

Z:\PROJECTS (NUMBERED)\2019\19040\SUBMITTALS\21-02-18 ELECTRICAL AS-BUILT\E-1 SYMBOLS & NOTES.DWG 3/4/2021 5:33 PM KRALLECA

GENERAL NOTES – ELECTRICAL:

1. The scope of work for this project shall consist of providing power to the new traffic signal controller system via a UPS. The installation will include a new meter/main breaker loadcenter, new HELCO conductors and a handhole.
2. All necessary permits shall be obtained by the contractor at his/her own cost.
3. Locations of existing underground structures and utilities such as pipelines, conduits, cables, manholes, monuments and structures shown on the 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 existing utilities with the respective owners. Existing utilities damaged by the contractor shall be repaired by the contractor at his own cost.  
Prior to any excavation work contractor shall call "Hawaii One Call Center" at ph. 811 or ph. 1-866-423-7287.
4. All work shall be constructed in accordance with the following construction standards and specifications:

1

a. Construction standards and specifications of the Hawaii Electric Light Company.

b. Construction standards of Department of Transportation, State of Hawaii.

c. Current standard specifications for road and bridge construction, State of Hawaii.



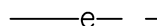

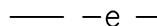


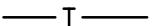

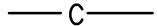

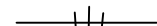


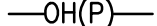








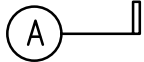



d. Standard details for public works construction, Department of Public Works, County of Hawaii

e. Current standard specifications for Public Works construction, Department of Public Works, County of Hawaii.

f. Construction standard and specifications of GTE, Hawaiian Telephone Company, Inc. (Verizon)
5. It is not the intent of these plans and specifications to indicate all existing utilities. The information on the existing utilities are based on available plans and a limited amount of field work. The locations are approximate only and the contractor shall verify the location and depth of the facilities and exercise proper care in excavating in this area. All existing utilities whether or not shown on the plans shall be protected at all times by the contractor unless specified on the plans to be abandoned or demolished. The contractor shall be responsible for any damages to the facilities whether shown or not shown on plans. Any repair work shall be provided at no additional cost to this project.
6. The contractor shall exercise proper care when excavating in areas with existing underground facilities, damages to the existing facilities shall be immediately reported to the respective utility companies, county or state agency. The repair work shall be provided at no additional cost to this project.
7. Contractor shall install 3 /16" polypropylene fish rope in all ducts except for a stubout. Plug all ducts with non-corrodible plugs manufactured for this purpose.

1

ELECTRICAL ABBREVIATIONS			
AIC	AMPERE-INTERRUPTING CAPACITY	MH	MANHOLE
AFF	ABOVE FINISH FLOOR	MAX	MAXIMUM
A	AMPERE	MIN	MINIMUM
AWG	AMERICAN WIRE GAUGE	MLO	MAIN LUGS ONLY
BC	BARE COPPER	MTD	MOUNTED
BKR	BREAKER	MTG	MOUNTING
BLDG	BUILDING	NEC	NATIONAL ELECTRICAL CODE
BKBD	BACKBOARD	NEMA	NATIONAL ELECTRICAL MANUFACTURE'S ASSOCIATION
C	CONDUIT	NO.#	NUMBER
CATV	CABLE TELEVISION	O.C.	ON CENTER
CKT	CIRCUIT	OCPD	OVER CURRENT PROTECTION DEVICE
CONC	CONCRETE	PB	PULLBOX
CT	CURRENT TRANSFORMER	PFB	PROVISION FOR FUTURE BREAKER
D	DEEP	PNL	PANEL
DISC	DISCONNECT	Ø	PHASE
DIST	DISTRIBUTION	RM	ROOM
HH	HANDHOLE	SMH	SEWER MANHOLE
EMH	ELECTRICAL MANHOLE	SN	SOLID NEUTRAL
ENCL	ENCLOSURE	S/S	STAINLESS STEEL
EMT	ELECTRICAL METALLIC TUBING	ST	STREET
EQUIP	EQUIPMENT	SURF	SURFACE
EXIST	EXISTING	SW	SWITCH
FLA	FULL LOAD AMPERE	TBB	TELECOMMUNICATIONS BACKBOARD
GALV	GALVANIZED	THK	THICK
GFC	GROUND FAULT CIRCUIT INTERRUPTOR	TYP	TYPICAL
GND	GROUND	UG	UNDERGROUND
GRS	GALVANIZED RIGID STEEL	UON	UNLESS OTHERWISE NOTED
H	HEIGHT	V	VOLTS
HP	HORSEPOWER	W	WIRE, WIDE, WATTS, WITH
JB	JUNCTION BOX	WP	WEATHERPROOF
KV	KILO-VOLT	XFMR	TRANSFORMER
KVA	KILO-VOLT AMPERE	Ø	PHASE
KW	KILOWATT	'	FOOT, FEET
L	LENGTH	"	INCH, INCHES
LT	LIGHT	&	AND
LTG	LIGHTING	UPS	UNINTERRUPTIBLE POWER SUPPLY
		OH	OVERHEAD
		UP	UTILITY POLE

ELECTRICAL LEGEND			
SYMBOLS			DESCRIPTION
EXIST	NEW	MTG HT	
ELECTRICAL			
			PULL & JUNCTION BOX, SIZE PER NEC
			RACEWAY & WIRING, EXPOSED
			RACEWAY & WIRING, CONCEALED IN FLOOR OR BELOW GRADE
			TELEPHONE RACEWAY
			CABLE TELEVISION RACEWAY
			COMMUNICATION RACEWAY
			GROUND CONDUCTOR BARE COPPER STRANDED SIZE AS NOTED
			ELECTRICAL RACEWAY & WIRING, HATCHMARKS INDICATE NO. OF CURRENT CARRYING CONDUCTORS. NO HATCH MARKS INDICATE TWO CURRENT CARRYING CONDUCTORS. PROVIDE INSULATED GREEN EQUIPMENT GROUND CONDUCTOR SIZED PER NEC
			TELEPHONE OVERHEAD CABLE
			PRIMARY OVERHEAD CABLE
			SECONDARY OVERHEAD CABLE, 600V OR BELOW
			UTILITY POLE
			TRANSFORMER, POLE MOUNTED
			DOWN GUY ASSEMBLY
			LIGHT FIXTURE, POLE MOUNTED
			DETAIL DESIGNATOR. TOP HALF-DETAIL NUMBER. BOTTOM HALF-SHEET NUMBER WHERE DETAIL IS SHOWN.
			DUCT SECTION DESIGNATOR. TYPE A INDICATED
			HELCO METERS
			UNINTERRUPTIBLE POWER SUPPLY
			TRAFFIC SIGNAL CONTROLLER

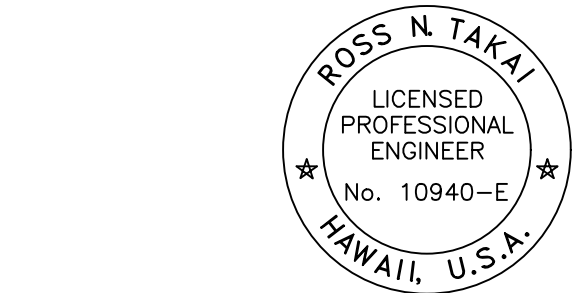
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LEGEND FOR  
AS-BUILT POSTINGS

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Roadway Text for as-built posting



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*Ross N. Takai* APRIL 30, 2022  
SIGNATURE EXPIRATION DATE OF THE LICENSE

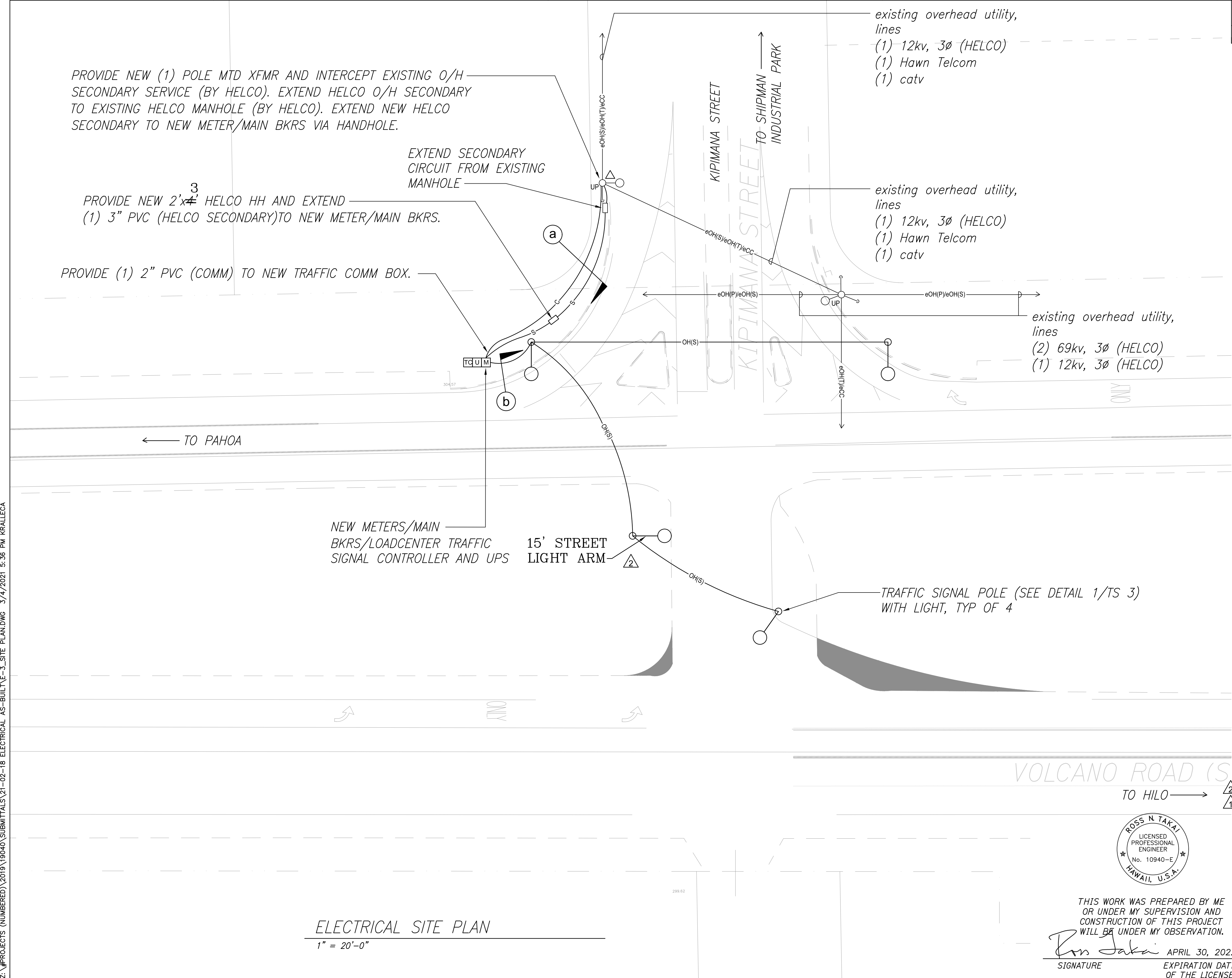
10/25/19	REVISED DESCRIPTION
06/10/19	ADDENDUM 1
DATE	REVISIONS
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
ELECTRICAL NOTES, PLAN AND DETAILS	
VOLCANO ROAD TEMPORARY SIGNAL INSTALLATION	
At Kipimana Street	
Project No. 11N-01-19M	
Scale: N/A	Date: April, 2019
SHEET No. 1 OF 6 SHEETS	

"AS-BUILT"

C.O. 21

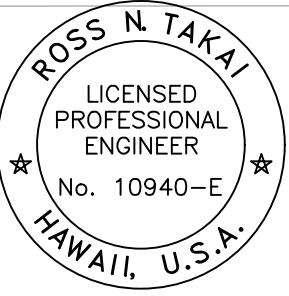
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	11N-01-19M	2019	C.O. 22	25



LEGEND FOR AS-BUILT POSTINGS	
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Roadway	Text for as-built posting

10/25/19	ADDED POLE LIGHT CONNECTIONS
06/10/19	ADDENDUM 1
DATE	REVISIONS
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
ELECTRICAL SITE PLAN	
VOLCANO ROAD TEMPORARY SIGNAL INSTALLATION At Kipimana Street Project No. 11N-01-19M	
Scale: 1" = 20'	Date: April, 2019
SHEET No. 2 OF 6 SHEETS	



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APRIL 30, 2022  
EXPIRATION DATE OF THE LICENSE

ELECTRICAL SITE PLAN  
1" = 20'-0"

"AS-BUILT"

C.O. 22

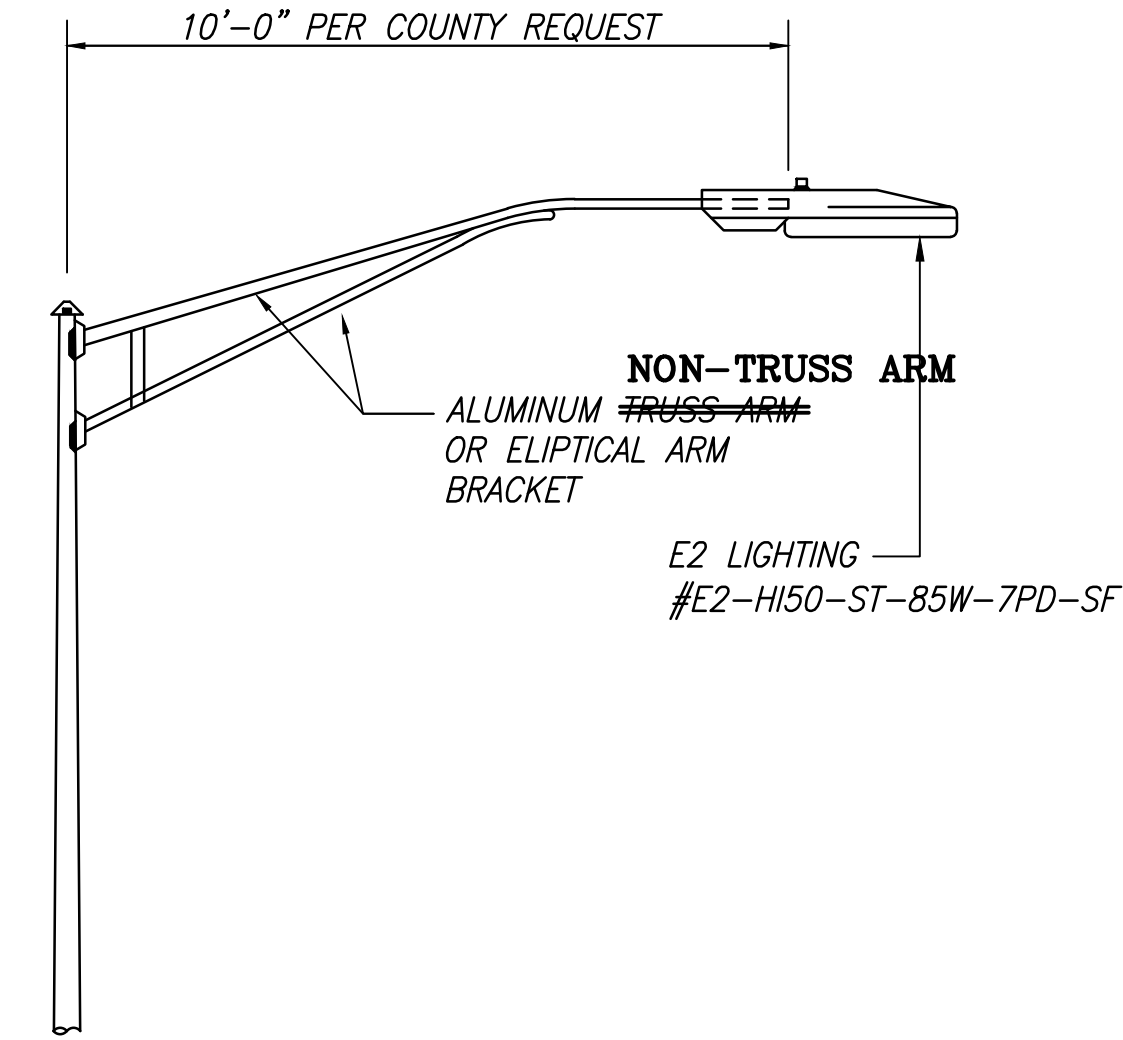
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FINAL DESIGN SUBMITTAL

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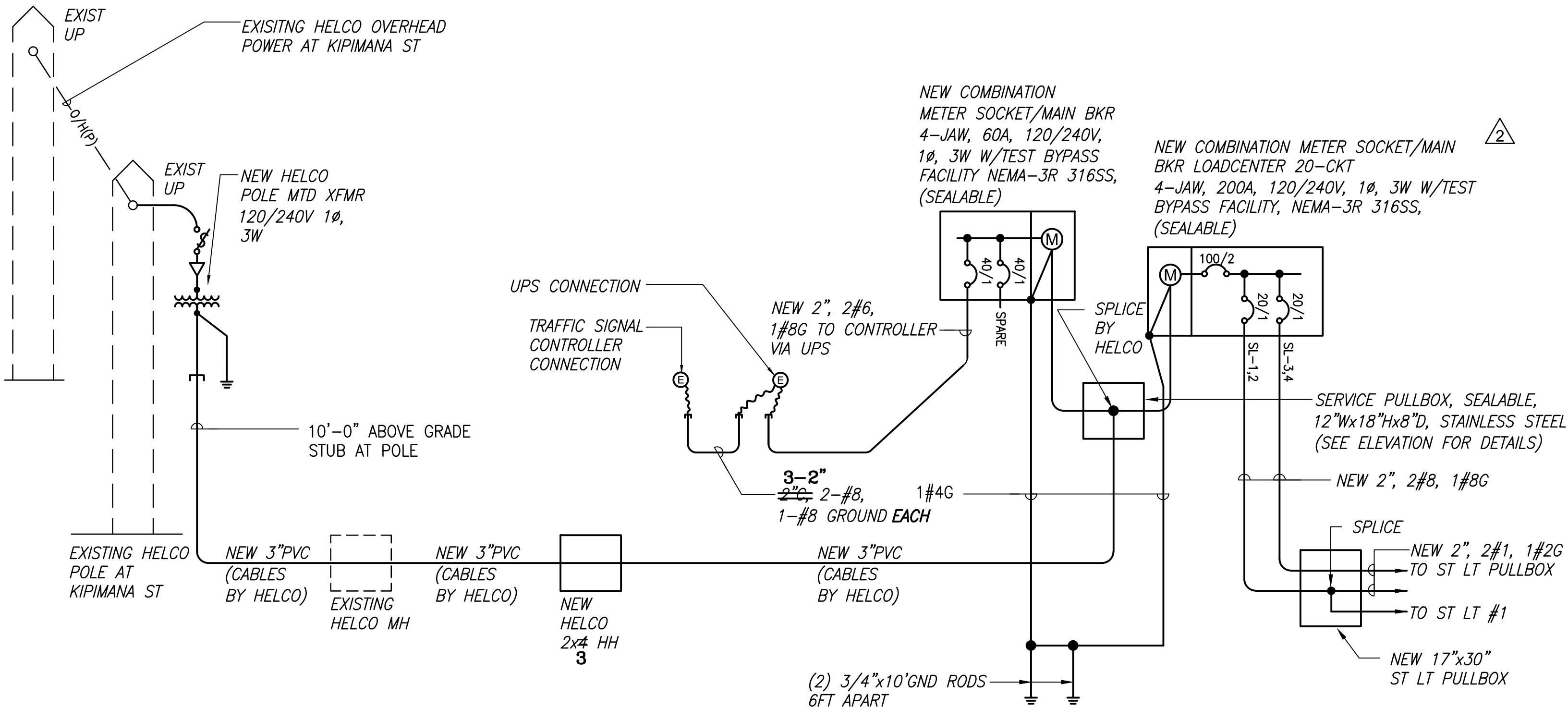
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	11N-01-19M	2019	C.O. 23	25

PANEL: "SL"				VOLT: 240		1 PHASE		POLES:	
MAIN BUS: 200A				MAIN BKR: 100/2		3 WIRE		MIN. A.I.C. 22,000	
MOUNTING: SURFACE				BKR TYPE: PLUG-IN		ENCL: N-3R, STAINLESS STL		ENCL. DIMS: 27"Wx30"Hx6"D	
CKT NO.	DESCRIPTION	KVA		CKT BKR	WIRE	CKT NO.	DESCRIPTION	KVA	
		A	B					A	B
1	L-STREETLIGHTS	0.1		1	8	2	L-STREETLIGHTS	0.1	20/2
3	S		0.0	20/1		4	S	0.0	20/1
5	S	0.0		20/1		6	S	0.0	20/1
7	PFB			1		8	PFB		1
9	PFB			1		10	PFB		1
11	PFB			1		12	PFB		1
13	PFB			1		14	PFB		1
15	PFB			1		16	PFB		1
17	PFB			1		18	PFB		1
19	PFB			1		20	PFB		1
21	---20-CKT LOADCENTER---					22	---20-CKT LOADCENTER---		
23						24			
25						26			
27						28			
29						30			
31						32			
33						34			
35						36			
37						38			
39						40			
41						42			
TOTAL PHASE A B		0.1	0.1	NOTES:					
CONNECTED KVA:		0.2	KVA	1. COMBINATION 4-JAW, 200A, METER SOCKET W/ TEST BYPASS BLOCK & LOADCENTER					
DEMAND FACTOR:		100	%						
DEMAND KVA:		0.1	KVA						
DEMAND AMPS:		0.4	AMPS						



LIGHT FIXTURE DETAIL

NOT TO SCALE



NOTES:

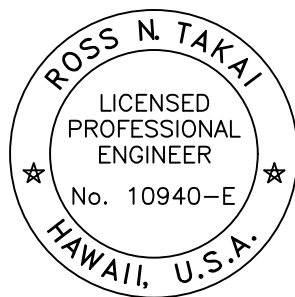
1. PHASE WORK TO MAINTAIN EXISTING STREET LIGHTS IN OPERATION AS REQUIRED.
2. ALL NEW CONDUCTORS SHALL BE COPPER.
3. BILLING ADDRESS FOR UTILITY CHARGES: STATE HIGHWAYS DIVISION, HAWAII DISTRICT.

ONE-LINE DIAGRAM

NOT TO SCALE

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- Roadway Text for as-built posting



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APRIL 30, 2022  
EXPIRATION DATE OF THE LICENSE

10/25/19	REVISED ONLINE, ADDED PNL SCH & LT DETAIL
06/10/19	ADDENDUM 1
DATE	REVISIONS
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
ONE-LINE DIAGRAM	
VOLCANO ROAD TEMPORARY SIGNAL INSTALLATION At Kipimana Street Project No. 11N-01-19M	
Scale: N/A	Date: April, 2019
SHEET No. 3 OF 6 SHEETS	

"AS-BUILT"

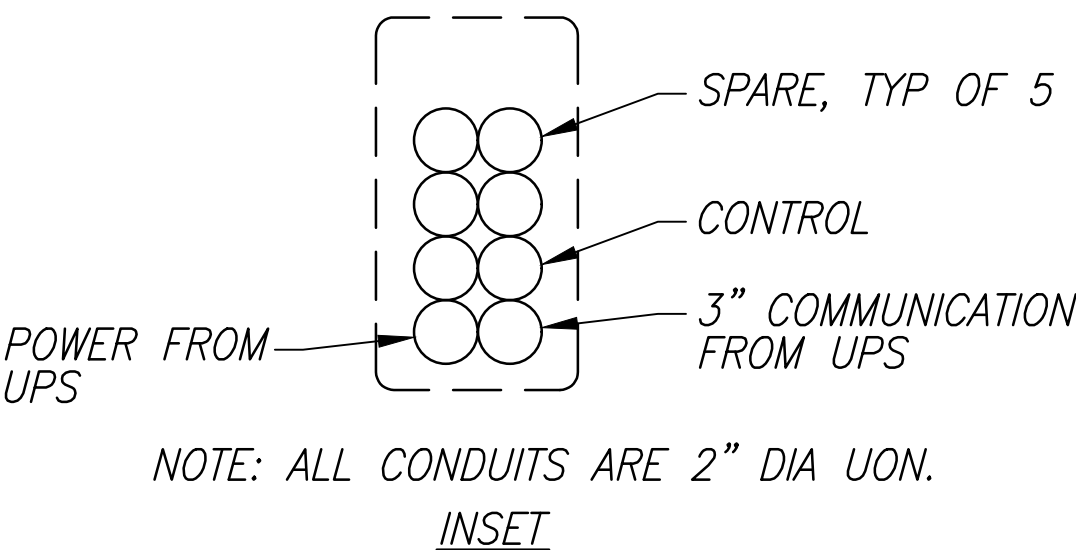
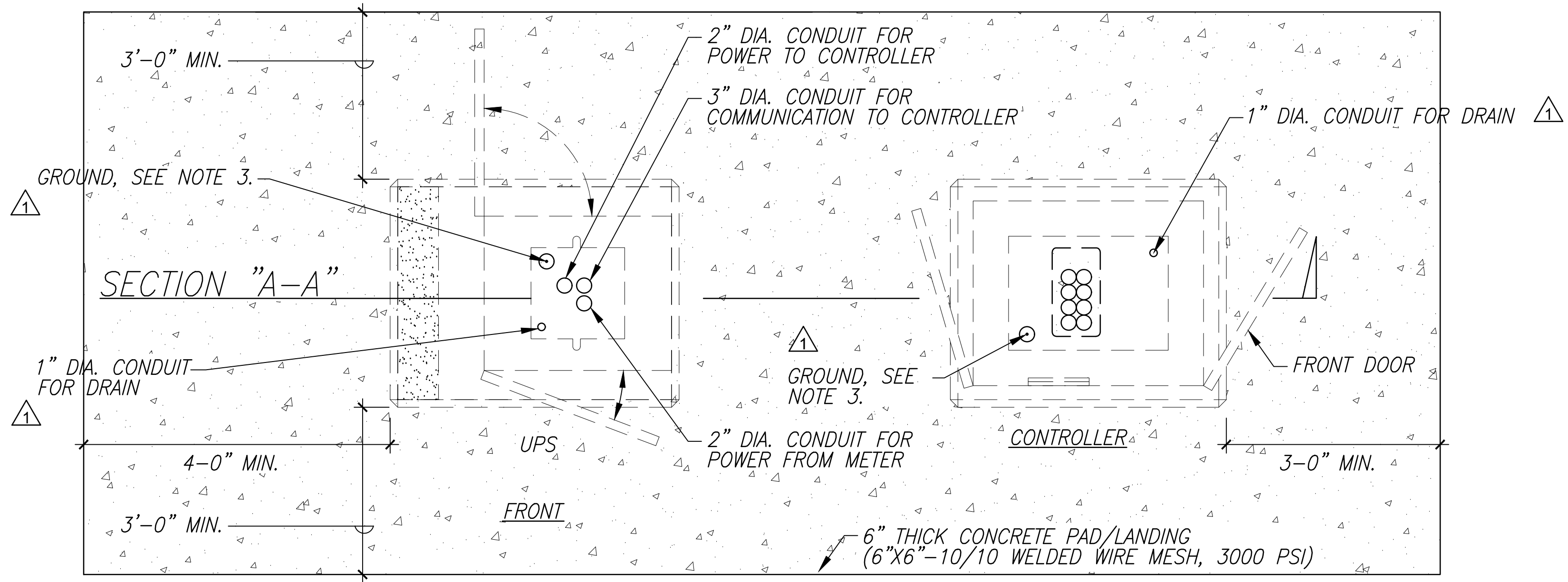
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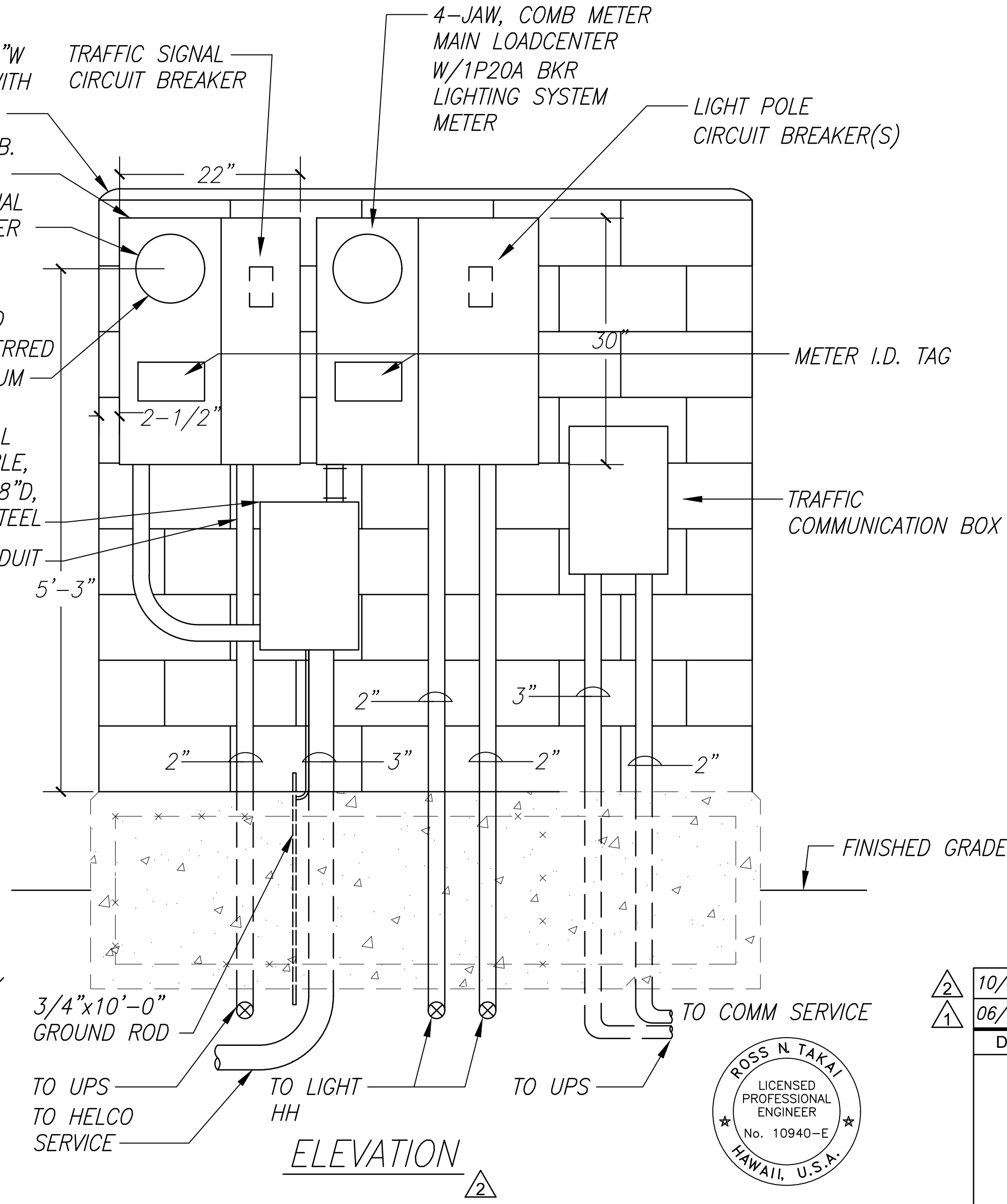
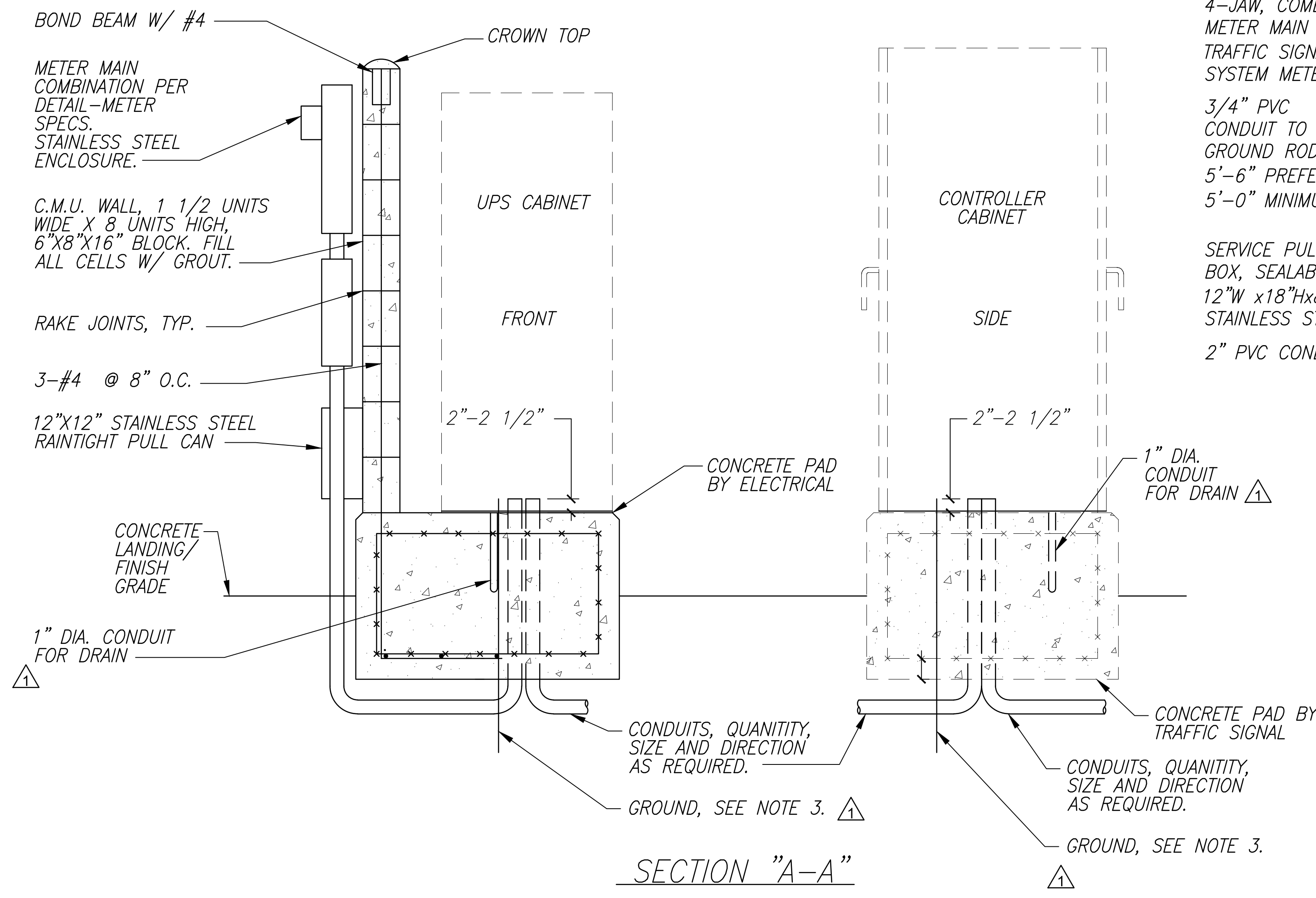
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	11N-01-19M	2019	C.O. 24	25

NOTES:

- CONTRACTOR SHALL VERIFY ALL CONDUIT REQUIREMENTS PRIOR TO INSTALLATION.
- CONFIRM LOCATION OF CONDUITS WITH ACTUAL CABINETS.
- CONCRETE ENCASED ELECTRODE (UFER GROUND). PER SECTION 250-50(C) OF THE NATIONAL ELECTRICAL CODE.
- THREADED COUPLINGS WITH LOCKING BUSHINGS ARE TO BE USED AT ALL METAL EQUIPMENT BOXES & PANELS.



PLAN



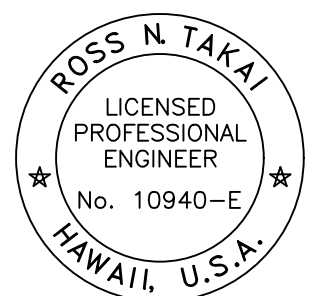
ELEVATION

**LEGEND FOR AS-BUILT POSTINGS**

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Double line for as-built deletion

Roadway Text for as-built posting



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*Ross N. Takai*  
SIGNATURE

APRIL 30, 2022  
EXPIRATION DATE OF THE LICENSE

10/25/19	REVISED ELEVATION & ADDED CONCRETE PAD
06/10/19	ADDENDUM 1
DATE	REVISIONS
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
EQUIPMENT DETAILS	
VOLCANO ROAD TEMPORARY SIGNAL INSTALLATION At Kipimana Street Project No. 11N-01-19M	
Scale: N/A	Date: April, 2019

CONTROLLER CABINET, UPS, & SERVICE EQUIPMENT  
DETAILS & ELEVATION  
NOT TO SCALE

Z:\PROJECTS (NUMBERED)\2019\19040\SUBMITTALS\21-02-18 ELECTRICAL AS-BUILT\5-ELEVATIONS.DWG 3/4/2021 5:38 PM KRALLECA

FINAL DESIGN SUBMITTAL





Z:\PROJECTS (NUMBERED)\2019\19040\SUBMITTALS\21-02-18 ELECTRICAL AS-BUILT\E-1A-HTCO NOTES.DWG 3/4/2021 5:34 PM KRALLECA

HAWAIIAN TELCOM GENERAL CONSTRUCTION/DESIGN NOTES:

1. The contractor shall procure and pay for all licenses and permits and shall give all notices necessary and incident to the due and lawful prosecution of the work.
2. The contractor shall obtain an excavation permit and toning request from Hawaiian Telcom's excavation permit section, located at 161 Kinoole Street, Kailua-Kona HI 96740 two weeks prior to the start of construction. Hours of business are 8:00 a.m. to 11:00 a.m. and 12:00 p.m. to 3:30 p.m. Monday through Friday, except holidays.
3. Prior to the excavation of the ductline, the contractor shall request Hawaiian Telcom to locate existing ductline wherever required. For underground cable locating and marking, five (5) working days advance notice is required. Three (3) working days advance notice is required for any inspection by a designated representative.
4. The locations of existing utilities are approximate only. the contractor shall exercise extreme caution and shall maintain proper clearances whenever construction crosses or is in close proximity of Hawaiian Telcom facilities, the contractor shall verify their locations and shall be liable for any damages to Hawaiian Telcom facilities. Any damages shall be reported immediately to Hawaiian Telcom repair section at #611 (24 hours) or to the excavation permit section at 840-1444 (normal working hours, Monday through Friday, except holidays). as a result of his operations, adjustments to the new ductline alignment, if required, shall be made to provide the required clearances.
5. The contractor shall take necessary precaution not to damage existing cables or ducts. A Hawaiian Telcom inspector or designated representative is required to be at any job site whenever there will be a breakage into or entry into any structure that contain Hawaiian Telcom facilities. temporary cable and duct supports shall be provided wherever necessary.
6. The contractor shall notify Hawaiian Telcom's inspector or designated representative a minimum of 72 hours prior to excavation, bracing, or backfilling of Hawaiian Telcom structures of facilities.
7. All applicable construction work shall be done in accordance with the "Hawaiian Telcom standard specifications for placing underground telephone systems" dated January 2007. All subsequent amendments and additions, and all other pertinent standards for telephone construction. Contractor shall familiarize his personnel by obtaining applicable specifications.
8. When excavation is adjacent to or beneath Hawaiian Telcom's existing structures or facilities, the contractor shall:

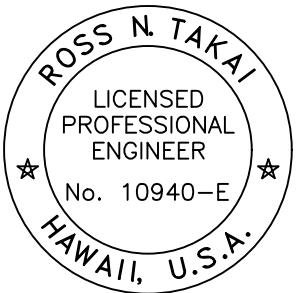
a. Sheet and/or brace the excavation to prevent slides, cave-ins, or settlements to ensure no movement to Hawaiian Telcom's structures or facilities

b. Protect existing structures and/or facilities with beams, struts, or underpinning while excavating beneath them to ensure no movement to Hawaiian Telcom's structures or facilities.
9. The contractor shall brace all utility poles or street light standards near the new ductline, manhole, or handhole during his operations.
10. The contractor shall saw-cut a.c. pavement and concrete gutter wherever new manholes, handholes, or ductlines are to be placed and shall restore to existing condition or better.

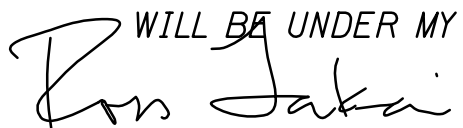
11. The contractor shall comply with the policy adopted by the Department of Transportation, State of Hawaii, concerning the replacement of concrete sidewalks after excavation work.
12. The underground pipes, cables, or ductlines known to exist by the engineer from his search of records are indicated on the plans. The contractor shall verify the locations and depth of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.
13. Wherever connections to existing utilities are shown on the plans, the contractor shall exposed the existing lines prior to excavation of the main trenches to verify their locations and depths.
14. The contractor, at his own expense, shall keep the project and surrounding area free from dust nuisance. The cost for supplementary measures, which will be required by the Department of Transportation, State of Hawaii, shall be borne by the contractor.
15. The contractor shall pump all manholes dry during final inspection.
16. The contractor shall notify Hawaiian Telcom inspector 72 hours prior to the pouring of concrete or backfilling.
17. When connecting to manhole walls, all existing reinforcing bars shall be left intact. Ducts shall be adjusted in the field in order to clear reinforcing.
18. The contractor shall be responsible for laying out all required lines and grades and shall preserve all bench marks and working points necessary to lay out the work correctly. The new ductline shall be adjusted by the contractor to suit the existing conditions and the details as described in the plans.
19. Minimum concrete strength shall be:

For ductline 2500 psi at 28 days

For manhole 3000 psi at 28 days or as specified in design notes
20. Bends in the duct alignment, due to changes in grade shall have a minimum radius of 25 feet. All 90 degree bend C-Bends at a pole or at the building floor slab penetration, shall have a bend radius of ten times the diameter of the duct or greater.
21. After ductline has been completed, A mandrel with a square front not less than 12" long and having a diameter of 1/4" less than the inside diameter of the duct, shall be pulled through each duct 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 inside. Ducts shall be completely dry and clean.
22. All ducts and conduits shall have an 1800# polyester mule-tape (NEPTCO, WP1800p, Hawaiian Telcom material code. no. 571154) installed throughout its entire length. All ducts shall be capped to prevent entry of foreign material during construction and at the completion of installation.



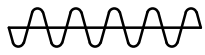
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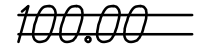
 APRIL 30, 2022

SIGNATURE EXPIRATION DATE OF THE LICENSE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	11N-01-19M	2019	C.O. 26	2525

LEGEND FOR  
AS-BUILT POSTINGS

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 Double line for as-built deletion

Roadway Text for as-built posting

2	10/25/19	ADDED HTCO NOTES
	DATE	REVISIONS
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION		
HAWAIIAN TELECOM GENERAL CONSTRUCTION/DESIGN NOTES		
VOLCANO ROAD TEMPORARY SIGNAL INSTALLATION		
At Kipimana Street		
Project No. 11N-01-19M		
Scale: N/A		Date: April, 2019
SHEET No. 6 OF 6 SHEETS		