

14 - CERTIFICATION, TESTING AND INSPECTION SERVICES (PRIVATE DEVELOPMENT)

14.1 SCOPE

This section covers the requirements for testing and inspection of the work required and the information that is to be submitted and approved before the City of Overland Park will approve completed work.

14.2 GENERAL

No contractor shall commence construction of any sidewalk, driveway entrance, street, storm sewer, concrete ditch liner or major concrete structure without first calling the City for an inspection.

For all public improvements and work within the right-of-way, the provisions of the Standard Specifications for State Road and Bridge Construction, Kansas Department of Transportation, current edition (hereinafter the "Standard Specifications"), are incorporated, except as hereinafter specified.

14.3 CERTIFICATIONS

a. Certificates of Compliance.

When requested by the City Engineer, certificates of compliance shall be submitted by the contractor for public construction and by the project engineer for private construction. Certificates of compliance shall cover materials and construction methods used.

b. Certification of materials and equipment.

(1) When requested by the City Engineer, the contractor shall furnish certifications in accordance with Section 2601 of the KDOT Standard Specifications for the following materials and equipment:

- (a) Underdrain pipe
- (b) Concrete structures components
- (c) Concrete pipe
- (d) Reinforcing steel, plain and epoxy coated
- (e) Paving brick
- (f) Fly-ash
- (g) Fencing
- (h) Grass seed
- (i) Fertilizer
- (j) Landscape tree and shrub stock
- (k) Riprap
- (l) Liquid membrane forming compounds
- (m) Street lighting equipment
- (n) Traffic signal equipment
- (o) Modular retaining wall units
- (p) Geotextile fabrics
- (q) Pavement marking materials
- (r) Permanent signing
- (s) Other items to be incorporated into the work, not specifically indicated herein, but requested by the City Engineer.

(2) The Type of Certification required for each item shall be as per the Standard Specifications, except as approved by the City Engineer.

14.4 TESTING

a. Tests prior to construction.

- (1) When requested by the City Engineer, the contractor shall furnish test results from an approved testing laboratory in accordance with Sampling and Testing Frequency Charts for the City of Overland Park contained at the end of this Section. Tests may be required for any of the following:
- (2) Subgrade properties, including Atterberg limits, soil classification (Unified Soil Classification System), and moisture-density relationship;
- (3) Aggregate for Portland cement concrete, base course, plant mix bituminous intermediate course, or surface course;
- (4) Asphaltic cement properties;
- (5) Portland cement concrete properties.

b. Material tests during construction.

- (1) Tests of materials being used in construction shall be taken at the frequency established in the "Sampling and Testing Frequency Chart for City of Overland Park", attached at the end of this chapter.
- (2) In construction projects neither financed in whole or part by the City nor administered by the City, the Contractor will select the testing laboratory and pay for all sampling and testing deemed necessary by the City Engineer, subject to approval of the testing laboratory by the City Engineer.
- (3) In the event that any test indicates non-compliance, additional testing will be paid for by the Contractor to determine acceptability of the material or methods. The City reserves the right to determine when additional testing is warranted. The City's acceptance or rejection of the work shall then be based on the City's evaluation of all tests performed.
- (4) The City Engineer shall be provided with documentation of all tests, showing compliance, prior to acceptance of the construction.
- (5) Each test report shall be certified by a qualified person accredited by the American Association of State Highway and Transportation Officials (AASHTO), the American Association for Laboratory Accreditation (A2LA), the American Society of Testing Materials (ASTM), or the Kansas Department of Transportation (KDOT) in the test being performed.
- (6) Test reports shall be prepared in at least three copies and shall be distributed directly by the testing agency to the City Engineer, contractor, and the owner.

14.5 INSPECTION

a. Inspection of sidewalk and driveway entrance construction.

- (1) During the construction of all sidewalks and driveway entrances under the jurisdiction of the City, inspections shall be made by the City Engineer for:
 - (a) Form locations and grades, and subgrade prior to the placement of concrete.
 - (b) Final completion of the sidewalk or driveway entrance, including backfilling, right of way grading, and clean up.
- (2) These approvals will be secured by notifying the City Engineer in ample time, as determined by the current procedures of the City.

b. Inspection of street construction.

- (1) The Contractor shall notify the City Engineer a minimum of 24 hours in advance of placement of any concrete curb and gutter or commencement of any paving operations.
- (2) During the construction of all streets, roads and alleys under the jurisdiction of the City, inspections shall be made by the City Engineer during the following phases of construction:
 - (a) General subgrade preparation for the street.
 - (b) Curb stringline, and final subgrade, for the curb and gutter.
 - (c) Placement of the concrete curb and gutter.
 - (d) Subgrade prior to paving the first lift of asphalt.
 - (e) During the paving operations for the 1st lift of asphalt.

(f) Condition of the exposed lift of asphalt prior to paving any additional asphalt lifts, including intermediate courses, wedge courses, or surface course.

(g) During paving operations for all asphalt intermediate courses, wedge courses, and surface course.

(h) Final completion of the project, including backfilling, grading, and clean up.

c. Inspection of private drives and parking areas outside of public right of way.

(1) These specifications shall apply to new construction and reconstruction of all private drives and parking areas outside of public right of way, except for residential developments located in the A, R-1, R-1A, RE, RP-OE and RP-OS zoning districts.

(2) During construction of all private drives and parking areas under the jurisdiction of this section, inspections shall be made by the City in accordance with the specification "Parking Drives and Parking Areas Outside of Public Right-of-Way" contained herein.

(3) Work shall conform to Volume I, Design Standards Table IV "Private Drive and Parking Area Pavement Design and Construction Standards" or a City approved geotechnical report.

d. Inspection of storm sewer construction.

The contractor shall notify the City Engineer a minimum of 24 hours in advance of the beginning of any of the following phases of storm sewer construction:

(1) Delivery of the storm sewer pipe at the job site.

(2) During the pipe laying operations.

(3) During construction of curb inlets, area inlets, junction boxes, and/or manholes, prior to placement of concrete; or delivery of the pre-cast structures at the job site.

(4) During any street repair operations.

(5) Final completion of the project, including backfilling, grading and clean up.

e. Inspection of concrete ditch liner and major concrete structure construction.

The contractor shall notify the City Engineer a minimum of 24 hours in advance of the beginning of any of the following phases of the placement of any concrete for any ditch liner or any major concrete structure:

(1) Subgrade prior to placing seal course, floor slab, or ditch liner floor, including dewatering.

(2) Forms, reinforcing steel, and/or welded wire fabric for floor slabs, walls, and /or tops for ditch liners, or major concrete structures, prior to any concrete placement.

(3) During placement of concrete in floor slabs, ditch liner floors, walls or tops.

(4) During backfilling operations for ditch liners and major concrete structures.

(5) Final completion of the project, including grading and cleanup.

f. Approval.

(1) Other inspections may be made as deemed necessary by the City Engineer.

(2) Approval of the work by the City Engineer shall give the contractor the right to proceed with the succeeding operations, but shall in no way indicate complete approval of prior work if later inspection discloses any deficiency in the prior inspections.

Any inspection conducted shall not relieve the contractor from any obligation to perform the work in accordance with the approved plans. Any of the work not so constructed shall be removed and replaced according to the plans.

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	

SAMPLING AND TESTING FREQUENCY CHART

ITEM	CONSTRUCTION OR MATERIAL TYPE	TESTS REQUIRED	TEST METHOD	ACCEPTANCE SAMPLES AND TESTS
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	

SAMPLING AND TESTING FREQUENCY CHART

ITEM	CONSTRUCTION OR MATERIAL TYPE	TESTS REQUIRED	TEST METHOD	ACCEPTANCE SAMPLES AND TESTS
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	

SAMPLING AND TESTING FREQUENCY CHART

ITEM	CONSTRUCTION OR MATERIAL TYPE	TESTS REQUIRED	TEST METHOD	ACCEPTANCE SAMPLES AND TESTS
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		

SAMPLING AND TESTING FREQUENCY CHART

ITEM	CONSTRUCTION OR MATERIAL TYPE	TESTS REQUIRED	TEST METHOD	ACCEPTANCE SAMPLES AND TESTS
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.

SAMPLING AND TESTING FREQUENCY CHART

ITEM	CONSTRUCTION OR MATERIAL TYPE	TESTS REQUIRED	TEST METHOD	ACCEPTANCE SAMPLES AND TESTS
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	e	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

SAMPLING AND TESTING FREQUENCY CHART

ITEM	CONSTRUCTION OR MATERIAL TYPE	TESTS REQUIRED	TEST METHOD	ACCEPTANCE SAMPLES AND TESTS
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 2 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.

SAMPLING AND TESTING FREQUENCY CHART

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.