

SECTION 01280 - INSTALL POWER AND COMMUNICATIONS

(Follow all instructions and make all edits with "Track Changes" turned on. This Section is not published in the Oregon Standard. If there are no instructions [purple text] above a subsection, paragraph, sentence, or bullet, then include it in the Project, unless the item(s) that are included in the subsection, paragraph, sentence, or bullet are not required on the Project and then they should be deleted. In general do not re-number or re-letter subsections when item(s) are deleted. Delete all purple text before preparing the final document. All other modifications to this Section will require ODOT Technical Resource and State Specifications Engineer approval.)

Section 01280, ~~which~~ is not a Standard Specification and is included in this Project by Special Provision.

Description

01280.00 Scope - In addition to the requirements of Section 01201 and Section 01210, this Work consists of providing power and communications to the cathodic protection (CP) cabinets:

01280.02 Submittals - Submit descriptions of Materials to be used according to 00150.37. Identify all relevant constituents and properties of each Material and the Specifications with ~~which~~ where it complies. Data published by the manufacturer is acceptable.

Submit detailed procedures for the Work of this Section according to 00150.37 at least 21 Calendar Days before the scheduled start of the Work. Include the manufacturer's specifications and operating instructions for all Equipment. Do not start this Work until written approval is received from the Engineer.

Submit stamped drawings detailing the electrical and telephone service according to 00150.35 at least 21 Days before installation.

Submit unstamped wiring as-built drawings according to 00150.37, showing the identification and labeling scheme for all wires and conduits within 30 Calendar Days of completing the Work.

Submit results of resistance-to-ground measurements at all ground rods according to 00150.37 within 7 Calendar Days of driving ground rods.

Materials

01280.10 Materials - Furnish Materials meeting the following requirements:

Conduit and Fittings	01201.15
Electrical Conductors	01201.18

01280.11 AC Power Cabinets - ~~Provide~~Furnish electrical cabinets fabricated from 14-gauge Type 316 stainless steel, with hardware fabricated from Type 316 stainless steel. ~~Provide~~Furnish in each cabinet a dead-front panel installed with slots cut for operating handles. Mount electrical Equipment on a false back. Ensure internal wiring of cabinets ~~shall be~~ performed by a UL listed facility. Supply mounting brackets and a padlock hasp with each cabinet.

Label the outside face of AC power cabinet doors with a permanent metallic sign reading "120/240 VOLT, CATHODIC PROTECTION" in letters 3/8 inch tall.

01280.12 Circuit Breakers - ~~Provide~~Furnish molded case, bolt-on type circuit breakers of ratings shown. ~~Provide~~Furnish main service panel breakers that are UL listed for the minimum interrupting rating shown. Permanently label all circuit breakers to indicate the circuit that the breaker controls.

01280.13 Cabinet Mounting Bolts - ~~Provide~~Furnish bolts ~~conforming~~according to ASTM F593 Group 2 Condition CW and nuts conforming to ASTM F594 Group 2 Condition CW.

01280.14 Meter Bases - ~~Furnish~~Provide NEMA 4X meter bases fabricated from 14 gauge Type 316 stainless steel, or enclose the meter base in a Type 316 stainless steel NEMA 4X cabinet. ~~Furnish~~Provide meter socket according to requirements of the electric Utility.

01280.15 Stainless Steel Screws - ~~Furnish~~Provide Type 316 stainless steel screws ~~according~~conforming to ASTM A193, Grade B8M, B8MA, B8M2, or B8M3, Class 1, 1A, 1D, or 2.

01280.16 Marking Tape - ~~Furnish~~Provide marking tape made of red polyethylene six inches wide and a minimum of four mils thick, continuously imprinted with the message "CAUTION BURIED ELECTRIC LINE".

01280.17 Grounding Electrodes - ~~Furnish~~Provide copper coated ground rods ~~according~~conforming to the NEC.

~~Furnish~~Provide bare stranded copper wire ~~according~~conforming to ASTM B8, of gauge(s) shown.

Labor

01280.31 Supervisor Qualifications - Supervise all Work included in this Section, except for excavation Work and pole installation, using an Oregon licensed electrician holding a General Supervising license.

Construction

(If using an existing electrical service, replace "electric Utility" with the electrician(s) who maintain the current service.)

01280.40 Electric Service - Provide electric service in the location shown. Coordinate the electric service installation with the electric Utility.

Install the meter according to the requirements of the electric Utility.

Any existing metered service belonging to the Agency is not available for the Contractor's use during construction.

01280.41 Excavation for Conduit - Provide trenches in the locations shown. Comply with Section 00290 and all regulations affecting the Regulated Work Area.

Perform all trench excavation, bedding and back-filling, according to Section 00405. Restore the surface according to Section 00495.

Permanently mark all underground conduit runs by placing a continuous run of underground marking tape six inches below the ground surface directly over the conduit between junction box and AC power cabinet locations.

Dispose of all waste materials according to 00290.20.

01280.42 Conduit and Fittings - Install conduit and fittings according to 01201.41.

01280.43 Grounding and Bonding - ~~Provide~~ Furnish two grounding electrodes at each AC power cabinet installation, unless shown otherwise. Connect the grounding electrodes together and to the electrical system using bare copper conductors. Ground all metal cabinets by connecting to the Equipment ground wire (green insulation). Do not connect the system neutral (white insulation) to the cabinet. Do not ground the negative terminal of the rectifier, the negative terminals of the remote monitoring system, or the rebar.

Drive ground rods perpendicular to the ground until the top of rod is six inches below finished grade. Verify that the resistance-to-ground of the ground rod complies with NEC requirements.

01280.44 Conductor Insulation Testing - Perform insulation integrity checks of all conductors, after installation of the conductor and before connecting each end. Use a 500-volt DC megger insulation tester to measure between conductors and to the grounded shield or ground. The installation is acceptable if the insulation resistance of each conductor within a conduit is five megohms or greater. Remove and replace all conductors in any conduit where an insulation resistance of less than five megohms is found.

Maintenance

01280.60 Electric and Communication Contacts -

(Provide the electric Utility name, contact name, telephone number, and location of nearest existing service)

The electric Utility is _____, contact name _____, telephone number _____. The nearest existing electric Utility service is located _____.

(For land line telephone service, list the communications Utility name, contact name, telephone number, and location of nearest existing service.)

The communications Utility is _____, contact name _____, telephone number _____. The nearest existing communications service is located _____.

Contact information for ODOT electricians is available from the Engineer.

(Delete “(and communications)” when cellular communications ~~will be~~ are used for the CP System. Delete all orange parentheses.)

The Agency will provide a service address and billing address for the permanent electric (and communications)service.

Measurement

01280.80 Measurement - No measurement of quantities will be made for Work performed under this Section.

Payment

01280.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract Lump Sum amount for the item "Install Power and Communications".

Payment will be payment in full for furnishing and placing all Materials, and for ~~furnishing~~ providing all Equipment, labor and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for:

- ~~t~~Inch excavation, bedding, and backfill
- ~~s~~Surface restoration
- ~~w~~Waste disposal