

SECTION 1300 LIGHTING

1301.0 DESCRIPTION

Lighting installation shall be performed in accordance with the provisions of the latest published edition of the MnDOT Standard Specifications, except as modified herein.

All materials must be domestically manufactured in the U.S.A.

1302.0 GENERAL

1302.1 WARRANTY AND DOCUMENTATION

All changes made by the Contractor during maintenance and warranty repair must be documented by the Contractor and maintained in a service logbook located at the City. The Contractor must also provide all warranties from the manufacturer for equipment and materials. The Contractor is responsible for all locates and facility maintenance during the construction period.

1302.2 PERMITS

The Contractor is responsible for all permits. Permits include, but are not limited to, City, County, State, and railroad permits that would be required to complete construction shown on the Plans. The Contractor shall be responsible for complying with all permit requirements and pay for permit costs. Final conduit location in the right-of-way will be determined when permits are issued.

All underground telecommunication and street lighting conduits, handholes, etc. shall be buried within City right-of-way unless placed within utility easements or placed on private property with the knowledge and permission of the property owner of the occupied property. Such wires, conduits, and etc. shall occupy a space within the designated right-of-way as assigned by the Engineer and the City of St. Louis Park.

1303.0 MATERIALS

1303.1 GENERAL

Contractor shall apply anti-seize lubricant to all bolts anytime a nut is removed for maintenance.

1303.2 SOURCE OF POWER RSC

Provide R.S.C. from the Source of Power (SOP) to the lighting service cabinet in accordance with MnDOT 3801.

1303.3 CONDUIT

All directionally drilled conduit or conduit placed under the road must be HDPE SDR 11 (OD 2.375" – ID 1.917" – wall thickness 0.216" – pull strength 3105 lbs).

All other conduit installation except what is listed in the paragraph above must be HDPE SDR 13.5 (O.D. 2.375" – ID 2.002" – wall thickness 0.176" – pull strength 2580 lbs).

1303.4 WIRING

The contractor must provide approved materials for the connection of electrical cables and conductors. Approved procedures and devices include the following:

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1. Contractor shall furnish and install one of the following wire connectors for all connections:
 - a. Burndy 1PL4-3 for three (3) connections
 - b. Burndy 1PL4-4 for four (4) connections
 - c. Burndy KS22 for ground wire connections
 - d. Burndy KS22 or 1PL for neutral wire connections
2. All internal wiring connections will be at the end of at least 16 inches of extra wiring that can be pulled through the access point at the bottom of the pole for future maintenance. The Contractor shall provide sufficient wiring at any location to meet this requirement.

1303.5 HANDHOLES

Emboss "St. Louis Park Lighting" on the cover for all lighting handholes.

1303.6 LIGHT FOUNDATION, DESIGN E MODIFIED

Provide and install a Light Foundation, Design E Modified at locations shown in the Plan.

Provide Light Foundation, Design E Modified in accordance with MnDOT 2545.3F and MnDOT Standard Plate 8127, except modify each Light Foundation, Design E Modified to fit the bolt circle specific to the light pole Manufacturer as detailed in the shop drawings.

1303.7 SERVICE CABINET

2545.2L is hereby deleted in its entirety and shall be replaced with the following:

The metered control service cabinet must be distributed by Povolny Specialties under the following part number:

POVS10108RW

See metered control service cabinet detail on electrical system plan sheet for specific component and dimensioning information.

The utility termination lugs are not required in the Xcel Energy service area.

1303.8 LIGHTING UNIT TYPE SPECIAL

Provide and install Lighting Unit Type Special per City Standard Plates ST-10 and ST 11.

Lighting Unit Type Special consists of the following:

1. Meet the applicable provisions of MnDOT 2545.2W.
2. AASHTO Breakaway Specifications.
3. Fabricated from stainless steel.
4. Designed for one inch anchor bolts in a four bolt cluster as shown on City Standard Plate ST-10.
5. As detailed in the Plan,
6. A 25-foot nominal luminaire mounting height,
7. Handhole on side of pole for access.

Provide a single mast arm unit base handhole access 90 degrees clockwise from the mast arm.

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1304.0 CONSTRUCTION REQUIREMENTS

1304.1 PRECAST CONCRETE LIGHTING FOUNDATION DESIGN E INSTALLATION REQUIREMENTS

Furnish and install Precast Light Foundations Design E and Design H in accordance with Standard Plates 8127 and 8128, 2545.3 F, and as follows:

1. Excavate a cylindrical 30 in to 36 in diameter drilled shaft into the ground with a 30 in or 36 in diameter earth auger bit.
 - (1.1) Use auger drilling equipment with adequate capacity, including power, torque, and down thrust to auger a 30 in to 36 in diameter cylindrical drilled shaft to the depth indicated in contract documents.
2. Level and firmly compact the bottom of the shaft so it is flat and horizontal while maintaining the required depth of the shaft.
3. Remove the forming tube from the precast foundation before placing the precast foundation in the shaft.
4. Center, set, and level the precast foundation in the shaft and maintain a 3 in minimum to a 6 in maximum continuous symmetrical annular void between the precast foundation and surrounding soil.
5. Before backfilling place in the annular void the ground rod electrode with the ground rod electrode conductor in accordance with contract documents.
6. Completely backfill the annular void between precast foundation and the surrounding soil of the shaft with firmly compacted fine filter aggregate in accordance with 3149.2J.2.
 - (6.1) Use a mechanical pole tamper to firmly compact each 6 in layer of fine filter aggregate to uniform density.
 - (6.2) Substitution of lean mix backfill per specification 2520 instead of fine filter aggregate is permitted.
 - (6.2.1) Protect the conduit stub out with end bell opening from lean mix backfill to ensure the end bell opening is accessible and the conduit is free of debris for the installation of direct buried lighting cable.
 - (6.2.2) After lean mix backfill has been poured and cured excavate the open trench for the direct buried lighting cable and install the direct buried lighting cable in the foundation.
7. Test and verify the compaction of the filtered aggregate backfill material around the precast foundations in accordance with 2105.3F.3 at a rate of one test per every 10 (ten) foundations with a minimum of two tests per project.

1304.2 LEVELING SHIMS

Furnish and install leveling shims when installing light poles on light foundations. Provide leveling shims in accordance with manufacturer's recommendations.

1304.3 CONDUIT

Conduit couplings shall be water and air tight, suitable for blowing fiber or pulling street lighting

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conductors. Conduit couplings shall be Comfits, made by Duraline, or approved equal. The Contractor shall confirm all conduits and couplings with the Engineer prior to ordering or installing materials. Pull ropes and locator wire shall be installed and left in place in each conduit installed.

Conduit shall be installed at a minimum depth of 30 inches. The Contractor shall comply with permit requirements that require deeper depths when crossing county roads, railroads, and state highways. The Contractor shall supply a warning/locator wire in each conduit for all future locates. Locator wire shall terminate in every handhole.

Conduit shall not be placed on top of, when placed parallel to, any in place water main, sanitary sewer line, storm sewer line, or gas line. There shall be a 5-foot separation from in place City or private utilities. All erosion control measures shall be placed prior to trenching activities to prevent sediment runoff from entering any storm sewer system.

1304.4 HANDHOLES

The Contractor shall confirm all handholes with the Engineer prior to ordering or installing materials.

1304.5 ELECTRICAL SERVICE

Coordinate the installation of Electrical Service, provide power to the service cabinets, and verify the actual work to be done and all associated costs.

Proposed source of power locations are identified in the Plan.

Fees for the "Application for Electrical Service" and payment to the Electric Utility for providing the electrical service connections is the responsibility of the Contractor.

Secure approval from the Engineer for any changes to the Electrical Service from the construction Plan.

No measurement is made of the various items that constitute Electrical Service, however this work is included as part of the project (the electrical service costs will not be paid for as part of the pay item). Provide the Engineer a copy of the invoice from the electric utility. Payment is the electric utility company invoice cost plus 10%. The payment is compensation in full for all costs incidental thereto, including, but not limited to, providing power to service cabinets, electric utility fees, Electric Utility Coordination, notifying the City of ownership details, and all materials and labor necessary to construct the Electrical Service.

1305.0 METHOD OF MEASUREMENT

Payment for construction of a lighting will be made as detailed in the method of measurement and as shown in the Contract Documents or detailed in the Special Conditions. All lighting must be installed in accordance with the applicable provisions of MnDOT 2471, MnDOT 2545, the current edition of the National Electric Code and construction plans.