Road & Bridge Design Publications

Monthly Update – August 2013

Revisions for the month of **August** are listed and displayed below. The special detail index from the "July Special Update" will remain in effect. Contact Wayne Pikka (pikkaw@michigan.gov) for questions related to the road changes.

Road Design Manual

6.03.11 J: Longitudinal Joint Density Quality Initiative: This is a new section which describes the application and payment of the Longitudinal Joint Density Initiative.

13.05.04: Transporting Salvaged MDOT Material: This is a new section describing salvaged MDOT material, storage location, funding for the pay item, and incorporation into the plans.

Updates to MDOT Cell Library, Bridge Auto Draw Program, etc., may be required in tandem with some of this month's updates. Until such updates to automated tools can be made, it is the designer's/detailer's responsibility to manually incorporate any necessary revisions to notes and plan details to reflect these revisions.

CHAPTER 6 SURFACING AND SHOULDERS INDEX (continued)

6.03.11 HMA Construction Considerations
- A. Bond Coat
- B. Prime Coat
- C. Feathering and Tapering
- D. Stage Construction
- E. Joint Lines Coinciding with Lane Lines
- F. "Paving Through"
- G. Bridges
- H. Paving Over Neoprene-Sealed Joints
- I. Stringline Grade Control
- J. Longitudinal Joint Density Quality Initiative
- K. Temporary Pavement Marking
- L. Admixtures
- M. Causes of Contract Overruns
- N. Ramps

6.03.12 HMA Base Course
- A. General
- B. Wedging
- C. Widening
- D. HMA Separation Course
- E. Minimum Cover Over HMA Course

6.03.13 Deleted

6.03.14 Small Tonnages of HMA

6.03.15 HMA Approaches and Auxiliary Lanes
- A. Guidelines for Use of HMA Approach Pay Item

6.03.16 HMA Curb
- A. Guideline for Use
- B. Curb Shapes
- C. Pay Items

6.03.17 Open Graded Asphalt Friction Course

6.03.18 HMA Paved Ditches and Valley Gutters
- A. General
- B. Thickness and Cross Section

6.03.19 Miscellaneous HMA Surfacing
- A. Traffic Control Islands
- B. Splash Areas
- C. Rumble Warning Areas
- D. Emulsified Coal-Tar Pitch Protective Seal Coat

6.03.20 Seal Coats

6.03.11 (revised 8-19-2013)

HMA Construction Considerations

A. Bond Coat

Bond coat is commonly an asphalt emulsion used to enhance the adhesion of an HMA surface to an underlying paved surface. Several factors affect its need; e.g., an old, polished asphalt surface on a 50° F day would probably need it, whereas the second lift on a clean new leveling course, on a hot day, would probably not need it. Thin applications (approximately 0.05 gal/syd) are frequently referred to as "fog" or "tack" coats.

Bond coat is no longer a pay item, although the contractor must use it when it is determined necessary on construction. It must therefore be shown on the HMA Application Estimate, with a rate of application of up to 0.15 gal/syd indicated. Quantities should not be shown on the plans or in the log.

B. Prime Coat

Prime coat was formerly a medium-curing asphalt used at a rate of 0.25 gal/syd to seal off a gravel surface preparatory to paving with HMA and to aid in stabilizing the aggregate base so that trucks could run on it. Construction experienced delays waiting for it to cure, and with the dense-graded aggregate mixtures in use, it was often determined that prime coat was unnecessary. If prime coat is needed, Construction will add it by authorization. Designers are instructed to omit any reference to it

6.03.11 (continued)

C. Feathering and Tapering

(See Section 6.03.04B(3)) Feathering, as a method of discontinuing HMA surface at the ends of the project, or longitudinally at a curb face, is not as widely used as it was before the advent of the milling machine. There is still an occasional project, however, which requires that feathering be done. While more economical than constructing a butt-type joint, it is more prone to deterioration because of insufficient compaction at the thickness where the large-size aggregate tends to support the roller. This can be helped somewhat by using a finer mix for constructing approaches. Generally, the designer should provide for making butt joints along the trunkline, and for feathering at intersecting roads and streets, unless recommended otherwise at the Plan Review Meeting.

When feathering at a curb face, do not show the taper sharply breaking or a dimension for the width of the feathered area. The typical cross-section should illustrate the leveling course feathered out somewhat short of the curb and gutter, with the top course feathered at the curb. Quantities should be computed on the basis of full thickness to the curb face.

Sometimes it is necessary to transition a resurfacing to meet the existing top of pavement elevation, as when resurfacing a bridge deck or meeting railroad tracks. The proposed transition required to wash out the added thickness should be on the order of ¾" in 25'. This transition length should be shown on the plan or in the log.

6.03.11 (continued)

HMA Construction Considerations

J. Longitudinal Joint Density Quality Initiative

The quality of HMA pavements at longitudinal joints can be affected by the method and circumstance in which the joint is formed. Whether a cold joint is formed adjacent to existing surfaces or adjacent to new pavements from preceding stage construction, or a hot joint is formed with echelon paving, influences the ability to achieve sufficient density at the joint.

The specifications for Longitudinal Joint Density Quality Initiative is applied to all trunkline HMA projects (except non-motorized paths) and includes a pay item for incentives to the contractor for achieving acceptable ranges of density. The incentive payment is applicable to longitudinal joints between two new adjacent HMA pavements (Type 1). It does not apply to longitudinal joints adjacent to existing pavements or surfaces (Type 2), or where the contract documents specify the paving method (echelon paving, etc.).

The dollar amount of the incentive is prescribed by current specification or special provision and is dependent on the level of density achieved. The designer should base the estimated dollar amount on the maximum achievable incentive rate. This provides the Engineer the resources to encourage, reward, and maximize contractor effort and pavement quality.

6.03.11 (continued)

K. Temporary Pavement Marking

The ***Standard Specifications for Construction*** require that temporary lane striping be applied to a new HMA surface, on which traffic is being maintained, at the end of each days paving. The pay items provided are:

Pavt Mrkg, Type R, 4 inch (color), Temp .....Foot

Pavt Mrkg, Type NR, Tape, 4 inch, (color), Temp .....Foot

Pavt Mrkg, Type NR, Paint, 4 inch, (color), Temp .....Foot

“R" and "NR" refer to "remove" and "need not be removed." Measurement is based on the length of marking actually required, not including the skips in the dashed lines. When Type R is specified, payment includes the cost of removal. Type R is usually an adhesive-backed tape whereas Type NR may be either tape or a painted stripe.

Usually, Type NR will be used on an HMA project, where it will either be covered by subsequent resurfacing or incorporated in the permanent striping. Type R would be used where traffic will temporarily use a pavement in a manner contrary to its normal use. Temporary pavement marking quantities are determined as part of the maintaining traffic design.

CHAPTER 13 MISCELLANEOUS PAY ITEMS (continued)

13.04.03 Removing Culverts and Sewers
- A. Removing Pipe Culverts
- B. Removing Culverts Other Than Pipe
- C. Removing Culvert Ends
- D. Removing Sewers
- E. Salvaging Culvert End Sections

13.04.04 Removing Miscellaneous Structures & Materials
- A. Pay Items
- B. Removing Pavement
- C. Removing Drainage Structures

13.05 OTHER COMMONLY USED MISCELLANEOUS ITEMS

13.05.01 Obliterating Roadway

13.05.02 Project Cleanup

13.05.03 Field Offices and Laboratories

13.05.04 Transporting Salvaged MDOT Material

13.05.05 Mobilization

13.05.06 Escalator Clauses - Fuel, Asphalt, Cement, and Steel

13.05.07 Erosion Control Items

13.05.03 (revised 11-28-2001)

Field Offices and Laboratories

Field Offices and Laboratories are needed on some projects for making field tests and housing office activities. Usually, facilities are available to the Department and the Contractor is not required to furnish a separate field office. The designer should place a note on "THE Plan Review" prints asking if a field office is required.

13.05.04 (revised 8-19-2013)

Transporting Salvaged MDOT Material

Salvaged MDOT material, specifically signs and sign supports, are removed, transported and stockpiled during construction. The storage location for these items on all projects will be the MDOT Overhead Sign Shop in Lansing. Federal participation in the cost of this work is limited to a five mile haul distance. Therefore the pay item should always be considered 100% state funded. The designer should specify the storage location by note. See Traffic Signing General Notes.

13.05.05

Mobilization

Mobilization is to reimburse the contractor for initial costs incurred prior to starting work on the project. This consists of preparatory work and operations for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of the contractor's offices, buildings, and other facilities necessary to undertake the work on the project. It also includes other work and operations that must be performed, or for expenses incurred, prior to beginning work on the various contract items on the project site. This item applies to all projects.

13.05.06

Escalator Clauses - Fuel, Asphalt, Cement, and Steel

When Management determines material price inflation is a concern, it is sometimes desirable for the Department to let contracts with escalator clauses. These escalators allow for adjustments in prices of basic materials that may inflate during the life of the contract. This allows contractors to bid certain items to allow for inflation during the life of the contract.

When management determines that an escalator clause will be used, a special provision will be required setting forth the terms and methods of determining applicable price adjustments.