Florida Department of Transportation

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GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

STEPHANIE KOPELOUSOS
SECRETARY

December 29, 2008

Monica Gourdine
Program Operations Engineer
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: Office of Design, Specifications
Section 709
Proposed Specification: 7090000.D01

Dear Ms. Gourdine:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.
This change was proposed by Chester Henson to eliminate the requirement for certification of QPL items, to change the word “LOT” to “batch” to eliminate confusion, and to change the method of measurement and payment for traffic stripes.
Please review and transmit your comments, if any, within four weeks. Comments should be sent via Email to ST986RP or rudy.powell@dot.state.fl.us.
If you have any questions relating to this specification change, please call Rudy Powell, State Specifications Engineer at 414-4110.

Sincerely,

Rudy Powell, Jr., P.E.
State Specifications Engineer

RP/dr
Attachment
cc: Gregory Jones, Chief Civil Litigation
Florida Transportation Builders' Assoc.
State Construction Engineer

TRAFFIC STRIPES AND MARKINGS – TWO REACTIVE COMPONENTS. (REV 11-13-08)

SECTION 709 (Pages 734 – 737) is deleted and the following substituted:

SECTION 709
TRAFFIC STRIPES AND MARKINGS-
TWO REACTIVE COMPONENTS

709-1 Description.

Apply Two Reactive Component traffic stripes and markings in accordance with the Contract Documents.

709-2 Materials.

709-2.1 Two Reactive Components: Use only Two Reactive Component materials listed on the Qualified Products List (QPL), and meet the requirements of 971-1 and 971-9. The Engineer will take random samples of the materials in accordance with the Department's Sampling, Testing and Reporting Guide schedule.

709-2.2 Glass Spheres: Use only glass spheres listed on the Qualified Products List (QPL), and meet the requirements of 971-1 and 971-2. The Engineer will take random samples of the glass spheres in accordance with ASTM D 1214 and the Department's Sampling, Testing and Reporting Guide schedule.

~~**709-2.3 Sand:** Use materials meeting the requirements of 971-5.4.~~

709-3 Equipment.

Use equipment capable of applying the Two Reactive Component material to the pavement. Use equipment which can produce varying width traffic stripes and which meets the following requirements:

(a) capable of traveling at a uniform rate of speed, both uphill and downhill, to produce a uniform application of the Two Reactive Component material and capable of following straight lines and making normal curves in true arcs.

(b) capable of applying glass spheres to the surface of the completed stripe by an automatic sphere dispenser attached to the striping machine such that the glass spheres are dispensed closely behind the installed line. Use a glass spheres dispenser equipped with an automatic cut-off control that is synchronized with the cut-off of the material and applies the glass spheres in a manner such that the spheres appear uniform on the entire traffic stripes and markings surface with, 50 to 60% embedment.

(c) capable of providing the manufacturer's recommended mixing ratio between the components in a thorough and consistent manner.

709-4 Application.

709-4.1 General: Remove existing pavement markings, such that scars or traces of removed markings will not conflict with new stripes and markings by a method approved by the Engineer.

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

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

Apply traffic stripes or markings only to dry surfaces, and when the ambient air and surface temperature is at least 40ºF and rising. Do not apply pavement markings when winds are sufficient to cause spray dust.

Apply striping to the same tolerances in dimensions and in alignment specified in 710-5. When applying traffic stripes and marking over existing markings, ensure that not more than 2 inches on either end and not more than 1 inch on either side of the existing line is visible.

Apply the Two Reactive Component product to the pavement in accordance with the manufacturer's instructions or as directed by the Engineer.

Conduct field tests in accordance with FM 5-541 and 5-579. Remove and replace traffic stripes and markings not meeting the requirements of this Section at no additional cost to the Department.

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

709-4.2 Thickness: *Apply traffic stripes and markings to attain a minimum wet film thickness in accordance with the manufacturer's recommendations.*
~~Apply traffic stripes or markings such that, after application of drop-on glass spheres, the stripes or markings will have a thickness above the pavement surface as designated on the Qualified Products List for the particular product used.~~

709-4.3 Retroreflectivity: Apply white and yellow traffic stripes and markings that will attain an initial retroreflectivity of not less than 450 mcd/lx·m^2 and not less than 350 mcd/lx·m^2, respectively for all longitudinal and transverse lines. ~~This does not apply to bike lane symbols and messages in a proposed bike lane.~~

Measure, record and certify on Department approved form and submit to the Engineer, the retroreflectivity of white and yellow pavement markings in accordance with Florida Method FM-5-579.

The Department reserves the right to test the markings within 3 days of receipt of the Contractor's certification. Failure to afford the Department opportunity to test the markings will result in non-payment. The test readings should be representative of the Contractor's striping performance. If the retroreflectivity values measure below values shown above, the striping will be removed and reapplied at the Contractor's expense.

709-4.4 Color: Use materials that meets the requirements of 971-1.

709-4.5 Glass Spheres: Apply reflective glass spheres to all white and yellow traffic stripes or markings, at the rates determined by the manufacturer's recommendations. ~~Apply a mixture consisting of 50% glass spheres and 50% sharp silica sand to all pedestrian crosswalk lines and bike lane symbols, at the rates determined by the manufacturer's recommendations.~~

709-5 Contractor's Responsibility for Notification.

Notify the Engineer prior to the placement of the materials. Furnish the Engineer with the manufacturer's name and *batch*~~LOT~~ numbers of the materials and glass spheres

to be used. Ensure that the approved *batch*~~LOT~~ numbers appear on the materials and glass spheres packages. ~~Submit a certified test report to the Engineer indicating that the materials meet all requirements specified.~~

709-6 Protection of Newly Applied Traffic Stripes and Markings.

Do not allow traffic onto or permit vehicles to cross newly applied pavement markings until they are sufficiently dry. Remove and replace any portion of the pavement markings damaged by passing traffic or from any other cause, at no additional cost to the Department.

709-7 Observation Period.

Pavement markings are subject to a 180 day observation period under normal traffic. The observation period shall begin with the satisfactory completion and acceptance of the work. The pavement markings shall show no signs of failure due to blistering, excessive cracking, chipping, discoloration, poor adhesion to the pavement, loss of reflectivity or vehicular damage. The Department reserves the right to check the color and retroreflectivity *any time* ~~within 30 days~~ prior to the end of the observation period.

Replace, at no additional expense to the Department, any pavement markings that do not perform satisfactorily under traffic during the 180 day observation period.

709-8 Corrections for Deficiencies.

Deficiencies will be corrected by removal and reapplication of a 1.0 mile ~~LOT~~ *section* centered around the deficiency at no additional cost to the Department.

709-9 Method of Measurement.

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

(a) *The length, in net miles, of 6" Solid Traffic Stripe, authorized and acceptably applied.* ~~The net length, in feet, of each of the various types of lines, stripes and bands, authorized and acceptably applied.~~

(b) The total traversed distance in gross miles of 10-30 *or 3-9* skip line. The actual applied line is 25% of the traverse distance for 1:3 ratio. This equates to 1,320 feet of marking per mile of single line.

(c) *The net length, in feet, of all other types of lines and stripes, authorized and acceptably applied.* ~~The length, in net miles, of Solid Traffic Stripe, authorized and acceptably applied.~~

(d) The area, in square feet, of Remove Existing Pavement Markings, acceptably removed.

~~(e) The number of pavement messages, symbols and directional arrows, authorized and acceptably applied.~~

~~(f) The length, in gross miles, of Alternating Skip Traffic Stripe, authorized and acceptably applied.~~

709-10 Basis of Payment.

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. 709- 11- Skip Traffic Stripe, Two Reactive Component (White/Black) - per gross mile.~~

~~Item No. 709- 12- Skip Traffic Stripe, Two Reactive Component (Yellow) - per gross mile.~~

~~Item No. 709- 21- Solid Traffic Stripe, Two Reactive Component (White/Black) - per foot.~~

~~Item No. 709- 22- Solid Traffic Stripe, Two Reactive Component (Yellow) - per foot.~~

~~Item No. 709- 3- Pavement Messages, Two Reactive Component - each.~~

~~Item No. 709- 31- Solid Traffic Stripe, Two Reactive Component (White/Black) - per net mile.~~

~~Item No. 709- 32- Solid Traffic Stripe, Two Reactive Component (Yellow) - per net mile.~~

~~Item No. 709- 4- Directional Arrows, Two Reactive Component - each.~~

~~Item No. 709- 41- Alternating Skip Traffic Stripe, Two Reactive Component (white/Black) - per gross mile.~~

~~Item No. 709- 5- Guide Lines, Two Reactive Component (Dotted) - per foot.~~

~~Item No. 709- 7- Remove Existing Pavement Markings - per square foot.~~

Item No. 709 *Two Reactive Components*
Traffic Stripes, Solid – per net mile
Traffic Stripes, Solid – per foot
Traffic Stripes, Skip – per gross mile
Traffic Stripe – Two Reactive Components, Remove – per square foot
~~Dotted/Guideline – per foot.~~

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709-2.1 Two Reactive Components: Use only Two Reactive Component materials listed on the Qualified Products List (QPL), and meet the requirements of 971-1 and 971-9. The Engineer will take random samples of the materials in accordance with the Department's Sampling, Testing and Reporting Guide schedule.

709-2.2 Glass Spheres: Use only glass spheres listed on the Qualified Products List (QPL), and meet the requirements of 971-1 and 971-2. The Engineer will take random samples of the glass spheres in accordance with ASTM D 1214 and the Department's Sampling, Testing and Reporting Guide schedule.

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Use equipment capable of applying the Two Reactive Component material to the pavement. Use equipment which can produce varying width traffic stripes and which meets the following requirements:

(a) capable of traveling at a uniform rate of speed, both uphill and downhill, to produce a uniform application of the Two Reactive Component material and capable of following straight lines and making normal curves in true arcs.

(b) capable of applying glass spheres to the surface of the completed stripe by an automatic sphere dispenser attached to the striping machine such that the glass spheres are dispensed closely behind the installed line. Use a glass spheres dispenser equipped with an automatic cut-off control that is synchronized with the cut-off of the material and applies the glass spheres in a manner such that the spheres appear uniform on the entire traffic stripes and markings surface with, 50 to 60% embedment.

(c) capable of providing the manufacturer's recommended mixing ratio between the components in a thorough and consistent manner.

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Apply the Two Reactive Component product to the pavement in accordance with the manufacturer's instructions or as directed by the Engineer.

Conduct field tests in accordance with FM 5-541 and 5-579. Remove and replace traffic stripes and markings not meeting the requirements of this Section at no additional cost to the Department.

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

709-4.2 Thickness: Apply traffic stripes and markings to attain a minimum wet film thickness in accordance with the manufacturer's recommendations.

709-4.3 Retroreflectivity: Apply white and yellow traffic stripes and markings that will attain an initial retroreflectivity of not less than 450 mcd/lx·m^2 and not less than 350 mcd/lx·m^2, respectively for all longitudinal and transverse lines.

Measure, record and certify on Department approved form and submit to the Engineer, the retroreflectivity of white and yellow pavement markings in accordance with Florida Method FM-5-579.

The Department reserves the right to test the markings within 3 days of receipt of the Contractor's certification. Failure to afford the Department opportunity to test the markings will result in non-payment. The test readings should be representative of the Contractor's striping performance. If the retroreflectivity values measure below values shown above, the striping will be removed and reapplied at the Contractor's expense.

709-4.4 Color: Use materials that meets the requirements of 971-1.

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Notify the Engineer prior to the placement of the materials. Furnish the Engineer with the manufacturer's name and batch numbers of the materials and glass spheres to be used. Ensure that the approved batch numbers appear on the materials and glass spheres packages.

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Deficiencies will be corrected by removal and reapplication of a 1.0 mile section centered around the deficiency at no additional cost to the Department.

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(d) The area, in square feet, of Remove Existing Pavement Markings, acceptably removed.

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Payment will be made under:

Item No. 709	Two Reactive Components
	Traffic Stripes, Solid – per net mile
	Traffic Stripes, Solid – per foot
	Traffic Stripes, Skip – per gross mile

Traffic Stripe – Two Reactive Components, Remove – per square foot