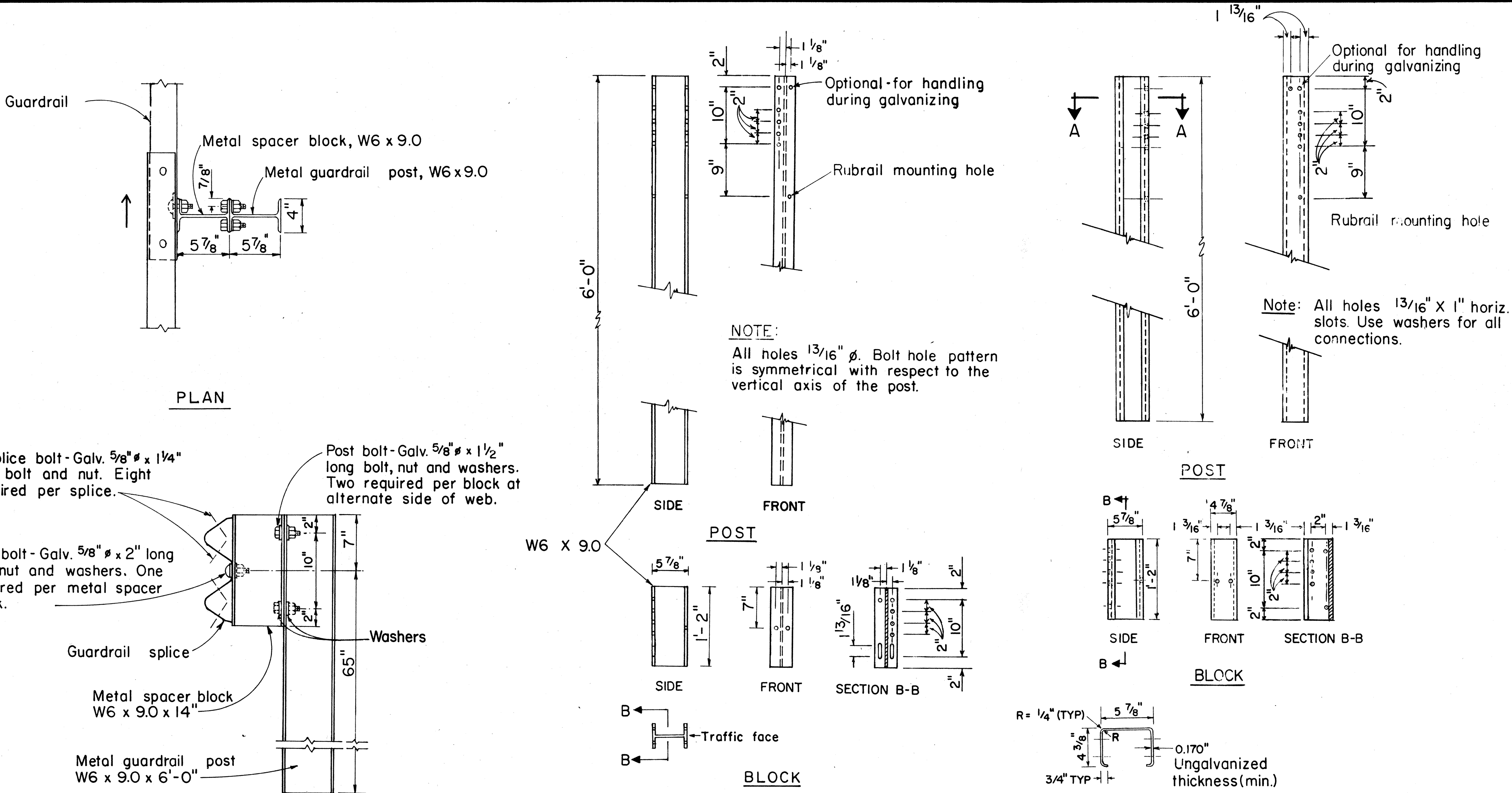


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19J-02-85	1986	20	54

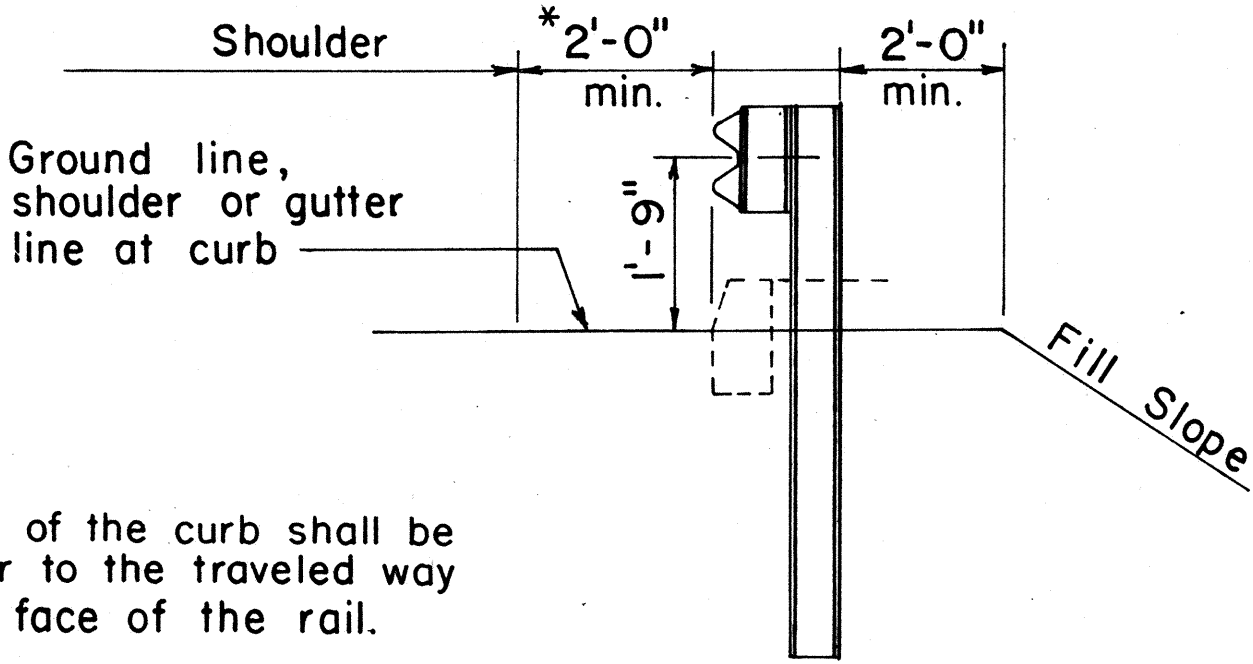
GENERAL NOTES

1. 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.
2. All hardware, posts and blocks shall be galvanized. No punching, drilling or cutting will be permitted after galvanizing.
3. Connection details for bent plate post and block shall be similar to the details shown for structural shape post, and block.
4. Where conditions require, special post lengths in increments of 6 inches may be specified.
5. For details of rail elements, bolts and nuts, see sheet DT 501.
6. 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.



SINGLE METAL GUARDRAIL ON METAL POST WITH METAL SPACER BLOCK

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

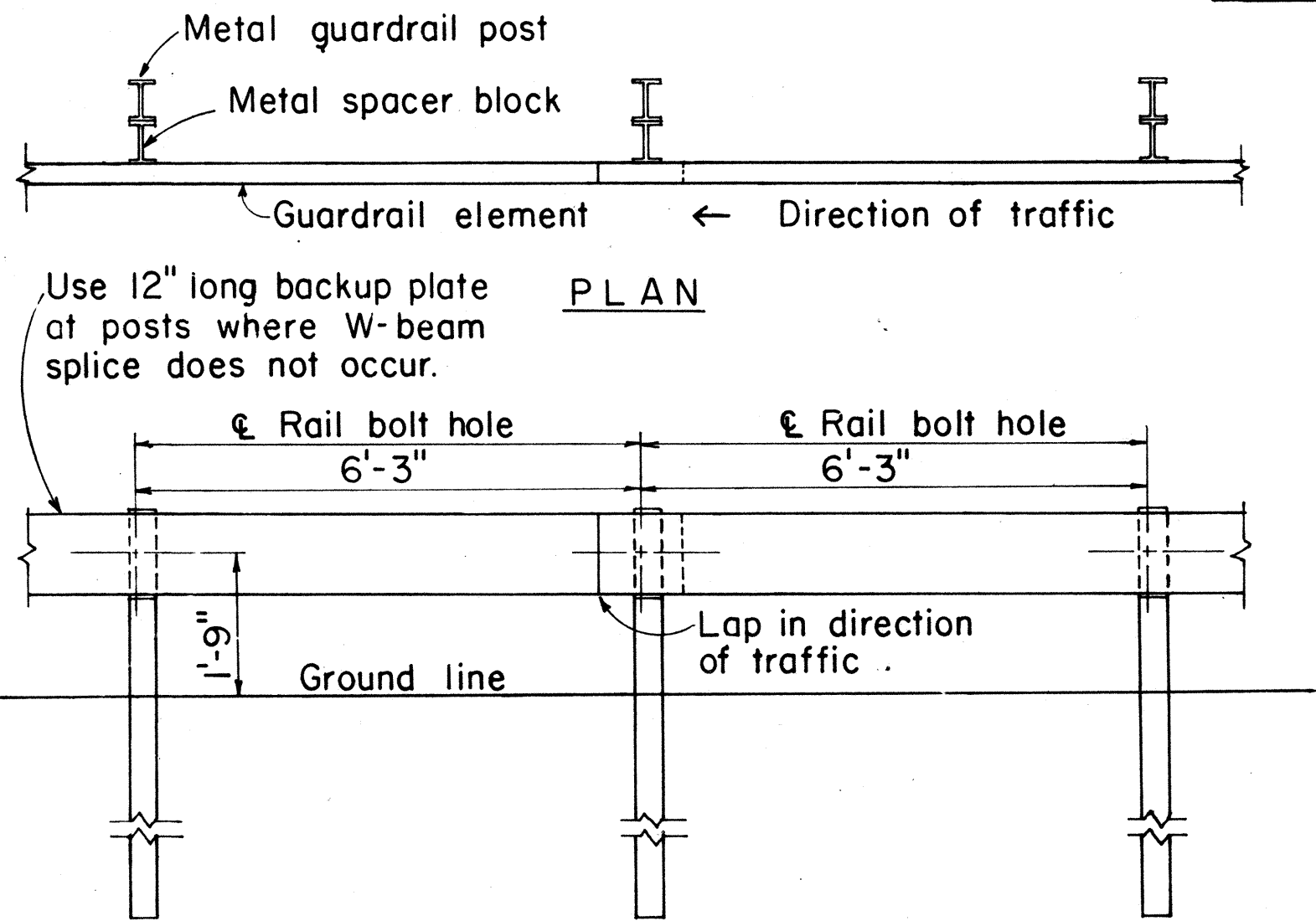


TYPICAL METAL GUARDRAIL DETAIL

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

STRUCTURAL SHAPE POST AND BLOCK

SCALE: 1" = 1'-0"

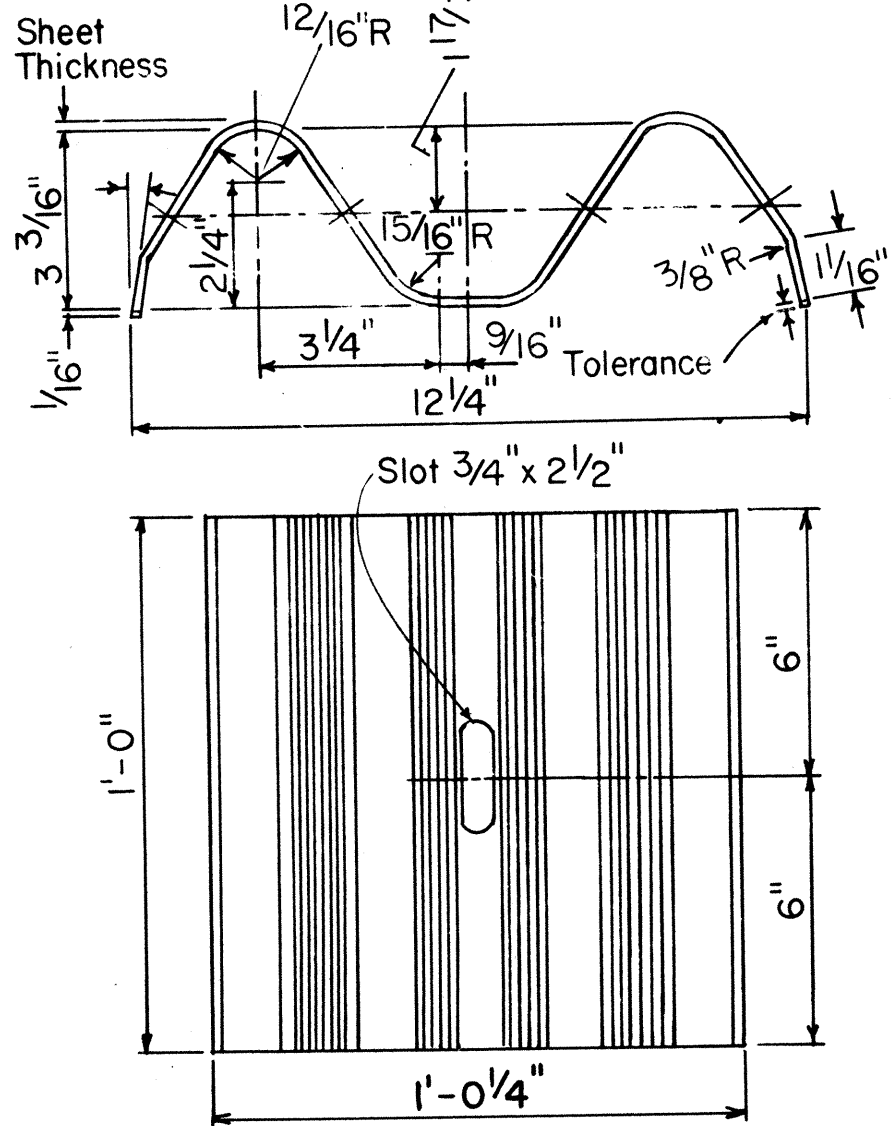


METAL GUARDRAIL ON METAL POST WITH METAL SPACER BLOCK

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

BENT PLATE POST AND BLOCK

SCALE: 1" = 1'-0"



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

APPROVED:
Robert Balisak 9/22/82
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes sht. DT 500 approved 12/30/69.	H.F.	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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL GUARDRAIL

Scale: As Shown

July, 1982

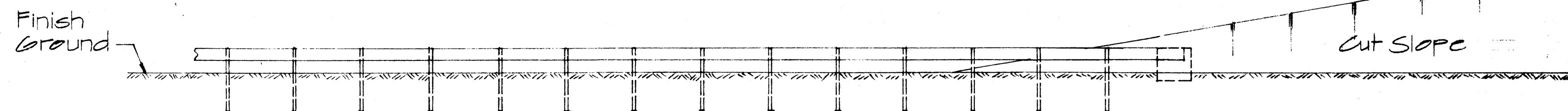
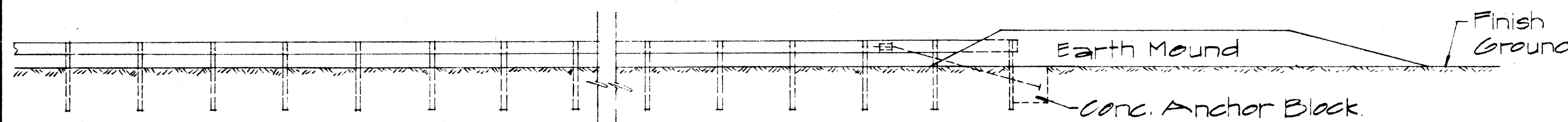
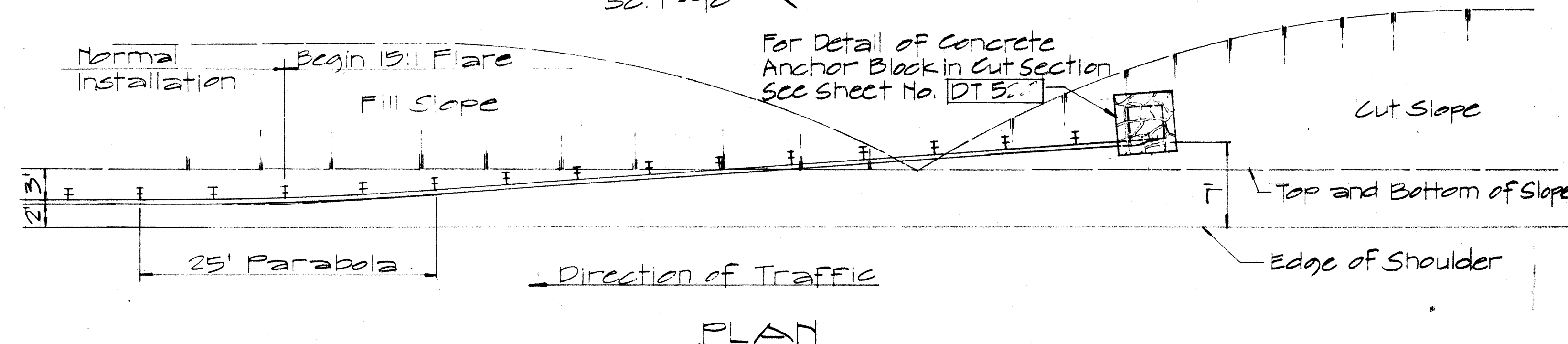
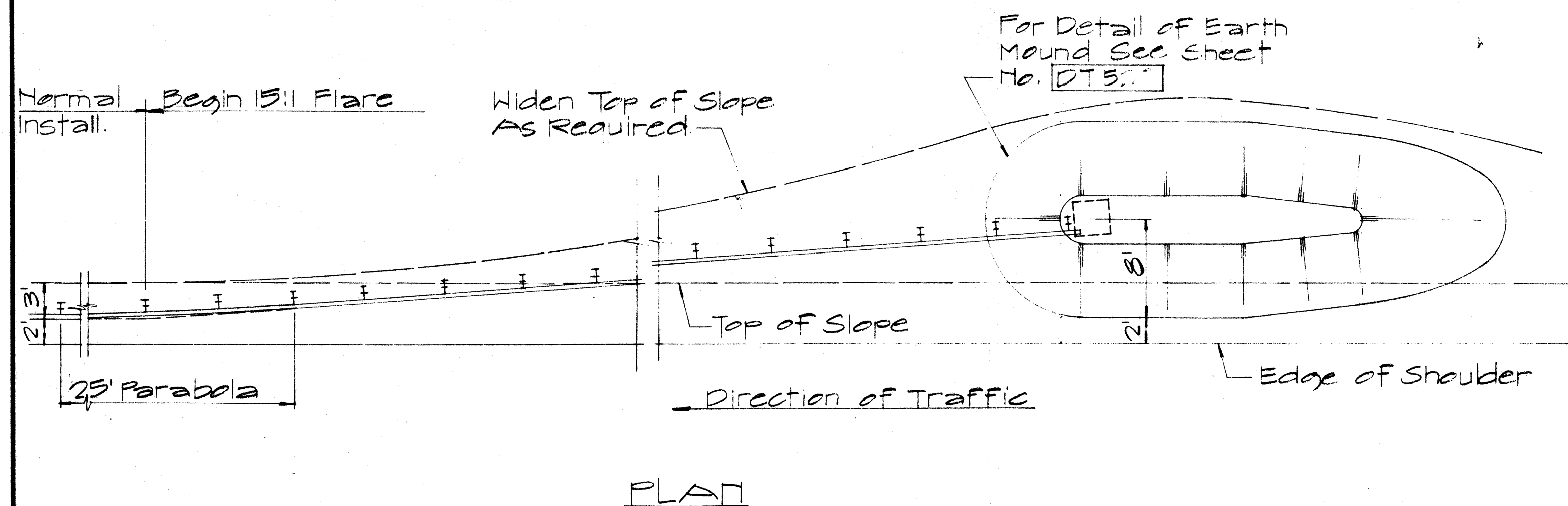
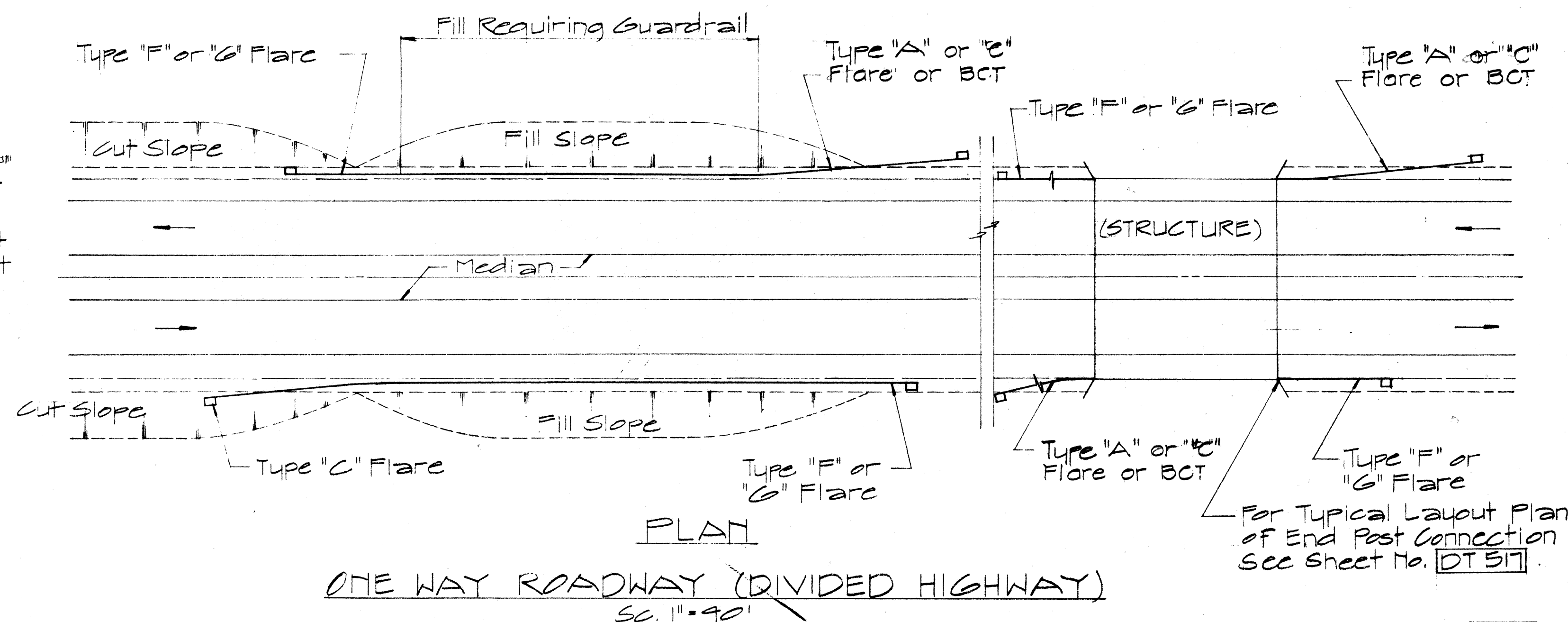
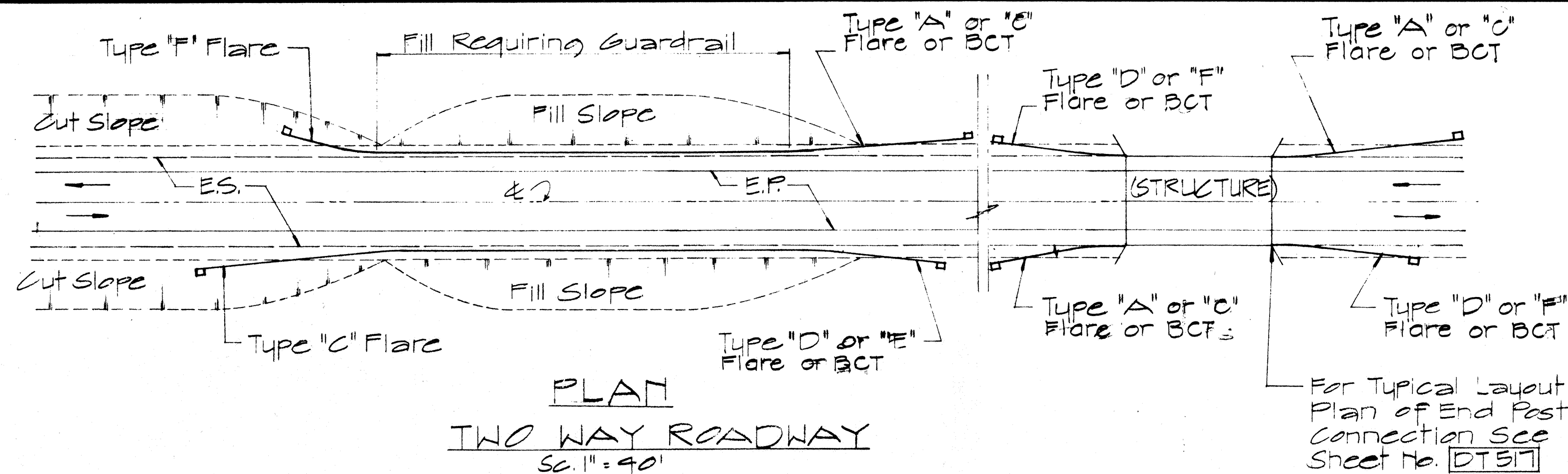
SHEET NO. OF SHEETS DT 500

SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
QUANTITIES BY	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19J-0285	1986	30	54

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



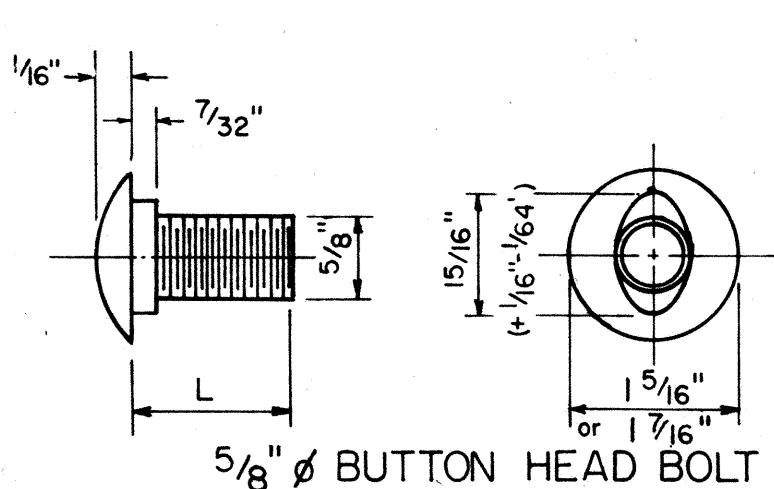
APPROVAL RECOMMENDED:
Erich Tanaka
TRAFFIC ENGINEER
12/29/69
DATE

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

NO.	REVISION	APPROVED BY	DATE
1	Delete Type "B" Flare and Type "E" Flare	H.T.	6/15/88

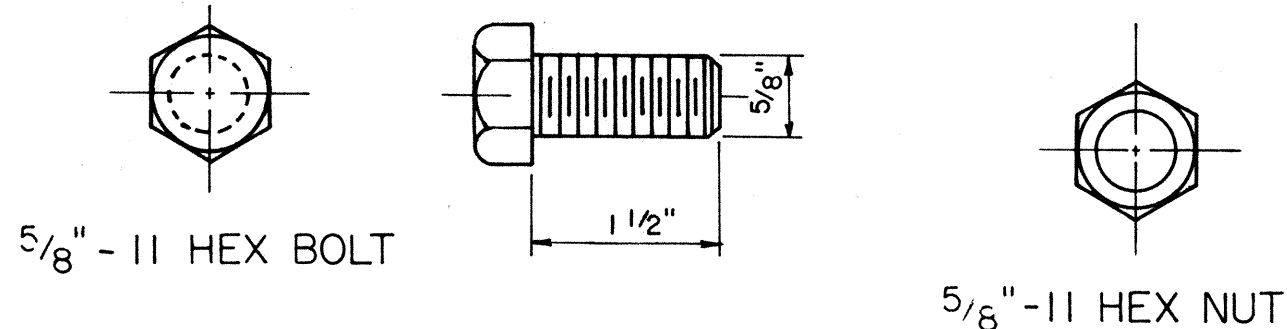
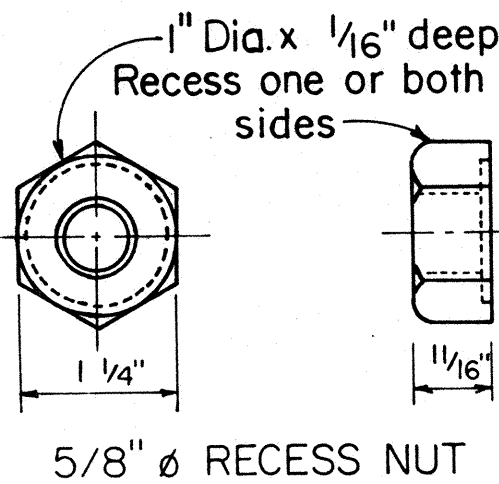
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
OF APPROACH END
FLARE - ONE & TWO
WAY ROADWAY
SC. As Noted
APRIL 1969
SHEET No. OF SHEETS DT 516

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	10J-02-85	1986	31	54

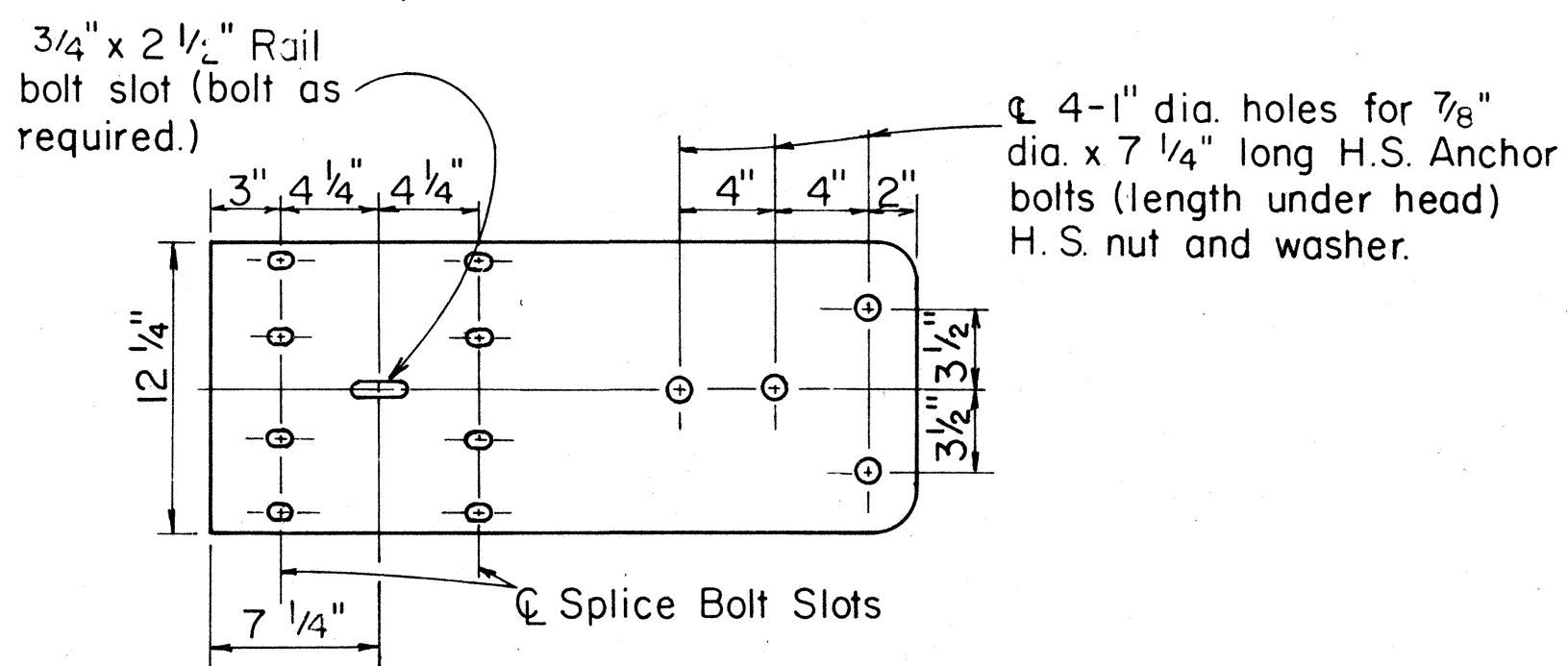
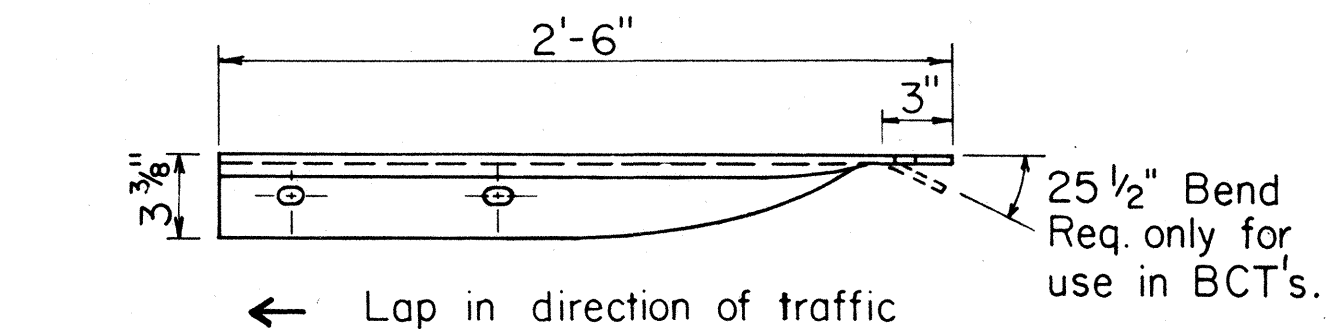


L	Thread Length	Intended Use
1 1/4"	Full length thread	Splice rail elements
2"	1 1/2" min. thread len.	Fasten rails to posts

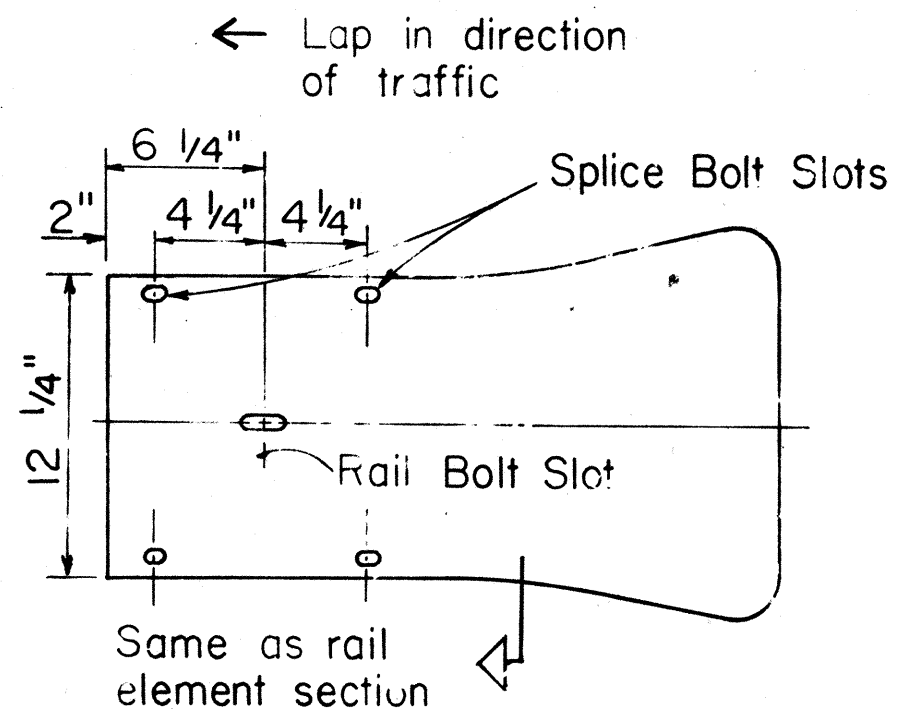
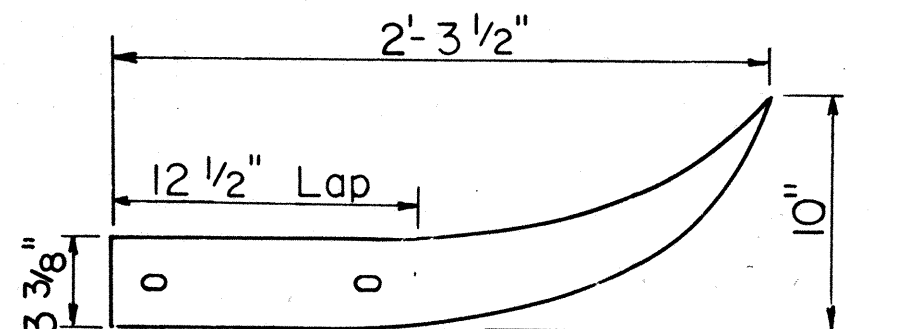
5/8" BUTTON HEAD BOLT AND RECESS NUT
Scale: NTS



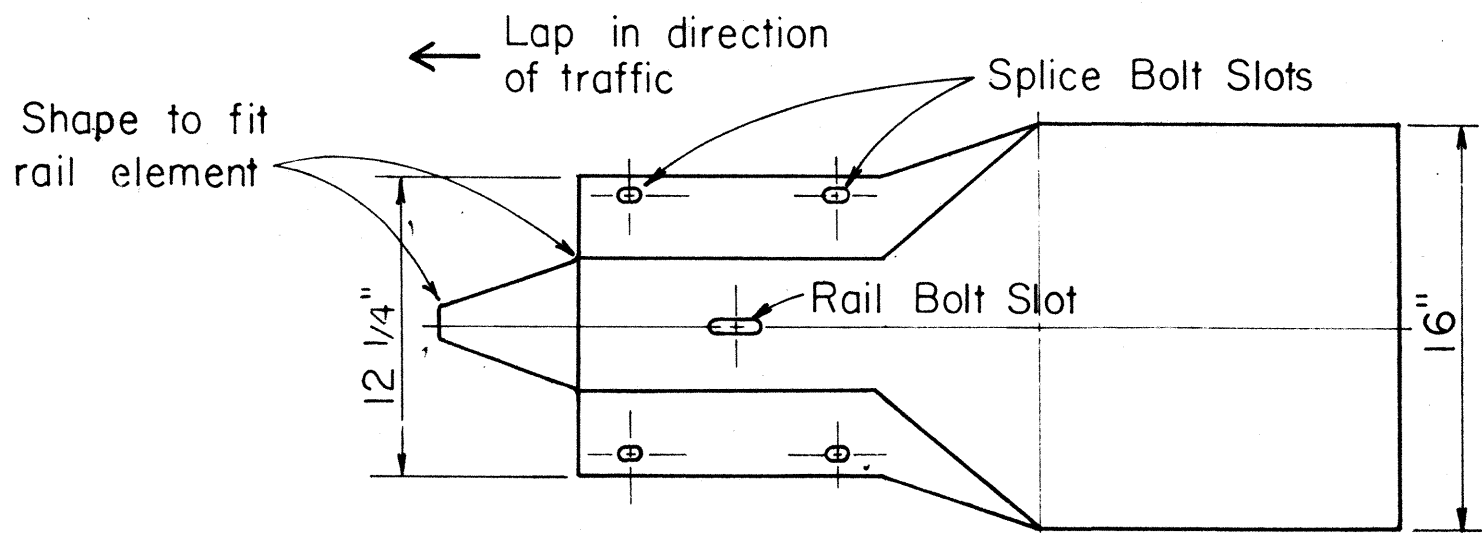
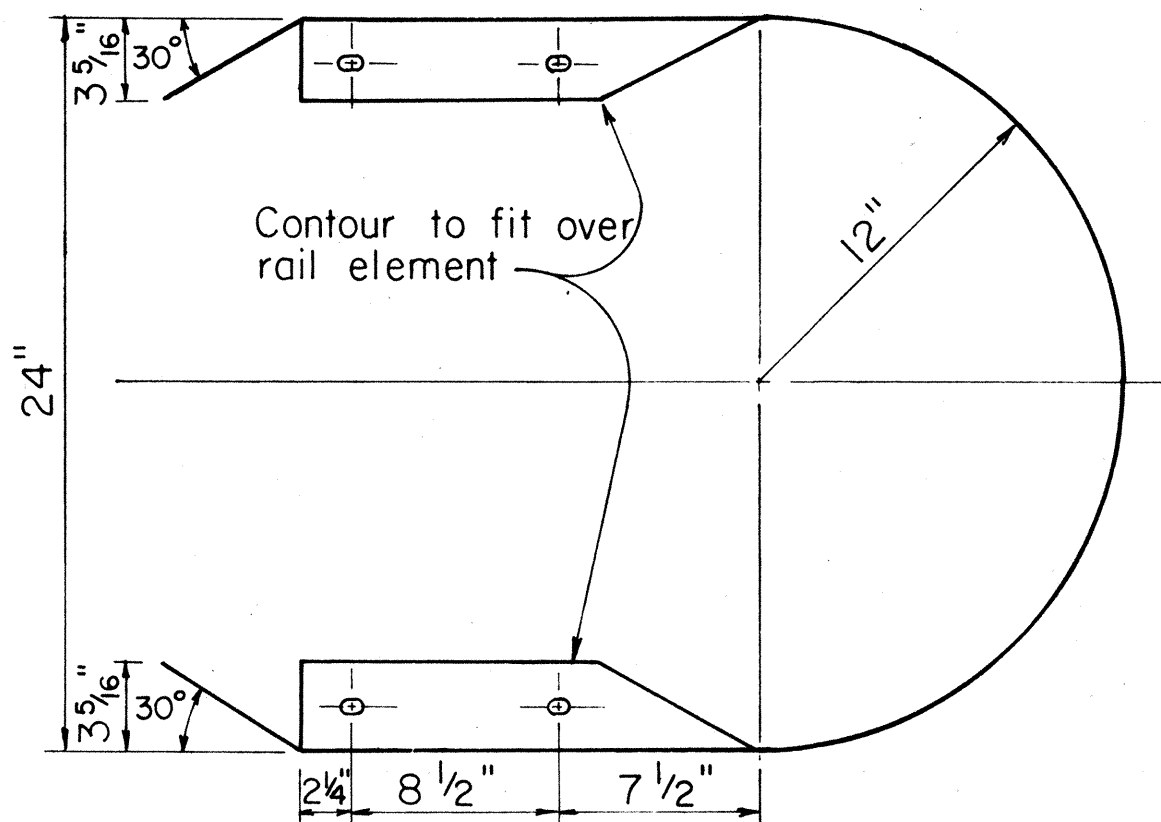
5/8" HEX POST BOLT AND NUT
Scale: N.T.S.



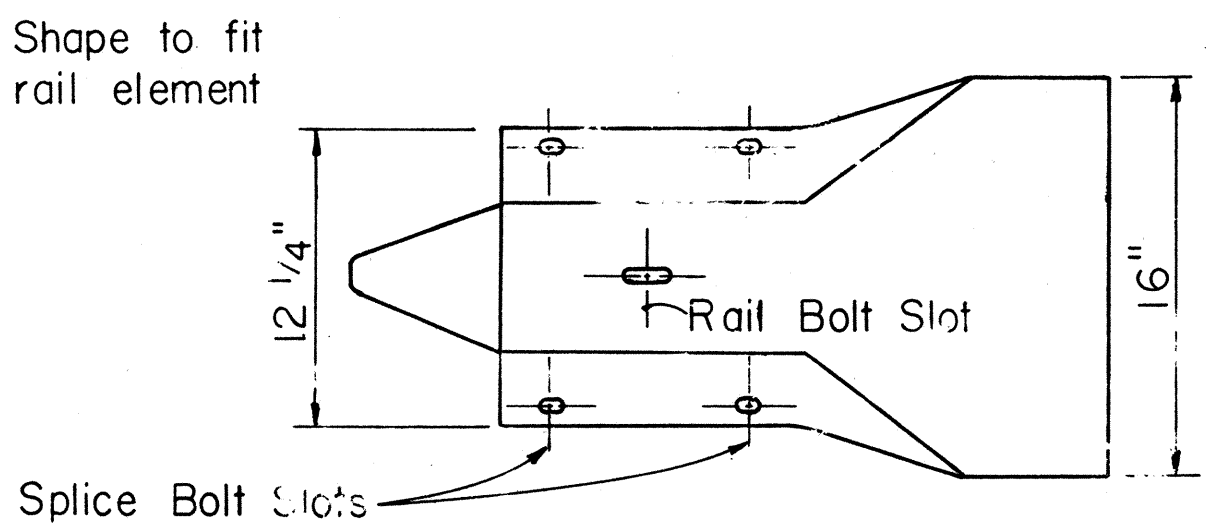
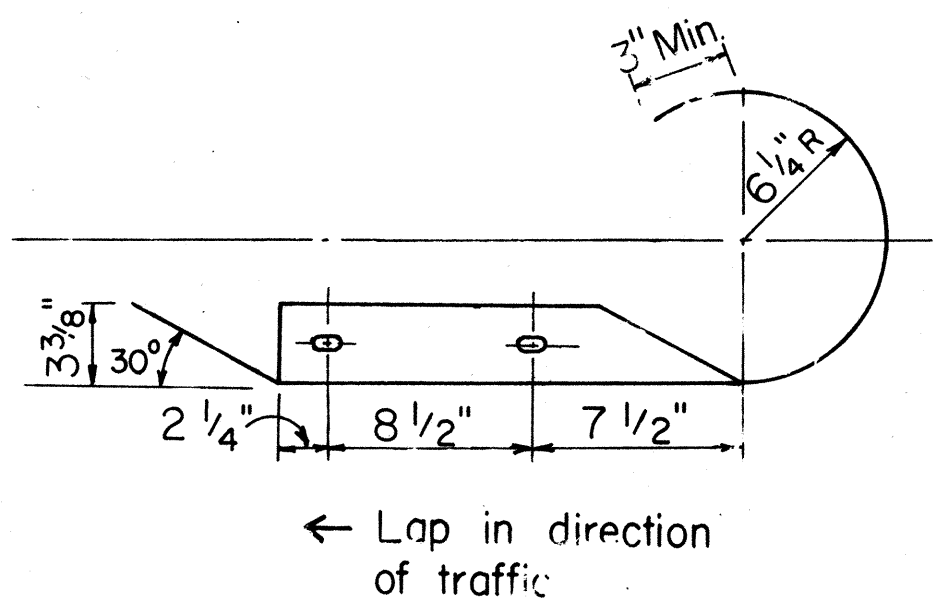
W BEAM TERMINAL CONNECTOR
Scale: 1 1/2" = 1'-0"



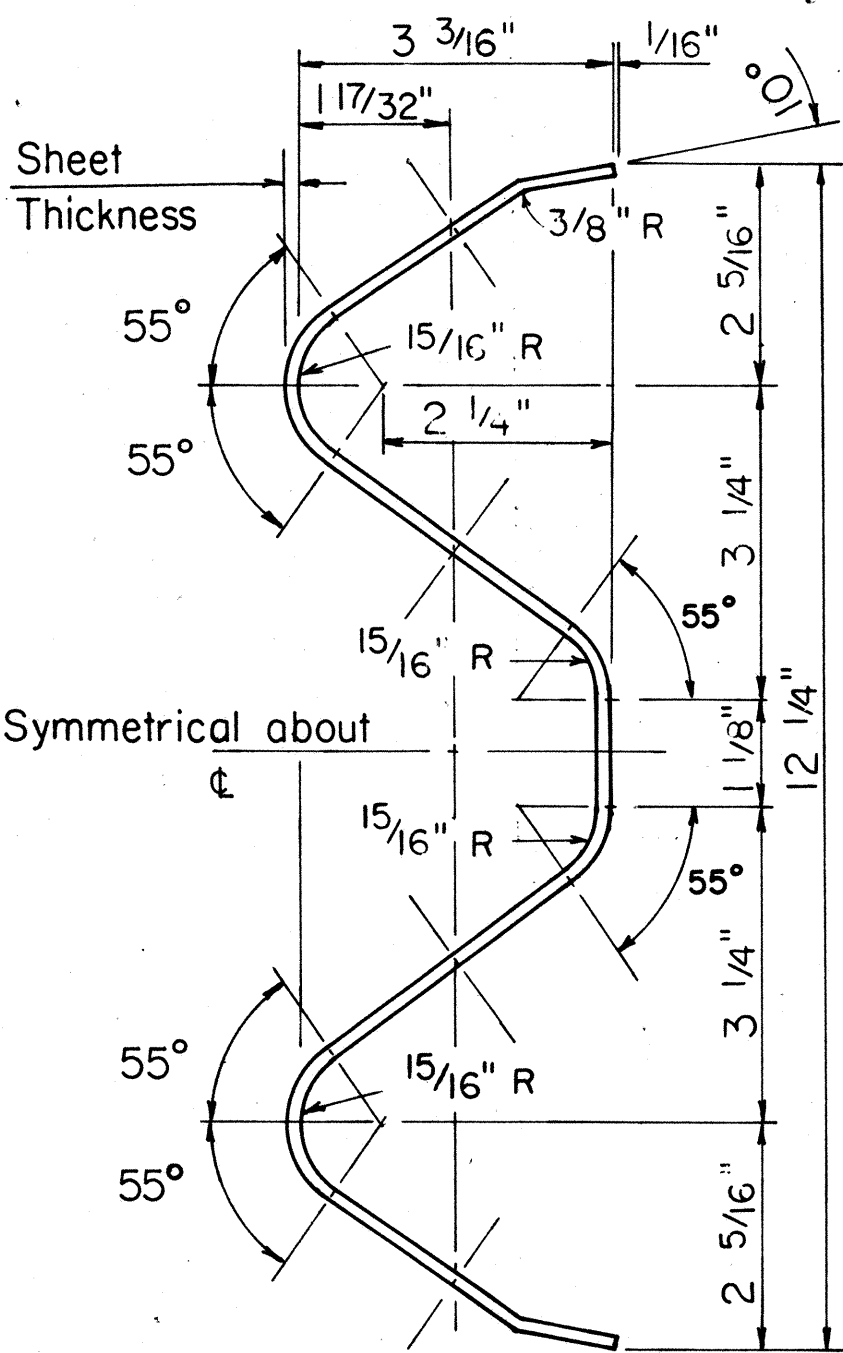
W BEAM END SECTION (FLARED)
Scale: 1 1/2" = 1'-0"



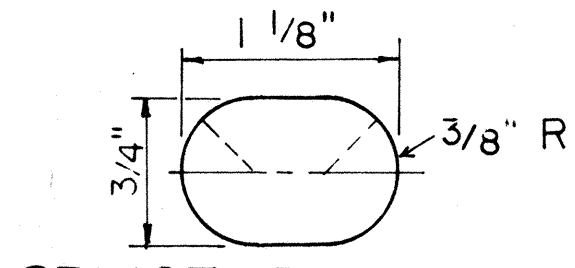
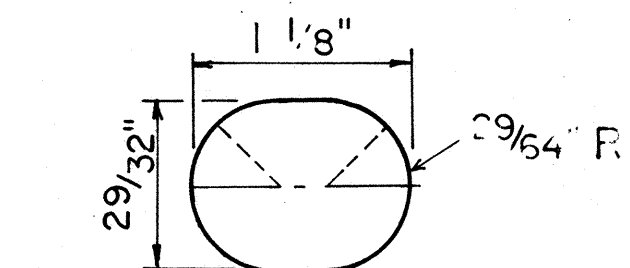
W BEAM END SECTION (BUFFER)
Scale: 1 1/2" = 1'-0"



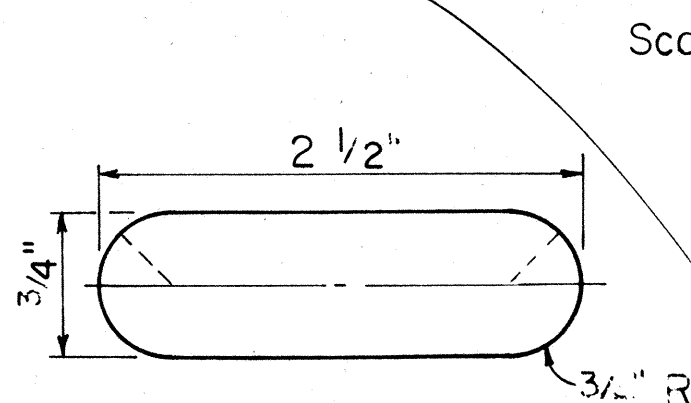
W BEAM END SECTION (ROUNDED)
Scale: 1 1/2" = 1'-0"



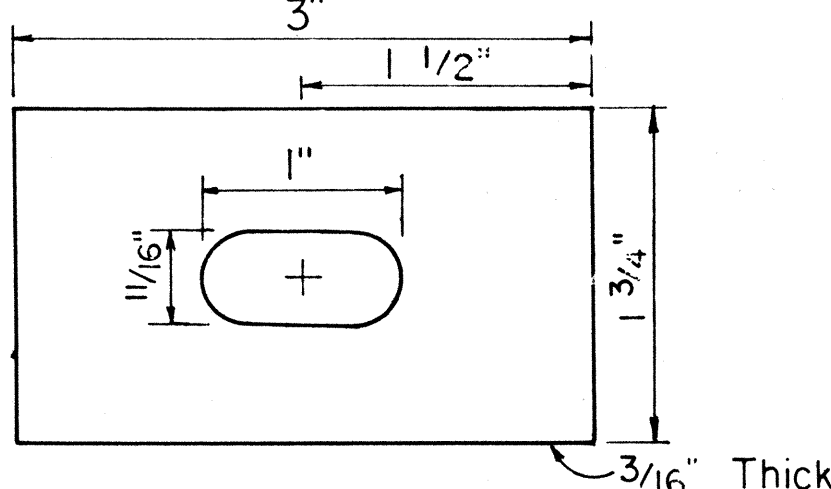
RAIL ELEMENT SECTION
Scale: 6" = 1'-0"



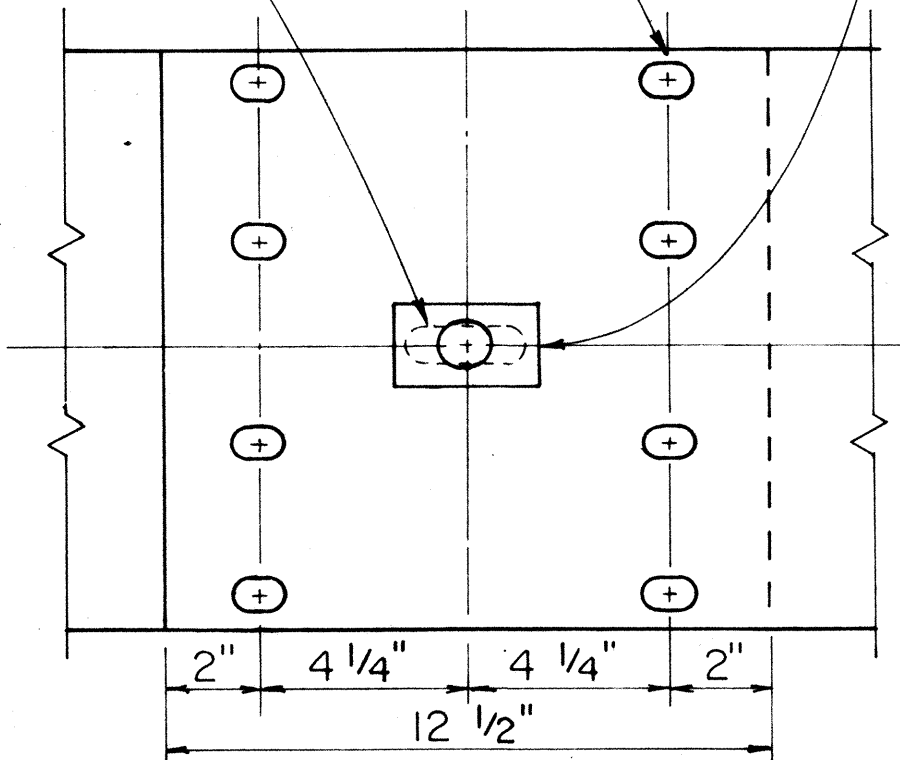
SPLICE BOLT SLOT FOR ALL ENDS
Scale: Full Size



RAIL BOLT SLOT



RAIL BOLT WASHER



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

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

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

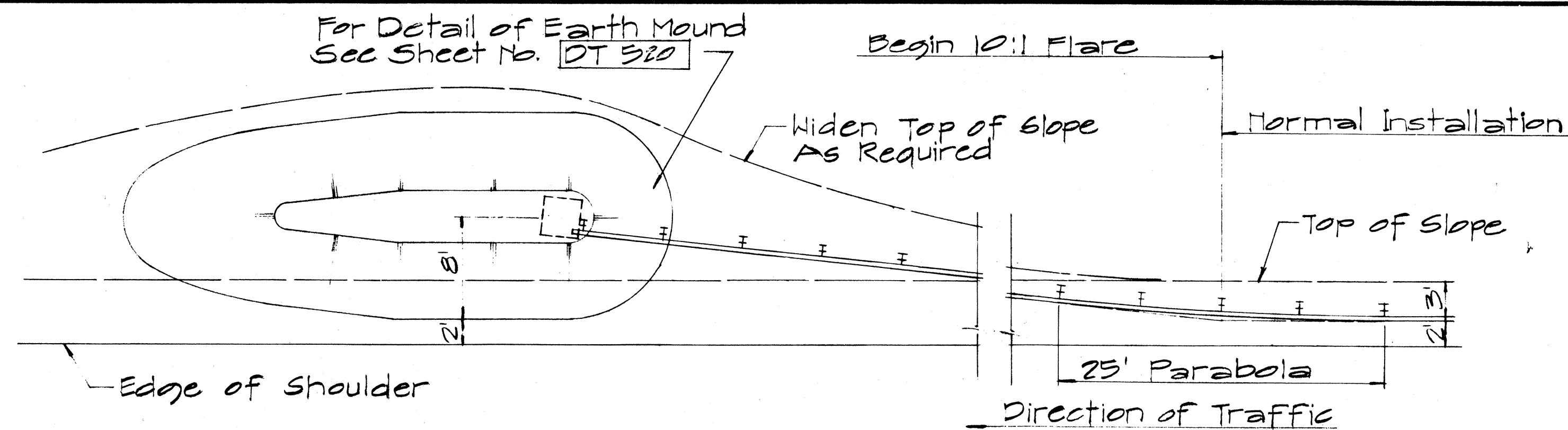
NO.	REVISION	APPROVED BY	DATE
1	Supersedes sht. DT 501 approved 12/30/69	H.f.	9/22/82

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
METAL GUARDRAIL

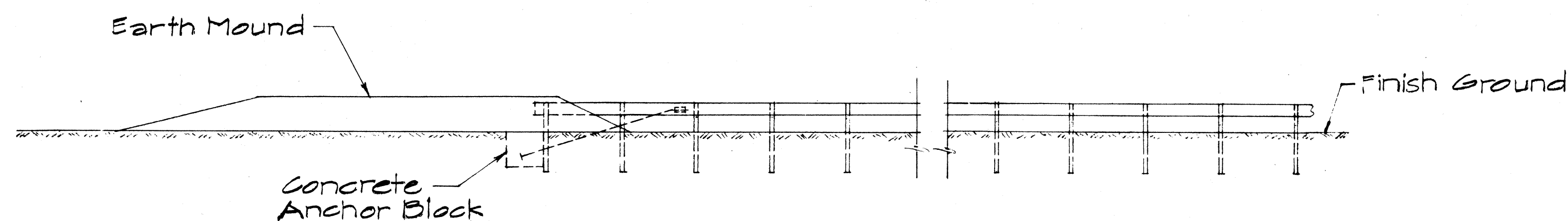
Scale: As Noted July, 1982
SHEET NO. OF SHEETS DT 501

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	101-0205	1986	32	54



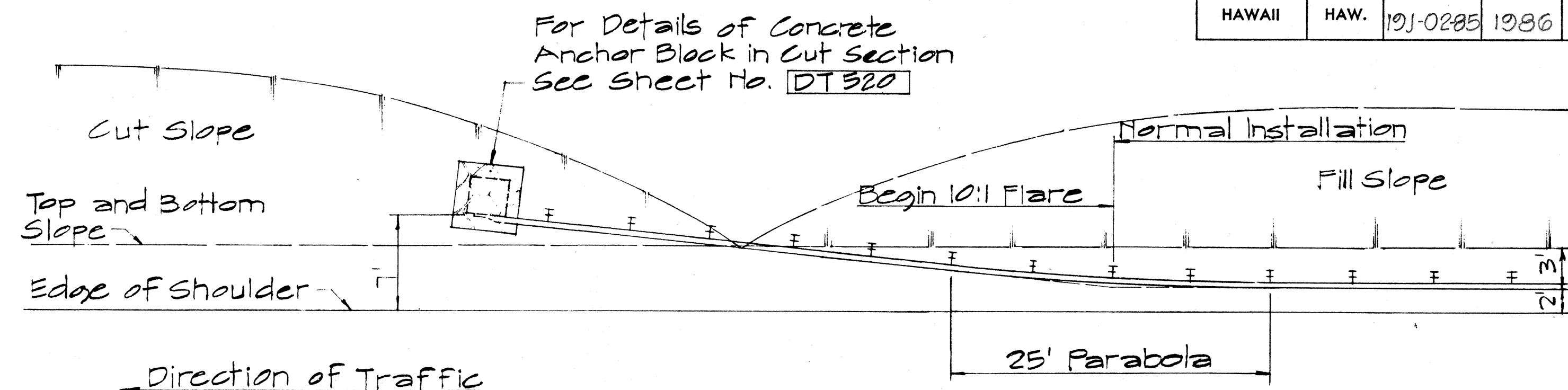
PLAN



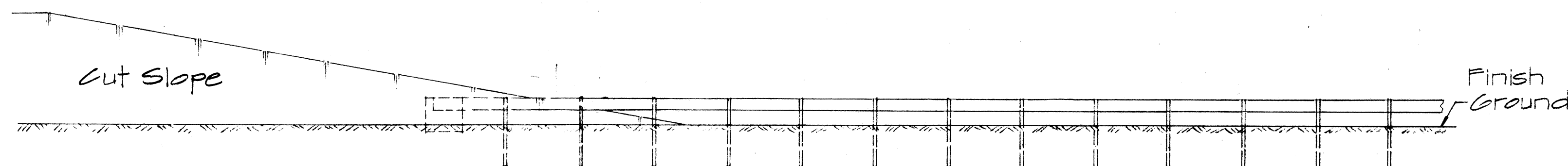
ELEVATION

TYPE "D" FLARE

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



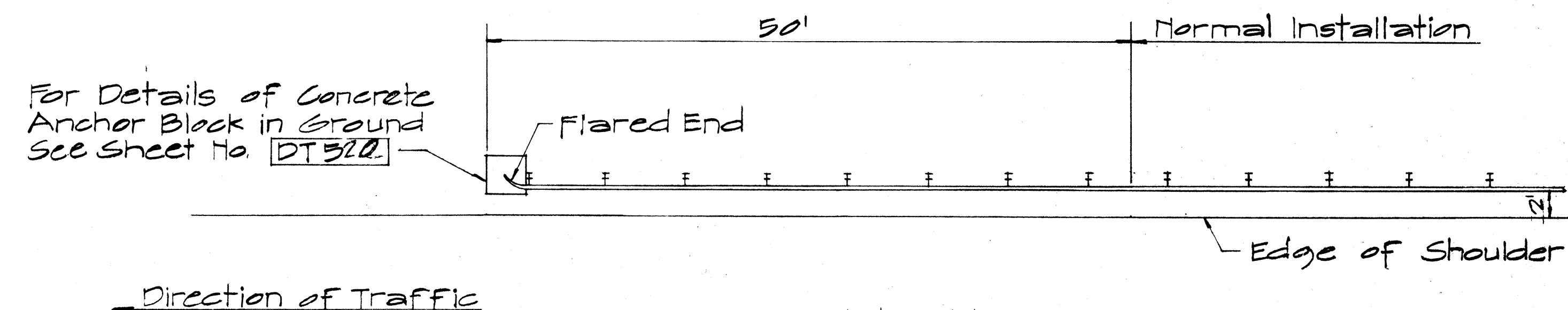
PLAN



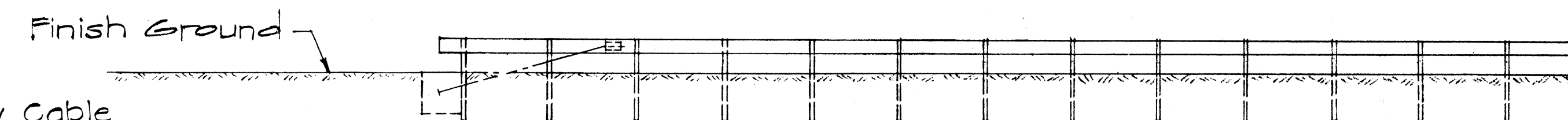
ELEVATION

TYPE "F" FLARE

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



PLAN



ELEVATION

TYPE "G" FLARE

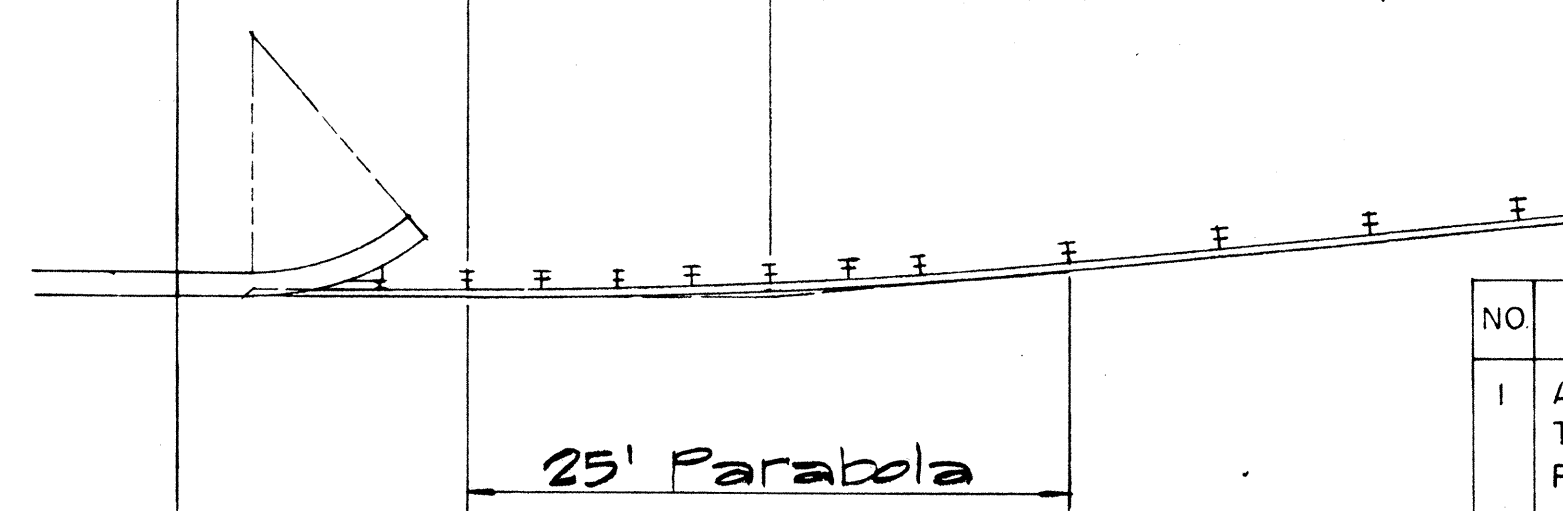
Sc. 1/8" = 1'-0"

NOTE:

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

Typical Conc. 11'-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
 TRAFFIC ENGINEER
 DATE 12/29/69

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

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
TRAILING END
FLARE - ONE & TWO
WAY ROADWAY

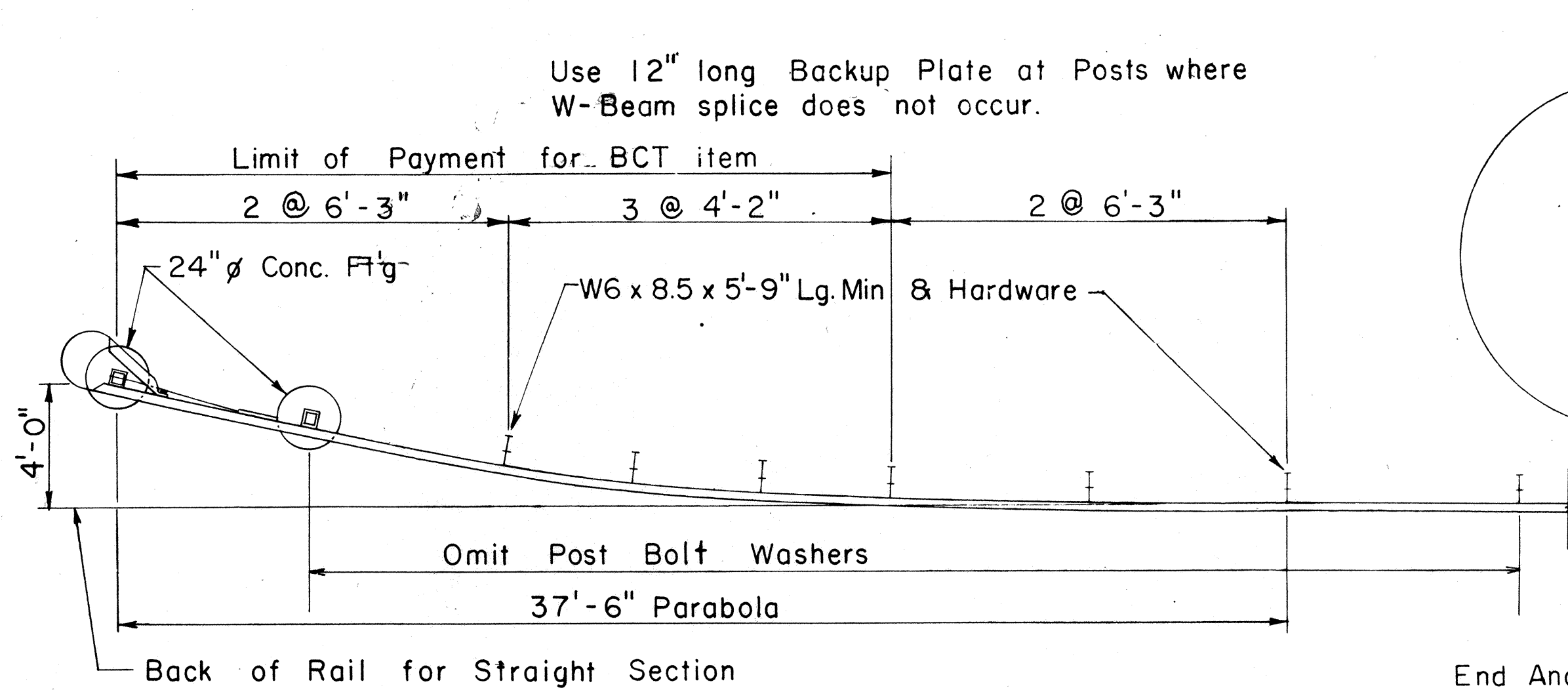
Scale: As Noted April 1969

SHEET NO. OF SHEETS DT 517

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	191-02-85	1986	33	54

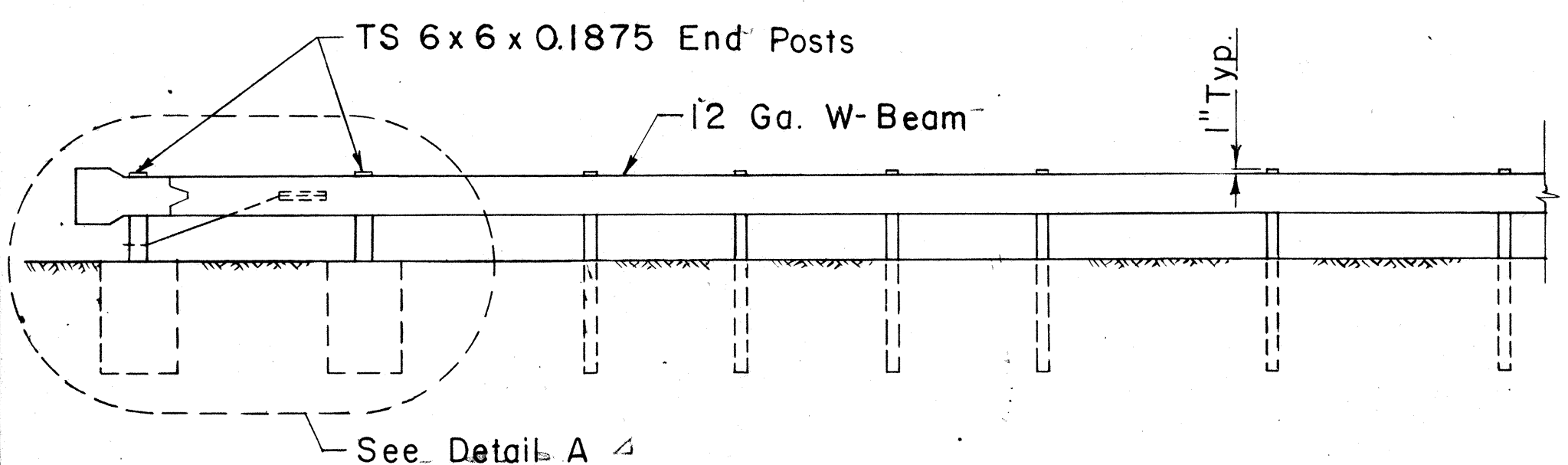
NOTES:

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 accommodate 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.
6. B.C.T. Hardware has been superseded by "A Guide 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.



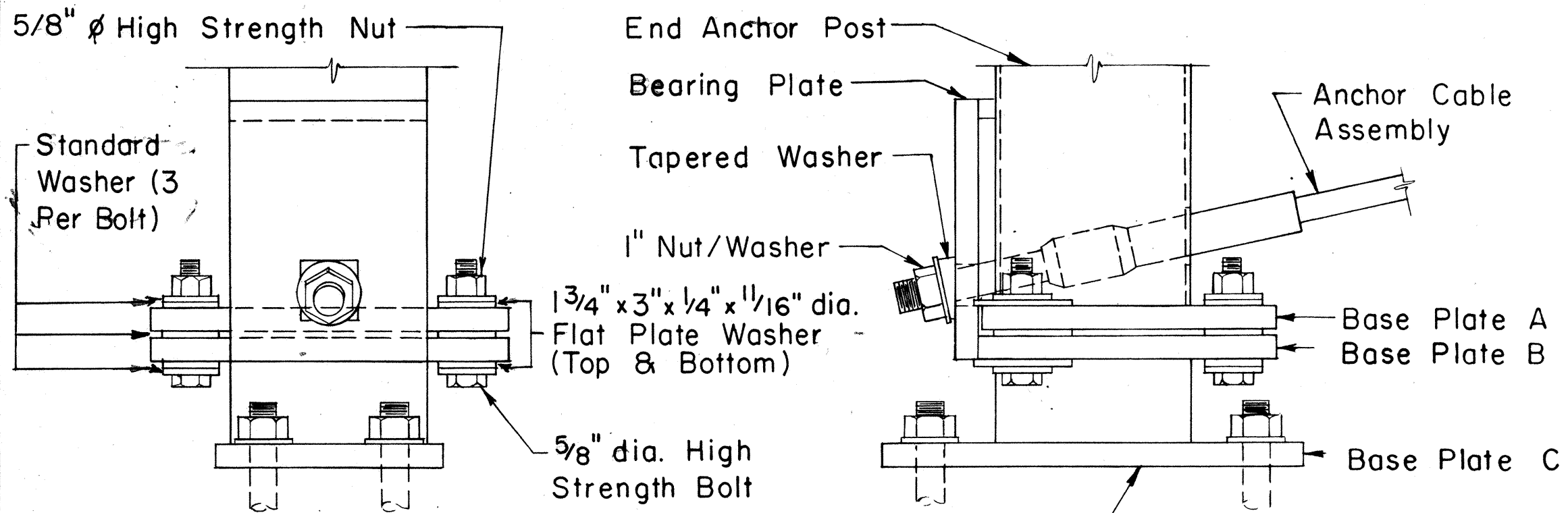
PLAN

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



ELEVATION

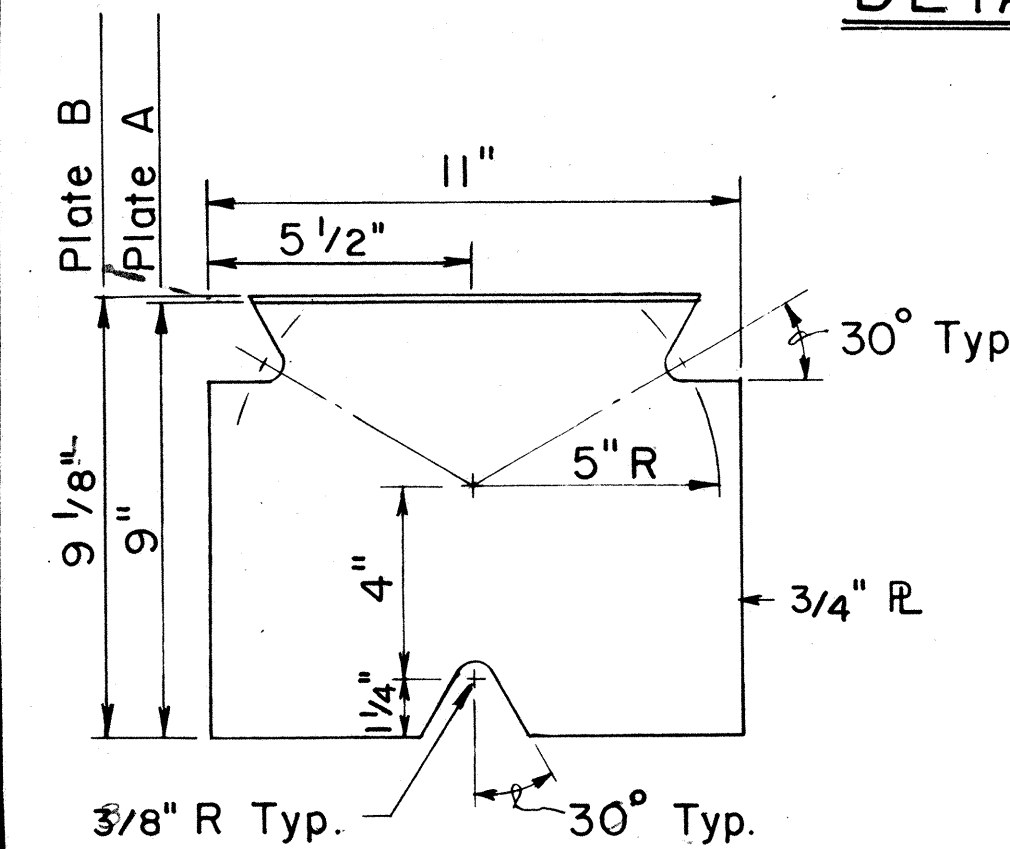
Scale: 1/4" = 1'-0"



SIDE ELEVATION

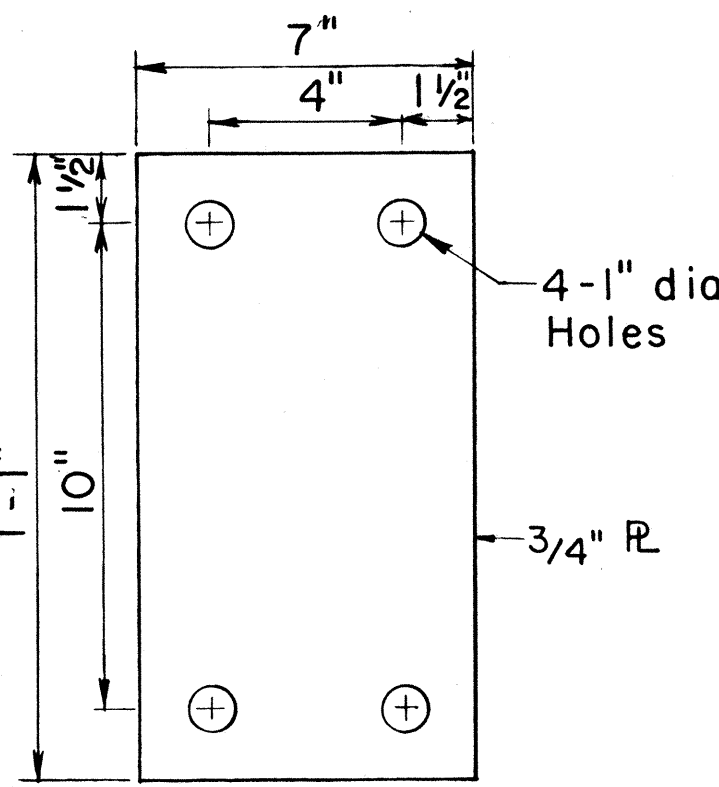
DETAIL B

FRONT ELEVATION



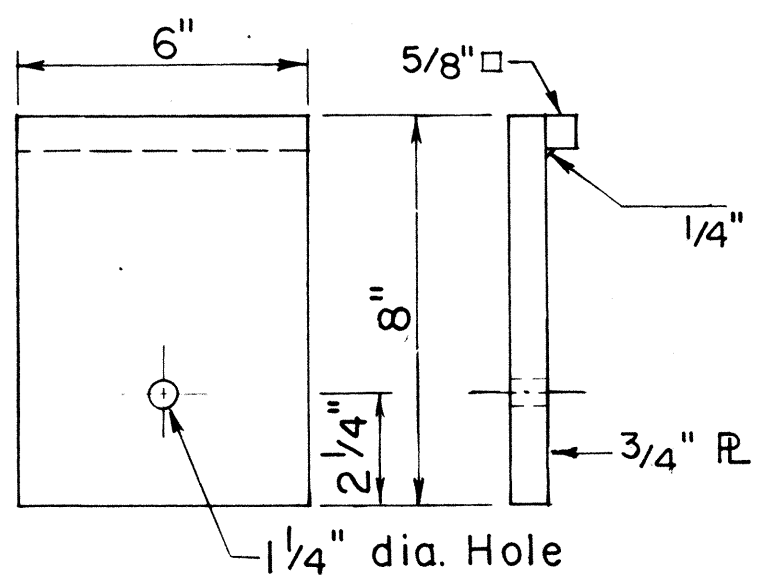
BASE PLATES A & B

Scale: 3" = 1'-0"



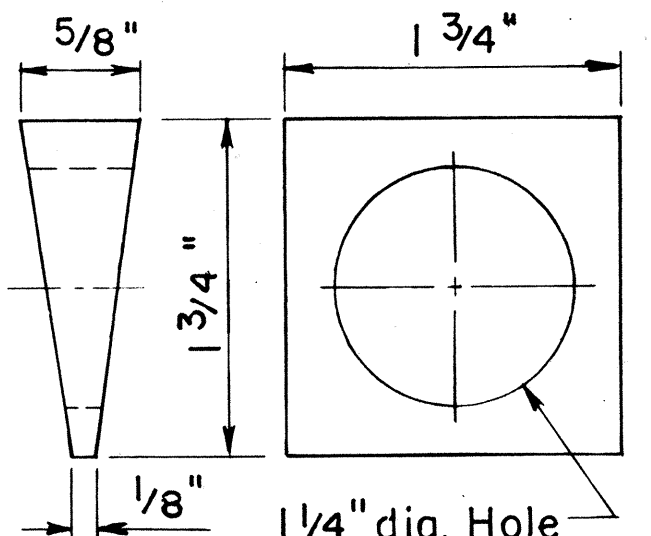
BASE PLATE C

Scale: 3" = 1'-0"



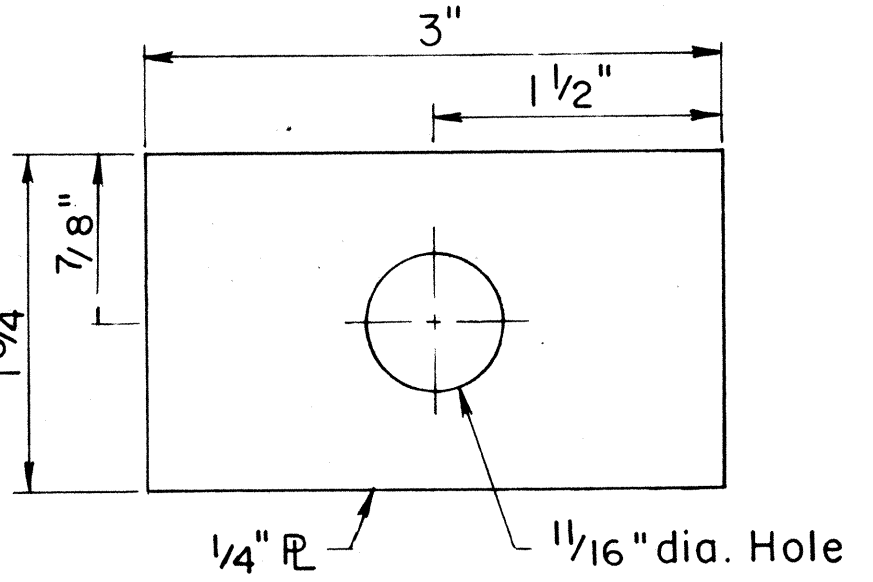
BEARING PLATE

Scale: 3" = 1'-0"



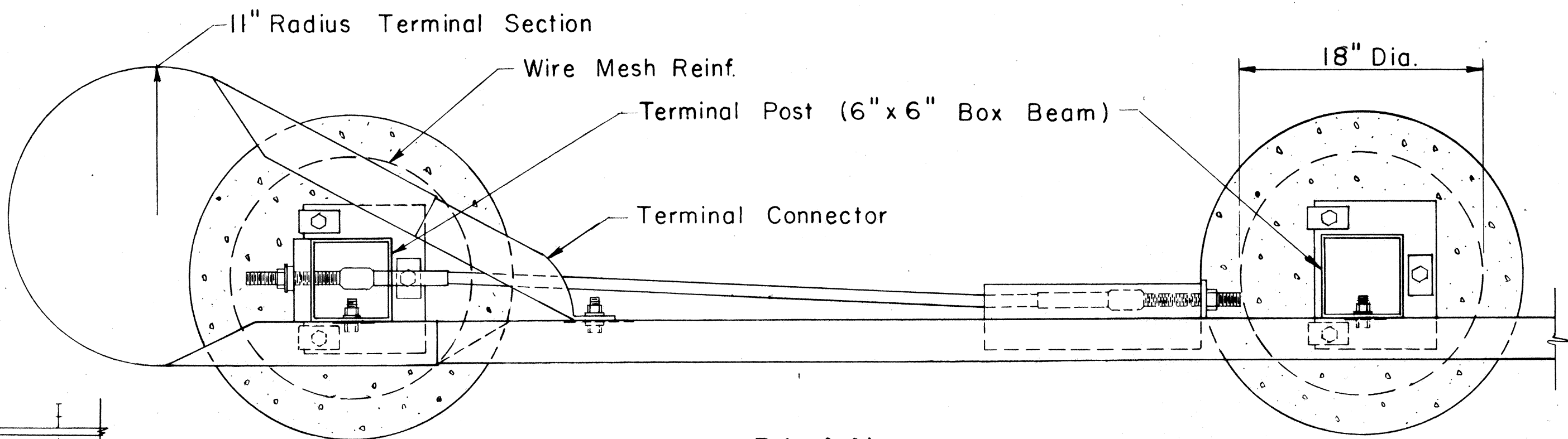
TAPERED WASHER

Scale: Full Size

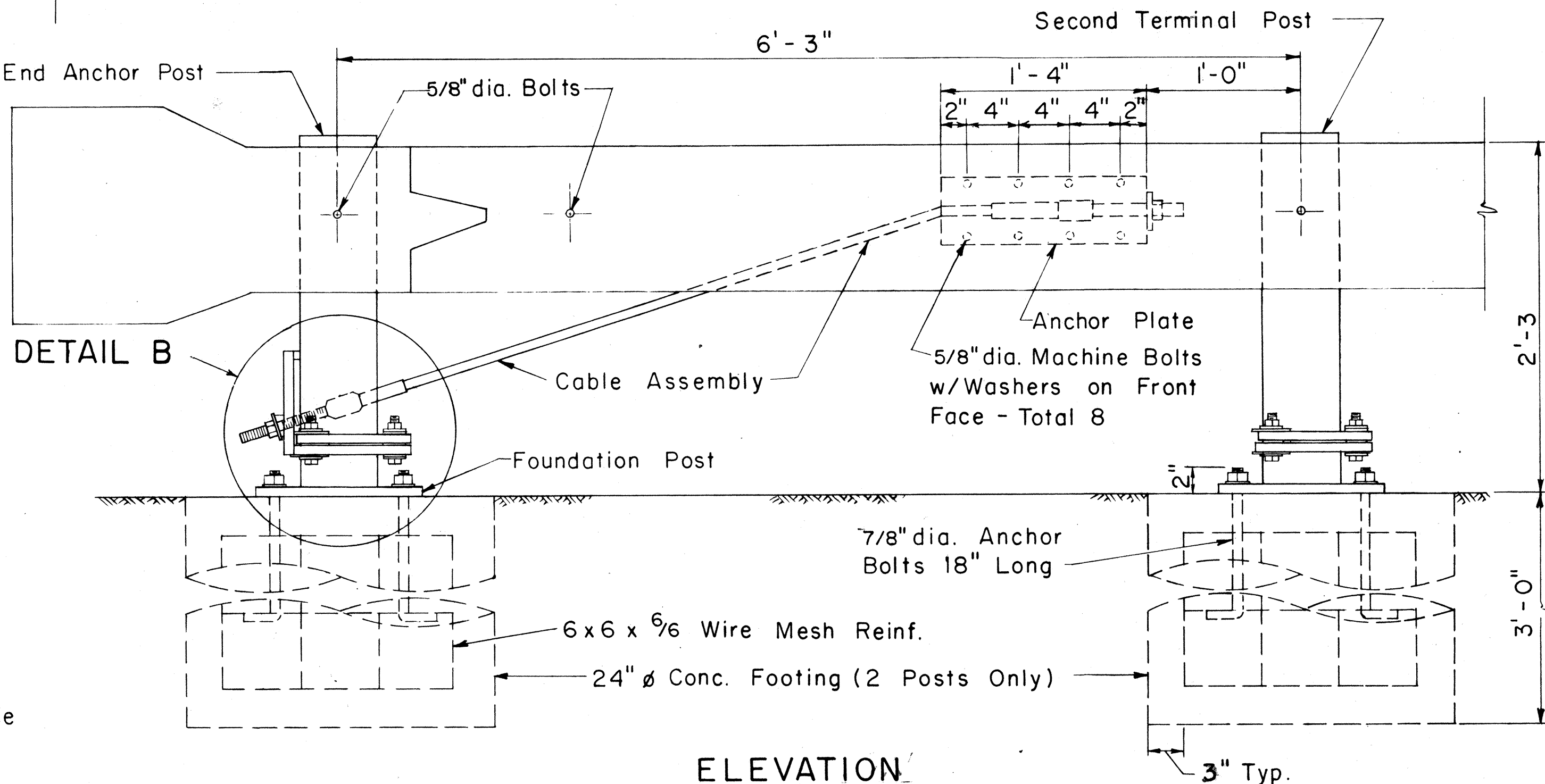


FLAT PLATE WASHER

Scale: Full Size



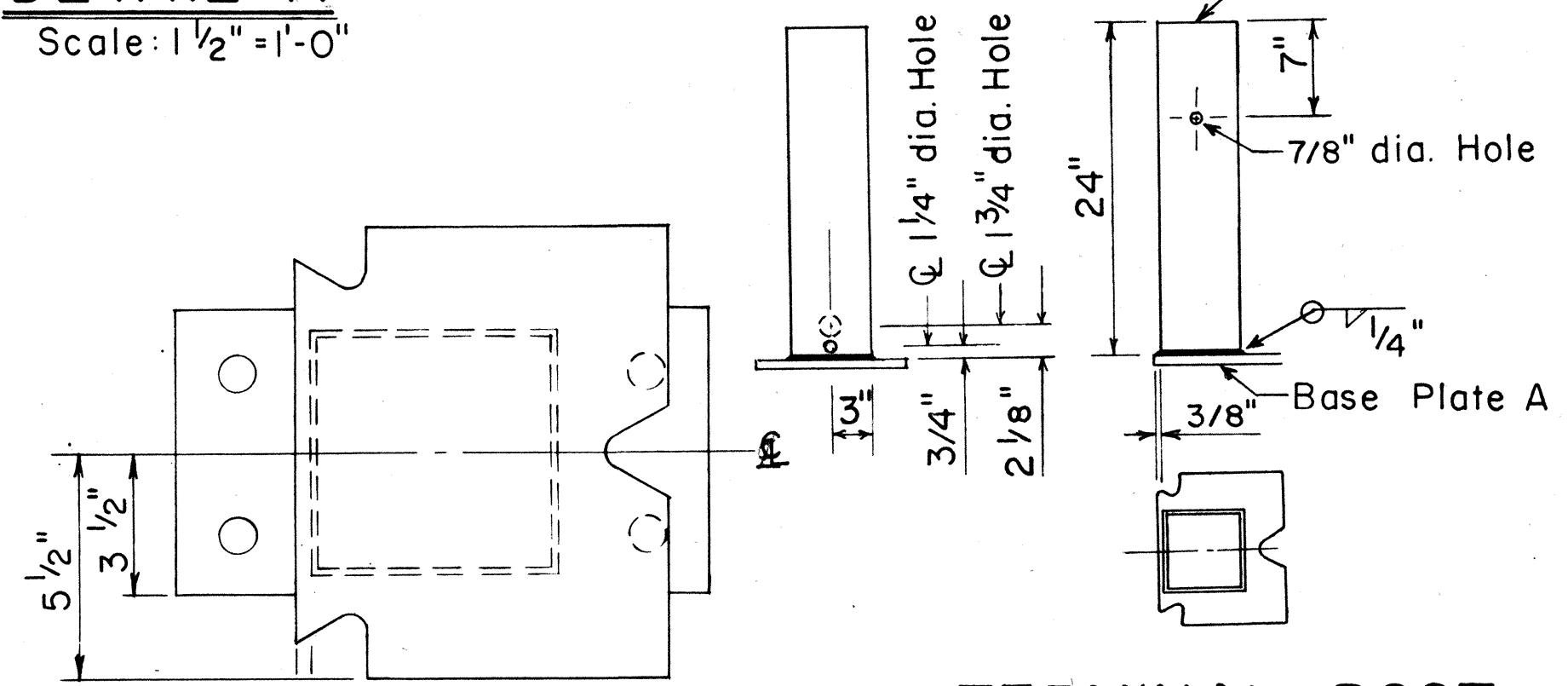
PLAN



ELEVATION

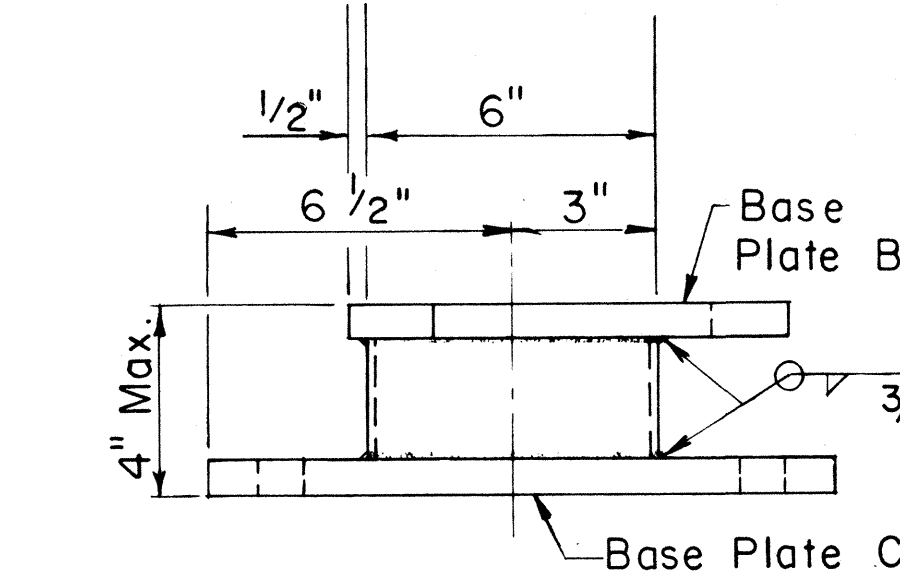
DETAIL A

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



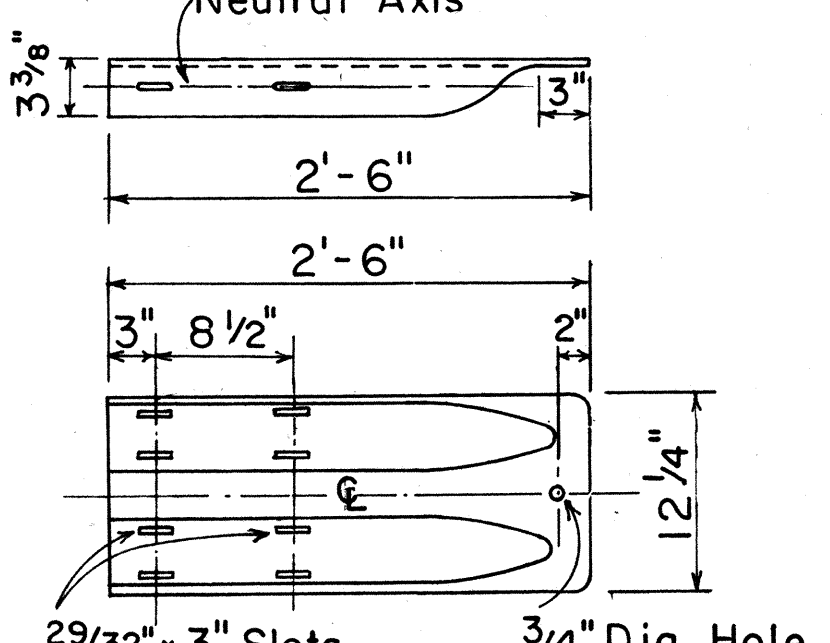
TERMINAL POST

Scale: 1" = 1'-0"



FOUNDATION POST

Scale: 3" = 1'-0"



TERMINAL CONNECTOR

Scale: 1" = 1'-0"

APPROVAL RECOMMENDED:

Eishi Tanaka
TRAFFIC ENGINEER

6/14/78
DATE

APPROVED:

Harbor Zakeishi
ASSISTANT CHIEF, ENGINEERING

6/15/78
DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 519 Approved 12/30/69	H.I.	6/15/78
2	Added Note 6	H.I.	12/1/80
3	Eliminated requirement of 25' rail	NO	1-31-85

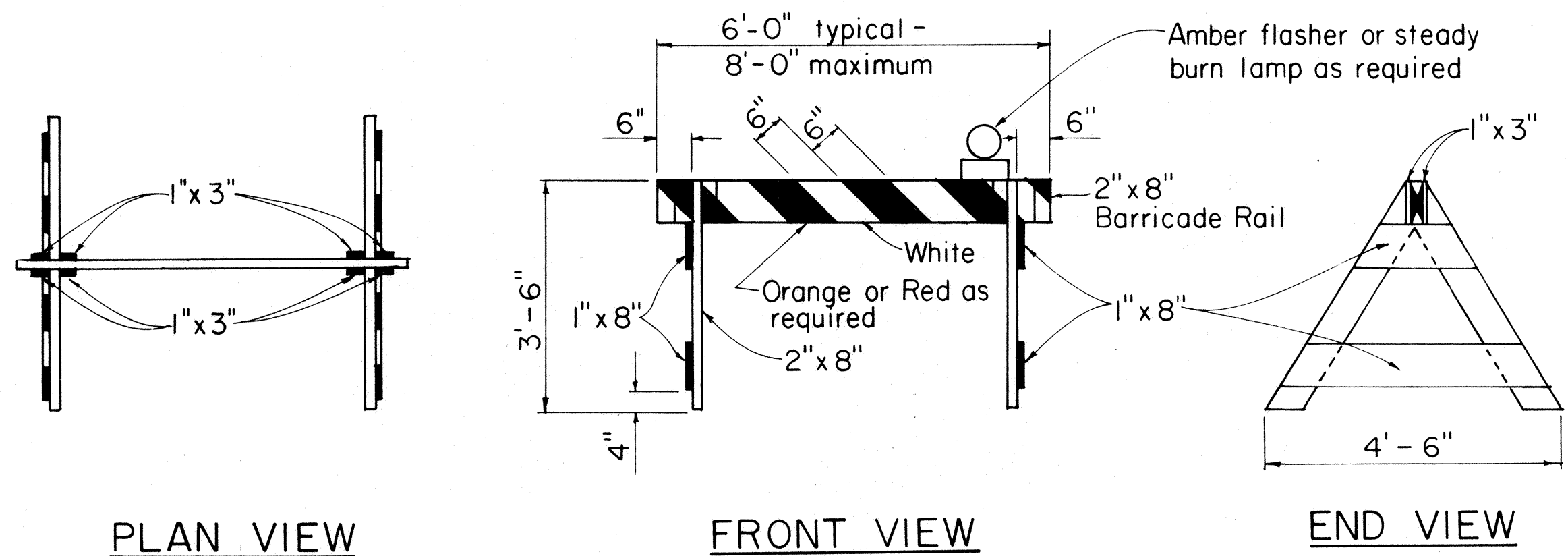
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAIL

BREAKAWAY CABLE TERMINAL (BCT)

Scale: As Shown Date: June 1978
SHEET No. OF SHEETS DT 519

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	191-0285	1986	35	54



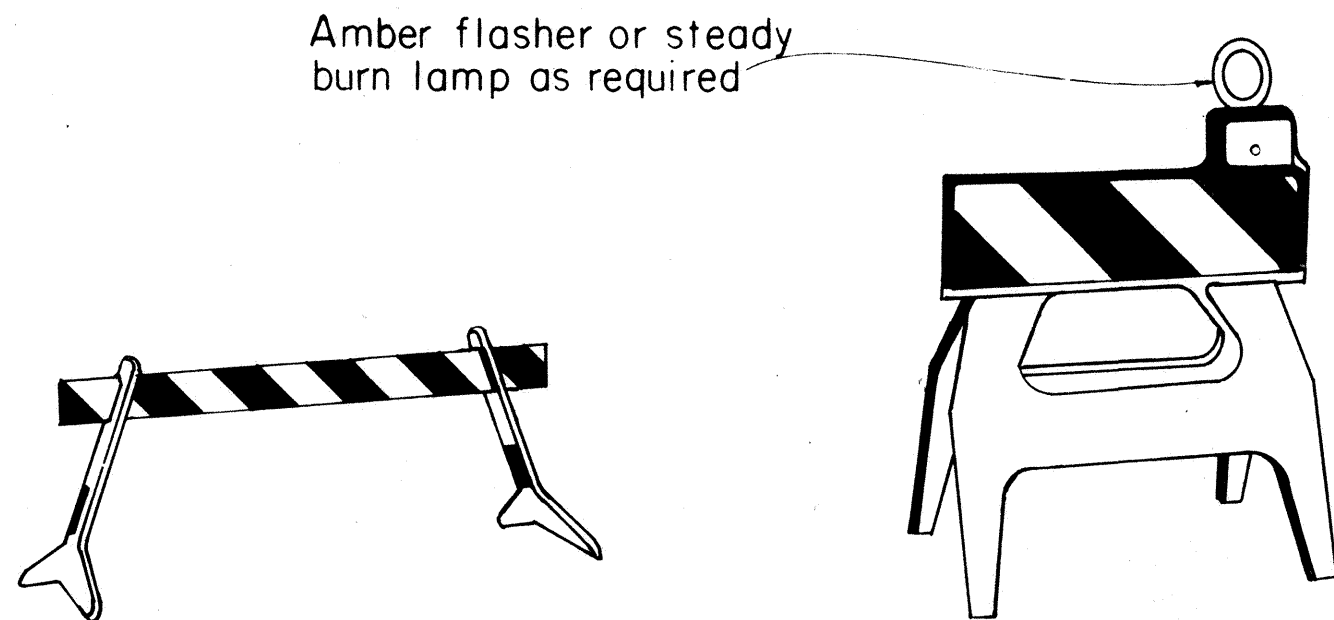
PLAN VIEW

FRONT VIEW

END VIEW

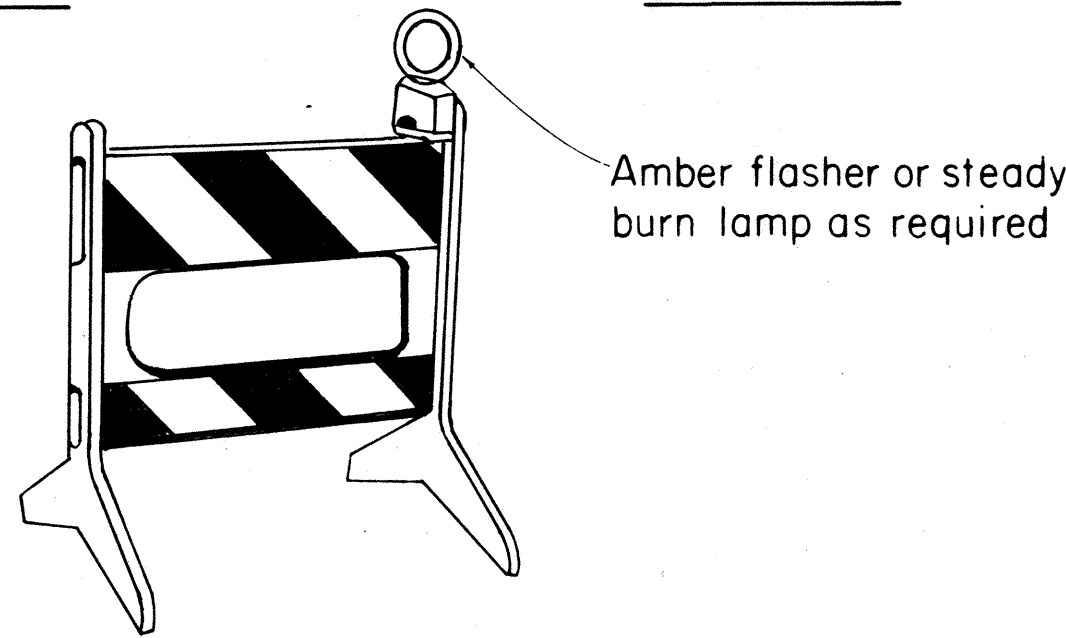
TYPE I BARRICADE

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

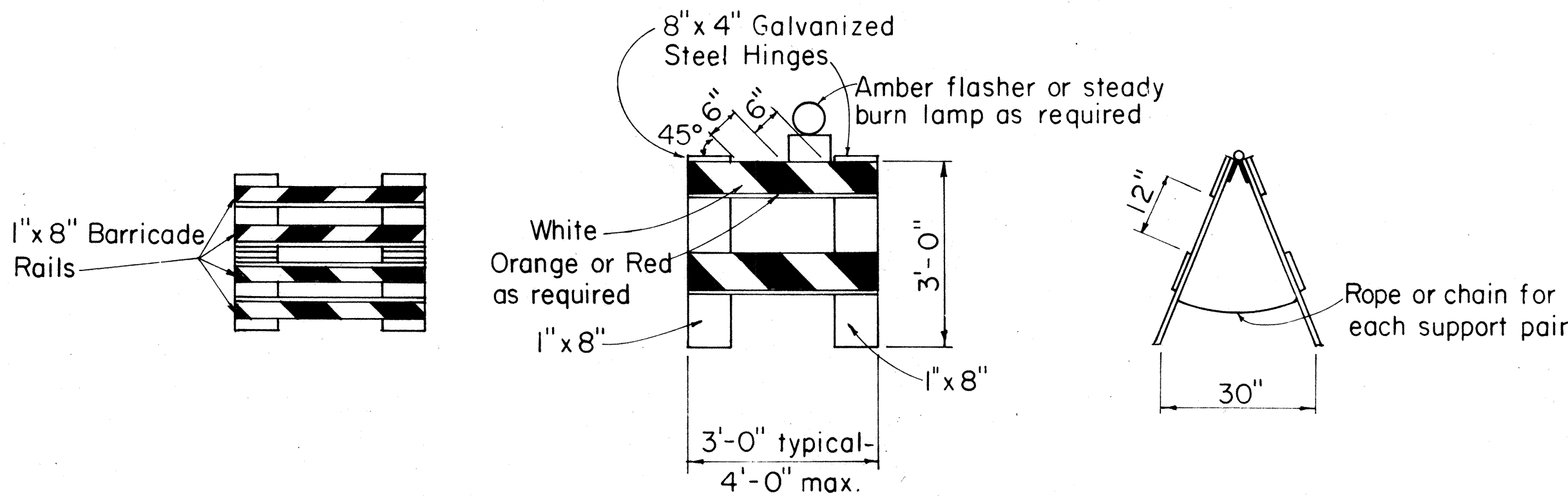


TYPE I

TYPE I



TYPE II



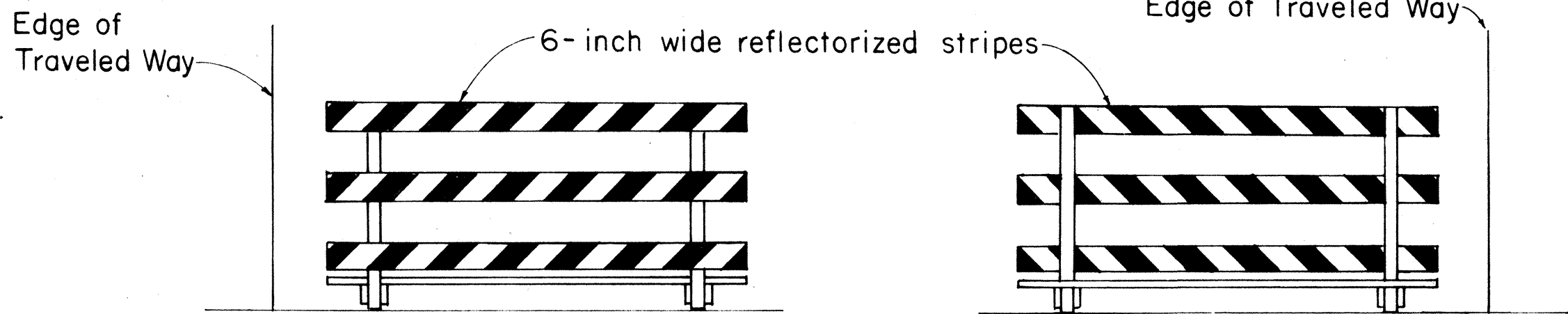
PLAN VIEW

FRONT VIEW

END VIEW

TYPE II BARRICADE

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



PLASTIC MOLDED BARRICADE OPTIONS*

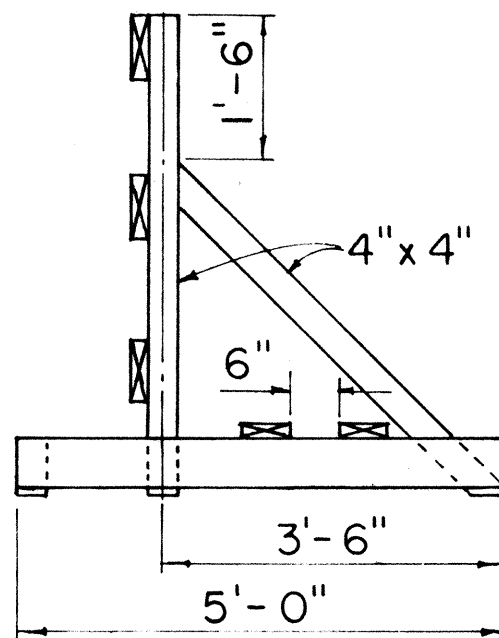
Not to Scale

* Shop Drawings must be submitted for approval.

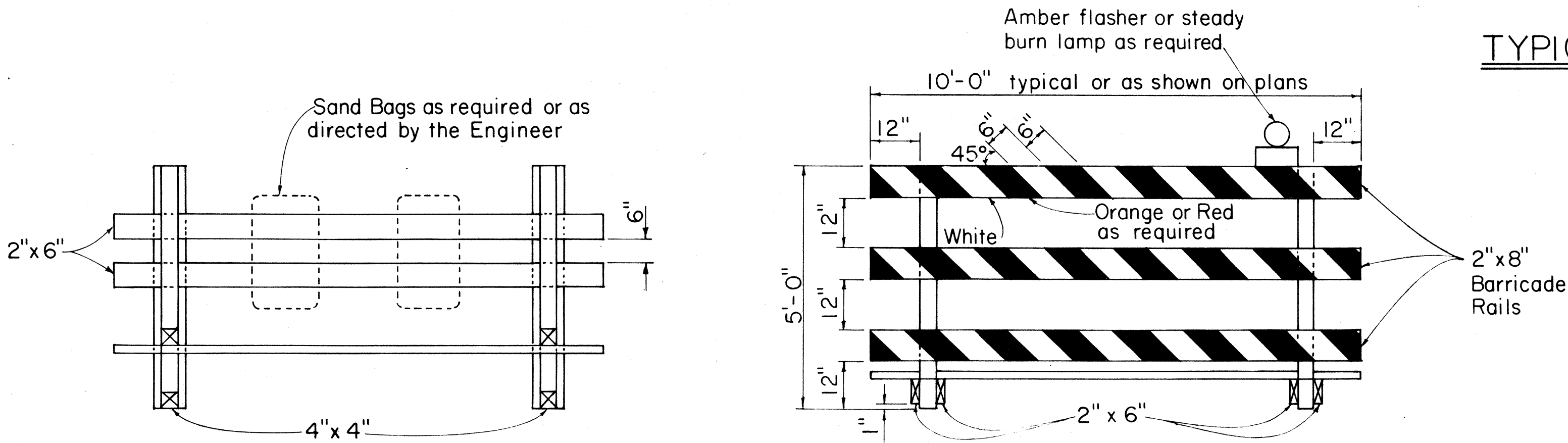
TYPICAL BARRICADE STRIPING DETAILS**

Not to Scale

** Similar for Types I & II



END VIEW



PLAN VIEW

FRONT VIEW

TYPE III BARRICADE

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

APPROVAL RECOMMENDED:

Erich Tanaka
TRAFFIC ENGINEER

10/21/81
DATE

APPROVED:

Robert A. Sato
ASSISTANT CHIEF, ENGINEERING

10/23/81
DATE

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

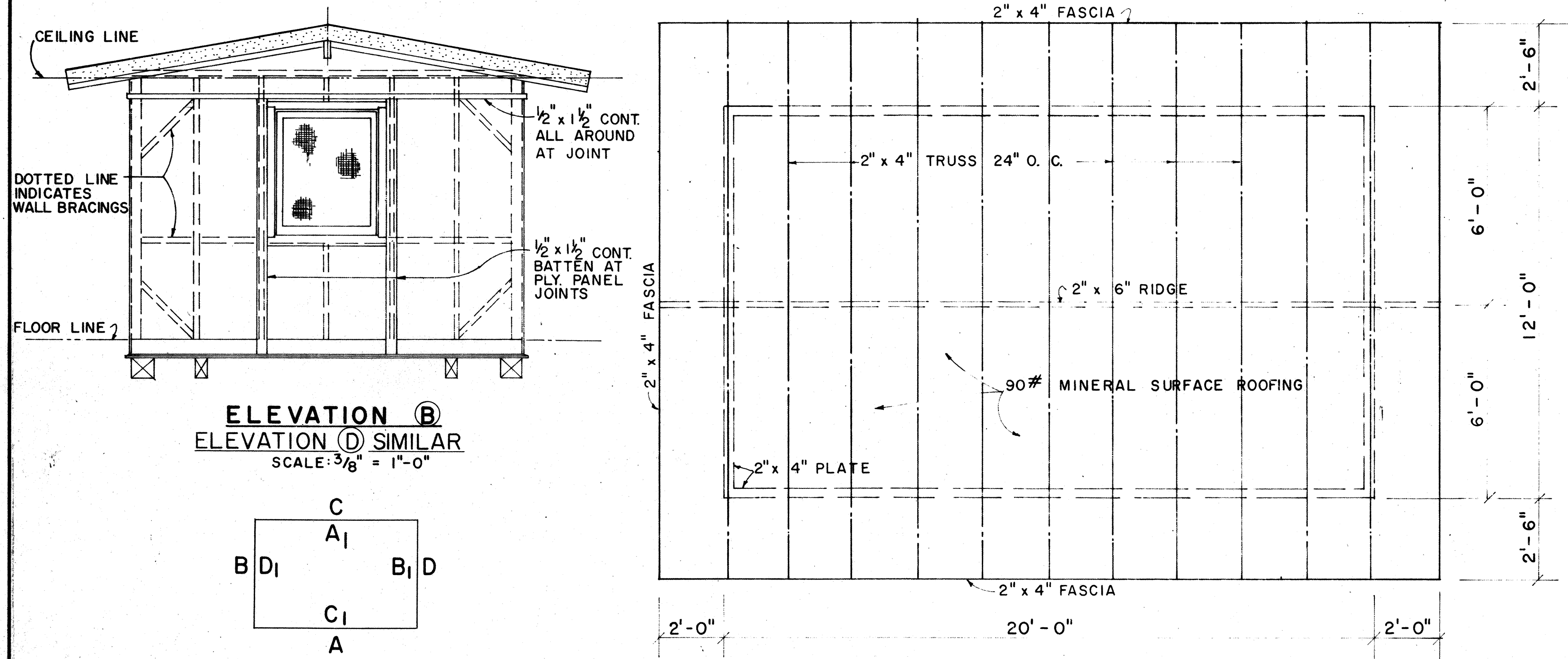
BARRICADES

SCALE: As Shown

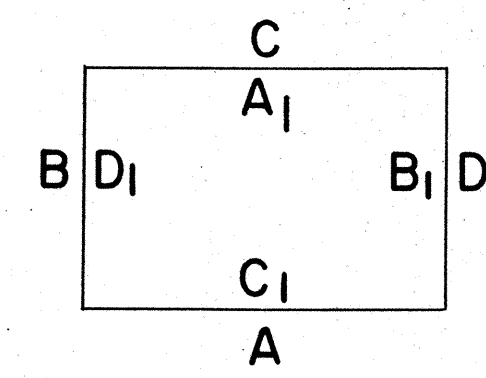
SHEET NO. 35 OF SHEETS DT 800

DATE	10/21/81
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	19J-0285	1986	36	54

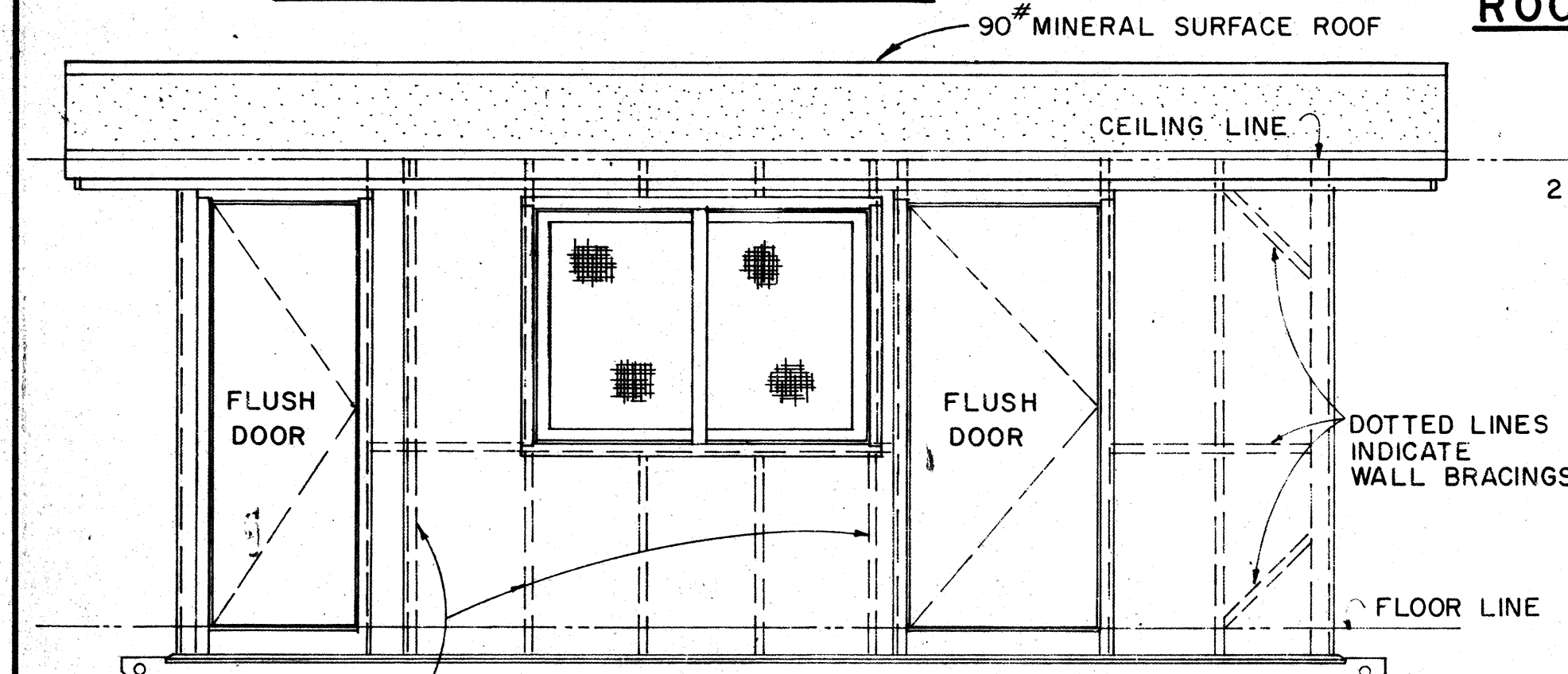


ELEVATION B
ELEVATION D SIMILAR
SCALE: 3/8" = 1'-0"

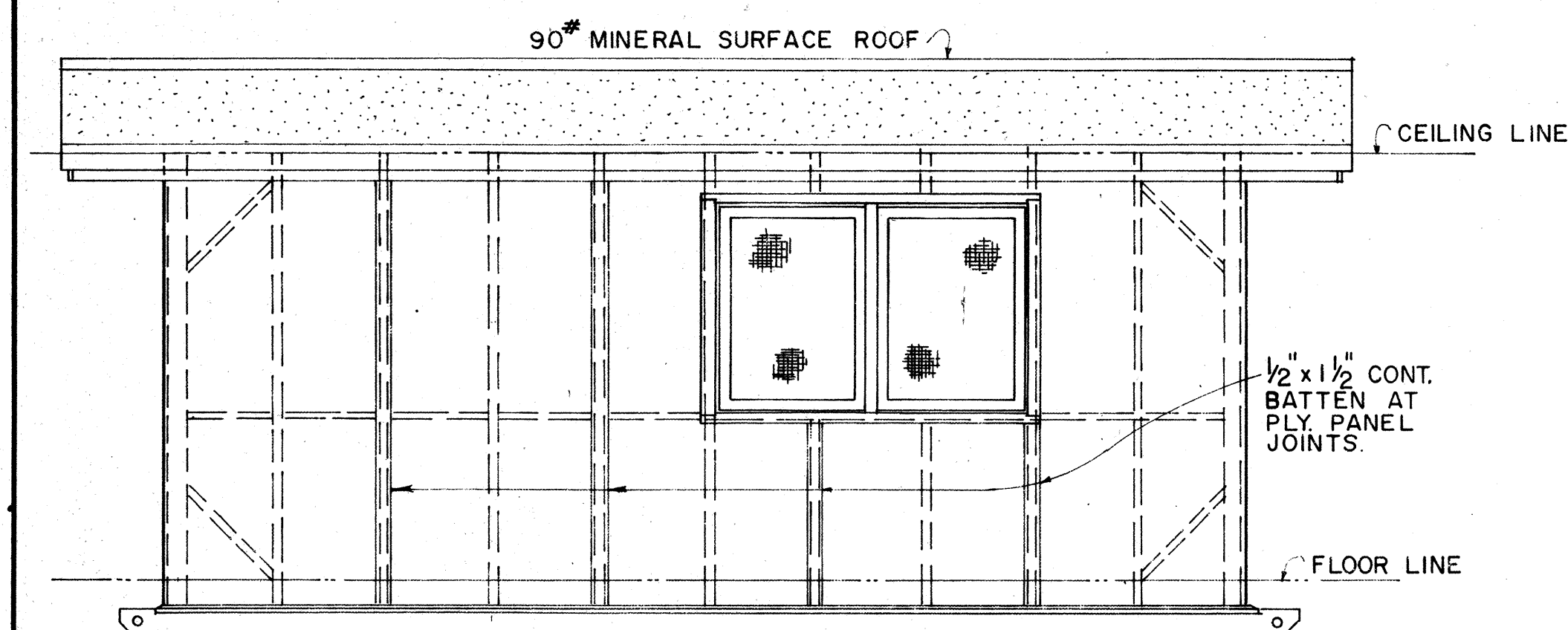


EXTERIOR & INTERIOR KEY

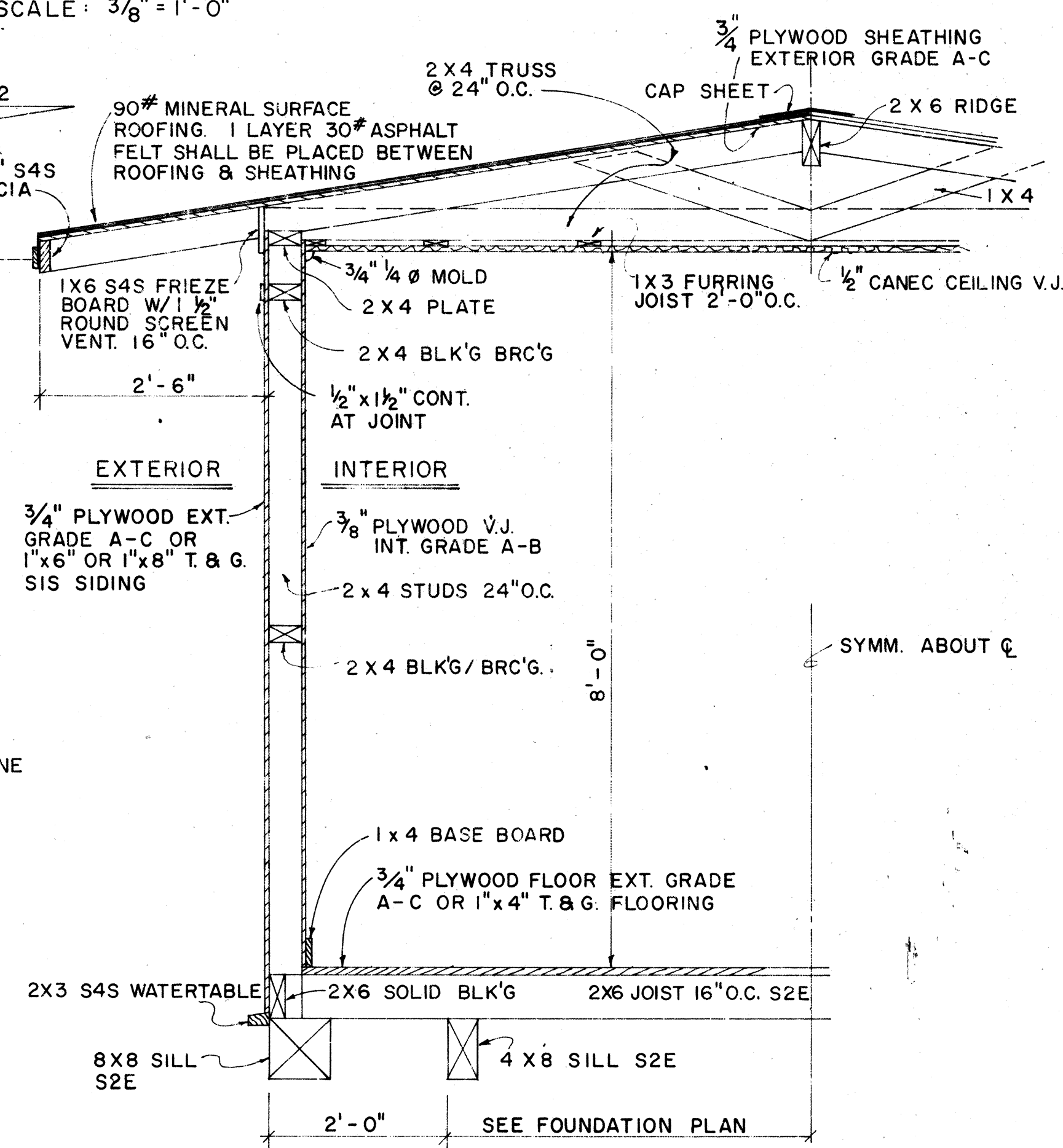
ROOF FRAMING PLAN
SCALE: 3/8" = 1'-0"



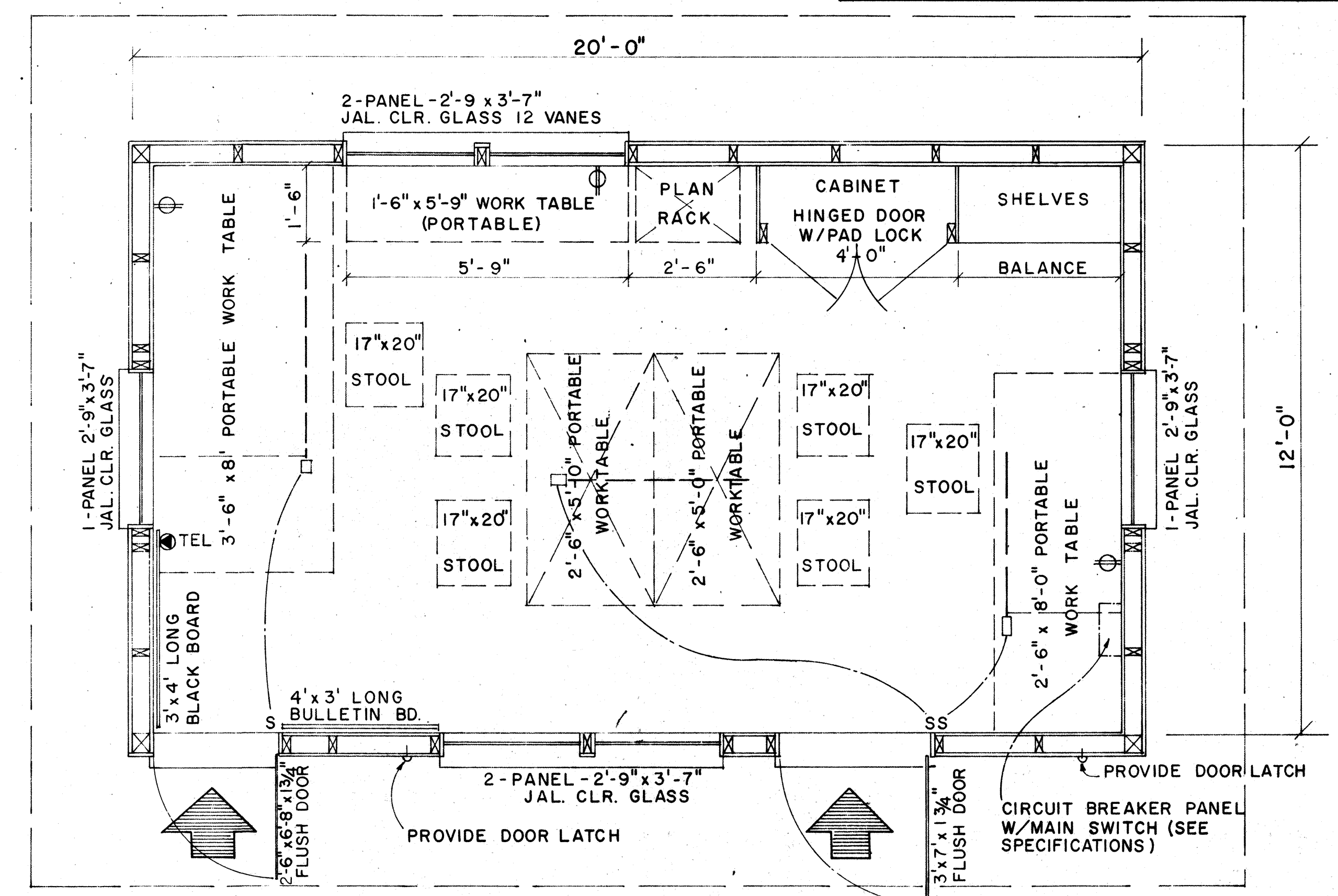
ELEVATION A
SCALE: 3/8" = 1'-0"



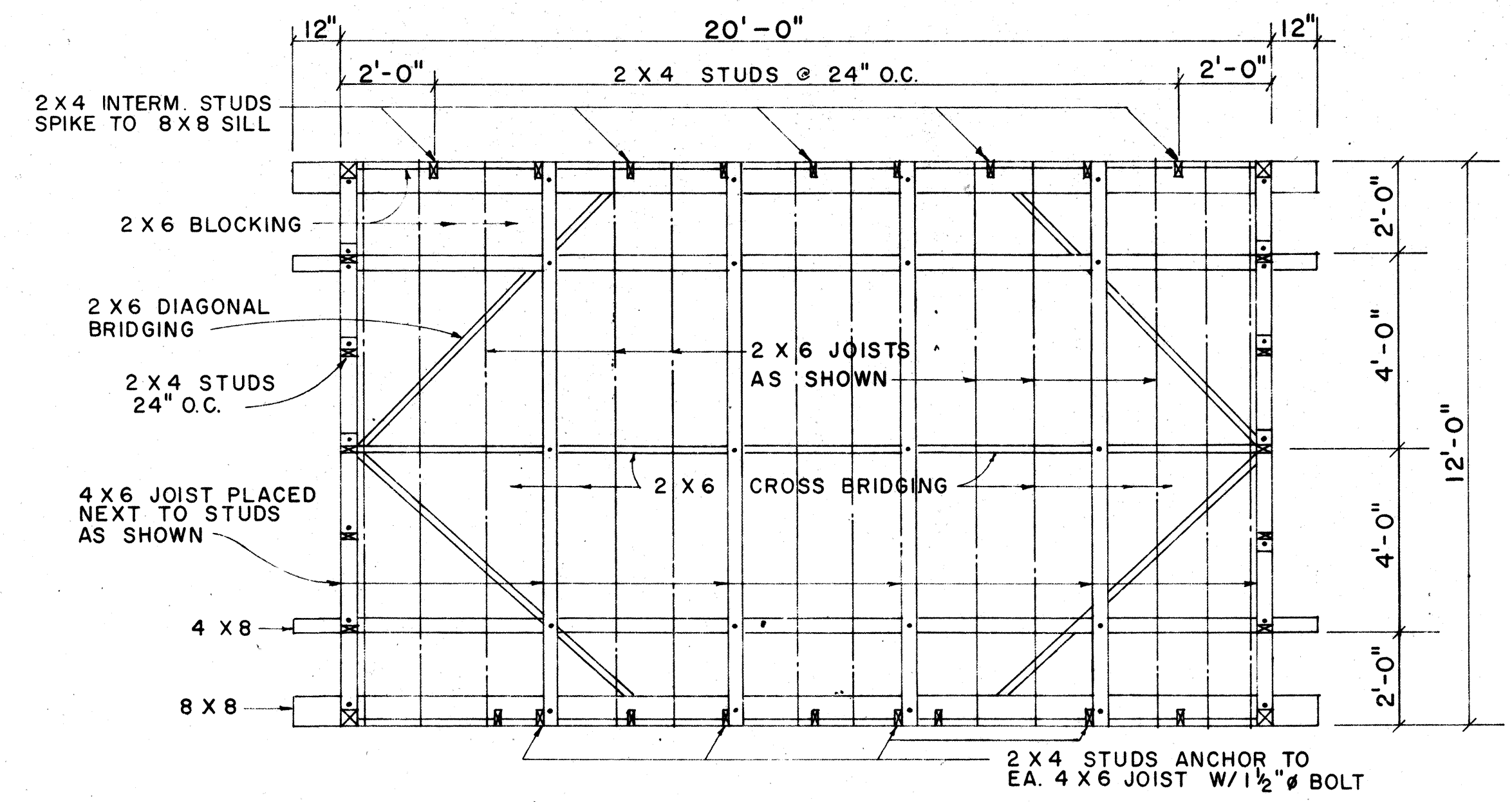
ELEVATION C
SCALE: 3/8" = 1'-0"



TYPICAL WALL SECTION
SCALE: 3/4" = 1'-0"



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



FOUNDATION FRAMING PLAN
SCALE: 3/8" = 1'-0"

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
HIGHWAYS DIVISION

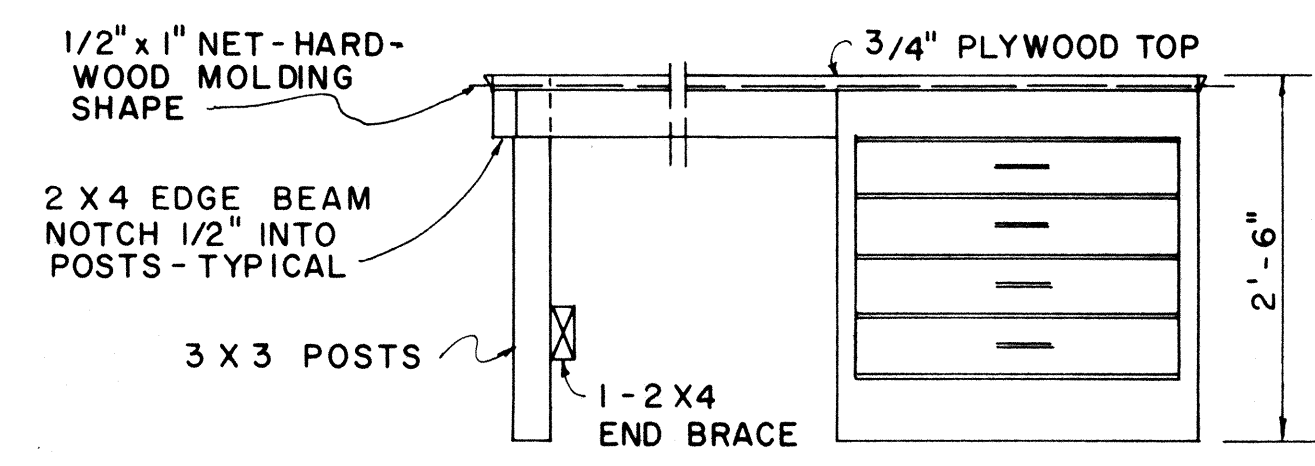
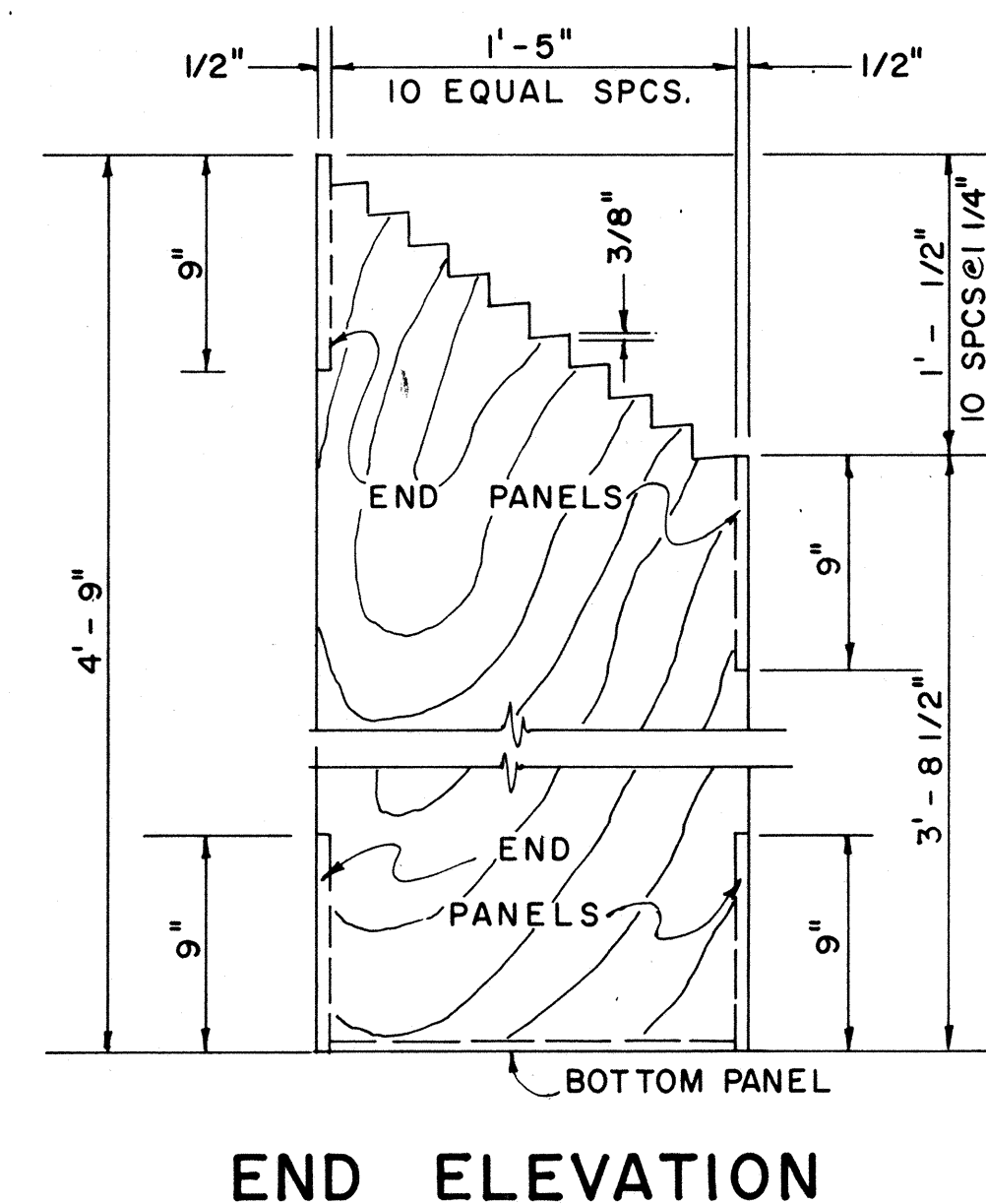
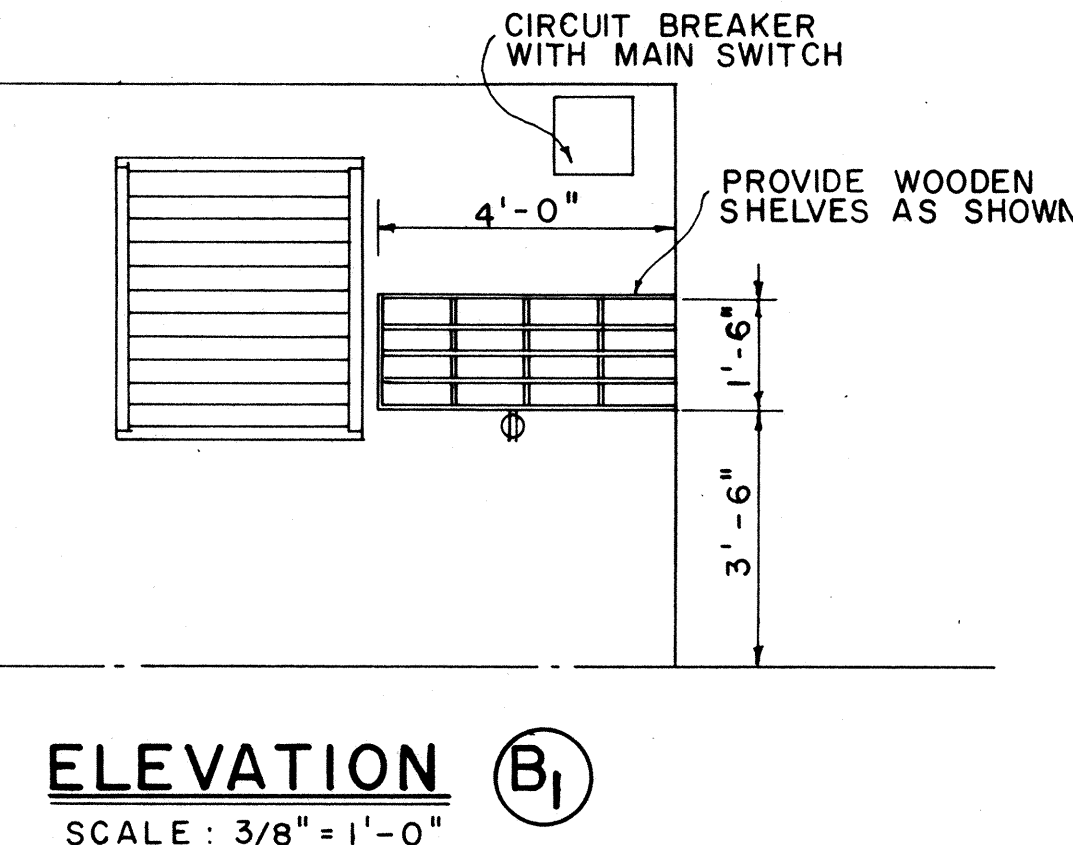
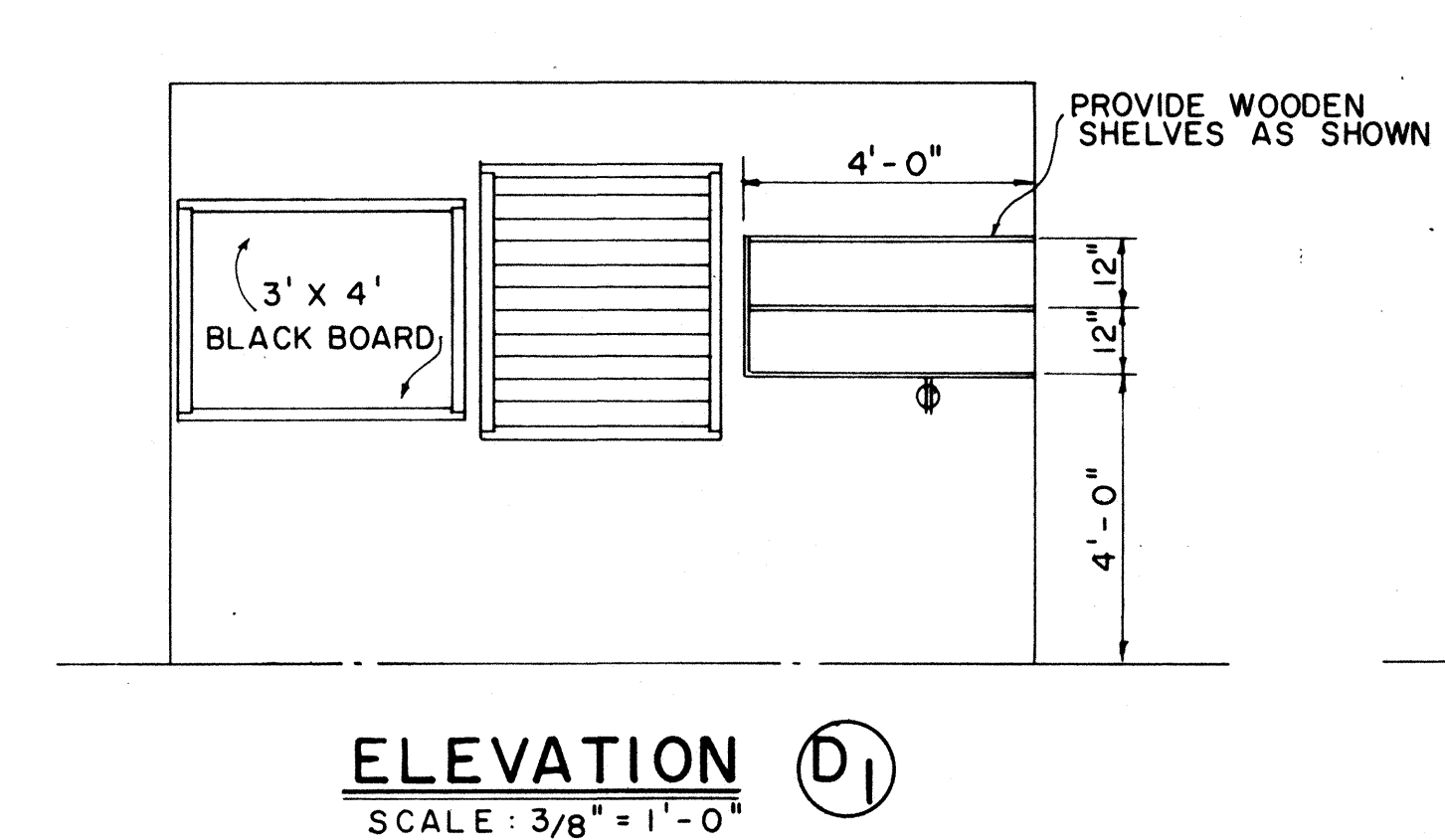
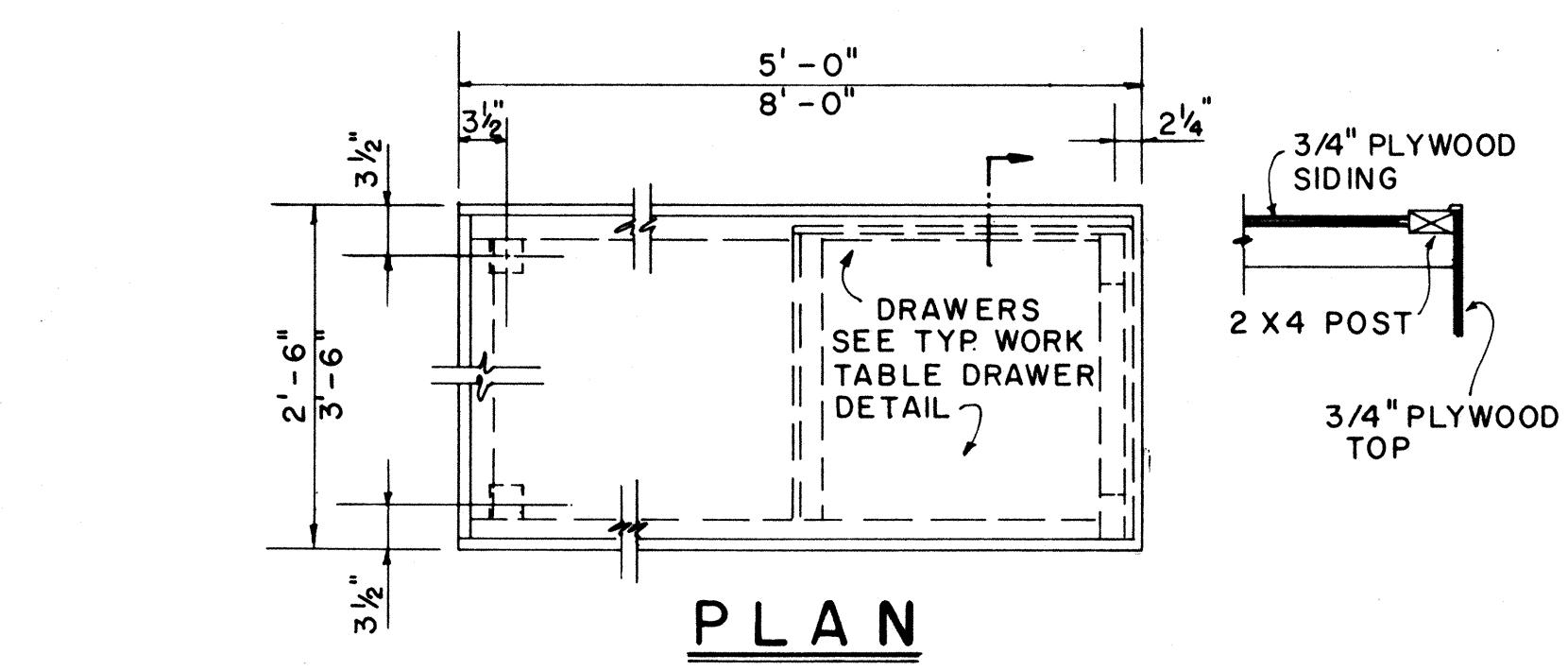
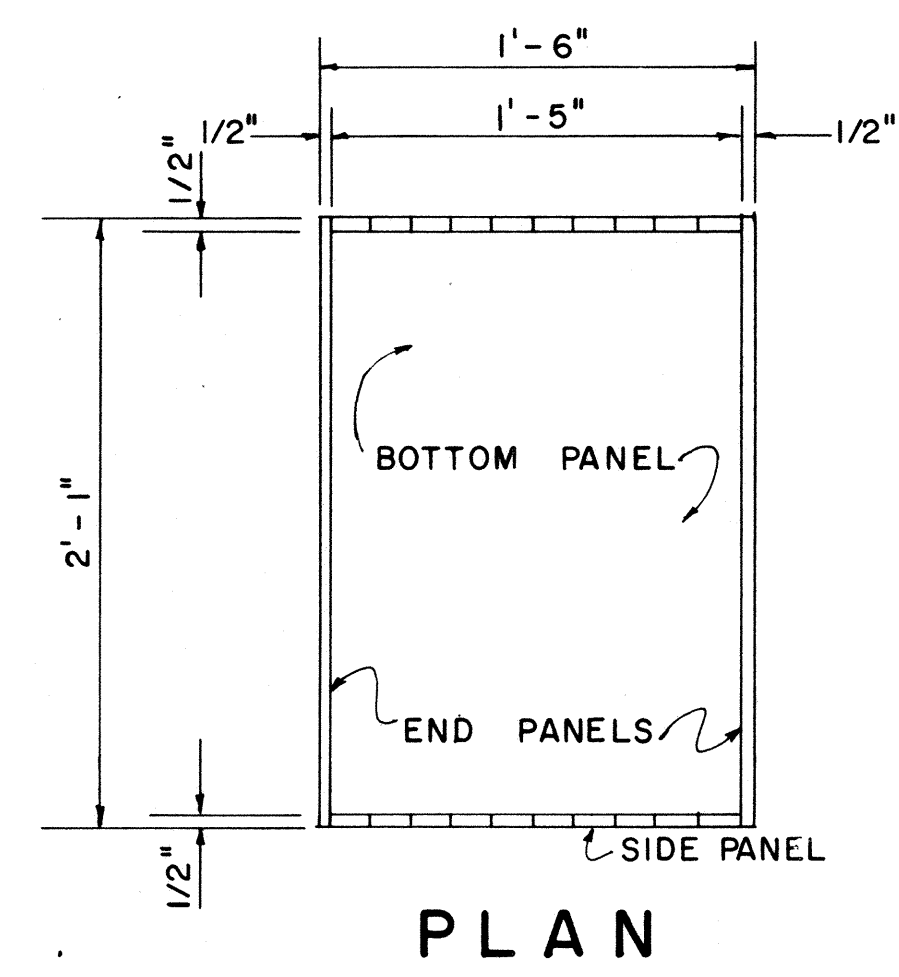
FIELD OFFICE

Scale: As Noted

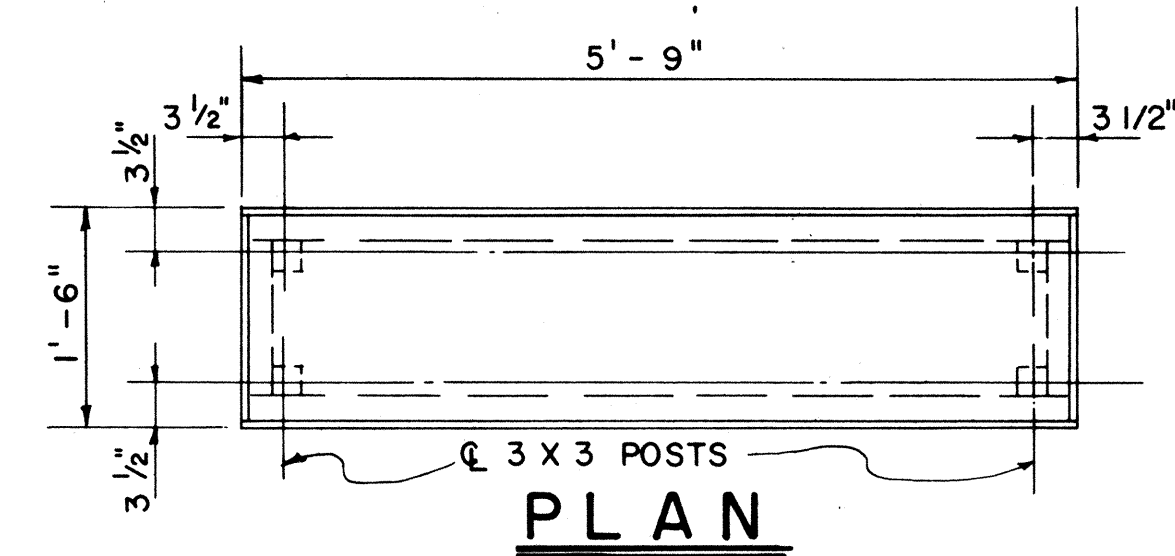
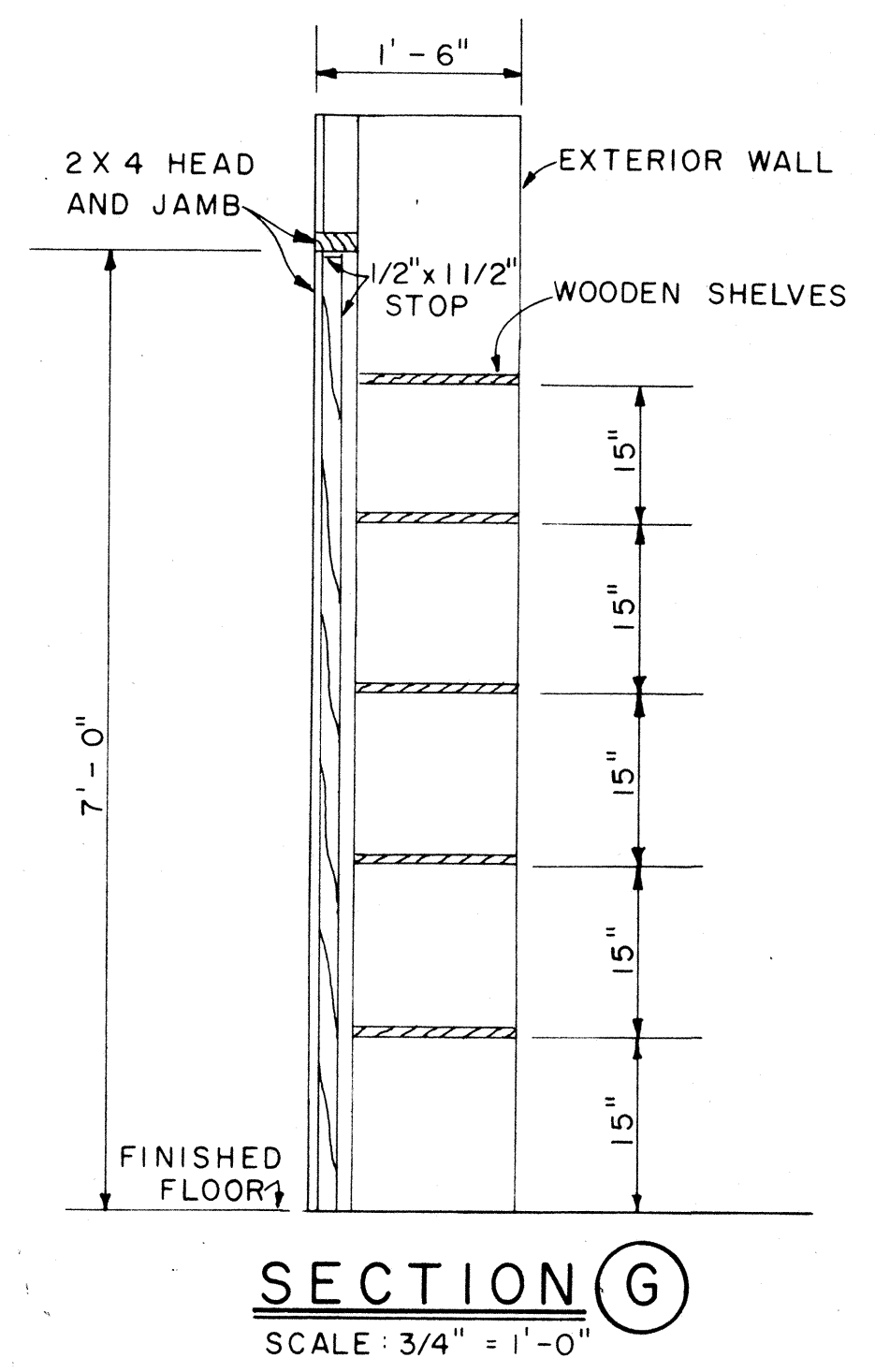
SHEET NO. 36 OF 54 SHEETS DD 636.1

SURVEY PLOTTED BY: DATE: 12-10-69
DESIGNED BY: TRACED BY: 12-10-69
NOTE BOOK: QUANTITIES BY: 12-10-69
CHECKED BY: 12-10-69

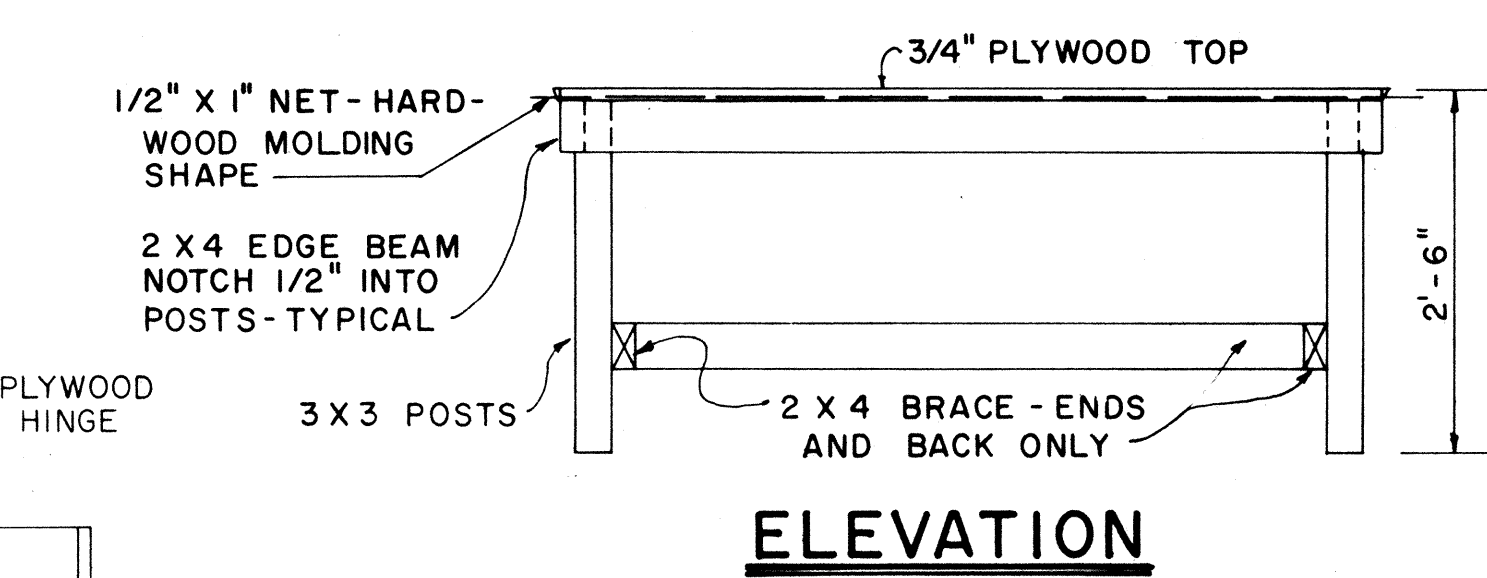
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	21-0285	1986	37	54



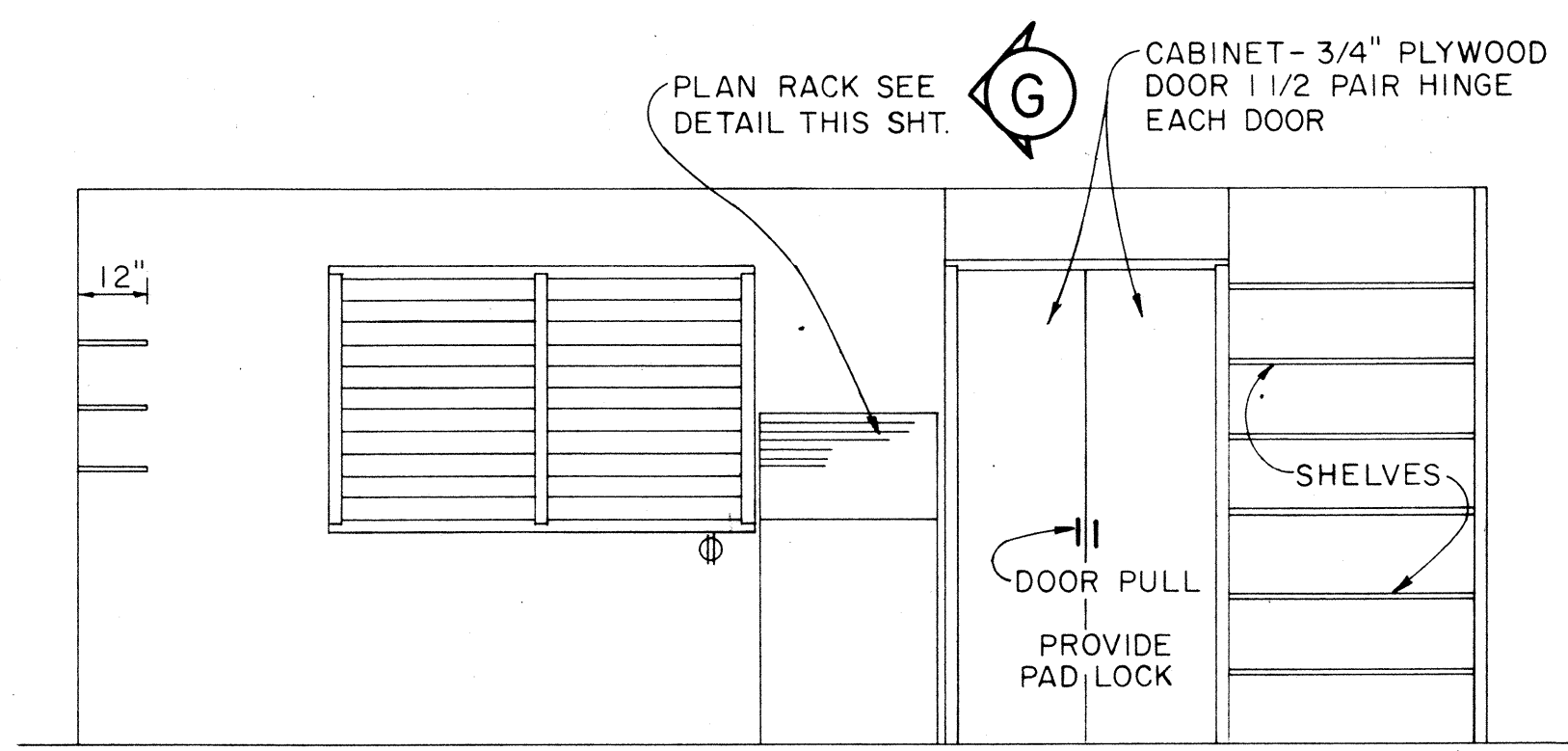
ELEVATION
 2'-6" x 5'-0" 2 REQ'D
 3'-6" x 8'-0" 1 REQ'D
 2'-6" x 8'-0" 1 REQ'D
PORTABLE WORK TABLE DETAIL
 SCALE: 3/4" = 1'-0"



PLAN RACK DETAIL
 SCALE: 1 1/2" = 1'-0"
 (ONE REQUIRED)



1'-6" x 5'-9" PORTABLE WORK TABLE DETAIL
 SCALE: 3/4" = 1'-0"



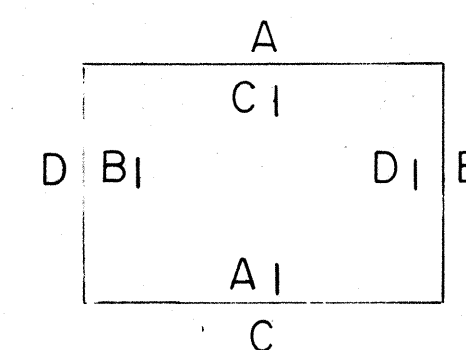
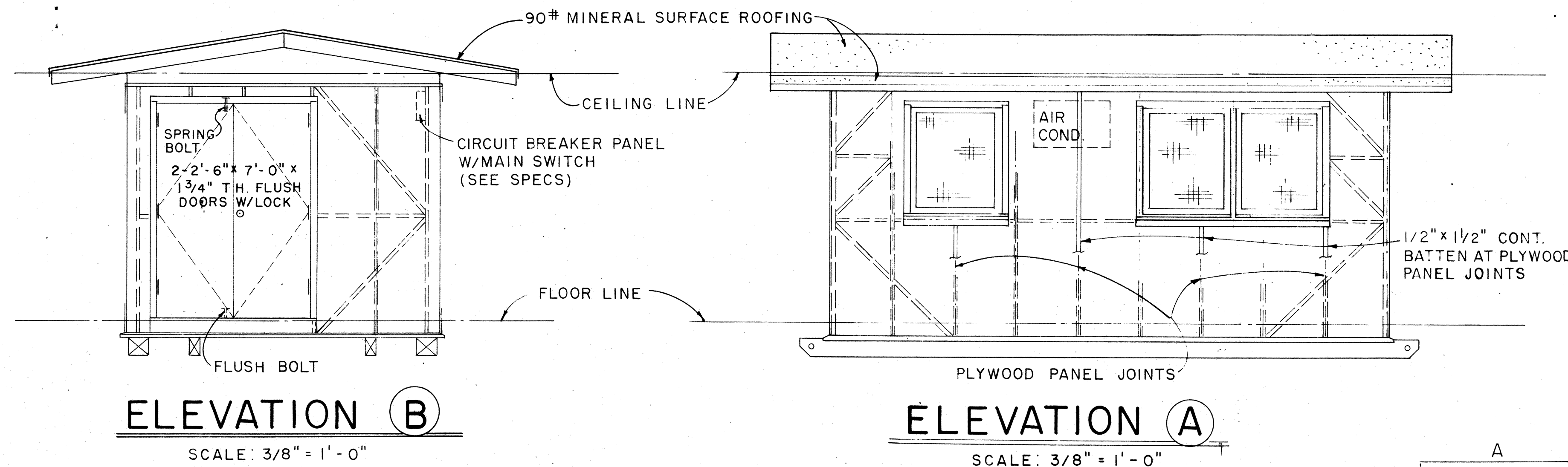
ELEVATION A1
 SCALE: 3/8" = 1'-0"

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

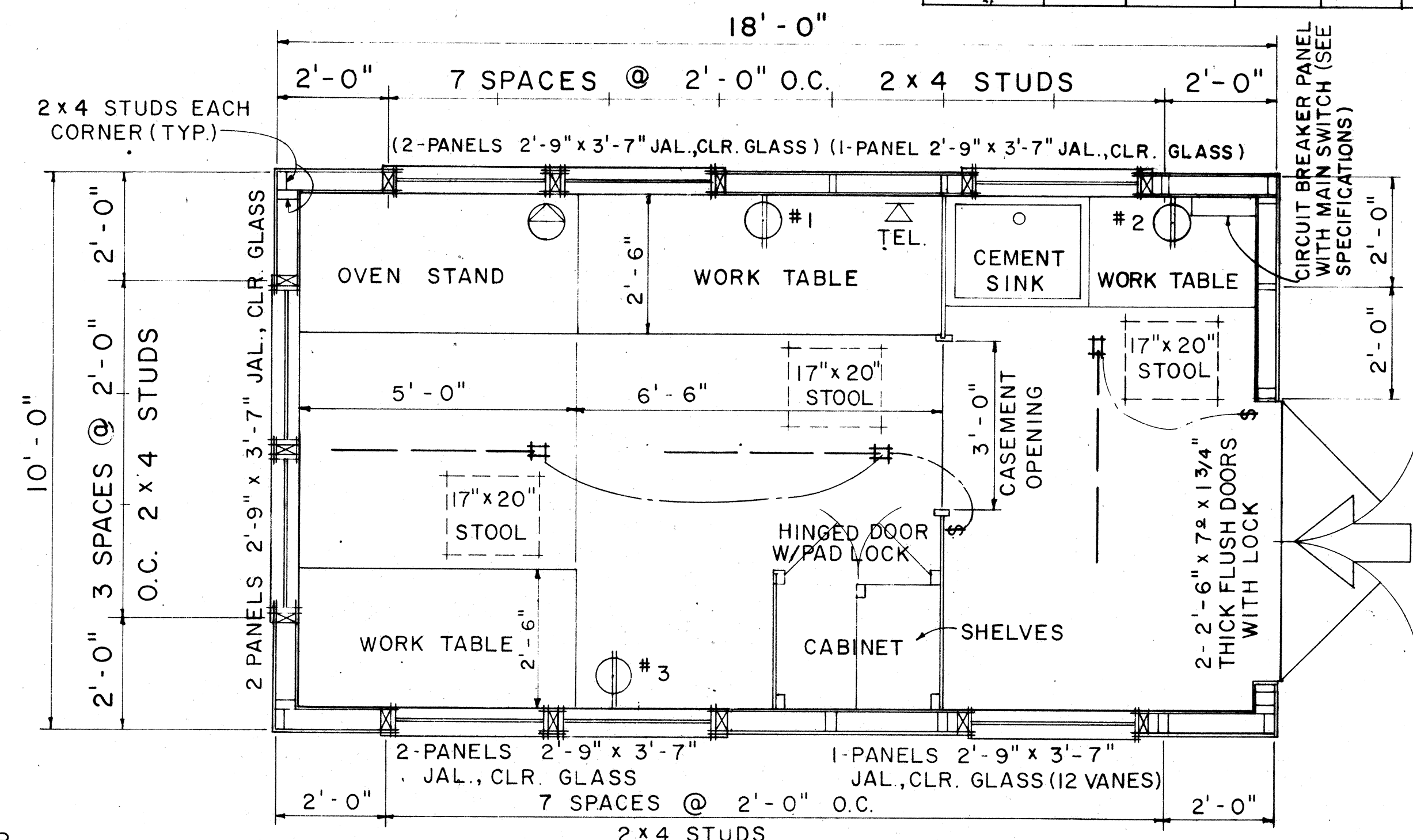
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
FIELD OFFICE
 Scale: As Noted

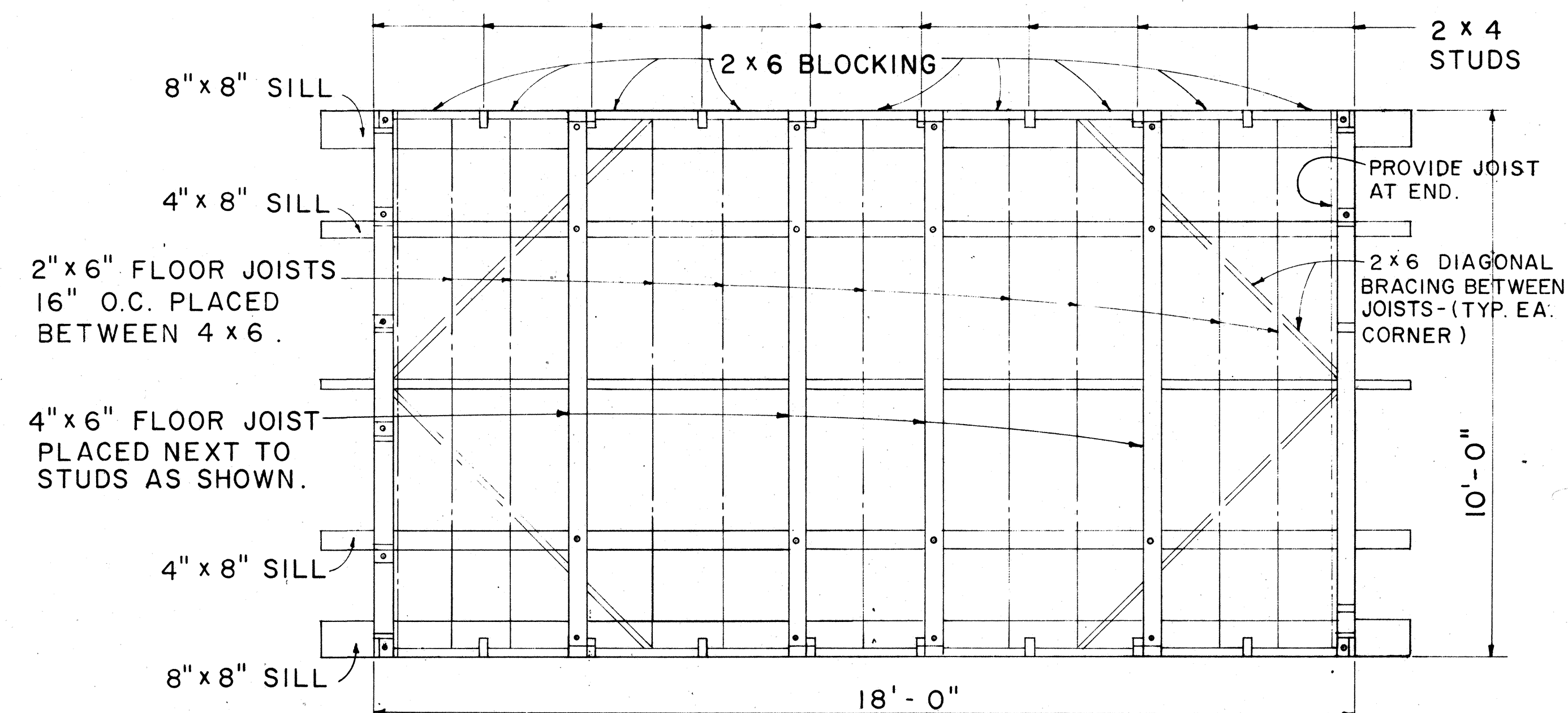
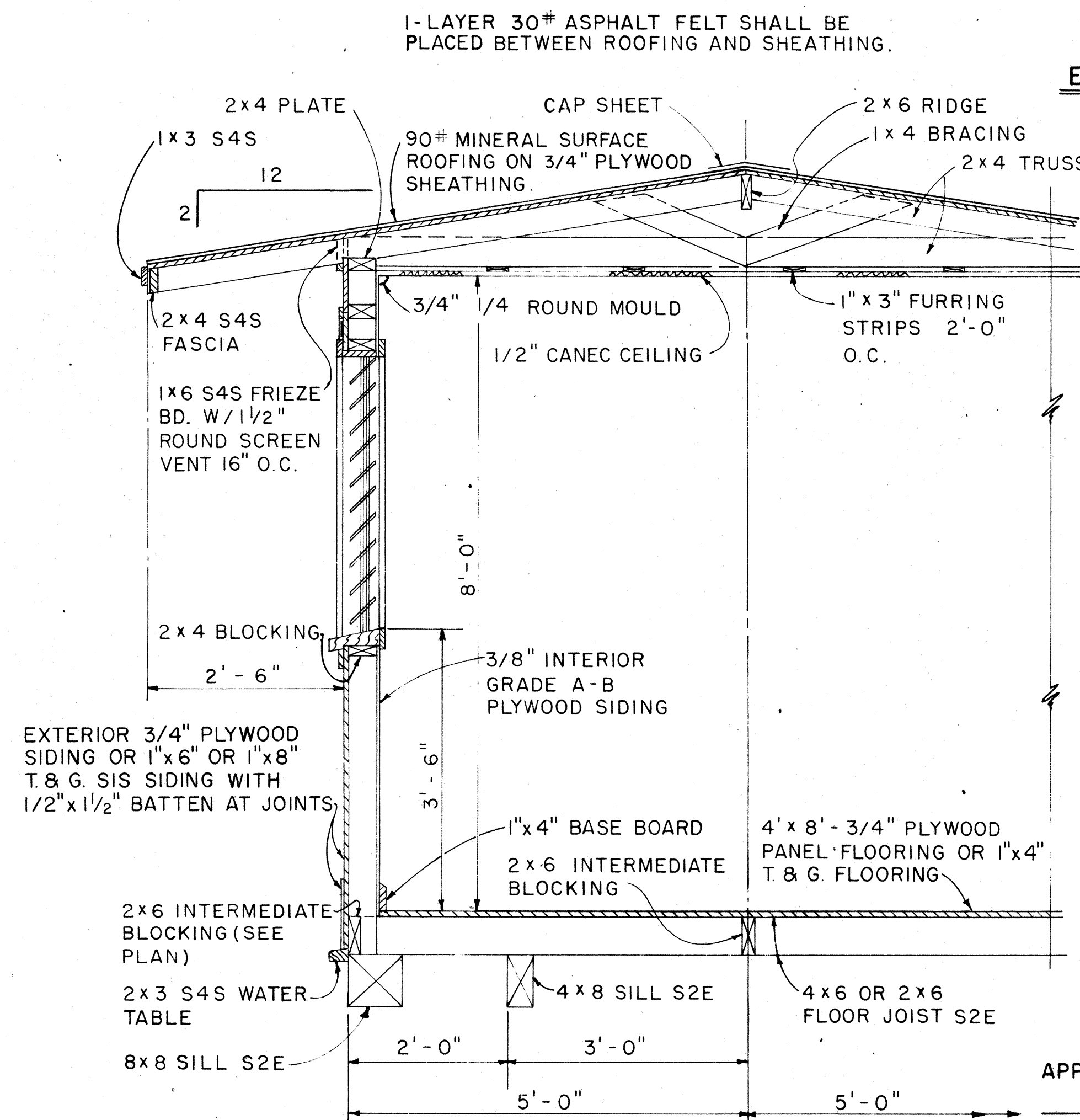
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	191-0285	1986	38	54



EXTERIOR & INTERIOR KEY



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



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

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

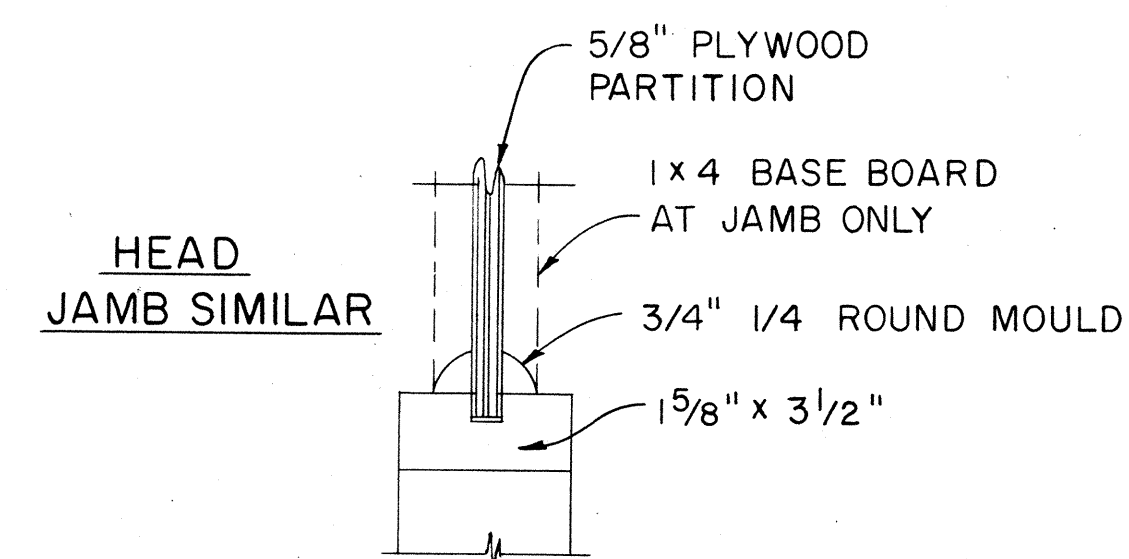
APPROVED:
ASSISTANT CHIEF, ENGINEERING
12-10-69
DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
PROJECT SITE LABORATORY	
Scale: As Noted	

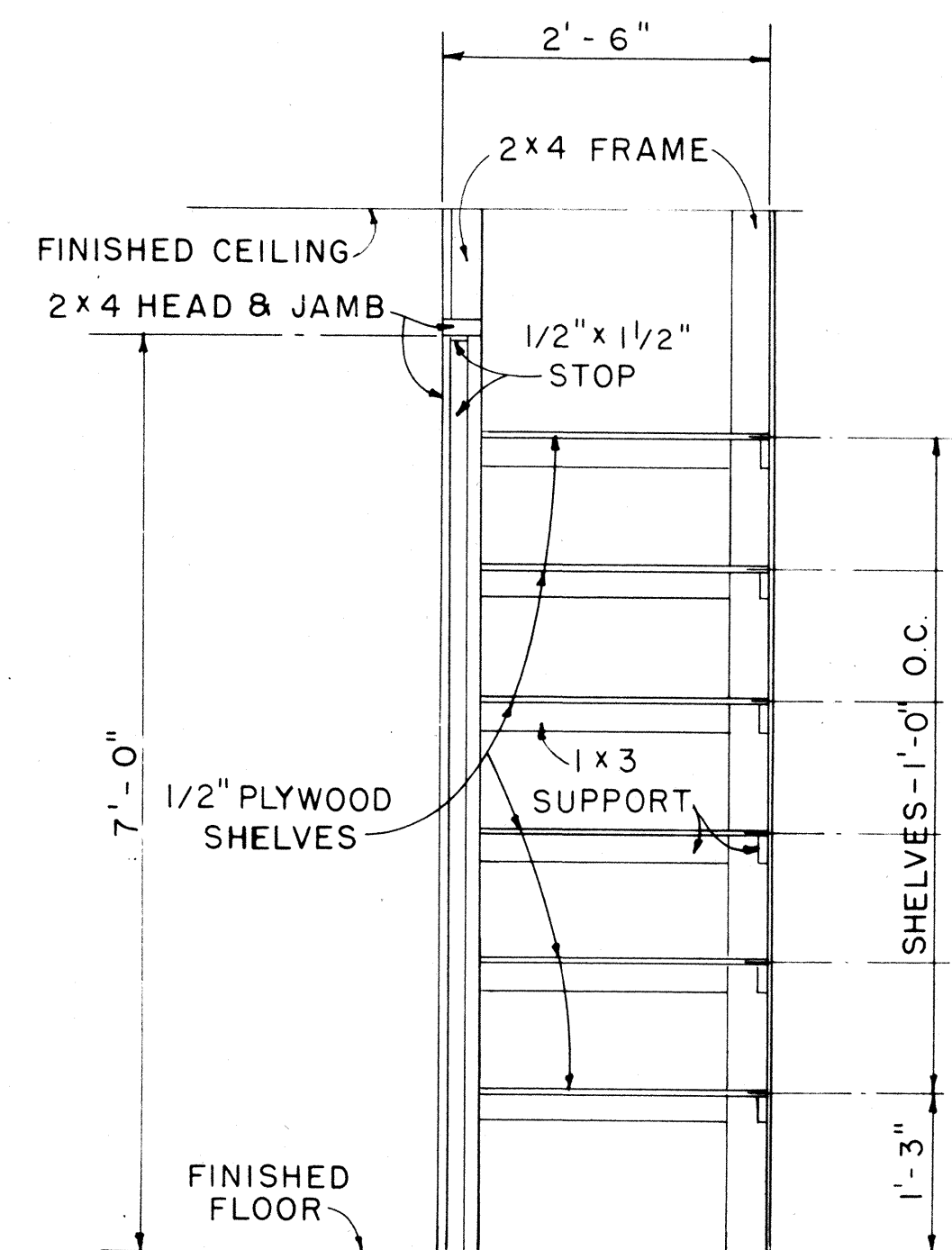
SHEET No. OF SHEETS DD 636.3

FED. ROAD DIST. NO.	STATE	FED-AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	101-0285	1986	39	54



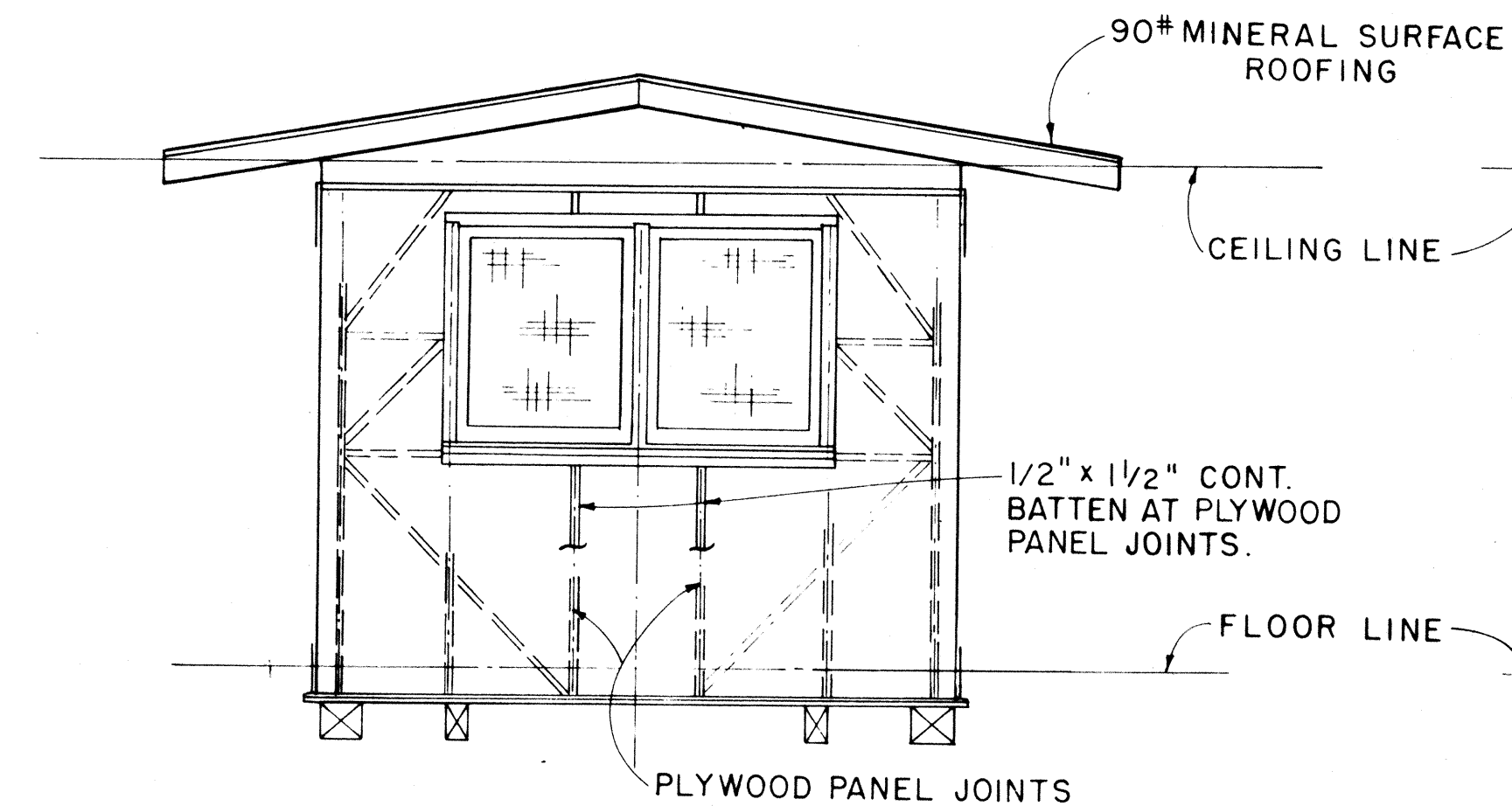
CASEMENT DETAIL

SCALE: 3" = 1'-0"



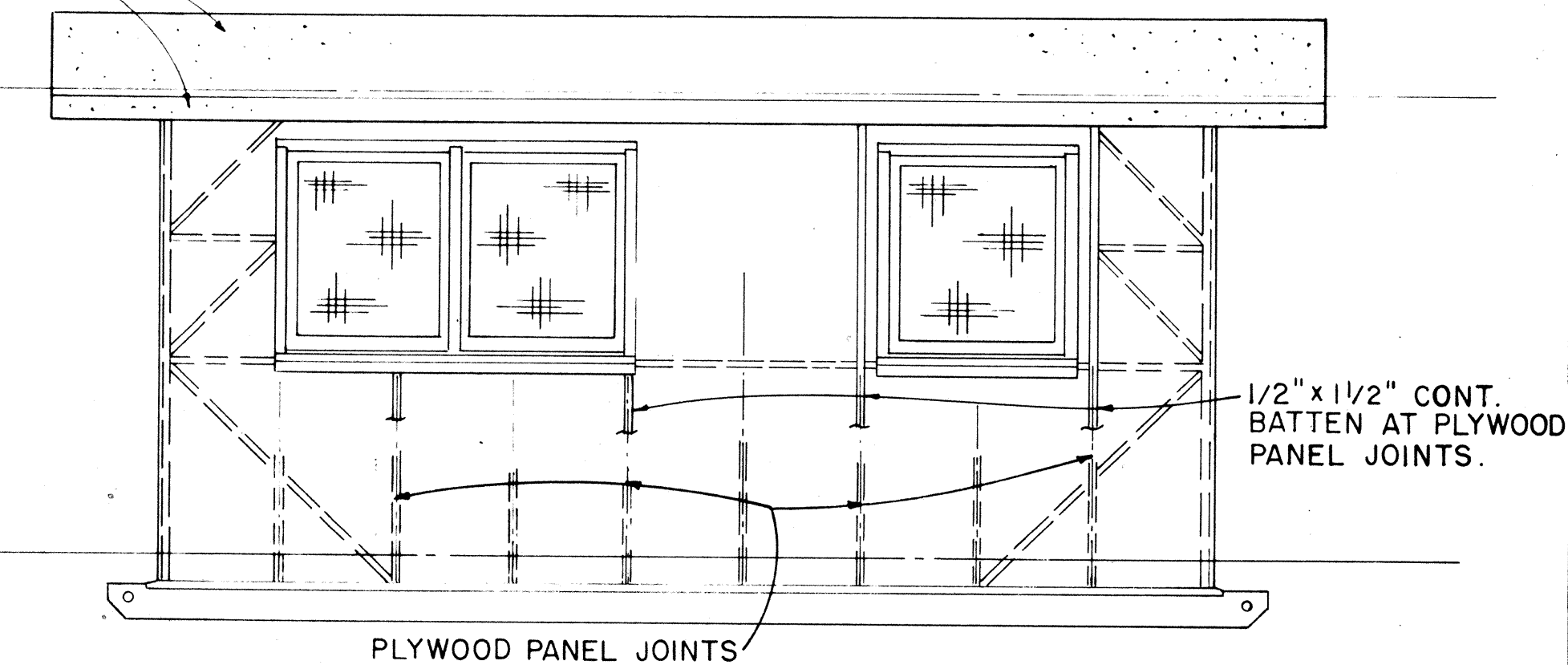
CABINET DETAIL

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



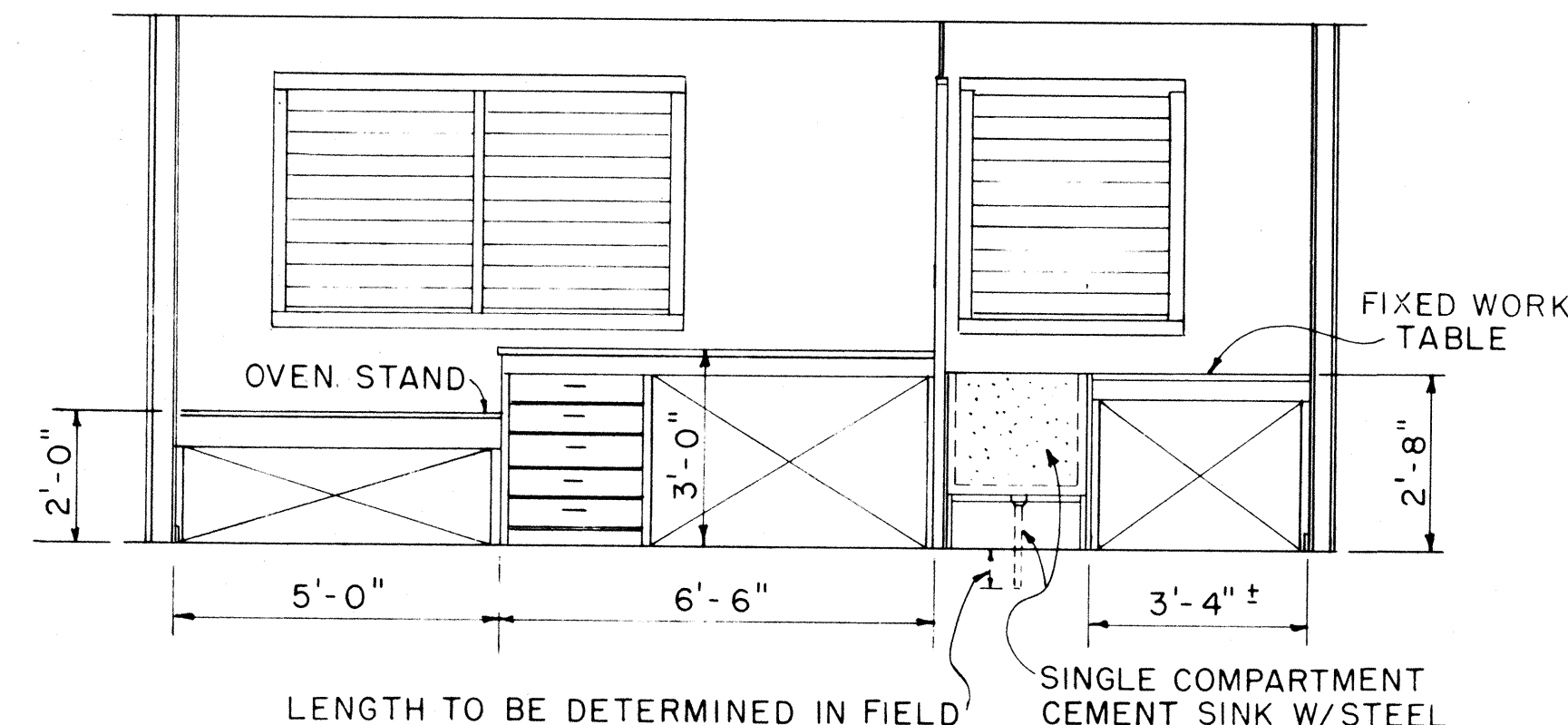
ELEVATION D

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



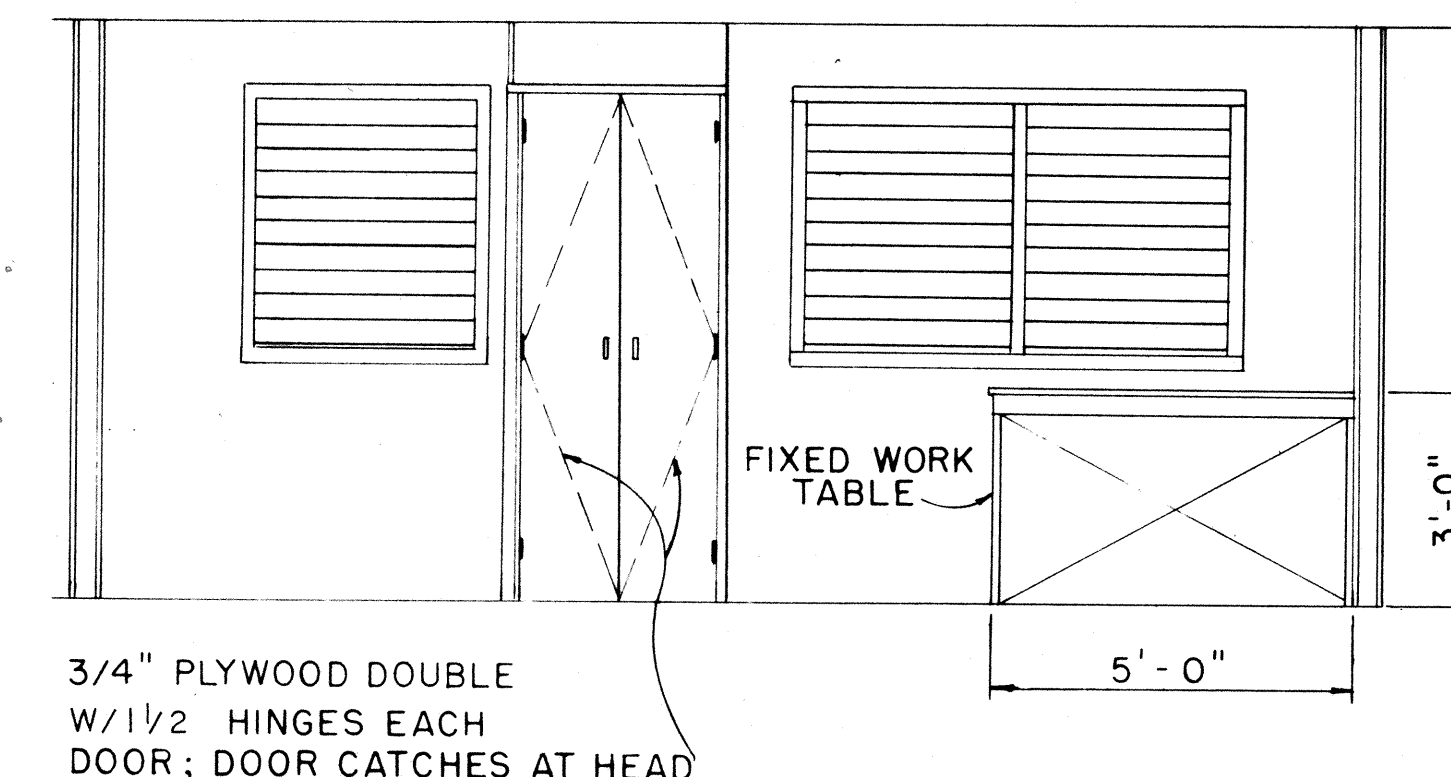
ELEVATION C

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



ELEVATION C1

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



ELEVATION A1

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

APPROVAL RECOMMENDED:
M. Furumasa 12-4-69
HIGHWAY DESIGN ENGINEER DATE

APPROVED:
John J. Soder 12-10-69
ASSISTANT CHIEF, ENGINEERING DATE

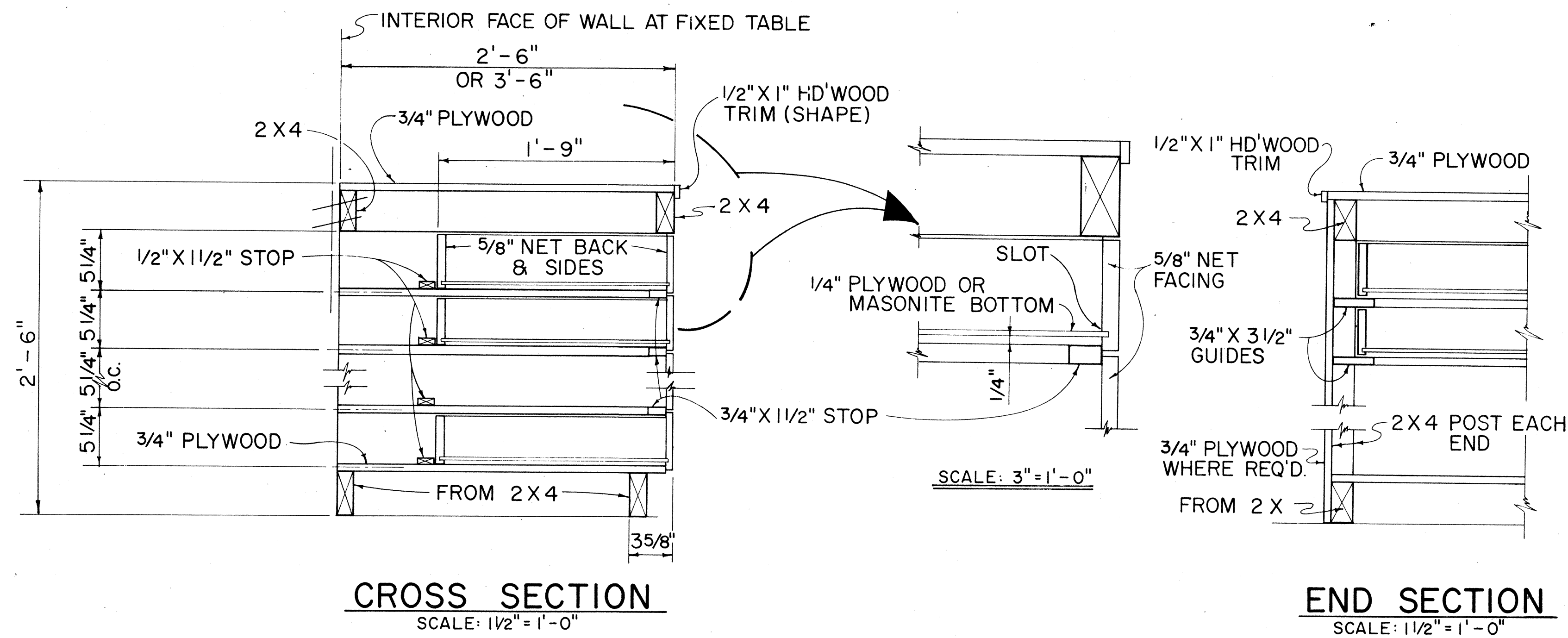
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

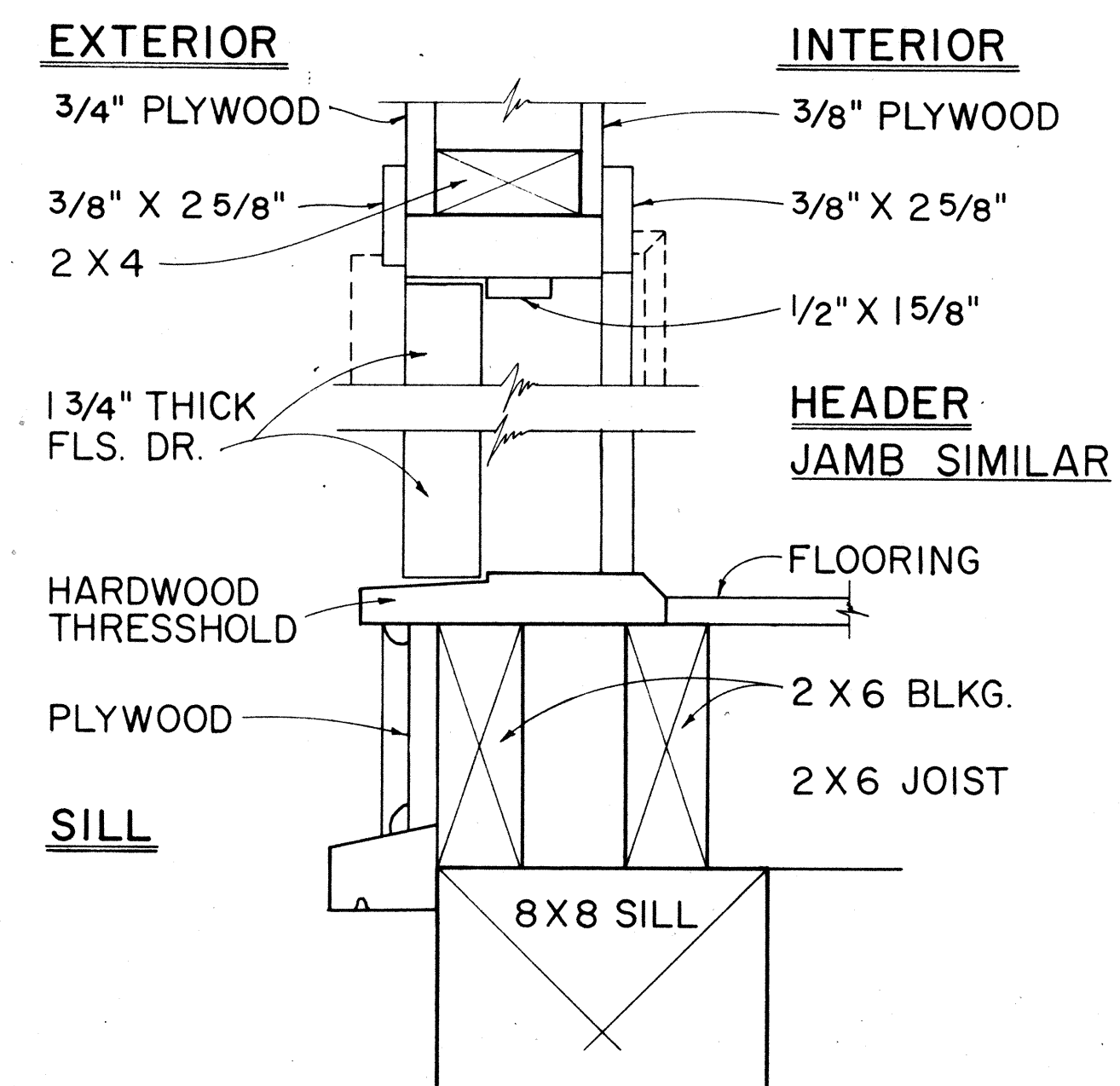
PROJECT SITE LABORATORY

Scale: As Noted

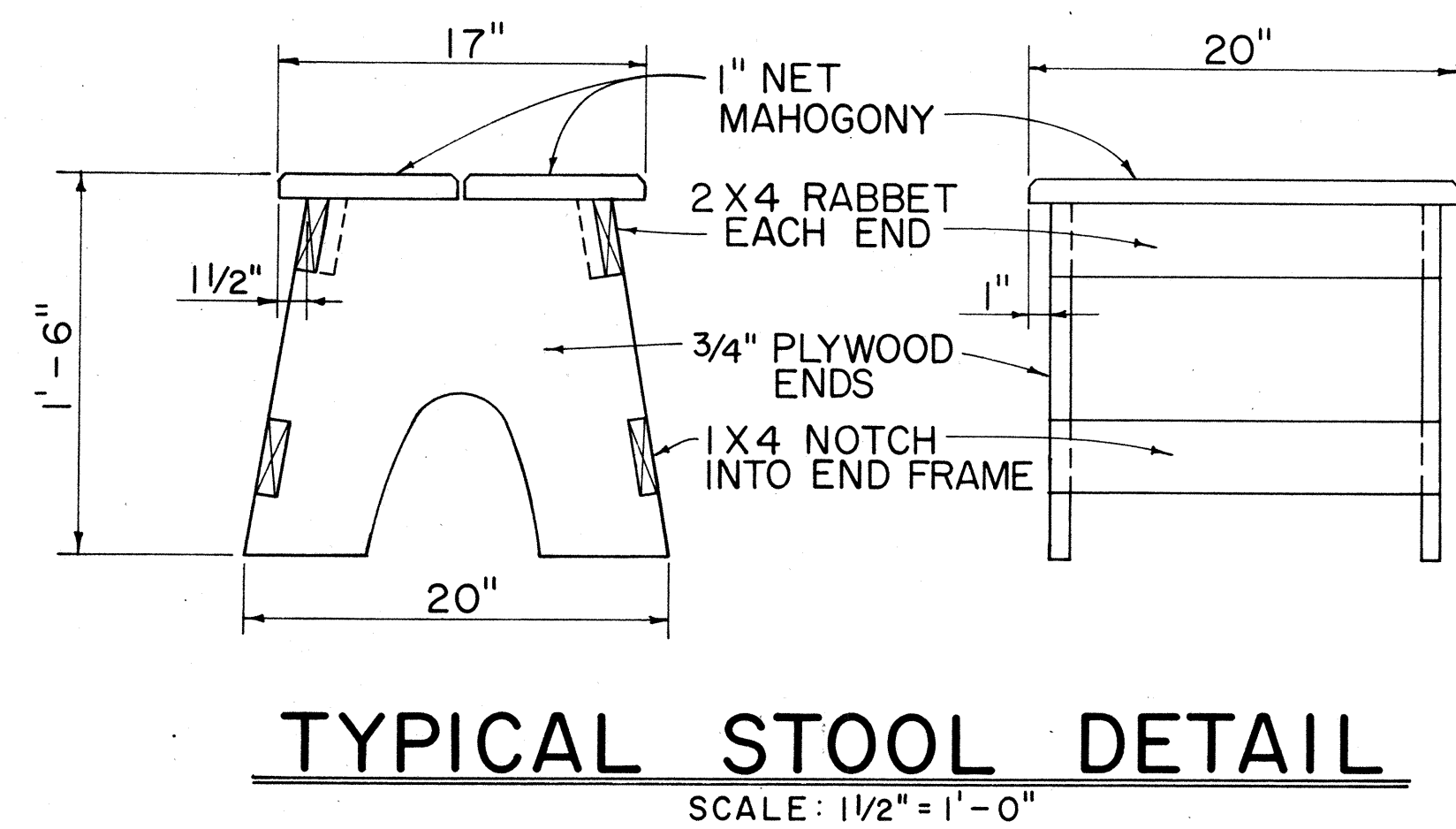
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	19J-0285	1986	40	54



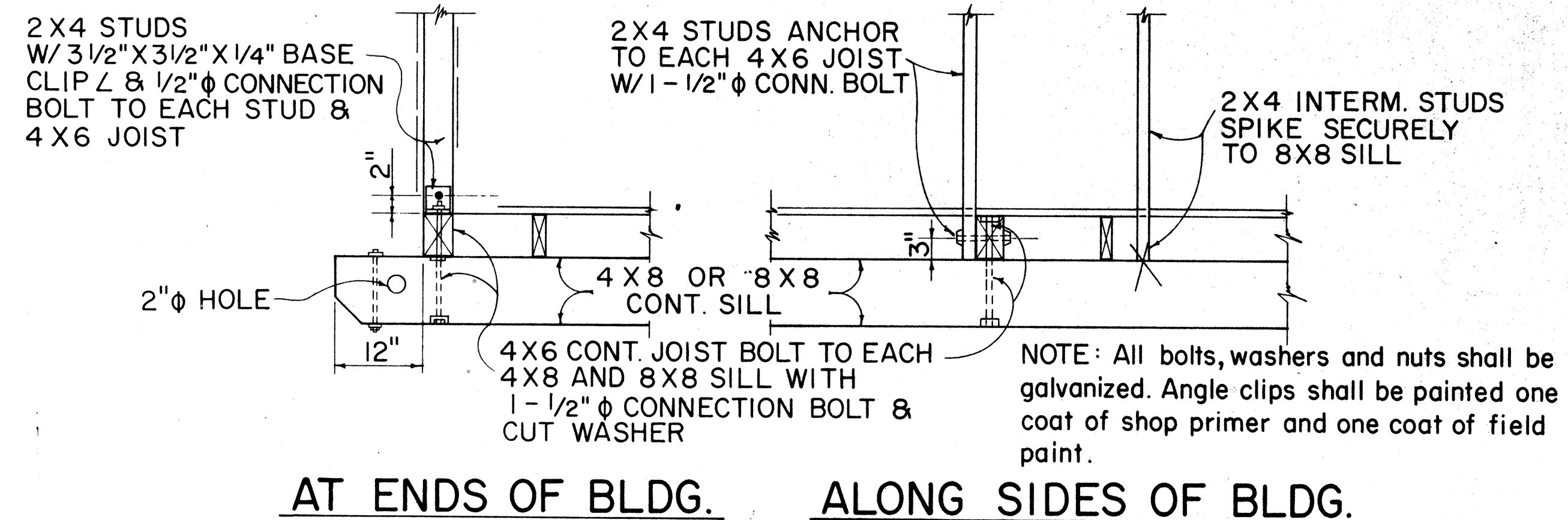
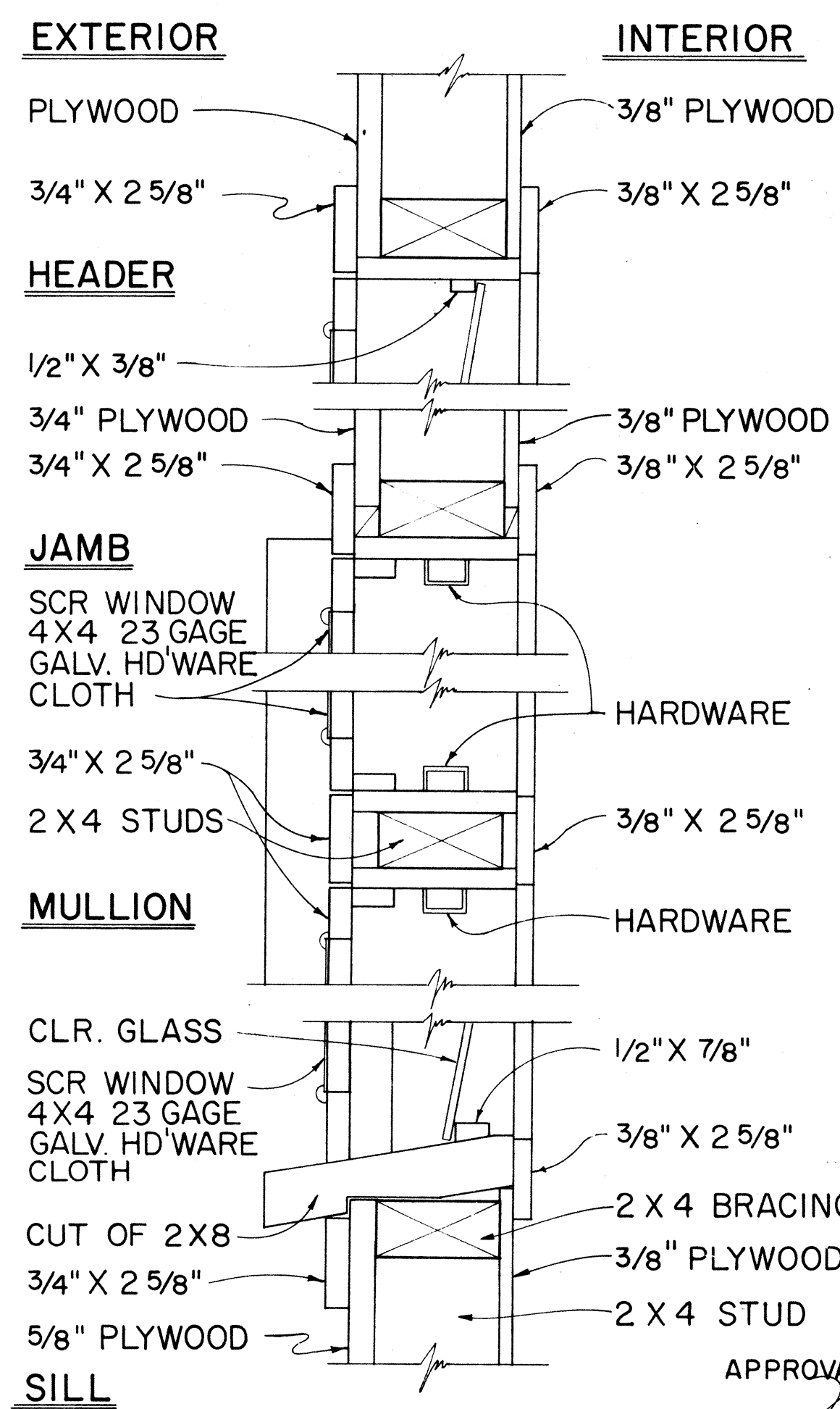
TYPICAL WORK TABLE DRAWER DETAIL



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.



NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FIELD OFFICE
&
PROJECT SITE LABORATORY

Scale: As Noted

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

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