

ITEM 619.19050125 -

**WHITE PREFORMED WET RETRO-REFLECTIVE REMOVABLE
PAVEMENT MARKINGS**

ITEM 619.19060125 -

**YELLOW PREFORMED WET RETRO-REFLECTIVE REMOVABLE
PAVEMENT MARKINGS**

1. DESCRIPTION:

- 1.01 Under this item the contractor shall furnish, install and remove pavement markings as required by Subsection 619-3.06 of the Standard Specifications, and in accordance with the Contract Documents, the New York State Manual of Uniform Traffic Control Devices, or as ordered by the Engineer.
- 1.02 Pavement markings shall be 6 inches wide unless otherwise shown in the Plans or Proposal.

2. MATERIALS:

2.01 General Requirements:

- A. The preformed removable pavement markings shall consist of a highly reflective, enclosed lens white or yellow film with a thin, flexible conformable backing that is precoated with a pressure sensitive adhesive.
- B. The markings shall be precoated with a pressure sensitive adhesive and shall be capable of adhering to asphalt concrete or portland cement concrete at temperatures as low as 50°F in accordance with the manufacturer's recommendations. A surface preparation adhesive recommended by the manufacturer shall be used for all applications to improve initial and long term adhesion.
- C. The tape shall be capable of performing for the duration of a normal construction season. The markings shall be wet and dry reflective throughout their useful life.

2.02 Reflectance:

- A. The minimum initial coefficient of retroreflective luminance (R_L) shall be 750 (mcd/ft²)/ft for white markings and 450 (mcd/ft²)/ft for yellow markings under dry and wet conditions at 1.05° observation angle and 88.76° entrance angle.
- B. Retro-reflectance values under dry conditions shall be measured in accordance with ASTM D 4061. The angular aperture of both the photoreceptor and light projector shall be 6 minutes of arc. The reference center shall be the geometric center of the sample, and the reference axis shall be taken perpendicular to the test sample.
- C. Retro-reflectance values under wet conditions shall be measured in accordance with ASTM E 1710 using a portable retroreflectometer. Wet retroreflectance values measured under a "condition of continuous wetting (simulated rain)" shall be measured in accordance with ASTM E 2176. Retroreflectance values under a "condition of wetness" shall be measured in accordance with ASTM E 2177.

2.03 Physical Properties:

- A. **Color** - The x,y chromaticity coordinates for dry markings shall lie within the regions defined by the following corner points:

	x ₁	y ₁	x ₂	y ₂	x ₃	y ₃	x ₄	y ₄
White	0.355	0.355	0.305	0.305	0.285	0.325	0.335	0.375
Yellow	0.560	0.440	0.460	0.400	0.420	0.440	0.490	0.510

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2. MATERIALS: (cont'd)

2.03 Physical Properties: (cont'd)

- B. **Size** - Removable preformed pavement markings shall be of the specified size and shape shown in the contract documents. If details are not available in the contract documents, the size and shape shall conform to the applicable requirements of the MUTCD.

- 2.04 **Basis of Acceptance** - Approval of removable pavement markings shall be based on Engineering analysis for conformance to this specification. Field-testing may be required prior to use on an Authority project. Final approval shall be by the Authority's Office of Traffic Engineering.

3. CONSTRUCTION DETAILS:

3.01 General

- A. All pavement markings and patterns shall be placed as shown on the plans, or directed by the Engineer, and in accordance with the MUTCD.
- B. The application of pavement markings shall be done in the general direction of traffic.
- C. When required by the Engineer, the Contractor shall establish marking line points at 25 feet intervals throughout the length of pavement or as directed by the Engineer.

- 3.02 **Application of Pavement Markings:** All pavement marking materials shall be installed in accordance with the manufacturer's instructions.

- 3.03 **Maintenance of Pavement Markings:** The Contractor shall be responsible for the maintenance of temporary markings in the work zone. Any marking material that fails to provide for any reason, both satisfactory daytime and nighttime delineation shall be replaced immediately by the Contractor. The replacement of unsatisfactory pavement markings shall be as directed by and to the satisfaction of the Engineer and shall be performed at no expense to the Authority.

3.04 Removal of Pavement Markings

- A. All pavement markings shall be removed, intact or in large pieces, using manual methods or a mechanical roll-up device. The use of heat, solvents or other chemicals, grinders or blasters will not be allowed. After removal there shall be no resultant damage to, or permanent marks or scars on the pavement surface.
- B. Temporary marks that remain as a result of adhesive residues and that will eventually be worn from the pavement will be allowed to remain, providing that they are not left in a pattern that will mislead or misdirect the motorist. The Engineer shall be the sole determiner of misleading temporary marks.

- 3.05 **Damage of Pavement Surfaces:** Any damage to the finished pavement surface, or any permanent marks or scars on the finished pavement surface (including remaining pavement marking material), that result from the removal of pavement markings shall be repaired as directed by and to the satisfaction of the Engineer at no expense to the Authority. The Engineer shall be the sole determiner of satisfactory repair and may, at his discretion, require complete removal and/or replacement of the damaged pavement section.

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4. METHOD OF MEASUREMENT:

- 4.01 Pavement striping will be measured by linear feet along the centerline of the pavement stripe, and will be based on a 6 inches wide stripe. Measurement for striping with a plan width greater or less than the basic 6 inches as shown on the plans or as directed by the Engineer, will be made by the following method:

$$\frac{\text{Plan Width of Striping (Inches)} \times \text{Number of Feet}}{6 \text{ inches}}$$

- 4.02 No measurement will be made for the number of linear feet of gaps between broken and dotted line segments.

5. BASIS OF PAYMENT:

- 5.01 The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work.
- 5.02 The non-payment and Liquidated Damage provisions of §619-5 Basis of Payment-General shall apply to these items of work.
- 5.03 Progress payment will be made. Quantities will be measured for payment when the pavement striping is satisfactorily installed and payment will be 50%. The remaining 50% will be measured for payment following satisfactory removal of the pavement striping.