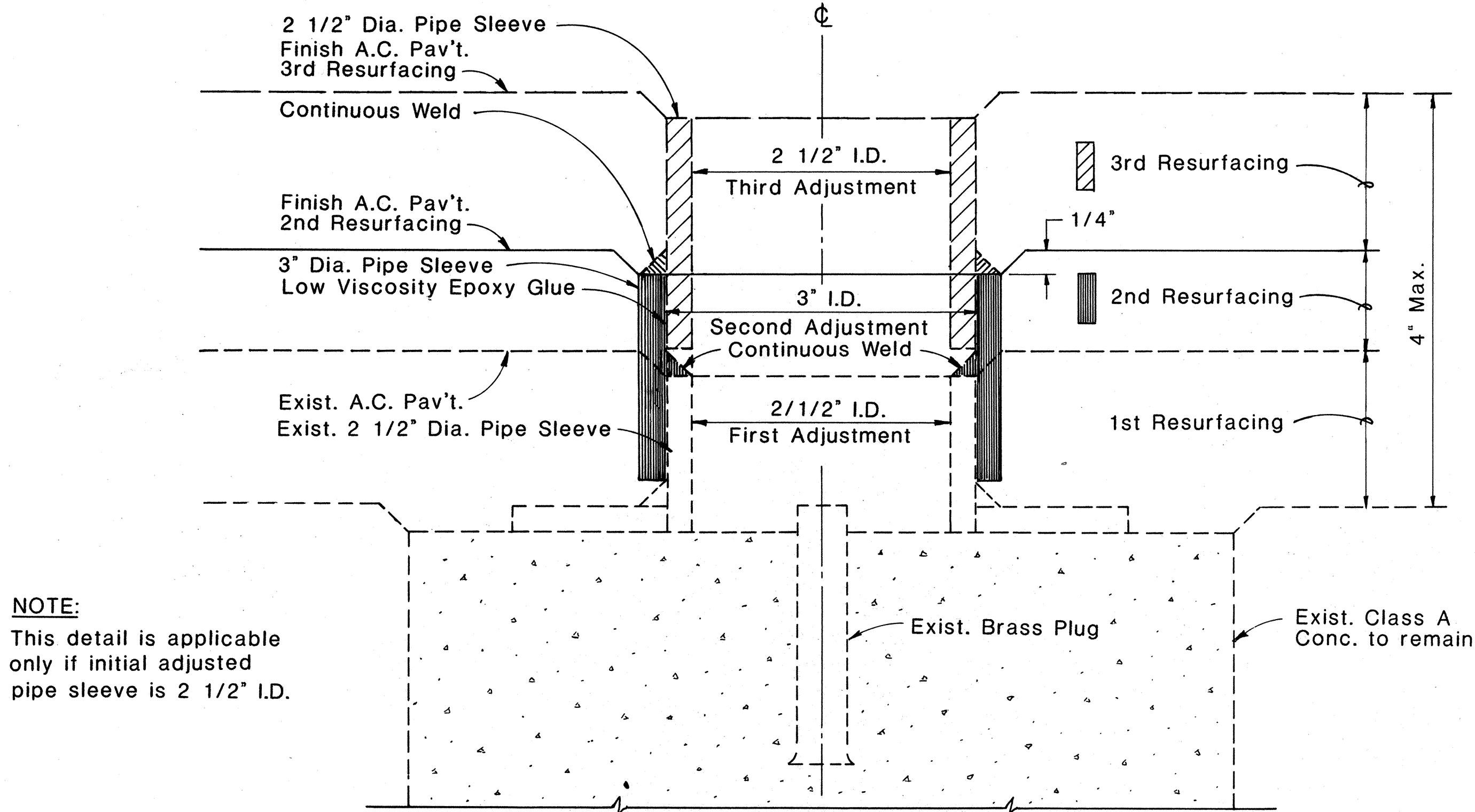


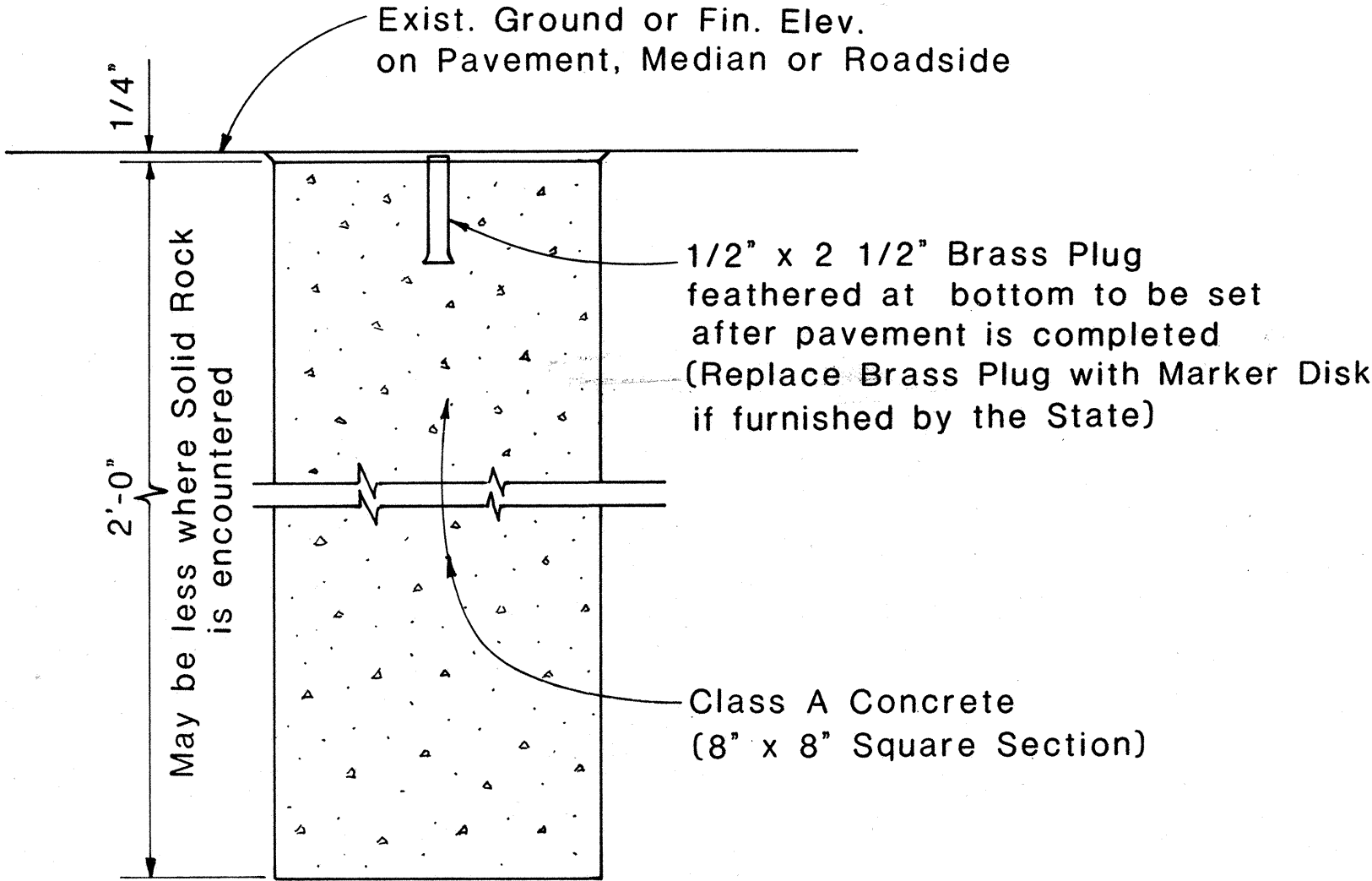
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(28)	1984	9	34



NOTE:
This detail is applicable only if initial adjusted pipe sleeve is 2 1/2" I.D.

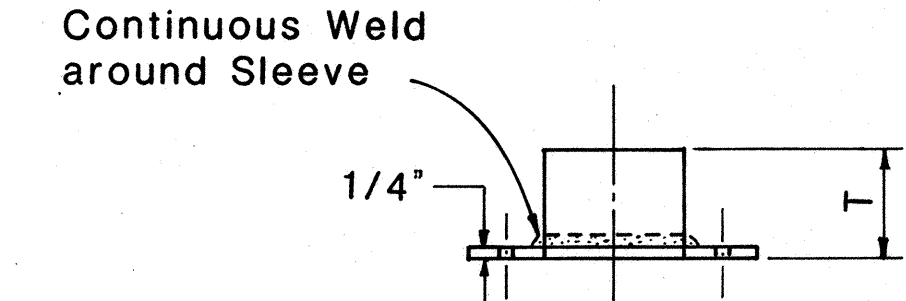
DETAIL FOR CENTERLINE MONUMENT
(2ND & 3RD) ADJUSTMENTS

FULL SIZE

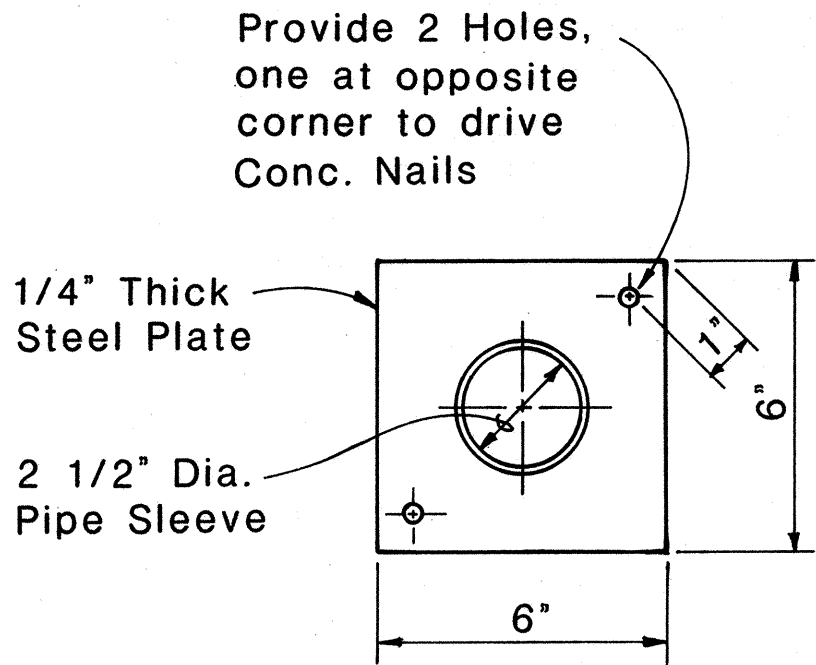


DETAIL FOR
CENTERLINE & REFERENCE
SURVEY MONUMENT

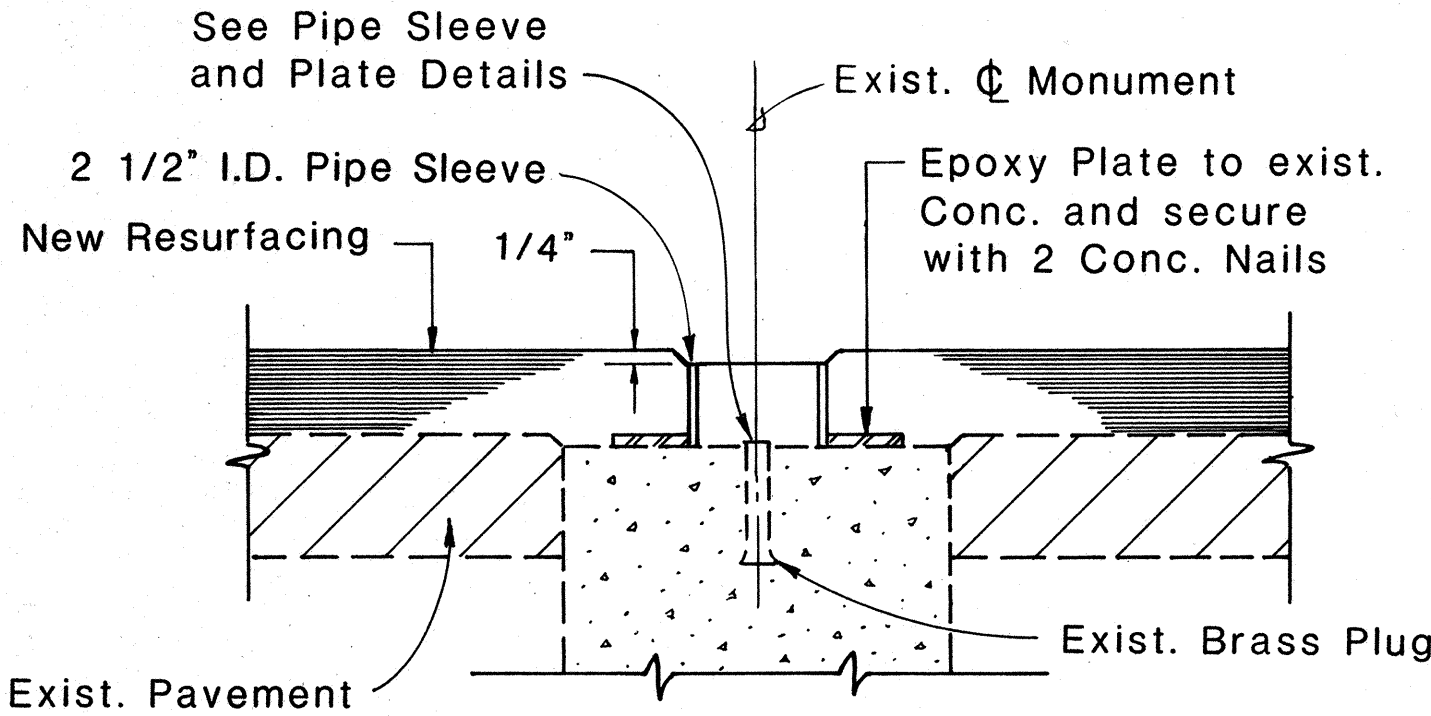
Scale: 1 1/2" = 1'-0"



PIPE SLEEVE & PLATE ELEVATION



PIPE SLEEVE & PLATE PLAN



SECTION THRU MONUMENT

- NOTE:
- Adjustment of Centerline Monuments will not be paid for separately, but shall be considered incidental to the various contract items.
 - These Adjustment Details also apply to Centerline Monuments utilized as Stationline Reference Points.

APPROVAL RECOMMENDED:
Mike Miura 6-20-83
HIGHWAY DESIGN ENGINEER DATE

APPROVED:
Ed Fujiyama 6-22-83
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED	
		BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

**CENTERLINE AND REFERENCE
SURVEY MONUMENT**

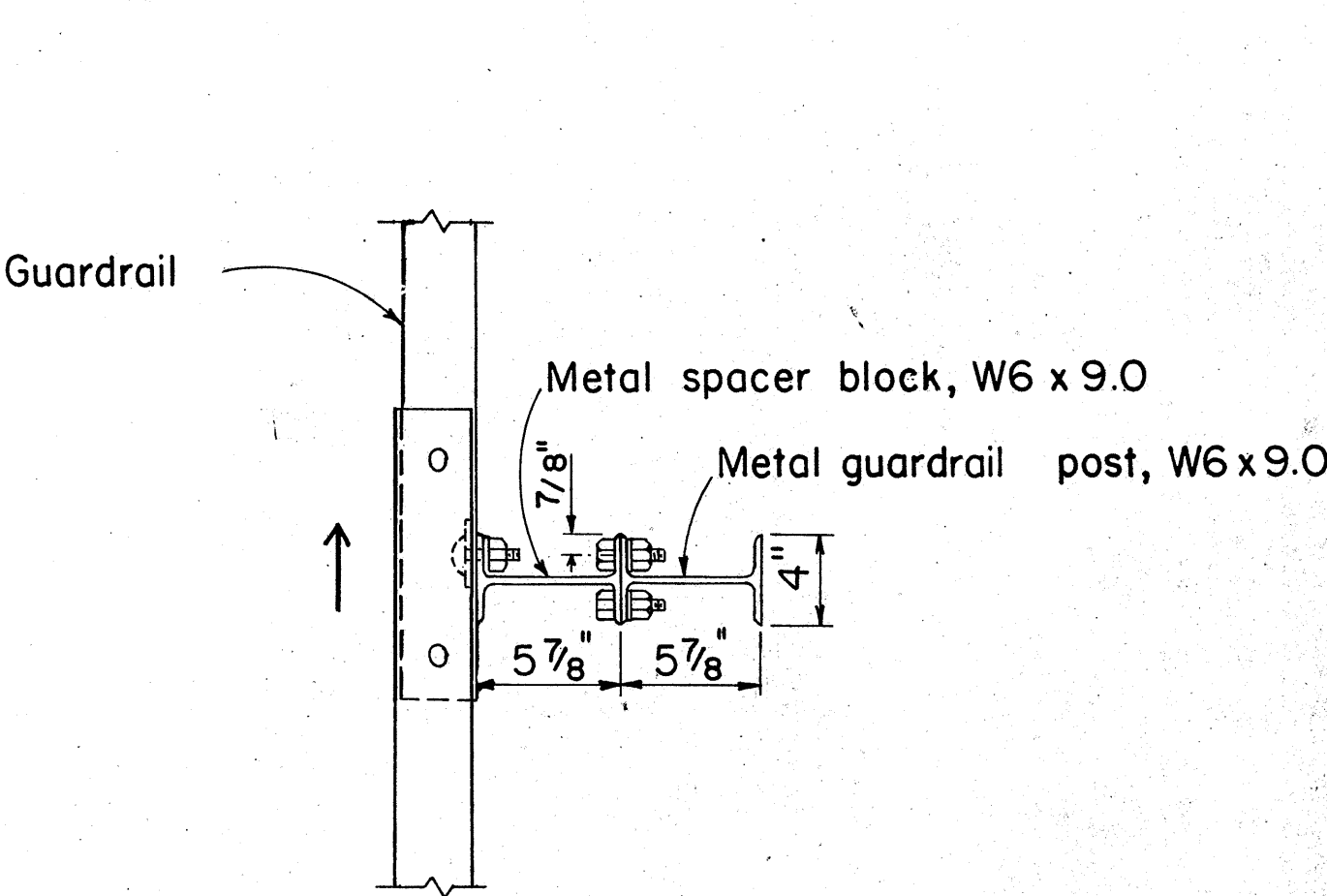
Scale: As Shown Date: May, 1983

SHEET NO. OF SHEETS

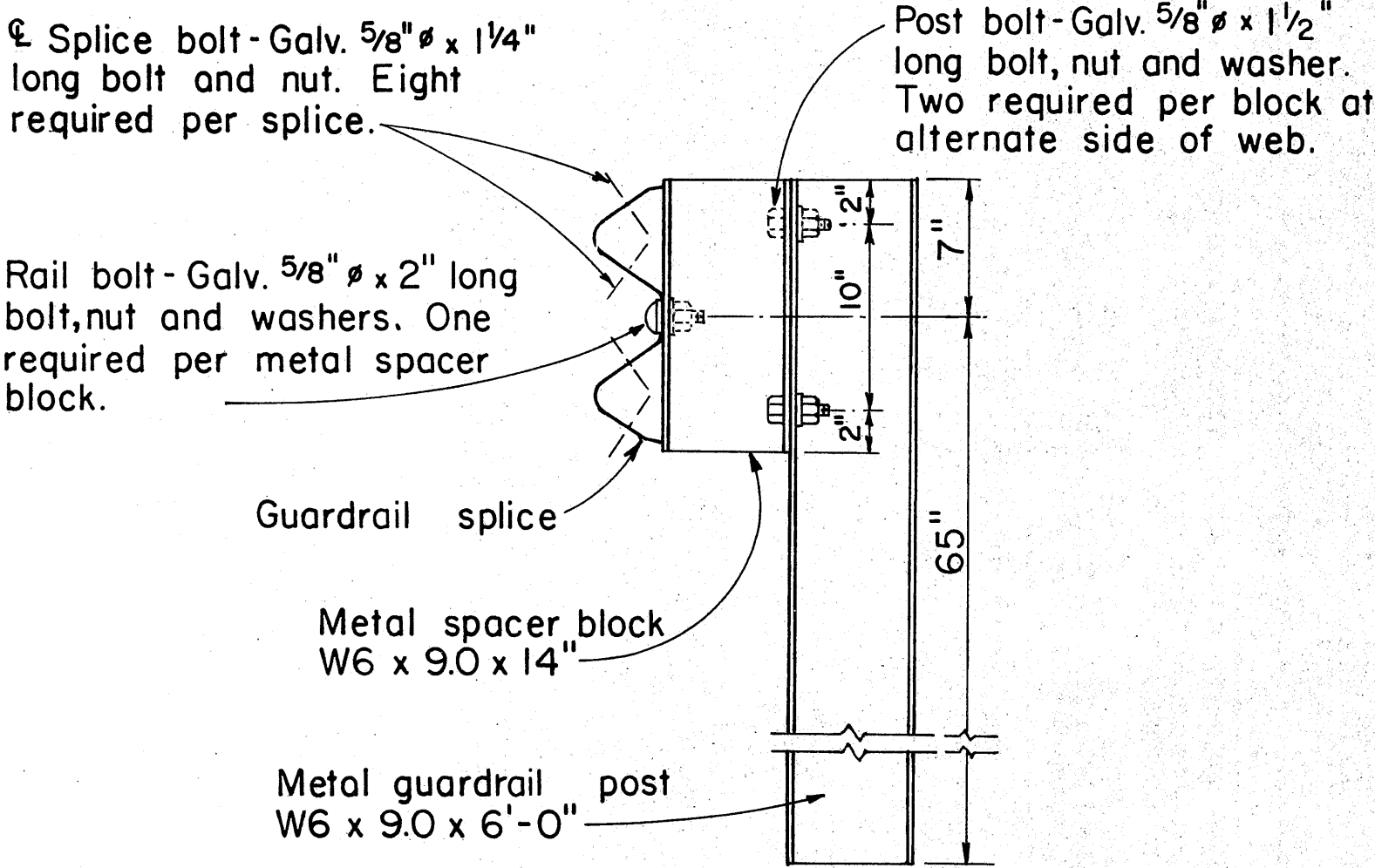
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(20)	1984	11	34

GENERAL NOTES

- Both of the alternate type posts may be used on any one project however, only one type of post shall be used in any single run of guardrail.
- All hardware, posts and blocks shall be galvanized. No punching, drilling or cutting will be permitted after galvanizing.
- Connection details for bent plate post and block shall be similar to the details shown for structural shape post, and block.
- Where conditions require, special post lengths in increments of 6 inches may be specified.
- For details of rail elements, bolts and nuts, see sheet DT 501.
- All fasteners, posts, blocks and rail elements shall conform to the latest edition and amendments of "A Guide to Standardized Highway Barrier Rail Hardware", a report prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee.



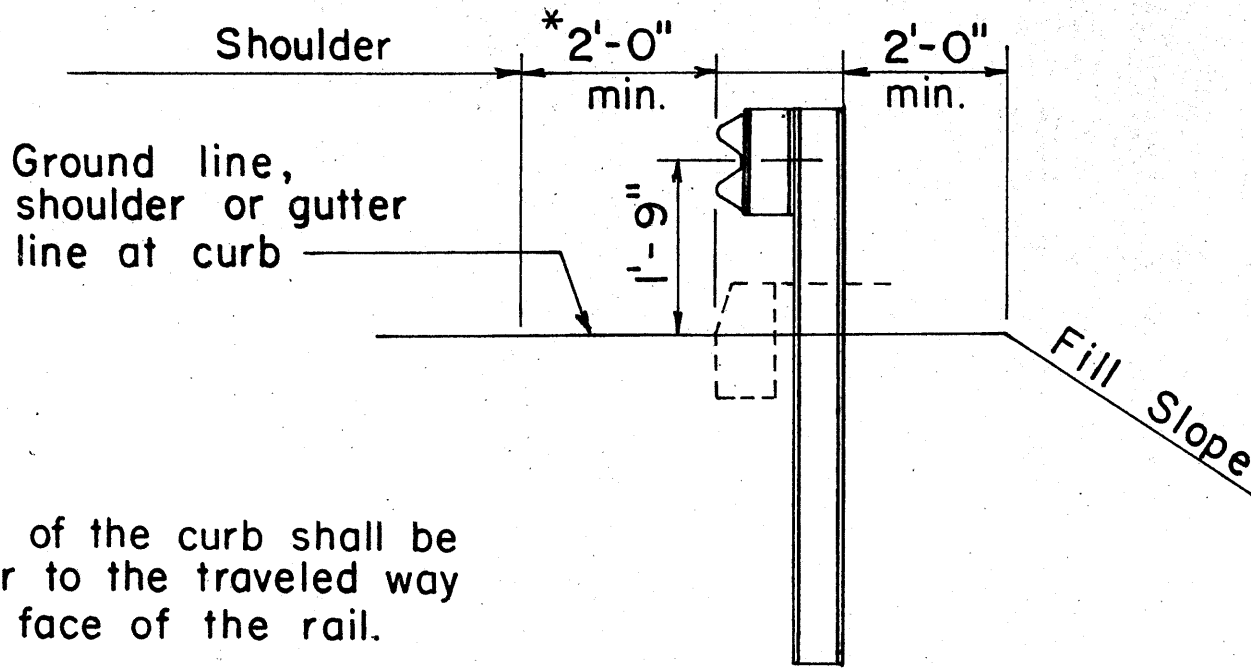
PLAN



ELEVATION

SINGLE METAL GUARDRAIL ON METAL POST WITH METAL SPACER BLOCK

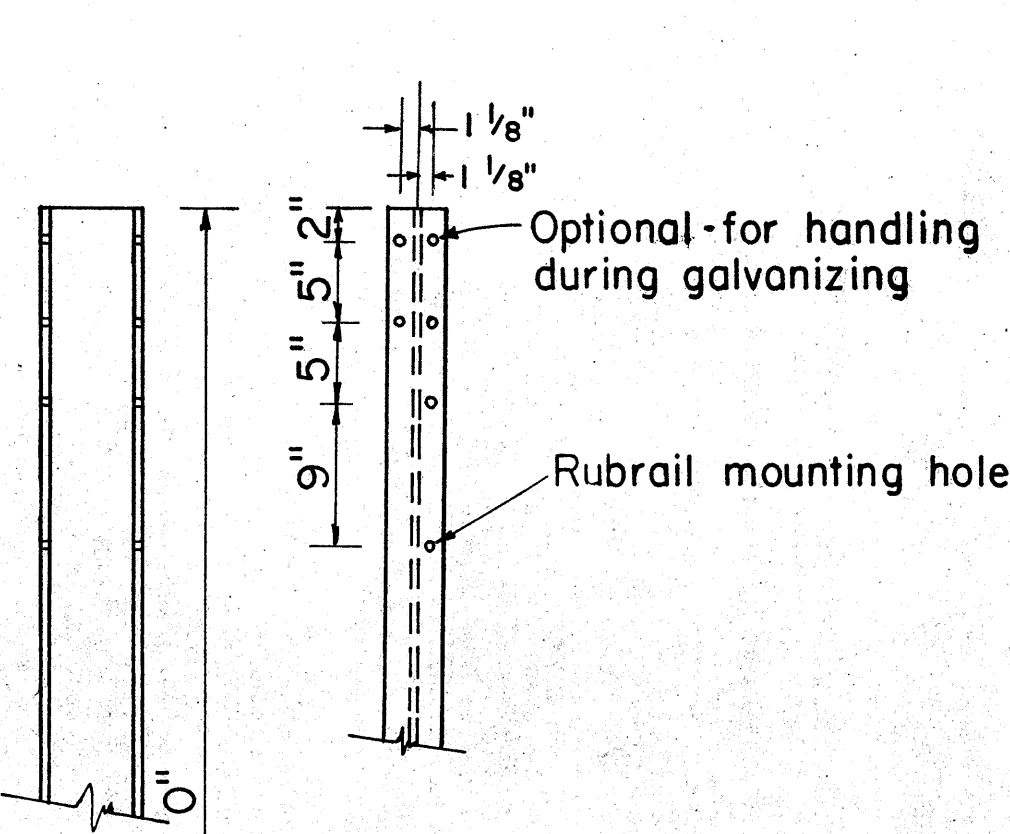
SCALE: 1/2" = 1'-0"



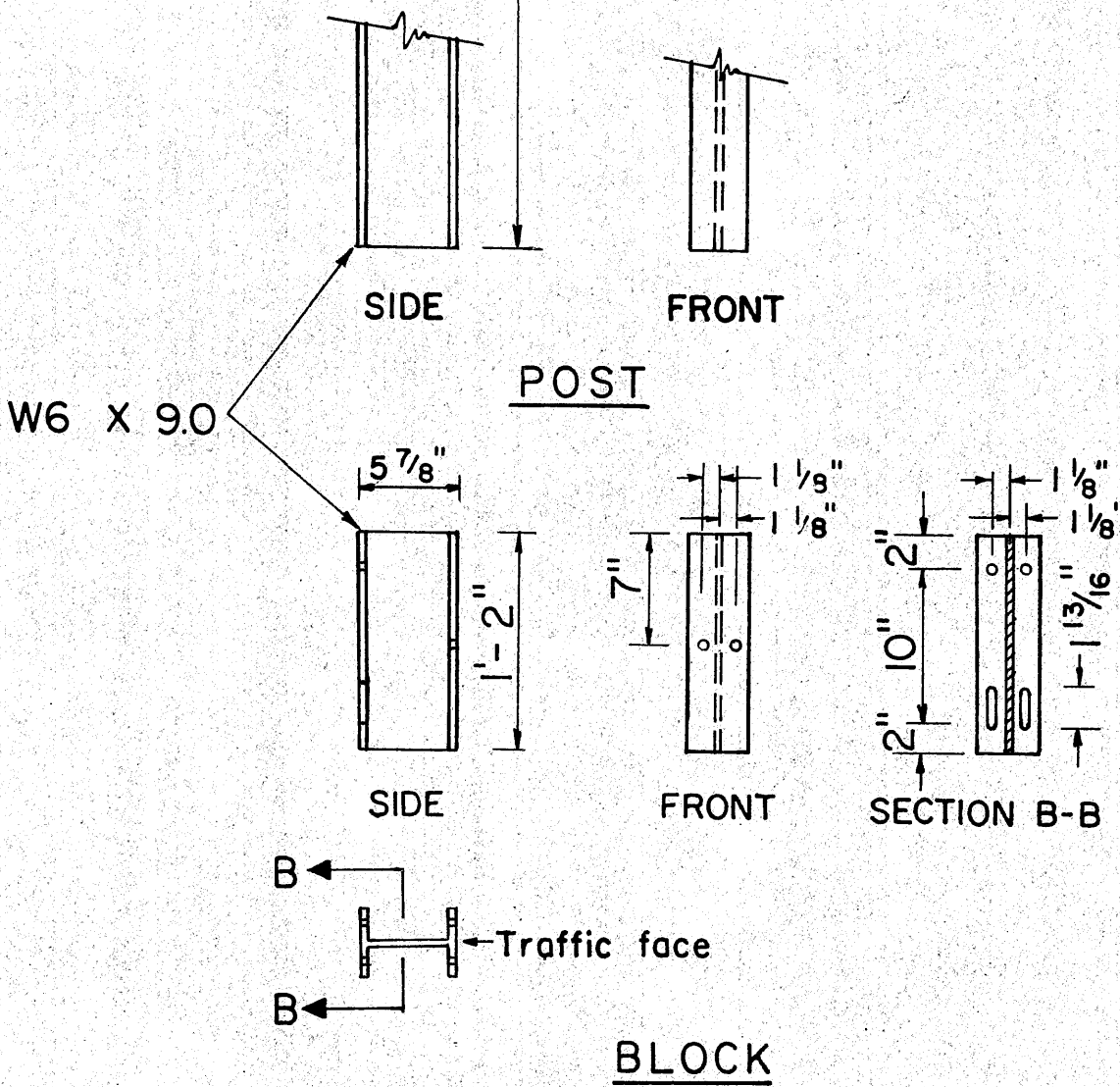
AT SHOULDER SECTION

TYPICAL METAL GUARDRAIL DETAIL

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

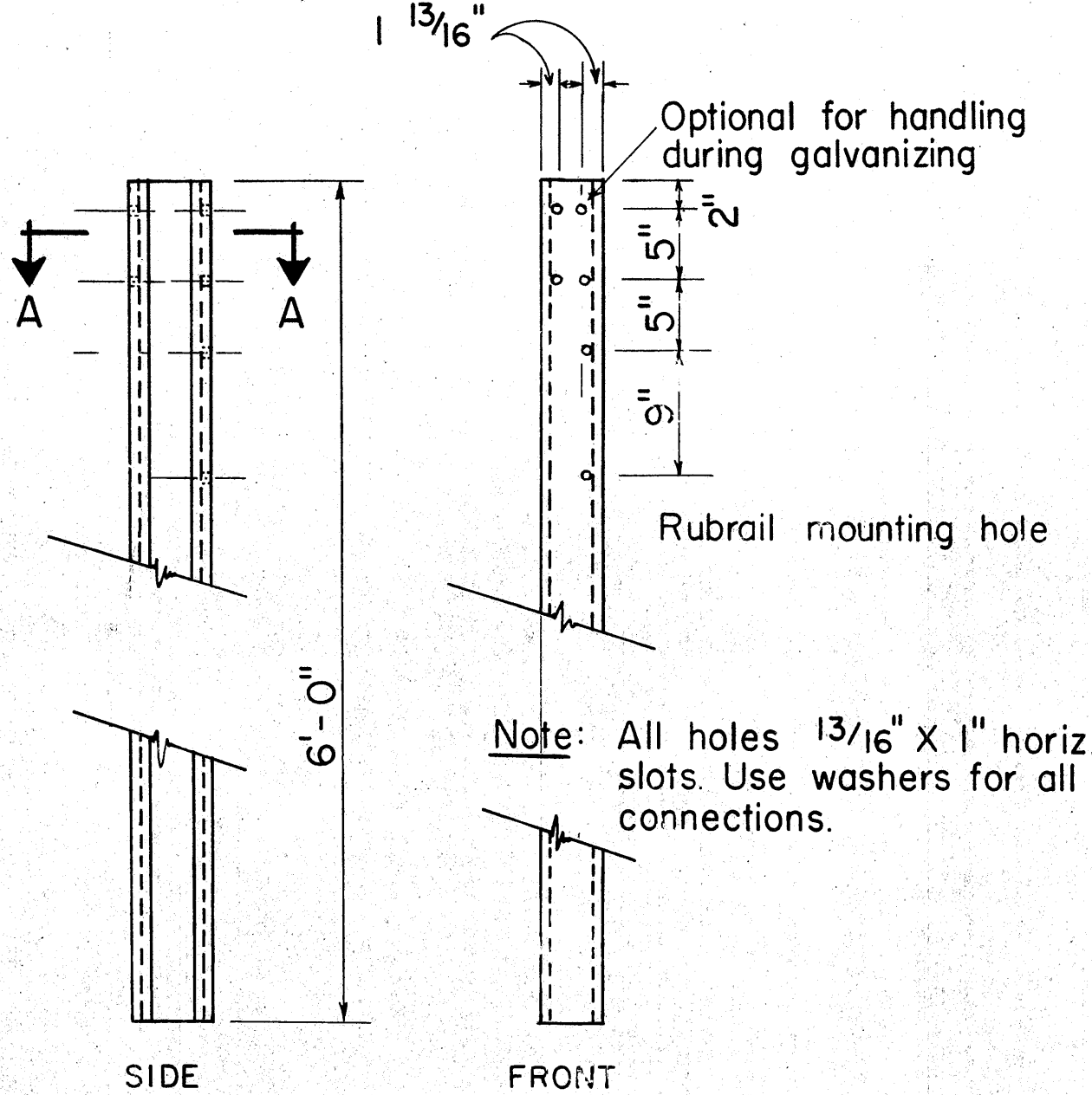


NOTE:
All holes 13/16" ϕ . Bolt hole pattern is symmetrical with respect to the vertical axis of the post.

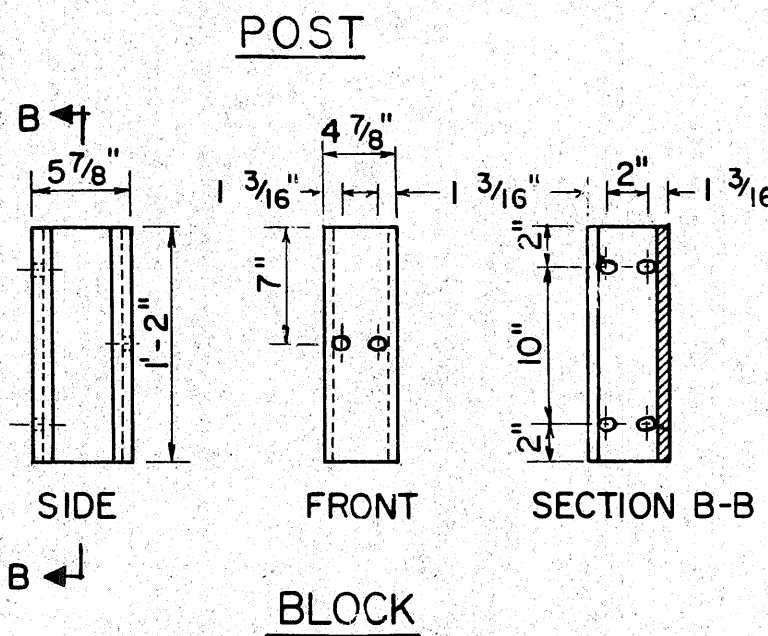


STRUCTURAL SHAPE POST AND BLOCK

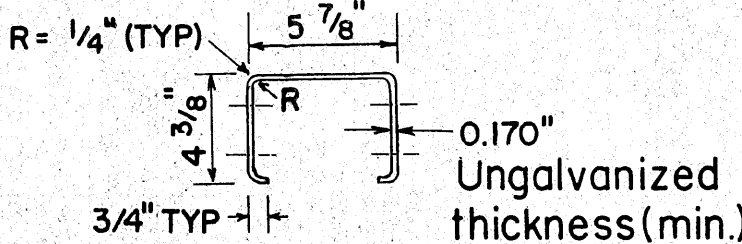
SCALE: 1" = 1'-0"



Note: All holes 13/16" X 1" horiz. slots. Use washers for all connections.



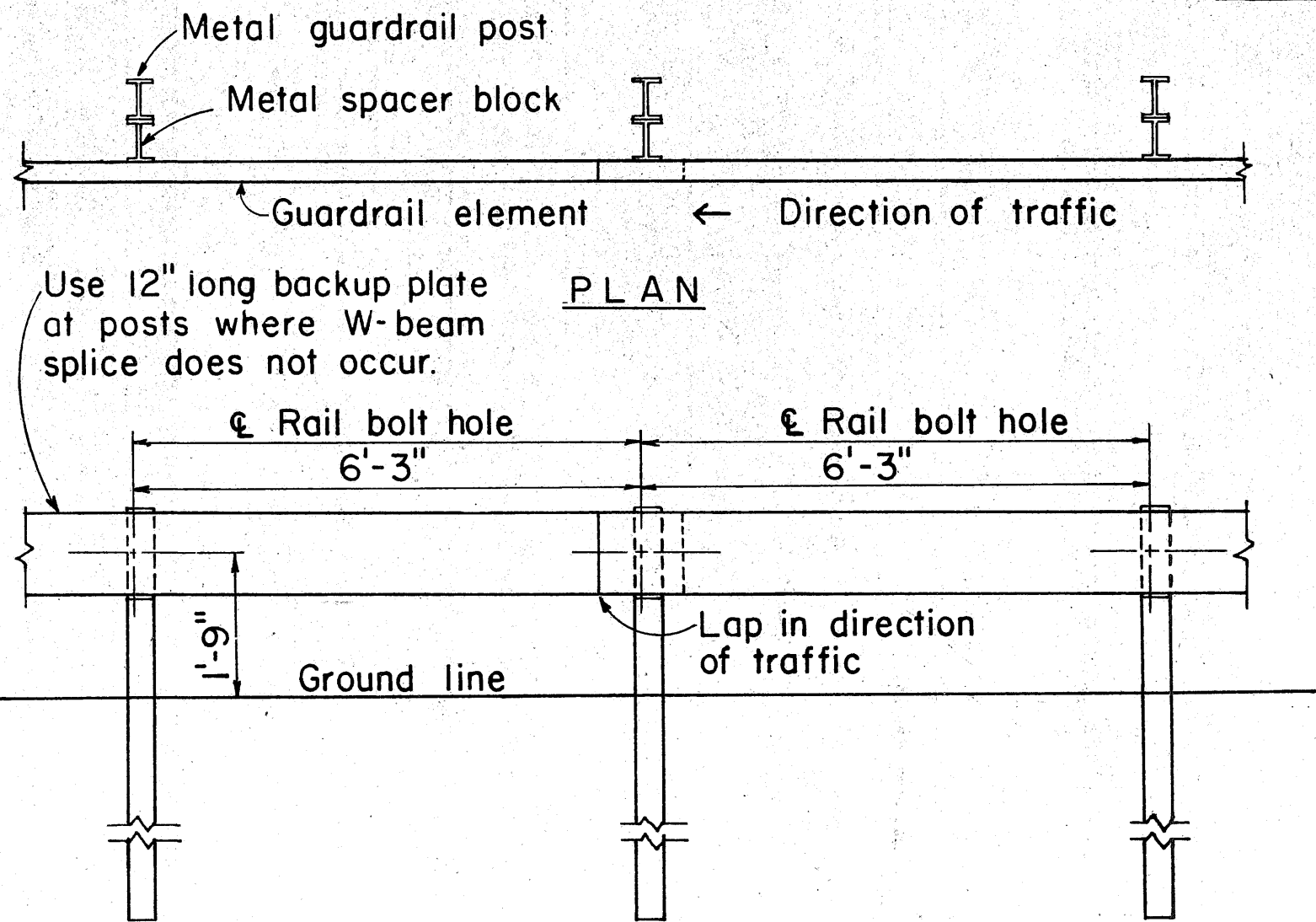
BLOCK



SECTION A-A
N.T.S.

BENT PLATE POST AND BLOCK

SCALE: 1" = 1'-0"



ELEVATION

METAL GUARDRAIL ON METAL POST WITH METAL SPACER BLOCK

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

APPROVAL RECOMMENDED:
Eishi Tanaka 9/1/82
TRAFFIC ENGINEER DATE

APPROVED:
Herbert Salschi 9/22/82
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes sht. DT 500 approved 12/30/69.	H.P.	9/22/82
2	Added General Notes No. 6	SDO	9-28-83

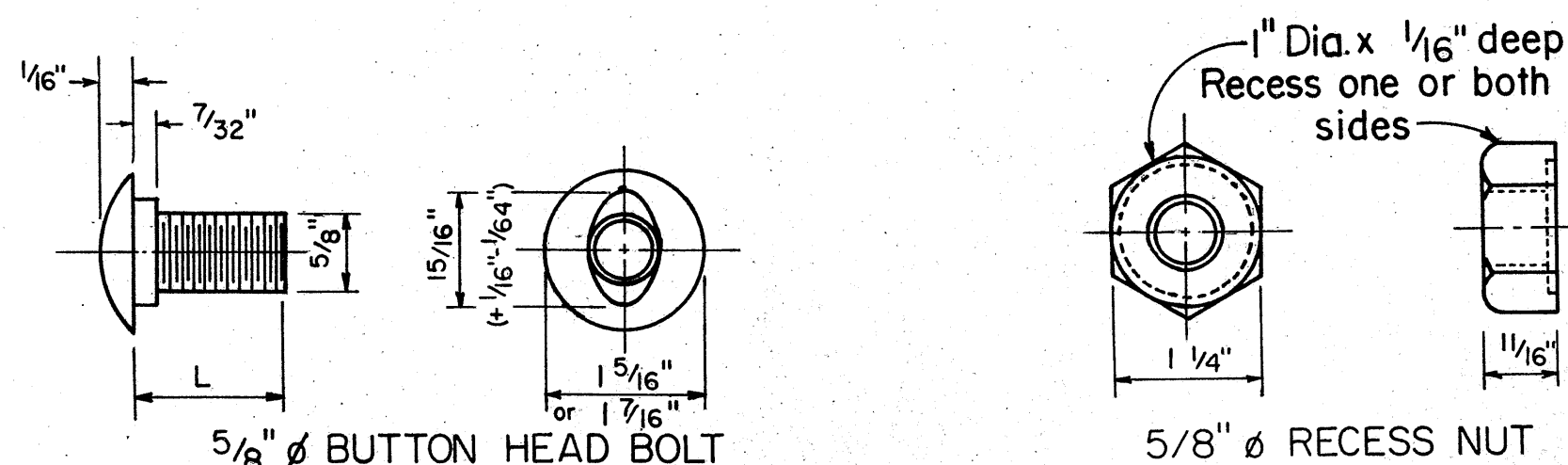
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL GUARDRAIL

Scale: As Shown
SHEET No. OF SHEETS

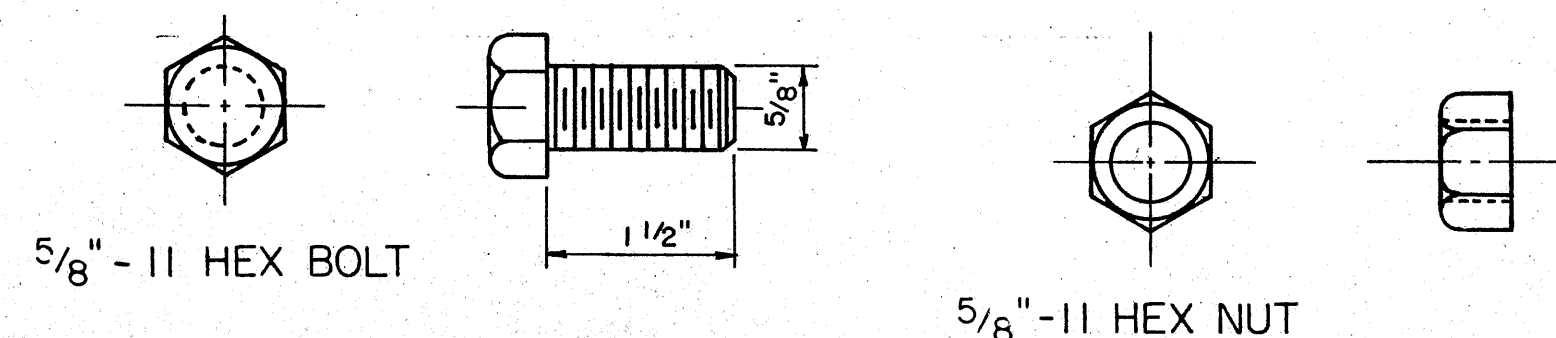
July, 1982
SDT 500

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-012-1(28)	1984	12	34

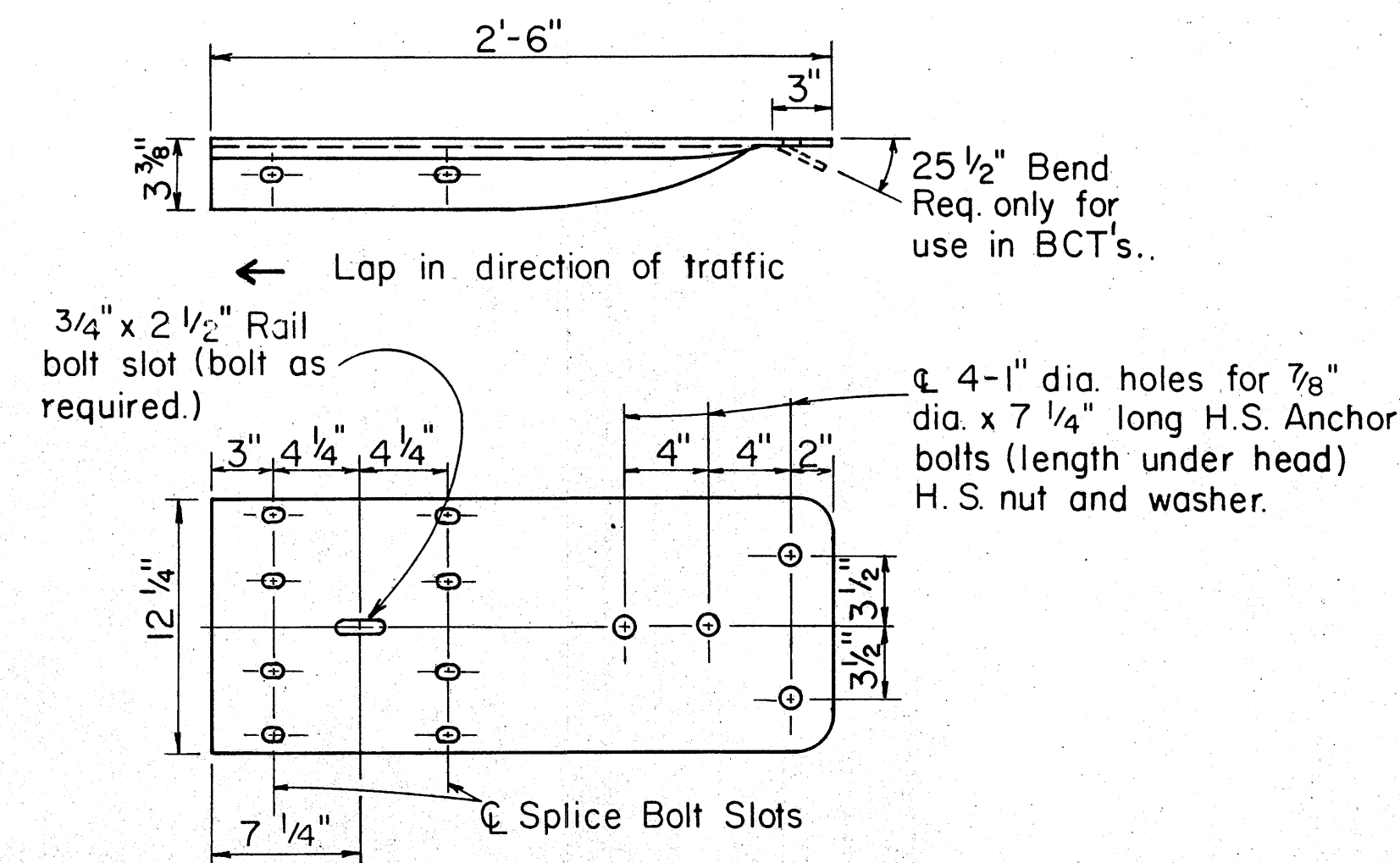


L	Thread Length	Intended Use
1 1/4"	Full length thread	Splice rail elements
2"	1 1/2" min. thread len.	Fasten rails to posts

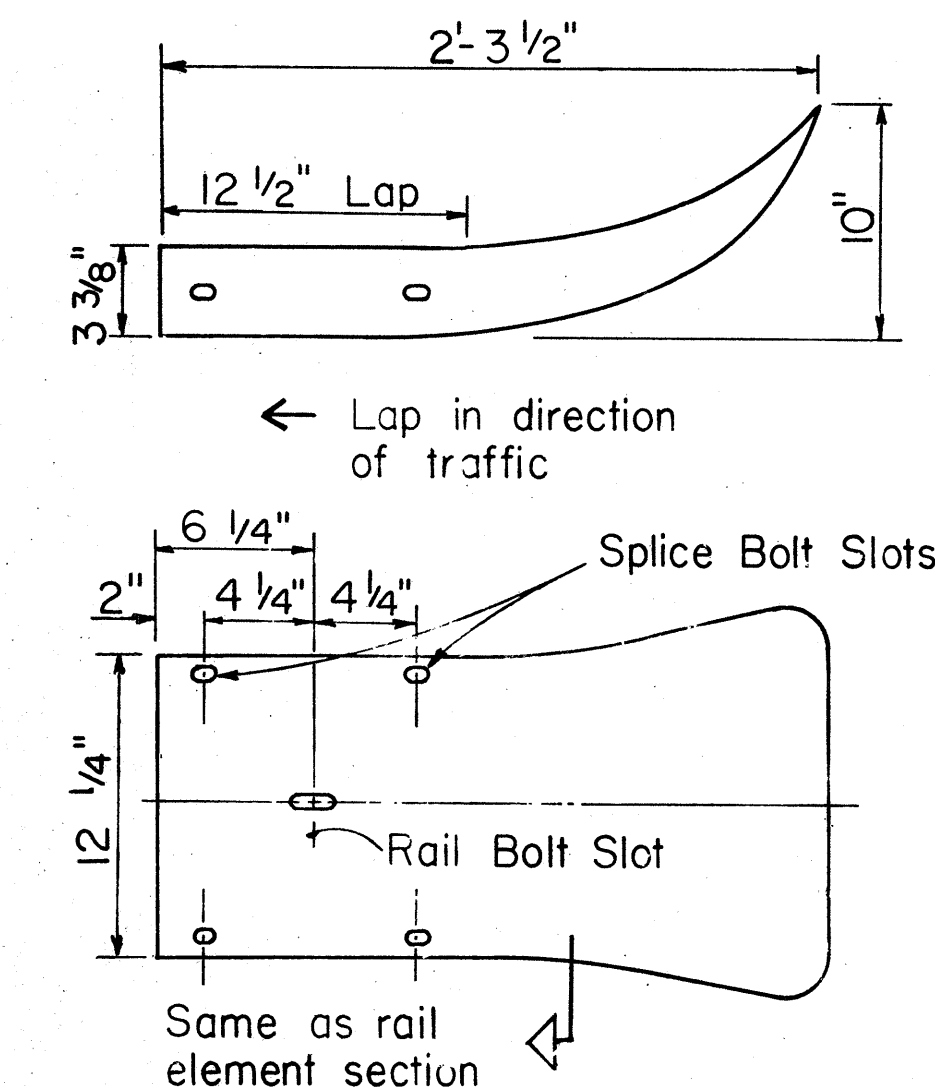
**5/8" BUTTON HEAD BOLT
AND RECESS NUT**
Scale: NTS



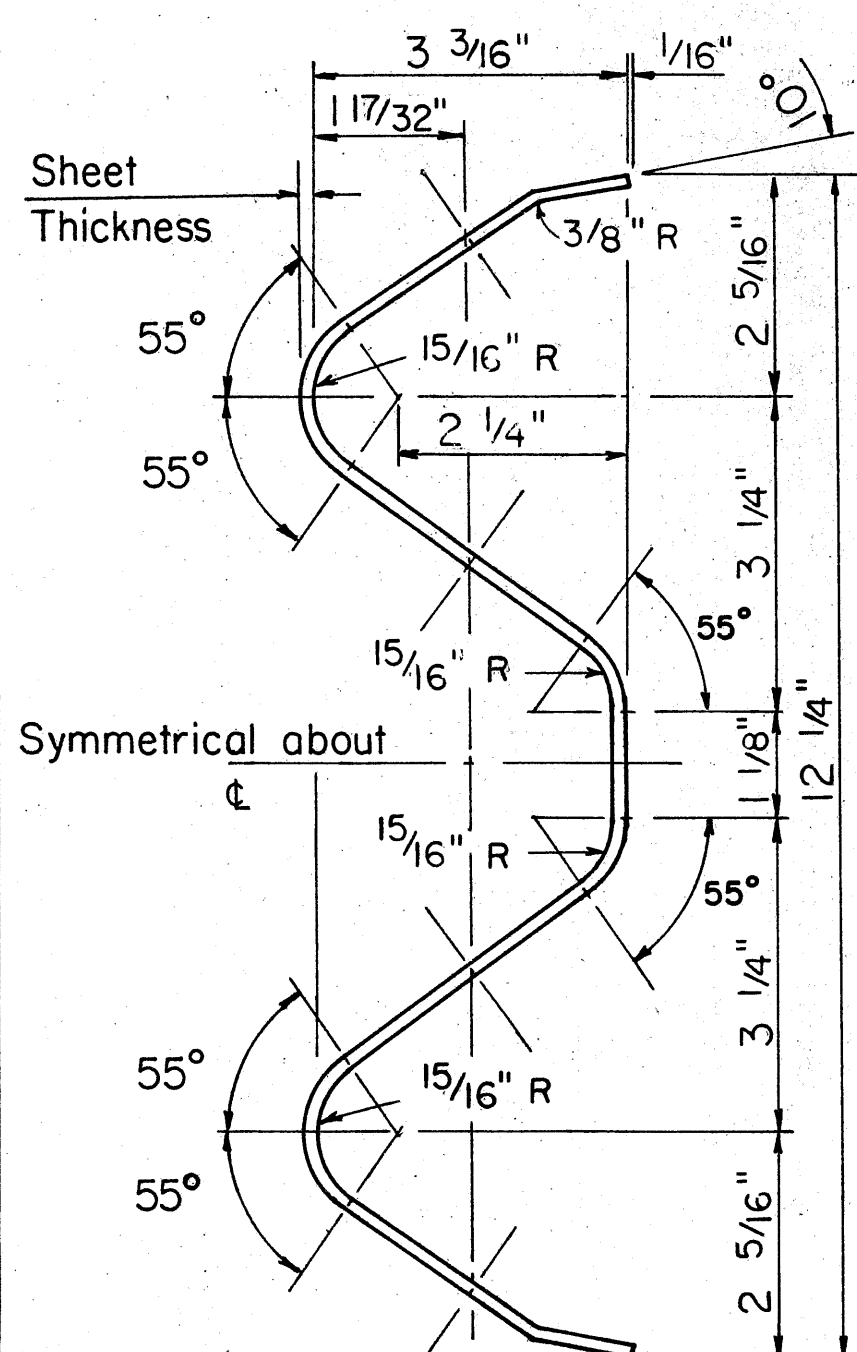
5/8" HEX POST BOLT AND NUT
Scale: N.T.S.



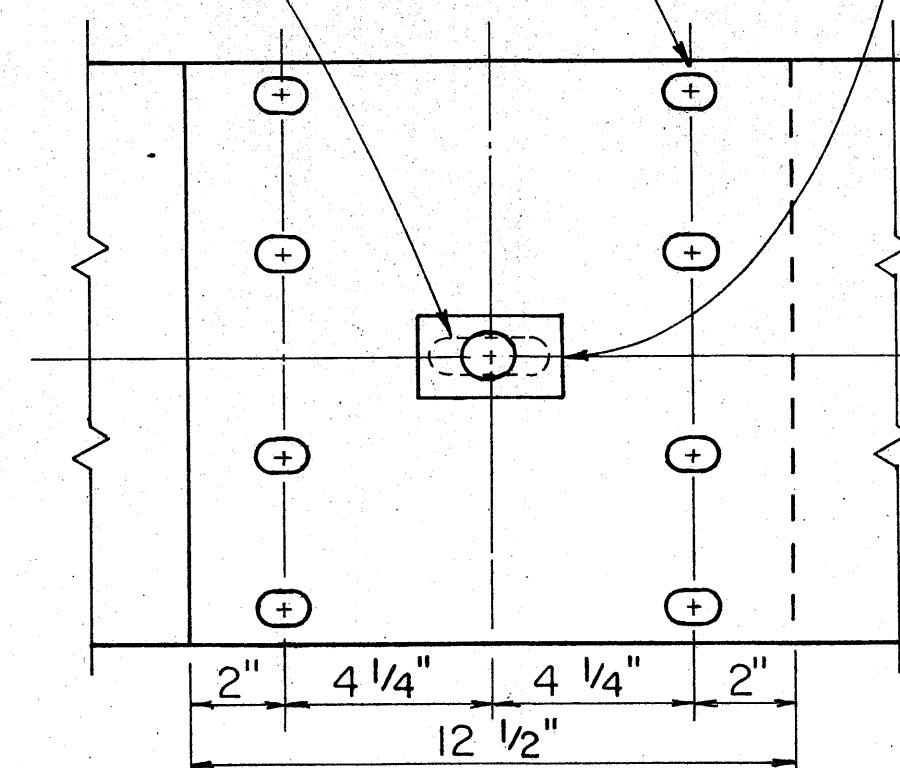
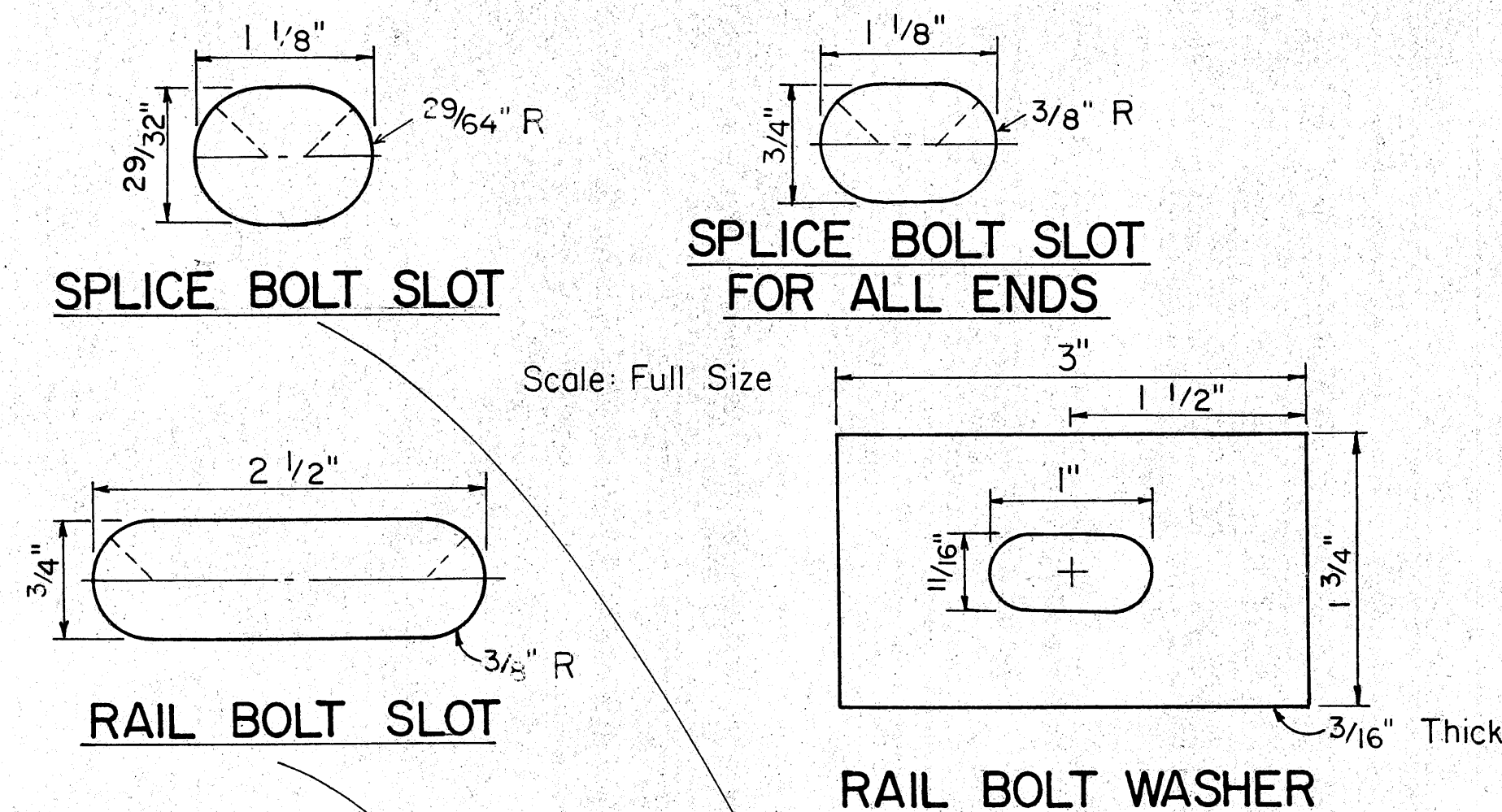
W BEAM TERMINAL CONNECTOR
Scale: 1 1/2" = 1'-0"
← Lap in direction of traffic



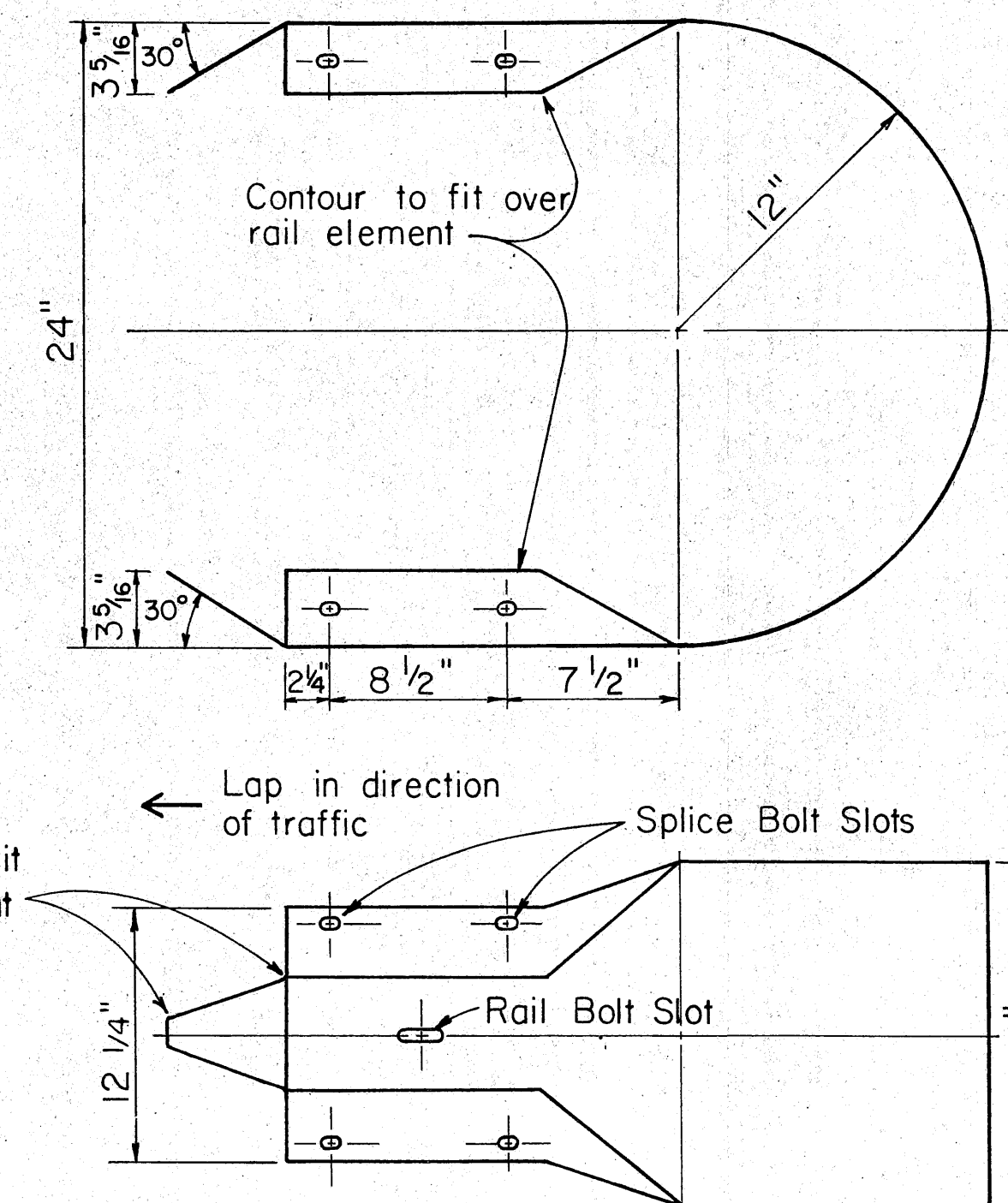
W BEAM END SECTION (FLARED)
Scale: 1 1/2" = 1'-0"



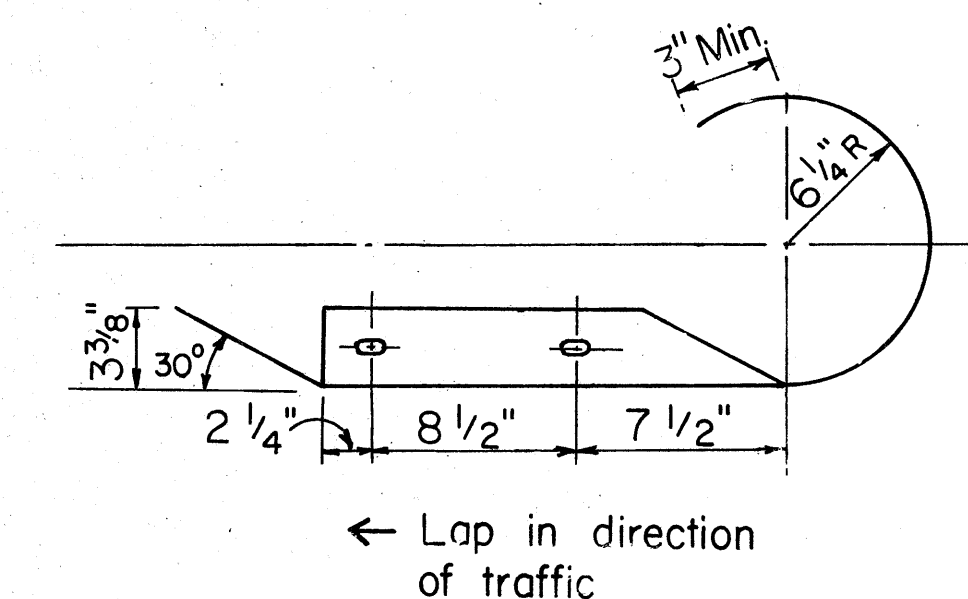
RAIL ELEMENT SECTION
Scale: 6" = 1'-0"



RAIL SPLICE
Scale: 3" = 1'-0"



W BEAM END SECTION (BUFFER)
Scale: 1 1/2" = 1'-0"



W BEAM END SECTION (ROUNDED)
Scale: 1 1/2" = 1'-0"

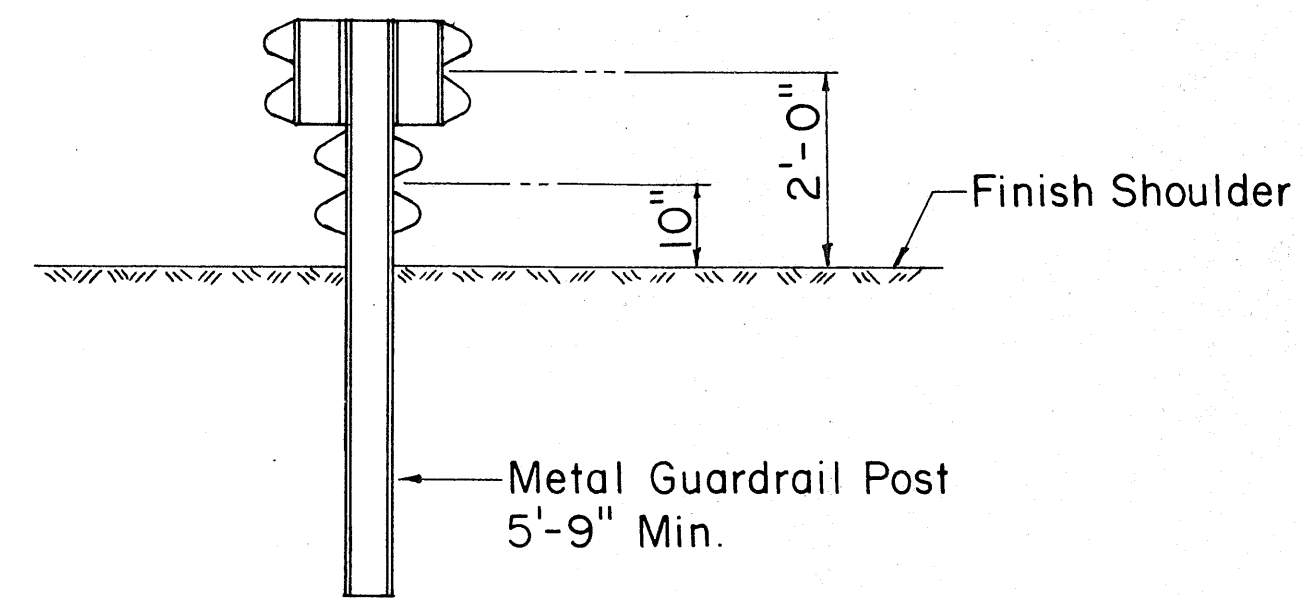
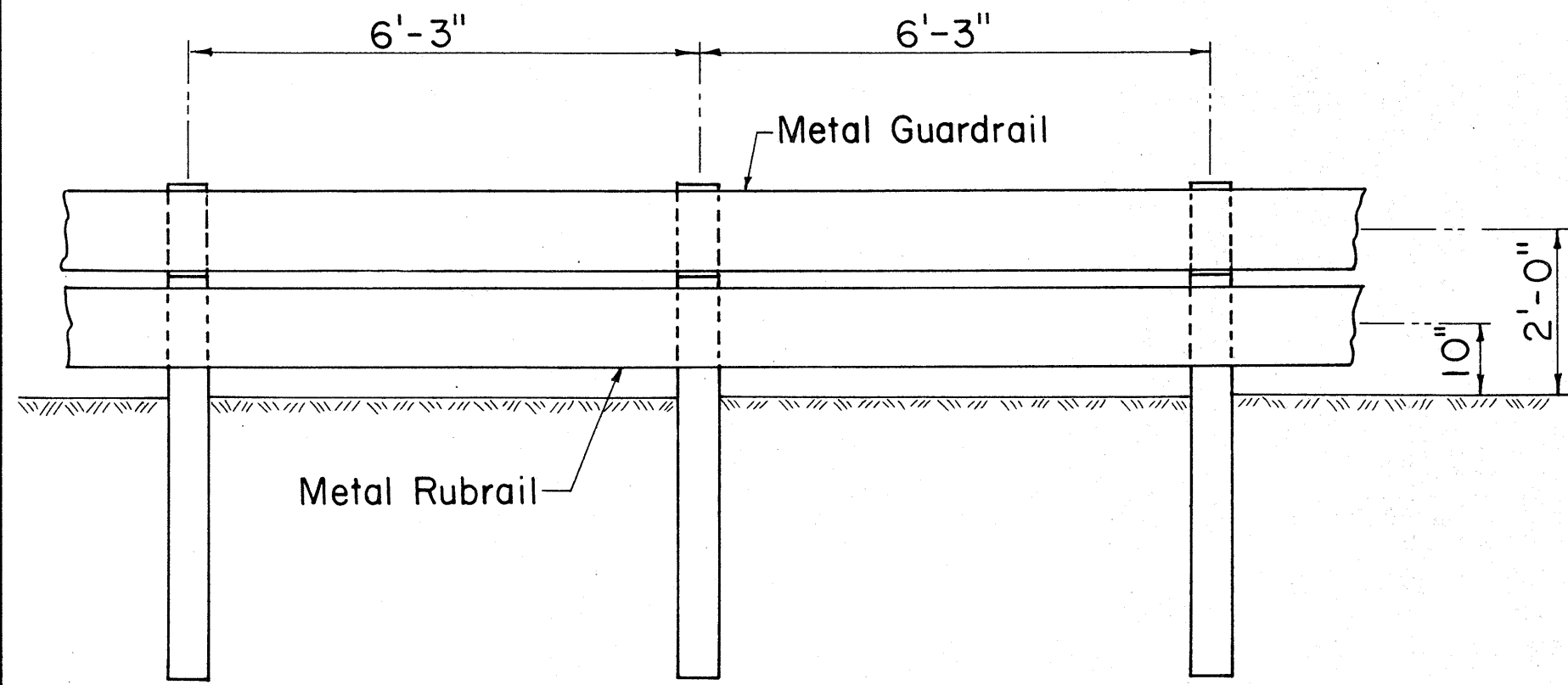
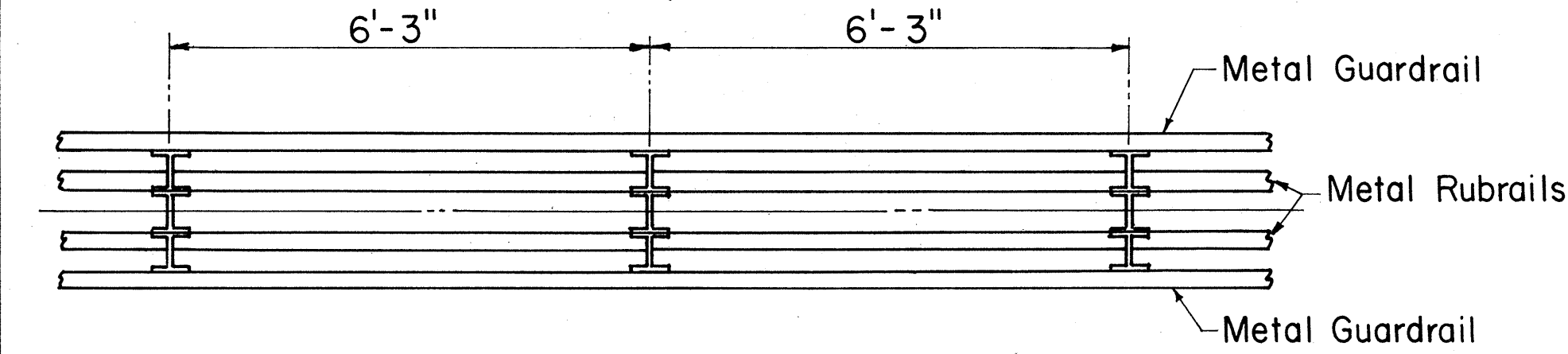
APPROVAL RECOMMENDED:
Erich Tanaka 9/20/82
TRAFFIC ENGINEER DATE

APPROVED:
Shirley S. S. S. 9/22/82
ASSISTANT CHIEF, ENGINEERING DATE

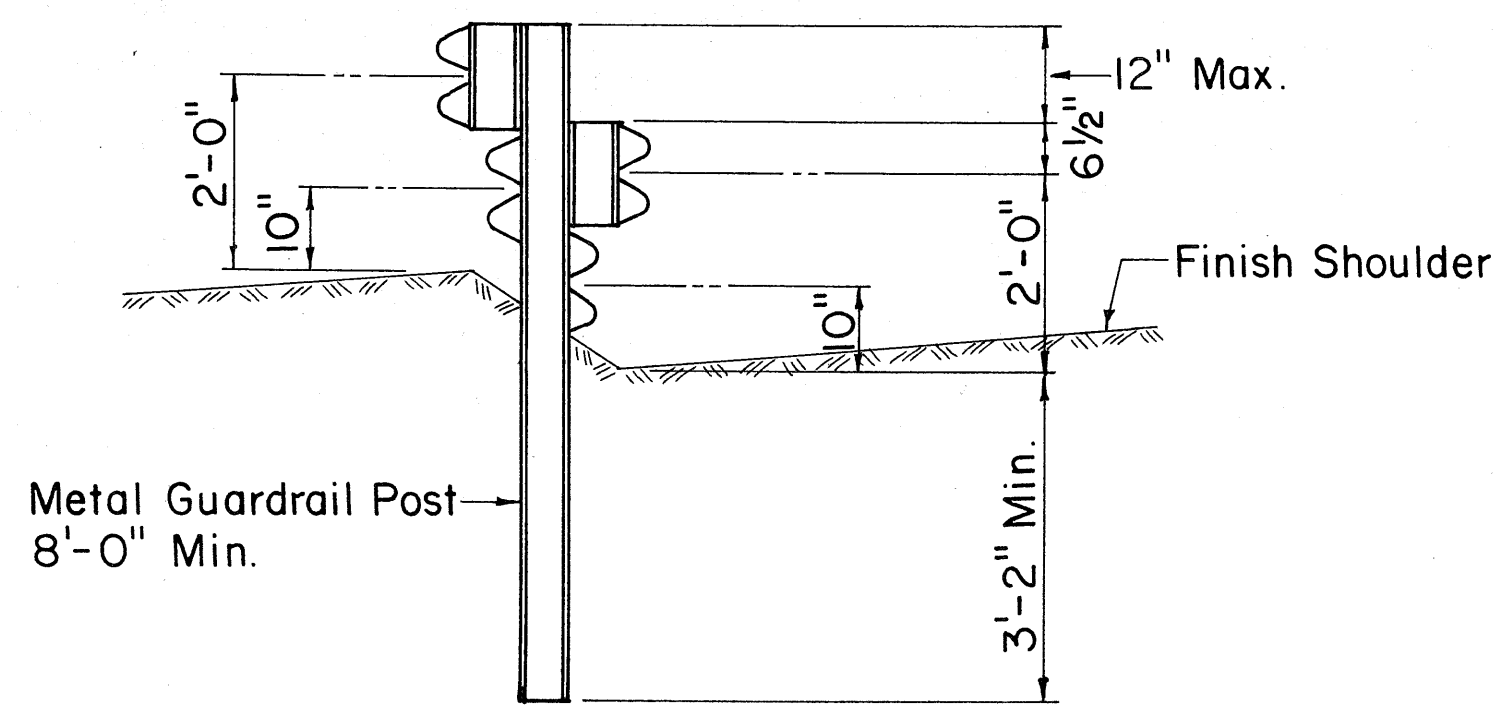
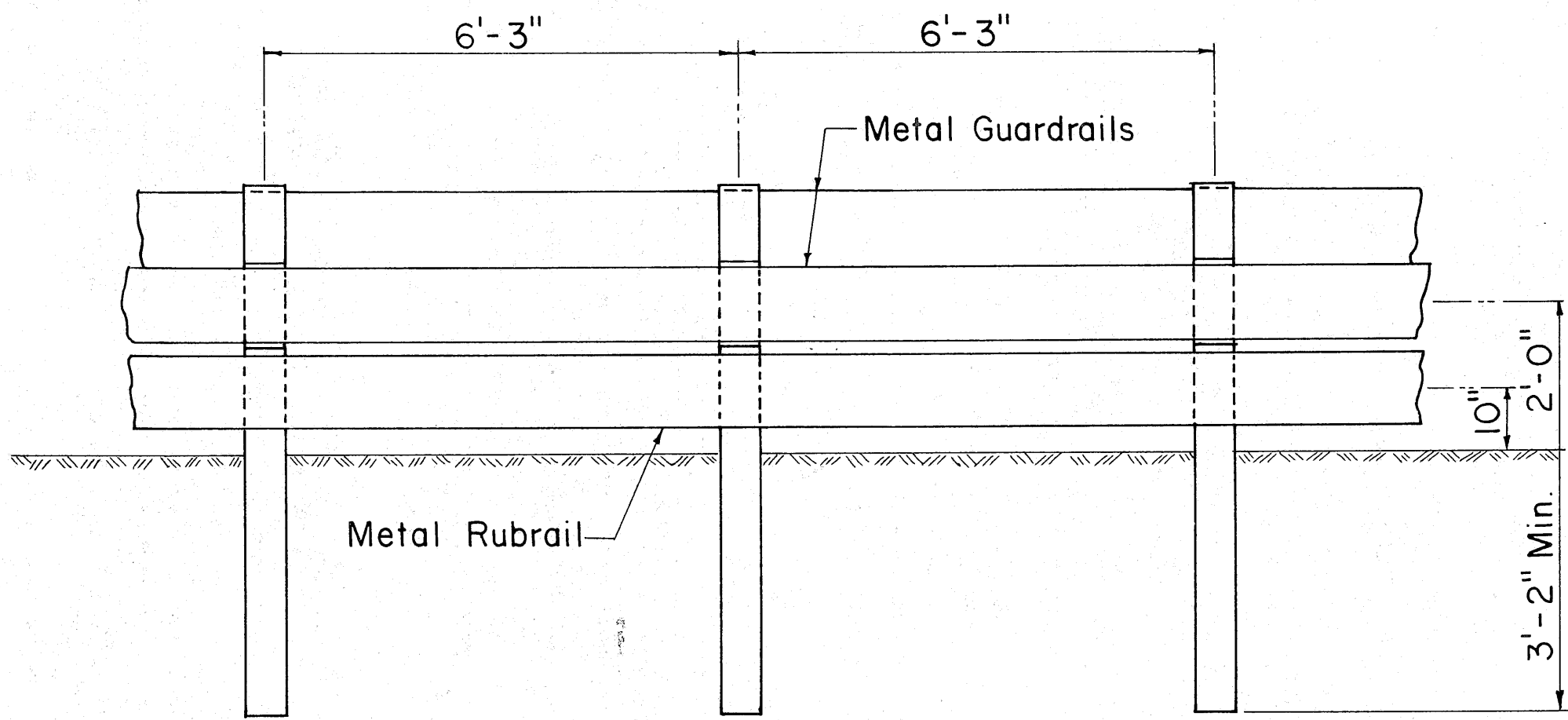
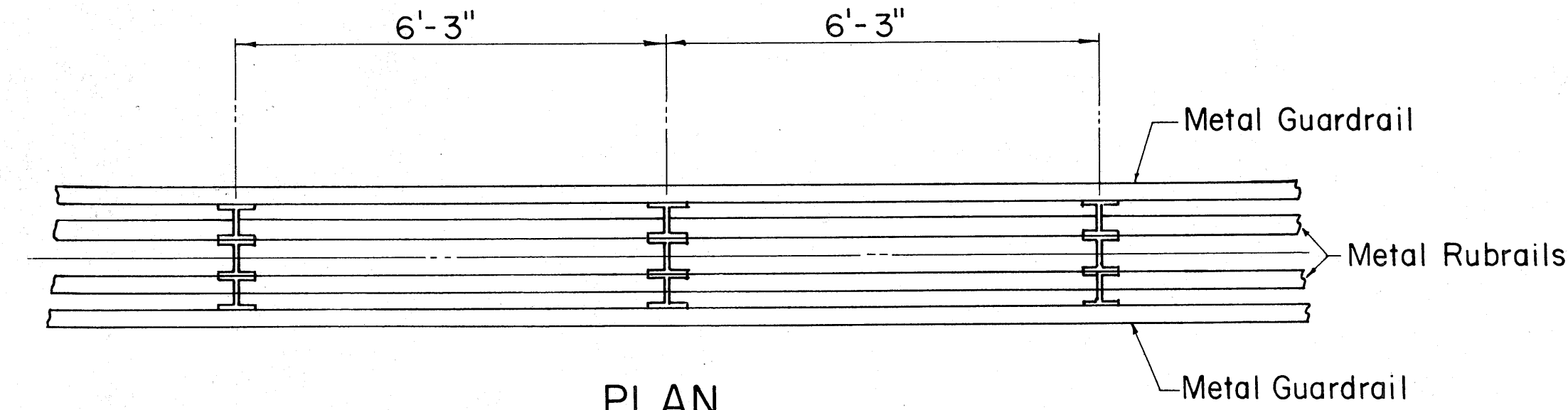
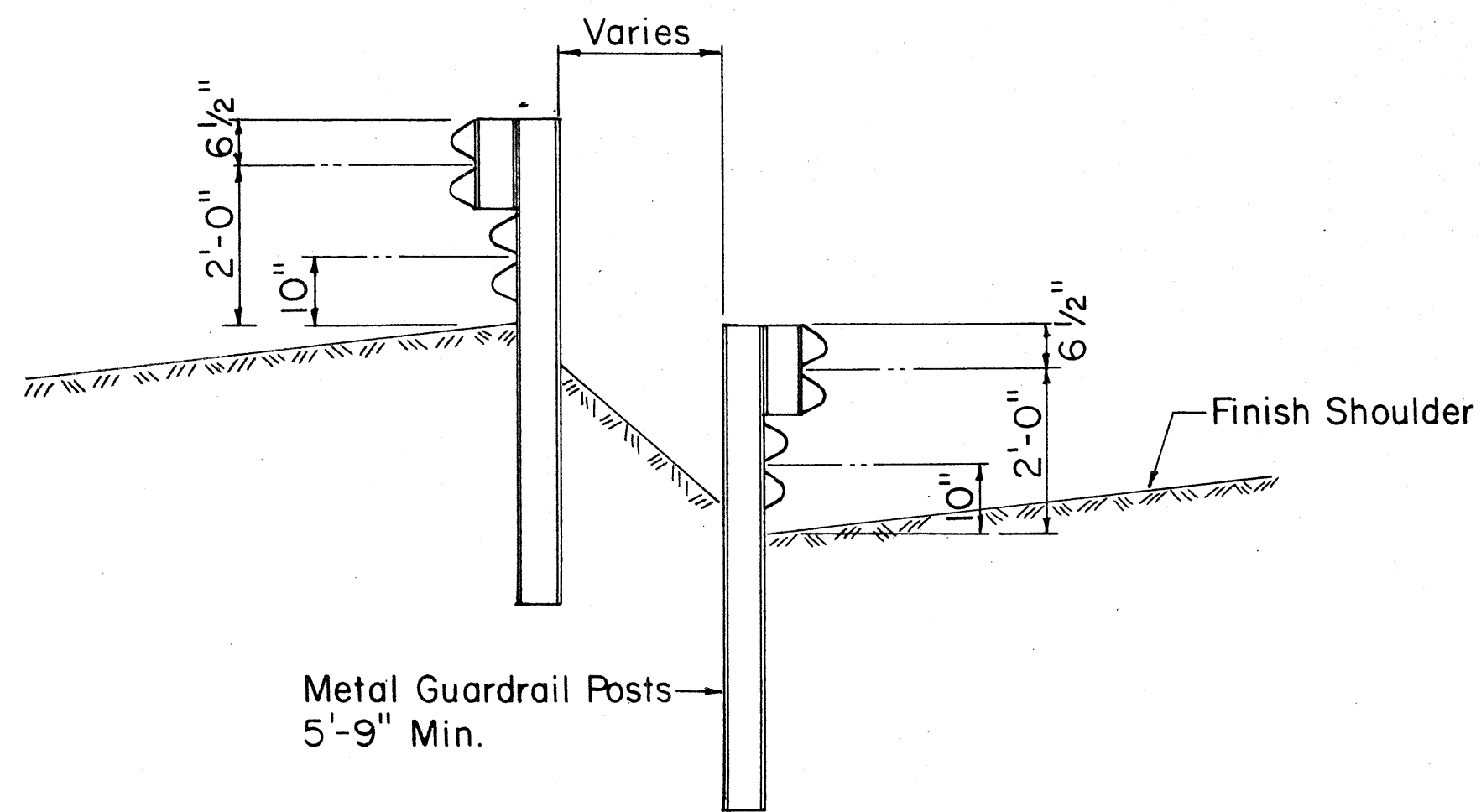
NO.	REVISION	APPROVED BY	DATE
1	Supersedes sht. DT 501 approved 12/30/69	H.f.	9/22/82

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
METAL GUARDRAIL
Scale: As Noted July, 1982
SHEET NO. OF SHEETS DT 501

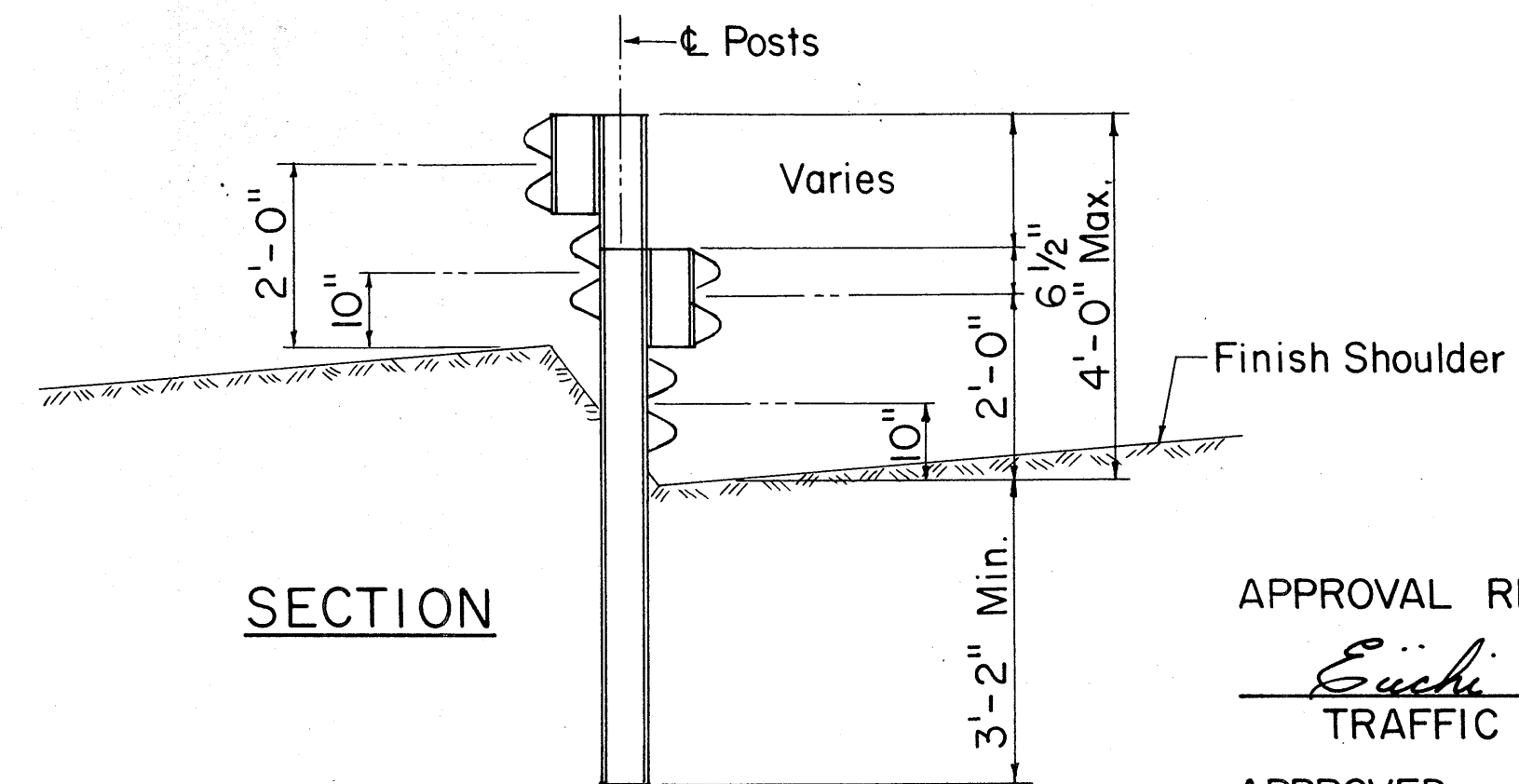
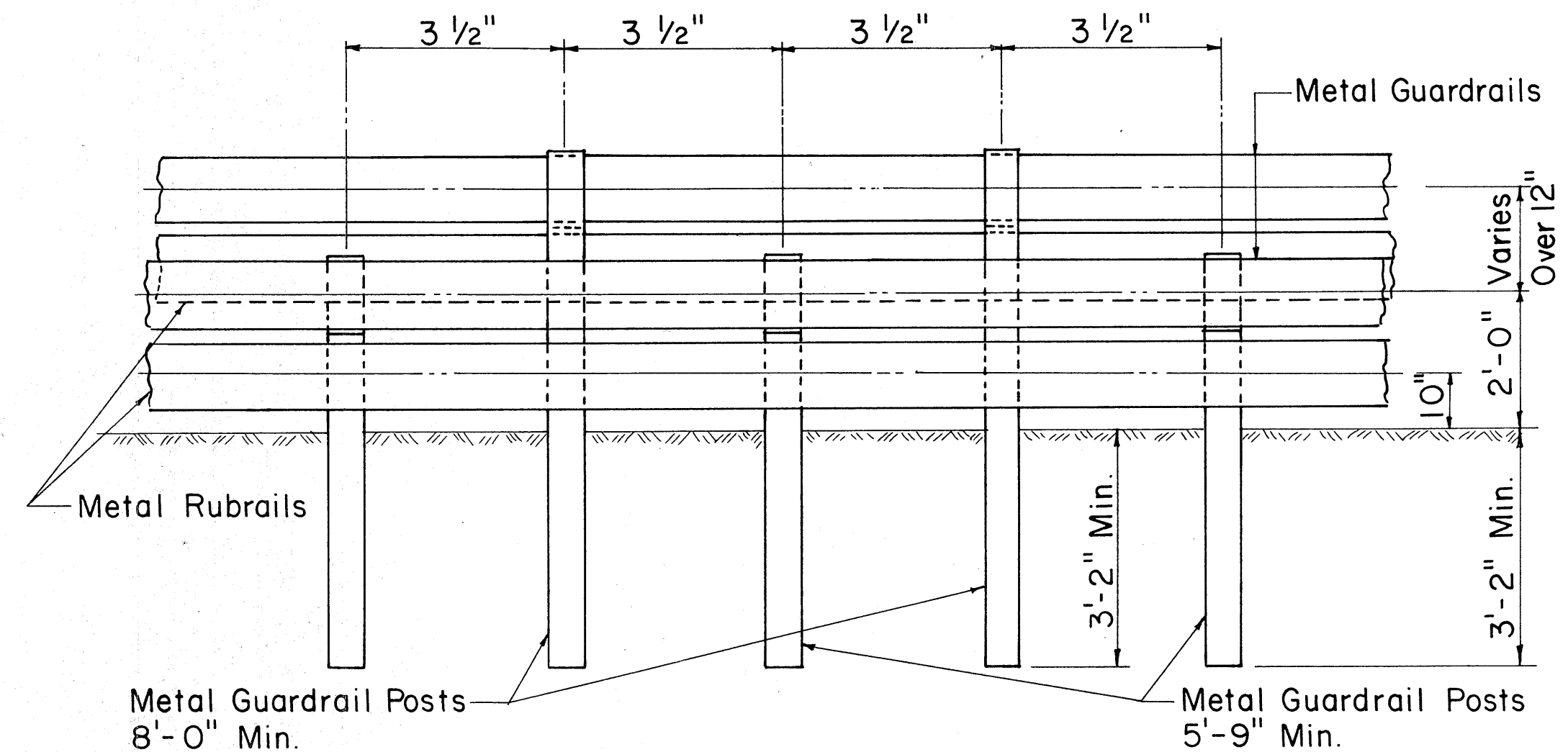
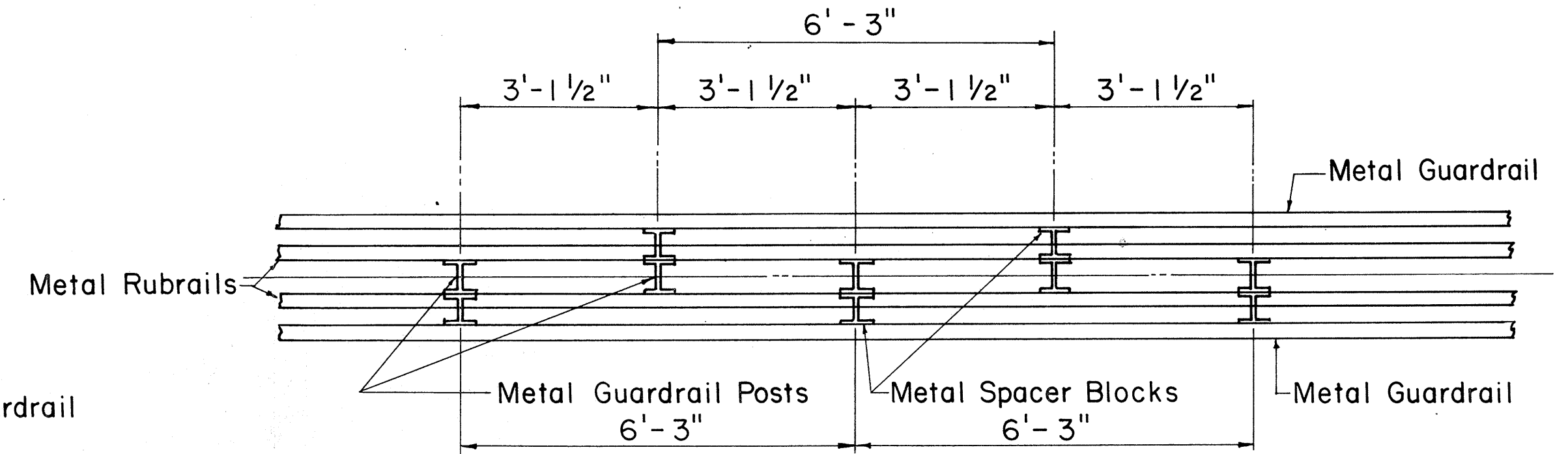
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(28)	1984	13	34



TYPICAL MEDIAN BARRIER INSTALLATION



TYPICAL SAW TOOTH INSTALLATION



TYPICAL STAGGERED INSTALLATION

APPROVAL RECOMMENDED:
Euchi Tanaka 1/28/83
 TRAFFIC ENGINEER DATE

APPROVED:
S. J. Jijiyama 1-31-83
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes DT 514 Approved 12/30/69	<i>[Signature]</i>	1-31-83

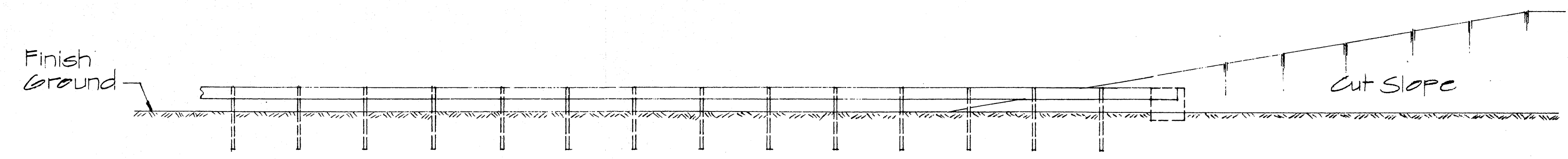
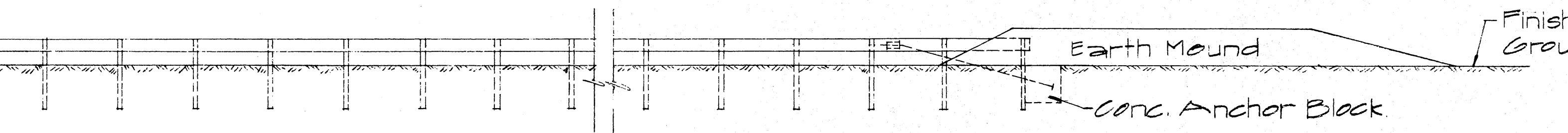
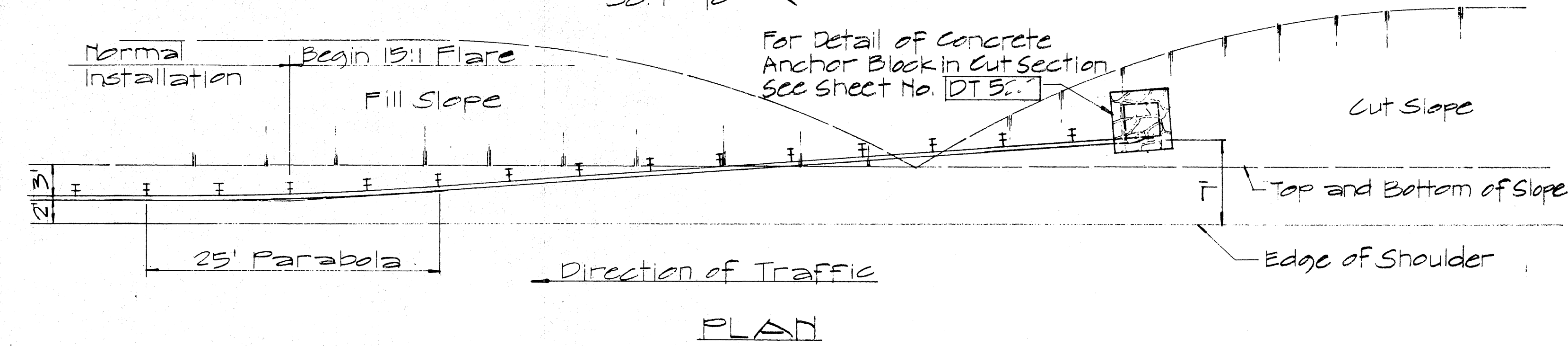
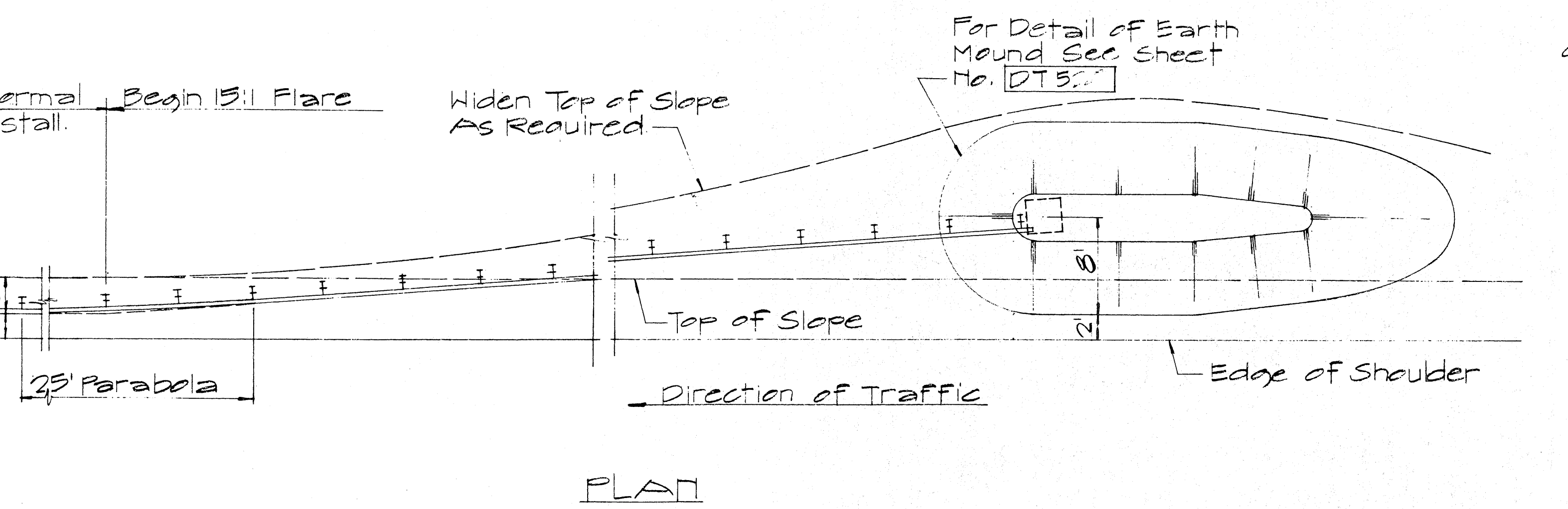
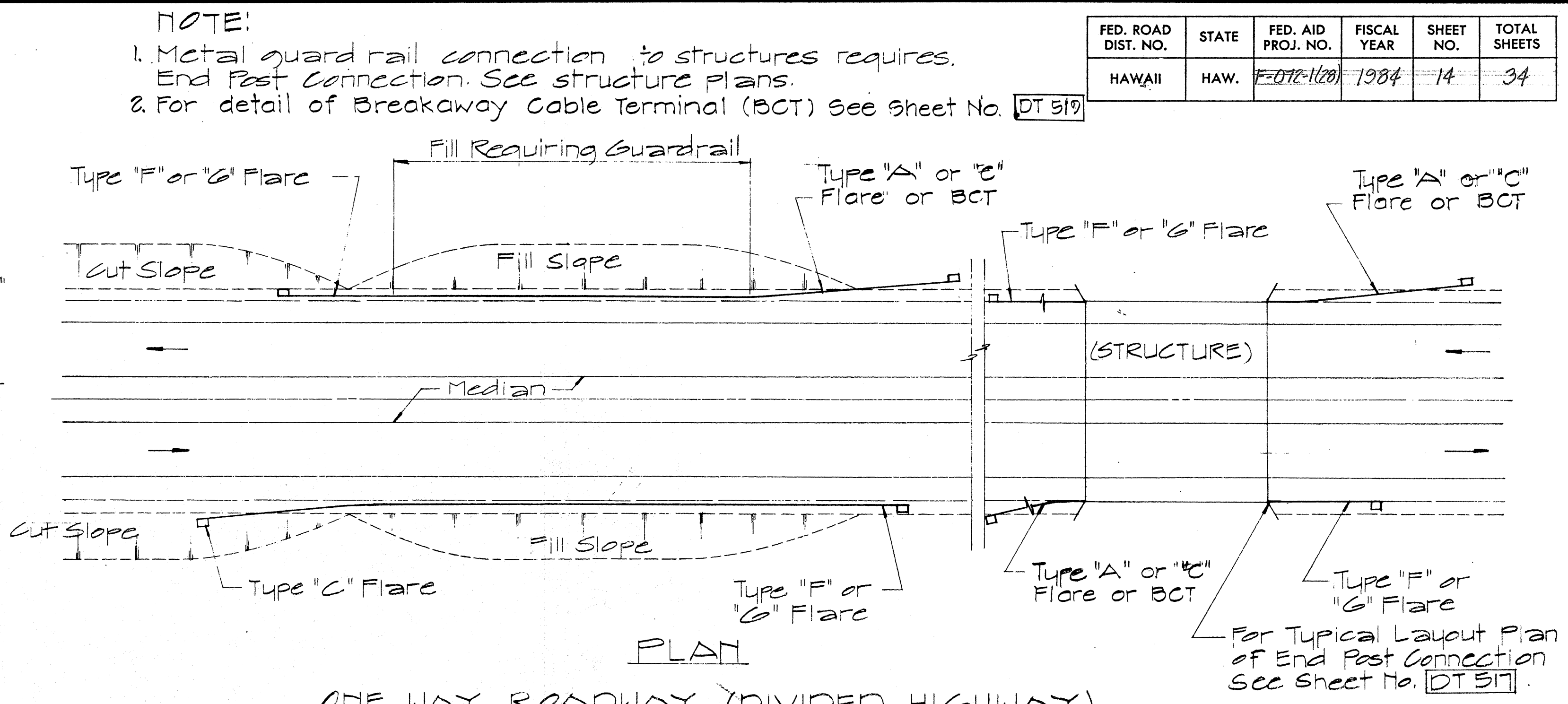
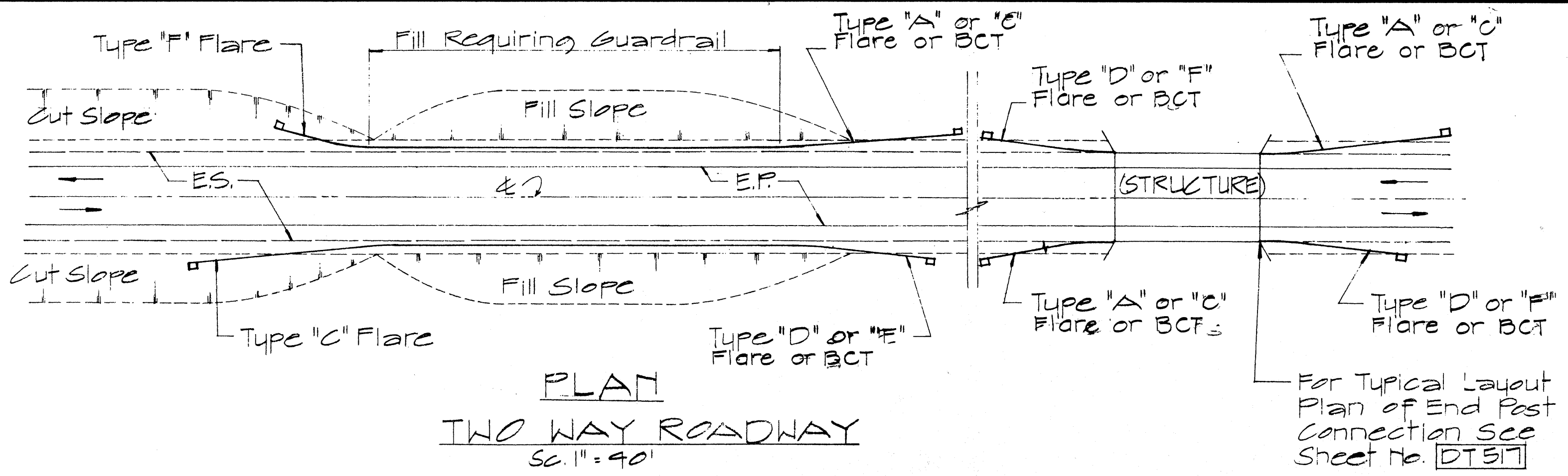
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL GUARDRAIL
WITH RUBRAIL

Scale: 1/2" = 1'-0"
October 1982

SHEET No. 13 OF SHEETS DT 514

DATE	
DESIGNED BY	
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
ORIGINAL PLAN	
No.	



NOTE:
1. Metal guard rail connection to structures requires End Post Connection. See structure plans.
2. For detail of Breakaway Cable Terminal (BCT) See Sheet No. DT 519

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-012-1(20)	1984	14	34

DATE	12/29/62
DESIGNED BY	W. J. H.
DRAWN BY	W. J. H.
CHECKED BY	W. J. H.
NOTED BY	W. J. H.
ORIGINAL FILED	W. J. H.

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

APPROVED:
W. J. H. 12-30-62
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Delete Type "B" Flare and Type "E" Flare	H.J.	6/15/68

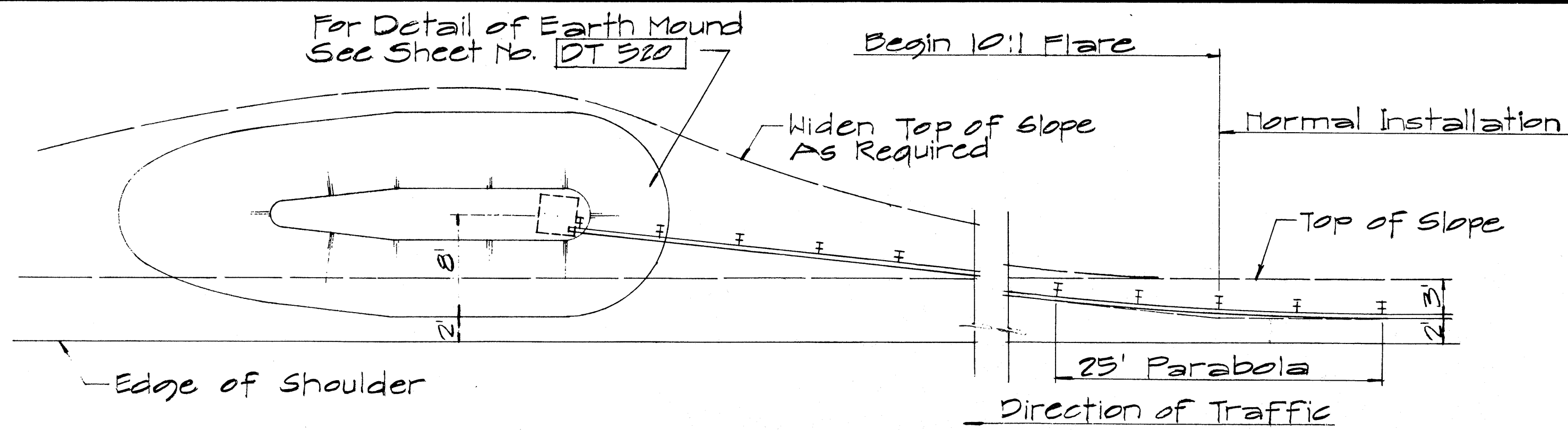
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

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

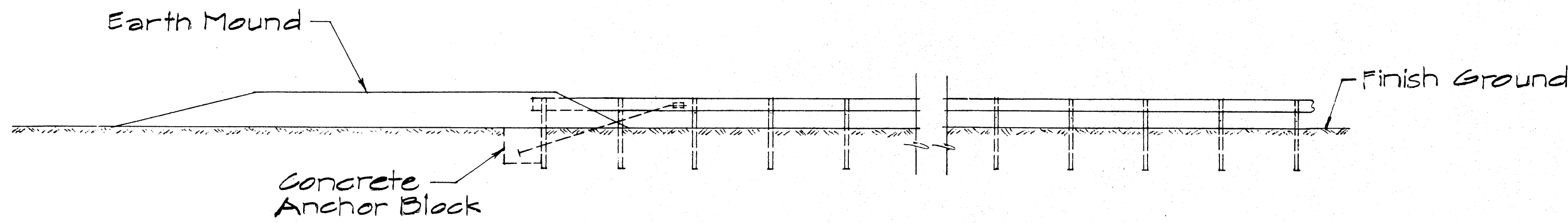
Sc. As Noted April 1967

SHEET No. 14 OF SHEETS DT 516

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	072-1(20)	1984	15	34

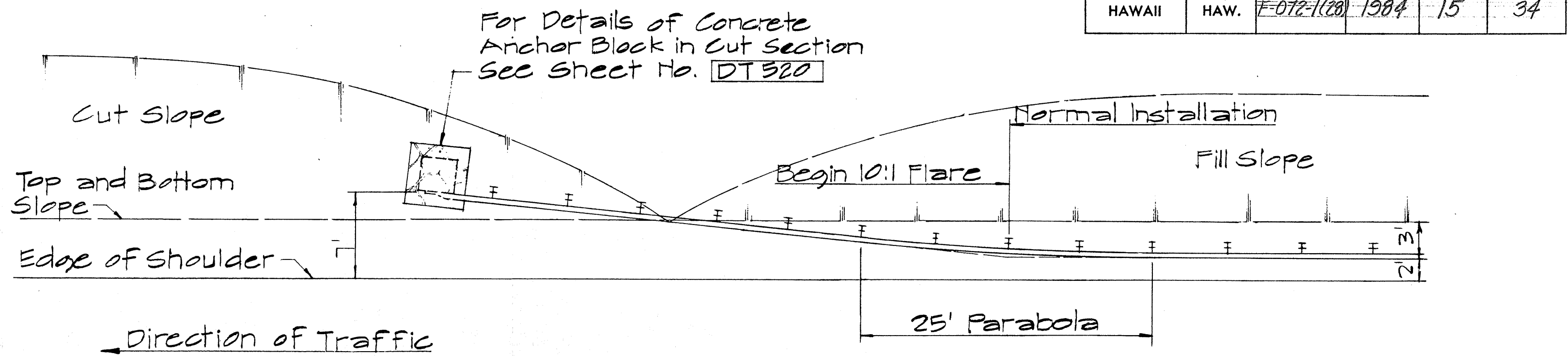


PLAN

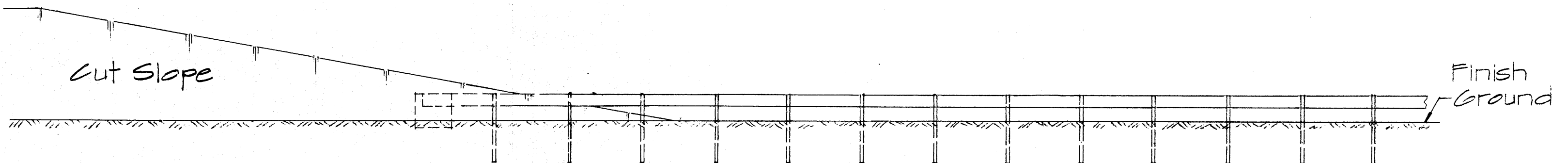


ELEVATION

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

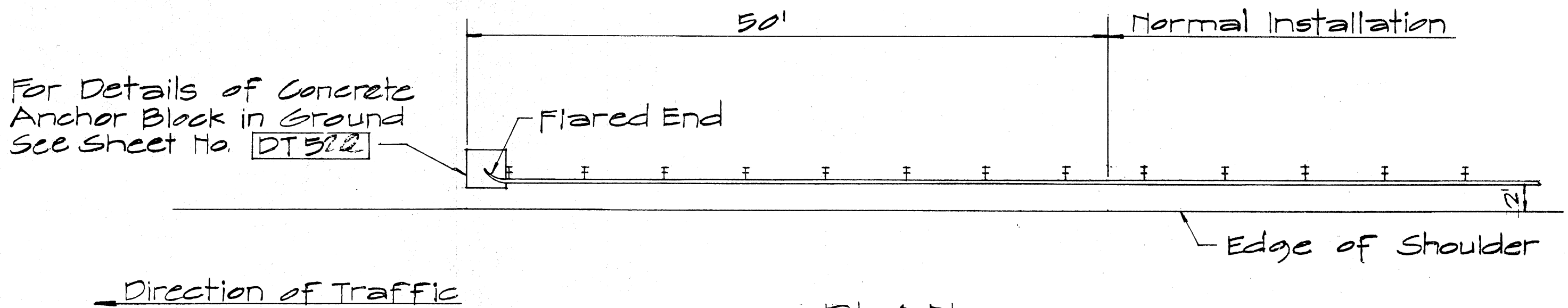


PLAN

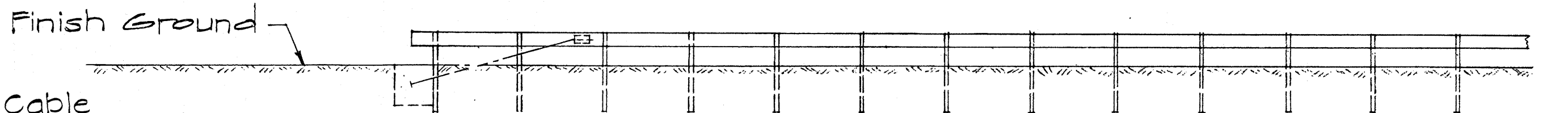


ELEVATION

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



PLAN



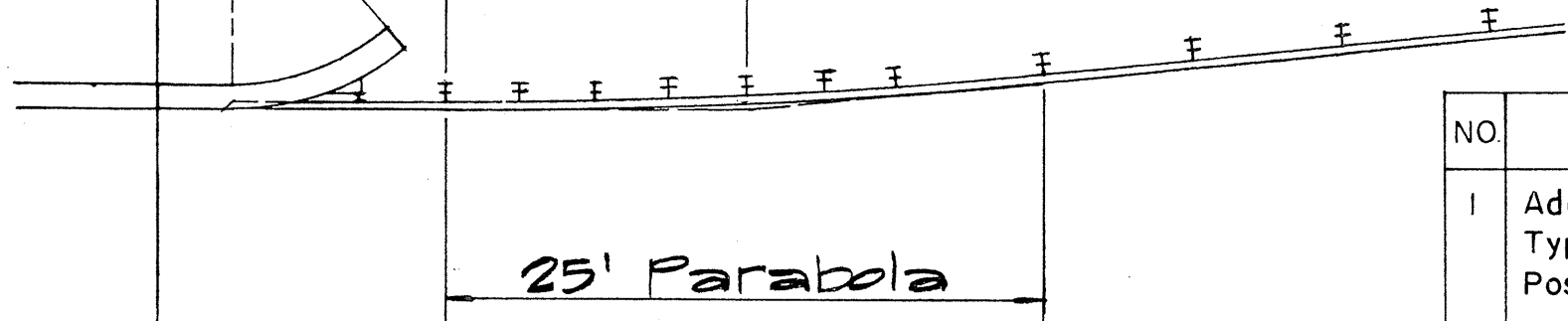
ELEVATION

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

NOTE:
For detail of Breakaway Cable Terminal (BCT) See Sheet No. DT 519

Typical Conc. 1'-2 3/4"
Parapet

Begin Type "A", "C", "D"
or "F" Flare or BCT



TYPICAL LAYOUT PLAN OF
END POST CONNECTION
Sc. 1/8" = 1'-0"

NO.	REVISION	APPROVED BY	DATE
1	Additional Posts Added to Typical Layout Plan Of End Post Connection	H.C.	4-12-72
2	Delete Type "B" Flare and Type "E" Flare	H.C.	6-15-78

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

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

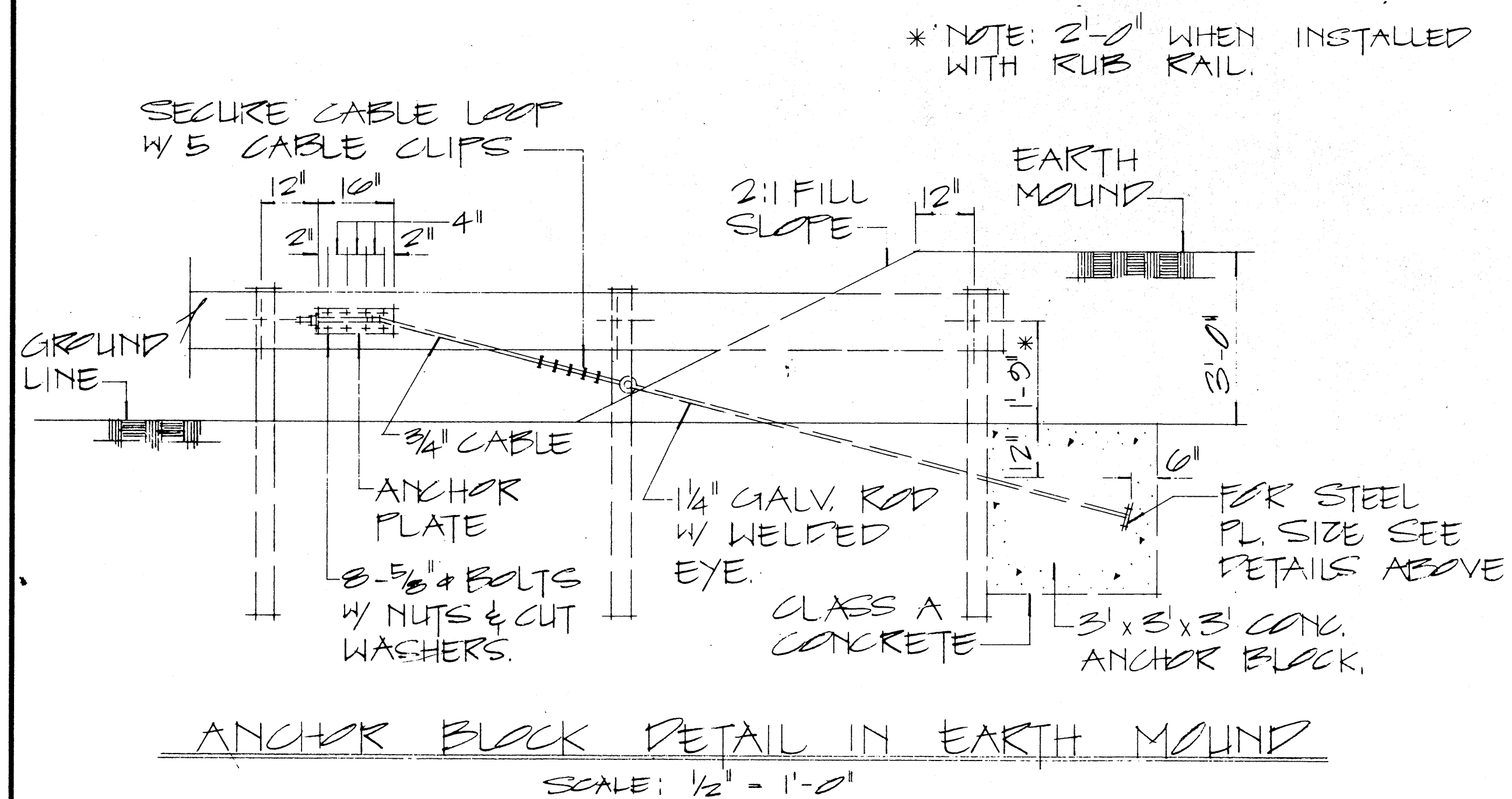
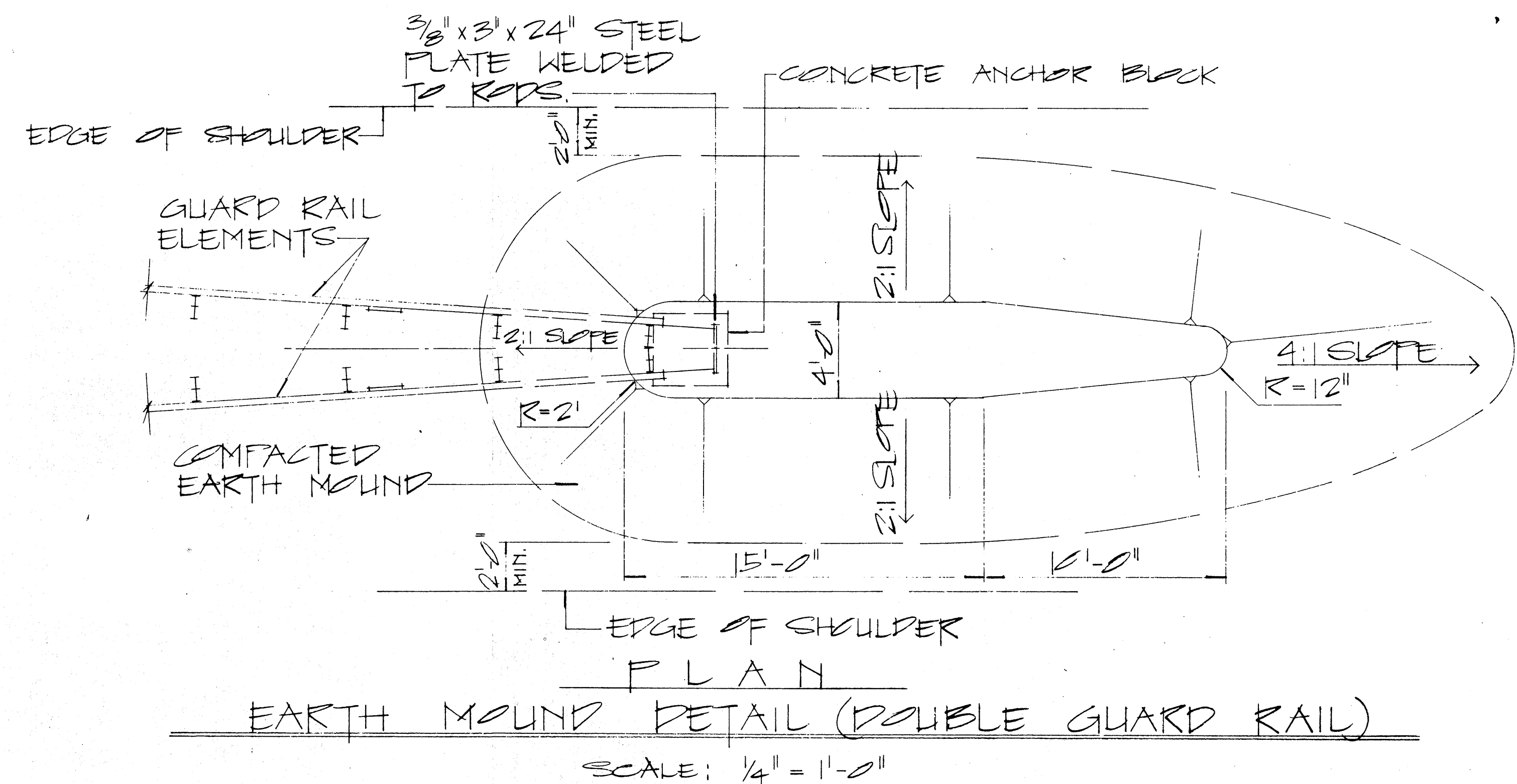
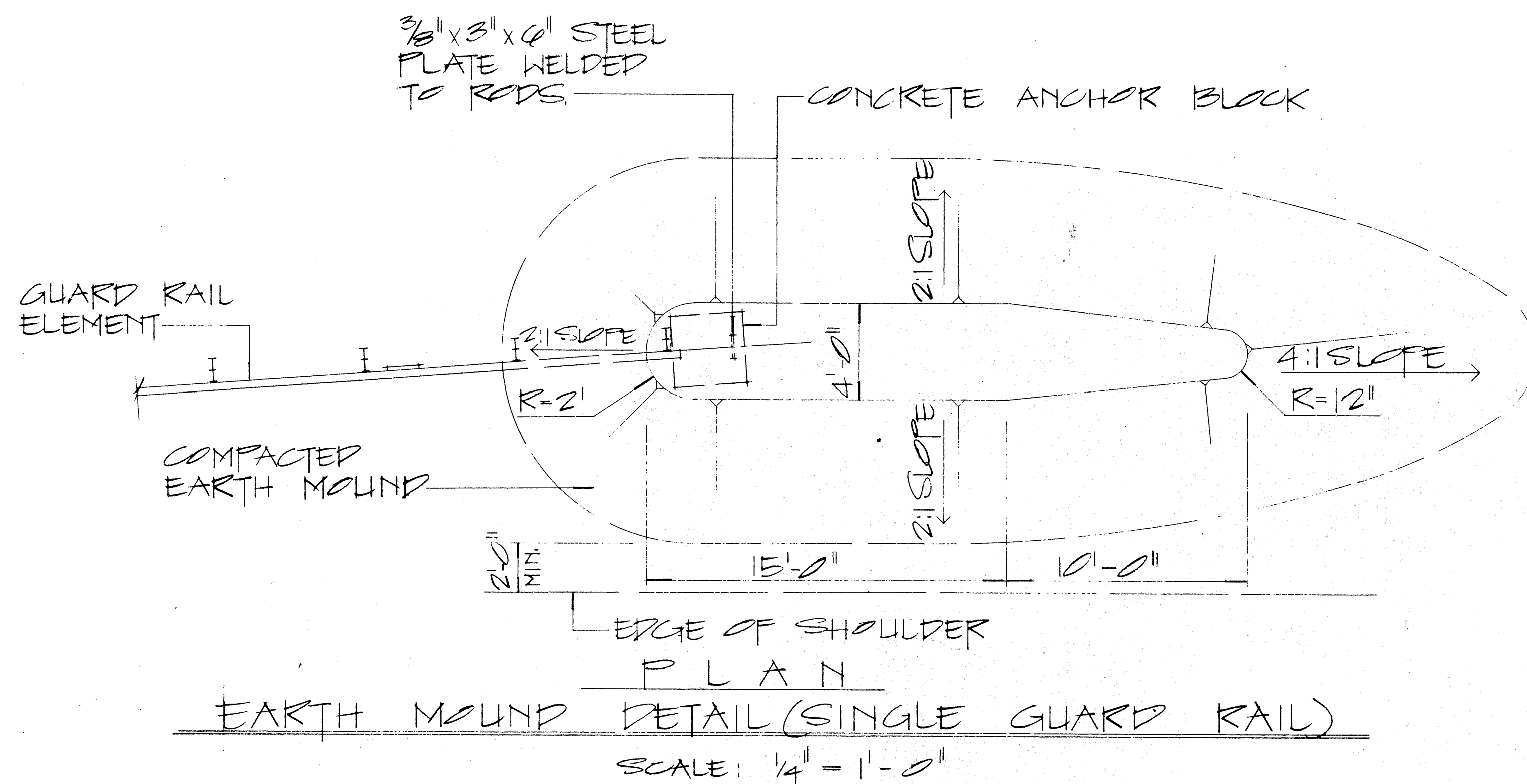
STANDARD DETAILS
TRAILING END
FLARE - ONE & TWO
WAY ROADWAY

Scale: As Noted April 1969

SHEET No. OF SHEETS DT 517

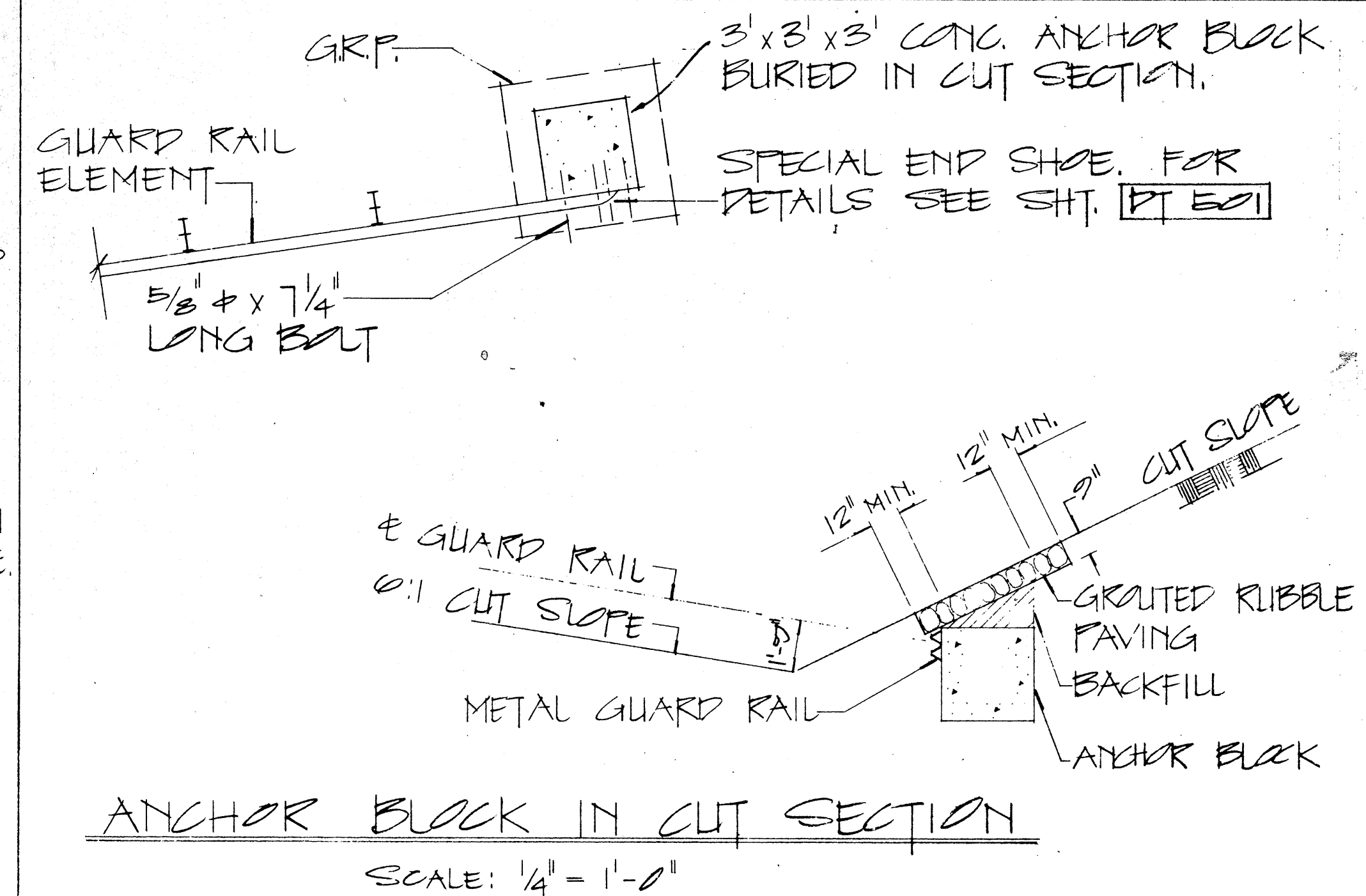
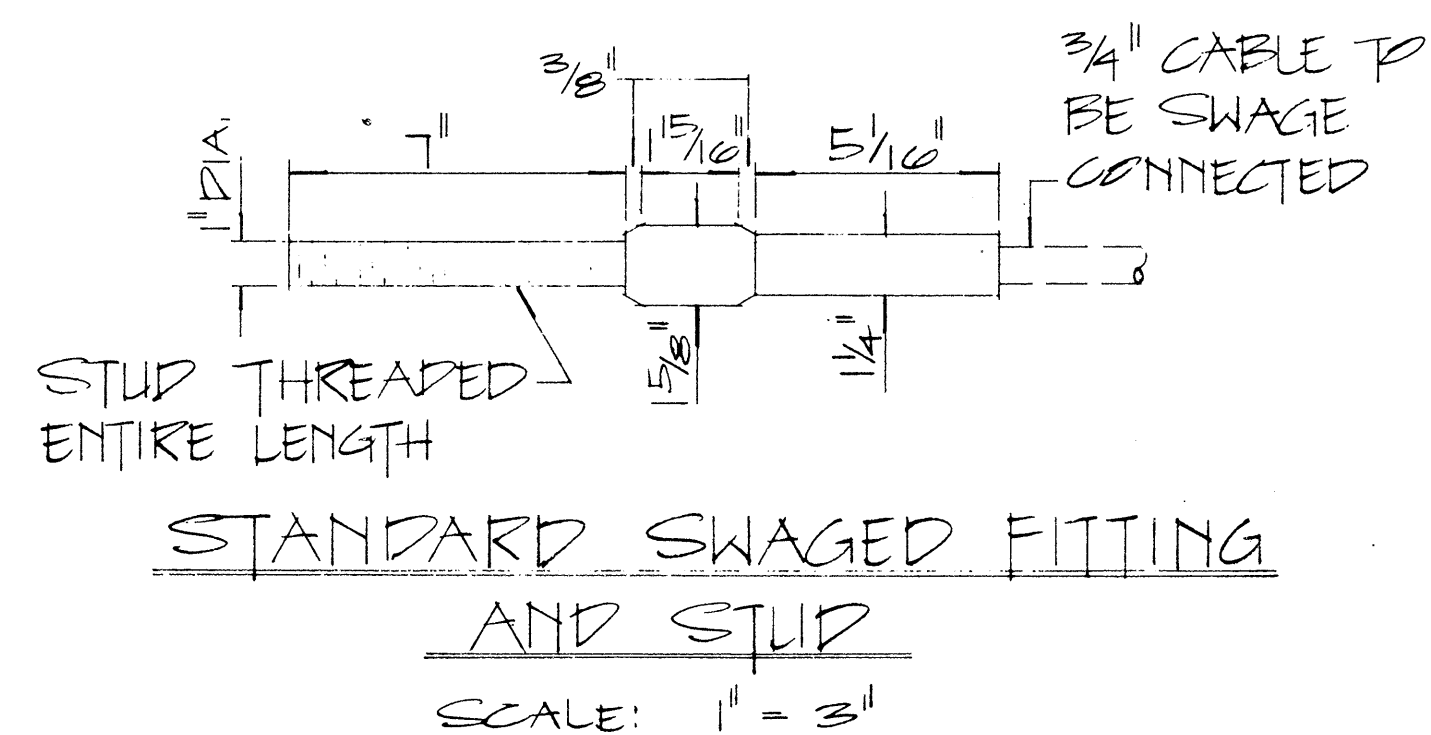
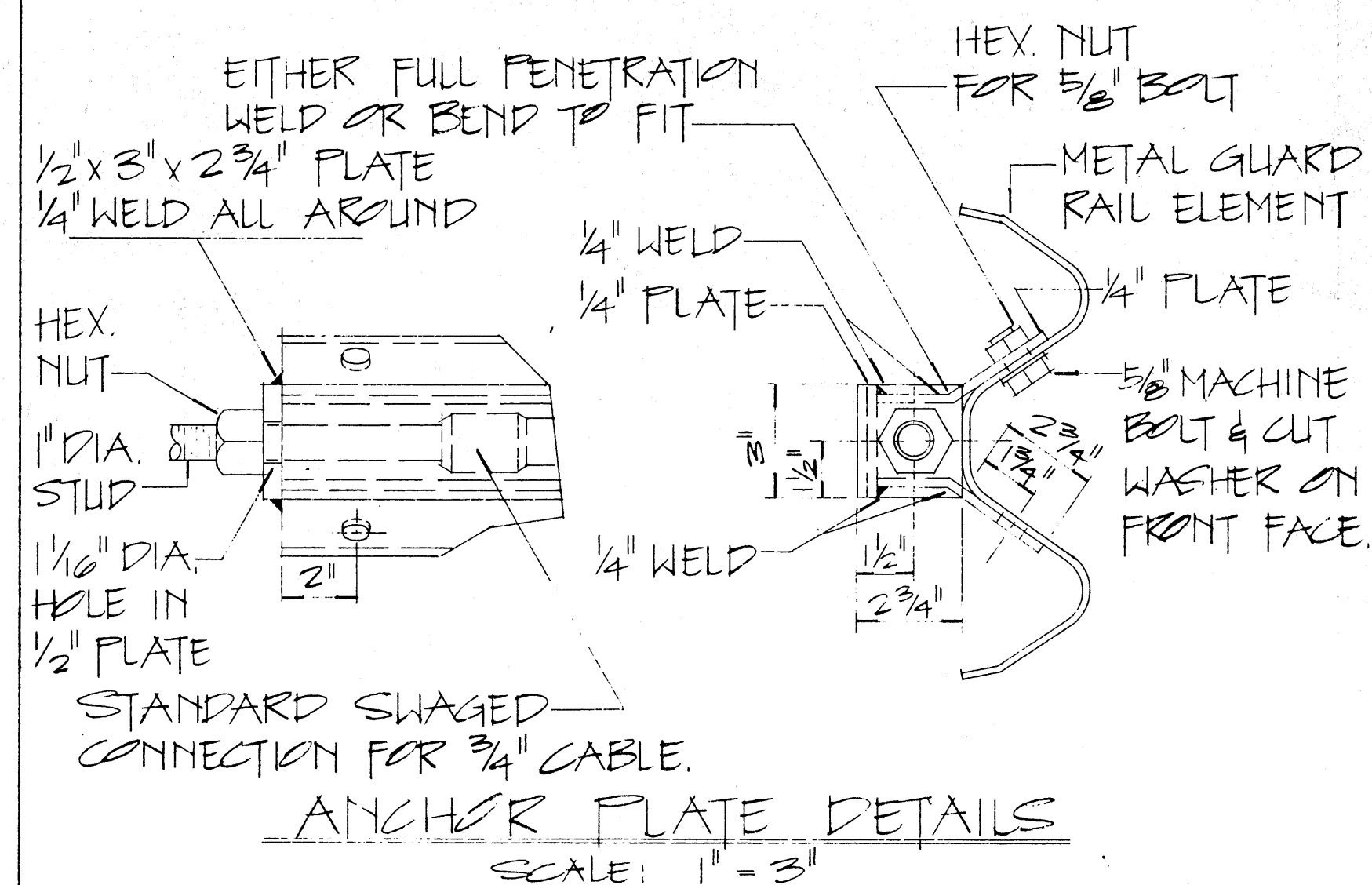
DATE	
SURVEY PLATTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(28)	1984	17	34



NOTE:

1. GALVANIZED ANCHOR ROD, METAL GUARD RAIL AND FAST 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.



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

APPROVED: [Signature] 12-30-62
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 1960

SHEET No. OF SHEETS 1520