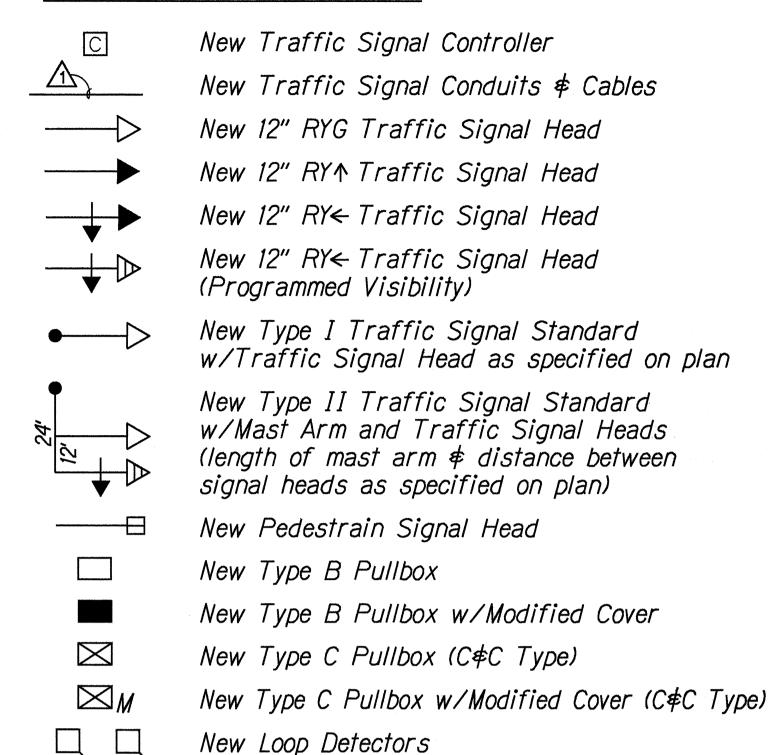
TRAFFIC SIGNAL NOTES

- 1. The locations of the Traffic Signal Standards, Traffic Signal Standards w/Mast Arms, Pedestrian Push Buttons, Traffic Controller, Pullboxes, Conduits and Loop Detectors shall be staked out in the field by the Contractor and approval of the locations shall be obtained from the Engineer prior to construction and installation.
- 2. All splicing shall be done in the pullboxes.
- 3. Furnishing and installing the conduit stubouts (pullboxes to edge of pavement) will not be paid for separately but shall be considered incidental to the various contract items.
- 4. 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.
- 5. All Traffic signal controller equipment shall be completely wired in the cabinet and shall control the traffic signals as called for in the plans.
- 6. The loop amplifier units furnished for this project shall be capable of operating the loop detector configurations shown on the plans. Cost for the loop amplifier shall be incidental to the installation of the loop detector.
- 7. Should any defect be encountered during the warranty period, the manufacturer will be notified and he shall promptly correct such defect. Service call (by factory qualified representative) during the warranty period for repairs or other maintenance shall be answered within 24 hours and shall be done at no expense to the State. All repairs shall be done as soon as possible.
- 8. All traffic signal work shall conform to the requirements of the "Manual On Uniform Traffic Control Devices For Streets And Highways", Federal Highway Administration (1988) and Amendments.
- 9. Locations of traffic markings and markers (lane lines, Stop lines, crosswalk, etc.) shown on the plans shall be verified with the Engineer prior to the installation of the traffic signal system.
- 10. The Contractor shall notify the Traffic Signal Branch, Department of Transportation Services, City & County of Honolulu, (phone no. 527-5007) two weeks prior to commencing any work on the traffic signal system.
- 11. The Department of Transportation Services, City & County of Honolulu, will assist the Engineer in construction inspection for the traffic signal system. The Contractor shall notify the Electrical and Maintenence Services Division, Department of Transportation Services, three (3) working days prior to commencing work on the traffic signal system (phone no. 527-5007).
- 12. Installation of the Opticom Receiver shall conform in accordance with the Standard Details of the Department of Transportation Services, City & County of Honolulu, Electrical and Maintenance Services Division, and all subsequent amendments and additions.

TRAFFIC SIGNAL LEGEND



Opticom Receiver

New Pipe Guard

New HECo Handhole (2'x4')

New HECo Transformer w/Concrete Pad

 $\otimes \rightarrow$

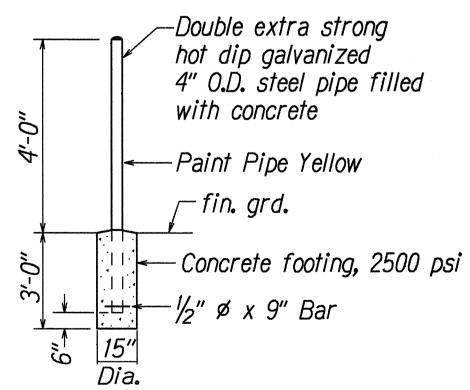
FED. AID PROJ. NO. FISCAL YEAR FED. ROAD HAW. STP-072-1(42) 1996 18 Pedestal shall be hot-dipped galv. after fabrication.
 All fastening bolts, nuts \$\psi\$ washers shall be stainless steel.
 Provide 4 ft. cl. in front of meter. 4-JAW Self Contained Meter Socket w/manual circuit closing device 4. * Sealable Stainless Steel enclosure 6"Dx10"Wx12"H. (similar to Strong Box Stainless Steel Metered Enclosure, Cat. #114TB)

← Plug 3" Pipe w/1/// Plate $\frac{3}{16}$ (typ.) - 21/2"x21/4"x1/4" L Meter Socket — 6"Dx10"Wx12"H Welded to Pipe Pullbox (Stainless 🗽 Pullbox Steel) NEMA 4X* --3"ø Pipe #6 Cu Grd. Wire Galv. Steel per NEC Article 250, - Conc. Base -1/2" Conduit ry Coupling ₺ 2500 psi Exist. Gr.— Thermoweld -5/8" ø x 8' Long 24 mi Cu. Grd. Rod 200 -To Power To Power Source Source To Pullbox –2" PVC Conduit, Sch. 80 90° Bend, 3' Radius

METER PEDESTAL FOR UNDERGROUND SERVICE DETAIL

FRONT ELEVATION

Not to scale

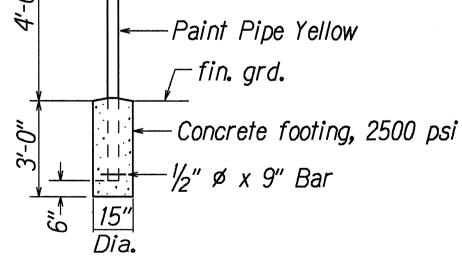


TYP. ELEVATION

NOTE:

Cost of the conc. filled galvanized pipe guard shall be incidental to other items of work

> PIPE GUARD DETAIL Not to Scale



TRAFFIC SIGNAL LEGEND DETAILS AND NOTES

STATE OF HAWAII **DEPARTMENT OF TRANSPORTATION**

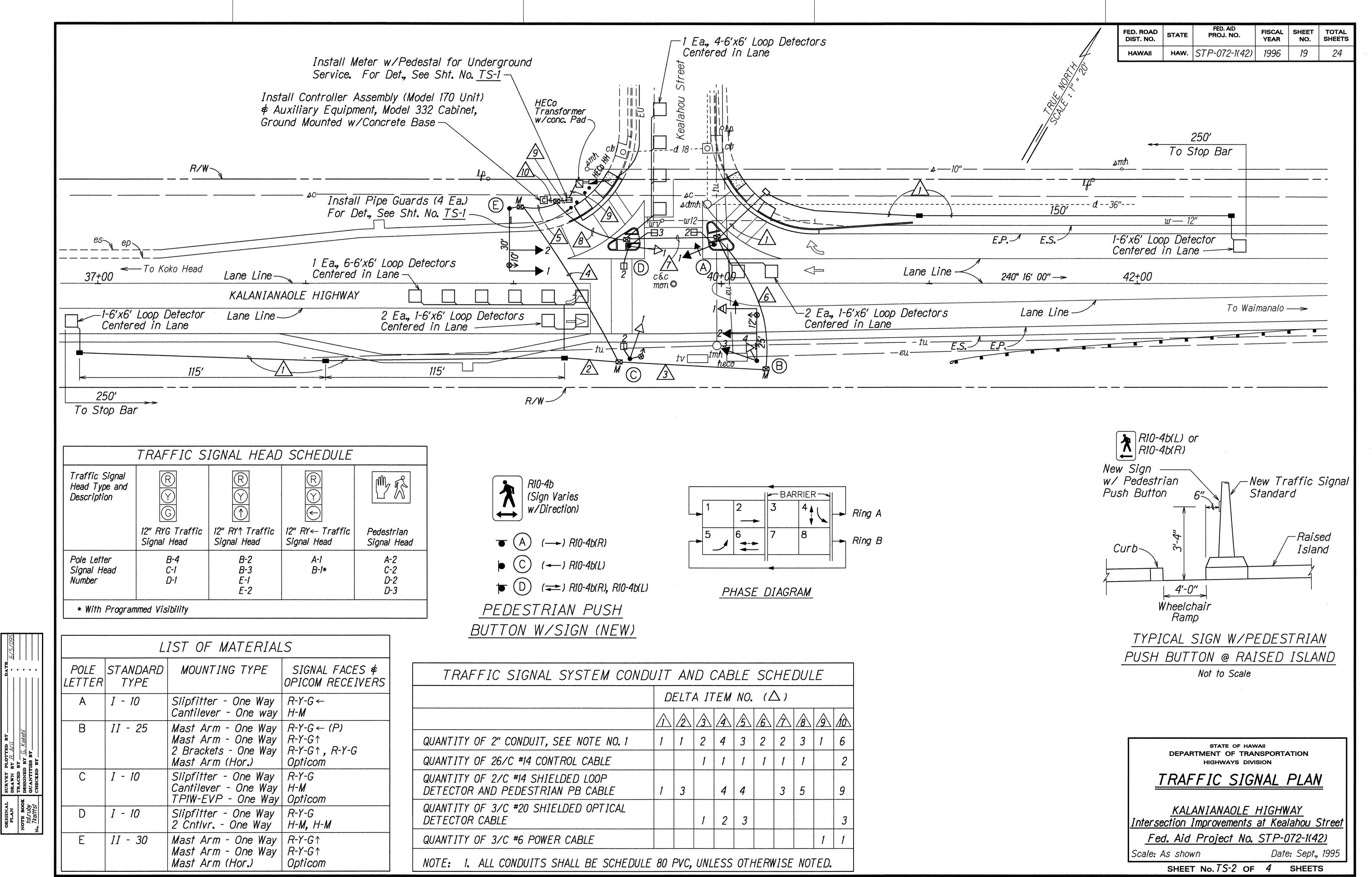
SIDE ELEVATION

KALANIANAOLE HIGHWAY Intersection Improvements at Kealahou Street

Fed. Aid Project No. STP-072-1(42) Date: Sept., 1995 Scale: As shown

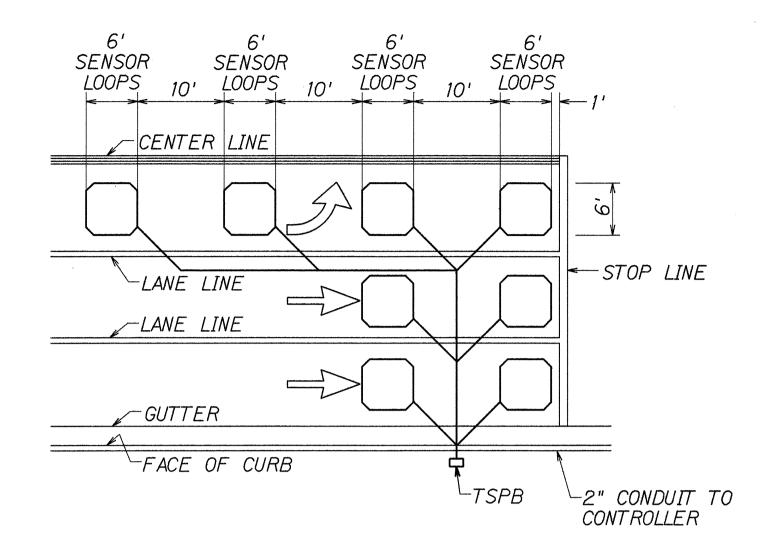
SHEET No. TS-1 OF SHEETS

18



FED. ROAD DIST. NO. STATE FED. AID PROJ. NO. FISCAL YEAR NO. SHEETS

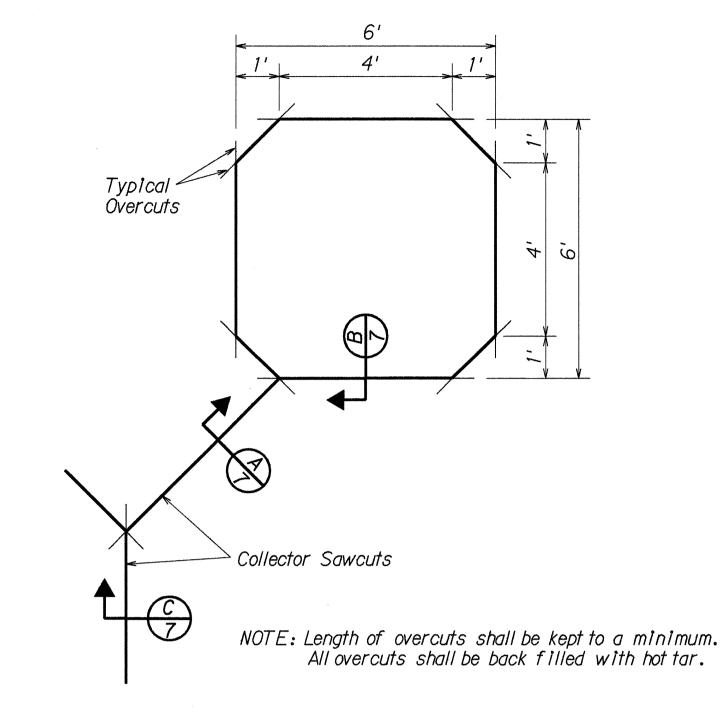
HAWAII HAW. STP-072-1(42) 1996 20 24



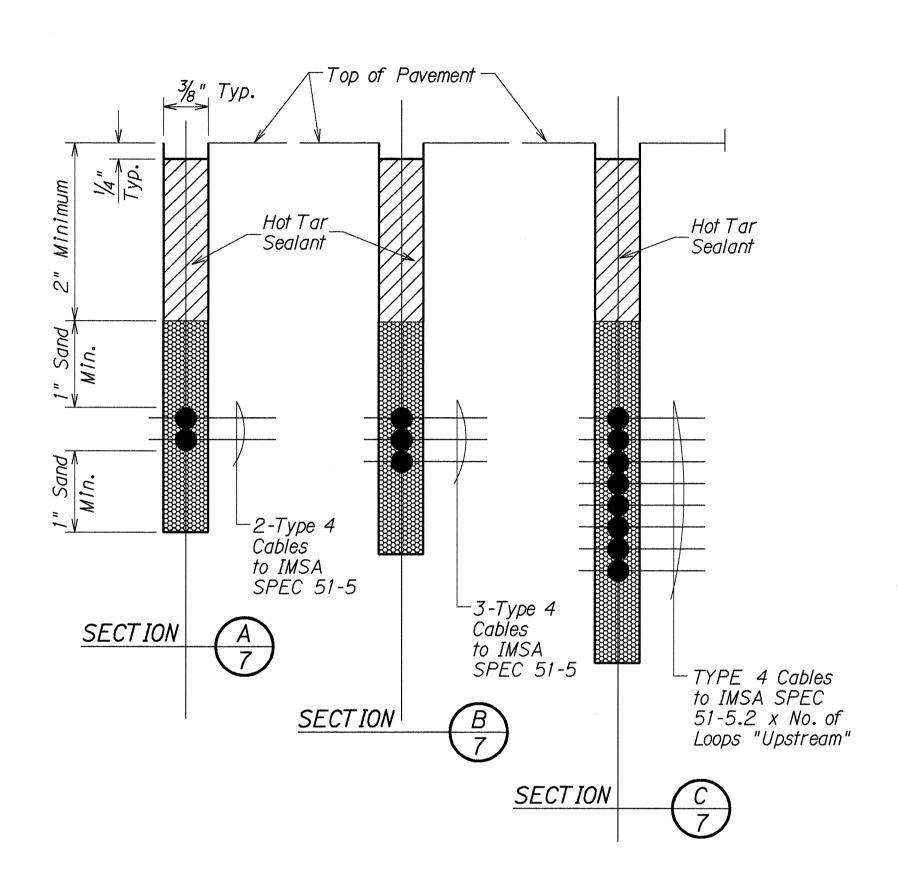
NOTES:

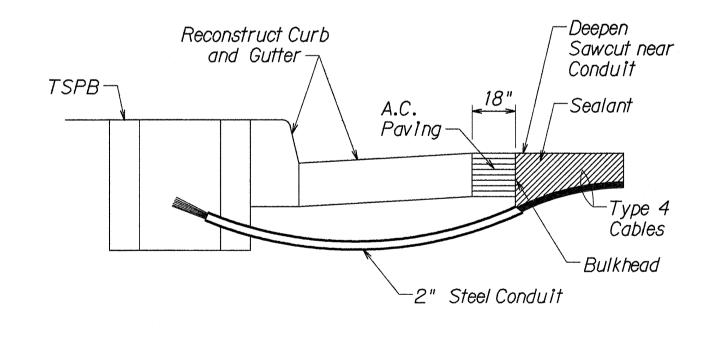
- 1. Center sensor loops in lanes.
- 2. Collector cables shall be twisted 2 turns per foot.
- 3. Number of loops and locations vary. See project plans.
- 4. Number and locations of collector sawcuts may be varied in the field to suit.

TYPICAL SENSOR LOOP LAYOUT



TYPICAL SENSOR LOOP SAWCUT DETAIL



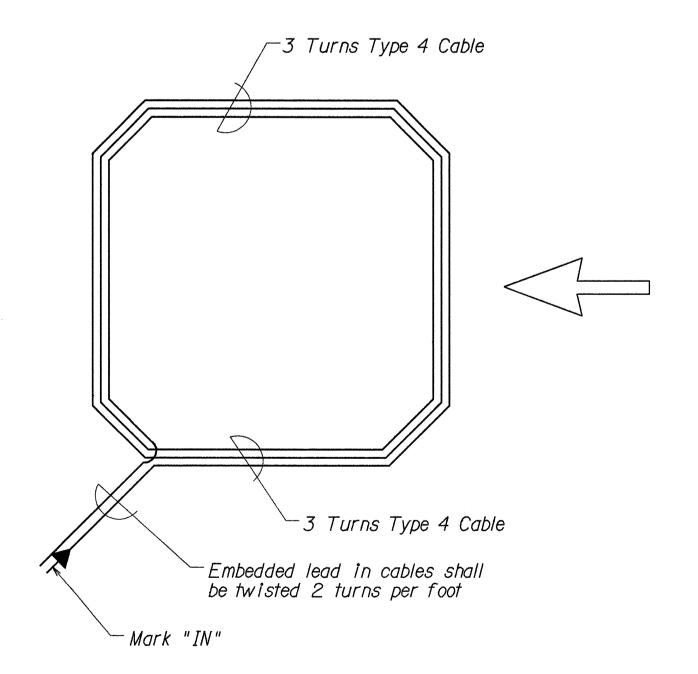


NOTES ON CONSTRUCTION AT END OF SAWCUT

- 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



TYPICAL SENSOR LOOP WIRING DIAGRAM

TYPES OF CABLES

TYPE 1	Signal Loop Cable: Stranded No. 14, 26 conductors
TYPE 2	Detector Lead-In Cable and Pedestrian Push Button Circuit Cable: Stranded, No. 14, 2 Conductors
TYPE 3	Interconnect Cable: Solid No. 20, 12 Pairs
TYPE 4	Loop Sensor Cable: Solid No. 12, Single Conductor to IMSA SPEC 51-5
TYPE 5	Cable from Signal Loop to Signal Head: Stranded, No. 14, Single Conductor

TYPE 6 Service Cable: Solid, No. 6, 3 Conductors

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

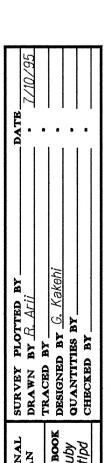
LOOP DETECTOR DETAILS

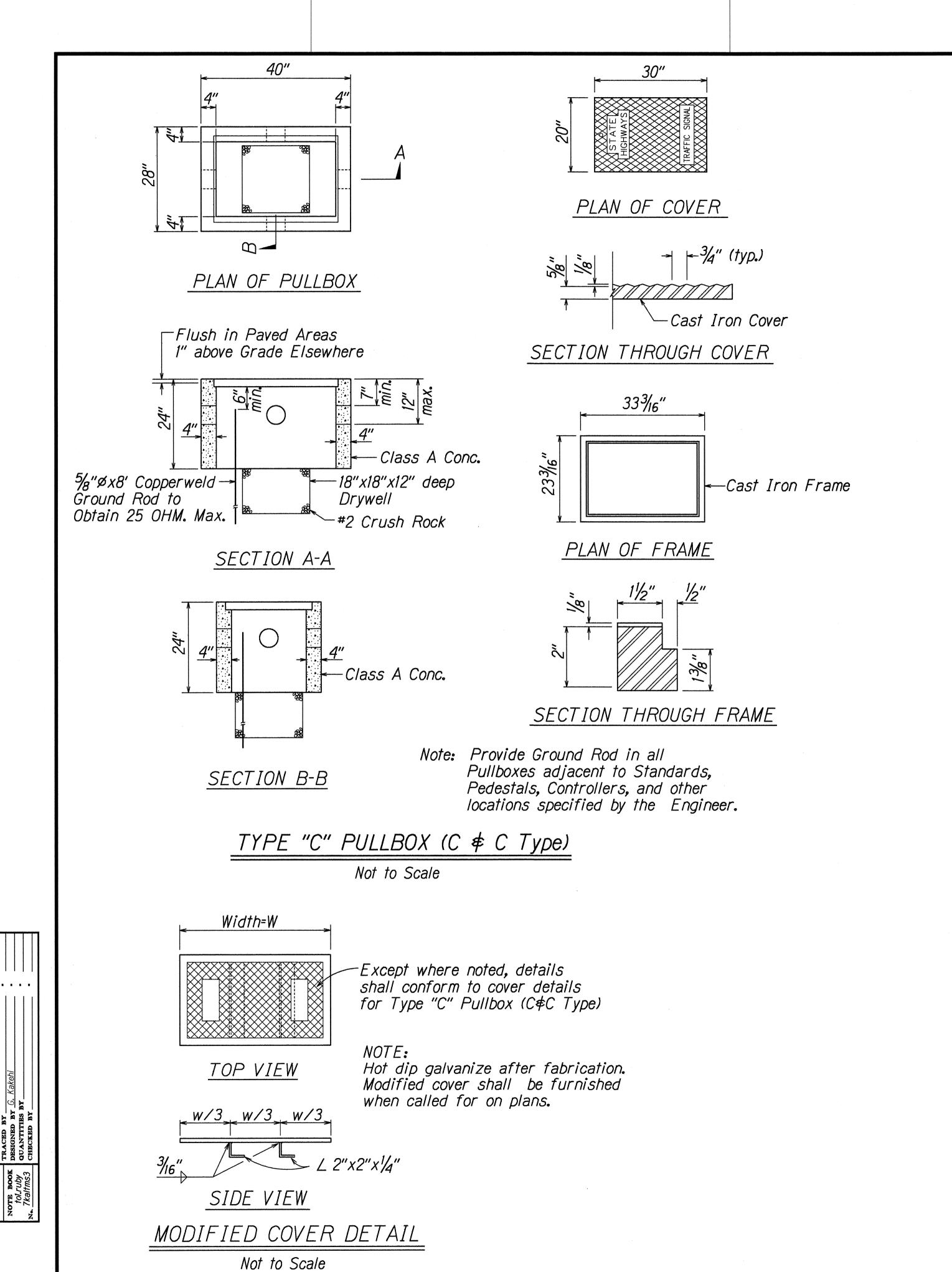
KALANIANAOLE HIGHWAY

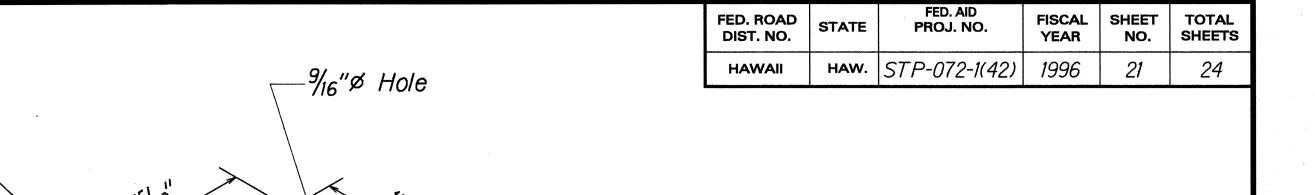
Intersection Improvements at Kealahou Street
Fed. Aid Project No. STP-072-1(42)

Scale: As shown Date: Sept., 1995

SHEET No. TS-3 OF 4 SHEETS







13/4"x13/4"x1/4"L@

of Plate

2.77# Welded to Bottom

NOTES:

1. After fabrication of covers,
Galvanize or apply 2 coats of ZRC
(Zinc Rich Coating) to both sides.

Precast Concrete Pullbox for 435TB—

1/4" Checkered — Steel Plate

TYPE "D" PULLBOX (C \ C \ Type)

Not to Scale

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL DETAILS

KALANIANAOLE HIGHWAY
Intersection Improvements at Kealahou Street
Fed. Aid Project No. STP-072-1(42)

Not to Scale

SHEET No. TS-4 OF 4 SHEETS

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Date: Sept., 1995