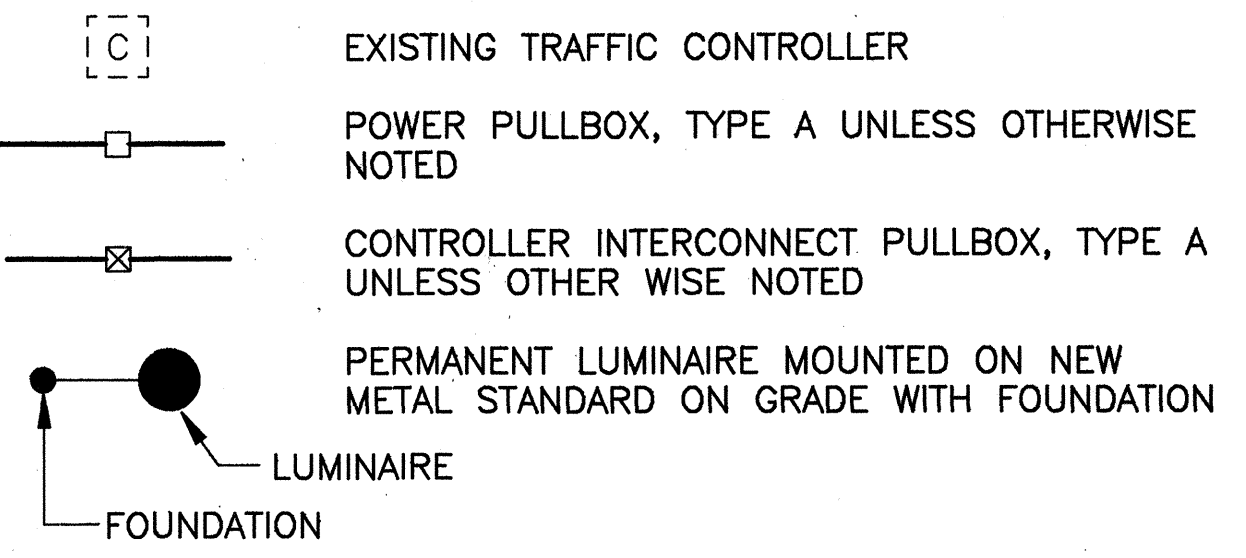
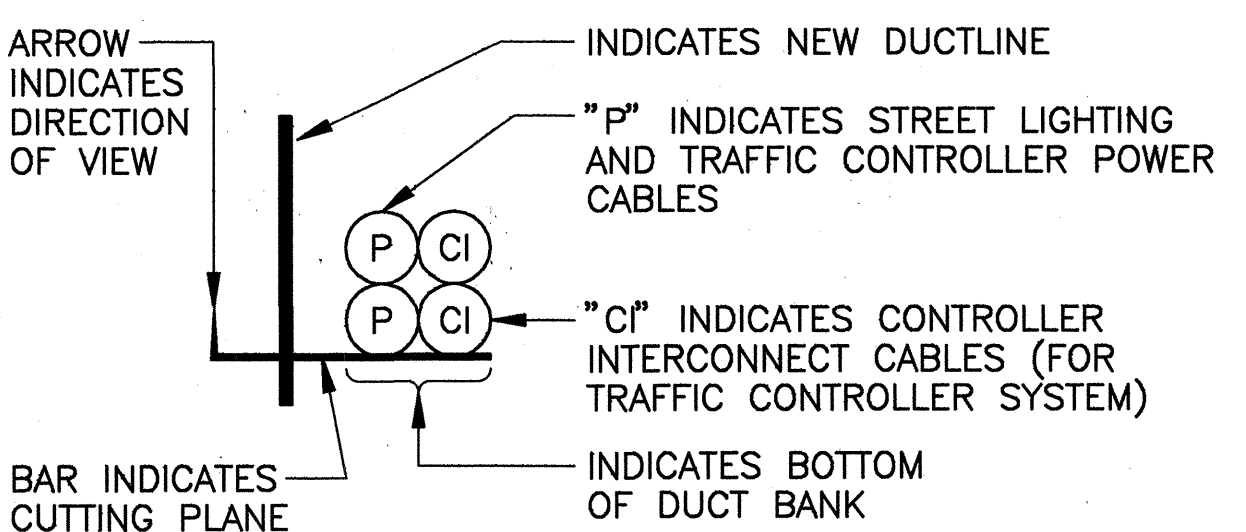


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	259	340

SYMBOLS AND LEGEND:



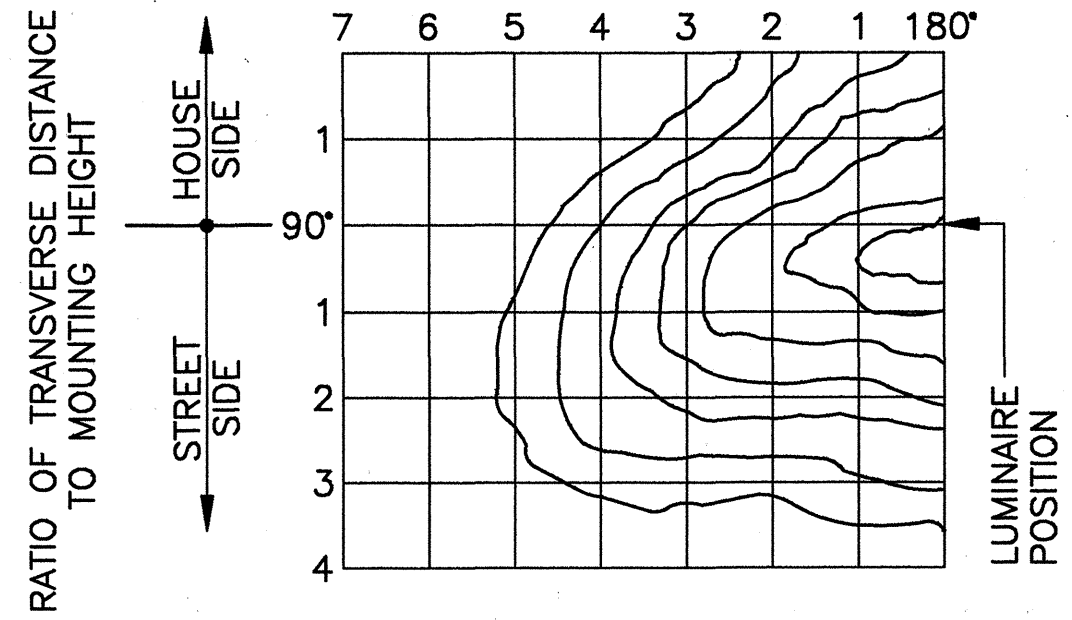
1	STA. 0+00	STATION & OFFSET
2	1	STREET LIGHT & POLE NUMBER
3	15	ARM SPAN IN FEET
4	39	LUMINAIRE HEIGHT FROM PAVEMENT FINISH GRADE - 39 FEET NOMINAL



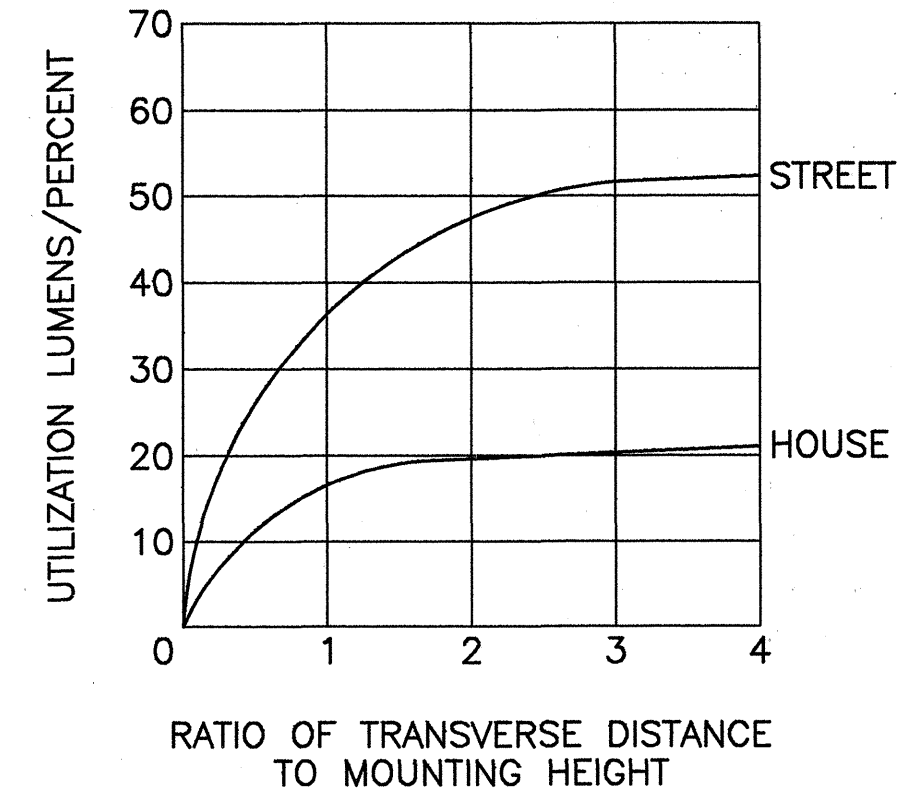
ABBREVIATIONS:

A	=	AMPS EXAMPLE: 40A = 40 AMPS
A.I.C.	=	AMPS INTERRUPTING CAPACITY
BC	=	BARE COPPER
BKR	=	BREAKER
C.I.	=	CONTROLLER INTERCONNECT
FC	=	FOOTCANDLE
GND	=	ELECTRICAL GROUND WIRE
K	=	X 1,000 EXAMPLE: 10K = 10,000
MTD	=	MOUNTED
N	=	SODIUM
N.E.C.	=	NATIONAL ELECTRIC CODE
O/H	=	OVERHEAD
PWR	=	POWER FOR STREET LIGHT OR TRAFFIC CONTROLLER
SVC	=	SERVICE
TYP	=	TYPICAL
U/G	=	UNDERGROUND
XFMR	=	TRANSFORMER

ISOFOOTCANDLE CURVES
RATIO OF LONGITUDINAL DISTANCE TO MOUNTING HEIGHT



UTILIZATION CURVE

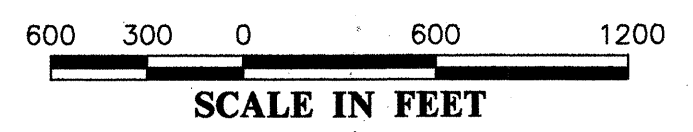
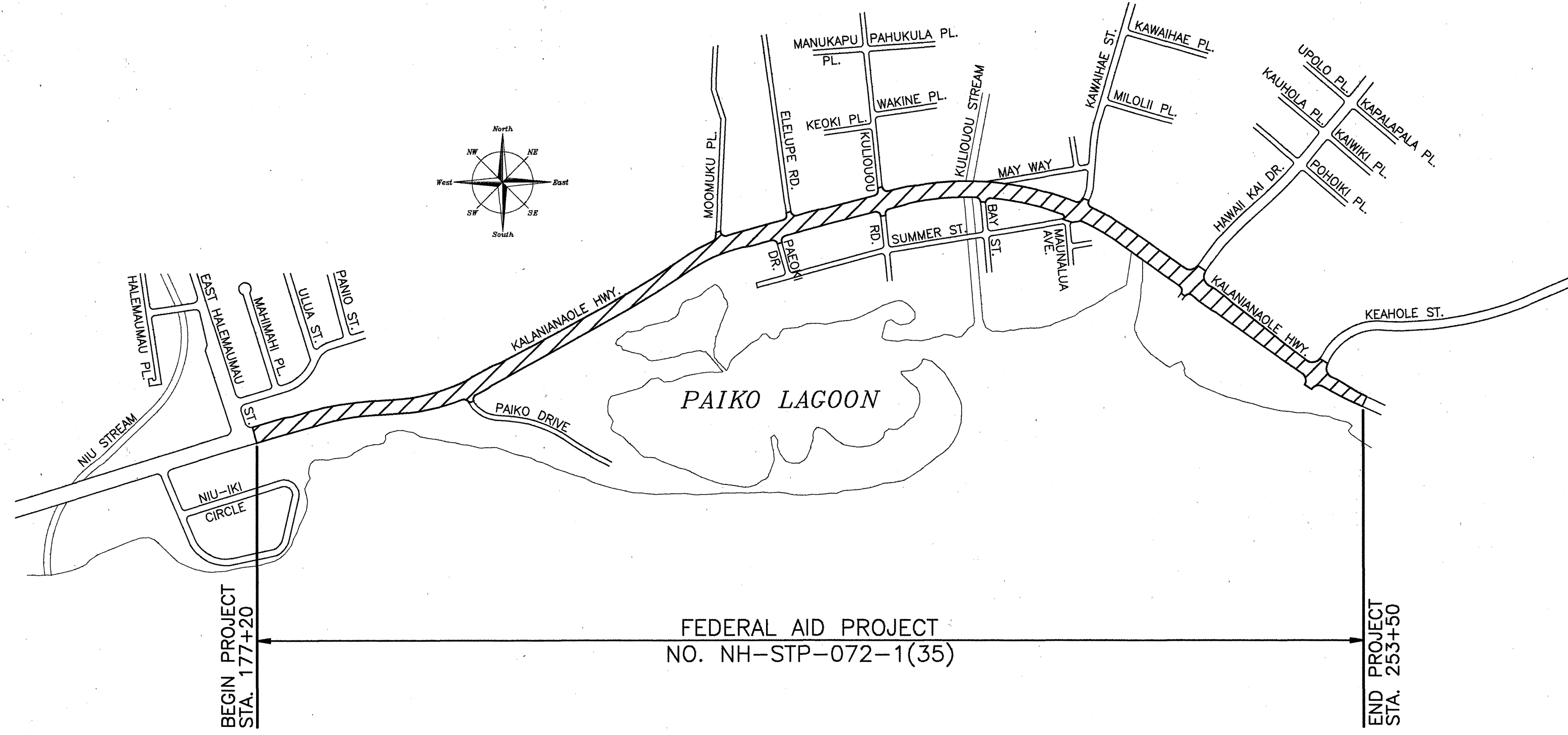


GENERAL NOTES:

- PAYMENT FOR ALL WORK RELATED TO STREET LIGHTING AND CONTROLLER INTERCONNECT CABLE SYSTEMS AND POWER SERVICE TO CONTROLLERS SHALL BE MADE UNDER "SECTION 622-HIGHWAY LIGHTING SYSTEM" AND "SECTION 623-TRAFFIC SIGNAL SYSTEM".
- THE STREET LIGHTING CONCRETE FOUNDATION SHALL BE CONSTRUCTED AND INSTALLED AGAINST THE HIGHWAY RIGHT-OF-WAY LINE.
- ALL STREET LIGHTING AND CONTROLLER INTERCONNECT DUCTS TO BE 2 INCH PVC DUCTS ENCASED IN A 3 INCH MINIMUM CLASS 3 CONCRETE JACKET.
- ALL LUMINAIRES TO BE 250 WATT HIGH PRESSURE SODIUM LUMINAIRES.
- CONTRACTOR TO SUBMIT COMPUTERIZED POINT TO POINT FC LEVEL FOR APPROVAL.
- EXISTING LUMINAIRES WILL NOT BE REMOVED OR DE-ENERGIZED UNTIL IT'S REPLACEMENT LUMINAIRE IS PLACED IN SERVICE.
- EXISTING ARMS, LUMINAIRES, AERIAL CABLES AND APPURTENANCES SHALL BE FULLY DISMANTLED AND STOCK PILED AS DIRECTED BY THE ENGINEER. EXISTING PULLBOXES AND POLE FOOTINGS OR FOUNDATIONS SHALL BE REMOVED AND BE DISPOSED OF BY THE CONTRACTOR.
- WHEN INSTALLING THE CONTROLLER INTERCONNECT CABLES, THE MESSENGER WIRE SHALL BE STRIPPED FROM THE CABLE WITHOUT DAMAGING THE INSULATION JACKET OF THE COMMUNICATION WIRES.
- INSTALL 2-2" PVC DUCTS FROM PPB INTO EPB AS SHOWN ON THE PLAN SHEETS. COORDINATE ELECTRICAL CONNECTIONS WITH HECO.
- FOR STREET LIGHTS WITH MAST ARM FOR TRAFFIC SIGNALS REFER TO STANDARD PLAN TE-42.

PERMANENT STREET LIGHTING CRITERIA:

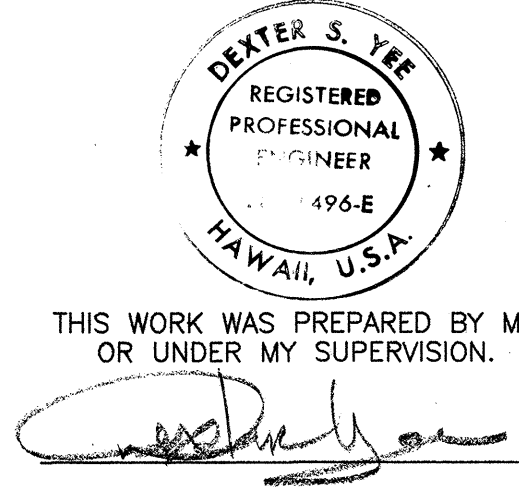
- ILLUMINATION LEVELS: MINIMUM 1.0 FC AVE. MAINTAINED
ROADWAY: 1.0 FC
BIKELANE: 0.5 FC
SIDEWALK: 0.4 FC
- UNIFORMITY RATIO (AVE./MIN.) MAX. 4 TO 1
(NOT REQUIRED IN PRIVATE PROPERTY)
- MAINTENANCE FACTOR: 0.76



STREET LIGHTING AND CONTROLLER INTERCONNECT LAYOUT PLAN

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

APPROVED: _____
HAWAIIAN ELECTRIC COMPANY, _____ DATE _____



6/30/93 C.O.#1
DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**STREET LIGHTING AND CONTROLLER
INTERCONNECT LAYOUT PLAN AND
GENERAL NOTES**

KALANIANAOLE HIGHWAY WIDENING
EAST HALEMAUMAU ST. TO KEAHOE ST.
F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1"=600' DATE: 10/1/92
SHEET No. E-37 OF 62 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	260	340

EAST HALEMAUMAU STREET

BEGIN PROJECT

"A" STA. 177+20
"C" STA. 177+20

1	"A" STA. 177+22
2	1
3	15
4	39

1	"A" STA. 178+82
2	3
3	15
4	39

1	"A" STA. 180+45
2	5
3	10
4	39

P.O.B. STA. 177+20

P.O.B. STA. 177+20

1	"C" STA. 177+22
2	2
3	15
4	39

1	"C" STA. 178+83
2	4
3	15
4	39

1	"C" STA. 180+11
2	6
3	15
4	39

5783
TMK:3-7-02:19

5789
TMK:3-7-02:21

5795
TMK:3-7-02:16

5797
TMK:3-7-02:75

MATCH LINE @ STA. 182+00

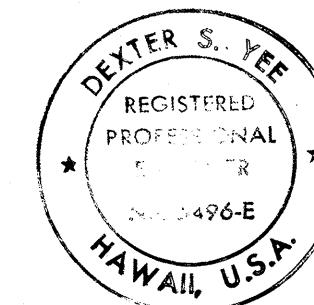
TRUE NORTH
SCALE: 1"=20'

APPROVED:

HAWAIIAN ELECTRIC COMPANY, DATE

SCALE IN FEET:

20' 10' 0' 20' 40'



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OR UNDER MY SUPERVISION.

DATE	REVISION
6/30/93	C.O.#1

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**STREET LIGHTING AND
CONTROLLER INTERCONNECT PLAN**

KALANIANA'OLE HIGHWAY WIDENING
EAST HALEMAUMAU ST. TO KEAHOE ST.
F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1"=20' DATE: 10/1/92

SHEET No. E-38 OF 62 SHEETS

C.O. 260

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	261	240

5858
TMK:3-7-11:01

5856
TMK:3-7-11:02

5850
TMK:3-7-11:03

5848
TMK:3-7-11:04

5838
TMK:3-7-11:05

5830
TMK:3-7-11:06

5846C
TMK:3-7-11:07

1	E "A" STA. 183+05
2	9
3	10
4	39

1	E "A" STA. 185+21
2	11
3	10
4	39

1	E "A" STA. 186+72
2	13
3	10
4	39

1	E "C" STA. 186+95
2	14
3	10
4	39

1	E "C" STA. 185+10
2	12
3	10
4	39

1	E "C" STA. 183+44
2	10
3	11
4	39

1	E "C" STA. 182+03
2	8
3	15
4	39

1	E "A" STA. 182+09
2	7
3	10
4	39

SWITCH PAD

MATCH LINE @ STA. 182+00

MATCH LINE @ STA. 188+00

TRUE NORTH
SCALE: 1"=20'

5847, 5849, & 5849A
TMK:3-7-02:79 & 3-7-02:17

5847

5843
TMK:3-7-02:76

5839
TMK:3-7-02:18

5827A
TMK:3-7-02:02

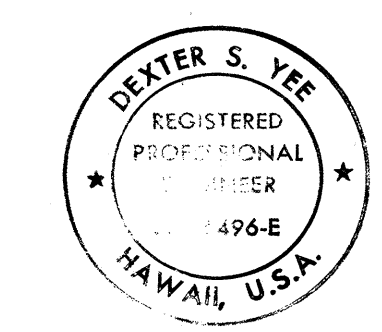
5823
TMK:3-7-02:78

5815
TMK:3-7-02:03

5811
TMK:3-7-02:04

5799
TMK:3-7-02:05

APPROVED:
HAWAIIAN ELECTRIC COMPANY, DATE



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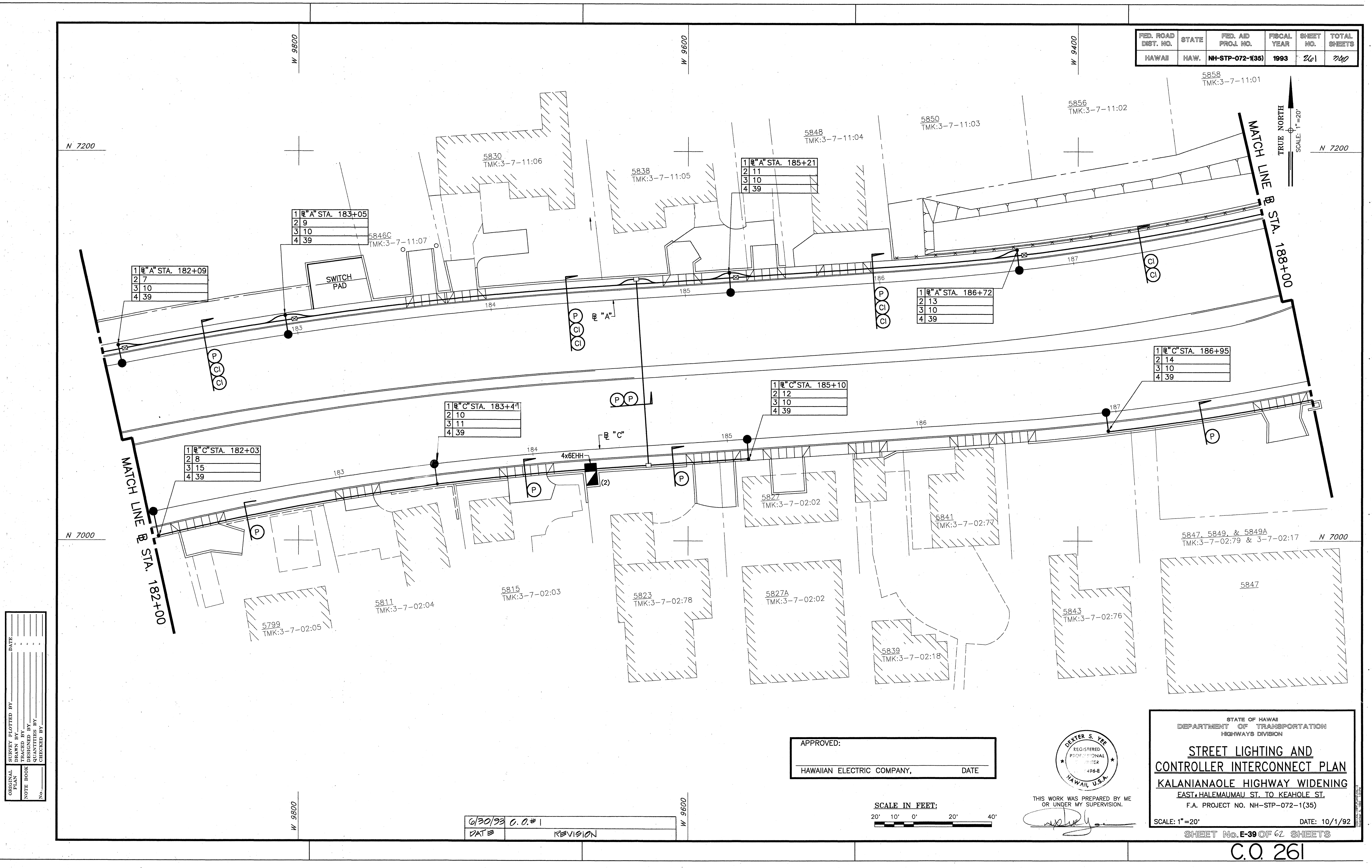
SCALE IN FEET:
20' 10' 0' 20' 40'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**STREET LIGHTING AND
CONTROLLER INTERCONNECT PLAN**
KALANIANA'OLE HIGHWAY WIDENING
EAST HALEMAUMAU ST. TO KEAHOE ST.
F.A. PROJECT NO. NH-STP-072-1(35)
SCALE: 1"=20' DATE: 10/1/92
SHEET No. E-39 OF 62 SHEETS

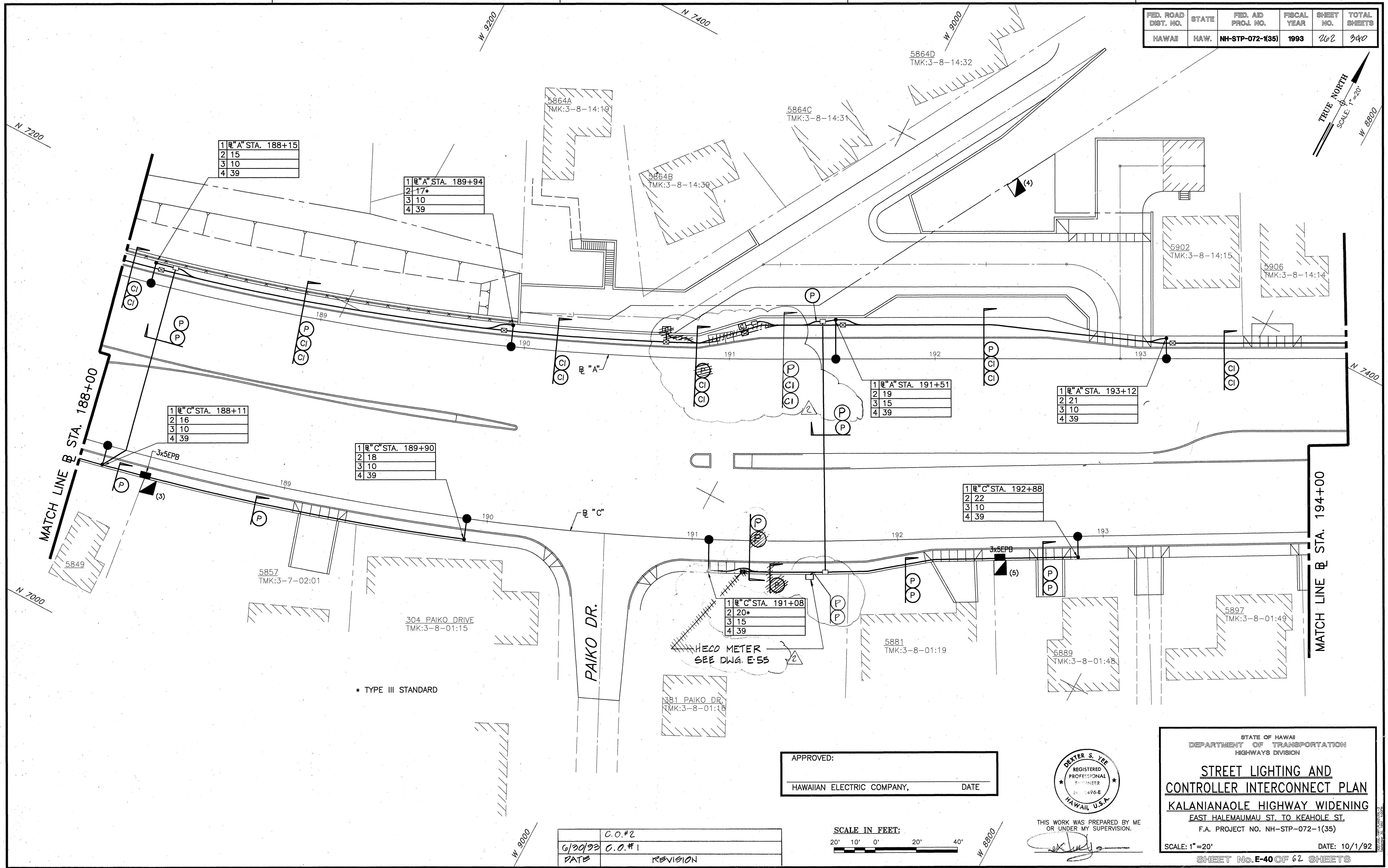
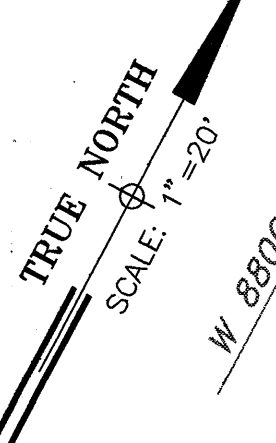
C.O. 261

6/30/93	C.O.#1
DATE	REVISION

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



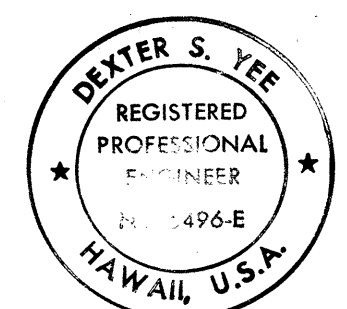
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	262	340



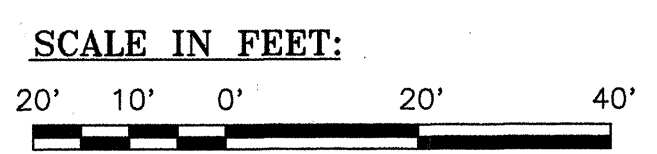
SURVEY PLOTTED BY	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	
NO.	

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HAWAIIAN ELECTRIC COMPANY, DATE



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C.O.#2	
6/30/93	C.O.#1
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

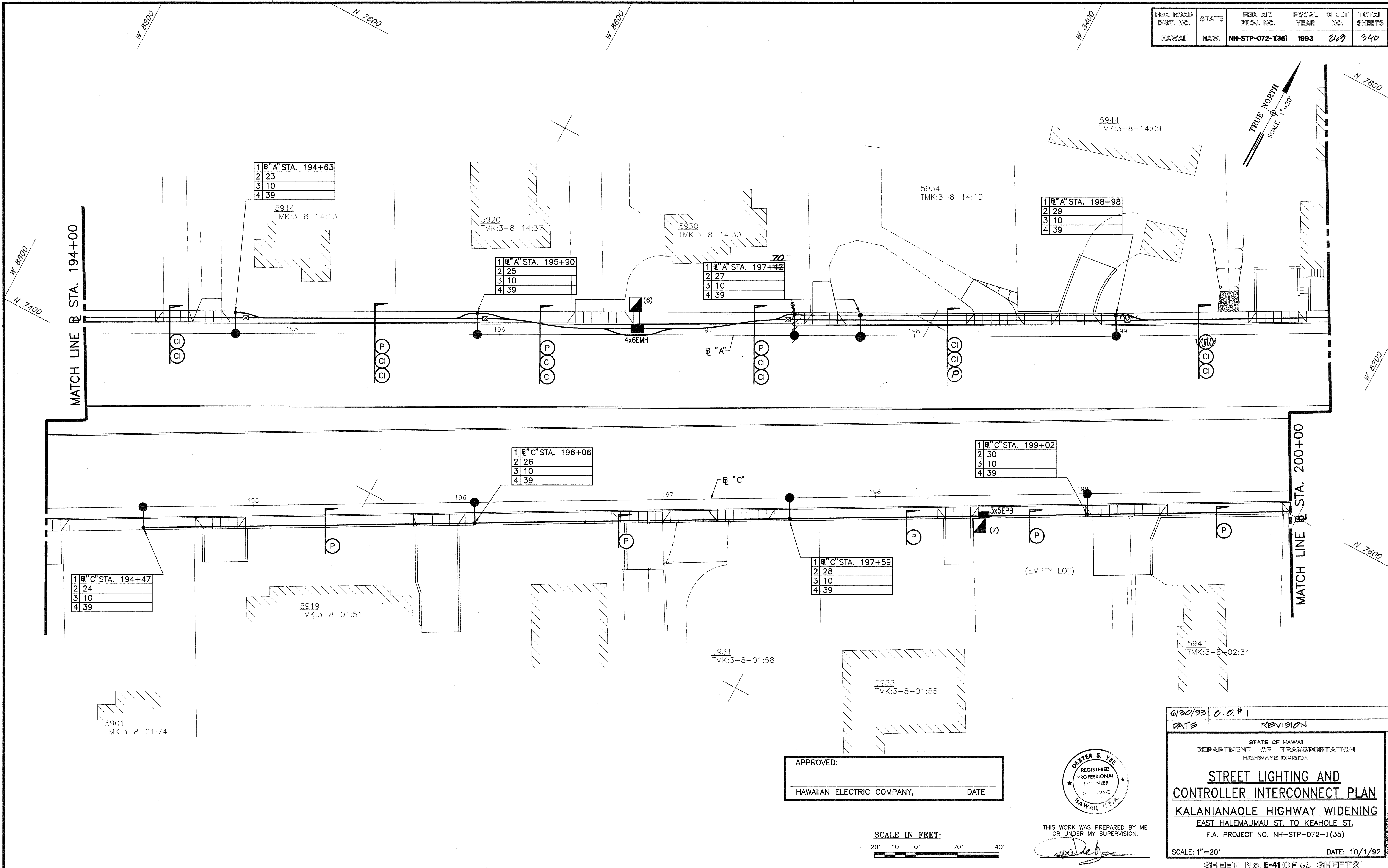
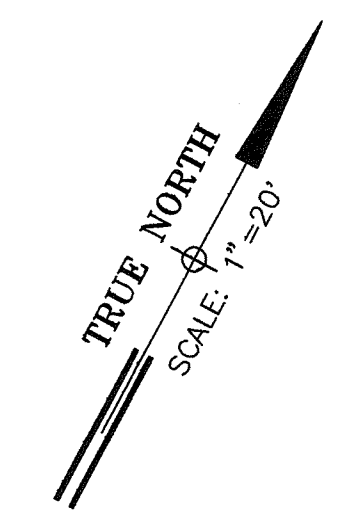
**STREET LIGHTING AND
CONTROLLER INTERCONNECT PLAN**

KALANIANA'OLE HIGHWAY WIDENING
EAST HALEMAUMAU ST. TO KEAHOE ST.
F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1"=20' DATE: 10/1/92

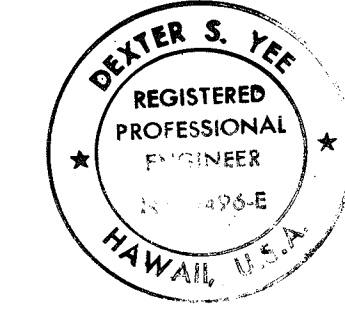
SHEET No. E-40 OF 62 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	267	340

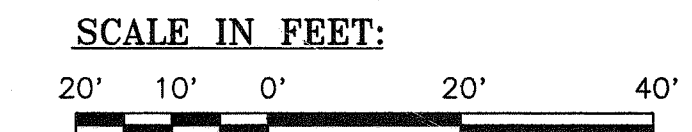


ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NO.	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

APPROVED: _____
HAWAIIAN ELECTRIC COMPANY, _____ DATE _____



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6/30/93	C.O.#1
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
STREET LIGHTING AND CONTROLLER INTERCONNECT PLAN	
KALANIANA'OLE HIGHWAY WIDENING	
EAST HALEMAUMAU ST. TO KEAHOE ST.	
F.A. PROJECT NO. NH-STP-072-1(35)	
SCALE: 1"=20'	DATE: 10/1/92
SHEET No. E-41 OF 62 SHEETS	

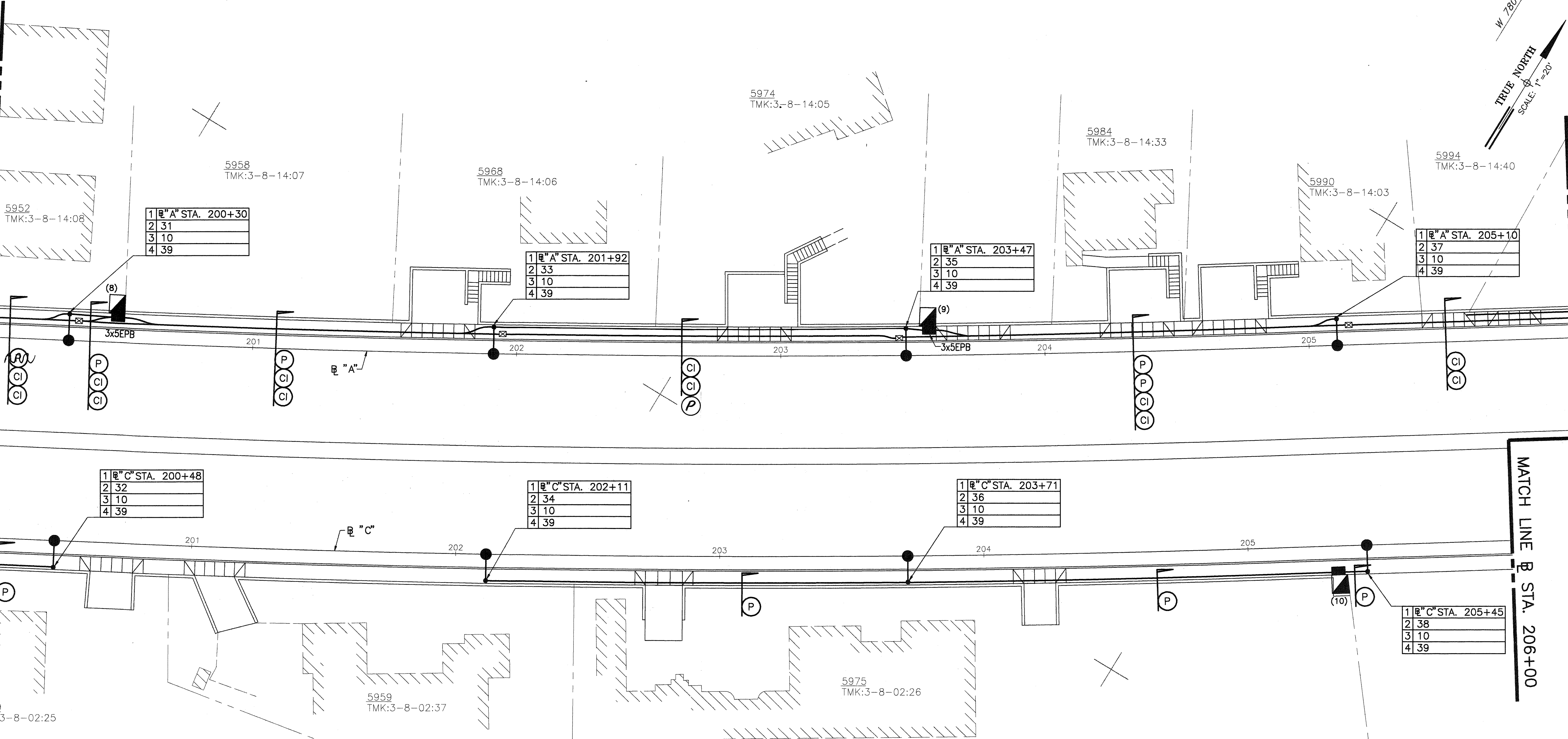
"AS-BUILT"

C.O. 263

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	264	340

MATCH LINE @ STA. 200+00

MATCH LINE @ STA. 206+00



1	10" A" STA. 200+30
2	31
3	10
4	39

1	10" A" STA. 201+92
2	33
3	10
4	39

1	10" A" STA. 203+47
2	35
3	10
4	39

1	10" A" STA. 205+10
2	37
3	10
4	39

1	10" C" STA. 200+48
2	32
3	10
4	39

1	10" C" STA. 202+11
2	34
3	10
4	39

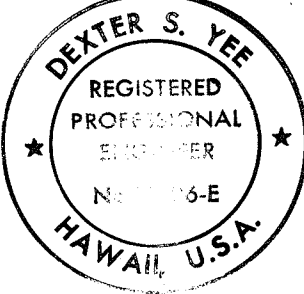
1	10" C" STA. 203+71
2	36
3	10
4	39

1	10" C" STA. 205+45
2	38
3	10
4	39

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

APPROVED:

HAWAIIAN ELECTRIC COMPANY, DATE



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6/30/93	C.O.#1
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**STREET LIGHTING AND
CONTROLLER INTERCONNECT PLAN**

KALANIANA'OLE HIGHWAY WIDENING
EAST HALEMAUMAU ST. TO KEAHOE ST.
F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1"=20' DATE: 10/1/92

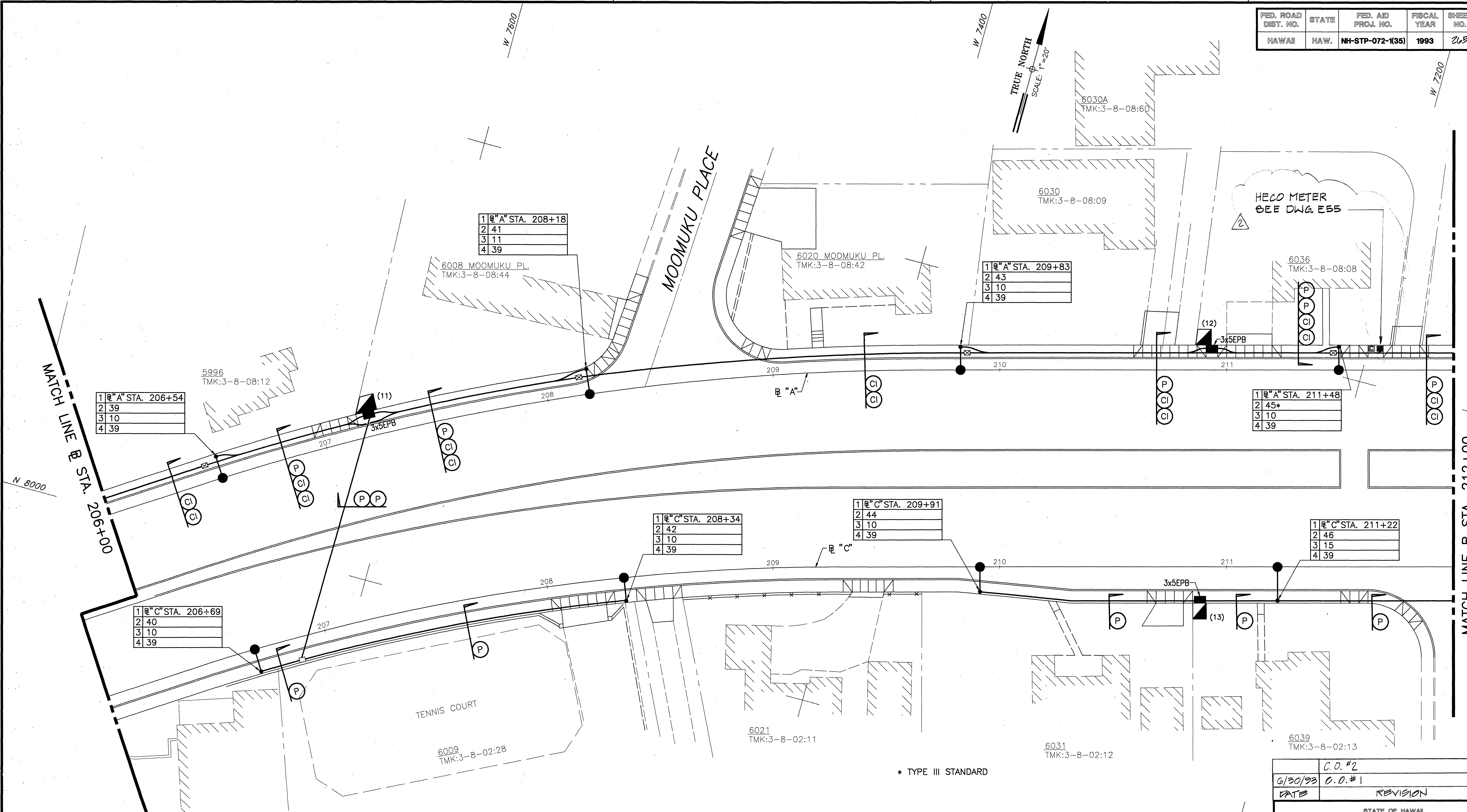
SHEET No. E-42 OF 62 SHEETS

"AS-BUILT"

C.O. 264

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	265	240

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



APPROVED:

HAWAIIAN ELECTRIC COMPANY,
DATE



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C.O. #2

G/30/93

DATE

C.O. #1

REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHTING AND
CONTROLLER INTERCONNECT PLAN

KALANIANA'OLE HIGHWAY WIDENING

EAST HALEMAUMAU ST. TO KEAHOLE ST.

F.A. PROJECT NO. NH-STP-072-1(35)

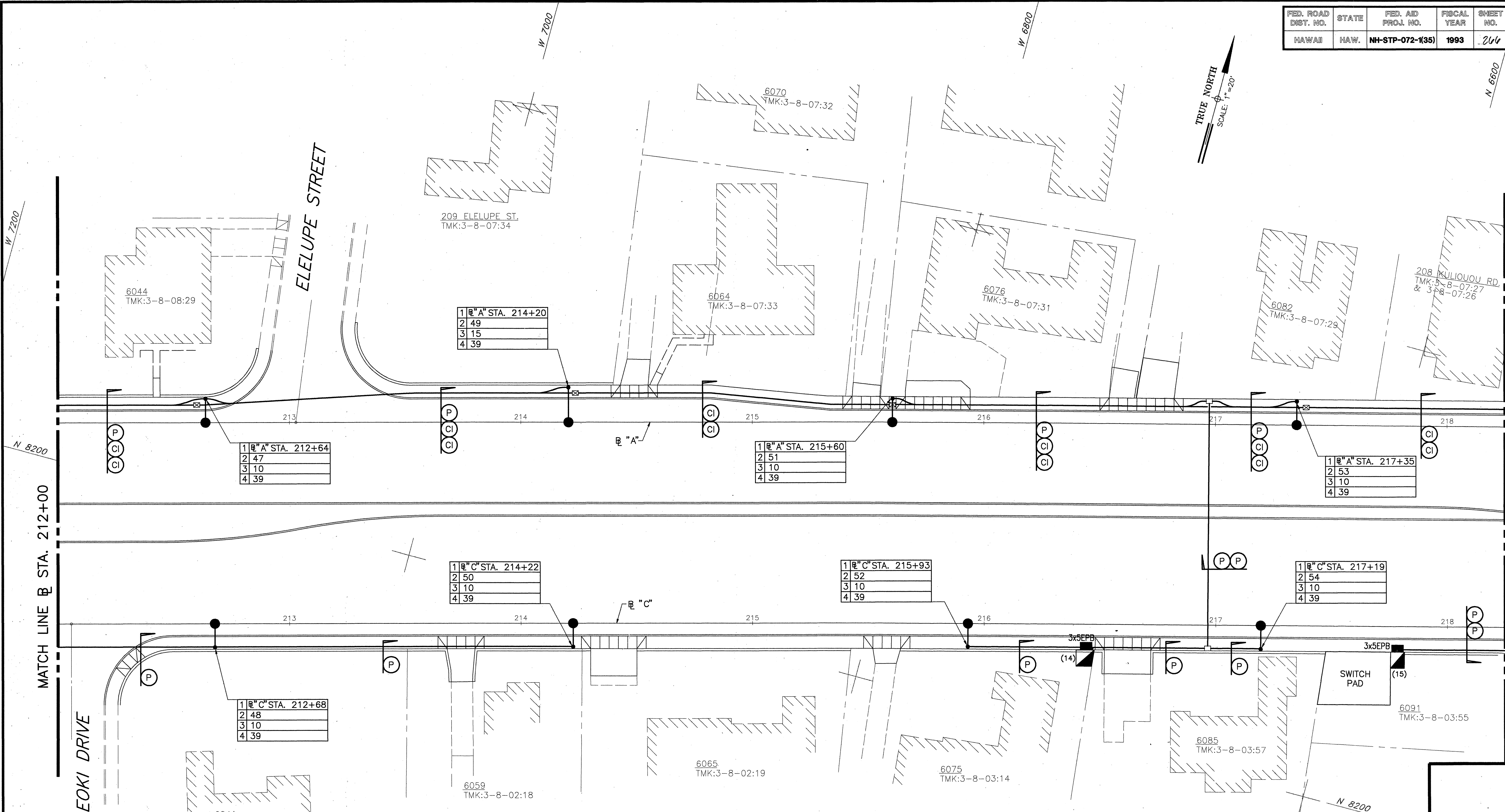
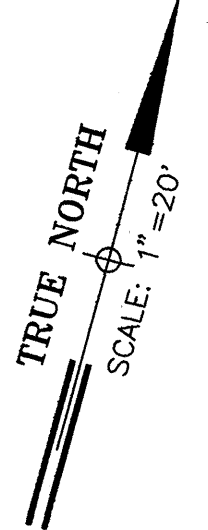
SCALE: 1"=20'

DATE: 10/1/92

SHEET No. E-43 OF 62 SHEETS

C.O. 265

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	266	240

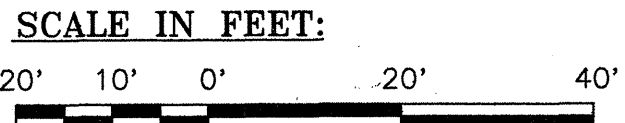


ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

APPROVED:
HAWAIIAN ELECTRIC COMPANY, DATE



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6/30/93	O.O.#1
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**STREET LIGHTING AND
CONTROLLER INTERCONNECT PLAN**

KALANIANA'OLE HIGHWAY WIDENING

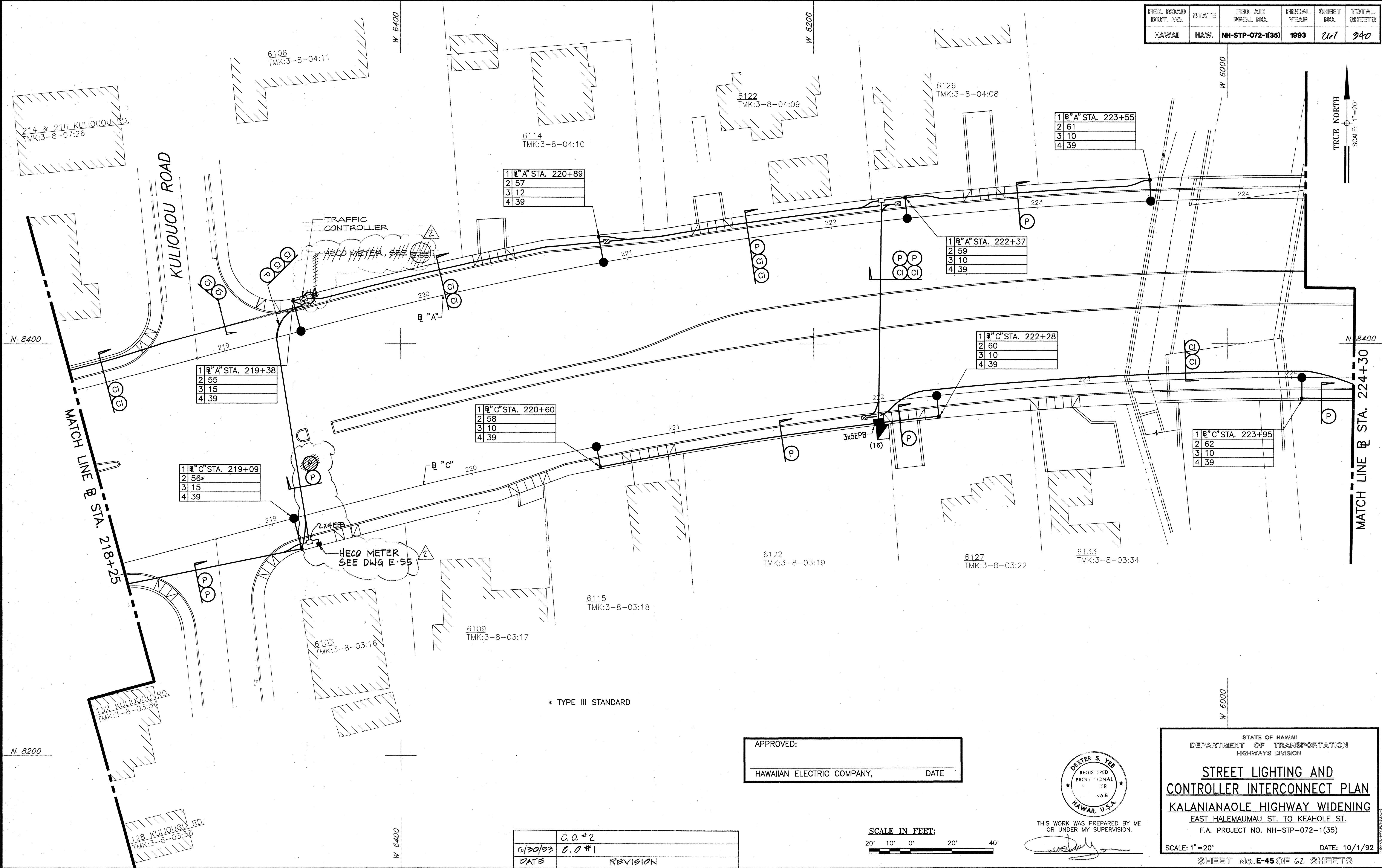
EAST HALEMAUMAU ST. TO KEAHOE ST.
F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1"=20' DATE: 10/1/92

SHEET No. E-44 OF 62 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	67	240

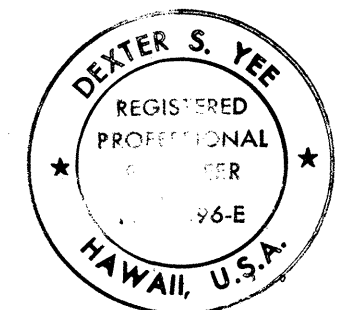
TRUE NORTH
SCALE: 1"=20'



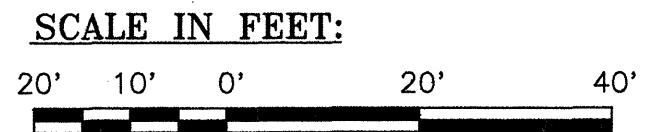
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	TRACED BY	
	QUANTITIES BY	
	CHECKED BY	

* TYPE III STANDARD

APPROVED:
HAWAIIAN ELECTRIC COMPANY, DATE



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6/30/93	C.O. #1
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**STREET LIGHTING AND
CONTROLLER INTERCONNECT PLAN**

KALANIANA'OLE HIGHWAY WIDENING

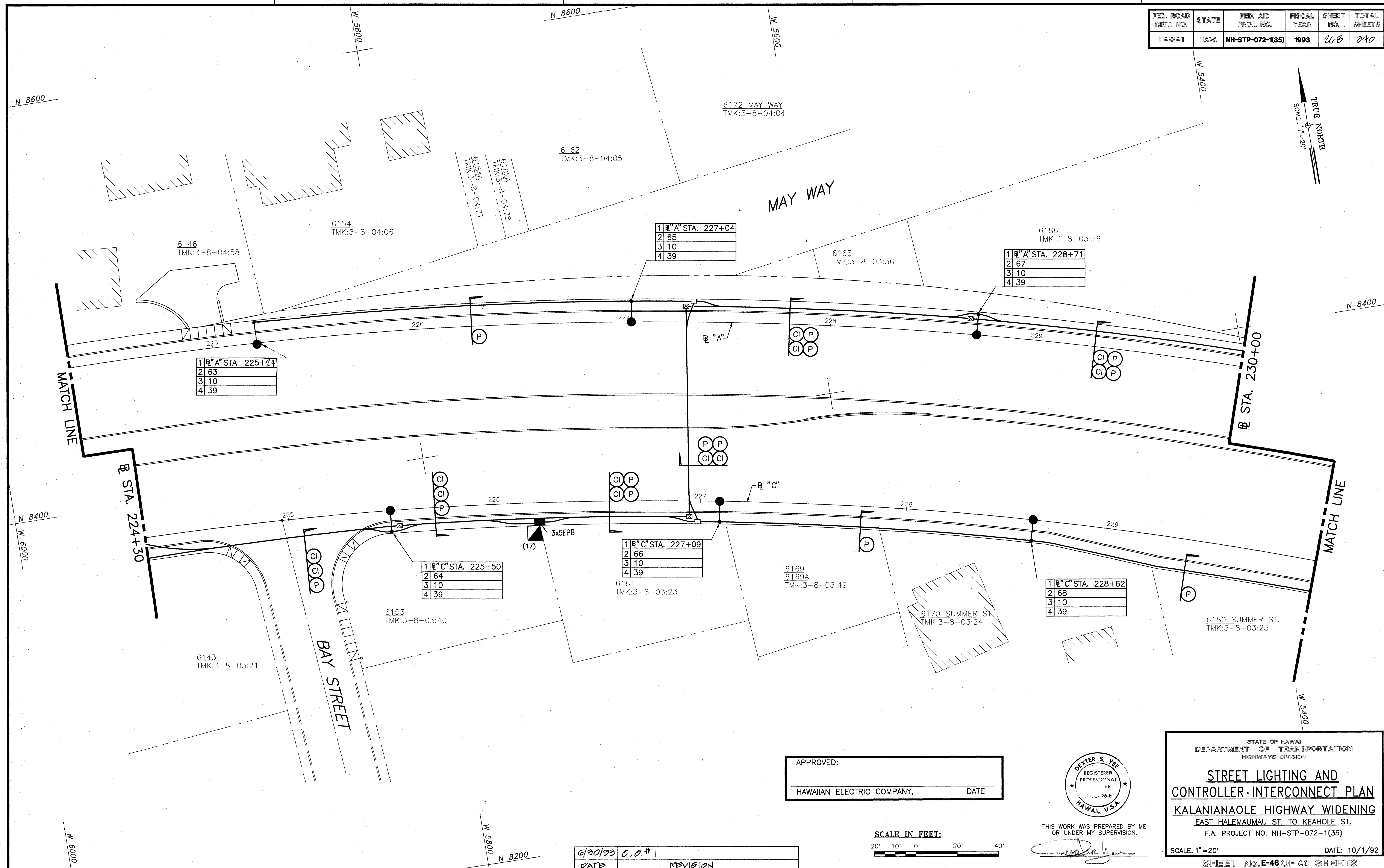
EAST HALEMAUMAU ST. TO KEAHOE ST.
F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1"=20' DATE: 10/1/92
SHEET NO. E-45 OF 62 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	268	340

TRUE NORTH

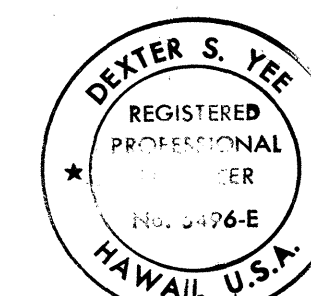
SCALE: 1"=20'



ORIGINAL PLAN _____
 NOTE BOOK _____
 No. _____

APPROVED:

HAWAIIAN ELECTRIC COMPANY, DATE



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHTING AND
CONTROLLER-INTERCONNECT PLAN

KALANIPAOLE HIGHWAY WIDENING
EAST HALEMAUMAU ST. TO KEAHOE ST.

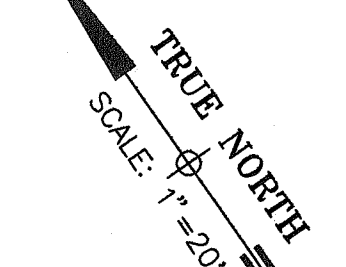
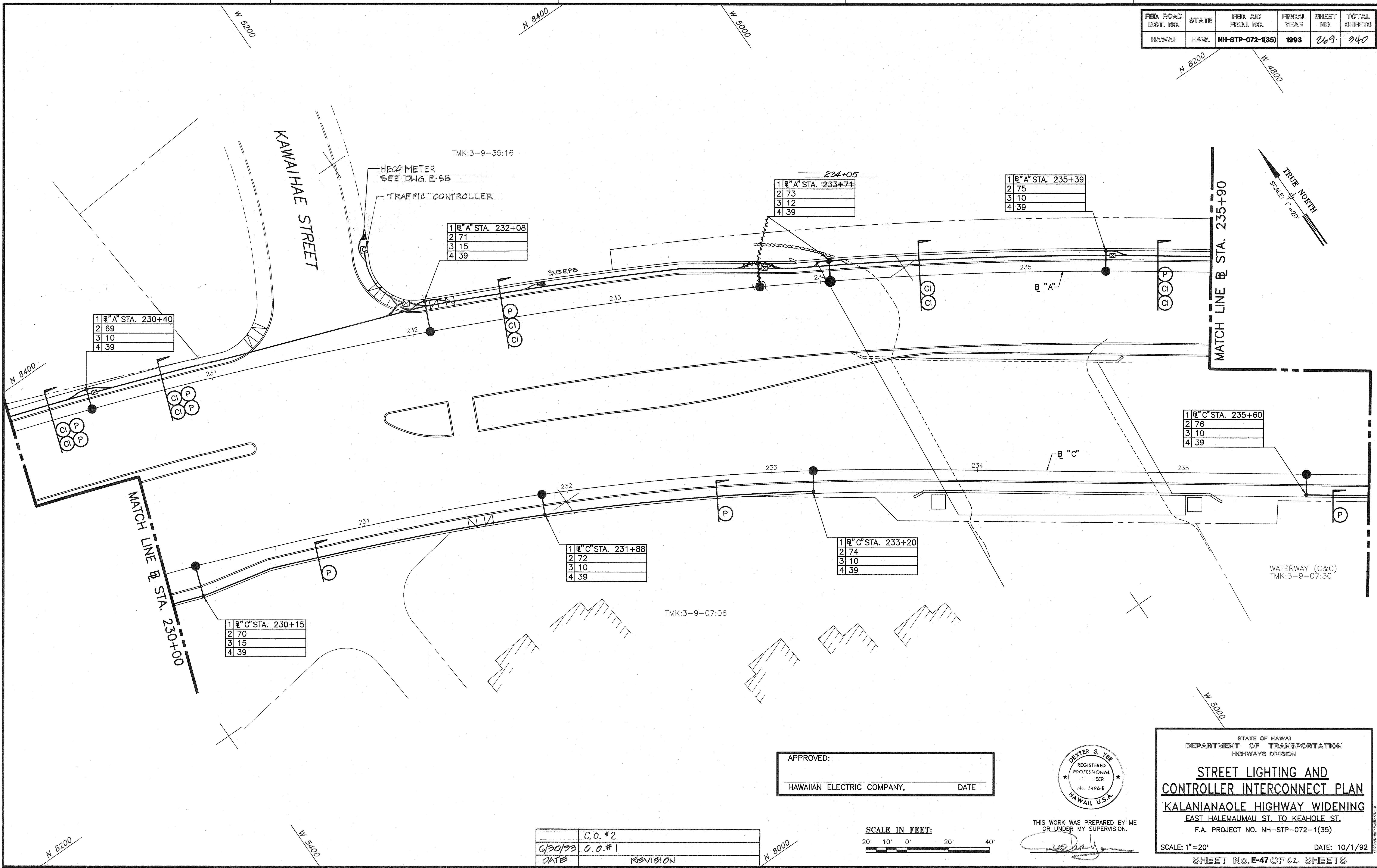
F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1" = 20' DATE: 10/1/92

SHEET No. **E-46** OF 62 SHEETS

C.O. 268

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	269	340



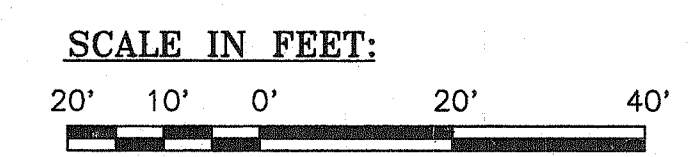
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

APPROVED:

HAWAIIAN ELECTRIC COMPANY, DATE



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C.O. #2
6/30/93 C.O. #1
DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

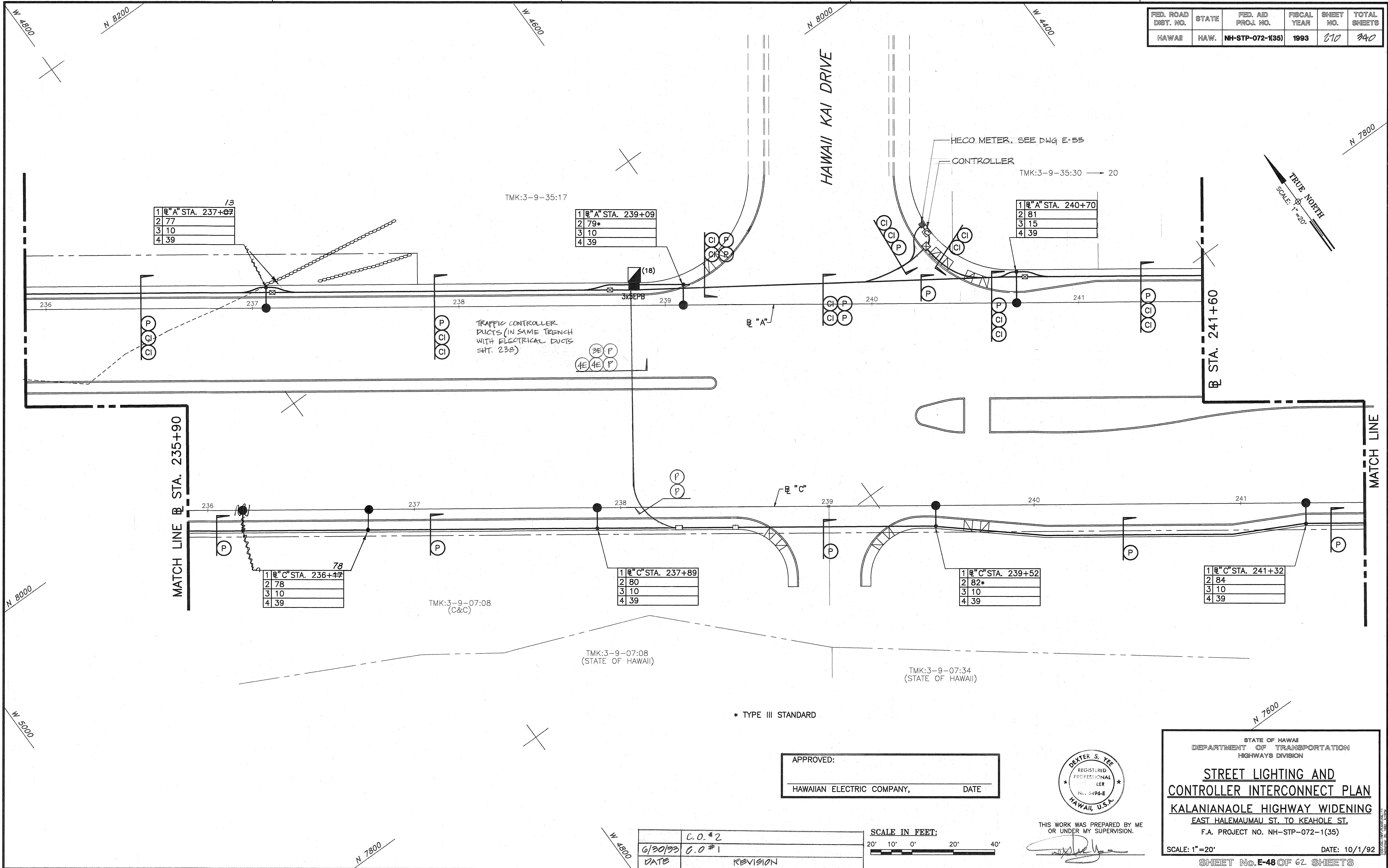
**STREET LIGHTING AND
CONTROLLER INTERCONNECT PLAN**

KALANIANA'OLE HIGHWAY WIDENING
EAST HALEMAU MAU ST. TO KEAHOLE ST.
F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1"=20' DATE: 10/1/92

SHEET No. E-47 OF 62 SHEETS

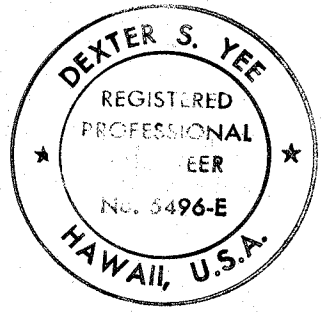
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	270	340



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

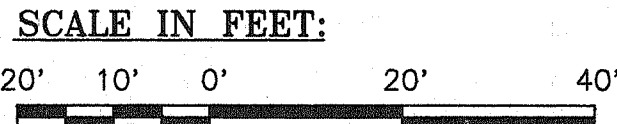
APPROVED:

HAWAIIAN ELECTRIC COMPANY,
DATE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

	C.O. #2
6/30/93	C.O. #1
DATE	REVISION



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

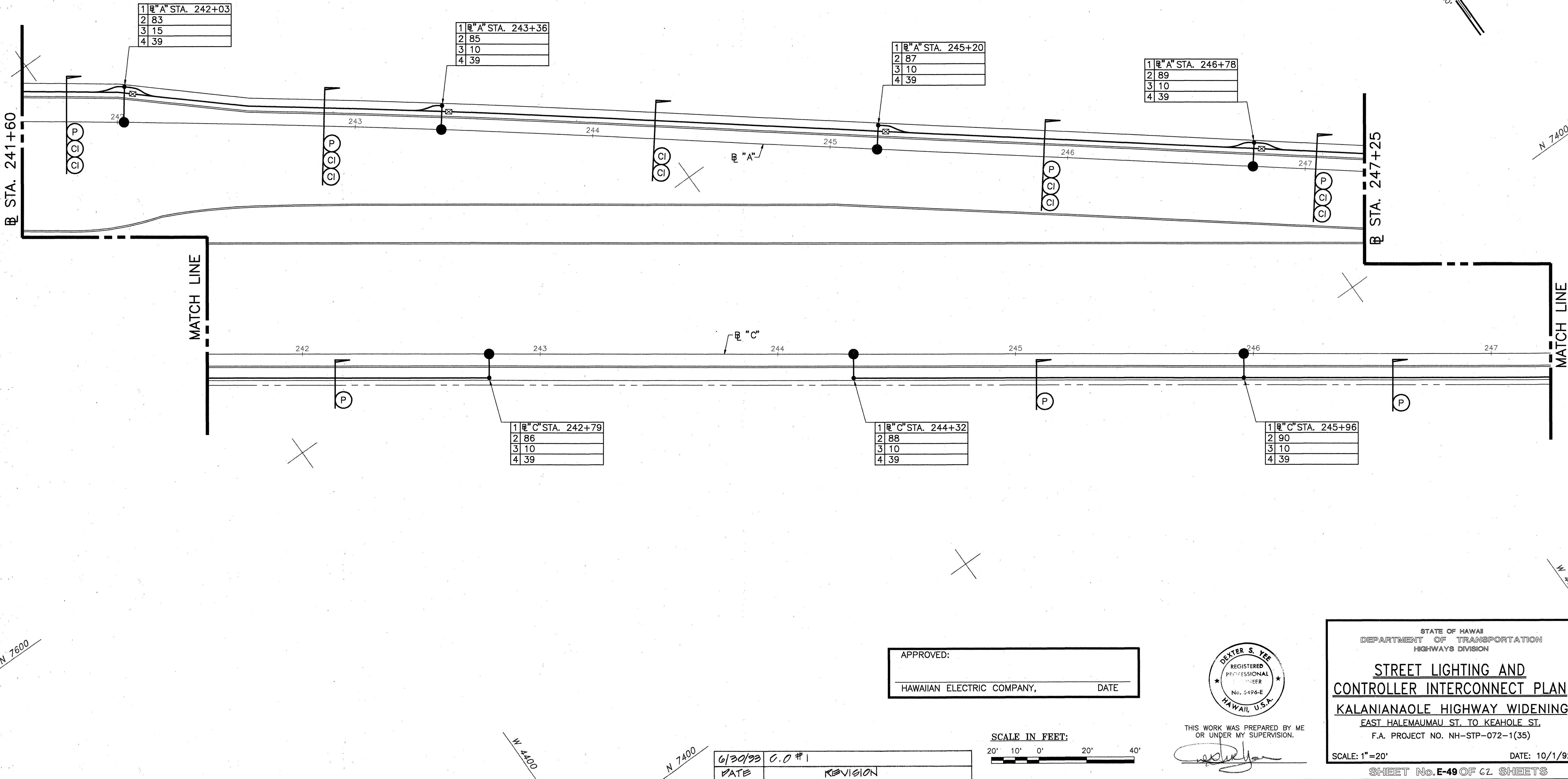
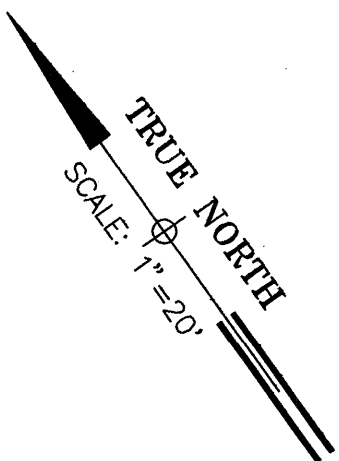
STREET LIGHTING AND
CONTROLLER INTERCONNECT PLAN
KALANIANA'OLE HIGHWAY WIDENING
EAST HALEMAUMAU ST. TO KEAHOLE ST.
F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1"=20'
DATE: 10/1/92
SHEET No. E-48 OF 62 SHEETS

"AS-BUILT"

C.O. 270

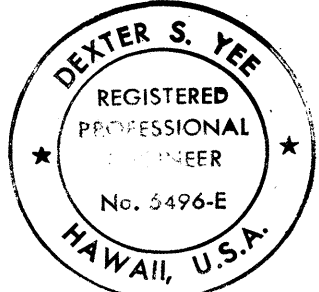
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	271	340



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

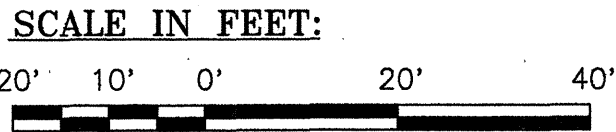
APPROVED:

HAWAIIAN ELECTRIC COMPANY, DATE



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.

[Signature]



6/30/93	C.O. #1
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

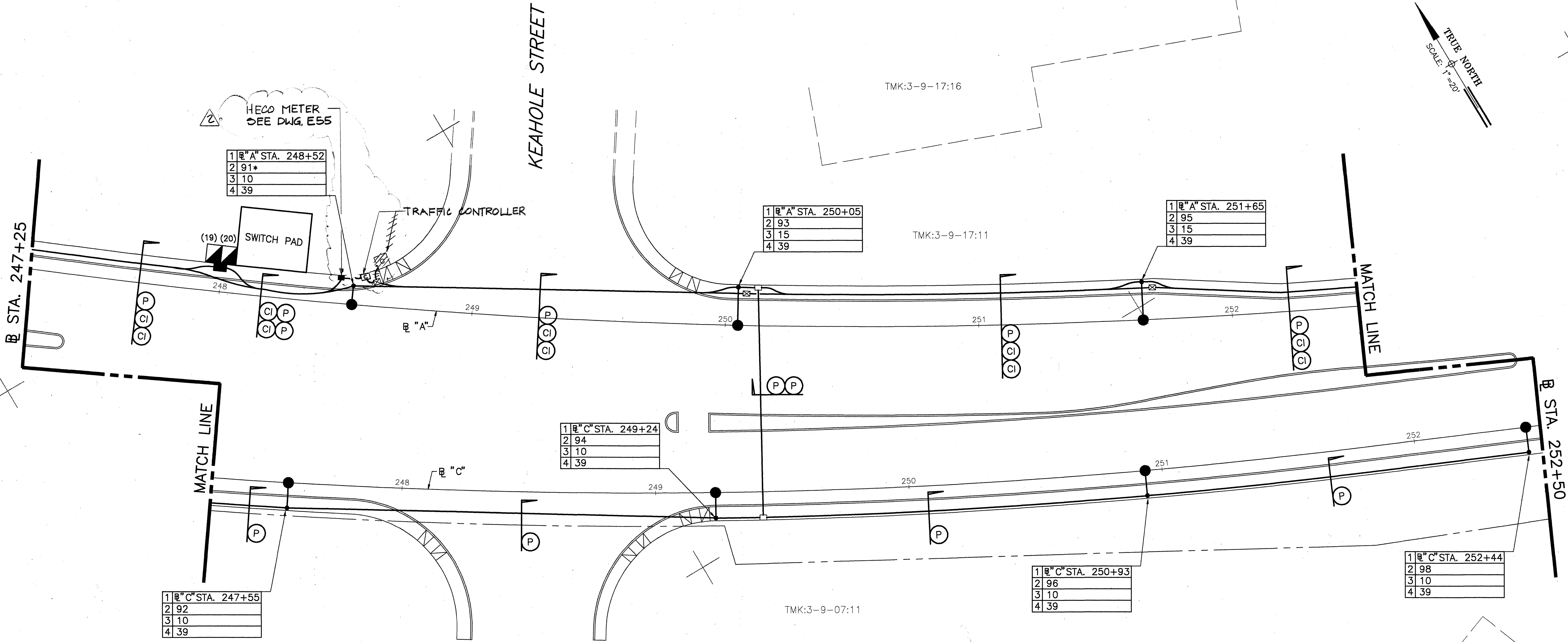
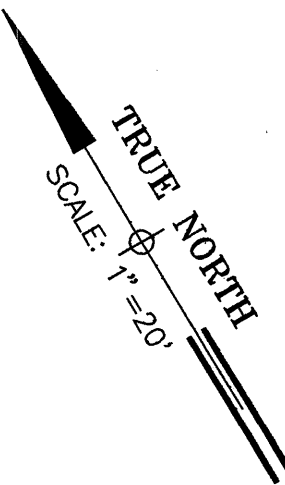
**STREET LIGHTING AND
CONTROLLER INTERCONNECT PLAN**

KALANIANA'OLE HIGHWAY WIDENING
EAST HALEMAUMAU ST. TO KEAHOLE ST.
F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1"=20' DATE: 10/1/92

SHEET No. E-49 OF 62 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	272	340



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NO. 1	DRAWN BY	
	TRACED BY	
	QUANTITIES BY	
	CHECKED BY	

1	R" C" STA. 247+55
2	92
3	10
4	39

1	R" C" STA. 249+24
2	94
3	10
4	39

1	R" A" STA. 250+05
2	93
3	15
4	39

1	R" A" STA. 251+65
2	95
3	15
4	39

1	R" C" STA. 252+44
2	98
3	10
4	39

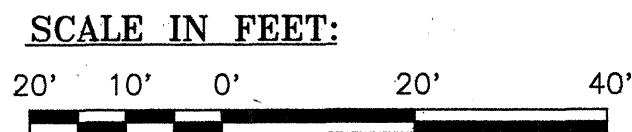
1	R" C" STA. 250+93
2	96
3	10
4	39

APPROVED: _____
 HAWAIIAN ELECTRIC COMPANY, _____ DATE _____



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

	C.O. #2
6/30/93	6.0 #1
DATE	REVISION



STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

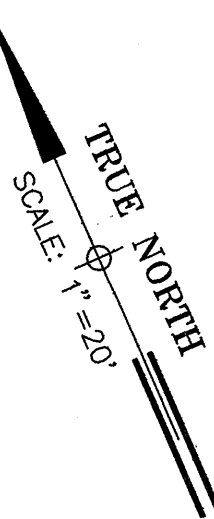
**STREET LIGHTING AND
 CONTROLLER INTERCONNECT PLAN**

KALANIANA'OLE HIGHWAY WIDENING
 EAST HALEMAU'AU ST. TO KEAHOLE ST.
 F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1"=20' DATE: 10/1/92
 SHEET No. E-50 OF 62 SHEETS

C.O. 272

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	273	340



N 7000

N 6800

1	ℳ "A" STA. 253+13
2	97
3	10
4	39

END OF PROJECT
ℳ "A" STA. 253+50

N 7200

ℳ STA. 252+50

MATCH LINE

253

254

255

256

257

258

ℳ "A"

253

254

255

256

257

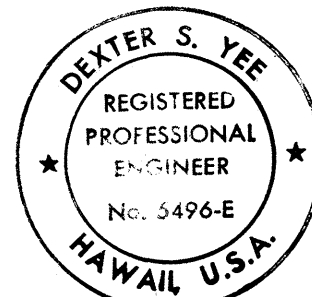
258

ℳ "C"

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

APPROVED:

HAWAIIAN ELECTRIC COMPANY, DATE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SCALE IN FEET:



6/30/93	C.O. #1
DATE	REVISION

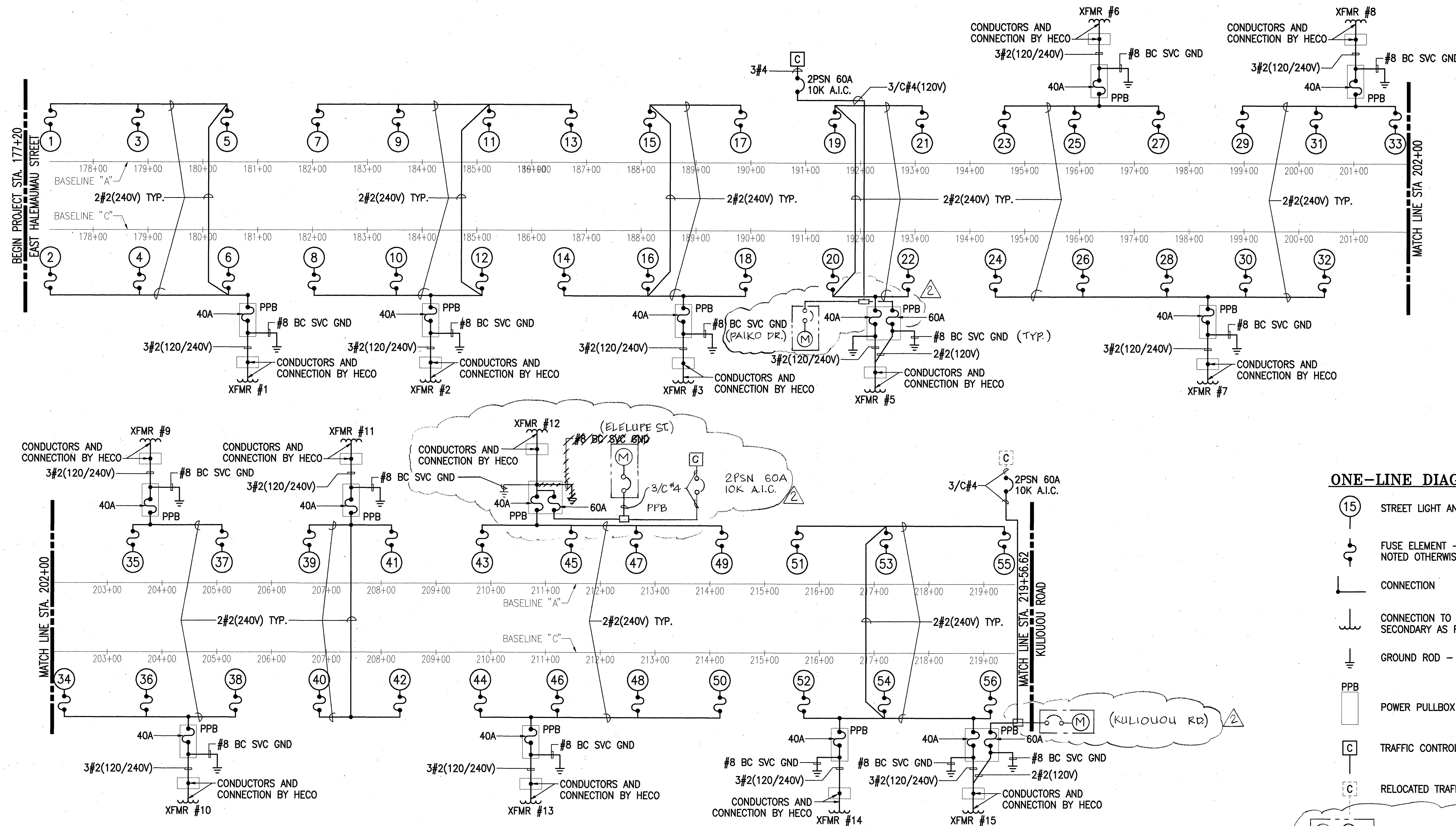
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**STREET LIGHTING AND
CONTROLLER INTERCONNECT PLAN**
KALANIANA'OLE HIGHWAY WIDENING
EAST HALEMAUMAU ST. TO KEAHOLE ST.
F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1"=20' DATE: 10/1/92

SHEET No. E-51 OF 62 SHEETS

C.O. 273

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	274	340

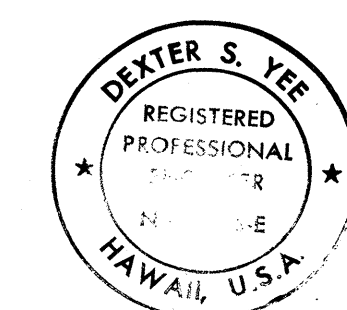


ONE-LINE DIAGRAM LEGEND:

- (15) STREET LIGHT AND POLE NUMBER
- FUSE ELEMENT - 6 AMP UNLESS NOTED OTHERWISE
- CONNECTION
- CONNECTION TO HECO TRANSFORMER SECONDARY AS REQUIRED BY HECO
- GROUND ROD - NOTE: ALL STEEL POLES TO BE GROUNDED WITH GROUND RODS PER DETAIL
- PPB POWER PULLBOX
- TRAFFIC CONTROLLER
- RELOCATED TRAFFIC CONTROLLER

WATTHOUR METER (PROVIDED BY HECO)
4 JAW, 100A, 120/240V, 1Ø, 3W
WITH FACTORY INSTALLED MANUAL BY-PASS SWITCH.

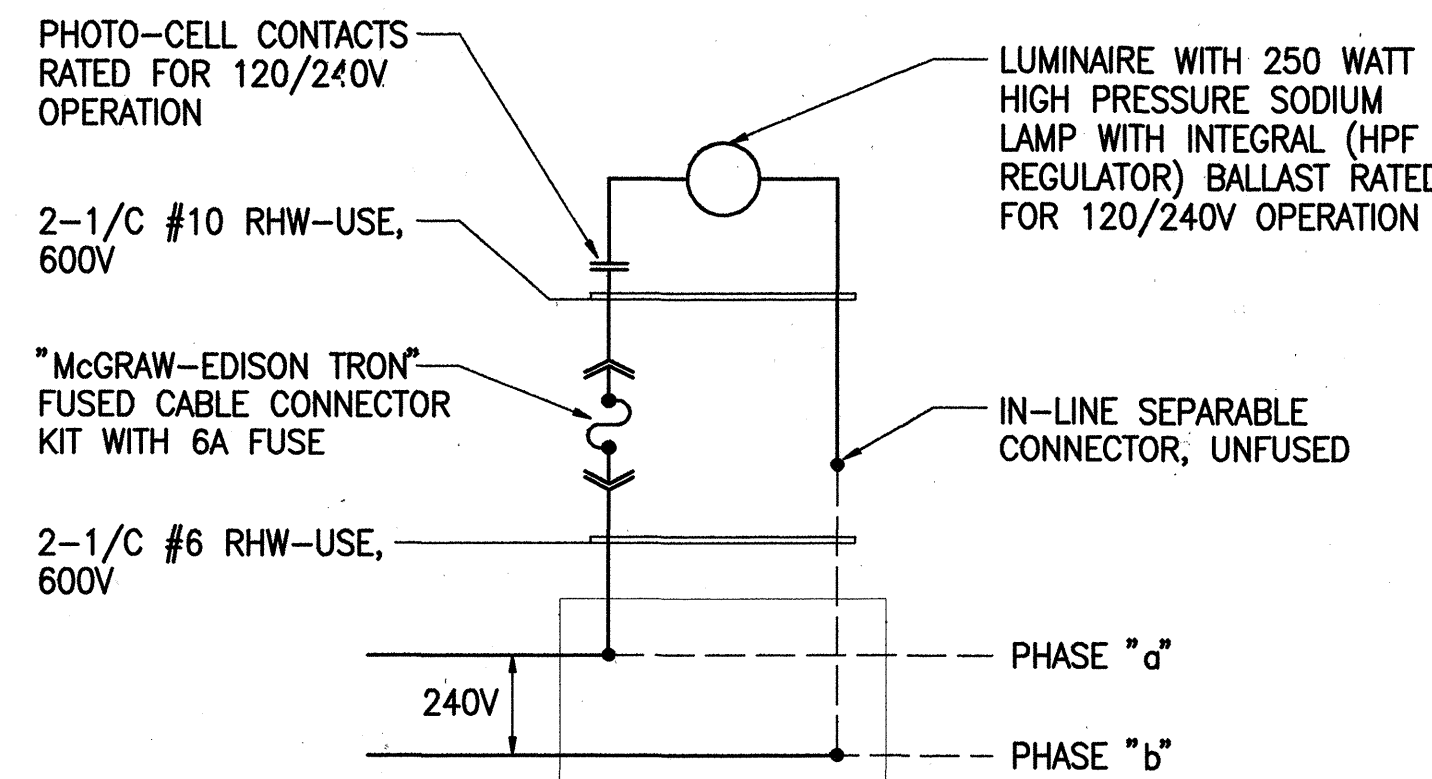
C.O. #2	
6/30/93	C.O. #1
DATE	REVISION



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

APPROVED:
HAWAIIAN ELECTRIC COMPANY, DATE

- NOTE:
- CONDUCTOR SIZES BASED ON 75°C COPPER RATING.
 - CONTRACTOR SHALL COORDINATE CONDUCTORS AND CONNECTION WITH HECO.



TYPICAL LUMINAIRE CONNECTION DIAGRAM

DATE	
SURVEY PLOTTED BY	
DESIGNED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

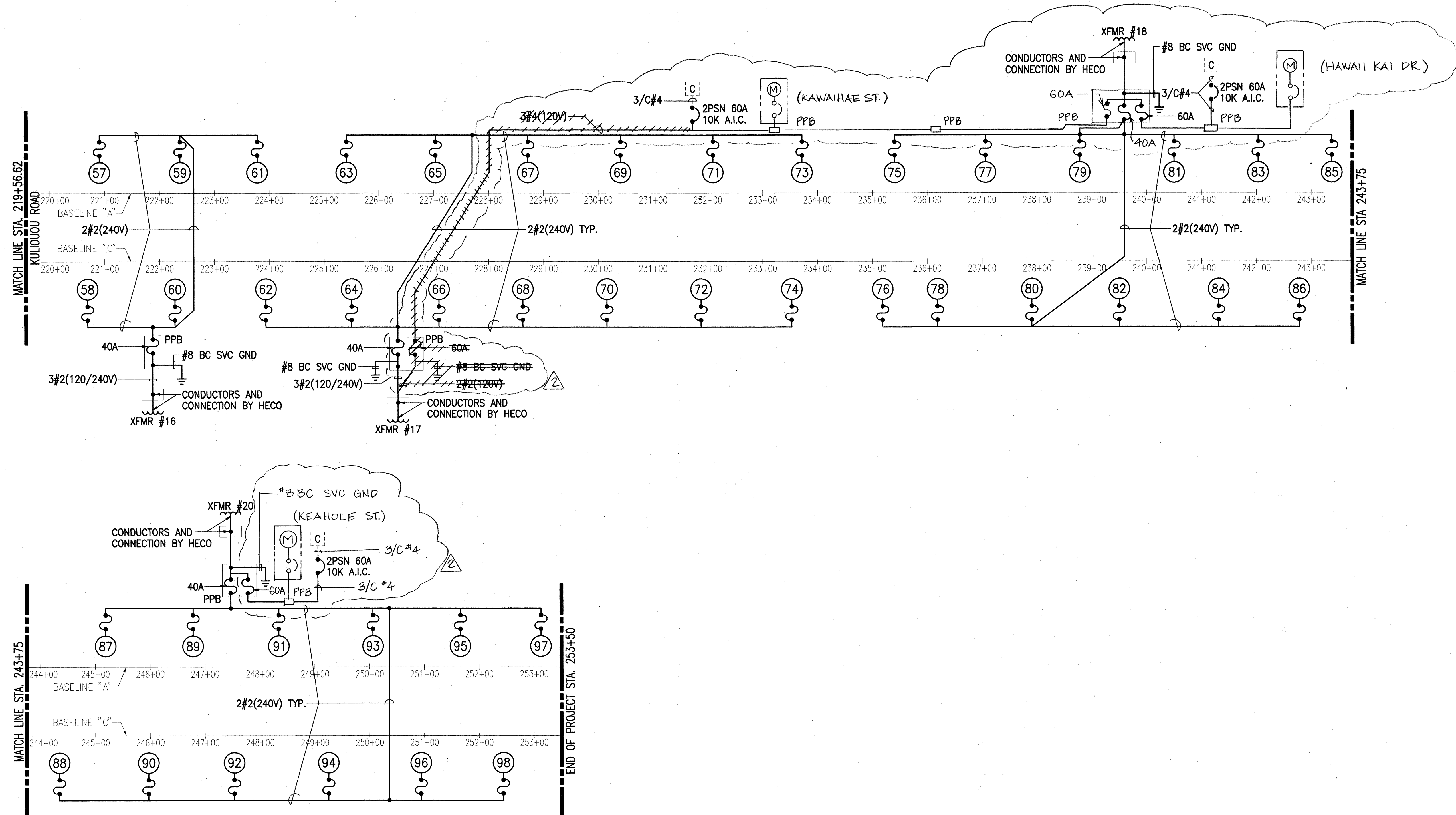
**PERMANENT STREET LIGHTING
ONE-LINE DIAGRAM**

KALANIANA'OLE HIGHWAY WIDENING
EAST HALEMAUMAU ST. TO KEAHOE ST.
F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: 1"=20' DATE: 10/1/92

SHEET No. E-52 OF 62 SHEETS

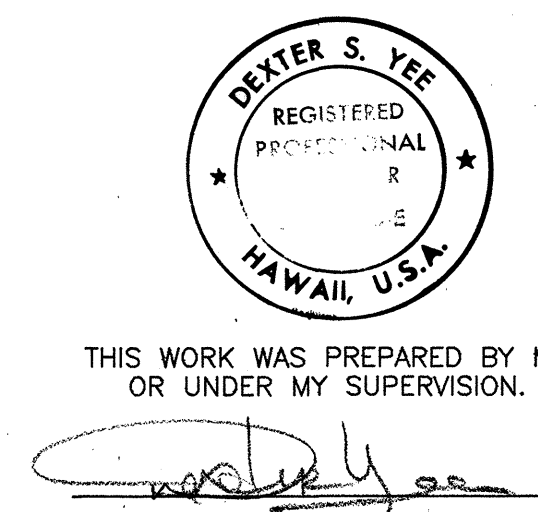
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	278	340



- NOTE:
- CONDUCTOR SIZES BASED ON 75°C COPPER RATING.
 - CONTRACTOR SHALL COORDINATE CONDUCTORS AND CONNECTION WITH HECO.

APPROVED:

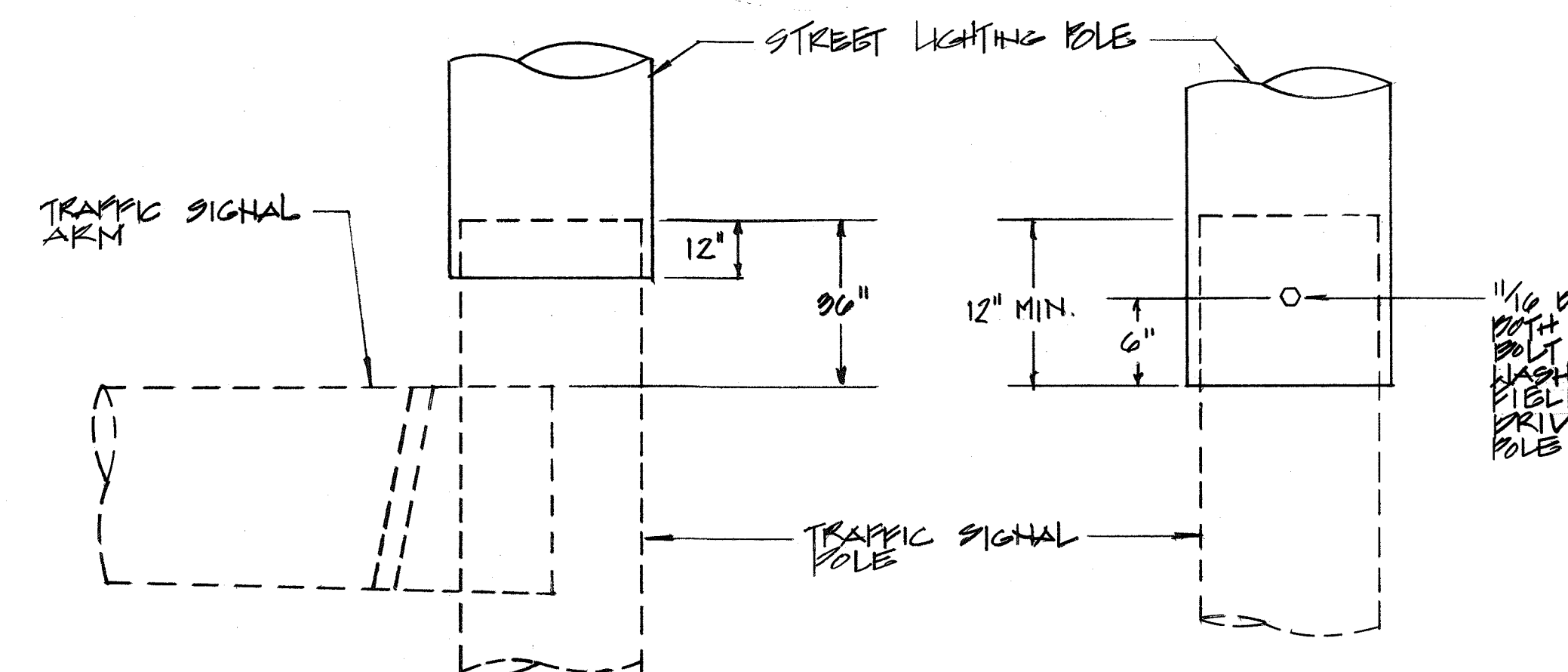
HAWAIIAN ELECTRIC COMPANY, DATE



6/30/93	C.O.#2
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION PERMANENT STREET LIGHTING ONE-LINE DIAGRAM KALANIANA'OLE HIGHWAY WIDENING EAST HALEMAUMAU ST. TO KEAHOLE ST. F.A. PROJECT NO. NH-STP-072-1(35) SCALE: NONE DATE: 10/1/92 SHEET No. E-53 OF 62 SHEETS	

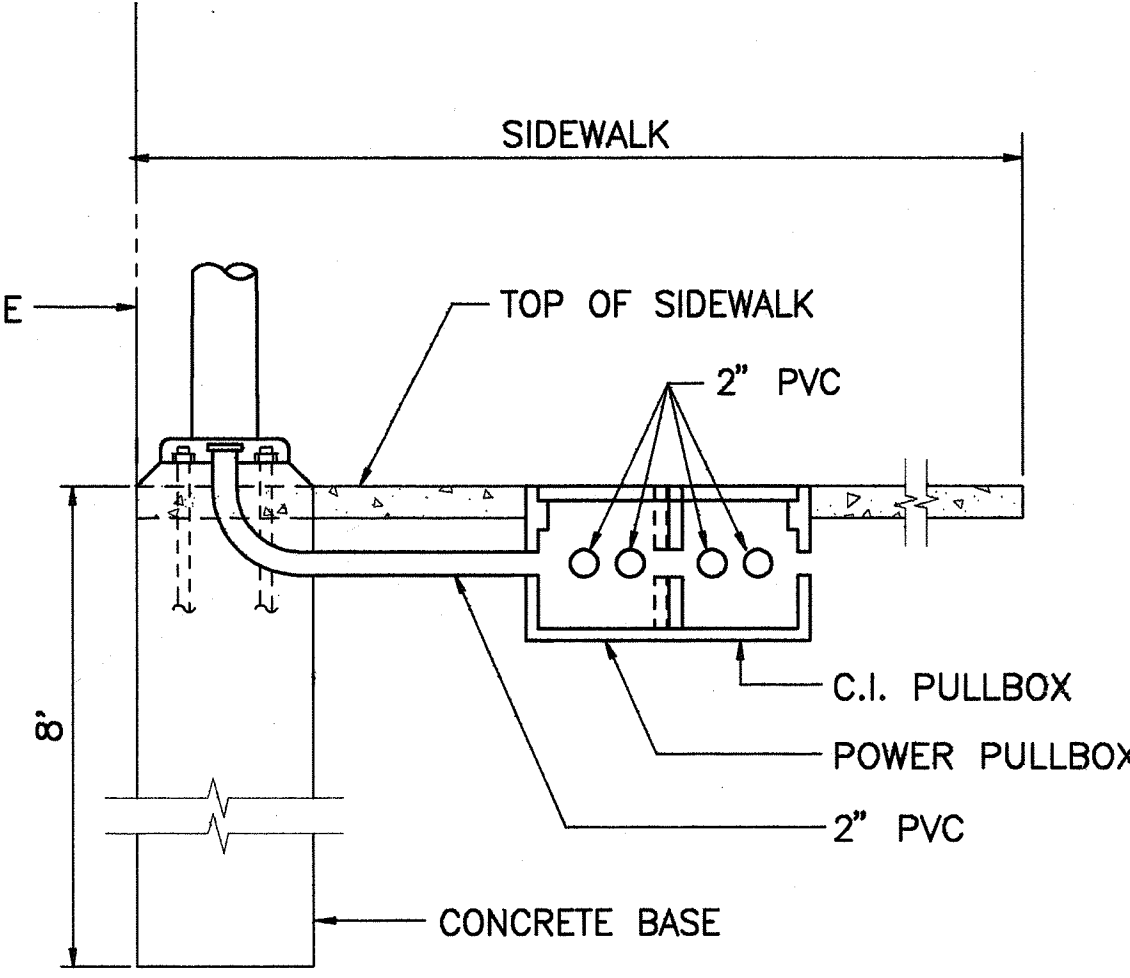
C.O. 275

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	276	340

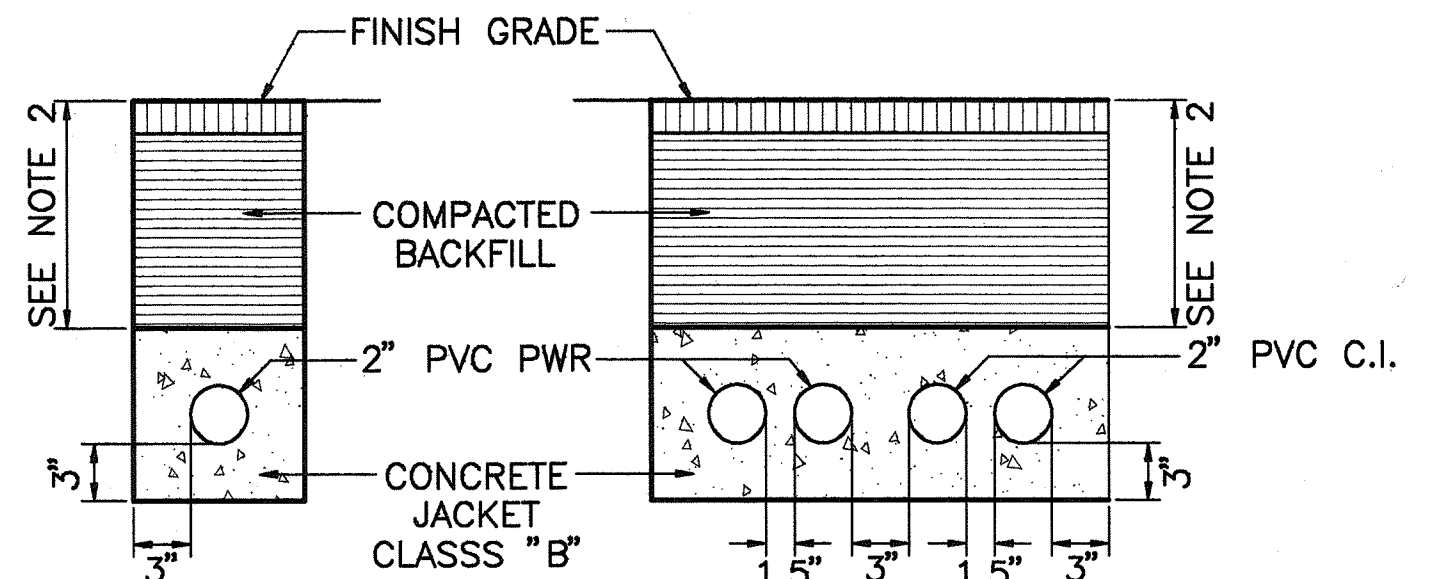


SLIP-FITTER DETAIL FOR MOUNTING LIGHTING STANDARD ON TRAFFIC SIGNAL POLE
NTS

1/4" DIA. HOLE THRU BOTH WALLS FOR 3/8" DIA. LOCK WASHER/POLE DRILLED IN FIELD AFTER ARM HAS BEEN DRIVEN FIT OVER THE POLE TOP.

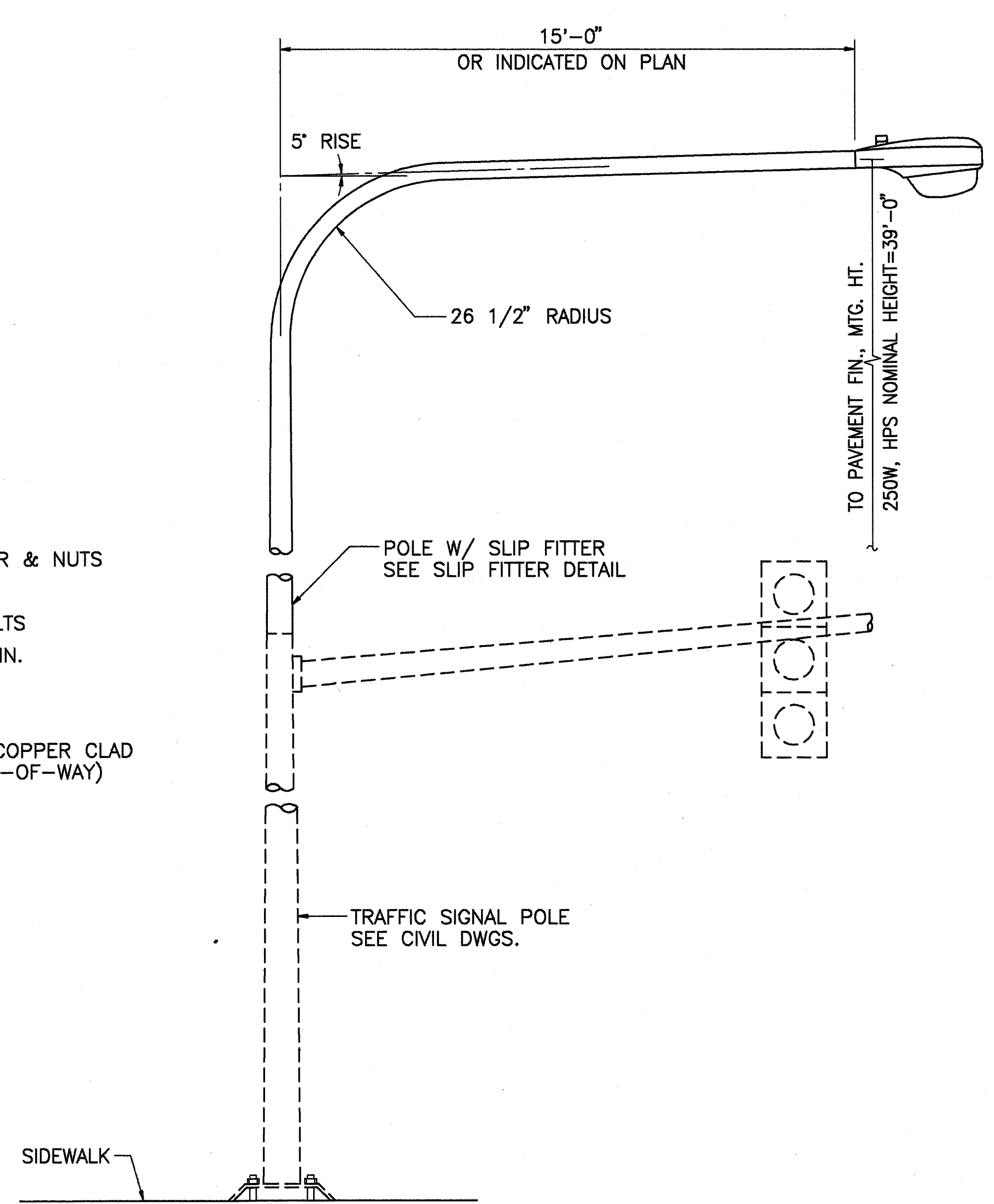
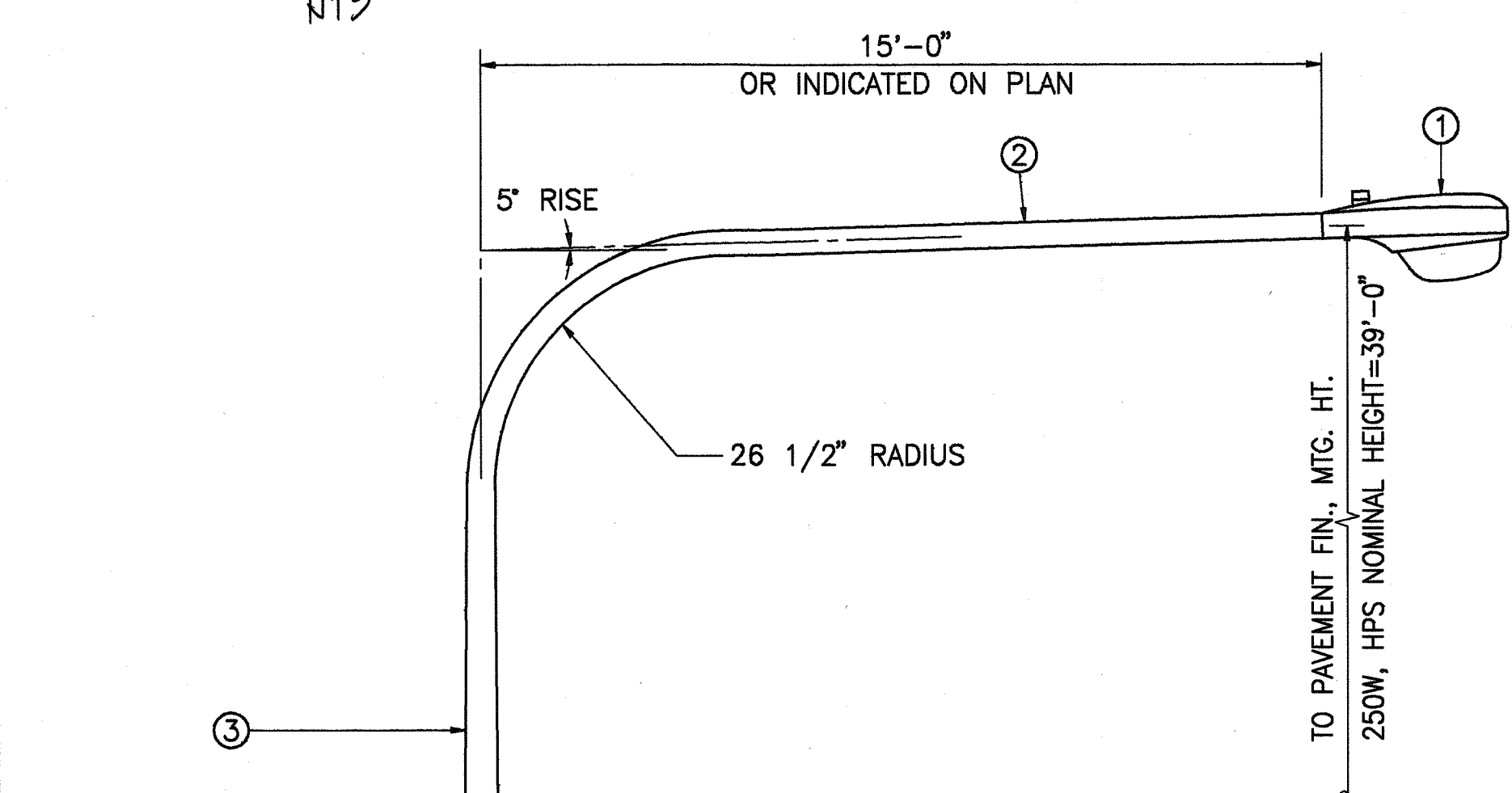


3 TYPICAL POWER AND CONTROLLER INTERCONNECT PULLBOXES CONNECTION
E-54 NOT TO SCALE



- NOTES:
- PLEASE REFER TO PERMANENT LIGHTING PLAN FOR SPECIFIC NUMBER OF CONDUITS.
 - 3' MINIMUM FOR ROADWAYS AND 18" MINIMUM FOR SIDEWALK.
 - ALL DUCTS ENCASED WITH 3" MINIMUM CLASS B CONCRETE JACKET.
 - ALL BACKFILL COMPACTED.

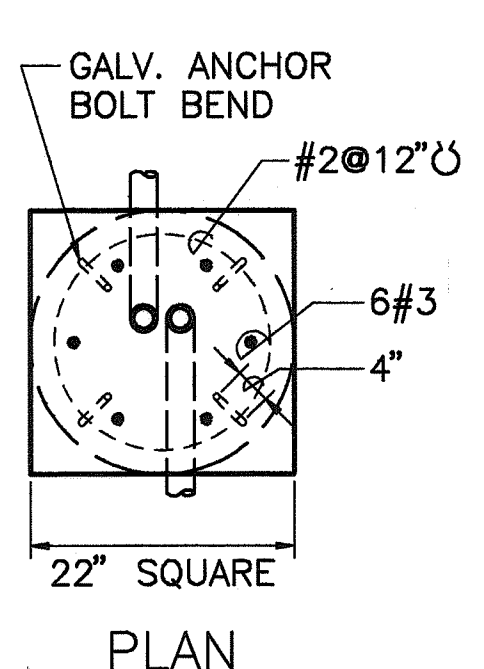
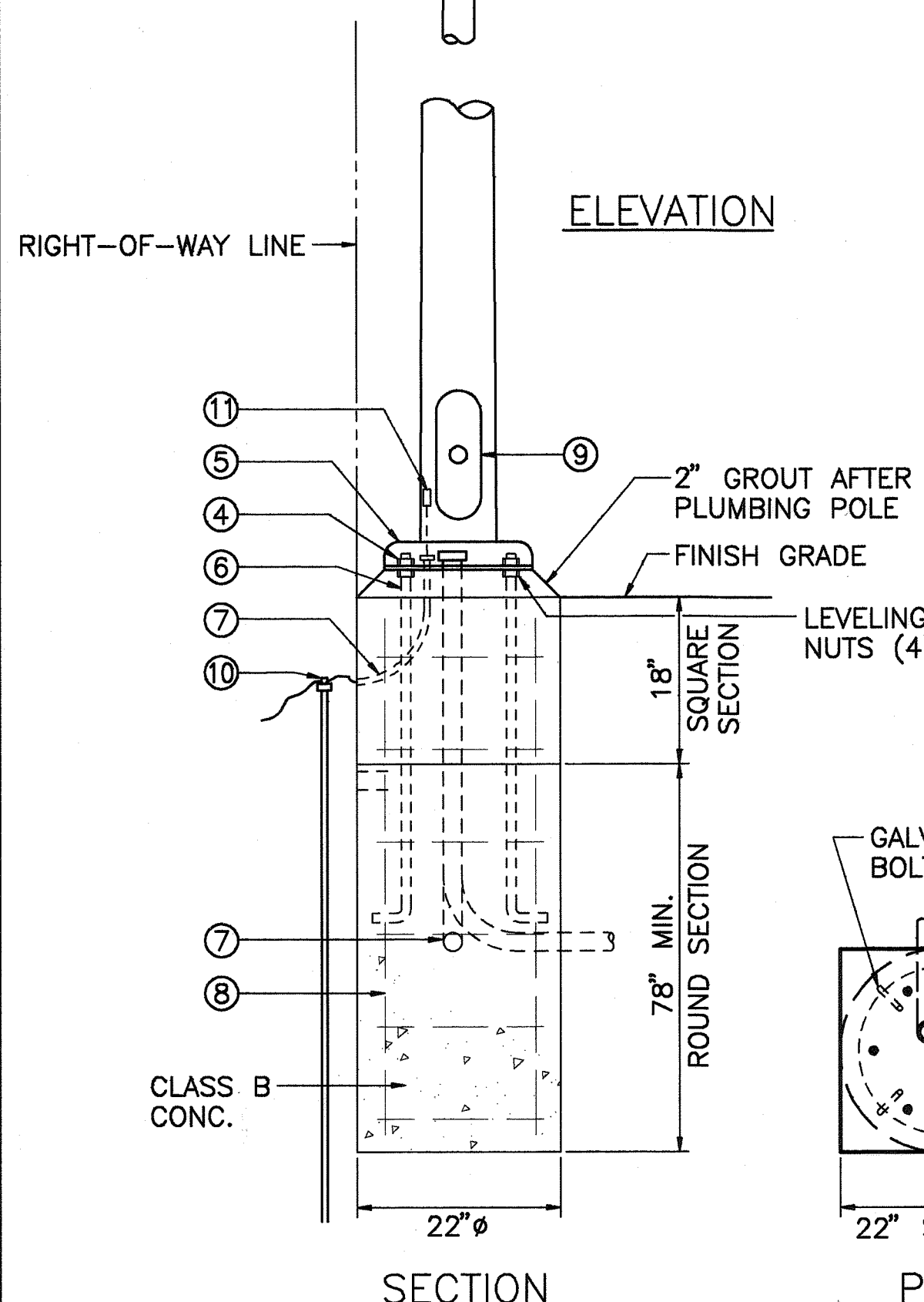
4 TYPICAL DUCT INSTALLATION DETAILS
E-54 NOT TO SCALE



MATERIAL LIST:

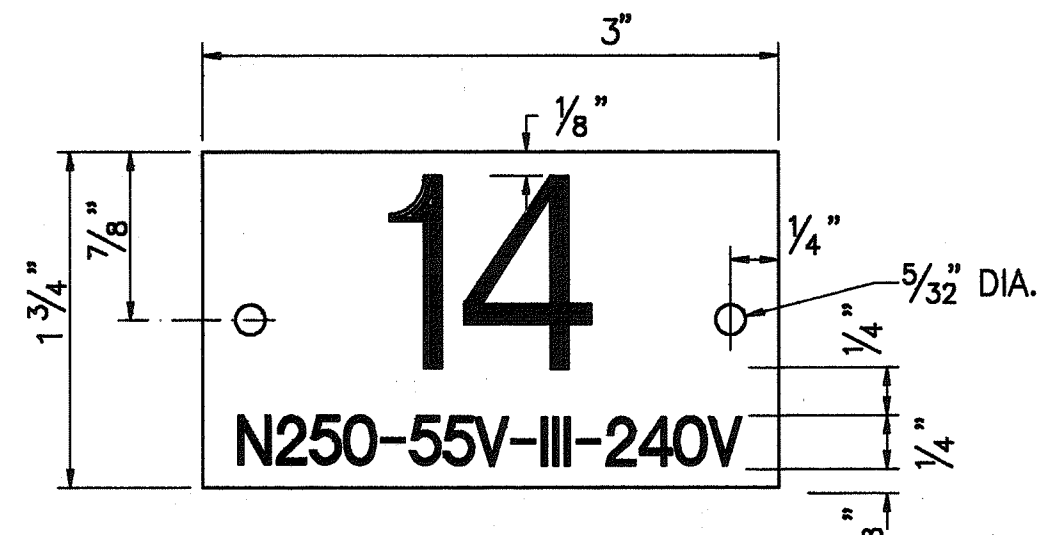
- LUMINAIRE
- ARM
- POLE
- POLE BASE 4-BOLTS, WASHER & NUTS
- POLE BASE BOLT COVER
- 4-1"x40" GALV. ANCHOR BOLTS
- PVC SCH'D. 40, 1/2" DEEP MIN.
- CONC. W/6#3 BARS U.N.O.
- WIRING ACCESS HANDHOLE
- GROUND ROD 5/8"x10'-0" COPPER CLAD (TO BE PLACED INSIDE RIGHT-OF-WAY)
- GROUNDING LUG

ELEVATION



1 HIGHWAY LIGHTING STANDARD DETAIL
E-54 NOT TO SCALE

2 DETAIL OF LIGHTING STANDARD MOUNTED ON TRAFFIC SIGNAL POLE
E-54 NOT TO SCALE

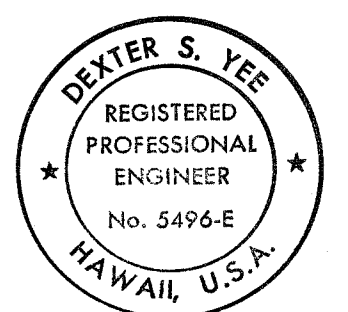


- 14 = POLE AND LIGHT NUMBER PER STATE REQUIREMENTS
N250 = LAMP TYPE AND WATTAGE, N = SODIUM
55V = LAMP VOLTAGE
III = IES TYPE DISTRIBUTION
240 = BALLAST VOLTAGE

- NOTES:
- USE 3-PLY PLASTIC - BLACK, WHITE, BLACK.
 - NUMBER SHALL BE 1" HIGH AND ENGRAVED 1/8" WIDE, WHITE IN COLOR (NUMBER AS REQUIRED).
 - NOMENCLATURE SIZE SHALL BE 1/4" HIGH AND ENGRAVED 1/32" WIDE, WHITE IN COLOR (WATTAGE, LAMP VOLTAGES, IES DISTRIBUTION AND BALLAST VOLTAGE)
 - ATTACH SECURELY TO POLE WITH NO. 7 CADMIUM PLATES SCREWS
 - "N" FOR SODIUM LAMPS
 - ATTACH TAG 6'-0" ABOVE FINISH GRADE ON STREET SIDE

5 STREET LIGHT I.D. TAG DETAIL
E-54 NOT TO SCALE

6/30/93	C.O.#1
1/20/93	REVISED ST. LIGHT DETAILS
DATE	REVISION



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET LIGHTING AND CONTROLLER INTERCONNECT PLAN

KALANIANA'OLE HIGHWAY WIDENING
EAST HALEMAUMAU ST. TO KEAHOLE ST.
F.A. PROJECT NO. NH-STP-072-1(35)

SCALE: NONE DATE: 10/1/92

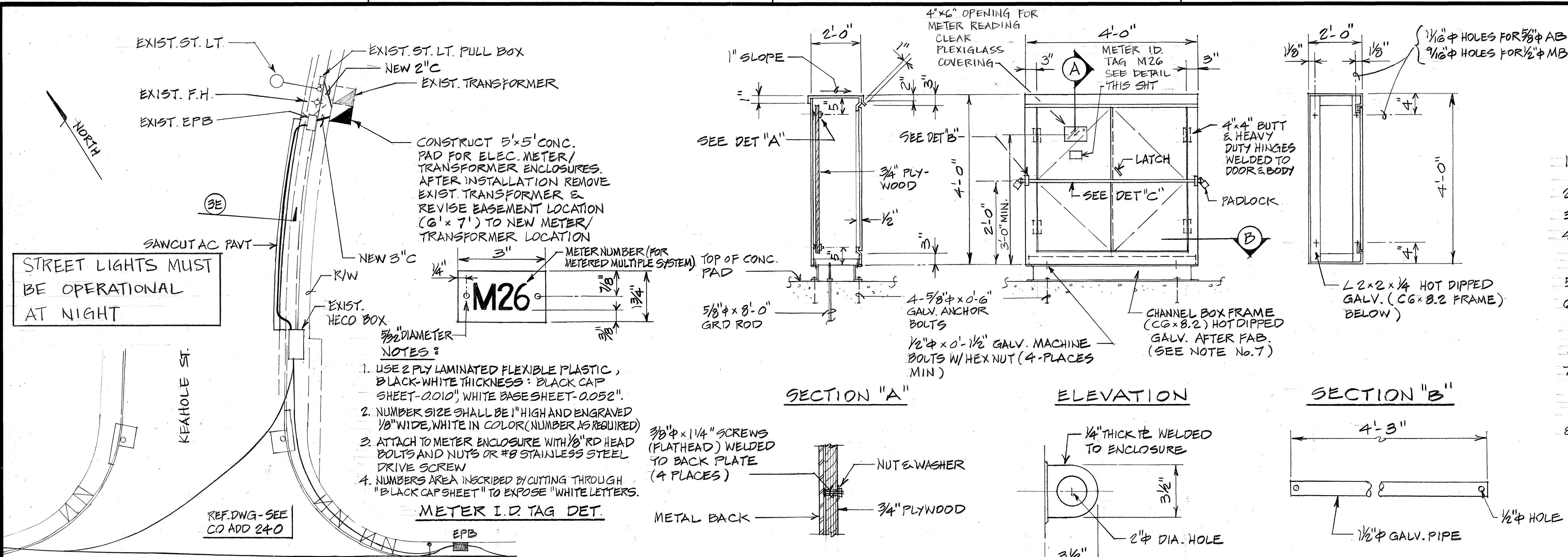
SHEET No. E-54 OF 62 SHEETS

"AS-BUILT"

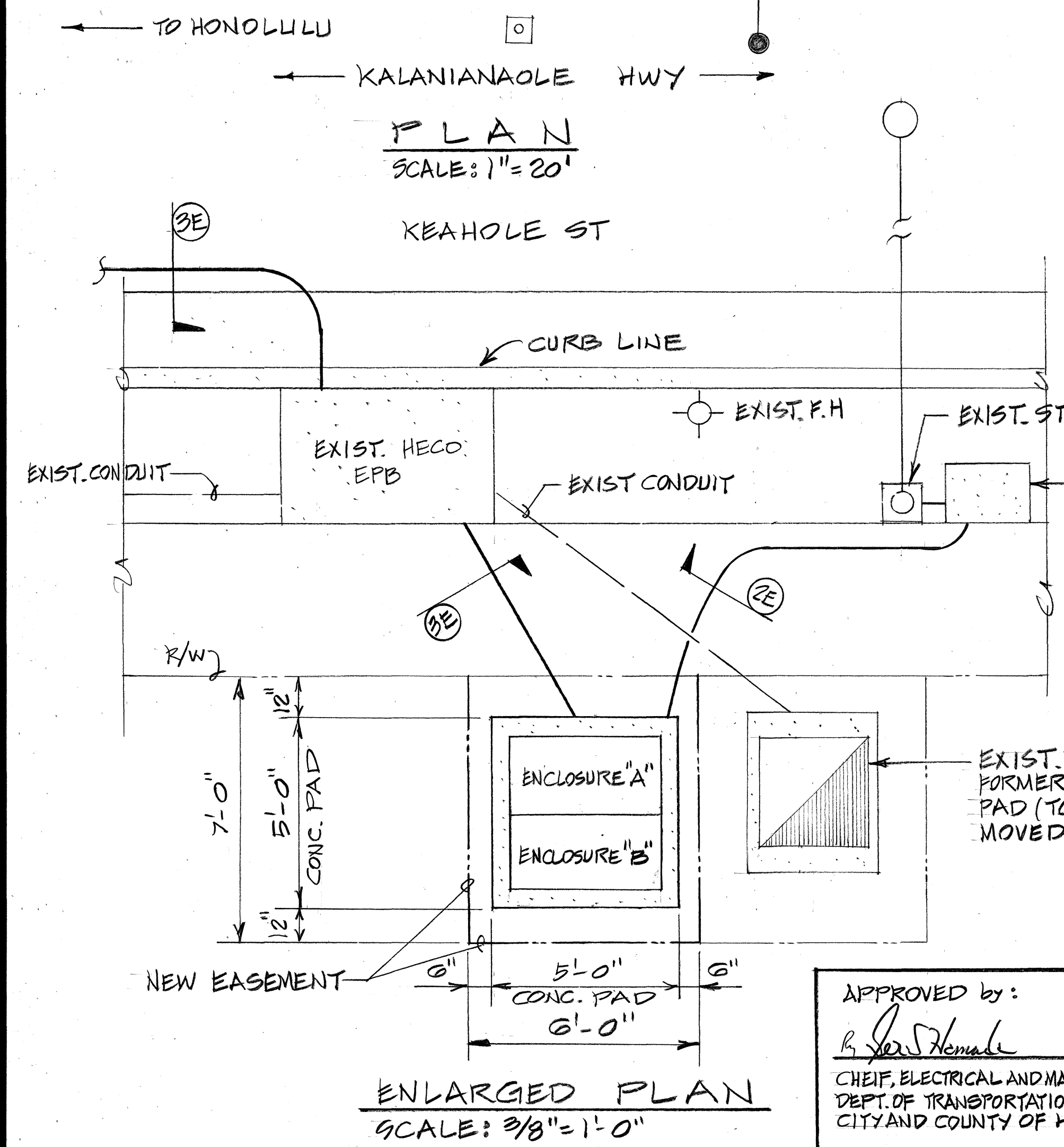
C.O. ADD. 276

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-072-1(35)	1993	276 5-1	340

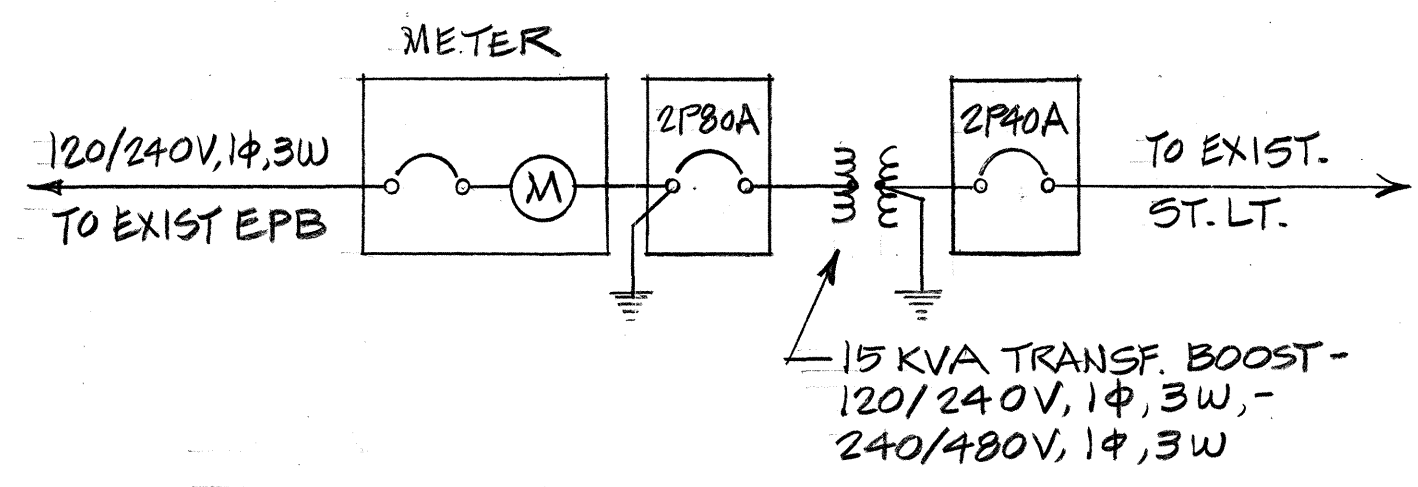


- NOTES:**
- CABINET TO BE PRIMED W/ONE COAT OF SHOP PRIMER.
 - PLYWOOD TO BE TERMITE TREATED.
 - MADE FROM 10 GA GALV. STEEL SHEET.
 - TWO COATS OF ACRYLIC FINISH PAINT AS SELECTED BY ENGINEER OR OFFICER-IN-CHARGE.
 - ENCLOSURE SHALL BE NEMA 4X.
 - PADLOCKS
 - HECO FURNISH.
 - CONTRACTOR FURNISHED, BRASS CORBIN SESAMEE COMBINATION.
 - WASH CHANNEL WITH SOLUTION OF CHEMICAL PHOSPHORIC METAL ETCH AND ALLOW TO DRY. APPLY 2 COATS OF GALVANIZED METAL PRIMER AND 2 COATS OF ENAMEL TO MATCH CABINET.
 - SUBMIT SHOP DRAWINGS AND MATERIAL BROCHURES TO C&O HONOLULU, DEPT. OF TRANSPORTATION SERVICES FOR APPROVAL.

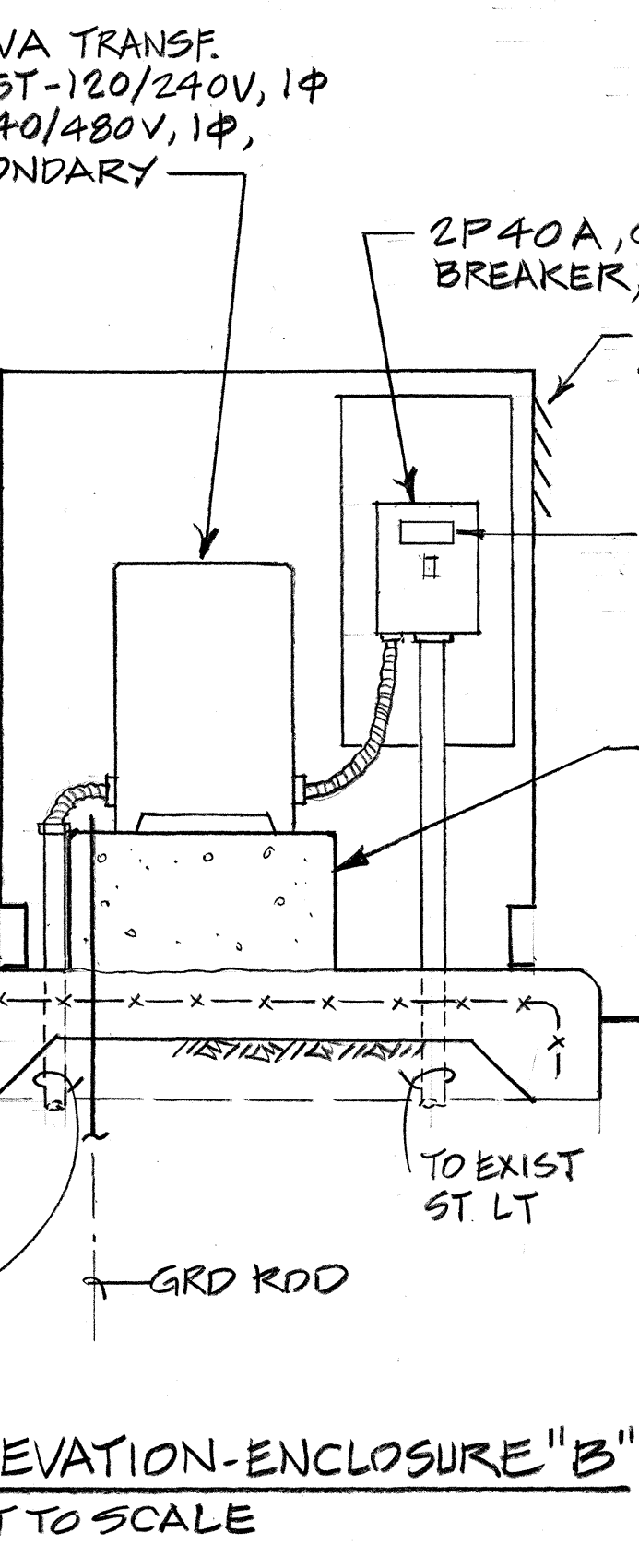
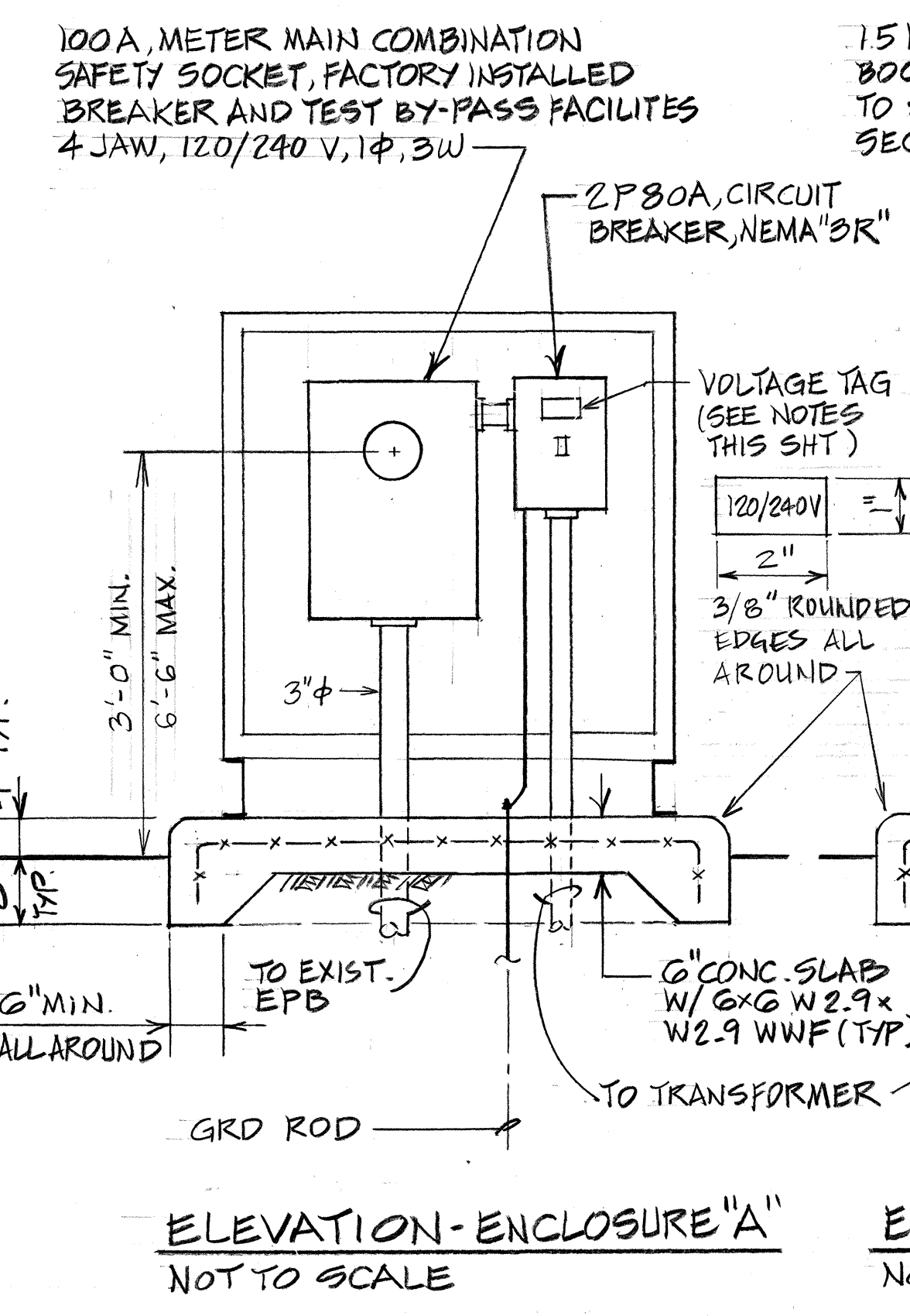
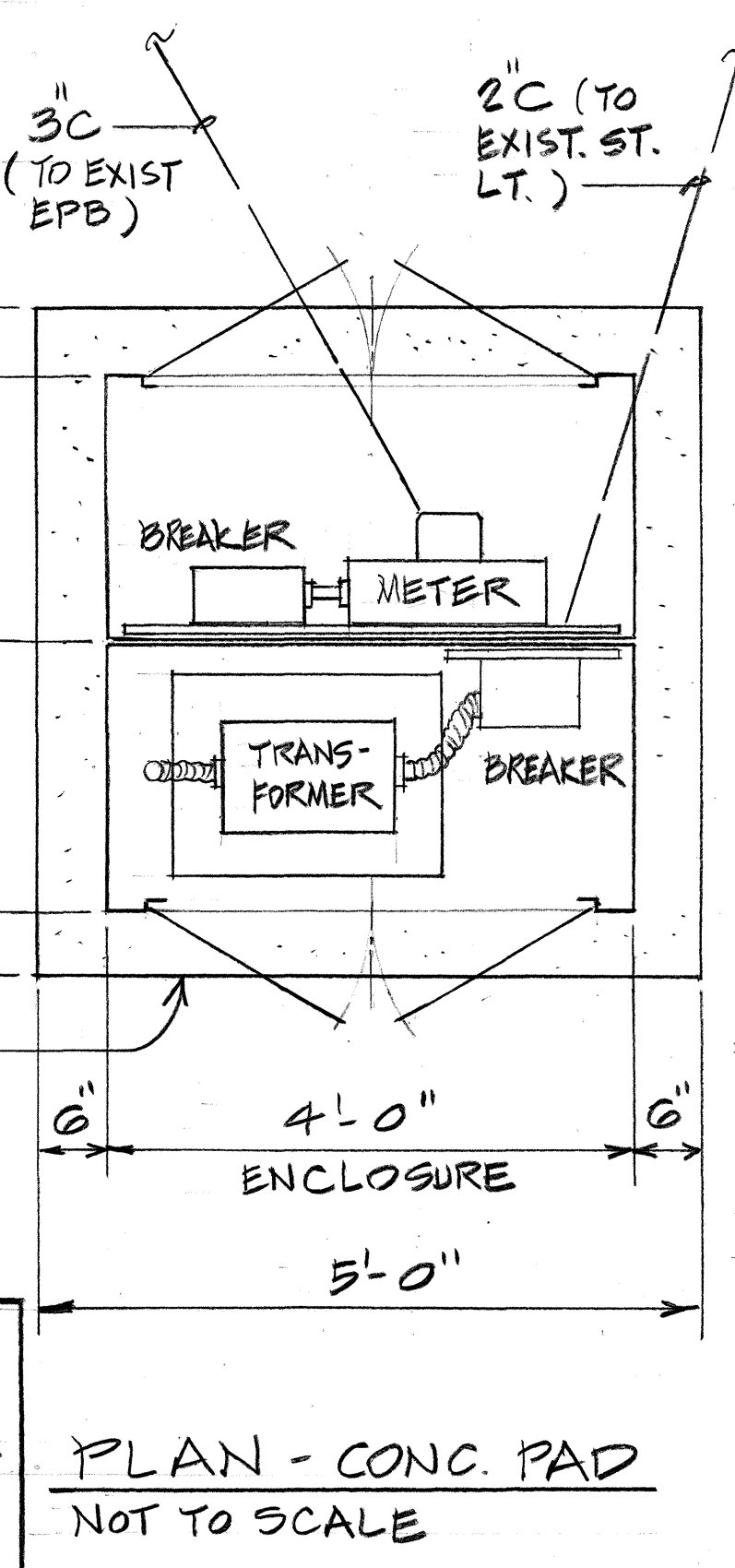


NOTE:
REFER TO HECO ELECTRIC SERVICE INSTALLATION MANUAL 1994 SECTION 5B PP 15 & 16 FOR REQUIREMENTS OF METER PEDESTAL.

SERVICE EQUIPMENT ENCLOSURE DETAILS
NOT TO SCALE



- ONE-LINE DIAGRAM**
- NOTES FOR VOLTAGE TAG**
- USE 2PLY LAMINATED FLEXIBLE PLASTIC, BLACK- WHITE THICKNESS: BLACK CAP SHEET- 0.010" WHITE BASE SHEET- 0.052"
 - LETTERING: 1/4" HIGH, 1/16" STROKE, WHITE IN COLOR
 - ATTACH WITH EPOXY GLUE.
 - INSCRIBED BY CUTTING THROUGH "BLACK CAP SHEET" TO EXPOSE "WHITE LETTERS".



APPROVED by:
[Signature]
CHIEF, ELECTRICAL AND MAINTENANCE SERVICES,
DEPT. OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
DATE: 3/24/95

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL DETAILS

KALANIANA'OLE HIGHWAY WIDENING
EAST HALEMAULAU ST. TO KEAHOLE ST.
F.A. PROJECT NO. NH-STP-072-1(35)
SCALE: AS NOTED
DATE:

SHEET NO. 276 5-1 OF 340 SHEETS

C.O. 276 5-1

DATE	1/24/95
SURVEY PLOTTED BY	W. J. HARRIS
DRAWN BY	W. J. HARRIS
DESIGNED BY	W. J. HARRIS
QUANTITIES BY	W. J. HARRIS
CHECKED BY	W. J. HARRIS
ORIGINAL PLAN	NO.
NOTE BOOK	NO.
CHECKED BY	NO.