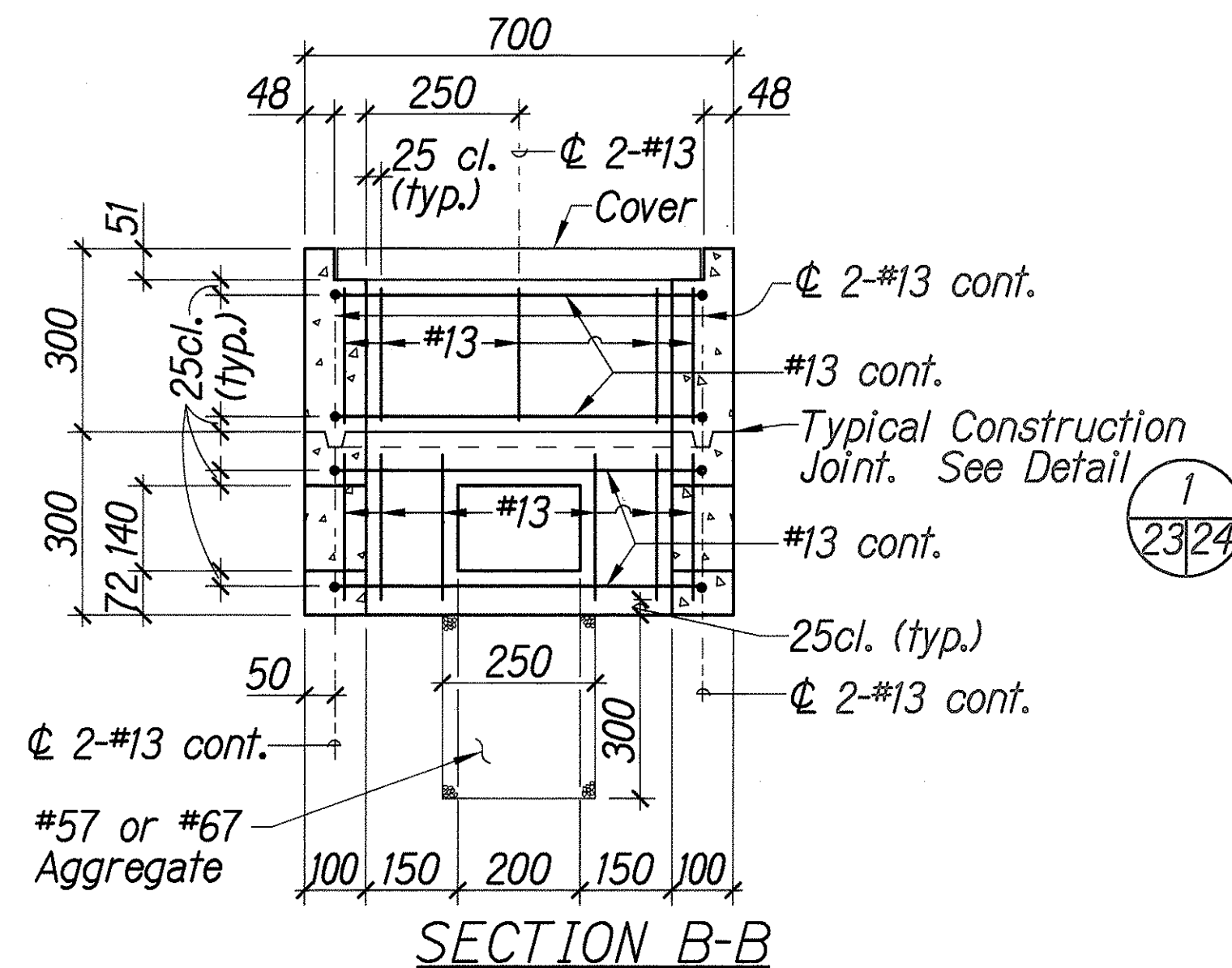
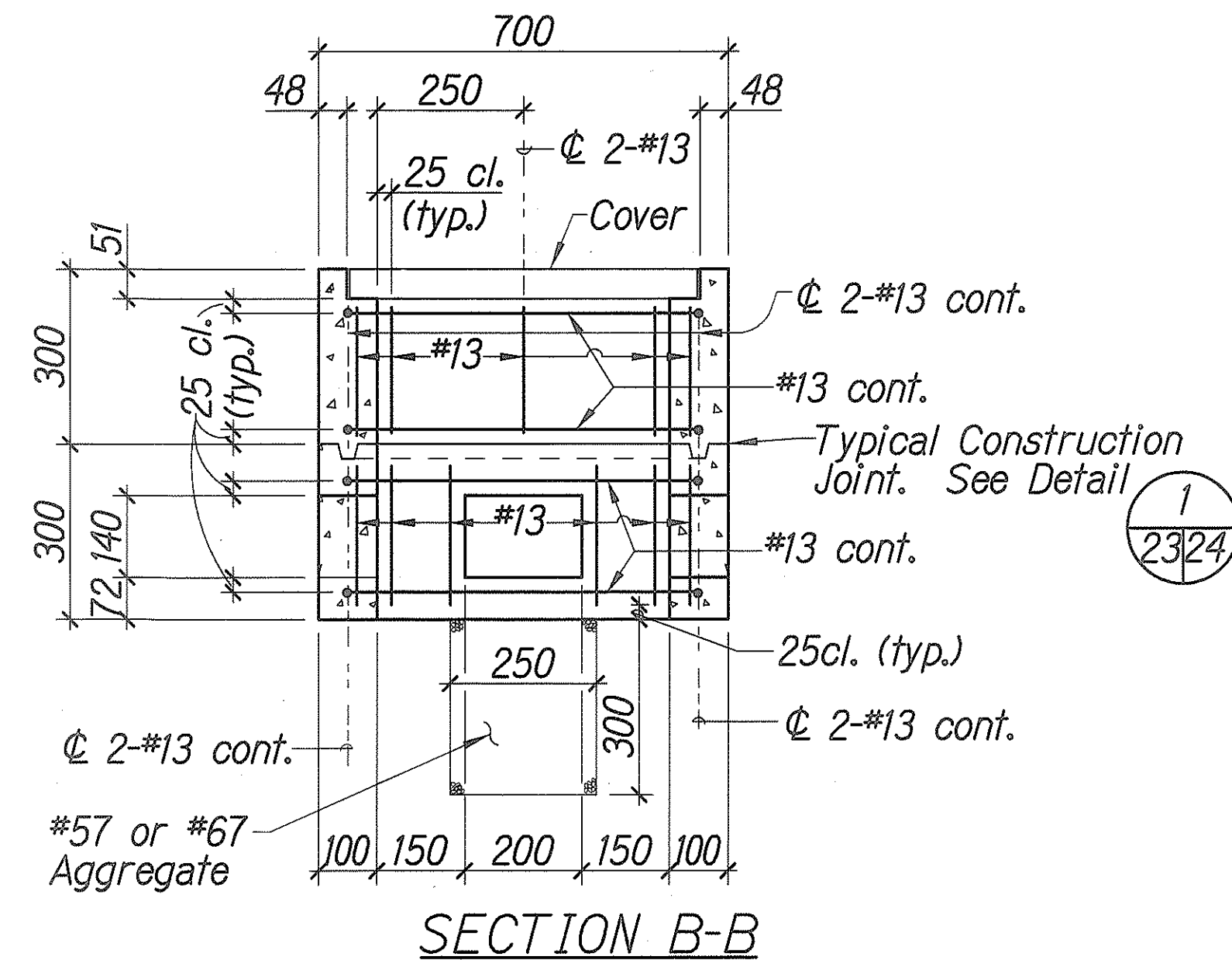
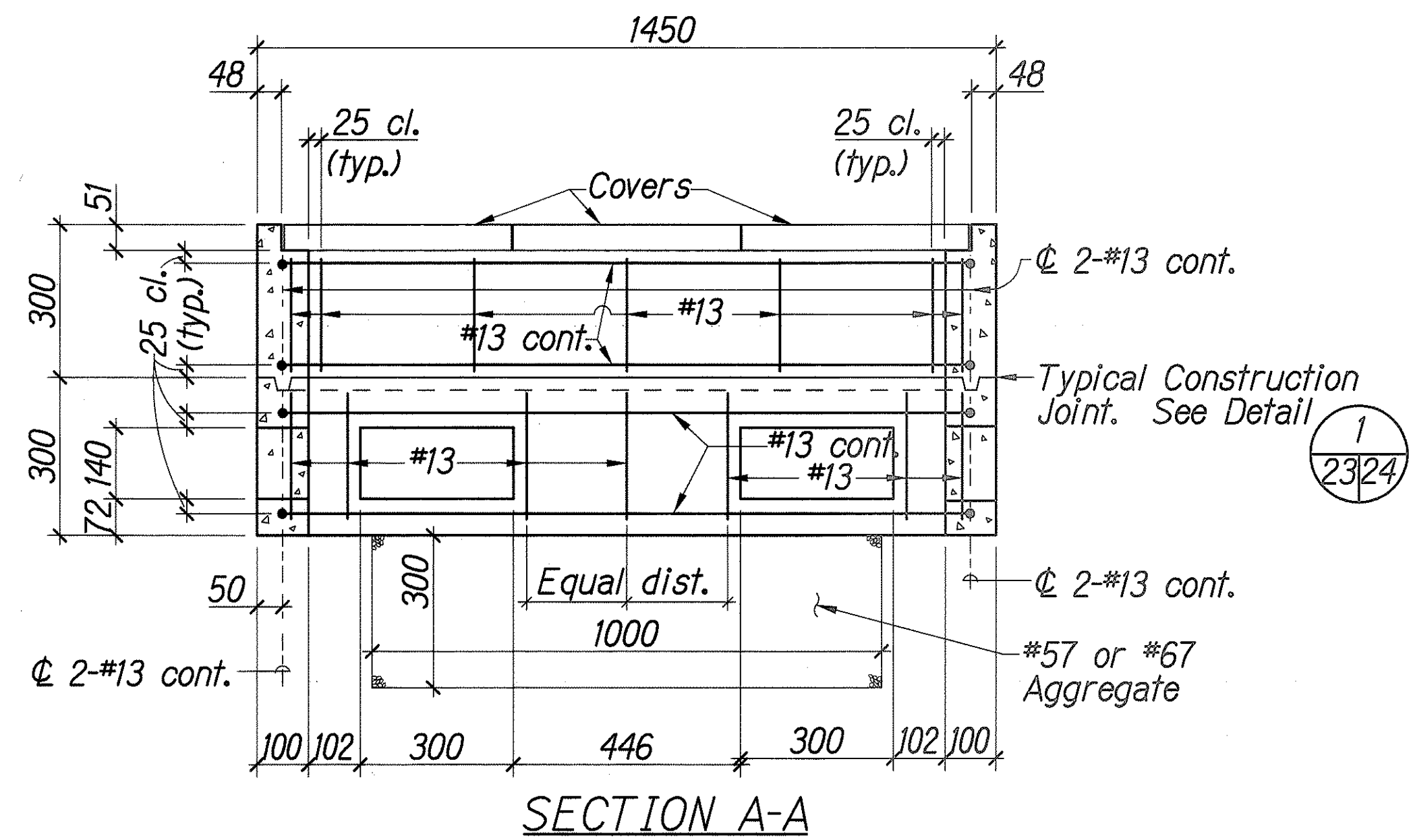
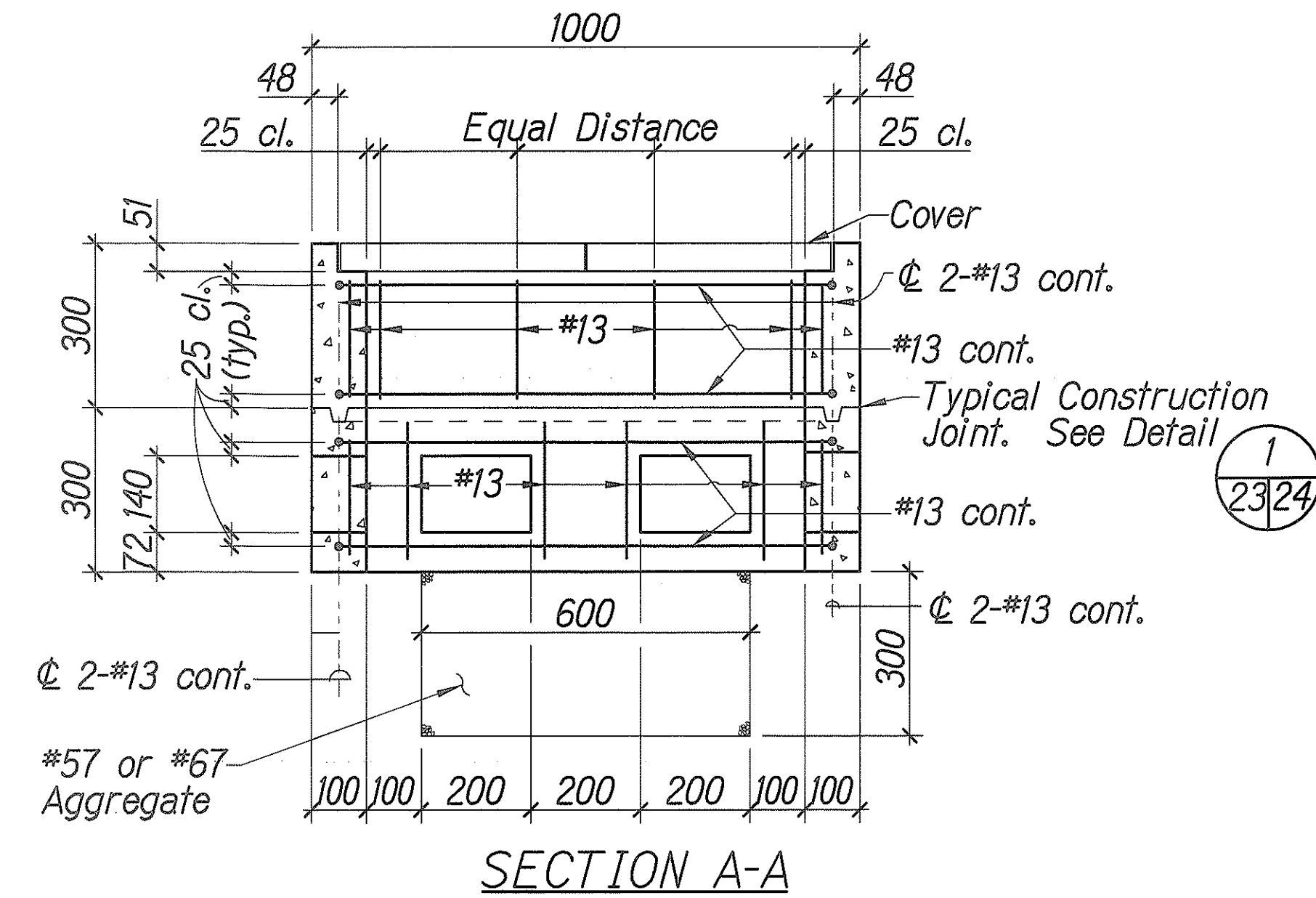
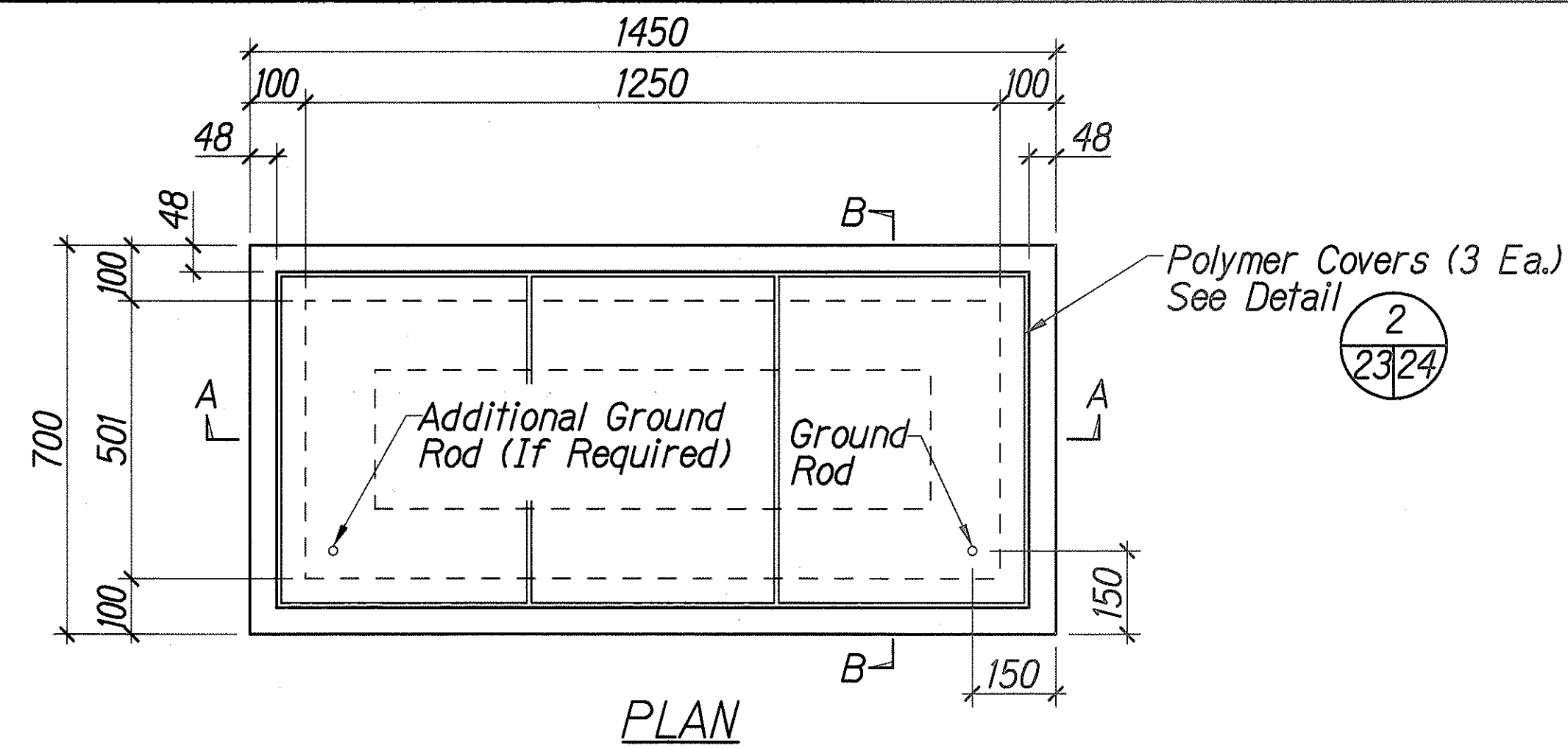
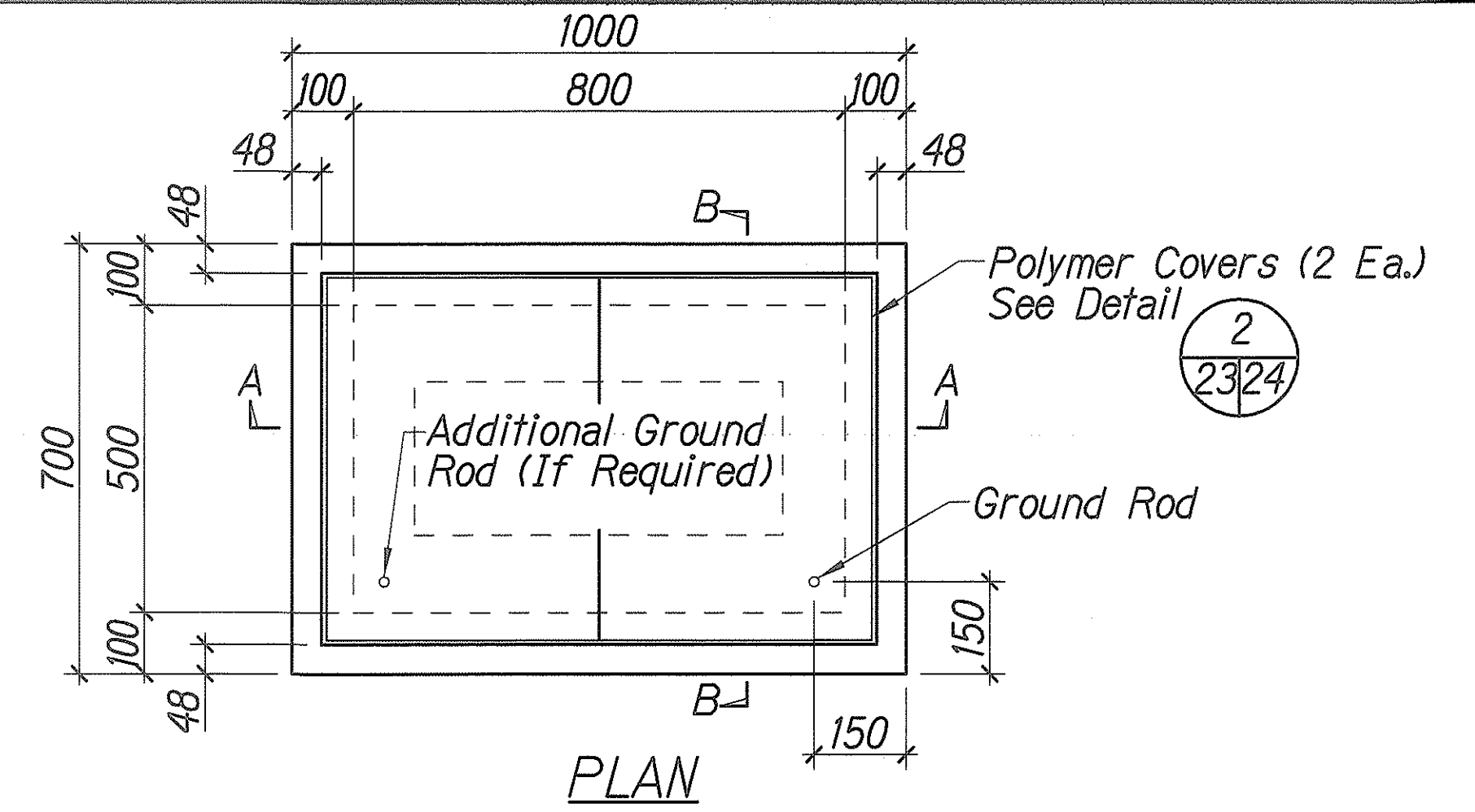


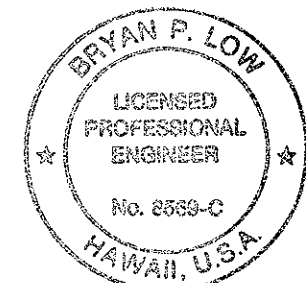
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-092-1(26)	2002	23	30



TYPE "B" PULLBOX (Old Type "C")
Scale: 1:10

TYPE "C" PULLBOX (Old Type "D")
Scale: 1:10

ALL DIMENSIONS ARE IN MILLIMETERS
UNLESS OTHERWISE SHOWN.



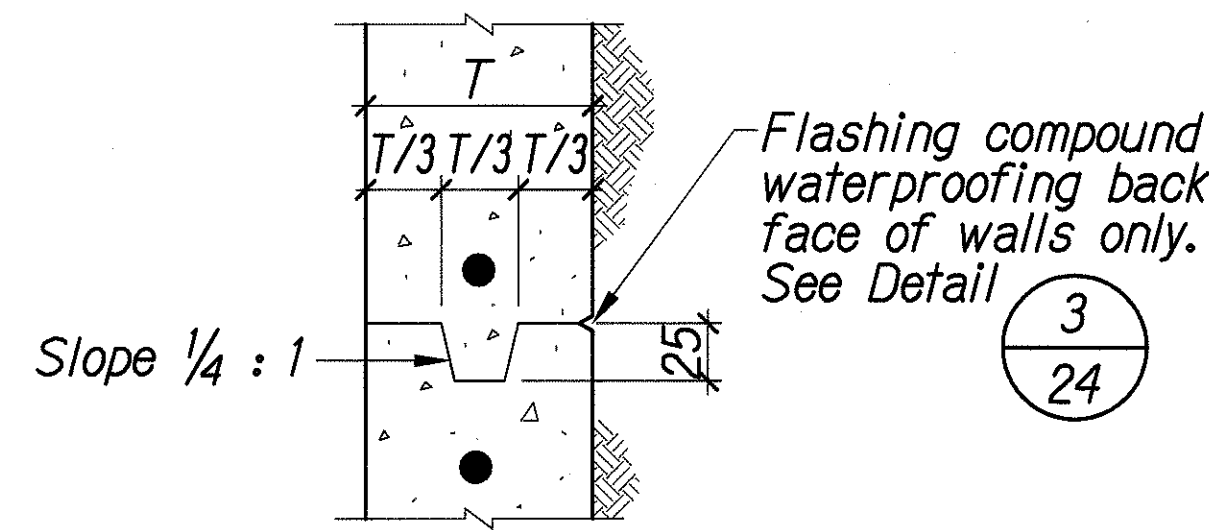
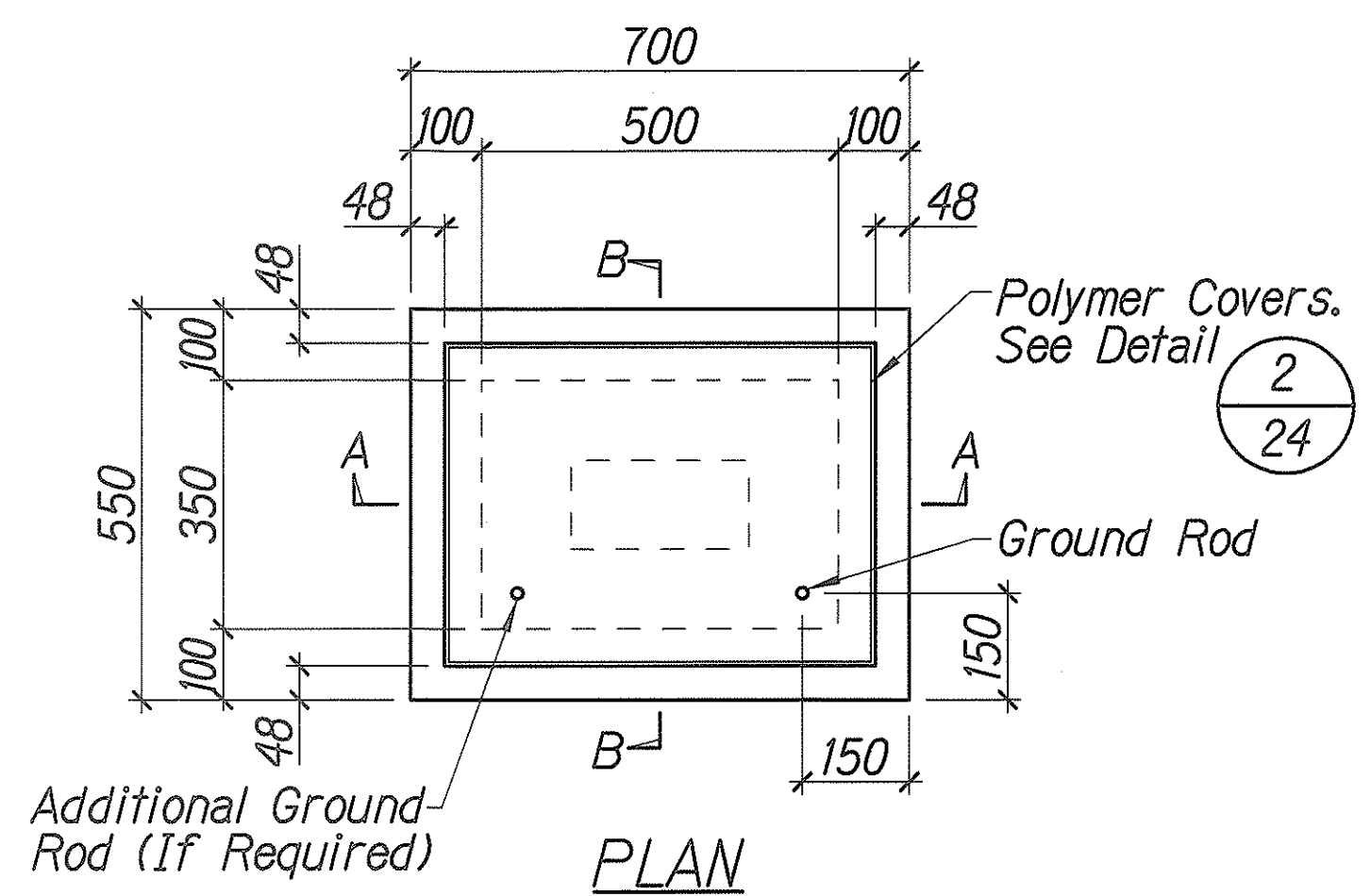
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PULLBOX DETAILS

Ala Moana Boulevard
Traffic Signal Modernization
Federal-Aid Project No. NH-092-1(26)
Scale: 1:10 Date: February, 2002

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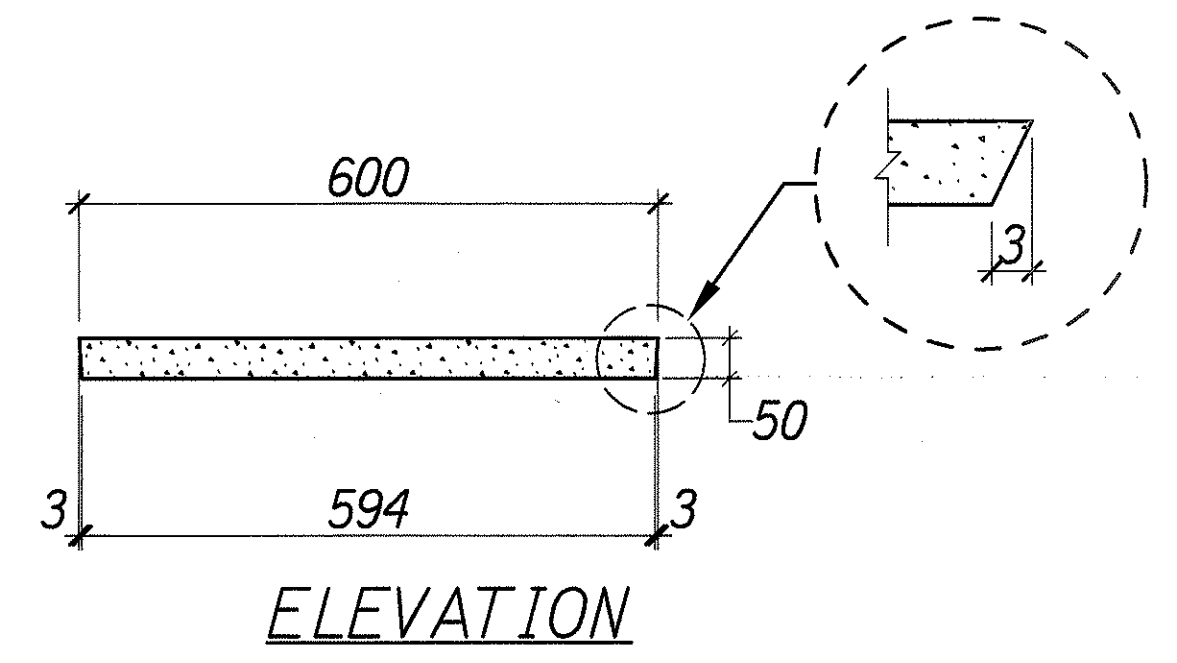
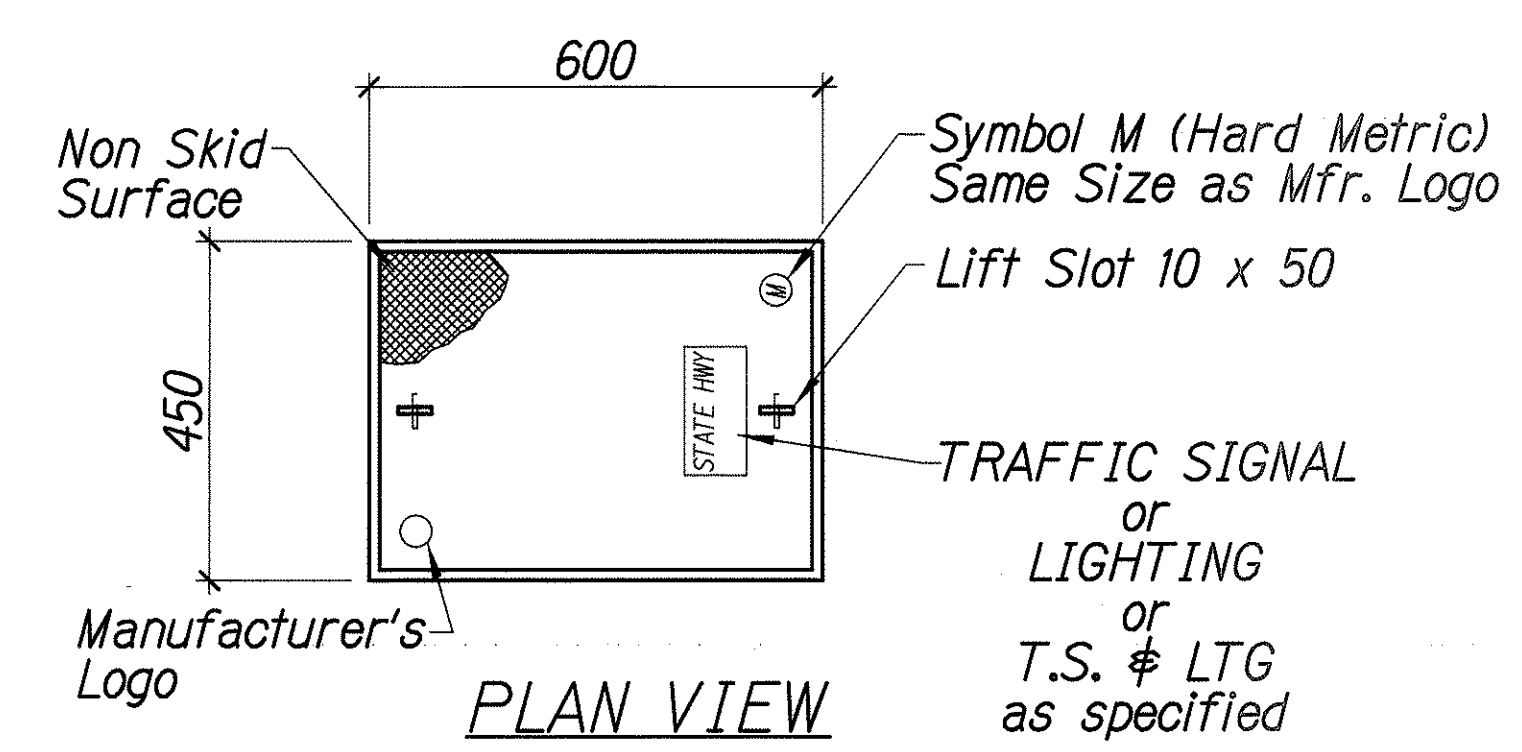
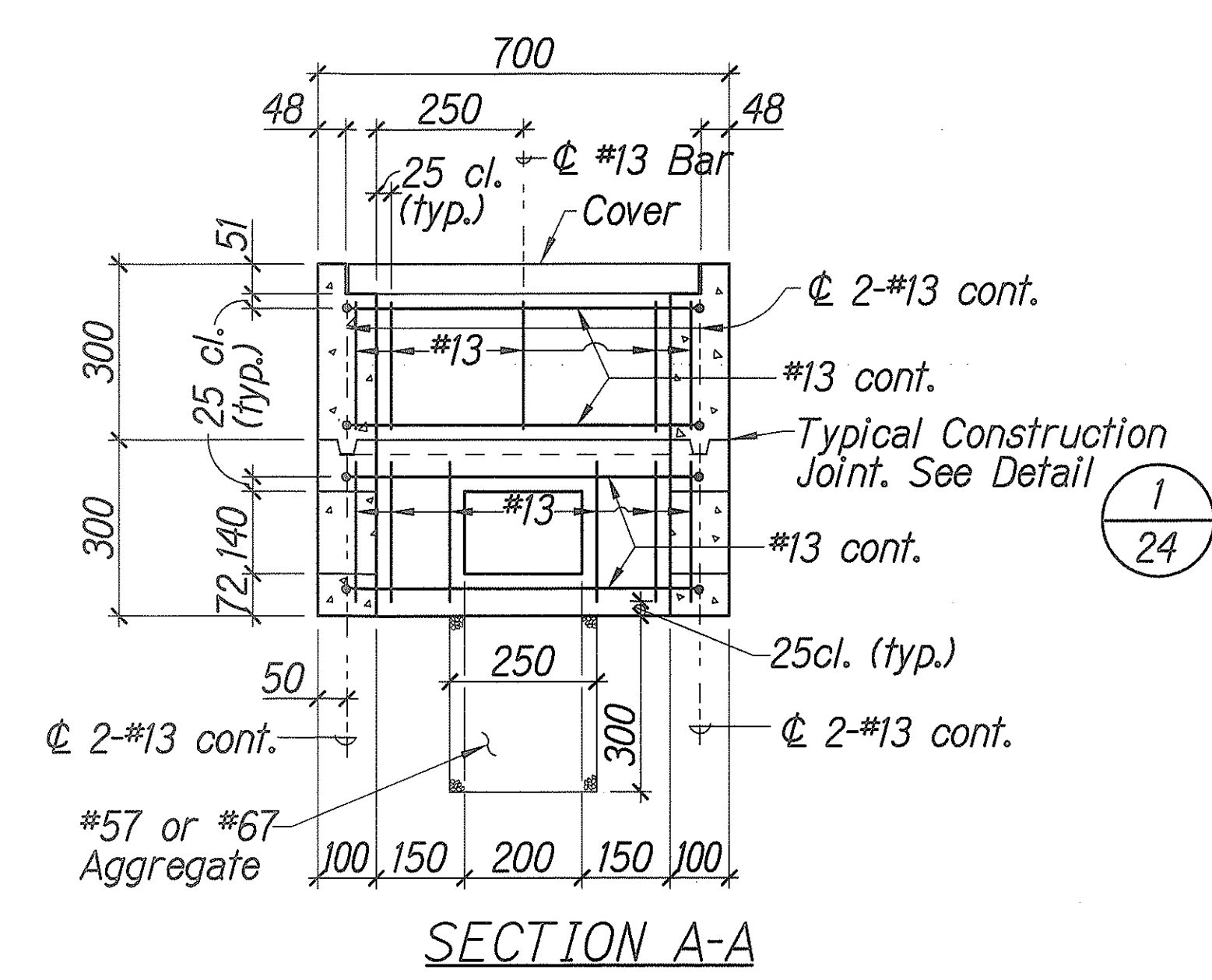
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-092-1(26)	2002	24	30



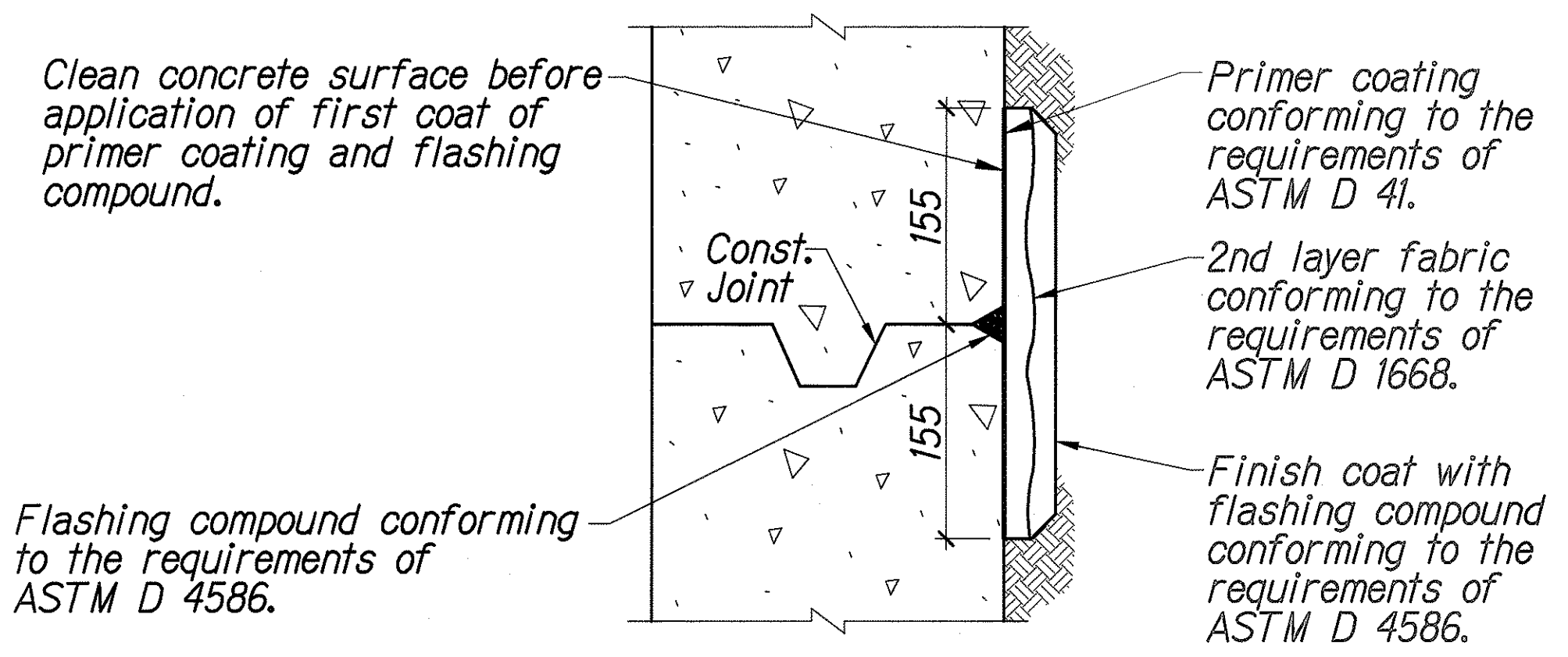
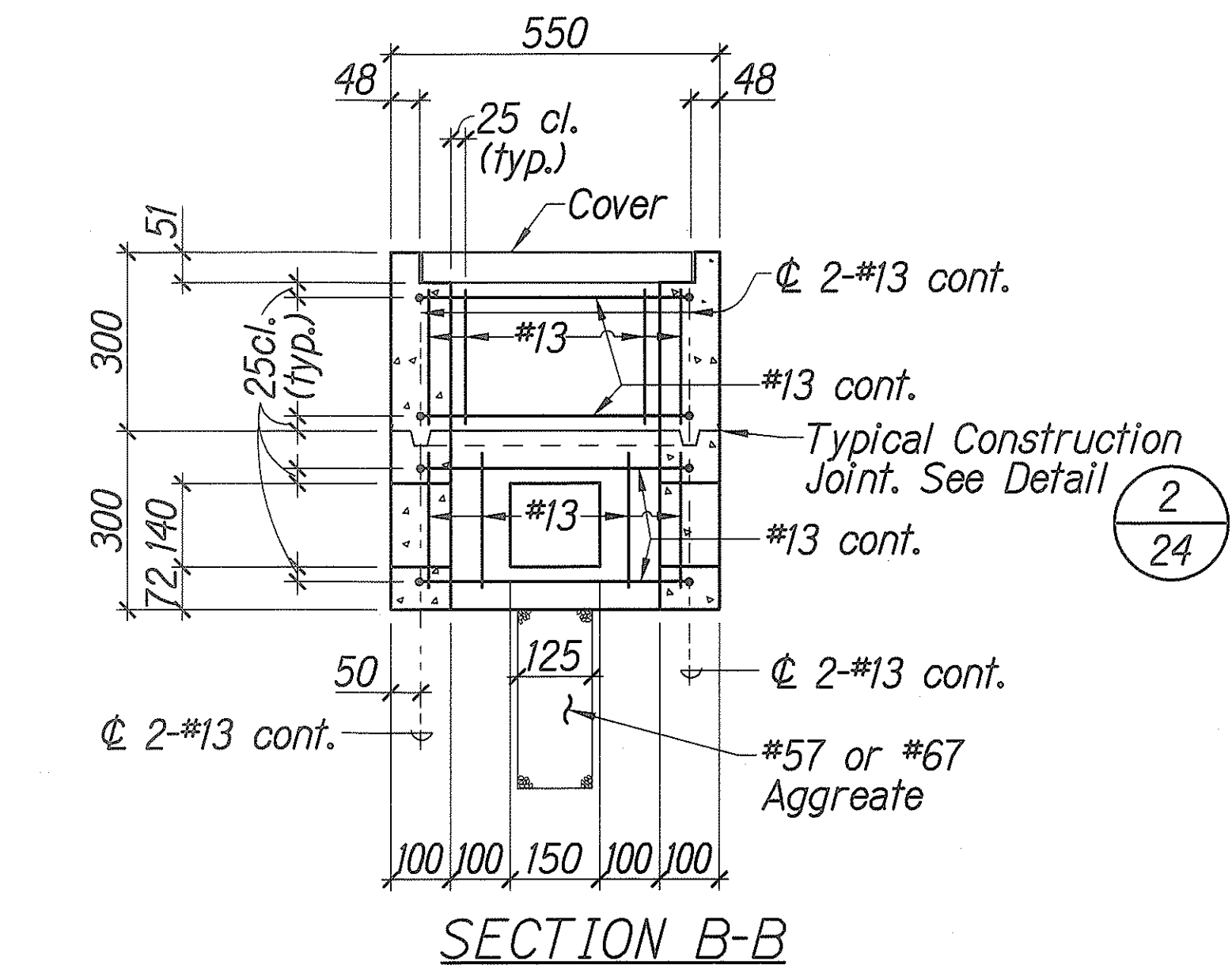
TYPICAL CONSTRUCTION JOINT DETAIL
Not to Scale

METRIC PULLBOX NOTES:

1. Provide a minimum of one 16mm dia. x 2.5m long Copperweld Ground Rod in each pullbox. When directed by the Traffic Signal Inspector/Engineer, install additional Ground Rods. Cost of Ground Rods shall be incidental to the pullboxes.
2. All pre-cast concrete pullboxes shall be manufactured in two pieces.
3. The pullbox with cover shall be capable of supporting an MS 18 Loading.
4. The maximum weight of the pullbox cover shall not exceed 27 kilograms.
5. The openings for the conduits on all pullboxes shall be pre-cast concrete knockouts.
6. After installing the conduits in the openings of the pullboxes, the Contractor shall fill the excess opening in the pre-cast knockouts with concrete mortar.
7. Prior to installing the pullboxes, the Contractor shall level the bottom of the trench and achieve a minimum of 95% relative compaction of the bottom of the trench.
8. All concrete shall be Class A (25MPa, min.) .
9. Rebars shall be Grade 300 and all lapped splices shall be 360mm (14.2 in.) minimum.
10. The #57 or #67 size aggregate shall conform to latest version of AASHTO M43 (ASTM D 448).
11. Type "C" Pullbox shall be installed in a location protected from vehicular traffic (i.e. raised sidewalk, behind A.C. curbs, traffic signal standard or pipe guards).



POLYMER CONCRETE COVER
Not to Scale



TYPICAL FLASHING COMPOUND WATERPROOFING DETAILS
Not to Scale

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UNLESS OTHERWISE SHOWN.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PULLBOX DETAILS

Ala Moana Boulevard
Traffic Signal Modernization
Federal-Aid project No. NH-092-1(26)
Scale: As Shown Date: February, 2002

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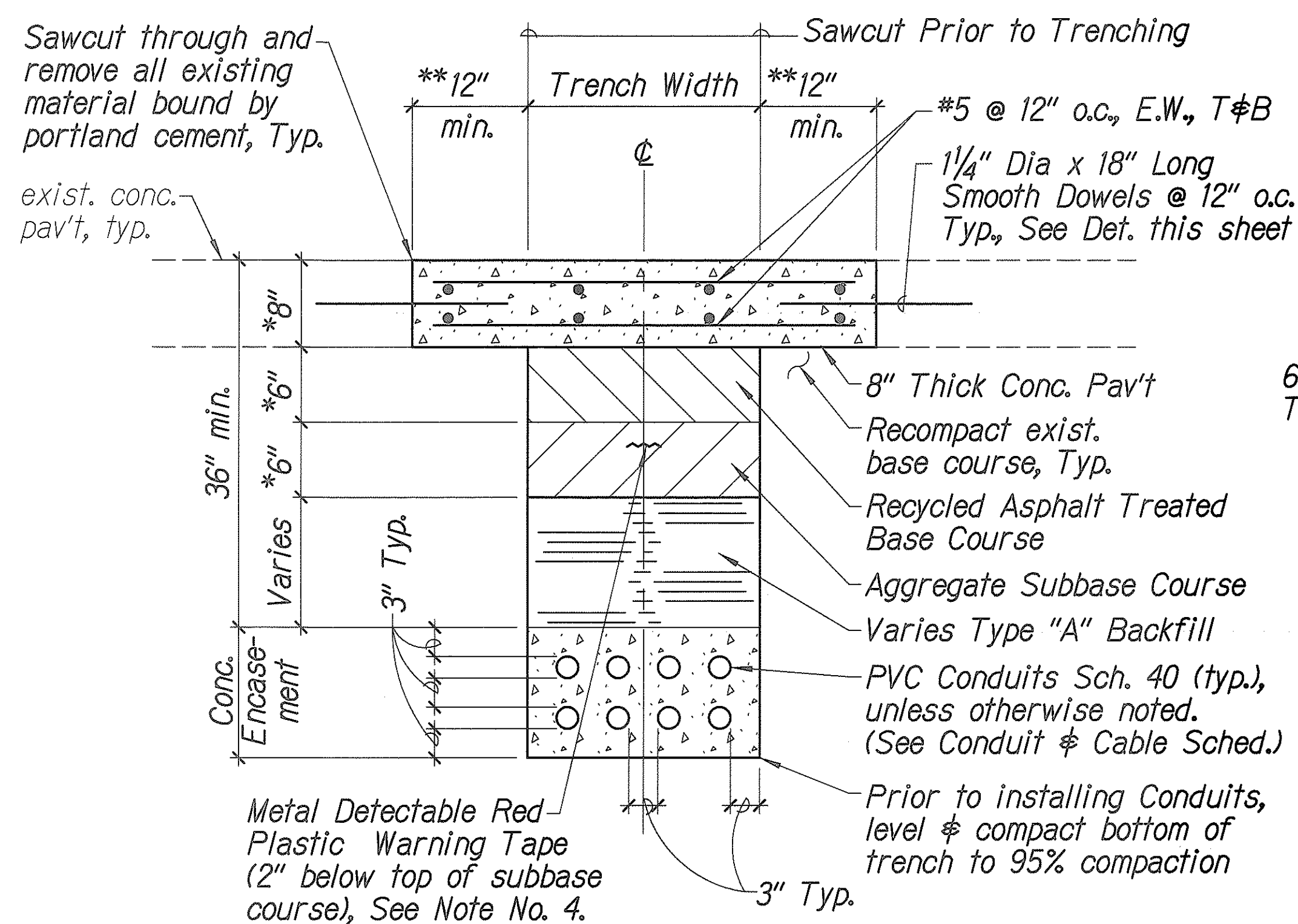
SHIMABUKURO KENDO & YOSHIZAKI, INC.
1129 KETI Avenue
Honolulu, Hawaii 96816

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	

4amhms02.dgn

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-092-1(26)	2002	26	30

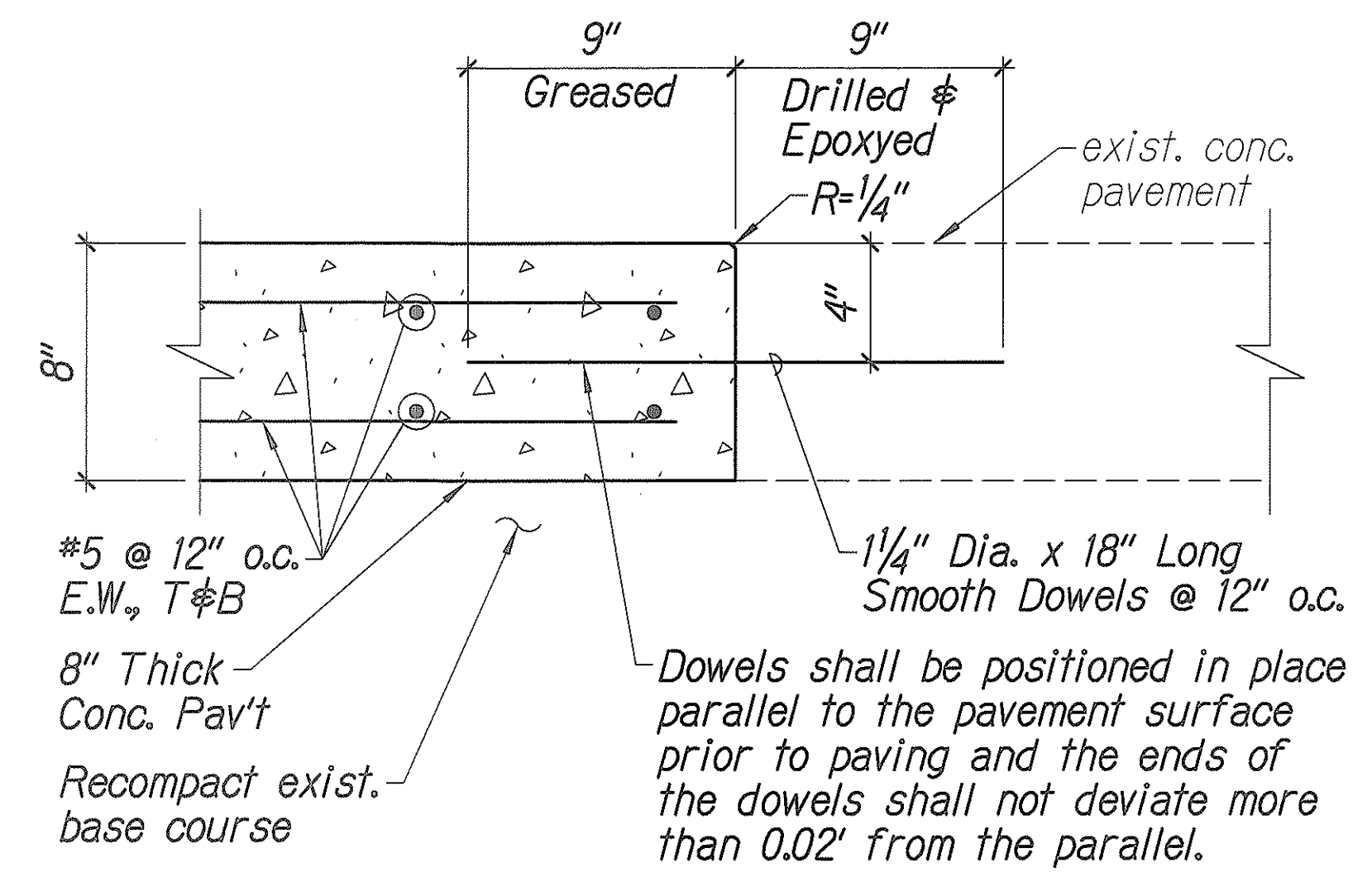
- NOTES:**
1. Trench Backfill Material "A" Beach Sand, Earth, or Earth and Gravel. If Earth and Gravel used, the maximum shall contain not more than 50% by volume of rock particles. Maximum 8" loose fill per lift. Obtain 95% compaction for each lift.
 2. Base Course & Sub-Base Course material shall be per 1994 State Standard Specifications for Highway Construction.
 3. If trench is located on unpaved area, the Contractor shall replace A.C. Base Course and A.C. Pavement with Type "A" backfill material.
 4. The Metal Detectable Red Plastic Warning Tape shall be a minimum 5 mils thick and 4" wide with a continuous metallic backing and corrosion resistant 1± mil thick foil core. The message on the tape shall read, "CAUTION - STATE TRAFFIC SIGNAL AND/OR HWY LIGHTING BURIED BELOW," utilizing 1½" inches series "C" black lettering. The message will be repeated with a 4½" spacing between top line of message and start of next repeat. Tape shall be considered incidental to ductline cost.
 5. The Contractor may begin backfilling the conduit trench when the concrete reaches 3000 psi compressive strength after 3 days.
 6. Maximum four (4) Conduits per row for multiple conduit duct section.
 7. After installing all the traffic signal cables, the Contractor shall duct seal all conduits in the pullboxes, traffic signal standards and traffic signal controller cabinet concrete base. The duct seal material shall be approved by the Traffic Signal Inspector/Engineer and shall not be paid for separately but considered incidental to the direct buried and/or concrete encased conduits.
 8. At sidewalks, replace the entire modular section of sidewalk (from construction joint to construction joint). Trench width patches in sidewalk shall not be accepted. Replace curbs and gutters in similar manner.
 9. For grassed areas, re-sod and maintain per specifications.



* Minimum thickness or match existing, whichever is greater.
 ** Extend edge of concrete pavement restoration to nearest score line if closer than 4 feet.

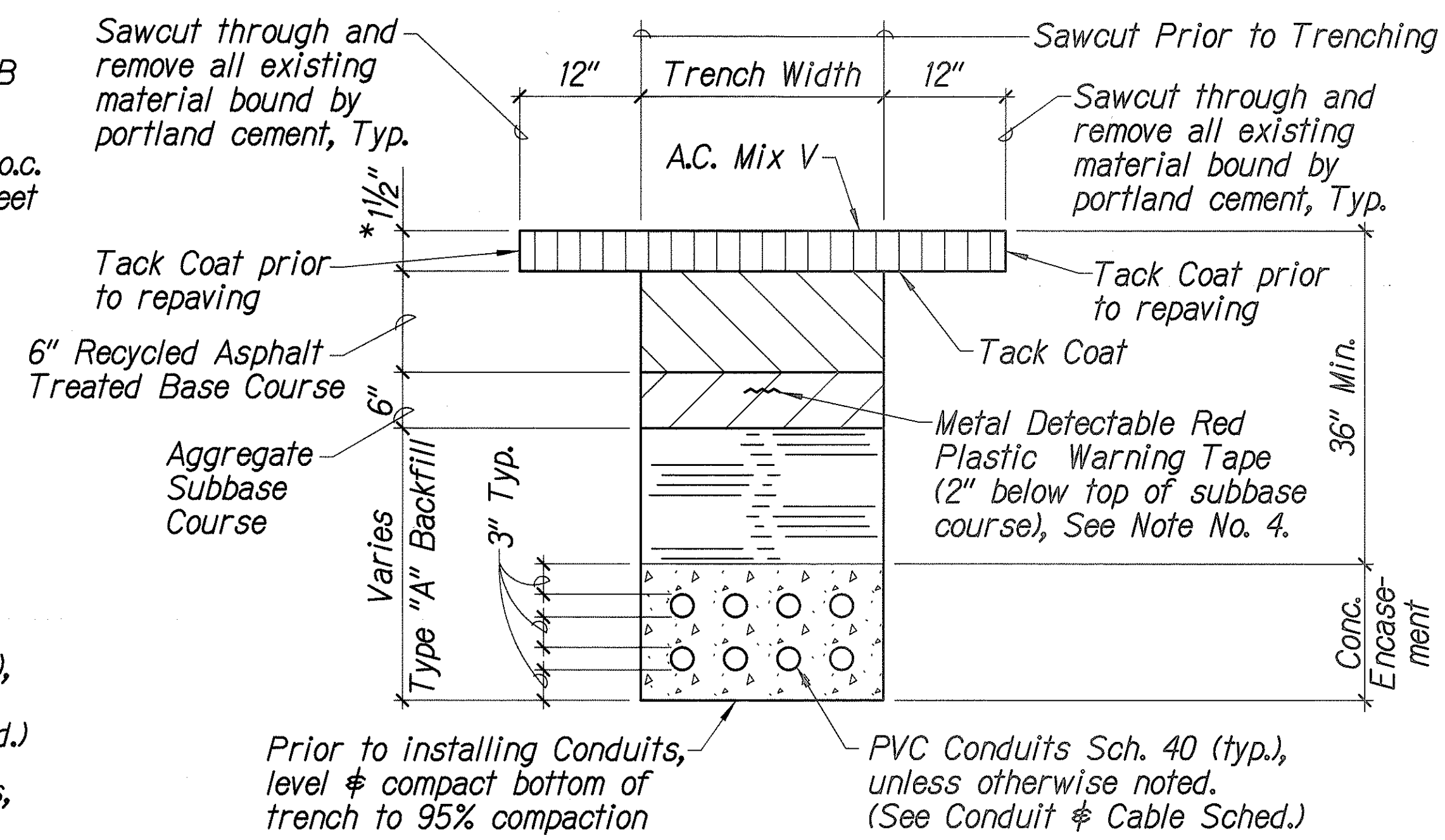
TYP. PPC PAVEMENT RESTORATION AND BACKFILL SECTION 1
26

Not to Scale



SMOOTH DOWEL DETAIL 3
26

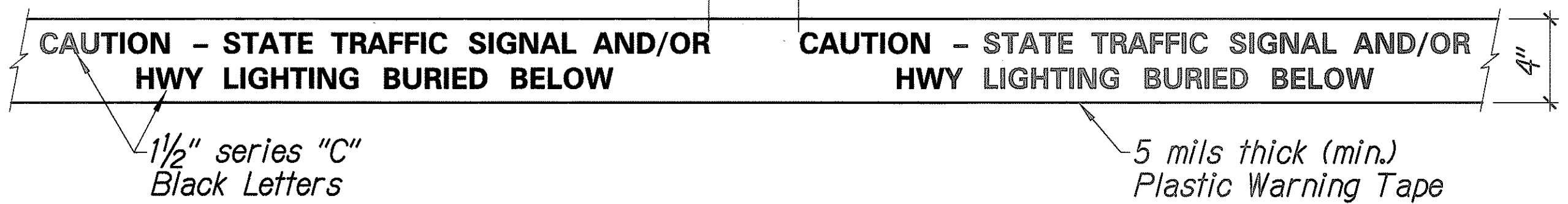
Not to Scale



* Minimum thickness or match existing, whichever is greater

TYP. PAVEMENT RESTORATION AND BACKFILL SECTION 2
26

Not to Scale



For additional information see note no. 4.

METALLIC DETECTABLE RED PLASTIC WARNING TAPE 4
26

Not to Scale

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DRAWN BY	
TRACED BY	
CHECKED BY	
QUANTITIES BY	
NOTED BY	
CHECKED BY	
DATE	

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[Signature]

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

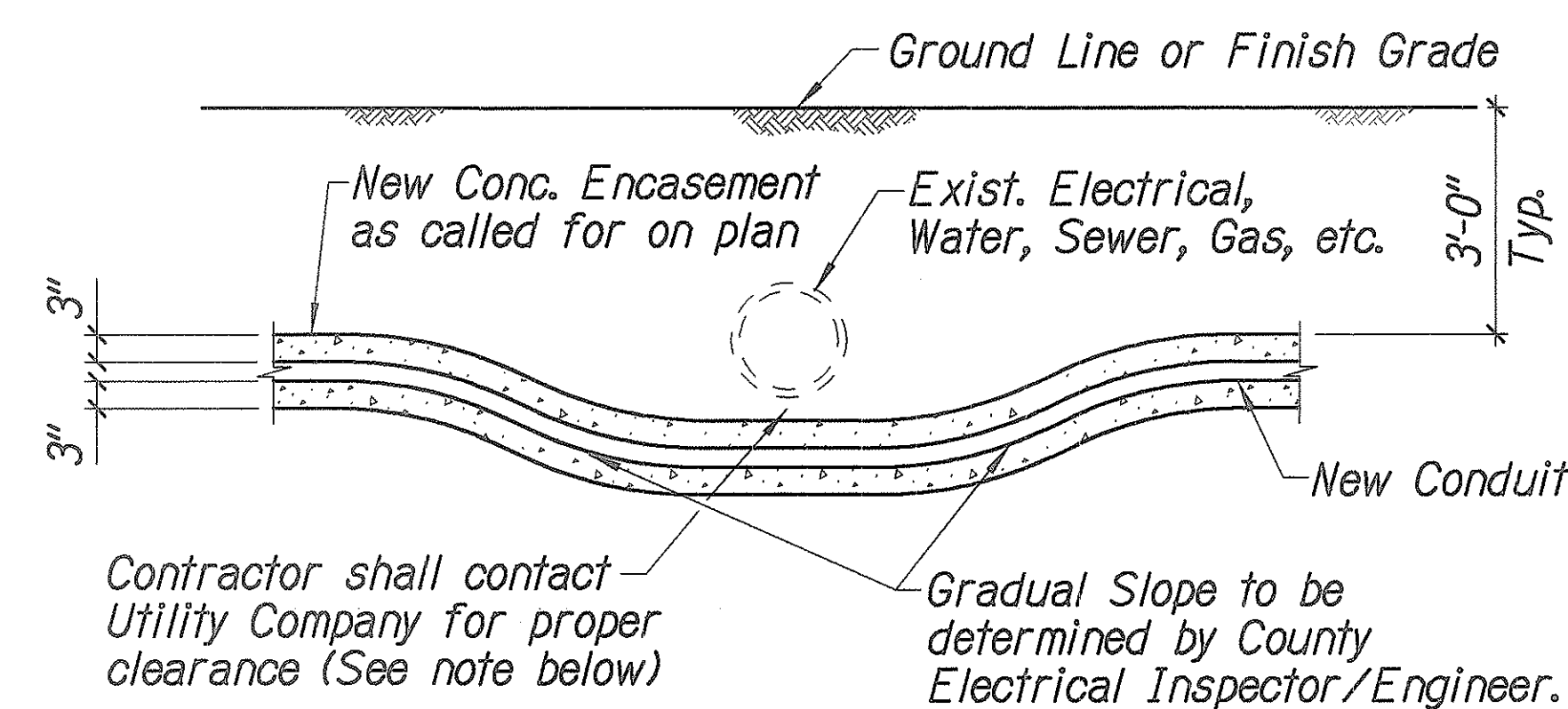
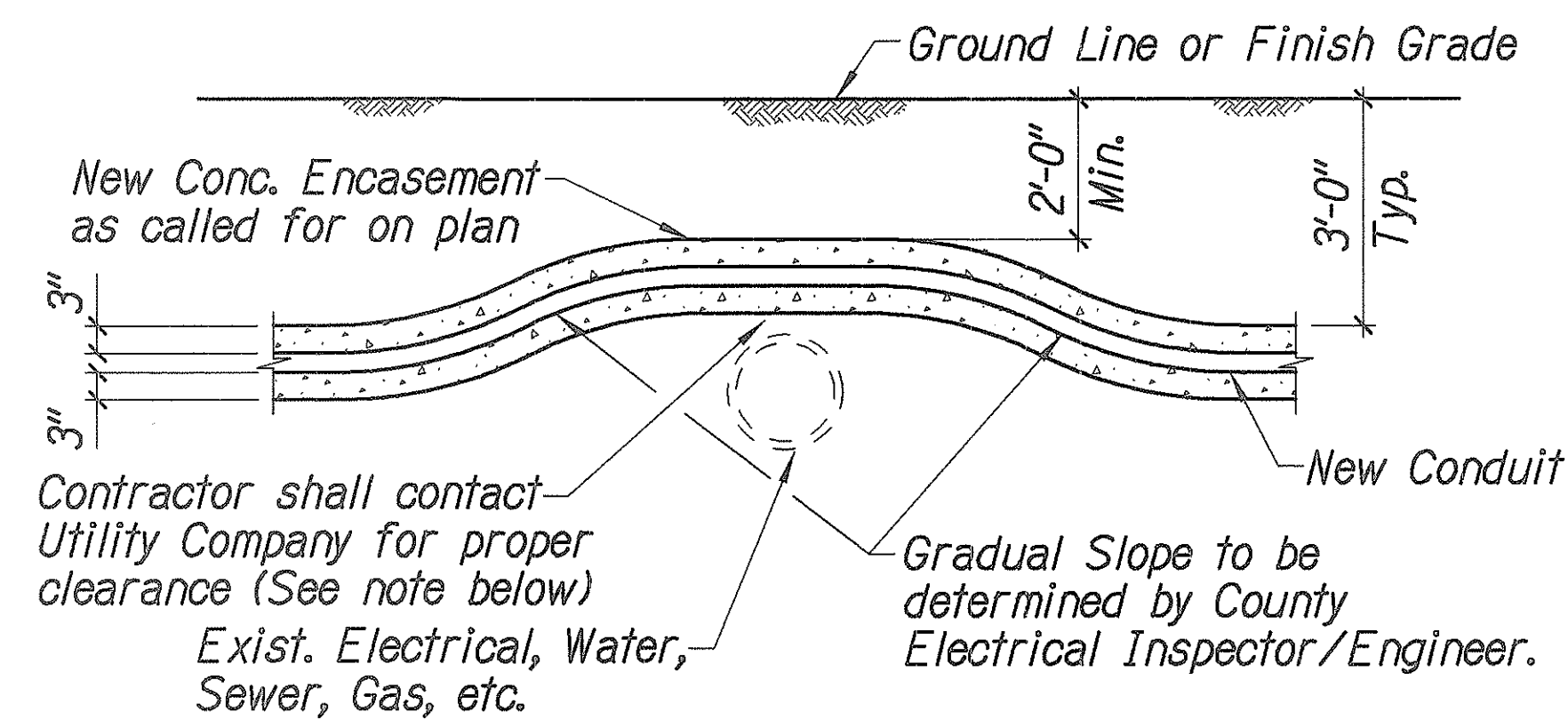
TRAFFIC SIGNAL DETAILS

Ala Moana Boulevard
Traffic Signal Modernization
Federal-Aid Project No. NH-092-1(26)

Scale: As Shown Date: February, 2002

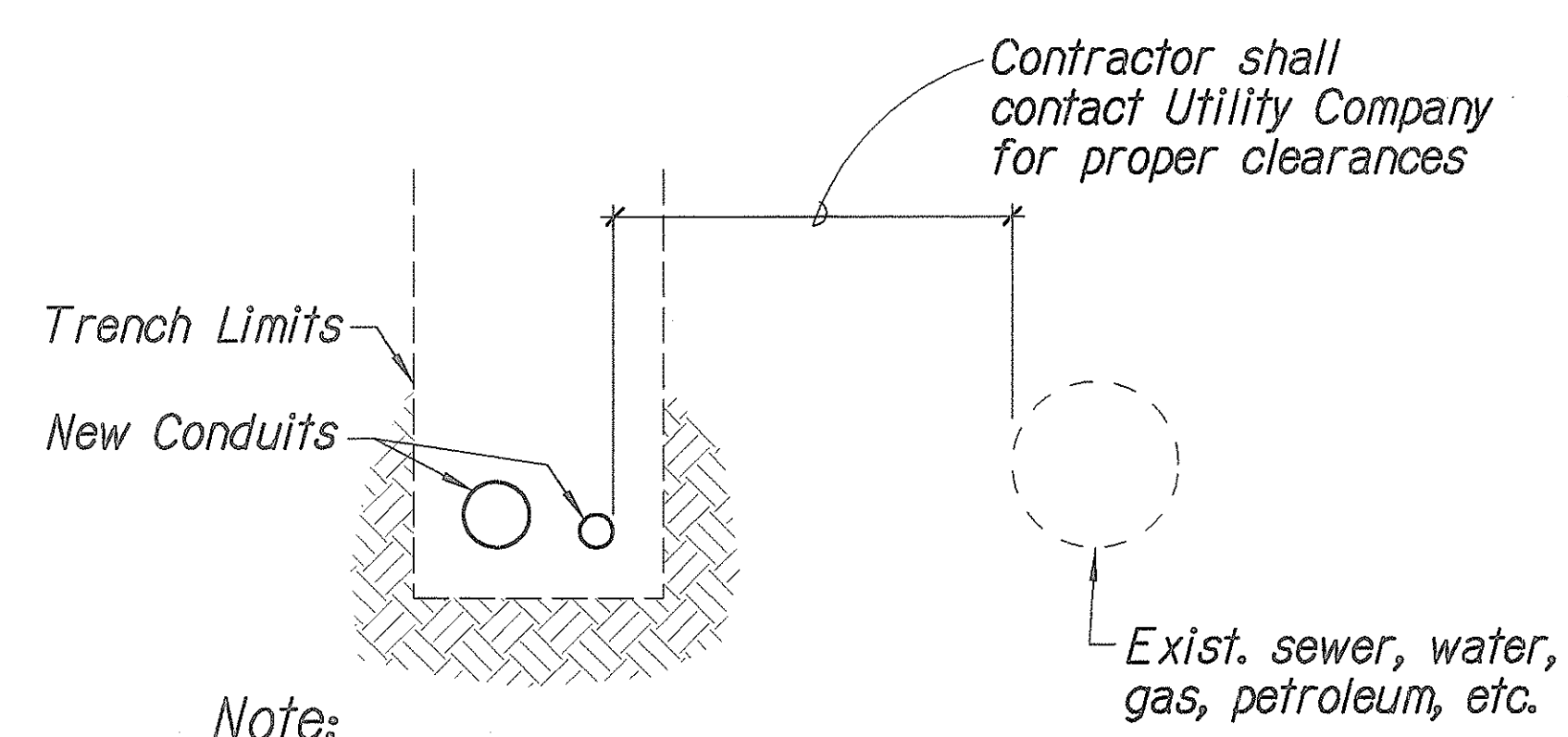
SHEET No. 4 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-092-1(26)	2002	27	30



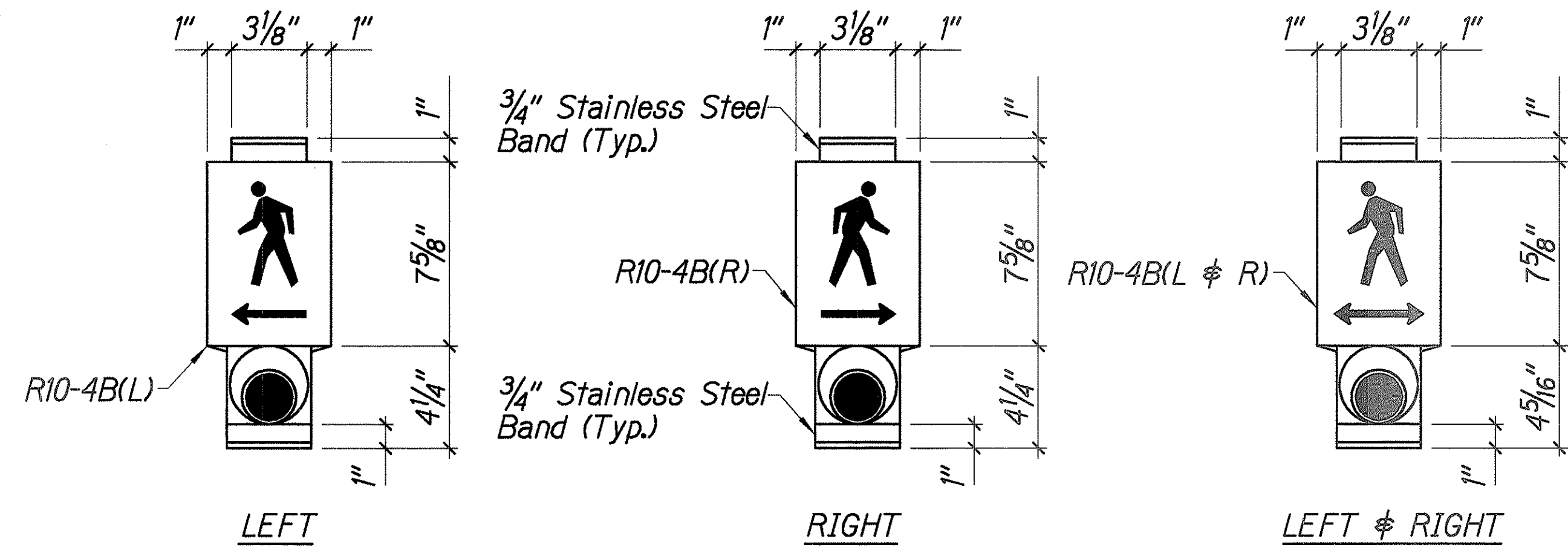
Note:
The Contractor shall provide 6" minimum vertical clearance between water mains and the traffic signal conduits or concrete encasement (12" vertical clearances for structures larger than 16") and 2' vertical clearance between sewer mains and the traffic signal conduit (or concrete encasement). If conduit is placed below sewer line, provide 6 L.F. 6" R.C. jacket on sewer line per City and County of Honolulu Standard Detail S-5.

CONDUIT BY-PASS DETAIL AT VARIOUS UTILITIES
Not to Scale



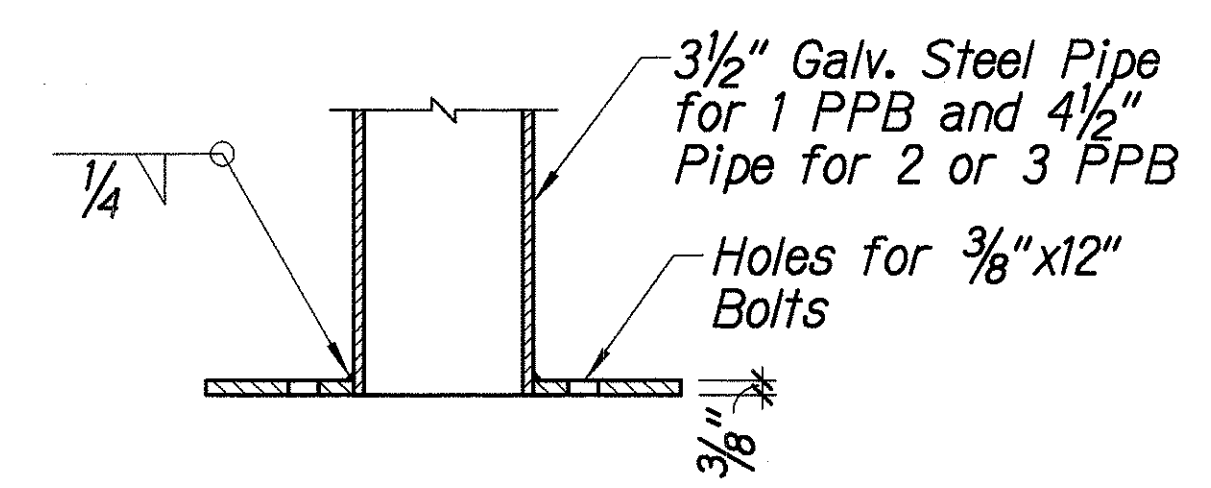
Note:
The Contractor shall provide 3' minimum clearance between sewer main and the ductline/pullbox.

TYPICAL SECTION ADJACENT TO VARIOUS UTILITIES
Scale: 1"=1'-0"

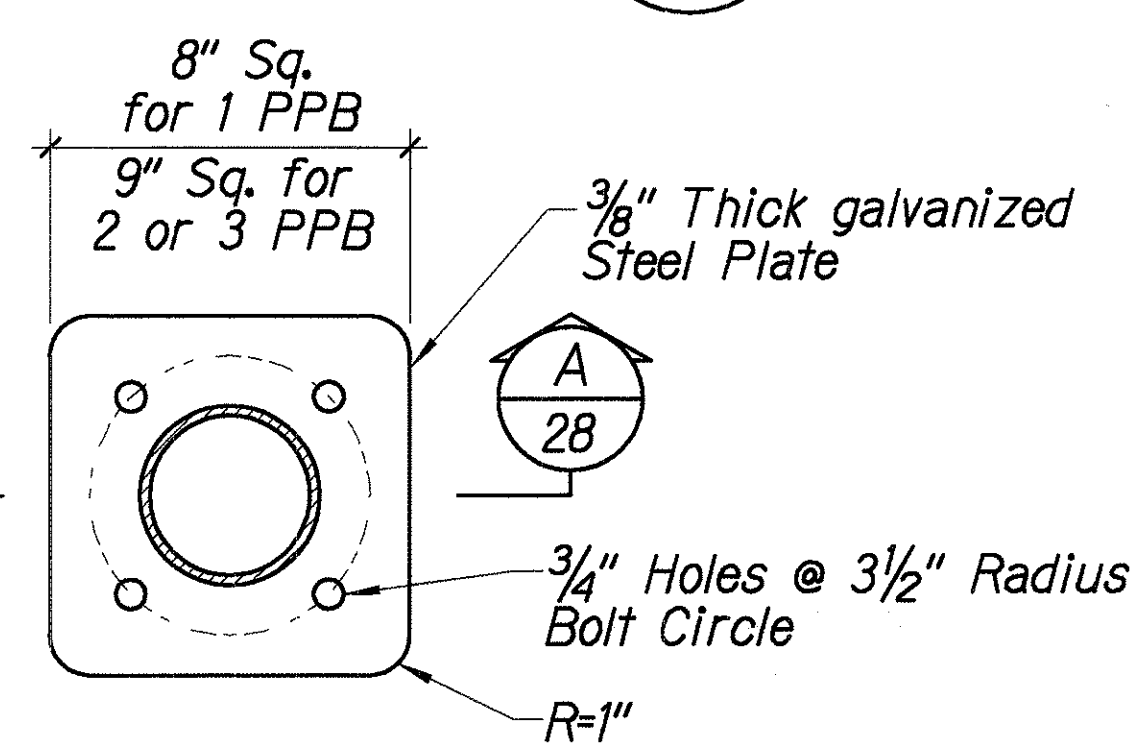


- NOTES:**
- The pedestrian push button unit shall consist of a one piece assembly with a raised walking man, arrow indication and push button.
 - The push button activator shall be of the mushroom plunger type, ADA acceptable, 2-inches in diameter that requires less than 5 lbs. of pressure to activate.
 - The raised man and arrows shall be directional and match the directional indication as shown on the plans.
 - The push button shall be tamper proof, weatherproof and constructed so that electrical shocks are impossible.
 - The color scheme shall be:
White - Man, Arrow and Push Button
Black - Background

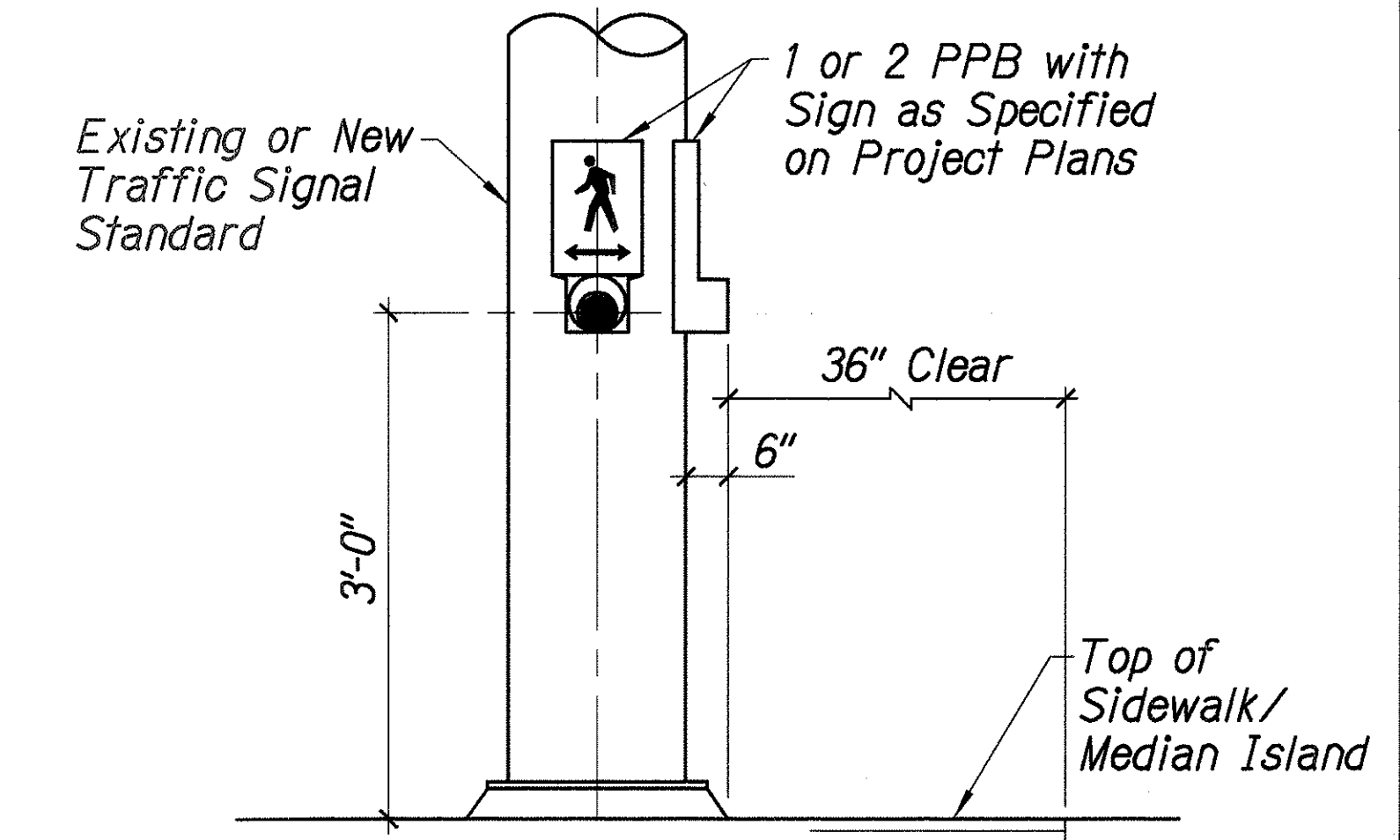
PEDESTRIAN PUSH BUTTON DETAILS
Not to Scale



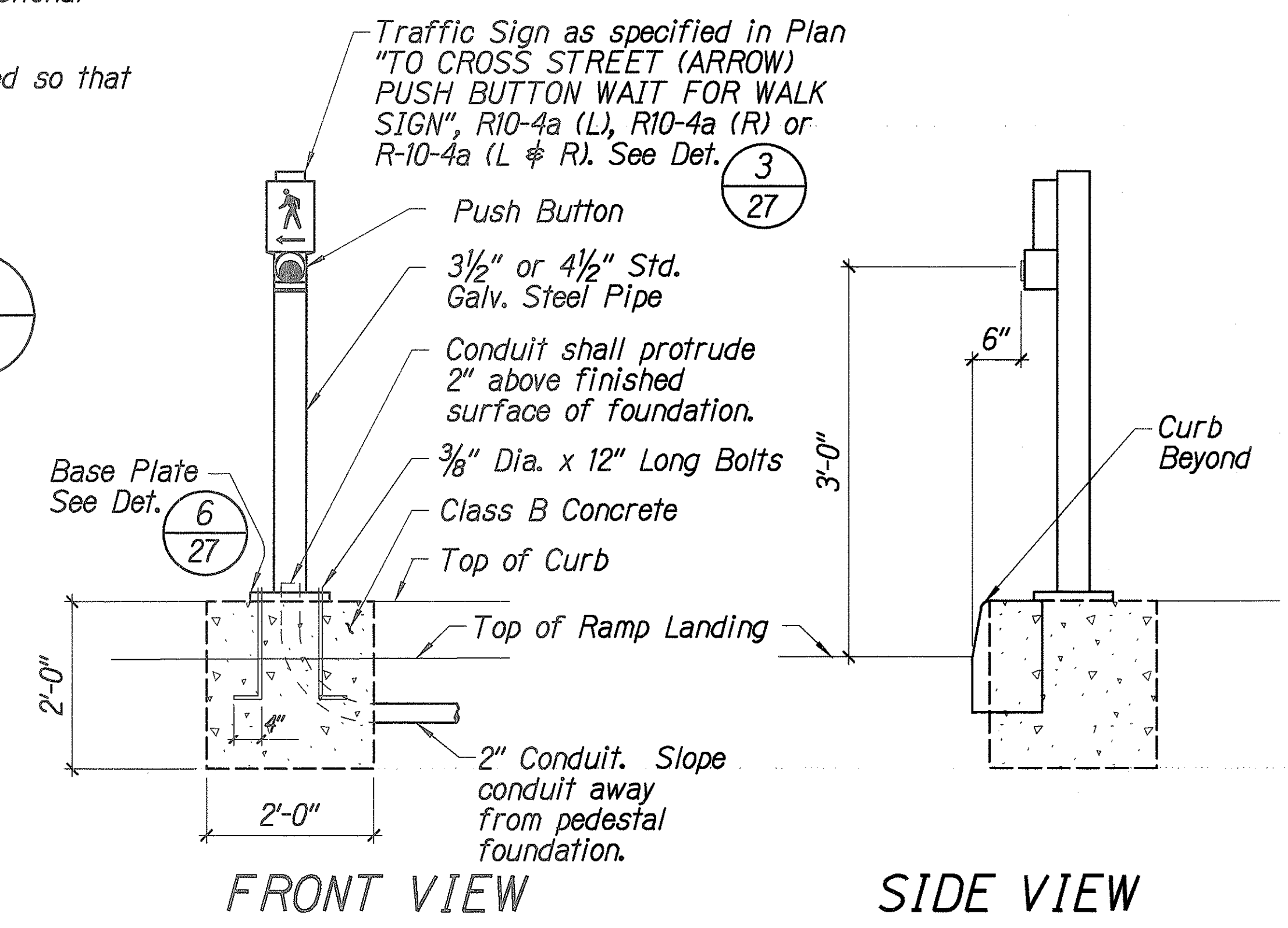
SECTION A
Scale: 3"=1'-0"



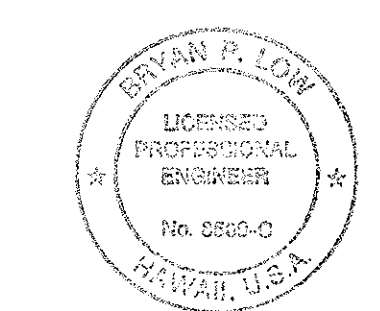
BASE PLATE DETAIL
Scale: 3"=1'-0"



PPB ON TRAFFIC SIGNAL STD.
Not To Scale



PEDESTRIAN PUSH BUTTON PEDESTAL DETAIL
Not to Scale



APPROVED:
Y. Wasulalam
Chief, Wastewater Branch, DPP
Date: 2/15/02

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

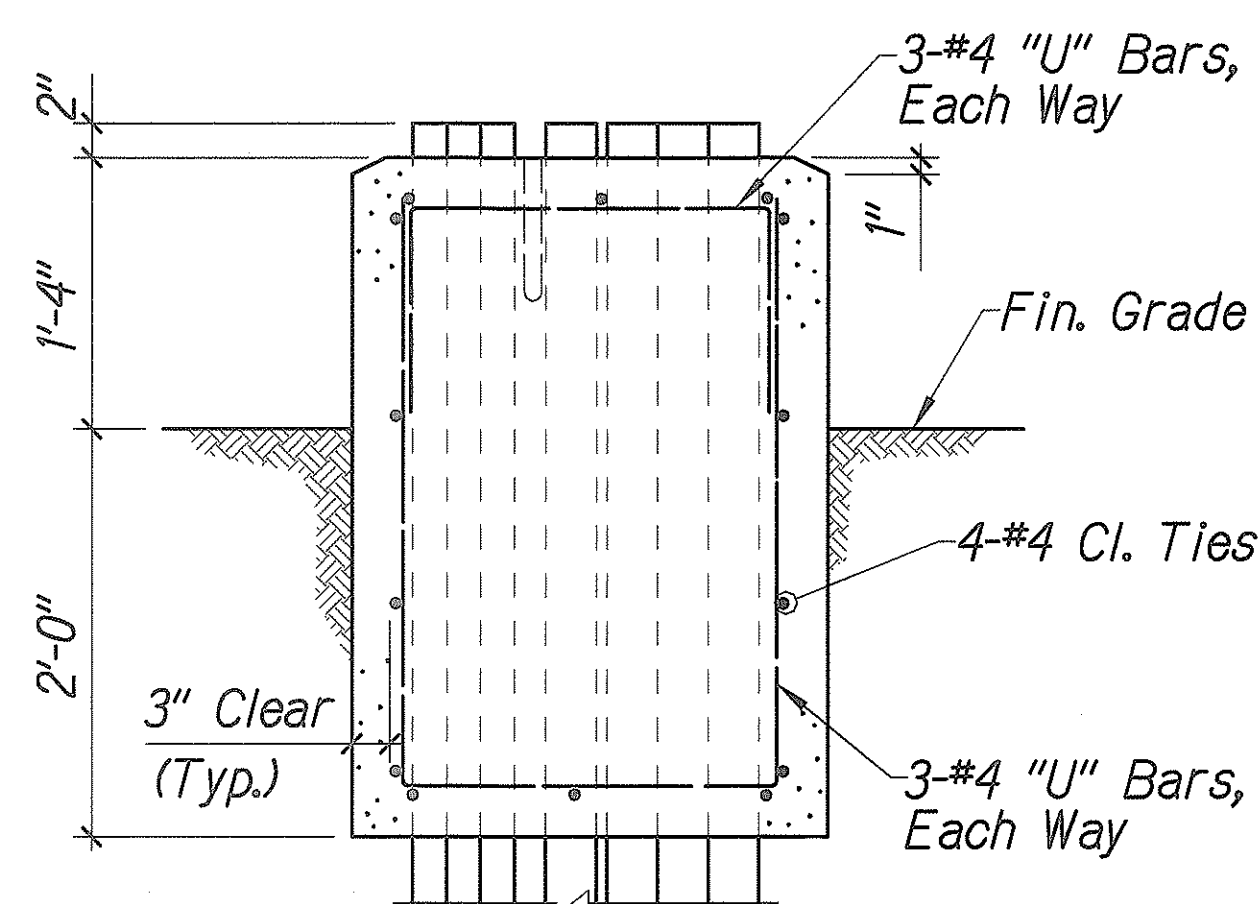
TRAFFIC SIGNAL DETAILS

Ala Moana Boulevard
Traffic Signal Modernization
Federal-Aid Project No. NH-092-1(26)

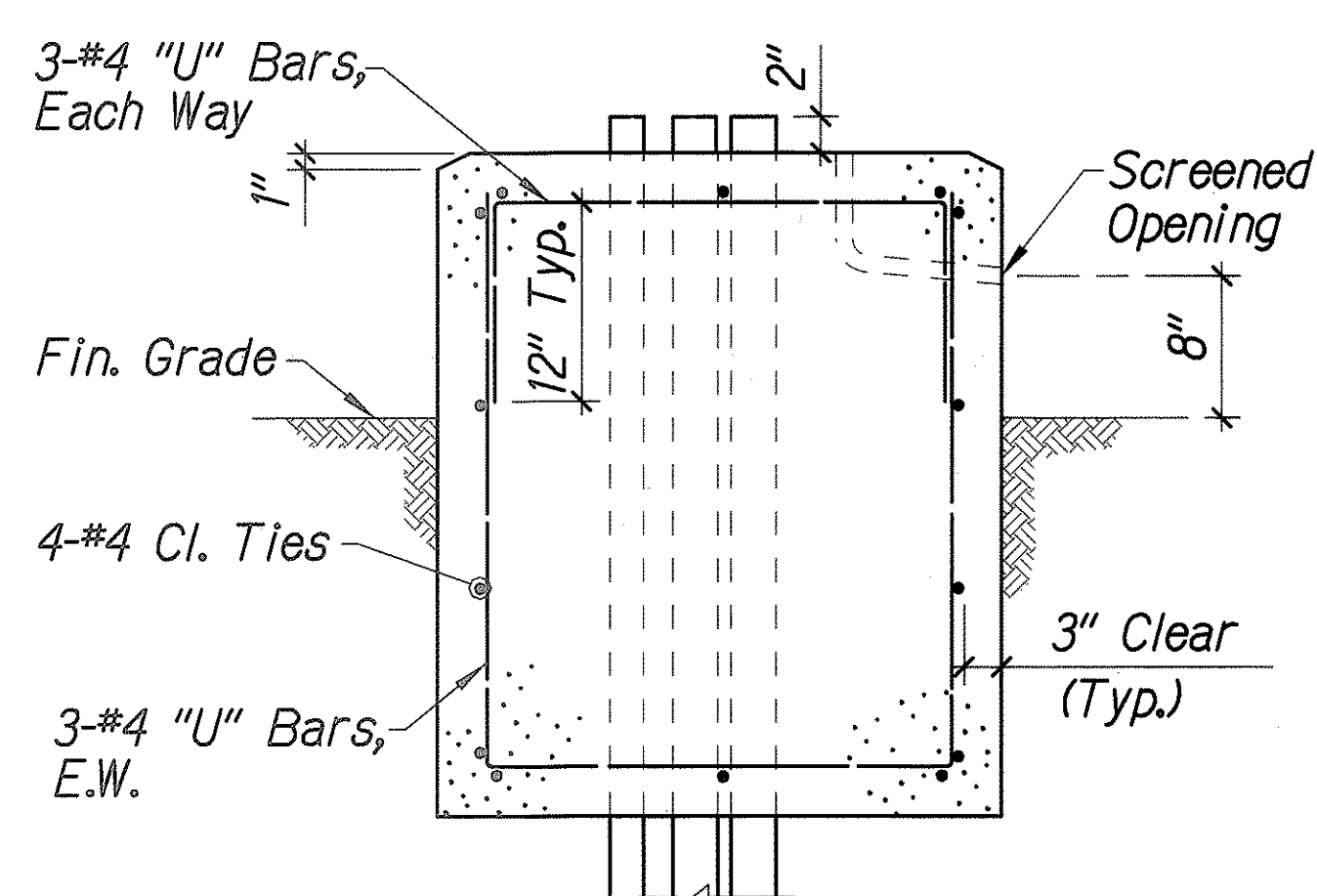
Scale: As Shown Date: February, 2002

SHEET No. 5 OF 8 SHEETS

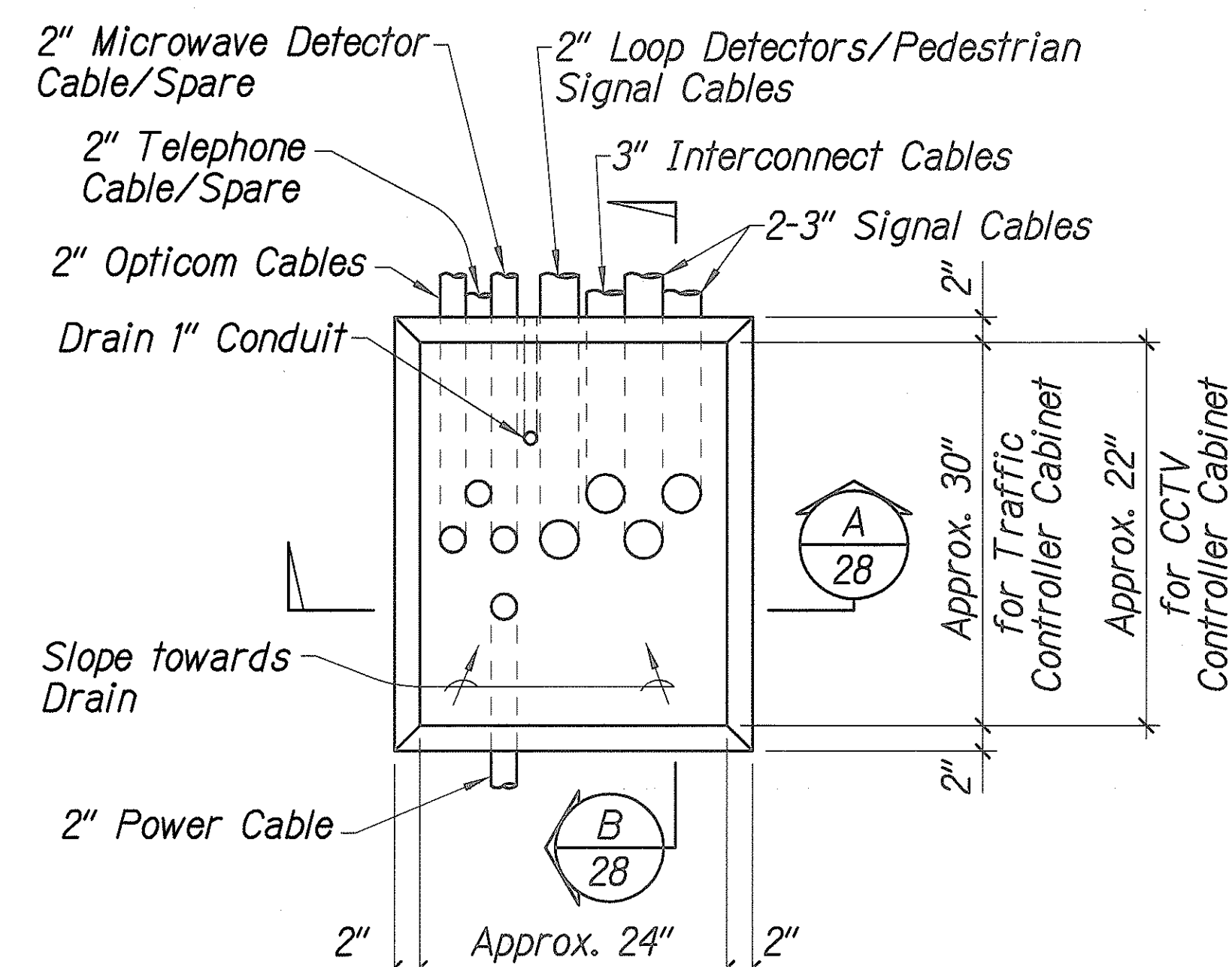
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-092-1(26)	2002	28	30



SECTION A
28



SECTION B
28

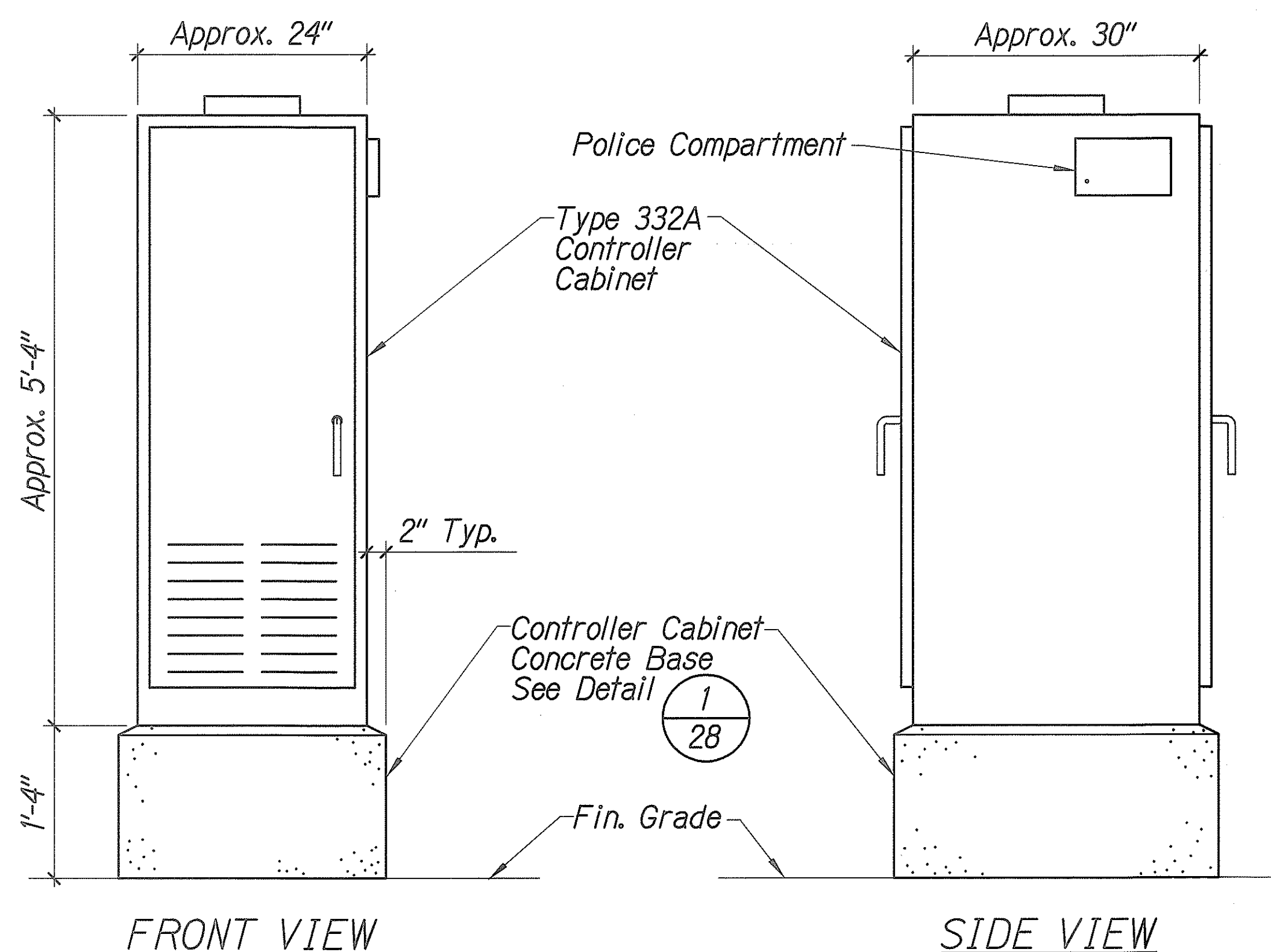


PLAN

CONTROLLER CABINET CONCRETE BASE DETAIL 1
Not to Scale 28

NOTES:

- Concrete shall be class "B".
- Dimensions shall be altered to suit controller cabinet actually furnished.
- Conduits, bends, and drain are incidental to concrete base.
- Refer to Cabinet Manufacturer's Specifications for details of anchor bolts and base settings.
- All exposed surfaces of concrete base shall be given a class 2, rubbed finish.
- All conduits shall be galv. steel.



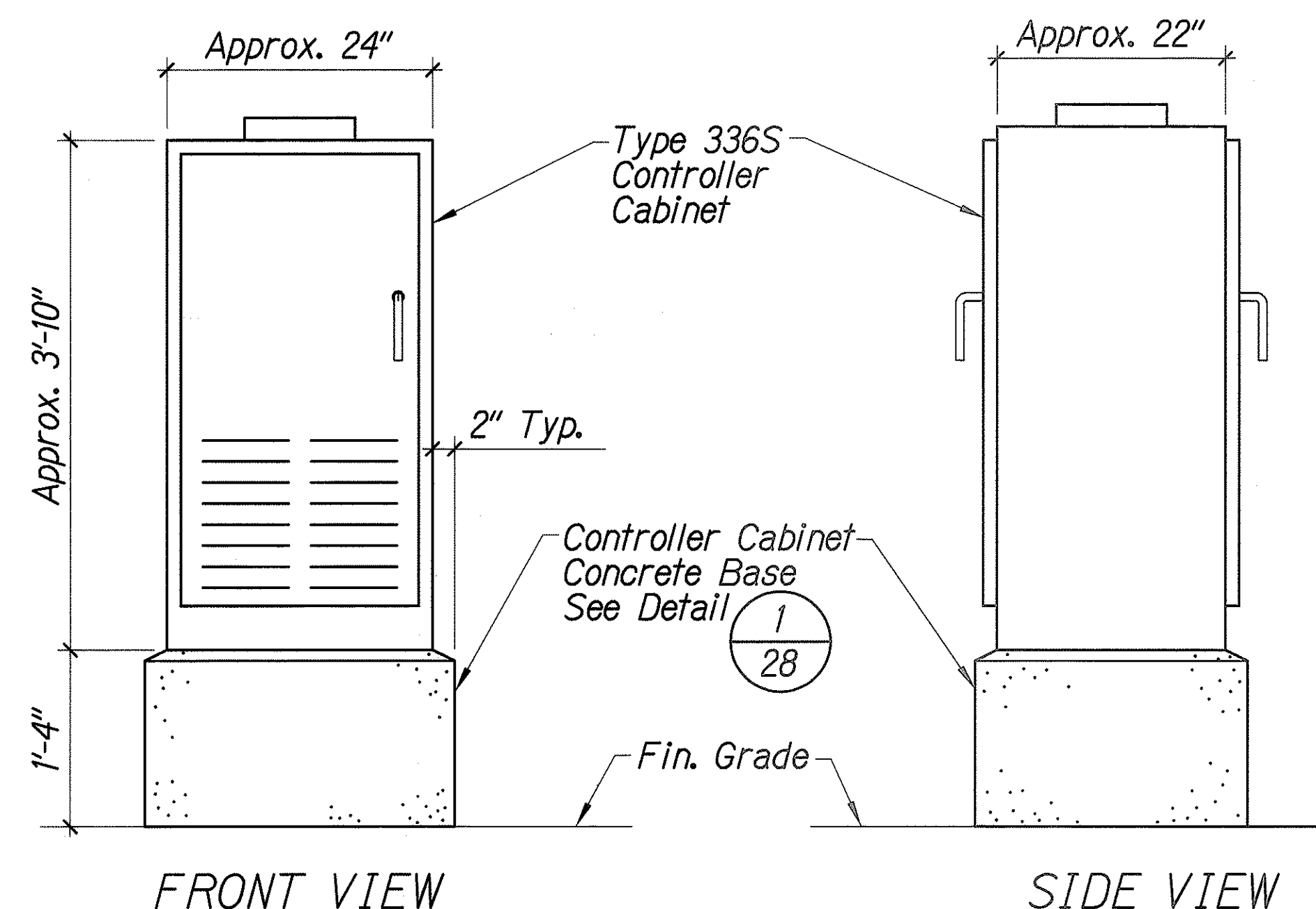
FRONT VIEW

SIDE VIEW

NOTE:

The Contractor shall provide a switch/jack and 15-foot switch cord assembly for each Police Compartment. The cost shall not be paid for separately but shall be considered incidental to the Controller.

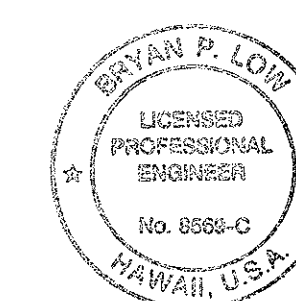
TRAFFIC SIGNAL CONTROLLER CABINET DETAIL 2
Not to Scale 18/28



FRONT VIEW

SIDE VIEW

CCTV CONTROLLER CABINET DETAIL 3
Not to Scale 18/28



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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

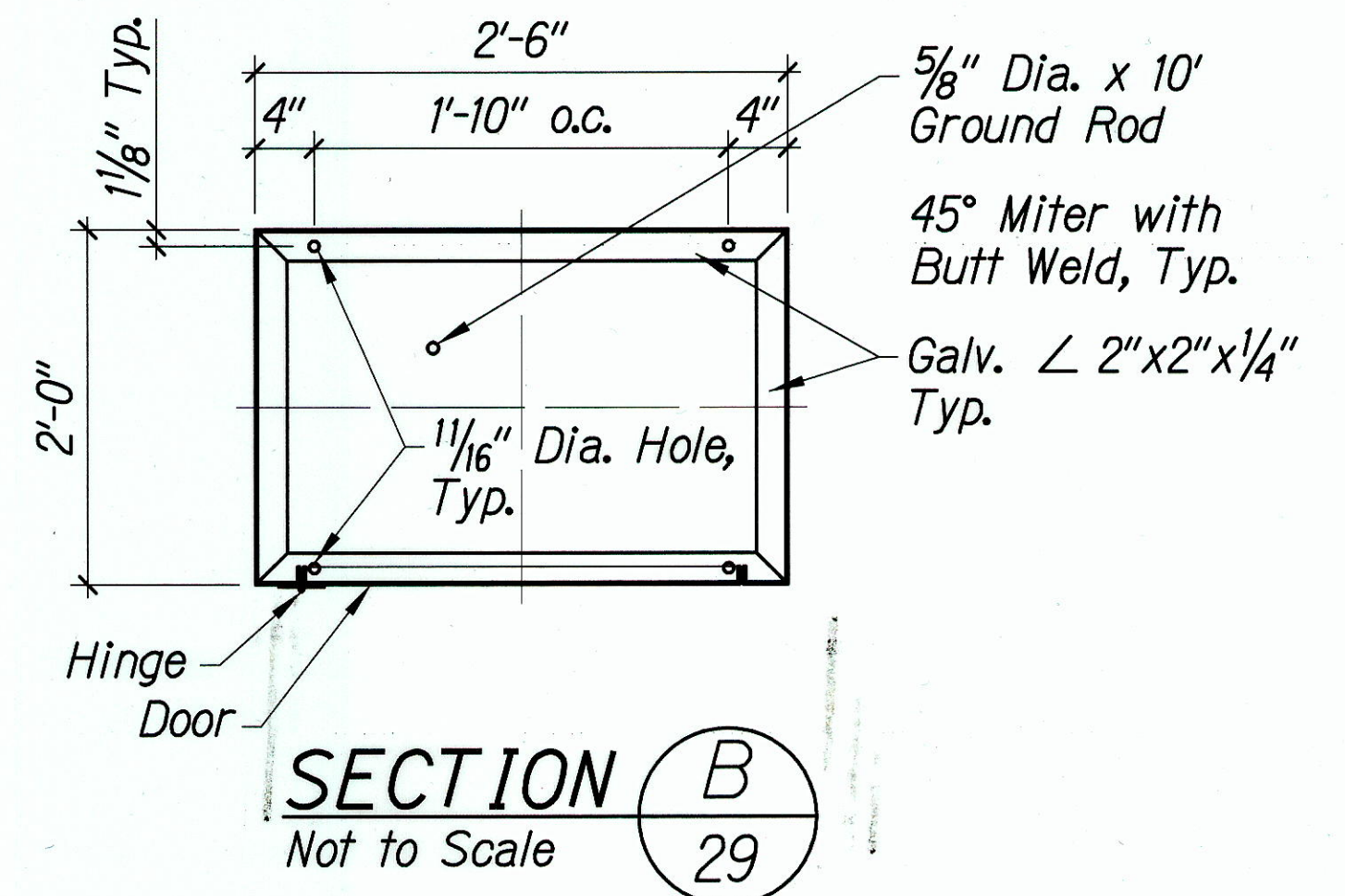
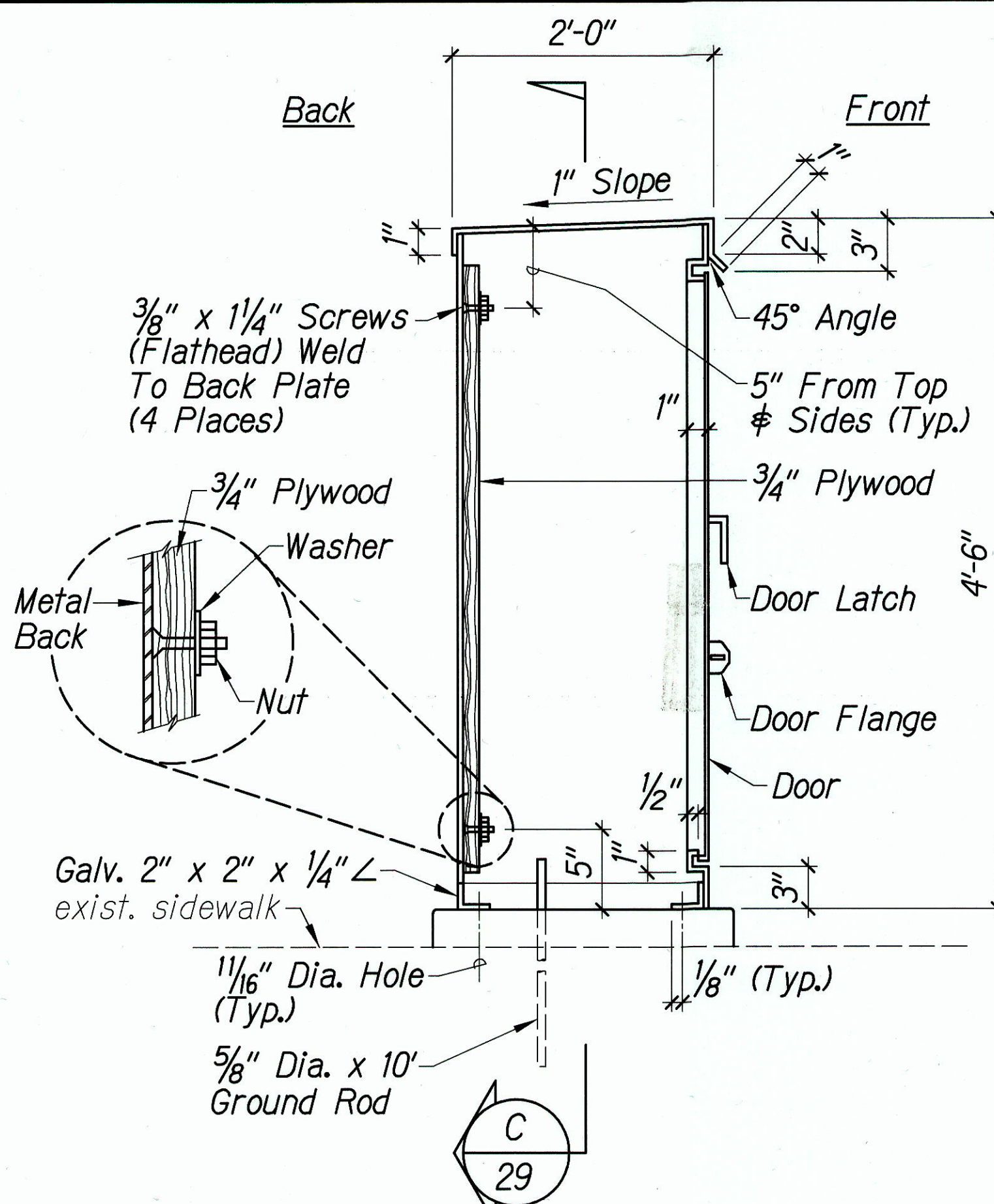
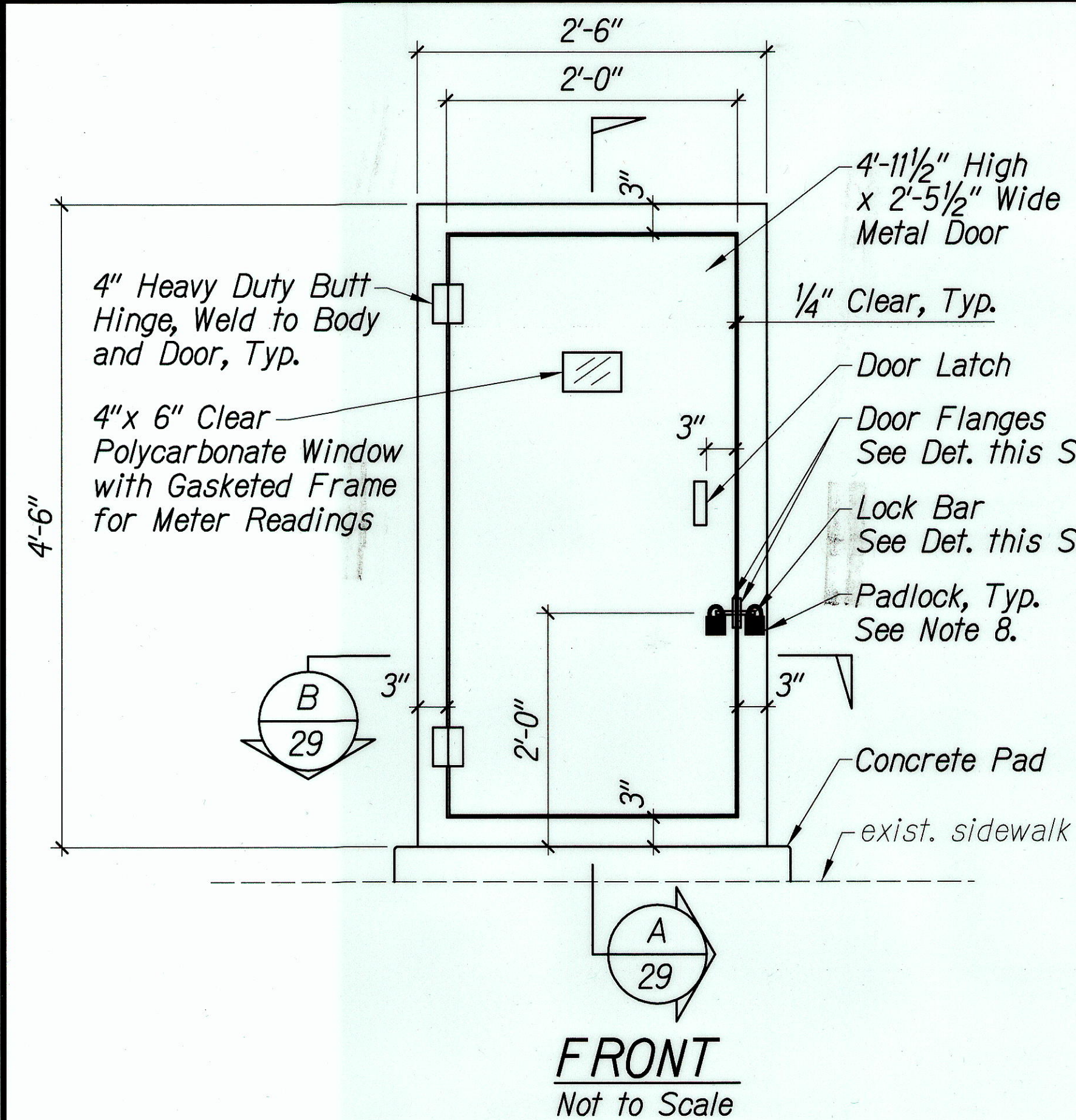
TRAFFIC SIGNAL DETAILS

Ala Moana Boulevard
Traffic Signal Modernization
Federal-Aid Project No. NH-092-1(26)

Scale: As Shown Date: February, 2002

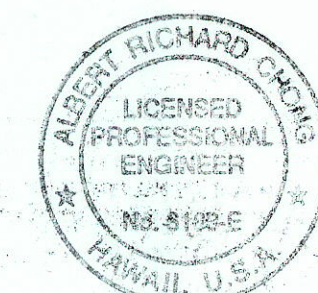
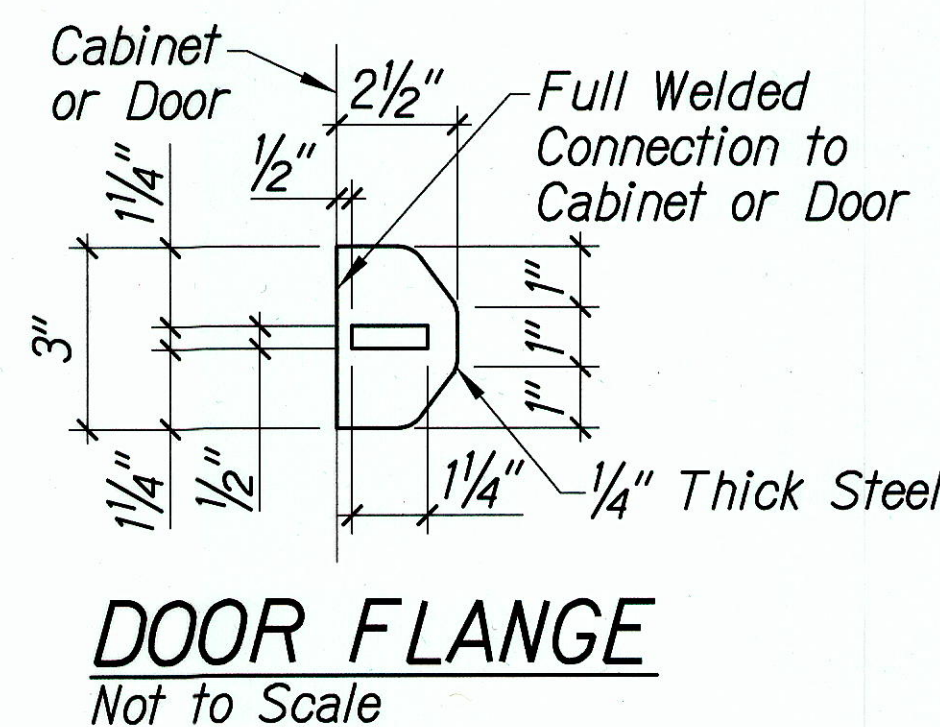
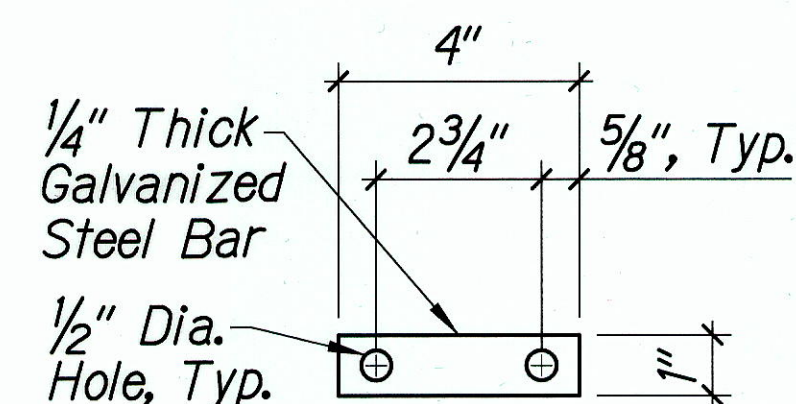
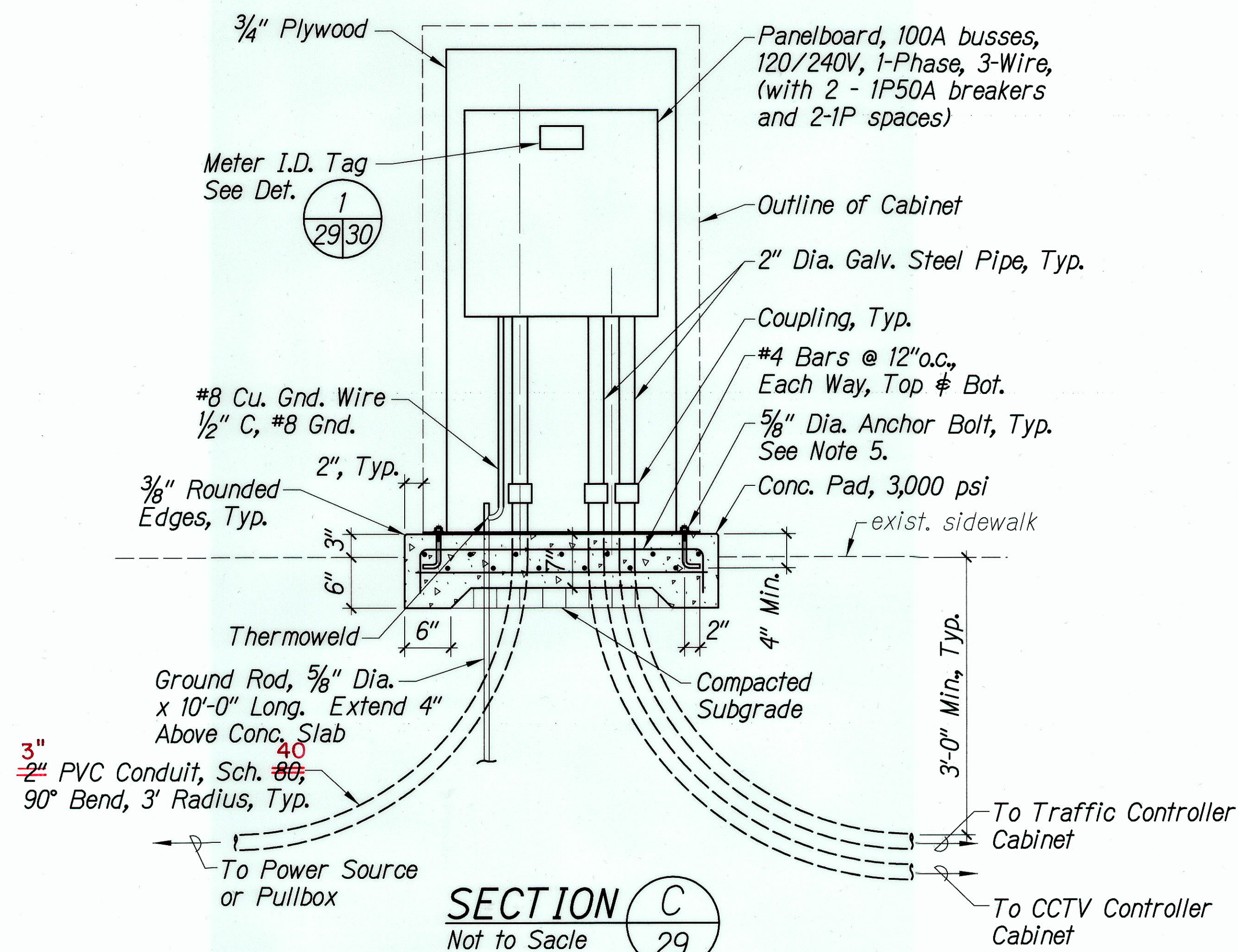
SHEET No. 6 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-092-1(26)	2002	29	30



Notes:

- The cabinet shall be made from 10 gauge aluminum sheet metal and shall be NEMA 3R with neoprene gasketing.
- Plywood shall be 3/4" thick min., treated (Wolmanized) plywood, exterior grade.
- The cabinet shall be primed with one coat of shop primer after fabrication.
- Provide 2 coats of epoxy enamel paint after fabrication. The Contractor shall submit color selection for review. Color to be selected by the engineer during construction.
- Anchor Bolts shall be 6" long and threaded 2" and hot-dipped galvanized after fabrication. Embed Anchor Bolts 4" min. in order to have threaded end protrude 1/2" above finish surface of New Concrete Slab. Anchor Bolts shall be set plumb vertical.
- Padlocks shall be furnished as follows:
1 - HECO furnished
1 - Contractor furnished brass Sargent padlock capable of being opened by the City and County DTS Master Key.
- The Contractor shall submit shop drawings to the Engineer for review and acceptance.
- Locations of opening for meter reading to correspond with location of meter.
- See Sheet 30 for one-line diagram.
- Equipment shall be provided per HECO requirements and approval.
- * Indicates provisions for HECO seals.



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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TRAFFIC SIGNAL
METER CABINET DETAILS**

Ala Moana Boulevard
Traffic Signal Modernization
Federal Aid Project No. NH-092-1(26)

Scale: As Shown Date: February, 2002

SHEET No. 7 OF 8 SHEETS

AS-BUILT

29

