

SAMPLING AND TESTING FREQUENCY CHART

ITEM	CONSTRUCTION OR MATERIAL TYPE	TESTS REQUIRED	TEST METHOD	ACCEPTANCE SAMPLES AND TESTS
1. COMPACTION OF EARTHWORK				
General	Field Density Tests	KT-13, KT-51	a	600 yd ² of prepared subgrade. Not less than 4 per day per equipment spread.
	Moisture Tests	KT-11, KT-51, or g	a	600 yd ² of prepared subgrade. Not less than 4 per day per equipment spread.
Structure Backfill	Field Density Tests	KT-13, KT-51		1 per structure minimum per lift (each side)
	Moisture Tests	KT-11, KT-51, or g	a	1 per structure minimum per lift (each side)
2. SUBGRADE MODIFICATION				
Aggregates	Plasticity Tests	KT-10	b,c	500 TONS or yd ³
	Sieve Analysis of Aggregate	KT-2	a	500 TONS or yd ³
	Material Passing the No.200 Sieve by the Wash Method	KT-3	a	500 TONS or yd ³
	Sticks in Aggregate	KT-35	e	
	Clay Lumps and Friable Particles in Aggregate	KT-7	e	
	Shale or Shale-like Materials in Aggregate	KT-8	e	
	Field Density Tests	KT-13 or KT-41	a,b	1,000 ft
	Moisture Tests	KT-11 or g	e	
3. AGGREGATE BASE COURSE				
Combined Aggregate	Sieve Analysis of Aggregate	KT-2	a	1,000 ft each lift or if total aggregate each 500 TONS
	Plasticity Tests	KT-10	a,c	1,000 ft each lift or if total aggregate each 500 TONS
	Moisture Tests	KT-11 or g	e	
Completed Base	Field Density Tests	KT-13 or KT-41	a	200 ft
	Moisture Tests	KT-11, KT-41 or g	e	

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3A. AGGREGATE BASE COURSE (OP SPECIAL)				
Combined Aggregate	Sieve Analysis of Aggregate	ASTM C 117-13 ASTM C 136-14	a	Preconstruction and when source of material changes
	Soundness, Wear, Absorption and Specific Gravity	Methods stated in the Standard Specifications, Subsection 1115		
	Liquid Limit and Plasticity Index	ASTM D 4318-10e1		
Completed Work	Sieve Analysis of Aggregate	ASTM C 117-13 ASTM C 136-14	h	Twice per day
	Liquid Limit and Plasticity Index	ASTM D 4318-10e1		
	Field Density Tests	Test strip roller pattern	h	Verification of roller pattern
4. STABILIZED SHOULDERS (Aggregate, Non Bituminous)				
Combined Aggregate	Sieve Analysis of Aggregate	KT-2	a	500 TONS
	Plasticity Tests	KT-10	a,c	500 TONS
	Moisture Tests	KT-11 or g	e	
Completed Shoulder	Field Density Tests	KT-13 or KT-41	b	200 ft
	Moisture Tests	KT-11, KT-41 or g	b	
5. SURFACE OR RESURFACING AGGREGATE				
	Sieve Analysis of Aggregate	KT-2	a	500 TONS
	Material Passing the No. 200 Sieve by Wash Method	KT-3	a	500 TONS
	Sticks in Aggregate	KT-35	e	
	Clay Lumps and Friable Particles in Aggregate	KT-7	e	
	Moisture Tests	KT-11 or g	e	

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6. PORTLAND CEMENT CONCRETE BRIDGE DECKS				
		Slump	KT-21	h As needed to control product, minimum 1 set of tests every 50 yd ³ . Select initial sample from first 2 or 3 loads and then on a random basis or as conditions indicate. Perform tests with every set of test cylinders.
		Unit Weight	KT-20	
		Air Content	KT-18, KT-19, or KT-20	
		Temperature	ASTM C 1064-12	
		Cylinders	KT-22	a Minimum 1 set of seven 6"x12" cylinders and one 4"x8" cylinder per 100 yd ³ or major mix design change. All cylinders shall be tested for compressive strength in accordance with ASTM C 39-17a at the following intervals: Two cylinders each at 7 days, 14 days, and 28 days. One cylinder shall be reserved for additional testing, if required.
		Permeability of Concrete	ASTM C 1202-12	One 4"x8" cylinder shall be tested at 28 days using standard moist curing (2 tests per cylinder).
		Density of Fresh Concrete	KT-36	a,b 150 yd ³ for Bridge Decks, Thin Overlays, and Bridge Deck Surfacing
		KCMMB Test #1	As specified in "Procedure for Analysis of Non-Specified Aggregate within Freshly Mixed Concrete" on file with the City Engineer.	e As needed to control product

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6A. PORTLAND CEMENT CONCRETE STRUCTURES				
	Slump		KT-21	h As needed to control product, minimum 1 set of tests every 50 yd ³ . Select initial sample from first 2 or 3 loads and then on a random basis or as conditions indicate. Perform tests with every set of test cylinders.
	Unit Weight		KT-20	
	Air Content		KT-18, KT-19, or KT-20	
	Temperature		ASTM C 1064-12	
	Cylinders		KT-22	a Minimum 1 set of 7 per 100 yd ³ All cylinders shall be tested for compressive strength in accordance with ASTM C 39-17a at the following intervals: Two cylinders each at 7 days, 14 days, and 28 days. One cylinder shall be reserved for additional testing, if required.
KCMMB Test #1		As specified in "Procedure for Analysis of Non-Specified Aggregate within Freshly Mixed Concrete" on file with the City Engineer.	e As needed to control product	
6B. PORTLAND CEMENT CONCRETE SIDEWALK AND FLATWORK				
	Slump		KT-21	h As needed to control product, minimum 1 set of tests every 50 yd ³ . Select initial sample from first 2 or 3 loads and then on a random basis or as conditions indicate. Perform tests with every set of test cylinders.
	Unit Weight		KT-20	
	Air Content		KT-18, KT-19, or KT-20	
	Temperature		ASTM C 1064-12	
	Cylinders		KT-22	a Minimum 1 set of 7 per 500 yd ² All cylinders shall be tested for compressive strength in accordance with ASTM C 39-17a at the following intervals: Two cylinders each at 7 days, 14 days, and 28 days. One cylinder shall be reserved for additional testing, if required.
KCMMB Test #1		As specified in "Procedure for Analysis of Non-Specified Aggregate within Freshly Mixed Concrete" on file with the City Engineer.	e As needed to control product	

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6C. PORTLAND CEMENT CONCRETE CURB AND GUTTER				
	Slump		KT-21	h As needed to control product, minimum 1 set of tests every 50 yd ³ . Select initial sample from first 2 or 3 loads and then on a random basis or as conditions indicate. Perform tests with every set of test cylinders.
	Unit Weight		KT-20	
	Air Content		KT-18, KT-19, or KT-20	
	Temperature		ASTM C 1064-12	
	Cylinders		KT-22	a Minimum 1 set of 7 per 500 lf All cylinders shall be tested for compressive strength in accordance with ASTM C 39-17a at the following intervals: Two cylinders each at 7 days, 14 days, and 28 days. One cylinder shall be reserved for additional testing, if required.
	KCMMB Test #1		As specified in "Procedure for Analysis of Non-Specified Aggregate within Freshly Mixed Concrete" on file with the City Engineer.	e As needed to control product
7. PORTLAND CEMENT CONCRETE PAVEMENT				
	Slump		KT-21	h As needed to control product, minimum 1 set of tests every 75 yd ³ . Select initial sample from first 2 or 3 loads and then on a random basis or as conditions indicate. Perform tests with every set of test cylinders.
	Unit Weight		KT-20	
	Air Content		KT-18, KT-19, or KT-20	
	Temperature		ASTM C 1064-12	
	Cylinders		KT-22	a Minimum 1 set of 7 per 150 yd ³ . At least 1 set per day.
	Profilograph		KT-46	b Testing by Contractor, results reviewed by City of Overland Park
	Thickness Cores			See Std. Spec. Sec. 502.3(m).
	Density of Fresh Concrete		KT-38	a,b Initially, 1 complete transverse profile, thereafter 5 tests per day.
		KCMMB Test #1		As specified in "Procedure for Analysis of Non-Specified Aggregate within Freshly Mixed Concrete" on file with the City Engineer.

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8. ASPHALTIC CONCRETE QUALITY ASSURANCE TESTING				
Bituminous Mixtures	Test showing the information required on table "Superpave Asphaltic Concrete Test (Verified Mix Design)" Mix Cured 4 hours before testing. City Engineer shall receive test results in approximately 7 hours.	Note: Procedure is specified in "Overland Park Technical Specification for Overland Park Superpave Asphaltic Concrete, subparagraph Superpave Asphaltic Concrete Mix Design Method", available in the office of the City Engineer.	a	One for two of the contractor test or as directed by the City Engineer.
	Resistance to moisture damage	AASHTO T283-14	a	1 per year and every 10,000 tons as directed by the City Engineer.
Completed Road Work	Field Density Tests Cores	KT-15 Procedure 3 or AASHTO T166	a	Surface & Base Courses 1 set of 3-4" cores per 1,000 tons placed as directed by the City Engineer. (Contractor QC)
	Field Density Tests Cores	KT-15 Procedure 3 or AASHTO T166	a	Surface & Base Courses 1 Set of 3-4" cores per 4000 tons placed as directed by the City Engineer. (City QA)
9. SLURRY SEAL				
	Sieve Analysis of Aggregate	KT-2	a	250 TONS
10. AGGREGATE FOR CONCRETE				
	Sieve Analysis of Aggregate	KT-2	a	250 TONS
	Material Passing the No. 200 Sieve by the Wash Method	KT-3	a	250 TONS
	Sticks in Aggregate	KT-35	e	
	Clay Lumps and Friable Particles in Aggregate	KT-7	e	
	Shale or Shale-like Materials in Aggregate	KT-8	e	
	Unit Weight (light weight aggregate only)	Section 1102(f)(2)(c)	e	
11. PORTLAND CEMENT TREATED BASE				
	Sieve Analysis of Aggregate	KT-2	a	1 in A.M. and 1 in P.M. or each 500 TONS
	Plasticity Tests	KT-10	a,b,c	1 in A.M. and 1 in P.M. or each 500 TONS
	Moisture Tests	KT-11 or g	e	Minimum of 1 per day
	Standard Compaction Test	KT-12	e	Minimum of 1 per day
	Field Density Tests	KT-13 or KT-41	a	1,000 ft/width laid or 2,000 ft/lane
	Field Moisture Tests	KT-11 or KT-41	a	1,000 ft/width laid or 2,000 ft/lane

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12. UNDERDRAIN AGGREGATE				
		Sieve Analysis of Aggregate	KT-2	a 500 TONS
		Sticks in Aggregate	KT-35	e
		Clay Lumps and Friable Particles in Aggregate	KT-7	e
13. CRUSHED STONE FOR BACKFILL				
		Sieve Analysis of Aggregate	KT-2	a 500 TONS
		Clay Lumps and Friable Particles in Aggregate	KT-7	e
14. STONE FOR RIPRAP, WASH CHECKS & OTHER MISC. USES				
		Sieve Analysis of Aggregate	KT-2	a 500 TONS or yd ³ Note: Tests to be conducted at production site.
15. FLY ASH				
		Moisture/Density and Compressive Strength Tests	D4609	e 4 series of Standard Proctors Moisture/Density relationships for each earth fill material. Two series incorporating 16% fly ash by dry weight, at delays of 0 and 2 hours. Find compressive strength for both series after 7 days at 100.4 degrees Fahrenheit. Min. 5 test specimens per series.
		Inplace Moisture	AASHTO T217-14	a Perform in place moisture tests using the gas pressure ("Speedy") method, at a rate of 1 per 718 sq. yard as during initial subgrade preparation and thereafter as directed by the engineer.
Compacted Subgrade		Field Density Tests	KT-13, KT-51	a 600 yd ² of prepared subgrade. Not less than 4 per day per equipment spread.
		Moisture Tests	KT-11, KT-51, or g	a 600 yd ² of prepared subgrade. Not less than 4 per day per equipment spread.

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Code Instruction

- a Normal operation. Minimum frequency for exceptional conditions may be reduced by the Project Engineer on a project basis, written justification shall be made to the City Engineer and placed in the project documents.
- b Applicable only when specifications contain those requirements.
- c If, for a given project, no Plastic Index results of ten (10) consecutive tests are closer than 1 Plastic Index to the specifications limit, the specified testing frequency may be reduced by fifty percent (50%). When operating at a reduced testing frequency, should any two (2) consecutive Plastic Index results exceed the test limit results required for reduced testing frequency, testing shall be resumed at the original specified frequency. The original specified testing frequency shall be resumed should any one test result exceed the specification limits. Following a return to the original specified testing frequency, the reduced frequency may be resumed providing the original criteria for reduced frequency are met.
- e Engineer's discretion. Frequency of tests shall be agreed upon by the Field Engineer and the Project Engineer. Frequency will be governed by field conditions. Written documentation of the agreed upon testing frequency shall be included in the project records.
- g For determining moisture content of a material, KT-43, Moisture Content of Asphalt Mixtures or Mineral Aggregates - Microwave Oven Method, can be used in conjunction with KT-2, KT-3, KT-4, KT-8, KT-12, KT-13, and KT-34.
- h Initial frequency. Frequency may be reduced on a project basis, by authority of the Project Engineer, upon continued satisfactory and uniform production. Authorization for reductions in testing frequency shall be documented in the project records.

GENERAL NOTES

Note 1: All sampling and testing frequencies listed are minimum. Additional or other tests will be conducted, as required, to control the work.

Note 2: Frequencies are based on two lane roadways. For four or more lane roadway construction, double the frequencies shown per unit length.

Note 3: All aggregate acceptance tests are to be conducted at the point of usage except for Item 15, Stone for Riprap, Wash Checks, and Other Miscellaneous Uses.

Note 4: Tests shall be performed on a random basis unless specified otherwise.

Note 5: All test methods listed as "KT" are Kansas Test methods and may be found in the KDOT Construction Manual Part V.