FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7241A-01-90	1990	3	5

LEGEND

○	TS	NEW TRAFFIC SIGNAL STANDARD
		STANDARD TRAFFIC AND PEDESTRIAN SIGNAL HEADS MOUNTED ON TYPE I SIGNAL STANDARD, HEIGHT = 10'
30' 12'		TRAFFIC SIGNAL HEADS MOUNTED ON TYPE II SIGNAL STANDARD, ARM SPREAD SHOWN IS 30' AND DISTANCE BETWEEN SIGNAL HEADS IS 12'
		12" RY← TRAFFIC SIGNAL HEAD
		12" RY↑ TRAFFIC SIGNAL HEAD
		12" RY← PROGRAMMABLE TRAFFIC SIGNAL HEAD
C		CONTROLLER CABINET
		TYPE "A" PULLBOX
		TYPE "B" PULLBOX
		LOOP DETECTOR, SERIES-PARALLEL CONNECTED
		LOOP DETECTOR, SERIES CONNECTED
	FH	FIRE HYDRANT
	LP	LIGHT POLE
	WV	WATER VALVE
	WM	WATER METER
	SDMH	STORM DRAIN MANHOLE
	CB	CATCH BASIN
	DI	DRAIN INLET
	SMH	SEWER MANHOLE
		EXISTING MARKINGS
W 12		EXISTING UTILITY LINES AND SIZES AS INDICATED

W = WATER

S = SEWER

ETV = ELECTRIC, TELEPHONE AND CABLE TV

D = STORM DRAIN

ABD = ABANDONED

SL = STREET LIGHT

SP = SPRINKLER

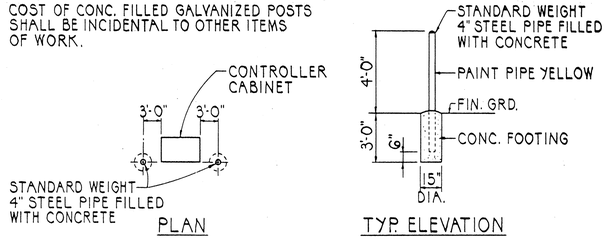
CONSTRUCTION NOTES

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 LOCATIONS OF THE 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.
3. 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.
4. 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.
5. MAINTENANCE OF TRAFFIC THROUGH THE CONSTRUCTION AREA SHALL BE IN ACCORDANCE WITH PART VI OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", FEDERAL HIGHWAY ADMINISTRATION (1988) 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.
6. DEPARTMENT OF TRANSPORTATION SERVICES, CITY AND COUNTY OF HONOLULU, WILL ASSIST THE ENGINEER IN CONSTRUCTION INSPECTION FOR THE TRAFFIC SIGNAL SYSTEM.
7. EXISTING SIGNS SHALL BE REMOVED AND RETURNED TO THE ENGINEER. COSTS SHALL BE INCIDENTAL TO OTHER ITEMS OF WORK.

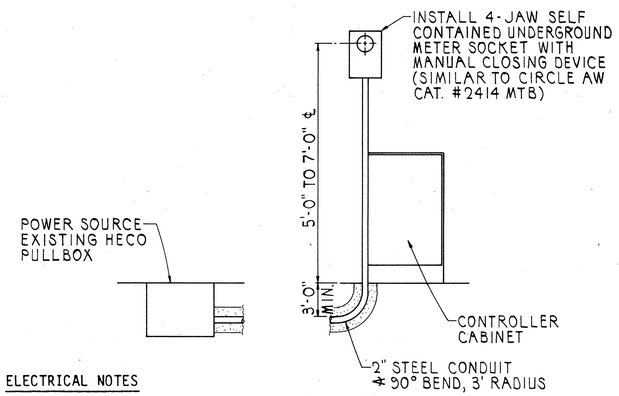
TRAFFIC SIGNAL NOTES

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. 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.
4. CONTRACTOR SHALL INSTALL METER SOCKET AND BREAKER ON THE CONTROLLER CABINET AS SHOWN ON PLANS IN ACCORDANCE WITH HECO REQUIREMENTS. METER SHALL BE MOUNTED BETWEEN 5' AND 7' ABOVE GROUND. METER SOCKETS SHALL BE 4-PRONG, COMPLETE WITH A MANUAL CIRCUIT CLOSING DEVICE.
5. THE LOOP AMPLIFIER UNITS FURNISHED FOR THIS PROJECT SHALL BE CAPABLE OF OPERATING THE LOOP DETECTOR CONFIGURATIONS SHOWN ON THE PLANS.
6. DETECTOR ASSIGNMENT SHALL BE PER CALIFORNIA DEPARTMENT OF TRANSPORTATION "TRAFFIC SIGNAL CONTROL LOCAL INTERSECTION PROGRAM", JULY 1978.
7. THE CONTRACTOR SHALL FURNISH 50 AMP CIRCUIT BREAKERS.

NOTE:
COST OF CONC. FILLED GALVANIZED POSTS SHALL BE INCIDENTAL TO OTHER ITEMS OF WORK.



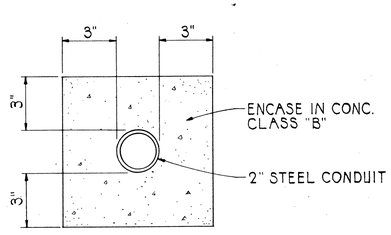
PIPE GUARD DETAIL
NOT TO SCALE



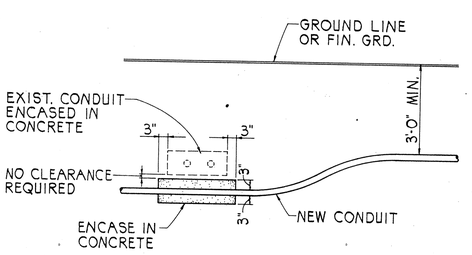
ELECTRICAL NOTES

1. HAWAIIAN ELECTRIC CO. SHALL FURNISH AND INSTALL CABLE BETWEEN SECONDARY AND METER SOCKET.
2. CONTRACTOR SHALL MAKE ALL ELECTRICAL CONNECTIONS TO CONTROLLER, PROVIDE BREAKER, GROUND AND CONCRETE-ENCASED 2" STEEL CONDUIT.
3. CONTRACTOR SHALL PROVIDE HAWAIIAN ELECTRIC CO. ONE WEEK ADVANCE NOTICE FOR ANY WORK BY HAWAIIAN ELECTRIC CO.
4. A UTILITY COMPANY STANDBY MAN IS REQUIRED TO BE AT THE SITE AT THE TIME ANY NON-UTILITY COMPANY PERSONNEL WILL BE BREAKING INTO OR ENTERING ANY FACILITIES THAT CONTAIN ENERGIZED UTILITY COMPANY EQUIPMENT OR CABLES.

ELECTRICAL SERVICE DETAIL
NOT TO SCALE



HECO CONDUIT DETAIL
NOT TO SCALE



CONDUIT BY-PASS DETAIL
NOT TO SCALE

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

REGISTERED PROFESSIONAL ENGINEER No. 3244-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Sheridan S. Kawahigashi

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LEGEND AND NOTES

KAHUAPAANI STREET
TRAFFIC SIGNALS AT
MANANAI PLACE / ALA ALII STREET
PROJECT NO. 7241A-01-90

SCALE: AS NOTED DATE:

SHEET No. 1 OF 1 SHEETS