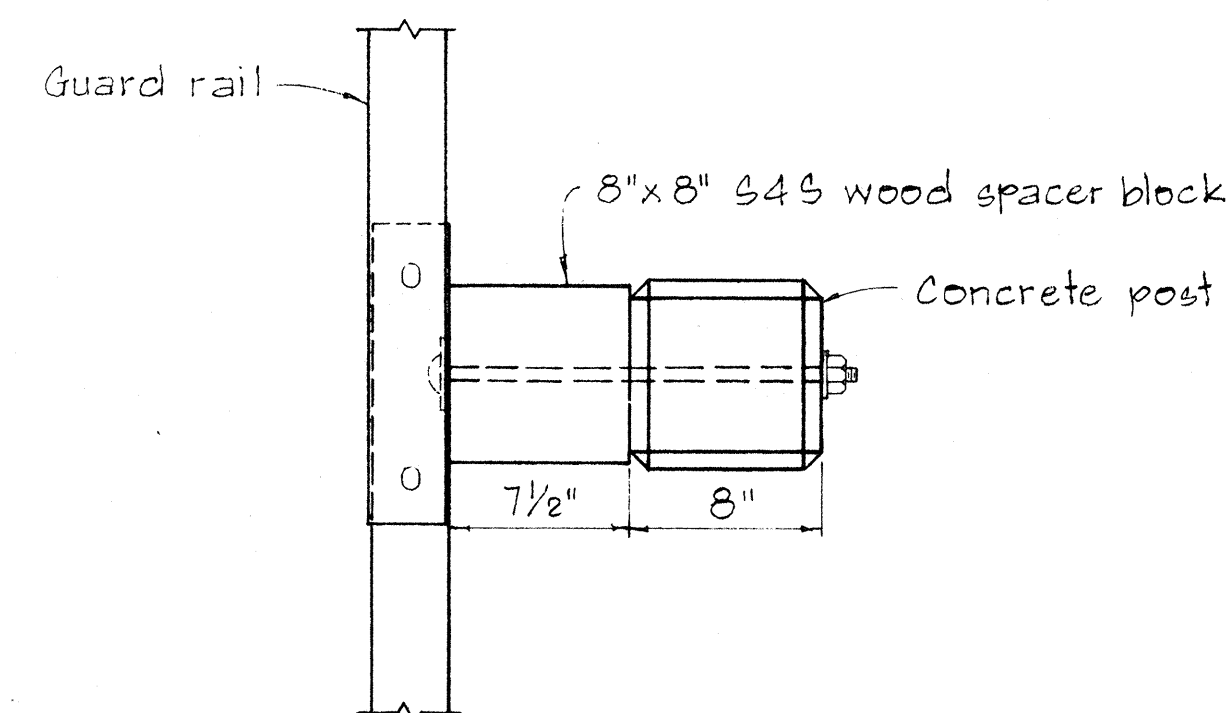
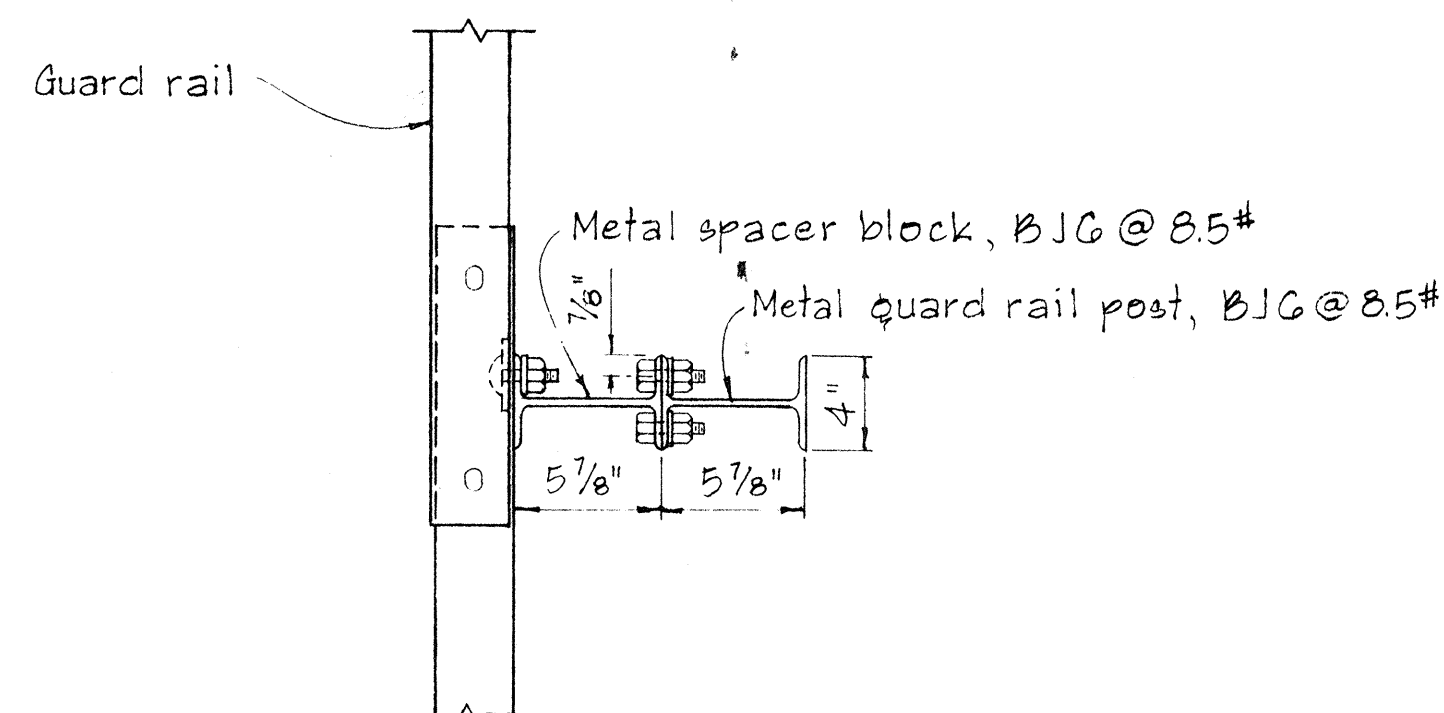


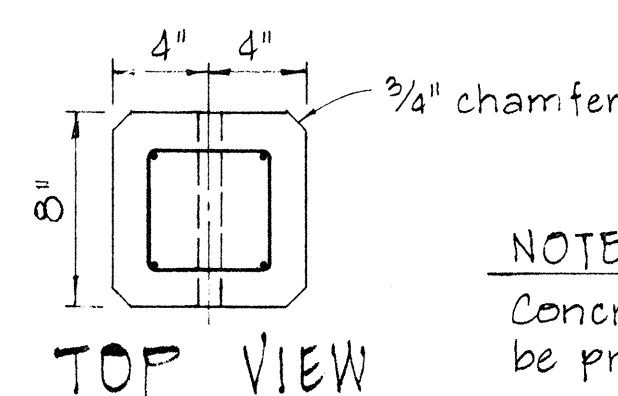
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	R0505D112	1977	9	15



PLAN

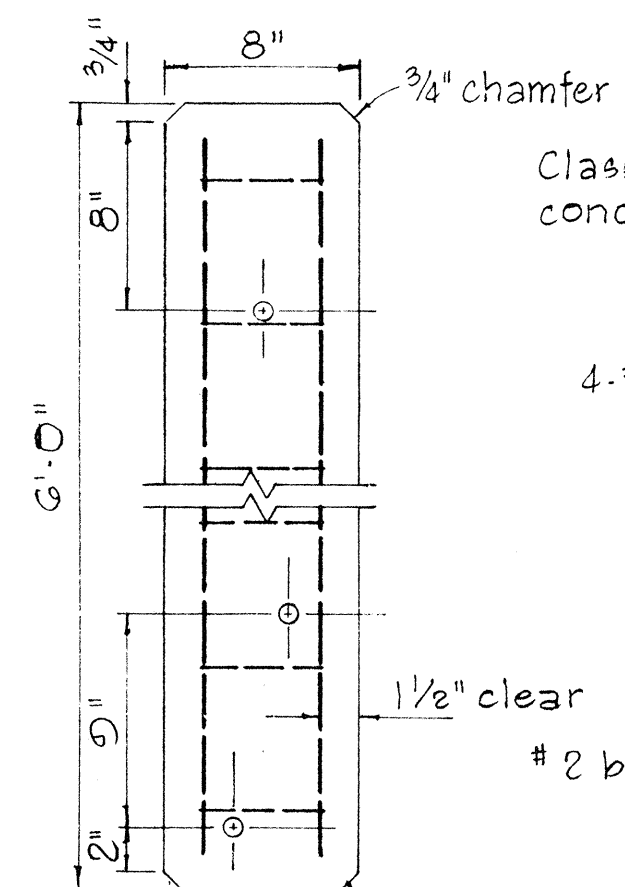


PLAN

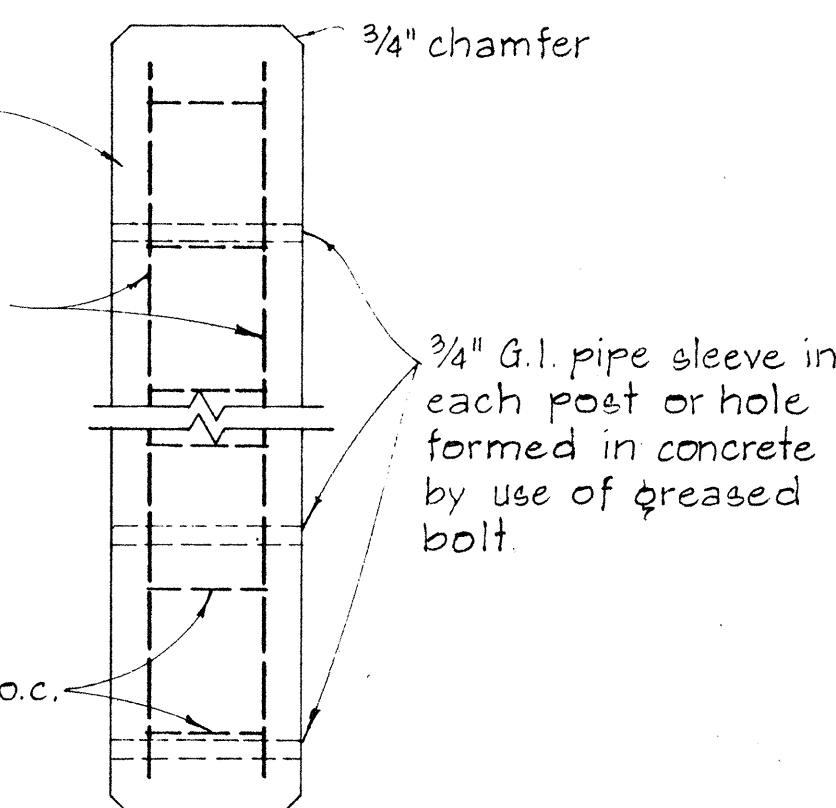


TOP VIEW

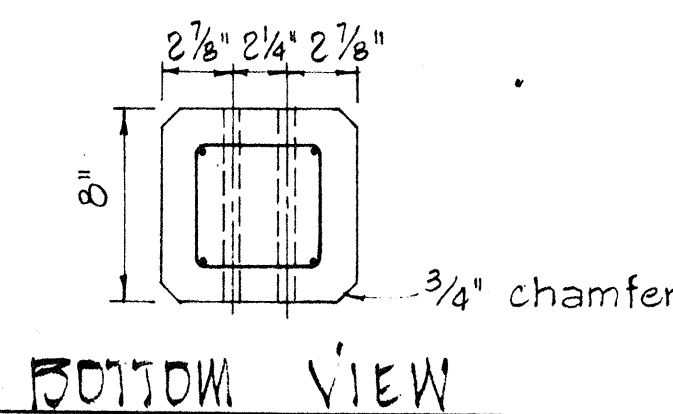
NOTE:
Concrete post shall be precast



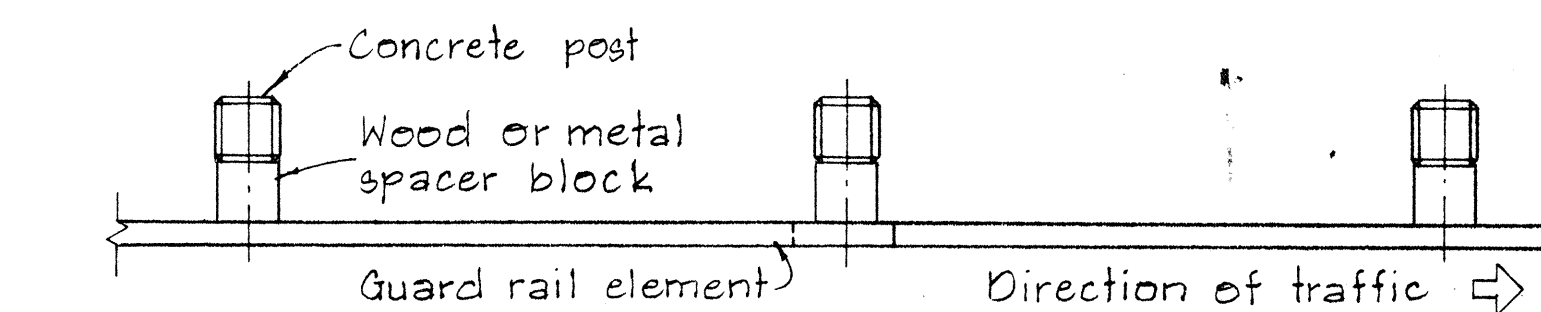
FRONT VIEW



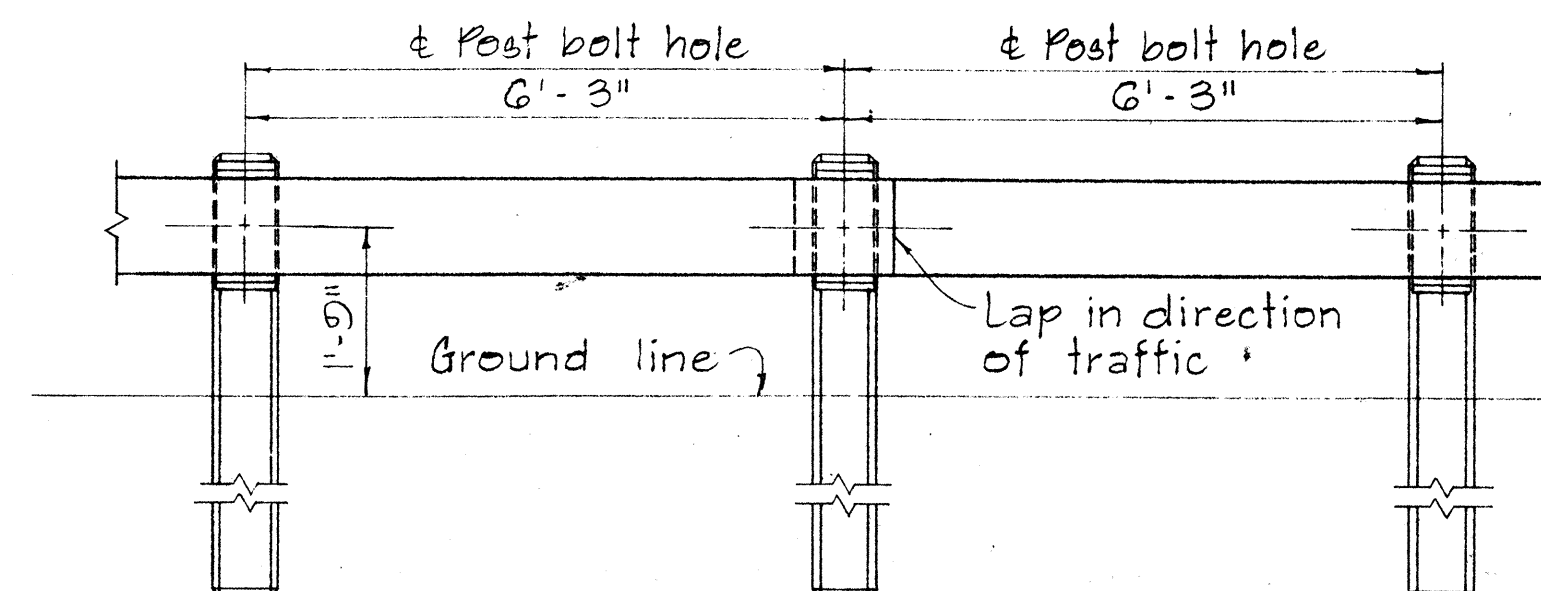
SIDE VIEW



BOTTOM VIEW



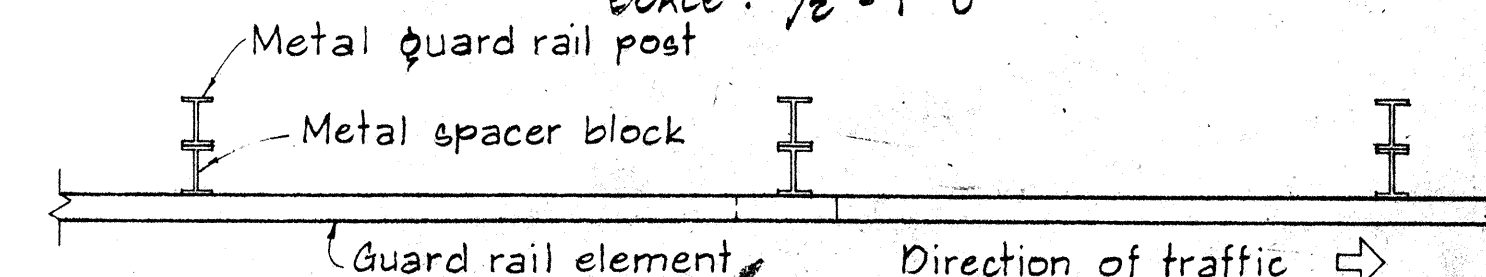
PLAN



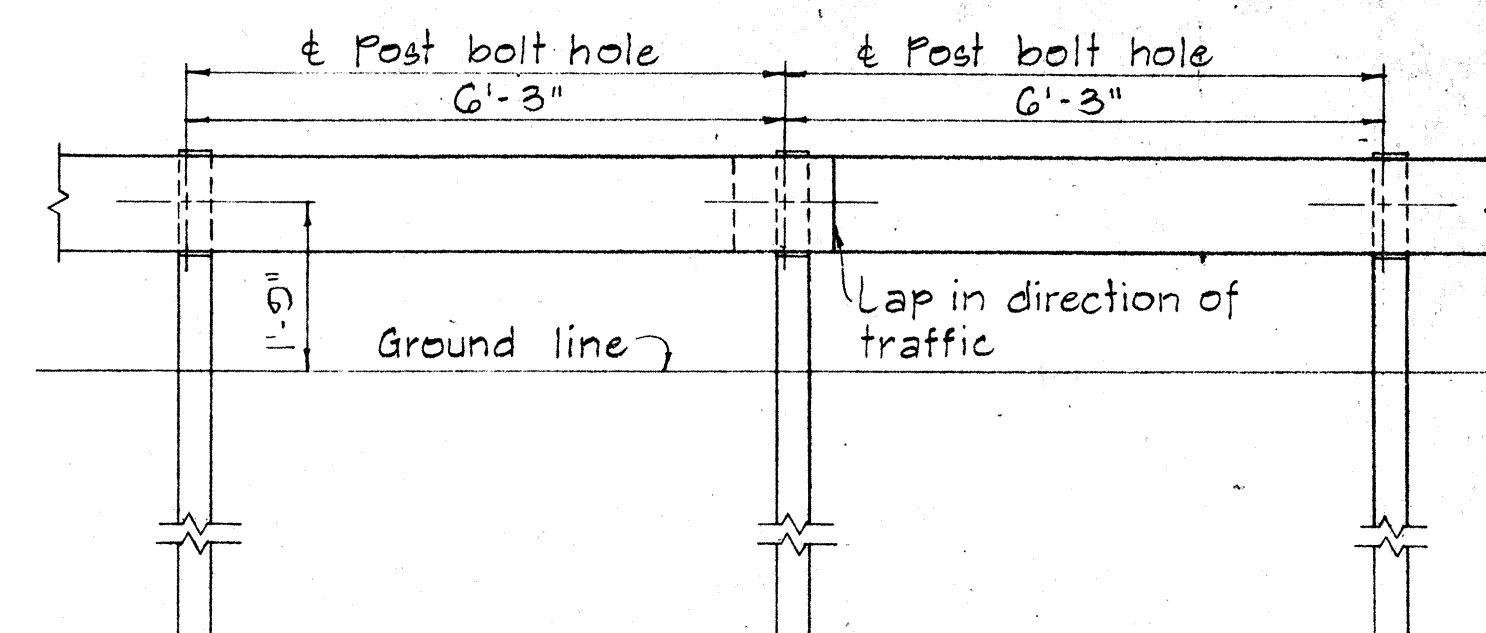
ELEVATION

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

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



PLAN



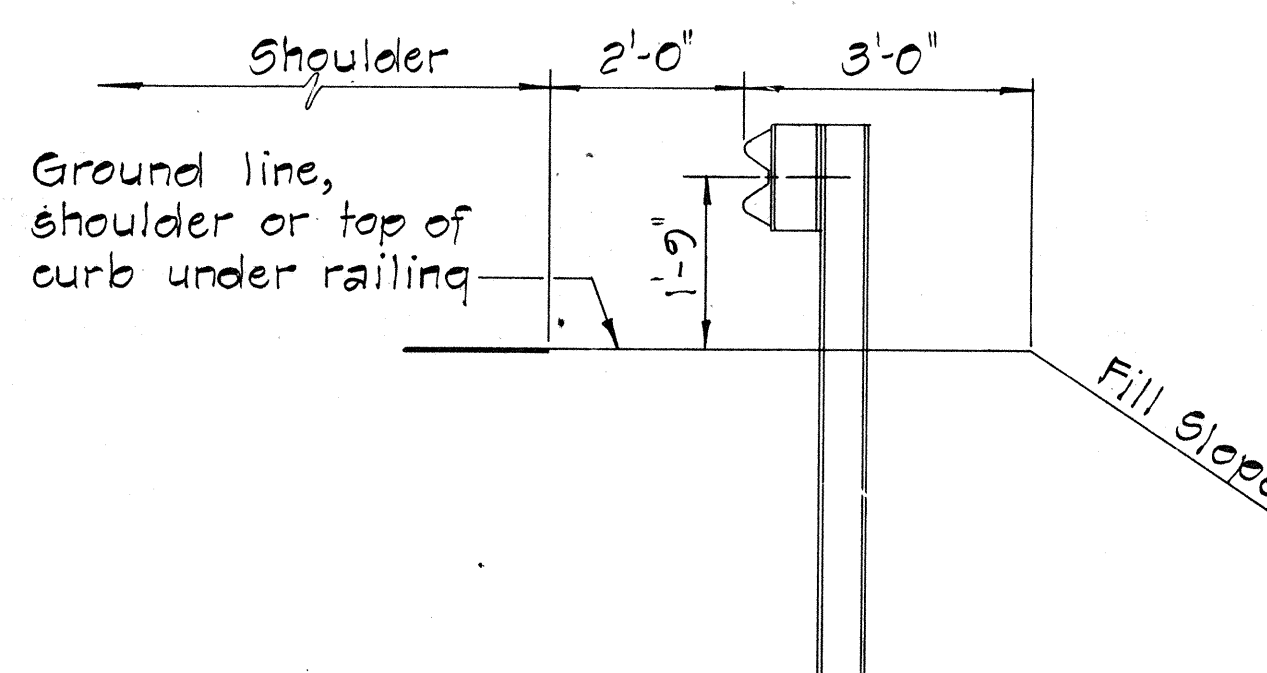
ELEVATION

METAL GUARD RAIL ON METAL POST
WITH METAL SPACER BLOCK

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

SINGLE METAL GUARD RAIL ON METAL POST
WITH METAL SPACER BLOCK

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

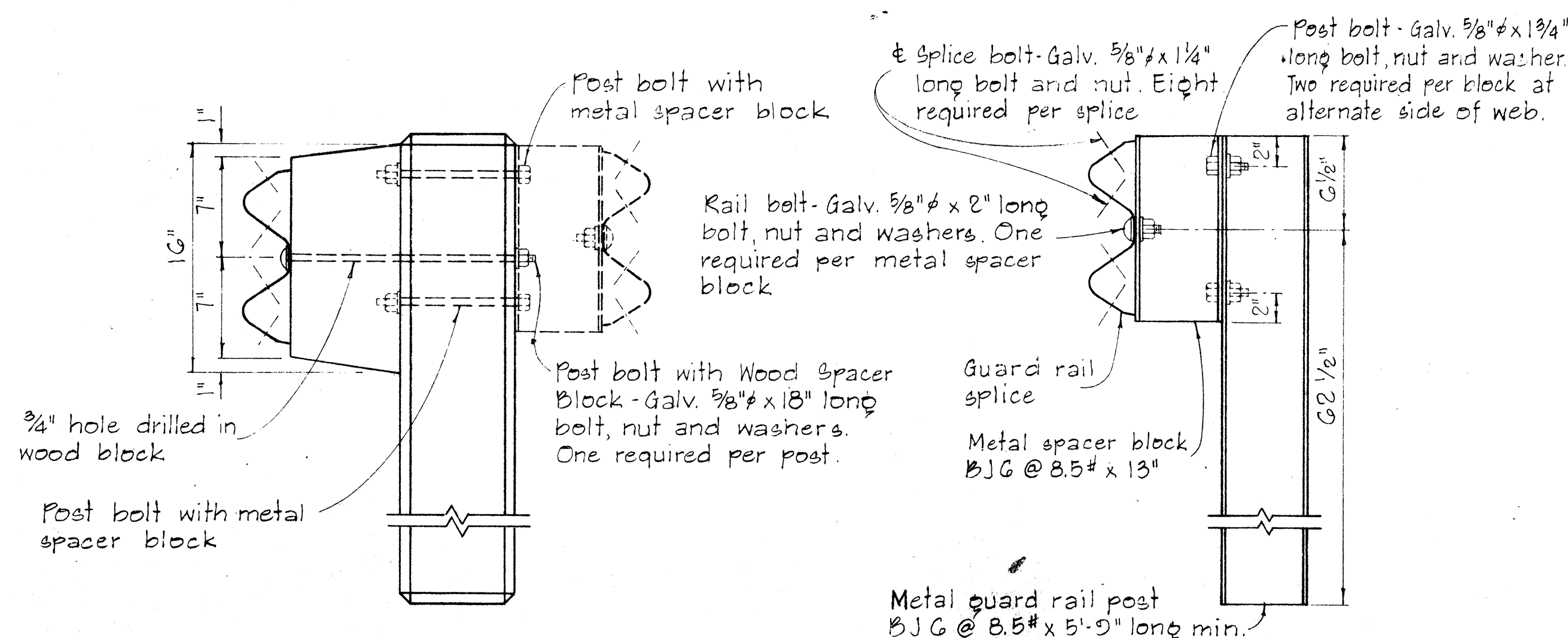


AT SHOULDER SECTION

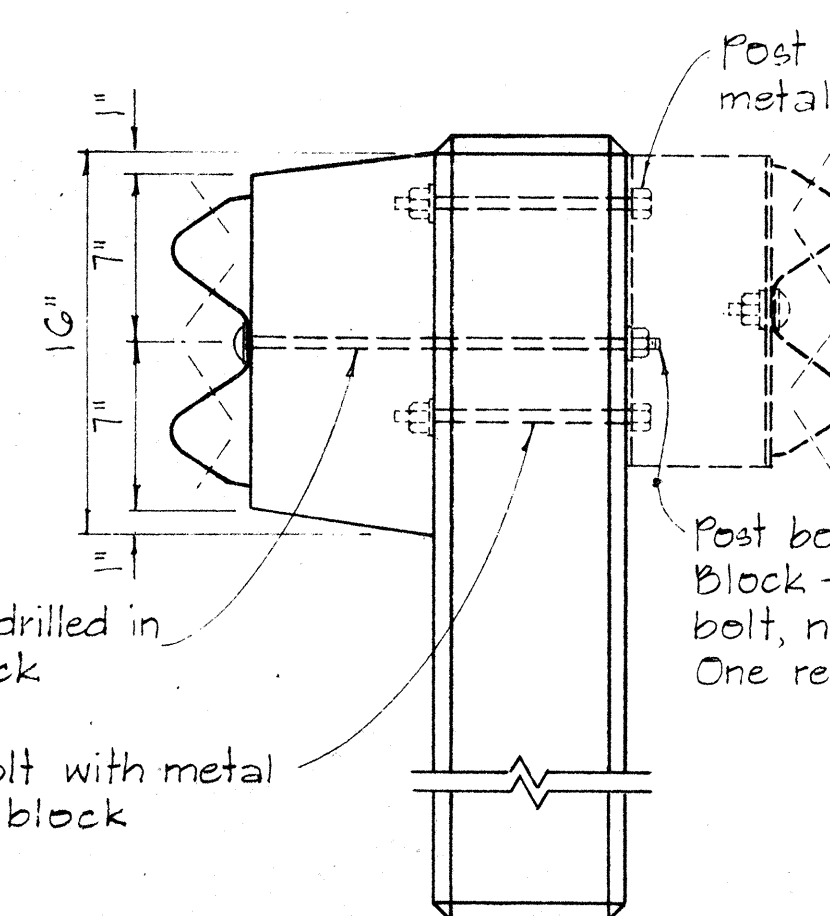
TYPICAL METAL GUARD
RAIL DETAIL

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

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



3/4" hole drilled in
wood block



PLAN

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

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

DATE	DESIGNED BY	CHECKED BY
12/29/67	TRACED BY	QUANTITIES BY
12/29/67	NOTED BY	CHANGED BY
12/29/67	12/29/67	12/29/67

APPROVAL RECOMMENDED:
Traffic Engineer

12/29/67
DATE

APPROVED:
Assistant Chief, Engineering

12-30-69
DATE

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. 1 OF 7 SHEETS DT 500

Technical drawing of a guard rail connection detail, showing a cross-section of a guard rail post and its connection to a base. The drawing includes dimensions and notes.

Notes:

- *Notes for 7/8" ϕ $\times$ 7 1/4" Anchor Bolts
- 4" 4" 2"
- 3" $\pm$
- 6"
- ION
- TAILS
- *500
- *1018 cont. both faces
- Varies: 3/8" @ P.C. to 0" @ end of guard rail slot
- 3/4" chamfer
- 21" cl
- 6 1/8" 6 1/8"
- 1" cl
- 1'-2 1/4" slot
- 3/4" chamfer
- See Note 7
- 1/4" cl
- 8"
- 9"
- Ref. Fin. Grade Line
- ION (B)
- 1 1/2" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

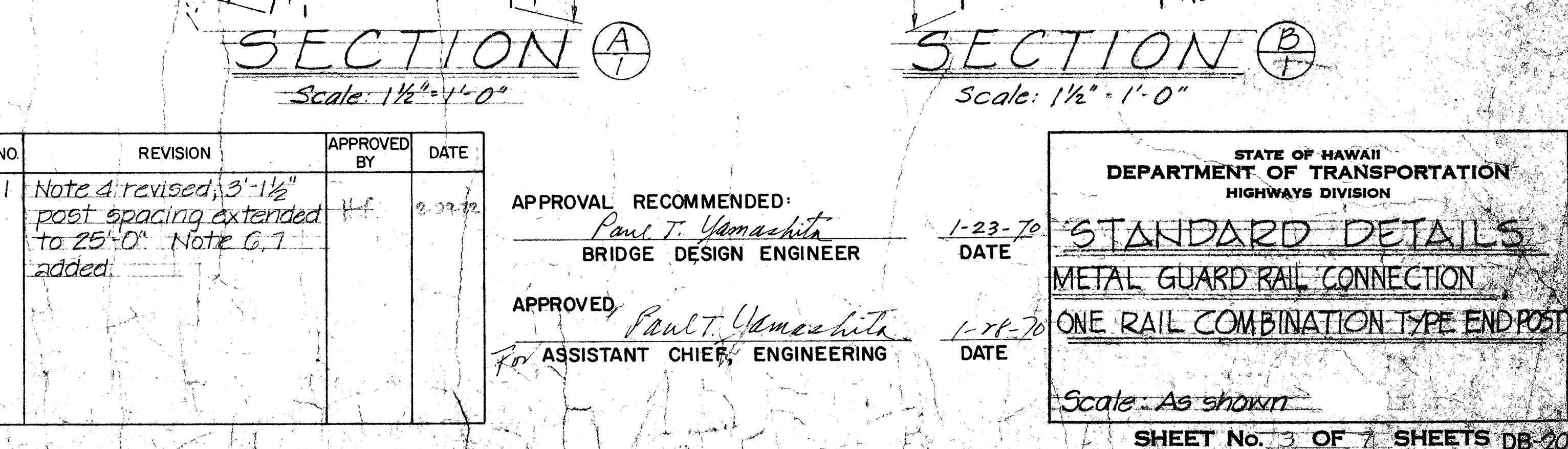
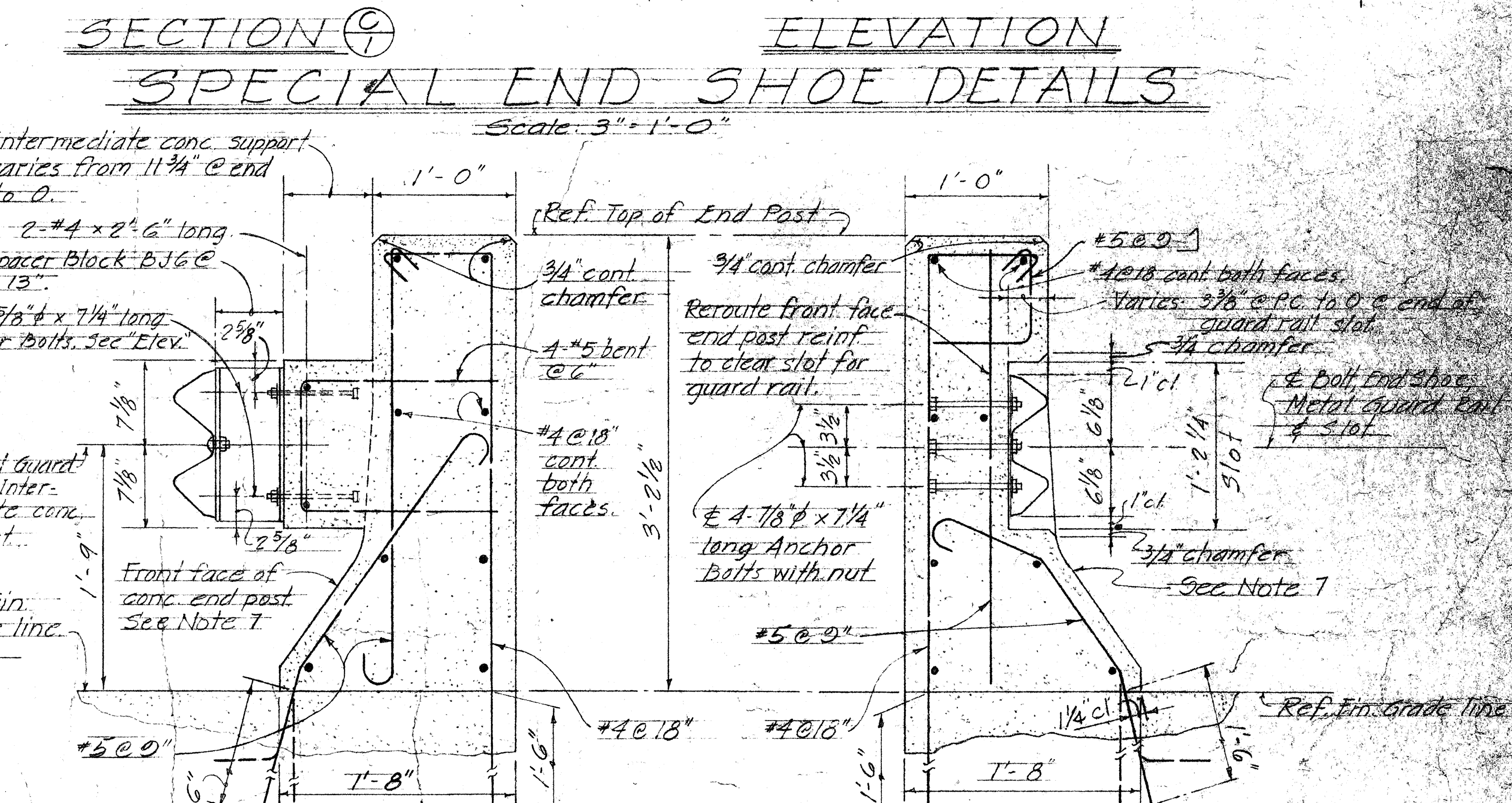
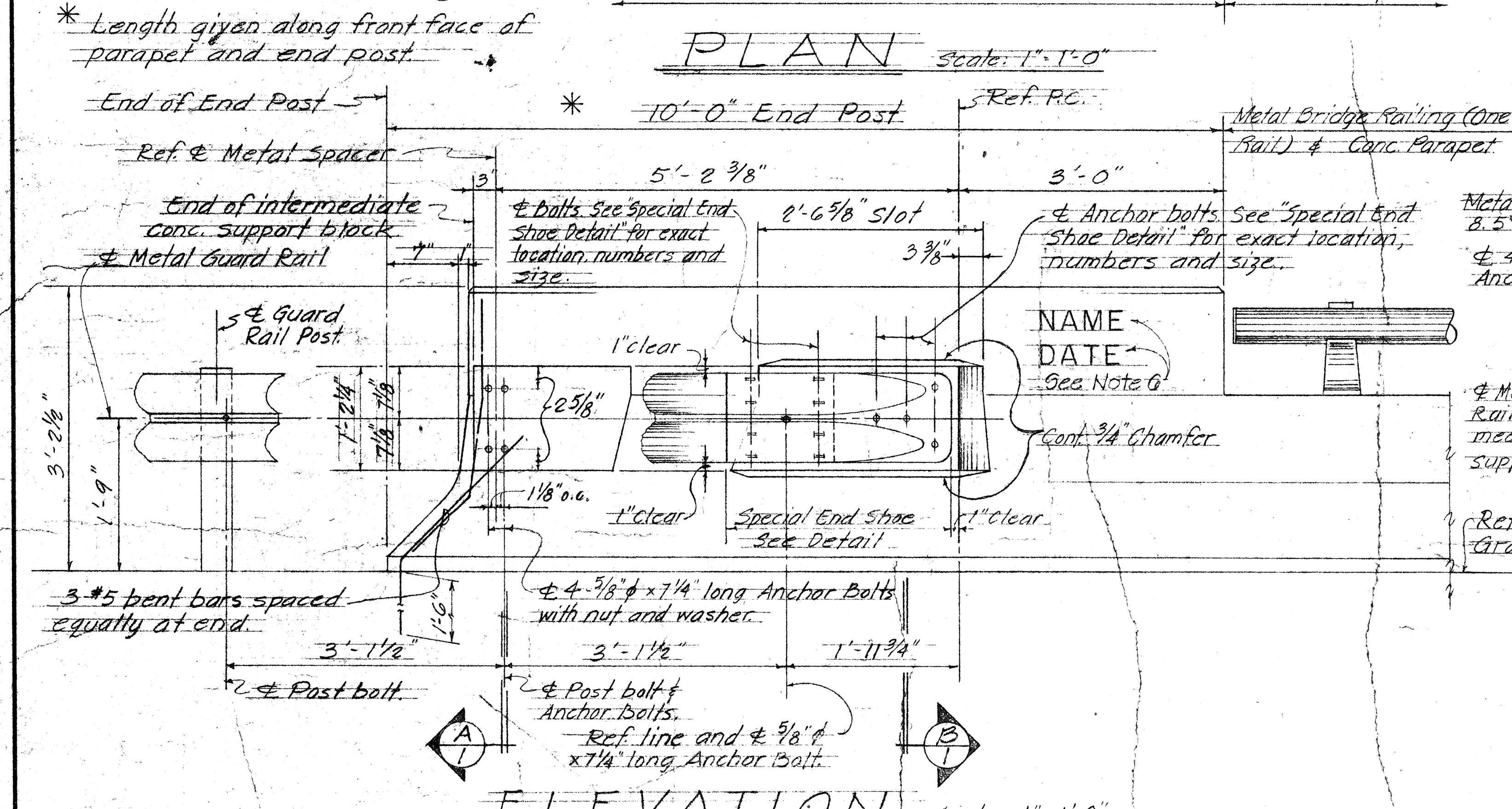
STANDARD DETAILS

METAL GUARD RAIL CONNECTION

ONE RAIL COMBINATION TYPE ENDPOST

Scale: As shown

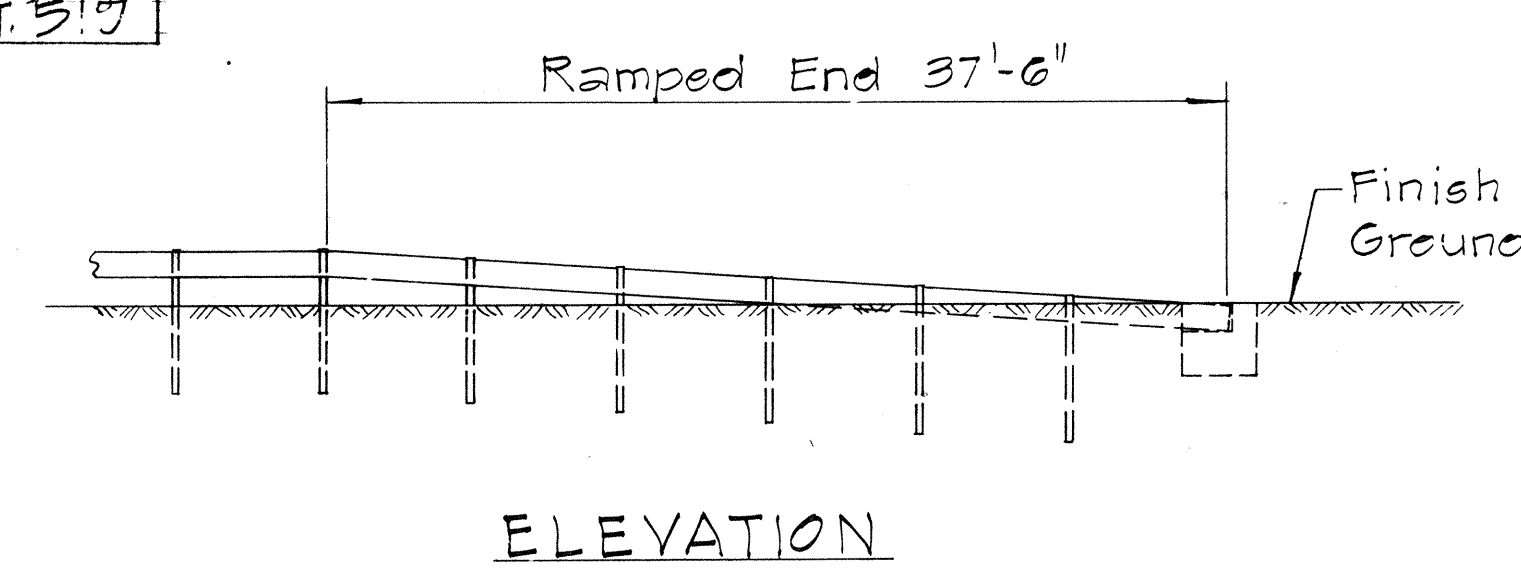
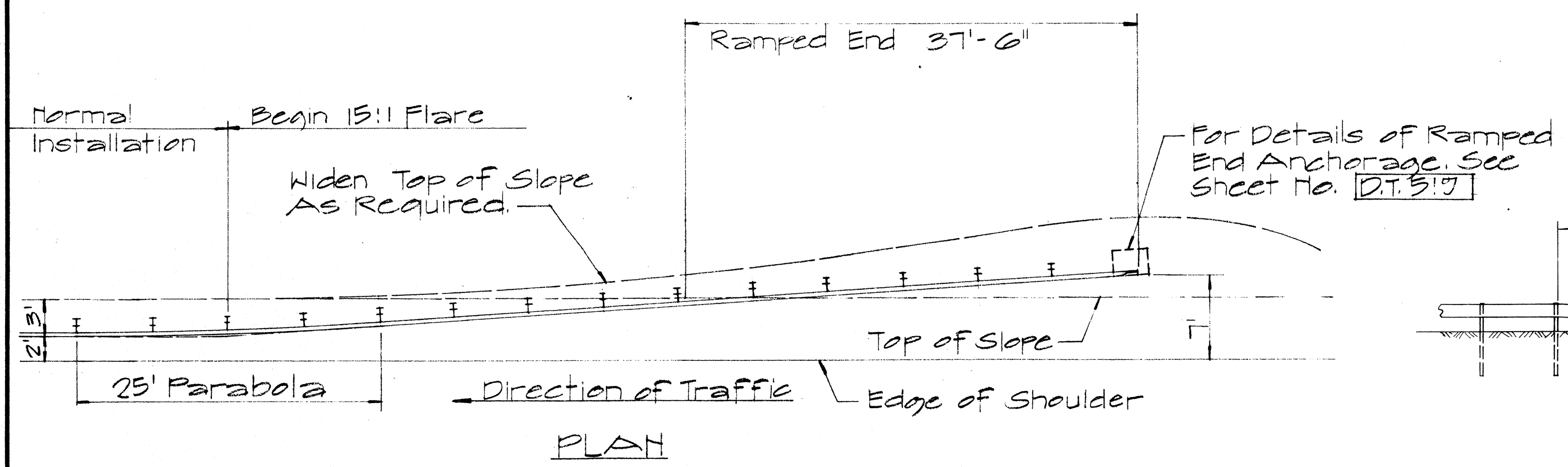
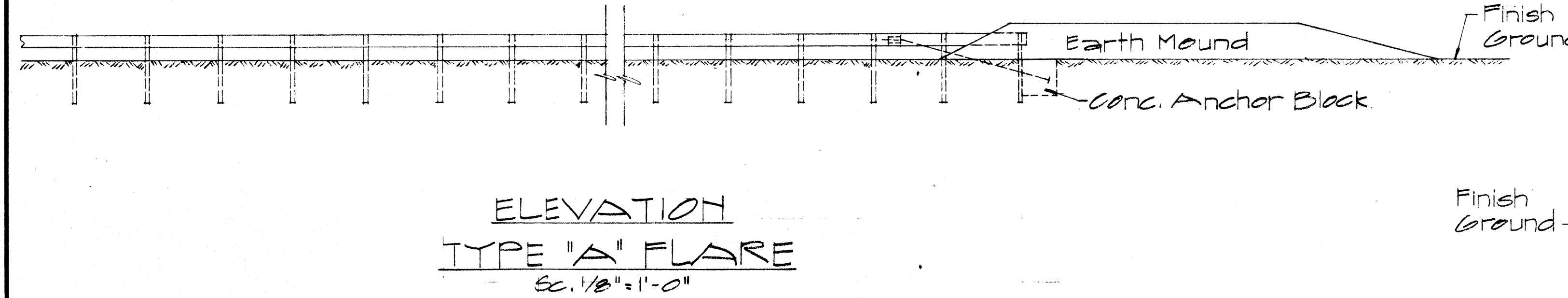
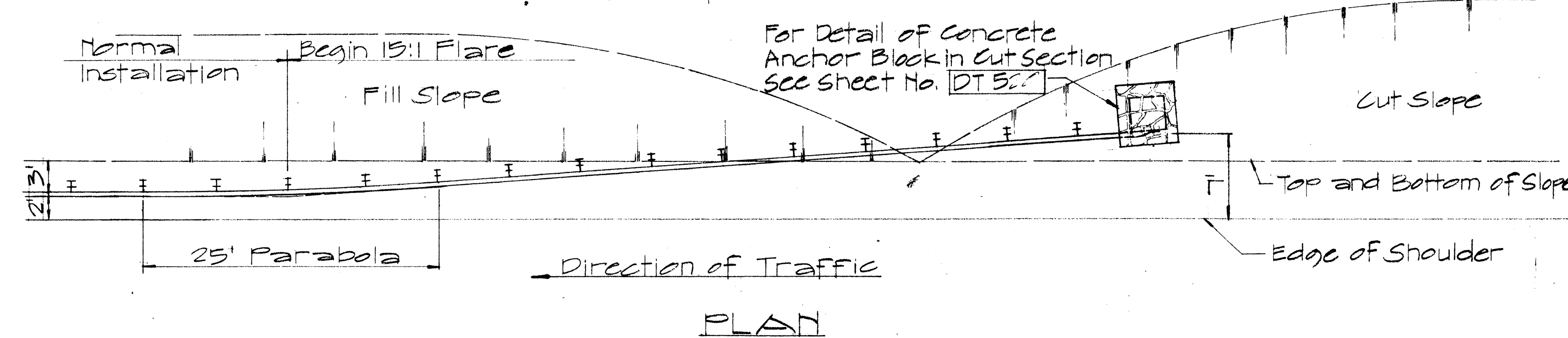
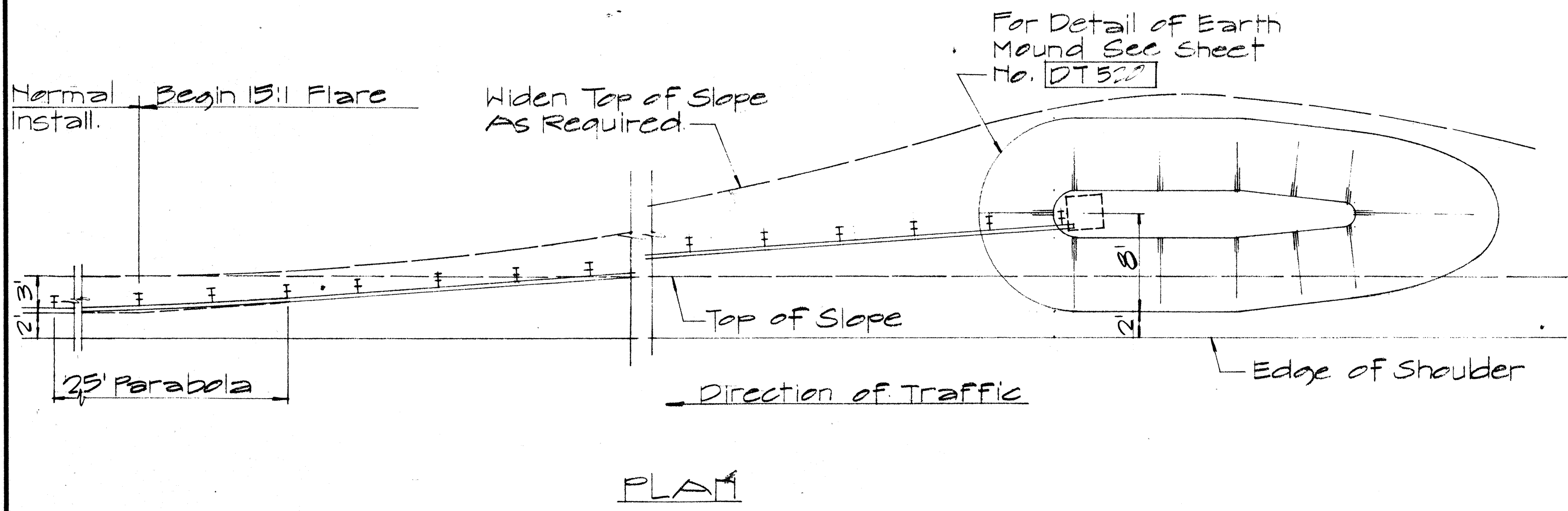
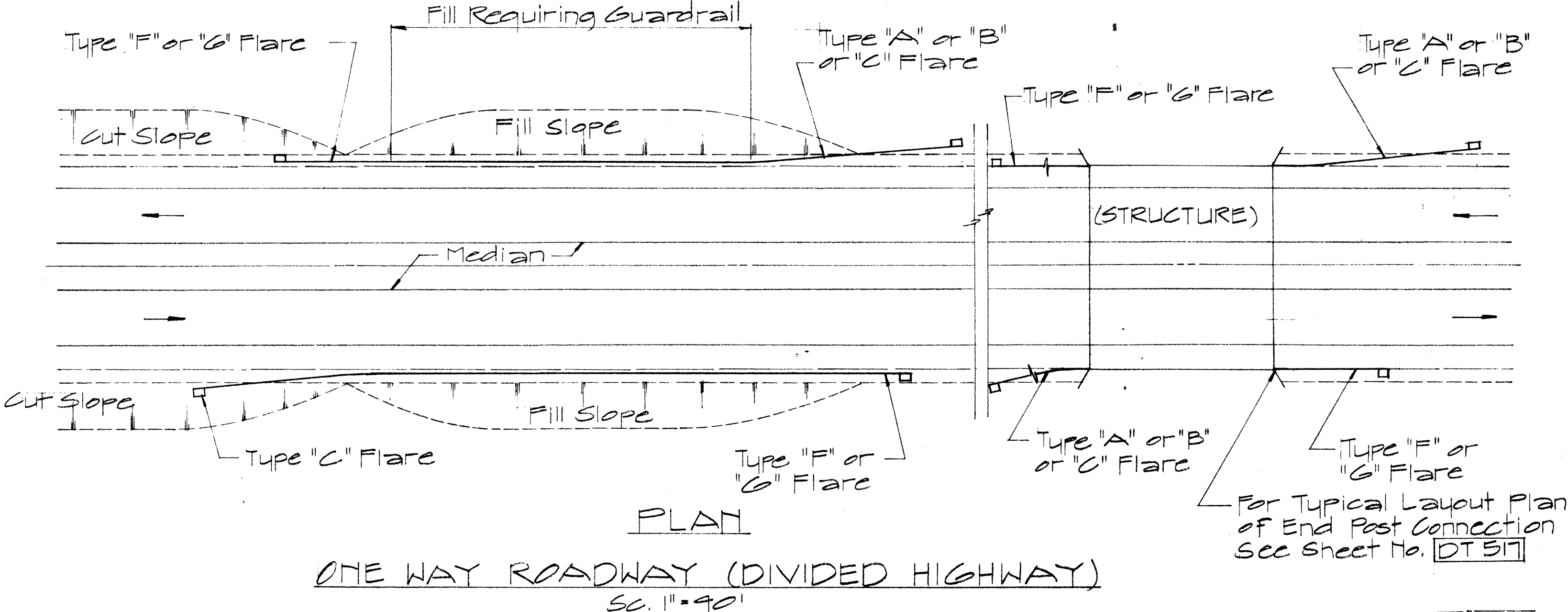
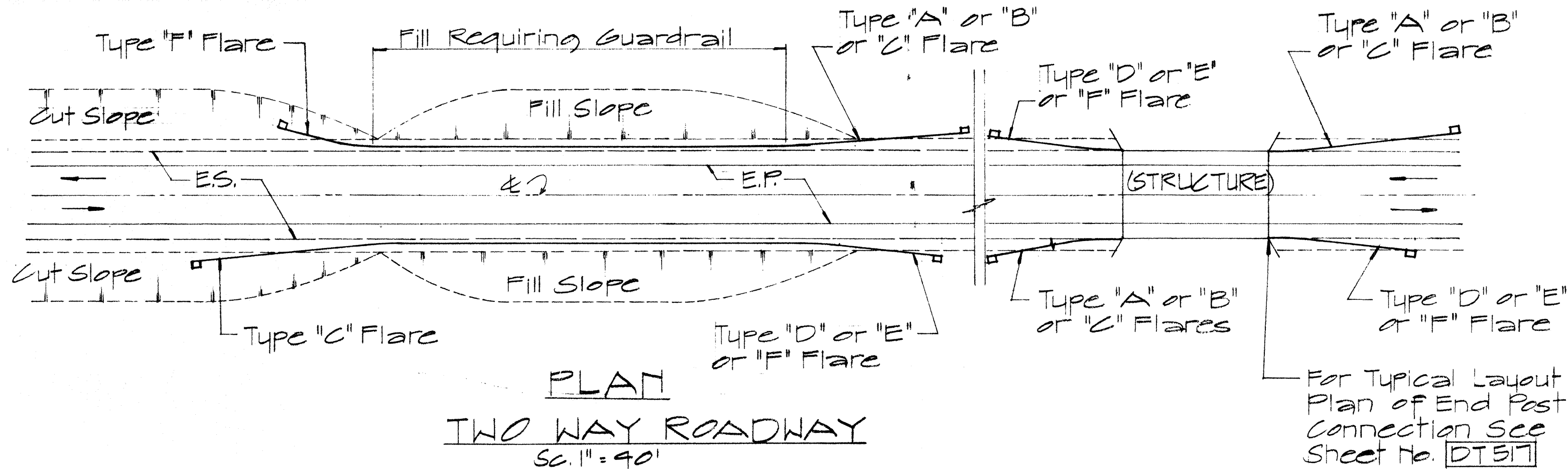
SHEET No. 3 OF 7 SHEETS DB-20



CRYSTALINE® LA 2920
TRACER PAPER

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ROS-050-12	1977	18	15

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



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

NO.	REVISION	APPROVED BY	DATE

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

APPROVED:
W. B. Del 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

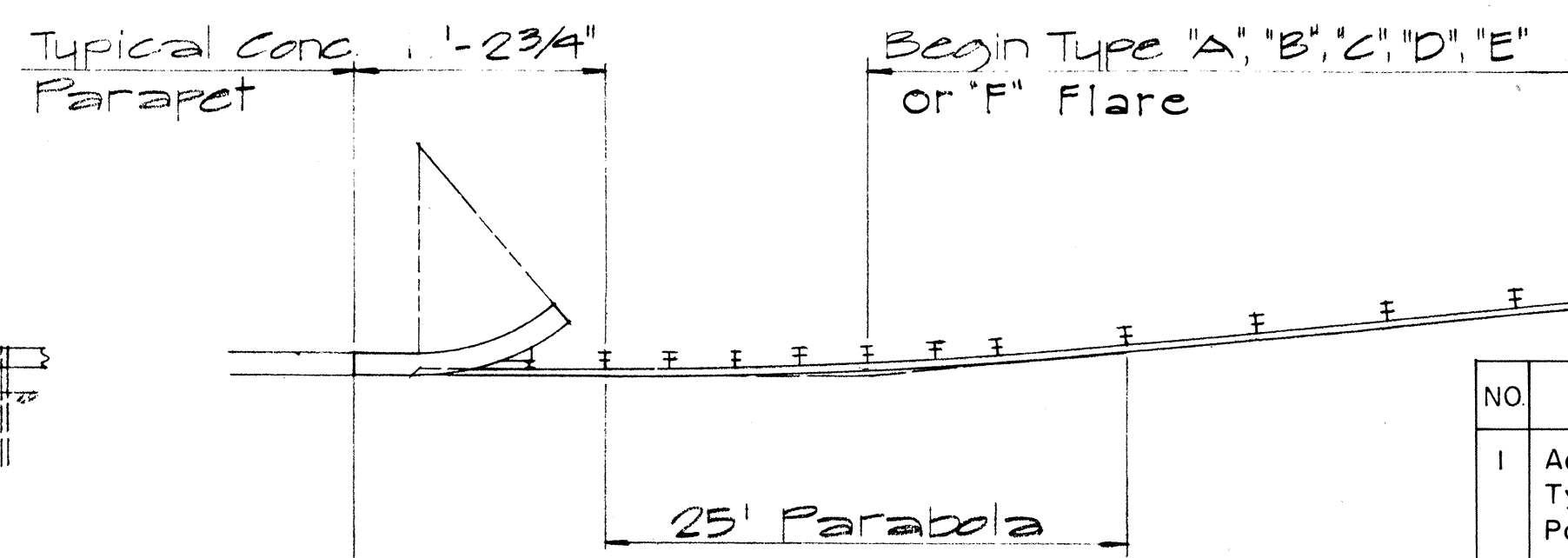
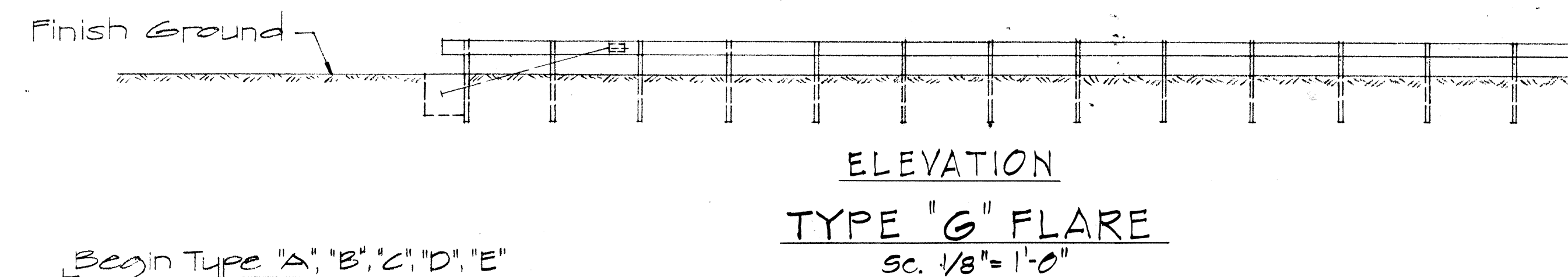
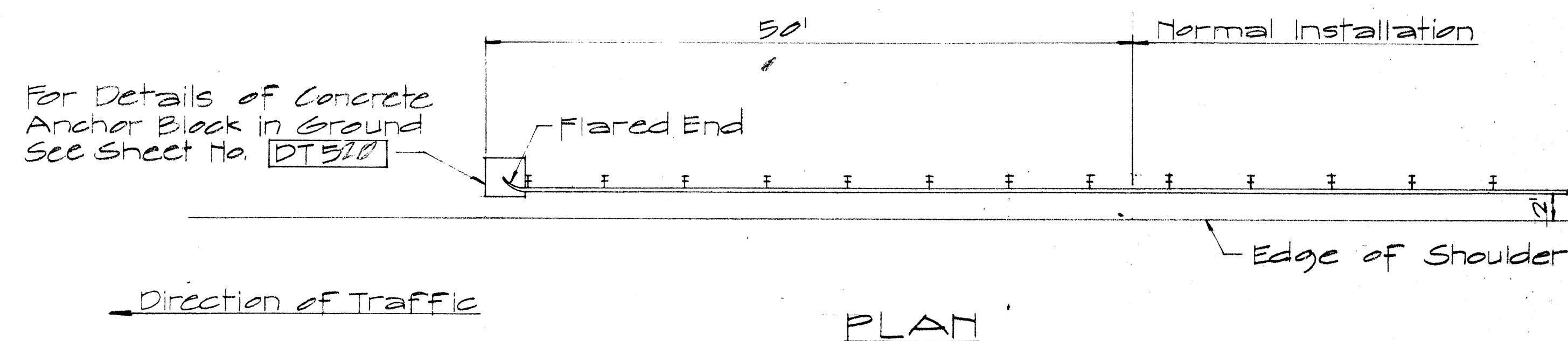
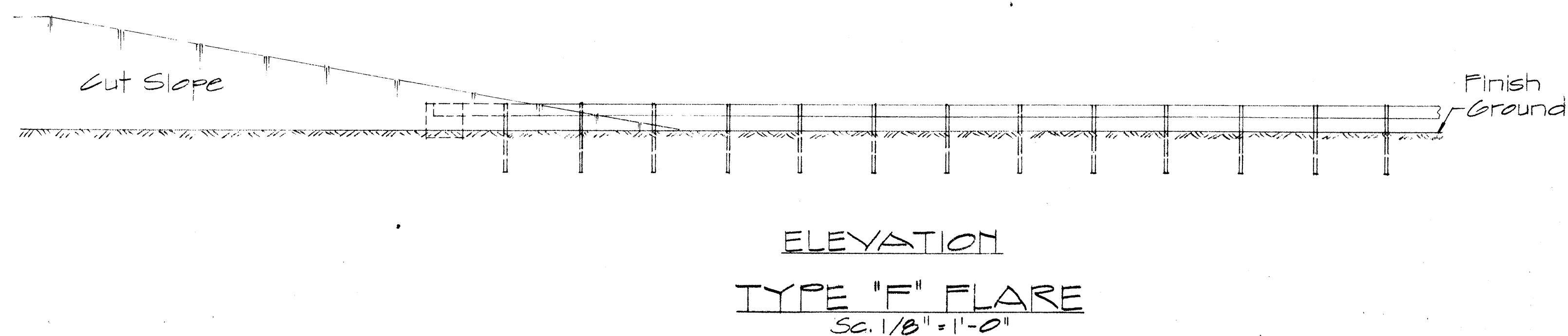
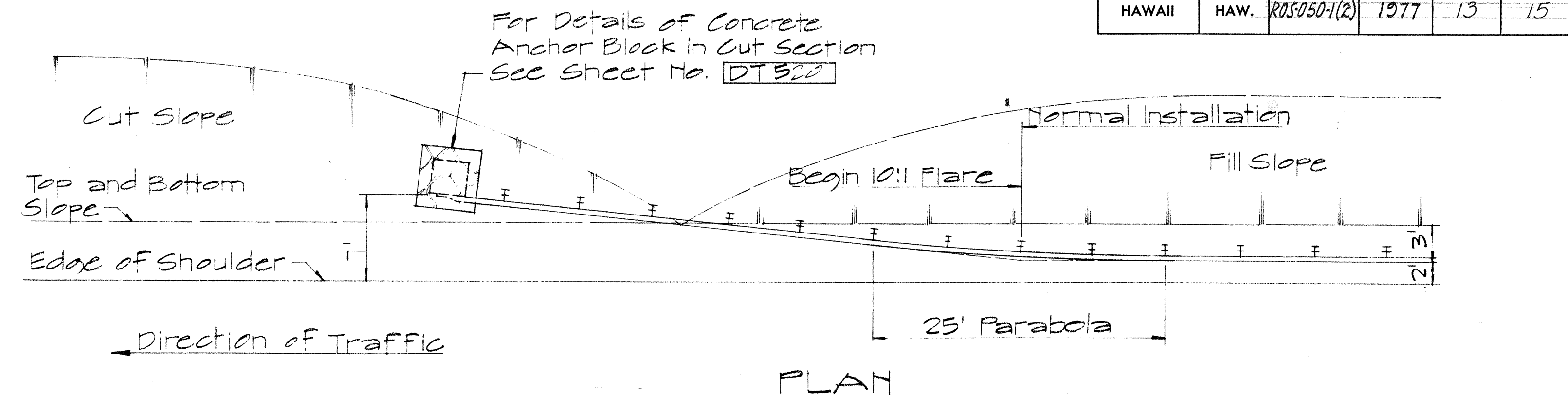
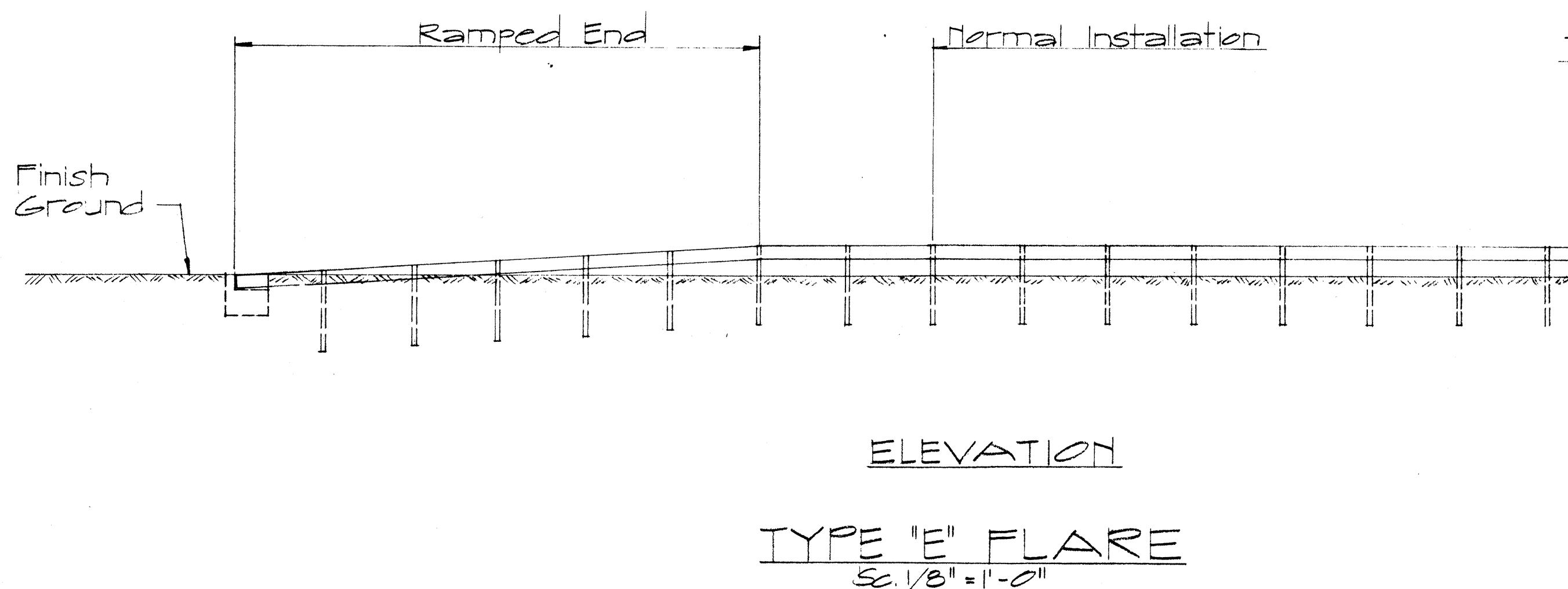
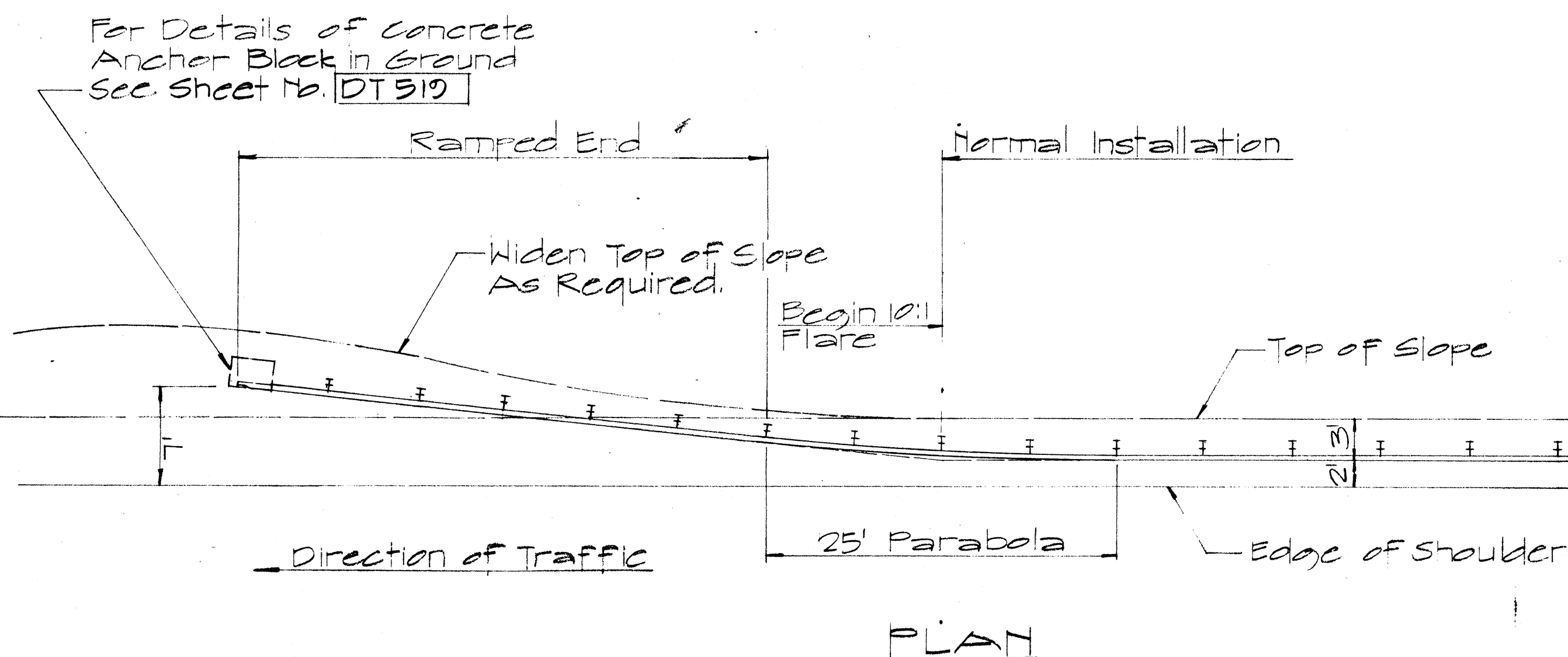
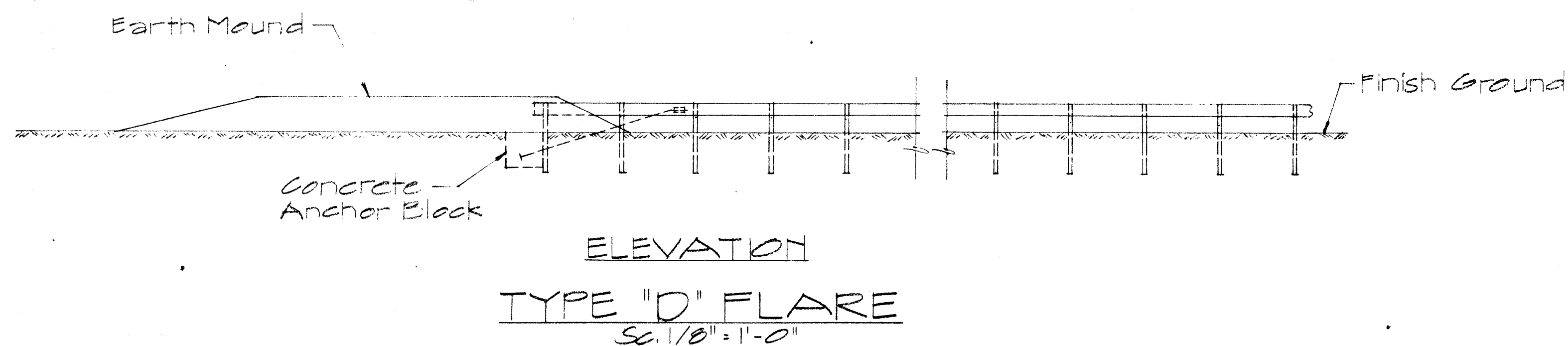
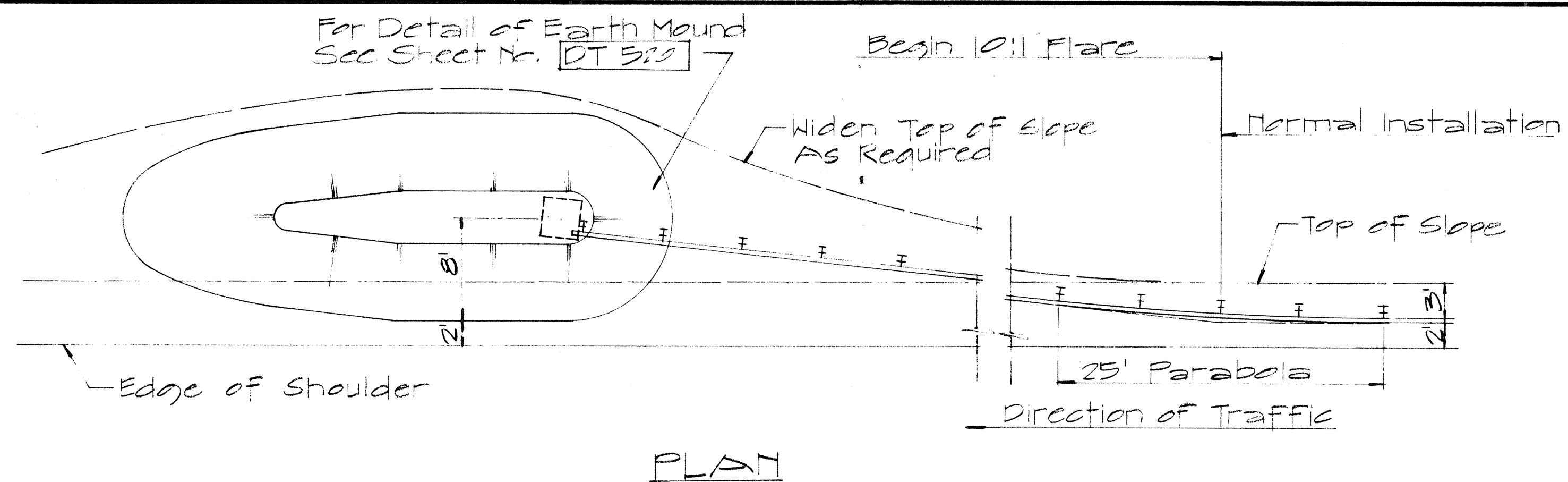
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

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

Sc. As Noted April 1969
SHEET No. 4 OF 7 SHEETS DT 516

DATE: _____
SURVEY PLOTTED BY: _____
DRAWN 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.	R05050-1(2)	1977	13	15



TYPICAL LAYOUT PLAN OF END POST CONNECTION

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

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

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

NO.	REVISION	APPROVED BY	DATE
1	Additional Posts Added to Typical Layout Plan Of End Post Connection	H.C.	4-12-72

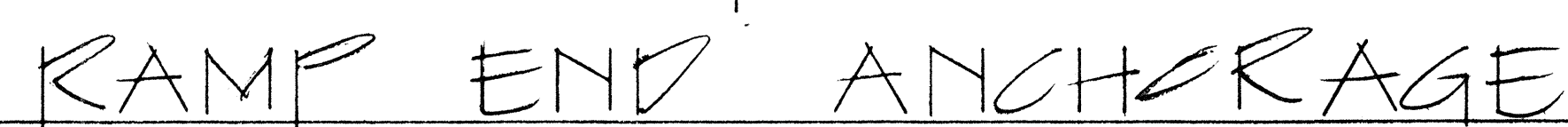
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
 TRAILING END
 FLARE - ONE & TWO
 WAY ROADWAY

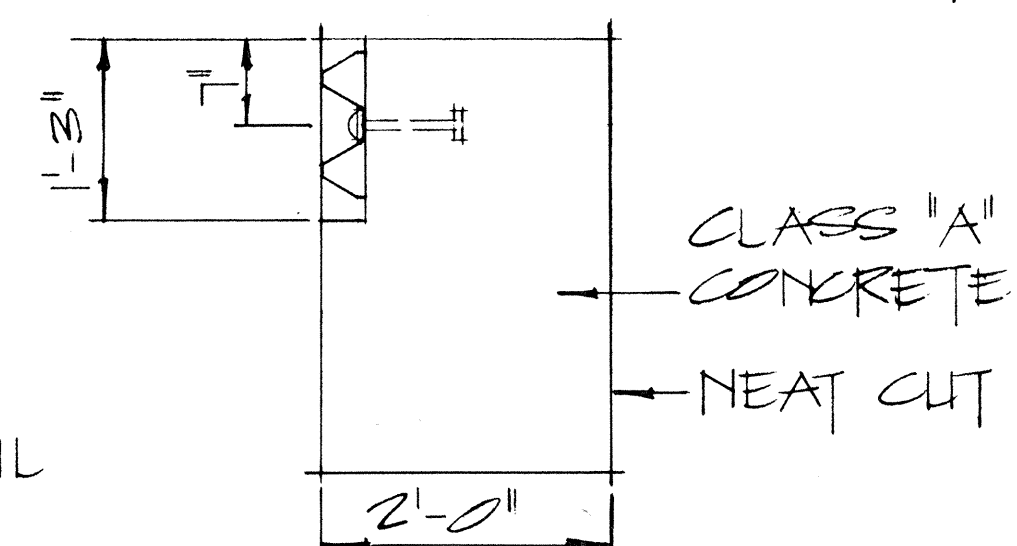
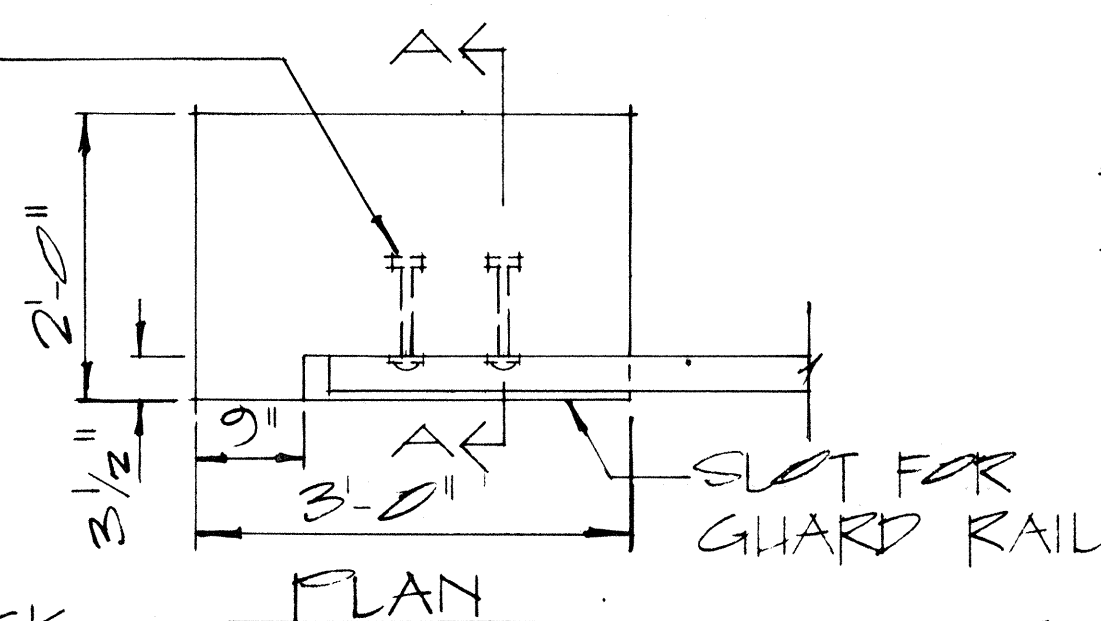
Scale: As Noted April 1969

SHEET No. 5 OF 7 SHEETS DT 517

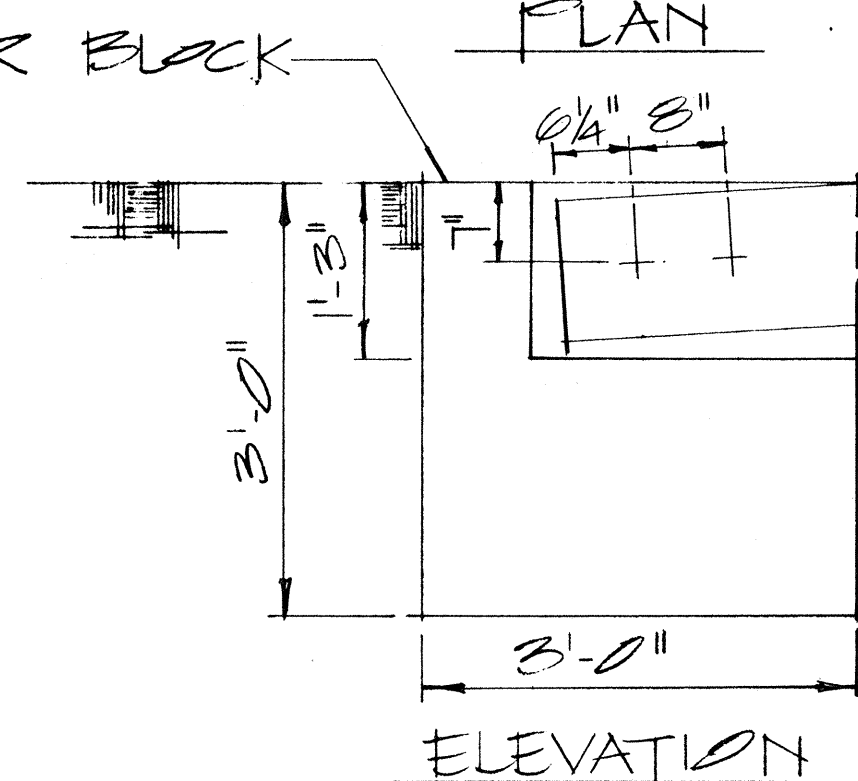
Hand-drawn plan view of a guard rail assembly. The diagram shows a series of vertical posts connected by a top rail and a bottom rail. The top rail is labeled "GUARD RAIL POST" and "BLG AT 8.5#". The bottom rail is labeled "GUARD RAIL ELEMENT" and "PLAN". The posts are labeled "SPACER BLOCK" and "BLG AT 8.5#". The top rail has a diameter of 1.0 inch and the bottom rail has a diameter of 1.0 inch. The spacing between the posts is 6'-3 inches. The diagram also shows a cross-section of the top rail with a diameter of 1.0 inch and a length of 1'-0 inch. The bottom rail has a length of 1'-0 inch. The diagram is labeled "GUARD RAIL ELEMENT PLAN".



2-5/8" x 7-1/4" 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.



GROUND
-LINE

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: $3/4'' = 1' - 0''$

APPROVED: 24th 22nd 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

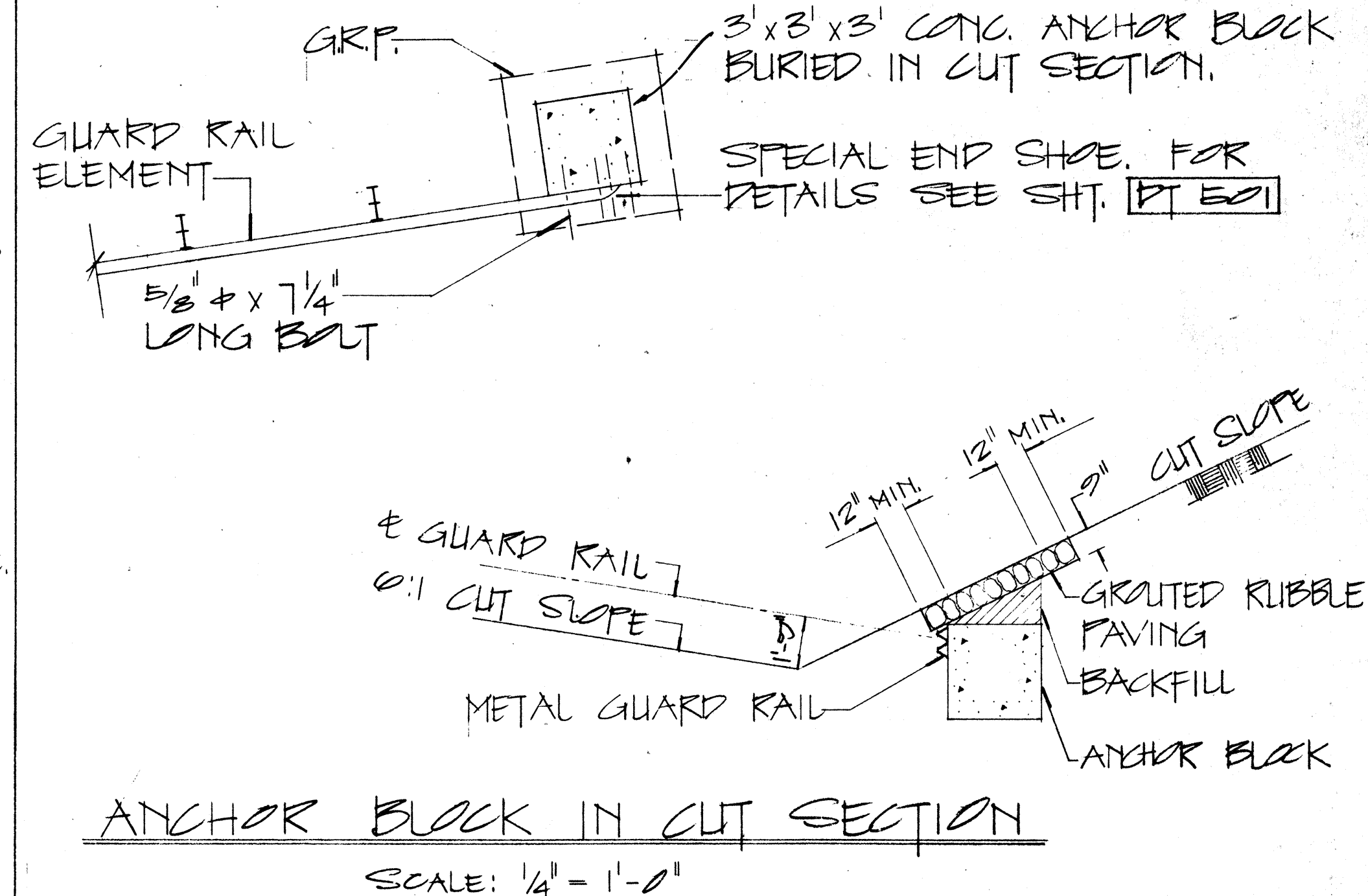
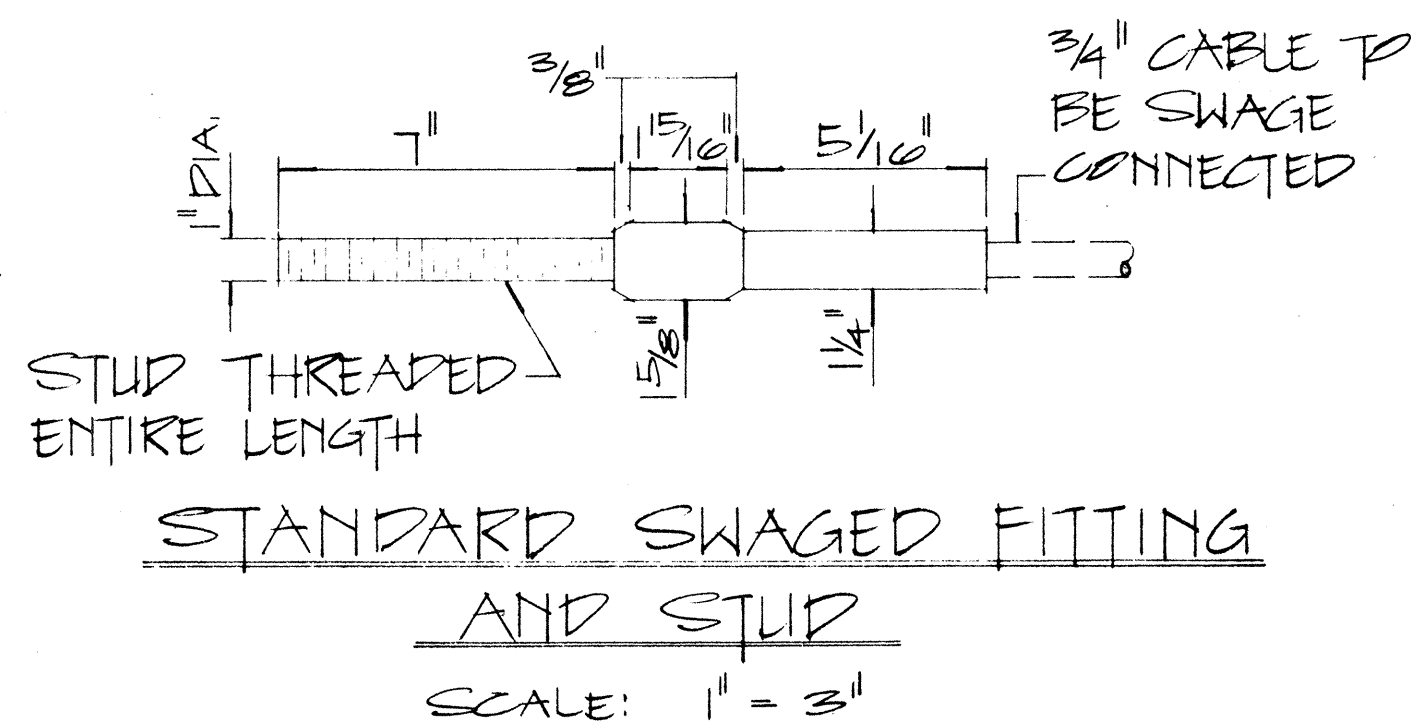
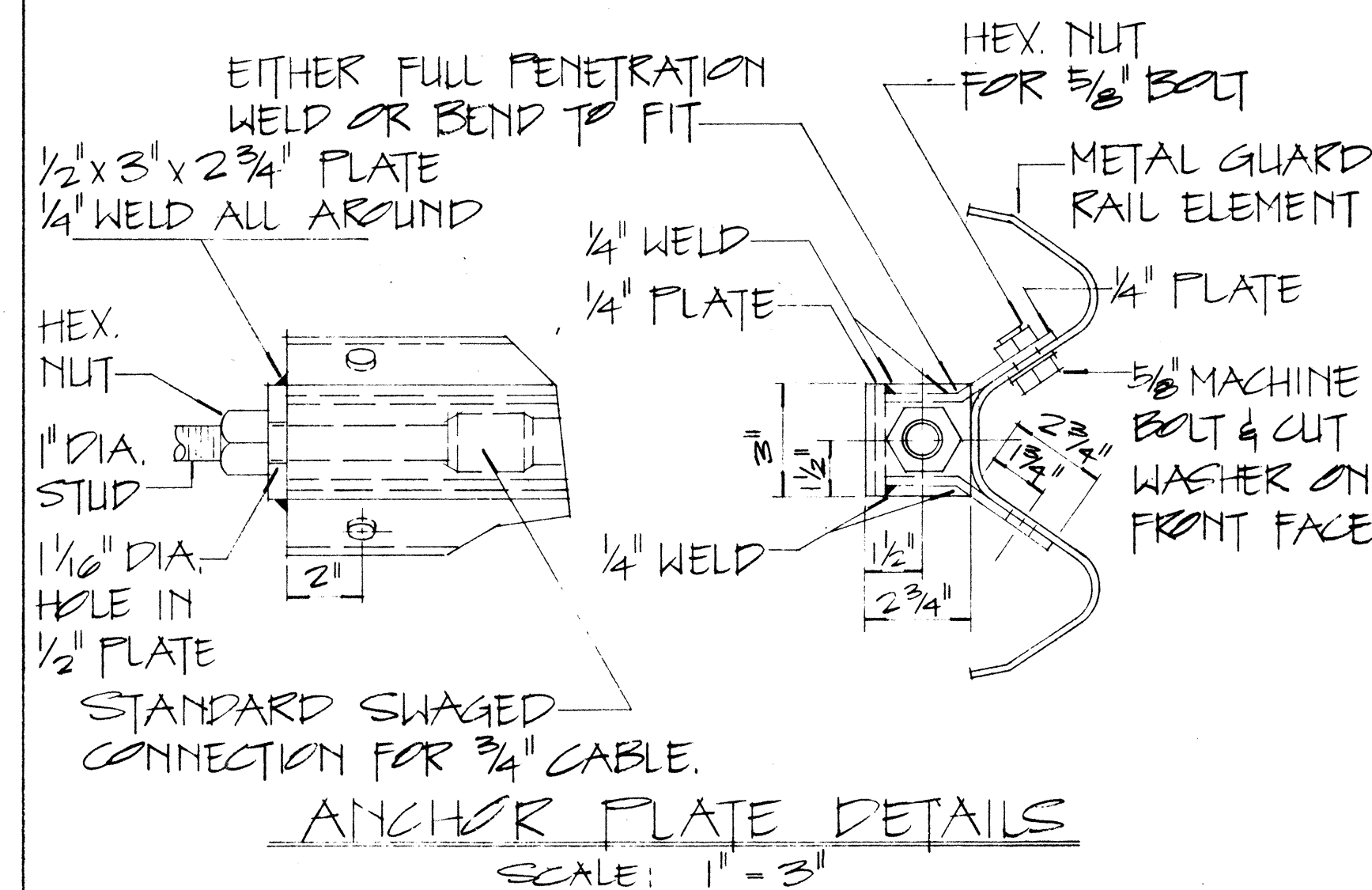
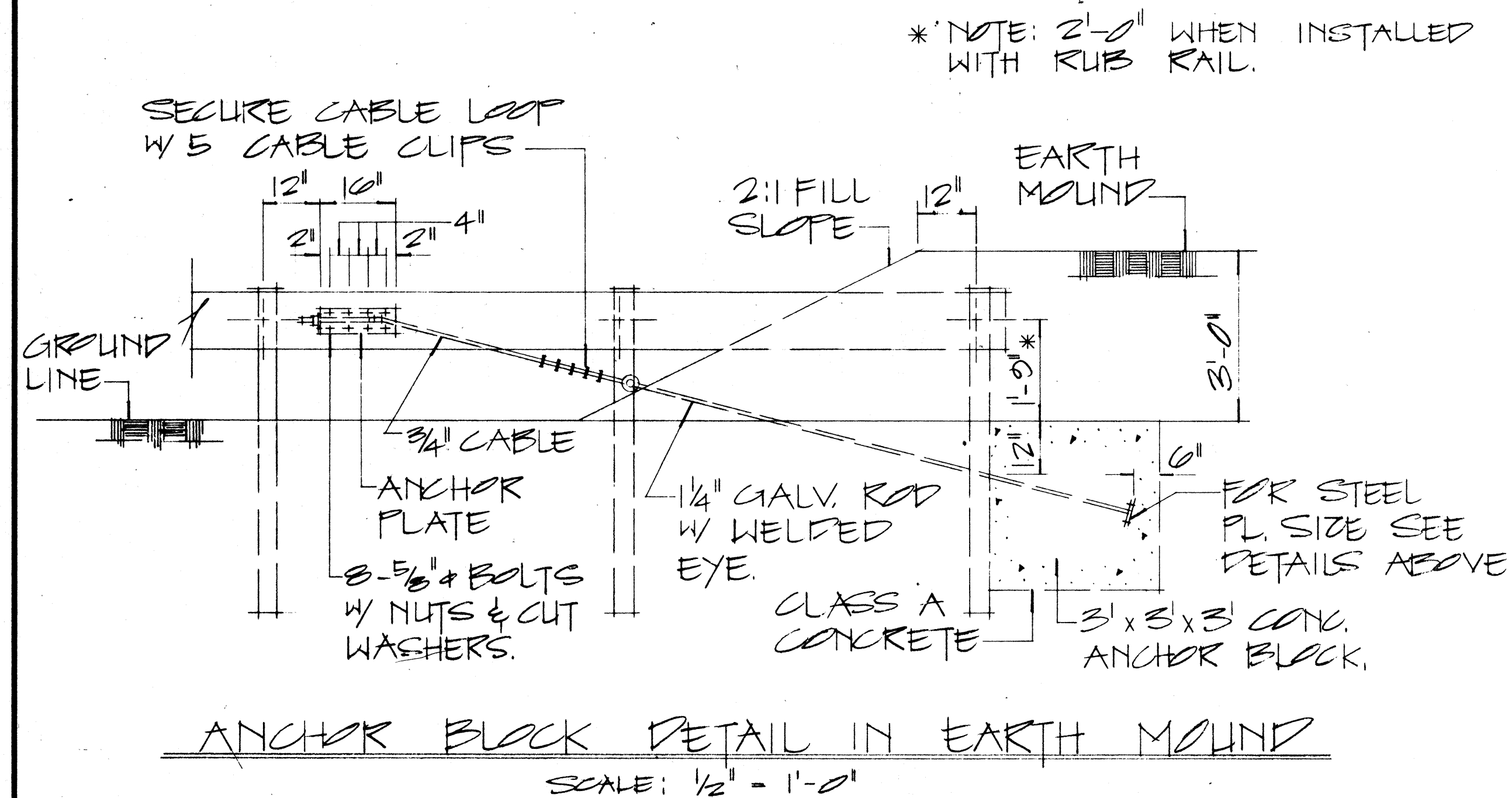
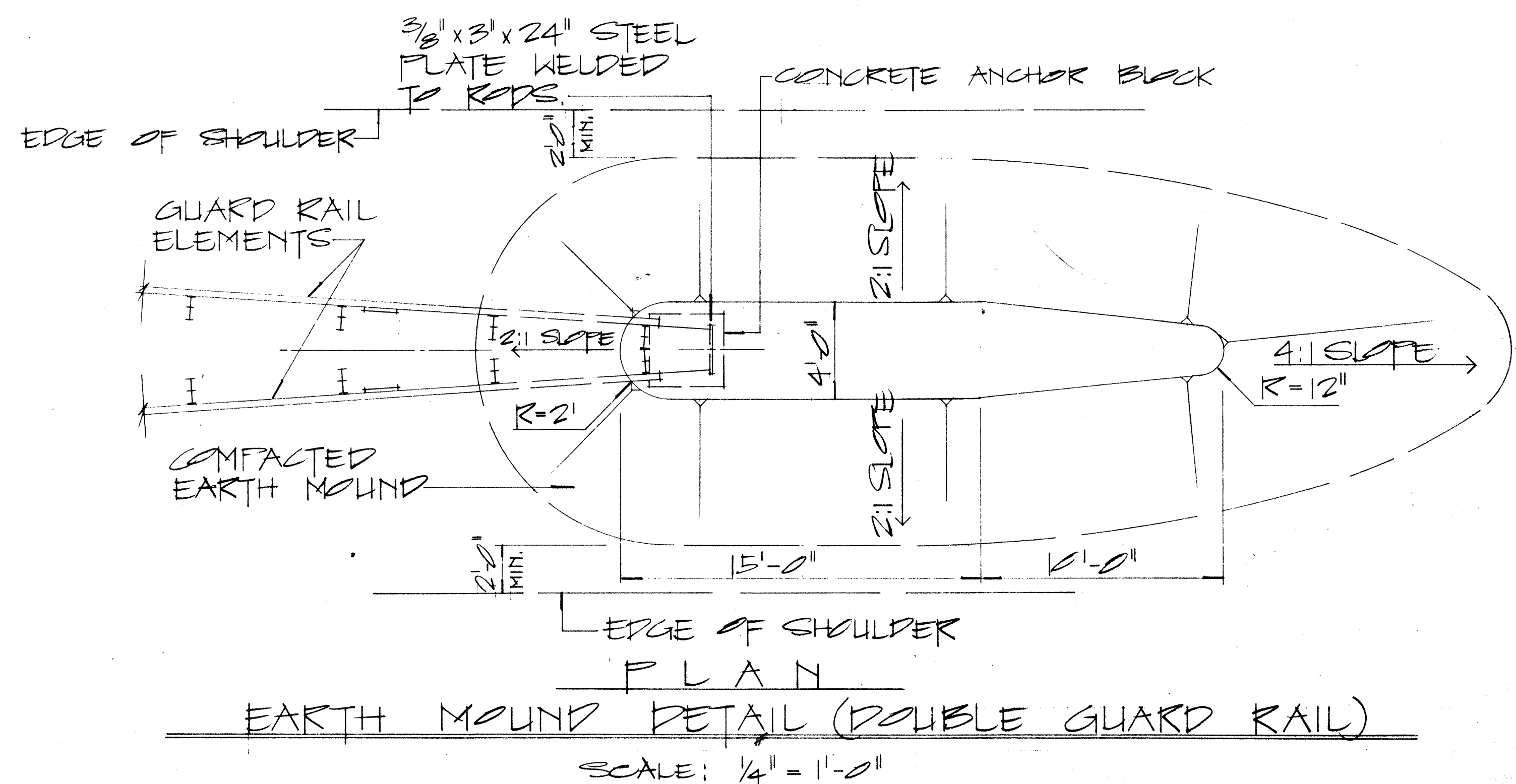
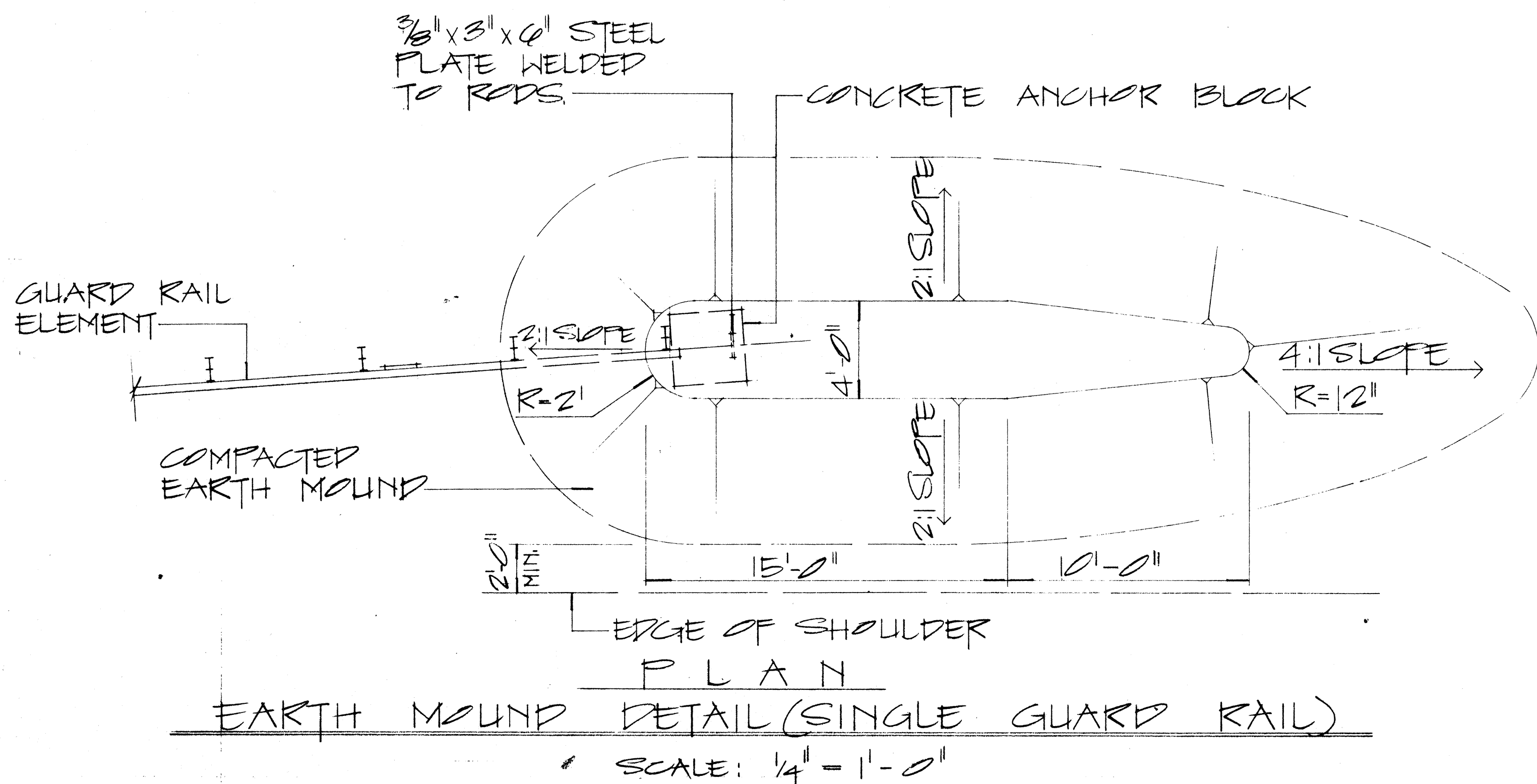
GUARD RAIL, TYPE 3

RAMP END ANCHORAGE

SCALE: AS SHOWN

SHEET No. 6 OF 7 SHEETS DT 51

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	205-050-112	1977	15	15



APPROVAL RECOMMENDED: *Euske Tanaka* 12/23/62
TRAFFIC ENGINEER DATE

APPROVED: *W. 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
EARTH MOUND AND ANCHOR BLOCK DETAILS

SCALE: AS SHOWN OCT 1969

SHEET No. 7 OF 7 SHEETS PT 520

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

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 AWWA Standard: C 203

2. CONCRETE, GRP, EXCAVATION, EARTH MOUND, ANCHOR RODS AND MISCELLANEOUS APPURTENANCES NECESSARY TO ANCHOR THE GUARD RAIL ENDS SHALL BE INCIDENTAL TO THE METAL GUARD RAIL.