

## **Implementation Statement**

### **SPR 630, “Investigation of Graded Aggregate Base Courses”**

Principal Investigator: Dr. Ronald Baus, University of South Carolina

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Steering and Implementation Committee Chairman: Dr. Andrew Johnson, SCDOT

#### Summary

SCDOT uses three types of unbound graded aggregate base (GAB) courses including Macadam, Marine Limestone, and Recycled Portland Cement Concrete. This study investigated the feasibility of harmonizing the Department’s Macadam gradation specification with the Marine Limestone gradation and relaxing longstanding GAB layer thickness restrictions. After laboratory and field testing materials used on SCDOT projects, a recommendation was made to modify the gradation specification on percent passing the No. 4 sieve for Macadam from 50 % to 60 %, the same requirement as Marine Limestone, thus allowing more efficient use of quarry resources. Another recommendation was to allow GAB layer thicknesses greater than 8 inches, the previous thickness limit. The additional GAB depth would provide for potential cost savings when used in conjunction with Asphalt Base Course by allowing the thickness of the more costly asphalt base to be reduced while maintaining the structural number.

#### Implementation

Based on the results of the research, the gradation requirement for Macadam was changed to allow up to 60% by weight passing the No. 4 sieve. Also, the allowable GAB layer thickness was increased from 8 inches to 10 inches. Both changes were included in Section 305, Graded Aggregate Base, in the SCDOT 2007 Standard Specifications for Highway Construction. In addition, requests for placement of GAB layer thicknesses up to 12 inches are being considered on a case by case basis. Contractors must demonstrate that they have the equipment and ability to properly mix the material in one lift and meet compaction requirements.