

# TEO LIGHTING COMMITTEE MEETING MINUTES

## February 3, 2015

### Lighting Controls

Peter Skweres has sent out a preliminary specification for roadway lighting controls for manufacturers to review. The plan is to have a state contract in place for nodes and gateways by June 1 2015. There should be more than one manufacturer on the contract. It will be set up so Minnesota Cooperative Purchasing Venter (CPV) members can purchase product from the state contract.

CO Traffic will work on a Public Interest Finding (PIF) so the controls can be state supplied in the future.

### Equipment Pad – Supplemental Ground Rod

Locaters would like to see lighting designers add a note and show the supplemental ground rod in the lighting plan. Lighting designers present agreed they could include this in their plans. A symbol should be placed on the plan sheet at the cabinet and labeled “supplemental ground rod”. The actual installed location should be shown on the as-built plans.

### Standard Plates

Standard Plate 8105 is in the process of being removed. If there is a need to use this detail in the future contact CO Traffic. It will be kept on file, but will need updating if it is to be used.

Standard Plate 8106 should be used and shown on the plan for cabinets requiring equipment pads.

### LED Luminaire Update

LED luminaires are now the standard light source for MnDOT when designing new lighting plans.

OTST is currently trying to find a LED replacement for vertical mount luminaires that would cover 4 lanes without being tilted. The LED luminaires for roadway use mounted at 49 feet could be used as a replacement where 3 lane coverage is needed.

OTST is also working on finding a special luminaire to replace lighting along the 35W/94 corridor in downtown Minneapolis.

Districts can use 49 Foot luminaires with a 90 degree tenon adaptor when replacing vertical mount HPS luminaires that are installed on partial interchange lighting. The intent is to light the conflict areas at these locations, not to provide a full lighting system.

Recently a couple of manufacturers have come forward with LED high mast fixtures that may be adequate replacements for current high mast fixtures. OTST will continue to

develop a LED high mast specification and evaluate any luminaires that meet these new specifications. The Bridge Office has determined that 6 luminaires is the maximum amount of luminaires that should be used on a ring for a new tower lighting system.

A second LED underpass fixture has been submitted for approval to be included on MnDOT's APL. A complete formal review still needs to be completed including field installation of product samples.

#### Leveling Nut Installation Requirements

The leveling nuts on Design E and Design H foundations must be installed according to distances Millerbernd requires for installation. This is needed to achieve the Millerbernd base skirt gap of ½" min. to 1" maximum requirement.

The distances are:

Design E Foundation – 5/8" min. – 7/8" max. from bottom of leveling nut to the top of the foundation. Use the minimum distance when possible.

Design H Foundation – 1/8" min. – 5/8" max. from bottom of leveling nut to the top of the foundation. Use the minimum distance when possible.

The leveling nuts are required to be tightened as part of the bolt tightening procedure for all poles that require leveling nuts. It is nearly impossible to fit an open end wrench under the ½" – 1" gap under the base skirt (to tighten the leveling nuts) once the stainless steel pole has been installed. Because of this problem, Millerbernd is now making a 30 degree wrench that can reach the leveling nuts once the pole has been set. These wrenches can be purchased from Millerbernd.

Contractors and ESS Maintenance are required to install poles according to the bolt tightening procedure currently in the Lighting Special Provisions and soon to be in the 2016 Spec. Book (2545.3 H Light Pole Installation). All leveling nuts are required to be tightened with a wrench.

For steel poles (galvanized steel 6 bolt barrier poles, high mast light towers, signal mast arm poles) the clearance distances between the bottom of the leveling nut and top of the foundation is less than one bolt dia. of the foundation anchor rods. Exact verbiage in the 2016 spec. book is: "For steel poles, ensure the clearance between the bottom of the leveling nuts and the top of the foundation is less than one bolt dia." This language comes from the current edition of AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

Alex will provide this information in the Signal and Lighting Certification Classes. This will be included so as to educate contractors and construction inspectors about the Millerbernd and AASHTO pole installation requirements as well as the use of the Millerbernd 30 degree wrench on stainless steel light poles.

Linda Heath asked about acquiring Millerbernd 30 degree wrenches. Millerbernd will produce the 30 degree wrenches which can then be purchased by contractors and MnDOT ESS.

Eric Klute asked if the Millerbernd stainless steel pole installation instructions could be included in the shop drawings or at least be provided directly to the contractors to eliminate any confusion. Alex was going to check into it.

*Since the meeting, Alex spoke to Millerbernd and they have agreed to send out light pole installation instructions and wrench details with MnDOT orders.*

#### RLF Cabinet Detail

Mark Korwin-Kuczynski suggested that the supplemental ground rod shown in the top view of the RLF cabinet detail also be shown in the front view so it doesn't get missed. The TEO Lighting Committee agreed with his suggestion and the detail will get updated.

#### Aluminum Pole Bases (Grouting)

The Bridge Office has approved placing silicone in the gaps between the foundation and the frangible base for aluminum light poles. It is too difficult to use wire cloth on aluminum bases. Special Provisions will be changed to include language for using silicone to fill the gap to protect the pole base from rodent intrusion. The language will also address to not completely seal around the perimeter of the base and foundation and to only use silicone when shims have been used. Only gaps that are 1/4" or greater can be filled and some opening must remain along the base for drainage and air circulation.

#### Wire Mesh in Lighting Bases

Millerbernd now provides 4 – 3/16" dia. holes in the base plate of their steel poles for fastening wire mesh. No. 10 bolts are needed to help fasten the wire mesh to the base. This simplifies bonding of the stainless steel wire mesh to the pole to meet NEC bonding and grounding requirements.

#### Cell Library

Changes will be ongoing for the lighting cell library. Initial changes addressed key issues and line types are being worked on. For any changes or updates that district designers feel need immediate attention, contact Phil Stohr in CO Lighting.

#### Lighting Cabinet Artwork

The idea of putting artwork on a cabinet was brought up in the recent Signal TEO Committee Meeting. Lighting cabinets are now being considered for artwork. Jim Deans expressed concern that potential artwork would cover up MnDOT and NEC stickers as well as the photocell window. None of these can be covered up and the committee feels this concern needs to be addressed. The intent is not to encourage artwork, but to be prepared to address when requests come up.

#### Tower Light Base Splices

Al Espinoza expressed concerns about how the direct buried lighting cable and SO chord are spliced together in high mast tower bases. Al was concerned about single conductors being exposed and potential harm to people working inside of the access hole on these bases. Mike Posch and Clint McCullough will work on ways to insure a safer work area with these bases and make suggestions on how these terminations could or should be done differently.

#### PVC Coated RSC Conduit

All new bridge plans should be calling for PVC coated RSC conduit and expansion & deflection/expansion fittings. Expansion & deflection/expansion fittings encased in concrete should be wrapped with AASHTO M-153 sponge rubber expansion joint. These requirements will be in the new 2016 Spec. book.

#### Locator Balls

All new handholes and pulling vaults require locator balls. This requirement is presently in Special Provisions and will be in the 2016 Standard Specifications for Construction.

Jim Deans will send out a form to the district offices to determine who may need to order locating equipment specifically designed to find locator balls. Jim is attempting to find a funding source for this equipment.

#### Round Robin

Cindy Dittberner asked about getting Rest Area lighting replaced. Lighting for Rest Areas is either programmed and funded by the Safety Rest Area & Waysides Group (Rob Williams) or more often by the district office requesting it. District offices should work with Rob Williams either way to be sure that the lighting is coordinated with other potential Rest Area work and we get proper lighting design.

John Pedersen wondered if districts were using the As Built Pay Item 2011.601. The As-Built Group has decided that the Metro District will start using the As-Built Pay Item on all jobs at the start of the new fiscal year (July 1<sup>st</sup>). This spec would be inserted in the "S" portion of the specifications by whoever writes the division "S" portion of the special provisions

Robin Delage reported that his district (3) has used the As-Built Pay Item. Current language regarding GPS for As-Built will be removed from the Special Provisions Division SL when we are sure that Division S language is in place.

Alex Govrik asked the Districts present if they were requiring the Contractor to perform the Megohm Meter Test in accordance with 2545.3 K.1 Megohm Meter Test. Bruce Camitsch, from the Metro District, responded that he has required the Contractor to do it but in most cases the contractor does not perform the test. Some TEO members feel that Specifications should still require this test even though it is not always being done. The question arose as to why isn't this test always happening. A couple of reasons were given by Committee members. One, it is not practical to isolate conductors of branch circuits after the system has been completely installed. The second reason given was if a MnDOT representative is not there to witness the test

performed by the contractor, the contractor may just check off that it was done when it really wasn't done. Alex will revise the language in the Specifications and present it to the Districts to review at a later date.

Alex, along with others from CO Signals & Lighting, representatives from CO Soils, & CO Bridge, met with a manufacturer who has proposed using H-Base Design Steel Screw-in Foundations. This manufacturer is recommending helix type foundations be used for Design P, Design E, & Design H rather than the sharks tooth without the helix. According to the manufacturer at this meeting, helix foundations are easier to install properly and are more stable. This manufacturer will be providing more information on design and installation specifications and how they meet AASHTO requirements. CO Signals and Lighting will meet with this manufacturer in the near future once their specifications have been submitted and then reviewed. This manufacturer also said they will provide an onsite demo test at a location MnDOT chooses. John Pedersen mentioned he would like to see them do an installation on a steep slope. In some instances, foundations end up being installed on fairly steep slopes which can create problems. Alex will keep TEO Lighting Committee Members updated on this helix type foundation.

Alex also reported that new language in the Spec Book now requires the Contractor to maintain the lighting systems on projects even during authorized work suspensions. This has been approved by MnDOT OCIC Contract Administration. The new language will be published in the 2016 Spec Book and in Special Provisions.

Mark Korwin-Kuczynski asked if grounding lugs required for aluminum poles are the same that are used for steel poles. They are the same style, however the hole in the tang needs to be larger for aluminum poles because the stud is bigger on aluminum poles.

Mark also asked if 3" dia. conduit is acceptable for under roadway. Yes, it is acceptable.

Mark wanted to know if District projects were being done as itemized or lump sum projects. Districts present were doing projects by both methods. Either method is acceptable.