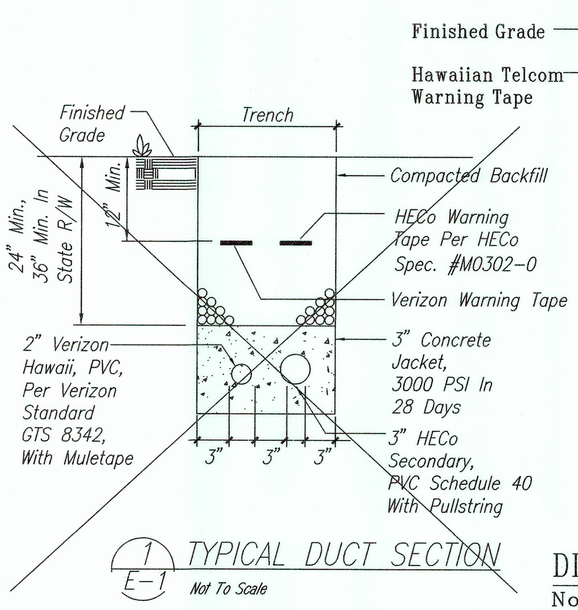
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-083-1(50)	2004	67	81

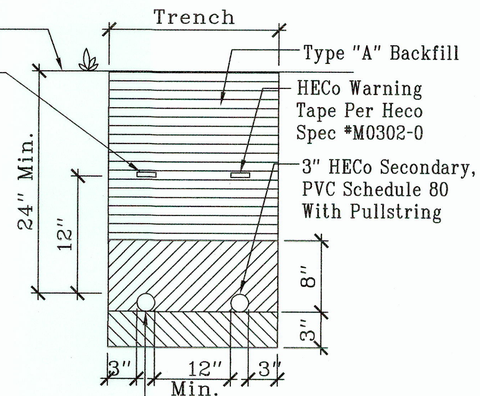
ELECTRICAL SYMBOL LIST

SYMBOL		DESCRIPTION
EXISTING	NEW	
○---○	○—○	Street Light Luminaire And Bracket Arm Mounted On Wood Pole
☐	☐	Pullbox Or Handhole, Type As Noted
p16 ○	P16 ○	Joint Pole, Pole #16 Indicated
— e —·—	—·—·—	Underground Ductline
—eoh——	—OH/_—	Overhead Wiring (P=Primary, S=Secondary, T=Telephone, V=Cable Television)
	—OH/SL—	Aerial Street Light Conductors, Type As Indicated, 20'-0" Minimum Above Roadway
	X	Denotes Demolition/Removal
	2 / E-2	Detail Indicator: Top Half Denotes Detail Number, Left Denotes Sheet On Which Detail Shown
	HPS	High Pressure Sodium
	GND	Ground
	HECo	Hawaiian Electric Company
	VH	Verizon Hawaii
	WP	Weatherproof
	1 ——→	Note Indicator

Revised Duct
Section CCO No. 14



1 / E-1 TYPICAL DUCT SECTION
Not To Scale



DIRECT BURIED DUCT SECTION
Not To Scale

1 / E-1 | E-1

Sketch CC014-2
Contract Change
Order No. 14

HIGHWAY LIGHTING NOTES:

1. The Contractor shall notify the State Highways, Highway Lighting and Traffic Supervisor 72 hours in advance before commencing work on the highway lighting system. Phone: 837-8056.

2. All luminaires shall be high pressure sodium type with wattage and I.E.S. Type light distribution as shown on the approved plans. Lamps shall be TCLP compliant.

3. The Contractor shall have one set of approved plans at job site at all times during the construction work and record all changes which occur during construction of the highway lighting system.

4. Contractor to stencil date of installation at the bottom of each photocell.

5. Final acceptance and inspection will be undertaken only after all work has been completed.

6. Temporary Lighting: The Contractor shall schedule the construction work in such a manner that highway lighting is provided during all hours of darkness either with new, temporary or existing luminaires or a combination thereof. Temporary wiring and connections may need to be utilized. Temporary wiring may be installed in exposed conduit, where not subject to vehicular damage, or with overhead wiring. Overhead wiring shall be a minimum of 20 feet above roadways at its lowest measured point, unless approved by the Engineer.

   Contractor shall maintain existing circuiting or provide temporary connections to existing highway lights through construction of the new highway lighting system. Existing highway lights scheduled for demolition shall remain in operation to maintain existing illumination levels utilizing either existing or temporary wiring and connections until new highway lights can be energized and are approved by the Engineer. New highway lights shall be energized by either permanent or temporary wiring and connections prior to demolition of the existing highway lighting system.

7. All temporary and permanent new pole locations shall be staked, and approval of locations shall be obtained from the Engineer before installation. Pole locations in the field will be required to clear underground and aerial utility lines. New pole locations shall not conflict with any existing or proposed utility and shall not obstruct any roadway sign. The Contractor shall be responsible for costs incurred by conflicting utilities.

8. The Contractor shall at his expense, keep the project and surrounding area free from dust nuisance and shall be responsible for cleaning and removal of all silt and debris generated by the excavation work and deposited and accumulated within downstream waterways, ditches, drain pipes and on public roadways. Any citations (fines) received by the State for the Contractor's noncompliance of any Department of Health regulations shall be deducted from the progress payment.

9. The Contractor shall locate existing buried utility lines in the vicinity of the excavation work prior to commencing excavation. As a minimum, an electronic magnetic device for detection of buried lines shall be utilized prior to excavation. Trenches shall be excavated with care. The Contractor shall be responsible for damages to existing utilities resulting from his negligence and shall bear cost of repairs to the utilities. Method of repair shall be approved by the State.

10. The electrical contractor shall have personnel on the project that comply with the following qualifications:

    a. One (1) registered master electrician in the company.

    b. Certified journeyman electrician at each construction location to perform splicing of cables and all required wiring work.

11. Design Illumination Level = 0.8 footcandle average maintained.

    Design Uniformity Ratio (Average:Minimum) = 4:1 maximum.

    Design Maintenance Factor = 0.65

12. Detour road lighting system shall be removed after completion of bridge replacement. Costs associated with removal of detour road lighting system shall be considered incidental to the cost of the detour road lighting system.

13. New State-Owned Wood Poles: The Contractor shall obtain the services of a structural engineer, licensed in the State of Hawaii, to provide calculations and drawings for the design of the new State-owned wood poles and the pole foundations. Calculations and drawings shall be submitted to the Engineer for review and approval. The design shall be based on the following.

    a. AASHTO Standard Specifications For Structural Supports For Highway Signs, Luminaires And Traffic Signals, 4th Edition, 2001, Including Subsequent Interim Revisions.

    b. State of Hawaii, Department of Transportation, Bridge Design Criteria, August 2002 (HWY-DB 2.7490).

    c. Basic Wind Speed:
    Detour Road - 105 mph
    Kamehameha Highway - 105 mph

    d. Mean Recurrence Interval:
    Detour Road - 10 Years
    Kamehameha Highway - 100 Years

DRAWING REVIEW
Reviewed for HECO's Facilities Only
Date 6/22/09 By [signature] SC HLH
Engineering Department
Hawaiian Electric Company, Inc.
HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

APPROVED

Hawaiian Electric Company, Inc. Date

[signature] 8/13/09
Verizon Hawaii Date

LEGEND FOR AS-BUILT POSTING

~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

LENNOX K. NISHIMURA
LICENSED PROFESSIONAL ENGINEER
No. 3880-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

[signature]
PROJECT ENGINEER for ECS, Inc.

APRIL 30, 2006
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL SYMBOL LIST
HIGHWAY LIGHTING NOTES
KAMEHAMEHA HIGHWAY REPLACEMENT
OF KOKOLOLIO STREAM BRIDGE
Federal Aid Project No. BR-083-1(50)

Scale: As Noted Date: February 2010

SHEET No. **E-1** OF E-15 SHEETS

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

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-083-1(50)	2005	68	81

HAWAIIAN ELECTRIC COMPANY NOTES

1. Location Of HECo Facilities – The location of HECo's overhead and underground facilities shown on the plans are from existing records with varying degrees of accuracy and are not guaranteed as shown. The contractor shall verify in the field the locations of the facilities and shall exercise proper care in excavating and working in the area. Wherever connections of new utilities to existing utilities and utility crossings are shown, the contractor shall expose the existing lines at the proposed connections and crossings to verify the depths prior to excavation for the new lines. The contractor shall be responsible for any damages to HECo's facilities whether shown or not shown on the plans.

2. Compliance With Hawaii Occupational Safety And Health Laws – The contractor shall comply with the State of Hawaii's occupational safety and health laws and regulations, including without limitation, those related to working on or near exposed or energized electrical lines and equipment.

3. Excavation Permit – The contractor shall obtain an excavation permit from HECo's technical division (543–5654) located at 820 Ward Avenue, 4th floor, two weeks prior to starting construction. Please refer to our request number at that time.

4. Caution!!! Electrical Hazard!!! – Existing HECo overhead and underground lines are energized and will remain energized during construction unless prior special arrangements have been made with HECo. Only HECo personnel are to handle these energized lines and erect temporary guards to protect these lines from damage. The contractor shall work cautiously at all times to avoid accidents and damage to existing HECo facilities, which can result in electrocution.

5. Overhead Lines – State law requires that a worker and the longest object he or she may contact cannot come closer than a minimum radial clearance of 10 feet when working close to or under any overhead lines rated 50kv and below. For each additional 1kv above 50kv, an additional 0.4 inch shall be added to the 10–foot clearance requirement. The preceding information on line clearance requirements is provided as a convenience and it is the contractor's responsibility to be informed of and comply with any revisions or amendments to the law.

   Should the contractor anticipate that his work will result in the need to encroach within the minimum required clearance at any time, the contractor shall notify HECo at least four (4) weeks prior to the planned encroachment so that, if feasible, the necessary protections (E.G. Relocate, de–energize, or blanket HECo lines) can be put in place. HECo's cost of safeguarding its lines will be charged to the contractor.

   Contact HECo's Customer Installations Department at 543–7846 for assistance in identifying and safeguarding overhead power lines.

   Refer to section X of HECo's electric service installation manual for additional guidelines when working around HECo's facilities. A copy may be obtained from HECo's Customer Installations Department.

6. Pole Bracing – A minimum clearance of 10 feet must be maintained when excavating around utility poles and/or their anchor system to prevent weakening or pole support failure. Should work require excavating within 10 feet of a pole and/or its anchor system, the contractor shall protect, support, secure, and take all other precautions to prevent damage to or leaning of these poles. The contractor is responsible for all associated costs to brace, repair, or straighten poles. All means of structural support for the pole proposed by the contractor shall first be reviewed by HECo before implementation. For pole bracing instructions, the contractor shall call the HECo Construction and Maintenance Dept., Customer & System Superintendent, at 543–4223, a minimum of two (2) weeks in advance.

7. Underground Lines – The contractor shall exercise extreme caution whenever construction crosses or is in close proximity of underground lines. HECo's existing electrical cables are energized and will remain energized during construction. Only HECo personnel are to break into existing HECo facilities, handle these cables, and erect temporary guards to protect these cables from damage. The cost of HECo's assistance in providing proper support and protection of its underground lines will be charged to the contractor. Special precautions are required when excavating near HECo's 138kv underground lines (see HECo instructions to consultants/contractors on "Excavation Near HECo's Underground 138kV Lines" for detailed requirements).

   For verification of underground lines, the contractor shall call HECo's Underground Division at 543–7049 a minimum of 72 hours in advance.

   For assistance in providing proper support and protection of these lines, the contractor shall call HECo's Construction & Maintenance Dept., Customer & System Superintendent, at 543–4223, a minimum of two (2) weeks in advance.

8. Underground Fuel Pipelines – The contractor shall exercise extreme caution whenever construction crosses or is in close proximity of HECo's underground fuel oil pipelines. Special precautions are required when excavating near HECo's underground fuel oil pipelines (see HECo instructions to consultants/contractors on "Excavation Near HECo's Underground Fuel Pipelines" for detailed reuirements).

9. Excavations – When trench excavation is adjacent to or beneath HECo's existing structures or facilities, the contractor is responsible for:

   a) Sheeting and bracing the excavation and stabilizing the existing ground to render it safe and secure and to prevent possible slides, cave–ins, and settlements.

   b) Properly supporting existing structures or facilities with beams, struts, or under–pinnings to fully protect it from damage.

   c) Backfilling with proper backfill material including special thermal backfill where existing (refer to engineering department for thermal backfill specifications).

10. Relocation Of HECo Facilities – Any work required to relocate or modify HECo facilities shall be done by HECo, or by the contractor under HECo's supervision. The contractor shall be responsible for all coordination, and shall provide necessary support for HECo's work, which may include, but not be limited to, excavation and backfill, permits and traffic control, barricading, and restoration of pavement, sidewalks, and other facilities.

    All costs associated with any relocation or modification (either temporary or permanent) for the convenience of the contractor, or to enable the contractor to perform his work in a safe and expeditious manner in fulfilling his contract obligations shall be borne by the contractor.

11. Conflicts – Any redesign or relocation of HECo's facilities not shown on the plans may be cause for lengthy delays. The contractor acknowledges that HECo is not responsible for any delay or damage that may arise as a result of any conflicts discovered or identified with respect to the location or construction of HECo's electrical facilities in the field, regardless of whether the contractor has met the requested minimum advance notices. In order to minimize any delay or impact arising from such conflicts, HECo should be notified immediately upon discovery or identification of such conflict.

12. Damage To HECo Facilities – The contractor shall be responsible for the protection of all HECo surface and subsurface utilities and shall be responsible for any damages to HECo's facilities as a result of his operations. The contractor shall immediately report such damages to HECo's trouble dispatcher at 548–7961. Repair work shall be done by HECo or by the contractor under HECo's supervision. Costs for damages to HECo's facilities shall be borne by the contractor.

    In case of damage or suspected damage to HECo's fuel pipeline, the contractor shall immediately notify HECo's Honolulu Power Plant shift supervisor at 533–2102 (a 24–hour number) so HECo personnel can secure the damaged section and report any oil spills to the proper authorities. All costs associated with the damage, repair, and oil spill cleanup shall be borne by the contractor.

13. HECo Stand–By Personnel – The contractor may request HECo to provide an inspector to stand–by during construction near HECo's facilities. The cost of such inspection will be charged to the contractor.

    The contractor shall call the HECo Construction and Maintenance Dept., Customer & System Superintendent at 543–4223 a minimum of 5 working days in advance to arrange for HECo stand–by personnel.

14. Clearances – The following clearances shall be maintained between HECo's ductline and all adjacent structures (charted and uncharted) in the trench:

Structure type	Minimum clearance (inches)
Water lines, parallel	36
Water lines, crossing	12 (a)
Sewer lines, parallel	36 (b)
Sewer lines, crossing	24 (c)
Drain lines, parallel	12
Drain lines, crossing	6 (d)
Electrical and gas lines, parallel	12
Electrical and gas lines, crossing	12
Telephone lines, parallel	6 (d)
Telephone lines, crossing	6 (d)
Chevron oil lines, parallel	36
Chevron oil lines, crossing	48 below oil line (e)

    a. The minimum vertical clearances to water lines crossing electrical ductlines can be reduced to 6 inches if the electrical ductline structure is smaller than 16 inches, is concrete encased, and is below the water line.

    b. A minimum horizontal clearance of 36 inches is required between new handholes and existing sewer laterals.

    c. The minimum vertical clearances to sewer pipes crossing electrical ductlines can be reduced to 12 inches if the sewer pipe is jacketed in concrete.

    d. The minimum clearances shall be increased to 12 inches if the electrical ductline is direct buried.

    e. The minimum vertical clearances to oil lines crossing electrical ductlines can be reduced to 24 inches below oil lines if the crossings are encased in 6 inches of concrete.

    f. The contractor shall notify the construction manager & HECo of any heat sources (power cable duct bank, steamline, etc.) encountered that are not properly identified on the drawing.

    Additional notes when work involves construction Of HECo facilities

15. Schedule – Contractor shall furnish his construction schedule 45 working days prior to starting work on HECo facilities. Contractor shall give HECo, in writing, 45 working days notice to proceed with HECo's portion of work.

16. Authority – All construction, restoration work, and inspection shall be subject to whichever governmental agency has authority over the work.

17. Specifications – Construction of HECo's underground facilities shall be constructed in accordance with the latest revisions of HECo specifications CS7001, CS7003, CS7202, CS9301, and CS9401 and applicable HECo standards.

18. Construction – Contractor shall furnish all labor, materials, equipment, and services to properly perform and fully complete all work shown on the contract, drawings, and specifications. All materials shall be new and manufactured in the United States of America. All manhole, handhole, and ductline installations shall be inspected and approved by HECo prior to excavation and prior to placing concrete. Contractor shall notify HECo's Inspection Division at 543–4356 at least 48 hours prior to placing concrete.

19. Stakeout – The contractor shall stakeout all proposed HECo facilities within the project area so as to not conflict with any utility (existing or proposed) and any proposed construction or improvement work for verification by HECo before proceeding with HECo work.

20. Ductlines – All ductline installations shall be PVC Schedule 40 encased in concrete, unless otherwise noted. All completed ductlines shall be mandrel tested by the contractor in the presence of HECo's inspector using HECo's standard practice. The contractor shall install a 1/8" polyolefin pull line in all completed ductlines after mandrel testing is complete.

21. Joint Pole Removal – The last joint pole occupant off the poles shall remove the poles.

22. As–Built Plans – The contractor shall provide HECo with two sets of as–built reproducible tracings showing the offsets, stationing, and vertical elevation of the duct line(s) constructed.

APPROVED

DRAWING REVIEW
Reviewed for HECO's Facilities Only
Date 8/24/04 By
Engineering Department
Hawaiian Electric Company, Inc.

Hawaiian Electric Company, Inc. Date

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

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

LENNOX K. NISHIMURA
LICENSED PROFESSIONAL ENGINEER
No. 3880–E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

PROJECT ENGINEER for ECS, Inc.

APRIL 30, 2006
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HAWAIIAN ELECTRIC COMPANY NOTES

KAMEHAMEHA HIGHWAY
REPLACEMENT OF
KOKOLOLIO STREAM BRIDGE
Federal Aid Project No. BR–083–1(50)

Scale: None Date: August 2004

SHEET No. E-2 OF E-15 SHEETS

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-083-1(50)	2005	69	81

VERIZON HAWAII NOTES:

1. Installation of a Verizon Hawaii ductline system shall conform with the requirements of the Verizon Hawaii "Standard Specification For Placing Underground Systems" dated March 1999, all subsequent amendments and additions, and all other pertinent standards for telephone construction. Contractor shall familiarize his personnel by obtaining applicable specifications.

2. For underground cable locating and marking, five working days advanced notice is required. Three working days advanced notice is required for any inspection by a designated representative. The contractor shall take necessary precaution not to damage any existing cables or ducts. A Verizon Hawaii 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 Verizon Hawaii facilities.

3. The contractor shall closely coordinate all work with Verizon Hawaii. All trenches must be inspected by Verizon Hawaii prior to backfilling and concrete encasing operations. The contractor shall notify Verizon Hawaii inspector or designated representative at least 72 hours prior to the excavation, bracing, pouring of concrete or backfilling.

4. The contractor shall obtain an excavation permit and toning request from Verizon Hawaii's excavation permit section, located at 3239 Ualena Street, third floor, two weeks prior to the start of construction. Hours of business are 7:00 A.M. To 10:30 A.M. and 11:30 A.M. To 3:00 P.M., Monday through Friday, except holidays.

5. The location of Verizon Hawaii's existing facilities are approximate only. The contractor shall exercise extreme caution and shall maintain proper clearances whenever construction crosses or is in close proximity to Verizon Hawaii's facilities. The contractor shall verify their locations and shall be liable for any damages to Verizon Hawaii's facilities. Any damages shall be reported immediately to Verizon Hawaii's repair section at #611 (24 hours) or to the excavation permit section at 840-1444 during normal work days hours, Monday through Friday, except holidays.

6. When excavation is adjacent to or beneath Verizon Hawaii'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 Verizon Hawaii telephone company'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 Verizon Hawaii's structures or facilities.

7. Concrete strength shall be 3,000 psi in 28 days.

8. For pole bracing instructions, should field conditions and/or construction procedures require that poles be braced to facilitate construction, the contractor is to contact the Verizon Hawaii inspector at 840-2979 at least 72 hours in advance.

9. Should it become necessary to relocate any Verizon Hawaii facilities, the work shall be done by Verizon Hawaii. The contractor shall be responsible for all coordination and costs associated with the relocation.

10. All construction must be inspected and approved by Verizon Hawaii prior to the installation of any of its facilities and the energizing of its systems. Verizon Hawaii will commence installation only after the construction has been approved and no sooner than thirty working days thereafter. A project of large magnitude will require more time.

11. The contractor shall furnish his construction schedule forty-five (45) working days prior to starting any Verizon Hawaii work. Contractor shall provide Verizon Hawaii with sufficient installation time to complete their work.

OCEANIC TIME WARNER CABLE (CATV) NOTES:

1. The contractor shall take necessary precaution not to damage existing cables or ducts. Any work involving existing cables or ducts shall be done in the presence of the Oceanic Cable company inspector or his representative.

2. The contractor shall notify the Oceanic Cable company inspector 48 hours prior to the pouring of concrete or backfilling.

3. The location of CATV facilities shown on plans are from existing records with varying degrees of accuracy as to its actual fixed location. The contractor shall use extreme caution when working in close proximity of CATV facilities.

4. The contractor shall obtain excavation permit clearance from Oceanic's engineering section located at 200 Akamainui Street, Mililani Tech Park.

5. For any field assistance or verification of CATV facilities, the contractor shall call the Technical Operations Center at 625-8378.

6. Any work required to relocate CATV facilities shall be done by Oceanic cable and the contractor shall be responsible for all coordination requirements and associated costs.

7. Any damage to Oceanic's facilities shall be reported to OCI's repair dispatch department at 625-8437 or 625-8666.

8. The contractor shall tunnel under existing concrete curb and gutter as necessary to extend conduit into existing CATV pullbox and into the proposed power supply pullbox.

9. At locations where existing CATV pullbox replacement is proposed, the contractor shall take all necessary precaution not to damage the existing cables in the pullbox. All damages to existing cables shall be repaired by Oceanic Cable and paid for by the contractor.

10. For underground cable locating and marking, five working days advance notice is required. Three working days advanced is required for any inspection by a designated representative. Contractor shall take necessary precautions not to damage existing cables or ducts. Oceanic's 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 oceanic's facilities.

11. All construction must be inspected and approved by Oceanic prior to the installation of any of its facilities and the energizing of its system.

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

APPROVED

Verizon Hawaii — Date 8/10/04

Oceanic Time Warner Cable — Date 8/10/04

LENNOX K. NISHIMURA
LICENSED PROFESSIONAL ENGINEER
No. 3880-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

PROJECT ENGINEER for ECS, Inc.

APRIL 30, 2006
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

VERIZON HAWAII AND OCEANIC CABLE NOTES

KAMEHAMEHA HIGHWAY
REPLACEMENT OF
KOKOLOLIO STREAM BRIDGE
Federal Aid Project No. BR-083-1(50)

Scale: None Date: August 2004

SHEET No. E-3 OF E-15 SHEETS

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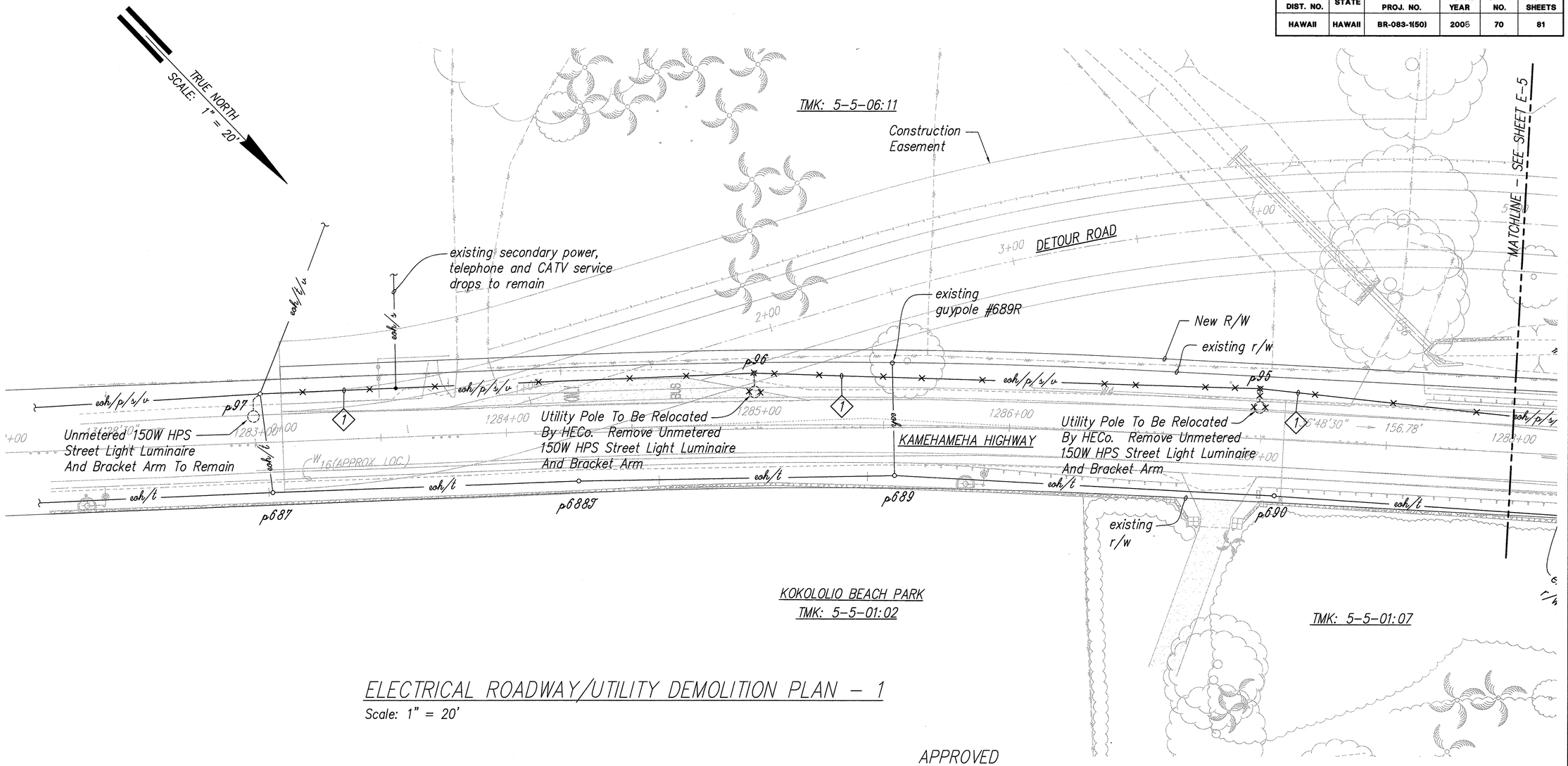
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-083-1(50)	2006	70	81



ELECTRICAL ROADWAY/UTILITY DEMOLITION PLAN - 1

Scale: 1" = 20'

NOTE:

1. Existing Overhead Conductors To Be Relocated By HECo, Verizon Hawaii And/Or Oceanic Time Warner Cable.

APPROVED

Hawaiian Electric Company, Inc. Date

Verizon Hawaii Date 8/13/04

Oceanic Time Warner Cable Date 8/18/04

GRAPHIC SCALE

1" = 20' 20' 10' 0 20' 40'

DRAWING REVIEW

Reviewed for HECO's Facilities Only

Date 8/26/04 By

Engineering Department
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

LENNOX K. NISHIMURA
LICENSED PROFESSIONAL ENGINEER
No. 3880-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

PROJECT ENGINEER for ECS, Inc.

APRIL 30, 2006
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL ROADWAY/UTILITY DEMOLITION PLAN - 1

KAMEHAMEHA HIGHWAY
REPLACEMENT OF
KOKOLOLIO STREAM BRIDGE
Federal Aid Project No. BR-083-1(50)

Scale: 1" = 20'-0" Date: August 2004

SHEET No. E-4 OF E-15 SHEETS

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

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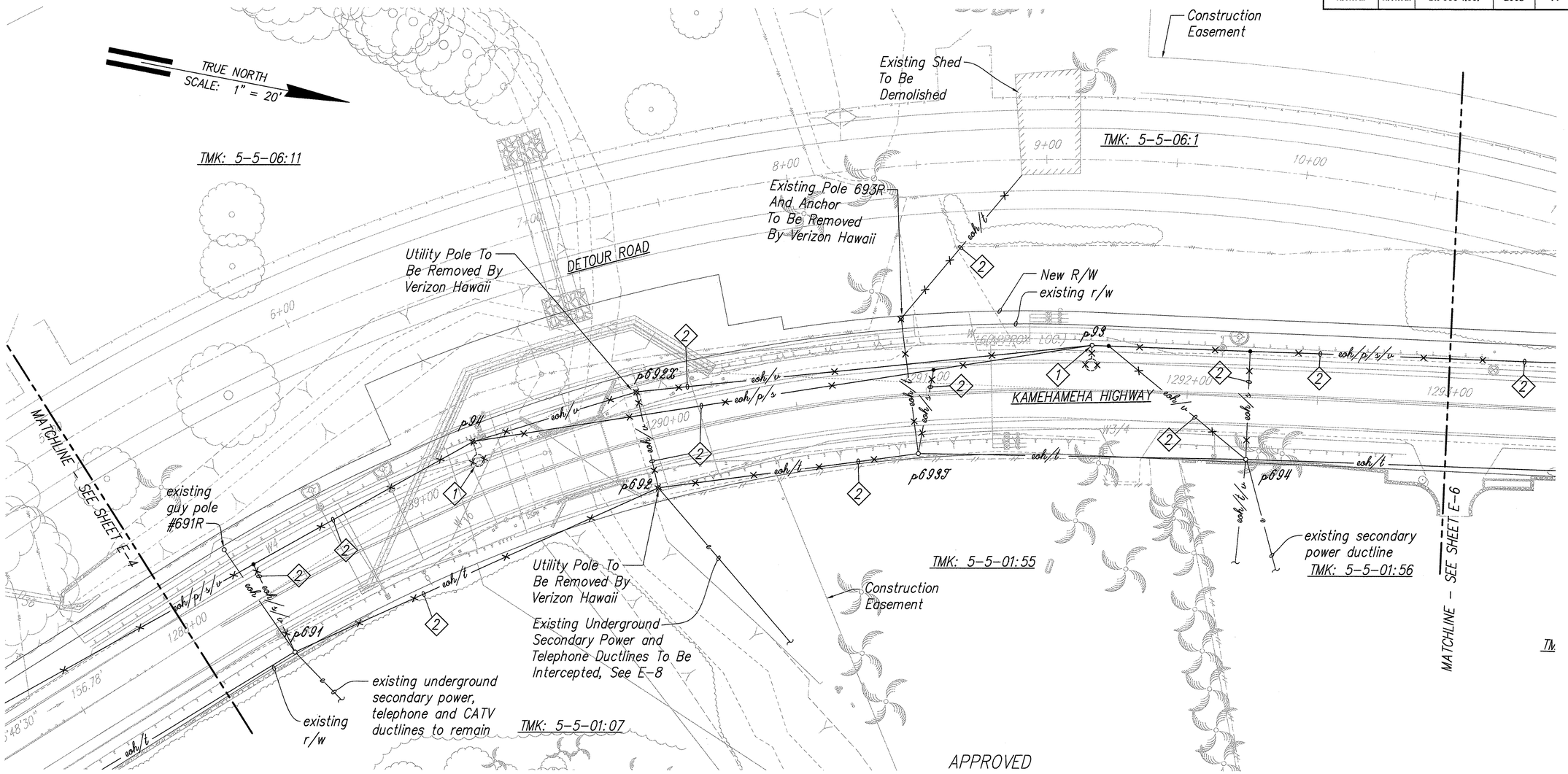
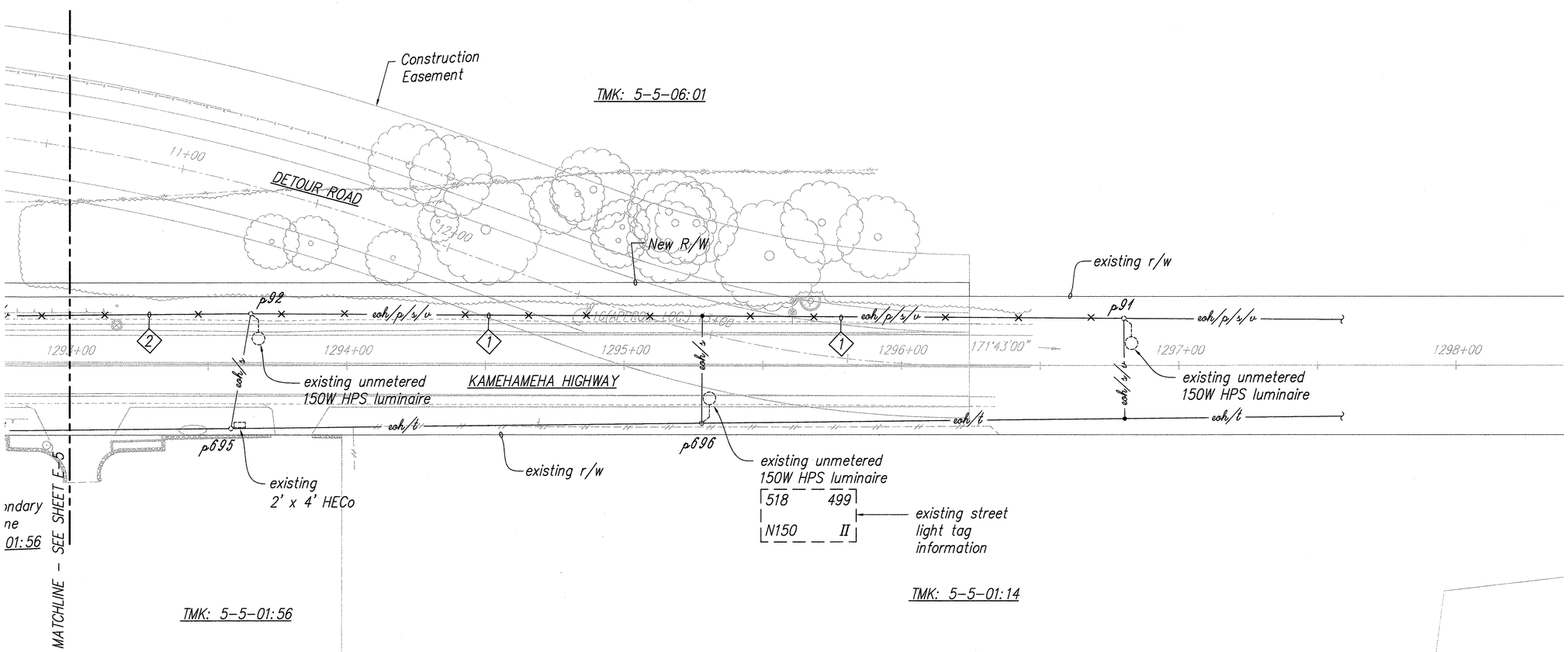
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-083-1(50)	2005	71	81



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-083-1(50)	2005	72	81

TRUE NORTH
SCALE: 1" = 20'



ELECTRICAL ROADWAY/UTILITY DEMOLITION PLAN – 3

Scale: 1" = 20'

NOTES:

1. Existing Overhead Conductors To Be Relocated By Oceanic Time Warner Cable. Overhead HECo Conductors To Remain.
2. Existing Overhead Conductors To Be Relocated By HECo and Oceanic Time Warner Cable.

APPROVED

Hawaiian Electric Company, Inc. Date

8/13/04
Verizon Hawaii Date

8/13/04
Oceanic Time Warner Cable Date

DRAWING REVIEW
Reviewed for HECO's Facilities Only
Date 8/16/04 By
Engineering Department
Hawaiian Electric Company, Inc.
HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

GRAPHIC SCALE
1" = 20' 20' 10' 0 20' 40'

LENNOX K. NISHIMURA
LICENSED PROFESSIONAL ENGINEER
No. 3880-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
PROJECT ENGINEER for ECS, Inc.
APRIL 30, 2006
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL ROADWAY/UTILITY DEMOLITION PLAN – 3

KAMEHAMEHA HIGHWAY
REPLACEMENT OF
KOKOLOLIO STREAM BRIDGE
Federal Aid Project No. BR-083-1(50)

Scale: 1" = 20'-0" Date: August 2004

SHEET No. E-6 OF E-15 SHEETS

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

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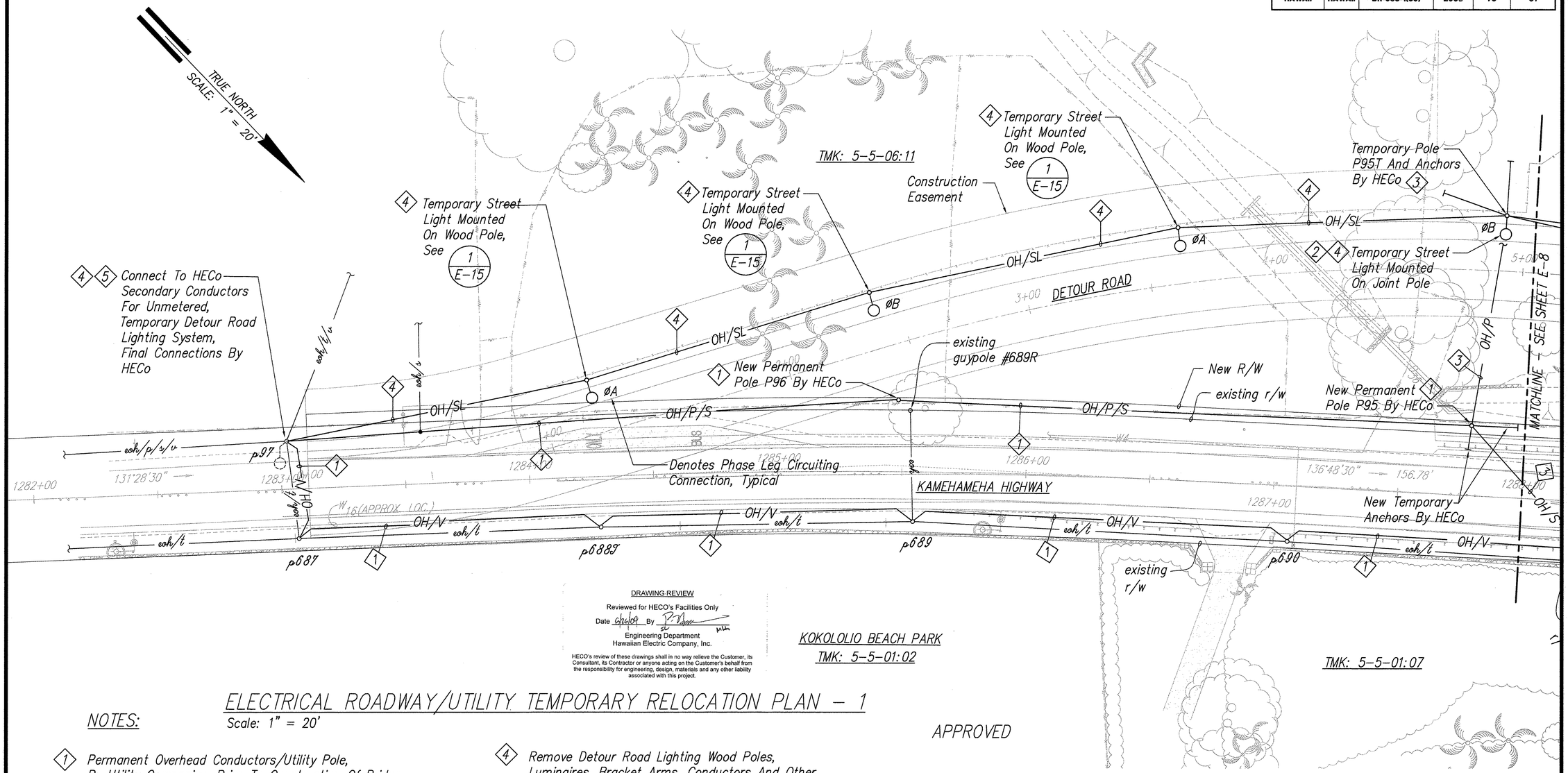
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-083-1(50)	2005	73	81



DRAWING REVIEW

Reviewed for HECO's Facilities Only

Date 8/16/04 By

Engineering Department
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

KOKOLOLIO BEACH PARK
TMK: 5-5-01:02

TMK: 5-5-01:07

ELECTRICAL ROADWAY/UTILITY TEMPORARY RELOCATION PLAN - 1

Scale: 1" = 20'

NOTES:

1. Permanent Overhead Conductors/Utility Pole, By Utility Companies, Prior To Construction Of Bridge Replacement.
2. 150W, HPS Street Lighting Luminaire And Bracket Arm Mounted On Joint Pole. Similar To 1/E-15 Except Wood Pole Provided By HECo
3. Temporary Overhead Conductors/Utility Pole By Utility Companies, Prior To Construction Of Bridge Replacement.
4. Remove Detour Road Lighting Wood Poles, Luminaires, Bracket Arms, Conductors And Other Equipment Associated With The Detour Road Lighting System After The Permanent Kamehameha Highway Lighting System Is Operational And Kamehameha Highway Is Permanently Re-Opened.
5. All Utility Costs Associated With the Detour Road Lighting System, Including Service Charges, Shall Be Considered As Incidental To The Cost Of The Detour Road Lighting System. All Utility Costs Shall Be Billed To The Contractor.

APPROVED

Hawaiian Electric Company, Inc. Date

8/18/04
Verizon Hawaii Date

8/18/04
Oceanic Time Warner Cable Date

GRAPHIC SCALE
1" = 20' 20' 10' 0 20' 40'

LENNOX K. NISHIMURA
LICENSED PROFESSIONAL ENGINEER
No. 3880-E
HAWAII, U.S.A.

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PROJECT ENGINEER for ECS, Inc.

APRIL 30, 2006
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL ROADWAY/UTILITY TEMPORARY RELOCATION PLAN - 1

KAMEHAMEHA HIGHWAY
REPLACEMENT OF
KOKOLOLIO STREAM BRIDGE
Federal Aid Project No. BR-083-1(50)

Scale: 1" = 20'-0" Date: August 2004

SHEET No. E-7 OF E-15 SHEETS

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

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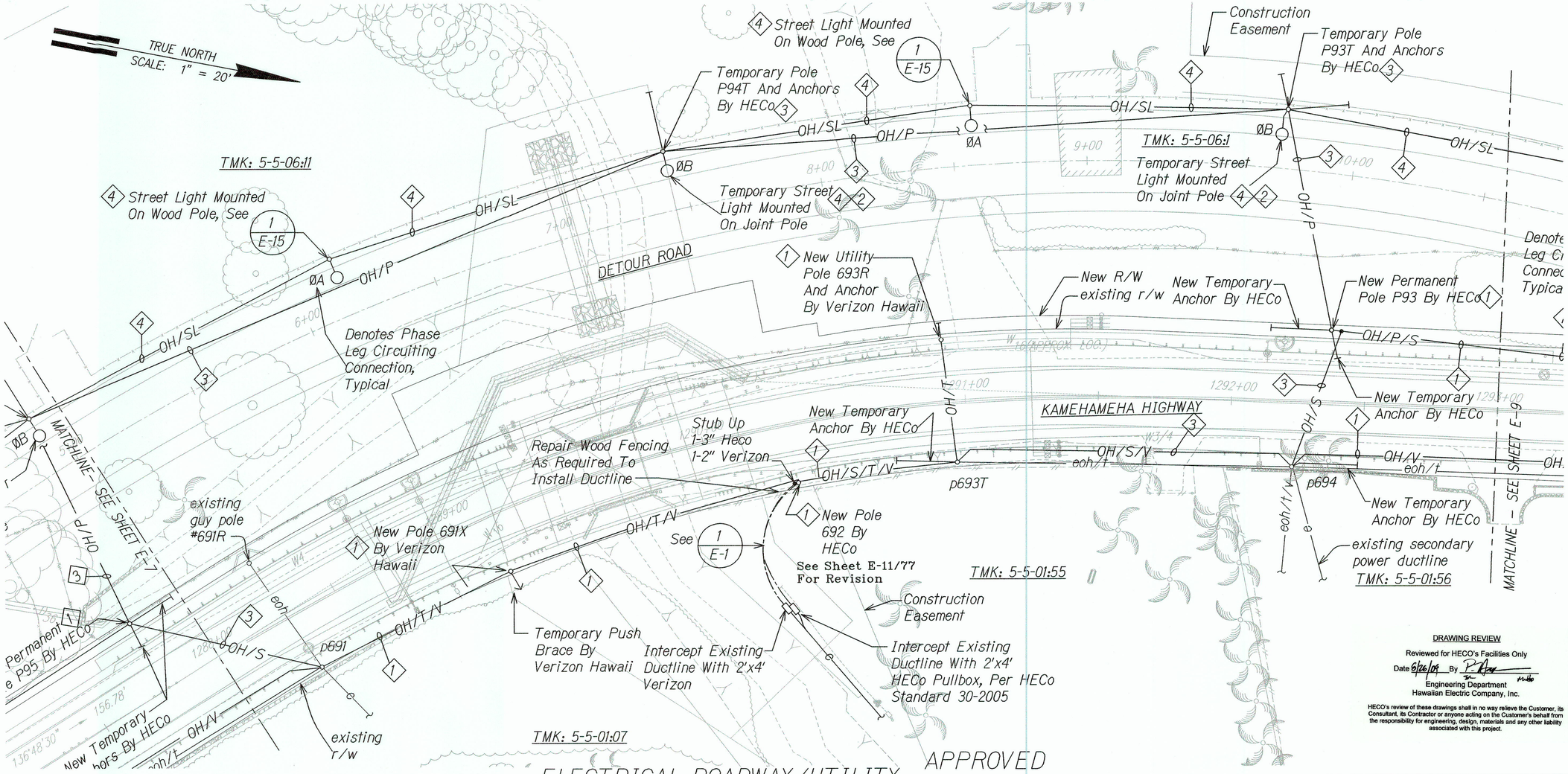
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-083-1(50)	2004	74	81



ELECTRICAL ROADWAY/UTILITY RELOCATION PLAN - 2

Scale: 1"=20'

NOTES:

1. Permanent Overhead Conductors/Utility Pole, By Utility Companies, Prior To Construction of Bridge Replacement.
2. 150W, HPS Street Lighting Luminaire And Bracket Arm Mounted on Joint Pole. Similar To 1 E-15 Except Wood Pole Provided By HECo.
3. Temporary Overhead Conductors/Utility Pole By Utility Companies, Prior To Construction Of Bridge Replacement.
4. Remove Detour Road Lighting Wood Poles, Luminaires, Bracket Arms, Conductors and Other Equipment Associated With The Detour Road Lighting System After The Permanent Kamehameha Highway Lighting System Is Operational And Kamehameha Highway Is Permanently Re-Opened.

APPROVED

Hawaiian Electric Company Inc. Date

8/13/08

Verizon Hawaii Date

8/18/08

Oceanic Time Warner Cable Date

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1"= 20'

DRAWING REVIEW

Reviewed for HECO's Facilities Only

Date 6/26/08 By

Engineering Department
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

LEGEND FOR AS-BUILT POSTING

~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

LENNOX K. NISHIMURA LICENSED PROFESSIONAL ENGINEER No. 3880-E HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

PROJECT ENGINEER for ECS, Inc.

APRIL 30, 2006
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL ROADWAY/UTILITY TEMPORARY RELOCATION PLAN - 2

KAMEHAMEHA HIGHWAY REPLACEMENT OF KOKOLOLIO STREAM BRIDGE

Federal Aid Project No. BR-083-1(50)

Scale: As Noted Date: February 2010

SHEET No. **E-8** OF E-15 SHEETS

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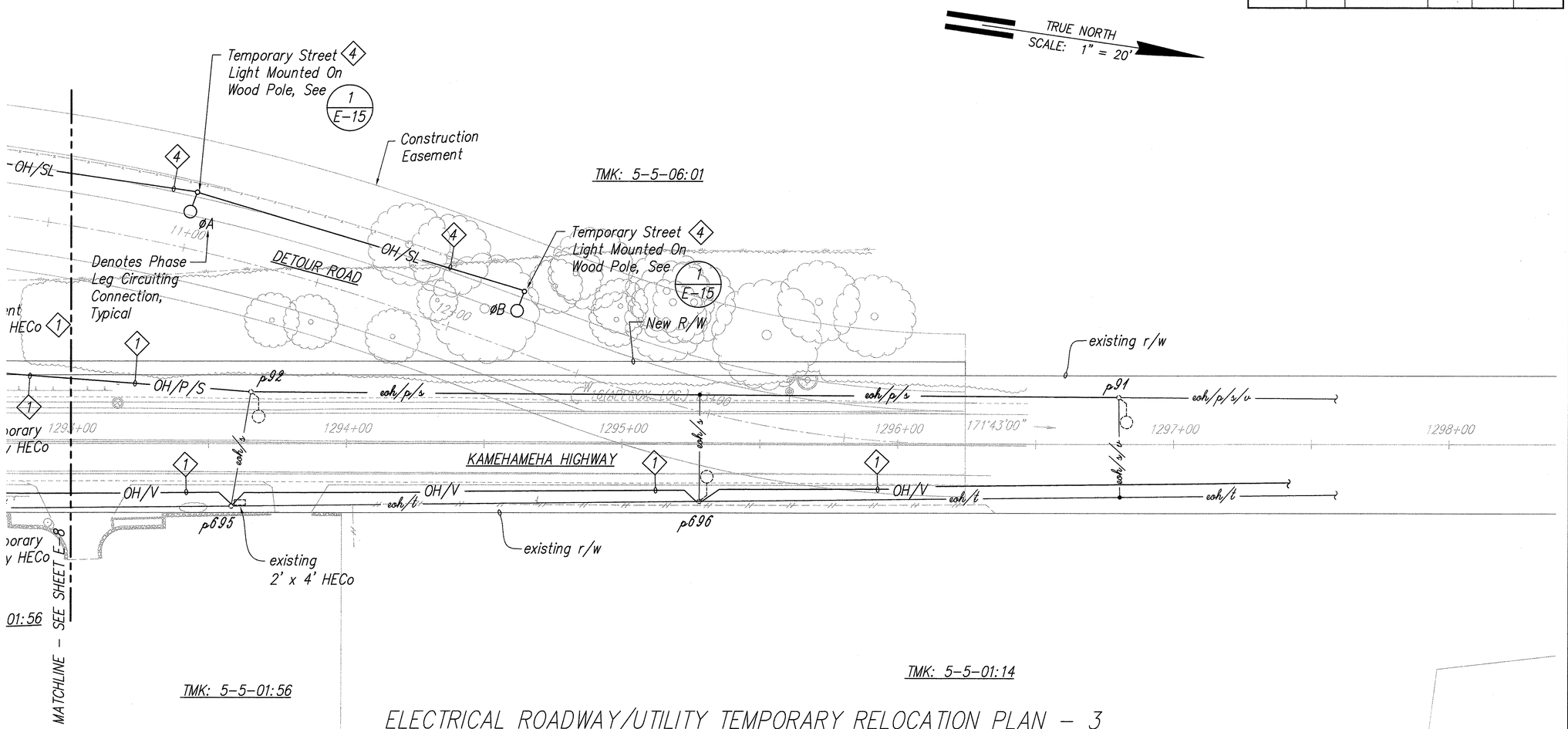
NOTE BOOK	TRACED BY	
	DESIGNED BY	
No.	QUANTITIES BY	
	CHECKED BY	

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-083-1(50)	2005	75	81



ELECTRICAL ROADWAY/UTILITY TEMPORARY RELOCATION PLAN – 3

Scale: 1" = 20'

NOTES:

1. Permanent Overhead Conductors/Utility Pole, By Utility Companies, Prior To Construction Of Bridge Replacement.
2. Not Used.
3. Not Used.
4. Remove Detour Road Lighting Wood Poles, Luminaires, Bracket Arms, Conductors and Other Equipment Associated With The Detour Road Lighting System After The Permanent Kamehameha Highway Lighting System Is Operational And Kamehameha Highway Is Permanently Re-Opened.

APPROVED

Hawaiian Electric Company, Inc. Date

Verizon Hawaii DPH 8/13/04 Date

Oceanic Time Warner Cable 8/18/04 Date

GRAPHIC SCALE

1" = 20' 20' 10' 0 20' 40'

DRAWING REVIEW

Reviewed for HECO's Facilities Only

Date 8/26/04 By

Engineering Department
Hawaiian Electric Company, Inc.

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HAWAII, U.S.A.

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PROJECT ENGINEER for ECS, Inc.

APRIL 30, 2006
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL ROADWAY/UTILITY TEMPORARY RELOCATION PLAN – 3

KAMEHAMEHA HIGHWAY
REPLACEMENT OF
KOKOLOLIO STREAM BRIDGE
Federal Aid Project No. BR-083-1(50)

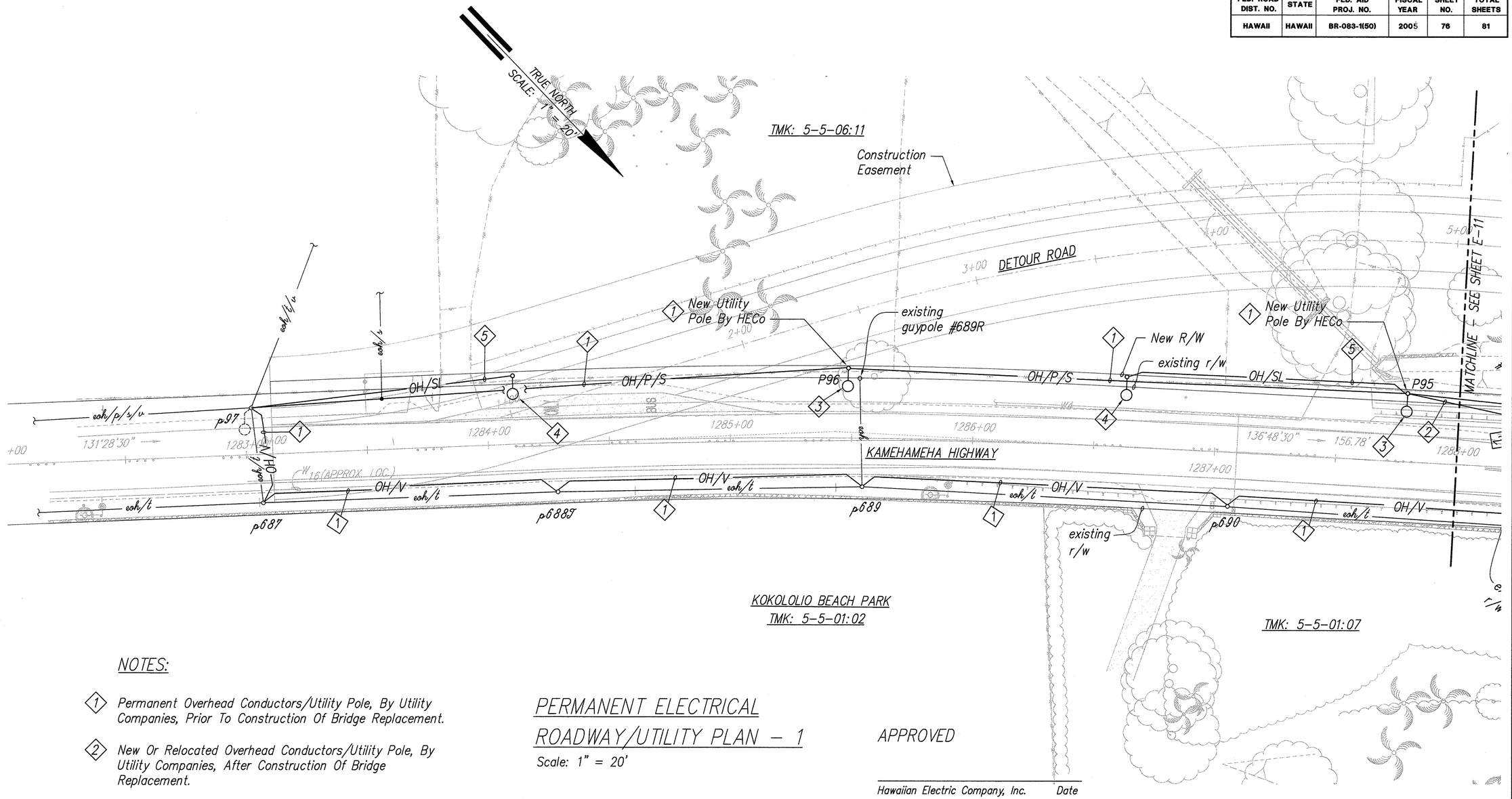
Scale: 1" = 20'-0" Date: August 2004

SHEET No. E-9 OF E-15 SHEETS

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

8/11/04-16:35 Y:\087\087.081\087.081 S06-TEMP.dwg

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-083-1(50)	2005	76	81



NOTES:

1. Permanent Overhead Conductors/Utility Pole, By Utility Companies, Prior To Construction Of Bridge Replacement.
2. New Or Relocated Overhead Conductors/Utility Pole, By Utility Companies, After Construction Of Bridge Replacement.
3. New 150W, HPS Street Lighting Luminaire And Bracket Arm Mounted On Joint Pole. Similar To 1/E-13 Except Wood Pole Provided By HECo.
4. New 150W, HPS Street Lighting Luminaire And Bracket Arm Mounted On State-Owned Wood Pole. See 1/E-13
5. New State-Owned 2/C#6 Aerial Cable, Type XLP.

PERMANENT ELECTRICAL ROADWAY/UTILITY PLAN - 1

Scale: 1" = 20'

APPROVED

Hawaiian Electric Company, Inc. Date

8/13/04
Verizon Hawaii Date

8/18/04
Oceanic Time Warner Cable Date

DRAWING REVIEW

Reviewed for HECO's Facilities Only

Date 8/16/04 By

Engineering Department
Hawaiian Electric Company, Inc.

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GRAPHIC SCALE

1" = 20' 20' 10' 0 20' 40'

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HAWAII, U.S.A.

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PROJECT ENGINEER for ECS, Inc.

APRIL 30, 2006
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PERMANENT ELECTRICAL ROADWAY/UTILITY PLAN - 1

KAMEHAMEHA HIGHWAY
REPLACEMENT OF
KOKOLOLIO STREAM BRIDGE
Federal Aid Project No. BR-083-1(50)

Scale: 1" = 20'-0" Date: August 2004

SHEET No. E-10 OF E-15 SHEETS

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

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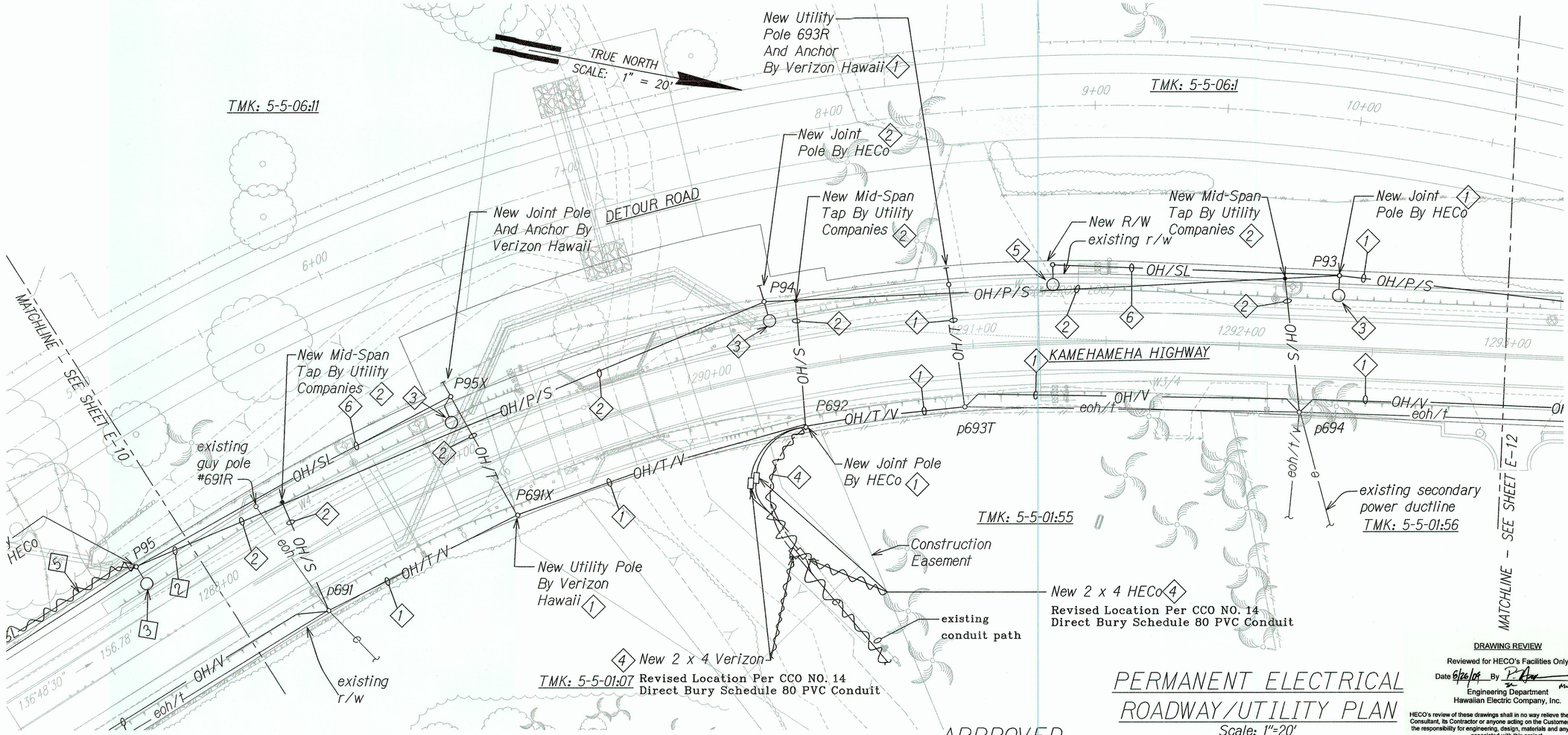
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-083-1(50)	2004	77	81


TRUE NORTH
SCALE: 1" = 20'
TMK: 5-5-06:11
TMK: 5-5-06:1
MATCHLINE - SEE SHEET E-10
MATCHLINE - SEE SHEET E-12
DETOUR ROAD
KAMEHAMEHA HIGHWAY
New Utility Pole 693R And Anchor By Verizon Hawaii 1
New Joint Pole By HECo 2
New Joint Pole And Anchor By Verizon Hawaii
New Mid-Span Tap By Utility Companies 2
New R/W
existing r/w
New Joint Pole By HECo 1
existing guy pole #691R
New Utility Pole By Verizon Hawaii 1
New Joint Pole By HECo 1
TMK: 5-5-01:55
Construction Easement
New 2 x 4 HECo 4
Revised Location Per CCO NO. 14
Direct Bury Schedule 80 PVC Conduit
existing conduit path
existing secondary power ductline
TMK: 5-5-01:56
4 New 2 x 4 Verizon
TMK: 5-5-01:07 Revised Location Per CCO NO. 14
Direct Bury Schedule 80 PVC Conduit
existing r/w
P94
P95X
P95
P691X
P692
p691
p693T
p694
P93
OH/P/S
OH/SL
OH/T/V
OH/V
eoh/t
6+00
7+00
8+00
9+00
10+00
1290+00
1291+00
1292+00
1293+00
1294+00
1295+00
1296+00
1297+00
1298+00
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1300+00
1301+00
1302+00
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1324+00
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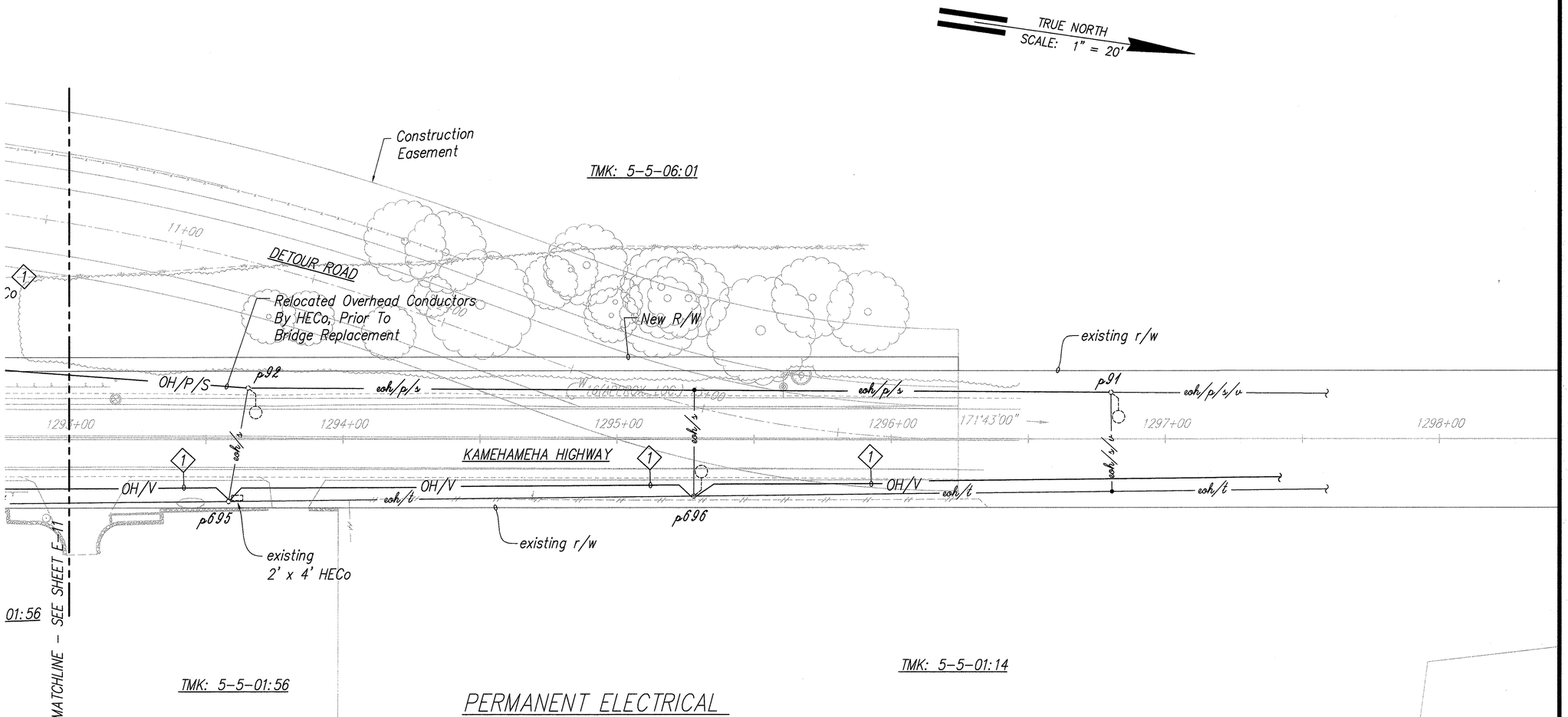
1329+00

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-083-1(50)	2005	78	81



PERMANENT ELECTRICAL ROADWAY/UTILITY PLAN – 3

Scale: 1" = 20'

NOTES:

1. Overhead Conductors Relocated By Oceanic Time Warner Cable Prior To Construction Of Bridge Replacement.

APPROVED

Hawaiian Electric Company, Inc. Date

8/13/04
Verizon Hawaii Date

Oana L. Porter 8/13/04
Oceanic Time Warner Cable Date

GRAPHIC SCALE
1" = 20' 20' 10' 0 20' 40'

DRAWING REVIEW
Reviewed for HECO's Facilities Only
Date 8/26/04 By
Engineering Department
Hawaiian Electric Company, Inc.
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LENNOX K. NISHIMURA LICENSED PROFESSIONAL ENGINEER No. 3880-E HAWAII, U.S.A.

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PROJECT ENGINEER for ECS, Inc.

APRIL 30, 2006
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PERMANENT ELECTRICAL ROADWAY/UTILITY PLAN – 3

KAMEHAMEHA HIGHWAY
REPLACEMENT OF
KOKOLOLIO STREAM BRIDGE
Federal Aid Project No. BR-083-1(50)

Scale: 1" = 20'-0" Date: August 2004

SHEET No. E-12 OF E-15 SHEETS

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

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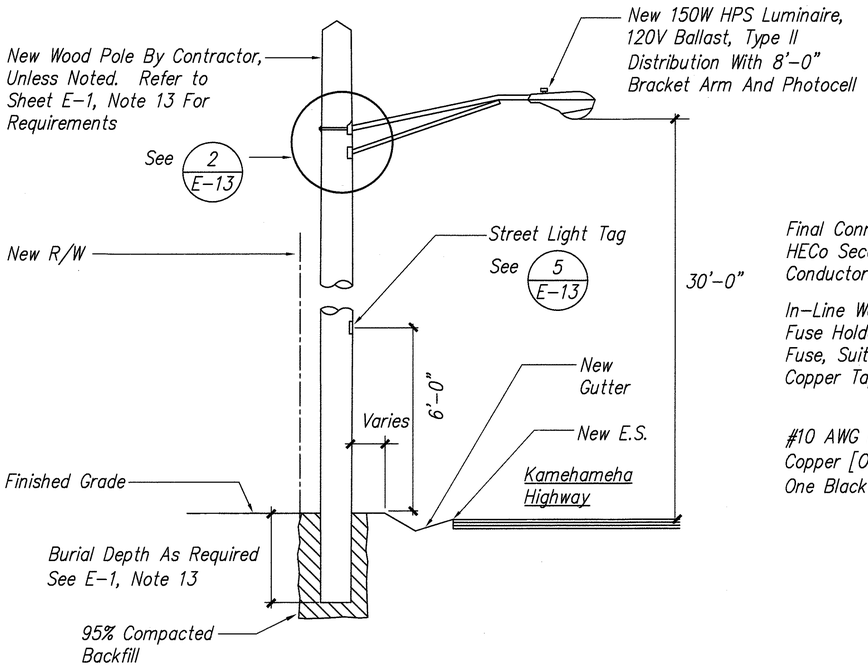
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-083-1(50)	2005	79	81

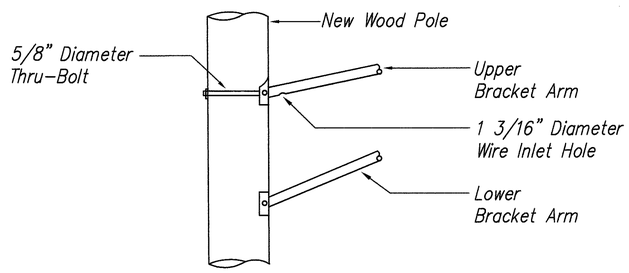


NOTES:

1. Pole Shall Be Treated With Pentachlorophenol Using The Ceflon Process By Licensed Termite Treatment Company.
2. Provide Mesh Termite Barrier Wood Pole Sock At Base Of Pole. See 1 / E-14

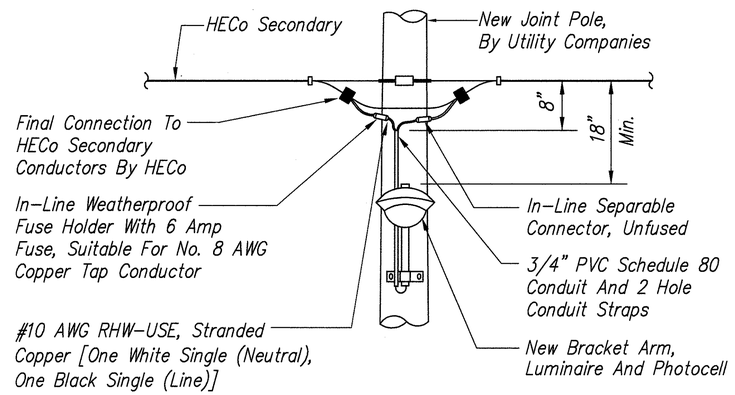
1 / E-13 STREET LIGHT/WOOD POLE DETAIL

Not To Scale



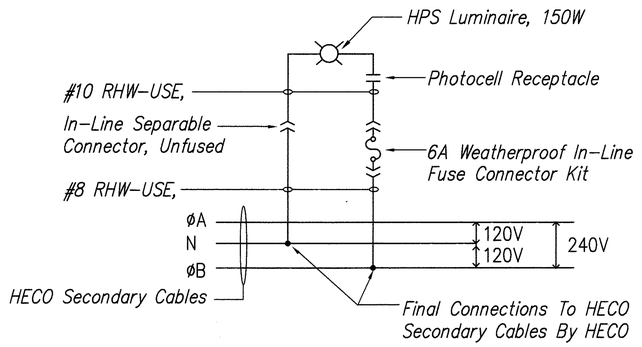
2 / E-13 BRACKET ARM MOUNTING DETAIL

Not To Scale



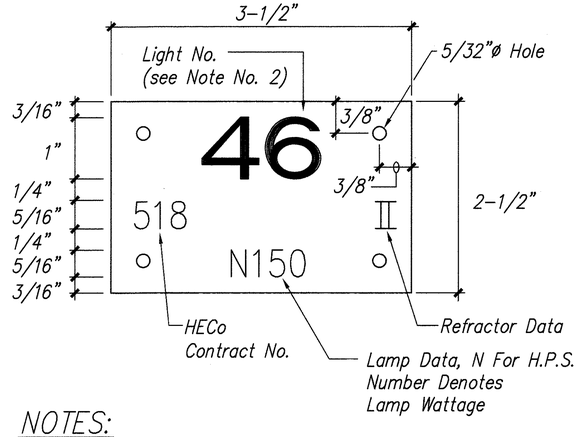
3 / E-13 STREET LIGHT ON JOINT POLE

Not To Scale



4 / E-13 STREET LIGHT ON JOINT POLE WIRING DIAGRAM

Not To Scale



NOTES:

1. Use 3-Ply Laminated Flexible Plastic Black-White-Black Thickness; Black Cap Sheet-0.010", White Base Sheet-0.052", Black Base Sheet-0.010".
2. Light Number Size Shall Be 1" High And Engraved 1/8" Wide, White In Color. Obtain Light Numbers From The State.
3. Nomenclature Size Shall Be 5/16" High And Engraved 1/32" Wide, White In Color (HECo Contract Number, Lamp Data And Refractor Data As Required).
4. Attach To Wood Poles With 4D Aluminum Nails.
5. Numbers Are Inscribed By Cutting Through "Black Cap Sheet" To Expose "White Letters".

5 / E-13 STREET LIGHT TAG

Not To Scale

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

DRAWING REVIEW
Reviewed for HECO's Facilities Only
Date 6/16/09 By P. Yau
Engineering Department
Hawaiian Electric Company, Inc.
HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

APPROVED

Hawaiian Electric Company, Inc. Date

LENNOX K. NISHIMURA
LICENSED PROFESSIONAL ENGINEER
No. 3880-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

PROJECT ENGINEER for ECS, Inc.

APRIL 30, 2006
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING DETAILS

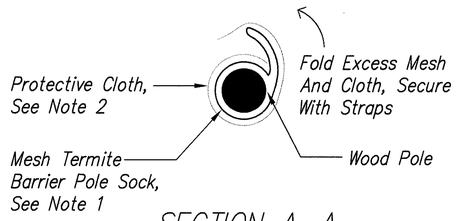
KAMEHAMEHA HIGHWAY
REPLACEMENT OF
KOKOLOLIO STREAM BRIDGE
Federal Aid Project No. BR-083-1(50)

Scale: None Date: August 2004

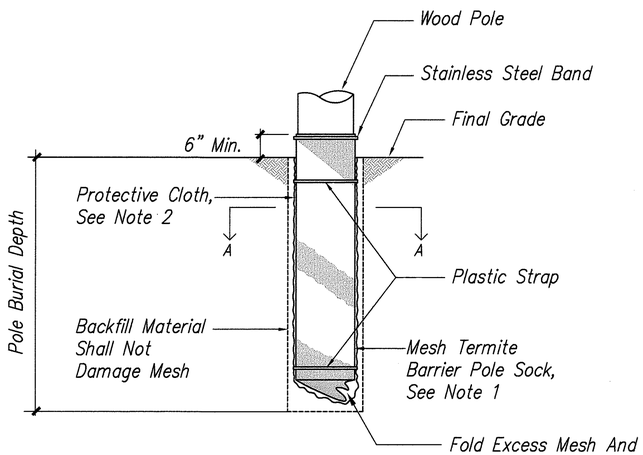
SHEET No. E-13 OF E-15 SHEETS

8/23/04-10:30 Y:\087\087.081\087.081 T02.dwg

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-083-1(50)	2005	80	81



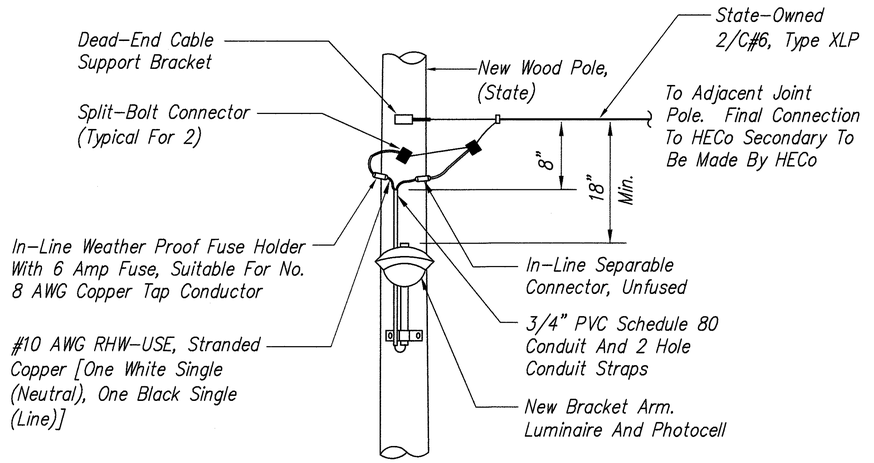
SECTION A–A



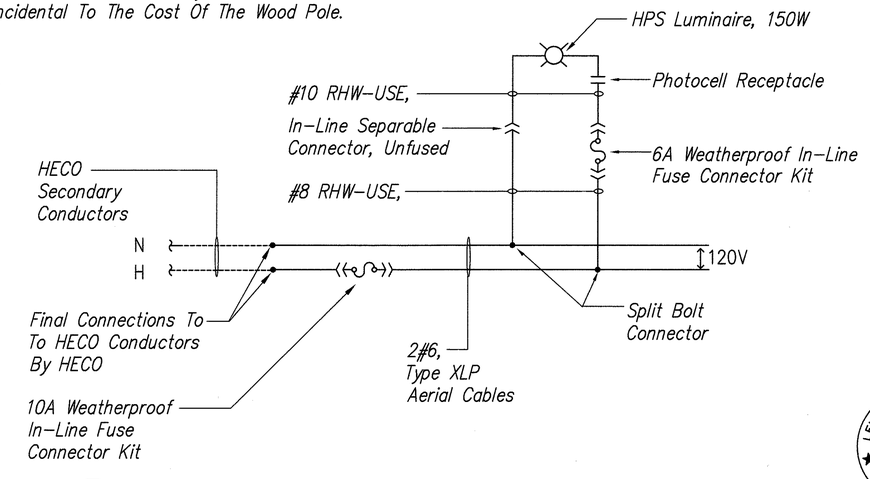
1 E–14 WOOD POLE TERMITE BARRIER
Not To Scale

NOTES:

1. The Sock Material Shall Be Manufactured From AIAA Marine Grade Stainless Steel Mesh of 0.007 Inch Diameter Wire With Mesh Openings Of 0.026 Inch x 0.018 Inch, Conforming To ASTM A478 and ASTM A580/A580M. The Stainless Steel Mesh Shall Be Joined By Minimum 0.39 Inch Physical Lap Joint (Triple Fold) And Strengthened By A Hot Glue Gun Continuously Along The Joint, With A 1" Safety Fold On Top. The Sock Shall Be Manufactured To Provide Adequate Termite Protection For All Classes Of Wood Poles.
2. A Protective Fabric Shall Be Provided And Installed Over The Mesh To Protect The Mesh From Damage Caused By Rocks Or Protrusions In The Hole. The Cloth Fabric Shall Be Manufactured From High Density Polyethylene Film, Knitted, Made From Extruded Resin With Density Of 0.945g/cm3 And Melting Point Of 257 Degree F., With Mechanical Properties Conforming To ASTM D638 And D790.
3. The Sock And Protective Barrier Shall Be Installed By Certified Technicians Who Have Recieved Comprehensive Training In Termite Control And Sock Installation Techniques. Installations Shall Be Made In Accordance With Precise Specifications. Materials Of The Barrier System Shall Be Engineered To Last The Life Of The Protected Wood Poles. Termite Barrier Materials and Installation Techniques Shall Be Submitted To The Engineer For Acceptance.
4. The Cost For The Termite Barrier System Shall Be Considered Incidental To The Cost Of The Wood Pole.



2 E–14 STREET LIGHT ON STATE POLE
Not To Scale



3 E–14 STREET LIGHT ON STATE POLE WIRING DIAGRAM
Not To Scale

APPROVED

Hawaiian Electric Company, Inc. Date

DRAWING REVIEW
Reviewed for HECO's Facilities Only
Date 6/20/06 By
Engineering Department
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

LENNOX K. NISHIMURA LICENSED PROFESSIONAL ENGINEER No. 3880–E HAWAII, U.S.A.

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PROJECT ENGINEER for ECS, Inc.

APRIL 30, 2006
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING DETAILS

KAMEHAMEHA HIGHWAY
REPLACEMENT OF
KOKOLOLIO STREAM BRIDGE
Federal Aid Project No. BR–083–1(50)

Scale: None Date: August 2004

SHEET No. E-14 OF E-15 SHEETS

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

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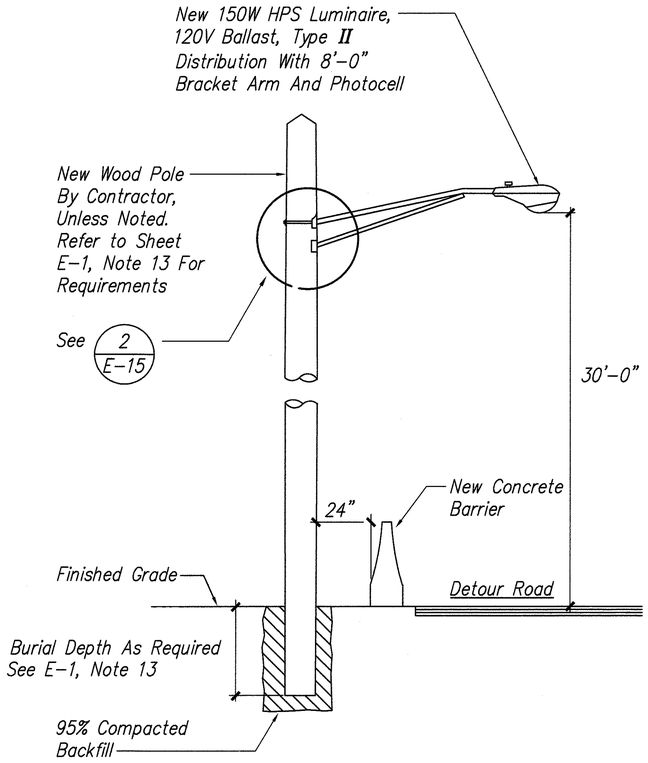
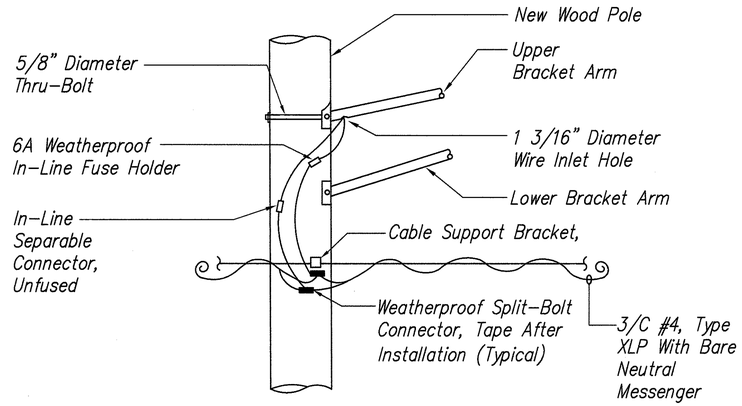
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-083-1(50)	2005	81	81



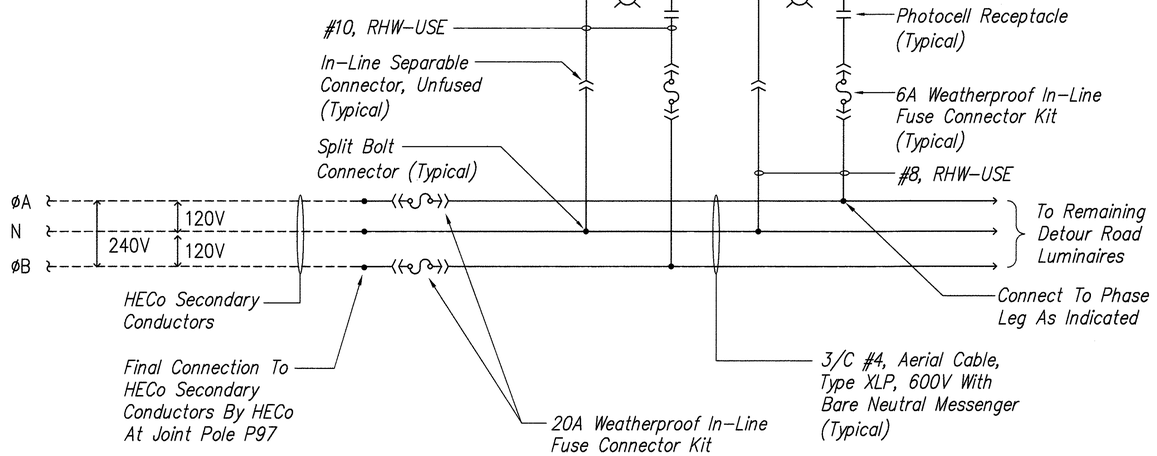
NOTE:

Pole Shall Be Treated With Pentachlorophenol Using The Ceflon Process By Licensed Termite Treatment Company.

1 / E-15 DETOUR ROAD LIGHT DETAIL
Not To Scale



2 / E-15 DETOUR ROAD LUMINAIRE CONNECTION DETAIL
Not To Scale



3 / E-15 TYPICAL DETOUR ROAD LUMINAIRE WIRING DIAGRAM
Not To Scale

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING REVIEW
Reviewed for HECO's Facilities Only
Date 6/6/08 By
Engineering Department
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project.

APPROVED

Hawaiian Electric Company, Inc. Date

LENNOX K. NISHIMURA
LICENSED PROFESSIONAL ENGINEER
No. 3880-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

PROJECT ENGINEER for ECS, Inc.

APRIL 30, 2006
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETOUR ROAD LIGHTING DETAILS

KAMEHAMEHA HIGHWAY
REPLACEMENT OF
KOKOLOLIO STREAM BRIDGE
Federal Aid Project No. BR-083-1(50)

Scale: None Date: August 2004

SHEET No. E-15 OF E-15 SHEETS

8/23/04-10:31 Y:\087\087.081\087.081 T01.dwg