

**SECTION 23 10 00  
 FACILITY FUEL SYSTEMS**

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**PART 1 – GENERAL**

**1.1. SUMMARY**

- 32 A. This section is intended to provide general documentation and contract expectations for all Work related to the  
 33 installation of equipment needed for the fuel dispensing operations.  
 34 B. Work under this section includes all labor, materials, equipment and services; necessary to complete new to  
 35 complete the design, permitting, installation, and successful commissioning of the fuel dispensing system  
 36 outlined in the plans and specifications.  
 37 C. Refer to the following plan sheets for more information:  
 38 1. GS-1 General Site Plan  
 39 2. 5 thru 8 Fuel Point Enlarged Plans and Details  
 40 3. 14 & 15 Gas Hut Electrical Plans and Details  
 41 D. Throughout this section, the Fuel Equipment Sub-Contractor shall be referred to as “FEC” and the General  
 42 Contractor shall be referred to as “GC”.  
 43

**1.2. RELATED SPECIFICATIONS**

- 45 A. The following specifications are pertinent to the planning, acquisition, installation, and commissioning of the  
 46 completed fuel dispensing system. Other specifications may apply, but should be coordinated through the GC:  
 47 1. 00 62 76.13 Sales Tax Form  
 48 2. 01 33 23 Submittals  
 49 3. 01 45 16 Field Quality Control Procedures  
 50 4. 01 45 29 Testing Laboratory Services  
 51 5. 01 60 00 Product Requirements  
 52 6. 01 74 19 Construction Waste Management  
 53 7. 01 78 23 Operation and Maintenance Data  
 54 8. 01 78 36 Warranties  
 55 9. 01 78 39 As-Built Drawings  
 56 10. 01 79 00 Demonstration and Training  
 57

1 **1.3. REFERENCES**

- 2 A. The FEC shall design and install the entire Fuel Dispensing System to meet all applicable Codes and Industry  
3 Standards to include but not be limited to the following:  
4 1. Wisconsin Department of Agriculture, Trade, and Consumer Protection (ATCP) Code, Chapter ATCP 93;  
5 Flammable, Combustible, and Hazardous Liquids,  
6 [https://docs.legis.wisconsin.gov/code/admin\\_code/atcp/090/93/l/100](https://docs.legis.wisconsin.gov/code/admin_code/atcp/090/93/l/100)  
7 2. All local codes pertaining to applications, design, installation, and inspections.  
8 3. All codes that pertain to the installation of buried tanks, electrical wiring, and other related Work of the  
9 fuel dispensing system.

10  
11 **1.4. FUEL POINT INSTALLATION AND EXPANSION CONCEPT**

- 12 A. There are 2 primary goals for this project:  
13 1. Provide above surface and below surface fueling equipment and controls to support minimal dispensing  
14 of fuel to the City of Madison fleet until such time as the entire Public Works site at South Point Road is  
15 completely built out.  
16 2. Provide all buried conduit, piping, and other related fuel dispensing equipment necessary for the future  
17 build out so no below ground work needs to be done in the future.  
18 B. The concept of operation for gasoline dispensing is as follows:  
19 1. Install one single buried 10,000 gallon tank for a single unleaded gasoline product.  
20 2. Install one fully functional 2 hose dispenser on a raised concrete fuel island with curb as indicated in the  
21 plans for dispensing gasoline.  
22 3. Rough-in one fully functional raised concrete fuel island with curb, ready for future expansion, as  
23 indicated in the plans for dispensing gasoline.  
24 a. Rough-in shall include all pipes, empty conduits, valves, and other equipment that will be buried  
25 below any paved surface or the gas hut building.  
26 b. Rough-in shall include any access hole and cover over buried equipment in the gas island to  
27 protect stubbed in equipment and materials noted above.  
28 c. Rough-in shall not include product dispensers, power and data wiring, pumps or motors, or other  
29 equipment located within the gas island access hole that can be added during the future  
30 expansion.  
31 C. The concept of operation for diesel dispensing is as follows:  
32 1. Install one single buried 20,000 gallon tank.  
33 a. Tank shall have a 10,000/10,000 gallon split for holding diesel and bio-diesel fuels. Owner to  
34 supply diesel or pre-blended diesel product from one side of tank and B-100 bio-diesel from other  
35 side of the tank. See Exhibit G from Addendum 1 for tank dimensions, these are approximate for  
36 excavation calculations only and may not be the exact dimensions of the tanks purchased. See  
37 dispenser descriptions below.  
38 b. ~~Provide all equipment and controls necessary for onsite blending and dispensing of diesel and bio-~~  
39 ~~diesel fuels. Blending equipment shall be capable of all of the following:~~  
40 ~~i. Dispensing 100% diesel with no bio-diesel blend.~~  
41 ~~ii. Dispensing proportional blends of diesel and bio-diesel for all blends from B-5 through B-~~  
42 ~~50.~~  
43 2. Install one fully functional 2 hose dispenser on a raised concrete fuel island with curb as indicated in the  
44 plans for dispensing diesel and or pre-blended diesel fuels. Both hoses on this dispenser shall be capable  
45 of dispensing the diesel/bio-diesel blends noted in item 1 above. This is the south dispenser shown on  
46 the enlarged fuel site plan, sheet 5.  
47 3. Rough-in one fully functional raised concrete fuel island with curb, ready for future expansion of a 2 hose  
48 dispenser, as indicated in the plans for dispensing diesel.  
49 a. Both hoses on this dispenser shall be capable of dispensing the diesel/bio-diesel blends noted in  
50 item 1 above. This is the north dispenser shown on the enlarged fuel site plan, sheet 5.  
51 b. Rough-in shall include all pipes, empty conduits, valves, and other equipment that will be buried  
52 below any paved surface or the gas hut building.  
53 c. Rough-in shall include any access hole and cover over buried equipment in the gas island to  
54 protect stubbed in equipment and materials noted above.  
55 d. Rough-in shall not include product dispensers, power and data wiring, pumps or motors, or other  
56 equipment located within the gas island access hole that can be added during the future  
57 expansion.

- 1 4. Rough-in one fully functional raised concrete fuel island with curb, ready for future expansion of a 2 hose  
2 dispenser, as indicated in the plans for dispensing diesel. This is the center dispenser shown on the  
3 enlarged fuel site plan, sheet 5.  
4 a. One (1) hose on this dispenser shall be capable of dispensing the diesel/bio-diesel blends noted in  
5 item 1 above.  
6 b. One (1) hose on this dispenser shall be capable of dispensing B-100 bio-diesel.  
7 a. Rough-in shall include all pipes, empty conduits, valves, and other equipment that will be buried  
8 below any paved surface or the gas hut building.  
9 b. Rough-in shall include any access hole and cover over buried equipment in the fuel island to  
10 protect stubbed in equipment and materials noted above.  
11 c. Rough-in shall not include product dispensers, power and data wiring, pumps or motors, or other  
12 equipment located within the fuel island access hole that can be added during the future  
13 expansion.  
14 D. Fuel Terminal Control Unit (FTCU)  
15 1. One (1) FTCU pedestal shall be installed, and fully operational inside the gas hut as indicated in the plans.  
16 2. Rough-in one (1) pedestal FTCU on a raised concrete island with curb, ready for future expansion.  
17 a. Rough-in shall include all pipes, empty conduits, and other equipment that will be buried below  
18 any paved surface or the gas hut building.  
19 b. Rough-in shall include any access hole and cover over buried equipment in the island to protect  
20 stubbed in equipment and materials noted above.  
21 c. Rough-in shall not include FTCU, power and data wiring, pumps or motors, or other equipment  
22 located within the concrete island access hole that can be added during the future expansion.  
23 3. All automation operations shall be done with data/control cables in appropriately sized conduit run  
24 between dispenser locations and FTCU locations. No dispensing operation shall be conducted using WIFI.  
25 4. See Exhibit F issued with Addendum 1 for more information.  
26

27 **1.5. GENERAL CONTRACTOR (GC) REQUIREMENTS**

- 28 A. Any corporation, partnership, sole proprietor, independent contractor, or person that provides or offers to  
29 provide installation, removal, testing, lining, cleaning, assessments, cathodic testing or cathodic protection  
30 system design or installation for a tank system regulated under Wisconsin Administrative Code ATCP 93 must  
31 have a certification issued by the Wisconsin Department of Agriculture, Trade and Consumer Protection.  
32 1. The GC shall be responsible for contracting with a State Of Wisconsin Certified Contractor that meets the  
33 above requirements.  
34 2. The GC shall ensure the FEC is certified for the duration of this contract, and shall provide copies of all  
35 FEC Company and Individual Certifications as Administrative Submittals, to the Project Management  
36 Website – Submittals Library, prior to submitting any fuel equipment submittals for review.  
37 B. The GC shall be responsible for scheduling and coordinating the FEC Work into the overall project schedule. This  
38 shall include but not be limited to coordination between other subcontractors having work in/through the Fuel  
39 Point Area.  
40 C. The following Work in the Fuel Point Area is the responsibility of the GC. See Section 1.5 below for Work by the  
41 FEC.  
42 1. General site excavation.  
43 2. General fill and compaction of the sub-base and base materials including the geo grid liner.  
44 3. Geo-grid liner in the deeper excavation for the buried tanks (excavation and tanks by FEC).  
45 4. All concrete flat work including all curbing as located and designed by the FEC.  
46 5. All construction related to the Gas Hut including the exterior sidewalk, and ADA ramp.  
47 6. The installation of all area light bases, poles and fixtures in the plans and specifications.  
48

49 **1.6. FUEL EQUIPMENT CONTRACTOR (FEC) REQUIREMENTS**

- 50 A. The FEC shall be responsible for meeting all requirements and providing the GC with all documentation outlined  
51 in section 1.4.A above.  
52 B. The FEC shall be responsible for the design and installation of all equipment necessary to complete the fuel  
53 dispensing system installation as shown in the plans and specifications.  
54 1. The fuel dispensing system shall meet all applicable codes and regulations including Wisconsin  
55 Administrative Code ATCP 93.  
56 2. Meet with designated city staff for plan and equipment review prior to submitting State of Wisconsin  
57 Applications for Plan Review.

- 1 C. The FEC shall be responsible for making all applications associated with plan/permit review and approvals,  
2 paying for all fees associated with said applications, scheduling all inspections, and commissioning the completed  
3 fuel dispensing system.
- 4 D. The FEC shall coordinate with the GC all Work, deliveries, and inspections.
- 5 E. The FEC shall prepare and submit, through the GC, all shop drawings including: plans, elevations, equipment cut  
6 sheets, piping diagrams, and electrical schematics associated with the fuel dispensing system.
- 7 F. The following Work in the Fuel Point Area is the responsibility of the FEC.
  - 8 1. Any extra excavation required for the burial and securing of buried storage tanks and equipment.
  - 9 2. Back fill and compaction of buried storage tanks and equipment up to the level of the geo-grid.
  - 10 3. The installation of all storage tanks, equipment, piping, conduit, wiring, dispensing equipment and  
11 control equipment required for a complete fuel dispensing system.
  - 12 4. The FEC shall be responsible for the final testing, inspections, and commissioning of the fuel dispensing  
13 system.
- 14 G. The FEC shall be familiar with all systems and components specified within including hardware and software  
15 specified by the Owner with no Alternates.
- 16 H. The FEC shall be local, within 250 miles of the project site and available within 48 hours for trouble shooting and  
17 repairs of warrantied equipment.

18  
19 **1.7. OPERATION AND MAINTENANCE DATA**

- 20 A. The FEC shall provide O&M data for all equipment associated with the fuel dispensing system, see specification  
21 01 78 23 for more information.

22  
23 **1.8. WARRANTY**

- 24 A. The FEC shall warrant for one year the complete installation of all fuel dispensing equipment associated with this  
25 contract and installation. Contractors warranty shall be in the form of a written letter on company letterhead  
26 referring to the contract information, dates of installation and acceptance, signed by an authorized  
27 representative of the Contractors Company.
  - 28 1. The FEC warranty shall include but not be limited to the following:
    - 29 a. Transportation to and from the location as often as needed during the warranty period.
    - 30 b. All labor and materials necessary to properly and thoroughly trouble shoot the system.
    - 31 c. All fees associated with the shipping of any component that needs to be returned or supplied by  
32 the manufacturer for repair or replacement.
    - 33 d. All labor and materials required to remove, repair, replace, or re-install any component.
- 34 B. The FEC shall also provide, separately from his/her installation warranty, all manufacturers warranties associated  
35 with installed components of the completed installation. See specification 01 78 36 for more information.
  - 36 1. Warranties shall be individually submitted for each piece of equipment by type. A combined warranty of  
37 all equipment will not be accepted.
  - 38 2. Multiple pieces of equipment of the same type and specification do not need to have individual  
39 warranties provided.

40  
41 **1.9. AS-BUILT DRAWINGS**

- 42 A. The FEC shall coordinate with the GC the scheduling of the Surveyor for digitally surveying all equipment and  
43 piping locations associated with the fuel dispensing system. This shall include all buried equipment, piping, and  
44 conduits. See specification 01 78 39 for more information.

45  
46 **1.10. DEMONSTRATION AND TRAINING**

- 47 A. The FEC shall provide Demonstration and Training of all fuel dispensing equipment for designated city staff. See  
48 specification 01 79 00 for more information. Coordinate training sessions with the City Project Manager a  
49 minimum of 2 weeks prior to training.

50  
51 **PART 2 - PRODUCTS**

52  
53 **2.1. GENERAL**

- 54 A. All equipment and materials provided and installed for the fuel dispensing system shall be new and undamaged.
- 55 B. All equipment installed shall be as per approved submittals and approved plan reviews.
- 56 C. Some equipment below is noted as "no alternates" to match existing equipment at other fueling sites that  
57 require routine maintenance or replacement. No alternates for this equipment will be considered.

- 1 D. The Fuel Dispensing System shall be compatible with "Inform" and "EJ Ward Fuel View" software platforms for  
2 Tank Level Sensor (TLS) monitoring and EJ Ward for fuel dispensing authorization.  
3

4 **2.2. BURIED UNDERGROUND FUEL TANKS**

- 5 A. Owner shall provide buried underground fuel tanks ~~shall be~~ equal to ZCL/XERXES tanks comprised of the  
6 following specifications:  
7 1. Two, 10 foot diameter ~~Single or dual compartment~~ fiberglass tanks as follows:  
8 a. One (1) - 10,000 gallon tank for gasoline fuel storage, see sheet 5 for location. To be compatible  
9 with various grades of un-leaded fuels and ethanol-blended fuels.  
10 b. One (1) - 20,000 gallon tank for combined diesel and bio-diesel fuel storage, see sheet 5 for  
11 location.  
12 i. Split tank, 10,000 gallon diesel and 10,000 gallon bio-diesel  
13 ~~ii. With onsite blending capabilities for 0% to 50% blends of diesel/bio diesel fuel~~  
14 2. Ribbed double wall tank construction.  
15 3. Continuous leak detection system.  
16 4. Thirty (30) year manufacturer's warranty.  
17 5. Manufacturers complete tank anchoring system including all reinforced precast concrete deadman  
18 anchors, anchoring straps, and other required hardware.  
19

20 **2.3. FUEL DISPENSERS**

- 21 A. Gasboy Atlas 9853KXTW1 side load, electronic fuel dispensers for diesel and gasoline with the following  
22 specification and options. No alternates of this will be permitted.  
23 1. Dual hose, single product, 22 GPM  
24 2. All Panels to be Stainless Steel (SS)  
25 3. Pulse Output Interface, Dual Channel Dual Pulse  
26 4. R18189-30 Internal filter, Standard 30 Micron  
27 5. Slowdown Valve (PP)  
28 6. All hoses and piping to be 3/4"  
29 7. High hose retractor, external post mounted  
30 8. Standard 12-month warranty  
31 9. Hose, nozzle, swivel, breakaway  
32 B. Dispensers shall be complete with all hoses, dispensing nozzles for unleaded gasoline or diesel, and pulsers.  
33

34 **2.4. SUBMERSIBLE FUEL DISPENSER PUMPS**

- 35 A. Provide/install one submersible pump per fuel type.  
36 B. Pumps shall be capable of dispensing fuel at a rate of 15-20 gpm and be a minimum of 1.5hp high psi..  
37

38 **2.5. TANK LEVEL SENSOR**

- 39 A. Provide and install Veeder-Root TLS4c Tank Level Sensor unit (no alternates) capable of doing all of the following:  
40 1. Inventory level monitoring  
41 2. Interstitial space monitoring  
42 3. Overfill alarm monitoring  
43 4. Overfill alarm notification  
44 5. Communicates with fuel control software (EJ Ward Fuel View) for TLS information to be displayed in Fuel  
45 View.  
46

47 **PART 3 - EXECUTION**

48  
49 **3.1. BURIED UNDERGROUND FUEL TANKS**

- 50 A. Provide excavation for the buried fuel tanks, minimum depth below finished grade to be 4'-0" to top of tank.  
51 1. Fuel Equipment Contractor shall ensure in his/her design that depth of bury and/or additional insulation  
52 for the bio-diesel storage is kept at appropriate industry storage temperatures for this product.  
53 B. Coordinate installation of geo-grid in tank pit with GC.  
54 C. Install Owner provided tanks, dead-man anchors, and tie down straps, ~~observation wells and leak detection per~~  
55 ~~approved plans.~~  
56 D. Install tank access structures, observation wells and leak detection per approved plans.  
57 E. Backfill tank with appropriate backfill and compact.  
58 F. Install and connect submersible pumps.

1 G. Install and connect overfill protection system.  
2

3 **3.2. UNDERGROUND FUEL PIPING**

- 4 A. Install all underground fuel piping a minimum of 2'-0" below the bottom of all pavements  
5 B. Provide continuous detectable caution tape for "BURIED FUEL LINE" along trench 1'-0" above all fuel piping.  
6 C. Provide all pipes and fittings required for a complete installation according to approved design.  
7

8 **3.3. UNDERGROUND ELECTRICAL AND DATA WIRING**

- 9 A. Install all underground electrical and data wiring in appropriate sized conduit. All conduit shall be a minimum of  
10 2'-0" below bottom of all pavements.  
11 1. Install data cabling from fuel dispensing system to the TLS system in the gas hut.  
12 2. Install data cabling for the automation equipment pedestal.  
13 B. Provide continuous detectable caution tape for "ELECTRICAL" and "DATA" along trench 1'-0" above all conduit.  
14 C. Use large radius bends at all changes in direction horizontally and vertically.  
15 D. Data cable shall not be run in the same conduit as line voltage wiring.  
16

17 **3.4. INSTALL FUEL DISPENSING SYSTEM**

- 18 A. Install and connect all fuel dispensing system equipment and hardware in the electrical room of the gas hut.  
19 B. Connect all monitoring equipment.  
20 C. Update all software platforms to latest software release.  
21

22 **3.5. CONNECT EMERGENCY SHUT-OFF DEVICE**

- 23 A. Locate emergency shut-off device as indicated on the southwest corner of the gas hut.  
24 B. Shut-off device shall be set at an ADA compatible height located at the bottom of the ADA ramp.  
25 C. Post all required signage at dispensing islands and at emergency shut-off device.  
26

27 **3.6. COMMISSIONING THE FUEL DISPENSING SYSTEM**

- 28 A. Coordinate with owner to provide sufficient fuel for testing and commissioning the fuel dispensing system.  
29 B. Test system dispensing from all dispenser nozzles to ensure accurate dispensing.  
30 1. Test all installed dispensers for accurate volume dispensing of products.  
31 ~~2. Test all diesel dispenser equipment for accurate mixing of diesel and bio-diesel products.~~  
32 C. Test all system software for dispensing authorization, dispensing reporting, tank level sensors, and other related  
33 functions.  
34 D. When all installation testing is complete schedule all required final inspections and dispenser certifications.  
35 E. Provide required Owner training after all inspections and certifications are complete.  
36  
37  
38  
39

**END OF SECTION**

**GENERAL CONSTRUCTION NOTES:**

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SITE PREPARATION; INSTALLATION OF ALL PAVEMENTS, MGS GUARD RAILS; ELECTRICAL ROUGH-IN; SITE CLEANUP; AND OTHER MISCELLANEOUS WORK ASSOCIATED WITH COMPLETING THE INTENT OF THIS CONTRACT.
2. THE CONTRACTOR SHALL REVIEW BID ITEM 20101 EXCAVATION CUT IN THE SPECIAL PROVISIONS FOR INFORMATION REGARDING UNDERCUT.
3. THE SCALE INSTALLER SHALL BE RESPONSIBLE FOR THE DELIVERY AND INSTALLATION OF ALL SCALE EQUIPMENT AFTER THE CONTRACTOR HAS COMPLETED HIS/HER PORTION OF THE SITE PREPARATION.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING AND POURING THE SCALE PAN CONCRETE AFTER THE INSTALLATION OF ALL SCALE EQUIPMENT IS COMPLETED. THE CONTRACTOR SHALL VERIFY ALL CONCRETE AND INSTALLATION REQUIREMENTS WITH THE SCALE INSTALLER PRIOR TO ORDERING THE CONCRETE.
5. ALL CONCRETE SHALL BE  $f_c = 3000$  psi @ 28 DAYS STRENGTH. THE CONTRACTOR SHALL SCHEDULE ALL SLUMP AND CYLINDER TESTING WITH THE SOILS ENGINEER UNDER CONTRACT WITH CITY ENGINEERING.
6. ALL CONCRETE SHALL HAVE A BROOM SWEPT FINISH.
7. SEE REBAR SCHEDULE ON SHEET 2 FOR SPECIFICATIONS ON REINFORCING STEEL. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING QUANTITIES AND LENGTHS REQUIRED INCLUDING OVERLAPS.
8. THE CITY PROJECT MANAGER SHALL REVIEW ALL REBAR PLACEMENT PRIOR TO EACH CONCRETE POUR. THE CONTRACTOR SHALL PROVIDE THE CPM WITH A 2 WORKING DAY NOTICE BEFORE NEEDING REVIEW.
9. THE CONTRACTOR SHALL COMPACT ALL GRANULAR FILL WITH A VIBRATORY TYPE DEVICE TO 95% MAXIMUM DRY DENSITY. COMPACTION WITH A BACKHOE BUCKET (RAMMING) SHALL NOT BE PERMITTED. THE CONTRACTOR SHALL SCHEDULE ALL COMPACTION TESTING WITH THE SOILS ENGINEER UNDER CONTRACT WITH CITY ENGINEERING.
10. AT THE DISCRETION OF THE CONTRACTOR A MONOLITHIC POUR OF THE SCALE FOUNDATION SLAB, RAMPS AND APPROACHES SHALL BE ALLOWED. SEE EXPANSION JOINT DETAILS ON VARIOUS SHEETS FOR ADDITIONAL INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND INSTALLING ALL CONTROL JOINTS.
11. THE CONTRACTOR SHALL PROVIDE 1/2" EXPANSION JOINT FILLER AND SEAL ALL CONCRETE JOINTS ADJACENT TO SCALE FOUNDATIONS/RAMPS. JOINT FILLER AND SEALANT SHALL BE AS PER CITY STANDARD SPECIFICATION FOR PUBLIC WORKS SECTION 303.2(d) AND THIS CONTRACT'S SPECIAL PROVISIONS.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND INSTALLING ALL EXPANSION JOINTS AND CONTROL JOINTS ON CONCRETE SHOULDERS.

INSIDE FACE OF MGS W-BEAM RAILS TO ALIGN WITH EDGE OF RAMPS AND APPROACH DECKS

3' x 3' x 12" TH. CONCRETE ANTENNA SLAB SHOWN SHADED SEE PLAN SHEET FOR LOCATION AND DETAILS

STREET SIDE

EL. 1070.00 SCALE FDN. SLAB

12" OF BREAKER INCL. w/ BID ITEM 20219. 12" GRADE #2 INCL. w/ BID ITEM 40102.

GEO GRID SHOWN AS HEAVY DASHED LINE

FILL VOID TO BOTTOM OF CONG. w/ GRADE #2 BASE, INCLUDED w/ BID ITEM 40102.

**A-A/3 SECTION TH**

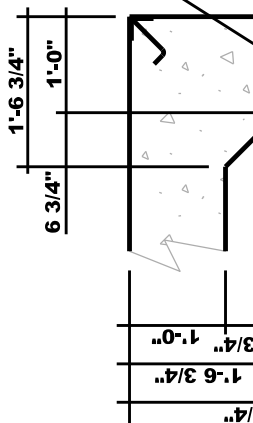
7" TH. C WIDE, S ELEVAT TYPICAL

STREET SIDE

EL. 1070.00 SCALE FDN. SLAB

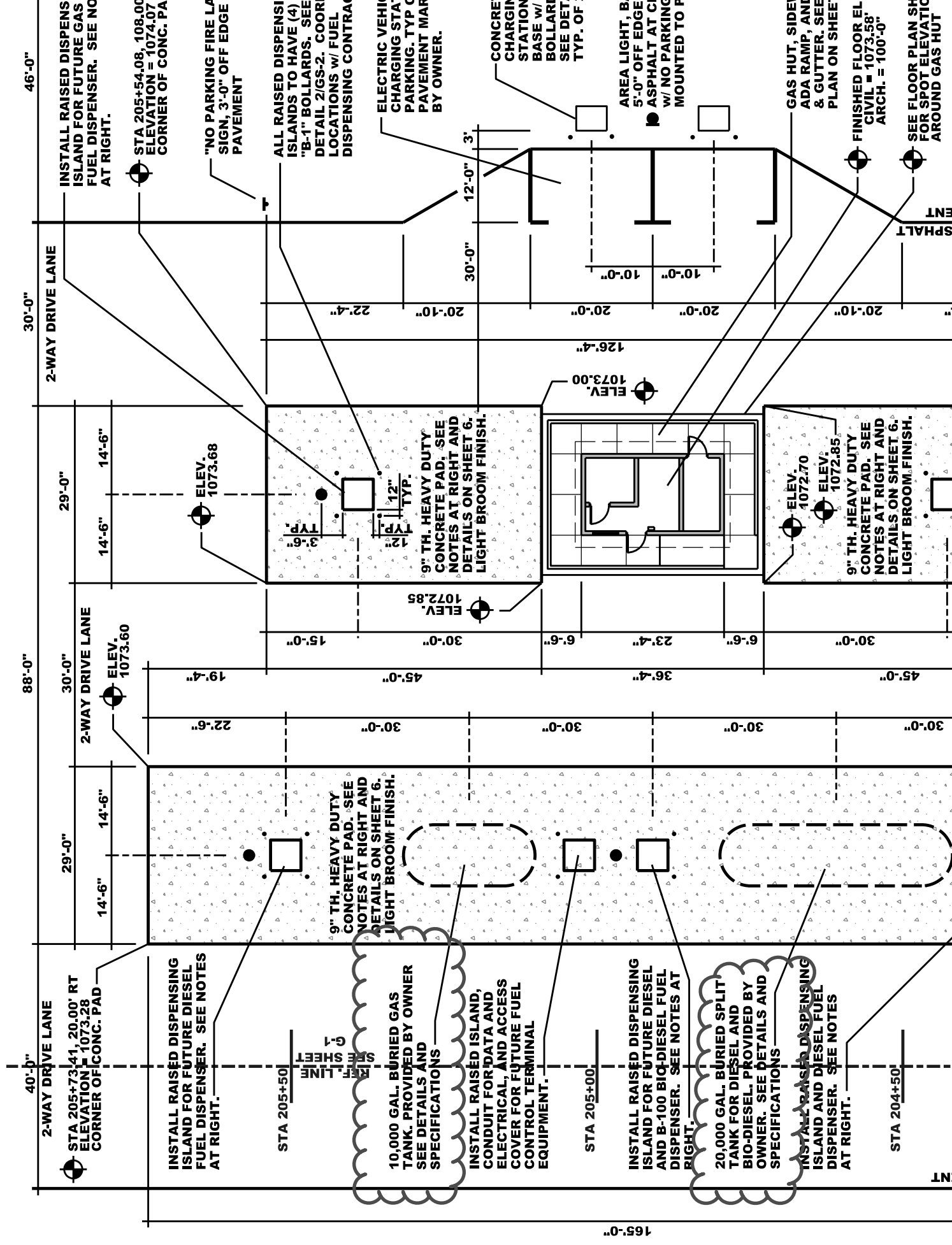
EL. 1069.75 OUTSIDE EDGE OF CONCRETE SHOULDER TYPICAL BOTH SIDES

FILL VOID TO BOTTOM OF CONG. w/ GRADE #2 BASE, INCLUDED w/ BID ITEM 40102.



EL. 1071.56 TOP OF APPROACH

CONTRACTOR TO PROVIDE CONSTRUCTION KEYWAY IN CONCRETE POURS THAT ARE NOT MONOLITHIC POURS



INSTALL RAISED DISPENSING ISLAND FOR FUTURE GAS FUEL DISPENSER. SEE NOTES AT RIGHT.

STA 205+54.08, 108.00 ELEVATION = 1074.07 CORNER OF CONC. PAD

"NO PARKING FIRE LAMP SIGN, 3'-0" OFF EDGE PAVEMENT

ALL RAISED DISPENSING ISLANDS TO HAVE (4) "B-1" BOLLARDS. SEE DETAIL 2/GS-2. COORDINATE LOCATIONS W/ FUEL DISPENSING CONTRACTOR

ELECTRIC VEHICLE CHARGING STATION PAVEMENT MARKING BY OWNER.

CONCRETE CHARGING STATION BASE W/ BOLLARD SEE DETAIL TYP. OF

AREA LIGHT, BOLLARD 5'-0" OFF EDGE ASPHALT AT CORNER W/ NO PARKING MARKING MOUNTED TO PAD

GAS HUT, SIDEWALK ADA RAMP, AND GUTTER. SEE PLAN ON SHEET 6

FINISHED FLOOR ELEVATION CIVIL = 1073.58' ARCH. = 100'-0"

SEE FLOOR PLAN SHEET 6 FOR SPOT ELEVATIONS AROUND GAS HUT

29'-0" 14'-6" 14'-6" 14'-6"

ELEV. 1073.68

9" TH. HEAVY DUTY CONCRETE PAD. SEE NOTES AT RIGHT AND DETAILS ON SHEET 6. LIGHT BROOM FINISH.

ELEV. 1072.85

ELEV. 1073.00

9" TH. HEAVY DUTY CONCRETE PAD. SEE NOTES AT RIGHT AND DETAILS ON SHEET 6. LIGHT BROOM FINISH.

ELEV. 1072.70 ELEV. 1072.85

88'-0"

29'-0" 14'-6" 14'-6"

ELEV. 1073.60

9" TH. HEAVY DUTY CONCRETE PAD. SEE NOTES AT RIGHT AND DETAILS ON SHEET 6. LIGHT BROOM FINISH.

10,000 GAL. BURIED GAS TANK. PROVIDED BY OWNER SEE DETAILS AND SPECIFICATIONS

INSTALL RAISED ISLAND, CONDUIT FOR DATA AND ELECTRICAL, AND ACCESS COVER FOR FUTURE FUEL CONTROL TERMINAL EQUIPMENT.

INSTALL RAISED DISPENSING ISLAND FOR FUTURE DIESEL AND B-100 BIO-DIESEL FUEL DISPENSER. SEE NOTES AT RIGHT.

20,000 GAL. BURIED SPLIT TANK FOR DIESEL AND BIO-DIESEL PROVIDED BY OWNER. SEE DETAILS AND SPECIFICATIONS

INSTALL RAISED DISPENSING ISLAND AND DIESEL FUEL DISPENSER. SEE NOTES AT RIGHT.

40'-0" 29'-0" 14'-6" 14'-6"

STA 205+73.41, 20.00' RT ELEVATION = 1073.28 CORNER OF CONC. PAD

INSTALL RAISED DISPENSING ISLAND FOR FUTURE DIESEL FUEL DISPENSER. SEE NOTES AT RIGHT.

STA 205+50

STA 205+00

STA 204+50

165'-0"



2  
6

LIGHT POLE BASE BEYOND.  
SEE DETAIL 1/7

8" THICK HEAVY DUTY CONCRETE  
SEE SPECIFICATIONS

GAS DISPENSER CURB BEYOND. SIZED  
BY FUEL EQUIP. CONTR. SEE DETAIL 3/GS-2  
FOR CONSTRUCTION.

ASPHALT PAVEMENT. SEE SPECIAL  
PROVISIONS FOR SPECIFICATIONS.

MINIMUM 10" OF 1-1/4" CRUSH  
AGGREGATE BASE COURSE.  
CITY OF MADISON GRADATION

MINIMUM 12" BREAKER RUN E  
CITY OF MADISON GRADATION

BURIED FUEL TANK  
PROVIDED BY OWNER  
INSTALLED BY FUEL  
EQUIPMENT CONTRACTOR

GEO GRID WITH MINIMUM OF 4'-0" O  
WITH OTHER FILL MATERIALS AT TA  
BACKFILL. SHOWN AS HEAVY DASH

UNDISTURBED SOIL

**GENERAL FUEL EQUIPMENT NOTES:**

1. THE GENERAL CONTRACTOR AND HIS/HER FUEL EQUIPMENT INSTALLER SHALL BE RESPONSIBLE FOR ALL MATERIALS, AND EQUIPMENT REQUIRED FOR A CODE APPROVED INSTALLATION BASED ON THE PERFORMANCE SPECIFICATION AS DESCRIBED IN SPECIAL PROVISIONS AND THE CONSTRUCTION DOCUMENTS.
2. FUEL TANK LOCATION AND BACK FILL IS SHOWN GRAPHICALLY ONLY AND SHOULD NOT BE CONSIDERED AS AN INSTALLED CONDITION.
3. ALL CONCRETE AND REINFORCING SPECIFICATIONS REFERRED TO FOR THE INSTALLATION OF FUEL EQUIPMENT SHALL BE BY THE FUEL EQUIPMENT INSTALLER AS PART OF THE BID PRICE.

TANK BACK FILL MATERIAL TO BE SPECIFIED AND INSTALLED BY THE FUEL EQUIPMENT CONTRACTOR AS PART OF HIS/HER BASE BID. GEO FABRIC WRAP TANK EXCAVATION.

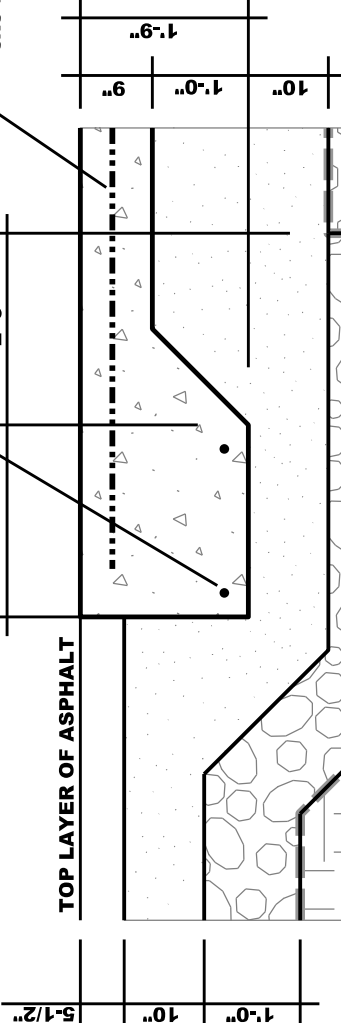
# 1/6 CROSS SECTION THRU CONCRETE FUEL POINT PAVEMENT

SCALE 11x17 PRINT: 1" = 5'

(2) - #6 REBARS CONTINUOUS. PROVIDE A MINIMUM OF 2'-0" TIED OVERLAPS.

6x6 W2.9" x W2.9" MESH ON CHAIRS

SAWED CONTRACTION JOINT  
MAXIMUM OF 1/4" WID  
3/4" DEEP. LOCATION TO BE DETERMINED BY FUEL EQUIPMENT CONTRACTOR.

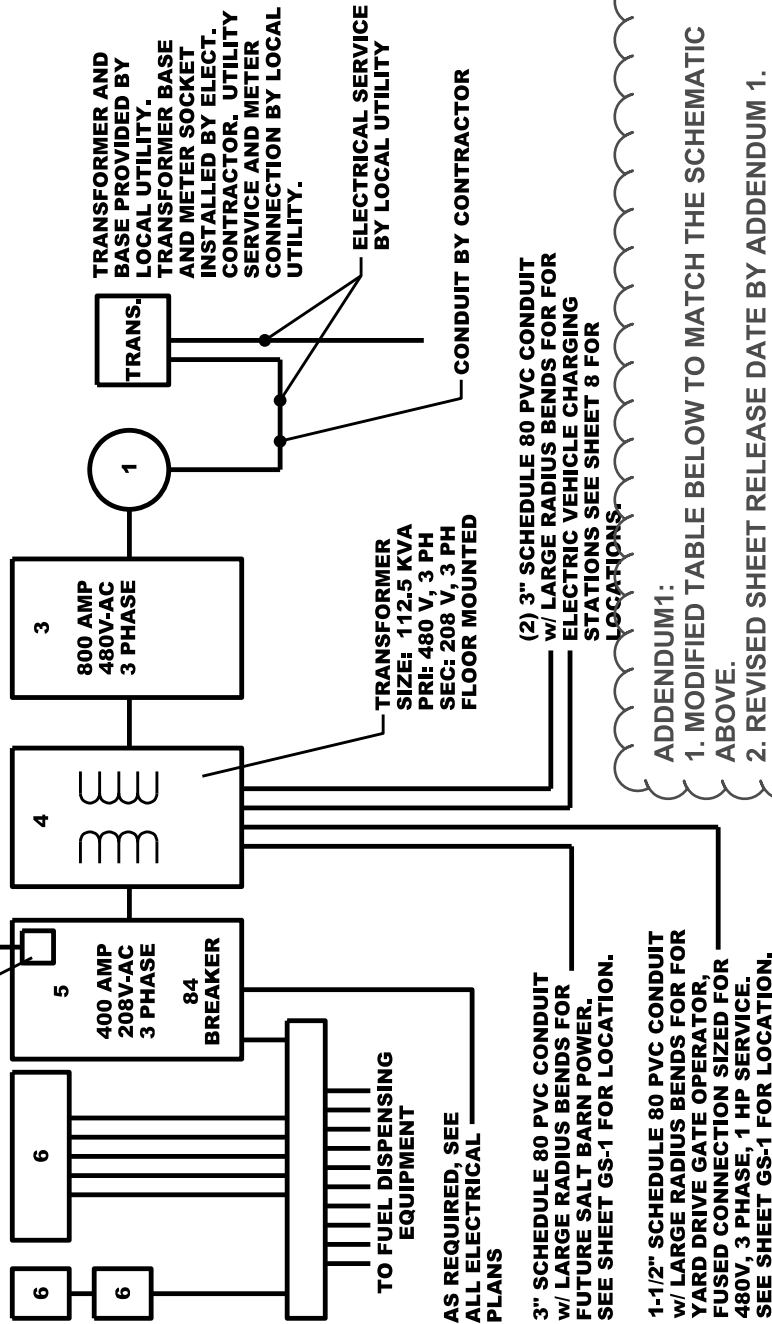


MINIMUM 10" OF 1-1/4" CRUSHED AGGR  
BASE COURSE (CITY OF MADISON GRADATION)

DISTRIBUTION PANEL TO HAVE A 40 AMP BREAKER FOR PV PANEL INTERCONNECTION. PV BREAKER SHALL BE AS FAR AWAY AS POSSIBLE FROM THE MAIN CIRCUIT BREAKER. PROVIDE LABEL ON BREAKER THAT STATES "FOR PV SYSTEM".

SEE PV DETAILS AND SPECIFICATIONS ON SHEET 13

- 1 = METER SOCKET
- 2 = UTILITY DISCONNECT FOR PV
- 3 = DISTRIBUTION PANEL
- 4 = TRANSFORMER
- 5 = PANEL 'A'
- 6 = GAS EQUIPMENT
- 7 = DATA CABINET - NOT SHOWN, SEE FLOOR PLAN
- 8 = PV INVERTERS - NOT SHOWN, SEE FLOOR PLAN



AS REQUIRED, SEE ALL ELECTRICAL PLANS

3" SCHEDULE 80 PVC CONDUIT W/ LARGE RADIUS BENDS FOR FUTURE SALT BARN POWER. SEE SHEET GS-1 FOR LOCATION.

1-1/2" SCHEDULE 80 PVC CONDUIT W/ LARGE RADIUS BENDS FOR FUTURE DRIVE GATE OPERATOR, FUSED CONNECTION SIZED FOR 480V, 3 PHASE, 1 HP SERVICE. SEE SHEET GS-1 FOR LOCATION.

(2) 3" SCHEDULE 80 PVC CONDUIT W/ LARGE RADIUS BENDS FOR FUTURE ELECTRIC VEHICLE CHARGING STATIONS SEE SHEET 8 FOR LOCATIONS.

ADDENDUM 1:  
1. MODIFIED TABLE BELOW TO MATCH THE SCHEMATIC ABOVE.  
2. REVISED SHEET RELEASE DATE BY ADDENDUM 1.

## ELECTRICAL DISTRIBUTION SCHEMATIC

EQUIP. ID	NAME	PROVIDE	INSTALL	DESCRIPTION
1	METER SOCKET	ELECT.	ELECT.	AS REQUIRED BY LOCAL UTILITY
2	UTILITY DISCON.	PV	PV	AS REQUIRED BY LOCAL UTILITY
3	DIST. PANEL	ELECT.	ELECT.	SQUARE D, 800 AMP DISTRIBUTION PANEL w/ 42 CIRCUIT BREAKER CAPACITY, 450A BUS BAR

### ELECTRICAL INSTALLATION NOTES:

1. THE ELECTRICAL CONTRACTOR AND FEC CONTRACTOR SHALL BE RESPONSIBLE FOR THE SPECIFICATIONS ASSOCIATED WITH THIS CONTRACT.
2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SPECIFICATIONS ASSOCIATED WITH THIS CONTRACT.
3. THE FUEL EQUIPMENT CONTRACTOR (FEC) SHALL BE RESPONSIBLE FOR THE SPECIFICATIONS ASSOCIATED WITH THIS CONTRACT.
4. ALL CONTRACTORS SHALL PROVIDE SUBMITTALS PRIOR TO ORDERING ANY MATERIALS OR EQUIPMENT.
5. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE FUEL EQUIPMENT CONTRACTOR.
6. ALL CONDUIT, FITTINGS, PULL BOXES, AND OTHER EQUIPMENT SHALL BE LARGE RADIUS BENDS. ALL BURIED BENDS SHALL BE LARGE RADIUS BENDS.
7. ALL OUTLETS TO BE GFCEI UNLESS OTHERWISE NOTED.
8. ALL CONTROL WIRING SHALL BE IN SEPARATE CONDUITS.

### DATA EQUIPMENT INSTALLATION NOTES:

1. THE ELECTRICAL CONTRACTOR AND FEC CONTRACTOR SHALL BE RESPONSIBLE FOR THE SPECIFICATIONS ASSOCIATED WITH THIS CONTRACT.
2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SPECIFICATIONS ASSOCIATED WITH THIS CONTRACT.
3. THE FUEL EQUIPMENT CONTRACTOR SHALL BE RESPONSIBLE FOR THE SPECIFICATIONS ASSOCIATED WITH THIS CONTRACT.
4. ALL CONTRACTORS SHALL PROVIDE SUBMITTALS PRIOR TO ORDERING ANY MATERIALS OR EQUIPMENT.
5. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE FUEL EQUIPMENT CONTRACTOR.
6. ALL CONDUIT, FITTINGS, PULL BOXES, AND OTHER EQUIPMENT SHALL BE LARGE RADIUS BENDS. ALL BURIED BENDS SHALL BE LARGE RADIUS BENDS.
7. ALL OUTLETS TO BE GFCEI UNLESS OTHERWISE NOTED.
8. ALL CONTROL WIRING SHALL BE IN SEPARATE CONDUITS.

### DATA EQUIPMENT INSTALLATION NOTES:

1. THE ELECTRICAL CONTRACTOR AND FEC CONTRACTOR SHALL BE RESPONSIBLE FOR THE SPECIFICATIONS ASSOCIATED WITH THIS CONTRACT.
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3. THE FUEL EQUIPMENT CONTRACTOR SHALL BE RESPONSIBLE FOR THE SPECIFICATIONS ASSOCIATED WITH THIS CONTRACT.
4. ALL CONTRACTORS SHALL PROVIDE SUBMITTALS PRIOR TO ORDERING ANY MATERIALS OR EQUIPMENT.
5. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE FUEL EQUIPMENT CONTRACTOR.
6. ALL CONDUIT, FITTINGS, PULL BOXES, AND OTHER EQUIPMENT SHALL BE LARGE RADIUS BENDS. ALL BURIED BENDS SHALL BE LARGE RADIUS BENDS.
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8. ALL CONTROL WIRING SHALL BE IN SEPARATE CONDUITS.