DIVISION 26 – ELECTRICAL

A. General Instructions:

1. Codes, Permits and Inspections:
   a. Wiring shall be in accordance with latest edition National Electrical Code (NEC), NFPA, and/or applicable local, state, and Utility Company rules, laws, codes, and ordinances.
   b. Secure all permits and inspections required for the installation of the electrical work.
   c. All work shall comply with the latest edition of the Americans With Disabilities Act (ADA).
   d. Pay all fees associated with new utility services.

2. Verifications:
   a. Verify mounting heights and locations of electrical equipment before installation or rough–in.
   b. Verify exact location of electrical service entrance including point of service and system characteristics.

3. Wiring Methods:
   a. The Electrical Contractor shall cooperate with other Contractors and install equipment in proper sequence so as not to interfere with the progress of other Contractors.
   b. All materials shall be new and carry the Underwriter's Label or be "listed" by that group, and be fully equal to makes specified.
   c. Use only insulated copper conductors in conduit. Use flexible conduit for connections to motors and similar equipment.
   d. All wiring shall be concealed and all outlets shall be flush mounted in finished spaces except as noted otherwise.
   e. All systems wiring in return air plenums shall be in conduit or be plenum rated.

4. Tests:
   a. This Contractor shall be responsible for performing all tests necessary to prevent concealment of defective or improper work.
   b. Upon completion of work, test the installation thoroughly and render it free from shorts, grounds or improper connections.

5. Guarantee:
   a. This Contractor shall guarantee that all defective items of workmanship, material, labor or mechanical operation developing within one (1) year from the date of final acceptance of completed installation shall be replaced to the complete satisfaction of the Owner.

6. Workmanship:
   a. Electrical equipment shall be installed in a neat and workmanlike manner. Unsightly installations shall be removed or reworked at no additional expense to the Owner.

7. Identification of Disconnecting Means:
   a. Provide a permanent nameplate for each disconnect switch indicating its purpose. The marking shall be of sufficient durability to withstand the environment it is installed in as required by N.E.C. Section 110.22 and 230.72(A).

B. Electrical Equipment:

1. Conduits:
   a. All conduit installed in earth, concrete, below concrete on earth, or exposed to weather shall be rigid steel or intermediate metal conduit. Electrical metallic tubing for all dry interior runs. Fittings shall be fully approved in accordance with N.E.C
   b. Flexible or P.V.C. conduit may be used where not exposed to damage and approved by N.E.C. and local codes.
   c. Provide a ground wire sized per N.E.C. Art. 250.122 in all conduits, both metallic and nonmetallic.
   d. Conduit shall be installed and sized according to code requirements and protected from damage during construction.
   e. Conduit may be re–routed where such action does not adversely affect the intended design or circuiting.
   f. Final connections to all kitchen and mechanical equipment shall be with U. L. approved liquidtite conduit. Liquidtite and fittings shall be U.L. listed for grounding.

2. Conductors:
   a. Conductors shall be copper, generally with 600 volt rated insulation. Branch circuit wiring min. size #12 Type "THWN–2" or "XHHW–2" as required. Service entrance, feeder conductors Type "THWN/THHN" or "XHHW". Low voltage wire shall be Type "THWN–2" or "XHHW–2" minimum #14 gauge unless noted otherwise. All other types shall be as required by N.E.C.
   b. All conductors shall be color coded with type and size marking. Connections to service equipment, feeder panels shall be made with solderless lugs. All splices, taps, connections to service entrance conductors shall be made by bronze solderless lugs. All other splices, connections shall be pressure type connectors.
   c. Insulate joints, splices with Scotch #33 plastic tape or plastic moulded jackets.

3. Safety Switches:
   a. Furnish safety switches of size and type indicated on drawings.
   b. Heavy duty switches shall be fusible unless indicated otherwise. Provide Class "J" fuse clips.
   c. All exterior switches shall be raintight.

4. Fuses:
   a. Furnish and install Class J time delay fuses for each active fuseholder, sized as scheduled or required.
   b. Provide fuses made by Bussmann or equal.

5. Grounding:
   a. Provide system ground as required by N.E.C. and utility company if not already existing.
   b. Bond mechanical equipment frames.
   c. Bond all service entrance equipment and conduit system.
   d. An equipment grounding conductor sized per N.E.C. Art. 250.122 shall be provided in all conduits. The ground wire is required for both metallic and nonmetallic conduit installations.

6. Branch Circuit Panels
   a. Branch circuit lighting panels equal to Square D, G.E., Siemens, or Cutler Hammer, with thermal magnetic breakers and ground buses. Load center construction is not permitted. Electrical Contractor shall obtain available short circuit current from local Utility co. Panelboards shall be U.L. listed for available fault current. Breakers and panels shall be fully rated or U.L. series rated with specified fuses (22,000 AIC minimum).
   b. Breakers shall have individual plastic cases sized as scheduled. Two pole breakers shall be common trip (single pole units with tie bars are not acceptable).
   c. Panel shall be mounted as noted on the drawings. Provide with a hinged door and a neatly typed circuit directory card.
   d. Re–assign circuits to properly balance the loads on the phases if final connections and tests show it to be advisable.

7. Equipment Supplied By Other Contractors And/Or The Owner
   a. The Electrical Contractor shall furnish, install and connect all wiring, conduit, boxes, toggle switches, thermal switches, disconnect switches, remote pushbutton stations, etc., for all equipment requiring electrical power that is either furnished or specified by other contractors and/or the Owner, shown on drawings or listed below. The E.C. shall receive, install and connect all magnetic starters and controllers, capacitors, power factor correction devices, transformers, alarms, bells, horns, relays, remote switches for equipment supplied by others (i.e. starters or capacitors or power factor correction devices for Mechanical Equip., etc.). In general, all major equipment will be specified to be factory prewired with only service and interconnecting required at the site by the Electrical Contractor; however,the E.C. shall check all Divisions of the specification to verify whether the equipment is specified to be factory prewired. If not, then it shall be the responsibility of the Electrical Contractor to provide the complete wiring of the equipment in accordance with wiring diagrams provided by other Contractors and/or Owner to the Electrical Contractor. All interconnecting of equipment shall be by the Electrical Contractor.
   b. All line and low voltage wiring and connections required to control the equipment are a part of this section. All wiring shall be in conduit.
   c. It shall be assumed the Contractor is familiar with the equipment to be furnished by the other Contractors and/or the Owner in connection with this work and that provisions for such connections and work have been included in the Contractor's price. In no case will extra remuneration be allowed for such work.
   d. Connections to all equipment have been designed from units as specified on the drawings or in the specifications. In the event equipment or control differs on approved mechanical shop drawings it shall be the responsibility of the supplying contractor to coordinate the electrical connections to the units and reimburse electrical contractor for any changes in the electrical system design. These changes shall not involve additional cost to the Owner.

8. Contactors And Relays
   a. Shall be as manufactured by Cutler–Hammer, Allen Bradley, G.E. or Square D. They shall be as sized on the drawings
   b. All contactors and relays shall be Tungsten rated.

DISTRIBUTION PANEL: L5

480Y/277 VOLTS, 3 PHASE, 4 WIRE
225 AMP MLO, SURFACE MTD.
65000 AIC LABELED
W/GRD. BUS

CIRC NO.	LOAD V. A.	LOAD TYPE	LOAD DESCRIPTION	P.	AMP SIZE	PHASE	AMP SIZE	P.	LOAD DESCRIPTION	LOAD TYPE	LOAD V. A.	CIRC NO.
1	3991	MTR	D–13380,D–13376,D–13375	3	15	A	20	3	M–2	MTR	2494	2
						B						
						C						
3	2494	MTR	M–3	3	20	A	20	3	D–9221,D–9222,D–9220	MTR	3991	4
						B						
						C						
5	1330	MTR	D–9213	3	20	A	20	3	M–1	MTR	2494	6
						B						
						C						
7	2827	MTR	GATE–1	3	20	A	20	3	D–9218,D–9216,D–9217	MTR	3991	8
						B						
						C						
① 9	2494	MTR	D–9235	3	20	A	20	3	D–8	MTR	2494	10
						B						
						C						
11	2494	MTR	D–1	3	20	A	20	3	D–6	MTR	2494	12
						B						
						C						
13	2494	MTR	D–4	3	20	A	20	3	D–5	MTR	2494	14
						B						
						C						
15	2494	MTR	D–7	3	20	A	20	3	SPARE			16
						B						
						C						
17	2494	MTR	D–3	3	20	A	20	3	SPARE			18
						B						
						C						
19			SPARE	3	20	A	20	3	SPARE			20
						B						
						C						
21			SPARE	3	20	A	20	3	SPARE			22
						B						
						C						
23			SPARE	3	20	A	20	3	SPARE			24
						B						
						C						
25			SPARE	3	20	A	20	3	SPARE			26
						B						
						C						
27			SPACE	3		A		3	SPACE			28
						B						
						C						

① CIRCUIT TO BE INSTALLED UNDER THIS CONTRACT.

SYMBOL LIST

SYMBOL	DESCRIPTION	MOUNTING
	DISCONNECT SWITCH	
VA	VALVE ACTUATOR	
M	MOTOR	
WP	WEATHERPROOF	
JB	JUNCTION BOX	
JB	JUNCTION BOX	
'A'	BRANCH CIRCUIT PANEL & PANEL DESIG.	72" TO TOP
	ELECTRICAL DISTRIBUTION EQUIPMENT	
1	FEEDER DESIGNATION	

GENERAL NOTES

1. ALL ELECTRICAL WORK SHALL COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) & THE AMERICANS WITH DISABILITIES ACT (ADA).
2. REFER TO STRUCTURAL DRAWINGS FOR RELATED INFORMATION.
3. REFER TO THE SPECIFICATIONS FOR DATA NOT ON THE DRAWINGS.
4. ALL MOUNTING HEIGHTS TO CENTERLINE OF ITEM UNLESS OTHERWISE NOTED. VERIFY ALL OUTLET LOCATIONS ON THE JOB PRIOR TO ROUGH–IN.
5. CONDUIT RUN W/CONDUCTORS AS INDICATED & GROUND WIRE SIZED PER N.E.C. 250.122. CONDUIT SIZE AS REQUIRED.
6. WHEN INCREASED CONDUCTOR SIZES ARE SHOWN ON THE PLANS, THE LARGER CONDUCTOR SIZE SHALL BE USED THROUGHOUT THE LENGTH OF THE CIRCUIT, INCLUDING NEUTRAL AND GROUND.
7. BRANCH CIRCUITS ARE INDICATED AS ONE CIRCUIT HOME RUNS WITH INDIVIDUAL NEUTRALS. A MAXIMUM OF THREE CIRCUITS (MAXIMUM OF THREE PHASE CONDUCTORS) MAY BE GROUPED IN A SINGLE CONDUIT. WHERE MULTIPLE CIRCUITS ARE LOCATED IN THE SAME RACEWAY, JUNCTION BOX OR ENCLOSURE, NEUTRALS SHALL BE MARKED OR LABELED TO INDICATE WHICH CIRCUIT THEY ARE ASSOCIATED WITH. SEE SPECIFICATION SECTION "LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES" FOR ADDITIONAL INFORMATION.

①②③ EQUIPMENT CONNECTION SCHEDULE

PROCESS EQUIPMENT CONNECTIONS

UNIT DESIG.	UNIT VOLTAGE	LOAD H.P.	LOAD FLA	LOAD KVA	PANEL DEVICE CIRCUIT NUMBER	PANEL DEVICE BKR. AMPS	PANEL DEVICE SW. AMPS	PANEL DEVICE FUSE AMPS	PANEL DEVICE POLE	PANEL DEVICE NEMA START. SIZE	DEVICE AT UNIT BKR. AMPS	DEVICE AT UNIT SW. AMPS	DEVICE AT UNIT FUSE AMPS	DEVICE AT UNIT POLE	DEVICE AT UNIT NEMA START. SIZE	DEVICE AT UNIT OTHER	STITS	FEEDER DESCRIPTION OR SEE THE FEEDER SCHEDULE	REMARKS OR SEE THE INDICATED NOTES BELOW
D	VALVE ACTUATOR																		
9235	480/3	1.5	3.0	2.494	L5:9	20			3			30	5	3			1	3 #6 AWG THWN; #12 AWG GRD; 1" C.	④

1. ALL CONNECTIONS AND ELECTRICAL EQUIPMENT LISTED IN SCHEDULE SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. FIELD VERIFY CONNECTION REQUIREMENTS AND EQUIPMENT PROVIDED BY OTHERS PRIOR TO ROUGH–IN.
2. REFER TO MECHANICAL DRAWINGS AND SPECIFICATIONS FOR THE REQUIREMENTS ASSOCIATED WITH WIRING AND CONNECTIONS OF INTERLOCKING, THERMOSTAT LOCATIONS, EXHAUST FAN CONTROL SWITCHES, AND OTHER CONTROLS OF MECHANICAL EQUIPMENT.
3. SIZE FUSES FOR MOTOR FUSTATS BASED ON 125% OF MANUFACTURER'S NAMEPLATE FULL LOAD AMPERAGE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
4. FEEDER SIZED FOR VOLTAGE DROP.

PEC
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WICHITA, KS 67202
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CITY OF WICHITA

RICHARD W. WEHRLI LICENSED 23147 10/16/2023 KANSAS PROFESSIONAL ENGINEER

CONSTRUCTION PLANS
FOR
HESS PUMP STATION
SITE VALVE REPLACEMENT
(PHASE 1 AND 2)

PAUL GUNZELMAN, P.E. - INTERIM CITY ENGINEER
CITY OF WICHITA PROJECT NO. 448-2021-005881

Issue:

JOB NO.	200335-004
DATE	OCTOBER, 2023
PM	TBK
DESIGNED BY	RWW
DRAWN BY	JAB
CHECKED BY	RWW

ELECTRICAL LEAD SHEET

E0.1

SAVED 10/11/2023 3:54:32 PM BY JACOB.BURNS
PLOTTED 10/16/2023 9:34:54 AM BY JACOB BURNS
U:\WICHITA-CIVIL\2020\200335\004\ELEC\DRAWINGS\E0.1 ELECTRICAL LEAD SHEET.DWG