

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	264	288

General Construction Notes:

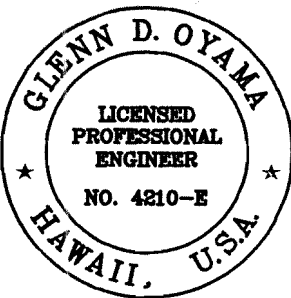
1. Applicable Construction Work Shall Be Done in Accordance With the Standard Details for Public Works Construction of the Department of Public Works, City and County of Hilo.
2. It Is Not the Intent of These Plans and Specifications to Imply that All Existing Utilities Are Shown on the Plans. Only Those Underground Pipes, Cables, Ductlines, Etc. Known to Exist by the Engineer from His Search of Records at the Time of Design Are Indicated on the Plans. The Contractor Shall Arrange with the Respective Utility Companies to Tone and Mark the Location and Depth of the Existing Facilities.
3. The Contractor Shall Exercise Proper Care when Excavating in Areas with Existing Underground Facilities. The Contractor Shall be Responsible to Repair and/or Pay Any Damages to the Existing Facilities. Damages to Existing Facilities Shall Be Reported Immediately to The Utility Company Concerned.
4. No Contractor Shall Perform Any Trenching Operation so as to Cause Falling Rocks, Soil or Debris in Any Form to Fall, Slide or Flow onto Adjoining Properties, Streets or Natural Watercourses. Should Such Violations Occur, the Costs Incurred for Any Remedial Action by the Chief Engineer Shall Be Payable by the Contractor.
5. The Contractor Shall Keep All Bikeways, Walkways, Driveways, Parking Lots and Roadways Open for Pedestrian and/or Vehicular Traffic. Safety Barriers and Appropriate Warning Signs and Devices Shall Be Provided at All Times for the Safety of Pedestrians and/or Vehicles.
6. The Contractor Shall, at His Own Expense, Keep the Project Area and the Surrounding Area Free from Dust Nuisances. The Work Shall Be in Conformance with the Air Pollution Control Standards and Regulations of the Department of Health, State of Hawaii.
7. The Contractor Shall Be Responsible for Conformity with the Applicable Provisions of Chapter 54, Water Quality Standards and Chapter 55, Water Pollution Control, of Title 11, Administrative Rules of the State Department of Health.
8. Excavated Material Shall Be Hauled and Disposed by the Contractor.
9. Open Trenches Shall Be Prohibited During Non-Working Hours.

10. The Contractor Shall Be Responsible to Investigate, Probe, Tone, Expose, Locate and Protect the Existing Underground Utilities Affected by This Project. Contractor Shall Be Required to Adjust the Installation of the New Light Poles to Clear Existing Underground Systems at No Additional Cost to the State. Contractor Shall Be Required to Repair All Damages to the Existing Systems Caused by His Negligence at No Additional Cost to the State. All Repair Work Shall Be Done in Accordance with the Standards of the Department of Design and Construction and the Various Utility Companies.
11. The Contractor Shall Be Required to Restore the Existing Grass Areas Damaged to Construction. Topsoiling and Grassing Shall Be in Accordance with DPR Standard Specifications for Landscaping.
12. The Contractor Shall Visit Site, Verify All Existing Dimensions, As Built Conditions, Structures, Site Improvements, Etc. Prior to Bidding.
13. The Contractor Shall Coordinate His Operations with Those of Other Contractors Who May Be Employed on Adjacent or Related Projects of the City and Avoid Unnecessary Delay or Hindrance in the Performance of Their Respective Contracts.
14. The Contractor Is to Protect Existing Landscape Structures. All Damages Shall Be Repaired/Replaced to the Satisfaction of the Officer-In-Charge at No Additional Cost to the State.
15. The Contractor Shall Provide for Provision to the Officer-In-Charge to Revise Location of Light Poles, Fixtures & Ductlines $\pm 10'$. The Contractor Shall Re-Layout and Adjust at No Additional Cost to the State.
16. Trim Tree Branches as Required for Installation of Street Lighting Standard Assembly.
17. The Contractor Shall Provide Additional Wiring as Required to Maintain Operational Existing Pole Lights, Traffic Signal Lights, Etc. Indicated To Remain.

Electrical Symbols		
Exst	New	Description
		Street Light Standard on Utility Pole
		HELCO Meter
		Street Light Pullbox, SLD-1 Type
		Utility Pole
		Over Head Line

TRIM

ORIGINAL PLAN	NO.	SURVEY PLATTED BY	DATE
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		DESIGNED BY	
		CHECKED BY	

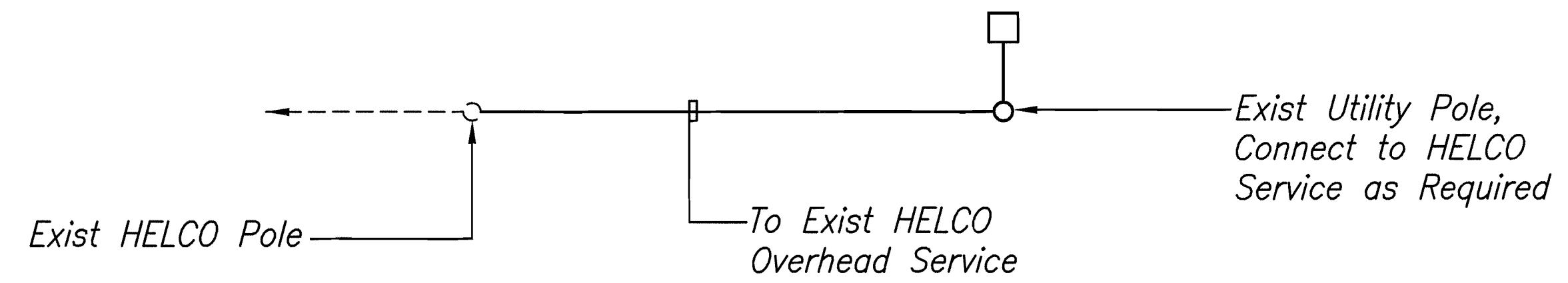
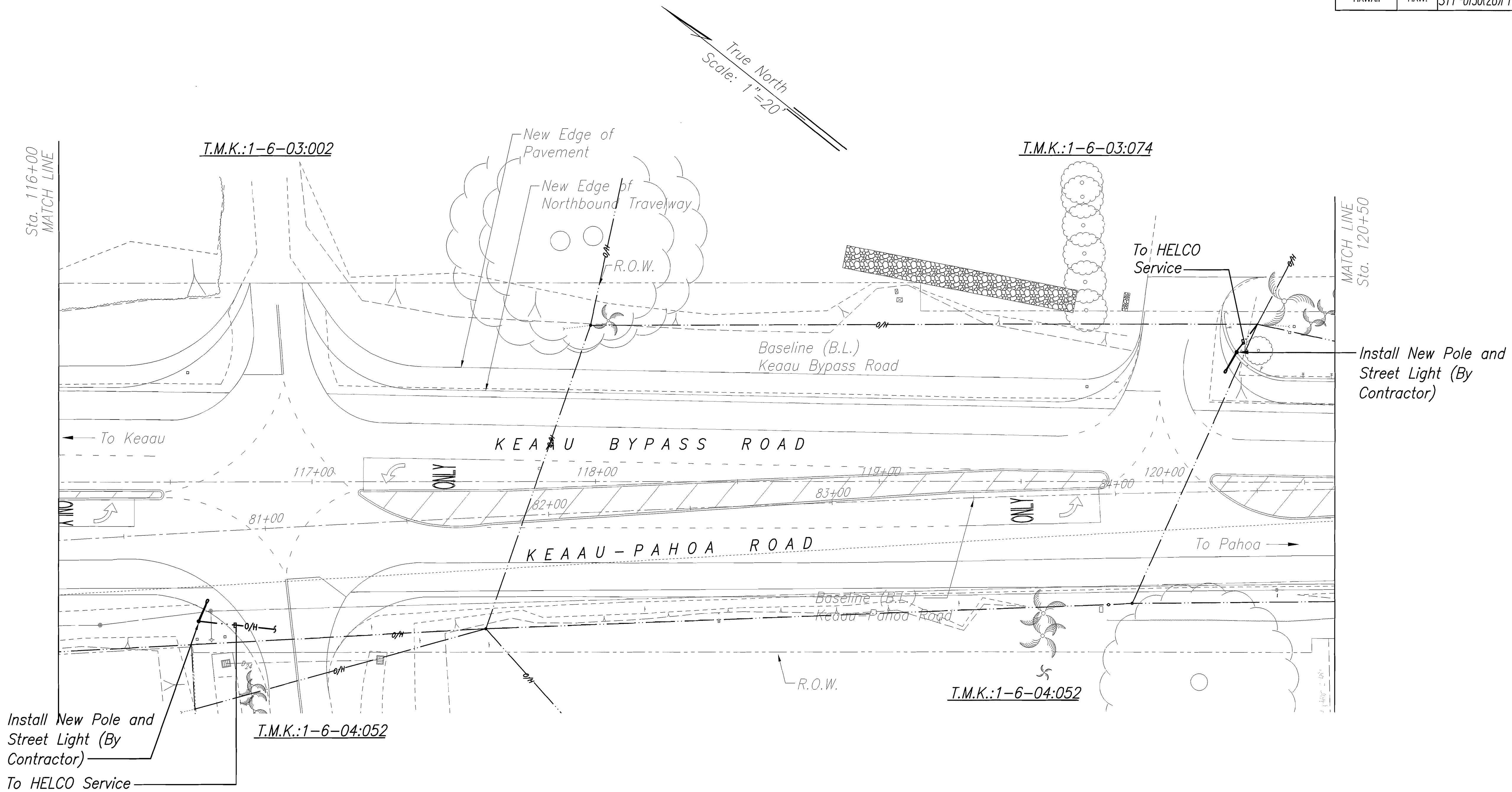


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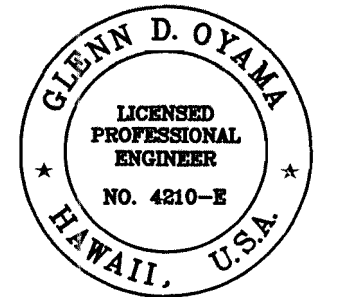
Glenn D. Oyama
NAKAMURA, OYAMA & ASSOC. APRIL 30, 2014
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
GENERAL CONSTRUCTION NOTES
ELECTRICAL SYMBOLS
KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1
Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: Not To Scale Date: June 2012
SHEET No. E-1 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	265	288



STREET LIGHT ONE-LINE DIAGRAM (TYPICAL)
 Scale: N.T.S.



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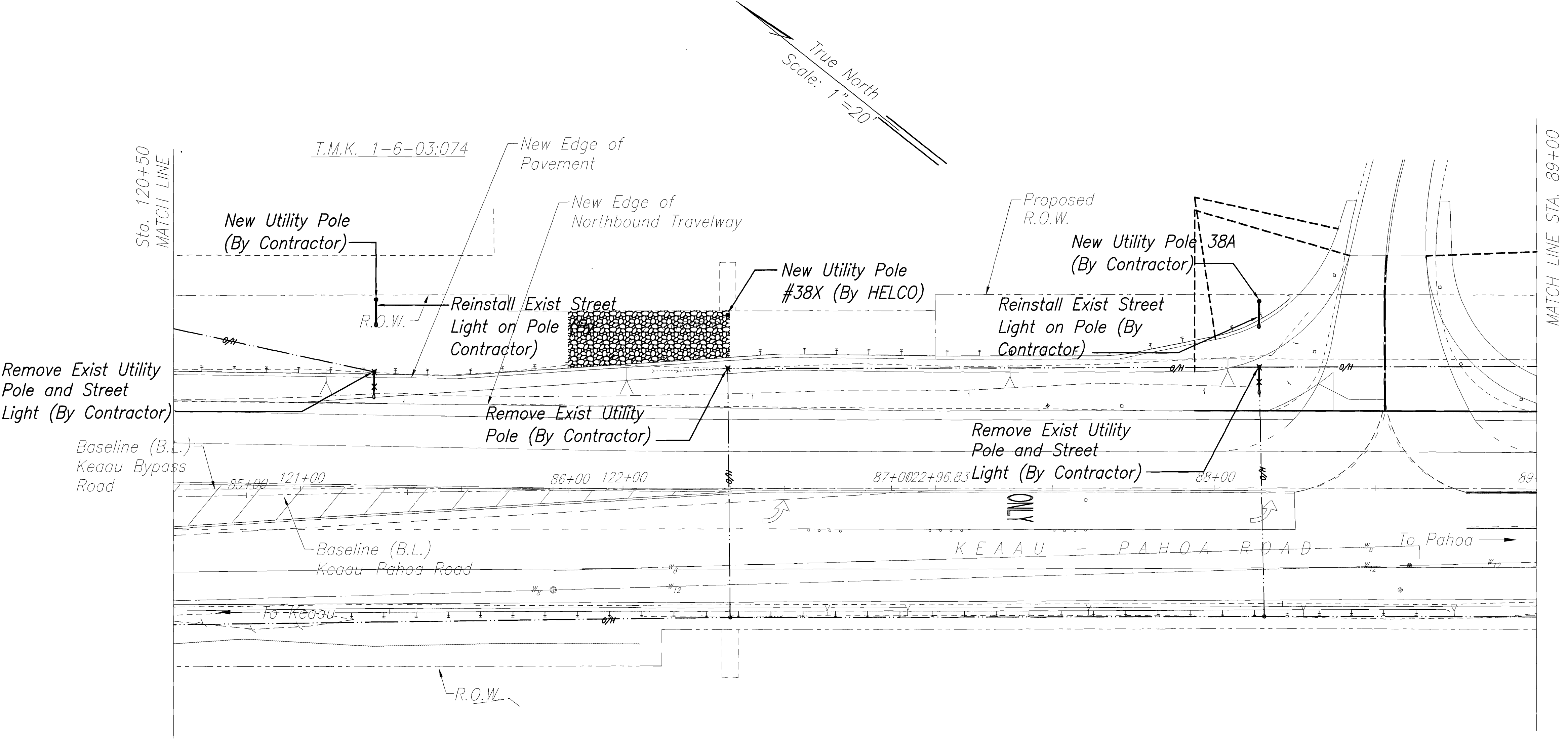
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SITE ELECTRICAL PLAN
 KEAAU-PAHOA ROAD, SHOULDER
 LANE CONVERSION, PHASE 1
 Keaau Bypass Road to Shower Drive
 Fed. Aid Proj. No. STP-0130(28), Phase 1
 Scale: 1"=20' Date: June 2012

SHEET No. E-2 OF 25 SHEETS

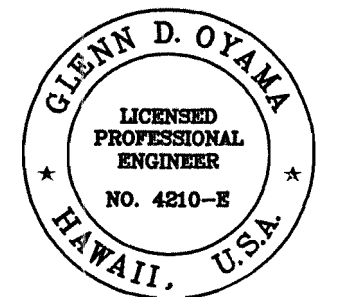
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NO. 1	DRAWN BY	
NO. 2	DESIGNED BY	
NO. 3	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	266	288



Note: All Utility Poles to be Relocated Within 1' (Preferable) But Not More Than 5' From New ROW. Verify Location With Civil Engineers.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	



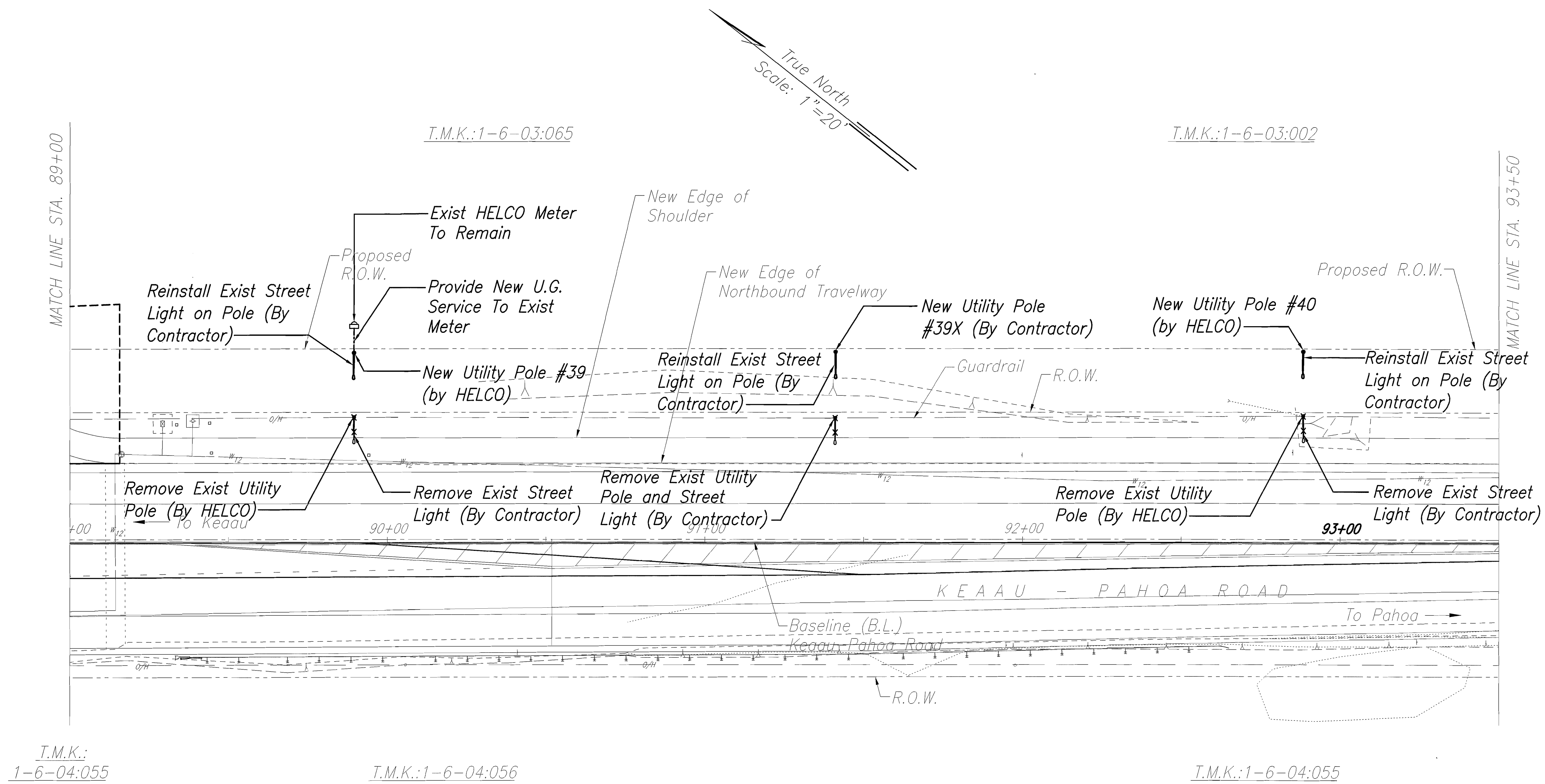
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

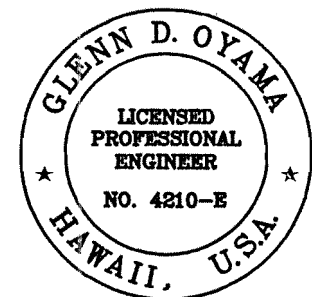
SITE ELECTRICAL PLAN

**KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1**
Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012
SHEET No. E-3 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	267	288



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NAKAMURA, OYAMA & ASSOC. APRIL 30, 2014
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SITE ELECTRICAL PLAN

KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1

Keaau Bypass Road to Shower Drive

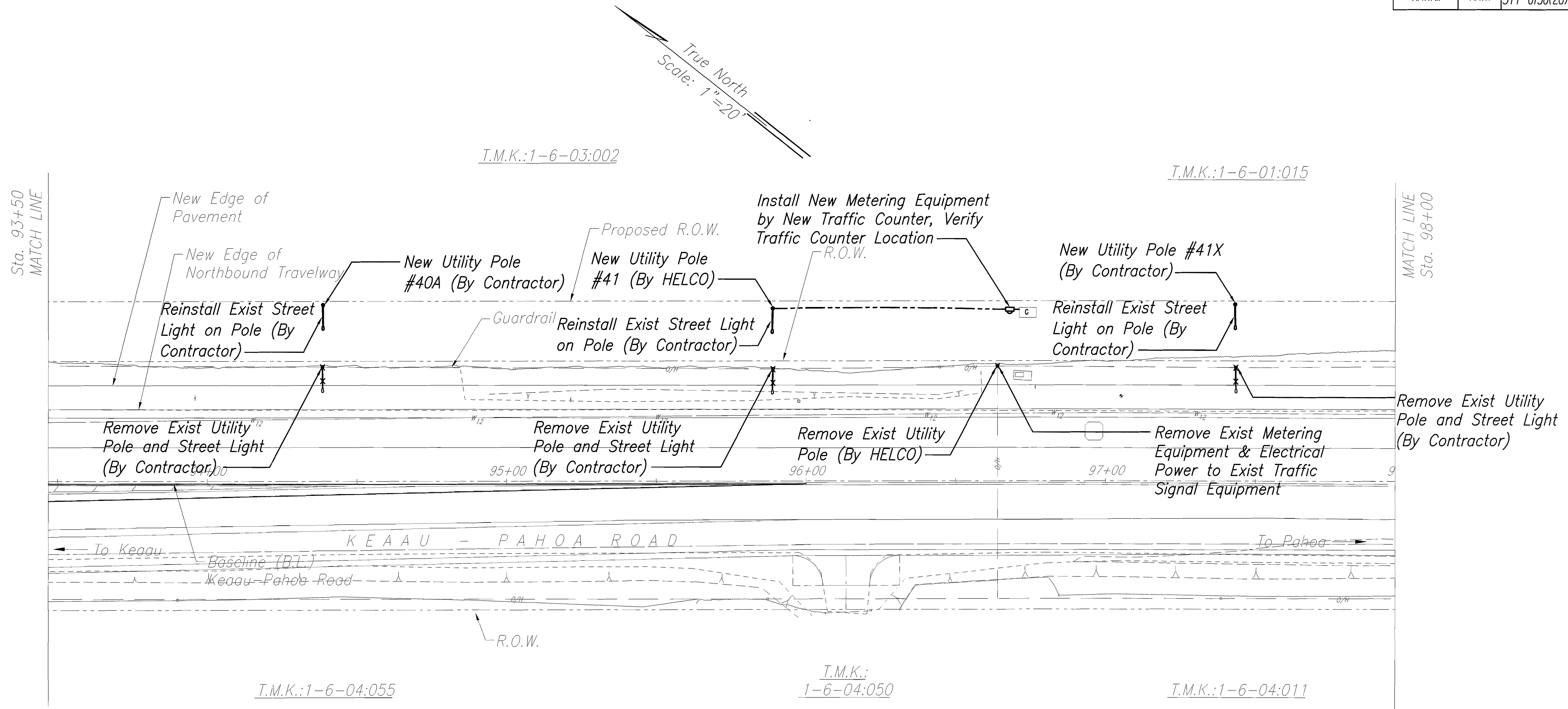
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Scale: 1"=20' Date: June 2012

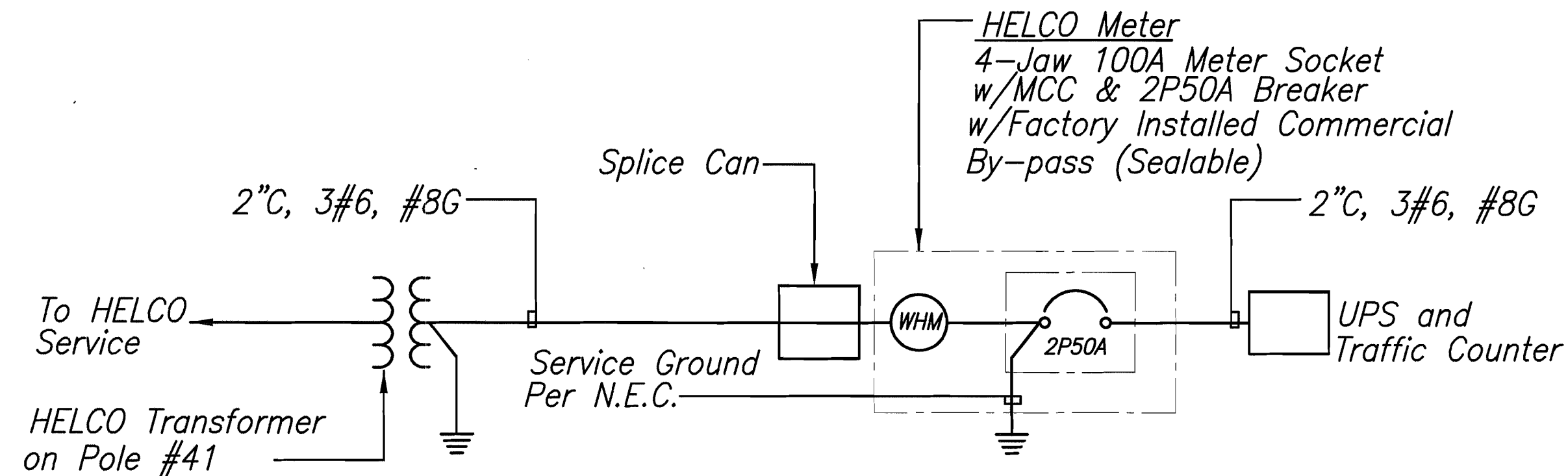
SHEET No. E-4 OF 25 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	268	288



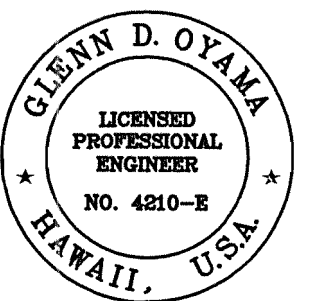
Note: All Utility Poles to be Relocated Within 1' (Preferable) But Not More Than 5' From New ROW. Verify Location With Civil Engineers.



TRAFFIC SIGNAL ONE-LINE DIAGRAM
Scale: Not To Scale

Service Data:

1. Service Voltage: 120/240V, 1 Phase, 3 w.
2. Load Data: Connected: 5 KVA Estimated Deman: 2 KVA
3. Service Conductors: 3#6, 1#8 G.
4. Metering: HELCO Meter Std. B-5; Rate Schedule: "G".
5. Type: Underground.
6. Billing Information: State of Hawaii, DOT. HWY. DIV.



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NAKAMURA, OYAMA & ASSOC. APRIL 30, 2014
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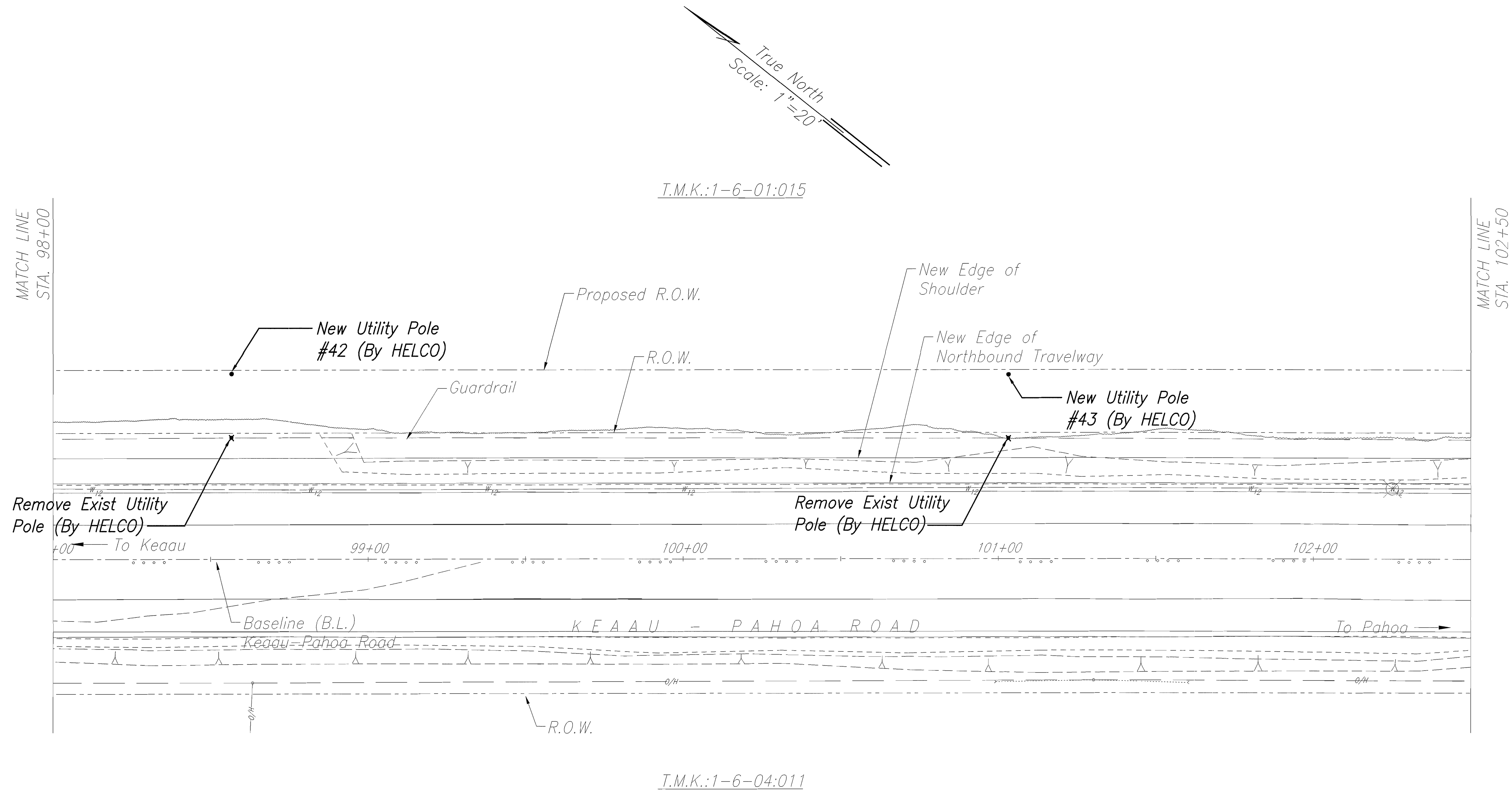
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SITE ELECTRICAL PLAN

KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1
Keau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012

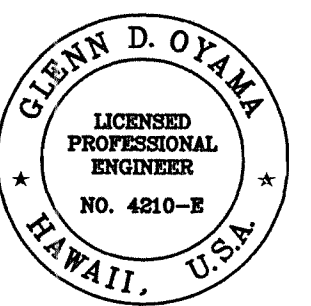
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	269	288



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ORIGINAL PLAN	SURVEY PLATTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	CHECKED BY	
	NO.	



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NAKAMURA, OYAMA & ASSOC. LIC. EXP. DATE

STATE OF HAWAII
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HIGHWAYS DIVISION

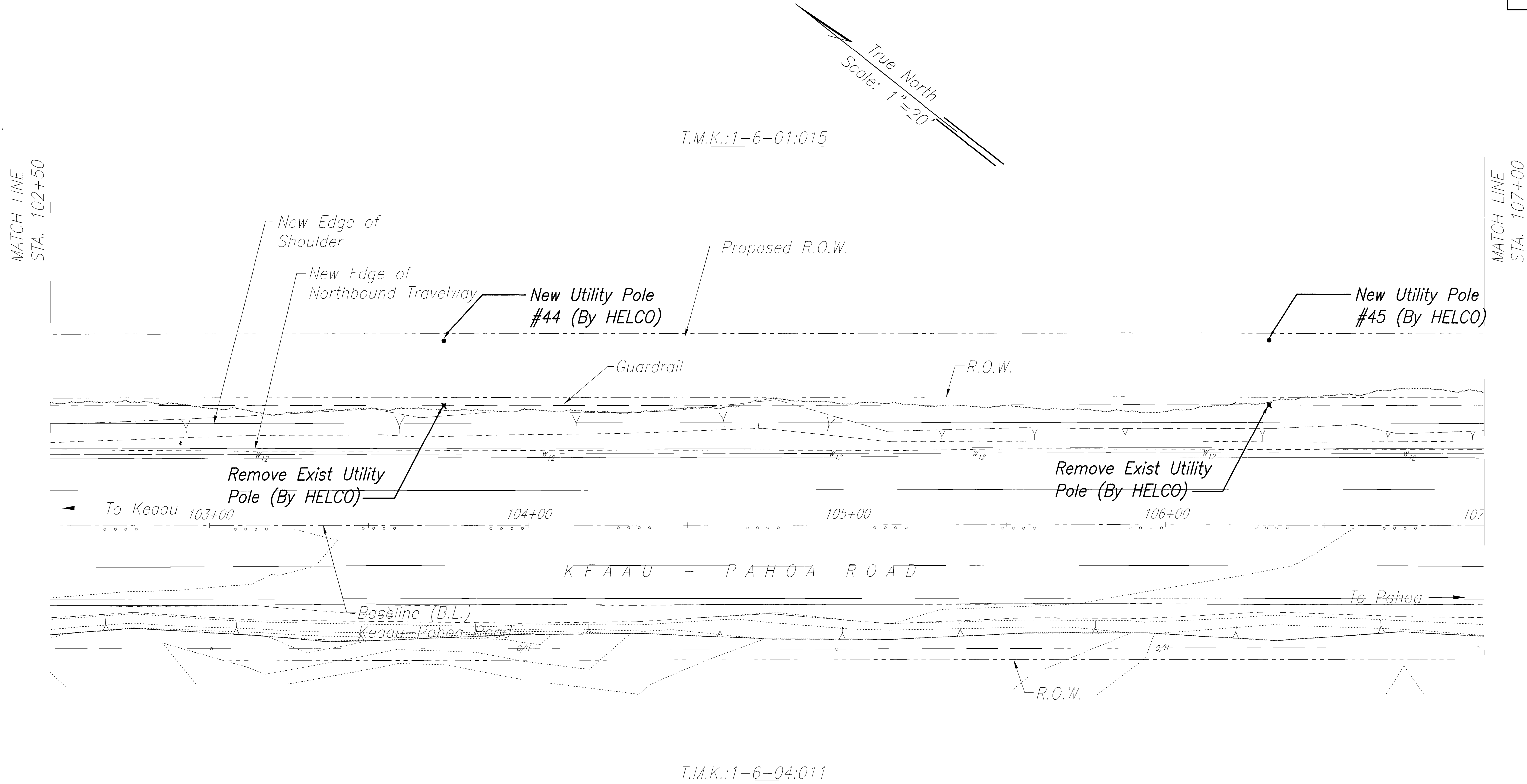
SITE ELECTRICAL PLAN

KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1

Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012

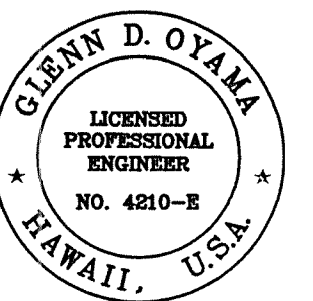
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	270	288



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



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NAKAMURA, OYAMA & ASSOC. APRIL 30, 2014
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

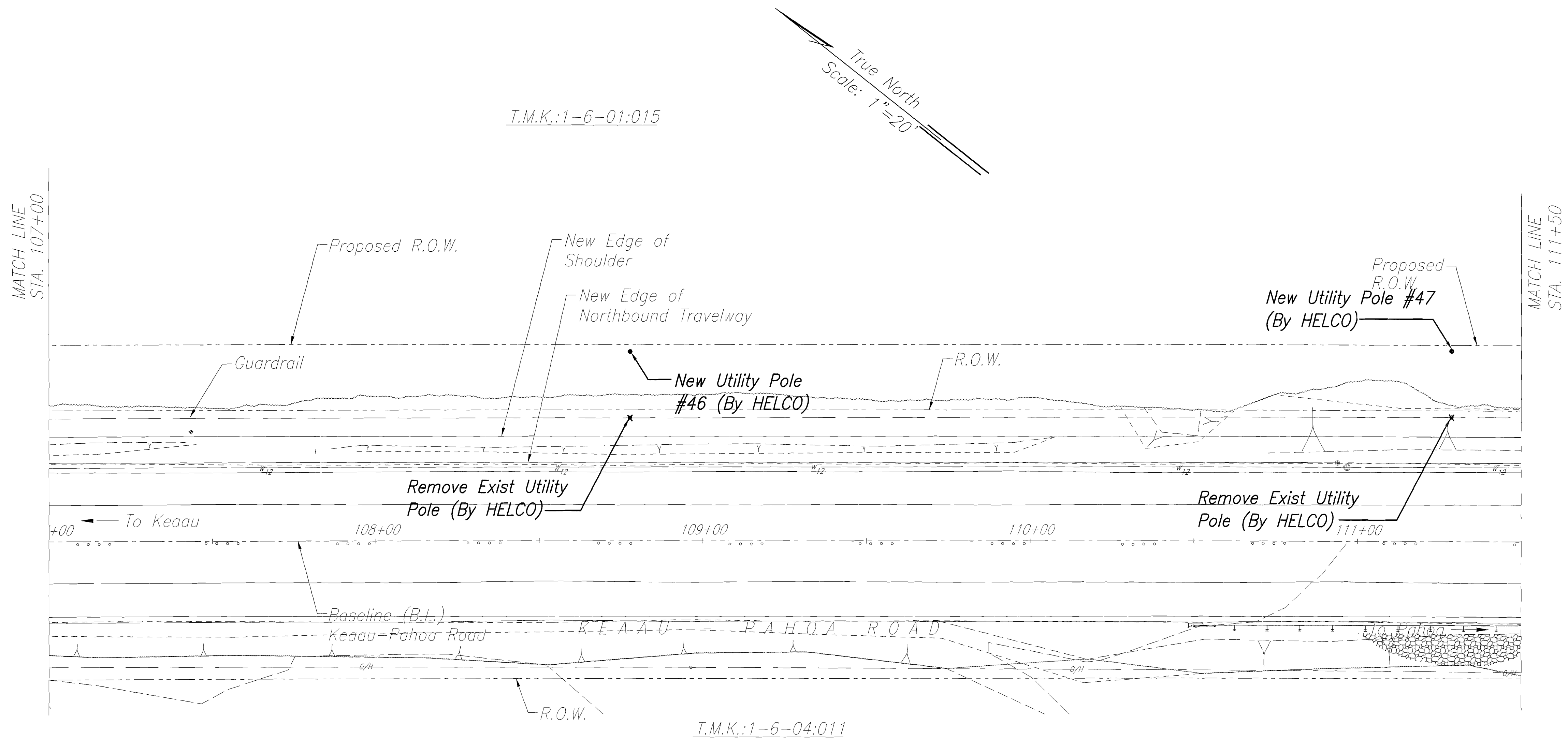
SITE ELECTRICAL PLAN

**KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1**

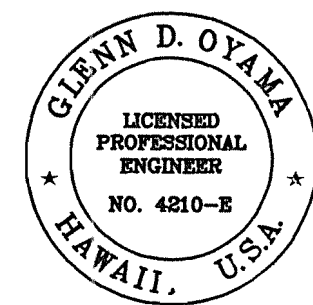
Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012

SHEET No. E-7 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	271	288



Note: All Utility Poles to be Relocated Within 1' (Preferable) But Not More Than 5'
From New ROW. Verify Location With Civil Engineers.



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NAKAMURA, OYAMA & ASSOC. APRIL 30, 2014
LIC. EXP. DATE

ORIGINAL PLAN	SURVEY PLATTED BY	DATE
NOTE BOOK	DRAWN BY	
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

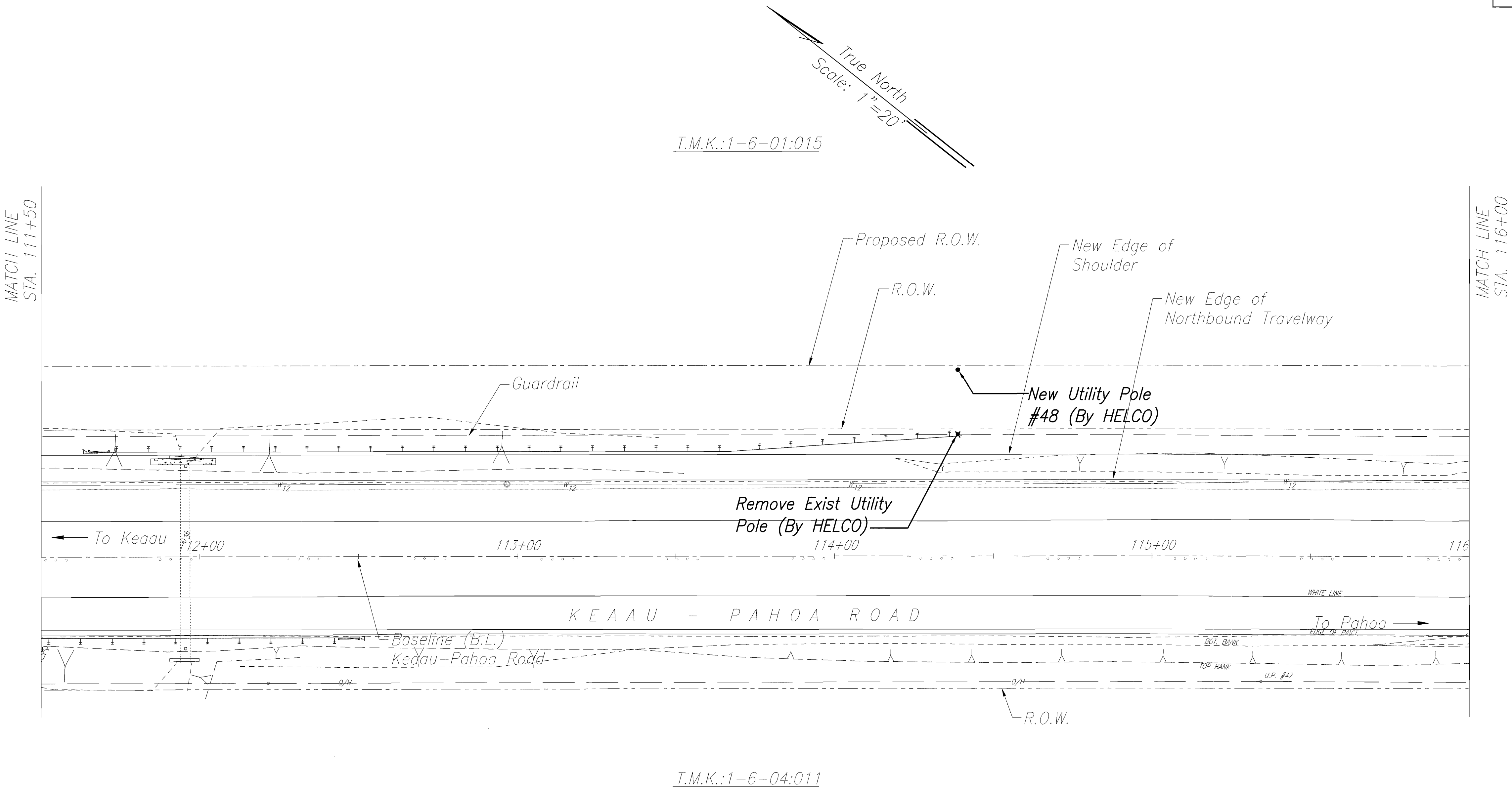
SITE ELECTRICAL PLAN

**KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1**

Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012

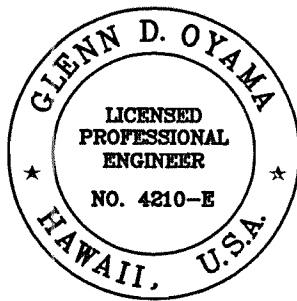
SHEET No. E-8 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	272	288



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ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DESIGNED BY	
No.	QUANTITIES BY	
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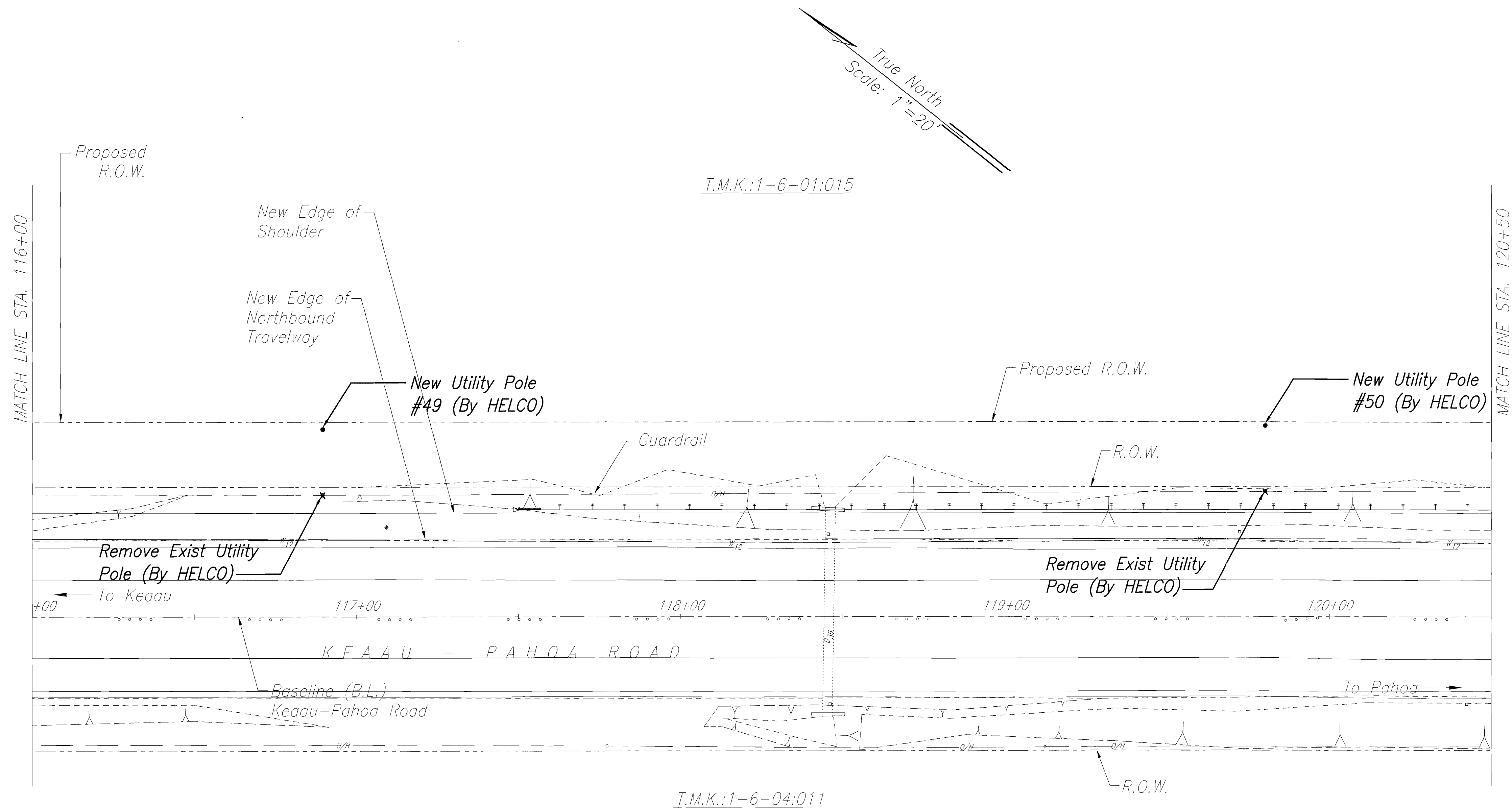
Glenn D. Oyama
NAKAMURA, OYAMA & ASSOC. APRIL 30, 2014
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

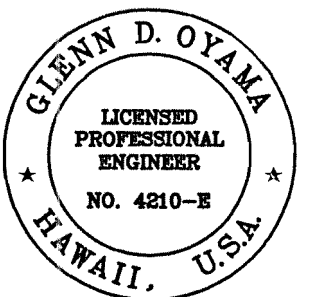
SITE ELECTRICAL PLAN

KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1
Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012
SHEET No. E-9 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	273	288



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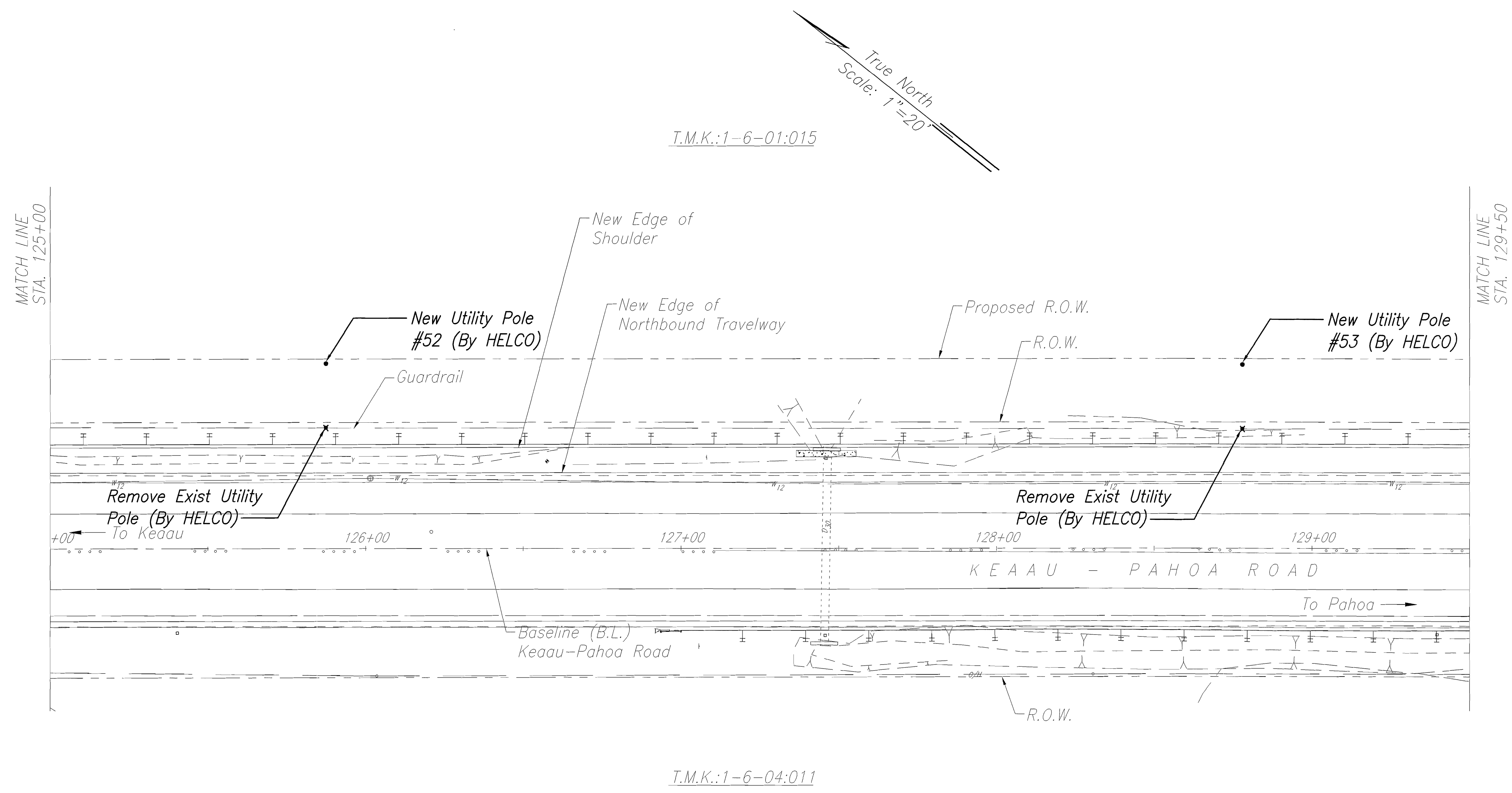
Glenn D. Oyama APRIL 30, 2014
NAKAMURA, OYAMA & ASSOC. L.L.C. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
SITE ELECTRICAL PLAN
KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1
Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012

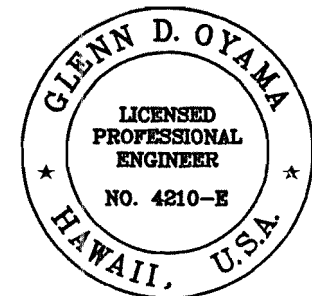
SHEET No. E-10 OF 25 SHEETS

ORIGINAL PLAN	DATE
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	275	288



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Glenn D. Oyama APRIL 30, 2014
NAKAMURA, OYAMA & ASSOC. LIC. EXP. DATE

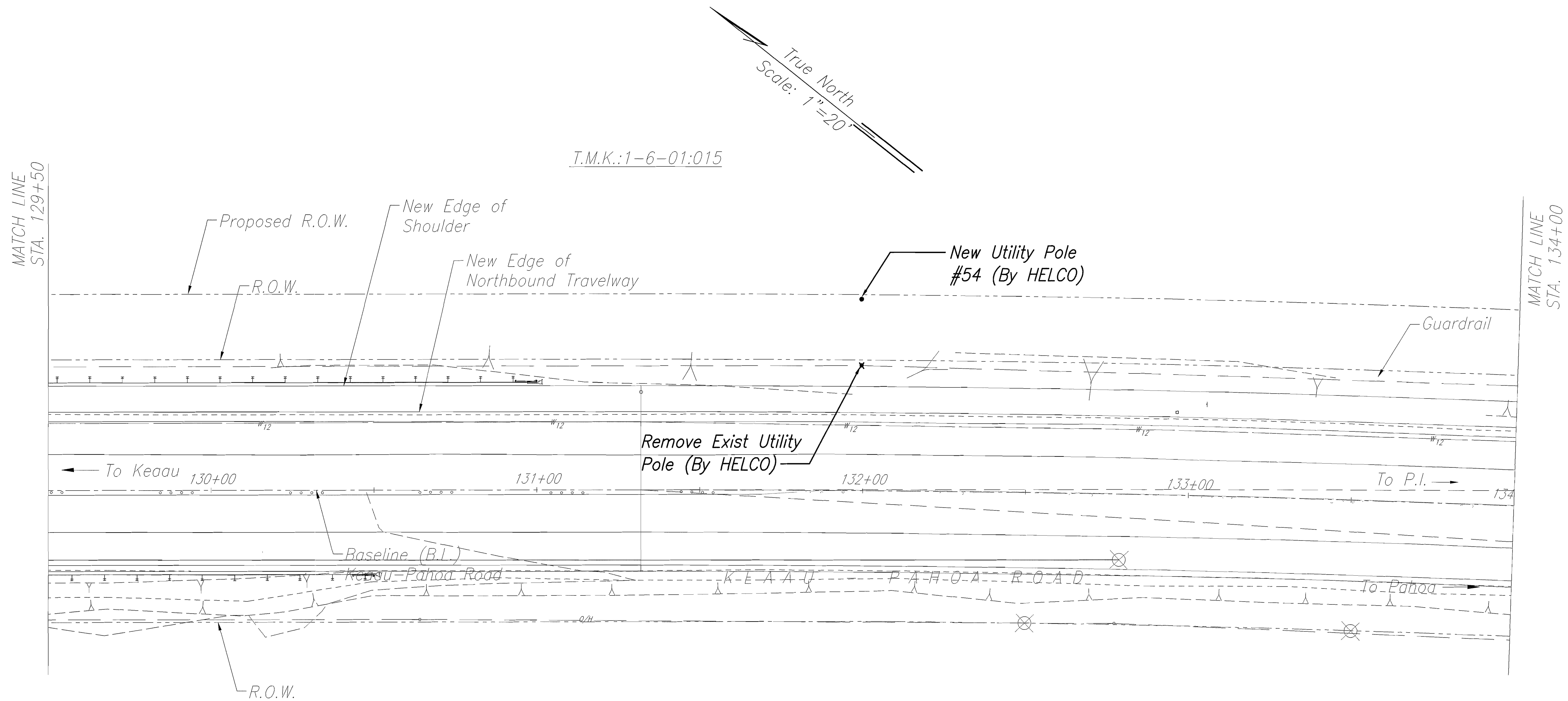
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SITE ELECTRICAL PLAN

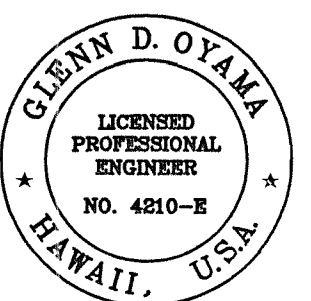
KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1
Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012
SHEET No. E-12 OF 25 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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NAKAMURA, OYAMA & ASSOC. APRIL 30, 2014
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

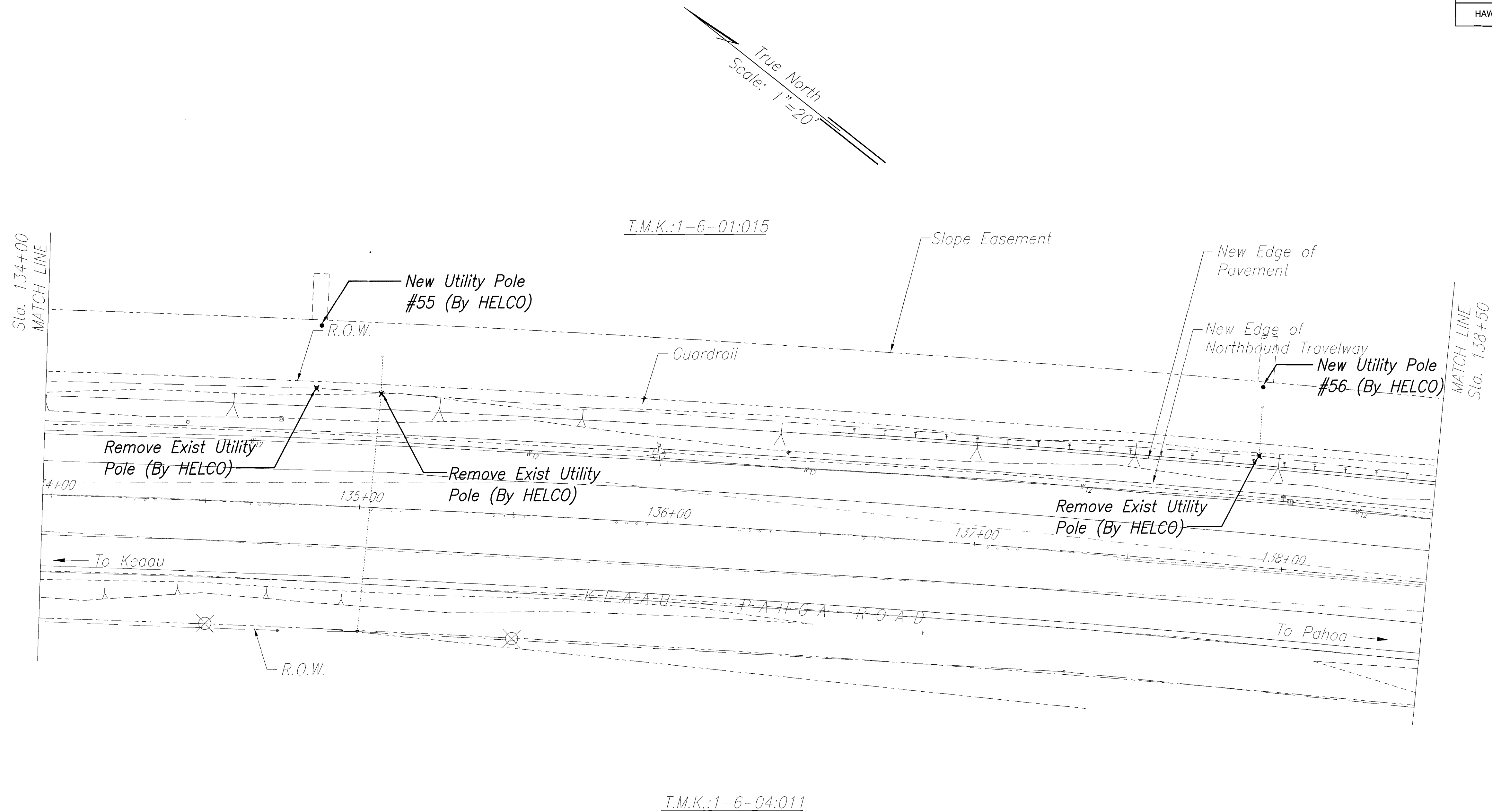
SITE ELECTRICAL PLAN

KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1
Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012

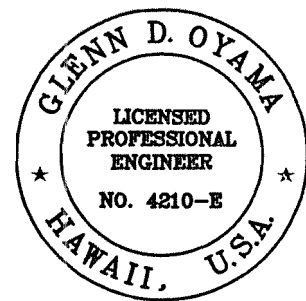
SHEET No. E-13 OF 25 SHEETS

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

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STATE OF HAWAII
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HIGHWAYS DIVISION

SITE ELECTRICAL PLAN

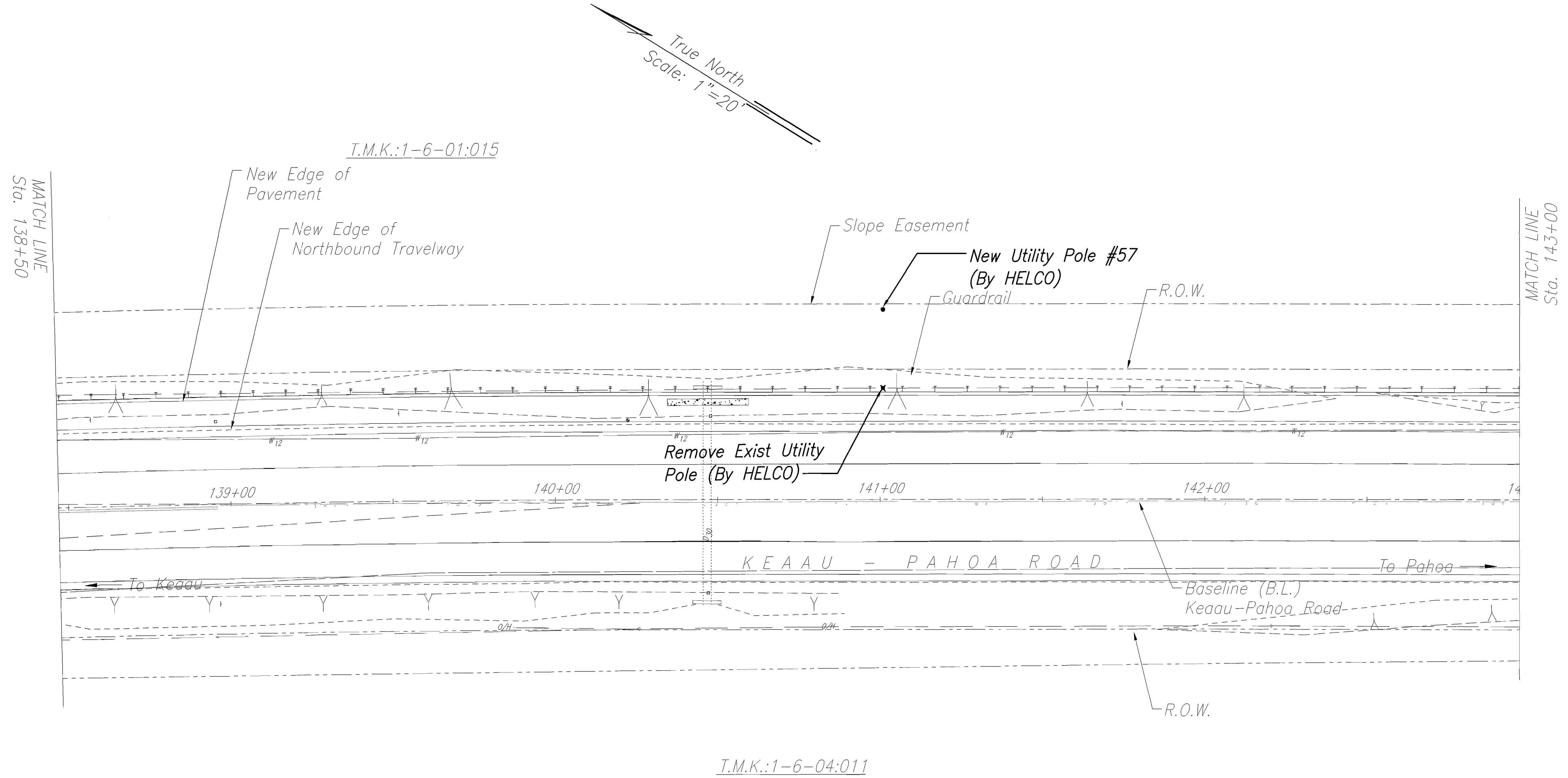
KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1

Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012

SHEET No. E-14 OF 25 SHEETS

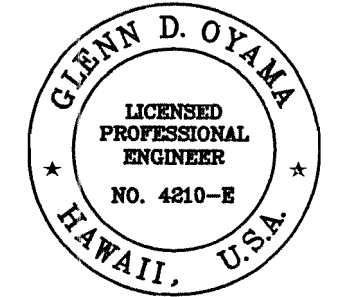
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	278	288



Note: All Utility Poles to be Relocated Within 1' (Preferable) But Not More Than 5'
From New ROW. Verify Location With Civil Engineers.

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



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NAKAMURA, OYAMA & ASSOC. APRIL 30, 2014
LIC. EXP. DATE

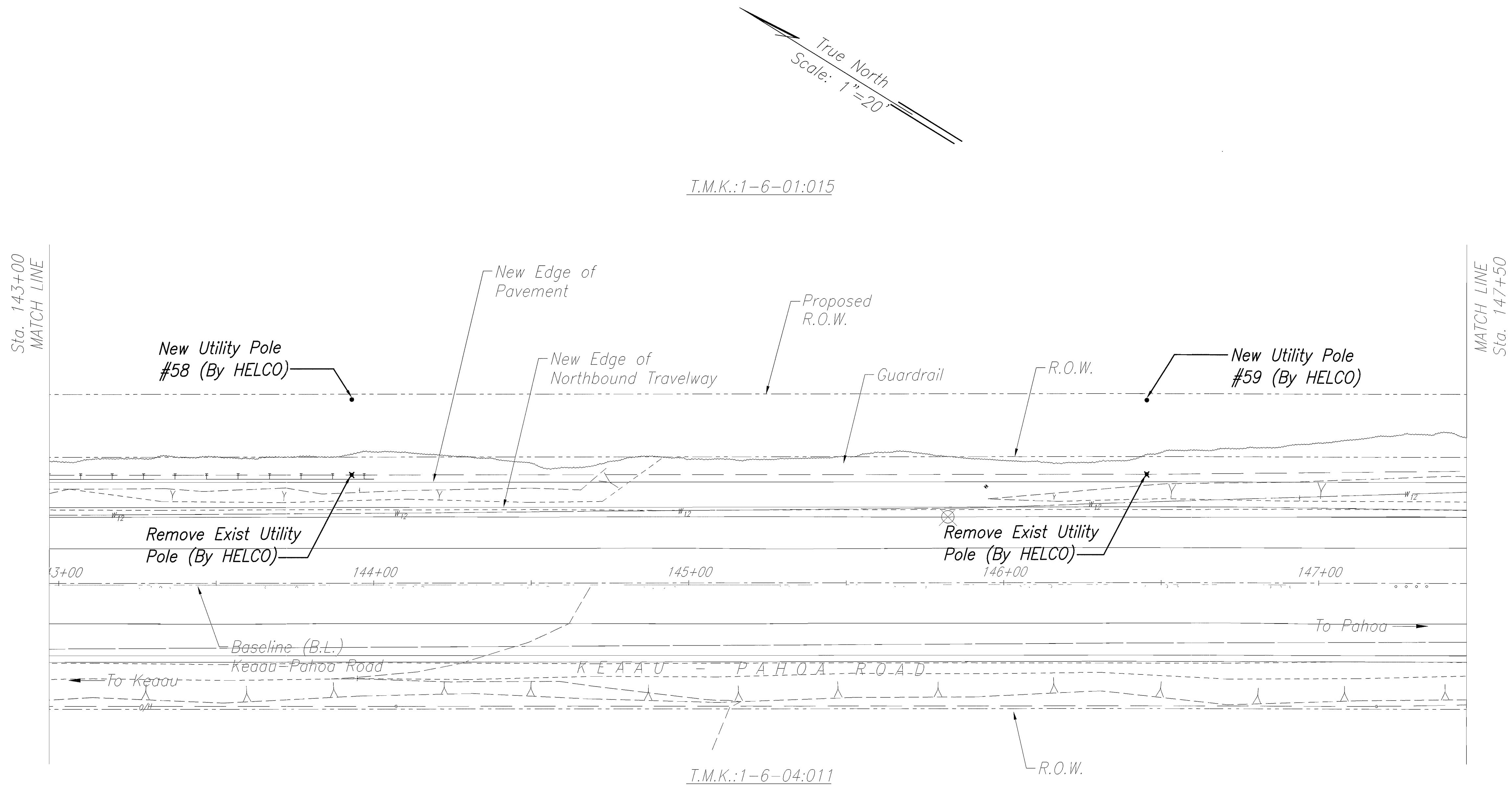
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SITE ELECTRICAL PLAN

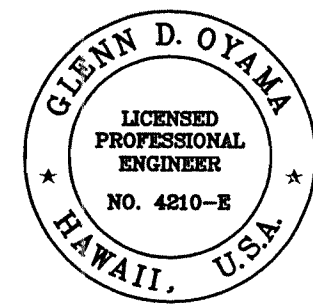
KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1
Keau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012

SHEET No. E-15 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	279	288



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SITE ELECTRICAL PLAN

KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1

Keaau Bypass Road to Shower Drive

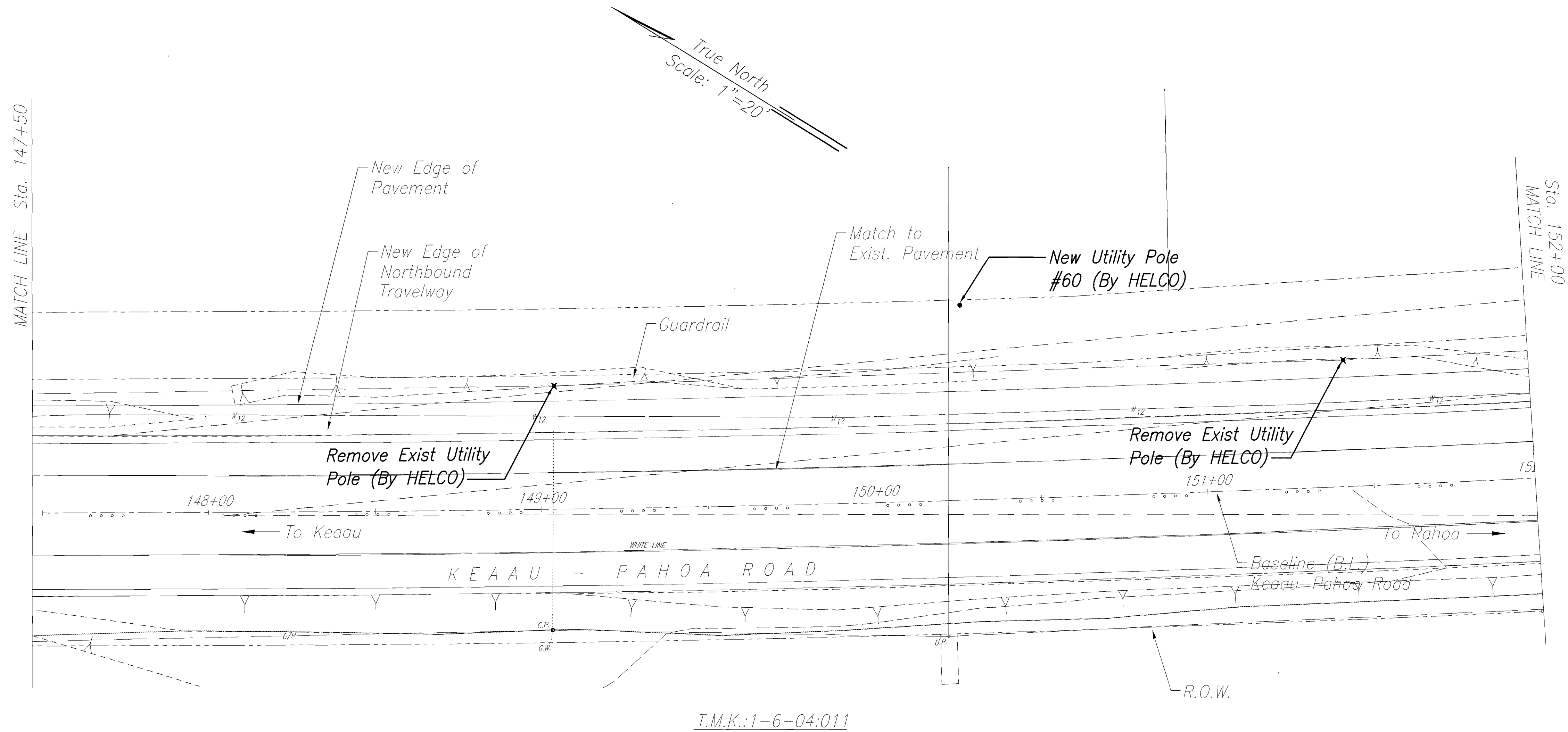
Fed. Aid Proj. No. STP-0130(28), Phase 1

Scale: 1"=20' Date: June 2012

SHEET No. E-16 OF 25 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	280	288



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

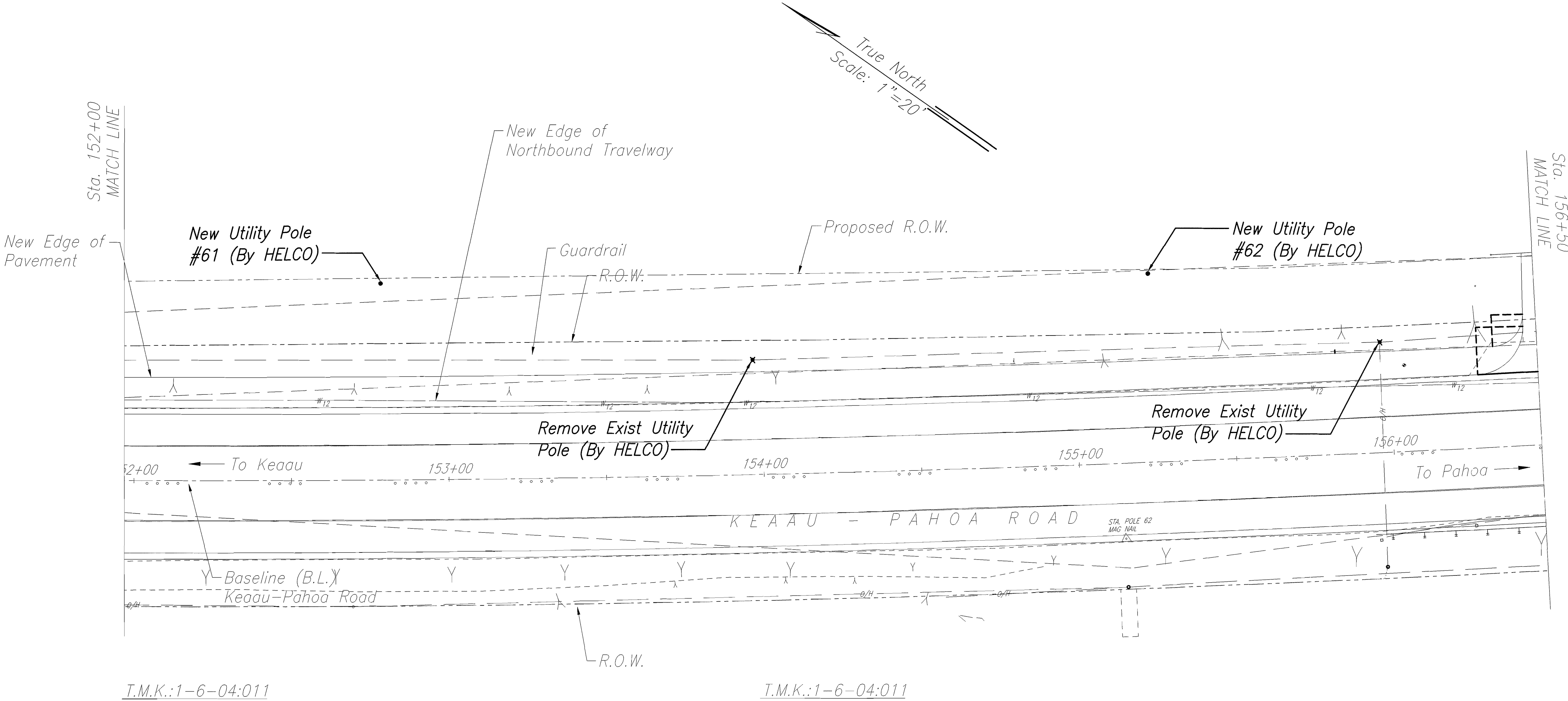
SITE ELECTRICAL PLAN

**KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1**
KeaaU Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012

SHEET No. *E-17* OF 25 SHEETS

ORIGINAL PLAN	DATE
NOTE BOOK	
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SURVEY PLATTED BY	
DESIGNED BY	
QUANTITIES BY	
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)/PH.1	2012	281	288



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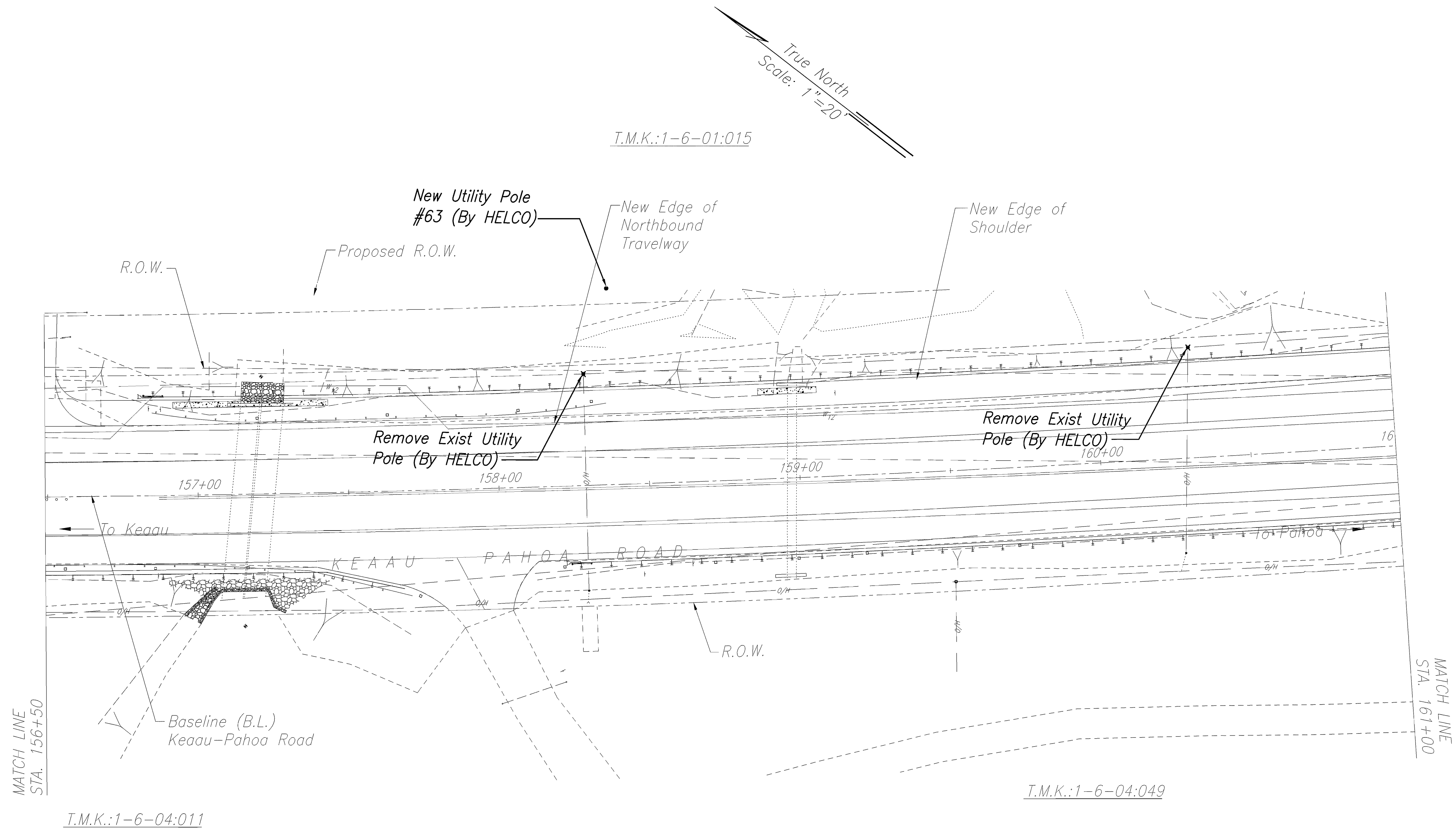
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SITE ELECTRICAL PLAN
KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1
Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012

SHEET No. E-18 OF 25 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	282	288



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NAKAMURA, OYAMA & ASSOC. LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SITE ELECTRICAL PLAN

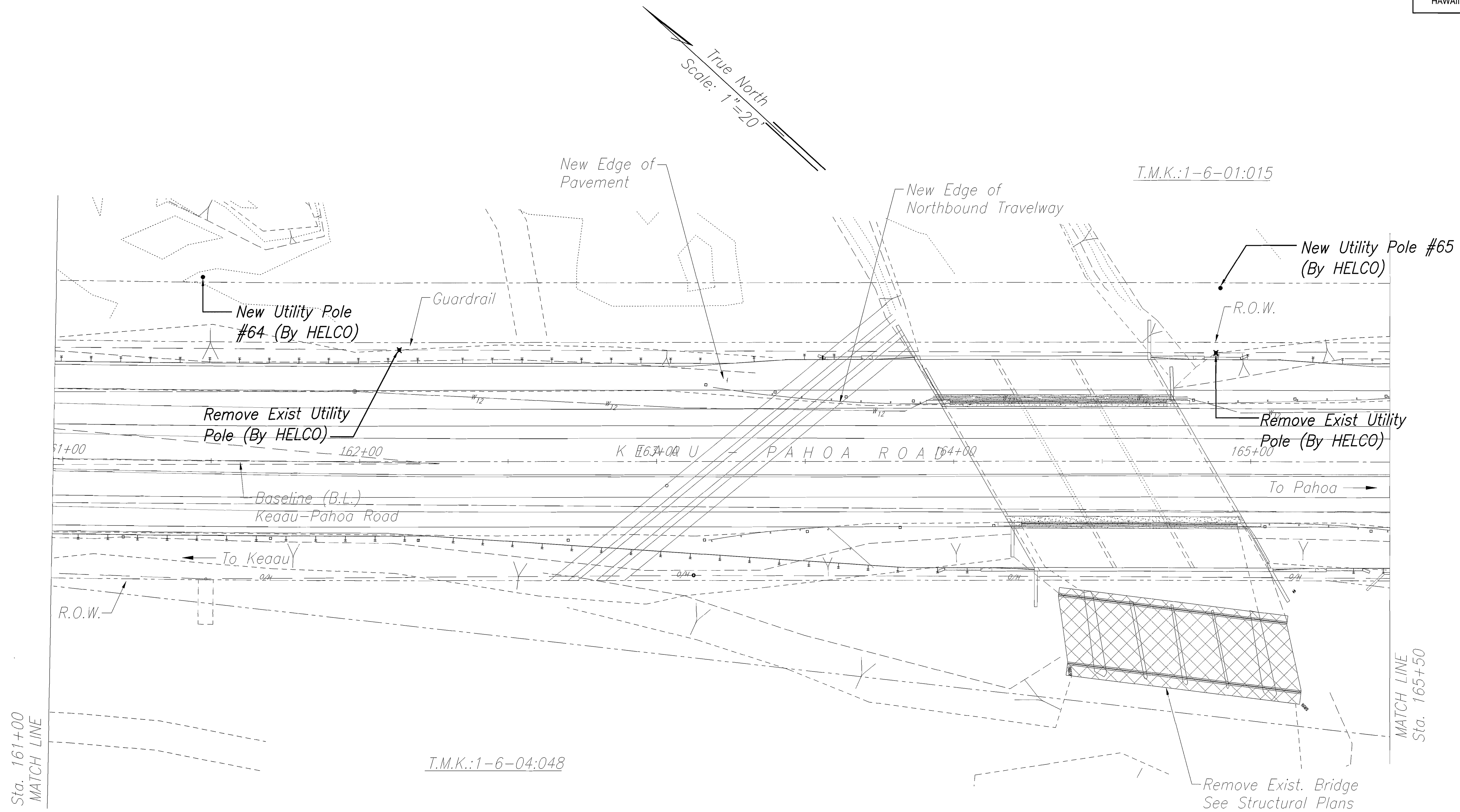
**KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1**

**Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012**

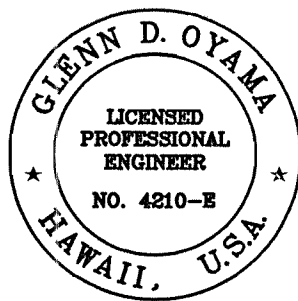
SHEET No. E-19 OF 25 SHEETS

ORIGINAL PLAN	DATE
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH1	2012	283	288



Note: All Utility Poles to be Relocated Within 1' (Preferable) But Not More Than 5' From New ROW. Verify Location With Civil Engineers.



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NAKAMURA, OYAMA & ASSOC. APRIL 30, 2014
LIC. EXP. DATE

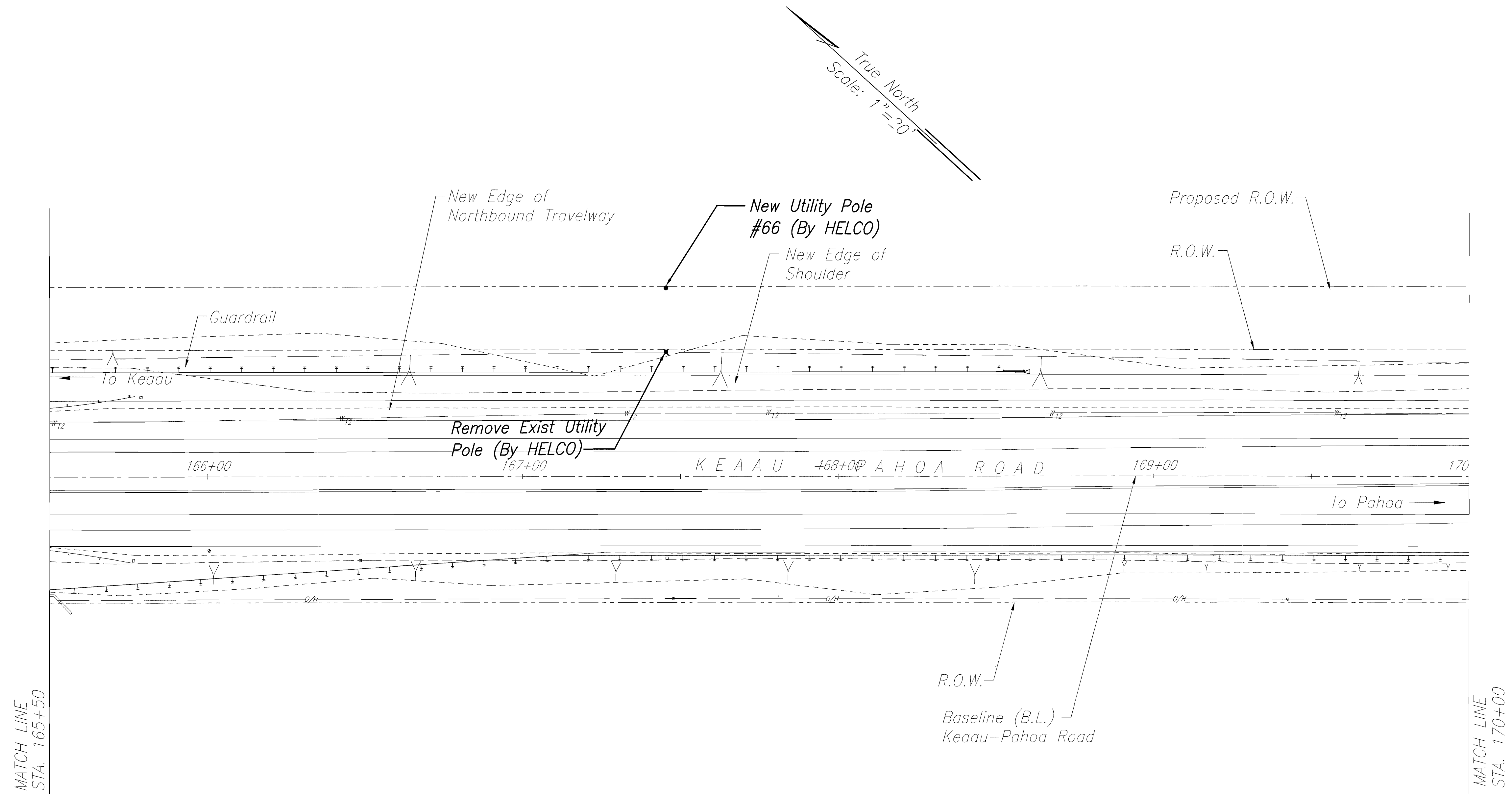
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SITE ELECTRICAL PLAN
KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1
Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012

SHEET No. E-20 OF 25 SHEETS

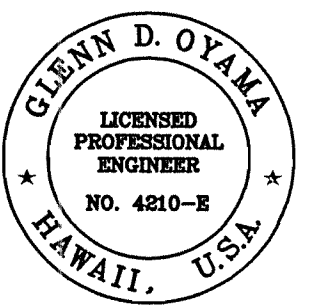
ORIGINAL PLAN	DATE
NOTED BY	DATE
DESIGNED BY	DATE
CHECKED BY	DATE
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	284	288



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



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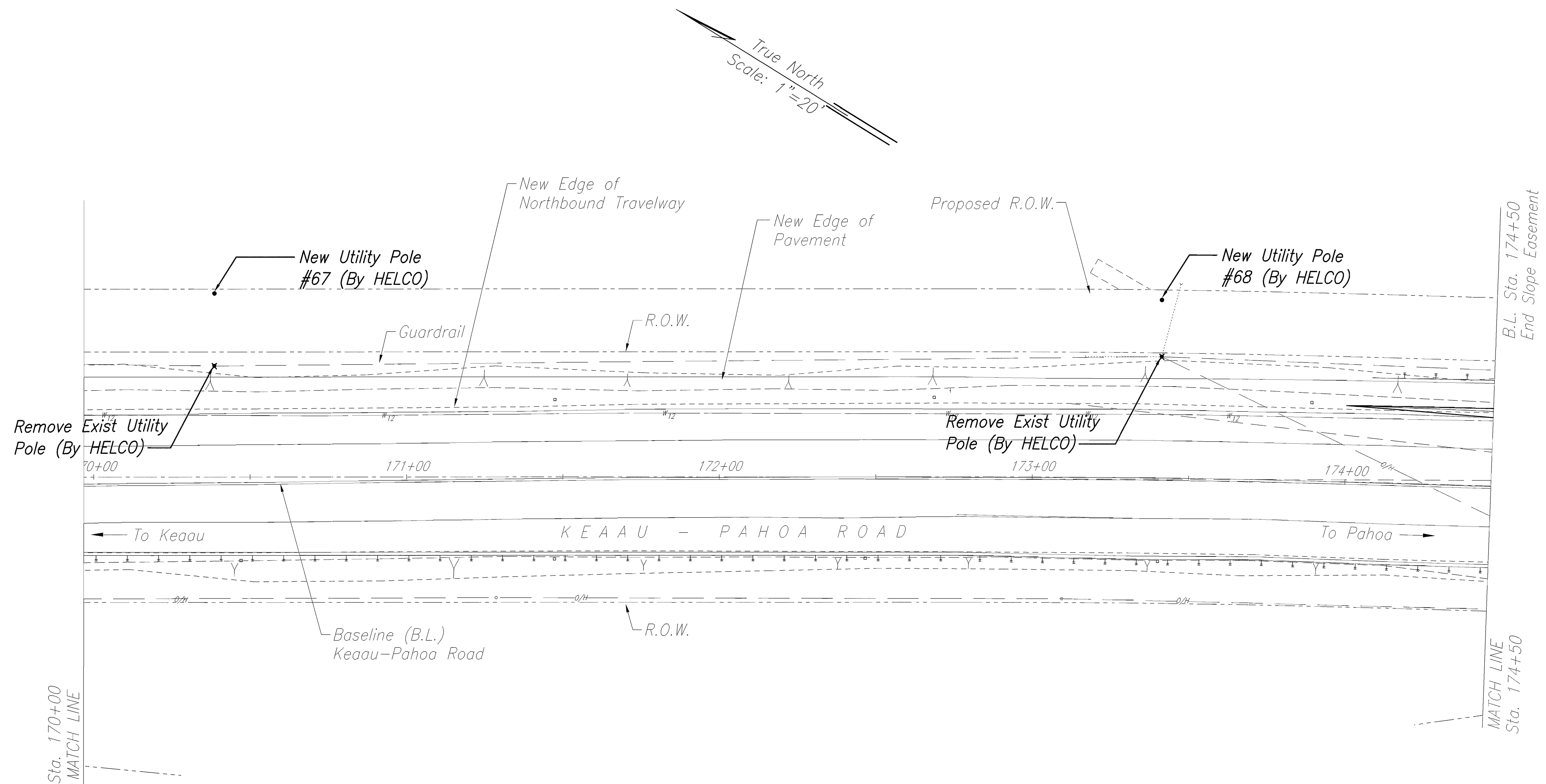
Glenn D. Oyama APRIL 30, 2014
NAKAMURA, OYAMA & ASSOC. L.C. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

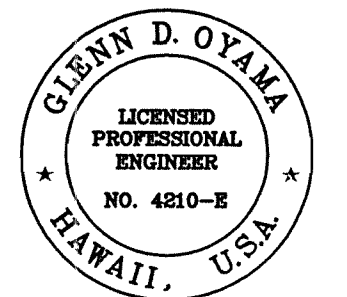
SITE ELECTRICAL PLAN
KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1
Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012

SHEET No. E-21 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	285	288



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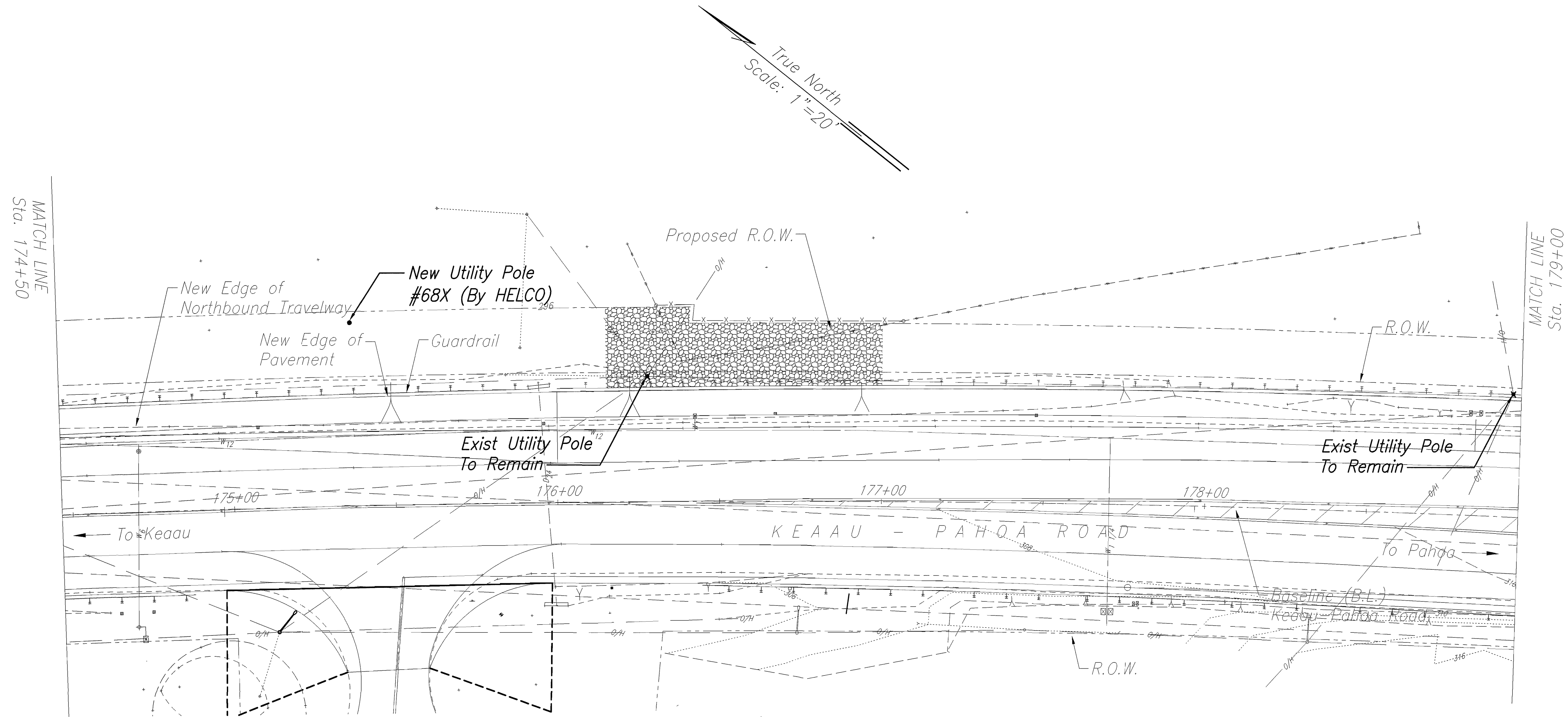
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SITE ELECTRICAL PLAN
KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1
Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012

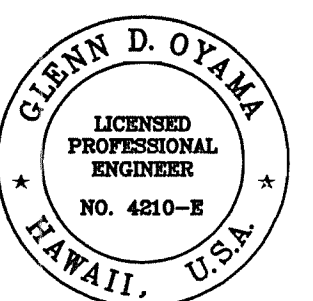
SHEET No. E-22 OF 25 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH1	2012	286	288



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STATE OF HAWAII
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HIGHWAYS DIVISION

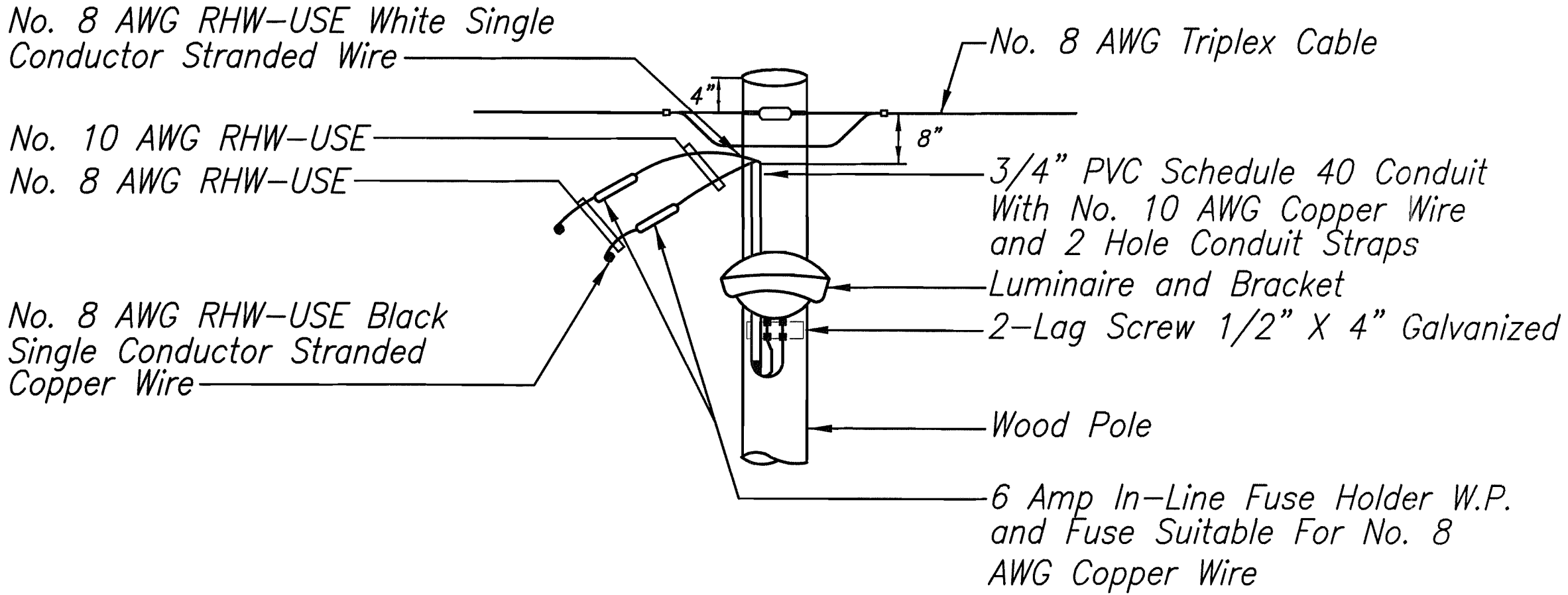
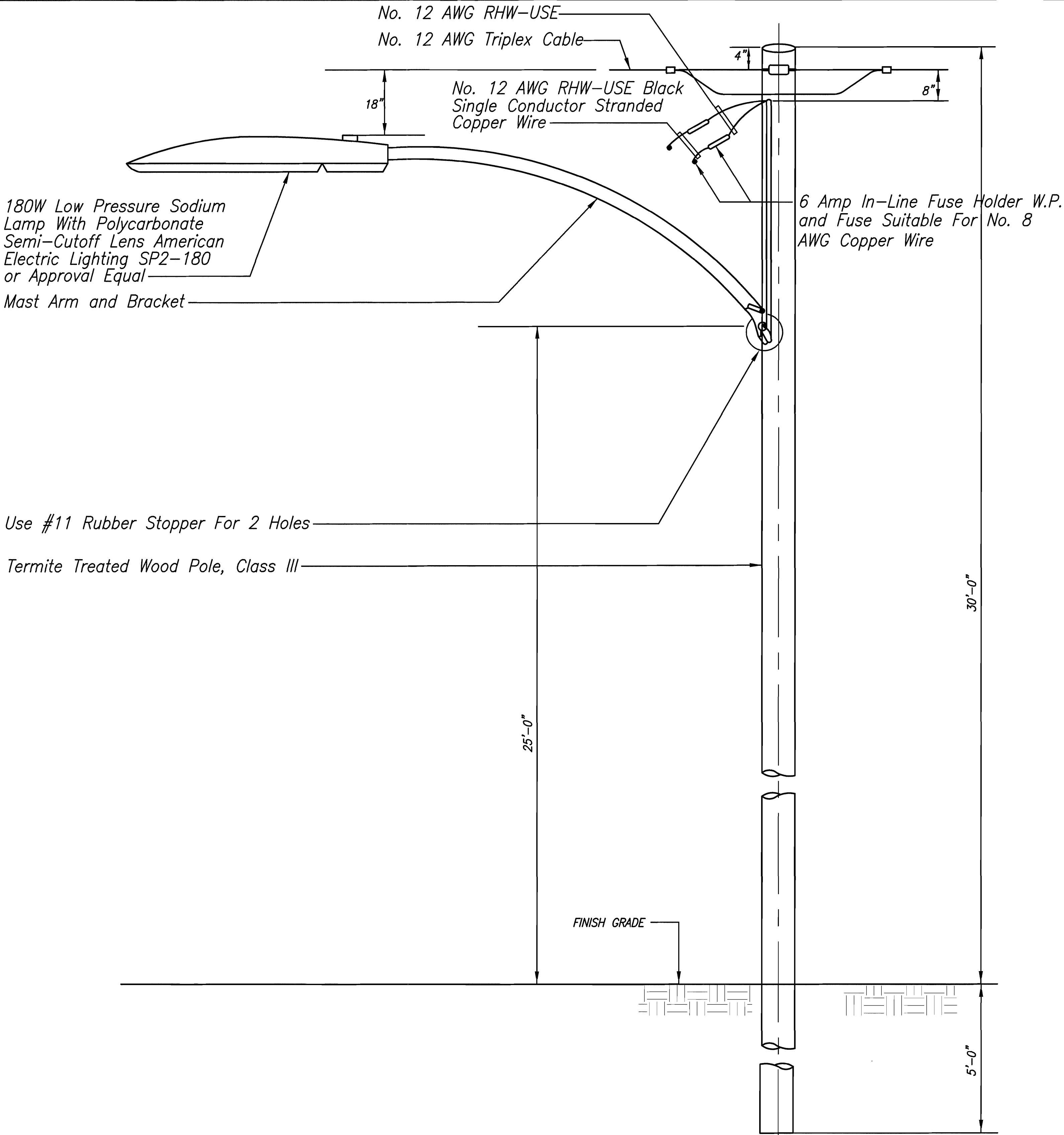
SITE ELECTRICAL PLAN

KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1
Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: 1"=20' Date: June 2012

SHEET No. E-23 OF 25 SHEETS

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

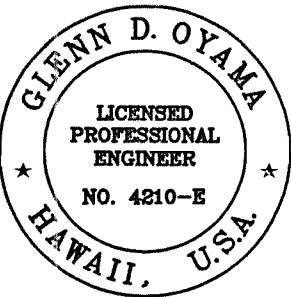
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	287	288



TANGENT INSTALLATION

DEADEND INSTALLATION

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



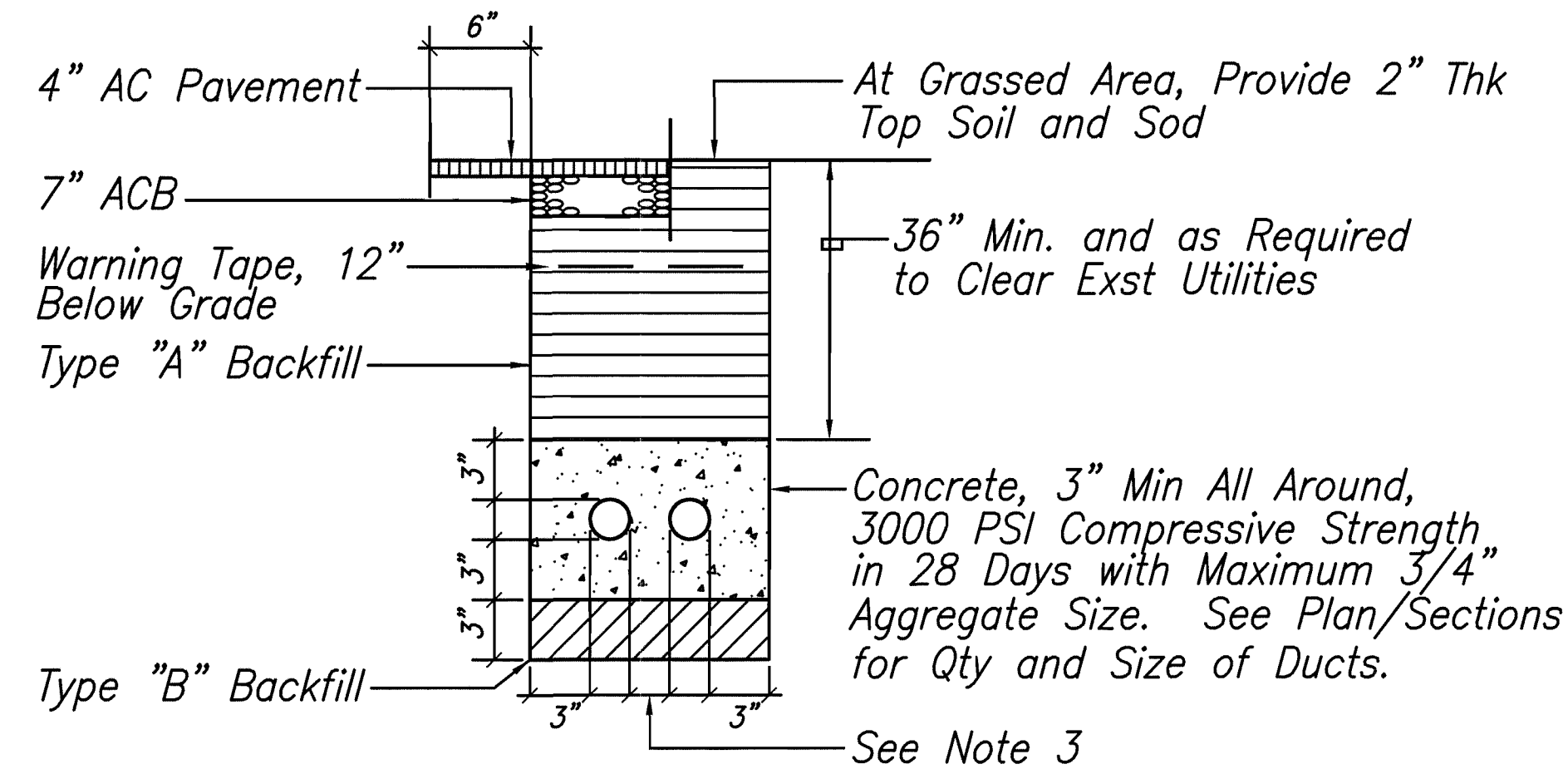
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NAKAMURA, OYAMA & ASSOC. LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHT DETAIL

KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1
Keau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: Not To Scale Date: June 2012
SHEET No. E-24 OF 25 SHEETS

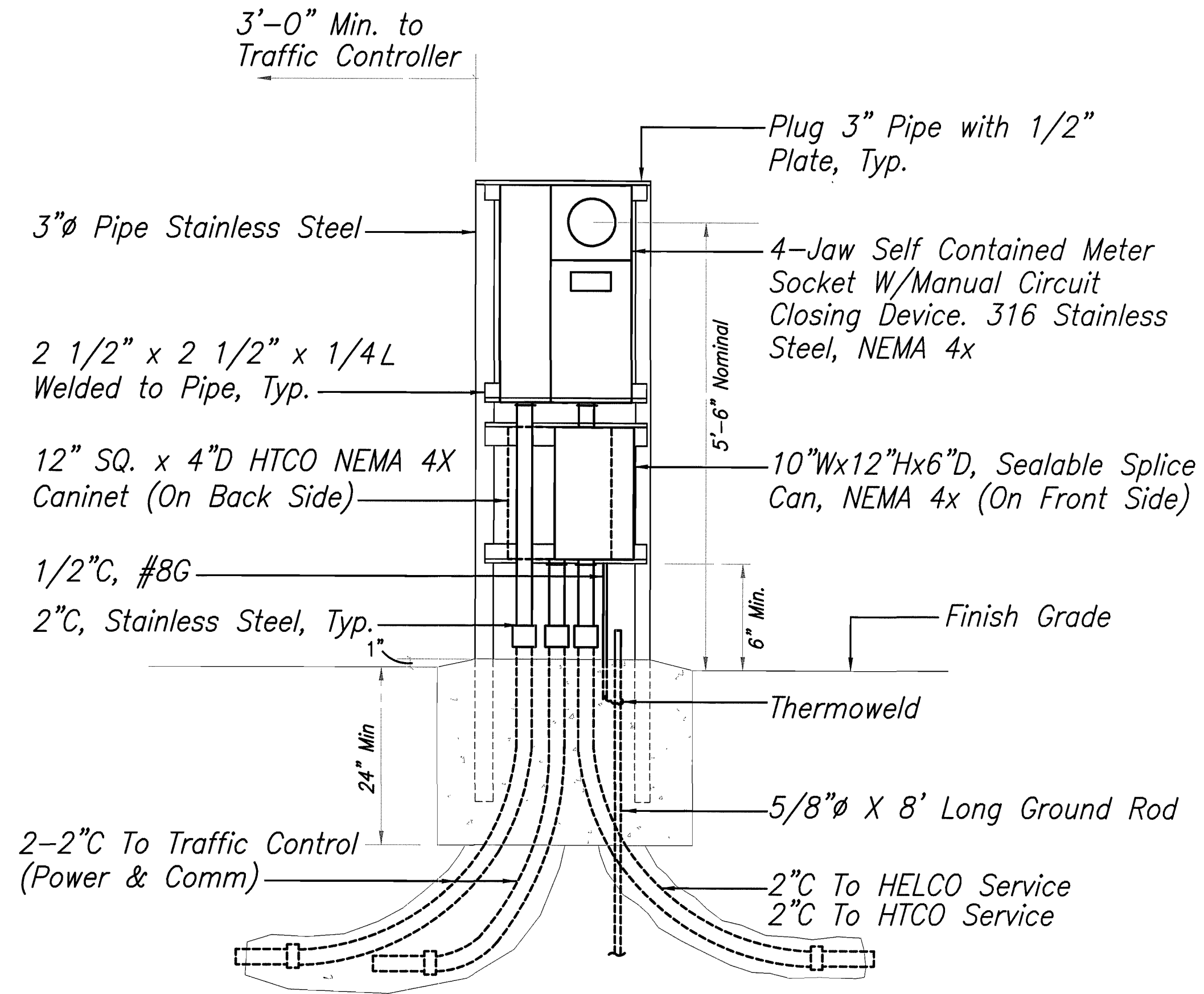
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(28)PH.1	2012	288	288



TYPICAL DUCT SECTION DETAIL

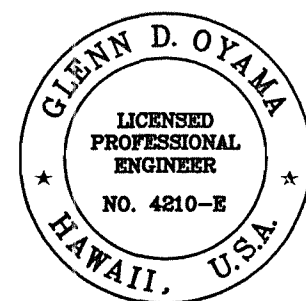
Duct Section Notes:

- All Ducts Shall Be Schedule 40 PVC or Equivalent & Provided with a Polyolefin Pull Line.
- Backfill Data:
 - Type "A" Backfill: Earth & Gravel, Maximum Rock Size Shall Be 1" and the Mixture Shall Contain Not More Than 50% by Volume of Rock Particles, 95% Compaction. Install Type "A" Backfill in Maximum 6" Layers Loose Thickness Prior to Compaction.
 - Type "B" Backfill: Earth & Gravel, Mixture Must Pass a 1/2" Mesh Screen & Contain not More Than 20% by Volume of Rock Particles, 95% Compaction. If Materials at Bottom of Trench Is Not Type "B", an Additional 3" Shall Be Excavated and Type "B" Backfill Provided.
- Duct Separation Requirements:
 - Elec to Elec..... 2"
 - Elec to Signal/Comm..... 3"
 - Signal/Comm to Signal/Comm..... 2"
- See Plans or Diagrams for Size & Number of Ducts. Flatten Duct Bank as Required to Pass Over or Under Existing and New Utilities.
- Comply With HELCO, Hawaiian Telcom & Oceanic Time Warner Cable Utility Company Requirements. Perform a Mandrel Test After Ducts Are Installed.
- Excess Excavated Material Shall Be Hauled and Disposed by the Contractor.
- It Is Not the Intent of These Plans and Specifications to Imply That All Existing Utilities Are Shown on the Plans. Only Those Known to Exist by the Engineer from His Search of Records at the Time of Design Are Indicated on These Plans.
- Investigate, Probe, and Tone Traverse of New Ductline. Expose, Locate and Protect the Existing Underground Utilities Including Irrigation, Drainage, Sewage, Electrical, Communication and System Lines Affected by This Project.
- Operate the Existing Irrigation, Drainage, Sewage, Electrical, Communication and Water Systems to Help Determine the Location and Condition of the Various Systems Prior to Start of Construction.
- Exercise Proper Care by Hand Trenching when Excavating in Areas Nearby Existing Underground Facilities. The Contractor to Be Responsible To Repair and/or Pay Any Damages to the Existing Facilities. Damages to the Existing Facilities to Be Reported Immediately to All Concerned Parties. All Repair Work Shall Be Done Within 36 Hours to Match Its Original Condition and In Accordance with the Standards of the Various Utility Companies and Agencies.
- Pavement and/or Concrete Sidewalk Restoration Shall Be Equal or Better than Original in Quality and Thickness. Cut Pavement 6" Beyond Trench.
- Grassed Areas and Plants Damaged During Construction Shall Be Restored to as Close as Their Original Condition as Practicable. Suitable Topsoil Shall Be Provided For Top 6" of Backfill.
- Contractor Shall Use Heavy Machine Equipment to Excavate if Basalt and Large Rocks Are Encountered.
- Contractor Shall Shore, Brace and Dewater Within the Excavated Trenches as Required.



SERVICE EQUIPMENT DETAIL

ORIGINAL PLAN	DATE
NO.	
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	



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NAKAMURA, OYAMA & ASSOC. L.L.C. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DUCT SECTION DETAIL
SERVICE EQUIPMENT DETAIL
KEAAU-PAHOA ROAD, SHOULDER
LANE CONVERSION, PHASE 1
Keaau Bypass Road to Shower Drive
Fed. Aid Proj. No. STP-0130(28), Phase 1
Scale: Not To Scale Date: June 2012

SHEET No. E-25 OF 25 SHEETS