APPENDIX C
DENSITY REQUIREMENTS

For soil embankments, the minimum allowable density is 95 percent of the theoretical maximum dry density. R&B Sec.303.04(h)

For rock fills, the rock should be placed and manipulated in uniform layers, however the density requirements are waived. R&B Sec.303.04(h)

At the subgrade area (R&B Sec.305.03(a), the top 6 inches is scarified for a distance of 2 feet beyond the outer edges of the pavement and recompacted. The minimum percentage density of the recompacted soil is as follows:

Percentage + No. 4 Sieve Material	Min Percent Density
0 - 50	100
51 - 60	95
61 - 70	90

When density control strips are utilized for compaction control of the roadway, the density of each test section will be evaluated based upon the results of 5 readings performed at randomly selected sites within the test section. The mean density obtained for the 5 readings in each test section shall be at least 98 percent of the average density obtained in the approved control strip. In addition, each individual test value obtained within a test section shall be at least 95 percent of the average density obtained in the approved control strip. R&B Sec.304.05(a)

When density control strips are utilized for compaction control of shoulders, the density of each test section of select or aggregate material used to construct the shoulder will be evaluated based on 5 readings conducted at randomly selected sites within the test section. The average density obtained for these 5 sites in each section shall be within 95 ± 2 percentage points of the average density determined by the approved control strip. In addition, the individual tests in the section shall be within 95 ± 5 percentage points of the average density determined by the approved control strip. R&B Sec.304.05(b)

When shoulders are constructed with aggregate other than aggregate material No. 18, (R&B Sec.305.03(e), the minimum densities are as follows:

Percentage +No. 4 Sieve Material	Min Percent Density
0 - 50	95
51 - 60	90
61 - 70	85

When shoulders are constructed with aggregate material No. 18 (which is quite common in hydraulic cement concrete pavement), the density shall not be less than 90 nor more than 95 percent of the theoretical maximum dry density. R&B Sec.305.03(e)

Aggregate placed in the guardrail section of embankments should be compacted to a minimum of 90 percent of the theoretical maximum density. R&B Sec.305.03(e)

For lime stabilized subgrades, compaction should be to a density of not less than 95 percent of the theoretical maximum density. R&B Sec.306.03(f)

For hydraulic cement stabilized subgrades, compaction should be to a density of not less than 100 percent of the theoretical maximum density. R&B Sec.307.05(c)

For aggregate base (R&B Sec.309.05) and subbase layers (cement stabilized or untreated) (R&B Sec.308.03), the minimum densities are as follows:

Percentage + No. 4 Sieve Material	Min Percent Density
0 - 50	100
51 - 60	95
61 - 70	90

When testing aggregate using direct transmission (VTM-10) the minimum densities are as follows:

Percentage + No. 4 Sieve Material	Min.Percent Density
0 – 50	95
51 – 60	90
61 – 70	85