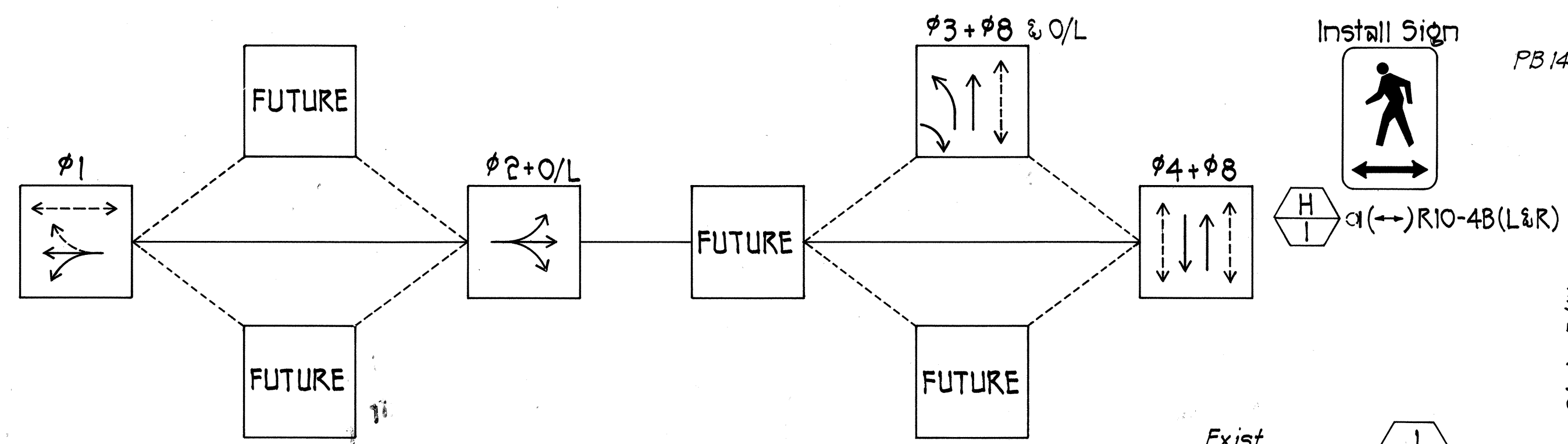
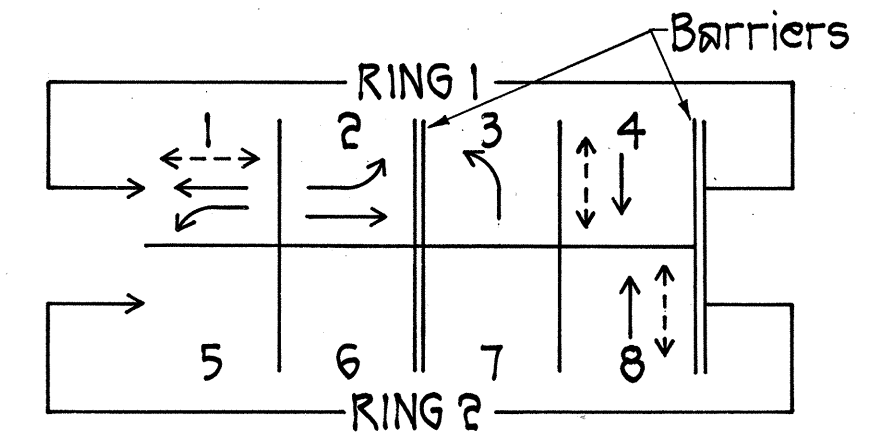


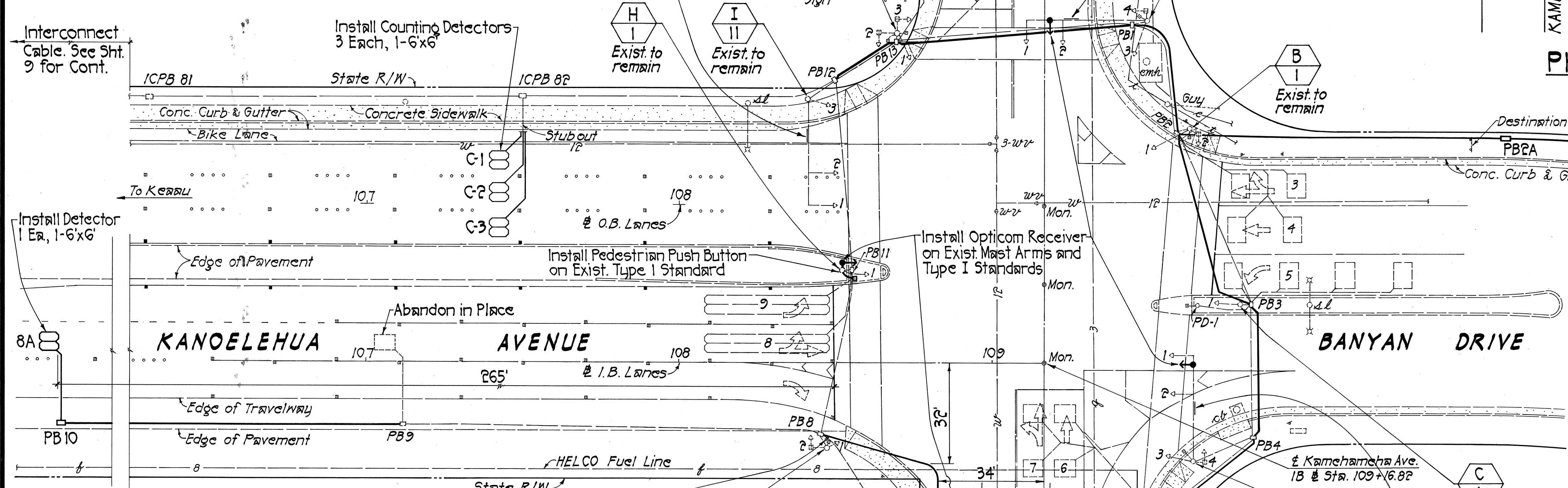
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-011-2(32)	1999	25	34



PHASING DIAGRAM



PHASE ASSIGNMENTS



NOTES:

- Contractor shall clean all existing conduits prior to pulling cable.
- Contractor shall replace all existing red ball incandescent optical units with LED red ball optical units.
- Plan with existing facilities was furnished by the Dept. of Transportation: FAP No. NH-011-2(24) & FAP No. NH-011-2(33).

(R)	(R)	(R)	(R)	(R)	(R)
(Y)	(Y)	(Y)	(Y)	(Y)	(Y)
(G)	(G)	(G)	(G)	(G)	(G)
A-2 VI	**A-1 VI	B-1 I	D-1 VI	**D-2 VI	D-3 V
A-3 V	**J-1 I	C-1 I			
E-1 I		G-1 I			
F-1 VI		H-1 I			
F-2 VI					
F-3 V					
I-1 VI					
I-2 VI					
I-3 V					

**Fiber Optic

LEGEND

- R = Red
- Y = Yellow
- G = Green
- ← = Arrow
- Pole I.D.
- Signal Head
- Type of Mount
- (See Sht. 29 for Details)

Install Model 170 Traffic Signal Controller Assembly, Uninterruptible Power Supply Assembly w/ Cabinet, Electric Meter & Ground Mounted Concrete Foundation 12" below exist. grade. Connect Interconnect Cable to New Controller.

TRAFFIC SIGNAL & ELECTRICAL PLAN

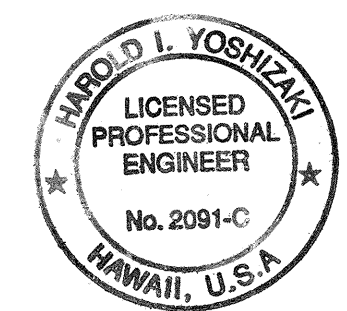
Scale: 1" = 20'

NOTES (Cont.):

- Contractor shall remove the following existing cables:
 - Main Control Cable (Type 1)
 - Loop Detector Lead-in & Pedestrian Push Button (Type 2)
 - Signal Control Cable (Type 5)
- Contractor shall install new conduits & cables as called for in the Conduit-Cable Table on sheet 26.

HELCO FUEL LINE NOTES:

- The Contractor shall notify Mr. Don Heinzen of HELCO's Production Department at 969-0423 a minimum of 72 hours prior to excavation near HELCO's fuel line.
- The Contractor shall hand dig around the fuel line. The use of mechanical equipment for excavation around the fuel line is not allowed. The Contractor shall not damage the coating and cathodic protection of the pipe line. Any damage to the fuel line shall be reported immediately to HELCO at 969-0423.
- Costs for damages to HELCO's fuel line shall be borne by the Contractor. This repair work shall be done by HELCO, or by the Contractor under HELCO's supervision.
- If there is a leak or release of fuel from the HELCO fuel line, the Contractor shall immediately notify HELCO's Production Department (Mr. Don Heinzen) at 969-0423. The Contractor shall also notify the following agencies immediately:
 - Hawaii State Department of Health, Hazard Evaluation & Emergency Response Office (808-586-4242, after hours 808-247-2191)
 - Fire Department (961-8336 or 911)
 - Coast Guard (933-6943)
 - National Response Center (800-424-8802)
- The Contractor shall notify Mr. Don Heinzen of HELCO's Production Department at 949-0423 prior to backfilling the fuel line. HELCO shall inspect the fuel line prior to backfilling the fuel line.
- The Contractor shall provide a copy of the Contractor's Substance Abuse Policy to HELCO.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Harold I. Yoshizaki
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1126 12th Avenue
Honolulu, Hawaii 96816

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**TRAFFIC SIGNAL & ELECTRICAL
PLAN AT KAMEHAMEHA AVENUE**
KANOELEHUAA AVENUE
TRAFFIC SIGNAL MODERNIZATION
F.A. PROJ. NO. STP-011-2(32)
SCALE: AS SHOWN DATE: OCT. 1998
SHEET NO. 1 OF 2 SHEETS

DATE _____
SURVEY PLOTTED _____
DRAWN BY _____
DESIGNED BY _____
NOTED BY _____
QUANTITIES BY _____
CHECKED BY _____
No. _____

INSTALL NEW CONDUCTORS IN EXISTING AND NEW CONDUITS																		FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
FROM	TO	MAIN CONTROL		SIGNAL CONTROL			DETECTORS			POWER		STREET LIGHTS		INTERCONNECT		OPTICOM		SPARE	REMARKS				
		CONDUIT 2"	CONDUCTORS 2-26C #14	CONDUIT 2"	SEE NOTE 1	SEE NOTE 2	CONDUIT 2"	2C - #14		CONDUIT 2"	CONDUCTORS 3 - #2	CONDUIT 2"	CONDUCTORS 2 - #10	CONDUIT 2"	CONDUCTORS 1 - 12pr #19	CONDUIT 2"	CONDUCTORS 3C - #20 1 - #20 GRD	CONDUIT 2"					
								PED.	VEH.														
CONT.	PB7	4 ●	2				5 ●	3	15					2 ●	1	●	5	●	Install opticom conductors in existing conduit to signal standard.				
PB7	F			●	1	10											1						
PB7	PB8	2 ●	1				4 ●	2	9					●	1	●	1	2 ●					
PB8	PB11	2-Ex. 2"	1				3-Ex. 2"	2	8					Ex. 2"	1	Ex. 2"	1						
PB8	G			Exist.	1	7		1											Install opticom conductors in existing conduit to signal standard.				
PB11	H			Exist.	1	4		1									1						
PB11	PB12	2-Ex. 2"	1				2-Ex. 2"	2	6					Ex. 2"	1			Ex. 2"					
PB12	I			Exist.	1	10												●					
PB12	PB13	2 ●	1				2-Ex. 2"	2	3										Install opticom & pedestrian detector conductors in existing conduit to signal standard.				
PB13	J			Exist.	1	12		2															
PB13	PB1	2 ●	1				Ex. 2"	1										Ex. 2"					
PB1	A			Exist.	1	15		1									1						
PB1	PB2	2 ●	1													Ex. 2"	1	Ex. 2"	Install pedestrian detector conductors in existing conduit to signal standard.				
PB2	B			Exist.	1	7		1															
PB2	PB3	2 ●	1				2-Ex. 2"	1	2							●	2	●					
PB3	C			Exist.	1	4																	
PB3	PD-1						Exist.	1											Install opticom conductors in existing conduit to signal standard.				
PB3	PB4	2 ●	1				2-Ex. 2"	1	3							●	2	●					
PB4	D			Exist.	1	16											1						
PB4	PB5	2 ●	1				2-Ex. 2"	1	3							●	3	●					
PB5	E			Exist.	1	4													Install new extend loop detector 8A, new pullbox PB10 & new 2" conduit.				
PB5	PB7	2 ●	1				3 ●	1	6							Ex. 2"	3	●					
PB8	PB9						Ex. 2"		1														
PB9	PB10						●		1														
PB13	PB14						Ex. 2"		1										RISER, WEATHERHEAD AND CONDUIT PER HELCO REQUIREMENTS				
PB5	PB6						Ex. 2"		1														
PB2	PB2A															●	1						
PB2A	PB2B															●	1						
ICPB 79	ICPB 80													Ex. 2"	1			2-Ex. 2"	*FOR UPS POWER				
ICPB 80	PB12						Ex. 2"		3					Ex. 2"	1			Ex. 2"					
UP	MAIN									●	BY HELCO							●*					
MAIN	UPS										2 - #4							●*					
UPS	CONT.										1 - #4 GRD							●*	*FOR CONTROLLER POWER				
											2 - #4												
											1 - #4 GRD												

LEGEND:

- New Conduit
- 2 ● Number of New Conduits
- EX. 2" Existing 2" conduit
- 2-EX. 2" Number of existing 2" conduits
- PB7 Existing improvements are indicated with slant lettering. (Existing Pullbox 7)
- E New improvements are indicated with vertical and bold lettering. (New Traffic Signal Standard "E")

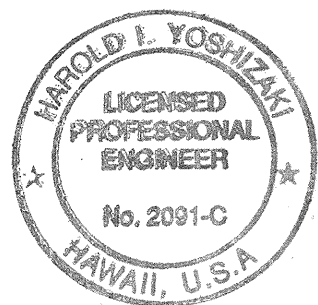
NOTES:

1. Install 1-9 Cond. #14 or 1-26 Cond. #14 cable from pullbox to bottom of traffic signal standard, as required.
2. Install #14 conductors (color coded) as indicated on table from bottom of traffic signal standard to traffic and pedestrian signal heads.

PULLBOX TABLE

PULLBOX I.D. NUMBER	TYPE	LOGO
2A, 2B, 10, 15	NEW TYPE B	TRAFFIC SIGNAL
7	NEW TYPE C	TRAFFIC SIGNAL
1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14	B (Existing)	Traffic Signal
ICPB 79 & 80	B (Existing)	Traffic Signal

See details on sheet 32 for Metric Pullboxes Type B and C.



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**CONDUIT-CABLE TABLE
AT KAMEHAMEHA AVENUE**
KANOELEHUA AVENUE
TRAFFIC SIGNAL MODERNIZATION
F.A. PROJ. NO. STP-011-2(32)
SCALE: AS SHOWN DATE: OCT. 1998
SHEET No. 2 OF 2 SHEETS