

FUEL SYSTEM SPECIFICATIONS

PART 1 – GENERAL REQUIREMENTS

DESCRIPTION OF WORK: REMOVE EXISTING GASOLINE, DIESEL, AND E85 DISPENSERS AND READER SYSTEMS. PROVIDE AND INSTALL NEW DISPENSERS AND FUEL MANAGEMENT SYSTEM. PROVIDE AND INSTALL NEW READER SYSTEM FOR EXISTING PROPANE DISPENSER. INSTALL NEW EQUIPMENT FOR VEEDER–ROOT SYSTEM TO COMMUNICATE WITH E85 TANK AND REMOTELY VIA COMPUTER (WIRELESS). REMOVE EXISTING CANOPY LIGHTING AND CONTROLS AND REPLACE WITH NEW LED LIGHTING AND CONTROLS.

SCOPE OF WORK:

- PROVIDE DETAILED CONSTRUCTION SCHEDULE
- FIELD VERIFY QUANTITIES AND SIZES PRIOR TO ORDERING THE EQUIPMENT
- DISCONNECT AND REMOVE EXISTING GASOLINE AND DIESEL DISPENSERS
- DISCONNECT AND REMOVE EXISTING GASBOY ISLAND READER
- DISCONNECT AND REMOVE EXISTING E85 DISPENSER
- DISCONNECT AND REMOVE EXISTING E85 READER
- DISCONNECT AND REMOVE EXISTING PROPANE READER. EXISTING PROPANE DISPENSER TO REMAIN.
- INSTALL NEW SOFTWARE ON OWNER SUPPLIED PC
- PLACEMENT OF NEW GAS/DIESEL DISPENSERS AND CONNECT TO EXISTING PRODUCT PIPING AND ELECTRICAL
- PLACEMENT OF NEW E85 DISPENSER AND CONNECT TO EXISTING PRODUCT PIPING AND ELECTRICAL, EXTEND/REROUTE AS REQUIRED
- PLACEMENT OF (3) NEW FUELMASTER READERS (2–MAIN ISLAND, 1–PROPANE TANK)
- CONNECT ISLAND READER TO EXISTING POWER AND NEW DISPENSERS (GAS/DIESEL/E85)
- PLACEMENT OF NEW WIRELESS COMMUNICATION EQUIPMENT FOR NEW READER AT FUEL ISLAND (GAS/DIESEL/E85)
- PLACEMENT OF NEW WIRELESS COMMUNICATION EQUIPMENT AT BUILDING FOR NEW RECEIVER FOR WIRELESS OPERATION OF FUELMASTER SYSTEM
- MAINTAIN EXISTING COMMUNICATION WIRING AT FUELING ISLAND AS BACKUP FOR WIRELESS
- PLACEMENT OF NEW WIRELESS COMMUNICATION EQUIPMENT FOR NEW READER AT PROPANE TANK (EQUIPMENT SHALL BE VERIFIED TO BE COMPATIBLE WITH EXISTING PROPANE DISPENSER AND EQUIPMENT PRIOR TO INSTALLATION)
- RE–ROUTE EXISTING COMMUNICATION CABLE FROM FUELING ISLAND TO PHONE BLOCK
- CALIBRATE NEW DISPENSERS AND TEST
- PROVIDE FACTORY INSTALLATION FOR AIM2 VEHICLE UNITS (MINIMUM OF (30) VEHICLES). SYSTEM MUST NOT USE WIRES FOR COMMUNICATION BETWEEN DISPENSER AND VEHICLE
- PROVIDE FACTORY TRAINING FOR AIM2 VEHICLE UNITS, BOTH OPERATION AND INSTALLATION TRAINING
- START UP AND PROGRAM NEW FUELMASTER EQUIPMENT
- INSTALL VEEDER–ROOT SOFTWARE ON OWNER SUPPLIED PC, EXISTING VEEDER–ROOT SYSTEM TO BE REUSED.
- INSTALL NEW PROBE AND WIRELESS COMMUNICATION EQUIPMENT FOR EXISTING E85 TANK, EQUIPMENT MUST BE COMPATIBLE WITH EXISTING VEEDER–ROOT SYSTEM
- PROGRAM EXISTING VEEDER–ROOT CONSOLE TO ADD E85 TANK
- INSTALL NEW PHONE COMMUNICATION WIRING FROM VEEDER–ROOT CONSOLE TO PHONE SERVICE BLOCK
- REMOVE EXISTING CANOPY LIGHTING SYSTEM AND REPLACE WITH NEW LED CANOPY LIGHTING SYSTEM.

FUELMASTER 3535 PASSIVE MOBILE SYSTEM: THE FUELMASTER FMU 3535 MOBILE SYSTEM SHALL PROVIDE THE SAME RFID TECHNOLOGY FOR REMOTE FUELING LOCATIONS AS CURRENTLY AVAILABLE ON THE FUEL ISLAND. ACCESS TO THE FMU 3535 CAN BE BY RFID (AIM2), LOCAL AUTHORIZATION OF FLEET CARDS, SMART CARD, OR PROXIE. THE RFID SYSTEM REQUIRES NO ENTRY OF DATA, BUT COLLECTS THE ODOMETER AND OTHER INFORMATION DIRECTLY FROM THE VEHICLES COMPUTER WHEN THE AIM2 MODULE IS INSTALLED ON THE VEHICLE. COMMUNICATION BETWEEN THE AIM2 MODULE ON THE VEHICLE AND THE FUELMASTER FMU SHALL BE VIA WIRELESS, NO WIRES SHALL BE PERMITTED ON THE DISPENSERS.

FUELMASTER SYSTEM COMPONENTS AND FEATURES:

- OBD II (ON–BOARD DIAGNOSTICS) PORT INTERFACE FOR REAL–TIME MAINTENANCE AND VEHICLE COMPUTER DATA ACQUISITION (ODOMETER, ENGINE HOURS, IDLE TIME, ENGINE ERROR CODES, ETC.)
- UTILIZES FLASH TECHNOLOGY FOR MEMORY AND UPGRADE CAPABILITIES
- PROGRAM REAL–TIME CHANGES TO THE VEHICLE AIM 2.4" WHILE PUMPING YOUR FUEL
- NO EXTERNAL PROGRAMMING ACCESSORIES NEEDED
- IUSES J1587, J1708
- BUILT–IN SELF–DIAGNOSTICS OF FUELMASTER® COMPONENTS INCLUDING FUEL ISLAND HARDWARE
- MODERN STATE–OF–THE–ART RF RADIO COMMUNICATIONS TO THE FUEL ISLAND
- PASSIVE CAPTURE OF VEHICLE ID, CURRENT MILEAGE, DATE, TIME, FUEL QUANTITY, FUEL TYPE, ENGINE HOURS, PTO HOURS AND MUCH MORE
- COMPLETE CONTROL AND COMPREHENSIVE SECURITY OVER FUEL DISPENSERS AND FUEL DISPENSED
- IMPLEMENTS ADVANCED RFID TAG TECHNOLOGIES
- AIM 2.4" IS ETL LISTED TO MEET UL913, CSA APPROVED AND MEETS FCC AND IC (CANADA) REQUIREMENTS

PART 2 – MATERIALS

PROVIDE LABOR, MATERIALS, HARDWARE, SOFTWARE, AND TRAINING REQUIRED TO FURNISH AND INSTALL THE FOLLOWING ITEMS:

TANK MONITORING EQUIPMENT:

MODULES: (1) SITE–FAX MODULE TLS–350 SERIES CONSOLES 330149–002

TANK PROBES ALTERNATIVE FUEL (WITH WATER DET): (1) 5" DIAMETER, MAGNETOSTRICTIVE PROBE 846391–102

MAG PROBE INST. KITS: (1) ALTERNATIVE FUEL, 5" CABLE 849600–004

PROBE ACCESSORIES: (1) 4" RISER CAP & RING 312020–952

MISCELLANEOUS TANK MONITOR EQUIPMENT:

- (1) TLS–RF WIRELESS CONTROL BOX
- (1) TRANSMITTER KIT
- (1) RS–485 CABLE
- (1) INFORM SOFTWARE PACKAGE FOR SINGLE SITE

DISPENSING EQUIPMENT: GASBOY ATLAS ELECTRONIC COMMERCIAL UNIT(S) CONSISTING OF:

- (2) MODEL 9853KXTW1–DF, 2 HOSE/1 PROD. HIGH CAPACITY DISPENSER SIDE NOZZLE (ISLAND ORIENTED)
- (1) MODEL 9872KX–F (E85), 1 HOSE/1 PROD. HIGH CAPACITY DISPENSER SIDE NOZZLE (ISLAND ORIENTED)
- (2) PULSE OUTPUT, SINGLE
- (4) RESISTOR ASSEMBLY, 115V (C05818)
- (2) TOTALIZER, ELEC. MECHANICAL – GALLONS

FUEL MANAGEMENT EQUIPMENT:

- (2) FMU PLUS PROKEE/RF TAG MASTER WITH 2 HOSE CONTROLLERS, PEDESTAL, MODEM & SURGE PROTECTION
- (1) FUELMASTER 256633 ZIPLINE WIRELESS PHONE COMMUNICATION (PROPANE SYSTEM)
- (6) FUELMASTER HOSE CONTROLLERS WITH NOZZLE TAG
- (1) FUELMASTER AIM 2 INSTALLATION TRAINING
- (1) FUELMASTER 227838A WINDOWS SOFTWARE
- (1) FUELMASTER ENCODER FOR PROKEES
- (450) FUELMASTER PROKEES
- (1) FUELMASTER DATABASE CONVERSION AND EXPORT
- (30) FUELMASTER AIM2 2.4 GHZ AIM2 MODULE

DISPENSING ACCESSORIES:

- (2) OPW 11AP UNLEADED AUTOMATIC NOZZLE
- (2) OPW 8BL–0400 FILLGARD BLACK
- (2) OPW 241TPS–0241 TPS ¾" SWIVEL
- (2) OPW 66REC–1000 ¾" RECONNECTABLE BREAKAWAY
- (2) IRPCO ¾" X 9" BREAKAWAY WHIP HOSE
- (2) IRPCO 5/8" X 12" CURB HOSE
- (2) OPW 7HD 1" NOZZLE FOR DIESEL W/FLOW LOCK
- (2) OPW BLACK FILLGUARD FOR 7–H NOZZLE
- (2) OPW 241TPS–1000 1" SWIVEL
- (2) OPW 66RB–2000 1" RECONNECTABLE BREAKAWAY CONNECTOR
- (2) IRPCO 1" X 10" BREAKAWAY WHIP HOSE
- (2) IRPCO 1" X 12" CURB HOSE

FUEL SYSTEM SPECIFICATIONS (CONTINUED)

TS–550 EVO FUEL MANAGEMENT SYSTEM SPECIFICATIONS:

NUMBER OF TANKS MONITORED: UP TO 12 (UP TO 72 WITH ADDED OPTIONS)  
NUMBER OF LINES MONITORED: UP TO 8 (UP TO 48 WITH ADDED OPTIONS)  
SENSOR INPUT CHANNELS: UP TO 12 (UP TO 72 WITH ADDED OPTIONS)  
DRY CONTACT INPUT CHANNELS: 2  
AC INPUT CHANNELS: 12 (UP TO 72 WITH ADDED OPTIONS)  
4–20 MA INPUT CHANNELS: 8 (UP TO 48 WITH ADDED OPTIONS)  
RELAY OUTPUT CHANNELS: 2 (UP TO 50 WITH ADDED OPTIONS)  
DISPLAY TYPE: COLOR LCD TOUCH SCREEN  
PRINTER TYPE: THERMAL  
INTERNAL AUDIBLE ALARM  
ALARM, WARNING AND POWER LEDS  
APPLICABLE LIQUIDS: PETROLEUM, CHEMICALS AND HAZARDOUS WASTES  
LEVEL UNITS: INCHES, CENTIMETERS AND MILLIMETERS  
VOLUME UNITS: GALLONS OR LITERS (MASS WITH DENSITY OPTION)  
DISPLAY SIZE: 7" (17.78 CM)  
POWER REQUIREMENTS: 110 TO 240 VAC, 50/60 HZ, 2.6 AMPS  
OPERATING TEMPERATURE: 32° TO 104°F (0° TO 40°C)  
HUMIDITY: 0–90% NON–CONDENSING  
DIMENSIONS: 11" X 11.75" X 9.5" (279 MM X 298 MM X 241 MM)  
INTERFACE TO DEVICES WITH INTRINSIC SAFETY RATING.

- US – CLASS I, DIV. I, GROUP D
- EUROPE – GROUP IIA, ZONE 0

CONNECTIVITY:

- ETHERNET/COMPLETE WEB INTERFACE
- RS–232/485
- USB
- FAX/DATA MODEM
- IFSF VIA ECHELON

CAPABILITIES:

- INVENTORY AND DELIVERY MANAGEMENT
- LEAK DETECTION SENSORS
- STATIC AND CONTINUOUS TANK TESTING
- STATIC AND STATISTICAL ELECTRONIC LINE LEAK DETECTION
- HIGH, LOW AND WATER ALARM SET POINTS
- INVENTORY RECONCILIATION/TANK AUTO CALIBRATION
- DENSITY AND MASS MEASUREMENT
- SECONDARY CONTAINMENT MONITORING (VACUUM)
- TURBINE PUMP INTERFACE (TPI)
- EMAIL NOTIFICATIONS
- BACK–UP GENERATOR MONITORING/FUEL FLOW CONTROL

APPROVALS:

- UL, CUL, ATEX, IECEX
- THIRD PARTY CERTIFICATION OF LEAK DETECTION CAPABILITIES

WARRANTY/SERVICE AGREEMENT, PROKEES, AND AIM MODULES

BASE BID

UNLESS SPECIFICALLY NOTED OTHERWISE, ALL WORK INDICATED IN THE CONTRACT DOCUMENTS IS TO BE PART OF THE BASE BID.

BASE BID: PROVIDE A TWO–YEAR WARRANTY AND SERVICE AGREEMENT FOR THE INSTALLED SYSTEM. AS PART OF THE SERVICE AGREEMENT, THE FUEL MANAGEMENT SYSTEM AND FUEL DISPENSING SYSTEM SHALL BE SERVICED ON A SEMI–ANNUAL BASIS FOR TWO YEARS AFTER COMPLETION OF INSTALLATION. THIS SERVICE SHALL BE PROVIDED BY THE LOCAL PUMP DISPENSER AND FUEL MANAGEMENT SYSTEM SUPPLIER/INSTALLER USING QUALIFIED PERSONNEL WITH KNOWLEDGE OF THE SYSTEMS INSTALLED. EACH OF THE FOUR SEMI–ANNUAL SERVICE VISITS SHALL INCLUDE INSPECTION AND TESTING OF ALL INSTALLED COMPONENTS AND EQUIPMENT, UPDATES TO ALL INSTALLED SOFTWARE AND FIRMWARE (IF APPLICABLE), A 1–HOUR RETRAINING SESSION FOR OWNER PERSONNEL (IF NEEDED), AND UP TO TWO–HOURS OF DATA ENTRY AND/OR SOFTWARE ADJUSTMENTS. ALL MATERIALS AND LABOR TO PROVIDE THESE SERVICES SHALL BE INCLUDED AS PART OF ALTERNATE No. 2.

BASE BID: AS PART OF THE BASE BID ADD (30) CARS TO THE AIM SYSTEM. PRICE TO INCLUDE ALL HARDWARE, SOFTWARE, LABOR, PROGRAMMING, TRAINING, AND AIM MODULES NECESSARY TO UPFIT (30) OWNER VEHICLES WITH THE FUELMASTER AIM SYSTEM.

BASE BID: AS PART OF THE BASE BID PROVIDE (450) KEY PROKEES TO THE OWNER. PRICE TO INCLUDE PROGRAMMING, DATA ENTRY, SETUP, AND TESTING OF PROKEES FOR USE WITH FUELMASTER SYSTEM.

UNIT PRICES

UNLESS SPECIFICALLY NOTED OTHERWISE, ALL WORK INDICATED IN THE CONTRACT DOCUMENTS IS TO BE PART OF THE BASE BID.

UNIT PRICE No. 1: STATE THE LUMP SUM AMOUNT TO ADD (10) CARS TO THE AIM SYSTEM. PRICE TO INCLUDE ALL HARDWARE, SOFTWARE, LABOR, PROGRAMMING, TRAINING, AND AIM MODULES NECESSARY TO UPFIT (10) OWNER VEHICLES WITH THE FUELMASTER AIM SYSTEM. THIS PRICE SHALL BE GOOD FOR TWO YEARS FROM THE DATE OF FINAL COMPLETION.

UNIT PRICE No. 2: STATE THE LUMP SUM AMOUNT TO PROVIDE (10) PROKEES TO THE OWNER. PRICE TO INCLUDE PROGRAMMING, DATA ENTRY, SETUP, AND TESTING OF PROKEES FOR USE WITH FUELMASTER SYSTEM. THIS PRICE SHALL BE GOOD FOR TWO YEARS FROM THE DATE OF FINAL COMPLETION.

SUBMITTALS

SHOP DRAWINGS SHALL BE SUBMITTED IN ONE COMPLETE PACKAGE CONTAINING ALL ITEMS REQUIRED BY THE ELECTRICAL DRAWINGS AND THE SPECIFICATIONS. PARTIAL SHOP DRAWING SUBMITTALS MAY BE REJECTED BY THE ENGINEER. SUBMIT EQUIPMENT CUT SHEETS AND WIRING DIAGRAMS FOR ALL FUEL DISPENSING EQUIPMENT AND FUEL MANAGEMENT EQUIPMENT AND SOFTWARE BEING PROVIDED ON THIS PROJECT.

ELECTRICAL SYMBOLS

	DUPLEX RECEPTACLE, 20A, 120V, NEMA 5/20R, 16" AFF TO BOTTOM OF OUTLET BOX. "TR" DENOTES TAMPER–RESISTANT RECEPTACLE, SEE 260500. "CR" DENOTES CORROSION–RESISTANT RECEPTACLE, SEE 260500. "WP" DENOTES WEATHERPROOF RECEPTACLE WITH WEATHERPROOF COVER PLATE.  GFCI RECEPTACLE, MOUNTING HEIGHTS AS ABOVE, "WP" DENOTES WEATHERPROOF COVER PLATE.  WALL OR CEILING MOUNTED JUNCTION BOX.  MOTOR, NUMERAL DENOTES HORSEPOWER. "F" FOR FRACTIONAL HORSEPOWER.  BRANCH CIRCUIT WIRING RUN CONCEALED IN WALLS OR CEILING, 1#12G, 2#12 UNLESS NOTED OTHERWISE. ARROW DENOTES HOME RUN AND NUMERAL DENOTES CIRCUIT NUMBER. WHERE MORE THAN TWO CONDUCTORS ARE REQUIRED, SLASH MARKS INDICATE NUMBER OF #12 CONDUCTORS: // → SHORT SLASH DENOTES HOT OR SWITCH LEG, /// → LONG SLASH DENOTES NEUTRAL, ///L → "L" DENOTES GROUNDING WIRE.  MULTIWIRED BRANCH CIRCUITS USING A SHARED OR COMMON NEUTRAL ARE NOT PERMITTED ON THIS PROJECT. THE CONTRACTOR SHALL PULL A SEPARATE NEUTRAL FOR ALL 120V AND 277V CIRCUITS. CONDUIT HOMERUNS TO PANELBOARDS SHALL BE 3/4" MINIMUM, OTHERWISE RACEWAYS SHALL BE 1/2" MINIMUM, EXCEPT THAT FLEXIBLE CONDUIT SHALL BE 3/8" MINIMUM.  SAME, EXCEPT RUN UNDERGROUND OR UNDERFLOOR.  SAME, EXCEPT RUN EXPOSED.  SURFACE MOUNTED MOUNTED LED LIGHT FIXTURE. 54W LED HIGH EFFICIENCY CANOPY FIXTURES WITH INTEGRAL HI/LO MOTION SENSOR, ACCULITE PG1–A04–4K–E12–5–SL–S OR ACCEPTABLE EQUIVALENT.  SINGLE POLE SWITCH, 20A, 120/277V, 48" AFF TO TOP OF OUTLET BOX. SUBSCRIPT DENOTES OUTLETS CONTROLLED. "WP" DENOTES IN–USE STYLE WEATHERPROOF COVER.  LIGHTING CONTROL PHOTOSENSOR, TORK PART #2107
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GENERAL NOTES:

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE 2011 NATIONAL ELECTRICAL CODE (NEC), THE 2012 INTERNATIONAL BUILDING CODE (IBC), AND ANY LOCAL CODES, LAWS AND ORDINANCES WHICH MAY APPLY. WHERE DIFFERENCES EXIST BETWEEN THE CODES, THE STRICTER CODE SHALL APPLY.
- ALL ELECTRICAL CONDUITS SHALL CONTAIN A GROUNDING CONDUCTOR REGARDLESS OF USE.
- THE CONTRACTOR FOR THE WORK UNDER THIS SECTION SHALL PROCURE AND PAY FOR ALL PERMITS, FEES, AND LICENSES REQUIRED FOR THE EXECUTION OF THIS WORK. SATISFACTORY EVIDENCE OF COMPLIANCE WITH THE REQUIREMENT AND ALL CERTIFICATES OF INSPECTION SHALL BE DELIVERED TO THE OWNER PROMPTLY UPON REQUEST.
- TYPE MC CABLE MAY NOT BE USED ON THIS PROJECT
- UNLESS OTHERWISE NOTED FOR 120–VOLT, 20–AMP CKTS:  
#10 AWG SHALL BE USED FOR HOMERUNS LONGER THAN 75 FEET  
#12 AWG SHALL BE USED FOR HOMERUNS 75 FEET OR SHORTER
- MULTIWIRED BRANCH CIRCUITS USING A SHARED OR COMMON NEUTRAL ARE NOT PERMITTED ON THIS PROJECT.
- ALL WIRING DEVICES SHALL BE BY THE SAME MANUFACTURER. COVER PLATES SHALL BE WEATHERPROOF TYPE UNLESS NOTED OTHERWISE.
- ELECTRICAL METALLIC TUBING AND RIGID GALVANIZED STEEL CONDUIT SHALL BE THE ONLY TYPES OF CONDUIT INSTALLED WITHIN THE BUILDING.
- BRANCH CIRCUITS SHALL BE RUN CONCEALED WHERE PRACTICAL. BRANCH CIRCUITS RUN EXPOSED TO WEATHER ON EXTERIOR WALLS OR ON ROOFS SHALL BE RUN IN GRC OR IMC WITH SCREWED FITTINGS. BRANCH CIRCUITS RUN CONCEALED IN WALLS OR CEILINGS SHALL BE RUN IN EMT, GRC, OR IMC. BRANCH CIRCUITS RUN EXPOSED IN ON INTERIOR WALLS MAY BE RUN IN EMT IN LIEU GRC.
- CONDUIT FOR ELECTRICAL CIRCUITS SHALL BE 3/4" MINIMUM, EXCEPT THAT FLEXIBLE CONDUIT SHALL BE 3/8" MINIMUM.
- INTERIOR CONDUIT HOMERUNS TO PANELBOARDS SHALL BE RUN OVERHEAD IN EMT, GRC, OR IMC UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- ALL FIRE RATED WALLS, FLOORS, ETC WHICH HAVE A CONDUIT OR OTHER ELECTRICAL PENETRATION SHALL BE SEALED TO EQUAL THE RATING OF THE WALL, FLOOR, ETC. THAT IS PENETRATED. CONTRACTOR SHALL USE A U.L. RATED AND LISTED ASSEMBLY FOR THE SEALING MATERIAL AND METHOD. COORDINATE MANUFACTURER WITH THE GENERAL CONTRACTOR SO THAT ALL TRADES ON THE PROJECT USE THE SAME MANUFACTURER. THROUGH PENETRATIONS OF CONDUITS AND CABLES OF FIRE RESISTANCE RATED WALLS MUST COMPLY WITH SECTION 714.4.1.1 OF THE IBC. THROUGH PENETRATIONS OF FIRE RESISTANCE CEILING ASSEMBLIES MUST COMPLY WITH SECTION 714.4.1.1 OF THE IBC.
- REFER TO EXISTING CONDITIONS AND FUEL DISPENSING SHOP DRAWINGS FOR DIMENSIONS, LOCATIONS, CABINETS, ETC.
- ALL WORK AND MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FROM DATE OF ACCEPTANCE AS PART OF THE BASE BID. SEE CONTRACT DOCUMENTS FOR EXTENDED WARRANTY ALTERNATE.
- PROVIDE ONE COMPLETE SET OF DRAWINGS MARKED UP FOR RECORD DRAWINGS. SHOW ALL LOCATIONS OF EQUIPMENT AND MATERIALS.
- INSTALL ALL MATERIALS PER MANUFACTURER'S INSTRUCTIONS.
- IDENTIFY MAJOR EQUIPMENT INSTALLED WITH LAMICOR LABELS.
- VISIT SITE TO DETERMINE EXISTING CONDITIONS PRIOR TO SUBMITTING BID.
- ALL RACEWAYS, FIXTURES, WIRING, DEVICES, AND EQUIPMENT RENDERED USELESS BY THIS WORK SHALL BE REMOVED AND DELIVERED TO THE OWNER'S STORAGE FACILITY AS DIRECTED. ANY MATERIAL NOT WANTED BY THE OWNER SHALL BE DISPOSED OF BY THE CONTRACTOR.
- CONTRACTOR SHALL DO ALL CUTTING, PATCHING, AND PAINTING AS REQUIRED TO INSTALL HIS WORK. FINISH PATCHING AND PAINTING SHALL MATCH EXISTING FINISH.
- DO NOT DIG OR EXCAVATE ON THIS PROJECT. IF AT ANY POINT DURING DEMOLITION OR CONSTRUCTION IT IS DETERMINED THAT DIGGING OR EXCAVATION MAY BE REQUIRED (SUCH AS LOST OR DAMAGED CONDUIT), NOTIFY THE OWNER AND ENGINEER IMMEDIATELY AND WAIT FOR WRITTEN INSTRUCTION – DO NOT DIG WITHOUT WRITTEN AUTHORIZATION FROM BOTH THE OWNER AND THE ENGINEER.
- WHERE DISAGREEMENTS EXISTS ON THE DESIGN DOCUMENTS, THE ITEM OR ARRANGEMENTS OF BETTER QUALITY, GREATER QUANTITY, OR HIGHER COST SHALL BE INCLUDED IN THE BASE BID. ANY DISCREPANCIES BETWEEN THE DRAWINGS, SPECIFICATIONS, AND FIELD CONDITIONS SHALL BE RESOLVED WITH THE ENGINEER PRIOR TO COMMENCING WORK. ALL AGREEMENTS SHALL BE VERIFIED IN WRITING.
- ALL WORK UNDER THIS SECTION SHALL BE COORDINATED WITH OTHER TRADES AND WITH EXISTING CONDITIONS TO INSURE PROPER LOCATION OF OUTLETS AND EQUIPMENT CONNECTIONS, AND TO MINIMIZE CONFLICTS WITH STRUCTURAL MEMBERS, DUCT WORK, PIPING, ETC. CONFLICTS BETWEEN EQUIPMENT AND/OR MATERIAL LOCATIONS SHALL BE CORRECTED AS DIRECTED BY THE ENGINEER AT NO ADDED COST TO THE OWNER.

ELECTRICAL SHEET LIST

E001 – ELECTRICAL SYMBOLS, NOTES, & SPECS

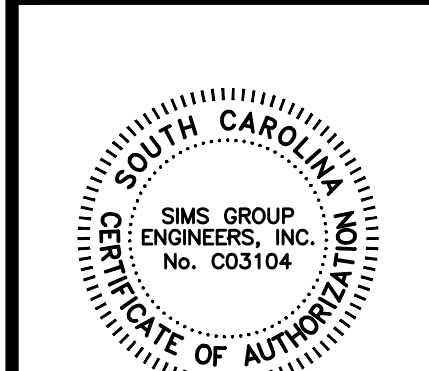
E002 – FUEL PUMP DEMOLITION PLAN AND RISER DIAGRAM

E003 – FUEL PUMP PLAN AND RISER DIAGRAM

NO.	REVISION	DATE	BY
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2			
3			
4			
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SIMS GROUP ENGINEERS, INC.  
800 Columblana Drive, Suite 208  
Irmo, South Carolina 29063  
Phone: (803) 765-1007 Fax: (803) 765-1030  
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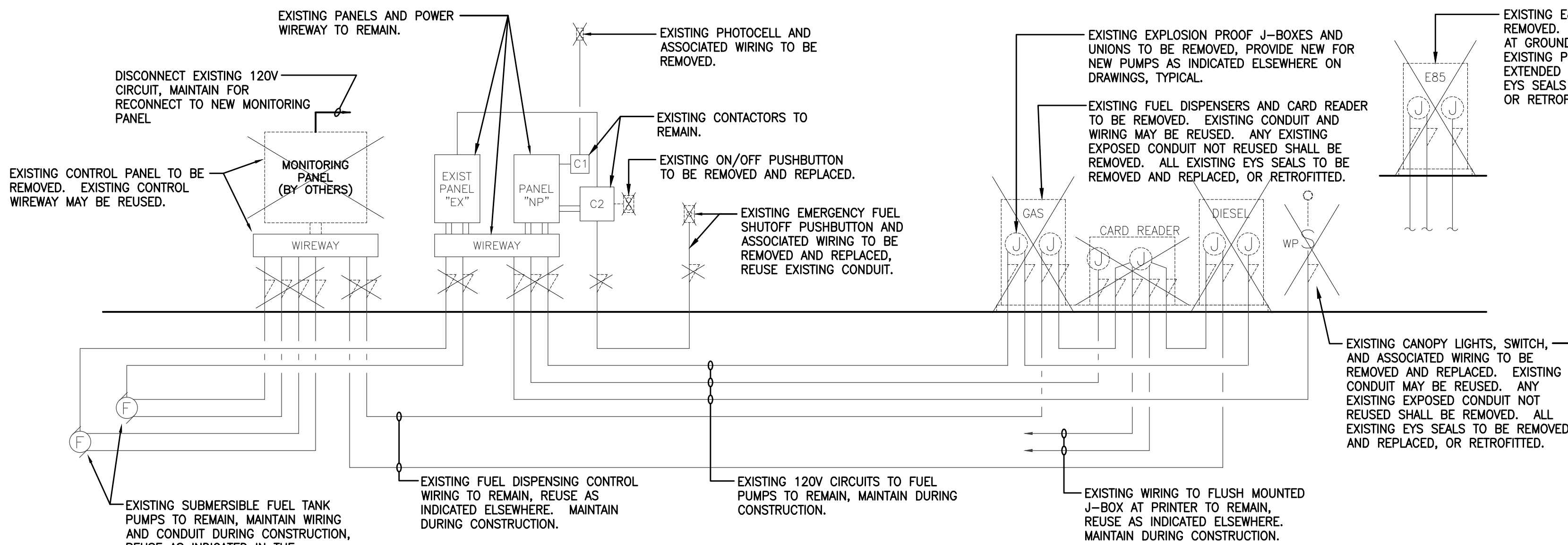
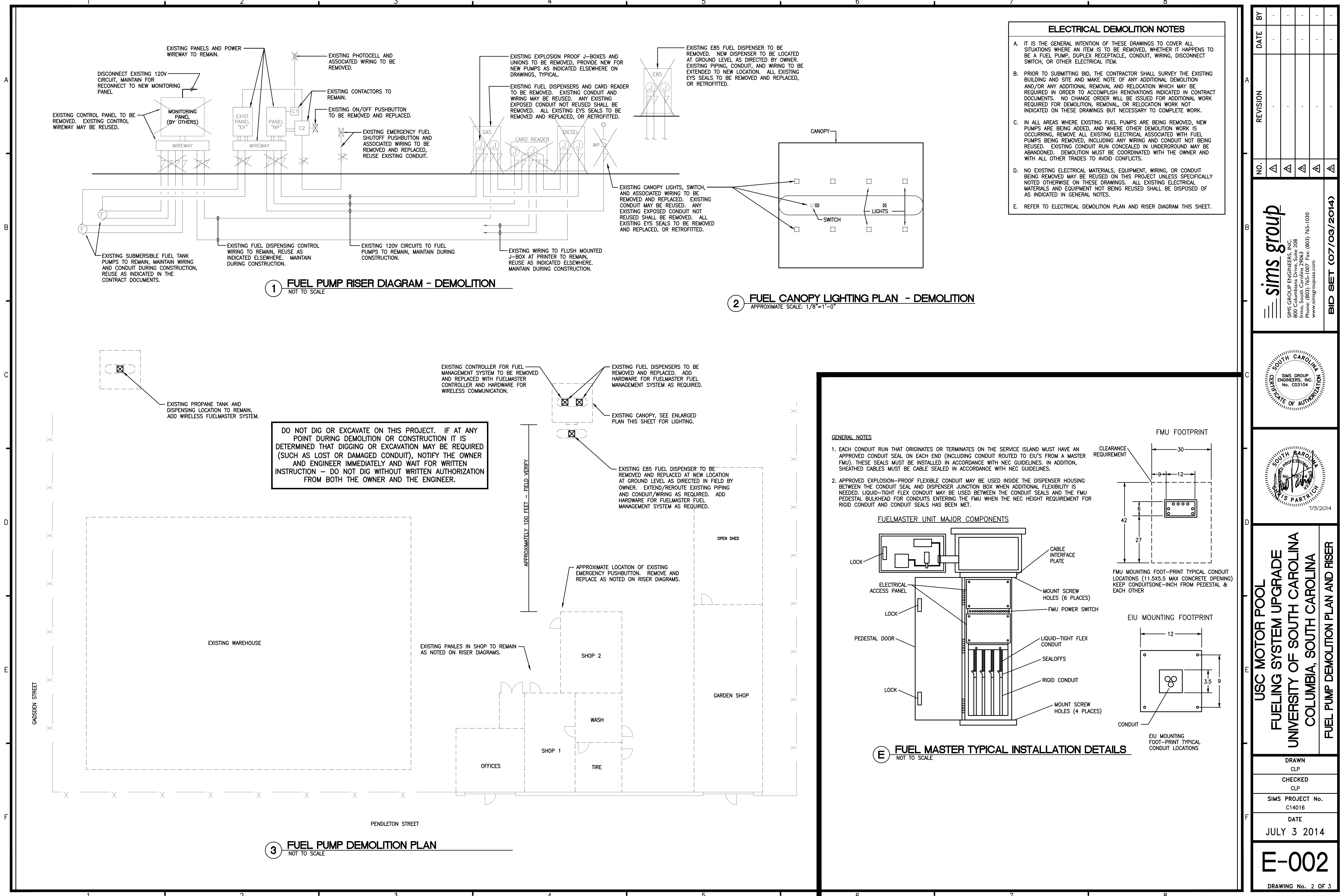
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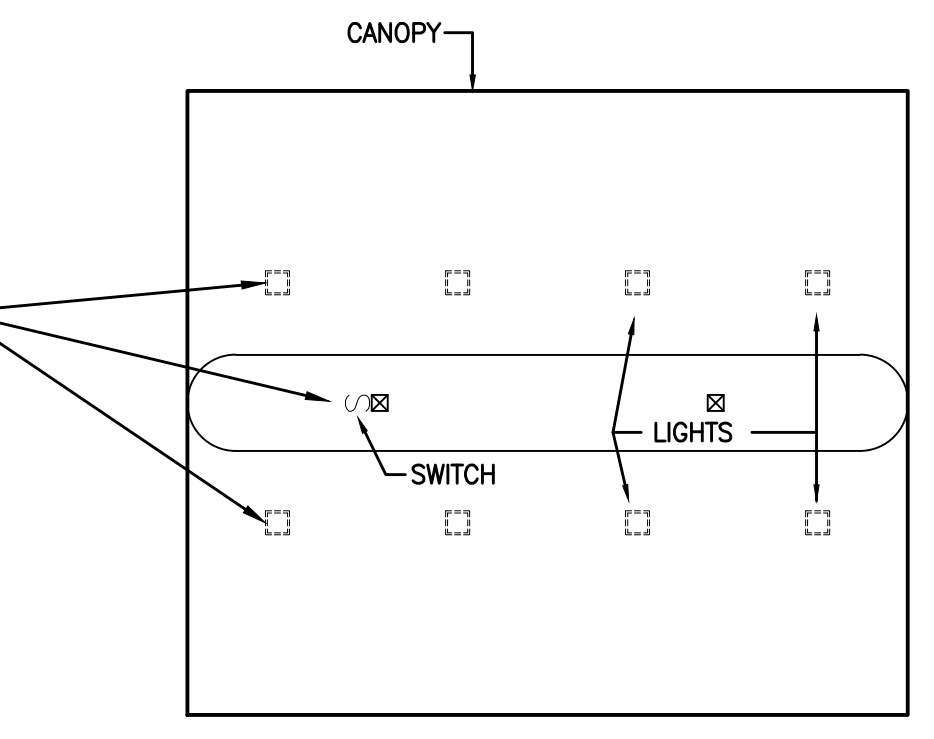
**USC MOTOR POOL  
FUELING SYSTEM UPGRADE  
UNIVERSITY OF SOUTH CAROLINA  
COLUMBIA, SOUTH CAROLINA**

**ELECTRICAL SYMBOLS, NOTES, + SPECS**

DRAWN CLP
CHECKED CLP
SIMS PROJECT No. C14016
DATE JULY 3 2014
<b>E-001</b>
DRAWING No. 1 OF 3



1 FUEL PUMP RISER DIAGRAM - DEMOLITION  
NOT TO SCALE



2 FUEL CANOPY LIGHTING PLAN - DEMOLITION  
APPROXIMATE SCALE: 1/8"=1'-0"

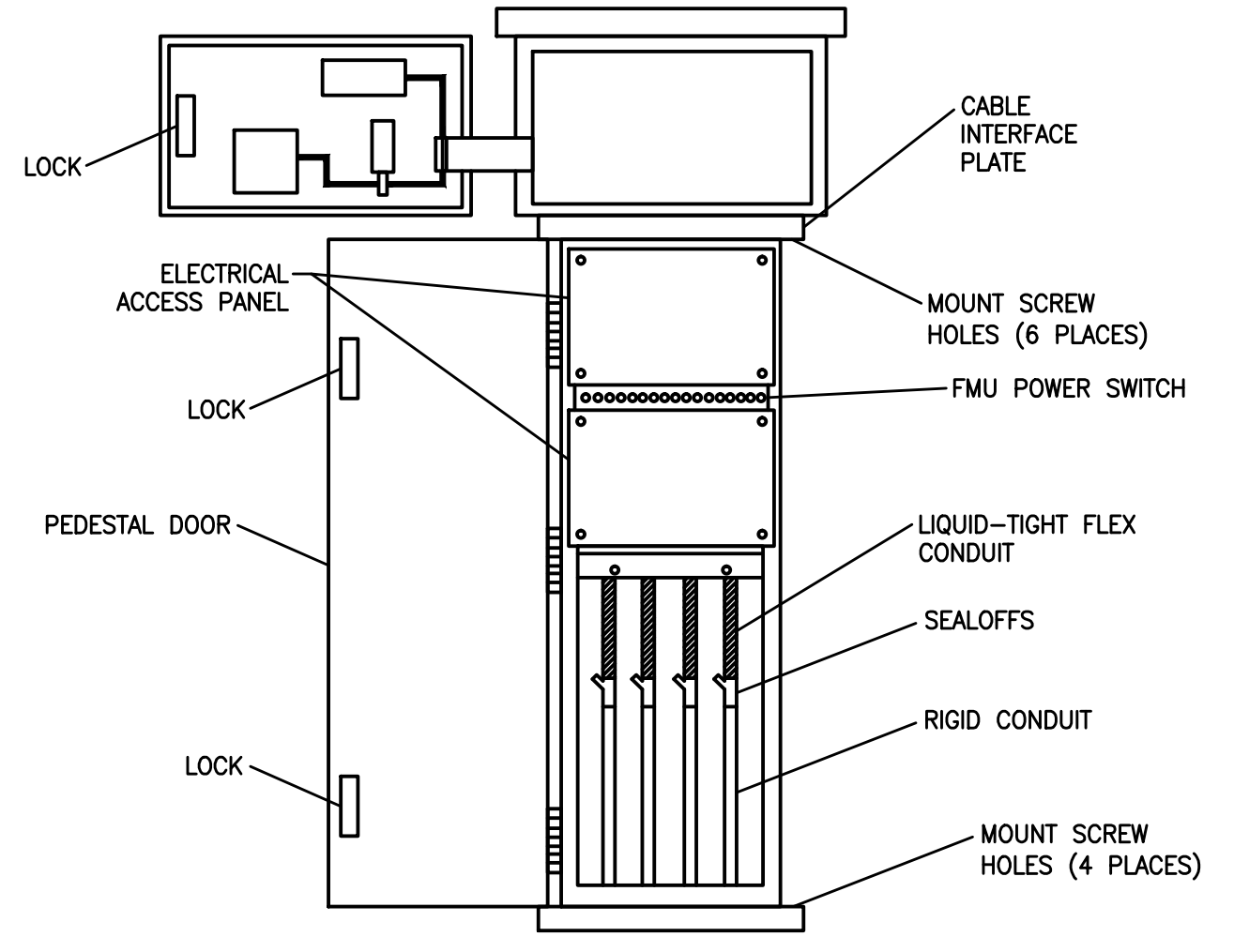
- ELECTRICAL DEMOLITION NOTES**
- A. IT IS THE GENERAL INTENTION OF THESE DRAWINGS TO COVER ALL SITUATIONS WHERE AN ITEM IS TO BE REMOVED, WHETHER IT HAPPENS TO BE A FUEL PUMP, DUPLEX RECEPTACLE, CONDUIT, WIRING, DISCONNECT SWITCH, OR OTHER ELECTRICAL ITEM.
  - B. PRIOR TO SUBMITTING BID, THE CONTRACTOR SHALL SURVEY THE EXISTING BUILDING AND SITE AND MAKE NOTE OF ANY ADDITIONAL DEMOLITION AND/OR ANY ADDITIONAL REMOVAL AND RELOCATION WHICH MAY BE REQUIRED IN ORDER TO ACCOMPLISH RENOVATIONS INDICATED IN CONTRACT DOCUMENTS. NO CHANGE ORDER WILL BE ISSUED FOR ADDITIONAL WORK REQUIRED FOR DEMOLITION, REMOVAL, OR RELOCATION WORK NOT INDICATED ON THESE DRAWINGS BUT NECESSARY TO COMPLETE WORK.
  - C. IN ALL AREAS WHERE EXISTING FUEL PUMPS ARE BEING REMOVED, NEW PUMPS ARE BEING ADDED, AND WHERE OTHER DEMOLITION WORK IS OCCURRING, REMOVE ALL EXISTING ELECTRICAL ASSOCIATED WITH FUEL PUMPS BEING REMOVED, INCLUDING ANY WIRING AND CONDUIT NOT BEING REUSED. EXISTING CONDUIT RUN CONCEALED IN UNDERGROUND MAY BE ABANDONED. DEMOLITION MUST BE COORDINATED WITH THE OWNER AND WITH ALL OTHER TRADES TO AVOID CONFLICTS.
  - D. NO EXISTING ELECTRICAL MATERIALS, EQUIPMENT, WIRING, OR CONDUIT BEING REMOVED MAY BE REUSED ON THIS PROJECT UNLESS SPECIFICALLY NOTED OTHERWISE ON THESE DRAWINGS. ALL EXISTING ELECTRICAL MATERIALS AND EQUIPMENT NOT BEING REUSED SHALL BE DISPOSED OF AS INDICATED IN GENERAL NOTES.
  - E. REFER TO ELECTRICAL DEMOLITION PLAN AND RISER DIAGRAM THIS SHEET.

DO NOT DIG OR EXCAVATE ON THIS PROJECT. IF AT ANY POINT DURING DEMOLITION OR CONSTRUCTION IT IS DETERMINED THAT DIGGING OR EXCAVATION MAY BE REQUIRED (SUCH AS LOST OR DAMAGED CONDUIT), NOTIFY THE OWNER AND ENGINEER IMMEDIATELY AND WAIT FOR WRITTEN INSTRUCTION — DO NOT DIG WITHOUT WRITTEN AUTHORIZATION FROM BOTH THE OWNER AND THE ENGINEER.

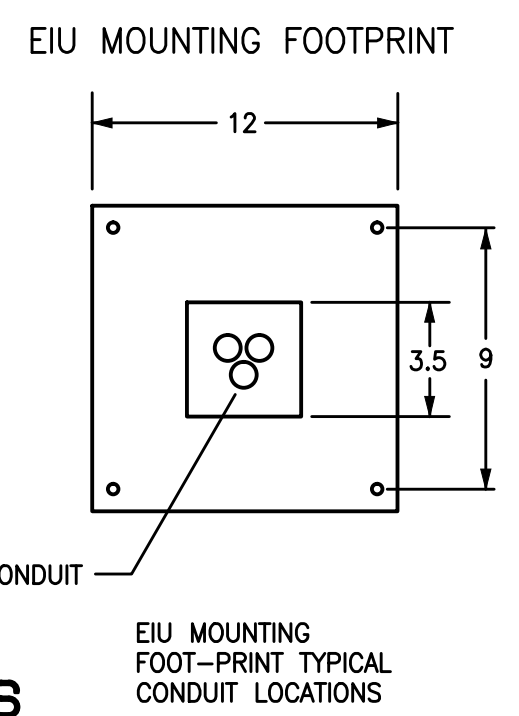
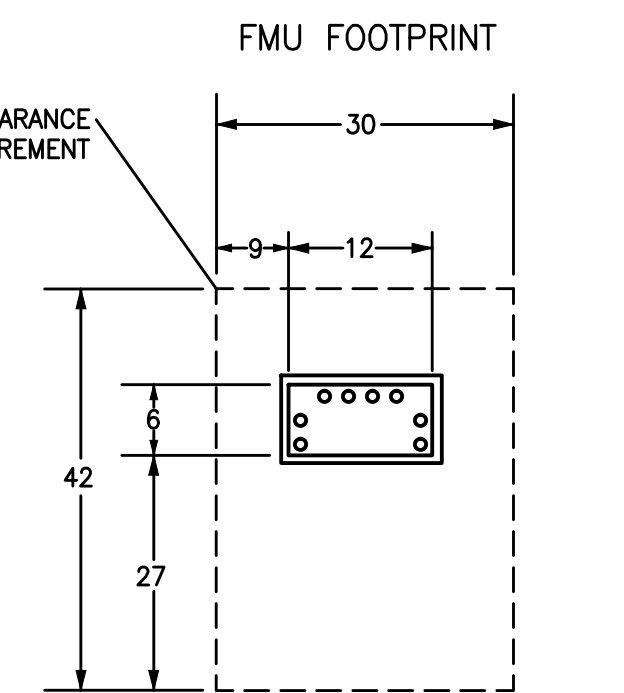
**GENERAL NOTES**

- 1. EACH CONDUIT RUN THAT ORIGINATES OR TERMINATES ON THE SERVICE ISLAND MUST HAVE AN APPROVED CONDUIT SEAL ON EACH END (INCLUDING CONDUIT ROUTED TO EIU'S FROM A MASTER FMU). THESE SEALS MUST BE INSTALLED IN ACCORDANCE WITH NEC GUIDELINES. IN ADDITION, SHEATHED CABLES MUST BE CABLE SEALED IN ACCORDANCE WITH NEC GUIDELINES.
- 2. APPROVED EXPLOSION-PROOF FLEXIBLE CONDUIT MAY BE USED INSIDE THE DISPENSER HOUSING BETWEEN THE CONDUIT SEAL AND DISPENSER JUNCTION BOX WHEN ADDITIONAL FLEXIBILITY IS NEEDED. LIQUID-TIGHT FLEX CONDUIT MAY BE USED BETWEEN THE CONDUIT SEALS AND THE FMU PEDESTAL BULKHEAD FOR CONDUITS ENTERING THE FMU WHEN THE NEC HEIGHT REQUIREMENT FOR RIGID CONDUIT AND CONDUIT SEALS HAS BEEN MET.

**FUELMASTER UNIT MAJOR COMPONENTS**



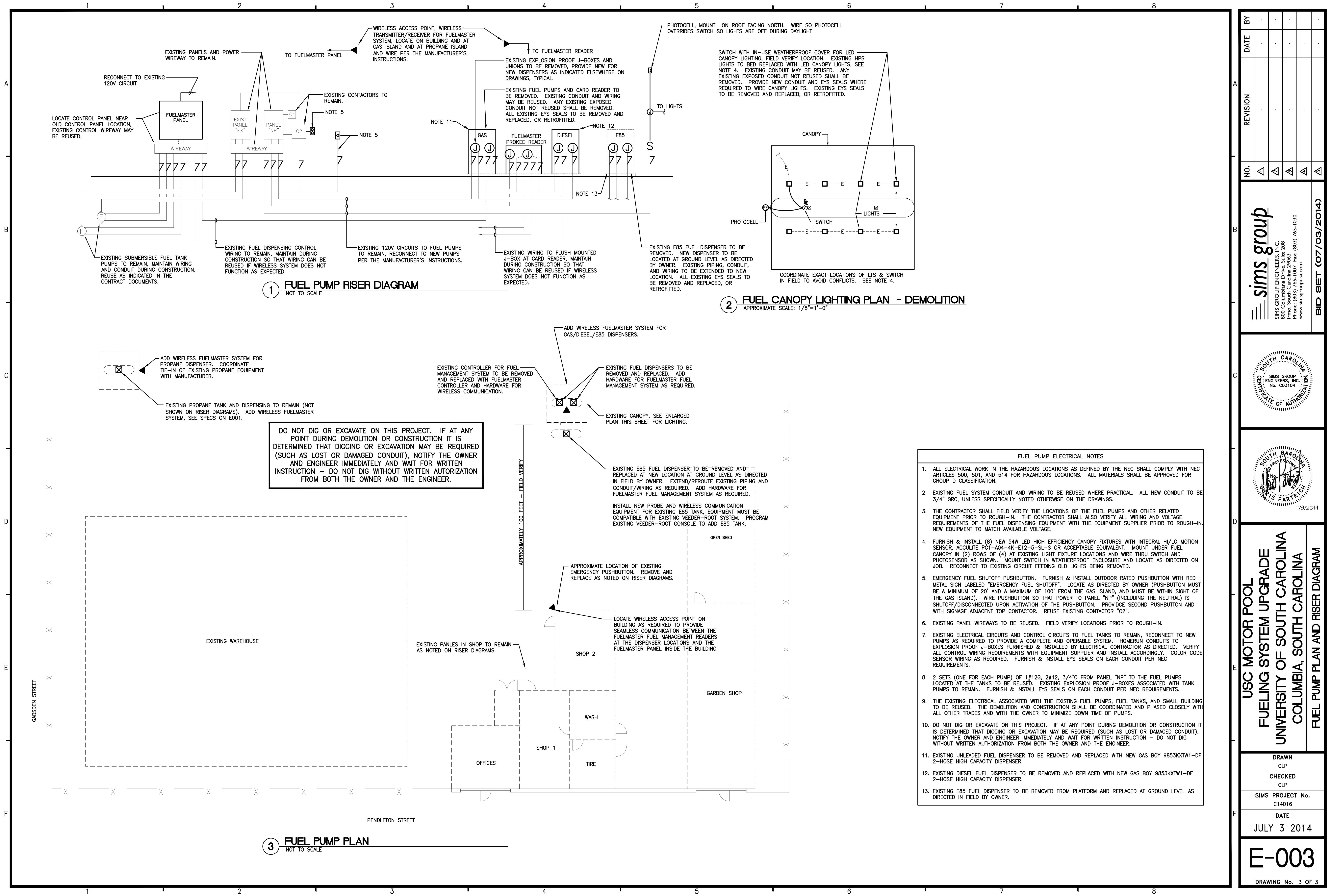
E FUEL MASTER TYPICAL INSTALLATION DETAILS  
NOT TO SCALE



3 FUEL PUMP DEMOLITION PLAN  
NOT TO SCALE

BY	DATE	REVISION	NO.	A	A	A	A	A
<div><b>sims group</b> SIMS GROUP ENGINEERS, INC. 800 Columbia Drive, Suite 208 Irmo, South Carolina 29063 Phone: (803) 765-1007 Fax: (803) 765-1030 www.sims-group.com</div>								
<div> <b>UNIVERSITY OF SOUTH CAROLINA</b> COLUMBIA, SOUTH CAROLINA FUEL PUMP DEMOLITION PLAN AND RISER</div>								
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DATE JULY 3 2014								
<b>E-002</b>								
DRAWING No. 2 OF 3								

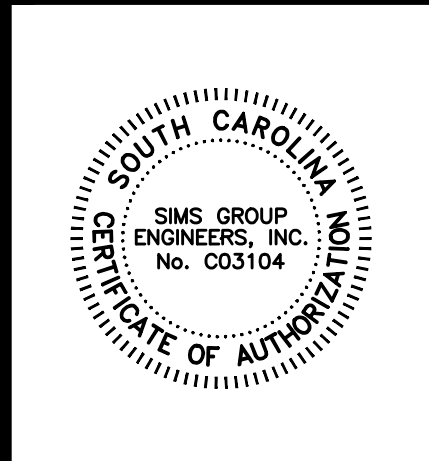




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USC MOTOR POOL  
FUELING SYSTEM UPGRADE  
UNIVERSITY OF SOUTH CAROLINA  
COLUMBIA, SOUTH CAROLINA  
FUEL PUMP PLAN AND RISER DIAGRAM

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SIMS PROJECT No. C14016
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