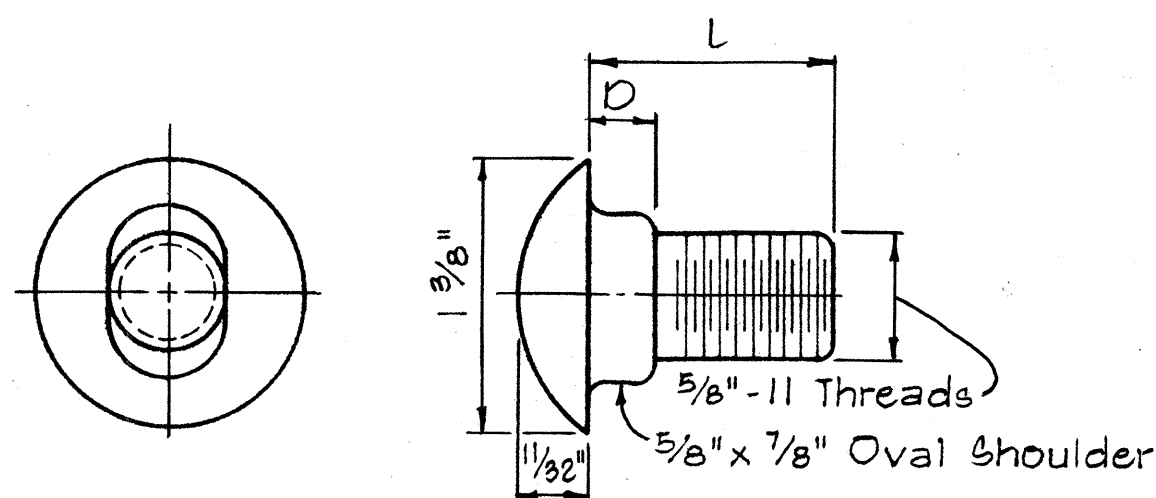


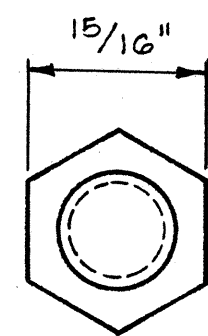
BOLT DIMENSIONS		
TYPE A BOLT		
Splice Bolt	D	L
Post Bolt for Conc. Post w/ Double Wood Blocks	5/16"	1 1/4"
Post Bolt for Conc. Post w/ Single Wood Block	3/32"	24"
Rail Bolt for Metal Block	3/32"	18"
	3/32"	2"

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	378A-05-70	1970	6	11



TYPE A BOLT



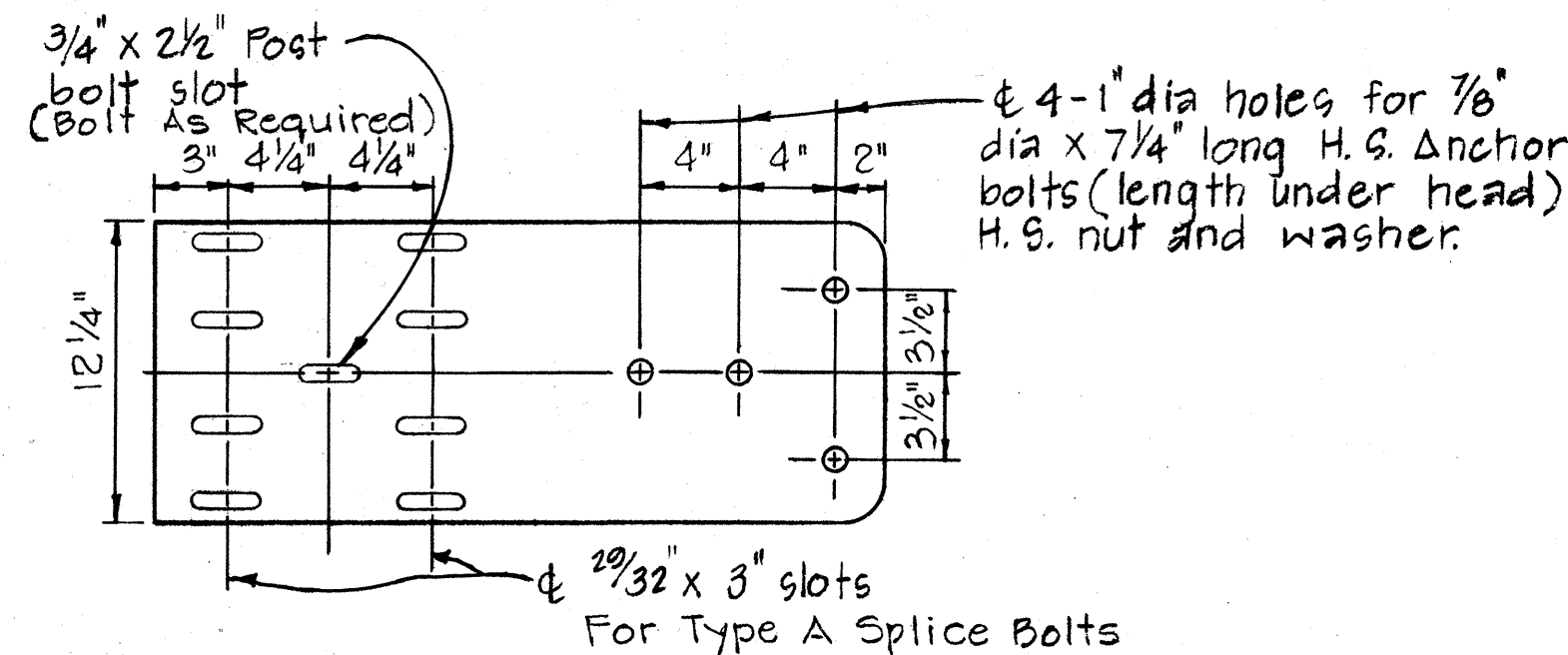
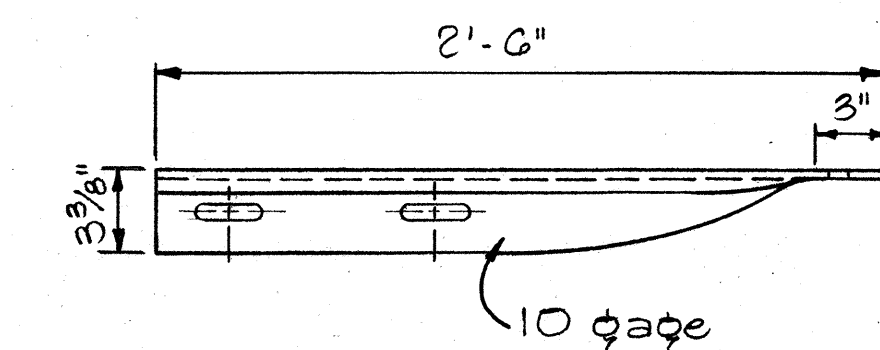
TYPE B BOLT

SPICE RAIL AND POST BOLTS

Scale: Full Size

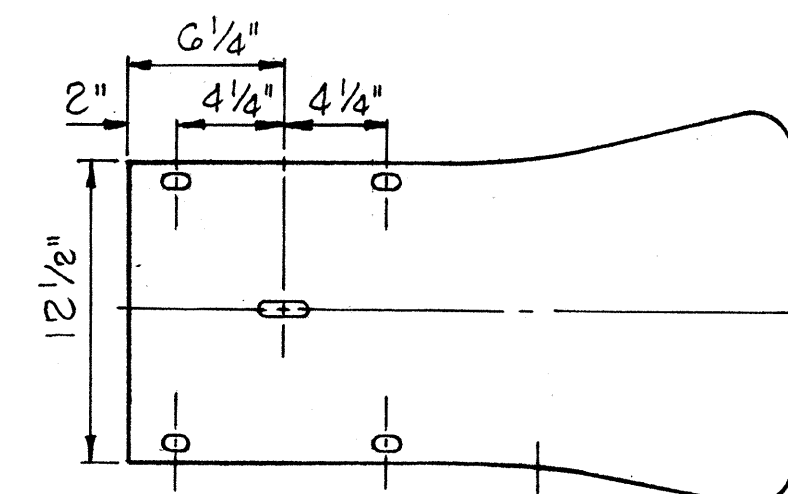
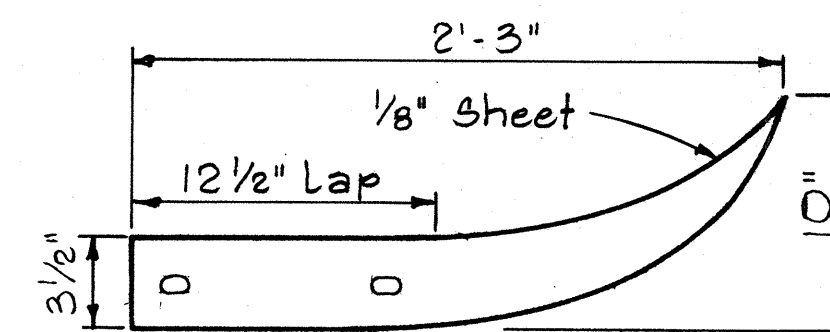
HEXAGON NUT

Scale: Full Size



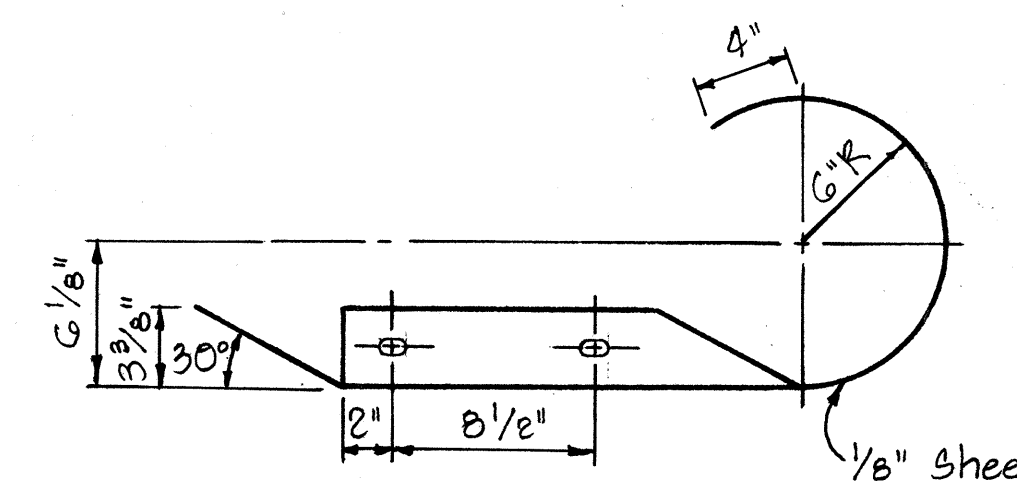
SPECIAL END SHOE

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



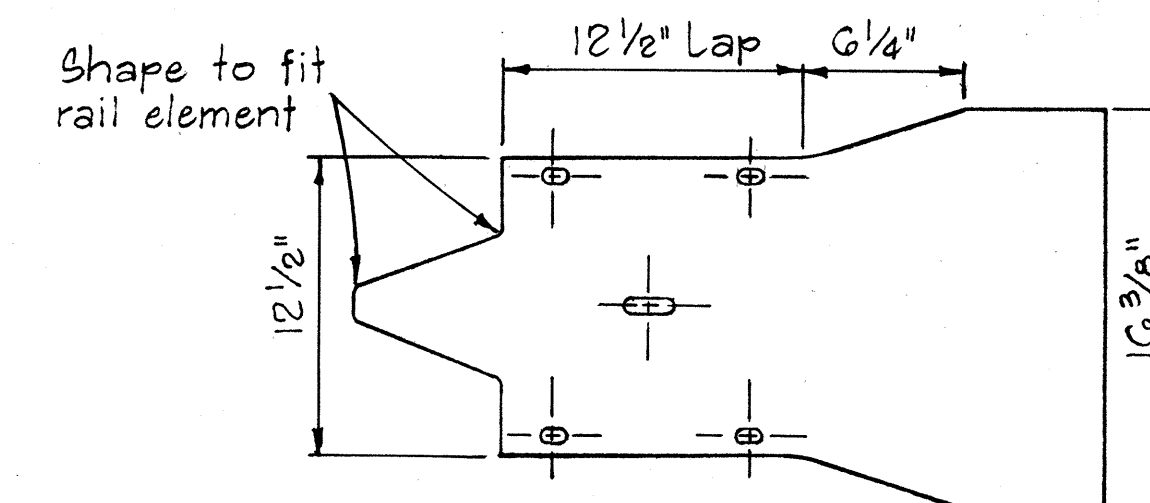
FLARED END

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



CURVED END

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



MEDIAN END

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

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 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"

NO.	REVISION	APPROVED BY	DATE

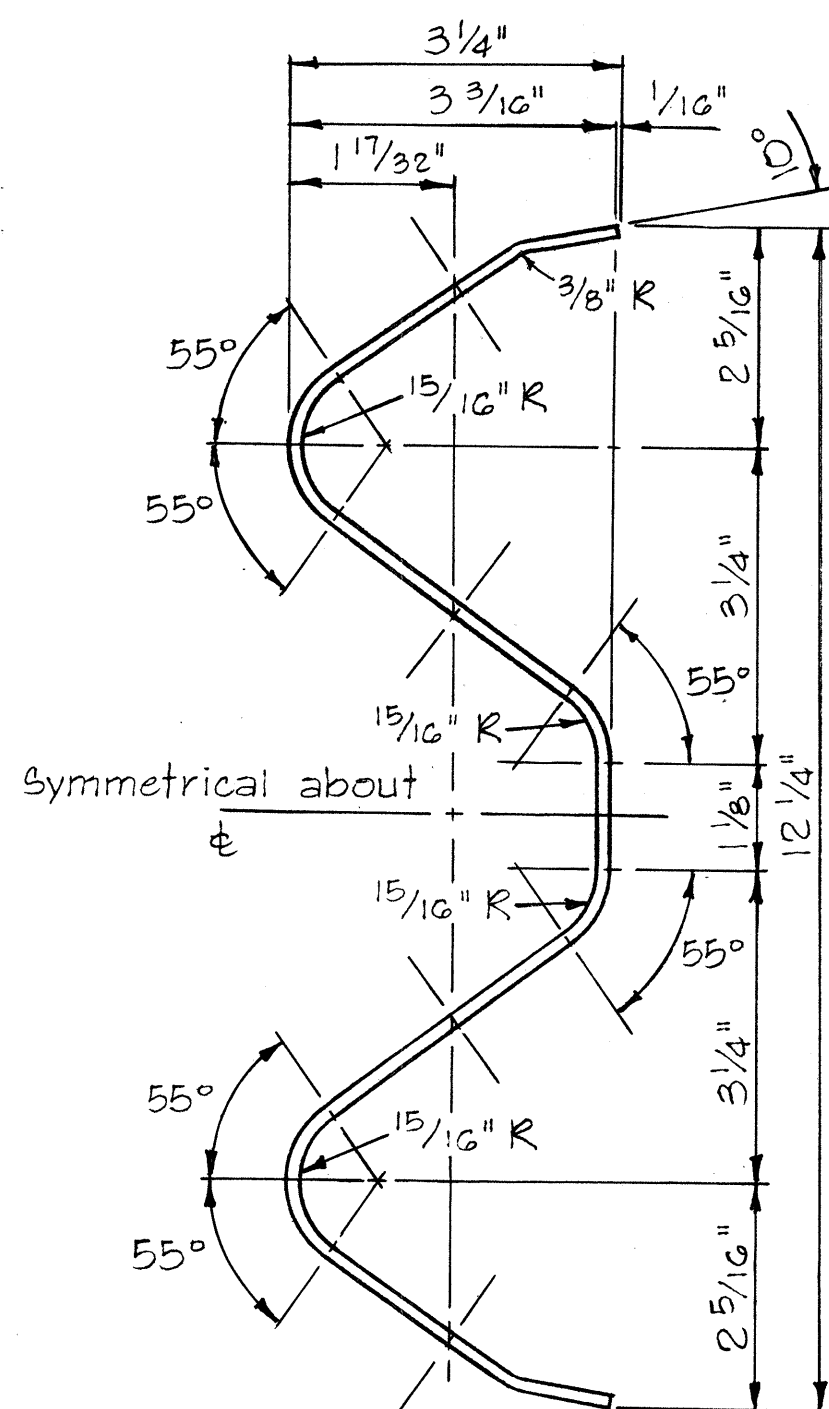
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL GUARD RAIL

Scale: As Noted

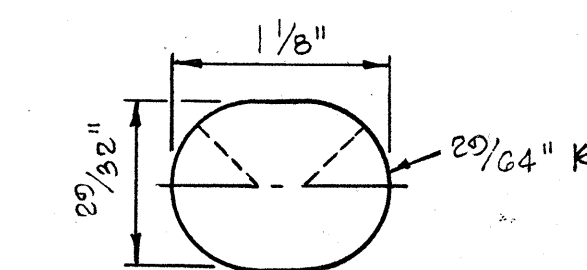
August, 1968

SHEET No. 2 OF 6 SHEETS DT 501



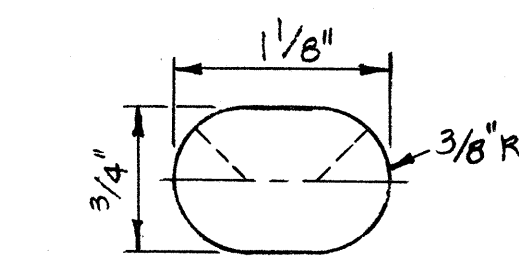
RAIL ELEMENT SECTION

Scale: 6" = 1'-0"

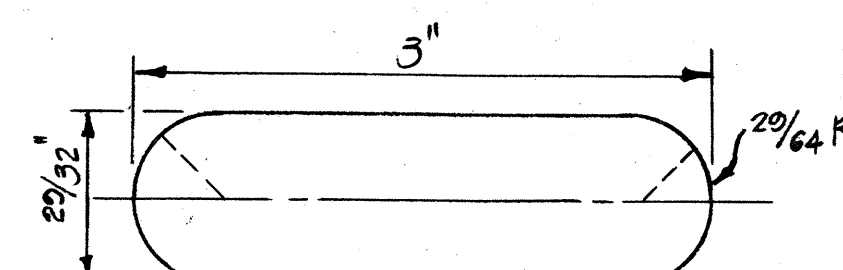


SPICE BOLT SLOT

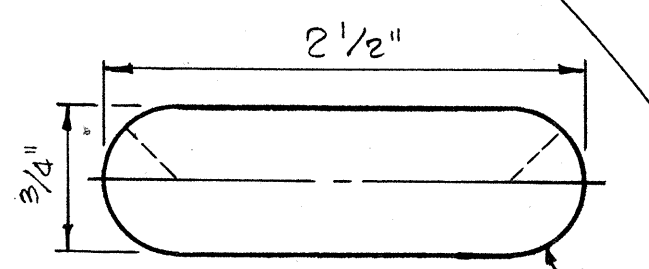
Scale: Full Size



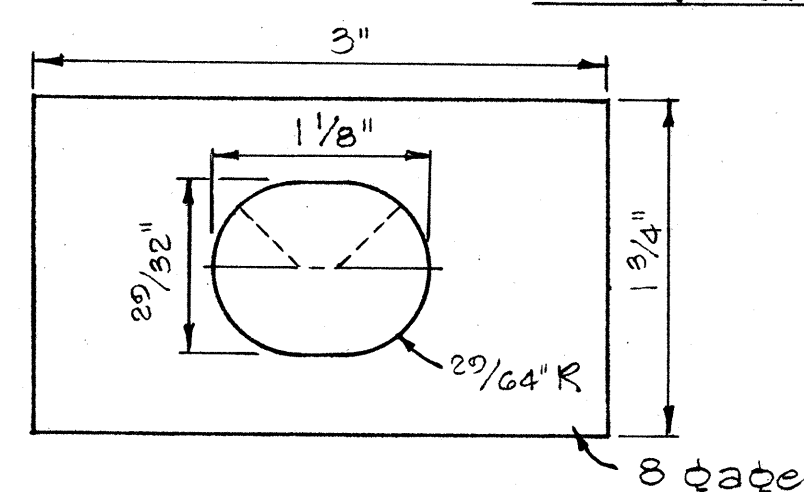
SPICE BOLT SLOT FOR ALL ENDS



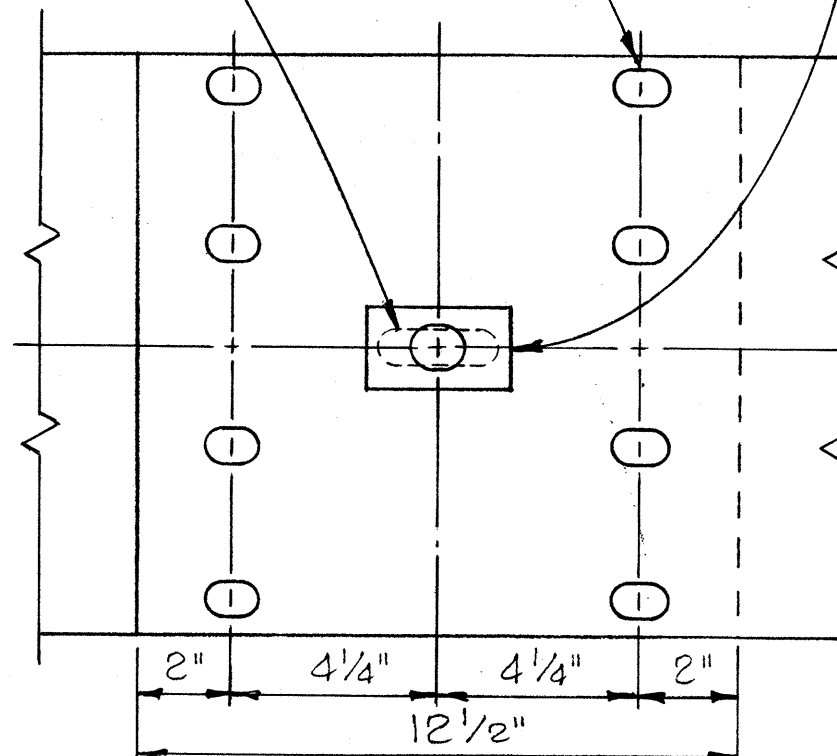
SPICE BOLT SLOT FOR SPECIAL END SHOE



POST BOLT SLOT



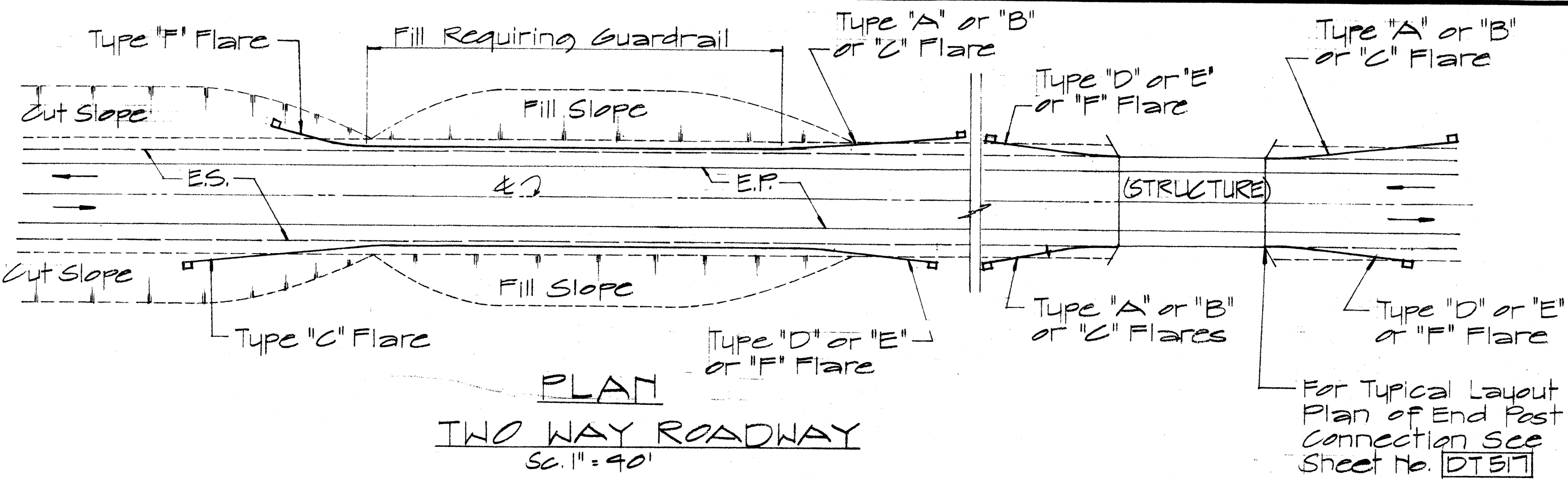
RAIL WASHER



RAIL SPICE

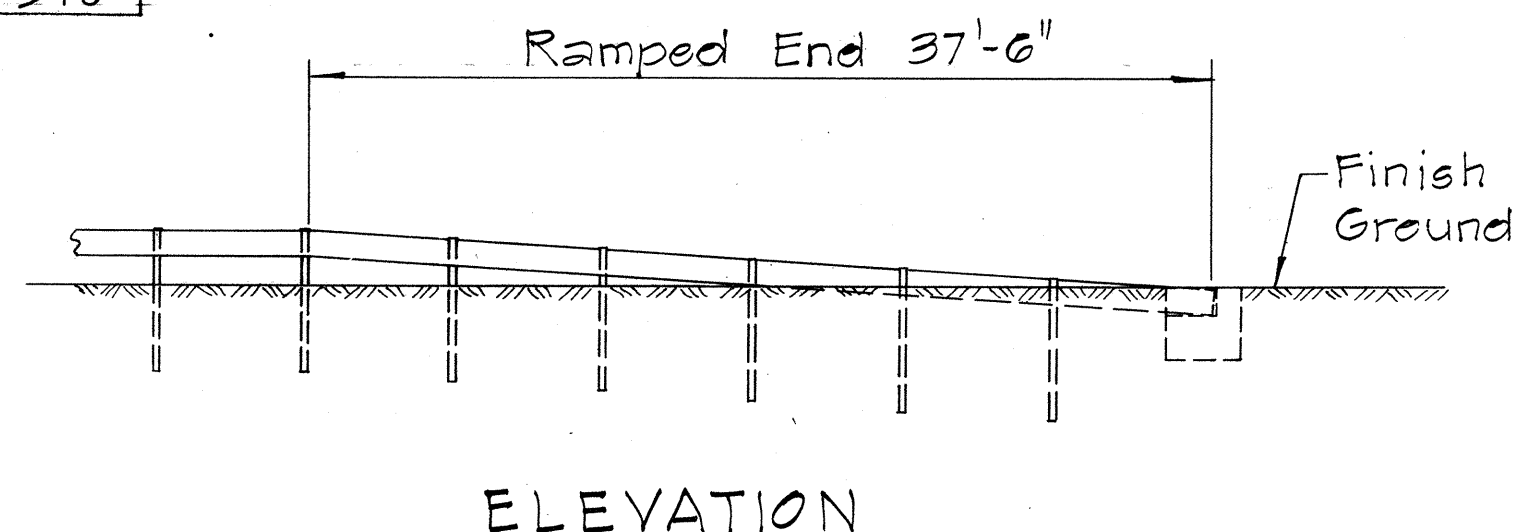
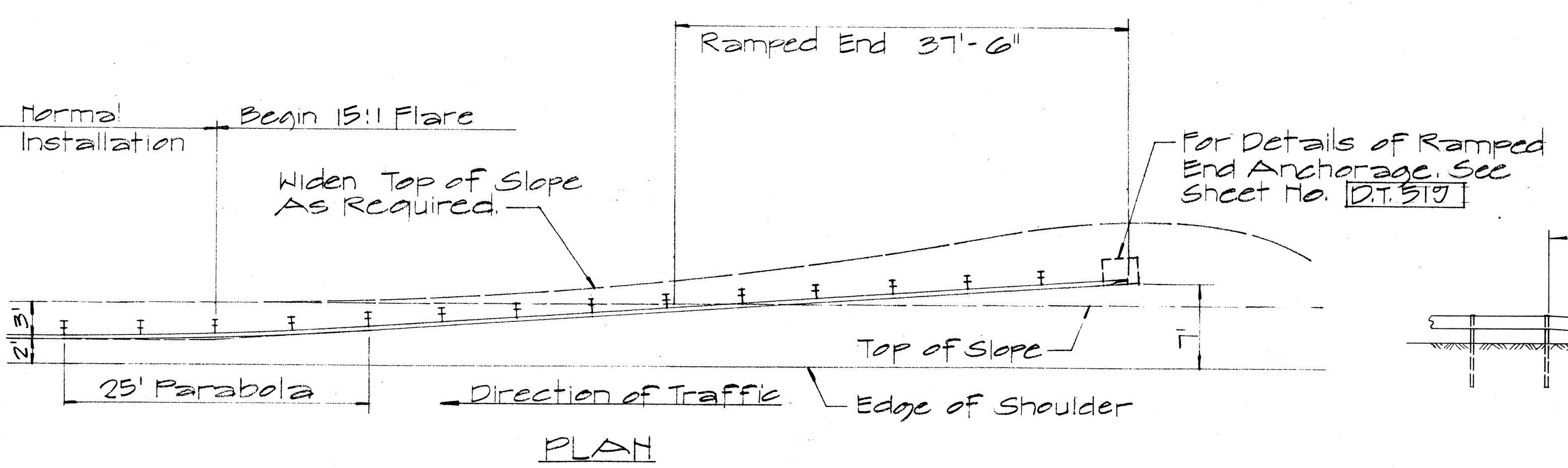
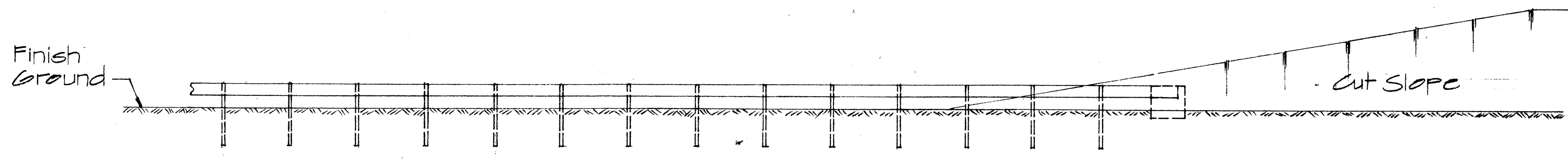
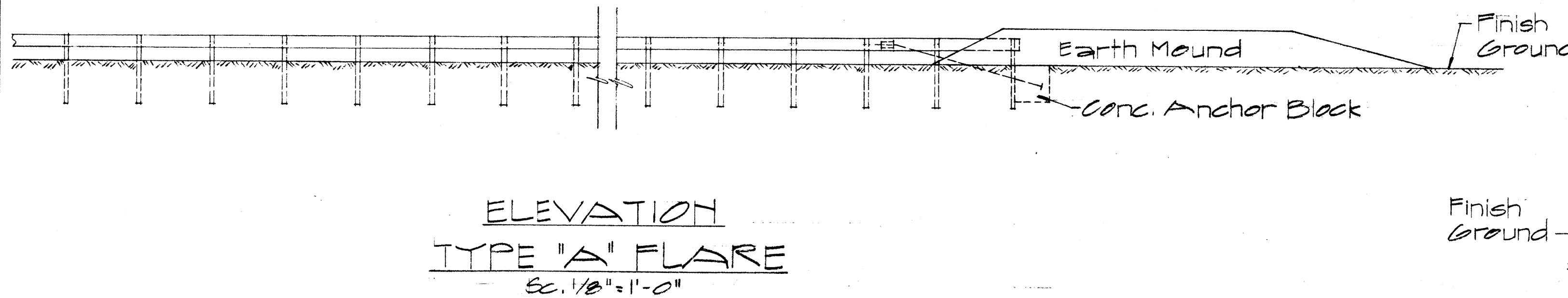
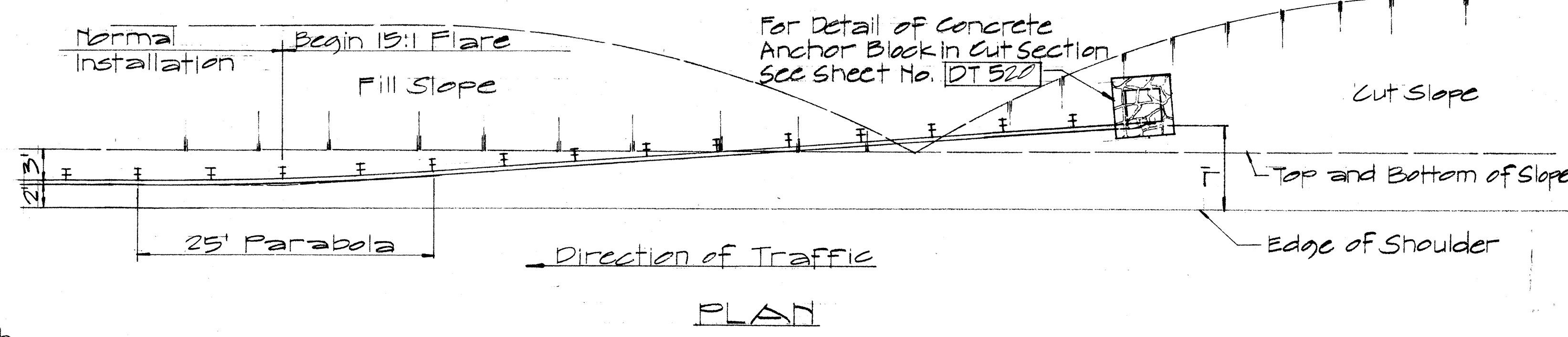
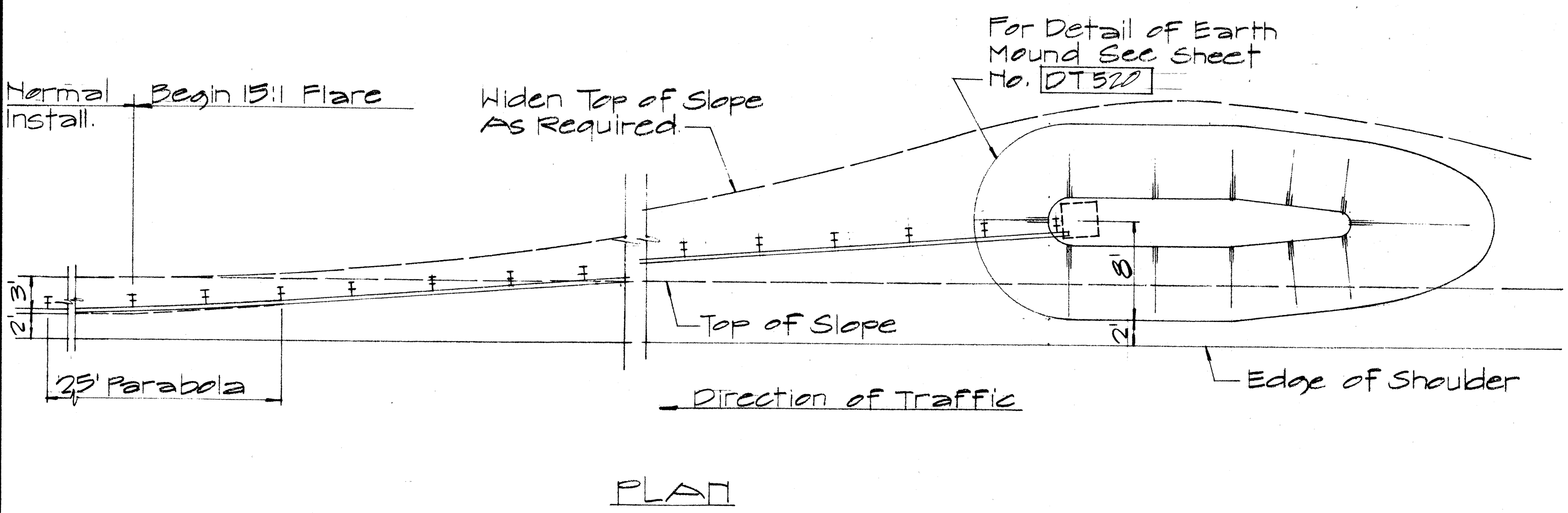
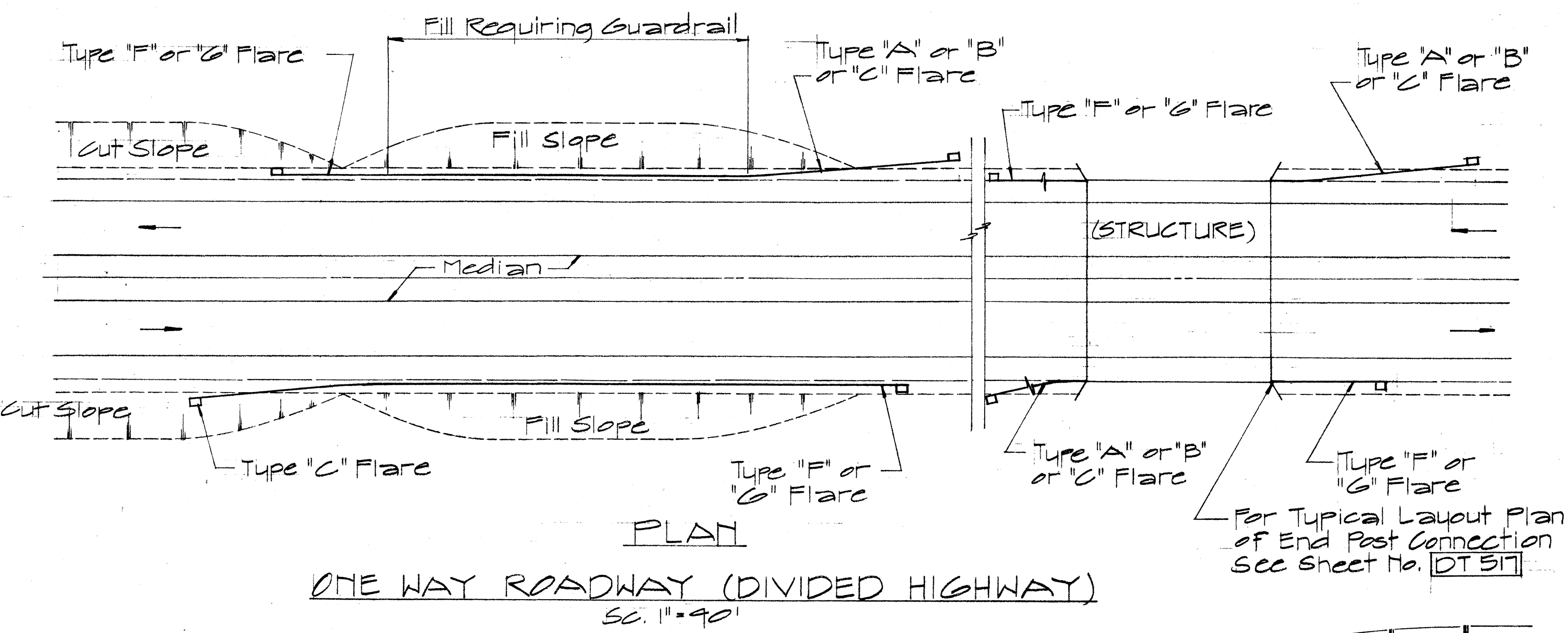
Scale: 3" = 1'-0"

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



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.	378A-05-70	1970	7	11



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:
Walter S. S. S. 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

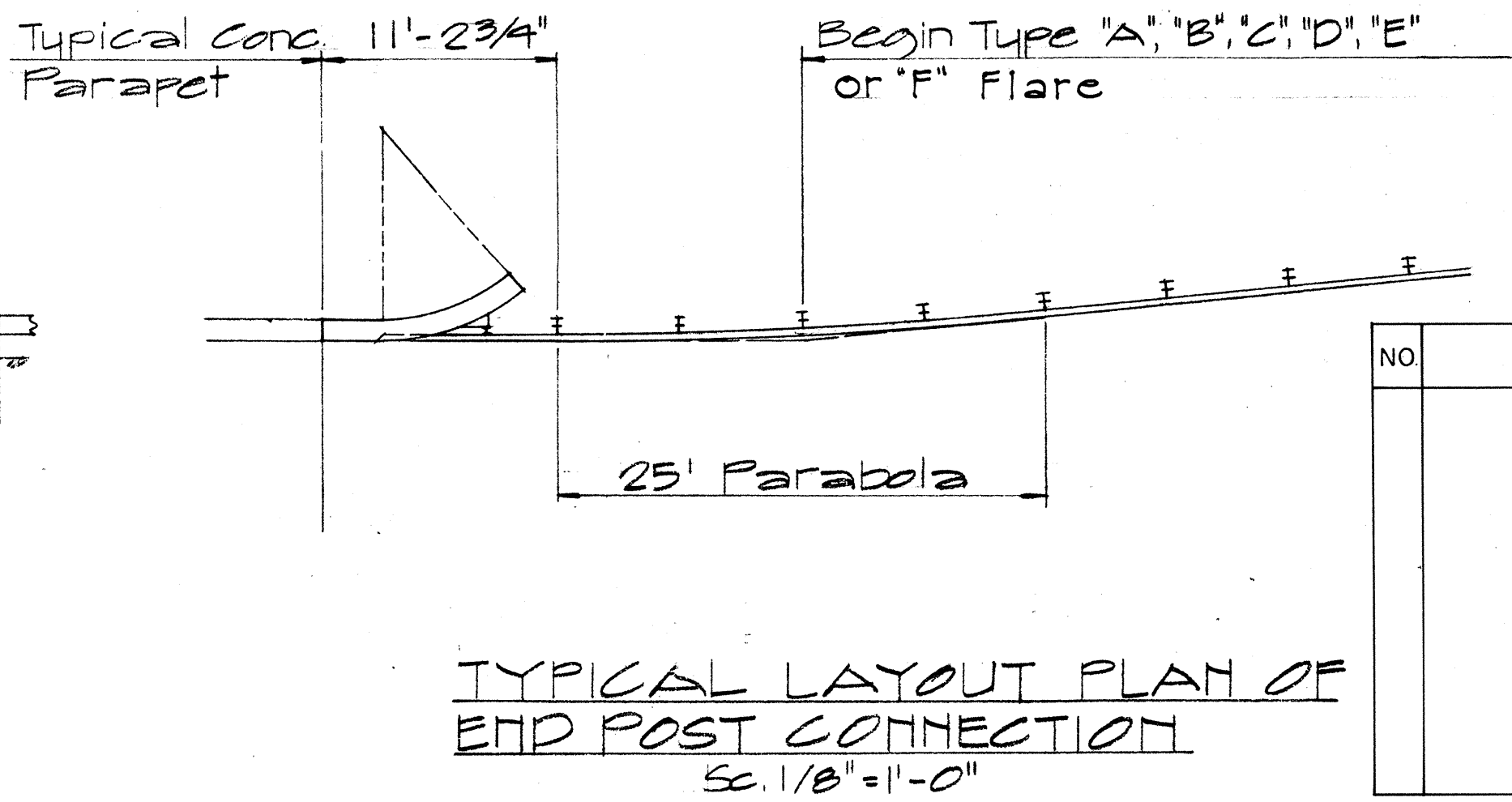
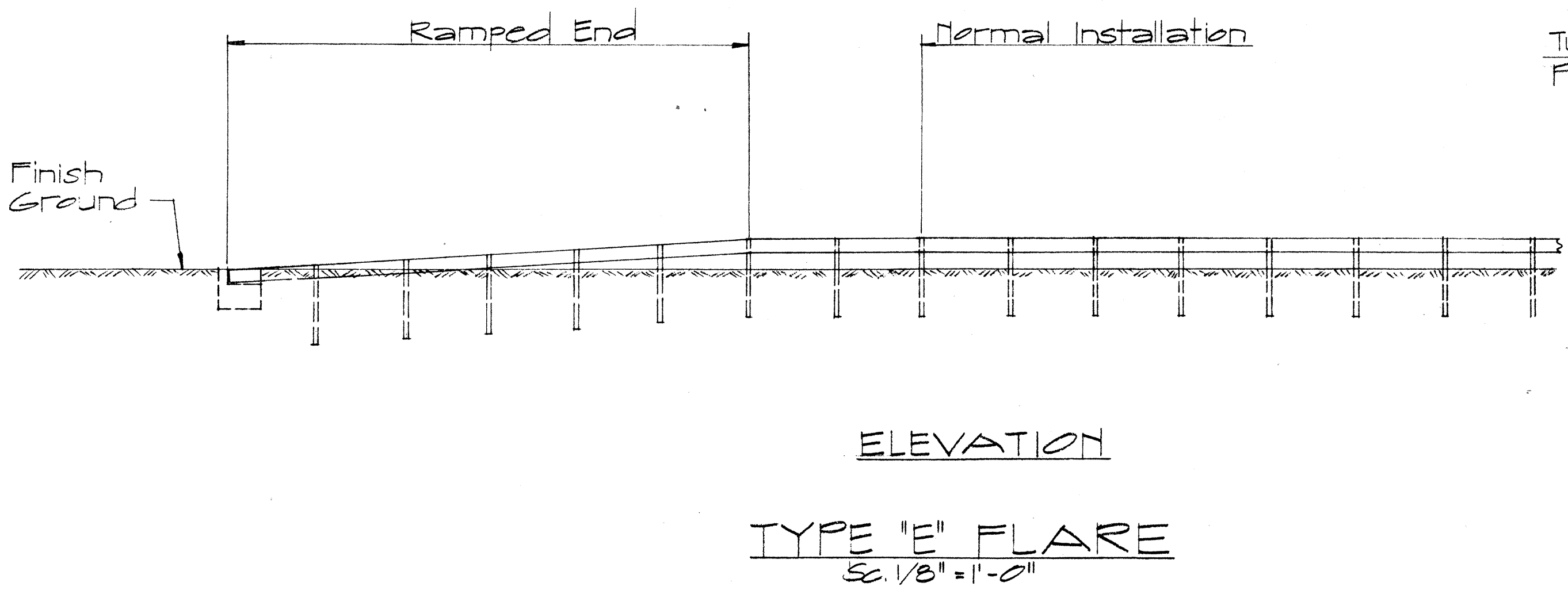
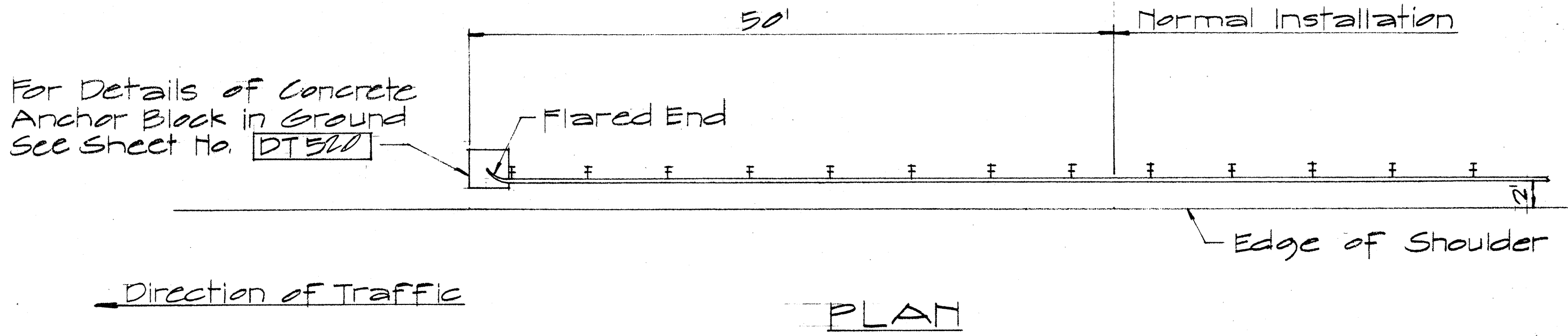
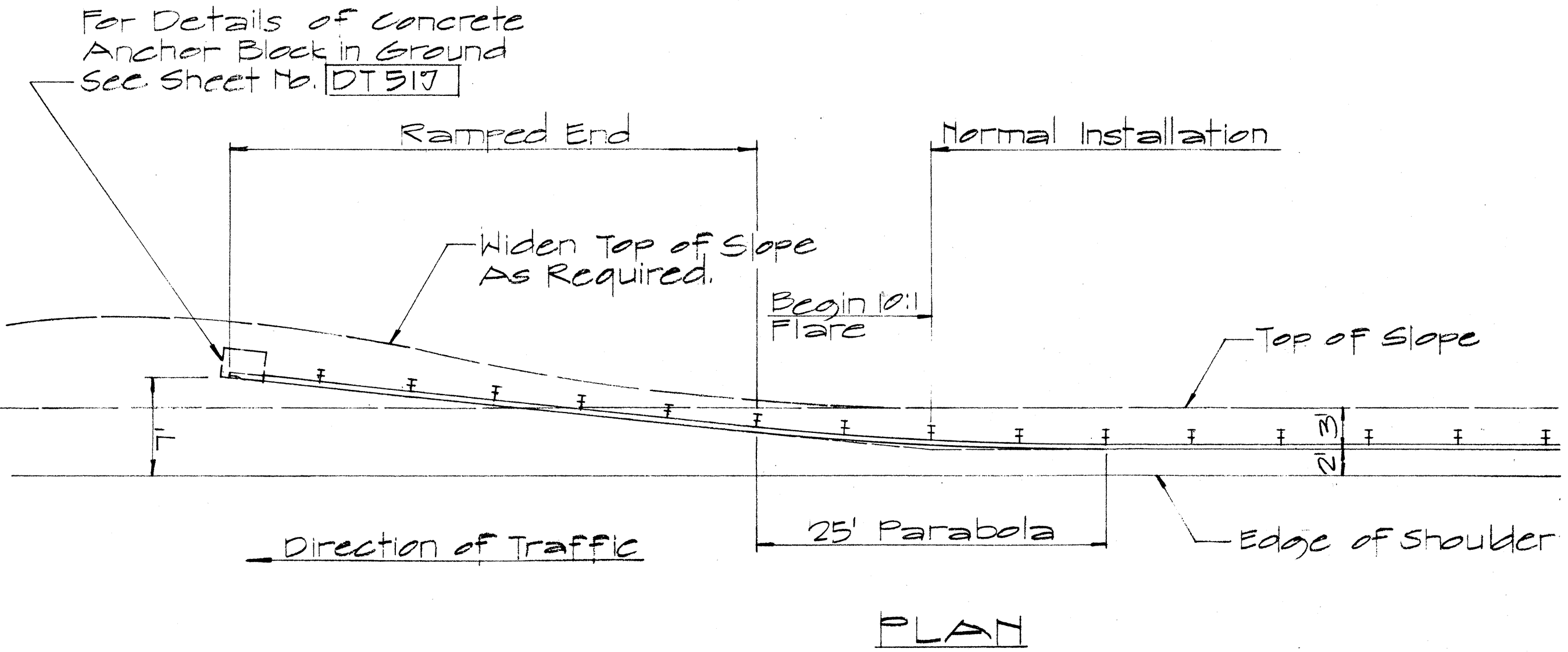
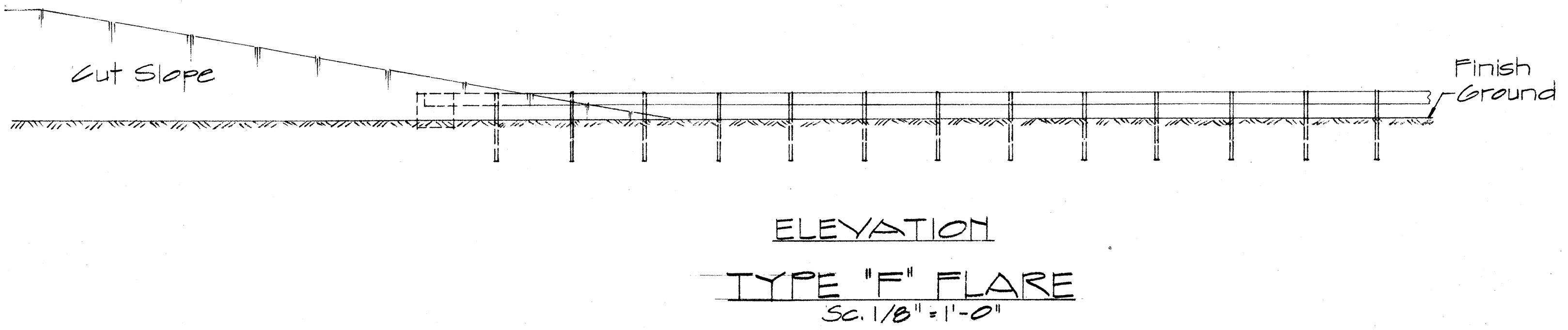
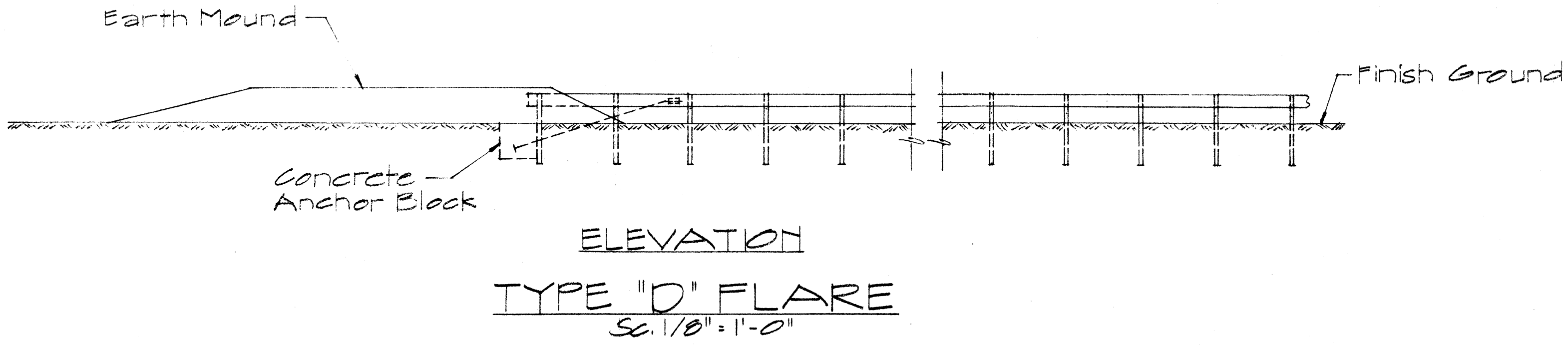
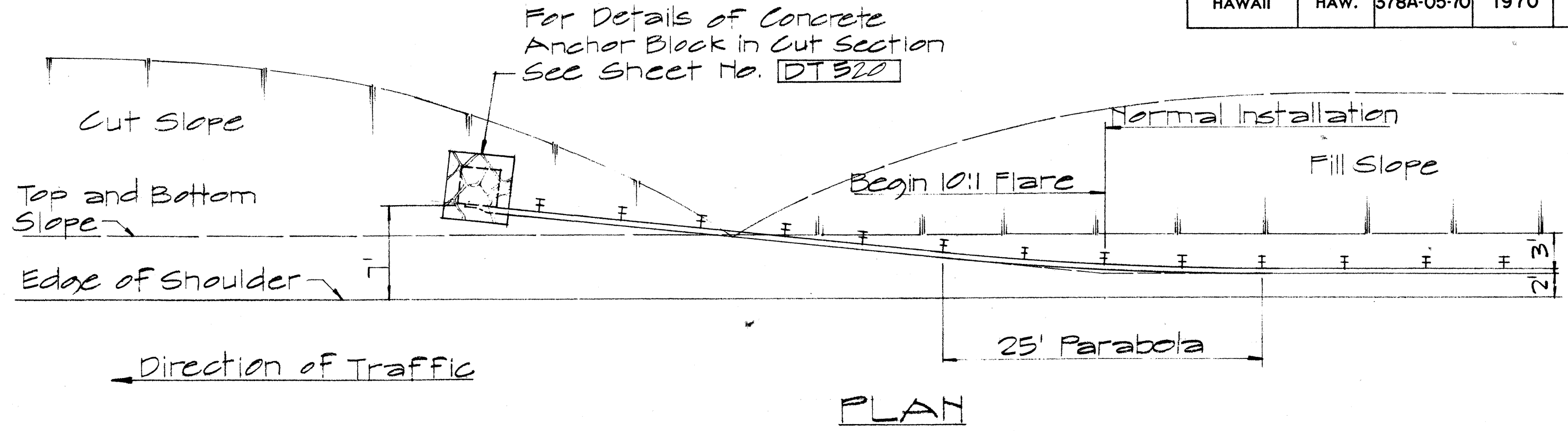
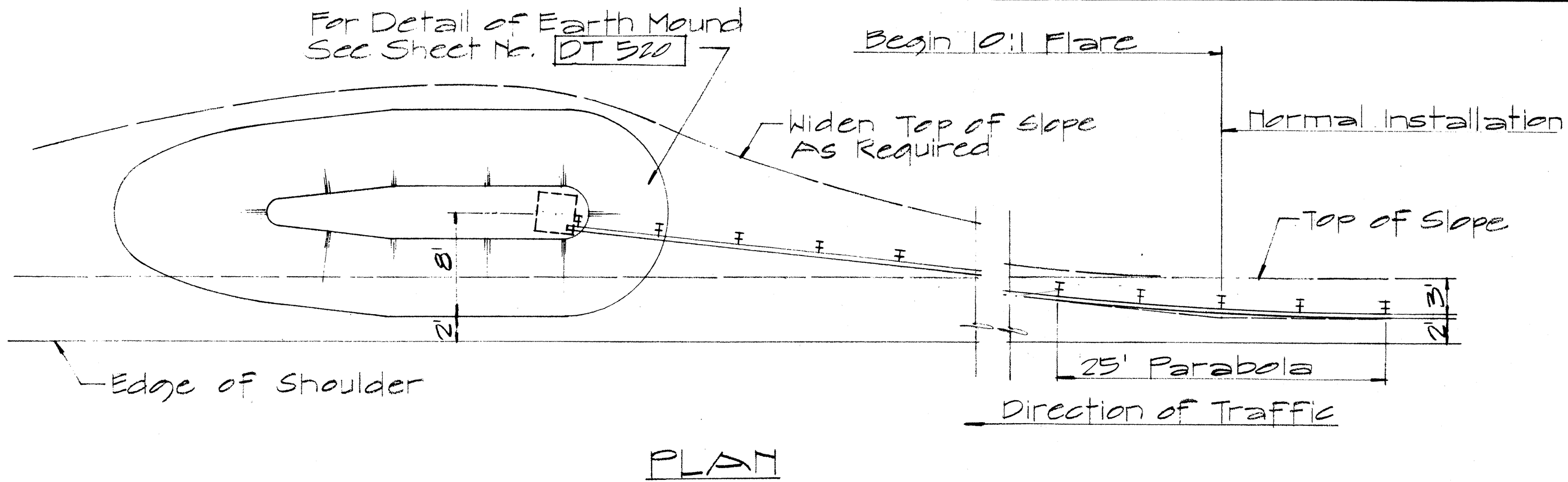
**STANDARD DETAILS
OF APPROACH END
FLARE - ONE & TWO
WAY ROADWAY**

SC. As Noted April 1969

SHEET No. 3 OF 6 SHEETS [DT 516]

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	378A-05-70	1970	8	11



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

APPROVED:
Wm. S. Sal. 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

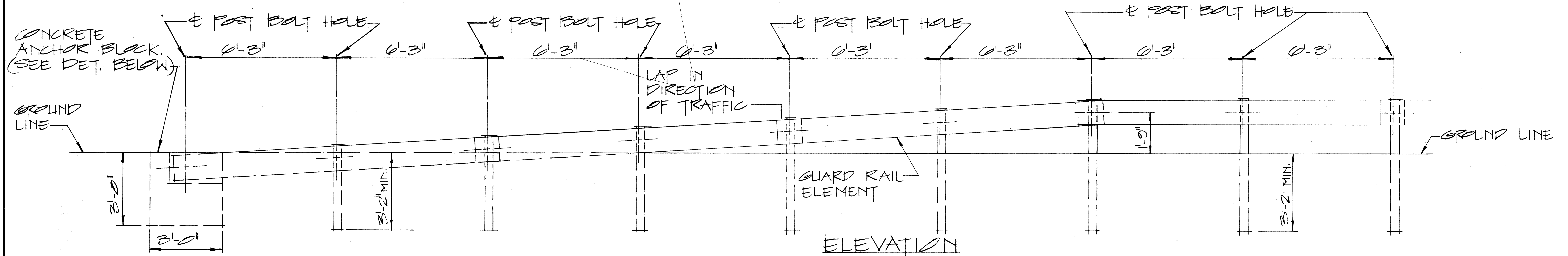
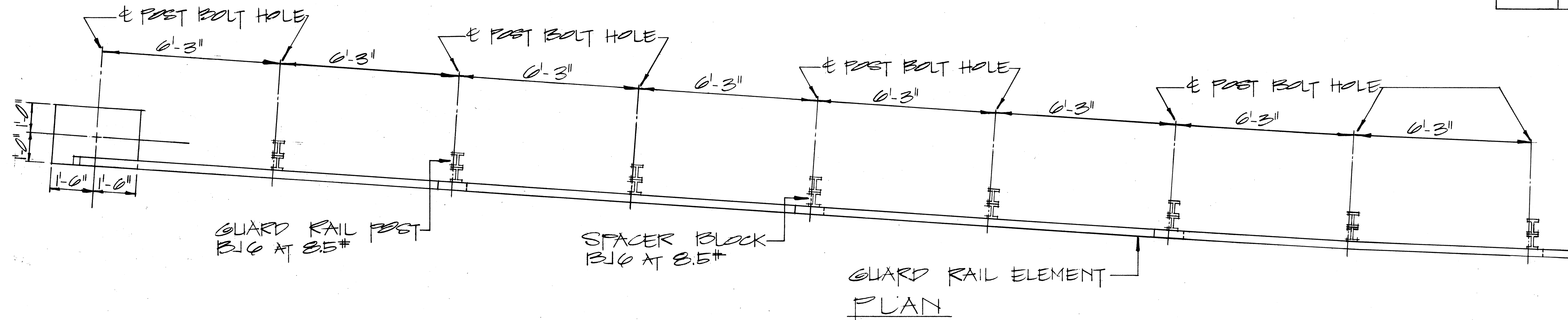
STANDARD DETAILS
OF TRAILING END
FLARE - ONE & TWO
WAY ROADWAY

Sc. As Noted April 1969

SHEET No. 4 OF 6 SHEETS DT 517

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

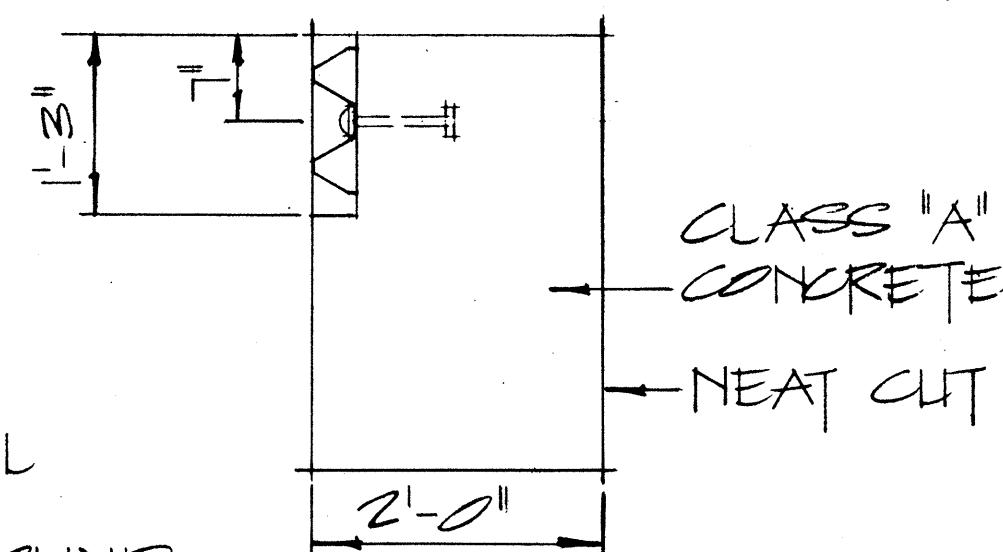
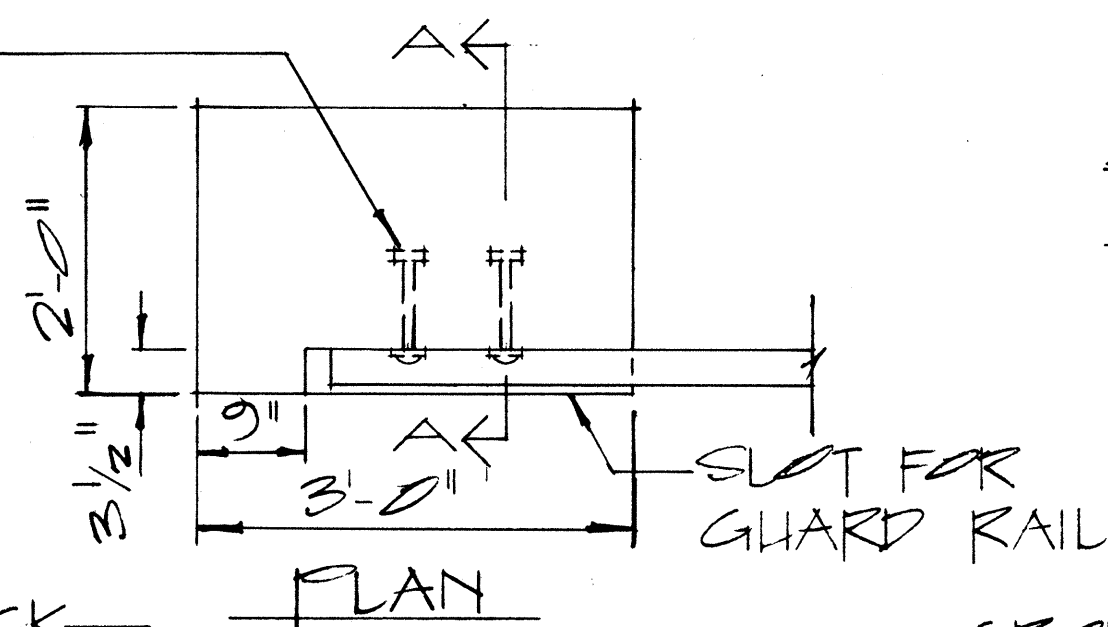
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	378A-05-70	1970	9	11



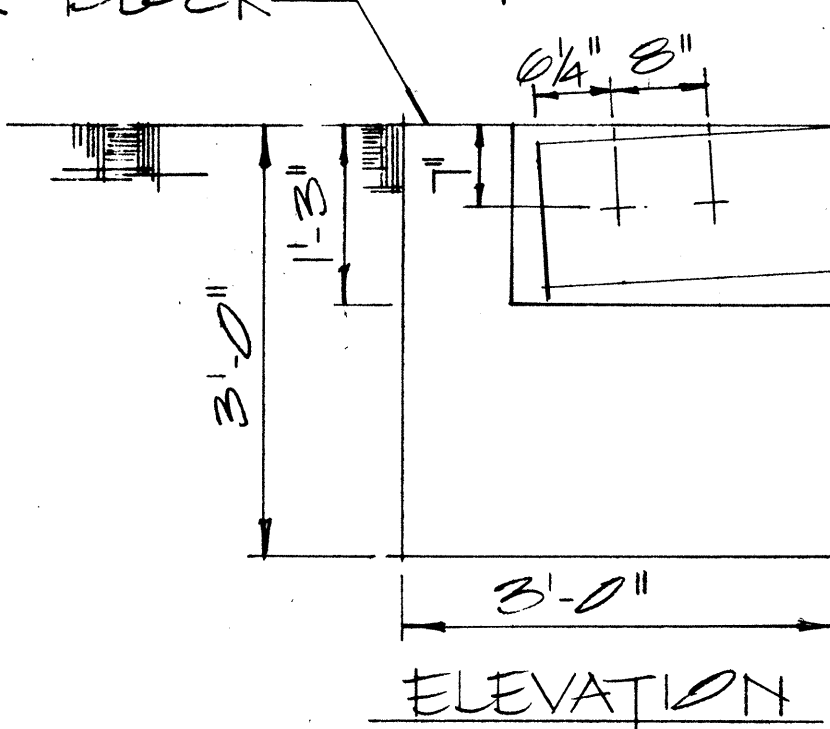
RAMP END ANCHORAGE

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

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.



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: $\frac{3}{4}" = 1'-0"$

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

APPROVED:
Assistant Chief, Engineering
12-30-69
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. 9 OF 6 SHEETS

