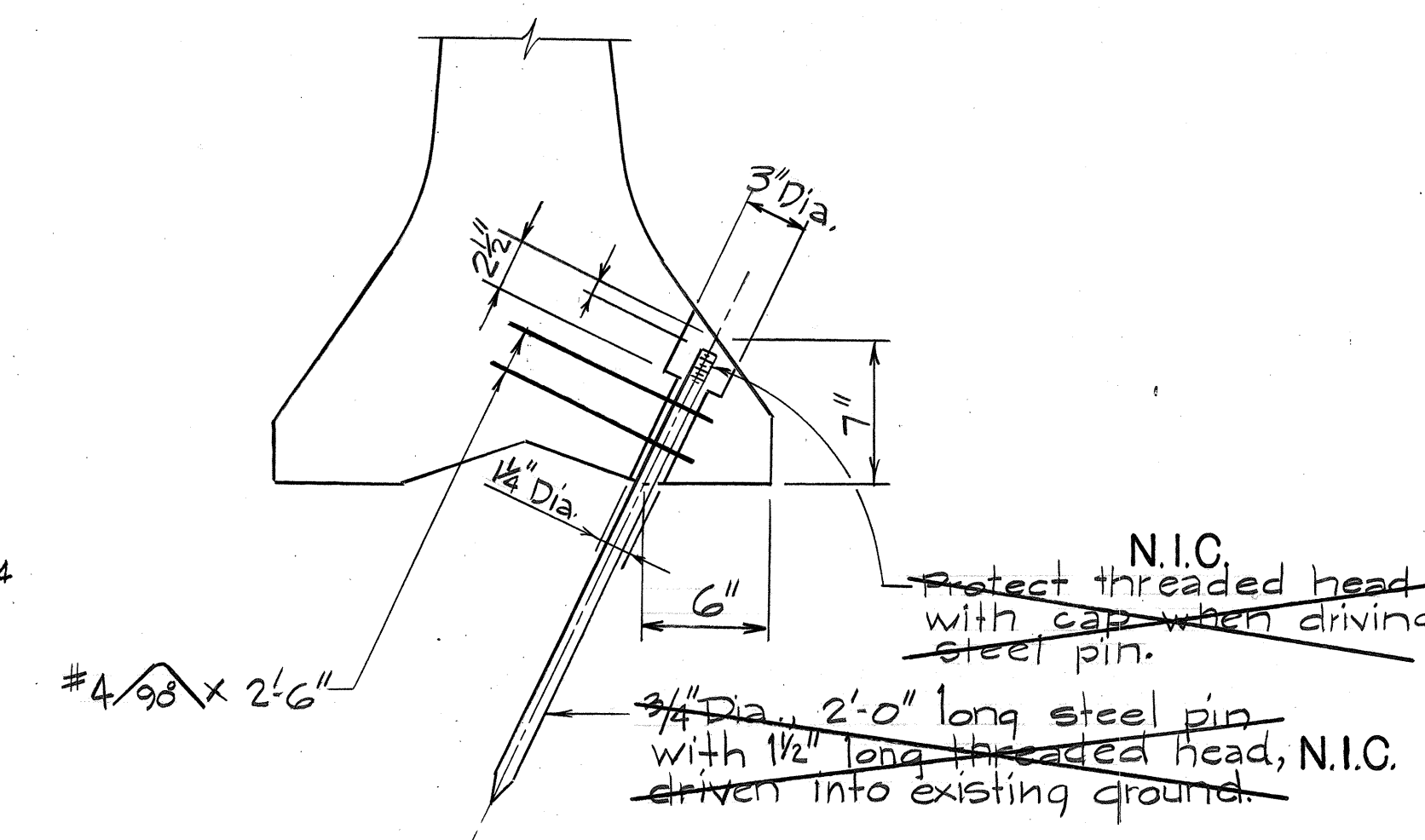
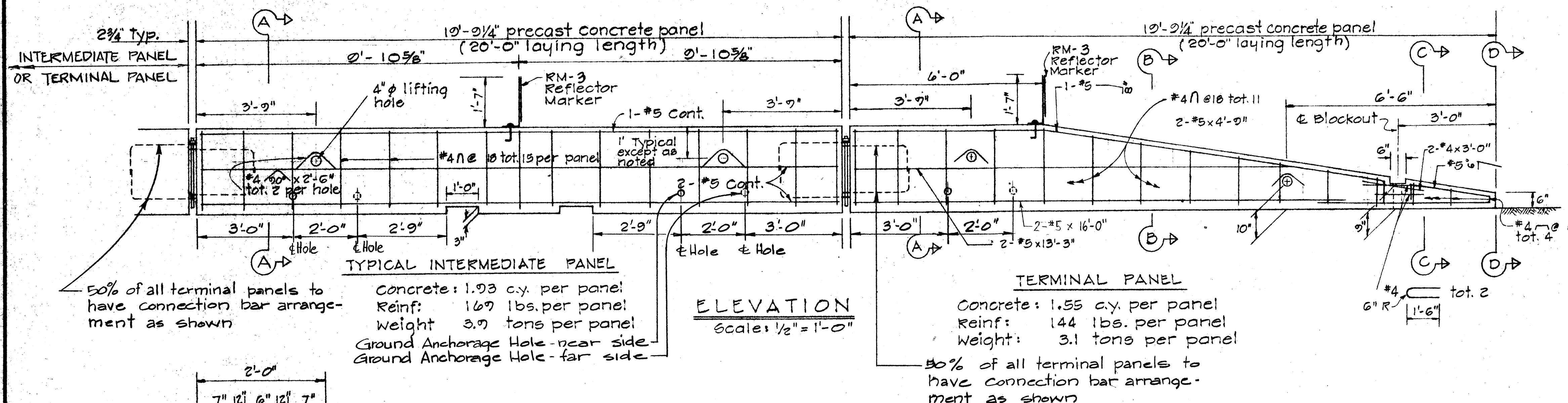
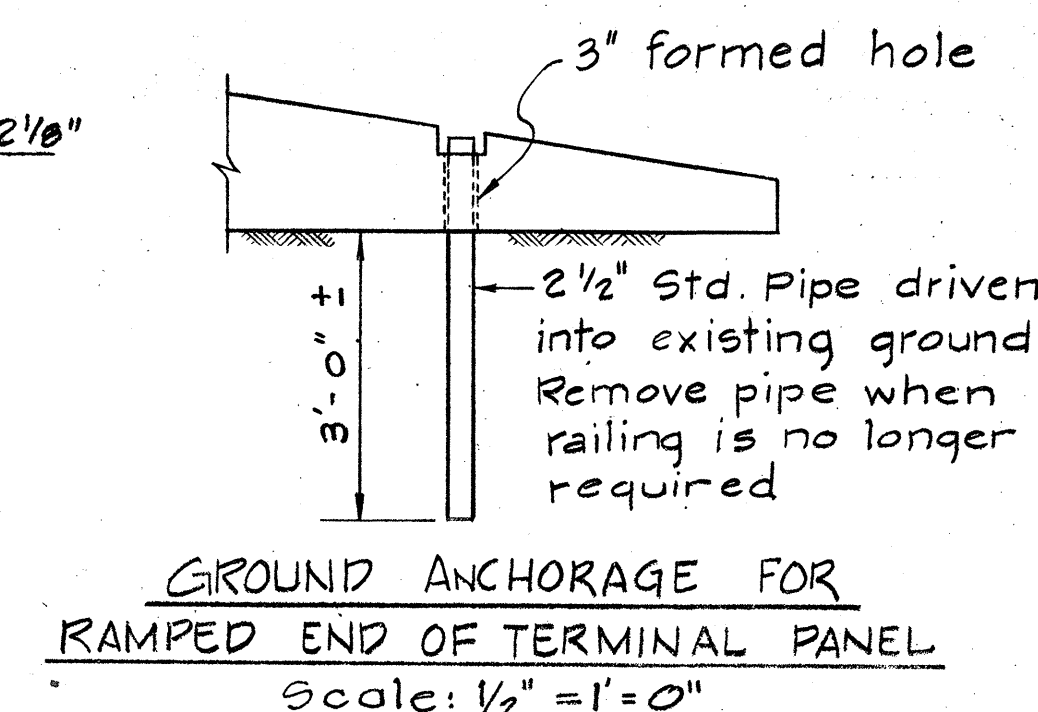
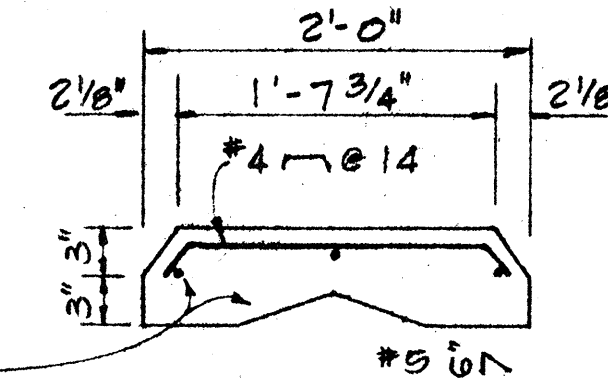
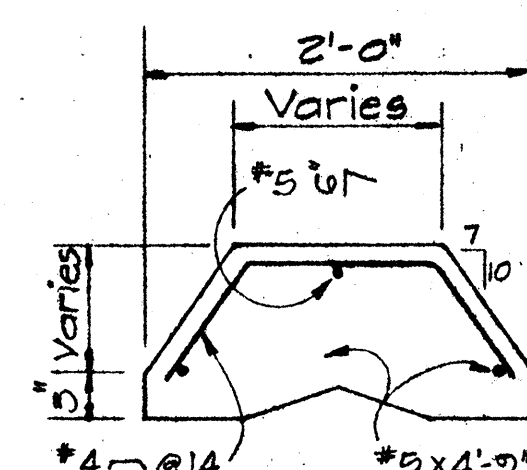
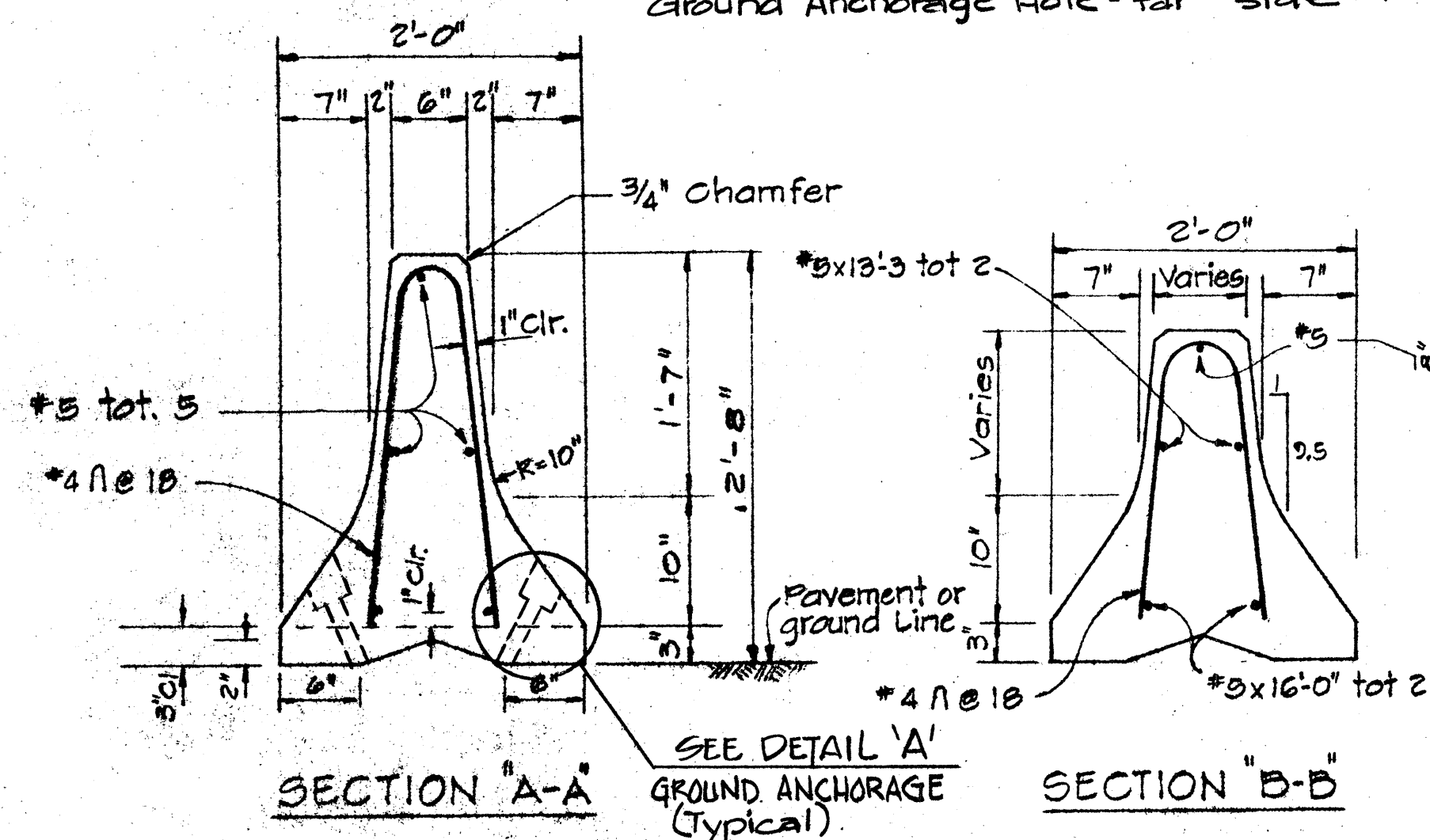


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HI-1(147)17	1980	23	338



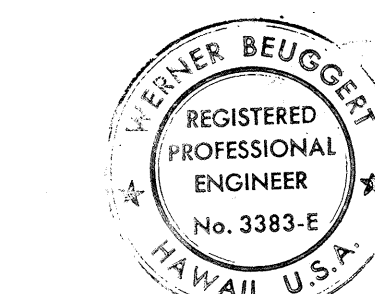
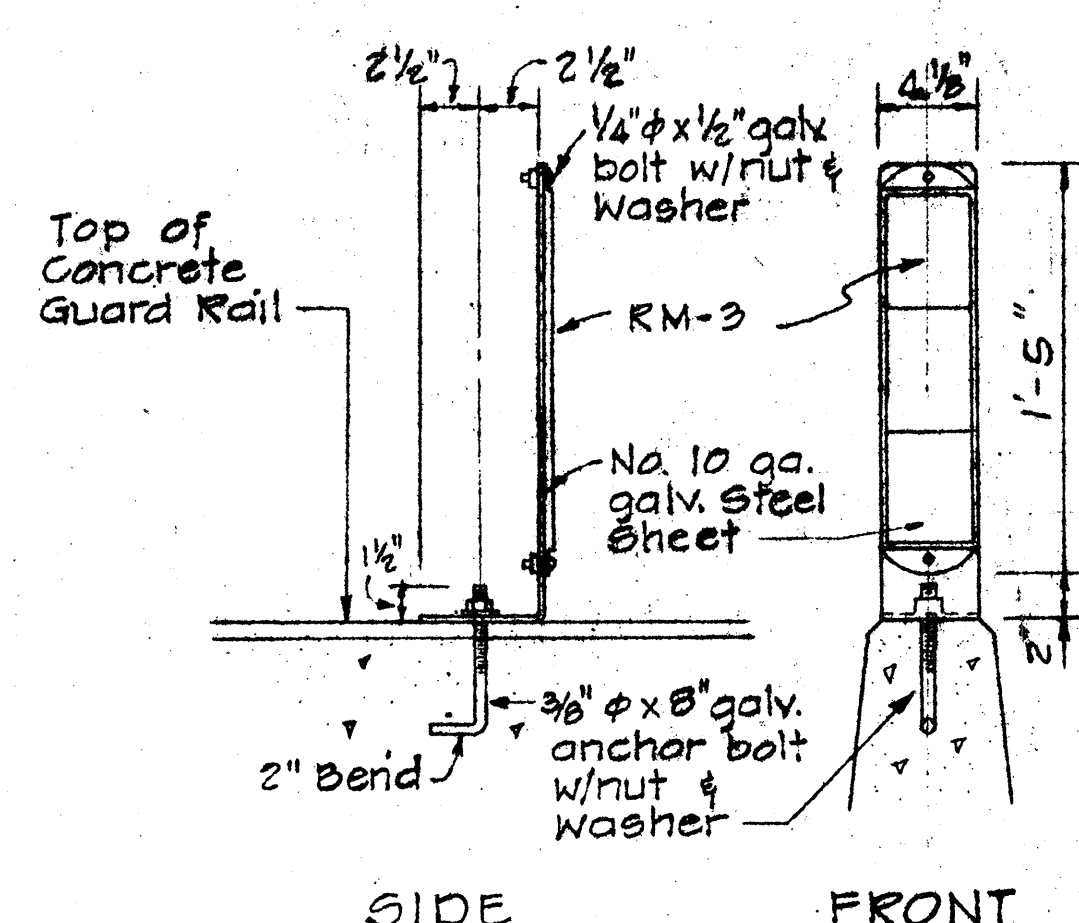
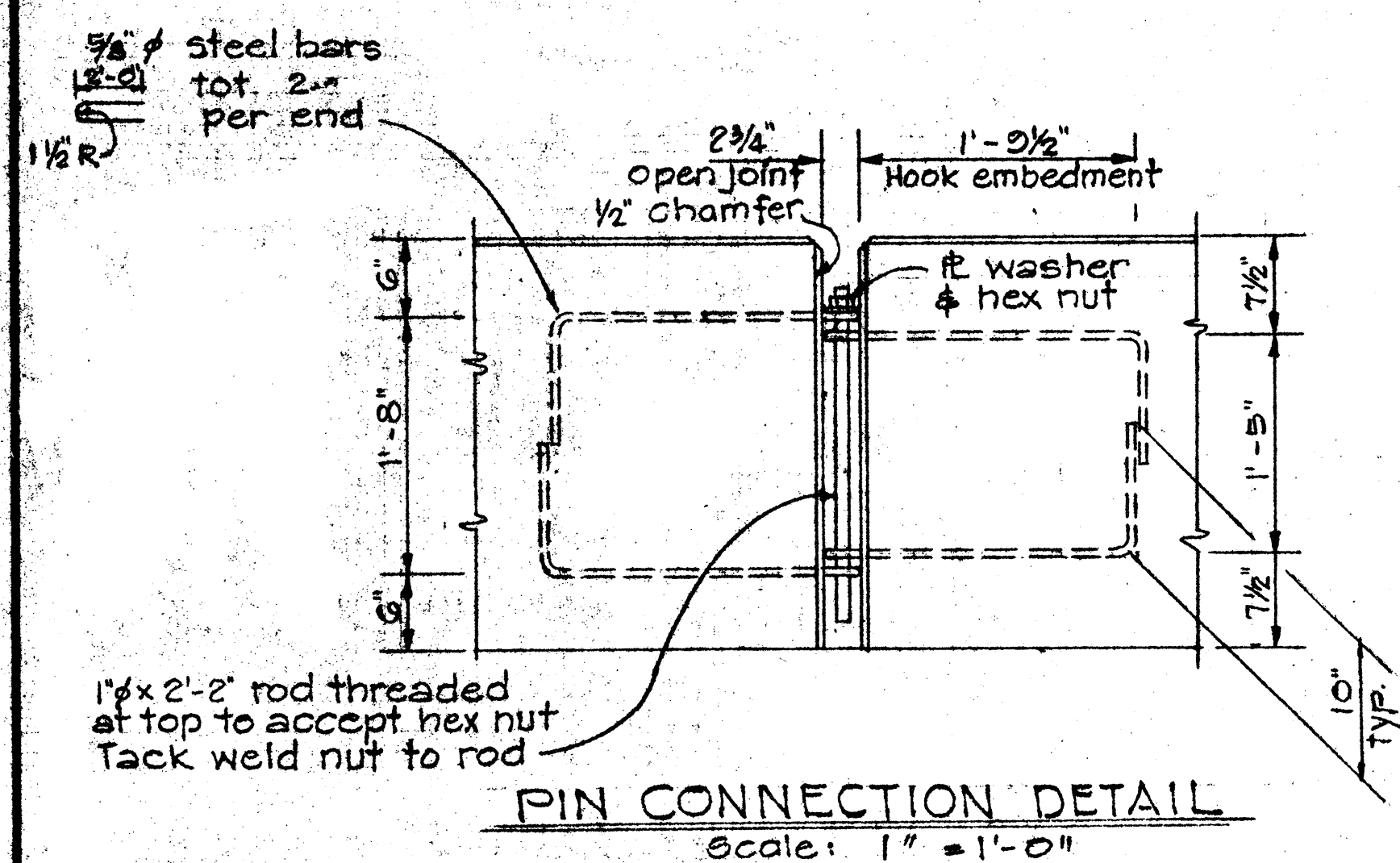
NOTES

- For details not shown in sections BB, C-C, & D-D, see Section A-A
- Reflector Marker shall not be paid for separately but shall be considered incidental to "Portable Concrete Guard Rail."
- Concrete shall be Class "A".
- All bolts to have cut washers unless otherwise noted.
- Construct asphalt concrete or mortar base where needed for proper setting of guard rail on existing pavement and use aggregate base material on unpaved areas. Construction of base shall not be paid separately but shall be considered incidental to "Portable Concrete Guard Rail." The base shall not be constructed under 1'-0" x 3" openings and connection openings.



SECTIONS

Scale: 1" = 1'-0"



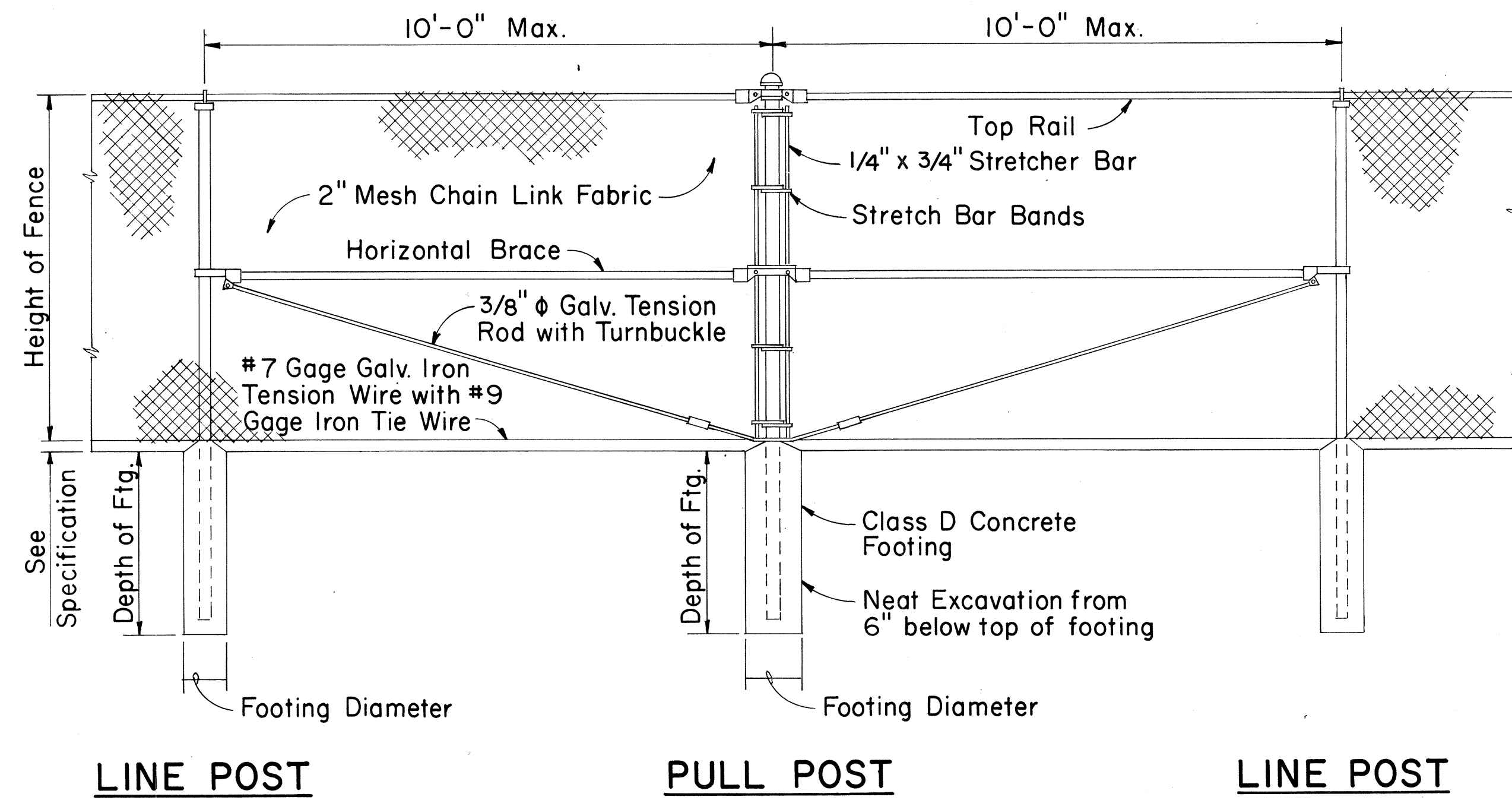
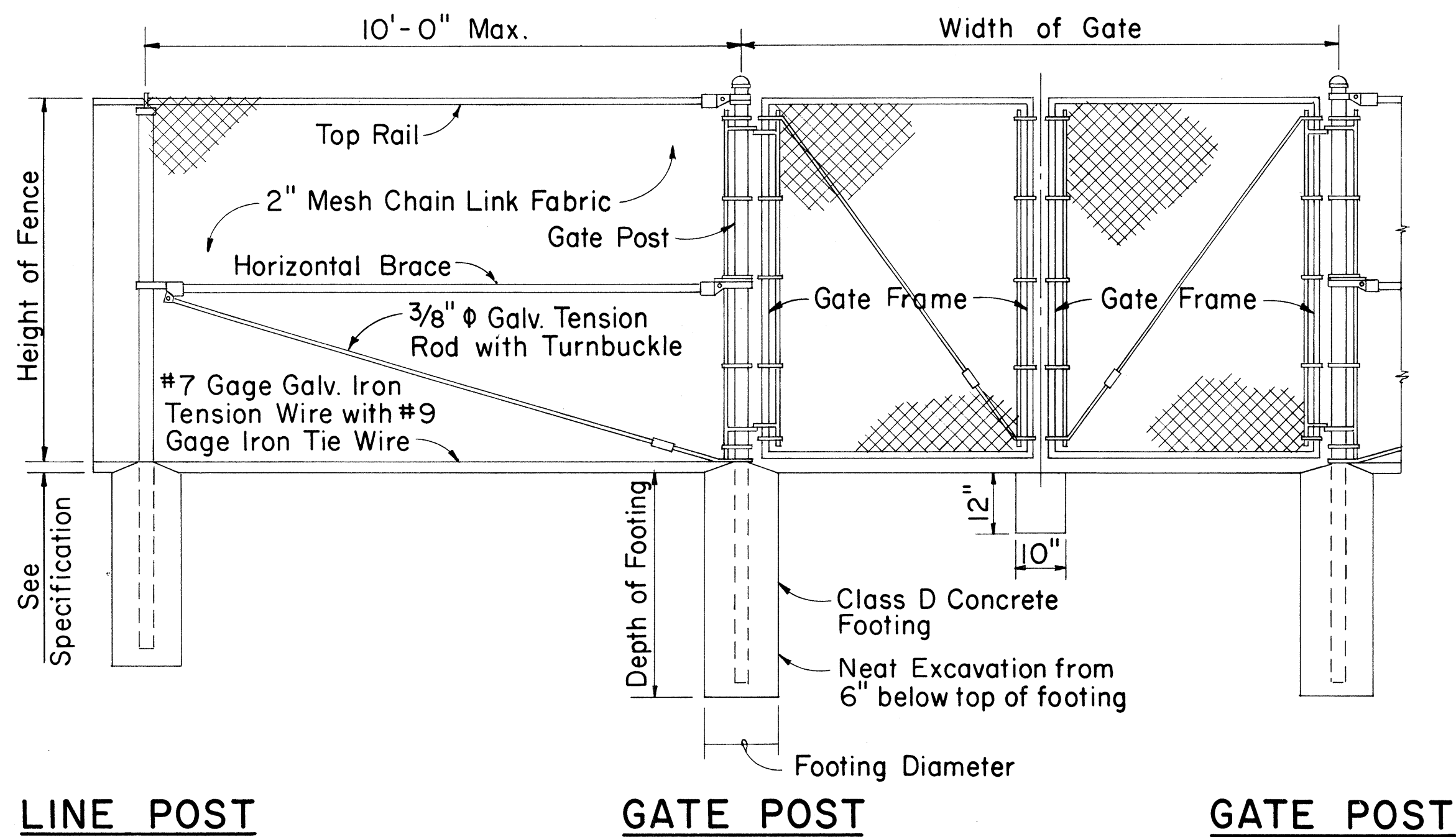
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Werner Beugert

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PORTABLE CONCRETE GUARD RAIL TYPICAL DETAILS

INTERSTATE ROUTE H-1
PROJECT NO. I-H-1(147)17
Scale: As Noted Date: 4/2/79
SHEET No. C-6 OF 24 SHEETS

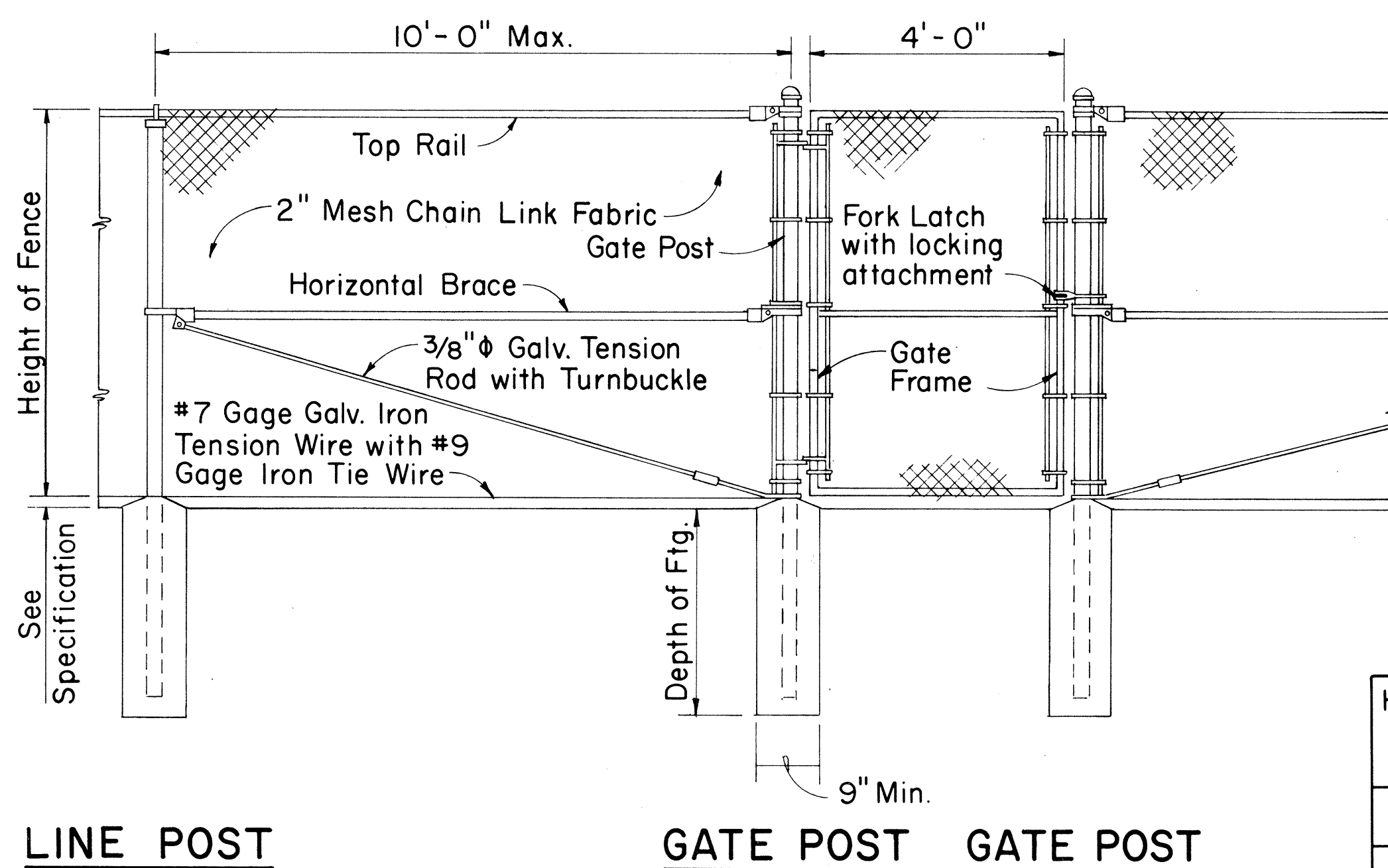
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HI-1(147)-17	1980	24	338



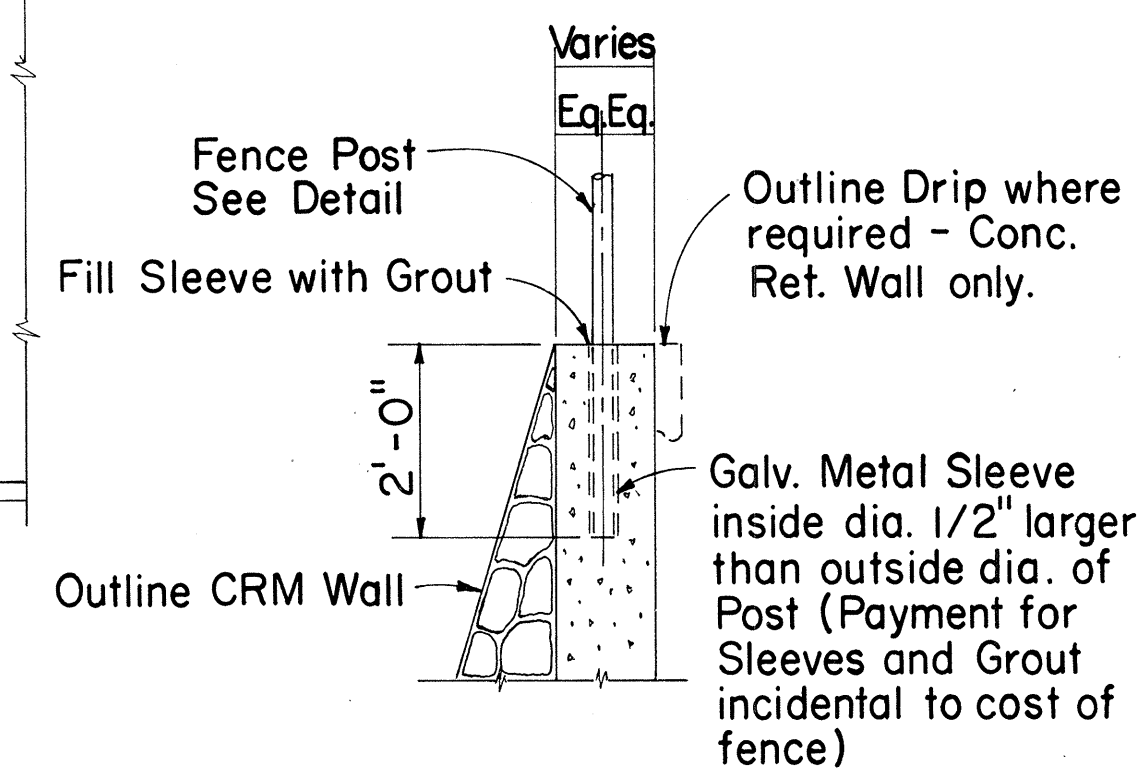
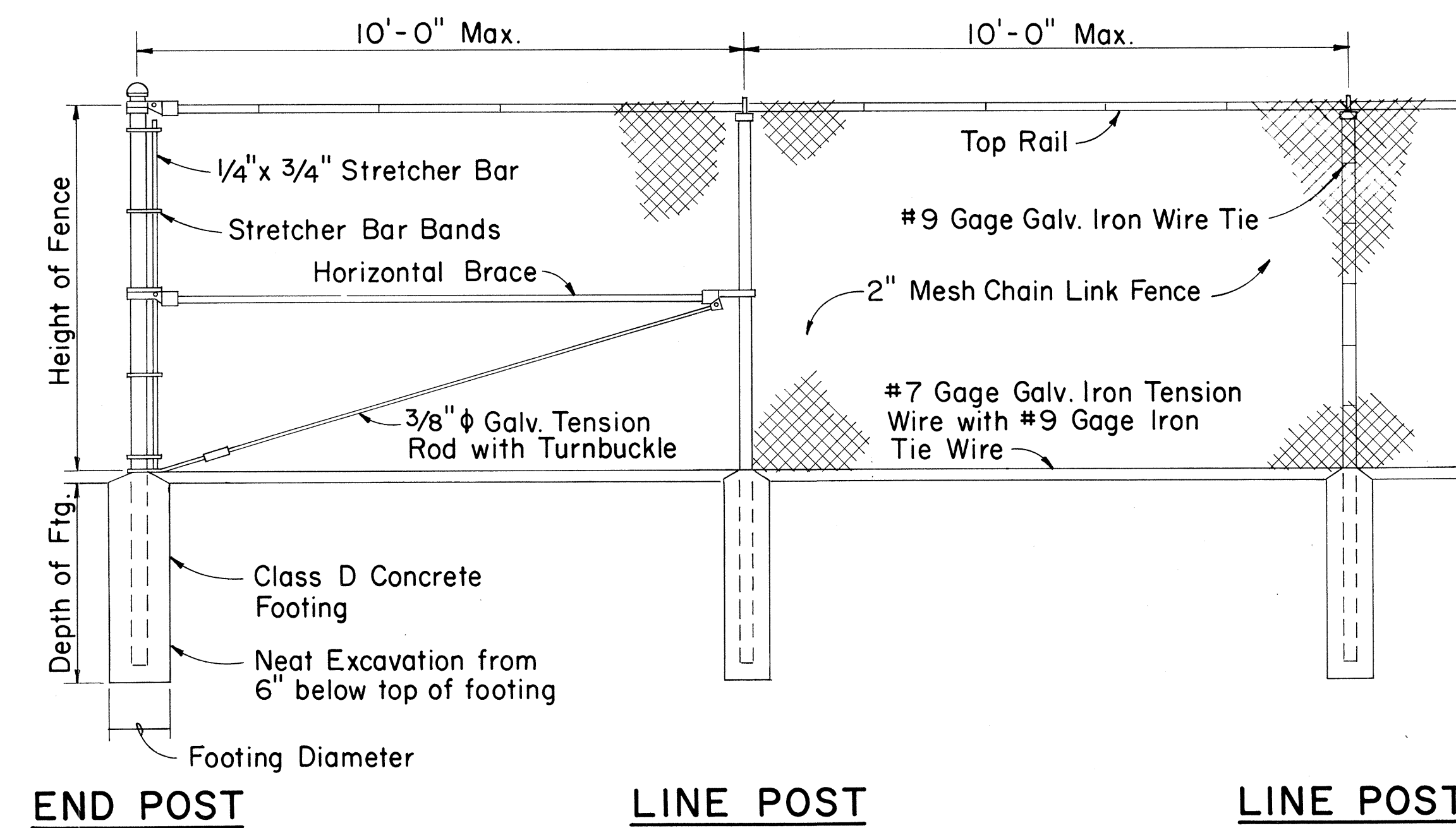
TYPICAL SECTION (WITH CONCRETE FOOTING)

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.



DETAIL OF 4 FT. CHAIN LINK GATE



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"

APPROVAL, RECOMMENDED: *M. H. H. H.* 12-4-69
HIGHWAY DESIGN ENGINEER DATE

APPROVED: *M. H. H. H.* 12-10-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

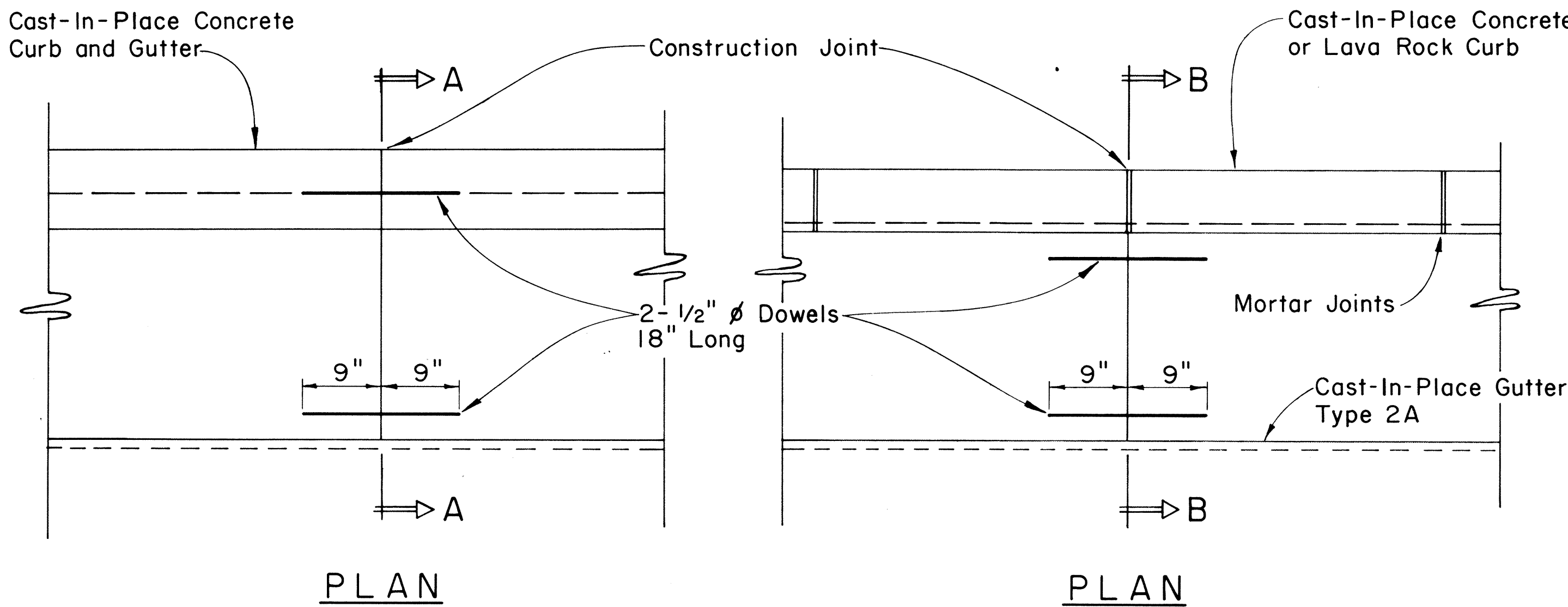
STANDARD DETAILS

CHAIN LINK FENCE
(WITH TOPRAIL)

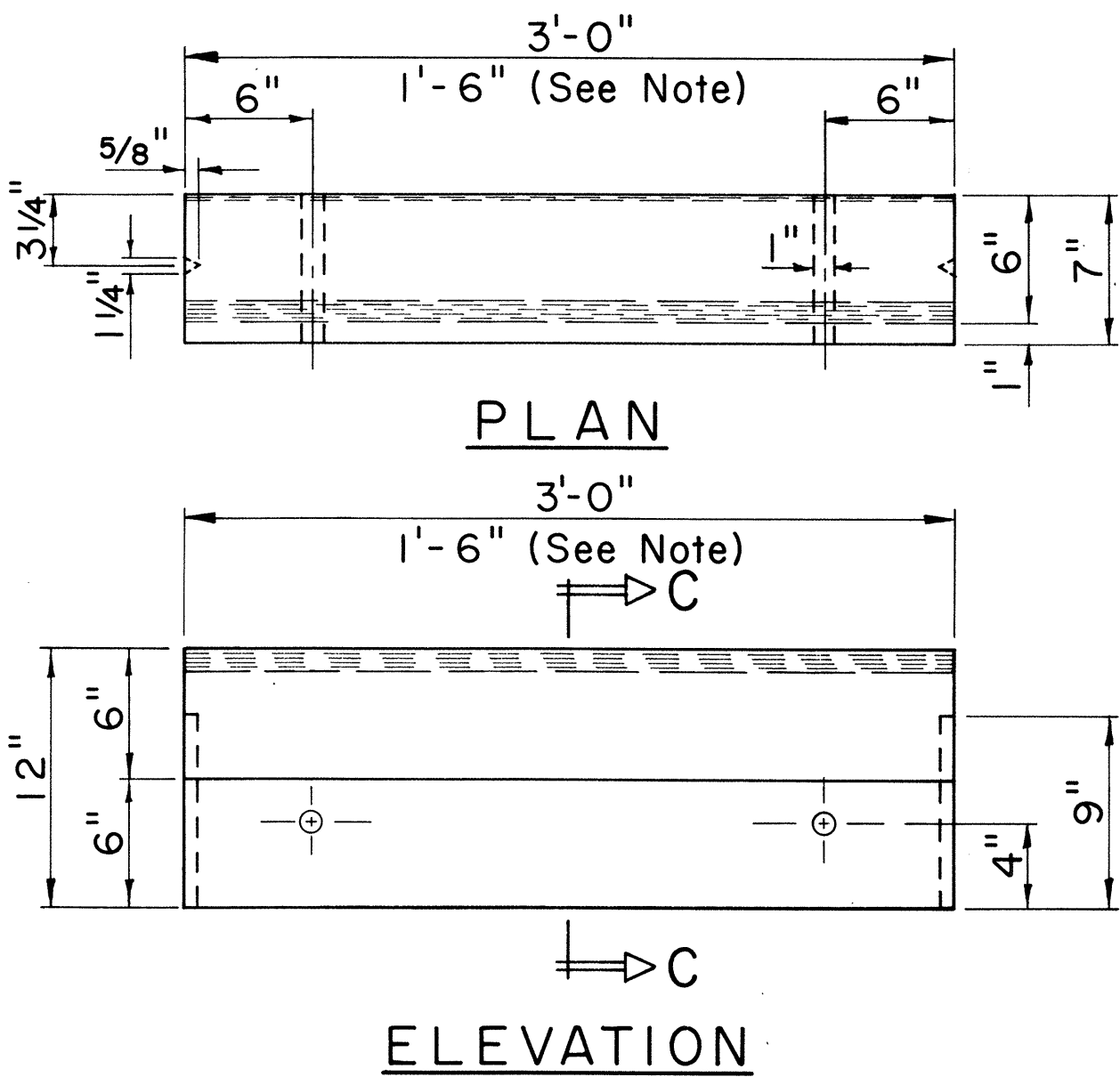
Scale: 1/2" = 1'-0" Date:

SHEET No. C-7 OF 24 SHEETS DD 607.1

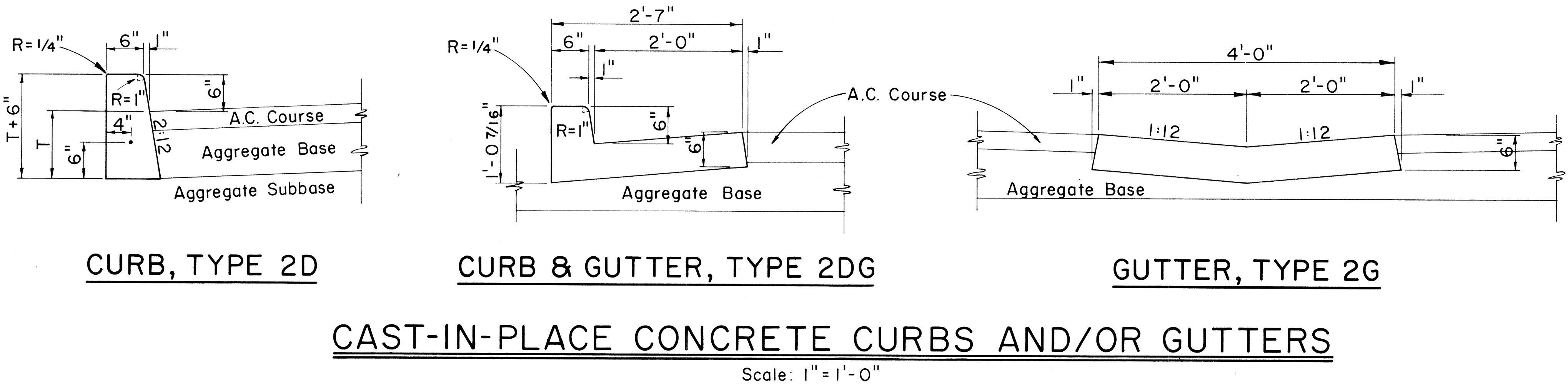
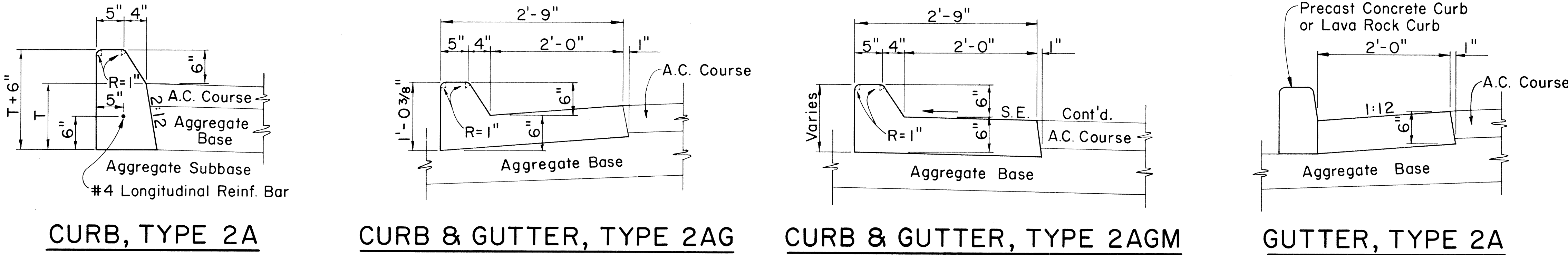
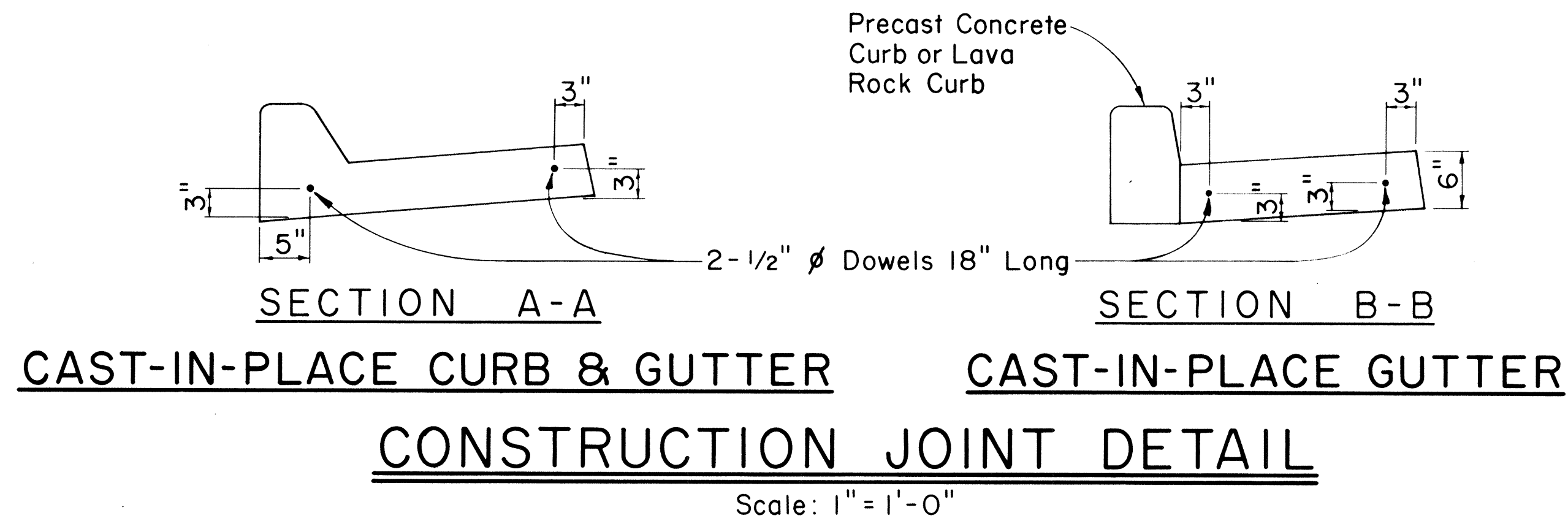
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	[HI-1(147):17]	1980	25	338



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



SECTION C-C
CURB, TYPE 3D
PRE-CAST CONC. CURB
 Scale: 1 1/2" = 1'-0"

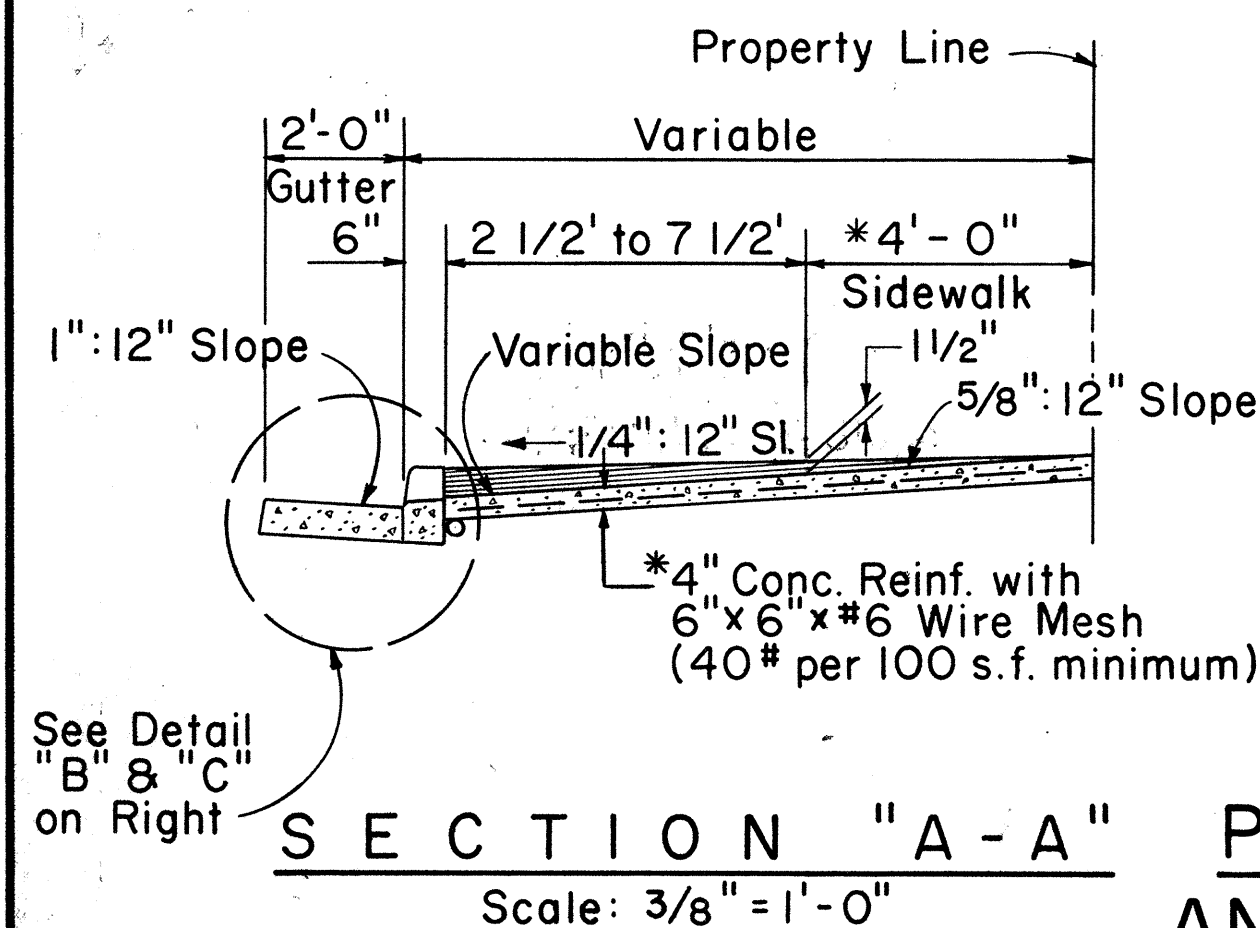
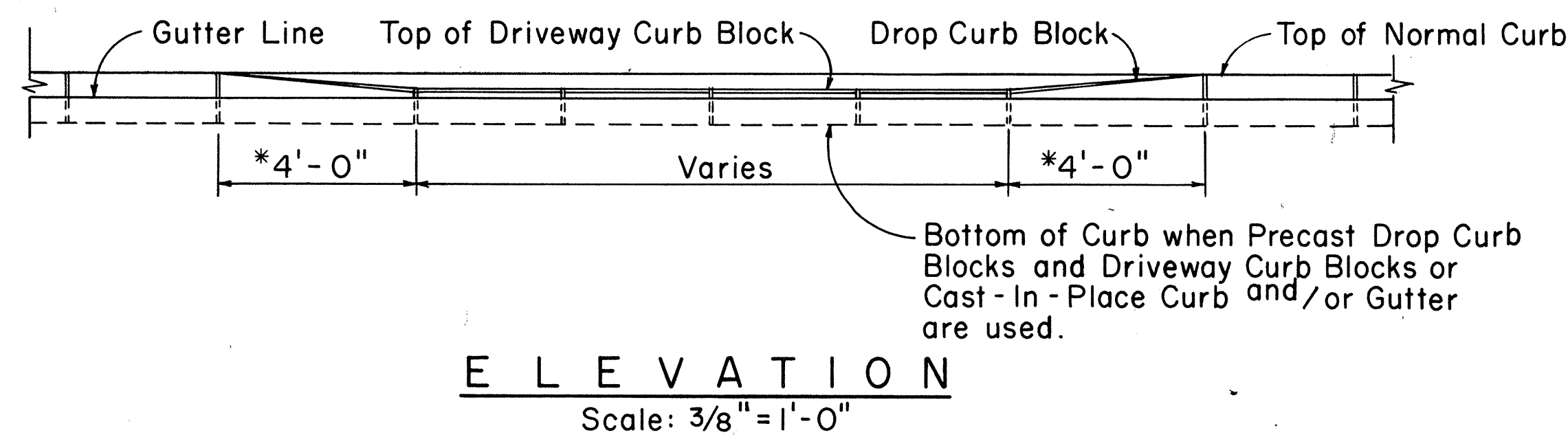
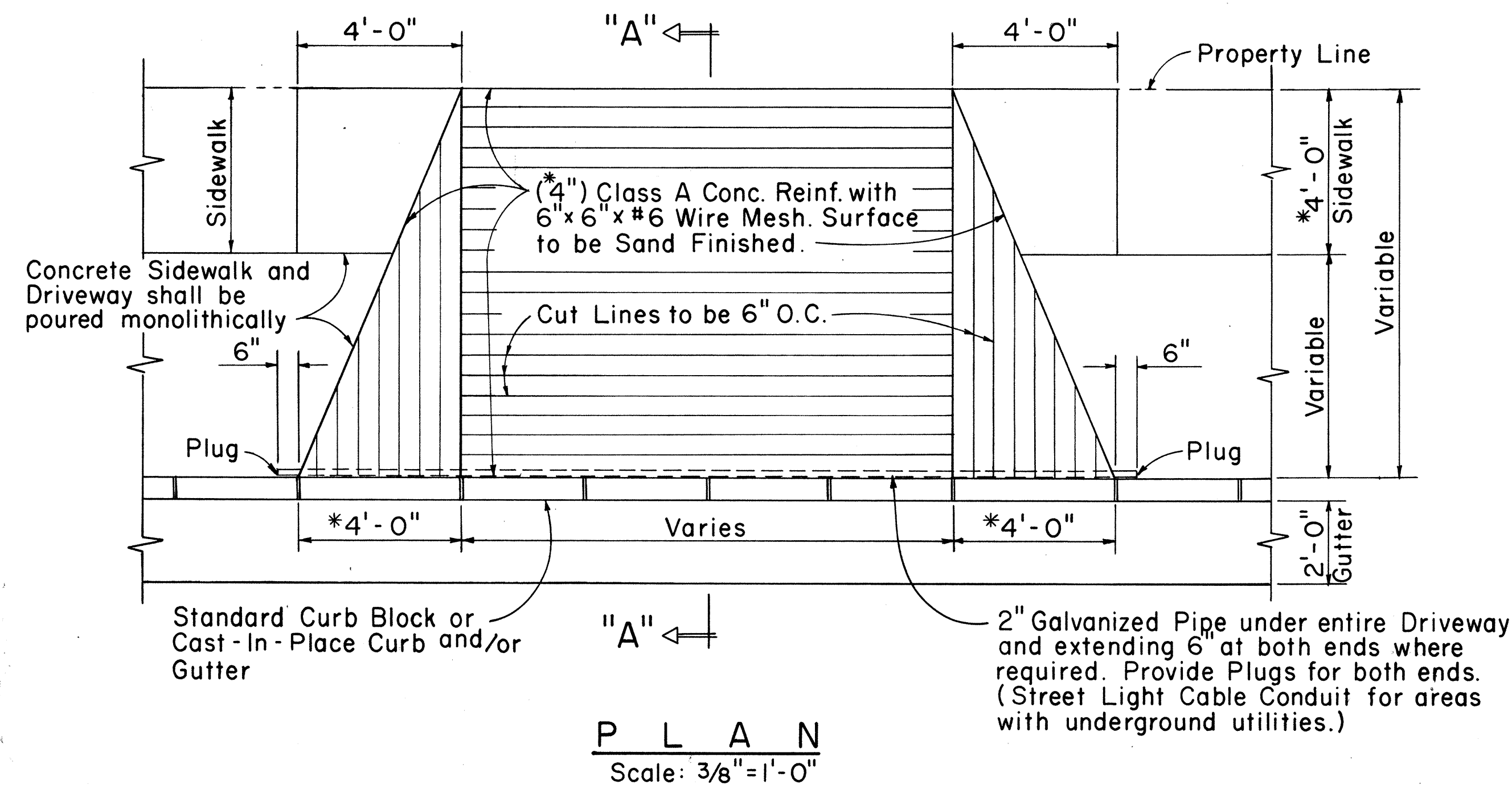


APPROVAL	RECOMMENDED:		
	HIGHWAY DESIGN ENGINEER	12-4-69	DATE
APPROVED:		12-10-69	DATE
	ASSISTANT CHIEF, ENGINEERING		

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
STANDARD DETAILS
TYPICAL DETAILS OF CURB
AND/OR GUTTERS
Scale: As Shown
SHEET No. C-8 OF 24 SHEETS
DD 609.1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(147) 17	1980	26	338



PRE-CAST DRIVEWAY CURB AND CAST-IN-PLACE GUTTER

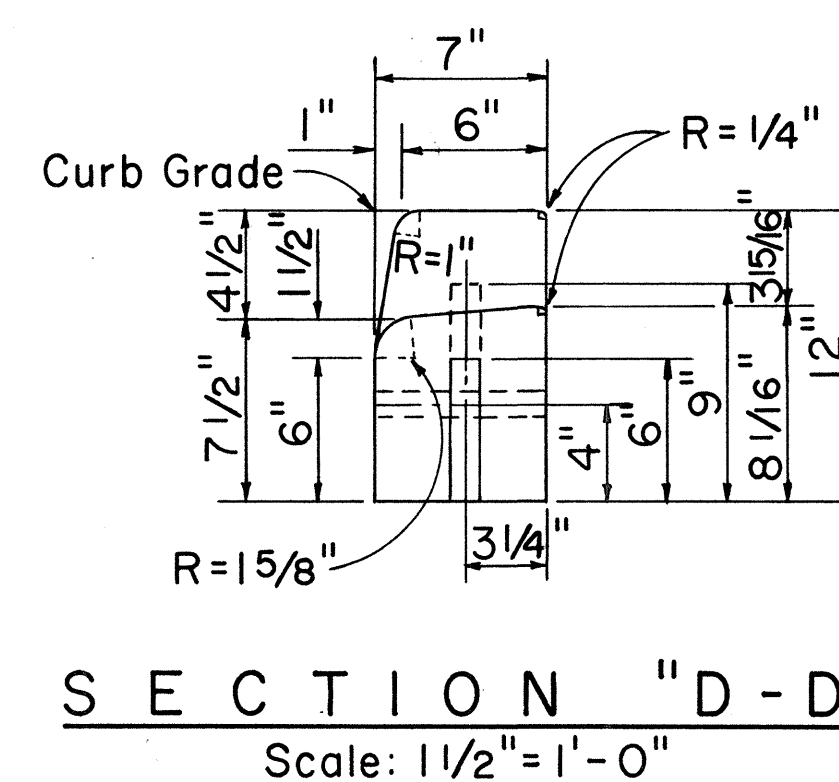
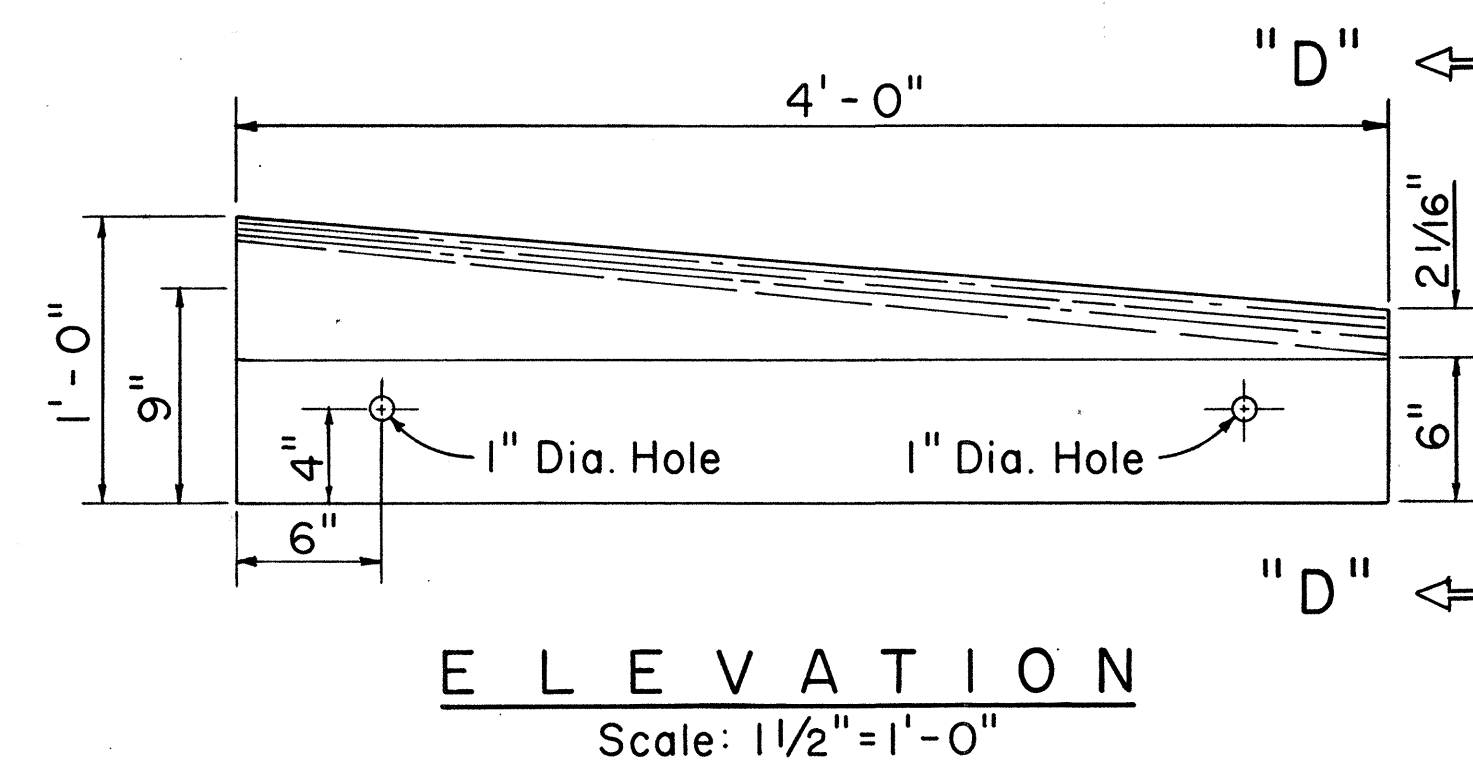
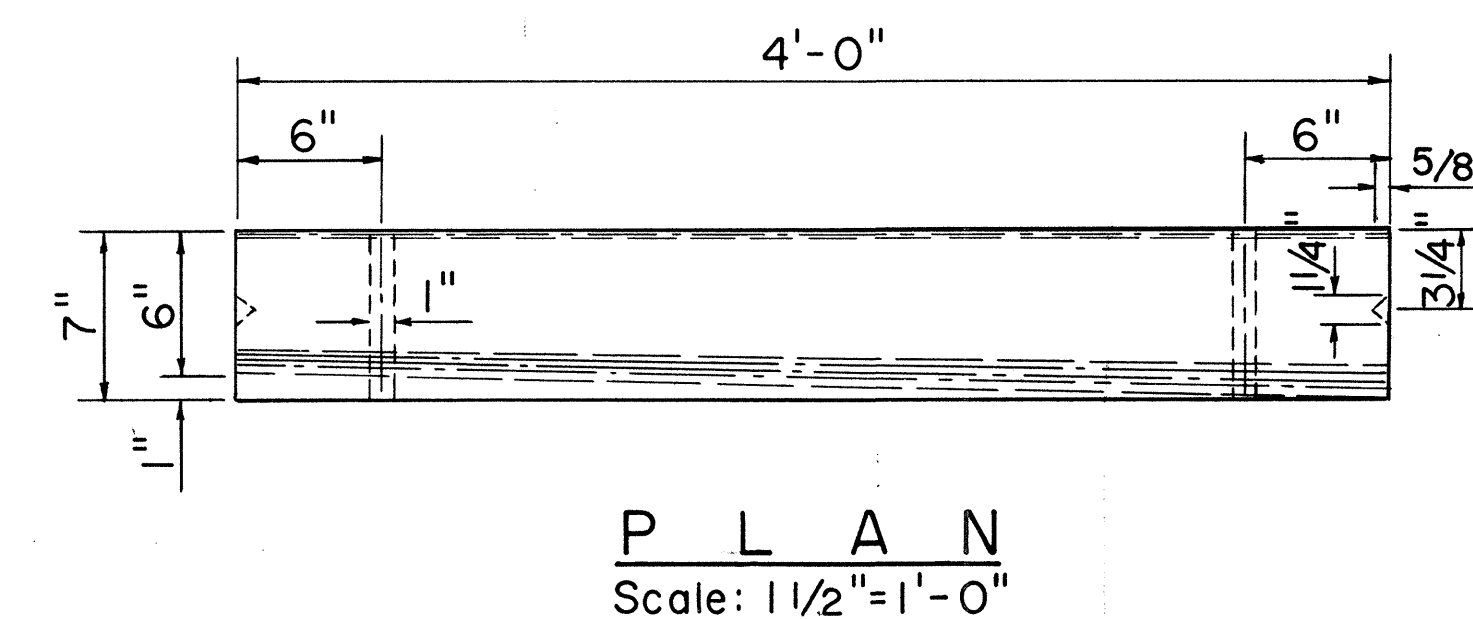
DETAIL "B"
Scale: 3/4" = 1'-0"

CAST-IN-PLACE INTEGRAL DRIVEWAY CURB AND GUTTER

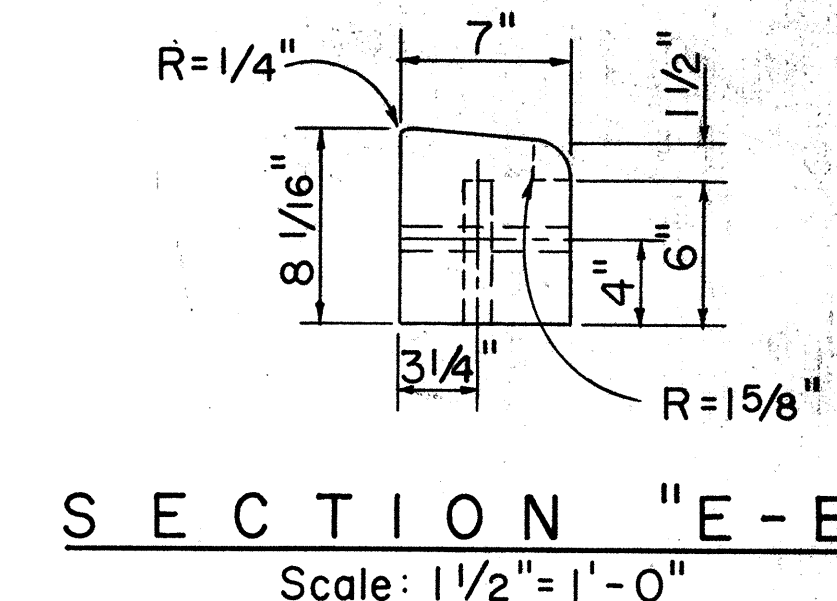
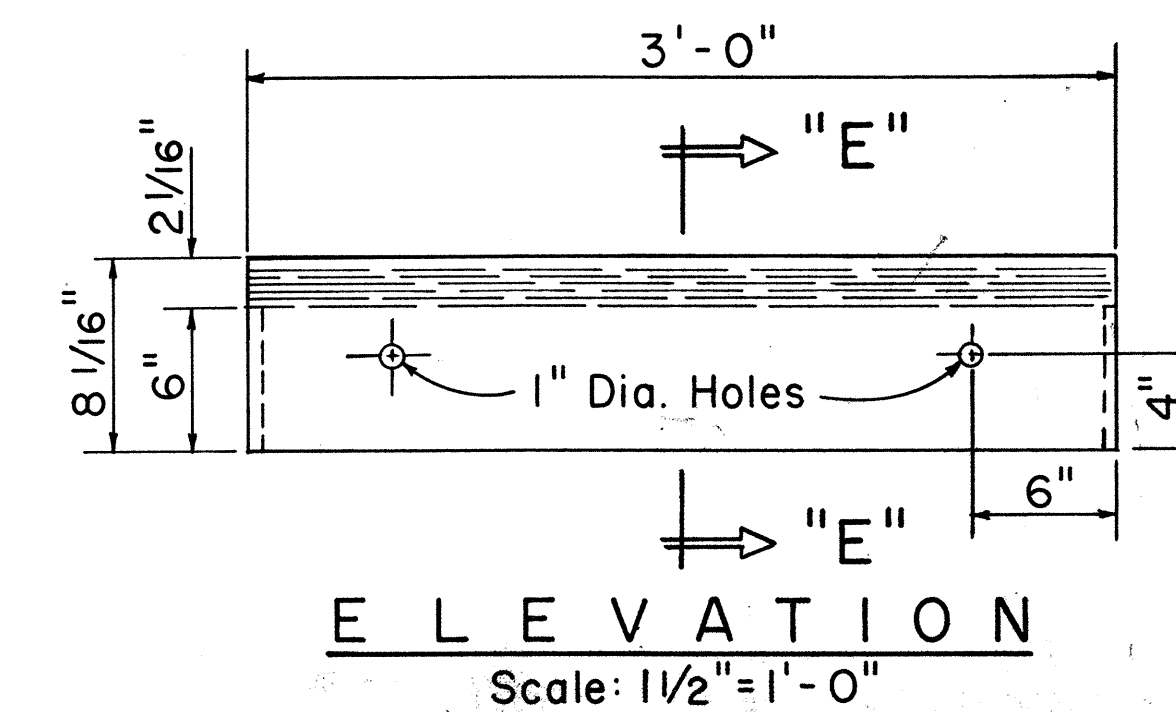
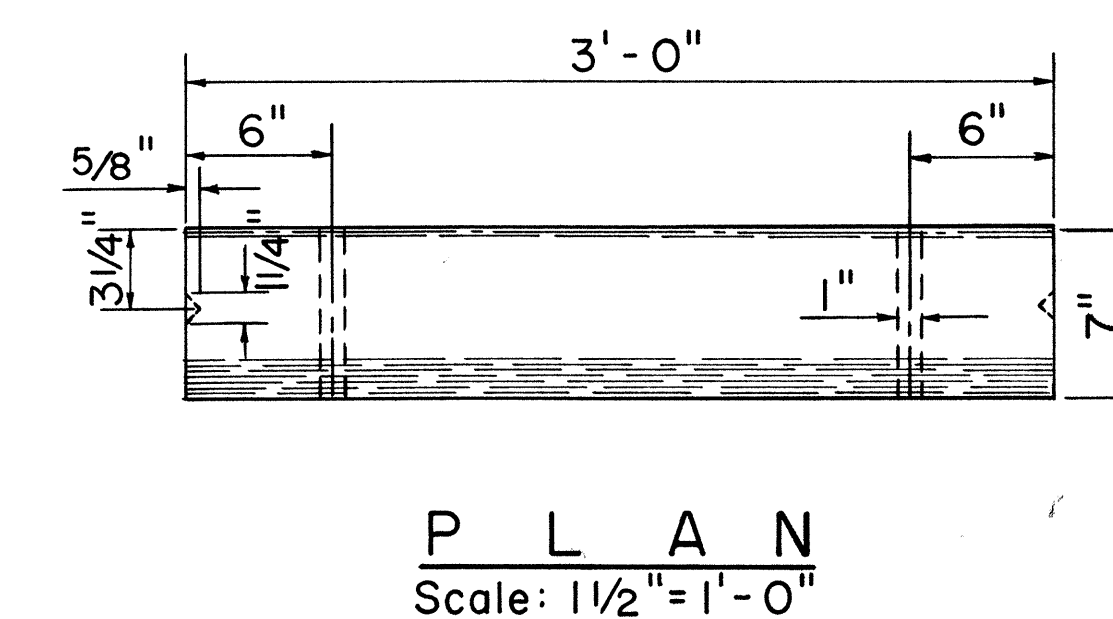
DETAIL "C"
Scale: 3/4" = 1'-0"

TYPICAL DETAILS OF REINF. CONC. DROP DRIVEWAY

Scale: As Noted



PRE-CAST CONC. DROP CURB BLOCK



PRE-CAST CONC. DRIVEWAY CURB

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

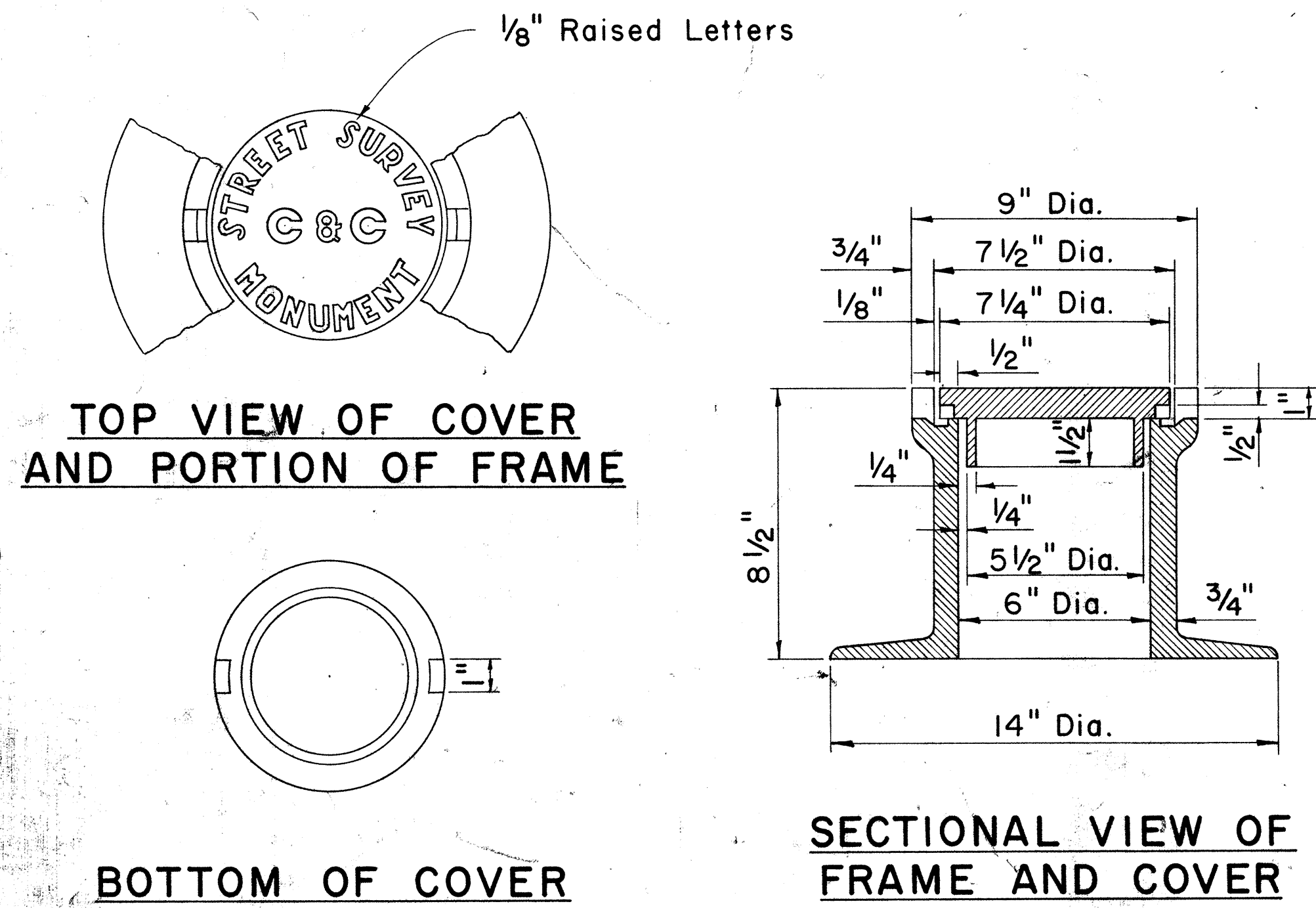
APPROVED:
ASSISTANT CHIEF, ENGINEERING
12-10-69
DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION LAND TRANSPORTATION FACILITIES DIVISION STANDARD DETAILS TYPICAL DETAILS OF REINF. CONC. DROP DRIVEWAY Scale: As Shown

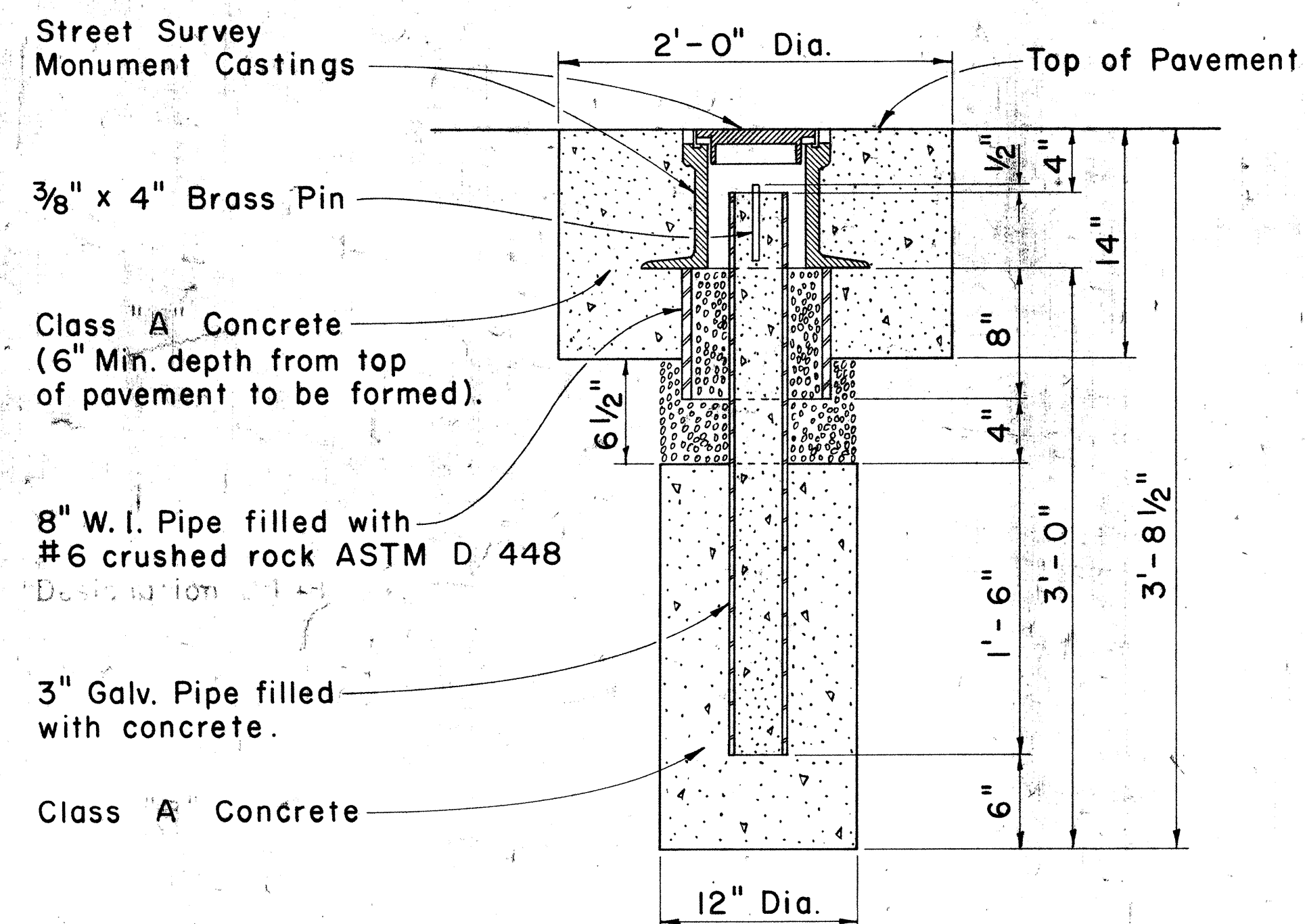
SHEET No. 26 OF 24 SHEETS DD 6101

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-111(147)17	1980	27	338



STREET SURVEY MONUMENT CASTINGS

Scale: 3" = 1'-0"



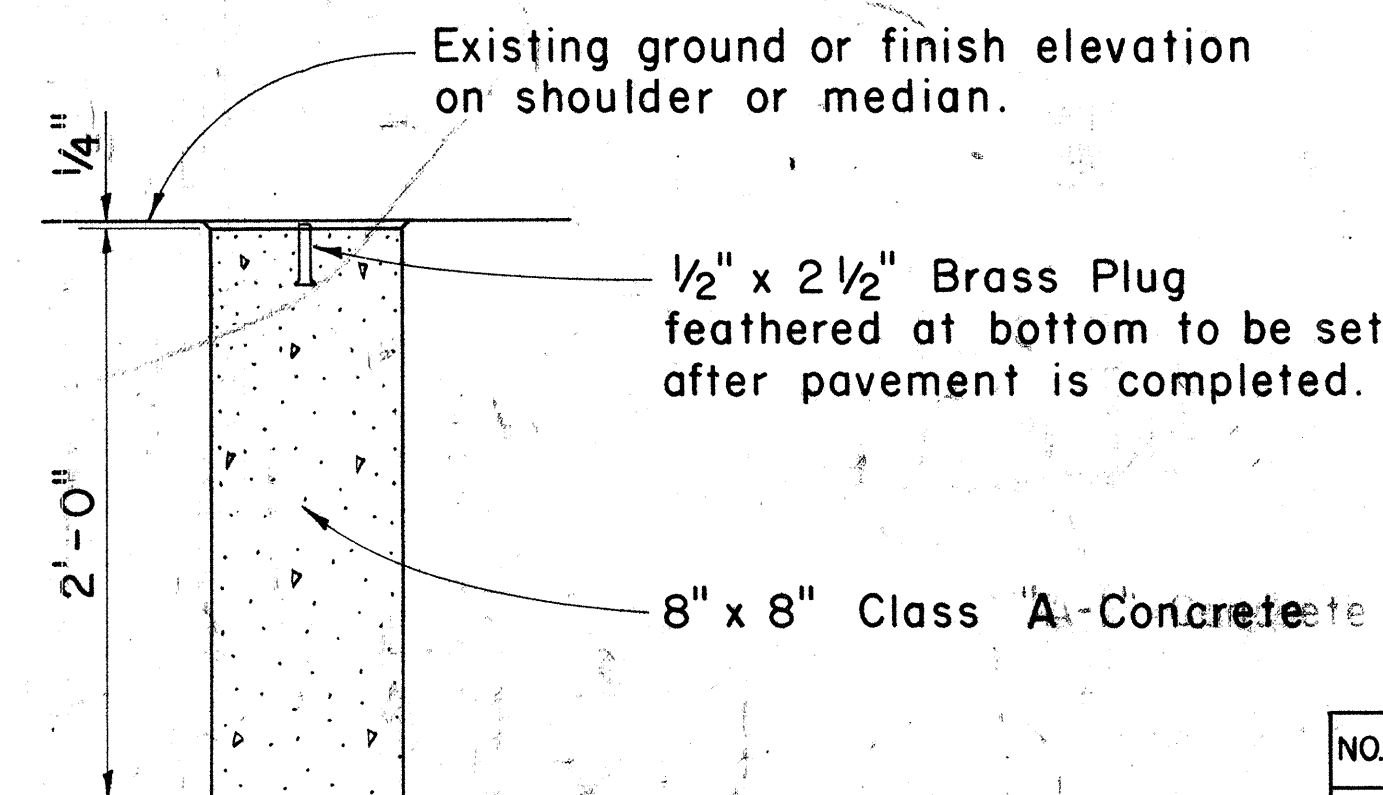
NOTE:
Where the excavation extends into solid rock the depth may be decreased if approved by the Engineer.

STREET SURVEY MONUMENT

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

DETAIL FOR AND REFERENCE SURVEY MONUMENT

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



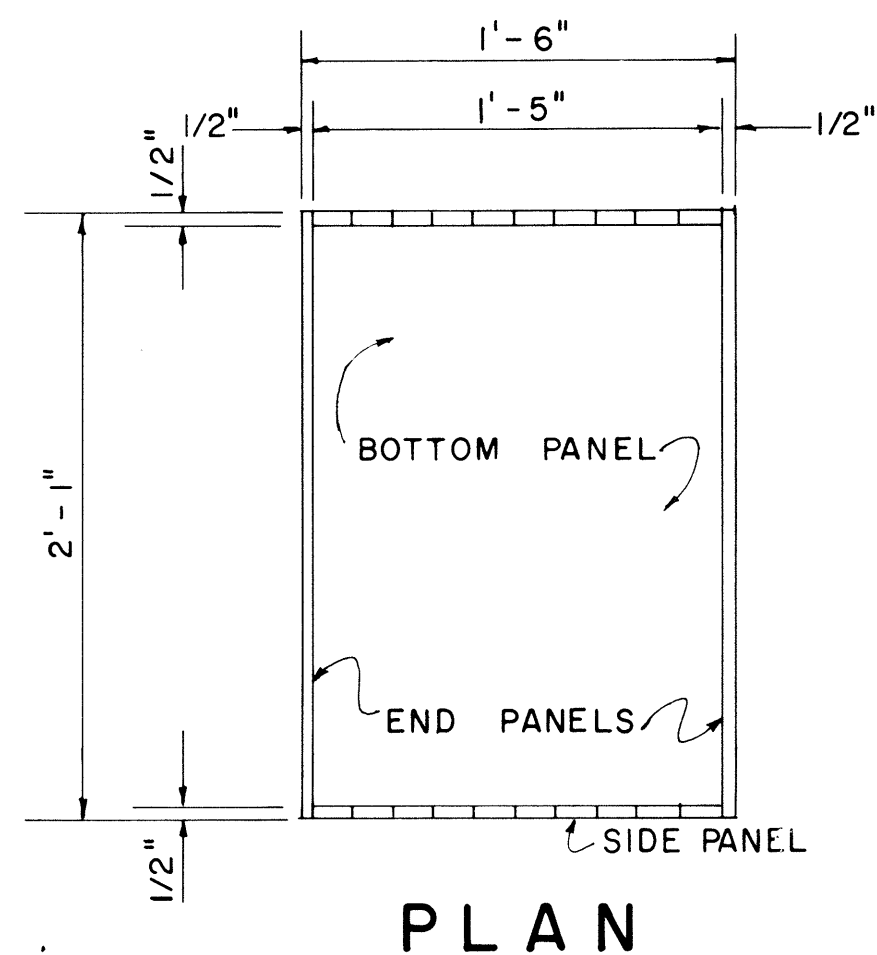
APPROVAL RECOMMENDED:
M. H. H. H.
HIGHWAY DESIGN ENGINEER
DATE: 12-1-69

APPROVED:
M. H. H. H.
ASSISTANT CHIEF, ENGINEERING
DATE: 12-10-69

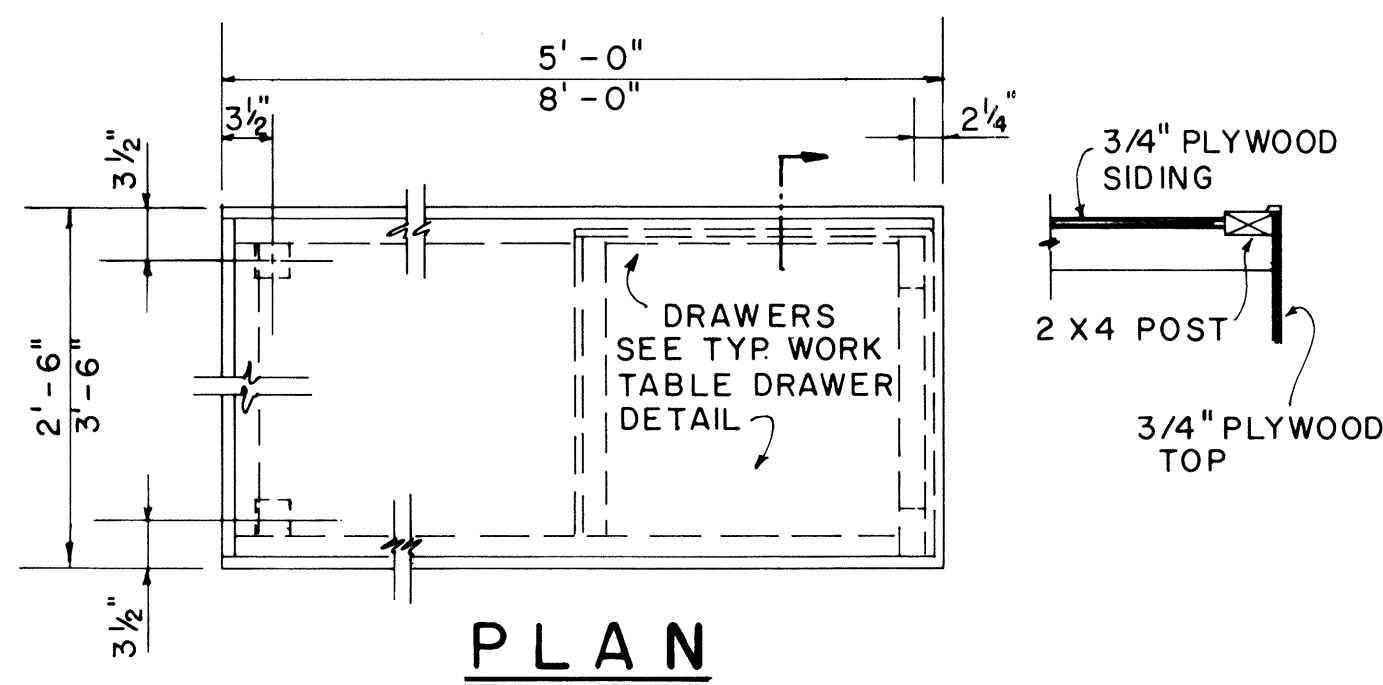
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION LAND TRANSPORTATION FACILITIES DIVISION STANDARD DETAILS CENTERLINE, REFERENCE SURVEY AND C & C STREET SURVEY MONUMENTS Scale: As Shown SHEET No. 610 OF 24 SHEETS DD 613
--

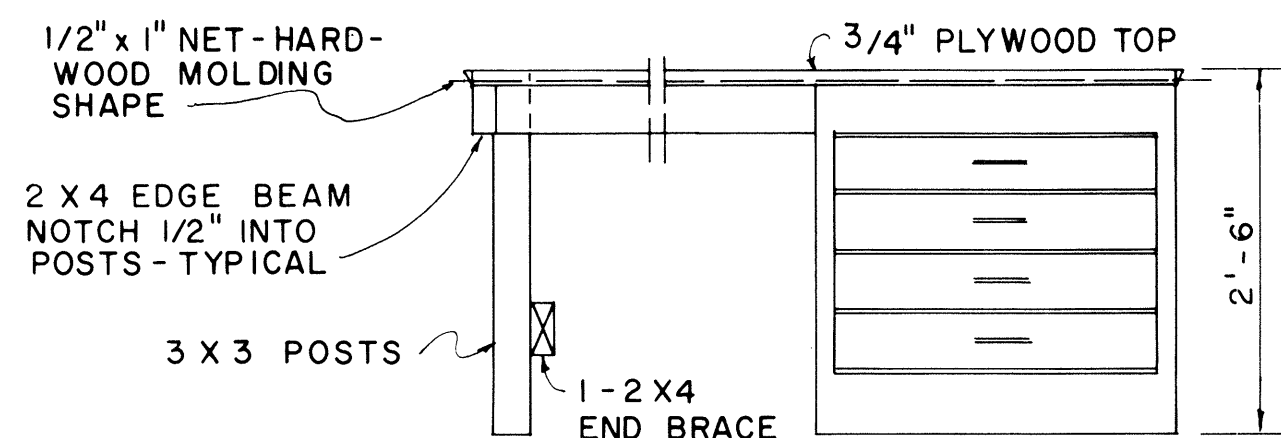
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	I-H-1(147)	1980	29	338



PLAN



PLAN

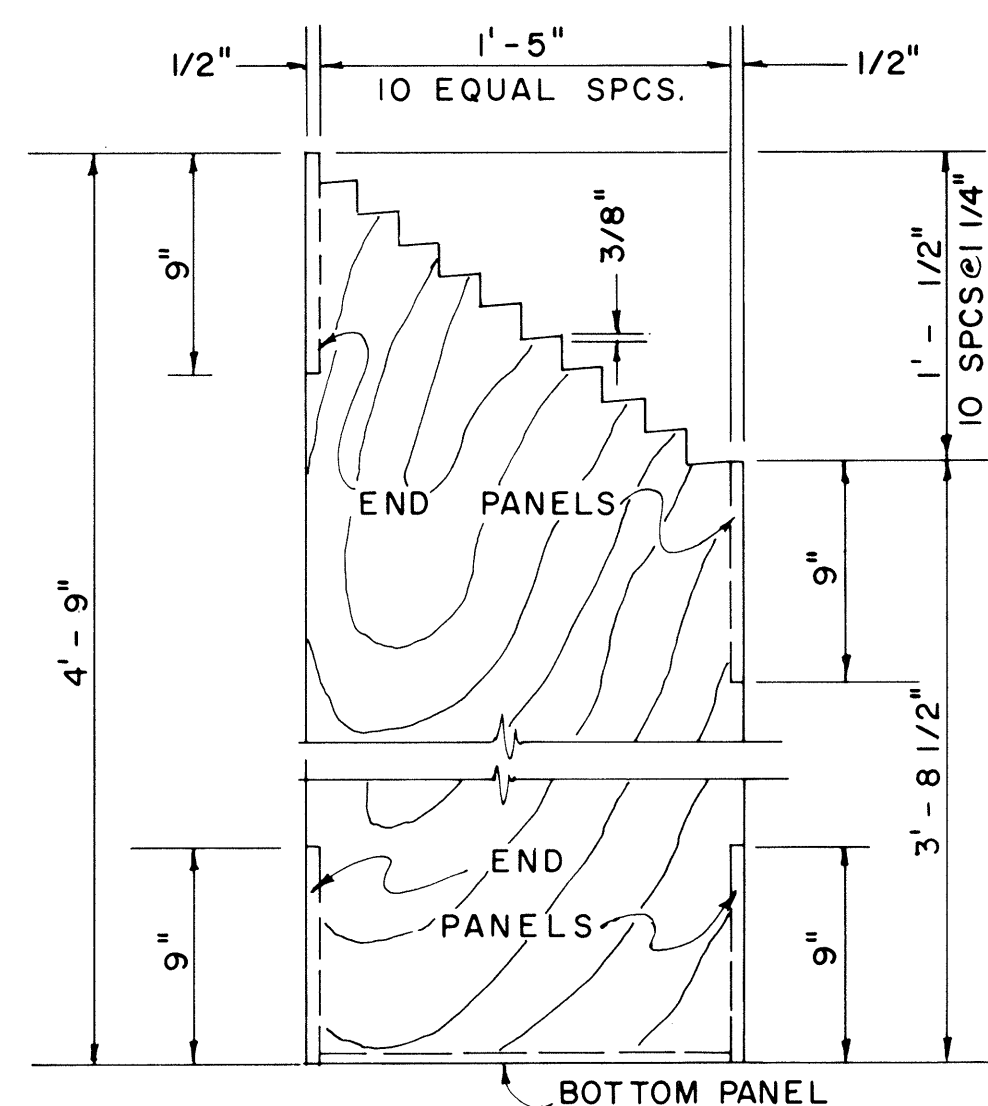


ELEVATION

2'-6" x 5'-0" 2 REQ'D.
3'-6" x 8'-0" 1 REQ'D
2'-6" x 8'-0" 1 REQ'D

PORTABLE WORK
TABLE DETAIL

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

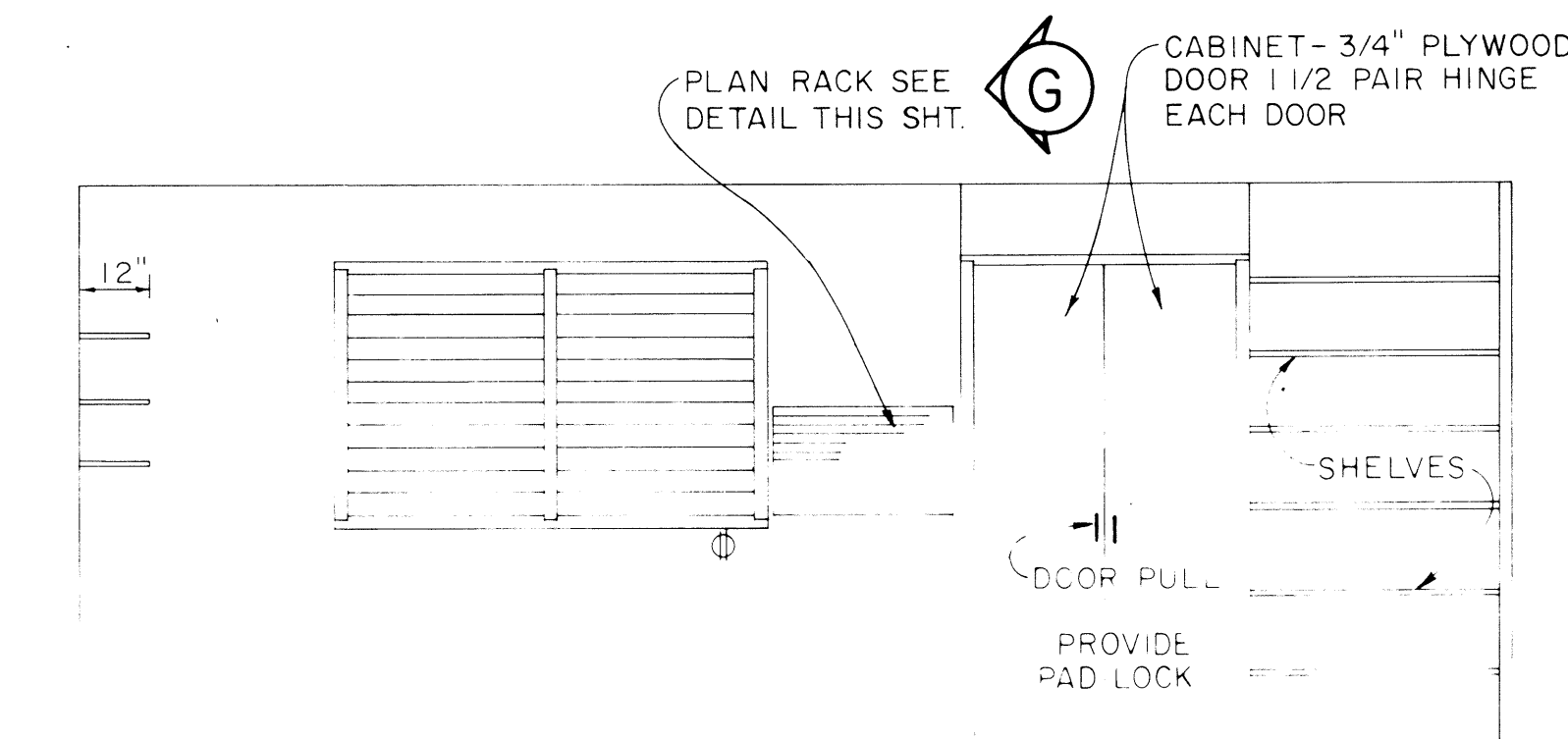


END ELEVATION

PLAN RACK DETAIL

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

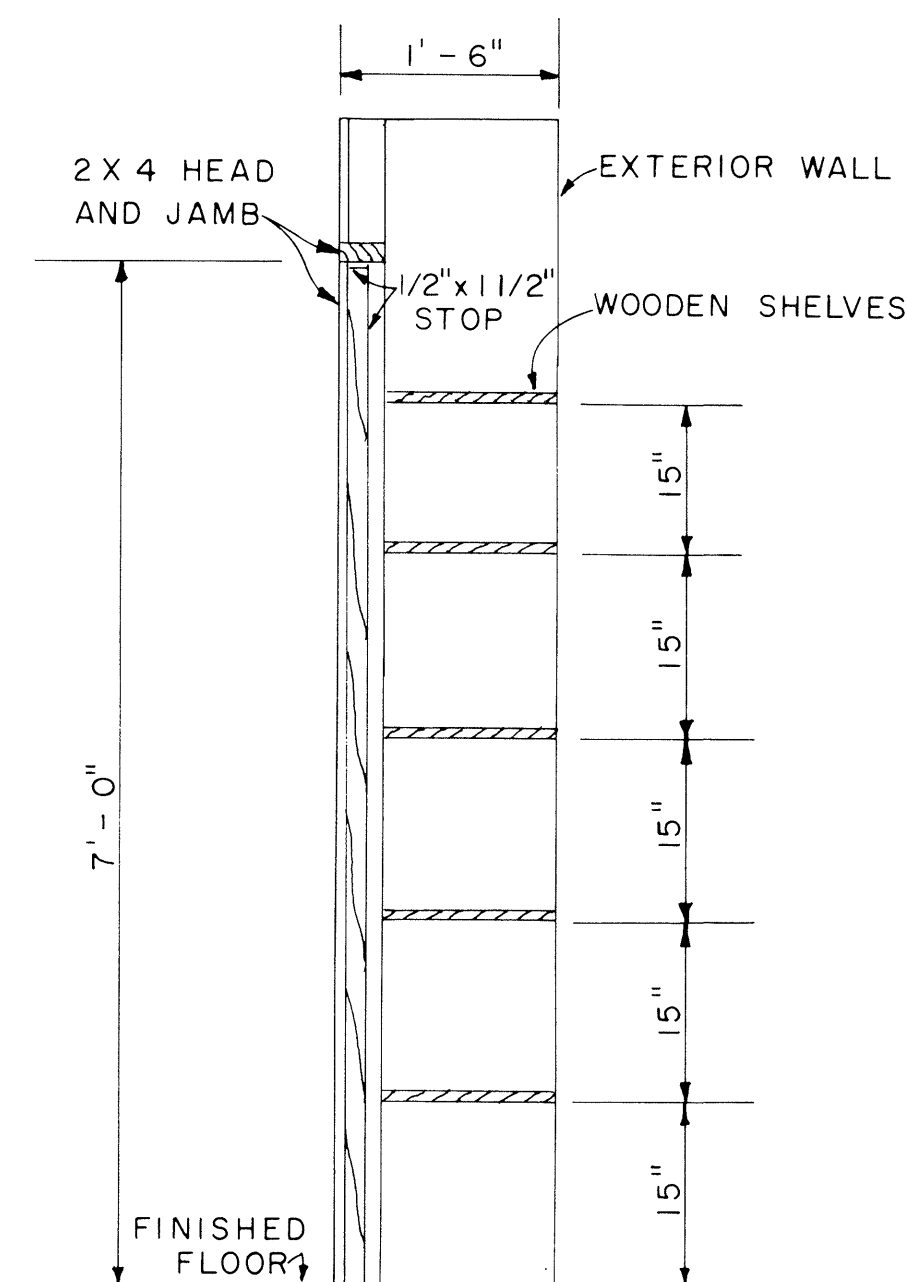
(ONE REQUIRED)



ELEVATION

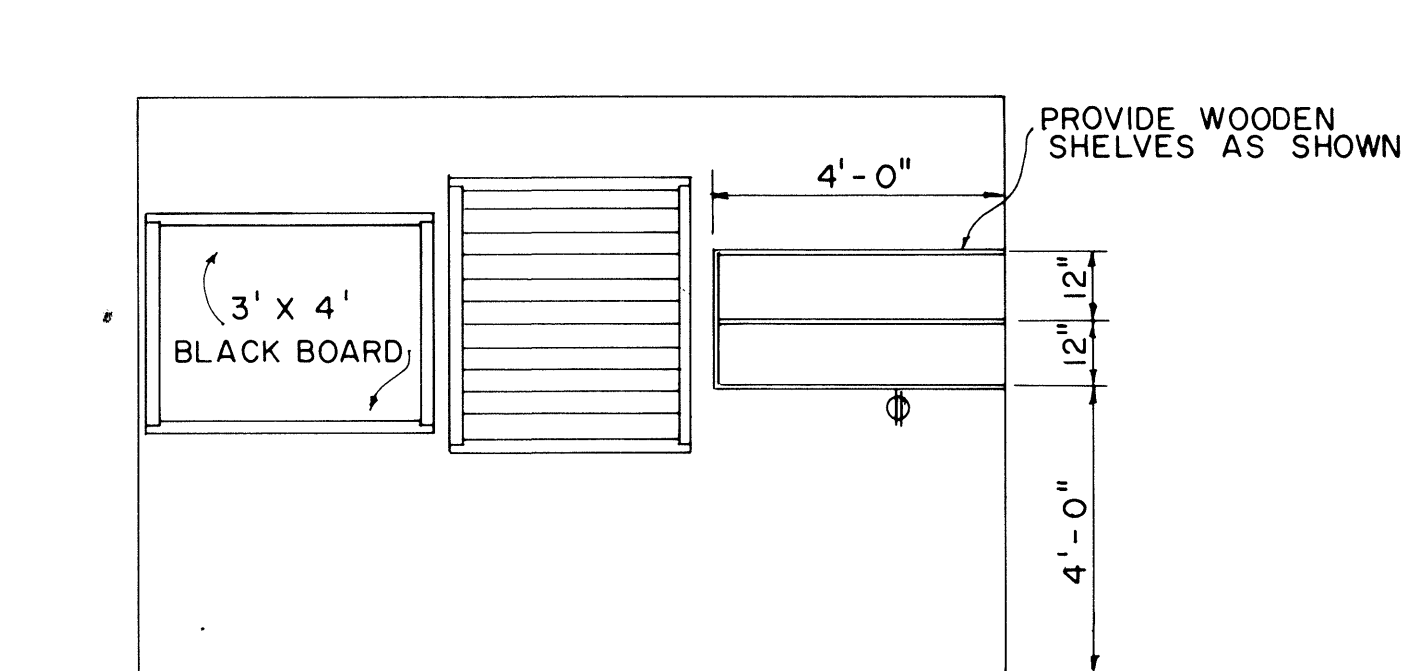
SCALE 3/8" = 1'-0"

(A1)



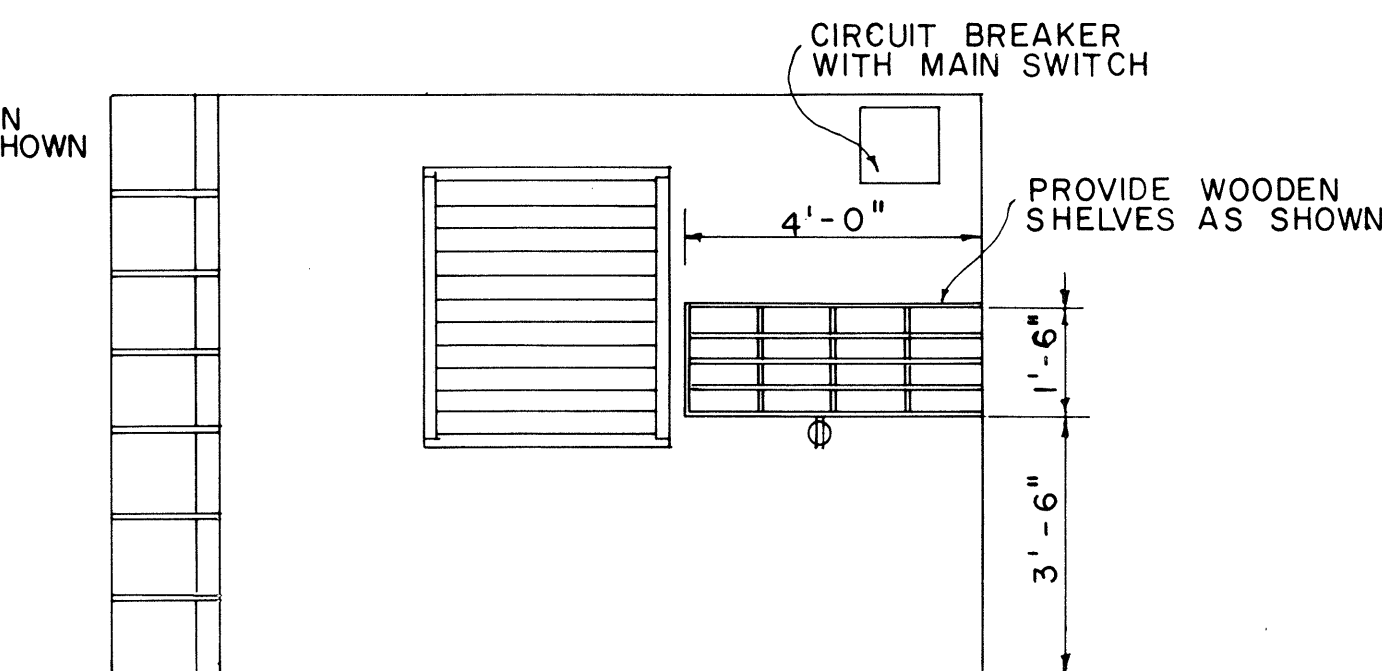
SECTION G

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



ELEVATION D1

SCALE: 3/8" = 1'-0"



ELEVATION B1

SCALE: 3/8" = 1'-0"

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

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

NO.	REVISION	APPROVED BY	DATE

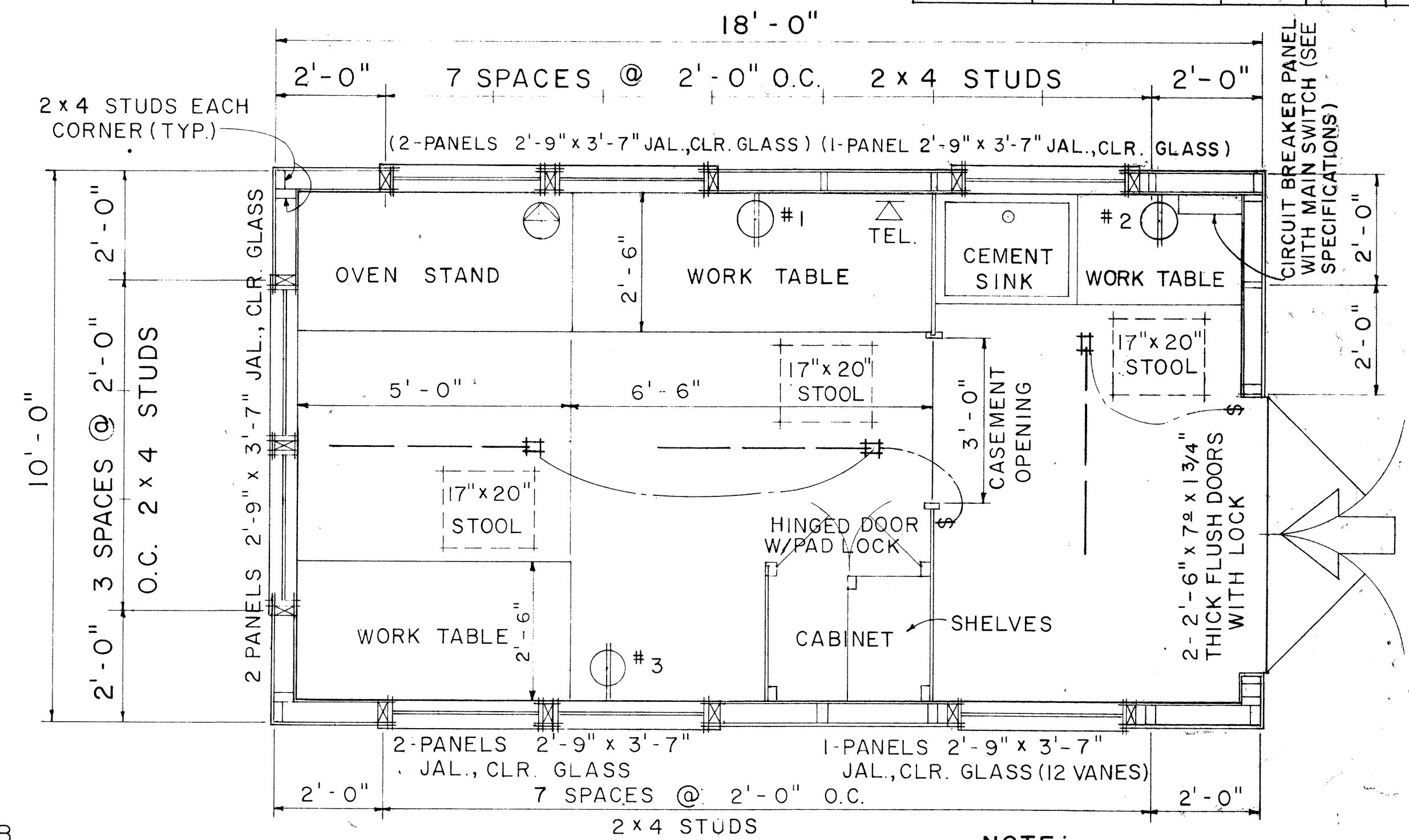
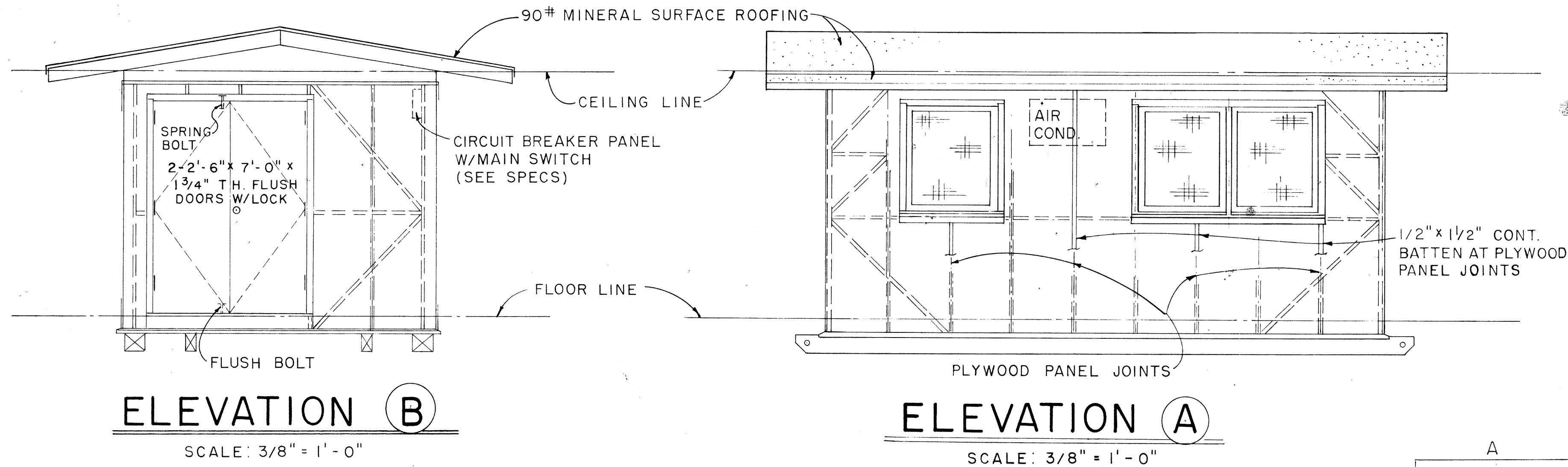
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

FIELD OFFICE

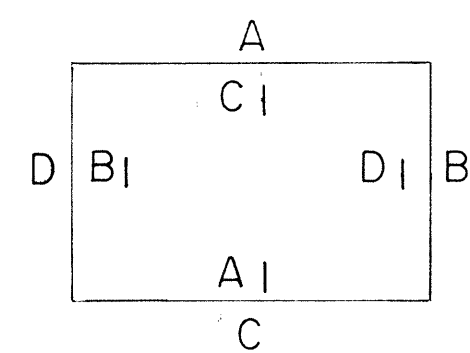
Scale: As Noted

SHEET No.C-12 OF 24 SHEETS DD 636.2

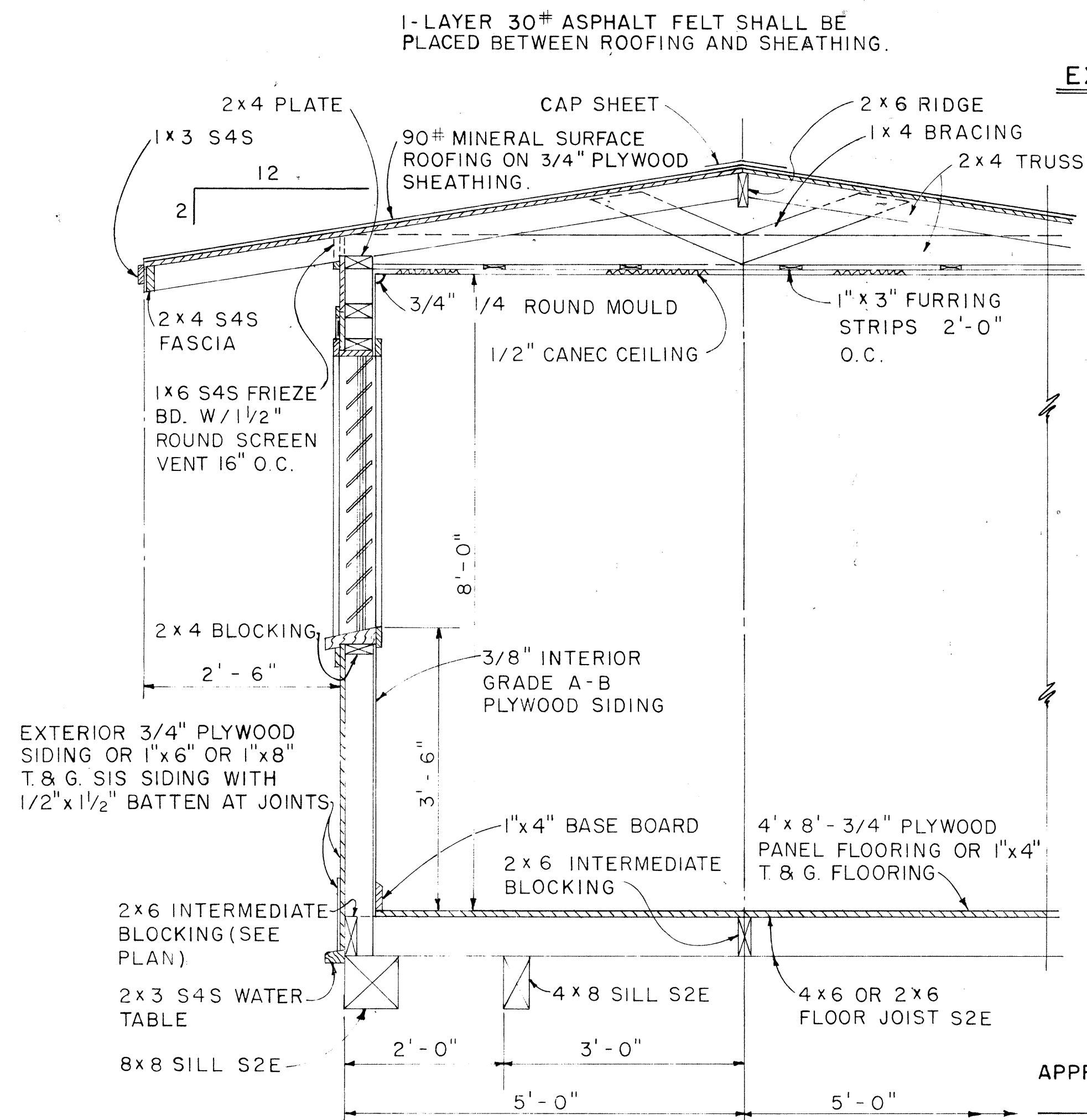
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(47):17	1980	30	338



- NOTE:
1. FLUORESCENT FIXTURE SHALL BE 48", 2 LAMP, 40 WATT, RAPID START.
 2. TELEPHONE AND WALL OUTLET 4'-0" ABOVE FLOOR.



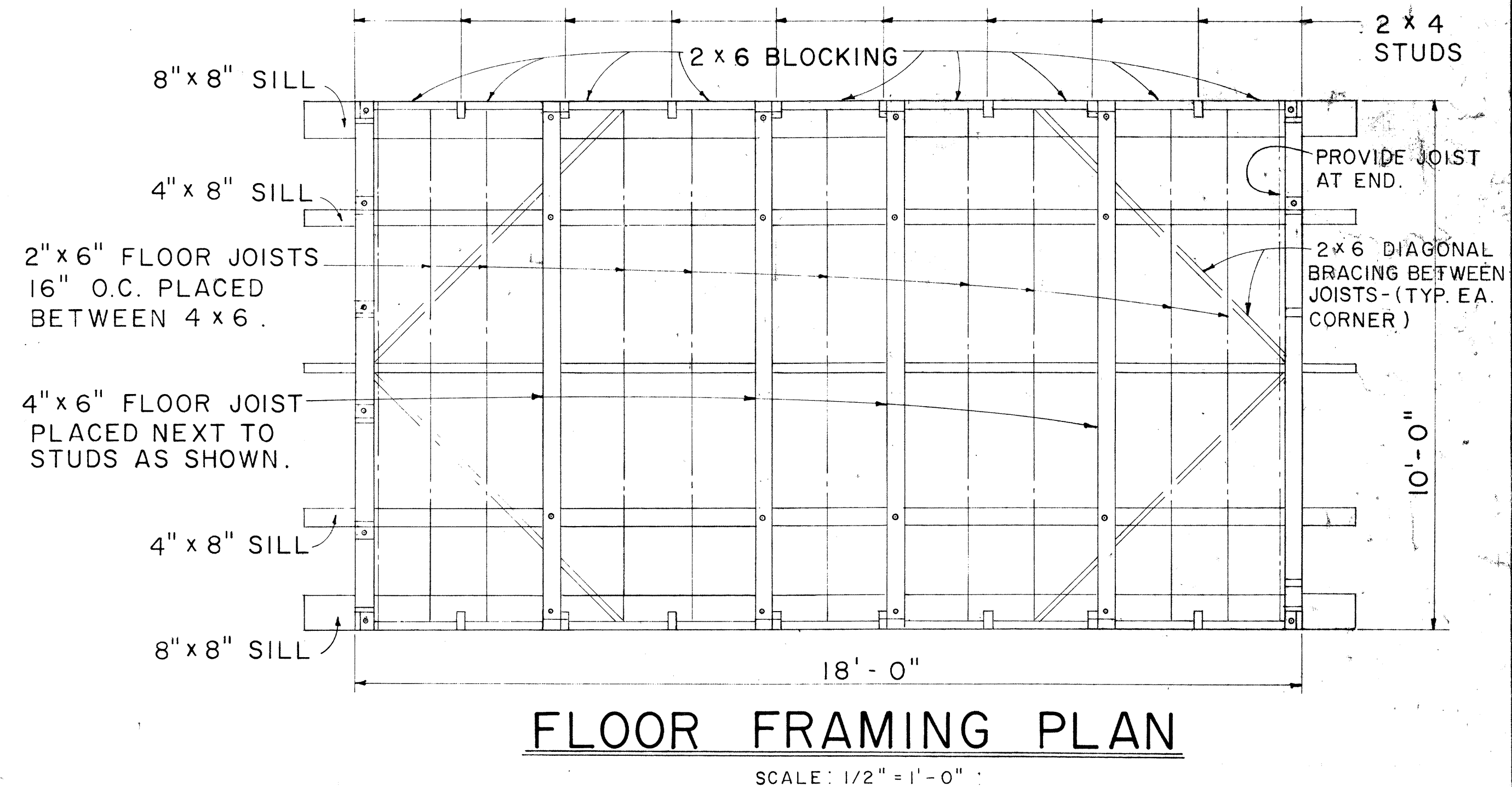
EXTERIOR & INTERIOR KEY



NOTE:
ALL 3/4" PLYWOOD SHALL BE EXTERIOR GRADE A-C OR BETTER.

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

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



NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

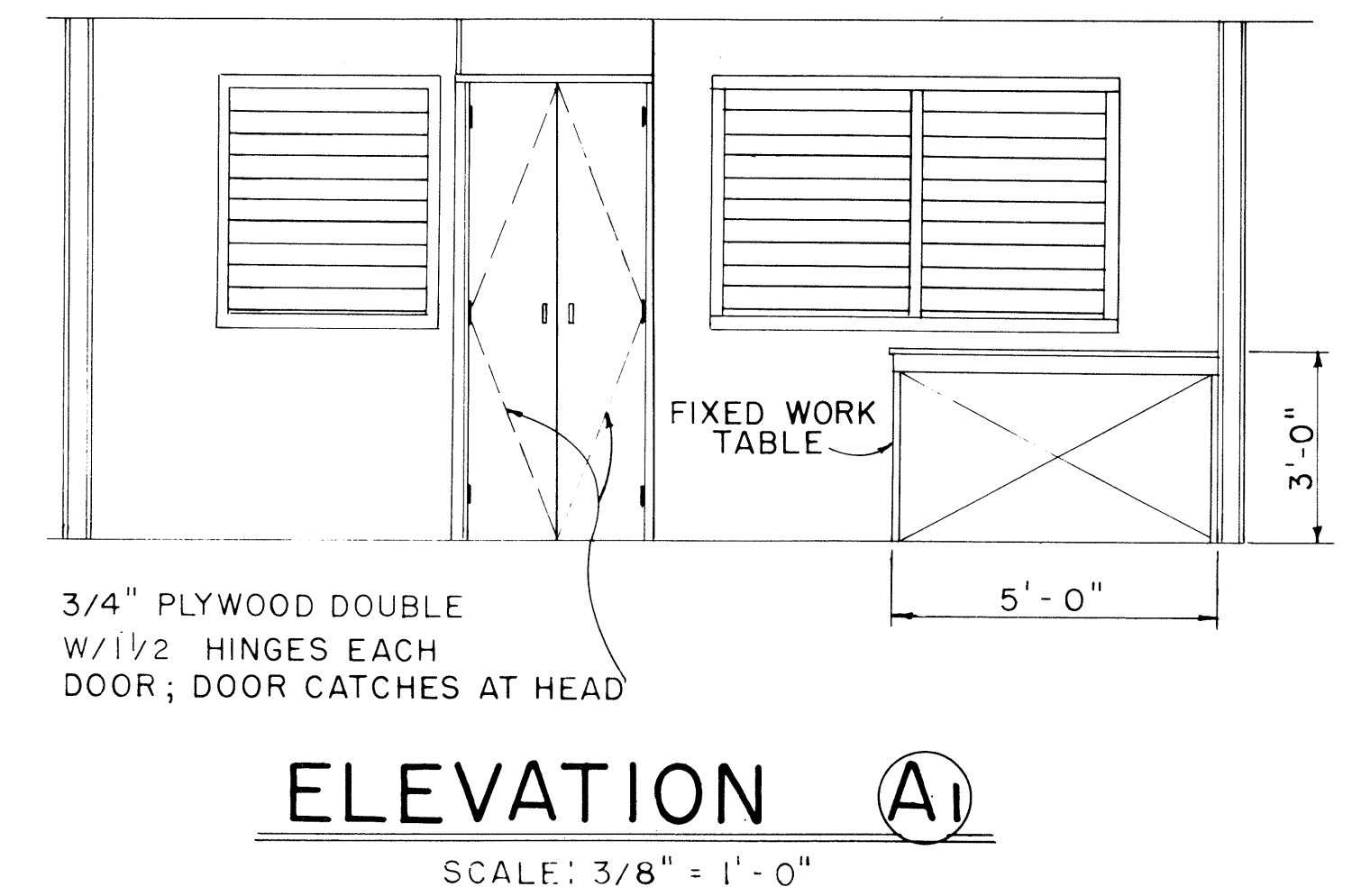
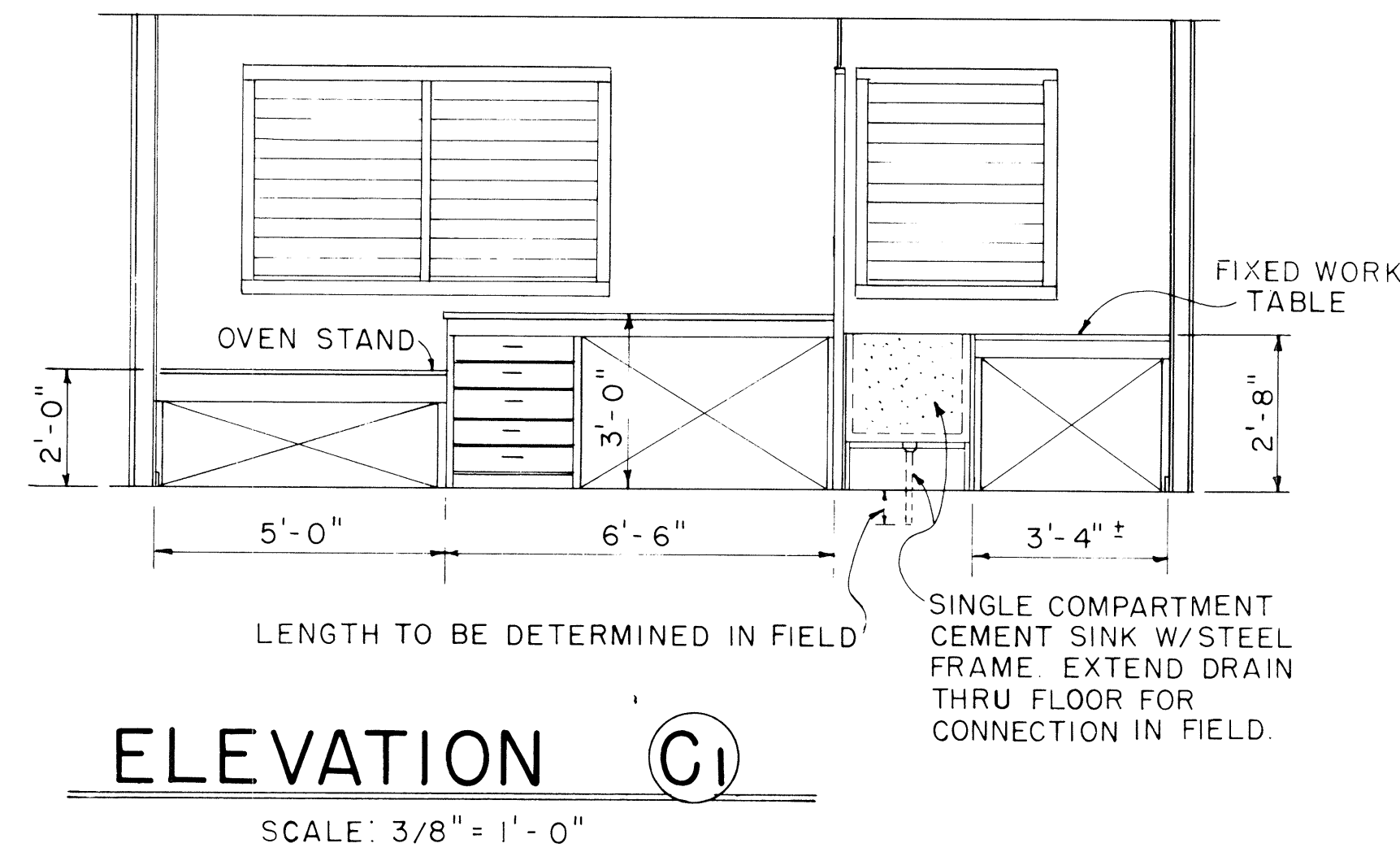
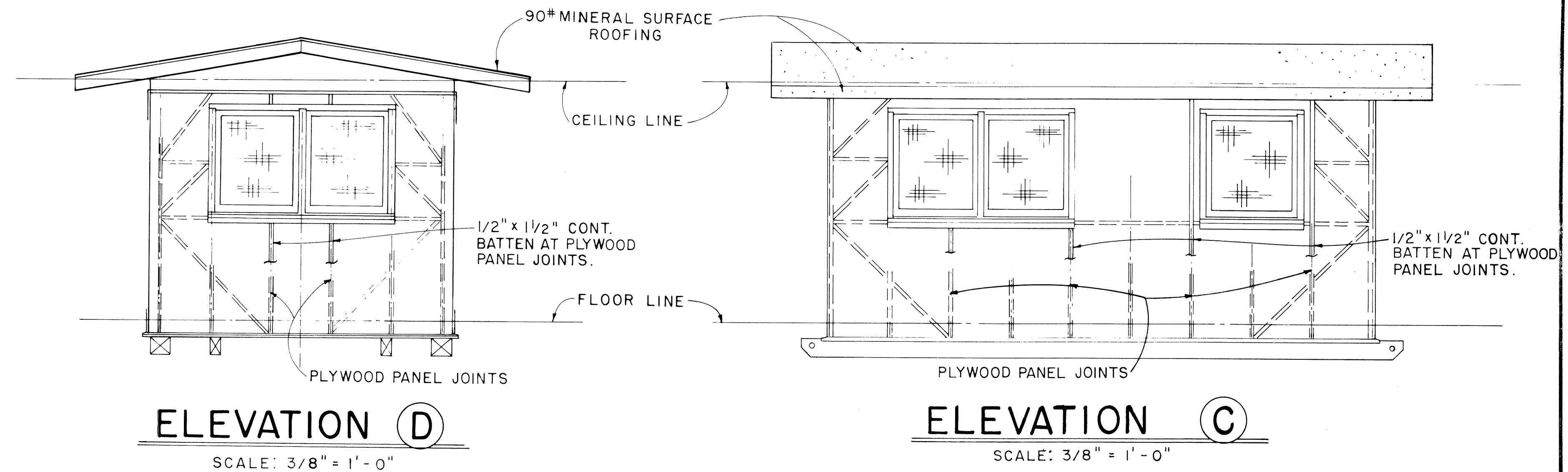
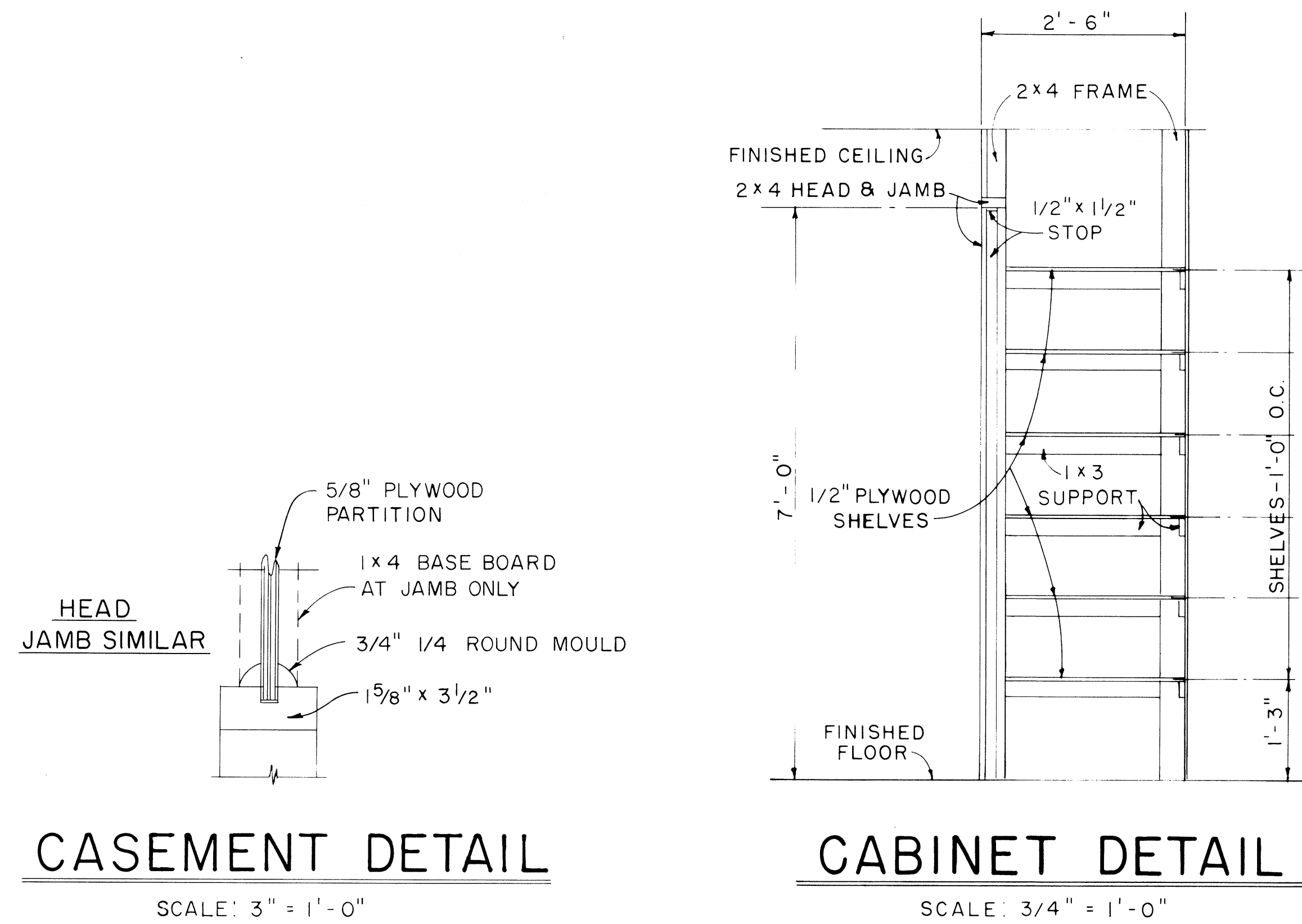
PROJECT SITE LABORATORY

Scale: As Noted

SHEET No. 30 OF 24 SHEETS DD 636.3

DATE	
SURVEY PLOTTED BY	
PLAN BY	
DESIGNED BY	
QUANTITIES 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.	I-HH(147)17	1980	31	338



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

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

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

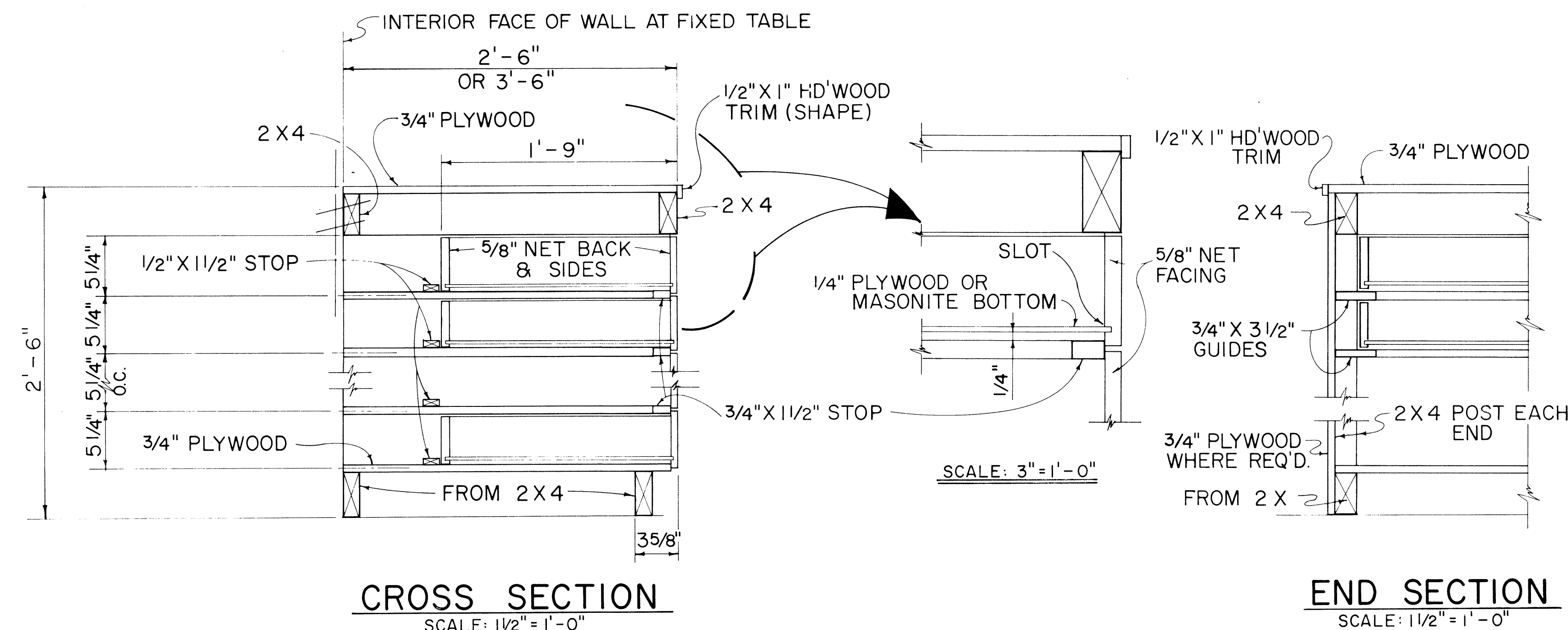
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

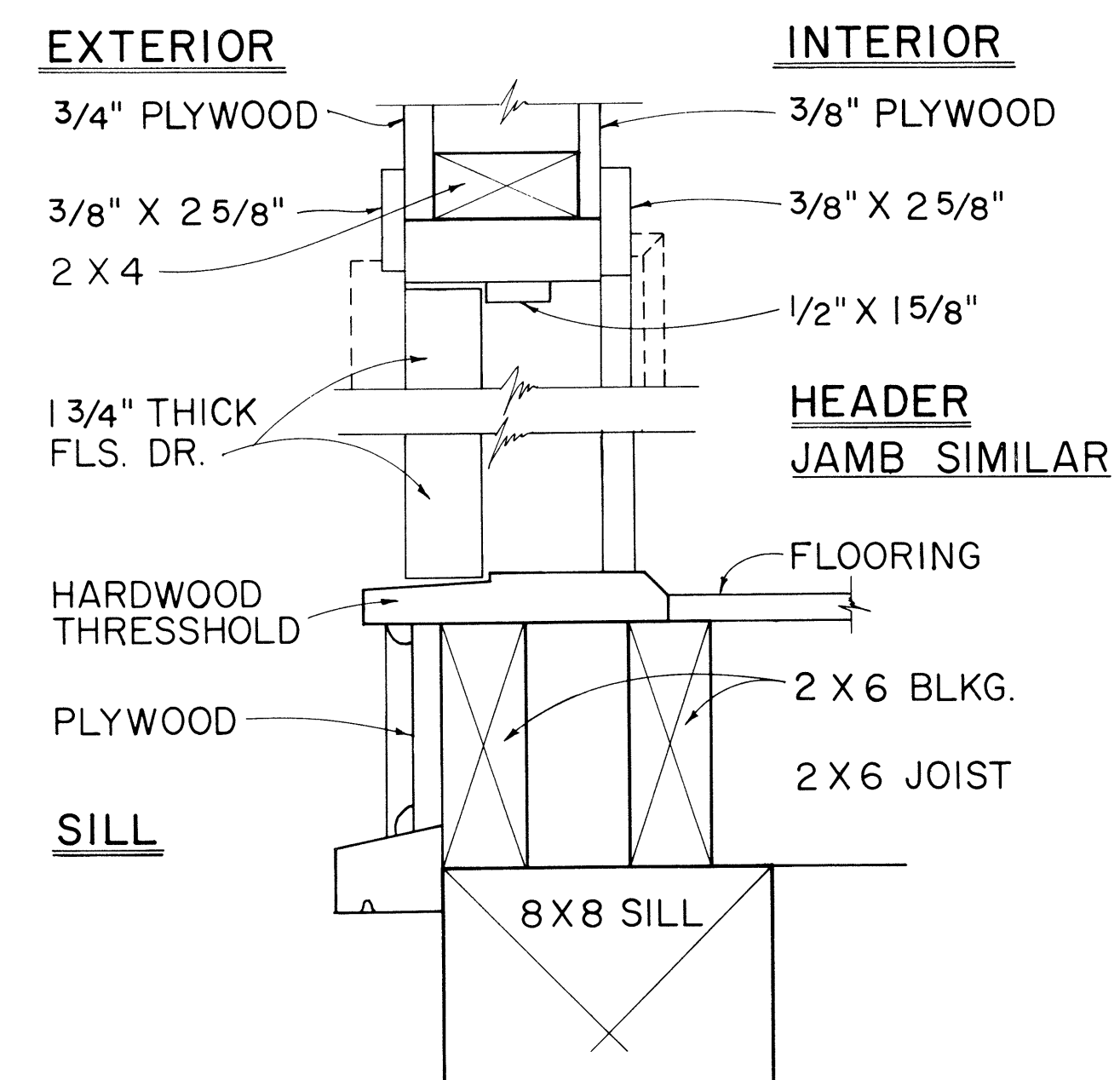
PROJECT SITE LABORATORY

Scale: As Noted

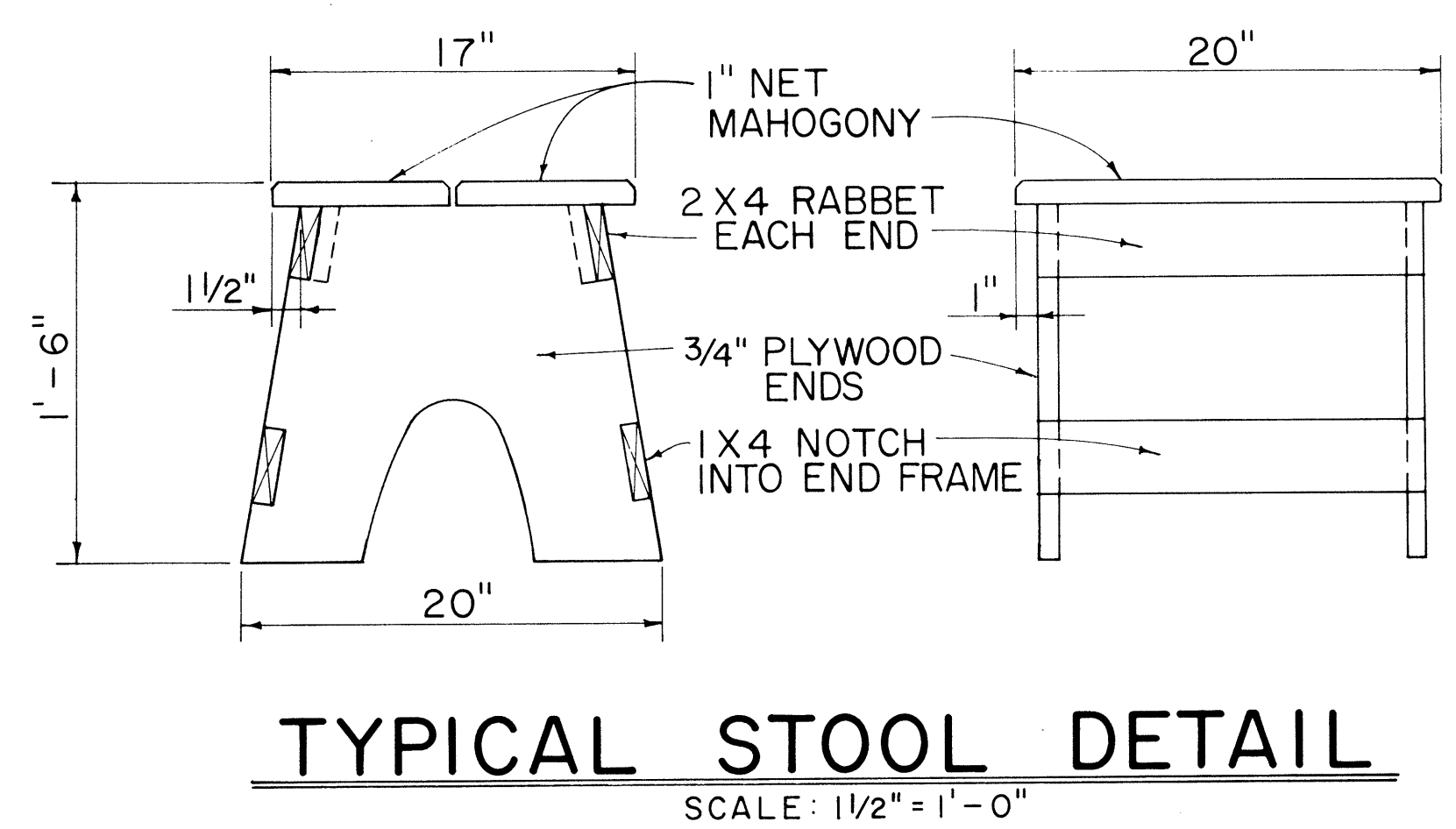
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	I-HI-1(147)-17	1980	32	338



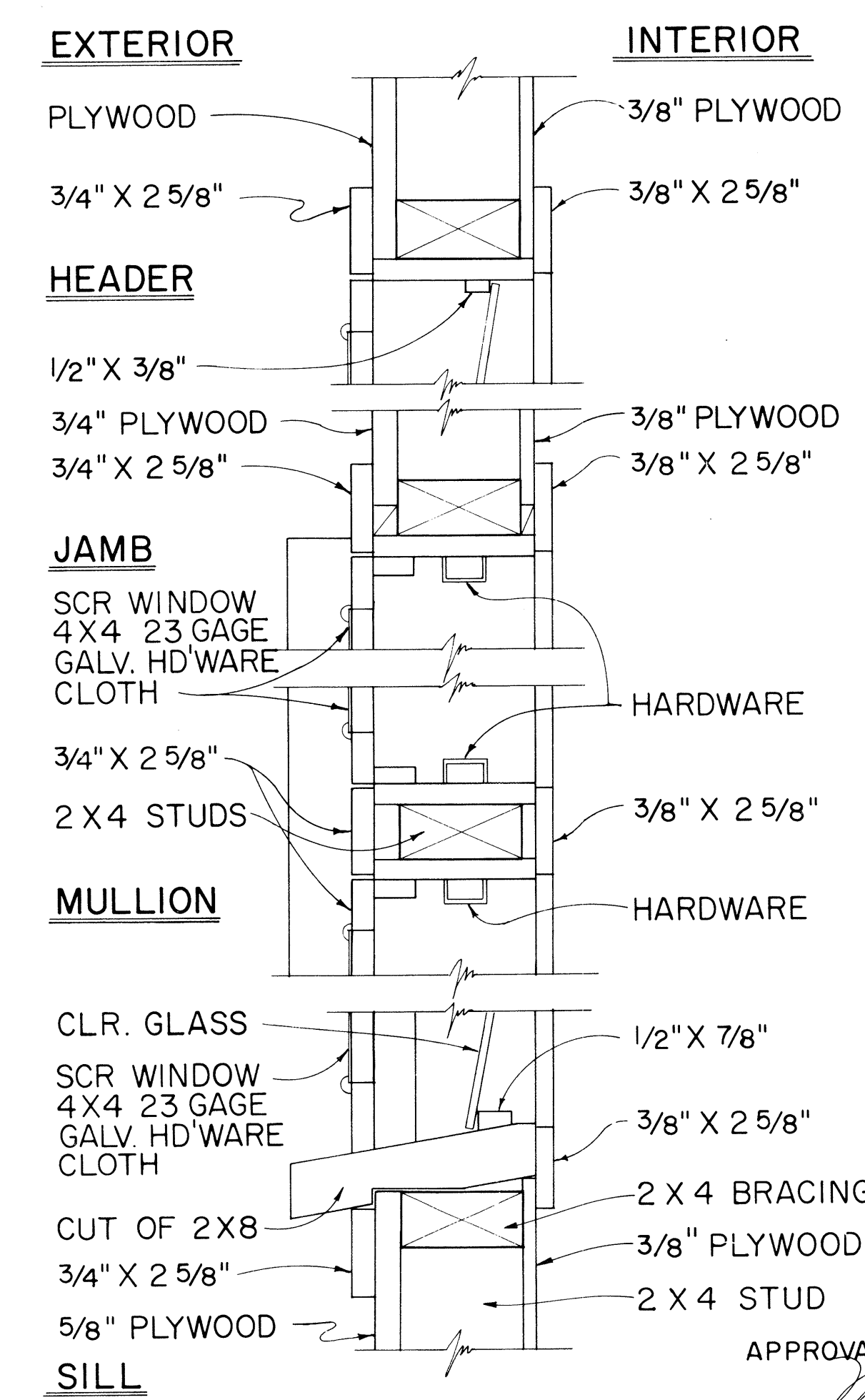
TYPICAL WORK TABLE DRAWER DETAIL



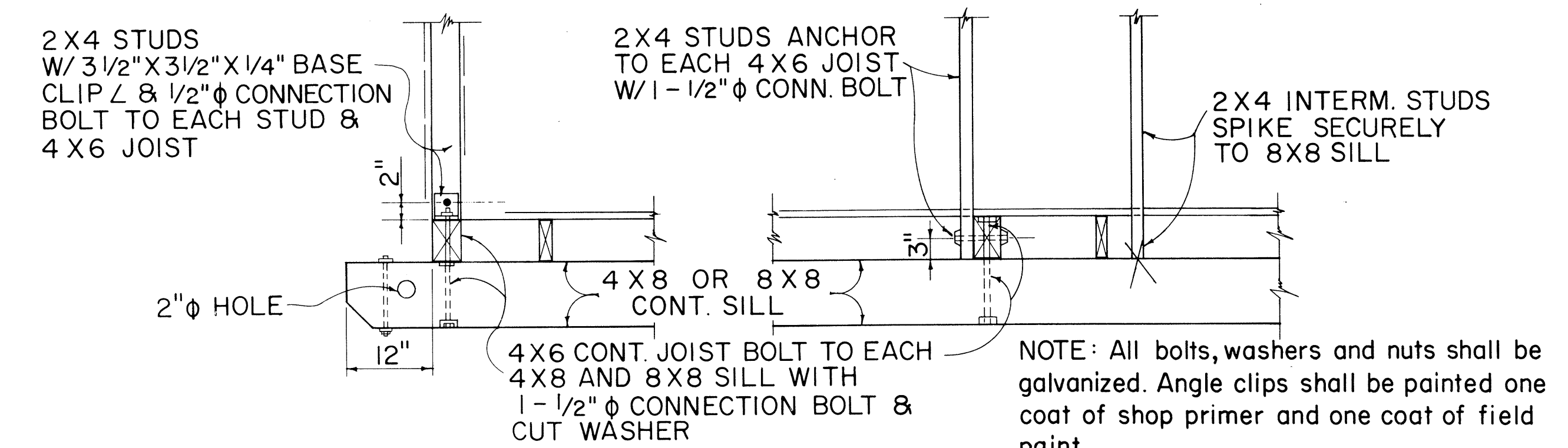
TYP. SWING OUT DOOR
TYPICAL SINGLE OR DOUBLE EXTERIOR DOOR DETAIL



NOTE: CONTRACTOR MAY WITH THE APPROVAL OF THE ENGINEER FURNISH THE FIELD OFFICE OR PROJECT SITE LABORATORY WITH STOOLS OTHER THAN THE TYPE SHOWN IN THE DETAIL.



TYPICAL DETAIL JALOUSIES WINDOWS



TYPICAL 2 X 4 STUD & 4 X 6 FLOOR JOIST BASE CONNECTION DETAILS

ORIGINAL PLAN	DATE
NOTED BY	
CHECKED BY	
QUANTITIES BY	
REVISIONS BY	
DATE	

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

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

NO.	REVISION	APPROVED BY	DATE

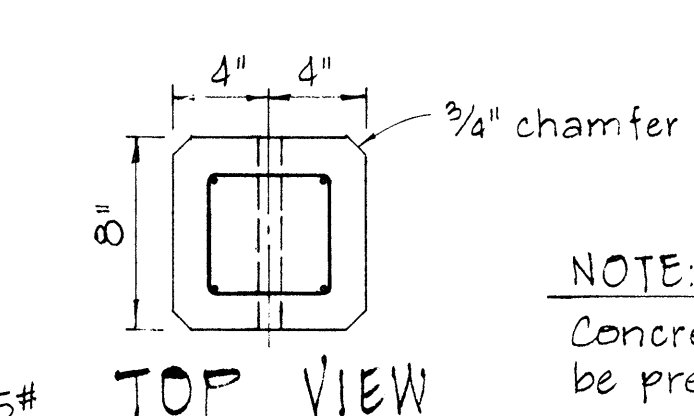
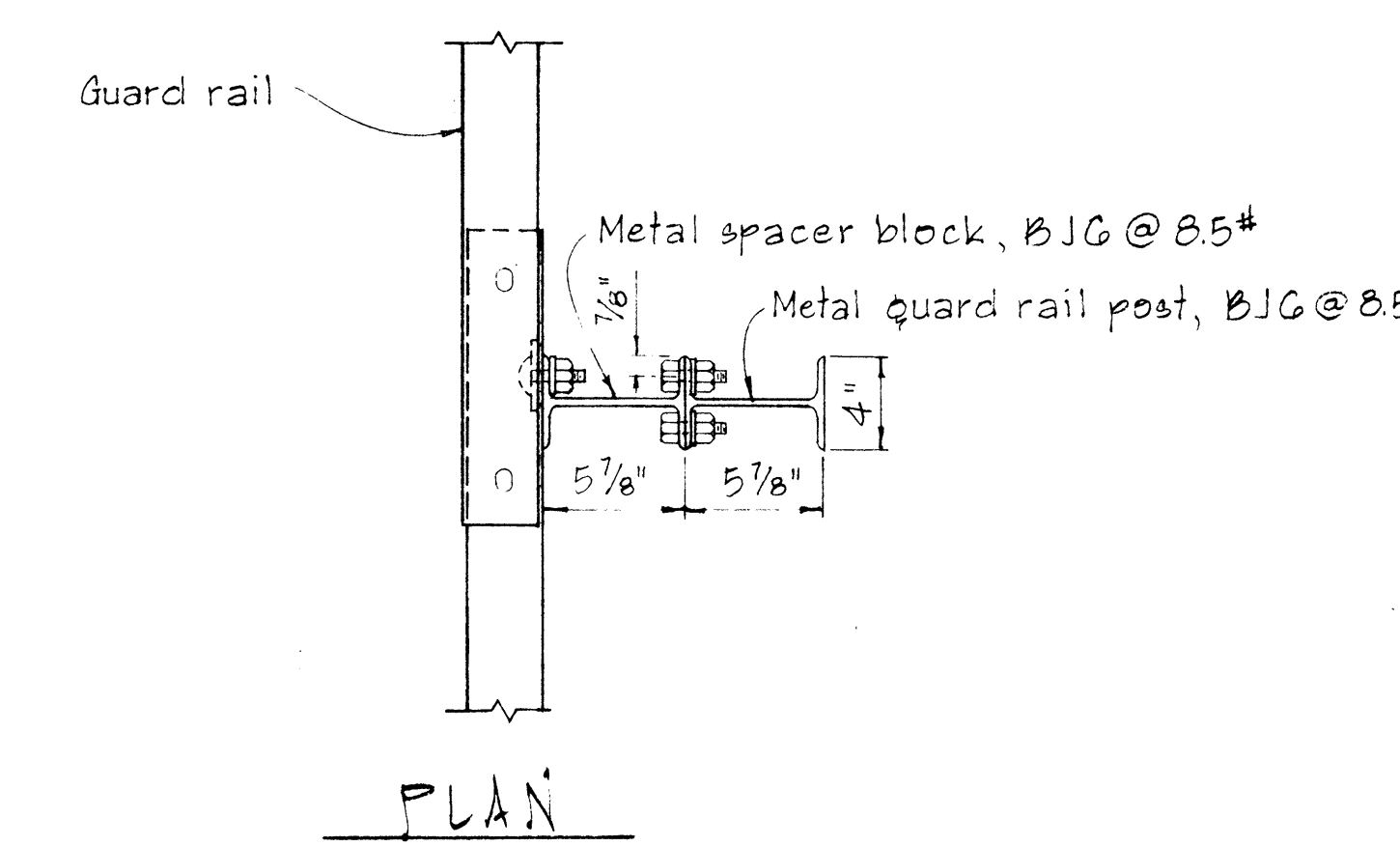
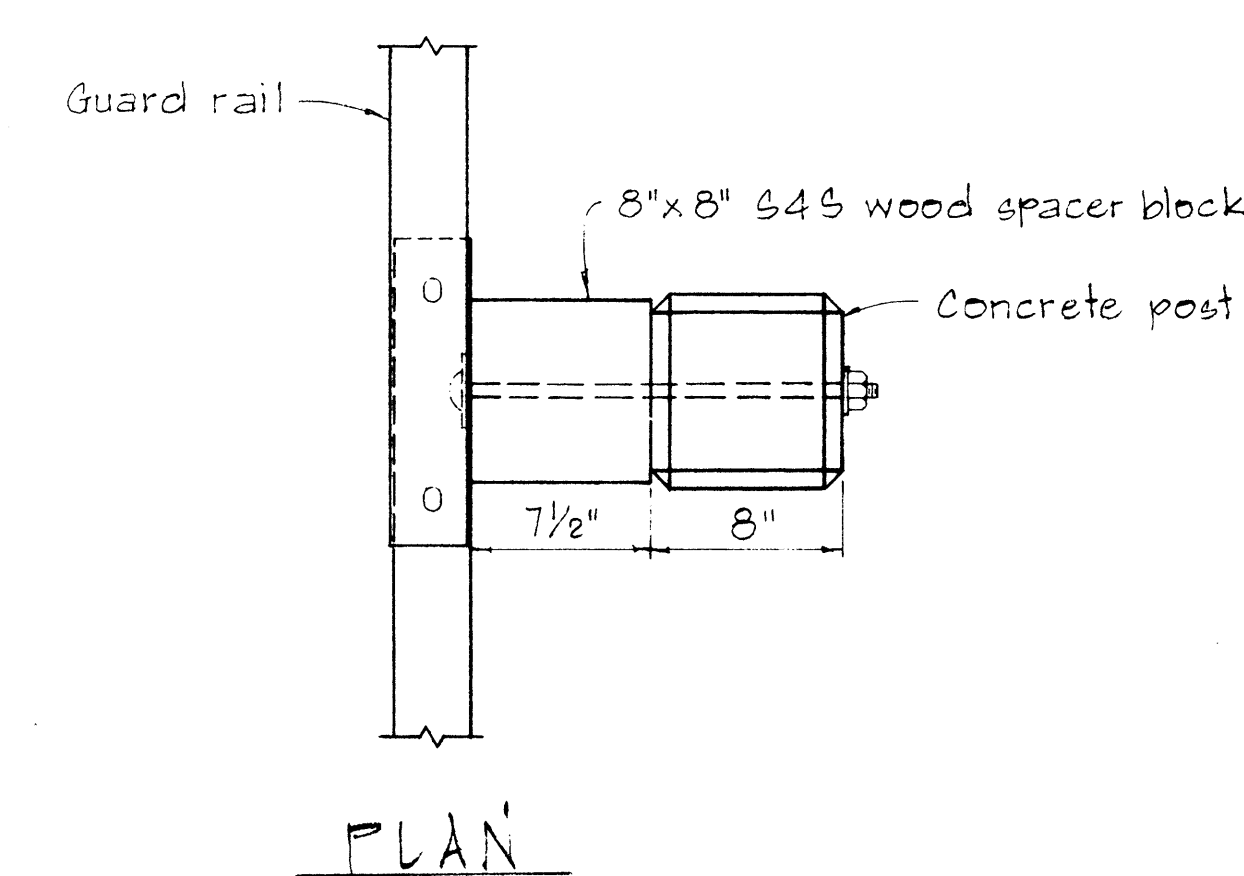
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

FIELD OFFICE
&
PROJECT SITE LABORATORY

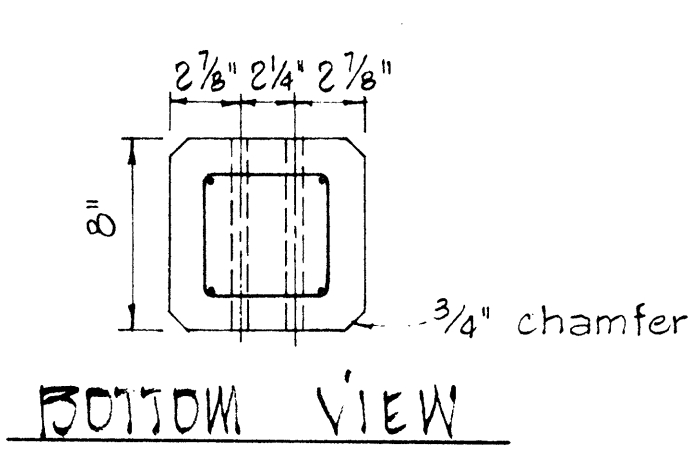
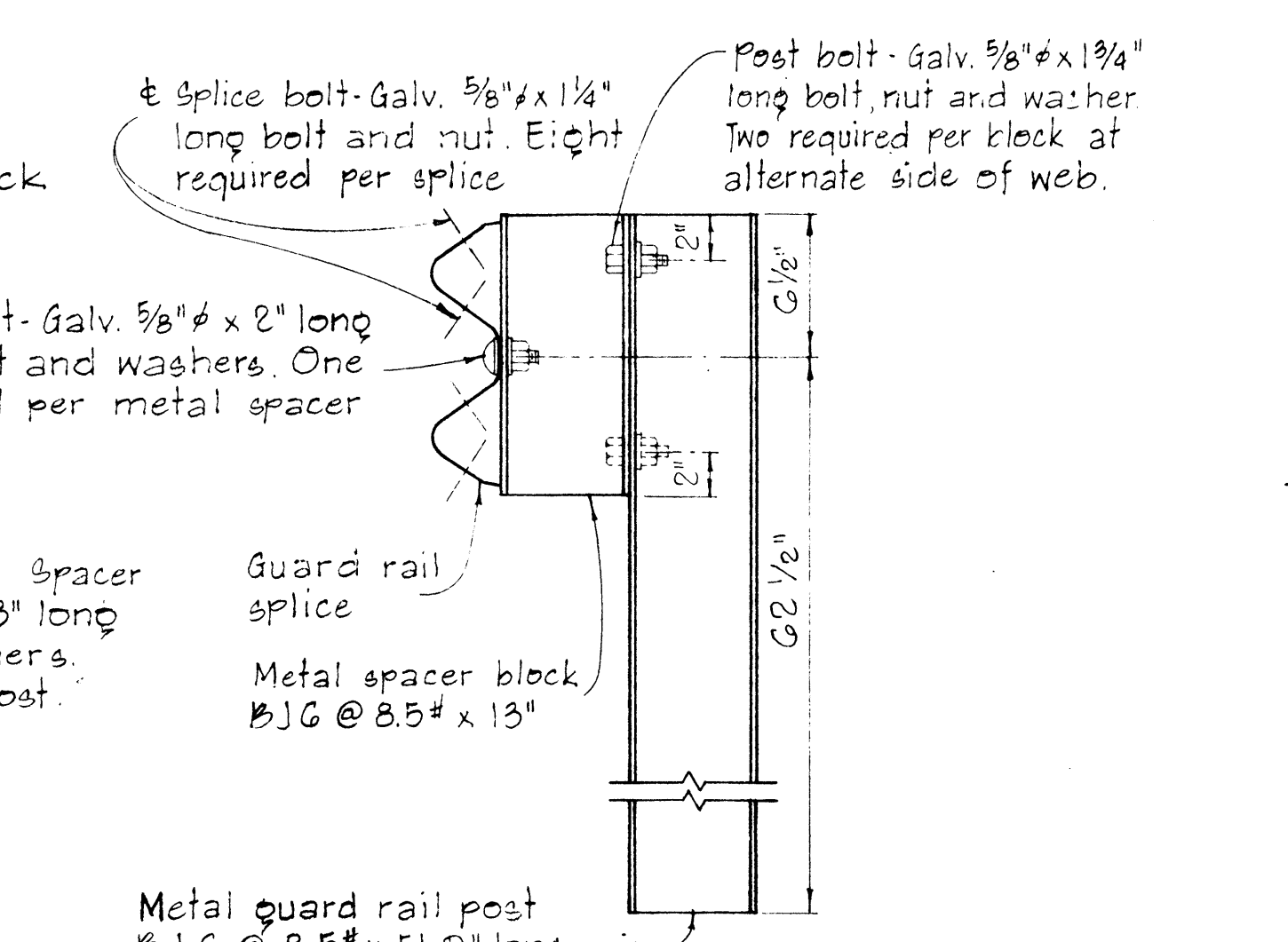
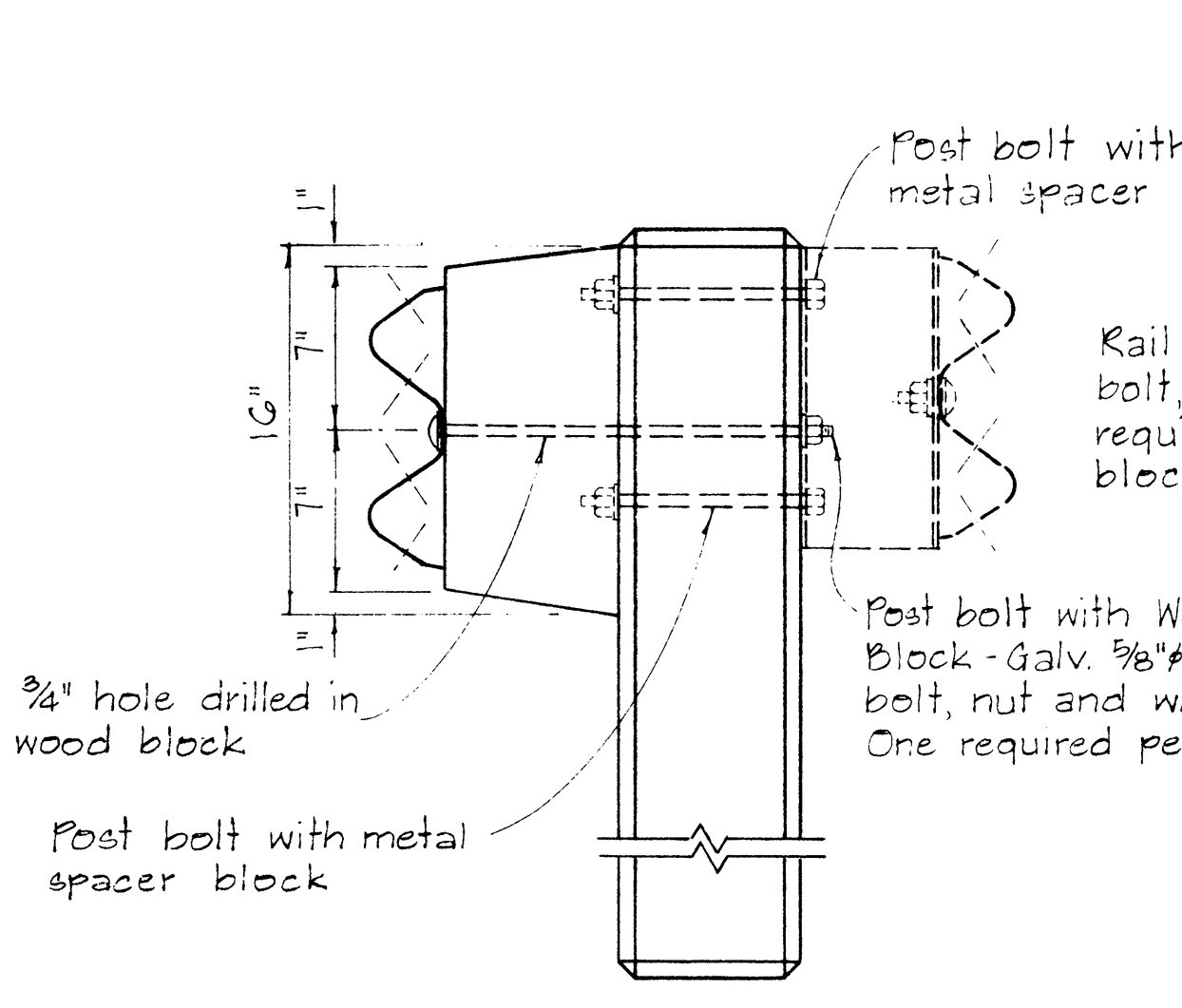
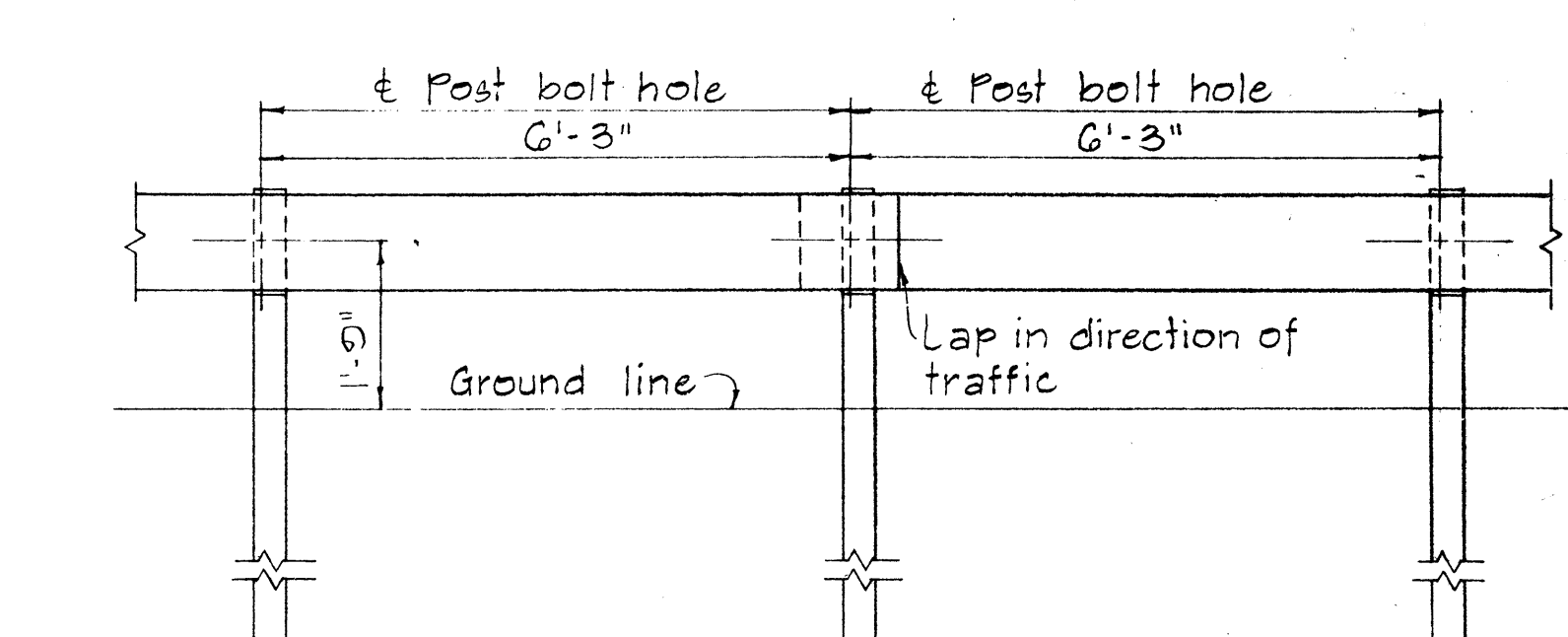
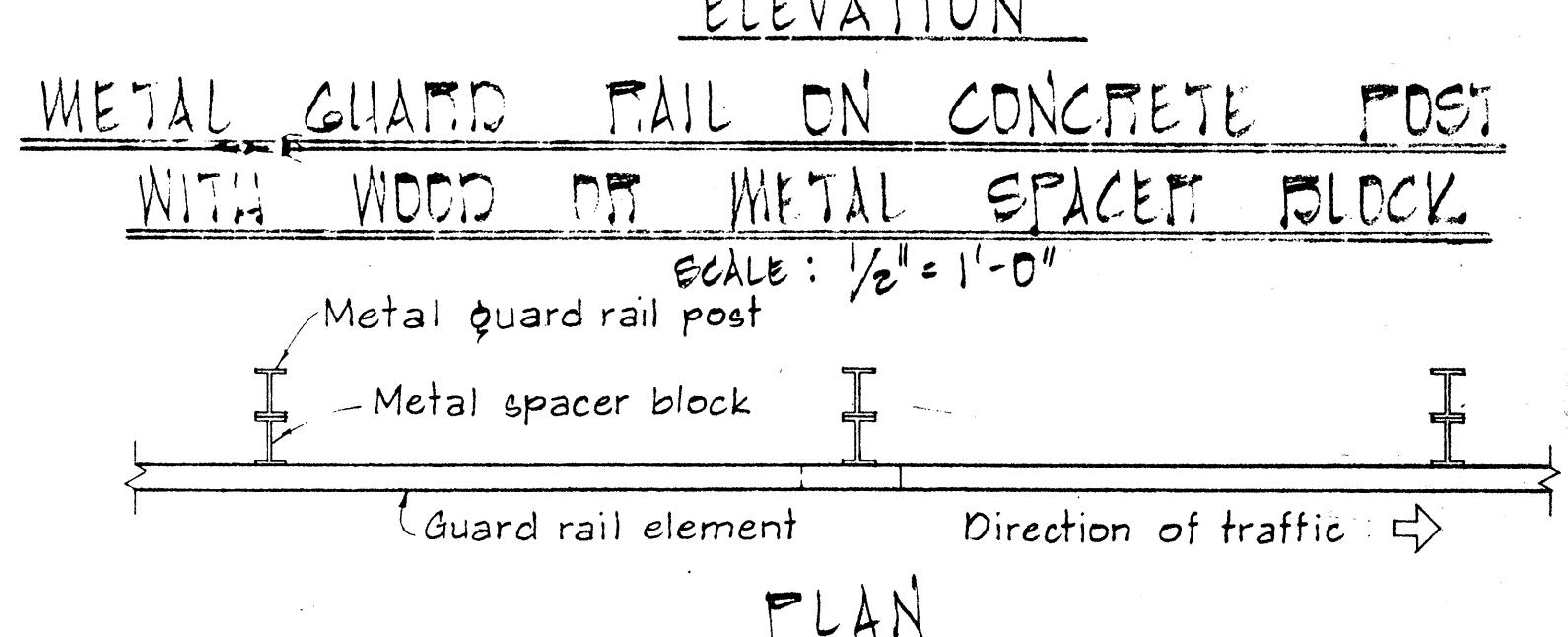
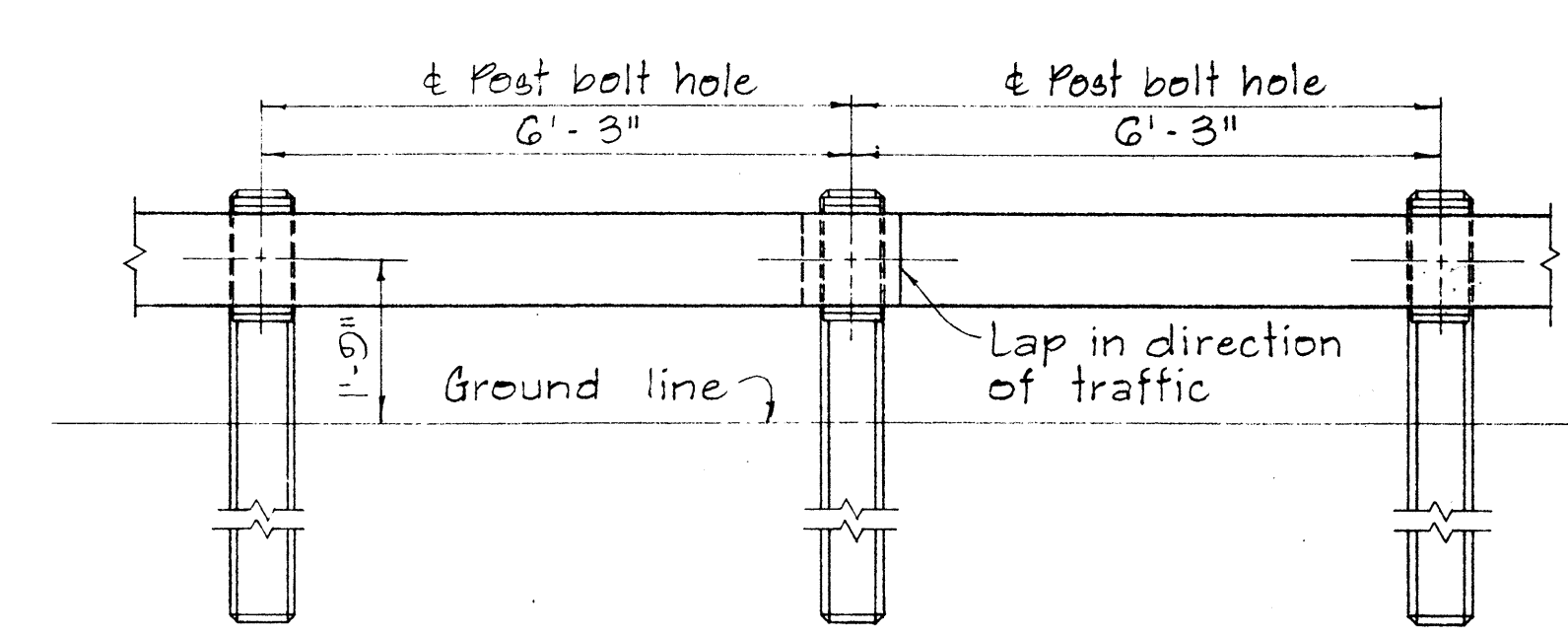
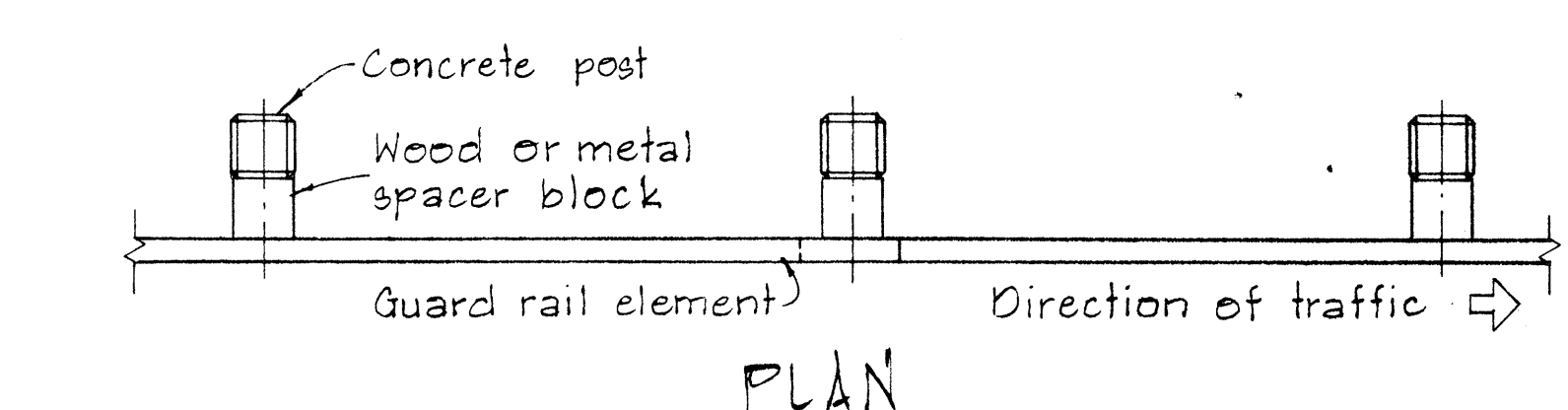
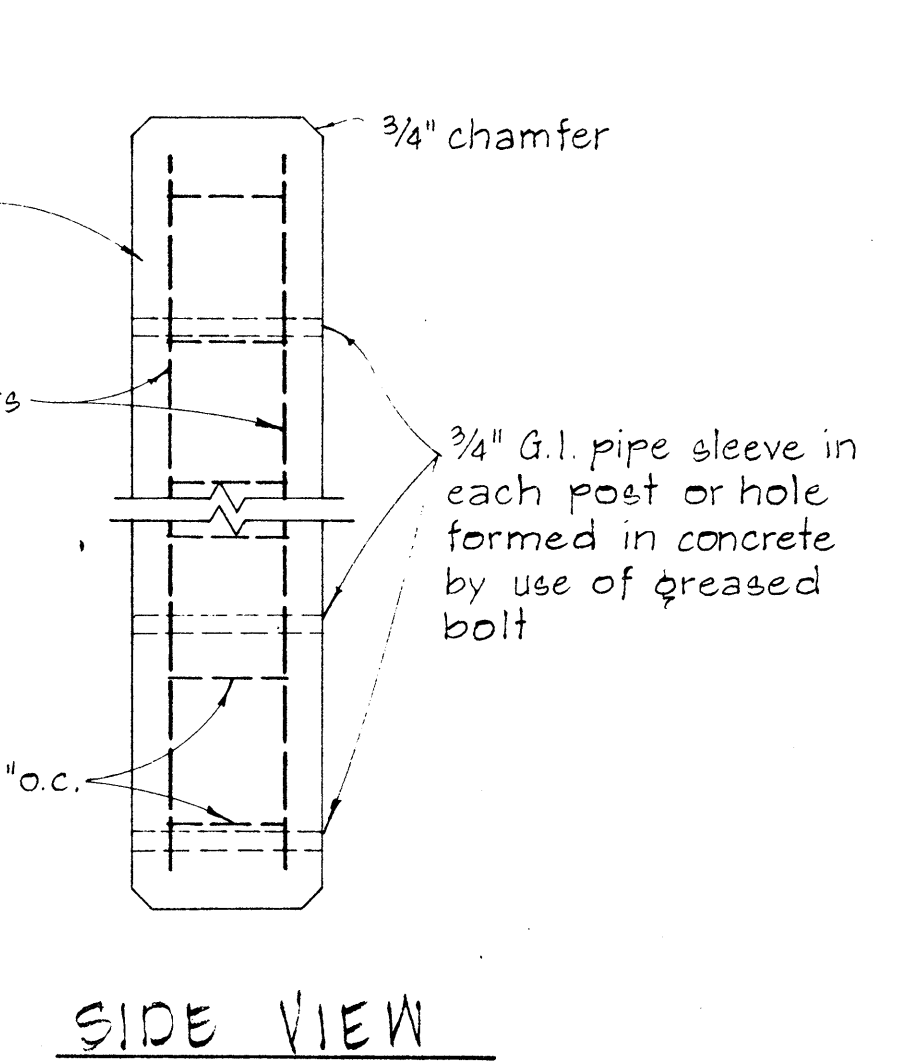
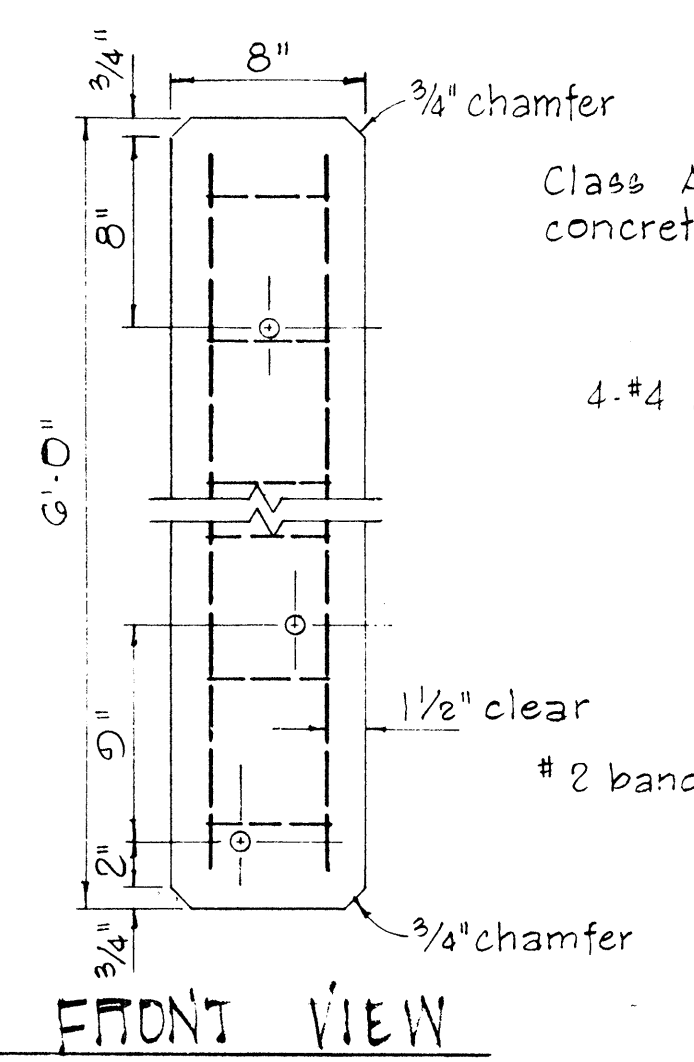
Scale: As Noted

SHEET No. C-15 OF 24 SHEETS DD 636.5

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(147)-17	1980	33	338



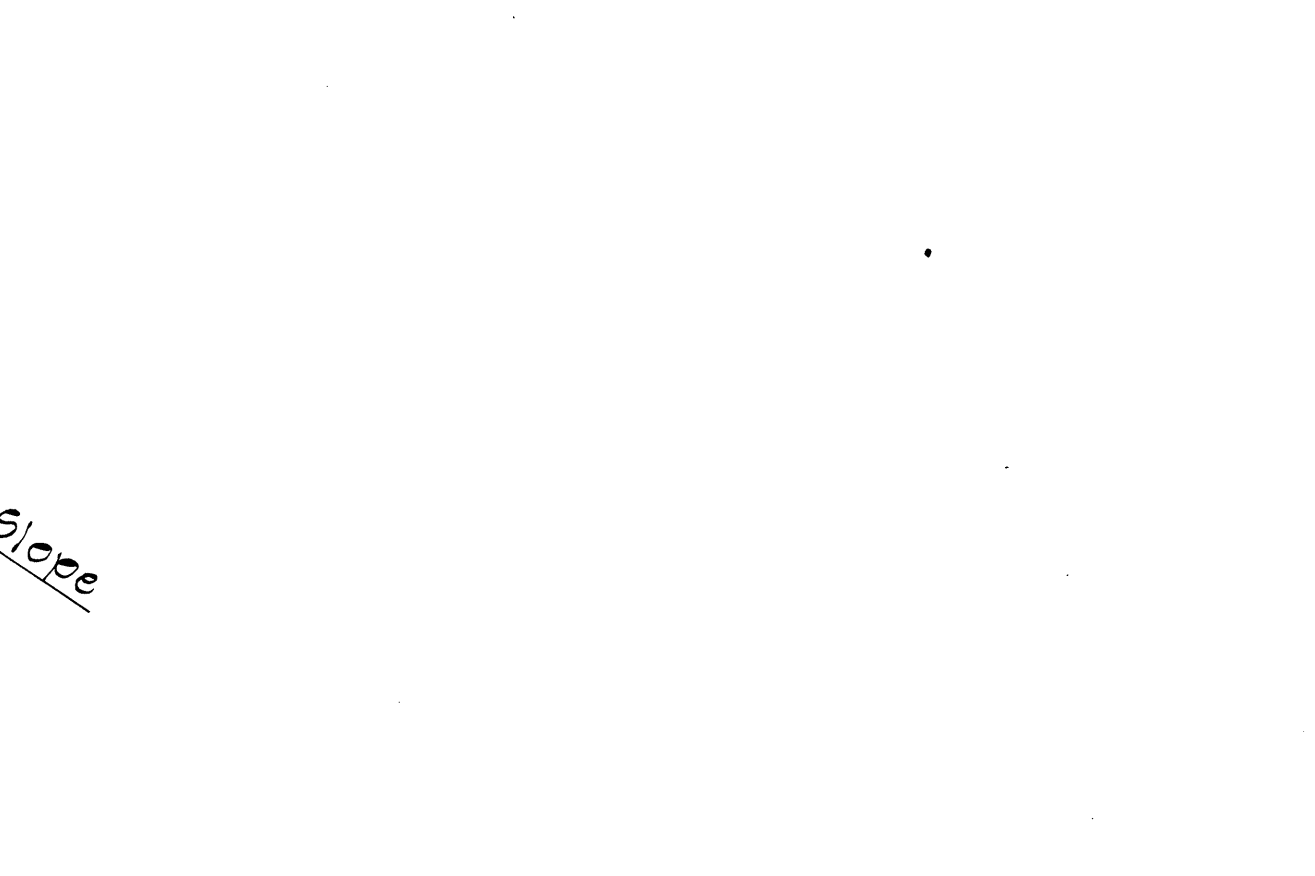
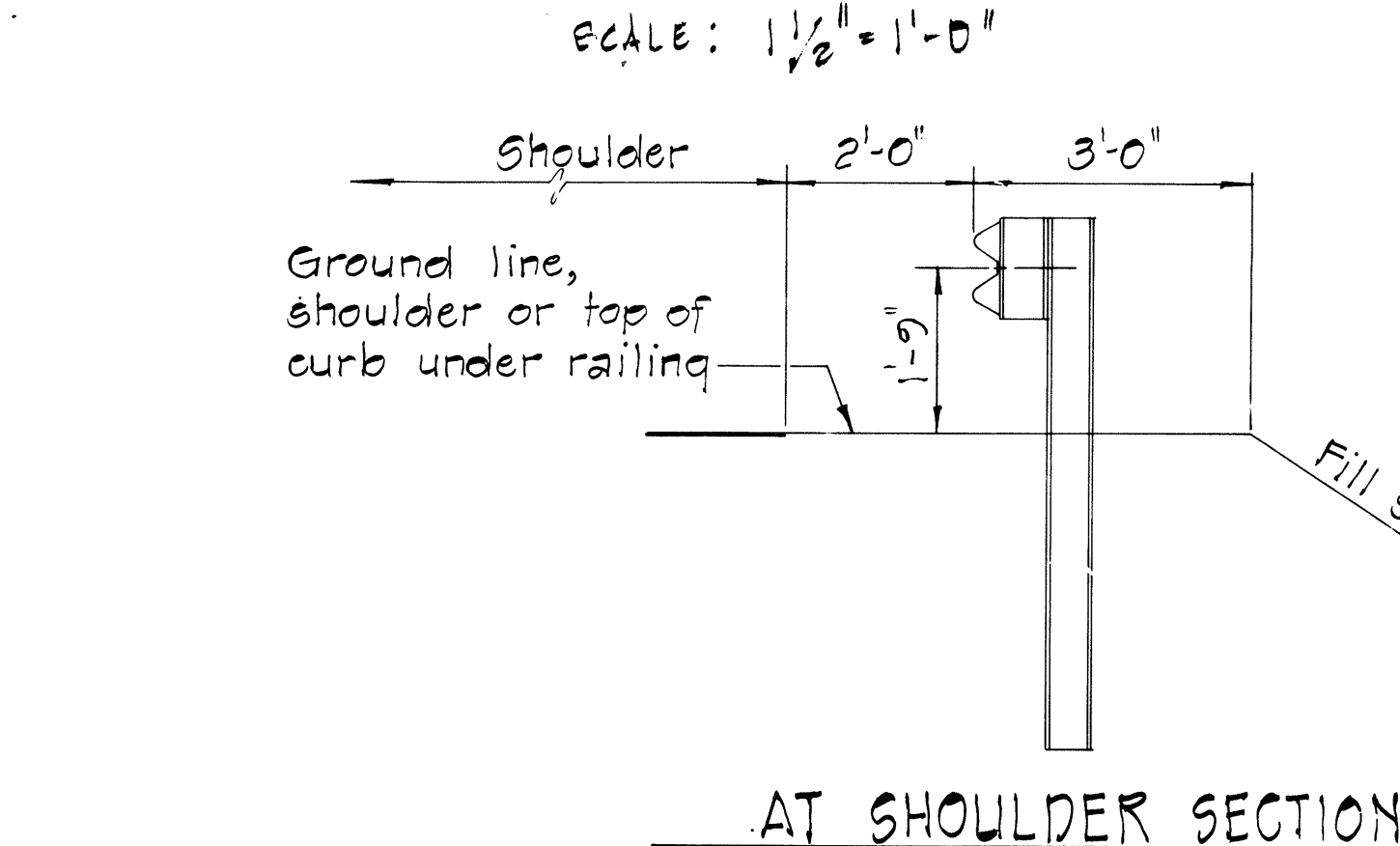
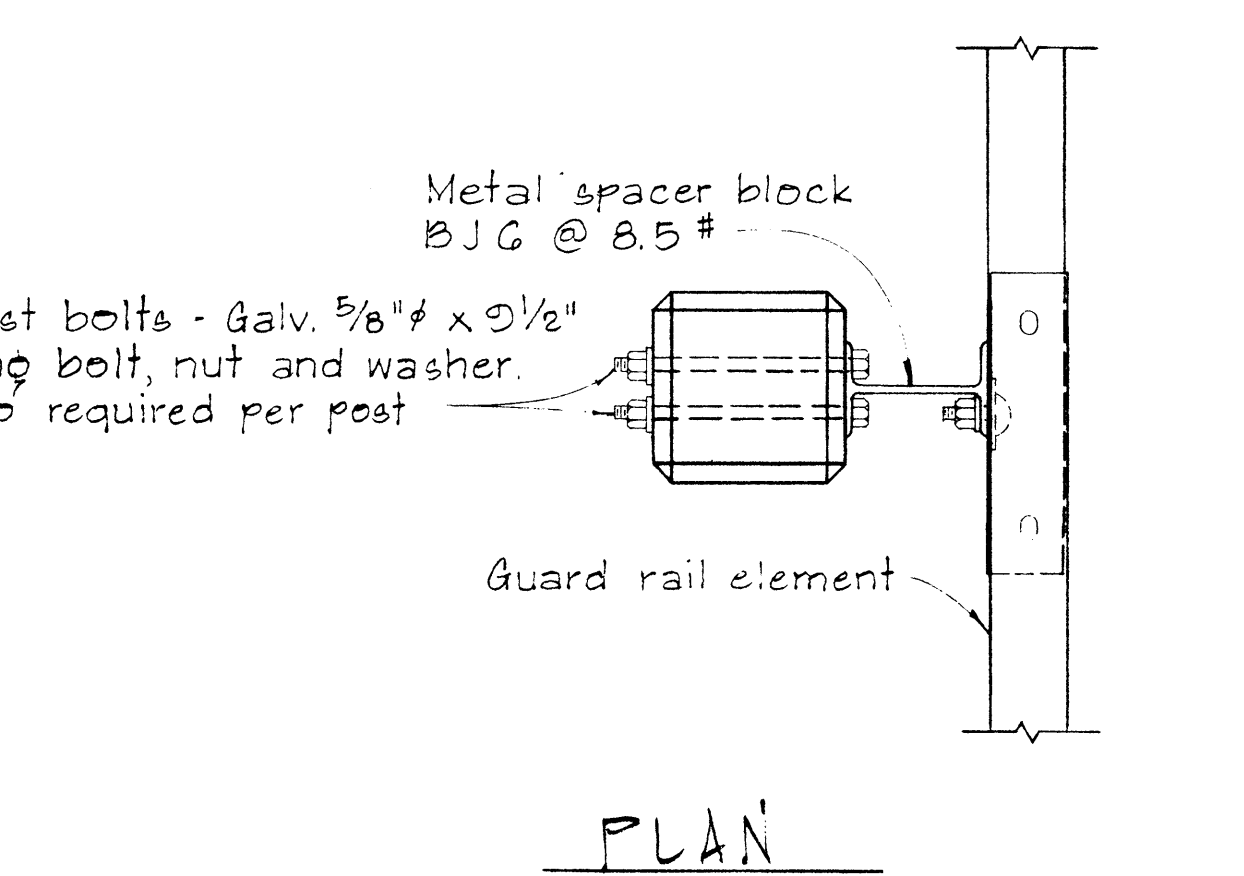
NOTE:
Concrete post shall be precast



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"

METAL GUARD RAIL ON METAL POST
WITH METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"



SINGLE METAL GUARD RAIL ON PRECAST
CONCRETE POST WITH WOOD OR METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"

AT SHOULDER SECTION
TYPICAL METAL GUARD
RAIL DETAIL
SCALE: 1/2" = 1'-0"

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

APPROVED:
William J. Zelen
ASSISTANT CHIEF, ENGINEERING
12-30-69
DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS
METAL GUARD RAIL

SCALE: AS SHOWN
NOV. 1968

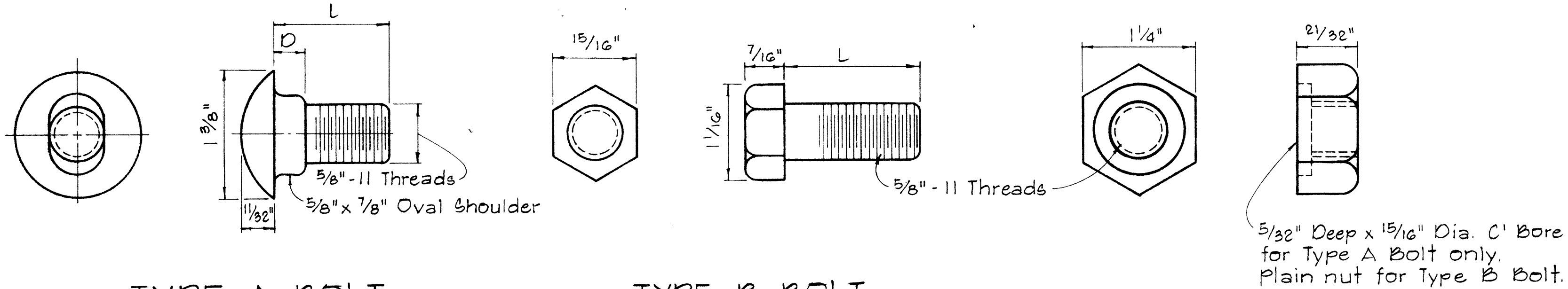
SHEET No. C-16 OF 24 SHEETS DT 500

DATE	
SURVEY PLANNED BY	
DRAWN BY	
CHECKED BY	
DESIGNED BY	
QUANTITIES BY	
NOTED BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H-1(147)-17	1980	34	338

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"
Post Bolt for Metal Post w/ Metal Block	3/32"	18"
Rail Bolt for Metal Block	3/32"	2"

BOLT DIMENSIONS		
TYPE B BOLT		
Post Bolt for Conc. Post w/ Metal Blocks	D 1/2"	
Post Bolt for Metal Post w/ Metal Block	1 3/4"	



TYPE A BOLT

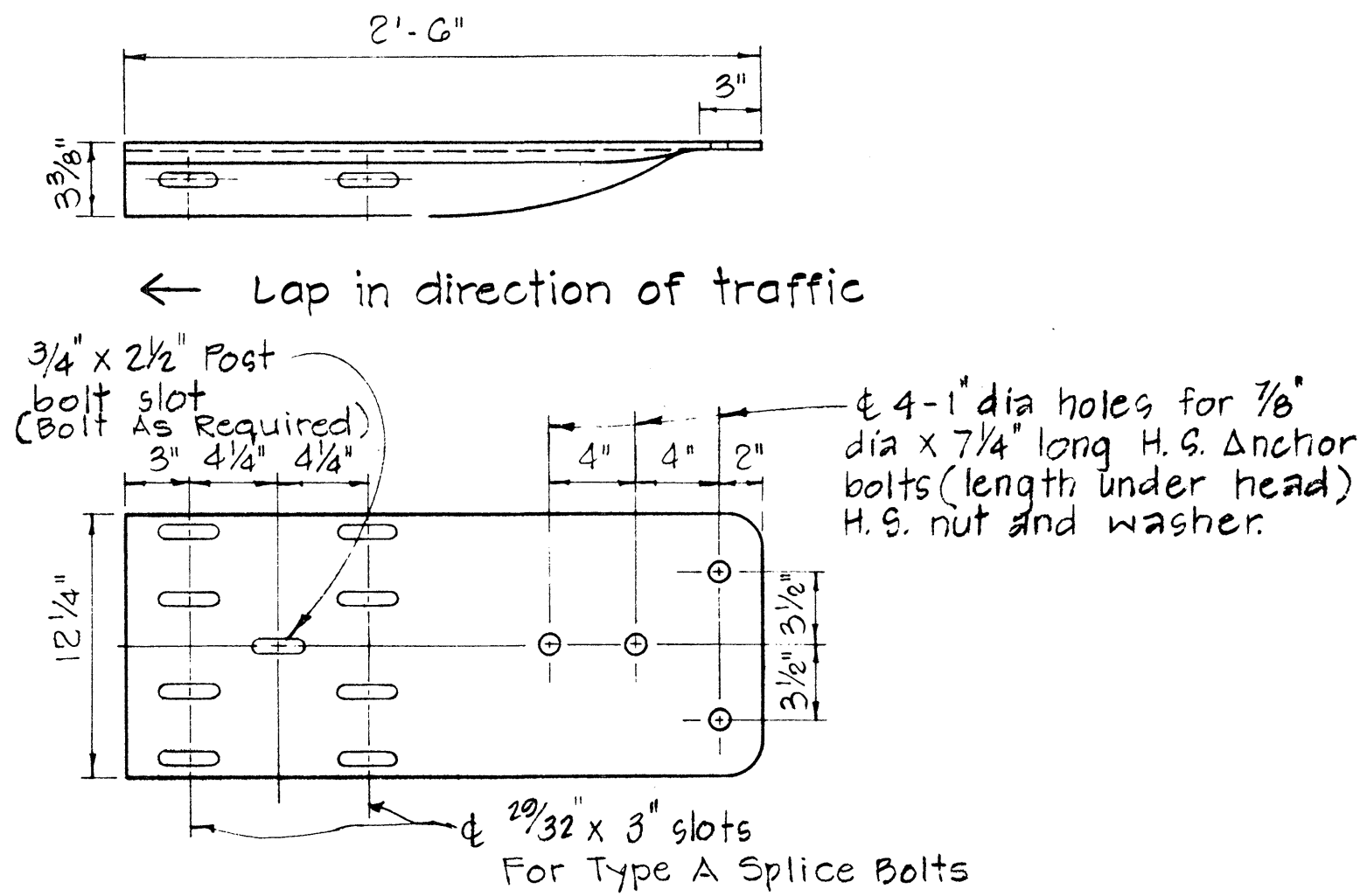
TYPE B BOLT

SPUCE RAIL AND POST BOLTS

Scale: Full Size

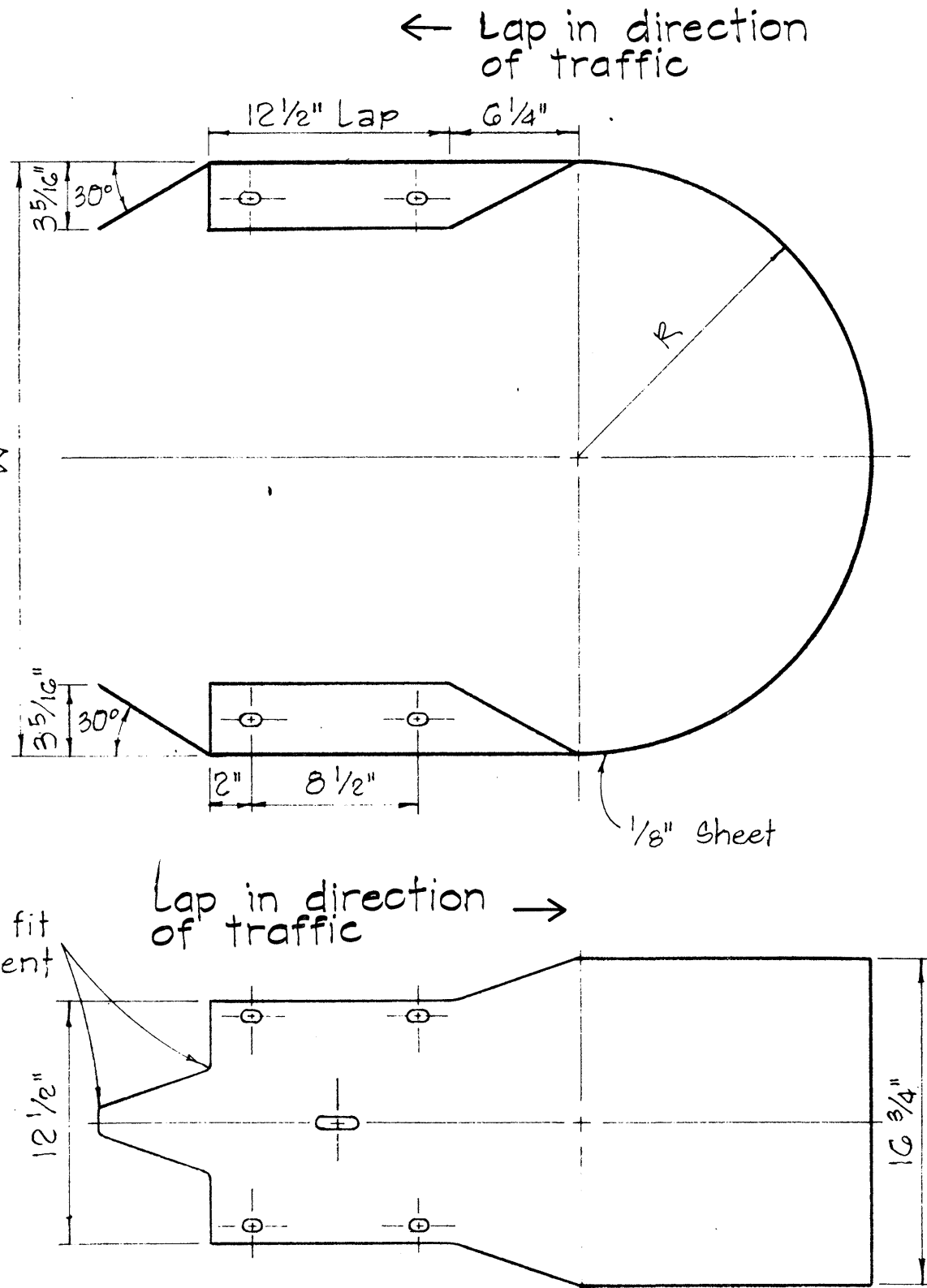
HEXAGON NUT

Scale: Full Size



SPECIAL END SHOE

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



MEDIAN END

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

NOTES:

- H.S. Bolts shall conform to the requirements of ASTM A 325.
- Special End Shoe shall be fabricated from 10 Gage steel conforming to the requirements of AASHTO 180.

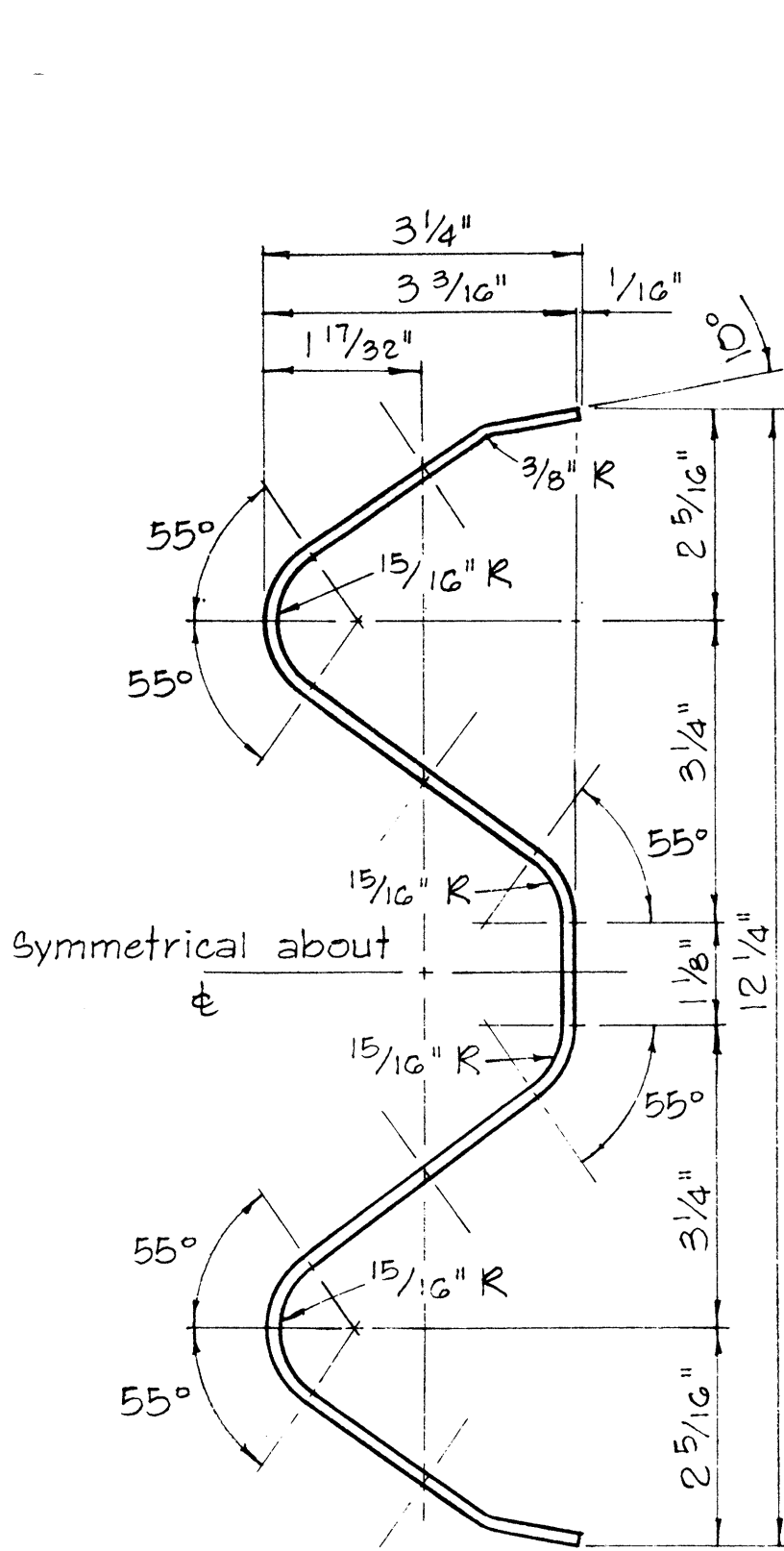
MEDIAN END DIMENSIONS		
TYPE OF POST AND BLOCK	W	R
Double Metal Guard Rail on Concrete Post with Wood Blocks	29 3/4"	14 3/8"
Double Metal Guard Rail on Concrete Post with Metal Blocks (BJG)	26 1/2"	13 1/4"
Double Metal Guard Rail on Metal Post with Metal Blocks (BJG)	24 3/8"	12 3/16"

NO.	REVISION	APPROVED BY	DATE
1	Revised Hole Size for Rectangular Rail Washer	H.T.	8/10/88

APPROVAL RECOMMENDED:	12/23/69
TRAFFIC ENGINEER	DATE
APPROVED:	12-20-69
ASSISTANT CHIEF, ENGINEERING	DATE

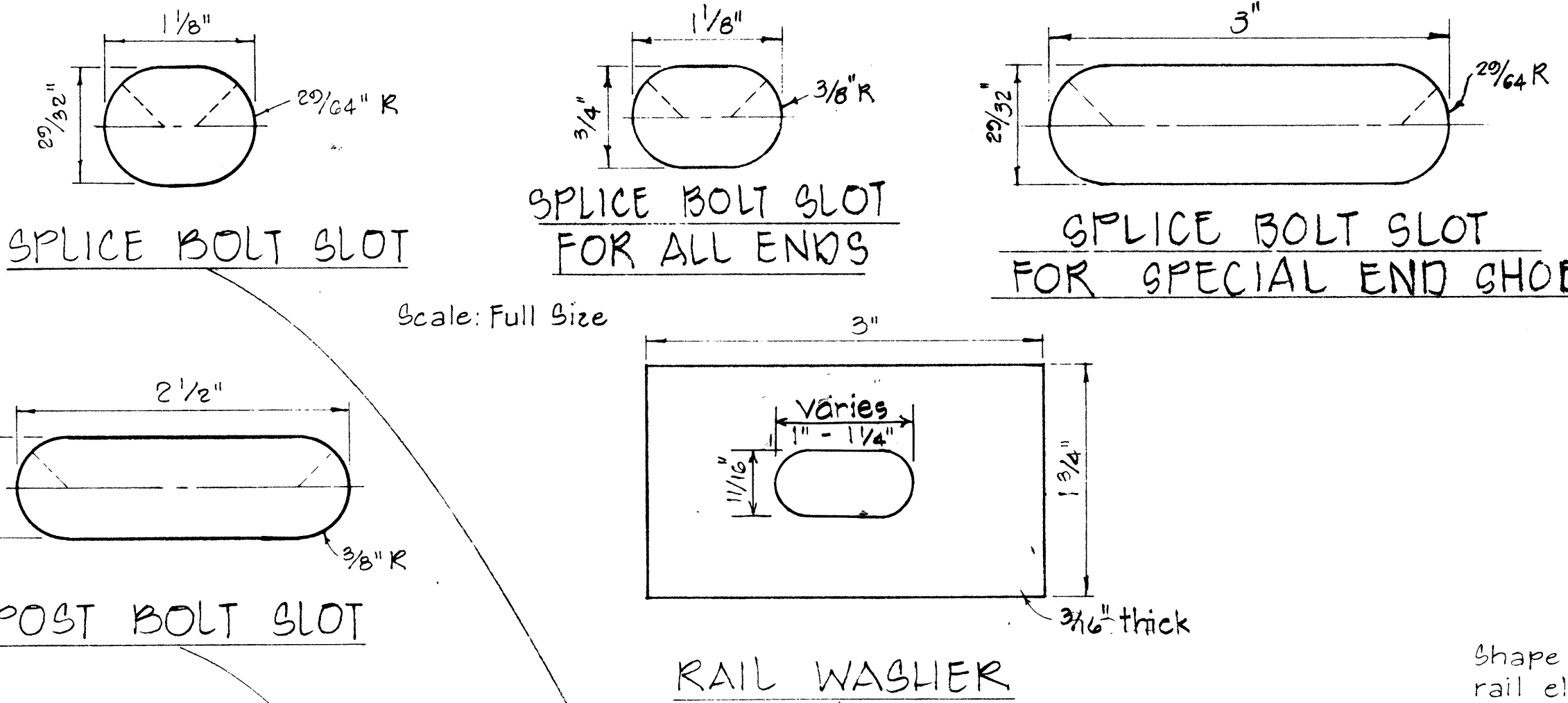
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
STANDARD DETAILS
METAL GUARD RAIL

Scale: As Noted August, 1968
SHEET No. C-17 OF 24 SHEETS DT 501



RAIL ELEMENT SECTION

Scale: 6" = 1'-0"



SPUCE BOLT SLOT

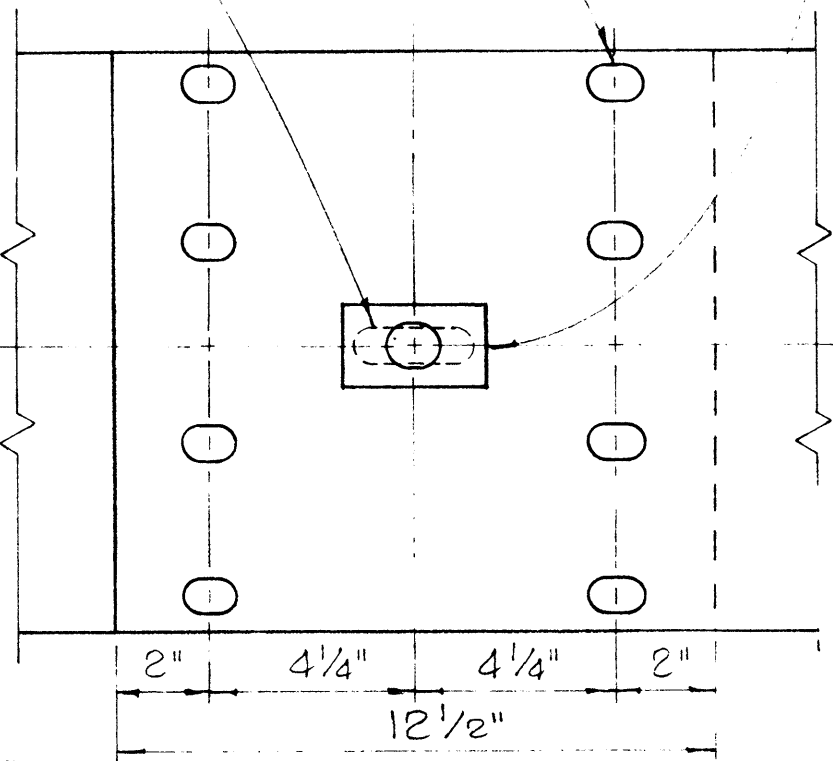
Scale: Full Size

SPUCE BOLT SLOT FOR ALL ENDS

SPUCE BOLT SLOT FOR SPECIAL END SHOE

POST BOLT SLOT

RAIL WASHER

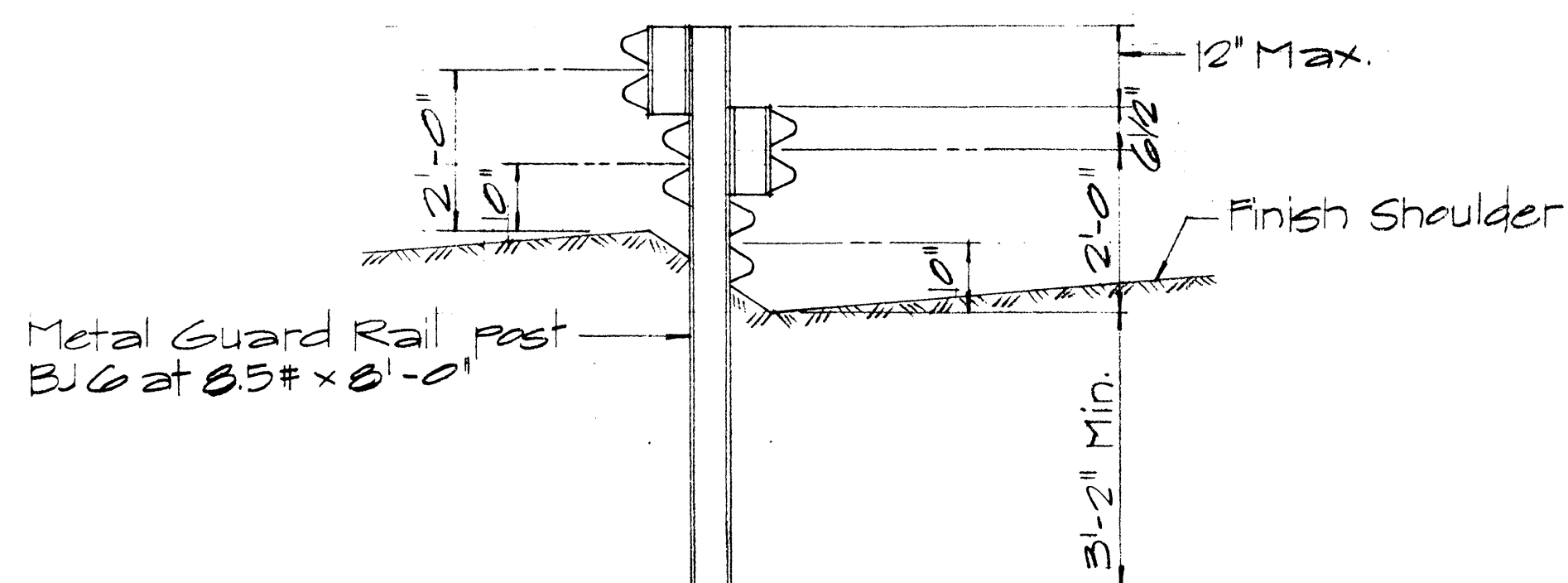
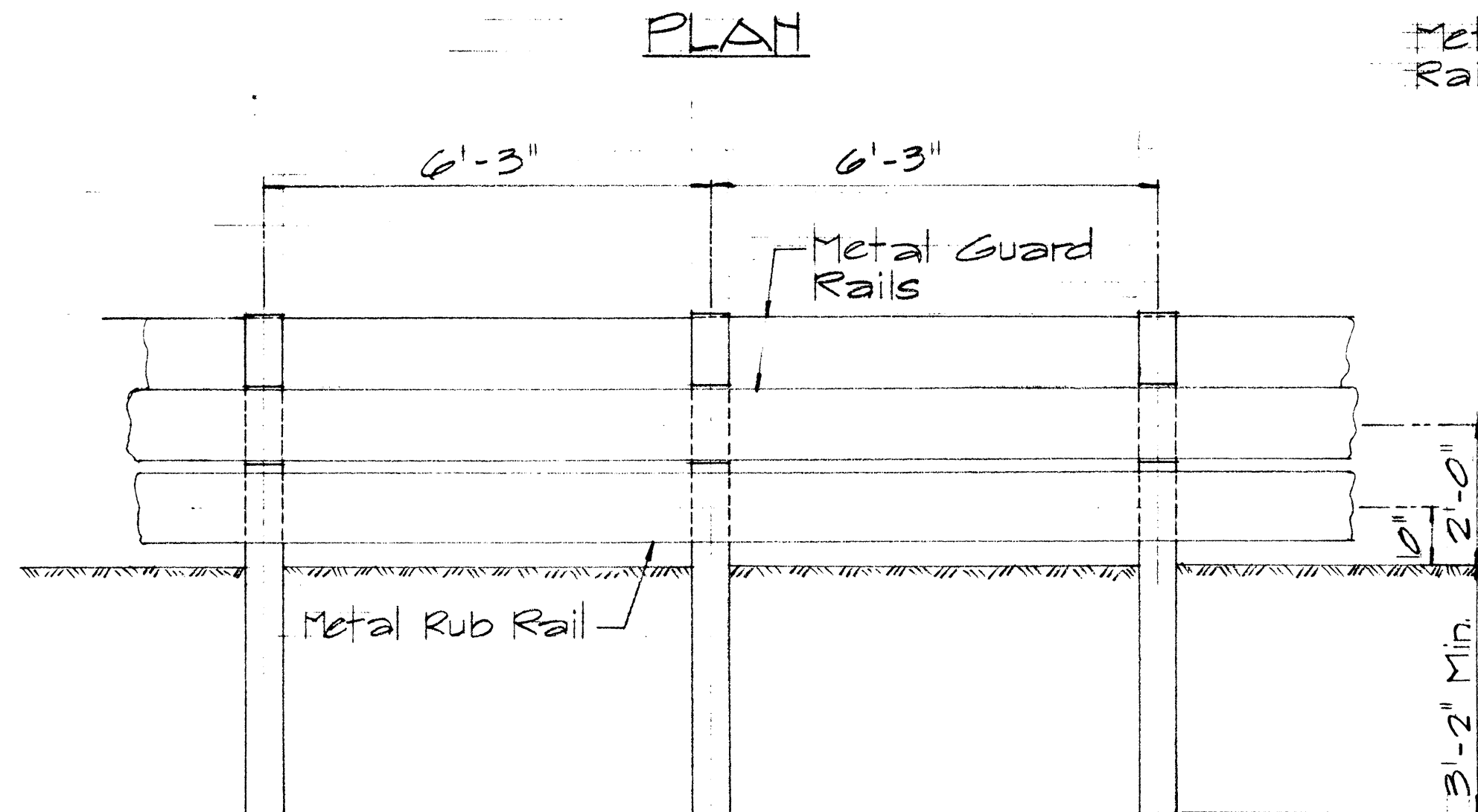
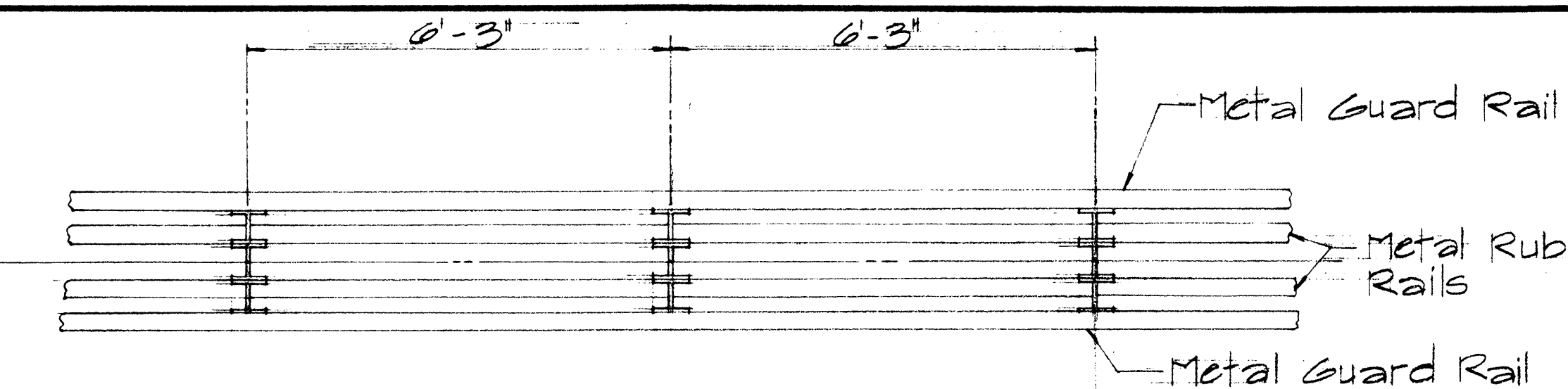
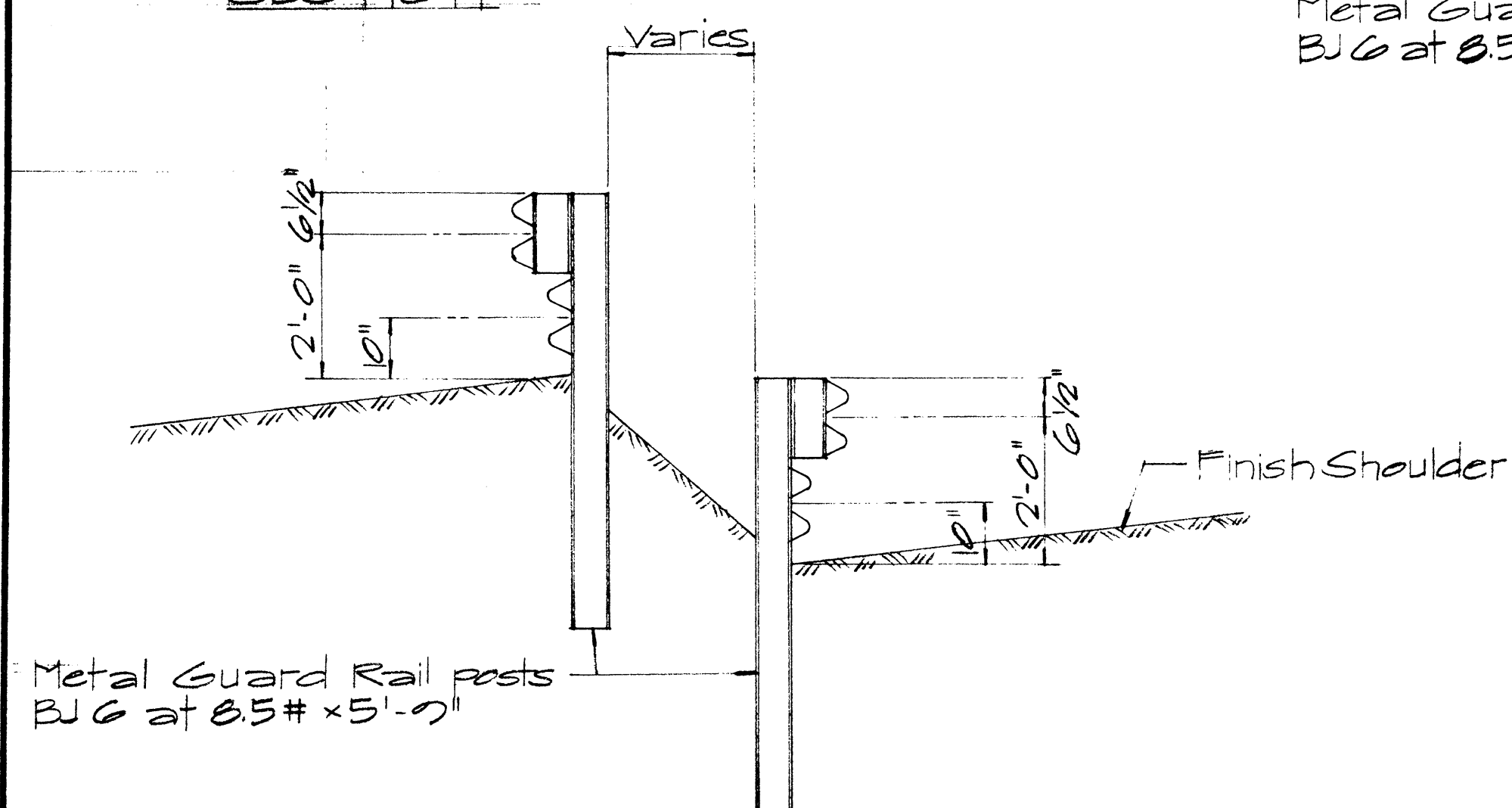
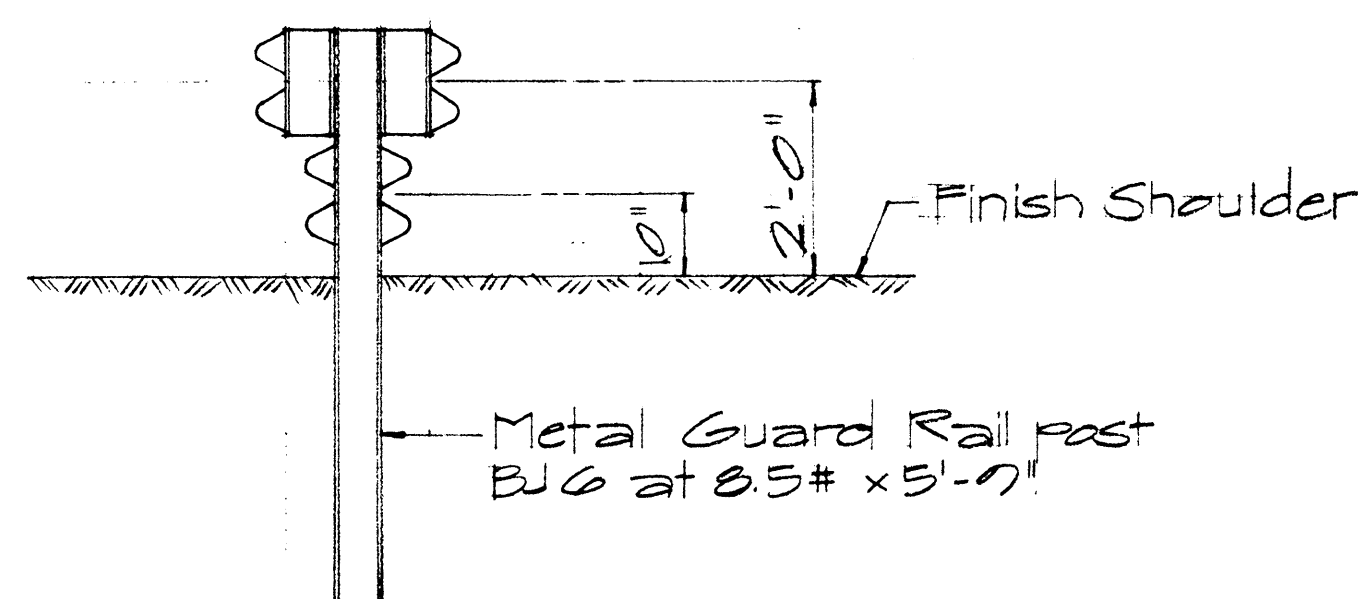
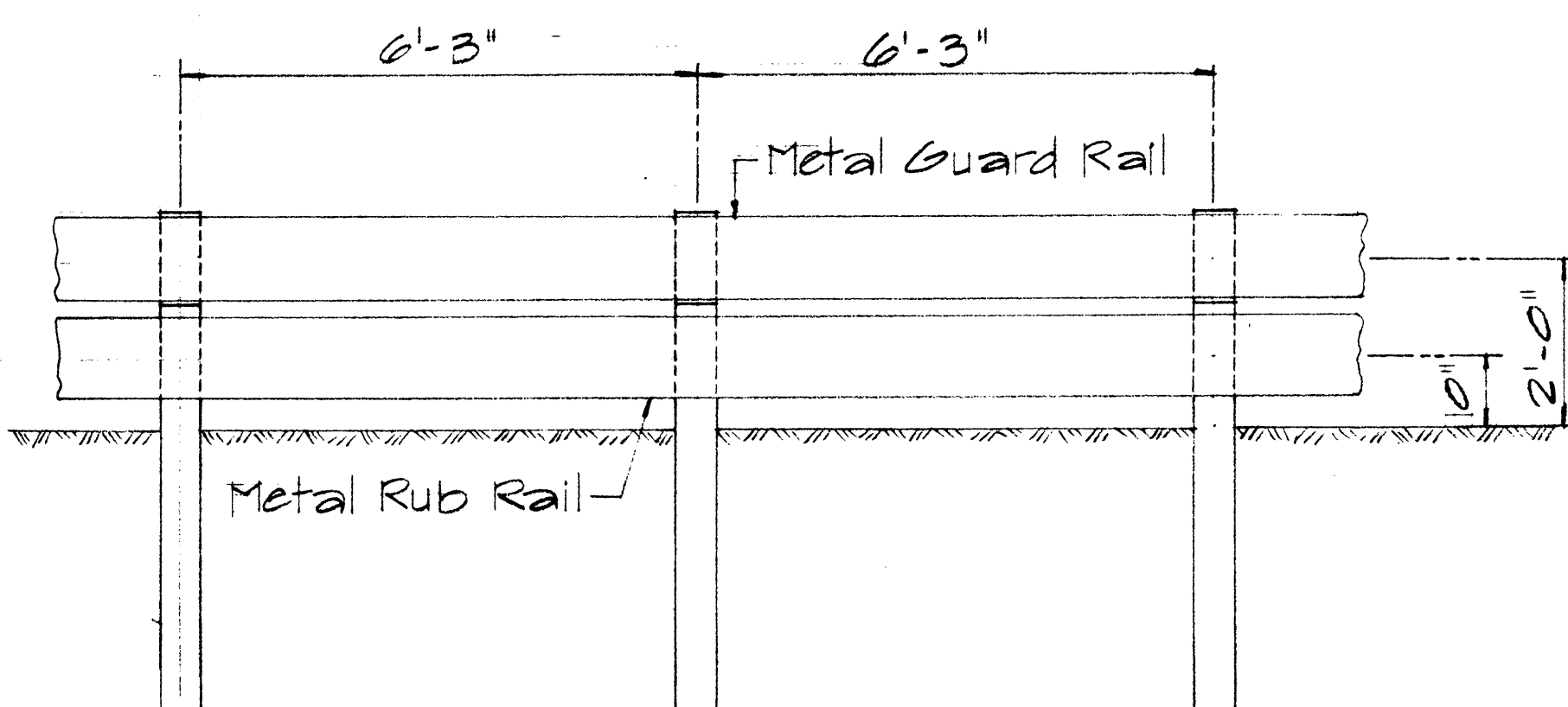
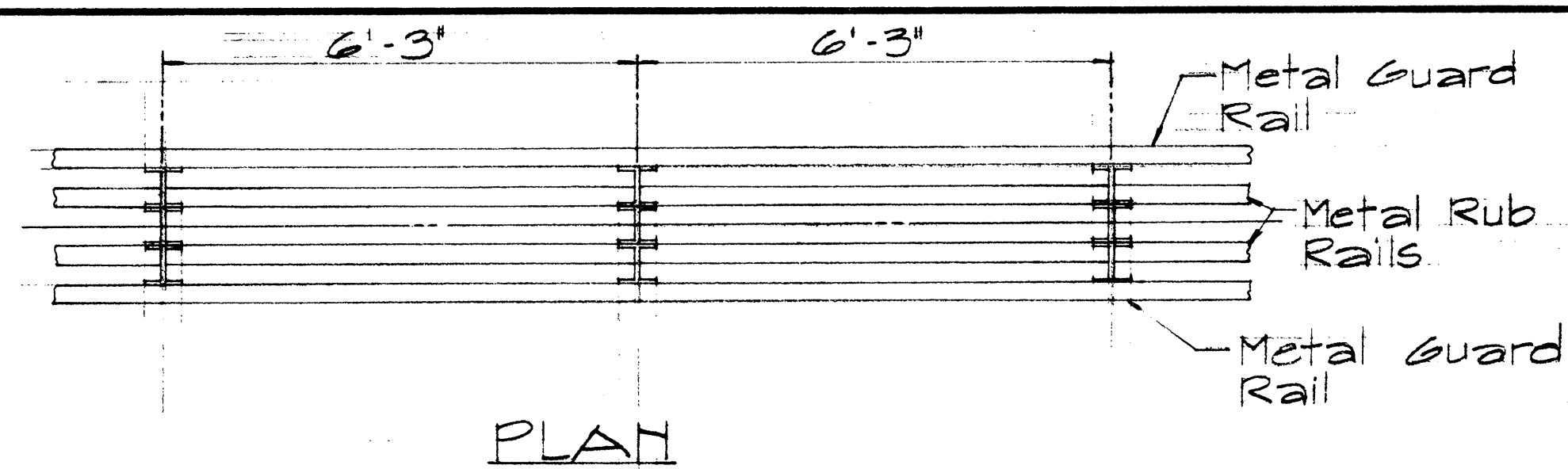


RAIL SPLICE

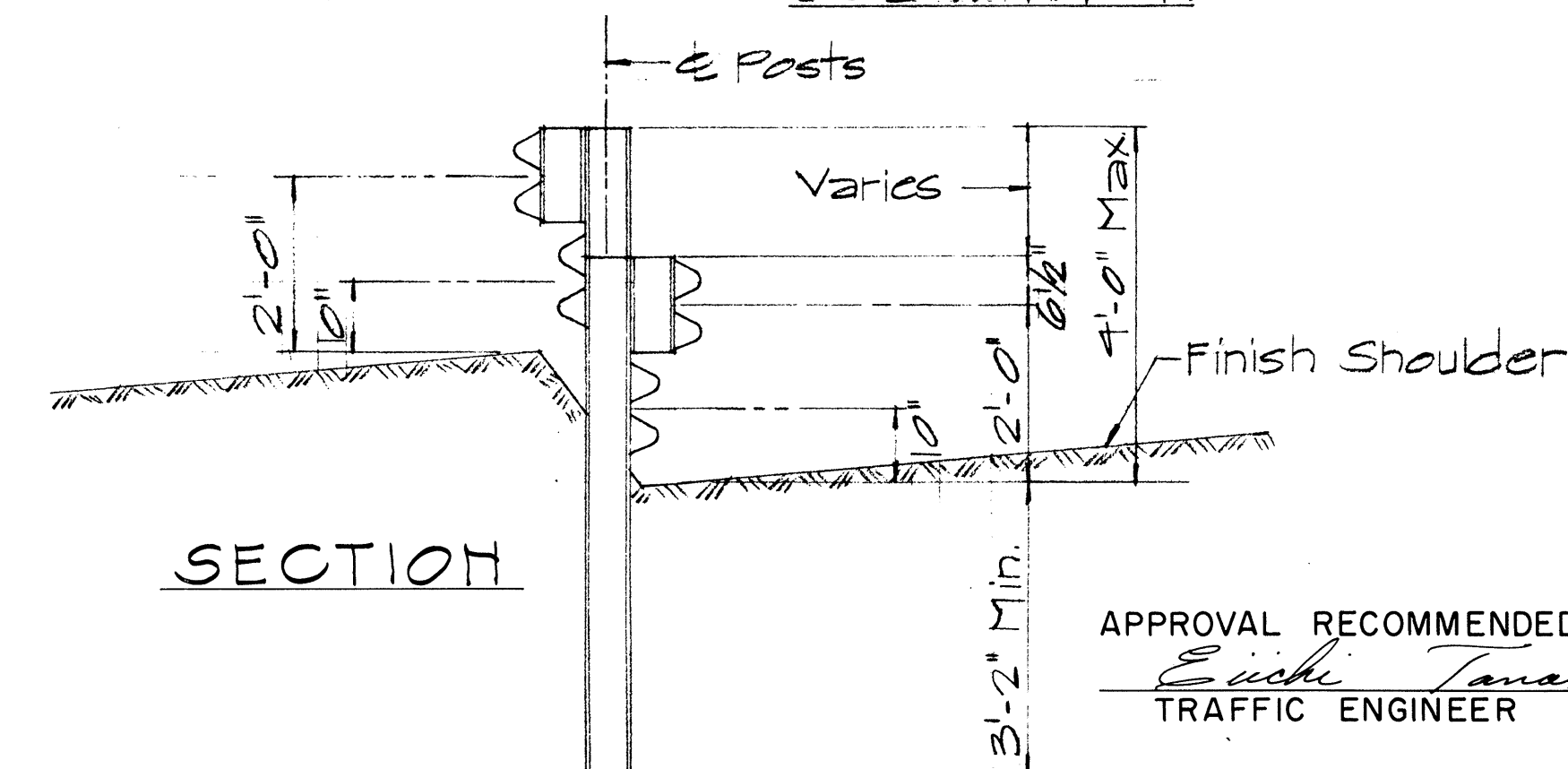
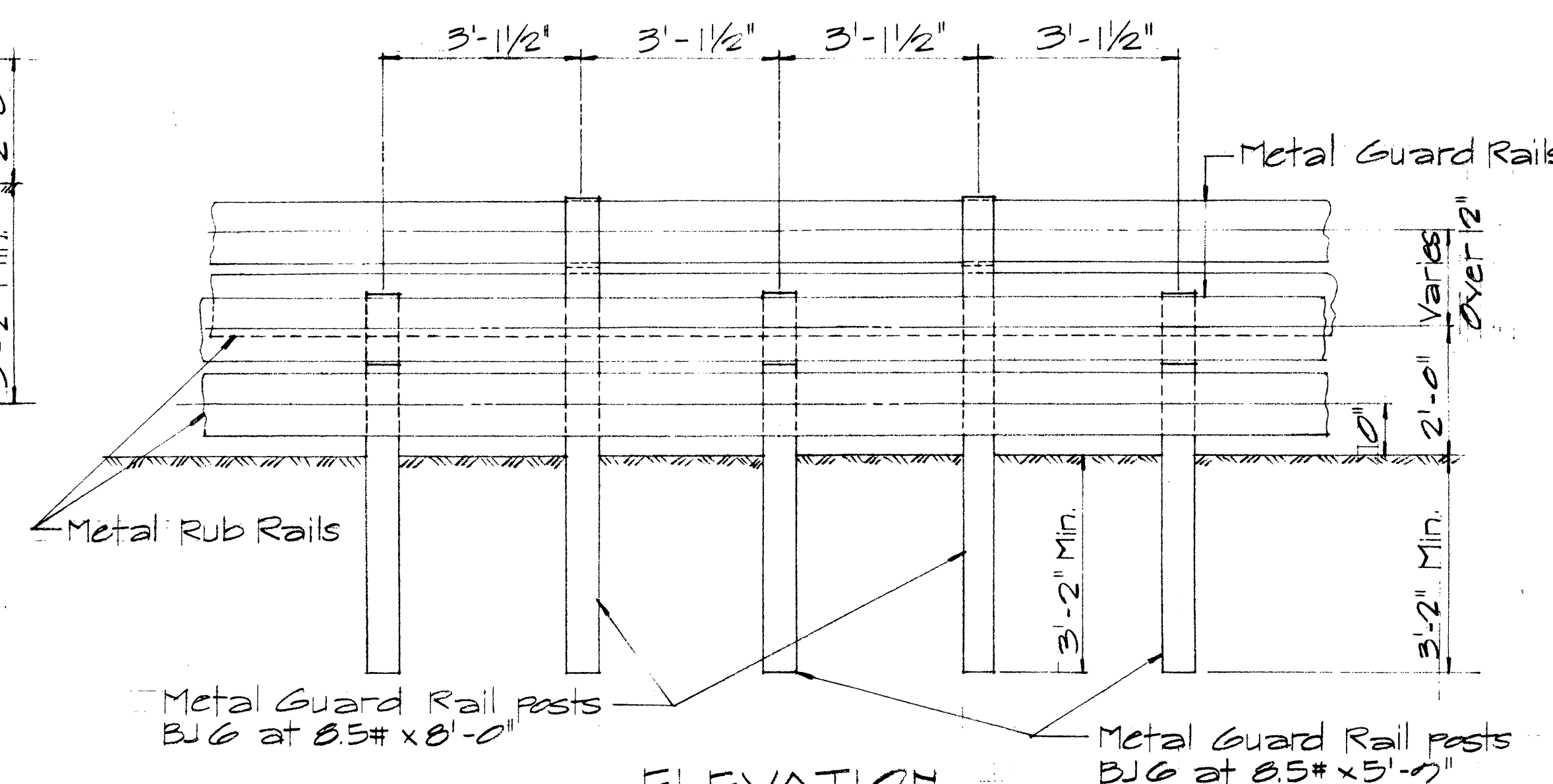
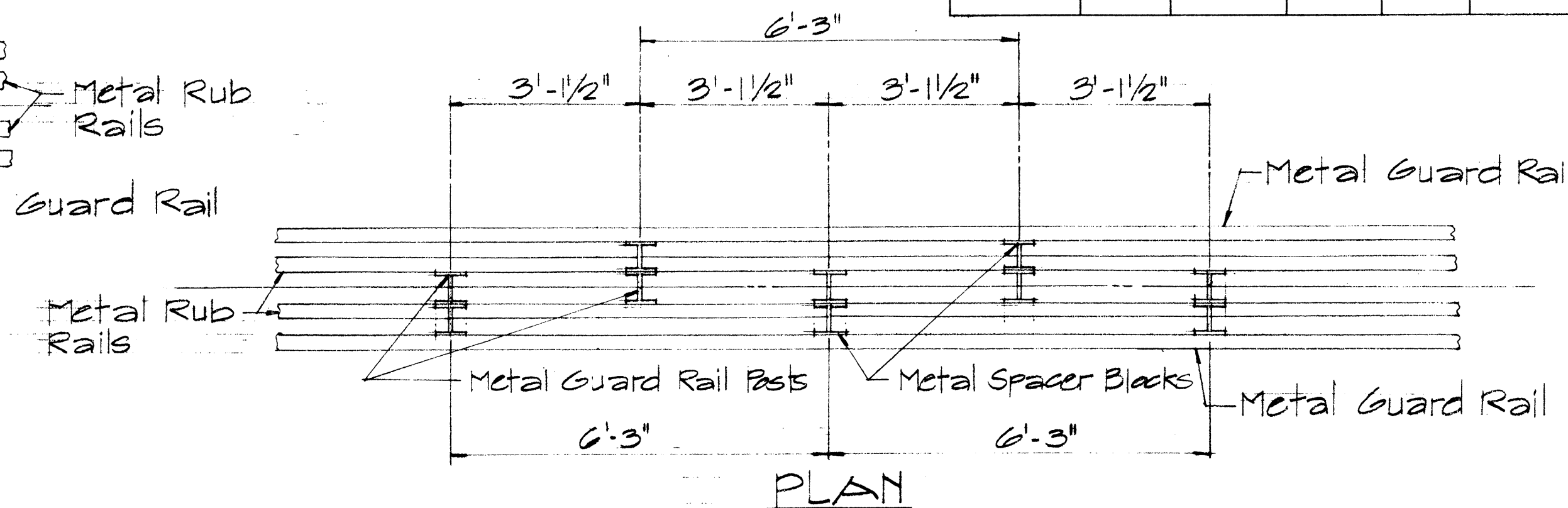
Scale: 3" = 1'-0"

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(147)	1980	35	338



TYPICAL SAW TOOTH INSTALLATION
Sc. 1/2" = 1'-0"



TYPICAL STAGGERED INSTALLATION
Sc. 1/2" = 1'-0"

APPROVAL RECOMMENDED:
E. Ichi Tanaka
TRAFFIC ENGINEER 12/29/69 DATE

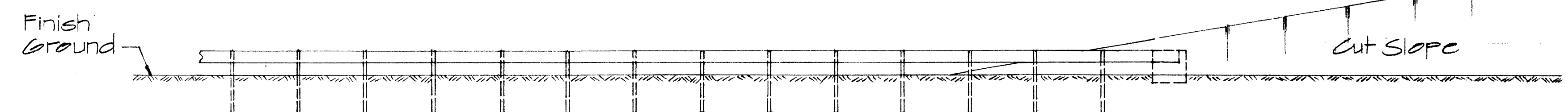
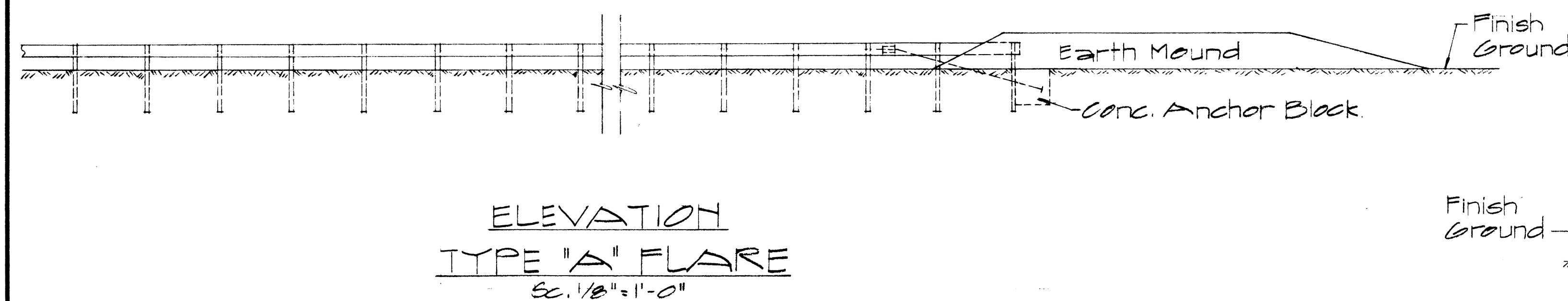
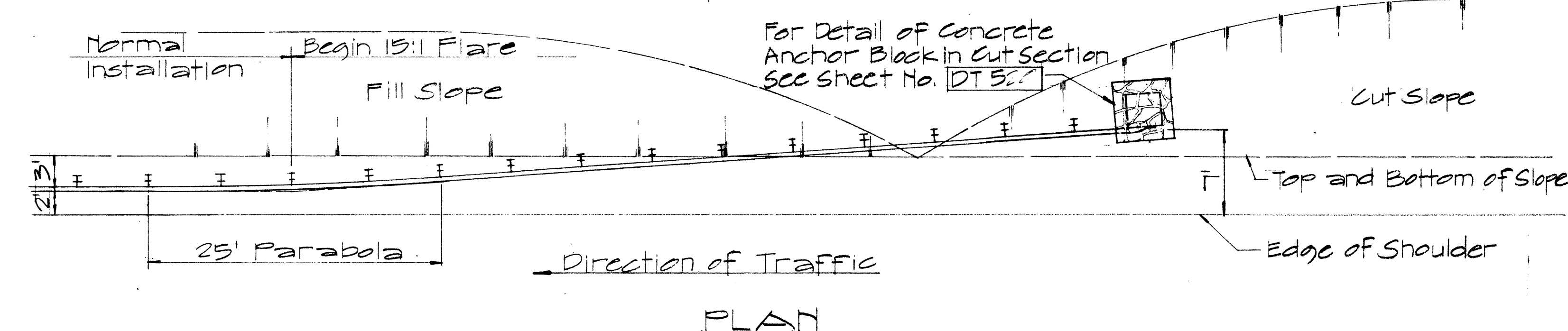
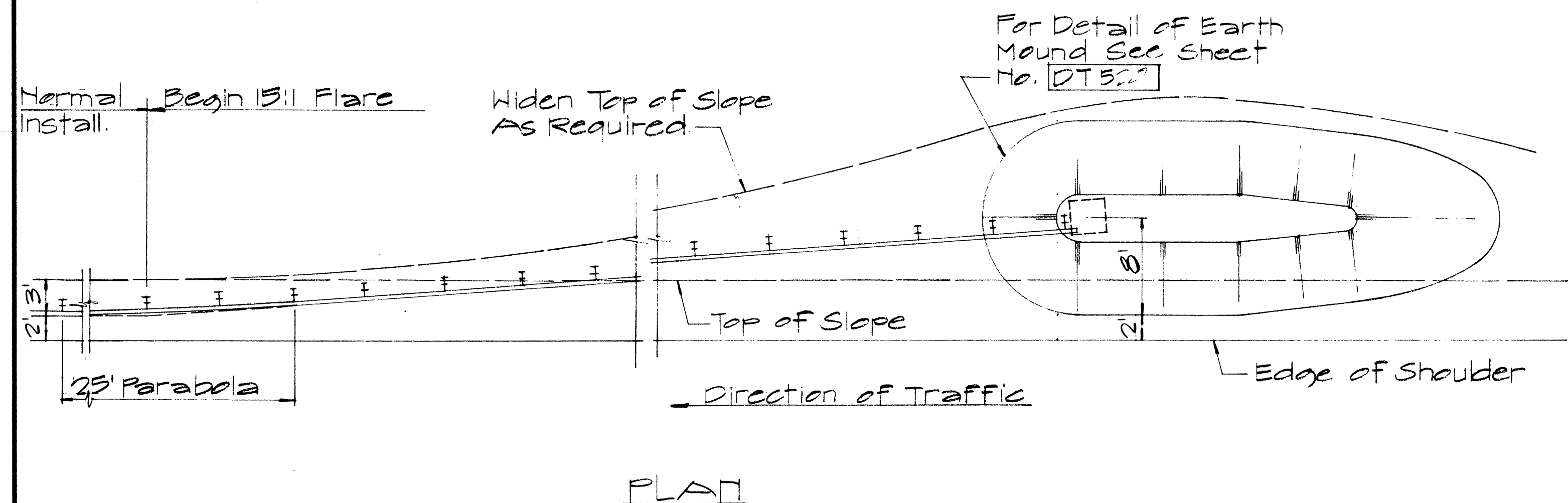
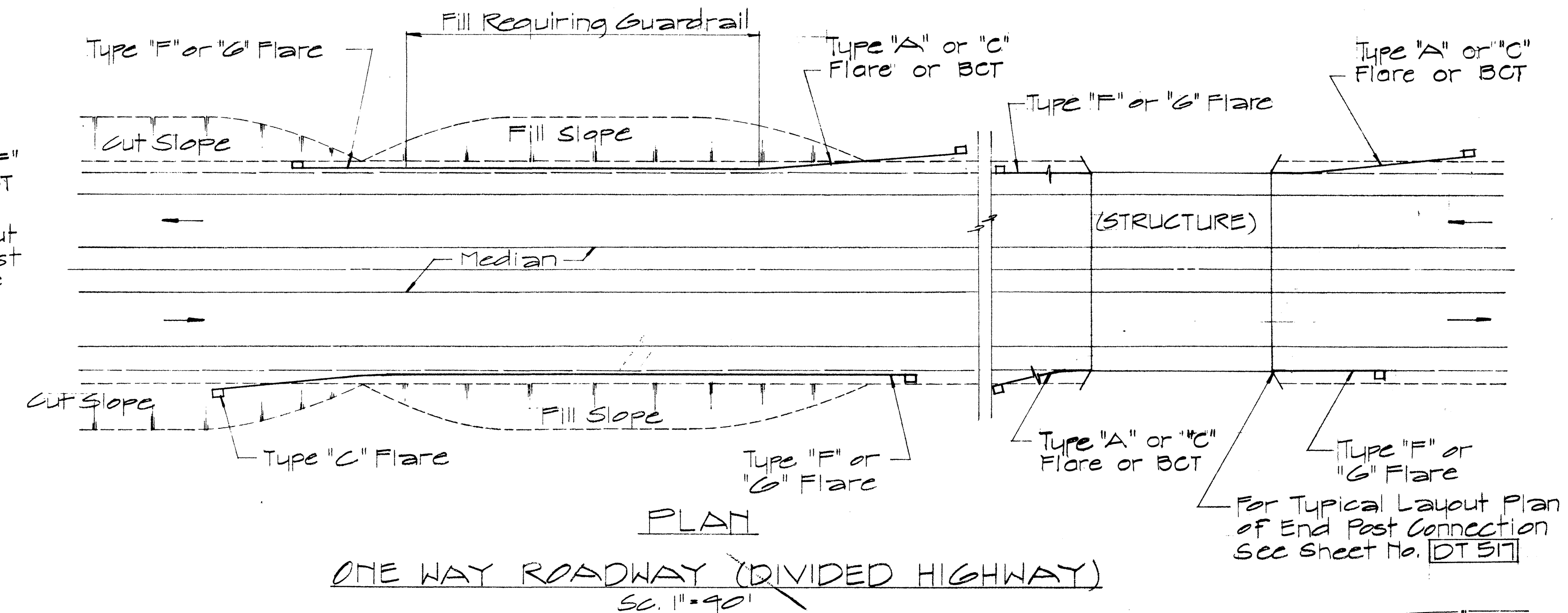
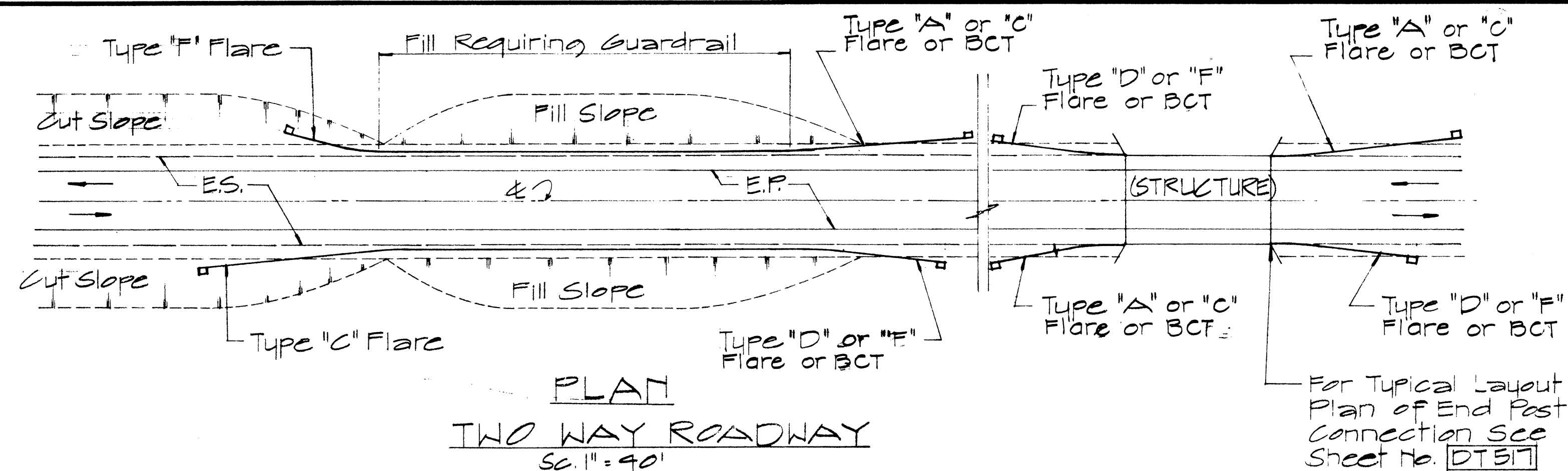
APPROVED:
W. S. S. S. S.
ASSISTANT CHIEF, ENGINEERING 12-30-69 DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
STANDARD DETAIL
METAL GUARD RAIL
WITH RUB RAIL
Scale: 1/2" = 1'-0" Feb. 1970
SHEET No. G-18 OF 24 SHEETS DT 514

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HI-1(147)17	1980	36	338

- 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



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

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

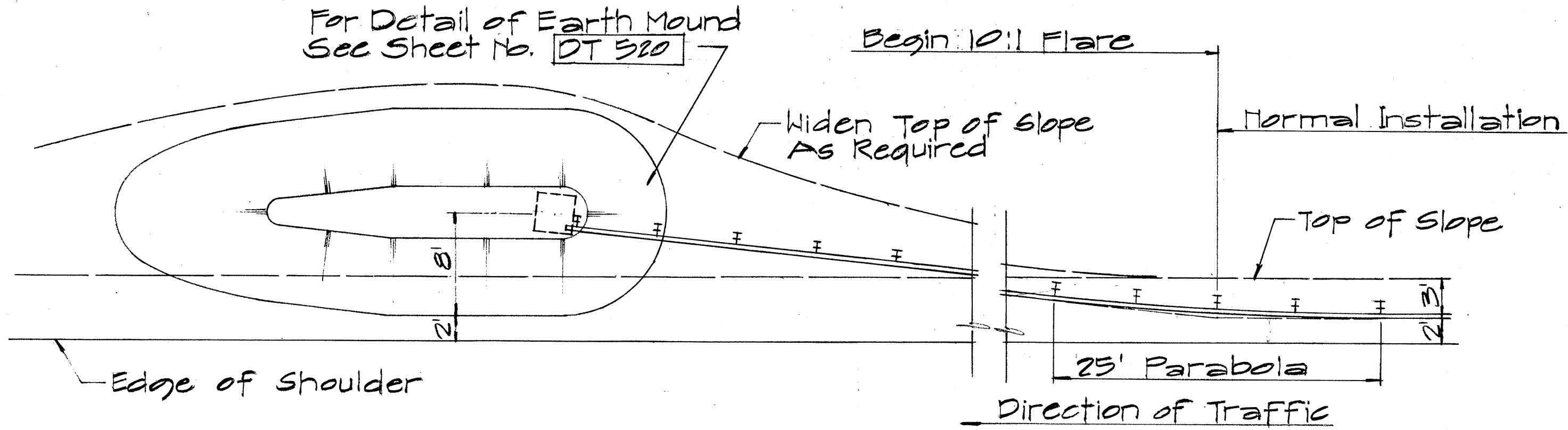
ELEVATION
 TYPE "C" FLARE
 Sc. 1/8" = 1'-0"

NO.	REVISION	APPROVED BY	DATE
1	Delete Type "B" Flare and Type "E" Flare	H.T.	6/15/83

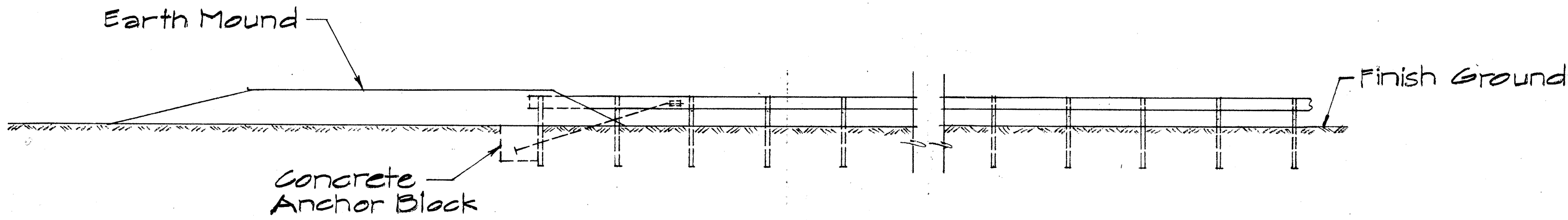
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
**STANDARD DETAILS
 OF APPROACH END
 FLARE - ONE & TWO
 WAY ROADWAY**
 Sc. As Noted April 1967
 SHEET No. C-19 OF 24 SHEETS DT 516

DATE	
SURVEY PLATTED BY	
DRAWN BY	
CHECKED BY	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(147)17	1980	37	338

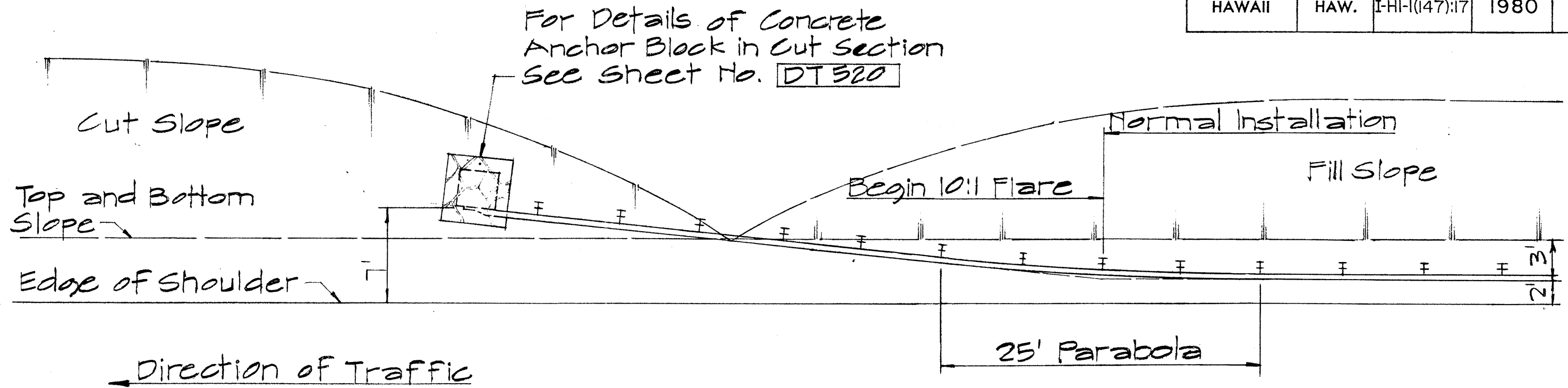


PLAN

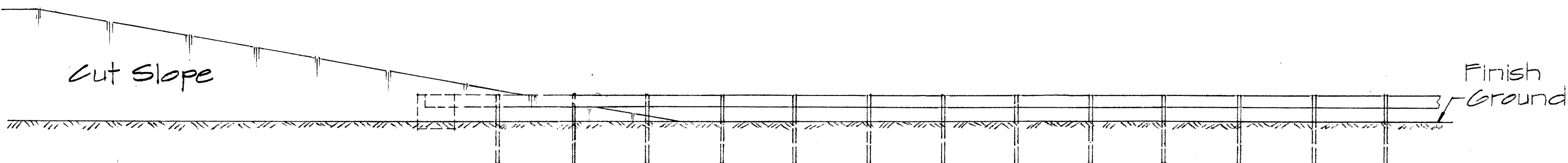


ELEVATION

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

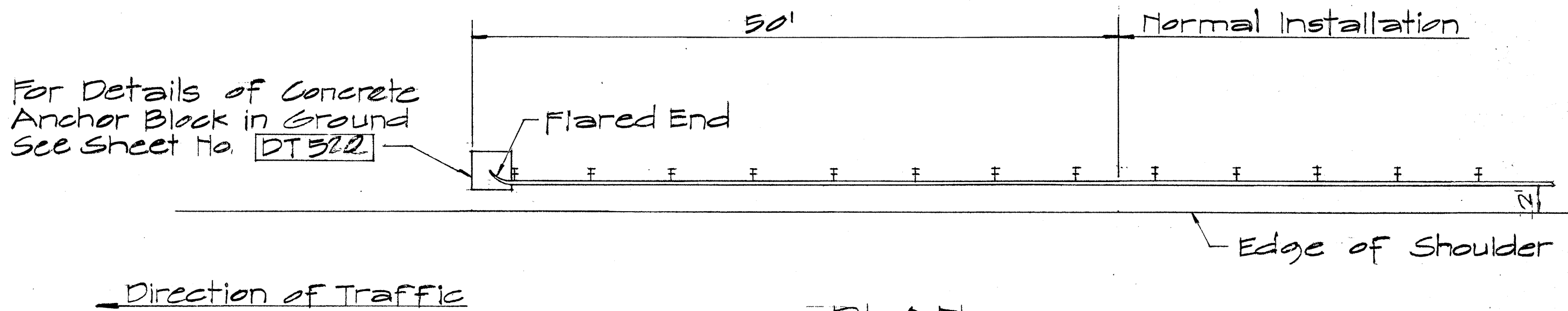


PLAN

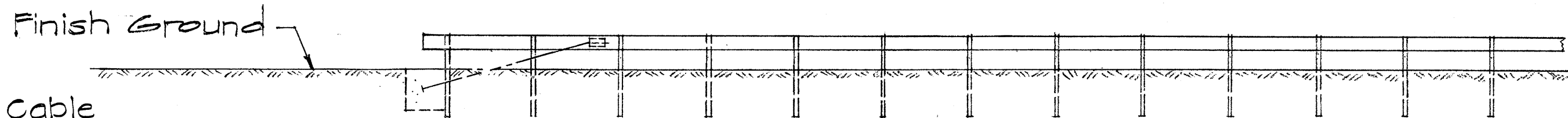


ELEVATION

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



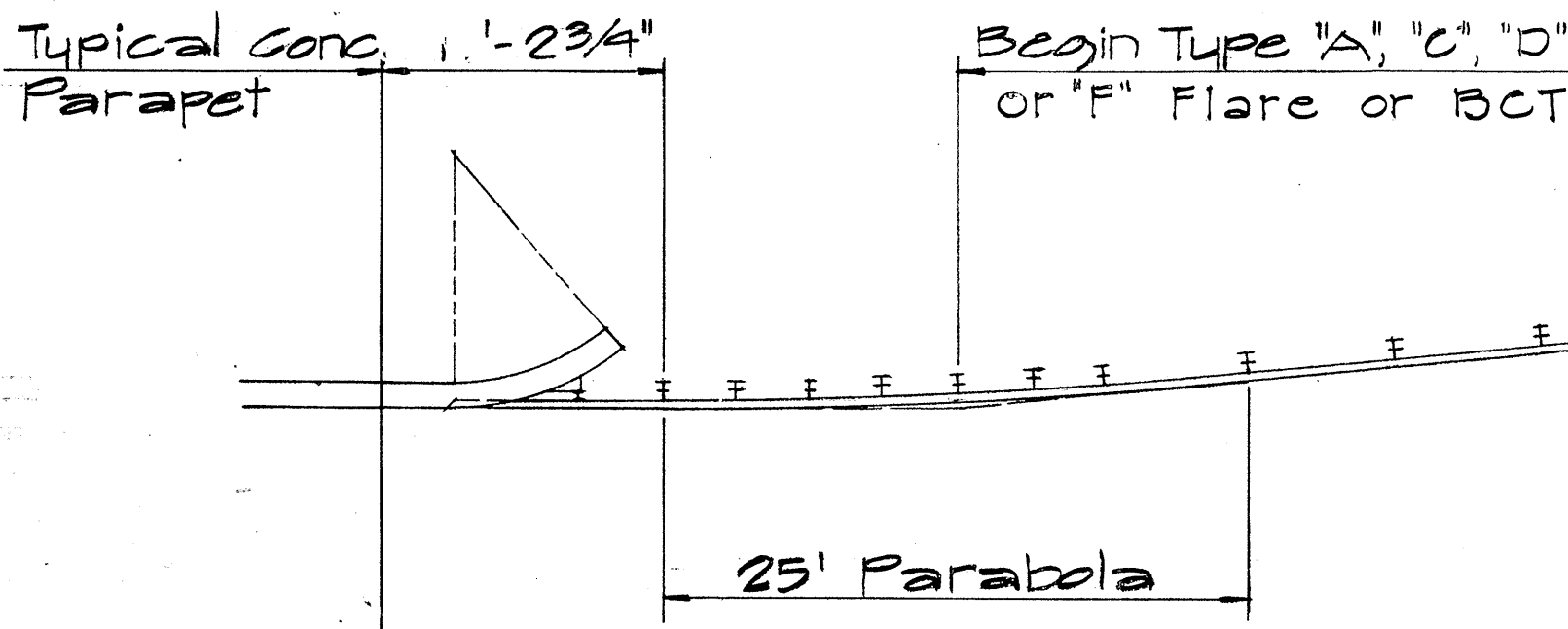
PLAN



ELEVATION

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

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



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

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

APPROVED:
John S. 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.T.	4-12-72
2	Delete Type "B" Flare and Type "E" Flare	H.T.	6-15-78

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
TRAILING END
FLARE - ONE & TWO
WAY ROADWAY

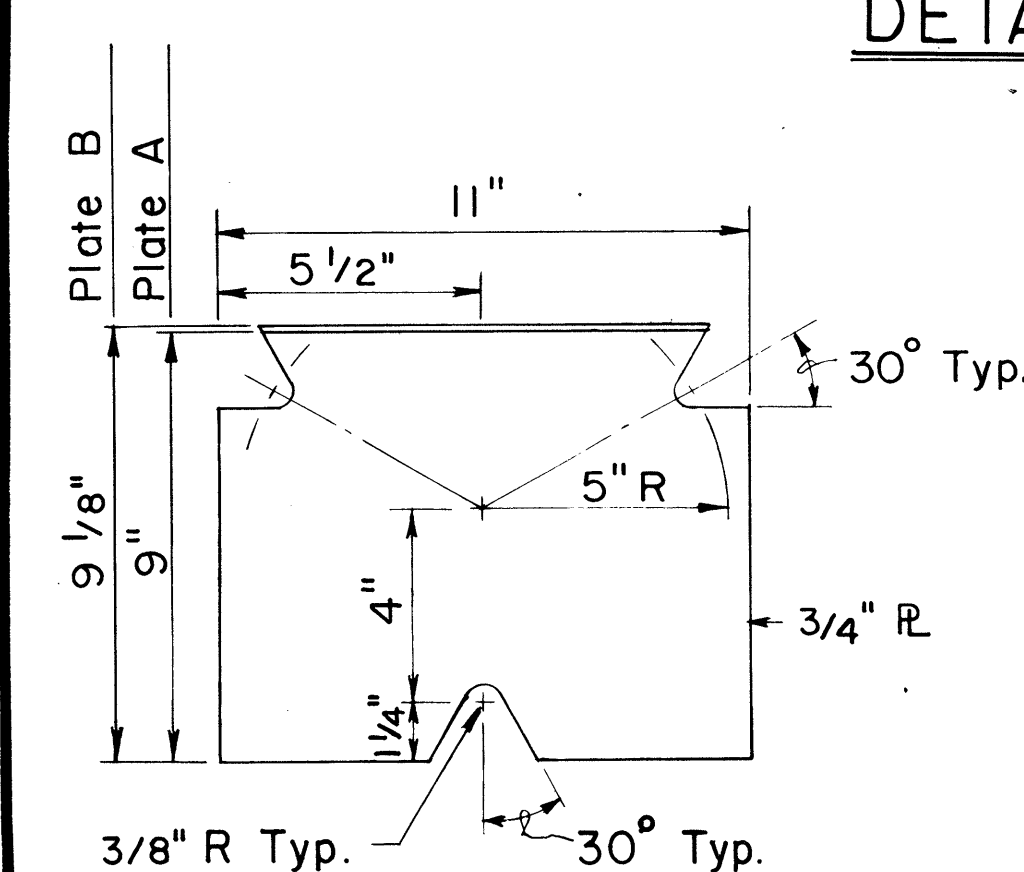
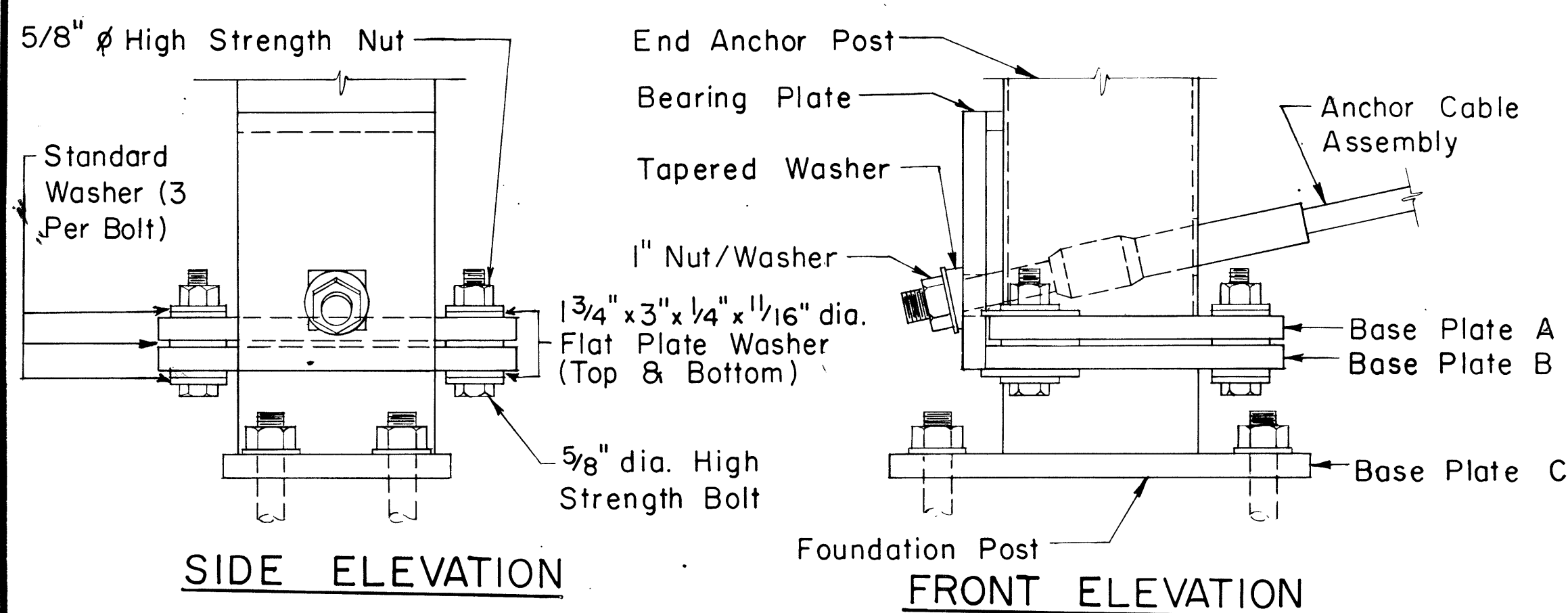
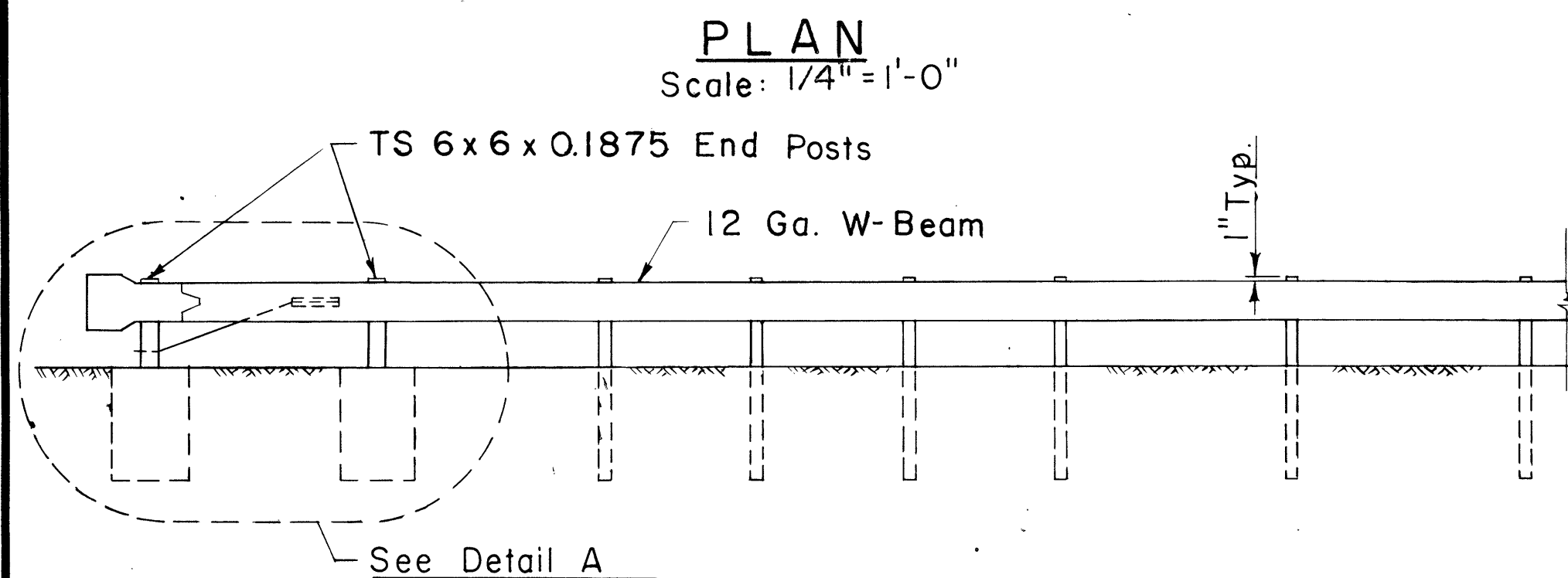
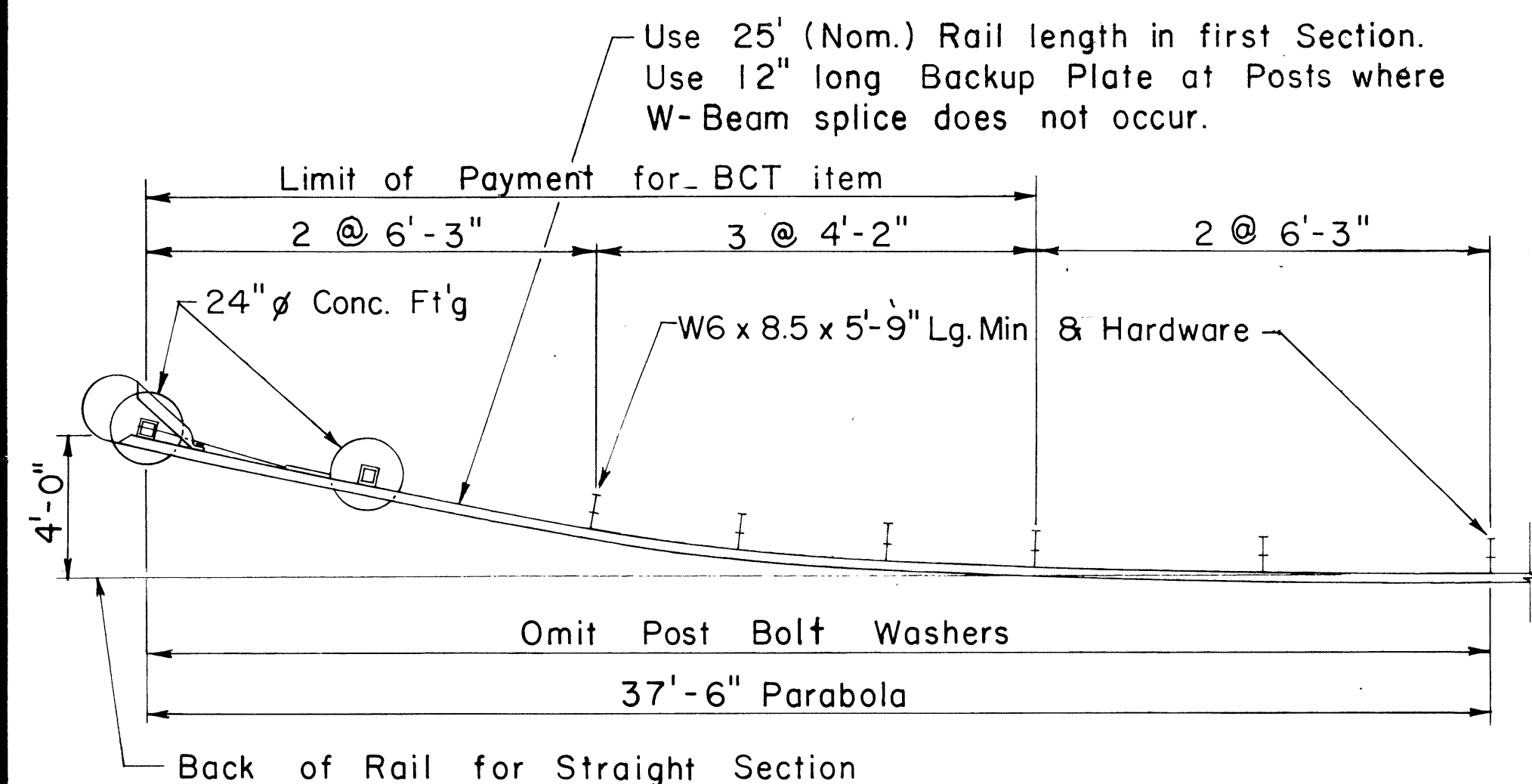
Scale: As Noted April 1969
SHEET No. C-20 OF 24 SHEETS DT 517

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
NO.	

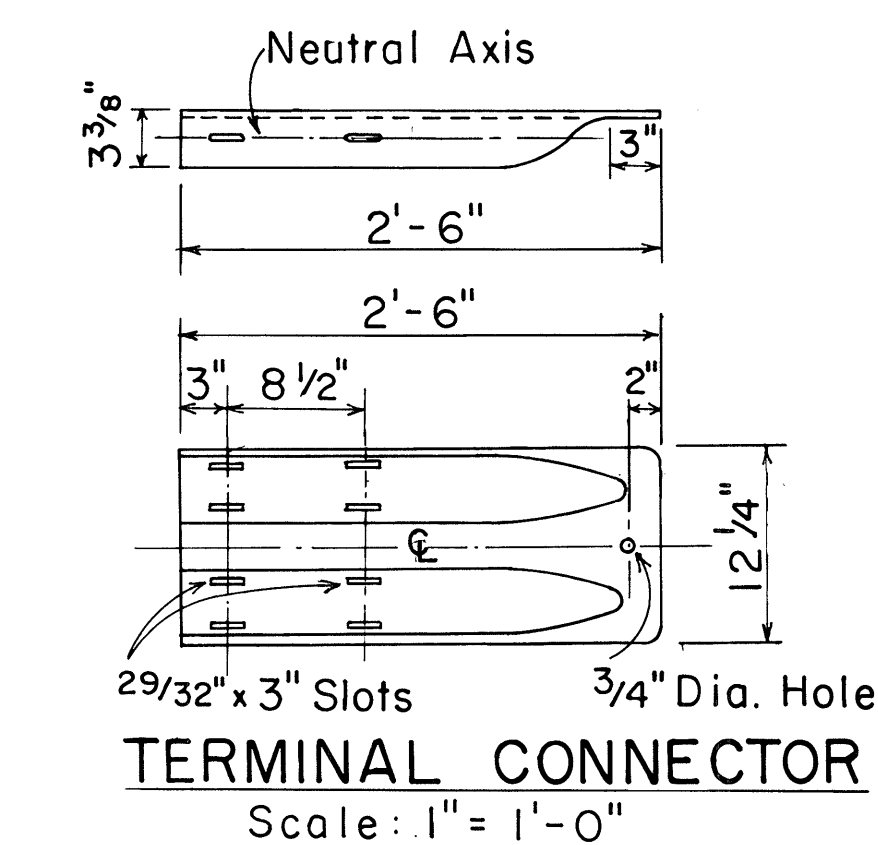
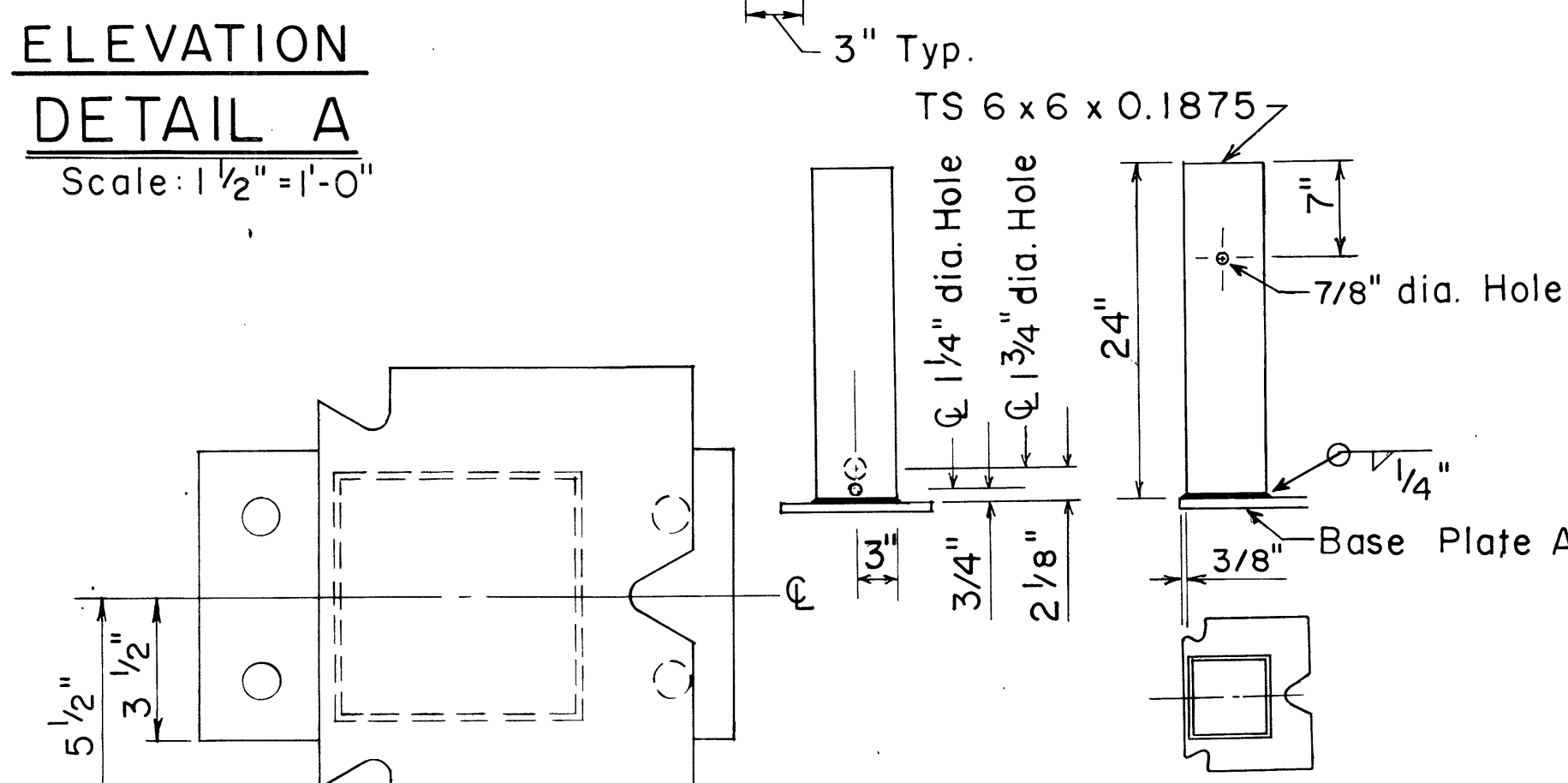
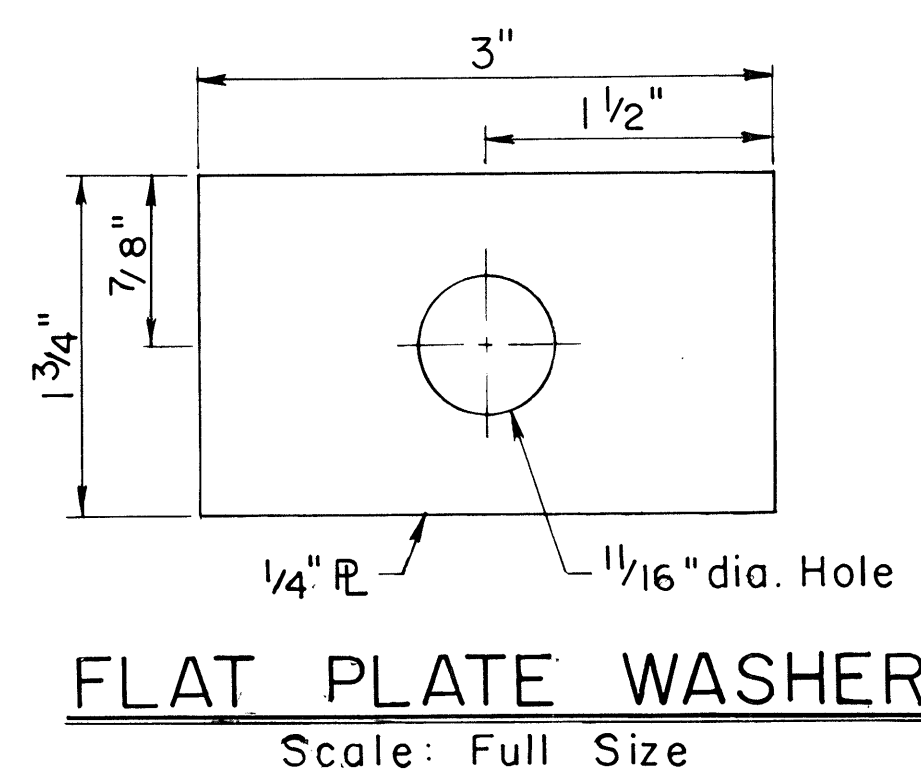
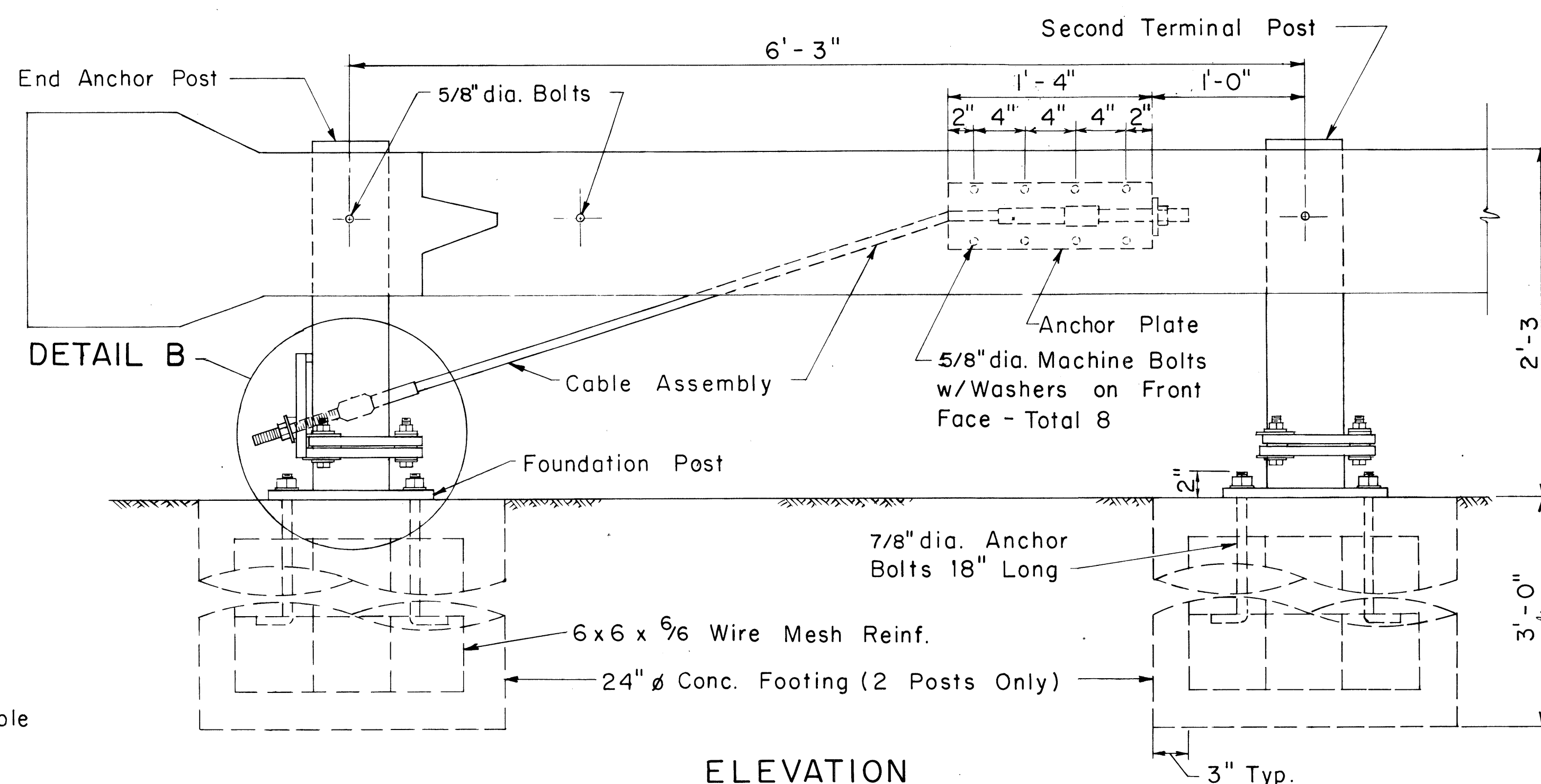
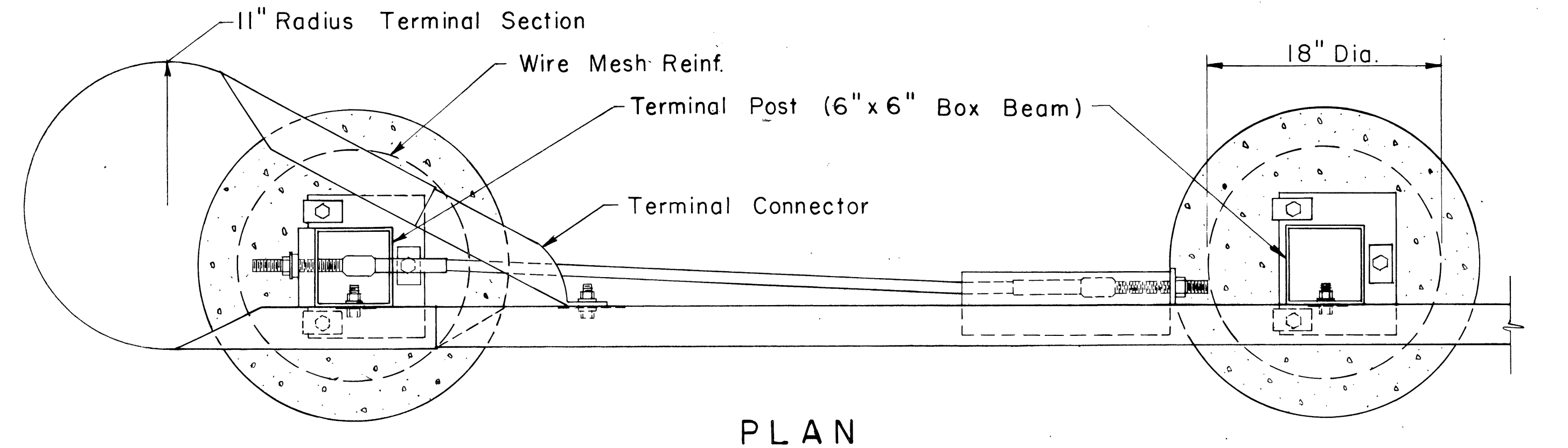
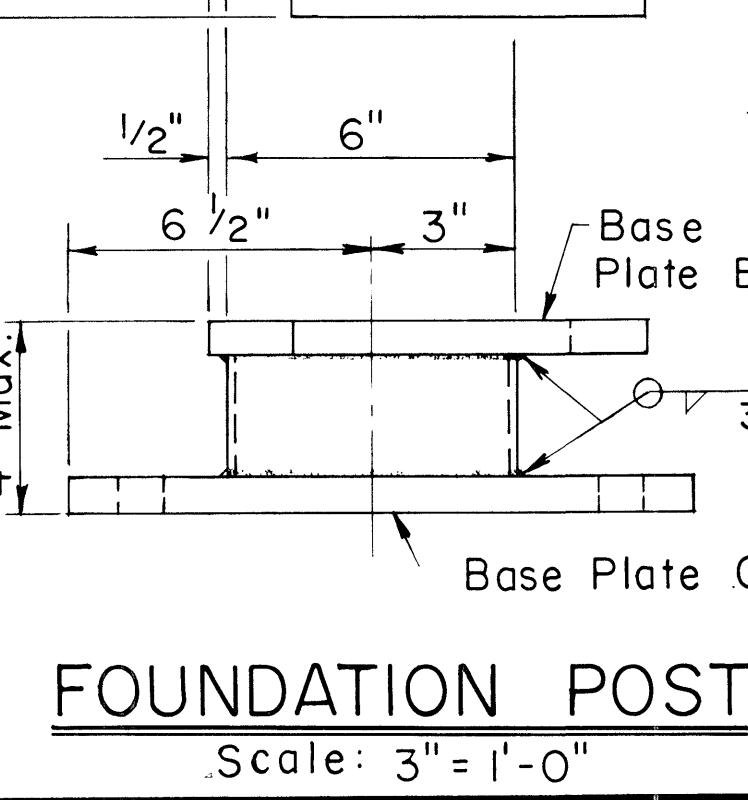
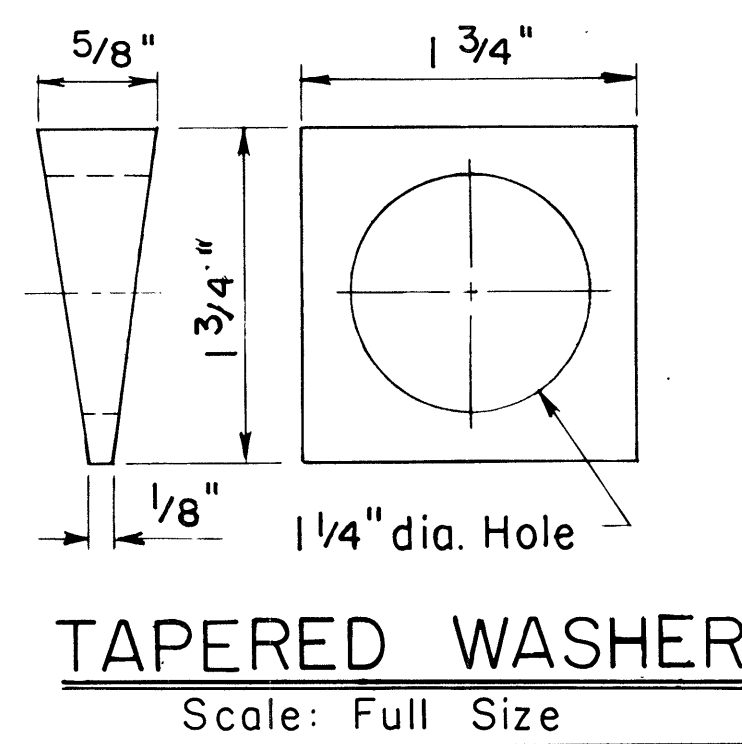
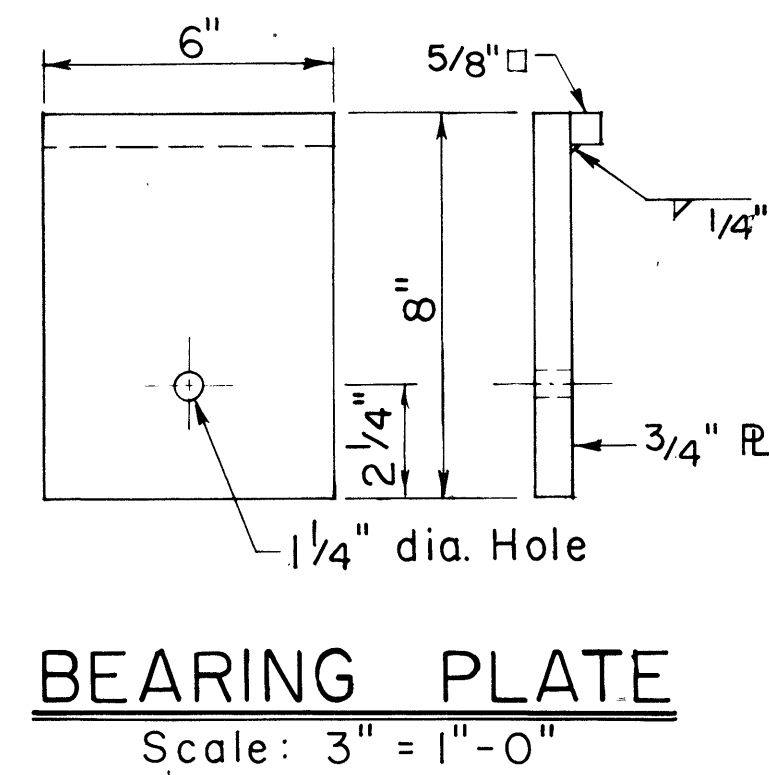
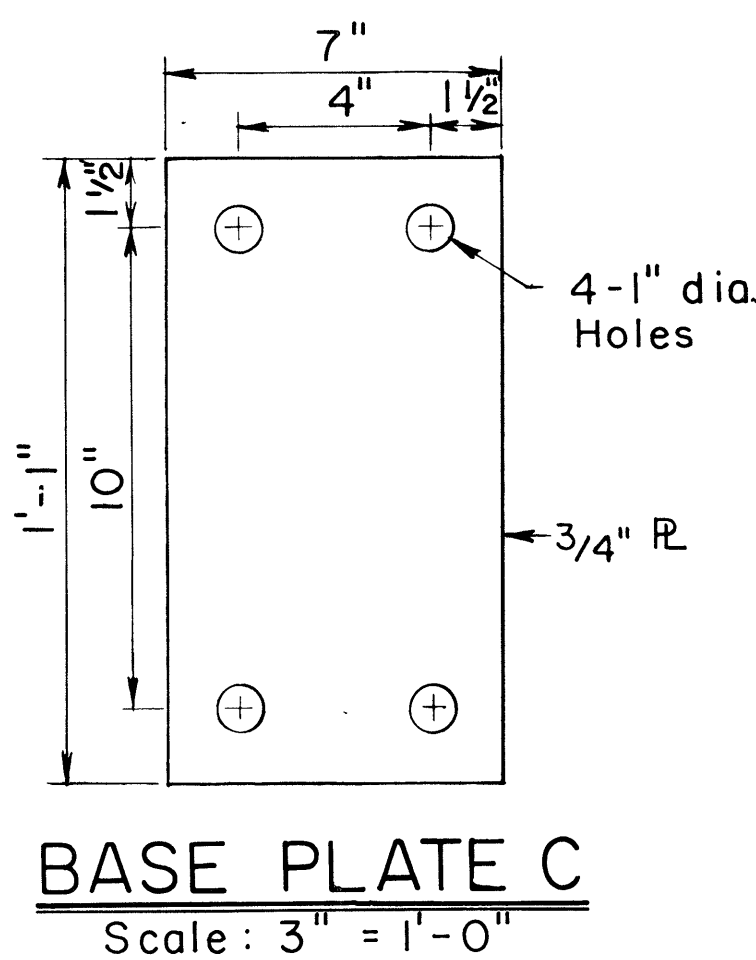
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HH(147)-17	1980	39	338

NOTES:

1. Anchor Plate and Anchor Cable Assembly (Standard Swaged Fitting and Stud). See Standard Detail Sheet No. DT 520.
2. Other Anchor Cable Assemblies may be used. Minimum breaking strength of assembly should be 40,000 lbs.
3. Second Terminal Post does not require holes to accomodate Anchor Cable.
4. Slip Base Load shall be controlled with a Calibrated Torque Wrench - Torque 155 - 170 ft. lbs.
5. Concrete shall be Class A.



BASE PLATES A & B
Scale: 3" = 1'-0"



APPROVAL RECOMMENDED:

Eishi Tanaka
TRAFFIC ENGINEER
6/14/78
DATE

APPROVED:

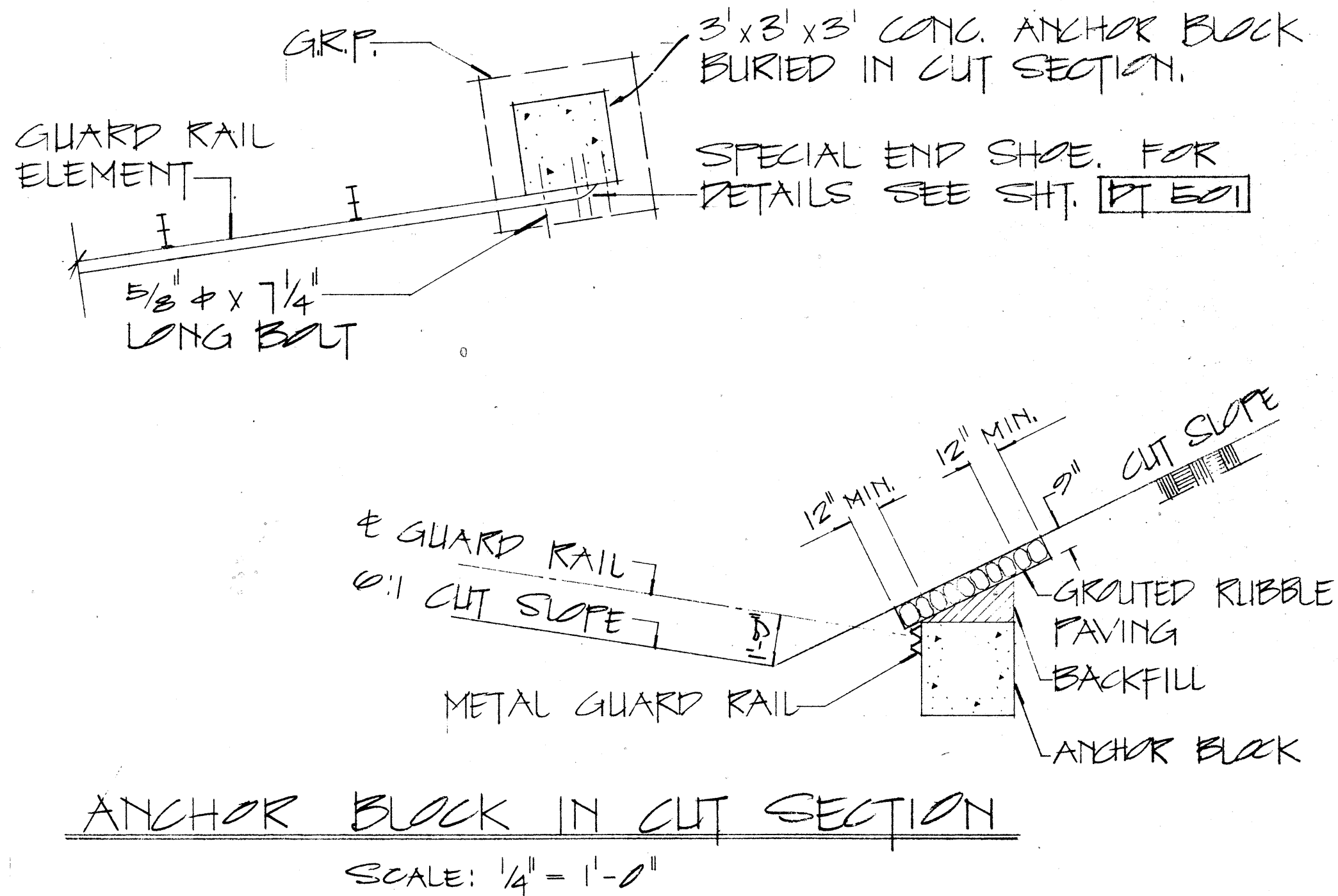
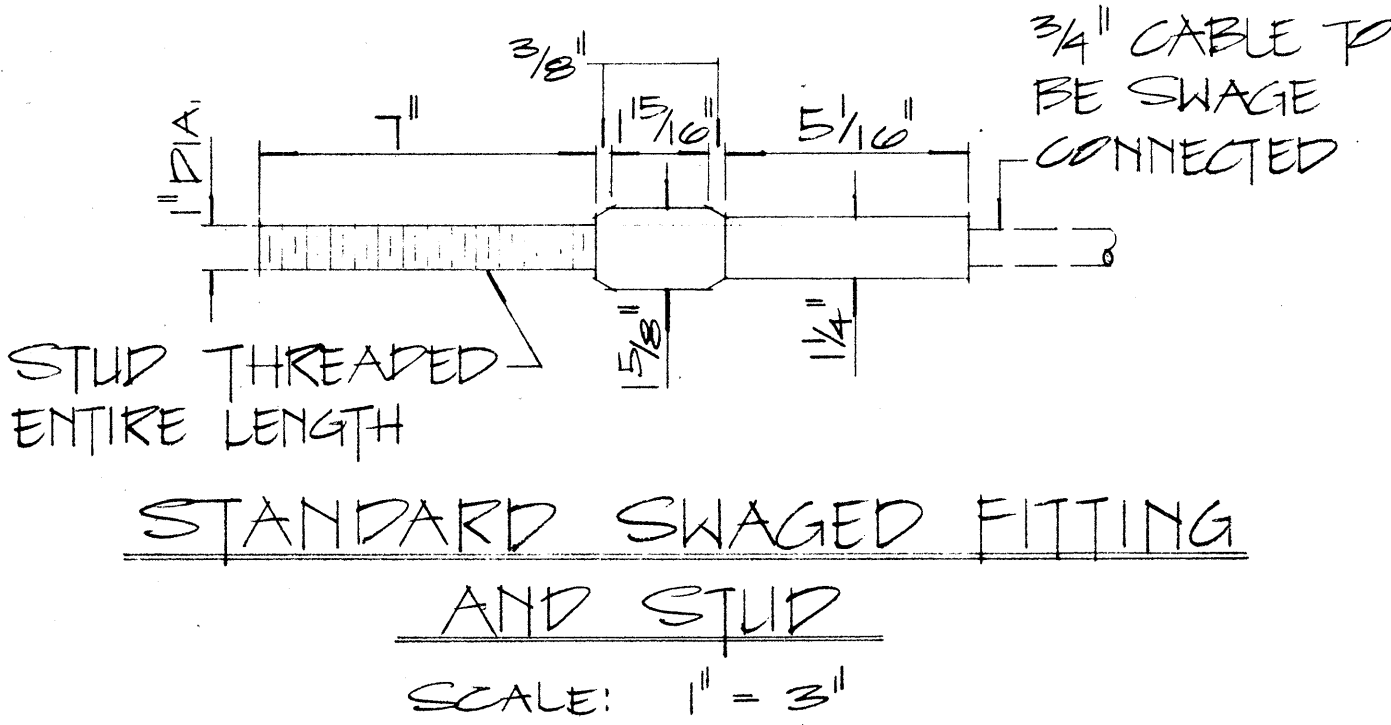
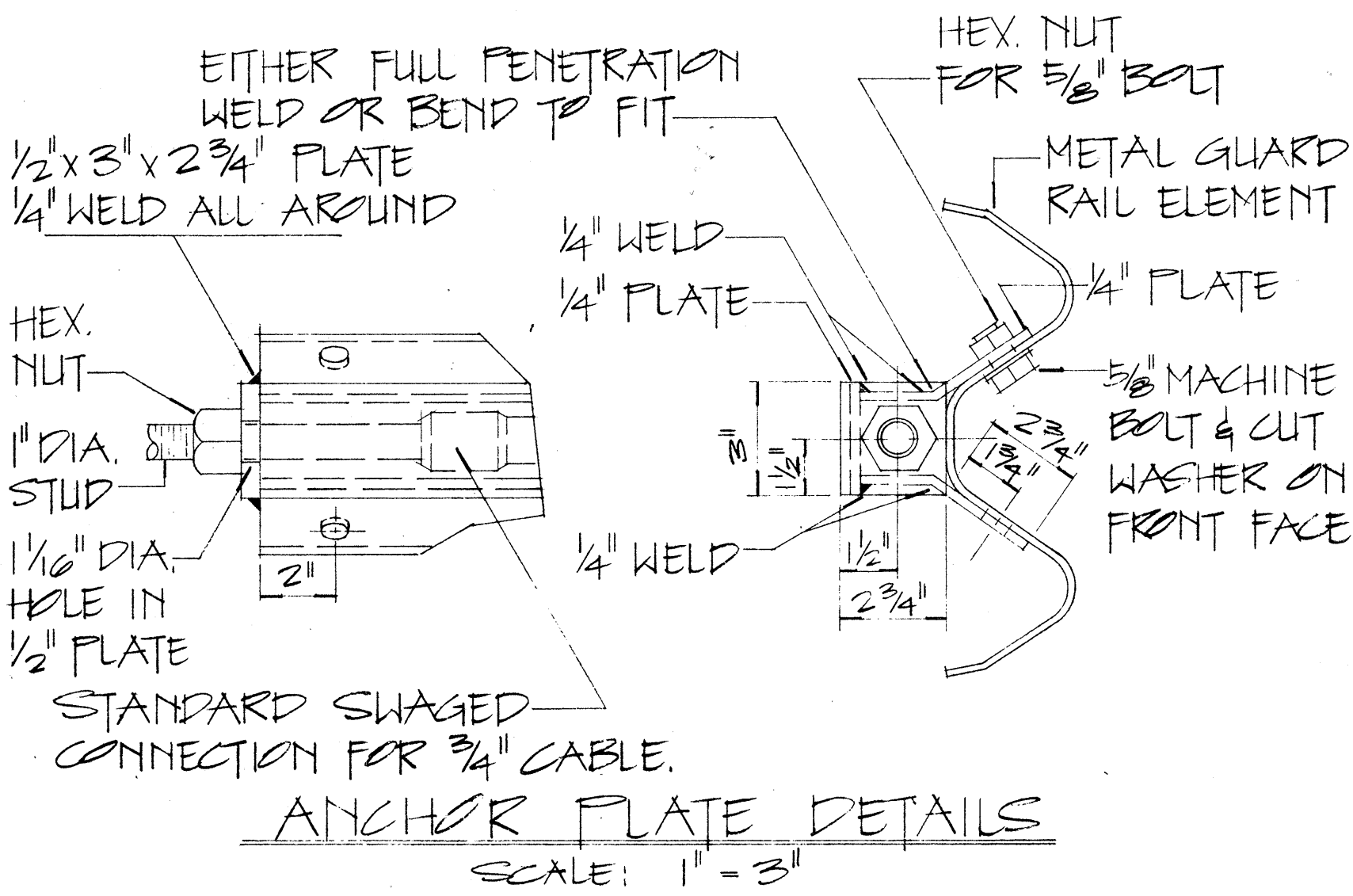
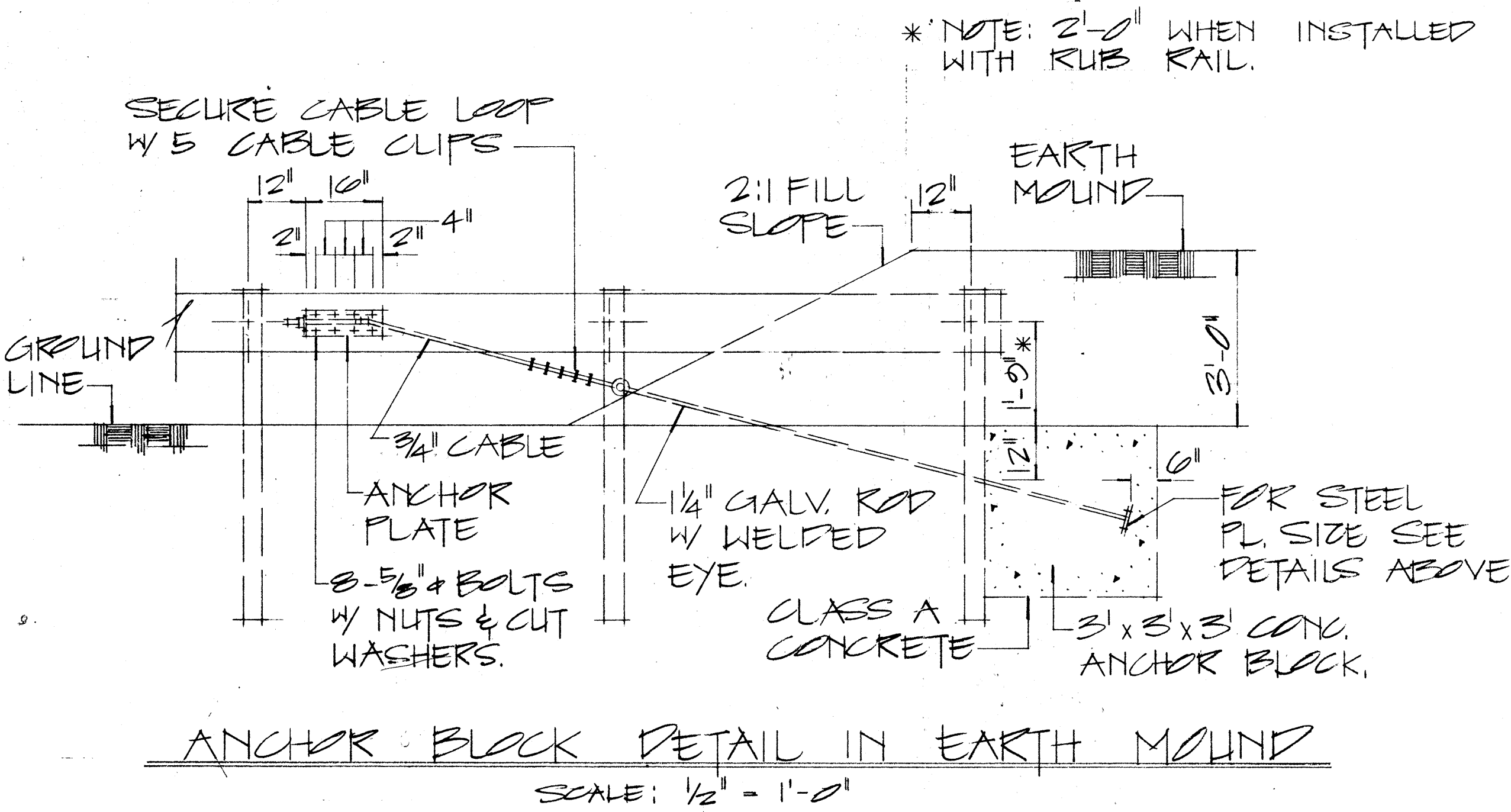
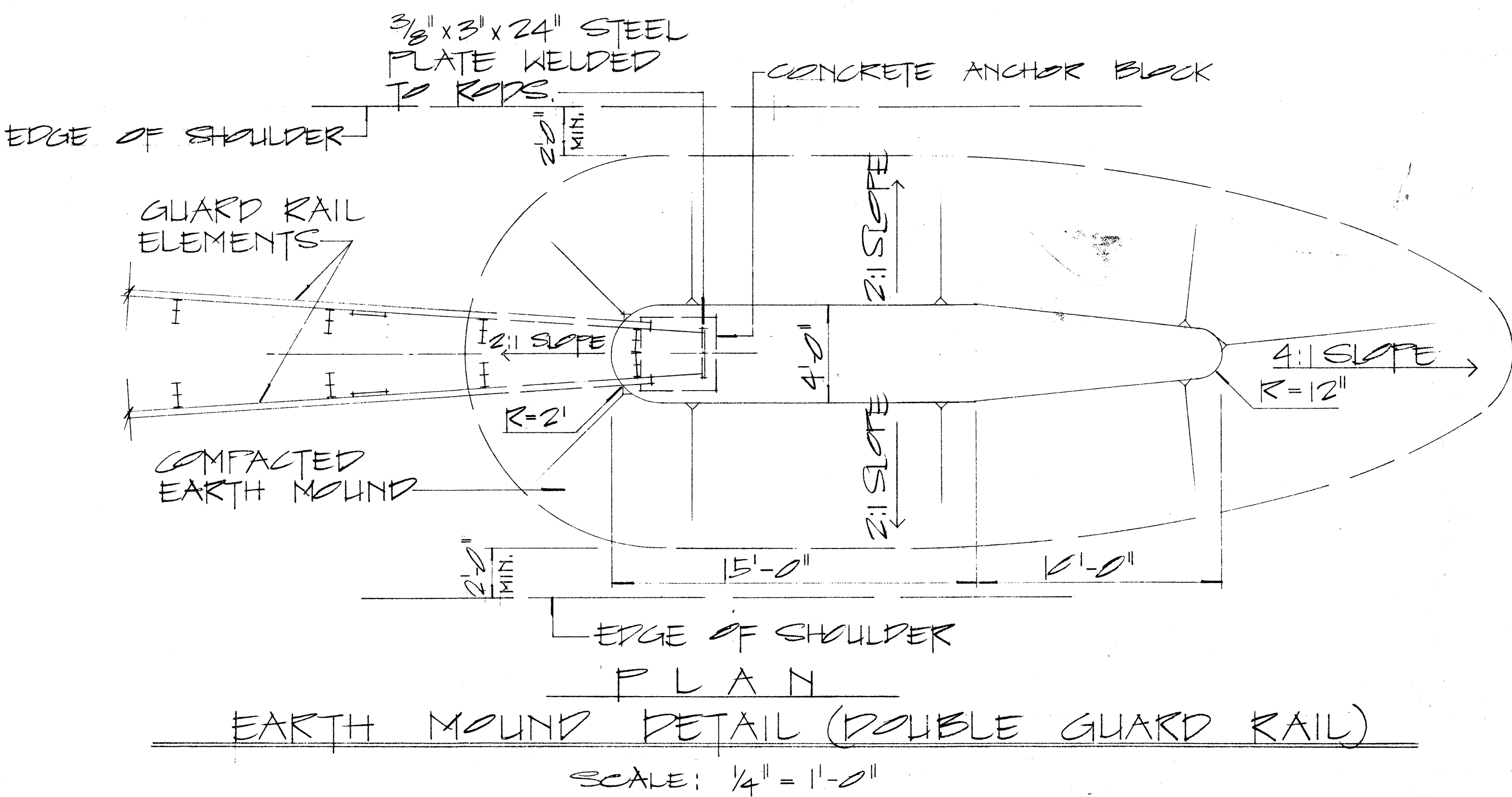
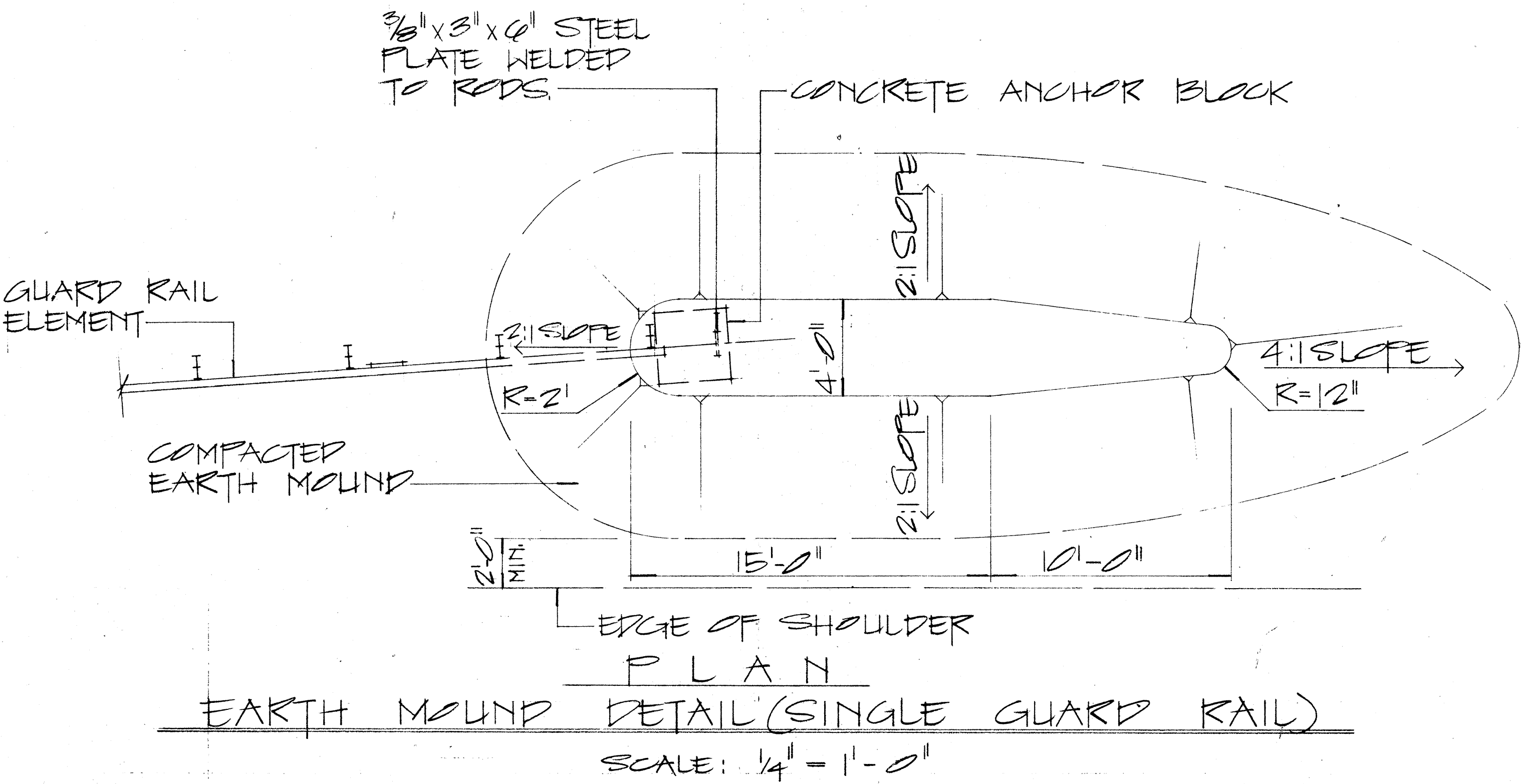
Harbour Zakeishi
ASSISTANT CHIEF, ENGINEERING
6/15/78
DATE

NO.	REVISION	APPROVED BY	DATE
	Supersedes Sht. DT 519 Approved 12/30/69	H.T.	6/15/78

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION LAND TRANSPORTATION FACILITIES DIVISION	
STANDARD DETAIL	
BREAKAWAY CABLE TERMINAL (BCT)	
Scale: As Shown	Date: June 1978
SHEET No. C-22 OF 24 SHEETS DT 519	

SURVEY PLOTTED BY:	DATE:
DESIGNED BY:	DATE:
NOTED BY:	DATE:
CHECKED BY:	DATE:
ORIGINAL PLAN	NO.

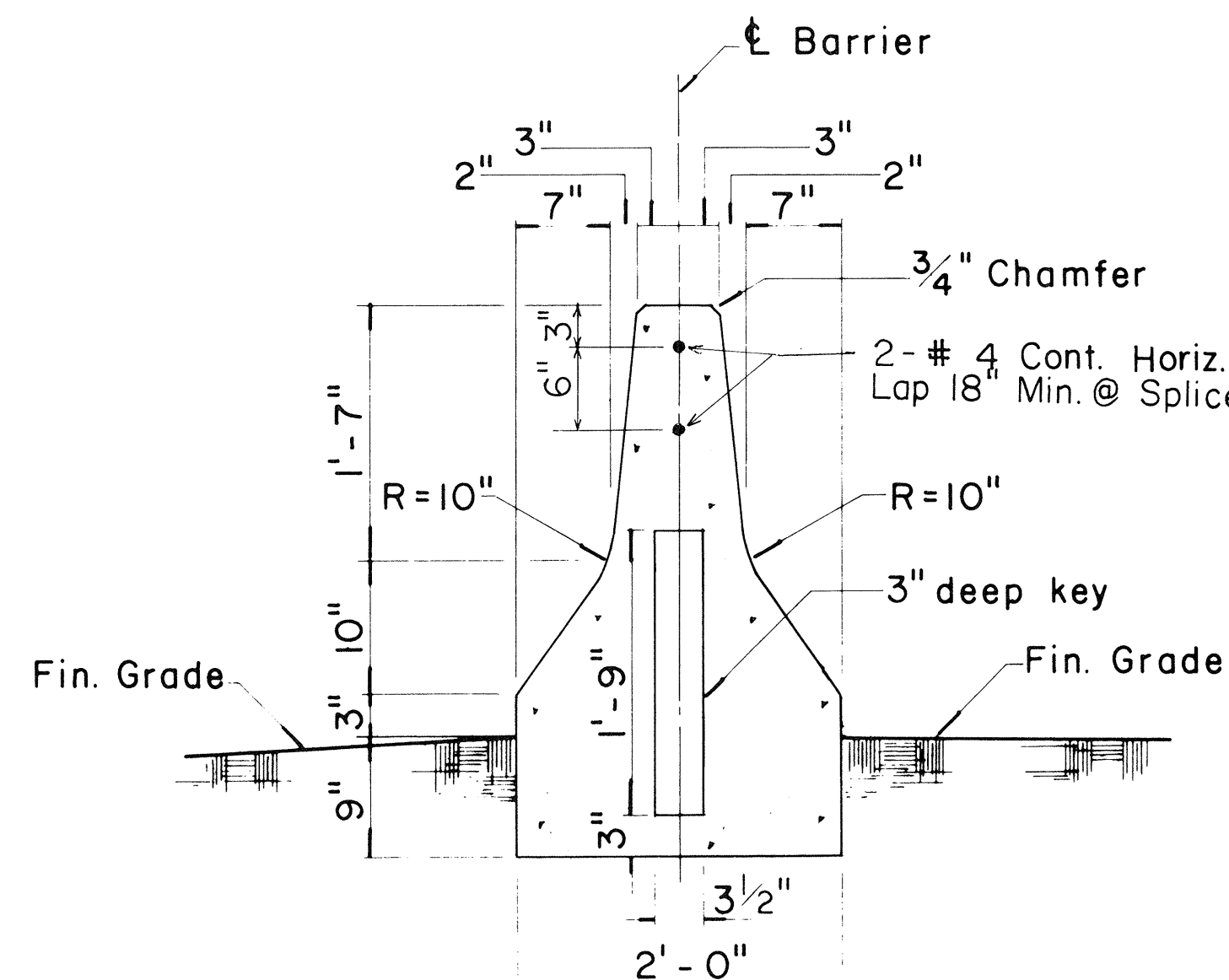
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(147)17	1980	40	338



APPROVAL RECOMMENDED:			
<u>Enishi Tanaka</u>		<u>12/29/69</u>	
TRAFFIC ENGINEER		DATE	
APPROVED:			
<u>W. W. W. W.</u>		<u>12-30-69</u>	
ASSISTANT CHIEF, ENGINEERING		DATE	
NO.	REVISION	APPROVED BY	DATE

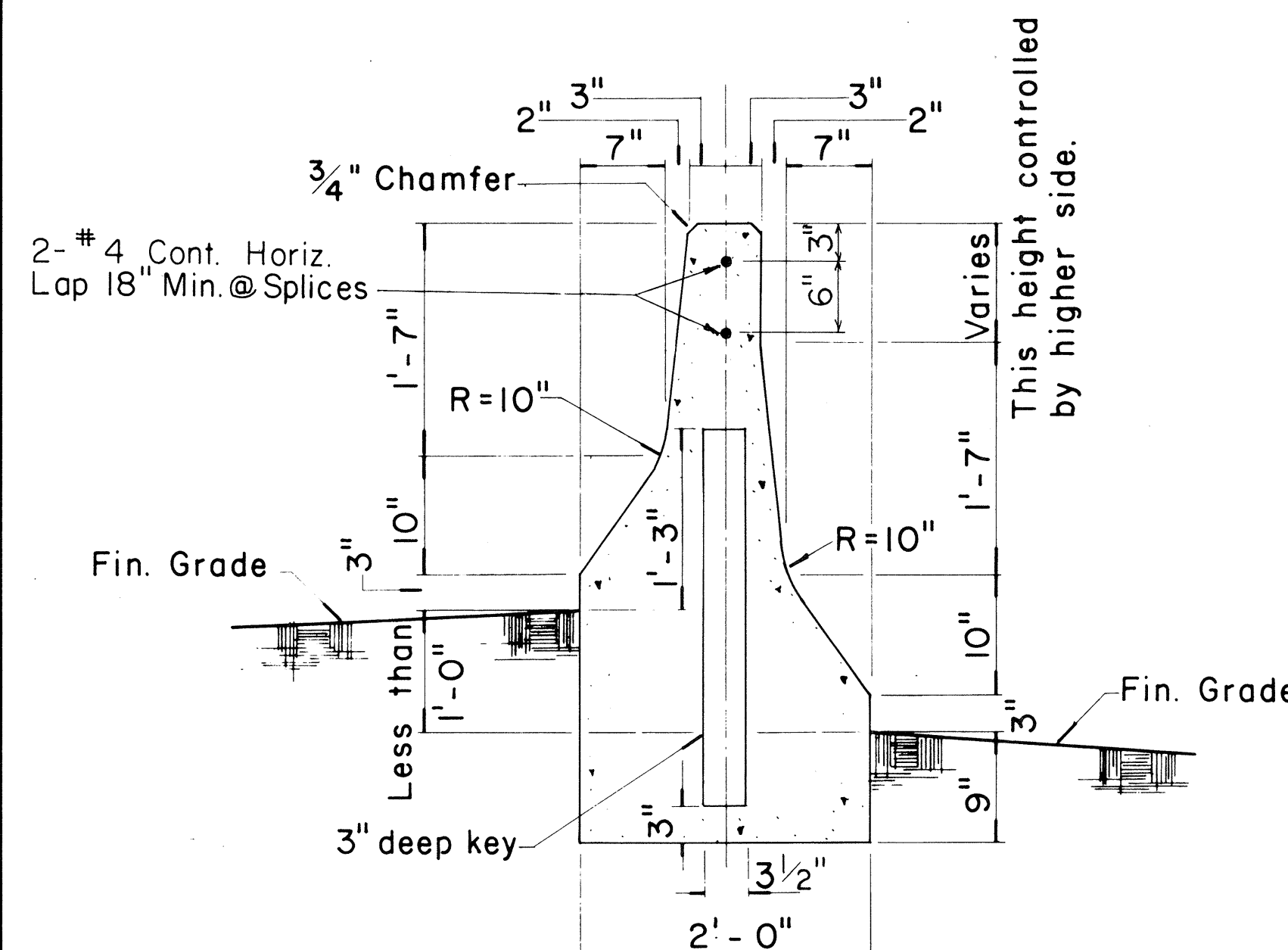
STATE OF HAWAII	
DEPARTMENT OF TRANSPORTATION	
HIGHWAYS DIVISION	
STANDARD DETAILS	
EARTH MOUND AND ANCHOR BLOCK DETAILS	
SCALE: AS SHOWN	
SHEET No. C-23 OF 24 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FH-1(147)-17	1980	41	338



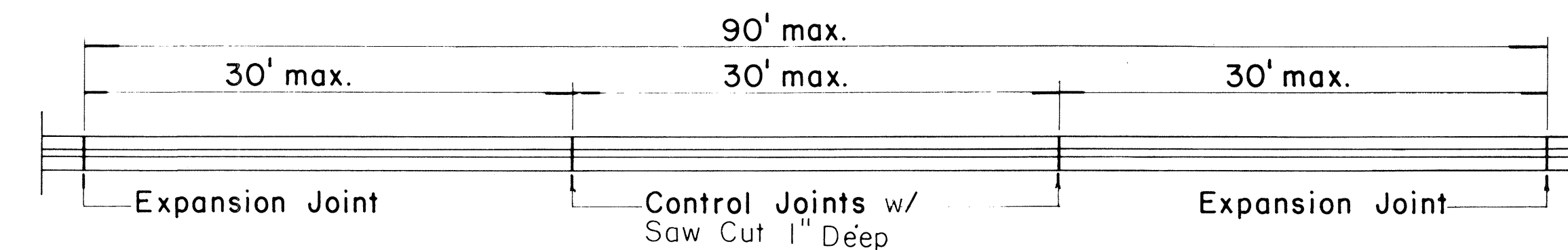
TYPE 4A

Scale: 1" = 1'-0"



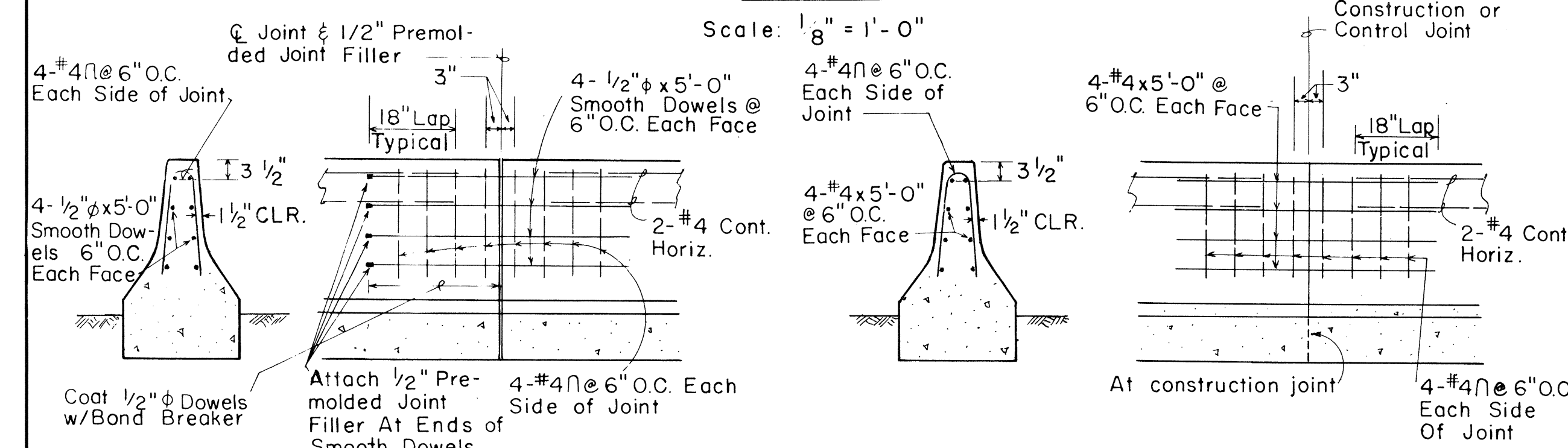
TYPE 4B

Scale: 1" = 1'-0"



PLAN

Scale: 1/8" = 1'-0"



SECTION

ELEVATION

SECTION

ELEVATION

EXPANSION JOINT DETAIL

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

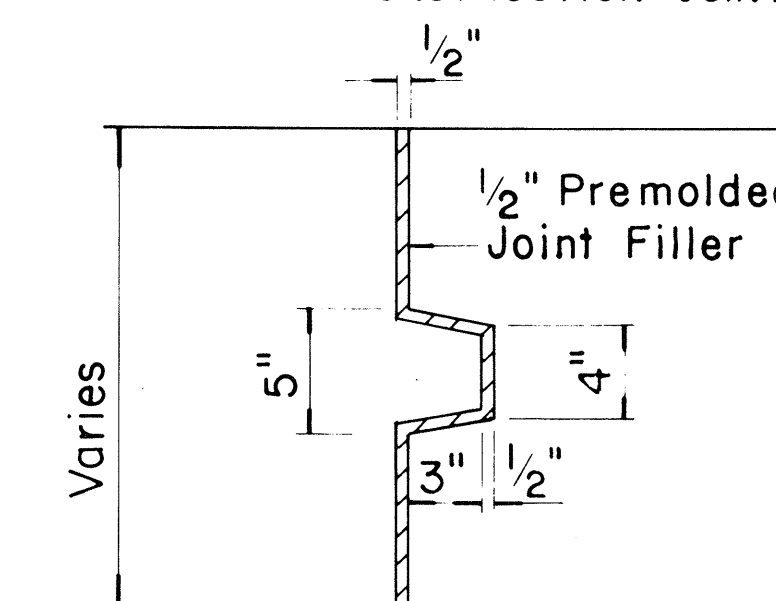
CONSTRUCTION & CONTROL JOINT DETAIL

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

GENERAL NOTES

- Precast Rigid Barrier Guard Rail may be installed as an option to cast-in-place Type 4 Rigid Barrier Guard Rail. Contractor shall submit shop drawings to Engineer for approval.
- Expansion Joints shall be constructed at ninety-foot (90ft.) maximum intervals and at existing expansion joints of structures. (Use 1/2" premolded joint filler, incidental to Type 4 Rigid Barrier Guard Rail). Control Joints shall be placed between expansion joints at 30' maximum. Shear keys shall be required at all construction joints.
- The exterior surface and vertical alignment of the Type 4 Rigid Barrier Guard Rail shall be constructed to give a uniform and presentable appearance. Variation of more than 1/4" in 20' max. and 1/2" in 40' or more will be considered objectionable. The Engineer will determine the acceptability of the work. During the course of the work, samples may be tested and measurements made to establish whether or not the specified values or dimensions are being met. If the specified values or dimensions are not being met, the Engineer will determine the degree of the non-conformance, the effect on the serviceability of the project, whether the work be accepted and remain in place and, if so, the amount to be paid for such work, or whether the work shall be removed and replaced or otherwise corrected at the Contractor's expense.

NOTE: 1/2" PREMOLDED JOINT FILLER IS NOT REQUIRED AT CONSTRUCTION JOINTS.



SECTION THRU KEY AT EXPANSION JOINT

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

APPROVAL RECOMMENDED:

Eichi Tanaka 2/10/12
TRAFFIC ENGINEER DATE

APPROVED:

Shirley Dalside 2/10/12
ASSISTANT CHIEF, ENGINEERING DATE

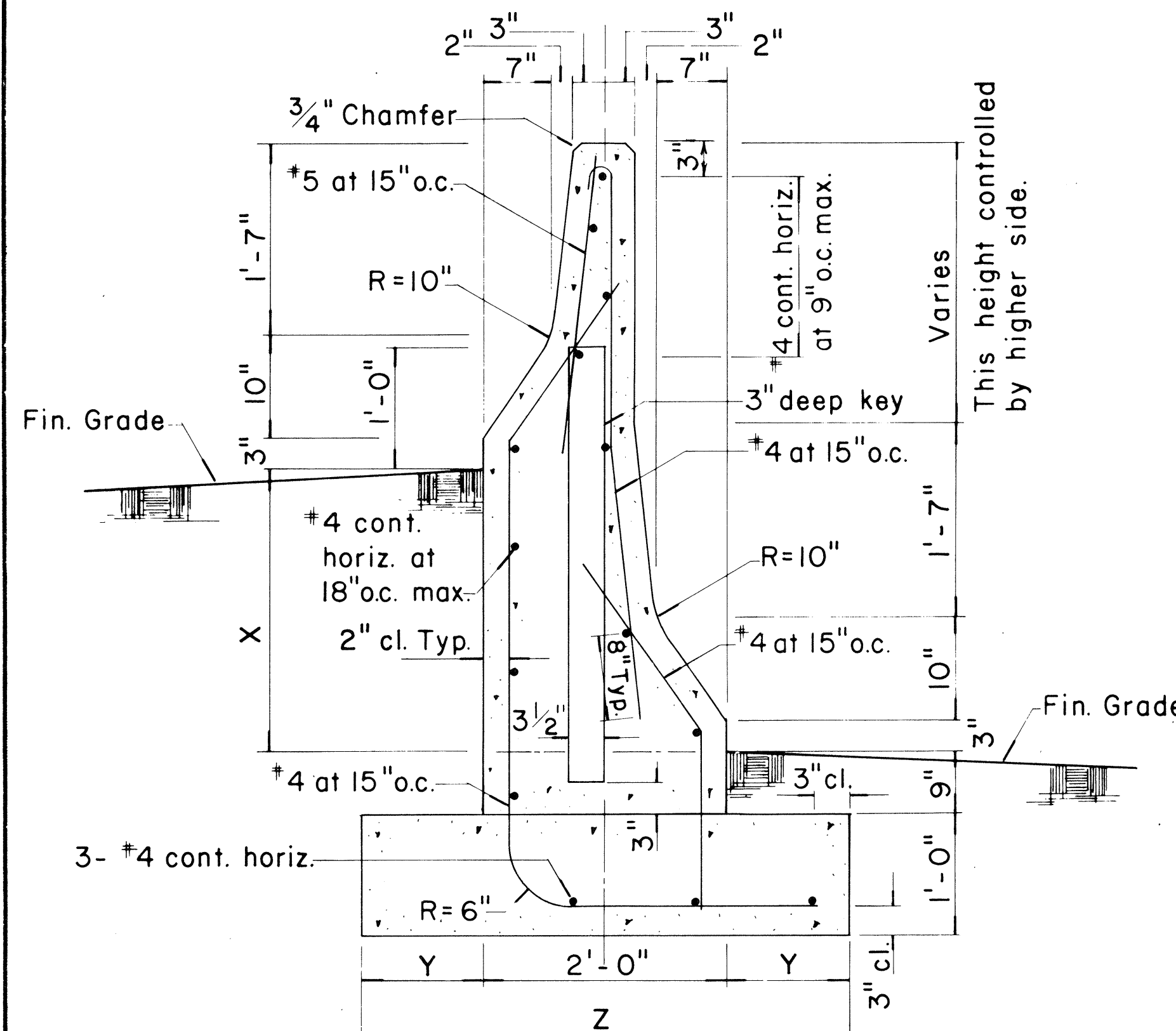
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**STANDARD DETAILS
GUARD RAIL TYPE 4
(RIGID BARRIER)**

Scale: As Shown

SHEET No. C-24 OF 24 SHEETS DT 521

NO.	REVISION	APPROVED BY	DATE
1	Supersede Sht. DT 521 Approved 12-30-69	H.T.	2/10/12
2	Added No. 4 Steel Reinforcing Bar. Change Dimension on Type 4C & 4D Detail	H.T.	8/16/11
3	Added additional Reinforcing Bars and Revised Control & Expansion Joints	H.T.	6/30/80



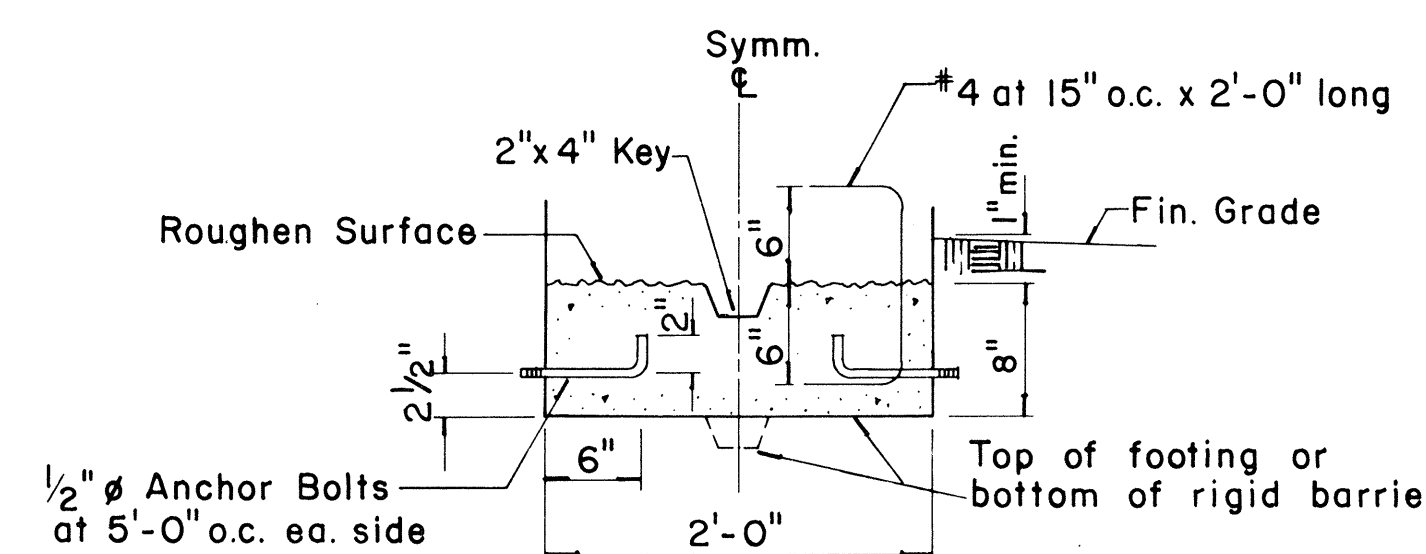
TYPE 4C & TYPE 4D

Scale: 1" = 1'-0"

TYPE	DIFFERENCE IN FIN. GRADE	FOOTING
	X	Y Z
4C	1'-0" min., 2'-4" max.	1'-0" 4'-0"
4D	Greater than 2'-4", 4'-4" max.	1'-3" 4'-6"

NOTE:

Except where noted all dimensions shall be the same for Type 4C and Type 4D.



OPTIONAL CONSTRUCTION JOINT DETAILS

Scale: 1" = 1'-0"

NOTE:

The intent of the optional construction joint details for the Type 4 Rigid Barrier Guard Rail is to provide a method of securing the forms and preventing uplift so that the barrier will have a uniform and presentable appearance. The Contractor may submit an alternate method of constructing the barrier for the approval of the Engineer and for use on a trial basis. Any unsatisfactory work shall be removed or corrected as directed by the Engineer and at the Contractor's expense.

ORIGINAL PLAN	DATE
DESIGNED BY	
CHECKED BY	
NOTED BY	
DATE	