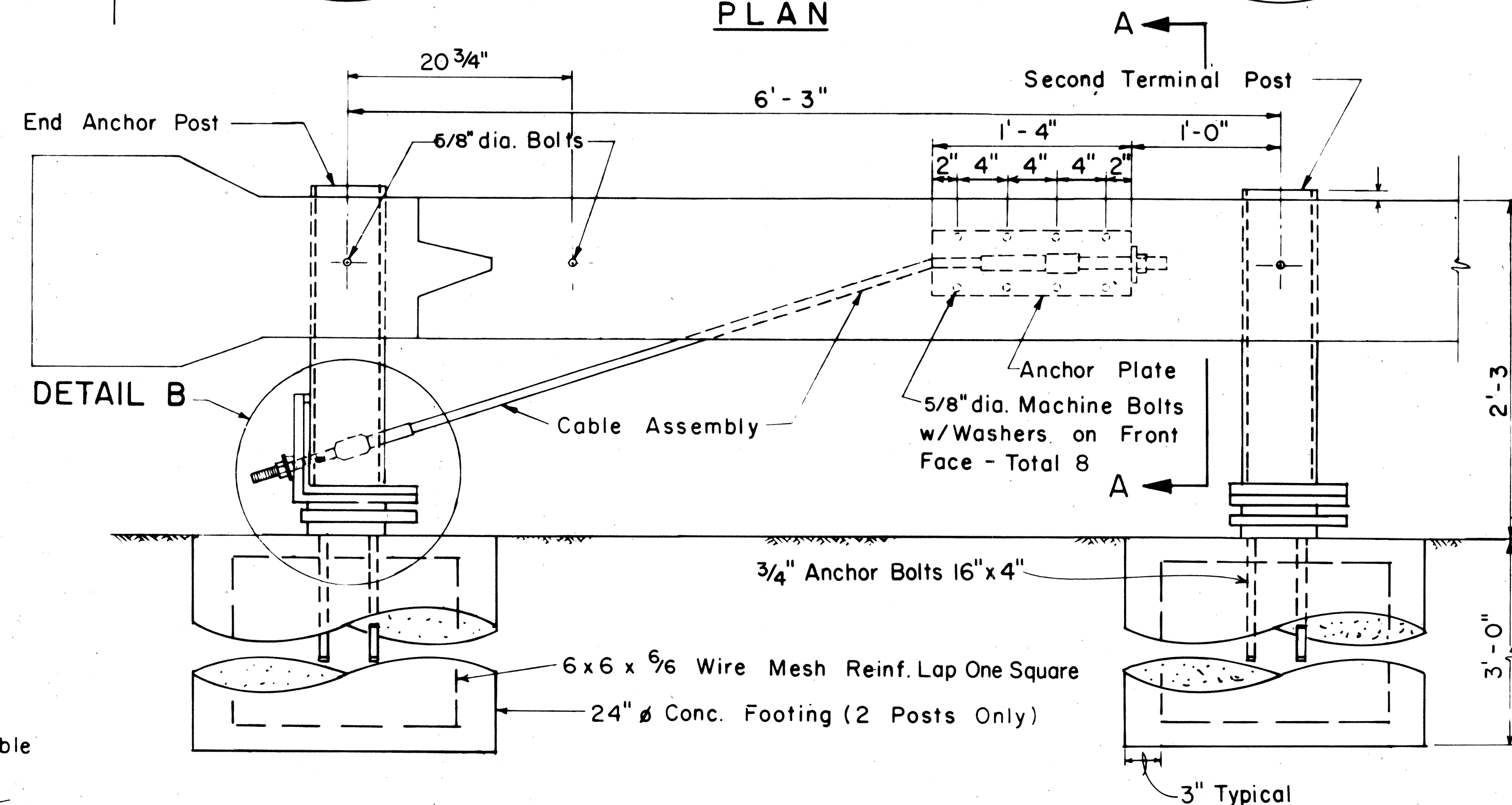
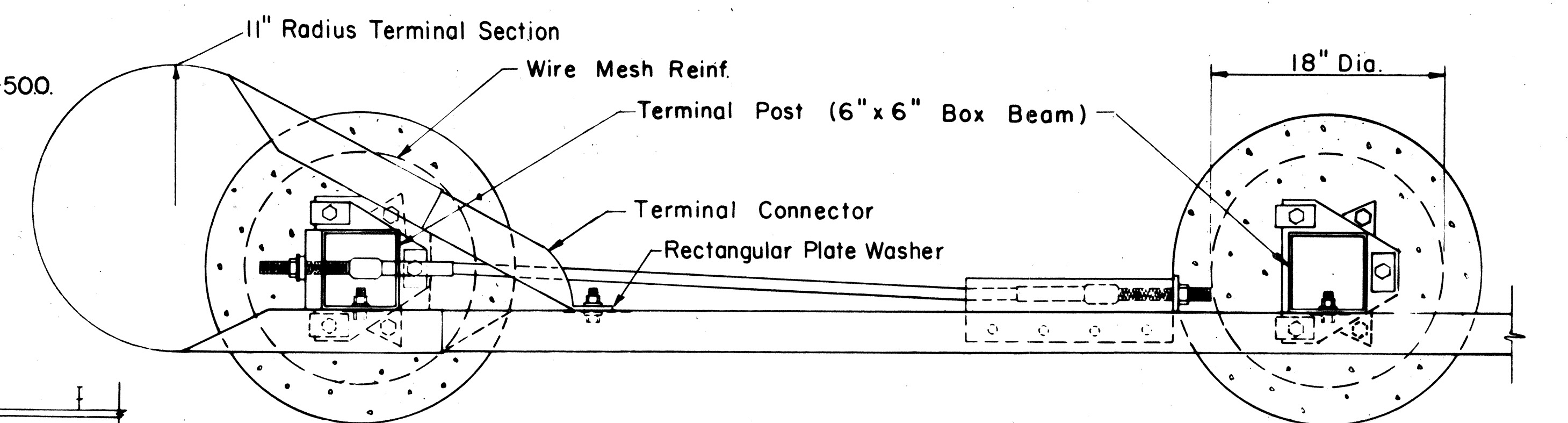
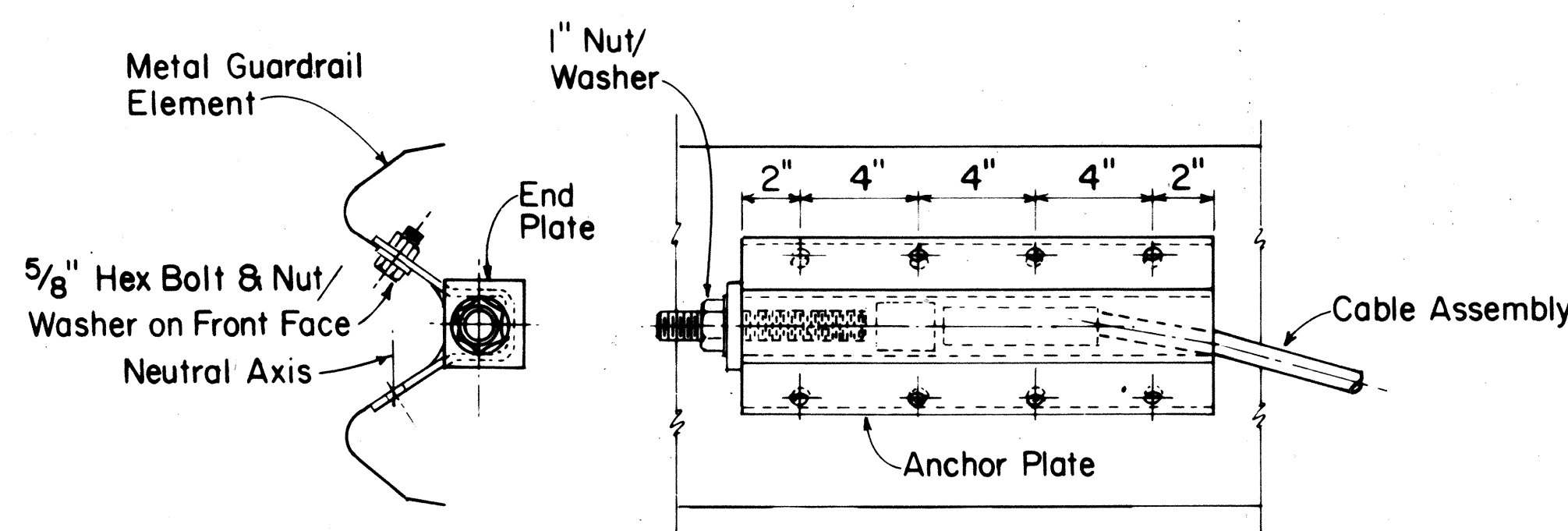
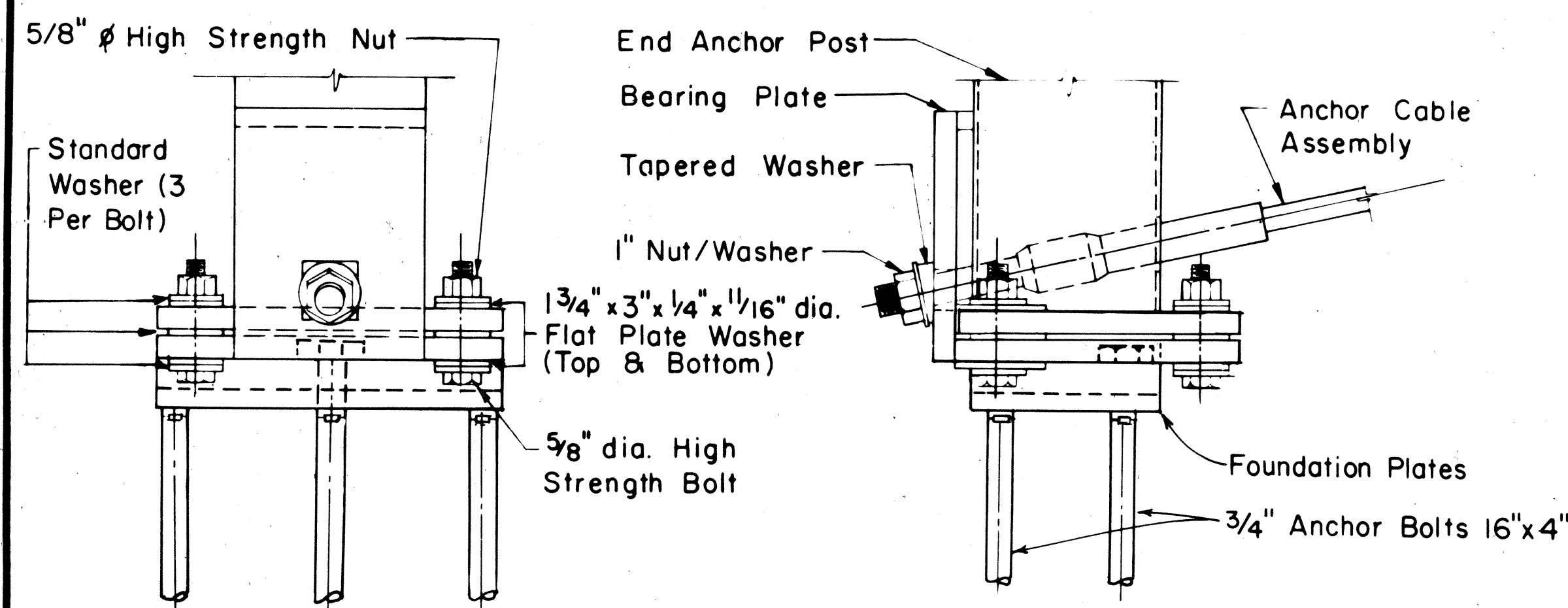
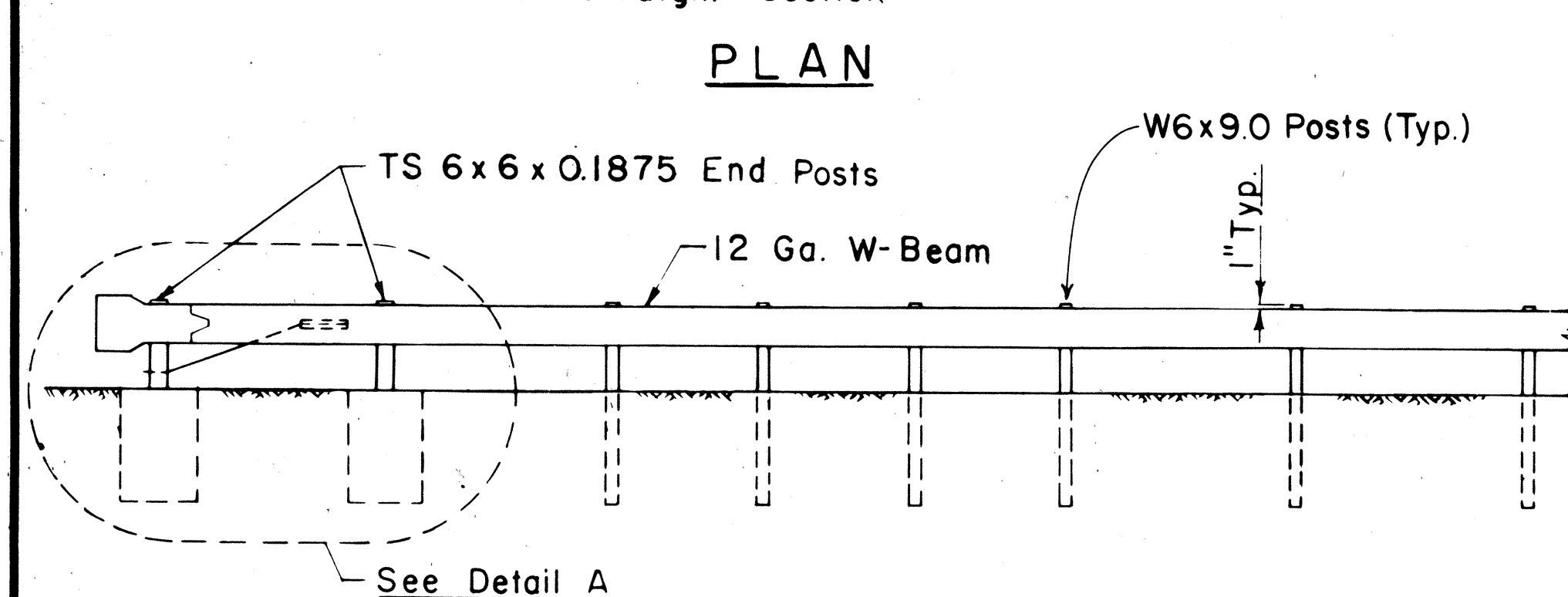
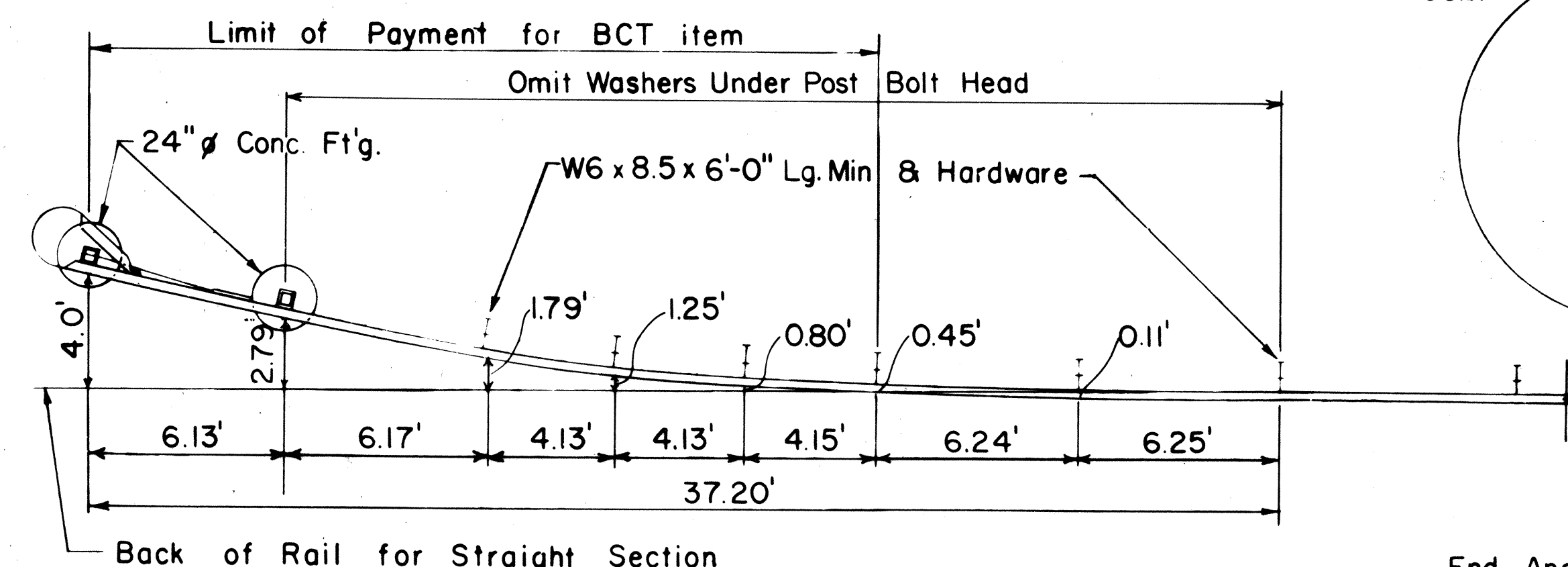
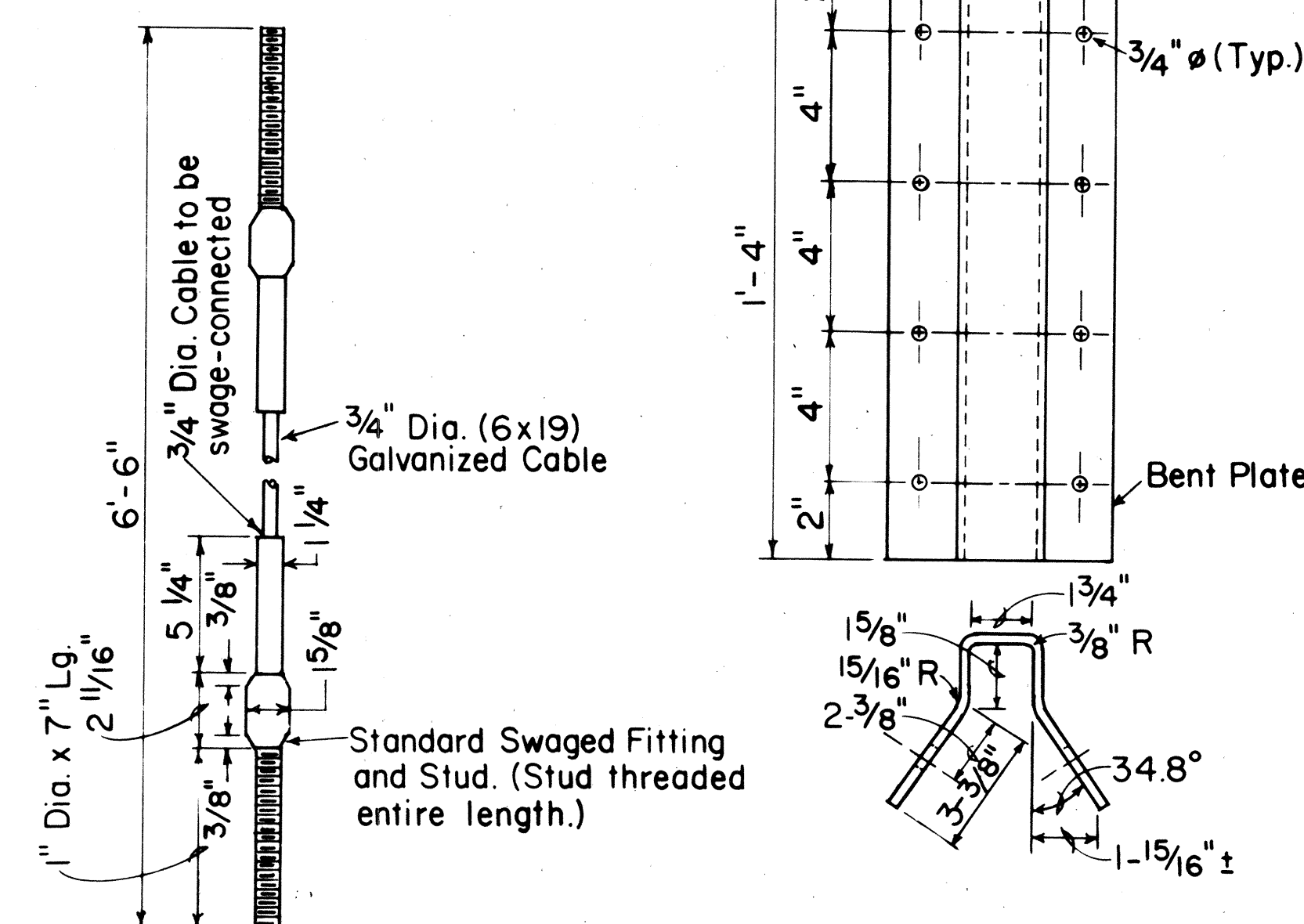


Grade End Treatment
area to a max. 10:1 slope

Use 12" long Backup Plate at Posts where
W-Beam splice does not occur. For Details see Sht. No. DT-500.



ELEVATION
DETAIL A



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-84	1986	10	54

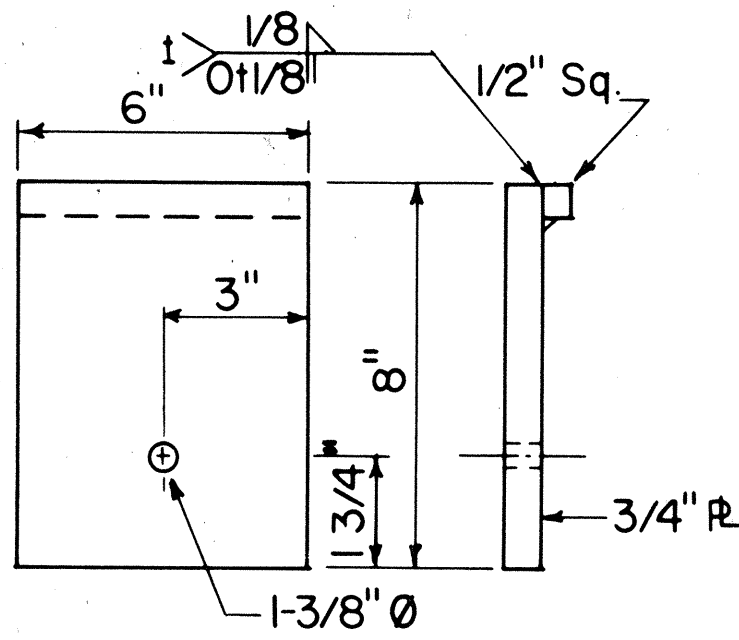
NOTES:

- For Details of 5/8" Button Head Bolt and Nut, 5/8" Hex Bolt and Nut, and W Beam Terminal Connector, refer to Standard Detail DT 501.
- Other Anchor Cable Assemblies may be used. Minimum breaking strength of assembly should be 40,000 lbs.
- Second Terminal Post does not require holes to accommodate Anchor Cable.
- Slip Base Load shall be controlled with a Calibrated Torque Wrench - Torque 155 - 170 ft. lbs.
- Concrete shall be Class A.
- For additional and or revised BCT Details to "A Guide to Standardized Highway Barrier Rail Hardware," a report prepared and approved by the AASHTO-AGC-ARTBA joint cooperation committee. All hardware shall conform to above mentioned publication and as revised from time to time.

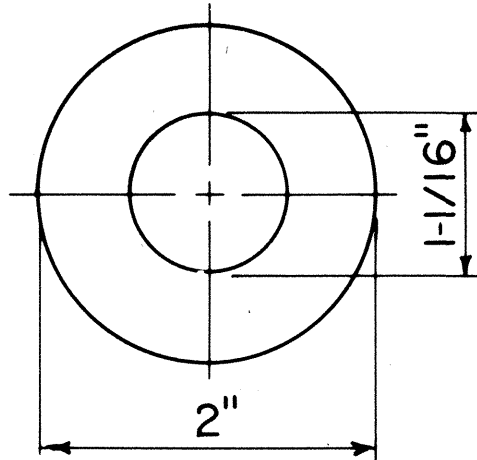
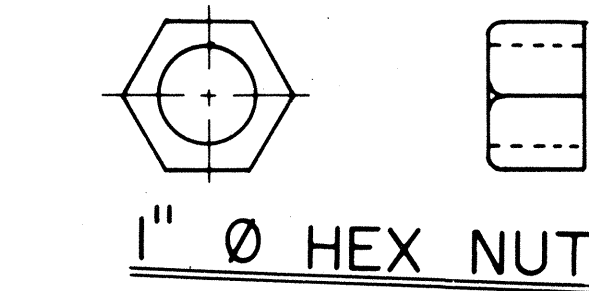
DATE	REVISION	APP'D.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
TYPICAL DETAIL
BREAKAWAY CABLE TERMINAL (BCT)
SHEET No. / OF/O SHEETS

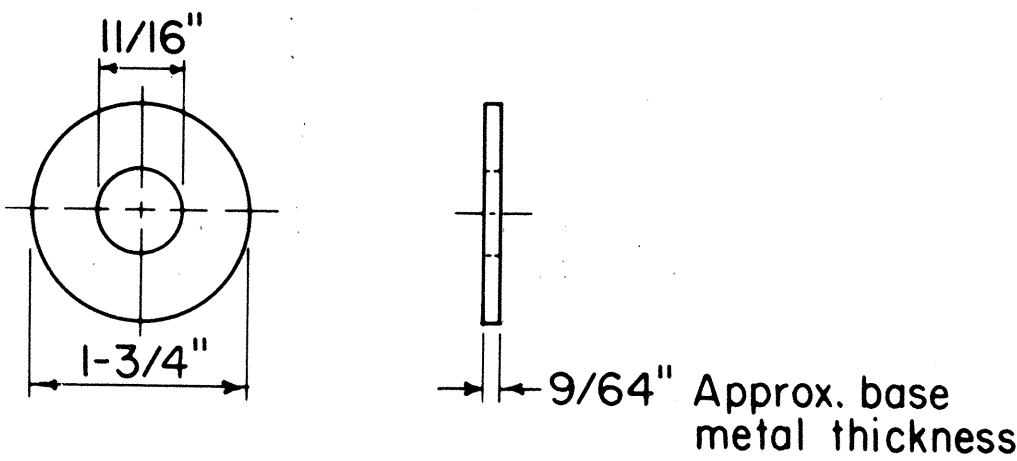
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	11	54



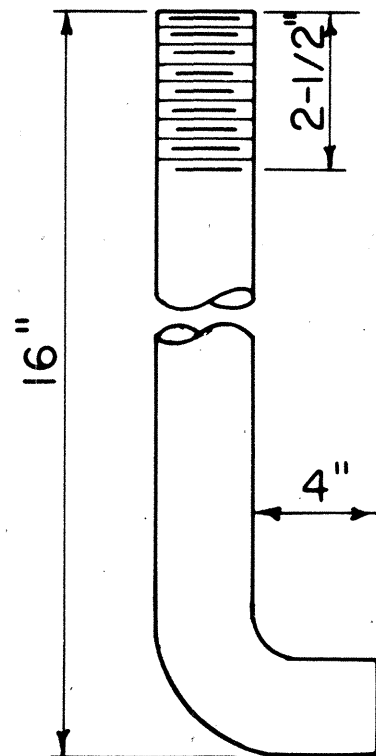
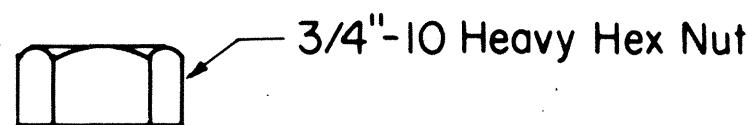
BEARING PLATE



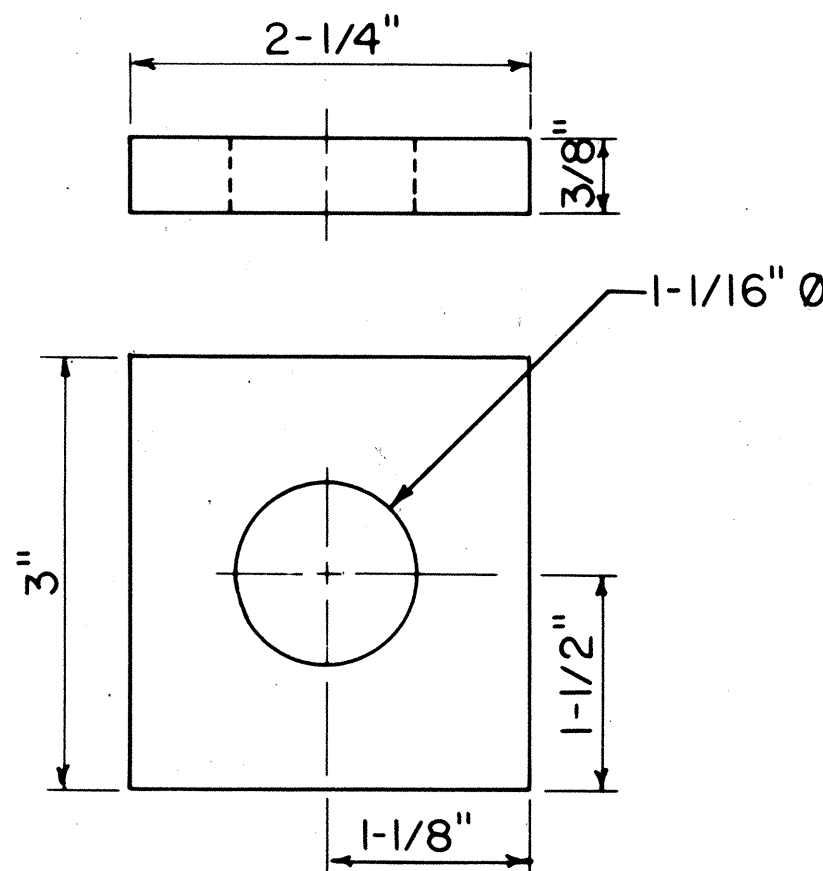
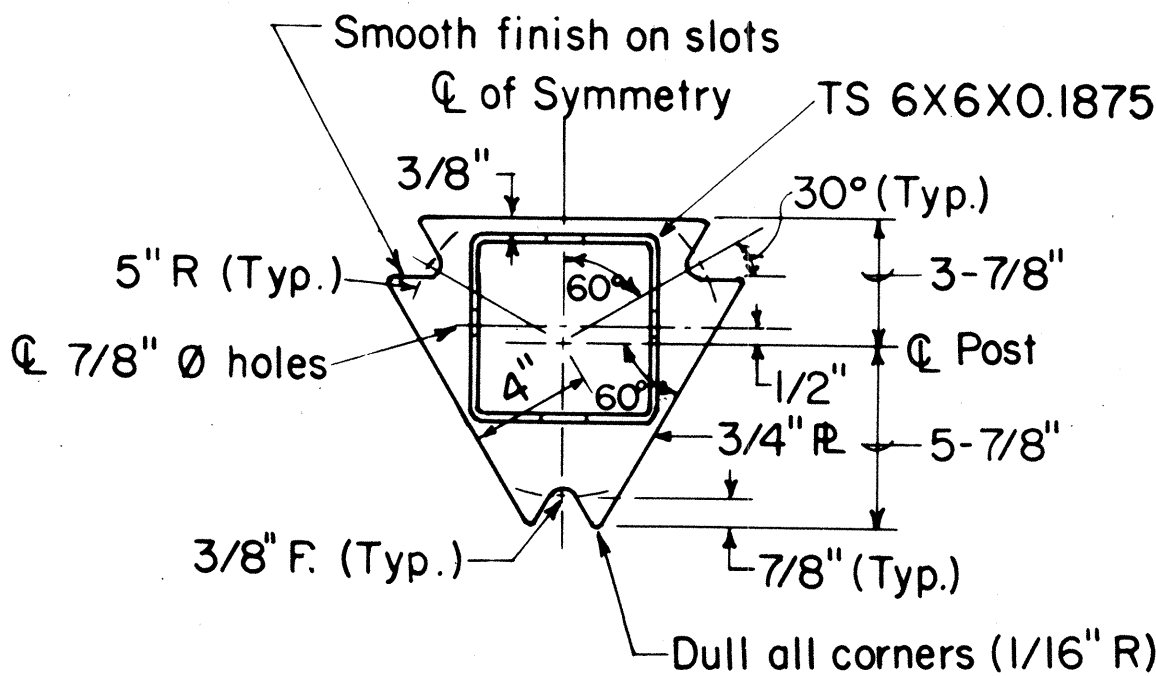
STEEL WASHER



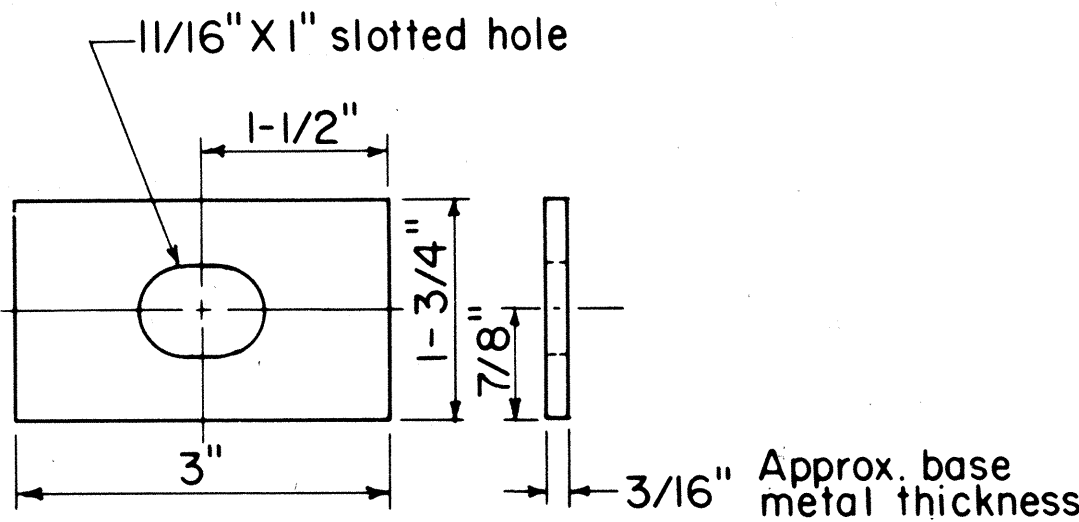
STANDARD STEEL WASHER



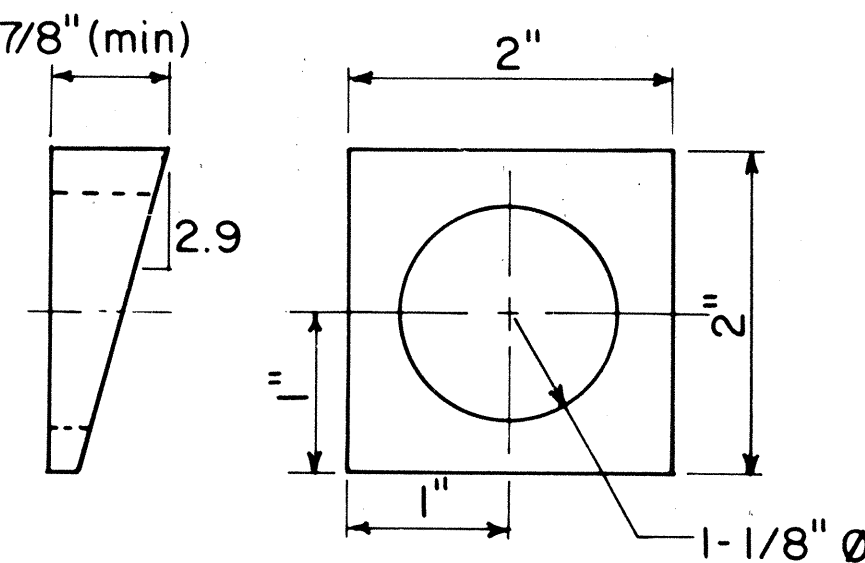
3/4" Ø ANCHOR BOLT X 16" LONG



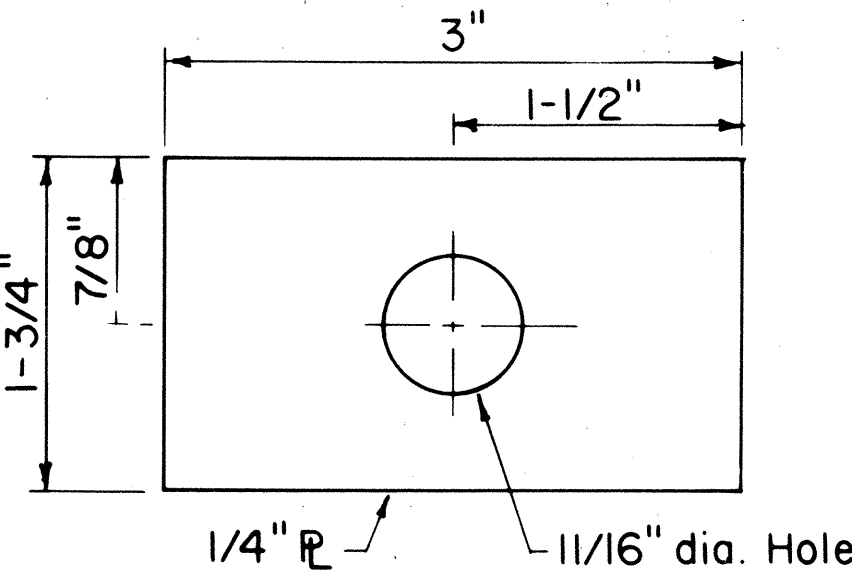
END PLATE



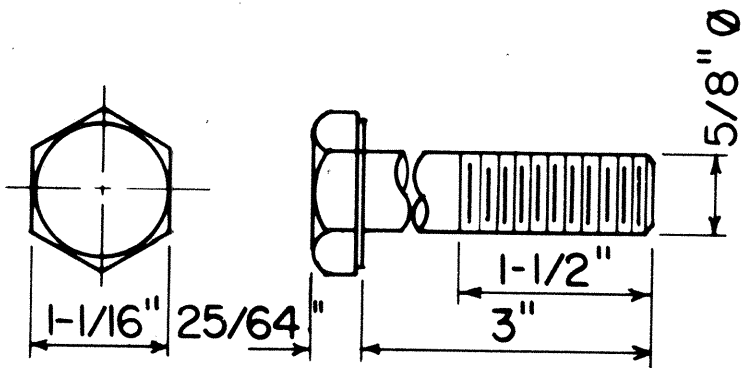
RECTANGULAR PLATE WASHER



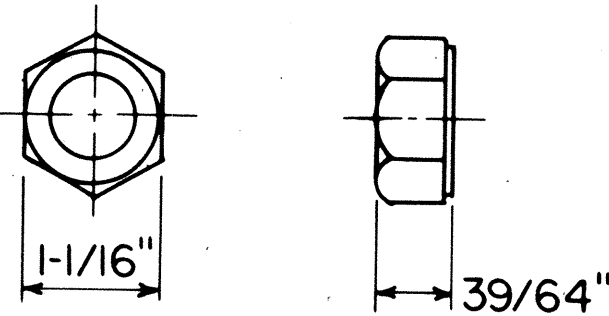
TAPERED WASHER



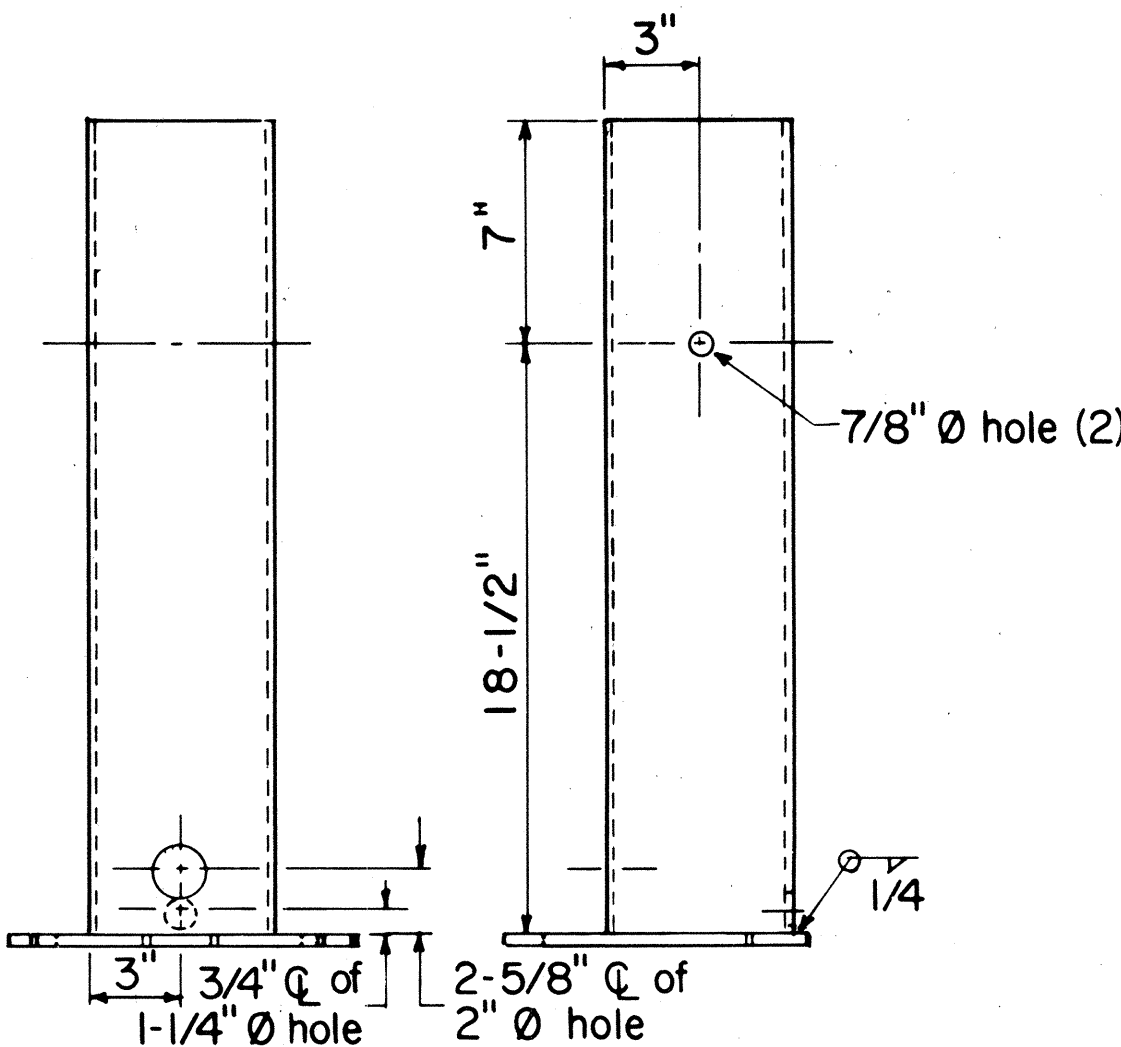
FLAT PLATE WASHER



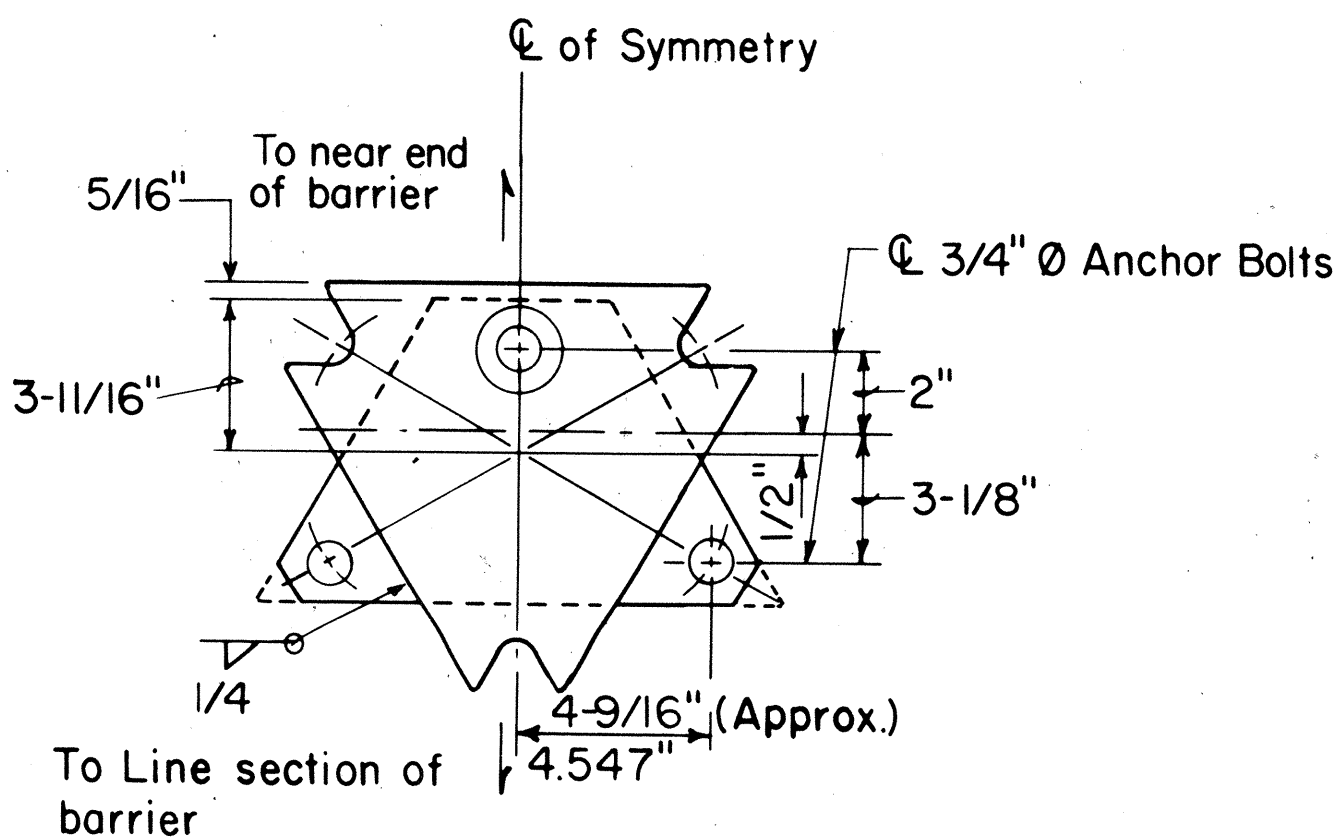
5/8" Ø HS BOLT



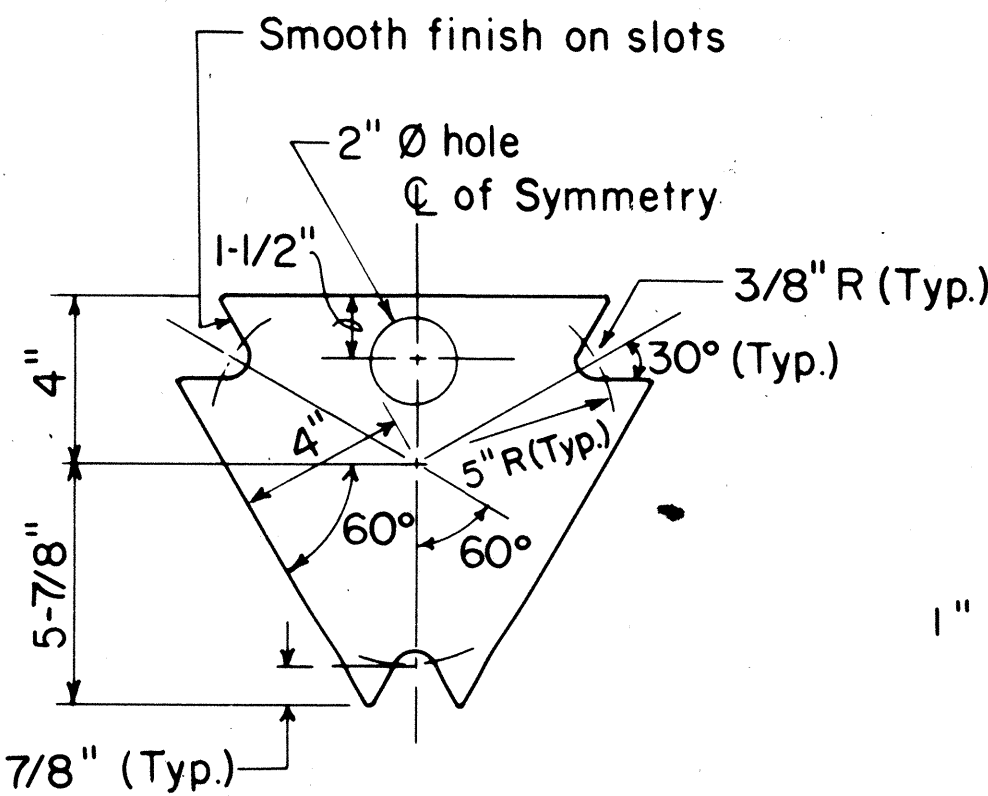
5/8" Ø HS NUT



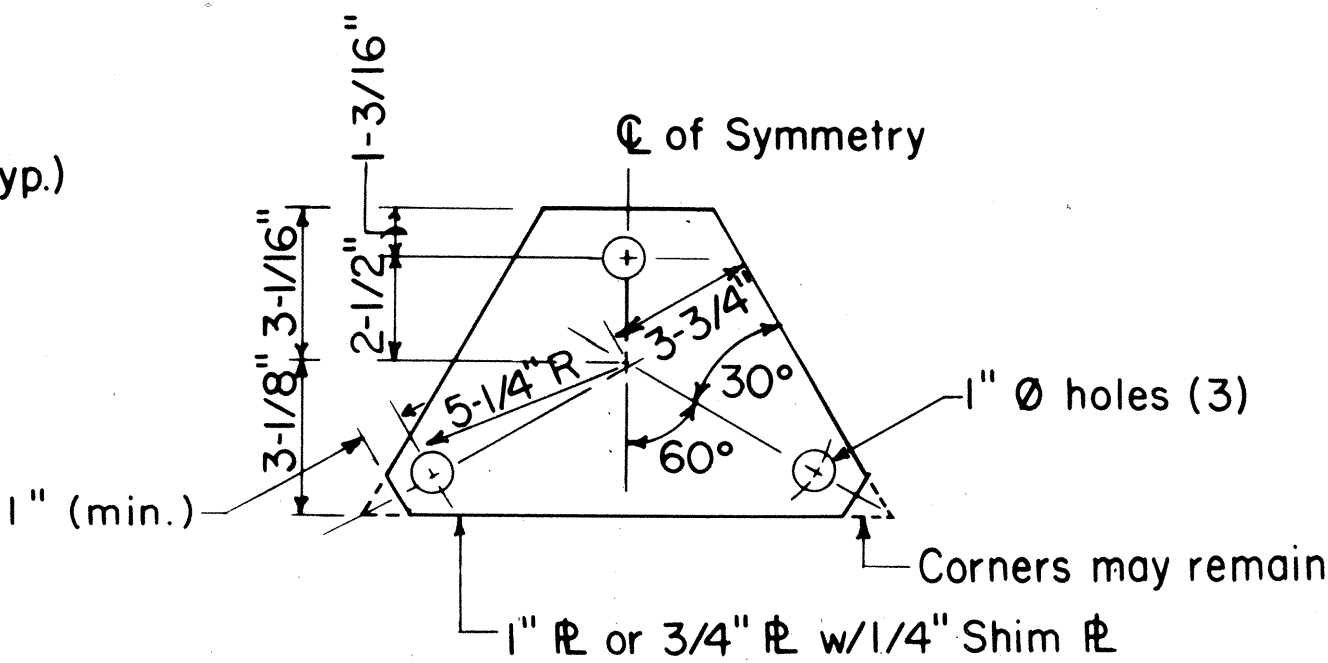
TERMINAL POST



TOP VIEW



TOP PLATE



BOTTOM PLATE

FOUNDATION PLATES

DATE	REVISION	APP'D.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

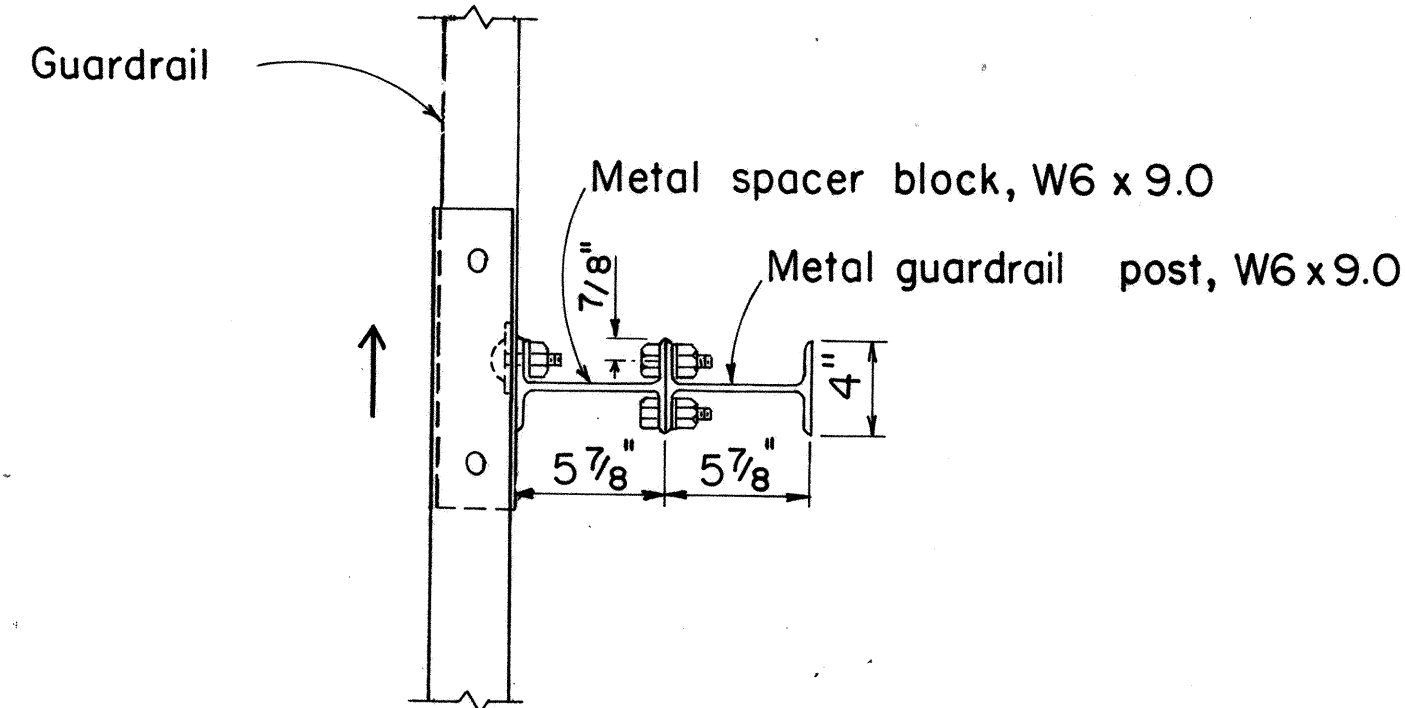
TYPICAL DETAIL
BREAKAWAY CABLE TERMINAL (BCT)

SHEET No. 2 OF 10 SHEETS

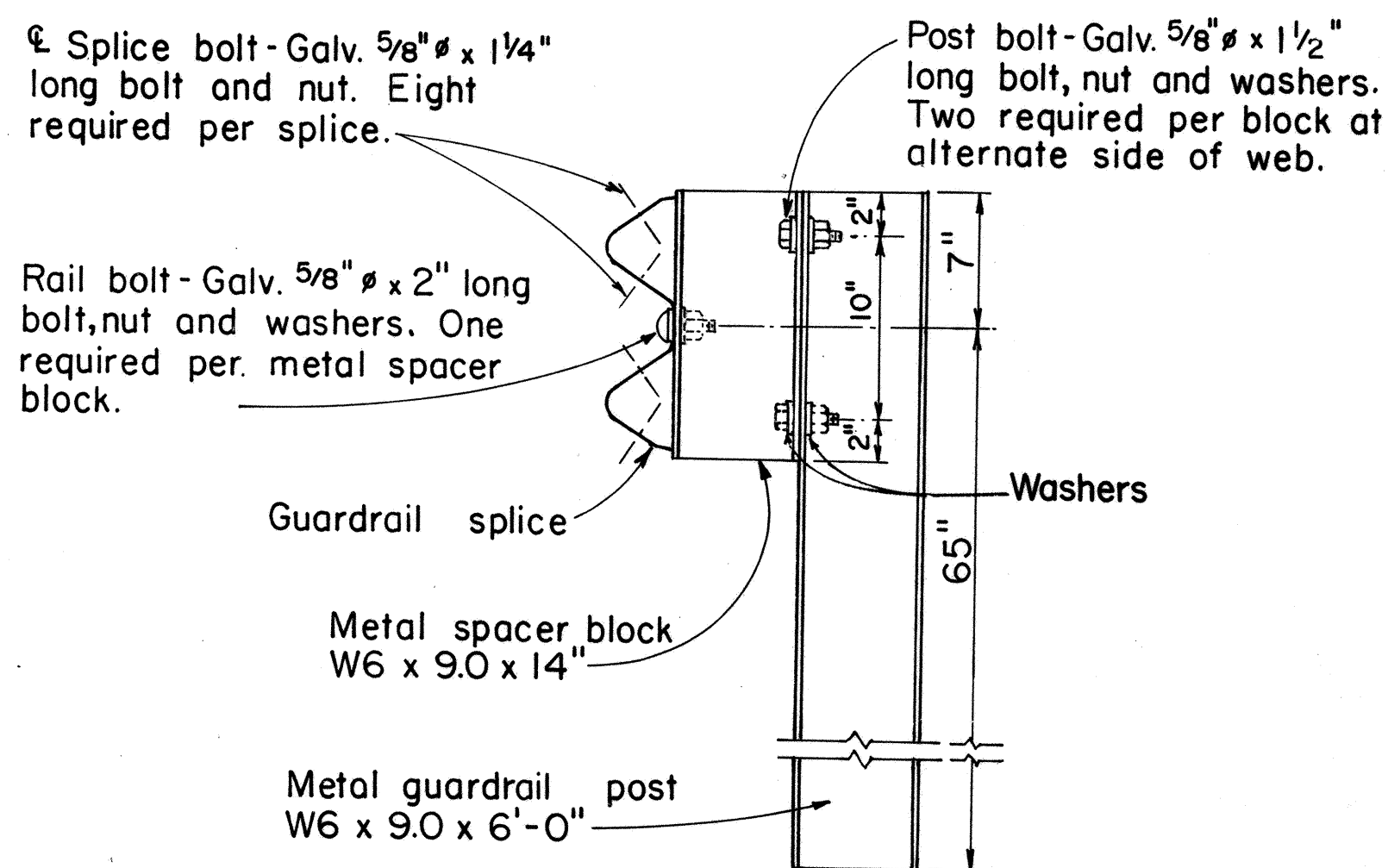
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	12	54

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.



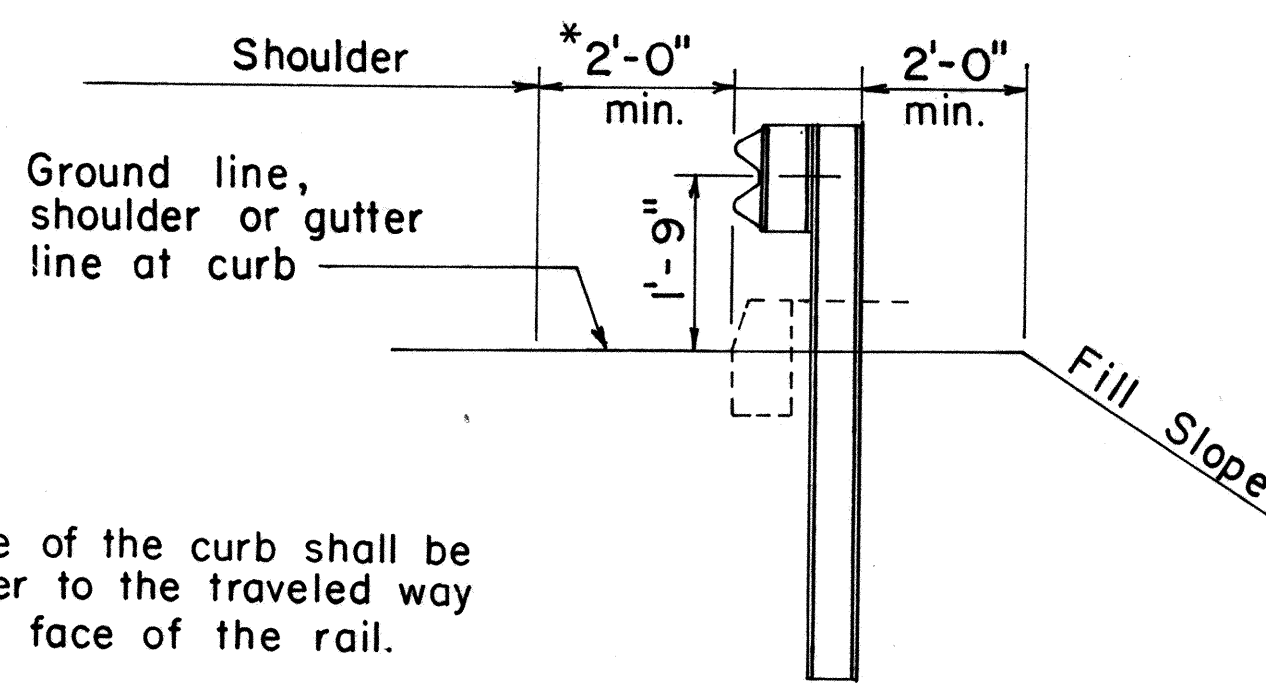
PLAN



ELEVATION

SINGLE METAL GUARDRAIL ON METAL POST WITH METAL SPACER BLOCK

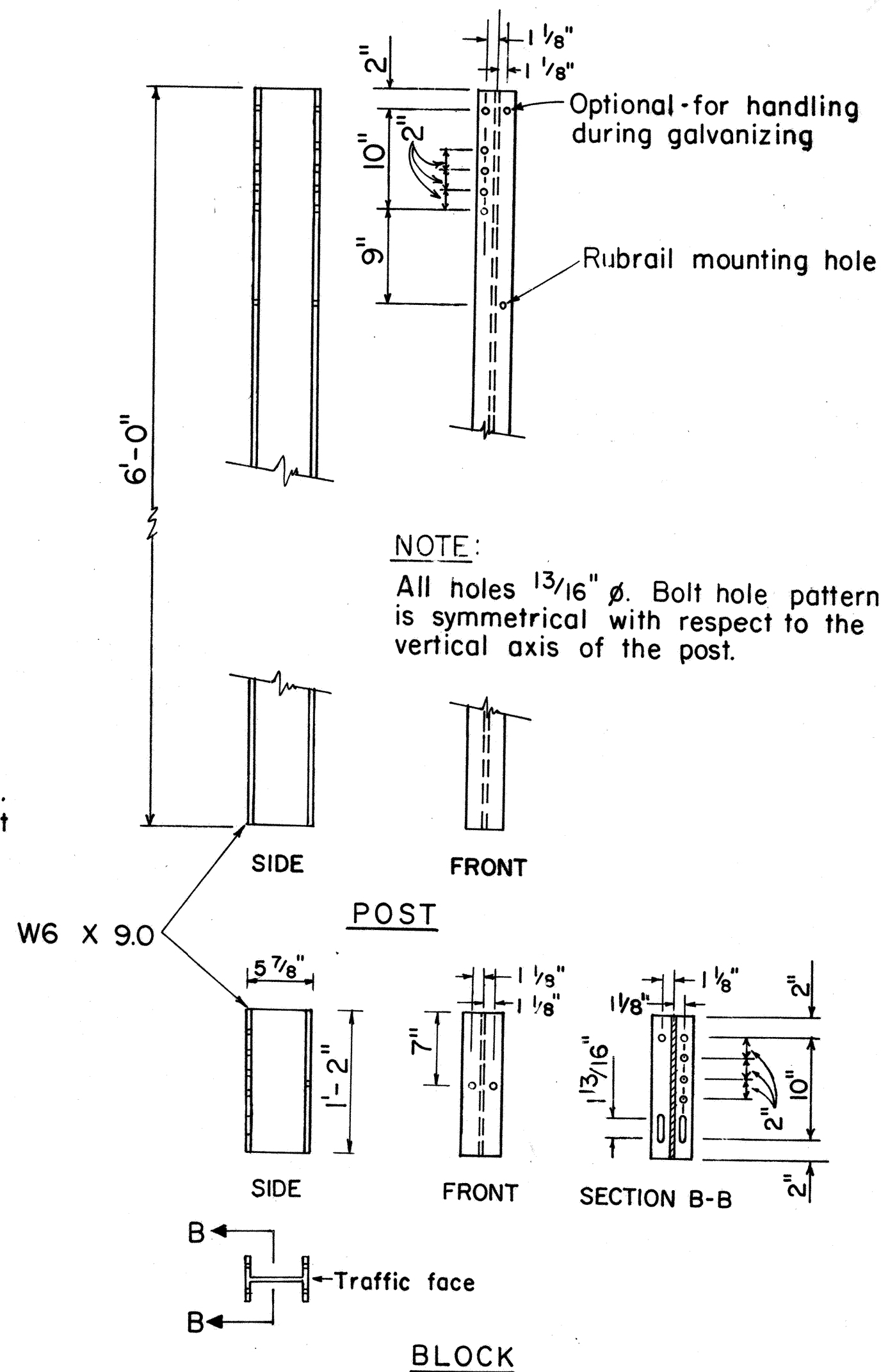
SCALE: 1/2" = 1'-0"



AT SHOULDER SECTION

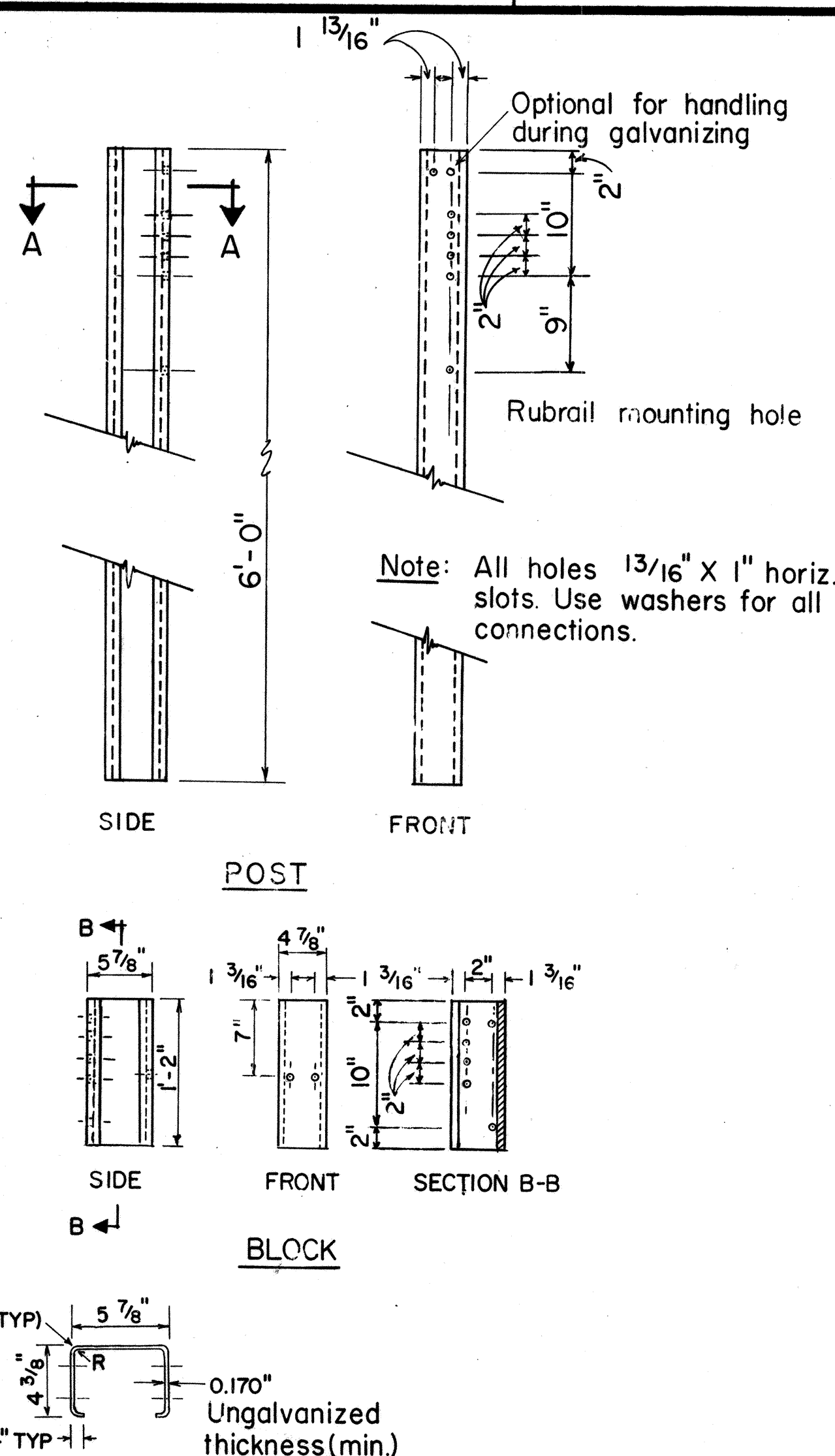
TYPICAL METAL GUARDRAIL DETAIL

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



STRUCTURAL SHAPE POST AND BLOCK

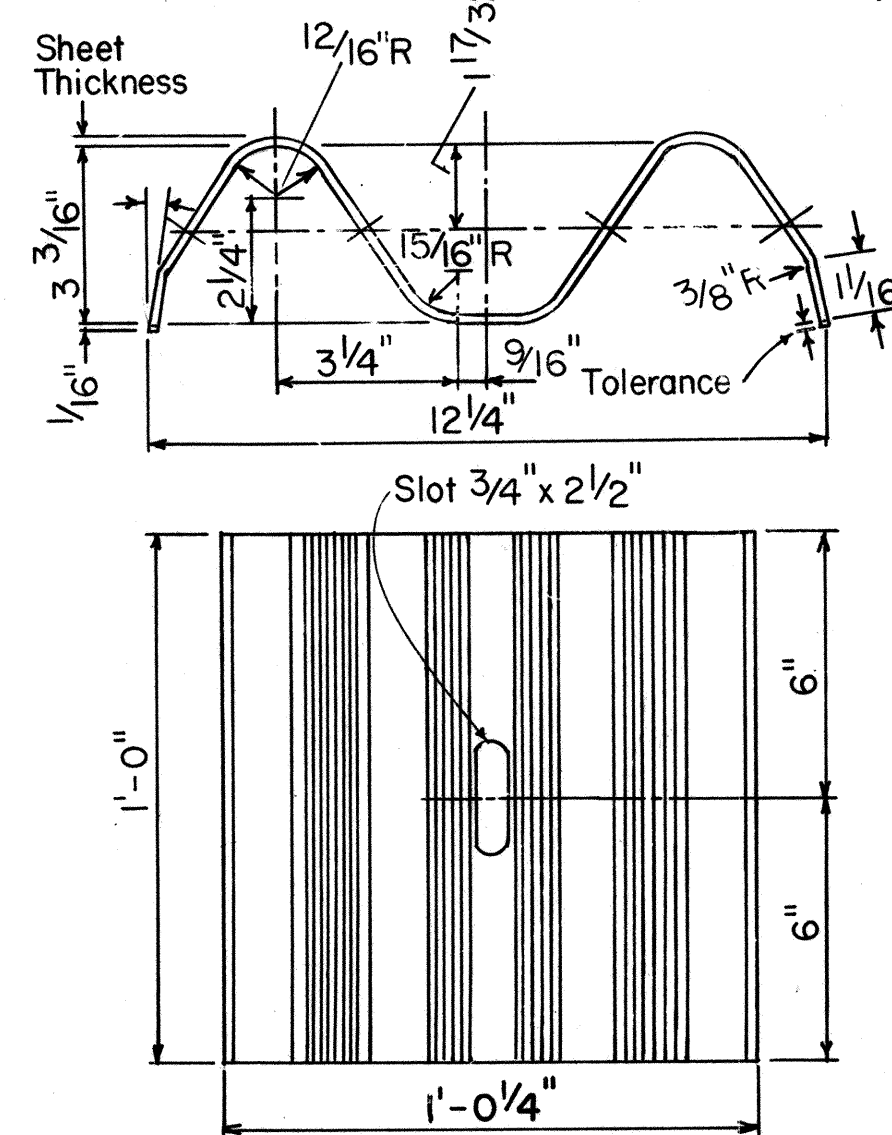
SCALE: 1" = 1'-0"



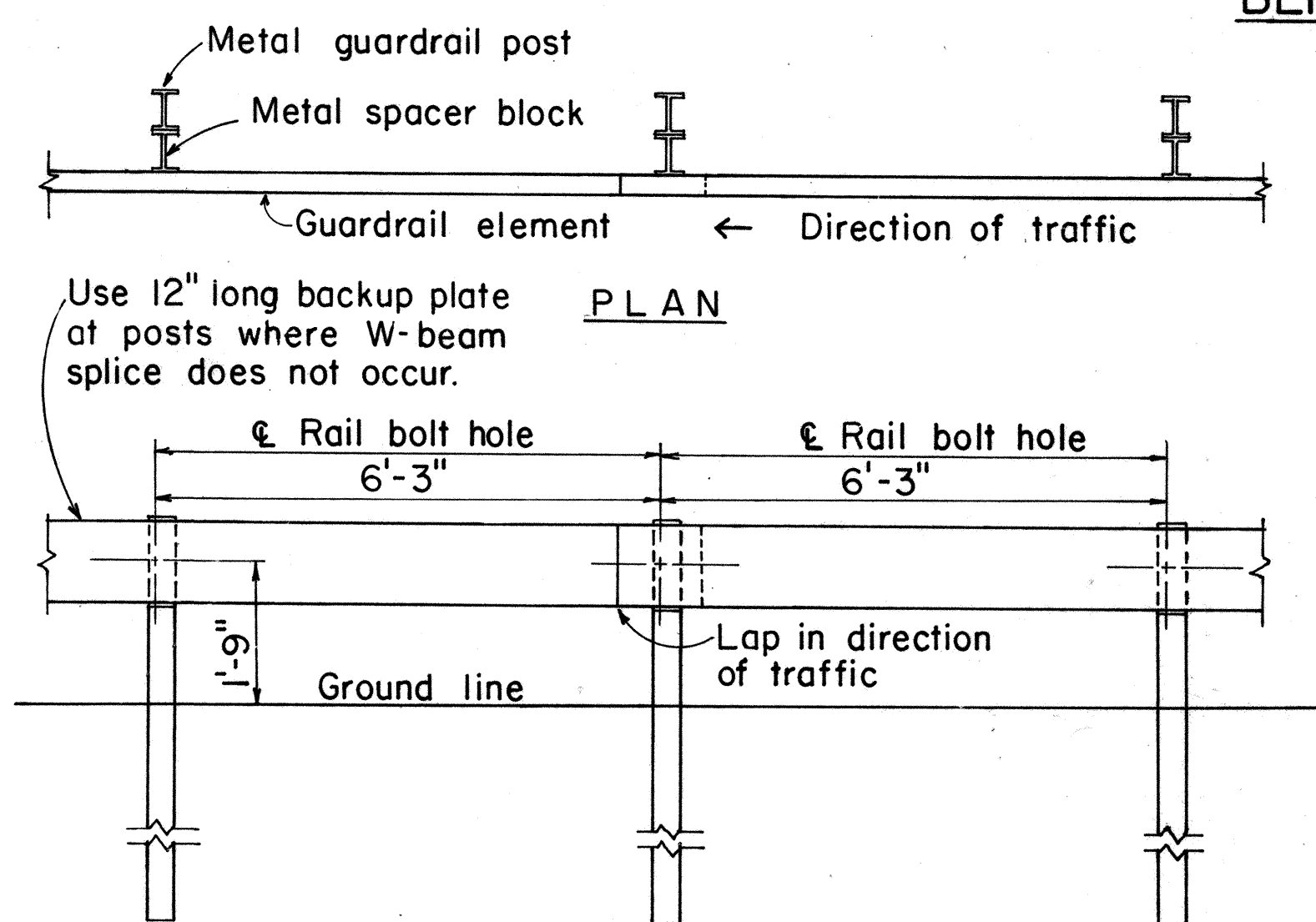
BENT PLATE POST AND BLOCK

SCALE: 1" = 1'-0"

BACK-UP-PLATE



BACK-UP-PLATE
N.T.S.



ELEVATION

METAL GUARDRAIL ON METAL POST WITH METAL SPACER BLOCK

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

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	J.D.	9-28-83
3	Added details for adjusting guardrail height and added Back-up Plate and washer	E.T.	9/18/85

APPROVAL RECOMMENDED:
Erich Tanaka
TRAFFIC ENGINEER

9/1/82
DATE

APPROVED:
Robert Zaleski
ASSISTANT CHIEF, ENGINEERING

9/22/82
DATE

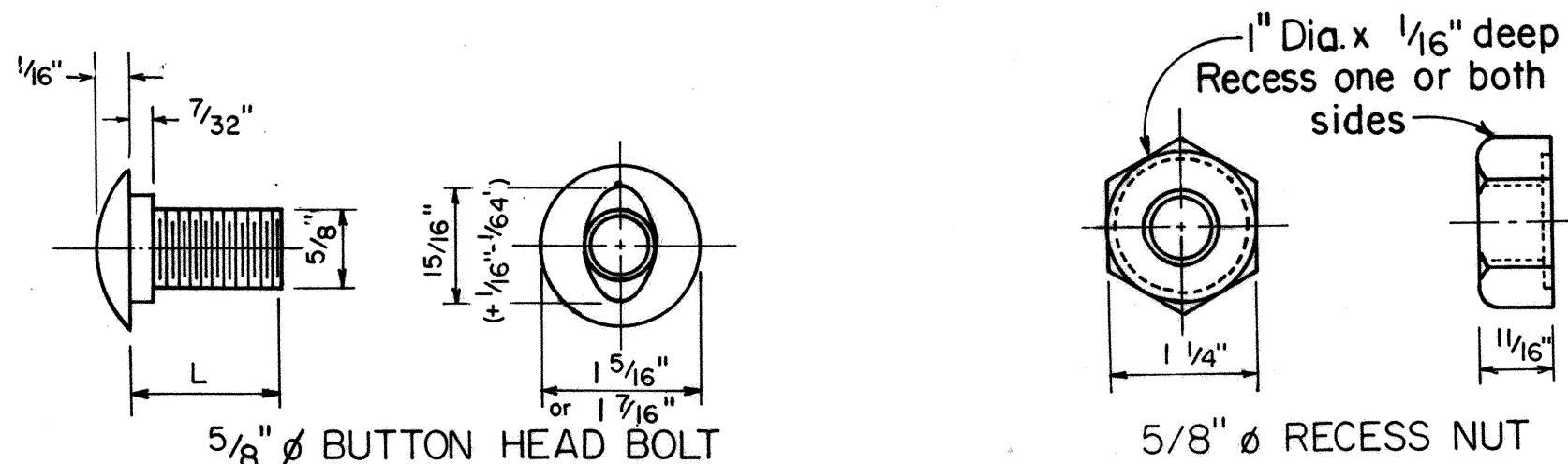
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS METAL GUARDRAIL

Scale: As Shown July, 1982

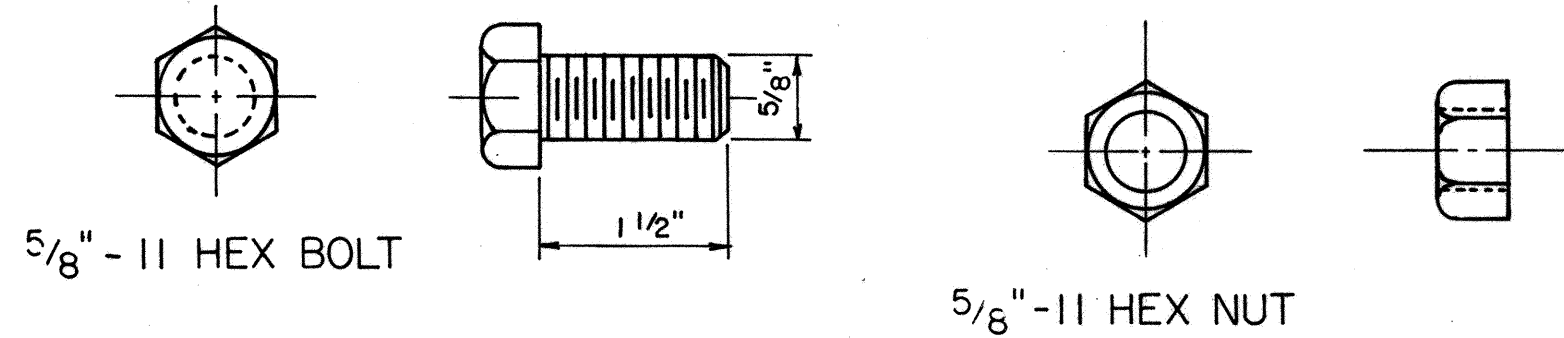
SHEET NO. 3 OF 10 SHEETS DT 500

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	13	54

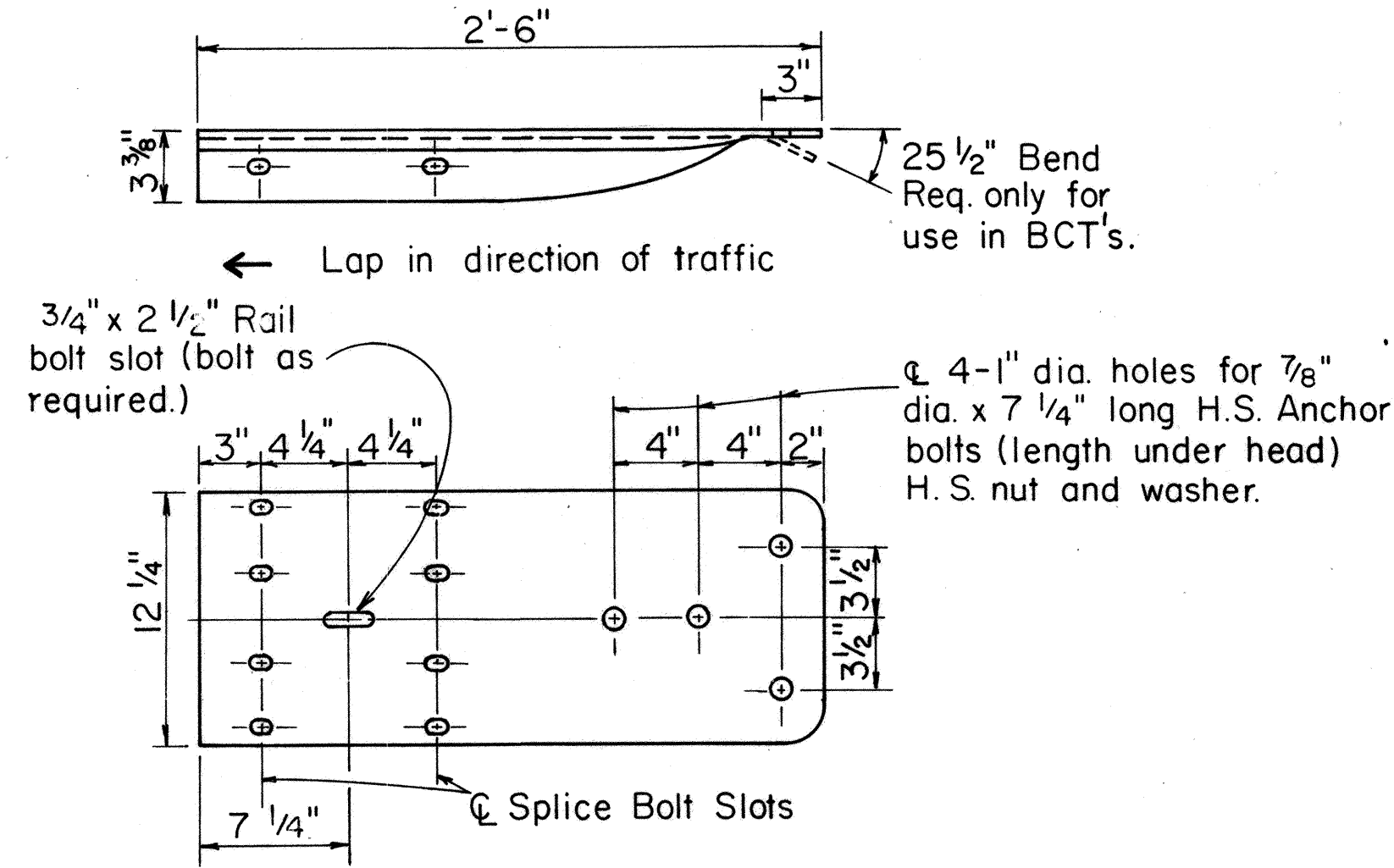


L	Thread Length	Intended Use
1 1/4"	Full length thread	Splice rail elements
2"	1 1/2" min. thread len.	Fasten rails to posts

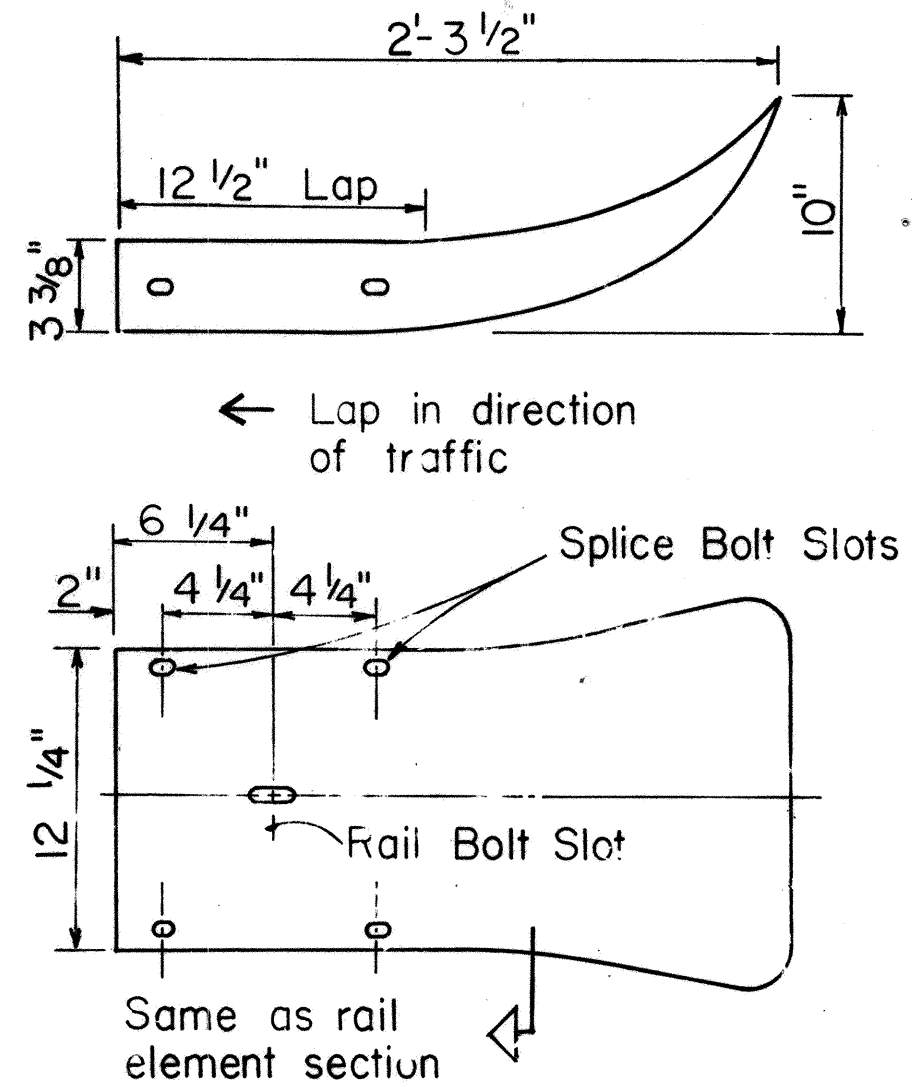
5/8" BUTTON HEAD BOLT
AND RECESS NUT
Scale: N.T.S.



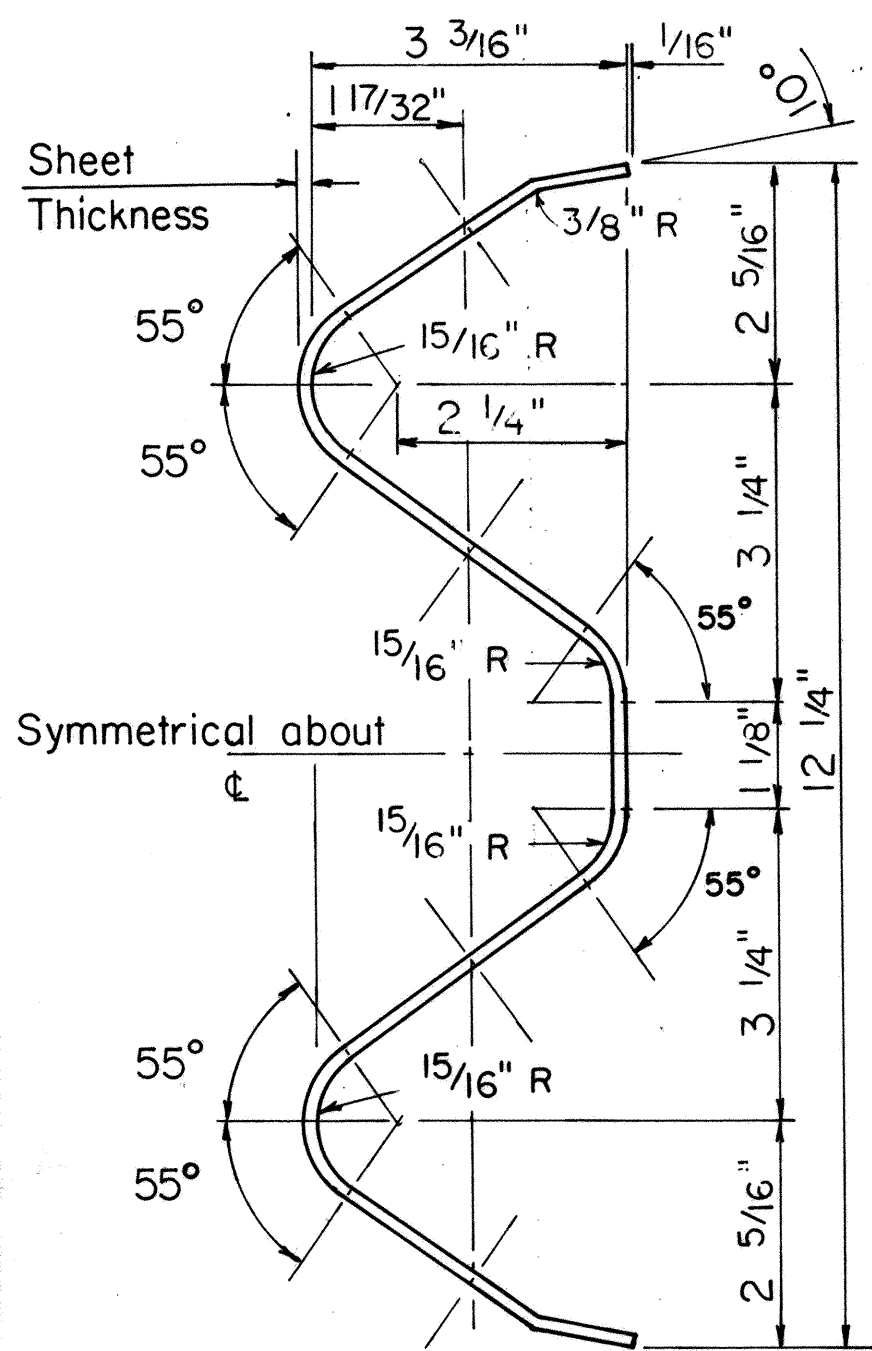
5/8" HEX POST BOLT AND NUT
Scale: N.T.S.



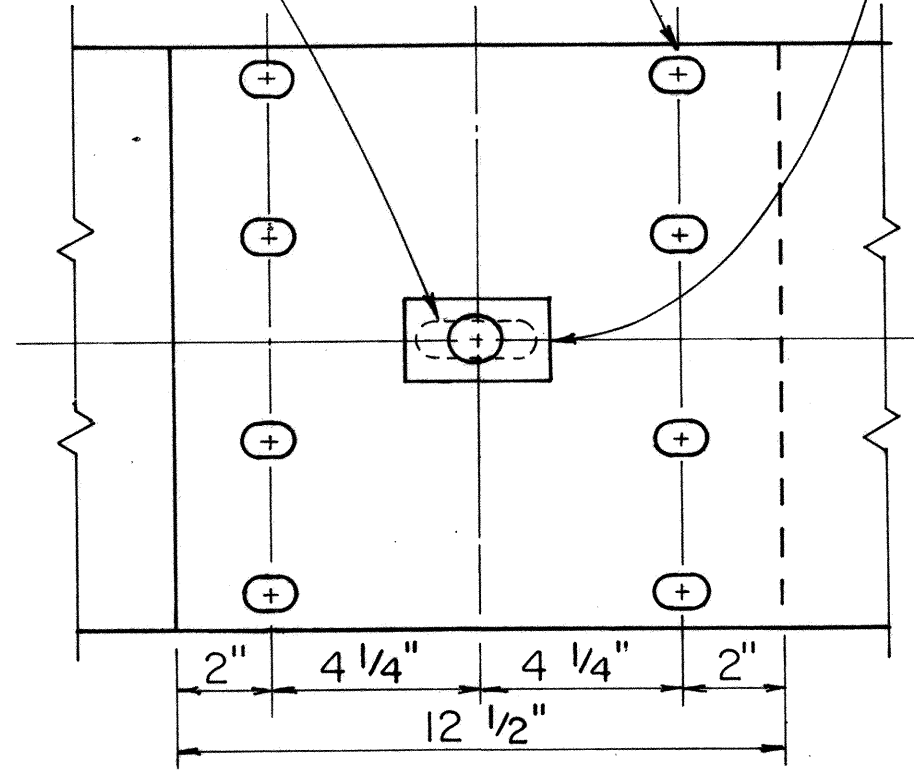
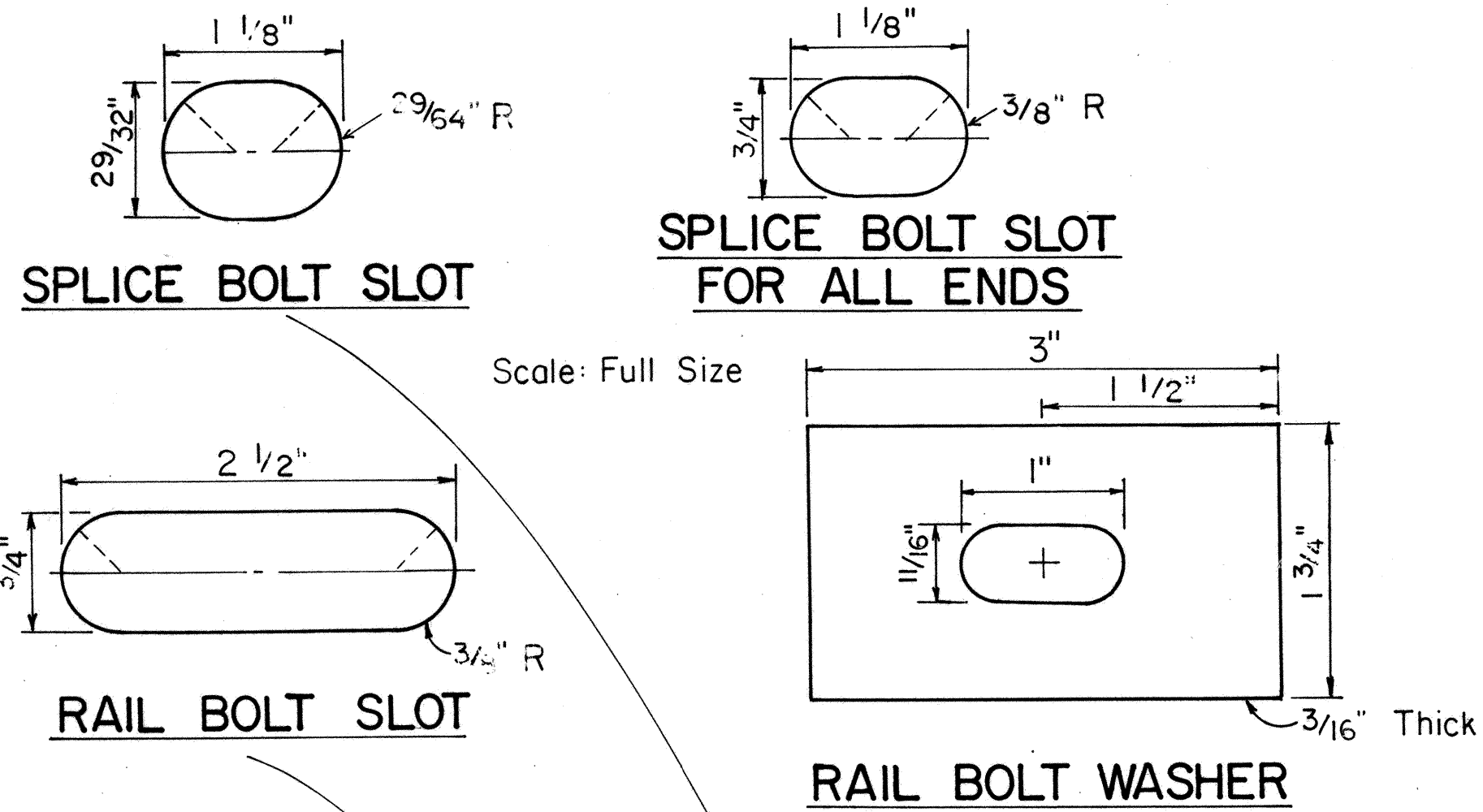
W BEAM TERMINAL CONNECTOR
Scale: 1 1/2" = 1'-0"



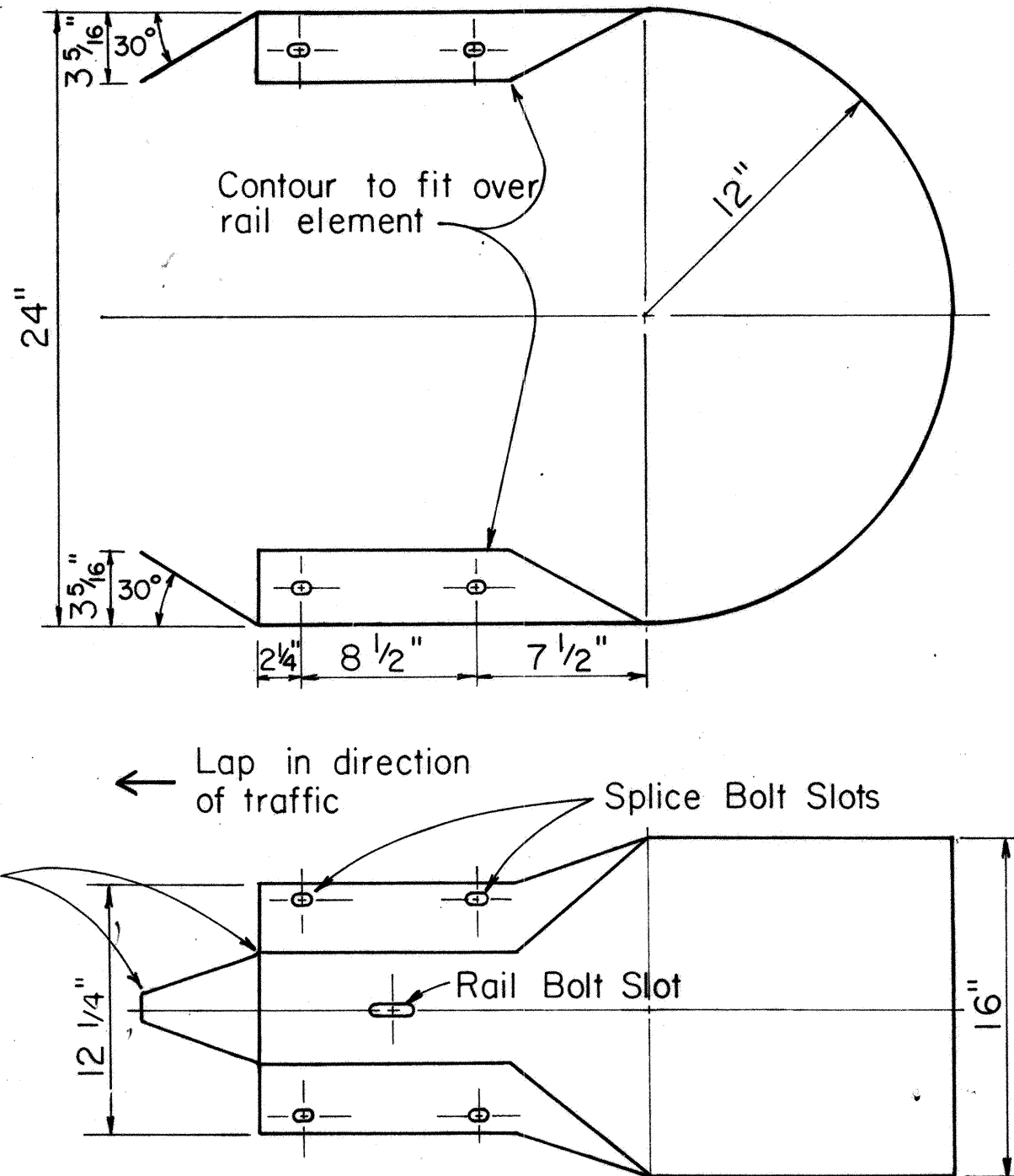
W BEAM END SECTION (FLARED)
Scale: 1 1/2" = 1'-0"



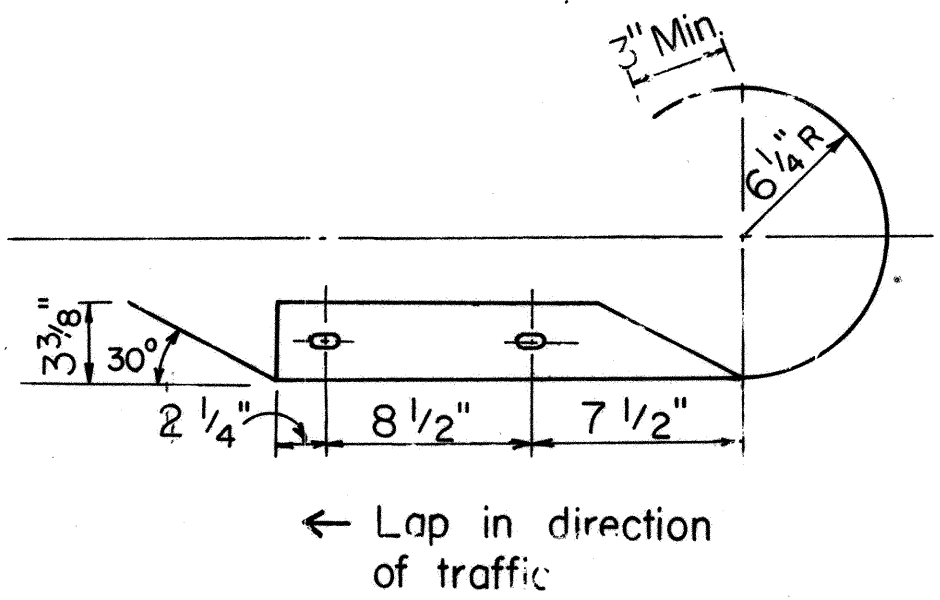
RAIL ELEMENT SECTION
Scale: 6" = 1'-0"



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:
Eishi Tanaka 9/20/82
TRAFFIC ENGINEER DATE

APPROVED:
Harold 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

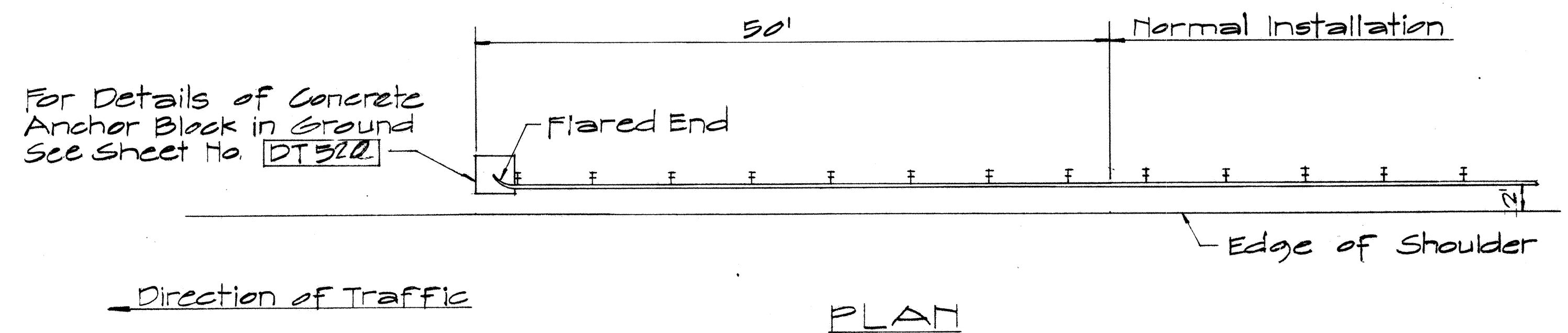
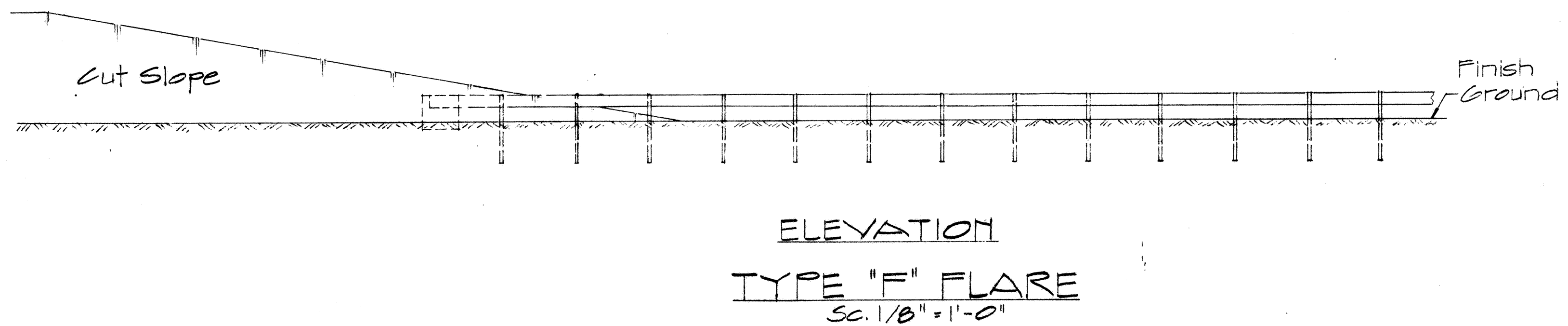
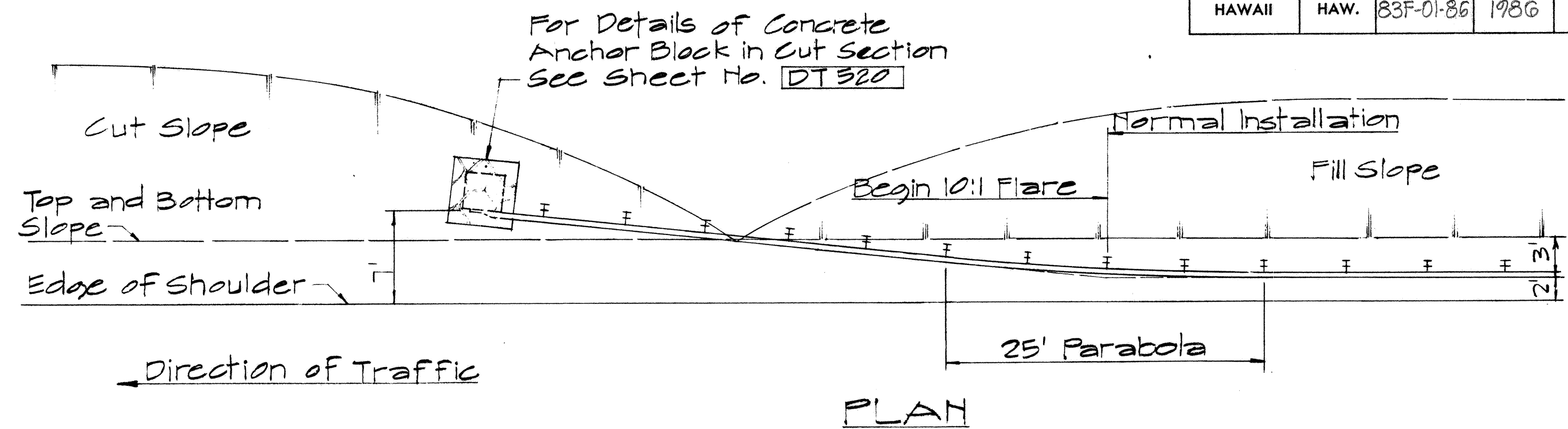
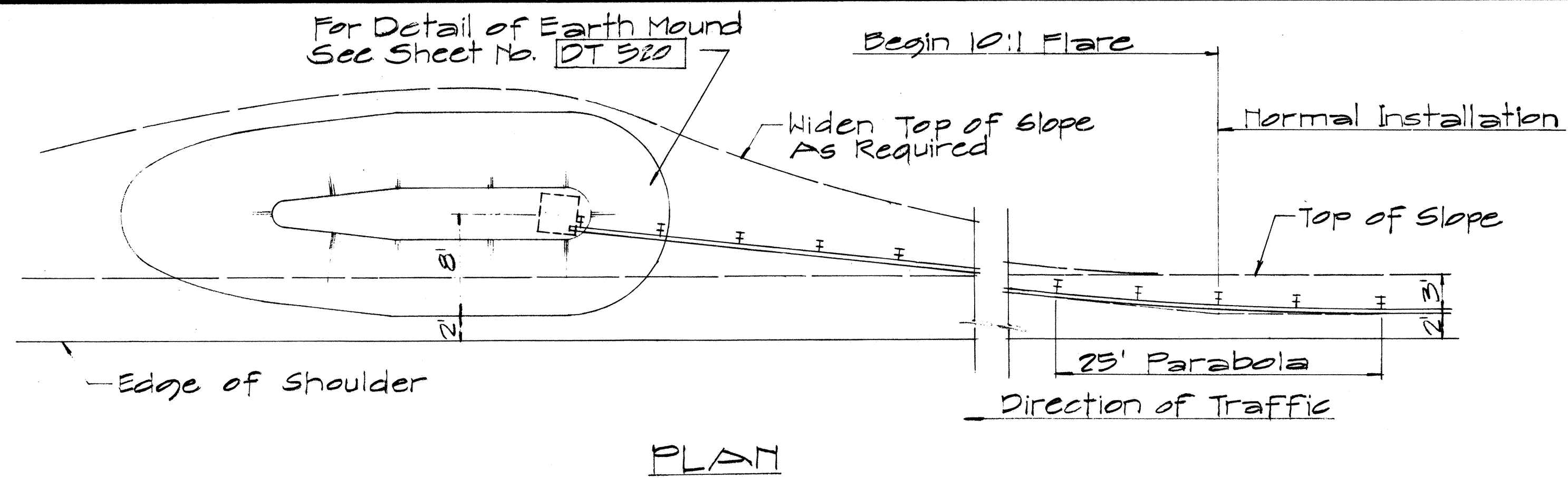
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL GUARDRAIL

Scale: As Noted
July, 1982
SHEET NO. 4 OF 10 SHEETS DT 501

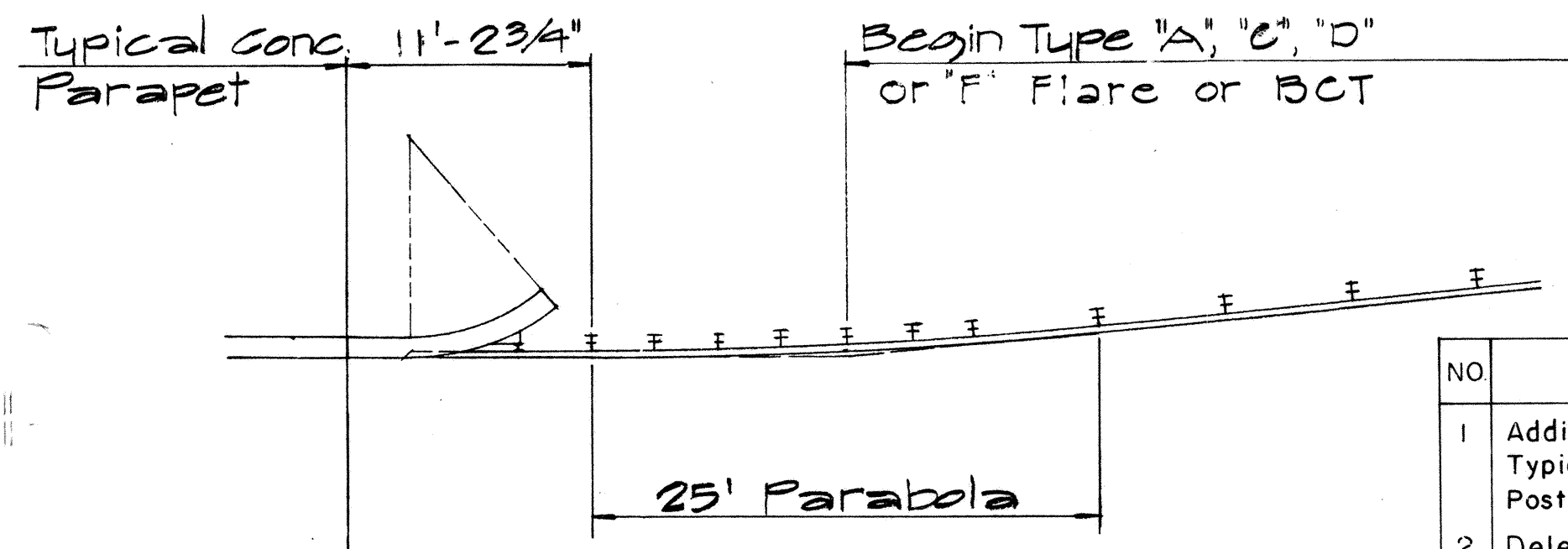
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
DRAWN BY	DESIGNED BY	
NOTE BOOK	QUANTITIES BY	
NO.	CHECKED BY	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	15	54



For Details of Concrete Anchor Block in Ground See Sheet No. DT 520

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



TYPICAL LAYOUT PLAN OF END POST CONNECTION

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

ELEVATION

TYPE "G" FLARE

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

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

APPROVED:
Wm. 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
2	Delete Type "B" Flare and Type "E" Flare	H.C.	6-15-78

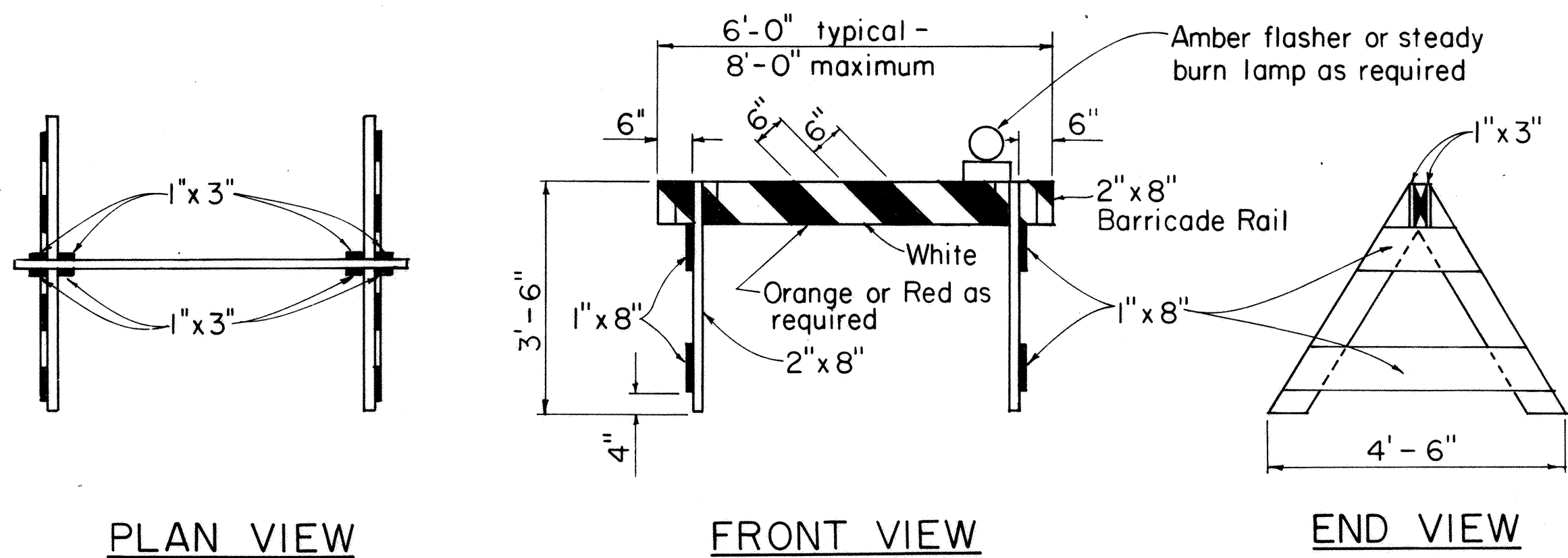
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
TRAILING END
FLARE - ONE & TWO
WAY ROADWAY

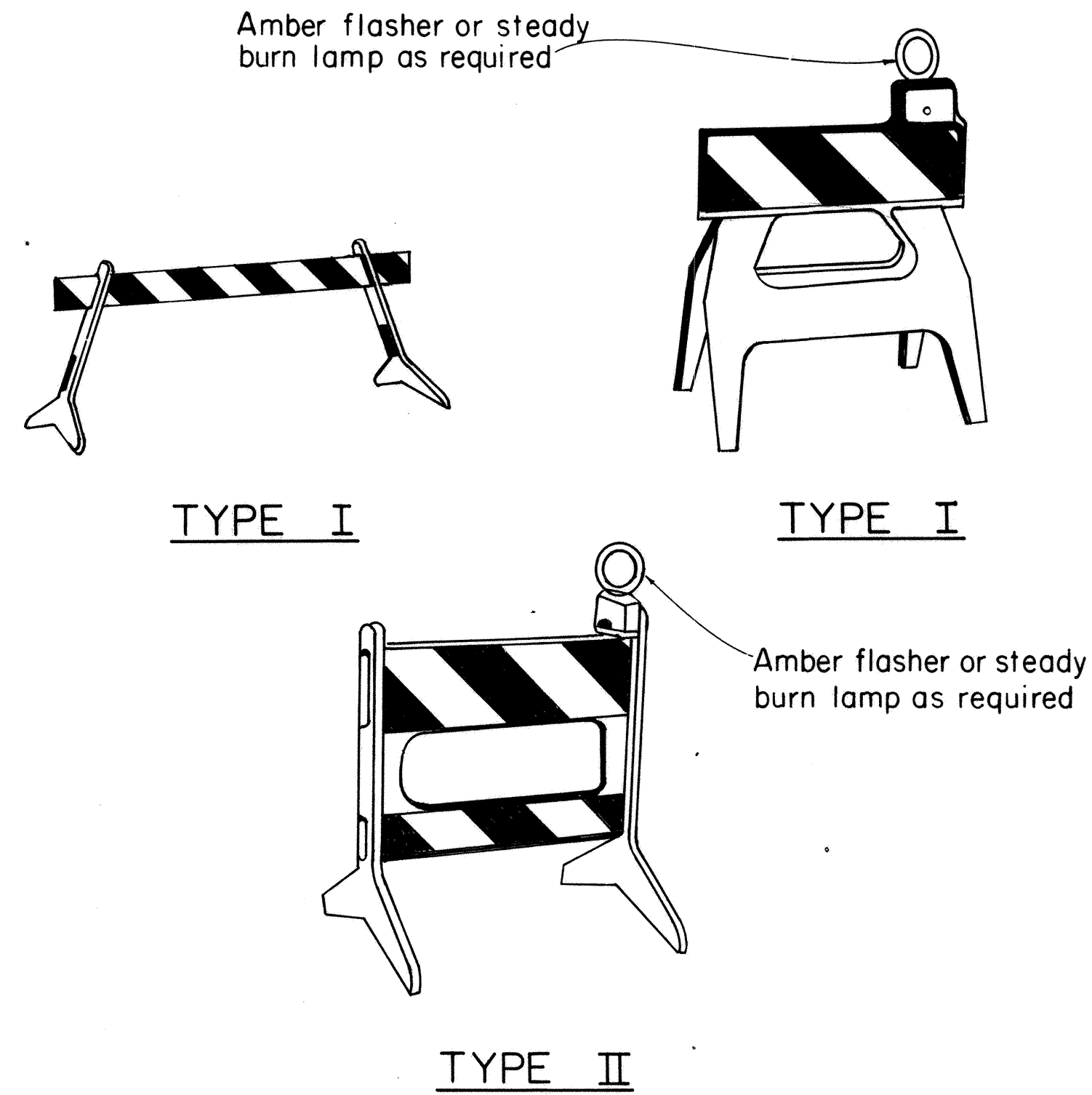
Scale: As Noted
April 1969
SHEET No. 6 OF 10 SHEETS DT 517

DATE	_____
SURVEY PLOTTED BY	_____
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.	83F-01-86	1986	17	54

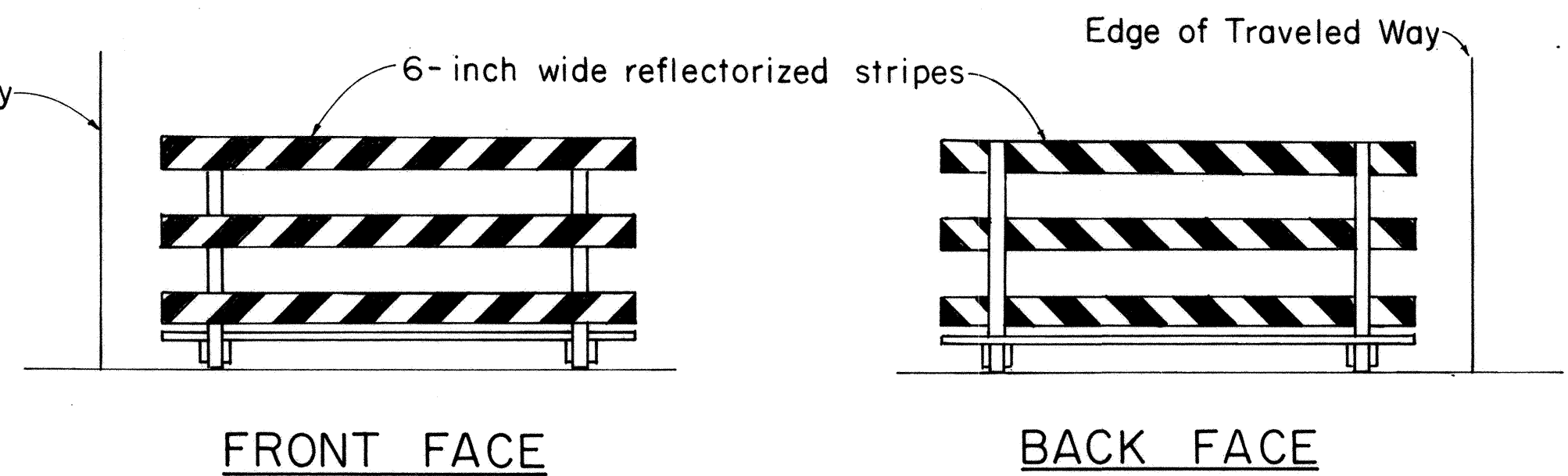


TYPE I BARRICADE
Scale: 1/2" = 1'-0"



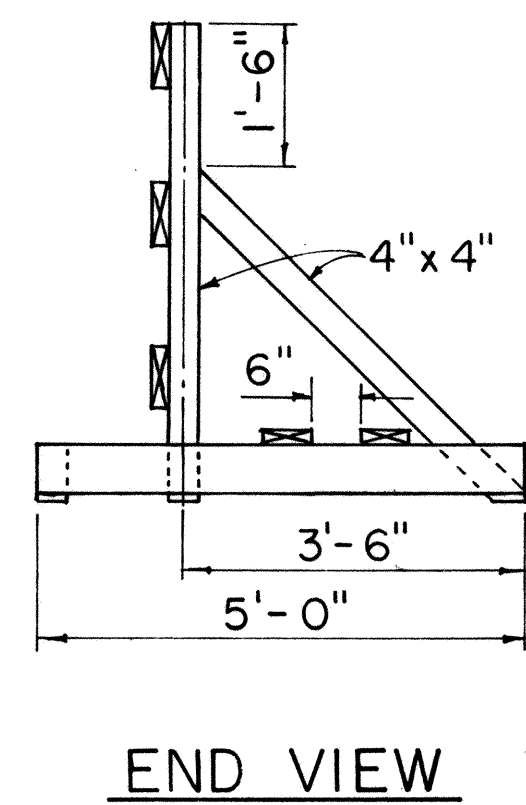
PLASTIC MOLDED BARRICADE OPTIONS*
Not to Scale

*Shop Drawings must be submitted for approval.



TYPICAL BARRICADE STRIPING DETAILS**
Not to Scale

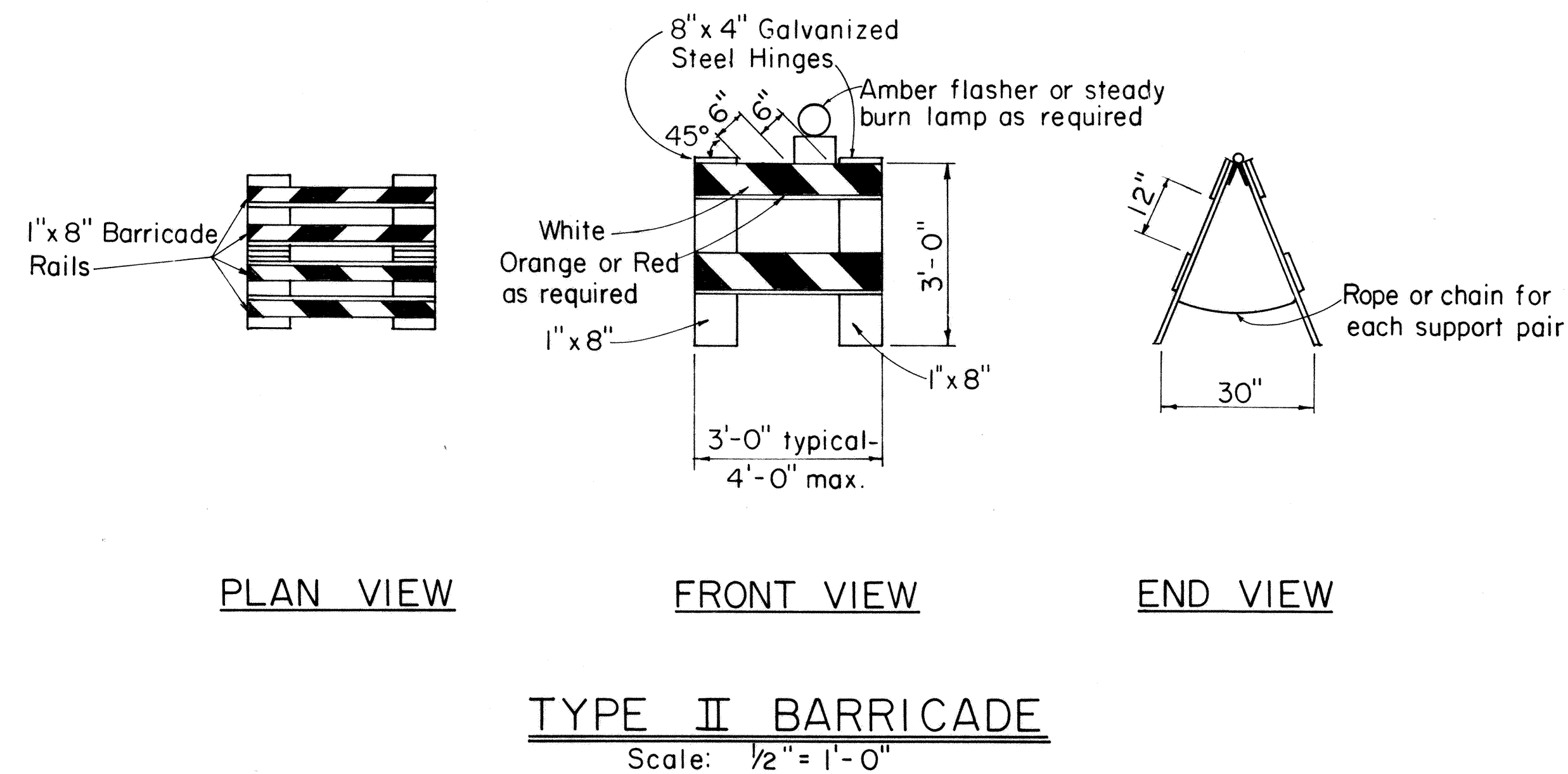
** Similar for Types I & II



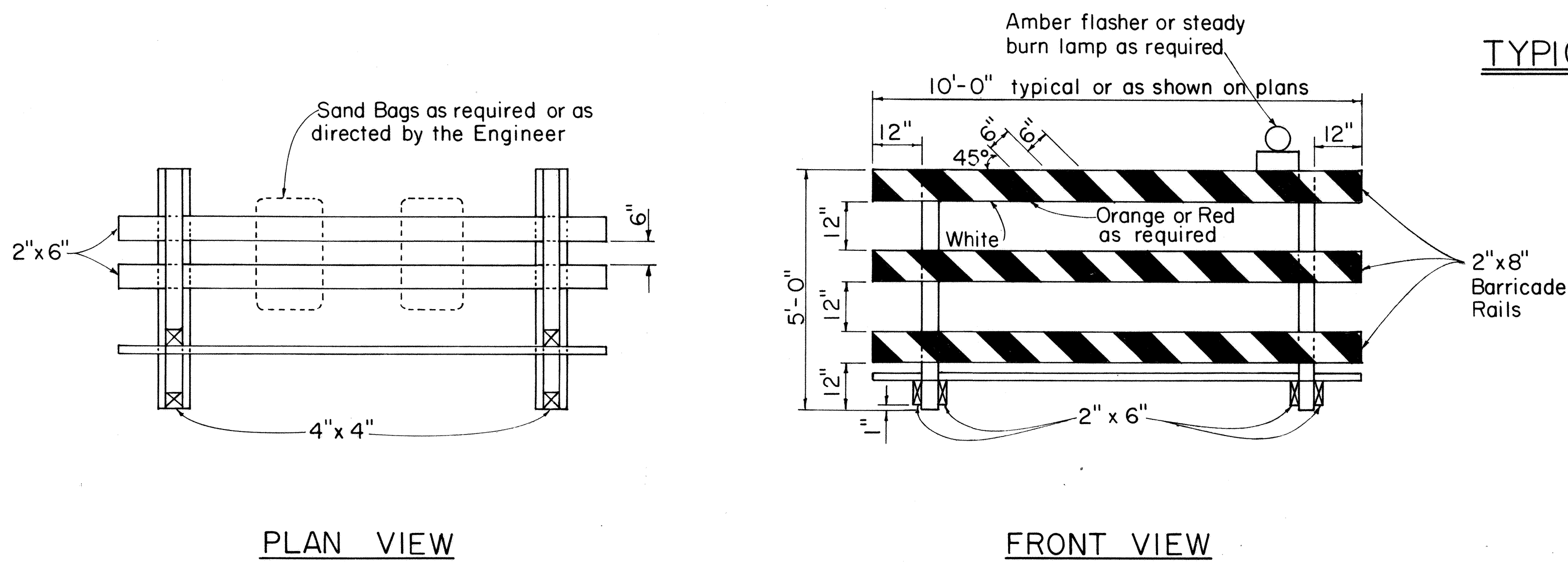
TYPE III BARRICADE
Scale: 1/2" = 1'-0"

GENERAL NOTES

- The front and back faces of each barricade rail shall be reflectorized with stripes sloping downward toward the same side (traveled way) of each barricade.
- Contractor may submit alternate barricade designs for approval.
- Sandbags or other approved weights shall not be placed on top of any striped rail.
- The Contractor is directed to Section 626.



TYPE II BARRICADE
Scale: 1/2" = 1'-0"



APPROVAL RECOMMENDED:
Erich Tanaka 10/21/81
TRAFFIC ENGINEER DATE

APPROVED:
Robert S. Salsich 10/23/81
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes DT 800 Approved 12/30/69	MT.	10/23/81

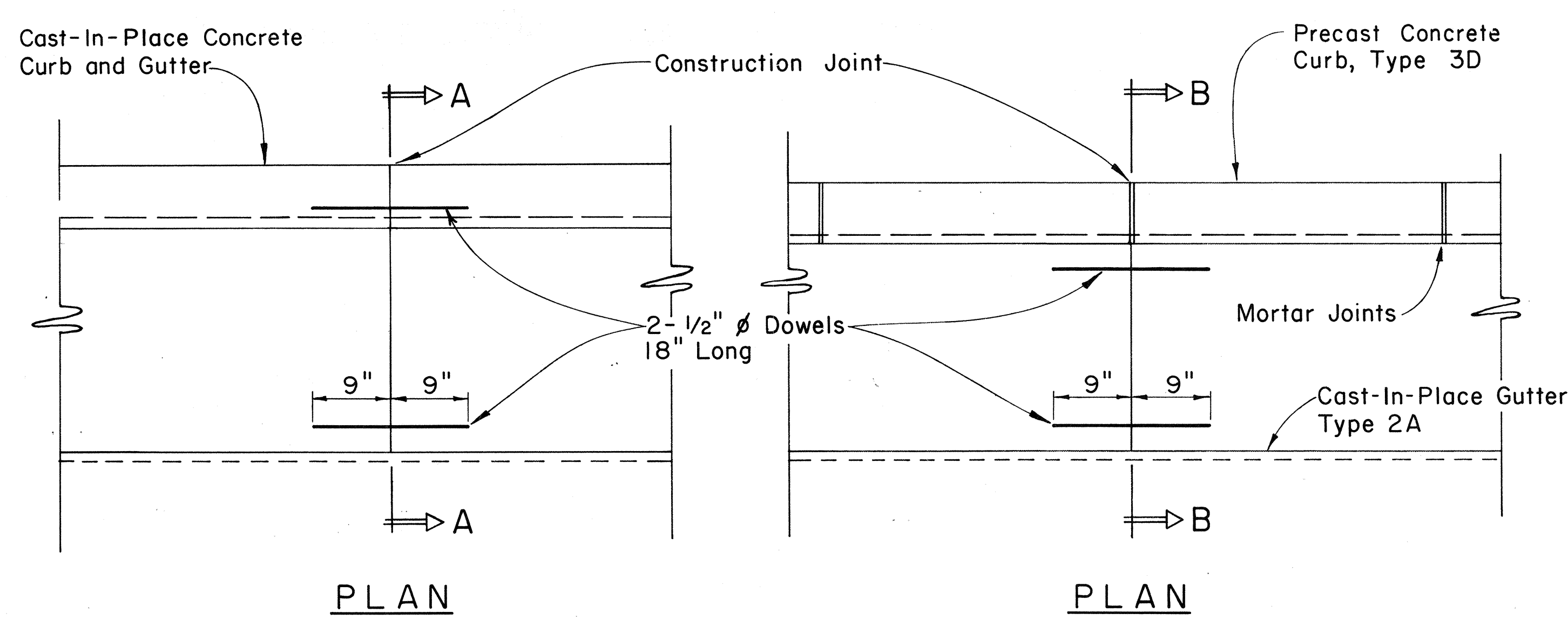
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
BARRICADES

SCALE: As Shown
SHEET No. 8 OF 10 SHEETS DT 800

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.	83F-01-86	1986	18	54

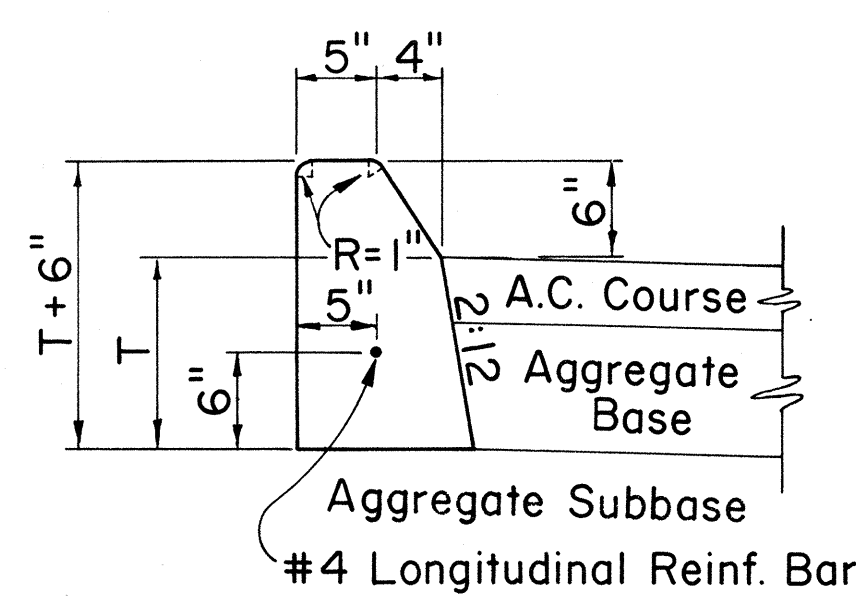
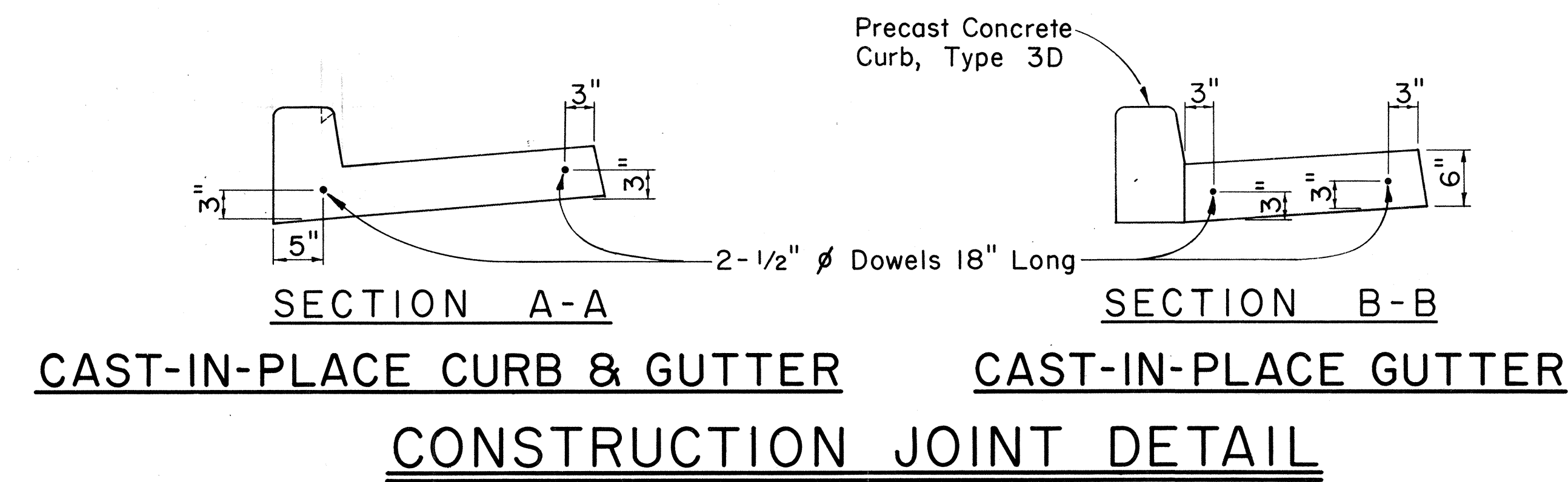
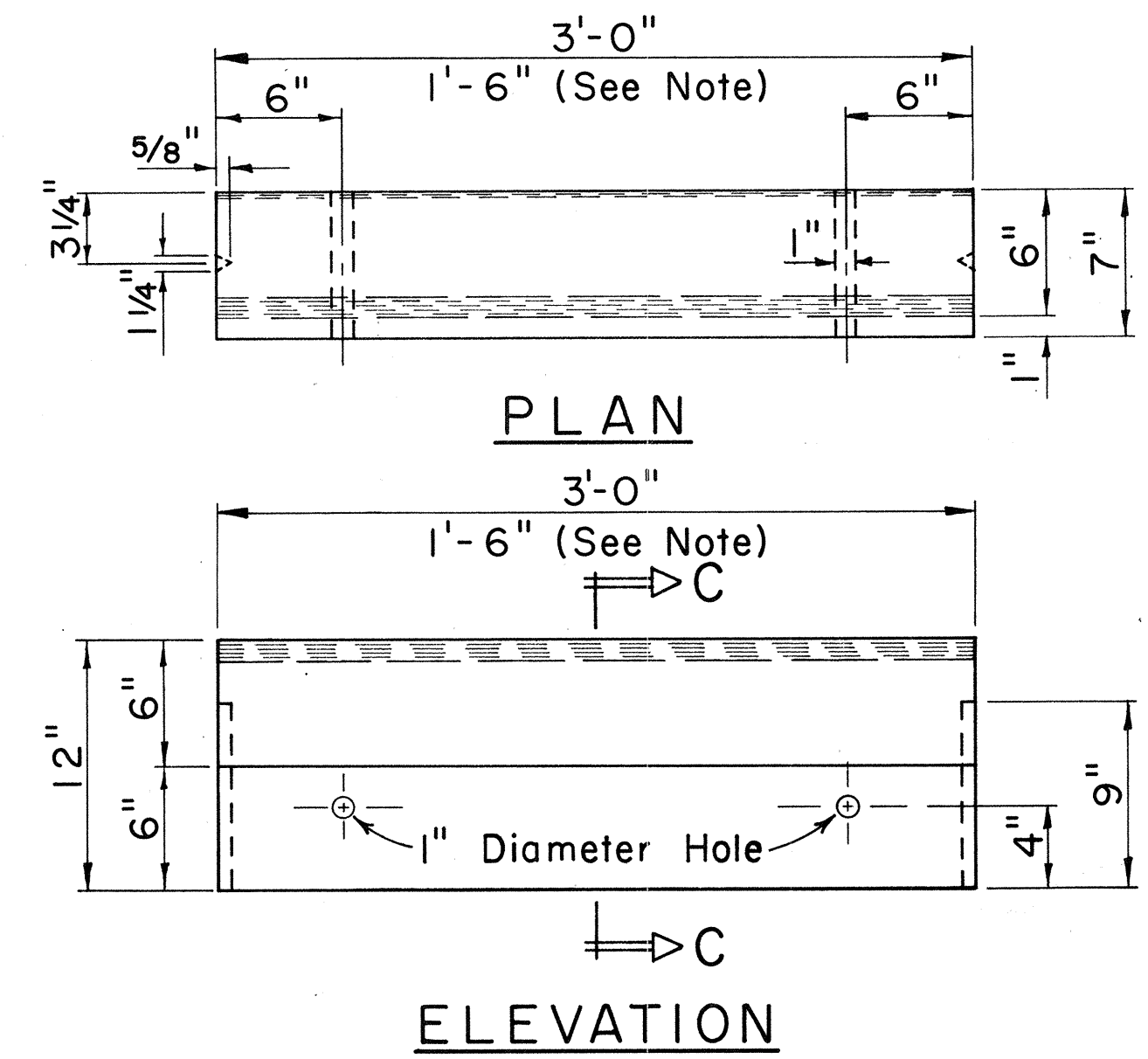


CURB, TYPE 6 BITUMINOUS CURB

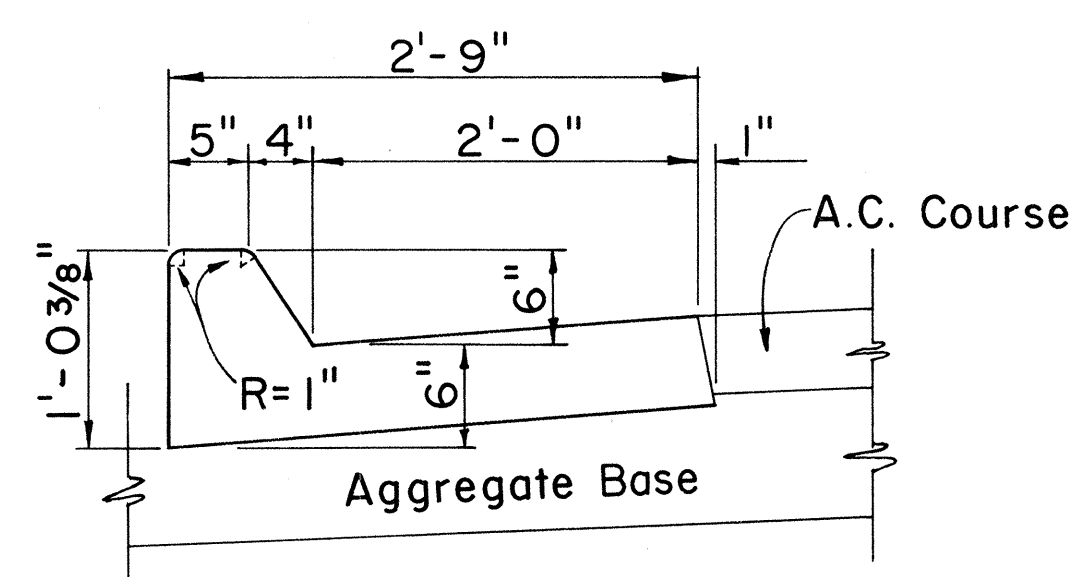
Scale: 1 1/2" = 1'-0"

NOTES

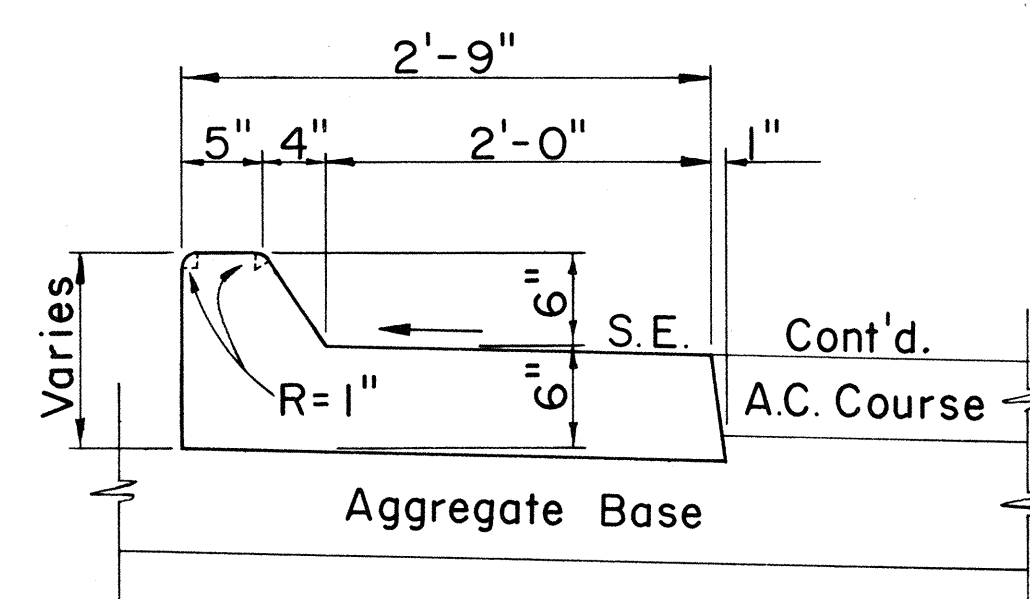
1. Cast-In-Place P.C.C. Gutters shall be longitudinally broom finished.
2. Curb, Type 2A, Curb & Gutter, Type 2AG, and Curb & Gutter, Type 2AGM are to be used only for reconstructing short segments of existing curbs and/or gutters of the same type.
3. The top of all types of concrete curbs, including driveway curbs shall be longitudinally broom finished.



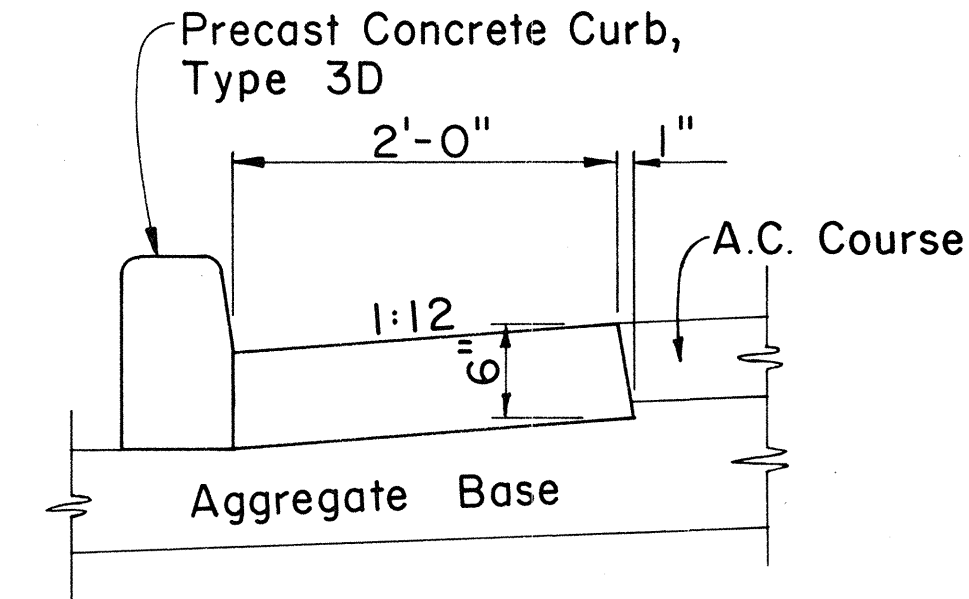
CURB, TYPE 2A



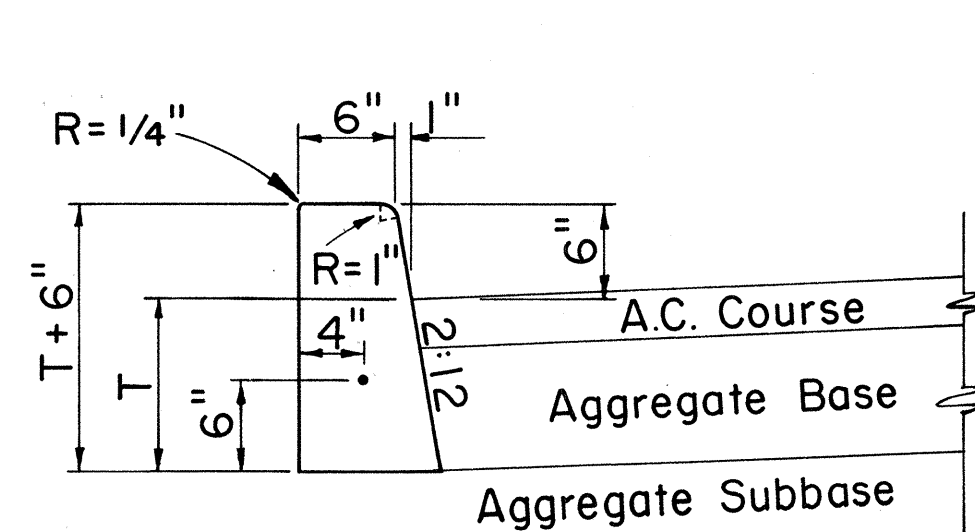
CURB & GUTTER, TYPE 2AG



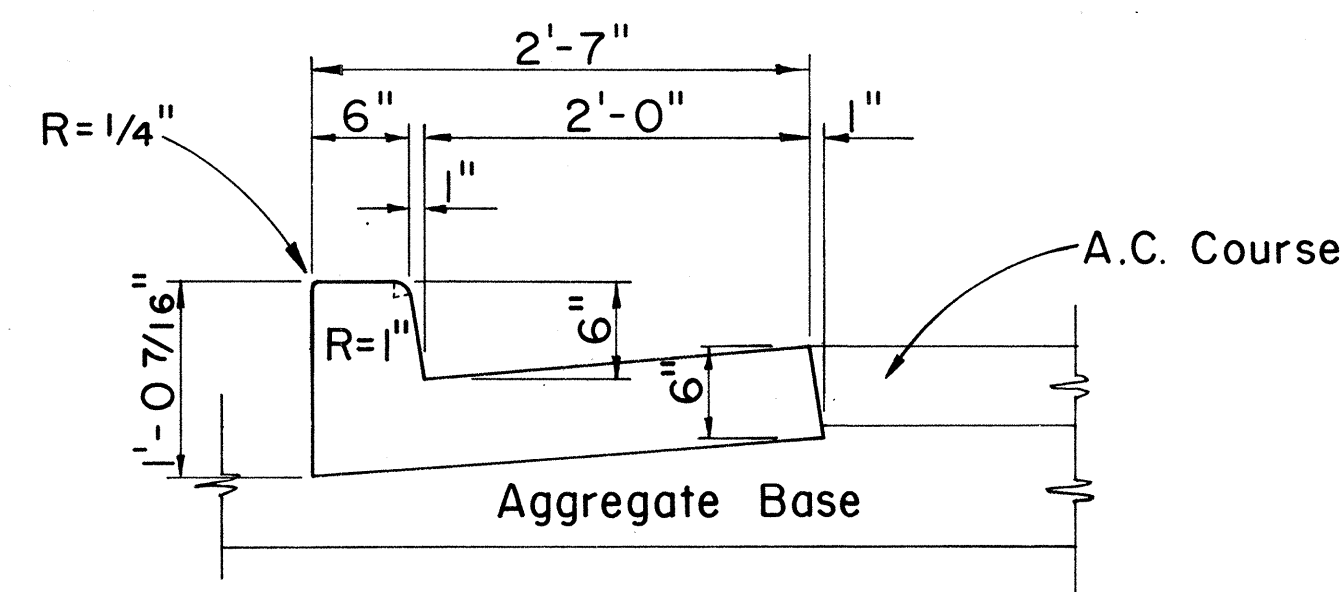
CURB & GUTTER, TYPE 2AGM



GUTTER, TYPE 2A



CURB, TYPE 2D



CURB & GUTTER, TYPE 2DG

CAST-IN-PLACE CONCRETE CURBS AND/OR GUTTERS

Scale: 1" = 1'-0"

CURB, TYPE 3D PRE-CAST CONC. CURB

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

APPROVAL RECOMMENDED:

 HIGHWAY DESIGN ENGINEER 12-4-69
 DATE

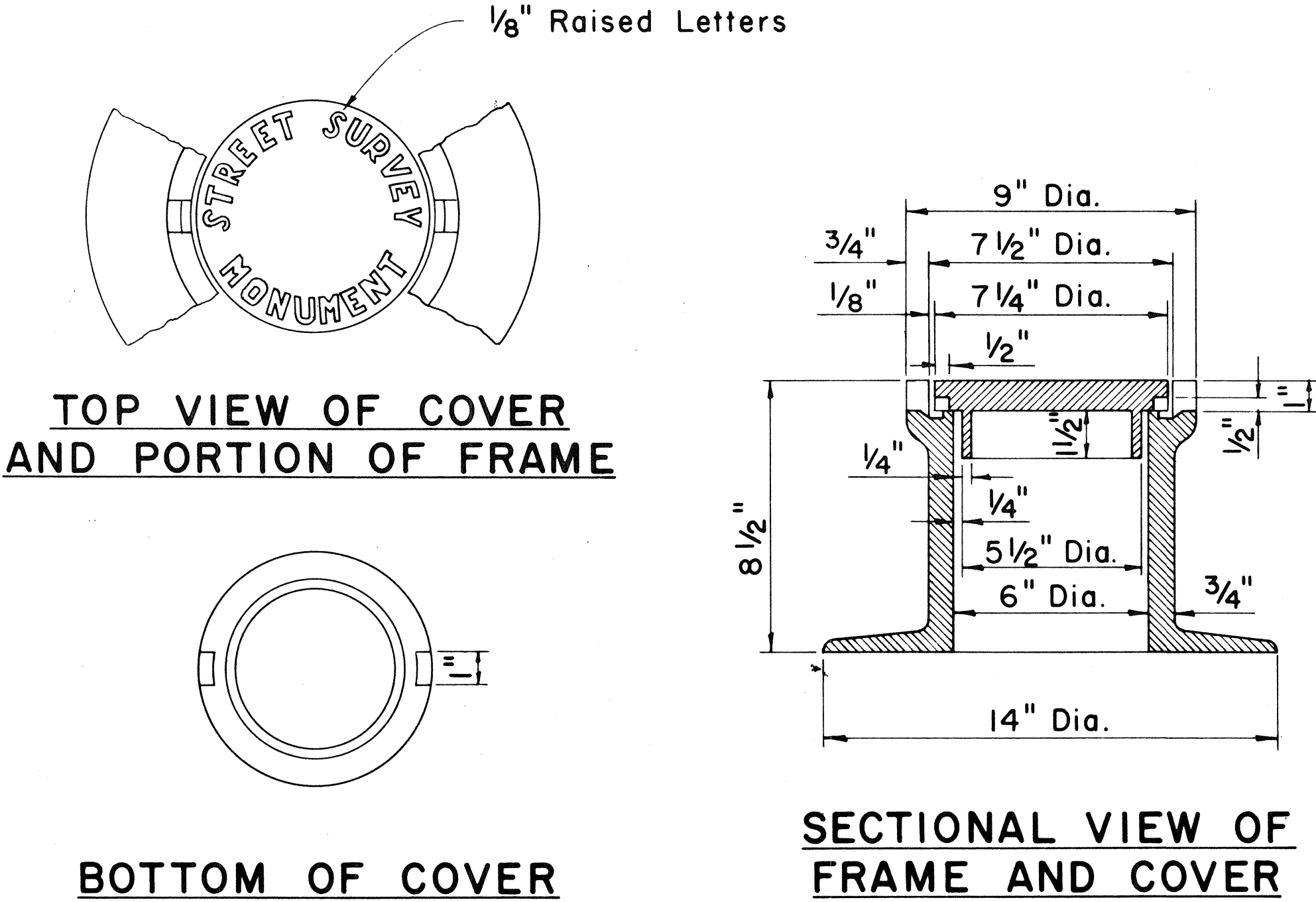
APPROVED:

 ASSISTANT CHIEF, ENGINEERING 12-10-69
 DATE

NO.	REVISION	APPROVED BY	DATE
1	Add Notes, Deleted Gutter, Type 2G		11-26-84

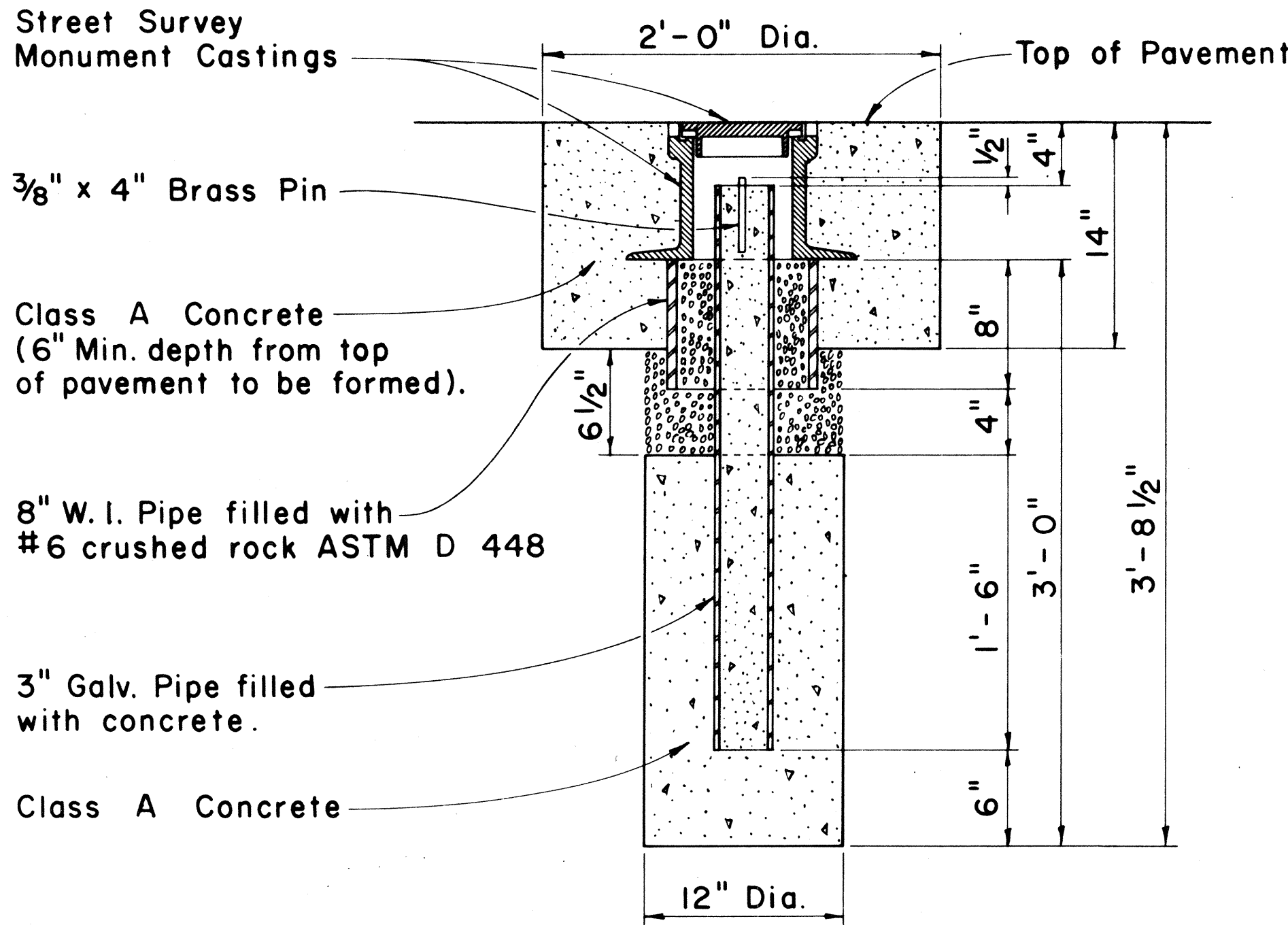
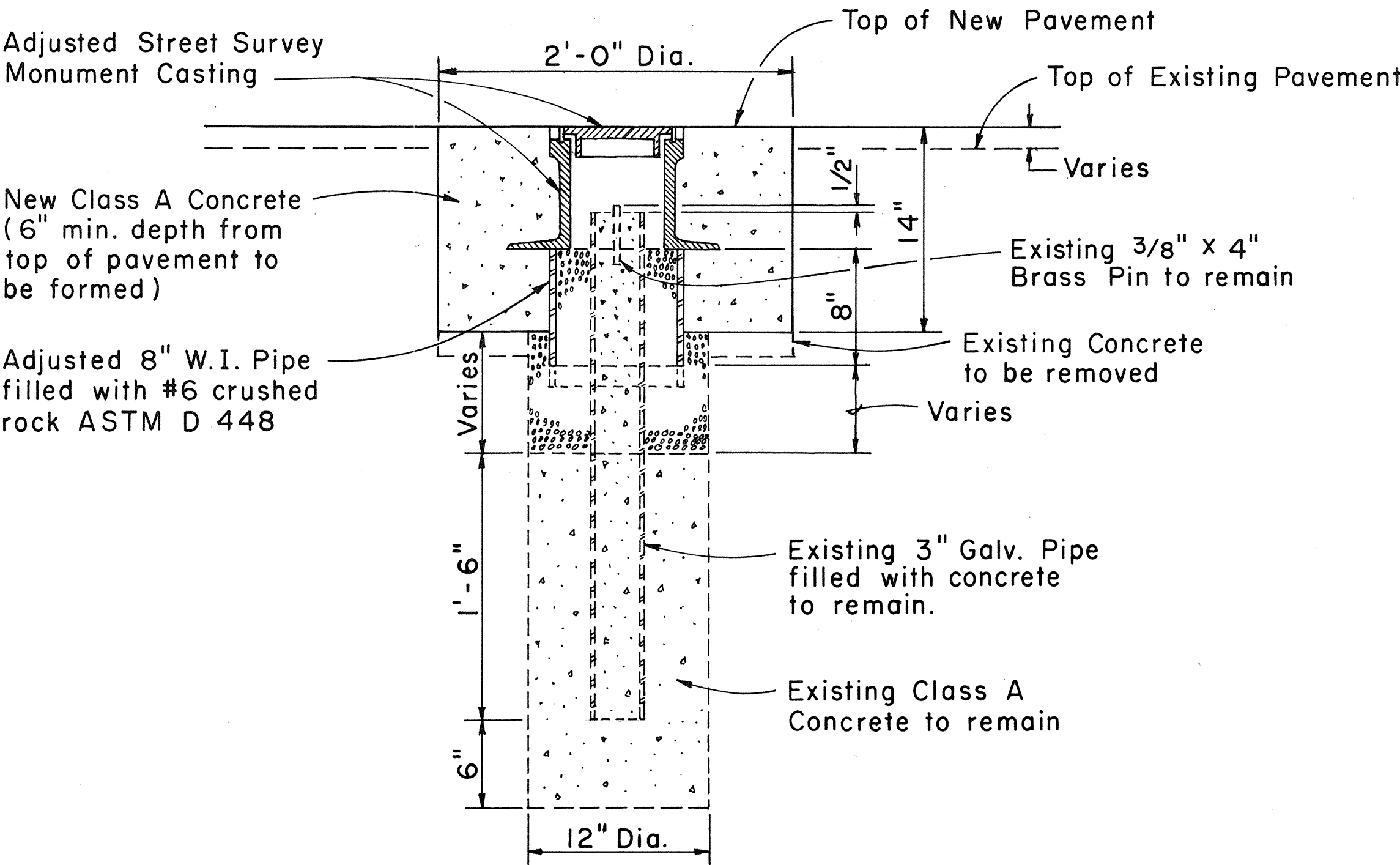
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
STANDARD DETAILS
TYPICAL DETAILS OF CURB
AND/OR GUTTERS
 Scale: As Shown
 SHEET No. 9 OF 10 SHEETS DD 609.1

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83E01-86	1986	19	54



STREET SURVEY MONUMENT CASTINGS
 Scale: 3" = 1'-0"

DETAILS FOR ADJUSTED STREET SURVEY MONUMENT
 Scale: 1 1/2" = 1'-0"



NOTE:
 Where the excavation extends into solid rock the depth may be decreased if approved by the Engineer.

STREET SURVEY MONUMENT
 Scale: 1 1/2" = 1'-0"

APPROVAL RECOMMENDED:
 HIGHWAY DESIGN ENGINEER 12-4-69 DATE

APPROVED:
 ASSISTANT CHIEF, ENGINEERING 12-10-69 DATE

NO.	REVISION	APPROVED BY	DATE
1	Deleted "Detail For Centerline & Reference Survey Monument," added "Detail For Adjusted Street Survey Monument" and deleted "C & C" Inscription on Cover.	6-22-83	

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
STANDARD DETAILS	
STREET SURVEY MONUMENT	
SCALE: AS SHOWN	
SHEET No. 10 OF 10 SHEETS DD 614.1	