

808-T-242 PAVEMENT MARKING QUALITY ASSURANCE

(Adopted 10-17-24)

The Standard Specifications are revised as follows:

SECTION 808, BEGIN LINE 45, INSERT AS FOLLOWS:

Control points required as a guide for pavement traffic markings *or groovings* shall be spotted with paint for the full length of the road *prior to being permanently marked or grooved*. Control points along tangent sections shall be spaced at a maximum interval of 100 ft. Control points along curve sections shall be spaced ~~so as to~~ ensure the accurate location of the pavement traffic markings *or groovings*. The location of control points will be subject to approval prior to the pavement traffic marking *or grooving* applications.

SECTION 808, BEGIN LINE 203, DELETE AND INSERT AS FOLLOWS:

3. Dry retro-reflectivity. Contracts with 50,000 lft or more of longitudinal paint line or 10,000 lft or more for ~~each type of thermoplastic or 10,000 lft or more for multi-component~~ longitudinal durable marking line applied shall have retro-reflectivity measured, except black markings and markings placed on seal coat pavements placed in accordance with 404. Longitudinal lines shall meet required minimum initial and retained average retro-reflectivity measurements.

Quality adjustments will apply to preformed plastic longitudinal lines should the Department decide to test for initial retro-reflectivity. All other contracts and markings, except parking lines, shall meet the required longitudinal line minimum measurements and will be measured by the Department at the discretion of the Engineer, except that quality adjustments will not apply. Retained retro-reflectivity is the value at the time of the warranty expiration in accordance with 808.09 and will be measured by the Department at the discretion of the Engineer.

4. Wet retro-reflectivity. Contracts with longitudinal durable marking line applied *on the state highway system* shall meet the required longitudinal line minimum measurements for initial wet retro-reflectivity and will be measured by the Department in accordance with ASTM E2177 at the discretion of the Engineer. The testing period will be not less than 14 days to not more than 30 days after the durable longitudinal lines are applied. The initial wet recovery retro-reflectivity for white markings shall exceed 275 mcd/m²/lx and yellow shall exceed 175 mcd/m²/lx. Sampling zones that do not meet these wet retro-reflectivity levels for white or yellow markings shall be replaced or receive an additional layer of durable marking material and ~~supplemental elements~~ *wet reflective optics* at no additional cost.

SECTION 808, BEGIN LINE 318, DELETE AND INSERT AS FOLLOWS:

1. Grooving for Durable Pavement Markings

a. Application

The pavement shall be grooved prior to the placement of longitudinal durable pavement markings, excluding bridge decks and approach slabs. *The location of the groove or recess will be subject to approval and shall be established by any of the following methods: by control points in accordance with 808.03, by placing a guide line using paint without glass beads as a template for the grooving operation, from temporary markings placed in the final pattern, from an automated layout and restriping system, by use of the adjacent longitudinal joint with approval from the Engineer, or by written documentation from the District Traffic Engineer in accordance with 808.01. The groove shall be installed in a single pass using dry cut equipment that utilizes gang-stacked diamond or polycrystalline diamond cutting blades and/or a blade type that is approved by the pavement marking manufacturer. If there are no markings on the pavement, a guide line shall be placed using paint without glass beads as a template for the grooving operation.* The groove shall be at least 1 in. and no more than 2 in. wider than the pavement marking to be placed.

The Contractor may leave a gap in the grooving for longitudinal lines that delineate the radii of lane usage transitions, driveways, intersections, or adjacent to curb that does not have a curb offset to the marking of at least 12 in. *The circulatory roadway of a roundabout intersection shall be considered an intersection. Grooving of longitudinal lines on loop ramps with a radius of less than 100 ft may also be omitted.*

The depth of the groove shall be in accordance with the manufacturer's recommendations and shall be at minimum 5 mils greater than the thickness of the marking material including exposed glass beads, ~~up to maximum allowable depth of 150 mils and a maximum of 25 mils greater than the thickness of the marking material including exposed glass beads.~~ A continuous groove shall not be allowed for broken or dotted lane lines. The groove may extend up to 3 in. at either end of a lane line. Grooves shall be no closer than 2 in. to the edge of a longitudinal joint. *The groove depth shall be measured with a micrometer depth gauge or depth plate a minimum of every 2,600 ft during installation to verify the groove cutter alignment is stable and the groove depth is correct. The Contractor shall send a copy of the groove depth measurements to the Engineer.*

b. Groove Finish and Cleaning

The grooved surface shall be cleaned with vacuuming equipment immediately following the grooving operation. ~~The surface shall be clean and dry prior to pavement marking installation.~~ The finished groove surface shall have a *smooth or fine corduroy-like appearance with a maximum variation in depth of 10 mils. The surface shall be clean and dry prior to pavement marking installation.*

2. Thermoplastic

a. Application

Thermoplastic marking shall be applied in molten form by conventional extrusion, by ribbon type extrusion, or spray when the pavement and ambient air temperatures are 50°F and rising. Heat bonded preformed thermoplastic may be used for transverse or message markings. The average final thickness of the thermoplastic marking shall be no less than 90 mils and no more than 125 mils. Immediately following the application of the

thermoplastic markings, retro-reflectorization shall be provided by applying pavement marking beads to the surface of the molten material. ~~A first drop of supplemental elements~~For longitudinal markings on the state highway system, pavement marking beads shall be from the QPL and shall be applied in accordance with the manufacturer's recommendations ~~and a second drop of standard, modified standard, or supplemental beads in accordance with the manufacturer's recommendations~~to meet both dry and wet retro-reflectivity requirements. Other markings shall be retro-reflectorized with pavement marking beads applied to the molten material at a uniform minimum rate of 8 lb/100 sq ft of marking. Individual passes of markings shall not overlap or be separated by gaps greater than 1/4 in. longitudinally.

SECTION 808, BEGIN LINE 389, DELETE AND INSERT AS FOLLOWS:

3. Preformed Plastic

a. Application

The markings shall be applied by technicians certified by the manufacturer. The markings shall be applied when the *pavement and ambient* air temperature is a minimum of 40°F and rising *and at least 24 hours since the last rain event*. A primer is required if the ambient air *or pavement* temperature is below 50°F *or the location is not an interstate, freeway, or expressway*. The ~~pavement surface shall be primed with a binder material~~primer shall be applied in accordance with the *preformed plastic* manufacturer's recommendations.

SECTION 808, BEGIN LINE 405, DELETE AND INSERT AS FOLLOWS:

4. Multi-Component

a. Application

This material shall be applied only when the pavement and ambient air temperatures are 40°F and rising. The wet film thickness of the marking material shall be a minimum of 25 mils. Immediately following the application of the markings, reflectorization shall be provided by applying pavement marking beads to the surface of the wet marking. ~~A first drop of supplemental elements~~For longitudinal markings on the state highway system, all pavement marking beads shall be from the QPL and shall be applied in accordance with the manufacturer's recommendations *to meet both dry and wet retro-reflectivity requirements* ~~and a second drop of standard, modified standard, or supplemental beads in accordance with the manufacturer's recommendations~~. Other markings shall be retro-reflectorized with pavement marking beads applied to the surface of the wet marking at a uniform minimum rate of 20 lb/gal. of marking.

SECTION 808, BEGIN LINE 531, DELETE AND INSERT AS FOLLOWS:

If more than ~~5%~~3% of a unit or ~~5%~~3% of the total fails, the failed portion shall be replaced. All pavement markings required to be replaced under the terms of this warranty shall be replaced within 60 days of the notification of failure.

808.10 Removal of Pavement Markings

Pavement markings which conflict with revised traffic patterns and may confuse motorists shall be removed immediately before, or immediately following, any change in traffic patterns as directed or approved.

Removal of pavement markings shall be to the fullest extent possible without materially damaging the pavement surface. Pavement marking removal ~~methods shall be sandblasting, steel shot blasting, by self-propelled truck-mounted removal equipment approved by the Engineer, a hand cart equivalent, or by waterblasting, grinding, or other approved mechanical means.~~ Grooving will not be allowed. Grinding will only be allowed under the following conditions:

- (a) when removing durable pavement markings, or
- (b) when removing non-durable markings where another course of material is to be placed on the existing course.

Painting over existing pavement markings to obliterate them will not be allowed.

The removal equipment shall be capable of eliminating airborne dust while operating and of continuously vacuuming up the debris. If the debris generated during the removal process is greater than the vacuuming capability of the removal truck, or if a hand cart is used, a self-propelled sweeper operating behind the removal truck or hand cart shall be used so that all debris is immediately removed. When a blast method is used to remove pavement markings, the residue, including sand, dust and marking material, shall be vacuumed concurrently with the blasting operation or removed by other approved methods. Accumulation of sand, dust or other residual material, which might interfere with drainage or constitute a traffic hazard, will not be allowed.

All damage to the pavement caused by pavement marking removal shall be repaired by approved methods with no additional payment.