ELECTRICAL NOTES

- 1. ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- 2. PERMITS FOR ELECTRICAL WORK SHALL BE OBTAINED BY AND PAID BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL PAY FOR ANY ADDITIONAL FEES FOR INSPECTIONS, TESTS, AND OTHER SERVICES AS REQUIRED FOR THE COMPLETION OF THE WORK.
- 3. THE ELECTRICAL CONTRACTOR AND ANY OF HIS SUBCONTRACTORS SHALL VISIT THE PROJECT SITE TO WITNESS EXISTING CONDITIONS AND BECOME FAMILIAR WITH THE SCOPE OF THE WORK REQUIRED PRIOR TO SUBMITTING PROPOSALS. WORK REQUIRED BY EXISTING JOB CONDITIONS NOT INDICATED ON DRAWINGS SHALL BE INCLUDED IN
- 4. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO RESULT IN THE PRODUCTION OF A COMPLETE AND FUNCTIONAL ELECTRICAL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MATERIAL, LABOR, EQUIPMENT, AND OTHER SERVICES AS NECESSARY TO COMPLETE THE WORK.
- 5. DISCREPANCIES IN THE DRAWINGS AND SPECIFICATIONS THAT WILL AFFECT THE WORK SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER, AND/OR OWNER PRIOR TO SUBMITTING PROPOSALS.
- 6. UNLESS NOTED OTHERWISE, ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND INCLUDE A 3RD PARTY LABEL (I.E.: UL, CSA, ETL, ETC.) LISTING APPROVAL FOR ITS INSTALLED APPLICATION.
- 7. PENETRATIONS OF FIRE-RATED WALLS, FLOORS, CEILINGS, AND PARTITIONS SHALL BE FIRE STOPPED IN ACCORDANCE WITH REQUIREMENTS OF THE STATE BUILDING CODE. COORDINATE WORK TO INSURE THAT FIRE STOPPING IS COMPLETED.
- 8. PENETRATIONS OF SMOKE PARTITIONS SHALL BE SEALED IN ACCORDANCE WITH REQUIREMENTS OF THE STATE BUILDING CODE. COORDINATE WORK TO INSURE THAT SMOKE PARTITION SEALING IS COMPLETED.
- 9. PENETRATIONS OF EXTERIOR BUILDING WALLS, FLOORS, OR ROOFS SHALL BE SEALED WATERTIGHT. INTERIORS OF RACEWAY PENETRATIONS THROUGH EXTERIOR WALLS SHALL BE SEALED WITH NON-HARDENING ELECTRICAL PUTTY.
- 10. CUTTING AND PATCHING TO INSTALL DEVICES AND EQUIPMENT SHALL BE PERFORMED WITH FINISHES RESTORED TO THEIR ORIGINAL CONDITION. SUCH WORK SHALL BE
- COMPLETED TO A DEGREE THAT IS ACCEPTABLE TO THE ENGINEER, AND/OR OWNER.. 11. VERIFY PROPER SIZING OF OVERLOAD DEVICES IN STARTERS BASED ON EQUIPMENT
- 12. WHERE WORKING IN EXISTING BUILDINGS, FACILITIES, OR STRUCTURES; PROTECT AND MAINTAIN IN OPERATION EXISTING LIFE SAFETY SYSTEMS, PUBLIC ADDRESS SYSTEMS, ELECTRICAL SYSTEMS, ETC. IF SHUTDOWNS ARE REQUIRED, NOTIFY THE ENGINEER, AND OWNER FOR COORDINATION WELL IN ADVANCE OF ANY SYSTEM SHUTDOWN. WHERE AN OUTAGE OF EXTENDED DURATION IS NOT ACCEPTABLE TO THE OWNER, PROVIDE TEMPORARY CONNECTIONS AS REQUIRED TO MAINTAIN SERVICE.
- 13. WHERE WORKING IN EXISTING BUILDINGS, FACILITIES, OR STRUCTURES; WORK MAY BE REQUIRED TO BE PERFORMED WHILE REMAINING OCCUPIED BY OWNER STAFF. WORK SHALL BE COORDINATED WITH THE OWNER TO MINIMIZE DISRUPTION TO THE OWNER.
- 14. WHERE WORKING IN EXISTING BUILDINGS, FACILITIES, OR STRUCTURES; EXISTING ABANDONED CIRCUITS USED TO CONNECT NEW LOADS IN THE SAME AREA SHALL BE CLEARLY IDENTIFIED ON AS-BUILT MARK-UP DRAWINGS WITH REGARD TO PANEL-CIRCUIT AND CIRCUITRY ROUTING CONFIGURATION.
- 15. ABANDONED CIRCUITRY (RACEWAY & CONDUCTORS) SHALL BE REMOVED IN ITS ENTIRETY FROM ITS SOURCE. ABANDONED LOW VOLTAGE CABLING SHALL BE REMOVED IN ITS ENTIRETY UNLESS OTHERWISE NOTED.
- 16. LOAD CIRCUITS SHALL BE INSTALLED AS INDICATED ON THE DRAWINGS. CIRCUITRY REVISIONS WILL NOT BE ACCEPTED UNLESS APPROVED IN WRITING BY THE ENGINEER.

ABBREVIATIONS

AFF AFG AIC ATS BKR C	ABOVE FINISHED FLOOR ABOVE FINISHED GRADE AMPS INTERRUPTING CAPABILITY AUTOMATIC TRANSFER SWITCH BREAKER CONDUIT
C/B	CIRCUIT BREAKER
CKT	CIRCUIT
CMU	CONCRETE MASONARY UNIT
CU	COPPER
DTSS	
DWG EC	DRAWING ELECTRICAL CONTRACTOR
EXIST.	
_	EQUIPMENT GROUND
ĞEC	GROUNDING ELECTRODE CONDUCTOR
GFCI	
HTR	HEATER
K	KILO (THOUSAND)
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MLO	MANUAL TRANSFER SWITCH
MTS N	MANUAL TRANSFER SWITCH
IN	NEUTRAL

NATIONAL ELECTRICAL CODE

NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSOC. NTS NOT TO SCALE PHASE OR POLE PHASE

NOT APPLICABLE

PANEL POLYVINYL CHLORIDE RECEPTACLE RECPT REQ. SYS RECEPTACLE

SYSTEM SOLID NEUTRAL TYPICAL

REQUIRED

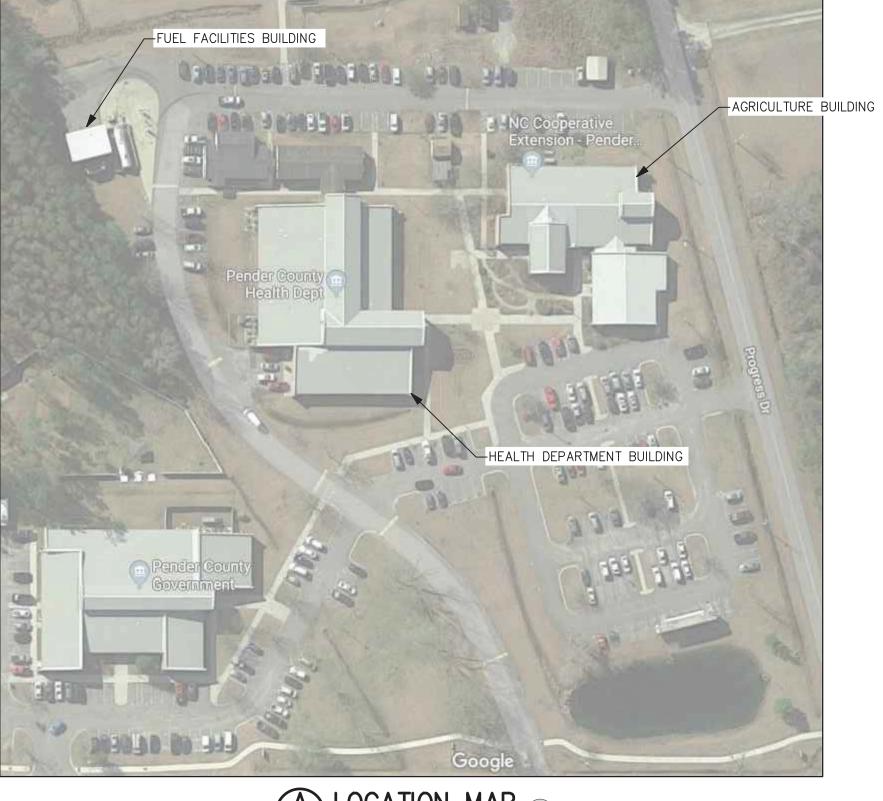
UNDERWRITERS LABORATORY UNLESS NOTED OTHERWISE UNLESS OTHERWISE NOTED

UON VOLT-AMPS WATTS WITH WEATHERPROOF TRANSFORMER

ELECTRICAL DRAWING LIST

NOTES, LEGENDS, LOCATION MAP E-001 E-011 ELECTRICAL SITE PLAN E-101 AGRICULTURE BUILDING RENOVATIONS E-102 FUEL FACILITY DEMOLITION E-103 FUEL FACILITY CONSTRUCTION E-104 HEALTH DEPARTMENT BUILDING E-501 DETAILS E-502 DETAILS

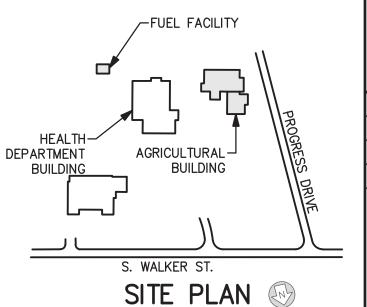
	T	
LOAD SUMMARY	EXISTING DMDP SERVICE	
AG BUILDING		
12 Month Recorded Peak Demand (kW)	76.0	kW
25% Additional Load (NEC 220.87)	19.0	
Total (kW)	95.0	kW
Estimated Power Factor	85%	
kVA	111.8	kVA
Additional Connected Load (kVA)	0.0	kVA
Total Load (kVA)	111.8	kVA
Service Voltage		
Amps @ Service Voltage		





MIS	SC.	ELECTRICAL SYMBOL LEGEND		
ζ	M	ENCLOSED CIRCUIT BREAKER, NEMA 1 (UNO), AMPERAGE AS INDICATED OR BASED ON SUPPLY CIRCUIT RATING.		
	Ш	DOUBLE THROW SAFETY SWITCH , HEAVY—DUTY, FUSED. NEMA 1 INSIDE, NEMA 3R OUTSIDE (UNO), AMPERAGE AS INDICATED OR BASED ON SUPPLY CIRCUIT BREAKER RATING.		
		PANELBOARD		
	T	TRANSFORMER, DRY TYPE, RATINGS INDICATED, NEMA 3R (PAINTED STAINLESS STEEL) ENCLOSURE (UNO). PROVIDE 18" HIGH CONCRETE HOUSE KEEPING PAD.		
•	<u> </u>	GROUND ROD, 3/4" X 10' COPPER CLAD. WHERE TWO RODS ARE INDICATED, SPACE A MINIMUM OF 20' APART.		
HOMERUN DESIGNATION, #12 CONDUCTORS UNLESS NOTED OTHERWISE. EQUIPMENT GROUND CONDUCTOR PHASE CONDUCTOR NEUTRAL CONDUCTOR				
E-	A -508	LETTER INDICATES ELEVATION OR DETAIL; NUMBER INDICATES PLAN OR SECTION SHEET NUMBER WHERE PLAN, SECTION, ELEVATION OR DETAIL IS DRAWN		

RECEPT	'ACLE	LEGEND	
SYMBOL	NEMA	VOLTS	DESCRIPTION
BLK HTR	5-20R	120V 1P 2W	POWER FOR GENERATOR BLOCK HEATER
₩/G	5-20R	120V 1P 2W	DUPLEX GFCI, MTD 18" AFG UNO; LISTED WEATHER-RESISTANT TYPE; PROVIDE CAST ALUMINUM WEATHERPROOF IN-USE COVER WITH CAST ALUMINUM FD WEATHERPROOF BOX
⊕ BATT CHG	5-20R	120V 1P 2W	POWER FOR GENERATOR BATTERY CHARGER, BATTERY HEATER, & WINDING HEATER



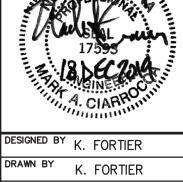
SCALE: NONE

REVISION DESCRIPTION

GENERATORS \sum NOIL GOVERNMENT 0 TION

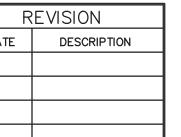
ASSOCIATES **AND**INEERS

CHEATHAM CONSULTING ENGIN



CHECKED BY M. CIARROCCA JOB NUMBER 19064



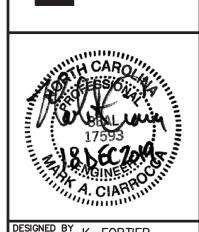


P.A. PENDER COUNTY GOVERNMENT GENERATORS

ELECTRICAL RENOVATIONS

SITE PLAN

CONSULTING ENGINEERS
3412 ENTERPRISE DRIVE
WLMINGTON, NORTH CAROLINA 28405
PH: (910)452-4210 FAX: (910)452-4211
E-MAIL: OFFICE@CHEATHAMPA.COM
NC LICENSE #C-1073
www.CHEATHAMPA.COM



DESIGNED BY K. FORTIER

DRAWN BY K. FORTIER

CHECKED BY M. CIARROCCA

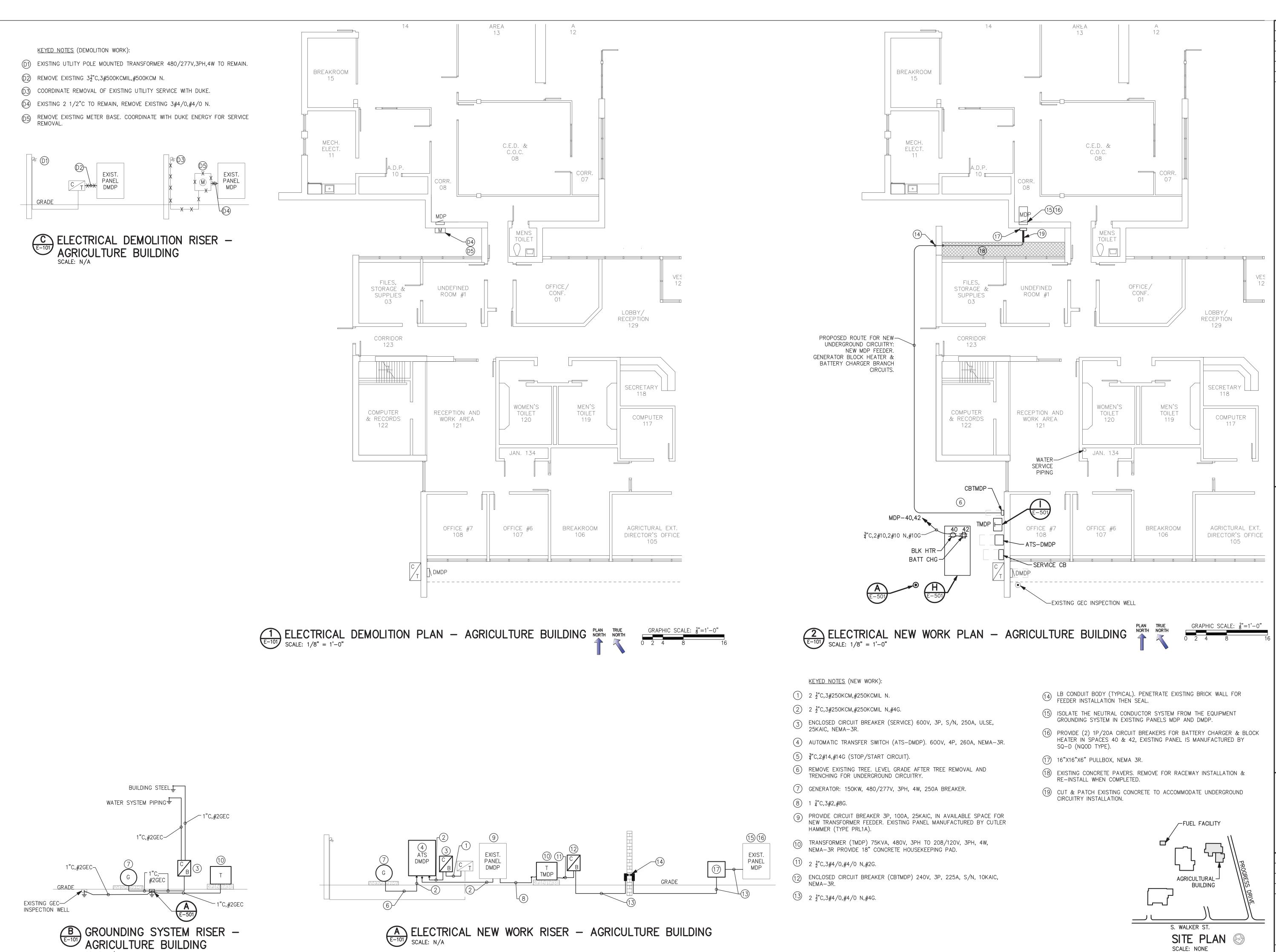
JOB NUMBER 19064

SHEET

E-011

S. WALKER ST.

SITE PLAN SCALE: NONE



ATORS

DESCRIPTION

REVISION

AL RENOVATIONS
UNE BUILDING
CAROLINA

ASSOCIATES, P.A. | PENE

CHEATHAM AND ASSC CONSULTING ENGINEERS
3412 ENTERPRISE DRIVE

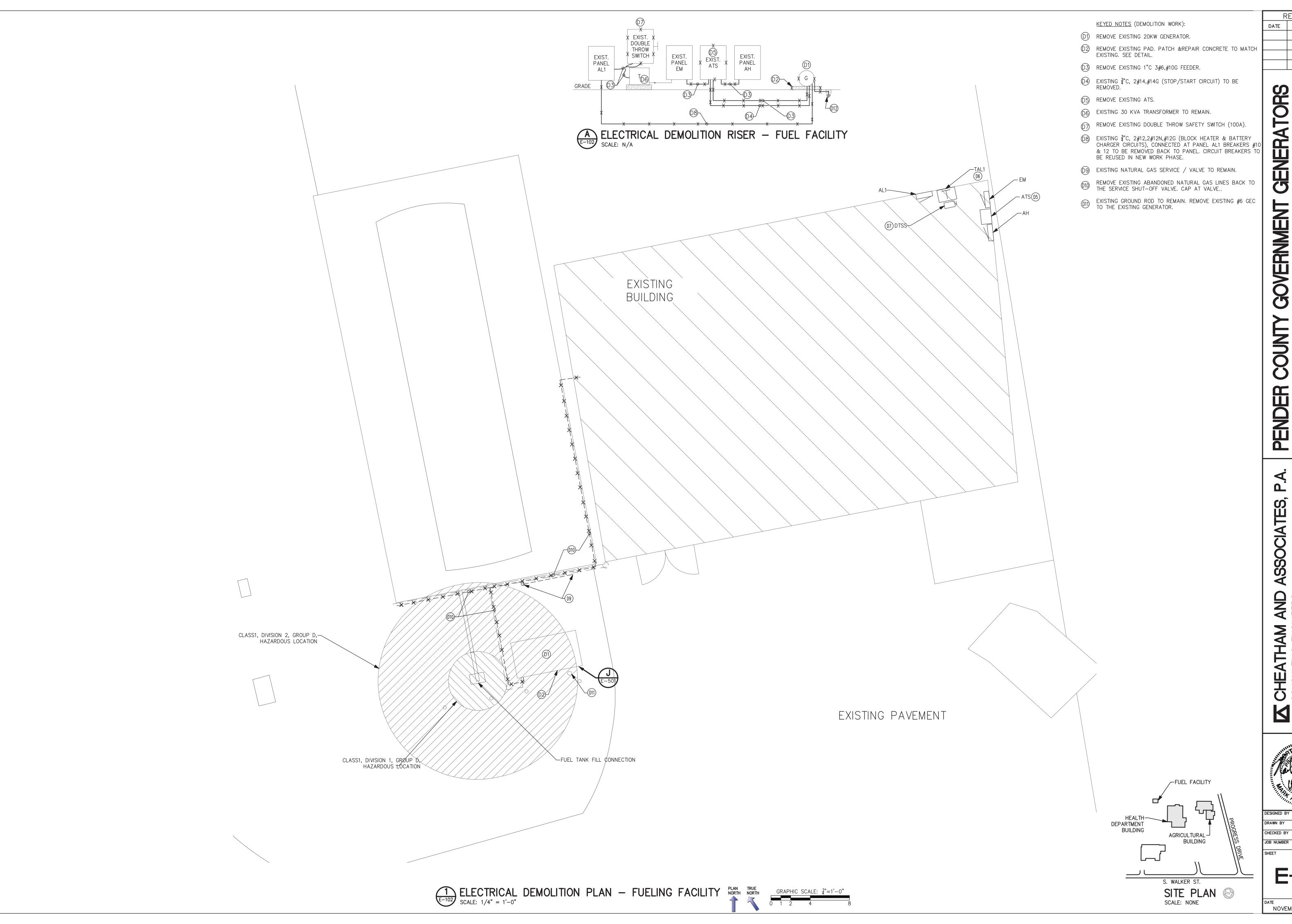
17593 Vgine of

DESIGNED BY K. FORTIER

DRAWN BY K. FORTIER

CHECKED BY M. CIARROCCA

SHEET 19064



REVISION DESCRIPTION

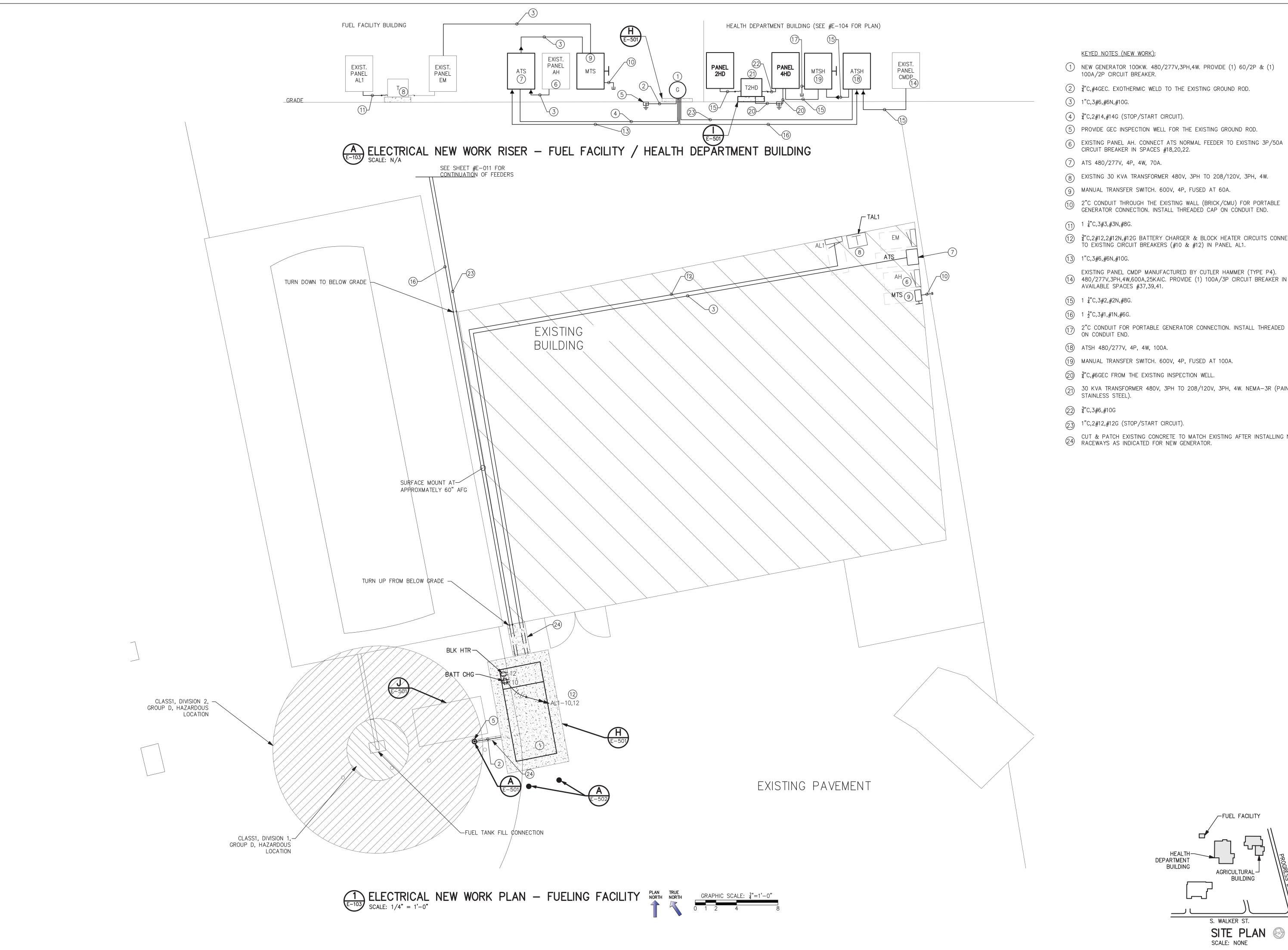
ITY GOVERNMENT ON THE STATE OF THE STATE OF

CHEATHAM AND CONSULTING ENGINEERS

ESIGNED BY K. FORTIER DRAWN BY K. FORTIER CHECKED BY M. CIARROCCA

JOB NUMBER 19064

E-102



- 1) NEW GENERATOR 100KW. 480/277V,3PH,4W. PROVIDE (1) 60/2P & (1) 100A/2P CIRCUIT BREAKER.
- (5) PROVIDE GEC INSPECTION WELL FOR THE EXISTING GROUND ROD.
- (8) EXISTING 30 KVA TRANSFORMER 480V, 3PH TO 208/120V, 3PH, 4W.

- (12) 3"C,2#12,2#12N,#12G BATTERY CHARGER & BLOCK HEATER CIRCUITS CONNECT TO EXISTING CIRCUIT BREAKERS (#10 & #12) IN PANEL AL1.
- EXISTING PANEL CMDP MANUFACTURED BY CUTLER HAMMER (TYPE P4).
 480/277V,3PH,4W,600A,25KAIC. PROVIDE (1) 100A/3P CIRCUIT BREAKER IN AVAILABLE SPACES #37,39,41.
- 2"C CONDUIT FOR PORTABLE GENERATOR CONNECTION. INSTALL THREADED CAP ON CONDUIT END.
- (19) MANUAL TRANSFER SWITCH. 600V, 4P, FUSED AT 100A.
- 30 KVA TRANSFORMER 480V, 3PH TO 208/120V, 3PH, 4W. NEMA-3R (PAINTED STAINLESS STEEL).
- CUT & PATCH EXISTING CONCRETE TO MATCH EXISTING AFTER INSTALLING NEW RACEWAYS AS INDICATED FOR NEW GENERATOR.

S. WALKER ST. SITE PLAN SCALE: NONE

GENERATORS GOVERNMENT WORK

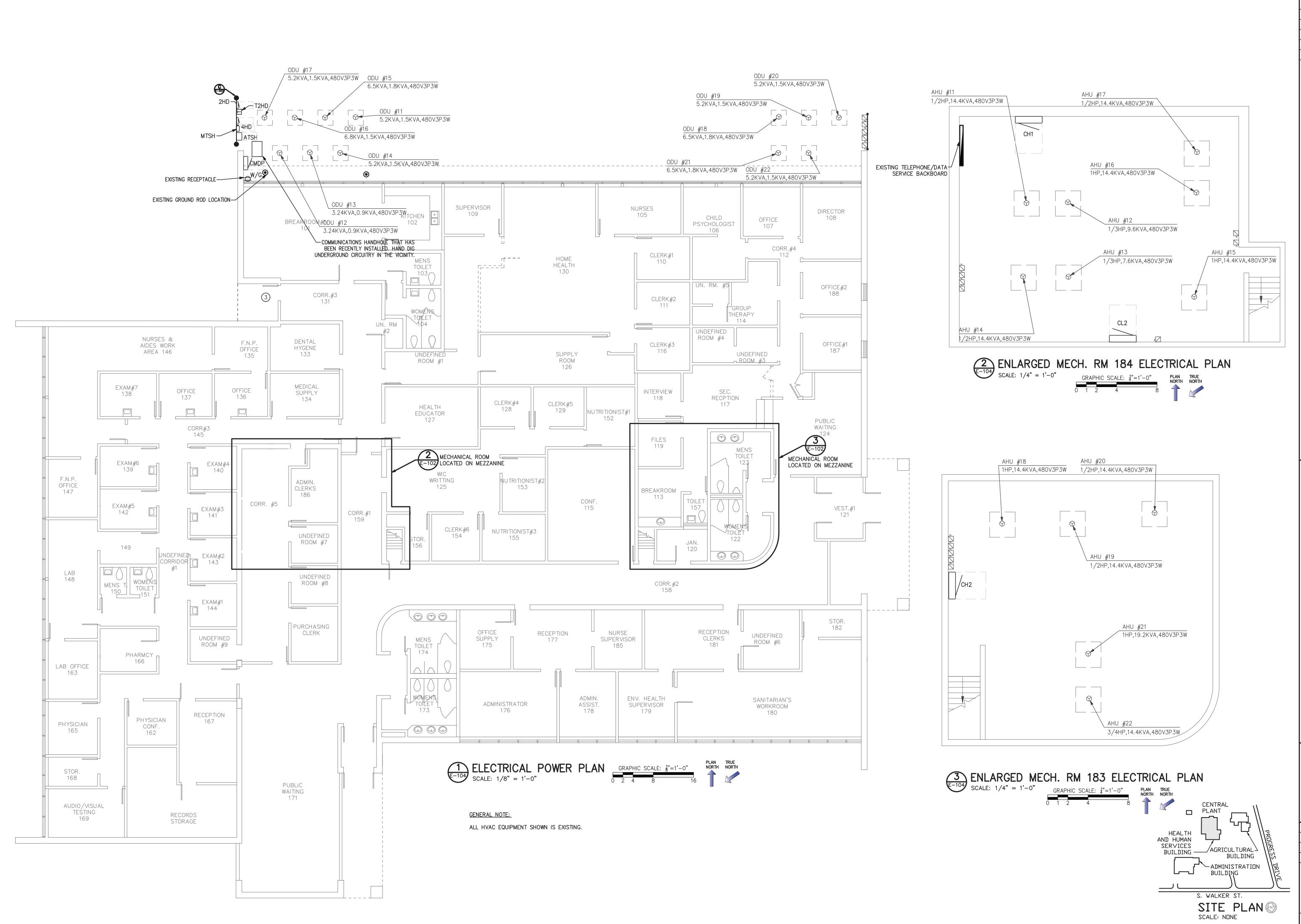
REVISION

DESCRIPTION

ASSOCIATES **AND**INEERS

SIGNED BY K. FORTIER K. FORTIER CHECKED BY M. CIARROCCA JOB NUMBER 19064

E-103



REVISION DESCRIPTION

NDER COUNTY GOVERNMENT GENERATORS CTRICAL RENOVATIONS ILTH DEPARTMENT BUILDING

CONSULTING ENGINEERS
3412 ENTERPRISE DRIVE
WILMINGTON, NORTH CAROLINA 28405
PH: (910)452-4210 FAX: (910)452-4211
E-MAIL: OFFICE@CHEATHAMPA.COM
NC LICENSE #C-1073
WWW.CHEATHAMPA.COM
WWW.CHEATHAMPA.COM

A. CIARROLLAND

DESIGNED BY K. FORTIER

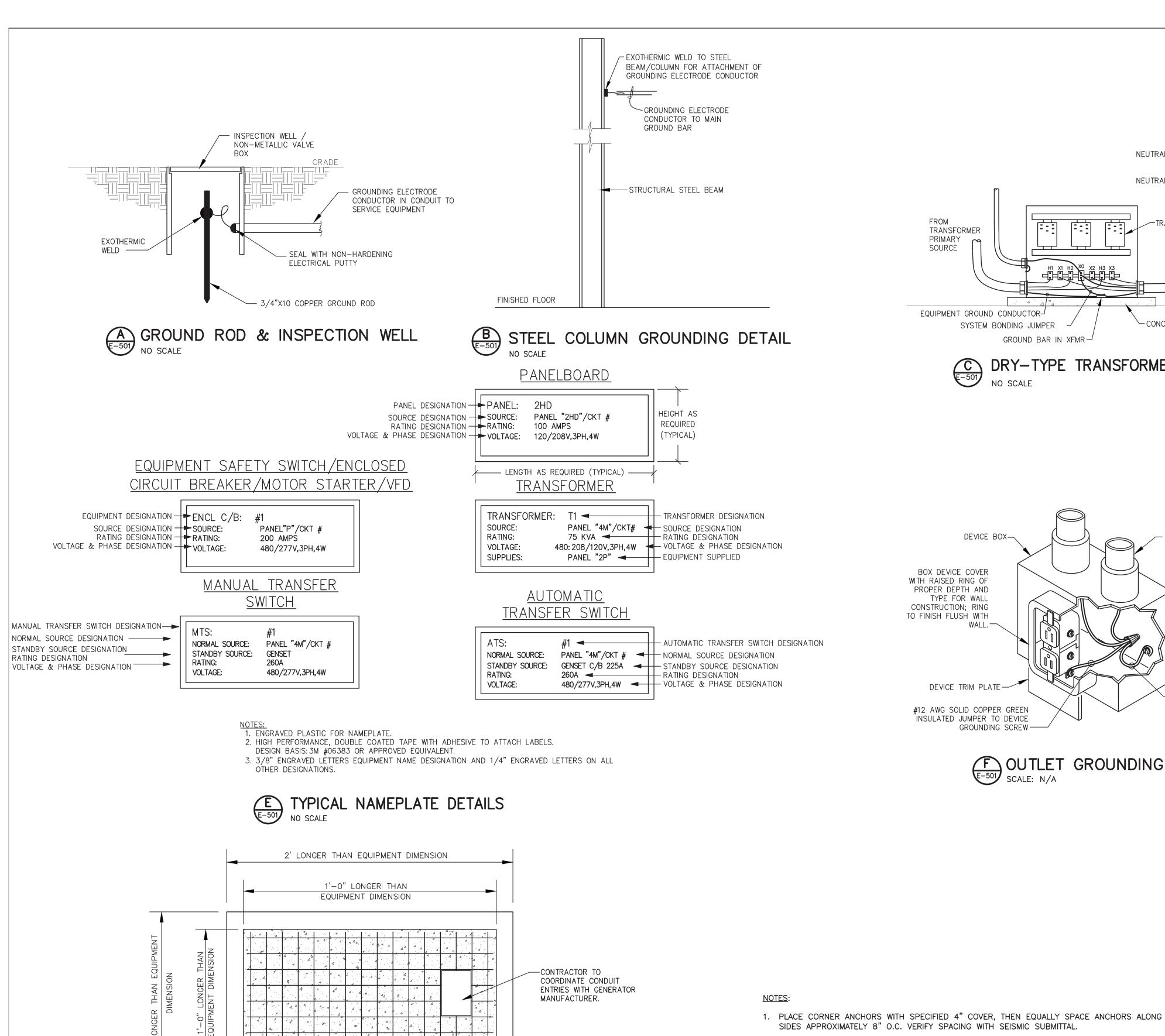
DRAWN BY K. FORTIER

CHECKED BY M. CIARROCCA

JOB NUMBER 19064

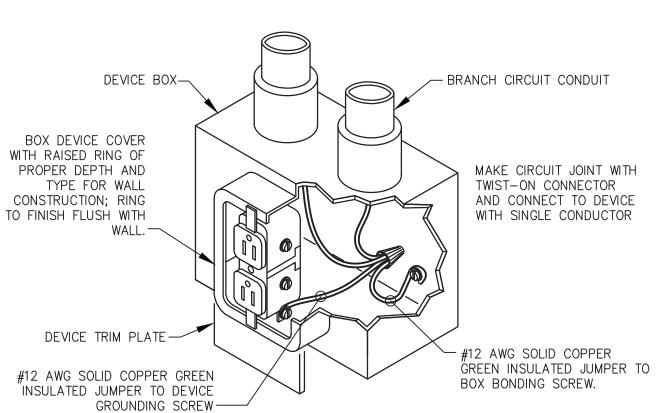
E-104

DATE NOVEMBER 18, 2019



TYPICALAPABELBOARD GROUNDING BUS BONDED TO **ENCLOSURE** NEUTRAL BUS — -EQUIPMENT GROUND NEUTRAL (WHITE) CONDUCTOR -BONDING BUSHING WITH BONDING JUMPER FROM -TRANSFORMER WINDING TRANSFORMER PRIMARY SOURCE FLOOR LEVEL EQUIPMENT GROUND CONDUCTOR CONCRETE HOUSEKEEPING PAD SYSTEM BONDING JUMPER GROUND BAR IN XFMR-

DRY-TYPE TRANSFORMER GROUNDING DETAIL



F OUTLET GROUNDING DETAIL
SCALE: N/A

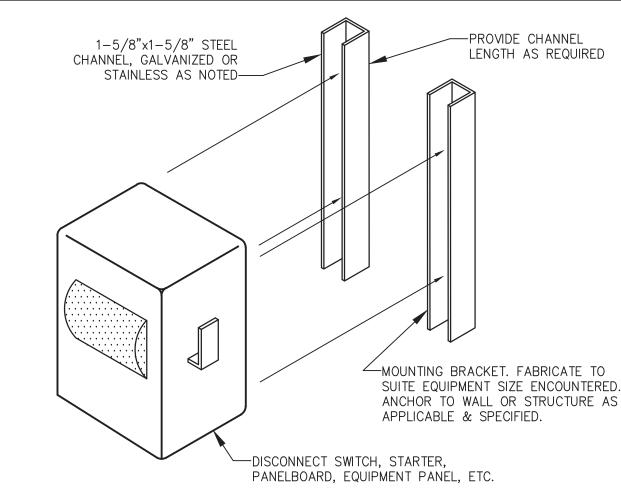
- 3/4" CHAMFER (TYP ALL AROUND)

- NOTE 2

— 6X6 W1.4×W1.4 WIRE MESH

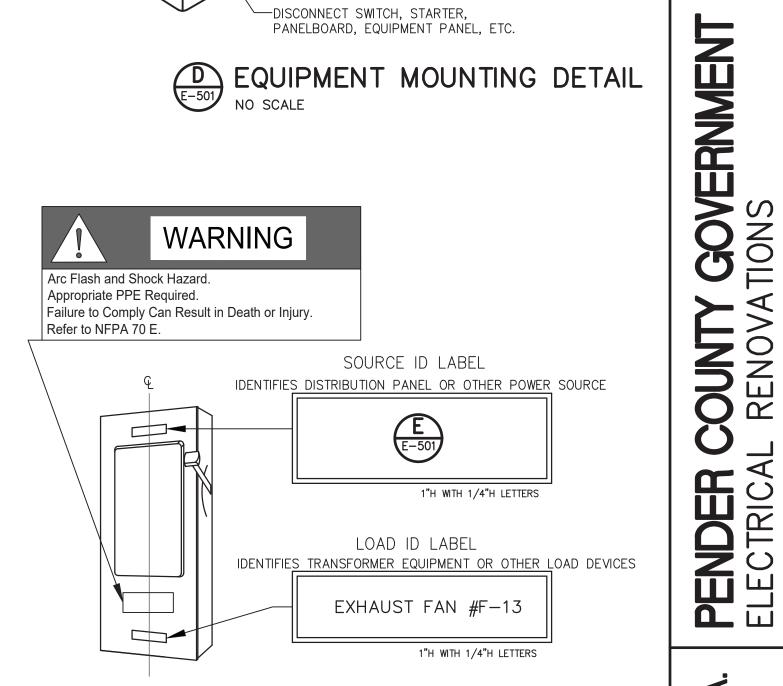
W/ 3" COVER (TYP)

- COMPACTED



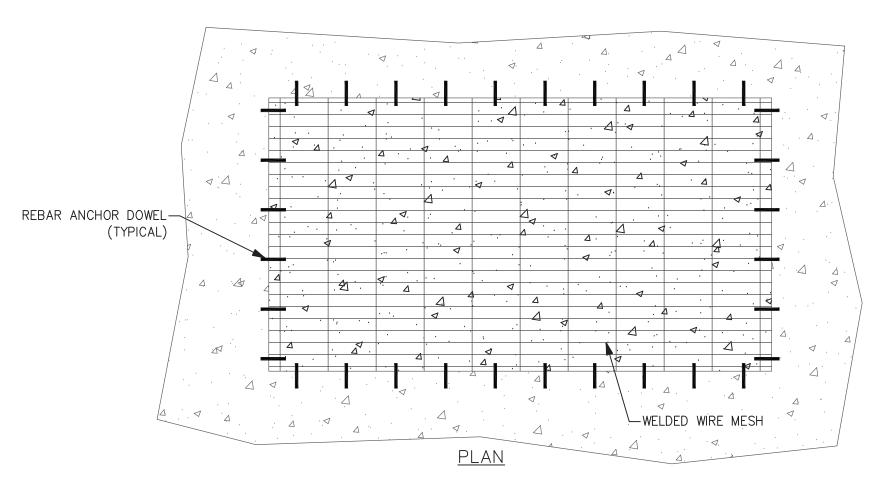
D EQUIPMENT MOUNTING DETAIL

NO SCALE



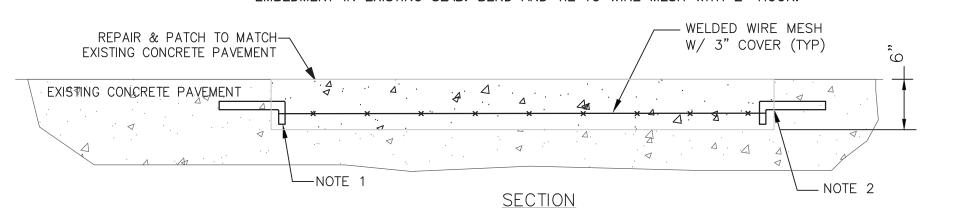
ENGRAVED LABELS: TEXT & BACKGROUND COLORS AS SPECIFIED. 2. FOR APPLICATIONS OTHER THAN NEMA 1 ENCLOSURES, PROVIDE DUPLICATE ID LABELS INSIDE ENCLOSURES. 3. ATTACH WITH HIGH PERFORMANCE, DOUBLE COATED TAPE WITH ADHESIVE. DESIGN BASIS: 3M #06383, OR APPROVED EQUIVALENT.

EQUIPMENT NAMEPLATE IDENTIFICATION NO SCALE

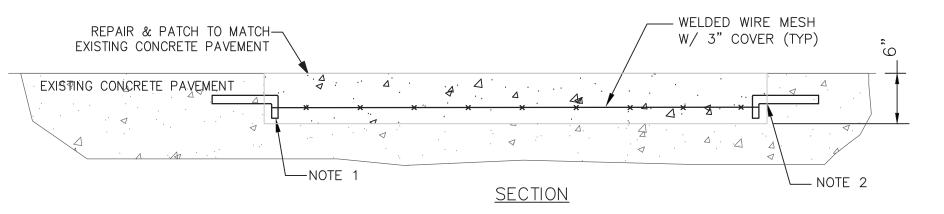


NOTES:

- 1. #4 REBAR ANCHOR DOWELS. INSTALL W/ APPROXIMATELY 3" COVER. LOCATE EQUALLY
- 2. SECURE REBAR ANCHOR DOWELS W/ EPOXY ADHESIVE. INSTALL WITH MINIMIMUM 2.75" EMBEDMENT IN EXISTING SLAB. BEND AND TIE TO WIRE MESH WITH 2" HOOK.







ONCRETE REPAIR DETAIL

REVISION

DESCRIPTION

DATE

GENERATORS

COUNTYRENOVA

PENDER ELECTRICA DETAILS BURGAW, NORTH C

ASSOCIATES

ANDNEERS

CHEATHAM CONSULTING ENGIN

SIGNED BY K. FORTIER DRAWN BY K. FORTIER CHECKED BY M. CIARROCCA JOB NUMBER 19064

E-501

NOVEMBER 18, 2019

GENERATOR PAD DETAIL

EQUIPMENT EXTERIOR IN EACH DIRECTION.

<u>PLAN</u>

-3000 PSI

CONCRETE

PROVIDE ANCHOR BOLTS FOR GENERATOR & ENCLOSURE PER MANUFACTURER'S

3. #4 REBAR ADHESIVE ANCHOR W/ 4" COVER FROM EACH EDGE AND MIN. 2.75"

EMBEDMENT IN SLAB. BEND AND TIE TO REBAR WITH 6" HOOK. (TYP.).

2. BASE PAD SIZE ON ACTUAL EQUIPMENT SUPPLIED. PAD SHOULD EXTEND 6" PAST

-#4 @ 12"O.C.

& BOTTOM

EACH WAY, TOP

- EXISTING CONCRETE PAVEMENT

— EDGE OF STONE

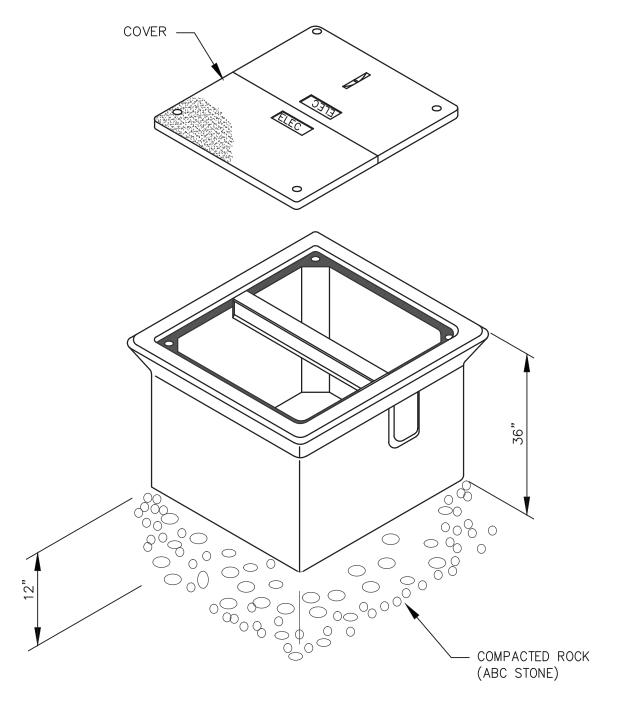
TYPICAL HOUSEKEEPING PAD DETAIL NO SCALE

└─NOTE 1

2. #4 REBAR ADHESIVE ANCHOR W/ 4" COVER FROM EACH EDGE AND MIN. 2.75" EMBEDMENT

EQUIPMENT ANCHOR (TYP)-

IN SLAB. BEND AND TIE TO WIRE MESH WITH 6" HOOK. (TYP.).



- 3 ½" Ø NOMINAL PIPE BOLLARD FILLED WITH CONCRETE & PAINTED WITH

— COMPACTED EARTH

→ 3000 PSI CONCRETE

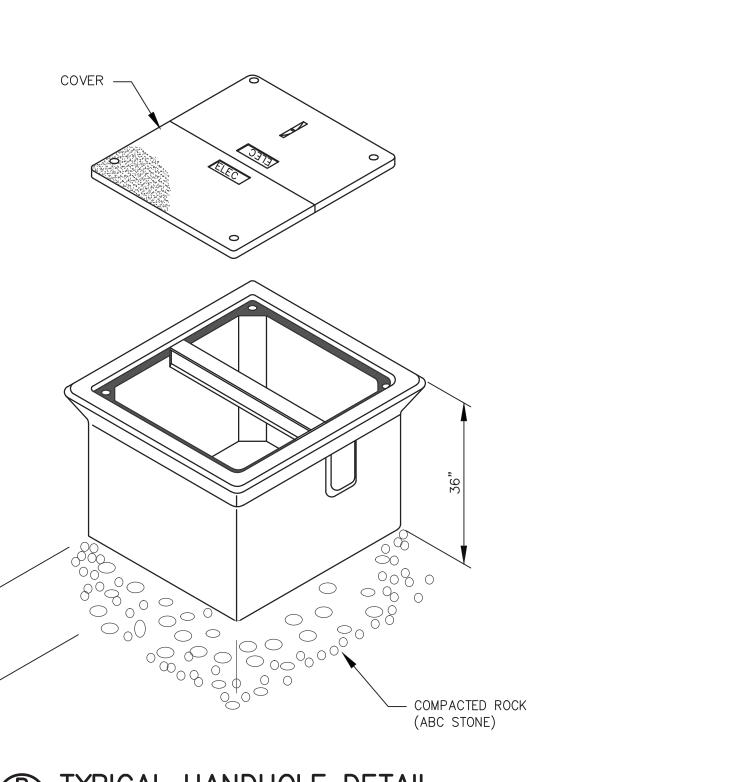
PIPE BOLLARD DETAIL

NO SCALE

RECOMMENDED PRIMER (1 COAT) & HIGH VISIBILITY YELLOW EPOXY (2 COATS)

MANUFACTURER'S









Ω.

REVISION

GENERATORS

GOVERNMENT

COUNTY

AL RENOVAT

PENDER C ELECTRICAL DETAILS BURGAW, NORTH CAR

DESCRIPTION

H CARO SSION ALCUMAN 17593 A. CIARRO	

DESIGNED BY K. FORTIER DRAWN BY K. FORTIER CHECKED BY M. CIARROCCA