

ABBREVIATIONS

- A AMPERE
- AC AIR CONDITIONING OR ALTERNATING CURRENT
- ACAP AIR CONDITIONING CONDENSING UNIT
- AFL AMPERE FRAME
- AHL AMPERE HOUR
- ATC AMPERE INTERRUPTING CAPACITY
- AT AMPERE TRIP
- AFF ABOVE FINISH FLOOR
- APPROX APPROXIMATE
- BOF BOTTOM OF FIXTURE
- C CONDUIT
- CB CIRCUIT BREAKER
- CL CENTERLINE
- CO CONDUIT ONLY
- COM CURRENT TRANSFORMER
- CU COPPER
- D DEEP
- DC DIRECT CURRENT
- DWG DRAWING
- (E) EXISTING
- E, ELEC ELECTRICAL
- EL EXHAUST FAN
- ELEV ELEVATION, EVENING LIGHTS
- EOL END OF LINE
- EP ELECTRICAL PRIMARY
- ES ELECTRICAL SECONDARY
- ENC ELECTRICAL WATER COOLER
- FA FIRE ALARM
- FACP FIRE ALARM CONTROL PANEL
- FMC FLEXIBLE METAL CONDUIT
- G, GND GROUND
- GFCI GROUND FAULT INTERRUPTING CAPABILITY
- GP GROUND FAULT PROTECTED
- H HORIZONTAL OR HIGH
- HELCO HAWAII ELECTRIC LIGHT COMPANY
- HLD HANDHOLED
- HD HANDHOLED DISCHARGE
- HP HAWAII PREPARATORY ACADEMY
- ID INTERMEDIATE DISTRIBUTION FRAME
- ILL INDICATING LIGHT
- IMS INFORMATION MONITORING SYSTEM
- JBX JUNCTION BOX
- KV KILO-VOLT
- KVA KILO-VOLT AMPERE
- KW KILO-WATT
- KWH KILO-WATT HOUR
- L LIGHTS, LIGHTING, LONG, LENGTH
- LDTR LOADCENTER, FLEXIBLE METAL CONDUIT
- LMFC LIQUID METAL CONDUIT
- LTFM LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT
- MIN MINIMUM
- MNF MAIN DISTRIBUTION FRAME
- N NEUTRAL
- (N) NATIONAL ELECTRICAL CODE
- NEC NON-FUSED SAFETY SWITCH
- NIFS NOT IN CONTRACT
- NL NOT IN LIGHTS
- NTS NOT TO SCALE
- NP NAMEPLATE
- OC OVERCUTTER
- OW OWENS
- EBR PROVISIONS FOR FUTURE BREAKER
- PH PHASE
- PNLBD PANELEBOARD
- PT POTENTIAL TRANSFORMER
- R RECEPTACLE
- RMC RIGID METAL CONDUIT (STEEL)
- RNM RIGID NON-METALLIC CONDUIT
- (SCH 40 PVC UNLESS OTHERWISE INDICATED)
- ST SUPPLY FAN
- T TELEPHONE
- (T) UNDERGROUND
- UG UNDERGROUND
- UPS UNINTERRUPTIBLE POWER SUPPLY
- V VOLTS, VERTICAL
- VM VOLTMETER
- W WIRE(S), WIDE, WATTS
- WM WATT-HOUR METER
- W/W WITHOUT
- WP WEATHERPROOF
- WT WATT
- W-T WATT-HOUR TRIP
- W-WIDE, H-HIGH, D-DEPTH OR LENGTH
- W-WIDE, H-HIGH, D-DEPTH OR LENGTH
- X-D TRANSFORMER
- XOUCER X-RAY
- XTRM TRANSFORMER

DEFINITIONS

- PROVIDE - FURNISH AND INSTALL.
- INSTALL - INCLUDES INSTALLATION, WIRING CONNECTIONS, START-UP, TESTING, AND PLACING INTO OPERATION.
- REPLACE - REMOVE AND PROVIDE NEW.
- RELOCATE - REMOVE AND PLACE INTO CORRECT OPERATION ALL WITHOUT CAUSING ANY DAMAGE TO AFFECTED ITEMS.
- 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 COMPLETES 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.

ELECTRICAL PLAN NOTES

1. ALL PLANS ARE DIAGRAMMATIC AND INDICATE LOCATIONS AND GENERAL REQUIREMENTS ONLY. ALL FINAL LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR SUBJECT TO ACCEPTANCE BY THE ENGINEER. ALL ROUTINGS FOR WIRING SHALL BE SELECTED AND DETERMINED BY THE CONTRACTOR COMPLYING WITH ALL REQUIREMENTS OF THE NEC AND ANY APPLICABLE LOCAL ORDINANCES.
2. ALL WIRING SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE NEC AND ANY APPLICABLE LOCAL ORDINANCES.
3. ALL WIRING SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE NEC AND ANY APPLICABLE LOCAL ORDINANCES.
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10. ALL WIRING SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE NEC AND ANY APPLICABLE LOCAL ORDINANCES.
11. ALL WIRING SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE NEC AND ANY APPLICABLE LOCAL ORDINANCES.
12. ALL WIRING SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE NEC AND ANY APPLICABLE LOCAL ORDINANCES.

MAINTAINING HEIGHTS

- (UNLESS OTHERWISE INDICATED)
1. RECEPTACLE OUTLET: +20 INCHES ABOVE FINISH FLOOR, CENTERLINE, HORIZONTAL, 90 DEGREES.
 2. TELEPHONE OUTLET: +48 INCHES ABOVE FINISH FLOOR, CENTERLINE, VERTICAL.
 3. SIMILAR TO RECEPTACLE OUTLET. ALIGN OUTLET BOXES.
 4. VIDEO OUTLET: PROVIDE SAME AS FOR TELEPHONE OUTLETS.
 5. DATA/COMMUNICATIONS OUTLETS: PROVIDE SAME AS FOR TELEPHONE OUTLETS.
 6. 1"-6" MAX ABOVE FINISH FLOOR OR FINISH GRADE TO OPERATING HANDBLADE.
 7. PANELBOARDS, CABINETS: +48 INCHES ABOVE FINISH FLOOR, TO TOP OF OPERATING HANDBLADE.
 8. FIRE ALARM APPLIANCES: +48 INCHES ABOVE FINISH FLOOR, TO BOTTOM OF OPERATING HANDBLADE.
 9. MANUAL INITIATING: +80 INCHES ABOVE FINISH FLOOR, TO BOTTOM OF OPERATING HANDBLADE.
 10. AUDIO INDICATING: +48 INCHES ABOVE FINISH FLOOR, TO BOTTOM OF OPERATING HANDBLADE.
 11. VISUAL INDICATING: +80 INCHES ABOVE FINISH FLOOR, TO BOTTOM OF OPERATING HANDBLADE.
 12. FIRE ALARM SIGNAL: +80 INCHES ABOVE FINISH FLOOR TO BOTTOM OF FRAME.

- PROJECT NOTES**
1. INSPECT AND VERIFY EXISTING ELECTRICAL SYSTEM AND WORKING CONDITIONS PRIOR TO SUBMITTING BIDS OR PROPOSALS.
 2. RESOLVE ALL QUESTIONS AND DISCREPANCIES W/ ENGINEER PRIOR TO START OF ANY ELECTRICAL WORK.
 3. ALL ELECTRICAL WORK SHALL COMPLY WITH HAWAII COUNTY ORDINANCES.
 4. ELECTRICAL INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.
 5. PRIOR TO INSTALLING ANY ELECTRICAL ITEM, VERIFY ITS FINAL LOCATION, COORDINATE AND ADJUST LOCATIONS AS REQUIRED.
 6. EXTERIOR ELECTRICAL WORK SHALL ALSO COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE NATIONAL ELECTRICAL SAFETY CODE.
 7. CONTRACTOR SHALL SCHEDULE AND COORDINATE ALL POWER OUTAGES WITH THE OWNER. OUTAGES SHALL BE GIVEN AT THE CONVENIENCE OF THE OWNER. CONTRACTOR SHALL EXPEDITE ALL WORK TO KEEP THE OUTAGE TIME TO A MINIMUM AND WITHIN THE TIME ALLOWED BY THE OWNER AND AGREED TO BY THE CONTRACTOR.

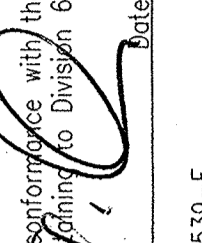
GENERAL NOTES:

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 WITH THE ARCHITECT, AS NECESSARY, TO AVOID CONFLICTS AND TO INSURE THE INSTALLATION OF ALL WORK WITHIN THE AVAILABLE SPACE.
5. CONTRACTOR SHALL CHECK AND MAINTAIN ORIGINAL PHASE ROTATION AND PHASE RELATIONSHIPS ON ALL CIRCUITS.
6. CONTRACTOR SHALL INVESTIGATE AND TONE AREA BEFORE DIGGING OR EXCAVATING.
7. ALL ELECTRICAL EQUIPMENT SHALL BE NEW AND WARRANTED BY THE MANUFACTURER.
8. ALL SCHEDULED AND AUTHORIZED OUTAGES SHALL BE LIMITED TO 00 HOURS MAXIMUM.
9. THE CONTRACTOR SHALL PROVIDE FOR THE ADDITIONAL COSTS, TO INCLUDE: MATERIALS, LABOR, AND AUTHORIZED OUTAGES, AFTER NORMAL HOURS AND ON WEEKENDS AND HOLIDAYS AS APPLICABLE. 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 PURCHASING AND BEFORE START OF CONSTRUCTION.
10. ALL ELECTRICAL WORK SHALL BE IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, AND FEDERAL, STATE, AND COUNTY GOVERNMENT STANDARDS, REGULATIONS, AND ORDINANCES.
11. EXISTING UNDERGROUND WATER, SEWER, DRAINAGE, GAS, ETC. LINES ARE NOT LOCATED 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. PHOTOGRAPHIC SURVEY AND USED OR AVAILABLE TO THE CONTRACTOR FOR RECORD PURPOSES. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE WORKING CONDITIONS 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.
12. THE EXISTING "HPA CAMPUS" SHALL REMAIN OPERATIONAL AT ALL TIMES. POWER OUTAGES WILL BE ALLOWED ONLY AS SCHEDULED AND ONLY FOR THE DURATION AGREED TO.
13. ALL EXPOSED CONDUITS AND FITTINGS, AND METAL PORTIONS OF RACEWAYS, ENCLOSURES SHALL BE FIELD PAINTED FOR CORROSION PROTECTION.
14. ALL EQUIPMENT SHALL BE PROPERLY MOUNTED, ANCHORED, AND SUPPORTED BY APPROVED METHODS FOR RESTRAINT OF SEISMIC ZONE CONGESTION.
15. ACCESS PATHS FOR EQUIPMENT INSTALLATION ARE LIMITED AND CONGESTED. SPECIAL RIGGING, RAMPS, ROLLERS, SUPPORTS, ETC., MAY BE REQUIRED. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE WORKING CONDITIONS AND SECURITY ACCESS REQUIREMENTS PRIOR TO BIDDING.
16. FIRE ALARM ITEMS AND DEVICES ARE SHOWN IN SUGGESTED LOCATIONS. FINAL LAYOUTS AND LOCATIONS SHALL BE IN CONFORMANCE WITH THE NATIONAL ELECTRICAL SAFETY CODE, NATIONAL ELECTRICAL SAFETY CODE, AND OTHER APPLICABLE CODES, STANDARDS, RULES AND REGULATIONS. THESE PLANS ARE NOT INTENDED TO COVER CONSTRUCTION DETAILS AND IMPLEMENTATION. ANY AND ALL QUESTIONS SHALL BE RESOLVED WITH THE ENGINEER PRIOR TO START OF ANY WORK.

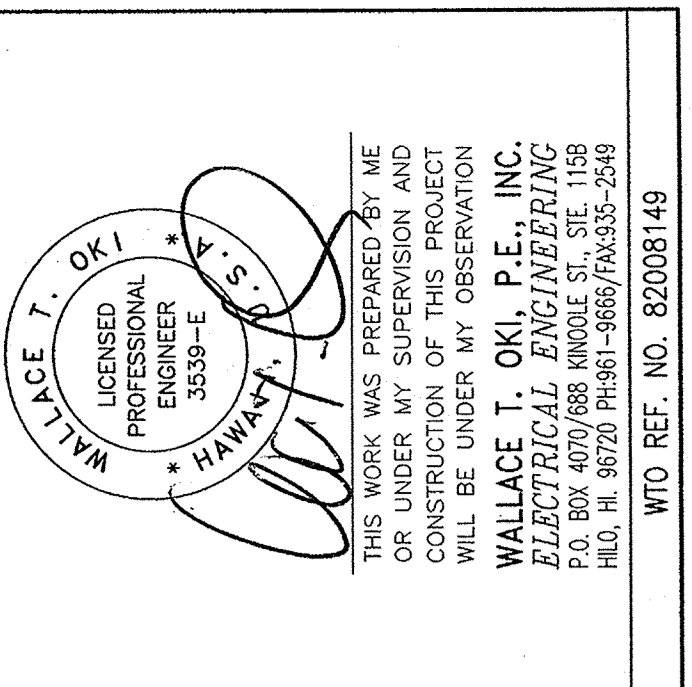
PROPRIETARY NOTE

THESE PLANS SHALL NOT BE COPIED, REPRODUCED, OR USED IN ANY FORM OR MANNER WITHOUT THE WRITTEN AUTHORIZATION OF THE ENGINEER. ANY USE OF MATERIAL ON THE PLANS BY MINOR ALTERATIONS, RE-WORDED, OR REVISIONS TO OBTAIN ORIGINAL ORIGINALLY INTENDED MEANINGS OR RESULTS SHALL BE PROHIBITED.

HAWAII COUNTY CODE - CHAPTER 5 - BUILDING
UNIFORM BUILDING CODE - 1991 EDITION - CHAPTER 53
BUILDING ENERGY EFFICIENCY STANDARDS
I certify that the above plan complies with the Building Energy Efficiency Standards Chapter 5 - Building, Part 53.

Signature:  Date: _____
Wallace T. Oki
License No. 3339-E

ALL ELECTRICAL WORK SHALL CONFORM TO CHAPTER 5, HAWAII COUNTY CODE, AND BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE

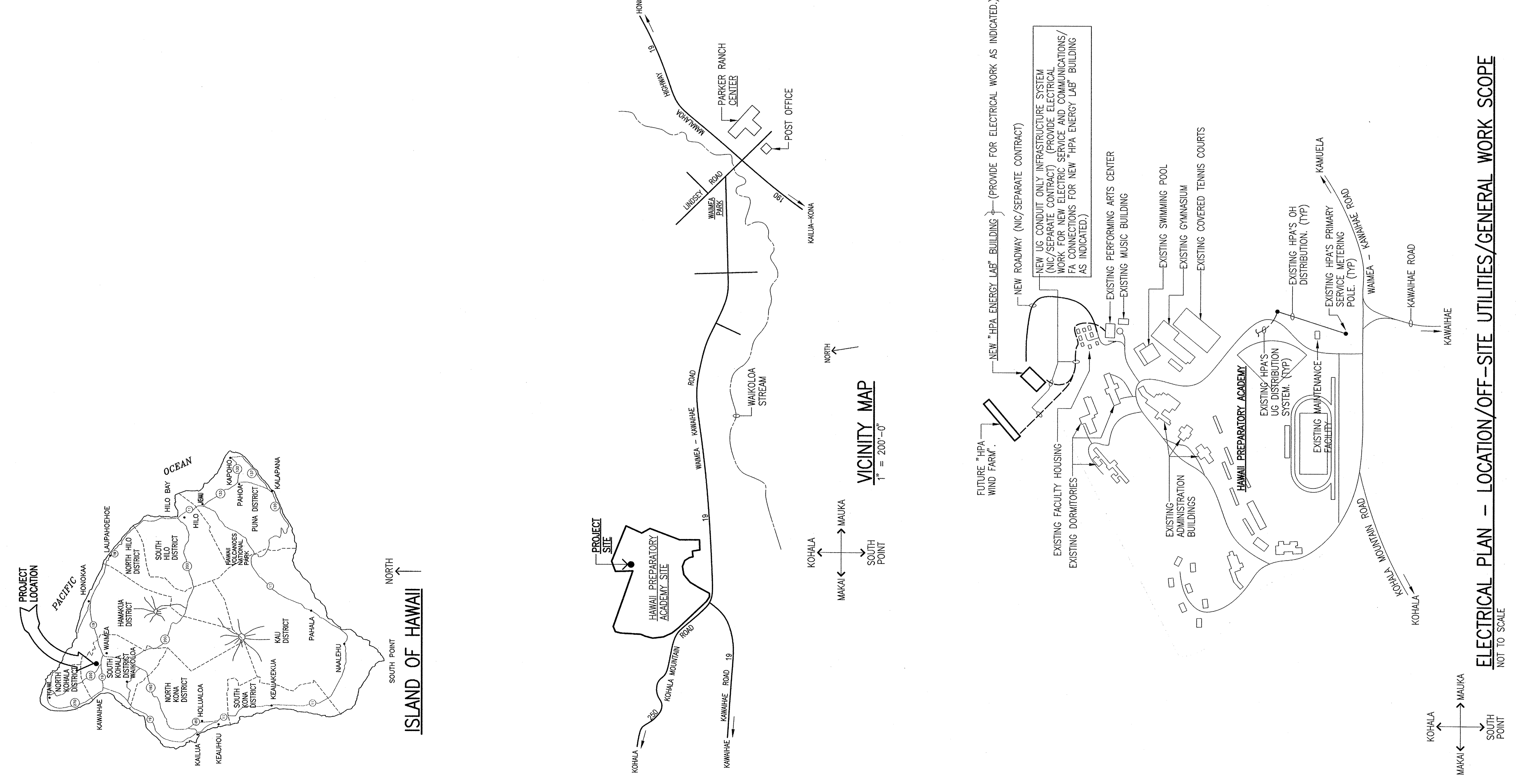


ELECTRICAL WORK

Drawn by: _____
Checked by: _____
Issue Date: 17 OCT 08
PERMIT ISSUE

Job Number: 2804-00
Scale: AS NOTED
Issue Date: 17 OCT 08

E-1



ELECTRICAL PLAN - LOCATION/OFF-SITE UTILITIES/GENERAL WORK SCOPE
NOT TO SCALE