

GENERAL NOTES:

- Locations of existing underground structures & utilities are not shown on the plans. The Contractor shall locate & verify the locations with their respective owners.
- Existing underground structures & utilities damaged by the Contractor shall be repaired at his own cost.
- Locations of all new traffic signal equipment shall be staked out in the field by the Contractor for approval by the Engineer prior to construction & installation.
- All new conduits under roadways & 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.
- All ductlines under asphalt concrete roadways & driveways shall have backfill resurfaced with asphalt concrete Mix V thickness to match existing.
- Pedestrian push button lead-in wires shall be 1-2c#14 cable pulled in the same conduit as loop detector lead-in cables.
- A solid #8 bare copper wire shall be pulled with the 33c#14 traffic control cable for equipment ground. Cost shall be incidental to the installation of the 33c#14 cable.
- Locations of pavement markings as shown on the plans within the traffic signal installation area shall be verified by the Contractor with the Engineer prior to the installation of the traffic signal system.
- Stop signs shall be removed only after traffic signal system becomes operational.
- New traffic signal controller equipment shall be completely wired in the controller cabinet & shall control the traffic signals as called for in the plans.
- The cost of concrete jackets to encase new conduits by-passing existing conduits shall be incidental to new "Conduits".
- Existing traffic signal equipment not incorporated in the new traffic signal system shall be abandoned or removed as directed by the Engineer. All costs incidental to the various traffic signal items.
- Contractor shall install meter socket & breaker on a 2" steel conduit attached to the back of the controller cabinet in accordance with HELCO requirements. Meter socket shall be 4-prong complete with a manual circuit closing device. A 50 AMP circuit breaker in a weatherproof box shall also be installed.
- A 2-8 phase controller with fire emergency vehicle preemption capacity shall be furnished complete & ready for operation.

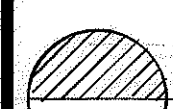
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	67	214

LEGEND

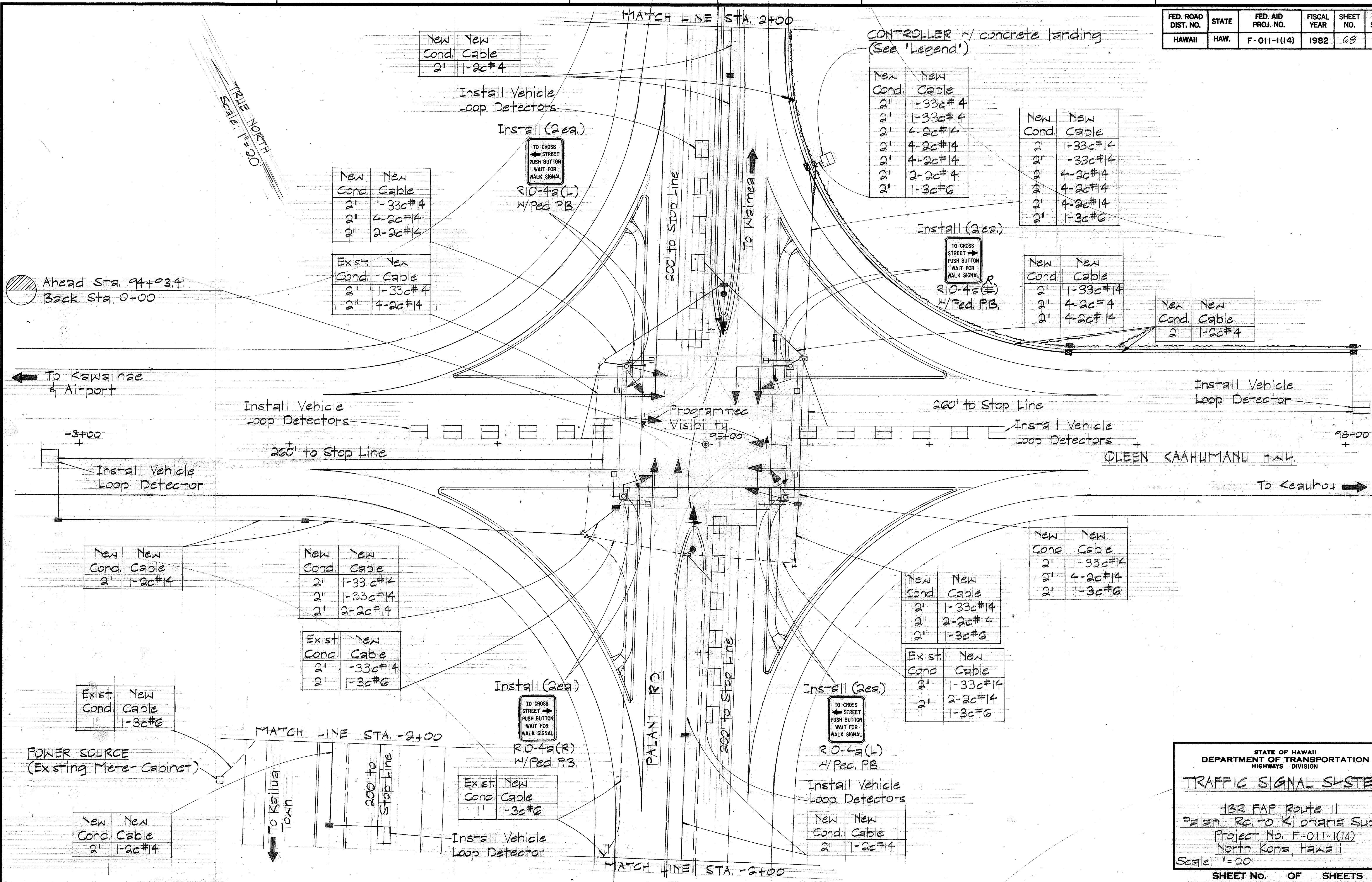
- New 12" R4↑ traffic signal head.
- New 12" R4← traffic signal head (Programmed Visibility when called for on plans).
- New pedestrian symbol indication.
- New Type I Traffic Signal Standard with signal heads as indicated on plans.
- New Type II Traffic Signal Standard with length mastarm & signal heads as indicated on plans.
- New ductline (conduits & cables as indicated on plans).
- Existing ductline (conduits & cables as indicated on plans).
- New Type "A" pullbox
- New Type "B" pullbox
- Existing pullbox
- New traffic signal system controller with 4" thick concrete landing across entire face of controller cabinet.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION					
GENERAL NOTES & LEGEND					
H3R FAP Route 11					
Palani Rd. to Kilohana Subd.					
Project No. F-011-1(14)					
North Kona, Hawaii					
Scale: None					
SHEET NO. OF SHEETS					

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	68	214

 Ahead Sta. 94+93.4
 Back Sta. 0+00

TRUE NORTH
 Scale: 1"=20'



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

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TRAFFIC SIGNAL SYSTEM
 HBR FAP Route 11
 Palani Rd. to Kiohaha Subd.
 Project No. F-011-1(14)
 North Kona, Hawaii
 Scale: 1"=20'
 SHEET NO. 68 OF 68

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	69	214

Existing emergency overhead traffic light

TRUE NORTH
Scale: 1"=20'

To Waimea

Tie-in new 1-2c#14 (Fire Preemption cable) to existing Fire Preemption cable in existing HELCO pullbox in accordance w/ HELCO requirements.

New Cond.	New Cable
2"	1-2c#14

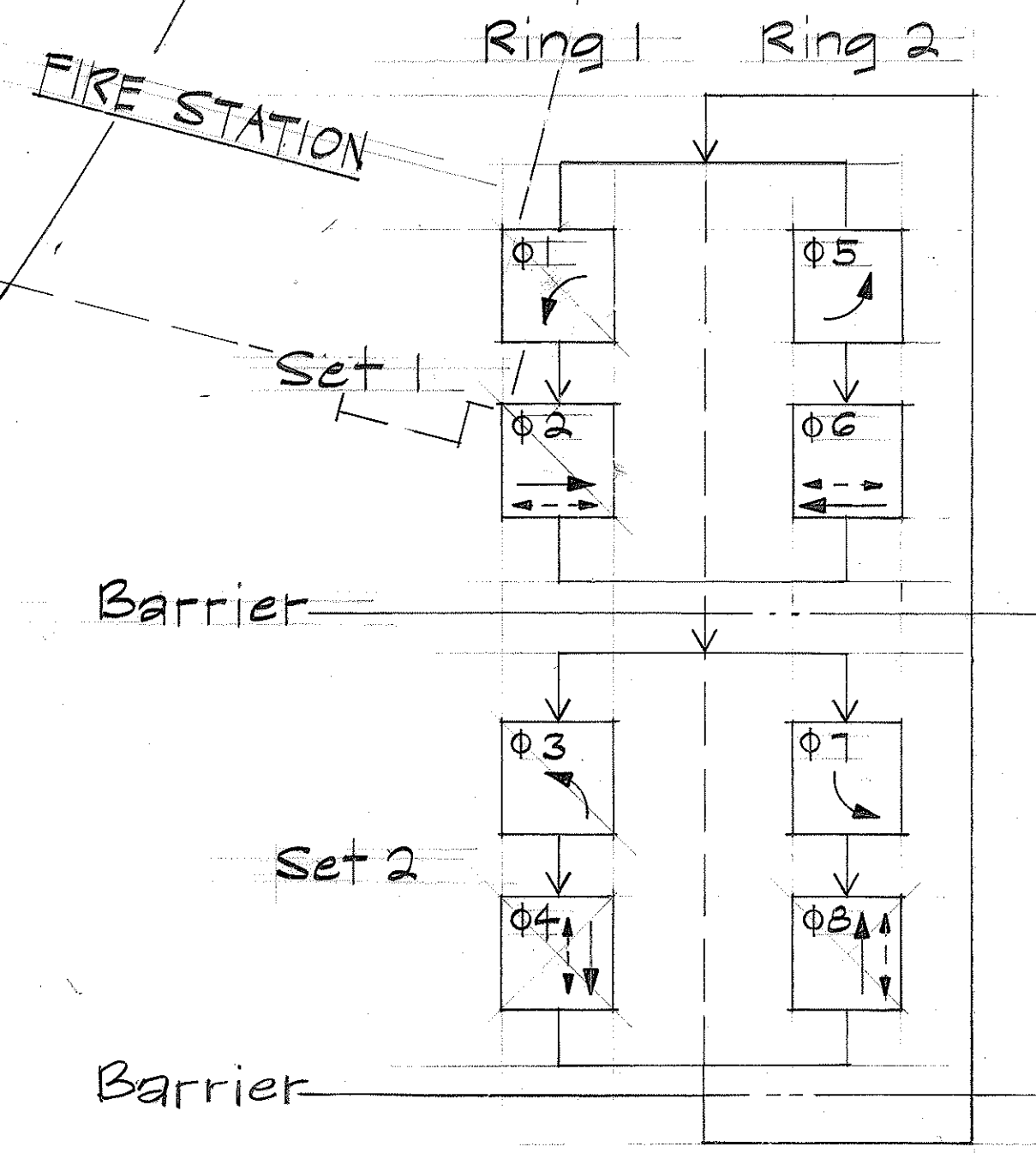
Remove or abandon existing Fire Preemption cable & conduit.

New Cond.	New Cable
2"	1-2c#14

Install Vehicle Loop Detector

200' to Stop Line

MATCH LINE STA 2+00

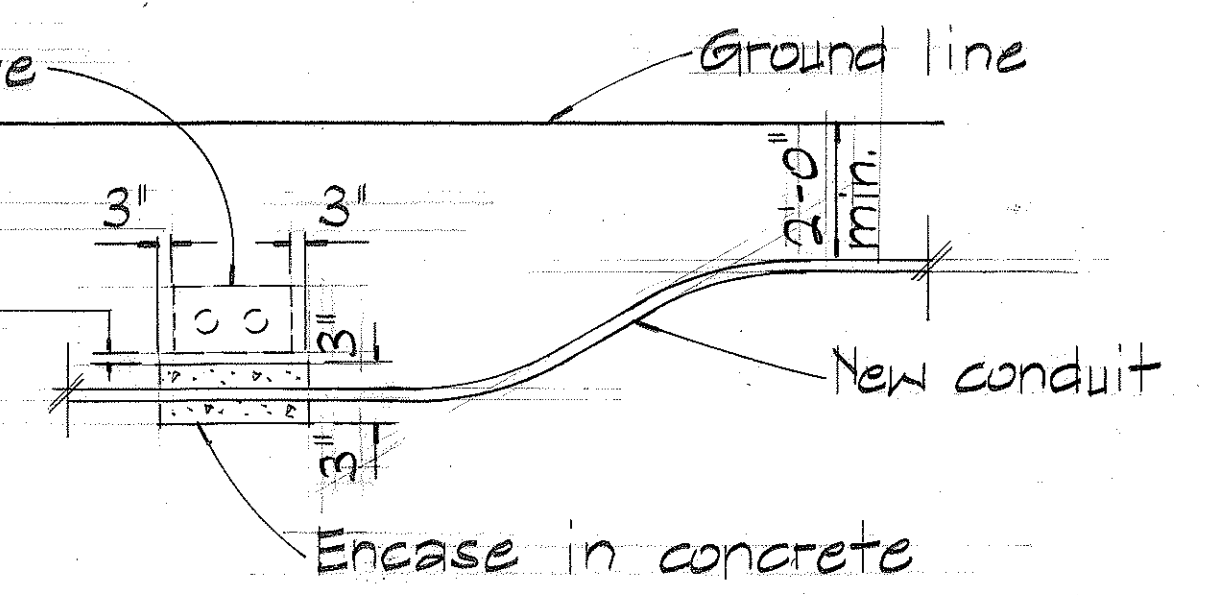


PHASE DIAGRAM

NOTE:
Provide preemption to 4 & 7 for fire emergency vehicle.

Existing conduit encased in concrete

No clearance required



CONDUIT B4-PASS DETAIL

Not to Scale

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

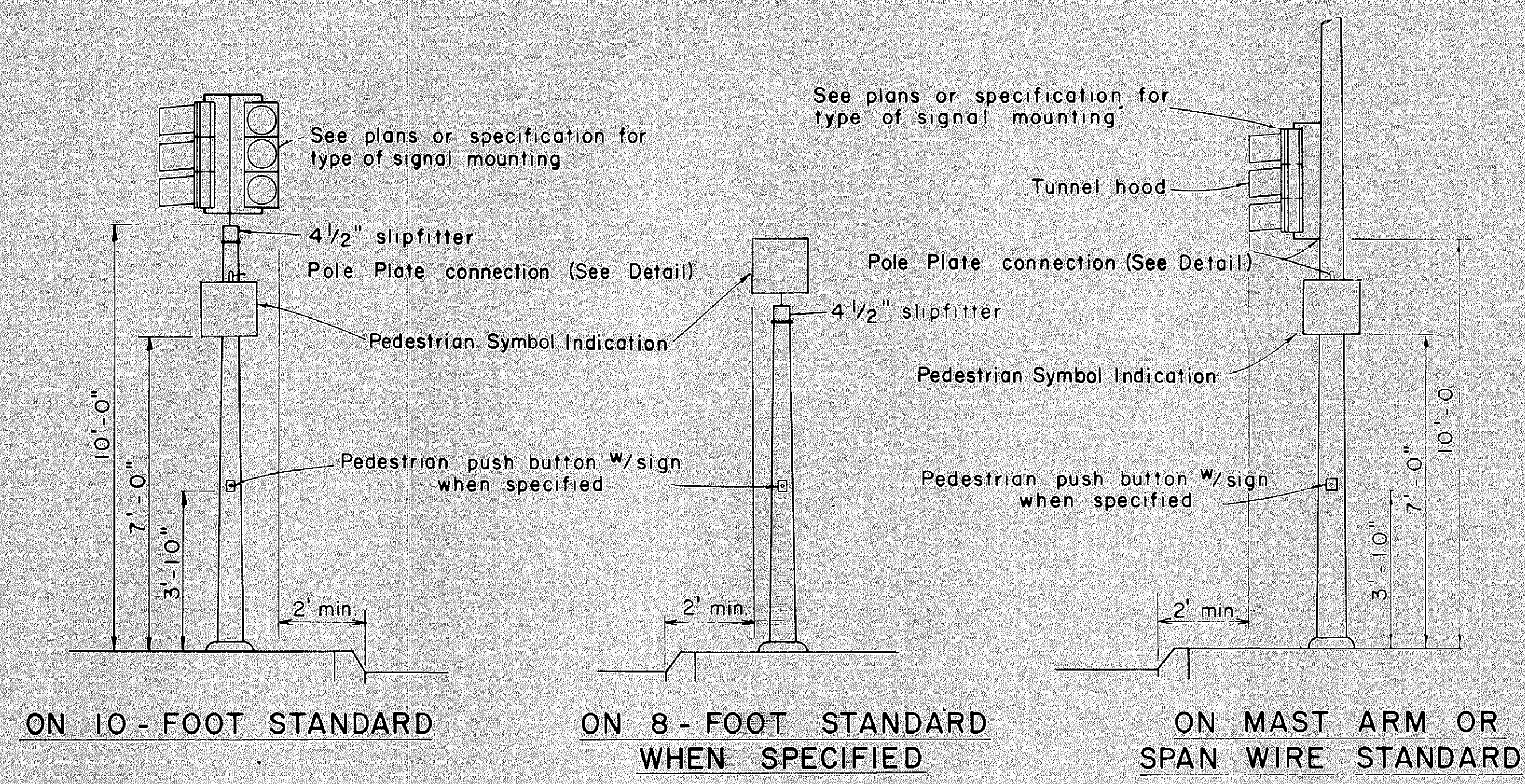
TRAFFIC SIGNAL SYSTEM

HBR FAP Route 11
Palani Rd to Kihohana Subd.
Project No. F-011-1(14)
North Kona, Hawaii

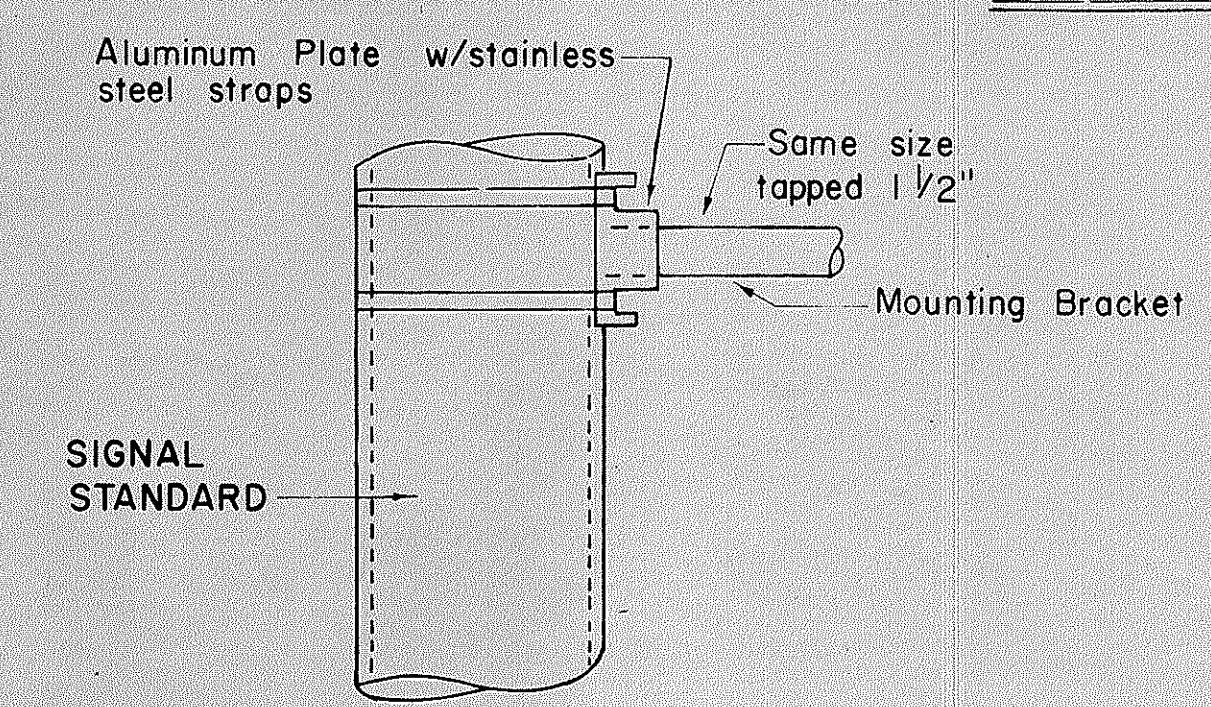
Scale: 1"=20'

SHEET NO. 69 OF 69 SHEETS

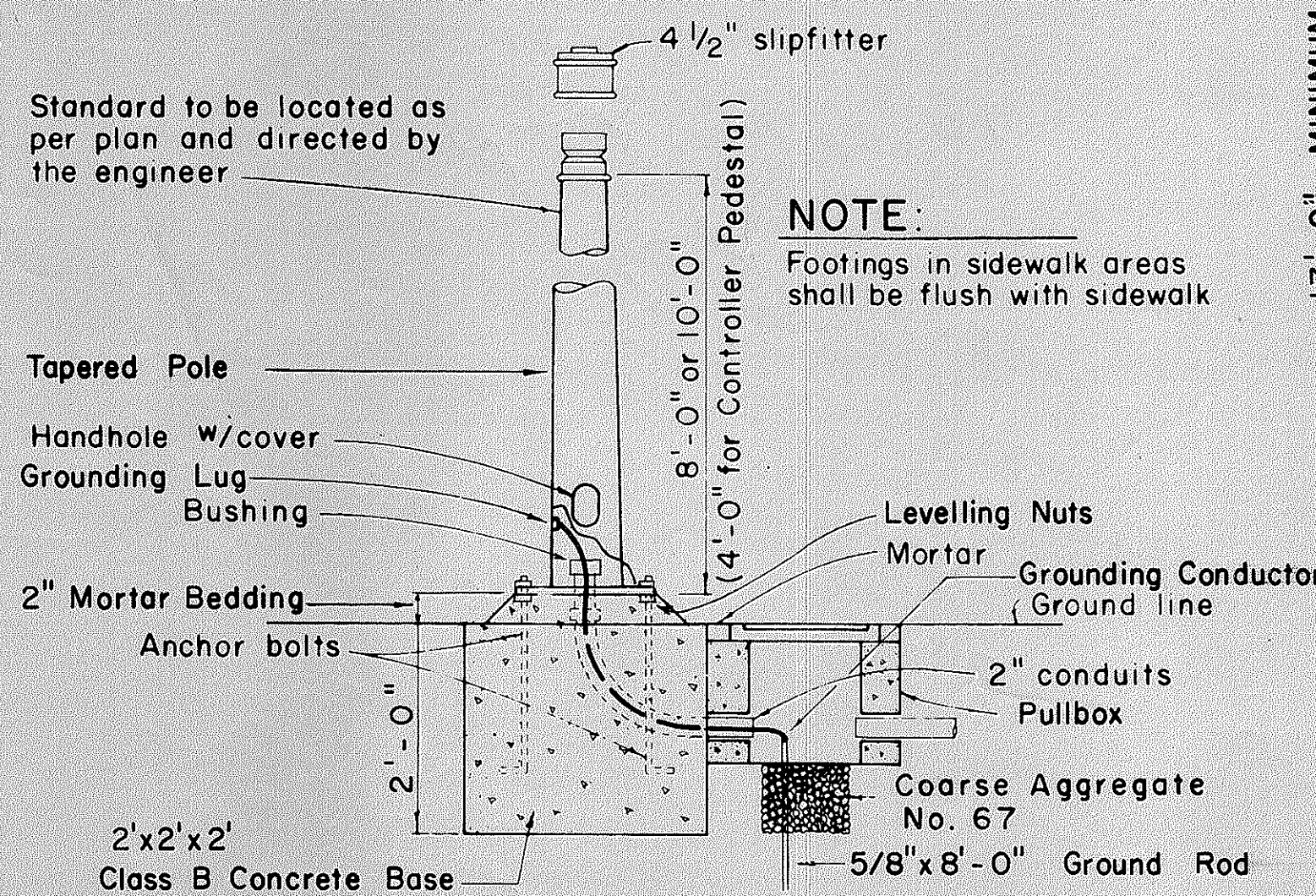
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	70	214



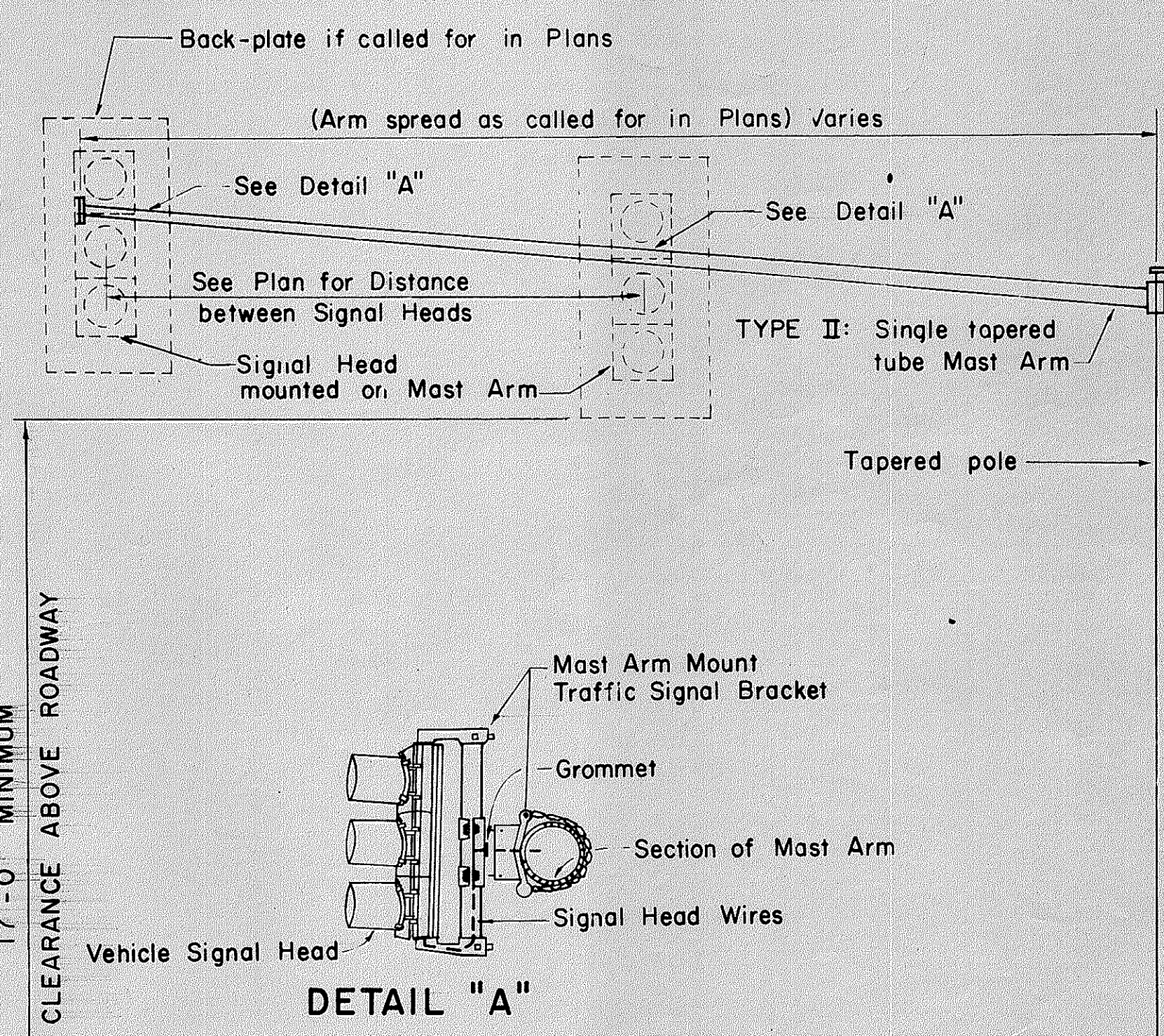
TYPICAL EQUIPMENT MOUNTINGS



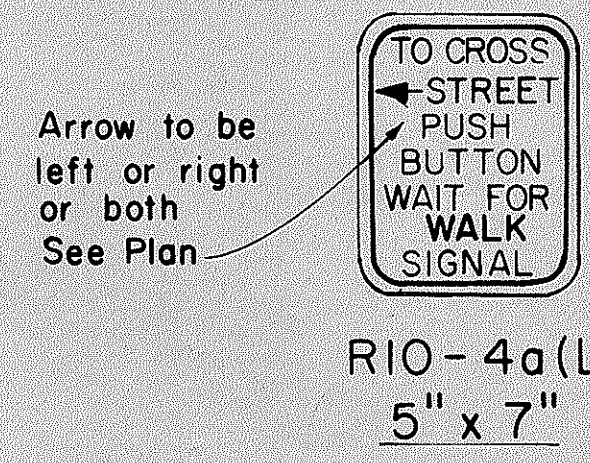
DETAIL OF POLE PLATE CONNECTIONS



TYPE I SIGNAL STANDARD OR CONTROLLER PEDESTAL AND FOOTING



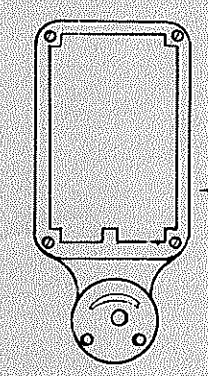
TYPE II MAST ARM AND STANDARD



PEDESTRIAN PUSH BUTTON

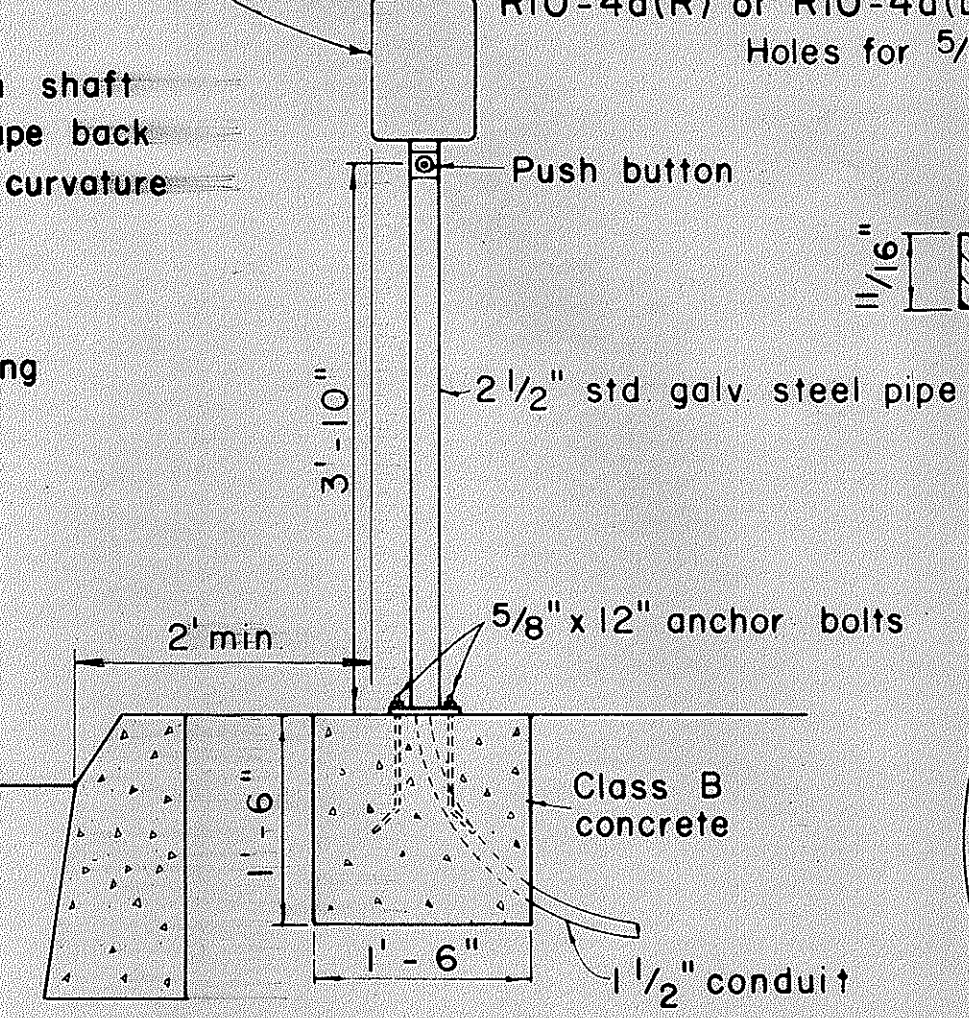
- NOTE:**
1. Conduits shall protrude 2" max. above finished surface of foundation.
 2. Conduits shall slope away from pole foundation.

When mounted on shaft of Standard, shape back of Housing to fit curvature of Shaft

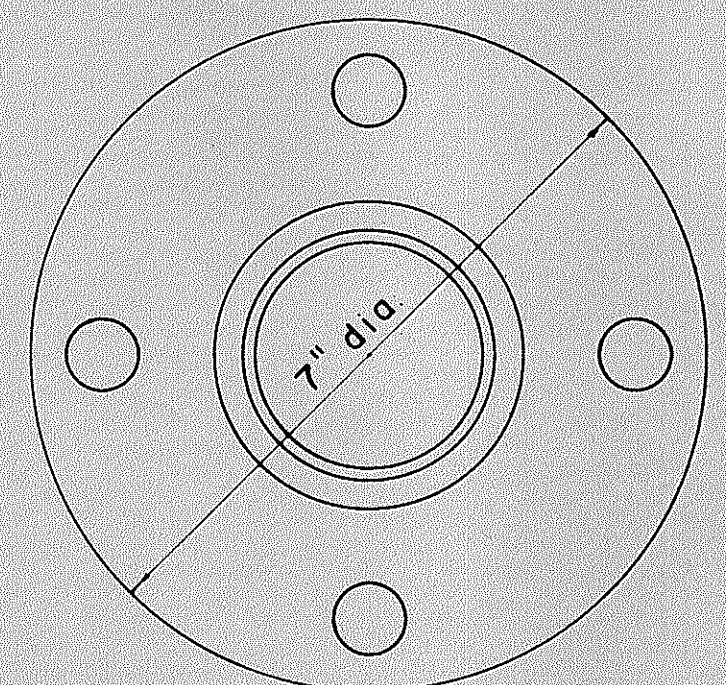


Push button Housing

TRAFFIC SIGN AS SPECIFIED IN PLAN
"TO CROSS STREET (ARROW) PUSH BUTTON WAIT FOR WALK SIGNAL", R10-4a(L)
R10-4a(R) or R10-4a(L & R)

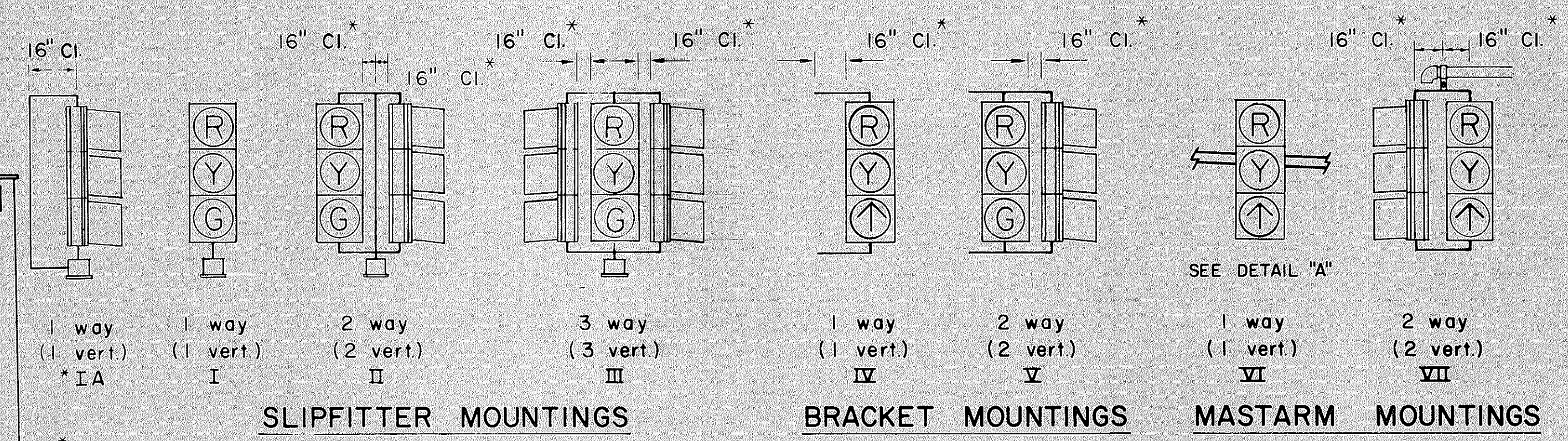


SECTION



BASE DETAIL

PEDESTRIAN PUSH BUTTON POST AND FOOTING

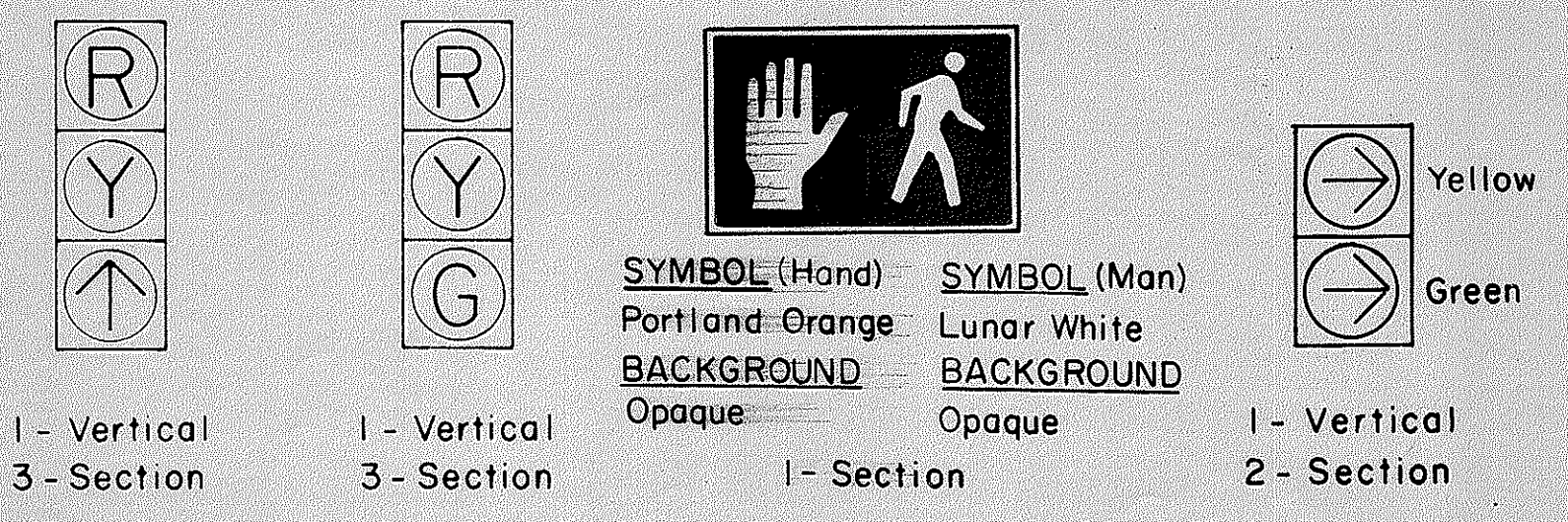


SLIPFITTER MOUNTINGS

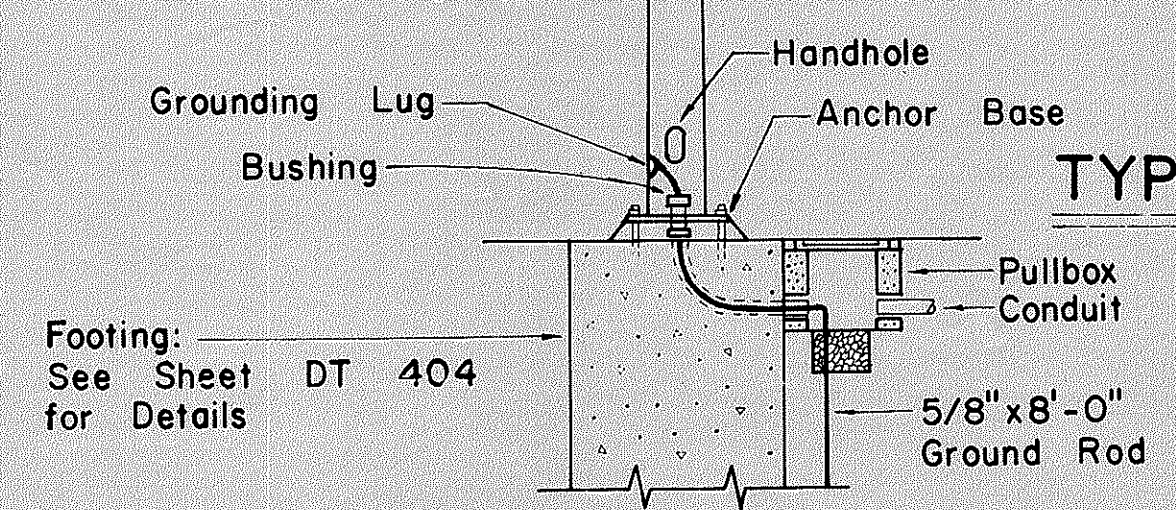
BRACKET MOUNTINGS

MASTARM MOUNTINGS

TYPICAL VEHICULAR AND PEDESTRIAN SIGNAL MOUNTINGS



TYPICAL SIGNAL ARRANGEMENTS



NO.	REVISION	APPROVED BY	DATE
1	Revise code nos. for Pedestrian Push Button signs.	H.T.	3/23/12
2	Revise Details of Traffic and Pedestrian Signals, Standards and Pedestrian Push Button and Signs.	H.T.	3/5/12
3	Revise signal indications.	H.T.	9/22/10
4	Remove Note No. 3 & Revise clearance and dimension.	H.T.	9/19/11
5	Revise Ped. Signal Indication	H.T.	8/6/80

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

John E. Egan
ASSISTANT CHIEF, ENGINEERING
12/29/69
DATE

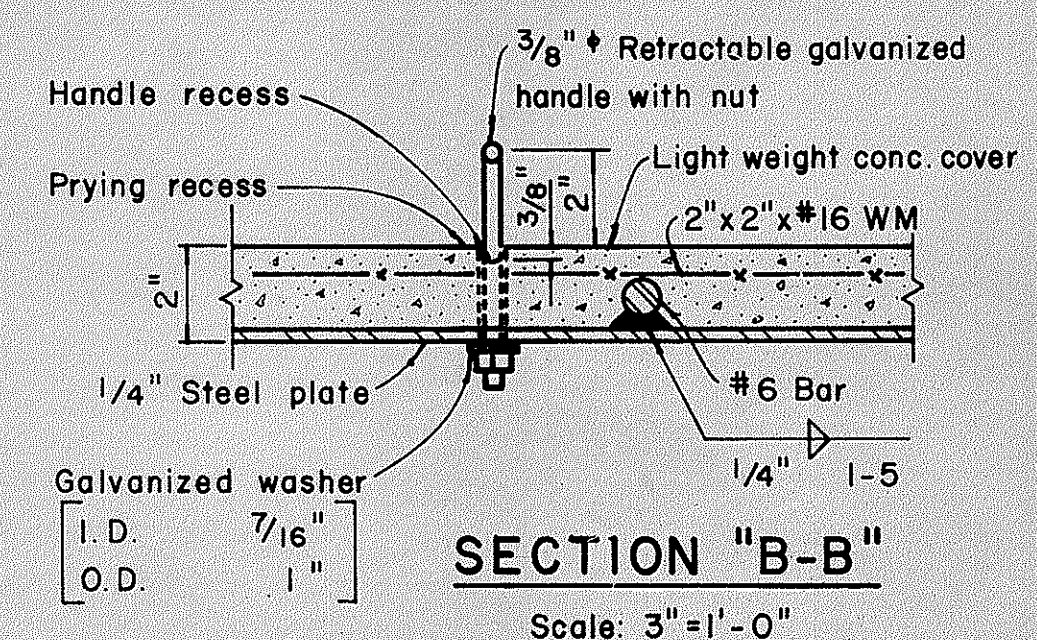
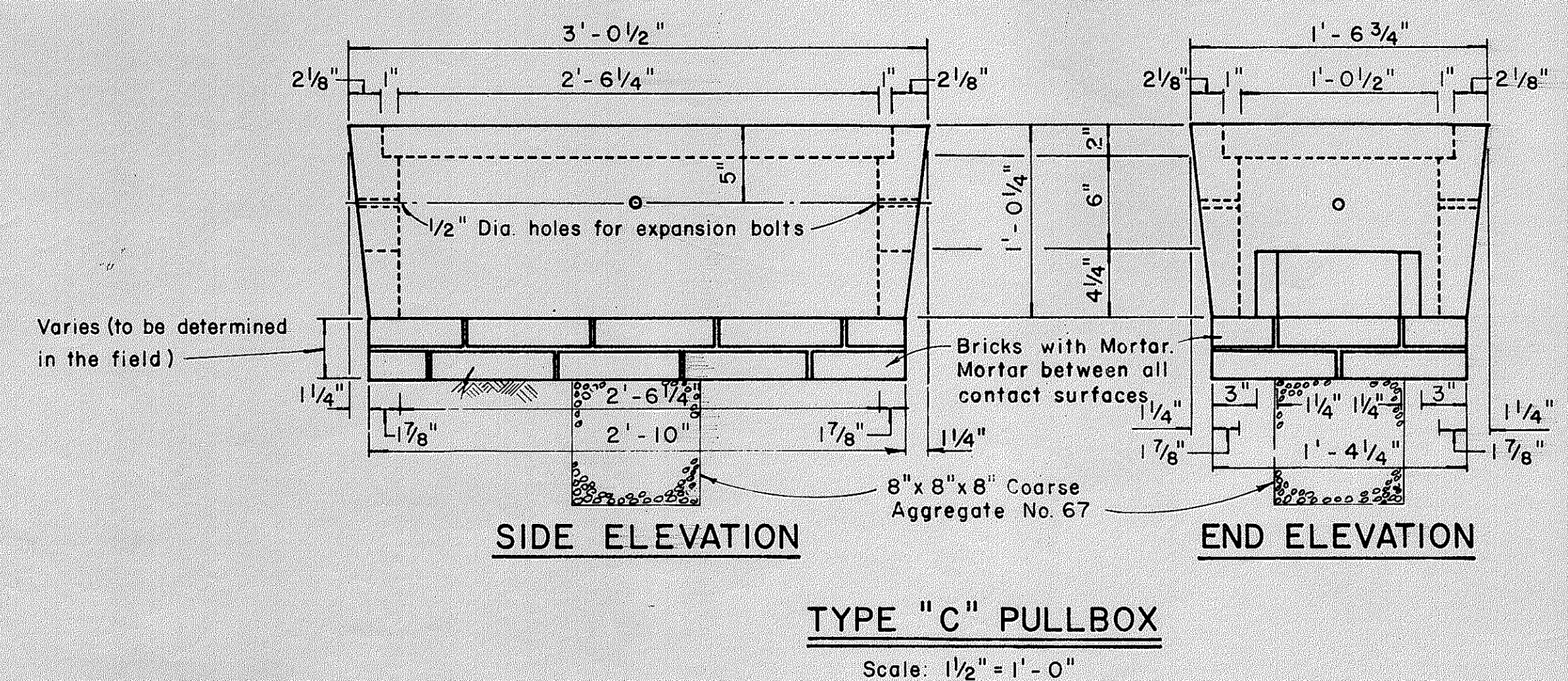
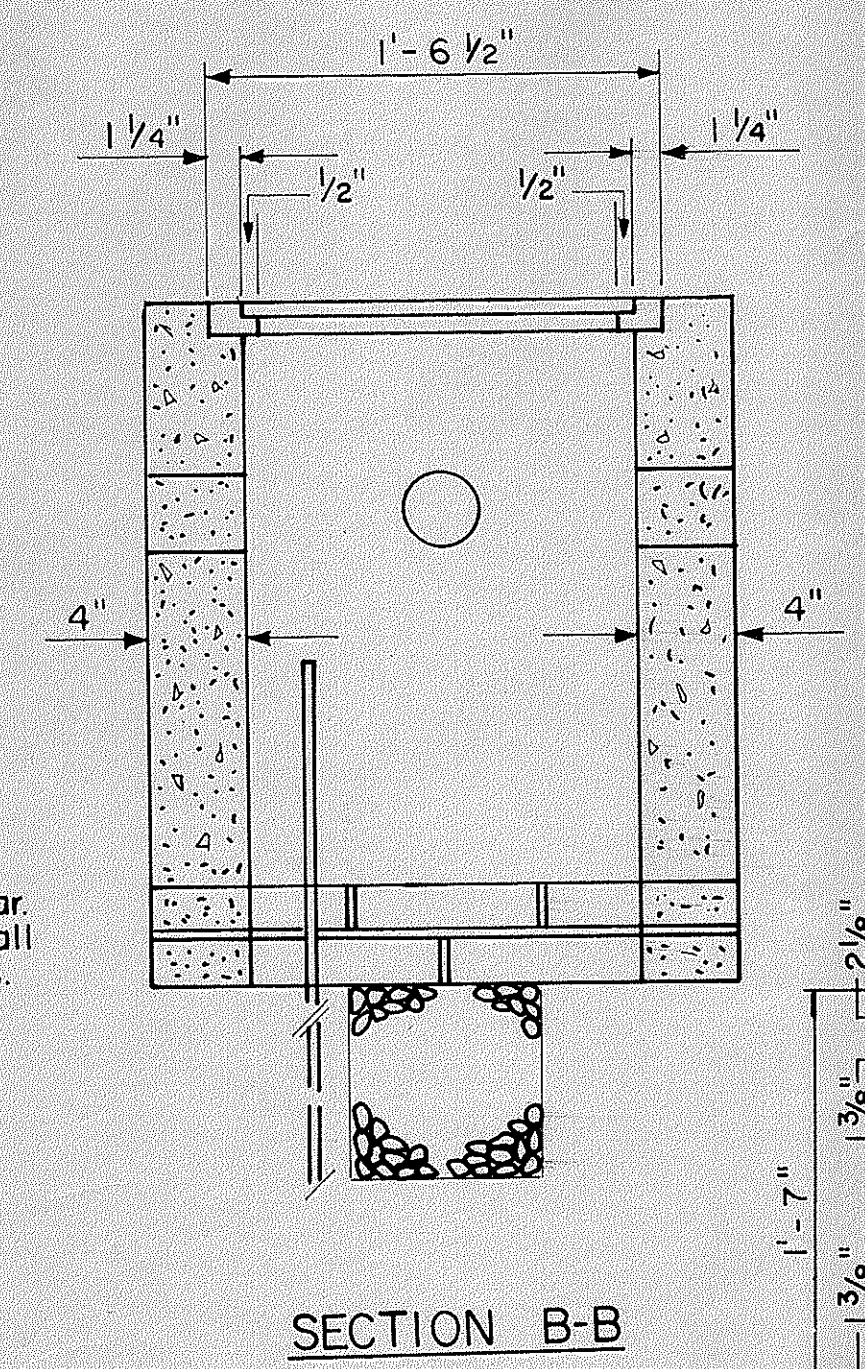
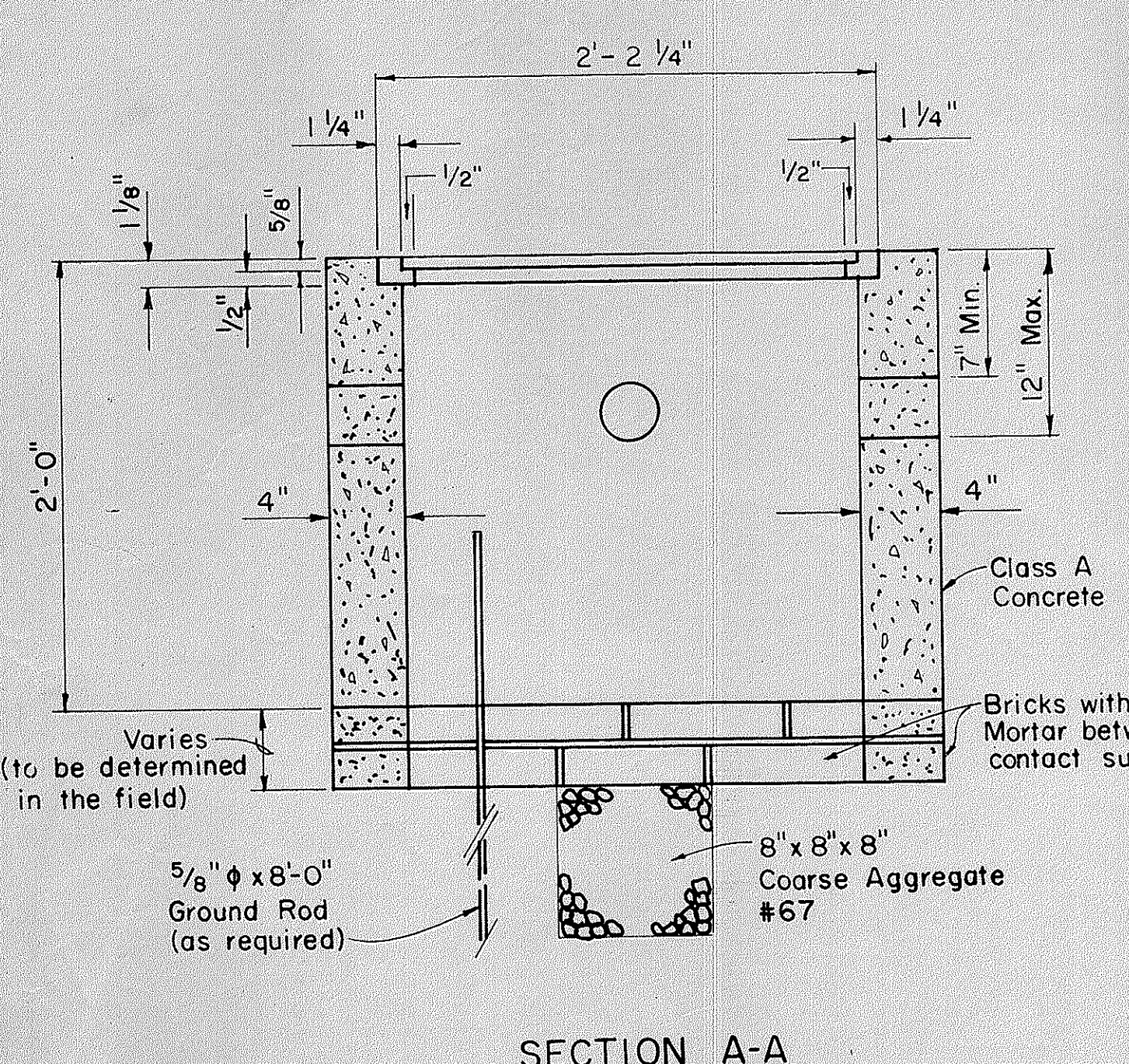
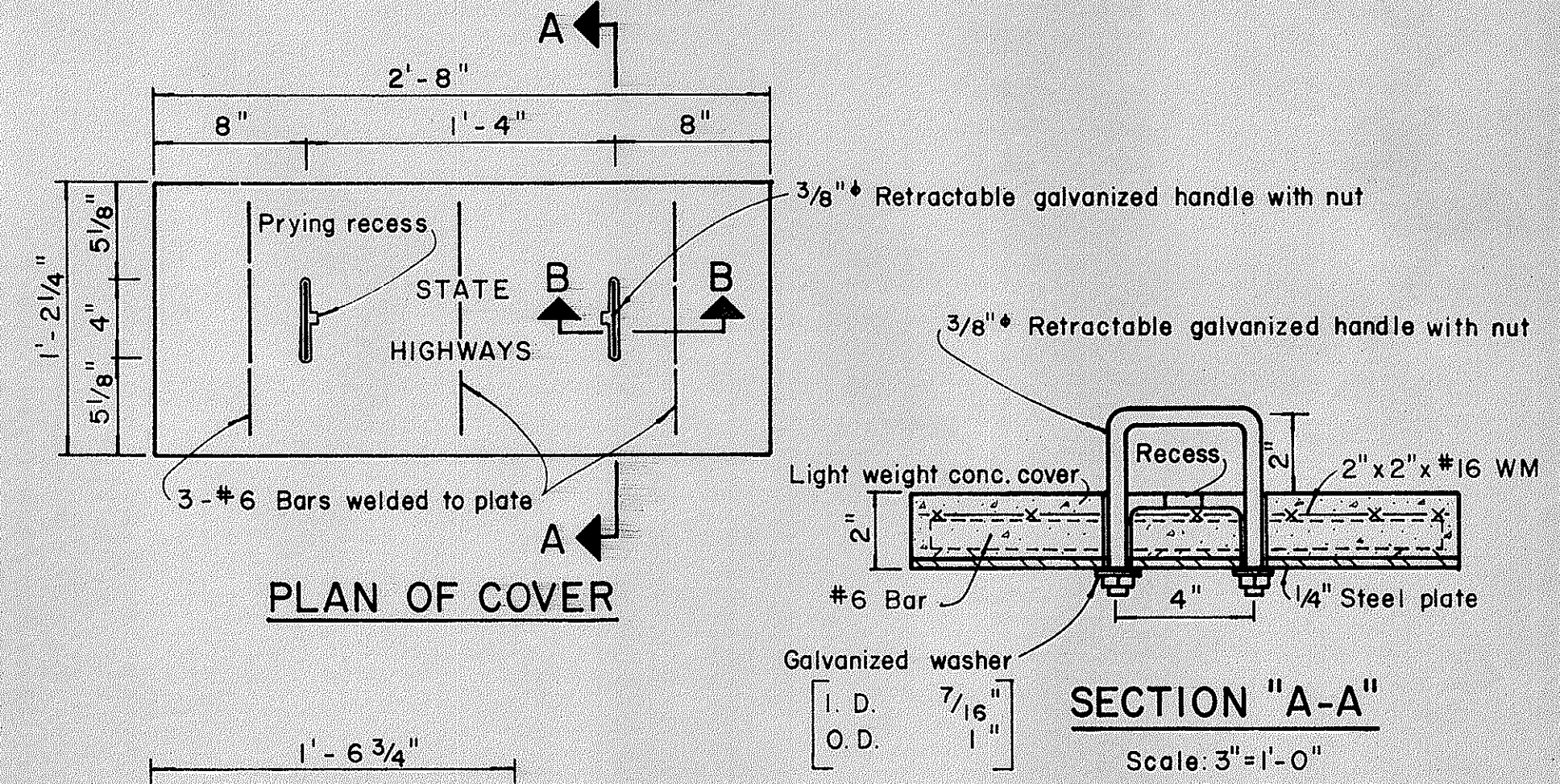
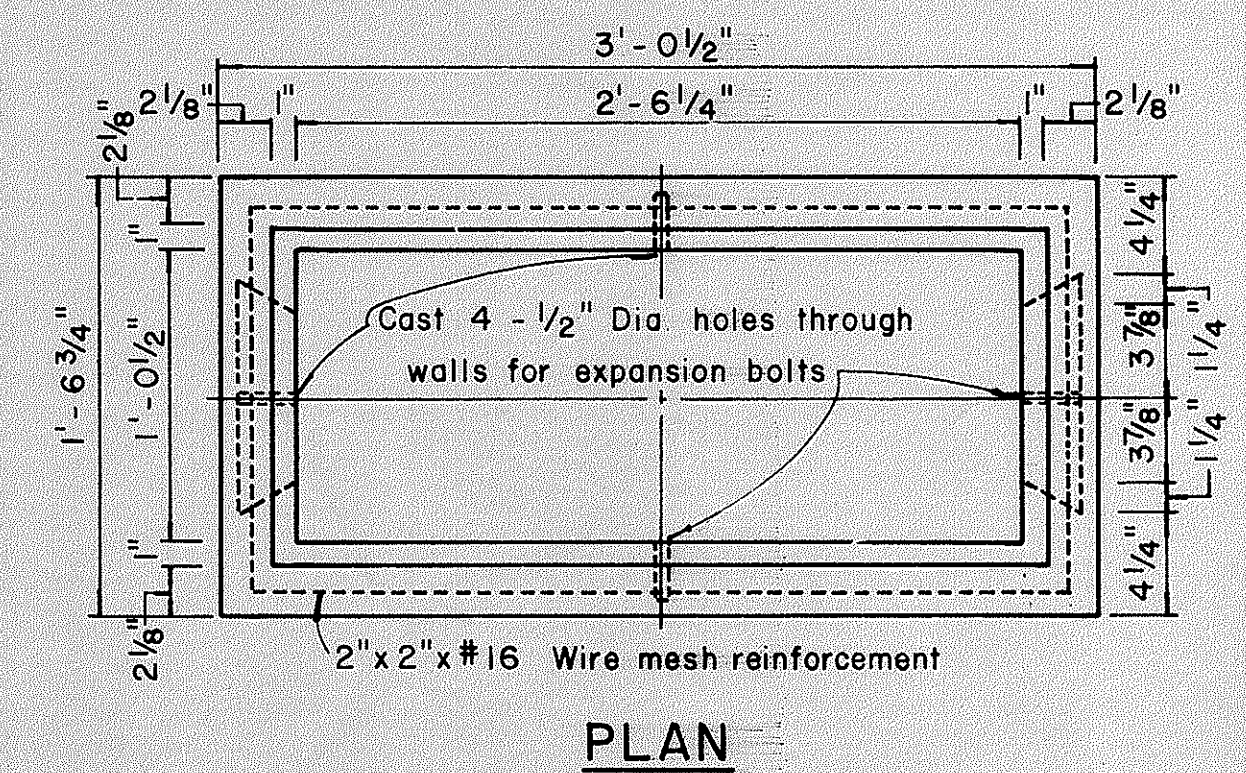
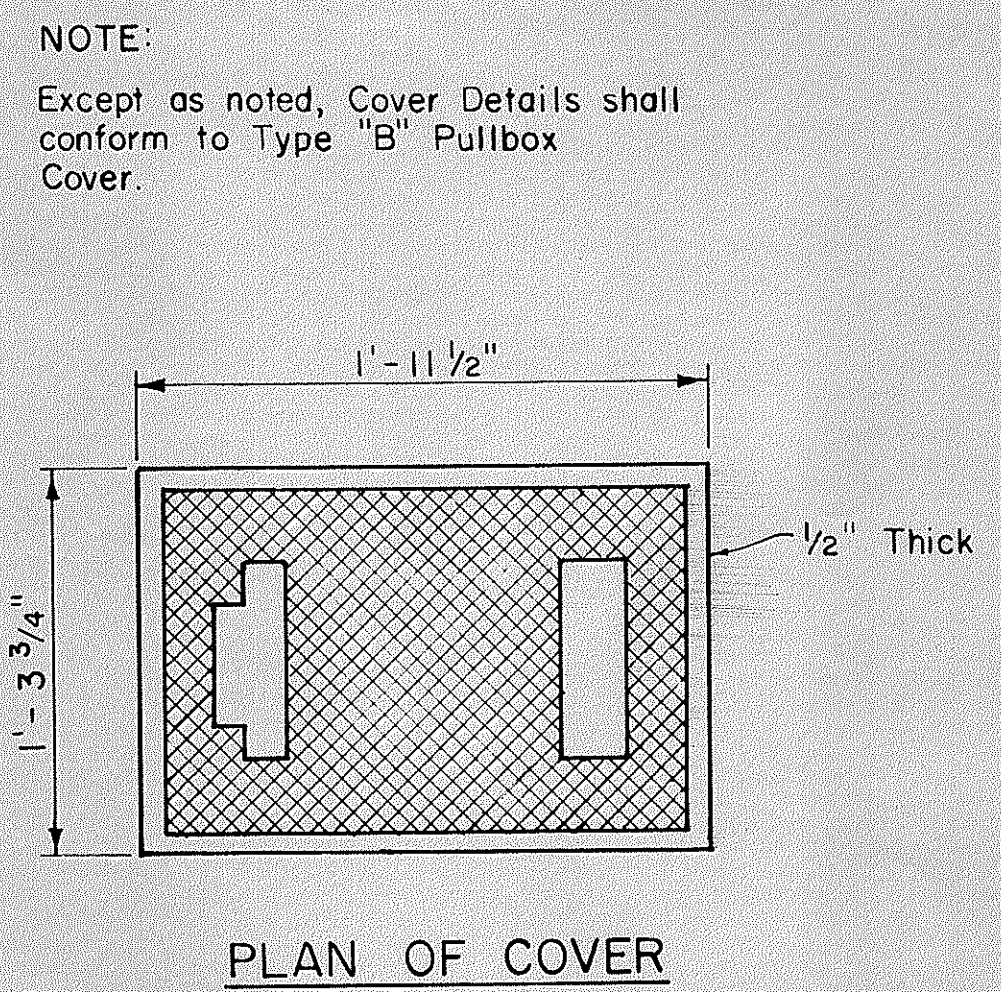
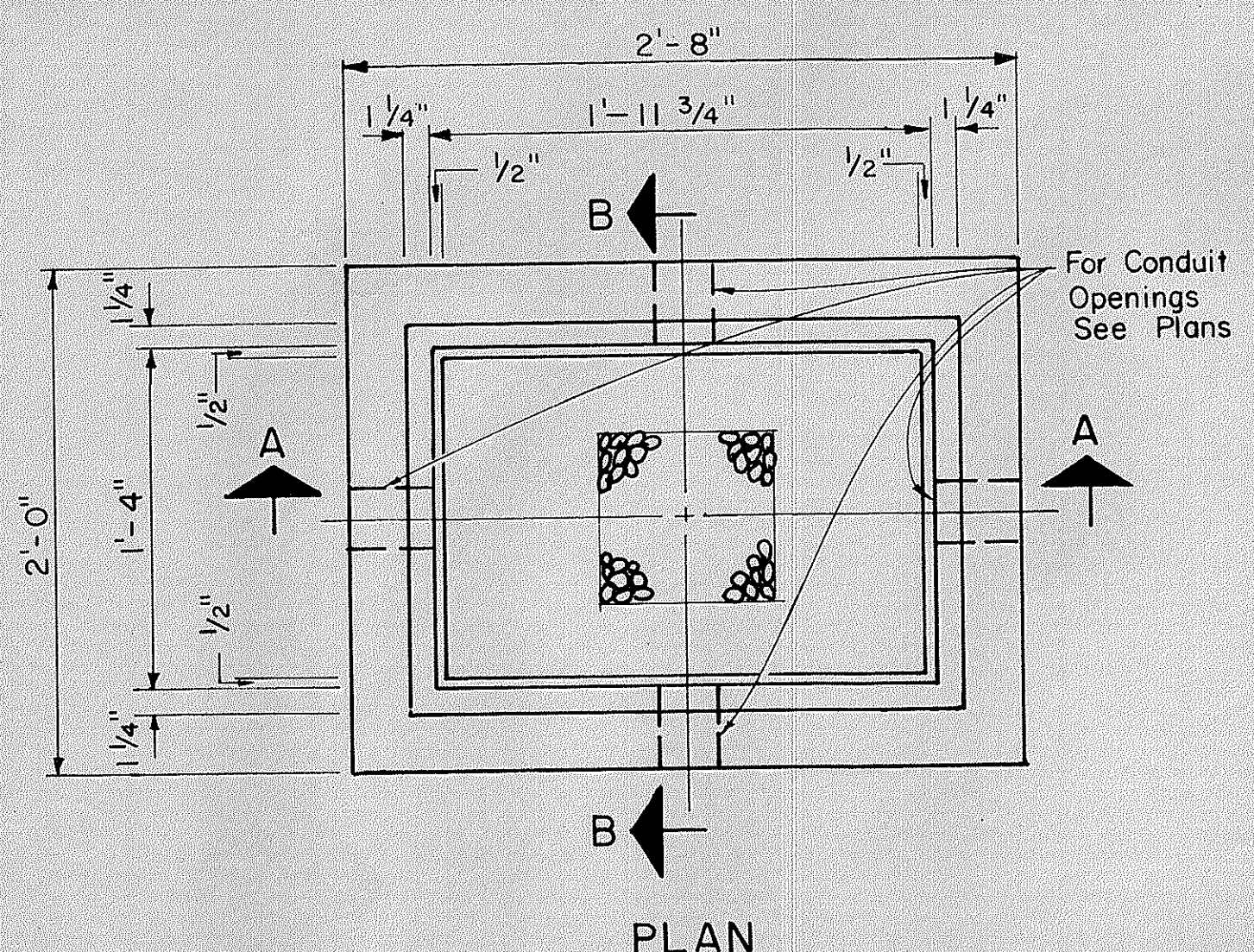
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL SYSTEM
MISCELLANEOUS DETAILS

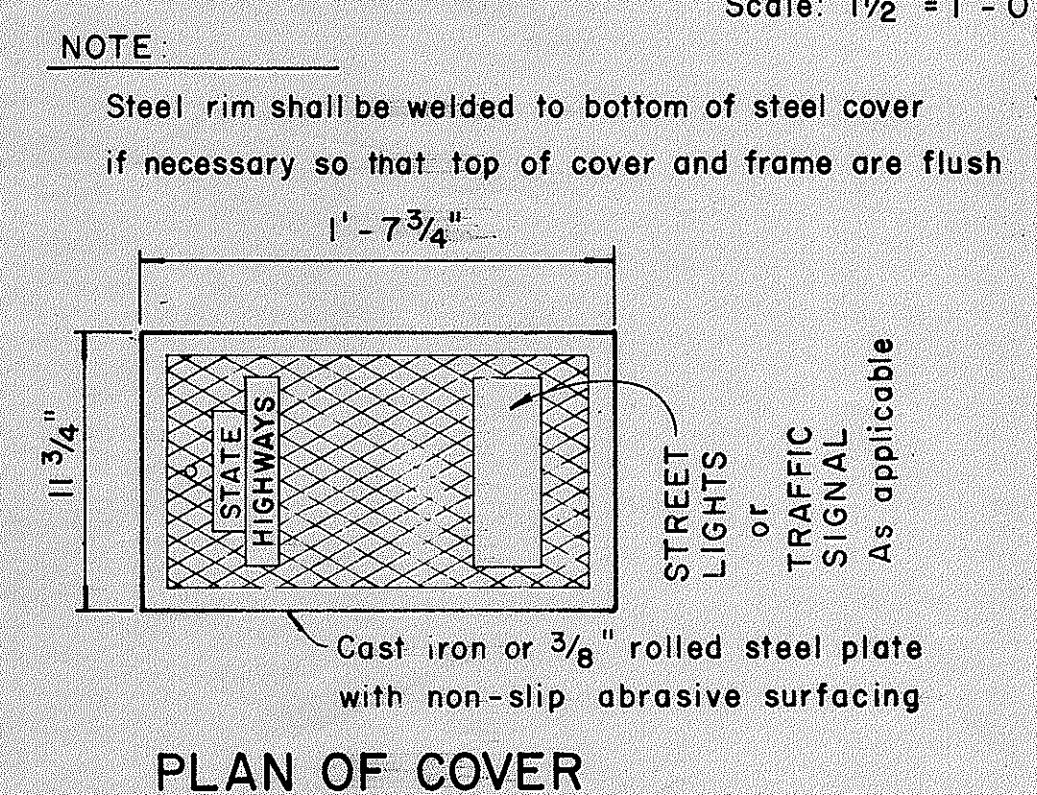
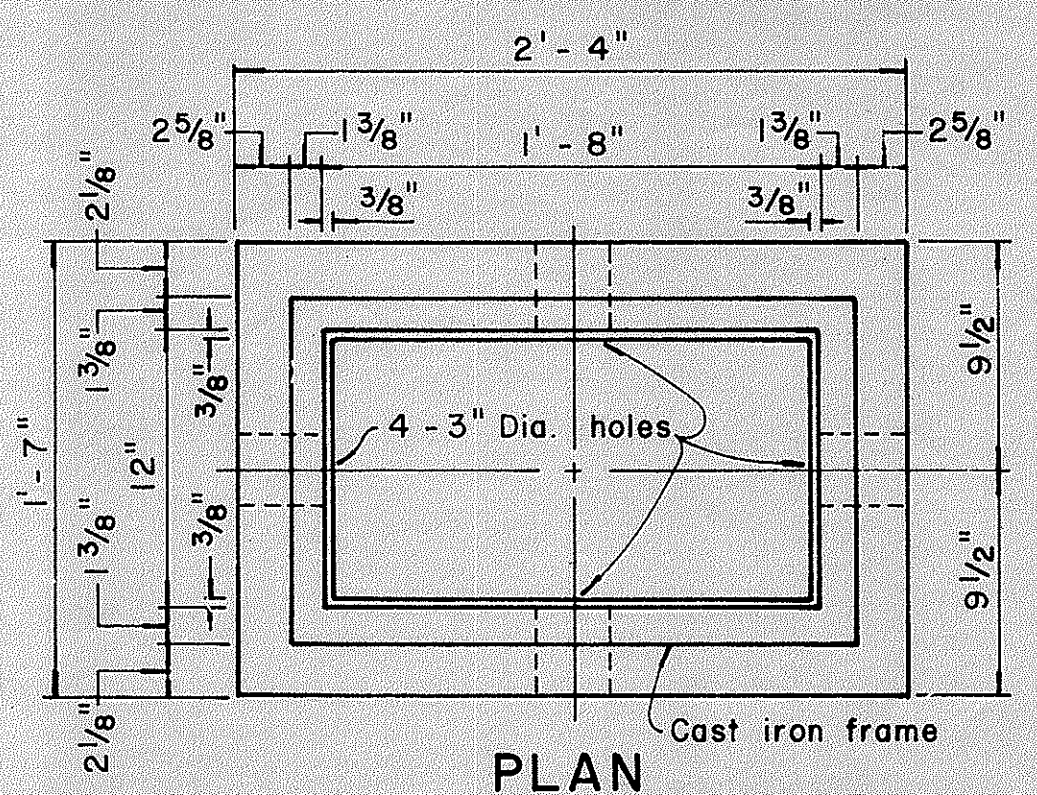
Not to Scale

SHEET No. OF SHEETS DT 400

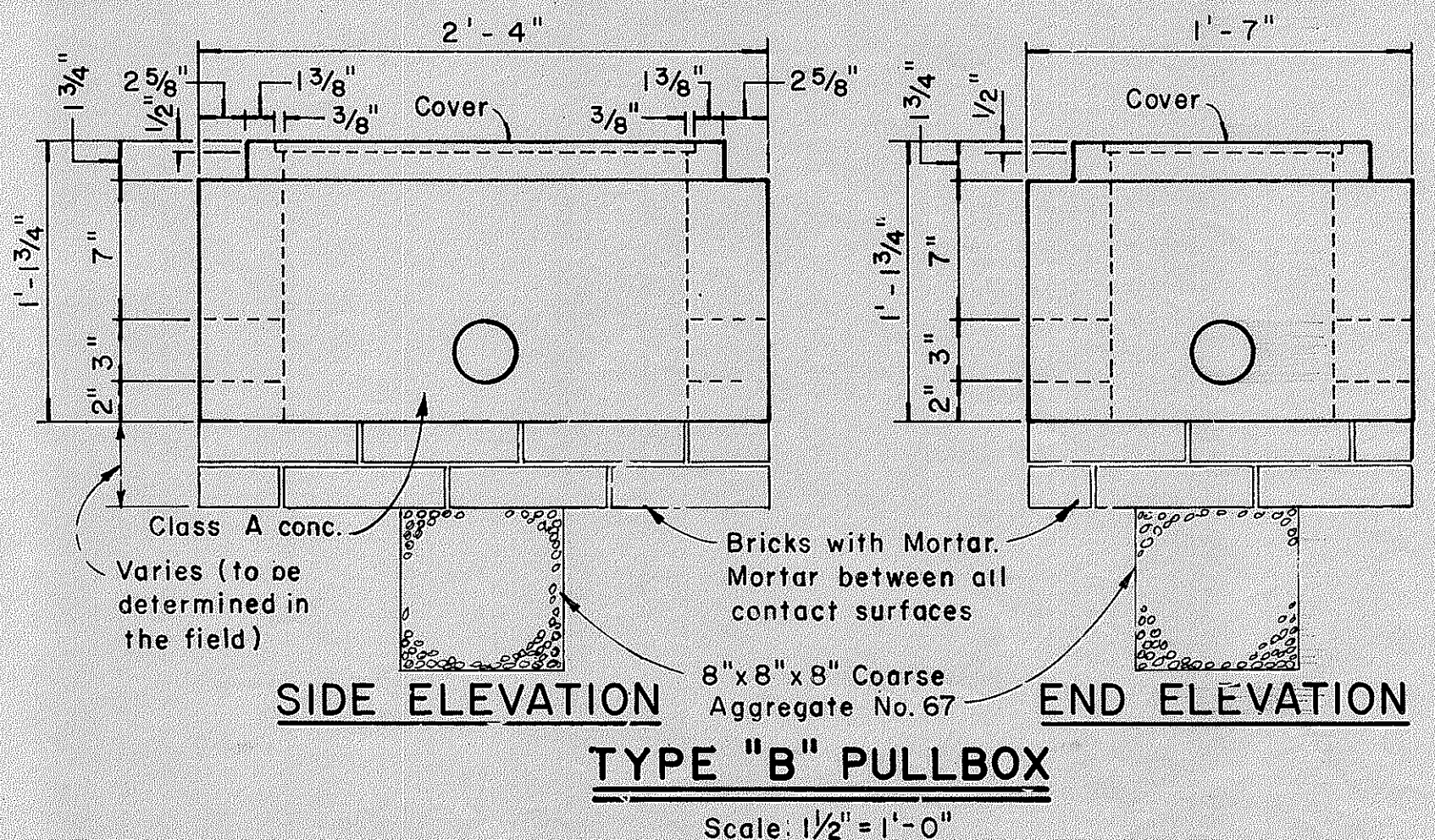
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	71	214



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

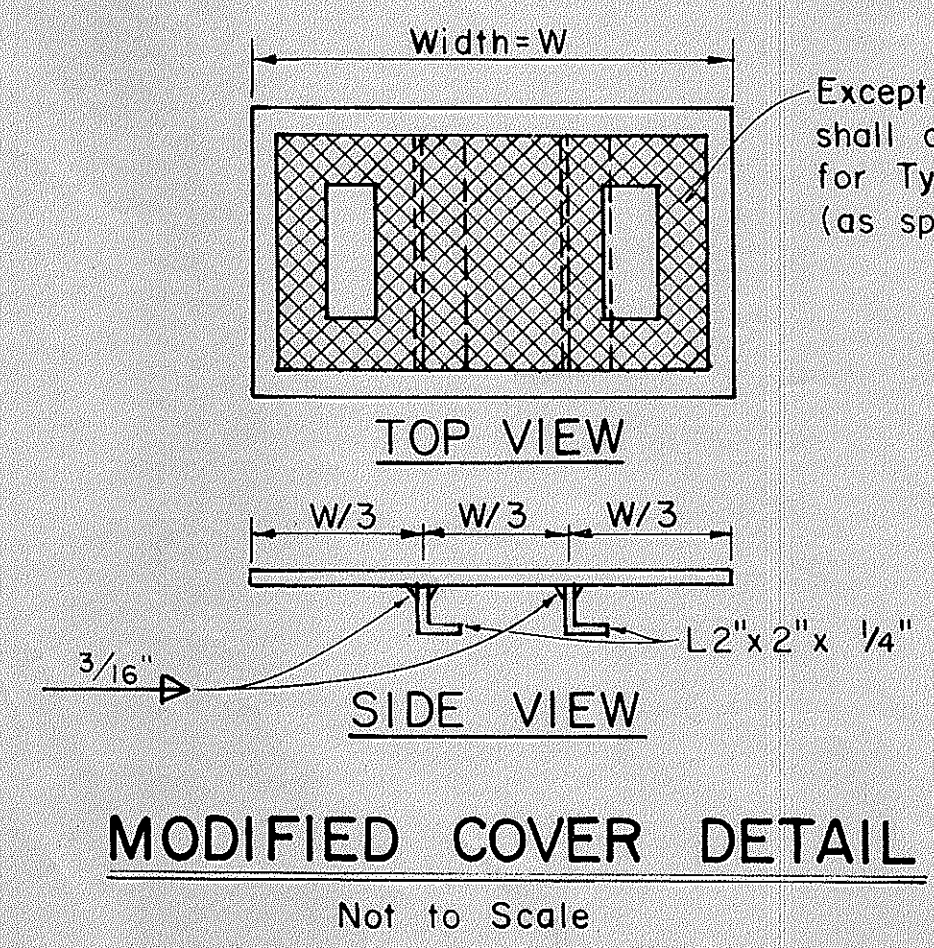


NOTE:
Steel rim shall be welded to bottom of steel cover if necessary so that top of cover and frame are flush



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

DATE	12/29/62
DESIGNED BY	...
CHECKED BY	...
NOTED BY	...
ORIGINAL PLAN	...
TRACED BY	...
NOTE BOOK	...



Except where noted, details shall conform to cover details for Type "A" or Type "B" Pullbox (as specified on plans).

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

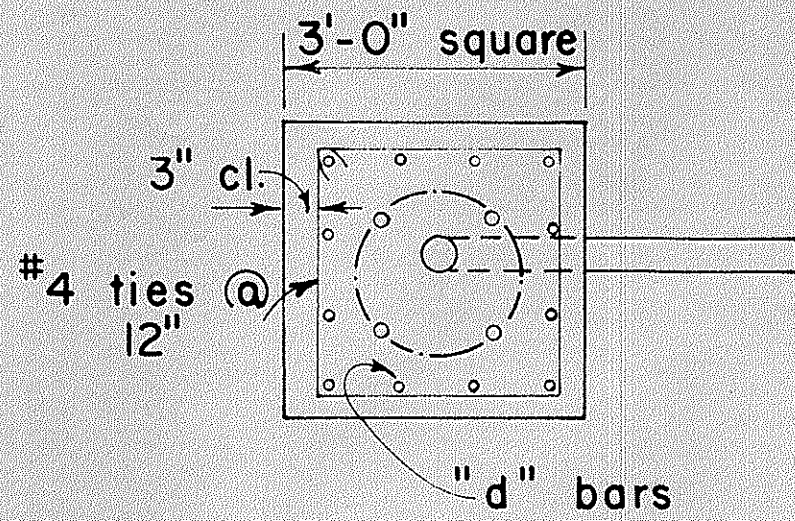
NO.	REVISION	APPROVED BY	DATE
1	Revised Type B & C Pullbox details	H.T.	3-5-76
2	Revised Type "A" Pullbox & Added Modified Cover.	H.T.	1-31-80

APPROVAL RECOMMENDED:
TRAFFIC ENGINEER

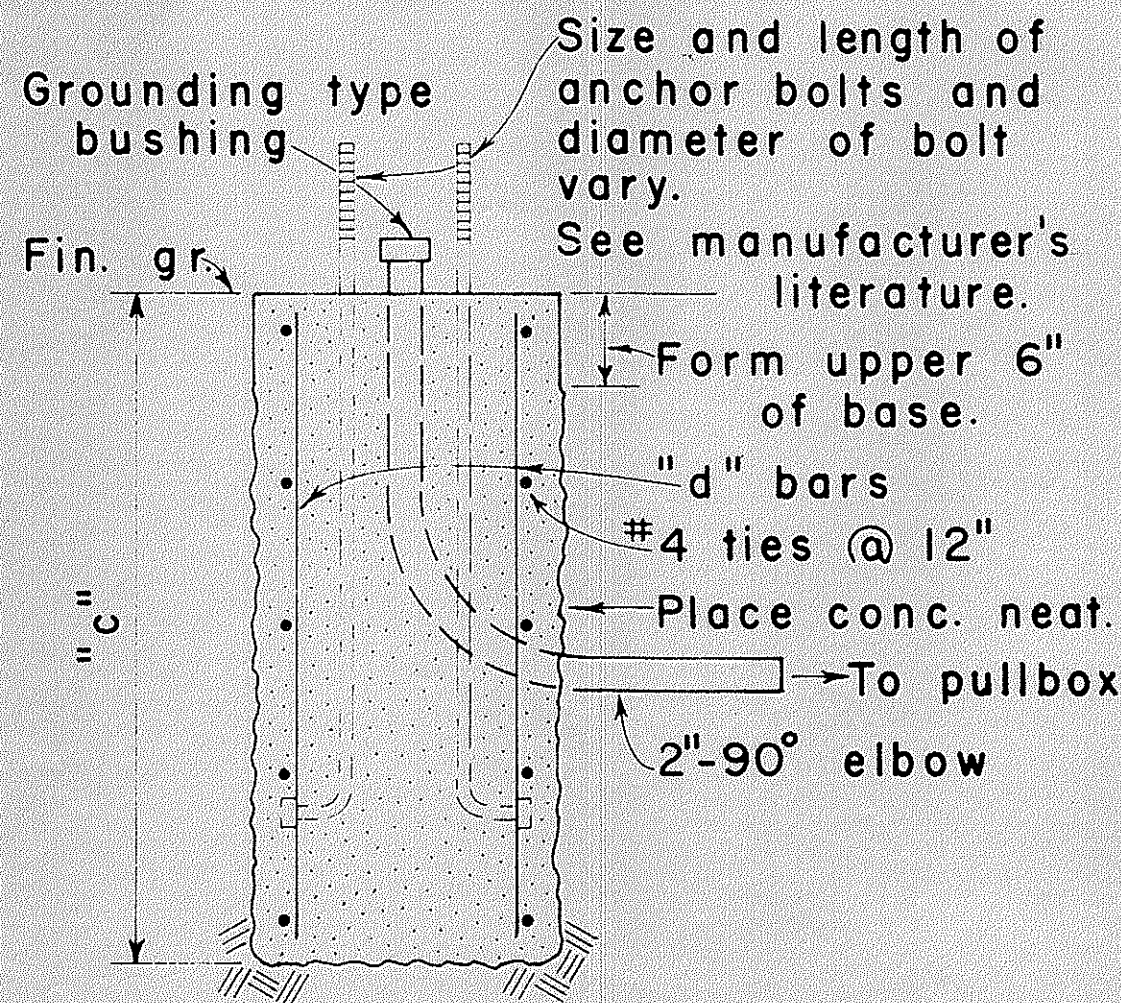
APPROVED:
ASSISTANT CHIEF, ENGINEERING
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
PULLBOXES
Scale as noted Date
SHEET No. OF SHEETS DT 401

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	72	214



PLAN - SECTION

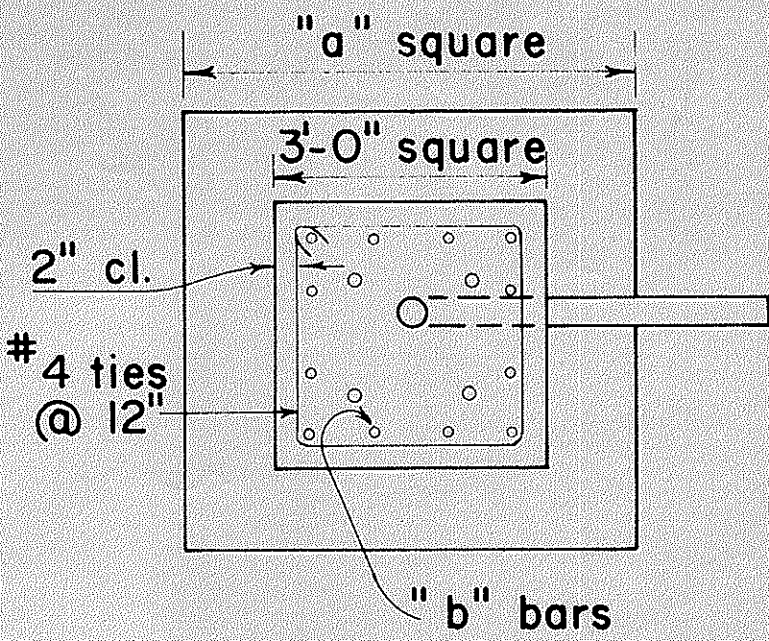


NOTE:
Concrete shall be Class B.

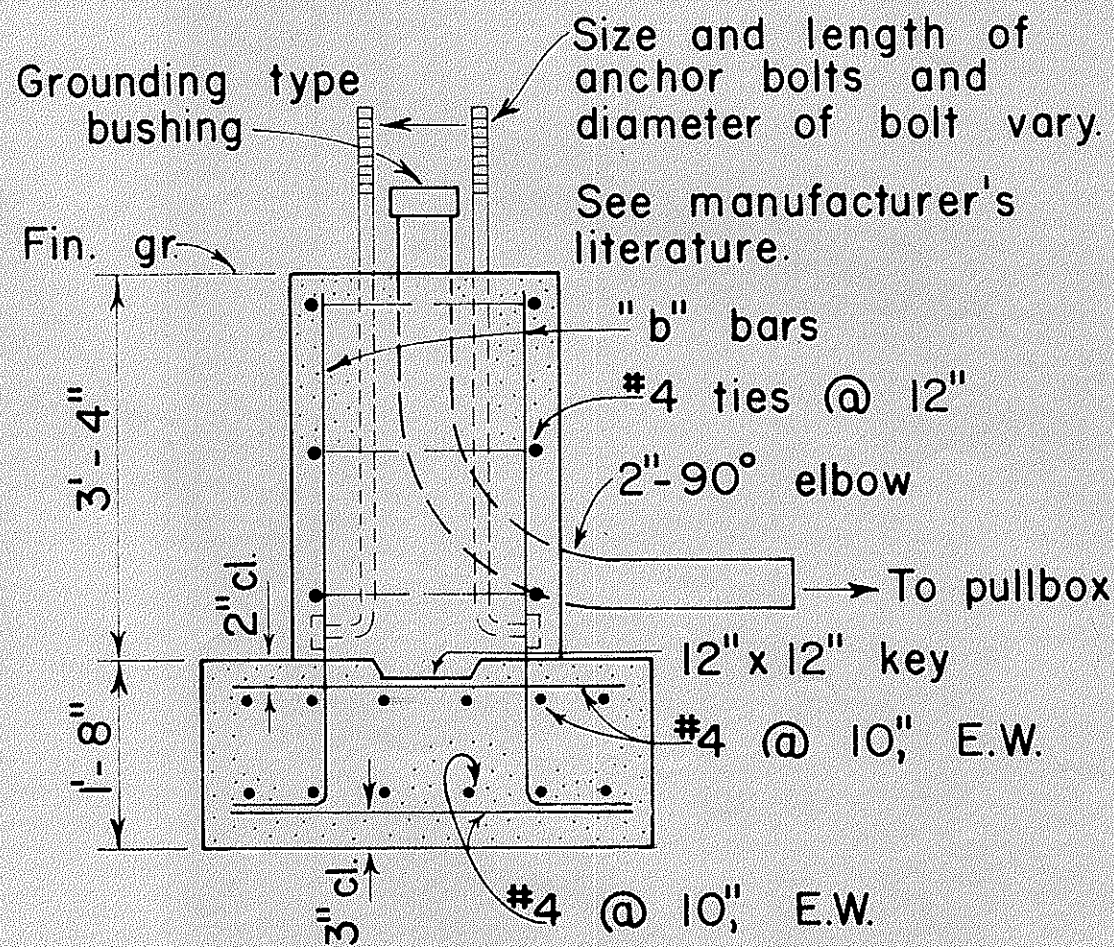
SECTION

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



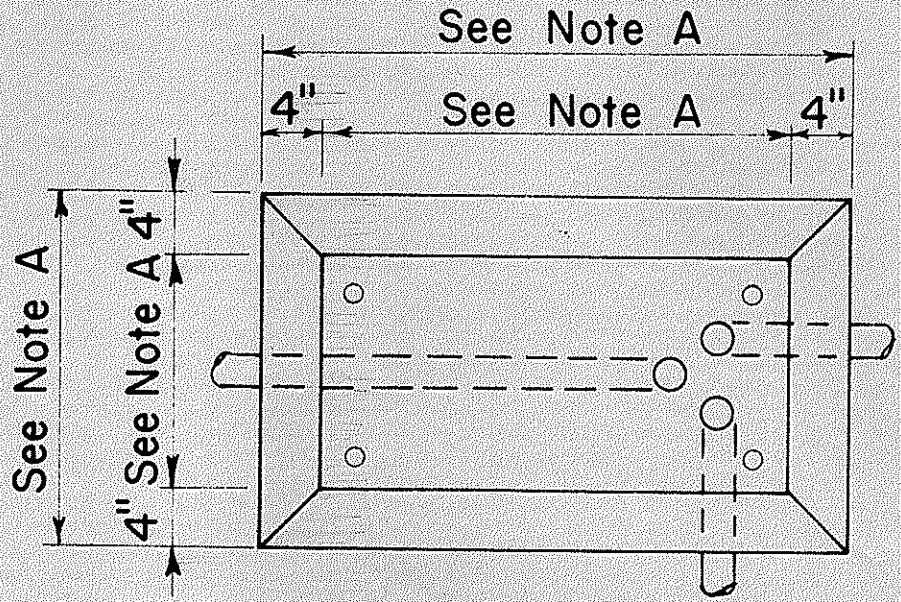
NOTE:
Concrete shall be Class B.

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 II A

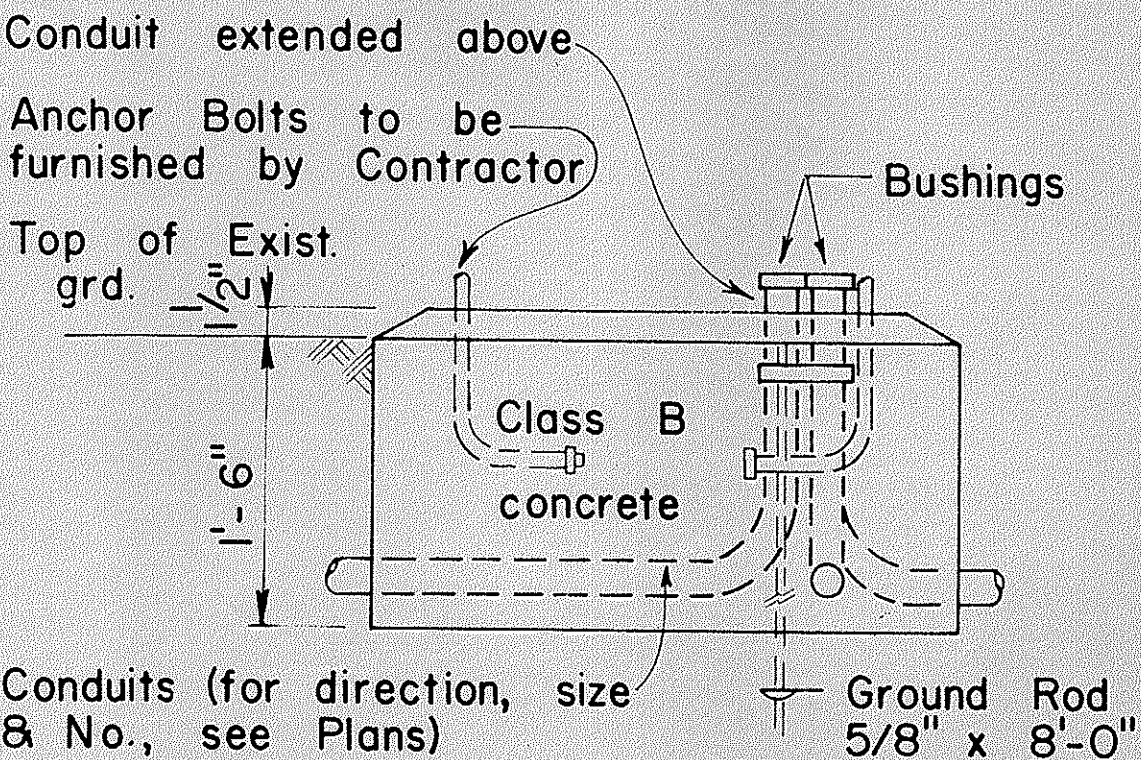
FOOTING FOR MAST ARM STANDARD



PLAN

CONCRETE BASE FOR CONTROLLER CABINET

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



ELEVATION

APPROVAL RECOMMENDED:
Eichi Tanaka 3/4/76
TRAFFIC ENGINEER DATE

APPROVED:
Robert B. Ricks 2-5-76
ASSISTANT CHIEF, ENGINEERING DATE

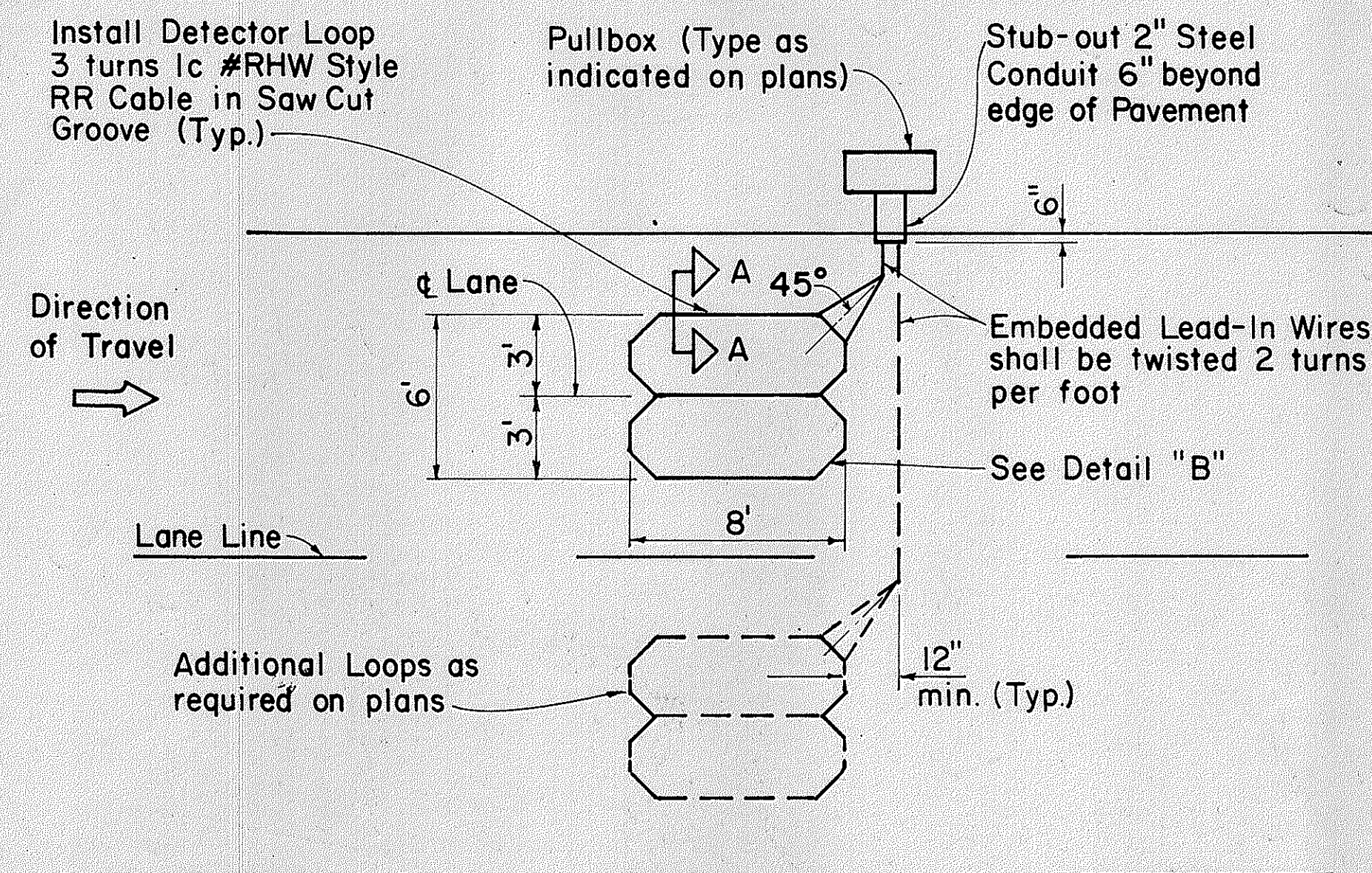
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

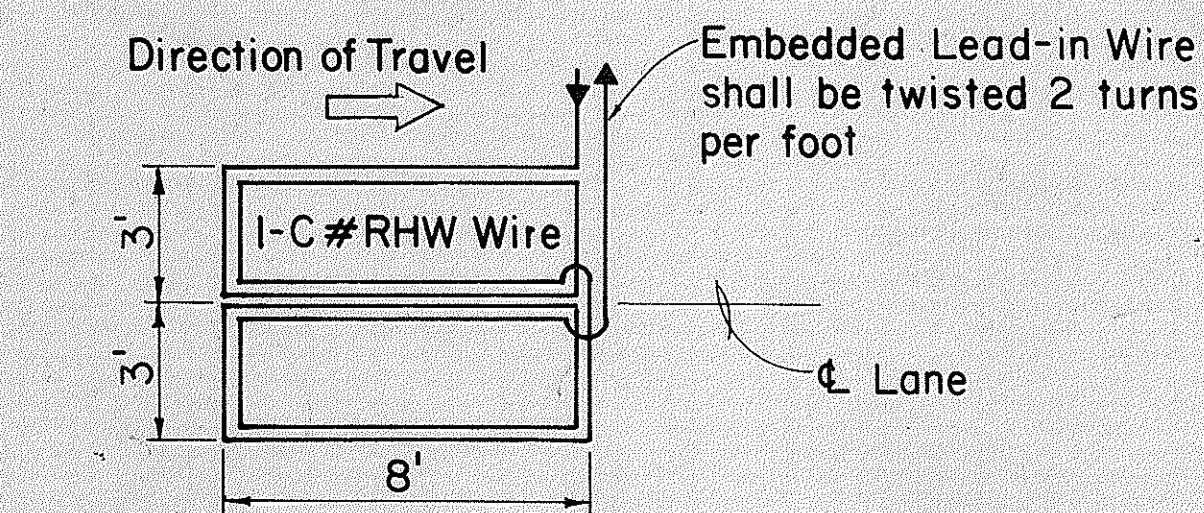
TRAFFIC SIGNAL SYSTEM
MISCELLANEOUS DETAILS

Not to Scale
SHEET No. OF SHEETS DT404

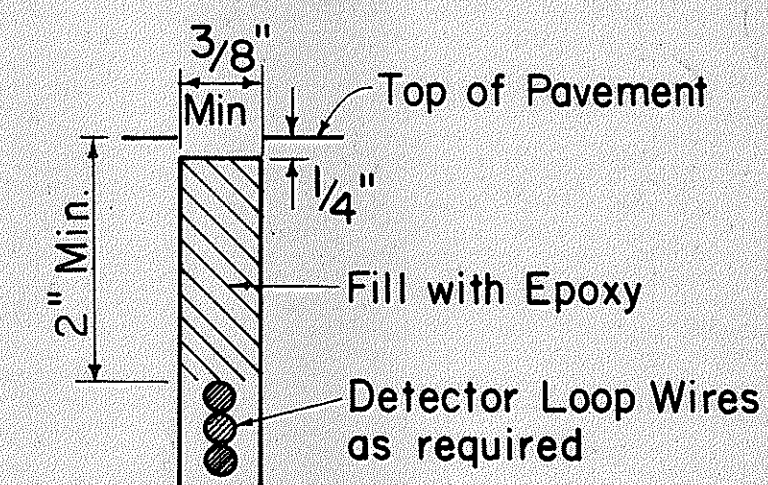
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-1(14)	1982	73	214



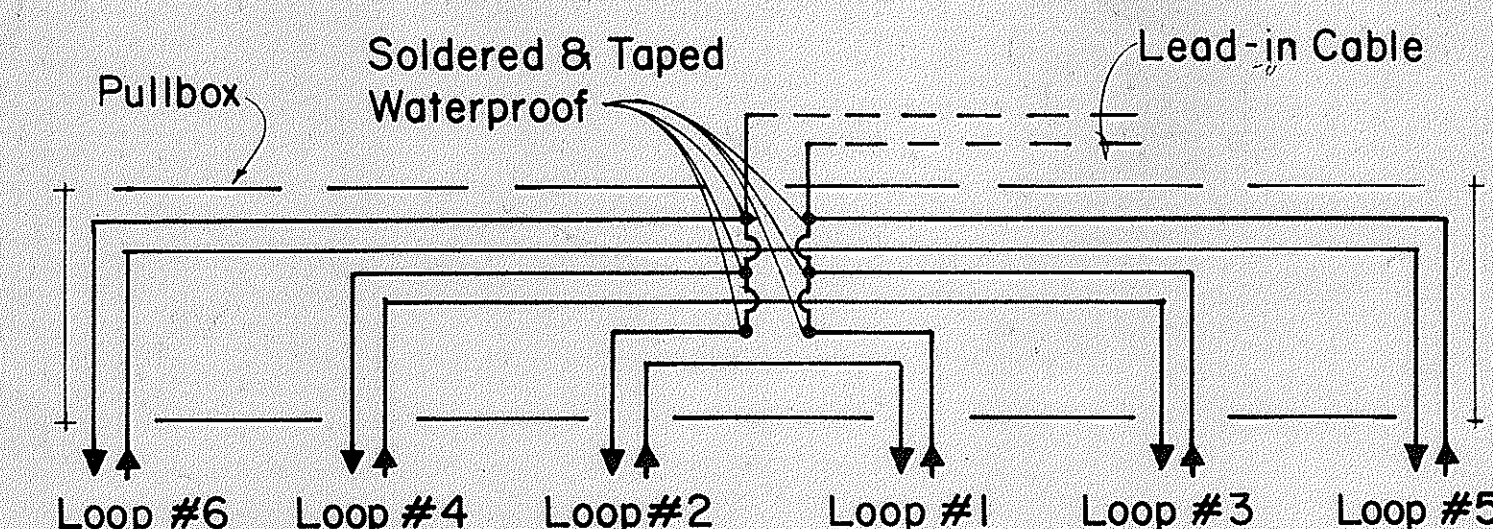
SINGLE LOOP LAYOUT



WIRING DIAGRAM



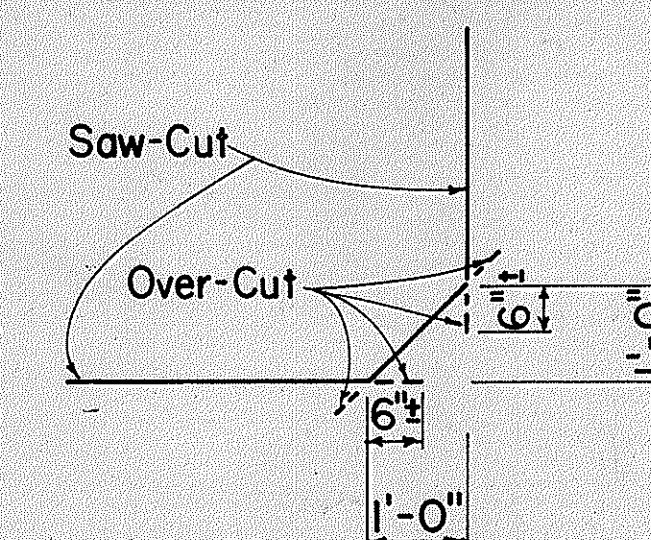
DETECTOR LOOP SAW-CUT SECTION A-A (TYPICAL)



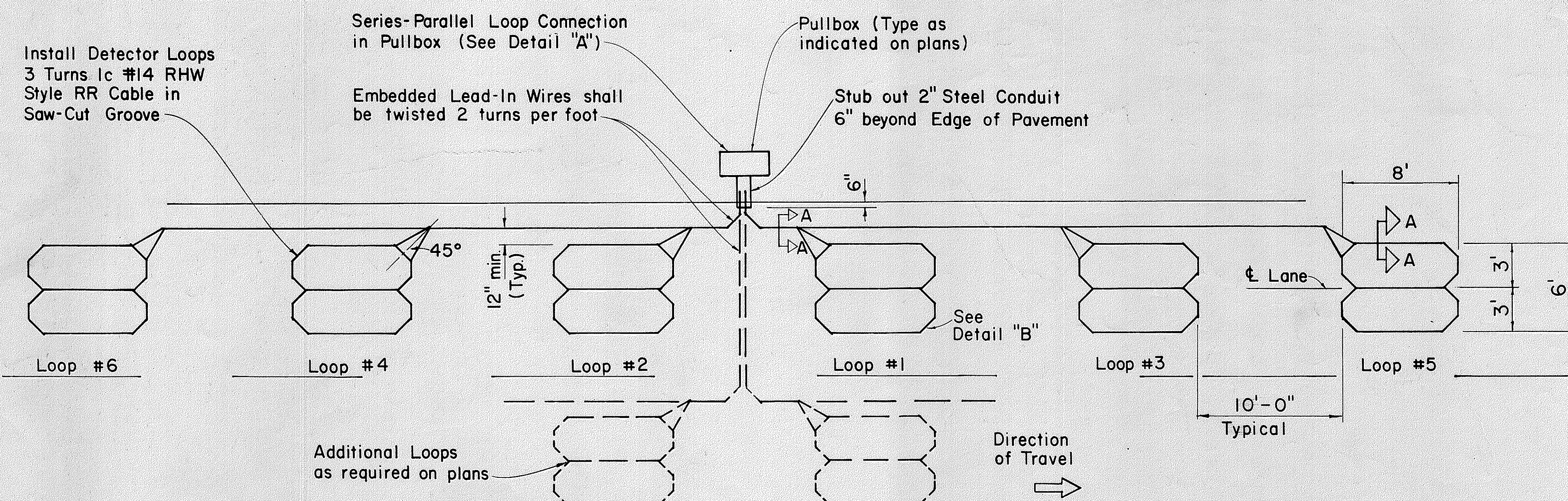
DETAIL "A"

TYPICAL SERIES-PARALLEL LOOP CONNECTION

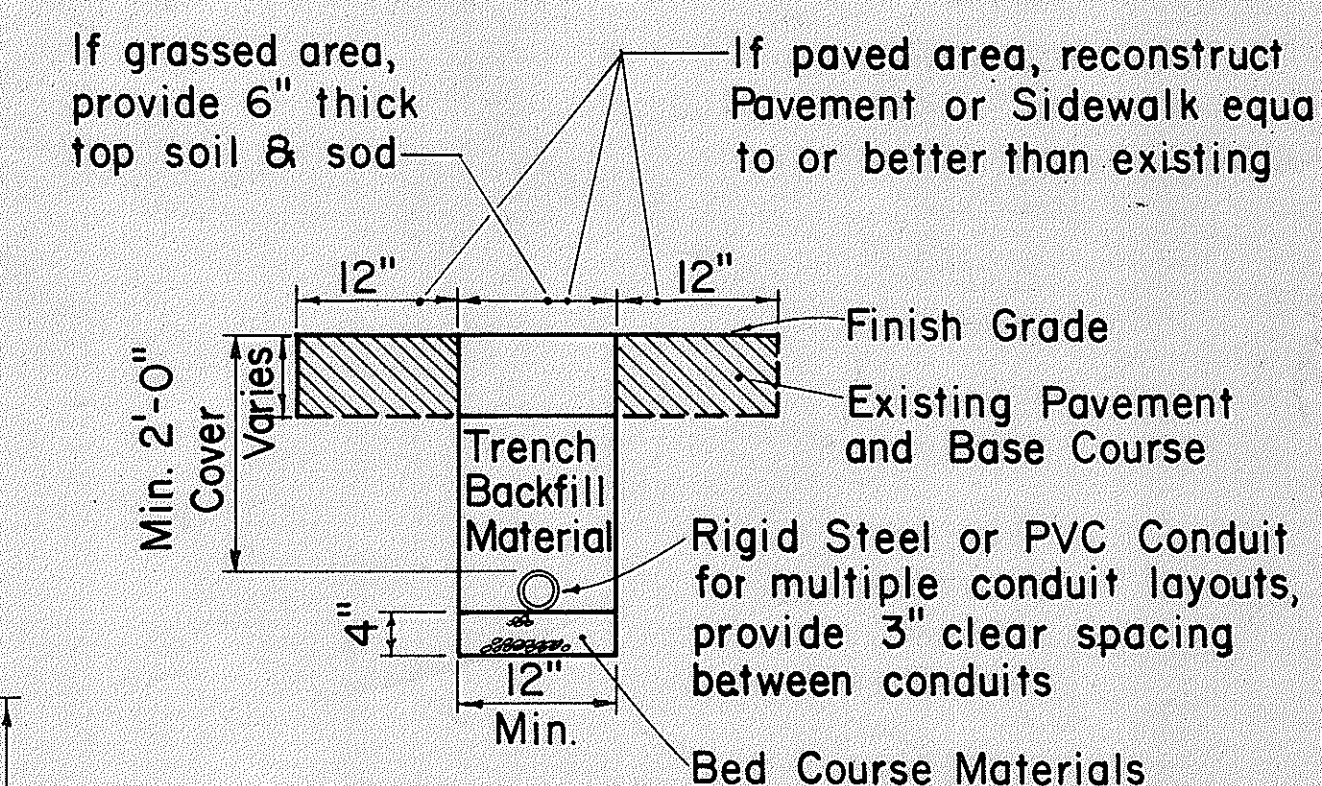
Note: Back-Fill Over-Cuts with Epoxy



DETAIL "B" SAW-CUT AT CORNERS



MULTIPLE LOOP LAYOUT



TYPICAL TRENCH SECTION FOR CONDUIT

NOTE:

- All conduits under roadways shall be steel or PVC schedule 80. All other conduits shall be steel or PVC schedule 40.

APPROVAL RECOMMENDED:

Erich Tanaka 9/26/80
TRAFFIC ENGINEER DATE

APPROVED:

Shawar P. S. S. S. 9/30/80
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Replaces Sht. DT 405 dated 3/5/76	H.I.	9/26/80
2	Revised Section A-A	H.I.	5/15/81

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
STANDARD DETAILS
LOOP DETECTORS
Not to Scale

SHEET No. OF SHEETS DT 405

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