

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

ELECTRONIC VEHICLE COUNTING (EVC) SYSTEM NOTES

1. The location of new sensor loops and piezo sensors shall be staked out in the field by the Contractor and approved by the Engineer prior to installation.
2. The Contractor shall inform the Engineer at least three days prior to saw-cutting pavement and installing sensor loops and piezo sensors.
3. Pull in in-bound lanes sensor loop cable and piezo sensor lead cables into conduit, where indicated. Cables shall be tested for acceptance before and after installation into conduit.
4. Piezo lead cables shall be continuous with no splices.
5. The Contractor shall restore all affected areas to their original condition. This item of work shall not be paid for separately, but shall be considered incidental to work of other paid items.
6. The Contractor shall verify the location of the existing utilities and underground structures whether or not it is shown on the plans.
7. The Contractor shall assume that existing underground utilities not shown on the plans may exist. The Contractor shall be responsible for contacting the different utility companies for information and toning.
8. The Contractor shall be held liable for any damages incurred to the existing utilities and underground structures as a result of his operations. All damaged portions shall be replaced in accordance with the standards and specifications of the affected utility company at no cost to the State.
9. Changes to the contract plans and specifications will not be permitted, unless approved by the Engineer in writing.
10. All cables are to be terminated within the EVC cabinet and shall have a minimum 12" additional slack.
11. Highway crossing conduit shall be provided with 36" cover.
12. Saw cuts shall be made by wet cutting only.
13. Clean away collected dust, dirt, and refuse after saw cutting is done. The saw cuts shall be cleared by water applied by pressure washer. Residual water within the saw cuys shall be vacuumed by use of a wet/dry vacuum. The saw cuts shall then be dried by air compressor.
14. After slots are dried, any remaining debris stuck within the slot shall be removed. The saw cuts must be completely clean and dry before inserting the sensors and filling the voids with Epoxy Loop Sealant (for sensor loops) or PU200 Piezo Installation Resin (for piezo sensors).
15. The collected slurry shall be disposed of appropriately (i.e., either, placed in a Filter Fabric Lined Filtration Box or in a Filter Fabric Lined Dug Up Retention/Percolation Basin, and after Filtration/Percolation, the Filter Fabric and the retained sediments, disposed of appropriately).
16. Poles for solar panel assemblies and excavation warning signs shall be no more than 20 feet from EVC cabinets.

SENSOR LOOP LAYOUT NOTES

1. Detector loop shall consist of four turns of 1C #14 cable meeting IMSA Spec 5I-3 or equivalent embedded in a 3/8" wide by 4" deep sawcut, except as noted. Detector loop shall be provided a minimum 2" cover.
2. After laying sensor loop in four (4) turns within the 4" deep cut, press 1" long pieces of backer rod in each foot of the loop and the loop lead saw cut, to anchor the wire in the slot before applying the Epoxy Loop Sealant. Backer rod shall be embedded at least 2" below the top of pavement. The backer rod shall be placed into the saw cut with a blunt object, such as a wooden paint stir stick. No sharp objects such as a screw driver shall be used to place the backer rod into the pavement.
3. Sensor loop and lead cable shall be one continuous wire. Lead wires from the same loop shall be twisted in pairs, five twists per foot from the edge of paved shoulder to the pullbox. Do not twist one loop pair with another loop pair.
4. Continuity of sensor loops and lead-in wires shall be tested and warranted for one year from the date of acceptance by the Engineer.
5. Sensor loop lead cables shall be spliced only at the final pullbox to the EVC cabinet. Splice point of cables must be suspended near the top of the pullbox with a j-hook.
6. Splices shall be made by use of a splice kit.
7. All sensor loop lead cables shall be crimped with open end lugs that will fit into the terminal board slots snugly.
8. Stagger sensor loops on roadways with lanes that are less than 12 feet in width.
9. The Contractor shall connect the sensor loop wires on each terminal slot, as shown on plans.
10. The left lane in the direction of traffic flow is designated as lane 1, and the next lane to its right as lane 2 and so on as indicated on plans.
11. All sensor loop lead wires in the EVC cabinet and the pullboxes shall be identified and labeled by direction of traffic flow and lane number as shown on plans.
12. Only one sensor loop shall be placed per saw cut.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	901A-01-19	2020	47	167

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EVC TRAFFIC COUNTING SYSTEM NOTES

EORT BARRETTE ROAD OPERATIONAL IMPROVEMENTS

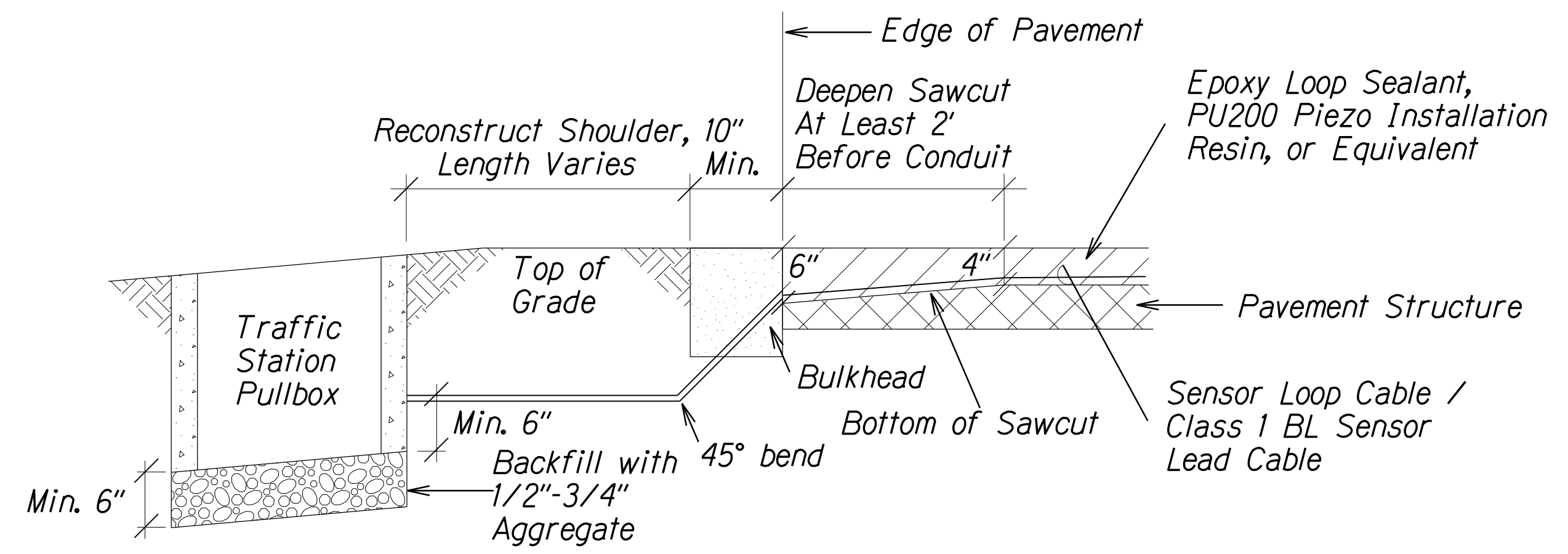
Roosevelt Avenue to Farrington Highway

Project No. 901A-01-19

Scale: 1" = 10.0' Date: January, 2020

SHEET No. 1 OF 5 SHEETS

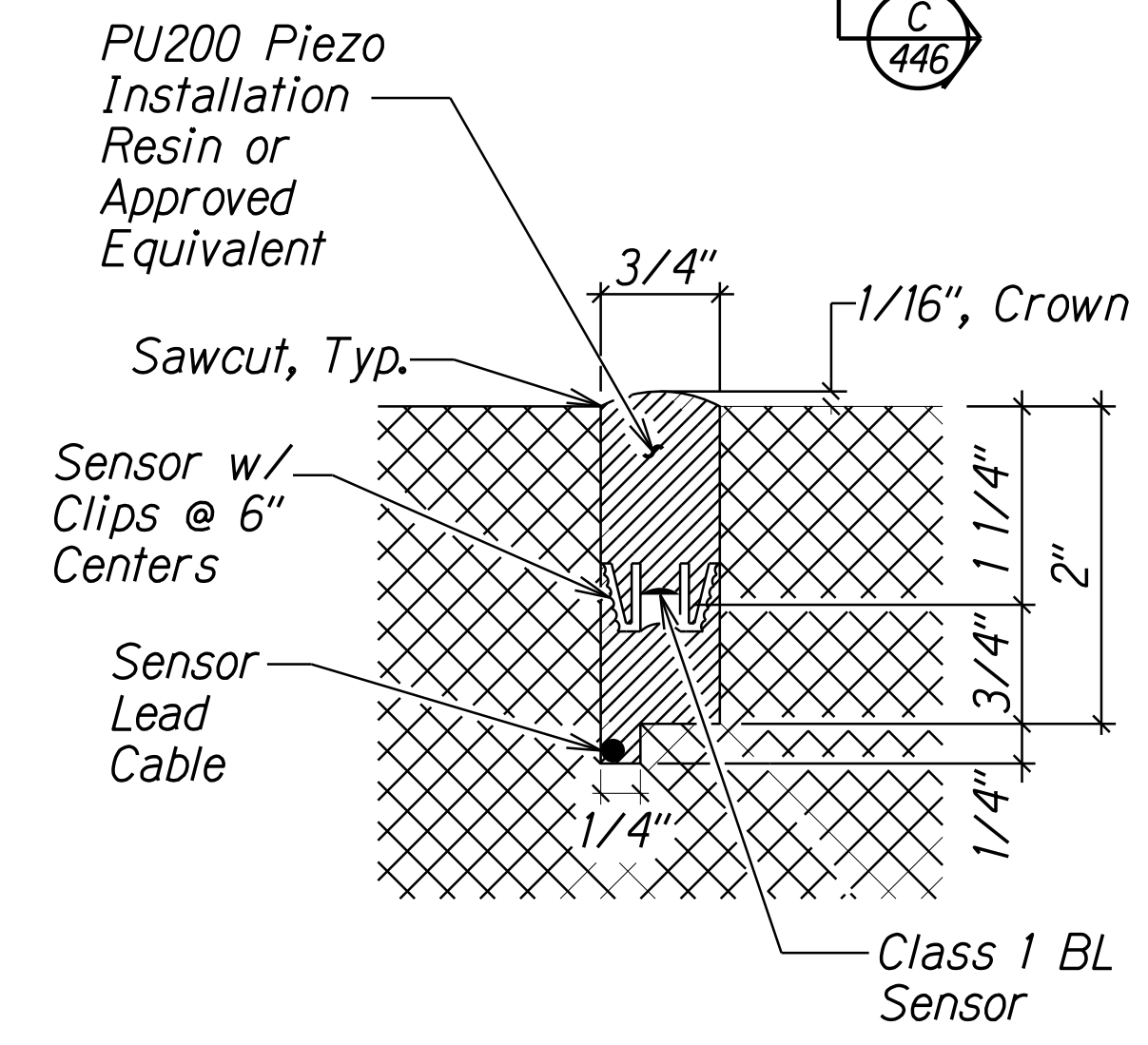
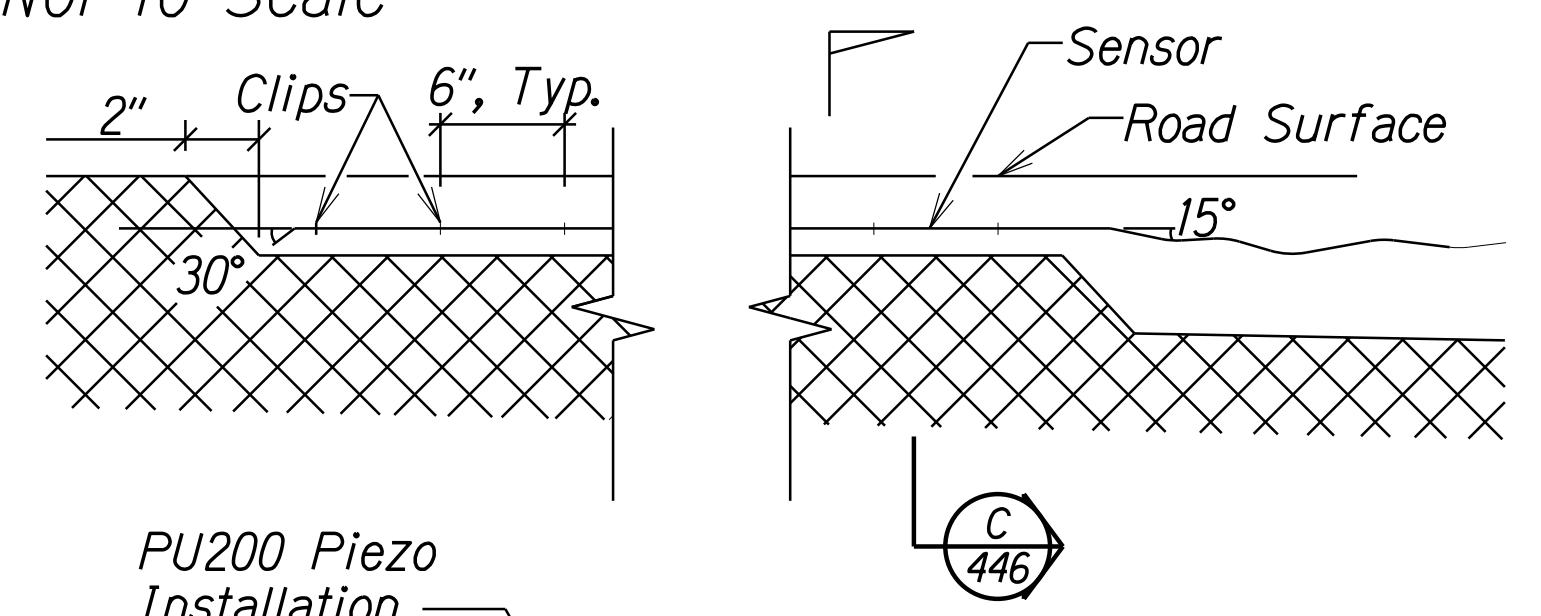
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	901A-01-19	2020	49	167



NOTES ON CONSTRUCTION AT END OF SAWCUT:

1. Seal roadway of conduit after installation of conductor.
2. Install bulkhead across conduit trench.
3. Place Epoxy Loop Sealant, PU200 Piezo Installation Resin or Equivalent in sawcut.
4. Backfill over conduit with new AC.
5. Reconstruct curb and gutter as required.
6. Conduit should be installed at least 10 inches from the edge of paved shoulder. If the depth of pavement is 4 inches or less at the shoulder, conduit should be installed at least 12 inches from the edge of paved shoulder.

DETAIL OF SENSOR LOOP/CLASS 1 BL SENSOR AT EDGE OF ROADWAY
Not to Scale

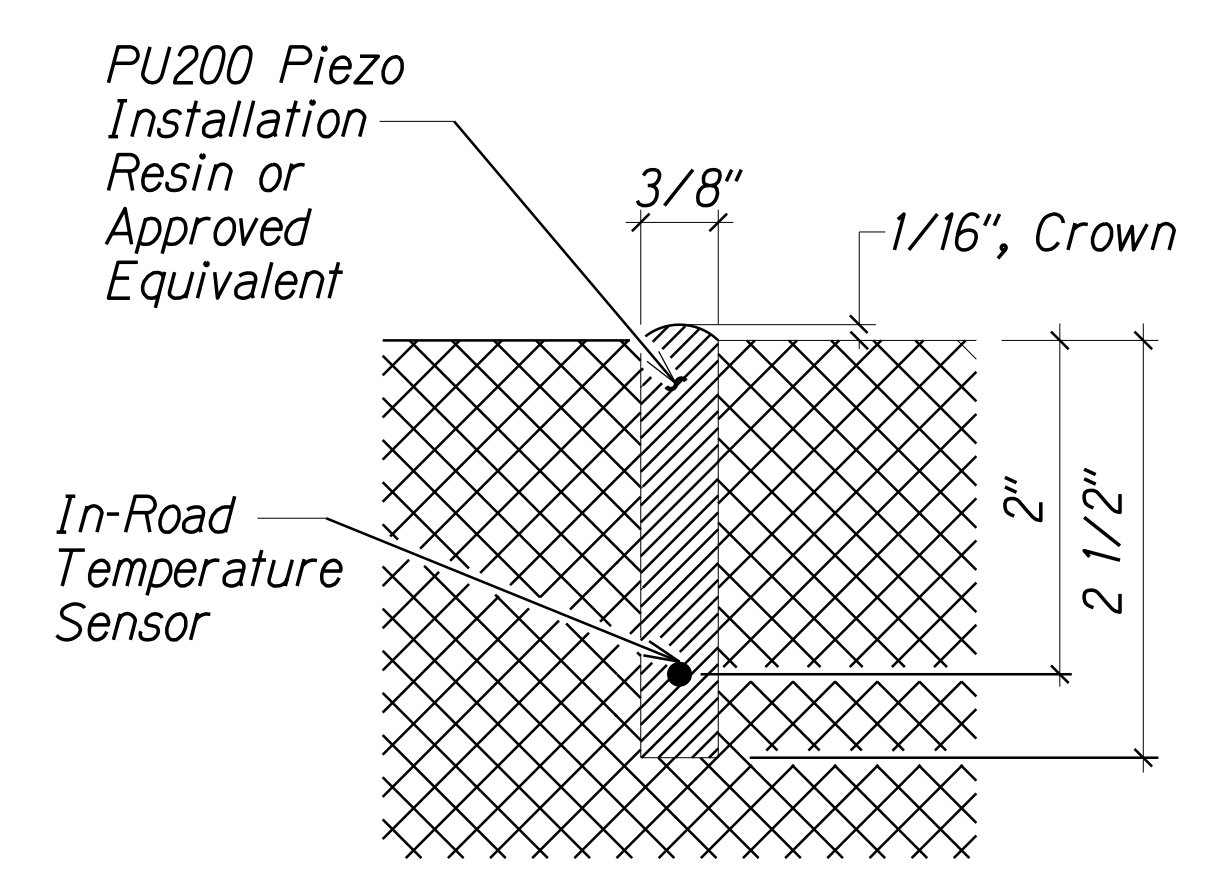


SECTION C
Not to Scale 446

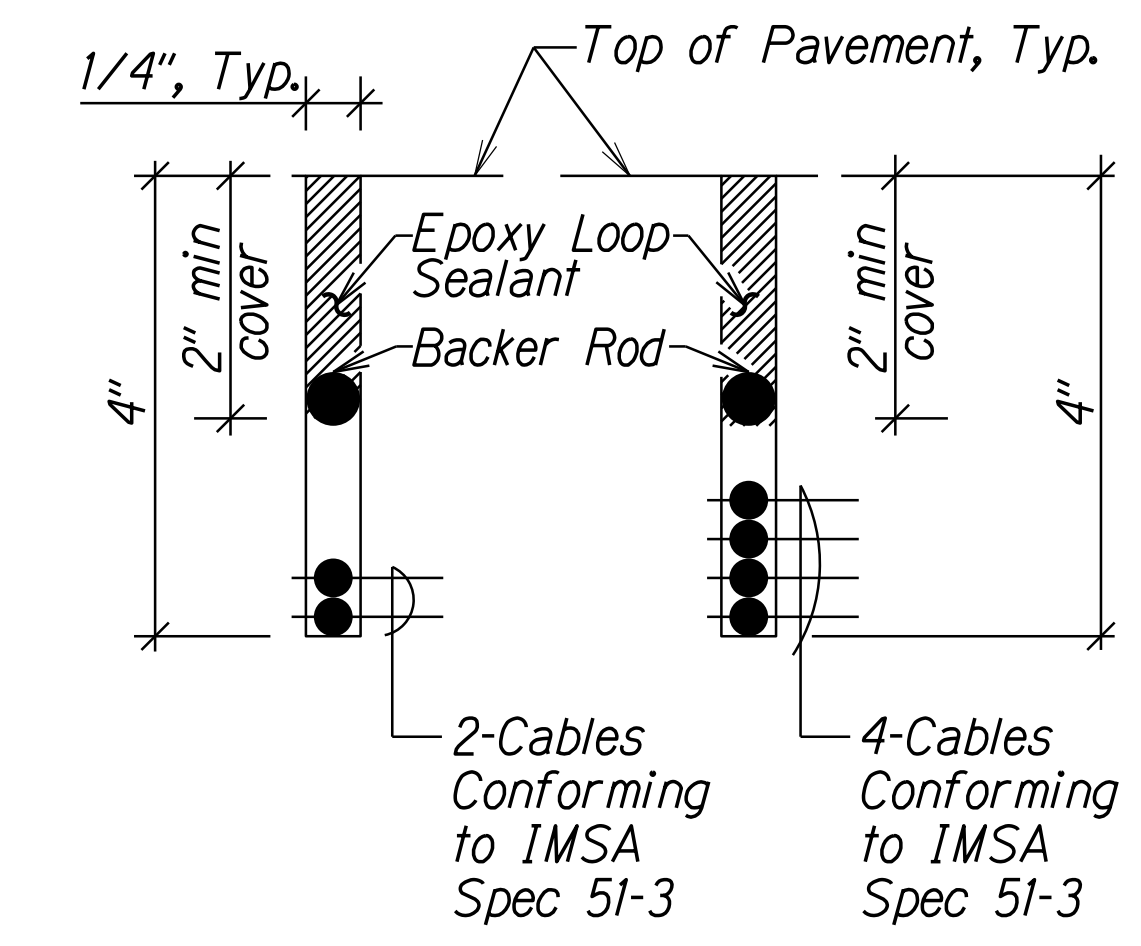
PIEZOELECTRIC SENSOR INSTALLATION DETAIL
Not to Scale

SENSOR LOOP SAWCUT NOTES:

Length of overcuts shall be kept to a minimum. All overcuts shall be backfilled with Epoxy Loop Sealant or equivalent.



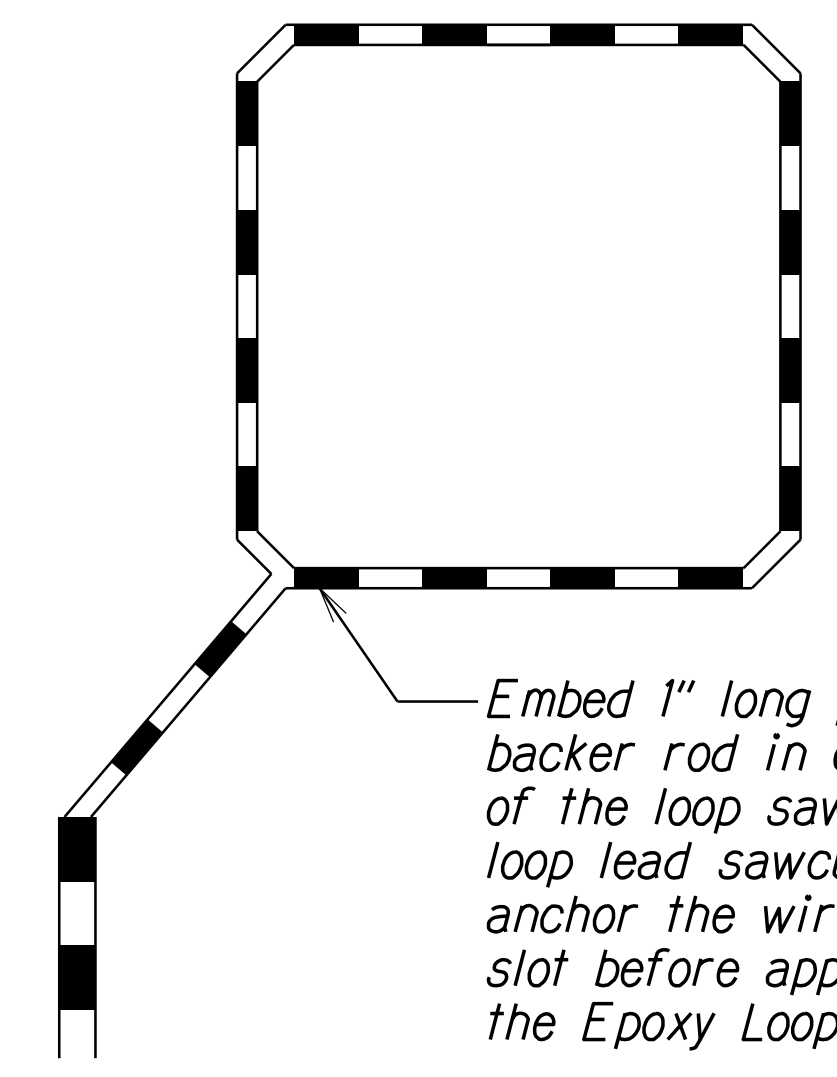
IN-ROAD TEMPERATURE SENSOR INSTALLATION DETAIL
Not to Scale



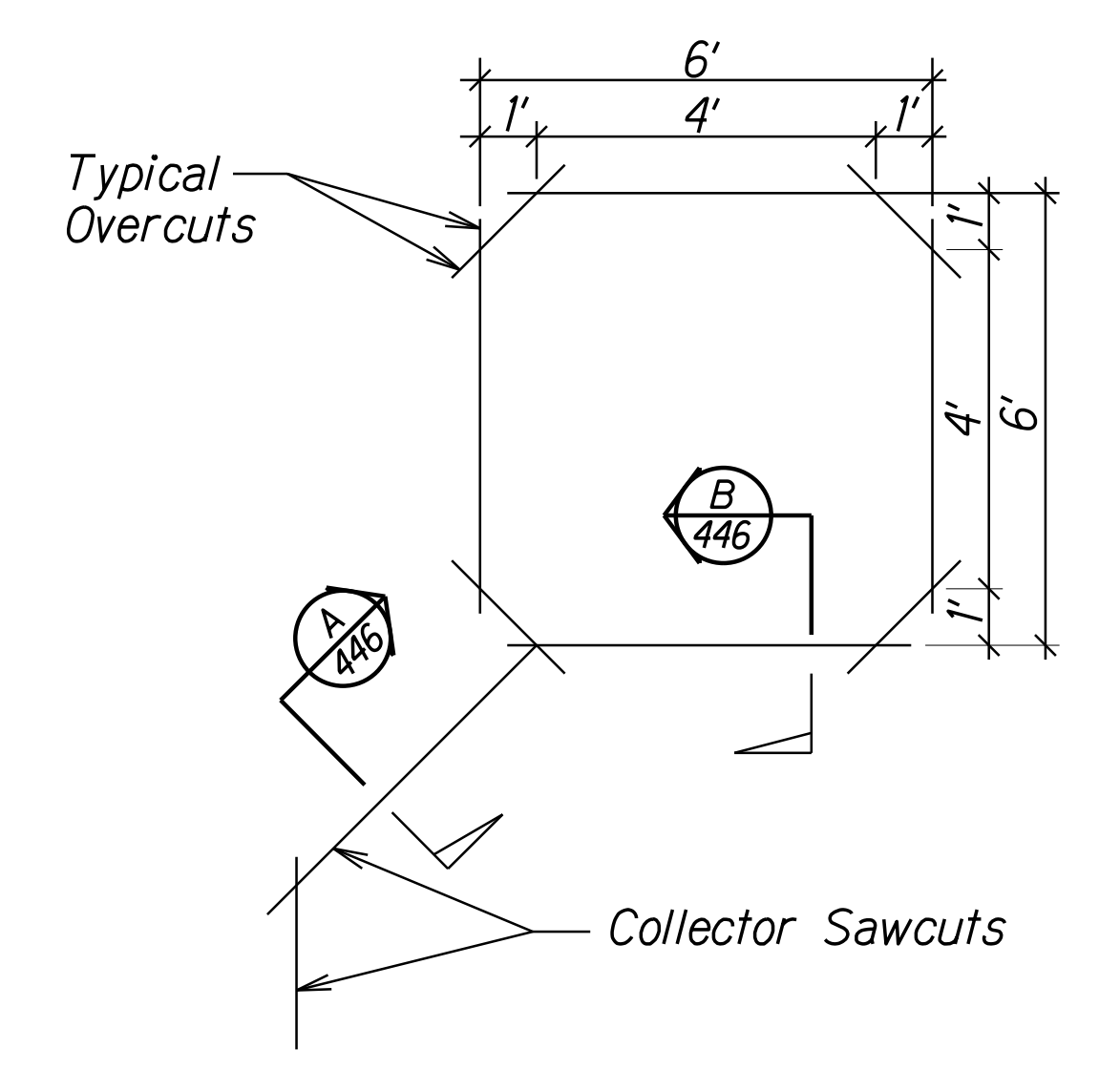
SECTION A
Not to Scale 446

SECTION B
Not to Scale 446

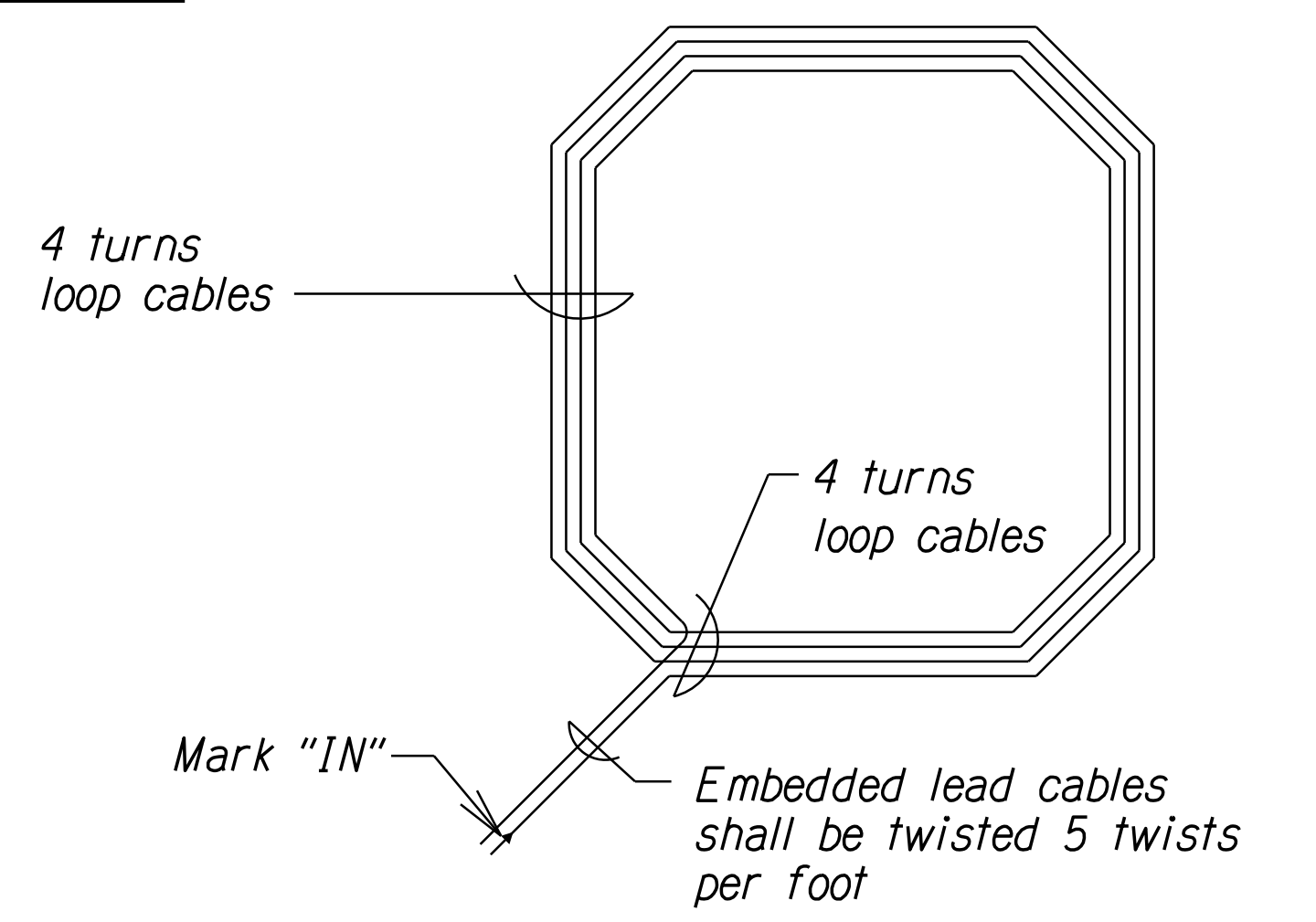
TYPICAL SECTION THROUGH SENSOR LOOP
Not to Scale



TYPICAL SENSOR LOOP BACKER ROD PLACEMENT DIAGRAM
Not to Scale



TYPICAL SENSOR LOOP SAWCUT DETAIL
Not to Scale



PLAN

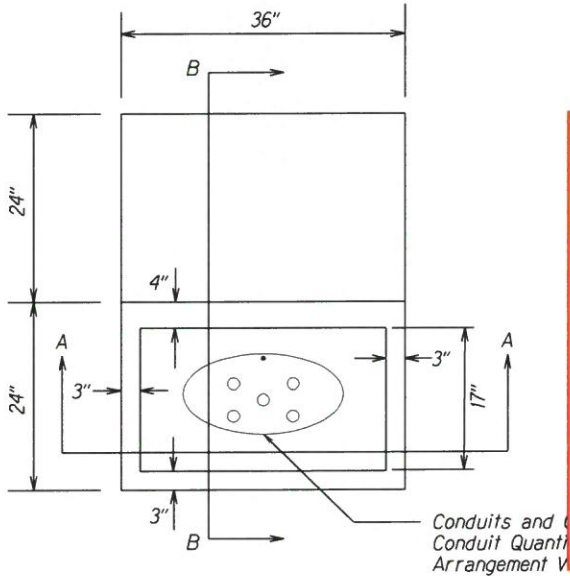
TYPICAL SENSOR LOOP WIRING DIAGRAM
Not to Scale

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
EVC TRAFFIC COUNTING
SYSTEM SENSOR DETAILS
FORT BARRETTE ROAD OPERATIONAL IMPROVEMENTS
Roosevelt Avenue to Farrington Highway
Project No. 901A-01-19
Scale: 1" = 10.0' Date: January, 2020
SHEET No. 3 OF 5 SHEETS

ASBUILT DRAWINGS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	901A-01-19	2020	C.O. 50	167



PLAN

AS-BUILT
PAUL'S ELECTRICAL CONTRACTING, LLC

[Signature]

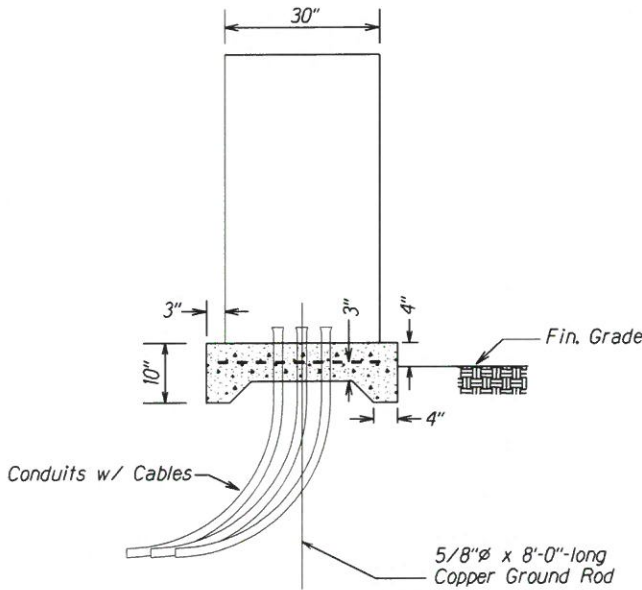
SIGNATURE

10/3/22

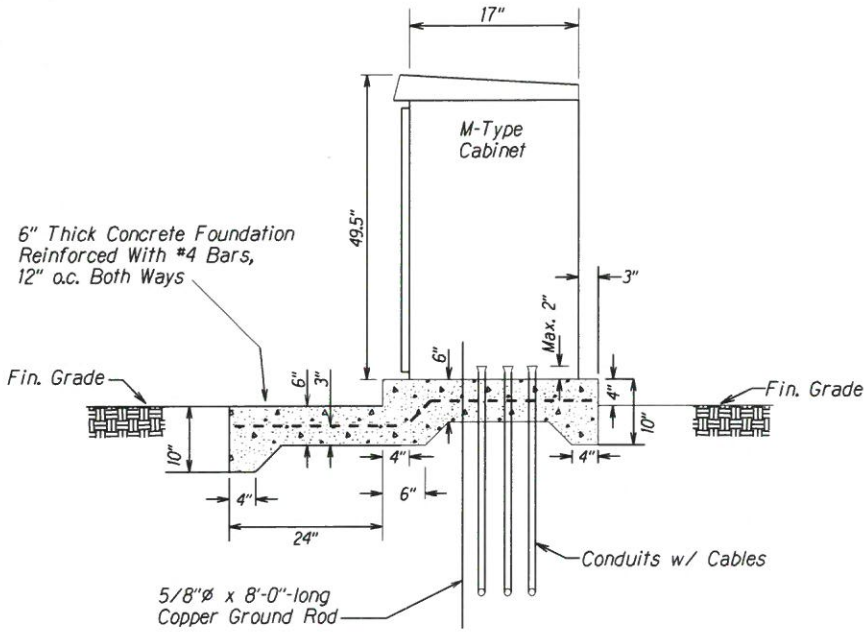
DATE

NOTES:

1. Cabinet shall be oriented such that the back faces and is parallel to the roadway.
2. Concrete foundation work platform shall allow view of traffic with door open.
3. Conduits shall have belled ends installed on their ends inside the cabinet.
4. With belled ends installed, conduits shall extend no more than 2" above the foundation.
5. Any unused, spare conduits shall be provided with a pull line and be capped or sealed.
6. Stainless steel wedge anchors (1/2" X 4-1/2") shall be used to attach cabinet to foundation.
7. All above ground exposed conduits shall be PVC-coated galvanized rigid steel conduits.
8. Grounding and bonding shall meet or exceed the latest NEC requirements and specifications.
9. Solar power shall be connected to the DC power supply for the cabinet electronics.
10. Surge protection and a power interrupt capability shall be provided for the cabinet.
11. Silicone caulking compound shall be used to seal the cabinet base to the foundation.
12. Key(s) to the cabinet shall be provided to the State.



SECTION A-A



SECTION B-B

M-TYPE CABINET DETAIL
Not to Scale

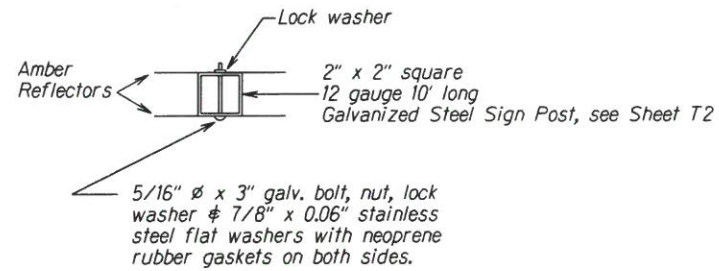
2/16/22	Warning Sign Detail revised and moved to sheet 50S-1. Revised Cabinet Details. Revised Notes.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION EVC TRAFFIC COUNTING SYSTEM CABINET FOUNDATION AND OTHER DETAILS FORT BARRETTE ROAD OPERATIONAL IMPROVEMENTS Roosevelt Avenue to Farrington Highway Project No. 901A-01-19 Scale: 1" = 10.0' Date: January, 2020	
SHEET No. 4 OF 5 SHEETS	

"AS-BUILT"

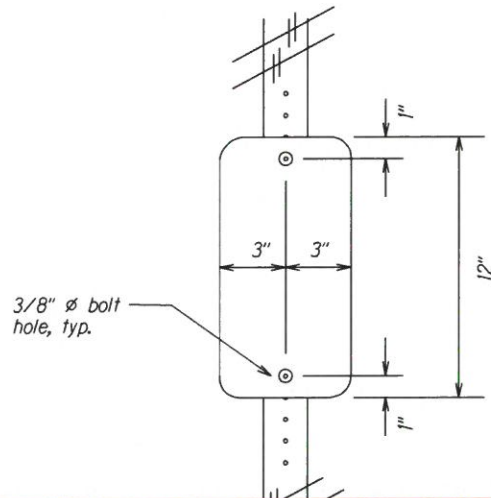
C.O. 50

ASBUILT DRAWINGS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	901A-01-19	2020	C.O. 50S-1	167



PLAN



AS-BUILT
PAUL'S ELECTRICAL CONTRACTING, LLC

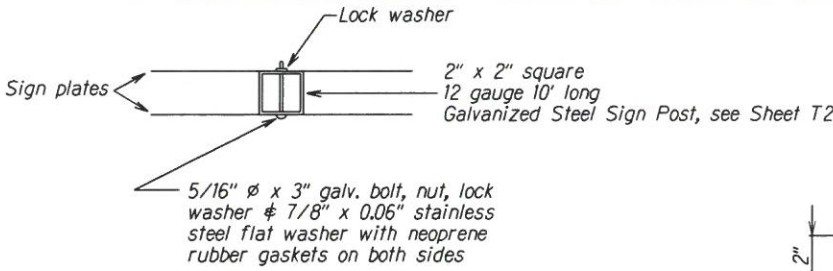
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10/3/22

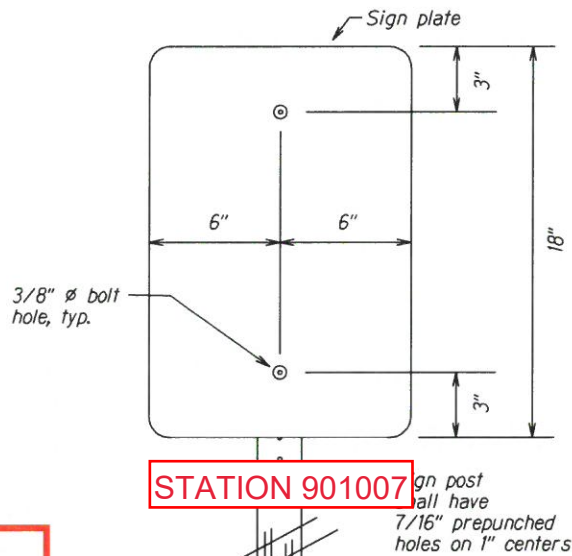
SIGNATURE

DATE

TYPE II OBJECT MARKER (REFLECTOR) MOUNTING
Not to Scale



PLAN



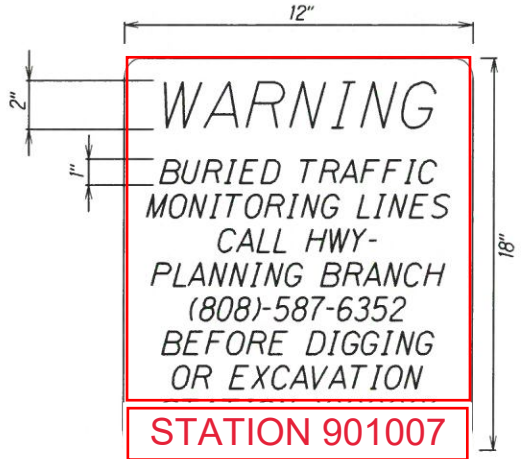
ELEVATION

STATION 901007
Sign post shall have 7/16" prepunched holes on 1" centers

NOTES:

- Two (2) warning sign plates shall be mounted back to back, parallel to the roadway.
- Bottom of signs shall be 8' above finished grade.

WARNING SIGN MOUNTING
Not to Scale



NOTES:

- Two (2) warning signs shall be placed on each sign post back to back.
- Text on sign shall be centered both ways and shall be black text on yellow non-retro reflective background.
- Include existing station name in place of XXXXXX. For new stations, leave blank (name to be added later when assigned).

WARNING SIGN DETAIL
Not to Scale

DATE	2/16/22	REVISION	Added new sheet.
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION EVC TRAFFIC COUNTING SYSTEM WARNING SIGN FORT BARRETTE ROAD OPERATIONAL IMPROVEMENTS Roosevelt Avenue to Farrington Highway Project No. 901A-01-19 Scale: Not to Scale Date: January, 2020 SHEET No. 4 OF 5 SHEETS			

"AS-BUILT"

C.O. 50S-1

