

# QPL 1: TRAFFIC CONTROL MATERIALS

## SECTION A: RAISED, SNOWPLOWABLE REFLECTIVE PAVEMENT MARKERS AND REPLACEMENT LENS

### GENERAL

This evaluation procedure outlines the Department's approval process for permanent and temporary raised pavement markers and for snowplowable pavement markers used for marking pavement lines for project and in work zones.

### SPECIFICATIONS

- TDOT Standard Specification 716 – Pavement Markings
- TDOT Standard Specification 919.05 – Snowplowable Pavement Markers
- TDOT Standard Specification 919.04 – Raised Pavement Markers
- AASHTO M 237 – Epoxy Resin Adhesives for Bonding Traffic Markers to Hardened Portland Cement and Asphalt Concrete
- ASTM D4280 – Standard Specification for Extended Life Type, Nonplowable, Raised Retroreflective Pavement Markers
- ASTM D4383 – Standard Specification for Plowable, Raised Retroreflective Pavement Markers
- ASTM E1696 – Standard Test Method for Field Measurement of Raised Retroreflective Pavement Markers Using a Portable Retroreflectometer
- NTPEP Review – <http://www.ntpep.org/Pages/RPM.aspx>

### PROCEDURES

A completed Product Evaluation Form, SDS (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Test. The Department bases product approval on a review of NTPEP data.

#### **Permanent and Temporary Raised Pavement Markers**

**Laboratory Evaluation** will follow ASTM D4280 – Standard Specification for Extended Life Type, Nonplowable, Raised Retroreflective Pavement Markers (compressive strength, lens impact strength, resistance to temperature cycling, coefficient of luminous intensity, flexural strength, and abrasion resistance). The Department's Research and Product Evaluation Section shall review the laboratory data.

**An epoxy resin adhesive meeting AASHTO M 237 must be used in the field evaluation and for permanent installations.**

**Field Observations** will be based on a rating scale from NTPEP for marker case condition, lens surface conditions, and night visibility. The following minimums shall be met after a six- and twelve-month evaluation is completed from a NTPEP test deck. The rating is the average of 100 markers (50 on concrete and 50 on asphalt) for each condition:

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<b>Housing Condition</b>	<b>≥ 2.5</b>
<b>Lens Surface Condition</b>	<b>≥ 2.5</b>
<b>Night Visibility</b>	<b>≥ 2.5</b>

<b>Marker Case Condition</b>	
<b>5</b>	Excellent, Completely intact, “Like New” condition
<b>4</b>	Good, Minor scrapes and scratches
<b>3</b>	Fair, Obvious damage but still functional
<b>2</b>	Poor, Major damage, marginally functional
<b>1</b>	Very Poor, Non-functional
<b>0</b>	Missing

<b>Lens Surface Condition</b>	
<b>5</b>	Excellent, Completely intact, “Like New” condition
<b>4</b>	Good, Minor scrapes and scratches
<b>3</b>	Fair, Some abrasions and scres
<b>2</b>	Poor, Scarring over large areas
<b>1</b>	Very Poor, Non-functional
<b>0</b>	Missing

## Snowplowable Pavement Markers

**Laboratory Evaluation** will follow ASTM D4383 – Standard Specification for Plowable, Raised Retroreflective Pavement Markers (coefficient of luminous intensity and abrasion resistance). The Department’s Research and Product Evaluation Section shall review the laboratory data.

**Field Observation** will be based on a rating scale from NTPEP for housing condition, lens surface, and night visibility. Evaluation of retroreflectivity is in accordance with ASTM E1696 – Standard Test Method for Field Measurement of Raised Retroreflective Pavement Markers Using a Portable Retroreflectometer. The following minimums shall be met after a six- and twelve-month evaluation is completed from a NTPEP test deck. The rating is the average of 100 markers (50 on concrete and 50 on asphalt) for each condition:

<b>Housing Condition</b>	<b>≥ 2.5</b>
<b>Lens Surface Condition</b>	<b>≥ 2.5</b>
<b>Night Visibility</b>	<b>≥ 2.5</b>

## Lens Replacement

Lens replacement will follow the procedures for the snowplowable markers; hence, a lens used in an approved snowplowable marker will be placed on the lens replacement list.

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Housing	
5	Excellent, Completely intact, In "Like New" condition, good adhesion
4	Good, Minor Scrapes/Scratches visible on close examination of surfaces
3	Fair, Some cuts but none larger than 10 mm
2	Poor, Some cuts larger than 10mm
1	Very Poor, Showing significant wear, no longer protecting reflector
0	Missing, or damaged beyond use

  

Lens Face Condition	
5	Excellent, Completely intact, In "Like New" condition
4	Good, Minor scrapes/scratches visible on close examination of surfaces
3	Fair, Some abrasions, none greater than 5 mm
2	Poor, Some large cuts/cracks/chips greater than 5 mm
1	Very Poor, Showing significant wear, significant discoloration
0	Missing, or damaged beyond use

  

Night Visibility	
5	Excellent, Completely intact, Bright, in "Like New" condition
4	Good, Clearly visible from greater than 100 m
3	Fair, Some loss in reflectivity, barely visible from 100 mm
2	Poor, Significant loss of reflectivity, visible from 50 mm
1	Very Poor, Significant loss of reflectivity, barely visible, discoloration
0	Missing, or totally non-reflective

ITEM NO.	PAY ITEM	PAY UNIT
716-01.05	TEMPORARY RAISED PAVEMENT MARKER	EACH
716-01.06	TEMPORARY RAISED PAVEMENT MARKER, WHITE	EACH
716-01.07	TEMPORARY RAISED PAVEMENT MARKER, YELLOW	EACH
716-01.10	SNOWPLOWABLE REFLECTIVE MARKER	EACH
716-01.11	RAISED PVMT MARKERS (BI-DIR. 1 COLOR)	EACH
716-01.12	RAISED PVMT MRKRS (MONO-DIR. 1 COLOR)	EACH
716-01.13	RAISED PVMT MARKERS (BI-DIR. 2 COLOR)	EACH
716-01.14	RAISED PAVEMENT MARKER REMOVAL	EACH
716-01.21	SNOWPLOWABLE RAISED REFLECTIVE MARKER (BI-DIR) (1 COLOR)	EACH
716-01.22	SNOWPLOWABLE RAISED REFLECTIVE MARKER (MONO-DIR) (1COLOR)	EACH
716-01.23	SNOWPLOWABLE RAISED REFLECTIVE MARKER (BI-DIR) (2 COLOR)	EACH
716-01.30	REMOVAL OF SNOWPLOWABLE REFLECTIVE MARKER	EACH
716-01.40	REMOVE AND REPLACE LENS ON SNOWPLOWABLE REFLECTIVE MARKER	EACH
716-01.50	INSTALL LENS FOR SNOWPLOWABLE RFLCTV MKR	EACH
716-01.60	INSTALL SNOWPLOWABLE REFLECTIVE MARKER	EACH
716-01.99	ROUND RAISED PAVEMENT MARKER	EACH

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## SECTION B: PREFORMED PLASTIC PAVEMENT MARKINGS

### GENERAL

This evaluation procedure outlines the Department's approval process for preformed plastic pavement markings used for marking pavement lines, dimensions, patterns, locations and other details shown on the plans.

### SPECIFICATIONS

- TDOT Standard Specification 716.06 – Preformed Plastic Pavement Markings
- TDOT Standard Specification 919.03 – Preformed Plastic Pavement Marking Materials
- MUTCD
- NTPEP Review – <http://www.ntpep.org/Pages/PMM.aspx>

### PROCEDURES

A completed Product Evaluation Form, SDS (if applicable), product data information, NTPEP data, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

#### Review of NTPEP Evaluation Data

- The product must have been submitted to one or more NTPEP evaluation decks in the past 5 years
- All products must be reevaluated or recertified every 7 years.
- The 6- and 12-month data are reviewed
- Retroreflectivity standards are shown in the table below:

Minimum Retroreflectivity (mcd)				
	6 Months		12 Months	
	Skip	Durability	Skip	Durability
White	350	10	250	8
Yellow	250	10	150	6

Products meeting the above requirements will be reviewed by the Department's Research and Product Evaluation Section for inclusion on the Qualified Products List.

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ITEM NO.	PAY ITEM	PAY UNIT
716-10.01	PREFORMED PLASTIC MARKING (4" LINE)	L.M.
716-10.02	PREFORMED PLASTIC MARKING (8" BARRIER LINE)	L.F.
716-10.03	PREFORMED PLASTIC PAVEMENT MKG (X-WALK)	L.F.
716-10.04	PRFMD PLS PVMT MKG (CHNLZTN STRIPING)	S.Y.
716-10.05	PREFORMED PLASTIC MARKING (TURN LANE ARROW)	EACH
716-10.06	PREFORMED PLASTIC MARKING (8" DOTTED LINE)	L.F.
716-10.07	PREFORMED PLASTIC MARKING (STOP LINE)	L.F.
716-10.08	PREFORMED PLASTIC MARKING (4" DOTTED LINE)	L.F.
716-10.09	PRFMD PLS PVMT MKG (TRANSVERSE SHOULDER)	L.F.
716-10.10	PREFORMED PLS PVMT MKG (EXIT ONLY ARROW)	EACH
716-10.11	PRFMD PLS PVMT MKG (OPTION LANE ARROW)	EACH
716-10.12	PREFORMED PLS PVMT MKG (WRONG WAY ARROW)	EACH
716-10.13	PREFORMED PLS PVMT MKG (H.O.V. DIAMOND)	EACH
716-10.14	PREFORMED PLASTIC PVMT MKG (BIKE LANE)	EACH
716-10.15	PREFORMED PLASTIC PVMT MKG (NO TRUCKS)	EACH
716-10.17	PREFORMED PLS PVMT MKG (LGTDL CROSSWALK)	L.F.
716-10.18	PREFORMED PLS PVMT MKG (STRAIGHT ARROW)	EACH
716-10.19	PRFMD PLS PVMT MKG (STRAIGHT TURN ARROW)	EACH
716-10.20	PREFORM PLASTIC PVM'T MARK. (RXR)	EACH
716-10.21	PREFORM PLASTIC PVM'T MARK (STOP AHEAD)	EACH
716-10.22	PREFORM PLTC PVMT MRKNG (YIELD LINE)	L.F.
716-10.23	PPPM 4IN LINE W/1.5IN BLACK SILHOUETTE	L.M.
716-10.24	WET NIGHT VISIBLE PVMT MKG (8"BARR LINE)	L.F.
716-10.25	WET NIGHT VISIBLE PVMT MKG (6" LINE)	L.M.
716-10.26	WET NIGHT VISIBLE MARKING (6"DOTTED LN)	L.F.
716-10.50	PRFRMED PLSTC PVMNT MRKNG (ISTATE SHLD)	EACH
716-10.51	PRFRMED PLSTC PVMNT MRKNG (STATE SHLD)	EACH
716-10.52	PRFRMED PLSTC PVMNT MRKNG (US SHLD)	EACH
716-16.04	EMBOSSSED PREFORMED CONTRAST PAVEMENT MARKING (DOTTED LINE)	L.F.
716-16.10	PREFORMED YIELD WORD (8FT W/ 1-1/2 IN BLACK CONTRAST)	EACH
716-09.85	CONTRAST PAVEMENT MARKING 4"	L.M.
716-09.86	CONTRAST PAVEMENT MARKING 6"	L.M.
716-09.87	CONTRAST PVMT MARK WORDS & SYMBOLS	EACH
716-09.88	CONTRAST PAVEMENT MARKING 8"	L.M.
716-09.89	CONTRAST PAVEMENT MARKING 12"	L.F.
716-09.90	CONTRAST PAVEMENT MARKING 6" DOTTED	L.F.

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## SECTION C: PREFORMED TAPE

### SECTION C.1: PERMANENT PREFORMED TAPE

#### GENERAL

This evaluation procedure outlines the Department's approval process for permanent preformed tapes used for marking pavement lines.

#### SPECIFICATIONS

- NTPEP Review – [Pavement Marking Materials \(PMM\) – Transportation.org](http://www.transportation.org/Pavement-Marking-Materials-PMM)

#### PROCEDURES

A completed Product Evaluation Form, SDS (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Product approval is based on a review of NTPEP data.

#### Review of NTPEP Evaluation Data

- The product must have been submitted to one or more NTPEP evaluation decks
- All products must be reevaluated or recertified every 10 years
- The initial and 1-year data are reviewed
- Retroreflectivity standards are shown in the table below:

Minimum Retroreflectivity (mcd)			
		Initial	1-year
Skip Line on Concrete (Longitudinal)	White	500	250
	Yellow	300	150

Products meeting the above requirements will be reviewed by the Department's Research and Product Evaluation Section for inclusion on the Qualified Products List.

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## SECTION C.2: PREFORMED CONTRAST TAPE

### GENERAL

This evaluation procedure outlines the Department's approval process for permanent contrast tapes used for marking pavement lines.

### SPECIFICATIONS

- TDOT Special Provision 716CPM
- NTPEP Review – [Pavement Marking Materials \(PMM\) – Transportation.org](https://www.transportation.org/Pavement-Marking-Materials-PMM)

### PROCEDURES

A completed Product Evaluation Form, SDS (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Product approval is based on a review of NTPEP data.

#### Review of NTPEP Evaluation Data

- The product must have been submitted to one or more NTPEP evaluation decks
- All products must be reevaluated or recertified every 10 years
- The initial and 1-year data are reviewed
- Retroreflectivity standards are shown in the table below:

Minimum Retroreflectivity (mcd)			
		Initial	1-year
Skip Line on Concrete (Longitudinal)	White	500	250
	Yellow	300	150

Products meeting the above requirements will be reviewed by the Department's Research and Product Evaluation Section for inclusion on the Qualified Products List.

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## SECTION C.3: TEMPORARY REMOVEABLE PREFORMED TAPE

### GENERAL

This evaluation procedure outlines the Department's approval process for temporary tapes used for marking pavement lines of a temporary nature in work zones.

### SPECIFICATIONS

- TDOT Standard Specification 712.02B – Temporary Pavement Marking Materials
- NTPEP Review – [Pavement Marking Materials \(PMM\) – Transportation.org](http://www.transportation.org)

### PROCEDURES

A completed Product Evaluation Form, SDS (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Product approval is based on a review of NTPEP data.

#### Review of NTPEP Evaluation Data

- The product must have been submitted to one or more NTPEP evaluation decks
- All products must be reevaluated or recertified every 10 years
- The initial and final data from a 6-month evaluation period are reviewed
- Retroreflectivity standards are shown in the table below:

Minimum Retroreflectivity (mcd)			
		Initial	Final (6 months)
Skip Line on Concrete (Longitudinal)	White	500	250
	Yellow	300	150

Products meeting the above requirements will be reviewed by the Department's Research and Product Evaluation Section for inclusion on the Qualified Products List.



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## SECTION C.4: PREFORMED BLACKOUT TAPE

### GENERAL

This evaluation procedure outlines the Department's approval process for preformed blackout tapes used to temporarily mask pavement lines in work zones.

### SPECIFICATIONS

- TDOT Standard Specification 712.02B – Temporary Pavement Marking Materials
- NTPEP Review – [Pavement Marking Materials \(PMM\) – Transportation.org](https://www.transportation.org/Pages/Details.aspx?id=5022)

### PROCEDURES

A completed Product Evaluation Form, SDS (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Product approval is based on a review of NTPEP data.

#### Review of NTPEP Evaluation Data

- The product must have been submitted to one or more NTPEP evaluation decks
- All products must be reevaluated or recertified every 10 years
- The initial and final data from a 6-month evaluation period are reviewed
- Testing criteria are shown in the table below:

<b>Retroreflectivity (Longitudinal Centerline)</b>	≤ 40 mcd
<b>Internal Tape Strength Rating</b>	≤ 5
<b>Adhesive Bond Rating</b>	≤ 6

<b>Internal Tape Strength:</b> How many pieces had to be removed for complete removal  1 = Tape removed intact, in one piece  3 = Tape removed in three to four pieces  5 = Tape removed in five pieces  7 = Tape removed in seven pieces  10 = Tape only removed in very small fragments	<b>Adhesive Bond:</b> How much effort was required to remove tape  1 = Tape removed easy (potentially by one hand)  3 = Tape removed with moderate, two-handed effort  5 = Tape removed significant, two-handed effort, requiring multiple pulls  9 = Tape removed only by exhausting, two-handed effort  10 = Tape could not be removed from surface
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Products meeting the above requirements will be reviewed by the Department's Research and Product Evaluation Section for inclusion on the Qualified Products List.

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## SECTION D: ALTERNATIVE PAVEMENT MARKING MATERIALS

### SECTION D.1: AUDIBLE PAVEMENT MARKINGS

#### GENERAL

This evaluation procedure outlines the Department's approval process for audible thermoplastic pavement markings used in accordance with dimensions, patterns, locations and other details shown on the plans.

#### SPECIFICATIONS

- TDOT Special Provision 716PTA
- TDOT Standard Specification 716.03 – Thermoplastic Pavement Marking
- TDOT Standard Specification 919.01 – Thermoplastic Pavement Marking Material

#### PROCEDURES

A completed Product Evaluation Form, Safety Data Sheet, product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Product approval is based on certifications that the material meets applicable TDOT Specifications. In addition, a 6-month to 1-year field evaluation may be required depending on the specific product and its application.

ITEM NO.	PAY ITEM	PAY UNIT
716.14.01	PROFILED THERMO PVMT MRKNG AUDIBLE (4IN)	L.M.
716.14.02	PROFILED THERMO PVMT MRKNG AUDIBLE (6IN)	L.M.

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## SECTION D.2: WET REFLECTIVE PAVEMENT MARKINGS

### GENERAL

This evaluation procedure outlines the Department's approval process for hot-applied and preformed wet reflective thermoplastic pavement markings used in accordance with dimensions, patterns, locations and other details shown on the plans.

There are three systems available and approved on the Qualified Products List for this application:

1. System 1: Component replacement using microcrystalline ceramic beads
2. System 2: Preformed all-weather tape
3. System 3: Inverted profile thermoplastic pavement marking

### SPECIFICATIONS

- TDOT Special Provision 716WR
- TDOT Standard Specification 716.03 – Thermoplastic Pavement Marking
- TDOT Standard Specification 716.06 – Preformed Plastic Pavement Markings
- TDOT Standard Specification 919.01 – Thermoplastic Pavement Marking Material
- TDOT Standard Specification 919.03 – Preformed Plastic Pavement Marking Materials

### PROCEDURES

A completed Product Evaluation Form, Safety Data Sheet, product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Product approval is based on certifications that the material meets applicable TDOT Specifications. In addition, a 6-month to 1-year field evaluation may be required depending on the specific product and its application.

ITEM NO.	PAY ITEM	PAY UNIT
712-09.20	TEMPORARY PLASTIC PVMT MKG (NOISE STRIP)	L.F.
716-09.79	THERMOPLST PVMT MARK PROFILE LINE(4")	L.M.

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## **SECTION E: BITUMINOUS PAVEMENT MARKER ADHESIVE**

### **GENERAL**

This evaluation procedure outlines the Department's approval process for adhesives used to bond pavement markers to portland cement concrete pavement, hot bituminous pavement, and chip-sealed surfaces.

### **SPECIFICATIONS**

- TDOT Standard Specification 716.04 – Raised Reflective Pavement Markers
- ASTM D92 – Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester
- ASTM D5 – Standard Test Method for Penetration of Bituminous Materials
- ASTM D2669 – Standard Test Method for Apparent Viscosity of Petroleum Waxes Compounded with Additives (Hot Melts)
- ASTM D36 – Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)

### **PROCEDURES**

A completed Product Evaluation Form, SDS (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Product approval is based on certifications that the material meets the applicable TDOT Specifications.

In addition, the Department will verify the flash point (ASTM D92), penetration (ASTM D5), viscosity (ASTM D2669), and softening point (ASTM D36).

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## SECTION F: FLEXIBLE SURFACE AND GROUND MOUNTED DELINEATOR POSTS

### GENERAL

This specification covers the use of flexible delineator posts, both surface- and ground-mounted, for use on Tennessee highway projects.

### SPECIFICATIONS

- TDOT Standard Specification 713.04A – Highway Signing, Flexible Delineator Posts
- TDOT Standard Specification 916.08 – Flexible Delineator Posts
- NTPEP Review – <http://www.ntpep.org/Pages/TTCD.aspx>

### PROCEDURES

A completed Product Evaluation Form, SDS (if applicable), product data information, and NTPEP test data must be submitted to the Division of Materials and Tests. The Department bases product approval on a review of NTPEP data and additional weathering criteria.

#### Review of NTPEP Field Evaluation Data

Based on both winter and summer impact data, the following criteria must be met:

- **Final Degree List:** At least 5 of the 8 post shall remain intact and securely-anchored and return to their original vertical orientation within an Angle of  $\pm 10^\circ$ .
- **Sheeting Loss %:** Each post meeting the **Final Degree List** requirement above shall have no more than 50% sheeting loss and show minimal signs of distress (cracking, loss of rigidity, etc.).

By December 31, 2022, manufacturer's must have completed NTPEP testing. They shall certify that the materials to be supplied are formulated the same as when tested by NTPEP and will conform to the requirements of this specification.

FIELD EVALUATION TEST CATEGORIES FOR FLEXIBLE DELINEATORS			
APPLICATION	VELOCITY	MAXIMUM NUMBER OF IMPACTS	HEIGHT
Ground Mount Side of Roadway	55	10	48
Metropolitan	55	200	36
High Speed	70	200	36

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ITEM NO.	PAY ITEM	PAY UNIT
712-04.10	TEMPORARY FLEXIBLE TUBULAR DELINEATOR	EACH
712-04.11	TEMPORARY FLEXIBLE TUBULAR DELINEATOR	L.F.
713-02.14	FLEXIBLE DELINEATOR (WHITE)	EACH
713-02.15	FLEXIBLE DELINEATOR (YELLOW)	EACH
713-02.16	FLEXIBLE TYPE II OBJECT MARKER	EACH
713-02.17	RMV & REPLACE DELINEATORS (SINGLE WHITE)	EACH
713-02.18	REMOVE & REPLACE DELINEATORS (DBL WHITE)	EACH
713-02.19	RMV & RPLC DELINEATORS (SINGLE YELLOW)	EACH
713-02.30	FLEXIBLE TUBULAR DELINEATOR	EACH
713-02.33	FLEXIBLE DELINEATOR (RED)	EACH
713-02.34	DELINEATORS (ALL)	EACH

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## **SECTION G: GUARDRAIL AND BARRIER/PARAPET DELINEATION**

### **GENERAL**

This evaluation procedure outlines the Department's approval process for guardrail and barrier wall delineation.

### **SPECIFICATIONS**

- TDOT Standard Drawing S-SSMB-1 – 32” Single Slope Concrete Barrier Wall
- TDOT Standard Drawing S-SSMB-2 – 51” Single Slope Concrete Barrier Wall
- TDOT Standard Drawing STD-1-1 – Bridge Railing Concrete Parapet
- TDOT Standard Drawing T-WZ-11 – One Lane Closure Detail on Divided Highways
- TDOT Standard Drawing T-WZ-12 – One Lane Closure Detail for Bridges on Divided Highways
- TDOT Standard Drawing T-WZ-14 – Two-Outside Lane Closure on Interstates and Expressways (Portable Barrier Rail)
- TDOT Standard Drawing T-WZ-16 – Lane Shift on Divided Highways and Freeways
- TDOT Standard Drawing T-WZ-18 – Shoulder Closure Detail for Freeways and Divided Highways
- TDOT Standard Drawing T-WZ-19 – Median Cross-Over Detail on Divided Highways
- TDOT Standard Drawing T-WZ-32 – Traffic Control Plan Signal Layout for Traffic Signal at Two Lane Bridge Reconstruction Site

### **PROCEDURES**

A completed Product Evaluation Form, MSDS (if applicable), product data information, and a sample of the product being tested must be submitted to the Division of Materials and Tests.

Product approval is based on delineators meeting requirements of standard drawings and a 6-month to 1-year field evaluation. At the end of the field evaluation, a minimum of 95% of the delineators must be functional (undamaged, in place, reflective).

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ITEM NO.	PAY ITEM	PAY UNIT
<b>CONCRETE BARRIER/PARAPET/PORTABLE BARRIER RAIL DELINEATION</b>		
705-04.25	GUARDRAIL & BARRIER DELINEATOR	EACH
705-04.26	REMOVE AND REPLACE BARRIER DELINEATOR	EACH
705-04.50	PORTABLE BARRIER RAIL DELINEATOR	EACH
712-04.50	PORTABLE BARRIER RAIL DELINEATOR	EACH
712-04.51	PORTABLE BARRIER RAIL DELINEATOR (DOUBLE)	EACH
713-02.25	MEDIAN BARRIER DELINEATOR (DOUBLE)	EACH
713-02.26	CONCRETE BARRIER/PARAPET DELINEATOR	EACH
713-02.27	CNCRTE BAR/PARAPET DELINEATOR (BI-DIR)	EACH
<b>GUARDRAIL POST DELINEATION</b>		
705-04.25	GUARDRAIL & BARRIER DELINEATOR	EACH
<b>GUARDRAIL BEAM DELINEATION</b>		
705-04.25	GUARDRAIL & BARRIER DELINEATOR	EACH
<b>CONCRETE BARRIER/PARAPET DELINEATION ENHANCEMENT</b>		
711-04.21	CONCRETE BARRIER DELINEATION ENHANCEMENT	L.F.
711-04.23	CNCRTE BAR DELINEATION ENHANCEMENT (BI-DIR)	L.F.
713-02.22	BARRIER WALL DELINEATION ENHANCEMENT	L.F.
713-02.23	BARRIER WALL DELINEATION ENHANCEMENT (BI-DIRECTIONAL)	L.F.
713-02.25	MEDIAN BARRIER DELINEATOR (DOUBLE)	EACH
713-02.26	CONCRETE BAR/PARAPET DELINEATOR (BI-DIR)	EACH
713-02.27	CONCRETE BAR/PARAPET DELINEATOR (BI-DIR)	EACH
<b>GUARDRAIL BEAM DELINEATION ENHANCEMENT</b>		
705-04.20	GUARDRAIL DELINEATION ENHANCEMENT	EACH
705-04.21	GUARDRAIL DELINEATION ENHANCEMENT	L.F.
705-04.22	GUARDRAIL DELINEATION ENHANCEMENT (BI-DIR)	EACH
705-04.23	GUARDRAIL DELINEATION ENHANCEMENT (BI-DIR)	L.F.



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## SECTION H: WORKZONE TRAFFIC DRUMS

### GENERAL

This evaluation procedure outlines the Department's approval process for flexible traffic drums.

### SPECIFICATIONS

- TDOT Standard Specification 712.02A – Sign Sheeting Material
- TDOT Standard Specification 712.02H – Flexible Drums...
- TDOT Standard Specification 916.06 – Reflective Sheeting
- NTPEP Review – <http://www.ntpep.org/Pages/TTCD.aspx>

### PROCEDURES

A completed Product Evaluation Form, SDS (if applicable), product data information, and NTPEP test data must be submitted to the Division of Materials and Test. The Department bases product approval on a review of NTPEP data.

#### Review of NTPEP Evaluation Data

Based on both winter and summer impact data:

- No permanent deformation or damage to the drum, i.e., splits, breaks or cracks that impair its function or affects its physical appearance, thereby rendering the drum unusable;
- No significant loss of effectiveness of the reflective sheeting;
- A non-hazardous separation of the drum from its removable base/ballast;
- Drums shall be re-stackable

The manufacturer shall certify that the material to be supplied, to include the design of the drum, formulation and density of plastics used in the fabrication, are the same as when tested by the NTPEP and will conform to the requirements of this specification.

The Department reserves the right to periodically sample and test flexible drums.

ITEM NO.	PAY ITEM	PAY UNIT
712-04.01	FLEXIBLE DRUMS (CHANNELIZING)	EACH
712-04.02	FLEXIBLE DRUMS (CHANNELIZATION)	EACH