

HFST Initiatives by INDOT: In-House Project Design, Special Provision Specification, and Initial Test Results

Joe Bruno

INDOT Traffic Engineering Division

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HFST Recurring Special Provision 617-T-213

- RSP 617-T-213 Development



HFST RSP 617-T-213 (Cont'd)

- Differences from the Illinois DOT Special Provision
 - Quality Control Plan Review of 14 days
 - Added Compressive Modulus @77°F to the Polymeric Resin Spec (lower range is better for HMA pavement and acceptable for PCCP)
 - Replaced LA Abrasion Test with Micro-Duval Abrasion Test for the Aggregate
 - Added Moh's Hardness, Polished Stone Value, and Sodium Sulfate Soundness Requirements for the Aggregate.



HFST RSP 617-T-213 (Cont'd)

- Polymeric Resin Binder

- Cure rate (dry through time) = 3 hrs max.
- Gel time for concrete surfaces = 10 minutes
- Ultimate tensile strength = 1,500 to 5,000 psi
- Mixing ratio per manufacturer (must be provided to INDOT at least 14 days before installation).



Source: Kwikbond Polymers

HFST RSP 617-T-213 (Cont'd)

- Calcined Bauxite Aggregate

- Aluminum oxide content = 87% min.
- Gradation = 100% of aggregate is smaller than 4.75 mm and 95% of the aggregate is bigger than 3.35 mm
- Hardness (Mohs Scale) = 8 min.



Source: Missouri Department of Transportation

HFST RSP 617-T-213 (Cont'd)

- Surface Preparation & Weather Restrictions
 - Surface must be clean with PCCP surfaces being cleaned by shot blasting and HMA surfaces cleaned with an air wash of compressed air.
 - New pavement or crack sealing or PCCP/HMA patches must be applied at least 30 days before HFST installation.
 - Application temperature range: 60°F to 105°F
 - No rain forecast during application or curing

HFST RSP 617-T-213 (Cont'd)

- Installation Requirements (Fully Automated Method)
 - Contractor must use a truck mounted application machine.
 - Polymeric resin binder minimum thickness = 50 mils
 - Aggregate from a drop spreader at 11 lb/sys (min.)
 - Minimum continuous application rate of 2300 sys/hr



Source: Dbi Services

HFST Unique Special Provision

- Installation Requirements (Semi-Automated Method)
 - Distribution system capable of blending the polymeric resin binder in accordance with manufacturer requirements.
 - Aggregate from a drop spreader to cover area within 5 min.
 - Identical to requirements for polymeric bridge deck overlays in RSP 738-B-297.



Polymeric bridge deck overlay on westbound I-74 over SR 44

HFST RSP 617-T-213

- Clean-up and Acceptance
 - Initial clean-up before opening to traffic.
 - Second clean-up 3 to 5 days after installation.
 - Field testing by INDOT
 - Mean profile depth of 1 mm (min.)
 - Dynamic friction > 0.90
 - Any failing sections must be removed and replaced

HFST Pay Item Data

High Friction Surface Treatment			
Pay Item 617-12128			
Contract	Quantity (sys)	Unit Price (per sys)	Cost
T-40130	51,168	\$16.10	\$823,804
R-40695	8,079	\$19.50	\$157,541
Totals:	59,247	\$16.56	\$981,345

HFST Contractor Prequalification

- Separate HFST Contractor Prequalification Category
 - Work Type 0196, Pavement High Friction Surface Treatment
 - 5 contractors currently prequalified
 - Minimum requirements for equipment and experience

Conclusion



Joe Bruno, P.E.
Sr. Engineer of Signals & Markings
INDOT Traffic Engineering Division
(317) 234-7949
jbruno@indot.in.gov