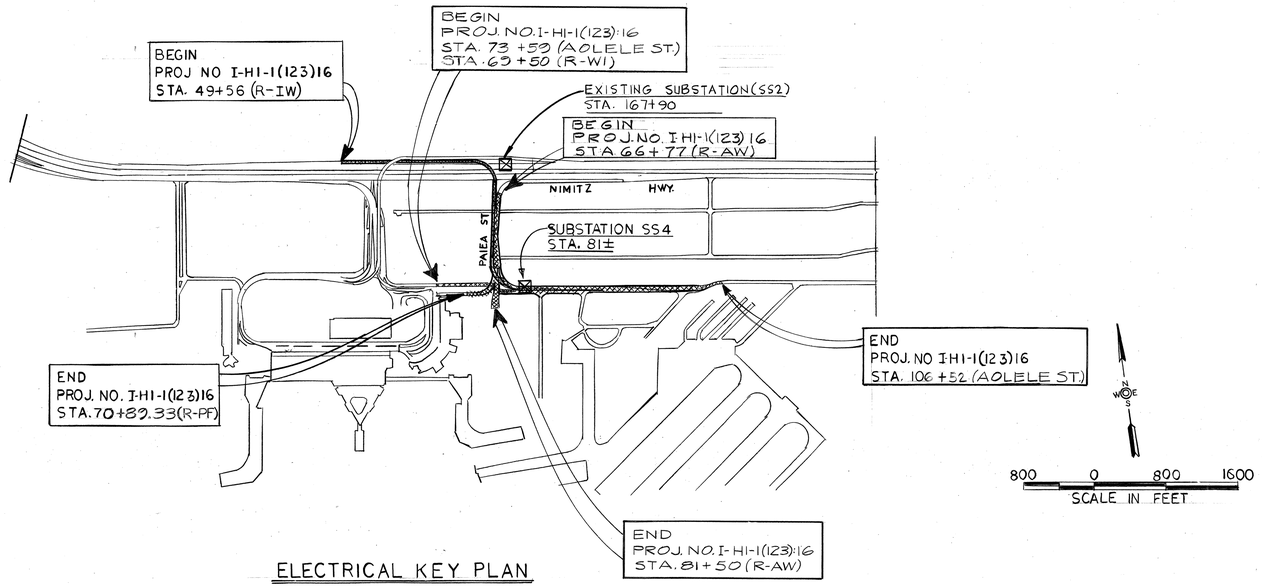
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(123)16	1976	107	444



ELECTRICAL KEY PLAN

NOTES:

1. ALL NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT AND RACEWAYS SHALL BE GROUNDED. ALL NON-METALLIC CONDUIT RUNS SHALL BE PROVIDED WITH A #8 AWG, 600V. TW (GREEN) GROUNDING CONDUCTOR.
2. ALL CONDUITS EMBEDDED IN CONCRETE STRUCTURES AND PASSING THROUGH AN EXPANSION JOINT SHALL BE INSTALLED WITH EXPANSION COUPLINGS, THE CROSSING OF EXPANSION JOINTS SHALL BE AT A RIGHT ANGLE TO THE JOINT.
3. THE CONDUIT AND BOX SYSTEM EMBEDDED IN THE CONCRETE STRUCTURE OF RAMP AW-IW FROM STATION 49+56 TO STATION 62+08 IS EXISTING FROM A PREVIOUS CONTRACT. THE LUMINAIRES FOR THIS SECTION OF RAMP SHALL BE FURNISHED AND INSTALLED UNDER THIS CONTRACT.

LEGEND	
⊠	SUBSTATION
	TRANSFORMER
Ⓜ	METER
	METERING CURRENT TRANSFORMER
	MOLDED CASE CIRCUIT BREAKER
	FUSED DISCONNECT SWITCH
	POLE MOUNTED LUMINAIRE, 30'-0" MTG. HT. 250 W. HIGH PRESS. SODIUM LAMP (TYPE R) 480 V.
	WALL MOUNTED LUMINAIRE 15'-0" MTG HT. 250W HIGH PRESSURE SODIUM LAMP (TYPE N) 480 V.
	RAIL MOUNTED LUMINAIRE, CONTINUOUS ROW OF 8'-0" UNITS. 200MA FLUORESCENT, 277 V.
	RAIL MOUNTED LUMINAIRE, CONTINUOUS ROW OF 8'-0" UNITS 430MA FLUORESCENT, 277 V.
☑	JUNCTION BOX
$\square_{PE}$	JUNCTION BOX (EMER. COMM. SYSTEM)
— — —	CONDUIT, DIRECT BURIAL
— - - —	CONDUIT, EMBEDDED IN CONCRETE STRUCTURE
	CONDUIT, BELOW GRADE, CONCRETE ENCASED
	EXISTING LIGHTPOLE SUBJECT TO BE RELOCATED FOR TEMPORARY DETOUR LIGHTING.

NO	DATE	REVISION
1	11-11-76	ADD. SYMBOL FOR EXIST. POLE CHANGED AOLELE ST PROJ. LIMITS
	6-8-78	CHANGED LAMP TYPE FOR WALL MOUNTED LUMINAIRE.

EARL ROBERT ALLEN
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY LIGHTING

ELECTRICAL KEY PLAN AND SYMBOL LIST

AIRPORT INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(123)16

SCALE: AS SHOWN DATE: 8-28-76

SHEET No. E-1 OF 12 SHEETS

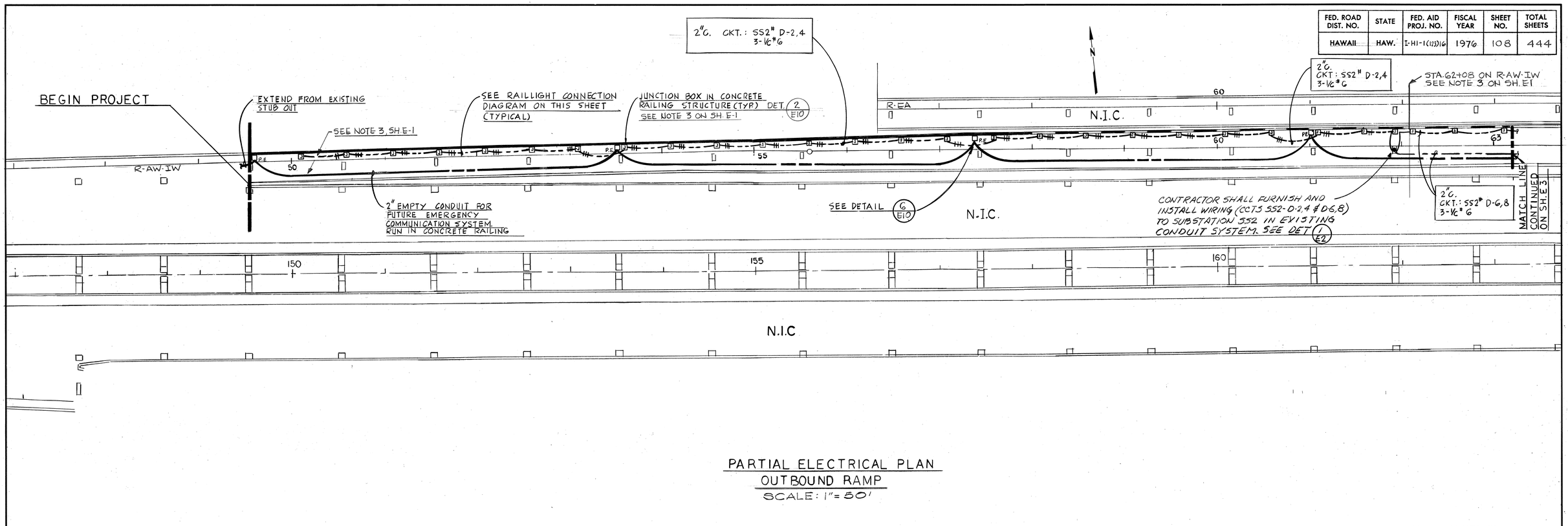
PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
BK. NOTES
STRUCTURE NOTAT'NS CH'KD
NOTE BOOK NO.
BY
DATE

C-S-223

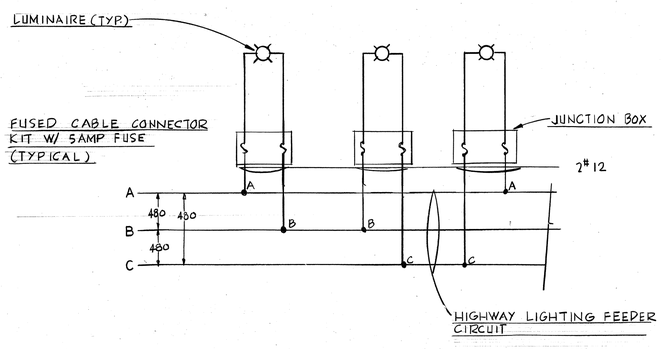
COADD 107

CONT'D

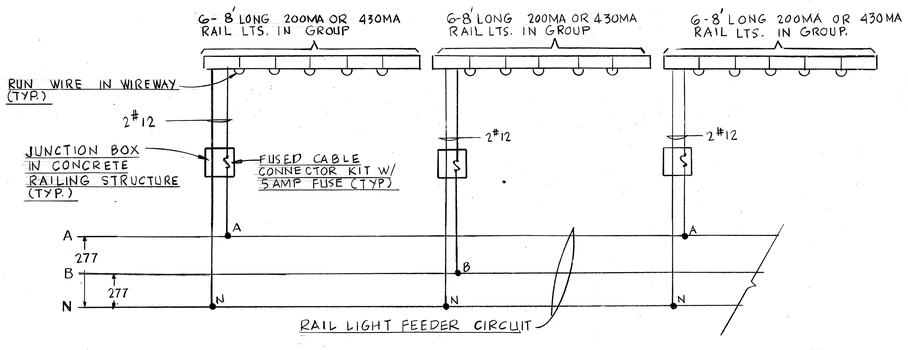
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(123)16	1976	108	444



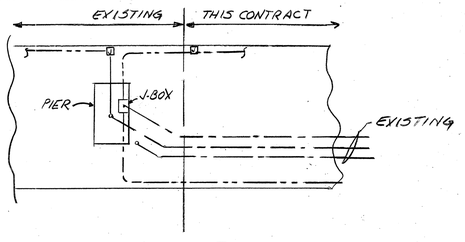
PARTIAL ELECTRICAL PLAN
OUTBOUND RAMP
SCALE: 1" = 50'



TYPICAL LIGHTING CONNECTION DIAGRAM
N.T.S.



TYPICAL RAIL LIGHT CONNECTION DIAGRAM
N.T.S.



DET. 1 E2
N.T.S.

PROFILE	
SURVEYED	
PLOTTED	
NOTE BOOK	GRADES CHECKED
NO.	B.M.'S NOTED
	STRUCTURE NOTATIONS CH'KD

DATE	BY	

EARL ROBERT ALLEN
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY LIGHTING
OUTBOUND RAMPS

AIRPORT INTERCHANGE
FAI PROJ NO IHI-1(123) 16

SCALE: AS SHOWN DATE: 8-28-76

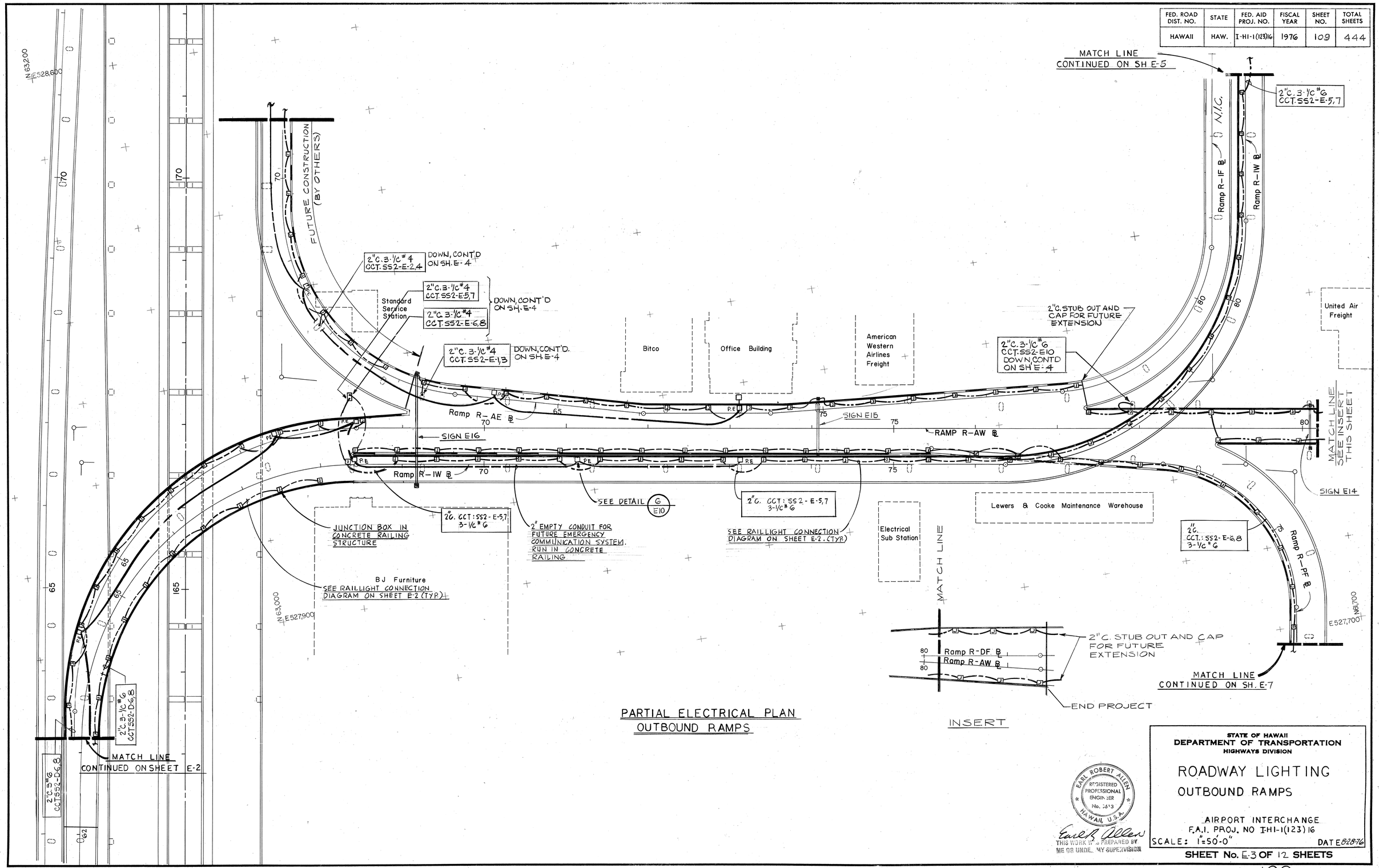
SHEET No. E-2 OF 12 SHEETS

108

Rec'd from Dan 11/30/76

CONT-6

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(123)16	1976	109	444



PARTIAL ELECTRICAL PLAN
OUTBOUND RAMPS

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

EARL ROBERT ALLEN
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No. 7613
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Earl R. Allen
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

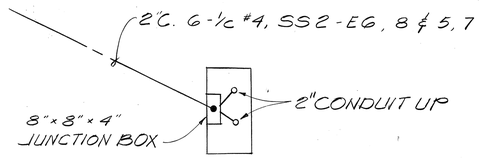
ROADWAY LIGHTING
OUTBOUND RAMPS

AIRPORT INTERCHANGE
F.A.I. PROJ. NO I-HI-1(123)16
SCALE: 1"=50'-0" DATE 8-28-76

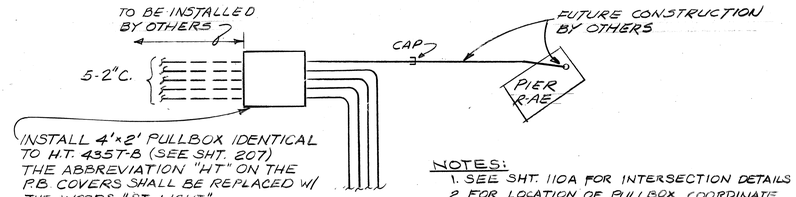
SHEET No. E-3 OF 12 SHEETS

CONT 6

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(123)16	1976	110	444

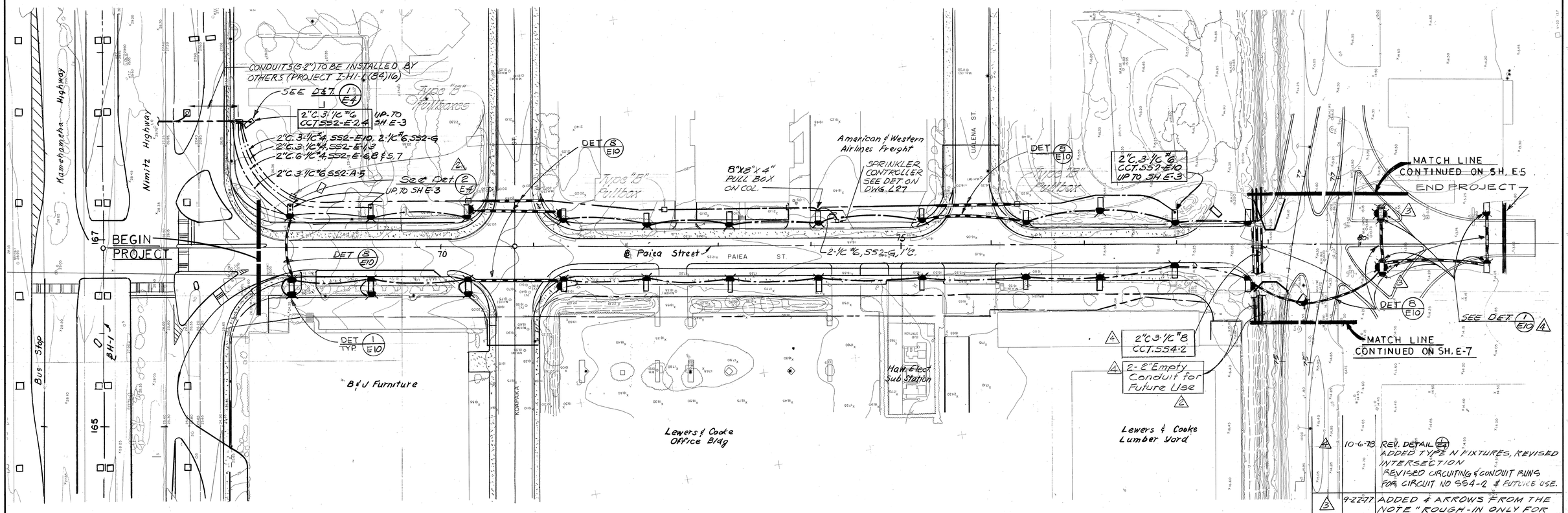


DET. 2/E4 N.T.S



NOTES:
1. SEE SHT. 110A FOR INTERSECTION DETAILS
2. FOR LOCATION OF PULLBOX, COORDINATE WORK W/ PROJ. I-HI-1(84):16

DET. 1/E4 NTS



PROFILE
SURVEYED
PLOTTED
NOTE BOOK GRADES CHECKED
BY STRUCTURE NOTATIONS CHKD
NO.

PARTIAL ELECTRICAL PLAN
PAIEA STREET
SCALE: 1" = 50'

NO.	DATE	REVISION
4	10-6-78	REV. DETAIL 1/E4 ADDED TYPE N FIXTURES, REVISED INTERSECTION REVISED CIRCUITING & CONDUIT RUNS FOR CIRCUIT NO SS4-2 & FUTURE USE.
3	9-22-77	ADDED 4 ARROWS FROM THE NOTE "ROUGH-IN ONLY FOR FUTURE TYPE N FIXTURES" TO PIER AT 80+17
2	9-9-77	ADDED 2" CONDUIT FOR FUTURE USE AND DET. 2
1	11-17-76	REVISED PAIEA-AOLELE INTERSECTION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY LIGHTING
GRADE

AIRPORT INTERCHANGE
F.A.I. PROJ. NO I-HI-1(123)16
SCALE: AS SHOWN DATE: 8-28-76

EARL ROBERT ALLEN
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HAWAII, U.S.A.
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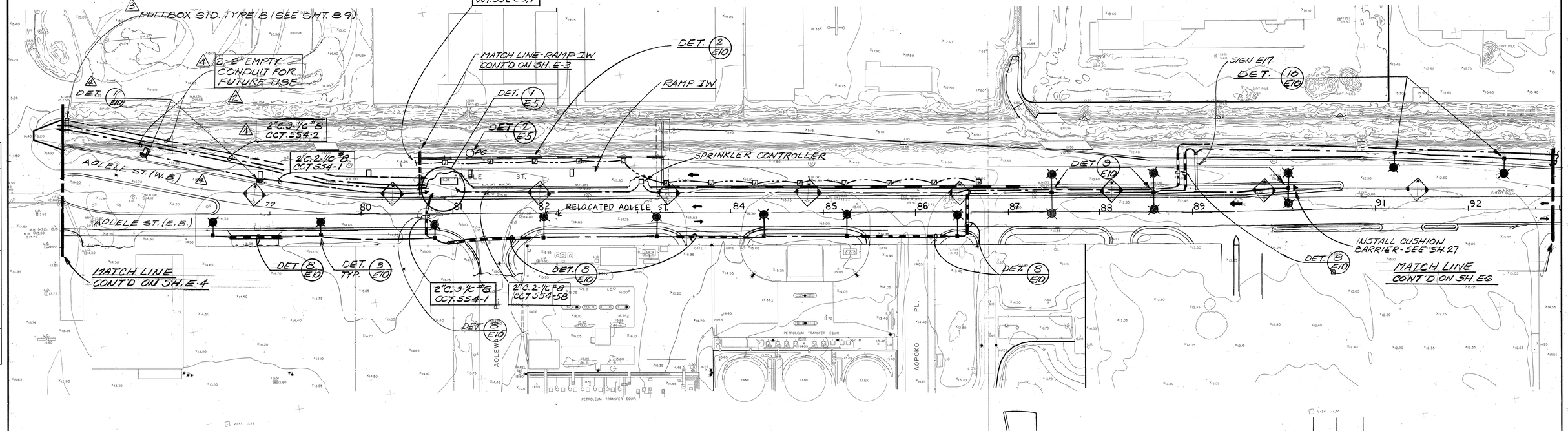
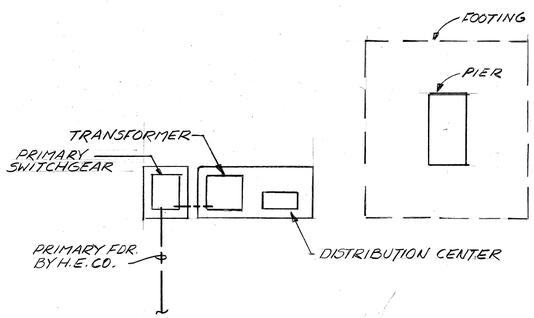
SHEET No. E-4 OF 12 SHEETS

CO ADD 110

CONT. 6

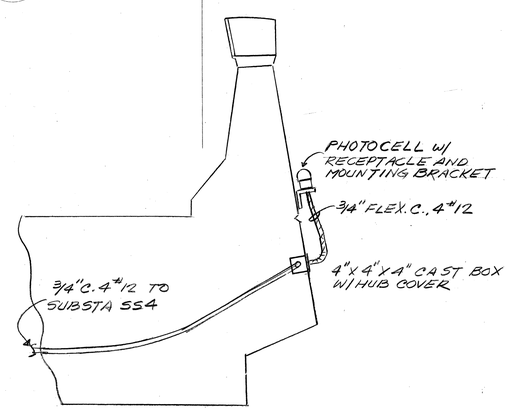
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(123)16	1976	111	444





DET. 1
1/8"=1'-0" E5
SUBSTATION 554
(SEE SH. E-8)

PARTIAL ELECTRICAL PLAN
AOLELE STREET
SCALE: 1"=50'



DET. 2
3/4"=1'-0" E5

NO	DATE	REVISION
4	10-6-78	REVISED LIGHTING FIXTURES REVISED CIRCUITING & CONDUIT RUNS FOR CIRCUIT NO. 554-2 & FUTURE USE REVISED RDWY STA. 77+00 TO STA. 80+00 ADDED SIDEWALK
3	10-10-77	ADDED PULLBOX STD. TYPE B
2	9-9-77	ADDED 2" CONDUIT FOR FUTURE USE
1	11-11-76	ADD. CUSHION BARRIER, REVISED AOLELE/PAIEA INTERSECTION, ADD. EXISTING LIGHTS FOR POSSIBLE RELOCATION

EARL ROBERT ALLEN
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY LIGHTING
GRADE

AIRPORT INTERCHANGE
FAI PROJ. NO. I-HI-1(123)16

SCALE: AS SHOWN DATE: 8-28-76

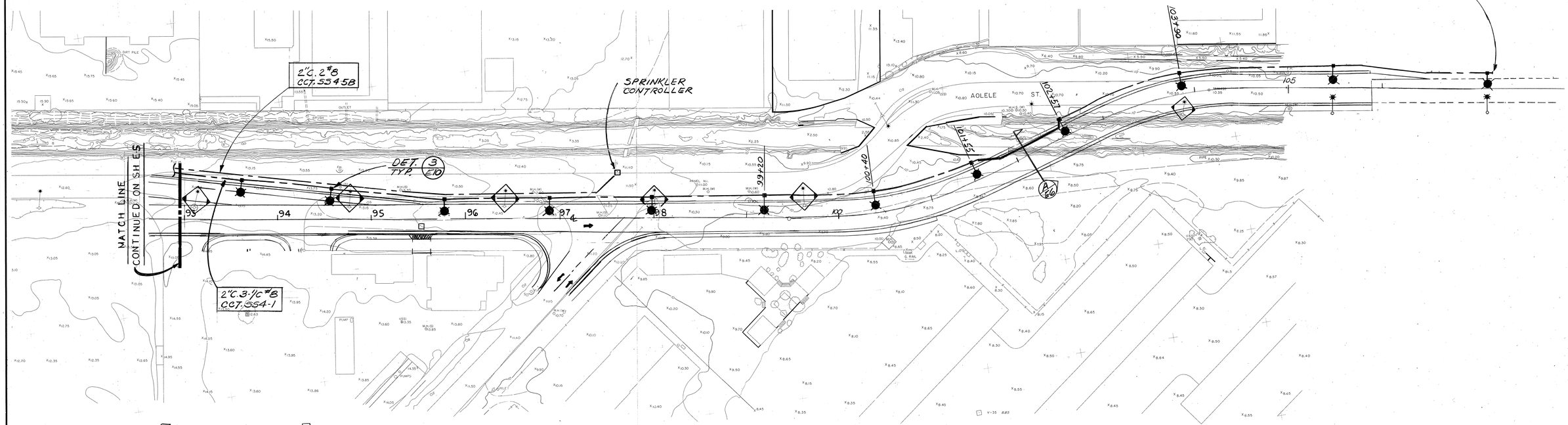
SHEET No. E-5 OF 12 SHEETS

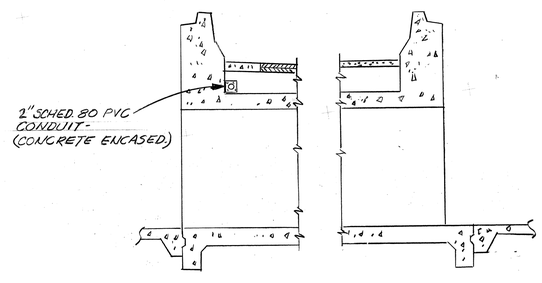
PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
BK. NOTES WRITTEN
STRUCTURE NOTAT'NS CH'KD
NOTE BOOK NO.
BY
DATE

COADD III

CONT 6

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(123)16	1976	112	444





BOX CULVERT CROSSING DET. (A / E6)
1/4" = 1'-0"

PARTIAL ELECTRICAL PLAN
AOLELE STREET
1" = 50'-0"

PROFILE	
SURVEYED	
PLOTTED	
GRADES CHECKED	
B.M.'S NOTED	
STRUCTURE NOTAT'NS CH'KD	
NOTE BOOK NO.	
BY	DATE

NO.	DATE	REVISION
2	10-6-78	Added Sidewalk & Two Light Poles
1	11-11-76	RELOCATION & REDUCTION OF LUMINAIRES ADD. DET. A-E6, INDICATED EXISTING LIGHTS SUBJECT TO RELOCATION FOR DETOUR LTG. & REV. DITCH CROSS'G.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY LIGHTING
GRADE

AIRPORT INTERCHANGE
F.A.I PROJ. NO. I-HI-1(123)16
SCALE: AS NOTED DATE: 8-28-76

EARL ROBERT ALLEN
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No. 3613
HAWAII, U.S.A.

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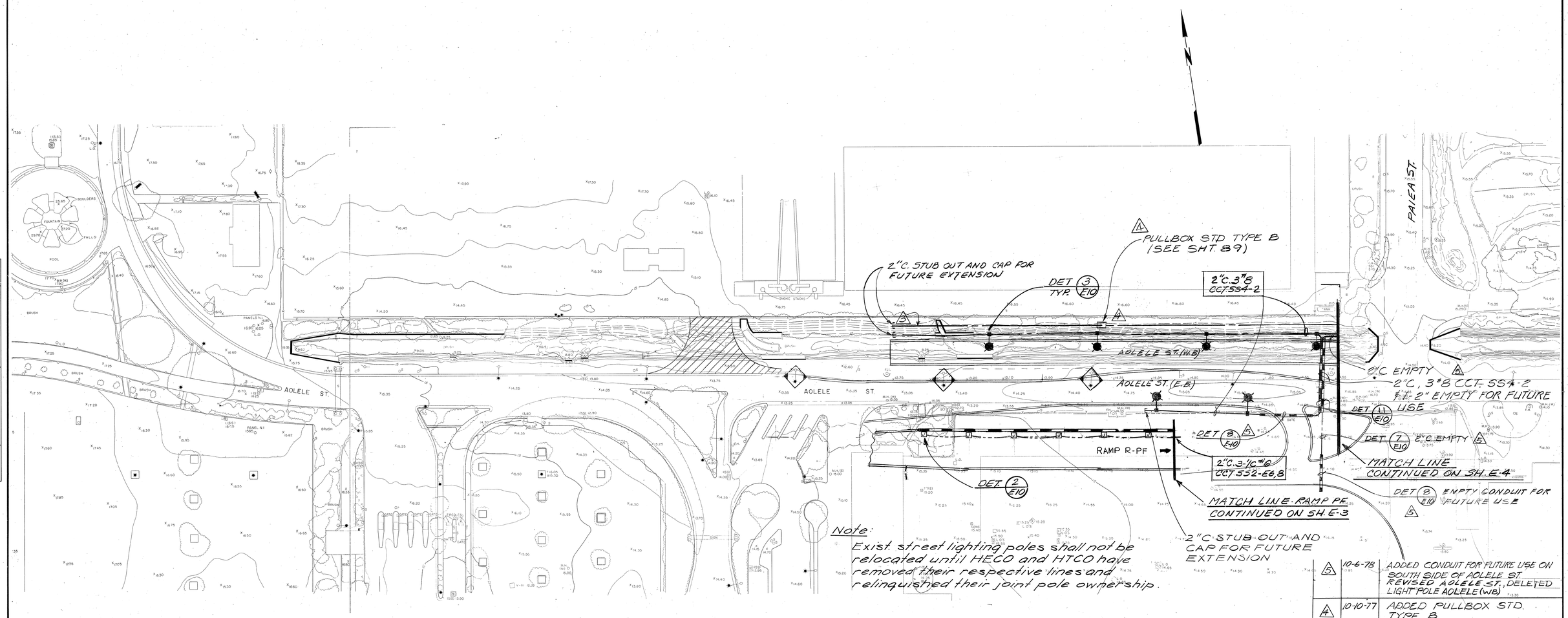
SHEET No. E-6 OF 12 SHEETS

CO ADD 112

CONT 6

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(123)16	1976	113	444



Note:
Exist. street lighting poles shall not be relocated until HECO and HTCO have removed their respective lines and relinquished their joint pole ownership.

PARTIAL ELECTRICAL PLAN
AOLELE STREET

NO.	DATE	REVISION
5	10-6-78	ADDED CONDUIT FOR FUTURE USE ON SOUTH SIDE OF AOLELE ST. REVISED AOLELE ST., DELETED LIGHT POLE AOLELE (WB)
4	10-10-77	ADDED PULLBOX STD. TYPE B
3	9-9-77	ADDED 2" CONDUIT FOR FUTURE USE
2	4-22-77	ADDITIONAL LIGHTS TO BE RELOCATED & Note
1	11-11-76	DELETED LIGHTS ALONG AOLELE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY LIGHTING
GRADE

AIRPORT INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(123)16
SCALE: 1"=50'-0" DATE: 8-28-76

EARL ROBERT ALLEN
REGISTERED PROFESSIONAL ENGINEER
No. 3613
HAWAII, U.S.A.

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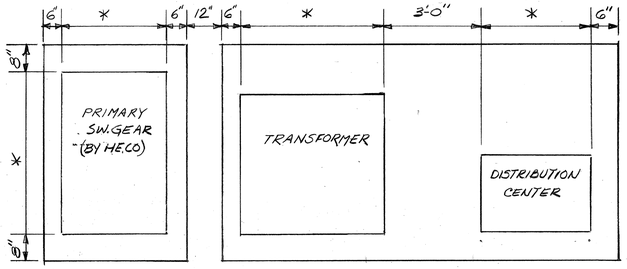
SHEET No. E-7 OF 12 SHEETS

PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
NOTE BOOK NO.
STRUCTURE NOTAT'NS CH'KD.
BY
DATE

COADD 113

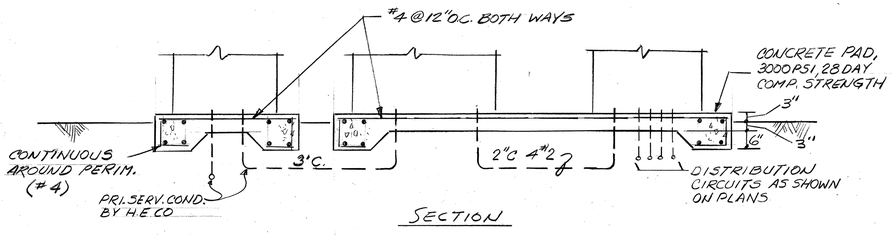
CONT 6

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(123)16	1976	114	444



* DIMENSION DETERMINED BY EQUIPMENT DIMENSIONS

PLAN

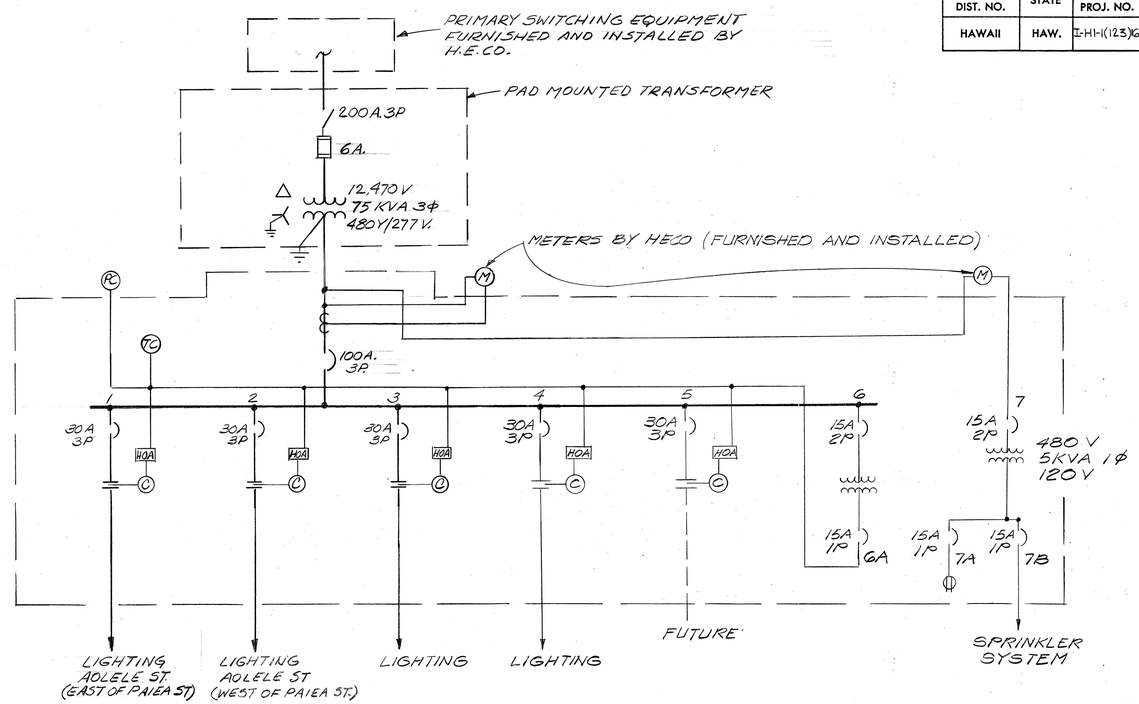


SECTION

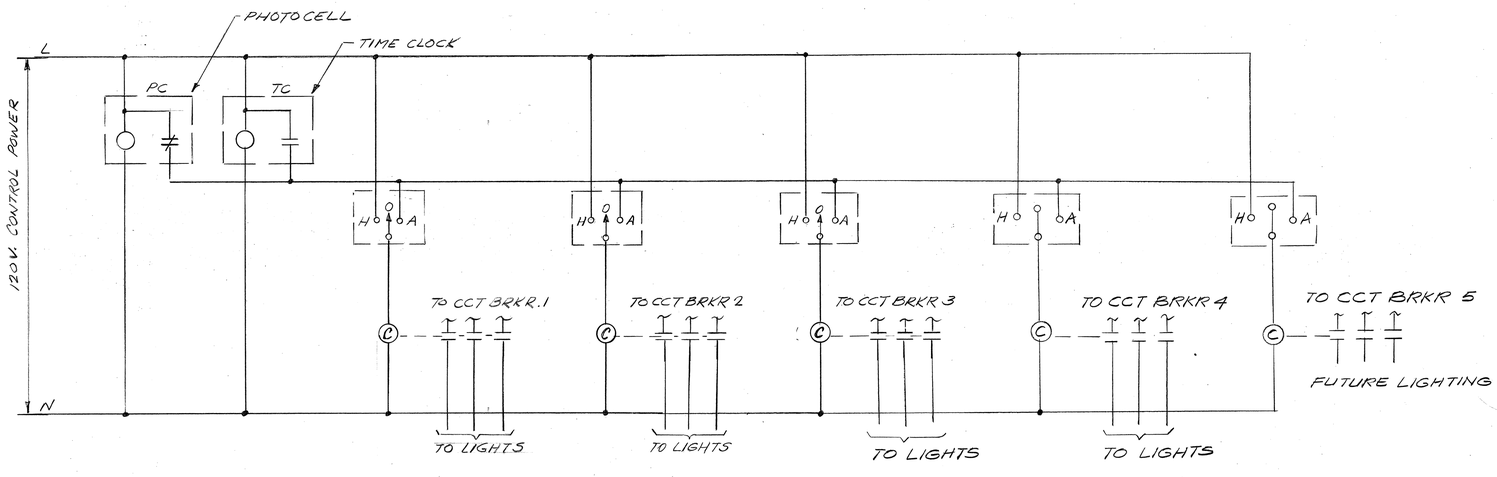
NOTES:

1. DISTURBED SOIL SHALL BE COMPACTED TO ORIGINAL DENSITY BEFORE PLACING PAD.

DET. 1 / E8
1/2" = 1'-0"



SUBSTATION SS4
SINGLE LINE DIAGRAM
N.T.S.



CONTROL SCHEMATIC
N.T.S.

NO.	DATE	REVISION
1	7-7-77	Revised Single Line Diagram and Control Schematic

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY LIGHTING
SUBSTATION SS4

AIRPORT INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(123)16

SCALE: AS NOTED DATE: 8-28-76

SHEET No. E-8 OF 12 SHEETS

EARL ROBERT ALLEN
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No. 3613
HAWAII, U.S.A.

Earl R. Allen
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PROFILE
SURVEYED
PLOTTED
GRIDS CHECKED
BLUE TOPS CHECKED
STRUCTURE NOTAT'NS CHK'D
NOTE BOOK NO.
BY
DATE

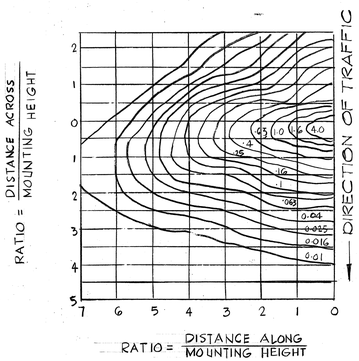
C0114

CONT. 6

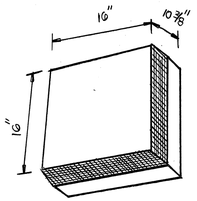
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(123)16	1976	115	444

TYPE R FIXTURE

MOUNTING HEIGHT : 30'
WATTAGE : 250W
LAMP : LU 250/BD, E-18 BULB
LUMENS @ INITIAL : 25,500 LUMENS



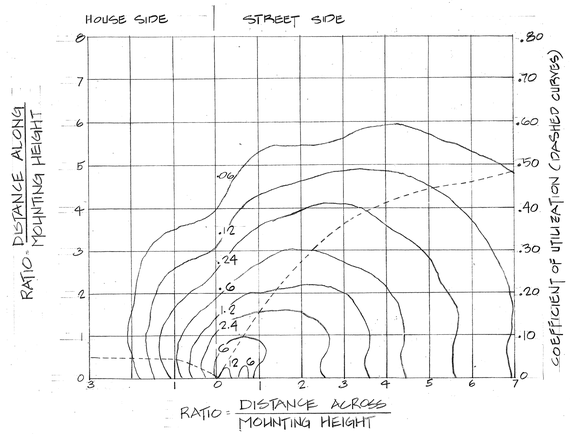
ISOFOOTCANDLE DIAGRAM



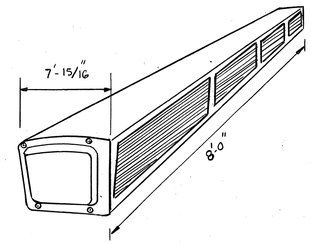
TYPE N FIXTURE

WALL MOUNTED LUMINAIRE

MOUNTING HEIGHT : 15'
WATTAGE : 250W
LAMP : LU - 250 (HPS)
LUMENS @ INITIAL : 30,000 LUMENS
SHIELDED ONE SIDE



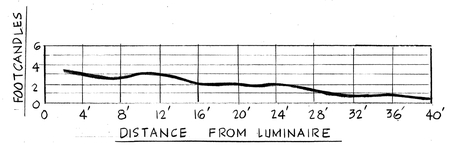
ISOFOOTCANDLE DIAGRAM



TYPE T2 FIXTURE

GUARDRAIL MOUNTING LUMINAIRE

MOUNTING HEIGHT : 33" TO CENTERLINE
WATTAGE : 430MA - 14.9W/FT
LAMP : FA96 - T12/CW/HO-30°

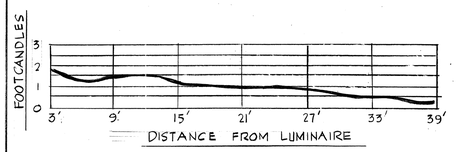


HORIZONTAL FOOTCANDLES ON PAVEMENT
FIXTURE WITH 430 MA BALLAST
CONTINUOUS ROW ON ONE SIDE.

TYPE T1 FIXTURE

GUARDRAIL MOUNTING LUMINAIRE

MOUNTING HEIGHT : 33" TO CENTERLINE
WATTAGE : 200MA - 6.9W/FT
LAMP : FA96 - T12/CW/HO-30°



HORIZONTAL FOOTCANDLES ON PAVEMENT
FIXTURES WITH 200 MA BALLAST
CONTINUOUS ROW ON ONE SIDE

NOTES:

1. CONTRACTOR, AT HIS OPTION, MAY REPLACE EXISTING LUMINAIRES, WITH NEW LUMINAIRES OR REPLACE BALLASTS, OPTICAL ASSEMBLIES AND LAMPS, WHICHEVER IS LESS EXPENSIVE.
2. IF EXISTING LUMINAIRES ARE REPLACED, RETURN EXISTING LUMINAIRES TO STATE OF HAWAII. IF PARTS ARE REPLACED, RETURN REMOVED PARTS TO STATE OF HAWAII.

DATE	REVISION
6-8-78	CHANGED LAMP & ISOCANDLE DIAGRAM FOR LUMINAIRE TYPE 'N' ADDED NOTES

EARL ROBERT ALLEN
REGISTERED PROFESSIONAL ENGINEER
No. 3613
HAWAII, U.S.A.

Earl R. Allen

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY LIGHTING DETAILS

AIRPORT INTERCHANGE
F.A.I. PROJ. NO. IHI-1(123)16

SCALE: NONE DATE: 8-28-76

SHEET No. E-9 OF 12 SHEETS

PROFILE	
SURVEYED	
PLOTTED	
GRADES CHECKED	
BLUE TOPED	
NOTE BOOK NO.	STRUCTURE NOTAT'NS CH'KD

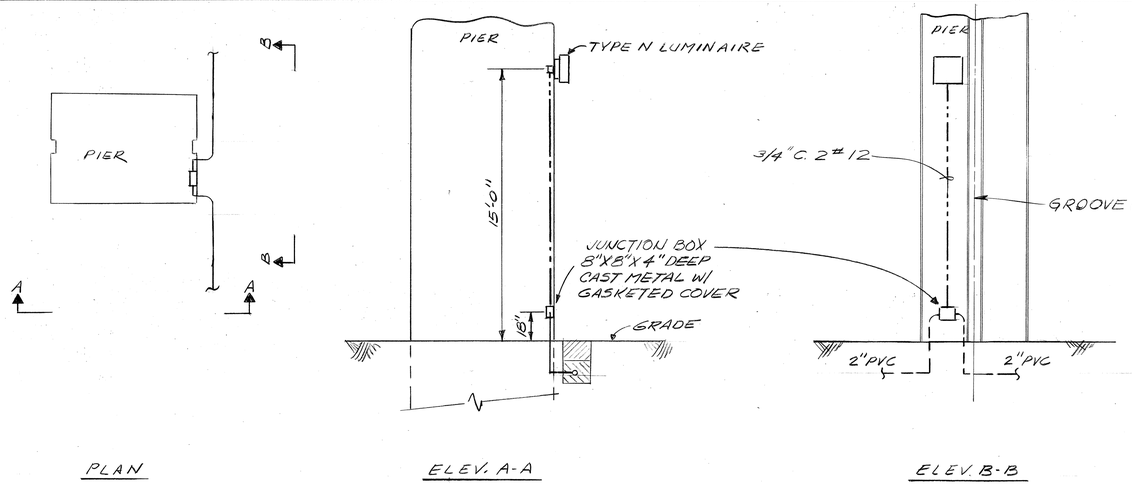
DATE	BY

C0115

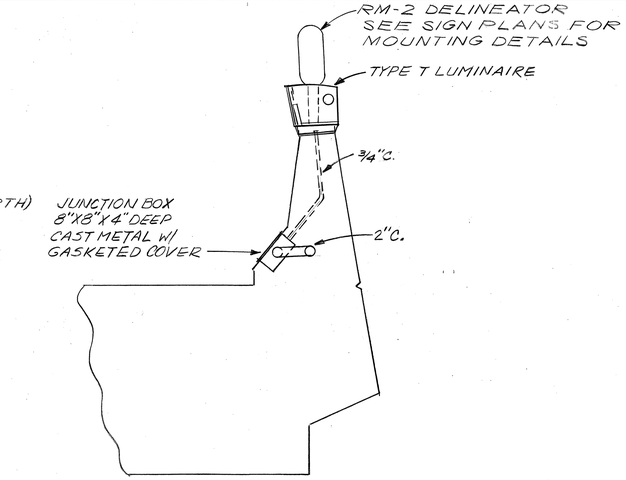
CONT 6

Recd from Dsn 11/5/76

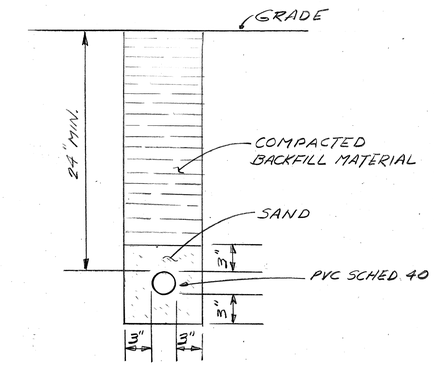
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(123)16	1976	116	444



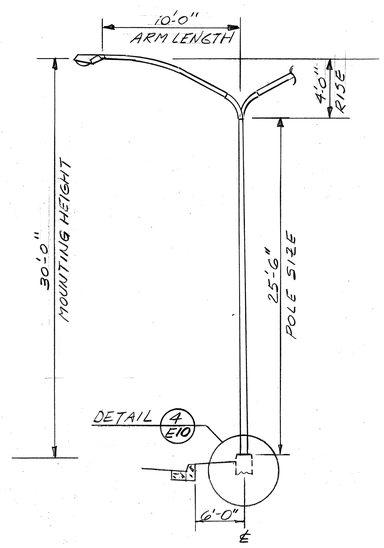
TYPE N FIXTURE MOUNTING DETAIL (1 / E10)
1/4" = 1'-0"



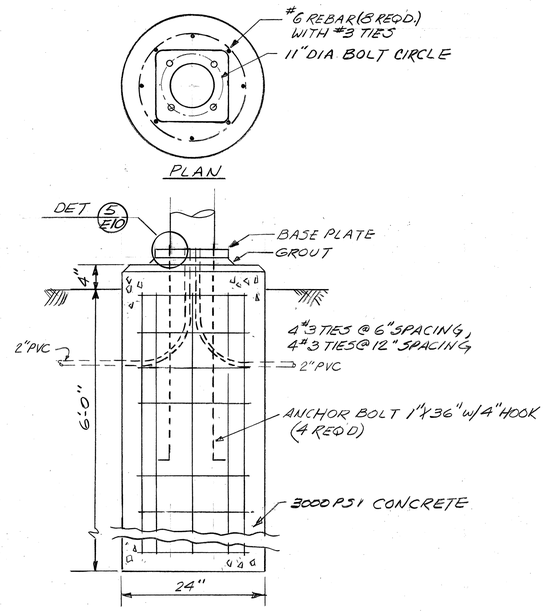
RAIL MOUNTED LIGHT DETAIL (2 / E10)
3/4" = 1'-0"



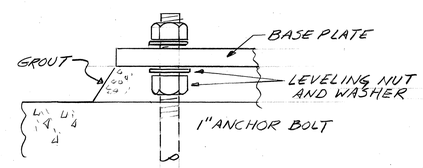
DIRECT BURIAL CONDUIT DETAIL (7 / E10)
1 1/2" = 1'-0"



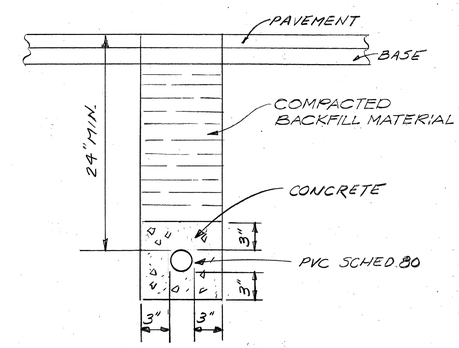
POLE DETAIL (3 / E10)
NOT TO SCALE



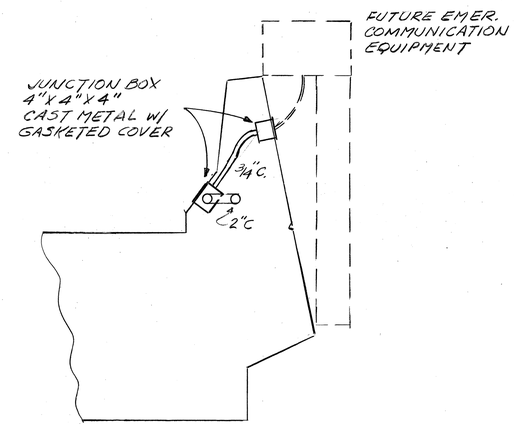
POLE BASE DETAIL (4 / E10)
1" = 1'-0"



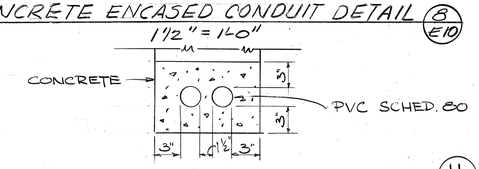
DETAIL (5 / E10)
3" = 1'-0"



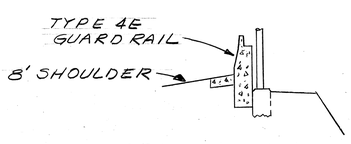
CONCRETE ENCASED CONDUIT DETAIL (8 / E10)
1 1/2" = 1'-0"



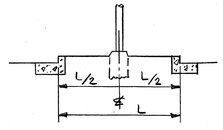
EMER. COMM. SYSTEM DETAIL (6 / E10)
3/4" = 1'-0"



CONCRETE ENCASED CONDUITS DETAIL (11 / E10)



POLE DETAIL (10 / E-10)
N.T.S.



POLE DETAIL (9 / E10)
N.T.S.

NO.	DATE	REVISION
1	10-6-78	Added Detail (11 / E10) Revised Detail (3 / E10)

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

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HIGHWAYS DIVISION

ROADWAY LIGHTING DETAILS

AIRPORT INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(123)16

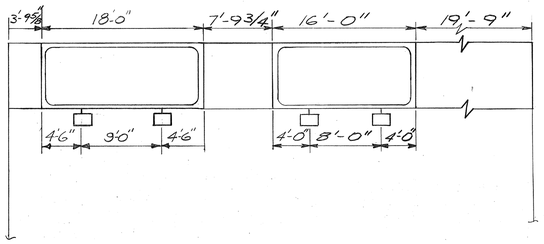
SCALE: AS SHOWN DATE: 8-28-76

SHEET No. E-10 OF 12 SHEETS

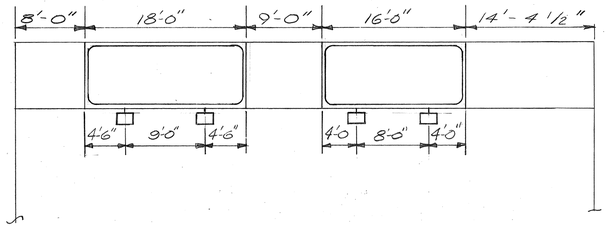
C0116

CONT 6

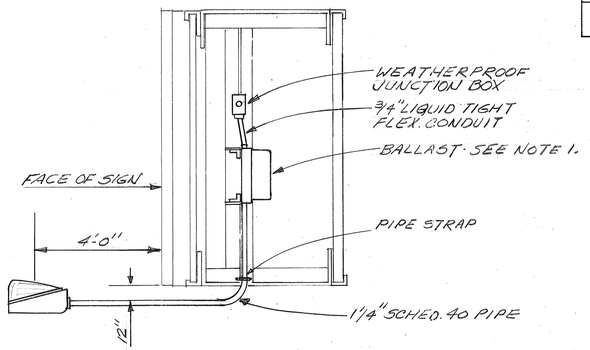
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(123)16	1976	117	444



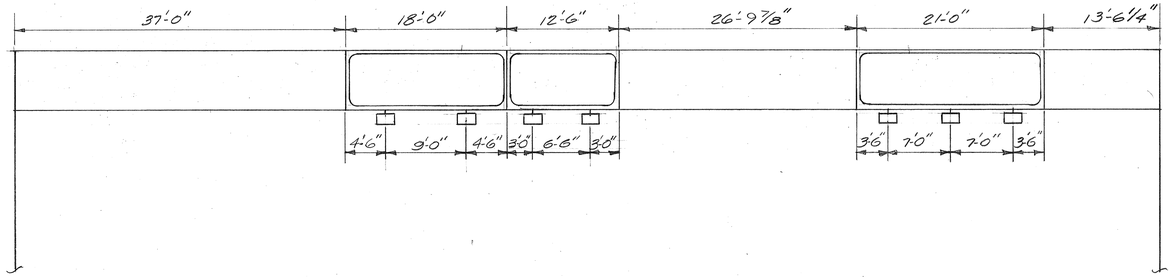
SIGN E14
1/8" = 1'-0"



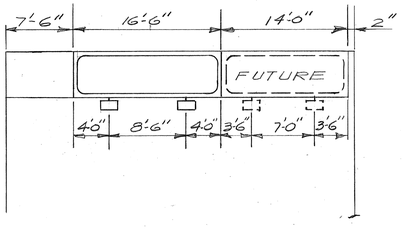
SIGN E15
1/8" = 1'-0"



LUMINAIRE MOUNTING
NOT TO SCALE



SIGN E16
1/8" = 1'-0"



SIGN E17
1/8" = 1'-0"

NOTES:

1. BALLASTS FOR SIGNS E14, E15 AND E16 TO BE FOR 277 V.; BALLASTS FOR SIGN E17 TO BE FOR 480 V.

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

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN LIGHTING

LAYOUT AND DETAILS

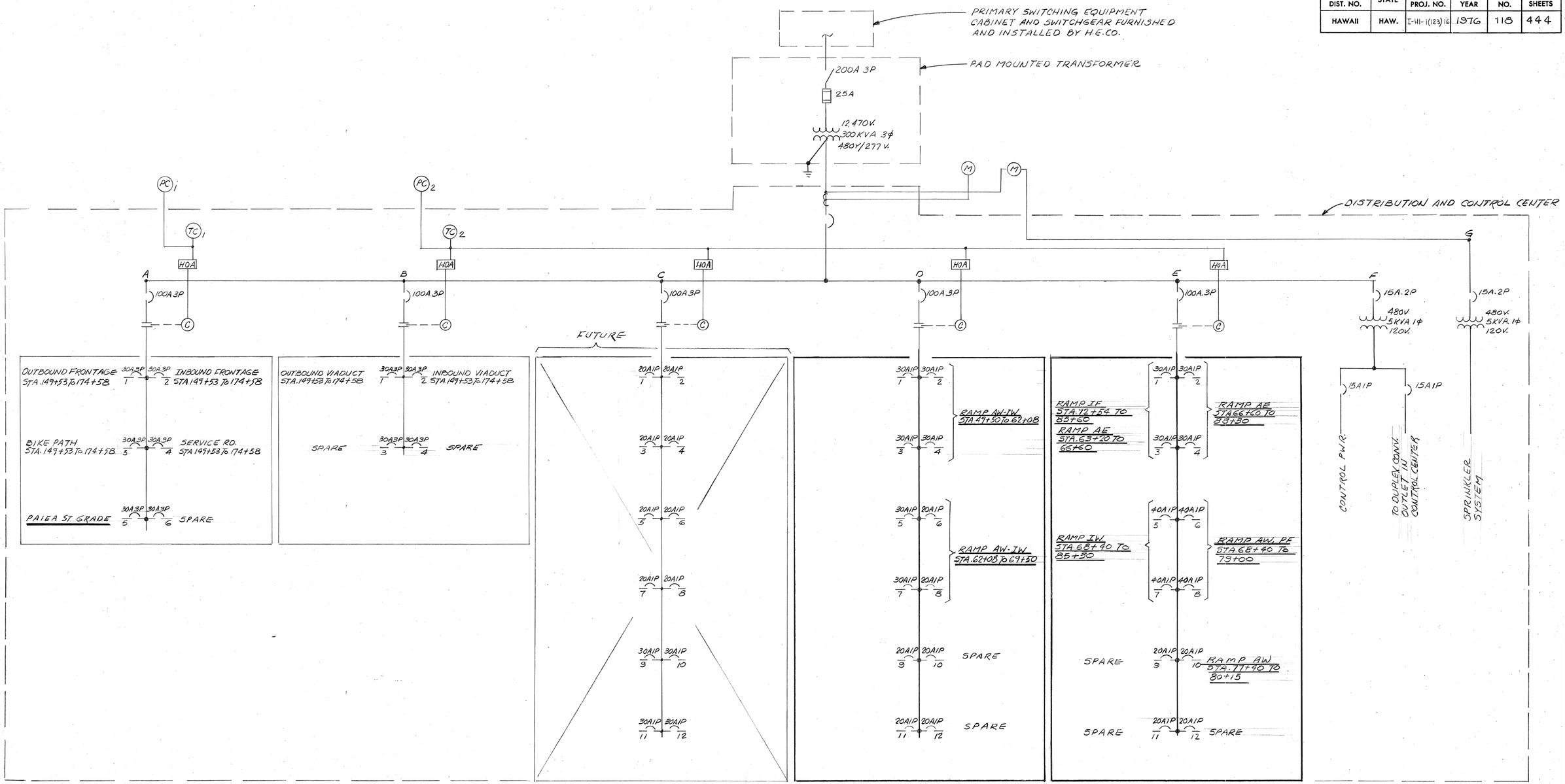
AIRPORT INTERCHANGE
F.A.I. PROJ. NO. I-HI-1(123)16

SCALE: AS SHOWN DATE: 8-28-76

SHEET No. E-11 OF 12 SHEETS

CONT. 6

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H1-1(123)16	1976	118	444



NOTES:

1. SUBSTA. SS2 IS EXISTING FROM A PREVIOUS CONTRACT. PANEL "D" AND PANEL "E" SHALL BE FURNISHED AND INSTALLED ON THIS CONTRACT. CIRCUITS INDICATED BY UNDERLINING SHALL BE INSTALLED ON THIS CONTRACT AS SHOWN ON THE PLANS.

CIRCUIT DESIGNATION SCHEME

CCT NO. SS2 - C3 (TYPICAL)

SUBSTATION

FEEDER

BRANCH CCT

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY LIGHTING
SUBSTATION SS2
ONE LINE DIAGRAM

AIRPORT INTERCHANGE
F.A. PROJ. NO. I-H1-1(123)16

SCALE: NONE DATE: 8-28-76

SHEET No. E-12 OF 12 SHEETS

CONT. 6