FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-NH-H1-1(239)	2001	97	103

TRAFFIC SIGNAL NOTES

1. A solid #8 bare copper wire shall be pulled within all conduits for equipment ground. Cost shall be incidental to the installation of the control cable.
2. Conduits and pullbox locations as shown on the plans are schematic. They may be modified by the Contractor with the approval of the Engineer.
3. The Contractor shall install the controller and cabinet in the indicated location.
4. All work for the installation or modification of the Weigh-In-Motion system shall conform to the latest revisions of the "Hawaii Standard Specifications for Road and Bridge Construction, 1994" and the "Standard Plans" of the Department of Transportation, Highways Division and as shown on these drawings.
5. All splicing shall be done in the pullboxes.
6. 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.
7. The concrete jacket for the Conduit By-pass Detail shown on this sheet shall not be paid for separately but considered incidental to the various contract items. The Engineer shall determine if a concrete jacket is required.
8. All cable and elements for grounding shall be new.
9. Unless otherwise specified, all conduits shall be PVC.

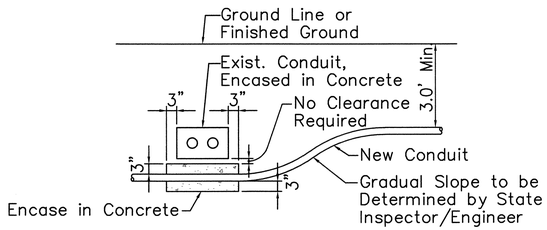
LEGEND

NEW

- ■ Type "A" Pullbox
- ◪ Type "B" Pullbox
- ⊠ Type "C" Pullbox
- [C] Controller and 336 Cabinet on New Base
- ⌐ Loop Detector

CONSTRUCTION NOTES

1. Locations of existing underground structures and utilities such as pipelines, conduits, cables, etc., shown on plans are approximate only. It is not the intent of these plans to show the exact location of all underground utilities and structures. It is the responsibility of the Contractor to verify the locations of all existing utilities with the respective owners. Existing utilities damaged by the Contractor shall be repaired by the Contractor at his own cost.
2. The Contractor shall verify and check all dimensions and details shown on the drawings prior to the start of construction. Any discrepancy shall be immediately brought to the attention of the Engineer for clarification.
3. The Contractor shall notify all Agencies to verify, tone and locate their existing utilities within the project area prior to excavating. The Contractor shall coordinate all work.
4. The locations of the new weigh pad, 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.
5. All traffic signal work shall conform to the requirements of the "Manual on Uniform Traffic Control Devices Millennium Edition", Federal Highway Administration (2000) and amendments.
6. Maintenence of traffic through the construction area shall be in accordance with Part VI of the "Manual on Uniform Traffic Control Devices Millennium Edition", Federal Highway Administration (2000) as amended and as specified in the Special Provisions. The Contractor shall furnish and maintain adequate barricades, blinkers, construction signs, etc., for the safety of the motoring public.
7. At the end of each day's work, the Contractor shall remove all equipment and other obstructions to permit free and safe passage of public traffic.



CONDUIT BY-PASS DETAIL

Not to Scale

PM: JJN
OPER: *BTY
REVISED: 4/23/01
DATE: 1/31/01
PLOT SCALE: 1 = 1
FILE: W1.dwg
JOB. NO.: 9810B

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	
	DRAWN BY	
NOTEBOOK	TRACED BY	
	DESIGNED BY	
No.	QUANTITIES BY	
	CHECKED BY	

KEITH K. NIIYA
LICENSED PROFESSIONAL ENGINEER
No. 8226-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

BY: _____
DATE: 5/9/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

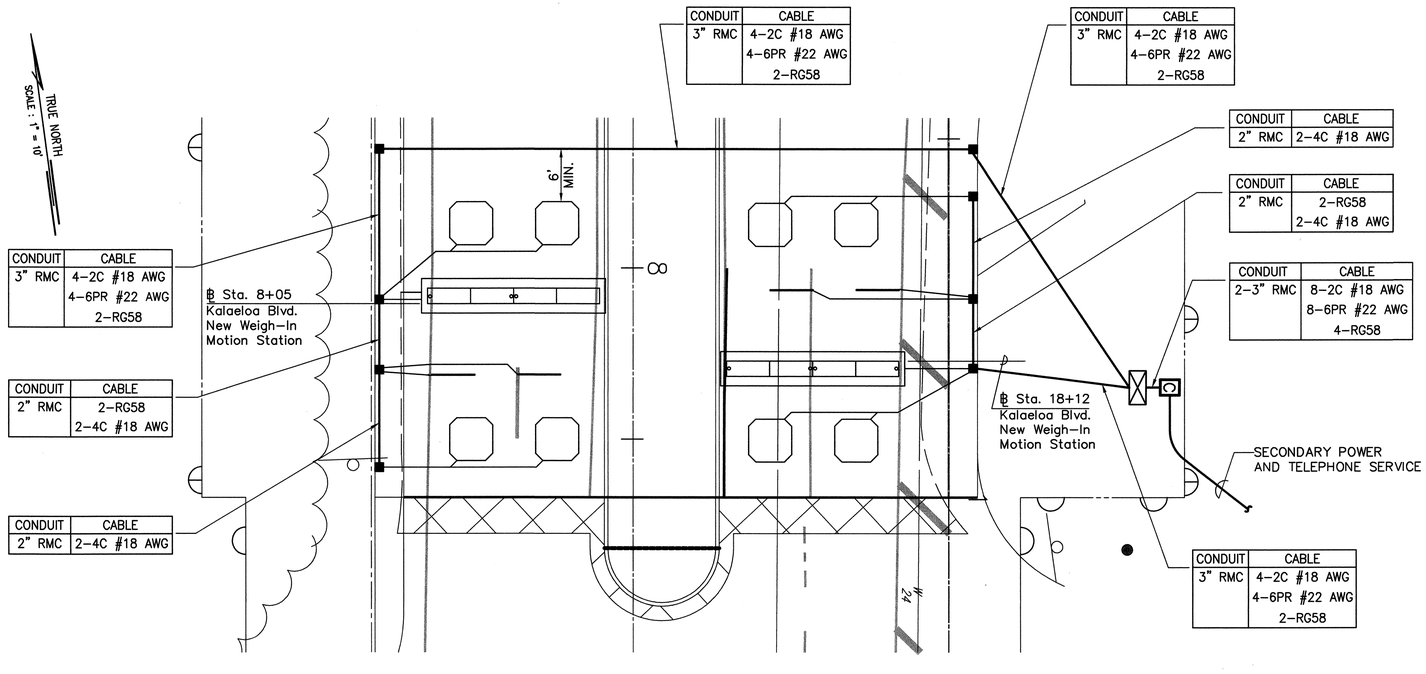
WEIGH-IN-MOTION STATION
NOTES AND LEGEND

INTERSTATE ROUTE H-1
Palailai Interchange Reconstruction
F.A.I. Project No. IM-NH-H1-1(239)

Scale: As Noted Date: 4/01/01

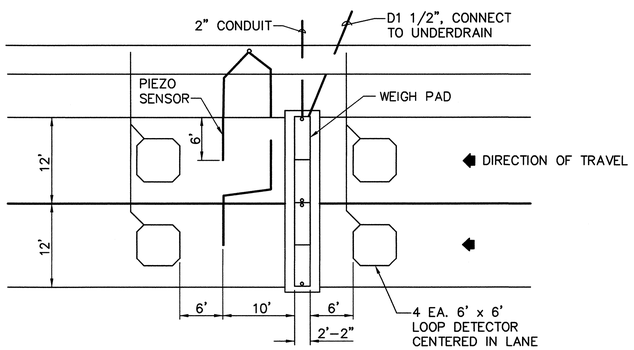
SHEET NO. W1 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-NH-H1-1(239)	2001	98	103



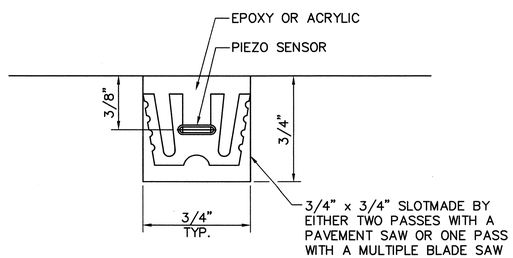
WEIGH-IN-MOTION STATION PLAN

SCALE: 1" = 10'



WEIGH-IN-MOTION SYSTEM DETAILS

NO SCALE



PIEZO SENSOR DETAIL

NO SCALE

REDUCED PLAN
(HALF SIZE)
0 1 2 3
3 INCHES ON ORIGINAL PLAN

PM: JNN
OPER: BTY,*FAI
REVISED: 04/24/01
DATE: 01/31/01
PLOT SCALE: 1 = 10
FILE: W2.dwg
JOB. NO.: 9810B

ORIGINAL PLAN	DATE
NOTEBOOK	SURVEY PLOTTED BY
No.	DRAWN BY
	TRACED BY
	DESIGNED BY
	QUANTITIES BY
	CHECKED BY

KEITH K. NIIYA
LICENSED PROFESSIONAL ENGINEER
No. 8226-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

BY: _____
DATE: 5/9/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WEIGH-IN-MOTION STATION PLAN AND DETAILS

INTERSTATE ROUTE H-1

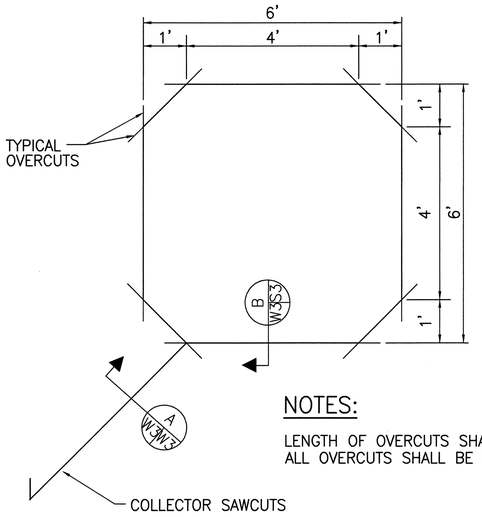
Palailai Interchange Reconstruction

F.A.I. Project No. IM-NH-H1-1(239)

Scale: As Noted Date: 4/01/01

SHEET NO. W2 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-NH-H1-1(239)	2001	99	103

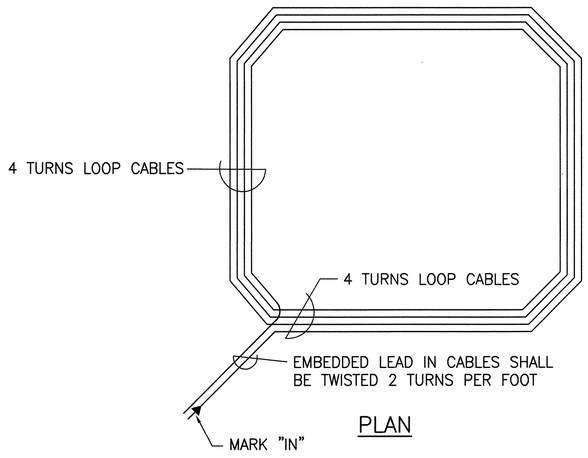


NOTES:

LENGTH OF OVERCUTS SHALL BE KEPT TO A MINIMUM.
ALL OVERCUTS SHALL BE BACKFILLED WITH HOT TAR.

TYPICAL SENSOR LOOP SAWCUT DETAIL

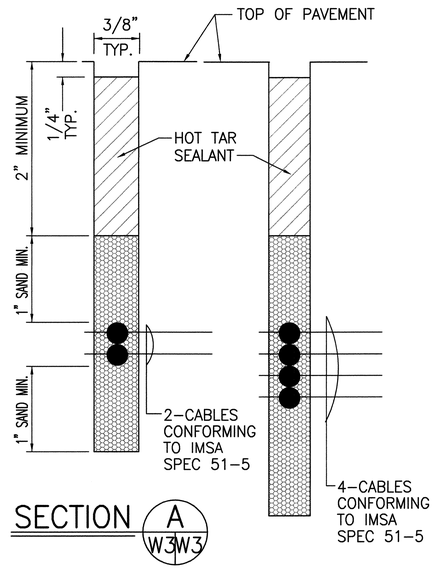
NOT TO SCALE



PLAN

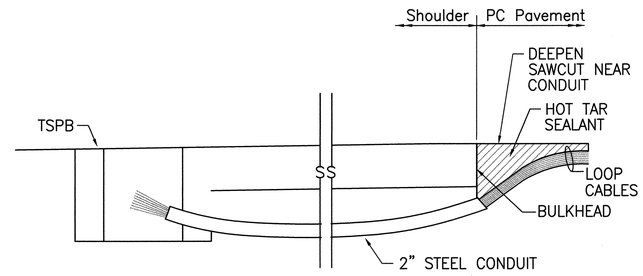
TYPICAL SENSOR LOOP WIRING DIAGRAM

NOT TO SCALE



SECTION A W3W3

SECTION B W3W3



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

PM: JJN
OPER: BTY;*FAI
REVISED: 04/24/01
DATE: 01/31/01
PLOT SCALE: 1 = 10
FILE: W3.dwg
JOB. NO.: 9810B

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTEBOOK	DRAWN BY	
No.	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

REDUCED PLAN
(HALF SIZE)

0 1 2 3

3 INCHES ON ORIGINAL PLAN

KEITH K. NIIYA
LICENSED PROFESSIONAL ENGINEER
No. 8226-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

BY: _____

DATE: 5/9/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SENSOR LOOP DETAILS

INTERSTATE ROUTE H-1

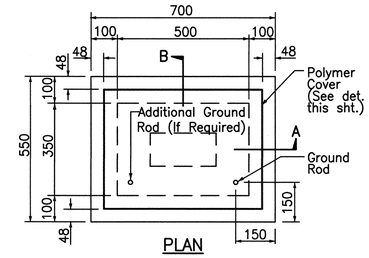
Palailai Interchange Reconstruction

F.A.I. Project No. IM-NH-H1-1(239)

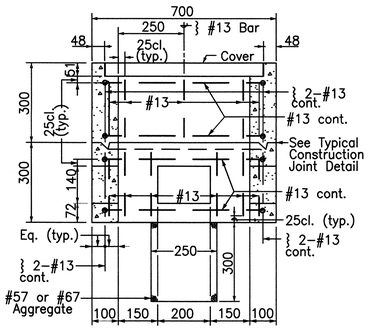
Scale: As Noted Date: 4/01/01

SHEET NO. W3 OF 6 SHEETS

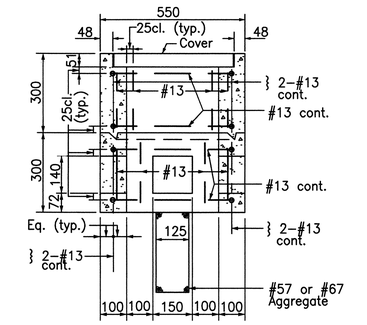
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-NH-H1-1(239)	2001	100	103



PLAN



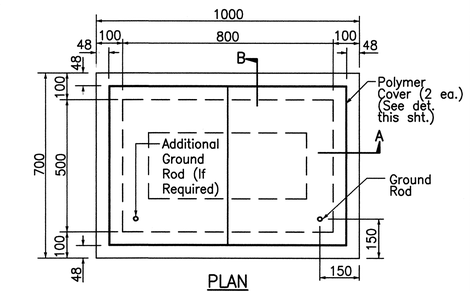
SECTION A–A



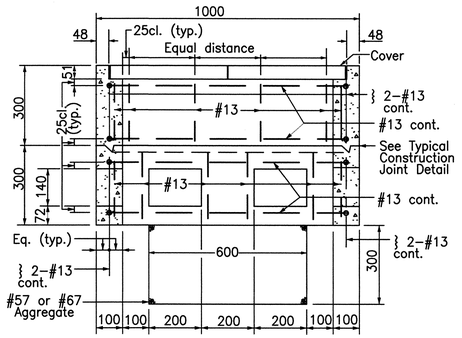
SECTION B–B

TYPE "A" PULLBOX (Old Type "B")

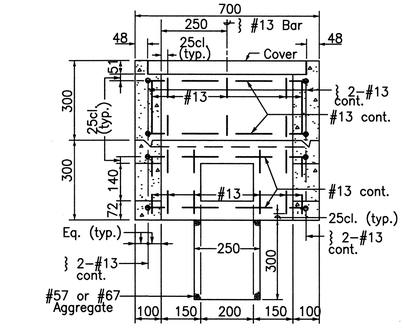
Scale: 1 : 100



PLAN



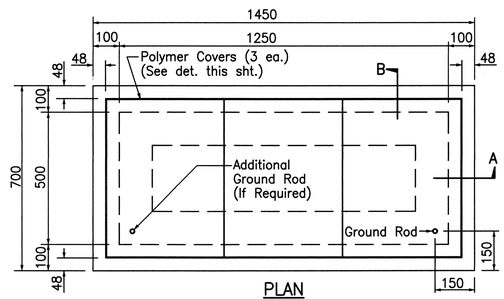
SECTION A–A



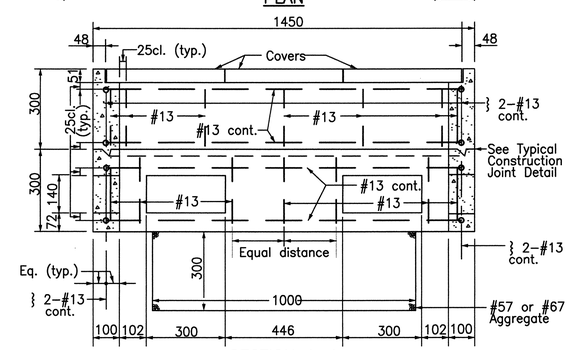
SECTION B–B

TYPE "B" PULLBOX (Old Type "C")

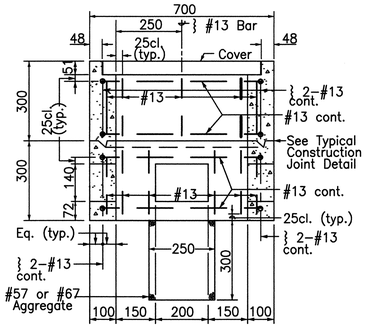
Scale: 1 : 100



PLAN



SECTION A–A



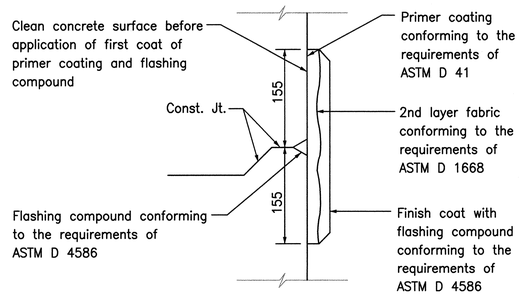
SECTION B–B

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

Scale: 1 : 100

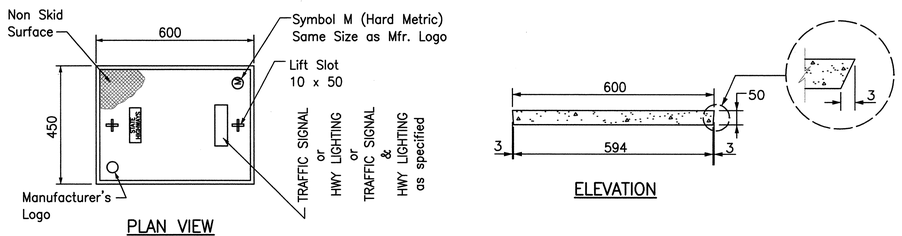
GENERAL NOTES

1. Provide a minimum of one 16ø x 2.5m 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 (21MPa or 3000PSI, min.)
9. Rebars shall be Grade 300 and all lapped splices shall be 360mm minimum.
10. The #57 or #67 size aggregate shall conform to latest version of of AASHTO M32 (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).



TYPICAL FLASHING COMPOUND WATERPROOFING DETAILS

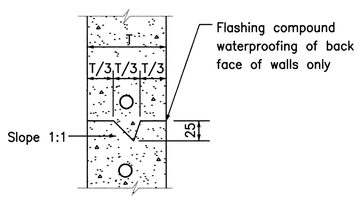
Not to Scale



PLAN VIEW ELEVATION

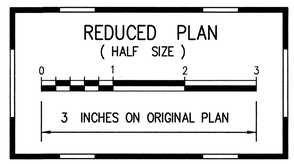
POLYMER CONCRETE COVER

Not to Scale



TYPICAL CONSTRUCTION JOINT DETAIL

Not to Scale



ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WEIGH–IN–MOTION STATION
TYP. SIGNAL PULLBOX DETAILS

INTERSTATE ROUTE H–1
Palailai Interchange Reconstruction
F.A.I. Project No. IM–NH–H1–1(239)

Scale: As Noted Date: 4/01/01

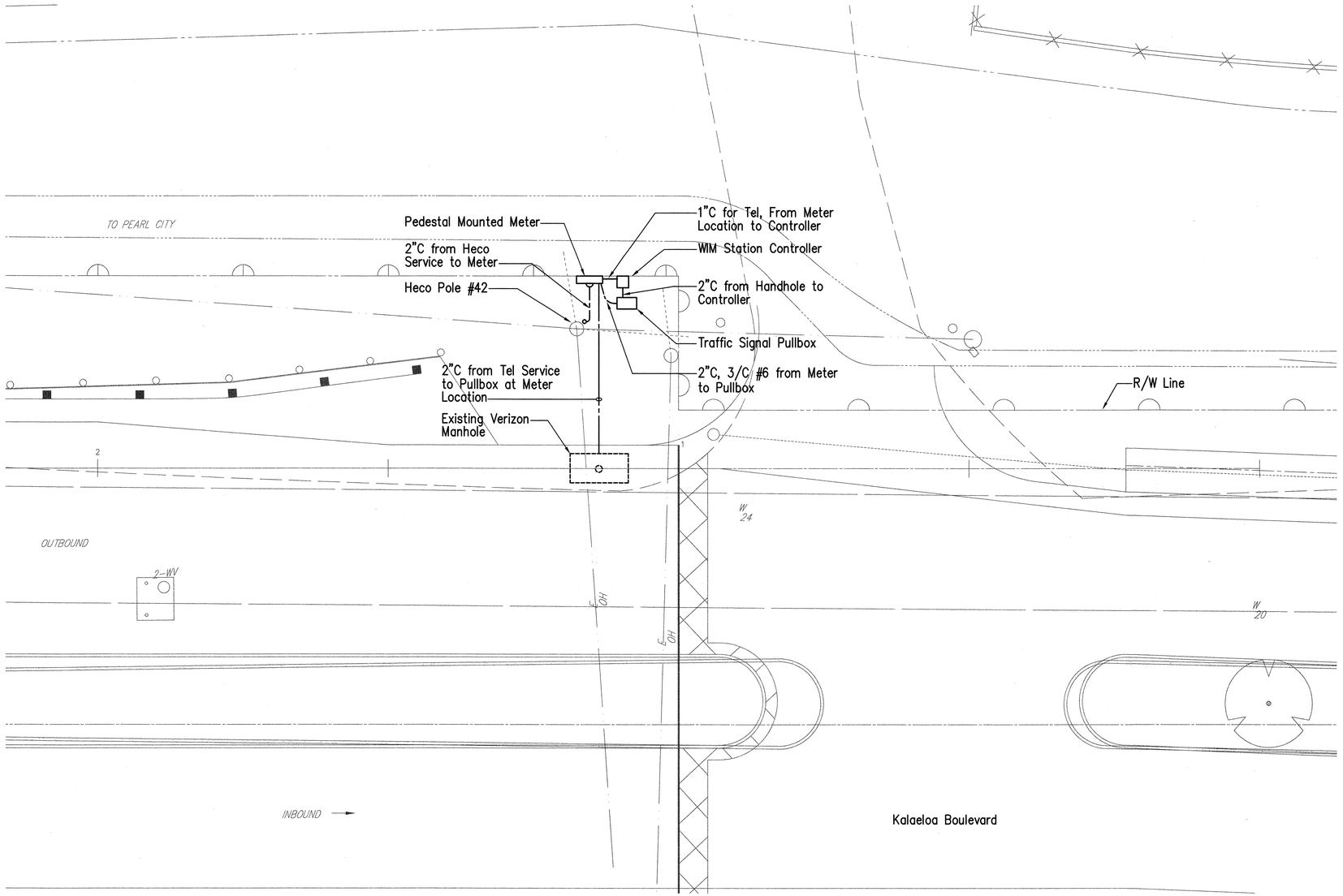
SHEET NO. W4 OF 6 SHEETS

PM: JJN
OPER: BTY,*FAI
REVISED: 02/06/01

DATE: 01/31/01
PLOT SCALE: 1 = 1
FILE: W4.dwg
JOB. NO.: 9810B

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE
NOTEBOOK | No.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-NH-H1-1(239)	2001	101	103



Notes:

1. Heco to Extend Secondary Service from Pole #43 to pole #42.
2. Heco to Provide Riser at Pole #42.
3. Concrete Encase All Underground Ducts. See Detail 1/W6

WIM STATION SITE PLAN

SCALE: 1" – 10'

GENERAL ELECTRICAL NOTES:

1. Underground ducts shall be swabbed clear of debris and obstructions with a wire brush and tested by passing a wooden mandrel with a diameter 1/2 inch less than the inside diameter of the conduit prior to pulling cables.
2. All aboveground and exposed electrical conduit shall be galvanized rigid steel conduit with threaded liquid-tight fittings.
3. Coordinate locations of conduit stub-ups for equipment connections with the connection points required for the equipment supplied.
4. Provide a green insulated equipment ground conductor with phase conductors in all raceways. Equipment ground conductor shall be no smaller than the sizes required in accordance with NEC Table 250-95.

GENERAL NOTES:

1. All ducts shall be PVC, Schedule 40 for direct buried, and concrete encased, provide a nylon pullwire in empty ducts. Type GTS for telephone.
2. Coordinate all ductwork with respective utility company.
3. See utility company standard drawings for all details. Coordinate duct entries into handholes with utility company.
4. Contractor shall exclude utility company service charges. All costs paid by State.

GRAPHIC SCALE :

1" =10' 10 0 10 20

SCALE IN FEET

GLENN T. KARAMATSU LICENSED PROFESSIONAL ENGINEER No. 4368-E HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

BY: Glenn Karamatsu

DATE: 4/30/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WIM STATION ELECTRICAL PLAN

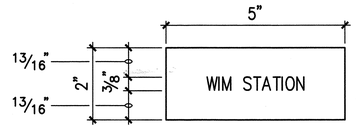
INTERSTATE ROUTE H-1
Palailai Interchange Reconstruction
F.A.I. Project No. IM-NH-H1-1(239)

Scale: As Shown Date: 4/01/01

SHEET NO. W5 OF 6 SHEETS

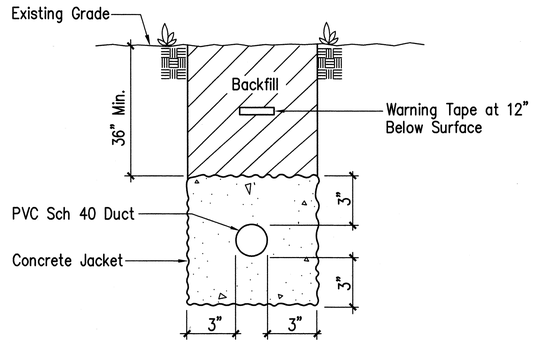
FILENAME: 103-5s5

FED. ROAD DIST. NO.	STATE	FED. AID Proj. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-NH-H1-1(239)	2001	102	103



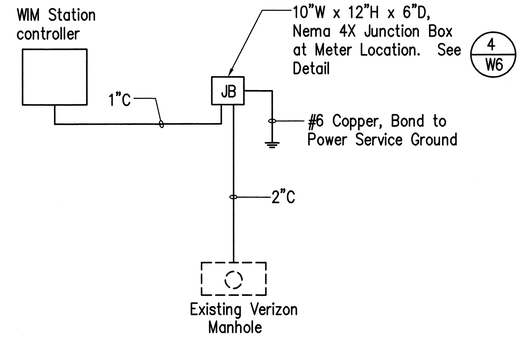
1. Use 3-Ply Laminated Flexible Plastic, Black-White-Black "Thickness: Black Cap Sheet-0.010", White Base Sheet-0.052", Black Base Sheet-0.010".
2. Attach to Meter Socket Using Scotch 3m Brand Very High Bond (VHB) Double Coated Acrylic Foam Tape or Equivalent.
3. Letters/Numbers Shall be 3/8" High, 1/16" Stroke, (White in Color).
4. Letters/Numbers Area Inscribed by Cutting Through "Black Cap Sheet" to Expose White Letters/Numbers.

METER ID TAG DETAIL

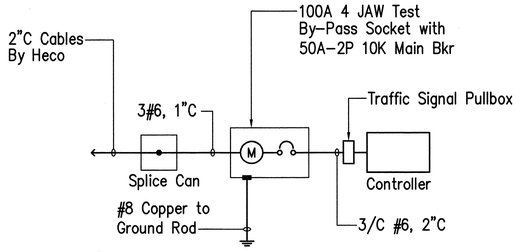


* Concrete Encase All Duct Runs

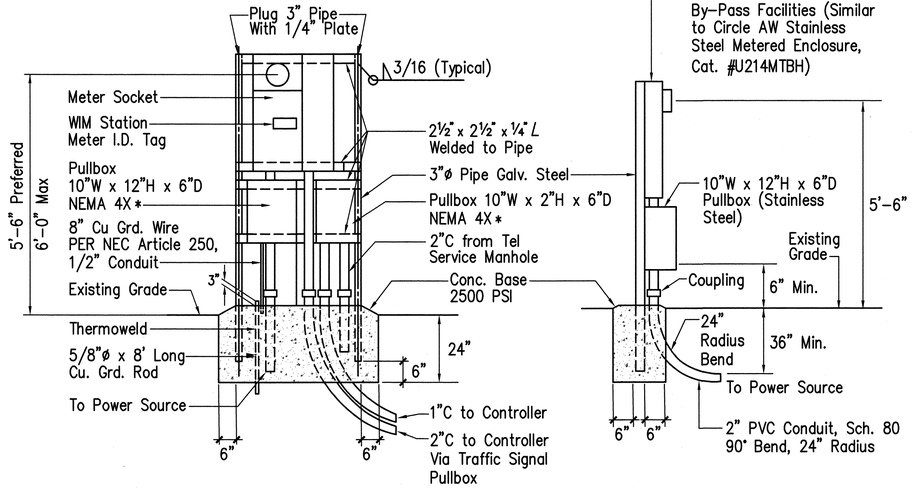
1/W6 DUCT DETAIL (TYPICAL)
NO SCALE



2/W6 TELEPHONE SERVICE DIAGRAM
NO SCALE



3/W6 ONE-LINE DIAGRAM
NO SCALE



FRONT ELEVATION

SIDE ELEVATION

Notes:

Pedestal Shall Be Hot-Dipped Galvanized After Fabrication.
All Fastening Bolts, Nuts and Washers Shall Be Stainless Steel.
Provide 4 Ft. Cl. in Front of Meter.
* Sealable NEMA 4x Stainless Steel Enclosure 10"W x 12"H x 6"D.

4/W6 METER PEDESTAL FOR UNDERGROUND SERVICE DETAIL
NO SCALE

GLENN T. KARAMATSU
LICENSED PROFESSIONAL ENGINEER
No. 4368-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
BY: Glenn Karamatsu
DATE: 4/30/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WIM STATION ELECTRICAL DETAILS

INTERSTATE ROUTE H-1
Palailai Interchange Reconstruction
F.A.I. Project No. IM-NH-H1-1(239)

Scale: As Shown Date: 4/01/01

SHEET NO. W6 OF 6 SHEETS

FILENAME: 103-505