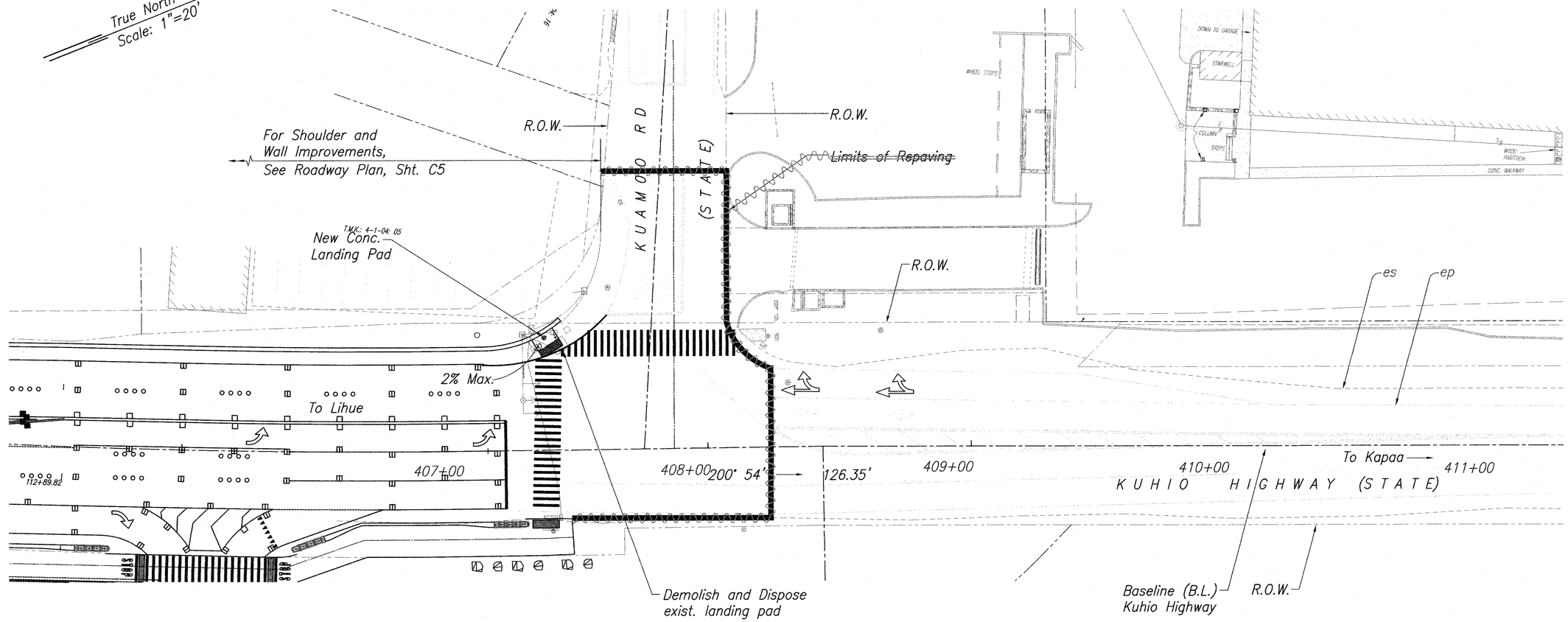
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
KAUA'I	HAW.	BR-056-1(51)	2008	111	284

True North
Scale: 1"=20'



Note:

1. See "Traffic Signal Plan" for Adjustments/Relocation of Traffic Signal System △3
2. Loop Detectors to be Installed Prior to Roadway Paving.

GRAPHIC SCALE:
20' 10' 0 20' 40'
SCALE: 1" = 20'

LEGEND FOR AS-BUILT POSTINGS	
~~^^^^^~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

DATE	REVISION
12/06/10	△3 Added Note
3/12/10	△2 Added Paving Limits

BRIAN A. LOCK
LICENSED PROFESSIONAL ENGINEER
No. 9867-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
APRIL 30, 2010
WILSON OKAMOTO CORPORATION LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

KUAMOO ROAD INTERSECTION

KŪHIŌ HIGHWAY, SHORT-TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)

Scale: As Noted Date: MAY 2008

SHEET No. KR1 OF KR11 SHEETS

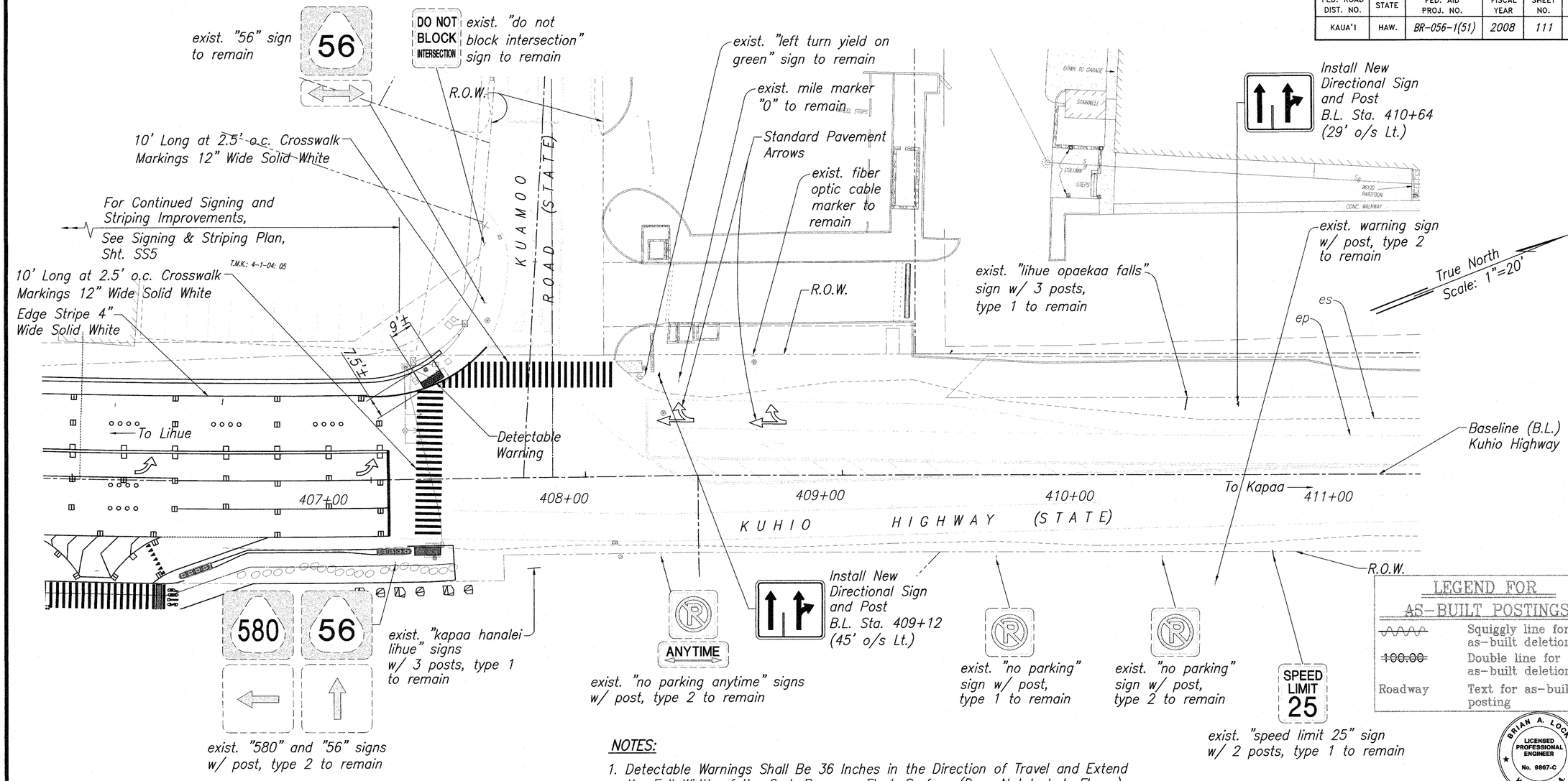
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

ORIGINAL PLAN
NOTE BOOK
No.

"AS-BUILT"

C.O. 111

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
KAUA'I	HAW.	BR-056-1(51)	2008	111	284



LEGEND FOR AS-BUILT POSTINGS

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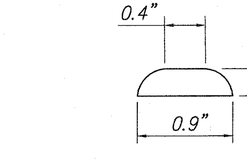
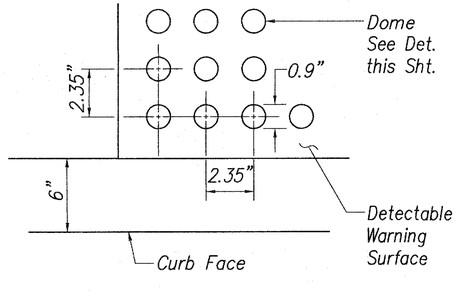
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting



DOME SECTION
Not to Scale



ENLARGEMENT
Not to Scale

GRAPHIC SCALE:
20' 10' 0 20' 40'
SCALE: 1" = 20'

NOTES:

1. Detectable Warnings Shall Be 36 Inches in the Direction of Travel and Extend the Full Width of the Curb Ramp or Flush Surface (Does Not Include Flares).
2. Truncated Domes Shall Have a Diameter Of 0.9 Inch at the Bottom, a Diameter of 0.4 Inch at the Top, a Height of 0.2 Inch and a Center-to-Center Spacing of 2.35 Inches Measured Along One Side of a Square Arrangement.
3. Domes Shall be Aligned on a Square Grid in the Predominant Direction of Travel to Permit Wheels to Roll Between the Domes.
4. The Detectable Warning Shall be "Safety Yellow".
5. The Material Used to Provide Visual Contrast Shall be an Integral Part of the Detectable Warning Surface.
6. The Detectable Warning Shall be Located so that the Edge Nearest the Curb Line or Other Potential Hazard is 6 to 8 Inches From the Curb Line.

DATE	REVISION
3/12/10	2 Deleted Detectable Warnings Revised Pavement Markings

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

BRIAN A. LOCK
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APRIL 30, 2010
WILSON OKAMOTO CORPORATION LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & STRIPING PLAN
KUAMOO ROAD INTERSECTION
KŪHIŌ HIGHWAY, SHORT-TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)

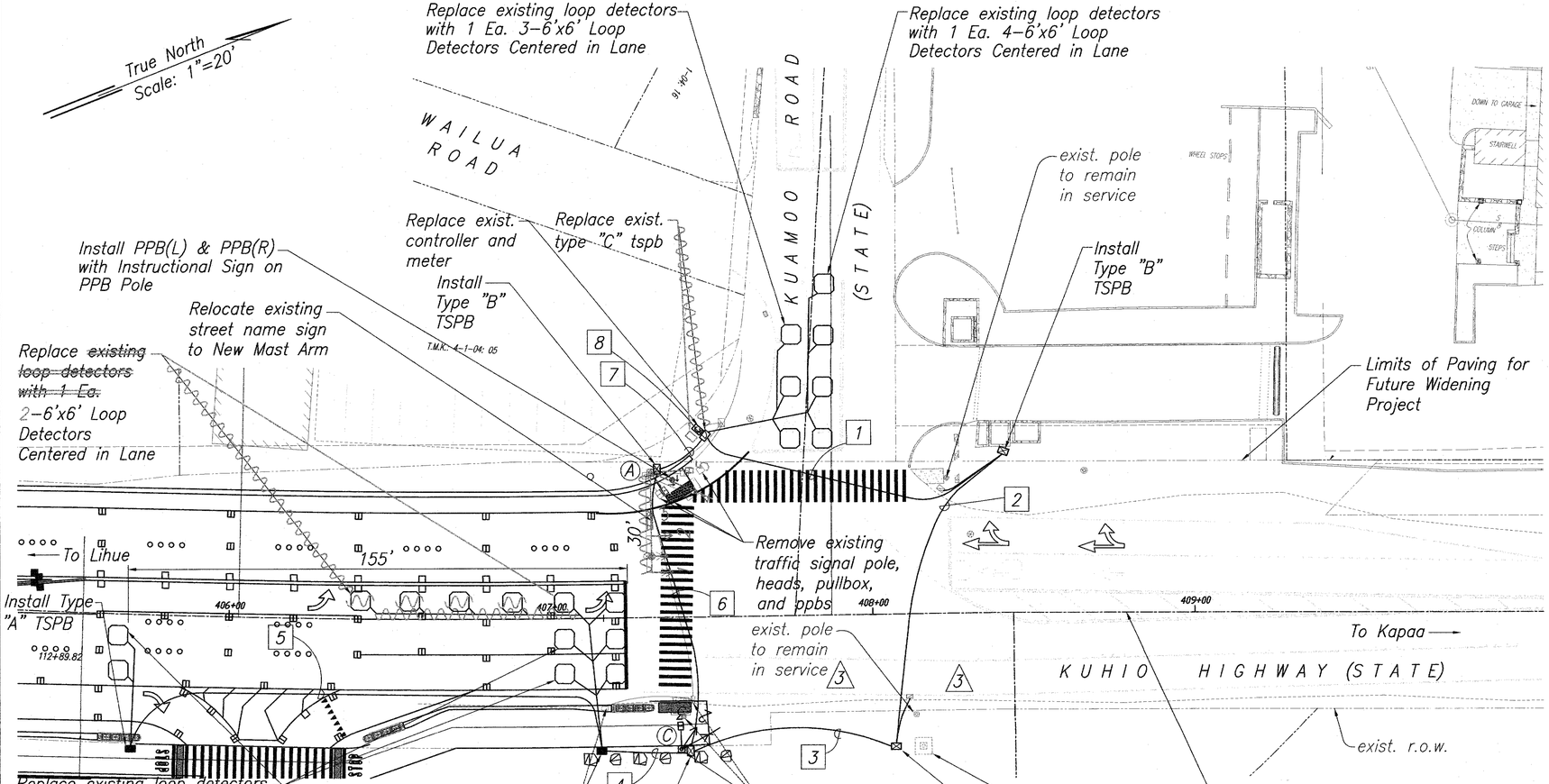
Scale: As Noted Date: MAY 2008

SHEET No. KR2 OF KR11 SHEETS

"AS-BUILT"

C.O. 112

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	113	284

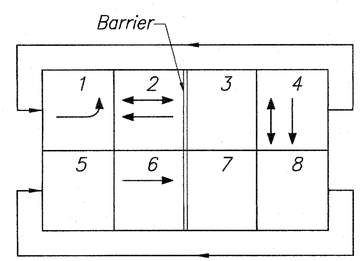


CONDUIT & CABLE SCHEDULE

□	CONDUIT	CABLE	□	CONDUIT	CABLE
1	1-2" 1-2" 1-2" 2-2"	1-26C#14 5-2C#14 (3 for future use) 1-12PR#19 (For future use) SPARE	6	1-2" 2-2" 1-2" 2-2"	1-26C#14 2-OPTICOM 6-2C#14 SPARE
2	1-2" 2-2"	1-26C#14 SPARE	7	1-2" 3-2" 1-2" 2-2"	1-26C#14 3-OPTICOM 6-2C#14 SPARE
3	1-2" 2-2" 2-2"	1-26C#14 2-OPTICOM SPARE	8	2-2" 3-2" 2-2" 1-2" 1-2" 2-2"	2-26C#14 3-OPTICOM 10-2C#14 3-2C#14 (For future use) 1-12PR#19 SPARE
4	1-2"	5-2C#14			
5	1-2"	2-2C#14			

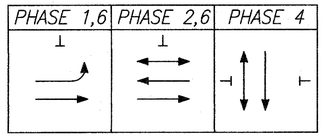
Notes:

1. Contractor to provide retro-reflective backboard (i.e., white regulatory sign with black border) at all traffic signal heads. The size of the backboard must extend 6" from each side of the traffic signal head. Contractor shall provide mounting details to DOT for approval.
2. Meter box enclosure shall be TESCO stainless steel (rainproof) enclosure, or approved equal. Enclosure shall be fabricated from 14 gauge 304D stainless steel with internal parts fabricated from 14 gauge cold rolled steel electronically welded and reinforced where required.
3. For Traffic Signal System details, Contractor shall refer to DOT 2008 Standard Plans TE-13, TE-32, TE-33, TE-33A.1, TE-33A.2, TE-34, TE-35, TE-36, TE-37, TE-37A, TE-37B, TE-37C, TE-37D, TE-37E, TE-37F, TE-37G, TE-37H, TE-37J, TE-38, TE-38A.1, and TE-38A.2
4. Loop detectors to be installed prior to △3 roadway paving.

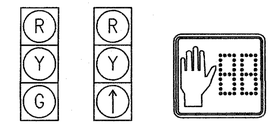


PHASE ASSIGNMENT DIAGRAM

MODEL 170 CONTROLLER
MODEL 332S CABINET



PHASE DIAGRAM



A-4
C-1
C-2

A-1
A-2

A-3
A-5
C-3

△3

SIGNAL INDICATIONS

LEGEND FOR AS-BUILT POSTINGS

~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

CATHY A. LEONG
LICENSED PROFESSIONAL ENGINEER
No. 10334-CE
HAWAII, U.S.A.

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WILSON OKAMOTO CORP. APRIL 30, 2010 LIC. EXP. DATE

DATE	REVISION
12/06/10	△3 Revised Traffic Signal Design
3/12/10	△2 Revised Traffic Signal Design

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN
KUAMOO ROAD INTERSECTION
KUHIO HIGHWAY, SHORT-TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)

Scale: As Noted Date: MAY 2008

SHEET No. KR3 OF KR11 SHEETS

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

"AS-BUILT"

C.O. 113

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	114	284

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 the actual location of all utilities in the project area prior to excavating. The contractor shall coordinate all work.
4. The contractor shall tone and locate existing utilities along duct line prior to excavation.
5. The locations of the new traffic signal standards, traffic signal standards with mast-arm, 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.
6. All traffic signal work shall conform to the requirements of the "Manual on Uniform Traffic Control Devices for Streets and Highways", Federal Highway Administration (2000) and amendments.
7. Locations of new pavement markings (pavement arrow, stop lines, crosswalk, etc.) that are done by others (as shown on plans) shall be verified with the engineer prior to the installation of the traffic signal system.
8. Provide arrow board at start of all tapers.

LEGEND FOR AS-BUILT POSTINGS

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~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

TRAFFIC SIGNAL NOTES

1. All traffic signal controller equipment shall be completely wired in the cabinet and shall control the traffic signals as called for in the plans.
2. Signal indications during clearance interval:
   A. If a signal is G or ~~G~~ and will remain G or ~~G~~ during the next phase, it shall be G or ~~G~~ during the clearance interval.
   B. If a signal is G or ~~G~~ and will become R or extinguished during the next phase, it shall be Y or ~~Y~~ during the clearance interval.
   C. If a signal is R and will remain R or becomes G during the next phase, it shall remain R during the clearance interval.
3. The loop amplifier units furnished for this project shall be capable of operating the loop detector configurations shown on the plans.
4. A solid #8 bare copper wire shall be pulled with the traffic control cable for equipment ground. Cost shall be incidental to the installation of the control cable.
5. Conduits and cabinet locations as shown on the plans are schematic. They may be modified by the contractor with the approval of the engineer.
6. The contractor shall splice all signal conductors in pullbox. No splices shall be permitted in detector lead-in cable.
7. All traffic signal removal and disposal work (i.e. pullboxes, standards, foundations, signal and pedestrian heads, loop detectors, etc.) shall be considered incidental to the various traffic signal items.
8. The contractor shall remove existing traffic signal equipment in usable condition as indicated on the plans and deliver to the Kauai District Baseyard or as directed by the Engineer. Cost shall be incidental to various traffic signal items.
9. All resulting holes from the removal of pedestrian push buttons on existing traffic signal standards shall be plugged as directed by the Engineer. Cost shall be incidental to the various traffic signal items.
10. The Department of Water requires 6" minimum vertical and 3' minimum horizontal clearance between utilities.
11. After installing all the traffic signal cables, seal all conduits in pullboxes, standards and controller cabinet with "duct seal". "Duct Seal" shall be acceptable to Engineer and State Inspector.
12. All mounting brackets for vehicle and pedestrian signal heads and all other equipment attached to signal standards shall be brass, bronze or stainless steel (Type 316), except as listed below, no steel parts shall be used including setscrews.
    A. Hub plates may be aluminum if not available in brass, bronze or stainless steel (Type 316).
    B. Mast arm mounting brackets may be aluminum alloy. All hardware shall be stainless steel (Type 316).
13. All luminated signals shall be LED.
14. Pedestrian signal housings shall be plastic style.
15. Internal parts for 3 section and 4 section signal heads shall be stainless steel (Type 316).
16. Anchor bolts, leveling nuts and washers for Type I, II and III traffic signal standards shall be stainless steel (Type 316).

TRAFFIC SIGNAL LEGEND

- New Traffic Signal Standard
- Existing Traffic Signal Standard
- New Standard Traffic And Pedestrian Signal Heads Mounted On Type I Signal Standard, Height=10'
- Existing Standard Traffic And Pedestrian Signal Heads Mounted On Type I Signal Standard, Height=10'
- New Opticom Unit
- Existing Opticom Unit
- New Traffic Signal Heads Mounted On Type II Signal Standard, Arm Spread Shown is 30' And Distance Between Signal Heads is 12'
- Existing Traffic Signal Heads Mounted On Type II Signal Standard, Arm Spread Shown is 30' And Distance Between Signal Heads is 12'
- New 12" RY ⟶ Traffic Signal Head (Programmable Visibility)
- New 12" RY ⟶ Traffic Signal Head (LED)
- Existing 12" RY ⟶ Traffic Signal Head
- New Traffic Signal Pullbox (TSPB)
- Existing Traffic Signal Pullbox
- New 12" RYG Traffic Signal Head (LED)
- Existing 12" RYG Traffic Signal Head
- New 12" RY ↑ Traffic Signal Head (LED)
- Existing 12" RY ↑ Traffic Signal Head
- New Pedestrian Signal Head
- Existing Pedestrian Signal Head
- New Controller And Cabinet
- Existing Controller And Cabinet
- New Loop Detectors
- Existing Loop Detectors
- New Temporary Microwave Vehicle Detector

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

CATHY A. LEONG LICENSED PROFESSIONAL ENGINEER No. 10334-CE HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION OR UNDER

WILSON OKAMOTO CORP. APRIL 30, 2010 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL NOTES AND LEGEND

KUHIO HIGHWAY, SHORT-TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)

Scale: As Noted Date: MAY 2008

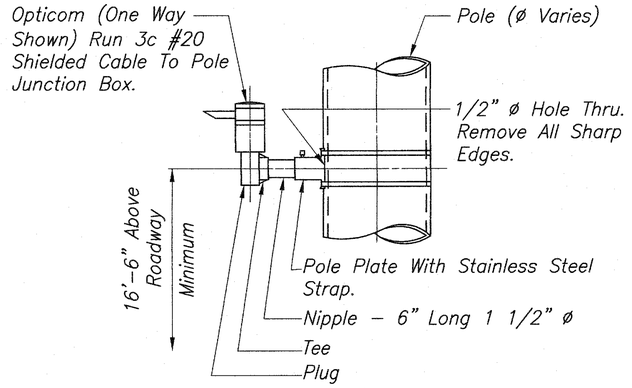
SHEET No. KR4 OF KR11 SHEETS

DATE	REVISION
3/12/10	2 Added Traffic Signal Notes

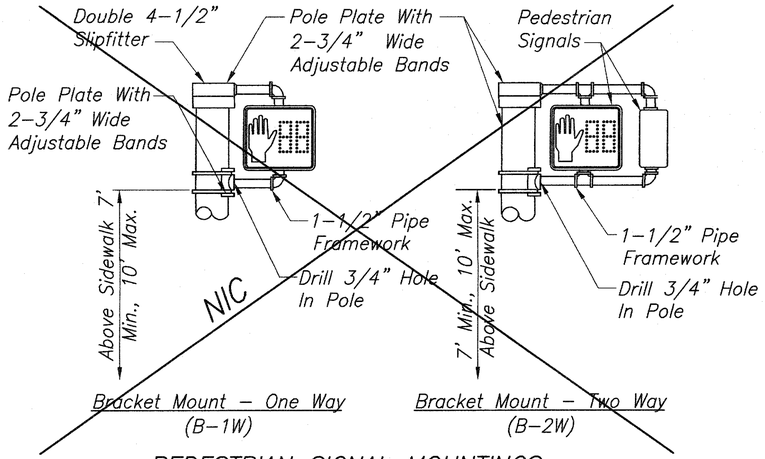
"AS-BUILT"

C.O. 114

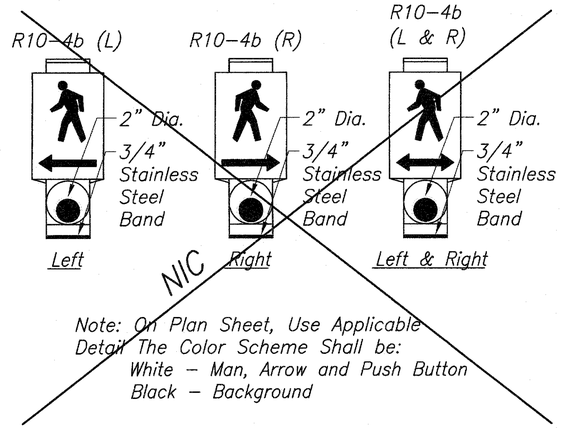
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	115	284



TYPICAL VERTICAL MOUNT OF OPTICOM
Not To Scale

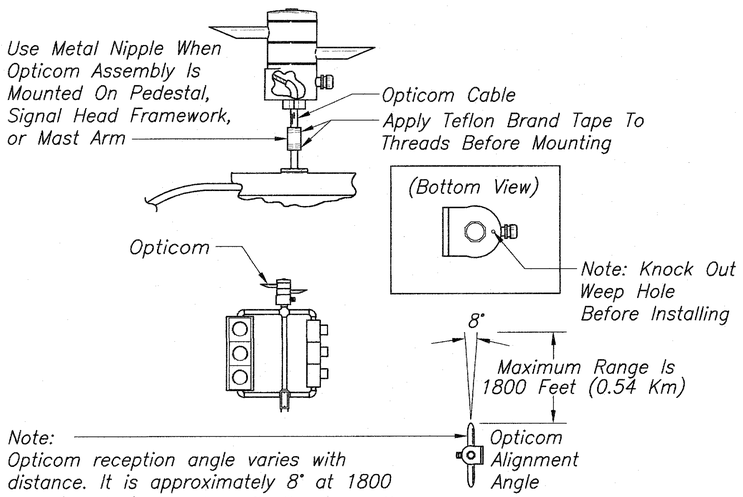


PEDESTRIAN SIGNAL MOUNTINGS
Not To Scale



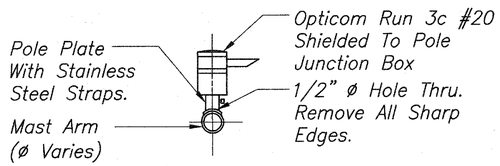
Note: On Plan Sheet, Use Applicable Detail The Color Scheme Shall be:
White – Man, Arrow and Push Button
Black – Background

PEDESTRIAN PUSH BUTTON SIGN
Not To Scale

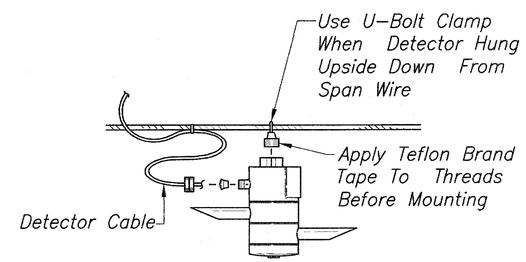


Note:
Opticom reception angle varies with distance. It is approximately 8° at 1800 feet (0.54km). Due to reflection, reception angle is increased at close range. The opticom must be aligned within 8° of the farthest point where priority vehicles is to be sensed.

TYPICAL PEDESTAL/MAST ARM INSTALLATION OF OPTICOM
Not To Scale



TYPICAL HORIZONTAL MOUNT OF OPTICOM
Not To Scale



Note:
Detector reception angle varies with distance. It is approximately 8° at 1800 feet (0.54km). Due to reflection, reception angle is increased at close range. The detector must be aligned within 8° of the farthest point where priority vehicle is to be sensed.

TYPICAL SPAN WIRE INSTALLATION OF OPTICOM
Not To Scale

LEGEND FOR AS-BUILT POSTINGS

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~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

CATHY A. LEONG LICENSED PROFESSIONAL ENGINEER No. 10334-CE HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

WILSON OKAMOTO CORP. APRIL 30, 2010 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DETAILS

KUHIO HIGHWAY, SHORT-TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)

Scale: As Noted Date: MAY 2008

SHEET No. KR5 OF KR11 SHEETS

DATE	REVISION
3/12/10	2 Deleted Details

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

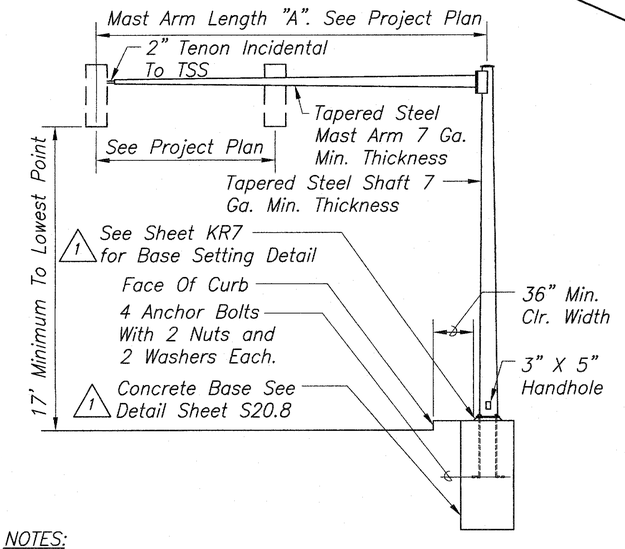
"AS-BUILT"

C.O. 115

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	ADD. 116	284

Types Of Signal Faces

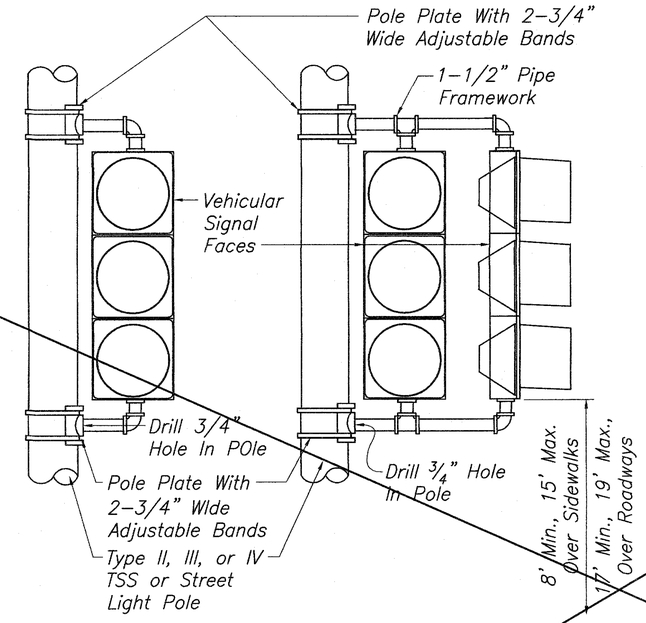
12(R-Y-G)	12 Inch, 3-Section: Red, Yellow, Green
12(R-Y-GA)	12 Inch, 3-Section: Red, Yellow, Green Arrow
12(R-Y-G-GA)	12 Inch, 4-Section: Red, Yellow, Green, and Green Arrow
12P(R-Y-G)	12 Inch, Programmed Visibility, 3-Section: Red, Yellow, and Green
12(R-Y-G-BGA)	12 Inch, 4-Section: Red, Yellow, Green, and Bi-Modal Green Arrow/Yellow Arrow



NOTES:

1. Standards shall be designed in accordance with "Standard Specifications For Structural Supports For Highway Signs, Luminaires, and Traffic Signals".
2. Mounting for signals at intermediate locations on the mast arm shall be of the adjustable type.
3. Signals shall be centered over lane lines.
4. Submit shop drawings for approval.
5. The minimum clear width for single wheelchair passage shall be 32" at a point and 36" continuously in accordance with ADA Ord. 4.2.1 and the minimum clear width of an accessible route shall be 36" in accordance with ADA Ord. 4.3.3

TYPE II – "A"
TRAFFIC SIGNAL STANDARD (TSS)
Not To Scale

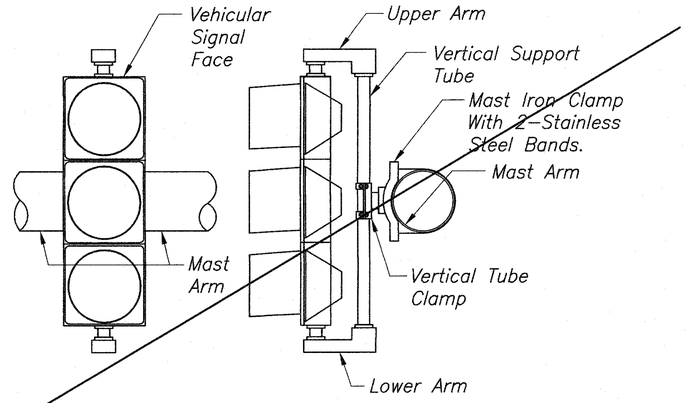


Bracket Mount – One Way (B-1W)

Bracket Mount – Two Way (B-2W)

VEHICULAR SIGNAL MOUNTING
Not To Scale

NIC



ADJUSTABLE
MAST ARM ONE WAY MOUNTING AT INTERMEDIATE POINT
MA-1W(I)

NOTES:

1. Stainless steel bands shall be 1/2" wide x .050" thick, minimum. Tensile strength shall be 100,000 psi minimum.
2. Upper arm, lower arm and vertical support tube shall be of 356 cast aluminum.
3. All wiring shall be concealed.
4. Vertical tube clamp shall be of malleable iron, grade 32510.
5. All aluminum parts shall have an alodine 1200 finish.

VEHICULAR SIGNAL MOUNTING
Not To Scale

LEGEND FOR AS-BUILT POSTINGS

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~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

CATHY A. LEONG
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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

WILSON OKAMOTO CORP. APRIL 30, 2010 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DETAILS

KUHIO HIGHWAY, SHORT-TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)

Scale: As Noted Date: MAY 2008

SHEET No. KR6 OF KR11 SHEETS

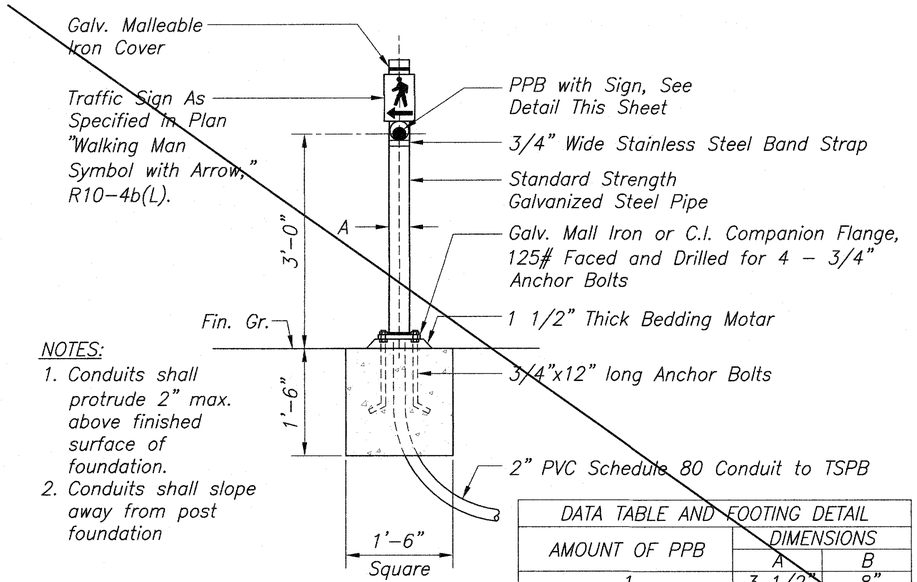
DATE	REVISION
3/12/10	2 Deleted Details
8/7/08	1 Revised Notes

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

"AS-BUILT"

C.O. 116

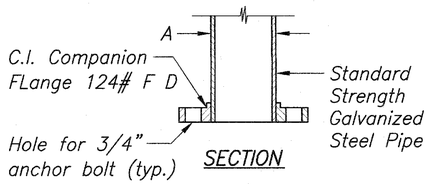
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	ADD. 117	284



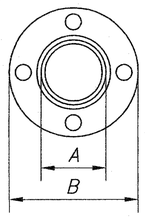
NOTES:
1. Conduits shall protrude 2" max. above finished surface of foundation.
2. Conduits shall slope away from post foundation

DATA TABLE AND FOOTING DETAIL		
AMOUNT OF PPB	DIMENSIONS	
	A	B
1	3 1/2"	8"
2 → 3	4 1/2"	9"

PPB POST AND FOOTING DETAIL
Not To Scale

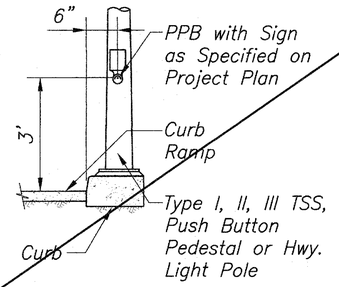


SECTION



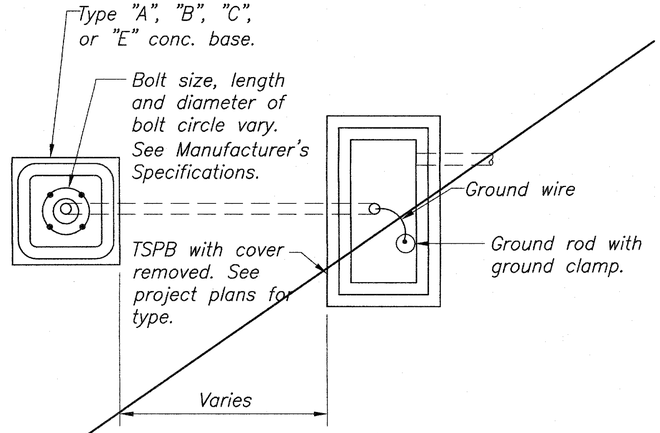
TOP VIEW

FLANGE DETAIL
Not To Scale

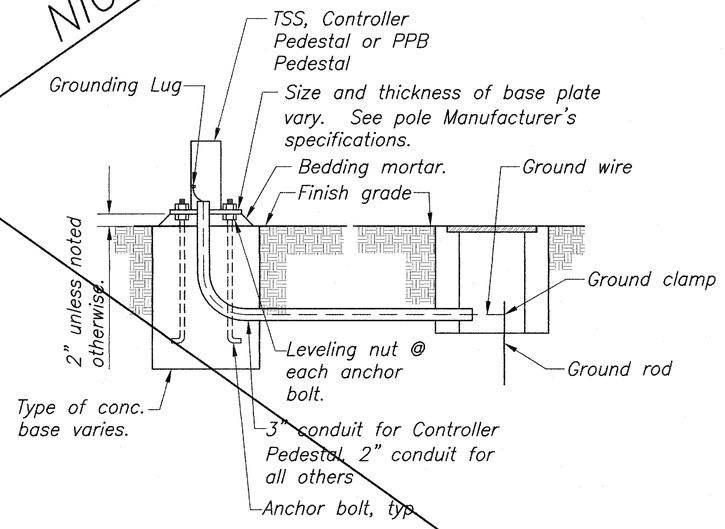


PPB DETAIL
Not to Scale

N/C



PLAN



SECTION

1 TYPICAL STANDARD AND PEDESTAL INSTALLATION
Not To Scale

LEGEND FOR AS-BUILT POSTINGS	
~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

DATE	REVISION
3/12/10	2 Deleted Details
8/7/08	1 Removed note, added detail

CATHY A. LEONG
LICENSED PROFESSIONAL ENGINEER
No. 10334-CE
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER OR UNDER MY SUPERVISION

WILSON OKAMOTO CORP. APRIL 30, 2010 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DETAILS

KUHIO HIGHWAY, SHORT-TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)

Scale: As Noted Date: MAY 2008

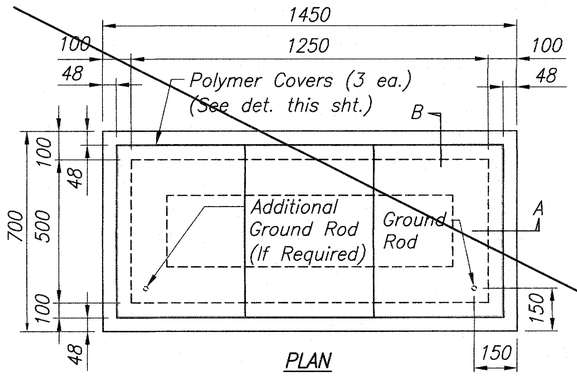
SHEET No. KR7 OF KR11 SHEETS

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

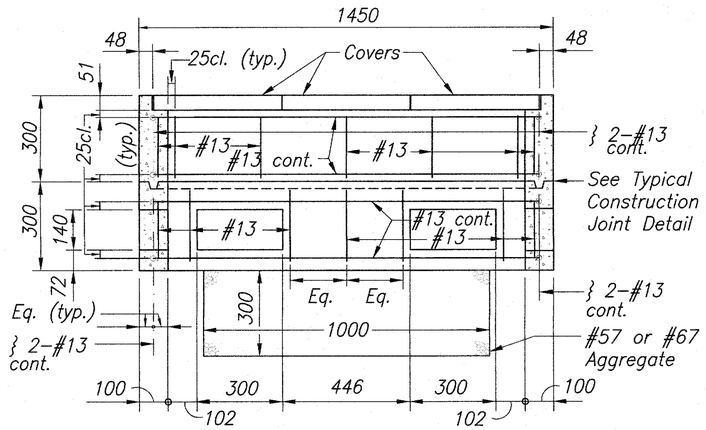
"AS-BUILT"

C.O. 117

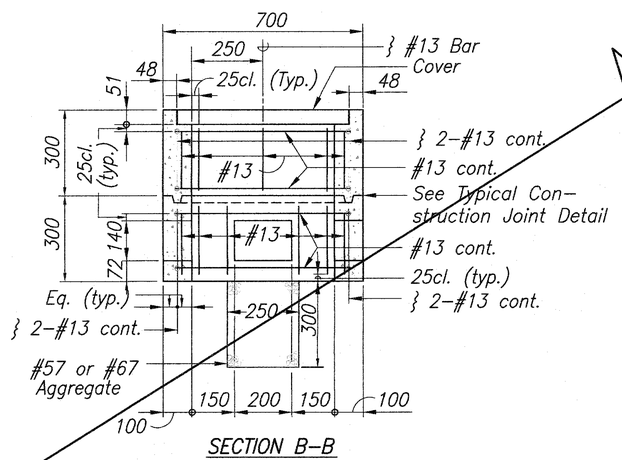
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	118	284



PLAN



SECTION A-A

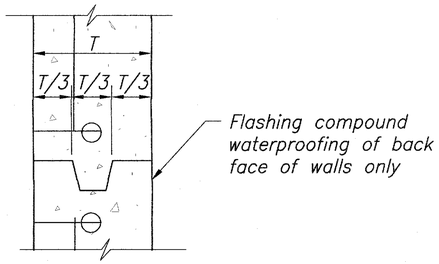


SECTION B-B

TYPE "C" PULLBOX (OLD TYPE "D")

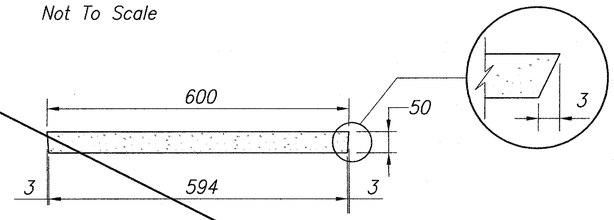
Not To Scale

NIC

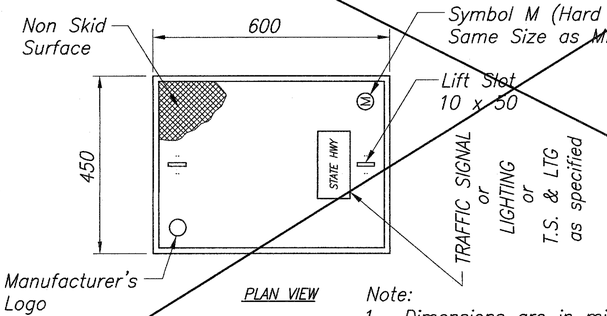


TYPICAL CONSTRUCTION JOINT DETAIL

Not To Scale



ELEVATION

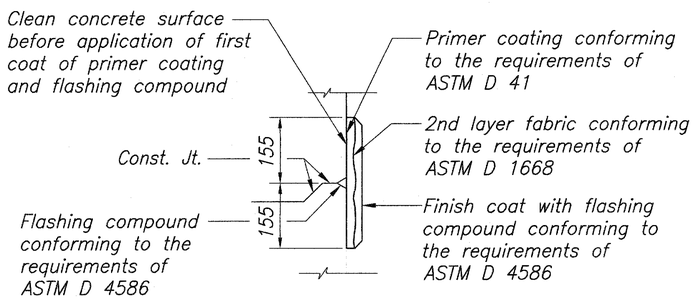


PLAN VIEW

Note:
1. Dimensions are in millimeters
2. Bolt cover to frame if located within AC pavement.

POLYMER CONCRETE COVER

Not To Scale



TYPICAL FLASHING COMPOUND
WATERPROOFING DETAIL

Not To Scale

NOTES:

1. Provide a minimum of one 16 ~ 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.
9. Rebars shall be Grade 300 and all lapped splices shall be 360mm (14.2 inches) 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).
12. Dimensions are in millimeters, unless otherwise noted.

LEGEND FOR AS-BUILT POSTINGS

~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

CATHY A. LEONG
LICENSED PROFESSIONAL ENGINEER
No. 10334-CE
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

WILSON OKAMOTO CORP. APRIL 30, 2010 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DETAILS

KUHIO HIGHWAY, SHORT-TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)

Scale: As Noted Date: MAY 2008

SHEET No. KR8 OF KR11 SHEETS

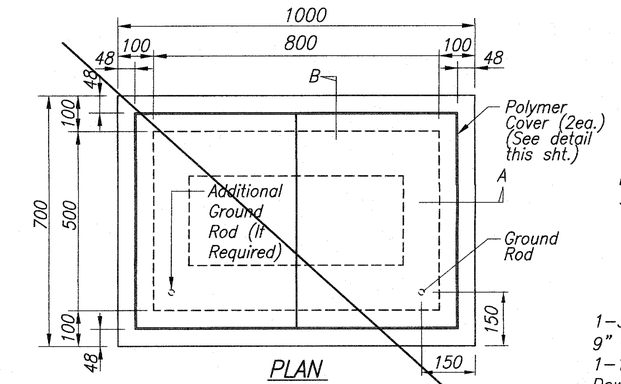
DATE	REVISION
3/12/10	2 Deleted Details

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

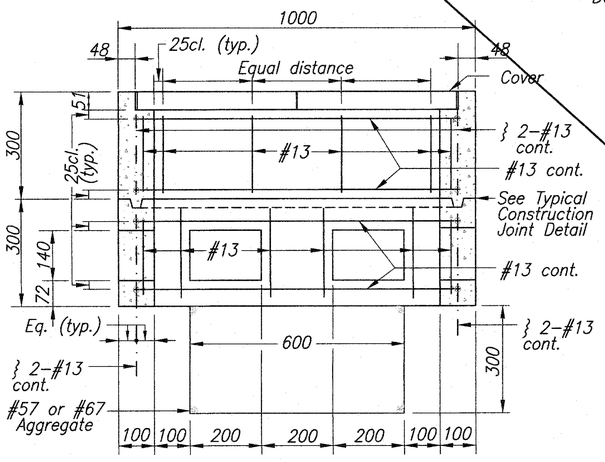
"AS-BUILT"

C.O. 118

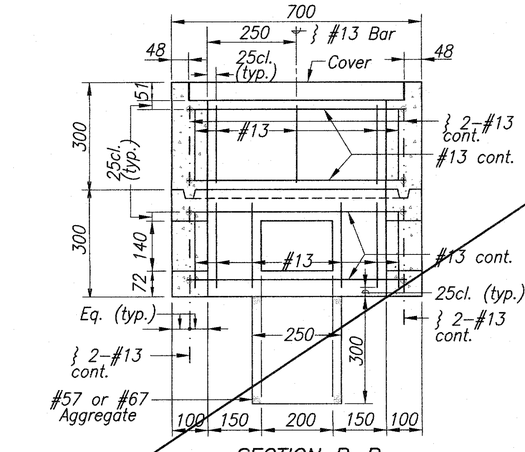
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	119	284



PLAN



SECTION A-A

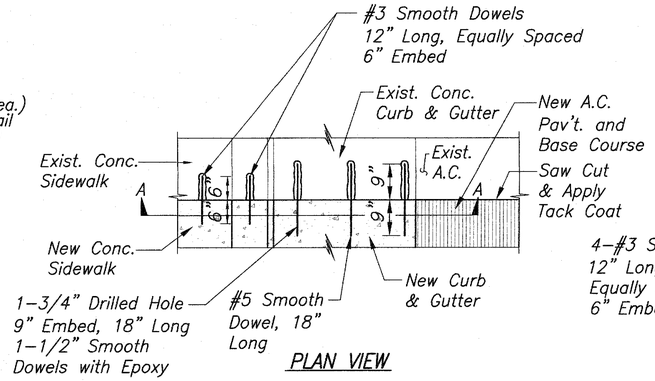


SECTION B-B

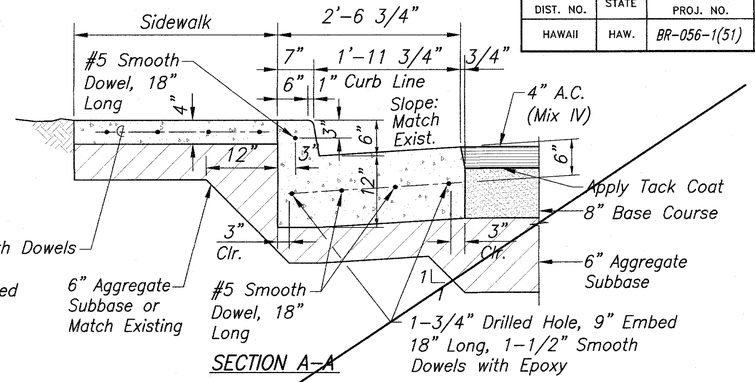
TYPE "B" PULLBOX (OLD TYPE "C")

NOT TO SCALE

NIC



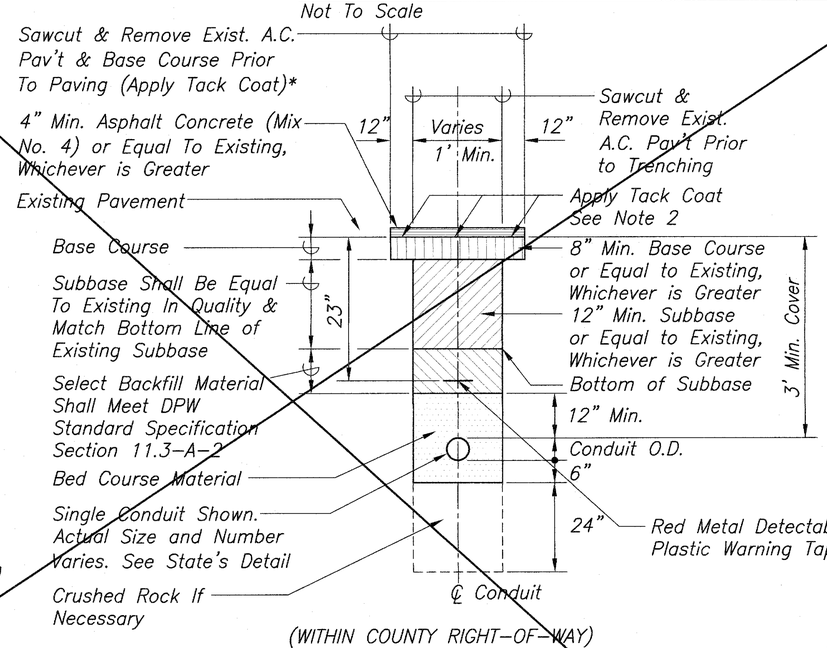
PLAN VIEW



SECTION A-A

SIDEWALK, CURB & GUTTER CONNECTION DETAIL

Not To Scale



(WITHIN COUNTY RIGHT-OF-WAY)

TYPICAL TRENCH RESTORATION DETAIL

Not To Scale

NOTES:

1. Pavement Structure Shall Be Equal or Better Than Existing In Thickness & Quality.
2. For Road Grades 0% to 7.99% and Tack Coat Is Not Available, None Required. If Tack Coat Is Available, Use Tack Coat.
3. 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 1/2 inches series "C" black lettering. The message will be repeated with a 4 1/2" spacing between top line of message and start of next repeat.

LEGEND FOR AS-BUILT POSTINGS

~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

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

CATHY A. LEONG LICENSED PROFESSIONAL ENGINEER No. 10334-CE HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER OR UNDER MY SUPERVISION

APRIL 30, 2010
WILSON OKAMOTO CORP. LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DETAILS

KUHIO HIGHWAY, SHORT-TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR-056-1(51)

Scale: As Noted Date: MAY 2008

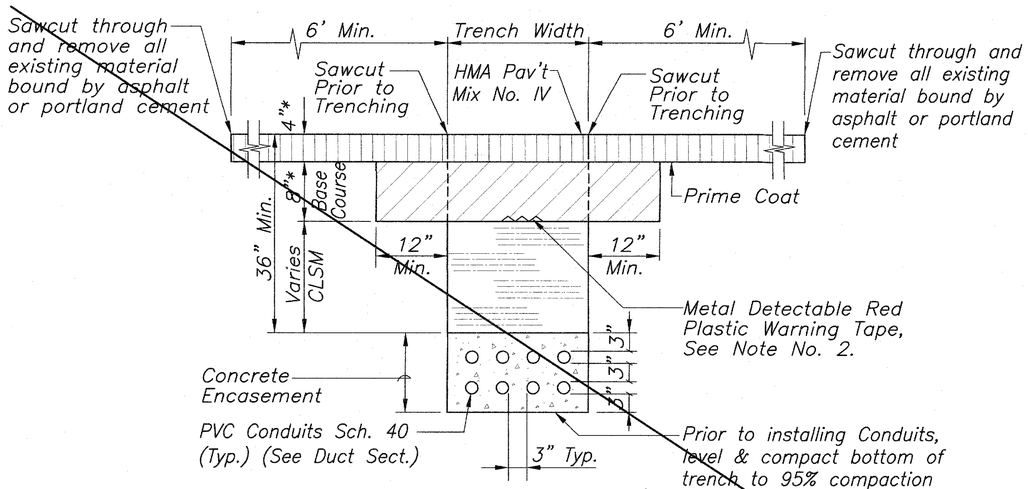
SHEET No. KR9 OF KR11 SHEETS

DATE	REVISION
3/12/10	2 Deleted Details

"AS-BUILT"

C.O. 119

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	120	284



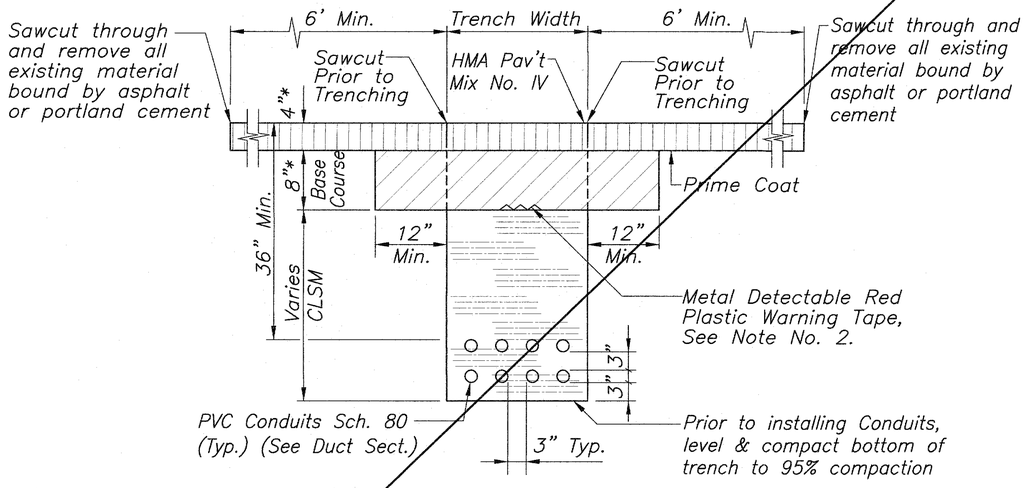
Note:

1. Detail for Typical Back fill Section w/ Concrete Encased Ducts Within County–Right–of–Way Shall be Similar to the State's.

(WITHIN STATE RIGHT–OF–WAY)

TYPICAL BACKFILL SECTION WITH CONCRETE ENCASED DUCTS

N/C



Notes:

1. Detail for single conduit trecnches shall be similiar.
2. Bed course material shall be black sand, beach sand, crushed rock, or finely graded coral passing a 1/2" sieve and to be encapsulated by a non–woven geotextile.

(WITHIN STATE RIGHT–OF–WAY)

TYPICAL BACKFILL SECTION DIRECT BURIED DUCTS

GENERAL NOTES

1. If trench is located on unpaved area, the Contractor shall replace 8" Base Course and 4" HMA Pavement with Type "A" backfill material.
2. 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 1/2" series "C" black lettering. The message will be repeated with a 4 1/4" spacing between top line of message and start of next repeat.
3. The Contractor may begin backfilling the conduit trench when the concrete reaches 3000 psi compressive strength.
4. Maximum four (4) Conduits per row for multiple conduit duct section.
5. For direct buried duct sections, the concrete jacket required at the conduit by–pass for various utilities, shall not be paid for separately but considered incidental to the direct buried conduits.
6. 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 will be accepted by the Traffic Signal Inspector/Engineer before use and will not be paid for separately but considered incidental to the direct buried and/or concrete encased conduits.
7. All conduits shall be placed on saddles and anchored in place. Place saddles at manufacturer's recommended spacing and all top rows shall be locked in place.

LEGEND FOR AS–BUILT POSTINGS

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~~100.00~~	Double line for as–built deletion
Roadway	Text for as–built posting

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LICENSED PROFESSIONAL ENGINEER
No. 10334-CE
HAWAII, U.S.A.

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WILSON OKAMOTO CORP. APRIL 30, 2010 LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DETAILS

KUHIO HIGHWAY, SHORT–TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Fed. Aid Project No. BR–056–1(51)

Scale: As Noted Date: MAY 2008

SHEET No. KR10 OF KR11 SHEETS

DATE	REVISION
3/12/10	2 Deleted Details

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

"AS–BUILT"

C.O. 120

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-056-1(51)	2008	121	284

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	"
NOTE BOOK	TRACED BY	"
	DESIGNED BY	"
No.	QUANTITIES BY	"
	CHECKED BY	"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOT USED

KUHIO HIGHWAY, SHORT TERM IMPROVEMENTS
Wailua Cane Haul Bridge Widening
Project No. BR-056-1(51)

Scale: None Date: May 2008

SHEET No. OF 131 SHEETS

"AS-BUILT"