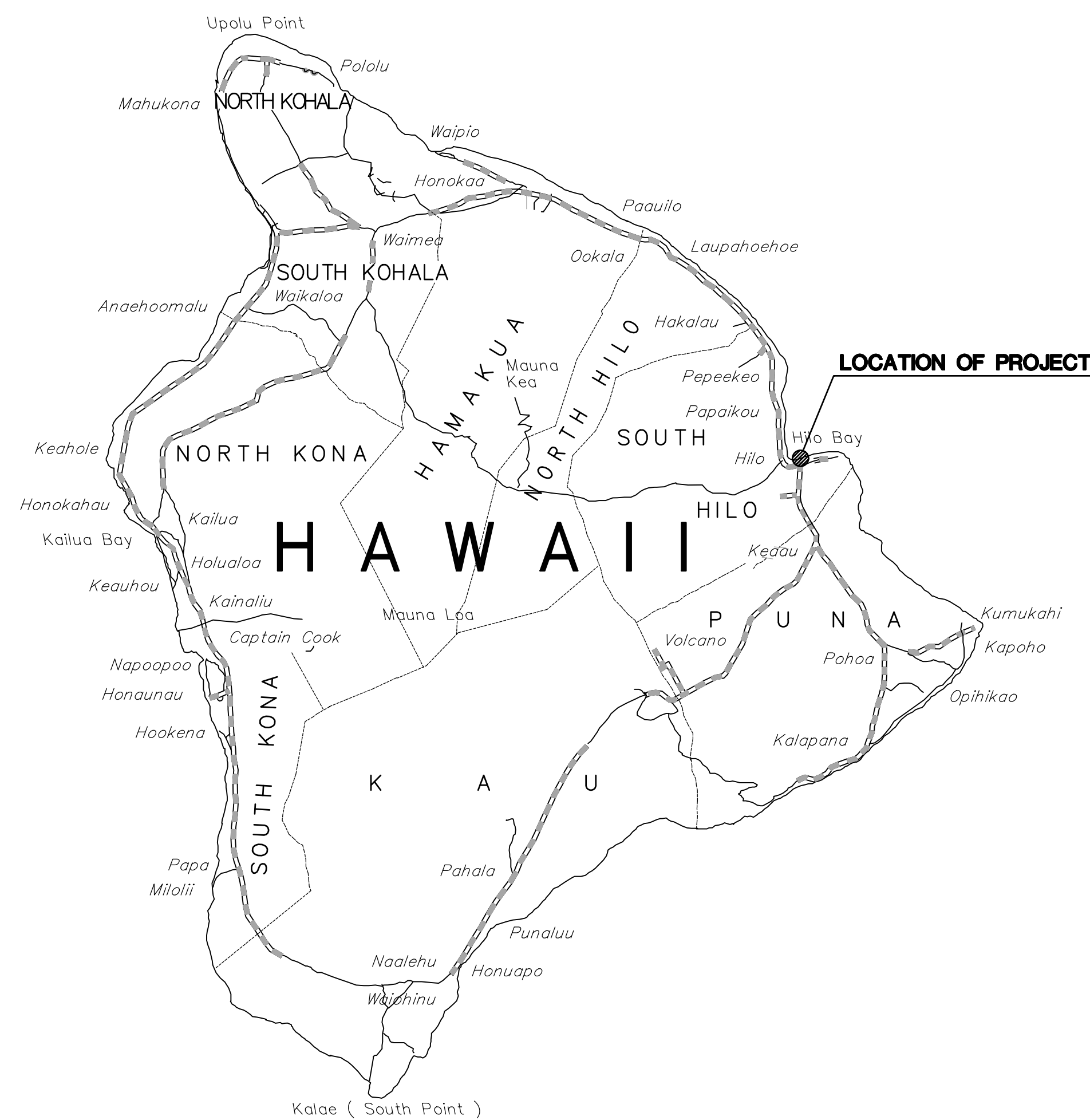


REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII

FOR THE
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HARBORS DIVISION

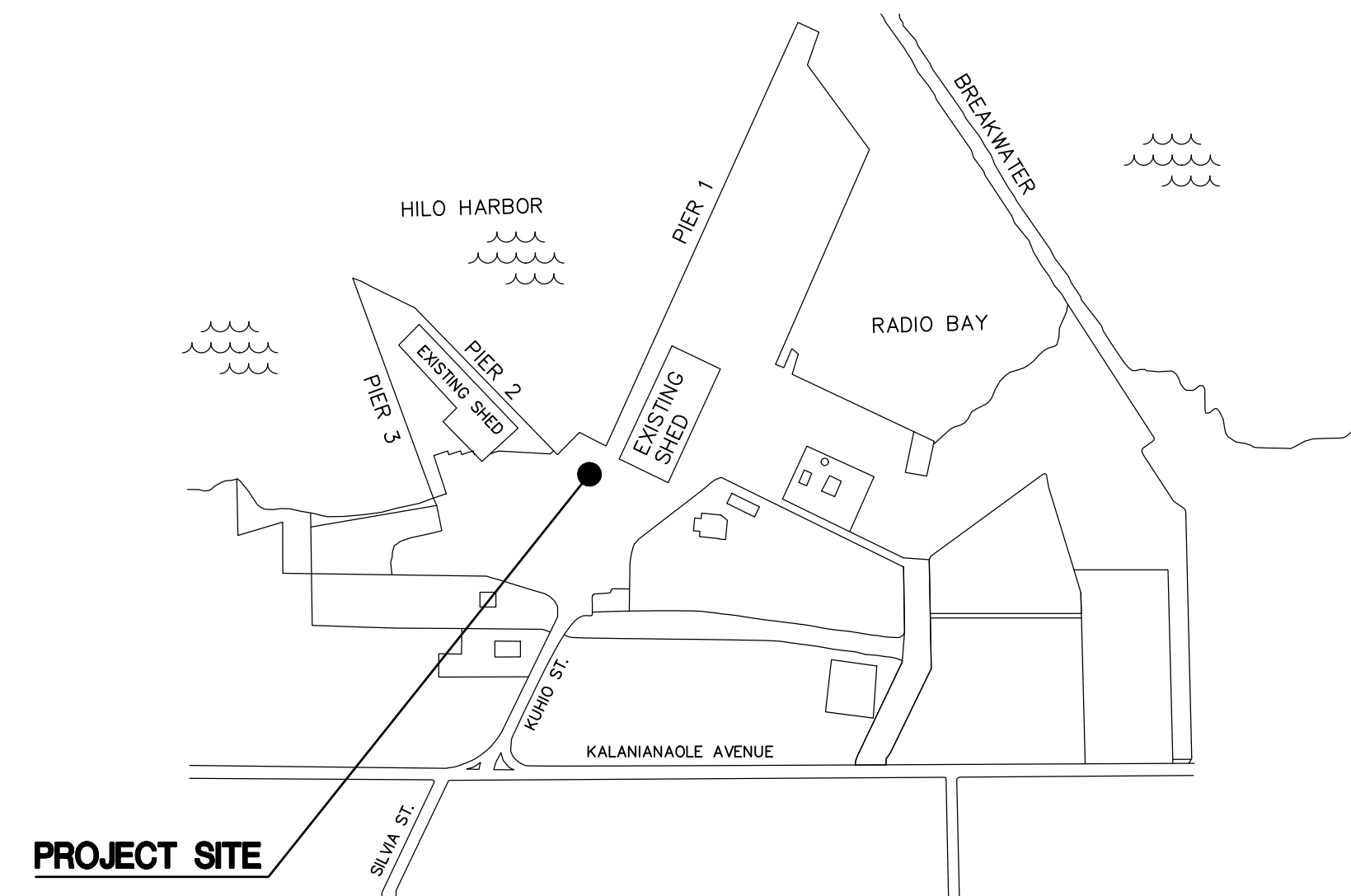
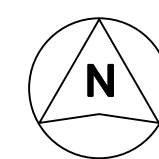
S50201



ISLAND OF HAWAII

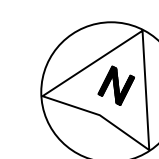
LOCATION MAP

NOT TO SCALE



VICINITY MAP

NOT TO SCALE



CONSULTANTS:

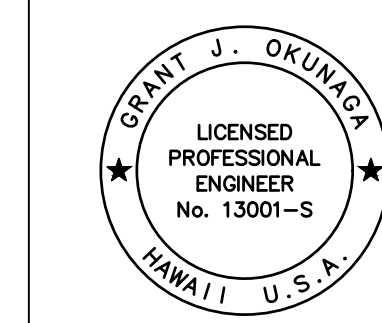
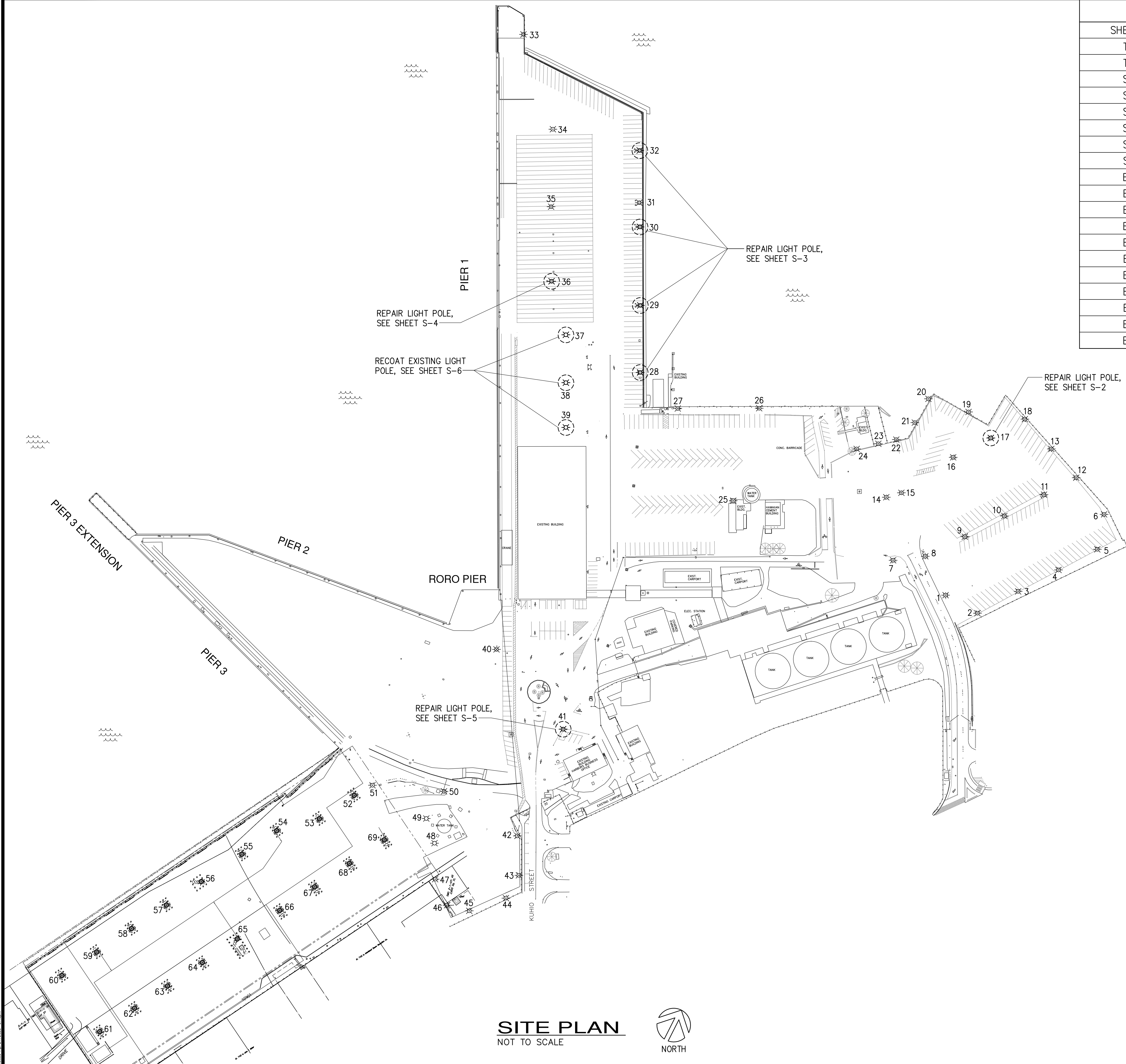
MKE ASSOCIATES LLC
STRUCTURAL ENGINEER

ECS, INC.
ELECTRICAL ENGINEER

| | | |
|---|-------------|----------------|
| DEPARTMENT OF TRANSPORTATION STATE OF HAWAII | | SHEET |
| APPROVED BY: <i>[Signature]</i> | May 1, 2023 | T-1 |
| FOR DIRECTOR OF TRANSPORTATION | DATE | 1 of 19 SHEETS |

INDEX TO DRAWINGS

| SHEET NO. | TITLE |
|-----------|--|
| T-1 | TITLE SHEET, LOCATION AND VICINITY MAPS |
| T-2 | INDEX TO DRAWINGS AND SITE PLAN |
| S-1 | STRUCTURAL NOTES |
| S-2 | LIGHT POLE REPAIR DETAILS – POLE 17 |
| S-3 | LIGHT POLE REPAIR DETAILS – POLES 28, 29, 30, 32 |
| S-4 | LIGHT POLE REPAIR DETAILS – POLE 36 |
| S-5 | LIGHT POLE REPAIR DETAILS – POLE 41 |
| S-6 | LIGHT POLE REPAIR DETAILS – POLES 37, 38, 39 |
| E-1 | ELECTRICAL SYMBOL LIST AND ELECTRICAL NOTES |
| E-2 | ELECTRICAL SITE PLAN |
| E-3 | LIGHT POLE DETAILS – POLE 17 |
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| E-7 | PEDESTAL DETAILS – POLE 17 |
| E-8 | PEDESTAL DETAILS – POLES 28, 29, 30, 32 |
| E-9 | PEDESTAL DETAILS – POLE 36 |
| E-10 | LIGHTING DIAGRAMS – 1 |
| E-11 | LIGHTING DIAGRAMS – 2 |



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 EXP. 4-30-24
 MKE ASSOCIATES LLC

| REVISION | DATE | DESCRIPTION | BY | APPROVED |
|--|---------------|-----------------|-----------------|----------|
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | | |
| JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| SHEET TITLE INDEX TO DRAWINGS AND SITE PLAN | | | | |
| DESIGNED BY: GO | JOB NUMBER | | SHEET | |
| DRAWN BY: DL | S50201 | | T-2 | |
| CHECKED BY: GM | DATE: 04/2023 | | SCALE: AS SHOWN | |
| DATE: 04/2023 | | SCALE: AS SHOWN | | |
| SCALE: AS SHOWN | | 2 of 19 SHTS. | | |

STRUCTURAL NOTES:

GENERAL:

1. WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE HAWAII STATE BUILDING CODE (AMENDED IBC, 2018 EDITION) AND THE HAWAII STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, 2005, FOR THE STATE OF HAWAII, UNLESS OTHERWISE INDICATED. HOWEVER, SHOULD THERE BE CONFLICTS, OR WHERE REFERENCE IS MADE TO PERFORMANCE CONFORMING TO OTHER STANDARDS THE MORE STRINGENT SHALL APPLY.
2. THE CONTRACTOR SHALL COMPARE PLANS, SPECIFICATIONS AND ALL OTHER CONTRACT DOCUMENTS WITH EACH OTHER AND REPORT IN WRITING TO THE HARBORS DIVISION CONSTRUCTION ENGINEER ALL INCONSISTENCIES AND OMISSIONS.
3. THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS AND VERIFY FIELD CONDITIONS AND SHALL COMPARE SUCH FIELD MEASUREMENTS AND CONDITIONS WITH THE DRAWINGS BEFORE COMMENCING WORK. REPORT IN WRITING TO THE HARBORS DIVISION CONSTRUCTION ENGINEER ALL INCONSISTENCIES AND OMISSIONS.
4. CONTRACTOR SHALL RESOLVE ANY DISCREPANCIES AND QUESTIONS PRIOR TO THE START OF WORK. NO EXTRA PAYMENT SHALL BE ALLOWED ON ACCOUNT OF WORK MADE NECESSARY BY THE CONTRACTORS FAILURE TO VISIT THE SITE AND/OR FAILURE TO RESOLVE DISCREPANCIES AND QUESTIONS.
5. THE CONTRACTOR SHALL PROTECT ALL UTILITIES AND STRUCTURES IN AND ADJACENT TO THE PROJECT SITE. ANY DAMAGE SHALL BE REPAIRED TO THE SATISFACTION OF THE HARBORS DIVISION CONSTRUCTION ENGINEER AND PAID FOR BY THE CONTRACTOR.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES.
7. THE CONTRACTOR SHALL COORDINATE HIS/HER WORK WITH OTHER CONTRACTORS WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL ALSO COORDINATE WITH THE HARBORS DIVISION HAWAII DISTRICT MANAGER AND CONSTRUCTION ENGINEER FOR AN APPROVED STAGING AND STORAGE AREA AND FOR RESTRICTIONS OF HARBORS OPERATIONS OVER REPAIR AREAS.
8. THE CONTRACTOR SHALL REMOVE ALL DEBRIS RESULTING FROM HIS/HER WORK AS REQUIRED FOR PUBLIC HEALTH AND SAFETY AND TO THE SATISFACTION OF THE HARBORS DIVISION CONSTRUCTION ENGINEER. SHOULD THE STATE PERFORM ANY OF THE ABOVE WORK DUE TO NON-PERFORMANCE BY THE CONTRACTOR, THE CONTRACTOR AGREES TO REIMBURSE THE STATE FOR ALL COSTS INCURRED.
9. HARBOR OPERATIONS TAKE PRECEDENCE OVER CONSTRUCTION ACTIVITY. THE CONTRACTOR MUST WORK AROUND HARBOR OPERATIONS SO THAT THE PIER AND YARD WILL REMAIN OPERATIONAL. WEEKEND WORK MAY BE REQUIRED AND SHALL BE COORDINATED WITH THE HARBORS DIVISION CONSTRUCTION ENGINEER AND TENANTS IN ADVANCE.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR METHODS OF CONSTRUCTION, WORKMANSHIP AND JOB SAFETY. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AND BRACING AS REQUIRED FOR STABILITY OF STRUCTURAL MEMBERS AND SYSTEMS.
11. ALL WORK SPECIFIED IN THE CONTRACT BUT NOT LISTED SEPARATELY SHALL BE CONSIDERED INCIDENTAL AND WILL NOT BE PAID FOR SEPARATELY.
12. NOTES AND DETAILS ON THE PLANS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. SHOULD THERE BE CONFLICTS BETWEEN THE REQUIREMENTS OF THE PLANS OR SPECIFICATIONS, THE MORE STRINGENT SHALL APPLY.
13. THE CONTRACTOR SHALL COMPLY WITH THE CLEAN WATER ACT AND THE STATE HARBORS DIVISION STORMWATER MANAGEMENT PROGRAM. NO POLLUTANT IS ALLOWED TO BE DISCHARGED DIRECTLY OR INDIRECTLY THROUGH THE HARBORS SMALL MS4 OR OTHER POTENTIAL PATHWAY INTO HARBOR WATERS.
14. THE CONTRACTOR WILL BE RESPONSIBLE FOR REGULATORY FINES OR PENALTIES THAT MAY BE IMPOSED BY ENVIRONMENTAL REGULATORY AGENCIES (EPA AND/OR STATE DOH) IN THE EVENT OF VIOLATIONS.
15. THE CONTRACTOR SHALL SUBMIT A SITE-SPECIFIC BEST MANAGEMENT PRACTICE PLAN AND HEALTH AND SAFETY PLAN TO THE HARBORS ENGINEERING BRANCH PRIOR TO THE START OF ANY CONSTRUCTION WORK.
16. IN CASE OF RELEASE OF HAZARDOUS SUBSTANCE, OIL OR ENCOUNTER OF CONTAMINATED SOIL, THE CONTRACTOR SHALL NOTIFY APPROPRIATE FACILITY PERSONNEL, EMERGENCY RESPONSE AGENCIES, AND REGULATORY AGENCIES FOLLOWING NOTIFICATION PROCEDURES, AND SHALL NOTIFY THE HARBORS CONSTRUCTION ENGINEER IMMEDIATELY (I.E., WITHIN 24-HOURS). CONTACT INFORMATION MUST BE IN LOCATIONS THAT ARE READILY ACCESSIBLE AND AVAILABLE. CONTRACTOR SHALL NOTIFY THE HDOT HARBORS DIVISION ENGINEERING BRANCH ENVIRONMENTAL HOTLINE (808-587-1962) AND HDOT HARBORS DIVISION CONSTRUCTION ENGINEER OF ANY ILLICIT DISCHARGE AND/OR SPILL/RELEASE THAT OCCURS ONSITE.

FOUNDATION DESIGN CRITERIA:

1. WIND
 - a. BASIC WIND SPEED=120 MPH
 - b. EXPOSURE D
 - c. TOPOGRAPHIC FACTOR $K_{zt}=1.00$
 - d. DIRECTIONALITY FACTOR $K_d=1.00$
 - e. RISK CATEGORY II

CONCRETE:

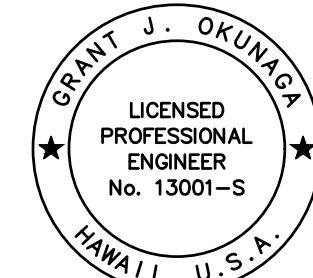
1. CONCRETE CONSTRUCTION SHALL CONFORM TO AMERICAN CONCRETE INSTITUTE ACI 318-14.
2. FORMED CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI.
3. CONCRETE FOR LIGHT POLES SHALL INCLUDE SILICA FUME AND CORTEC MCI 2005 NS MIGRATING CORROSION INHIBITING ADMIXTURE, OR APPROVED EQUAL.
4. CONCRETE DELIVERY TICKETS SHALL RECORD ALL FREE WATER IN THE MIX: AT BATCHING BY PLANT, FOR CONSISTENCY BY DRIVER, AND ANY ADDITIONAL REQUEST BY CONTRACTOR IF PERMITTED BY THE MIX DESIGN.
5. MAXIMUM WATER TO CEMENTITIOUS MATERIALS RATIO SHALL BE 0.40.
6. REINFORCING BARS, ANCHOR BOLTS, INSERTS, AND OTHER ITEMS TO BE CAST IN THE CONCRETE SHALL BE SECURED IN POSITION PRIOR TO PLACEMENT OF CONCRETE.
7. NON-SHRINK GROUT SHALL BE A PREMIXED NON-METALLIC FORMULA, CAPABLE OF DEVELOPING A MINIMUM 1-DAY COMPRESSIVE STRENGTH OF 3,000 PSI AND 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI.
8. ASPHALT PAVEMENT FOR WEARING SURFACE SHALL BE STATE MIX III.

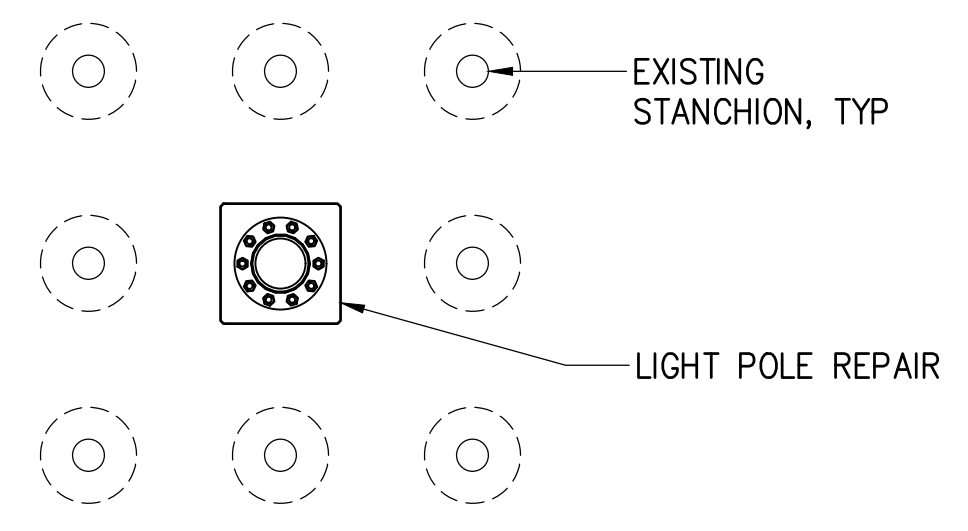
REINFORCING STEEL:

1. REINFORCING STEEL SHALL BE ASTM A615, GRADE 60.
2. CLEAR CONCRETE COVER FOR REINFORCING BARS SHALL BE TWO INCHES MINIMUM, UNLESS OTHERWISE NOTED.
3. BAR BENDS AND HOOKS SHALL BE STANDARD HOOKS IN ACCORDANCE WITH ACI 318.
4. ANTI-CORROSION COATING WITH A MINIMUM 7 DAY OPEN TIME FOR REINFORCING STEEL SHALL BE ARMATEC 110 EPOCEM BY SIKA OR APPROVED EQUAL.
5. TIE WIRE SHALL BE PLASTIC-COATED, STAINLESS STEEL, OR MADE OF DIELECTRIC OR OTHER ACCEPTABLE MATERIAL. ALL LOOSE REINFORCING STEEL SHALL BE SECURED WITH TIES AT ALL INTERSECTIONS WITH ADJACENT REINFORCING STEEL.
6. EPOXY FOR GROUTING OF DOWELS IN CRACKED OR UNCRACKED CONCRETE SHALL BE SET-3G BY SIMPSON STRONG-TIE OR APPROVED EQUAL.

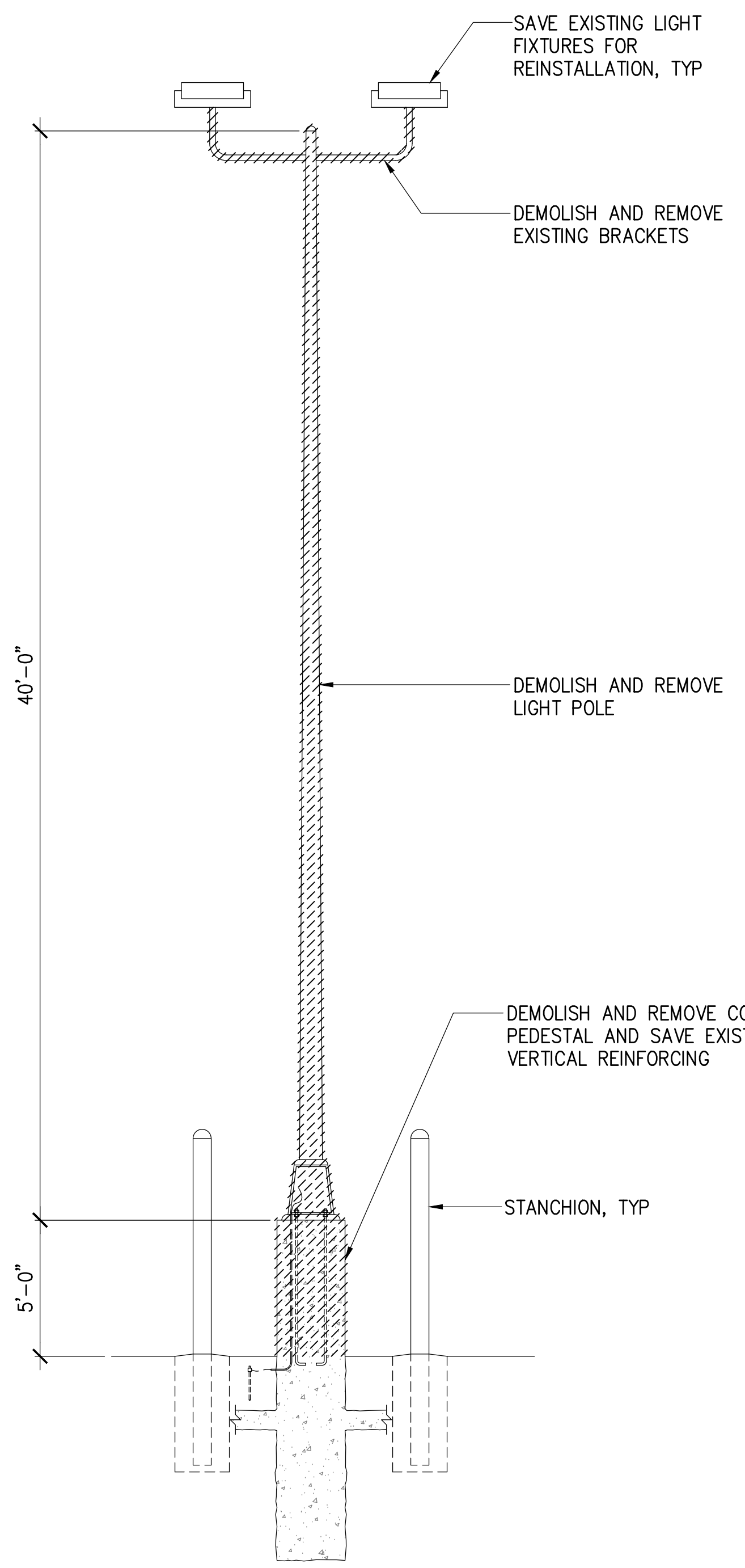
COATING:

1. NEW LIGHT POLES SHALL BE PREPARED AND COATED IN THE SHOP. COATING SHALL BE APPLIED TO THE EXTERIOR OF THE LIGHT POLES AND BASE PLATE INCLUDING THE UNDERSIDE OF THE BASE PLATE. COATING SHALL ALSO BE APPLIED TO THE POLE INTERIORS AT THE BASE AS SHOWN.
2. EXISTING LIGHT POLES, CONCRETE PEDESTALS AND NON-SHRINK GROUT SHALL BE FIELD COATED.
3. COATING COLOR SHALL BE OSHA YELLOW.
4. HIGH SOLIDS EPOXY COATING SHALL BE AMERLOCK 400 AS MANUFACTURED BY PPG PROTECTIVE AND MARINE COATINGS, OR APPROVED EQUAL.
5. ENGINEERED SILOXANE COATING SHALL BE PSX 700 AS MANUFACTURED BY PPG PROTECTIVE AND MARINE COATINGS, OR APPROVED EQUAL.

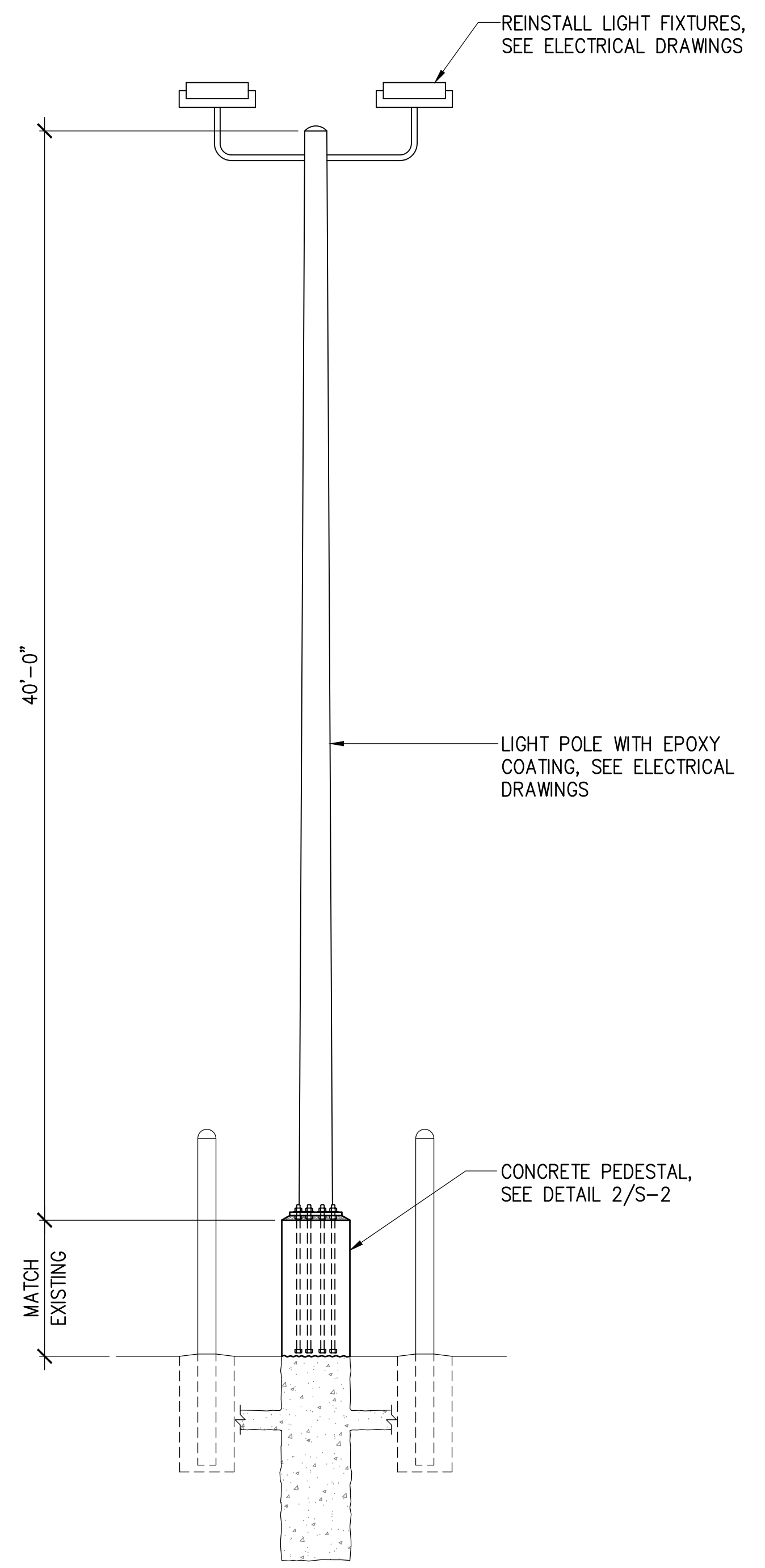
| | | | | | |
|--|--|------|-------------|-------|----------|
|  <p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION EXP. 4-30-24 <i>Grant J. Okunaka</i> MKE ASSOCIATES LLC</p> | REVISION | DATE | DESCRIPTION | BY | APPROVED |
| | STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | | |
| | JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| | SHEET TITLE STRUCTURAL NOTES | | | | |
| DESIGNED BY: GO | JOB NUMBER | | | SHEET | |
| DRAWN BY: DL | S50201 | | | S-1 | |
| CHECKED BY: GM | | | | | |
| DATE: 04/2023 | | | | | |
| SCALE: AS SHOWN | | | | | |



PLAN

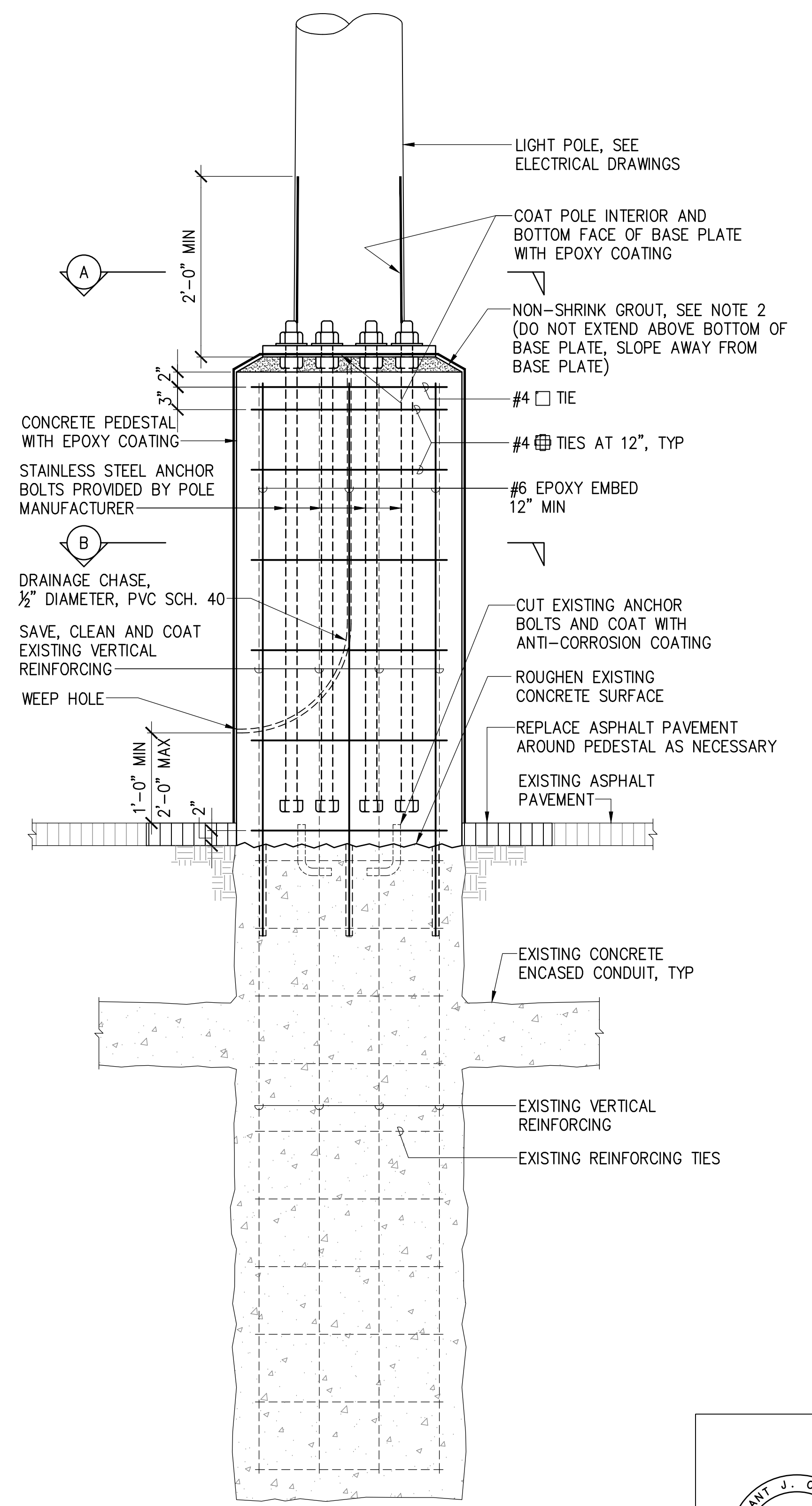


EXISTING CONDITION



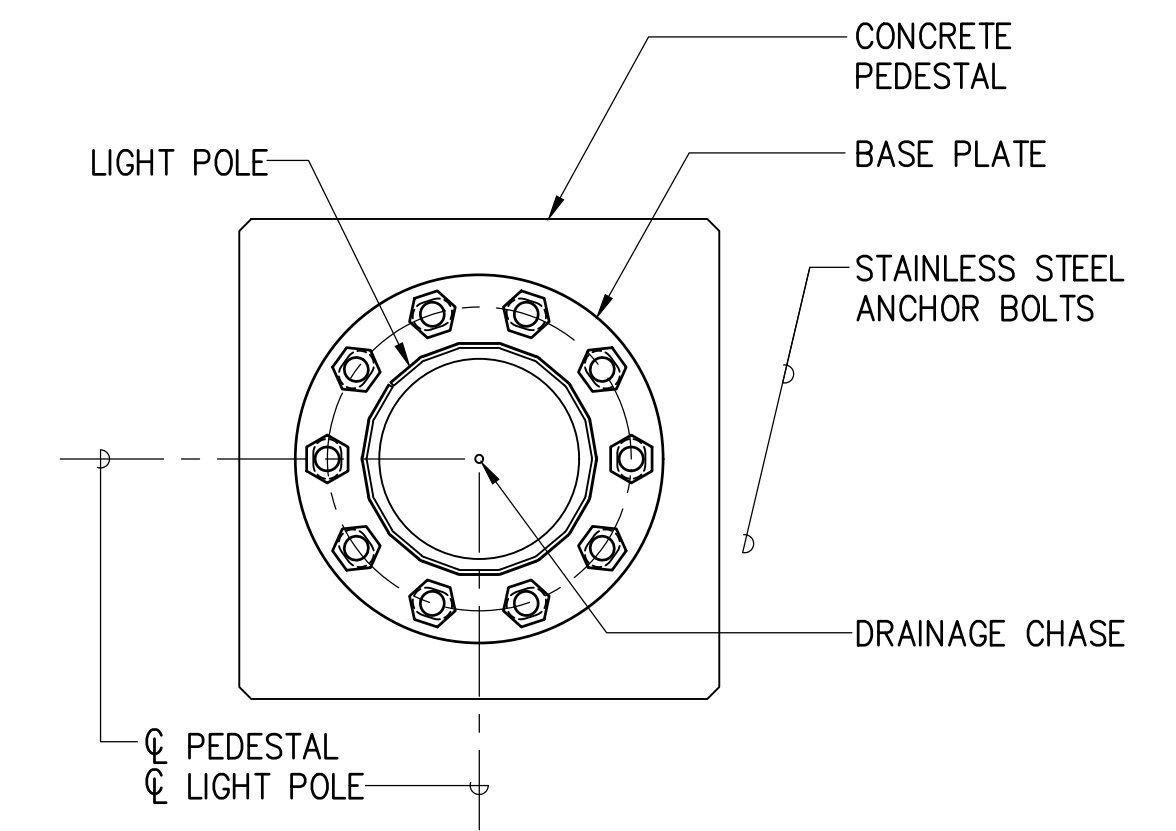
REPAIRED CONDITION

1 LIGHT POLE 17 REPAIR
SCALE: 1/4" = 1'-0"

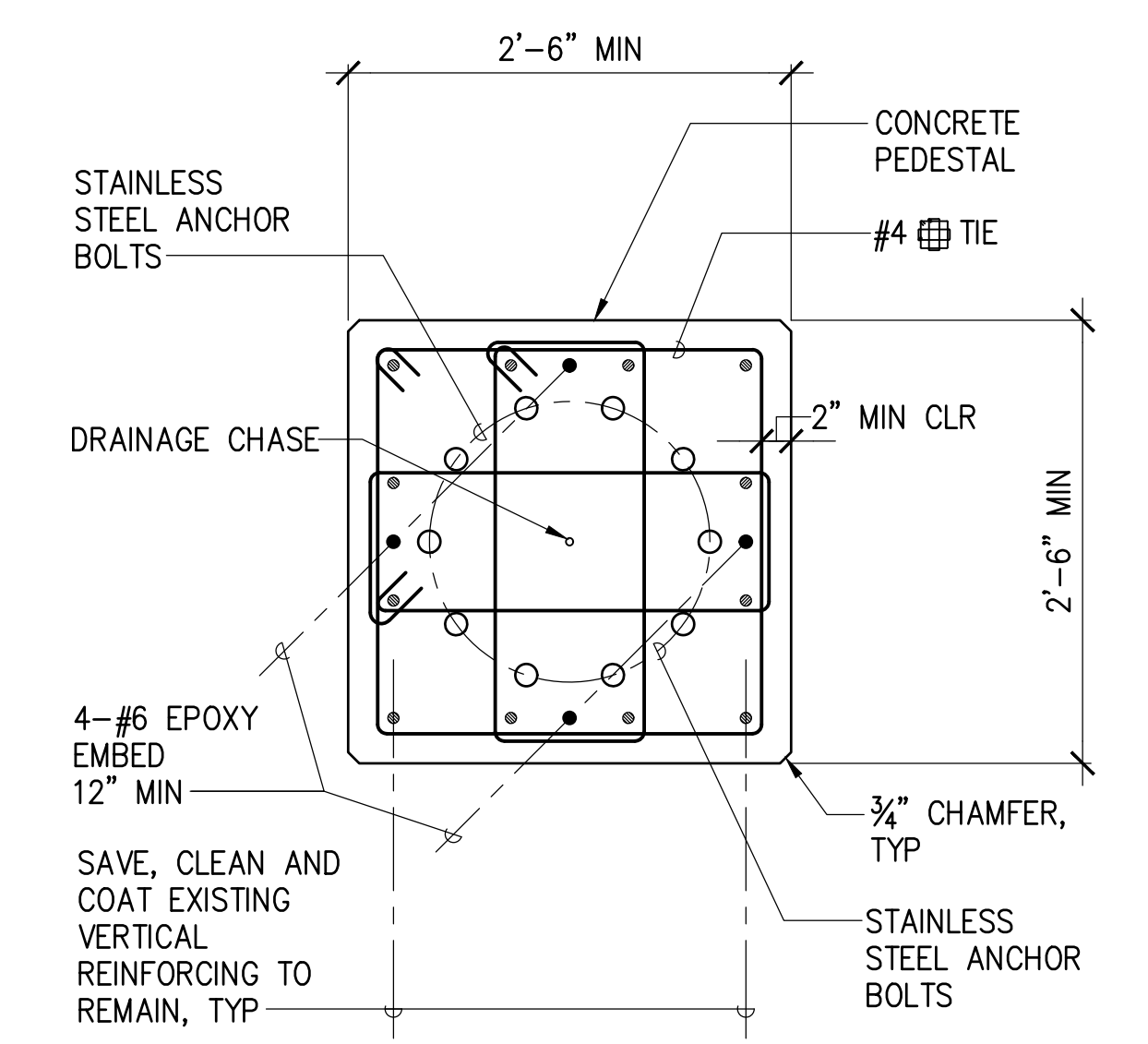


SECTION

2 PEDESTAL REPAIR (POLE 17)
SCALE: 1" = 1'-0"

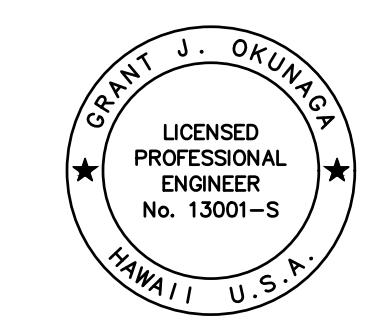


A SECTION



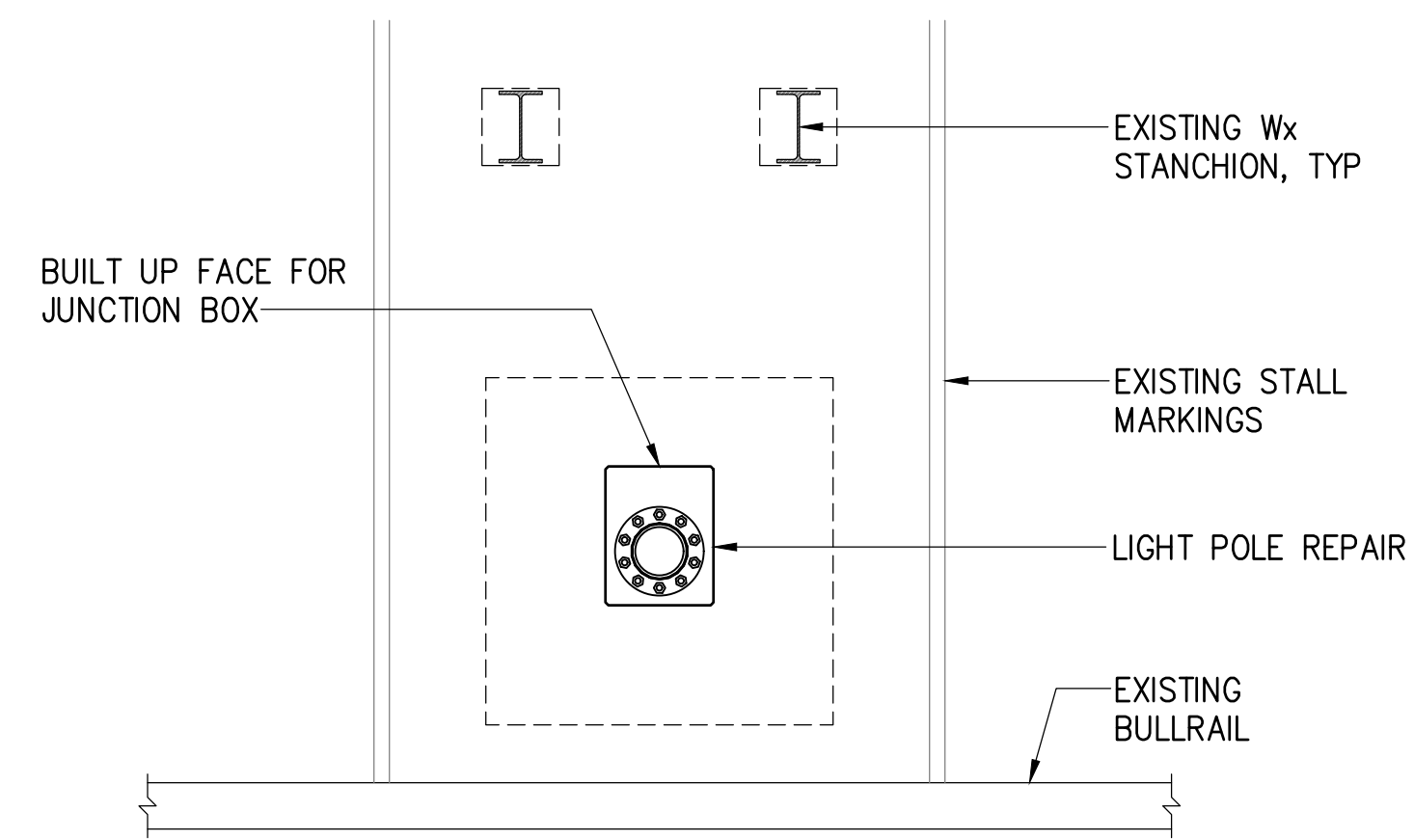
B SECTION

- NOTES:
1. MAXIMUM GROUT HEIGHT SHALL BE 3" MAX AND AS RECOMMENDED BY THE POLE MANUFACTURER.
 2. SEE ELECTRICAL DRAWINGS FOR ELECTRICAL WORK INCLUDING CONDUITS, GROUNDING ROD, ETC.



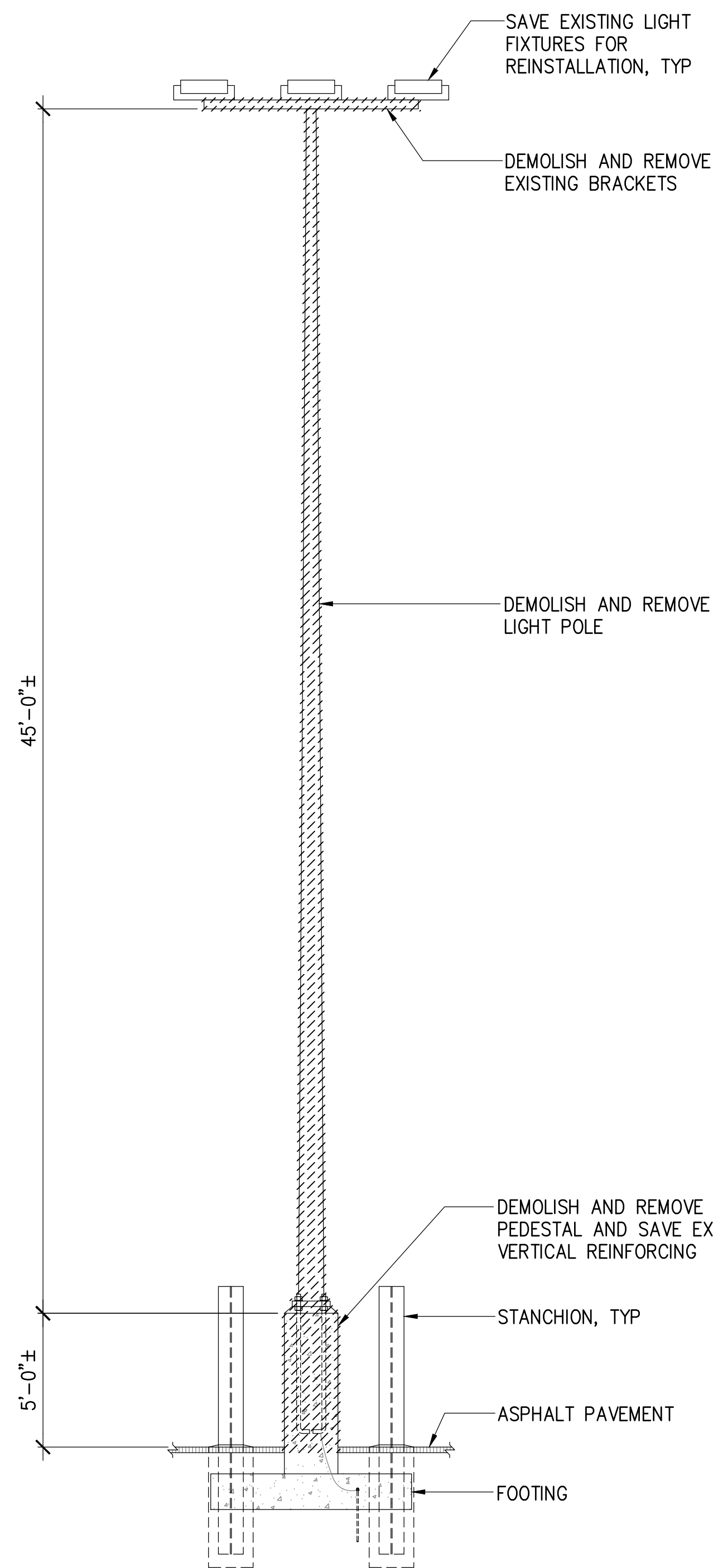
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EXP. 4-30-24
MKE ASSOCIATES LLC

| REVISION | DATE | DESCRIPTION | BY | APPROVED |
|--|------|-------------|----|----------------------|
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | | |
| JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| SHEET TITLE LIGHT POLE REPAIR DETAILS - POLE 17 | | | | |
| DESIGNED BY: GO | | | | SHEET S-2 |
| DRAWN BY: DL | | | | JOB NUMBER S50201 |
| CHECKED BY: GM | | | | |
| DATE: 04/2023 | | | | |
| SCALE: AS SHOWN | | | | 4 OF 19 SHTS. |

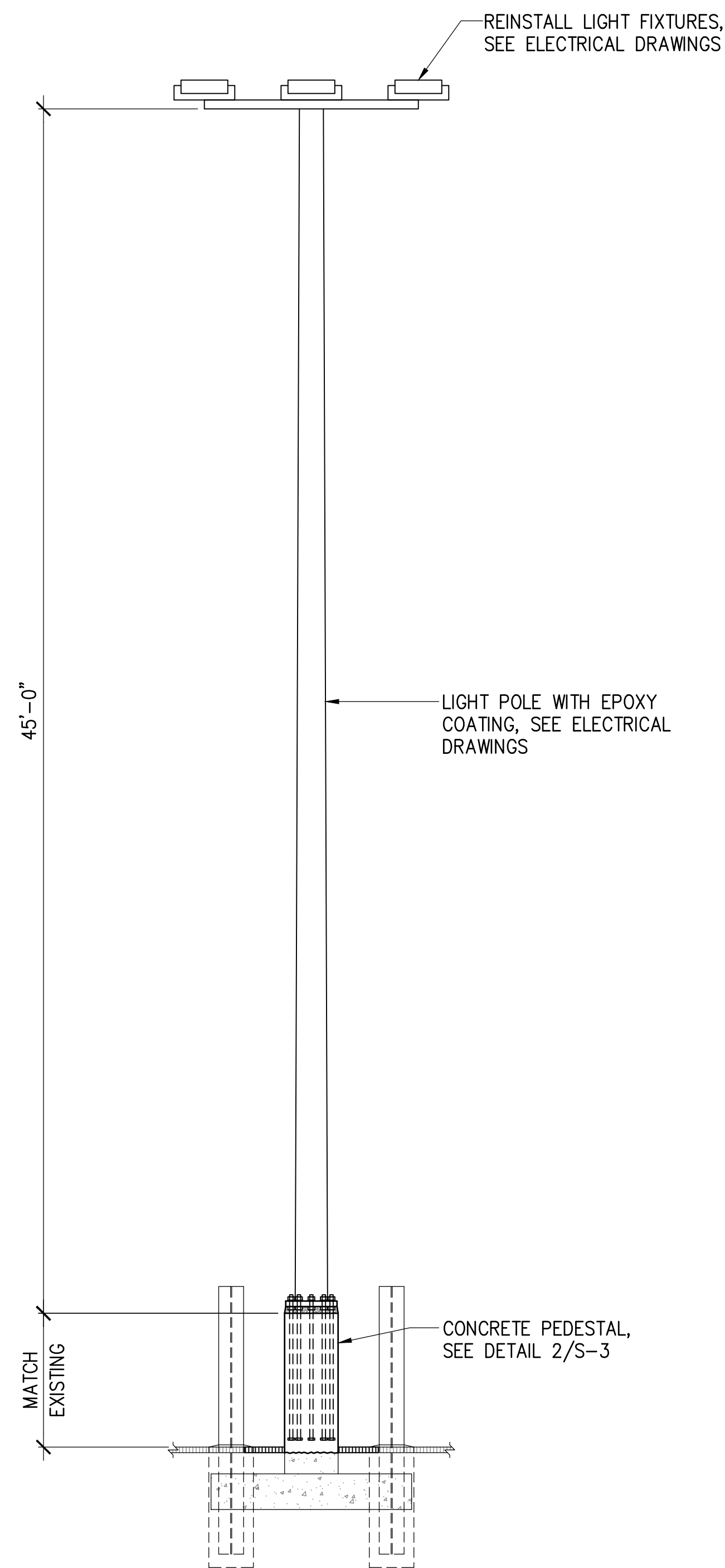


NOTE:
TYPICAL STANCHION/STRIPING SHOWN.

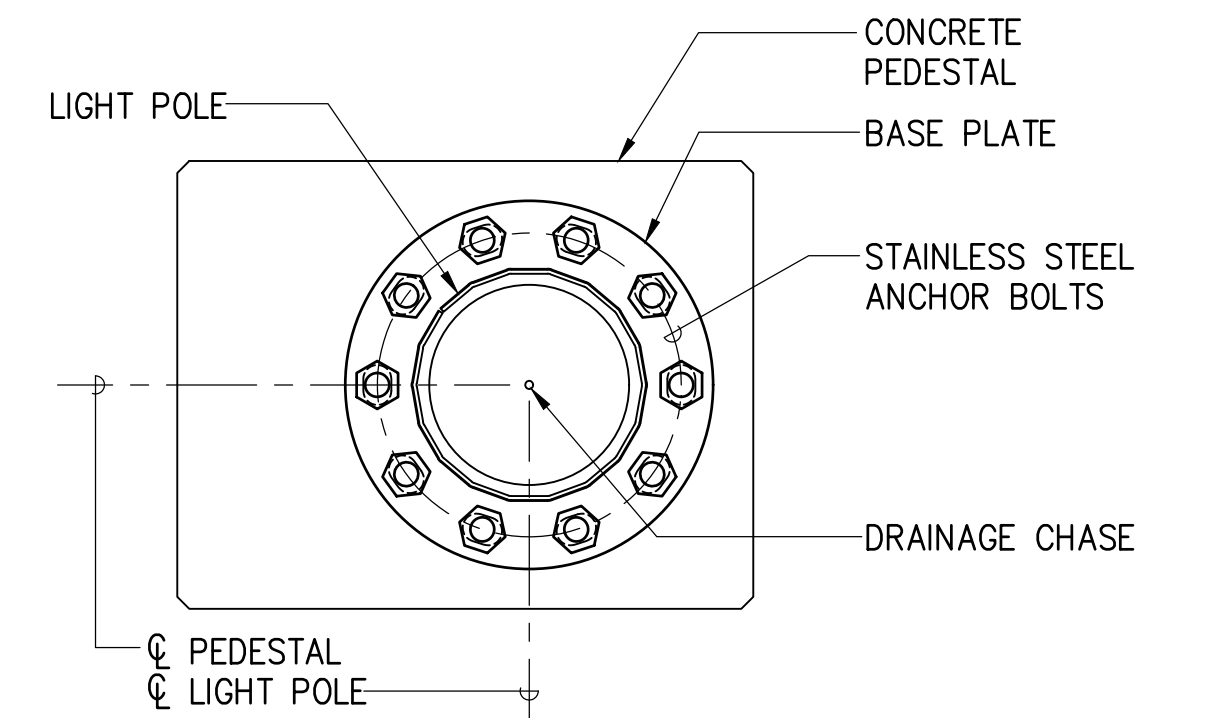
PLAN



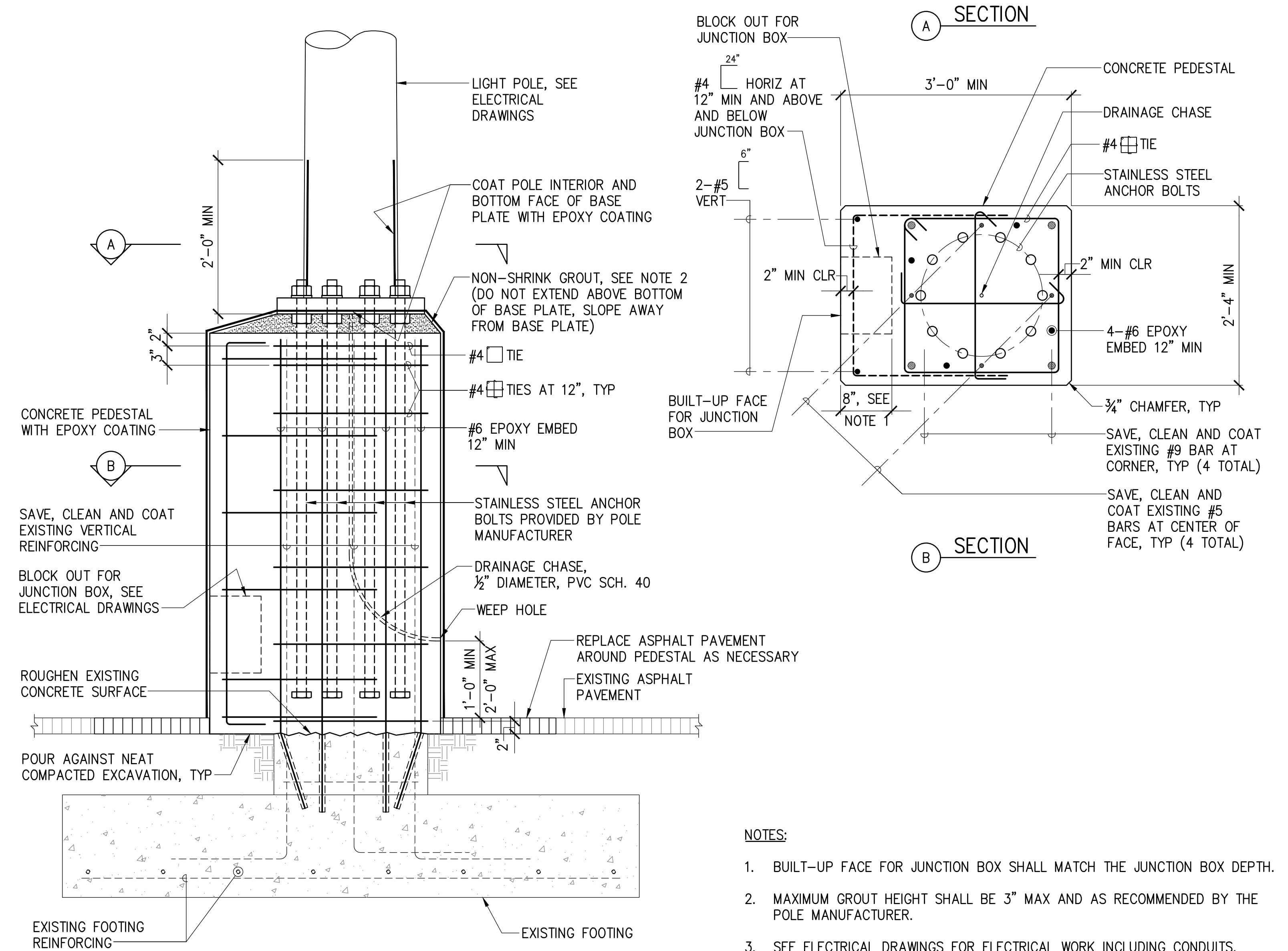
EXISTING CONDITION



REPAIRED CONDITION



A SECTION



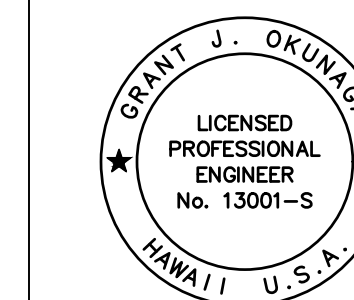
SECTION

NOTES:

- BUILT-UP FACE FOR JUNCTION BOX SHALL MATCH THE JUNCTION BOX DEPTH.
- MAXIMUM GROUT HEIGHT SHALL BE 3" MAX AND AS RECOMMENDED BY THE POLE MANUFACTURER.
- SEE ELECTRICAL DRAWINGS FOR ELECTRICAL WORK INCLUDING CONDUITS, GROUNDING ROD, ETC.

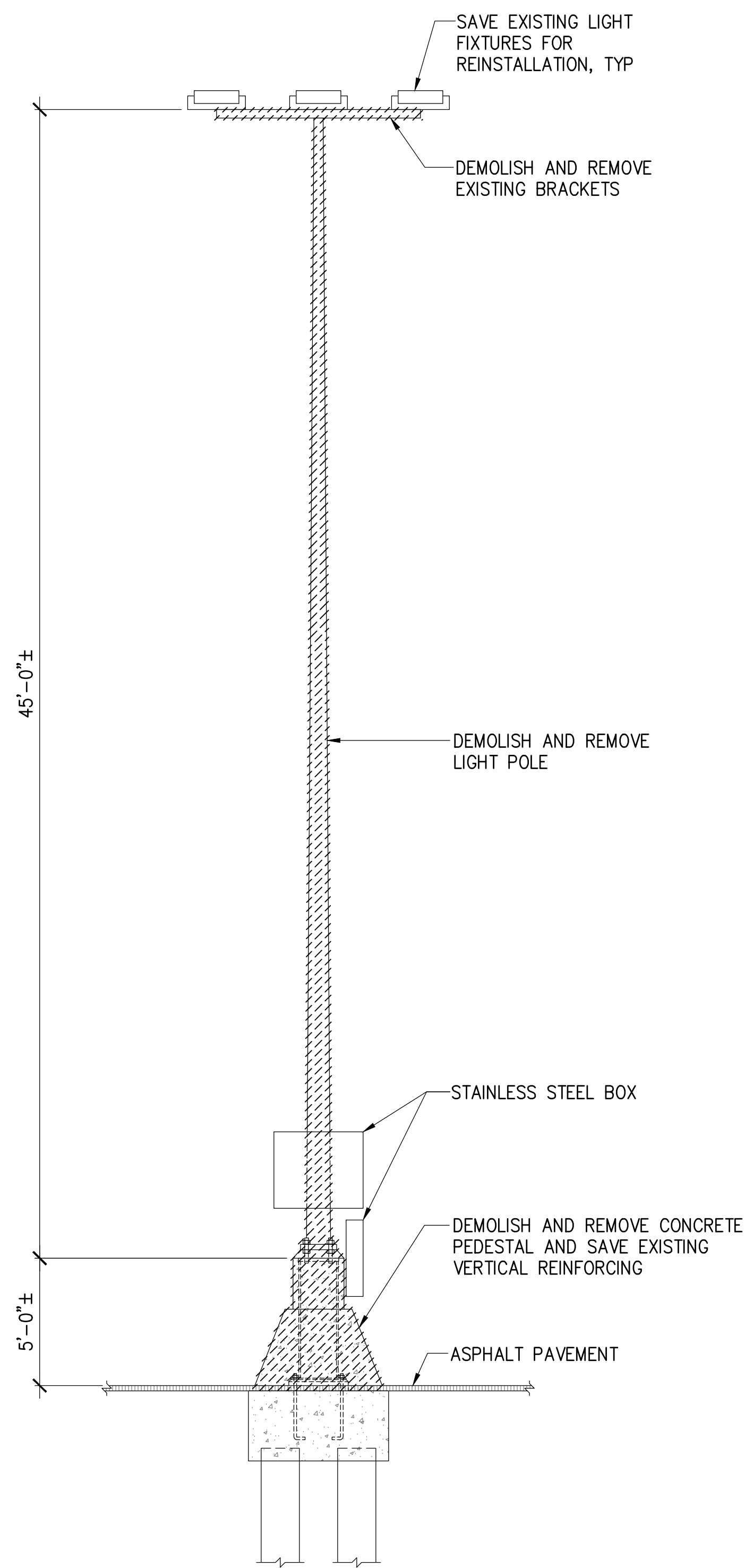
1 LIGHT POLES 28, 29, 30, 32 REPAIRS
SCALE: 1/4" = 1'-0"

2 PEDESTAL REPAIR (POLES 28, 29, 30, 32)
SCALE: 1" = 1'-0"

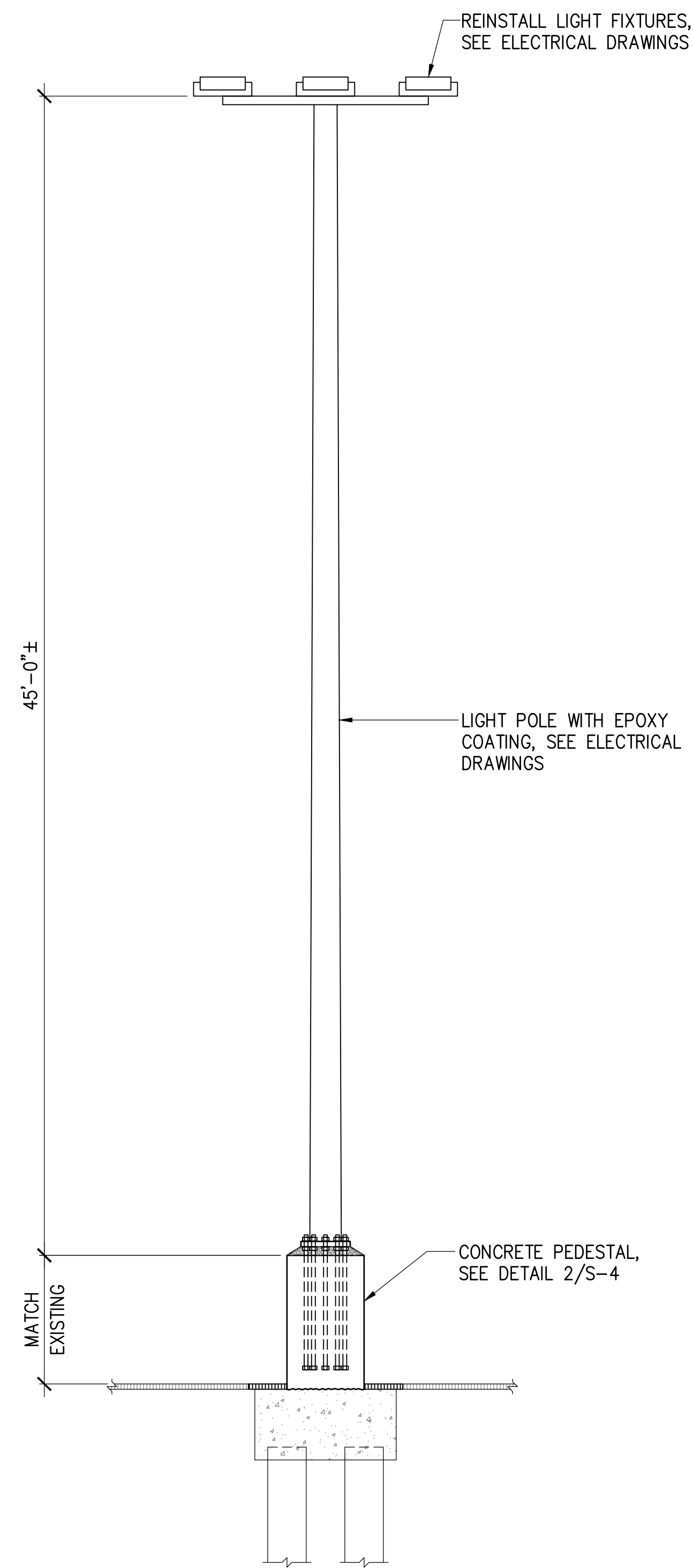


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EXP. 4-30-24
Grant J. Okunaga
MKE ASSOCIATES LLC

| REVISION | DATE | DESCRIPTION | BY | APPROVED |
|--|------------|-------------|--------|---------------|
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | | |
| JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| SHEET TITLE LIGHT POLE REPAIR DETAILS - POLES 28, 29, 30, 32 | | | | |
| DESIGNED BY: GO | | | | SHEET |
| DRAWN BY: DL | | | | S-3 |
| CHECKED BY: GM | | | | 5 OF 19 SHTS. |
| DATE: 04/2023 | JOB NUMBER | | S50201 | |
| SCALE: AS SHOWN | | | | |

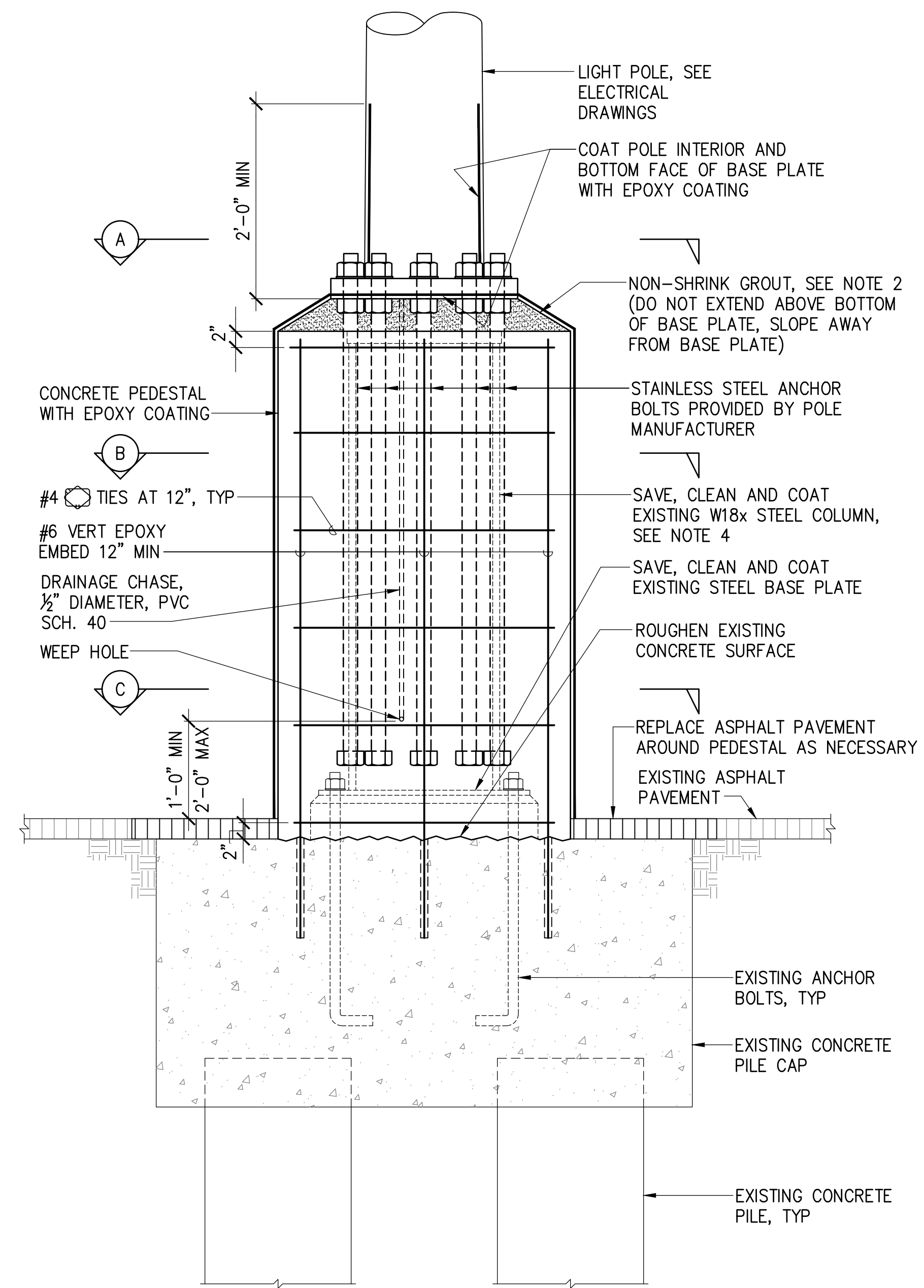


EXISTING CONDITION



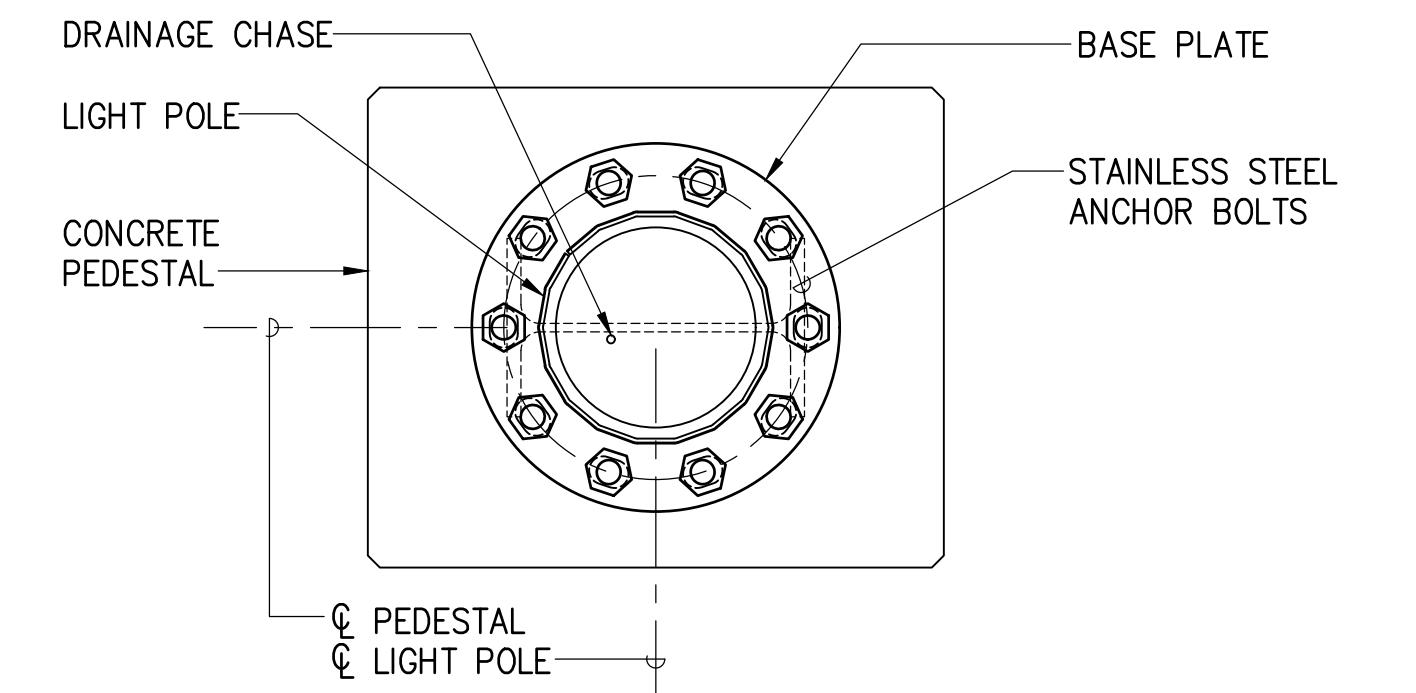
REPAIRED CONDITION

1 LIGHT POLE 36 REPAIR
S-4 SCALE: 1/4" = 1'-0"

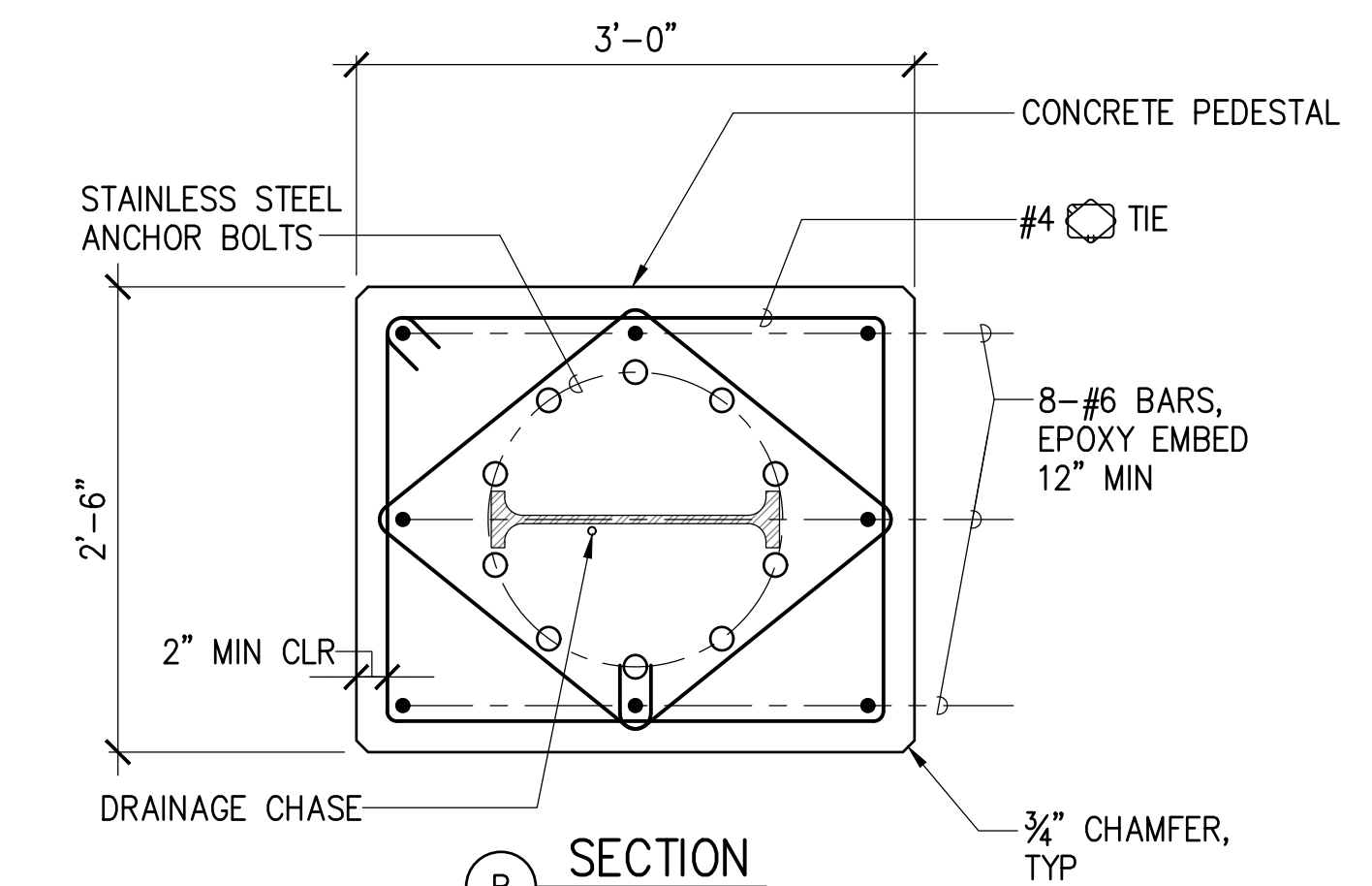


SECTION

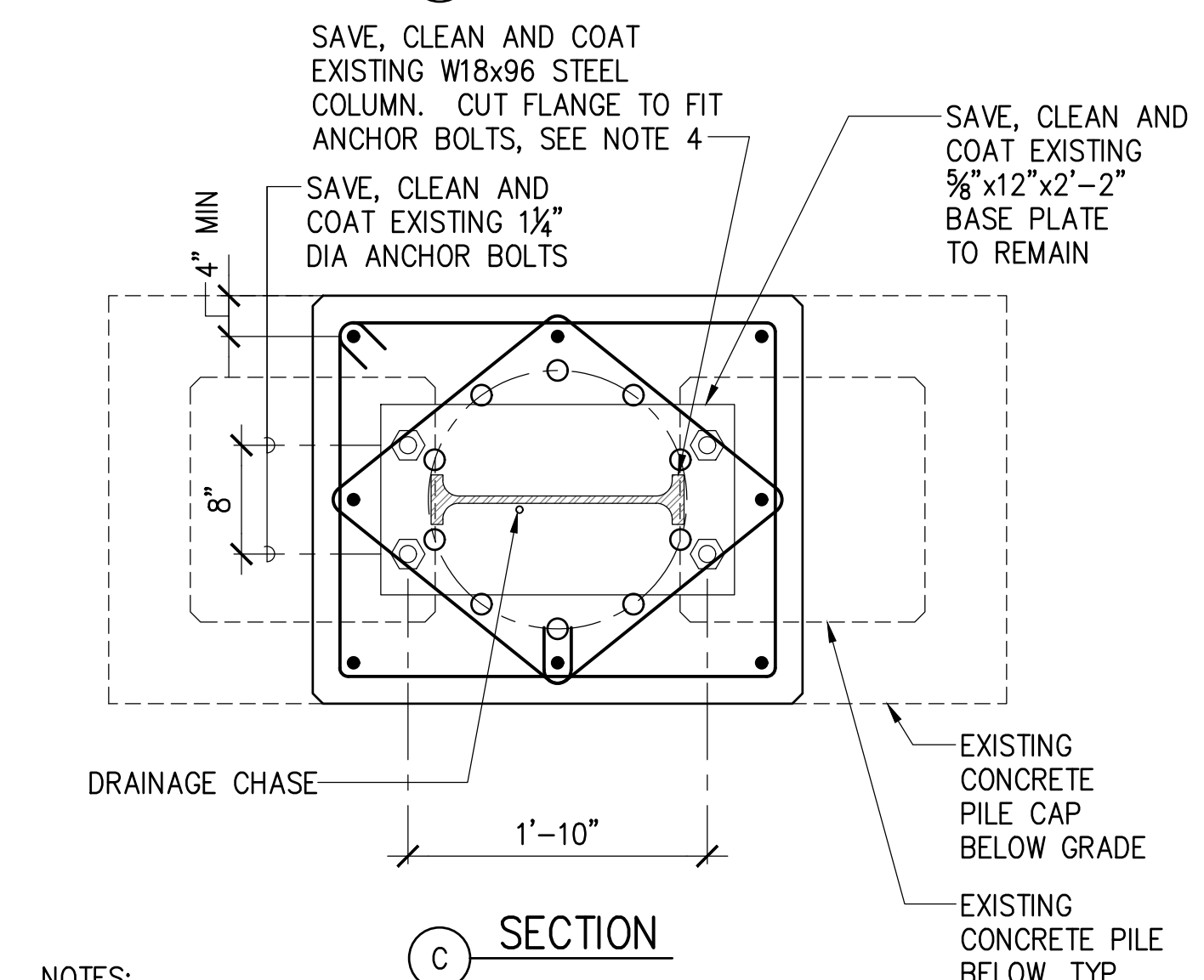
2 PEDESTAL REPAIR (POLE 36)
S-4 SCALE: 1" = 1'-0"



SECTION A

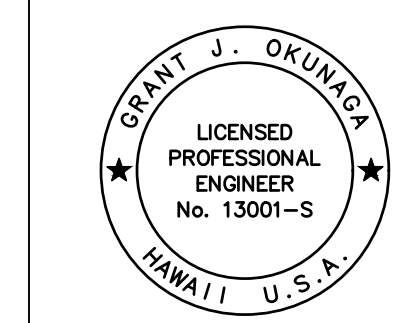


SECTION B



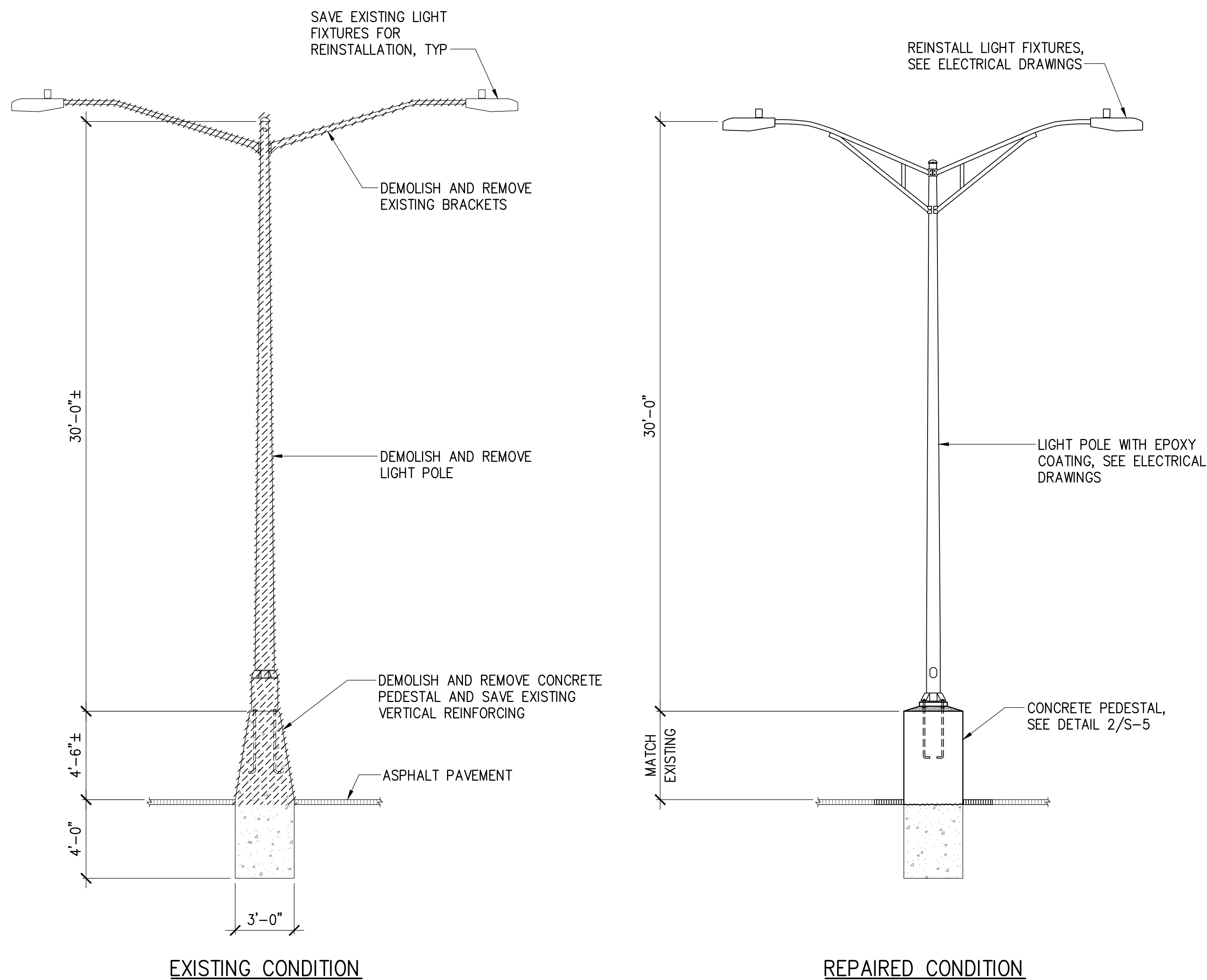
SECTION C

- NOTES:
1. MAXIMUM GROUT HEIGHT SHALL BE 3" MAX AND AS RECOMMENDED BY THE POLE MANUFACTURER.
 2. SEE ELECTRICAL DRAWINGS FOR ELECTRICAL WORK INCLUDING CONDUITS, GROUNDING ROD, ETC.
 3. SAVE, CLEAN AND COAT EXISTING VERTICAL PEDESTAL REINFORCING WITHIN NEW PEDESTAL.
 4. EXISTING W18x FLANGES MAY BE CUT TO FIT ANCHOR BOLTS. SMALL PENETRATIONS < 4" DIA MAY BE MADE FOR ELECTRICAL WORK.

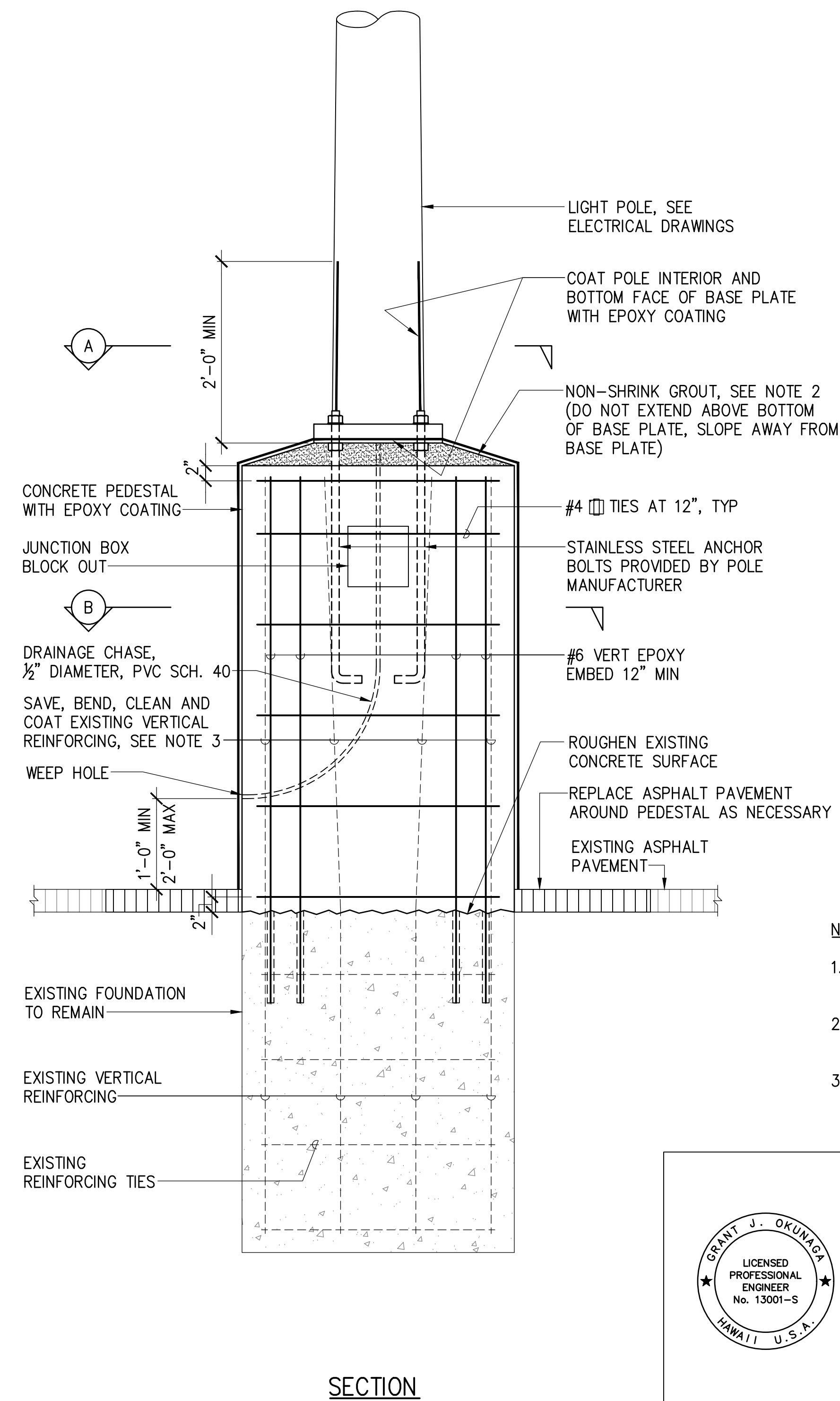


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MKE ASSOCIATES LLC

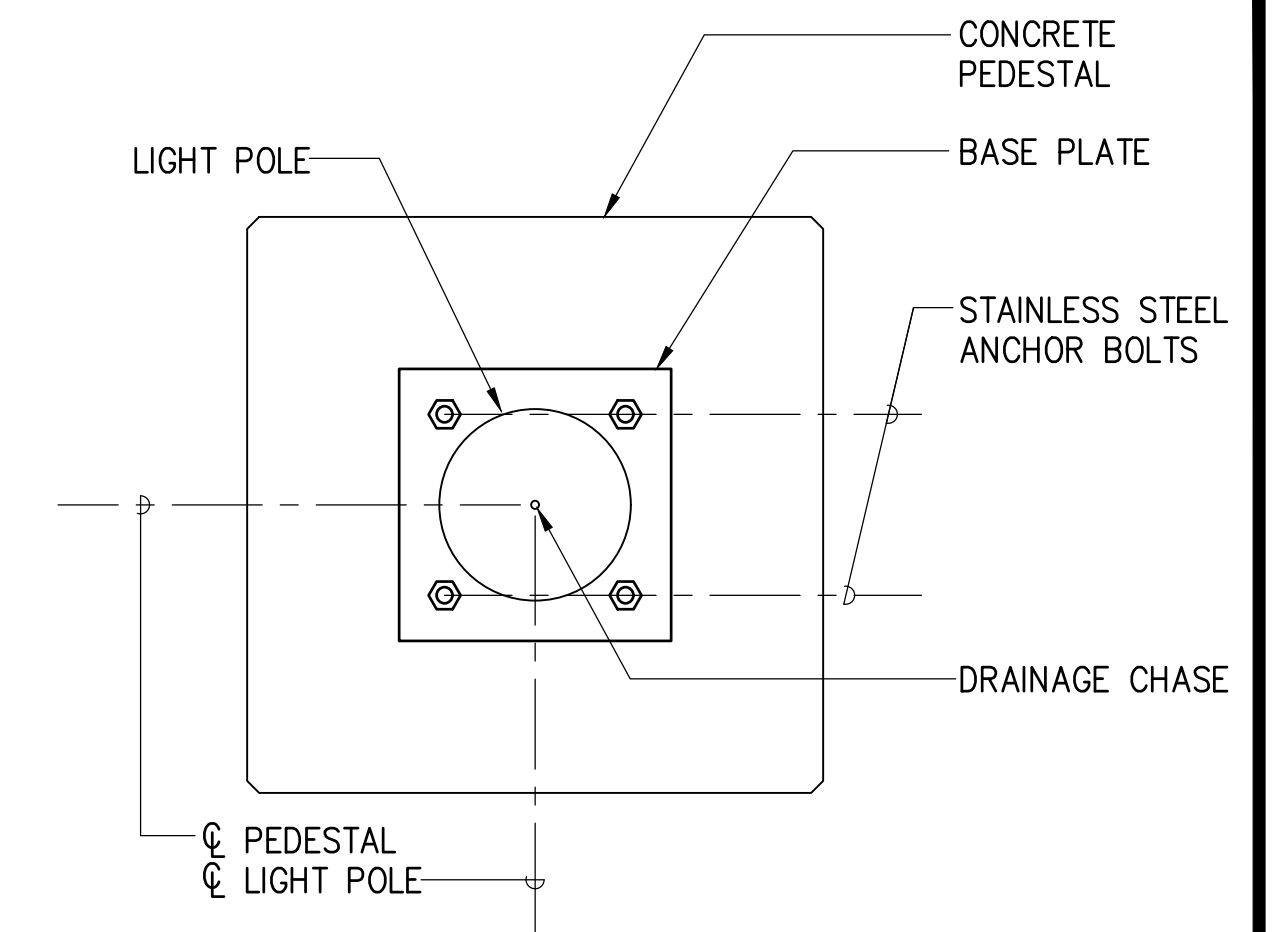
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| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | | |
| JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| SHEET TITLE LIGHT POLE REPAIR DETAILS - POLE 36 | | | | |
| DESIGNED BY: GO | JOB NUMBER | | SHEET | |
| DRAWN BY: DL | S50201 | | S-4 | |
| CHECKED BY: GM | DATE: 04/2023 | | 6 OF 19 SHTS. | |
| SCALE: AS SHOWN | SCALE: AS SHOWN | | | |



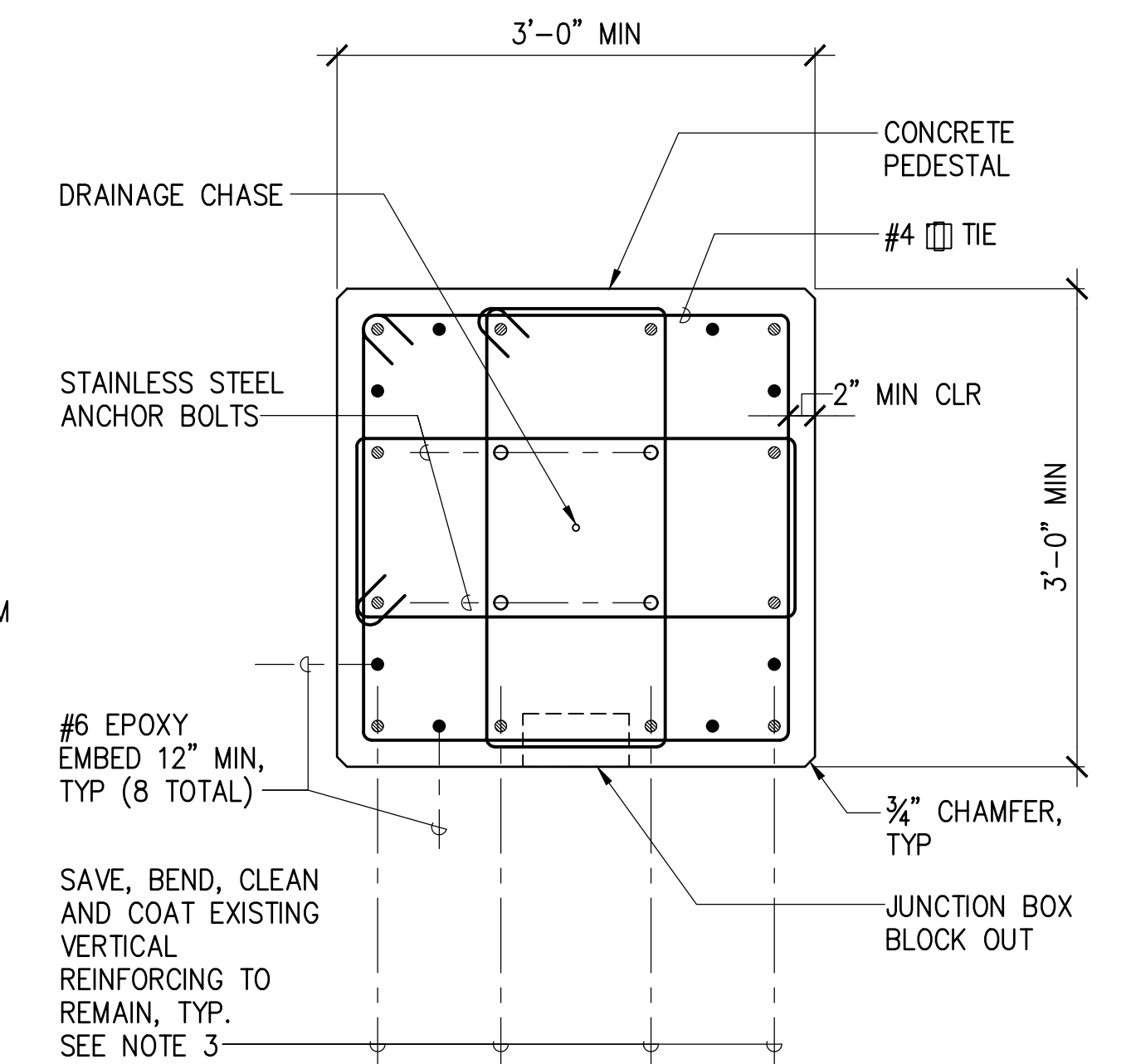
1 LIGHT POLE 41 REPAIR
S-5 SCALE: 1/4" = 1'-0"



2 PEDESTAL REPAIR (POLE 41)
S-5 SCALE: 1" = 1'-0"



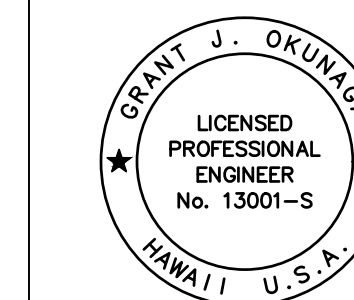
A SECTION



B SECTION

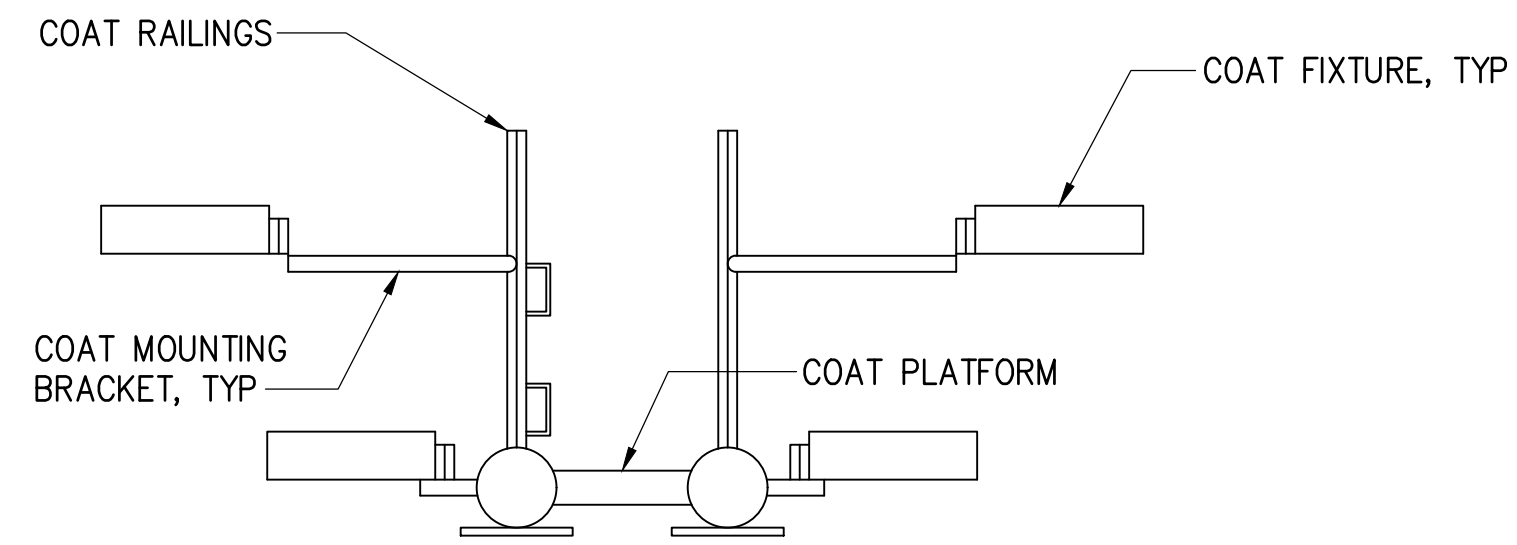
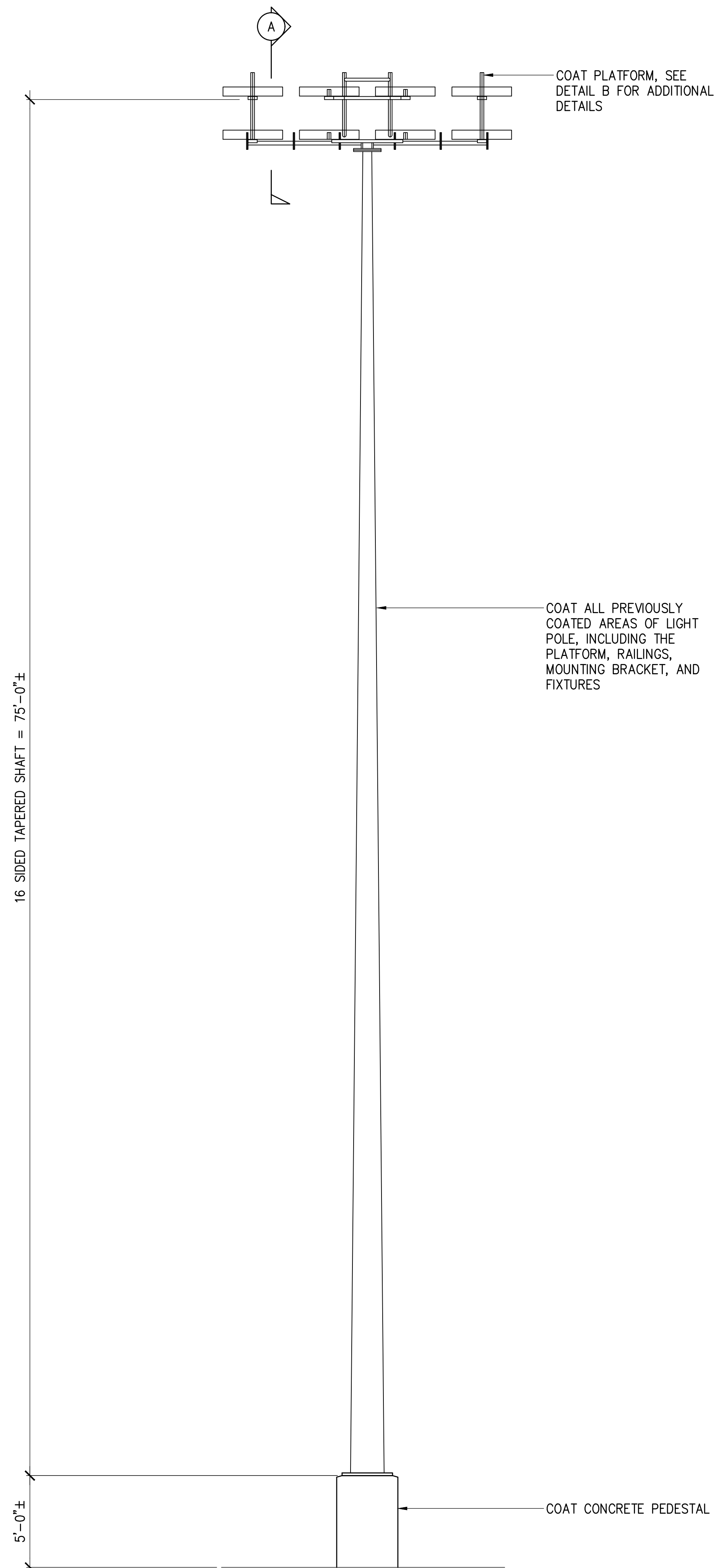
NOTES:

1. MAXIMUM GROUT HEIGHT SHALL BE 3" MAX AND AS RECOMMENDED BY THE POLE MANUFACTURER.
2. SEE ELECTRICAL DRAWINGS FOR ELECTRICAL WORK INCLUDING CONDUITS, GROUNDING ROD, ETC.
3. BEND EXISTING VERTICAL BARS STRAIGHT AND AS NECESSARY TO FIT JUNCTION BOX AND ANCHOR BOLTS.

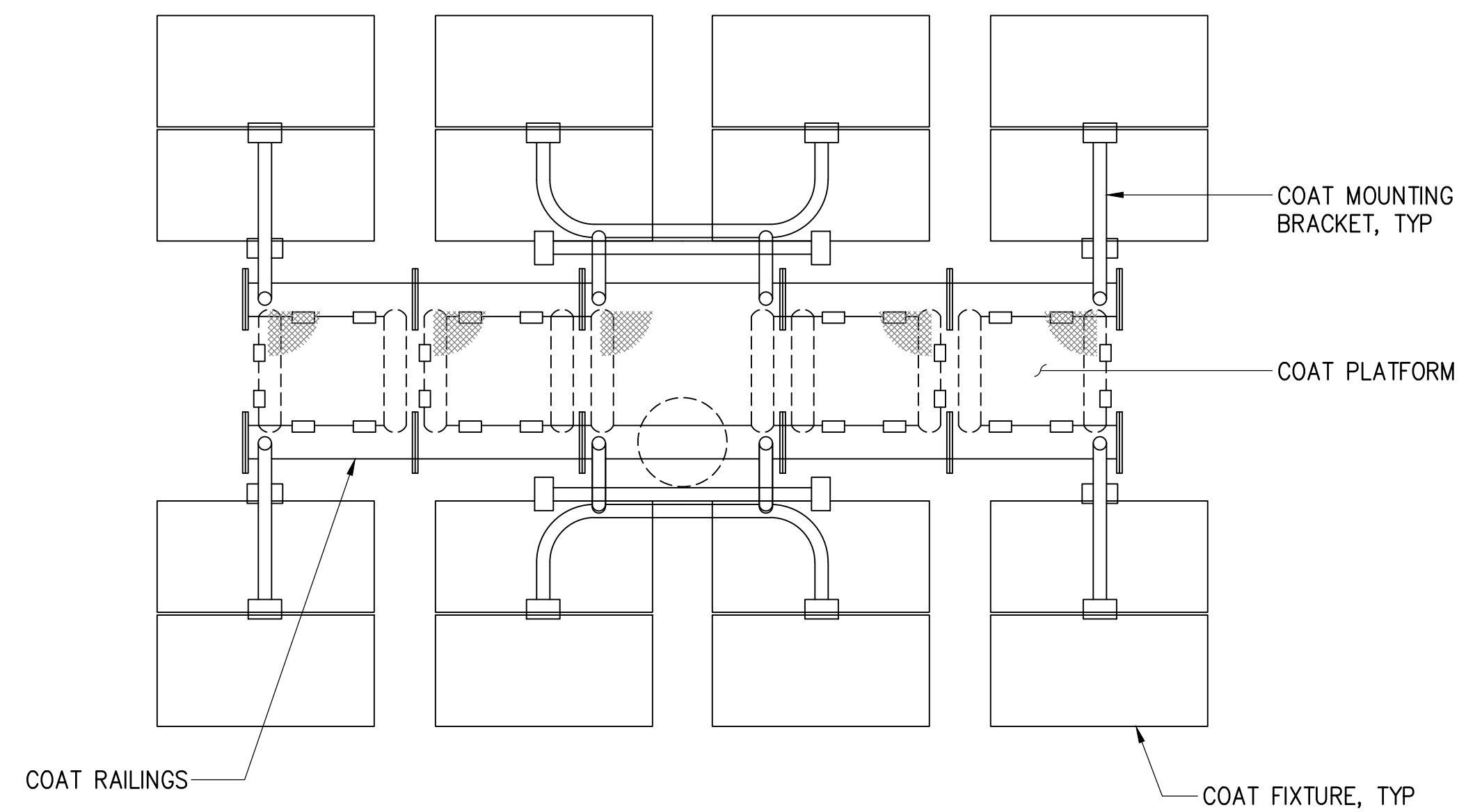


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EXP. 4-30-24
Grant J. Okuniga
MKE ASSOCIATES LLC

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| JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| SHEET TITLE LIGHT POLE REPAIR DETAILS - POLE 41 | | | | |
| DESIGNED BY: GO | | | | SHEET S-5 |
| DRAWN BY: DL | | | | 7 OF 19 SHTS. |
| CHECKED BY: GM | | | | |
| DATE: 04/2023 | JOB NUMBER S50201 | | | |
| SCALE: AS SHOWN | | | | |

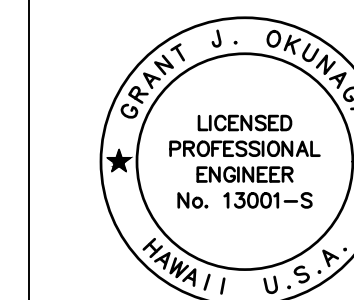


A SECTION
NOT TO SCALE



B PLATFORM PLAN
NOT TO SCALE

1 LIGHT POLE 37, 38, 39 REPAIRS
S-6 SCALE: 1/4" = 1'-0"



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
EXP. 4-30-24
Grant J. Okuniga
MKE ASSOCIATES LLC

| REVISION | DATE | DESCRIPTION | BY | APPROVED |
|--|--------------------|-------------|----|---------------------------------------|
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | | |
| JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| SHEET TITLE LIGHT POLE REPAIR DETAILS - POLES 37, 38, 39 | | | | |
| DESIGNED BY: GO | DRAWN BY: DL | | | CHECKED BY: GM |
| DATE: 04/2023 | JOB NUMBER: S50201 | | | SCALE: AS SHOWN |
| | | | | SHEET S-6 8 of 19 SHEETS |

ELECTRICAL SYMBOL LIST

| SYMBOL | | DESCRIPTION |
|-----------|------|--|
| EXISTING | NEW | |
| -----e--- | | UNDERGROUND DUCTLINE |
| | | HIGH MAST LIGHT POLE ASSEMBLY (LIGHT POLE B1 INDICATED) |
| | | STREET LIGHT STANDARD, DOUBLE HEAD ASSEMBLY |
| | | ELECTRICAL MANHOLE OR HANDHOLE, TYPE AS INDICATED |
| | | PANELBOARD |
| | | JUNCTION BOX, WALL MOUNTED |
| | | NOTE INDICATOR |
| | | DETAIL INDICATOR: TOP HALF DENOTES DETAIL NUMBER, BOTTOM HALF DENOTES SHEET NUMBER |
| | ELEC | ELECTRICAL |
| | EHH | ELECTRICAL HANDHOLE |
| | GND | GROUND |
| | PVC | POLYVINYL CHLORIDE |
| | | DENOTES DEMOLITION/REMOVAL |

GENERAL ELECTRICAL NOTES:

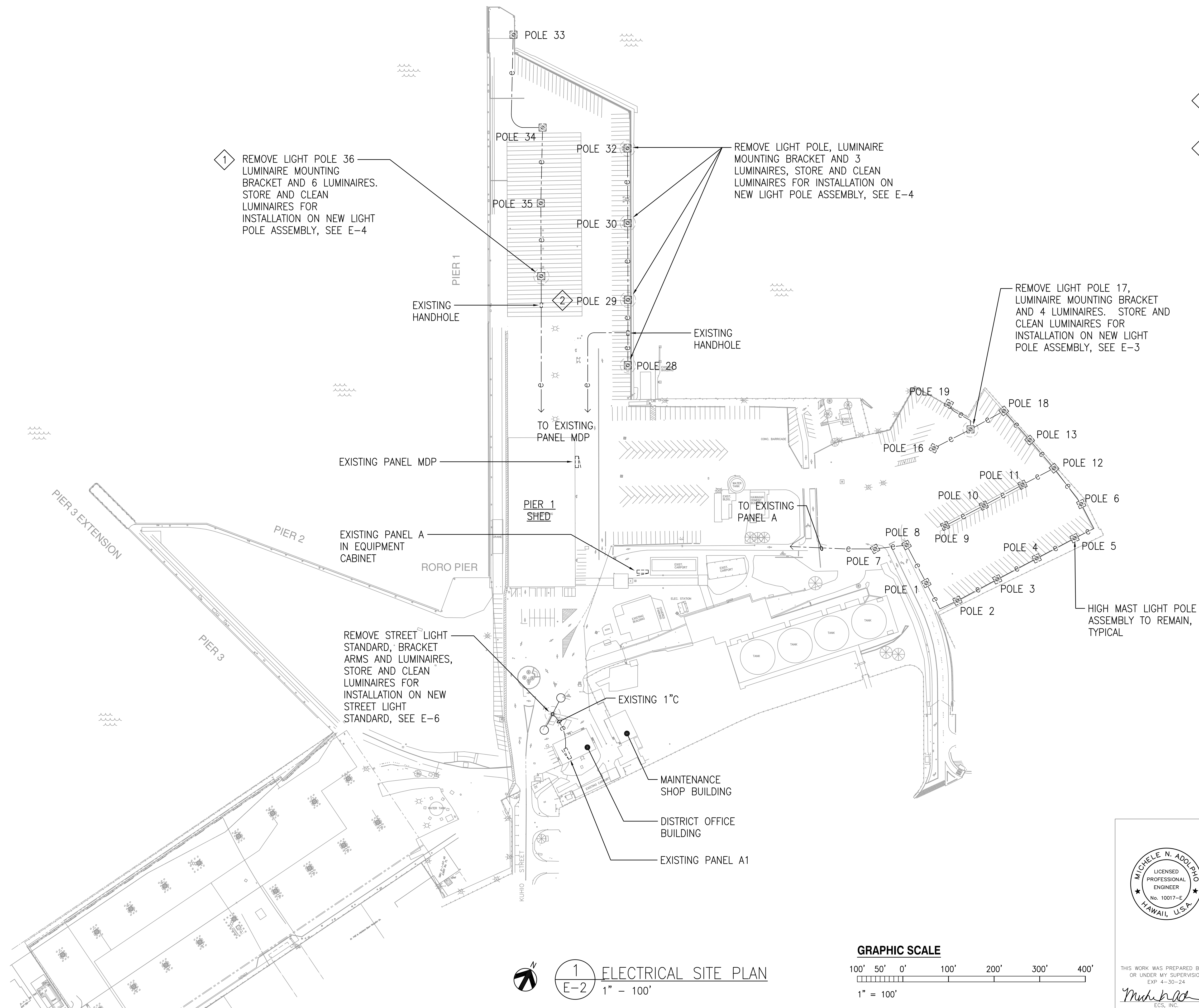
1. VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS IN THE FIELD PRIOR TO COMMENCEMENT OF NEW WORK. EXERCISE CAUTION TO PREVENT DAMAGE TO EXISTING STRUCTURES, UTILITIES AND EQUIPMENT IN THE AREA.
2. EXISTING CONDITIONS: ALL EXISTING DUCTLINES AND UTILITIES INDICATED ON THE DRAWINGS ARE APPROXIMATE LOCATIONS BASED UPON AVAILABLE "AS-BUILT" DRAWINGS AND VISUAL FIELD INVESTIGATION.
3. THE WORK SCHEDULE SHALL BE COORDINATED WITH USERS, HARBORS DIVISION CONSTRUCTION ENGINEER AND HARBORS DIVISION HAWAII DISTRICT MANAGER.
4. THE CONTRACTOR SHALL SCHEDULE ALL WORK TO MINIMIZE DISRUPTION OF USERS' OPERATIONS.
5. ALL EXISTING ELECTRICAL EQUIPMENT AND FACILITIES NOT SCHEDULED FOR DEMOLITION SHALL REMAIN OPERATIONAL DURING CONSTRUCTION. CONTRACTOR TO MINIMIZE OUTAGES AND COORDINATE WITH THE HARBORS DIVISION CONSTRUCTION ENGINEER, HARBORS DIVISION HAWAII DISTRICT, AND ALL USERS AND TENANTS AT LEAST TWO WEEKS PRIOR TO ALL OUTAGES.
6. CONTRACTOR SHALL SCHEDULE IN WRITING ALL DEMOLITION WORK WITH USERS AND HARBORS DIVISION CONSTRUCTION ENGINEER. MINIMUM OF 14 CALENDAR DAYS ADVANCE NOTICE SHALL BE GIVEN.
7. REMOVE AND DISPOSE OF ALL ELECTRICAL EQUIPMENT AND CONDUCTORS INDICATED FOR DEMOLITION. UNDERGROUND CONDUIT SHALL BE ABANDONED IN-PLACE UNLESS OTHERWISE INDICATED.

GALVANIZED STEEL LIGHT POLE NOTES:

1. MATERIAL SPECIFICATIONS:
POLE SHAFT - ASTM A572 GRADE 65
BASE PLATE - ASTM A572 GRADE 50
STRUCTURAL PLATES - ASTM A572 GRADE 50
MISC. PLATES - ASTM A36
ANCHOR BOLTS - TYPE 316 STAINLESS STEEL GRADE 30 MIN.
NUTS AND WASHERS - TYPE 316 STAINLESS STEEL
2. ENTIRE STANDARD INCLUDING LUMINAIRE MOUNTING BRACKET SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A-123.
3. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 MOST RECENT EDITION.
4. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL TYPE 316.
5. DESIGN SPEED: AASHTO LRFDLTS-1, FATIGUE CATEGORY 1. 105 MPH BASIC WIND SPEED, 1.0 IMPORTANCE FACTOR, 1.14 GUST EFFECT FACTOR INCLUDING BRACKET AND LUMINAIRES.
6. LONGITUDINAL SEAM WELDS TO BE MINIMUM 60% PENETRATION. BOTTOM 6" AT BASE PLATE AND FEMALE PORTION OF SLIP JOINT +6" TO BE 100% PENETRATION.
7. FULL PENETRATION WELDS TO BE 100% UT INSPECTED PRIOR TO GALVANIZING.
8. REFER TO MANUFACTURER'S GENERAL INSTALLATION INSTRUCTIONS PRIOR TO ASSEMBLY. COORDINATE INSTALLATION REQUIREMENTS WITH THE ACTUAL EQUIPMENT SUPPLIED.
9. MANUFACTURER TO PROVIDE PAPER AND METAL ANCHOR BOLT TEMPLATES.
10. STEEL TO BE MELTED AND MANUFACTURED IN THE USA.
11. PAINT LIGHT POLE ASSEMBLY INCLUDING EXPOSED PORTIONS OF THE ANCHOR BOLTS, NUTS, AND WASHERS, POLE INTERIOR UP TO FOUR FEET (MEASURED UPWARDS FROM THE BASE PLATE), FIXTURE BRACKET, AND CONCRETE PEDESTAL IN ACCORDANCE WITH PAINTING SPECIFICATIONS. DO NOT FIELD-PAINT LUMINAIRES.

4/27/23-16-44 Y:\044\044-086 Info Harbor Pier 1 Light Poles\044-086 E-1.001.dwg

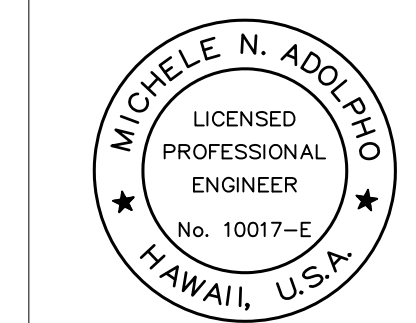
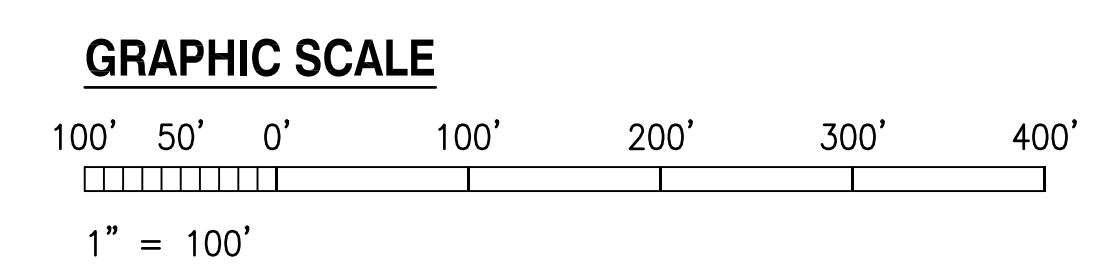
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|--|--|
| | STATE OF HAWAII |
| | DEPARTMENT OF TRANSPORTATION HARBORS DIVISION |
| | JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII |
| | SHEET TITLE ELECTRICAL SYMBOL LIST AND ELECTRICAL NOTES |
| THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION EXP 4-30-24 | DESIGNED BY: MA DRAWN BY: CAD CHECKED BY: MA DATE: 04/2023 SCALE: AS SHOWN |
| | JOB NUMBER S50201 |
| SHEET E-1 | 9 of 19 SHEETS |



- NOTES:**
1. EXISTING COMMUNICATIONS EQUIPMENT CABINET AND ANTENNAE MOUNTED ON LIGHT POLE TO BE REMOVED AND REINSTALLED BY MATSON.
 2. REMOVE EXISTING STATE SECURITY SURVEILLANCE EQUIPMENT CABINET, CAMERA AND TRANSCIVERS AND REINSTALL ON NEW LIGHT POLE ASSEMBLY. COORDINATE REMOVAL AND REINSTALLATION OF SECURITY SURVEILLANCE EQUIPMENT WITH HAWAII DISTRICT AND THE HARBORS DIVISION SECURITY SURVEILLANCE SYSTEM MAINTENANCE CONTRACTOR.
 3. PRIOR TO REMOVAL OF EXISTING LUMINAIRES, THE CONTRACTOR SHALL PERFORM A PRE-CONSTRUCTION SURVEY OF THE EXISTING CIRCUIT ASSIGNMENT, LUMINAIRE VOLTAGE, LUMINAIRE MOUNTING HARDWARE AND ORIENTATION OF EACH LUMINAIRE. RESULTS OF THE PRE-CONSTRUCTION SURVEY SHALL BE SUBMITTED TO THE HARBORS DIVISION CONSTRUCTION ENGINEER. LUMINAIRES SHALL BE REINSTALLED ON NEW LIGHT POLES IN THE SAME ORIENTATION AND RECONNECTED TO THE SAME BRANCH CIRCUITS AND PHASE CONDUCTORS AS EXISTING. NEW LIGHT POLE ASSEMBLIES SHALL BE PROVIDED TO ACCOMMODATE REINSTALLATION OF EXISTING LUMINAIRES UTILIZING THE EXISTING LUMINAIRE MOUNTING HARDWARE.

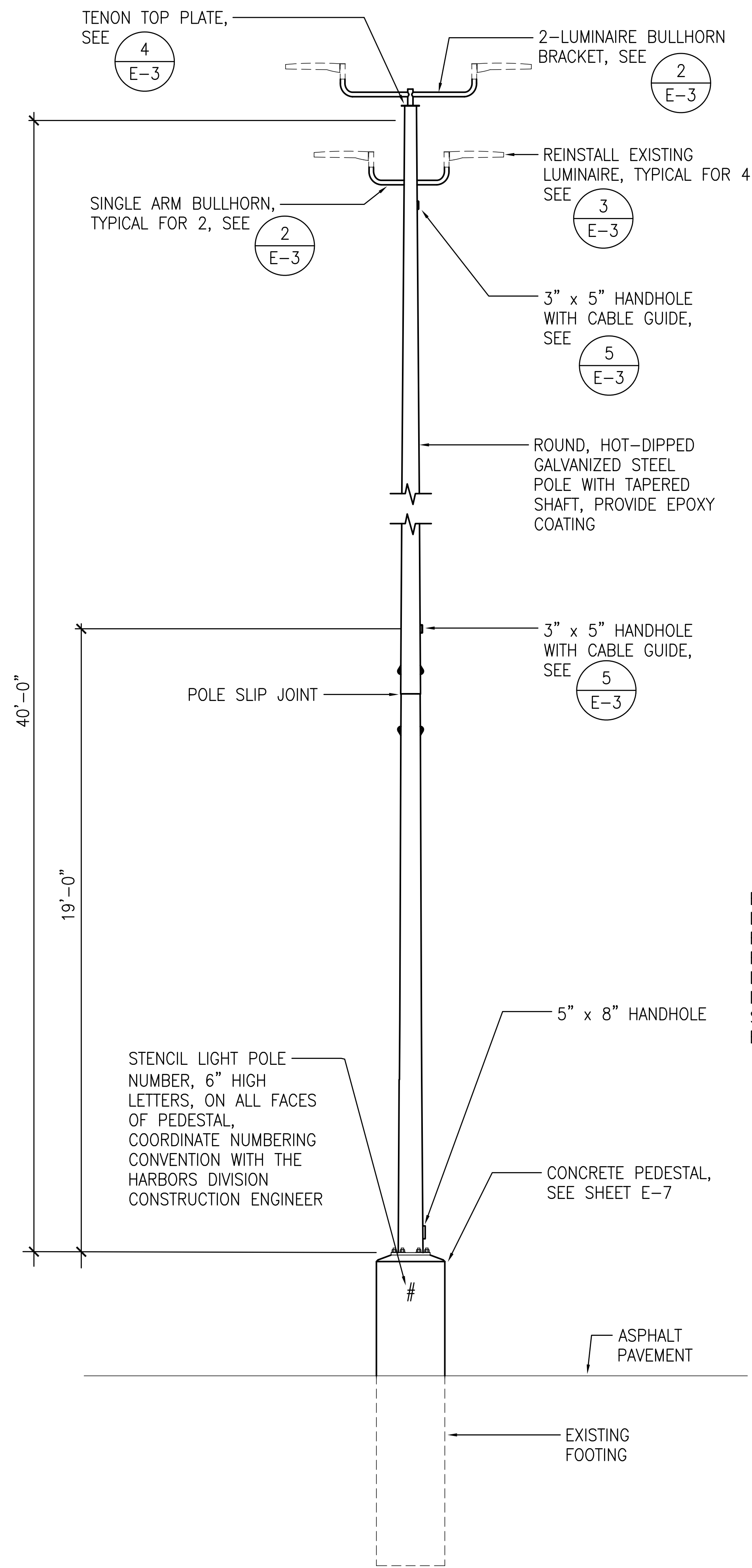
4/27/23-14-45 Y:\044\044-086_Hilo_Harbor_Pier_1_Light_Poles\044-086 E-2\01.dwg

1
E-2
ELECTRICAL SITE PLAN
1" = 100'

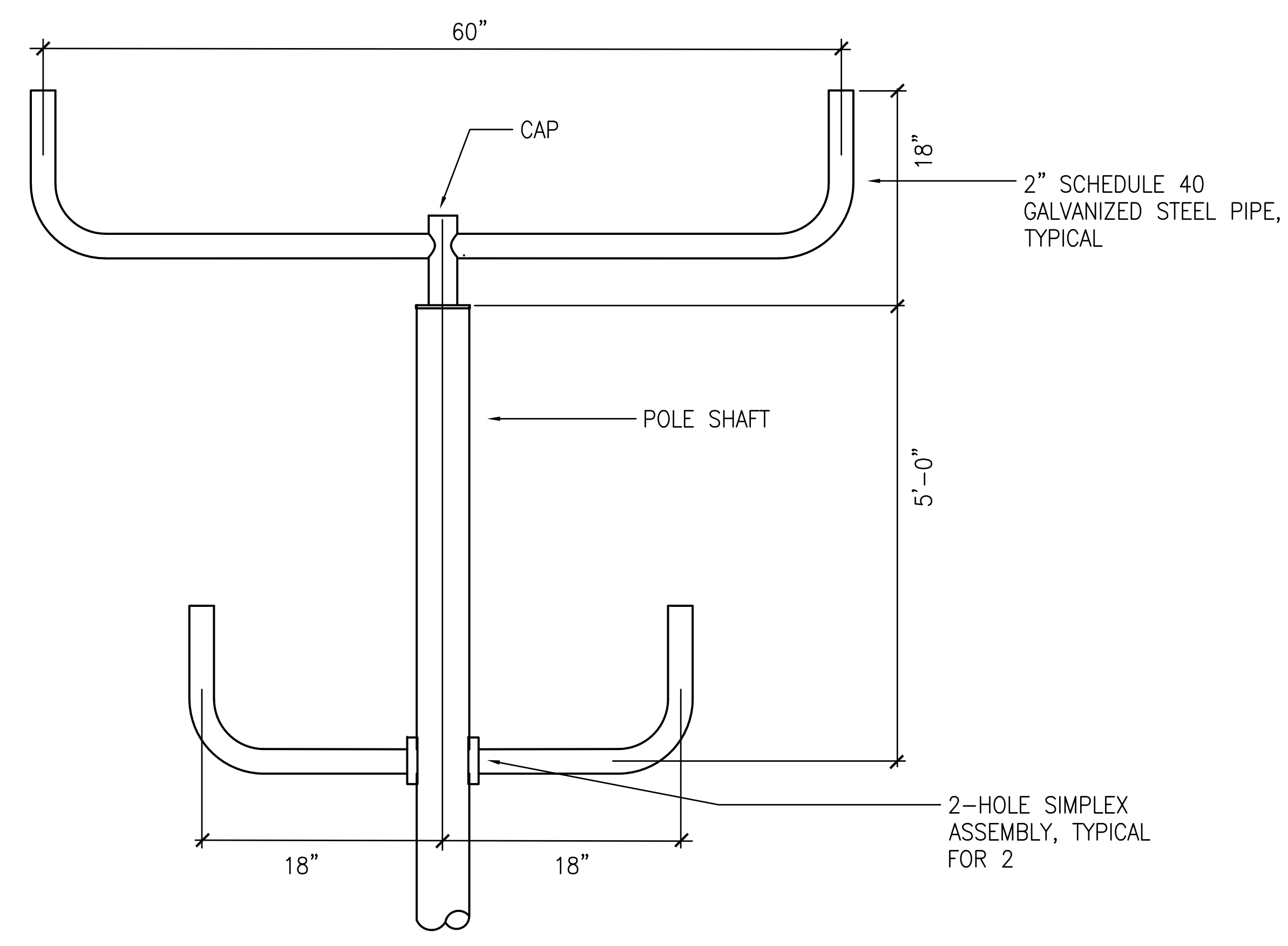


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
EXP 4-30-24
Michele N. Adolpho
ECS, INC.

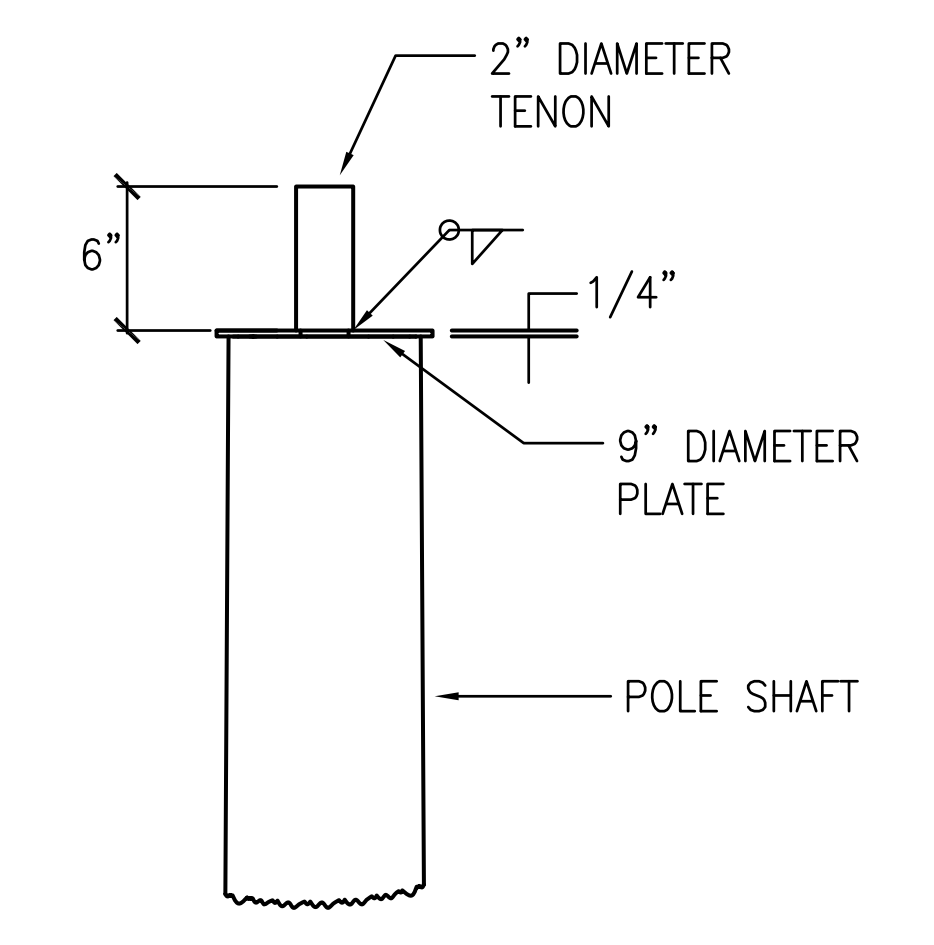
| REVISION | DATE | DESCRIPTION | BY | APPROVED |
|--|------------|-------------|----|----------------|
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | | |
| JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| SHEET TITLE ELECTRICAL SITE PLAN | | | | |
| DESIGNED BY: MA | | | | SHEET |
| DRAWN BY: CAD | | | | E-2 |
| CHECKED BY: MA | | | | 10 OF 19 SHTS. |
| DATE: 04/2023 | JOB NUMBER | | | |
| SCALE: AS SHOWN | S50201 | | | |



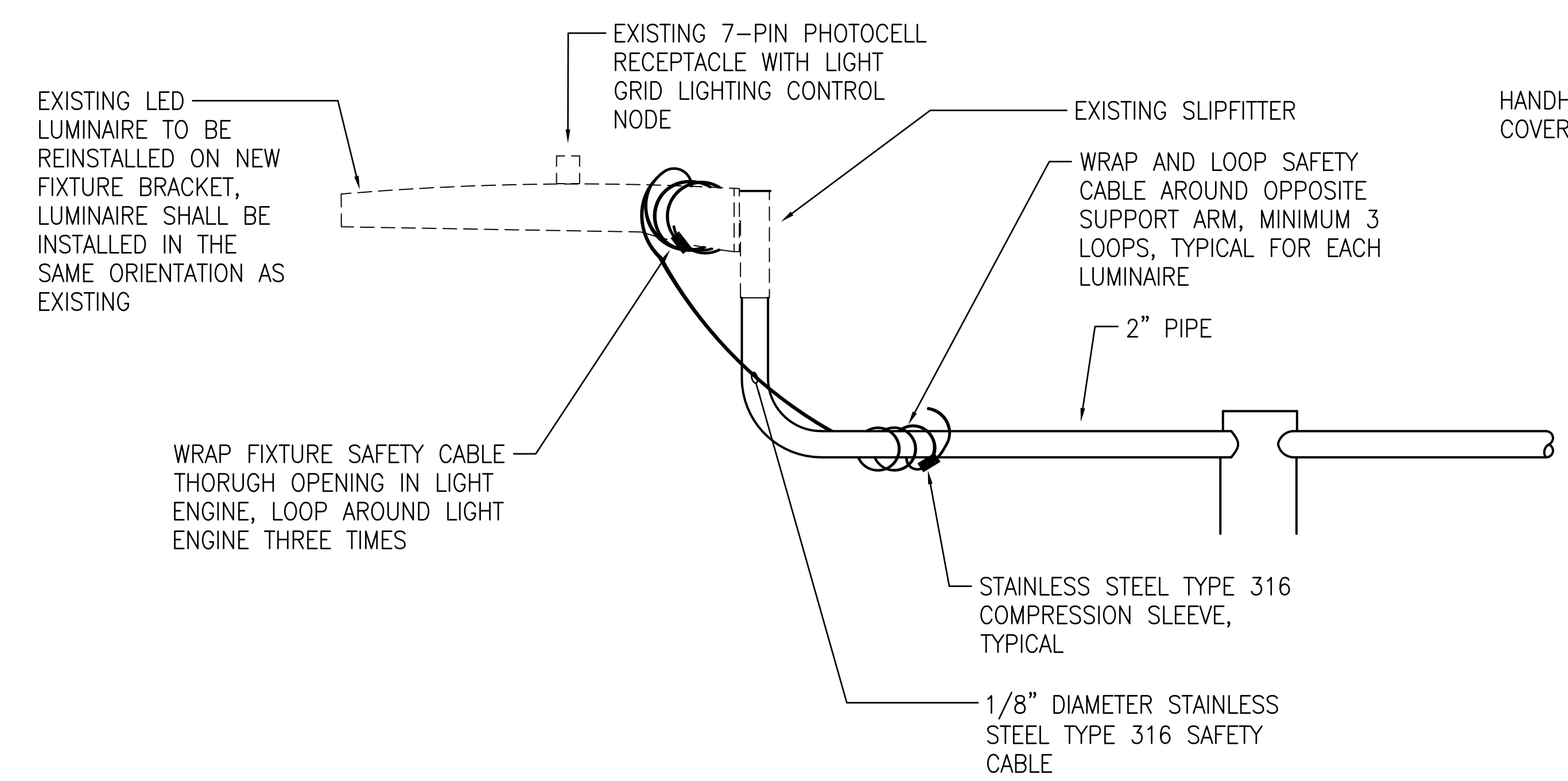
1 LIGHT POLE DETAIL (POLE 17)
E-3 NOT TO SCALE



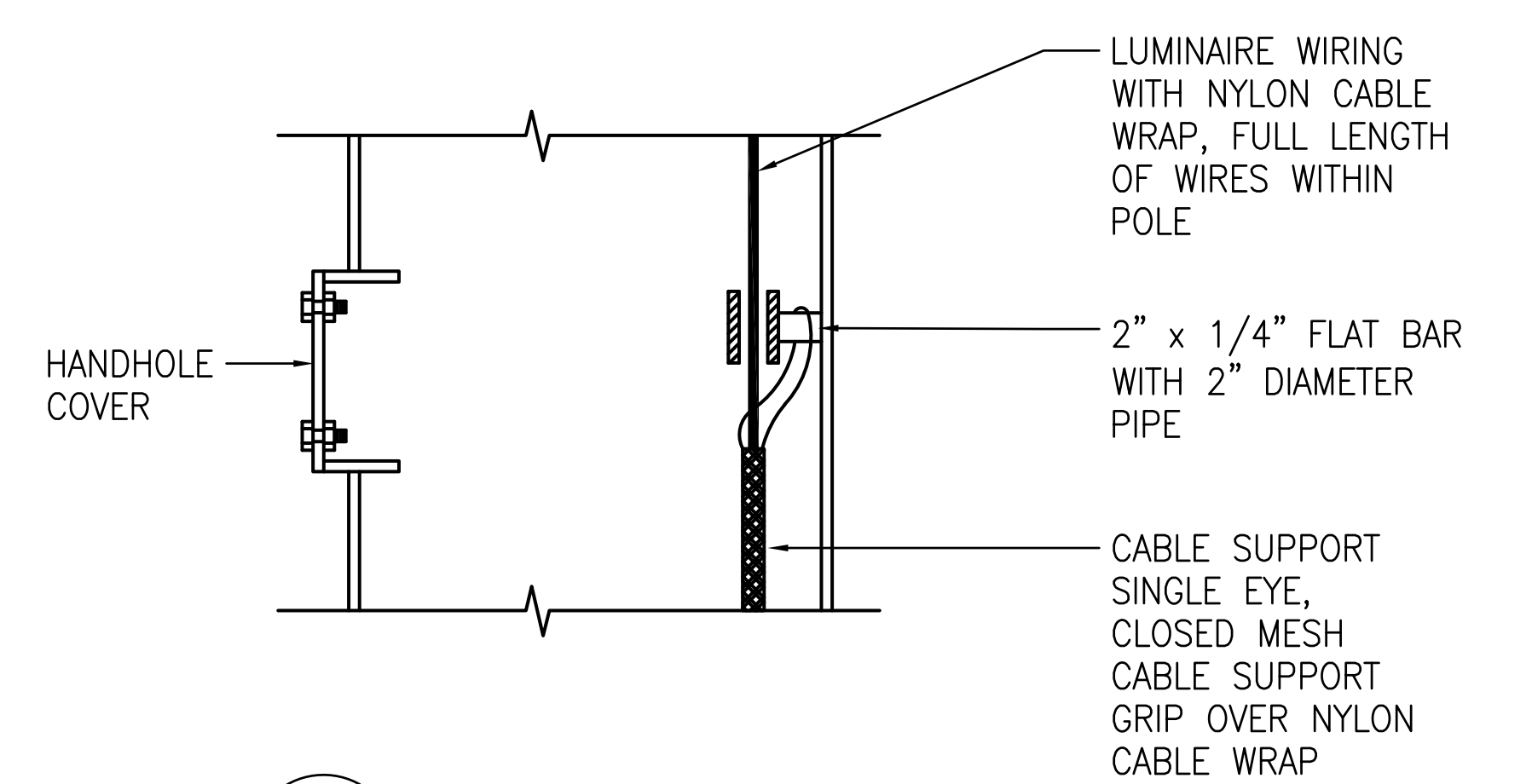
2 BULLHORN BRACKET
E-3 NOT TO SCALE



4 TENON TOP
E-3 NOT TO SCALE



3 SAFETY CABLE ATTACHMENT DETAIL
E-3 NOT TO SCALE

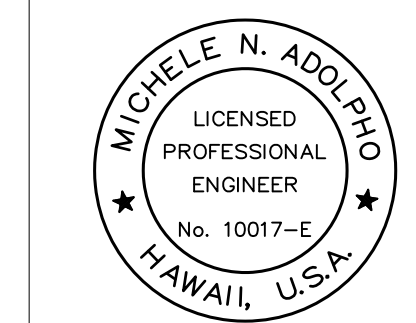


5 CABLE GUIDE DETAIL
E-3 NOT TO SCALE

NOTES:

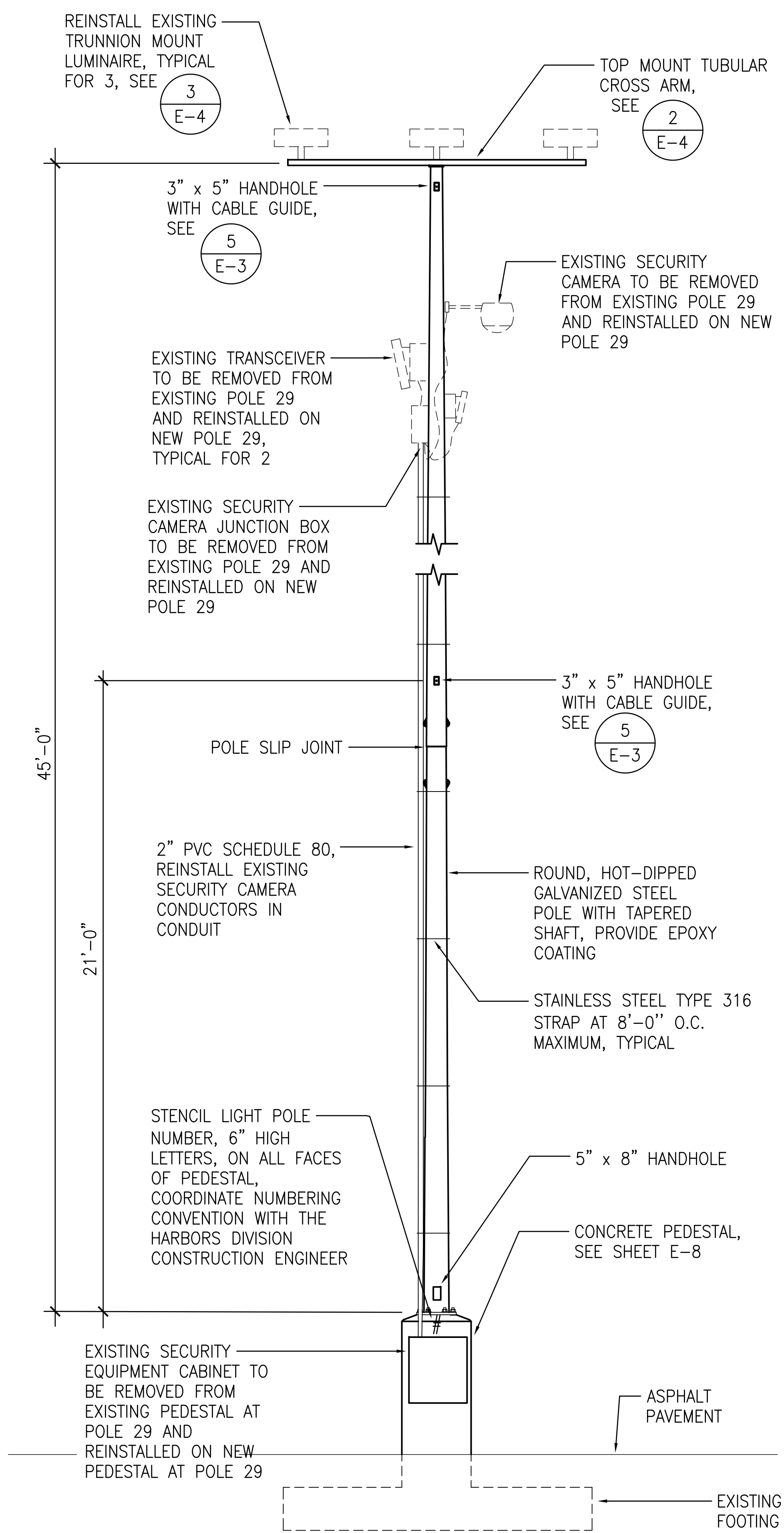
- ONE LUMINAIRE AND SAFETY CABLE ATTACHMENT SHOWN FOR CLARITY. SAFETY CABLE ATTACHMENT TO BE PROVIDED TO EACH LUMINAIRE.
- EYEBOLT AND SAFETY CABLE SHALL SUPPORT 3 TIMES THE WEIGHT OF THE LUMINAIRE.

4/27/23-15:08 Y:\04\1044\086_Hilo_Harbor_Pier_1_Light_Poles\044\086 E-3 to E-9\001.dwg

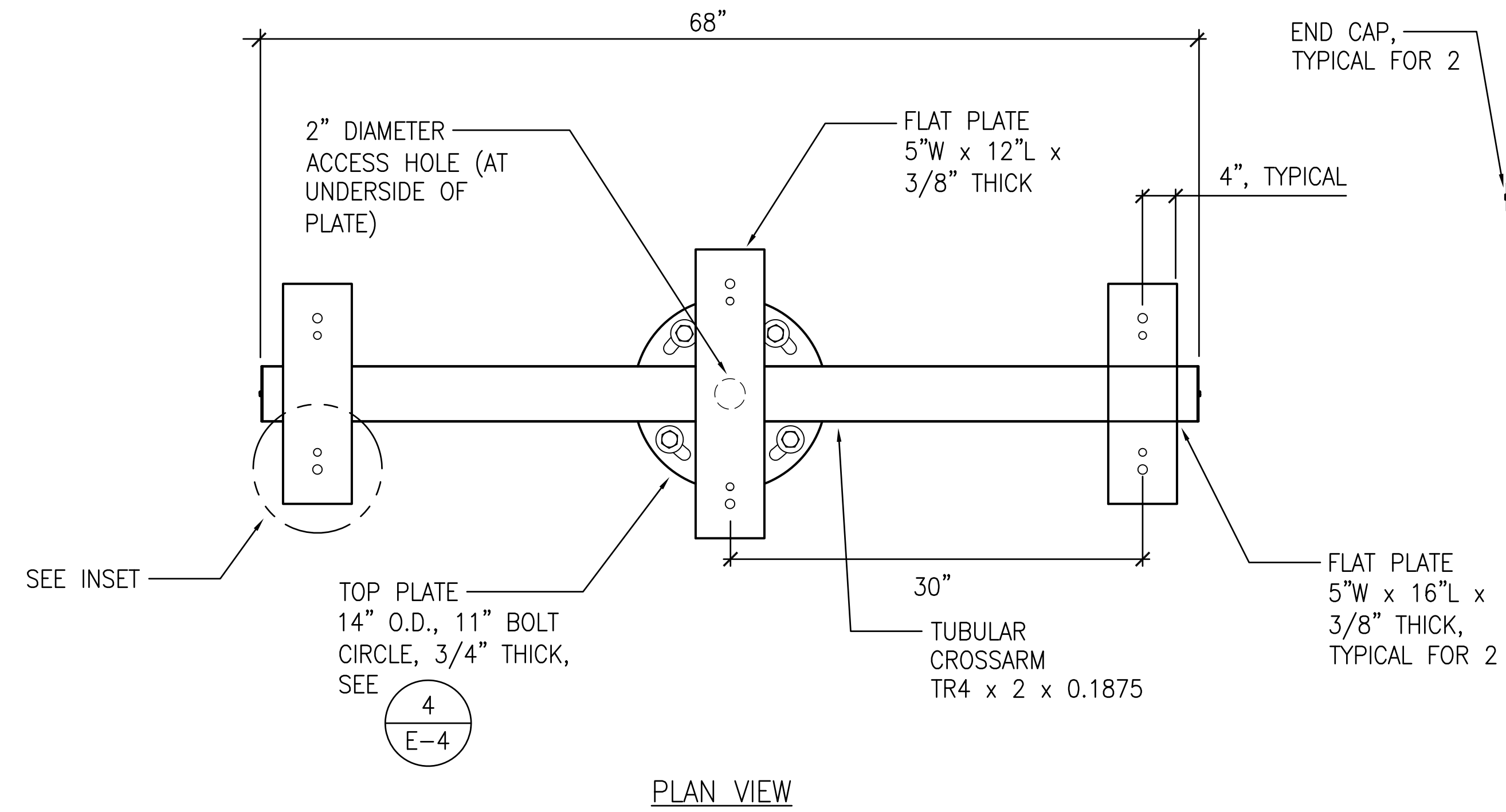


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EXP 4-30-24
Michele N. Adolp
ECS, INC.

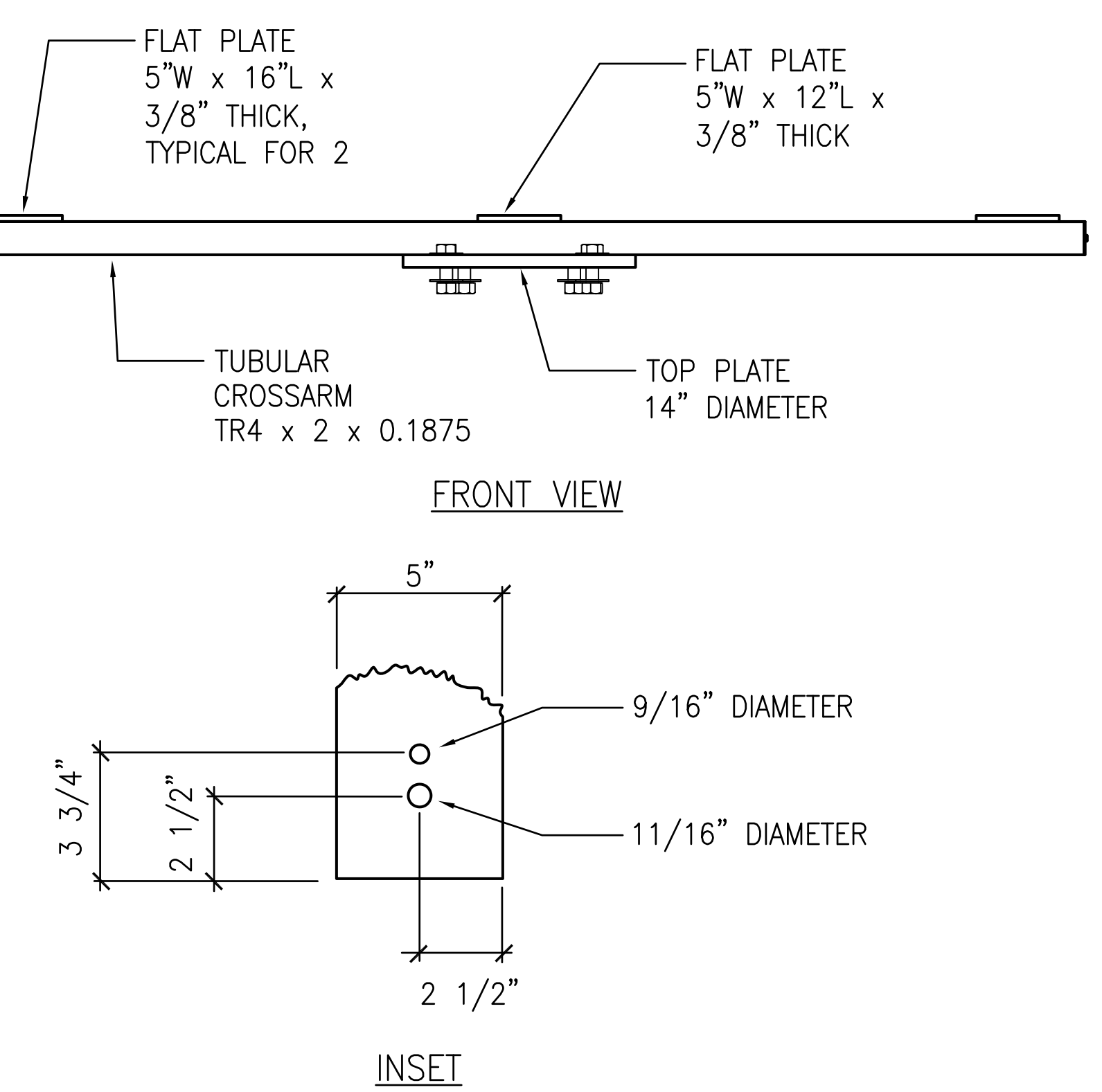
| REVISION | DATE | DESCRIPTION | BY | APPROVED |
|--|------|-------------|----|----------------------|
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | | |
| JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| SHEET TITLE LIGHT POLE DETAILS - POLE 17 | | | | |
| DESIGNED BY: MA | | | | SHEET E-3 |
| DRAWN BY: CAD | | | | JOB NUMBER S50201 |
| CHECKED BY: MA | | | | |
| DATE: 04/2023 | | | | |
| SCALE: AS SHOWN | | | | 11 OF 19 SHEETS |



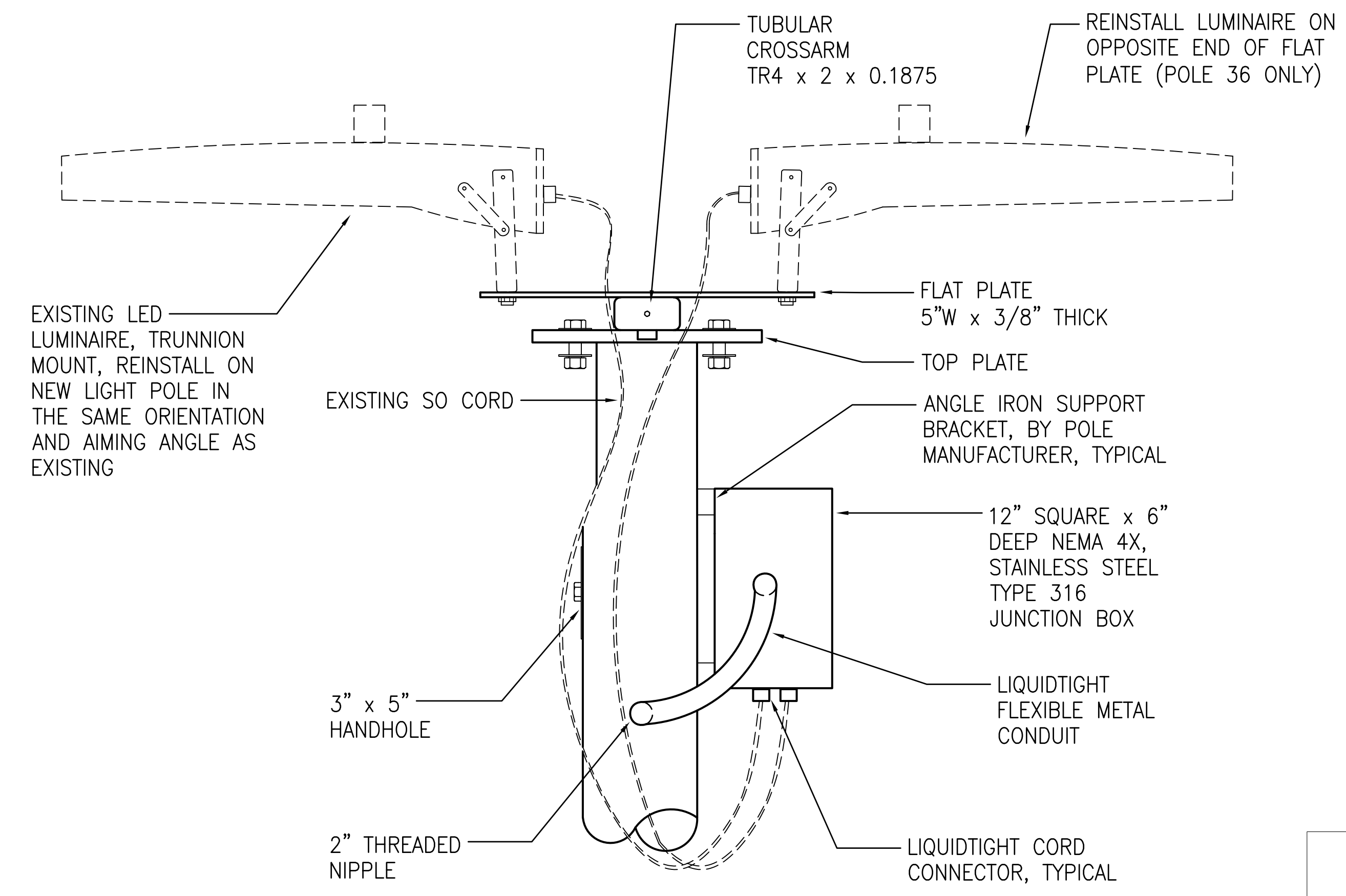
1 LIGHT POLE DETAIL (POLES 28, 29, 30, 32)
E-4 NOT TO SCALE



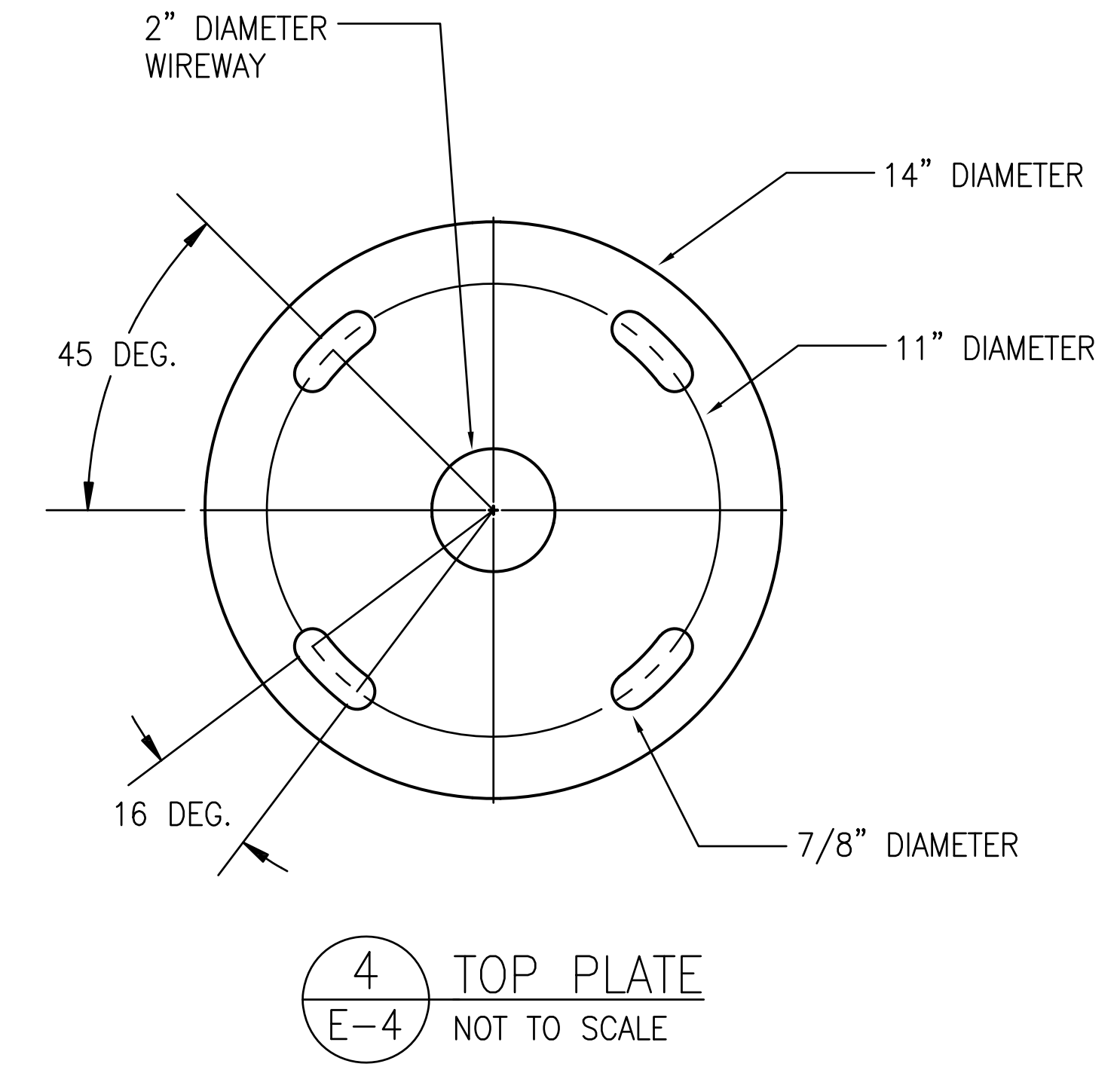
2 TUBULAR CROSSARM
E-4 NOT TO SCALE



INSET



3 LUMINAIRE MOUNTING DETAILS
E-4 NOT TO SCALE

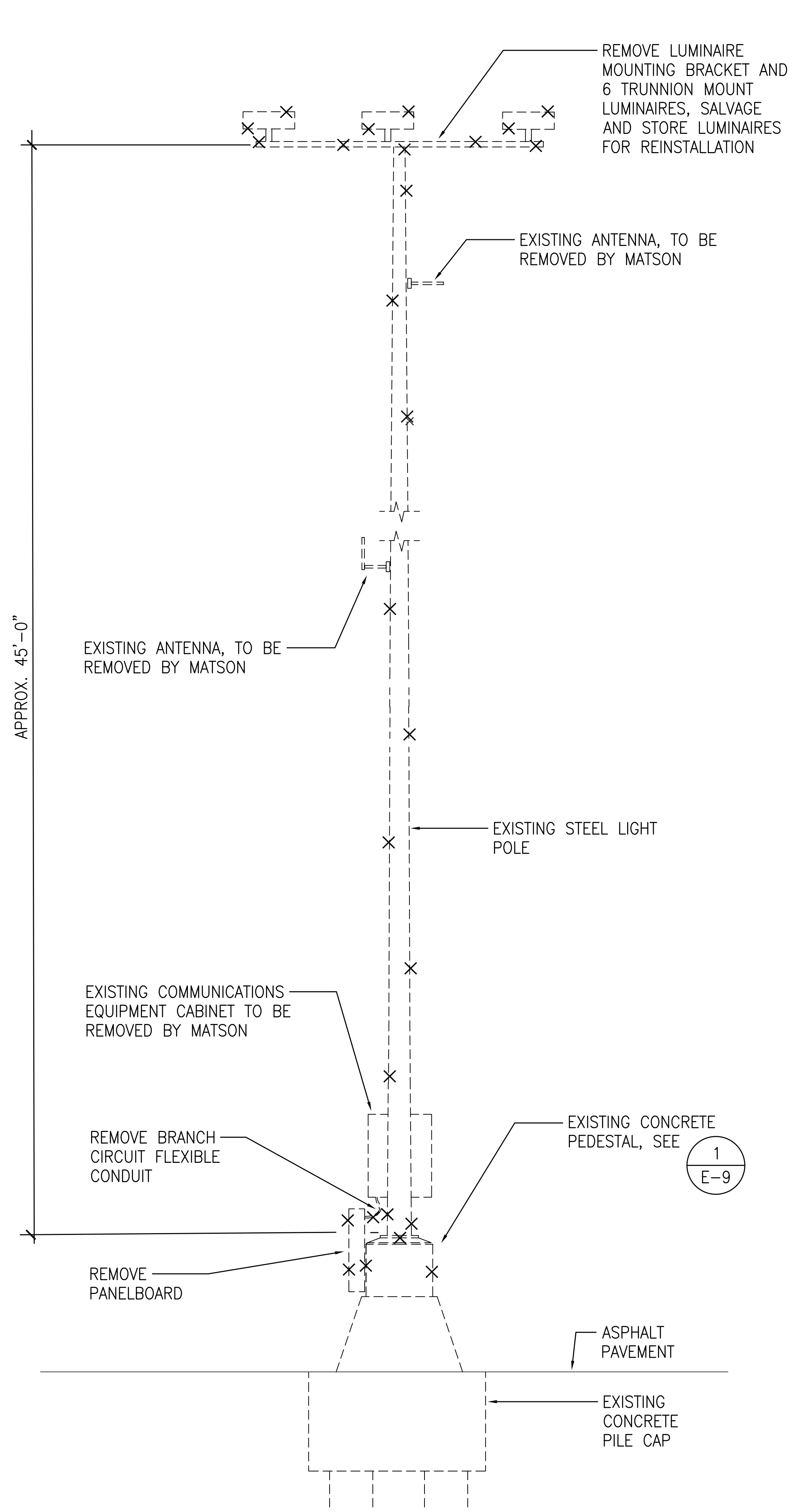


4 TOP PLATE
E-4 NOT TO SCALE

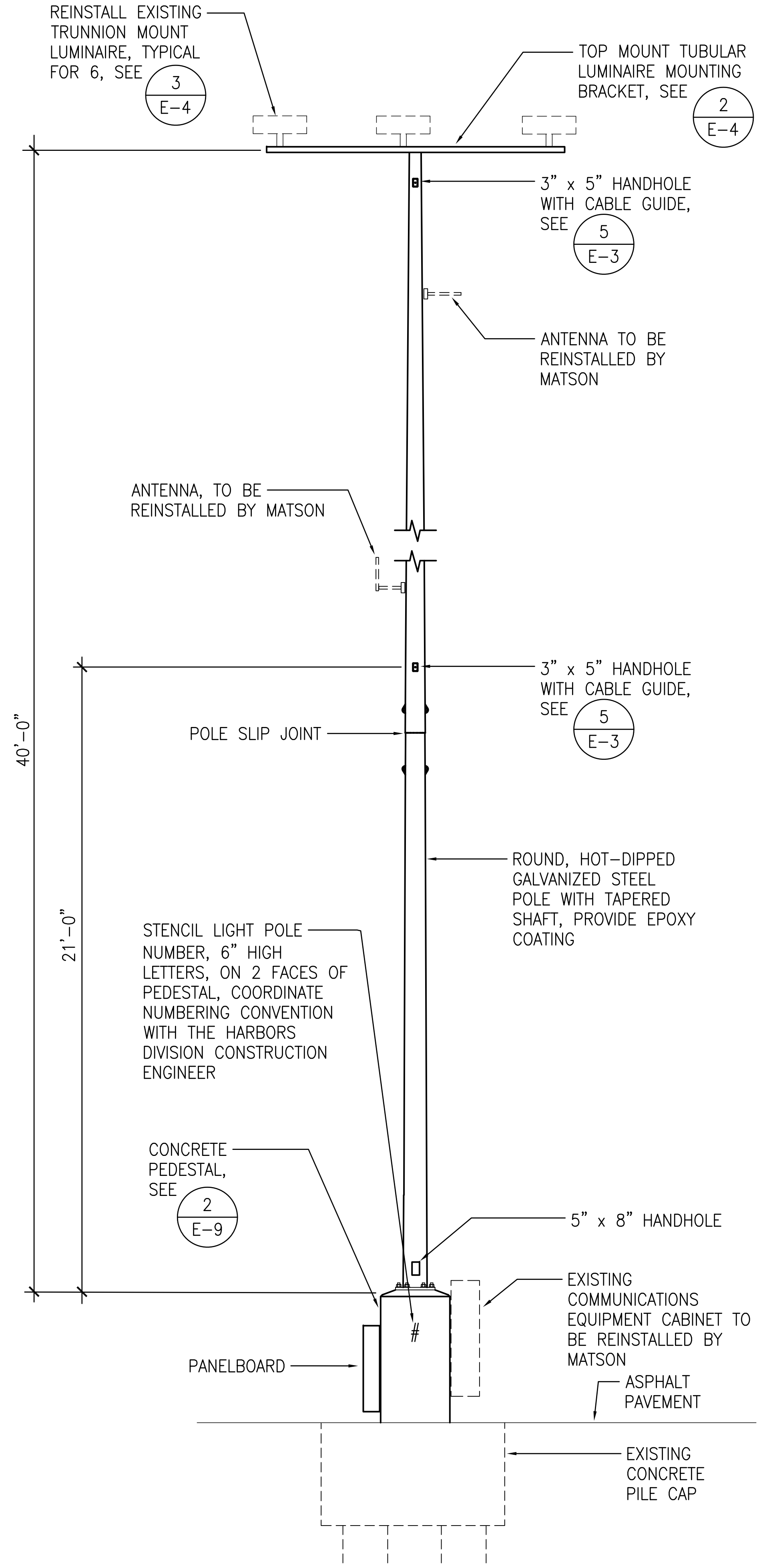
NOTE:
2 LUMINAIRES SHOWN FOR CLARITY. ALL LUMINAIRES SHALL BE REINSTALLED AND RECONNECTED IN A SIMILAR FASHION.

4/27/23-14-45 Y:\044\044-086 Info Harbor Pier 1 Light Poles\044-086 E-3 to E-9\001.dwg

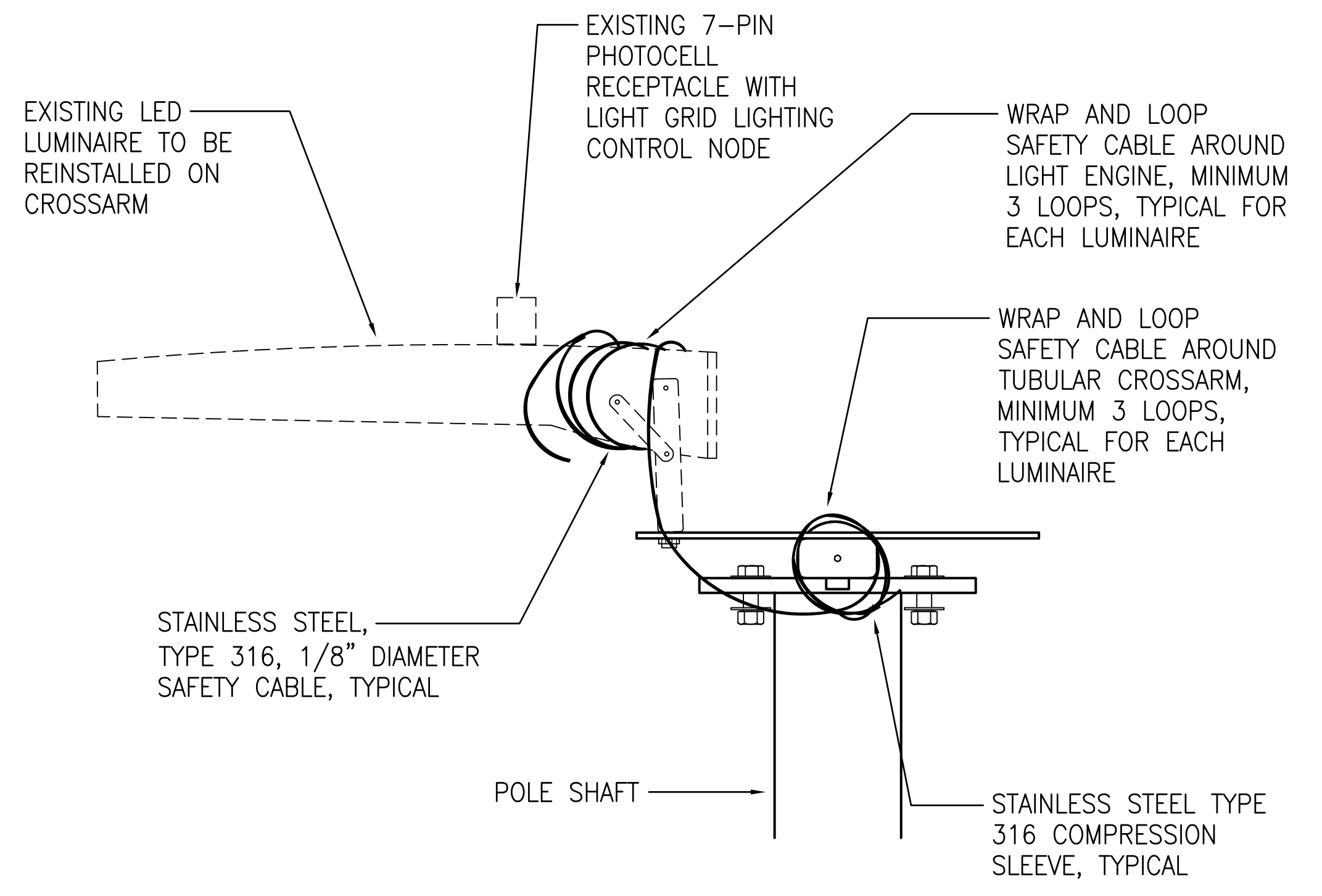
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| | REVISION | DATE | DESCRIPTION | BY | APPROVED |
| | STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | | |
| | JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| | SHEET TITLE LIGHT POLE DETAILS - POLES 28, 29, 30, 32 | | | | |
| DESIGNED BY: MA | | DRAWN BY: CAD | | SHEET | |
| CHECKED BY: MA | | DATE: 04/2023 | | E-4 | |
| SCALE: AS SHOWN | | JOB NUMBER: S50201 | | 12 OF 19 SHTS. | |



1 EXISTING LIGHT POLE DETAIL (POLE 36)
E-5 NOT TO SCALE



2 NEW LIGHT POLE DETAIL (POLE 36)
E-5 NOT TO SCALE

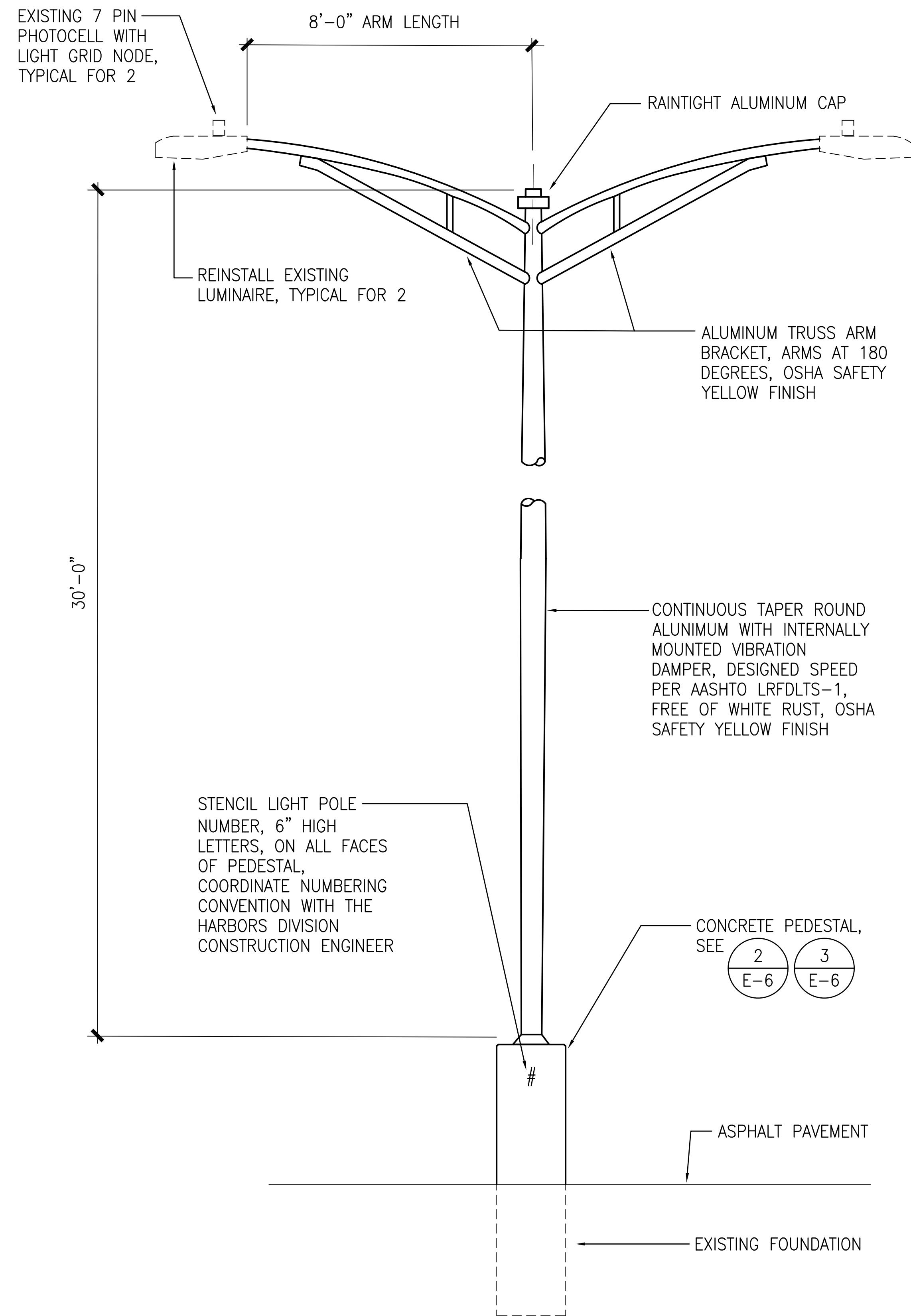


- NOTES:
- ONE LUMINAIRE AND SAFETY CABLE ATTACHMENT SHOWN FOR CLARITY. SAFETY CABLE ATTACHMENT TO BE PROVIDED TO EACH LUMINAIRE.
 - EYEBOLT AND SAFETY CABLE SHALL SUPPORT 3 TIMES THE WEIGHT OF THE LUMINAIRE.

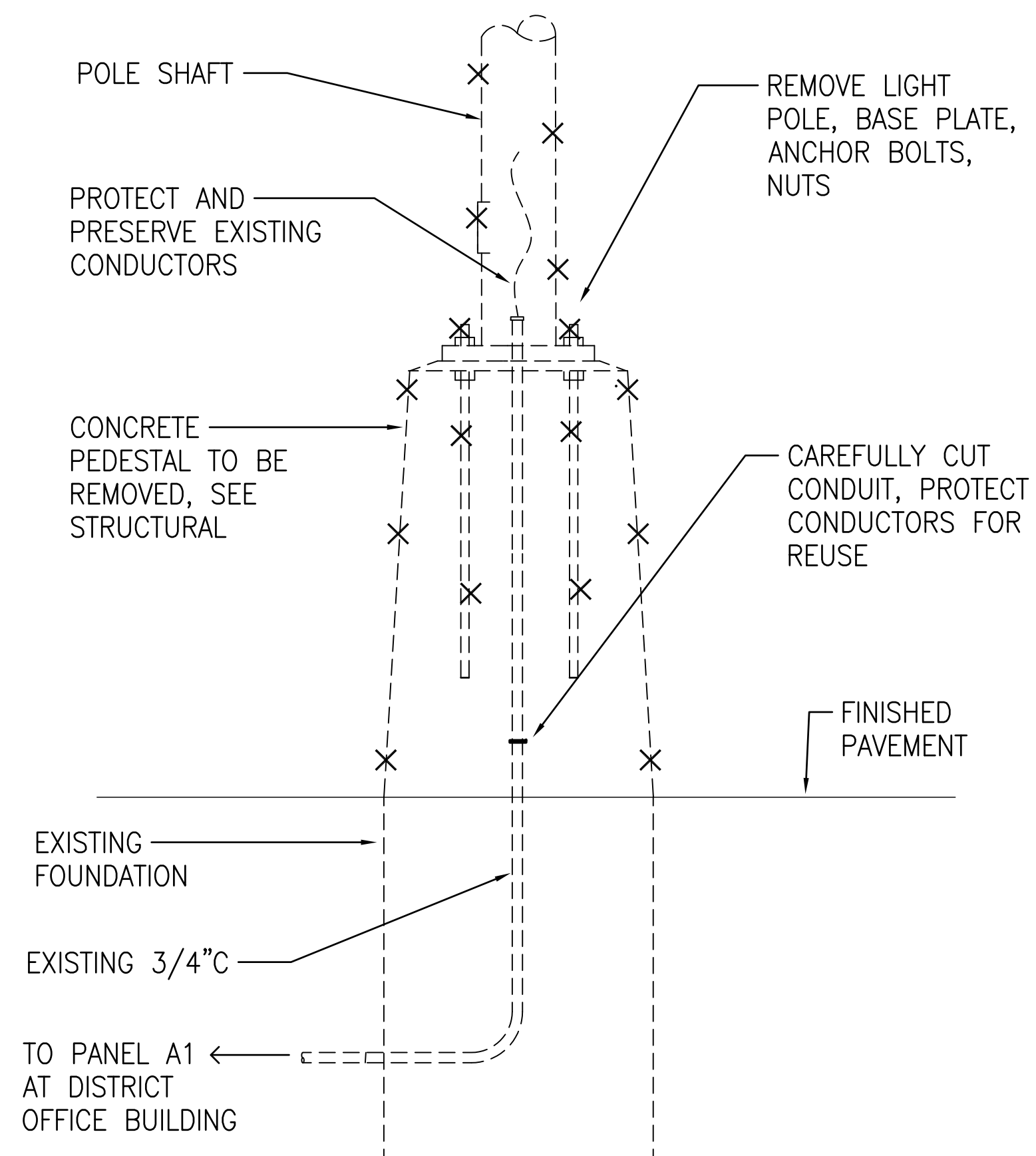
3 LUMINAIRE SAFETY CABLE DETAIL
E-5 (POLES 28, 29, 30, 32, 36)
NOT TO SCALE

4/27/23-14-46 Y:\044\044-086 Info Harbor Pier 1 Light Poles\044-086 E-3 to E-9\001.dwg

| | | | | | |
|-----------------|--|--------------------|-------------|-----------------|----------|
| | REVISION | DATE | DESCRIPTION | BY | APPROVED |
| | STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | | |
| | JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| | SHEET TITLE LIGHT POLE DETAILS - POLE 36 | | | | |
| DESIGNED BY: MA | | DRAWN BY: CAD | | SHEET | |
| CHECKED BY: MA | | DATE: 04/2023 | | E-5 | |
| SCALE: AS SHOWN | | JOB NUMBER: S50201 | | 13 OF 19 SHEETS | |



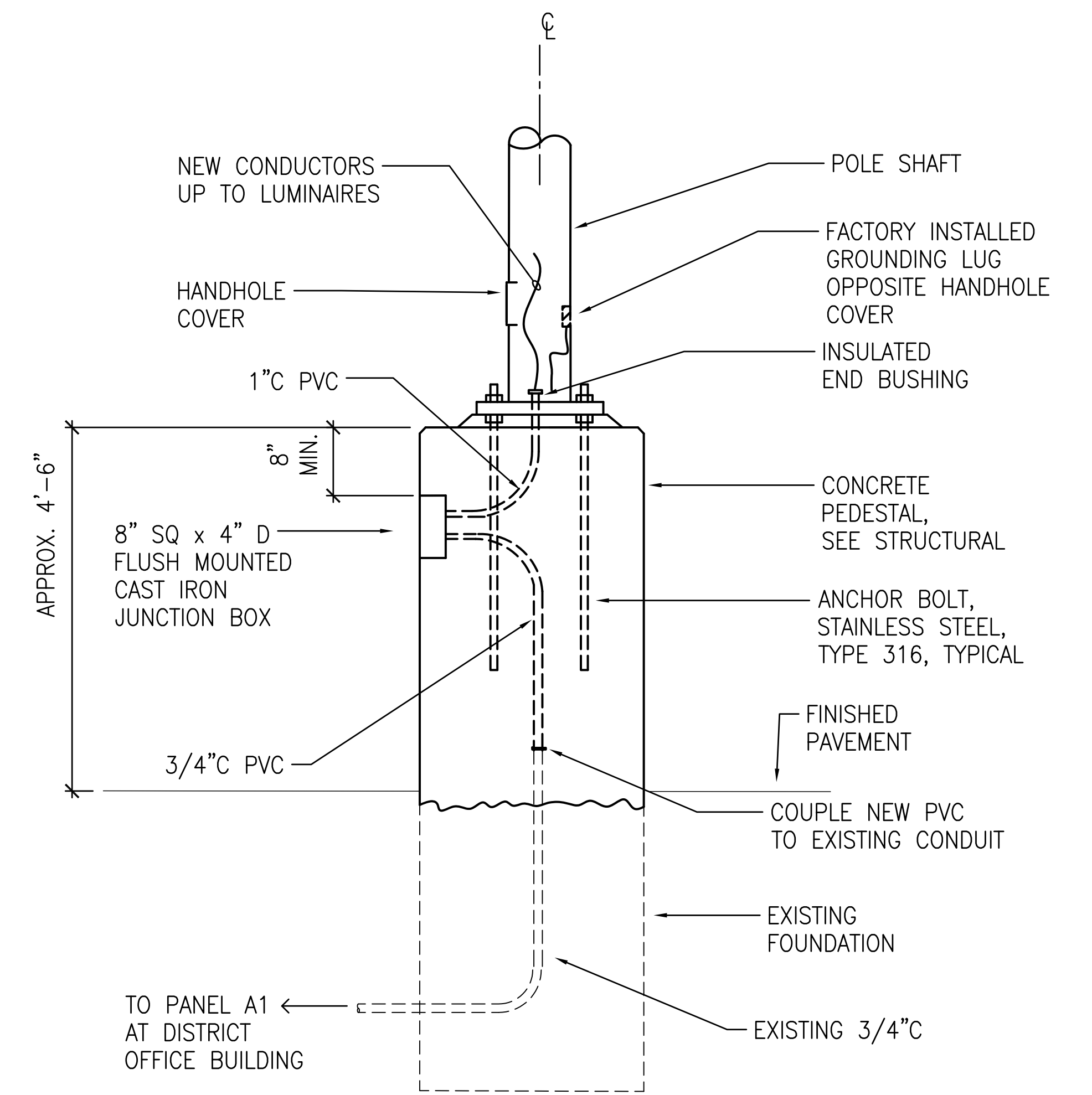
1 LIGHT POLE DETAIL (POLE 41)
E-6 NOT TO SCALE



2 PEDESTAL DEMOLITION
E-6 NOT TO SCALE

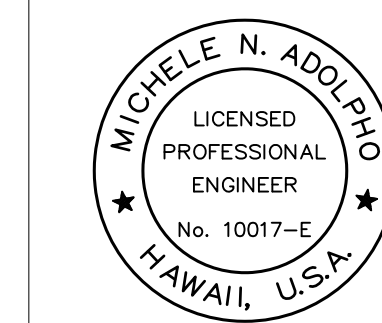
NOTE:

PAINT LIGHT POLE ASSEMBLY INCLUDING EXPOSED PORTIONS OF THE ANCHOR BOLTS, NUTS, AND WASHERS, POLE INTERIOR UP TO FOUR FEET (MEASURED UPWARDS FROM THE BASE PLATE), BRACKET ARMS, AND CONCRETE PEDESTAL IN ACCORDANCE WITH PAINTING SPECIFICATIONS. DO NOT FIELD-PAINT LUMINAIRES.



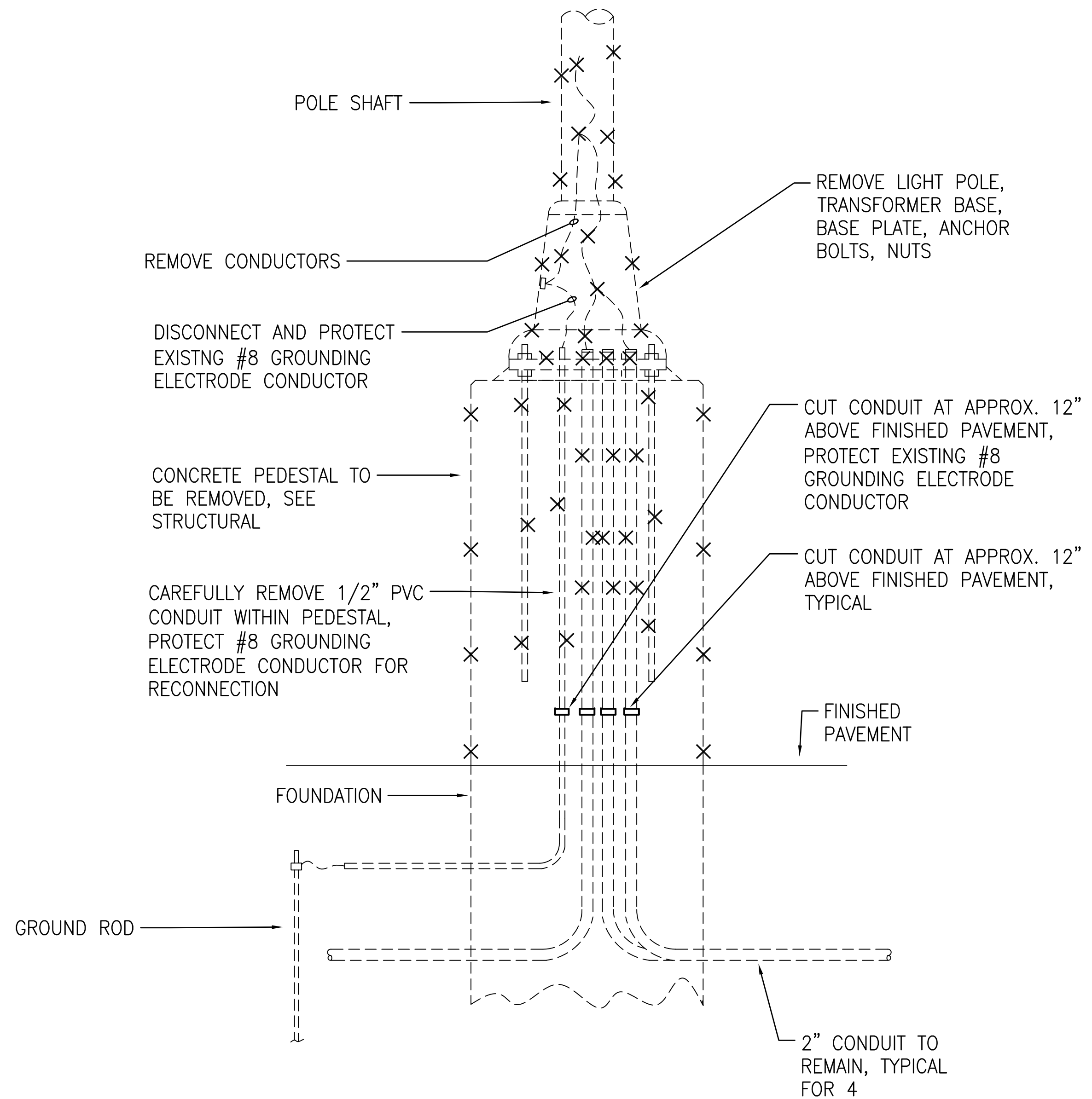
3 PEDESTAL DETAIL - NEW WORK
E-6 NOT TO SCALE

4/27/23-14-46 Y:\044\044-086 info Harbor Pier 1 Light Poles\044-088 E-3 to E-9\001.dwg

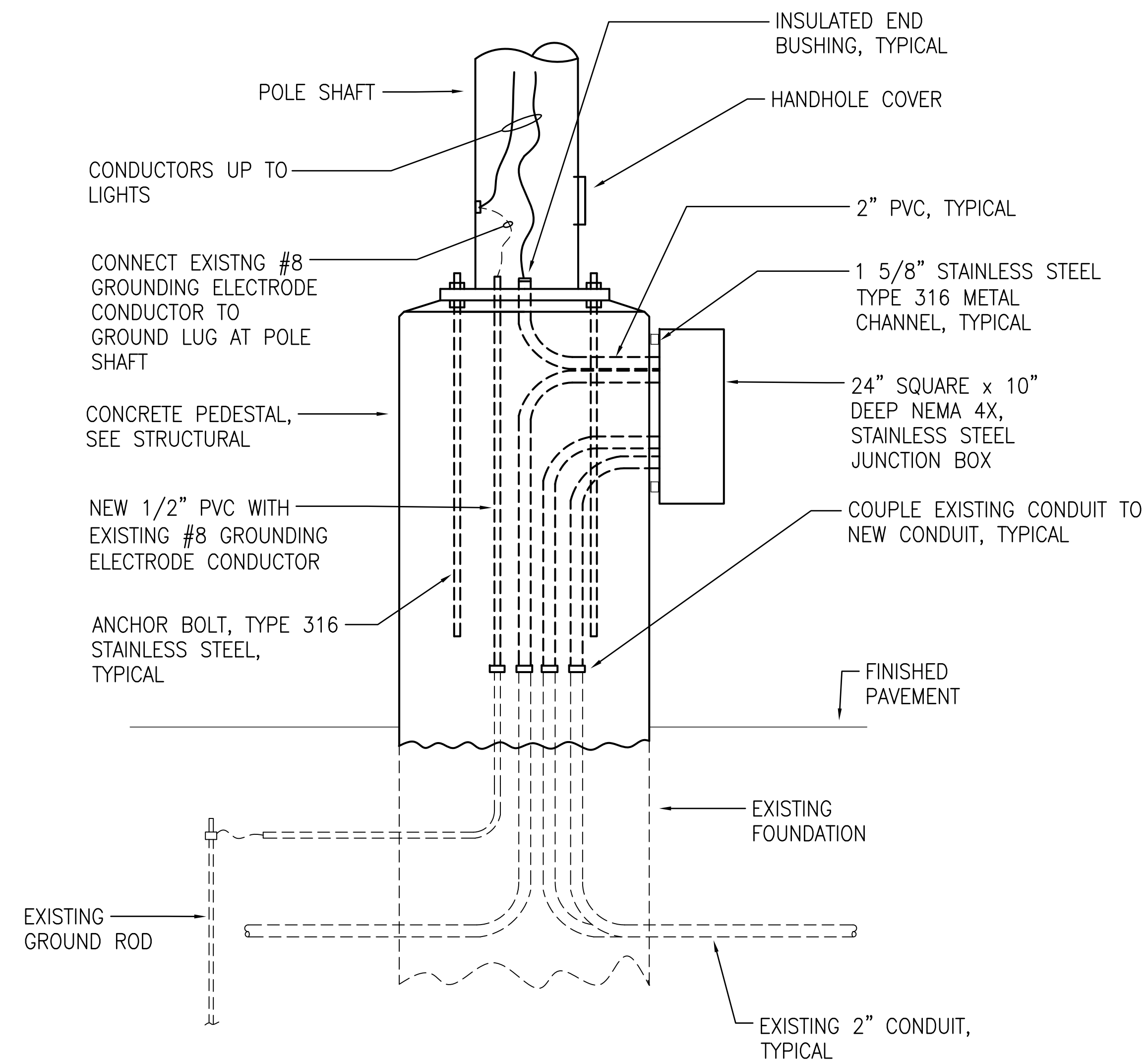


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
EXP 4-30-24
Michele N. Adolpho
ECS, INC.

| REVISION | DATE | DESCRIPTION | BY | APPROVED |
|--|------------|-------------|----|-----------------|
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | | |
| JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| SHEET TITLE LIGHT POLE DETAILS - POLE 41 | | | | |
| DESIGNED BY: MA | | | | SHEET |
| DRAWN BY: CAD | | | | E-6 |
| CHECKED BY: MA | | | | |
| DATE: 04/2023 | JOB NUMBER | | | |
| SCALE: AS SHOWN | S50201 | | | 14 of 19 SHEETS |

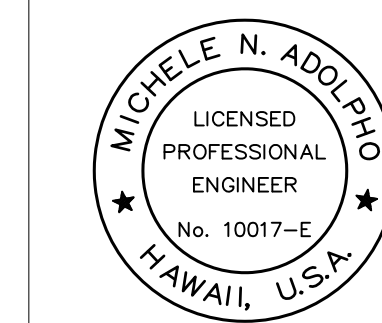


1 PEDESTAL - DEMOLITION WORK (POLE 17)
E-7 NOT TO SCALE



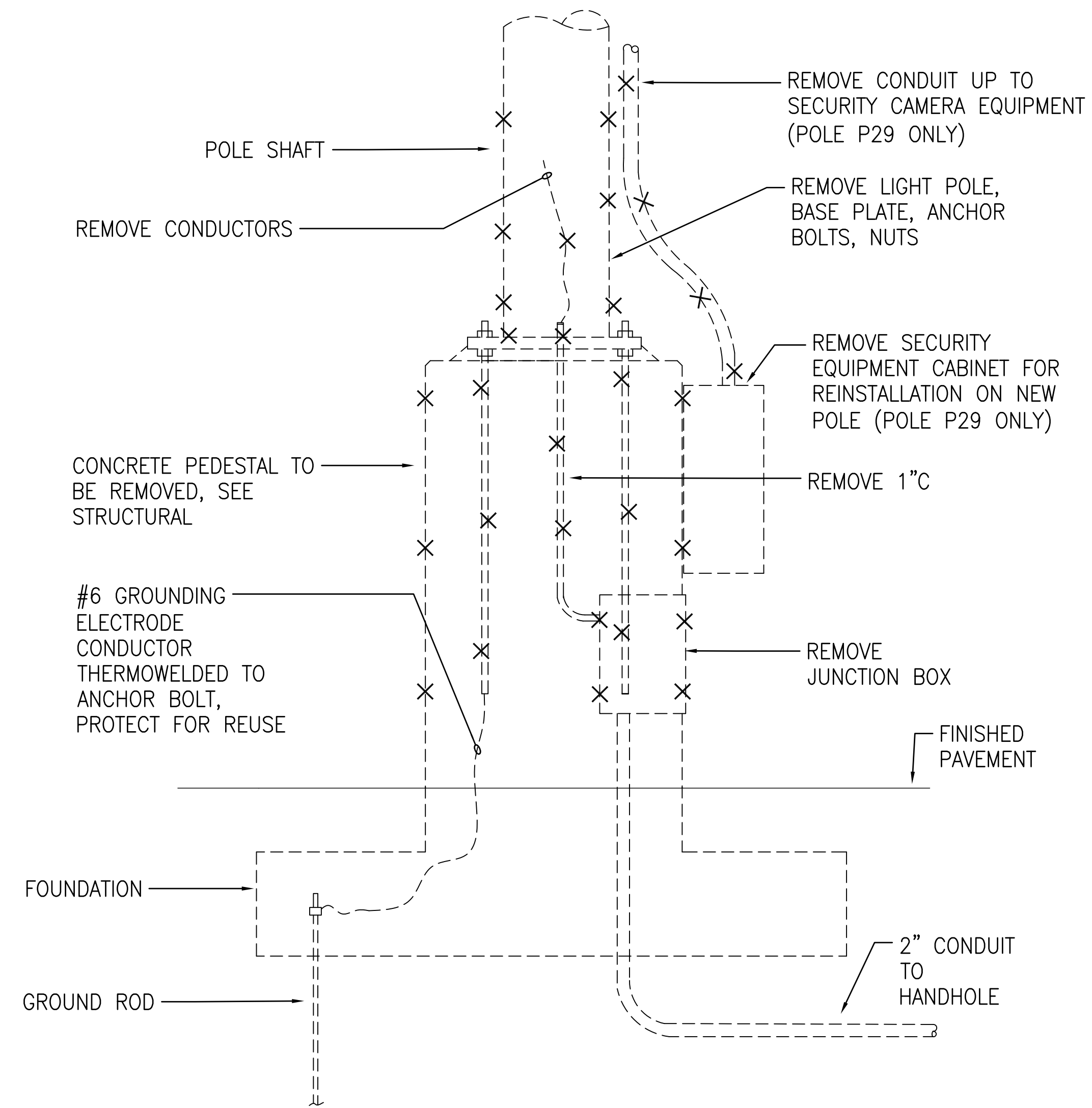
2 PEDESTAL - NEW WORK (POLE 17)
E-7 NOT TO SCALE

4/27/23-14-46 Y:\044\044-086 Ito Harbor Pier 1 Light Poles\044-088 E-3 to E-9\007.dwg

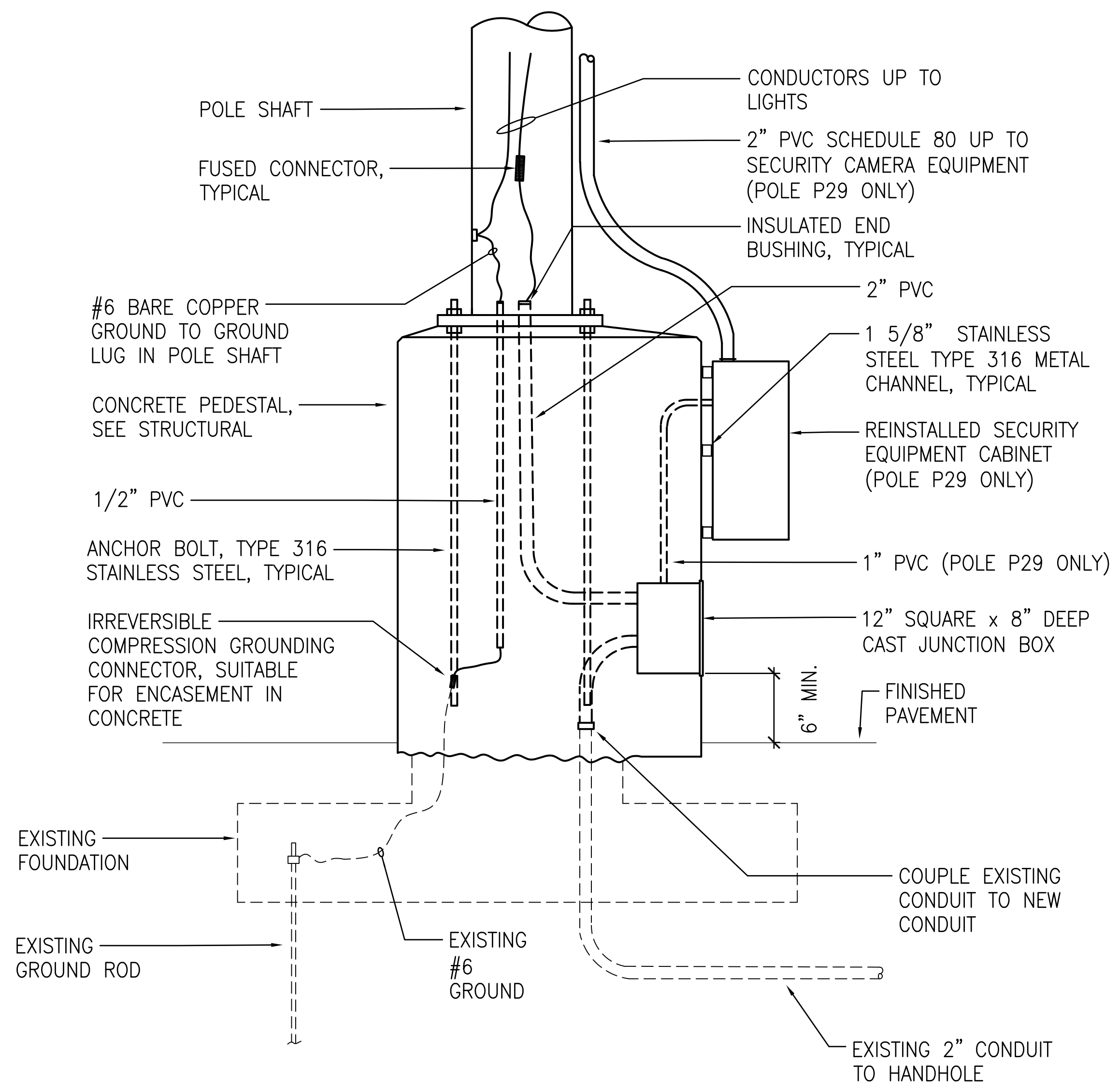


THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
EXP 4-30-24
Michele N. Adolp
ECS, INC.

| REVISION | DATE | DESCRIPTION | BY | APPROVED |
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| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | | |
| JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| SHEET TITLE PEDESTAL DETAILS - POLE 17 | | | | |
| DESIGNED BY: MA | | | | SHEET |
| DRAWN BY: CAD | | | | E-7 |
| CHECKED BY: MA | | | | |
| DATE: 04/2023 | JOB NUMBER | | | |
| SCALE: AS SHOWN | S50201 | | | 15 OF 19 SHEETS |

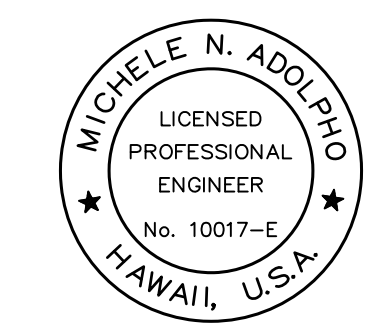


1 PEDESTAL - DEMOLITION WORK (POLES 28, 29, 30, 32)
E-8 NOT TO SCALE



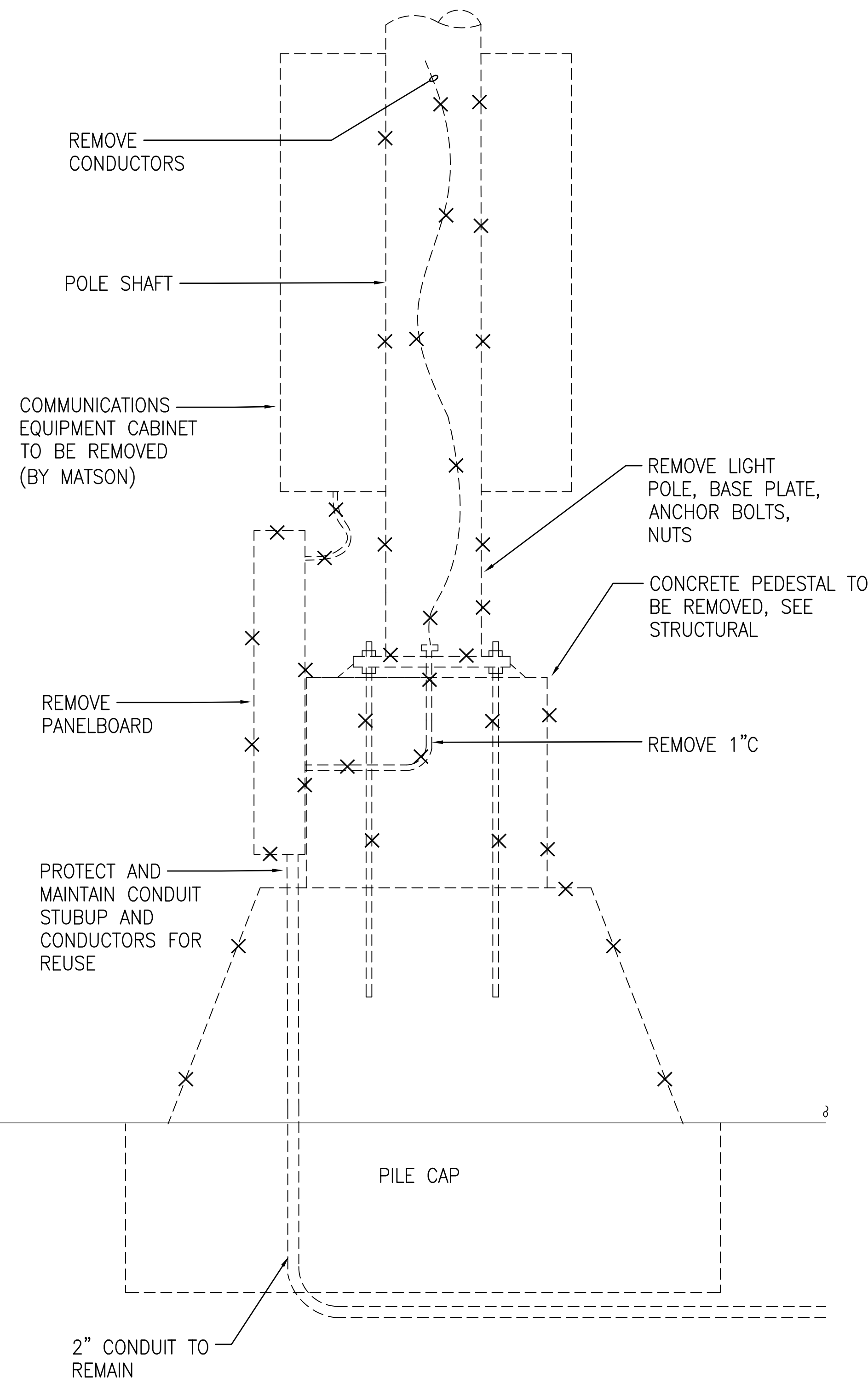
2 PEDESTAL - NEW WORK (POLES 28, 29, 30, 32)
E-8 NOT TO SCALE

4/27/23-15:31 Y:\044\044.088.Hilo.Harbor.Pier.1.Light.Poles\044.088.E-3 to E-9\01.dwg

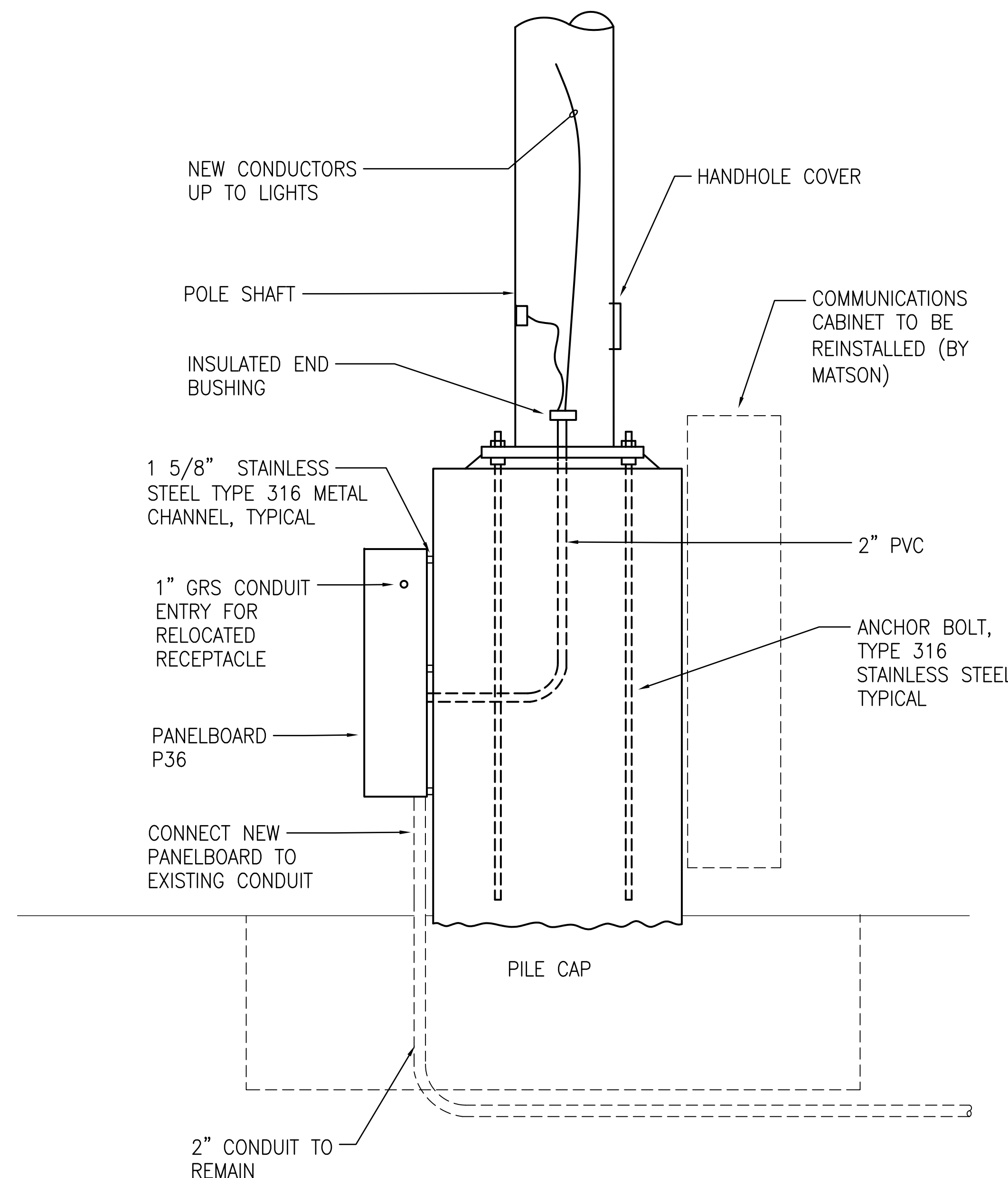


THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
EXP 4-30-24
Michele N. Adolpho
ECS, INC.

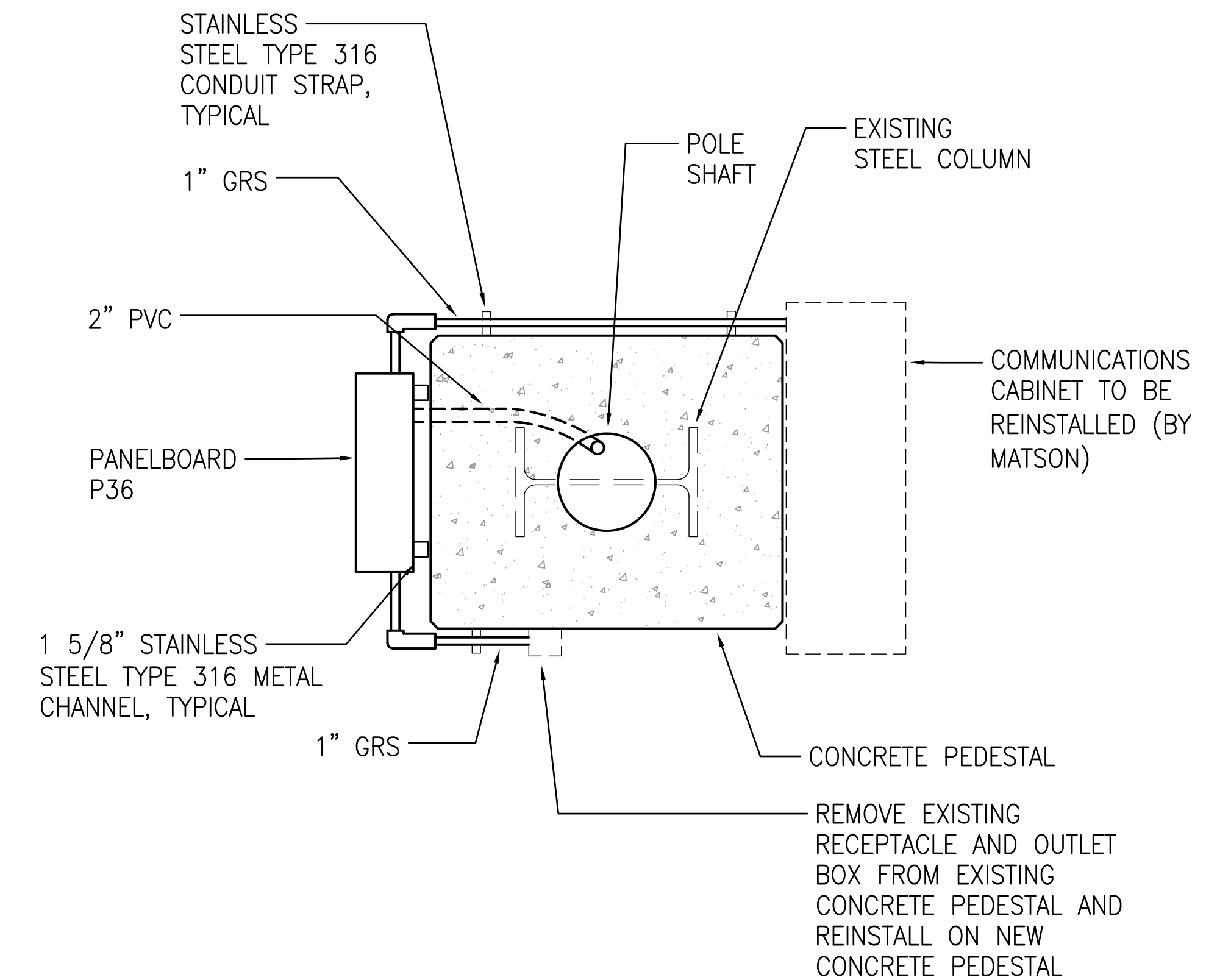
| REVISION | DATE | DESCRIPTION | BY | APPROVED |
|--|-----------------|-------------|----|-----------------|
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | | |
| JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| SHEET TITLE PEDESTAL DETAILS - POLES 28, 29, 30, 32 | | | | |
| DESIGNED BY: MA | JOB NUMBER | | | SHEET |
| DRAWN BY: CAD | S50201 | | | E-8 |
| CHECKED BY: MA | | | | |
| DATE: 04/2023 | SCALE: AS SHOWN | | | 16 OF 19 SHEETS |



1 PEDESTAL - DEMOLITION WORK (POLE 36)
E-9 NOT TO SCALE



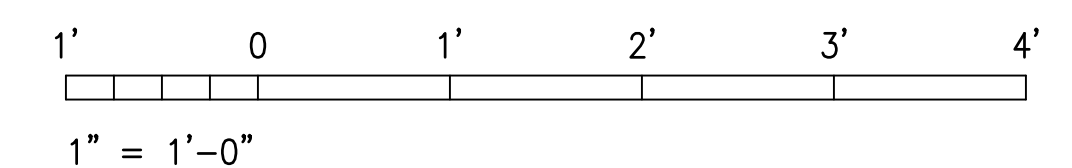
2 PEDESTAL - NEW WORK (POLE 36)
E-9 NOT TO SCALE

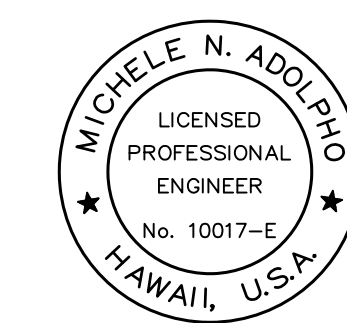


3 POLE 36 PEDESTAL PLAN
E-9 SCALE: 1" = 1'-0"

| WIRE SIZE (AWG) | | PANEL P36 | | | | | | WIRE SIZE (AWG) | |
|----------------------|------------|--------------|-----|----------------------|---------|---------|--------------|-----------------|--------|
| CKT NO | USE | CKT BKR POLE | AMP | CONNECTED LOAD (KVA) | | | CKT BKR POLE | USE | CKT NO |
| | | | | PHASE A | PHASE B | PHASE C | | | |
| 10 1 | LIGHTS | 1 | 20 | 1.0 | 1.0 | | 20 1 | COMM CABINET | 2 12 |
| 10 3 | LIGHTS | 1 | 20 | | 1.0 | 1.0 | 20 1 | SPARE | 4 - |
| 10 5 | LIGHTS | 1 | 20 | | | 1.0 | 20 1 | SPARE | 6 - |
| 12 7 | | 3 | | 0.5 | - | | - 1 | PFB | 8 - |
| 12 9 | RECEPTACLE | | | | 0.5 | - | - 1 | PFB | 10 - |
| 12 11 | | | 20 | | | 0.5 | - 1 | PFB | 12 - |
| - 13 | PFB | 1 | - | - | - | | - 1 | PFB | 14 - |
| - 15 | PFB | 1 | - | - | - | | - 1 | PFB | 16 - |
| - 17 | PFB | 1 | - | - | - | | - 1 | PFB | 18 - |
| CONNECTED LOAD/PHASE | | | | 2.5 | 2.5 | 2.5 | | | |
| TOTAL CONNECTED LOAD | | | | 7.5 KVA | | | | | |
| DEMAND FACTOR | | | | 0.8 | | | | | |
| TOTAL DEMAND LOAD | | | | 6.0 KVA= 17 AMPS | | | | | |

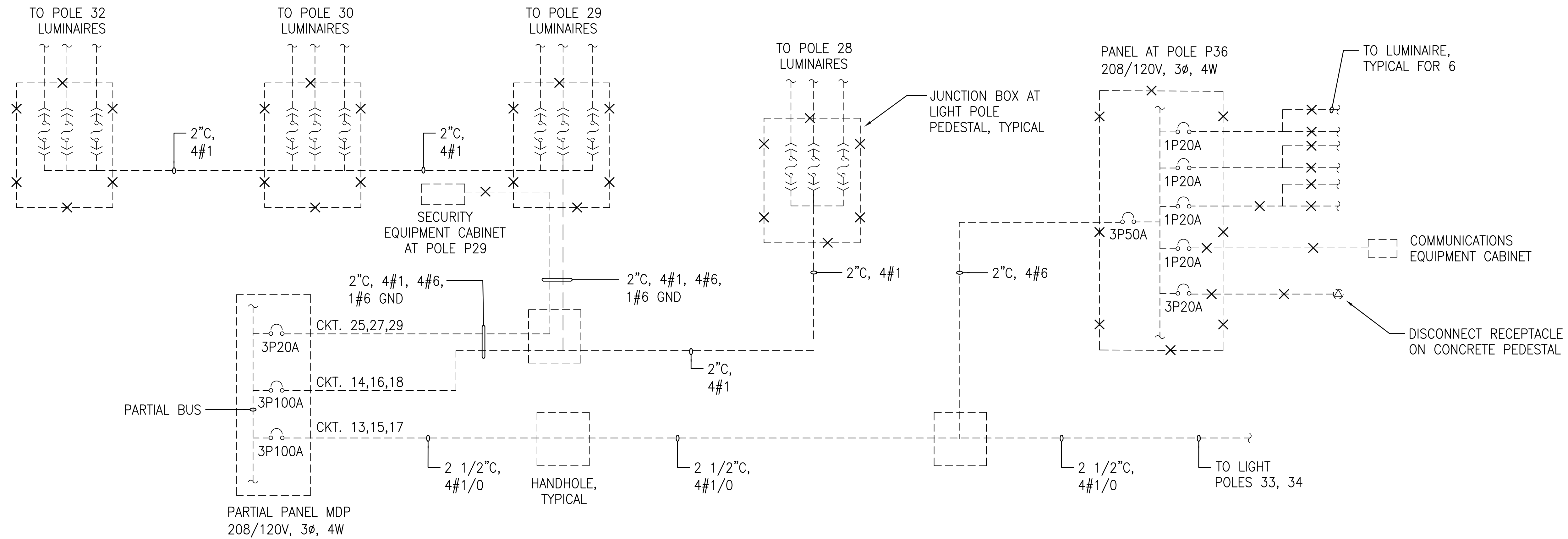
GRAPHIC SCALE



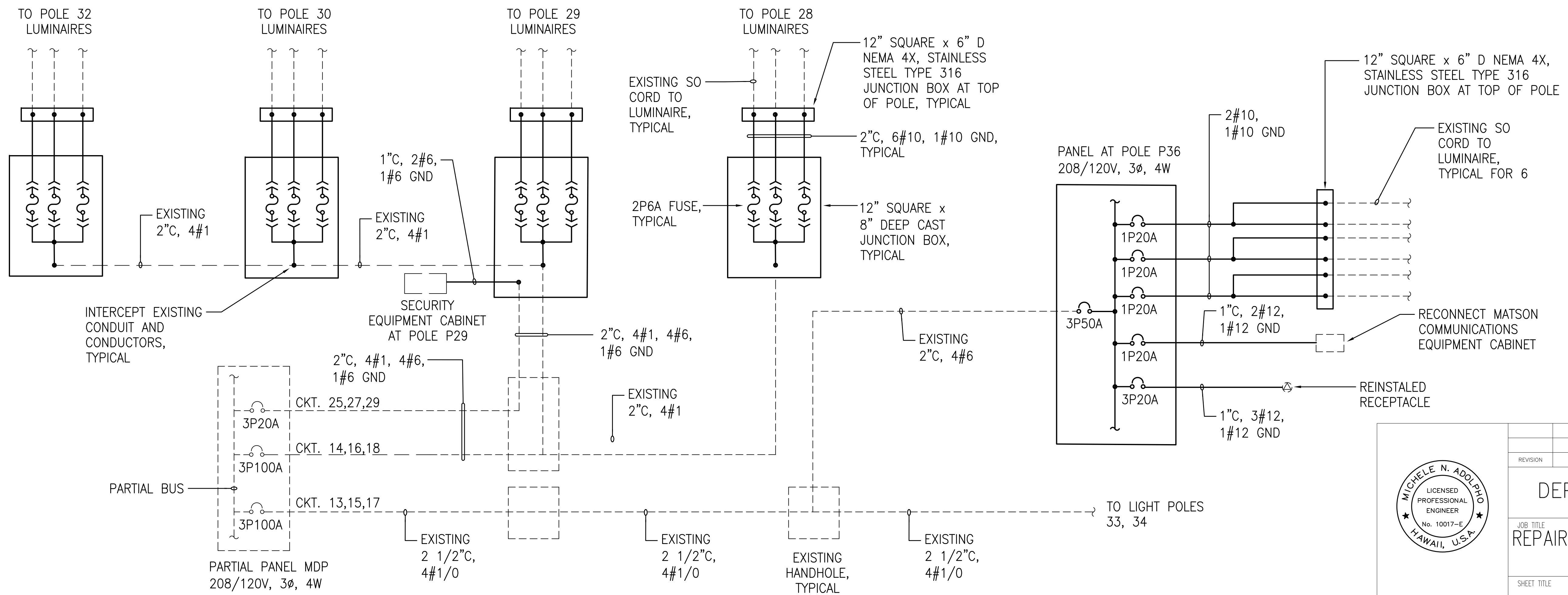


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
EXP 4-30-24
Michele N. Adolp
ECS, INC.

| | | | | |
|--|---------------|-------------|----|----------------------|
| REVISION | DATE | DESCRIPTION | BY | APPROVED |
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | | |
| JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| SHEET TITLE PEDESTAL DETAILS - POLE 36 | | | | |
| DESIGNED BY: MA | DRAWN BY: CAD | | | SHEET E-9 |
| CHECKED BY: MA | DATE: 04/2023 | | | JOB NUMBER S50201 |
| SCALE: AS SHOWN | | | | 17 OF 19 SHEETS |

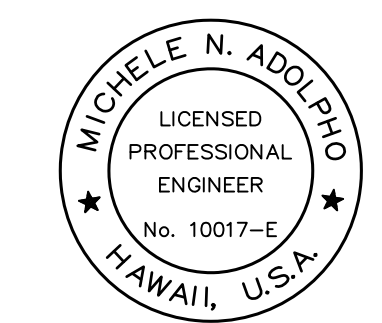


LIGHT POLES 28, 29, 30, 32 AND 36 WIRING DIAGRAM - DEMOLITION WORK
NO SCALE



NOTE:
DASHED LINES DENOTE EXISTING.
SOLID LINES DENOTE NEW WORK.

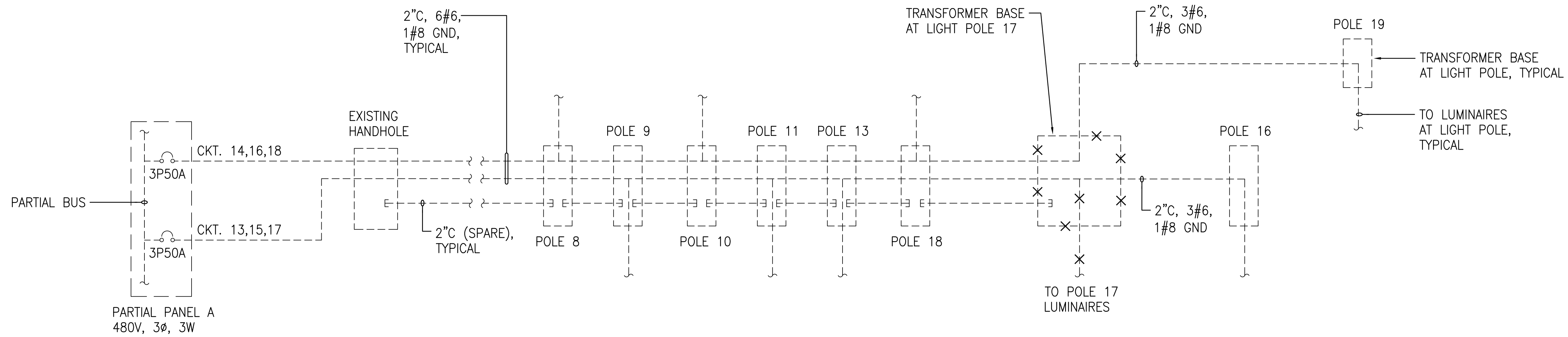
LIGHT POLES 28, 29, 30, 32 AND 36 WIRING DIAGRAM - NEW WORK
NO SCALE



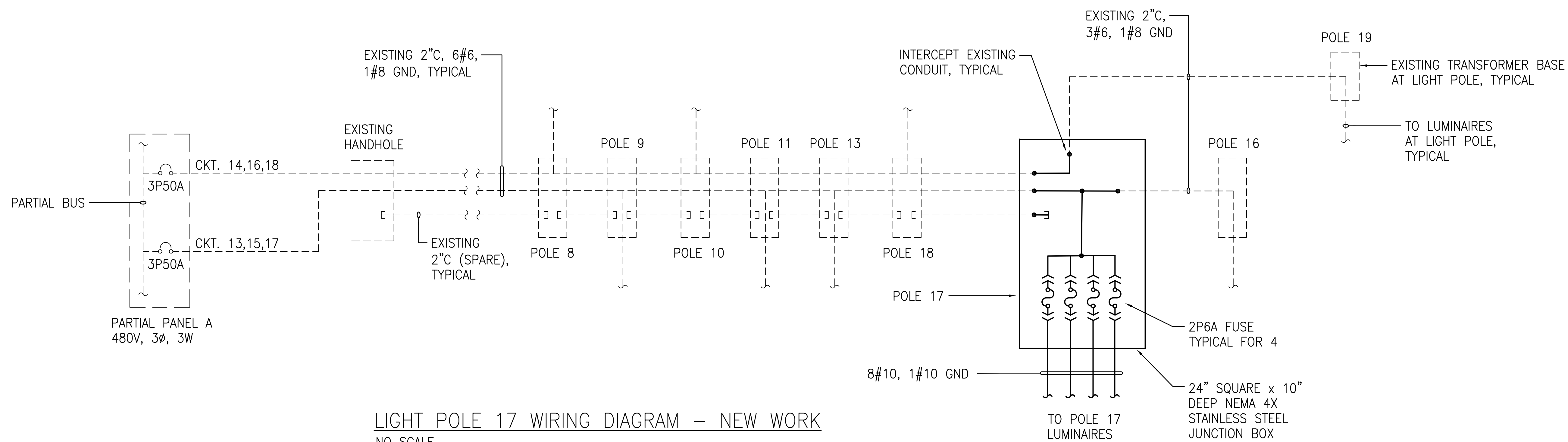
THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
EXP 4-30-24
Michele N. Adolp
ECS, INC.

| REVISION | DATE | DESCRIPTION | BY | APPROVED |
|--|------------|-------------|--------|-----------------|
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | | |
| JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | | |
| SHEET TITLE LIGHTING DIAGRAMS - 1 | | | | |
| DESIGNED BY: MA | | | | SHEET |
| DRAWN BY: CAD | | | | E-10 |
| CHECKED BY: MA | | | | 18 OF 19 SHEETS |
| DATE: 04/2023 | JOB NUMBER | | S50201 | |
| SCALE: AS SHOWN | | | | |

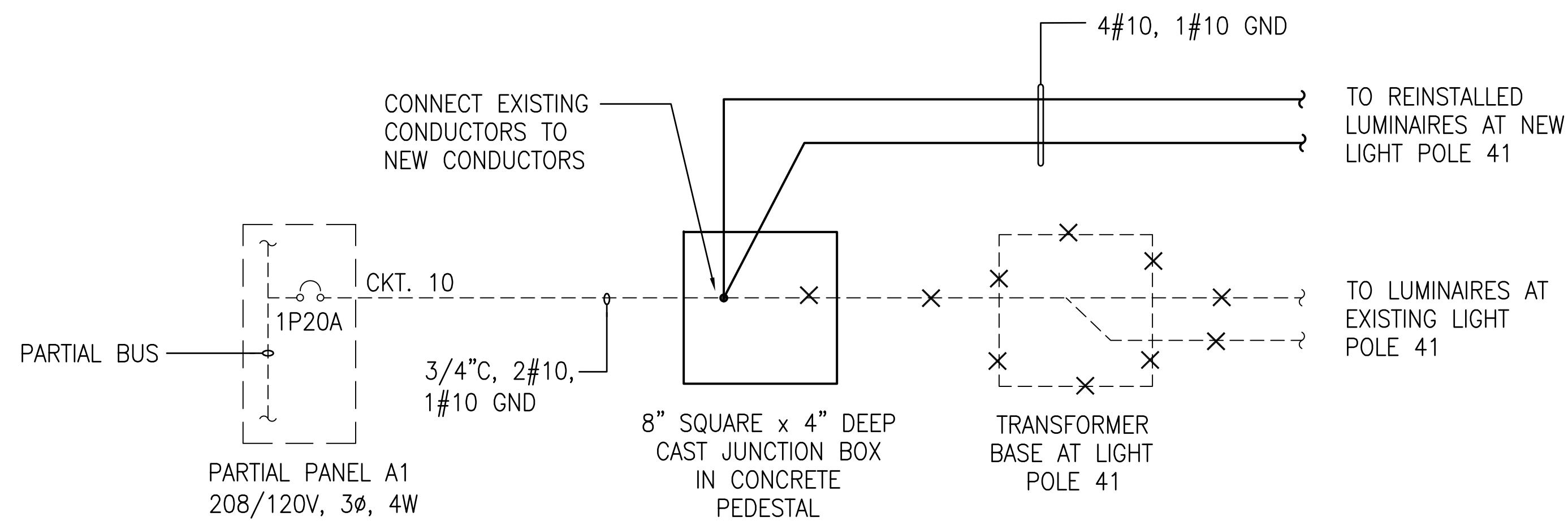
4/27/23-16-47 Y:\04A\044-086 Info Harbor Pier 1 Light Poles\044-086 E-X\101.dwg



LIGHT POLE 17 WIRING DIAGRAM - DEMOLITION WORK
NO SCALE



LIGHT POLE 17 WIRING DIAGRAM - NEW WORK
NO SCALE



LIGHT POLE 41 WIRING DIAGRAM
NO SCALE

NOTE:
DASHED LINES DENOTE EXISTING.
SOLID LINES DENOTE NEW WORK.

| | | | |
|--|-----------------------------|---|-----------------|
| | | REVISION DATE DESCRIPTION BY APPROVED | |
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HARBORS DIVISION | | | |
| JOB TITLE REPAIR LIGHT POLES AND PEDESTALS AT PIER 1 HILO HARBOR, HAWAII | | | |
| SHEET TITLE LIGHTING DIAGRAMS - 2 | | | |
| DESIGNED BY: MA DRAWN BY: CAD CHECKED BY: MA DATE: 04/2023 SCALE: AS SHOWN | JOB NUMBER S50201 | SHEET E-11 | 19 OF 19 SHEETS |

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 ECS, INC.