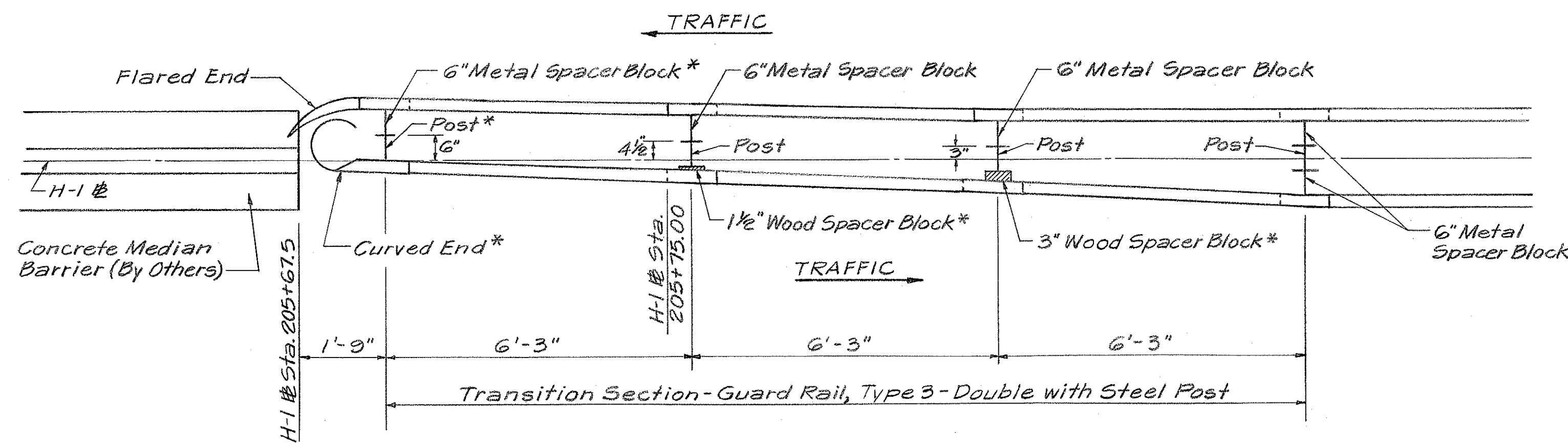


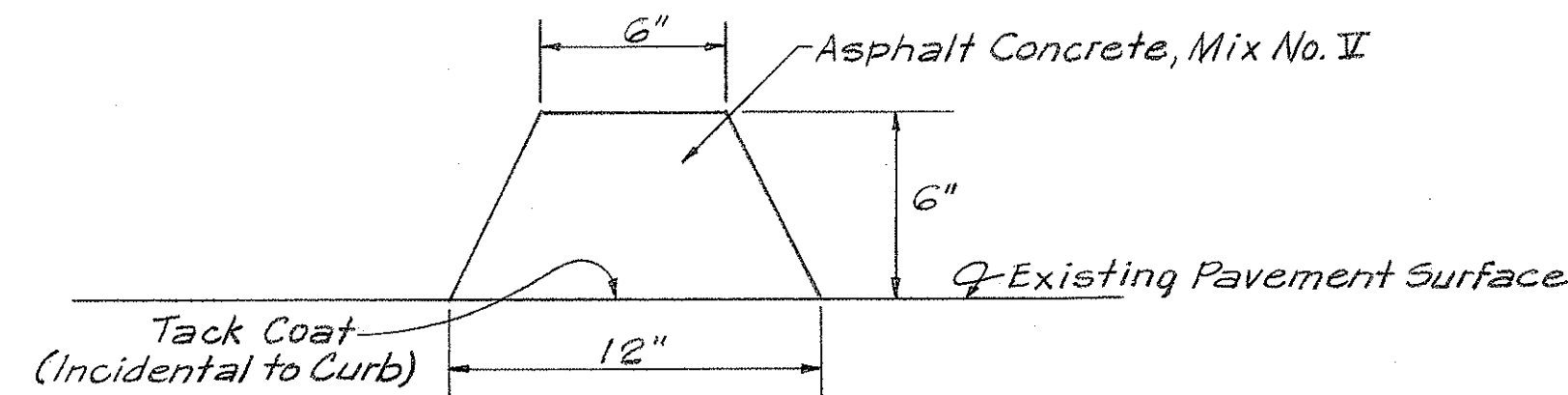
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(78):13	1970	9	47



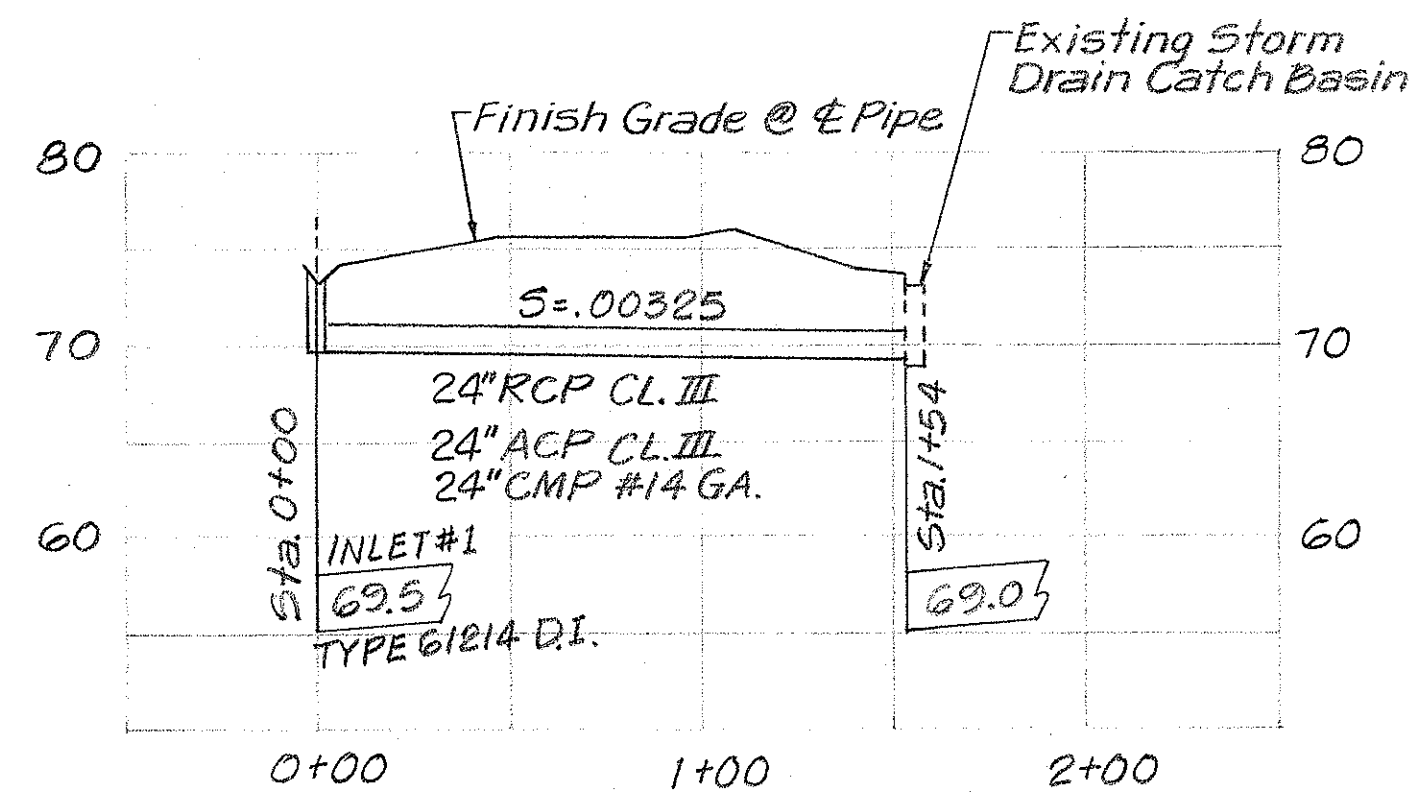
PLAN
MEDIAN GUARD RAIL TRANSITION TO EXISTING
CONCRETE BARRIER
Scale: 1" = 2'-0"

* See Standard Details - Metal Guard Rail

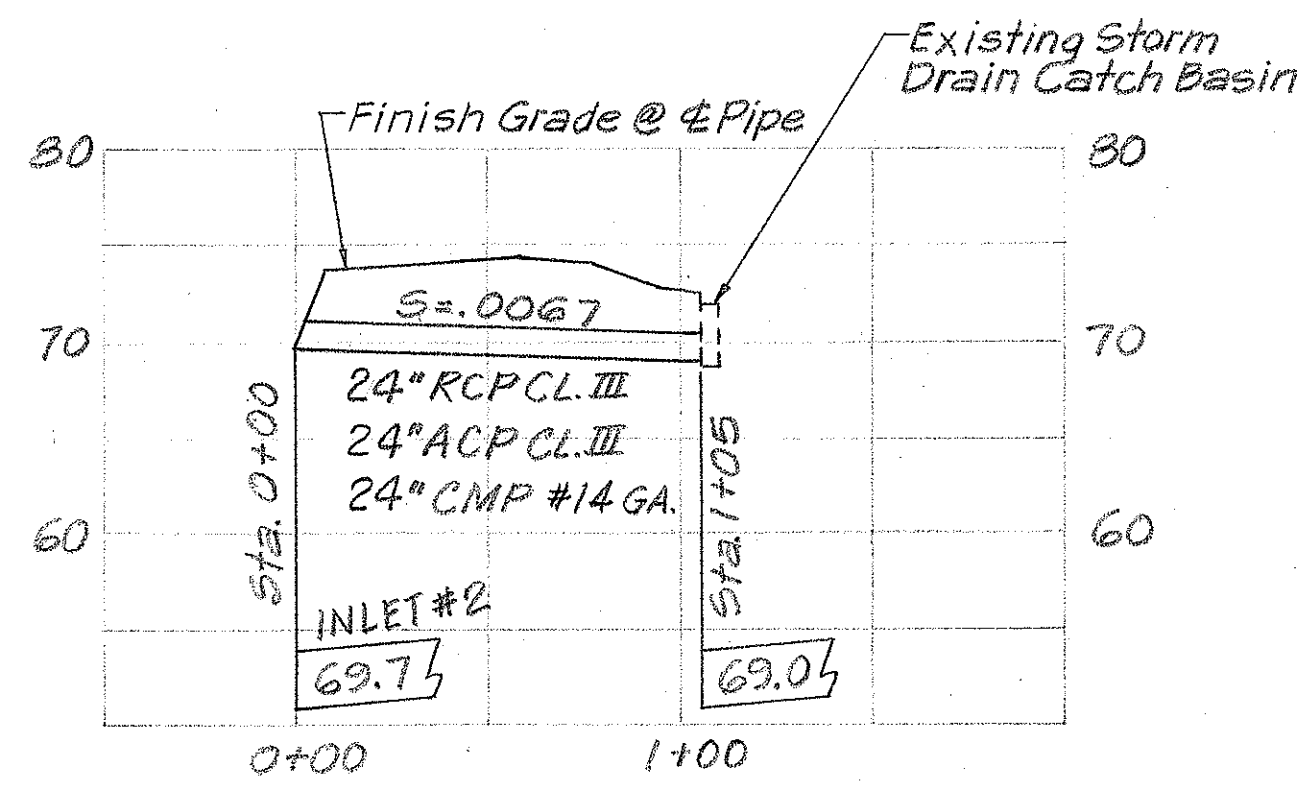
GENERAL NOTE FOR GUARD RAIL:
Cost of End Anchorages, Terminal Sections
and Transition Section to be Included in
Cost of Guard Rail of Respective Type and
not Measured Separately.



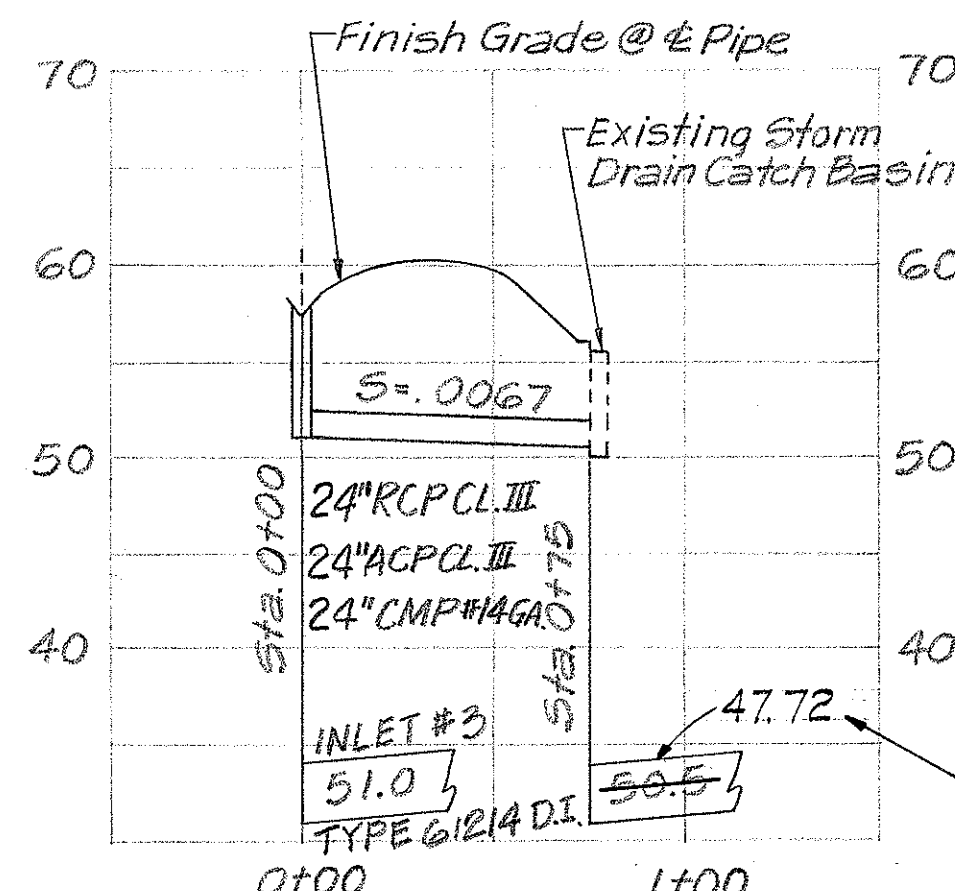
TYPE 6 BITUMINOUS CURB
Scale: 1/2" = 1'-0"



DRAINAGE LINE 1



DRAINAGE LINE 2



DRAINAGE LINE 3
DRAINAGE PROFILES
SCALE: HORIZ. 1" = 50' VERT. 1" = 10'

Elev. based on field measurement
of the bottom slab of existing
catch basin.

DRAINAGE SUMMARY										
STRUCTURES			PIPE CULVERT		ESTIMATED QUANTITIES					
INLET NO.	TYPE	LOCATION	FROM	TO	206.01	503.001	602.101	603.0010	603.7200	604.230
1	61214 DI.	O.B. Sta. 214+50.6' LT.	O.B. Sta. 214+50	MR 140+85.54' LT.	150	2.5	65	35	150	1
2	NONE	O.B. Sta. 215+50.53' RT.	O.B. Sta. 215+50	MR 140+85.54' LT.	80			25	105	
3	61214 DI.	MR 146+86.54' LT.	MR 146+86	MR 147+53.82' LT.	130	3.5	65	20	75	1
				UNITS	C.Y.	C.Y.	LB	C.Y.	L.F.	EA.
					STRUCTURAL EXCAVATION OTHER THAN AT BRIDGES		CONCRETE OTHER THAN IN BRIDGES		REINFORCING STEEL OTHER THAN IN BRIDGES	
							BED COURSE MATERIAL FOR CULVERTS		24" RCP CL. III 24" ACP CL. III 24" CMP #14 GA.	
									TYPE 61214 STEEL FRAME AND GRATE	



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

J. Andrew Schuchardt

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

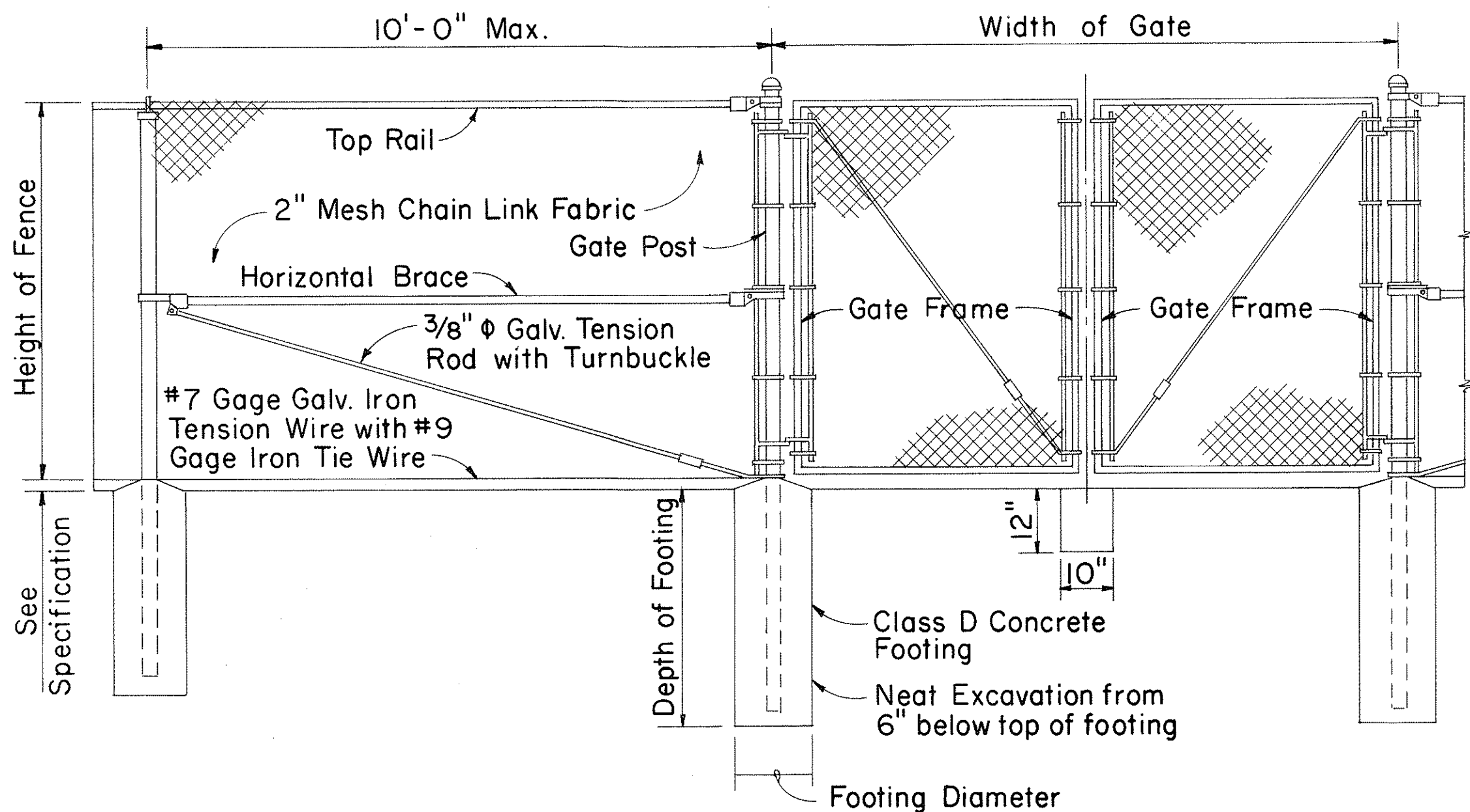
MISCELLANEOUS ROADWAY DETAILS
AND DRAINAGE SUMMARY
HALAWA INTERCHANGE
PROJECT NO. I-H-1(78):13

SCALE: As Noted
DATE: APR. 9, 1970

SHEET No. 1 OF 10 SHEETS

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTED BY	_____
QUANTITIES BY	_____
NO.	_____

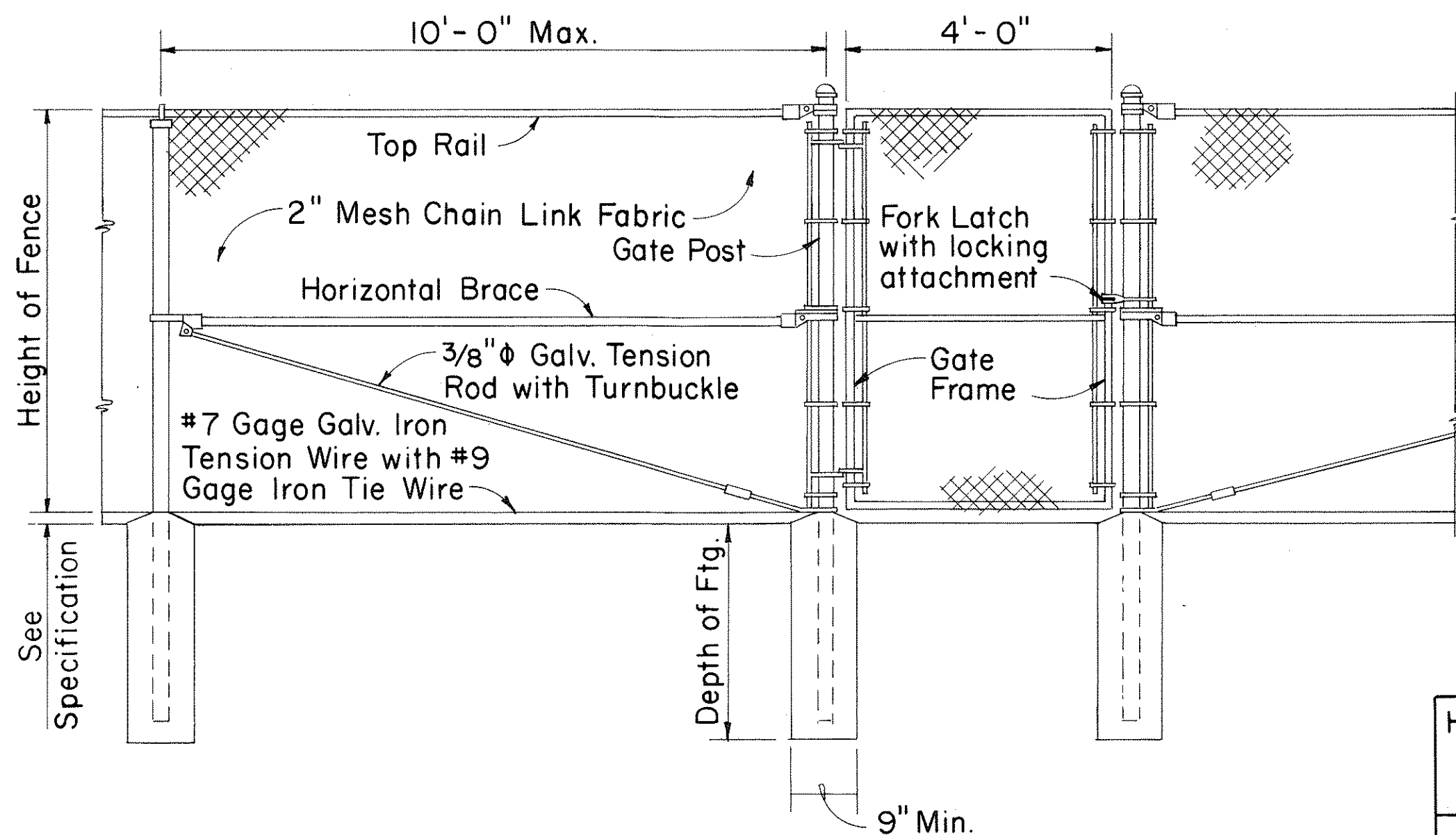
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-41-(72)1/2	1970	10	47



LINE POST GATE POST GATE POST

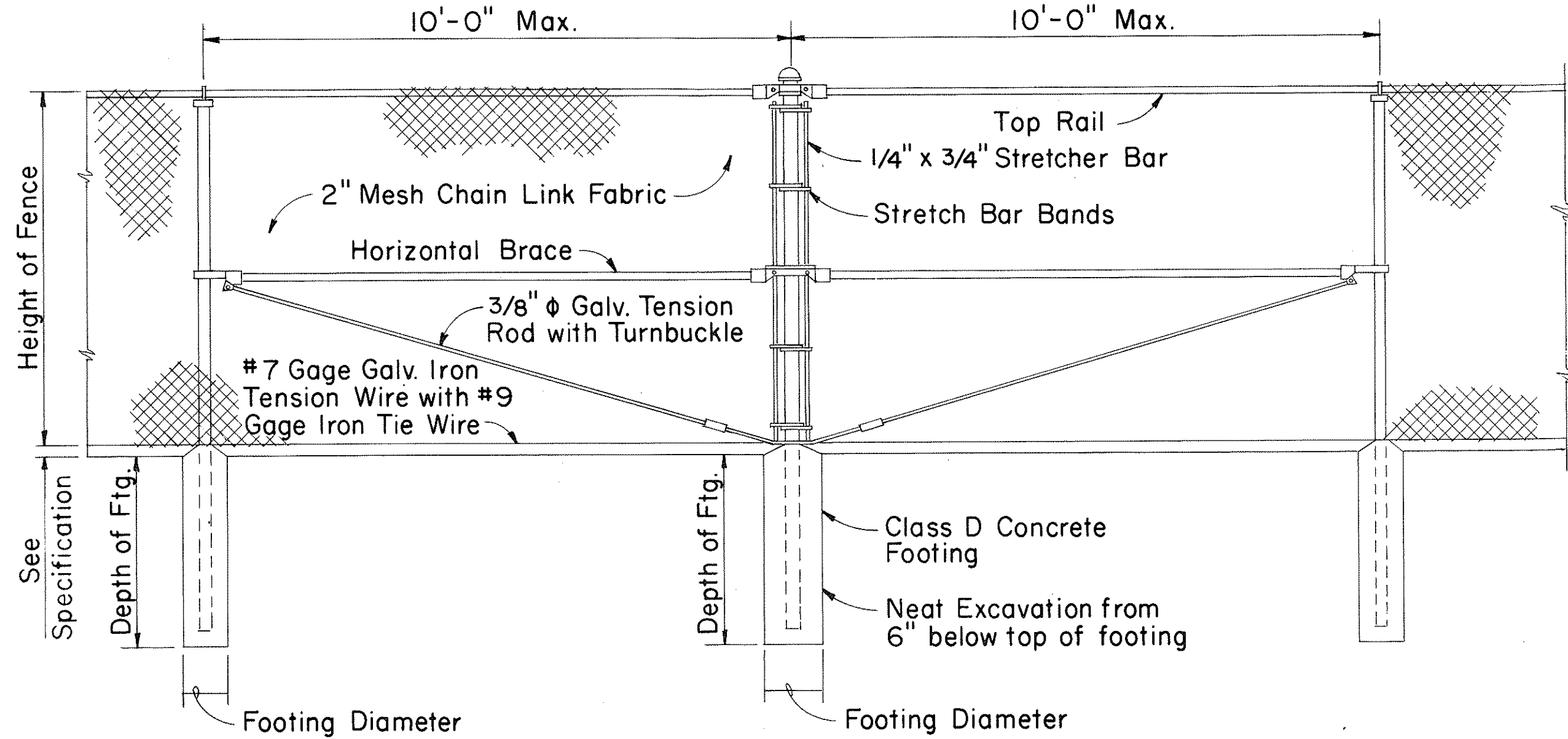
DETAIL OF CHAIN LINK GATE

- NOTE: 1. Gate fork latch and lock, flush plate and anchor, and plunger shall be installed with Gates, and shall be considered as incidental to Chain Link Fence Gate.
2. Gate frames shall be mitered and welded at corners.
3. Fence detail not shown shall be in accordance with the Standard Specifications.



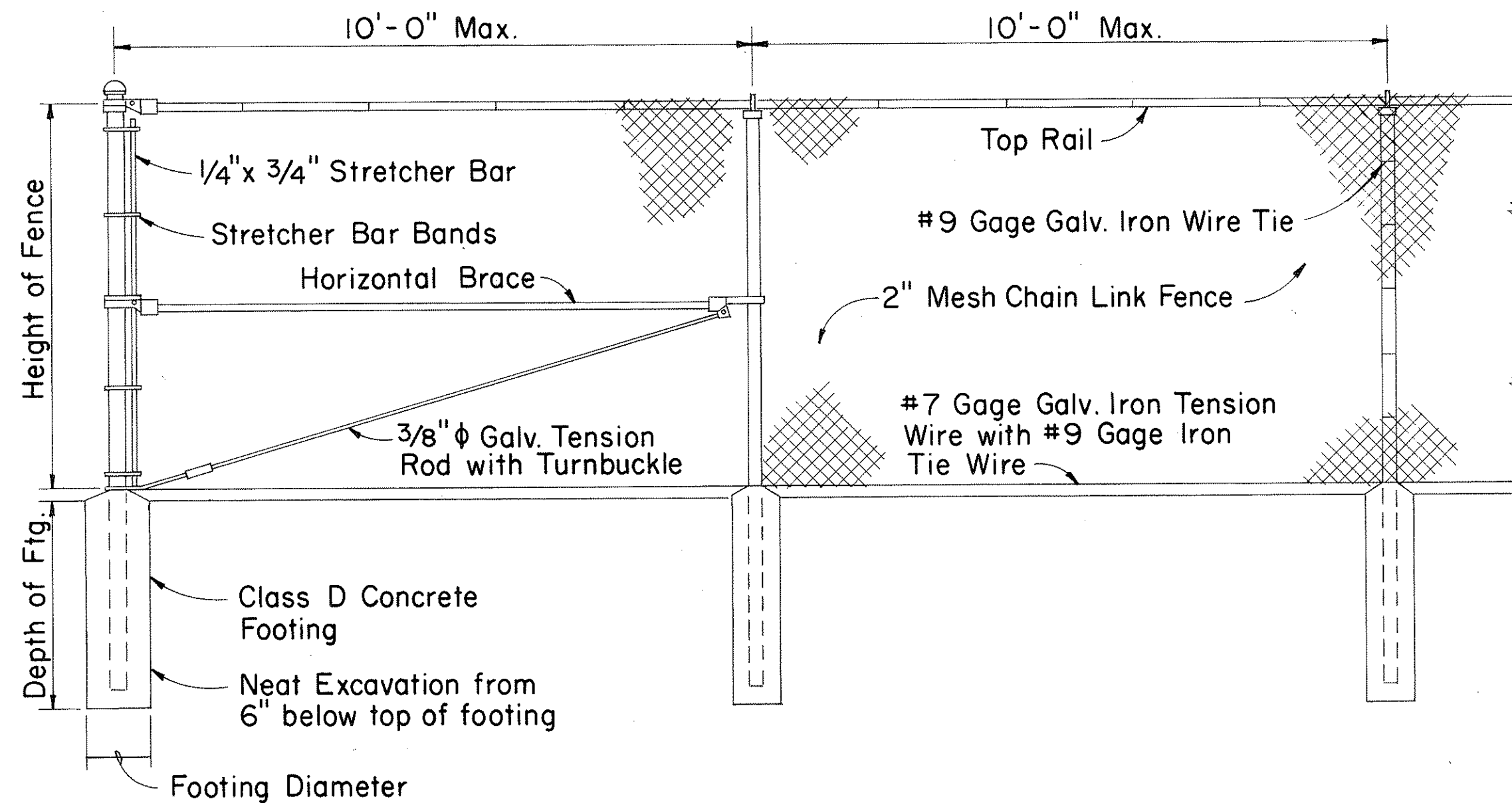
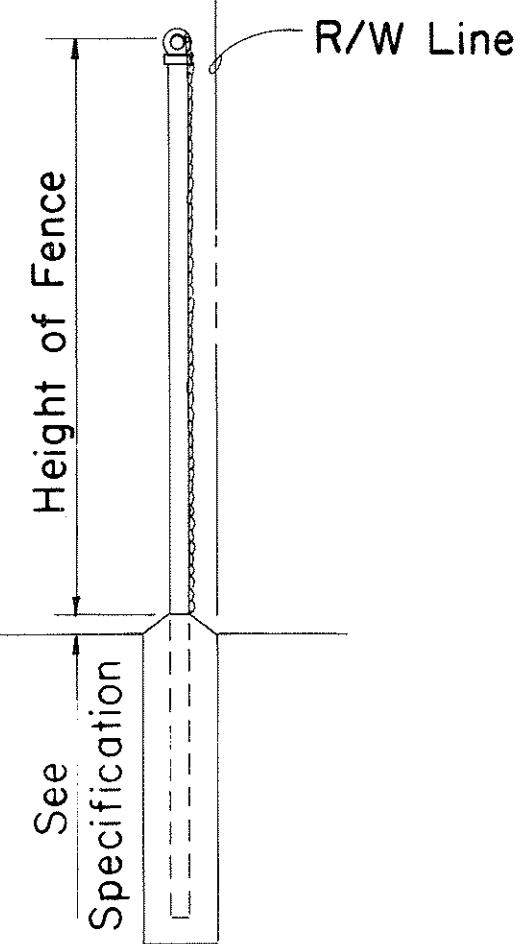
LINE POST GATE POST GATE POST

DETAIL OF 4 FT. CHAIN LINK GATE

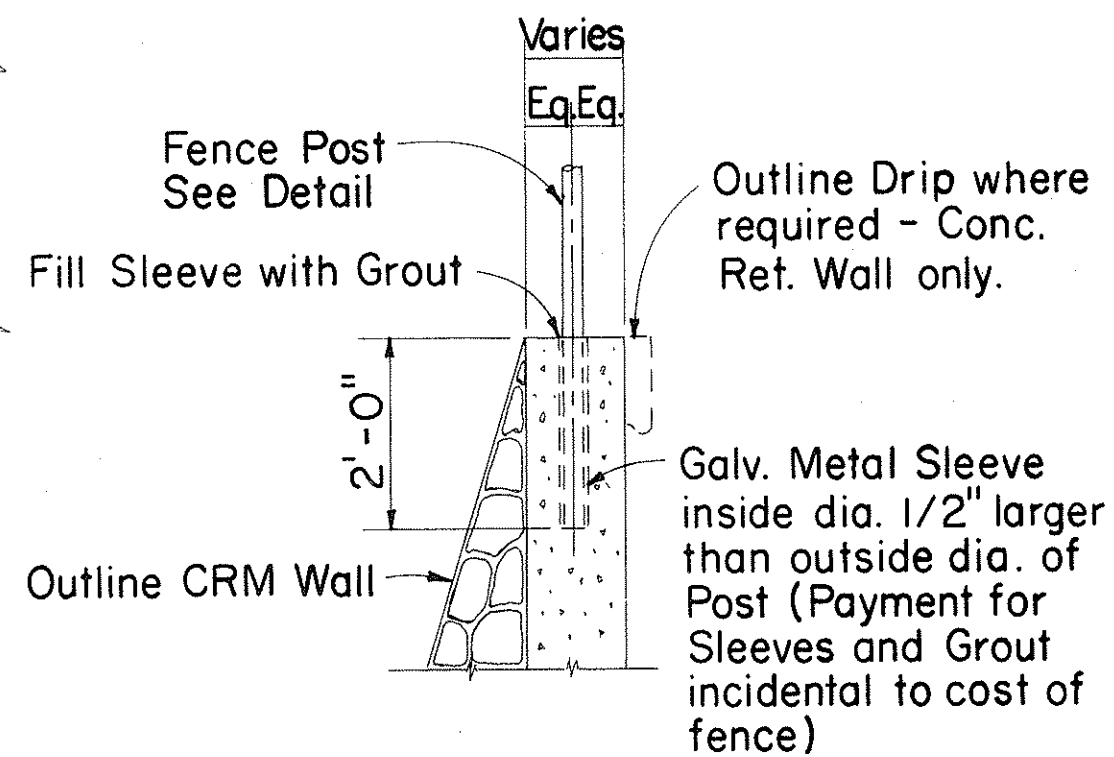


LINE POST PULL POST LINE POST

TYPICAL SECTION (WITH CONCRETE FOOTING)



END POST LINE POST LINE POST



TYPICAL SECTION (ON CRM & CONC. RET. WALL)

CHAIN LINK FENCE DETAILS

Height of Fence	Minimum Depth of Footing		Minimum Footing Diameter	
	Line Post	Corner, Pull, End and Gate Posts	Line Post	Corner, Pull and End Posts
3'	2'-0"	2'-6"	8"	8"
4'	2'-6"	2'-6"	8"	8"
5'	3'-0"	3'-0"	8"	8"
6'	3'-0"	3'-0"	8"	9"

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED:
[Signature] 12-4-69
HIGHWAY DESIGN ENGINEER DATE

APPROVED:
[Signature] 12-10-69
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

CHAIN LINK FENCE
(WITH TOPRAIL)

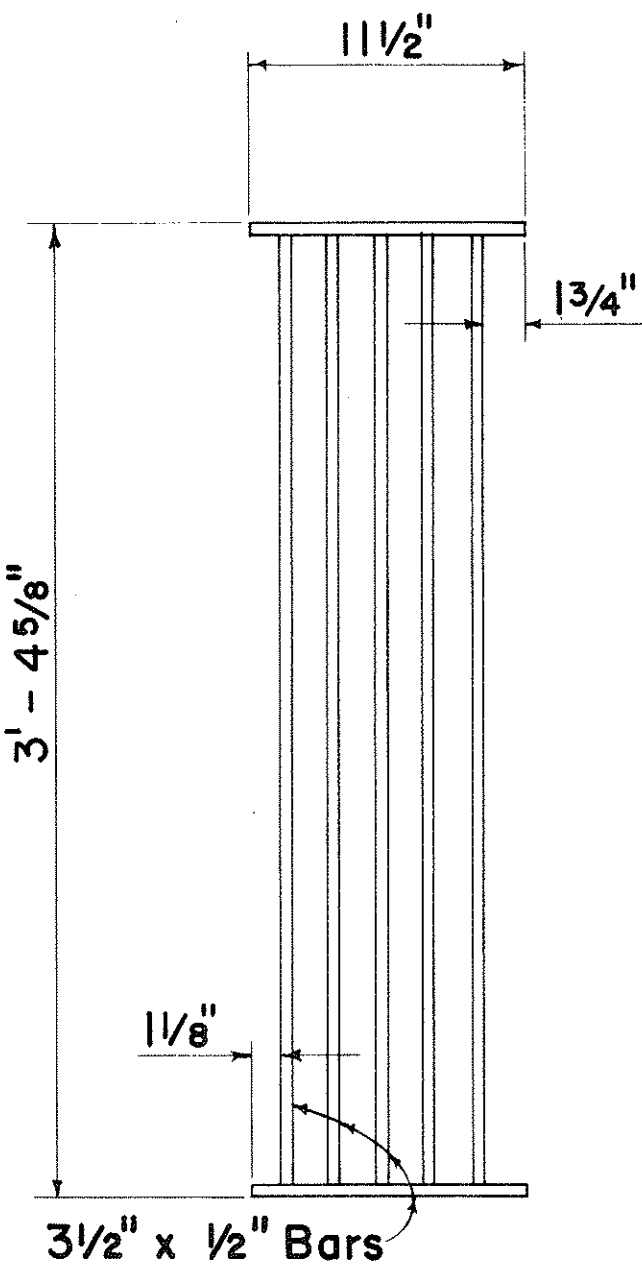
Scale: 1/2" = 1'-0" Date: APR. 3, 1970
SHEET No. 2 OF 10 SHEETS DD 607.1

11 (1)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HH(72)13	1970	11	47

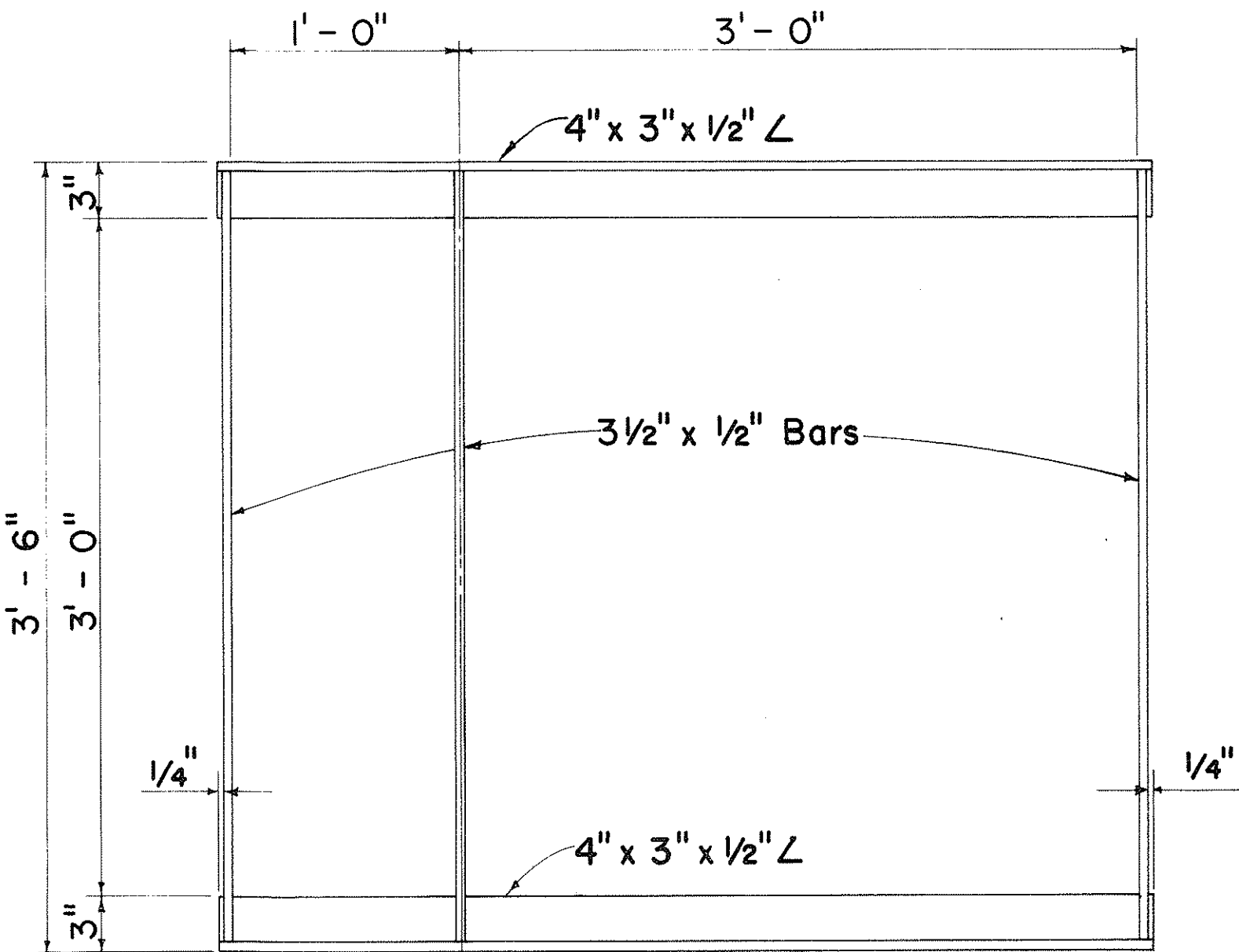
GENERAL NOTES

- Grates and Frames shall be hot dip galvanized after fabrication, see specifications.
- All welds $\frac{3}{8}$ " unless otherwise noted.
- The Frame & Grate materials shall conform to the specifications of ASTM Designation Structural Steel A283, Grade D and the Standard Specifications.
- Culvert shall leave Drop Intake from any position and any direction indicated by plans or ordered by the Engineer. Culverts may both enter and leave Drop Intake so that Drop Intake will act as manhole.
- Manhole Rungs (16"o.c.) are required when "H" is greater than 4 feet 6 inches. Only one rung (12 inches from the bottom) is required if "H" is 4 feet 6 inches or less. The Manhole Rungs may be placed at any location as ordered by the Engineer.



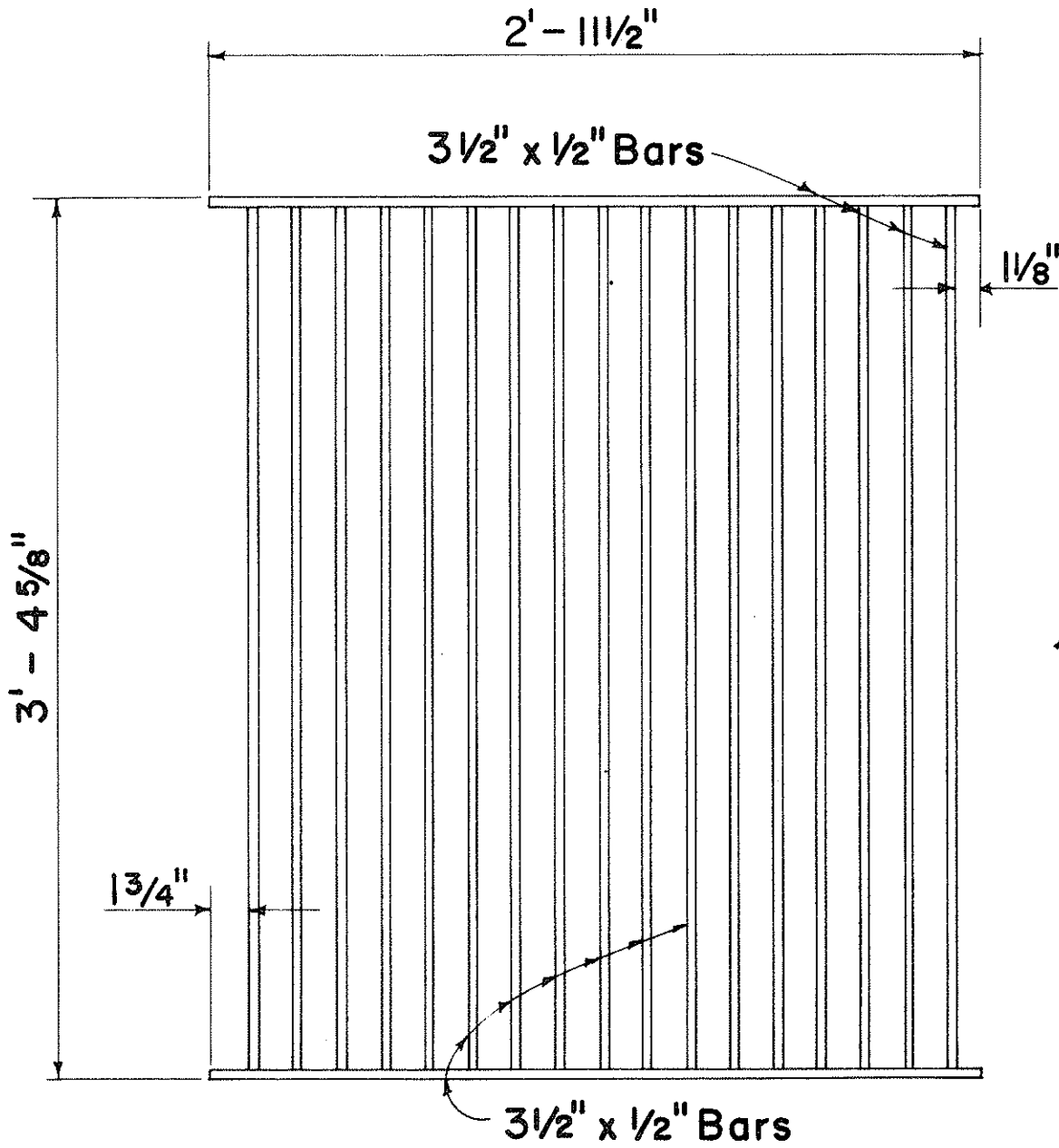
PLAN

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



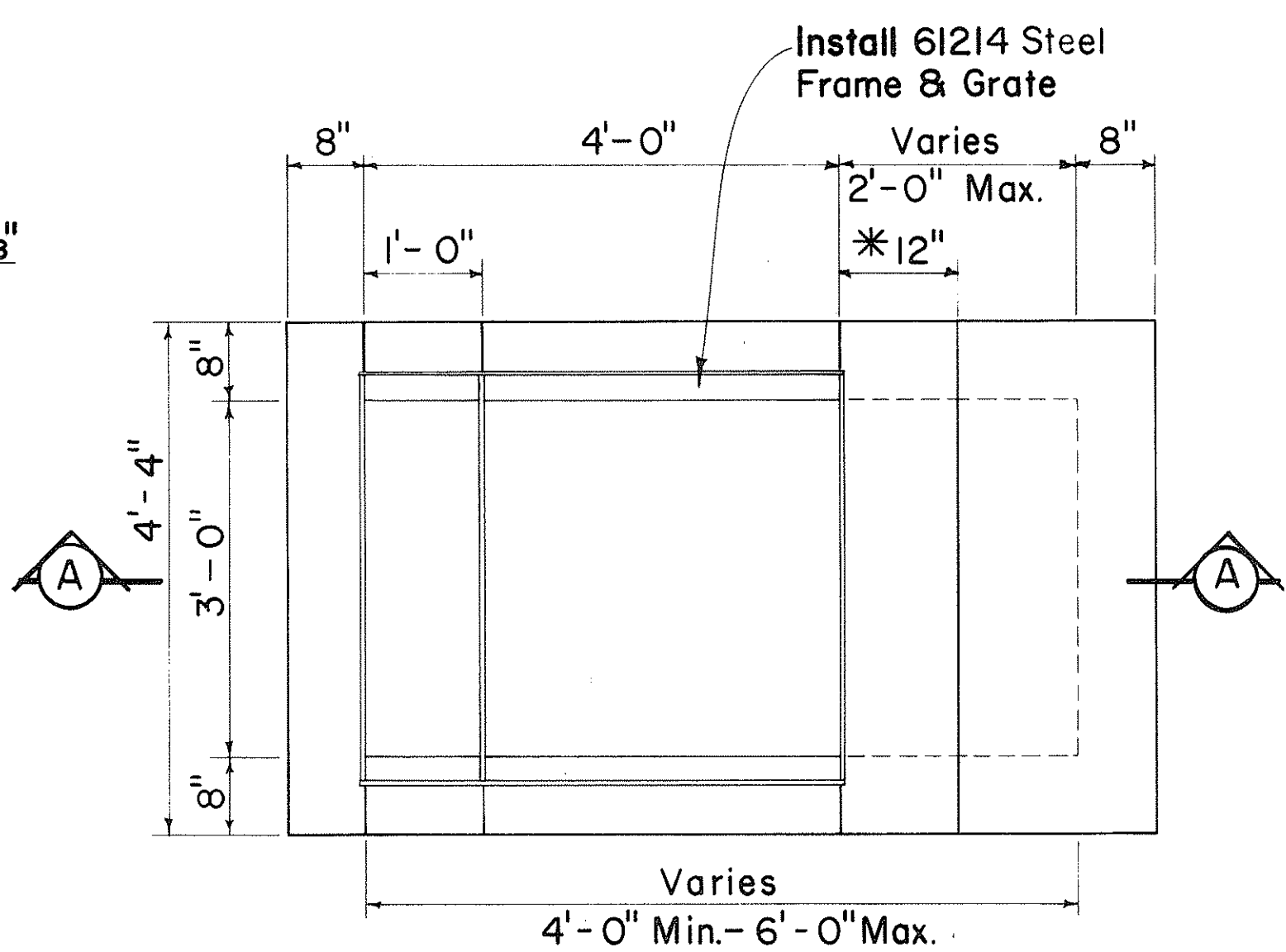
PLAN

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

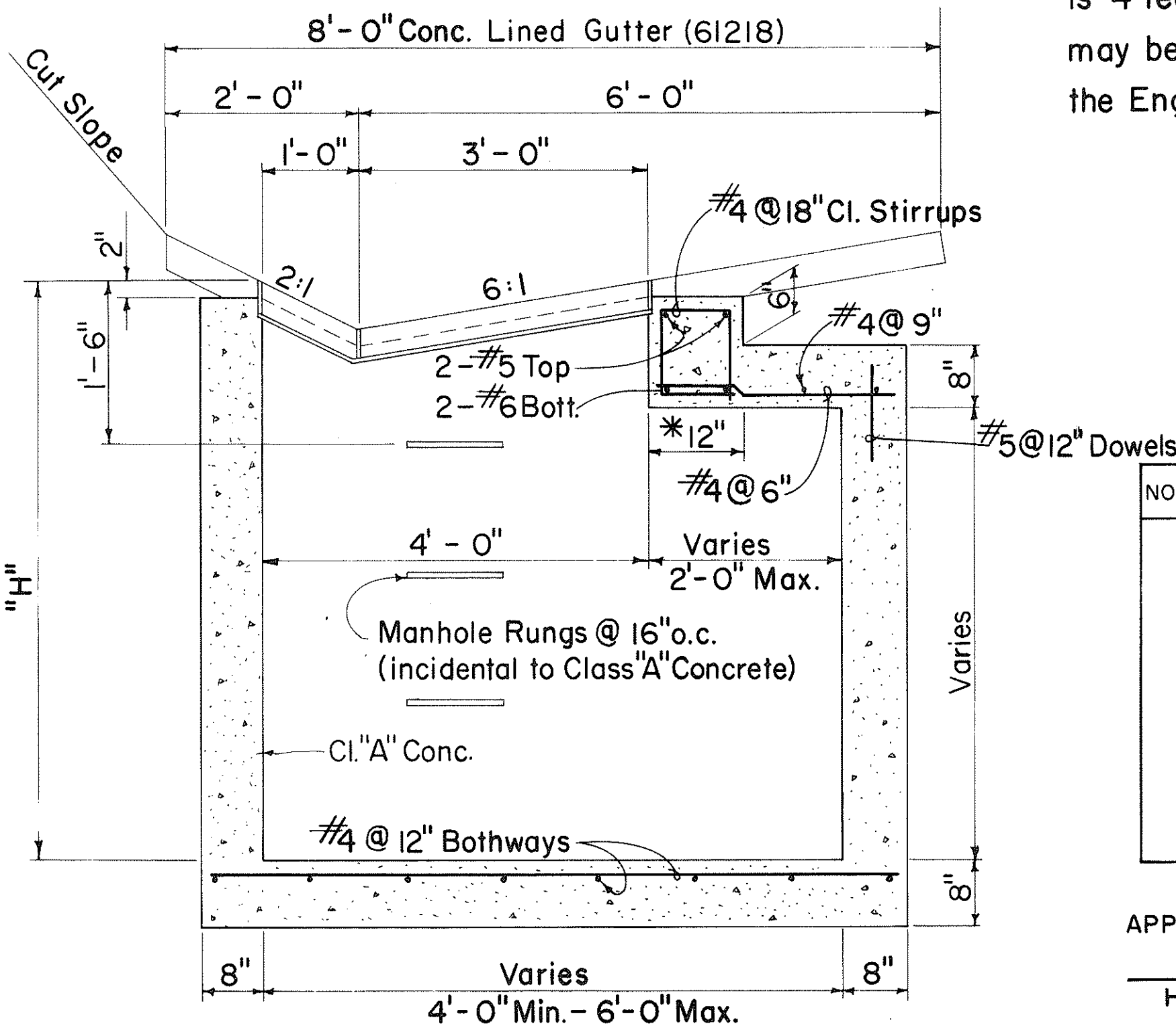


PLAN

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



PLAN



SECTION A - A

DETAIL OF 61214 DROP INTAKE

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

*For Minimum size box of 4'-0" only, use 8" and eliminate reinforcing steel shown in top portion.

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED:
 HYDRAULIC DESIGN ENGINEER
 12-17-69
 DATE

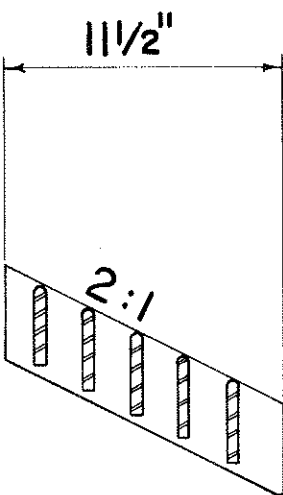
APPROVED:
 ASSISTANT CHIEF, ENGINEERING
 12-17-69
 DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
 STANDARD DETAILS
 TYPE 61214
 GRATED DROP INTAKE

Scales: As Noted Date: July 1969

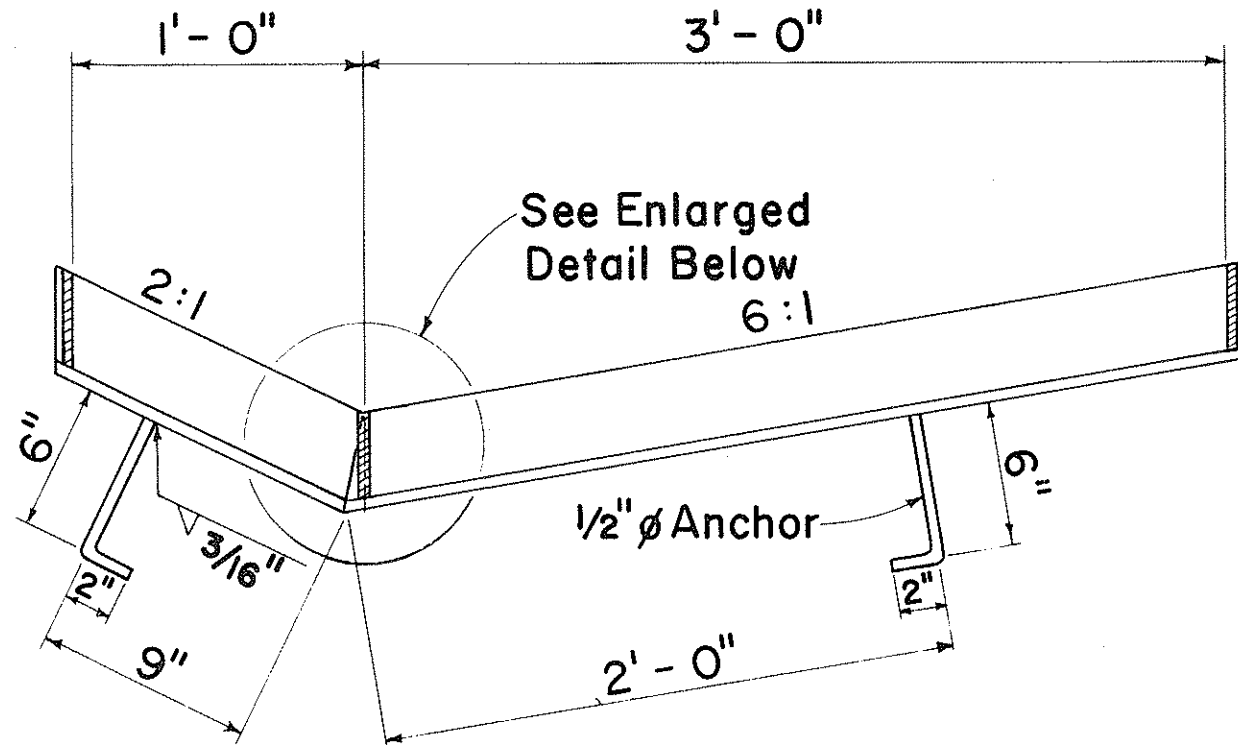
SHEET No. 9 OF 10 SHEETS DH 9

DETAILS OF TYPE 61214 STEEL FRAME AND GRATES



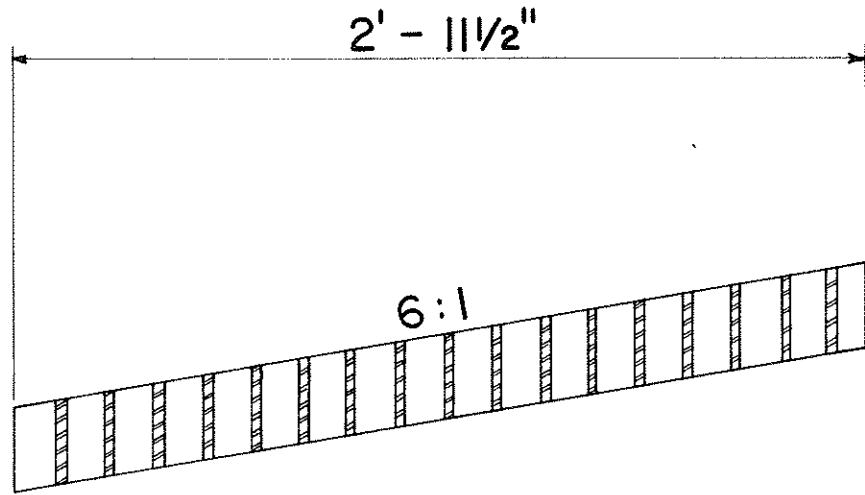
SECTION

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



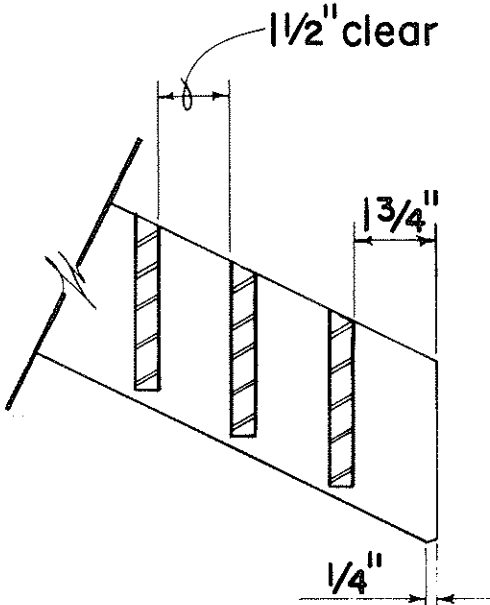
SECTION

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



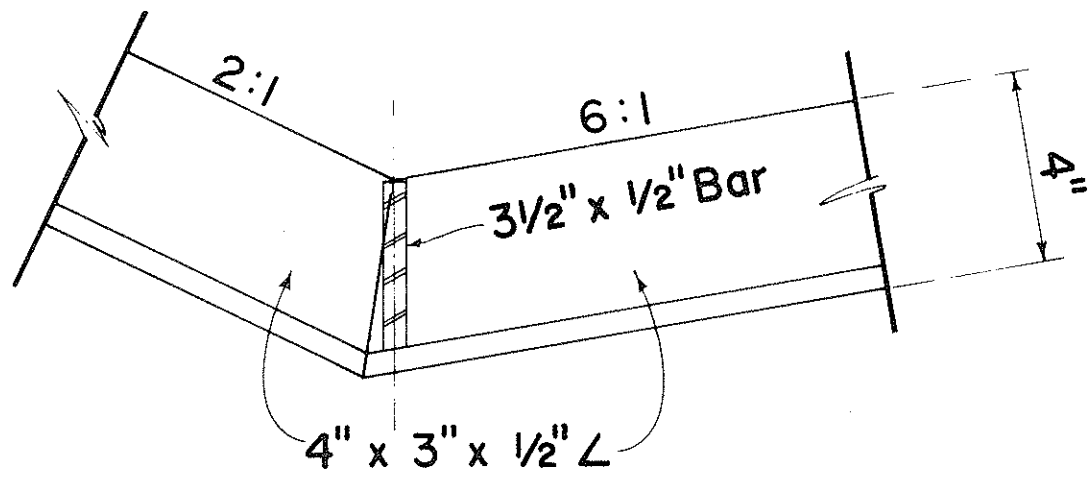
SECTION

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



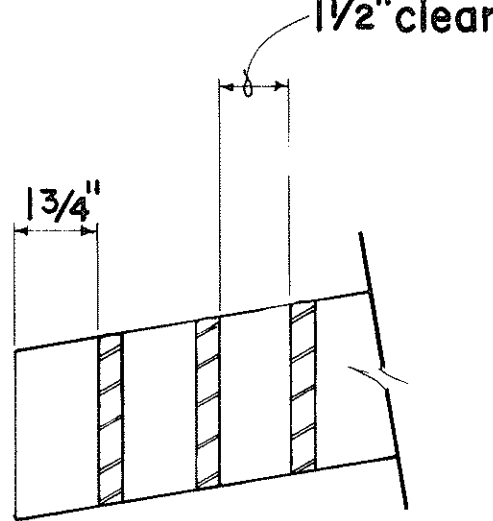
GRATE

Scale: 3" = 1' - 0"



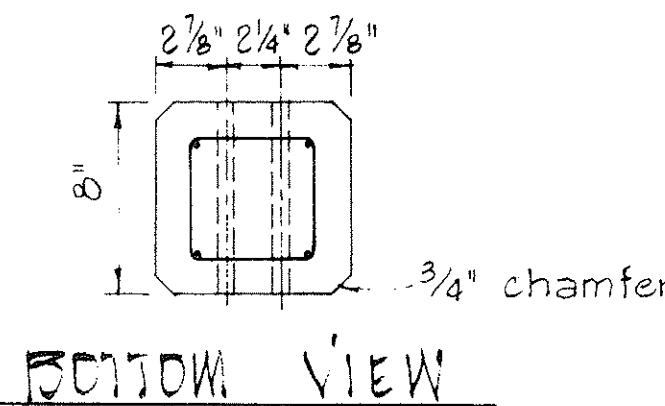
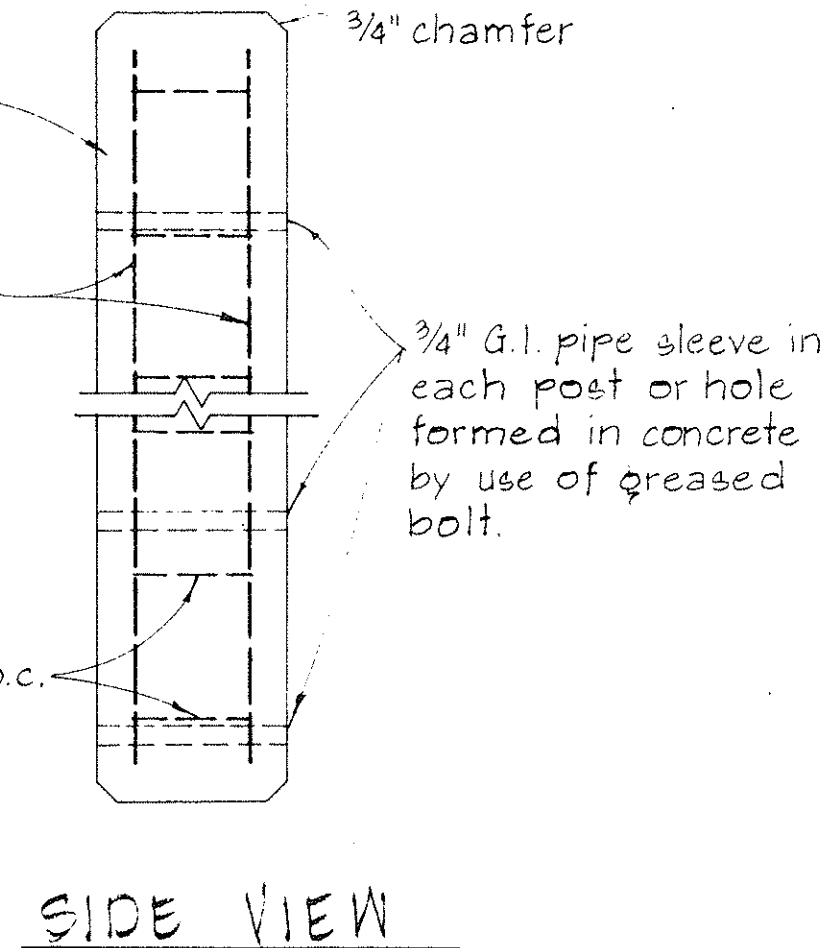
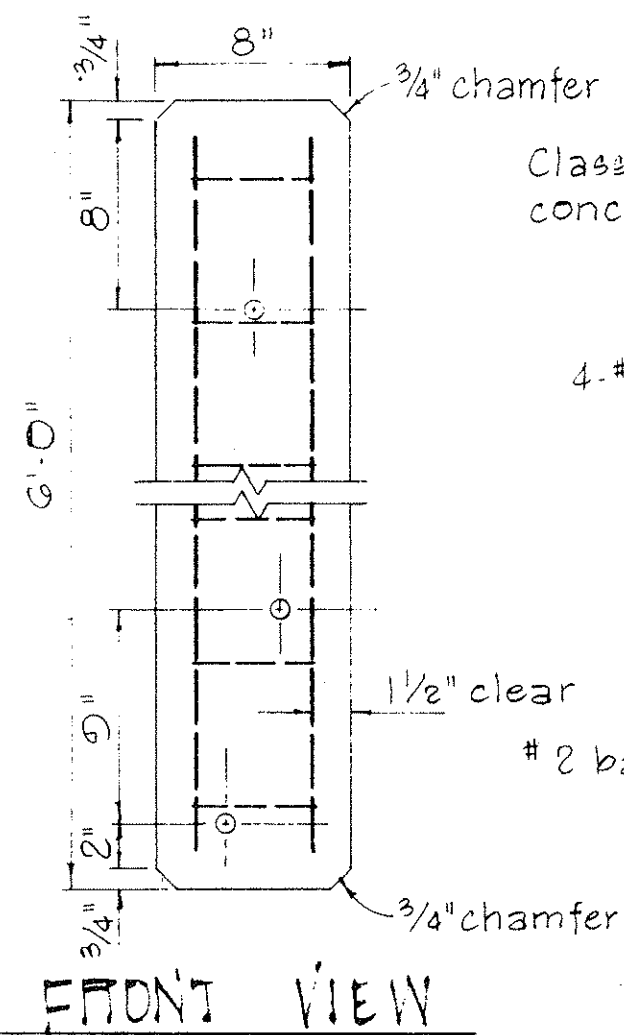
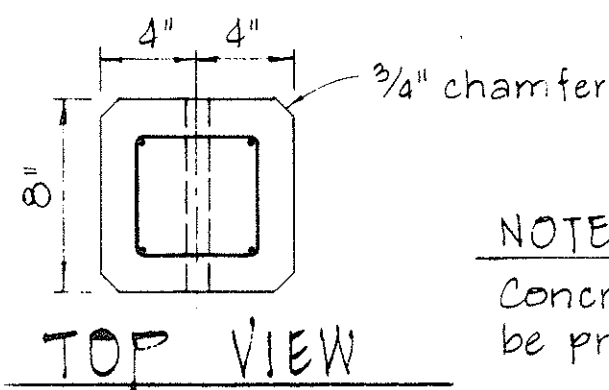
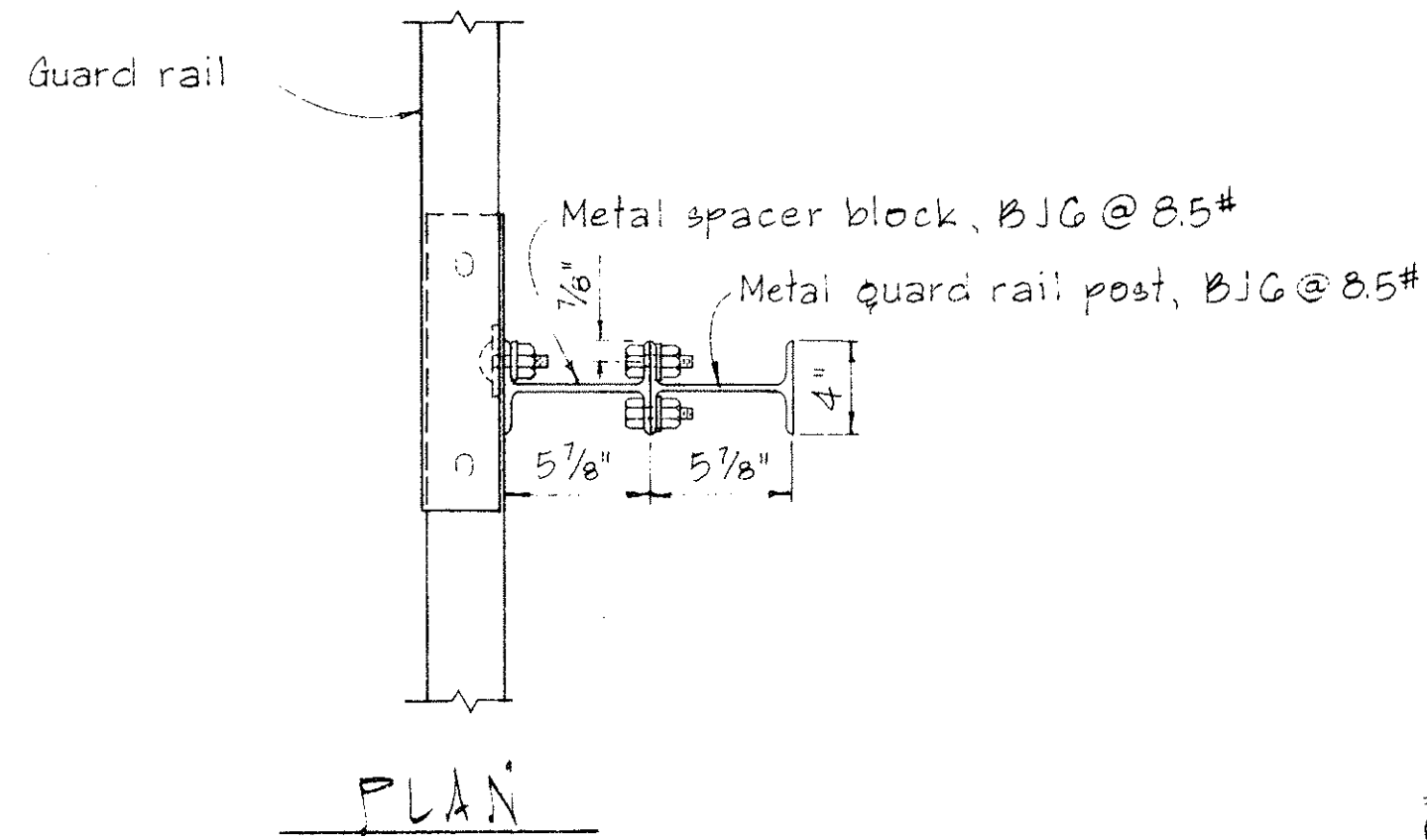
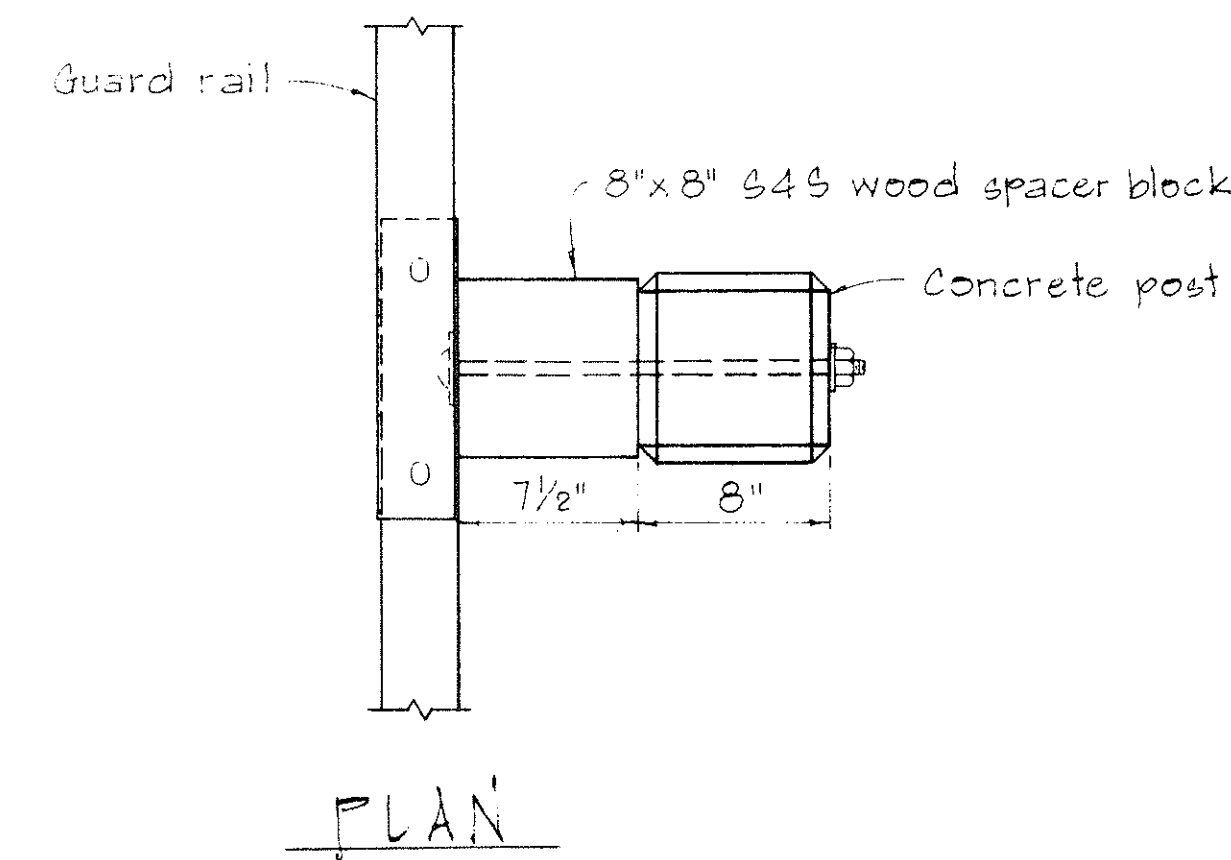
FRAME

Scale: 3" = 1' - 0"



GRATE

Scale: 3" = 1' - 0"

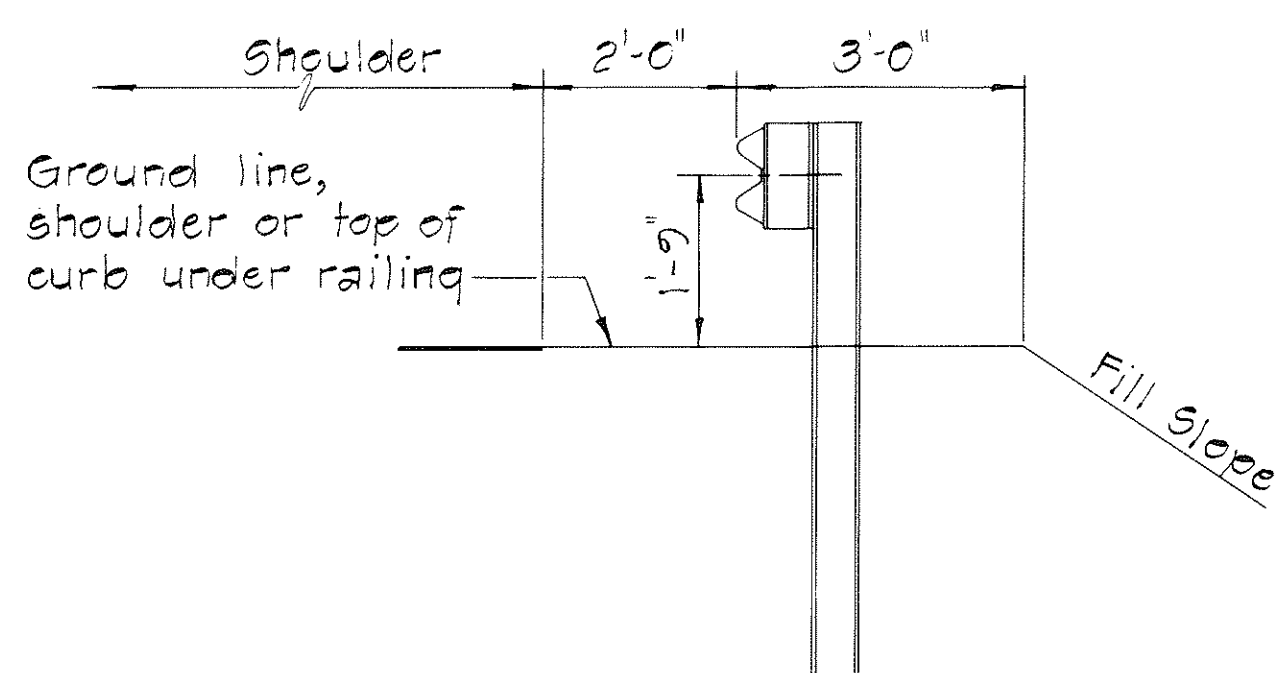


DETAIL OF CONCRETE POST

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

SINGLE METAL GUARD RAIL ON METAL POST WITH METAL SPACER BLOCK

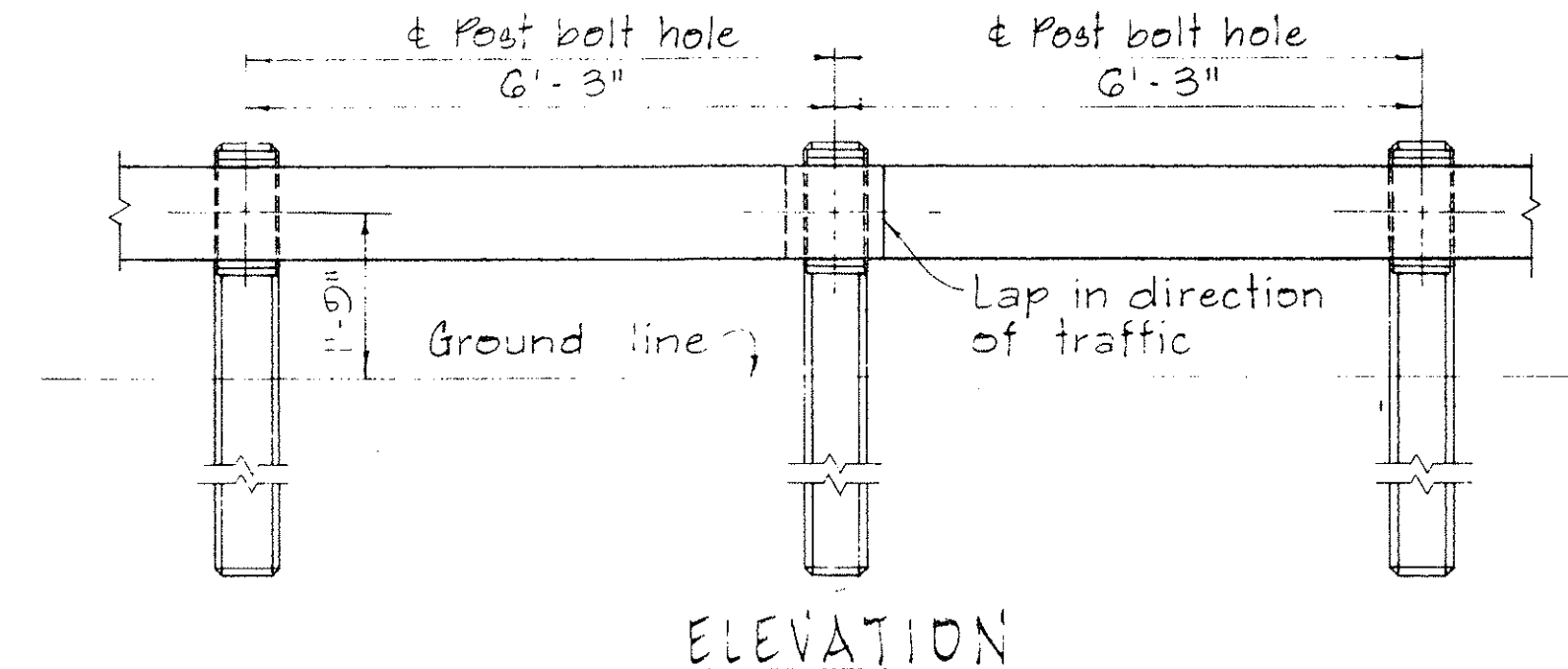
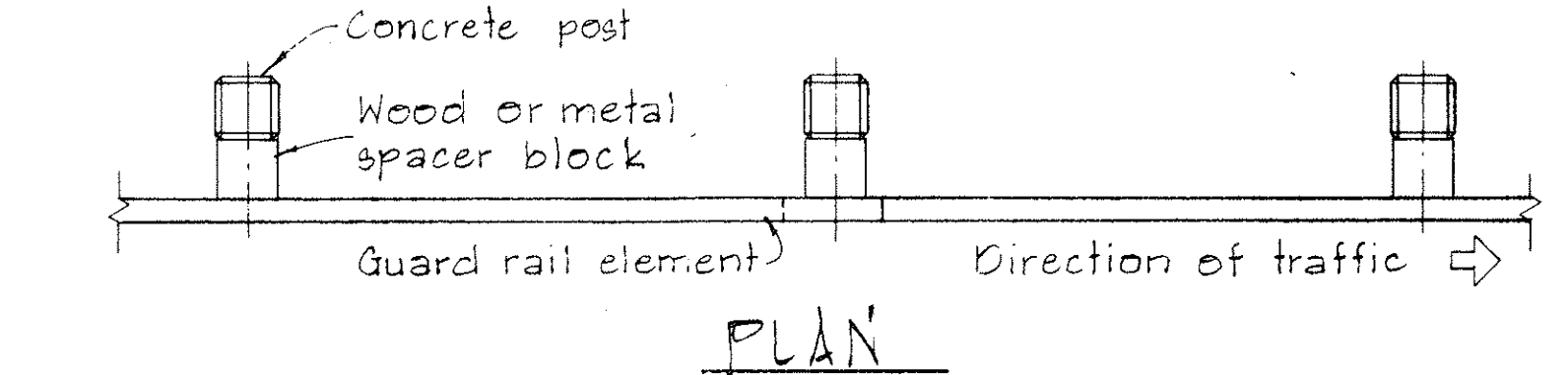
SCALE: 1 1/2" = 1'-0"



AT SHOULDER SECTION

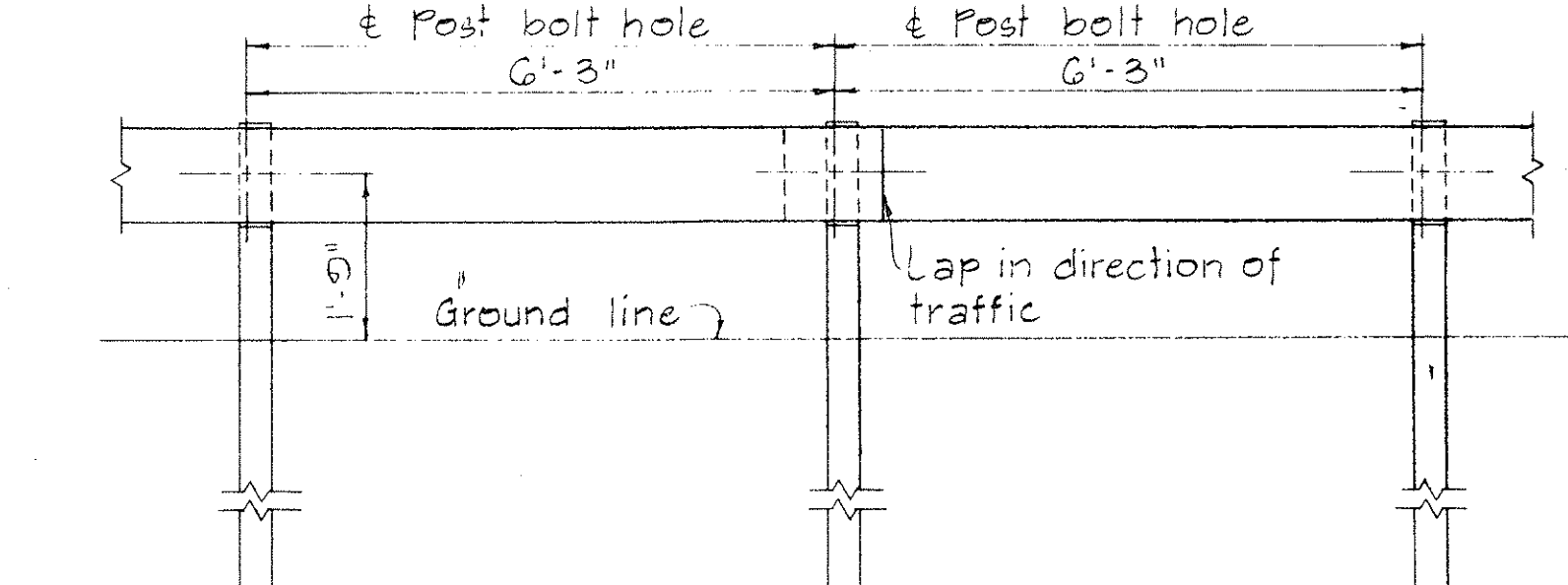
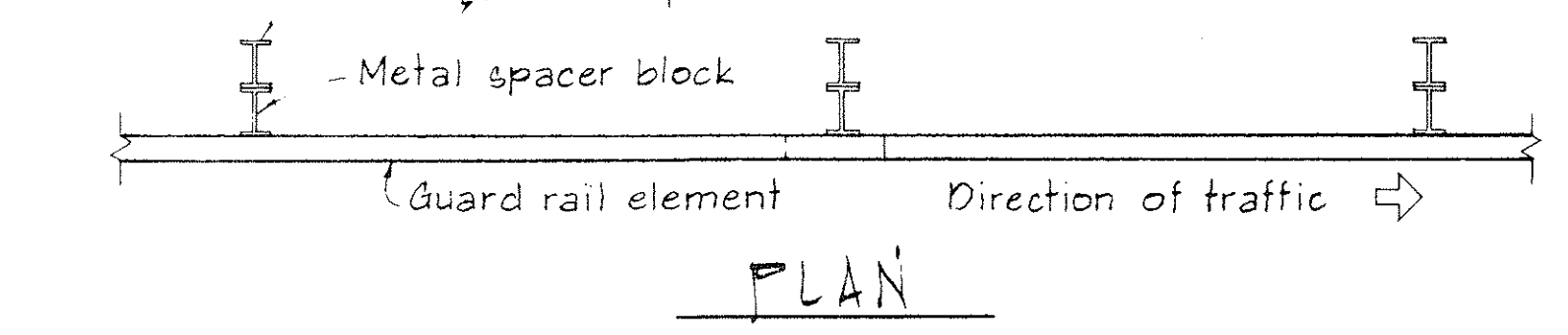
TYPICAL METAL GUARD RAIL DETAIL

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



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"

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

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

APPROVAL RECOMMENDED:
Erich Tanaka
TRAFFIC ENGINEER

12/23/69
DATE

APPROVED:
Robert J. Gohmert
ASSISTANT CHIEF, ENGINEER

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. 4 OF 10 SHEETS DT 500

HAWAII	HAW.	DATE
--------	------	------

6'-3" 6'-3" 6'-3" 6'-3" 6'-3" 6'-3" 6'-3" 6'-3" 6'-3"

1'-6" 1'-6"

6"

Post Bolt Hole
 6'-3"

Post Bolt Hole
 6'-3"

Post Bolt Hole
 6'-3"

Post Bolt Hole
 6'-3"

Post Bolt Hole
 6'-3"

Post Bolt Hole
 6'-3"

Post Bolt Hole
 6'-3"

Post Bolt Hole
 6'-3"

Post Bolt Hole
 6'-3"

Spacer Block
 B.J.G. @ 8.5#

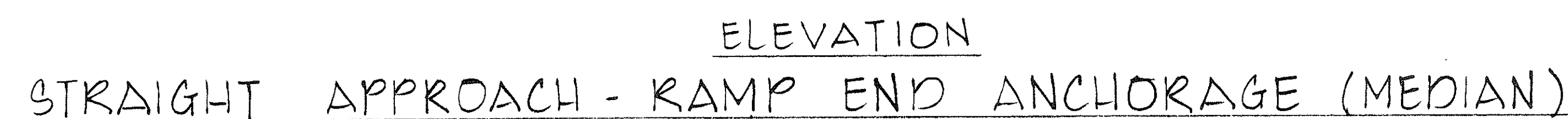
Guard Rail Post
 B.J.G. at 8.5#

Sec Det. "B"

Guard Rail Element

Rub Rail Element

PLAN



Guard Rail, All shall be

2'0"

Slot for Guard Rail

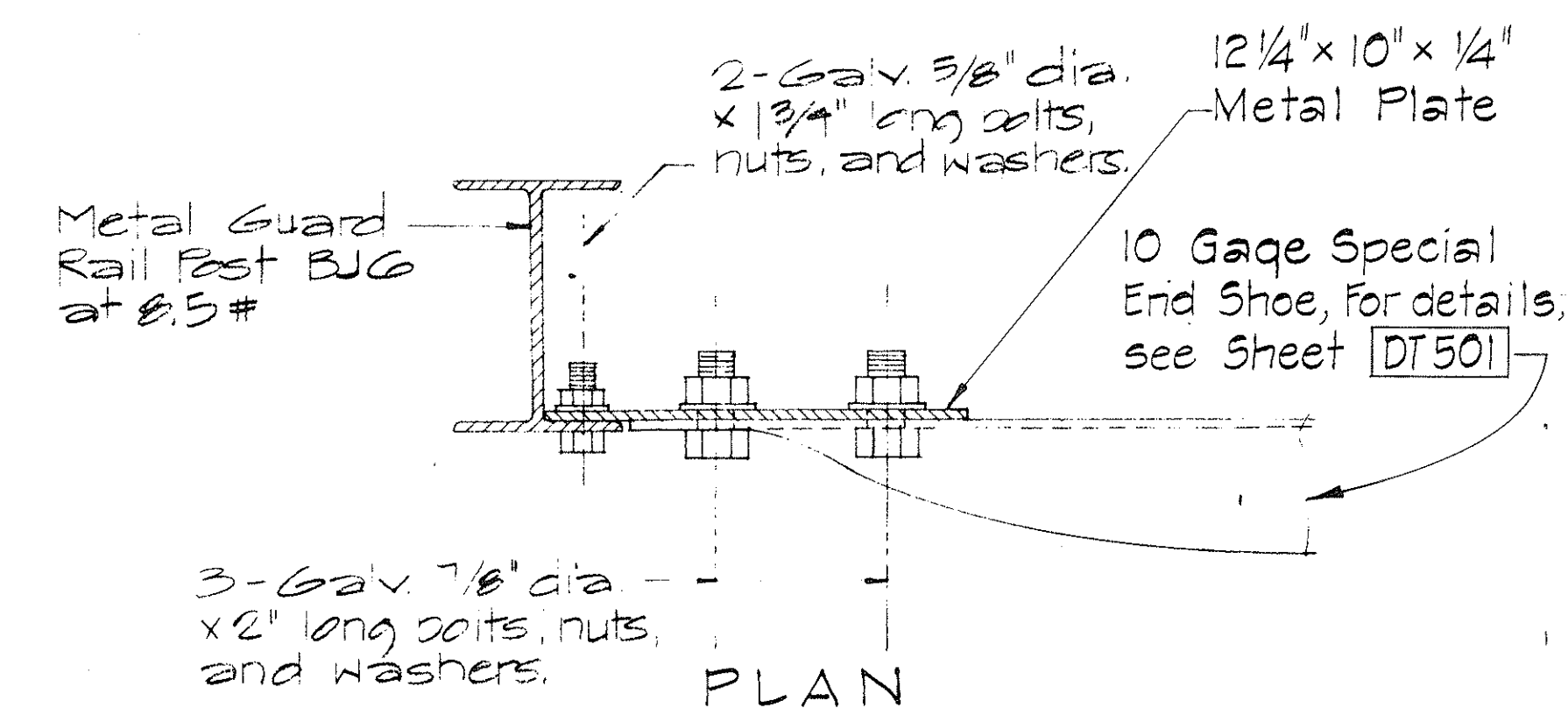
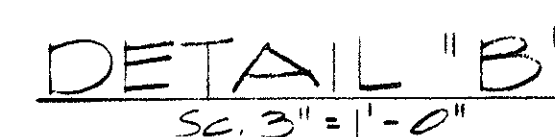
3/8"

9"

3'0"



ELEVATION



12/29/69
DATE

12-30-69
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAIL
GUARD RAIL
RAMP END ANCHORAGE

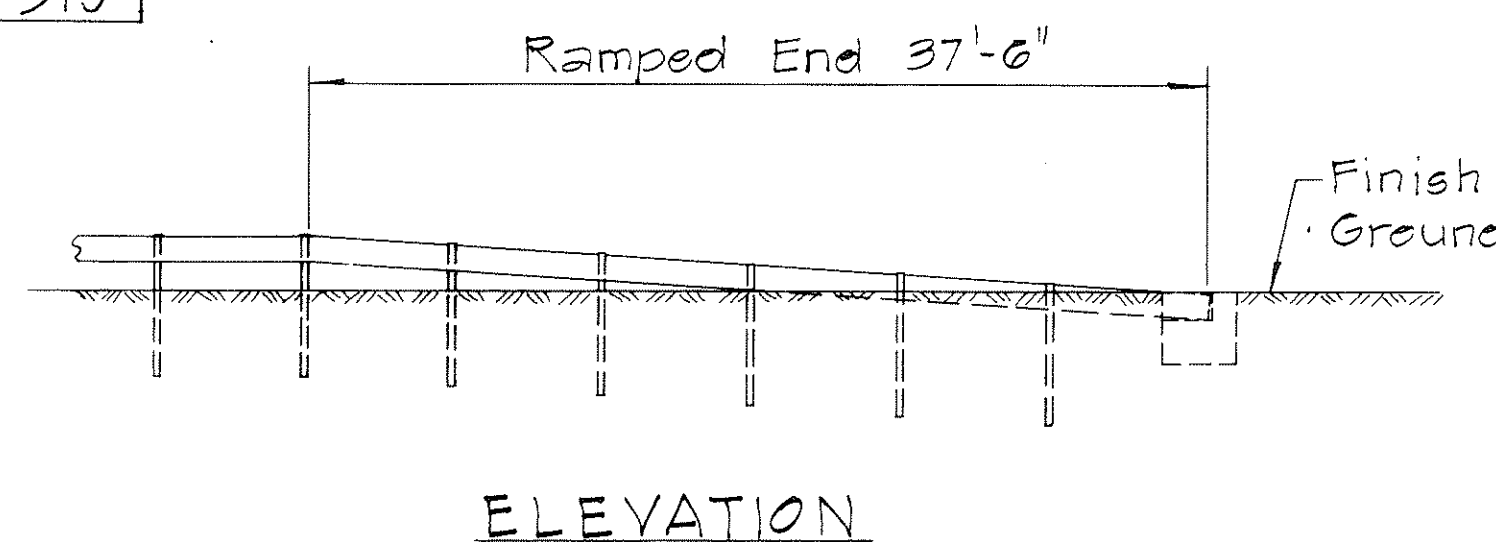
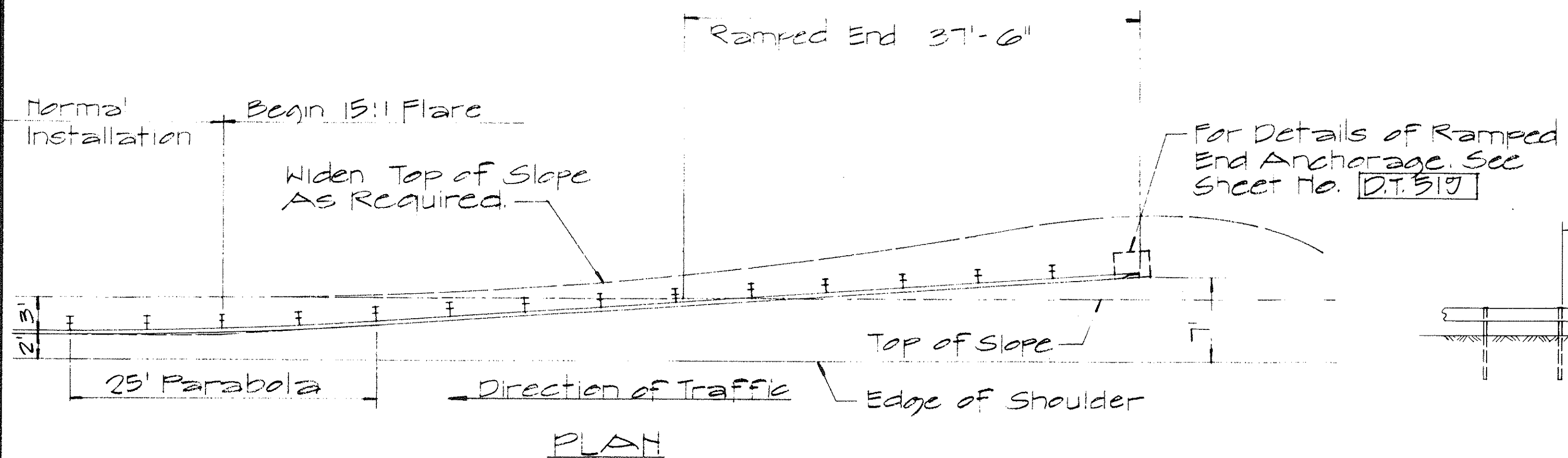
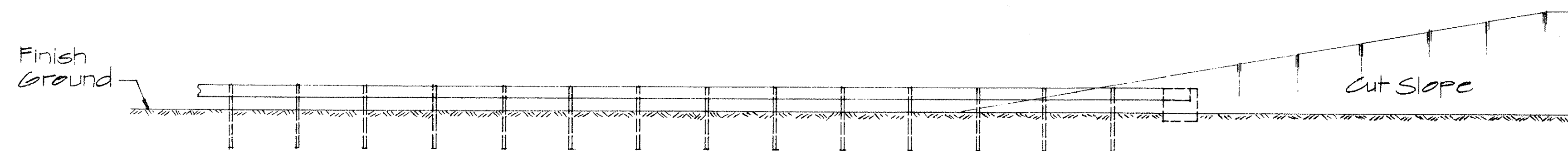
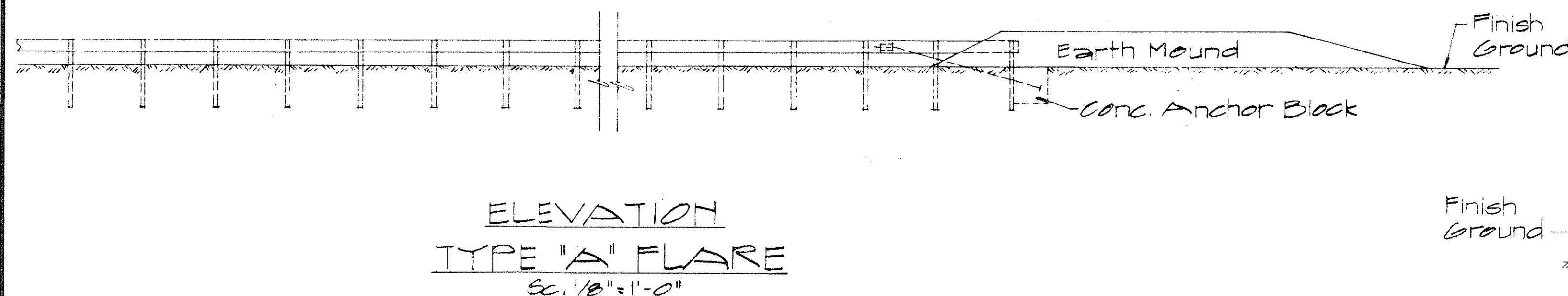
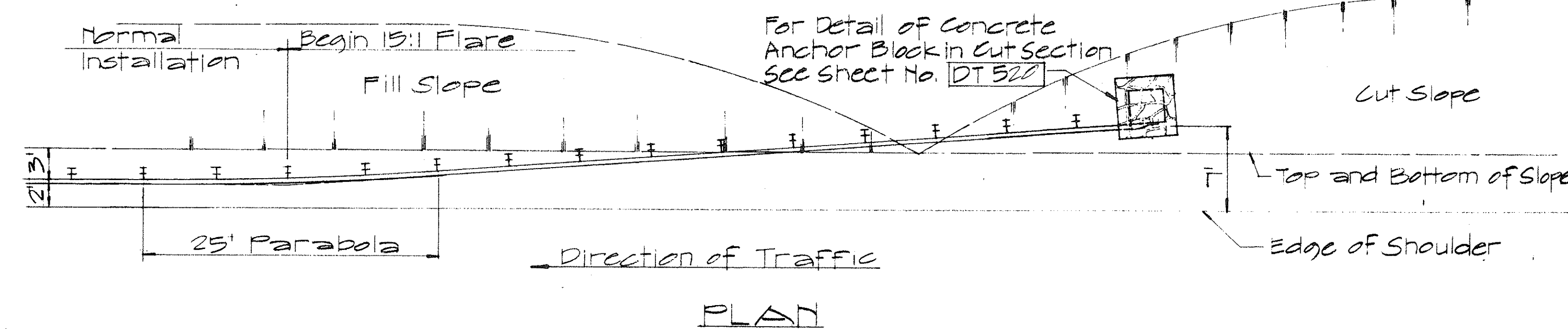
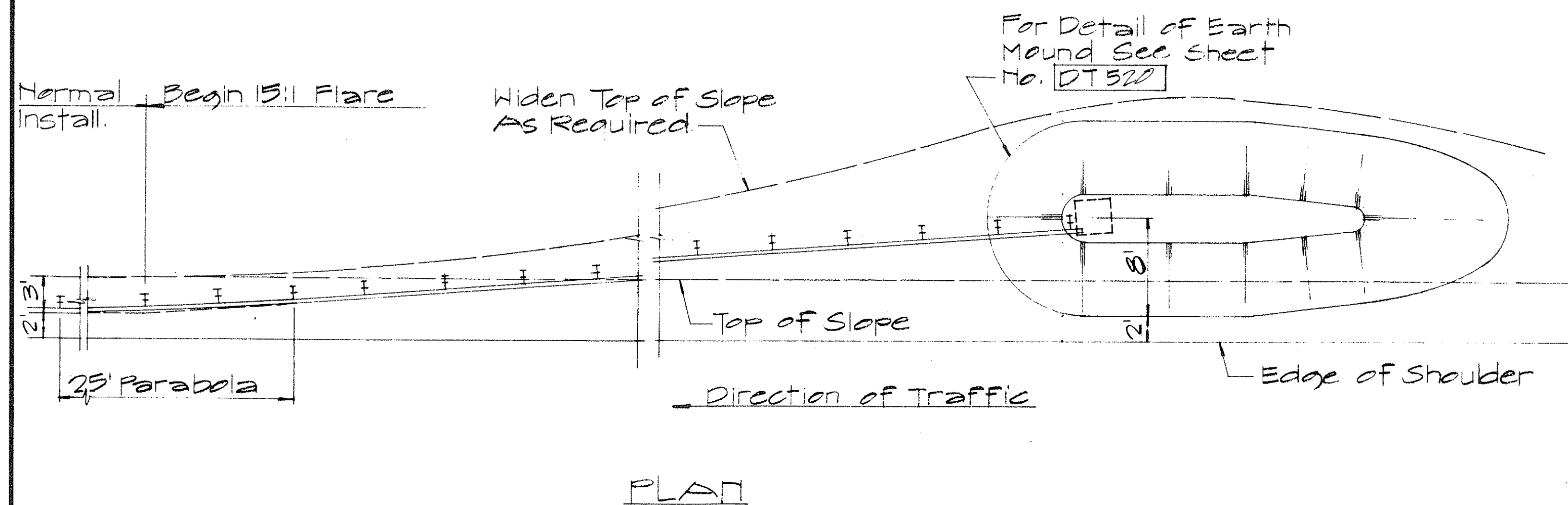
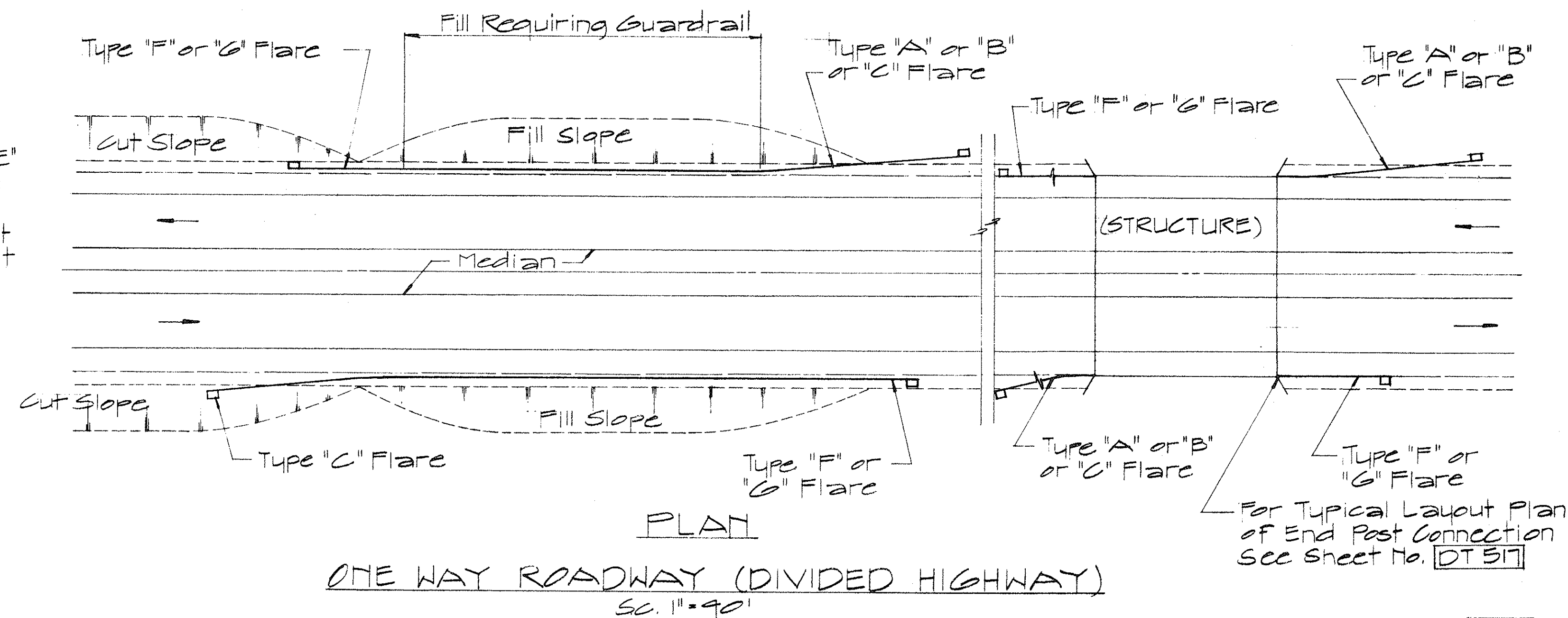
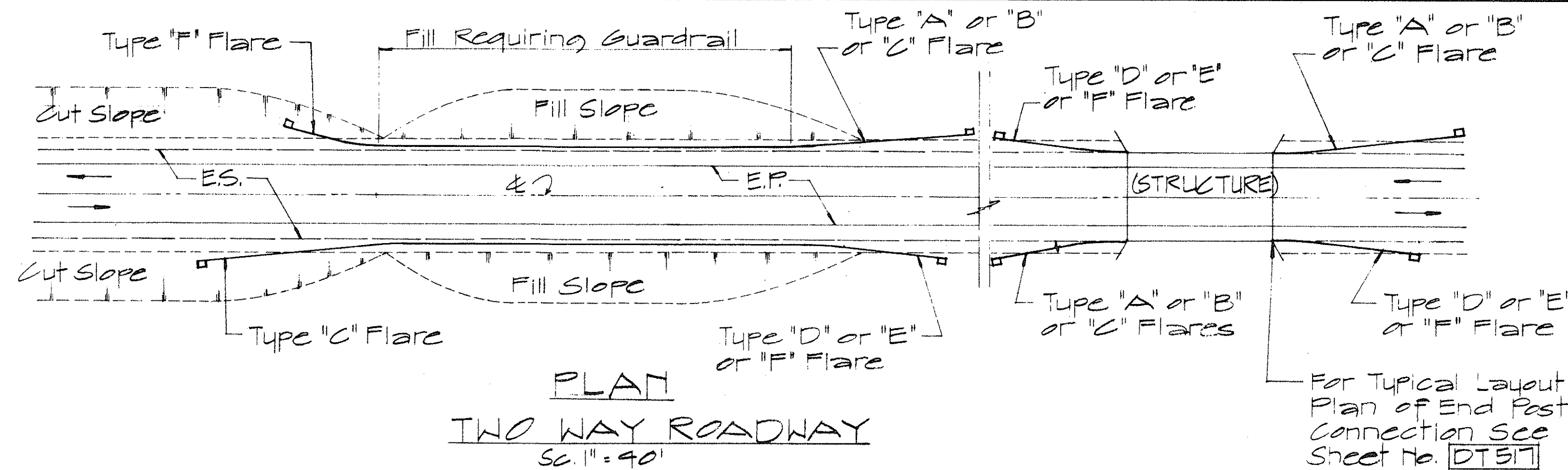
Scale: as Noted

August, 1968

SHEET No. 6 OF 10 SHEETS DT 502

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HH-1(78)-13	1970	15	47

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



TYPE "B" FLARE
Scale: 1/8" = 1'-0"

ELEVATION
TYPE "C" FLARE
Scale: 1/8" = 1'-0"

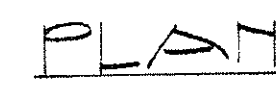
APPROVAL RECOMMENDED:
Erich Tanaka
TRAFFIC ENGINEER
12/29/69
DATE

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

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**STANDARD DETAILS
OF APPROACH END
FLARE - ONE & TWO
WAY ROADWAY**
Scale As Noted April 1969
SHEET No. 7 OF 10 SHEETS DT 516

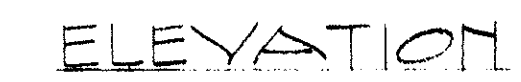
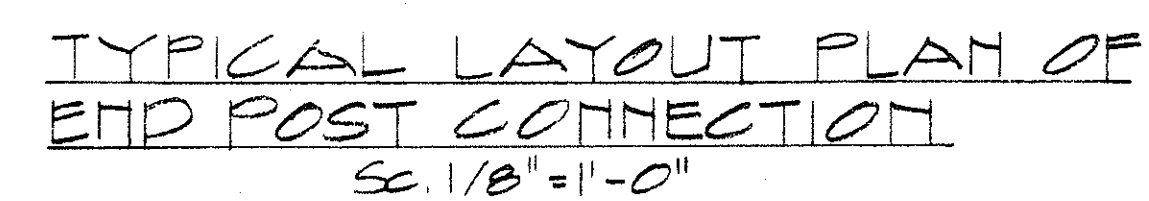
For Detail of Earth Mound
See Sheet No. **DT 520** 7



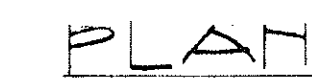
For Details of Concrete
Anchor Block in Ground
- See Sheet No. DT 517



Typical Conc 11'-23/4"



For Details of Concrete
Anchor Block in Ground
See Sheet No. [DT 511] ..



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

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

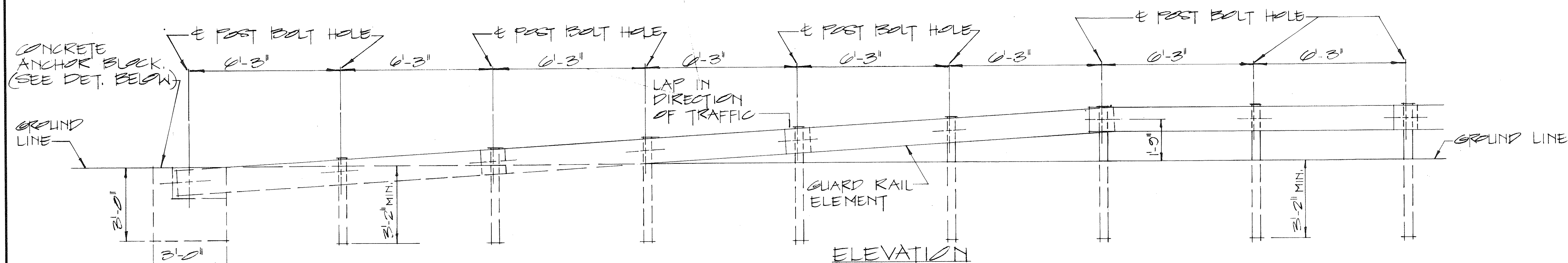
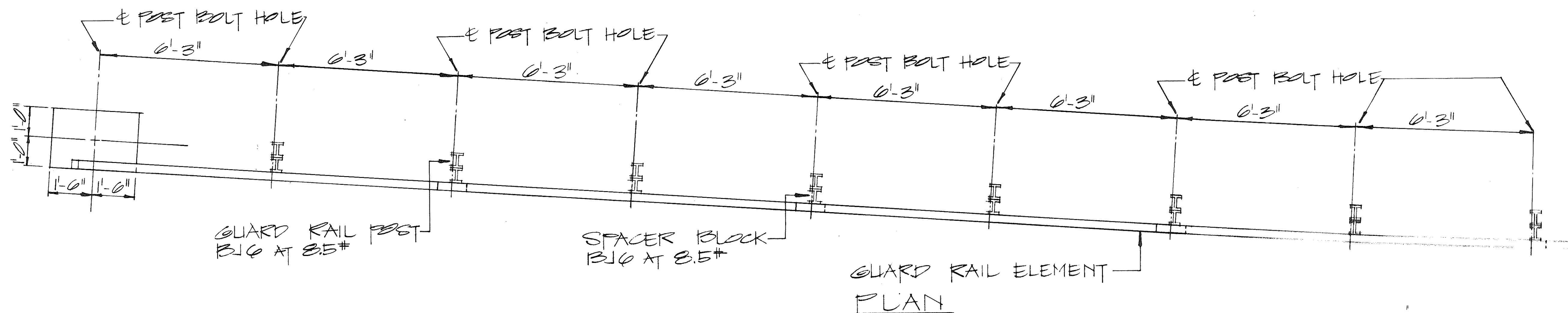
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

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

Sc. As Noted April 1969

SHEET No. 8 OF 10 SHEETS DT 517

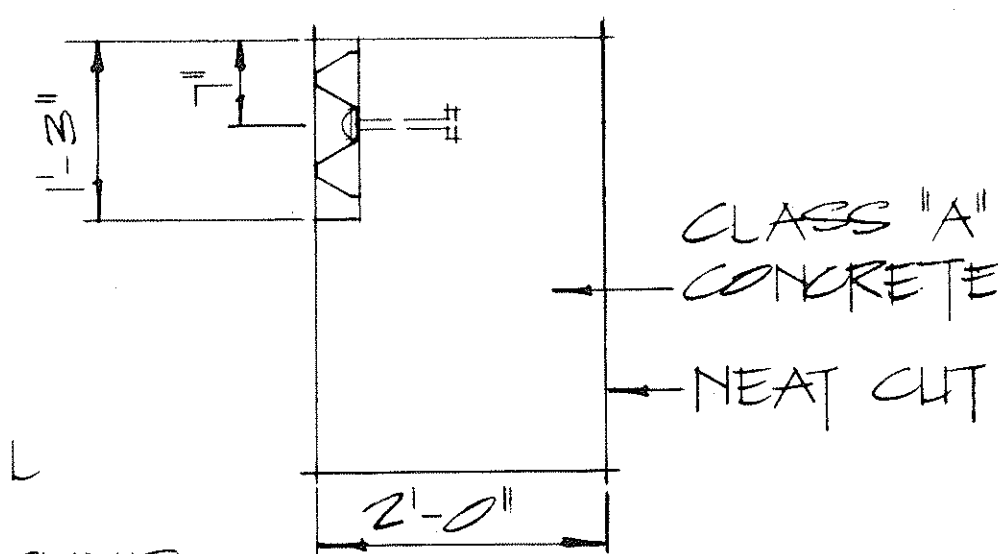
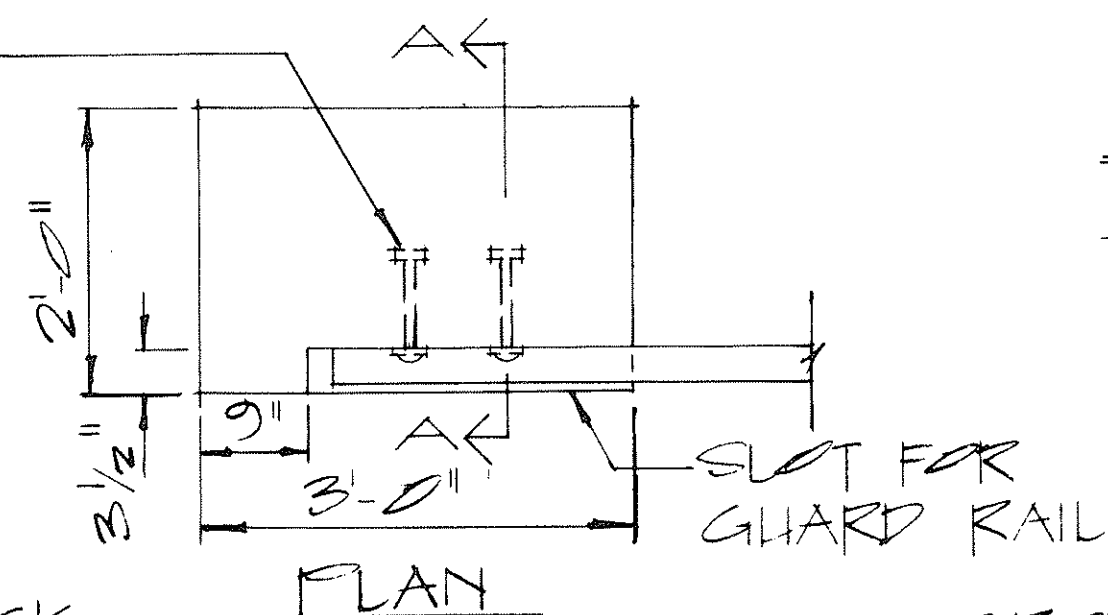
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H1-1(78)-13	1970	17	47



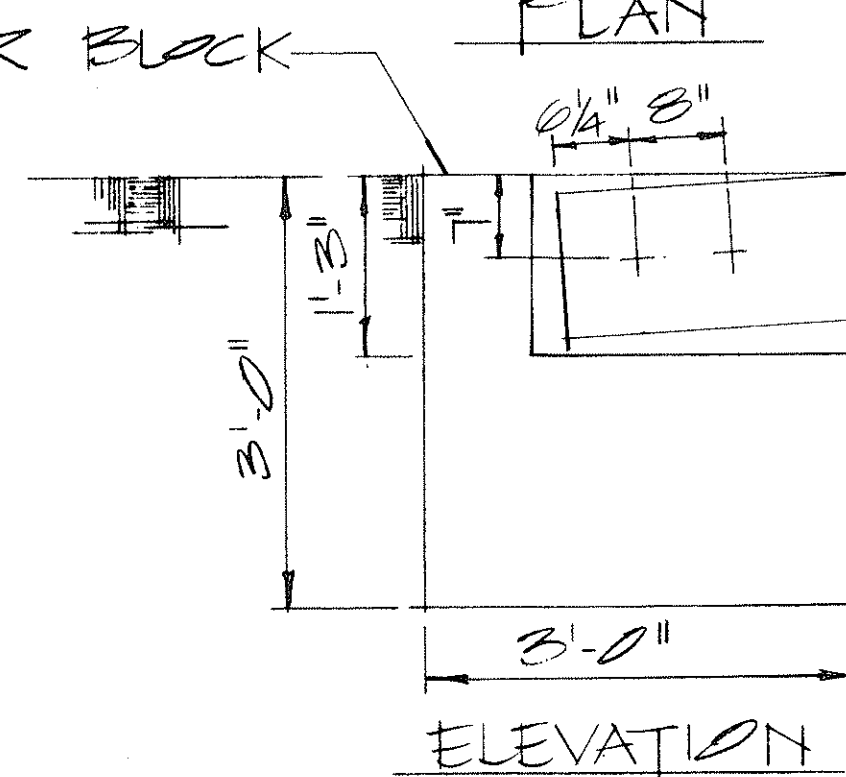
RAMP END ANCHORAGE

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

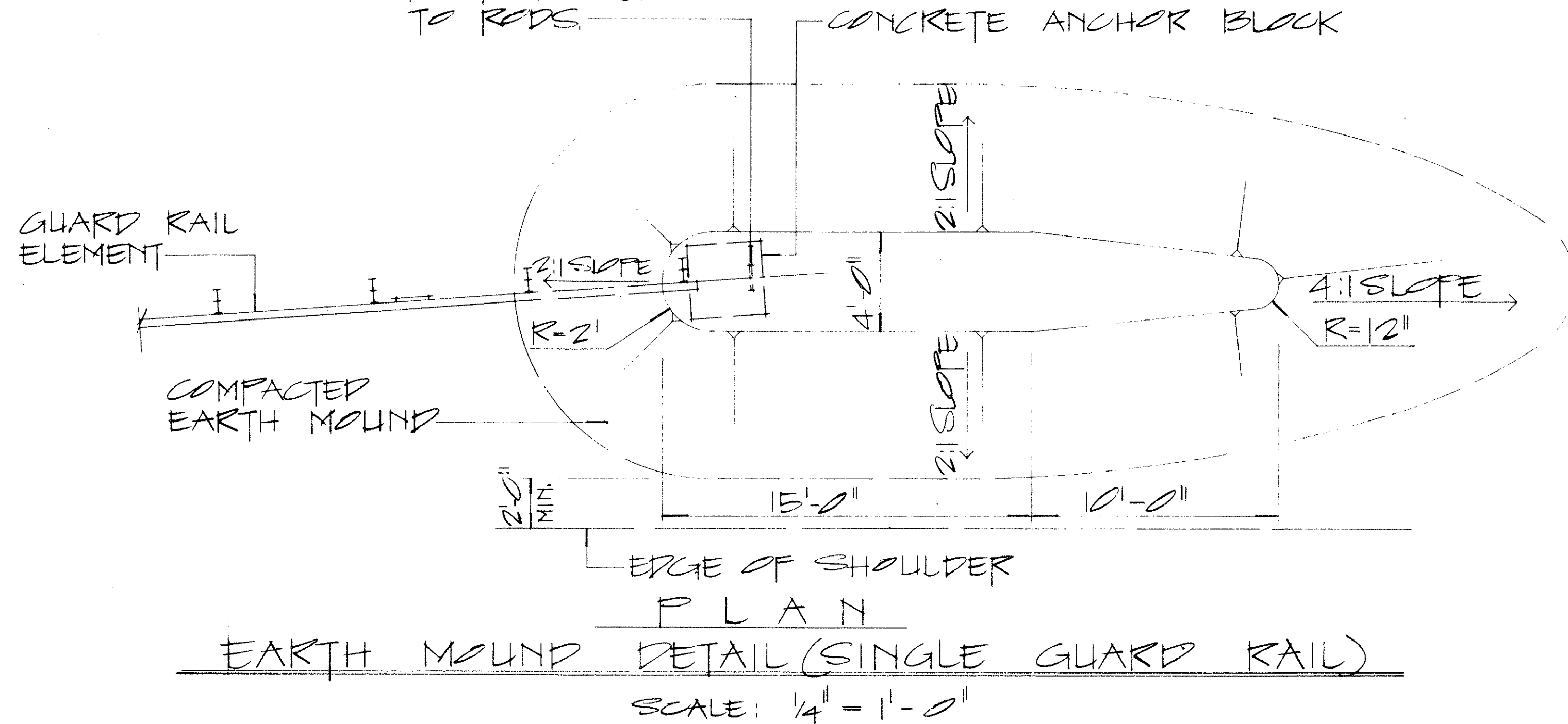
APPROVAL RECOMMENDED:
TRAFFIC ENGINEER
12/23/69
DATE

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

NO.	REVISION	APPROVED BY	DATE

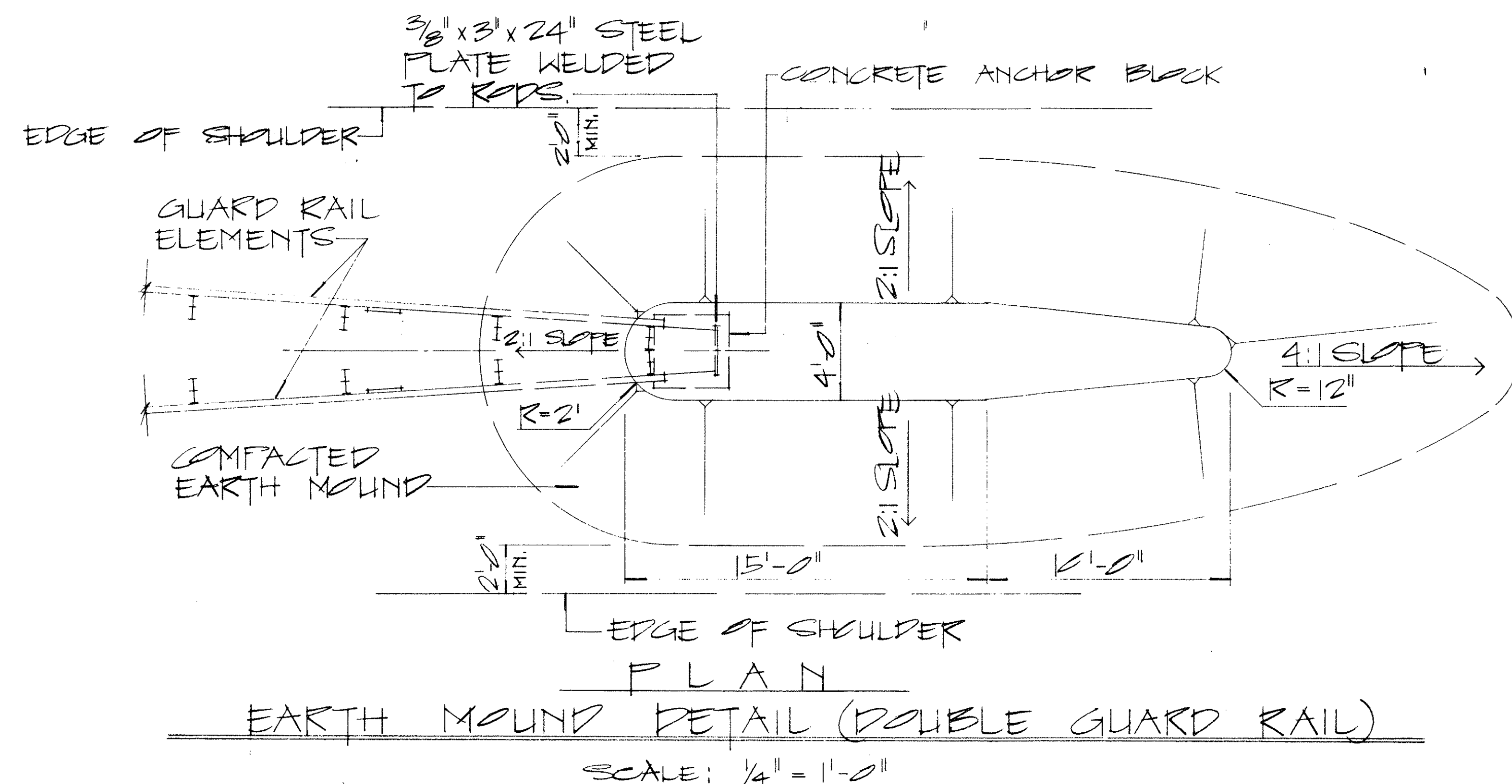
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
GUARD RAIL, TYPE 3
RAMP END ANCHORAGE
SCALE: AS SHOWN
SHEET No. 9 OF 10 SHEETS

3/8" x 3" x 4" STEEL
PLATE WELDED
TO RDS. —

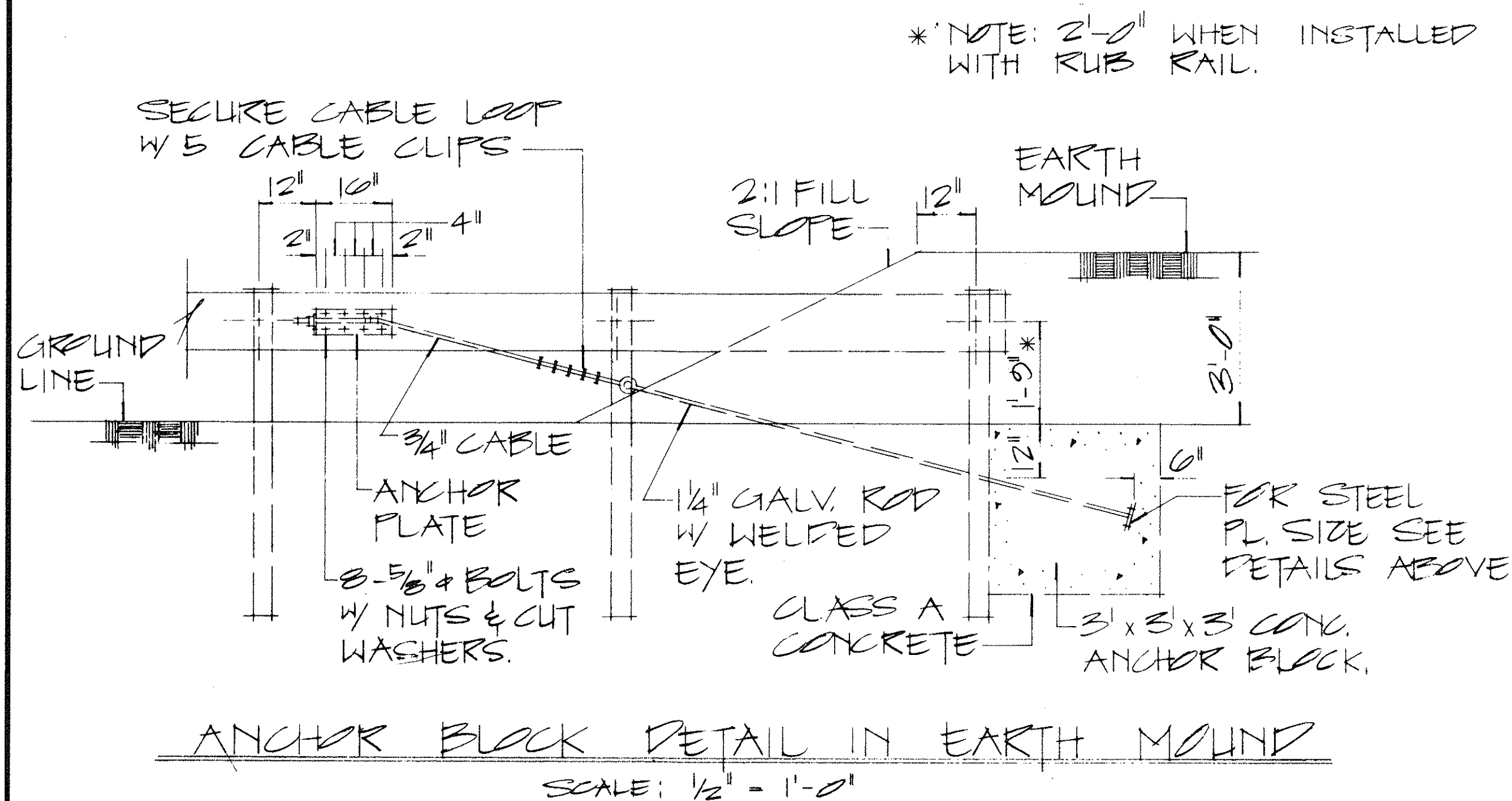


EARTH MOUND DETAIL (DOUBLE GUARD RAIL)

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

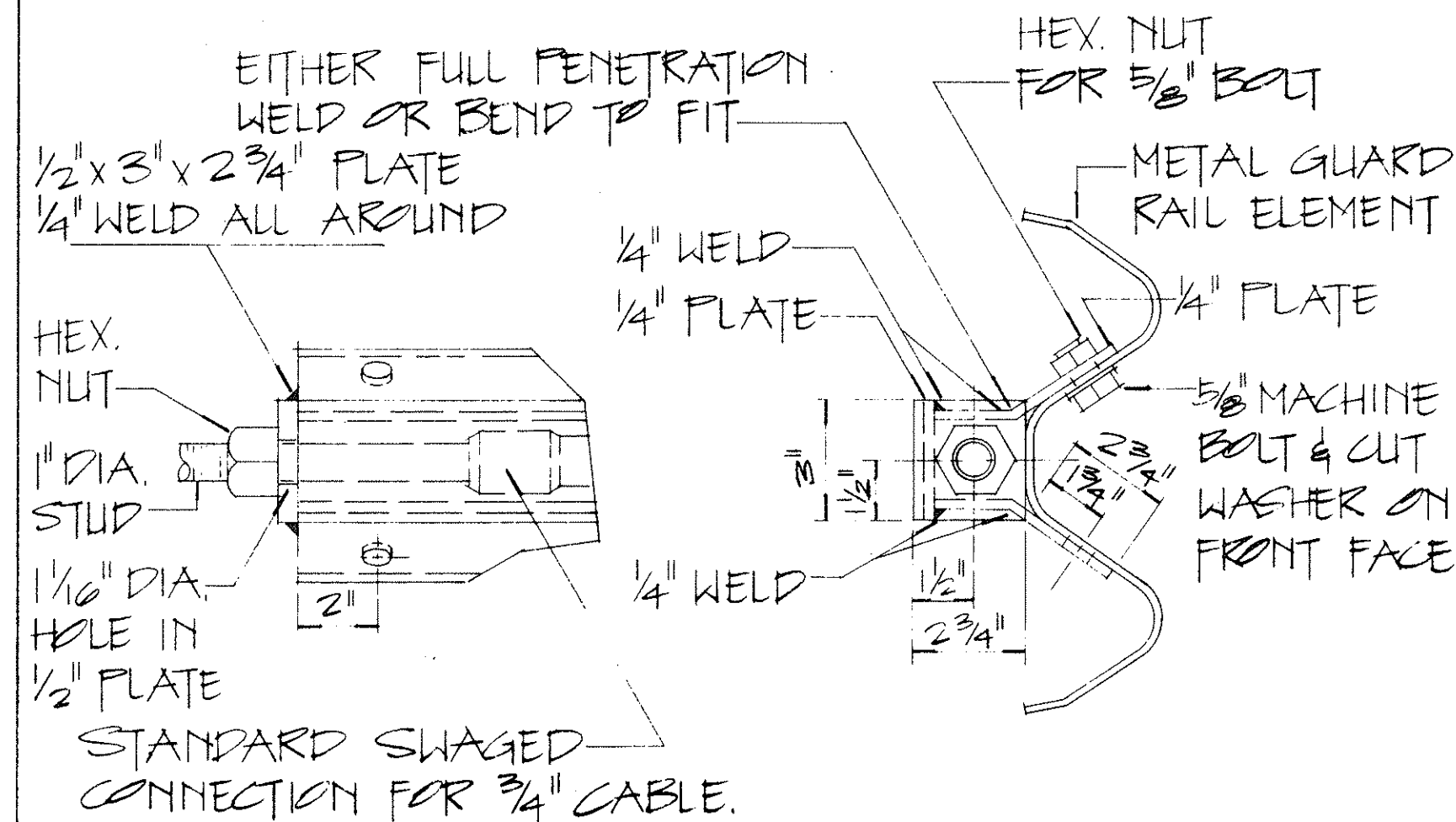


SECURE CABLE LOOP
W/ 5 CABLE CLIPS —



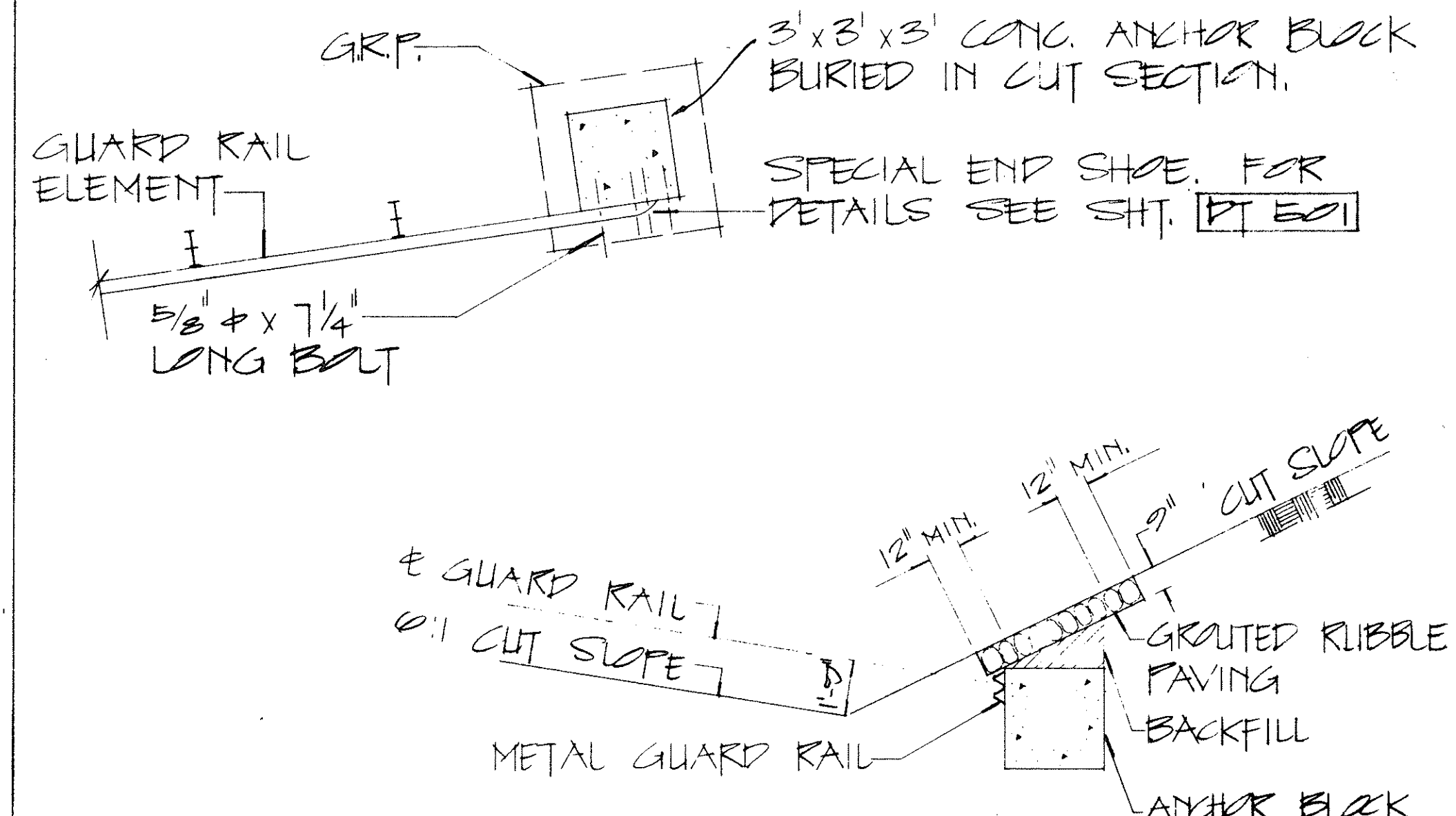
ANCHOR PLATE DETAILS

SCALE: 1" = 3"



ANCHOR BLOCK IN CUT SECTION

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



APPROVAL RECOMMENDED:
Eisuke Tanaka 12/29/6
TRAFFIC ENGINEER DATE

APPROVED:
Wm. J. J. J. 12-30-6
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. 10 OF 10 SHEETS 10520

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, 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.

STUD THREADED
ENTIRE LENGTH

STANDARD SWAGED FITTING

AND STUD

SCALE: 1" = 3'