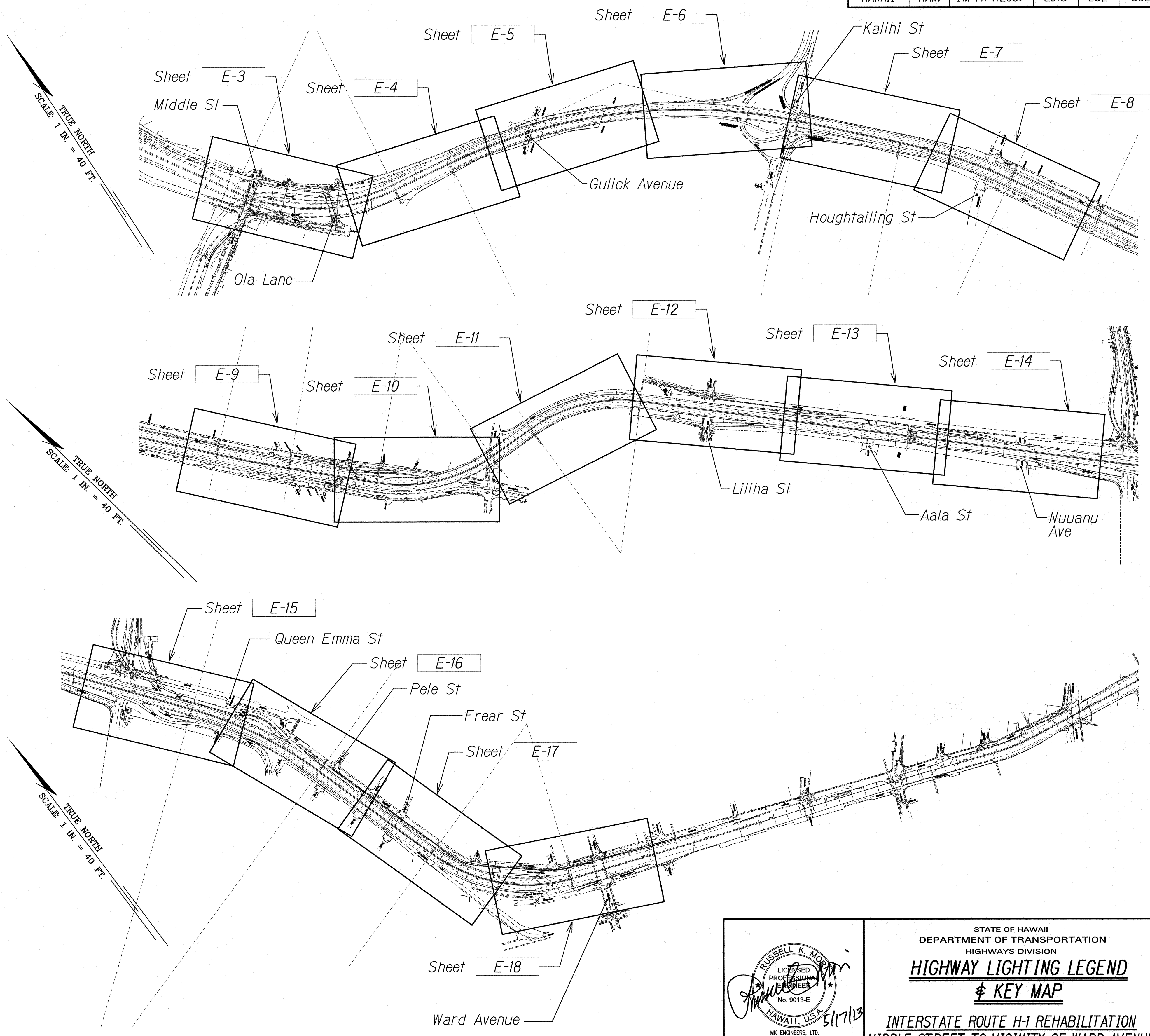


FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-HI-1(269)	2013	262	382

LEGEND

- Exist Highway Lighting Standard, 250W HPS Lamp
- ⊙ Replace Exist Luminaire with New 250W HPS Full Cut-Off Luminaire. Verify Exist Ballast Voltage. Provide Luminaire with Ballast to Match Existing Ballast Voltage
- New Highway Lighting Standard, 250W HPS. Full Cut-Off Luminaire, 480V
- ⊖ New Highway Lighting Standard Double Arm, 250W HPS, Full Cut-Off Luminaires, 480V
- ✕○ Remove Exist Highway Lighting Standard & Demolish & Backfill Concrete Base 24" Below Finish Grade
- ✕-L-✕- Remove Exist Highway Lighting Conductors, Abandon Conduit in Place
- L--- Exist Highway Lighting Conduit & Conductors to Remain
- L--- New Highway Lighting Conduit
- C--- New Highway Lighting/Power/Communication Conduits
- 1 Denotes Construction Note #1, Refer to Sheet E-2
- ▣ Existing Highway Lighting Pullbox
- ▣ R Remove Existing Highway Lighting Pullbox. Backfill to Match Surrounding Ground
- ▣ New Highway Lighting Pullbox Type "A".
- ⊕ Existing Junction Box
- ⊕ New Junction Box
- ▽ Existing Sign Structure, See Note 34



KEY MAP

5/17/13

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING LEGEND
& KEY MAP

INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. 1M-HI-1(269)

Scale: Not to Scale Date: April 26, 2013

SHEET No. E-1 OF 30 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
N ₁	

CONSTRUCTION NOTES & MATERIAL LIST

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	263	382

- 1

Exist Highway Lighting Service Conduits to the HECO Service Point. Notify HECO Prior to Removal of Lighting Conductors. Abandon Conduit in Place.
- 2

Highway Lighting Conduit 1 - 2".
- 3

Highway Lighting Standard On Top of Exist Concrete Retaining Wall. See

A

E-1

E-24
- 4

Highway Lighting Standard in Slope Area (8' From Edge of Shoulder). See

A

E-1

E-27
- 5

Conduits (PVC Coated Galv. Rigid Steel) Fastened to Exist Concrete Wall or Ceiling. See Sheet E-28 for Details.
- 6

Conduits (PVC Coated Galv Rigid Steel) Fastened to the Side of Exist Concrete Guard Rail or Bridge Structure. See

B

E-1

E-25
- 7

Junction Box Nema 3R Stainless Steel.
- 8

Conduits (PVC Sched 80) Inside Concrete Guard Rail. See Details on Structural Drawing Sheet SN4.I.
- 9

18" x 8" x 6" Recessed Cast Iron Pullbox.
- 10

Highway Lighting Standard on Top of New Concrete Barrier. See

A

E-1

E-25
- 11

Highway Lighting Type "A" Pullbox. See Standard Plans TE-37A.
- 12

Highway Lighting Conduit (PVC Coated Galv Rigid Steel) Fastened to the Side of Exist Concrete Retaining Wall. See

C

E-1

E-24
- 13

Highway Lighting Conduit Behind Concrete Retaining Wall. See

B

E-1

E-23
- 14

Highway Lighting Standard Behind Exist Metal Guard Rail or Conc Guard Rail in a Slope Grade. See

A

E-1

E-26
- 15

Remove Conductors in Existing 2" Conduit with New After New Luminaire are in Operation.
- 16

Highway Lighting Standard on Grade. See

A

E-1

E-22
- 17

Highway Lighting Standard Behind Existing Fence.
- 18

Highway Lighting Conduit Under Roadway or Shoulder Area. See Duct Section (D) Sheet E-21.
- 19

Conduits Behind Exist Metal Guard Rail or Retaining Wall. See Duct Section (C) Sheet E-21.
- 20

Exist Highway Lighting Luminaire Mounted on Exist Concrete Wall.
- 21

Exist Highway Lighting Conduit Mounted on Top of Exist Concrete Retaining Wall.
- 22

Power Type (A) Pullbox. See Standard Plans TE-37A.
- 23

Communication Type (B) Pullbox. See Standard Plans TE-37B.
- 24

Power Conduit, 1 - 2".
- 25

Communication Conduits, 2 - 2".

- 26

Power Cast Iron Pullbox, 12" x 18" x 10".
- 27

Communication Cast Iron Pullbox, 18" x 18" x 12".
- 28

Conduits Under Roadway or Shoulder Area. See Duct Section (B) on Sheet E-21.
- 29

Conduits Behind Exist Concrete Guard Rail or Retaining Wall. See Duct Section (C) on Sheet E-21.
- 30

Highway Ltg Standard Between New Metal Guard Rail and Existing Concrete Retaining Wall. See

C

E-1

E-26
- 31

Conduits Between New Metal Guard Rail and Existing Concrete Retaining Wall. See Duct Section (C) on Sheet E-21.
- 32

Intercept and Extend Exist Circuit to New Lt Pole.
- 33

Conduits in Planting Area. See Duct Section on (C1) on Sheet E-21.
- 34

Remove Existing Sign Structure Light Fixtures & Raceways. Disconnect & Remove Conductors From the Nearest Lighting Pullbox.
- 35

1"C, 2#8, #8 Gnd to Underpass Lights. See Sheet E-29 for Wiring Diagram.
- 36

Highway Lighting Conduit in Planting Area Behind Exist Metal Guard Rail or Retaining Wall. See Duct Section (A) on Sheet E-21.
- 37

Remove Existing Light Pole Tag with New, See

C

E-2

E-22

GENERAL NOTES:

1. Existing Highway Lighting System shall Remain in Operation at all Times. Remove Light Poles and Conductors only after the New Lighting System is in Operation. Remove Light Pole Foundation 12" Below Finish Grade. Light Pole Foundations Intergrated into Existing Retaining Walls & Concrete Barriers Shall Remain. Cut Anchor Bolts Flush w/ Surface.
2. Extra Care shall be taken while Excavating for the Light Pole Foundation and Ductlines. Contractor Shall Tone for Location of Utility Lines prior to Excavation.

Highway Lighting Installed on Overpass instead of Trenching in the Roadway Shoulder. (Per RFI 053).

SURVEY PLOTTED BY	DATE
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CHECKED BY	
NOTE BOOK	
NO.	

RUSSELL K. MOORE

LICENSED PROFESSIONAL ENGINEER

No. 9013-E

HAWAII, U.S.A.

5/17/13

MX ENGINEERS, LTD.

LICENSE EXPIRATION DATE: 4/30/12

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

CONSTRUCTION NOTES &

MATERIAL LIST

INTERSTATE ROUTE H-1 REHABILITATION

MIDDLE STREET TO VICINITY OF WARD AVENUE

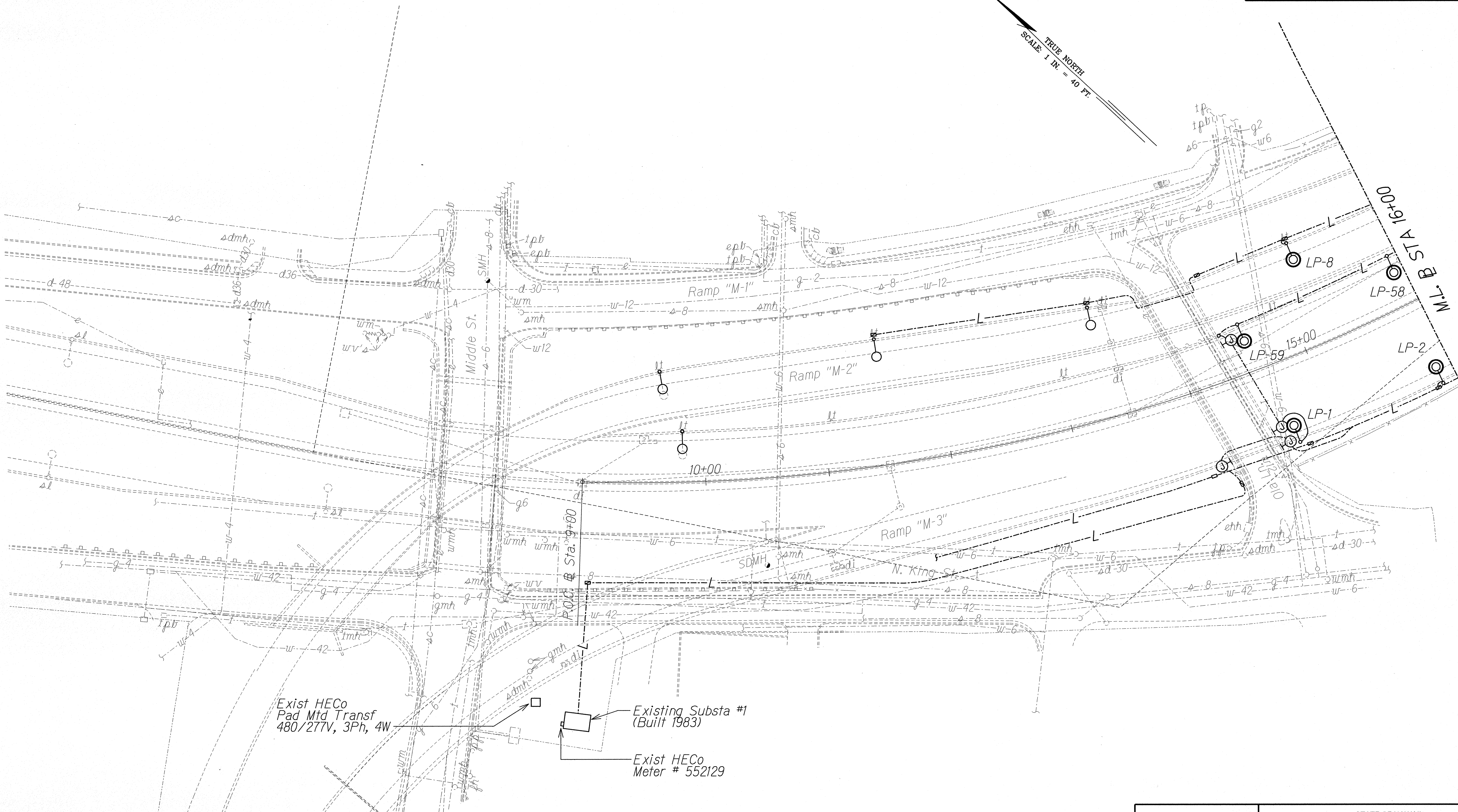
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Scale: No Scale

Date: April 26, 2013

SHEET No. E-2 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	264	382



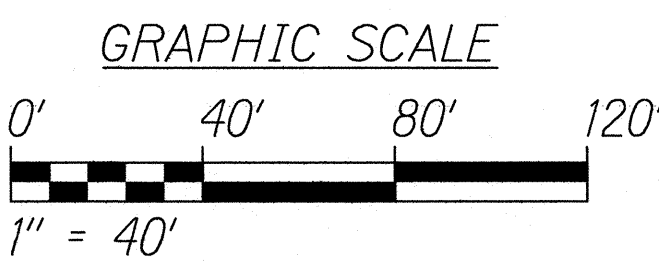
TRUE NORTH
SCALE 1 IN. = 40 FT.

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

HIGHWAY LIGHTING PLAN - A

NOTES:

- Light Lines Denote Existing Condition
- Bold Lines Denote New Work
- "X" Denotes Removal Work



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

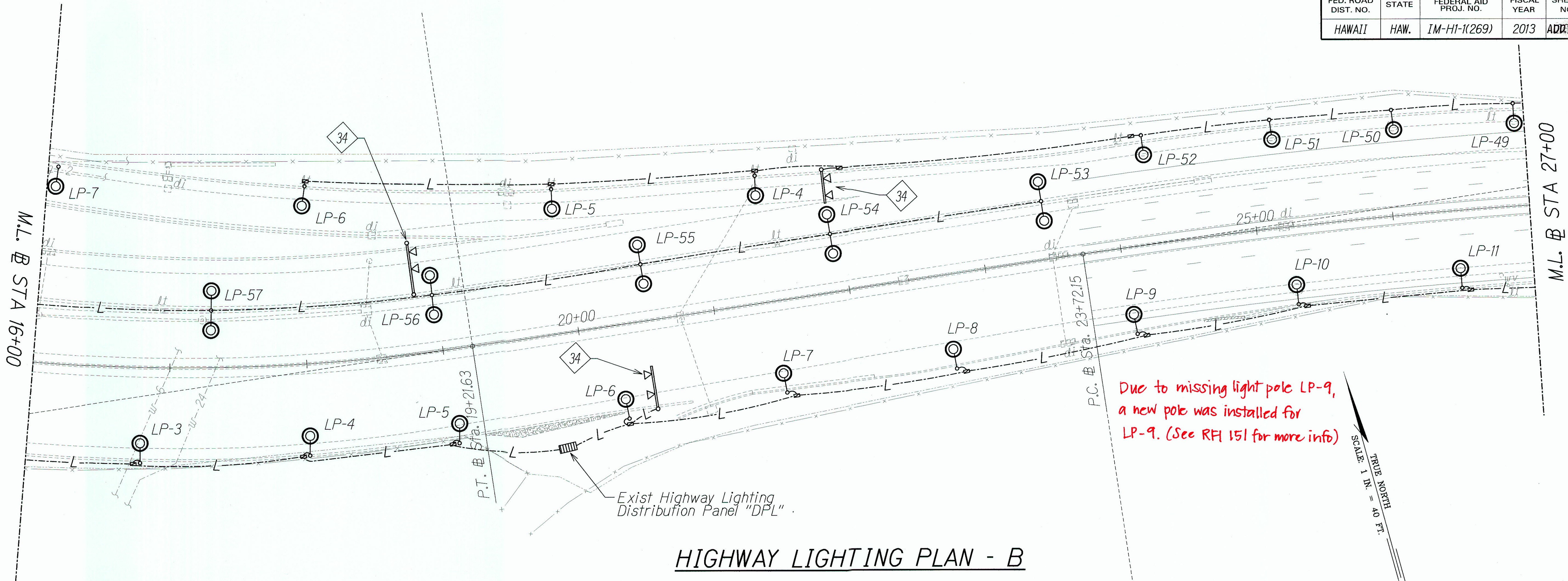
HIGHWAY LIGHTING PLAN
STA TO 16+00

INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)

Scale: 1" = 40'-0" Date: April 26, 2013

SHEET No. E-3 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	ADD. 265	382

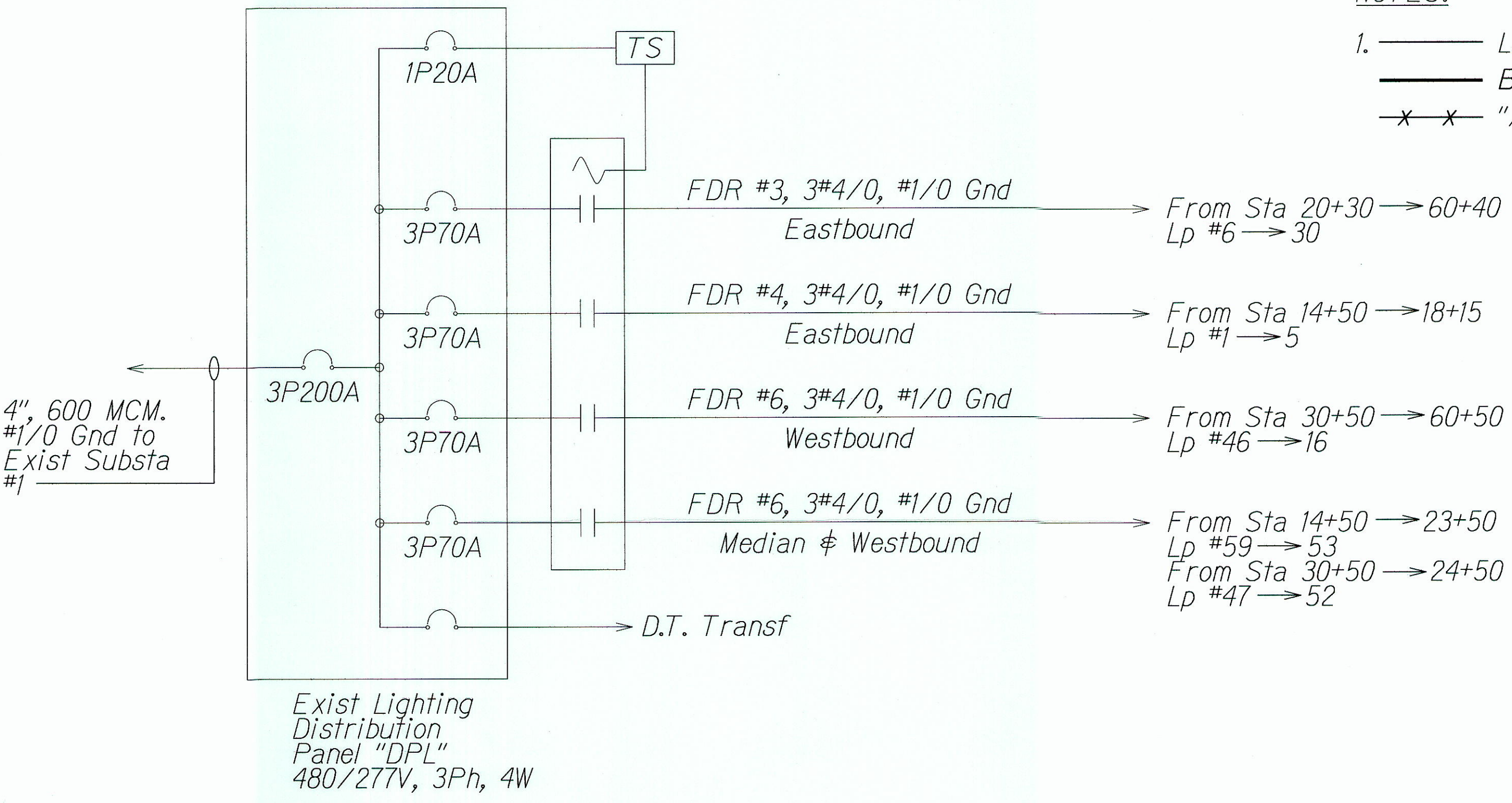


Due to missing light pole LP-9, a new pole was installed for LP-9. (See RF 151 for more info)

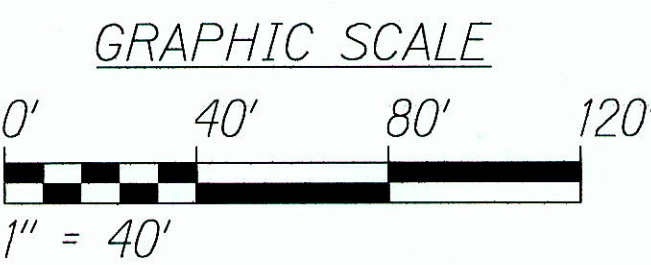
TRUE NORTH
SCALE: 1" = 40' FT.

HIGHWAY LIGHTING PLAN - B

- NOTES:
- 1. Light Lines Denote Existing Condition
 - Bold Lines Denote New Work
 - "X" Denotes Removal Work



EXIST PANEL "DPL" ONE-LINE DIAGRAM



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN
STA 16+00 TO 27+00

INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)

Scale: 1" = 40'-0" Date: April 26, 2013

SHEET No. E-4 OF 30 SHEETS

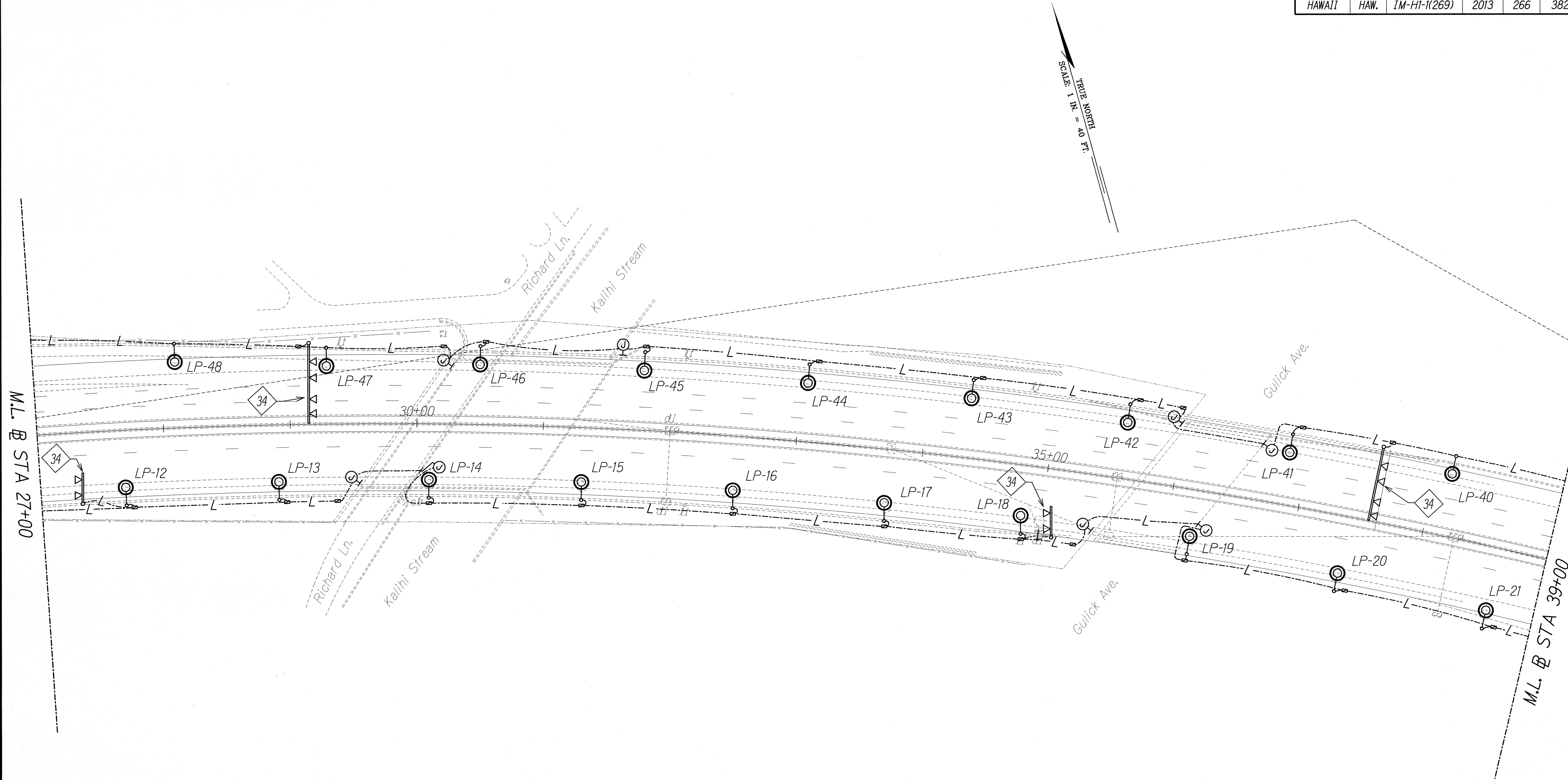
6/17/13	Replaces Original Sheet
Date	Revision

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

"AS-BUILT"

ADD. 265

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	266	382



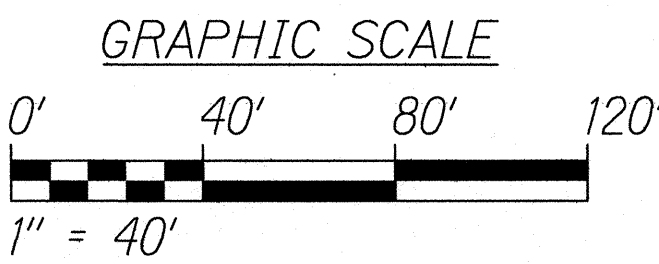
TRUE NORTH
SCALE: 1 IN. = 40 FT.

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
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ORIGINAL PLAN	
NOTE BOOK	
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HIGHWAY LIGHTING PLAN - C

NOTES:

- Light Lines Denote Existing Condition
- Bold Lines Denote New Work
- "X" Denotes Removal Work



5/17/13

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

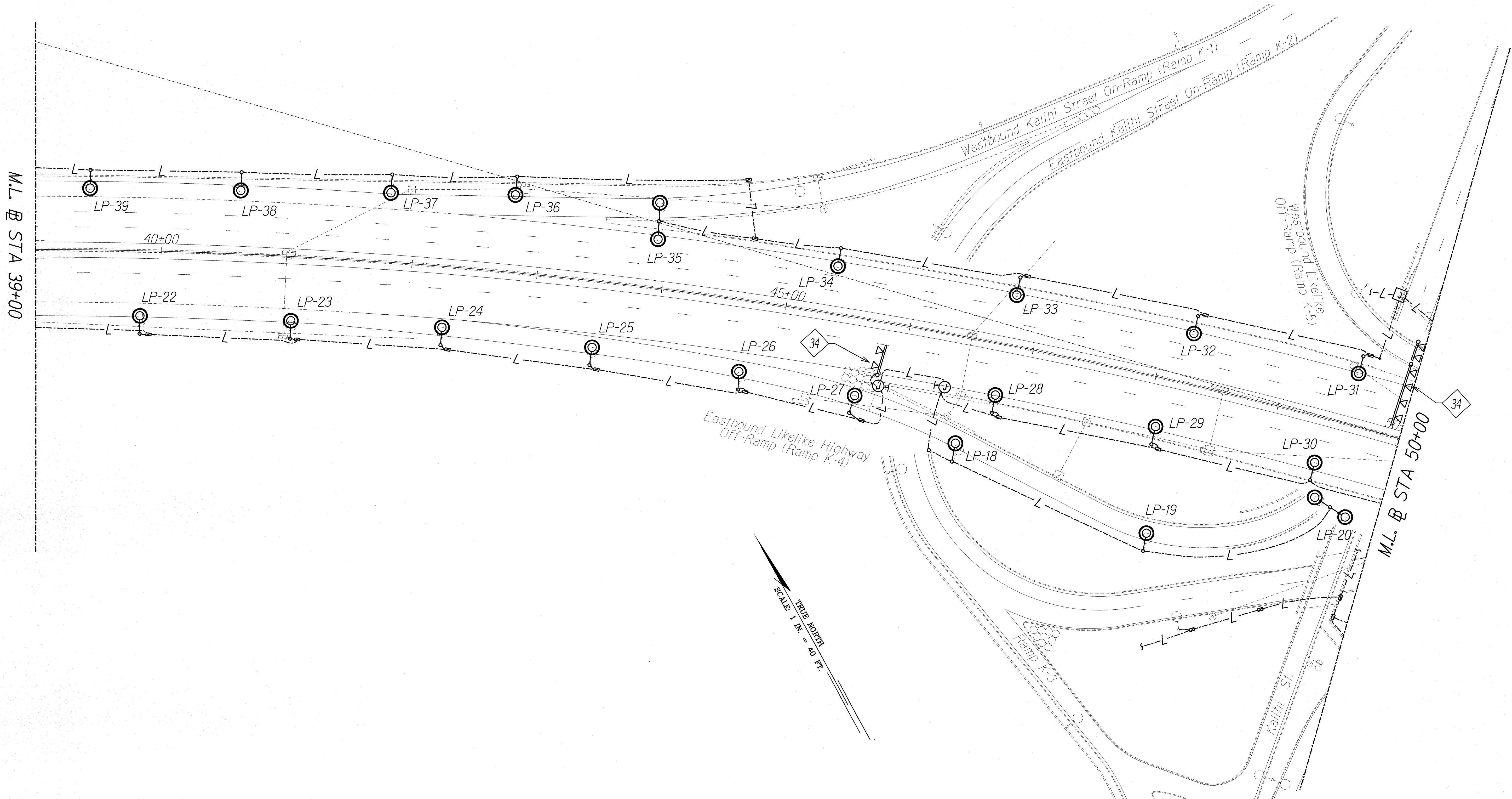
HIGHWAY LIGHTING PLAN
STA 27+00 TO 39+00

INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)

Scale: 1" = 40'-0" Date: April 26, 2013

SHEET No. E-5 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	267	382

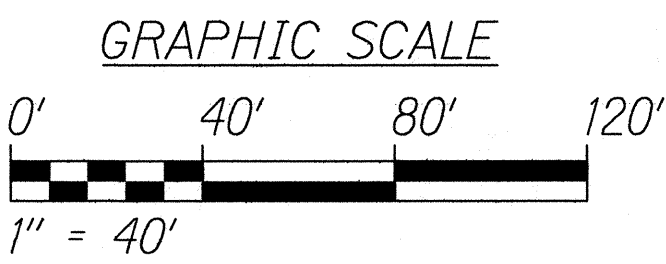


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DRAWN BY	
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CHECKED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

HIGHWAY LIGHTING PLAN - D

NOTES:

- Light Lines Denote Existing Condition
- Bold Lines Denote New Work
- "X" Denotes Removal Work



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

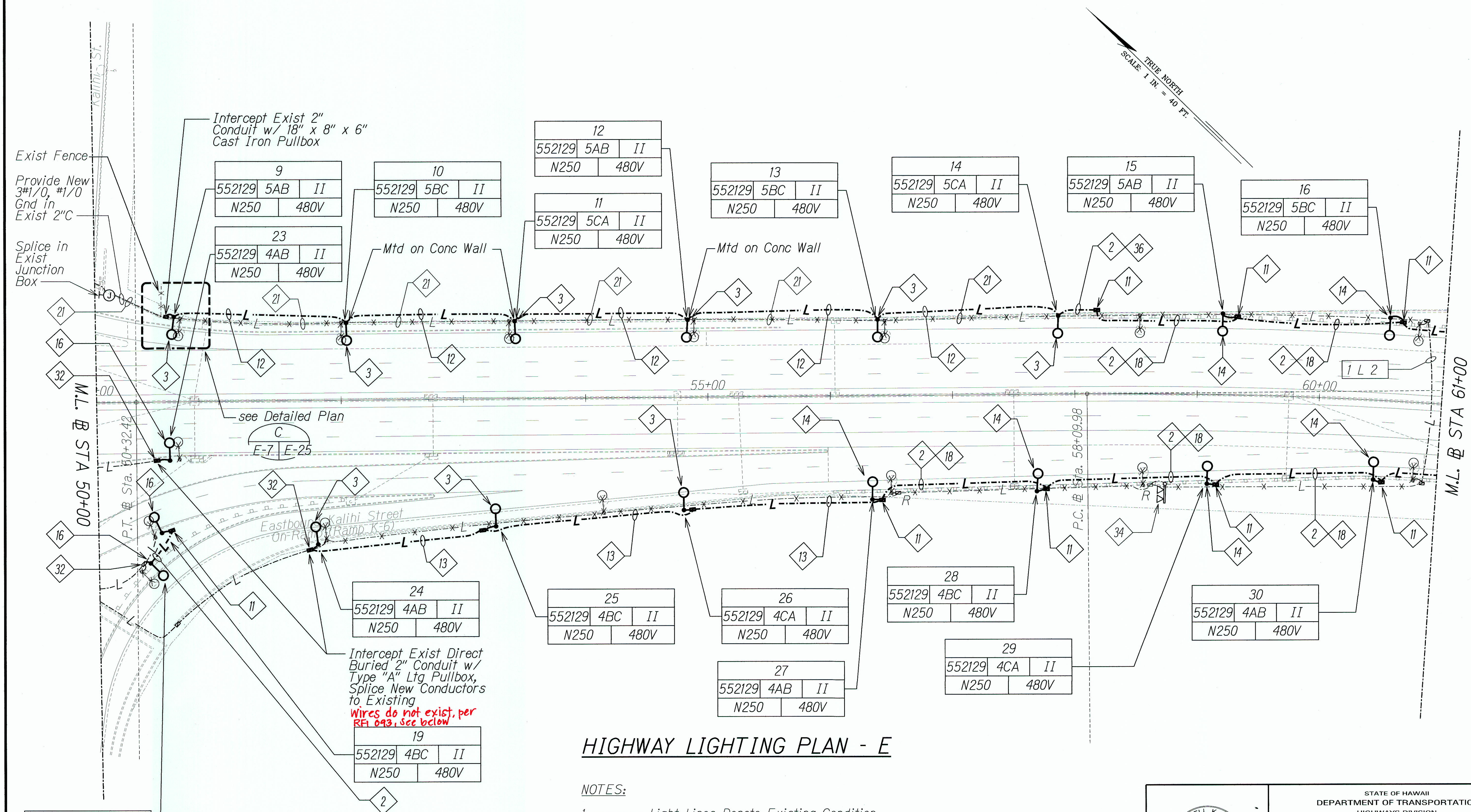
HIGHWAY LIGHTING PLAN
STA 39+00 TO 50+00

INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)

Scale: 1" = 40'-0" Date: April 26, 2013

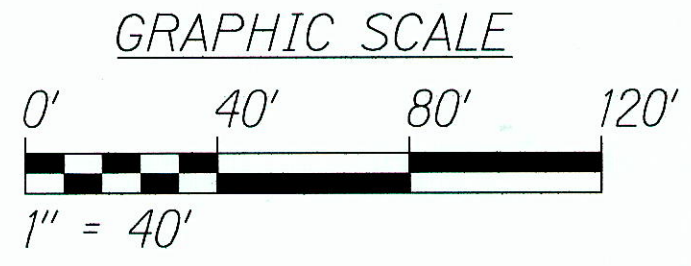
SHEET No. E-6 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	268	382



HIGHWAY LIGHTING PLAN - E

- NOTES:
- Light Lines Denote Existing Condition
Bold Lines Denote New Work
"X" Denotes Removal Work
 - Provide New 3#1/0 # 1/0 Gnd. XHHW Conductors from Junction Box. LP #9 to LP#16 & LP #24 to LT#30.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN
STA 50+00 TO 61+00

INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)

Scale: 1" = 40'-0" Date: April 26, 2013

SHEET No. E-7 OF 30 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	
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DESIGNED BY	
CHECKED BY	
NOTED BY	
DATE	

18	552129	4CA	II
	N250		480V

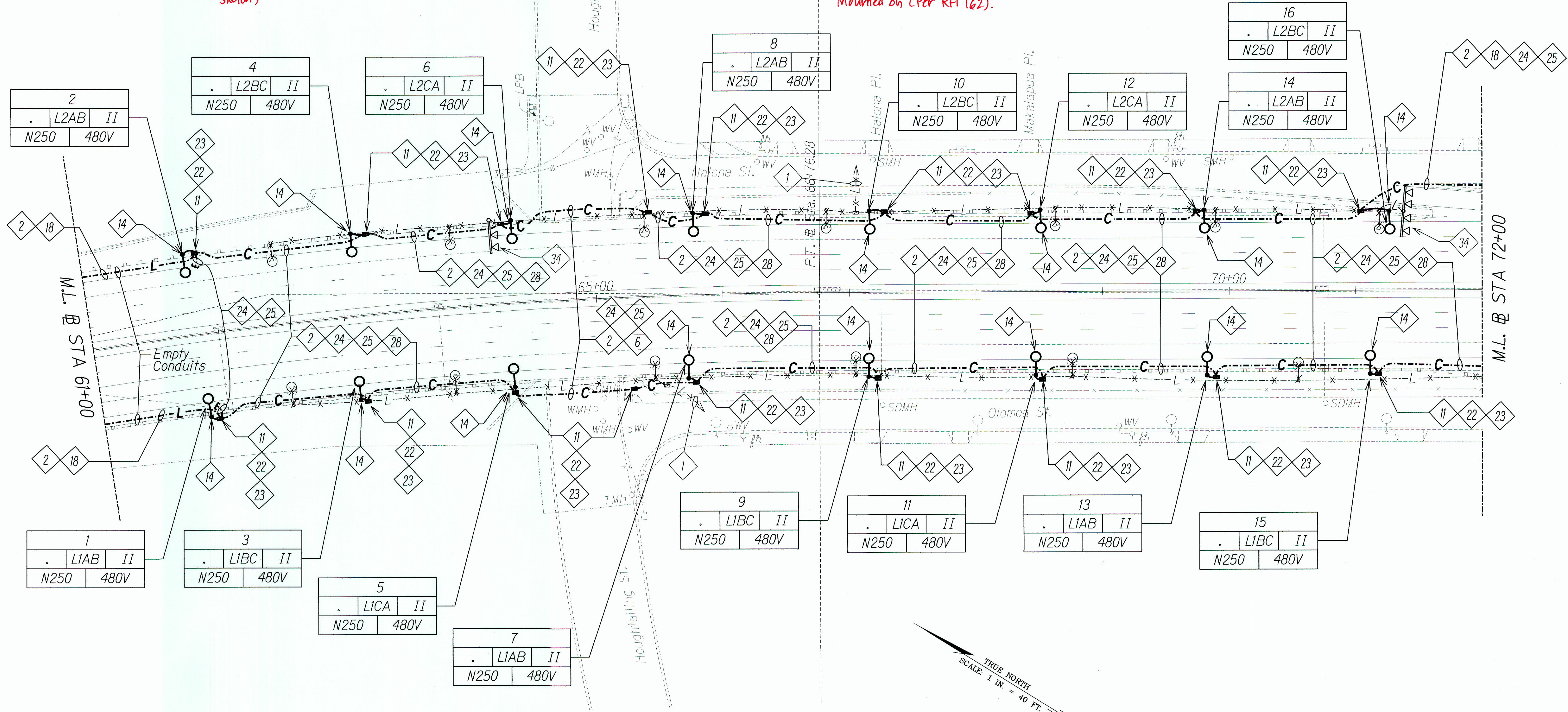
New Ductlines (2'C, 3# 1/0, # 1/0 GND) extend from Pullbox Adjacent to Pole 24 and connect to existing Pullbox Adjacent to the Bridge Crossing Ramp K-G.

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	269	382

At the Houghtailing Underpass, Westbound, the Four 2" Conduits were installed on the wall with concrete Encasement for additional support and protection. (See RFI 165 for more info - attached sketch)

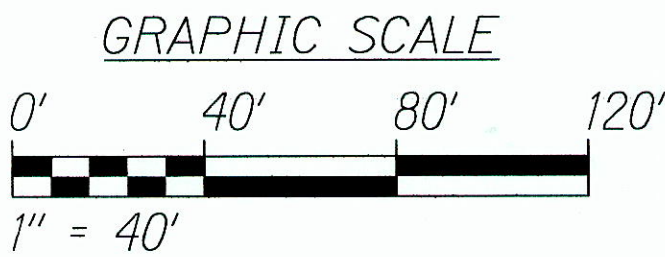
The Existing Street Light Bases Adjacent to New #8 and #10 WB can't be removed since they are feeding other Lights. Pole Bases were left in place with a Blank Steel Plate at top and Photocell Mounted on (Per RFI 162).



HIGHWAY LIGHTING PLAN - F

NOTES:

- Light Lines Denote Existing Condition
- Bold Lines Denote New Work
- "X" Denotes Removal Work



SURVEY LOCATED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

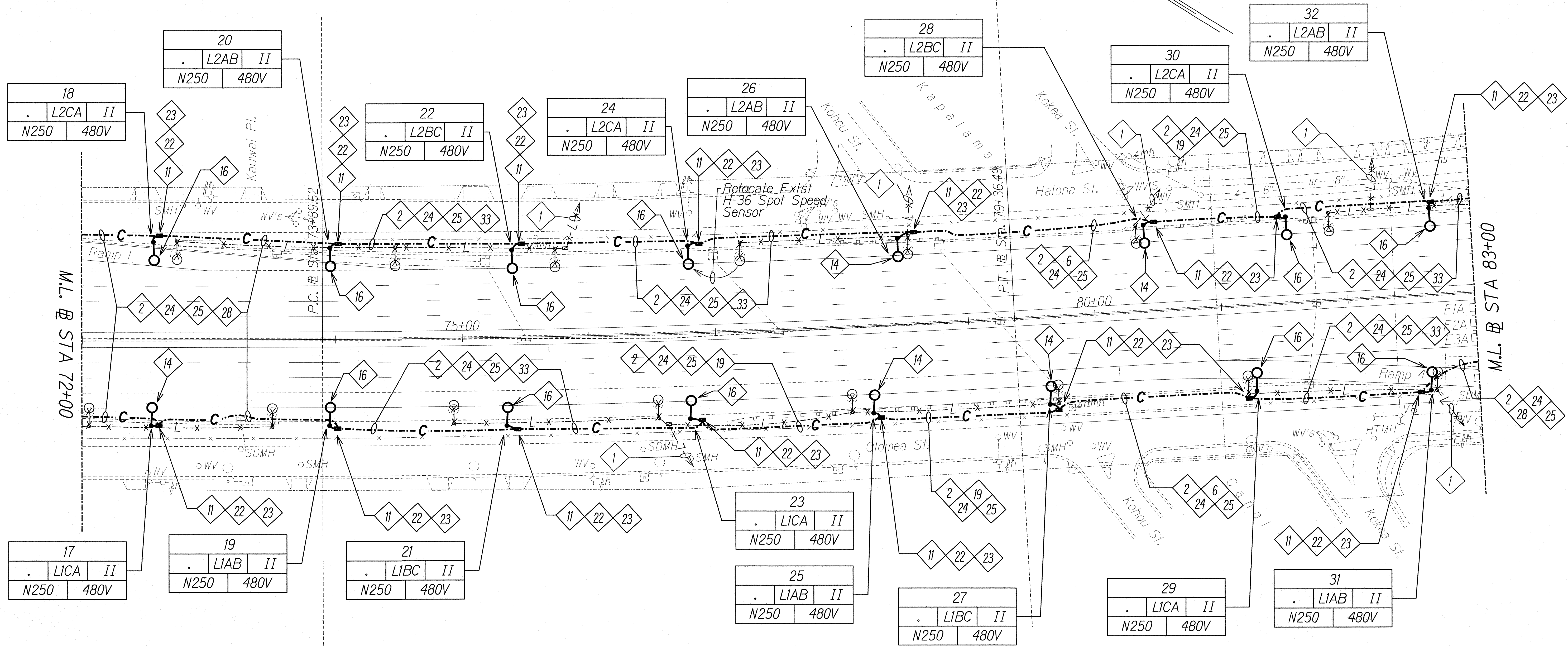
HIGHWAY LIGHTING PLAN
STA 61+00 TO 72+00

INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)

Scale: 1" = 40'-0" Date: April 26, 2013

SHEET No. E-8 OF 30 SHEETS

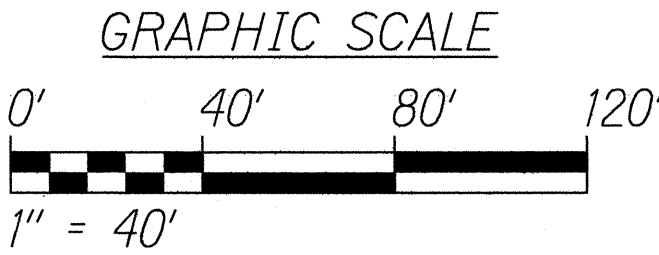
"AS-BUILT"



HIGHWAY LIGHTING PLAN - G

NOTES:

- 1. ——— Light Lines Denote Existing Condition
- Bold Lines Denote New Work
- x — "X" Denotes Removal Work



5/17/13

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

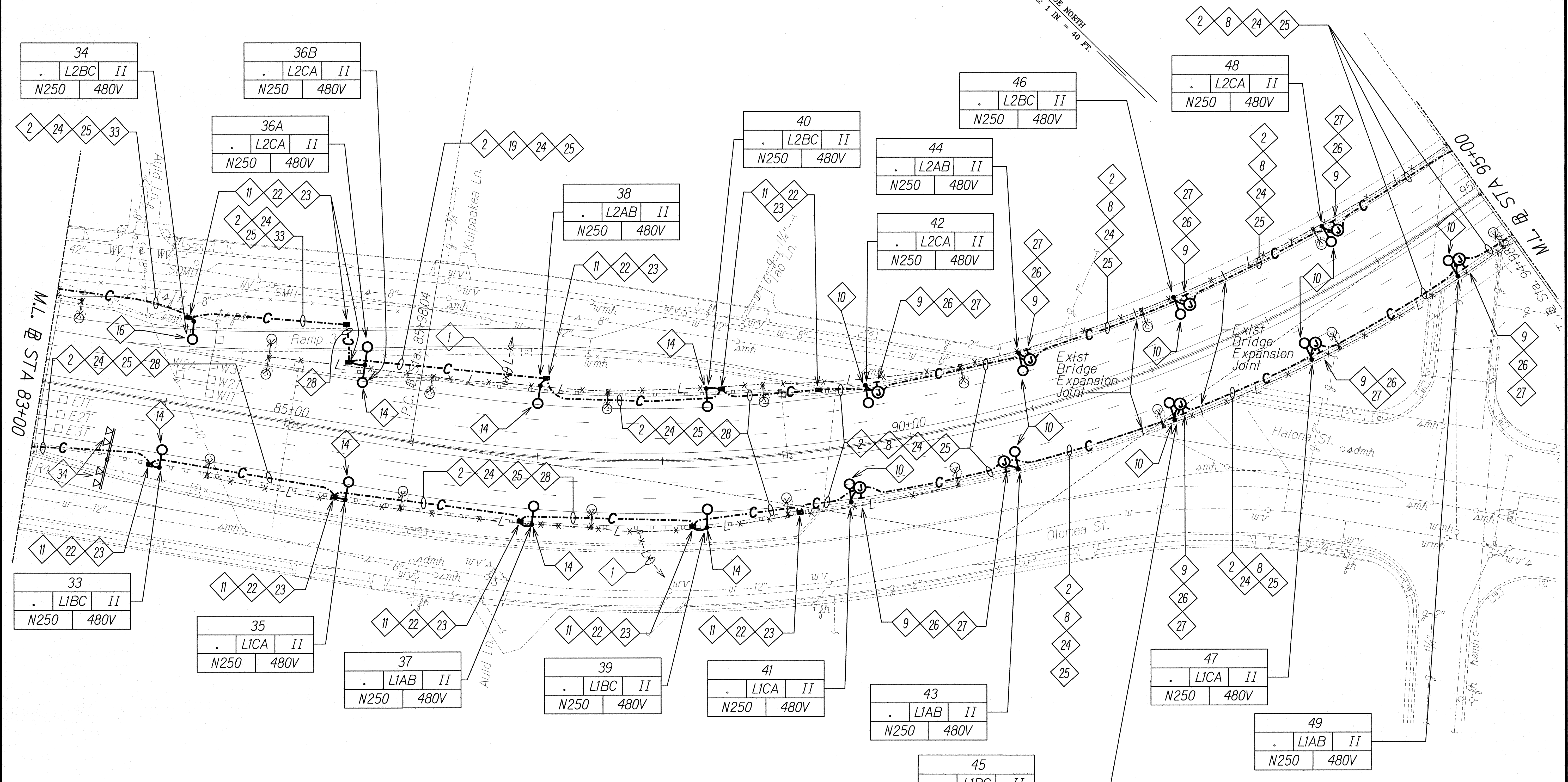
HIGHWAY LIGHTING PLAN
STA 72+00 TO 83+00

INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)

Scale: 1" = 40'-0" Date: April 26, 2013

SHEET No. E-9 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-HI-1(269)	2013	271	382

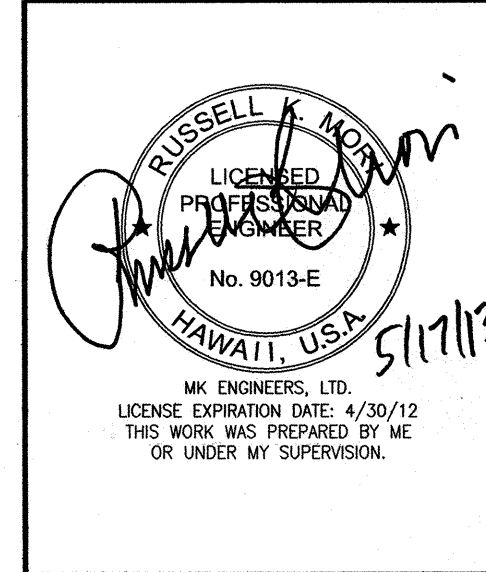
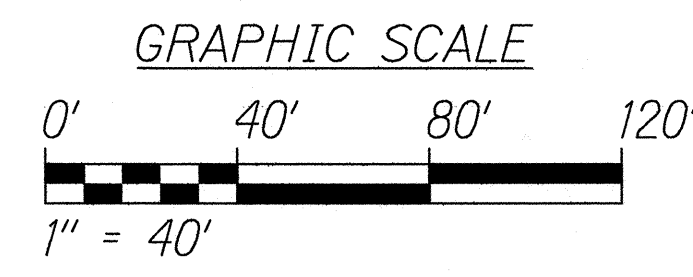


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QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	

HIGHWAY LIGHTING PLAN - H

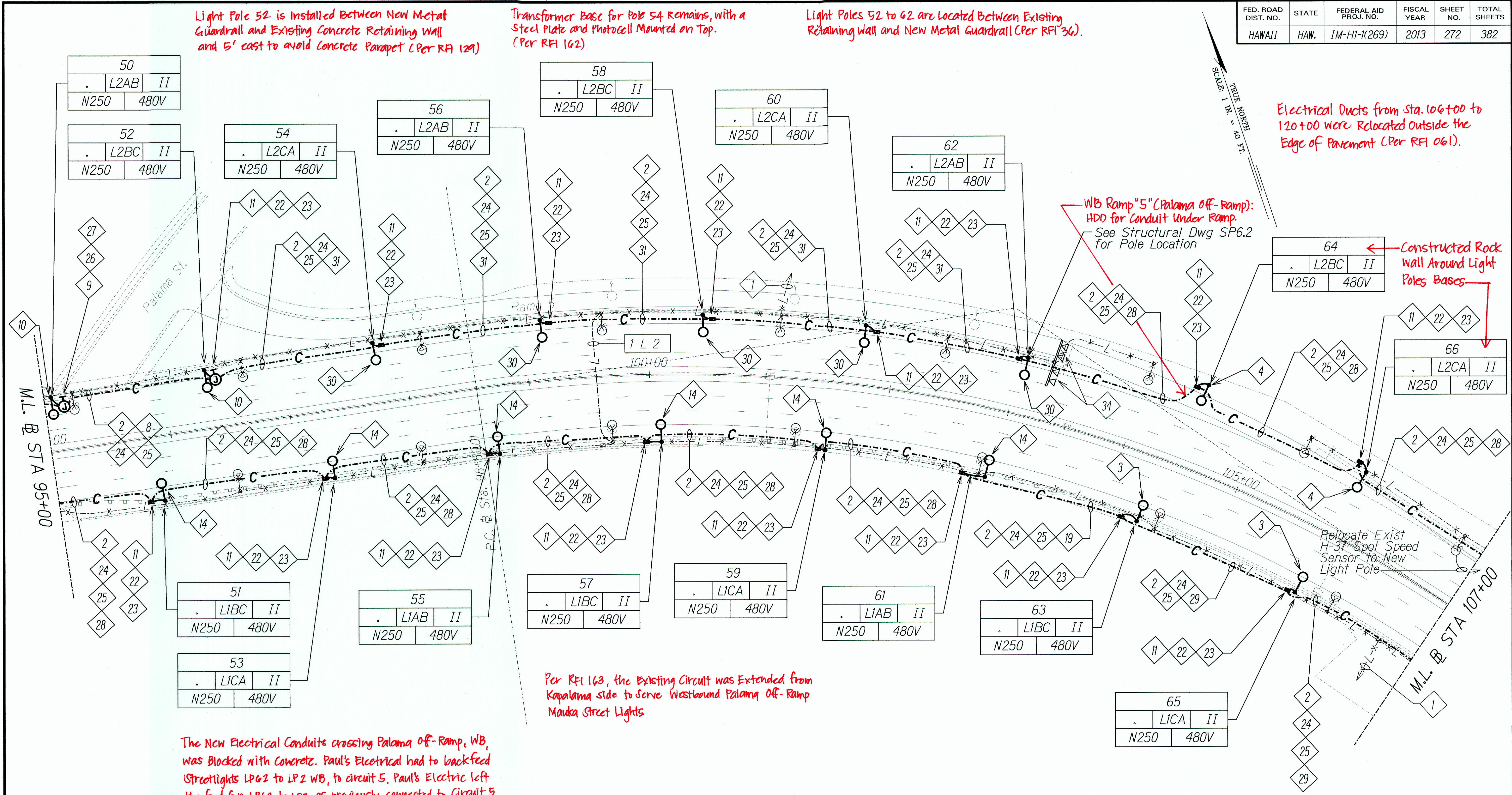
NOTES:

- Light Lines Denote Existing Condition
- Bold Lines Denote New Work
- "X" Denotes Removal Work



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HIGHWAY LIGHTING PLAN
STA 83+00 TO 95+00
INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. 1M-HI-1(269)
Scale: 1" = 40'-0" Date: April 26, 2013
SHEET No. E-10 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	272	382

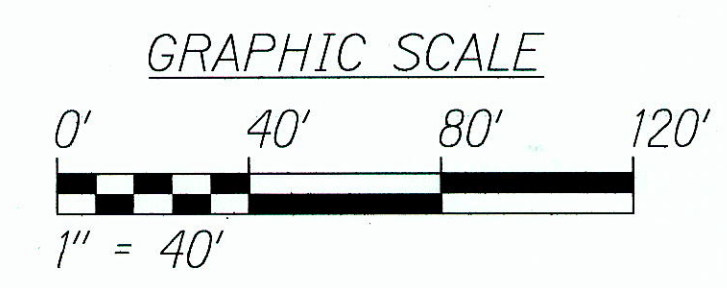


SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
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HIGHWAY LIGHTING PLAN - I

NOTES:

- Light Lines Denote Existing Condition
- Bold Lines Denote New Work
- "X" Denotes Removal Work



RUSSELL K. MORI
LICENSED PROFESSIONAL ENGINEER
No. 9013-E
HAWAII, USA

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN
STA 95+00 TO 107+00

INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)

Scale: 1" = 40'-0" Date: April 26, 2013

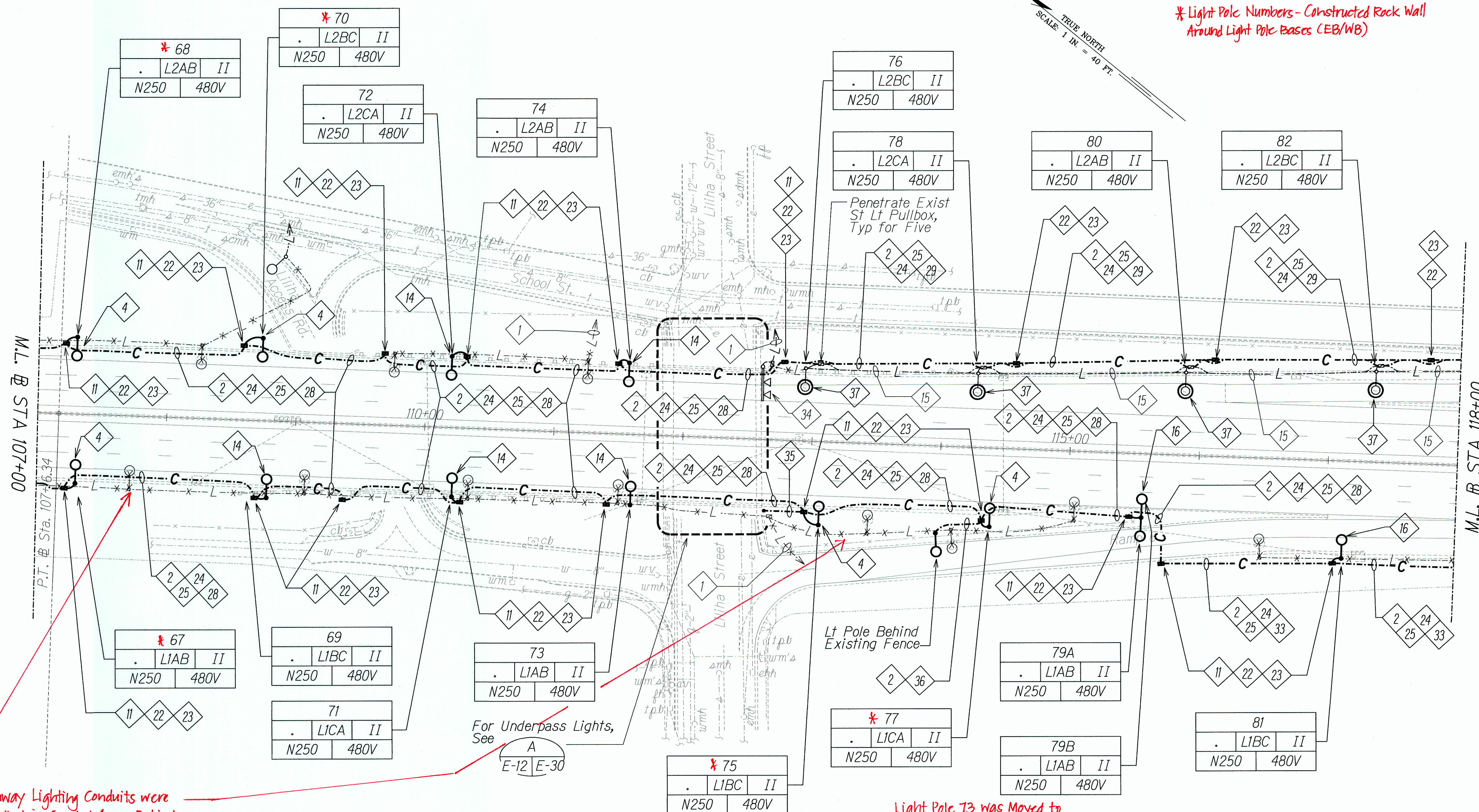
SHEET No. E-11 OF 30 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-K(269)	2013	273	382

See Attached Drawing for Placement, Spacing, and Designated Cover for Conduits (Per RFI 72)

* Light Pole Numbers - Constructed Rock Wall Around Light Pole Bases (EB/WB)



Highway Lighting Conduits were Installed in Graded Areas Behind the Guardrail at Locations:
 Eastbound
 Sta. 113+06 to 115+57
 Sta. 107+30 to 109+28
 Sta. 141+25 to 143+58
 Sta. 146+12 to 146+62
 Sta. 147+40 to 149+05
 (Per RFI 052)
 *Also, see Pages 275 & 276

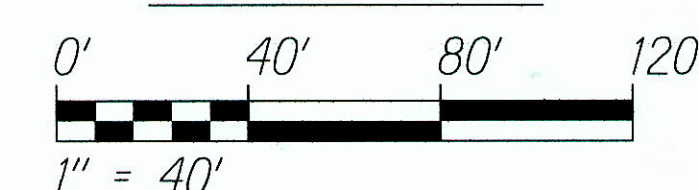
HIGHWAY LIGHTING PLAN - J

NOTES:

- Light Lines Denote Existing Condition
- Bold Lines Denote New Work
- "X" Denotes Removal Work

Light Pole 73 was Moved to Sta. 111+50 due to Conflict with Existing Drainline (Per RFI 079)

GRAPHIC SCALE



RUSSELL K. MOORE
 LICENSED PROFESSIONAL ENGINEER
 No. 9013-E
 HAWAII, U.S.A.
 MK ENGINEERS, LTD.
 LICENSE EXPIRATION DATE: 4/30/12
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN
STA 107+00 TO 118+00

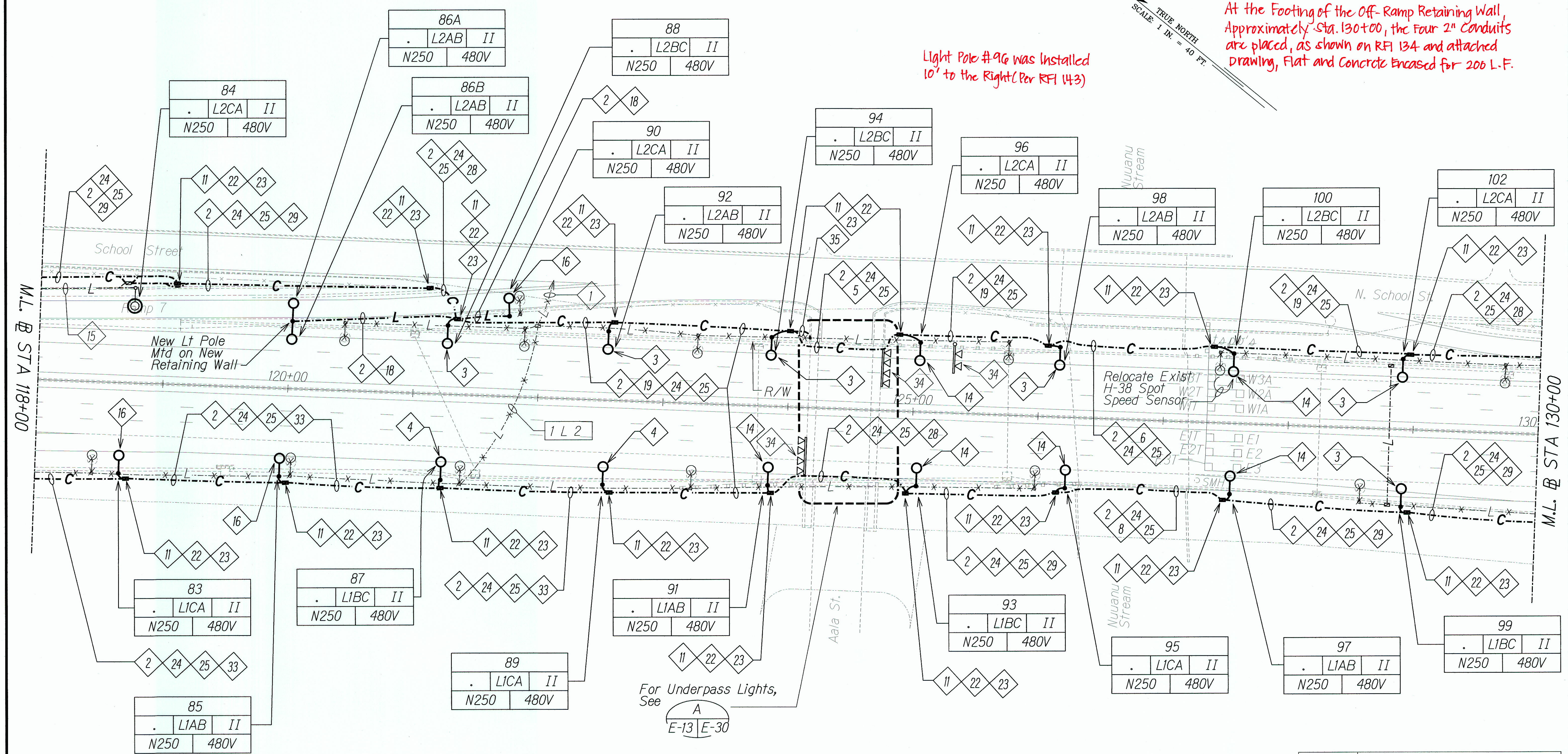
INTERSTATE ROUTE H-1 REHABILITATION
 MIDDLE STREET TO VICINITY OF WARD AVENUE
 FAP NO. IM-H1-K(269)

Scale: 1" = 40'-0" Date: April 26, 2013

SHEET No. E-12 OF 30 SHEETS

"AS-BUILT"

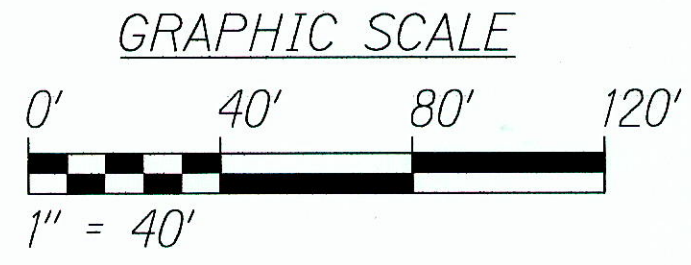
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	ADD. 274	382



Light Pole #83, 85, 87, & 89 - constructed
Rockwall Around Light Pole Bases (EB/WB)

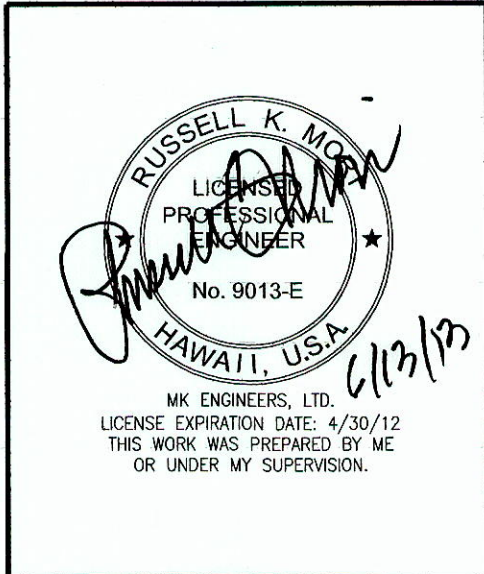
HIGHWAY LIGHTING PLAN - K

- NOTES:
- 1. — Light Lines Denote Existing Condition
 - Bold Lines Denote New Work
 - X-X- "X" Denotes Removal Work



"AS-BUILT"

6/17/13	Replaces Original Sheet
Date	Revision



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HIGHWAY LIGHTING PLAN
STA 118+00 TO 130+00
INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)
Scale: 1" = 40'-0" Date: April 26, 2013
SHEET No. E-13 OF 30 SHEETS

ADD. 274

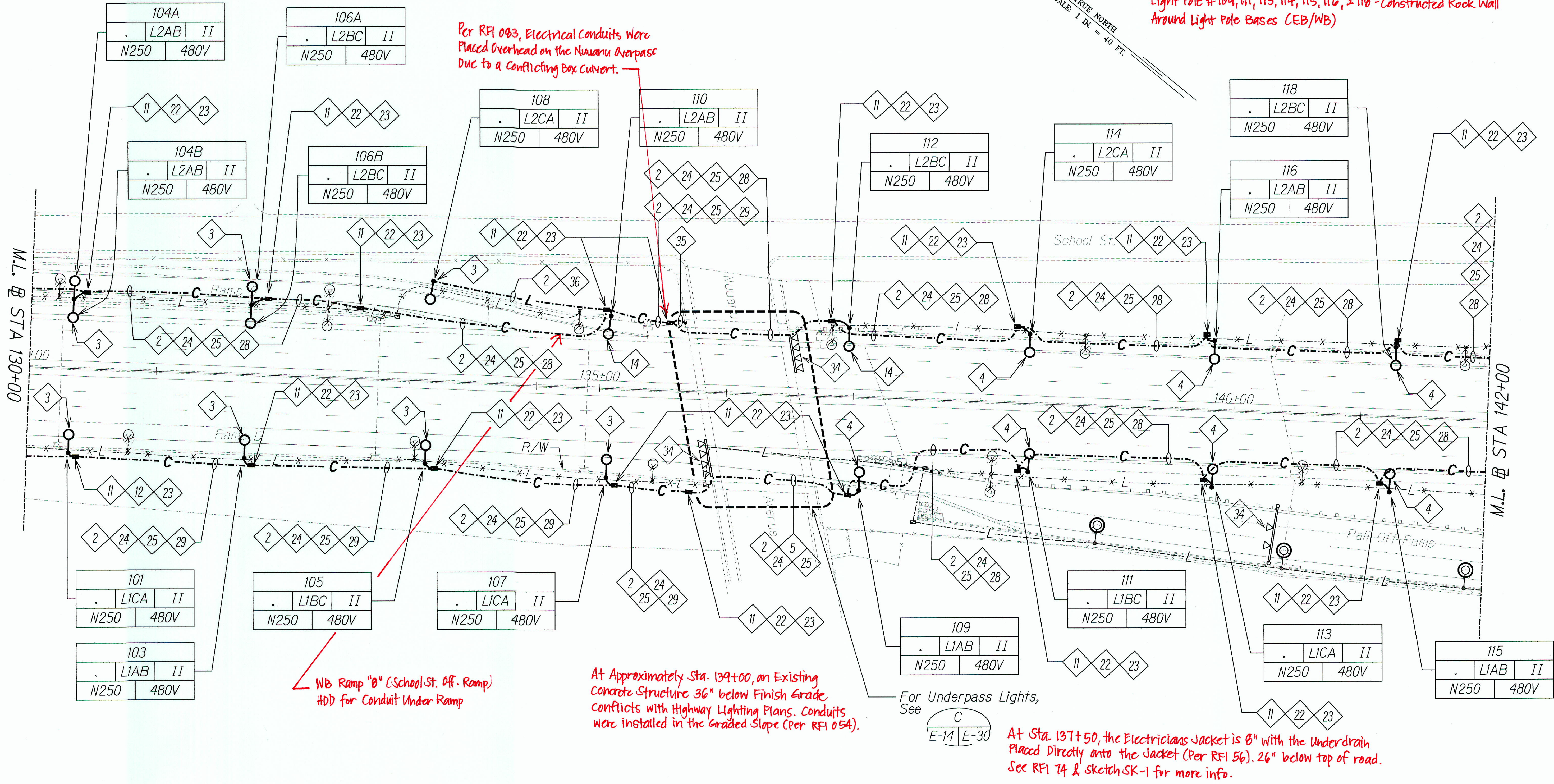
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	275	382

New Single Arm Pole Provided for 104A, and Bracket Arm Removed on 104B to Create a Single Arm Pole. See RFI 154 for more details.

Same Instance Occured for 106A & 106B. With a New Single Arm Pole for 106A Per RFI 161.

Per RFI 066, Light Pole 112 and Handhole Were Relocated to 10 to 15 ft. East (Right Side) of the Existing Light Pole.

Light Pole # 109, 111, 113, 114, 115, 116, & 118 - Constructed Rock Wall Around Light Pole Bases (CEB/WB)

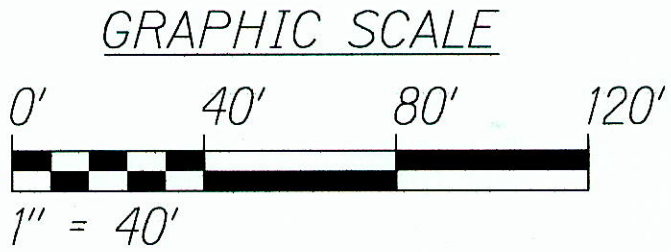


SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

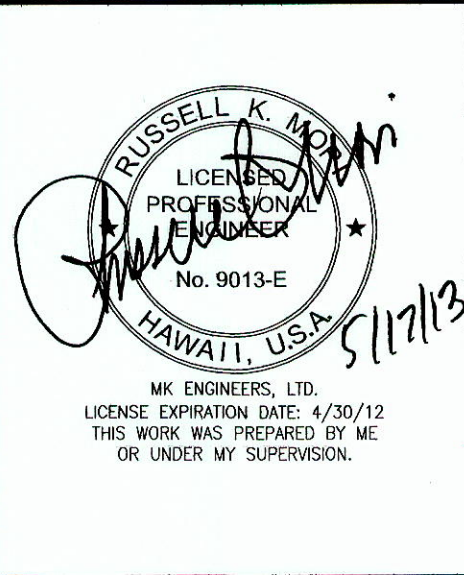
HIGHWAY LIGHTING PLAN - L

NOTES:

- Light Lines Denote Existing Condition
- Bold Lines Denote New Work
- "X" Denotes Removal Work



"AS-BUILT"

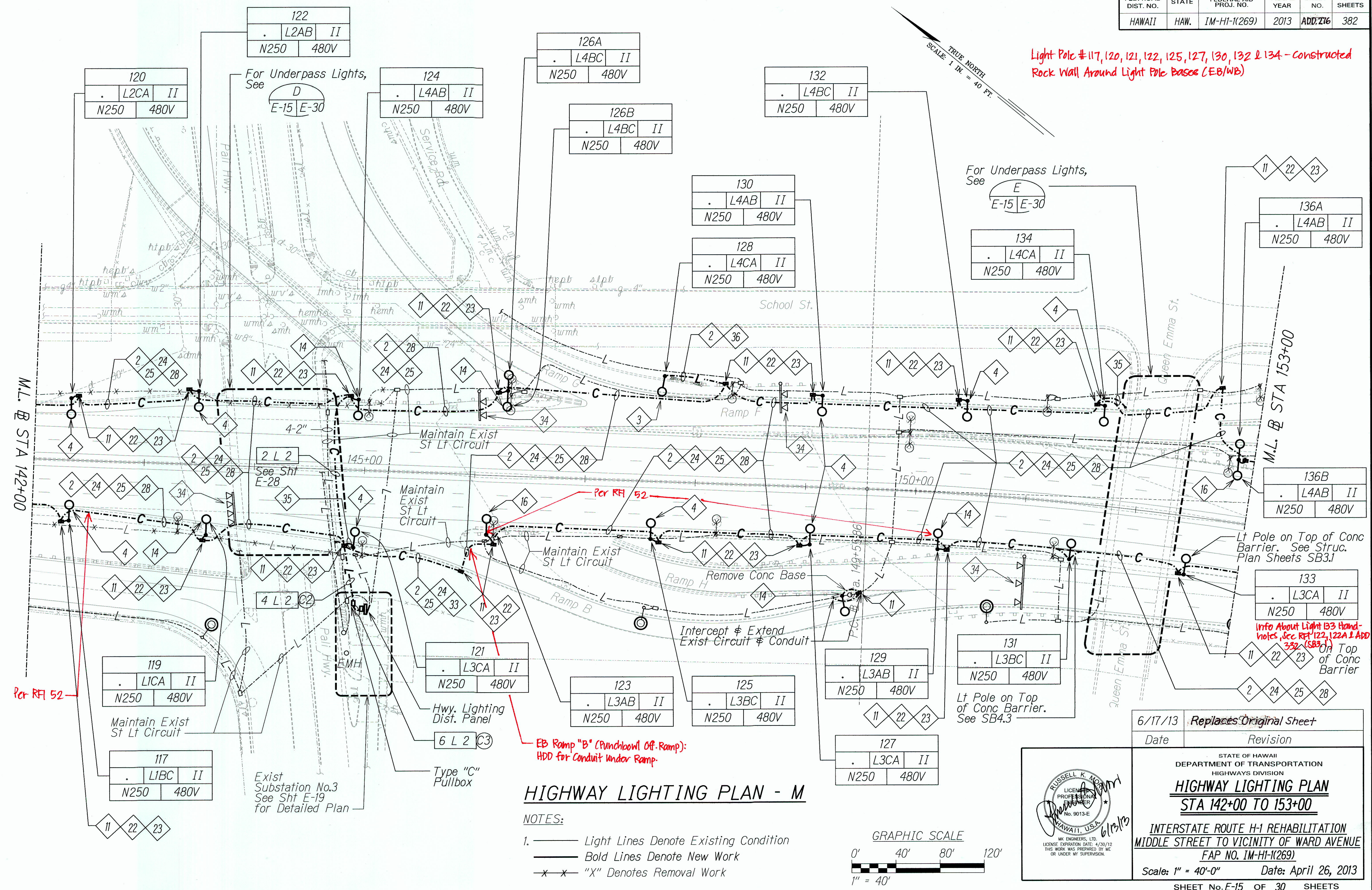


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HIGHWAY LIGHTING PLAN
STA 130+00 TO 142+00
INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)
Scale: 1" = 40'-0" Date: April 26, 2013
SHEET No. E-14 OF 30 SHEETS

275

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	ADD. 276	382

Light Pole #117, 120, 121, 122, 125, 127, 130, 132 & 134 - Constructed Rock Wall Around Light Pole Bases (EB/WB)



SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

6/17/13	Replaces Original Sheet
Date	Revision

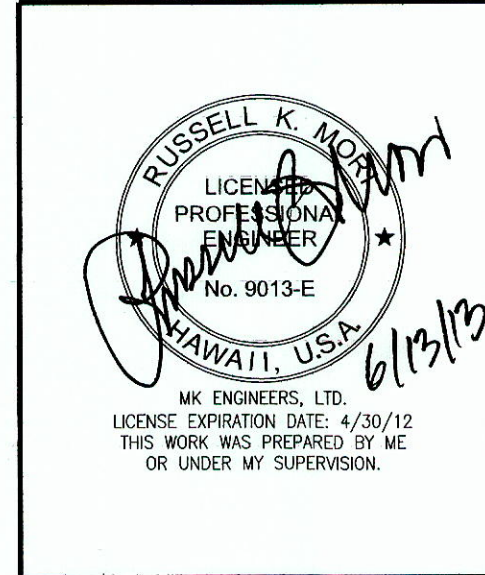
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN
STA 142+00 TO 153+00

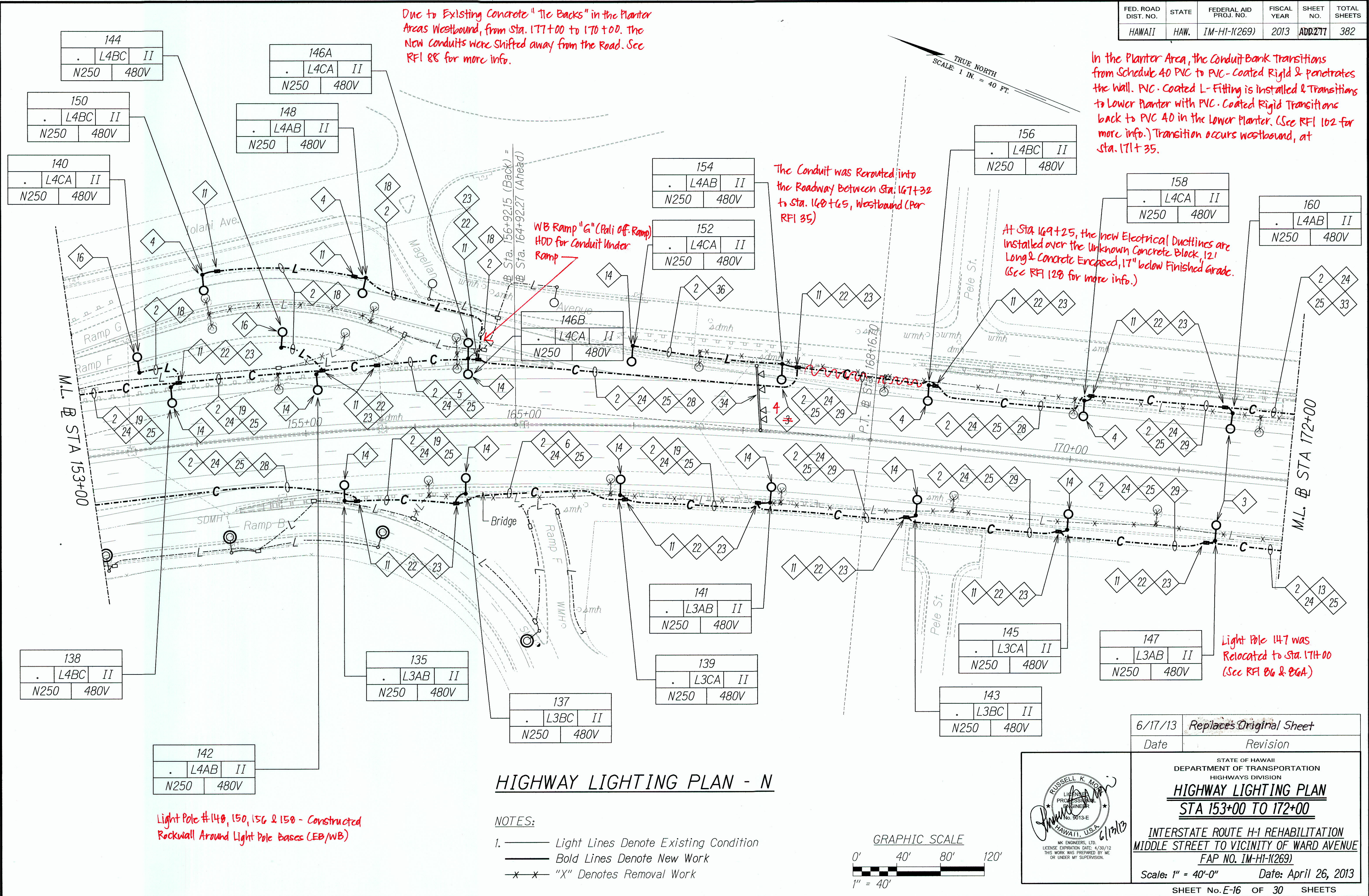
INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)

Scale: 1" = 40'-0" Date: April 26, 2013

SHEET No. E-15 OF 30 SHEETS



FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	ADD 277	382

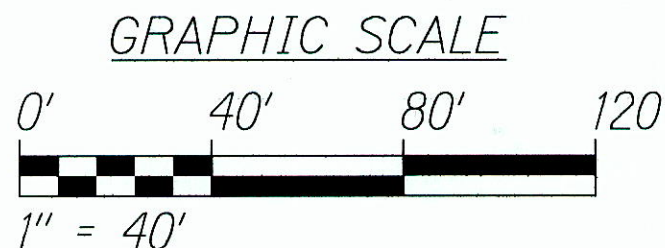


DATE	
SURVEY PLOTTED BY	
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

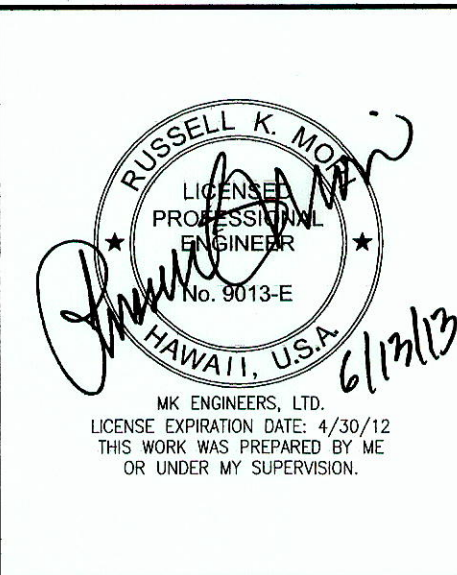
HIGHWAY LIGHTING PLAN - N

NOTES:

- Light Lines Denote Existing Condition
- Bold Lines Denote New Work
- "X" Denotes Removal Work



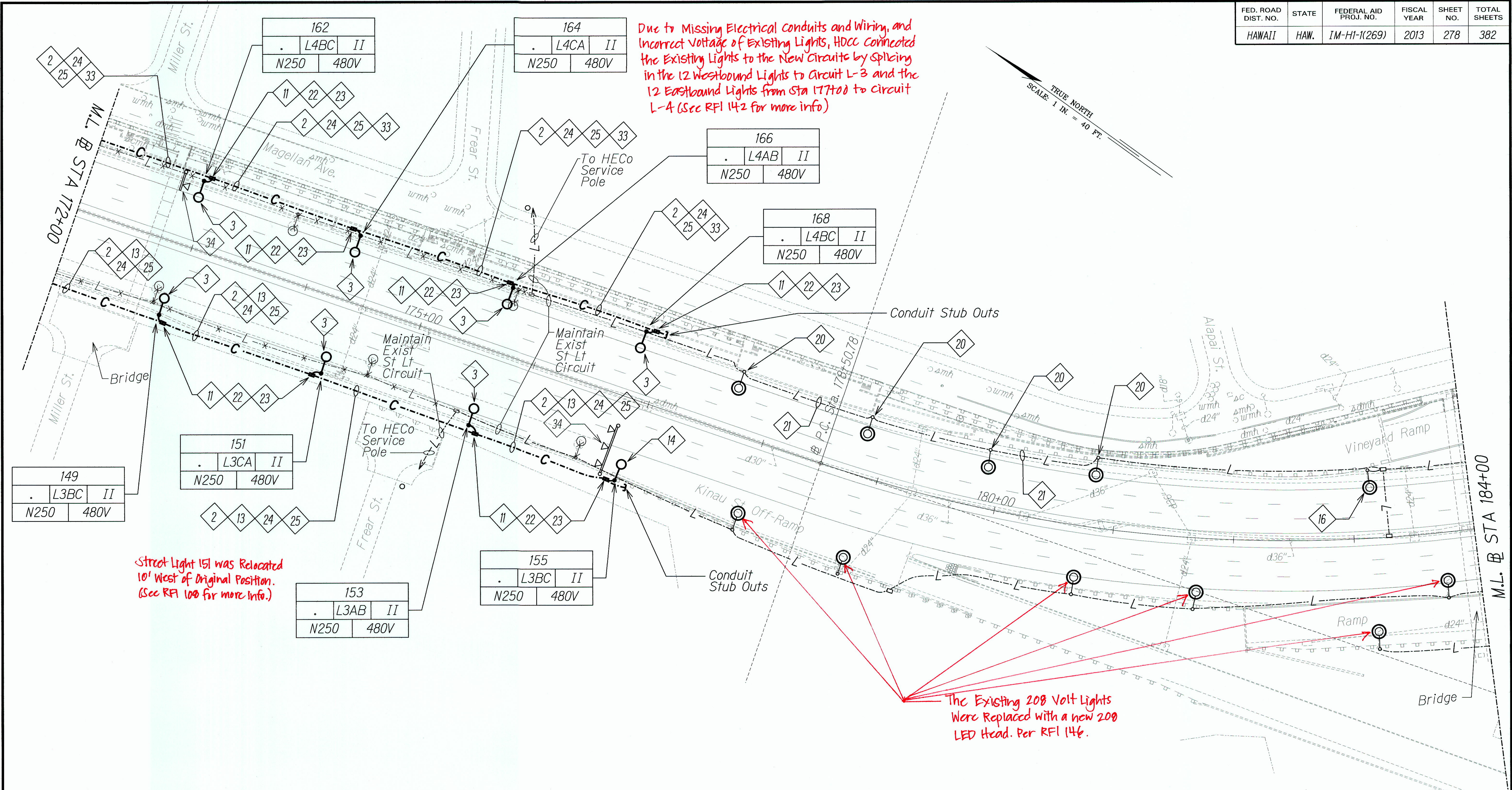
"AS-BUILT"



6/17/13	Replaces Original Sheet
Date	Revision
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION HIGHWAY LIGHTING PLAN STA 153+00 TO 172+00 INTERSTATE ROUTE H-1 REHABILITATION MIDDLE STREET TO VICINITY OF WARD AVENUE FAP NO. 1M-HI-1(269) Scale: 1" = 40'-0" Date: April 26, 2013 SHEET No. E-16 OF 30 SHEETS	

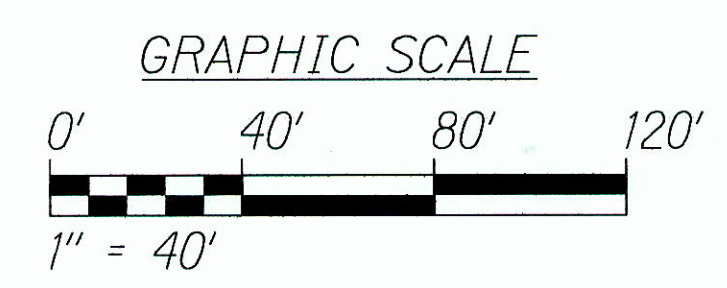
ADD. 277

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	278	382



HIGHWAY LIGHTING PLAN - 0

- NOTES:
- 1. Light Lines Denote Existing Condition
 - Bold Lines Denote New Work
 - "X" Denotes Removal Work



RUSSELL K. MANN

LICENSED PROFESSIONAL ENGINEER

No. 9013-E

HAWAII, U.S.A.

5/17/13

MK ENGINEERS, LTD.

LICENSE EXPIRATION DATE: 4/30/12

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN

STA 172+00 TO 184+00

INTERSTATE ROUTE H-1 REHABILITATION

MIDDLE STREET TO VICINITY OF WARD AVENUE

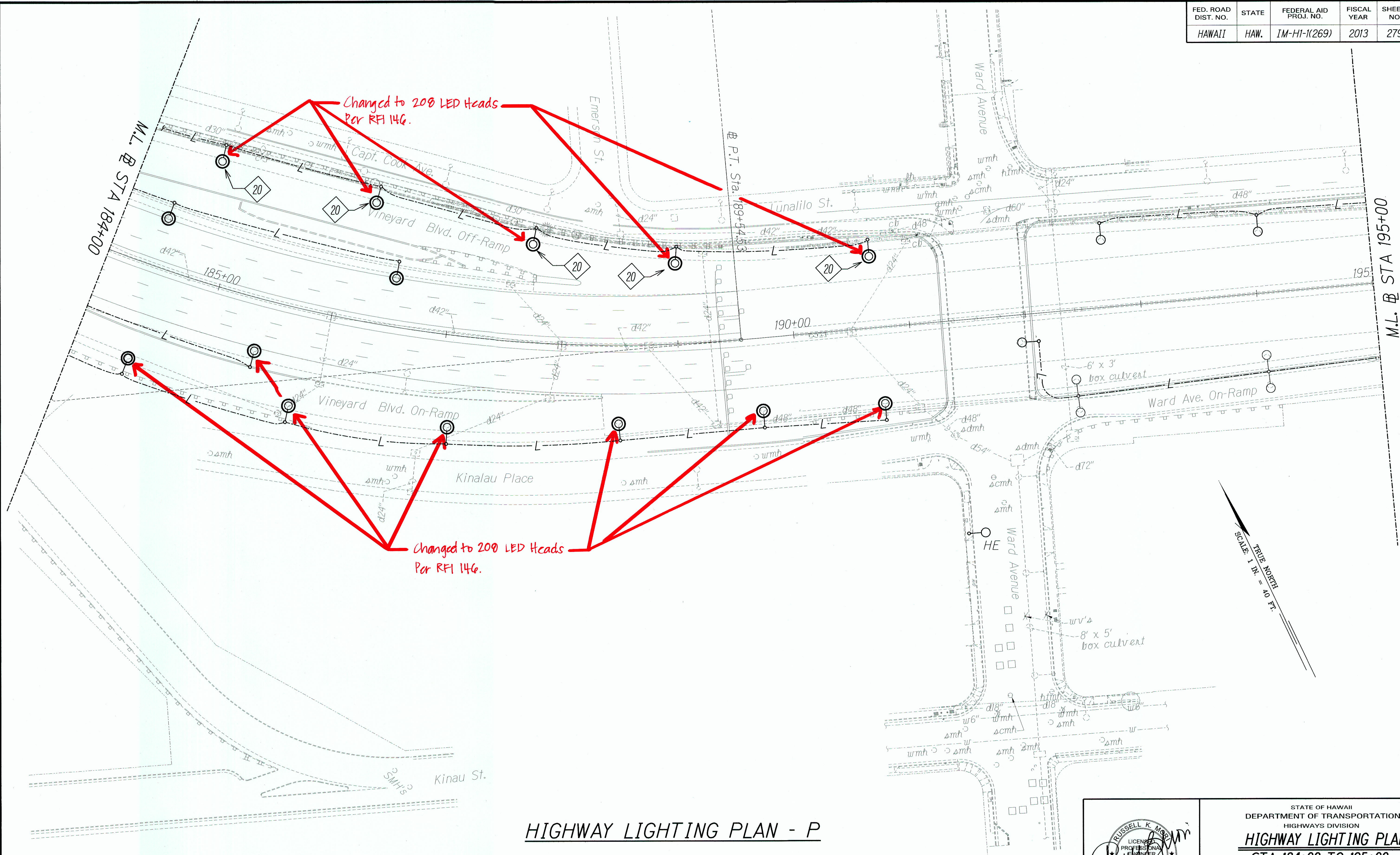
FAP NO. IM-HI-1(269)

Scale: 1" = 40'-0" Date: April 26, 2013

SHEET No. E-17 OF 30 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	279	382

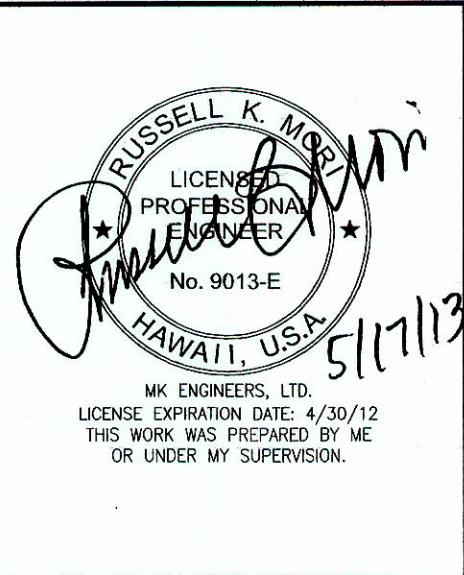
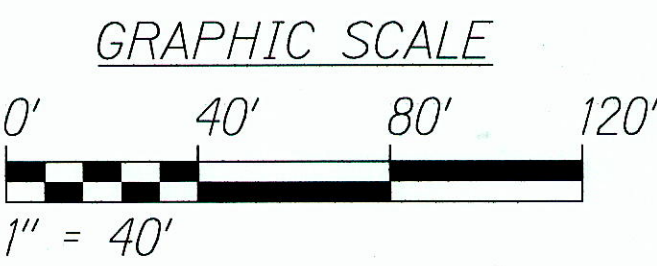


ORIGINAL	SURVEY PLOTTED BY	DATE
PLAN	DRAWN BY	
NOTE BOOK	DESIGNED BY	
	CHECKED BY	

HIGHWAY LIGHTING PLAN - P

NOTES:

- Light Lines Denote Existing Condition
- Bold Lines Denote New Work
- "X" Denotes Removal Work



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HIGHWAY LIGHTING PLAN
STA 184+00 TO 195+00
INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)
Scale: 1" = 40'-0" Date: April 26, 2013
SHEET No. E-18 OF 30 SHEETS

279

"AS-BUILT"

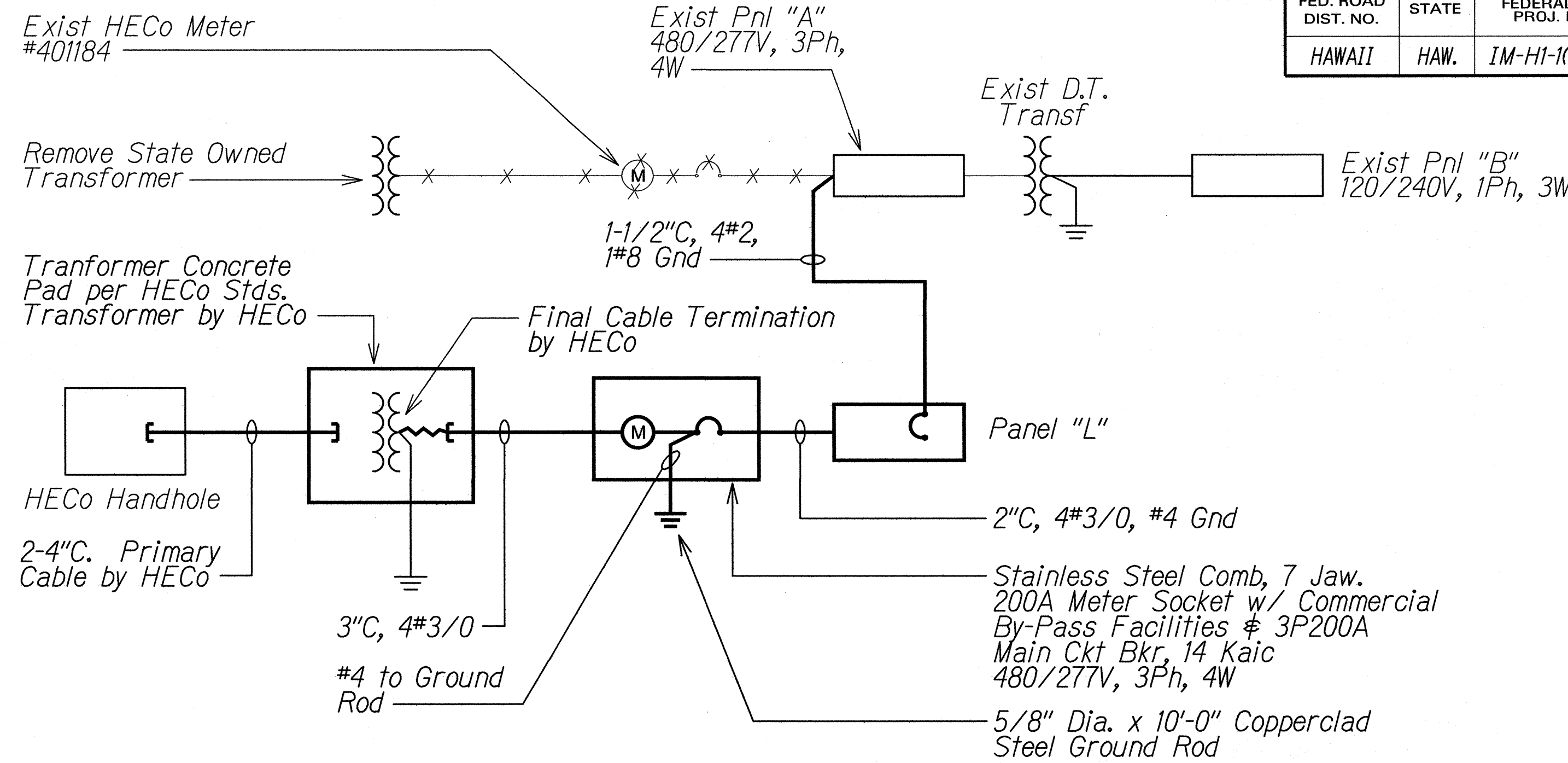
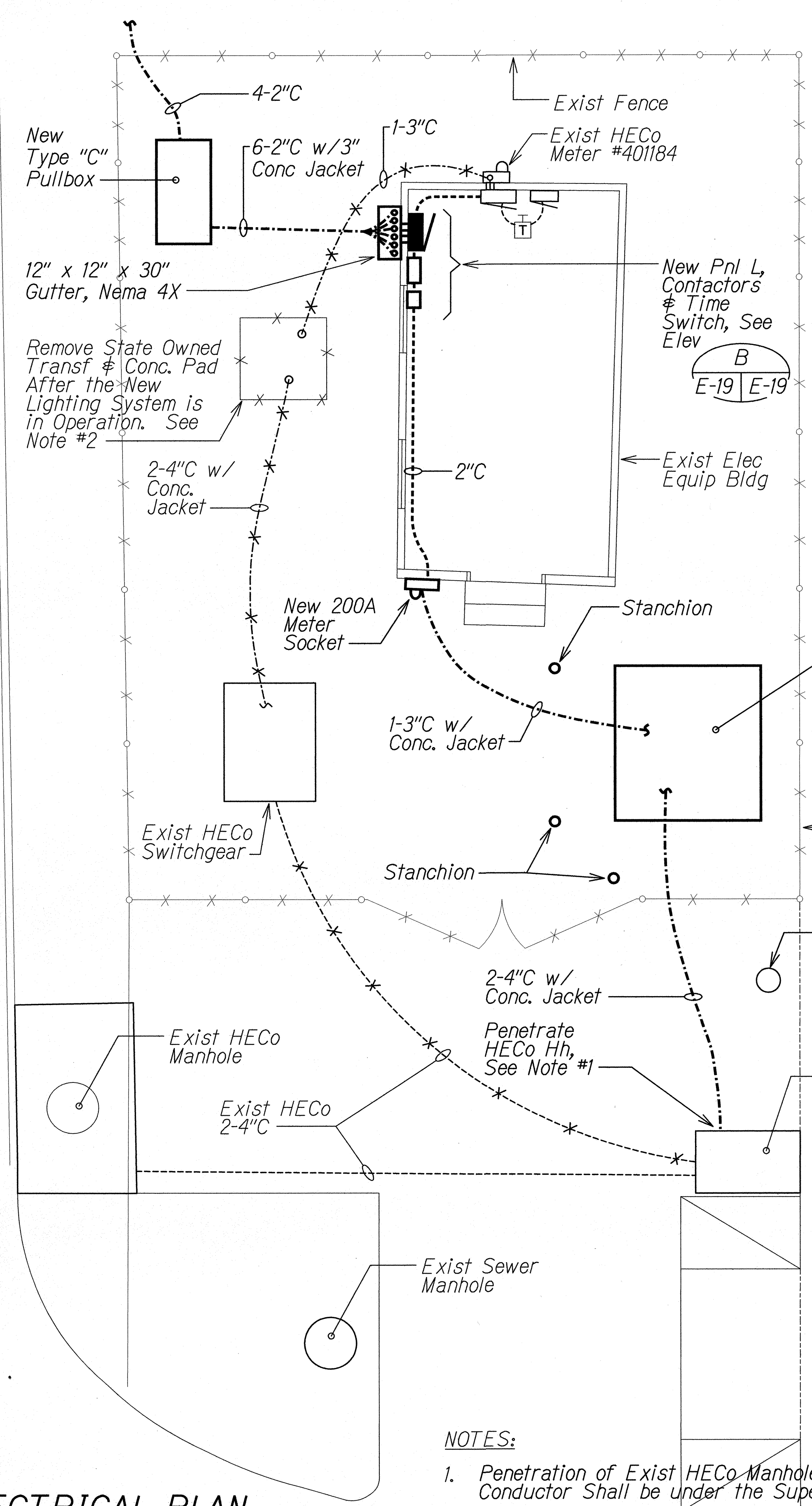
Left Diagram: Site Plan

- New Type "C" Pullbox
- 4-2"C
- 6-2"C w/3" Conc Jacket
- 1-3"C
- Exist Fence
- Exist HECO Meter #401184
- 12" x 12" x 30" Gutter, Nema 4X
- Remove State Owned Transf & Conc. Pad After the New Lighting System is in Operation. See Note #2
- 2-4"C w/ Conc. Jacket
- 2"C
- New Pnl L, Contactors & Time Switch, See Elev
- Exist Elec Equip Bldg
- Diagram B: E-19 | E-19

Right Diagram: Wiring Schematic

- Exist HECO Meter #401184
- Exist Pnl "A" 480/277V, 3Ph, 4W
- Remove State Owned Transformer
- Transformer Concrete Pad per HECO Stds. Transformer by HECO
- Final Cable Termination by HECO
- HECO Handhole
- 2-4"C. Primary Cable by HECO
- 1-1/2"C, 4#2, 1#8 Gnd
- Exist D.T. Transf
- Exist Pnl "B" 120/240V, 1Ph, 3W
- Panel "L"
- 2"C, 4#3/0, #4 Gnd
- Stainless Steel Comb, 7 Jaw. 200A Meter Socket w/ Commercial By-Pass Facilities & 3P200A Main Ckt Bkr, 14 Kaic 480/277V, 3Ph, 4W
- 5/8" Dia. x 10'-0" Copperclad Steel Ground Rod
- #4 to Ground Rod
- 3"C, 4#3/0
- Ground

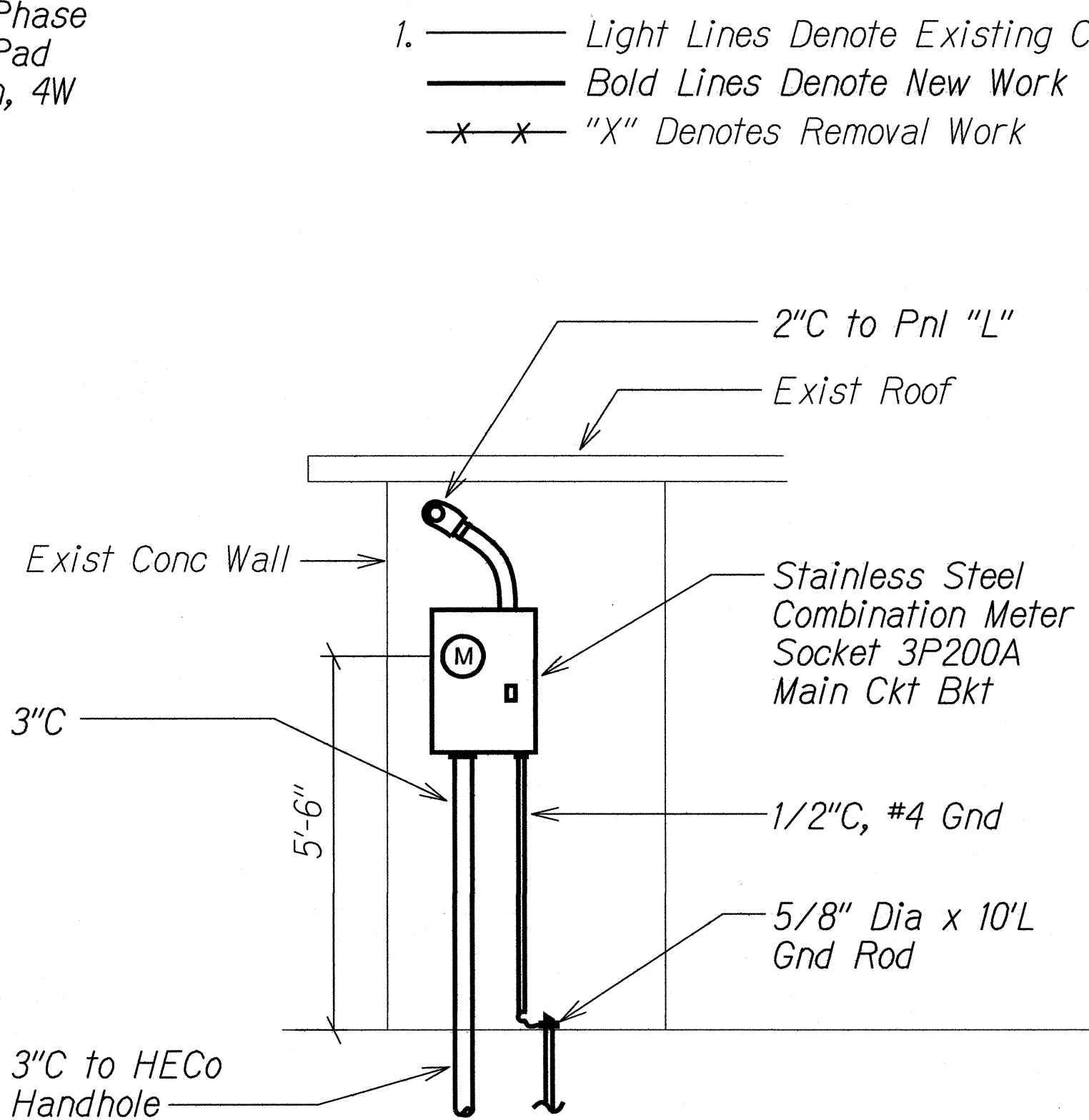
F.C.T. ROAD DIST. NO.	STATE	FEDERAL PROJ.
HAWAII	HAW.	IM-HI-10



ONE-LINE DIAGRAM

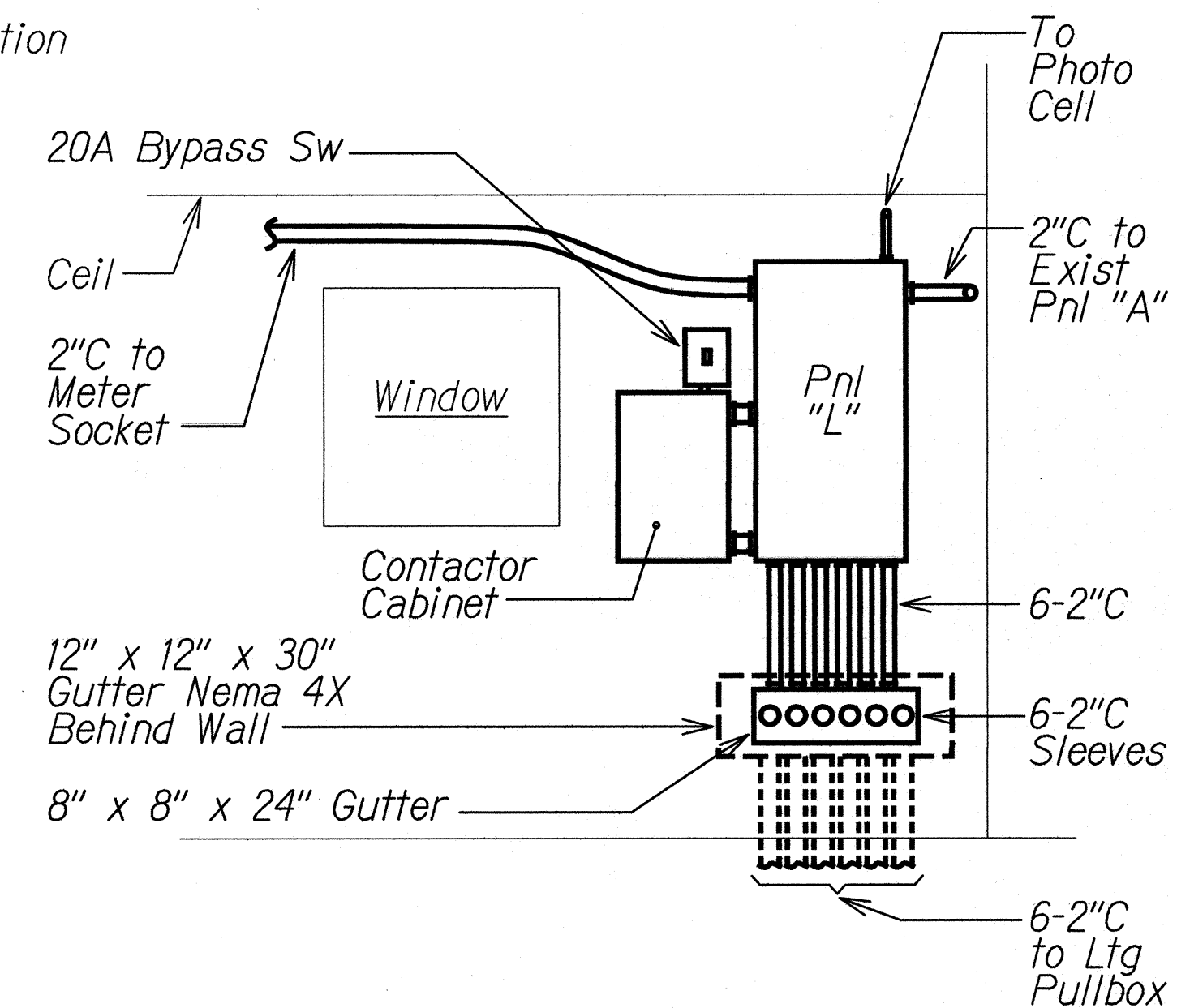
NOTES:

1. ——— Light Lines Denote Existing Condition
 ——— Bold Lines Denote New Work
 —X—X— "X" Denotes Removal Work



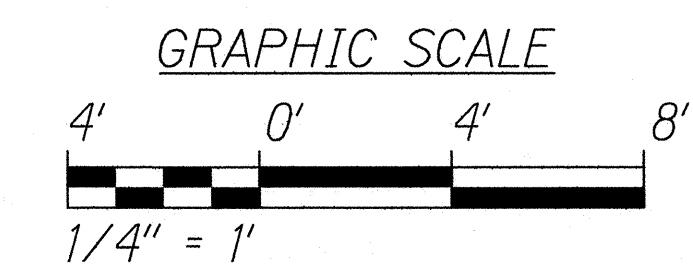
SERVICE EQUIPMENT ELEVATION

NTS



NEW PNL "L" ELEVATION

E-19	E-19	NTS
------	------	-----



ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"

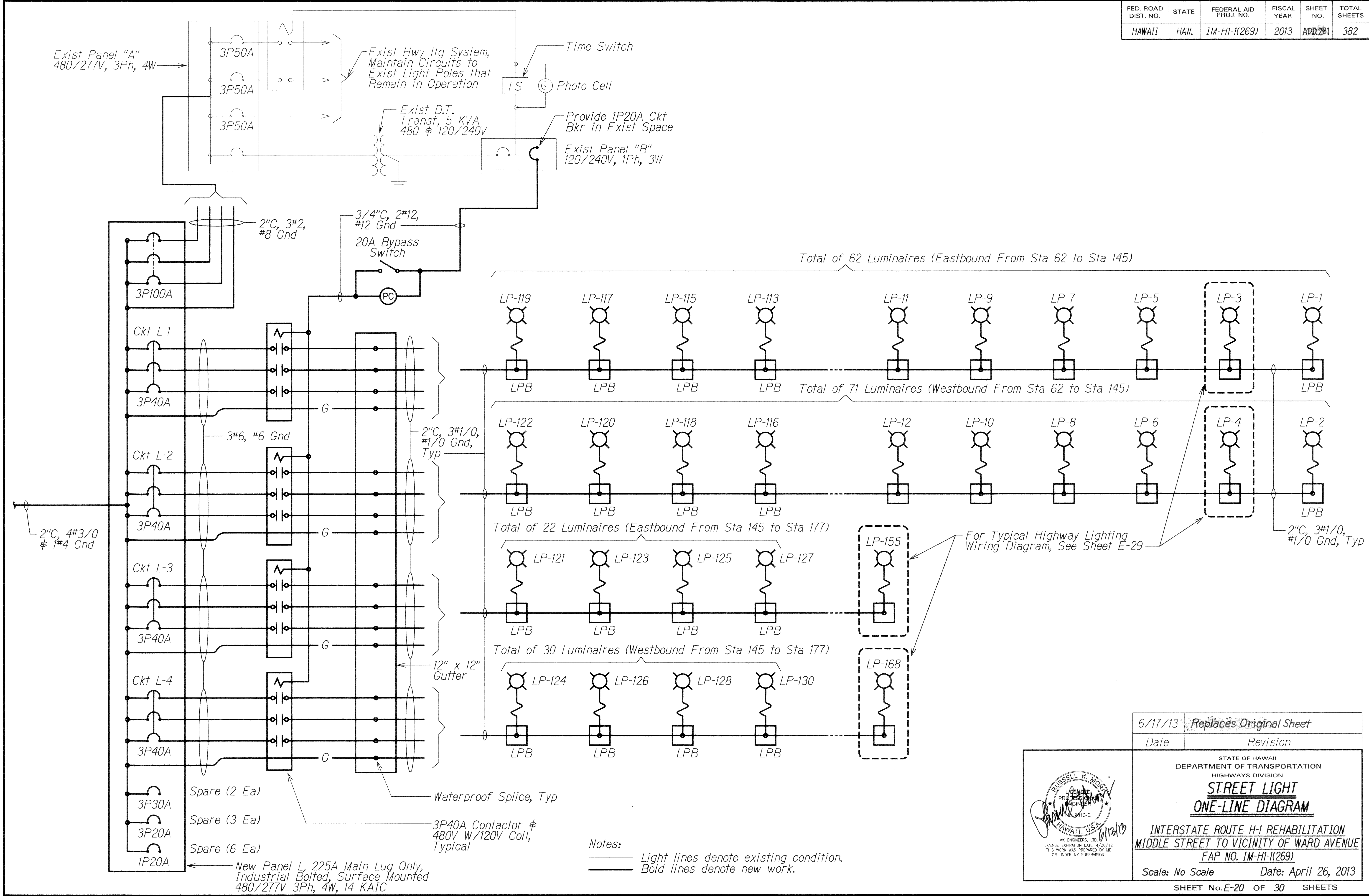
- NOTES:

1. Penetration of Exist HECO Manhole & Removal of Exist Primary Conductor Shall be under the Supervision of HECO Personnel.
2. Test Exist Transformer for PCB Contaminated Dielectric & Disposal Shall be per Specifications.

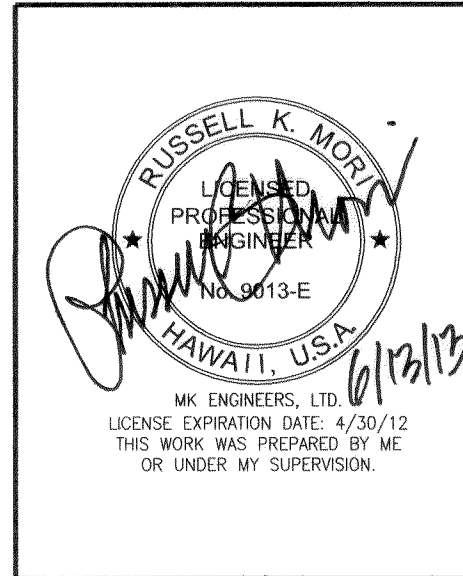
ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
	DRAWN BY _____	_____
	TRACED BY _____	_____
	DESIGNED BY _____	_____
	QUANTITIES BY _____	_____
	CHECKED BY _____	_____
No. _____		

 5/17/13	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION <u>ELECTRICAL PLAN</u> <u>ONE-LINE DIAGRAM</u> <u>INTERSTATE ROUTE H-1 REHABILITATION</u> <u>MIDDLE STREET TO VICINITY OF WARD AVENUE</u> <u>FAP NO. IM-H1-1(269)</u> Scale: 1/4" = 1'-0" Date: April 26, 2013
	MK ENGINEERS, LTD. LICENSE EXPIRATION DATE: 4/30/12 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
SHEET NO. <u>E-19</u> OF <u>30</u> SHEETS	

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(269)	2013	ADD. 281	382



DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
IN CHARGE	
NOTED BY	
QUANTITIES BY	
DATE	



6/17/13	Replaces Original Sheet
Date	Revision

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

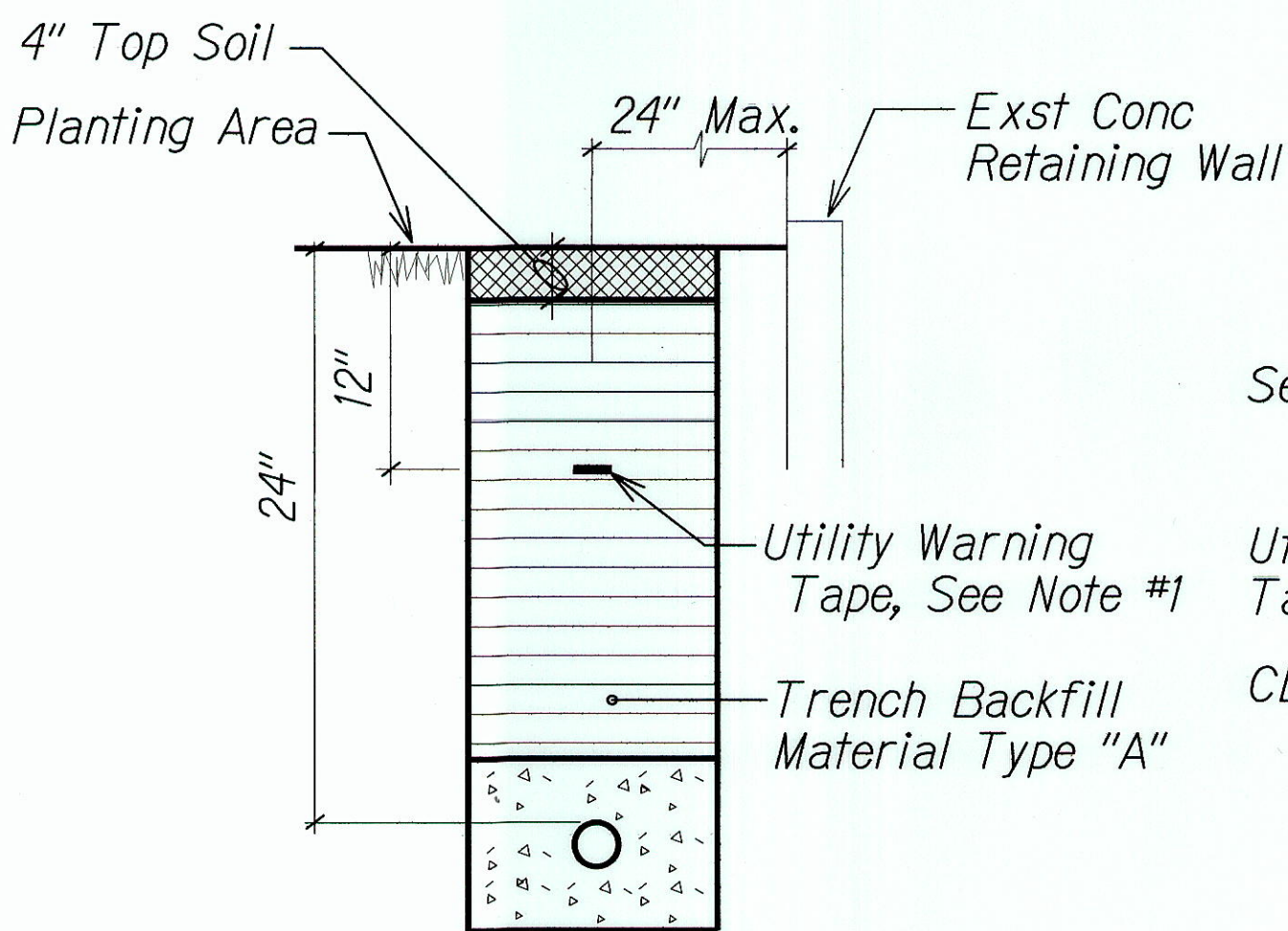
**STREET LIGHT
ONE-LINE DIAGRAM**

INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-H1-1(269)

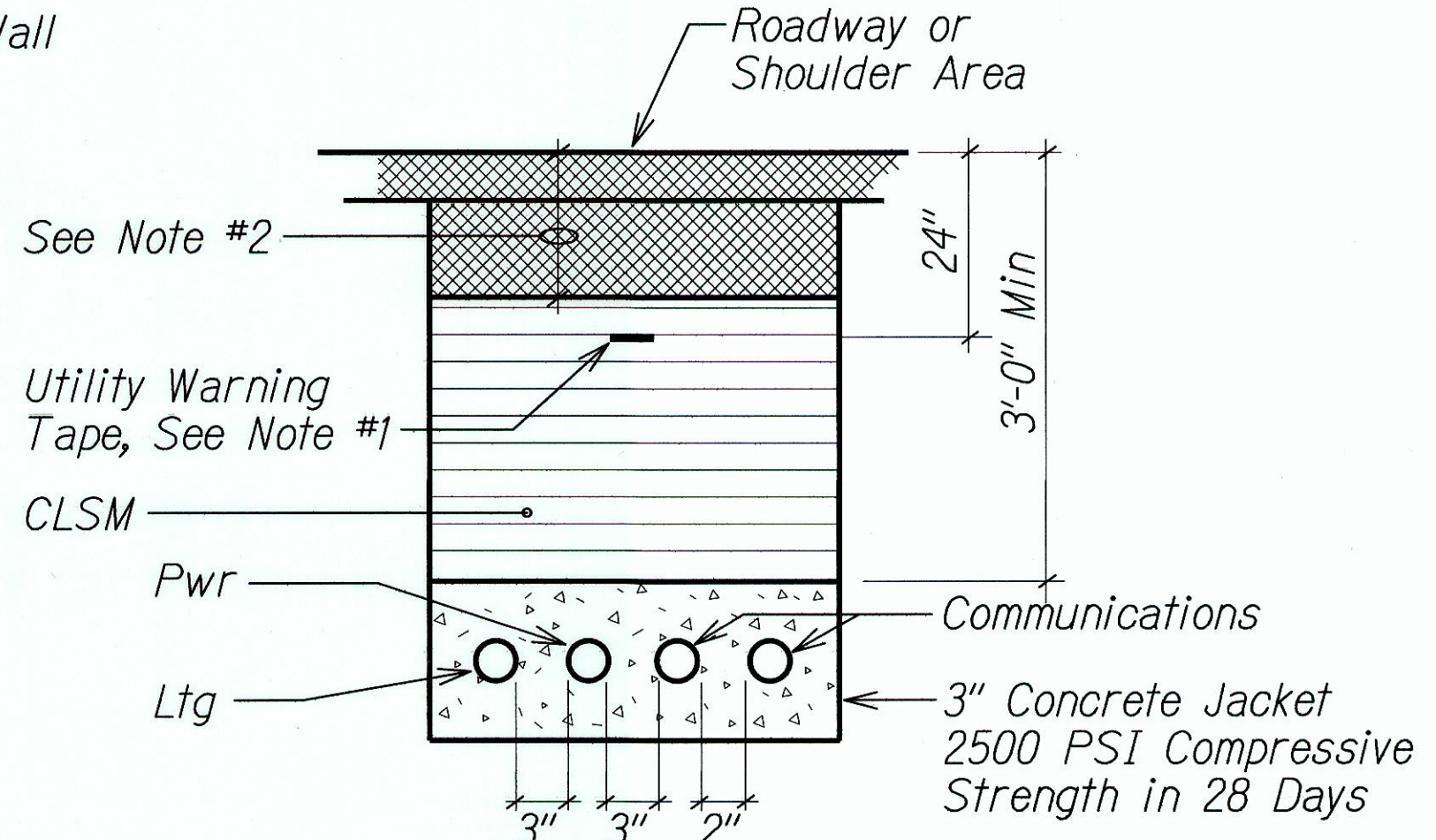
Scale: No Scale Date: April 26, 2013

SHEET No. E-20 OF 30 SHEETS

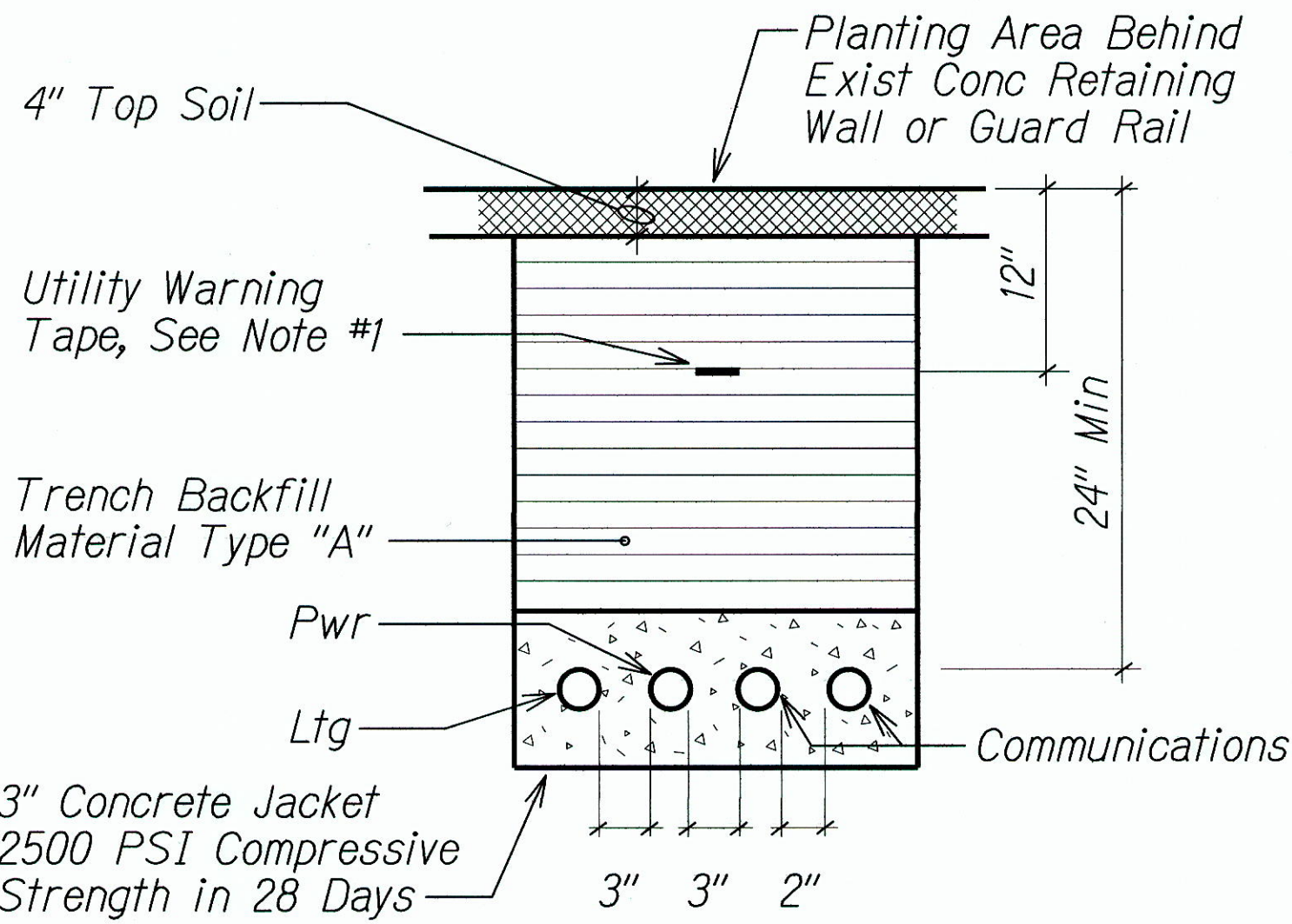
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	ADD. 282	382



DUCT SECTION (A)
NTS



DUCT SECTION (B)
NTS

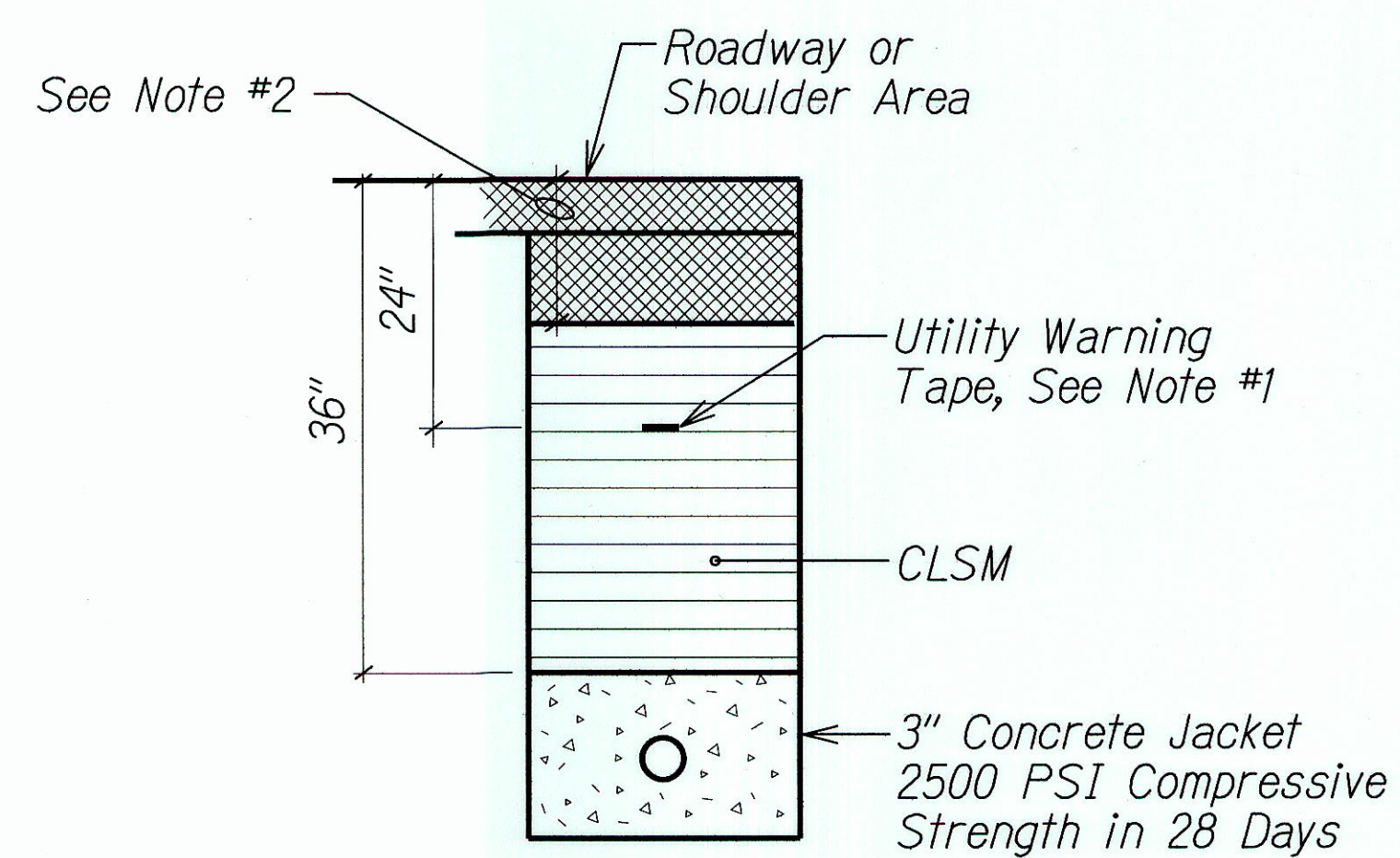


DUCT SECTION (C)
NTS

TYPICAL DUCT SECTIONS
NTS

- NOTES:
- 8 MIL Thick Red Colored Plastic Warning Tape 3" Wide, Entire Length of Duct. Tape to Have Continuous Metallic Backing and Corrosion Resistant Foil Core. Warning and Identification to be Imprinted on Tape and Shall Read "Caution Buried Electric Cable Below". Message Shall be Repeated Approximately Every Ten Feet.
 - See Roadway Plans for Pavement Thickness (SMA, HMA Mix IV, HMAB) by Station Location. For Areas on the Roadway Plans Showing Resurfacing Only, the Pavement Thickness Shall be as Shown for the Mainline Weekend Pavement Reconstruction. SMA, HMA Mix IV and HMAB Shall be Paid Under the Applicable Pay Item.
 - Trench Backfill Top, Soil & CLSM Shall be Included in Pay Item 622.1000 Roadway Lighting System.

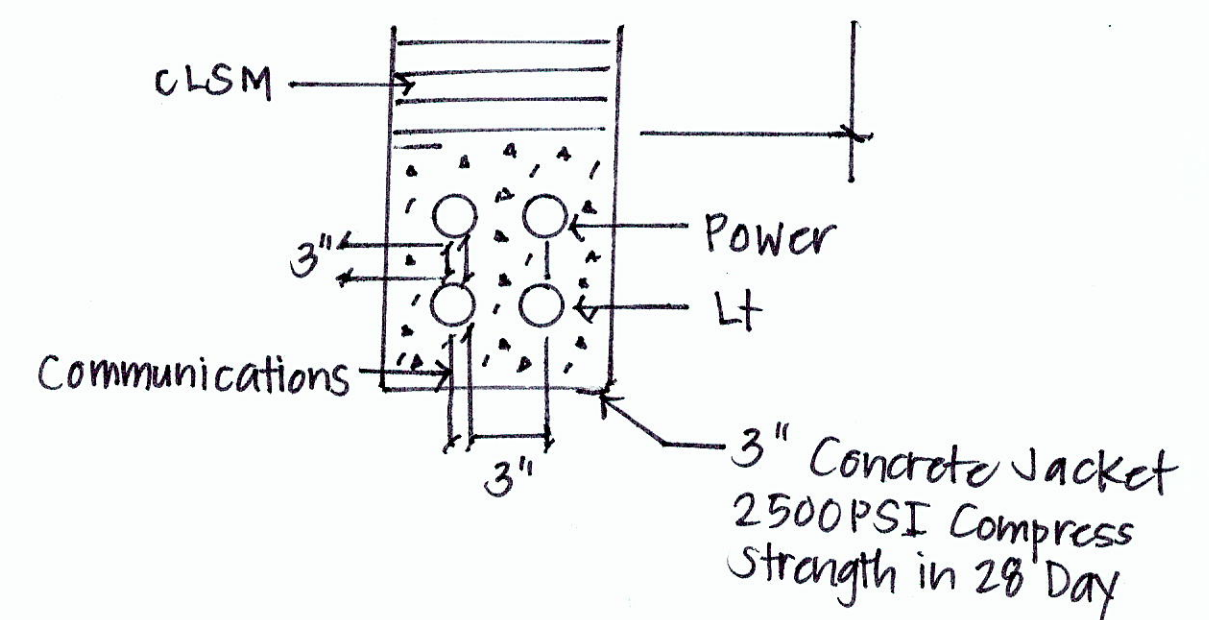
- (C1) Similar Except 18" Min. Depth
- (C2) Similar Except w/ 4-2" Lighting Conduits
- (C3) Similar Except w/ 6-2" Lighting Conduits



DUCT SECTION (D)
NTS

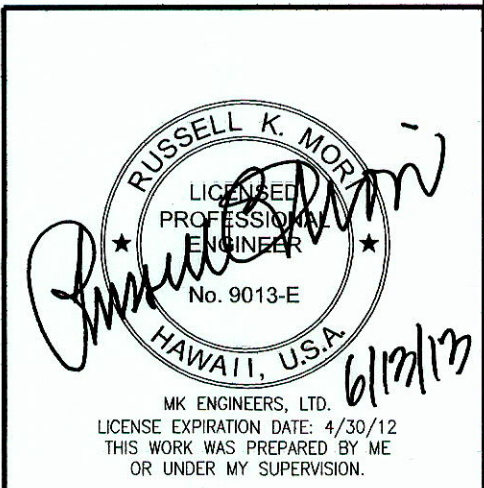
The Flat Duct Configuration was changed to a Stacked Configuration (Per RFI 018).

As a Bond Breaker, #15 Roofing Felt Was Used Between the Concrete Jacket and CLSM Backfill. (See RFI # 24, 24B For Info)



PROPOSED STACKED DUCT CONFIGURATION

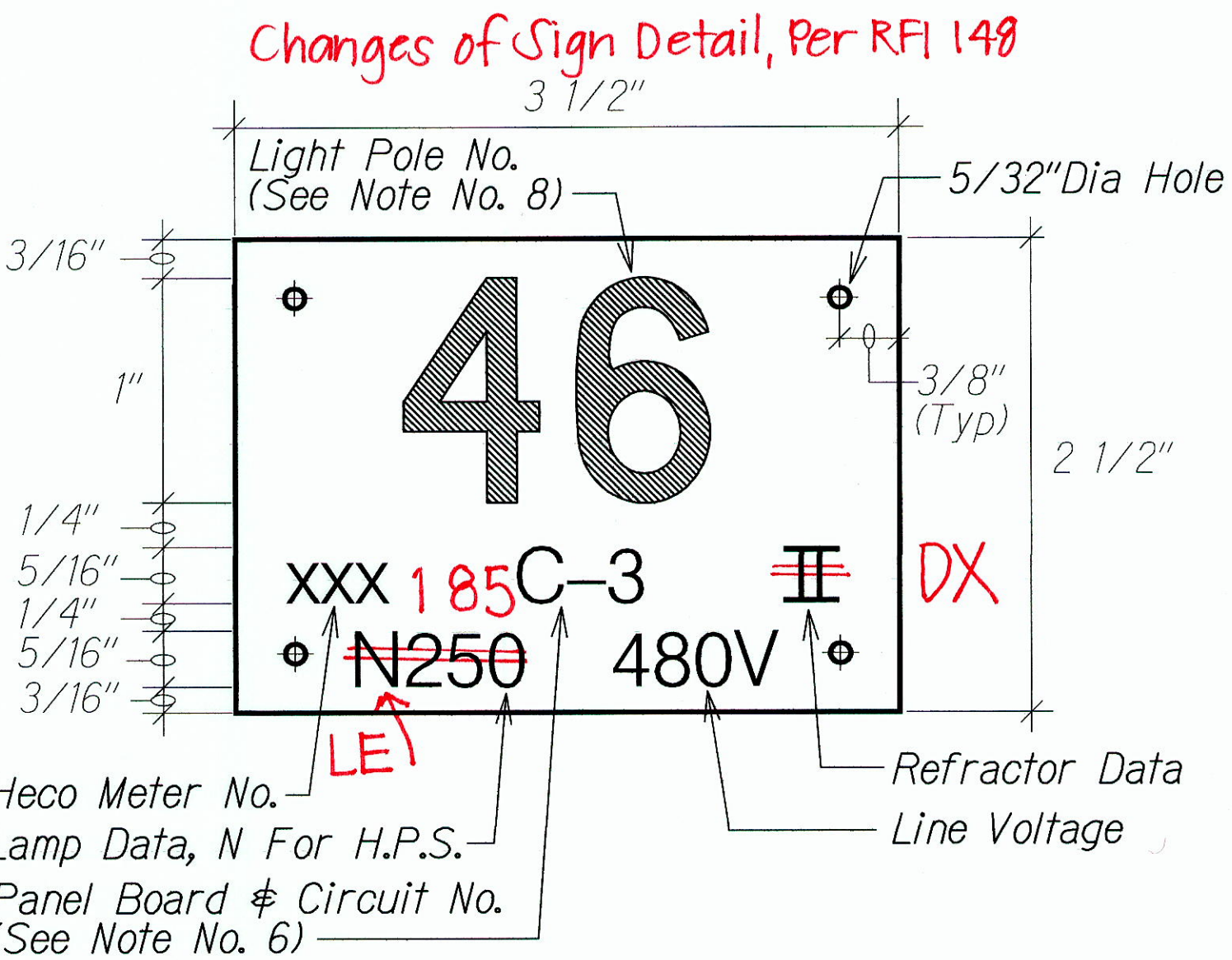
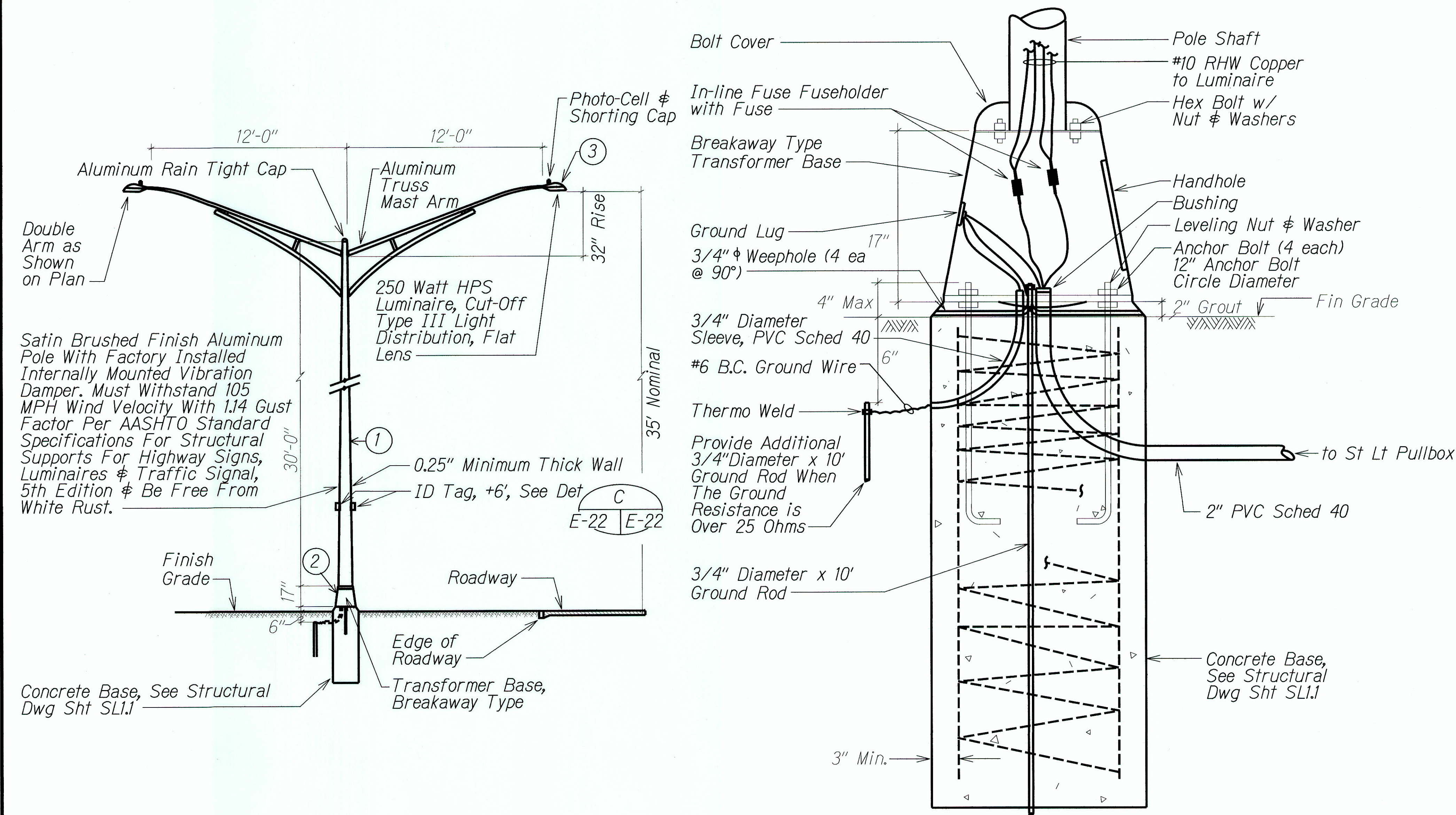
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
TRACED BY	DRAWN BY	
NOTE BOOK	CHECKED BY	
	DESIGNED BY	
	QUANTITY BY	
	CHECKED BY	



6/17/13	Replaces Original Sheet
Date	Revision
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION DUCT SECTIONS	
INTERSTATE ROUTE H-1 REHABILITATION MIDDLE STREET TO VICINITY OF WARD AVENUE FAP NO. IM-HI-1(269)	
Scale: Not to Scale	Date: April 26, 2013
SHEET No. E-21 OF 30 SHEETS	

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	283	382

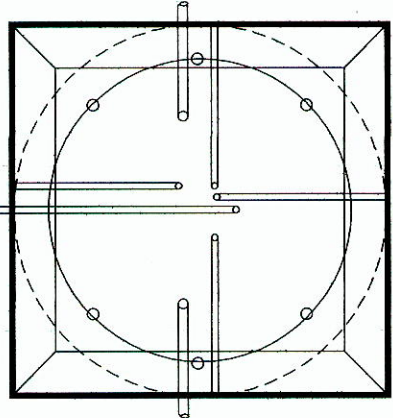


C STREET LIGHT POLE TAG DETAIL

- NOTES:
- 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".
 - Light Pole Number Size Shall Be 1" High and Engraved 1/8" Wide, White in Color (Number as Required).
 - Nomenclature Size Shall be 5/16" High and Engraved 1/32" Wide, White in Color (Heco Meter Number Panel Board and Circuit Number, Line Voltage, Lamp Data and Refractor Data as Required).
 - Attach to Aluminum and Steel Post with No. 8 Stainless Steel, 1/2" Long Drive Screws in 1/8" Drill Hole. Attach to Wood Poles with 4D Aluminum Nail.
 - Numbers are Inscribed by Cutting Through "Black Cap Sheet" to Expose "White Letters."
 - Nomenclature Required for Systems with Two or More Circuits (Letter Indicates Panel Board, Number Indicates Circuit).
 - For Light Poles Installed on Ramp, Assign Numbers to Include Ramp I.D. and Light Number. Legend May Be Less Than One (1) Inch in Height.
 - Light Numbers Shall be Obtained From the State. Use An Alphabet Suffix to Designate Lights Mounted on the Same Pole (e.g. 123A & 123B).

A STREET LIGHT STANDARD DETAIL

MATERIAL LIST		
ITEM	DESCRIPTION	MANUFACTURER
①	Light Pole, 30', Alum	
②	Transformer Base (Alum) (Breakaway Type)	
③	Luminaire, 250W HPS	



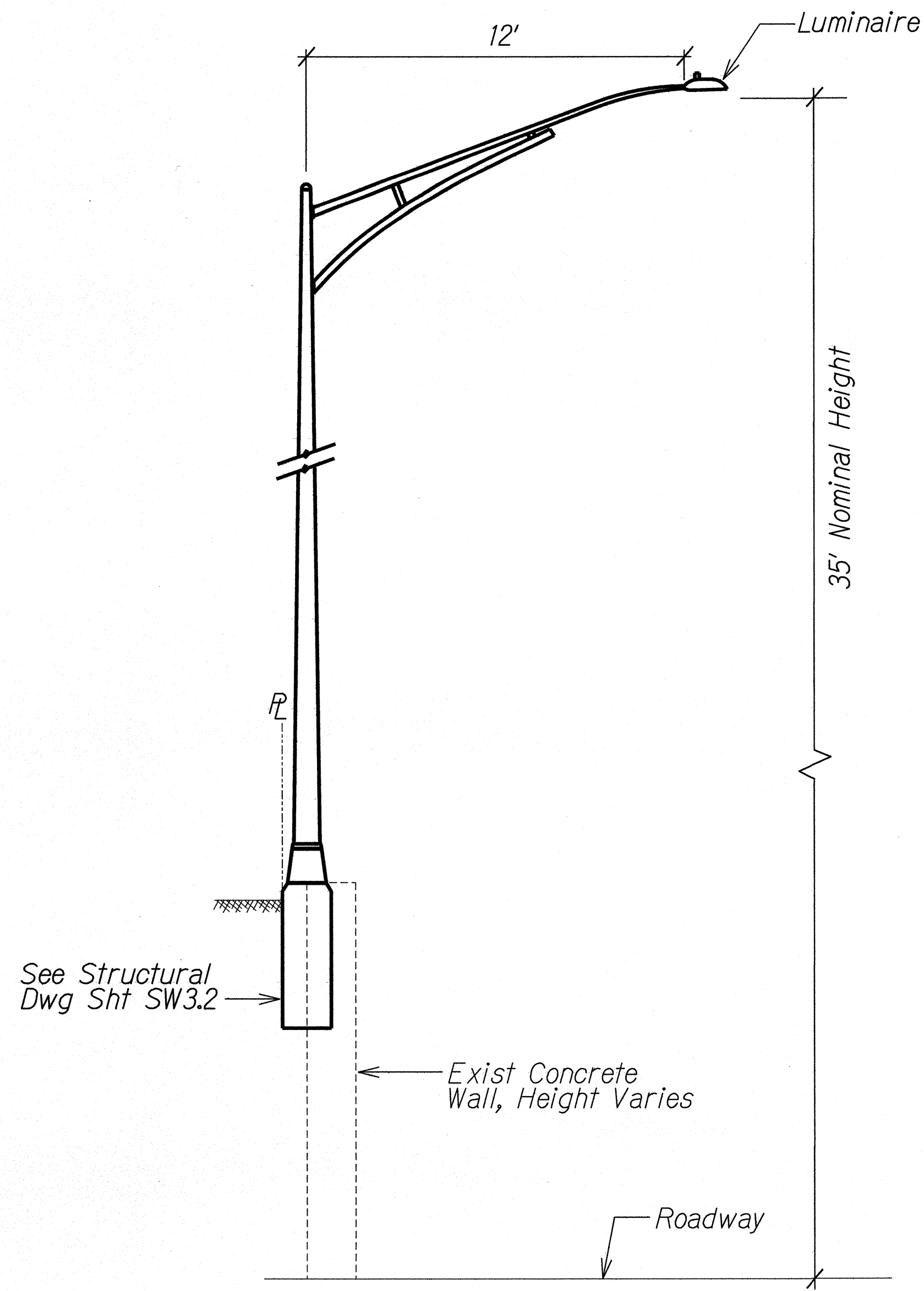
PLAN

B TYPICAL TRANSFORMER BASE WIRING DETAIL

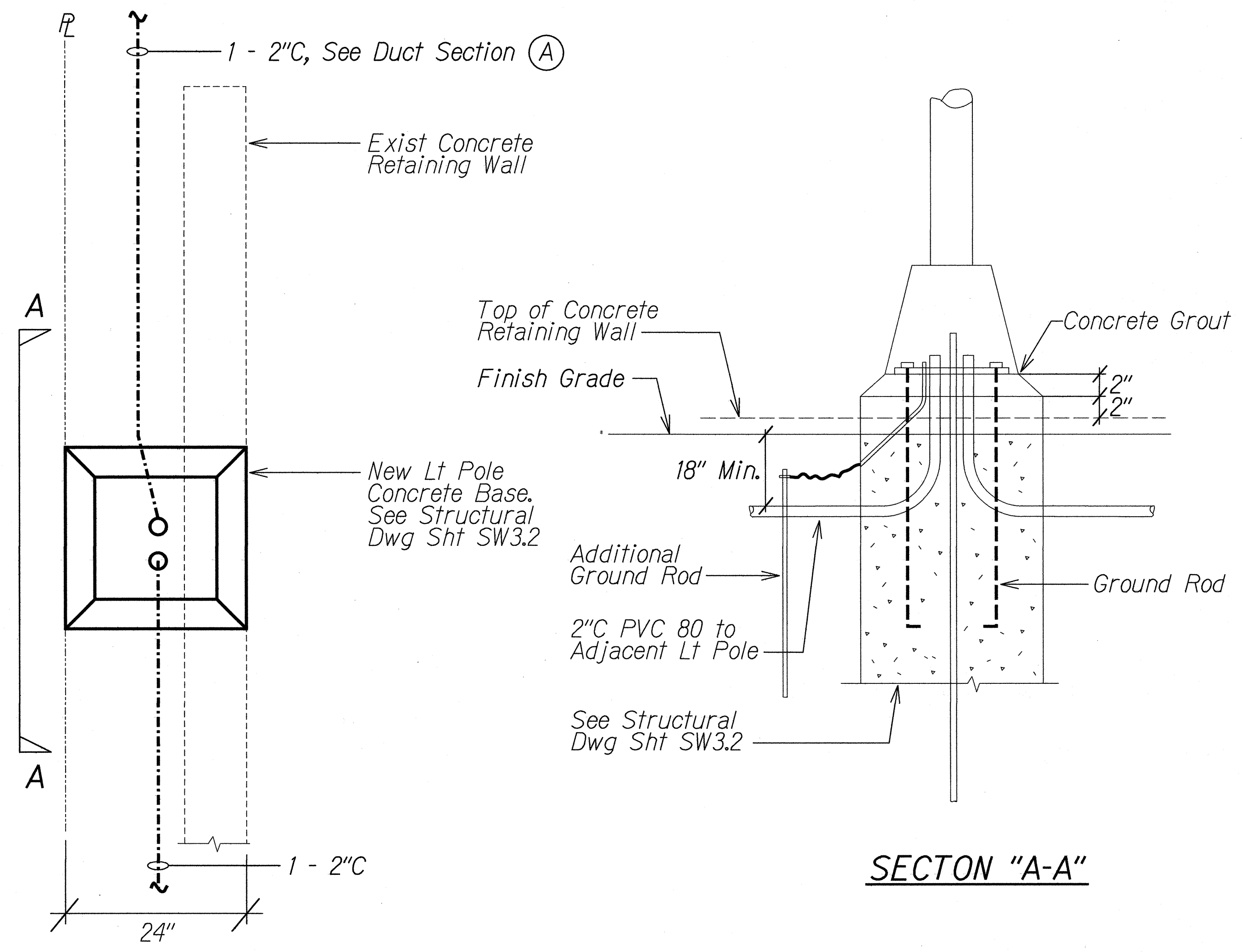
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STREET LIGHT STANDARD DETAILS
INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)
Scale: Not to Scale Date: April 26, 2013
SHEET No. E-22 OF 30 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTED BY	
DATE	

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(269)	2013	284	382



ELEVATION
(Near Farrington High School)



SECTION "A-A"

PLAN

(Near Farrington High School)

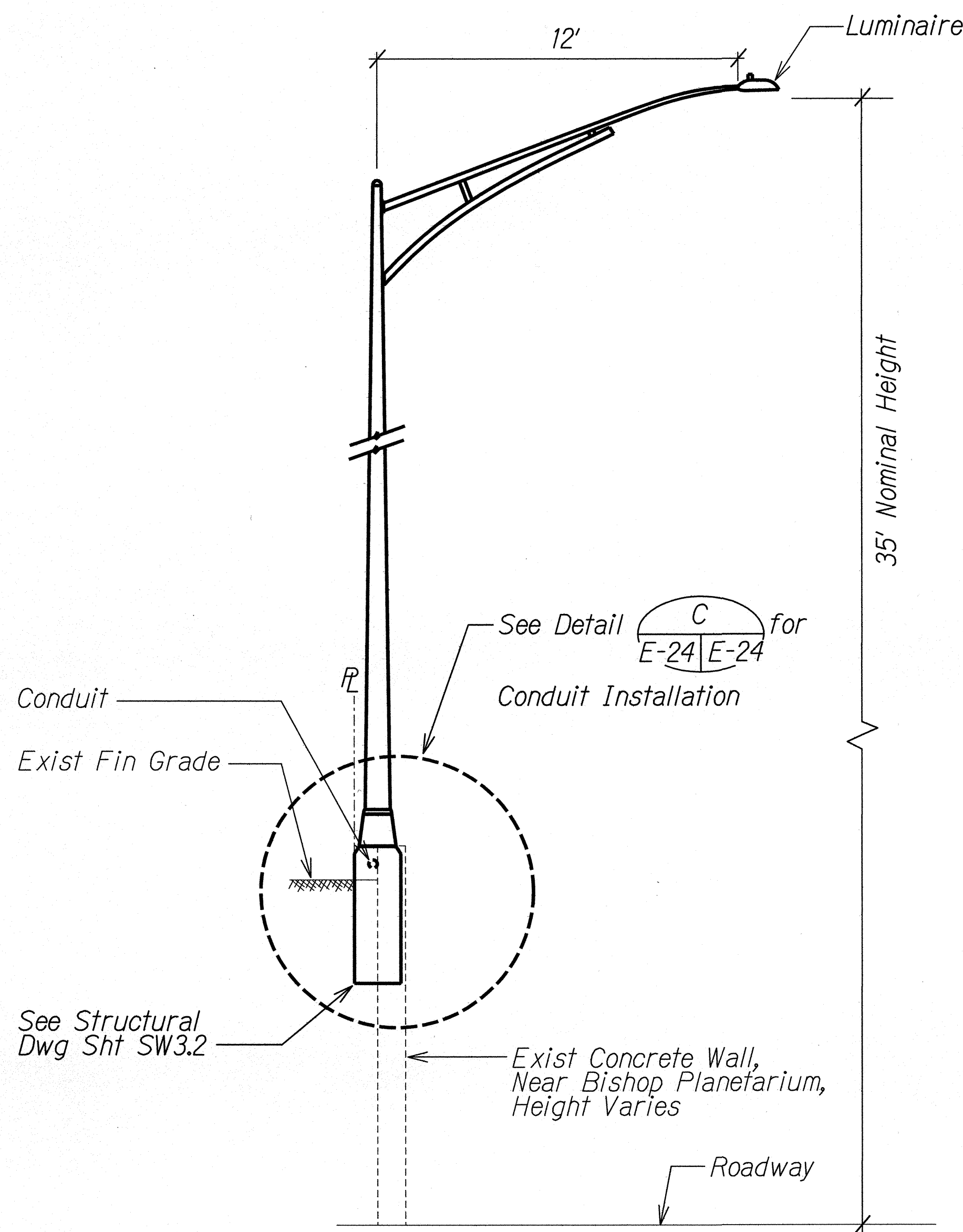
A
E-1 E-23
LIGHT POLE BEHIND EXIST CONCRETE RETAINING WALL
NTS

B
E-1 E-23
CONDUIT BEHIND EXISTING CONCRETE RETAINING WALL
NTS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
LIGHT POLE DETAILS
INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-H1-1(269)
Scale: Not to Scale Date: April 26, 2013
SHEET No. E-23 OF 30 SHEETS

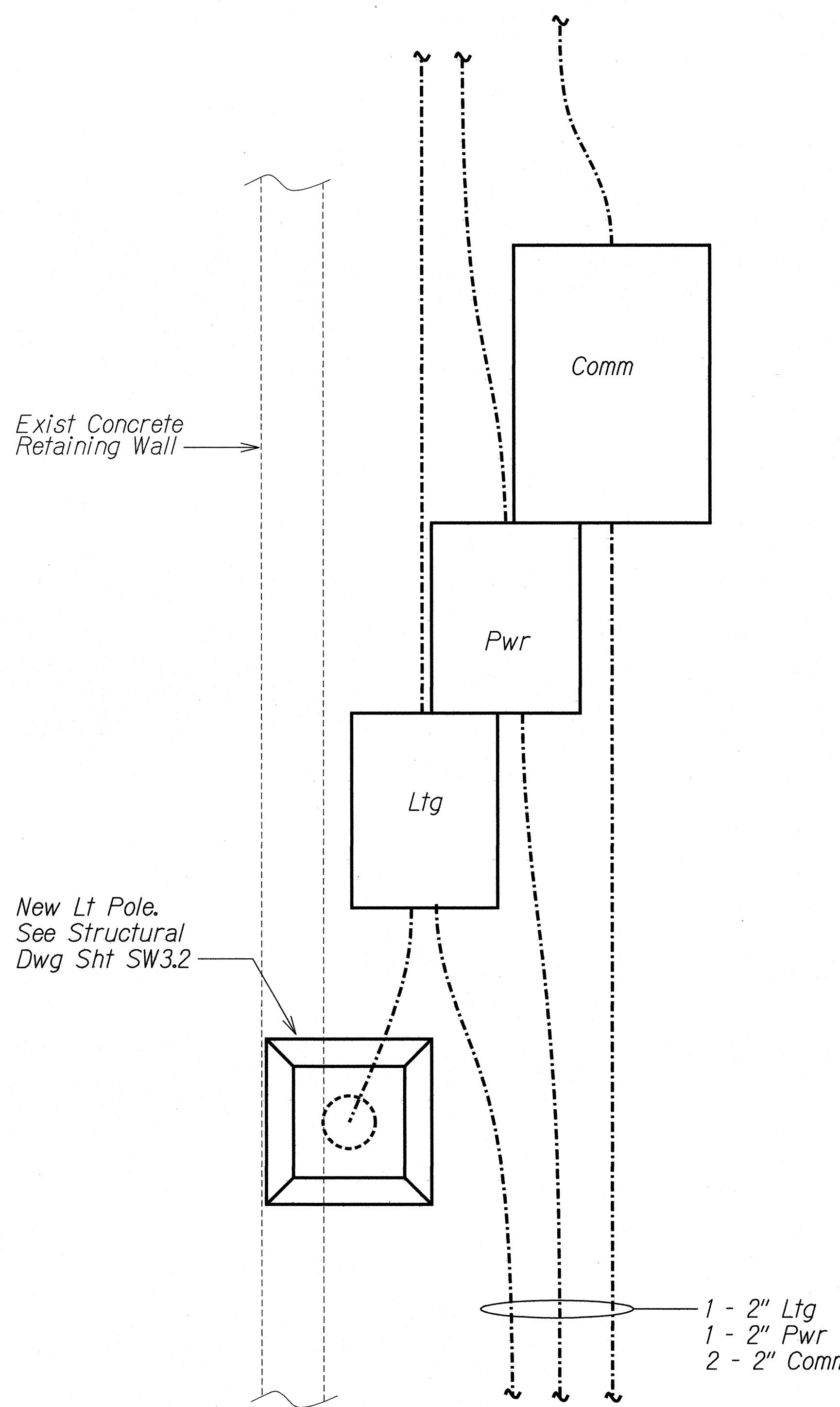
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
N.	

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	285	382



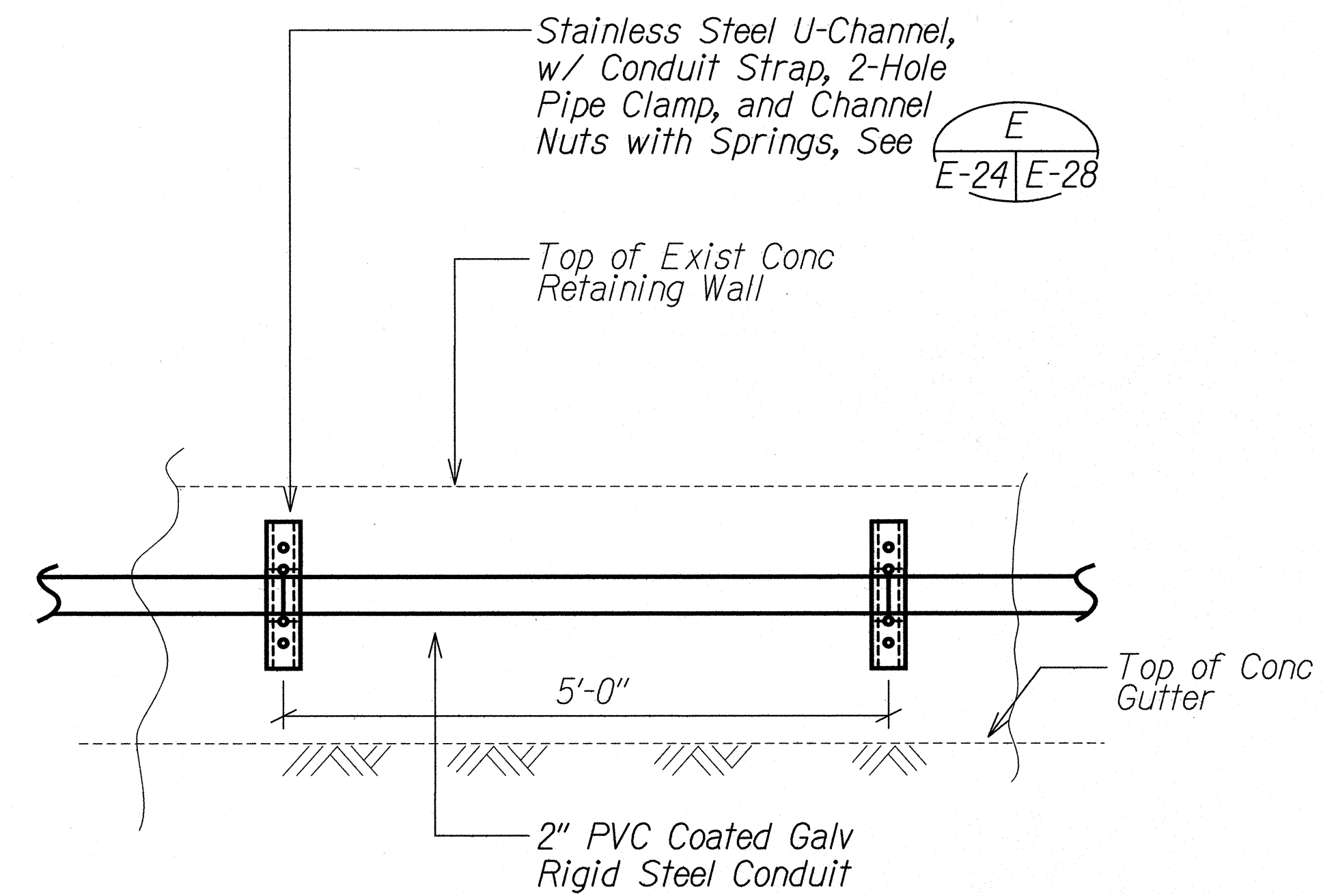
ELEVATION
(Near Bishop Museum)

A
E-1 E-24
LIGHT POLE ON TOP OF EXIST CONCRETE RETAINING WALL
NTS



PLAN

B
E-1 E-24
PULLBOXES BEHIND EXISTING CONCRETE RETAINING WALL
NTS



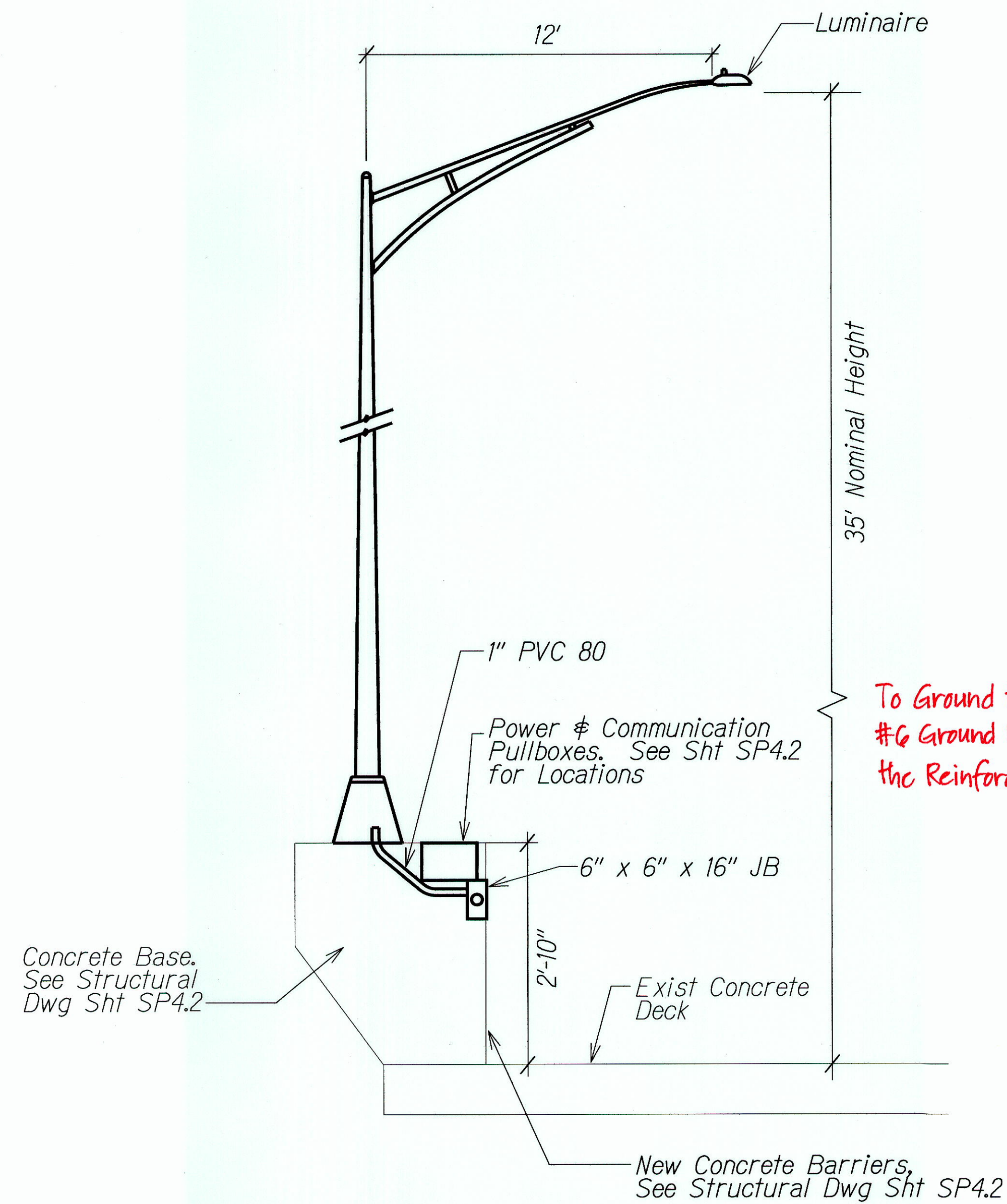
C
E-1 E-24
CONDUIT INSTALLATION DETAILS
NTS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
LIGHT POLE DETAILS

INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)
Scale: Not to Scale Date: April 26, 2013
SHEET No. E-24 OF 30 SHEETS

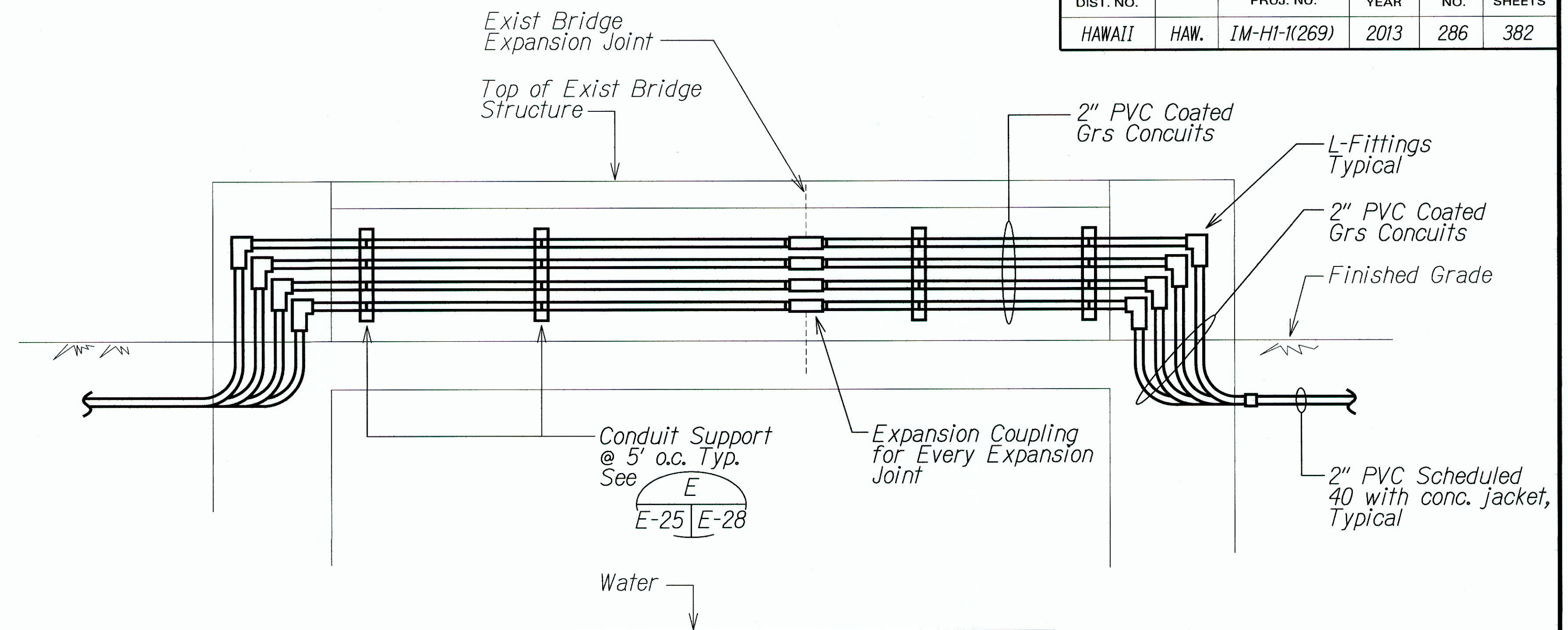
SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
DATE	

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-K(269)	2013	286	382

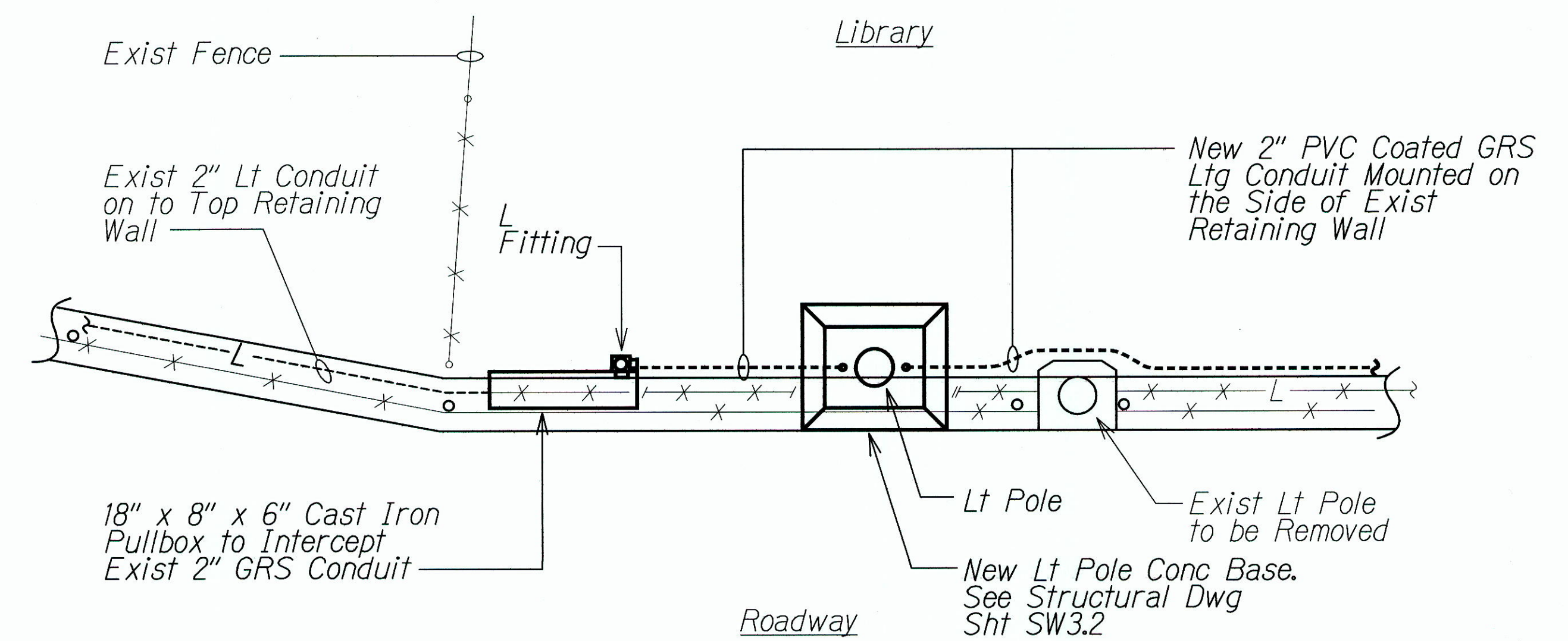


ELEVATION

A LIGHT POLE ON TOP OF CONCRETE BARRIER
NTS



B CONDUITS MOUNTING DETAILS @ EXIST BRIDGE STRUCTURE
NTS



C PULLBOX & CONDUIT MOUNTING DETAILS
NTS

RUSSELL K. MORAN
LICENSED PROFESSIONAL ENGINEER
No. 9013-E
HAWAII, U.S.A.

5/11/13

MR. ENGINEERS, LTD.
LICENSE EXPIRATION DATE: 4/30/12
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

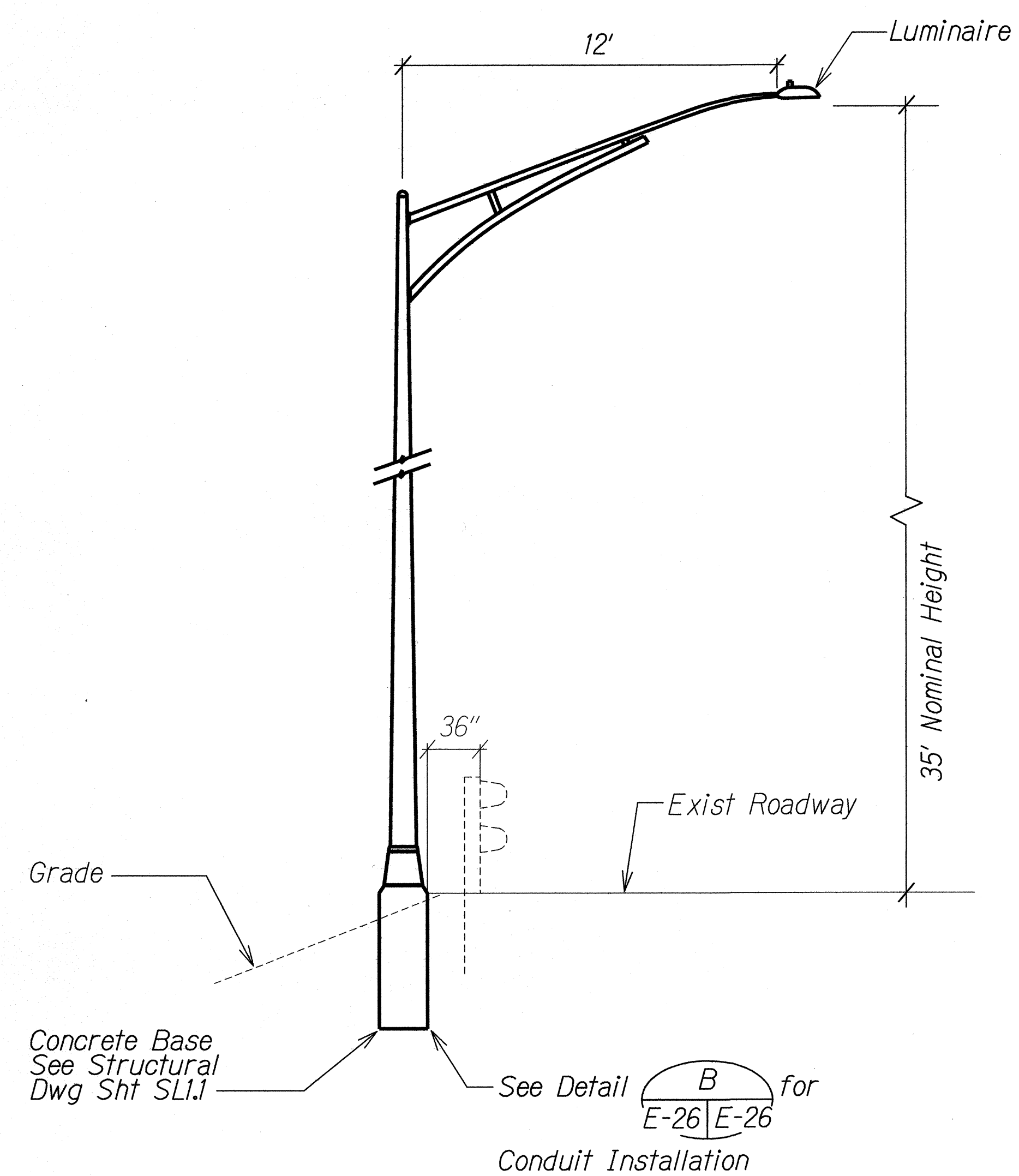
LIGHT POLE DETAILS

INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-H1-K(269)

Scale: Not to Scale Date: April 26, 2013

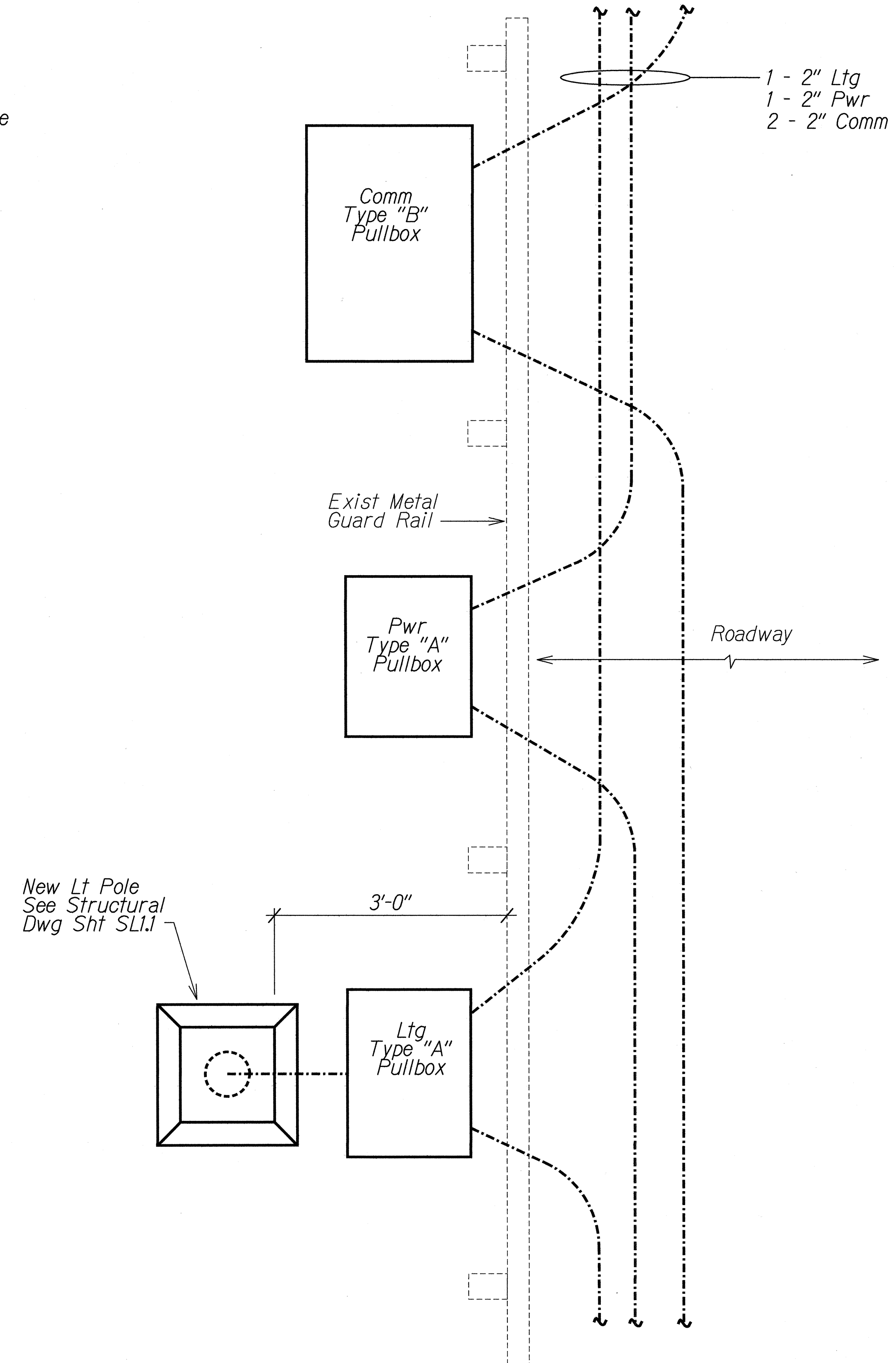
SHEET No. E-25 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(269)	2013	287	382



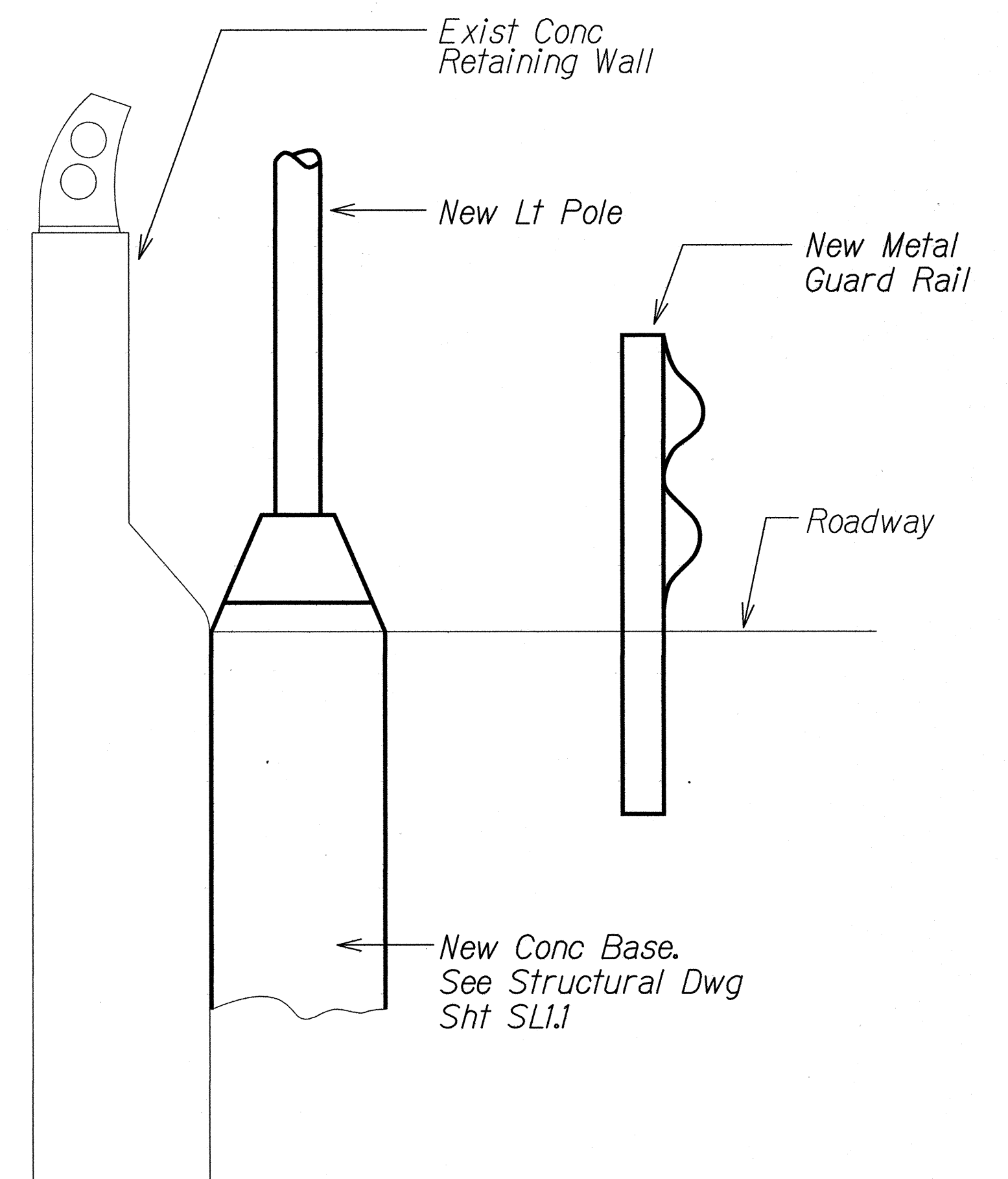
ELEVATION

A
E-1 E-26
LIGHT POLE BEHIND EXIST GUARD RAIL
NTS



PLAN

B
E-1 E-26
PULLBOXES BEHIND EXISTING METAL GUARD RAIL
NTS



C
E-1 E-26
LIGHT POLE LOCATION
NTS

RUSSELL A. MOORE
LICENSED PROFESSIONAL ENGINEER
No. 9013-E
HAWAII, U.S.A.
5/17/13

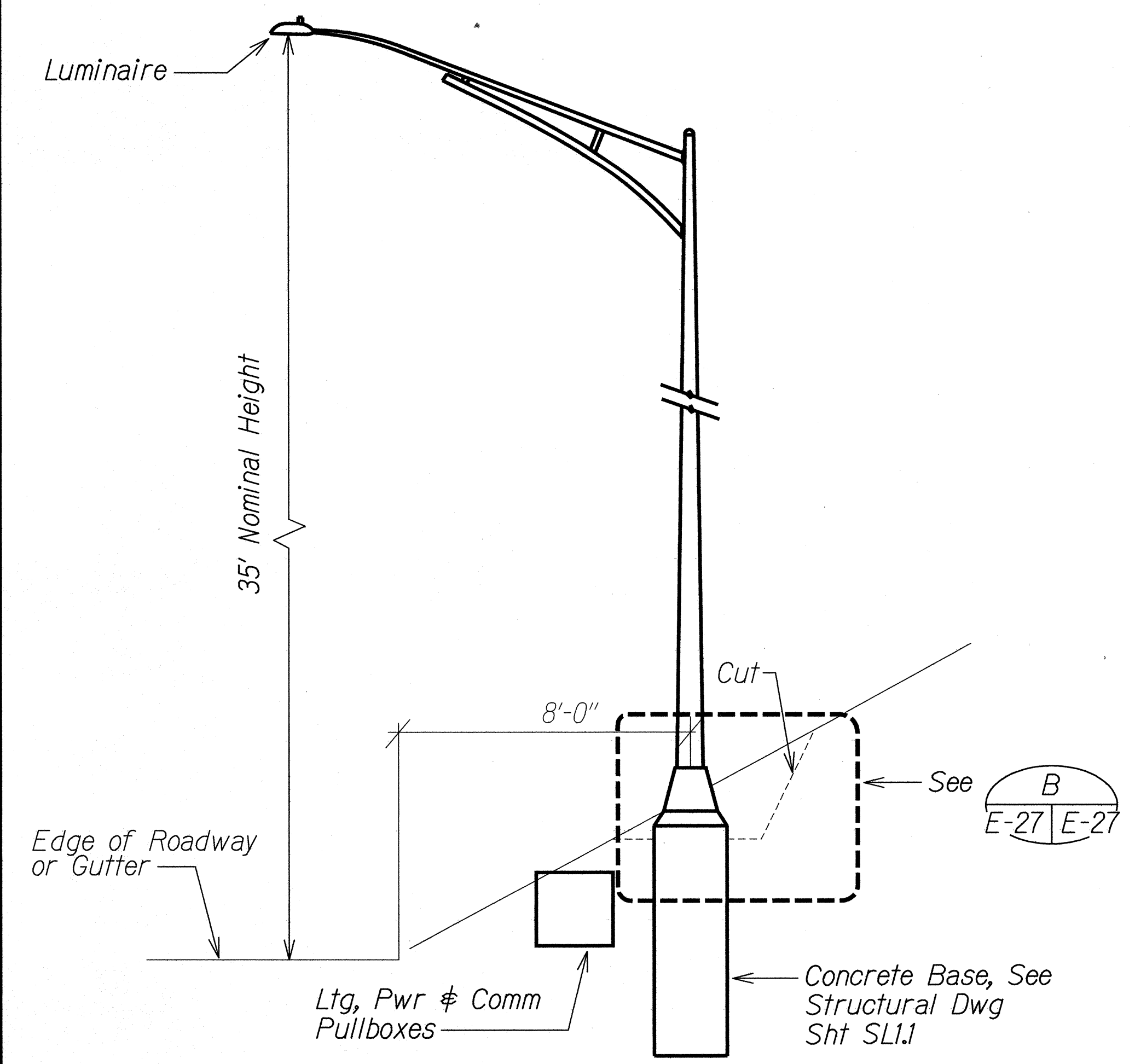
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LIGHT POLE DETAILS

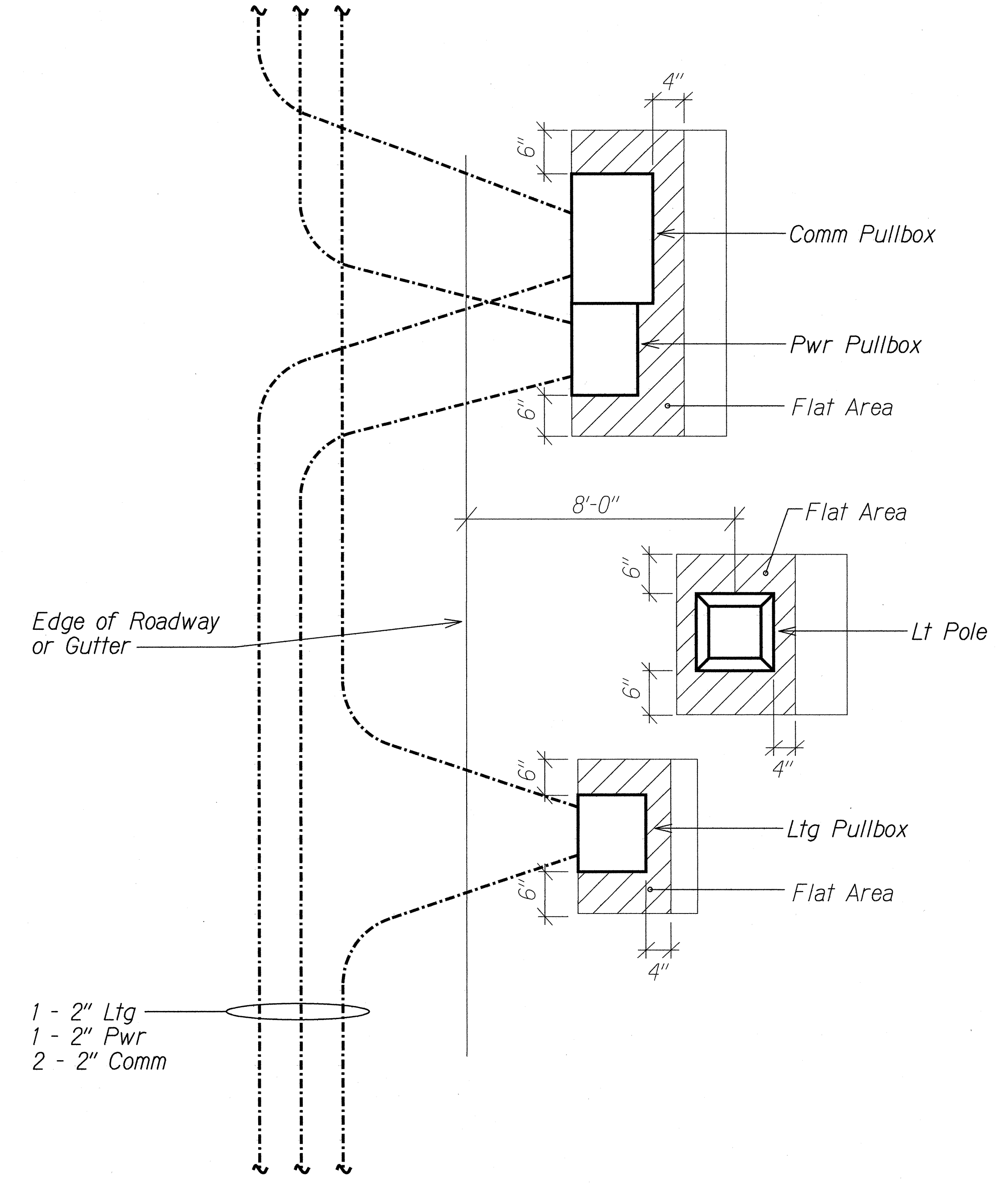
INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-H1-1(269)

Scale: Not to Scale Date: April 26, 2013

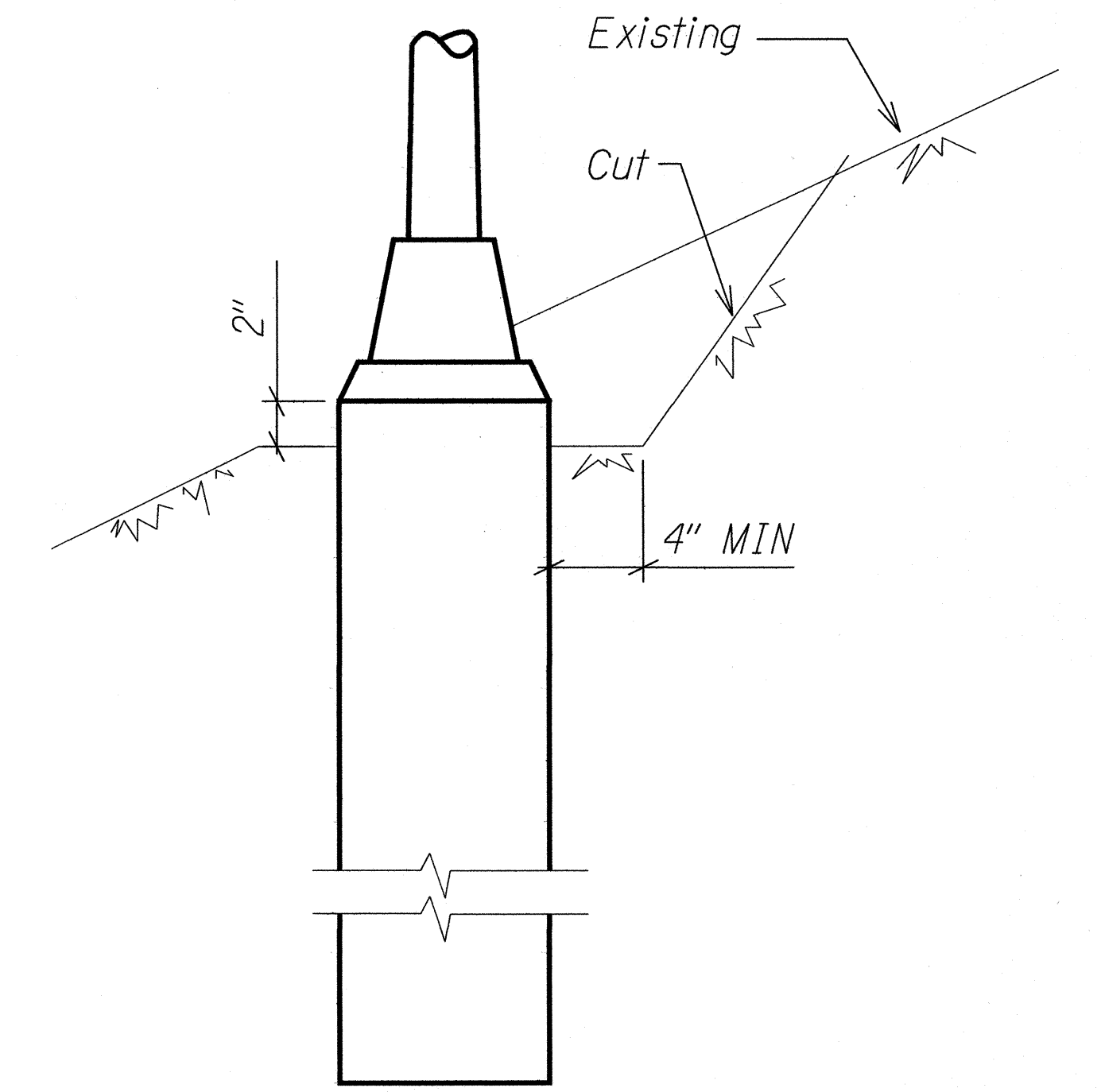
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	288	382



ELEVATION



PLAN



B CONCRETE BASE ELEVATION
E-27 E-27 NTS

A LIGHT POLE & PULLBOXES
E-1 E-27 IN SLOPE AREA
NTS

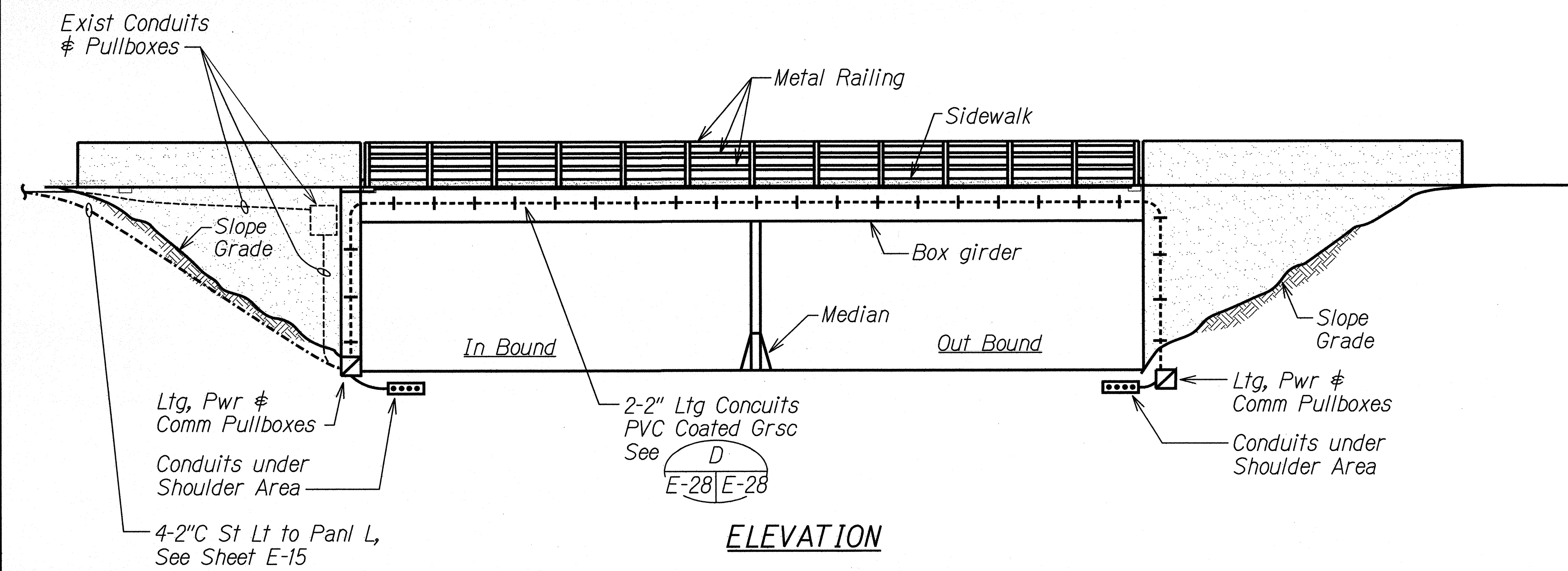
ORIGINAL	SURVEY PLOTTED BY	DATE
PLAN	DRAWN BY	
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
LIGHT POLE DETAILS

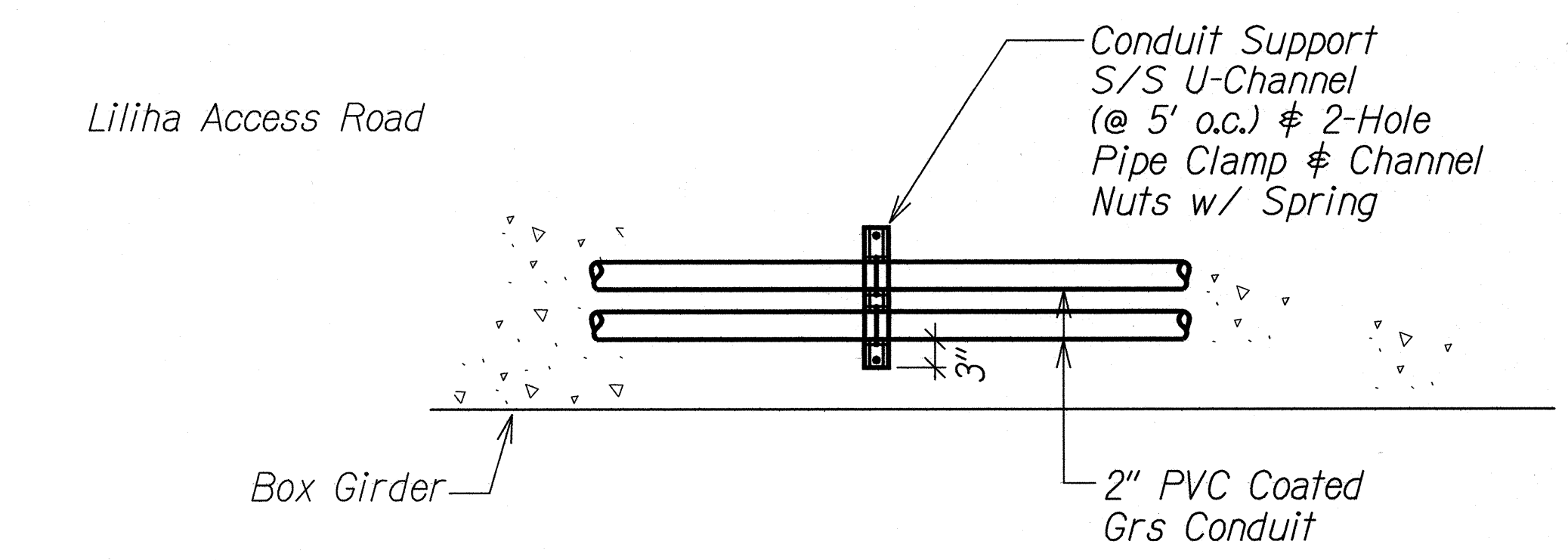
INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)

Scale: Not to Scale Date: April 26, 2013

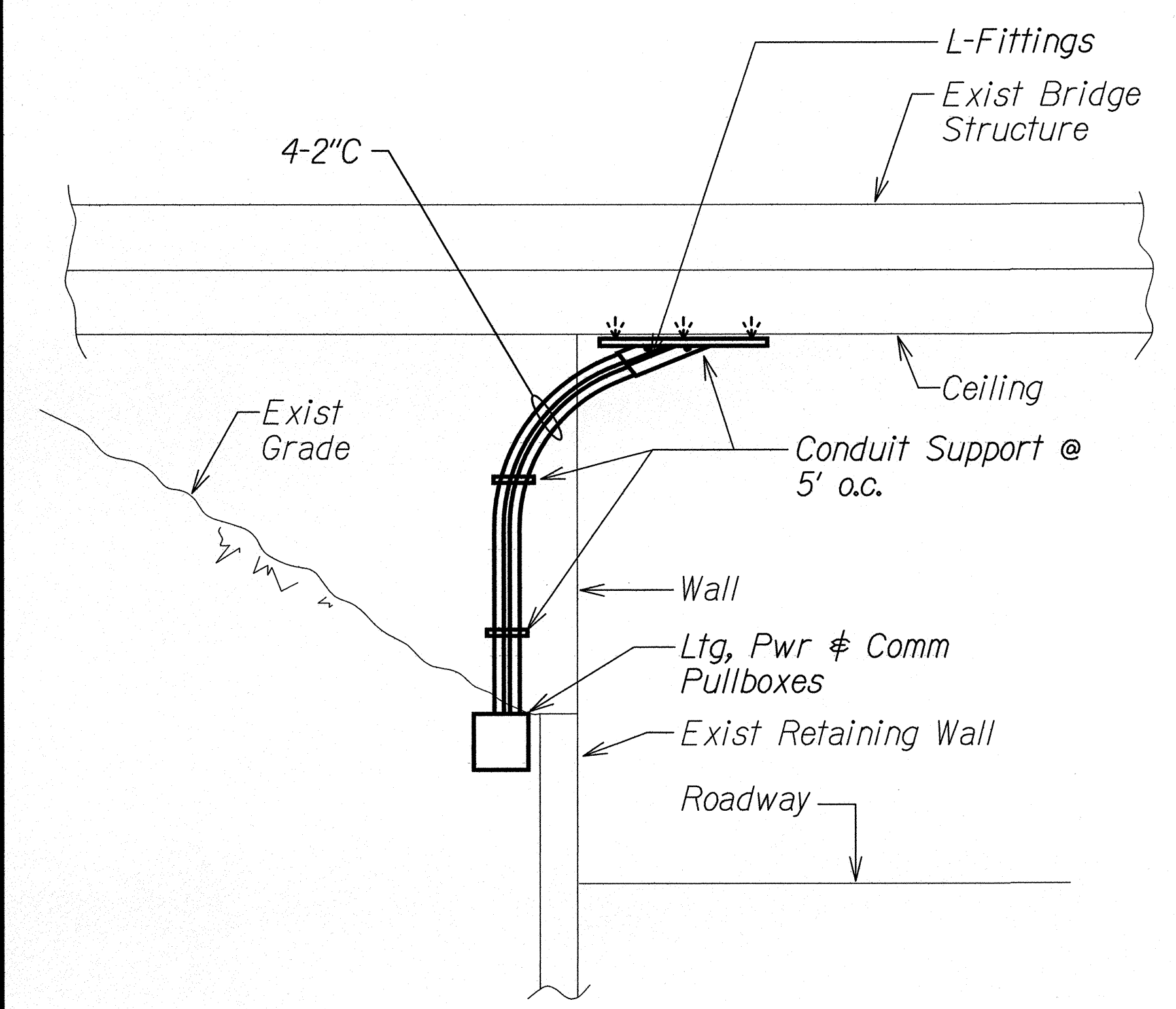
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H1-1(269)	2013	289	382



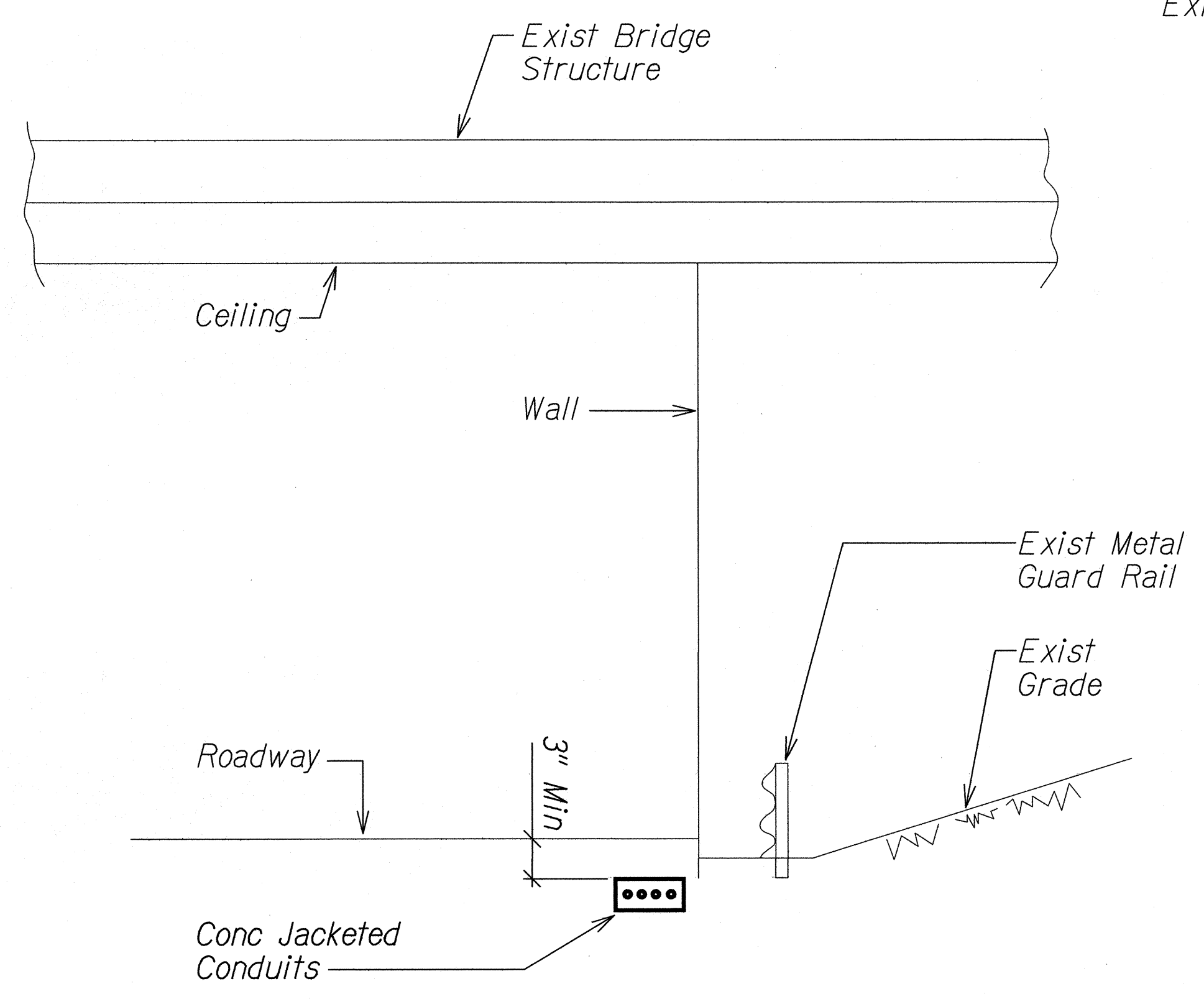
A CONDUIT INSTALLATION AT BRIDGE STRUCTURE (PALI HWY)
E-28 E-28 NTS



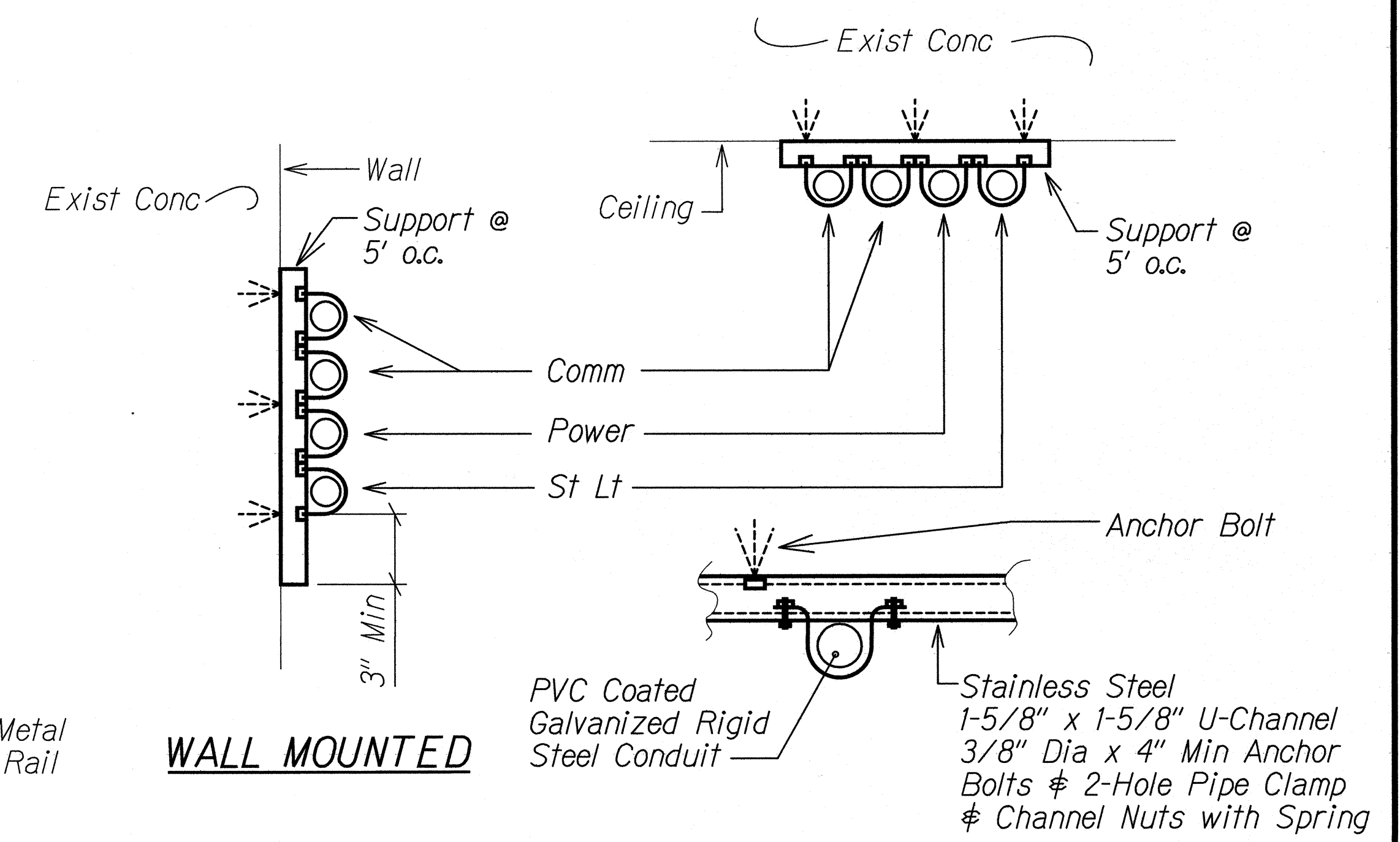
D CONDUIT INSTALLATION AT EXISTING GIRDER
E-28 E-28 NTS



B CONDUIT INSTALLATION DETAIL
E-1 E-28 NTS



C CONDUIT INSTALLATION DETAIL
E-1 E-28 NTS

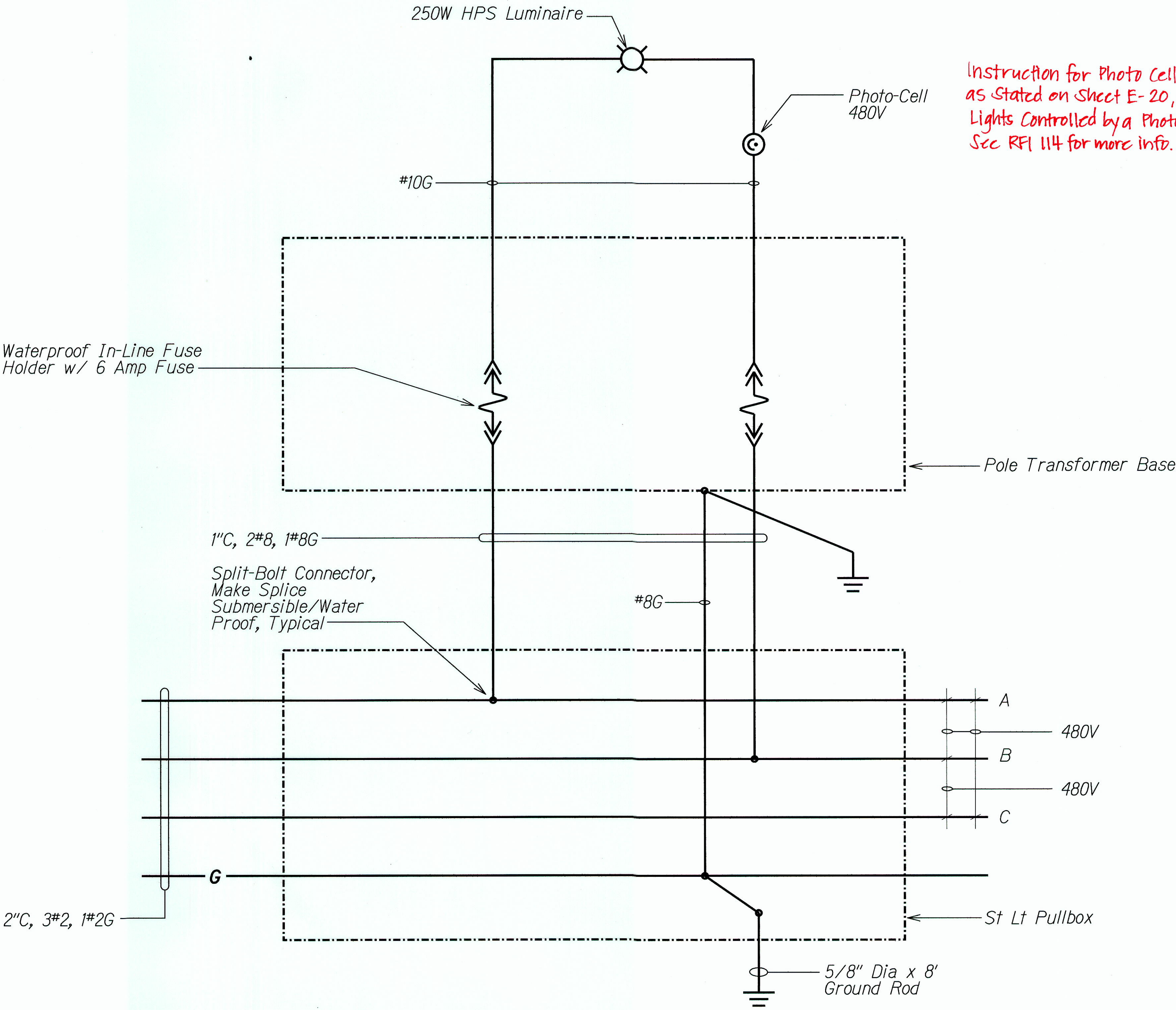


E CONDUIT MOUNTING DETAIL
E-28 E-28 NTS

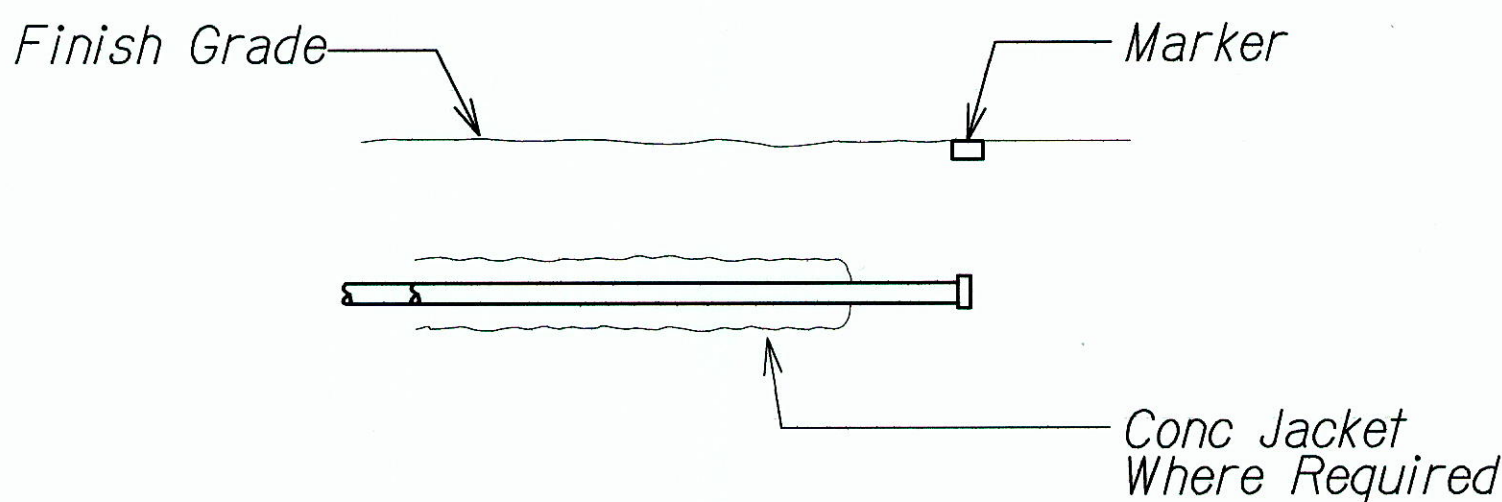
SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**ROADWAY LIGHT
MISCELLANEOUS DETAILS**
INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-H1-1(269)
Scale: Not to Scale Date: April 26, 2013
SHEET No. E-28 OF 30 SHEETS

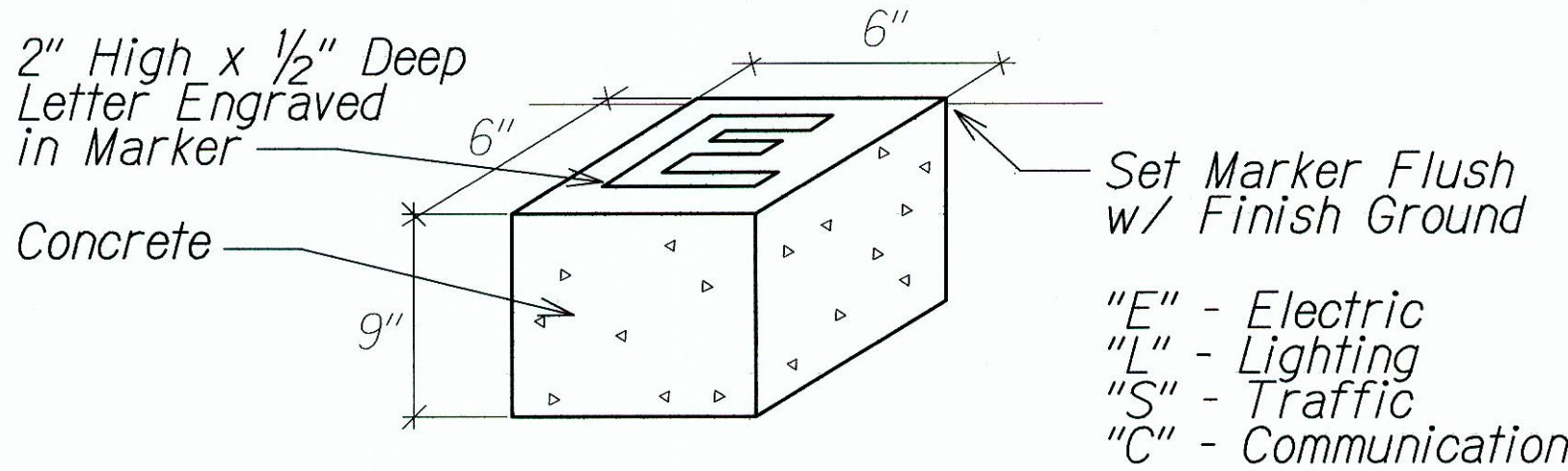
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	290	382



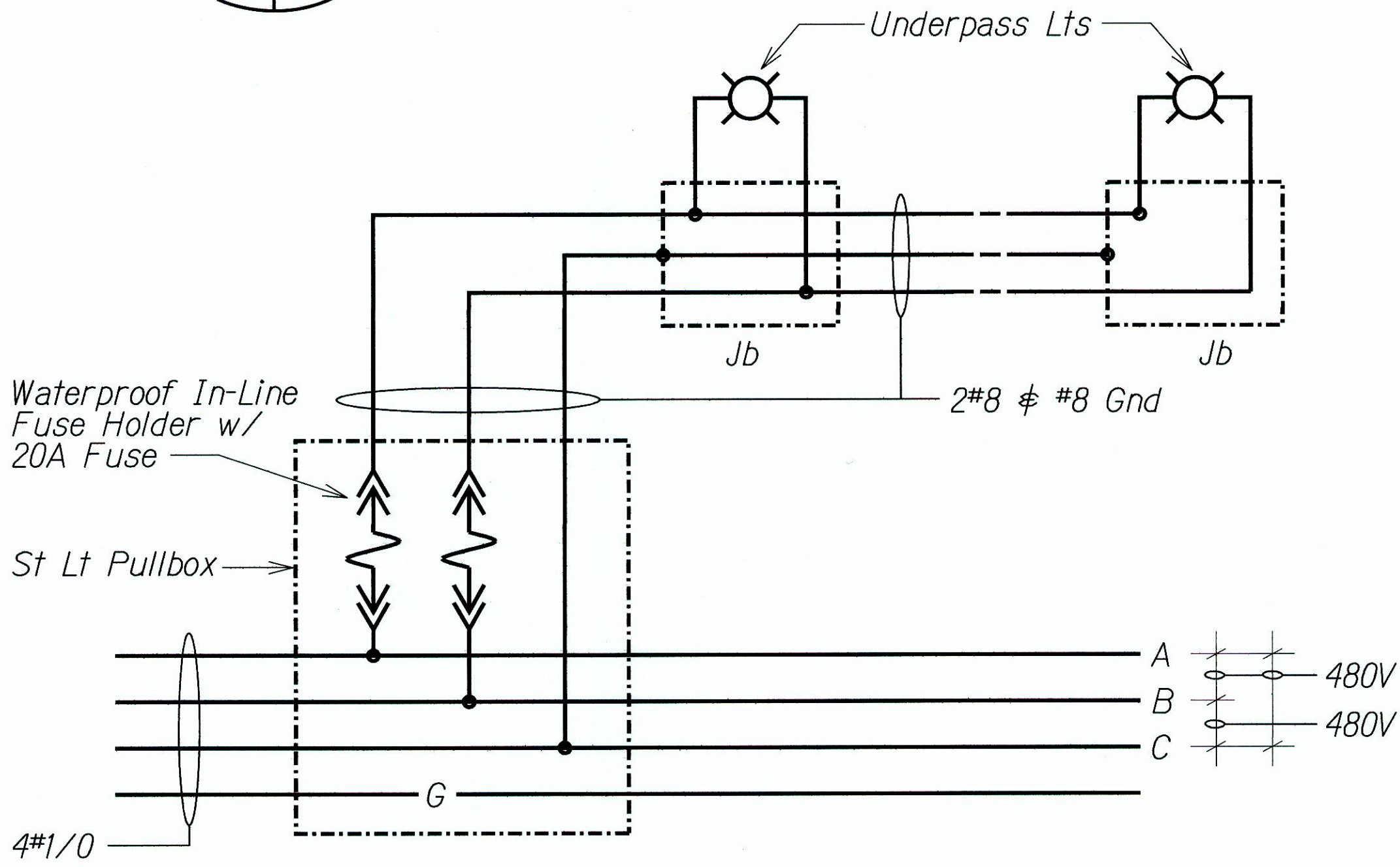
TYPICAL STREET LIGHT WIRING DIAGRAM
NTS



A CONDUIT STUB OUT DETAIL
E-1 E-29 NTS



B MARKER FOR STUB OUT
E-1 E-29 NTS



TYPICAL UNDERPASS LIGHT WIRING DIAGRAM
NTS

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTE BOOK	
NA	

5/17/13

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

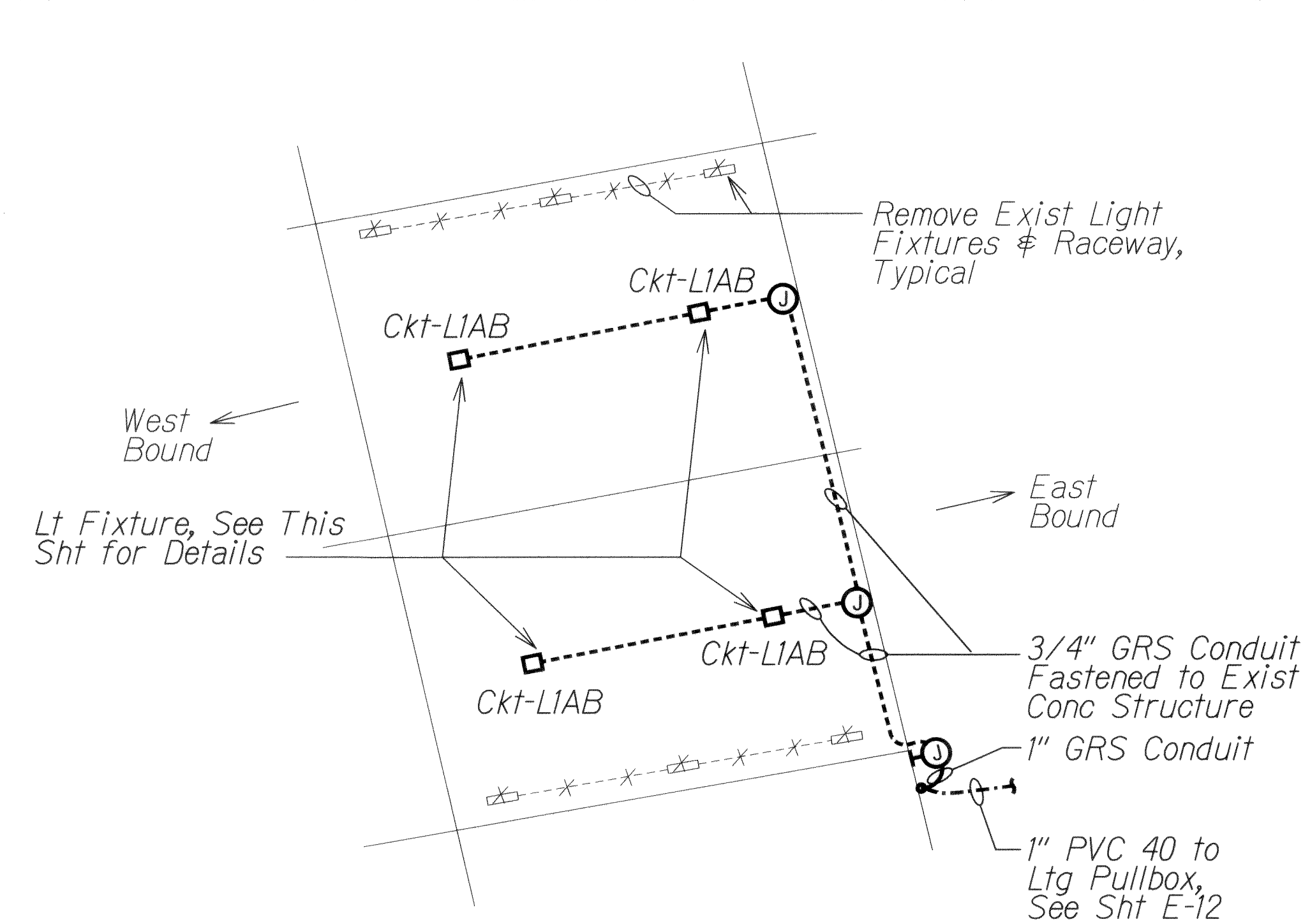
**TYPICAL STREET LIGHT WIRING
DIAGRAM & STUB OUT DETAILS**

INTERSTATE ROUTE H-1 REHABILITATION
MIDDLE STREET TO VICINITY OF WARD AVENUE
FAP NO. IM-HI-1(269)

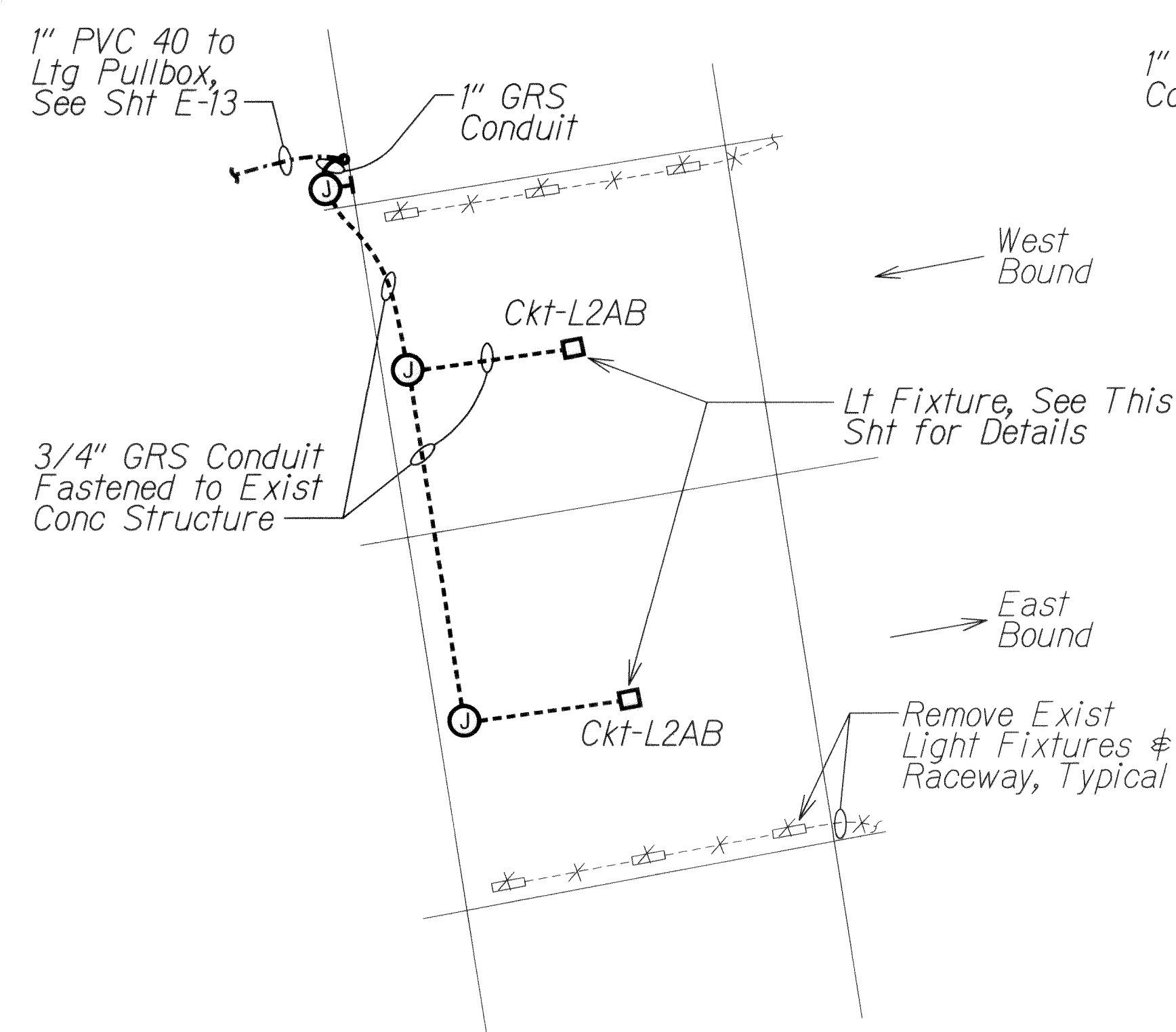
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SHEET No. E-29 OF 30 SHEETS

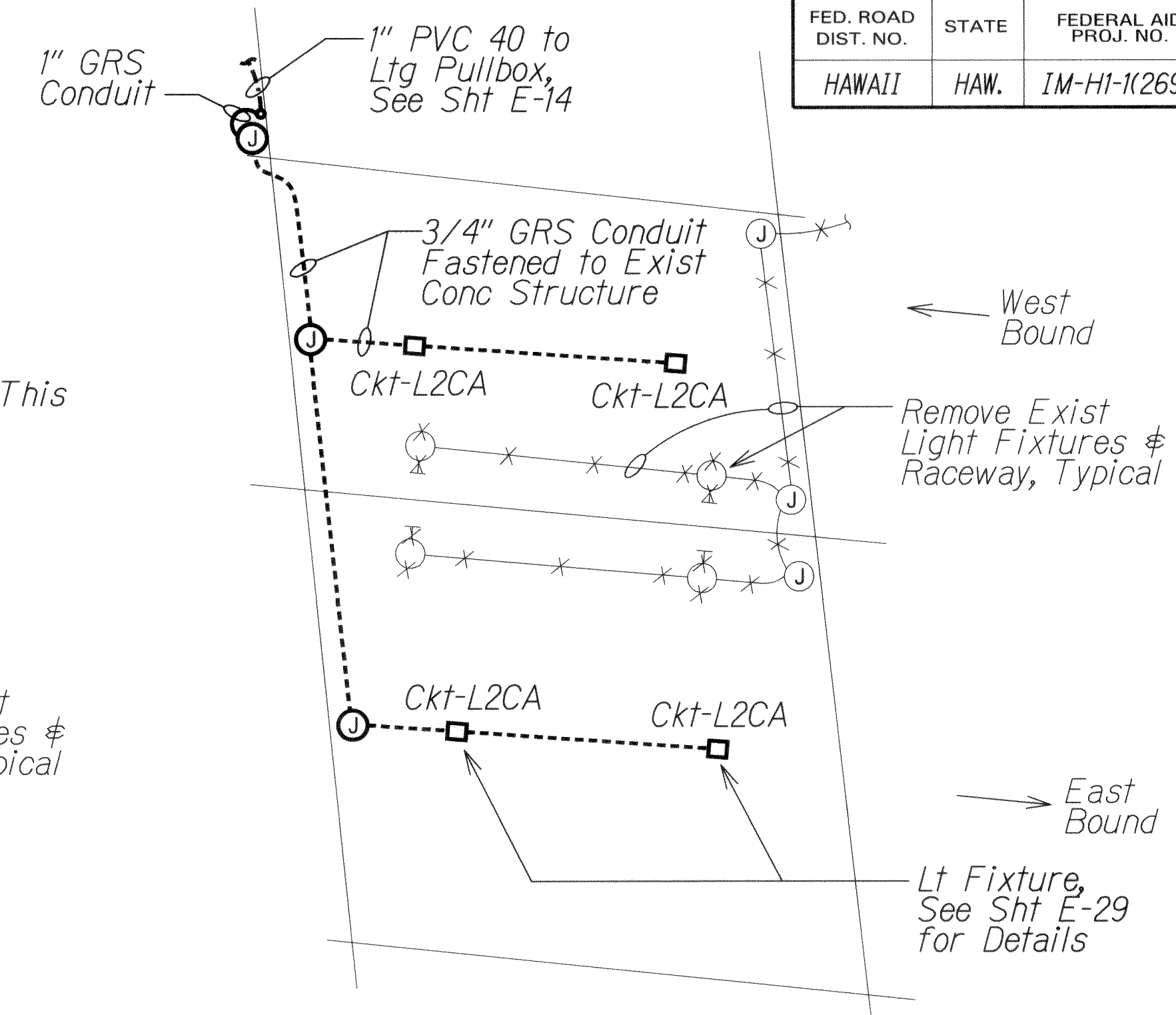
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-HI-1(269)	2013	ADD. 291	382



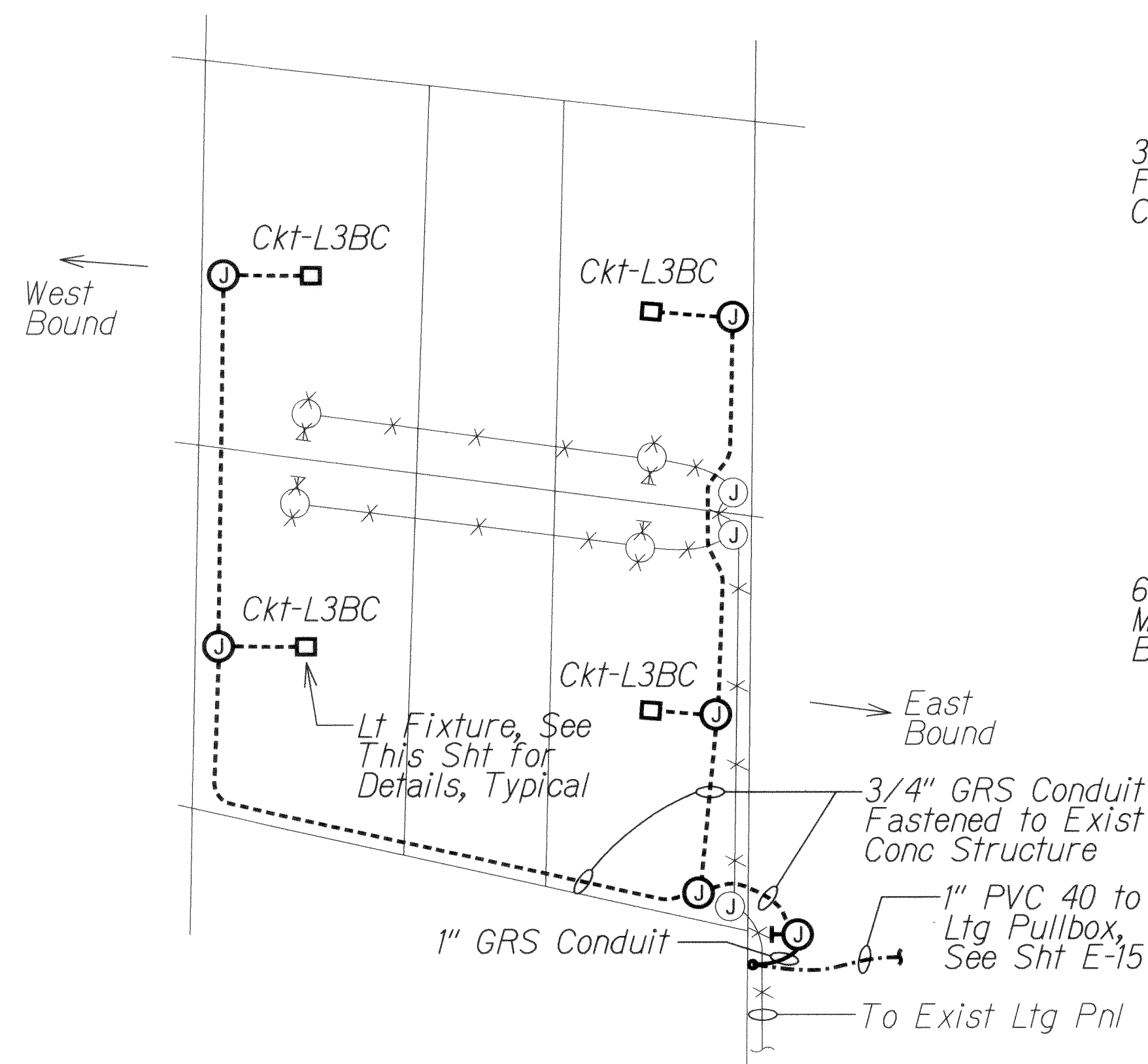
A LILIHA UNDERPASS
LIGHTING PLAN
 Scale: 1" = 20'-0"



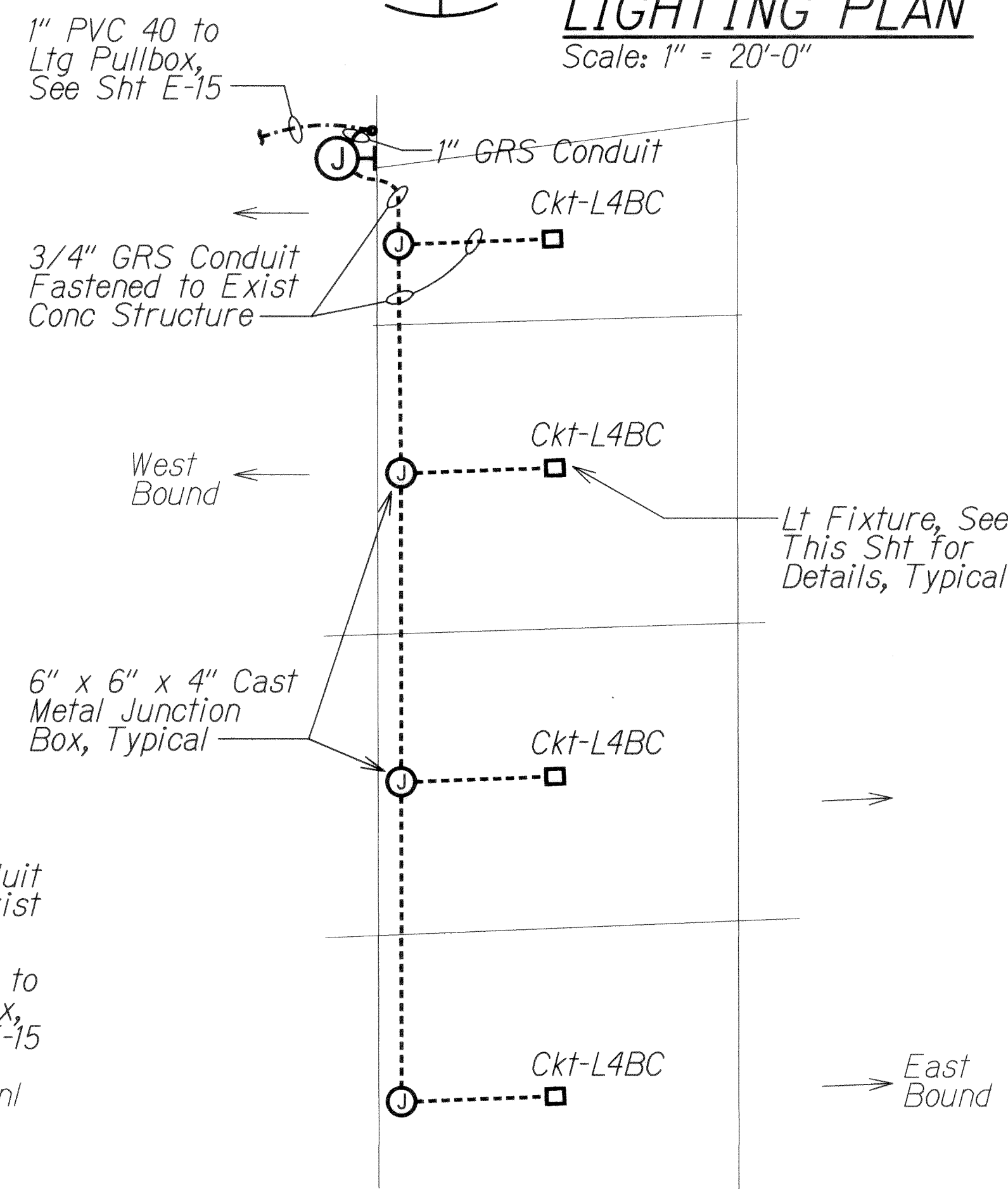
B AALA UNDERPASS
LIGHTING PLAN
 Scale: 1" = 20'-0"



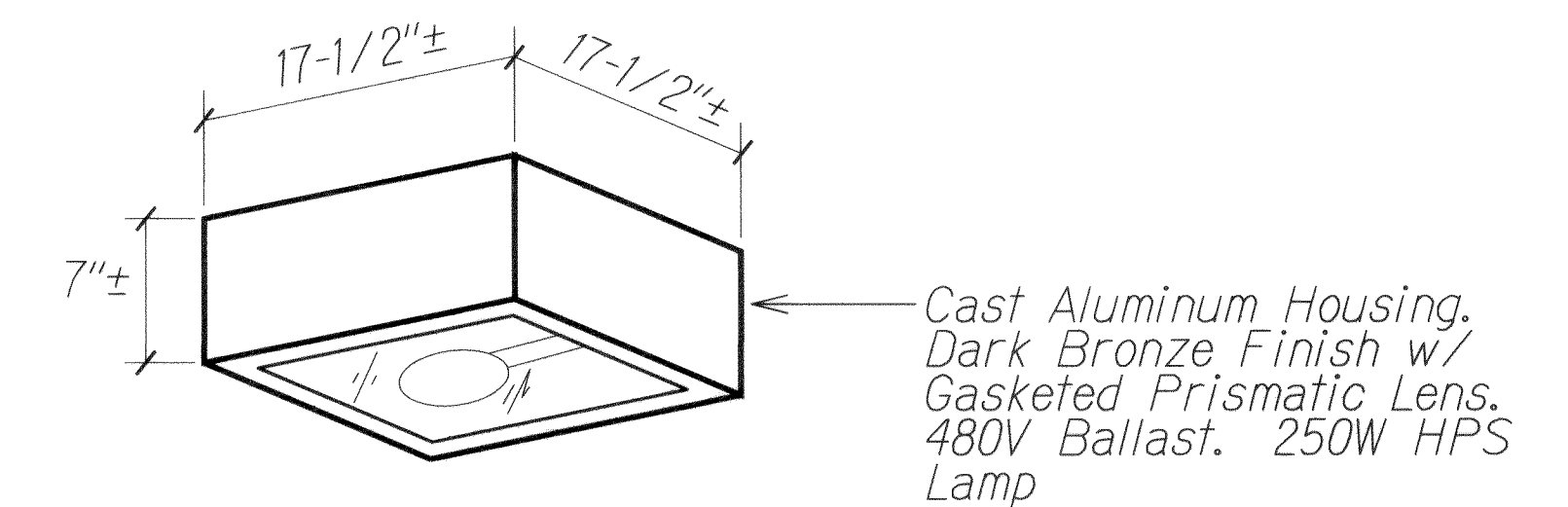
C NUUANU UNDERPASS
LIGHTING PLAN
 Scale: 1" = 20'-0"



D PALI HIGHWAY UNDERPASS
LIGHTING PLAN
 Scale: 1" = 20'-0"



E QUEEN EMMA UNDERPASS
LIGHTING PLAN
 Scale: 1" = 20'-0"



UNDERPASS LIGHT FIXTURE
 NTS

DATE	DATE
DESIGNED BY	CHECKED BY
DRAWN BY	DATE
NOTED BY	DATE
ORIGINAL PLAN	DATE

6/17/13	Replaces Original Sheet
Date	Revision
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION UNDERPASS LIGHTING PLANS	
INTERSTATE ROUTE H-1 REHABILITATION MIDDLE STREET TO VICINITY OF WARD AVENUE FAP NO. IM-HI-1(269)	
Scale: As Noted	Date: April 26, 2013
SHEET No. E-30 OF 30 SHEETS	