

CITY OF LINCOLN
MATERIALS SAMPLING GUIDE

A. GENERAL

1. All construction within the City ROW must conform to City of Lincoln Standard Specifications for Municipal Construction and The City of Lincoln Standard Plans.
2. All materials used must be on the latest edition of the NDOR Approved Products, Producers, Ready Mix Plants, or Gravel and Rock Producers Lists unless approved by the City.
3. Material sampling and testing on federal aid projects, shall conform to the latest edition of the NDOR Sampling Guide.

B. SOILS

1. Obtain compaction and moisture tests of fill, pavement sub-grade, and utility backfill at varying depths below finished grade at the rate of one test for each 300 linear feet of two-lane pavement grade or utility trench with a minimum of one test per day to represent work. Additional testing of smaller areas of construction may be required at the direction of the Engineer.
2. Utility trench backfill tests at finished grade should be obtained by having the Contractor turn the backhoe around and dig a sample hole 1' to 2' deep behind where current compaction is being done. For depths between 2' and 4' below finished grade, tests are obtained by having the Contractor peel a spot from the area currently being compacted. Sampling at depths greater than 4' below finished grade should only be done in trenches with the proper width, stepping, and/or shoring based on accepted practices for excavation and trench safety in the various soil types.
3. Inform the Engineer and Contractor of test results as soon as possible.
4. Record and report compaction/moisture test information including general test location (i.e. street name), Centerline Station and Offset, depth below finished grade, and check test indications for failed tests.

CITY OF LINCOLN
MATERIALS SAMPLING GUIDE

C. CONCRETE

1. Concrete must meet all the requirements of City of Lincoln Standard Specifications.
2. Make a minimum of one set of 3, 4" by 8", test cylinders for each concrete mix to represent each day's construction. On large pours make a set of 3 cylinders to represent each ½ days work. Additional sets may be required at the direction of the Engineer.
3. Notify the City Testing Lab prior to the start of each concrete placement of 100 cubic yards or more to allow for plant inspection.
4. Each concrete placement of 100 cubic yards or more shall require air, slump (if specified) and concrete temperature tests in addition to one set of 3, 4" by 8" cylinders for each one half day's construction. Tests should be run after any adjustments to the mix at the project site and cylinders should be made after the tests to be representative of concrete incorporated into the structure.
5. If concrete is pumped, tests must be run and cylinders fabricated from concrete sampled after the pump with the hose at approximately the same angle as required for the structure and not from the hose lying horizontal along the ground.
6. Notify concrete plant personnel of test results as soon as possible after testing to allow for adjustments to the mix.
7. If field tests indicate a need for a plant adjustment, additional tests should be run and cylinders fabricated after adjustment.
8. On large pours, an initial one or two loads of concrete which is slightly out of the specification range for air and/or slump (+/- 0.5% air, or +/- 0.5 inch slump) may be incorporated into the structure as long as immediate action is taken to adjust the mix within the specification range on all subsequent loads and is verified with test results.
9. If the air content of the concrete at the job site is less than the minimum specified, only one addition of air-entraining admixtures to a load is allowed. If the air content is then outside the limits specified, the load of concrete shall be rejected.
10. Admixtures which are not incorporated into the mix at the plant shall not be added to individual loads of concrete at the job site to enhance work-ability or pump-ability without permission from the Engineer.

CITY OF LINCOLN
MATERIALS SAMPLING GUIDE

C. CONCRETE (Continued)

11. Admixtures shall not be added to individual loads of concrete at the job site to reduce either air content or slump without permission from the Engineer.
12. No Class “C” Fly Ash Modified Concrete is allowed in City of Lincoln concrete pours. Refer to City of Lincoln Standard Specifications.
13. Deliver each set of test cylinders to the City Testing Lab for compression testing on the day following fabrication or on Monday if the pour occurred on Friday or the weekend.
14. Test cylinders delivered to the City Testing Lab shall be accompanied by a cylinder identification envelope (may be obtained from the City Testing Lab) containing the following information: date, time of fabrication, project number and location, test location within project, structure, method of cure of both structure and test cylinders, method of placement, weather conditions at the time of testing, mix, concrete plant, truck number, air, slump, and temperature tests if ran, amount of water, if any, added to the sample load represented by tests, in gal./cubic yard.
15. Truck delivery tickets indicating mix, plant, batch size, aggregate moisture, material weights, and admixtures must accompany every load delivered to the project site on City of Lincoln concrete pours and a copy of this ticket representing the load tested must accompany the test cylinders delivered to the City Testing Lab.
16. Each set of cylinders will be tested for compressive strength at 7 days and 28 days. The third cylinder will be an early break, tested prior to 7 days, depending on concrete mix and when made. If a specific age is desired, it should be indicated on the cylinder identification envelope. If more than one early break or other ages are desired, then additional cylinders should be fabricated and ages indicated on cylinder identification envelope.

CITY OF LINCOLN
MATERIALS SAMPLING GUIDE

D. ASPHALT

1. Asphalt must conform to City of Lincoln Standard Specifications.
2. Plants supplying asphalt for City projects must submit mix designs and material samples to the City Testing Lab, for all mix types to be used, at the beginning of each construction season and at least 14 days prior to production.
3. Notify the City Testing Lab at the beginning of each day Asphaltic Concrete is to be placed to receive the sampling schedule and to allow for plant material sampling.
4. Field sampling of Asphaltic Concrete shall be done by the Engineer on a lot basis, at the rate of one sample for each 500 tons placed or fraction thereof per day. A random sampling schedule for the sample ton will be provided by the City Testing Lab. If the amount of asphalt to be placed will not exceed 100 tons into the next lot, it will be represented by the previous lot's sample.
5. Sample Asphalt from the mat immediately behind the paver prior to rolling. Follow the sampling schedule as close as possible for the sample ton, but do not sample in a radius, hand work area or any area that is not representative of the bulk of the asphalt placed in the lot.
6. Sample is obtained by extracting a minimum of three full scoops from the mat with a square-nosed shovel (40 lb. – 45 lb.) and placing in a double layered, large, paper grocery bag. Penetrate the mat as completely as possible, but do not get into the tack oil or sub-grade below the mat.
7. Measure the mat temperature at the sample location at time of sampling.
8. Record the following information on the bags of both samples:
 - a. Date
 - b. Sample number
 - c. Sample ton
 - d. Mat temperature
 - e. Lift (e.g. Top, Middle, Bottom)
 - f. Lane (e.g. WB-O, West Bound Outside or NB-RT, North Bound Right Turn)
 - g. General Location (e.g. Pioneers Blvd., 150' east of 56th)
 - h. Stationing and Offset left or right from centerline is also helpful but not required.

CITY OF LINCOLN
MATERIALS SAMPLING GUIDE

D. ASPHALT (Continued)

9. Transport the sample to the City Testing Lab as soon as possible to maintain heat. Notify the City Testing Lab by phone (441-8407) when in route.
10. After the rolling process is complete and within 2 days of placement, a density core shall be taken to represent each lot. The core shall be taken by the Contractor, in the presence of the Engineer, five to ten feet from the sample location. Make sure that this location does not fall in a radius, hand-work area or any area that is not representative of the bulk of the asphalt placed in the lot. The Engineer shall take immediate custody of each density core after removal from the mat and deliver it to the City Testing Lab.
11. If the density core does not meet the required density for 100% pay, two additional check cores shall be obtained by the Contractor within 7 days of placement. Check cores shall be taken within the same lot as the original core at locations designated by and in the presence of the Engineer as described above. The average density of the original core and the two check cores shall be used to compute % pay.
12. If density core testing indicates pay deductions for any lot, the tonnage of that lot shall be obtained from the Engineer's placement records and the deduct amount calculated from the bid price per ton as per City of Lincoln Standard Specifications.

E. PAVEMENT CORING

1. Before acceptance of new pavement construction, drilled cores shall be obtained by the Engineer to verify compliance with pavement design thickness and concrete compressive strength specifications.
2. Cores for depth shall be taken, with a minimum 2" diameter core bit, at the rate of one core for each 300 linear feet of two lane pavement. Additional cores shall be taken to represent turn lanes, intersections, and other areas as directed by the Engineer. If any depth core indicates insufficient pavement thickness, additional cores shall be taken to determine the limits of the area of thin pavement.
3. If test cylinders indicate questionable compressive strength, cores shall be taken using a 4" diameter core bit to represent the concrete in question and shall be delivered to the City Testing Lab for compressive strength testing.
4. All core holes shall be filled immediately after cores are removed with a commercially produced concrete mix product approved by the Engineer.

CITY OF LINCOLN
MATERIALS SAMPLING GUIDE

- F. GRANULAR MATERIALS (Surfacing, Bedding, Foundation, Base, Fill, Backfill, etc.)
1. The Engineer shall run all quality, physical, and chemical tests required by the project specifications to represent the material source and all proctor curves required including AASHTO T-99 for standard density and ASTM D 4253 and ASTM D 4254 for relative density. Results of these tests and locations of samples shall be reported to the City Testing Lab.
 2. These materials shall be sampled and tested for project specification compliance for gradation at the rate of one sample for every 250 tons or fraction thereof of material delivered to the project site. Samples shall conform to ASTM C 136 for size.
 3. When required, moisture-density testing shall be done at the rate of one test for each 300 linear feet of pipe or two lane pavement or fraction thereof per day. In cases of short sections or structure backfills, the number of tests is to be increased at the direction of the Engineer, to adequately represent the material in the fill.