

GENERAL

The following sections discuss several pay items unique to a roadway lighting project and the standards used by VDOT in describing them.

LUMINAIRE PAY-ITEMS

- **Conventional:** also known as cobrahead luminaire. The conventional luminaire pay-item is designated as “LUMINAIRE – (lamp wattage) - H.P.S. ”.
- **Offset:** The offset fixture is typically mounted at the top of a pole without the need of a luminaire bracket arm. However, when placing a pair of offset luminaires on a single pole, a tenon will be needed to mount the fixtures. This tenon is incidental to the cost of the pole, and should be clearly described in the plan details (see [Appendix VA-4](#)). The offset luminaire pay-item is designated as “LUMINAIRE – (lamp wattage) - H.P.S. - OFFSET”.
- **High Mast Luminaire Assembly:** The high mast luminaire pay-item is a group or cluster of luminaires that are assembled on a single lifting ring. The pay-item designation is “HIGH MAST LUM. ASSEM. – (number of luminaires) – (lamp wattage) - H.P.S.”.

For example:

A high mast luminaire assembly including the mounting ring and 3, 400-Watt luminaires would read: HIGH MAST LUM. ASSEM. – 3 – 400 WATT – H.P.S.

LIGHTING POLE PAY ITEMS

- **Standard LP-1**, also known as a cobrahead or conventional lighting standard. The pay item description must include the luminaire mounting height and luminaire bracket arm length. The pay item includes provisions for a breakaway base, but it does not address any requirement for a transformer base. The following are sample pay items:
 - LIGHTING POLE LP-1 30'-4', requires a cobrahead light pole providing a 30-foot mounting height with a 4-foot luminaire bracket arm.
 - LIGHTING POLE LP-1 DUAL ARM 35'-4' & 6', requires a cobrahead light pole providing a 35-foot mounting height with two luminaire bracket arms; one, 4-foot arm and one, 6-foot arm.
- **Standard LP-2**, also known as an offset lighting standard. The pay item description must include the pole type. A list of VDOT standard pole types is available in the [VDOT Road and Bridge Standards, Section 1300](#). The pay item includes provisions for a breakaway base, but it does not address any requirement for a transformer base.

The following are sample offset pay items:

- LIGHTING POLE LP-2 TYPE E requires an offset light pole providing a pole length of approximately 33' to 37'.
- LIGHTING POLE LP-2 DUAL MOUNT TYPE F requires an offset light pole suitable for mounting two luminaires and providing a pole length of approximately 38' to 42'.
- **Standard LP-3**, also known as a high mast lighting standard. The pay item description must include the pole length (not luminaire mounting height). High mast lighting does not typically illuminate a single roadway surface, and thus, the pay item does not specify a luminaire mounting height. LP-3 poles do not include breakaway or transformer bases and must be protected from traffic if within the clear zone. A list of VDOT standard pole types is available in the [VDOT Road and Bridge Standards, Section 1300](#). The following is a sample pay item:

LIGHTING POLE LP-3 TYPE 2, requires a high mast pole length of 80 feet.

LP-2 POLE TYPE

The **LP-2 pole type** is determined from survey data and provides an approximate pole length to be used by the contractor for the purpose of bidding. To determine the pole type, the lighting designer must recognize the elevation of the roadway and the elevation of the pole foundation. For example:

Roadway elevation = 425.2 feet

Ground level elevation at the lighting pole foundation = 420.5 feet

Transformer base height = 1.5 feet

Luminaire mounting height = 35 feet

Required pole length = $425.2' - 420.5' - 1.5' + 35' = 38.2$ feet

Pole Type: "F"

The actual pole length installed by the contractor, however, must be determined from field measurement.

THE HIGH MAST LIGHTING POLE FOUNDATION

The contractor will provide the design of the high mast pole foundation. The requirements for the structure and test bore are covered in [VDOT Road and Bridge Specifications, Section 700](#). The lighting designer must note the requirement for a test bore and 4 cubic yards of concrete at each pole location. (The 4 cubic yards of concrete is an estimated quantity. The final quantity will be based on the contractor's test bore results and his foundation design).

For example:

Plan Sheet #4 requires three (3), LIGHTING POLE LP-3 TYPE 2. The plan sheet should clearly state, "3 TEST BORES REQUIRED". The Summary of Quantities Sheet should include:

CONC. FOUND. HIGH MAST LIGHT. POLE: 12 C.Y.
TEST BORE: 3 EA.