

DIVISION 16 - 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.
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).

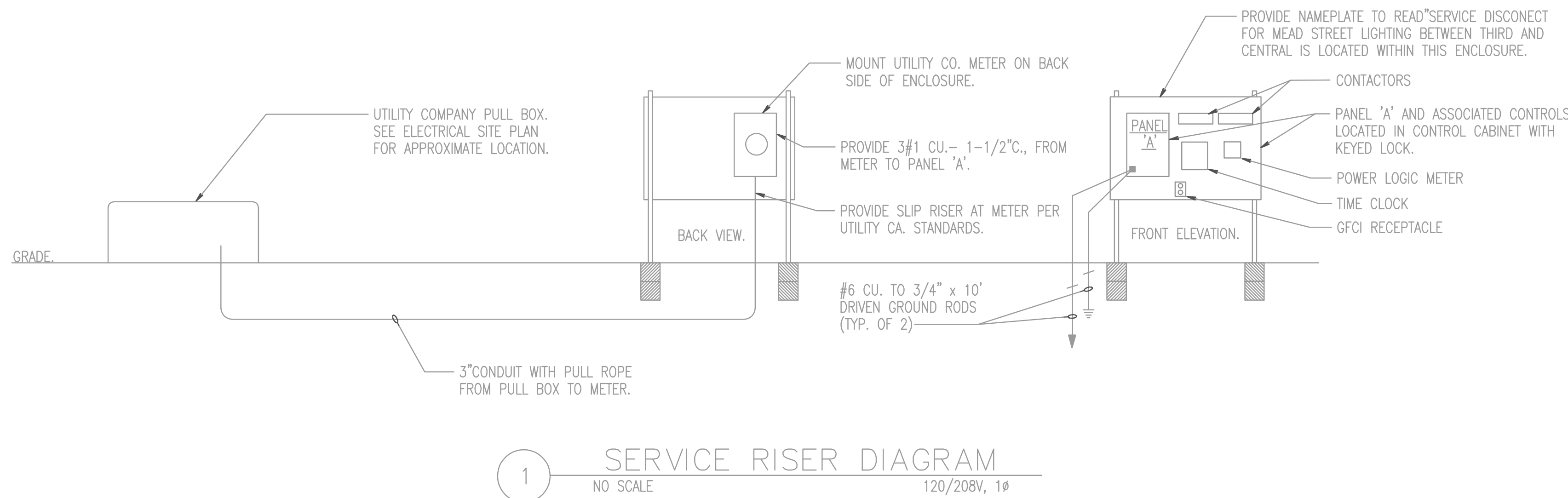
B. Electrical Equipment:

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. Fittings shall be fully approved in accordance with N.E.C.
  - b. Flexible or P.V.C. conduit may be used below ground only, as 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.
2. Conductors:
  - a. Conductors shall be copper, generally with 600 volt rated insulation. Branch circuit wiring min. size #12 Type "THW" or "THWN/THHN" as required. Service entrance, feeder conductors Type "THWN/THHN" or "XHHW". Low voltage wire shall be Type "TF" or "TFF" minimum #18 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 "R" fuse clips.
  - c. All exterior switches shall be raintight.
4. Fuses:
  - a. Furnish and install Class RK-5 time delay fuses for each active fuseholder, sized as scheduled or required.
  - b. Provide fuses made by Bussmann or equal.
5. Lighting Fixtures and Lamps:
  - a. Install lighting fixtures. Provide lamps as indicated on the drawings.
  - b. No substitutions on lighting fixtures except as approved by Engineer prior to bidding.
  - c. Verify exact locations of fixture outlets so as to cause no interference with piping, equipment and architectural treatment.
  - d. Ballasts by "Advance" or equal, internally or externally fused, high power factor, V.L.H, fully compatible with lamps and shall carry UL label, ETL and CBM certifications of compliance, even though indicated fixture number may indicate otherwise.
  - e. Furnish all fixtures with lamps as scheduled and/or required by final fixture selection. Lamps equal to G.E.
6. Grounding:
  - a. Provide system ground as required by N.E.C. and utility company if not already existing.
  - b. Bond all service entrance equipment and conduit system.
  - c. 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.
7. Branch Circuit Panels
  - a. Branch circuit lighting panels equal to Square D, G.E., ITE, 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.
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.
9. Photo Electric Controls:
  - a. Photo Electric Controls by Tork, Intermatic and Paragon equal to those indicated below and approved by the Engineer will be acceptable.
  - b. Photo Electric Controls (Photo Switches; Photo Cells) shall be rated at 1800W, 120 volts, weatherproof. Mount on roof and orient photo electric controls to the north.

PANELBOARD: A						208/120 VOLTS, 1 PHASE, 3 WIRE 100 AMP MAIN BKR, SURFACE MTD. 50000 AIC LABELED				
CIRC NO.	LOAD V. A.	LOAD TYPE	LOAD DESCRIPTION	AMP SIZE	AMP SIZE	LOAD DESCRIPTION	LOAD TYPE	LOAD V. A.	CIRC NO.	
1	1325	LIGHT	LIGHTING - WEST SIDE	15	A	20	1	POLE RECEPT - WEST	1000	2
3				1	B	20	1	POLE RECEPT - WEST	1000	4
5	1125	LIGHT	LIGHTING - EAST SIDE	15	A	20	1	POLE RECEPT - EAST	1000	6
7				1	B	20	1	POLE RECEPT - EAST	1000	8
9		SPACE			A	20	1	SPARE		10
11		SPACE			B	20	1	CONTROL POWER	200	12
13		SPACE			A			SPACE		14
15		SPACE			B			SPACE		16
17		SPACE			A			SPACE		18
19		SPACE			B			SPACE		20
21		SPACE			A			SPACE		22
23		SPACE			B			SPACE		24
25		SPACE			A			SPACE		26
27		SPACE			B			SPACE		28
29		SPACE			A			SPACE		30

FEEDER SCHEDULE						
FEEDER IDENT.	CONDUCTORS			GROUND SIZE PER SET	ISOLATED GROUND SIZE	CONDUIT SIZE PER SET
	SETS	QUANT. PER SET	SIZE			
1	1	2	#4 CU. (RECEPT.)	#8	-----	1"
		2	#10 CU. (LIGHTS)			
2	1	3	#4 CU. (RECEPT.)	#8	-----	1"
		2	#8 CU. (LIGHTS)			



1 SERVICE RISER DIAGRAM  
NO SCALE 120/208V, 1Ø

Drawn by: JRM  
 Checked by: JRM  
 Date: 9/9/08  
 Project: MEAD STREET LIGHTING IMPROVEMENTS  
 City of Wichita, Kansas

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**MEAD STREET - ELECTRICAL SITE LIGHTING PLAN**  
 Street and Storm Sewer Improvements  
 Mead Street, from Central to 3rd Street  
 City of Wichita  
 Sedgwick County, Kansas

scale: as noted
drawn by: DRM
checked by: DLD
date: 9/9/08
P/N: 07-246
revisions:

Sheet No.  
**23 of 30**