

ORIGINATION FORM

THE INFORMATION BELOW IS TO BE PROVIDED BY THE ORIGINATOR

(The person who receives or originates the issue and needs to forward the issue for action.)

Modify Specification 713/7130041SS .
Section/File number

New Section _____ .
Section number

Subject: Performed Pavement Stripes and Markings

Origination date: July 8, 2003

Originator: Chester Henson
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Userid:

Problem statement: Needed to expand specification to include high performance marking. Industry standard method of measurement of retroreflectivity has changed from 15 meter geometry to 30 meter geometry.

Information source: Input was provided from materials lab, construction and maintenance.

Background data: Materials Lab, construction and maintenance currently have the equipment to measure retroreflectivity using the new 30 meter geometry.

**Recommended
usage note:**

**Desired
implementation
date:** **Beginning with the July 2005 letting.**



Florida Department of Transportation

JEB BUSH
GOVERNOR

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JOSÉ ABREU
SECRETARY

MEMORANDUM

DATE: December 6, 2004

TO: Specification Review Distribution List

FROM: Duane F. Brautigam, P.E., State Specifications Engineer

SUBJECT: **Proposed Specifications Change: 7130000 – Preformed Pavement Stripes and Markings**

There have been additional changes proposed by Chester Henson of the Roadway Design Office, since the original posting of this revision on September 24, 2004. Therefore; in accordance with Specification Development Procedures, we are sending you a copy of a proposed Specification changes to Preformed Pavement Stripes and Markings.

Please share this proposal with others within your responsibility. Review comments are due within four weeks and should be sent to Mail Station 75 or to my attention via e-mail at SP965DB or duane.brautigam@dot.state.fl.us. Comments received after January 3, 2005 may not be considered. Your input is encouraged.

DFB/jho

Attachment

PREFORMED PAVEMENT STRIPES AND MARKINGS.
(REV ~~9-20-04~~~~12-3-04~~~~12-6-04~~)

SECTION 713 (Pages 758-760) is deleted and the following substituted:

SECTION 713

PREFORMED PAVEMENT STRIPES AND MARKINGS

713-1 Description.

Apply *cold* preformed reflectorized *and non-reflectorized* plastic pavement symbols, legends, stripes and markings, in accordance with the Contract Documents. *Ensure that all existing traffic stripes and markings are removed* ~~and are removed~~ ~~traffic stripes and markings as required~~ *in accordance with the Contract Documents. Stripes and markings are divided into two classes, standard and high performance, they are differentiated by their retroreflectivity.*

713-2 Materials.

Use only ~~preformed~~ pavement stripes and markings materials listed on the Qualified Products List (QPL), and meeting the requirements of 971-1 and 971-18 *and this Section*. The Engineer will take random samples of the materials in accordance with the Department's Sampling, Testing and Reporting Guide schedule.

713-3 Equipment.

Use equipment that is mobile and maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc.

Ensure the mechanical applicator is equipped with film cutoff device and a measuring device that automatically and accumulatively measures the length of each line placed with an accuracy tolerance of ± 2 percent. Tape may be placed by hand on short sections 500 feet [150m] or less and the requirements of 710-5 must be met.

*Use an approved 30-meter geometry instrument for measuring the retroreflectivity of all white and yellow stripes and markings after application, in accordance with Florida Method FM 5-541. Submit to the Engineer certified results of these measurements on ~~the form provided by the Engineer~~ a Department approved form *no later than the next working day after the application.**

713-4 Application.

713-4.1 General: Apply *cold pavement-preformed* stripes and markings to the pavement by means approved by the Engineer *and in accordance with the manufacturers recommendations*. The Engineer will conduct field testing in accordance with FM 5-541.

Ensure the preformed stripes and markings adhere to portland cement concrete and all asphaltic concrete, including dense and open graded asphaltic concrete friction courses immediately following the paving operation.

Remove and/or replace pavement stripes and markings *missing or* not meeting the requirements of this Section at no additional cost to the Department.

Ensure that existing pavement markings are removed, such that scars or traces of removed markings will not conflict with new stripes and markings by a method approved by the Engineer.

Prior to applying pavement stripes and markings, remove any material that would adversely affect the bond of the pavement stripes and markings by a method approved by the Engineer.

Apply traffic stripes or markings only to dry surfaces, ~~and when the ambient air and surface temperature is at least 55°F [13°C] and rising.~~ ~~Follow the manufacturer's recommendations for application temperature~~ *Follow the manufacturer's application instructions for overlay or inlay application for markings including the use of surface preparation adhesive.* The Engineer will measure temperatures in accordance with FM 5-541.

Offset longitudinal lines at least 2 inches [50 mm] from construction joints of portland cement concrete pavement.

Apply a primer sealer *or surface preparation adhesive* of the type recommended by the manufacturer of the pavement stripes and markings material on all portland cement concrete surfaces, prior to installation.

~~Apply traffic stripes or markings, having well defined edges, over existing pavement markings such that not more than 2 inches [50 mm] on either end and not more than 1 inch [25 mm] on either side is visible.~~

Apply all final pavement markings prior to opening the road to traffic.

713-4.2 Tolerances in Dimensions and in Alignment: Meet the requirements of 710-5.

713-4.23 Corrections for Deficiencies: Remove and reapply a 1.0 mile [1.0 kilometer] LOT centered around any deficiency, as determined by the Engineer, at no additional cost to the Department.

~~713-4.3 Thickness: Apply traffic stripes or markings such that, after installation, the stripes or markings will have a thickness of 0.02 to 0.09 inch [0.508 to 2.286 mm] when measured above the pavement surface at the edge of the traffic stripe or marking.~~

713-5 Retroreflectivity.

713-5.1 General: Black portions of contrast tapes and black masking tapes must be non-reflective and have a reflectance of less than 5 mcd/lx m².

713-5.2 Standard Markings: Apply white and yellow pavement stripes and markings that will attain an initial that will meet initial retroreflectance of not less than 300 mcd/lx·m² for white and contrast markings and not less than 250 mcd/lx·m² for yellow markings, respectively. Ensure that the intermittent and final retroreflectance of white and yellow pavement markings are not less than 150 mcd/lx·m². This does not apply to transverse lines, bike lane symbols and longitudinal lines adjacent to or in a proposed bike lane.

713-5.3 High Performance Markings: Apply white and yellow pavement stripes and markings that will attain an initial retroreflectance of not less than 600 mcd/lx·m² for white and contrast markings and not less than 450 mcd/lx·m² for yellow markings. This does not apply to transverse lines, bike lane symbols and longitudinal lines adjacent to or in a proposed bike lane.

713-6 Color.

Use white pavement stripes and marking material that is pure white, free from any tint and showing no deviations from magnesium oxide color standard greater than the following:

Scale Definition	Magnesium Oxide Standard	Sample
RD	100	75% minimum
Reflectance		
a. Red-Green	0	-5 to +5
b. Yellow-Blue	0	-10 to +10

Use yellow pavement stripes and marking material which visually matches Federal Test Standard Number 595-color 33538, and meet the following criteria for chromaticity coordinates (x,y):

x	0.455	0.510	0.472	0.530
y	0.444	0.485	0.400	0.456

713-7 Durability.

~~Durability is the measured percent of pavement marking material completely removed from the pavement. The pavement marking material line loss must not exceed 5.0% of surface area.~~

713-87 Contractor’s Responsibility for Notification.

Notify the Engineer prior to the placement of pavement stripes and marking material. Furnish the Engineer with the manufacturer’s name and LOT numbers of the material to be used. Ensure that the approved LOT numbers appear on the material packages. Submit a certified test report to the Engineer indicating that the materials meet all requirements specified.

713-98 Protection of Newly Applied Stripes.

Do not allow traffic onto newly applied traffic stripes and markings until they are sufficiently attached to permit vehicles to cross them without damage. Remove and replace any portion of the traffic stripes and markings damaged by passing traffic or from any other cause, at no additional cost to the Department.

713-9 Method of Measurement.

The quantities to be paid for under this Section will be as follows:

- (1) The length, in gross miles [kilometers], of Skip Traffic Stripes.*
- (2) The length, in net miles [net kilometers], of Solid Traffic Stripes.*
- (3) The length, in feet [meters], of Solid Traffic Stripes and Skip Traffic Stripes.*
- (4) The number of directional arrows and pavement messages, painted.*
- (5) The area, in square feet [square meters], of Reflective Paint (Island Nose).*
- (6) The area, in square feet [square meters], of Remove Existing Markings.*

The gross-mile [gross-kilometer] measurement of Skip Traffic Stripe will be taken as the distance between the beginning of the first preformed stripe to the end of the last preformed stripe, and will include the unmarked intervals. It will not include any lengths of unmarked intervals which, by design or by other intent of the Department, are greater than 30 feet [9m].

The net length, in feet [meters] of dotted and skip stripes other than 10 feet to 30 feet [3m to 9m] will be measured as the distance between the beginning of the first preformed stripe to the end of the last preformed stripe with proper deductions made for the unmarked intervals.

713-10 Basis of Payment.

~~When preformed pavement stripes and markings are used as an alternate to extruded or sprayed thermoplastic traffic stripes and markings, the quantities will be paid for in accordance with Section 711. Such prices and payments will be full compensation for all work specified herein. Final Payment will be withheld until all deficiencies are corrected. Prices and payments will be full compensation for all work specified in this Section, including, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.~~

Payment will be made under:

- Item No. 713- 1 Preformed Pavement Markings – Standard*
- Item No. 2713- 1 Preformed Pavement Markings – Standard*
- Item No. 713- 2 Preformed Pavement Markings – High Performance*
- Item No. 2713- 2 Preformed Pavement Markings – High Performance*
- ~~*Item No. 713- 3 Preformed Pavement Markings – Removable*~~
- ~~*Item No. 2713- 3 Preformed Pavement Markings – Removable*~~