Soils Field Testing Technician
KT-13 Field Density Tests of Soils, Treated Base Courses and Water Bound Base Courses (Sand Density)

Revised April 2025

Two attempts may be made by the applicant. The applicant may stop themselves once and not have that count as one of the two attempts. If the applicant stops voluntarily, draw a line at that point and note that the applicant stopped themselves then restart at the top of the next attempt.

Applicant: _____ **CIT #:** _____

Employer: _____

		1st Test		Stopped Test		Re-Test	
	Test Procedure						
	Determine Loose Unit Weight of Sand						
1.	Fill the cylinder of known volume to slightly overflowing by pouring the dry sand at a uniform rate from the spout of the pouring container. (4.1.1.1.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
2.	Hold spout approximately 2 in (50 mm) above the top of the container. (4.1.1.1.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
3.	Strike off the excess sand level with top of the container, avoid jarring the container. Weigh the cylinder and sand.(4.1.1.2.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
4.	Conduct a total of three tests to determine the loose unit weight of the sand and use the average value obtained when computing the "in-place" density. (4.1.1.2.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
	Field Density Determination						
5.	Select test site, determine and record the station, distance from centerline, and elevation as distance below the final grade. (4.1.2.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
6.	Trim off all raised or uneven spots to produce a smooth, flat surface not less than 18 in (450 mm) square, using a point shovel or other suitable tool, and remove all loose material from the area. (4.1.3.)	PASS	FAIL	PASS	FAIL	PASS	FAIL

Soils Field Testing Technician
KT-13 Field Density Tests of Soils, Treated Base Courses and Water Bound Base Courses (Sand Density)

Revised April 2025

		1st Test		Stopped Test		Re-Test	
7.	Drill or cut a test hole through the depth of the material being tested and save all material removed, protecting the sample from weather conditions which might change the moisture content. (4.1.4.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
8.	Weigh the material, record the mass, and dry the entire sample or a representative portion to constant mass. Weigh and record the dry mass. (4.1.5.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
9.	Determine and record the mass of the pouring container with a volume of sand somewhat greater than the volume of the test hole. (4.1.6.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
10.	Fill the hole level full of sand by pouring the sand at a uniform rate while holding the spout 2 in (50 mm) above the top of the test hole. (4.1.7.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
11.	The straight edge should be used to insure that the sand is level with the surface of the material surrounding the test hole. (4.1.7.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
12.	Weigh the pouring container and remaining sand and record the mass. (4.1.8.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
	Alternate Method for Holes Exceeding 2 feet in Depth.						
13.	Using a funnel, deposit the sand through a small pipe (about 3/4 in. in diameter). (4.2.1.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
14.	Let the pipe rest on the bottom of the hole and pour the sand into the pipe until it is full, then raise the pipe about 8 in. Repeat this step. (4.2.2.)	PASS	FAIL	PASS	FAIL	PASS	FAIL
15.	Do not let the pipe settle in the sand. The number of sections of pipe used does not affect the accuracy of the results, and each section may be removed as necessary. (4.2.2.)	PASS	FAIL	PASS	FAIL	PASS	FAIL

Soils Field Testing Technician
KT-13 Field Density Tests of Soils, Treated Base Courses and Water Bound Base Courses (Sand Density)

Revised April 2025

		1st Test		Stopped Test		Re-Test	
16.	Do the following calculations: Density of dry sand Percent moisture content of material Mass of sand in test hole Volume of test hole In place dry density of material being tested Mass of dry material removed from the test hole. (5.)	PASS	FAIL	PASS	FAIL	PASS	FAIL

Overall Score

Circle One

1st Test	Stopped Test	Re-Test
PASS	PASS	PASS
FAIL	FAIL	FAIL

Witness Examiner: _____ _____

(First Try) Signature Date

Witness Examiner: _____ _____

(Stopped Try) Signature Date

Witness Examiner: _____ _____

(Re-Test) Signature Date