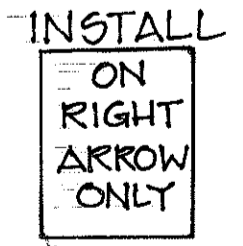
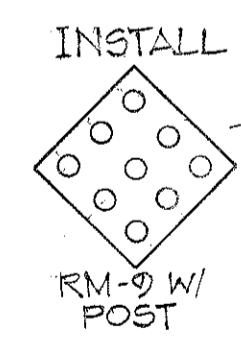
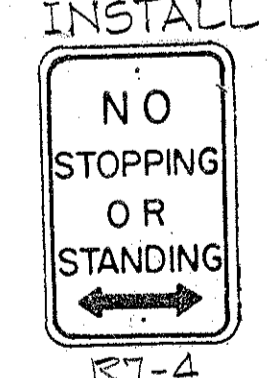
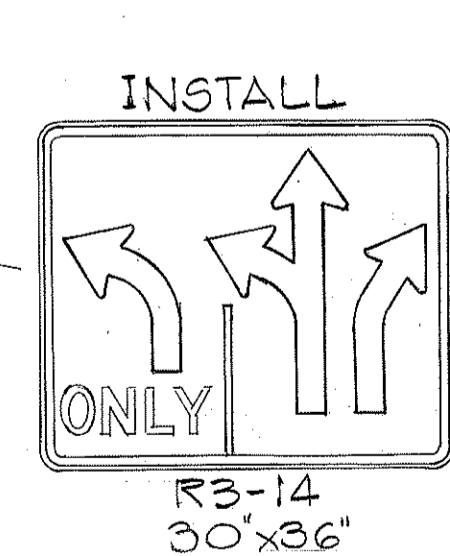
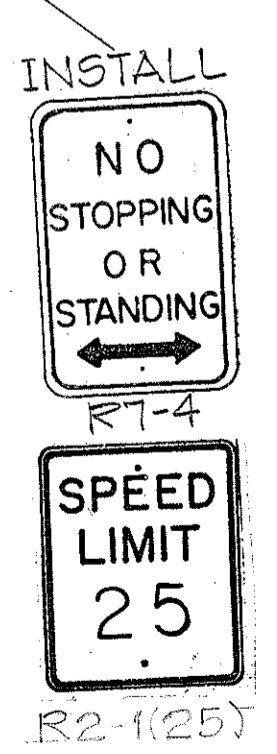
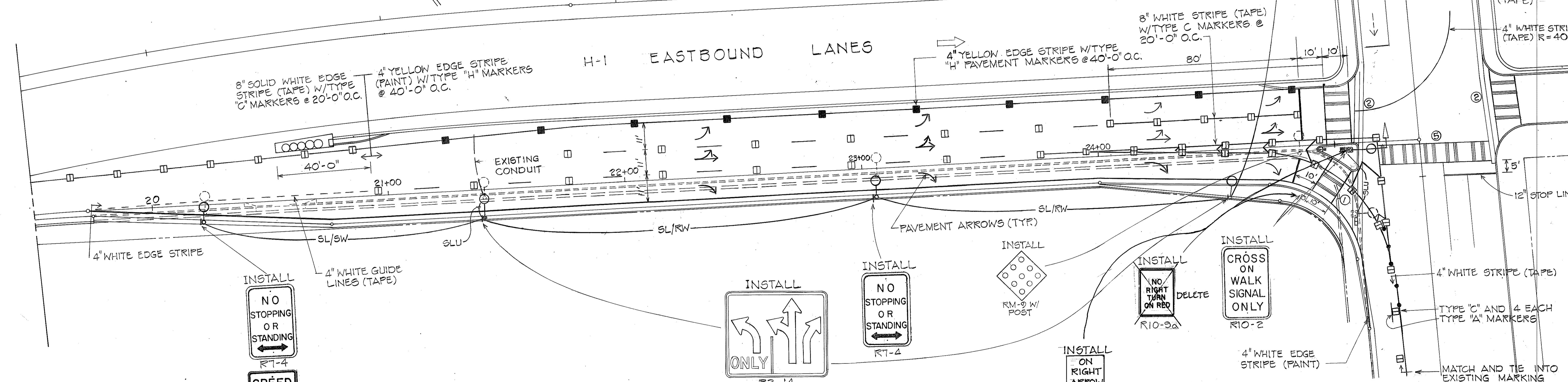
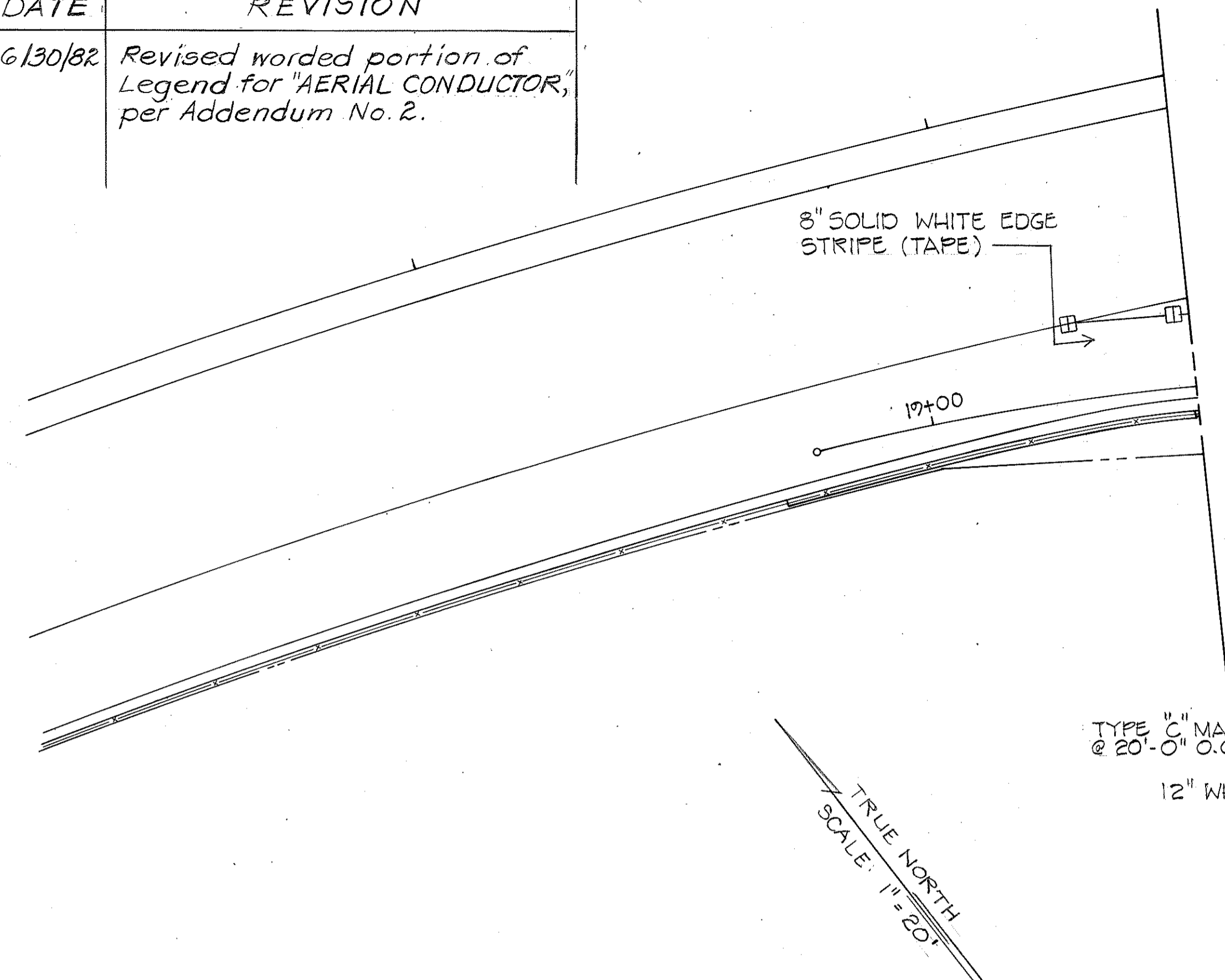


DATE	REVISION
6/30/82	Revised worded portion of Legend for "AERIAL CONDUCTOR," per Addendum No. 2.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1 (160)	1982	23	39

**LEGEND**

- 40' TYPE H PAVEMENT MARKER
- 4" YELLOW EDGE STRIPE (PAINT)
- 20'-0" TYPE C PAVEMENT MARKER
- 8" WHITE STRIPE (TAPE)
- 15'-10" 4 EA. TYPE "A" PAVEMENT MARKERS
- 40' TYPE "C" PAVEMENT MARKER
- 4" WHITE EDGE STRIPE (PAINT)
- 4" WHITE GUIDE LINES (TAPE) COLOR AS SHOWN ON PLANS
- PAVEMENT ARROWS (TAPE)
- NO. OF LANES (FOR PAYMENT) CROSSWALK AND STOP LINE SHALL BE TAPE
- 12" STOP LINE
- 8" WHITE STRIPE
- CHANNELIZING ISLAND (ALL STRIPES TO BE PAINT)
- 12" WHITE STRIPE
- EXISTING LUMINAIRE ON METAL STANDARD
- RELOCATED LUMINAIRE & METAL STANDARD WITH NEW TRANSFORMER BASE
- RELOCATED LUMINAIRE & METAL STANDARD WITH EXISTING TRANSFORMER BASE
- RELOCATED LUMINAIRE; NEW METAL STANDARD W/NEW TRAFFIC SIGNAL MAST ARM AND LT. BRACKET
- SLU-2" STREET LIGHT UNDERGROUND CONDUIT W/NO. 8 AWG CABLE
- SL/RW-2" 2" STREET LIGHT CONDUIT IN RETAINING WALL W/ NO. 8 AWG CABLE.
- SL/SW - AERIAL CONDUCTOR, SPAN WIRE, NO. 8, QUAD



**PAVEMENT MARKING & SIGNING NOTES:**

1. Location of all new Pavement Markings shall be staked out in the field by the Contractor for approval by the Engineer prior to installation.
2. Existing Pavement Markings not incorporated in the final traffic pattern shall be removed as directed by the Engineer. Cost shall be incidental to the various contract items.
3. Raised Pavement Markings shall not be placed within Crosswalks.
4. For additional Pavement Marking details, see Plan Sheets 31 to 34.
5. All signs to be installed shall be new signs with new fasteners.
6. Installation of signs shown shall include the removal of existing signs including removal of standard fasteners. All removed material shall be the property of the Contractor. Cost shall be incidental to other items of work.

**NOTE:**  
See Sheet 25 for Highway Lighting Notes.

DATE	
SURVEY ELABORATED BY	
DRAWN BY	
DESIGNED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
LAND TRANSPORTATION FACILITIES DIVISION

**SIGNING, STRIPING AND LIGHTING PLAN**

PROJECT NO. IR-HI-1(160)

SCALE: 1" = 20'      DATE: JUNE, 1982  
SHEET NO. 1 OF 16 SHEETS

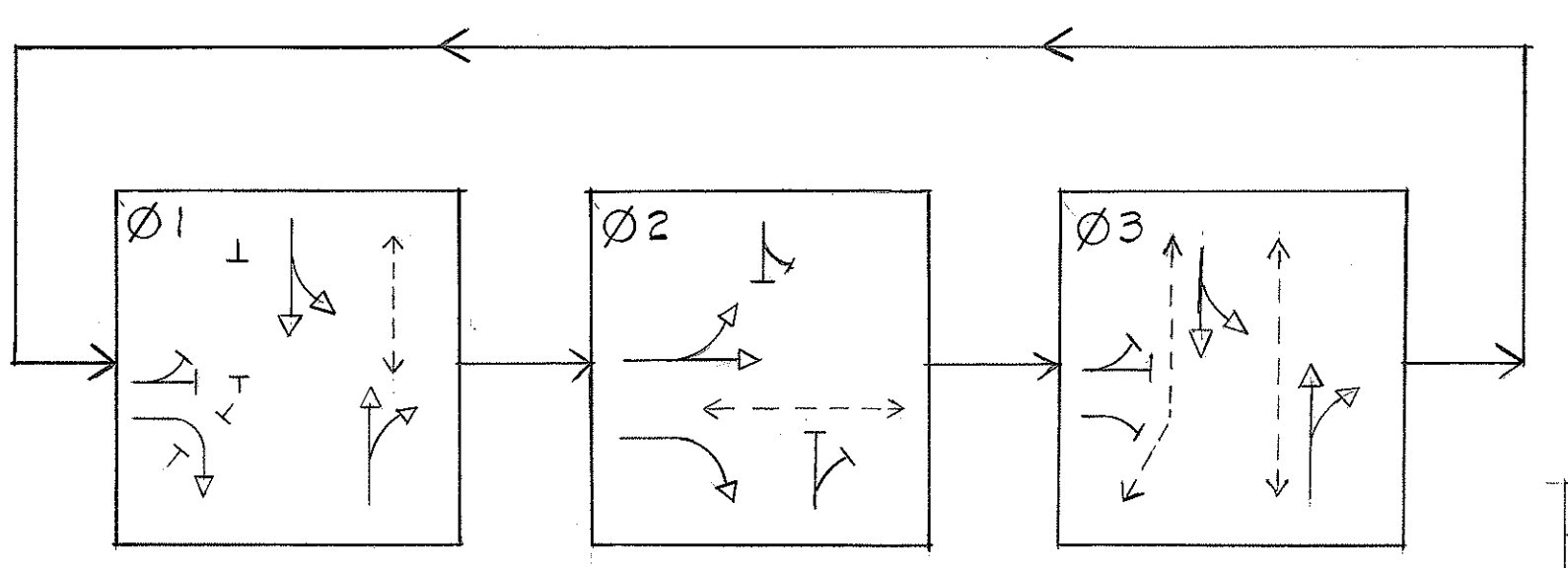
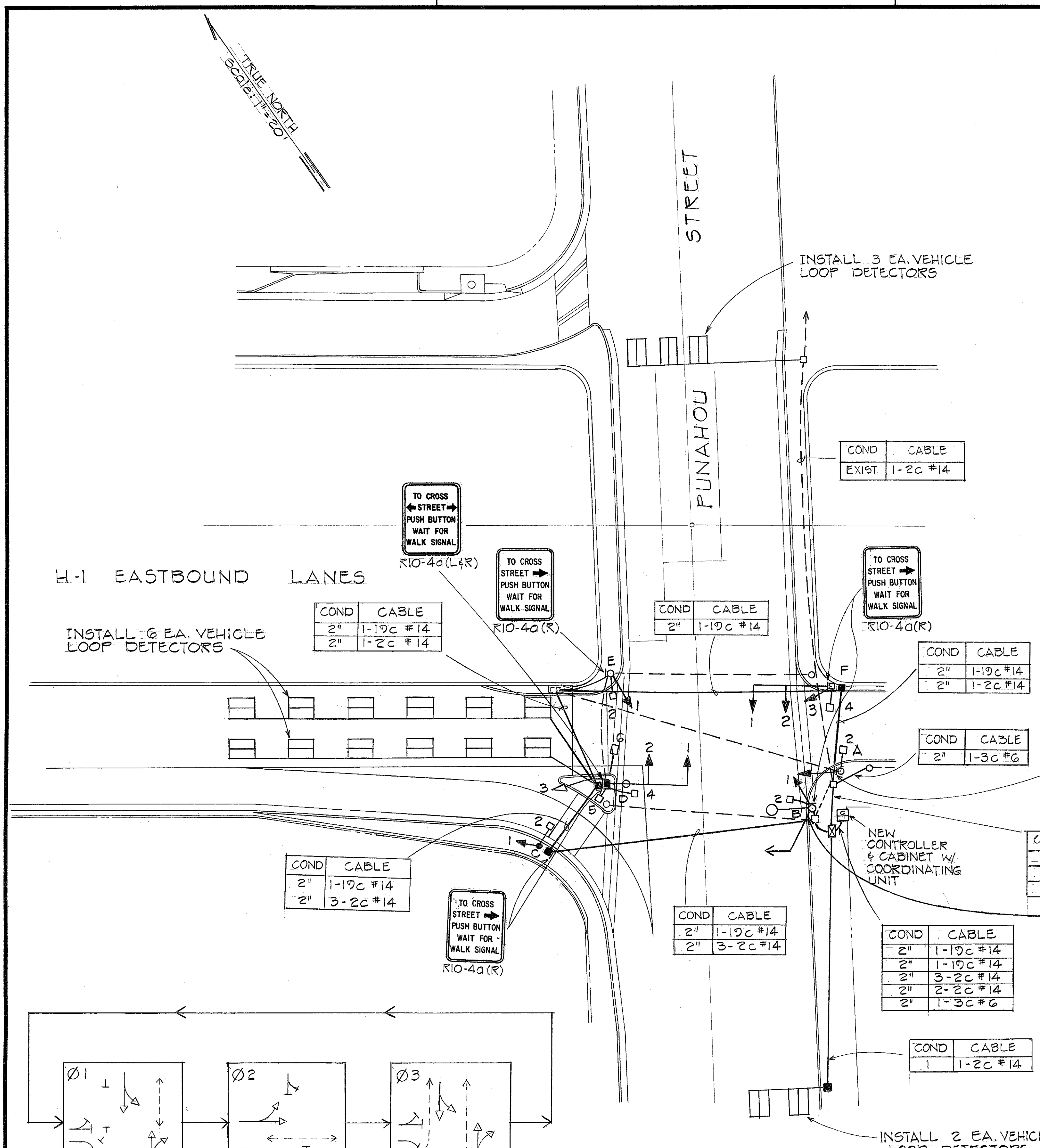
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(160)	1982	24	39

**LEGEND**

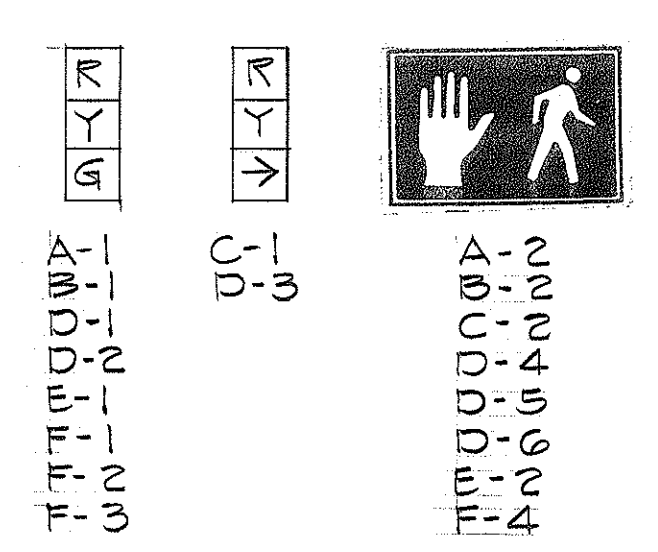
- 12 INCH, 3 SECTION TRAFFIC SIGNAL HEAD (NEW)
- 1 SECTION PEDESTRIAN SIGNAL HEAD (NEW)
- TRAFFIC SIGNAL HEADS MOUNTED ON NEW TYPE II SIGNAL STANDARD, 25' MAST ARM; 11' DISTANCE BETWEEN HEADS.
- TRAFFIC SIGNAL HEADS MOUNTED ON NEW TYPE III SIGNAL STANDARD, 25' MAST ARM; 11' DISTANCE BETWEEN HEADS.
- TRAFFIC SIGNAL AND PEDESTRIAN SIGNAL HEAD MOUNTED ON TYPE I SIGNAL STANDARD.
- TRAFFIC SIGNAL AND PEDESTRIAN SIGNAL HEAD MOUNTED ON EXISTING TYPE I SIGNAL STANDARD.
- TRAFFIC SIGNAL AND PEDESTRIAN SIGNAL HEAD MOUNTED ON EXISTING STREET LIGHT STANDARD.
- EXISTING PULL BOX
- NEW TYPE "A" PULL BOX
- NEW TYPE "B" PULL BOX
- 8' x 6' VEHICLE LOOP DETECTOR
- NEW TRAFFIC SIGNAL SYSTEM CONTROLLER W/ COORDINATING UNIT.
- EXISTING CONDUIT
- NEW 2" CONDUIT (NUMBER AND CABLES AS NOTED ON PLAN)

**TRAFFIC SIGNAL NOTES**

1. A 2-4 PHASE CONTROLLER SHALL BE FURNISHED, COMPLETE AND READY FOR OPERATION. NEW CONTROLLER AND COORDINATING UNIT SHALL BE CONNECTED TO EXISTING INTERCONNECTING CABLE. CONTRACTOR SHALL DETERMINE INTER-CONNECTION REQUIREMENTS W/C & C DTS PRIOR TO BIDDING. A COORDINATING UNIT IS REQUIRED FOR THIS PROJECT.
2. ALL TRAFFIC SIGNAL CONTROLLER EQUIPMENT SHALL BE COMPLETELY WIRED IN THE CABINET AND SHALL CONTROL THE TRAFFIC SIGNALS AS CALLED FOR IN THE PLAN.
3. MINIMUM CONTROLLER CABINET SIZE SHALL BE 40" HIGH (INCLUDING BASE CASTING) 24" WIDE AND 14" DEEP.
4. THE EXISTING TRAFFIC SIGNAL SYSTEM SHALL REMAIN OPERATIONAL UNTIL THE NEW TRAFFIC SIGNAL SYSTEM CAN BECOME OPERATIONAL. COMBINATIONS OF EXISTING AND NEW WILL BE PERMITTED ON APPROVAL BY THE ENGINEER.
5. THE LOCATIONS OF TRAFFIC SIGNAL STANDARDS, TRAFFIC SIGNAL CONTROLLERS WITH MAST-ARM, PEDESTRIAN PUSHBUTTONS, TRAFFIC CONTROLLER, PULL BOXES, CONDUITS AND TRAFFIC DETECTORS SHALL BE STAKED OUT IN THE FIELD BY THE CONTRACTOR AND APPROVAL OF THE LOCATIONS OBTAINED FROM THE ENGINEER PRIOR TO CONSTRUCTION AND INSTALLATION.
6. ALL TRAFFIC SIGNAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" FEDERAL HIGHWAYS ADMINISTRATION (1978) AND AMENDMENTS.
7. DEPARTMENT OF TRANSPORTATION SERVICES, CITY AND COUNTY OF HONOLULU, WILL ASSIST THE ENGINEER IN CONSTRUCTION INSPECTION FOR THE TRAFFIC SIGNAL SYSTEM.
8. WORK BY THE DEPARTMENT OF TRANSPORTATION SERVICES, CITY AND COUNTY OF HONOLULU:
  - a. TEST CONTROLLER AND AUXILIARY EQUIPMENT IN CABINET
  - b. MAKE ALL ELECTRICAL CONNECTIONS IN THE FIELD FOR SIGNAL SYSTEM AFTER THE SYSTEM HAS BEEN INSTALLED IN PLACE BY THE CONTRACTOR.
  - c. FINAL ADJUSTMENT OF TRAFFIC SIGNAL CONTROL EQUIPMENT.
9. ALL NEW CONDUITS UNDER ROADWAYS (INCLUDING DRIVEWAYS) SHALL BE STEEL OR PVC SCHEDULE 80 UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL HAVE THE OPTION OF USING PVC SCHEDULE 40 FOR NEW CONDUITS NOT UNDER ROADWAYS.
10. ALL DUCT LINES UNDER ASPHALT CONCRETE ROADWAY (INCLUDING DRIVEWAYS) SHALL HAVE BACKFILL RESURFACED W/ ASPHALT CONCRETE MIX I THICKNESS TO MATCH EXISTING.
11. PEDESTRIAN PUSHBUTTON LEAD-IN WIRES SHALL BE 1-2c #14 CABLE PULLED IN THE SAME CONDUIT AS LOOP DETECTOR LEAD IN CABLES.
12. A SOLID #8 BARE COPPER WIRE SHALL BE PULLED WITH THE TRAFFIC SIGNAL CONTROL CABLE FOR EQUIPMENT GROUND. COST SHALL BE INCIDENTAL TO THE INSTALLATION OF THE CONTROL CABLE.
13. MAINTENANCE OF TRAFFIC THROUGH THE CONSTRUCTION AREA SHALL BE IN ACCORDANCE WITH PART VI OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", FEDERAL HIGHWAY ADMINISTRATION (1978) AND AS SPECIFIED IN THE SPECIAL PROVISIONS. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ADEQUATE BARRICADES, BLINKERS, CONSTRUCTION SIGNS, ETC. FOR THE SAFETY OF THE MOTORING PUBLIC.



PHASE DIAGRAM



SIGNAL INDICATIONS

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

6/30/82	Revised worded portion of Legend for "NEW TRAFFIC SIGNAL SYSTEM CONTROL", per Addendum No. 1.
DATE	REVISION

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

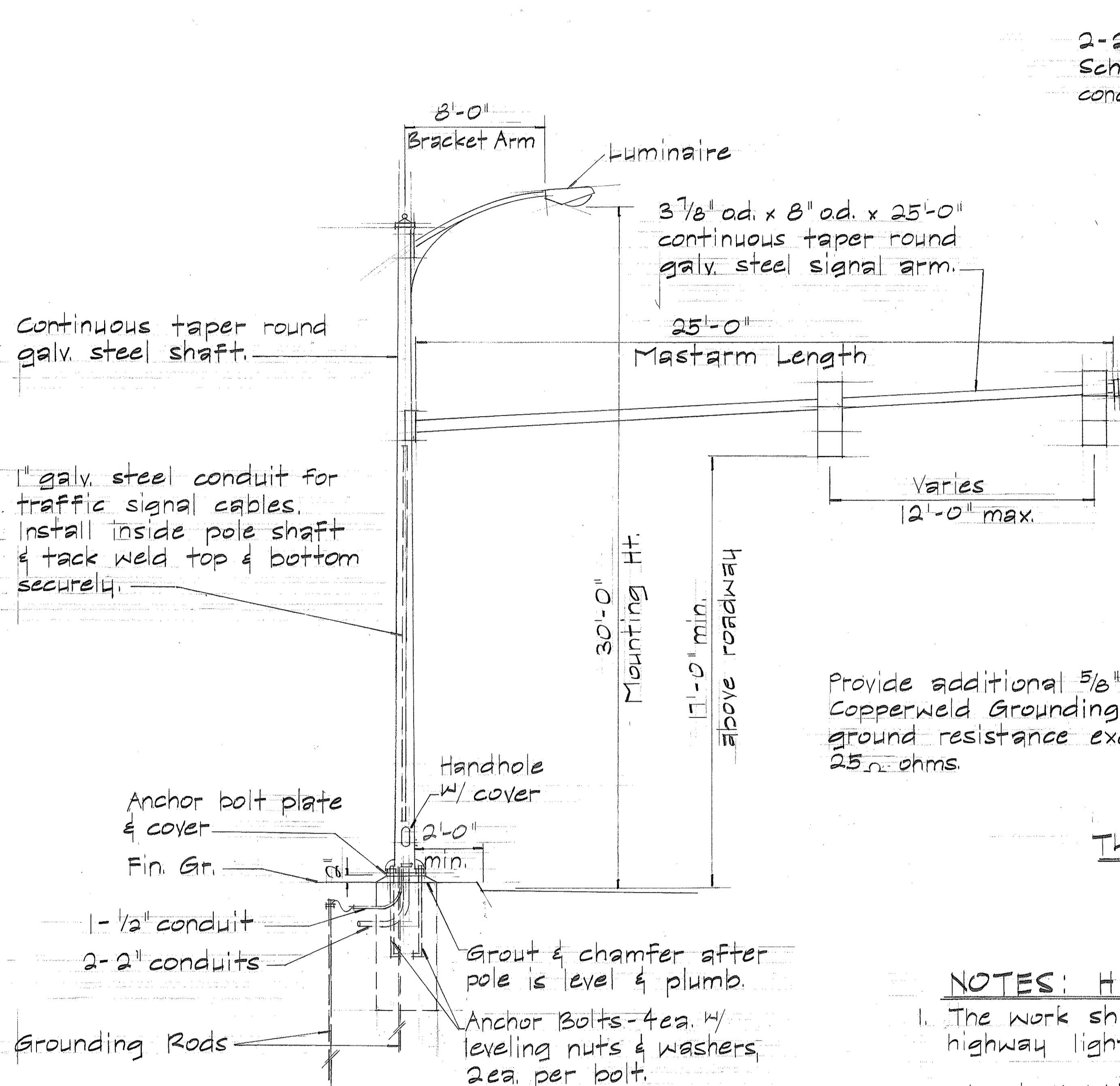
**TRAFFIC SIGNAL PLAN**

PROJECT NO. IR-HI-1(160)

SCALE: \_\_\_\_\_ DATE: JUNE, 1982

SHEET NO. 2 OF 16 SHEETS

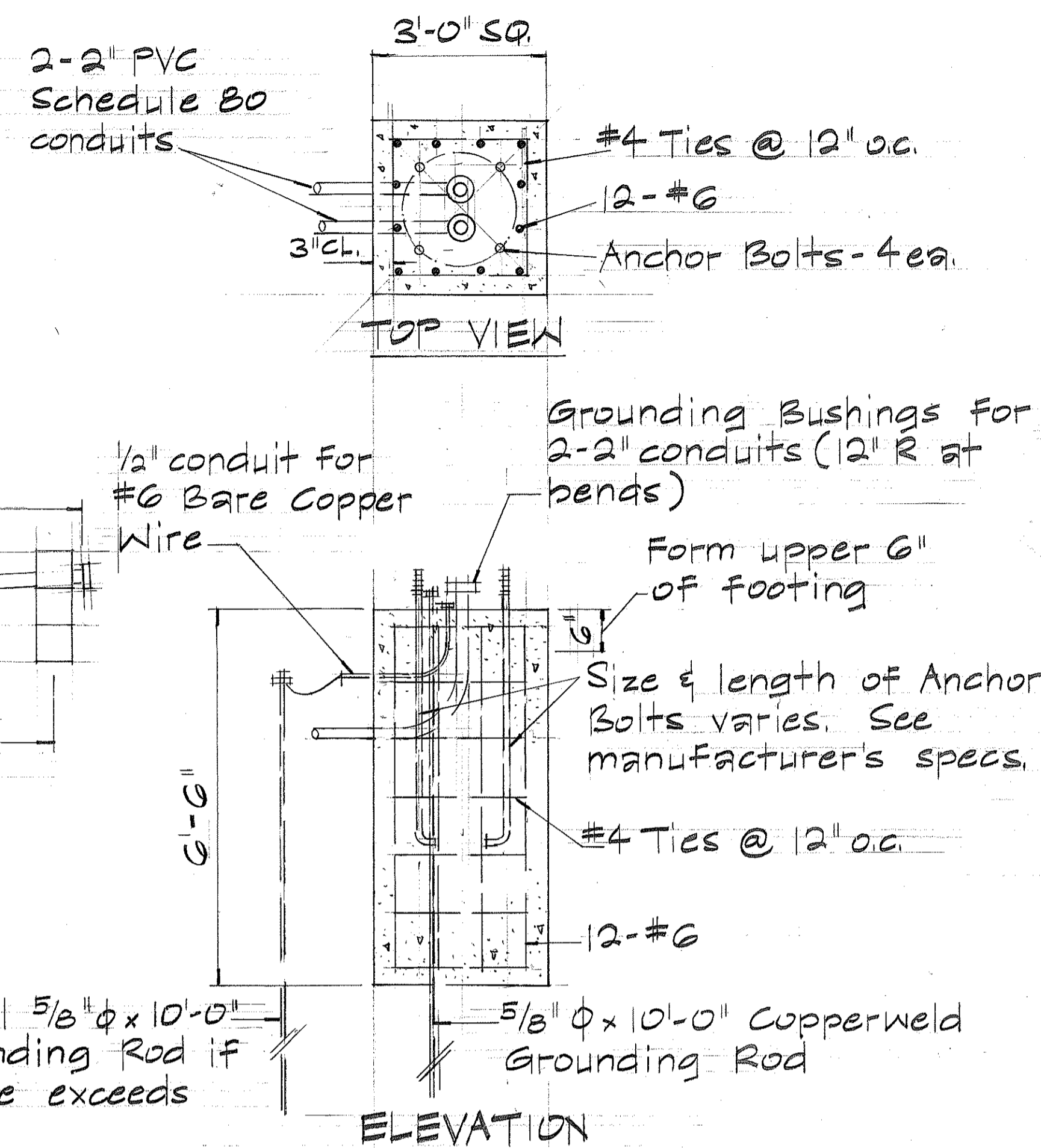
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(160)	1982	25	39



**TYPE IIIA TRAFFIC SIGNAL STANDARD**

**NOTES: TYPE IIIA STANDARD**

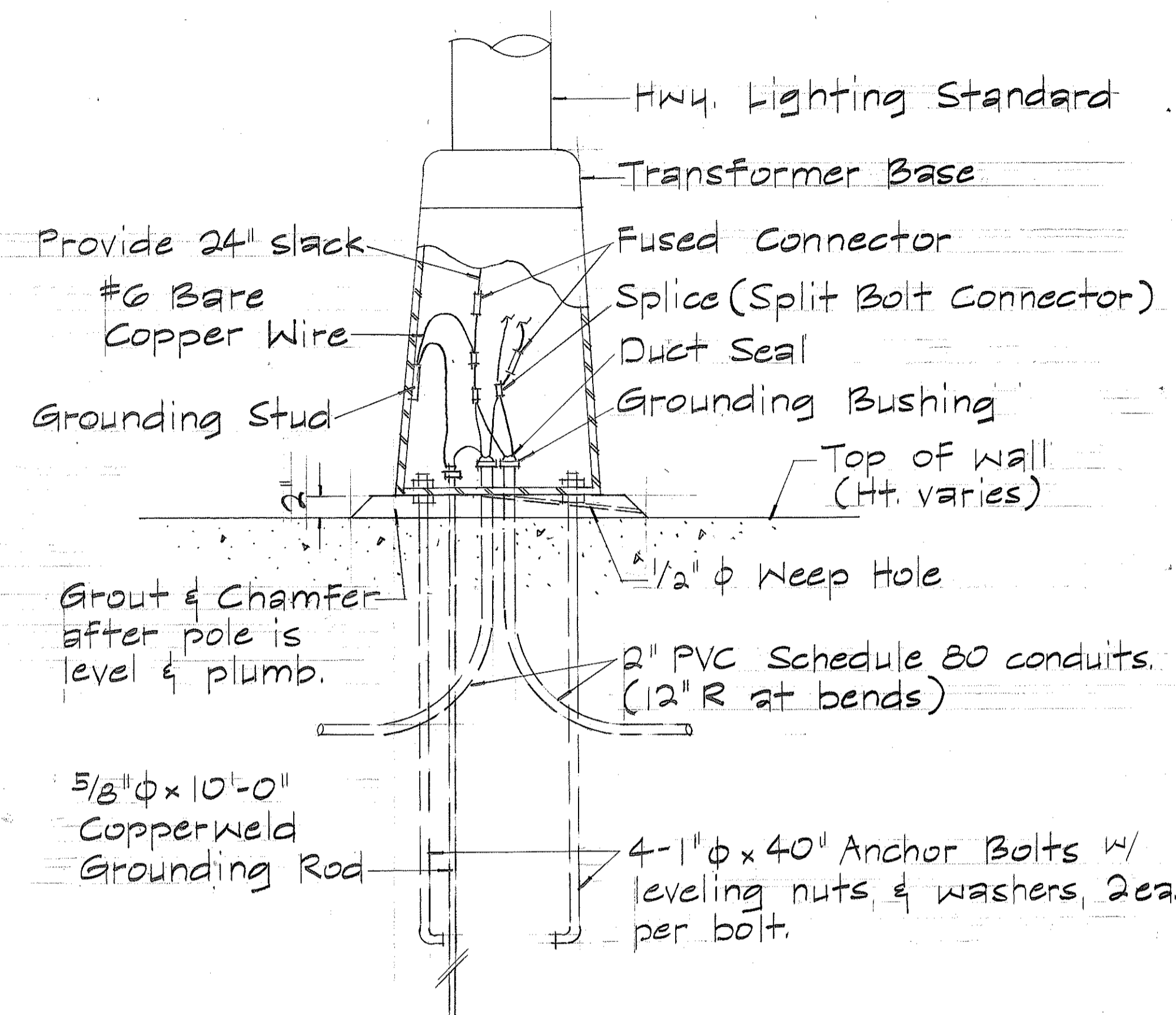
- Item for Type IIIA Traffic Signal Standard w/ mastarm & foundation includes Highway Lighting Bracket Arm
- Highway lighting luminaire shall be paid for under "Relocation" lump sum item.
- Size & length of anchor bolts shall be as recommended by the manufacturer. Contractor shall submit catalog cuts to Engineer for approval.
- For additional details see sht. DT 400



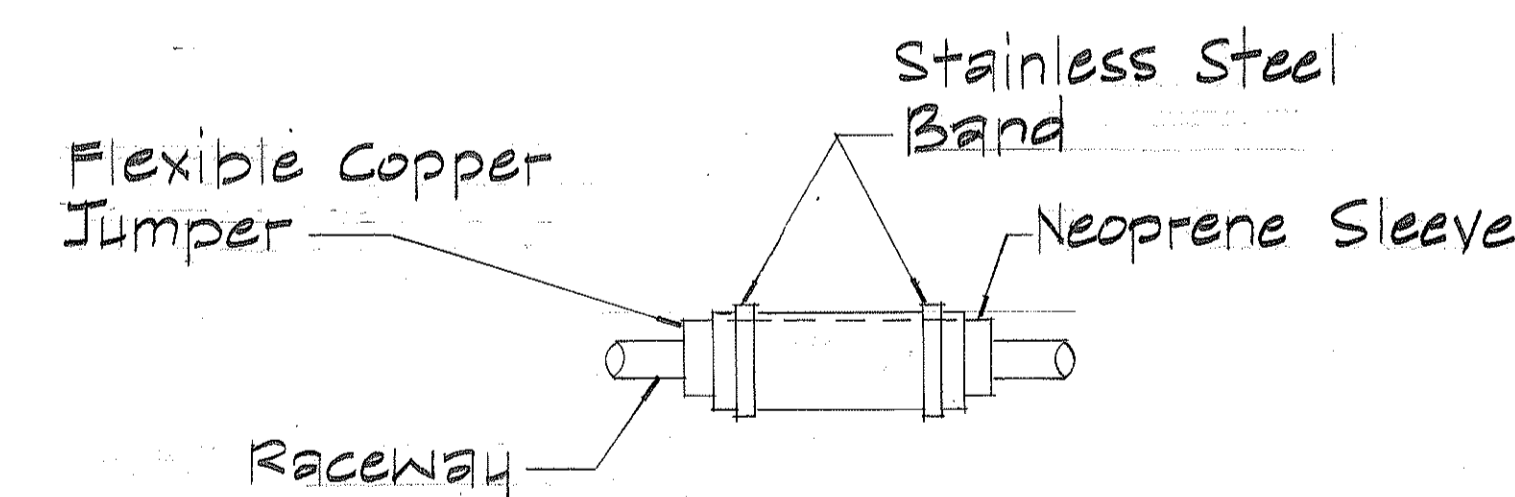
**FOOTING DETAIL FOR TYPE IIIA TRAFFIC SIGNAL STANDARD**

**NOTES: HIGHWAY LIGHTING**

- The work shall consist of relocating five(5) existing highway lighting standards as shown on the plans.
- Street lighting shall be provided during all hours of darkness either w/ new and/or existing luminaires. Temporary connections may be made. The continuity of series street lighting circuits shall be maintained.
- Contractor shall notify Electric Maintenance Section, Dept. of Transportation, State Highways Division, 72 hrs. prior to relocation of highway lighting system.



**TYPICAL DETAIL TRANSFORMER BASE MOUNTED ON WALL**

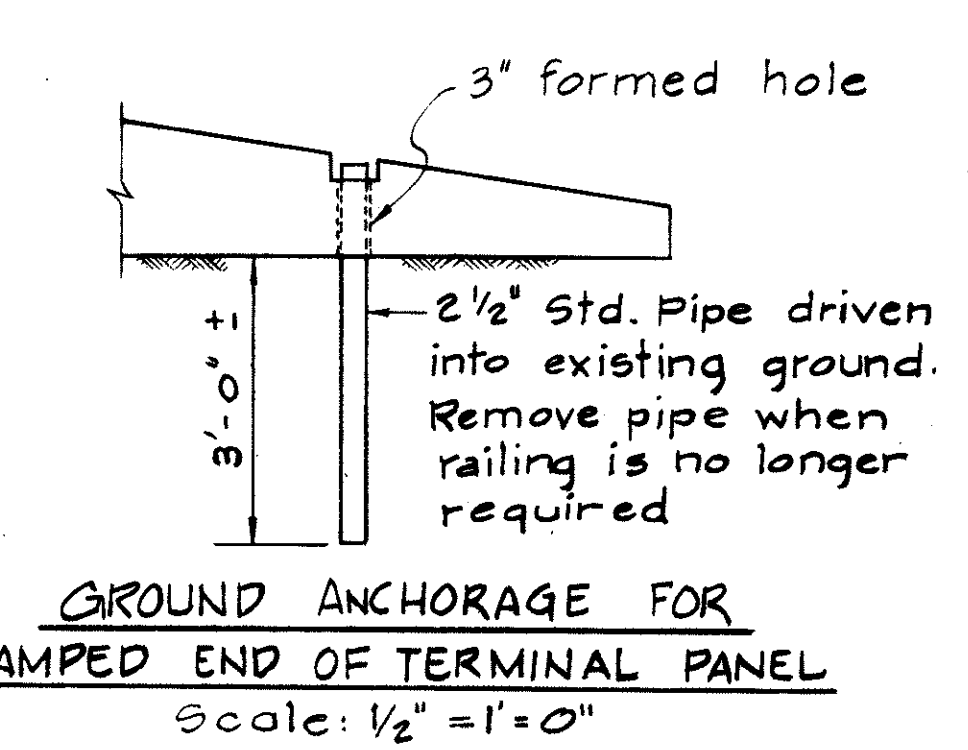
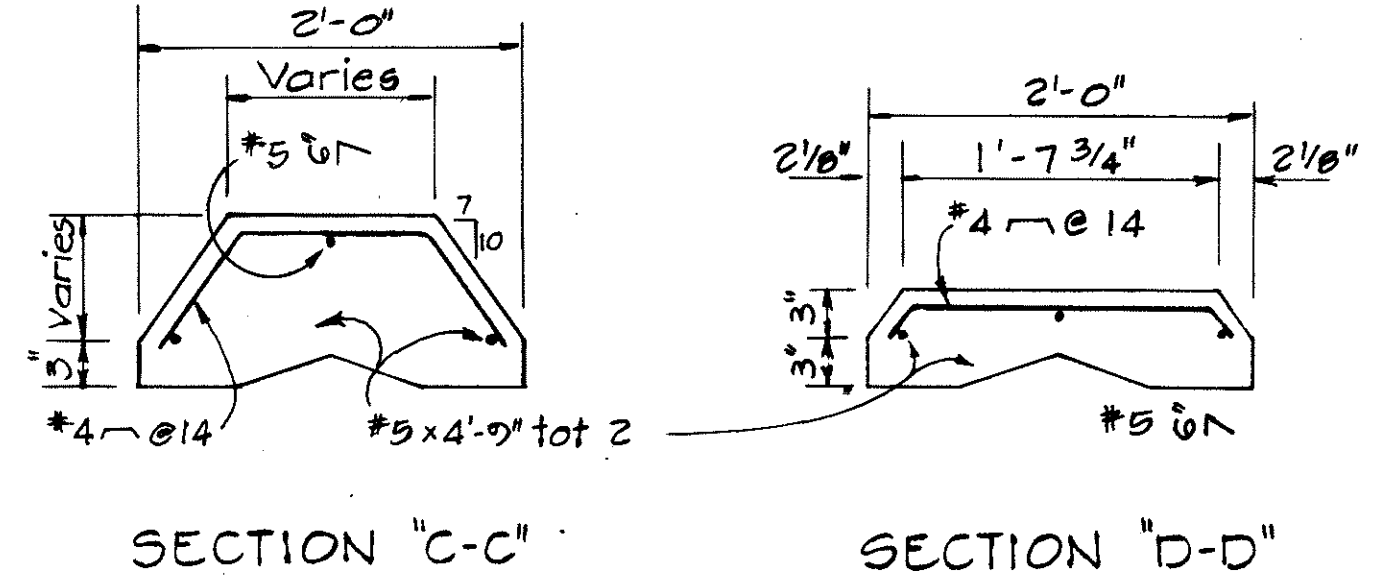
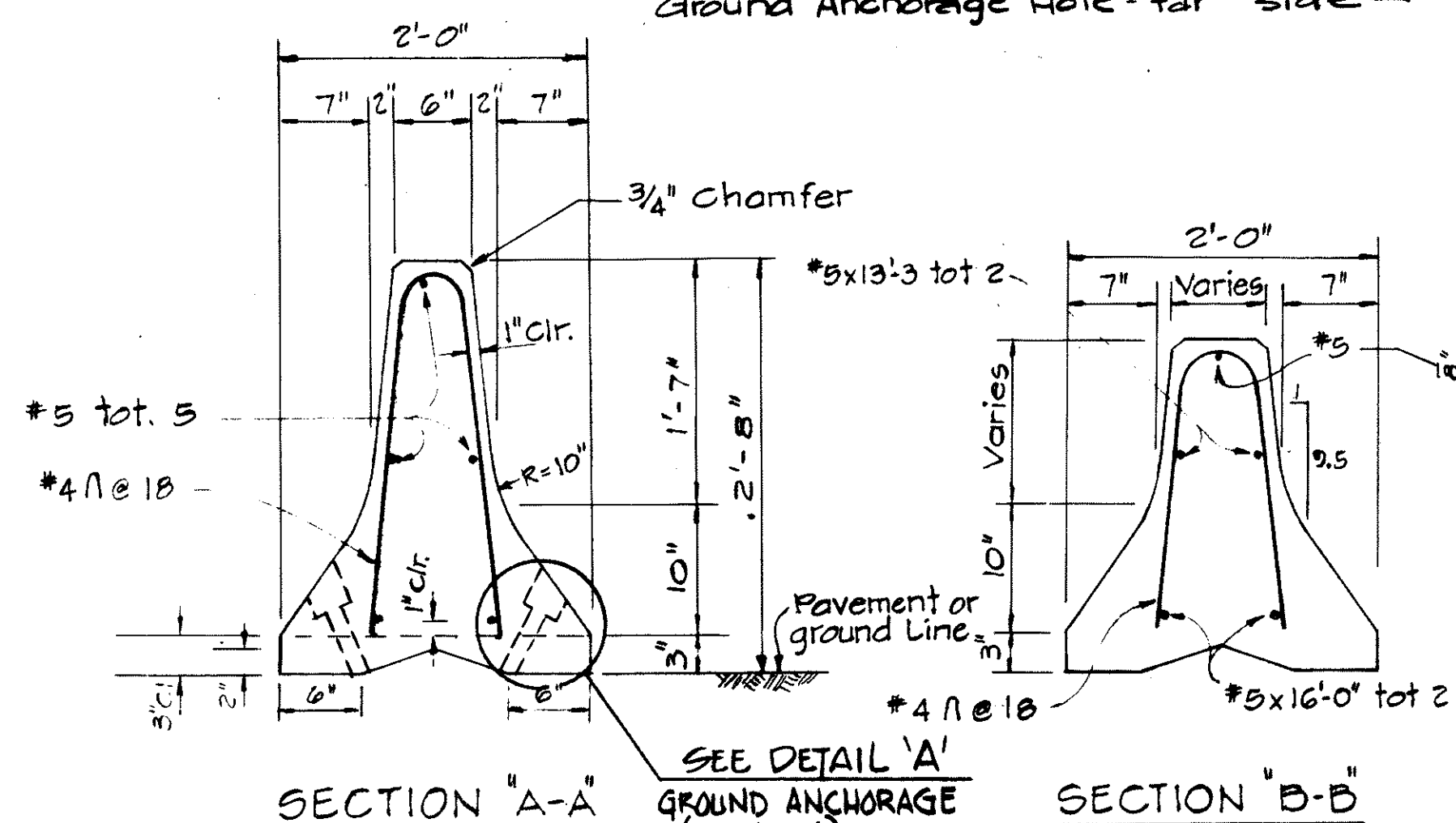
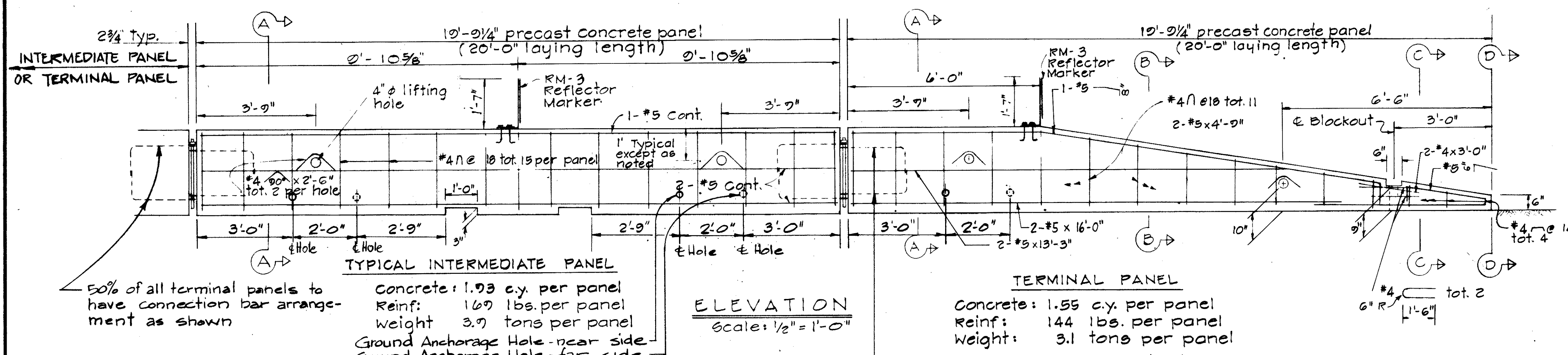


**EXPANSION - DEFLECTION FITTING**

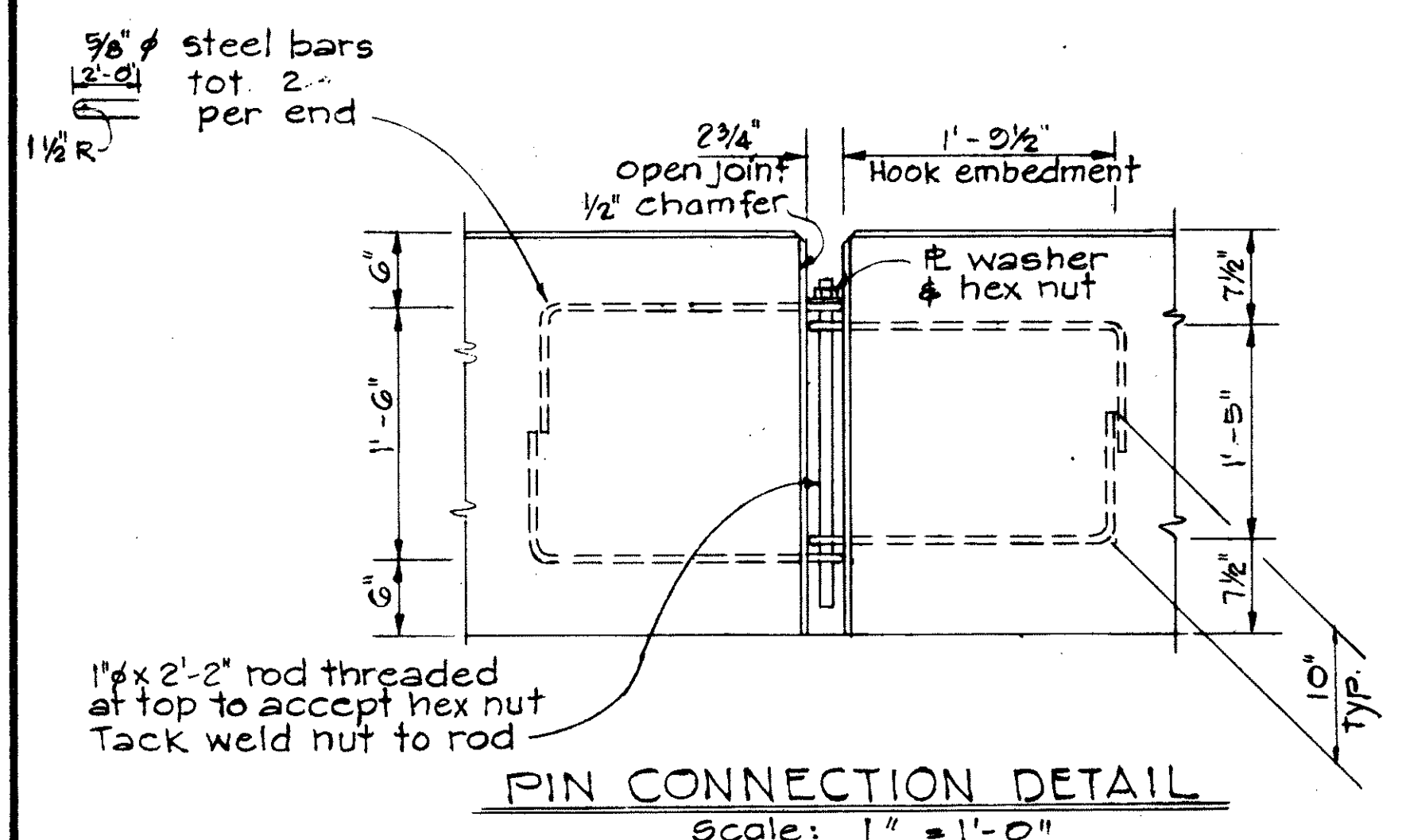
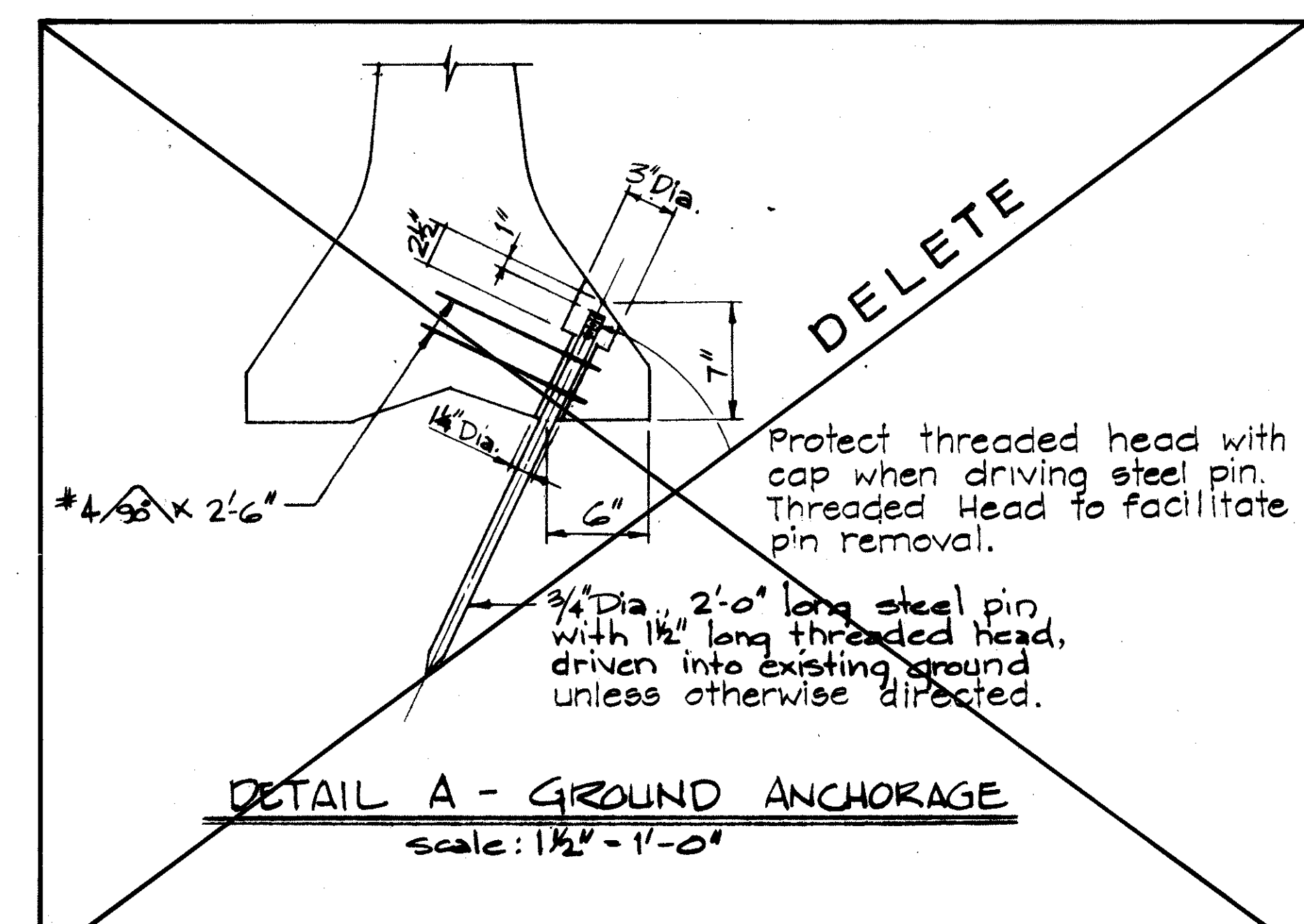
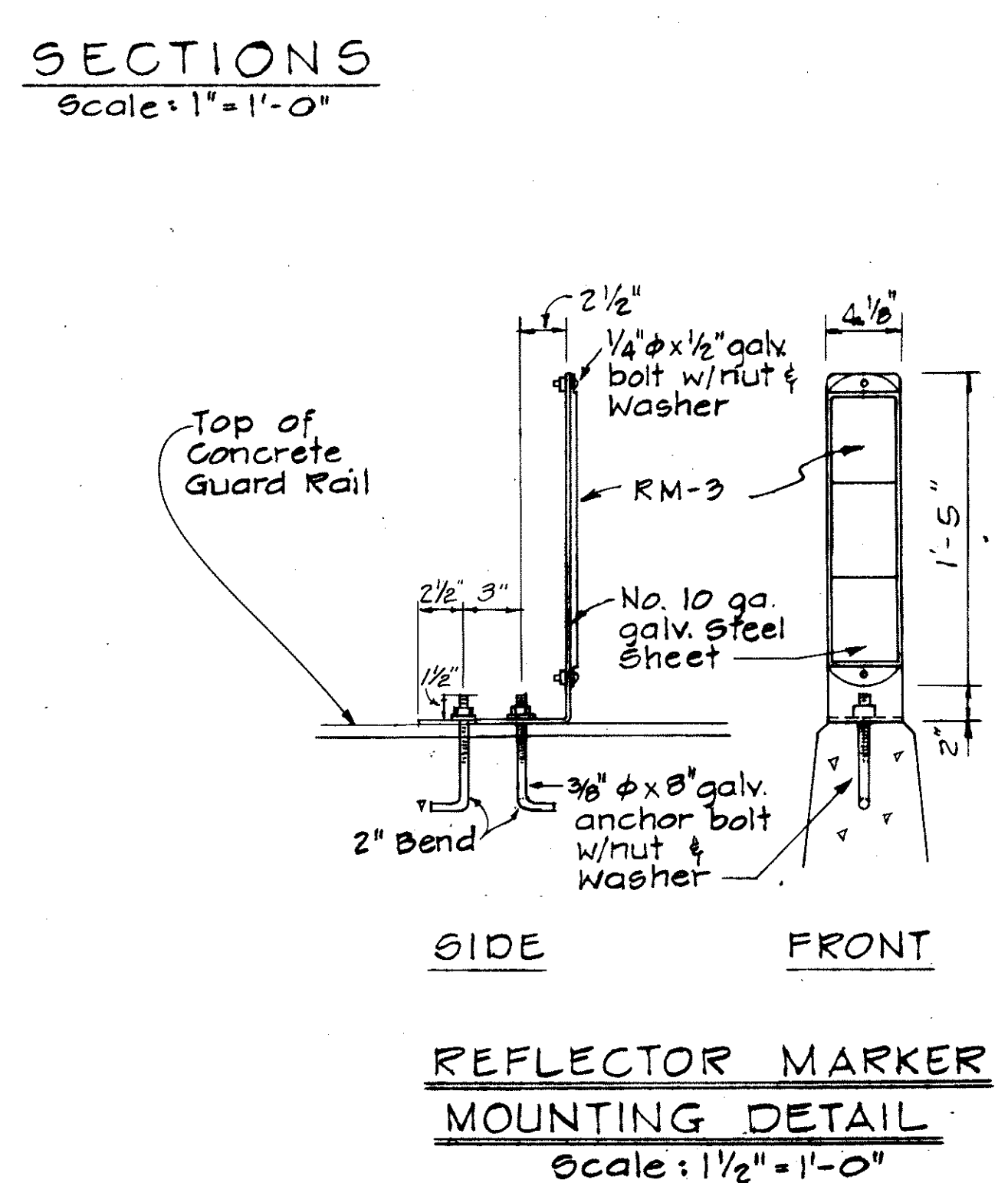
DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
LAND TRANSPORTATION FACILITIES DIVISION  
**TRAFFIC SIGNAL & HWY. LIGHTING DETAILS**  
Safety Improvements at the Punahou St. Off-Ramp  
F.A.I. Proj. No. IR-HI-1(160)  
Scale: None June 1982  
SHEET NO. 3 OF 16 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-116	1982	26	39



- NOTES**
- For details not shown in sections B-B, 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.



DATE	REVISION
6/30/82	Deleted drawing titled "DETAIL A - GROUND ANCHORAGE" per Addendum No. 1.

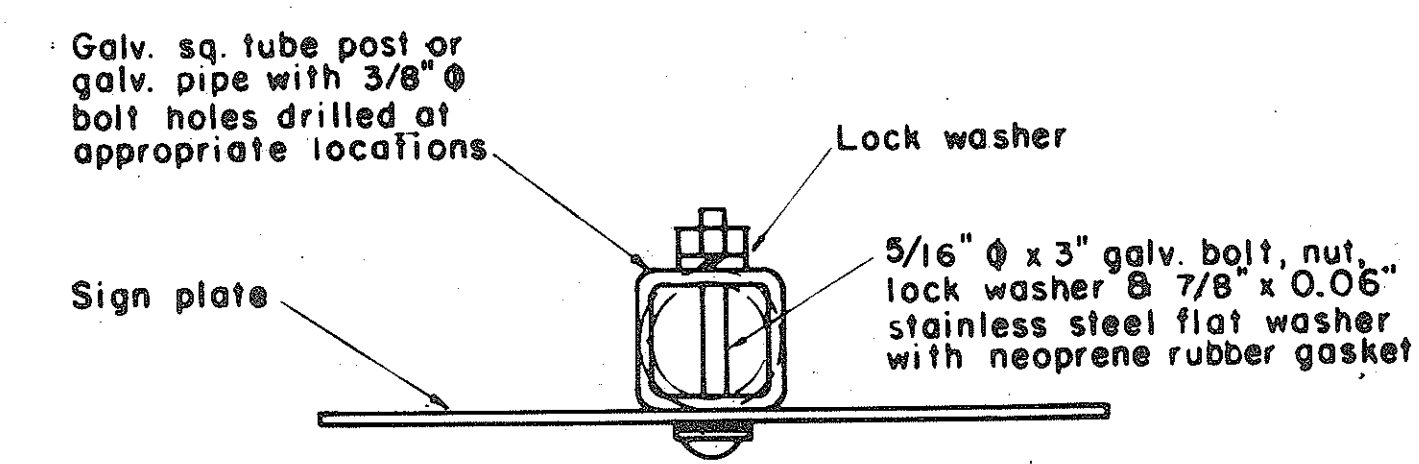
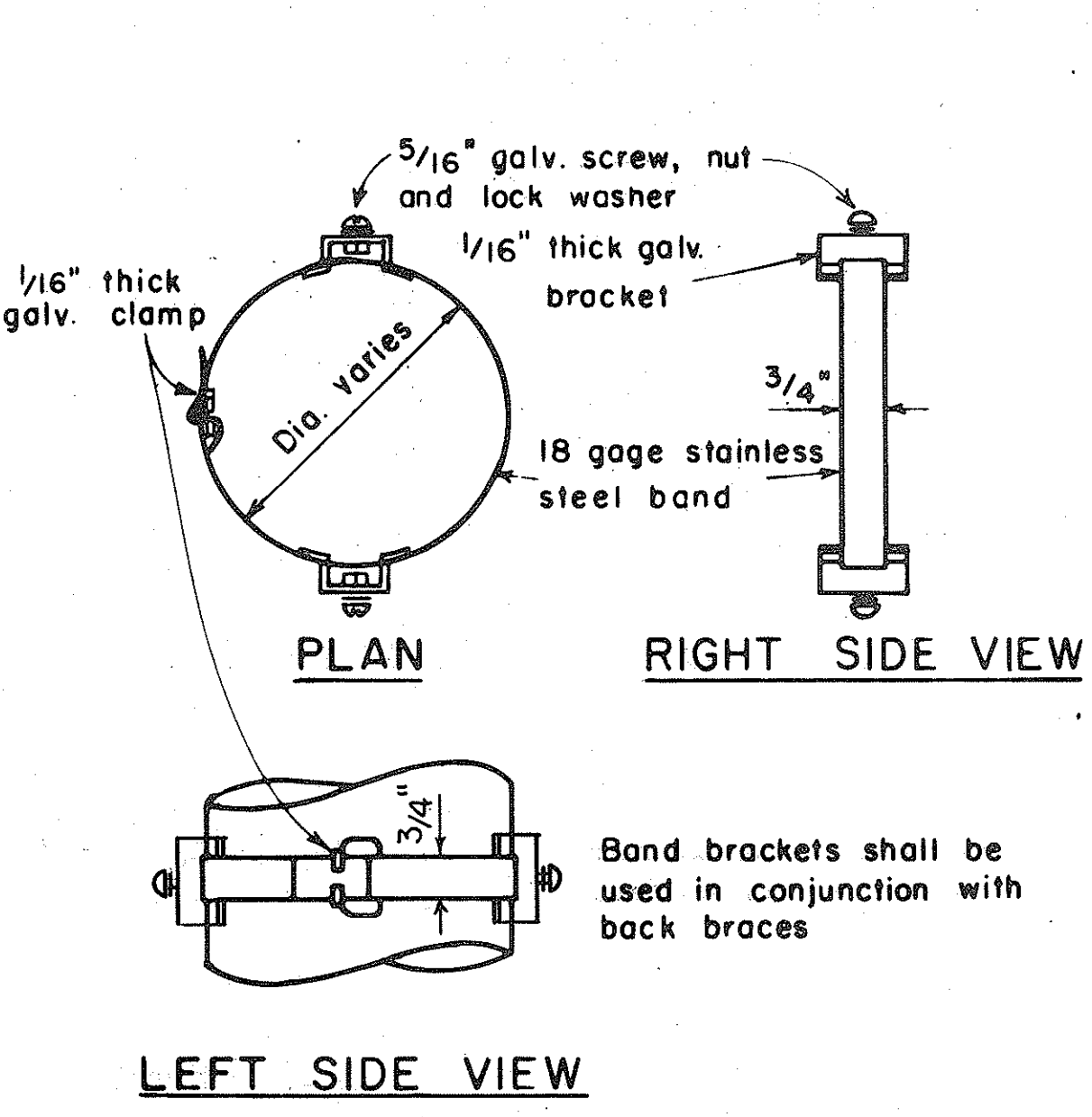
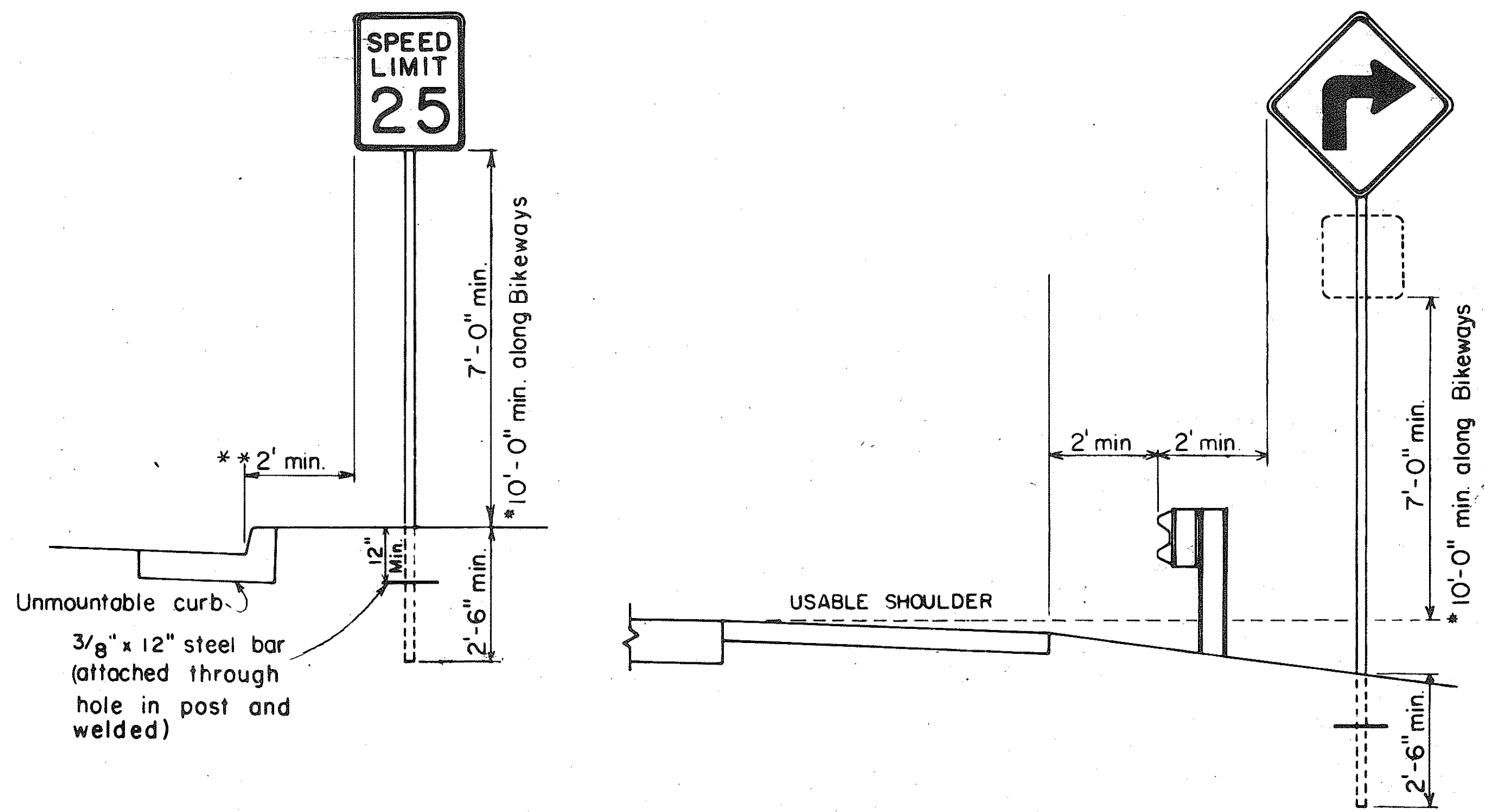
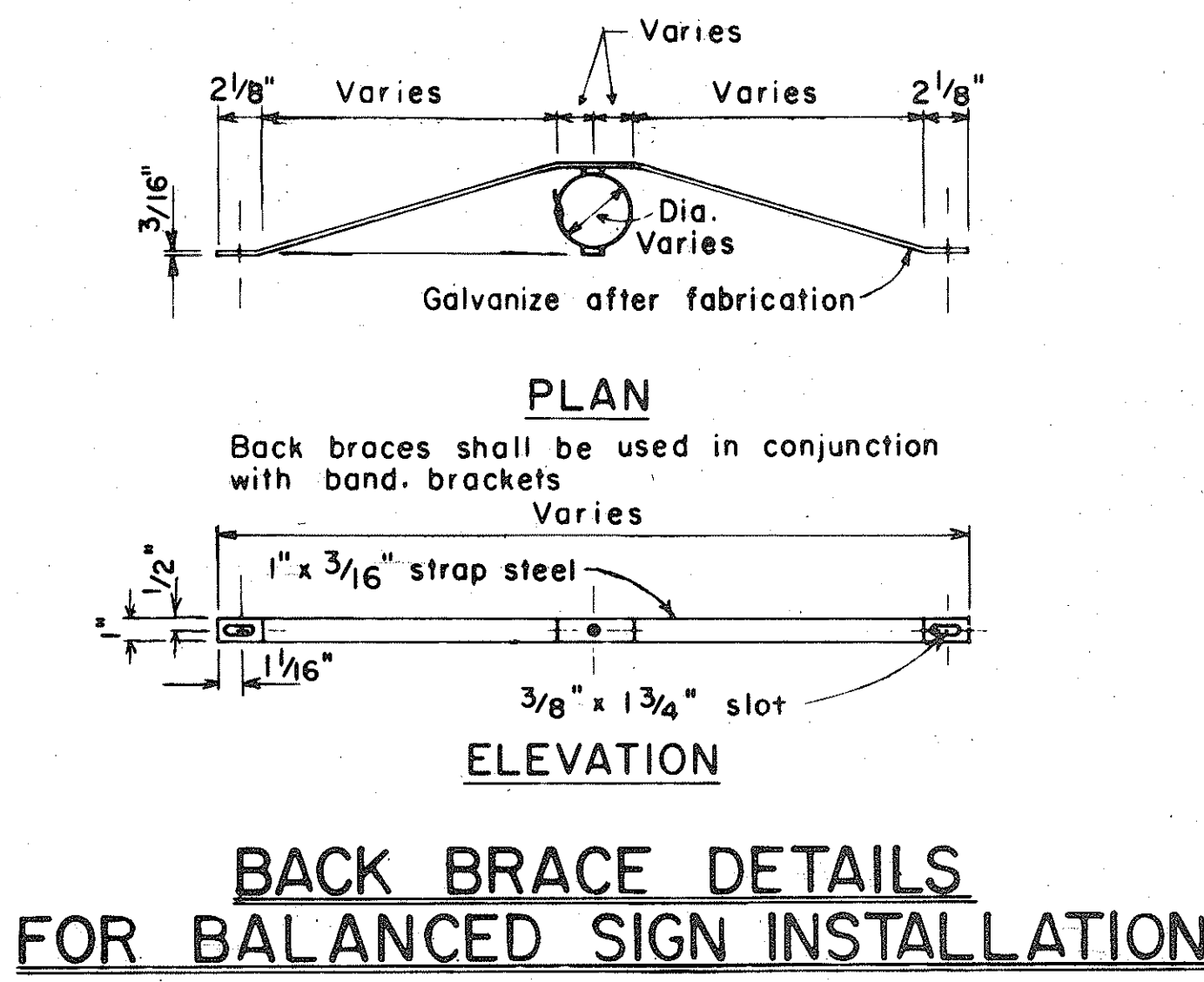
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**PORTABLE CONCRETE GUARD RAIL TYPICAL DETAILS**  
 Scale: As Noted Date: JUNE, 1982  
 SHEET No. 4 OF 16 SHEETS

DATE	
DESIGNED BY	
CHECKED BY	
IN CHARGE BY	
APPROVED BY	
ORIGINAL PLAN	
NOTE BOOK	
QUANTITIES BY	
CONCRETE BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-414(160)	1982	27	39

**GENERAL NOTES**

- Signs shall be placed in conformance with positions shown and described in the "Manual on Uniform Traffic Control Devices for Streets and Highways", 1978, Part II, Section 2A-21, as amended, and as supplemented herein.
- Signs 48" and wider or larger than 10 sq. ft. in area shall be mounted on two sign posts except as noted below.
- Signs 48" and wider or larger than 10 sq. ft. in area may be mounted on other than two sign posts (i.e. on highway lighting poles)
  - Signs larger than 10 sq. ft. and less than 28 sq. ft. in area shall be mounted with a minimum of two sets of band brackets and back braces.
  - Signs larger than 28 sq. ft. in area shall be mounted with a minimum of three sets of band brackets and back braces.
- All parking restriction signs with arrows shall be mounted 45° to the line of traffic flow.
- Sign posts shall extend 3/2" above each sign, where required, for attachment of City and County street name signs.
- (R) or (L) indicates right or left and shall be shown on the plans.
- \*7. See plans for special details.
- \*\*8. The minimum lateral distances shown are guidelines and shall be exceeded whenever possible. The Contractor shall place signs at the maximum practical lateral distance from the edge of the traveled way up to 30 feet and shall utilize protected locations whenever possible. Final locations of all signs shall be approved by the Engineer.
- Signs in medians shall be placed at midpoint of median up to a maximum distance of 30 feet from the edge of traveled way. When appropriate, signs for opposing directions shall be placed back to back.



**TYPICAL MOUNTING DETAILS**  
NOT TO SCALE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT-100 approved 12/30/69	H.T.	11/15/77
2	Revised depth of signpost	H.T.	5/2/79
3	Added Notes No. 8 & No. 9	H.T.	5/15/79
4	Revised Gen. Note #4 & Mounting Details	H.T.	4/23/80
5	Revised General Notes, Lateral Sign Locations and Mounting Details	H.T.	5/15/81

APPROVAL RECOMMENDED:  
*Eishi Tanaka* 11/15/77  
TRAFFIC ENGINEER DATE

APPROVED:  
*Herbert S. Sakai* 11/15/77  
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**  
MISCELLANEOUS SIGN DETAILS

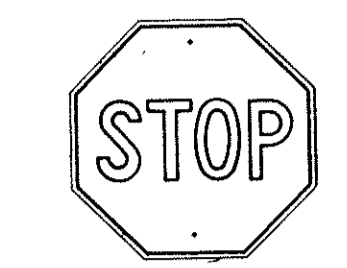
Not to scale June, 1977

SHEET NO. 5 OF 16 SHEETS DT 100

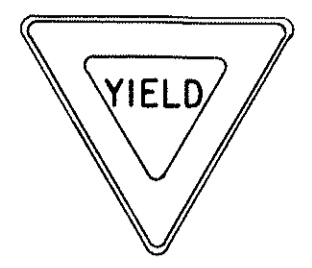
DATE: \_\_\_\_\_  
SURVEY ELICITED BY: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
TRACED BY: \_\_\_\_\_  
NOTE BOOK DESIGNED BY: \_\_\_\_\_  
QUANTITIES BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_

**HEIGHT AND LATERAL LOCATION OF SIGNS**  
**TYPICAL INSTALLATION**

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1160	1982	28	39



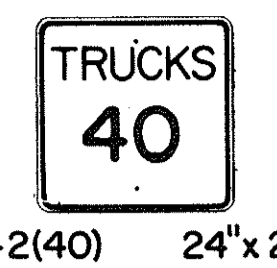
R1-1 30" x 30"  
R1-1-A 36" x 36"  
4-WAY  
R1-3 12" x 6"  
R1-3-A 18" x 9"



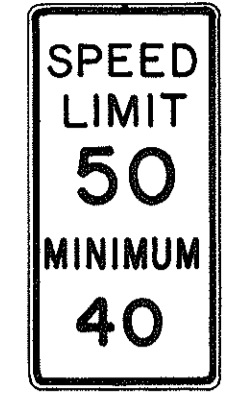
R1-2 36" x 36" x 36"  
R1-2-A 48" x 48" x 48"



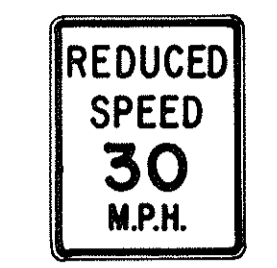
R2-1(50) 24" x 30"  
R2-1(50)-A 48" x 60"



R2-2(40) 24" x 24"  
R2-2(40)-A 48" x 48"



R2-4a(50/40) 24" x 48"  
R2-4a(50/40)-A 48" x 96"



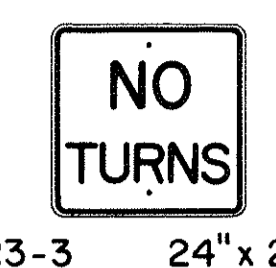
R2-5b(30) 24" x 30"  
R2-5b(30)-A 48" x 60"



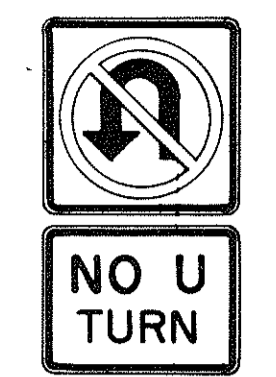
R3-1 24" x 24"  
24" x 18"  
R3-1-A 48" x 48"  
48" x 36"



R3-2 24" x 24"  
24" x 18"  
R3-2-A 48" x 48"  
48" x 36"



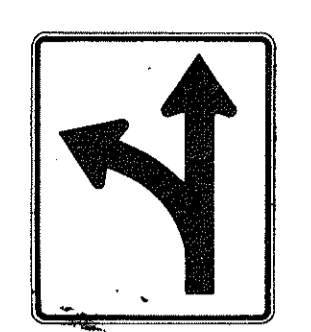
R3-3 24" x 24"  
R3-3-A 48" x 48"



R3-4 24" x 24"  
24" x 18"  
R3-4-A 48" x 48"  
48" x 36"



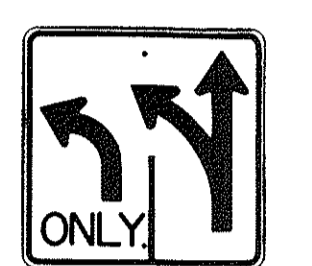
R3-5(L) 30" x 36"  
R3-5(L)-A 48" x 60"



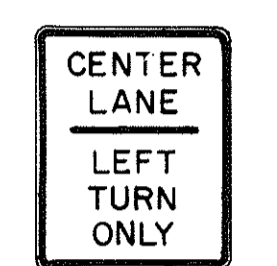
R3-6(L) 30" x 36"  
R3-6(L)-A 48" x 60"



R3-7(R) 30" x 30"  
R3-7(R)-A 48" x 48"



R3-8(L) 30" x 30"  
R3-8(L)-A 36" x 36"  
R3-8(L)-B 48" x 48"



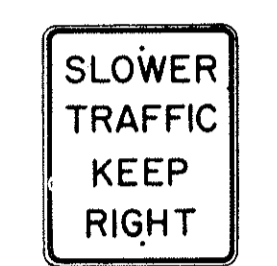
R3-9 24" x 30"



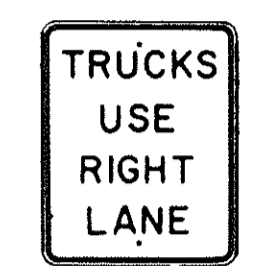
R4-1 24" x 30"



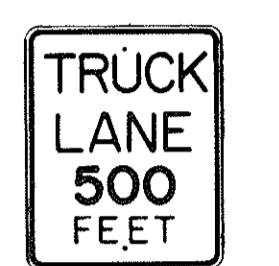
R4-2 24" x 30"



R4-3 24" x 30"  
R4-3-A 48" x 60"



R4-5 24" x 30"



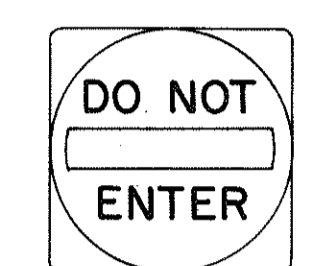
R4-6(500) 24" x 30"



R4-7 24" x 30"  
24" x 18"



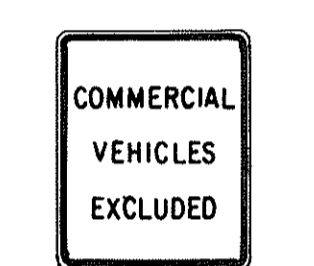
R4-8 24" x 30"  
24" x 18"



R5-1 30" x 30"  
R5-1-A 48" x 48"



R5-2 24" x 24"  
24" x 18"



R5-4 24" x 30"



R5-6 24" x 24"  
24" x 18"



R5-9 36" x 24"



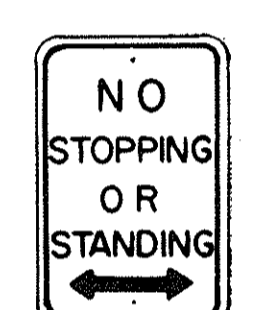
R6-1(R) 36" x 12"



R6-2(R) 18" x 24"



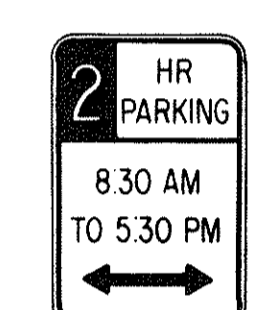
R7-1 12" x 18"  
R7-1-A 24" x 30"



R7-4 12" x 18"  
R7-4-A 24" x 30"



R7-107(R) 12" x 18"



R7-108 12" x 18"



R7-201 12" x 6"  
R7-201-A 24" x 12"



R8-1 24" x 30"



R8-2 24" x 30"



R8-3 24" x 30"



R8-4 30" x 24"  
R8-4-A 48" x 36"



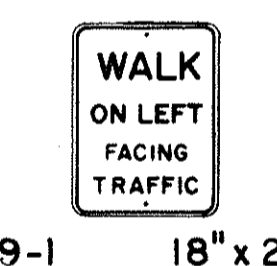
R8-5 24" x 30"



R8-6 24" x 30"



R8-7 30" x 24"  
R8-7-A 48" x 36"



R9-1 18" x 24"



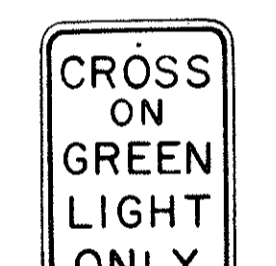
R9-2 12" x 18"



R9-3 12" x 18"



R9-4 18" x 24"



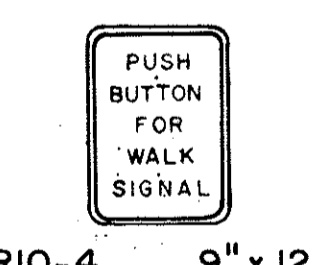
R10-1 12" x 18"



R10-2 12" x 18"



R10-3 9" x 12"



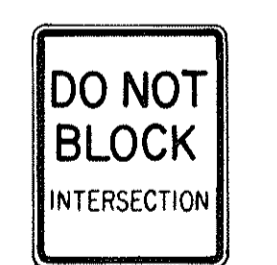
R10-4 9" x 12"



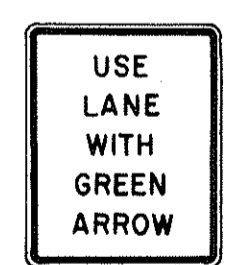
R10-5 24" x 30"



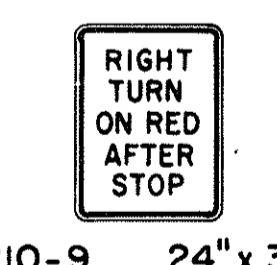
R10-6 24" x 36"



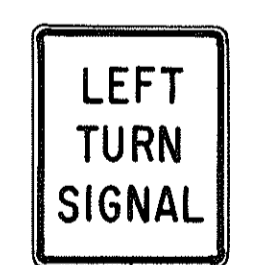
R10-7 24" x 30"



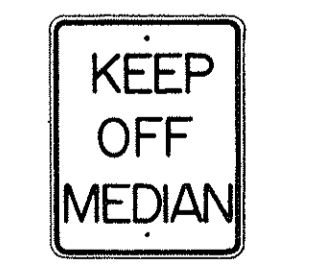
R10-8 24" x 30"



R10-9 24" x 30"



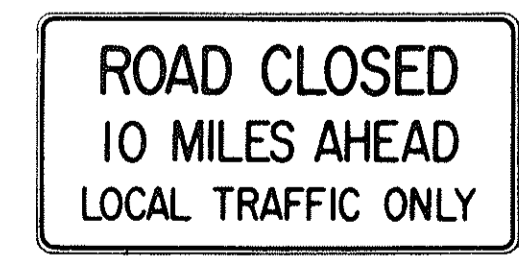
R10-10 24" x 30"



R11-1 24" x 30"



R11-2 48" x 30"



R11-3(10) 60" x 30"



R11-4 60" x 30"



R12-1(10) 24" x 30"

**GENERAL NOTES**

- Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs," 1972, and as amended.
- All regulatory signs shall be reflectorized unless otherwise specified.
- All regulatory signs shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in ( ) indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
- All signs shall be erected without educational plaques unless called for in the plans.

APPROVAL RECOMMENDED:  
*Etsuki Tanaka* 3/17/72  
TRAFFIC ENGINEER DATE

APPROVED:  
*Robert Robinson* 3-20-72  
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 101 Approved 12-30-69	H.I.	3/20/72
2	Revised General Note 1.	H.I.	10/10/74
3	Added General Note 5	H.I.	6/9/79

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**  
**REGULATORY SIGNS**

NOT TO SCALE

SHEET No. 6 OF 16 SHEETS DT 101

DATE: \_\_\_\_\_  
SURVEY PLOTTED BY: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
TRACED BY: \_\_\_\_\_  
DESIGNED BY: \_\_\_\_\_  
NOTE BOOK: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
No. \_\_\_\_\_

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(160)	1982	29	39



CW20-1a 48"x48"



CW20-2d 48"x48"



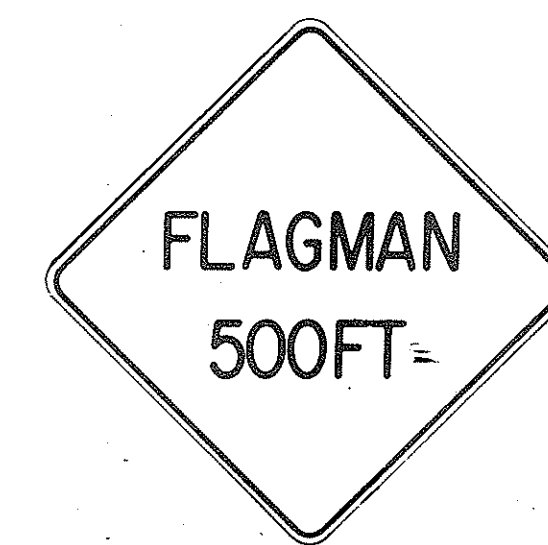
CW20-3b 48"x48"



CW20-4d 48"x48"



CW20-5d(L) 48"x48"



CW20-7c 48"x48"



CW21-1 30"x30"



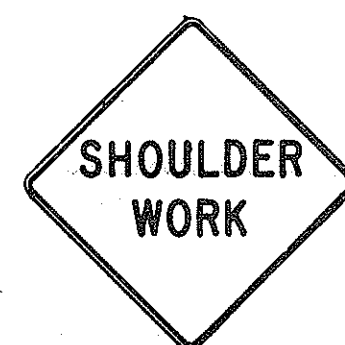
CW21-2 30"x30"



CW21-3 36"x36"



CW21-4 36"x36"



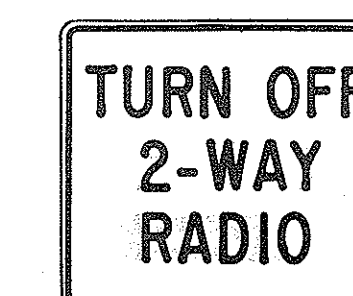
CW21-5 30"x30"



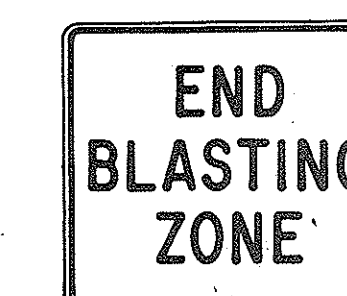
CW21-6 30"x30"



CW22-1b 48"x48"



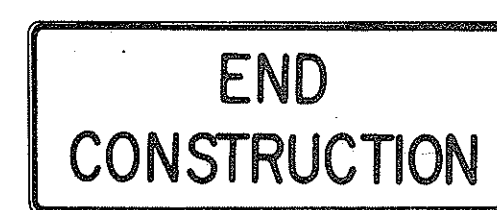
CW22-2 42"x36"



CW22-3 42"x36"



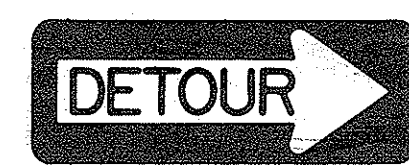
CG20-1(5) 60"x36"



CG20-2 60"x24"



CM4-9(R) 30"x24"



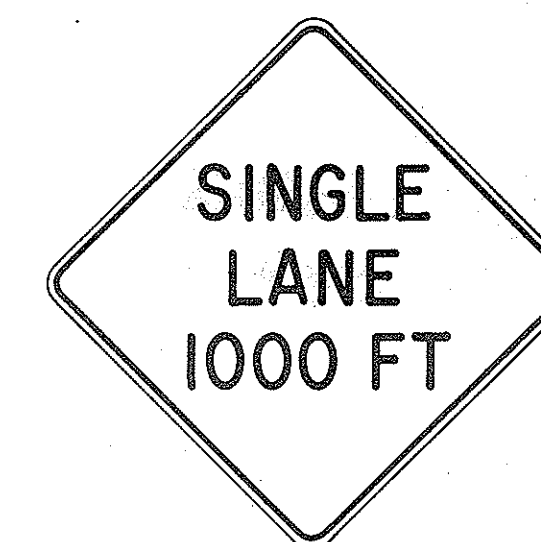
CM4-10(R) 48"x18"



CG20-4 36"x18"



CW23-1 36"x36"



CW23-2b 48"x48"



CW23-3(R) 48"x48"

### GENERAL NOTES

- Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs," 1972, and as amended.
- All construction signs shall be reflectorized.
- All construction signs shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in ( ) indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
- For "CW" series signs, suffixes a,b,c and d are as follows:  
a-1500 FT, b-1000 FT, c-500 FT and d-AHEAD.

APPROVAL RECOMMENDED:  
*Eishi Tanaka* 3/21/72  
TRAFFIC ENGINEER DATE

APPROVED:  
*Sheldon Salsich* 2/23/72  
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 104 Approved 12-30-69	H.T.	2/25/72
2	Revised General Note 1	H.T.	10/10/74
3	Revised General Note 2	M.H.	9-16-75
4	Revised General Note 2 and sign CG20-1(5)	H.T.	9-14-76

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**  
**CONSTRUCTION SIGNS**

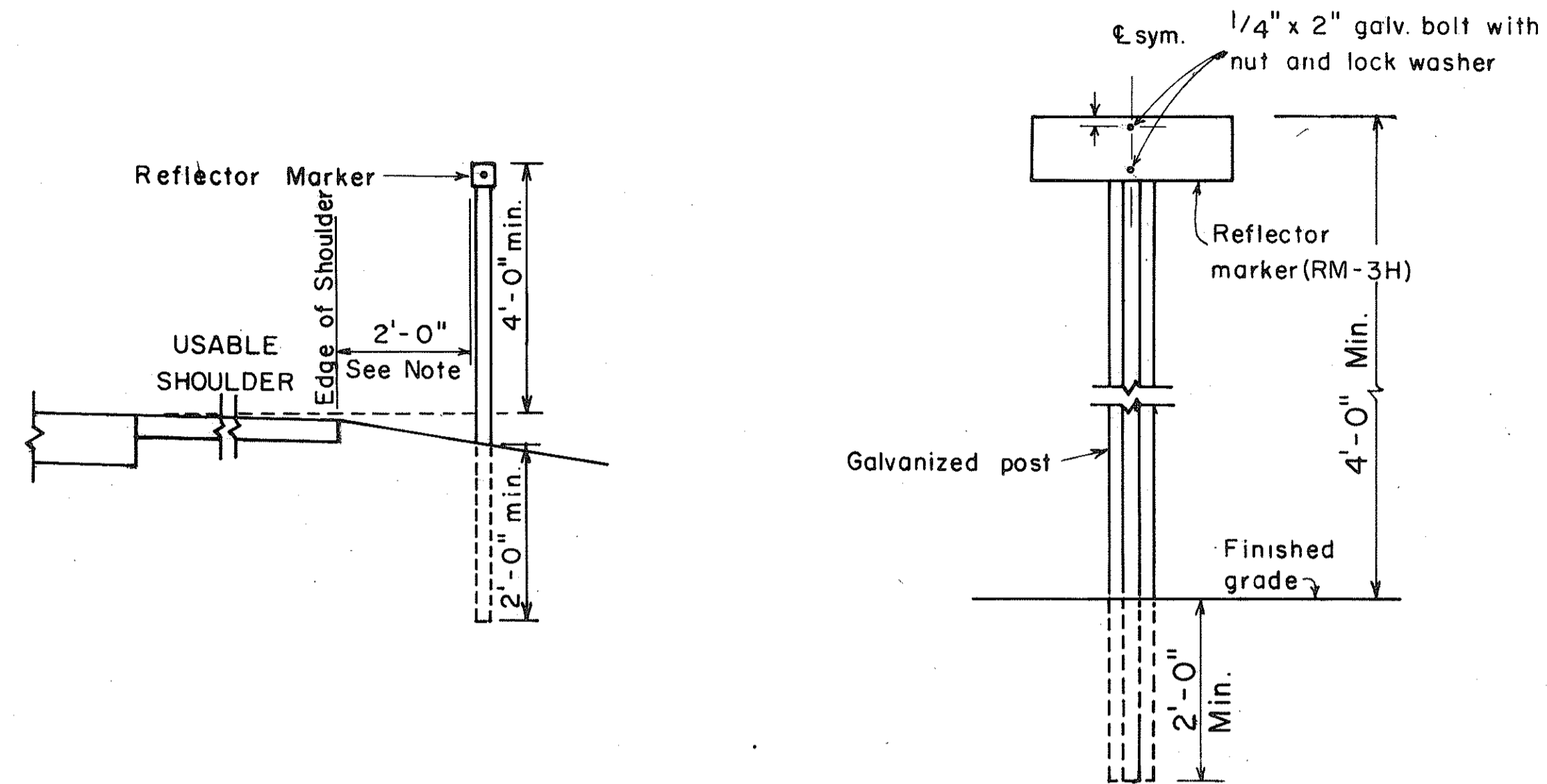
NOT TO SCALE

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

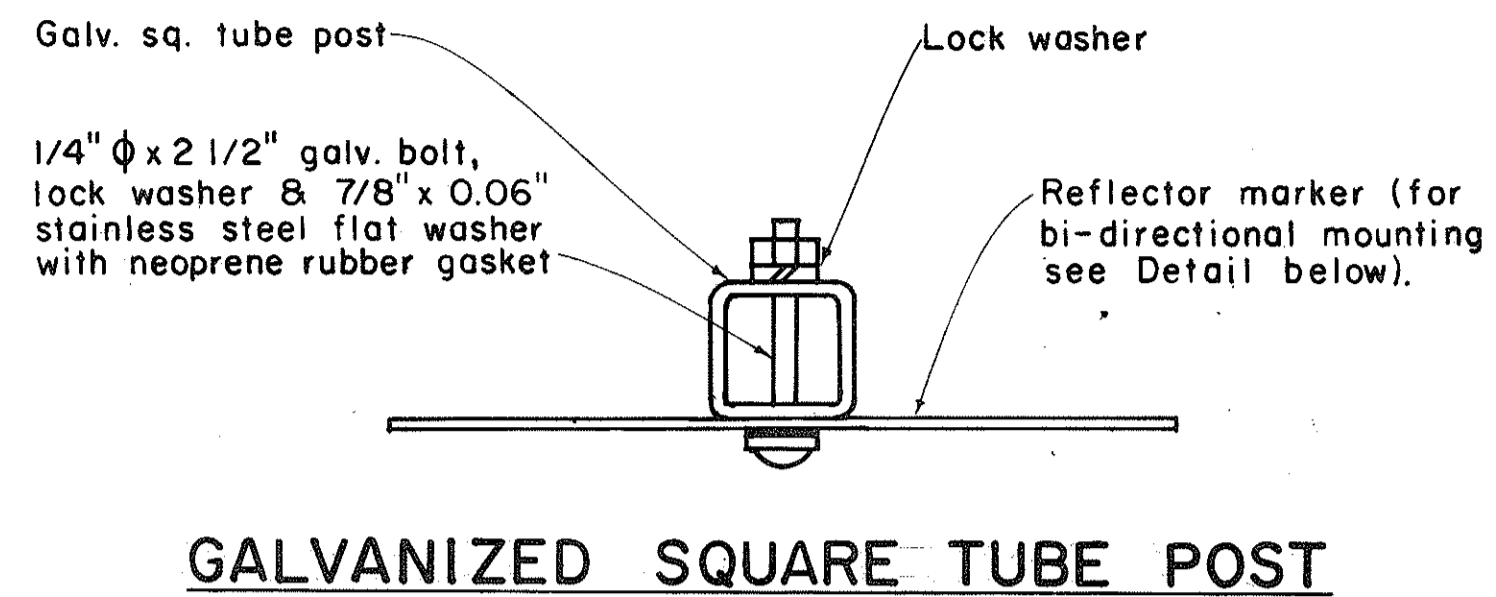
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1R-HI-1(160)	1982	30	39

**GENERAL NOTES:**

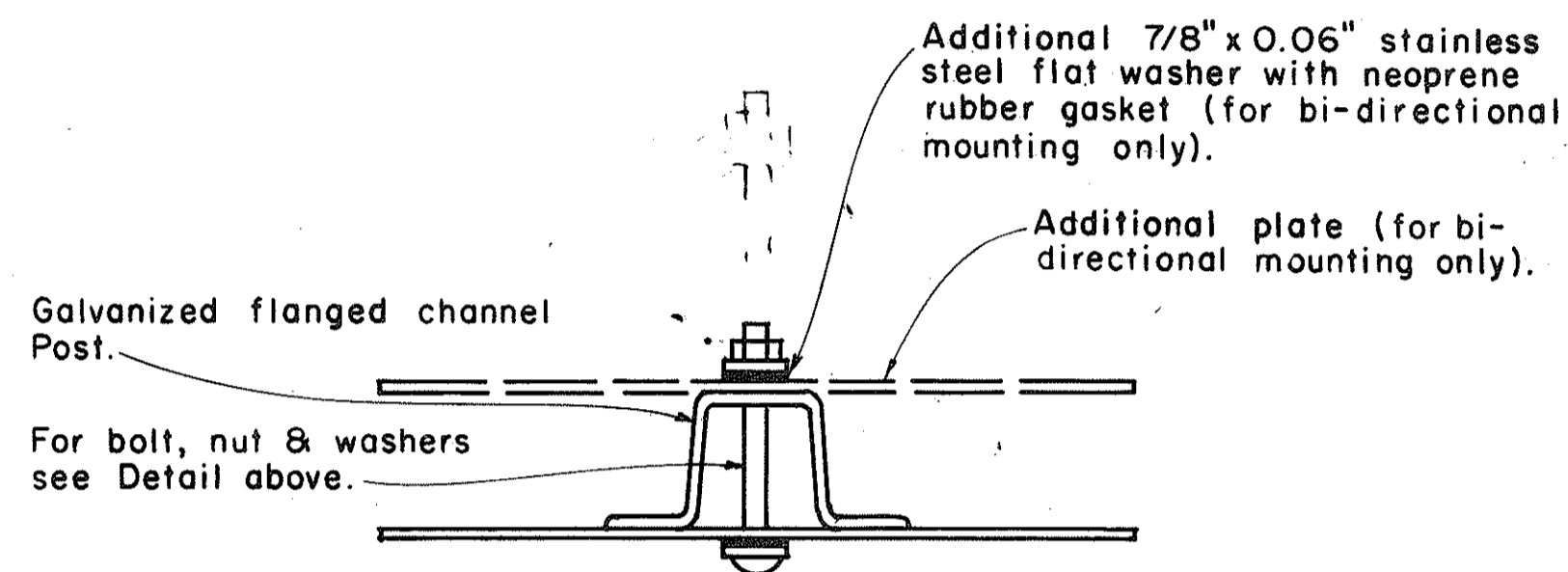
1. Clearance markers (RM-3, RM-4) shall be installed with the edge of the marker in line with the inner edge of the obstruction.
2. (R) or (L) indicates right or left and shall be as shown on the plans.
3. Reflector markers RM-1 and RM-2 shall be:
  - a) Yellow if placed along the left edge of divided roadways, one-way roadways, and ramps in the direction of travel.
  - b) White if placed along the right edge of divided roadways, one-way roadways, and ramps in the direction of travel.
4. For reflector marker RM-9, reflective sheeting material may be used as an alternate.
5. For RM-4, the stripes shall slope downward at an angle of 45° in the direction of traffic.



**REFLECTOR MARKER MOUNTING DETAIL**

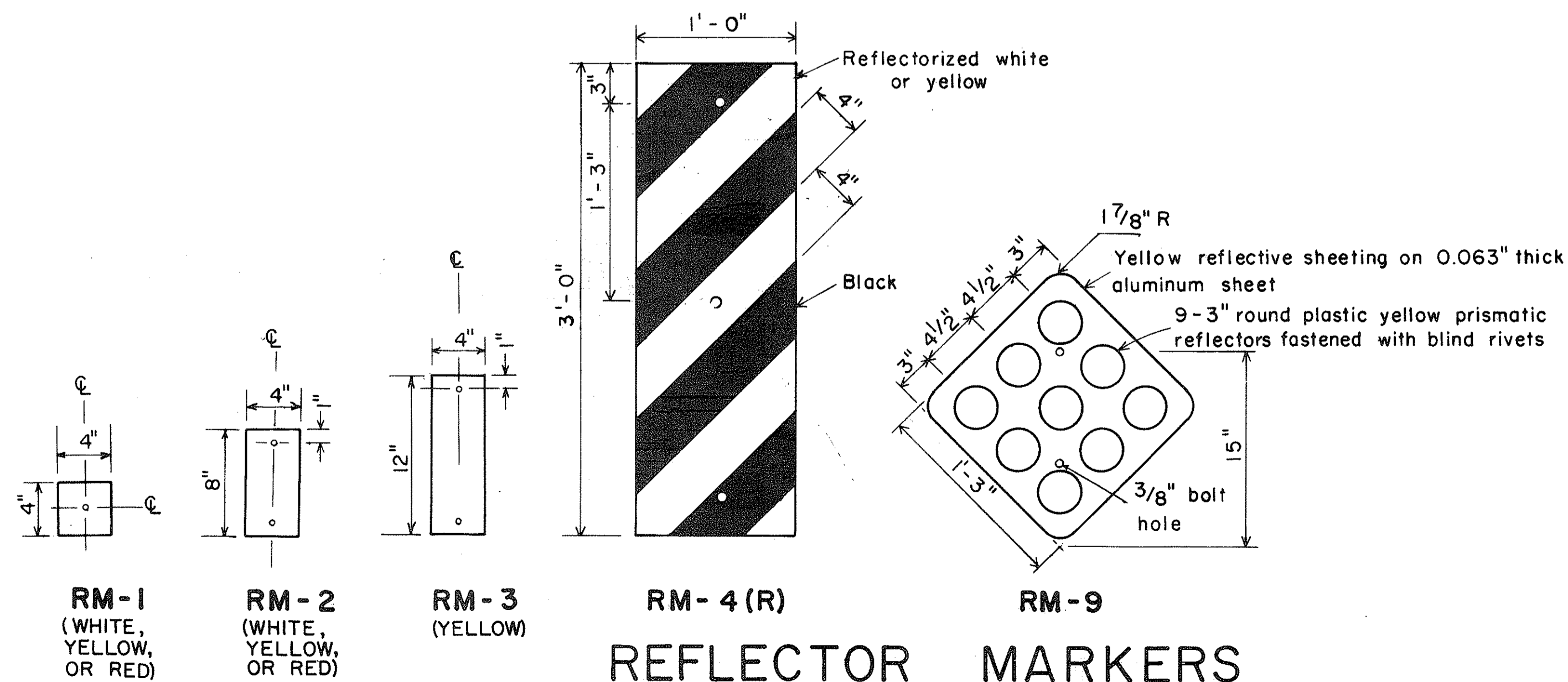


**GALVANIZED SQUARE TUBE POST**



**GALVANIZED FLANGED CHANNEL POST**

**TYPICAL MOUNTING DETAILS**



**REFLECTOR MARKERS**

APPROVAL RECOMMENDED:  
*Euski Tanaka* 11/2/77  
 TRAFFIC ENGINEER DATE

APPROVED:  
*Herbert S. Sakai* 11/15/77  
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Revised Mounting Details	H-1	4/25/80

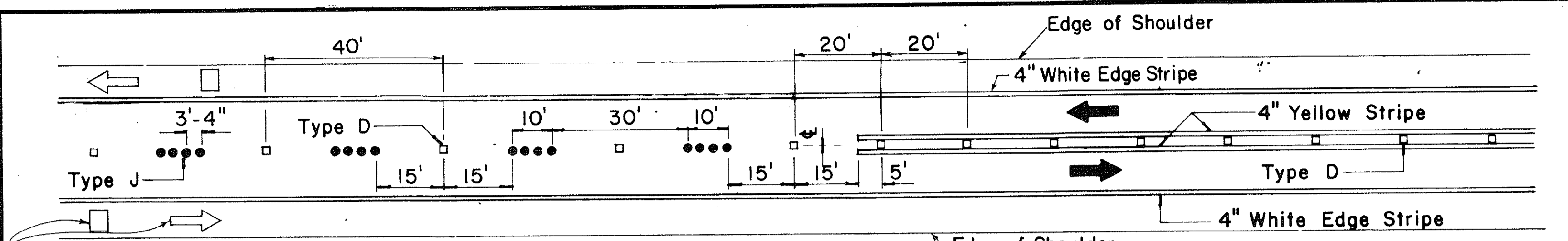
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**STANDARD DETAILS**  
 MISCELLANEOUS REFLECTOR MARKERS

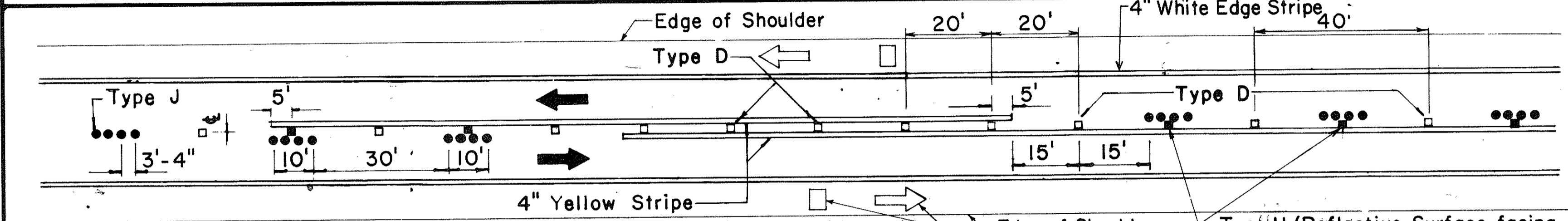
Not to scale June, 1977

DATE: \_\_\_\_\_  
 SURVEY PLOTTED BY: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_  
 TRACED BY: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_  
 NOTE BOOK NO.: \_\_\_\_\_  
 QUANTITIES BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_

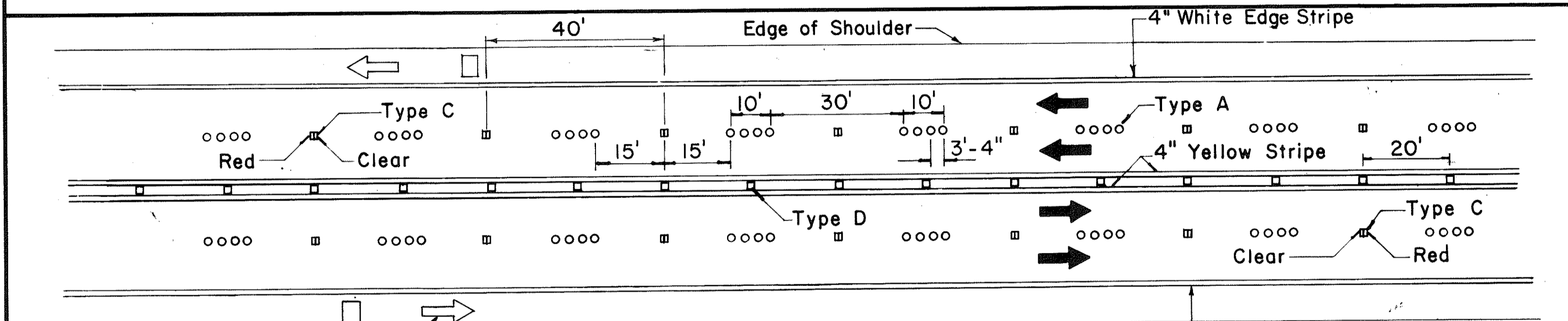
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-H-1060	1982	31	39



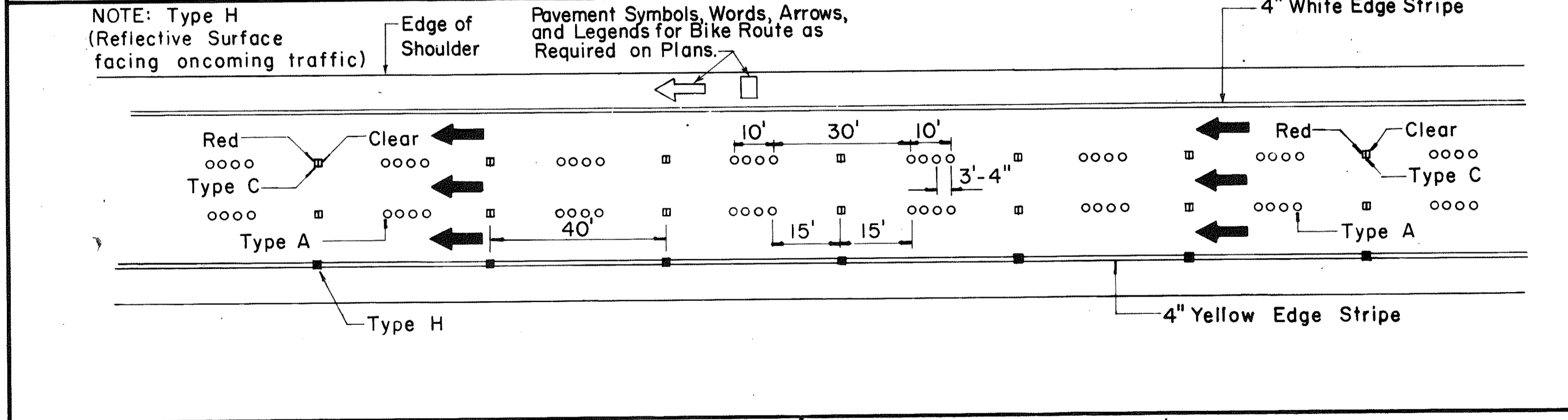
Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans. **PASSING PERMITTED AND PASSING PROHIBITED**



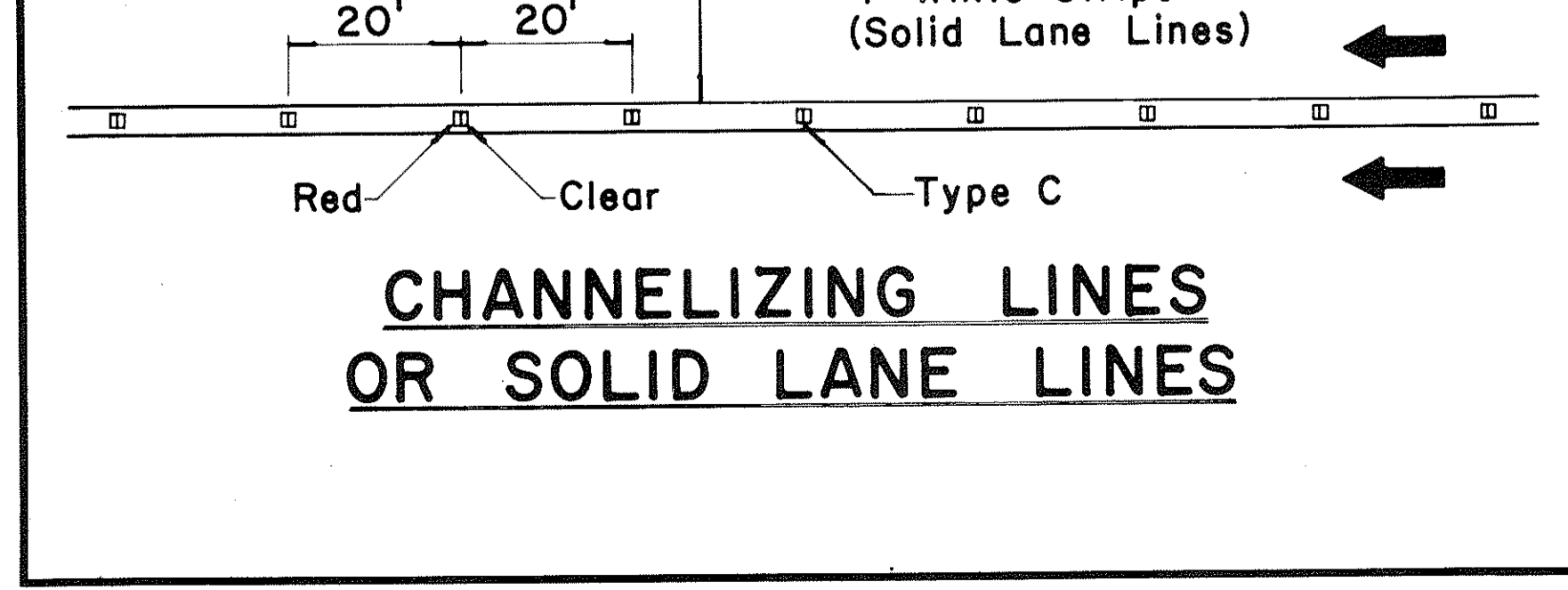
Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans. **PASSING PROHIBITED ZONES**



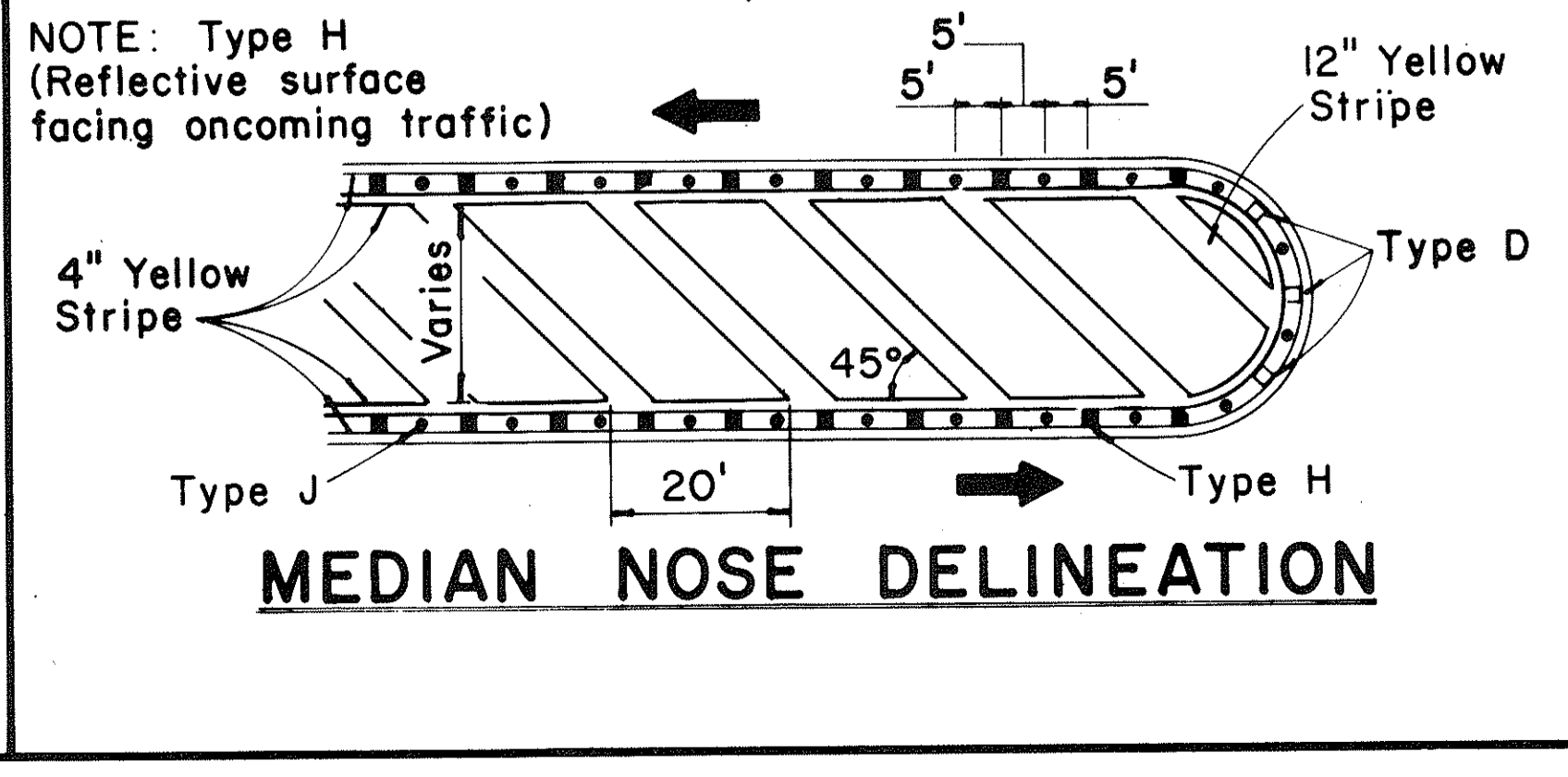
Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans.



NOTE: Type H (Reflective Surface facing oncoming traffic) and Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans.



**CHANNELIZING LINES OR SOLID LANE LINES**



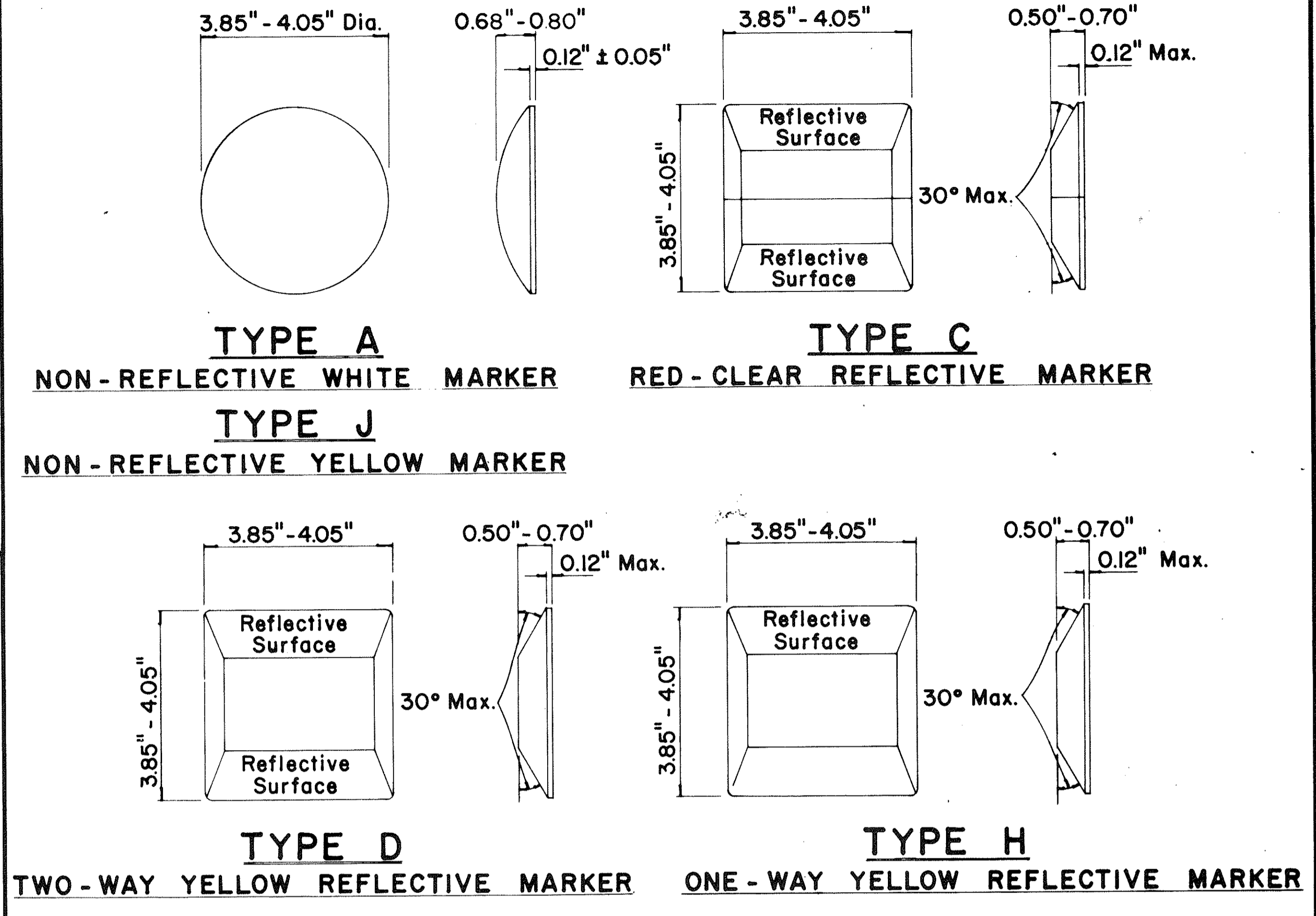
NOTE: Type H (Reflective surface facing oncoming traffic) **MEDIAN NOSE DELINEATION**

TWO - LANE

MULTI - LANE

DIVIDED HIGHWAY AND FREEWAY

MISCELLANEOUS



**GENERAL NOTES**

- Pavement marking and striping shall conform to the latest "Manual on Uniform Traffic Control Devices for Streets and Highways," and as amended.
- Layout and installation of pavement marking and striping shall be done by the Contractor. The Contractor shall check the layouts with the Engineer prior to performing work.

**LEGEND**

- Type A
- Type C
- Type D
- Type H
- Type J

APPROVAL RECOMMENDED:  
*Ericki Tanaka* 7/21/78  
 TRAFFIC ENGINEER DATE

APPROVED:  
*Robert J. Zolich* 1/24/78  
 ASSISTANT CHIEF, ENGINEERING DATE

No.	REVISION	APPROVED BY	DATE
1	Supercedes DT 300 approved 11/18/71.	H.f.	1/24/78
2	Delete Type A Markers from Bike Route Delineation.	H.f.	10/15/79

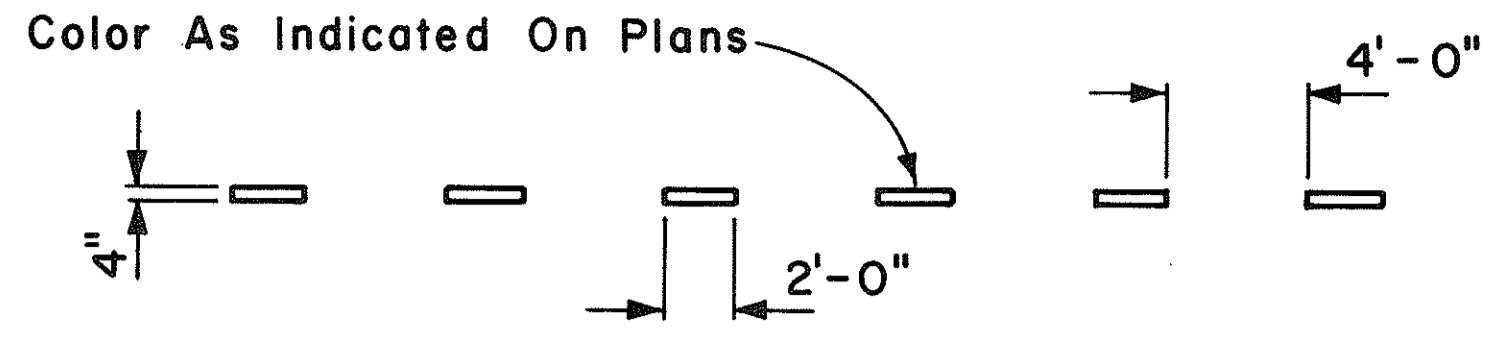
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**STANDARD DETAILS  
 RAISED PAVEMENT MARKERS  
 AND STRIPING**

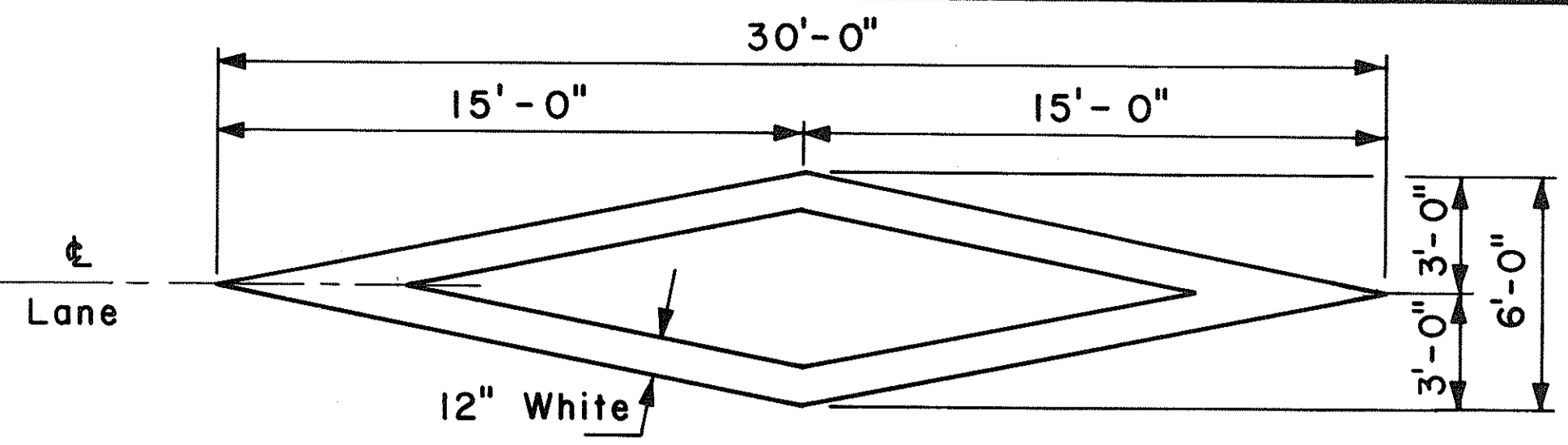
Not to Scale July 1978  
 SHEET No. 31 OF 16 SHEETS DT 300

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-100	1982	32	39



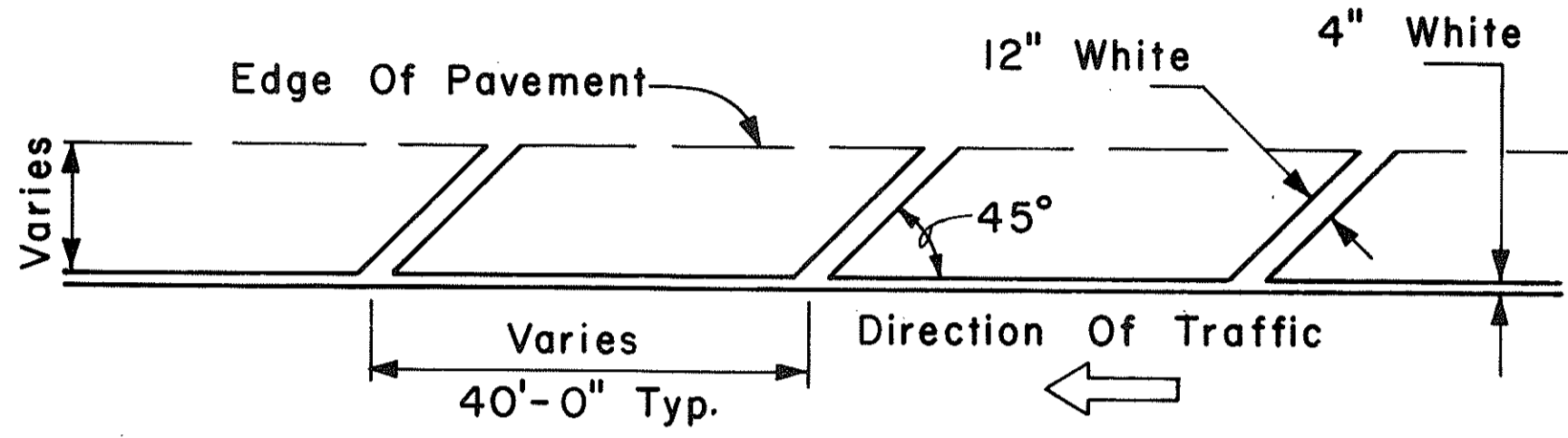
**4" GUIDE LINE**



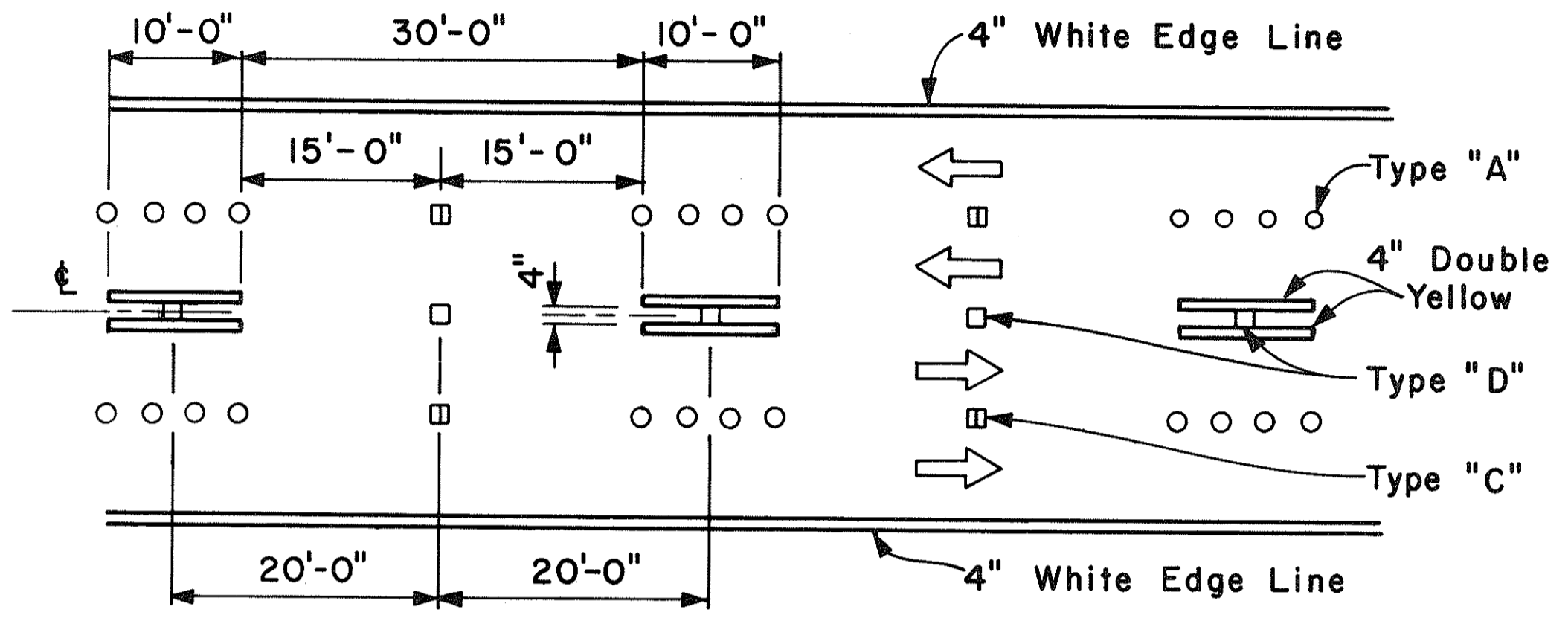
**PAVEMENT DIAMOND**

**GENERAL NOTES:**

1. Pavement marking and striping shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," by the FHWA, and as amended.
2. Layout of pavement markings and striping shall be done by the Contractor. The Contractor shall check layout of markings and striping with the Engineer prior to performing work.
3. For additional pavement marking details, see sheet DT 300.

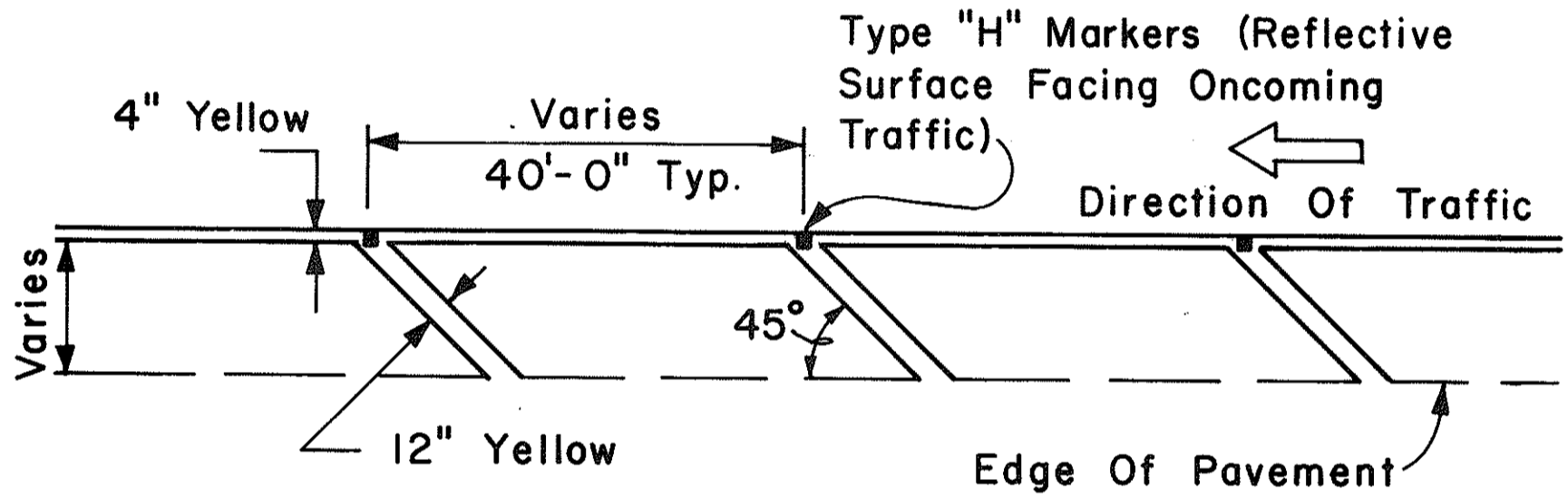


**TRANSVERSE RIGHT SHOULDER MARKING**

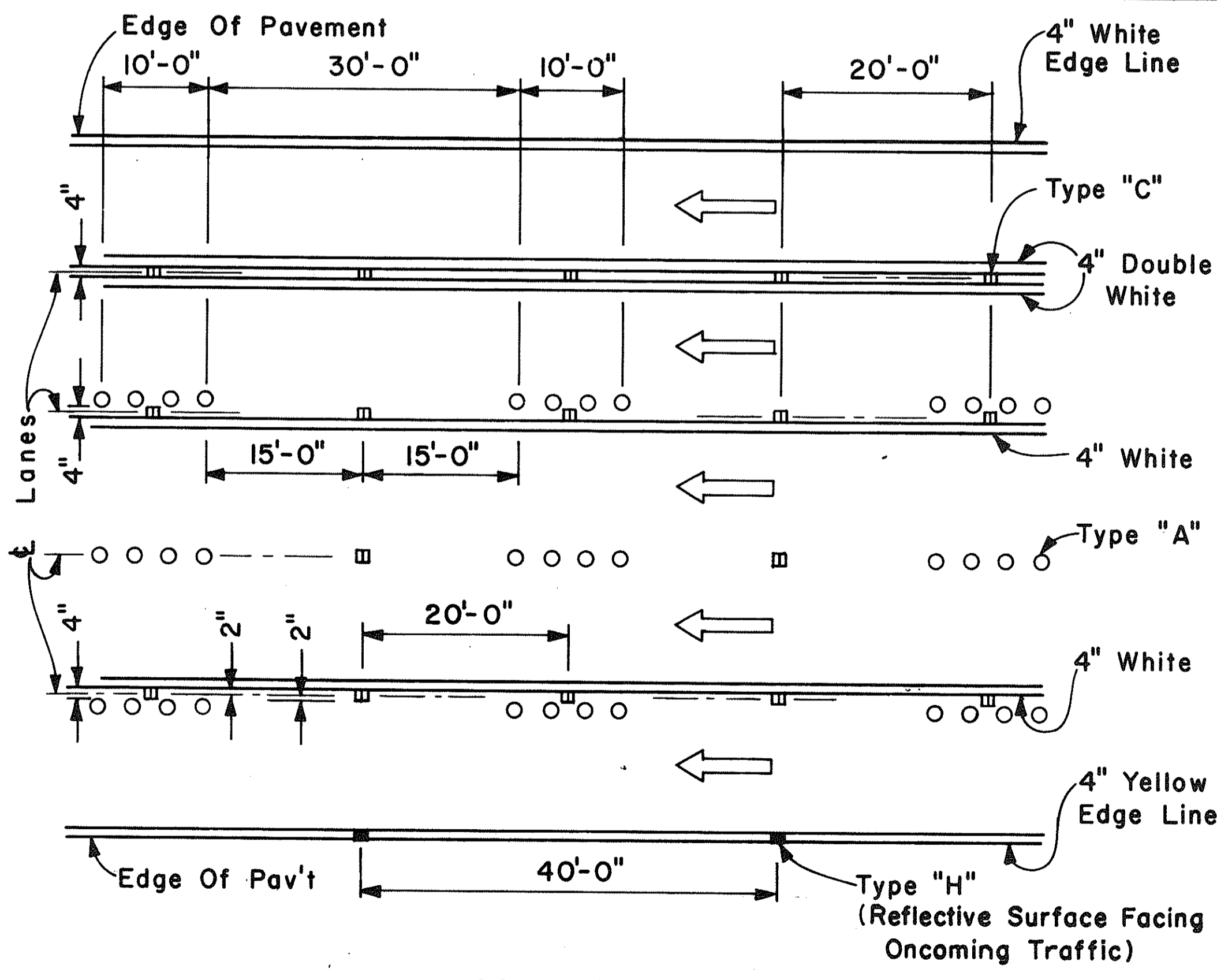


NOTE: Traffic Cone Usage Required.

**MULTI-LANE REVERSIBLE LANES**



**TRANSVERSE LEFT SHOULDER MARKING**



**MULTI-LANE LANE CHANGE RESTRICTION ZONES**

APPROVAL RECOMMENDED:  
*Eishi Tanaka* 5/2/78  
 TRAFFIC ENGINEER DATE

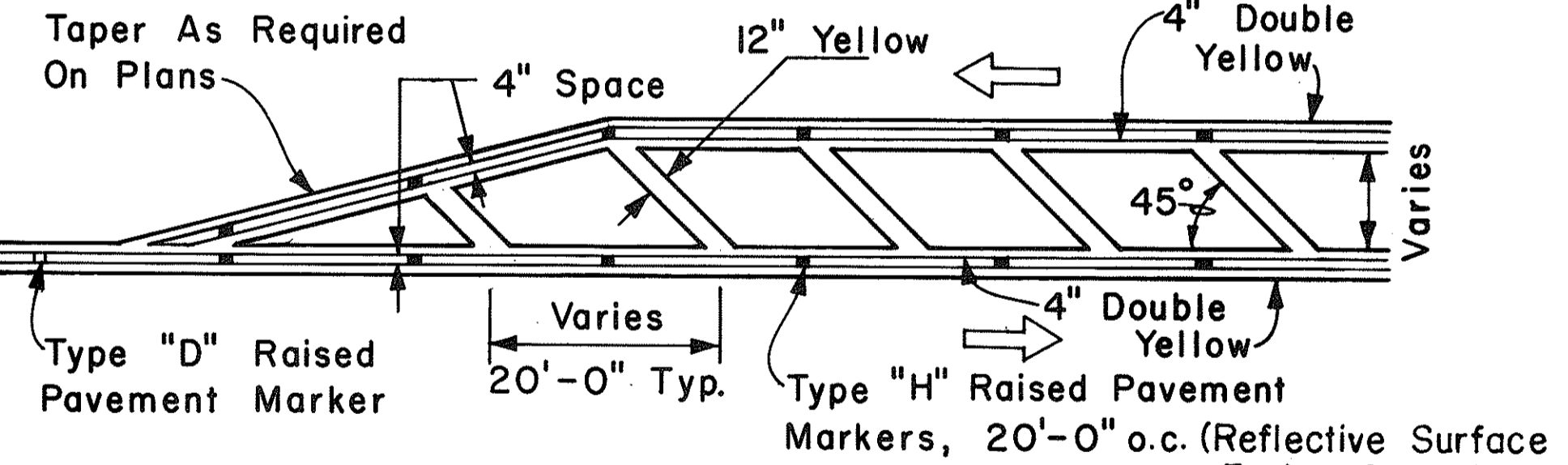
APPROVED:  
*Harbor 2. Zakeishi* 5/3/78  
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

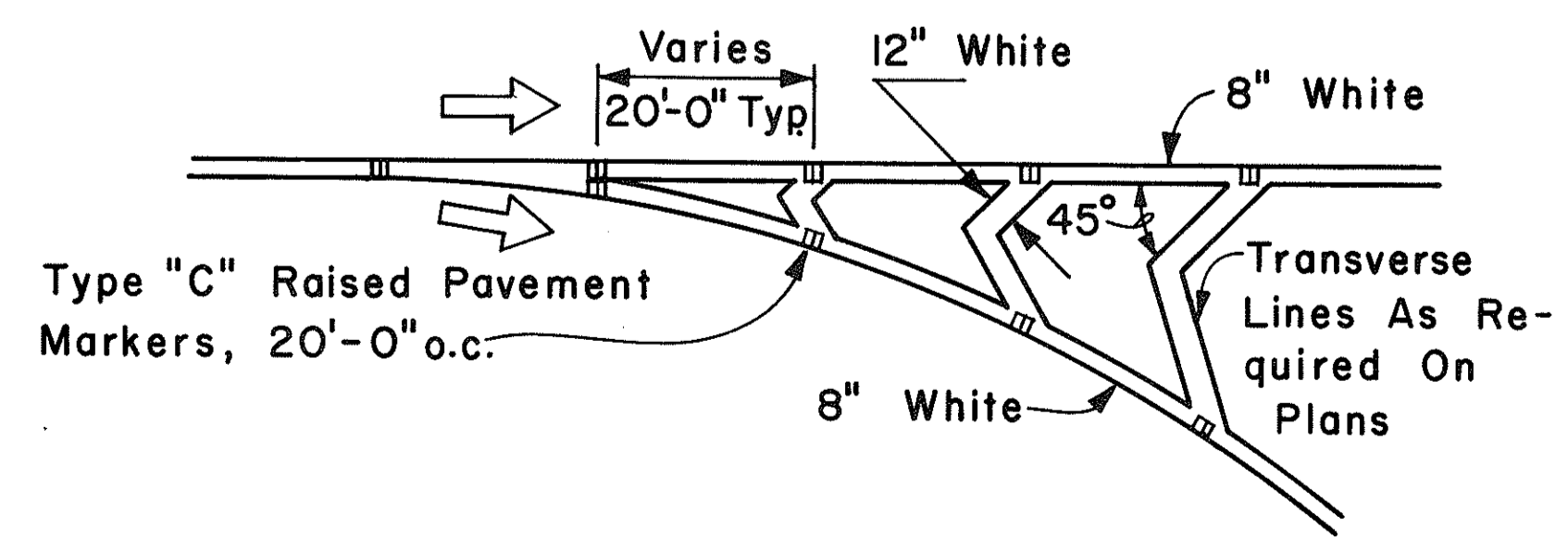
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 LAND TRANSPORTATION FACILITIES DIVISION  
**STANDARD DETAILS**  
 MISCELLANEOUS  
 PAVEMENT MARKINGS

Scale: Not to Scale Date: April, 1978  
 SHEET NO. 10 OF 16 SHEETS DT 302

SURVEY PLOTTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 DRAWN BY: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_  
 QUANTITIES BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 No. \_\_\_\_\_



**TRANSVERSE MEDIAN MARKING**



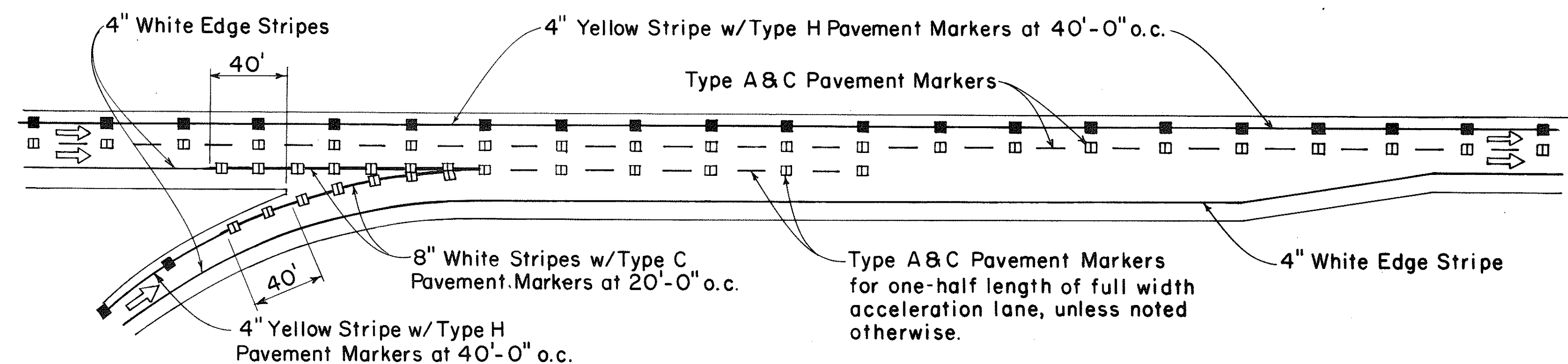
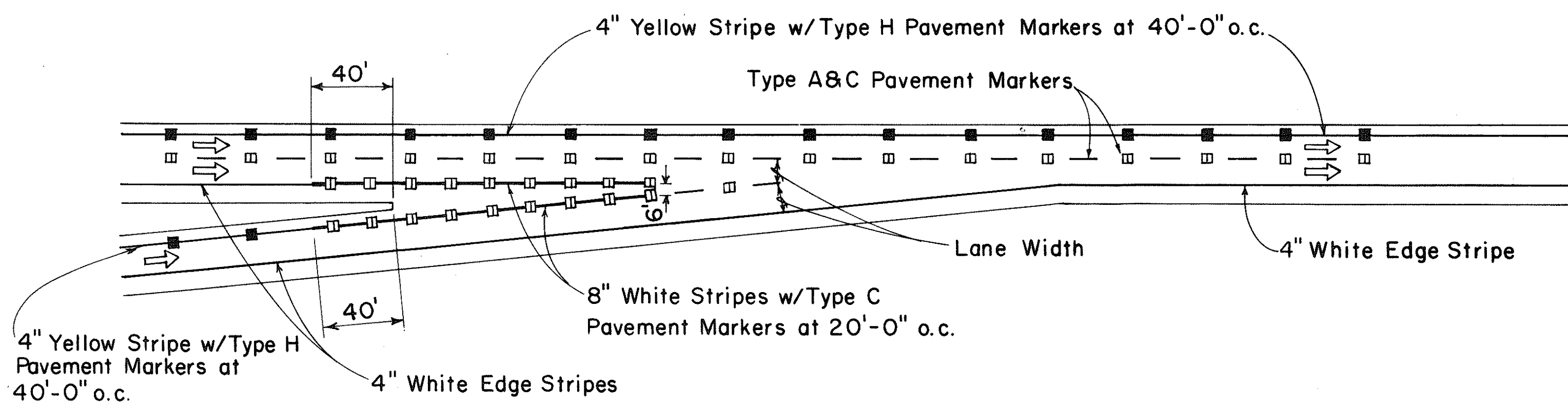
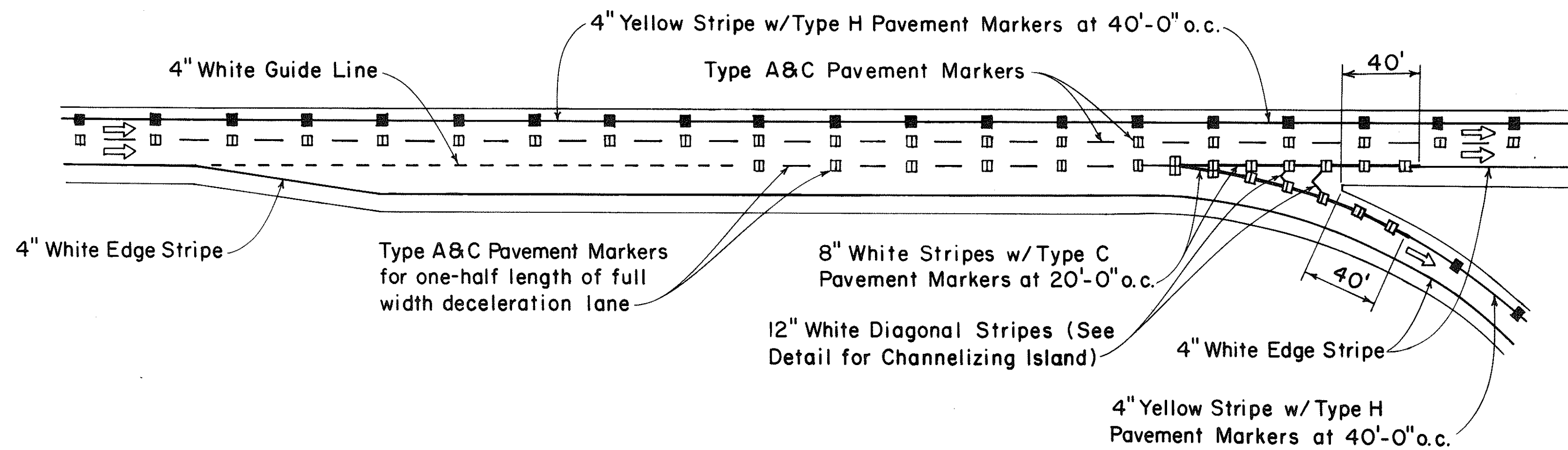
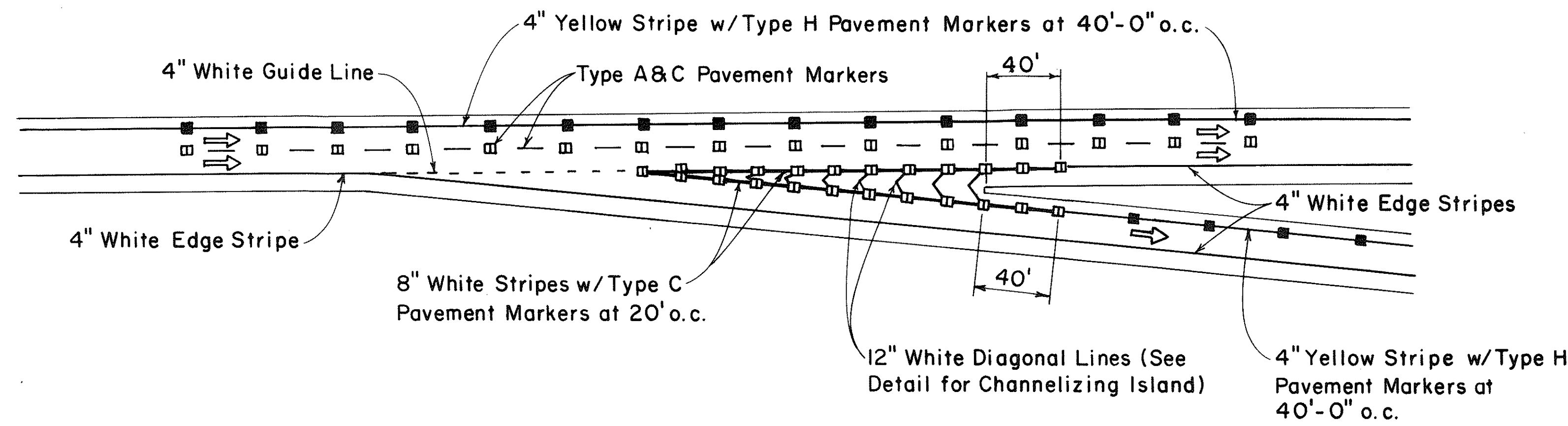
**CHANNELIZING ISLAND**

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1160	1982	33	39

**GENERAL NOTES:**

1. Pavement Markings and Striping shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," by the FHWA, and as amended.
2. Layout of Pavement Markings and Striping shall be done by the Contractor. The Contractor shall check layout of markings and striping with the Engineer prior to performing work.
3. For additional details, see sheet DT 300.

TAPERED DECELERATION LANE  
PARALLEL DECELERATION LANE  
TAPERED ACCELERATION LANE  
PARALLEL ACCELERATION LANE  
TYPICAL ROADWAY EXIT MARKINGS  
TYPICAL ROADWAY ENTRANCE MARKINGS



ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

APPROVAL RECOMMENDED:  
*Erich Tanaka* 7/21/78  
 TRAFFIC ENGINEER DATE

APPROVED:  
*Robert S. Zaleski* 7/24/78  
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 LAND TRANSPORTATION FACILITIES DIVISION

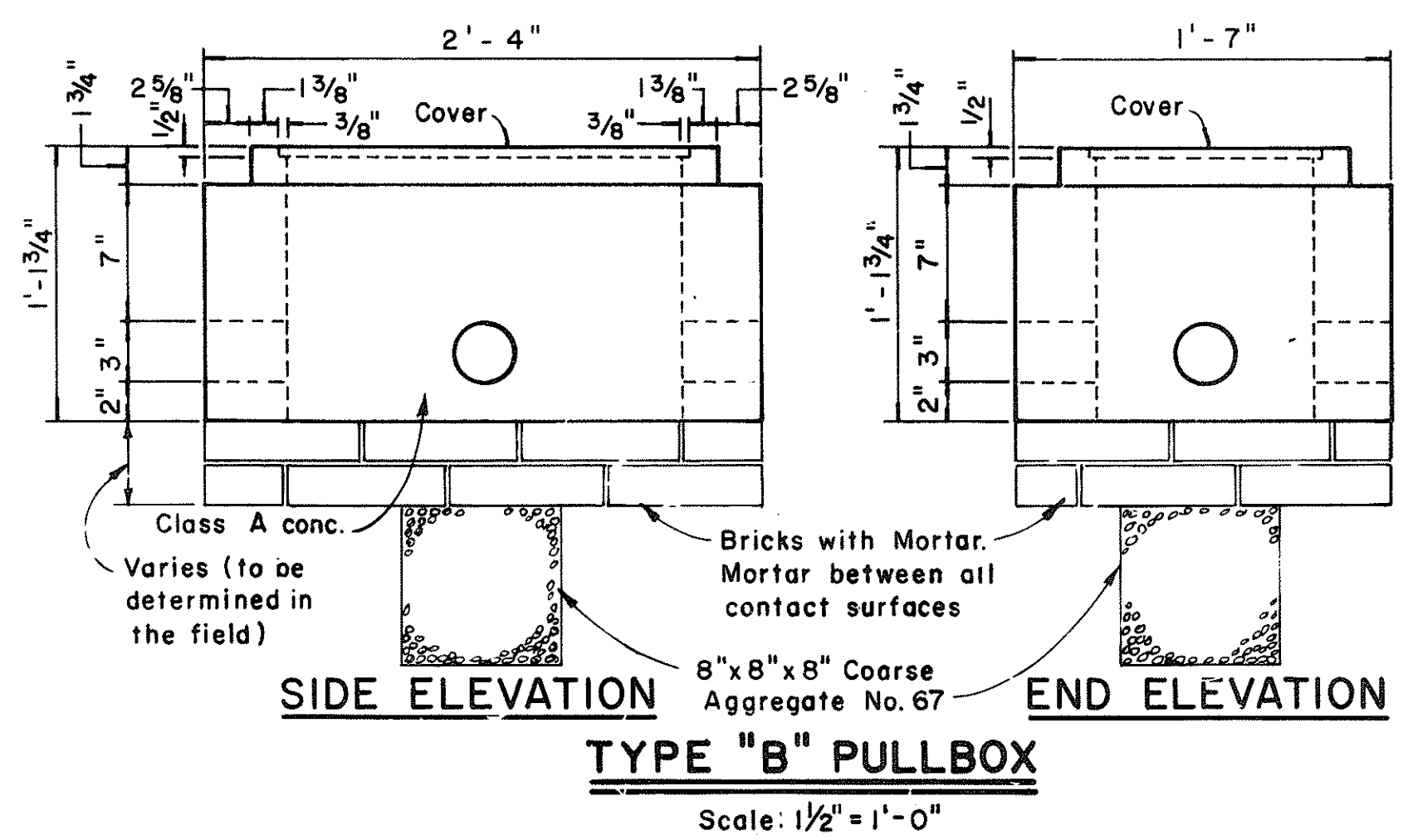
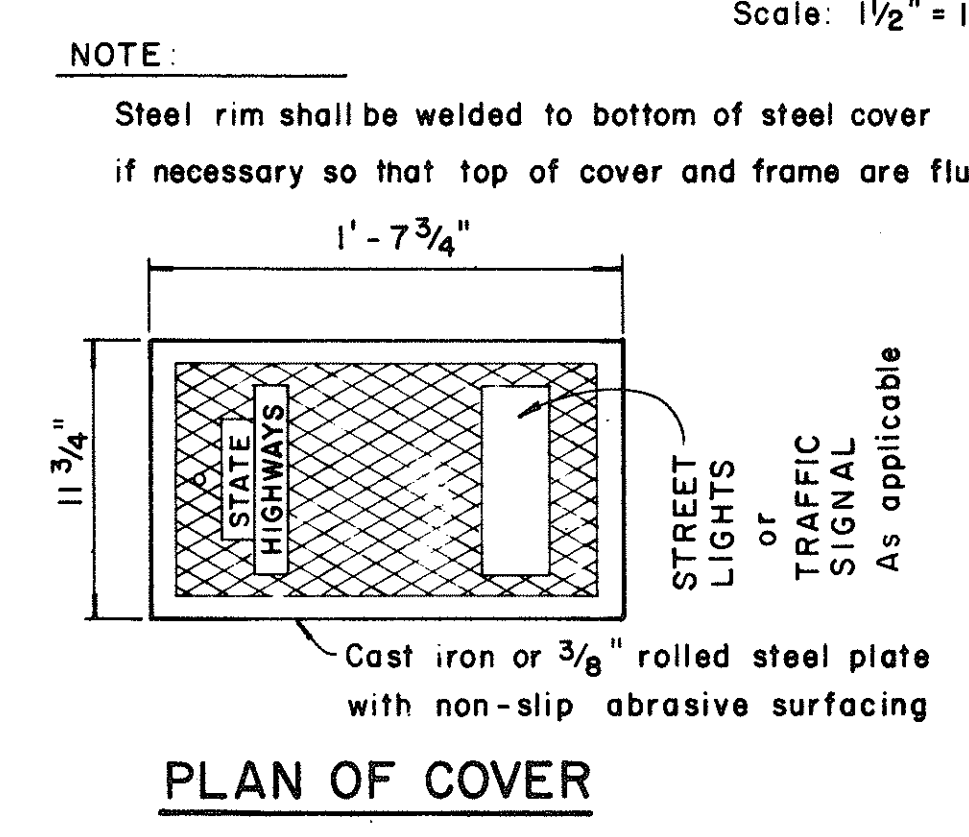
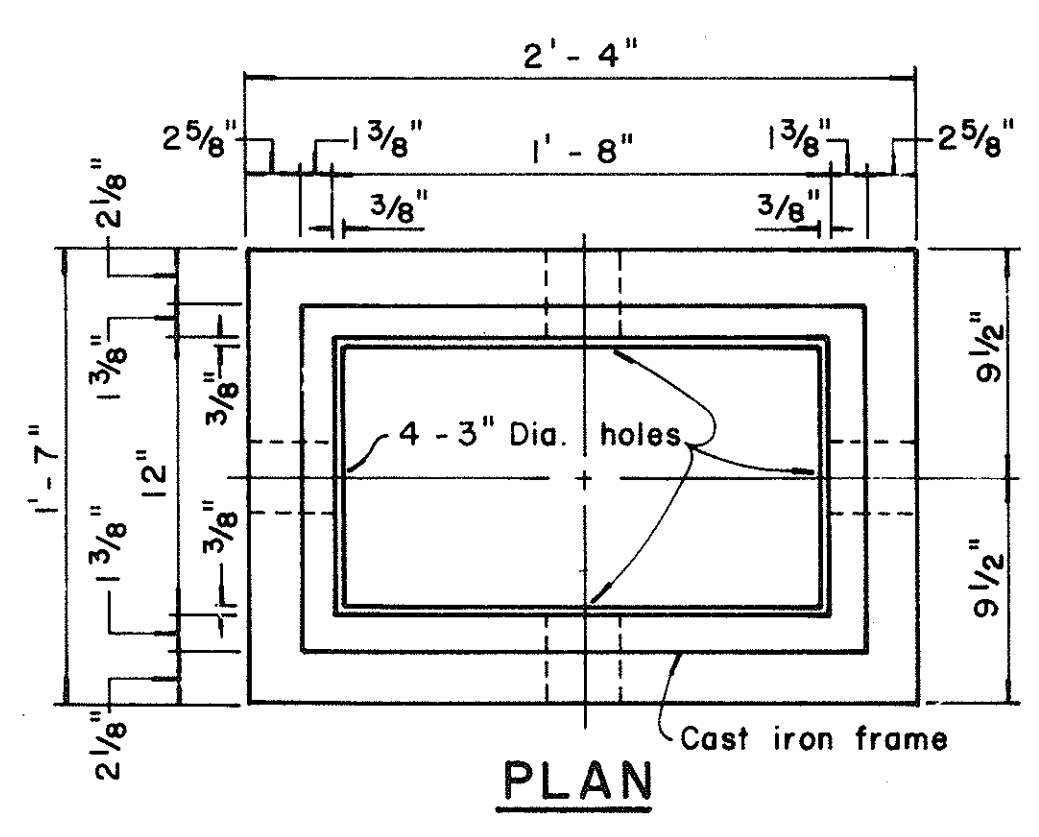
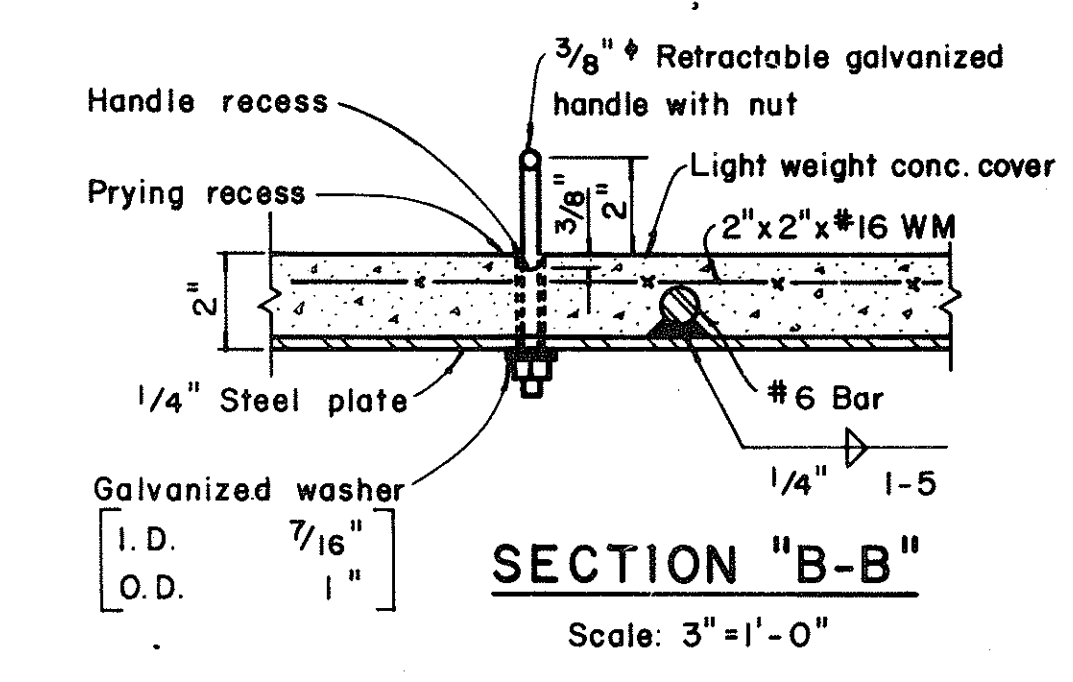
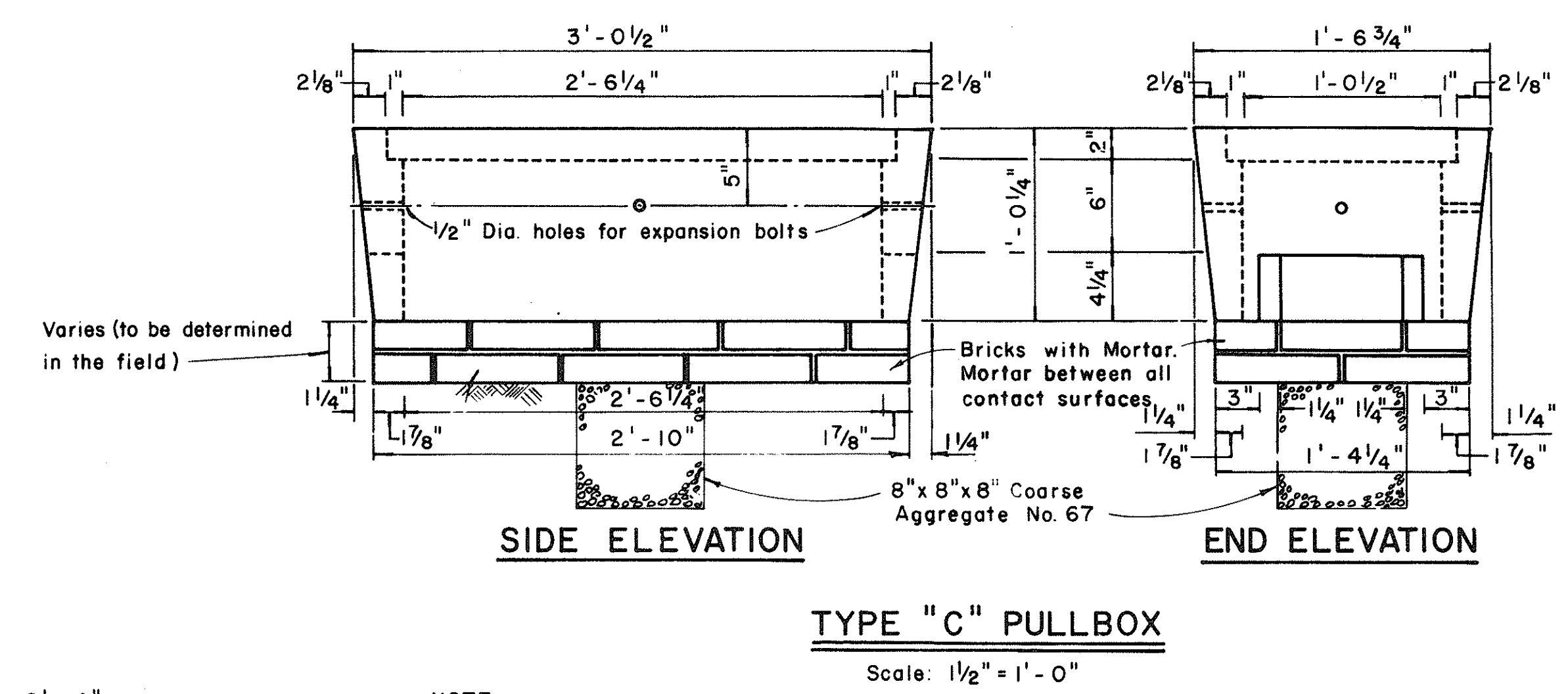
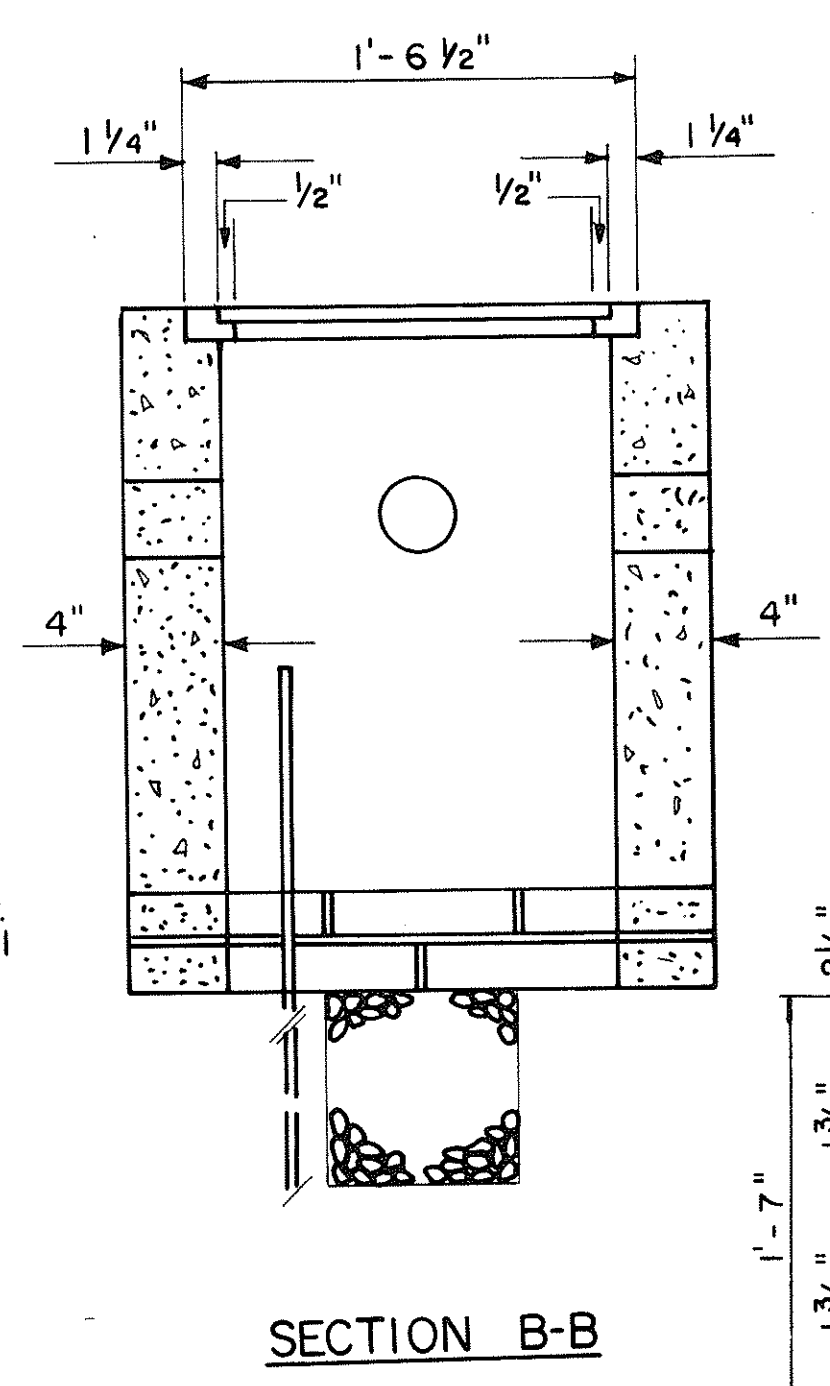
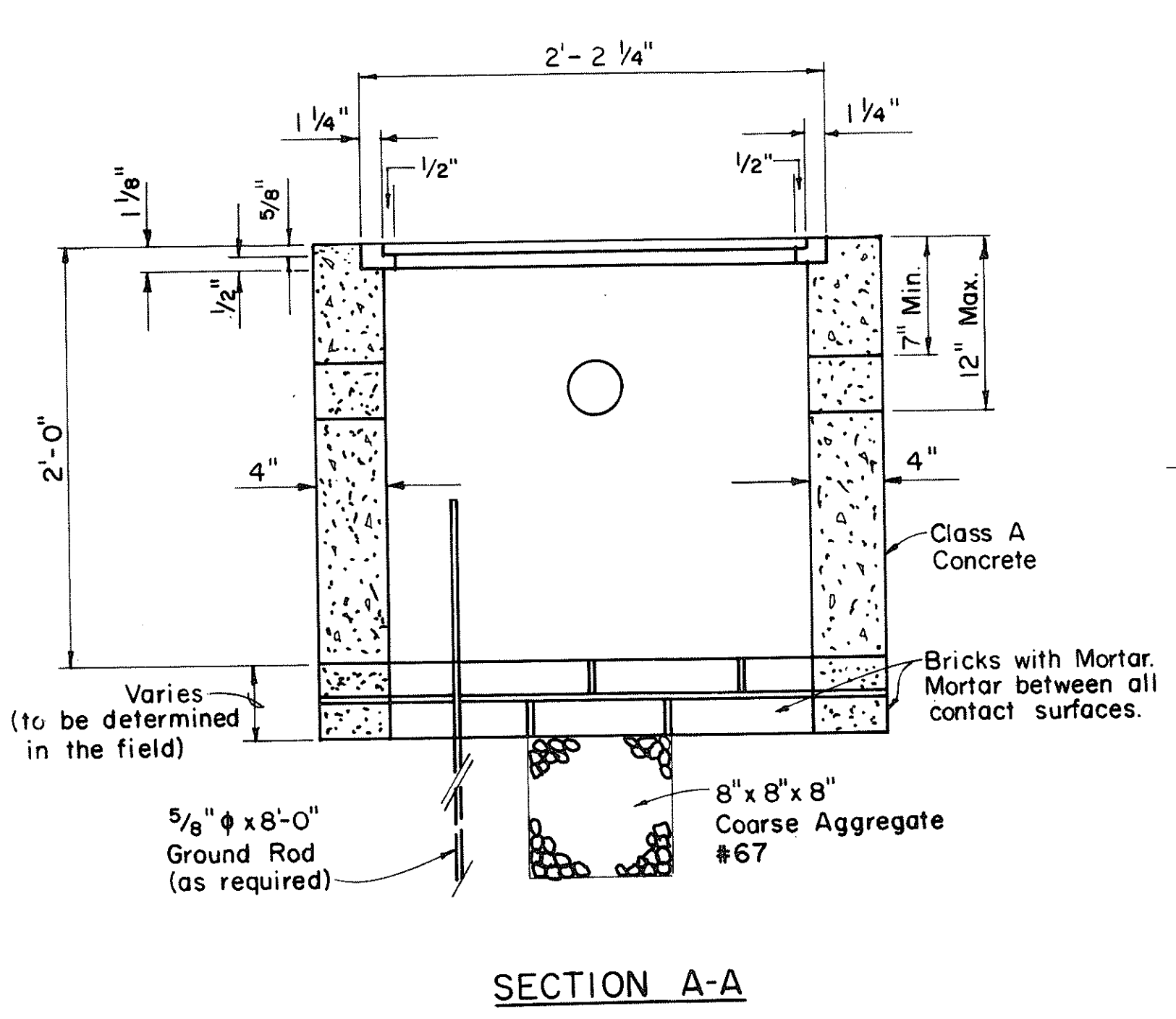
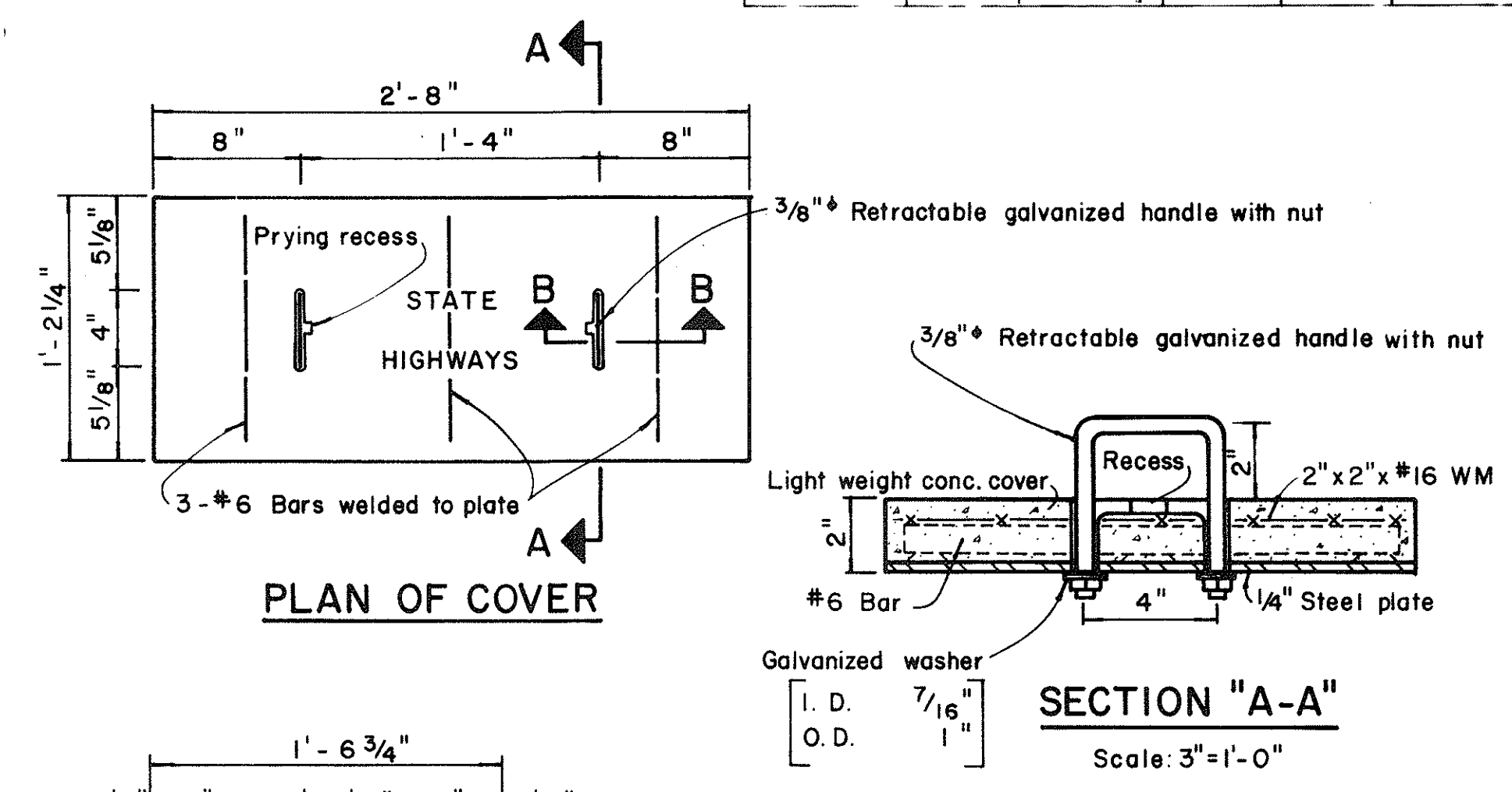
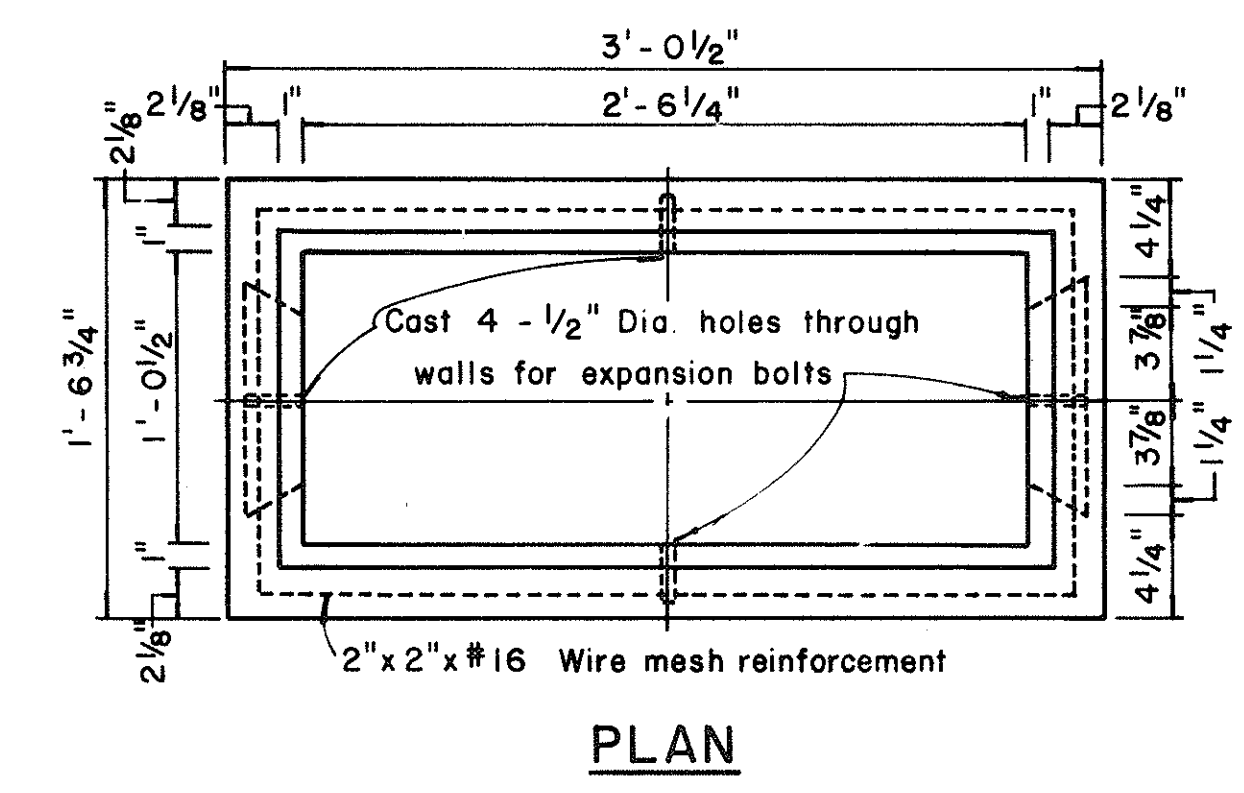
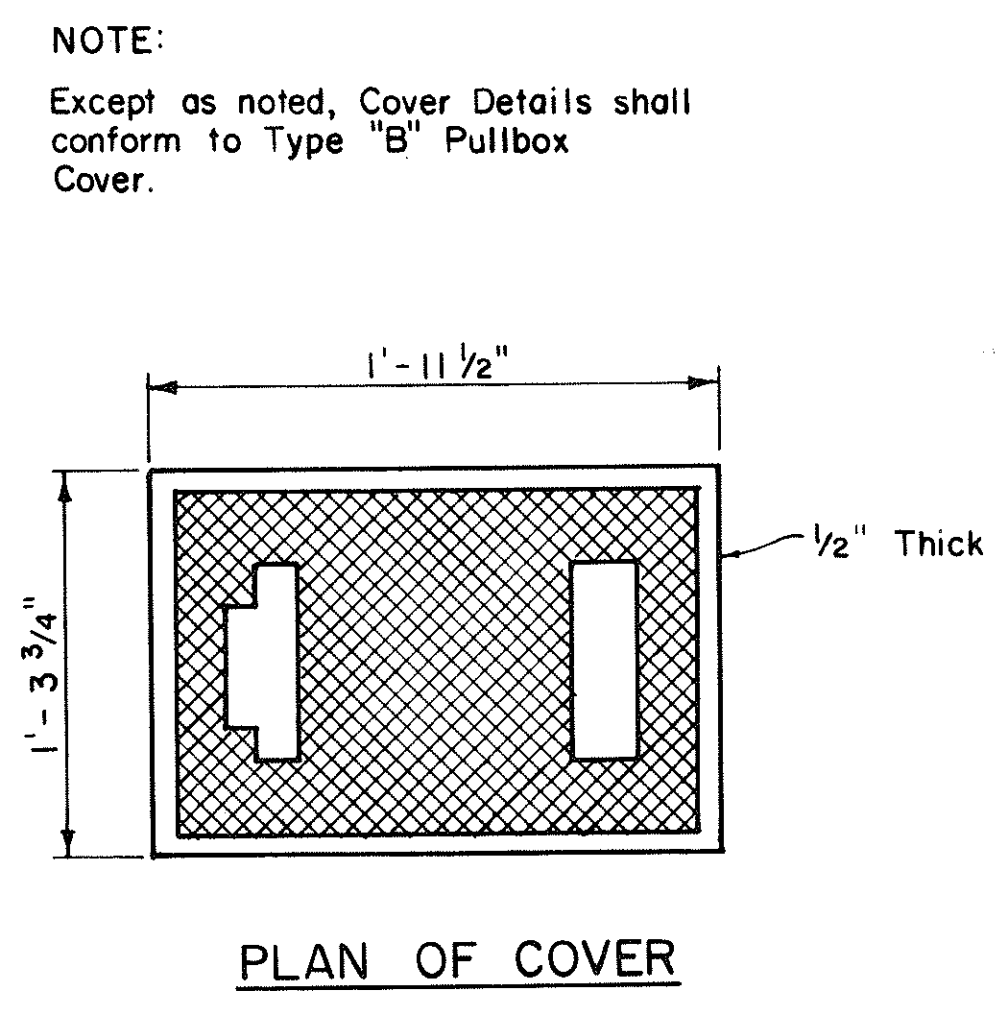
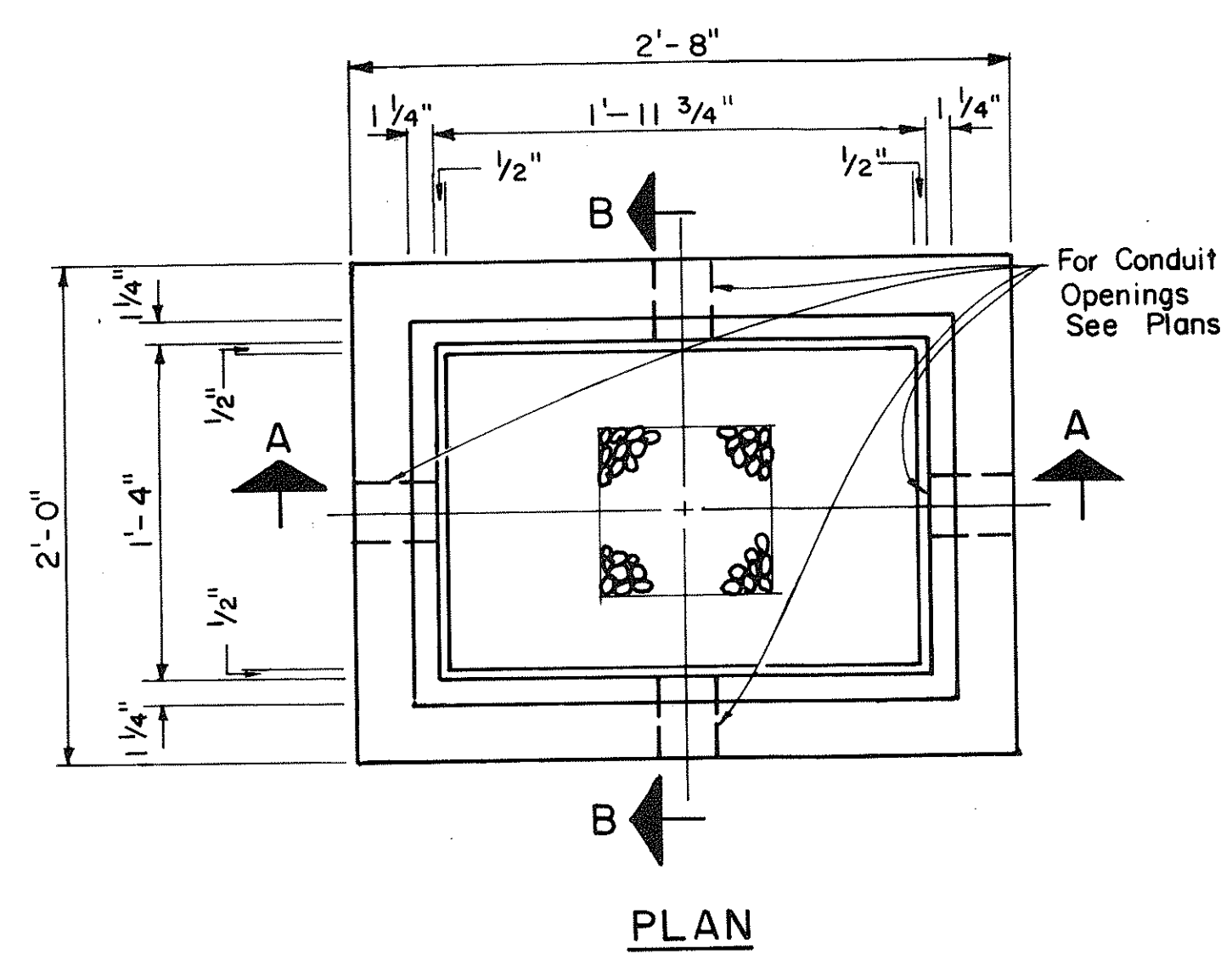
**STANDARD DETAILS**  
**MISCELLANEOUS**  
**PAVEMENT MARKINGS**

Not to Scale July 1978  
 SHEET No. 11 OF 16 SHEETS DT 304

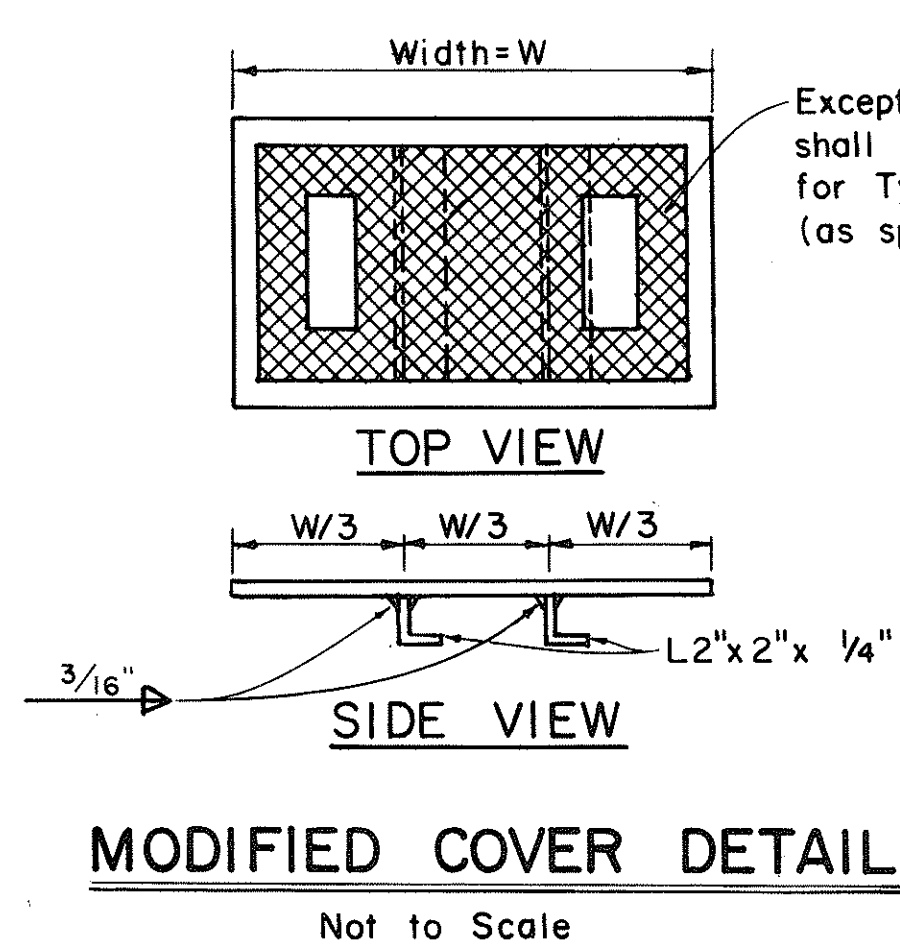




FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HH(160)	1962	36	39



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



TYPE "A" PULLBOX  
Scale: 1 1/2" = 1'-0"

TYPE "C" PULLBOX  
Scale: 1 1/2" = 1'-0"

TYPE "B" PULLBOX  
Scale: 1 1/2" = 1'-0"

NOTE:  
Hot dip galvanize after fabrication. Modified cover shall be furnished when called for on plans.

APPROVAL RECOMMENDED:  
*[Signature]* 12/29/62  
TRAFFIC ENGINEER DATE

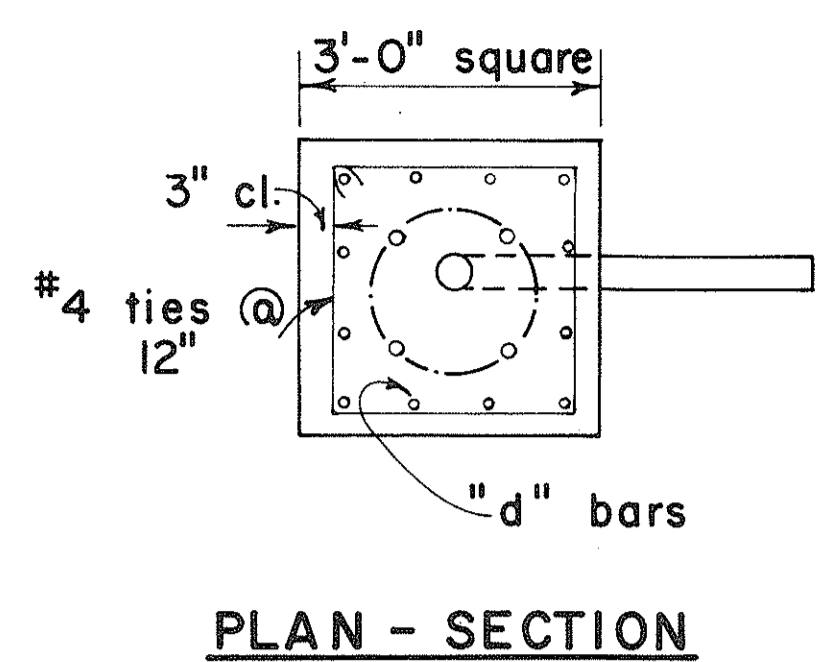
APPROVED:  
*[Signature]* 12-30-62  
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Revised Type B & C Pullbox details	H.F.	3-5-66
2	Revised Type "A" Pullbox & Added Modified Cover.	H.F.	1-31-60

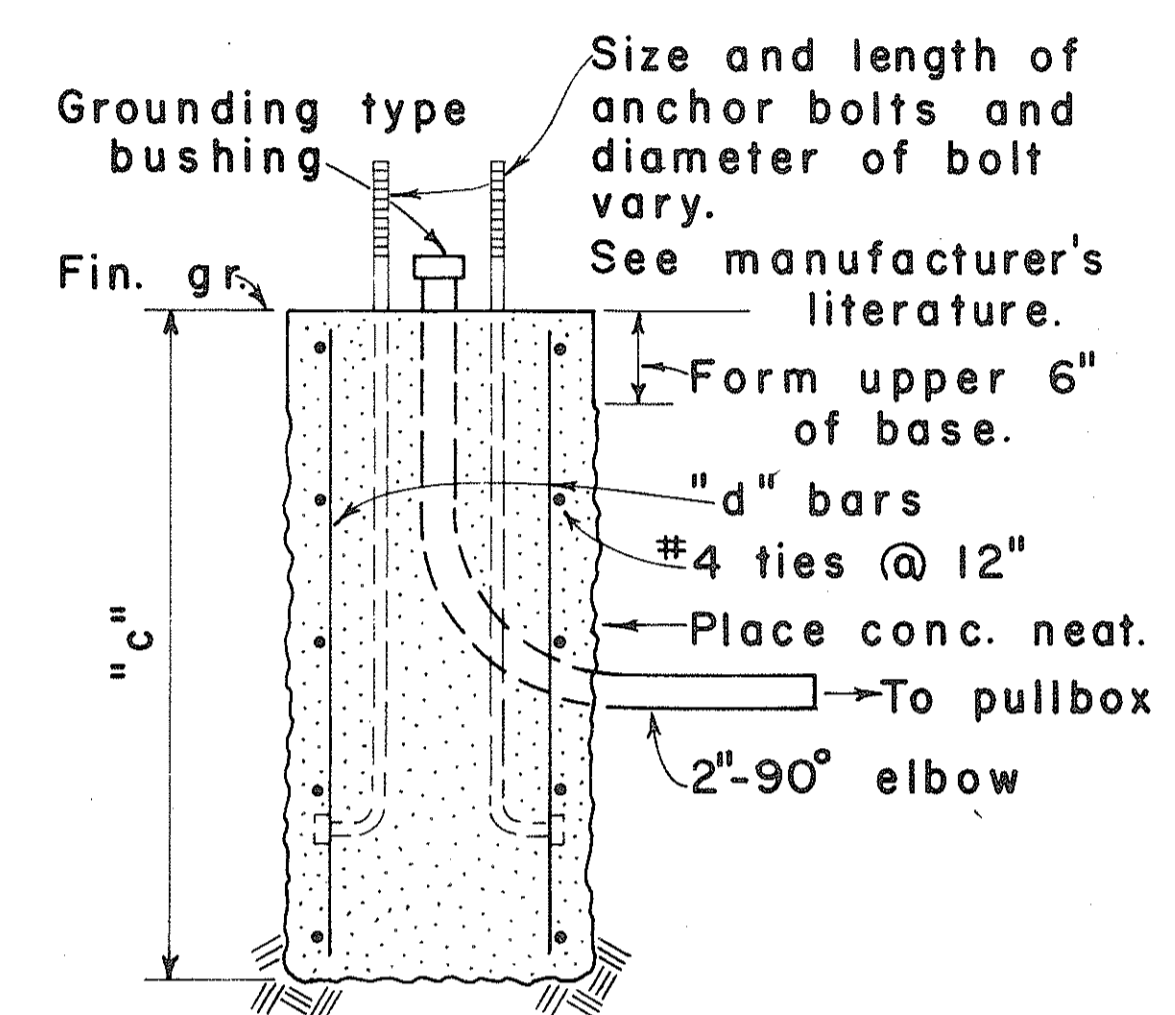
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**  
**PULLBOXES**

Scale as noted Date \_\_\_\_\_  
SHEET No. 14 OF 16 SHEETS DT 401



PLAN - SECTION

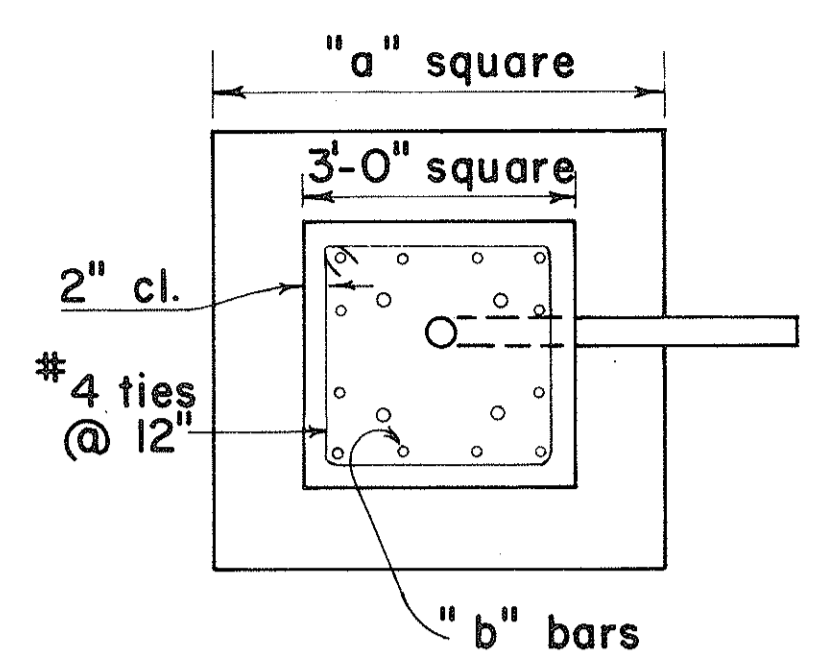


NOTE:  
Concrete shall be Class B.

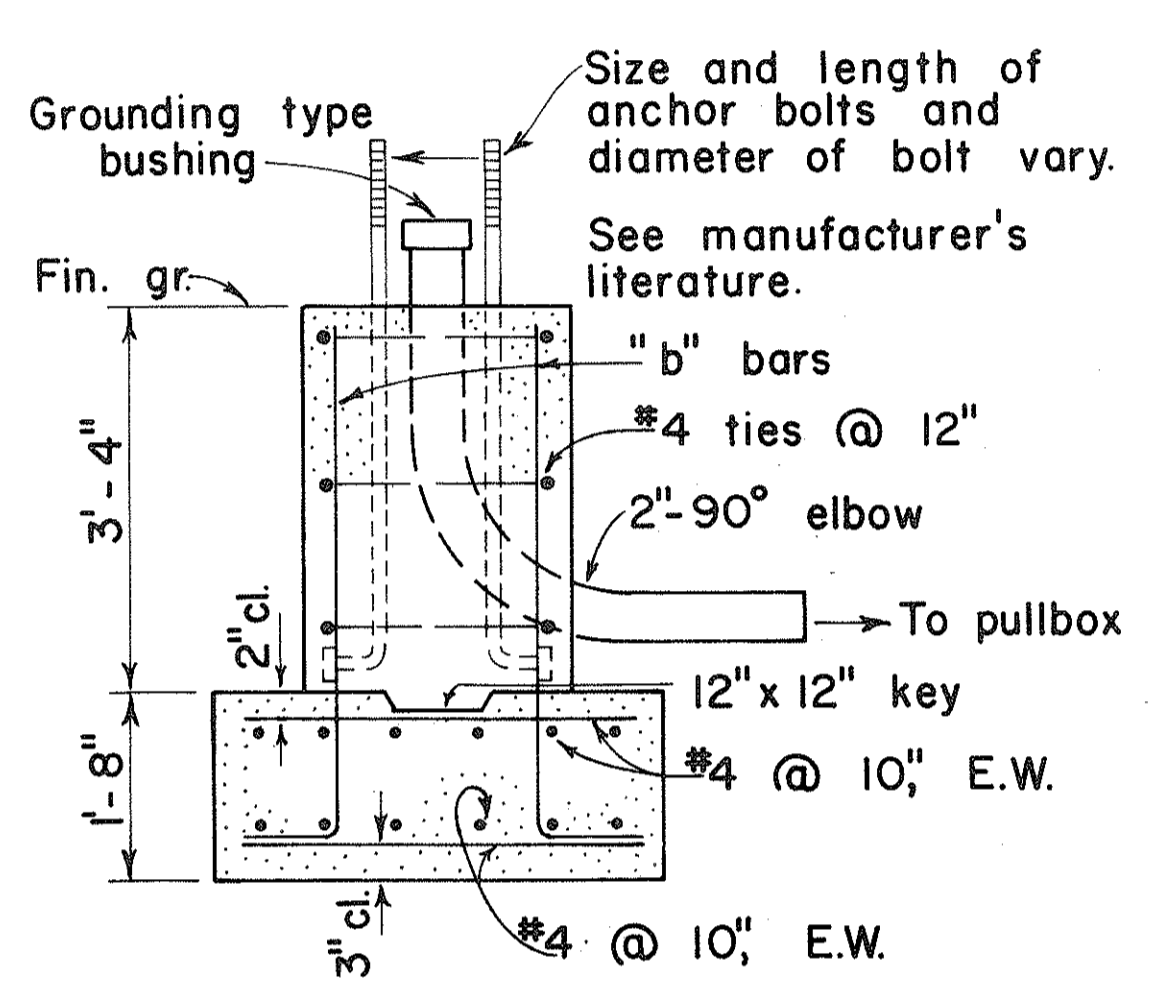
SECTION

MAST ARM LENGTH	"c"	"d" BARS
16' - 18'	5' - 0"	12 - #6
20'	5' - 6"	12 - #6
25'	6' - 0"	12 - #6
30'	6' - 6"	12 - #6
35'	7' - 0"	12 - #8
40'	8' - 0"	12 - #8

TYPE II



PLAN - SECTION



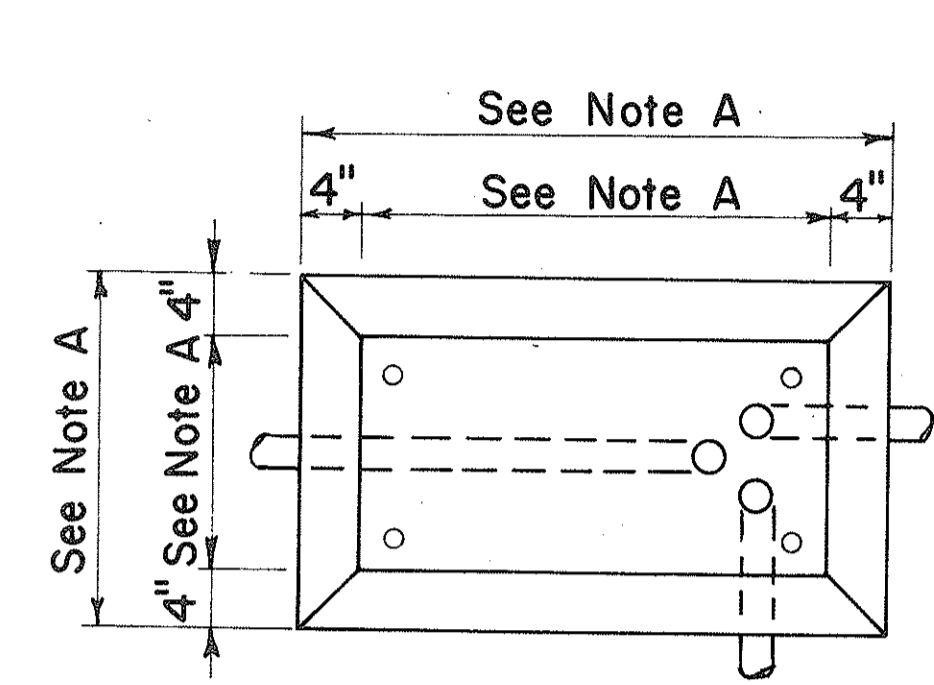
NOTE:  
Concrete shall be Class B.

SECTION

MAST ARM LENGTH	"a"	"b" BARS
16' - 18'	5' - 0"	12 - #6
20'	5' - 6"	12 - #6
25'	6' - 0"	12 - #6
30'	6' - 6"	12 - #8
35'	6' - 6"	12 - #8
40'	7' - 0"	12 - #8

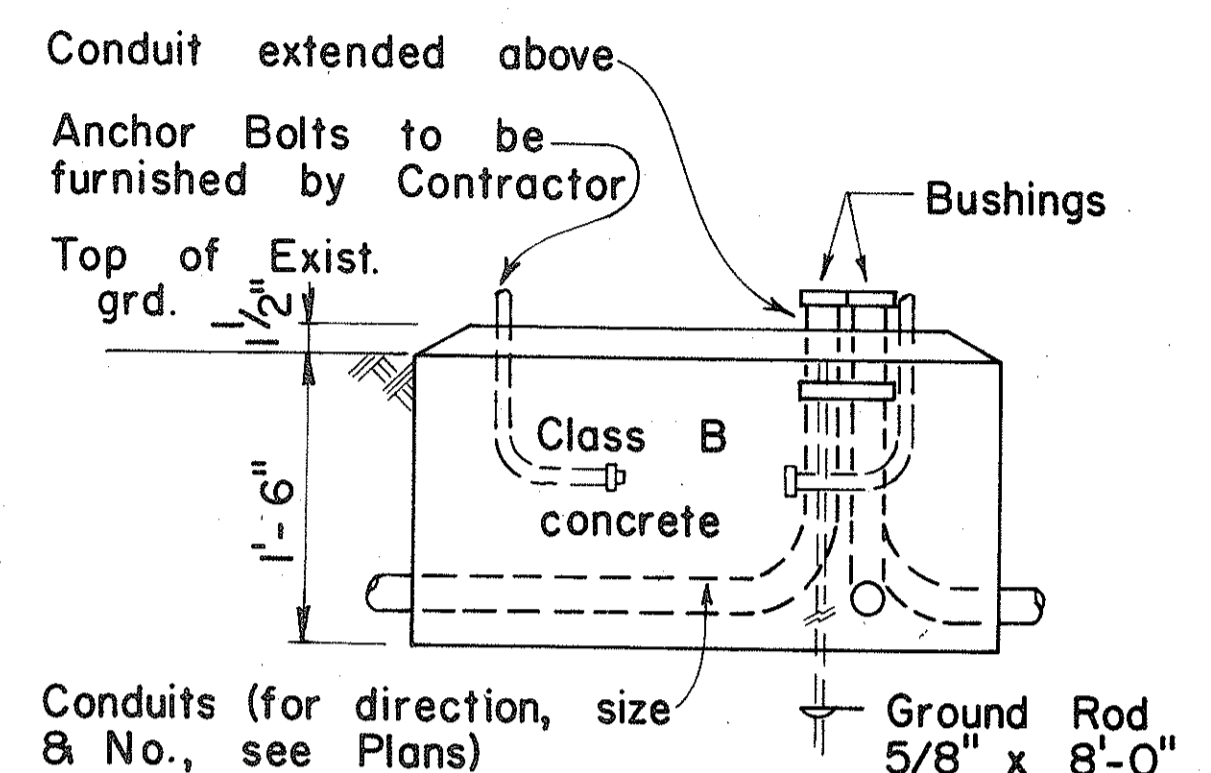
TYPE IIA

FOOTING FOR MAST ARM STANDARD



PLAN

CONCRETE BASE FOR CONTROLLER CABINET



ELEVATION

- NOTES:
- A. Dimensions to be determined by the size of the Controller Cabinet to be furnished under this Contract.
  - B. Details of Conduits, Anchor Bolts, etc., are approximate only. Exact details shall be secured by the Contractor from Manufacturer.

SURVEY PLOTTED BY	DATE
DESIGNED BY	
NOTE BOOK	
CHECKED BY	

APPROVAL RECOMMENDED:  
*Eishi Tanaka* 3/7/76  
TRAFFIC ENGINEER DATE

APPROVED:  
*Robert Z. Zaleski* 2-5-76  
ASSISTANT CHIEF, ENGINEERING DATE

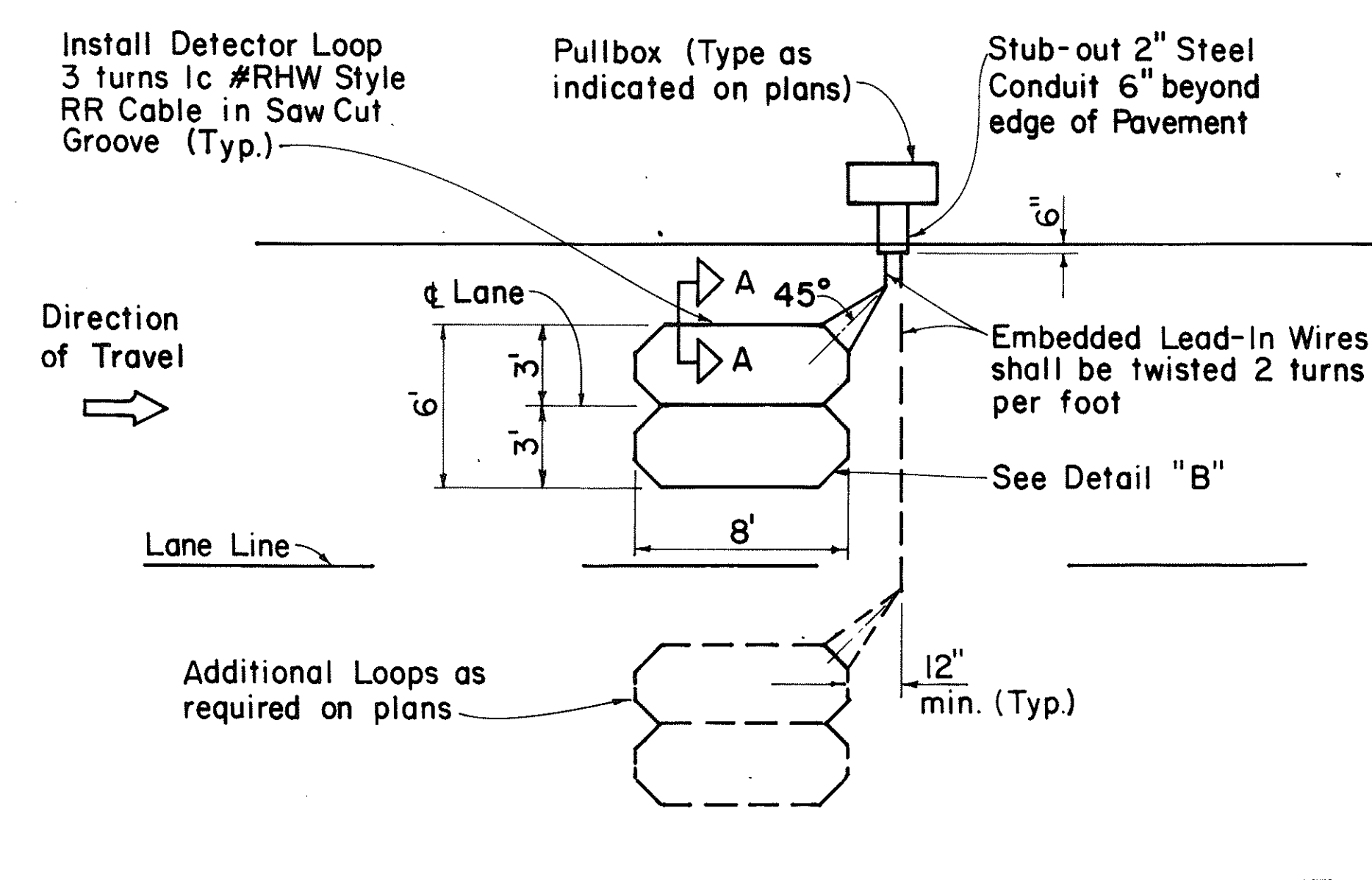
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
LAND TRANSPORTATION FACILITIES DIVISION

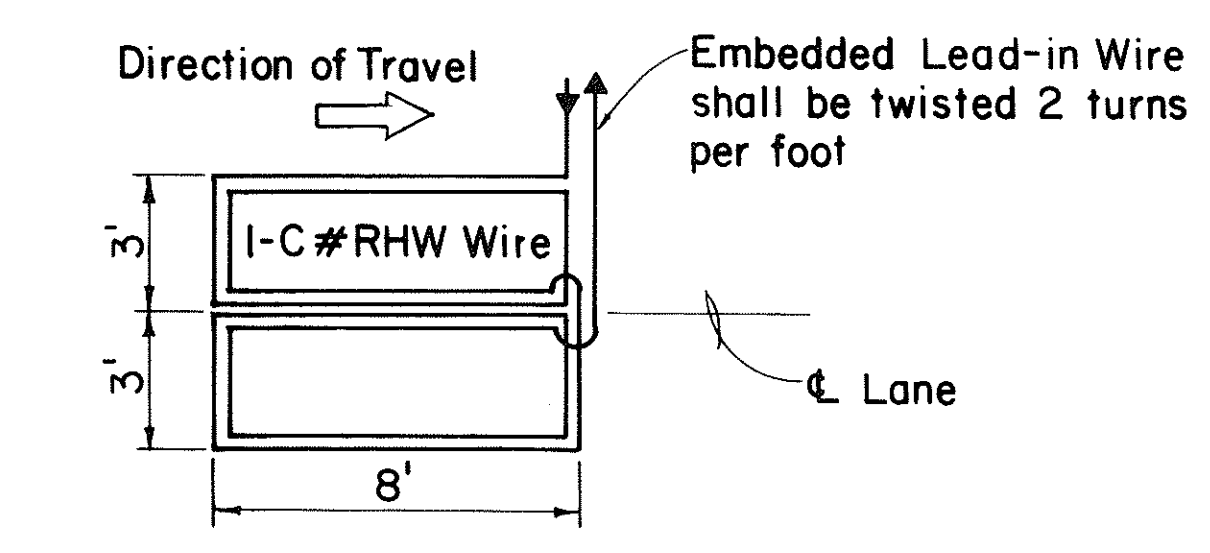
**TRAFFIC SIGNAL SYSTEM  
MISCELLANEOUS DETAILS**

Not to Scale

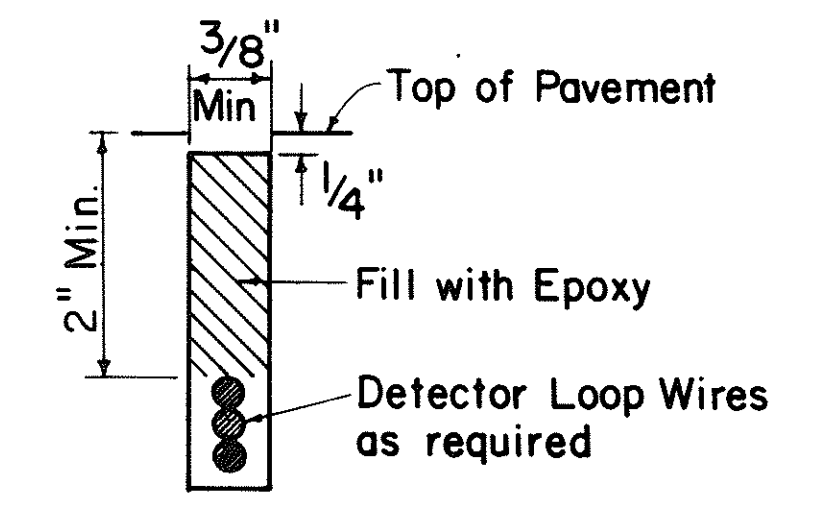
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	[R-HI-1060]	1982	37	39



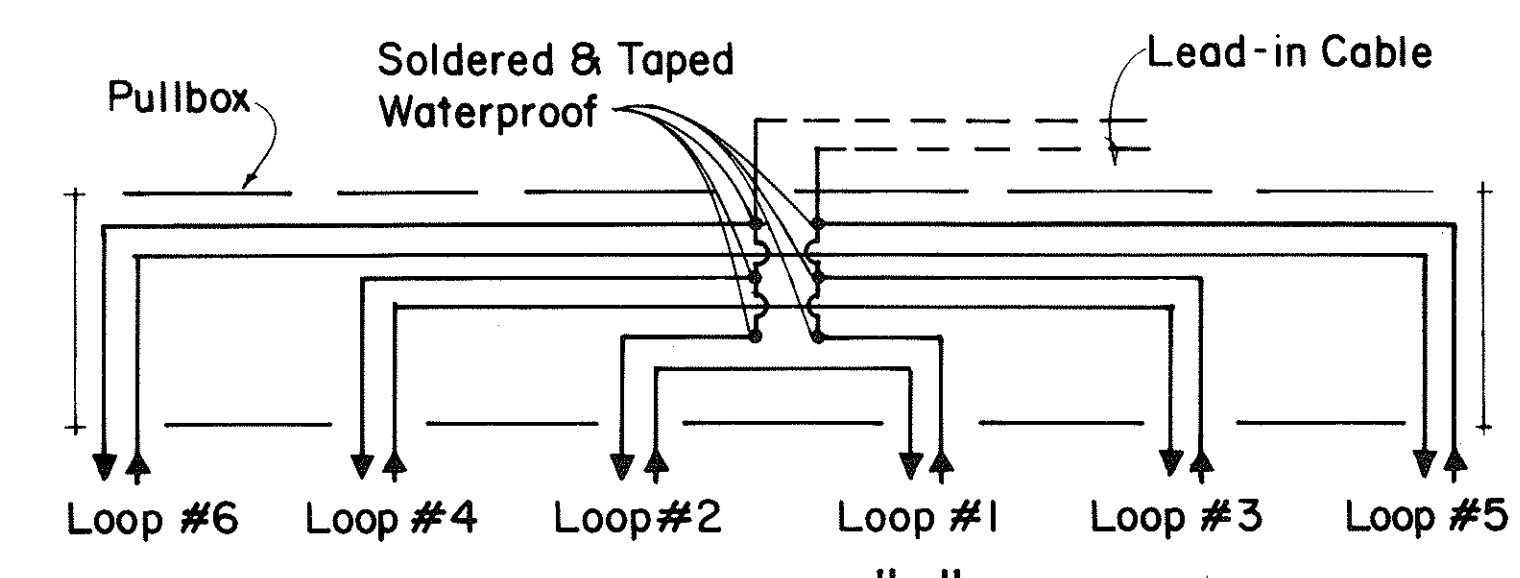
**SINGLE LOOP LAYOUT**



**WIRING DIAGRAM**

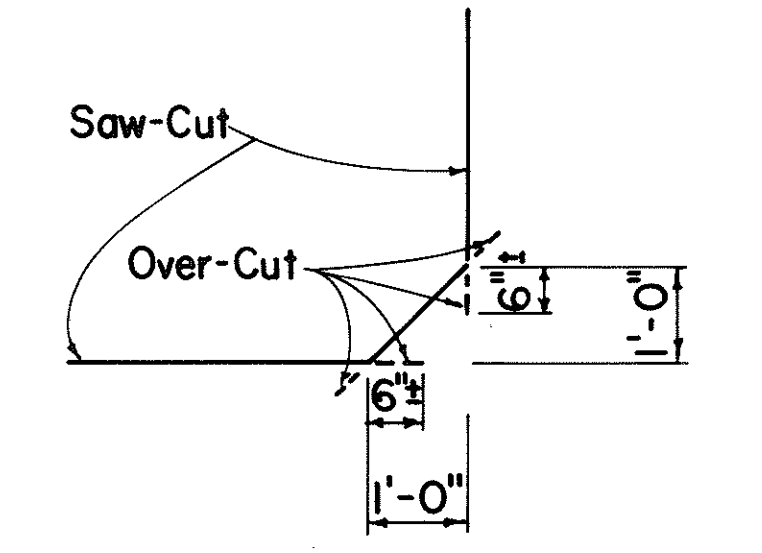


**DETECTOR LOOP SAW-CUT SECTION A-A (TYPICAL)**

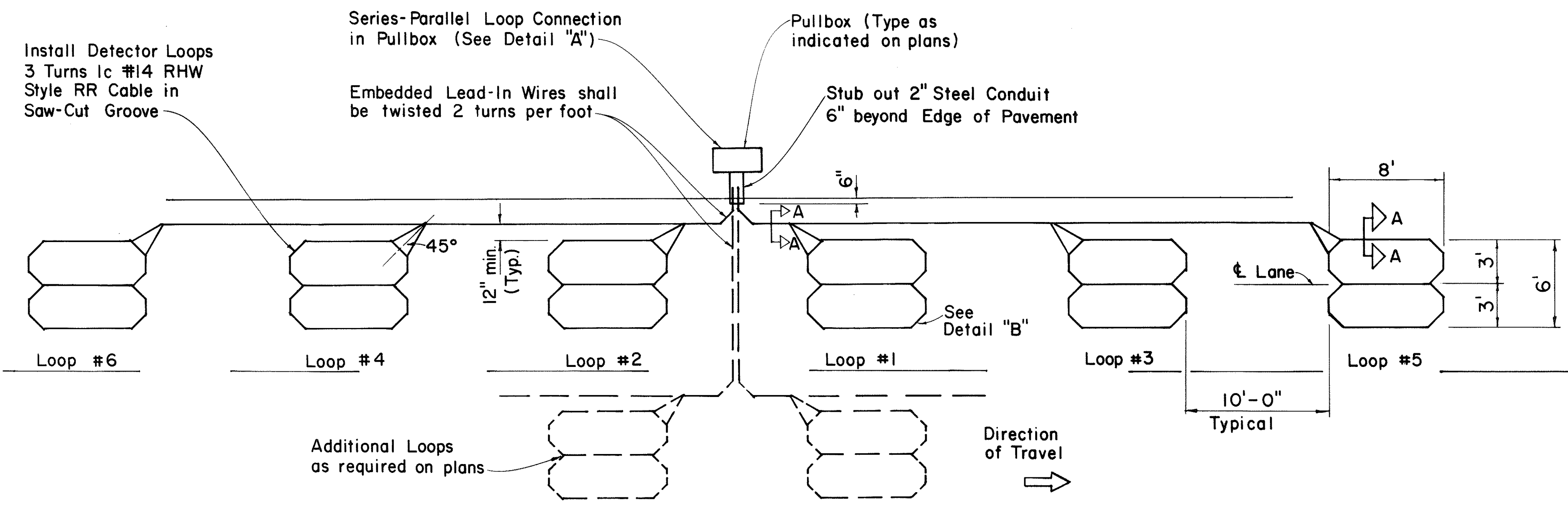


**TYPICAL SERIES-PARALLEL LOOP CONNECTION**

Note: Back-Fill Over-Cuts with Epoxy

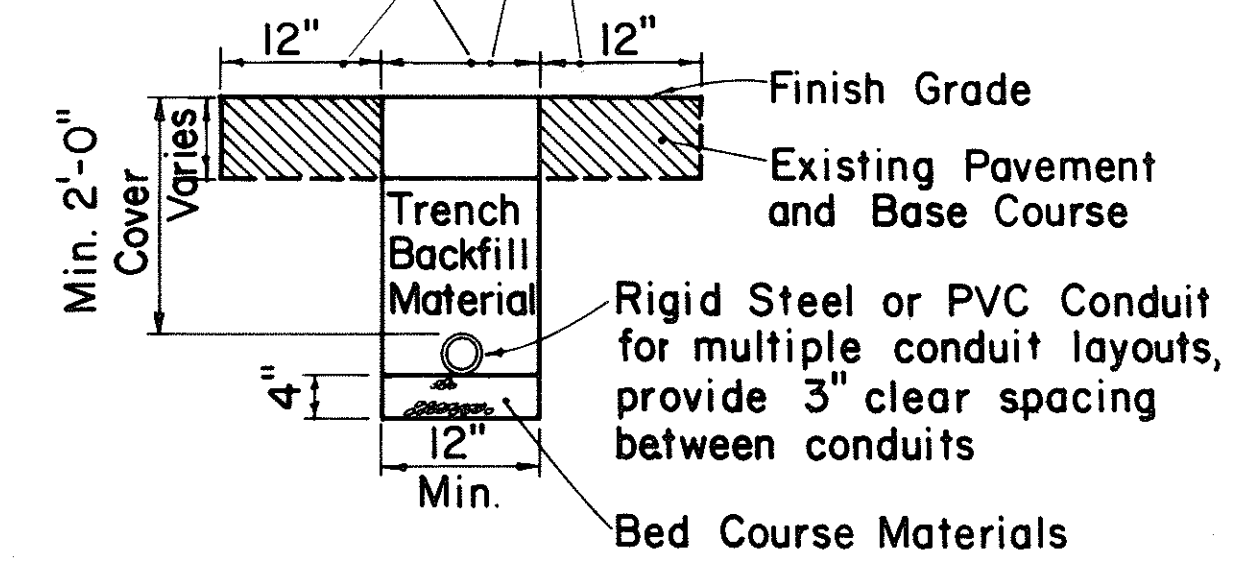


**DETAIL "B" SAW-CUT AT CORNERS**



**MULTIPLE LOOP LAYOUT**

If grassed area, provide 6" thick top soil & sod  
If paved area, reconstruct Pavement or Sidewalk equal to or better than existing



**TYPICAL TRENCH SECTION FOR CONDUIT**

NOTE:  
1. All conduits under roadways shall be steel or PVC schedule 80. All other conduits shall be steel or PVC schedule 40.

APPROVAL RECOMMENDED:  
*Eiichi Tanaka* 9/20/80  
TRAFFIC ENGINEER DATE

APPROVED:  
*Shobur Zafarishi* 9/30/80  
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Replaces Sht. DT 405 dated 3/5/76	H.T.	9/30/80
2	Revised Section A-A	H.T.	5/15/81

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**

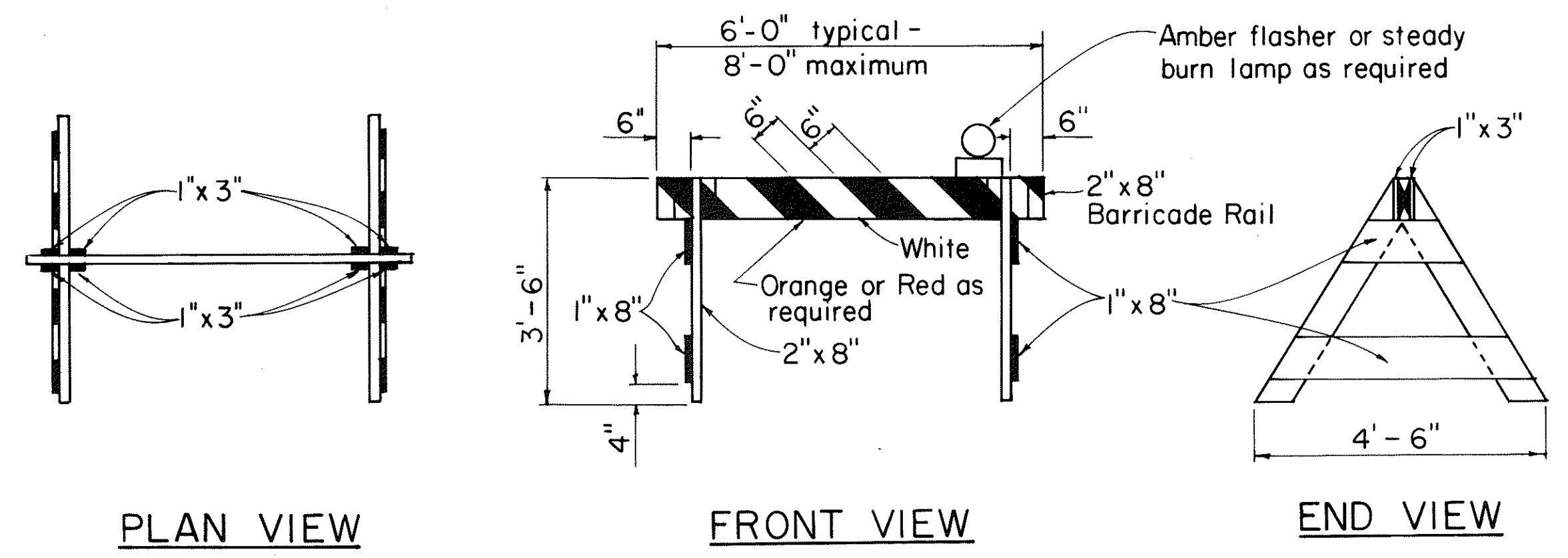
**LOOP DETECTORS**

Not to Scale

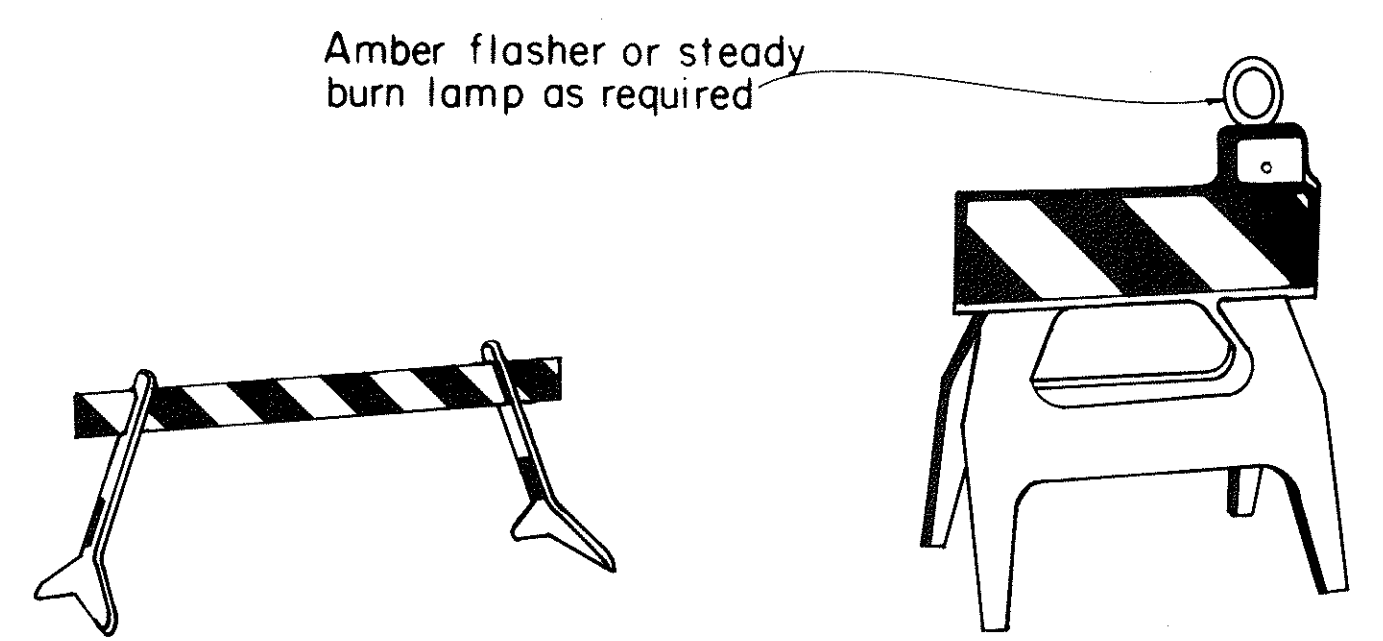
SHEET NO. 15 OF 16 SHEETS DT 405

DATE: \_\_\_\_\_  
SURVEY PLOTTED BY: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
TRACED BY: \_\_\_\_\_  
DESIGNED BY: \_\_\_\_\_  
QUANTITIES BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
ORIGINAL PLAN No. \_\_\_\_\_  
NOTE BOOK No. \_\_\_\_\_

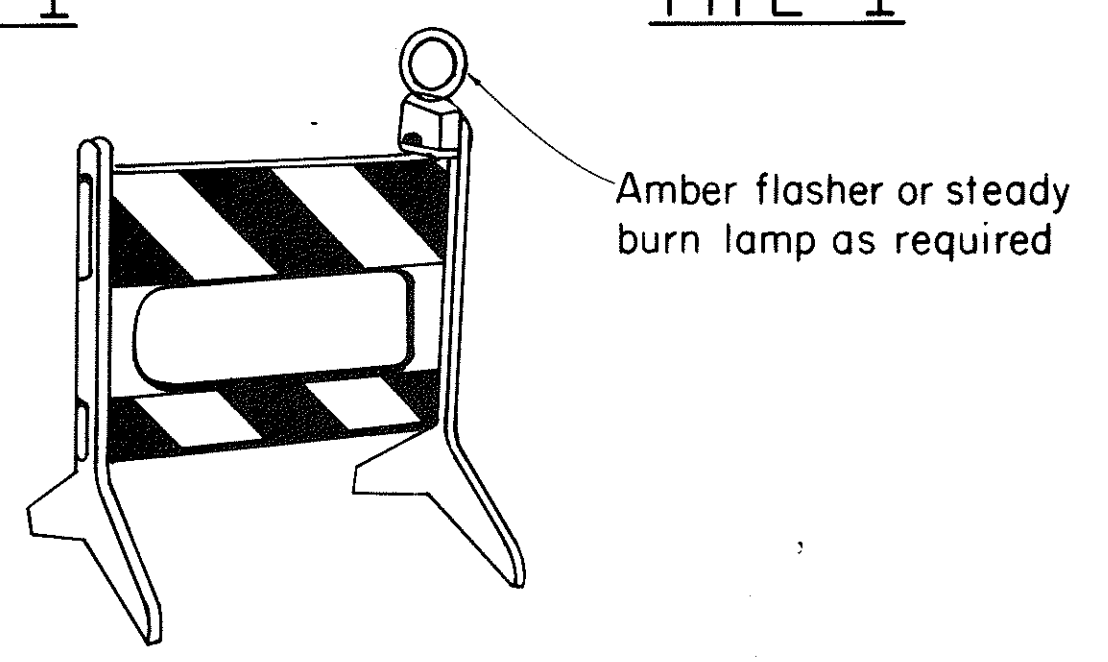
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7R-H1-1160	1982	38	39



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



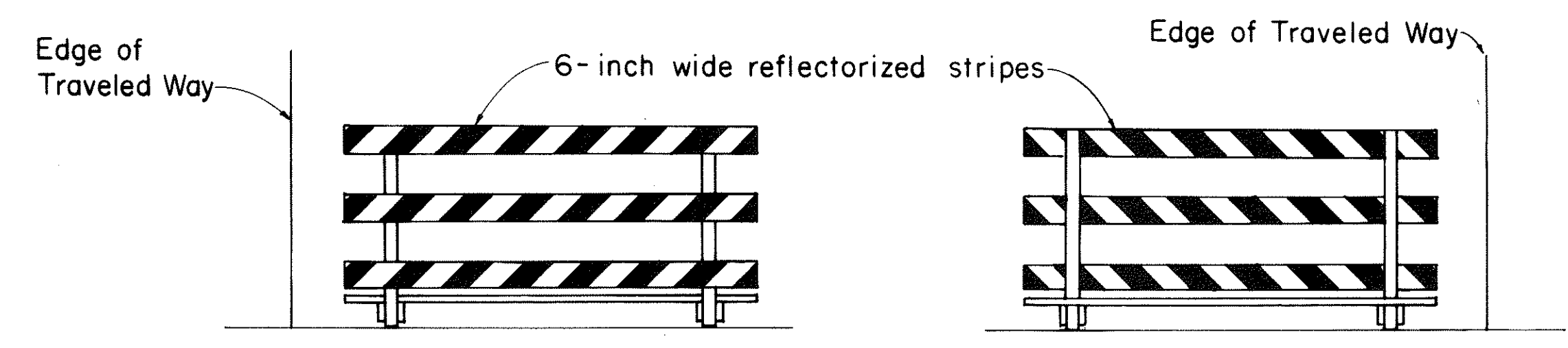
**TYPE I**



**TYPE II**

**PLASTIC MOLDED BARRICADE OPTIONS\***  
Not to Scale

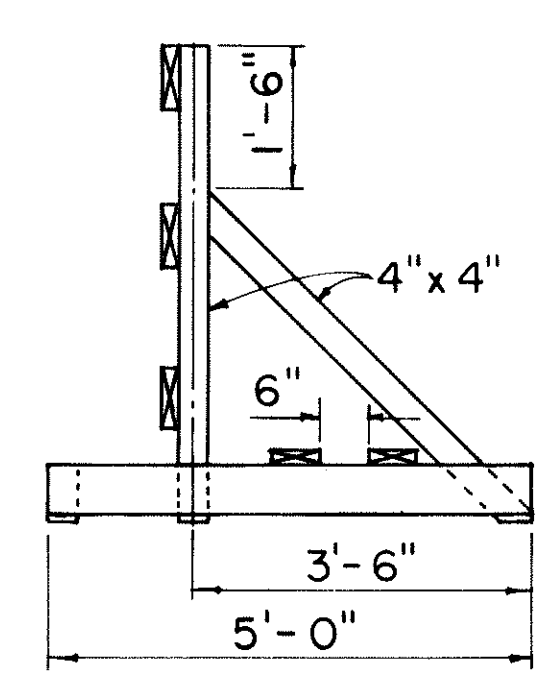
\* Shop Drawings must be submitted for approval.



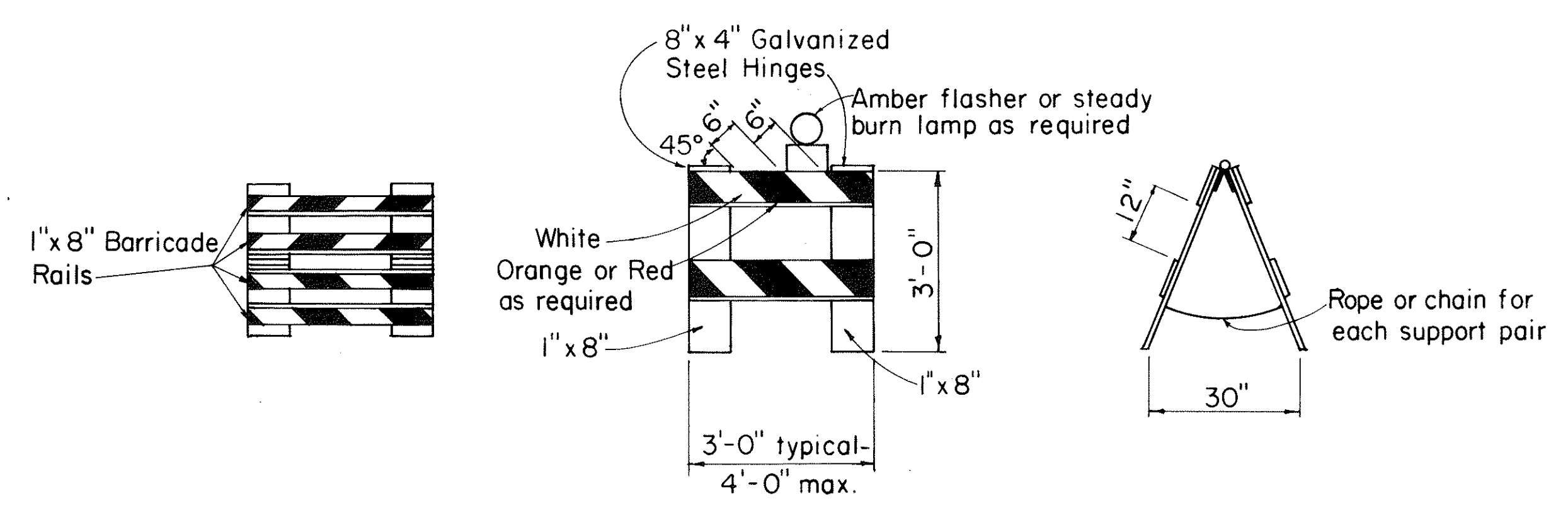
**FRONT FACE**      **BACK FACE**

**TYPICAL BARRICADE STRIPING DETAILS\*\***  
Not to Scale

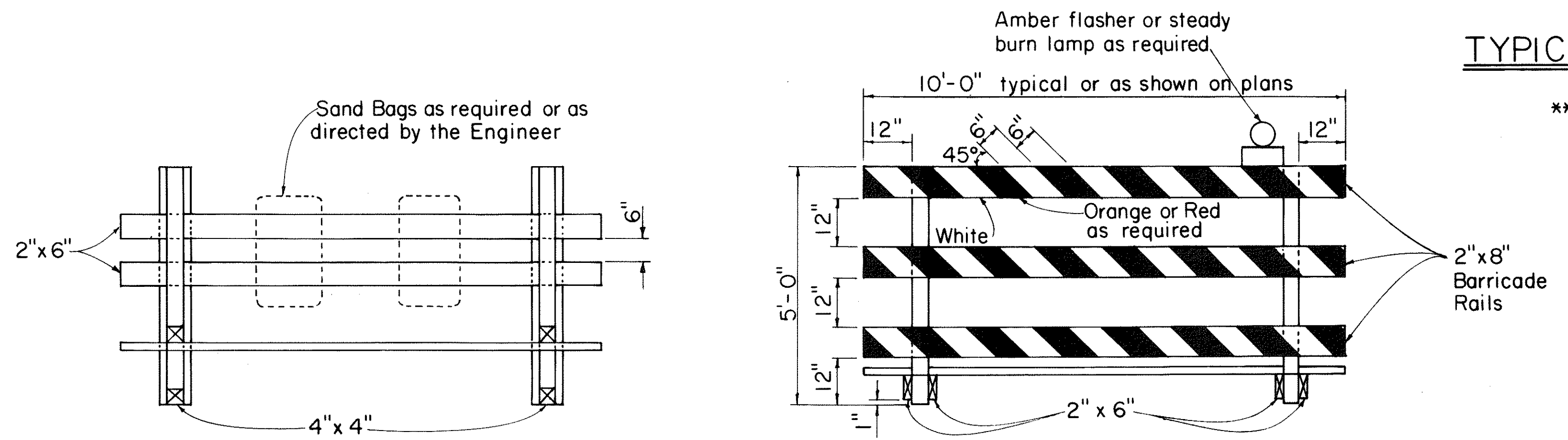
\*\* Similar for Types I & II



**END VIEW**



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



**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.

DATE	_____
SURVEY PLOTTED BY	_____
ORIGINAL PLAN	_____
DRAWN BY	_____
TRACED BY	_____
DESIGNED BY	_____
NOTE BOOK	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

APPROVAL RECOMMENDED:  
*Eiichi Tanaka* 10/21/81  
TRAFFIC ENGINEER DATE

APPROVED:  
*Robert S. Satoishi* 10/23/81  
ASSISTANT CHIEF, ENGINEERING 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. 16 OF 16 SHEETS DT 800