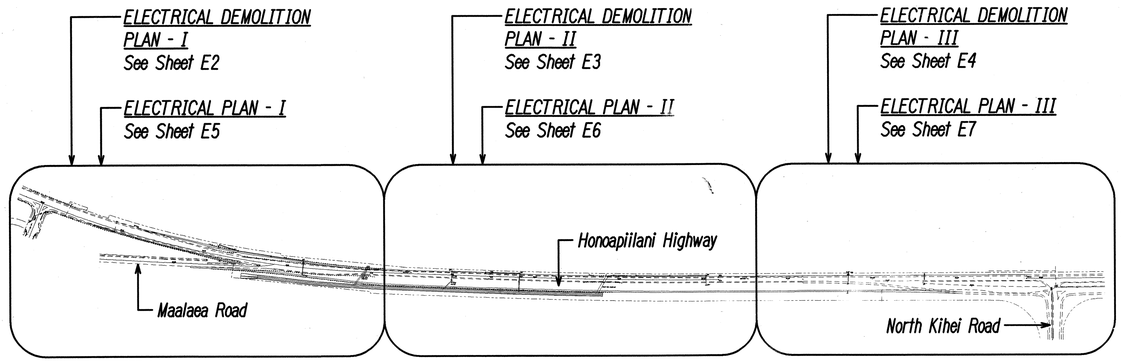
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2001	63	72

ELECTRICAL SYMBOLS

Symbol	Description
X	"X" ed Out Indicates Remove, See Demolition Notes this Sheet
/	"/" ed Out Indicates Relocate
	existing utility pole to be removed by respective utility company
#50	existing utility pole, pole #50 indicated
	Utility Pole, Provided by MECo
	existing pole mounted transformer
	Pole Mounted Transformer Provided by MECo
	existing anchor guy
	Anchor Guy Provided by Respective Utility Company
	existing anchor guy to be removed by respective utility company
	KWH Meter
	existing KWH Meter
	MECo 2' x 4' Precast Concrete Pullbox with Precast Concrete Cover per MECo Standard Drawings, see Detail A/E9
	HTCO 3' x 5" Reinforced Plastic Handhole with Two Piece "Non-Slip" Polymer "Parkway" rated Covers, Side Entry Knockouts, and Ground Rod, Provided in Accordance with HTCO Standard Drawing No. 34111
	Street Light, 250 Watt HPS Single Luminaire, Metal Standard and Bracket Arm, Provided by MECo Conc. Foundation Provided by Contractor, see Detail A/E9
	Street Light, 250 Watt HPS Single Luminaire and Bracket Arm, Mounted on Utility Pole, Provided by MECo, see Detail B/E8
	existing street light
	existing street light, removed by MECo
—E—	Electric Ductline
—e/ug—	existing u.g. elec ductline and wiring
	remove existing wiring; cap ends of existing elec ducts and abandon in place
—T—	Tel Ductline
—t/ug—	existing u.g. tel ductline and wiring
	remove existing wiring; caps ends of existing tel ducts and abandon in place
—SL—	Street Light Ductline
—s l—	existing u.g. street light ductline and wiring
—E/OH—	Overhead Elec Lines to be Provided by Respective Utility Company
—e/oh—	existing overhead elec lines
—T/OH—	Overhead Tel Lines to be Provided by Respective Utility Company
—t/oh—	existing tel overhead lines
	existing overhead elec lines to be removed by respective utility co.
	existing overhead tel lines to be removed by respective utility co.
A 2L	Duct Section Designator, Type "A" Ductline and Type "2L" Duct Indicated, see Sheet E10 for Duct Sections and Conduit Schedule

General Electrical Notes

1. Electrical Work shall be New Unless Otherwise Noted.
2. "Wiring" Indicates Insulated Wires in Conduit.
3. Contractor shall Tone to Determine Exact Location of Existing Utilities & Adjust His Work Accordingly.
4. The Locations of the Various Existing Utilities Shown on the Contract Drawings were Determined on the Basis of Best Available Information. Therefore, No Assurance is Provided that the Actual Locations will be Precisely as Shown on the Contract Drawings. The Contractor shall verify the Locations and Depths of the Facilities and Exercise Proper Care in Excavating the Area. The Contractor shall be Held Responsible for any Damages to the Facilities.
5. In Performing All Work, the Contractor shall Exercise Due Care and Caution Necessary to Avoid any Damage to and Impairment in the use of any Existing Utility Line. Any Damage Inflicted on Existing Utility Lines Resulting from the Contractor's Operations shall be Immediately Repaired or Restored as Directed by the State at the Contractor's Expense.
6. All Electric/Signal Ducts shall have a Minimum Clearance of 1'-0" when Crossing Water/Sewer Lines.
7. All Dimensions are Nominal. Verify Exact Dimensions & Equipment Requirements with the Successful Supplier.
8. The Contractor shall be Liable for any Damage to Maui Electric Co. Facilities and shall Immediately Report such Damages to Maui Electric Co.'s Trouble Dispatcher at 871-7777.
9. All Maui Electric Co. Overhead Facilities shown on these Plans or whose Approximate Locations within the Project Boundaries have been made known by any Reasonable Means at any time to the Contractor shall be Protected at all Times by the Contractor during Construction. Costs for the Damages to Maui Electric Co. Facilities may be Borne by the Contractor. This Repair Work shall be done by Maui Electric Co. or by the Contractor under Maui Electric Co.'s Supervision.
10. Any Work Required to Remove/Relocate Maui Electric Co. Facilities shall be done by Maui Electric Co. The Contractor shall be Responsible for Coordination.
11. The Project Site Contains Various Maui Electric Co. Lines Operated at 69KV, 23KV, 12.47KV and Various other Secondary Voltages. These Lines must Remain Active. Therefore, the Contractor shall Utilize such Methods, Equipment, Etc., Necessary to Protect His Personnel, the Public, State Personnel, Property, Equipment, Etc.
12. Due to Ongoing Construction & Maintenance, Conditions Indicated in these Drawings may have Changed. Therefore, the Contractor shall verify all Existing Conditions prior to Work.
13. Verizon Hawaii is hereinafter refered to as Hawaiian Telephone Co.



ELECTRICAL SITE PLAN

Not to Scale

North

Demolition Notes

1. Work shall be done in Phases. Verify with Engineer for Phasing Sequence. Provide all Wiring and Connections, per NEC, State, Utility Requirements, to Ensure Continuity of Service to Existing Equipment to Remain in use at No Additional Cost to the State.
2. The Contractor shall verify all Existing Circuit Wiring prior to any Demolition Work.
3. Remove all Abandoned Wires.
4. Where Contract Documents Indicate Wiring is to be Removed:
   A. Remove Existing Cables In Conduit.
   B. Remove Conduits that will Interfere with Work. Abandon Conduits that are Concealed below Finished Grade.
   C. Break and Remove Pullboxes/Handholes. Fill Holes with Base Course and Repair to Match Adjacent Surfaces.
5. For Circuit(s) where Existing Electrical Equipment shall be Removed, The Contractor Shall Provide all Necessary Raceways, Wires, Boxes, Etc., per NEC Requirements, to Ensure Circuit Continuity to and Proper Operation of the Remaining Component(s).
6. Demolition and Removal Work shall be Considered Incidental to the Various Contract Items.

Street Light Standard Identification Legend:

Legend	Description
121+93	Station Number
2	Street Light Pole Number
14'	Pole Clear Setback from Edge of Pavement, See Note No. 1 below
15'	Luminaire Arm Span in Feet
TB	Pole Base Mounting Type, see Note No. 2 below
30'	Luminaire Mounting Height above Pavement

Symbol Notes:

1. "BG" indicates Pole Located behind Guardrail. Pole shall be Located Minimum 2'-0" Clear from Guardrail.
2. "TB" indicates Transformer Base Mounting. "PM" indicates Joint Pole Mounted.

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DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
NOTE SIGN
ORIGINAL PLAN
DATE
No.

STEVEN H. SAKAI LICENSED PROFESSIONAL ENGINEER No. 7637-E HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

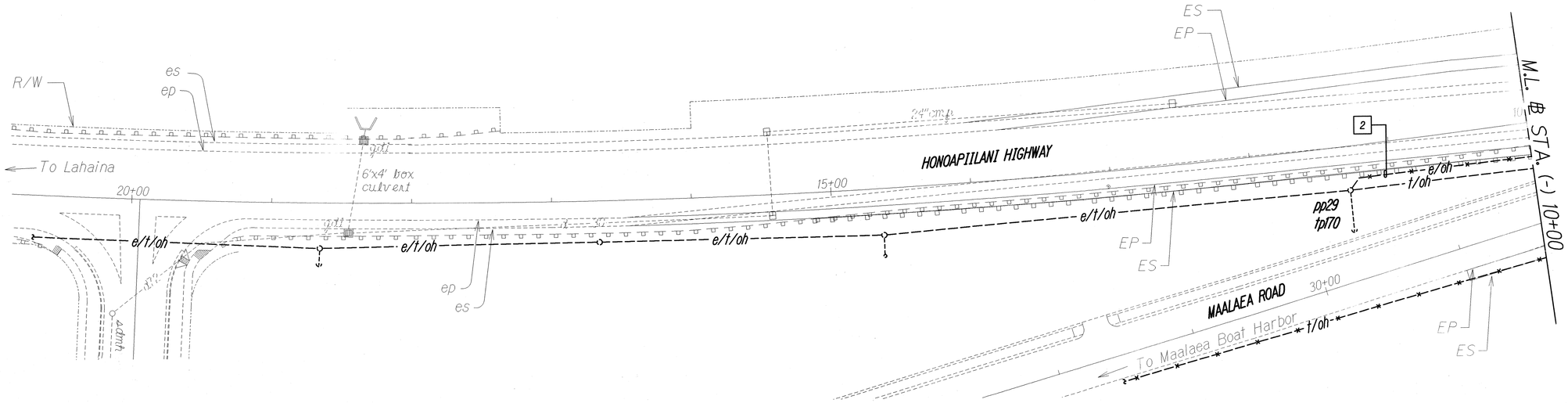
ELECTRICAL SITE PLAN, ELECTRICAL SYMBOLS

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
F.A. Project No. NH-030-1(28)

Scale: As Noted Date: July 2001

SHEET NO. 51 OF 72 SHEETS

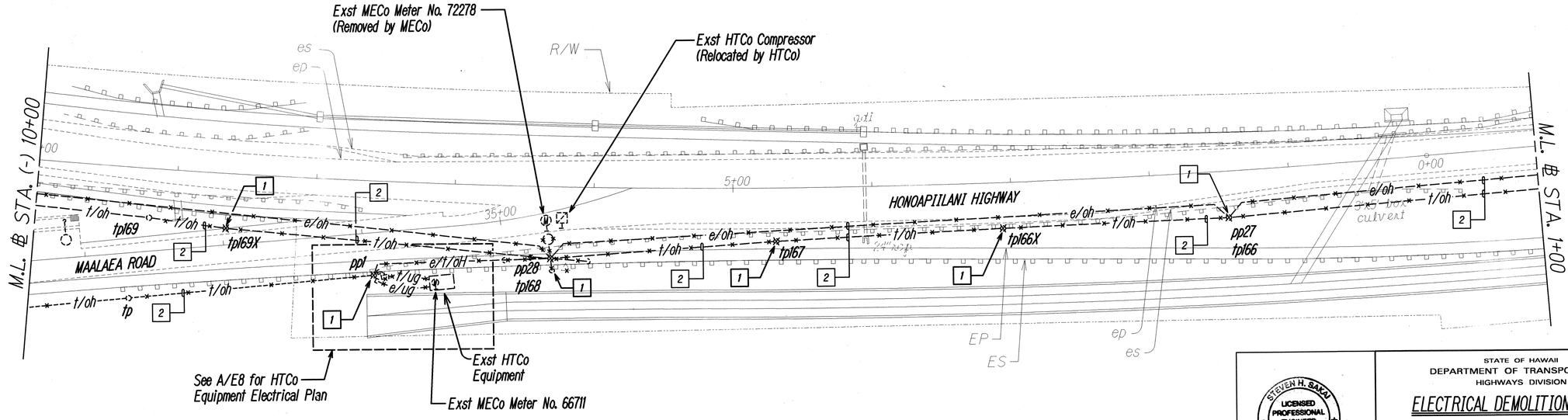
FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2001	64	72



Notes:

1 *Existing utility pole to be removed/relocated by respective utility company.*

2 *Existing utility overhead lines to be removed/relocated by respective utility company.*



North

ELECTRICAL DEMOLITION PLAN - I

Scale: 1"=40'-0"

40' 20' 0 40' 80' 120'

Scale: 1"=40'

Graphic Scale

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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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

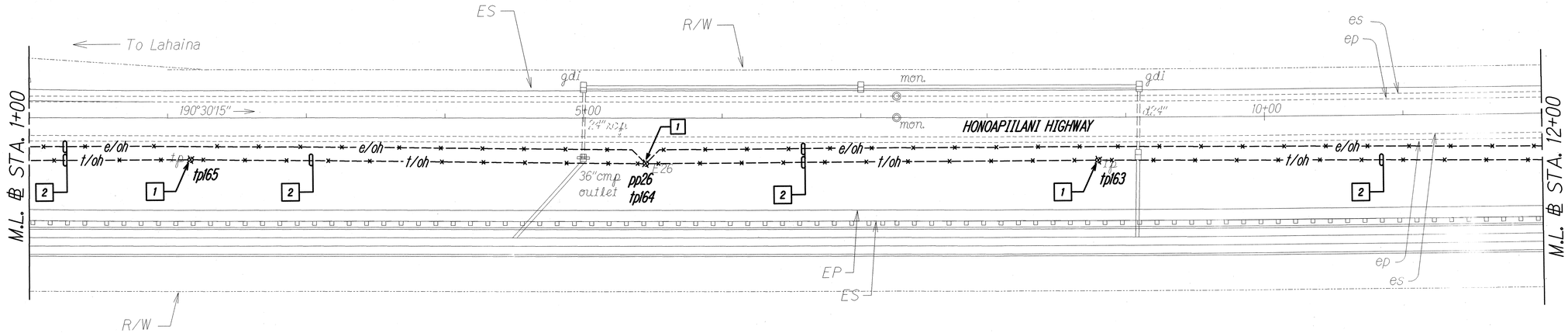
ELECTRICAL DEMOLITION PLAN - I

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
F.A. Project No. NH-030-1(28)

Scale: 1"=40' Date: July 2001

SHEET No. E2 OF 72 SHEETS

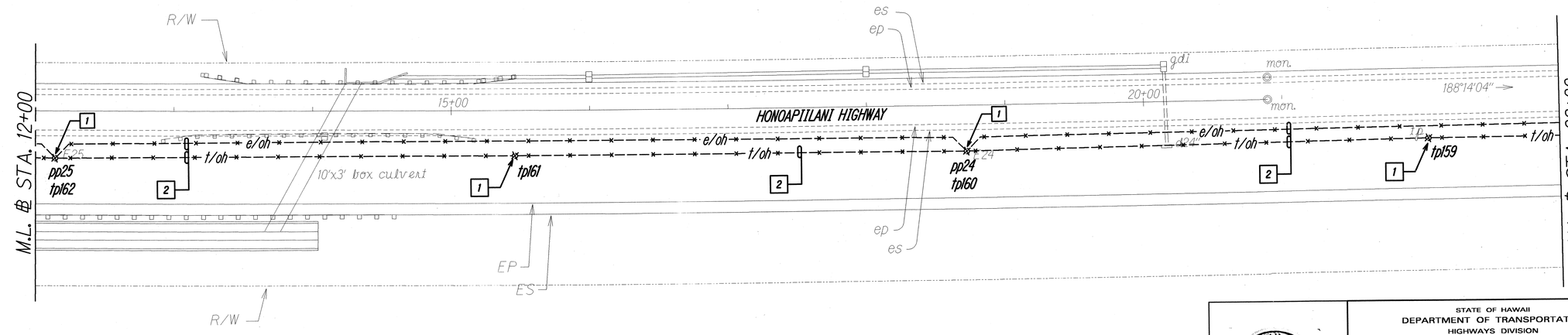
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2001	65	72



Notes:

1 Existing utility pole to be removed/relocated by respective utility company.

2 Existing utility overhead lines to be removed/relocated by respective utility company.



North

ELECTRICAL DEMOLITION PLAN - II

Scale: 1"=40'-0"

40' 20' 0 40' 80' 120'

Scale: 1"=40'

Graphic Scale

ORIGINAL PLAN

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

NOTE BOOK
No.

24 JAN 101 15:05:22 P:\projects\proj\nh0281\dwg\nh0281demo02.dgn

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No. 7637-E
HAWAII, U.S.A.

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

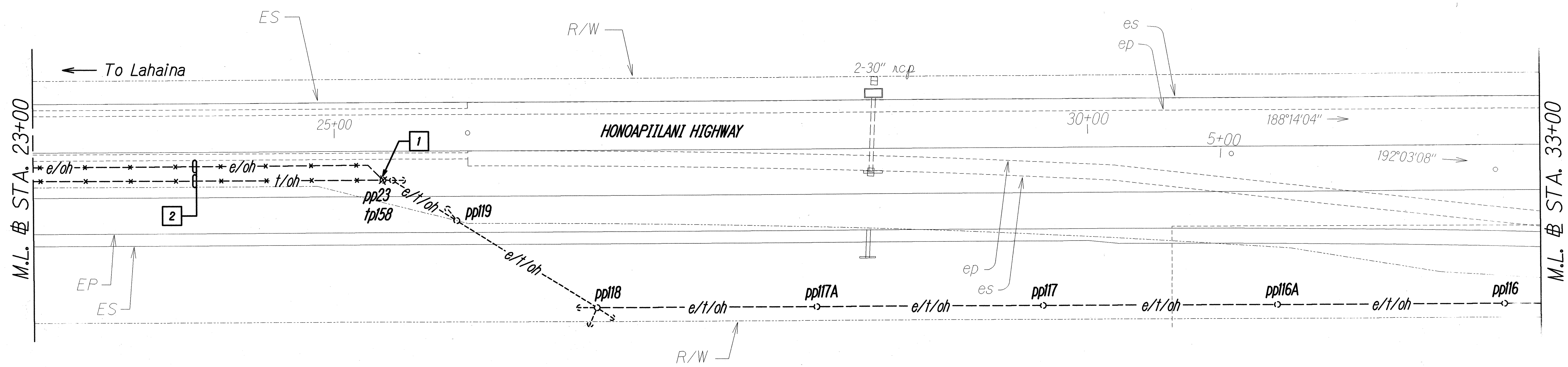
ELECTRICAL DEMOLITION PLAN - II

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
F.A. Project No. NH-030-1(28)

Scale: 1"=40' Date: July 2001

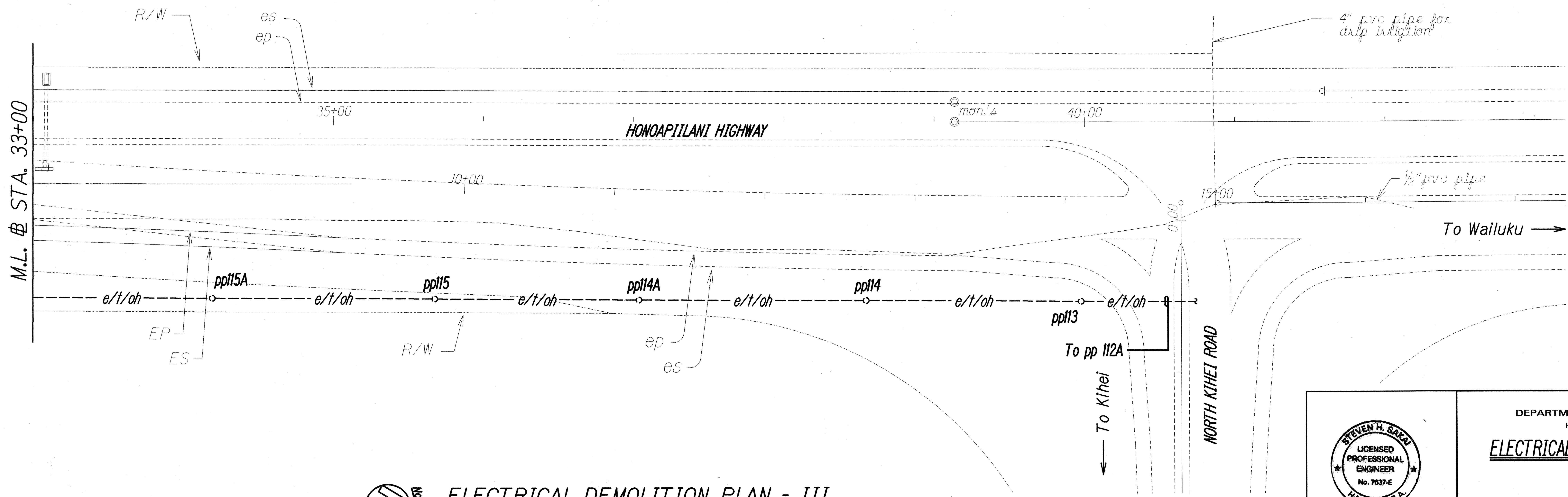
SHEET No. E[illegible] OF 72 SHEETS

FED. ROAD DIST. NO.	STATE	[illegible]	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0[illegible](28)	2001	66	72



Notes:

1. Existing utility pole to be removed/relocated by respective utility company.
2. Existing utility overhead lines to be removed/relocated by respective utility company.
3. Existing utility overhead lines installed under Phase I of Honoapiilani Highway Widening Project.



North

ELECTRICAL DEMOLITION PLAN - III

Scale: 1"=40'-0"

40' 20' 0 40' 80' 120'
Scale: 1"=40'
Graphic Scale

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HIGHWAYS DIVISION

ELECTRICAL DEMOLITION PLAN - III

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
F.A. Project No. NH-030-1(28)

Scale: 1"=40' Date: July 2001

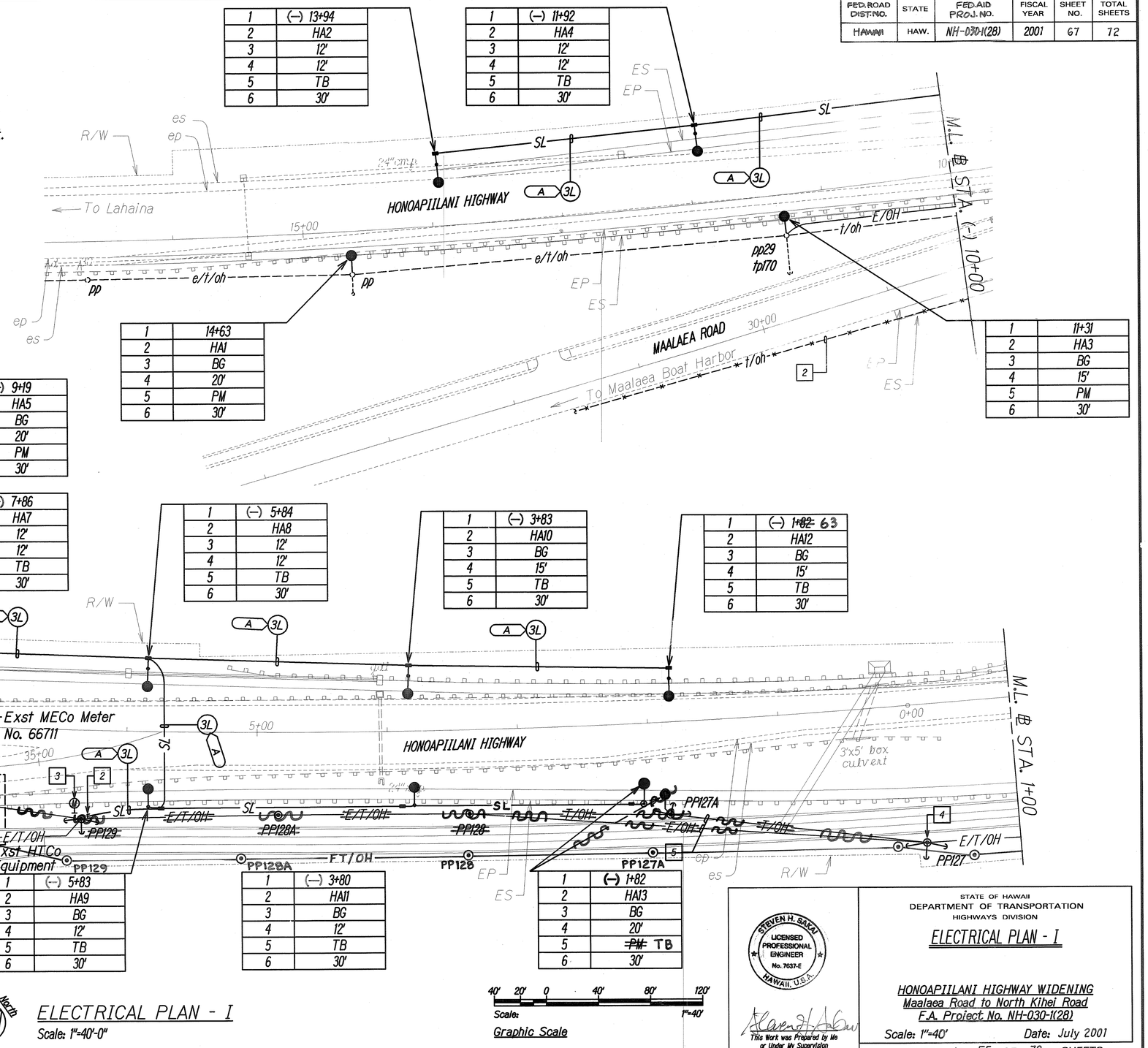
SHEET No. E4 OF 72 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2001	67	72

Notes:

1. Ductline to Cross Under Drainline, See Typical Utility Crossing Detail.
2. Riser up Pole per Utility Company Requirements. See C/E9 and D/E9 for Typical Pole Riser Details.
3. Provide Meter Socket and Pole Riser for HTCo Compressor Equipment. Equipment Connection by HTCo.
4. Utility Pole Provided by MECo (Typ).
5. Overhead Utility Lines Provided by Respective Utility Company (Typ).



1	(–) 13+94
2	HA2
3	12'
4	12'
5	TB
6	30'

1	(–) 11+92
2	HA4
3	12'
4	12'
5	TB
6	30'

1	14+63
2	HA1
3	BG
4	20'
5	PM
6	30'

1	11+31
2	HA3
3	BG
4	15'
5	PM
6	30'

1	(–) 9+19
2	HA5
3	BG
4	20'
5	PM
6	30'

1	(–) 9+93
2	HA6
3	12'
4	12'
5	TB
6	30'

1	(–) 7+86
2	HA7
3	12'
4	12'
5	TB
6	30'

1	(–) 5+84
2	HA8
3	12'
4	12'
5	TB
6	30'

1	(–) 3+83
2	HA10
3	BG
4	15'
5	TB
6	30'

1	(–) 1+~~82~~ 63
2	HA12
3	BG
4	15'
5	TB
6	30'

1	34+08
2	M1
3	BG
4	20'
5	PM
6	30'

1	(–) 5+83
2	HA9
3	BG
4	12'
5	TB
6	30'

1	(–) 3+80
2	HA11
3	BG
4	12'
5	TB
6	30'

1	(–) 1+82
2	HA13
3	BG
4	20'
5	~~PM~~ TB
6	30'

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	DATE

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN - I

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
F.A. Project No. NH-030-1(28)

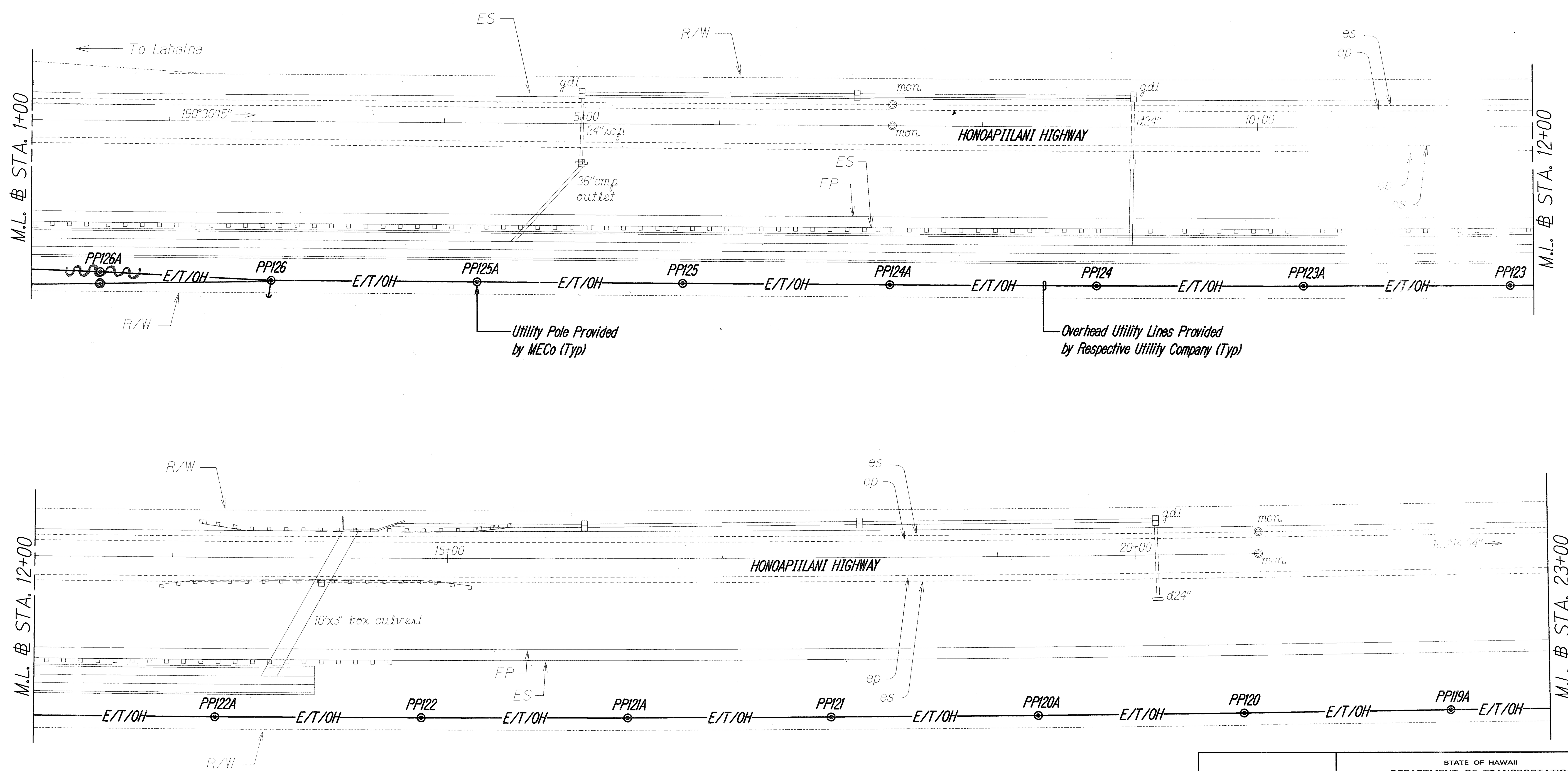
Scale: 1"=40' Date: July 2001

SHEET No. E5 OF 72 SHEETS

"AS-BUILT"

67

FED. ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2001	68	72



ELECTRICAL PLAN - II

Scale: 1"=40'-0"

Graphic Scale — Scale: 1"=40'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN - II

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
F.A. Project No. NH-030-1(28)

Scale: 1"=40' Date: July 2001

SHEET No. E6 OF 72 SHEETS

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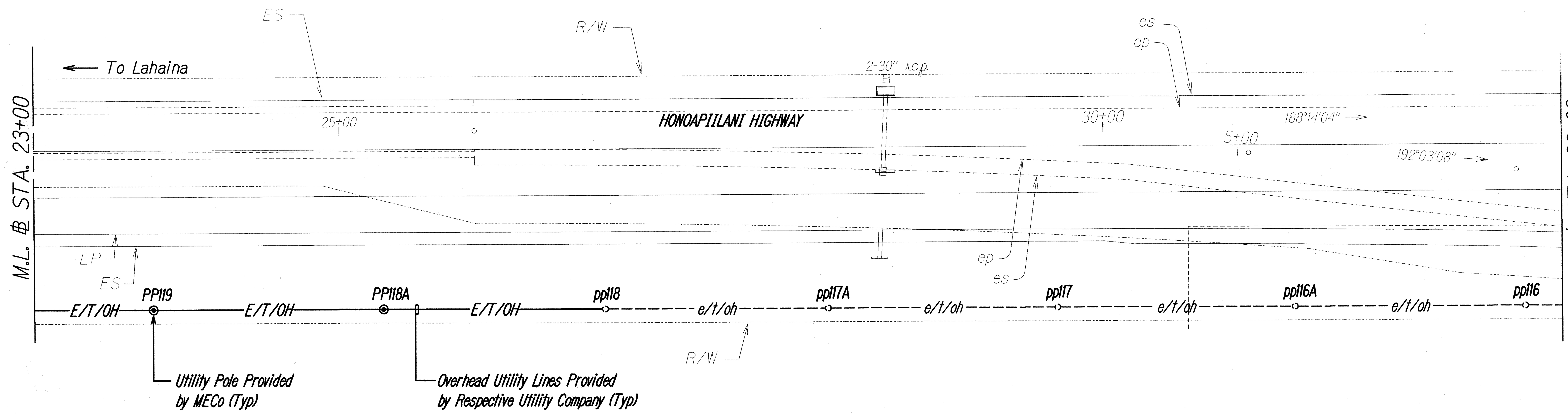
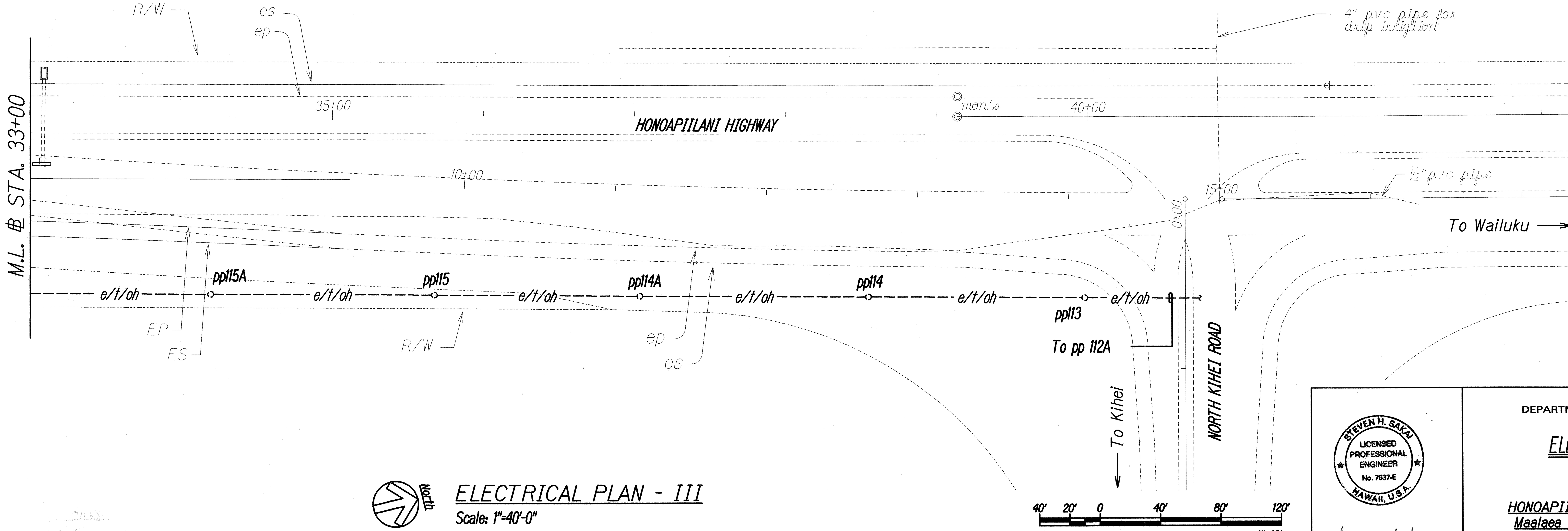
"AS-BUILT"

...DIST. NO	...ATE	FED. AID PROJ. NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
...WAII	HAW.	NH-03...1(28)	2001	69	72





ELECTRICAL PLAN - III

Scale: 1"=40'-0"

40' 20' 0 40' 80' 120'
Scale: 1"=40'
Graphic Scale

STEVEN H. SAKAI
LICENSED PROFESSIONAL ENGINEER
No. 7637-E
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN - III

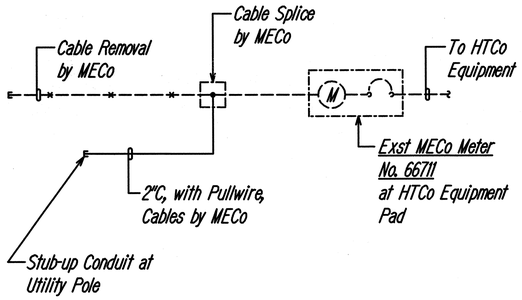
HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
F.A. Project No. NH-030-1(28)

Scale: 1"=40' Date: July 2001

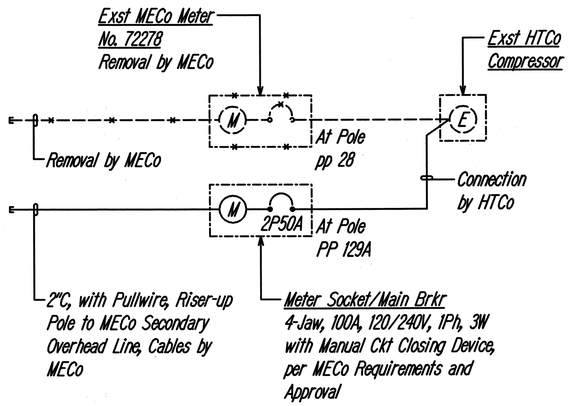
SHEET No. E7 OF 72 SHEETS

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

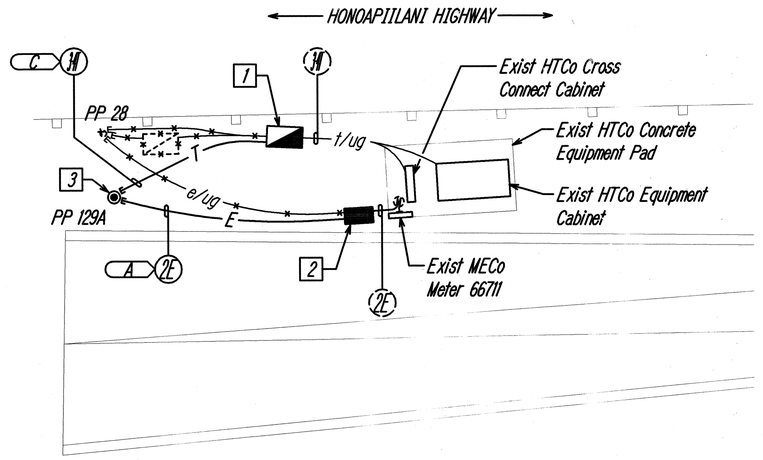
FED. ROAD DIST. NO.	STATE		FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	(28)	2001	70	72



ONE-LINE DIAGRAM
(HTCO EQUIPMENT PAD)
Not to Scale



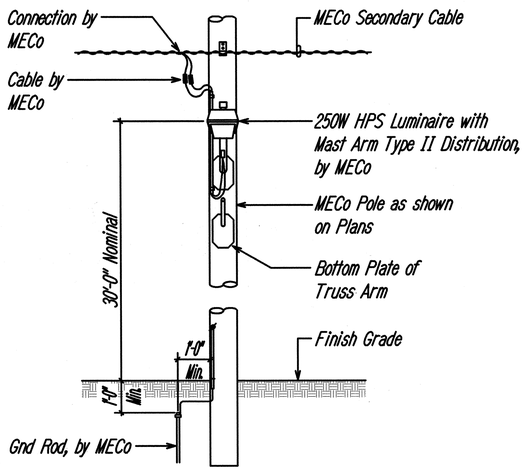
ONE-LINE DIAGRAM
(HTCO COMPRESSOR)
Not to Scale



A / E8 HTCO ELECTRICAL EQUIPMENT PLAN
Scale: 1"=10'

NOTES:

1. Intercept existing HTCo Ductline with HTCo 3' x 5' Handhole. Extend 3-4"C to relocated Utility Pole location.
2. Intercept existing MECo Ductline with MECo 2' x 4' Handhole. Extend 2"C to relocated Utility Pole location.
3. Riser-up Pole per Utility Company Requirements. See C/E9 and D/E9 for Typical Pole Riser Details.



B / E8 TYPICAL STREET LIGHT ELEVATION AT TANGENT POLE
Not to Scale

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
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No.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

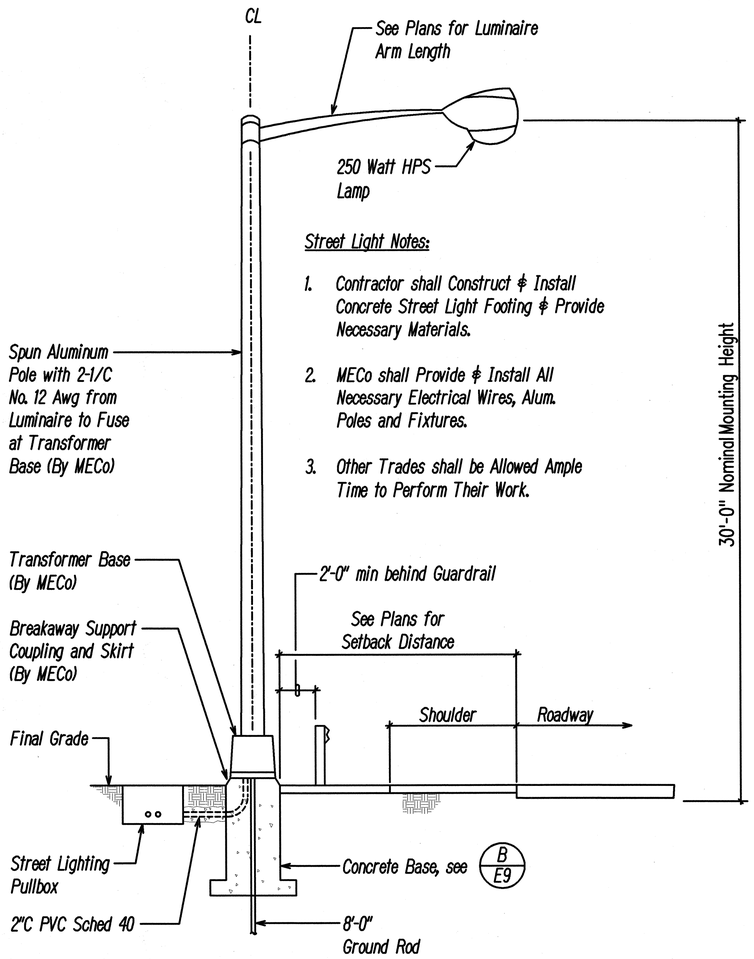
ONE-LINE DIAGRAMS, EQUIPMENT PLAN, ELEVATION

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
F.A. Project No. NH-030-1(28)

Scale: As Noted Date: July 2001

SHEET No. E8 OF 72 SHEETS

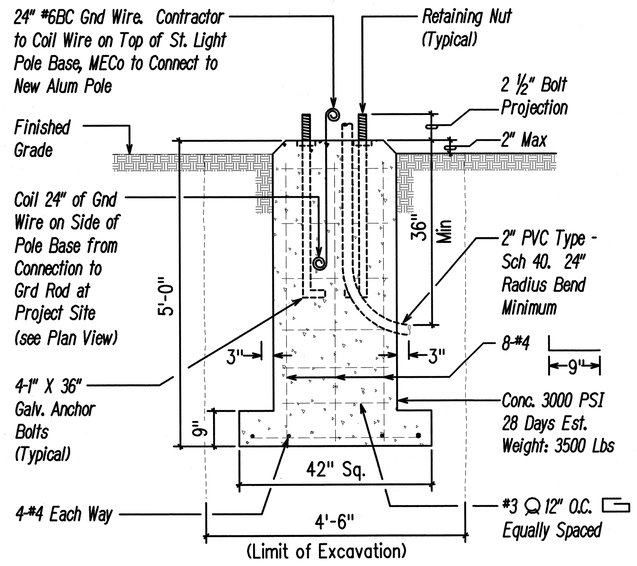
ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2001	71	72



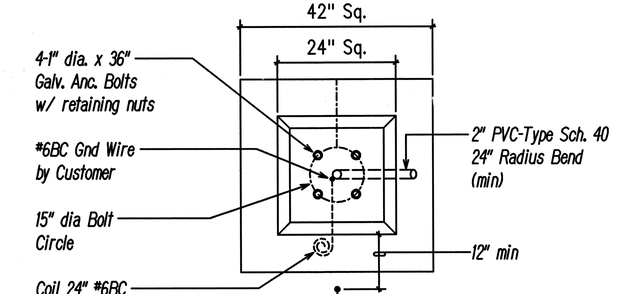
Street Light Notes:

1. Contractor shall Construct & Install Concrete Street Light Footing & Provide Necessary Materials.
2. MECo shall Provide & Install All Necessary Electrical Wires, Alum. Poles and Fixtures.
3. Other Trades shall be Allowed Ample Time to Perform Their Work.

A/E9 TYPICAL LIGHT STANDARD
Not to Scale



ELEVATION

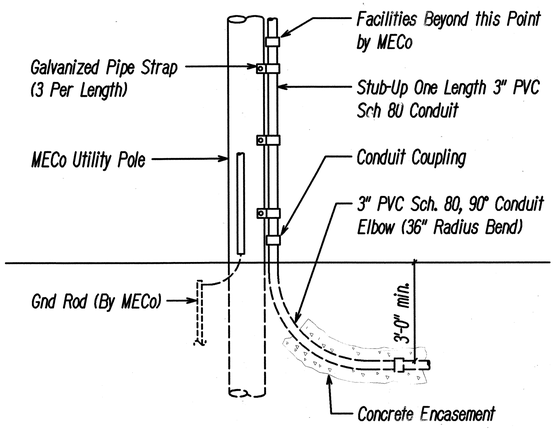


PLAN

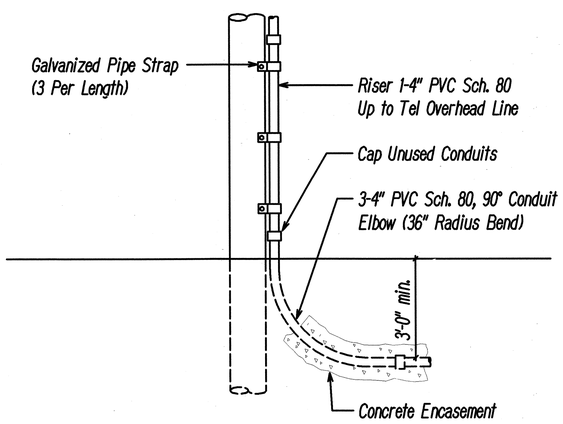
Notes:

1. Precast Concrete Footing is Prefabricated by Walker Industries at Ameron Maui, Ph: 877-5068.
2. MECo shall Provide 1" dia. X 36" Anchor Bolts (4 each) as Furnished by Manufacturer. Pick-up by Contractor at MECo's Kahului Warehouse.
3. Inspection by MECO Inspector Required Prior to Fabrication of Footing. Contact MECo Inspector (Ph: 871-8461)

B/E9 PRECAST CONCRETE FOOTING STREET LIGHT POLE BASE TRANSFORMER TYPE-WITH BREAKAWAY COUPLING (STATE HIGHWAY)
Not to Scale



C/E9 TYPICAL MECO POLE RISER DETAIL
Not to Scale



D/E9 TYPICAL HTCO POLE RISER DETAIL
Not to Scale

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NOTE BOOK | No.

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

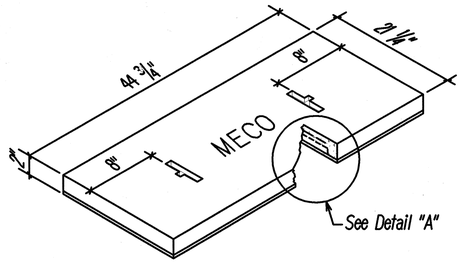
CONCRETE BASE AND STREET LIGHT DETAILS, POLE RISER DETAIL

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
F.A. Project No. NH-030-1(28)

Scale: As Noted Date: July 2001

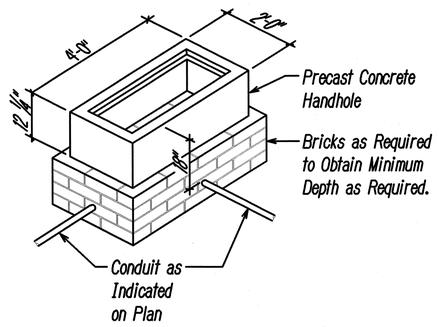
SHEET No. E9 OF 72 SHEETS

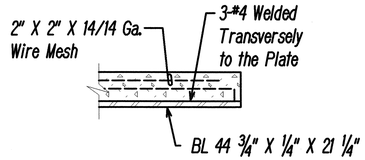
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2001	72	72



The Maui Electric Co, Inc. (MECO) Handholes shall be constructed by the Contractor as shown in these drawings & in accordance with the following standard drawings:

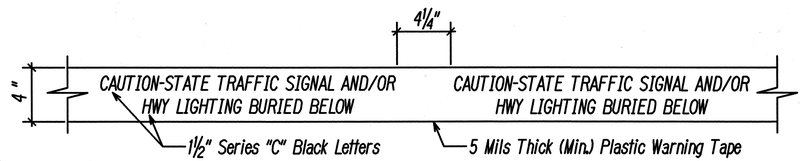
Type	Description
2' X 4' HECO Pullbox	2' X 4' Precast concrete pullbox with precast concrete cover, provided in accordance with HECO Standard Drawing No. 30-2005.





DETAIL "A"

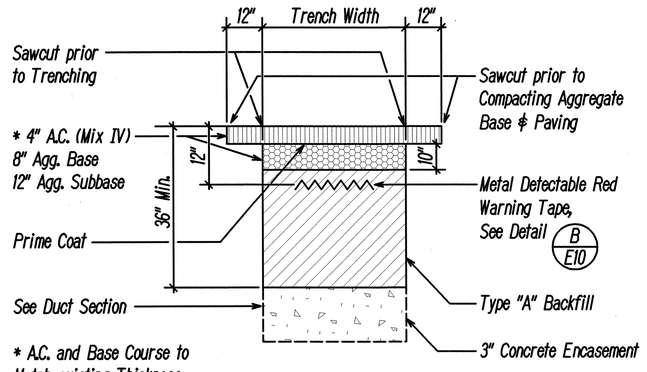
(A) E10 2' X 4' MECO HANDHOLE DETAIL
Not to Scale



Note:

The Metal Detectable Red Plastic Warning Tape Shall be a Minimum 5 Mils Thick and 4" Wide with a Continuous Metallic Backing and Corrosion Resistant 1± Mil Thick Foil Core. The Message on the Tape shall Read, "CAUTION - STATE TRAFFIC SIGNAL AND/OR HWY LIGHTING BURIED BELOW", Utilizing 1½ Inches Series "C" Black Lettering. The Message will be Repeated with a 4¼" Spacing Between Top Line of Message and Start of Next Repeat.

(B) E10 METAL DETECTABLE YELLOW PLASTIC WARNING TAPE
Not to Scale



* A.C. and Base Course to Match existing Thickness or the Minimum Thickness shown, whichever is Greater.

(1) TYPICAL BACKFILL SECTION WITH CONCRETE ENCASED DUCTS (STATE R.O.W.)
Not to Scale

BACKFILL NOTES
Not to Scale

Trench Backfill Material "A" Beach Sand, Earth, or Earth and Gravel. If Earth and Gravel used, the maximum shall contain not more than 50% by volume of rock particales. Maximum 8" loose fill per lift. Obtain 95% compaction for each lift.

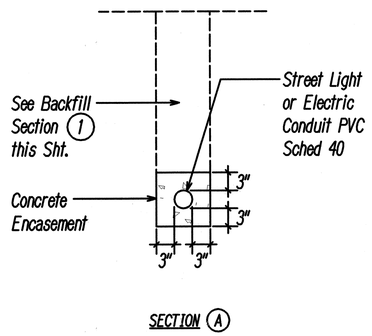
If Material below Duct is Not Equivalent to Backfill Material "A", Excavate Material & Provide 3" Backfill Material "A". See above.

Concrete - 3" Encasement, 3000 PSI Compressive Strength @ 3 Days.

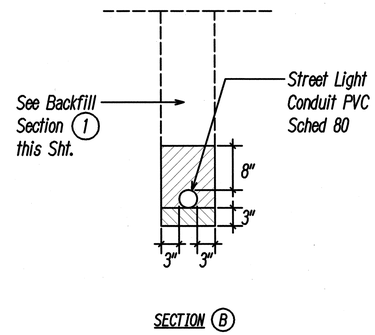
Note: Base Course & Sub-base Course per 1994 State Standard Specifications for Highway Construction.

TRENCHING NOTES:

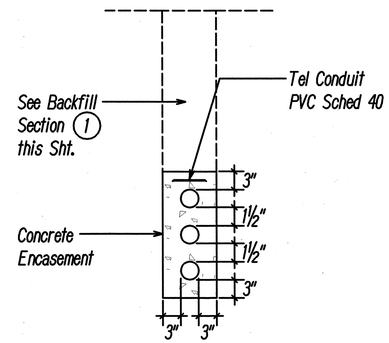
1. If trench is located on unpaved area, the Contractor shall replace 10" A.C. Base Course and 4" A.C. Pavement with Type "A" backfill material.
2. The Contractor may begin backfilling the conduit trench when the concrete reaches 3000 psi compressive strength after 3 days.



SECTION (A)



SECTION (B)



SECTION (C)

DUCT SECTION DETAILS
Not to Scale

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE | NOTE BOOK | N.

STEVEN H. SAKAI LICENSED PROFESSIONAL ENGINEER No. 7637-E HAWAII, U.S.A.

This Work was Prepared by Me or Under My Supervision

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL DETAILS, DUCT SECTIONS

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
F.A. Project No. NH-030-1(28)

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SHEET No. E10 OF 72 SHEETS