

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS AND TESTING DIVISION

MATERIALS PROCEDURE

GUIDE FOR QUALITY CONTROL AND ACCEPTANCE PLANS FOR BASE COURSE

- 1.0 PURPOSE
- 1.1 Testing of highway construction materials has traditionally been a two-phased activity; that done by industry in their Quality Control Program and that done by the purchaser to determine the acceptability of the material. In the case of crushed aggregate base course, the Contractor (whether or not he is actually the manufacturer) is, by positive statement in the specifications, responsible for Quality Control, and the Division of Highways, as purchaser, is responsible for acceptance testing. The purpose of this Materials Procedure is to present guidelines for adequate Quality Control and Acceptance Plans.
- 2.0 QUALITY CONTROL PLAN
- 2.1 As stated in the specifications, a Quality Control Plan should be designed by the Contractor and submitted to the Engineer at the Pre-Construction Conference. The plan should clearly describe the methods by which the Quality Control Program will be conducted. As a minimum, a Quality Control Plan should include the following:
- 2.1.1 Name of company official responsible for Quality Control.
- 2.1.2 Name of person(s) actually conducting the sampling and testing: These should be Certified Aggregate Technicians. If they are not certified, a resume' of their qualifications should be included for review prior to approval.
- 2.1.3 The items to be controlled and the tests to be performed: Each test should be listed separately.

- 2.1.4 The Sampling and Testing Plan: As a minimum, the Sampling and Testing Plan should detail sampling locations, methods, and test frequencies to be used. To facilitate Division of Highways' monitoring activities, which are described in 3.1, all completed gradation samples must be retained by the Contractor until further disposition is designated by the District Materials Supervisor. The Quality Control Plan should state where and how these samples will be maintained. Applicable sections of ML-25 should be used for guidance.
- 2.1.5 The Documentation Plan: The methods by which the Contractor will document and distribute test results must be described.
- 2.1.5.1 Forms and Distribution: Approved processing forms furnished by the Division will be used to record the test data. Gradation tests will be recorded on Form SL-5A. The laboratory number will always start with a C for all Quality Control samples taken and tested by the Contractor. One copy of each completed form should be retained by the Contractor until the project is completed and accepted. One copy must be delivered to the Division of Highways Project Supervisor. To be an effective Quality Control function, tests must be completed and results distributed in a regular and timely manner. The plan, therefore, should state what action will be taken in the event that testing and reporting are not completed in a reasonable period of time - say 72 hours after the sample is taken.
- 2.1.5.2 Control Charts: The specifications require the plotting of gradation test results on control charts using the moving average concept as described in MP 300.00.51. The Quality Control Plan should state where and how the charts will be maintained and made available to Division personnel. Since Division acceptance procedures are based on these charts, they must be readily accessible to the Division throughout the life of the project, and must be turned over to the Division when the project is completed.
- 2.1.6 A detailed plan of action regarding the disposition of nonspecification material: Such a plan should provide for the immediate notification of all parties involved in the event that non-conforming situations are detected.

2.1.7 The Quality Control Plan for compaction will be in accordance with applicable section of MP 717.04.21.

3.0 THE ACCEPTANCE PLAN

3.1 The specifications state that acceptance sampling and testing is the responsibility of the Division. Quality Control tests are the responsibility of the Contractor. Acceptance activities (sampled and tested at the frequency given in Section 3.1.1) may be accomplished by conducting sampling and testing completely independent of the Contractor and, in some cases, by witnessing tests performed by the Contractor, or by a combination of the two. The following are guidelines for a system which should result in sufficient confidence in the Contractor's documentation of his Quality Control operations to permit acceptance of the material in accordance with the procedures set forth in the specifications.

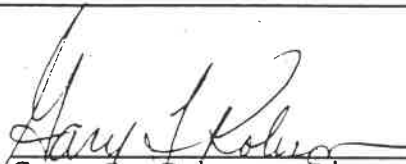
3.1.1 Sample and test completely independent of the Contractor at a frequency equal to approximately 10% of the frequency for testing given in the approved Quality Control Plan. Witnessing the Contractor's sampling and testing activities may also be a part of the acceptance procedure, but only to the extent that such tests are considered "in addition to" the 10% independent tests.

3.1.2 Plot the results of gradation tests performed by the Division on the Contractor's Quality Control charts with a red circle, but do not include these values in the moving average. When the Contractor's tests are witnessed, circle his test result on the control chart with red. These values are, of course, used in the moving average calculations, and distribution of test data must be in accordance with 2.1.5.1 with the following exceptions: The laboratory number will always start with an M for all acceptance samples taken and tested by the Division and will always start with an 0 for all of the Contractor's tests which are witnessed by the Division.

3.1.3 Evaluate the results of acceptance tests (whether performed or witnessed by the Division) in the manner by which record samples are evaluated.

MP 307.00.50
ORIGINAL ISSUANCE: NOV. 1976
1ST REVISION: JANUARY 1985
2ND REVISION: MAY 1989
REISSUED: JANUARY 1995
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- 3.1.4 If the evaluation indicates similarity with the Quality Control test, the control charts would be considered acceptable to that point.
- 3.1.5 If a dissimilarity is detected, an immediate investigation will be conducted in an attempt to determine the cause. Until the situation is resolved, any samples held in accordance with ML-25 shall be retained, and may be used in whatever manner deemed appropriate during the investigation.
- 3.2 Implement ML-25 for aggregate gradation.
- 3.3 Acceptance testing for compaction will be in accordance with applicable sections of MP 717.04.21.
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Attachment

MP 307.00.50
 ORIGINAL ISSUANCE: NOVEMBER 1976
 1ST REVISION: JANUARY 1985
 2ND REVISION: MAY 1989
 REISSUED: JANUARY 1995
 ATTACHMENT NUMBER: 1
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TABLE 1

GUIDELINES FOR CONTRACTORS PROCESS CONTROL

<u>ITEM DESCRIPTION</u>	<u>PROPERTY</u>	<u>MINIMUM FREQUENCY</u>
301	Gradation	One sample per each one-half day of operation.
	Cement Content	One per each one-half day of operation (sublot).
	Other tests required by the Contractor documents i.e., Atterberg Limits, Percent Face Fracture, Unit Weights, etc.	One test at the beginning of operation and then each 10,000 mg thereafter (this includes one or more projects).
	Thickness	One test per layer (each working width) per 365 m.
302	Gradation	One sample per each one-half day of operation.
	Asphalt Content	One per each day of operation.
	Other tests required by the Contractor documents i.e., Atterberg Limits, Percent Face Fracture, Unit Weight, etc.	One test at the beginning of operation and then each 10,000 Mg thereafter (this includes one or more projects).
	Thickness	One test per layer (each working width per 365 m.
307 & 308	Gradation	One sample per each one-half day of operation.
	Other tests required by the Contractor documents i.e., Atterberg Limits, Percent Face Fracture, Unit Weight, etc.	One test at the beginning of operation and then each 10,000 Mg thereafter (this includes one or more projects).
	Thickness (307 only)	One test per layer (each working width per 365 Lm.

