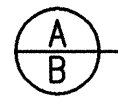

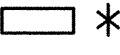
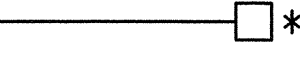

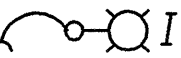

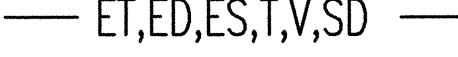




ABBREVIATIONS

A	AMPERE	L	LIGHTS, LIGHTING, LONG, LENGTH
AC	ALTERNATING CURRENT	MIN	MINIMUM
AF	AMPERE FRAME	MISC	MISCELLANEOUS
AIC	AMPERE INTERRUPTING CAPACITY	N	NEUTRAL
AT	AMPERE TRIP	NIC	NOT IN CONTRACT
C	CONDUIT	NTS	NOT TO SCALE
CAB	CABINET	NP	NAMEPLATE
CB	CIRCUIT BREAKER	OC	ON CENTER
CL	CENTERLINE	OH	OVERHEAD
CO	CONDUIT ONLY	P	POLE
CMU	CONCRETE MASONRY UNIT	PBX	PULLBOX
D	DEEP	PFFB	PROVISIONS FOR FUTURE BREAKER
DWG	DRAWING	PH	PHASE
E, ELEC	ELECTRIC, ELECTRICAL	PNLBD	PANELBOARD
EA	EACH	PL	PROPERTY LINE
EL	ELEVATION	REF	REFERENCE
ENCL	ENCLOSURE	RMC	RIGID METAL CONDUIT (STEEL)
EP	ELECTRICAL PRIMARY	RNMC	RIGID NON-METALLIC CONDUIT (SCH 40 PVC UNLESS OTHERWISE INDICATED)
EQPT	EQUIPMENT	R/W	RIGHT OF WAY
ES	ELECTRICAL SECONDARY	SD	SERVICE DROP
EXIST	EXISTING	T	TEL TELEPHONE
FBO	FURNISHED BY OWNER OR OTHERS	(TYP)	TYPICAL
G, GND	GROUND	UG	UNDERGROUND
GFIC	GROUND FAULT INTERRUPTING CAPABILITY	V	VOLTS, VERTICAL
H	HORIZONTAL OR HIGH	VTU	VEHICLE TRACKING UNIT
HELCO	HAWAII ELECTRIC LIGHT COMPANY	W	WIRE(S), WIDE, WATTS
HH	HANDHOLE	WHM	WATT-HOUR METER
H.T.CO.	HAWAIIAN TELEPHONE COMPANY	WP	WEATHERPROOF
HDGAF	HOT DIPPED GALVANIZED AFTER FABRICATION	WWF	WELDED WIRE FABRIC
IBC	INSTALLED BY CONTRACTOR	W.x.H.x.L.	W.=WIDE, H.=HIGH, L.=LONG OR LENGTH
IBO	INSTALLED BY OWNER OR OTHERS		
JBX	JUNCTION BOX		
KVA	KILO-VOLT AMPERE		
KWH	KILO-WATT HOUR		

ELECTRICAL PLAN SYMBOLS

	ELECTRICAL DETAIL INDICATOR. (A = NUMBER OR LETTER IDENTIFICATION, B = DRAWING OR SHEET WHERE SHOWN.)		EQUIPMENT OR OTHER ELECTRICAL CONNECTION AS INDICATED
	* - EQUIPMENT AS IDENTIFIED		CONTROL DEVICE OR ITEM CONNECTION AS IDENTIFIED
	UNDERGROUND SERVICE DUCTLINE. REFER DETAIL INDICATOR WHERE SHOWN		STREET LIGHTING STANDARD WITH SERVICE CONNECTION TO UTILITY SYSTEM, I = TYPE I, II = TYPE II, III = TYPE III
	EMBEDDED CONDUIT BELOW EXTERIOR FINAL GRADE		
	UTILITY LINES, OVERHEAD, AS IDENTIFIED, ET - ELECTRIC TRANSMISSION, ED - ELECTRIC DISTRIBUTION, ES - ELECTRIC SECONDARY, T - TELEPHONE, V - CATV, SD - SERVICE DROP		
	UTILITY POLE		
	STREET LIGHTING ON UTILITY POLE		

DEFINITIONS

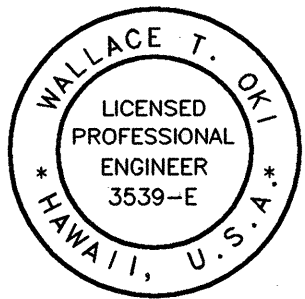
PROVIDE - FURNISH AND INSTALL.

WIRING - ALL CONDUITS, RACEWAYS, CONDUCTORS, FITTINGS, PULLBOXES, JUNCTION BOXES, OUTLET BOXES, DEVICES, AND OTHER MATERIALS OR ITEMS AS NECESSARY FOR A COMPLETED AND OPERATIONAL ELECTRICAL CIRCUIT OR SYSTEM; OR THAT WHICH COMPRISES AN ELECTRICAL CIRCUIT OR SYSTEM.

OUTLET - IN ADDITION TO DEFINITION IN THE NEC, OUTLET SHALL MEAN THE REQUIRED OUTLET BOXES, CONDUCTORS, TERMINATIONS, WIRING DEVICES, AND COVER PLATES, TO PROVIDE FOR THE INTENDED USE, APPLICATION, OR UTILIZATION EQUIPMENT.

CONDUCTOR COLOR CODE:

BK	BLACK	Y	YELLOW
W	WHITE	BR	BROWN
R	RED	PK	PINK
G	GREEN	GY	GRAY
O	ORANGE	PU	PURPLE
BL	BLUE	BK1	BLACK-ONE



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN

PUAINAKO STREET IMPROVEMENTS
KILAUEA AVE. TO KANOELEHUA AVE.

PROJECT NO. 2000E-01-00

Scale: as noted Date: May, 2000

SHEET No. 1 OF 14 SHEETS

GENERAL NOTES:

1. ALL ELECTRICAL ITEMS INDICATED ON THE DRAWINGS ARE NEW AND SHALL BE PROVIDED BY THE CONTRACTOR UNLESS INDICATED AS "EXISTING", OR AS OTHERWISE NOTED.
2. ALL LOCATIONS SHOWN ON THE DRAWING FOR ITEMS OF WORK TO BE FURNISHED AND/OR INSTALLED ARE APPROXIMATE. THE CONTRACTOR SHALL SELECT LOCATIONS TO SUIT FIELD CONDITIONS SUBJECT TO APPROVAL OF THE ENGINEER.
3. CONTRACTOR SHALL INDICATE ALL FINAL LOCATIONS ON THE "AS-BUILT" DRAWINGS WHERE THEY DIFFER FROM THAT SHOWN ON THE DRAWINGS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK AMONG THE VARIOUS TRADES AS NECESSARY TO AVOID CONFLICTS AND TO INSURE THE INSTALLATION OF ALL WORK WITHIN THE AVAILABLE SPACE.
5. CONTRACTOR SHALL INVESTIGATE AND TONE AREA BEFORE DIGGING OR EXCAVATING.
THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL BURIED SEWER, WATER AND GAS PIPING, DRAINAGE STRUCTURES, AND ALL OTHER BURIED ITEMS WITH THE APPROPRIATE AGENCIES PRIOR TO DOING ANY EXCAVATION WORK.
6. ALL ELECTRICAL EQUIPMENT SHALL BE NEW AND WARRANTED BY THE MANUFACTURER.
7. EXISTING CONDITIONS, MATERIALS, SIZES, LOCATIONS, AND DIMENSIONS SHOWN ON THESE DRAWINGS REPRESENT THE BEST AVAILABLE INFORMATION OBTAINED FROM FIELD INVESTIGATION. PRIOR TO ORDERING MATERIALS AND EQUIPMENT, THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, MATERIALS, SIZES, LOCATIONS, AND DIMENSIONS THAT AFFECT THE WORK OF THIS PROJECT. NOTIFY THE ENGINEER OF ALL QUESTIONS IN WRITING AND RESOLVE ALL CONTRACTOR'S QUESTIONS AND CONCERNS PRIOR TO PROCUREMENT AND BEFORE START OF CONSTRUCTION.
8. ALL ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, AND FEDERAL, STATE, AND COUNTY GOVERNMENT STANDARDS, REGULATIONS, AND ORDINANCES.
9. EXISTING UNDERGROUND WATER, SEWER, DRAINAGE, GAS, ETC. LINES ARE NOT INDICATED OR KNOWN. CONTRACTOR SHALL PROVIDE FOR THE REQUIRED MAN-HOURS TO INVESTIGATE AND TONE ALL AFFECTED AREAS PRIOR TO DIGGING OR EXCAVATING. CONTRACTOR SHALL PROVIDE ALL NECESSARY MEANS TO LOCATE ALL EXISTING BURIED ITEMS INTERFERING WITH NEW WORK. CONTRACTOR SHALL REPAIR OR REPLACE ANY DAMAGED BURIED ITEM TO THE SATISFACTION AND ACCEPTANCE OF THE ENGINEER. TOPOGRAPHIC SURVEY NOT USED OR AVAILABLE TO INDICATE ABOVE GROUND FEATURES SUCH AS FENCES, SHRUBS, BUSHES, TREES, PLANTS ETC. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE WORKING CONDITIONS AND PROVIDE THE REQUIRED MAN-HOURS TO REMOVE AND REPLACE AND/OR REPAIR ANY AND ALL EXISTING ABOVE GROUND FEATURES AFFECTED BY THE NEW WORK. REPLACEMENT/REPAIR SHALL MATCH EXISTING CONDITIONS AND SHALL BE DONE TO THE SATISFACTION OF THE ENGINEER.
10. ALL EXPOSED CONDUITS AND FITTINGS, AND METAL PORTIONS OF EQUIPMENT ENCLOSURE SHALL BE FIELD PAINTED FOR CORROSION PROTECTION.
11. ALL EQUIPMENT SHALL BE PROPERLY MOUNTED, ANCHORED, AND SUPPORTED BY APPROVED METHODS FOR SEISMIC RESTRAINT OF .3G FORCES.
12. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL TRAFFIC SIGNAL STANDARDS, HANDHOLES, AND CONTROLLERS WITH THE ENGINEER. THE CONTRACTOR SHALL STAKE-OUT LOCATIONS FOR APPROVAL BY THE ENGINEER.
13. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL OVERHEAD UTILITY LINES TO AVOID CONFLICTS DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTE ALL POSSIBLE HAZARDS, HOWEVER REMOTE, AND SHALL TAKE ALL NECESSARY PRECAUTIONS AS REQUIRED TO AVOID ANY AND ALL HAZARDS.

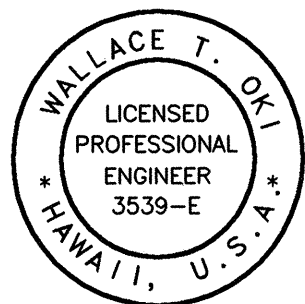
NOTES TO CONTRACTOR -
GTE H.T.CO. REQUIREMENTS

1. ALL WORK SHALL BE IN STRICT ACCORDANCE WITH SPECIFICATIONS AND REQUIREMENTS OF GTE H. T. CO. FOR THE FACILITIES WITHIN THEIR JURISDICTION.
2. THE CONTRACTOR SHALL CLOSELY COORDINATE ALL WORK WITH GTE H. T. CO. ALL TRENCHES MUST BE INSPECTED BY H. T. CO. PRIOR TO BACKFILLING THE CONCRETE ENCASING OPERATIONS. THE CONTRACTOR SHALL NOTIFY THE H.T.CO. INSPECTOR AT KONA TELEPHONE NUMBER 329-4756 AT LEAST 72 HOURS PRIOR TO POURING OF CONCRETE OR BACKFILLING.
3. UNLESS OTHERWISE INDICATED, ALL CONDUITS, SWEEPS, COUPLINGS, ADAPTERS, AND BELL ENDS SHALL BE CARLON GT42, 2-INCH OR 4-INCH PVC CONDUIT MEETING GTE SPECIFICATION GTS-8342.
4. STONES, ROCKS, ETC. SHALL NOT BE USED WITH BACKFILL MATERIAL, ONLY SELECT MATERIALS SHALL BE USED AS BACKFILL MATERIAL.
5. A 4-INCH WIDE WARNING TAPE ORANGE IN COLOR WITH A BLACK IMPRINTED MESSAGE "WARNING STOP DIGGING-CALL GTE, COMMUNICATIONS CABLE BURIED BELOW. FAILURE TO COMPLY COULD RESULT IN LEGAL ACTION" SHALL BE PLACED 12-INCHES BELOW THE SURFACE OVER THE DUCT OR CONCRETE JACKET FOR THE ENTIRE LENGTH OF DUCT INSTALLATIONS. SEE H. T. CO. STANDARD DRAWING 34028. RECOMMENDED TAPE IS MANUFACTURED BY THOR ENTERPRISES, INC., SUN PRAIRIE, WE 53590 (1-800-827-8467) PART NUMBERS DTOGTE-41 (1000-FT.) AND DTOGTE-46 (6000-FT.).
6. MAIN DUCT RUNS EXCEPT RISER CONDUITS SHALL BE CONSTRUCTED WITH MINIMUM 20 FOOT RADIUS CURVES.
7. AFTER THE CONDUITS ARE INSTALLED, A ROUND SOLID TEST MANDREL NOT LESS THAN 12-INCHES LONG AND HAVING A DIAMETER OF ONE-FOURTH INCH LESS THAN THE DIAMETER OF THE CONDUIT SHALL BE PULLED THROUGH EACH CONDUIT AFTER WHICH A BRUSH WITH STIFF BRISTLES SHALL BE PULLED THROUGH TO MAKE CERTAIN THAT NO PARTICLES OF EARTH, SAND, OR GRAVEL HAVE BEEN LEFT IN THE CONDUIT. RECOMMENDED 4-INCH MANDRELS/BRUSHES ARE MADE BY GENERAL MACHINE PRODUCTS CO. (GMP), TREVOSE, PA (215-357-5500). RECOMMENDED GMP PART NO. 81824R (TEST MANDREL FOR 4-INCH CONDUIT), AND GMP PART NO.17094 (BRUSH FOR 4-INCH CONDUIT). RECOMMENDED 2-INCH MANDRELS AND BRUSHES ARE MADE BY CONDUX INTERNATIONAL, INC., 145 KINGSWOOD ROAD, MANKATO, MN 56001 (1-800-533-2077). RECOMMENDED CONDUX PART NO. 08013020 (TEST MANDREL FOR 2-INCH CONDUIT) AND PART NO. 08028900 (BRUSH FOR 2-INCH CONDUIT).
8. INSTALL NEPTCO WP1800P MULETAPE IN ALL NEW CONDUITS AND CAP ALL CONDUITS AFTER TESTING. THE NEPTCO MULETAPE IS AVAILABLE IN 3000 FT., 6500 FT., AND 10000 FT. REELS. THE NEPTCO MULETAPE IS PRE-LUBRICATED AND PRINTED WITH SEQUENTIAL FOOTAGE MARKINGS. USING THE NEPTCO MULETAPE, THE CONTRACTOR SHALL MEASURE AT LEAST ONE CONDUIT OF A COMMON DUCT RUN. THE DISTANCE SHALL BE MARKED ON THE RECORD PRINTS AND SUBMITTED TO THE H. T. CO. INSPECTOR FOR RECORD KEEPING.
9. ALL CONDUITS SHALL ENTER PULLBOXES/MANHOLES AT 90 DEGREE ANGLE AND FLUSH WITH FLARED OR BELL ENDS TO PREVENT CABLE DAMAGE.
10. PROVIDE A 5/8 INCH X 8-FT. GALVANIZED GROUND ROD IN ALL OTHER H. T. CO. PULL BOXES AND MANHOLES.
11. THE TOP OF ALL UTILITY BOXES SHALL BE 1-INCH ABOVE FINISH GRADE IN NON-PAVED SHOULDERS UNLESS OTHERWISE NOTED.
12. ALL DUCTS ASSOCIATED WITH PULLBOXES OR MANHOLES SHALL BE INSTALLED WITH ADEQUATE DRAINAGE TOWARD THE PULLBOXES OR MANHOLES. (MINIMUM ONE-FOURTH PERCENT UNLESS OTHERWISE NOTED).
13. ALL CONDUITS SHALL CONNECT TO PULLBOXES AND MANHOLES AT ENDS ONLY. NO CONNECTION TO SIDES WILL BE ALLOWED.

NOTES TO CONTRACTOR -
HELCO REQUIREMENTS:

1. ALL WORK SHALL COMPLY WITH THE SERVING UTILITY COMPANY'S REQUIREMENTS, SERVICE INSTALLATION MANUALS, AND RULES AND REGULATIONS.
2. RESOLVE ANY DISCREPANCY OR QUESTION WITH THE ENGINEER PRIOR TO START OF ANY WORK.
3. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED STANDARD DRAWINGS AND INSTALLATION DETAILS FROM THE SERVING UTILITY COMPANIES. THE CONTRACT DRAWINGS DO NOT IN ANY WAY DUPLICATE THE STANDARDS OF THE UTILITY COMPANIES.
4. DO ALL NECESSARY EXCAVATION AND BACKFILLING OF DUCTLINES AS PER THE HELCO SPECIFICATION NO. CS-7001 AND CS-7004. PROVIDE WARNING TAPE PER H.T.CO. STANDARD DRAWING 34028.
5. FURNISH AND INSTALL SCH 40 PVC DUCTS AS INDICATED ON THE DRAWINGS WITH 3" CONCRETE ENCASEMENT AS INDICATED.
6. FURNISH AND INSTALL ALL HANDHOLES AS NOTED ON THE DRAWINGS.
7. ALL ELECTRIC DUCT LINES SHALL CONTAIN A POLYOLEFIN PULL LINE (JET LINE CAT. NO. 232 OR EQUIVALENT). (200 LB. MINIMUM TEST STRENGTH)
8. ALL WORK SHALL BE SUBJECT TO HELCO INSPECTION. CONTRACTOR SHALL GIVE HELCO 3 WORKING DAYS INSPECTION NOTICE PRIOR TO POURING OF CONCRETE, OR FOR ANY OTHER INSPECTION SERVICES.
9. ALL ELECTRIC CONDUITS SHALL BE REAMED WITH A MANDREL 1/2" SMALLER IN DIAMETER THAN THE CONDUIT, DUCTS SHALL BE SWABBED AND CLEARED OF ALL BURRS AND FOREIGN MATERIAL.
10. REFER TO HELCO SERVICE DRAWINGS FOR SPECIFIC AND STANDARD DETAIL DRAWINGS.
11. ALL BENDS DUE TO CHANGE IN GRADE SHALL HAVE A RADIUS BEND OF NOT LESS THAN 20'-0" (HORIZONTAL OR VERTICAL CHANGE).
12. ALL STREET LIGHT AND OTHER ELECTRICAL CONNECTION POINTS SHALL BE THOSE DESIGNATED BY HELCO.
13. ANY QUESTIONS AS TO THE RESPONSIBILITY OF ANY WORK NOT SPECIFICALLY COVERED IN THESE NOTES AND ON THE DRAWINGS SHALL BE CLARIFIED WITH HELCO'S AND JSL'S ENGINEERING DEPARTMENT.
14. ALL HANDHOLES, PULLBOXES, AND MANHOLES WITHIN THE ROAD R/W SHALL BE PLACED WITH TOPS FLUSH WITH FINAL GRADE, PAVEMENT, OR SIDEWALK AS APPLICABLE.
15. ELECTRICAL SERVICE INSTALLATION SHALL COMPLY WITH HELCO'S REQUIREMENTS. CONTRACTOR SHALL OBTAIN HELCO'S DRAWING NO. (*) AND PROVIDE ELECTRICAL SERVICES AS INDICATED. CONTRACTOR SHALL CONSULT WITH ENGINEER WHERE HELCO'S DRAWING DIFFERS AND RESOLVE ALL QUESTIONS PRIOR TO START OF ANY ELECTRICAL SERVICE WORK.

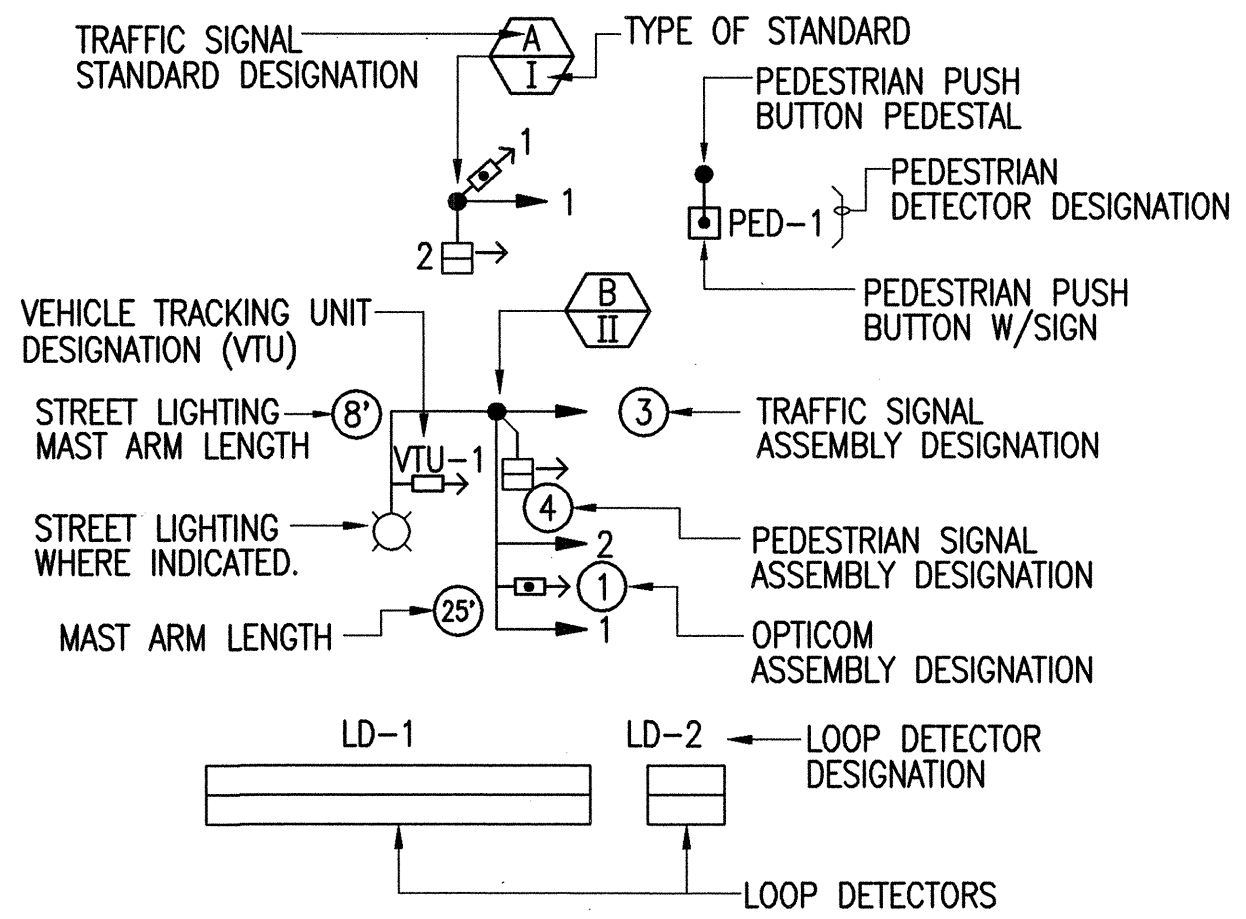
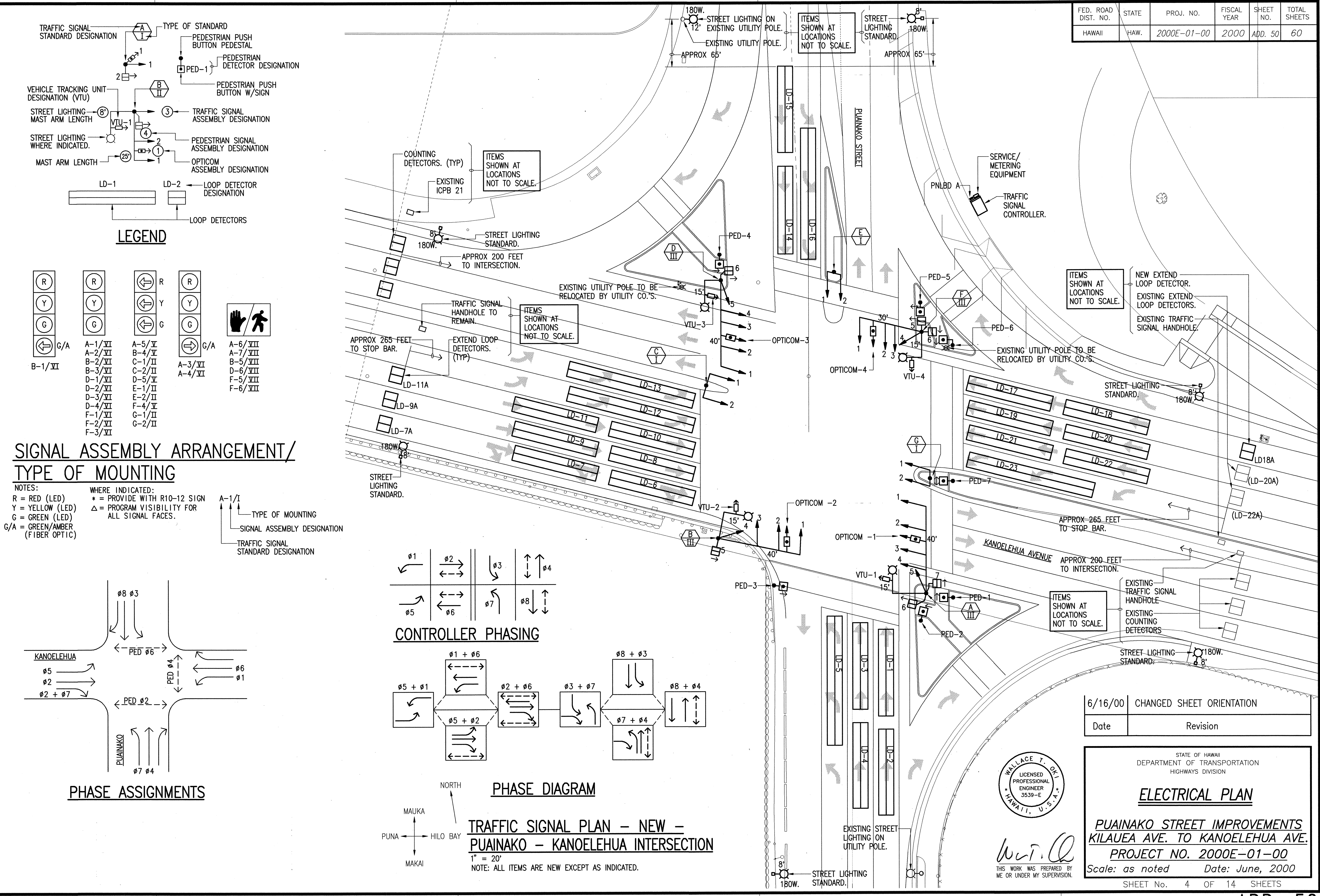
(* - NOT AVAILABLE PRIOR TO BIDDING)



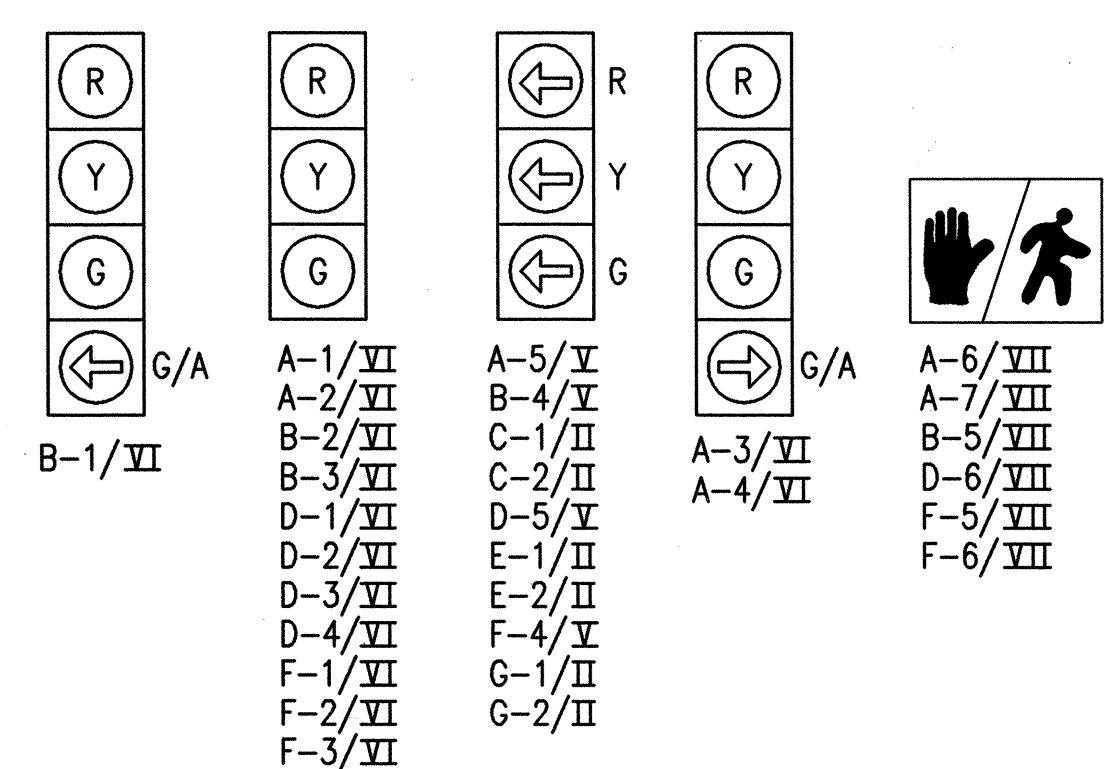
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STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
<u>ELECTRICAL PLAN</u>	
<u>PUAINAKO STREET IMPROVEMENTS</u> <u>KILAUEA AVE. TO KANOELEHUA AVE.</u>	
<u>PROJECT NO. 2000E-01-00</u>	
Scale: as noted	Date: May, 2000
SHEET No. 2 OF 14 SHEETS	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	2000E-01-00	2000	ADD. 50	60



LEGEND

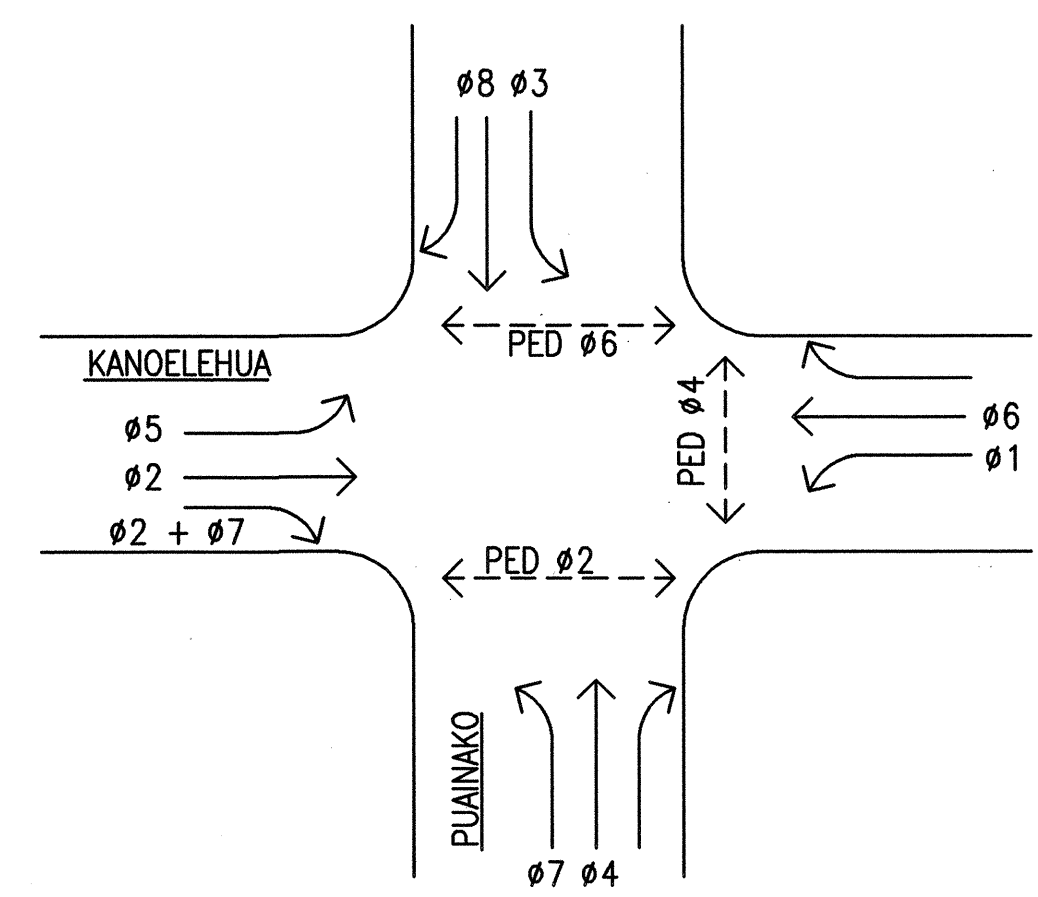


SIGNAL ASSEMBLY ARRANGEMENT/
TYPE OF MOUNTING

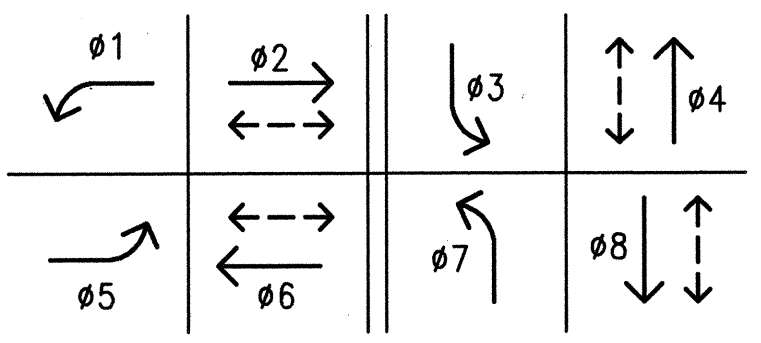
NOTES:
R = RED (LED)
Y = YELLOW (LED)
G = GREEN (LED)
G/A = GREEN/AMBER (FIBER OPTIC)

WHERE INDICATED:
* = PROVIDE WITH R10-12 SIGN
Δ = PROGRAM VISIBILITY FOR ALL SIGNAL FACES.

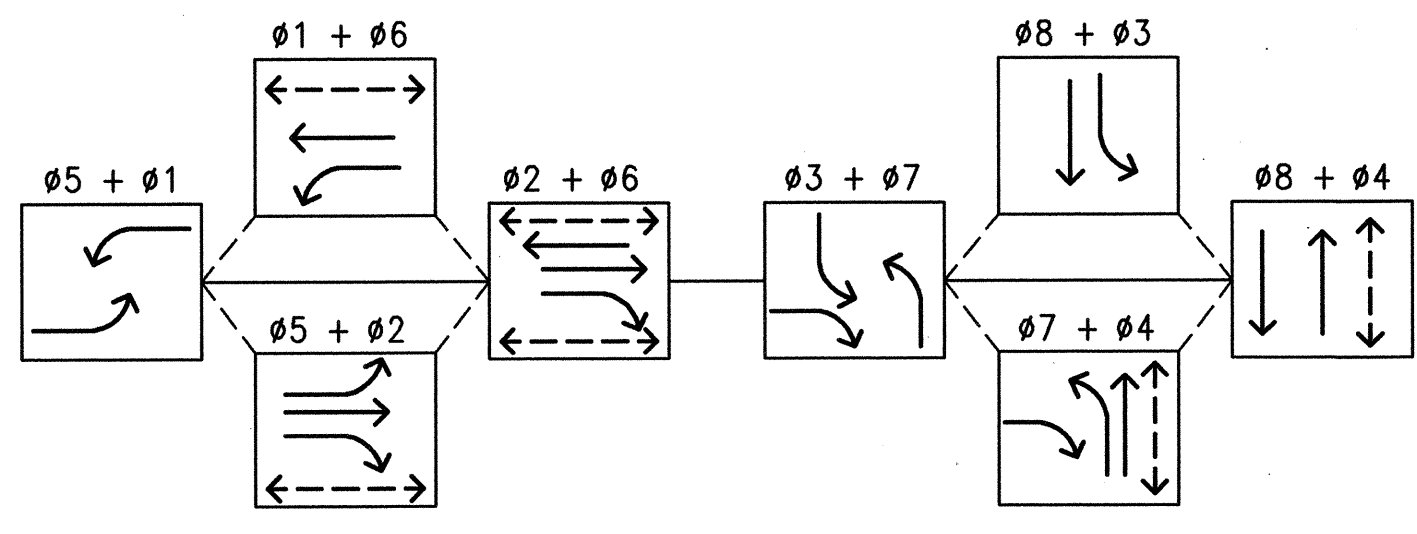
A-1/I TYPE OF MOUNTING
SIGNAL ASSEMBLY DESIGNATION
TRAFFIC SIGNAL STANDARD DESIGNATION



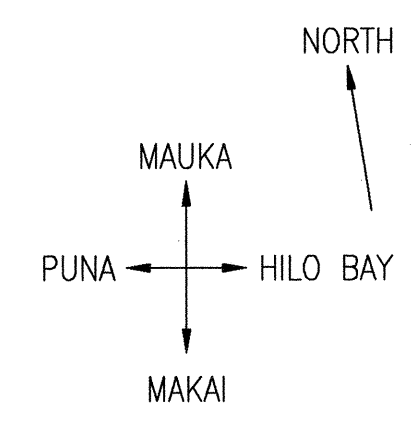
PHASE ASSIGNMENTS



CONTROLLER PHASING

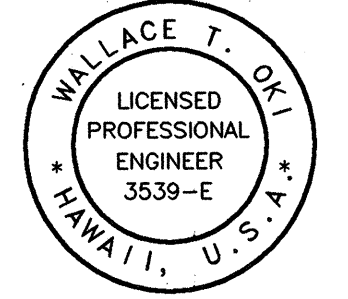


PHASE DIAGRAM



TRAFFIC SIGNAL PLAN - NEW -
PUAINAKO - KANOELEHUA INTERSECTION

1" = 20'
NOTE: ALL ITEMS ARE NEW EXCEPT AS INDICATED.



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6/16/00	CHANGED SHEET ORIENTATION
Date	Revision

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN

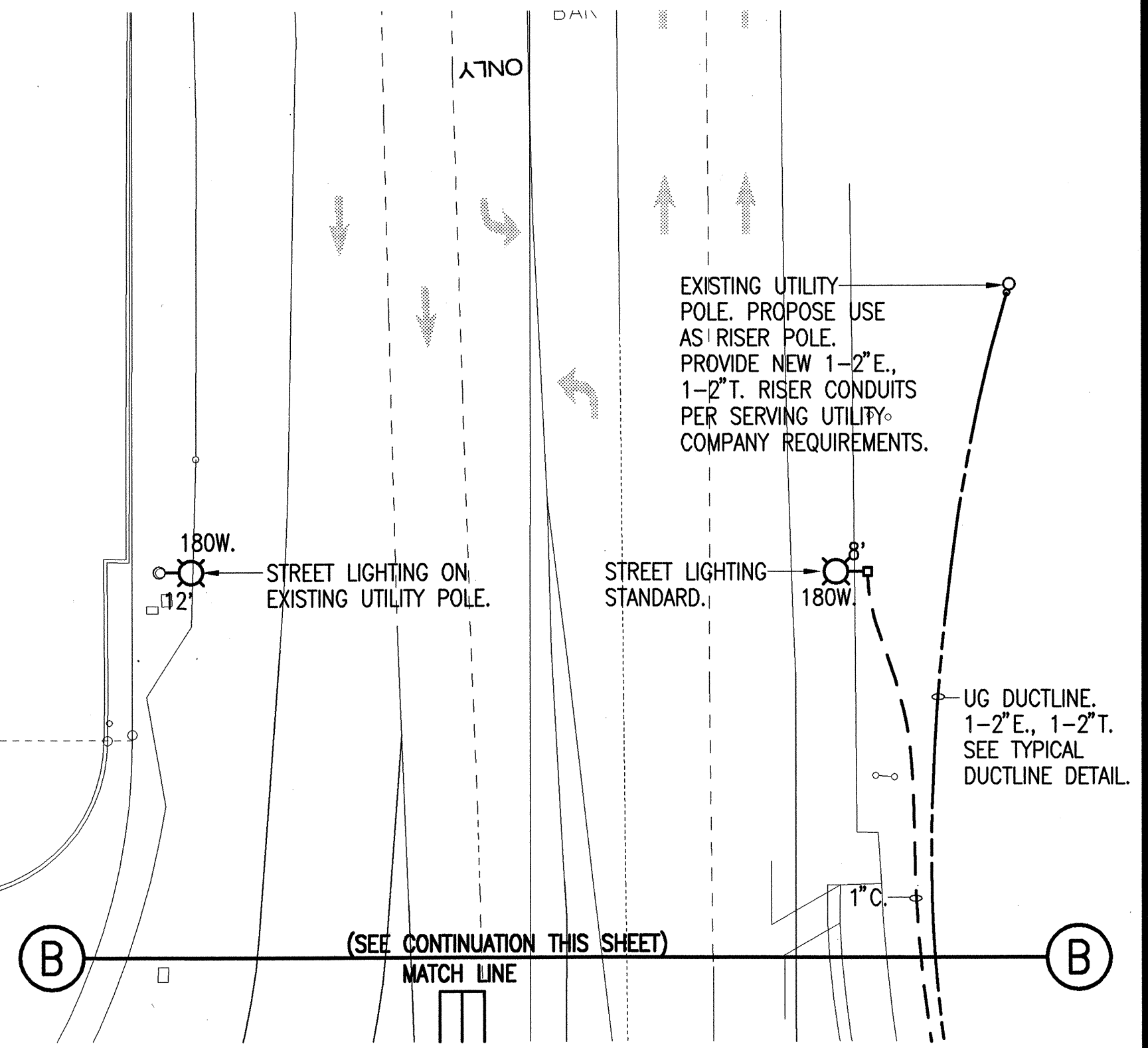
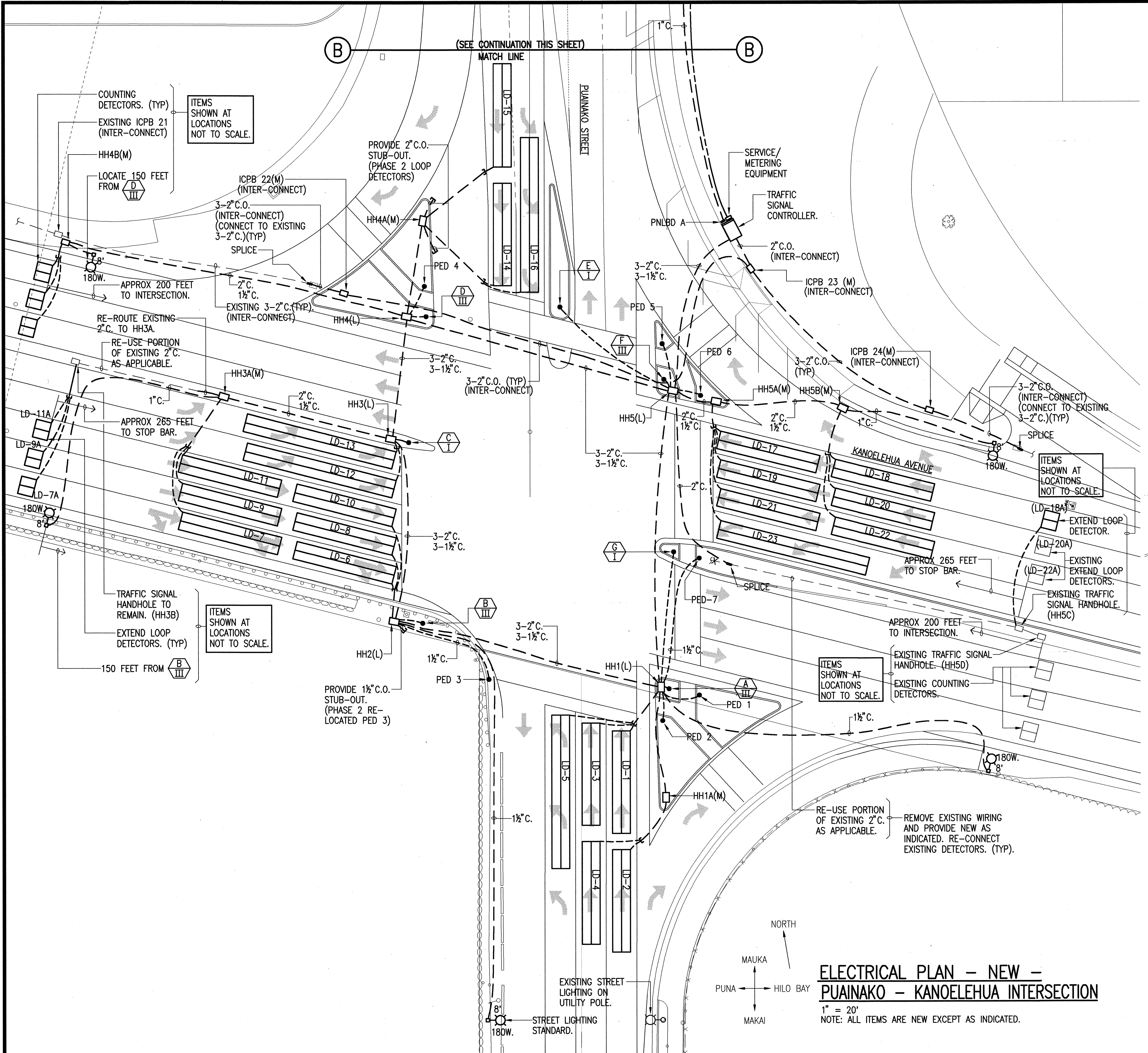
**PUAINAKO STREET IMPROVEMENTS
KILAUEA AVE. TO KANOELEHUA AVE.**

PROJECT NO. 2000E-01-00

Scale: as noted Date: June, 2000

SHEET No. 4 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	2000E-01-00	2000	ADD. 51	60



ELECTRICAL PLAN - NEW -
PUAINAKO - KANOIEHUE INTERSECTION
1" = 20'
NOTE: ALL ITEMS ARE NEW EXCEPT AS INDICATED.



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6/16/00	CHANGED SHEET ORIENTATION
Date	Revision

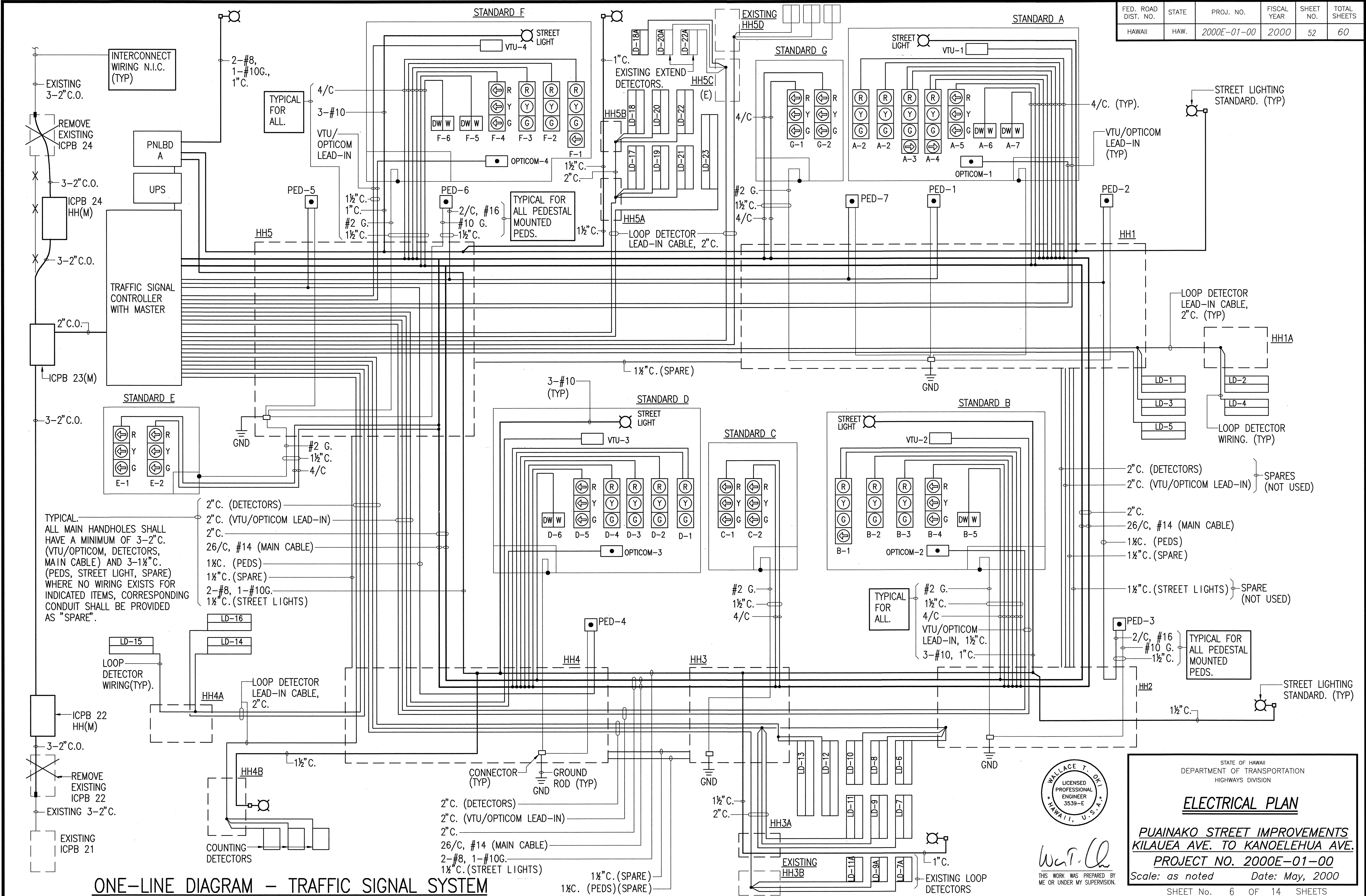
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN

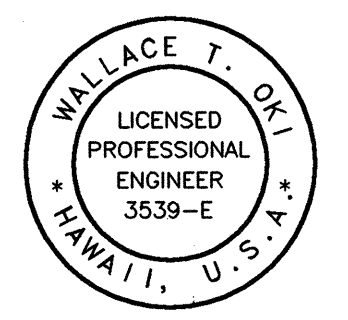
PUAINAKO STREET IMPROVEMENTS
KILAUEA AVE. TO KANOIEHUE AVE.
PROJECT NO. 2000E-01-00
Scale: as noted Date: June, 2000

SHEET No. 5 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	2000E-01-00	2000	52	60



ONE-LINE DIAGRAM - TRAFFIC SIGNAL SYSTEM

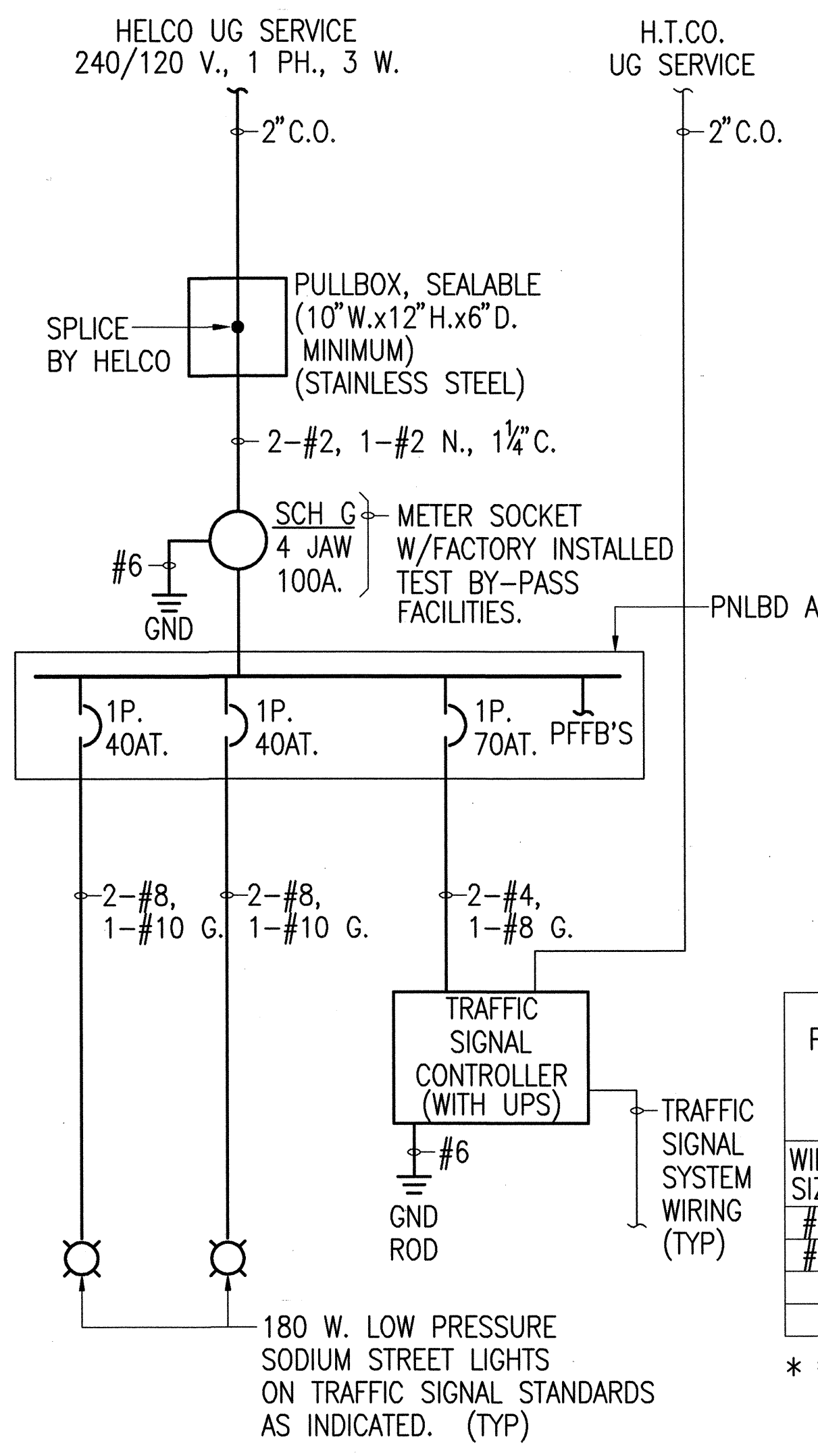


W.T. Oki
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN
Puainako Street Improvements
KILAUEA AVE. TO KANOELEHUA AVE.
PROJECT NO. 2000E-01-00
Scale: as noted Date: May, 2000

SHEET No. 6 OF 14 SHEETS



ONE-LINE DIAGRAM - SERVICES

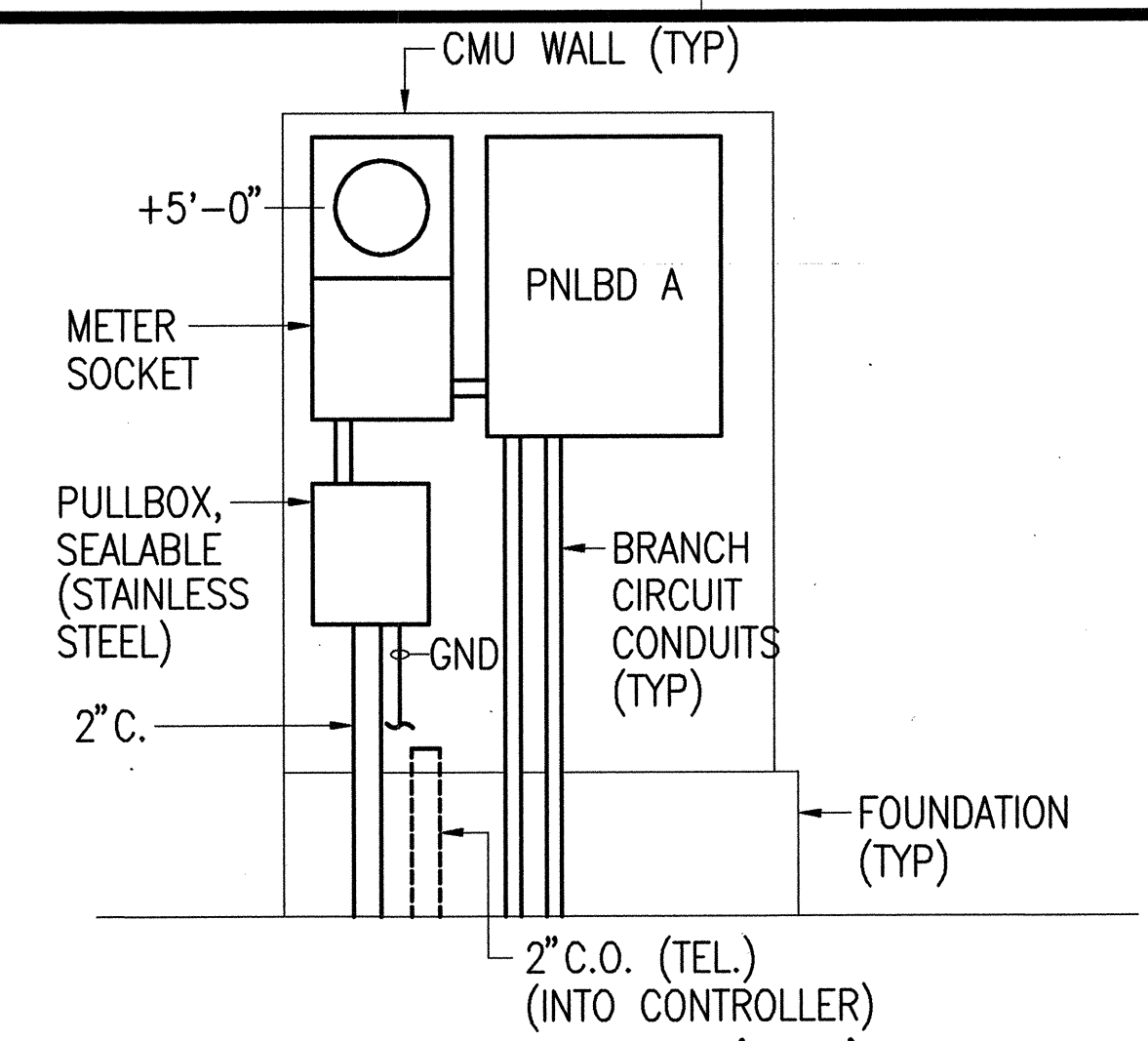
SERVICE/LOAD DATA:

A. ELECTRIC

- SERVICE VOLTAGE: 240/120 V., 1 PH., 3 W.
- TYPE OF SERVICE: UNDERGROUND
- ESTIMATED CONNECTED KVA: ESTIMATED DEMAND KVA:
TRAFFIC SIGNAL 5.0 1.2
STREET LIGHTING 3.0 0.5
TOTAL 8.0 1.7
- ESTIMATED TOTAL DEMAND KVA: 2.0
- DESIGN SERVICE CAPACITY: 100 AMPERES
- METERING: RATE SCH G, HELCO STD. B-5 (4 JAW, 100 A. METER SOCKET)
- BILLING ADDRESS: HIGHWAYS DIVISION
DEPARTMENT OF TRANSPORTATION
50 MAKAALA STREET
HILO, HAWAII 96720

B. TELEPHONE

- ESTIMATED LINES REQUIRED: 1 LINE
- PROPOSED SERVICE CAPACITY: 1 LINE (DROP SERVICE)
- SERVICE CABINET SIZE: NONE
- SERVICE CONDUIT: 2"



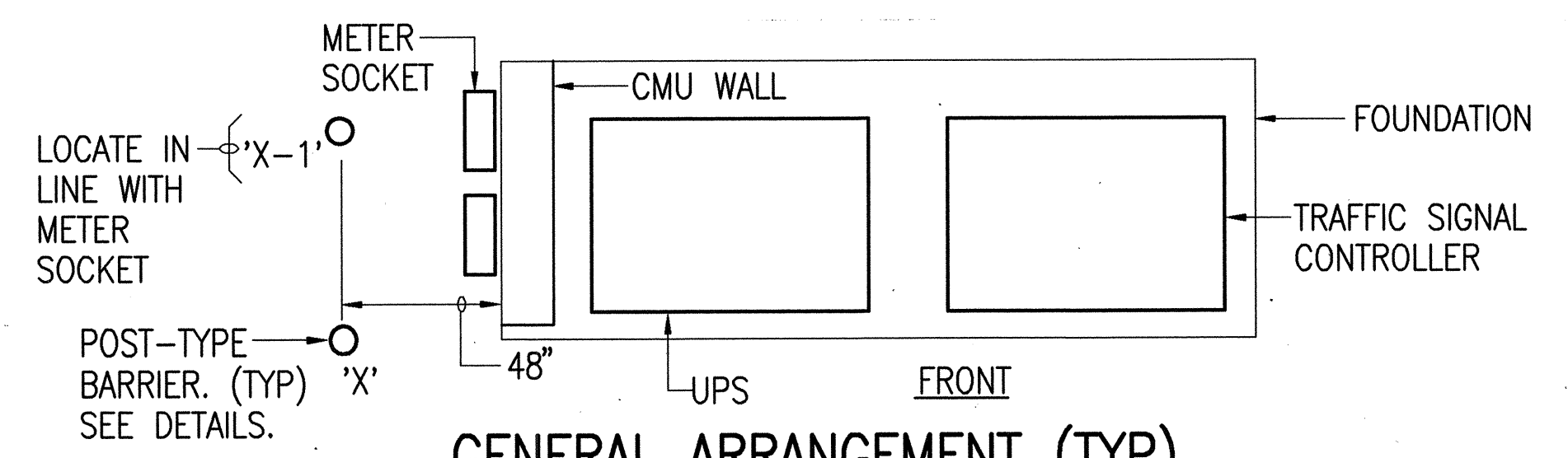
GENERAL ARRANGEMENT (TYP) - SERVICE/METERING EQUIPMENT

NOT TO SCALE

NOTE: ALL EQUIPMENT ENCLOSURES SHALL BE SUITABLE FOR OUTDOOR USE AND HAVE NEMA 3R ENCLOSURES AS A MINIMUM REQUIREMENT. EXCEPT WHERE NOTED FOR STAINLESS STEEL. PAINT EXTERIOR AND INTERIOR SURFACES WITH CORROSION RESISTANT PAINT. PAINT ALL CONDUITS.

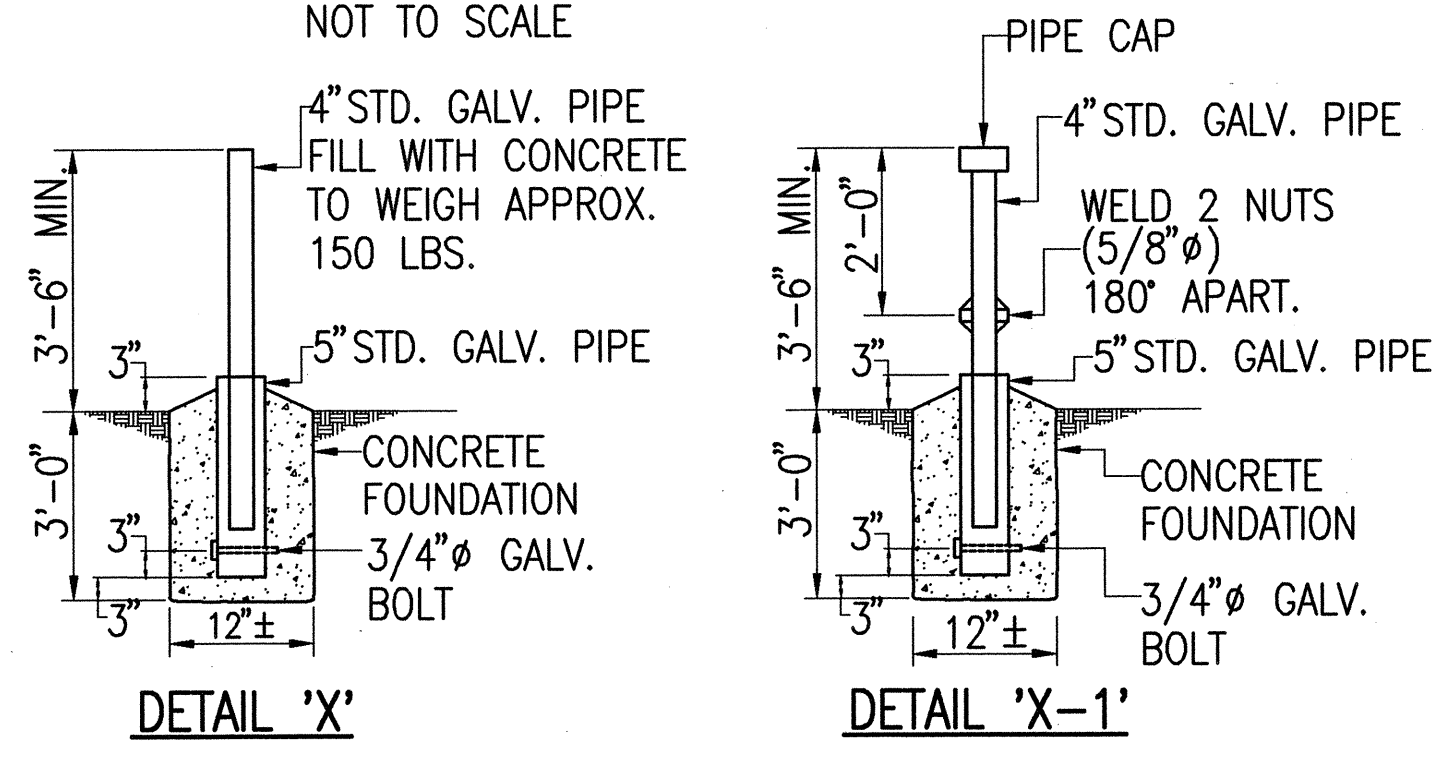
PNLBD A	240/120 VOLTS, 1 PHASE, 3 WIRE, NEUTRAL BUS, GROUND BUS, SURFACE MOUNTING, 100 A. MAIN BUS ONLY, COPPER, BOLT-ON BRANCH BREAKERS, FULL SIZE BREAKERS ONLY, 10,000 AIC, TYPEWRITTEN DIRECTORY, NEMA 3R ENCLOSURE WITH PROVISIONS FOR PAD LOCKING.											
	WIRE SIZE	SERVICE	CIR. AMP	BKR. POLE	CIR. NO.	L 1	CIR. NO.	L 2	CIR. BKR. POLE/AMP	SERVICE	WIRE SIZE	
#8	STREET LIGHT	40	1	1	L1	2	1	70	UPS CABINET	#4		
#8	STREET LIGHT	40	1	3	L2	4			PFFB			
	PFFB			5	L1	6			*			
	PFFB			7	L2	8			*			

* = DO NOT USE UNLESS PNLBD EQUIPPED WITH MAIN DISCONNECT.



GENERAL ARRANGEMENT (TYP) BARRIER PLAN

NOT TO SCALE



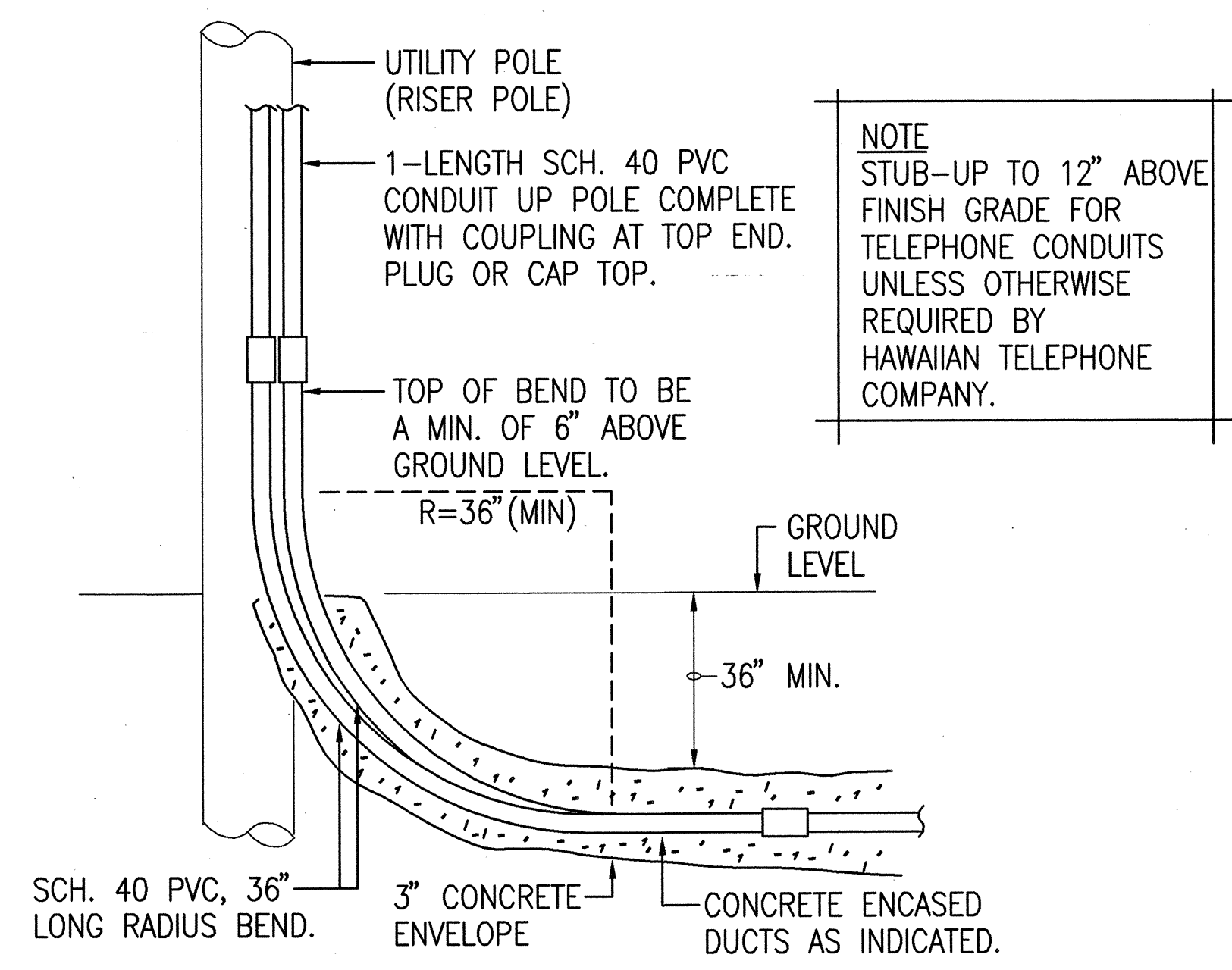
DETAIL 'X'

DETAIL 'X-1'

GENERAL ARRANGEMENT (TYP) - POST-TYPE BARRIERS

NOT TO SCALE

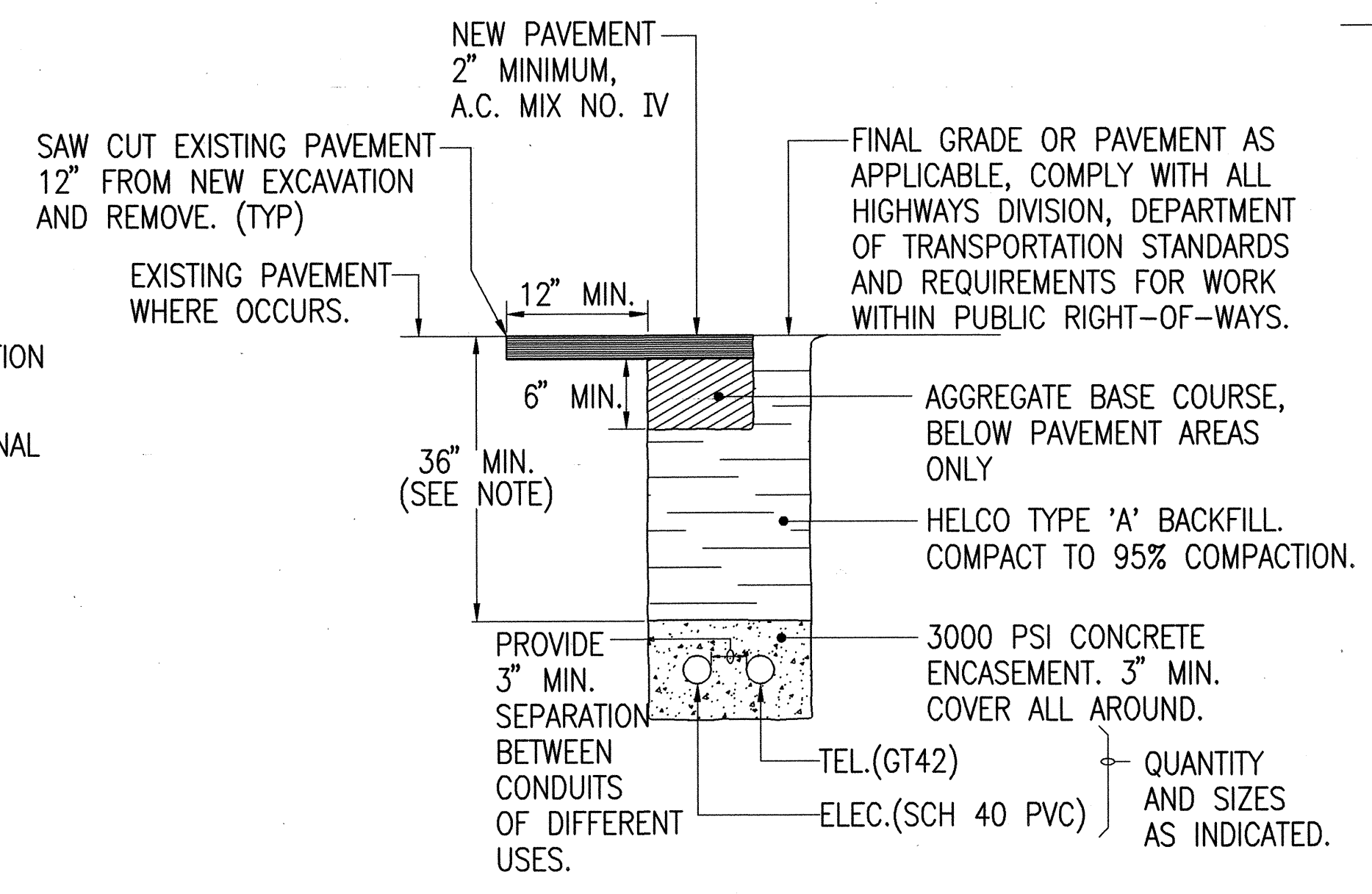
NOTE: ALL INSTALLATION SHALL COMPLY WITH HELCO STD. 30-5000. POSTS SHALL BE PAINTED YELLOW PER ANSI Z53.1



GENERAL ARRANGEMENT (TYP) - RISER CONDUIT DETAIL (TRAFFIC SIGNAL SYSTEM)

NOT TO SCALE

NOTE: PROVIDE QUANTITY AND SIZES AS INDICATED ON THE DRAWINGS. REFER TO HELCO'S DRAWINGS FOR ADDITIONAL RISER DETAIL REQUIREMENTS.



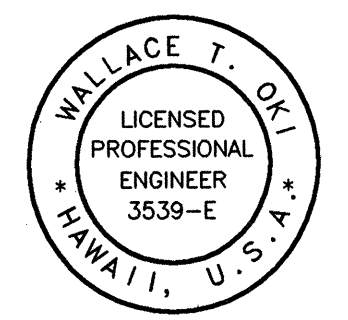
GENERAL ARRANGEMENT (TYP) - DUCTLINE DETAIL (TYPICAL FOR NON-UTILITY DUCTLINE.)

NOT TO SCALE

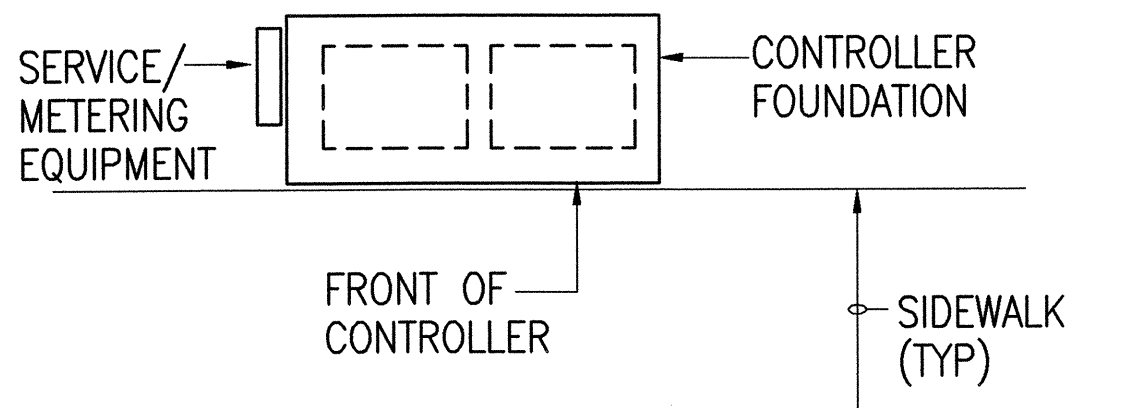
NOTE: INDICATED BURY DEPTH SHALL BE ADJUSTED IN THE FIELD TO CLEAR AND AVOID INTERFERENCES WITH ALL EXISTING BURIED UTILITY LINES, DRAINAGE STRUCTURES, OR OTHER SYSTEMS.

CORROSION PROTECTION PAINT

- AMERON "AMERLOCK 400" EPOXY COATING OR APPROVED EQUIVALENT.
- ALUMINUM
- APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

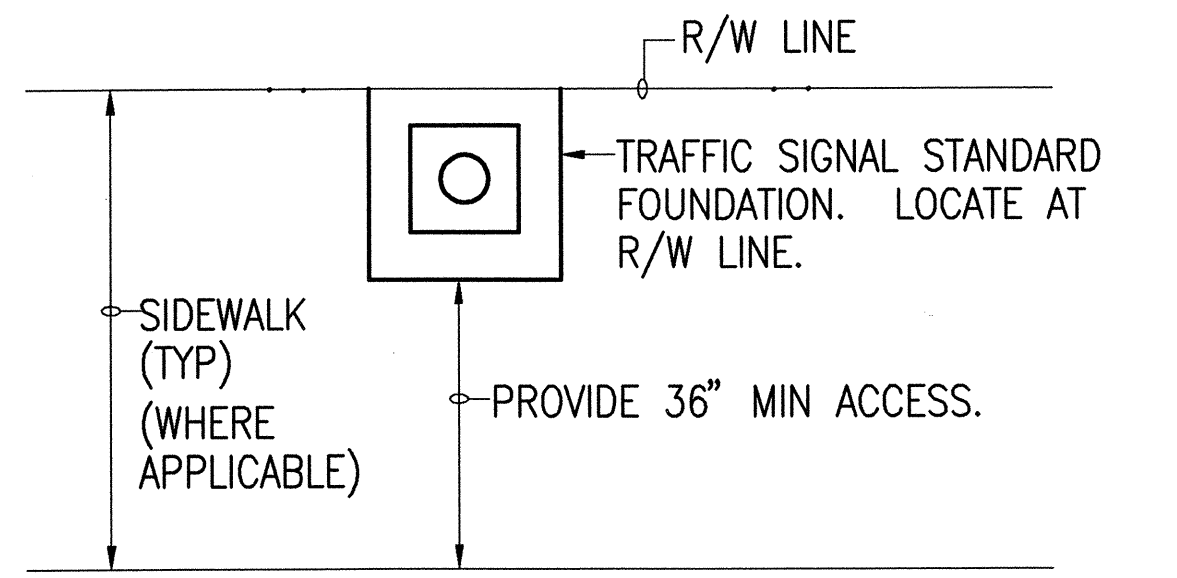


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GENERAL ARRANGEMENT (TYP) CONTROLLER LOCATION

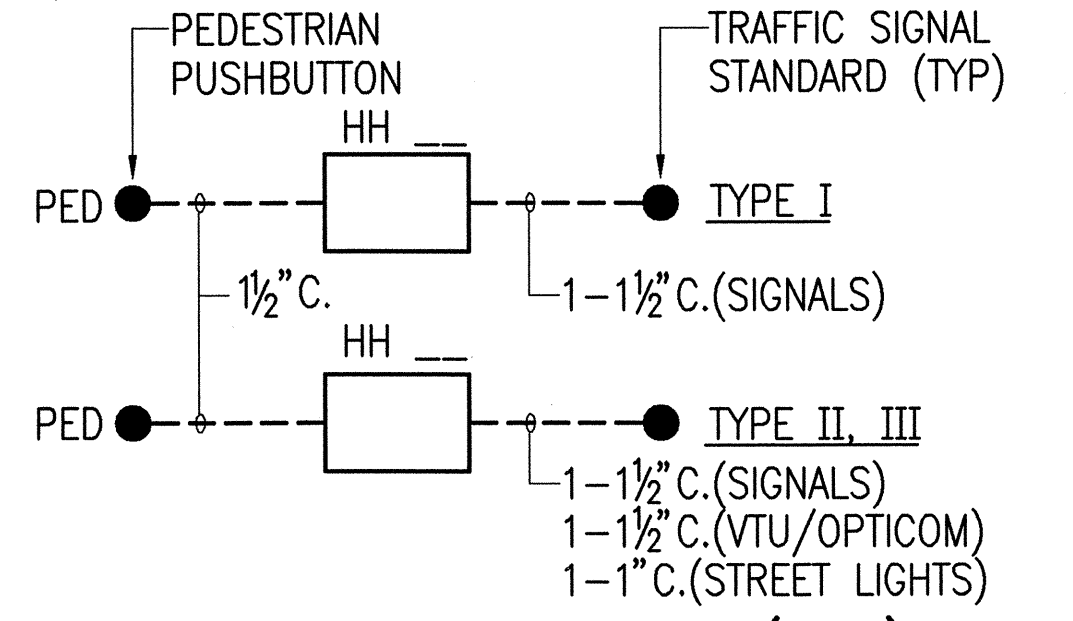
NOT TO SCALE



GENERAL ARRANGEMENT (TYP) LOCATION FOR TRAFFIC SIGNAL STANDARD FOUNDATION

NOT TO SCALE

(TYPICAL FOR NON-SIDWALK LOCATIONS)



GENERAL ARRANGEMENT (TYP) REQUIRED CONDUITS BETWEEN HH AND TRAFFIC SIGNAL STANDARDS/PED PUSHBUTTON

NOT TO SCALE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

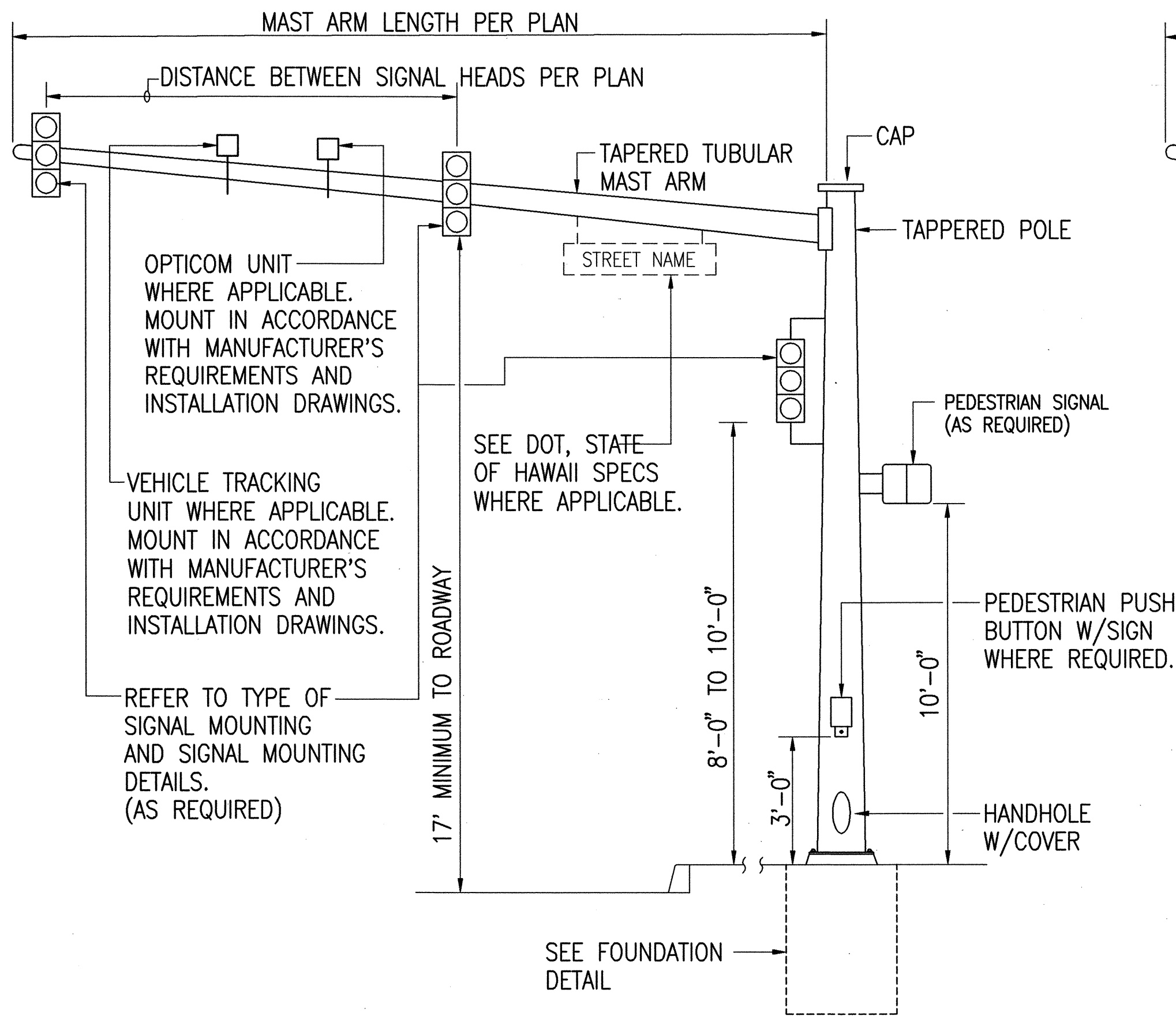
ELECTRICAL PLAN

PUAINKO STREET IMPROVEMENTS
KILAUEA AVE. TO KANOELEHUA AVE.
PROJECT NO. 2000E-01-00

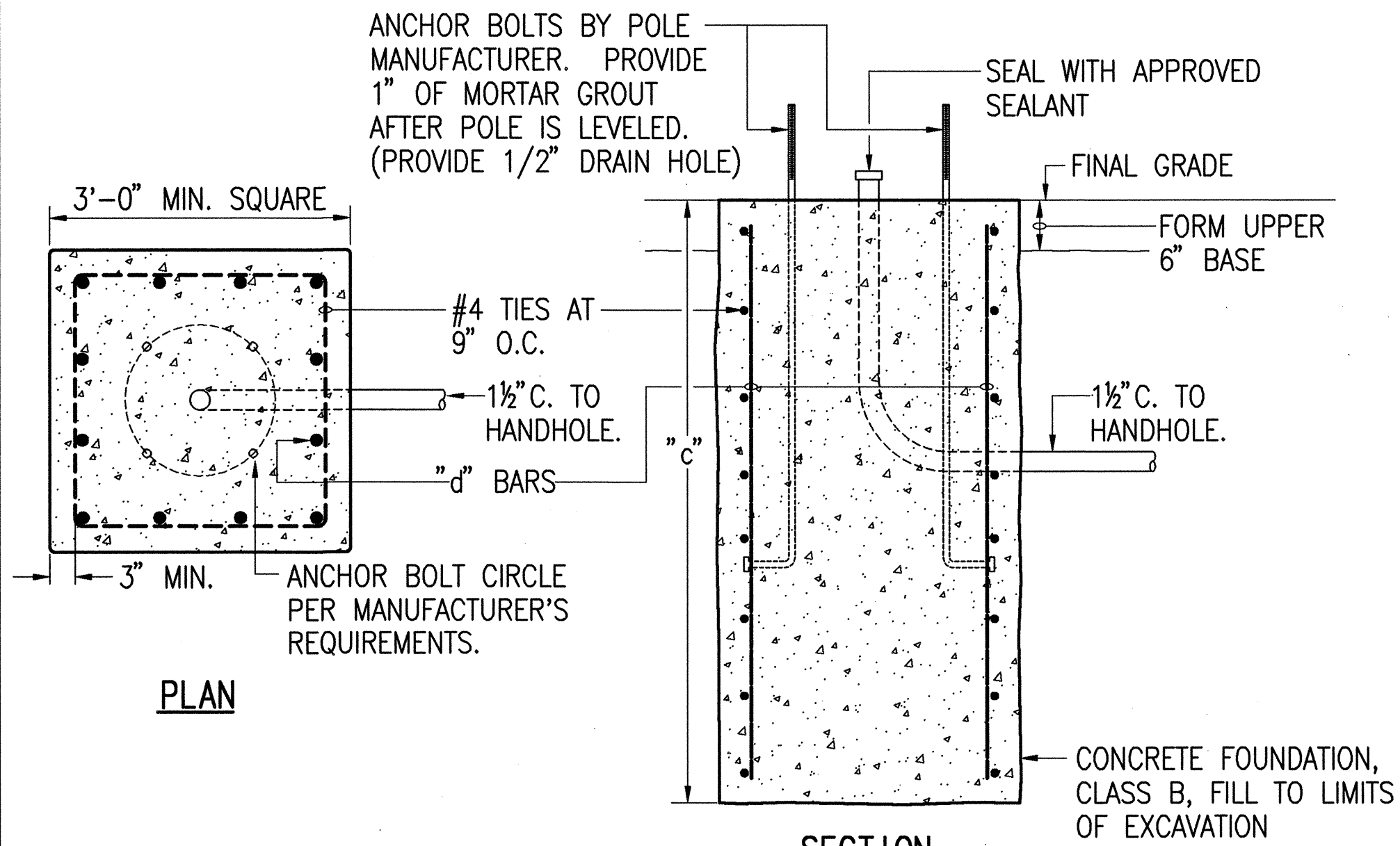
Scale: as noted Date: May, 2000

SHEET No. 7 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	2000E-01-00	2000	54	60

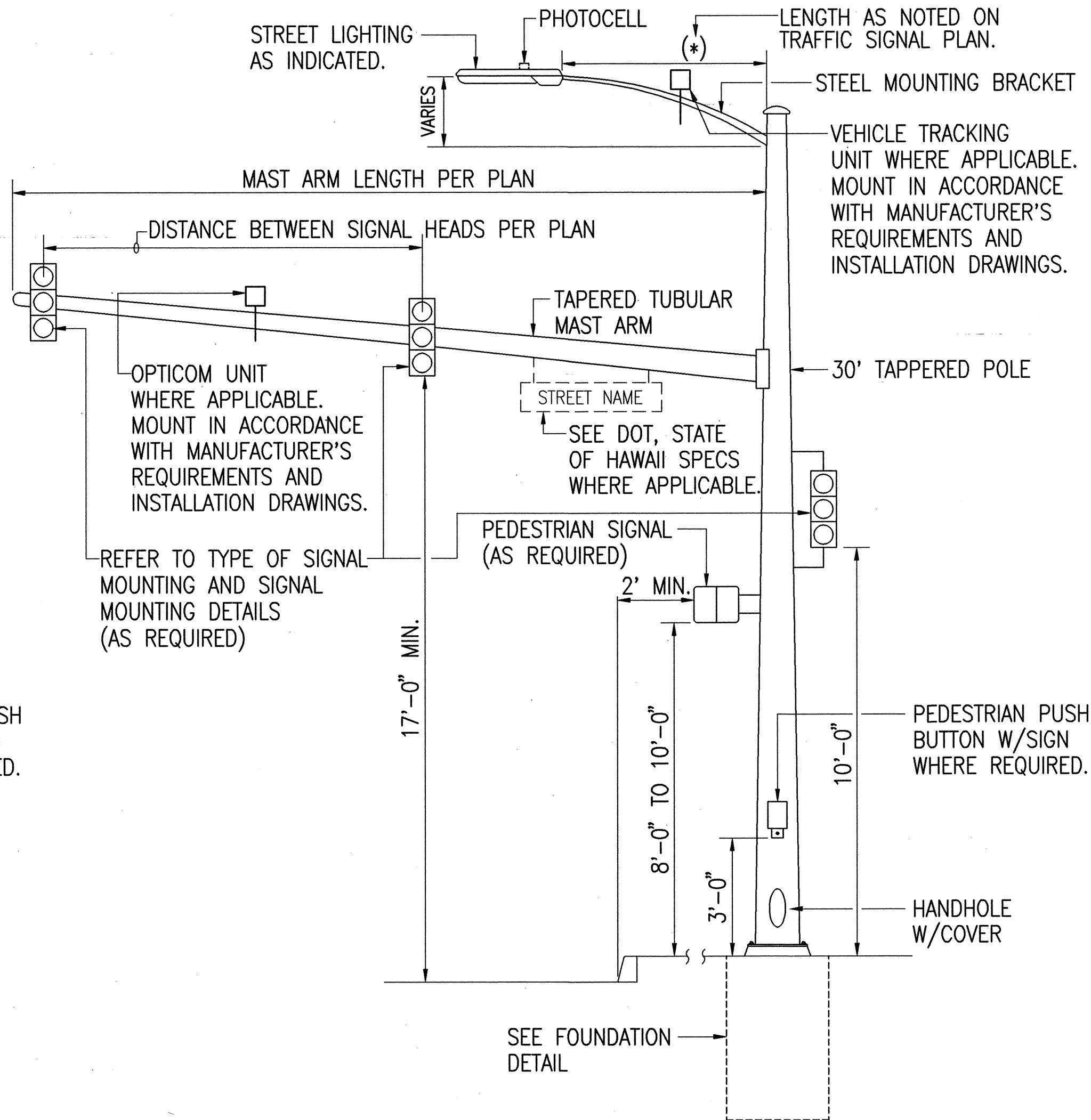


TYPE II TRAFFIC SIGNAL STANDARD
NOT TO SCALE

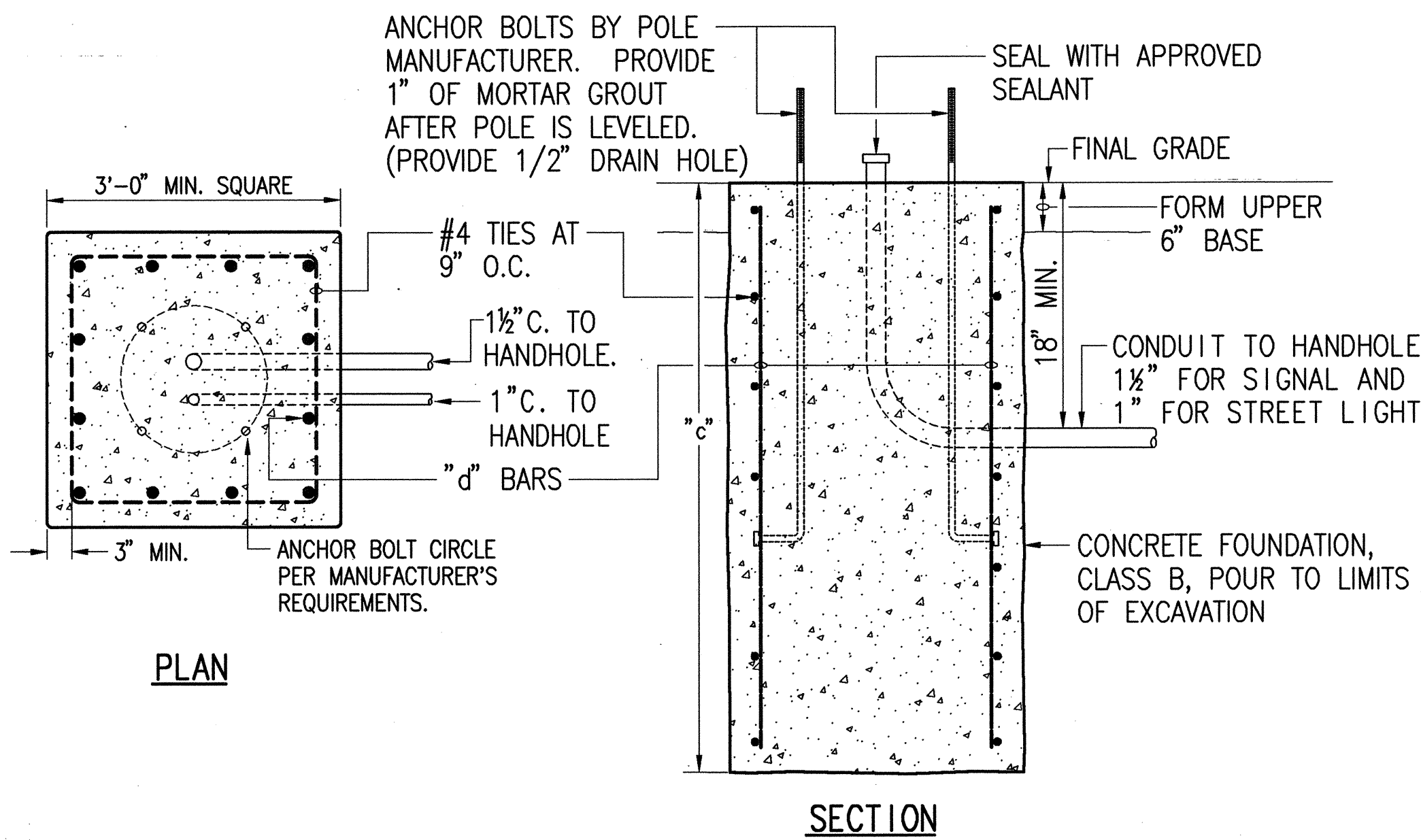


FOUNDATION DETAIL - TYPE II
NOT TO SCALE
NOTE: FOUNDATIONS IN SIDEWALK AREA SHALL BE FLUSH WITH SIDEWALK.

LENGTH	"c"	"d" BARS
16'-18'	5'-0"	12-#6
20'	5'-6"	12-#6
25'	6'-0"	12-#6
30'	6'-6"	12-#6

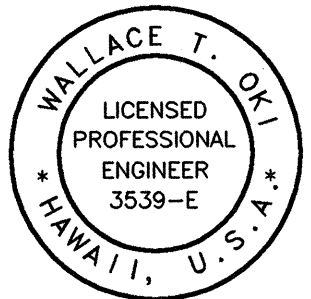
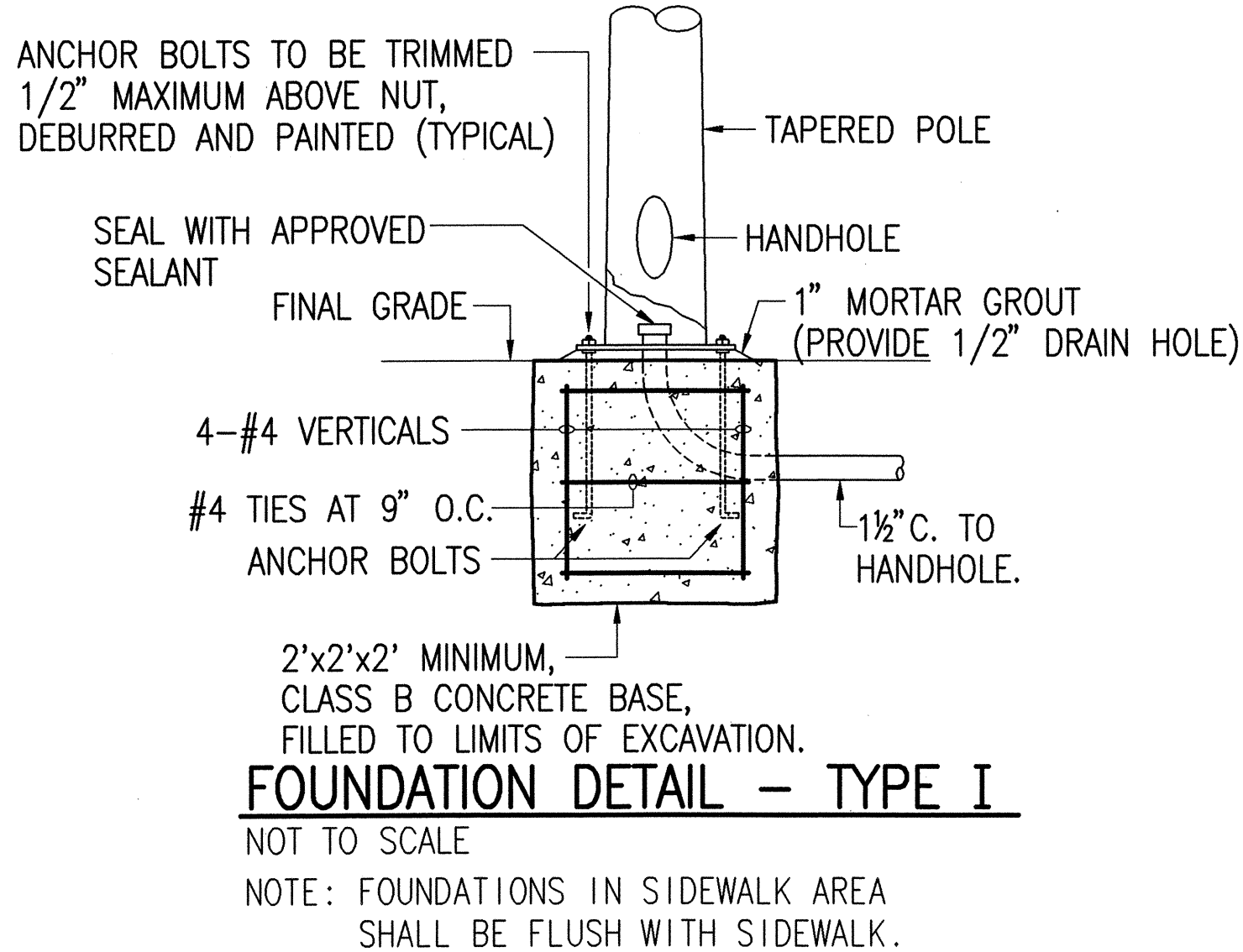
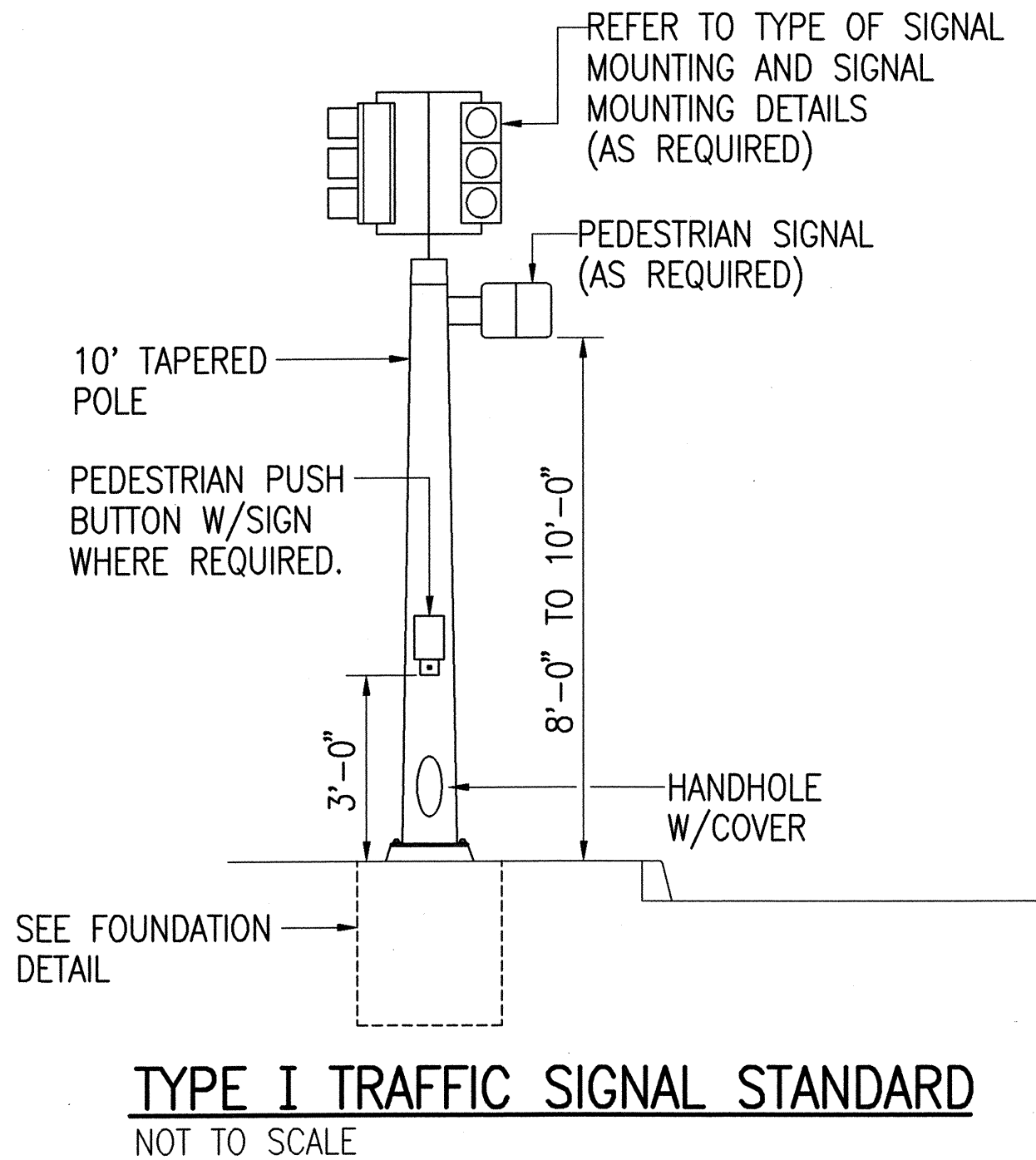


TYPE III TRAFFIC SIGNAL STANDARD
NOT TO SCALE



FOUNDATION DETAIL - TYPE III
NOT TO SCALE
NOTE: FOUNDATIONS IN SIDEWALK AREA SHALL BE FLUSH WITH SIDEWALK.

LENGTH	"c"	"d" BARS
16'-18'	5'-6"	12-#6
20'	6'-0"	12-#6
25'	6'-6"	12-#6
30' & 35'	6'-6"	12-#8
40'	7'-0"	12-#8



W.T.O.
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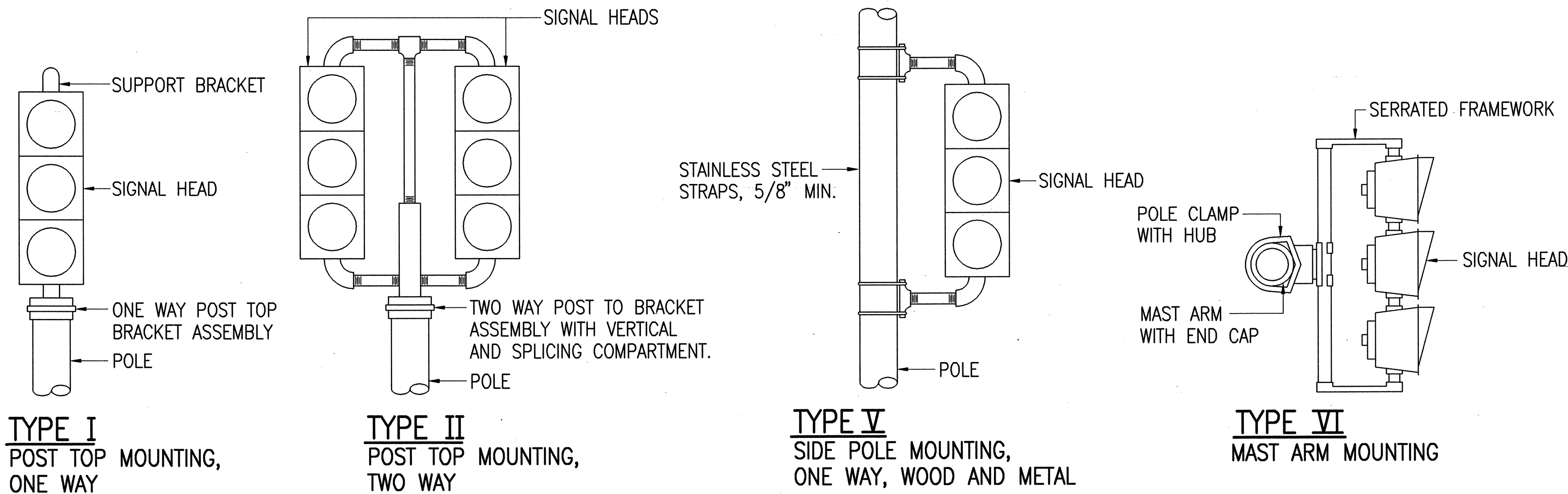
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN

PUAINKO STREET IMPROVEMENTS
KILAUEA AVE. TO KANOELEHUA AVE.
PROJECT NO. 2000E-01-00
Scale: as noted Date: May, 2000

SHEET No. 8 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	2000E-01-00	2000	55	60

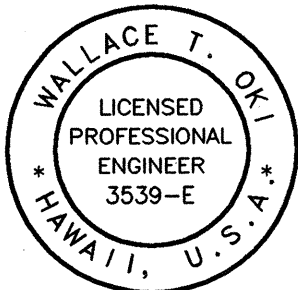
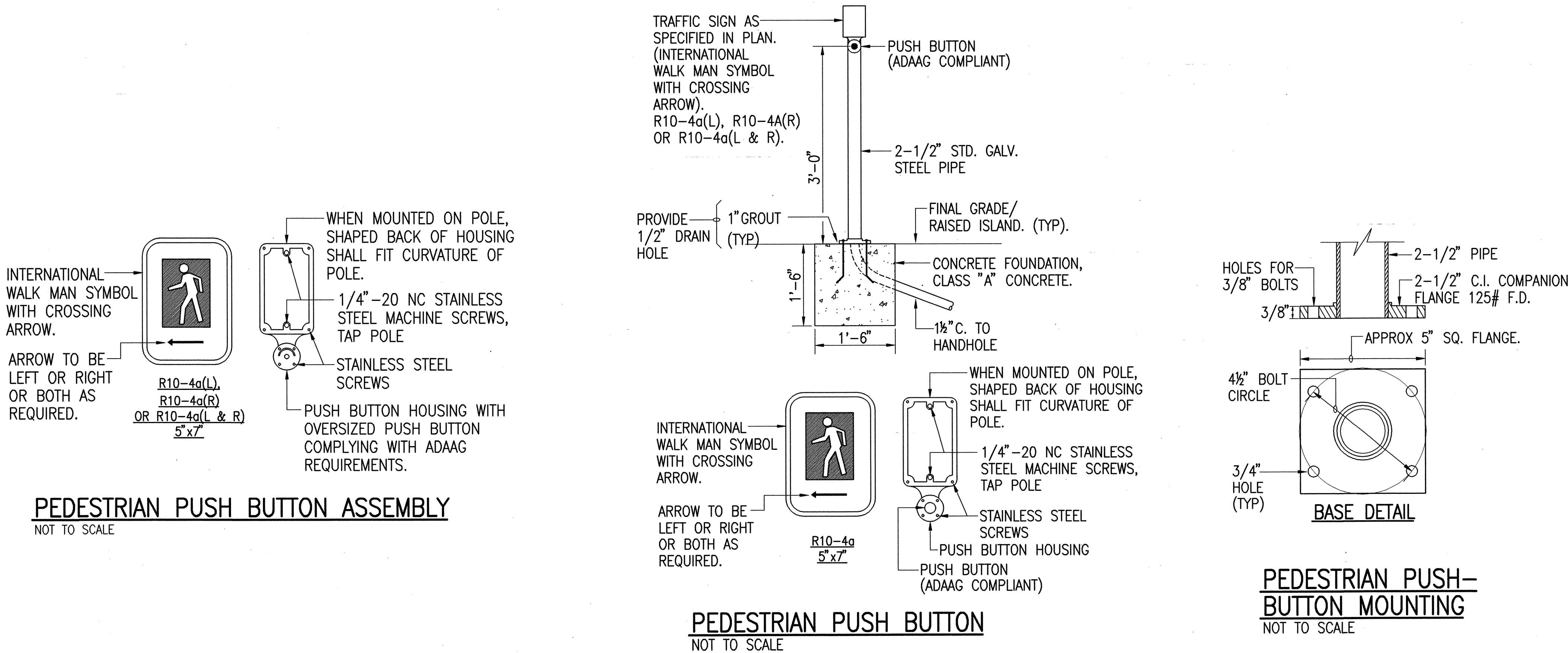


SIGNAL ASSEMBLY MOUNTING

NOT TO SCALE

NOTES:

- ALL THREADED ITEMS, i.e. BOLTS, FITTINGS, SCREWS, ETC., TO BE COATED WITH AN APPROVED ANTI-SEIZE COMPOUND PRIOR TO ASSEMBLY OR INSTALLATION.
- ALL CIRCULAR SIGNAL HEADS (EXCEPT FIBEROPTIC AND PROGRAMABLE) SHALL HAVE APPROVED GLASS LENSES.



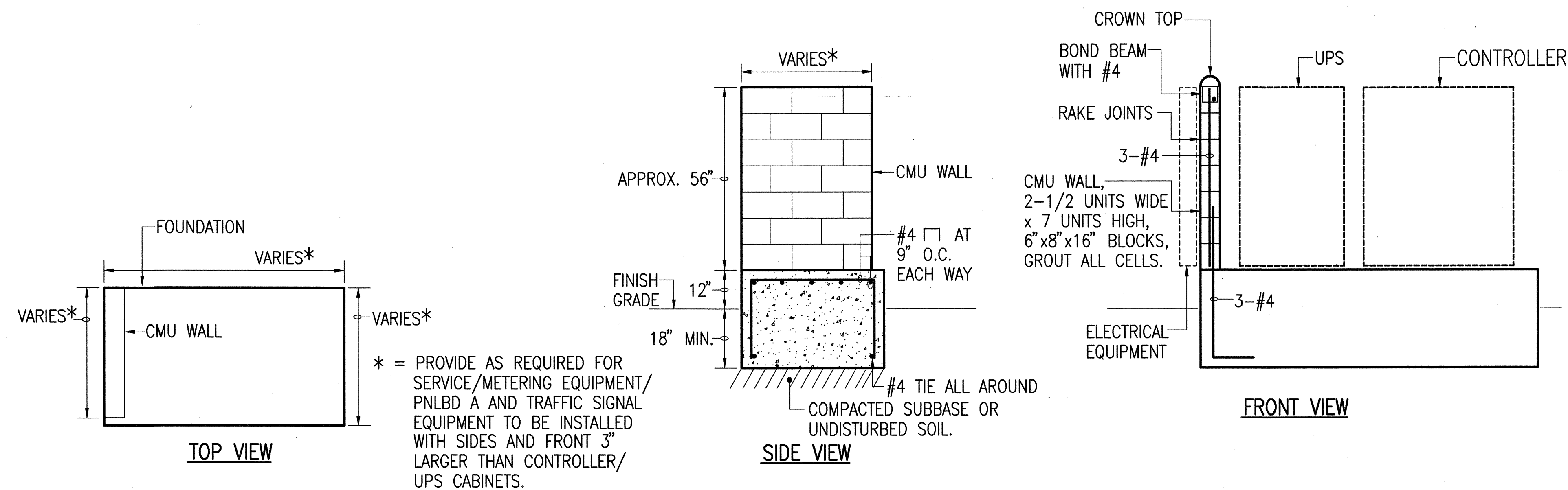
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

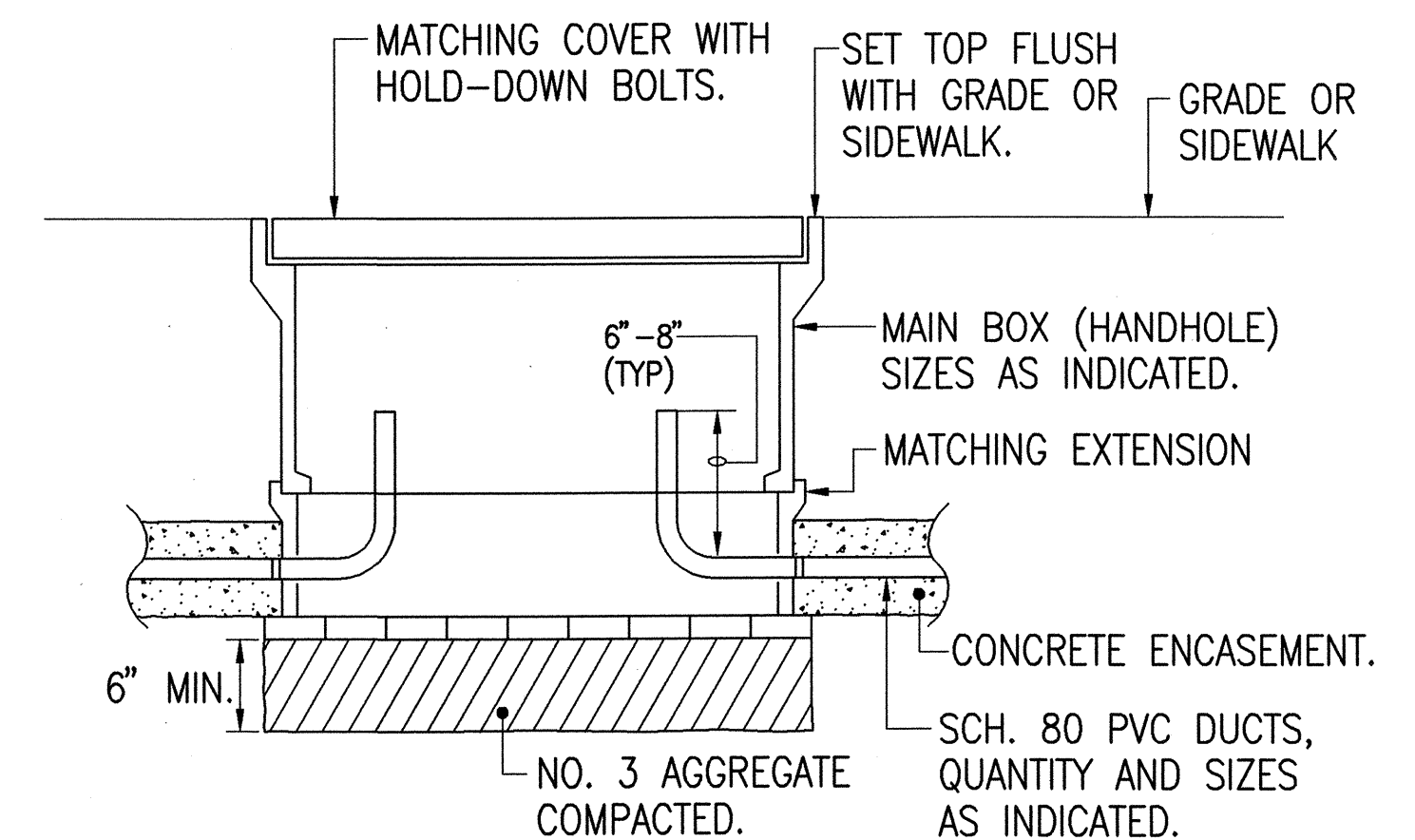
ELECTRICAL PLAN

PUAINAKO STREET IMPROVEMENTS
KILAUEA AVE. TO KANOELEHUA AVE.
PROJECT NO. 2000E-01-00
Scale: as noted Date: May, 2000

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	2000E-01-00	2000	56	60



GENERAL ARRANGEMENT (TYP) – TRAFFIC SIGNAL CONTROLLER FOUNDATION
NOT TO SCALE

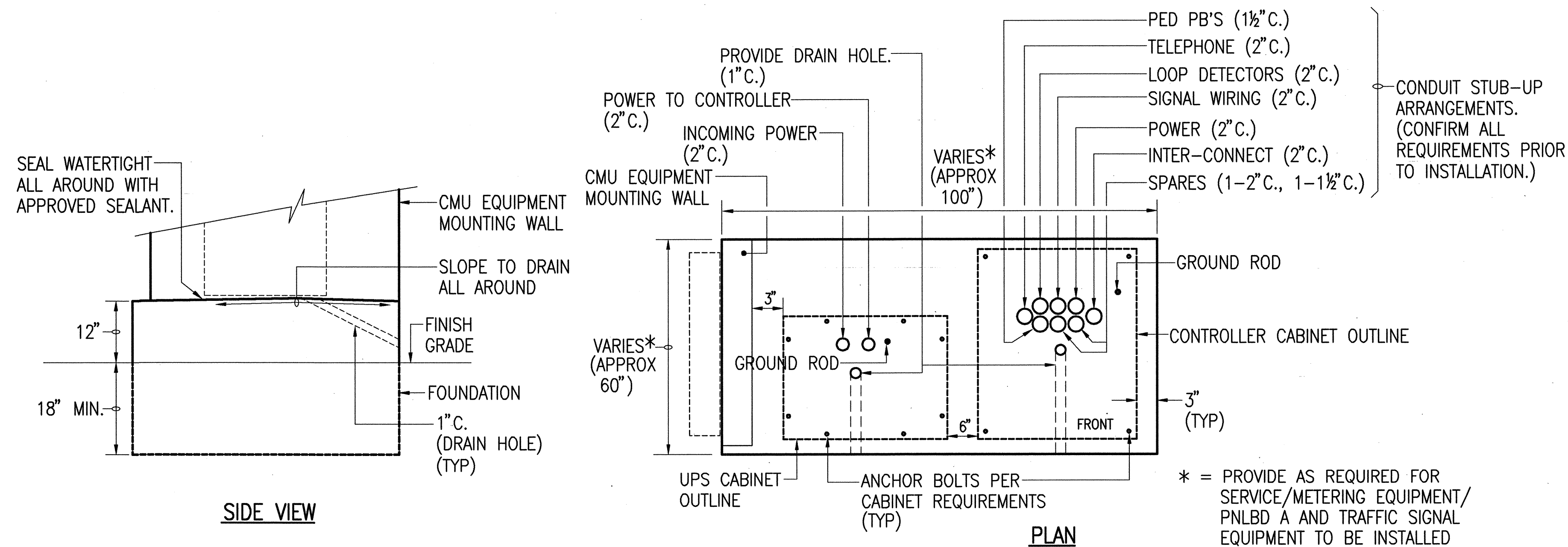


GENERAL ARRANGEMENT (TYP) –
HANDHOLE (HH) DETAILS
NOT TO SCALE
NOTES:

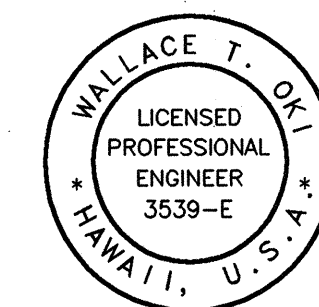
- ALL COVERS SHALL BE HEAVY DUTY AND MARKED WITH "TRAFFIC".
- SIZES

(S)	TYPE "A"
(M)	TYPE "B"
(L)	TYPE "C"

 SEE SHEET NO. 57



GENERAL ARRANGEMENT (TYP) – TRAFFIC SIGNAL CONTROLLER MOUNTING
NOT TO SCALE



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

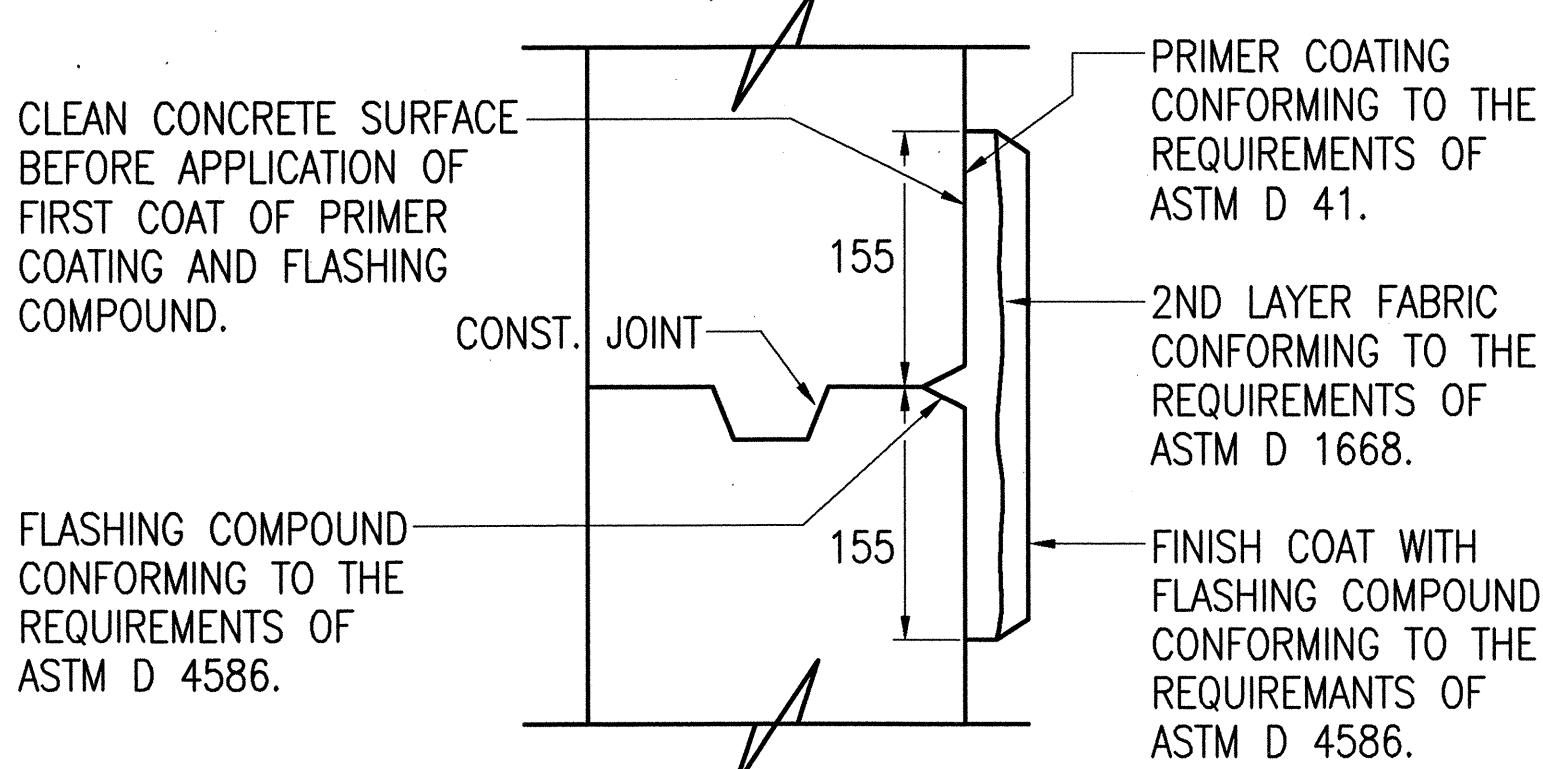
ELECTRICAL PLAN

PUAINAKO STREET IMPROVEMENTS
KILAUEA AVE. TO KANOELEHUA AVE.
PROJECT NO. 2000E-01-00
Scale: as noted Date: May, 2000

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	2000E-01-00	2000	ADD. 57	60

GENERAL NOTES

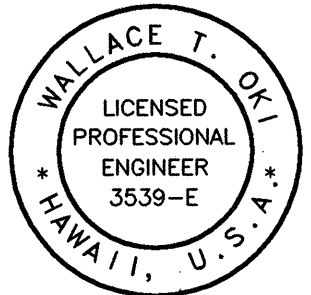
1. PROVIDE A MINIMUM OF ONE 16 ϕ x 2.5m COPPERWELD GROUND ROD IN EACH PULLBOX. COST OF GROUND RODS SHALL BE INCIDENTAL TO THE PULLBOXES.
2. ALL PRE-CAST CONCRETE PULLBOXES SHALL BE MANUFACTURED IN TWO PIECES.
3. THE PULLBOX WITH COVER SHALL BE CAPABLE OF SUPPORTING AN MS 18 LOADING.
4. THE MAXIMUM WEIGHT 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.
8. ALL CONCRETE SHALL BE CLASS A (25MPa, MIN.).
9. REBARS SHALL BE GRADE 300 AND ALL LAPPED SPLICES SHALL BE 360mm MIN.
10. THE #57 OR #67 SIZE AGGREGATE SHALL CONFORM TO THE 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).



TYPICAL FLASHING COMPOUND WATERPROOFING DETAILS

NOT TO SCALE

6/16/00	ADDED TYPES A, B, C PULLBOX DETAILS, POLYMER CONCRETE COVER AND CONSTRUCTION JOINT DETAILS.
Date	Revision



STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

ELECTRICAL PLAN

Puainako Street Improvements

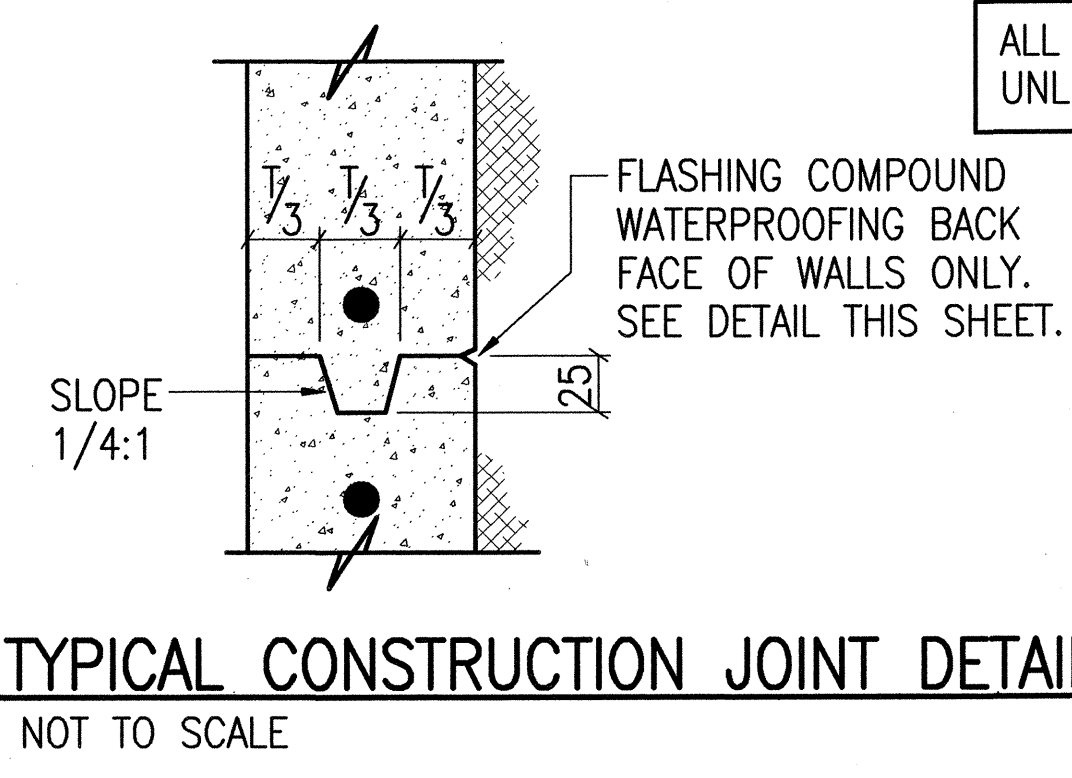
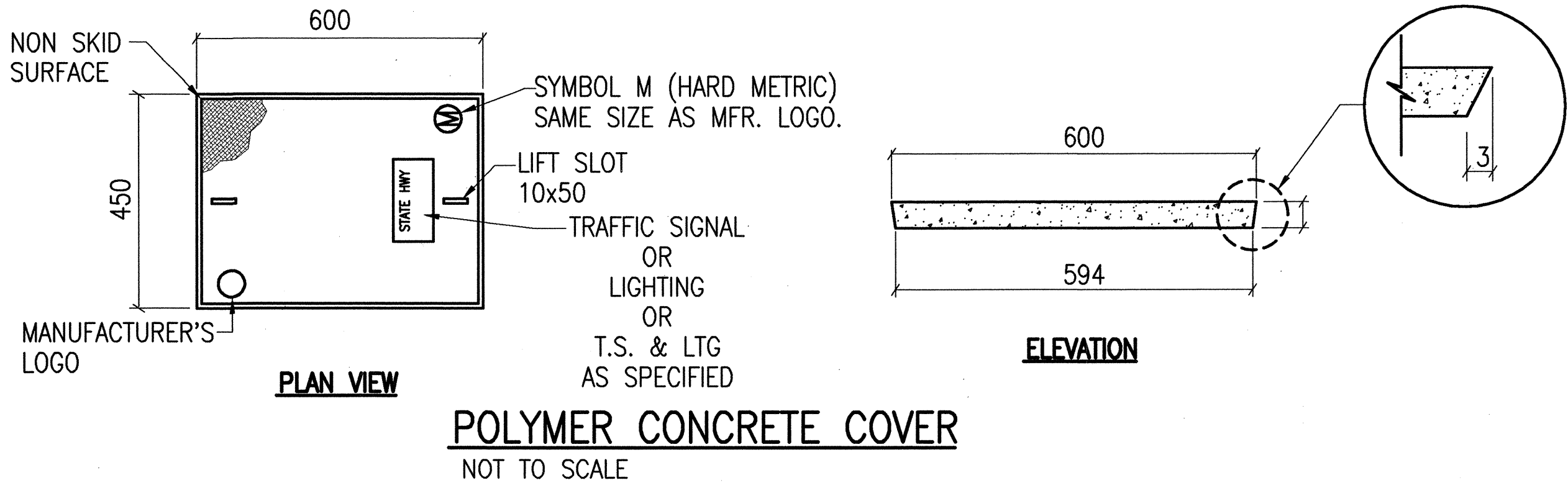
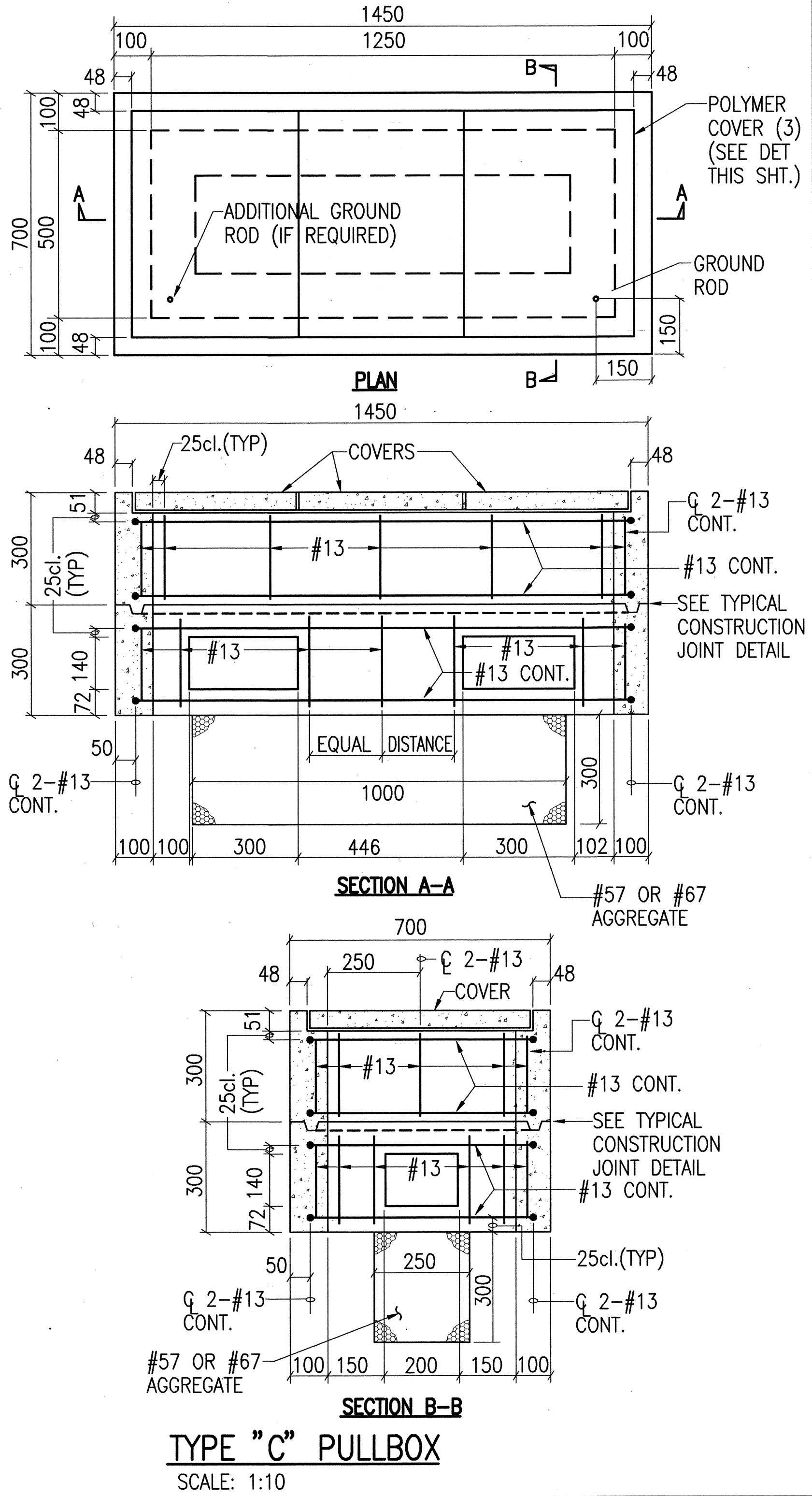
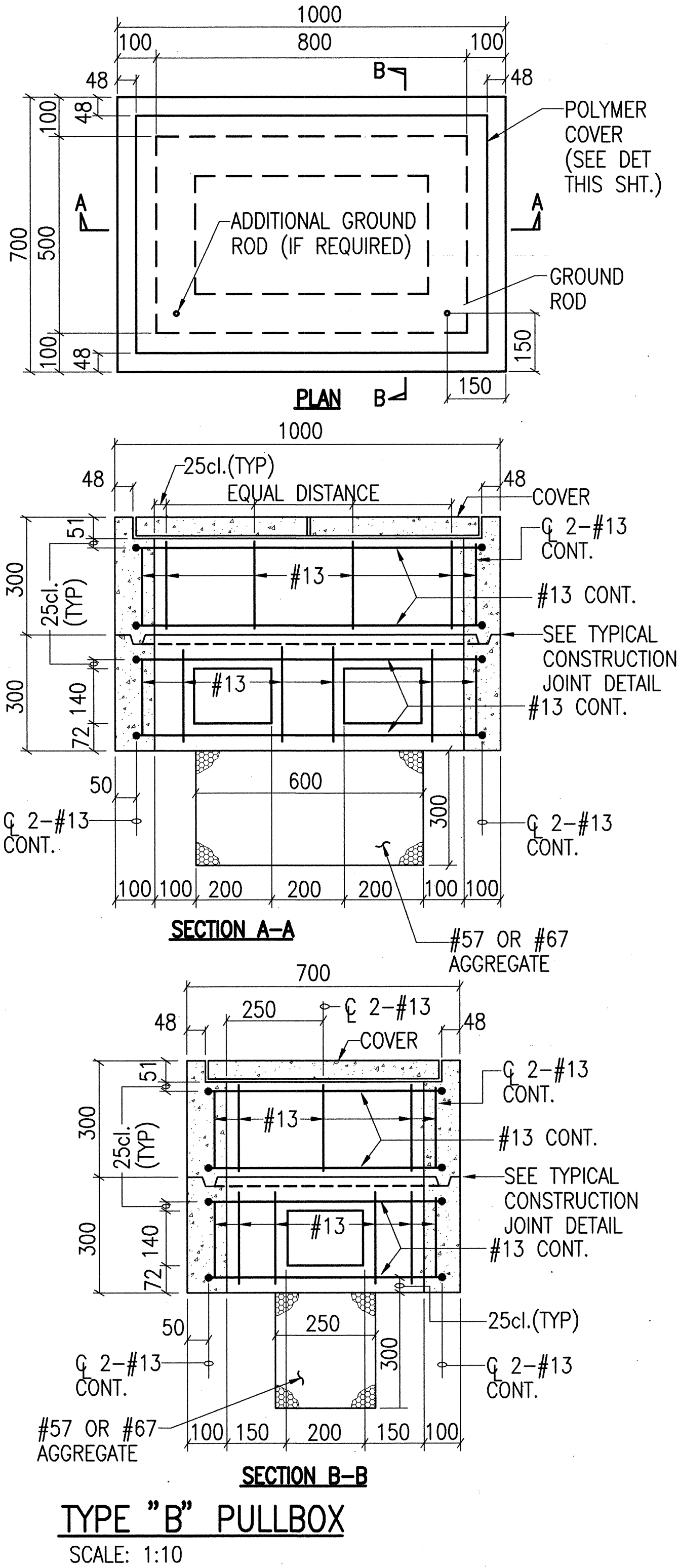
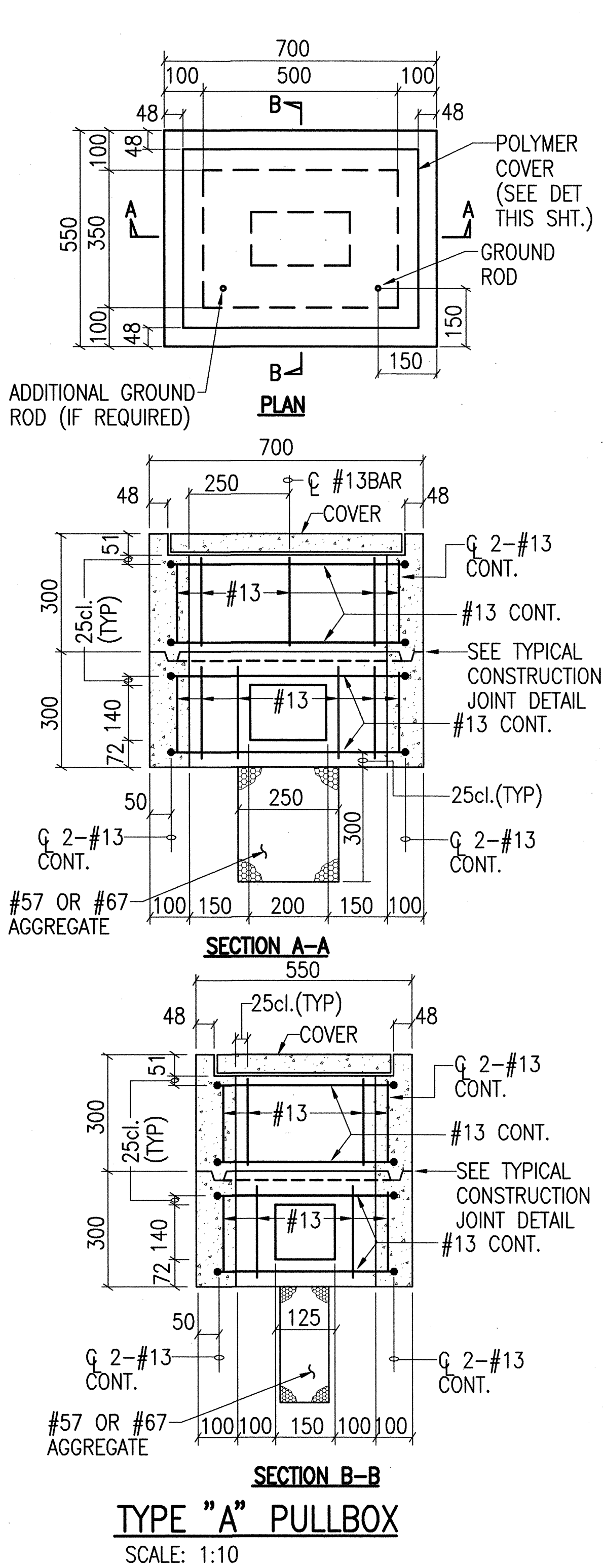
KILAUEA AVE. TO KANOELEHUA AVE.

PROJECT NO. 2000E-01-00

Scale: as noted Date: June, 2000

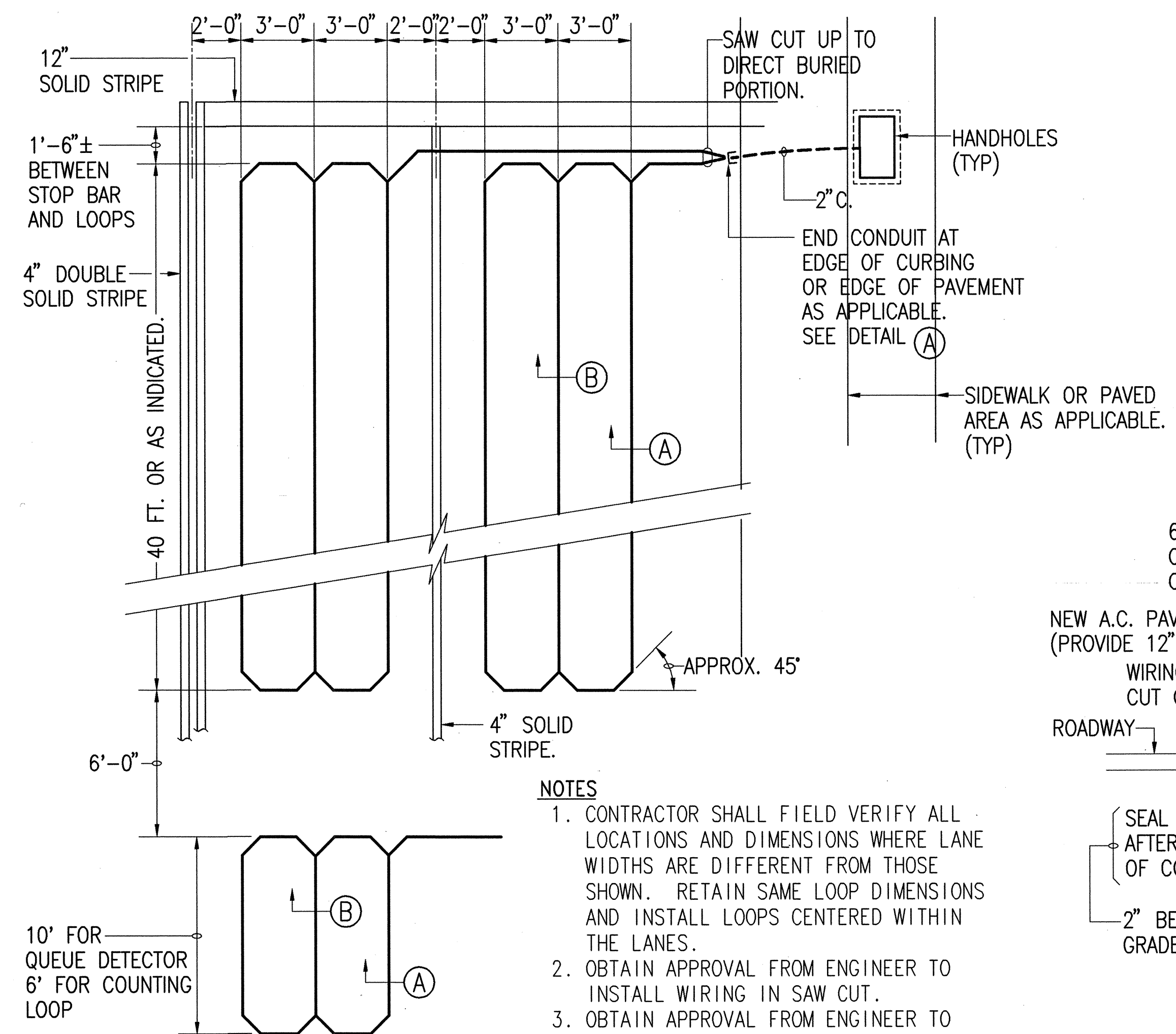
SHEET No. 11 OF 14 SHEETS

ADD. 57



ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	2000E-01-00	2000	58	60



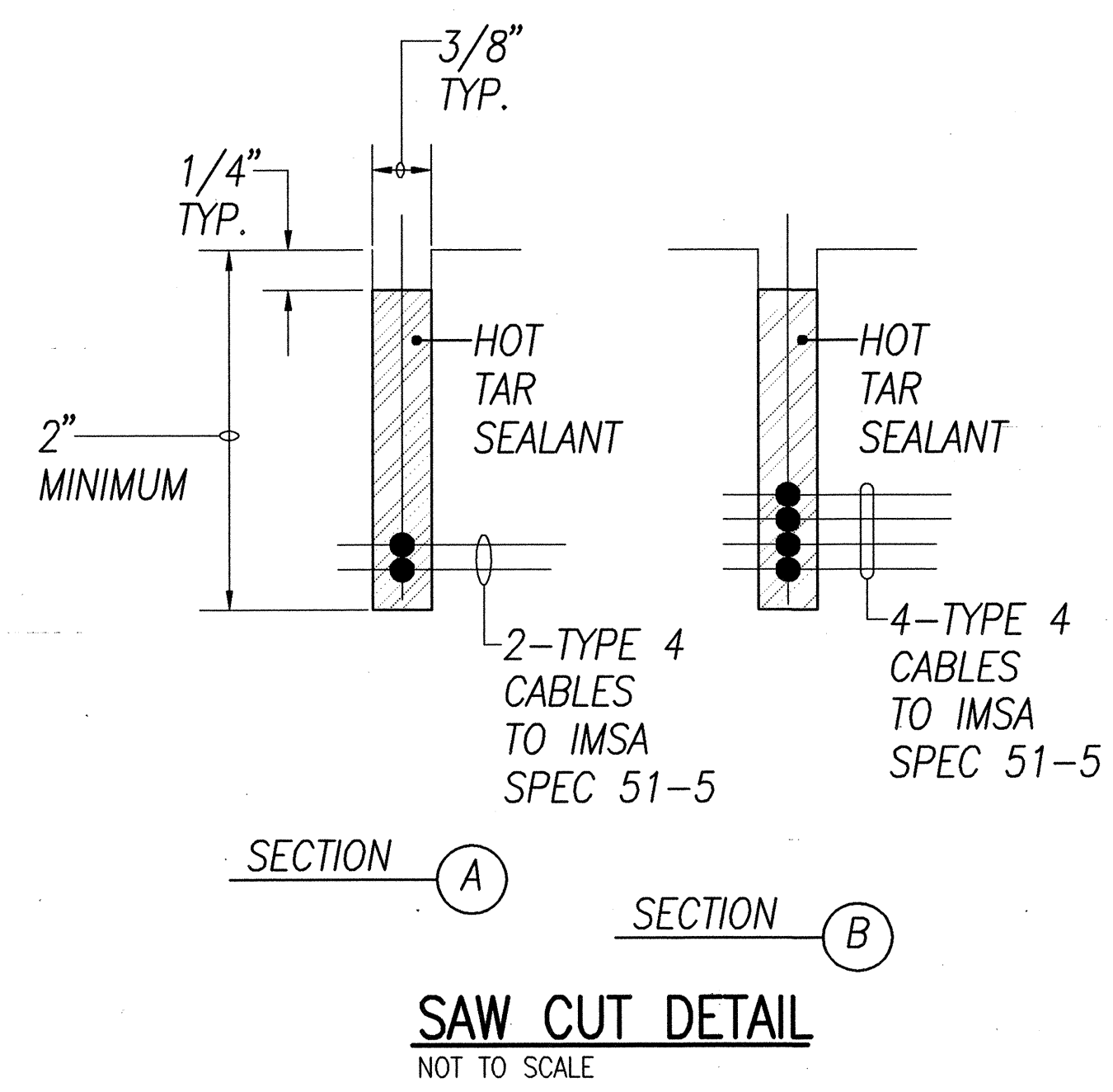
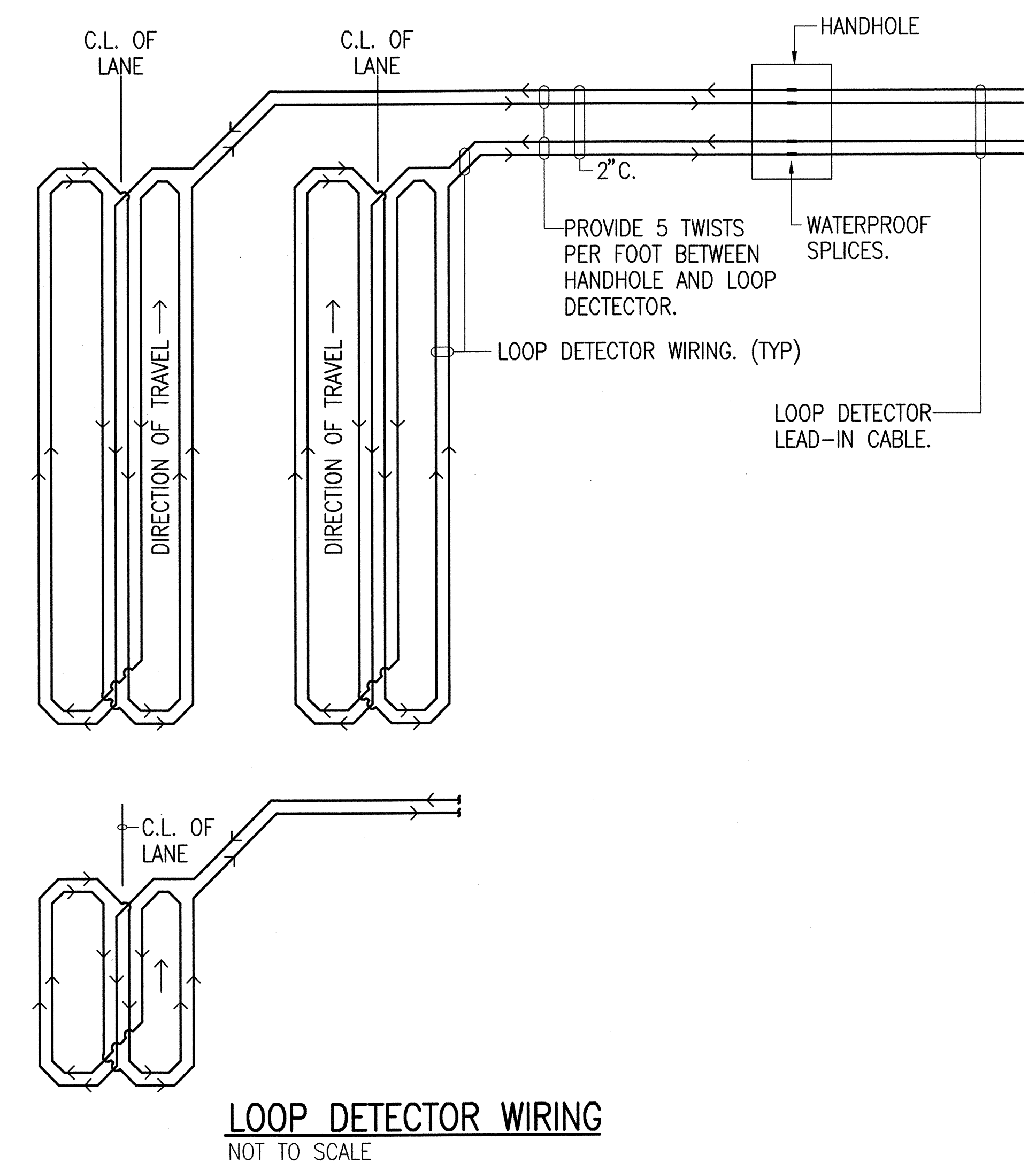
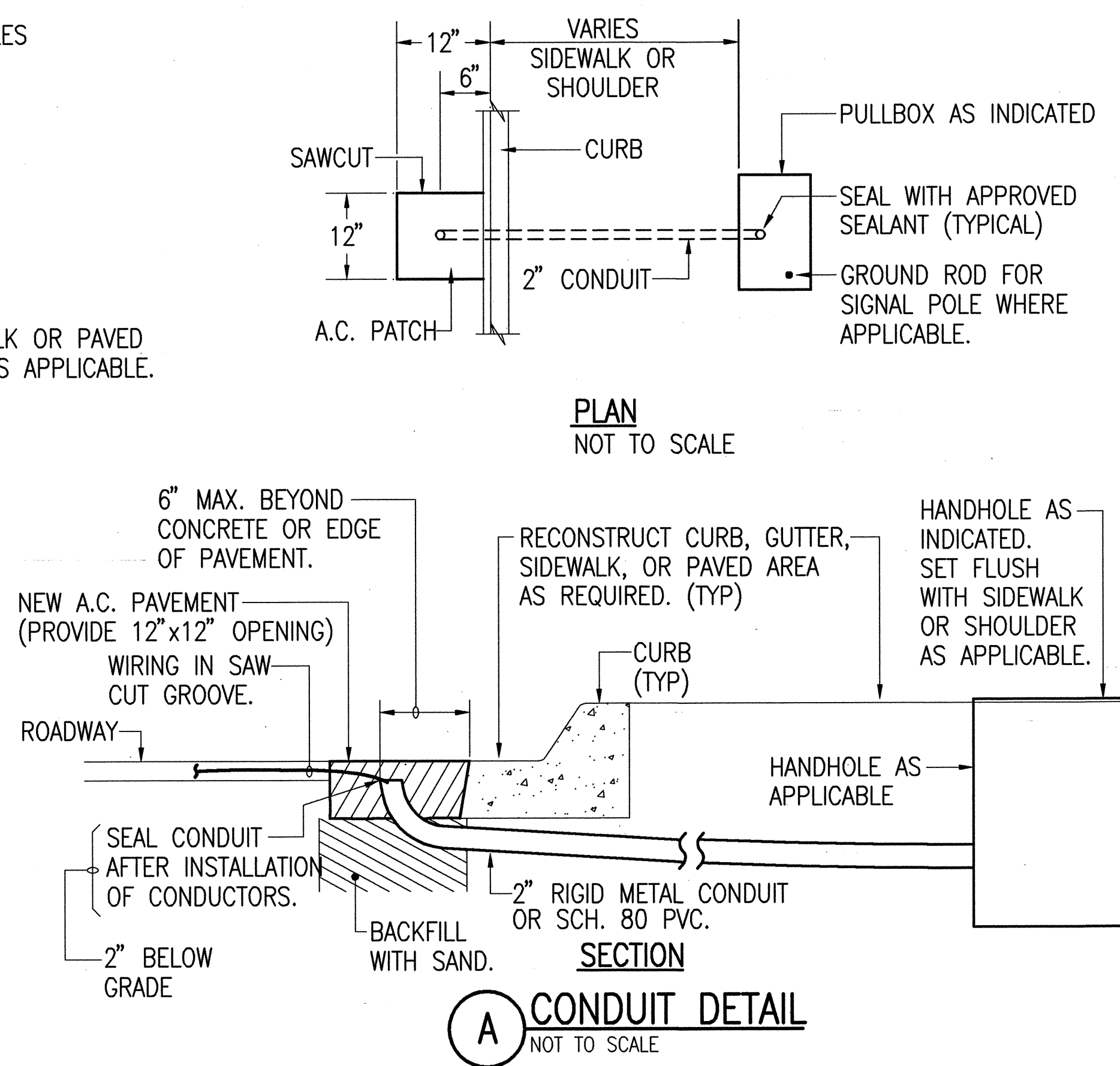
- NOTES**
1. CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS AND DIMENSIONS WHERE LANE WIDTHS ARE DIFFERENT FROM THOSE SHOWN. RETAIN SAME LOOP DIMENSIONS AND INSTALL LOOPS CENTERED WITHIN THE LANES.
 2. OBTAIN APPROVAL FROM ENGINEER TO INSTALL WIRING IN SAW CUT.
 3. OBTAIN APPROVAL FROM ENGINEER TO INSTALL LOOP DETECTOR SEALANT IN APPROVED SAW CUT.
 4. THE SAWCUT GROOVE SHALL BE WASHED WITH WATER, AIR BLOWN TO REMOVE ANY DEBRIS AND DRIED BEFORE LOOP CABLE AND SEALANT IS INSTALLED.
 5. CONDUCTORS WITH A.C. POWER SHALL BE LOCATED A MINIMUM OF 3 FEET FROM ANY LOOP DETECTOR.

LOOP DETECTOR SAW CUTS

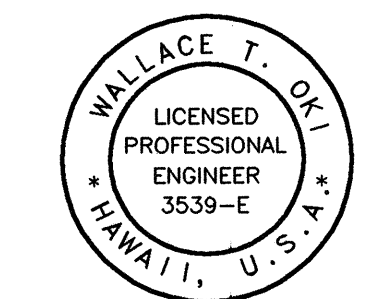
1/4" = 1'-0"

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. 16, 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.



LOOP DETECTOR DETAILS (TYPICAL)



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN
PUAINAKO STREET IMPROVEMENTS
KILAUEA AVE. TO KANOELEHUA AVE.
PROJECT NO. 2000E-01-00
Scale: as noted Date: May, 2000

SHEET No. 12 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	2000E-01-00	2000	59	60

8-FOOT ARM, ALUMINUM ALLOY, SATIN ETCHED FINISH, TAPERED OVALIZED TUBE, 4-BOLT ATTACHMENT. (12-FOOT WHERE INDICATED.)

POLE FOR NOM. 30-FT. MOUNTING HEIGHT, ALUMINUM SEAMLESS SHAFT, ROUND, TAPERED, SATIN GROUND FINISH.

POLE, ARM, AND BASE SHALL BE DESIGNED FOR THE WEIGHT AND E.P.A. OF THE LUMINAIRE TO WITHSTAND WINDS OF 90 MPH. SEE NOTES FOR ACCEPTABLE POLES.

PROVIDE INTERNAL MOUNTED VIBRATION DAMPER

180 WATT LOW PRESSURE SODIUM ROADWAY AREA LUMINAIRE 120 V., A.C., DIECAST ALUMINUM HOUSING, ALUMINUM GRAY FINISH, INTERNAL REFLECTOR-HIGH GLOSS WHITE ENAMEL, STAINLESS STEEL HARDWARE, UV STABILIZED MOULDED PRISMATIC POLY-CARBONATE REFRACTOR, HINGED AND SECURED FOR WATERTIGHT FIT, HIGH TEMPERATURE NEOPRENE RUBBER GASKET, HPF BALLAST FOR OPERATION IN 95°F. OUTSIDE AMBIENT TEMPERATURE, SLIPFITTER MOUNT, EE1-NEMA STANDARD THREE TERMINAL TWIST LOCK RECEPTACLE AND MATCHING PHOTO-ELECTRIC SWITCH. SEE NOTES FOR ACCEPTABLE LUMINAIRES.

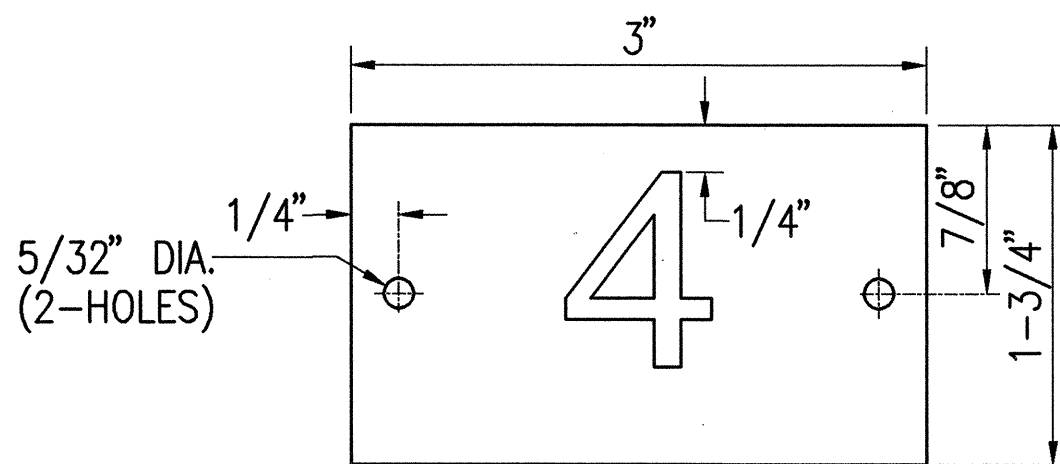
IDENTIFICATION TAG, +7'-0". SEE 3

LOCATE "IN-LINE" FUSE AND FUSEHOLDER IN TRANSFORMER BASE. SEE DETAIL 4
EDGE OF PAVEMENT

TRANSFORMER BASE ALUMINUM ALLOY HANDHOLE, CONNECTING HARDWARE TO MATCH POLE AND CONCRETE FOUNDATION. SEE DETAIL 5
HANDHOLE TO FACE PROPERTY LINE.

1 TYPE I STREET LIGHTING STANDARD

NOT TO SCALE
(TYPE II = 90 WATT/ TYPE III = 55 WATT)

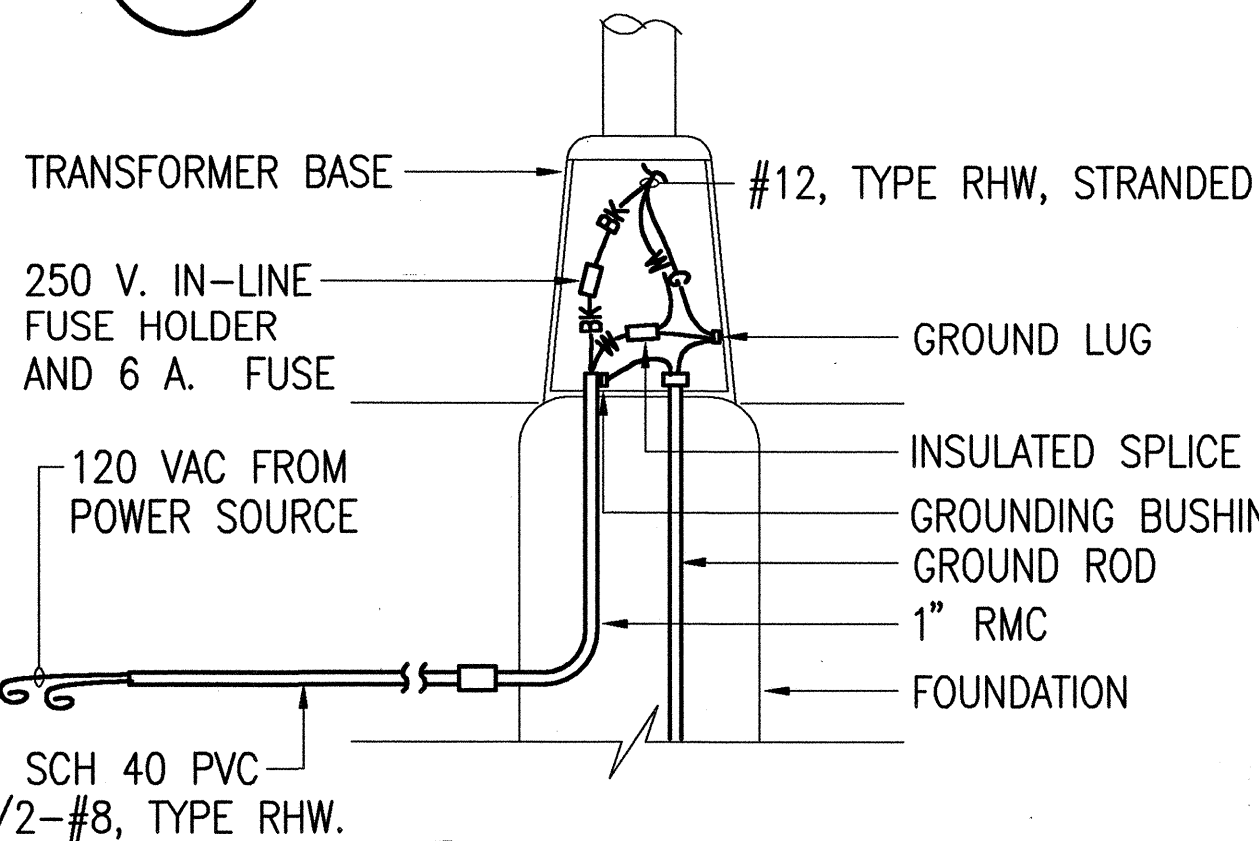


NOTES:

- USE 2-PLY PLASTIC - BLACK, WHITE.
- NUMBER SIZE SHALL BE 1" HIGH AND ENGRAVED 1/8" WIDE, WHITE IN COLOR (NUMBER AS REQUIRED).
- ATTACH TO ALUMINUM POLES WITH NO. 7 ALUMINUM DRIVE SCREWS.

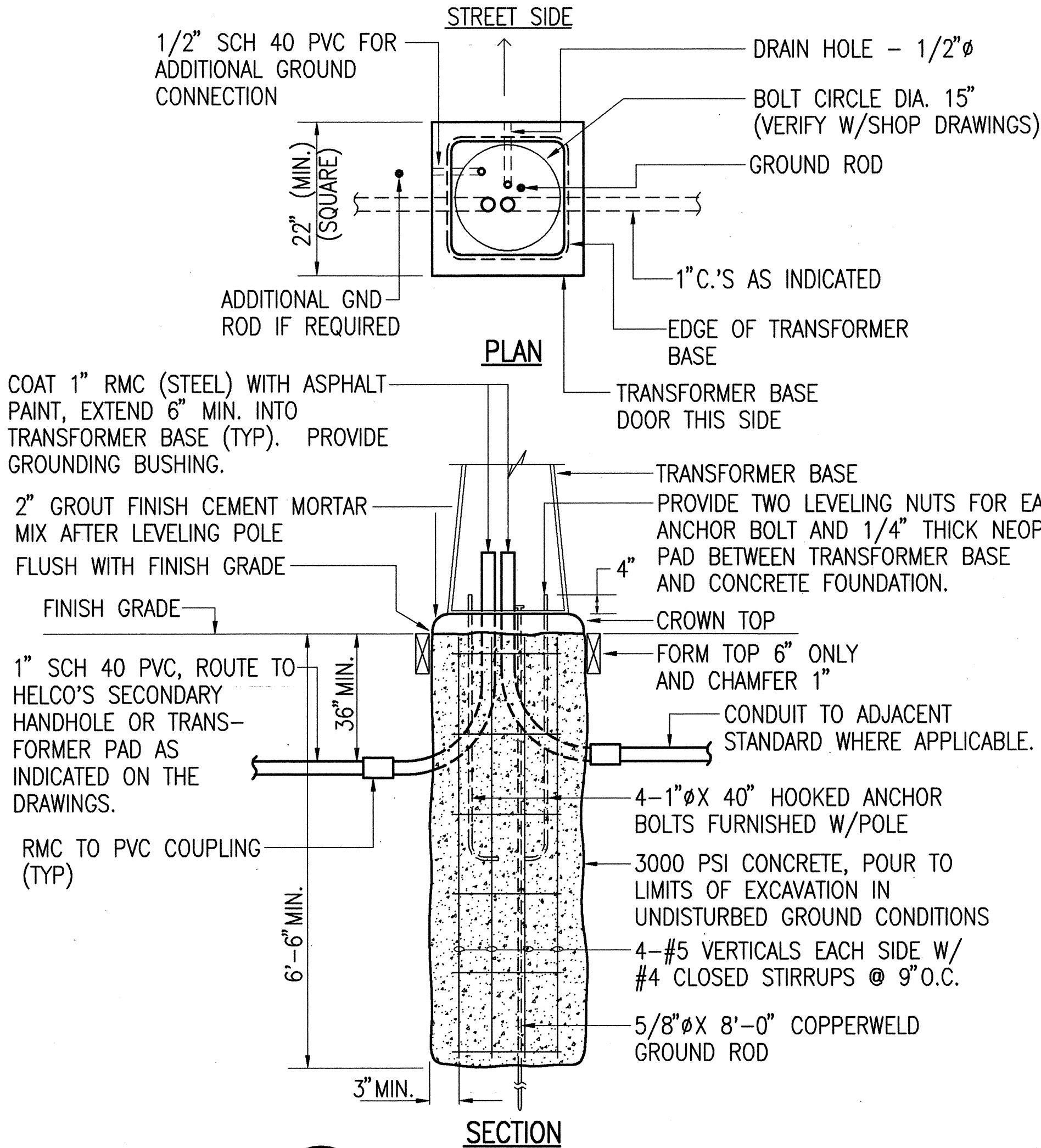
3 POLE NO. IDENTIFICATION TAG

NOT TO SCALE



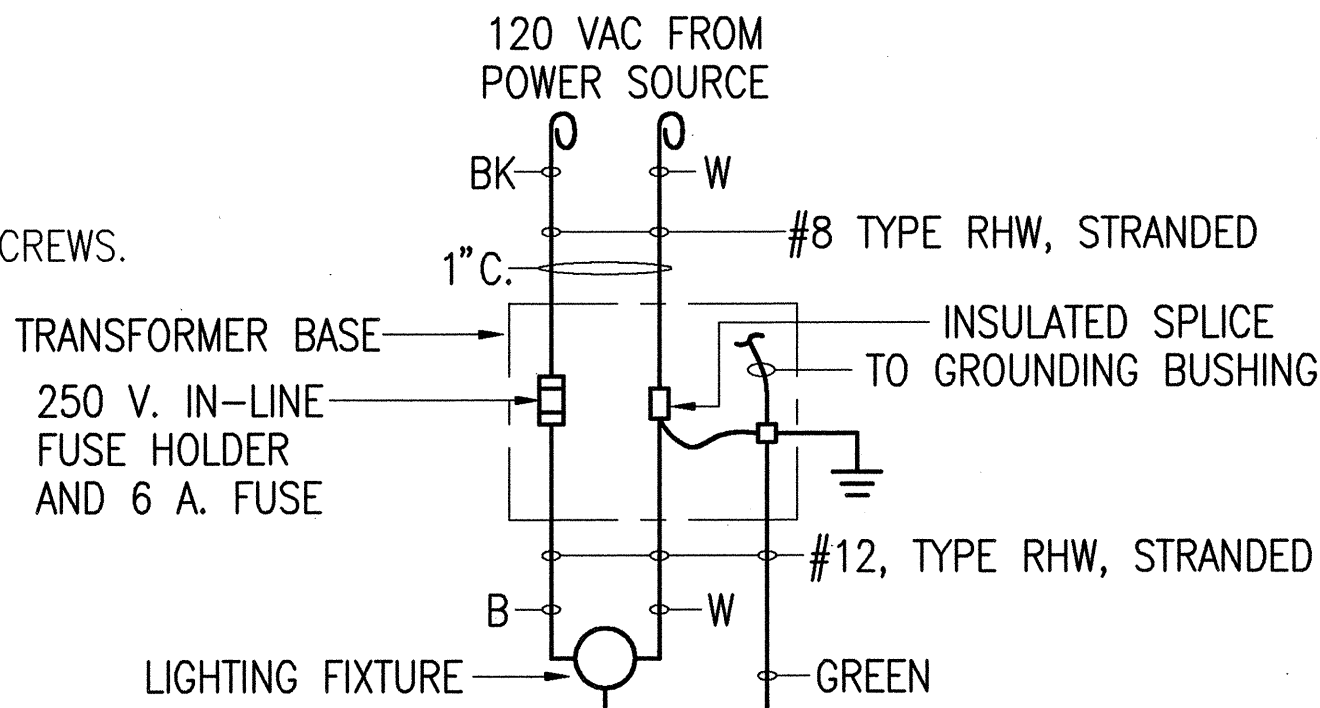
4 WIRING DETAIL

NOT TO SCALE

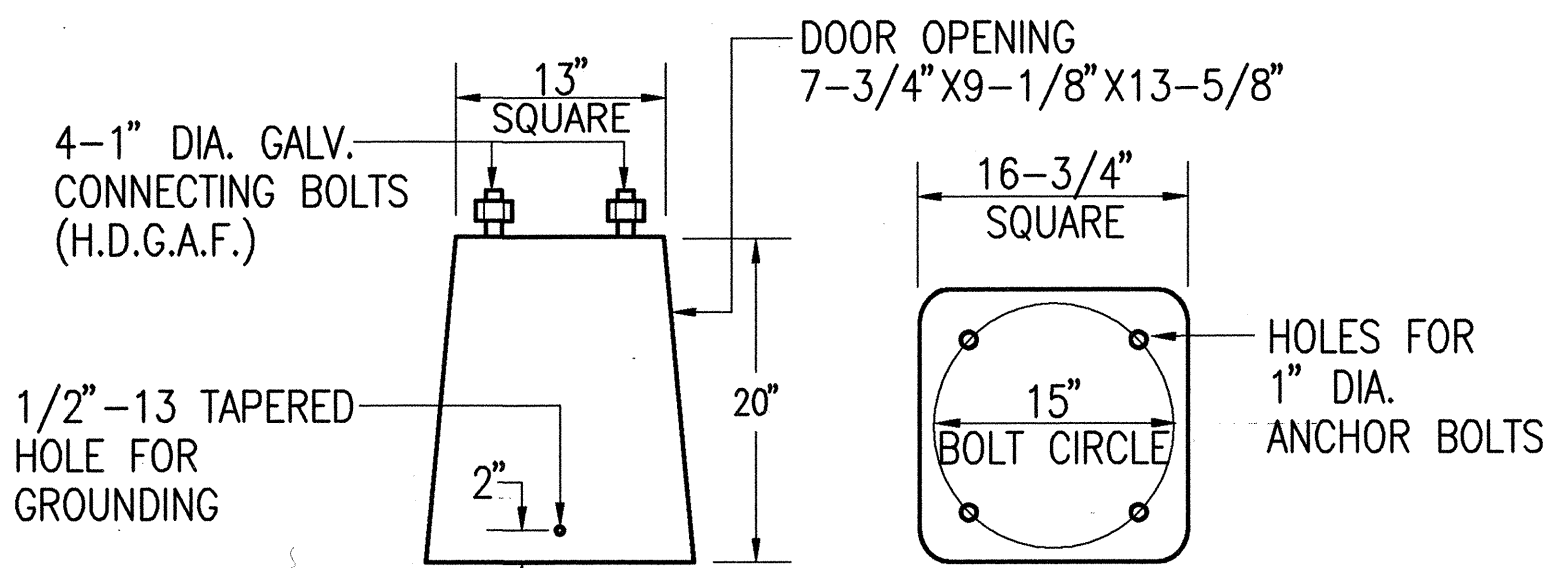


2 CONCRETE FOUNDATION

NOT TO SCALE



ONE-LINE DIAGRAM



5 TRANSFORMER BASE

NOT TO SCALE

STREET LIGHT NOTES

- ALL STREET LIGHT IDENTIFICATION TAG NUMBERING FOR METAL POLES SHALL START WITH "1" AND CONTINUE NUMERICALLY. ALL STREET LIGHT I.D. TAG NUMBERING FOR WOODEN POLES SHALL BE IN ACCORDANCE WITH HELCO'S NUMBERING SYSTEM.
- THE CONTRACTOR SHALL PROVIDE ALL NECESSARY SECONDARY CIRCUIT EXTENSIONS TO THE INDICATED POWER SOURCE.
- THE CONTRACTOR SHALL ARRANGE AND ASSUME COSTS TO ENERGIZE STREET LIGHTS A MINIMUM OF 6 HOURS FOR FINAL INSPECTION.
- THE CONTRACTOR SHALL INSCRIBE THE MONTH AND YEAR OF INSTALLATION OF PHOTOCELLS AND LAMPS. ALL P.E.'S SHALL HAVE THE NORTH INDEX FACING NORTH.
- ALL LABOR AND MATERIALS SHALL BE WARRANTED FOR A MINIMUM OF ONE YEAR FROM DATE OF DEDICATION TO THE COUNTY.
- ACCEPTABLE STREET LIGHT MATERIALS:

LUMINAIRES:

WITH PE RECEPTACLE AND 120-240 VOLT HPF BALLAST.
1) AMERICAN ELECTRIC SP2 180 WITH POLYCARBONATE SEMI-CUTOFF LENS.

PHOTOCELLS:

COMPLETELY SOLID STATE. FAIL "ON".
1) ALR SST PV

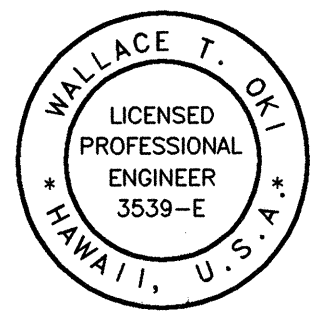
ALUMINUM POLES:

INTERNALLY MOUNTED VIBRATION DAMPER, MINIMUM .188 WALL THICKNESS. COMPLY WITH LATEST EDITION OF "AASH TO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" DATED 1994 WITH SUBSEQUENT 1998 INTERIM REVISIONS, 11 TO 12 INCH BASE BOLT CIRCLE. ARM LENGTHS SHALL BE PER PLANS.
1) LEXINGTON: 2708-45806T4, 2208-45806T4
2) HAPCO: 21-305X, 21-307X, 21-585X, 21-588HD, 73892-001, 73892-002, 73892-003.

TRANSFORMER BASES:

ALUMINUM WITH 15 INCH BASE BOLT CIRCLE. COMPLY WITH LATEST EDITION OF "AASH TO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" DATED 1994 WITH SUBSEQUENT 1998 INTERIM REVISIONS.
1) LEXINGTON: 08R-1315B-17.
2) AKRON FOUNDRY TB1-17.

- SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL.
- ALL UNDERGROUND WIRING STREET LIGHTS SHALL BE GROUNDED TO PROVIDE A MINIMUM 25 OHMS TO GROUND.
- ALL WORK SHALL CONFORM TO THE LATEST NATIONAL ELECTRICAL CODE.



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

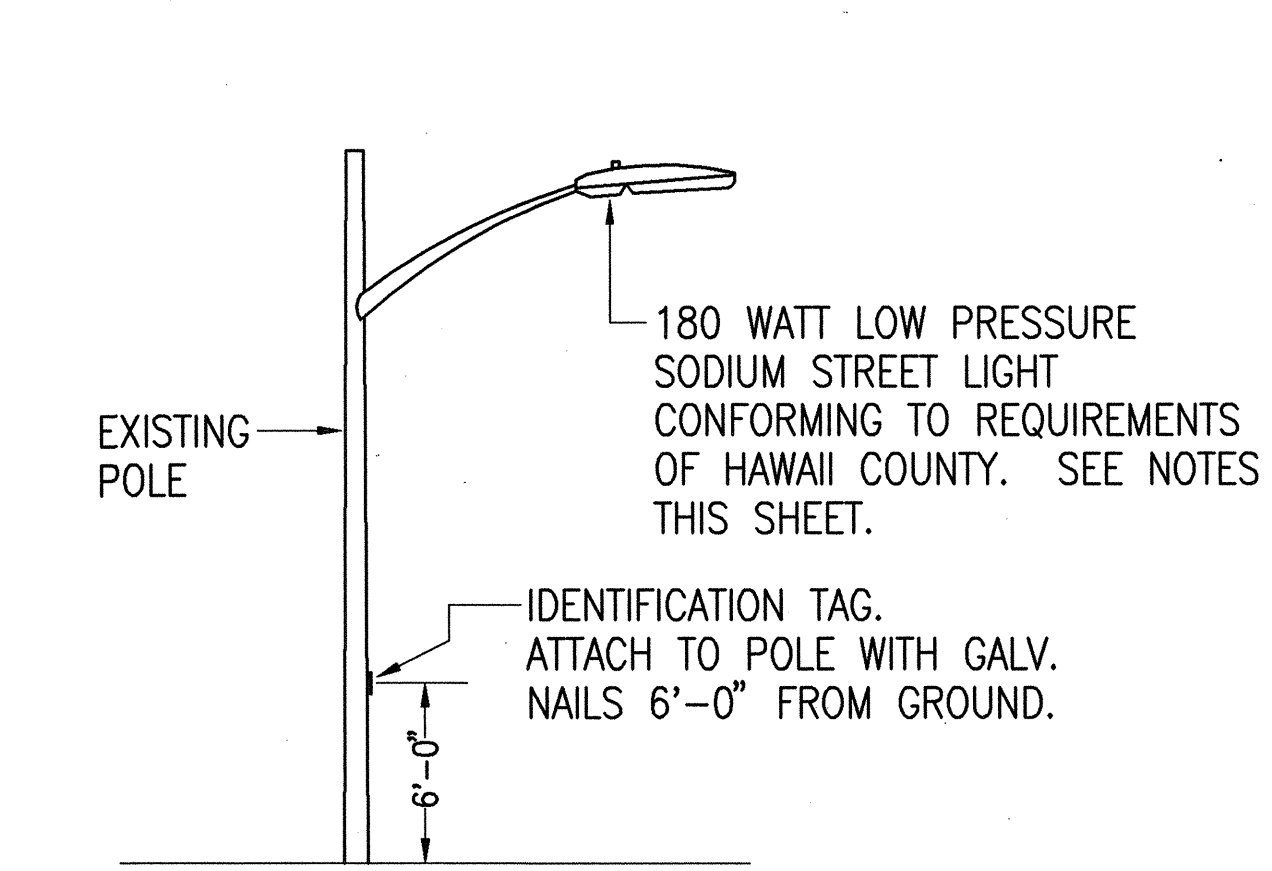
ELECTRICAL PLAN

PUAINAKO STREET IMPROVEMENTS
KILAUEA AVE. TO KANOELEHUA AVE.
PROJECT NO. 2000E-01-00

Scale: as noted Date: May, 2000

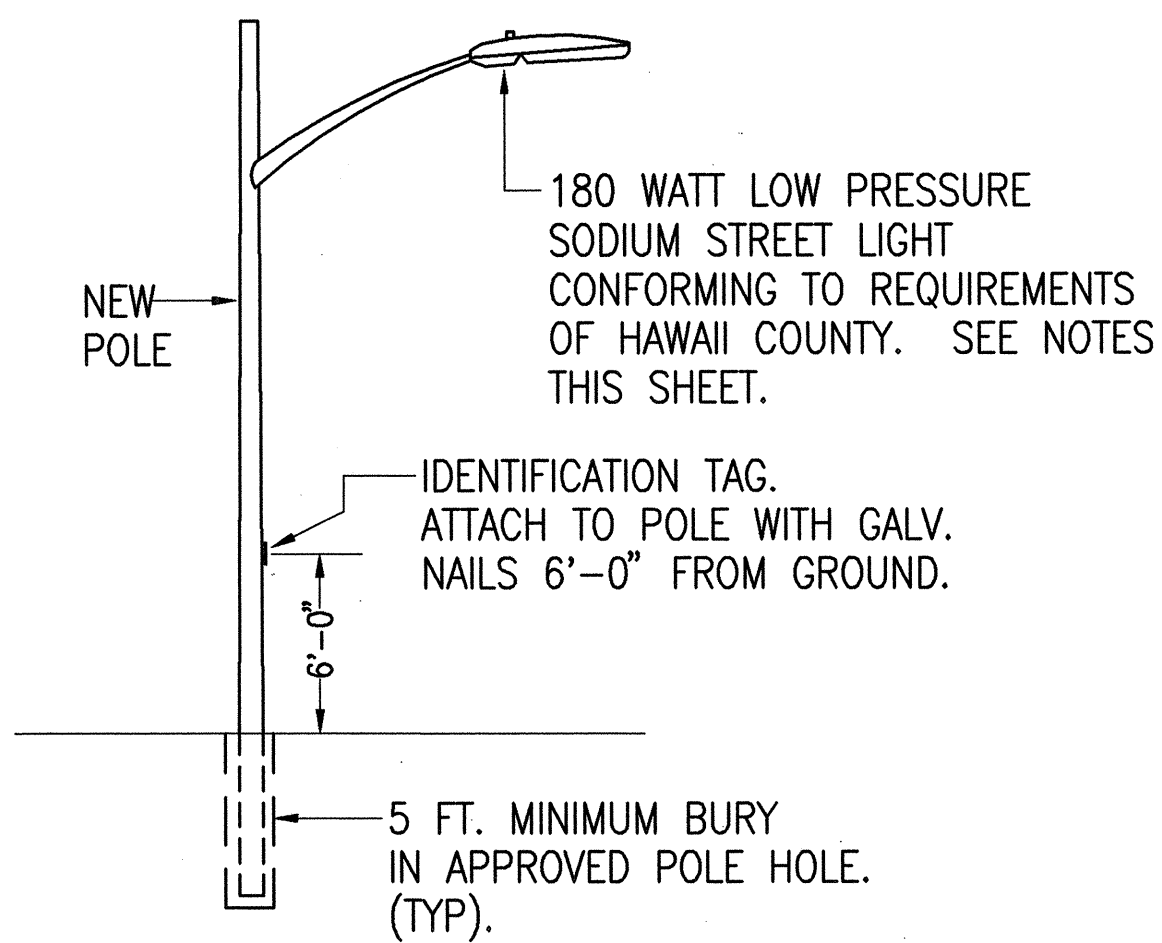
SHEET No. 13 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	2000E-01-00	2000	60	60

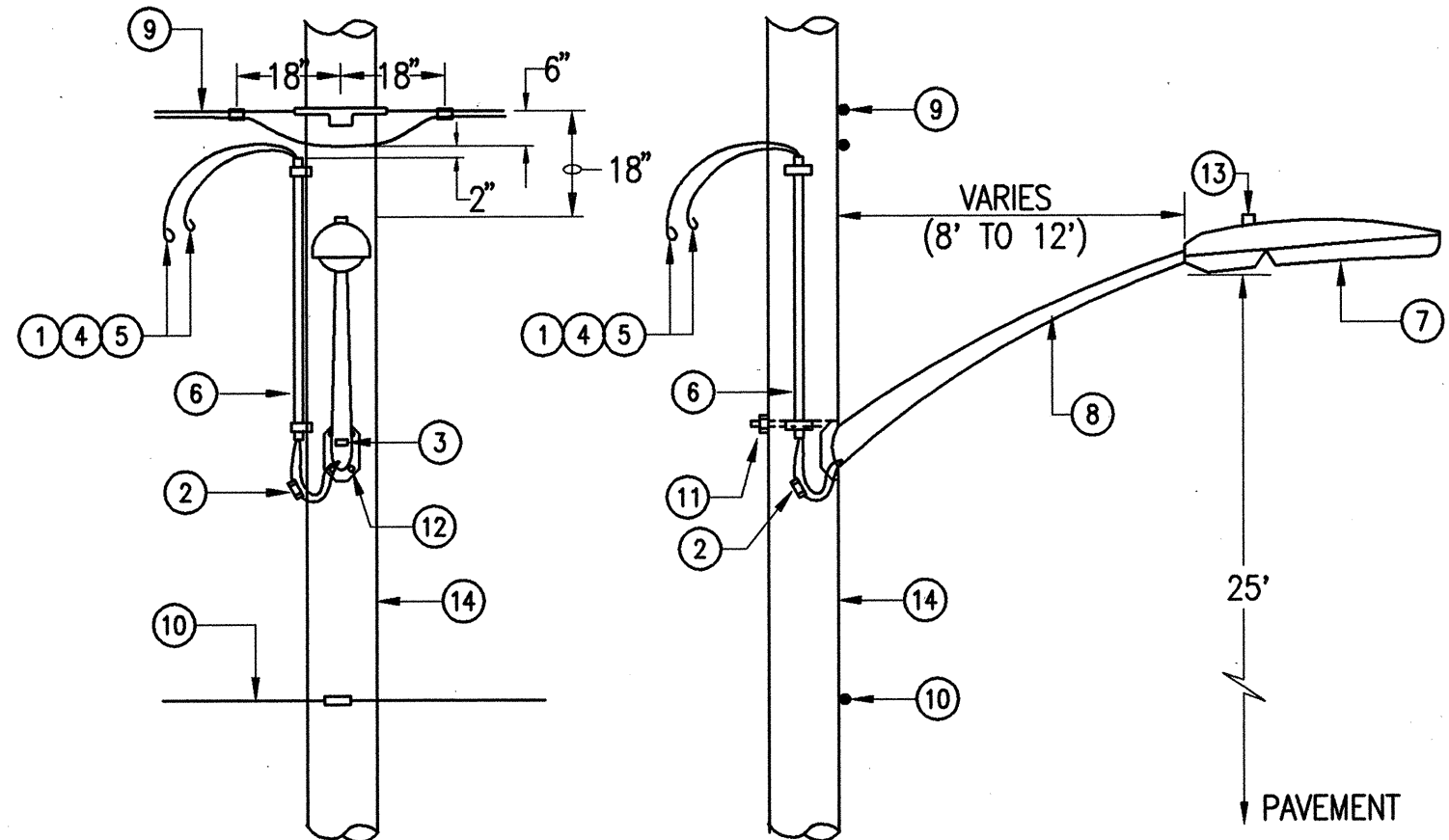


NEW STREET LIGHT ON EXISTING POLE
NOT TO SCALE

NOTE:
CONTRACTOR SHALL PROVIDE PAYMENT OF \$1500 EACH TO TRAFFIC DIVISION, DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII, TO PROVIDE NEW STREET LIGHT ON EXISTING UTILITY POLE.



NEW STREET LIGHT ON NEW POLE
NOT TO SCALE



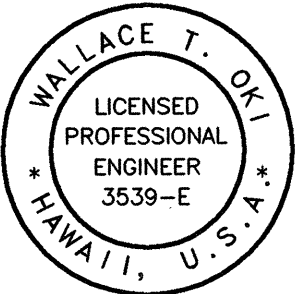
NEW STREET LIGHT ON UTILITY POLE
NOT TO SCALE

- NOTES
1. JOINT POLE SHARES SHALL BE PAID BY THE CONTRACTOR.
 2. SUBMIT SKETCH TO TRAFFIC DIVISION INDICATING TOTAL POLE HEIGHT, CONTACT HEIGHTS FOR H.T.CO., CATV, NEUTRALS, SECONDARY, PRIMARY, AND STREET LIGHT, AS APPLICABLE, PRIOR TO INSTALLATION. SUBMIT LETTER CONFIRMING THAT JOINT POLE SHARES HAVE BEEN PAID FOR BY THE CONTRACTOR.

NOTES

- 1 NO. 12 AWG-RHW, BLACK AND WHITE COPPER WIRE
- 2 IN-LINE FUSE HOLDER AND FUSE (7 AMP) FOR NO. 12 AWG COPPER WIRE ON LOAD SIDE.
- 3 2" X 2" REFLECTORIZED GREEN STICKER, SIGNIFYING THAT STREET LIGHTS ARE BONDED.
- 4 NO. 12 AWG-RHW BLACK, SINGLE CONDUCTOR COPPER WIRE. MINIMUM 3'.
- 5 NO. 12 AWG-RHW WHITE, SINGLE CONDUCTOR COPPER WIRE. MINIMUM 3'.
- 6 3/4" SCHEDULE 80 PVC WITH CONDUIT STRAPS
- 7 LUMINAIRE, 180 WATT LOW PRESSURE SODIUM AS INDICATED.
- 8 TAPERED ELLIPTICAL ALUMINUM MOUNTING BRACKET, LENGTH AS INDICATED.
- 9 SECONDARY BY HELCO, EXISTING OR NEW AS APPLICABLE.
- 10 H.T.CO. LINES (WHERE APPLICABLE)
- 11 MACHINE BOLT, 5/8" X REQUIRED LENGTH. (1-REQ'D.)
- 12 LAG SCREW, 1/2" X 4".
- 13 PHOTOCELL
- 14 UTILITY POLE, NEW OR EXISTING AS INDICATED.

FINAL CONNECTIONS TO BE MADE BY HAWAII ELECTRIC LIGHT COMPANY.



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN
PUAINAKO STREET IMPROVEMENTS
KILAUEA AVE. TO KANOELEHUA AVE.
PROJECT NO. 2000E-01-00
Scale: as noted Date: May, 2000

SHEET No. 14 OF 14 SHEETS