12.10 PERMANENT LIGHTING

12.11 SHOP DRAWINGS

Specification Article 2523.03, B provides information on shop drawing requirements. This specification provides a lighting materials list and identifies whether shop drawings are required prior to ordering or installation. Incomplete or improperly assembled submittals will be returned for correction.

To secure uniform and effective operation of this requirement, the following procedure shall be used:

- Project engineer shall review with the contractor the lighting materials list in *Specification Article 2523.02, B, 2* to insure that shop drawings are submitted for all materials specified. Contractor and project engineer must be sure all materials are approved before installation.
- Contractor needs to promptly submit transmittal letter and required copies of specified shop drawings to project engineer. Project engineer shall submit all copies to Office of Traffic & Safety for review. Upon approval, Office of Traffic & Safety will retain one copy and send one copy to Office of Materials (two on tower lighting poles), one copy to District Materials Engineer (DME), and five copies to project engineer (four on tower lighting poles). Project engineer will retain two copies and send contractor the remainder. **If contractor desires additional copies, they must be submitted with the required copies.**
- Contractor shall inform supplier that all equipment must be suitably stamped, stenciled, or tagged for easy identification with descriptive markings or catalog numbers of drawings.

12.12 STAKING OF LIGHT POLE FOOTINGS

According to *Specification Article 2523.03, J* the lighting contractor is responsible to field verify the actual footing location and elevation to determine the correct mounting height for the luminaire. After the letting, the project engineer should contact the contractor to schedule a mutual field review of the lighting project to check the proposed footing locations. Footing elevations should be set so top of footing is approximately the same as adjacent foreslope elevation to minimize potential vehicle snagging.

To minimize footing elevation and location problems, the project engineer should provide appropriate preliminary survey information to the Office of Traffic & Safety during the project development process.

12.13 FOOTINGS FOR LIGHT POLES

Standard Road Plans RM-39 and RM-47 include details for concrete footing construction for light pole bases. Both include information regarding the technique to be used to tie horizontal and vertical reinforcing steel together.

12.14 WOOD POLES ON LIGHTING PROJECTS

Specification Article 2523.03, J and 4185.02, G indicate that wooden poles must meet the requirements as specified in ANSI Specification 05.1, Group D. Since wood poles are specified for temporary safety lighting installations and for control station installations on lighting projects, ANSI requirements are available in *Appendix 12-2.*

12.15 TESTING LIGHTING CIRCUITS

Specification Article 2523.03, U requires lighting contractor to test the system for insulation and ground resistance. Final acceptance of all lighting installations will be based on satisfactory results of electrical tests performed by the contractor and satisfactory completion of the 30 calendar day trial period. The lights are not to be energized “24/7” during this trial period, but rather controlled by the photocells.

12.16 PAYMENT FOR LIGHTING PROJECT ELECTRIC POWER

Specification Article 2523.03, A, 4 provides that "the contracting authority will be responsible for the cost of any electric power used during installation and testing of lighting equipment and prior to acceptance of the work..."

12.17 COMPLETION AND ACCEPTANCE

Upon completion and acceptance of a lighting project, the project engineer must furnish the appropriate area maintenance manager with an accurate set of "as built" plans and shop drawings of all component parts to facilitate maintenance of the lighting installation. As built plans should include resistance readings determined by the contractor and approved as satisfactory by the engineer.