



## Iowa Department of Transportation

### SPECIAL PROVISIONS FOR ELECTRICAL DISTRIBUTION EQUIPMENT

Pottawattamie County  
IMN-080-1(366)4--0E-78

Effective Date  
June 16, 2015

THE STANDARD SPECIFICATIONS, SERIES 2012, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

#### 120318.01 DESCRIPTION.

- A. Section includes electrical service and distribution equipment.
- B. Reference Standards.
  - 1. **ASTM International (ASTM).**
    - a. B8, Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.
    - b. D2447 Standard Specification Section for Polyethylene (PE) Plastic Pipe, Schedule 40, and 80, Based on Outside Diameter.
    - c. D3350, Standard Specification for Polyethylene Plastic Pipe and Fitting Materials.
    - d. D3485, Standard Specifications for Smooth-Wall Coilable Polyethylene (PE) Conduit (Duct) for Preassembled Wire and Cable.
  - 2. **Alliance for Telecommunications Industry Solutions (ATIS).**  
O5.1, Wood Poles – Specifications and Dimensions.
  - 3. **American Wood Protection Association (AWPA).**
    - a. P8, Oil-Borne Preservative Systems.
    - b. P9, Solvents for Organic Preservation Systems.
    - c. U1, Use Category System: User Specification for Treated Wood.
  - 4. **Institute of Electrical and Electronics Engineers, Inc. (IEEE).**  
C57.12.01, Standard General Requirements for Dry-Type Distribution and Power Transformers Including Those with Solid Cast and/or Resin-Encapsulated Windings.
  - 5. **National Electrical Manufacturers Association (NEMA).**
    - a. 250, Enclosures for Electrical Equipment (1000V Maximum).

- b. C80.1, Electric Rigid Steel Conduit (ERSC).
- c. AB 1, Mold-Case Circuit Breakers, Molded Case Switches, and Circuit-Breaker Enclosures. (Equivalent to UL 489)
- d. KS 1, Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).

**6. Underwriters laboratories, Inc. (UL).**

- a. 6, Standard for Electric Rigid Metal Conduit - Steel.
- b. 50, Enclosures for Electrical Equipment, Non-Environmental Considerations.
- c. 98, Enclosed and Dead-Front Switches.
- d. 467, Grounding and Bonding Equipment.
- e. 489, Standard for Safety Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit Breaker Enclosures.
- f. 514B, Conduit, Tubing, and Cable Fittings.
- g. 651B, Standard for Continuous Length HDPE Conduit.

**7. NFPA 70 - National Electrical Code; National Fire Protection Association.**

**C. Submittals.**

1. Refer to the Article 1105.03 of the Standard Specifications for submittal procedures.
2. Each bound submittal must be reviewed, stamped, signed, and dated by the Contractor. Submittals must be sent via the Contractor. Submittals sent directly from suppliers or subcontractors will not be reviewed by the Engineer.
3. Provide shop drawing submittals for the following:
  - a. Ground rods.
  - b. Wire.
  - c. Conduit.
  - d. Junction boxes and wireway.
  - e. Separately mounted circuit breakers.
  - f. Disconnect switches.
  - g. Meter Pole Installation (allow 9 weeks for submittal review).
4. Product Data: Provide manufacturer's standard catalog pages and data.
5. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of product.
6. Operation and Maintenance Data: Instructions for each product including information on replacement parts.
7. Project Record Documents: Provide record of any deviations from the contract documents.

**D. Quality Assurance.**

1. Conform to requirements of NFPA 70.
2. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

3. **Manufacturer Qualifications:** Company specializing in manufacturing the products specified in this section with minimum 10 years documented experience and has specified luminaire types installed and operating commercially in the field for 5 years.

**E. Delivery, Storage, and Handling.**

Keep products in original manufacturer's packaging and protect from damage until ready for installation.

**120318.02 MATERIALS.**

**A. General Requirements.**

1. Provide products that comply with requirements of NFPA 70.
2. Provide products listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.
3. Unless specifically indicated to be excluded, provide all required wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.
4. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.

**B. Circuit Breaker.**

**1. Acceptable Manufacturers**

- a. Eaton.
- b. Square D (QO style).

**2. Enclosure.**

- a. NEMA 4 rated.
- b. Body and cover: Sheet steel finished with rust inhibiting primer and manufacturers standard paint inside and out.
- c. No knockouts, external mounting flanges, hinged and gasketed door.
- d. Front operating handle padlockable in the OFF position and interlocked to prevent door from opening when breaker is ON.
- e. Suitable for service entrance.

**3. Molded Case Type Circuit Breaker.**

**a. General.**

- 1) Standards: NEMA AB1, UL 489,
- 2) Unit construction.
- 3) Over-center, toggle hand operated.
- 4) Quick make, quick-break, independent of toggle handle operation.
- 5) Manual and automatic operation.
- 6) All poles to open and close simultaneously.
- 7) Three position handle: On, off, and tripped.
- 8) Molded-in ON and OFF markings on breaker cover.
- 9) One-, two-, or three-pole as indicated on the drawings.
- 10) Current and interrupting ratings as indicated on the Drawings.
- 11) Bolt-on type.

**b. Thermal magnetic type.**

- 1) Inverse time overload and instantaneous short circuit protection by means of a thermal magnetic element.

- 2) Frame size 200A and below, non-interchangeable, non-adjustable thermal magnetic trip units.

4. Standards: UL 489.

### **C. Safety Switches.**

#### **1. Acceptable Manufacturers.**

- a. Cutler Hammer.
- b. Square D.

#### **2. General.**

- a. Non-fusible.
- b. Suitable for service entrance when required.
- c. NEMA Type HD heavy-duty construction..
- d. Switch blades will be fully visible in the OFF position when the enclosure door is open.
- e. Quick-make/quick-break operating mechanism.
- f. Deionizing arc chutes.
- g. Manufacturer double-break rotary action shaft and switchblade as one (1) common component.
- h. Clear line shields to prevent accidental contact with terminals.
- i. Operating handle:
  - 1) Red and easily recognizable.
  - 2) Padlockable in the OFF position.
  - 3) Interlocked to prevent door from opening when the switch is in the ON position with a defeater mechanism.
- j. Ratings:
  - 1) Voltage and amperage: As indicated on the drawings.
  - 2) Short circuit withstand: 10,000A.
- k. Accessories to be provided as required:
  - 1) Neutral kits
  - 2) Ground lug kits.
- l. NEMA 4 rated body and cover: Sheet steel finished with rust inhibiting primer and manufacturers standard paint inside and out.
- m. Standards: NEMA KS 1, UL 98.

### **D. Wire.**

#### **1. Building Wire.**

- a. Conductors shall be copper with 600V rated insulation.
- b. Conductors shall be stranded.
- c. Surface mark with manufacturer's name or trademark, conductor size, insulation type, and UL label.
- d. Conform to NEMA/ICEA WC 70/S-95-658 AND UL 44 for type XHHW-2 insulation.

#### **2. Wire Connectors.**

- a. **Twist/screw on type.**
  - 1) Insulated pressure or spring type solderless connector.
  - 2) 600 V rated.
  - 3) Ground conductors: Conform to UL 486C and/or UL 467 when required by local codes.
  - 4) Phase and neutral conductors: Conform to UL 486C.
- b. **Compression and mechanical screw type.**
  - 1) 600 V rated.
  - 2) Ground conductors: Conform to UL 467.
  - 3) Phase and neutral conductors: Conform to UL486A.

**c. Terminal block type.**

- 1) High density, screw-post barrier-type with white center marker strip.
- 2) 600 V and ampere rating as required, for power circuits.
- 3) 600V, 20 ampere rated for control circuits.
- 4) 300 V, 15 ampere rated for instrumentation circuit.
- 5) Conform to NEMA ICS 4 and UL 486A.

**3. Insulating and Color Coding Tape.**

- a. Pressure sensitive vinyl.
- b. Premium grade.
- c. Heat, cold, moisture, and sunlight resistant.
- d. Thickness, depending on use conditions: 7, 8.5, or 10 mil.
- e. Tape must be all weather.
- f. Color:
  - 1) Insulating tape: Black.
  - 2) Color coding tape: Fade-resistant color as specified herein.
- g. Comply with UL 510.

**4. Pulling Lubricant.**

Cable manufacturer's standard containing no petroleum or other products which will deteriorate insulation.

**E. Pull and Junction Boxes.**

**1. NEMA 4 rated enclosure.**

- a. Size as shown on plans.
- b. Body and cover: 14 GA steel finished with rust inhibiting primer and manufacturers standard paint inside and out.
- c. Seams continuously welded and ground smooth.
- d. No knockouts.
- e. External mounting flanges.
- f. Hinged or non-hinged cover held closed with stainless steel screws and clamps.
- g. Cover with oil-resistant gasket.

**2. Miscellaneous Accessories.**

- a. Weld nuts for mounting optional panels and terminal kits.
- b. Terminal blocks: Screw post barrier-type, rated 600 volt, and 20 ampere.

**3. Standards: NEMA 250, UL 50.**

**F. Conduit.**

**1. Rigid Galvanized Steel Conduit (RGS).**

- a. Mild steel with continuous welded seam.
- b. Metallic zinc applied by hot-dip galvanizing or electro-galvanizing.
- c. Threads galvanized after cutting.
- d. Internal coating: Baked lacquer, varnish, or enamel for smooth surface.
- e. Standards: NEMA/ANSI C80.1, UL 6.

**2. PVC-Coated Rigid Steel Conduit (PVC-RGS).**

- a. Nominal 40 mil Polyvinyl Chloride Exterior Coating:
  - 1) Coating: Bonded to hot-dipped galvanized rigid steel conduit conforming to NEMA/ANSI C80.1.
  - 2) The bond between the PVC coating and the conduit surface: Greater than the tensile strength of the coating.
- b. Nominal 2 mil, minimum, urethane interior coating.

- c. Urethane coating on threads.
  - d. Conduit: Epoxy prime coated prior to application of PVC and urethane coating.
  - e. Female Ends:
    - 1) Have a plastic sleeve extending a minimum of one pipe diameter or 2 inches, whichever is less beyond the opening.
    - 2) The inside diameter of the sleeve shall be the same as the outside diameter of the conduit to be used with it.
  - f. Standards: NEMA/ANSI C80.1, UL 6, NEMA RN 1.
- 3. Cable-In-Conduit.**
- a. Extruded from virgin High Density Polyethylene (HDPE) resin, in accordance to the requirements of ASTM D3350 with cell classification 345440C.
  - b. Stabilized against thermal and UV degradation.
  - c. Conduit to be of a continuous length, smooth walled with a low friction internal surface containing no welds or joints and coiled on a reel.
  - d. Dimensions: Schedule 40 or 80 or TC-7.
  - e. Suitable for the following installation methods: Direct bury, plow, directional bore, concrete encased, and pulling in existing conduit.
  - f. As indicated on the plans, the conduit to be provided pre-installed with cables: Cable type indicated on the plans and as specified herein.
  - g. Conduit color for power applications: Black.
  - h. Standards: ASTM D2447, ASTM D3350, ASTM D3485, UL 651B.

**G. Conduit Fittings, Fasteners, and Accessories.**

**1. Fittings for Use with RGS.**

- a. **Locknuts.**
  - 1) Threaded steel and malleable iron.
  - 2) Gasketed or non-gasketed.
  - 3) Grounding or non-grounding type.
- b. **Bushings.**
  - 1) Threaded, insulated metallic.
  - 2) Grounding and non-grounding type.
- c. Hubs: Threaded, insulated, and gasketed metallic for raintight connection.
- d. **Couplings.**
  - 1) Threaded straight type: Same material and finish as the conduit with which they are used on.
  - 2) Threadless type: Gland compression or self-threading type, concrete tight.
- e. Union: Threaded galvanized steel or zinc plated malleable iron.
- f. **Conduit bodies (ells and tees).**
  - 1) Body: Zinc plated cast iron or cast copper free aluminum with threaded hubs.
  - 2) Standard and mogul size.
  - 3) Cover:
    - a) Clip-on type with stainless steel screws.
    - b) Gasket or non-gasketed galvanized steel, zinc plated cast iron or cast copper free aluminum.
- g. **Service entrance head.**
  - 1) Malleable iron, galvanized steel or copper free aluminum.
  - 2) Insulated knockout cover for use with a variety of sizes and number of conductors.
- h. Standards: UL 467, UL 514B.

**2. Fittings for Use with PVC-RGS.**

The same material and construction as those fittings listed under paragraph "Fittings for Use with RGS" and coated as defined under paragraph "PVC Coated Rigid Steel Conduit (PVC-RGS)".

**3. Single Conduit Support Fasteners.**

- a. Zinc plated steel.
- b. Malleable iron.
- c. Steel protected with zinc phosphate and oil finish.

**H. Wood Poles.**

1. Acceptable species:
  - a. Southern yellow pine.
  - b. Western red cedar.
2. Conform to ATIS O5.1 except as modified herein.
3. Smoothly trimmed by machine.
4. Drilled and gaged per structure drawings for this Work prior to treatment.
5. Conform to AWPA U1 for pressure treatment.
6. Preservation shall be a oil type or water borne preservation conforming to AWPA P8 and AWPA P9, respectively.
7. Treatment shall meet penetration requirements of REA Specification DT-5C:PE-9 for Area 2 use.
8. Free from imperfections except as follows:
  - a. Deviation from straightness in short crook (any 5 foot section or less) not to exceed 2 inches.
  - b. Sweep (curvature from top to bottom):
    - 1) Where in one plane in one direction only, a straight line connecting center of butt with center of top shall not at any intermediate point pass through the external surface of the pole.
    - 2) Where in two planes, or in two directions in one plane, a straight line connecting the center of the butt with a center of the top shall not deviate from the centerline of the pole more than 1/4 diameter of the pole at the point of widest deviation.
  - c. Scars permitted per ATIS O5.1 provided:
    - 1) Depth of trimmed scar not more than 1 inch if pole diameter at the location of the scar is 10 inches or less.
    - 2) Depth of trimmed scar not more than 1/10 of the pole diameter at the location of scar, if such a diameter is more than 10 inches.
  - d. Spiral grain: No more than one complete twist of grain in any 16 foot length.

**I. Grounding Components.****1. Wire and Cable.**

- a. Bare conductors: Soft drawn, stranded copper meeting ASTM B8.
- b. Insulated conductors: Color coded green meeting wire specifications elsewhere in this specification.

**2. Ground Rods.**

- a. 3/4 inch by 10 feet.
- b. **Copperclad.**
  - 1) Heavy uniform coating of electrolytic copper molecularly bonded to a rigid steel core.
  - 2) Corrosion resistant bond between the copper and steel.
  - 3) Hard drawn for a scar-free resistance.

- 3. Grounding Clamps, Connectors, and Terminals.**
  - a. Mechanical type.**
    - 1) Standards: UL 467.
    - 2) High copper alloy content.
  - b. Compression type for interior locations.**
    - 1) Standards: UL 467.
    - 2) High copper content.
    - 3) Non-reversible.
    - 4) Terminals for connection to bus bars shall have two bolt holes.
- 4. Exothermic Weld Connections.**
  - a. Copper oxide reduction by aluminum process.
  - b. Molds properly sized for each application.

**120318.03 CONSTRUCTION.**

**A. Electrical Installations.**

1. Verify that field measurements are as shown on plans.
2. Verify that conditions are satisfactory for installation prior to starting work.
3. All electrical installations shall be in accordance with the applicable standards of ANSI, IEEE, NEC, NEMA, OSHA, and the Division of Labor of the applicable State in which the work is being performed, unless specified otherwise. Place the equipment accurately in position, level the equipment, properly assemble all equipment which requires assembling, including bus and incoming wires, and adjust and make ready for service the electrical equipment and material required by this Specification or as shown on the Contract Drawings. After the installation is complete, clean each piece of equipment to the satisfaction of the Engineer. All work shall be done in an orderly and workmanlike manner and shall present a neat appearance when completed.
4. The Engineer reserves the right to require minor changes in location of equipment without incurring additional cost.
5. Electrical equipment shall be properly installed, adjusted, connected, and tested by the Contractor before such equipment will be taken over by the Engineer for the operational service, unless the Contractor is specifically relieved from performing part of the work in writing by the Engineer. All circuits shall be checked for proper insulation resistance by a multi-voltage megohmmeter, and for continuity, grounds, and tightness of connections.
6. Pending continuity tests, all electrical circuits shall be tested for proper polarity via a standard polarity meter prior to equipment hand over and operational service. All shipping block of instruments and mechanisms shall be removed. All equipment shall be thoroughly cleaned inside and outside of all dirt, grease, grit, cable, and conductor strippings, metal filings, or any other foreign matter.
7. All items shall be properly cleaned and finished painted or touch-up painted, as required by the Engineer.
8. Identification markers and nameplates shall be properly and accurately installed by the Contractor.
9. The Engineer reserves the right to require minor changes in location of equipment



without incurring additional costs.

## **B. Installation.**

### **1. Raceways.**

#### **a. Field Bending and Cutting of Conduits:**

- 1) Utilize tools and equipment recommend by the manufacturer by the manufacturer of the conduit, designed for the purpose, and the conduit material to make all field bends and cuts.
  - 2) Do not reduce the internal diameter of the conduit when making conduit bends.
  - 3) Prepare tools and equipment to prevent damage to the PVC coating.
  - 4) Degrease threads after threading and apply a zinc rich paint.
  - 5) Debur interior and exterior after cutting.
- b. Make threads of conduit systems shall be coated with an electrically conductive anti-seize compound.
- c. The protective coating integrity of conduits, fittings, pull and junction boxes and accessories shall be maintained.
- 1) Repair galvanized compounds utilizing a zinc rich paint.
  - 2) Repair painted components utilize touch up paint provide by or approved by the manufacturer.
  - 3) Repair PVC coated components utilizing a patching compound, of the same material as the coating, provided by the manufacturer of the conduit, or a self-adhesive, highly conformable, cross-linked silicone composition strip, followed by a protective coating of vinyl tape, total nominal thickness of 40 mil.
  - 4) Repair surfaces which will be inaccessible after installation prior to installation.
- d. Remove moisture and debris from conduit before wire is pulled into place.
- 1) Pull mandrel with diameter nominally 1/4 inch smaller than the interior of the conduit, to remove obstructions.
  - 2) Swab conduit by pulling a clean, tight-fitting rag through the conduit.
  - 3) Tightly plug ends of conduit with tapered wood plugs or plastic inserts until wire is pulled.
- e. Only nylon or polyethylene rope shall be used to pull wire and cable in conduit system.
- f. In NEMA 4 rated enclosures terminate conduits with watertight, insulated, and gasketed hub and locknut.

### **2. Raceway Applications.**

- a. RGS conduit is permitted for above grade wet areas.
- b. Cable-In-Conduit (Schedule 40) is permitted for use in direct buried conduits.
- c. PVC-RGS is permitted for 90 degree elbows for transitions to above grade.

### **3. Underground Conduit.**

- a. Conduits shall be direct buried or bored at all locations.
- b. Underground conduit crossing at railyard tracks (existing or future):
  - 1) Where routed under existing tracks, conduits shall be bored.
    - a) Jacking/boring pits shall be located a minimum of thirty (30) feet from the centerline of the track and kept to the minimum size necessary.
    - b) A minimum depth of 5.5 feet below the base of rail shall be maintained.
  - 2) Where routed under future tracks (as shown on the plans), conduits shall be buried a minimum of 5.5 feet below grade and to 30 feet either side of the future tracks.
- c. At locations other than track crossings, conduits shall be buried a minimum depth of 36 inches.

### **4. Junction Boxes.**

- a. Install products in accordance with manufacturer's instructions.
- b. Fill unused punched-out, tapped, or threaded hub openings with insert plugs.
- c. Size boxes to accommodate quantity of conductors enclosed and quantity of conduits

- connected to the box.
- d. NEMA 4 rated enclosures at all locations.

**5. Grounding.**

- a. Size all grounding conductors and bonding jumpers in accordance with NFPA 70, Article 250, except where larger sizes are shown.
- b. Remove paint, rust, or other non-conducting material from contact surfaces before making ground connections.
- c. Do not splice grounding conductors except at ground rods.
- d. Install ground rods and grounding conductors in undisturbed soil.
  - 1) Provide excavation required for installation of ground rods and ground conductors.
  - 2) Use driving studs or suitable means to prevent damage to the threaded ends of sectional rods.
  - 3) Unless otherwise specified, connect conductors to ground rods with compressor type connectors or exothermic weld.
  - 4) Provide sufficient slack in grounding conductors to prevent conductor breakage during backfill or due to ground movement.
  - 5) Backfill excavation completely, thoroughly tamping to provide good contact between backfill materials and ground rods and conductors.
- e. Do not use exothermic welding if it will damage the structure the grounding conductor is being welded to.
- f. **Supplemental grounding system.**
  - 1) Provide the following grounding in addition to the equipment ground conductor supplied with the feeder conductors whether or not shown on the drawings.
  - 2) Equipment support rack and pedestals mounted outdoors.
    - a) Connect metallic structure to a ground rod.
    - b) Grounding conductor: No. 6 AWG minimum.

**6. Wiring.**

- a. Color Code All Wiring as Follows:

	<b>480 V, 208 V, 240/120 V, 208/120 V</b>	<b>480 V 480/277 V</b>
Phase 1	Black	Brown
Phase 2	Red	Orange
Phase 3	Blue	Yellow
Neutral	White	White or Gray

- b. Conductors No. 6 AWG and smaller: Insulated phase, neutral, ground conductors shall be identified by a continuous colored outer finish along its entire length.
- c. Install all wiring in raceway unless otherwise indicated on the Drawings.
- d. Splices and terminations for the following circuit types shall be made in junction and pull boxes using the indicated method:
  - 1) Twist/screw on type connectors for use on No. 8 and smaller wire
  - 2) Compression, mechanical screw, or terminal block or terminal strip type connectors for use on No. 6 AWG and larger wire.
- e. **Insulating Tape Usage.**
  - 1) For insulating connections of No. 8 AWG wire and smaller: 7 mil vinyl tape.
  - 2) For insulating splices and taps of No. 6 AWG or larger: 10 mil vinyl tape.
  - 3) For insulating connections made in cold weather or outdoor locations: 8.5 mil, all weather vinyl tape.
- f. Color Coding Tape Usage: For color coding of conductors.

**7. Testing.**

- a. Make all required tests to establish that the equipment has been properly installed in accordance with the Contract requirements. Upon completing the installation of each item, carefully inspect and check the equipment for correct and complete assembly of all parts and components in accordance with the manufacturer's drawings and instruction manuals and as directed by the Engineer.
- b. Furnish all electrical test equipment and all meters, instruments, and miscellaneous equipment and perform all work required or as directed by the Engineer to complete all test specified herein. In addition to tests specified elsewhere, perform ground system resistance tests, insulation resistance (megohmmeter) tests on all power cables and miscellaneous electrical equipment to include polarity testing of all electrical circuits.
- c. **Low Voltage Wiring and Equipment.**
  - 1) Tests shall be made using a 1000 volt DC megohmmeter and an appropriate polarity meter which has been approved by the Engineer.
  - 2) All feeders and branch circuits shall be tested for insulation and continuity. Each phase shall be insulation-tested to each other phase and to ground.
  - 3) Insulation resistance reading after 60 seconds of less than 2 megohms shall be cause for rejection of that device or a portion of the system. The suspected item or system element shall be replaced and retested at no cost to the Engineer.

**120318.04 METHOD OF MEASUREMENT.****A. Meter Poles.**

The Engineer will determine by count the quantity of service meter poles to be furnished and installed.

**B. Junction Boxes.**

The Engineer will determine by count the quantity of Junction Boxes to be furnished and installed.

**C. Electric Circuits.**

The Engineer will determine by measurement the quantity of electrical circuits in linear feet to be furnished and installed.

**120318.05 BASIS OF PAYMENT.****A. Meter Poles.**

For the quantity by count of meter poles, the Contractor shall be paid the contract unit price per unit. This payment shall be full compensation for materials and labor, including the wood pole, conduit system and conductors attached to pole, metering cabinet, non-fused disconnect switch, and service disconnect circuit breaker, in accordance with the contract documents.

**B. Junction Boxes.**

For the quantity by count of junction boxes, the Contractor shall be paid the contract unit price per unit. This payment shall be full compensation for material and labor, including the junction box, accessories, and associated mounting hardware and posts, in accordance with the contract documents.

**C. Electric Circuits.**

For the quantity by measurement of linear feet of electrical circuits, the Contractor shall be paid the contract unit price per linear foot. This payment shall be full compensation for material and labor, including the material, equipment, conduit, wiring, and excavation, in accordance with the contract documents.