SECTION 2.5 – SOIL CEMENT BASE COURSE

2.05.01 GENERAL

A. Construct soil-cement base course using a combination of soil and portland cement, uniformly mixed, moistened, compacted, shaped, and sealed. Unless otherwise specified, the soil, cement, and water may be either plant mixed or mixed in place.

B. Certificates: Provide 6 copies of materials certificates signed by the material producer and the Contractor, certifying that each material item complies with, or exceed specified requirements.

C. Materials and methods of construction shall meet the provisions of Section 502 and Section 902 of the MD SHA Standards and Details.

2.05.02 REQUIREMENTS

A. Place soil-cement base course when the ambient air and surface temperatures are at least 40 F and rising. Do not place material on a frozen subgrade.

B. Protect the completed base from freezing during the seven-day curing period.

D. Do not place material during precipitation. When precipitation has occurred during the previous 24 hours, the Geotechnical Engineer will determine if the subgrade is sufficiently dry. If precipitation occurs during placement, placement of material en route from the plant to the job site shall be at the Contractor's risk.

E. Three trial test shall be completed on every 300' section of road being treated to determine the correct ratios of soil to cement prior to beginning the soil cement regiment.

F. A bond breaking layer, 2 inches of graded aggregate, shall be placed between the cement treated base course and the pavement course.

2.05.03 SUBGRADE PREPARATION

A. Complete the subgrade to final line and grade at least 500 ft head before beginning base course construction. Construct the foundation as specified in the MD SHA Standards, Sections 204 and 208. If traffic, including construction equipment, is allowed to use the subgrade foundation or preceding layer, distribute the loading over the entire width of the course to aid in obtaining uniform and thorough compaction. Remove rutting by reshaping and compacting the affected area as specified in the MD SHA Standards, Section 204.

2.05.04 TRANSPORTATION

Handle and transport mixed materials in a manner that minimizes segregation and loss of moisture. Cover all loads in accordance with State laws, unless hauling is off road and approved. Unless approved, do not dump material into piles, haul over the completed base course, or stockpile the material on the job site.

2.05.05 MIXED IN PLACE CONSTRUCTION

Pulverize the soil base material to ensure that, at the completion of moist mixing, 100 percent passes a 1 in. sieve and at least 80 percent passes a No. 4 sieve. Limit any variation in the moisture content of the soil at the time of cement application to 2 percent from optimum. Then spread portland cement on the soil at the approved spread rate so as to achieve a weight proportion of concrete-to-soil of 5 to 5.5%. With a depth of 8 inches, the application rate will be 41 pounds per square yard. In the presence of the Engineer, use an accurate scale to verify the spread rate. Then thoroughly mix the pulverized soil and cement. Immediately after completing the mixing operation, use a pressurized distributor to spray water on the mixture at the approved rate. Mix the soil/cement/water combination until it is uniform.

2.05.06 GRADE OR FINISHED SURFACE CONTROL.

Shape the surface of the subbase material to the specified line, grade, and cross section. Set grades longitudinally and transversely with fixed controls spaced no more than 25 ft. Compact and smooth the surface over its full width using a smooth faced steel-wheeled roller, or if rolling is not feasible, by mechanical tampers and vibratory compactors, as approved. Maintain the finished grade within 1/2 in. from the established grade. Shape the surface of the base material to the specified line, grade, and cross section.

2.05.07 COMPACTION

Immediately after placement, compact the soil cement base to a density of at least 100 percent of the maximum density as determined by T 134. Measure the in place density per MSMT 350. Furnish a compaction block as specified in 204.03.04 At the start of compaction, maintain the moisture in the mixture to within 2 percent of the specified optimum moisture. Begin compaction operations, except on superelevated curves, at the sides of the course. Overlap the shoulder or berm at least 1 ft and progress toward the center parallel to the center line of the roadway. On superelevated curves, begin compaction at the low side and progress toward the high side. Continue compaction operations until all compaction marks are removed.

2.05.08 CONSTRUCTION JOINTS

At the end of each day's construction, create a straight transverse construction joint by cutting back into the completed work to form a vertical face. Build the base for large, wide areas as a series of parallel lanes of convenient length and width, complete with longitudinal joints, as approved.

2.05.09 PROTECTION AND CURING

Complete all spreading, compacting, and shaping within three hours after the mixing water, cement, and soil come in contact. Reconstruct any section not meeting these requirements. Allow the soil cement base course to cure for a period of seven days. During this period, close the base course to all traffic. Repair damaged areas.

2.05.10 MAINTENANCE

During construction and after completion of the subbase, maintain the subbase course until the base and surface courses are placed. When unacceptable work cannot be repaired, replace it for the full depth of the base.

END OF SECTION