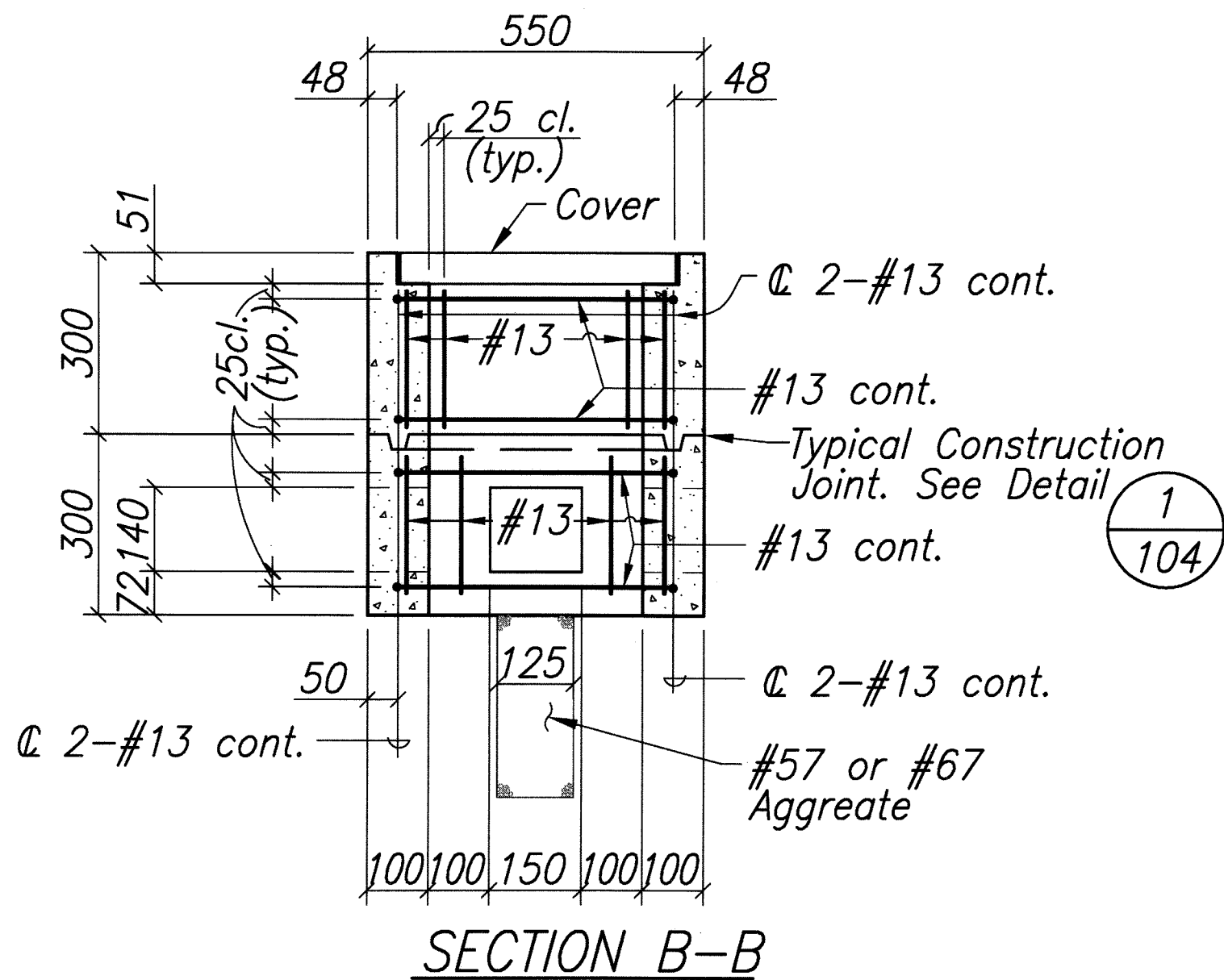
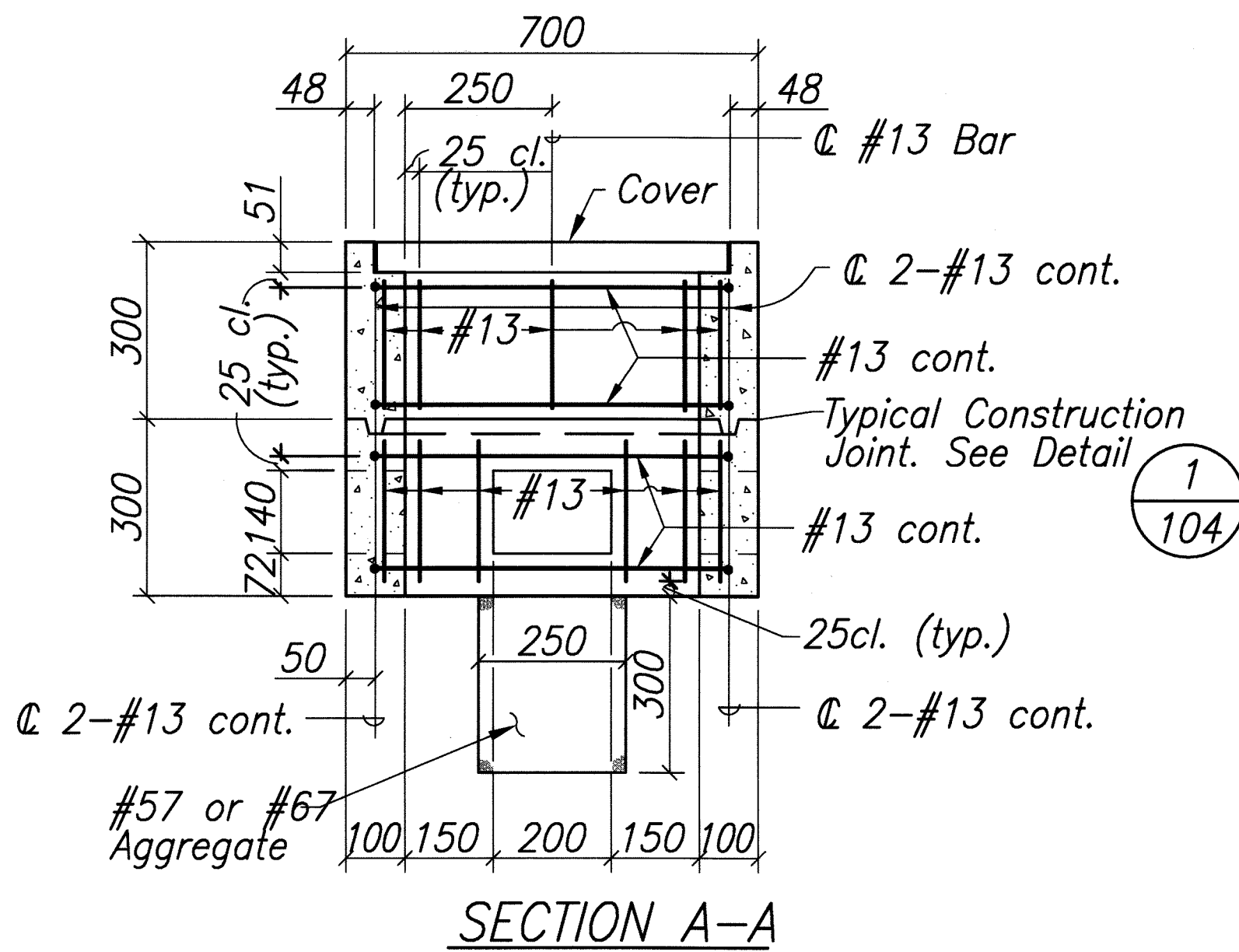
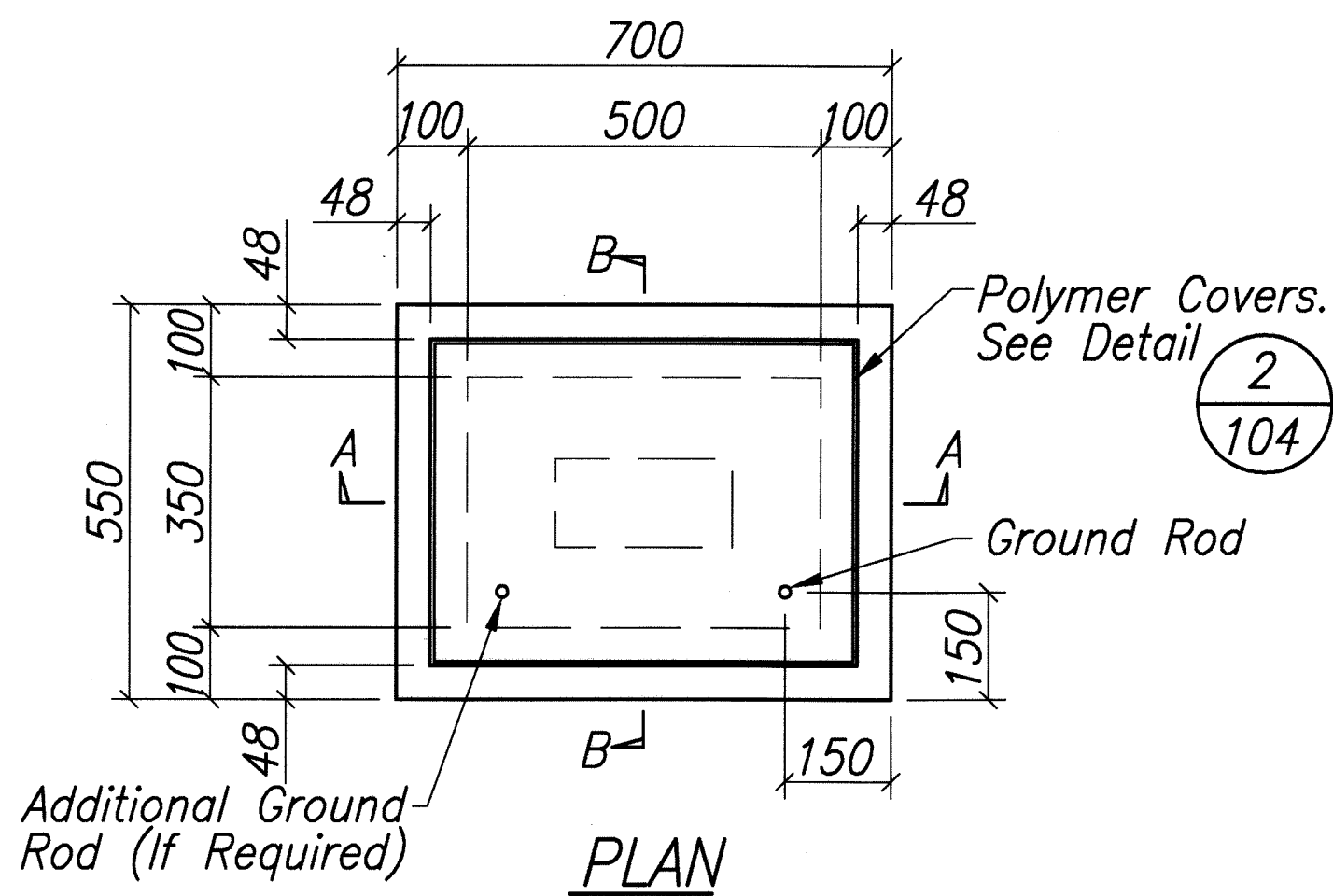
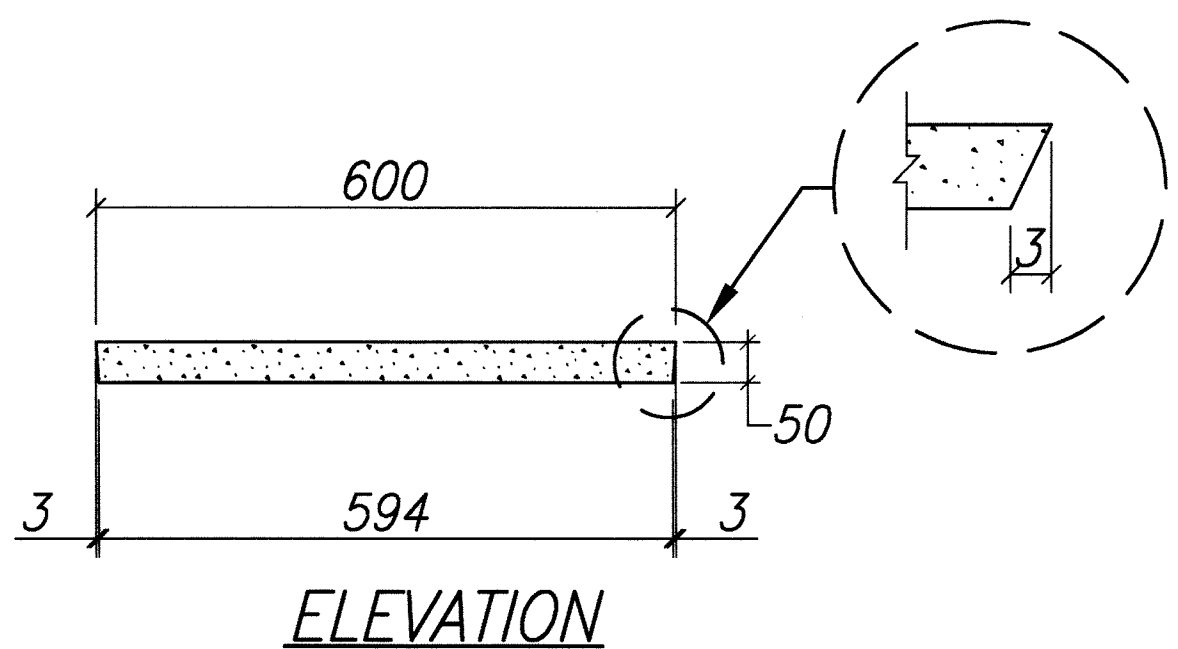
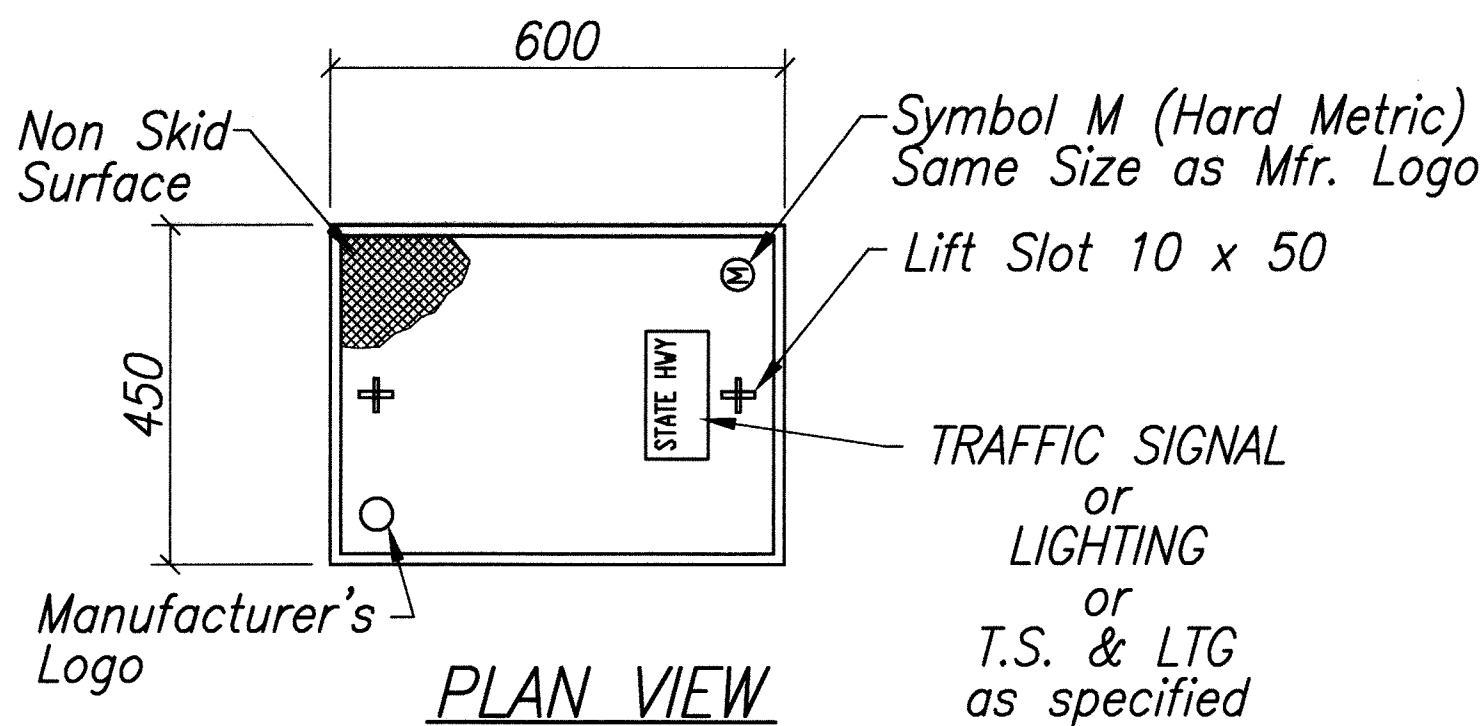
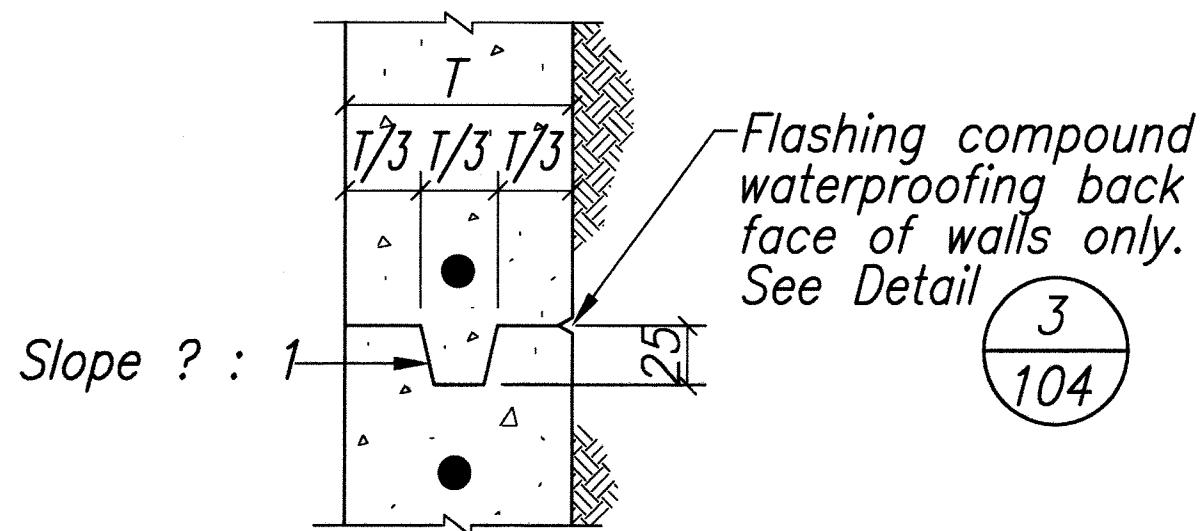


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	CMAQ-0300(111)	2008	104	203



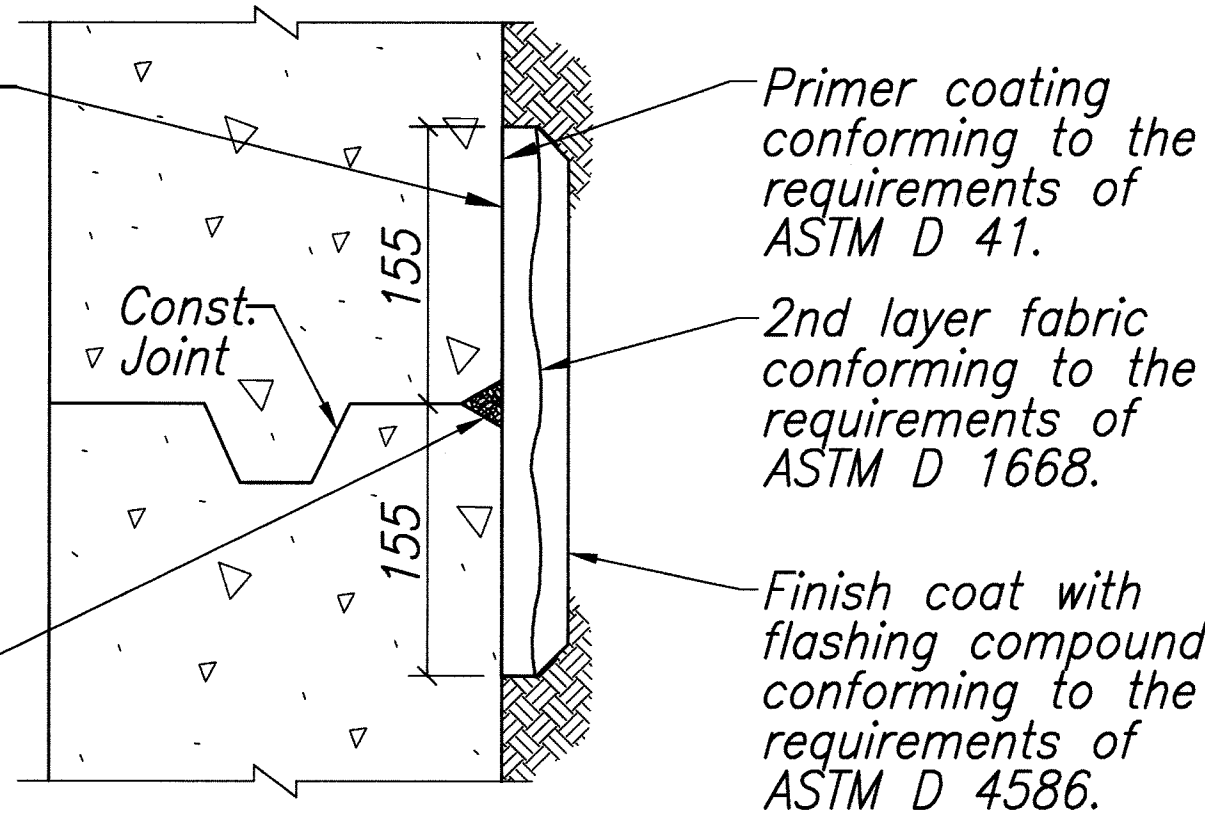
TYPE "A" PULLBOX (Old Type "B")
Scale: 1:10



POLYMER CONCRETE COVER
Not to Scale

Clean concrete surface before application of first coat of primer coating and flashing compound.

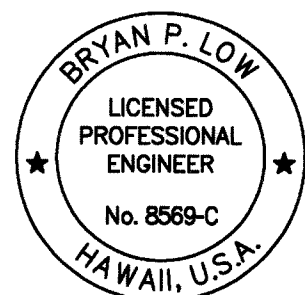
Flashing compound conforming to the requirements of ASTM D 4586.



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).

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.



LICENSE EXPIRATION DATE 04/30/10
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Bryan P. Low
SHIMABUKURO, ENDO & YOSHIZAKI, INC.
1120-12TH Avenue
Honolulu, Hawaii 96818

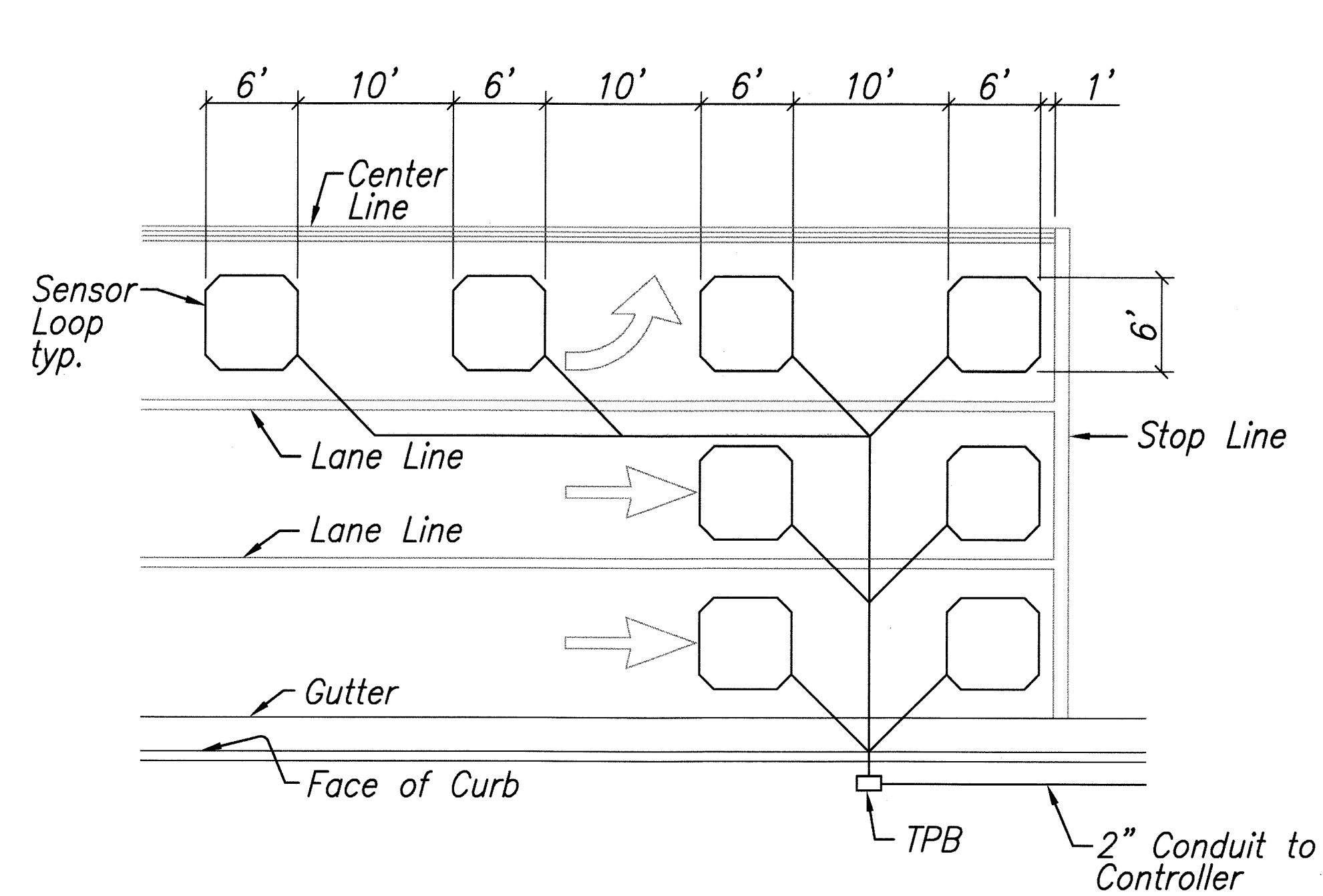
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Pullbox Details

Traffic Signal Modernization
Various Locations - Oahu
Federal-Aid Project No. CMAQ-0300(111)

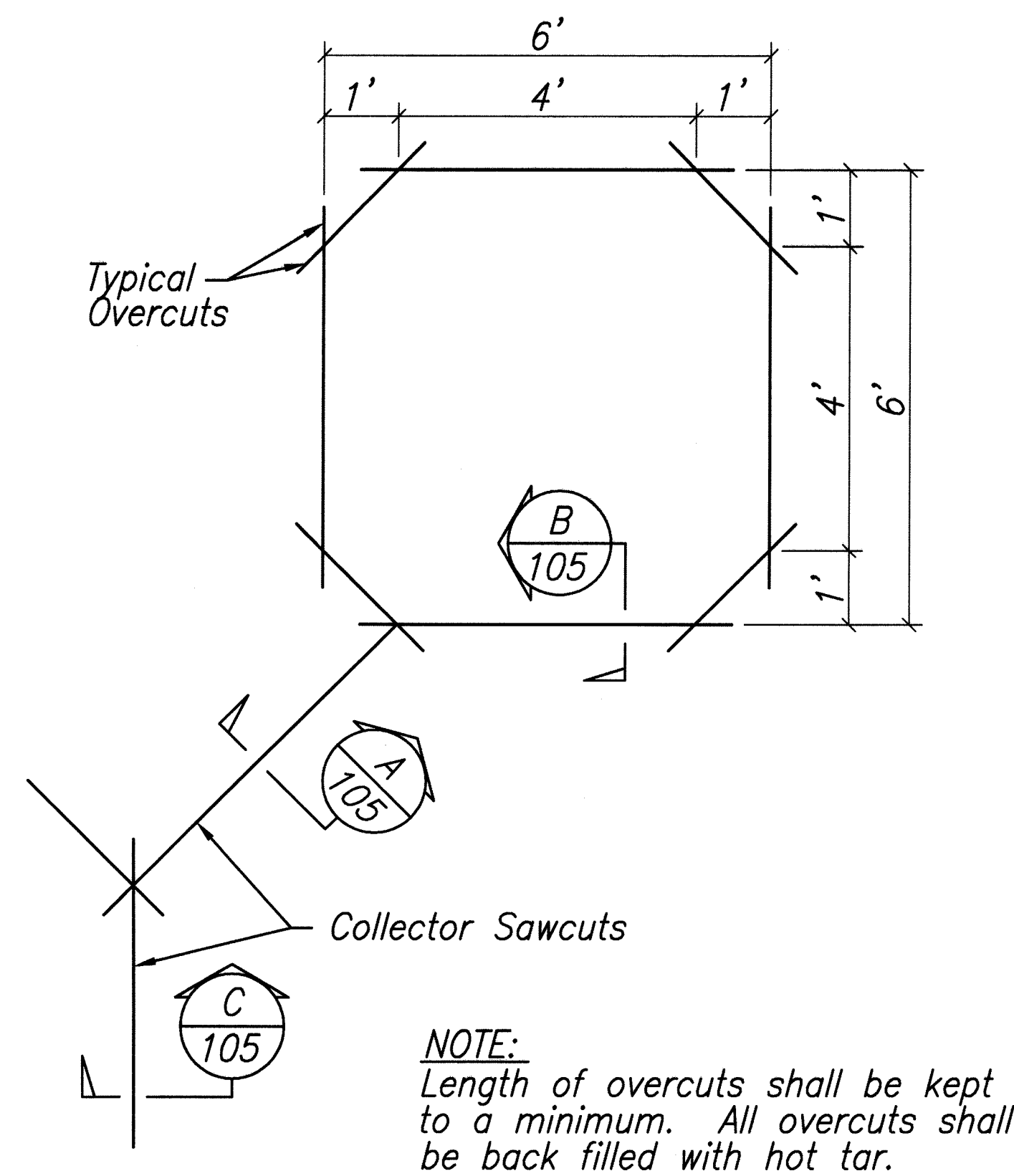
Date: July, 2008

SHEET No. 2 OF 7 SHEETS

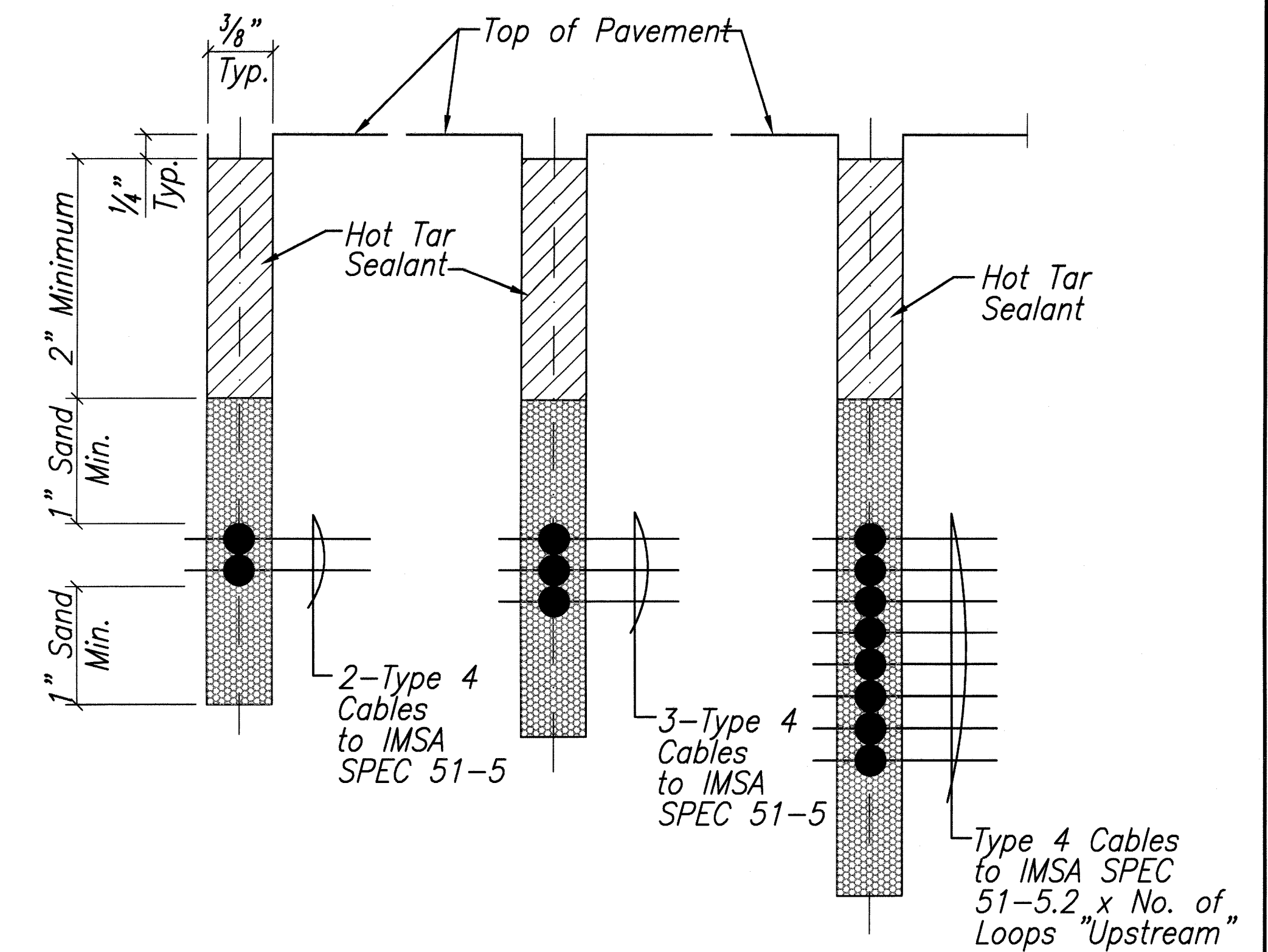


- NOTES:**
1. Center sensor loops in lanes, unless otherwise noted on plans.
 2. Collector cables shall be twisted 2 turns per foot.
 3. Number of loops and locations vary. See project plans.
 4. Number and locations of collector sawcuts may be varied in the field to suit.

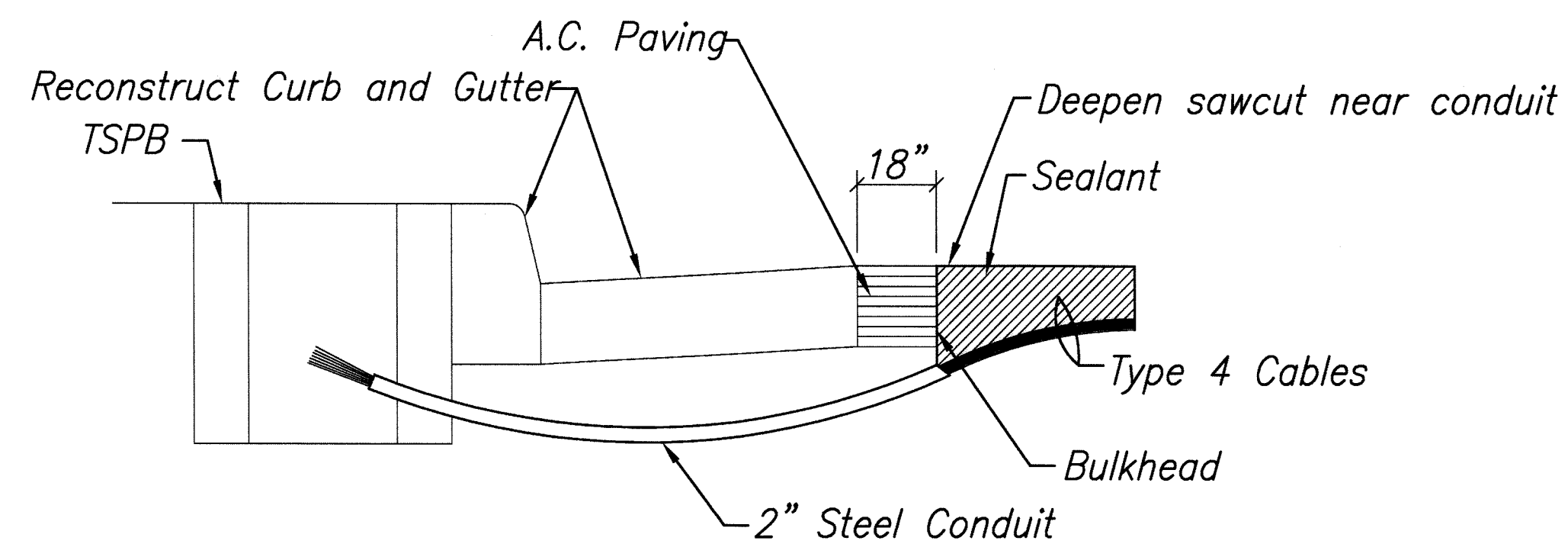
TYPICAL SENSOR LOOP LAYOUT
Not to Scale



TYPICAL SENSOR LOOP SAWCUT DETAIL
Not to Scale



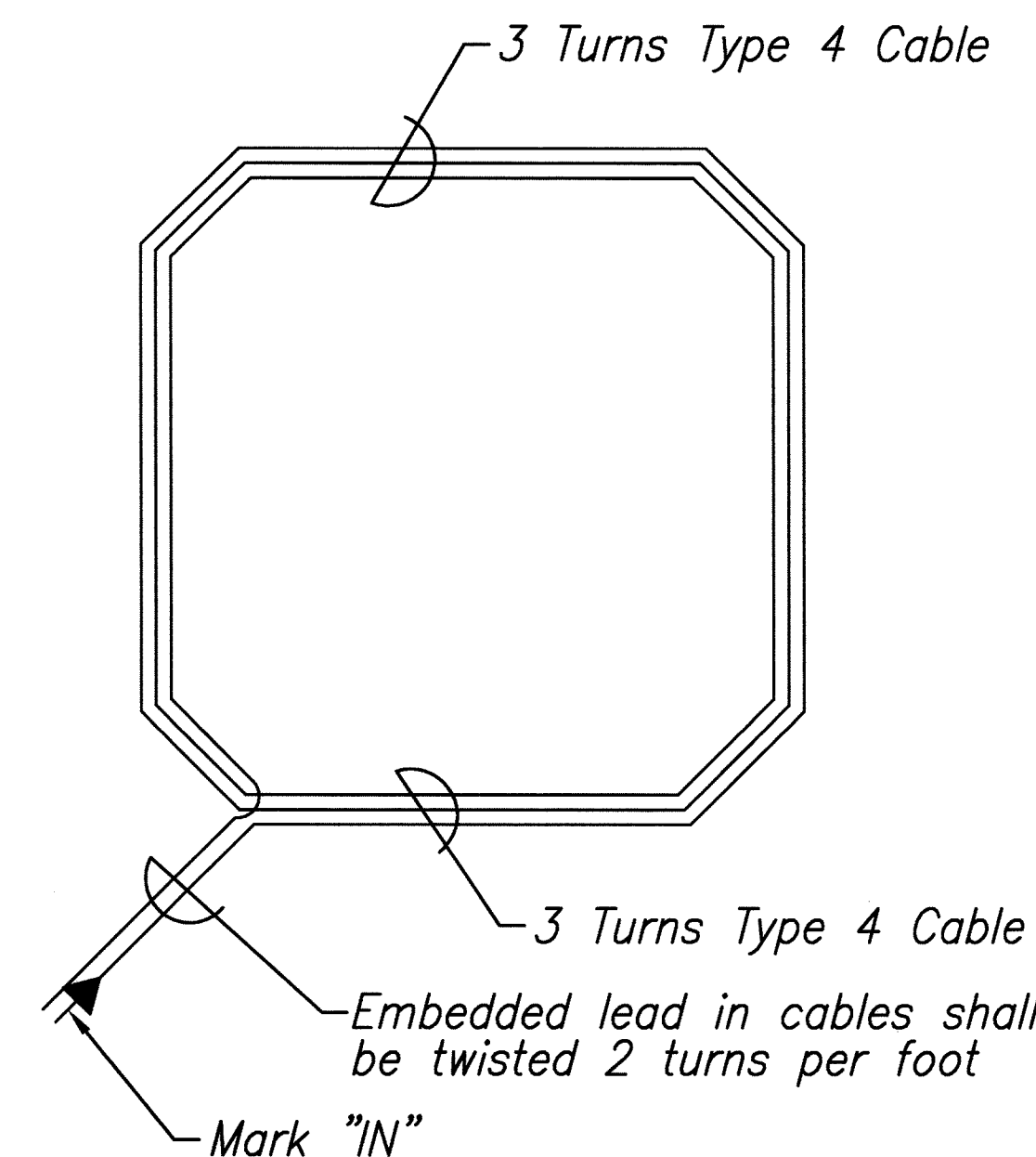
SECTION A Not to Scale **SECTION B** Not to Scale **SECTION C** Not to Scale



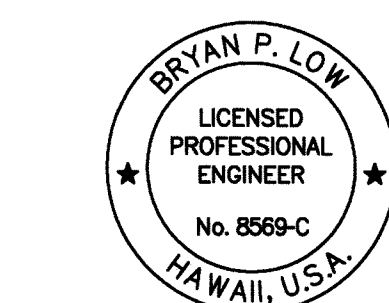
NOTES ON CONSTRUCTION AT END OF SAWCUT

1. Seal roadway end of conduit after installation of conductors.
2. Install bulkhead across conduit trench.
3. Place hot tar in sawcut.
4. Backfill over conduit with new A.C.
5. Reconstruct curb and gutter as required.

DETAIL OF SENSOR LOOP INSTALLATION AT EDGE OF ROADWAY
Not to Scale



TYPICAL SENSOR LOOP WIRING DIAGRAM
Not to Scale



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HONOLULU, HAWAII 96816

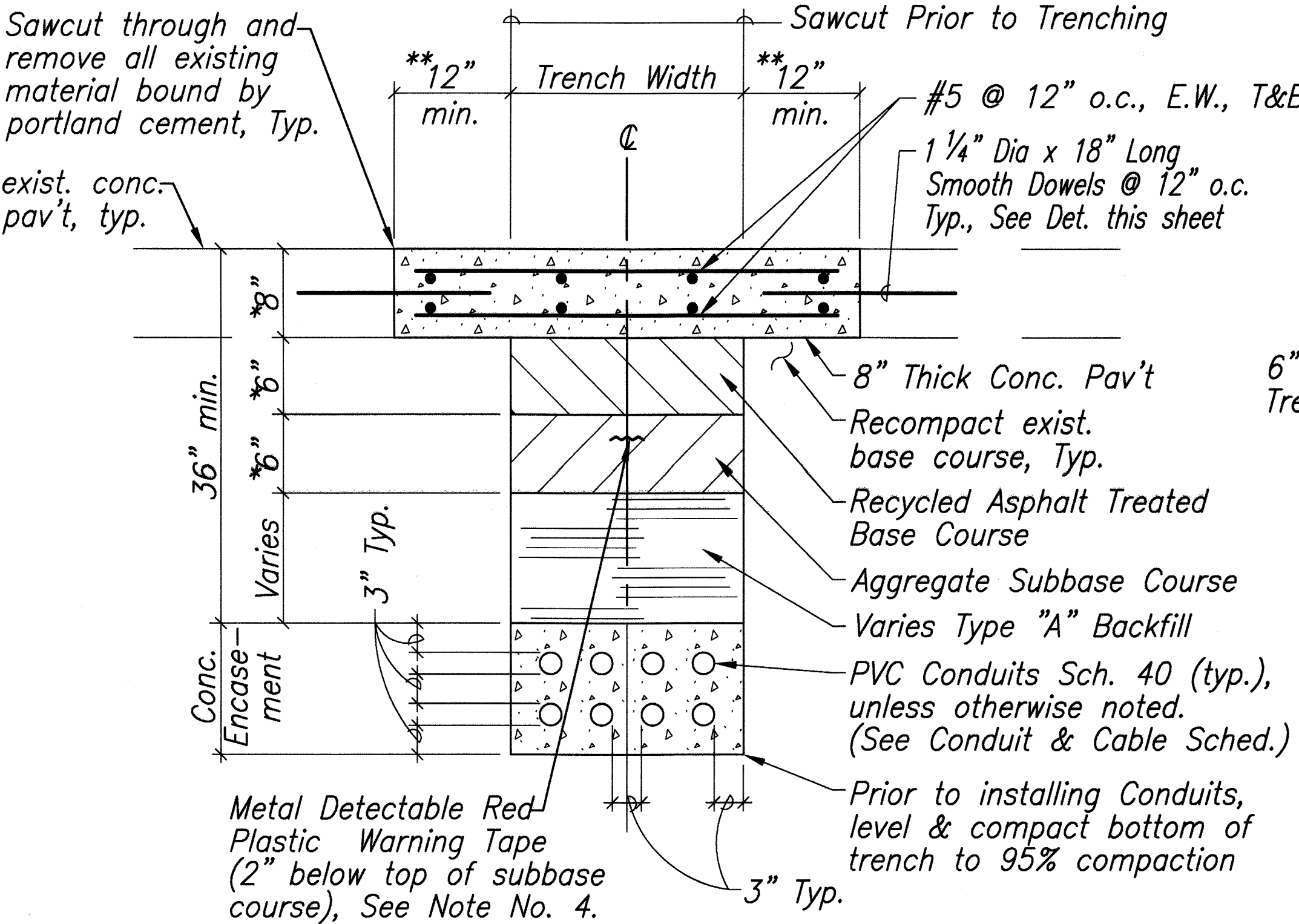
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Loop Detector Details

Traffic Signal Modernization
Various Locations - Oahu
Federal-Aid Project No. CMAQ-0300(111)

Date: July, 2008

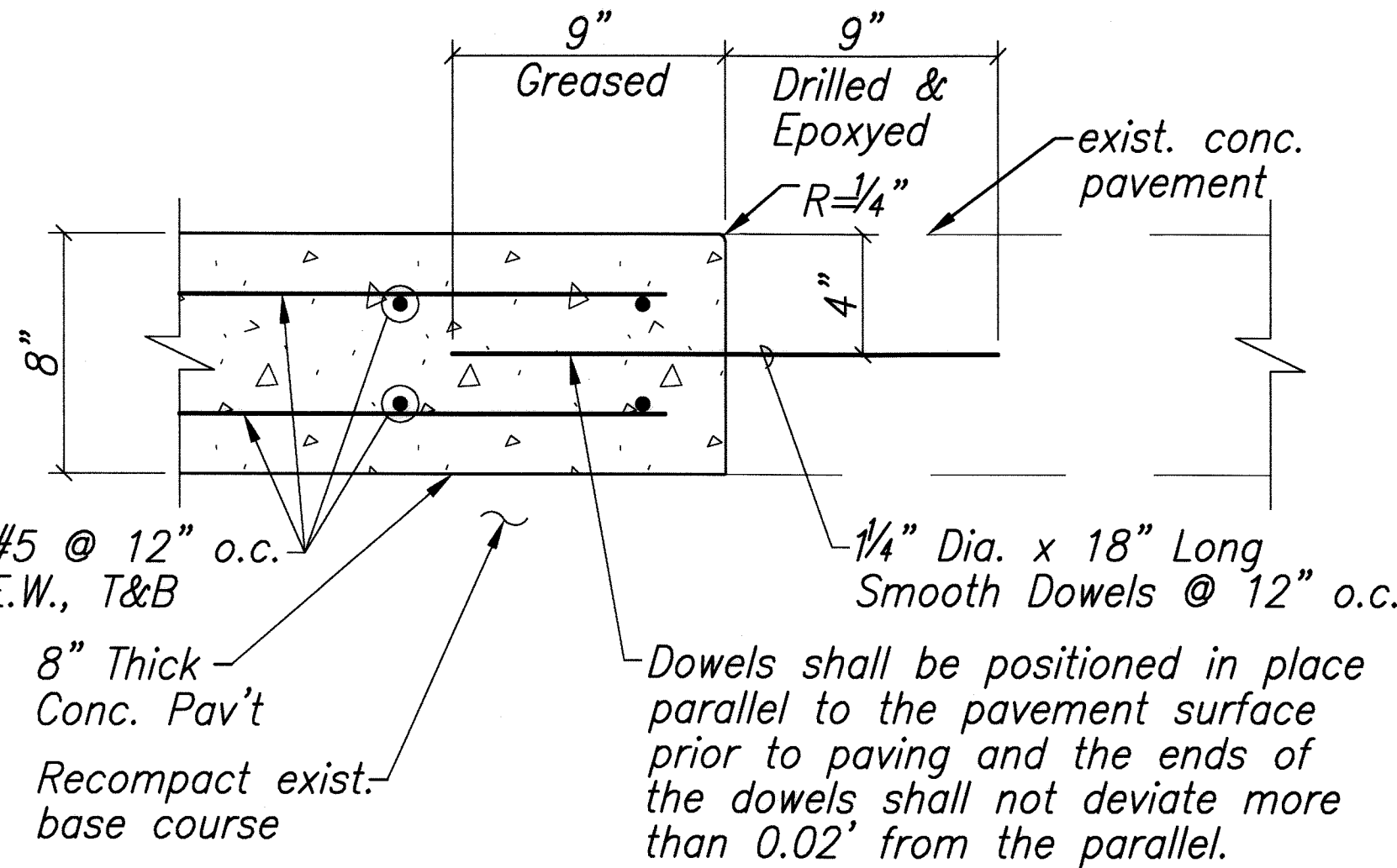
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	CMAQ-0300(111)	2008	106	203



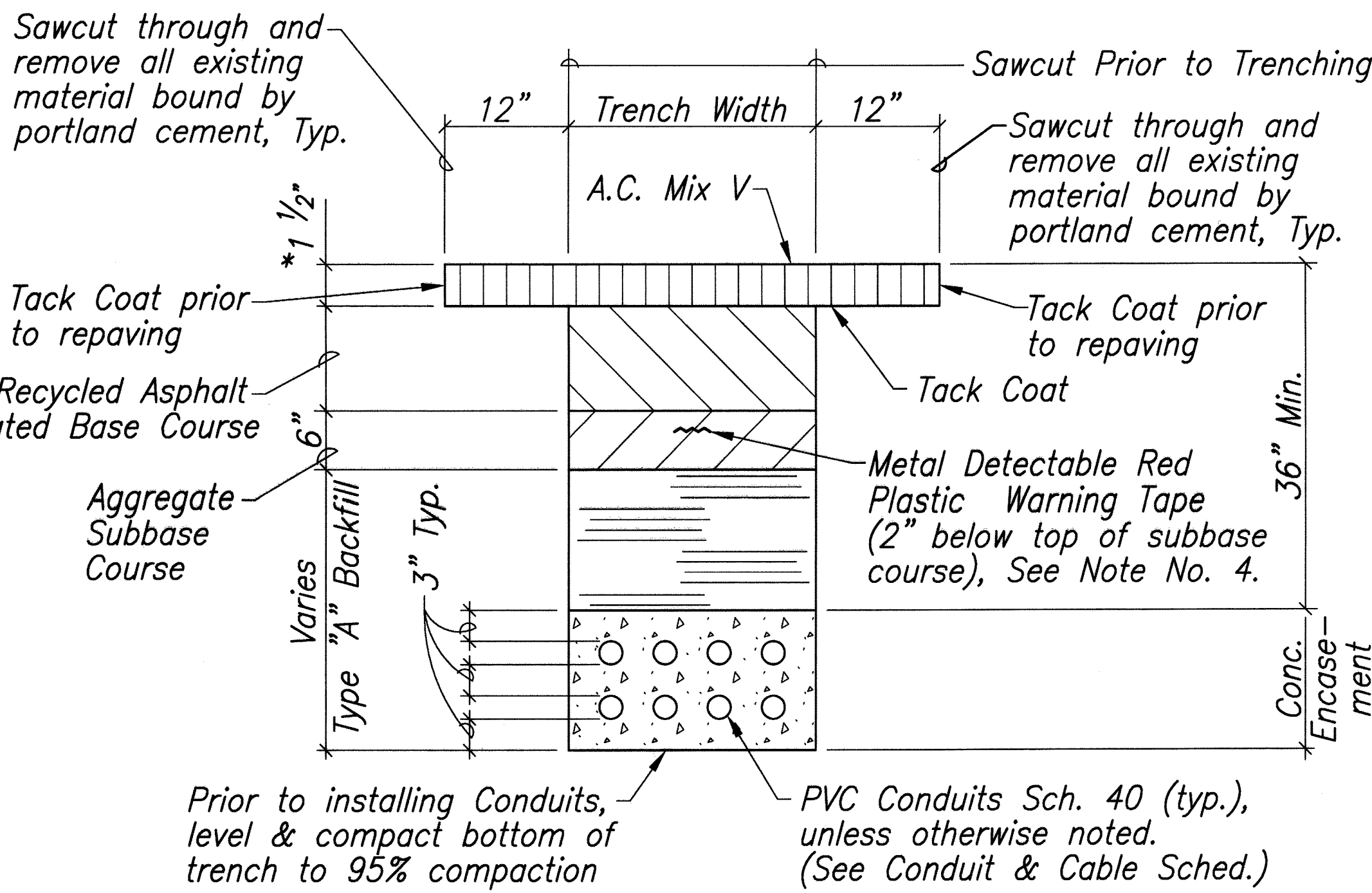
* Minimum thickness or match existing, whichever is greater.

** Extend edge of concrete pavement restoration to nearest score line if closer than 4 feet.

TYP. PPC PAVEMENT RESTORATION AND BACKFILL SECTION 1
106
Not to Scale

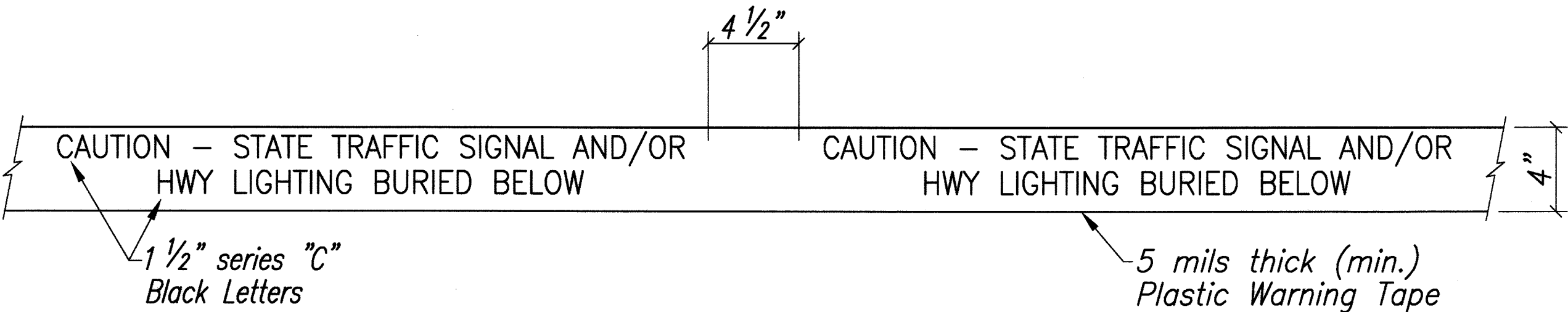


SMOOTH DOWEL DETAIL 3
106
Not to Scale



* Minimum thickness or match existing, whichever is greater

TYP. PAVEMENT RESTORATION AND BACKFILL SECTION 2
106
Not to Scale



For additional information see note no. 4.

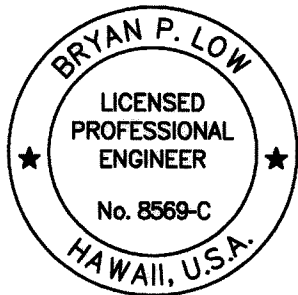
METALLIC DETECTABLE RED PLASTIC WARNING TAPE 4
106
Not to Scale

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 1/2" inches series "C" black lettering. The message will be repeated with a 4/2" 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) for trenches crossing the sidewalk. Replace the entire sidewalk width or the sidewalk width to the nearest joint not less than 12-inches from the edge of the trench for trenches running longitudinally along the sidewalk. 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.

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

Plot Date: Jul 30, 2008 Plot Time: 9:47 am
File: S:\08\1007\08a Versus TSM\Draw\spdsdet.dwg



LICENSE EXPIRATION DATE 04/30/10

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SHIMABUKURO, ENDO & YOSHIZAKI, INC.
1420 12TH Avenue
Honolulu, Hawaii 96816

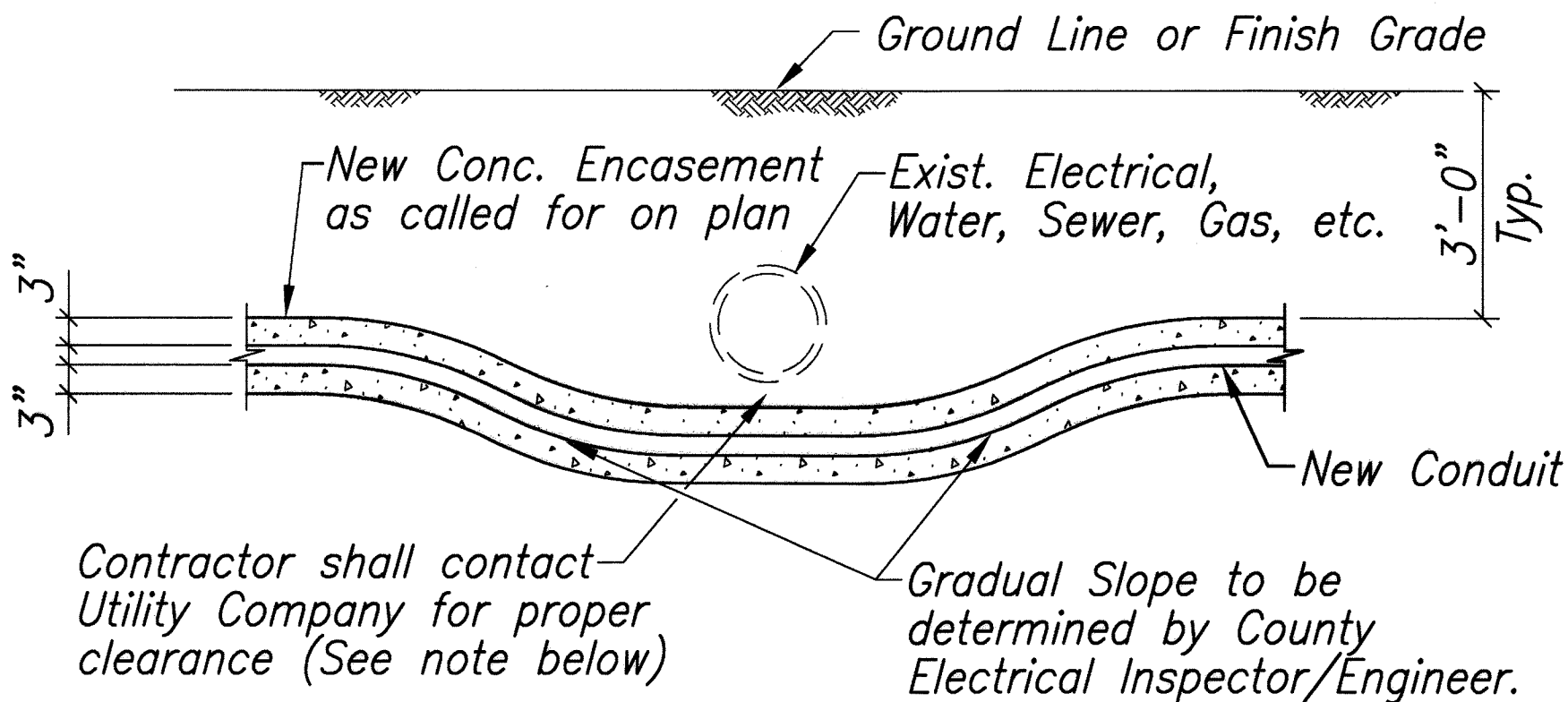
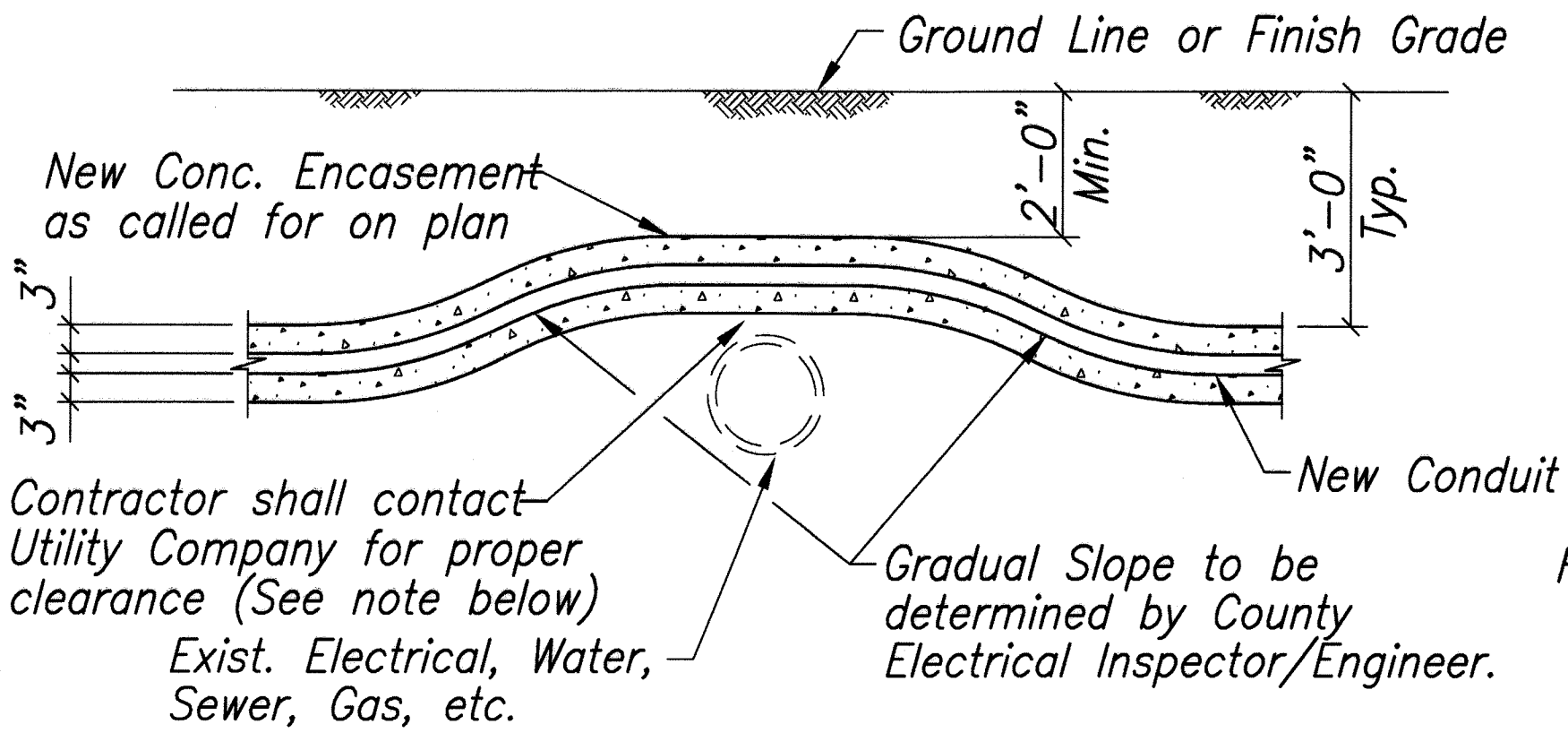
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Traffic Signal Details

Traffic Signal Modernization
Various Locations - Oahu
Federal-Aid Project No. CMAQ-0300(111)

Date: July, 2008

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	CMAQ-0300(111)	2008	107	203

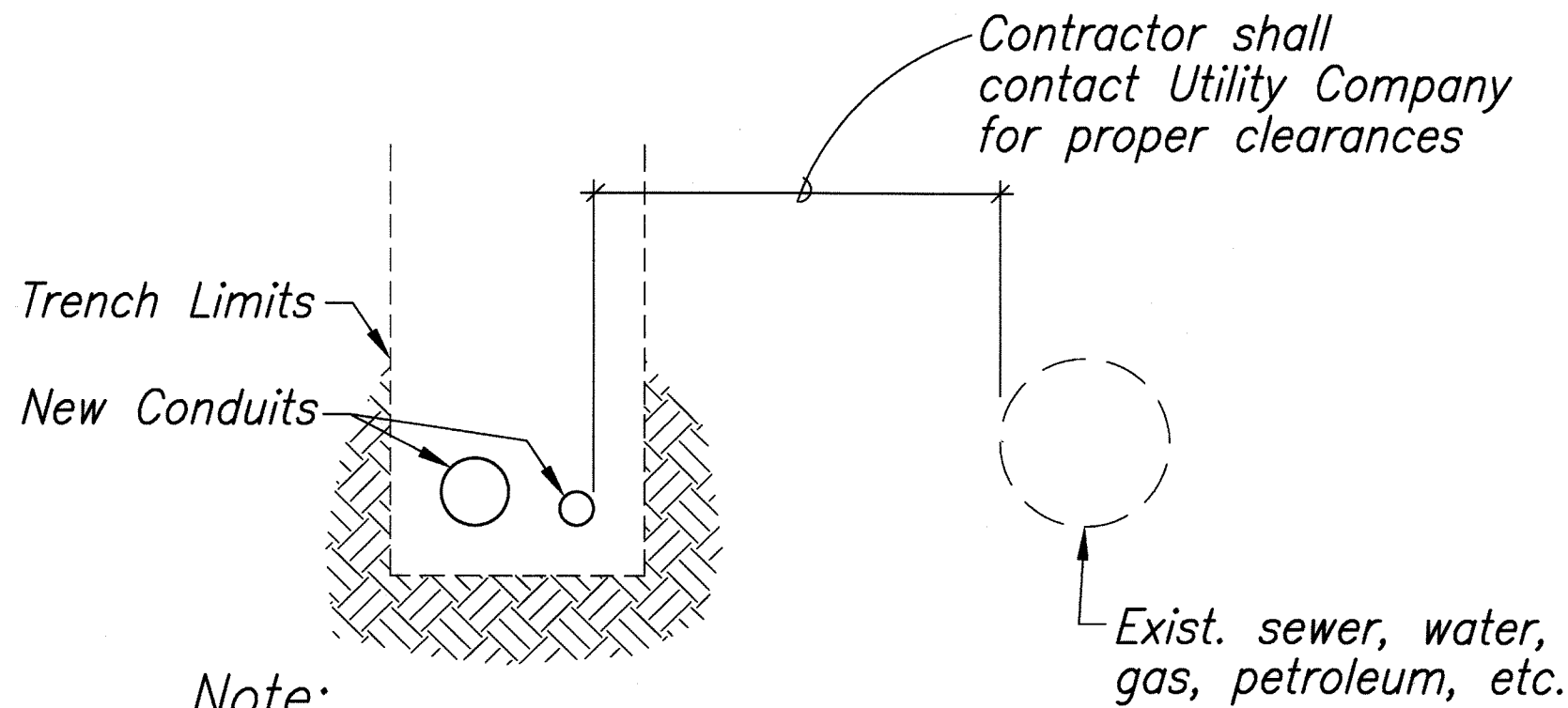


Note:

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

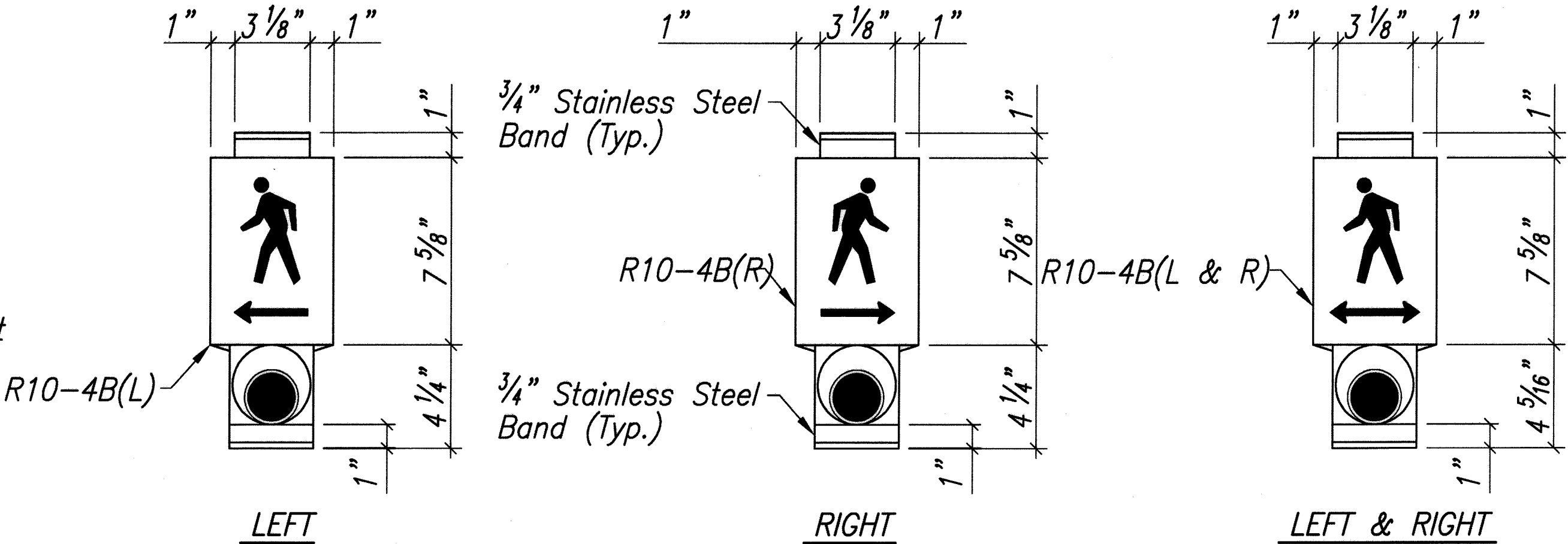


Note:

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

TYPICAL SECTION ADJACENT TO VARIOUS UTILITIES

Scale: 1"=1'-0"

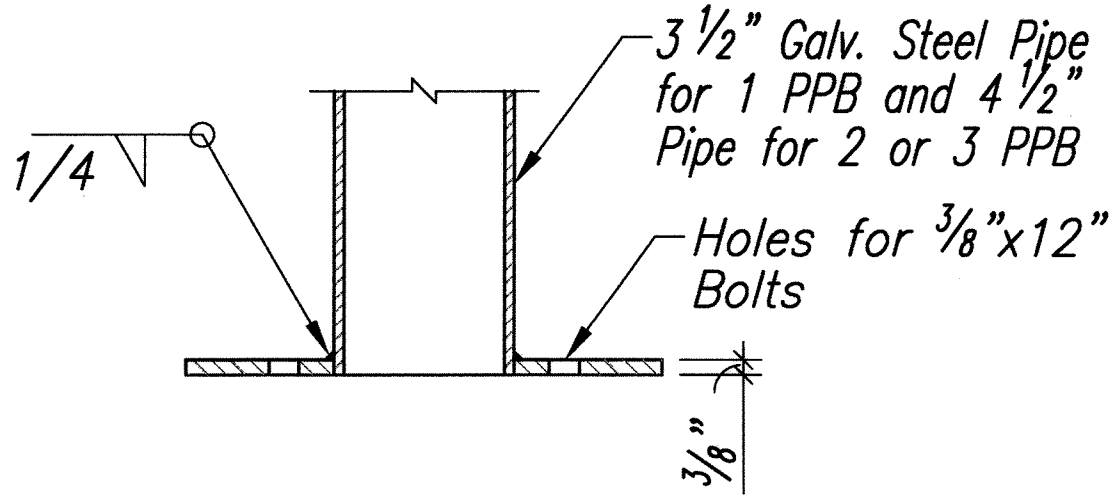


NOTES:

1. The pedestrian push button unit shall consist of a one piece assembly with a raised walking man, arrow indication and push button.
2. 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.
3. The raised man and arrows shall be directional and match the directional indication as shown on the plans.
4. The push button shall be tamper proof, weatherproof and constructed so that electrical shocks are impossible.
5. The color scheme shall be:
White - Man, Arrow and Push Button
Black - Background

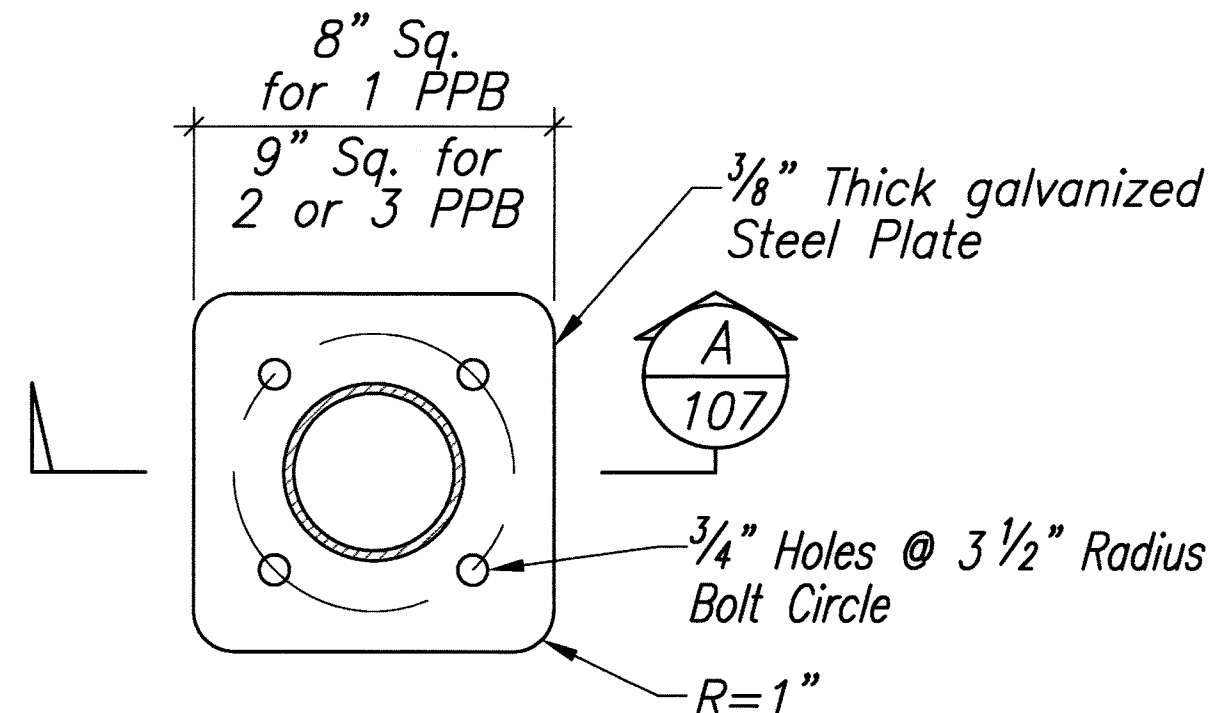
PEDESTRIAN PUSH BUTTON DETAILS

Not to Scale



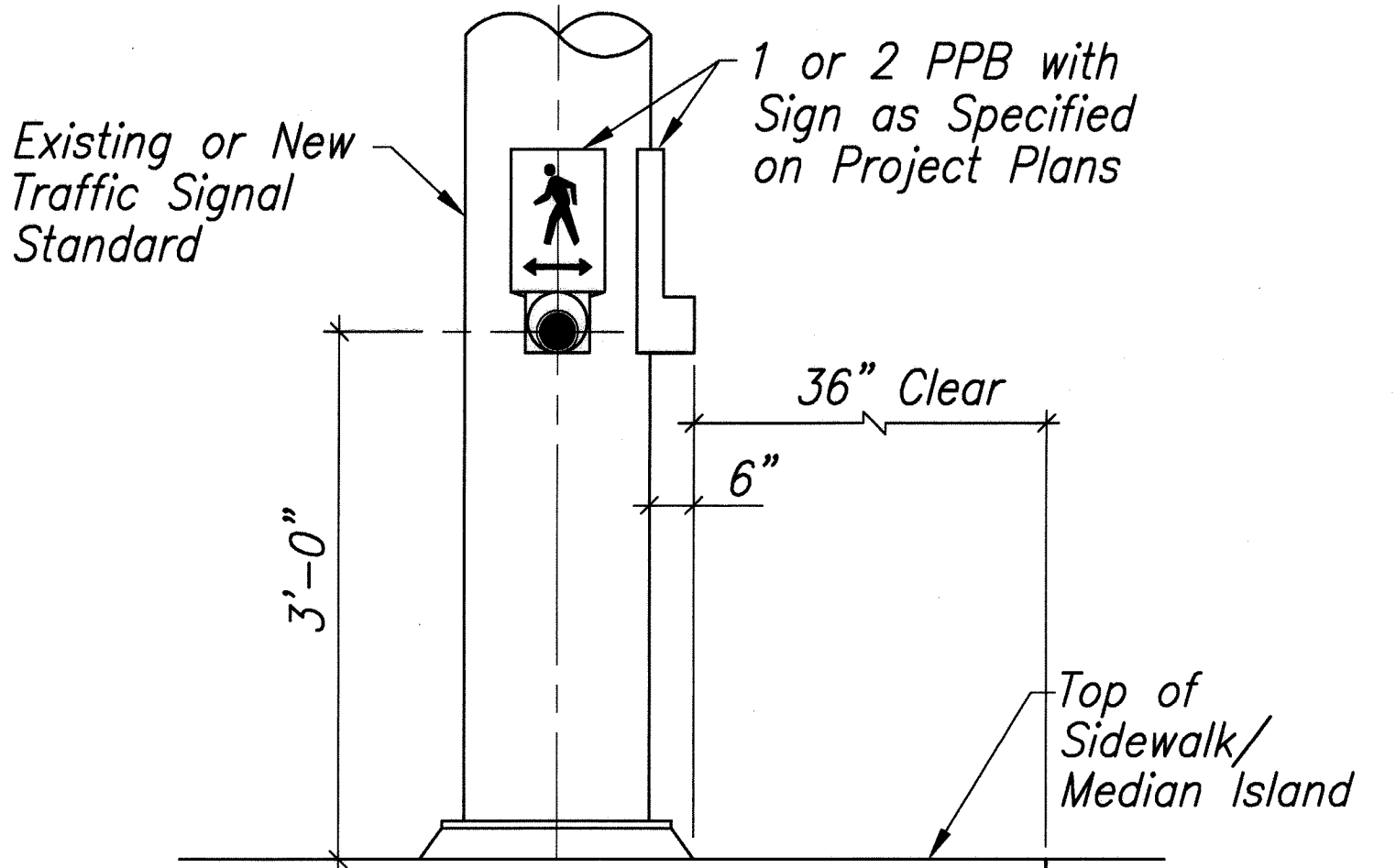
SECTION A

Scale: 3"=1'-0"



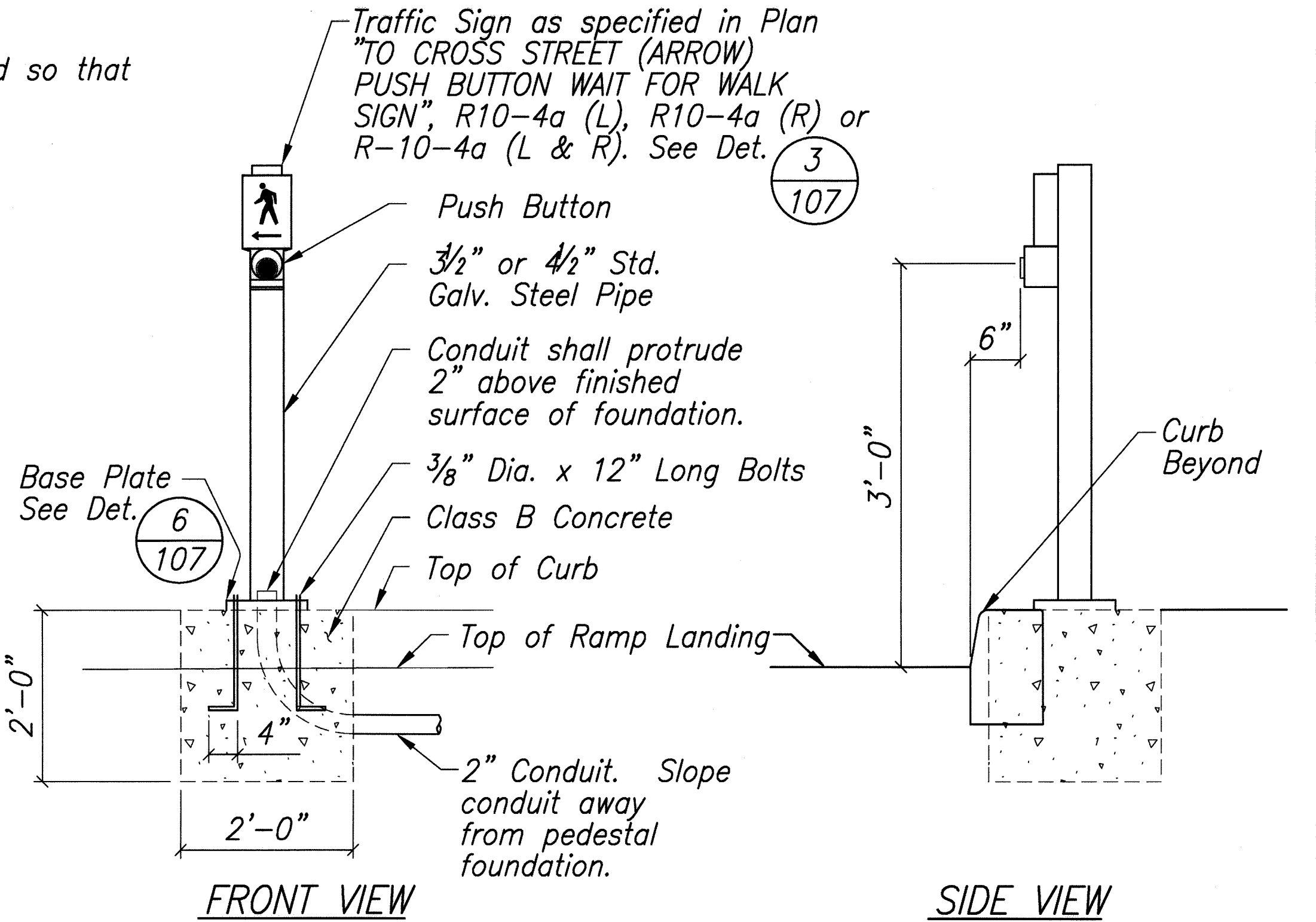
BASE PLATE DETAIL

Scale: 3"=1'-0"



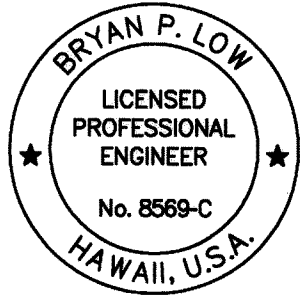
PPB ON TRAFFIC SIGNAL STD.

Not To Scale



PEDESTRIAN PUSH BUTTON PEDESTAL DETAIL

Not to Scale



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HIGHWAYS DIVISION

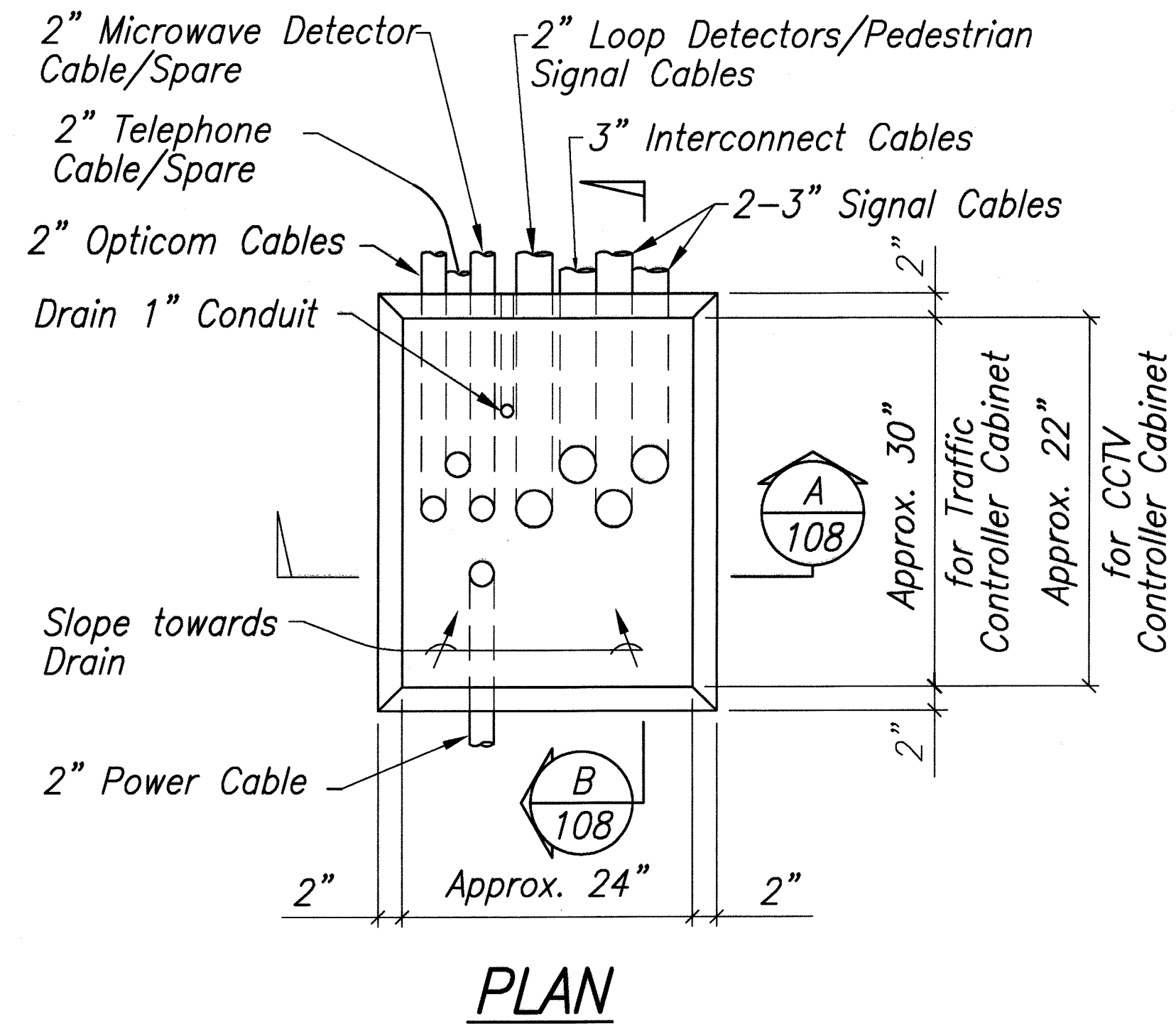
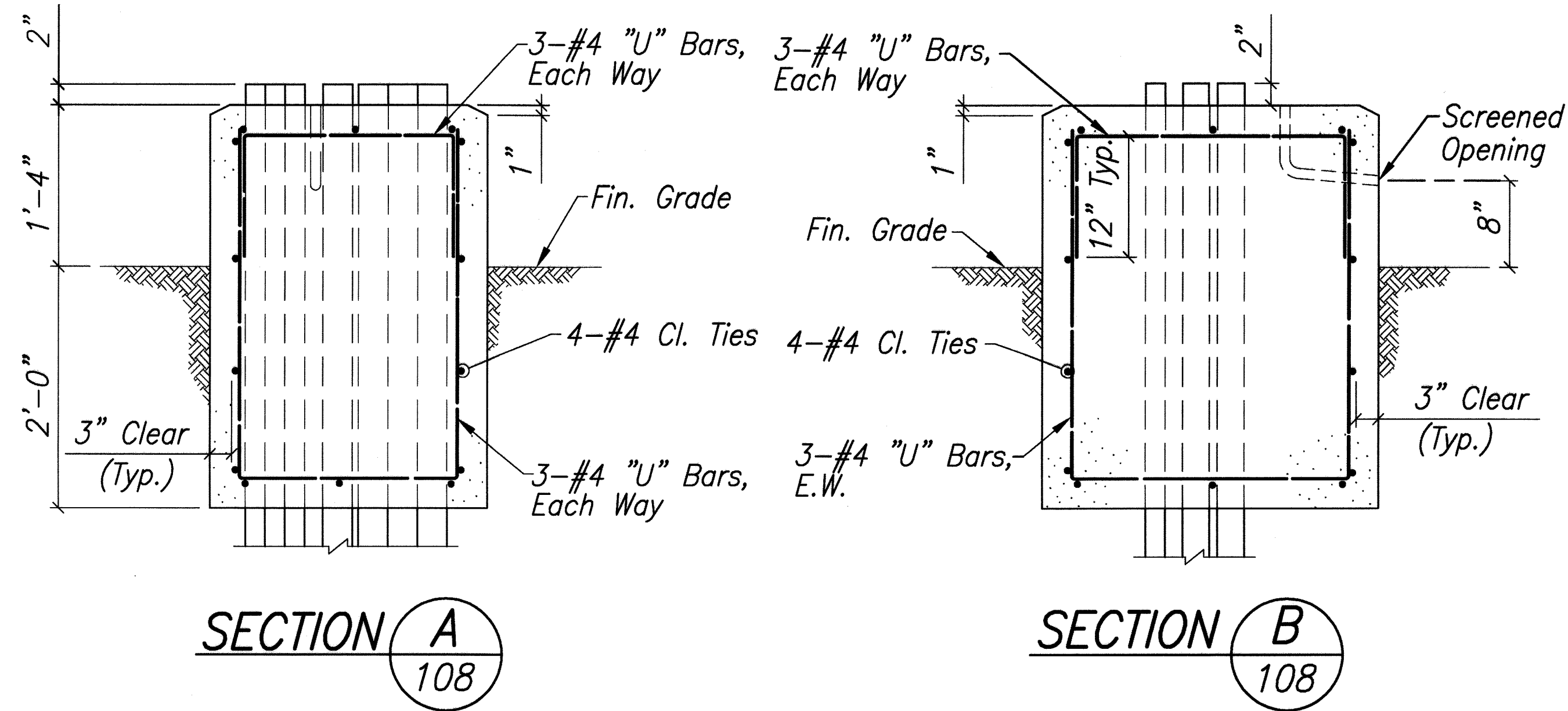
Traffic Signal Details

Traffic Signal Modernization
Various Locations - Oahu
Federal-Aid Project No. CMAQ-0300(111)

Date: July, 2008

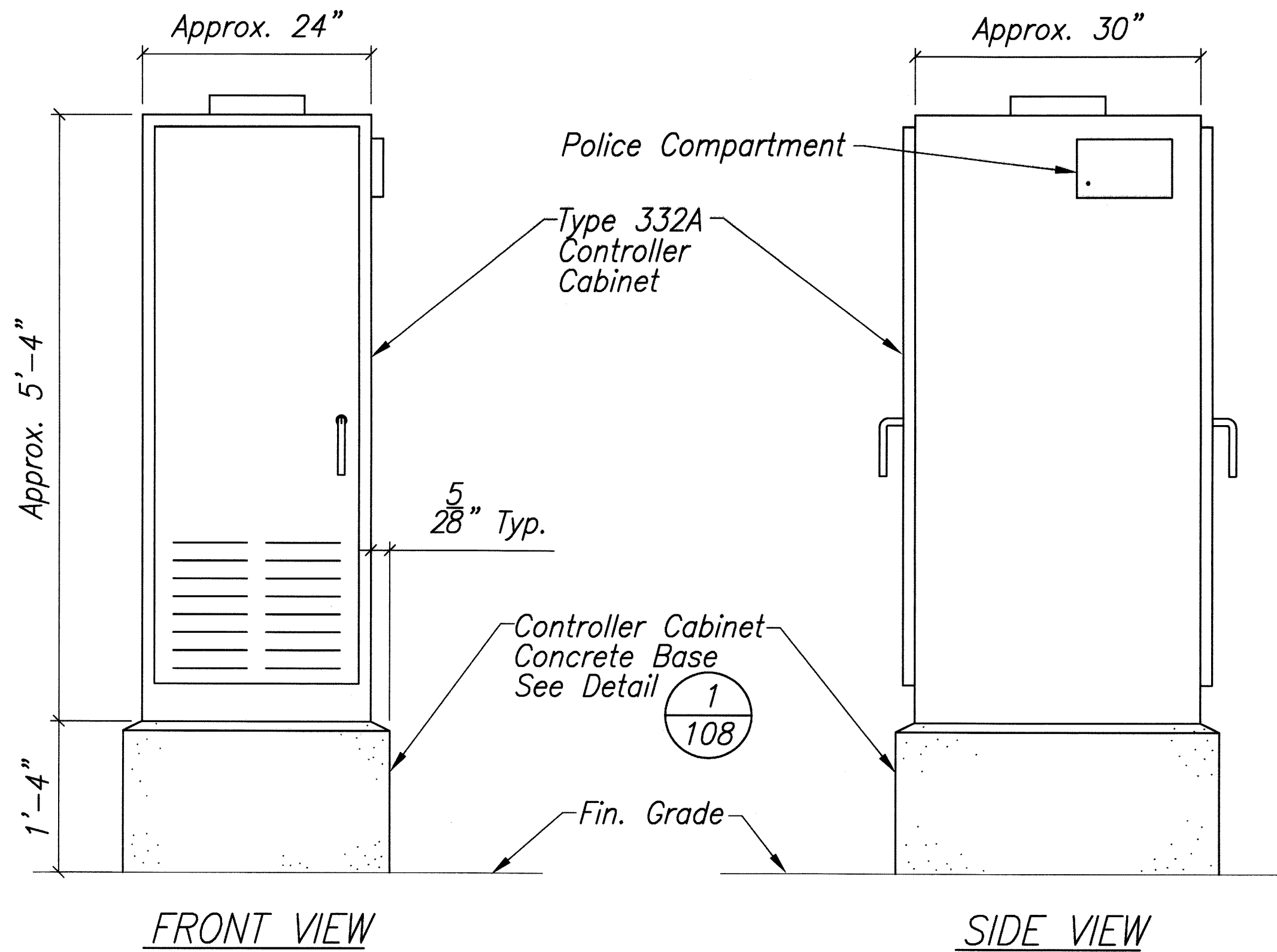
SHEET No. 5 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	CMAQ-0300(111)	2008	108	203



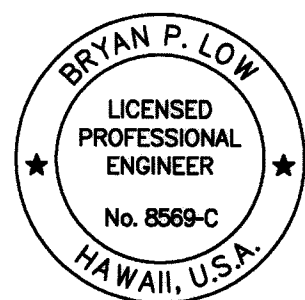
- NOTES:**
- Concrete shall be class "B".
 - Dimensions shall be altered to suit controller cabinet actually furnished.
 - Conduits, bends, and drain are incidental to concrete base.
 - Refer to Cabinet Manufacturer's Specifications for details of anchor bolts and base settings.
 - All exposed surfaces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

CONTROLLER CABINET CONCRETE BASE DETAIL 1
108
Not to Scale



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
108
Not to Scale



LICENSE EXPIRATION DATE 04/30/10

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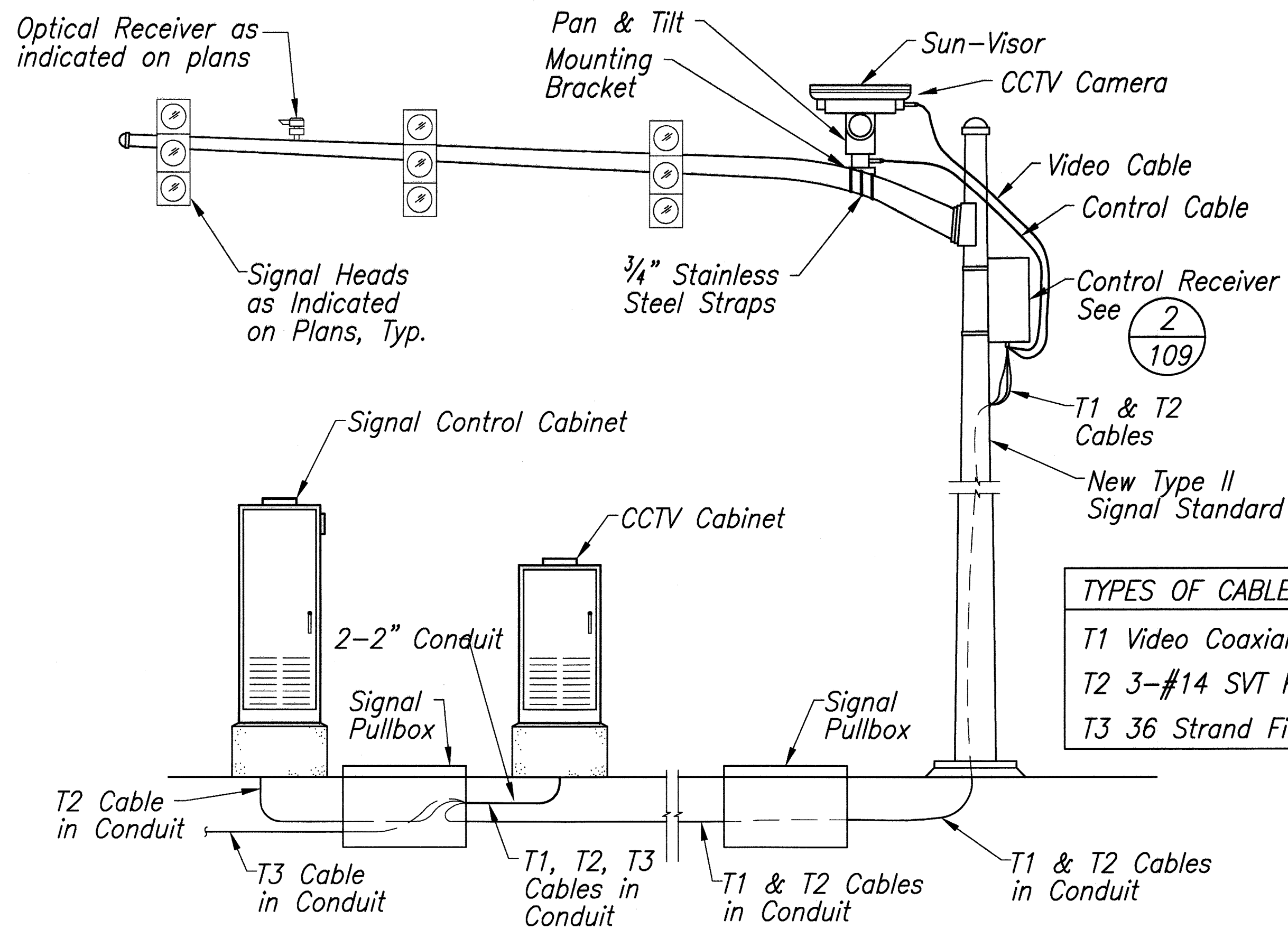
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Traffic Signal Details

Traffic Signal Modernization
Various Locations - Oahu
Federal-Aid Project No. CMAQ-0300(111)

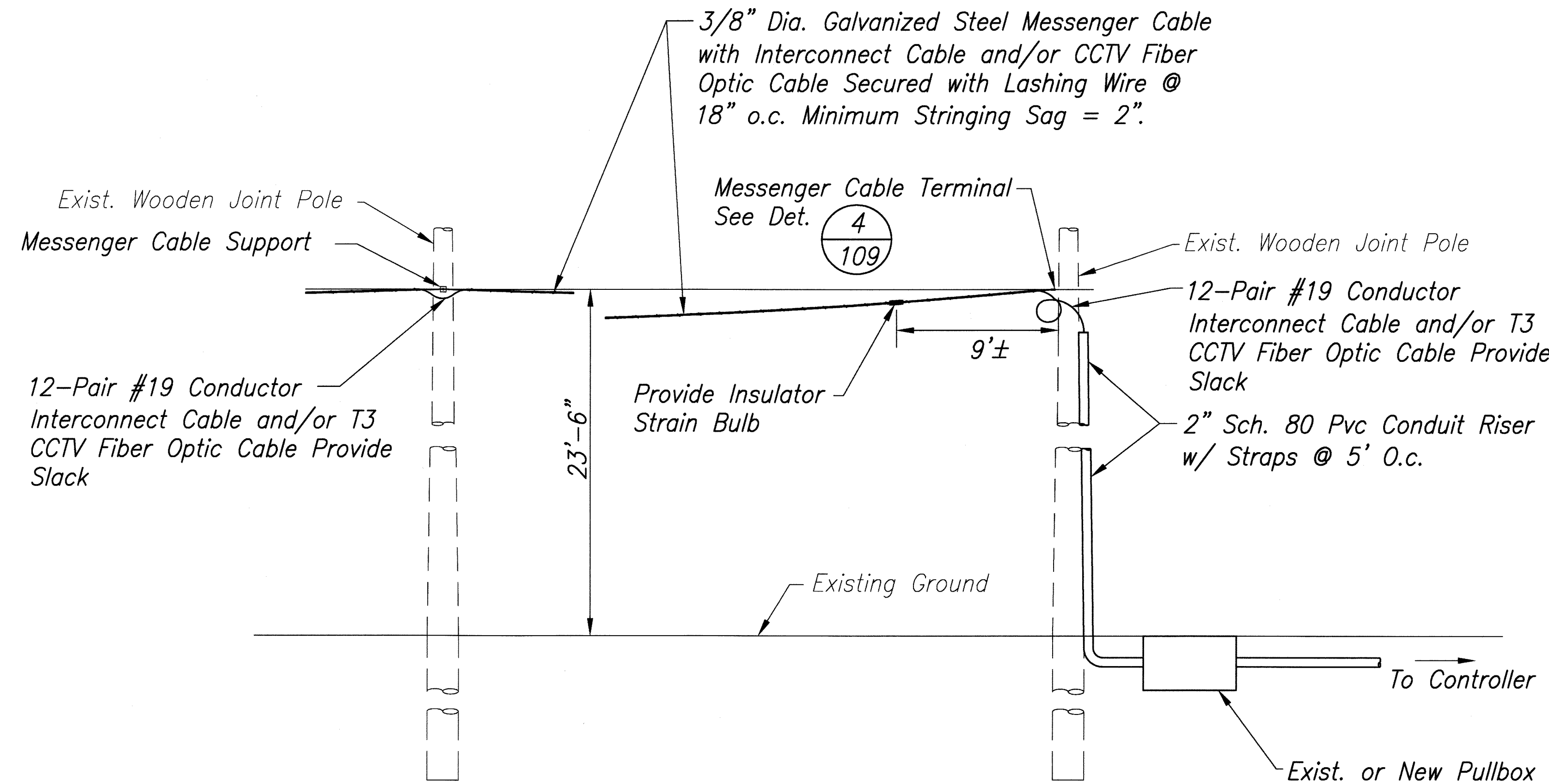
Date: July, 2008

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
OAHU	HAW.	CMAQ-0300(111)	2008	109	203



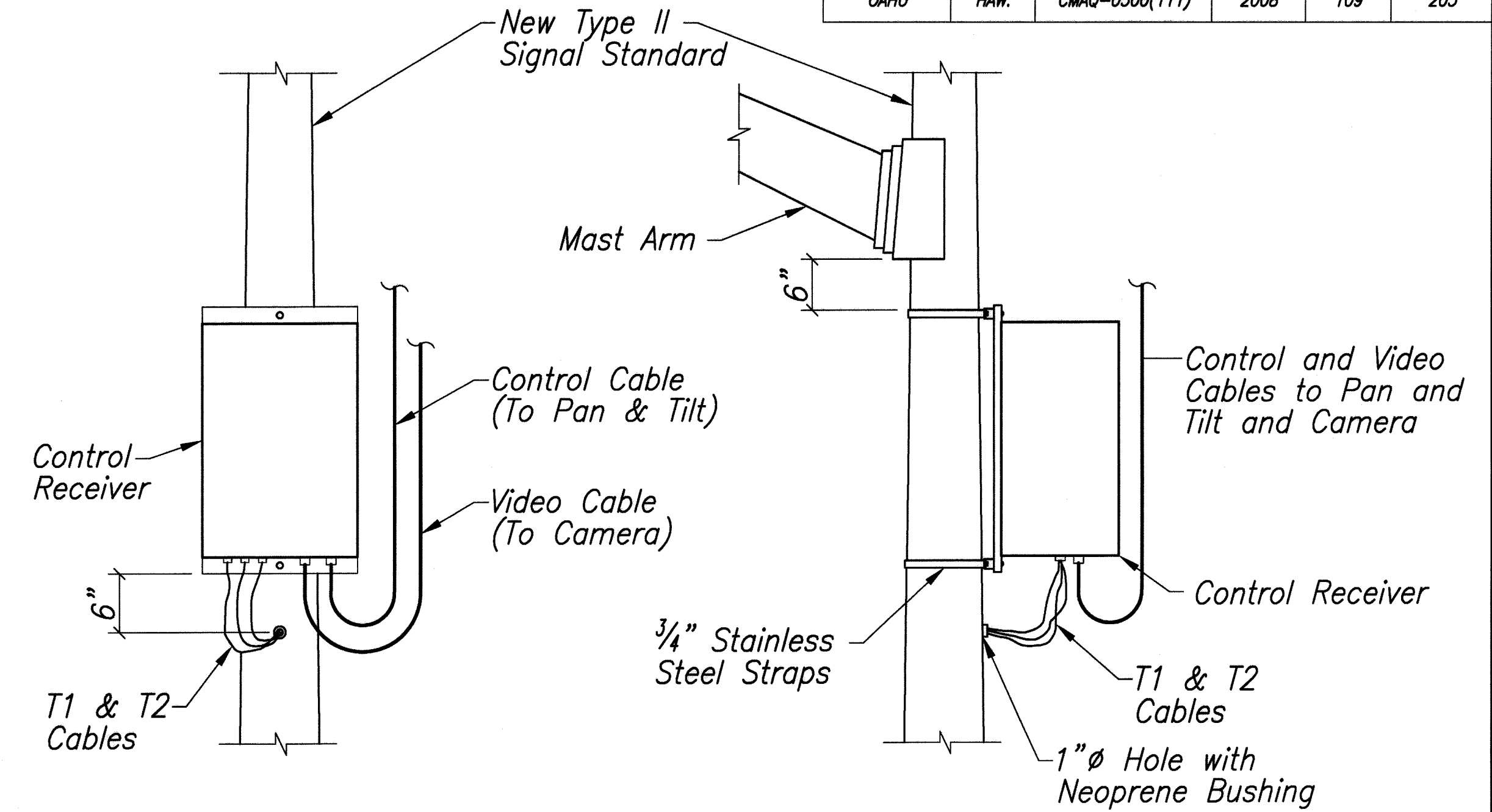
Traffic Signal Standard Traffic CCTV Camera Installation Detail (1) 109

Not to Scale



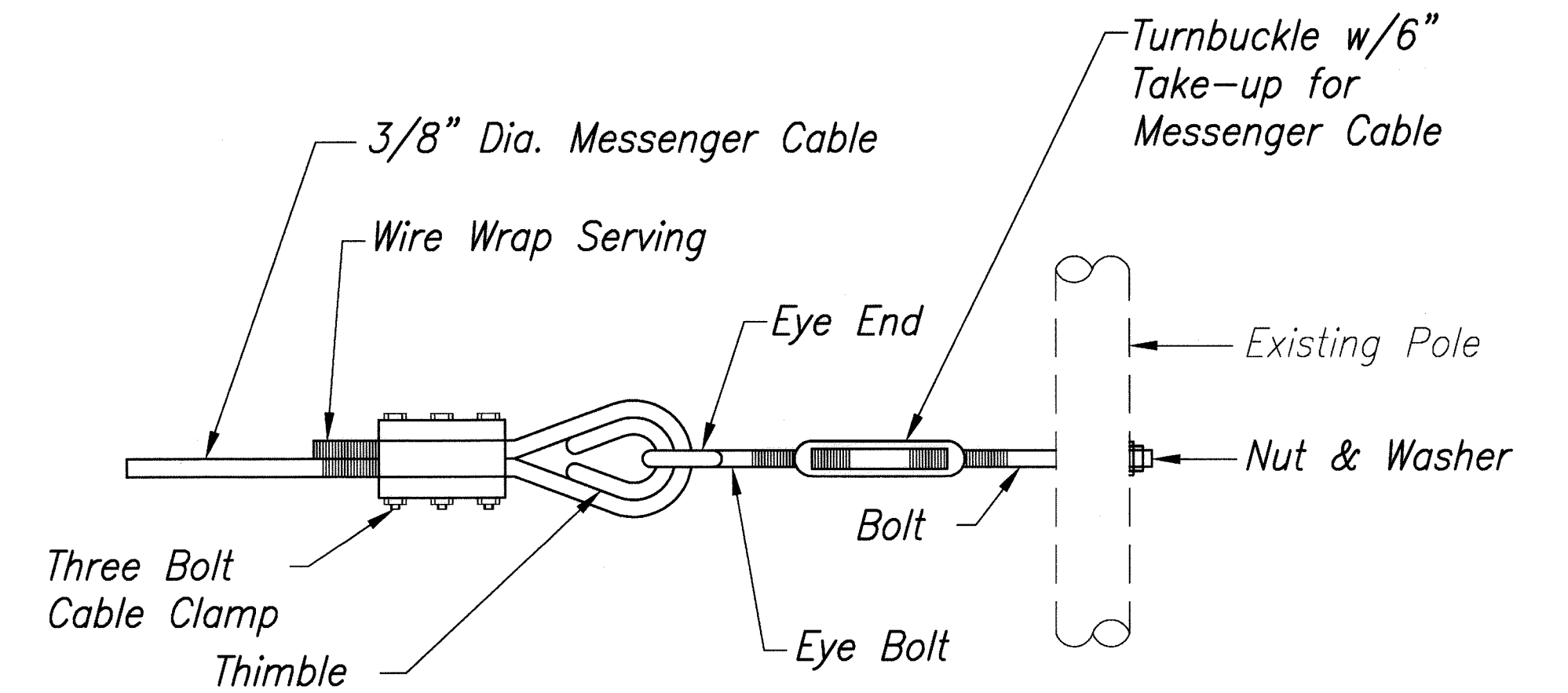
Typical Overhead Cable Installation (3) 109

Not to Scale



Receiver Details (2) 109

Not to Scale

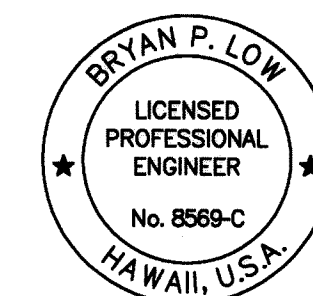


Typical Messenger Cable Terminal Detail (4) 109

Not to Scale

Notes:

- Messenger Cable Shall Conform To Astm A-475-78 Extra High Strength Class 'C' Coating.
- All Cable Fittings Shall Be Galvanized.
- All Fittings Shall Be Designed for Full Strength of Messenger Cable.



LICENSE EXPIRATION DATE 04/30/10

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1120-12TH Avenue
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Traffic Signal Details

Traffic Signal Modernization
Various Locations - Oahu
Federal-Aid Project No. CMAQ-0300(111)

Date: July, 2008

SHEET No. 7 OF 7 SHEETS

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

Plot Date: Jul. 30, 2008 Plot Time: 9:58 am
File: S:\1001\DOT Copy Version 12M Draw 1001.dwg