

MOBILE COUNTY ENGINEERING DEPARTMENT

GUIDELINES FOR PREPARING QC/QA PACKAGES FOR RESURFACING AND G.D.B.P. PROJECTS

INTRODUCTION

These guidelines are in no way meant to be a substitution for contract documents, including plans, specifications, standard drawings, testing procedures, special provisions, or supplemental specifications, but are provided as an aid by which to prepare QC/QA packages.

QC/QA testing will be applicable to all Mobile County projects which reference the *Alabama Department of Transportation Standard Specifications for Highway Construction, 2002 Edition* or later unless otherwise noted. A QC/QA package will be completed for each lot of asphalt placed on the project. Pay factors will be applied to all mainline paving (including shoulders, ramps, acceleration/deceleration lanes, and uniform thickness leveling) for which a package is completed. For all paving other than mainline paving (driveways, patching, widening, crossovers, and non-uniform thickness leveling), QC/QA package will be required but no pay factor greater than 1.00 will apply.

All QC/QA paperwork should be assembled into packages in the Engineer's office. A package consists of all the paperwork for one lot, which consists of one day's placement (GDBP only) or **2800** tons (resurfacing only) of asphalt placed. The first lot for each mix per job is labeled "**TEST STRIP**" and consists of not more than **500** tons for resurfacing projects ONLY. Approval must be obtained on the test strip before subsequent lots can be placed. The next lot should be labeled "**LOT 1**", the next "**LOT 2**", and so on. No test strips are required for grade, drain, base and pave projects ONLY.

FORMS

1. **Cover Sheet** (1 per package required): The cover sheet should be provided on each lot package and is to be used as a final checklist to assure that all forms are included and completed properly. There is a place on the cover sheet to check to ensure each form is included as well as a place to check to ensure that each form is complete and correct.

2. **BMT-20** (2 per package required): The BMT-20 is the *Asphalt Plant Mixture Test Report*. This form is completed at the plant by the QC/QA representatives of the Testing Lab and the Contractor. All required information should be listed in the proper location and the form should be signed by a Certified Technician.
3. **BMT-19** (1 per package required): The BMT-19 is the *Worksheet Summary of Lot Test Results for Air Voids and AC Content*. This form is completed by the Engineer's representative pulling one sample at random during each lot for comparison. The values (from the Contractor's results) for these items are to be compared to the required values (from the approved mix design) and the average deviations are checked against the appropriate table in the *Alabama Department of Transportation Standard Specifications for Highway Construction, 2002 Edition* or later, Section 410.08 or approved Special Provision in the contract. The pay factors are then recorded on the QC/QA-1 and QC/QA-3.
4. **BMT-97** (1 per package required): The BMT-97 is the *Worksheet to Calculate Mat Density Lot Pay Factors*. The Engineer should complete this form in the office. The densities from the MC-CDW are entered for each subplot and compared to the target percentage. The deviations are listed and the average deviation for each subplot is used to obtain the subplot pay factor from the table provided in the *Alabama Department of Transportation Standard Specifications for Highway Construction, 2002 Edition* or later, Section 410.08, Supplemental Specification, or approved Special Provision in the contract. The subplot pay factors and lengths are then used in the equation provided on the bottom of the form (work must be shown on the form) to obtain the lot pay factor. This lot pay factor is then recorded on the QC/QA-1, and QC/QA-3. BMT-97 forms are not required for grade, drain, base and pave projects ONLY.
5. **BMT-4** (1 per package required): The BMT-4 is the *Plant Mix Daily Placement Report* and is completed by the Engineer's Field Inspector each day there is asphalt placed on the project. The information on this form provides daily and "to-date" information on the tack coat and plant mix.
6. **QC/QA-1** (1 per package required): The QC/QA-1 is the *Summary of Initial Test Results* and contains the lot, tonnage, and pay factor information for the lot of asphalt placed. It also provides a place to indicate if a referee test was needed.
7. **QC/QA-2** (1 per package required): The QC/QA-2 is the *Summary of Referee Test Results* and is only completed if referee tests were performed. Referee tests

are only required when the differences between test results of the verification samples are not within the tolerances in Table V, Section 410, and cannot be resolved by the methods outlined in Section 106.09(c)4. This form should only be included if referee tests are performed.

8. **QC/QA-3** (1 per package required): The QC/QA-3 is the ***Summary of Adjusted Tonnage***. This form shows the pay factor information for each lot placed to date. Also, the adjusted tonnages are shown along with the tonnage at no pay. Be sure to note that only the lowest numerical pay factor for each lot is used to adjust the tonnage to be paid for.

ADDITIONAL INFORMATION

In addition to the above-mentioned forms, the Asphalt Tickets, Cross-Slope Readings at Intervals of 50 feet, 25 feet in curves (supers), and Certification Letter should be included with the submittal. Each asphalt ticket should be signed by the Engineer's Representative, the Testing Lab's Representative and the Weighmaster. The tickets should be sorted and bundled by the placement, date and lot. When the tickets are obtained by the inspector, the temperature, time placed, number of axles on truck, and signatures should be recorded on every ticket.

A more thorough explanation of QC/QA and asphalt placement requirements is offered in the *Alabama Department of Transportation Standard Specifications for Highway Construction, 2002 Edition* or later, Sections 106.09 and 410.

QC/QA REPORTS

All QC/QA Reports are to be submitted with Monthly Estimate when Asphalt is placed. Asphalt Tickets, Certification Letter, Bituminous Price Adjustment Worksheets, and Cross-Slope Readings should also be submitted with the QC/QA Reports.

1. QC/QA reports are required for all projects referencing the *2002 ALDOT Standard Specifications Manual for Highway Construction* (or later).
2. If asphalt quantity produced is less than 50 tons, no tests should be taken. The first test should be taken from the first loaded truck following the truck containing the fiftieth ton produced. (ALDOT Standard Specification for Highway Construction

- Table 1, Section 106.09)

3. **Each Package consists of an Individual Lot (core densities only).**
 - A. The first Lot is labeled as the Test Strip and consists of not more than 500 tons for resurfacing projects only.
 1. Maximum Pay Factor is 1.0 or payable at 100 percent.
 2. Test Strips are not required for GDBP projects only.
 - B. The Lots following the Test Strip should be labeled as Lot 1, Lot 2, etc.
 1. Maximum Pay Factor is 1.02 or payable at 102 percent for resurfacing projects only.
 2. Lots consists of 2800 tons of asphalt placed for resurfacing projects only.
 3. Each Days' Placement is classified as an Individual Lot for GDBP projects only.
 4. Pay factors will not exceed 1.00 or 100 percent for GDBP projects only.

REQUIRED FORMS FOR QC/QA

1. **Cover Sheet**
2. **BMT-4:** Form completed by the Engineer's Field Inspector.
 - A. Spread rates should be calculated for every 5,000 square yards for resurfacing projects only.
 - B. Spread rates should be calculated for every 1,000 square yards for GDBP projects only.
3. **BMT-19:** Form completed by Engineer's Representative.
 - A. Deviations from the Contractor's results for the Air Voids and Asphalt Content are checked against the Required Values.
 - B. Use Average Deviations to determine Pay Factor from Section 410.08 of the ALDOT Specification Manual.
4. **BMT-20:** Form completed by the Contractor.
Form completed by the Testing Lab.

5. **BMT-97:** Form completed by Engineer. *(Required for Mainline Paving only)
- A. BMT-97 forms are not required for GDBP projects only.
 - B. Densities for each subplot are compared to Target of 92 Percent for resurfacing projects only.
 - C. Use Contractor's Average Deviations to determine Sublot Pay Factor from Section 410.08 of the ALDOT Specification

Manual.

- Sublot
- D. Determine Lot Pay Factor by applying weighted average of Pay Factors.

6. **QC/QA-1:** Form completed by Engineer.

7. **QC/QA-2:** Form completed by Engineer.

A. Only needed if referee was required.

B. Referee Tests required if differences between the test results are not within tolerances shown in Table V, Section 410.

8. **QC/QA-3:** Form completed by Engineer

A. Apply lowest Pay Factor to determine Payable Tonnage.

9. **MC-LS-1 & 2:** Forms completed by the Engineer's Field Inspector.

A. All items must be filled out completely.

10. **MC-CDW:** Form completed by the Testing Lab Representative.

A. Core densities are used to fill out BMT-97 for Lot and Sub-lot pay factors for resurfacing projects only.

B. Individual core densities must fall between the range of 92 and 96 percent to be accepted for 1.00 or 100% pay for GDBP projects only.

11. **MC-26-1:** Form completed by Engineer.

A. Summary Sheet for Bituminous Price Adjustments for monthly asphalt and tack placement.

12. **MC-26-2:** Form completed by Engineer.

- A. Bituminous Material Worksheet for asphalt placement per month.
 - B. Asphalt Indexes must be checked monthly from the **ALDOT web site for each month of asphalt placement.
13. **MC-26-3:** Form completed by the Engineer.
- A. Bituminous Material Worksheet for Tack (Emulsified Asphalt) placement per month.
 - B. Asphalt Indexes must be checked monthly from the **ALDOT web site for each month of tack placement.
14. **MC-27-1:** Form completed by Engineer.
- A. Summary Sheet for HMA Fuel Price Adjustments for monthly asphalt production costs.
15. **MC-27-2:** Form completed by Engineer.
- A. HMA Fuel Worksheet for asphalt production per month.
 - B. HMA Fuel Indexes must be checked monthly from the **ALDOT web site for each month of asphalt placement.

*See Guidelines for Preparing QC/QA Package for explanation of mainline paving.

**www.dot.state.al.us/constructionindexes/asphalt.aspx

NON-UNIFORM SURFACE (LEVELING, PATCHING, WIDENING, DRIVEWAYS)

1. Maximum Pay Factor is 1.00 (Tested for only Air Voids and Asphalt Content)
2. No Mat Density Test Required - (BMT-21 and BMT-97 are not required)
3. QC/QA forms are assembled and completed in the same manner as for a Uniform Surface.