

**Development and Demonstration of High-carbon CCPs and FGD By-products in Permeable Roadway Base Construction, Year 2 – THIRD quarter**

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**ABSTRACT**

This investigation was conducted to develop and demonstrate permeable base course materials using coal combustion products (CCPs) for highways, roadways, and airfield pavements. Three types of CCPs, two flue-gas desulfurization (FGD) by-products, and a variable-carbon fly ash, are being evaluated for no-fines or low-fines concrete as a permeable base material. This project was undertaken to develop high-volume applications of such CCPs in manufacture of permeable base materials for highways, roadways, and airfield pavements. Use of FGD by-products and high-carbon or variable carbon CCPs in permeable base course is expected to utilize significant quantities of these by-products. It will also help to reduce the cost of installing permeable base materials for pavement, which will lead to increased use of such permeable bases for highways, roadways, and airfield pavements. Reducing the cost of permeable base materials is expected to expand its use in many other types of pavement construction with increased pavement life and increased utilization rate of CCPs and FGD by-products.

To meet the objectives of the project, the entire work was organized in two major phases. These two phases have been subdivided into the following tasks:

**Phase 1 - Year 1: Laboratory Activities**

Task 1: Acquisition, Characterization, and Evaluation of Materials

Task 2: Development of Base Course Mixture Proportions

Task 3: Testing and Evaluations

Task 4: CCPs and FGD By-Product Utilization Criteria and Base Course Specifications

Task 5: Base Course Design Criteria and Construction Guidelines

Task 6: Reports

**Phase 2: Field Demonstration and Technology Transfer**

Task 7: Field Demonstrations, Testing, and Evaluation

Task 8: Demonstration/Technology Transfer

Task 9: Optimization of Construction Specifications

Task 10: Reports

