

**ROUTE 104, BRISTOL
Cement Compositions**

Component	Percent		
	Girder	Deck	
		w/o Silica Fume	w/Silica Fume
Silicon dioxide (SiO ₂)	20.1	21.5	27.18
Aluminum oxide (Al ₂ O ₃)	5.5	4.9	4.40
Ferric oxide (Fe ₂ O ₃)	2.3	3.1	2.67
Calcium oxide (CaO), Total	63.2	63.7	59.18
Calcium oxide (CaO), Free	1.2	0.7	—
Sulfur trioxide (SO ₃)	3.5	2.9	2.96
Magnesium oxide (MgO)	2.6	2.4	2.18
Alkali equivalent (Na ₂ O)	0.76	0.8	—
Potassium monoxide (K ₂ O)	—	—	0.98
Strontium oxide (SrO)	—	—	0.18
Manganese sesquioxide (Mn ₂ O ₂)	—	—	0.04
Zinc oxide (ZnO)	—	—	0.05
Chromium sesquioxide (Cr ₂ O ₃)	—	—	0.02
Loss on ignition	1.2	0.7	0.84
Insoluble residue	0.3	0.3	3.44
Tricalcium aluminate (C ₃ A)	11	7.6	7.15
Tetracalcium aluminoferrite (C ₄ AF)	7	9.6	—
Tricalcium silicate (C ₃ S)	54	50.9	—
Dicalcium silicate (C ₂ S)	17	23.1	—