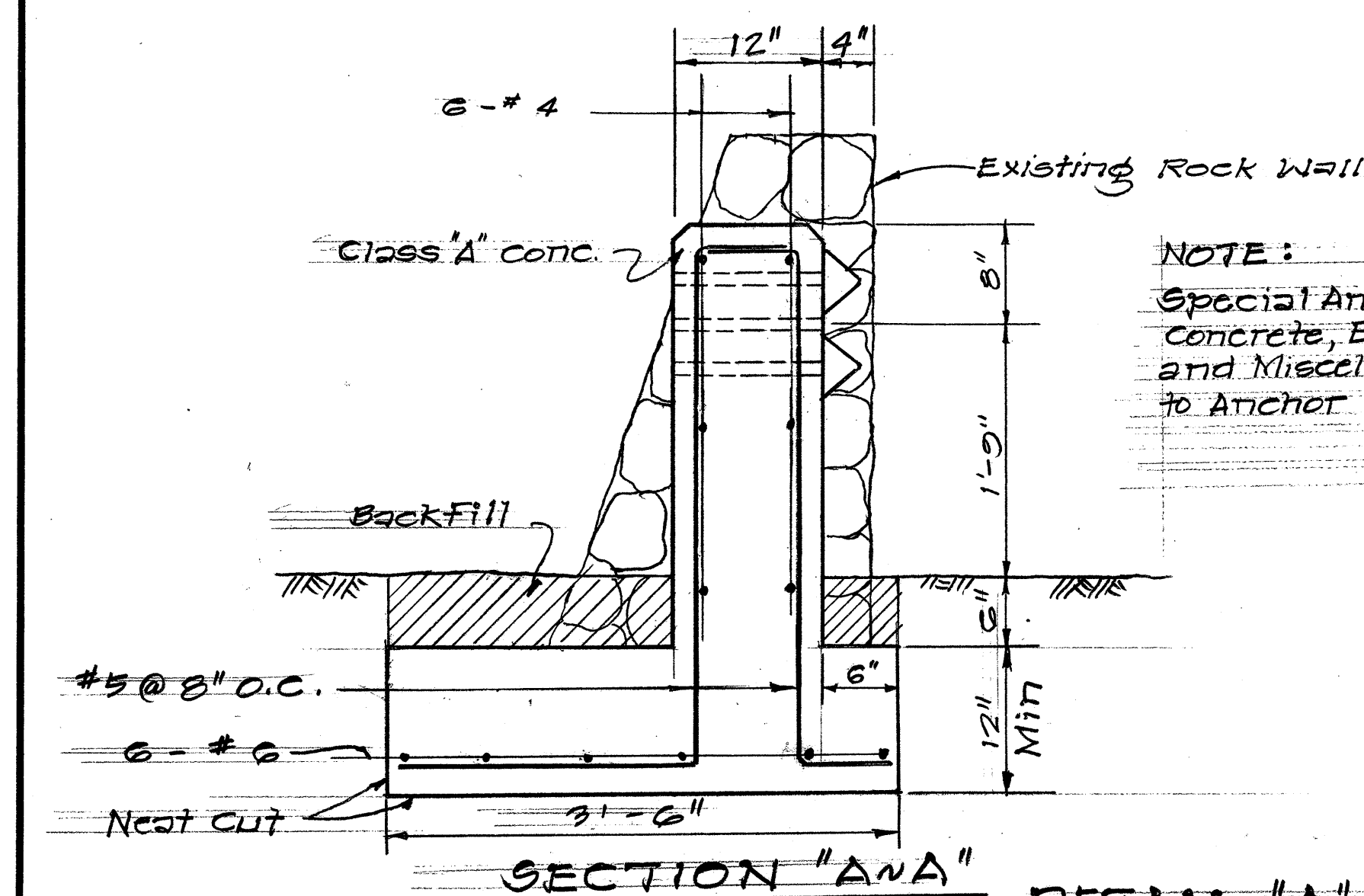
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	63A-11-71 83H-01-71	1972	15	16



PLAN

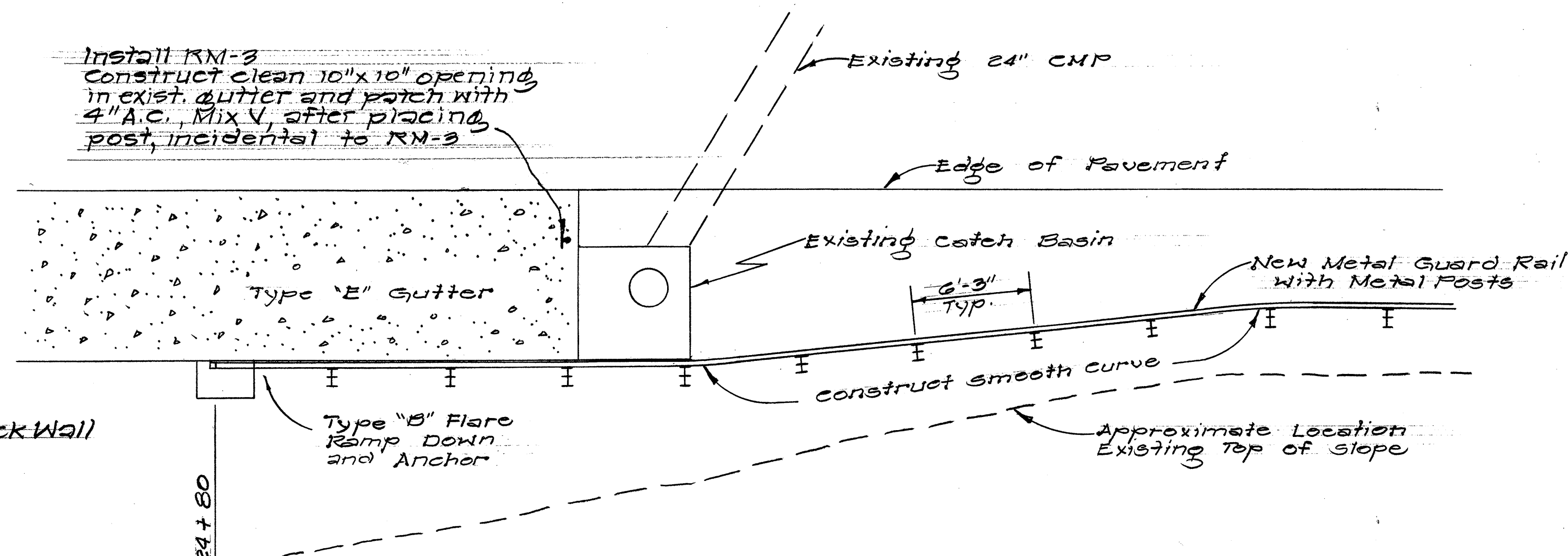


ELEVATION

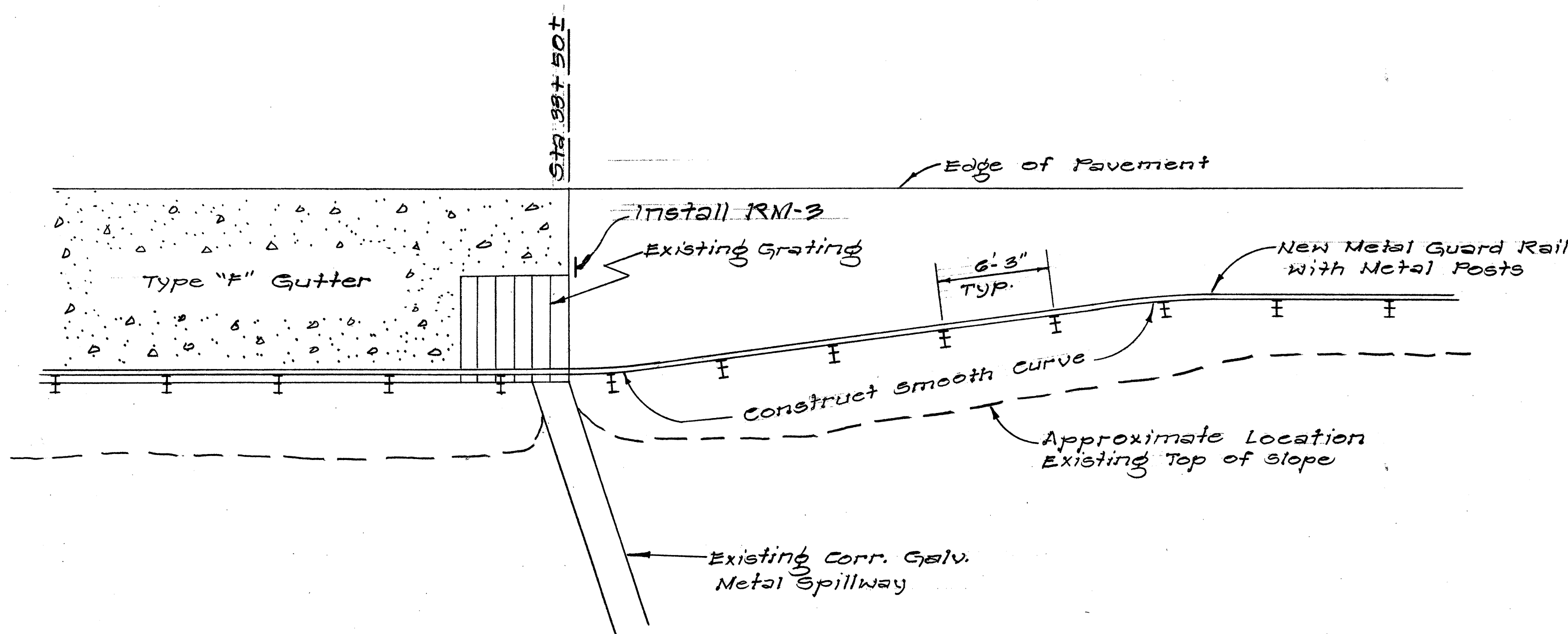


SECTION "A-A"

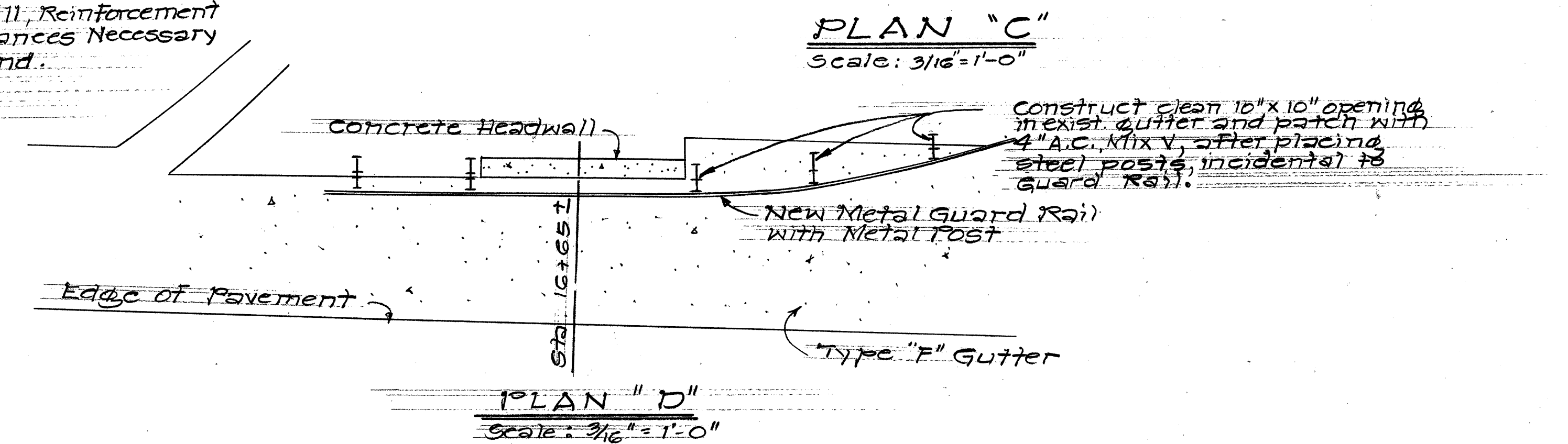
DETAIL "A"
Scale: 1" = 1'-0"



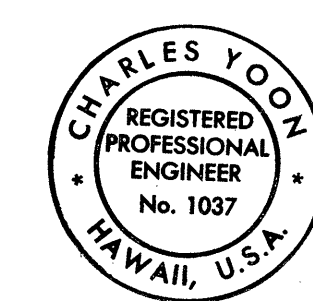
PLAN "B"
Scale: 3/16" = 1'-0"



PLAN "C"
Scale: 3/16" = 1'-0"



PLAN "D"
Scale: 3/16" = 1'-0"



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION
Charles Yoon

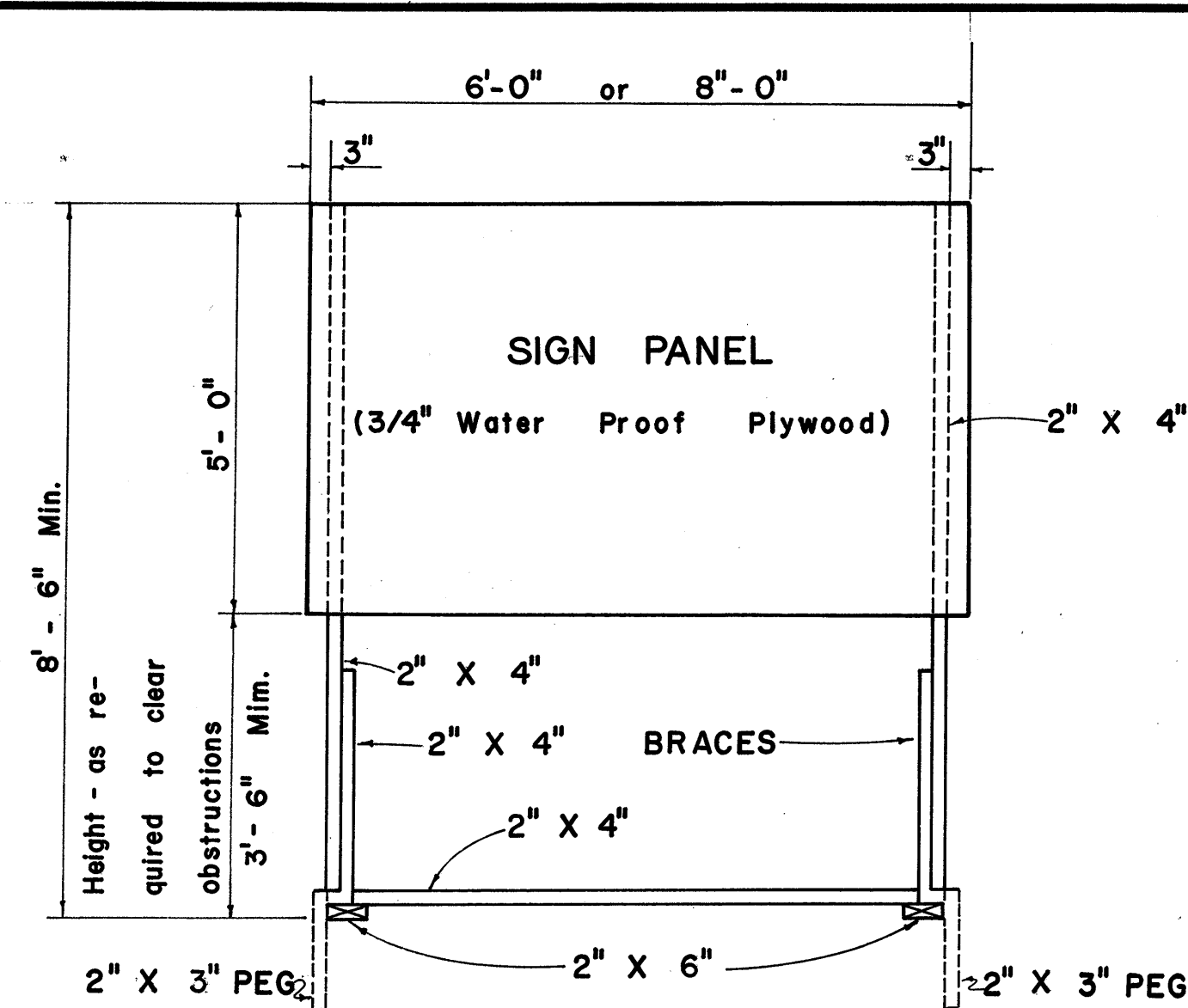
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS

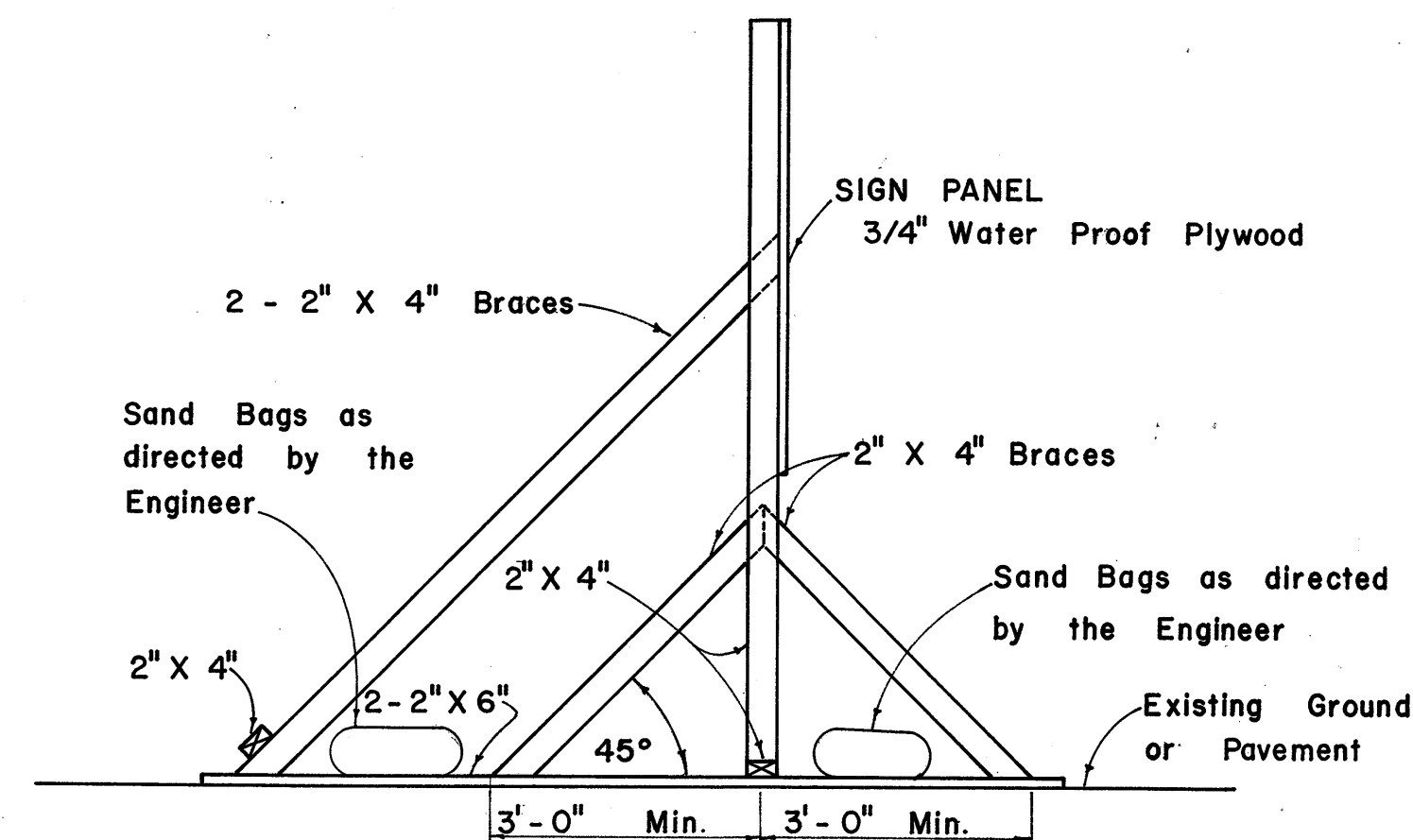
- DETAIL "A"
- PLAN "B"
- PLAN "C"
- PLAN "D"

SCALE AS SHOWN
SHEET NO. 8 OF 9 SHEETS

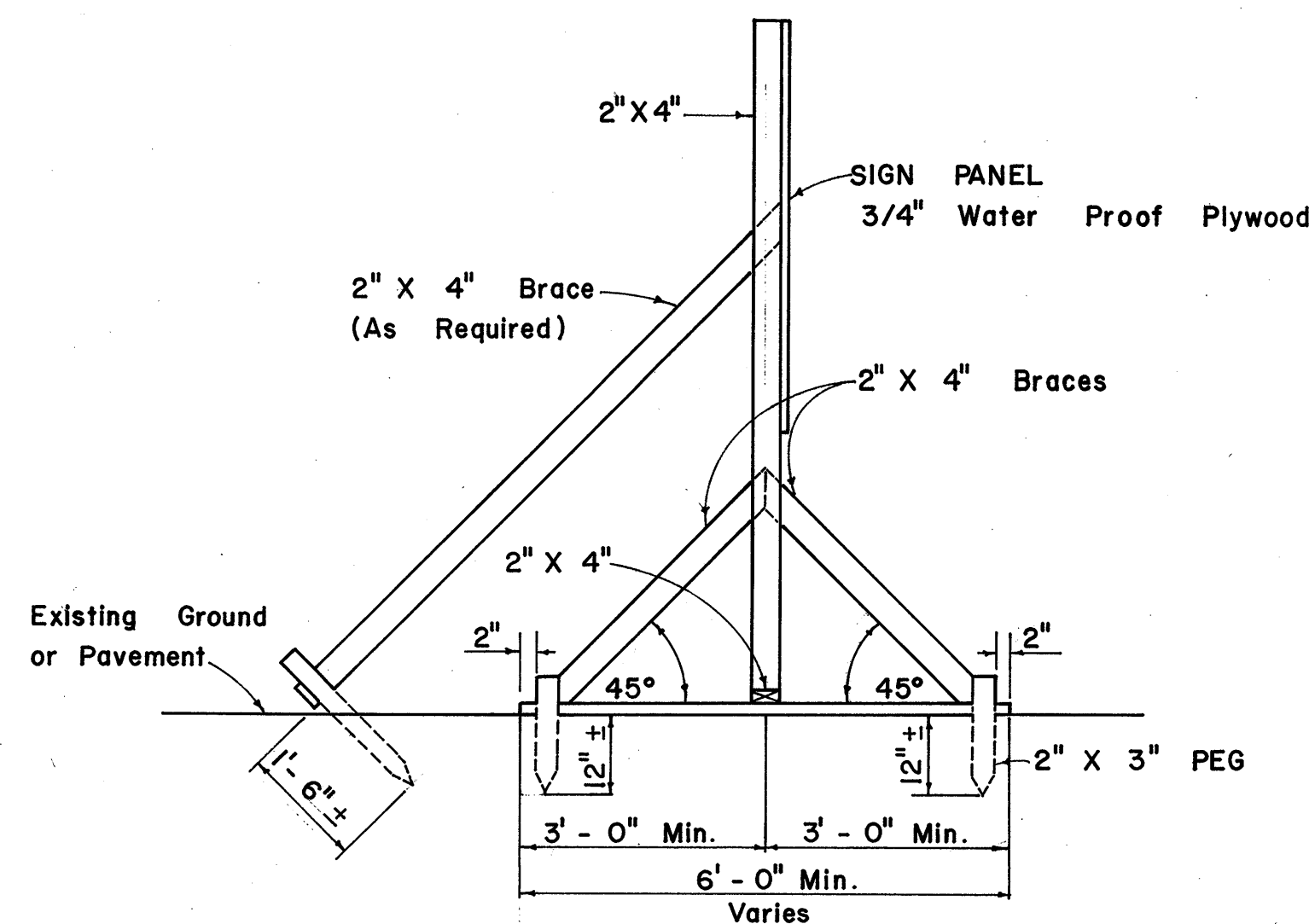
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	63A-11-7.1 63H-01-7.1	1972	16	16



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

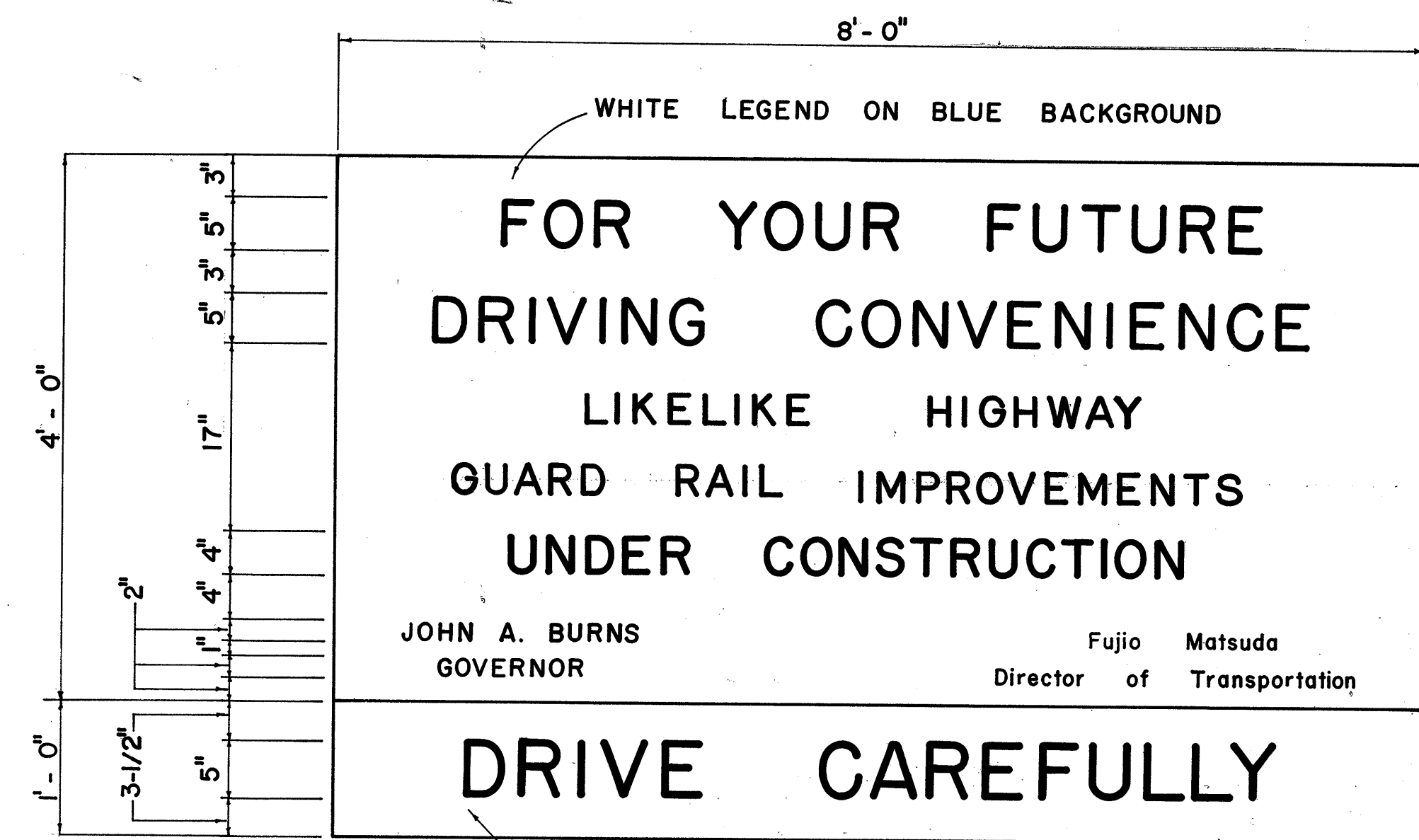


SIDE VIEW
(SIGN SUPPORT AND FRAME WEIGHTED DOWN)
SCALE: 1/2" = 1' - 0"



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

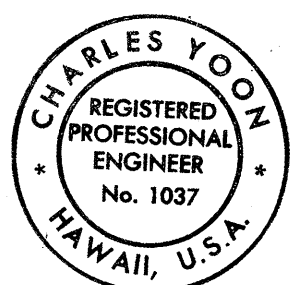
SIGN SUPPORT AND FRAME
SCALE AS SHOWN



WHITE LEGEND ON BLUE BACKGROUND
BLACK LEGEND ON YELLOW BACKGROUND
USE SERIES "D" LETTERS

GENERAL NOTES

- 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.
- 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.
- 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.



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION

Charles Yoon

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS

PROJECT INFORMATION SIGN

SCALE AS SHOWN

SHEET No. 9 OF 9 SHEETS