

NOTE TO REVIEWER: The following language REPLACES its respective language in the version of the NJTA 2004 Standard Supplementary Specifications which existed prior to the issuance of this DCA.

[Include the following with contracts involving pavement striping:]

❖ SECTION 516 - PAVEMENT STRIPES AND MARKINGS

516.01 DESCRIPTION.

This Subsection is deleted in its entirety and replaced with the following:

This work shall consist of striping or painting bituminous or concrete surface courses with the following materials, in accordance with the Contract documents: extruded or preformed thermoplastic traffic stripes and markings, epoxy resin traffic stripes or markings, latex traffic paint, pliant polymer rubber preformed traffic stripes or markings, and the application of glass beads when applicable. Unless otherwise indicated in the Contract documents, the type of material for traffic stripes and markings shall follow this table:

Standard Striping Materials & Procedures	
Roadway	Material/Procedure
Permanent Striping	
NJTA Surfaced Roadways	<i>Thermoplastic.</i>
NJTA Unsurfaced Concrete Decks & Approaches, Shoulder/Solid Lines	<i>Epoxy Resin.</i>
NJTA Unsurfaced Concrete Decks & Approaches, Lane/Skip Lines.	<i>Preformed Contrast Marking Tape (Preferred) or Epoxy Resin Contrast Stripe (Designer to determine feasibility of Tape based on staging restrictions).</i>
NJDOT & Local Roadways, All.	<i>As required by Agency (i.e. Thermoplastic, Epoxy Resin)</i>
Temporary Striping	
All Roadways, Staged Construction For More Than 7 Days.	<i>Latex (Thermoplastic/Epoxy, As Directed By Engineer) Note: Latex Striping must be removed at all locations where Thermoplastic striping is going to be placed in the following stage</i>
On pavement under 24 hours old. Note: This is not measured for payment but considered incidental.	<i>Epoxy Resin or Latex</i>
All Roadways, Staged Construction For 7 Days Or Less.	<i>Removable Wet Weather Pavement Marking Tape.</i>
Striping Removal	
Striping On All Roadway Surfaces To Remain.	<i>Hydromilling</i>
Striping On All Roadway Surfaces To	<i>Mechanical (Grinding/Sandblasting.)</i>

Comment [DS1]: This table will no longer appear here once Standard Drawing PM-5 is re-issued.

Be Replaced/Repaved.	
Temporarily Covering Permanent Striping, Staged Construction For 15 Days Or Less.	<i>Removable Black Line Mask, 8" Wide or Black Paint (Not to be Applied Over Thermoplastic)</i>
As Directed By Engineer.	<i>Black Paint. (Not To Be Applied Over Thermoplastic.)</i>

- **"Traffic stripes"** is defined as the various widths and colors of lines used to designate lanes and shoulders on roadways.
- **"Traffic markings, lines"** is defined as the various types and materials for diagonal gore lines, crosswalks, stop lines, or other pavement lines not covered under "Traffic stripes."
- **"Traffic markings, symbols"** is defined as the various types and materials for words, arrows, or other pavement symbols.

The work also includes the placement and removal of temporary pavement stripes and markings. Temporary pavement stripes and markings may be latex, thermoplastic, epoxy resin, or removable wet weather pavement marking tape as shown on the Contract documents or as directed by the Engineer.

In addition, this work includes the removal of existing traffic stripes and markings consisting of the removal of white or yellow stripes or solid areas, letters, arrows, and other symbols from bituminous concrete and concrete bridge deck surfaces. Removal shall be, in accordance with the contract documents, via mechanical means (grinding or sandblasting) or hydromilling. The work shall also consist of any required placing of removable black line mask or black paint (only if specifically permitted) to cover existing stripes to be temporarily obliterated.

The work shall also consist of diamond grinding concrete bridge deck surfaces for contrast striping recessing and applying contrast stripes.

516.02 MATERIALS.

The following is removed:

TEMPORARY STRIPING 920.10

The following is added:

PREFORMED CONTRAST MARKING TAPE 913.05(H)
BLACK PAINT 913.05(G)
REMOVABLE WET WEATHER PAVEMENT MARKING TAPE 920.10

516.04 METHODS OF CONSTRUCTION.

(A) NEW PAVEMENT STRIPING.

The following is added after the eighth paragraph:

Methods of Construction for contrast striping shall be in accordance with 516.04(I).

The first sentence of the last paragraph is replaced with the following:

The Contractor shall apply latex traffic stripes or traffic markings to thoroughly dry surfaces and during dry weather when the ambient and surface temperatures are as specified for that particular material.

Delete subparagraph (2) in its entirety.

Rename Subparagraph (B) to "Long-Life Thermoplastic Traffic Markings and Stripes"

(B) LONG-LIFE THERMOPLASTIC TRAFFIC MARKINGS AND STRIPES.

(2) Extruded Thermoplastic

The following is added prior to the first paragraph:

Thermoplastic traffic markings and stripes shall not be placed on newly constructed pavement until the pavement is a minimum of twenty-four (24) hours old. Refer to 516.04(G) for temporary striping requirements on pavement less than twenty-four (24) hours old.

Delete Subparagraph (C) in its entirety. Redesignate Subparagraph (D) thru (K) as Subparagraphs (C) thru (I).

(C) LONG-LIFE EPOXY RESIN TRAFFIC STRIPES.

The following is added to the beginning of the subparagraph:

Methods of Construction for Epoxy Resin Contrast Stripes shall be in accordance with 516.04(I).

(F) REMOVAL OF PAINTED PAVEMENT STRIPES.

Replace the second sentence of the first paragraph with the following:

Obliterating stripes or markings by painting over them with black paint shall not be permitted except where specifically called for in the contract documents or as directed by the Engineer. Obliterating gore area markings with black paint will be permitted only as called for in the Plans or as directed by the Engineer.

Replace the sixth paragraph with the following:

The Contractor shall employ mechanical (grinding or sandblasting), hydromilling, or black line mask for obliterating painted stripes as shown on the Plans. Striping removal operations will not be permitted until the removal

method has been tested and approved by the Engineer.

Grinding or Sandblasting shall only be performed on pavement and concrete-wearing surfaces which are scheduled to be replaced.

Hydromilling shall be used in the removal of existing or temporary painted stripes on pavement and concrete-wearing surfaces which are scheduled to remain. This shall be performed by use of a high-pressure water jetting system such as the Starjet system manufactured by NLB Corporation, 159 Harmony Road; Mickleton, NJ; (856) 423-2211; or an approved equal. Hydromilling of painted striping shall be performed with a truck mounted mobile system and shall not damage the existing pavement. The area of removal includes the area of the stripe plus 1 inch on all sides. Hydromilling shall not be used when the temperature is 35°F and falling.

Replace the first and second sentence of the seventh paragraph with the following:

When **black painting** of existing painted lines is permitted, the existing lines shall be kept obliterated for the duration of the work under that stage. Black paint used for obliteration of existing epoxy or latex painted striping shall not be removed and new painted pavement striping will be installed over the black paint. Black paint shall not be used over existing Thermoplastic traffic striping.

The following is added to the eleventh paragraph:

Black Line Mask shall be used for temporary obliteration of existing pavement stripes for staged construction with durations of fifteen (15) days or less. Removable Black Line Mask shall not be overlapped. Only butt splices shall be used. Continuous runs shall be scored at 50 foot intervals.

Replace the twelfth paragraph with the following:

For lane shifts or traffic detours, when a portion or all of the right shoulder is to be used as a traffic lane, the Contractor shall obliterate existing pavement stripes as called for in the plans or as directed by the Engineer and place temporary striping. At the deceleration and acceleration lanes when a portion or all of the right shoulder is used as a traffic lane, the Contractor shall remove the pavement stripes delineating the auxiliary lane. Allowable hours for striping changes shall be as per the Traffic Manual. Upon completion of the work, the lanes shall be restriped in accordance with the details shown on the Standard Drawings, unless shown differently on the contract plans.

(G) TEMPORARY PAVEMENT STRIPING.

Subparagraph is deleted in its entirety and replaced with the following:

Temporary pavement striping shall be provided by the Contractor when required per the Plans, provisions of Subsection 516.04(G), or when stripes or

markings are to be placed on intermediate pavement layers, or on new pavement less than twenty four (24) hours old, to be opened to traffic due to staged construction.

Temporary striping shall be applied in construction work areas, at the locations shown on the Plans, to clean dry surfaces in accordance with the manufacturer's recommendations and the required primer or a method approved by the Engineer.

The following types of temporary pavement striping shall be acceptable, adhering to the below conditions:

(1) Removable Wet Weather Pavement Marking Tape.

This shall be used for applications of seven (7) days or less.

Removable Wet Weather Pavement Marking Tape, meeting the requirements of Subsection 920.10, shall be installed at designated locations under the guidance and in the presence of the manufacturer's representative, in accordance with the manufacturer's recommendations. Primers, if required, shall be used to promote tape adhesion to the wearing surface in accordance with the tape manufacturer's recommendations. The tape shall be white or yellow and shall be installed in single or double lines, as designated.

Removable Wet Weather Pavement Marking Tape shall not be overlapped. Only butt splices shall be used and continuous runs of tape shall be scored at 50 foot intervals.

Tape shall be removed when no longer required for traffic control. Tape shall be removed manually, intact or in large pieces, by scraping if necessary, without the use of solvents, burning, grinding, or sand/shot blasting.

(2) Latex Traffic Paint.

This may be used for applications that will remain in place for longer than seven (7) days.

(3) Thermoplastic Paint.

This may be used in lieu of latex traffic paint, based on temperature constraints, as noted on the plans or as directed by the Engineer.

Temporary thermoplastic traffic stripes shall not be placed on newly constructed concrete decks until the decks are a minimum of 24 hours old. Thermoplastic Paint shall not be placed on top of latex traffic paint.

(4) Epoxy Resin Paint.

This may be used in lieu of latex traffic paint, based on temperature constraints, as noted on the plans or as directed by the Engineer.

Prior to reopening the lanes to traffic, lane lines shall be reestablished with temporary pavement striping on all newly paved areas less than twenty four (24)

hours old. Temporary pavement striping must be maintained in a serviceable condition in accordance with the various provisions contained herein and subject to the satisfaction of the Engineer until such time as the permanent traffic striping is constructed.

(H) REMOVAL OF DEFECTIVE TRAFFIC STRIPES.

The following is added:

The contractor must, at all times, have immediately available in his yard an amount of replacement tape equal to the tape applied and be prepared to respond within two hours to close lanes, and repair/replace tape that has become damaged.

Removable Wet Weather Pavement Marking Tape that has become damaged, and is no longer serviceable, in the sole opinion of the Engineer, shall be replaced immediately. Damaged tape that is not replaced immediately may be replaced by the Authority and the costs shall be charged to the Contractor in accordance with Subsection 106.23.

The following Subparagraph is added:

(I) CONTRAST STRIPING.

Diamond grinding shall be performed to prepare the concrete deck surface for the contrast striping. The transverse deck grooving shall be completed before the diamond grinding. Equipment shall include a free-floating cutting or grinding head to provide a consistent recess depth over irregular pavement surfaces. The grinding or cutting head shall be equipped with diamond saw blades. Diamond saw blades shall be used on the cutting head to provide a smooth surface in the bottom of the recess. Immediately prior to the application of the contrast striping, the recess shall be cleaned with high-pressure air to remove debris and dust generated during the cutting operation. The groove must be clean and dry for proper application of the contrast striping. Refer to the manufacturer's technical specifications for recess cleaning and dry time prior to product application.

The recess dimensions are as follows:

1. Width. The recess shall exceed the width of the marking material by 1 inch.
2. Depth. 100 mils \pm 10 mils.
3. Position. The edge of the recess shall be constructed a minimum of 2 inches from the edge of concrete joints.

The total stripe width (black stripe), from outer edge to outer edge shall be 9 inches. The white stripe shall be 6 inches wide. For epoxy resin contrast stripes, white paint shall be applied within 24 hours of black paint but not less than the minimum requirement as recommended by the epoxy resin manufacturer.

Existing striping shall be removed prior to application of contrast striping.

The type of contrast striping system (Epoxy Resin or Preformed Contrast Marking Tape) to be used shall be as noted on the Contract Plans.

(1) Preformed Contrast Marking Tape.

Apply P-50 adhesive per the manufacturer's recommendations.

Contrast striping tape and its application shall conform to the manufacturer's technical bulletins and specifications.

(2) Epoxy Resin Contrast Stripes.

Black epoxy resin contrast stripes shall be applied in the recess and applied 12 mil \pm 2 mils thick. Black aggregate shall be used to remove any sheen. Black contrast stripes shall dry completely before proceeding to the reflective media.

Contrast striping materials and application shall conform to the manufacturer's specifications.

Applied markings shall have a uniform 30 \pm 2 mils total thickness reflective media distributed across the width of the line. The markings shall have crisp distinct edges and clean cutoff at the end of each line.

All applied markings shall be protected from traffic and potential tracking while the epoxy cures. Markings may be saturated with glass beads to help prevent tracking.

The Contractor shall demonstrate to the Engineer the application of the broken white lines for a distance of 150 feet. The Engineer shall approve the test strip before the contractor continues striping operations.

516.05 MEASUREMENT.

NOTE TO DESIGNER: Remove each paragraph if that particular item is not included as part of this Contract.

Delete the second and third paragraphs in their entirety and replace with the following.

Temporary Pavement Striping will be measured by the length of Latex Traffic Paint which is applied. Thermoplastic Paint used as temporary pavement striping will be measured and paid under **Traffic Stripes, Long Life, Thermoplastic**. Epoxy Resin used as temporary pavement striping will be measured and paid under **Traffic Stripes, Long Life, Epoxy Resin**. Temporary pavement stripes which are replaced because of damage or excessive wear, as determined by the Engineer, will be measured for payment.

Removable Wet Weather Pavement Marking Tape will be measured by the linear foot based on a 6-inch wide strip.

Striping and Marking Removal, Hydromilling will be measured by the linear foot of permanent or temporary striping removed by hydromilling.

Striping and Marking Removal, Mechanical will be measured and paid by the linear foot of permanent or temporary striping removed by mechanical means (grinding or sandblasting).

Diamond Grinding will be measured by the total length of contrast striping tape or paint within the recess. The distance between the trailing and lead ends of the skip stripes that are not ground will not be measured for payment.

Preformed Contrast Marking Tape will be measured by the length of tape actually installed.

Epoxy Resin Contrast Stripes will be measured by the total length actually applied.

516.06 PAYMENT.

The following is removed:

PAY ITEM	PAY UNIT
Pavement Striping.....	Linear Foot
Pavement Striping, White, ____" Wide	Linear Foot
Pavement Striping, Yellow, ____" Wide	Linear Foot
Striping and Marking Removal.....	Linear Foot
Preformed Pavement Marking, White, 6 Inches Wide.....	Linear Foot
Preformed Pavement Marking, Yellow, 6 Inches Wide.....	Linear Foot
Temporary Pavement Marking, White, 6 Inches Wide.....	Linear Foot
Temporary Pavement Marking, Yellow, 6 Inches Wide.....	Linear Foot
Removable Black Line Mast, 8 Inches Wide.....	Linear Foot

The following is added:

PAY ITEM	PAY UNIT
Removable Wet Weather Pavement Marking Tape.....	Linear Foot
Diamond Grinding.....	Linear Foot
Preformed Contrast Marking Tape.....	Linear Foot
Epoxy Resin Contrast Stripe.....	Linear Foot
Striping and Marking Removal, Hydromilling.....	Linear Foot
Striping and Marking Removal, Mechanical.....	Linear Foot

Delete the first paragraph and replace it with the following:

No separate payment will be made for black traffic paint used to temporarily obliterate traffic stripes, but the costs thereof shall be included in the pay item(s) for the removal of striping.

Removable Wet Weather Pavement Marking Tape that has become damaged and is no longer serviceable shall be replaced immediately without additional compensation and will not be measured for payment. Tape that is damaged by construction operations shall also be replaced immediately without additional compensation and will not be

measured for payment. Damaged tape, not replaced immediately, may be replaced by the Authority and the costs shall be charged to the Contractor in accordance with Subsection 106.23.

No separate payment will be made for the removal of **Removable Wet Weather Pavement Marking Tape** or **Removable Black Line Mask, 8" Wide**, but the costs thereof shall be included in their respective pay items for application.

Temporary pavement striping constructed on new pavement less than twenty four (24) hours old, necessary to re-open a staged work area to traffic, shall not be measured for payment but shall be considered incidental to the placement of pavement.

[Include the following with bridge deck repair contracts that have local roads requiring MPT due to contract work:]

No separate payment will be made for the placement and removal of the temporary pavement striping or the placement of permanent striping at Structure No. **[insert Structure No.]**. All costs thereof shall be included in the price bid for the item "Maintenance and Protection of Traffic on Location No. __ (Structure No. **[insert Structure No.]**)."

NOTE TO REVIEWER: *Highlighted, italicized text* indicates REVISIONS to the version of the NJTA 2004 Standard Supplementary Specifications which existed prior to the issuance of this DCA.

SECTION 913 - PAINTS AND COATINGS

913.05 TRAFFIC PAINT AND MARKINGS.

Paragraph 913.05(B) is deleted in its entirety.

Include the following for contracts using contrast stripes (Epoxy Resin only)

(C) Epoxy Resin

The following added to the beginning of the Subparagraph:

White epoxy resin compound to be placed on black epoxy resin compound stripes on the bridge deck surface (for broken white lines) shall be Epoplex GLOMARC 50 (Epoplex, 1 Park Avenue, Maple Shade, NJ 08052 800-822-6920, <http://www.epoplex.com>). White epoxy resin for other uses shall be as listed in the remaining portions of this subparagraph.

Replace the reference of 516.03(I) to 516.03 (G) in the second paragraph.

Add subparagraph number (1) before the Section titled "Physical Properties of Mixed Compound"

(b) Color

The following is added:

The black epoxy resin compound, when applied in a wet film thickness of 20 ± 1 mils and allowed to cure, shall match color chip No. 37038 of FED-STD-595B.

Renumber subparagraph (6) of the section titled "Epoxy Composition" to number (2)

(2) Epoxy Composition

The following is added:

Black epoxy resin is to be applied with black aggregate to remove any sheen.

The following is added to the Pigment Composition Table:

Pigment Composition	Percent By Weight	
	Minimum	Maximum
Black:		
Epoxy Resin	79%	
Black Pigment	21%	

(a) Epoxy Content (Component A).

The following is added:

The epoxy content of the epoxy resin shall be tested in accordance with

ASTM D 1652 and calculated as the weight per epoxy equivalent (WPE) for white and black.

Renumber subparagraph (7) of the section titled "Sampling and Certified Analysis" to number (3)

Renumber subparagraph (8) of the section titled "Containers and Shipments" to number (4)

(E) Glass Beads

Revise the subsection reference of 990.06 to 990.10 in the second sentence of the first paragraph.

The following is added:

(7) Specific Requirements for Epoxy Resin Contrast Stripes

Glass beads for Epoxy Resin Contrast Stripes shall meet the following requirements:

- The large glass beads shall be VISIMAX as manufactured by Epoplex, Maple Shade, New Jersey. Drop rates to be 8 lbs. per gallon or as directed by the manufacturer.
- The small glass beads shall conform to the AASHTO M-247 Type 1 Specification. Drop rates to be 8 lbs. per gallon or as directed by the manufacturer.

Glass beads required for other uses shall be as listed in the remaining portions of this subparagraph.

Include the following for contracts using contrast stripes (tape only)

The following **Paragraph** is added:

(H) PREFORMED CONTRAST STRIPING TAPE.

Preformed contrast tape to be placed on the bridge deck surface shall be Stamark High Performance All Weather Contrast Marking Tape Series 380AW-5 as manufactured by 3M, 3M Center, Building 235-3A-09, St. Paul, MN, 55144-1000, (800) 553-1380, www.3M.com/tss, 3M Stamark Surface Preparation Adhesive P-50 shall be used with the overlay tape installation