2025 ONTARIO AND QUÉBEC MINI-CORRELATIONS

AGGREGATES and SOILS INCLUDING SUPERPAVE AGGREGATES

Please read the following Mini-Correlation instructions carefully BEFORE you start testing!

- Testing of mini correlation samples shall be according to the below instructions.
- Submission of results by **March 28, 2025** in the mini correlation report(s) provided in the labs portal. https://portal.ccil.com/ After signing into the portal, all mini-correlation reporting forms appropriate to your lab certification will be accessible under the tab for **Reporting Forms**. You will be able to enter your test results into the forms and submit to CCIL through the portal.
- Please record the mini-correlation sample identification information found on the sample labels in the "Comments" section of the reporting forms and upload any photos of unclear labels in the portal mini report.

SAMPLES FOR MINI-CORRELATION TESTING

- Samples for the mini-correlation were shipped to the laboratory on March 6, 2025. If you experience delay in receiving your samples, please advise Anett Briggs abriggs@ccil.com of your need for an extension. **Results beyond March 31st may affect your 2025 certificate being issued**.
- The mini-correlation samples are pre-prepared to meet the requirements of the appropriate test method and are to be tested as received unless instructed otherwise.
- Generally, only one sample will be shipped for each test requiring a mini-correlation. Tests for a mini-correlation are not generally carried out in pairs.
- Unsatisfactory mini result will result in a 2nd mini correlation that must be conducted in the presence of a CCIL inspector, typically at the laboratory's expense.

ONTARIO AND QUÉBEC MINI-CORRELATION INSTRUCTIONS – AGGREGATES

LS-600: Sample Preparation

Dry all mini-correlation aggregate samples to a constant mass at 110 ± 5°C. (Drying at max 40°C that was needed for some of the samples tested in 2024 does not apply to any of the mini correlation samples.)

LS-601/ASTM C117: WASH PASSING THE 0.075 mm SIEVE.

Test the entire mini correlation sample as specified in Guideline A of LS-601. Report the Percent Loss to two decimal (0.01%).

LS-602: SIEVE ANALYSIS OF AGGREGATES,

If the problem with your original test results was with the fine aggregate sieves only, your lab will receive a mini-correlation sample of fine aggregate only. See special instructions for fine aggregate samples (Fine Only) below.

Otherwise, your lab will receive a combined coarse aggregate and fine aggregate sample.

Combined
If you receive a **combined coarse and fine aggregate sample**, test the entire mini-correlation sample as specified in LS-602 to determine the aggregate gradation. Report the percent passing on each sieve listed in the portal report (19, 16, 13.2, 9.5, 4.75, 2.36, 1.18, 0.6, 0.3, 0.15 and 0.075 mm). All sieves are to be reported to 1 decimal (0.1%), except the 4.75 mm and 0.075 mm sieves are to be reported to two decimal places (0.01%).

Fine Only
If you receive **only fine aggregate** for the mini-correlation sample, test the entire mini-correlation sample following LS-602 on the 4.75, 2.36, 1.18, 0.6, 0.3, 0.15 and 0.075 mm sieves. Wash the sample according to LS-601 as cl. 5.7. indicates.

NOTE: Prior to reporting, carry out the following calculation: Reduce the % passing on each sieve by multiplying your results by the multiplication factor **0.474**, see example on the next page. Failure to do so, may result in the laboratory being required to participate in a second mini correlation in the presence of a CCIL inspector, typically at the laboratory's expense.

All sieves are to be reported to 1 decimal (0.1%), except the 0.075 mm sieve is to be reported to two decimal places (0.01%).

Example for reducing the % passing on each sieve:

Sieve (mm)	Fine Aggregate % Passing of mini sample provided	Multiplication factor (%Passing 4.75mm)	Value to be reported in the portal report (% Passing of full sample including coarse material)
2.36	77.7	x0.491	=38.1
1.18	58.2	x0.491	=28.6

LS-607: PERCENT CRUSHED PARTICLES IN PROCESSED COARSE AGGREGATE

The mini-correlation sample is comprised of a single test sample with all the size fractions combined. Separate the sample into size fractions according to the table below. Do NOT determine the crushed particles/ fractured particles of 26.5 mm to 19.0 mm fraction. Assign the same percent crushed value from the 19.0 mm – 13.2 mm fraction, to the 26.5 mm to 19.0 mm fraction.

Passing sieve	Retained Sieve	Minimum Mass, g
19	13.2	1250
13.2	9.5	500
9.5	6.7	200
6.7	4.75	75

Determine the percentage of material with at least one fractured face to the nearest 0.1%

All 5 fractions shall be used to compute the weighted average according to the following gradation.

Sieve (mm)	Cumulative Percent passing for total sample (coarse and fine) 2024 and 2025 label
26.5	100
19.0	93.8
13.2	71.2
9.5	59.3
6.7	50.0
4.75	47.4

Report the weighted average to the nearest 0.1%.
The portal allows 2 decimals but only the above is required.

LS-608 PERCENT FLAT AND ELONGATED PARTICLES:

The mini-correlation sample is comprised of a single test sample each, representing all of the size fractions combined. Do not separate into sized fractions. Test the portion of the sample retained on the

4.75mm sieve only. Test as a single fraction and report a Percent Flat and Elongated particles on that basis.

For Type C LS-608 use a 4:1 ratio.

Report the overall result to the nearest 0.1%. The portal allows 2 decimals but only one is required.

LS-621: AMOUNT OF ASPHALT COATED PARTICLES IN COARSE AGGREGATE

Test the entire mini correlation sample. Carry out the test as outlined in LS-621 and report the Percentage of Asphalt Coated Particles to the nearest 0.1%. The portal allows 2 decimals but only one is required.

TYPE D TESTS

LS-603/ASTM C131: LOS ANGELES ABRASION

Carry out the test as outlined in the test procedure using Grading B given in Table 2 with the charge indicated in Table 1. Report the Loss to the nearest 0.1%. The portal allows 2 decimals but only one is required.

LS-604/ASTM C127: RELATIVE DENSITY AND ABSORPTION OF COARSE AGGREGATE

Carry out the test as outlined in the test procedure. The mini-correlation sample size allows for duplicate testing. Report the Average Relative Density (OD) to three decimal places (0.001). Calculate and report the Average Percent Absorption and report to 2 decimal places (0.01%).

LS-605/T84: RELATIVE DENSITY AND ABSORPTION OF FINE AGGREGATE,

The mini-correlation sample size allows for duplicate testing. Prepare the test samples in accordance with LS-605, including removing the material finer than 75µm following the procedure in LS-601 prior to testing. Saturate the test specimens from both samples by immersion in water for 24 ± 4 hours. Report the Average Relative Density (OD) to three decimal places (0.001). Calculate and report the Average Percent Absorption and report to 2 decimal places (0.01%).

LS-618: MICRO-DEVAL ABRASION OF COARSE AGGREGATE

Carry out the test as outlined in the test procedure. Prepare three fractions with the below mass for each fraction.

19.0 mm to 16.0 mm - 375 g
16.0 mm to 12.5 mm - 375 g
12.5 mm to 9.5 mm - 750 g

Recombine and test the 1500g sample in accordance with the test method. Report the mini-correlation test sample loss to the nearest 0.1%. The portal allows 2 decimals but only one is required.

Run a control sample at the same time. Report your control sample tested (Drain Brothers or MTO RM CA2), and Loss to the nearest 0.1% in the comments section of the portal report.

LS-619 MICRO-DEVAL ABRASION LOSS OF FINE AGGREGATE,

Prepare 500 g test specimens from the mini-correlation samples according to the test method and the table below (section 5 of the standard).

Passing	Retained	Mass g
4.75	2.36	50
2.36	1.18	125
1.18	0.600	125
0.600	0.300	100
0.300	0.150	75
0.150	0.075	25

Report the mini-correlation sample loss to the nearest 0.1%.

Run a control sample at the same time. Your laboratory control sample shall be MTO RM FA3 which shall be tested in the same gradation as per Section 5.3 of LS-619. The portal allows 2 decimals but only one is required.

LS-629/T304: UNCOMPACTED VOIDS

NOTE: Carry out the test in accordance with Method A. DO NOT use the specific gravity values **determined** by your lab. Use the value of 2.687.

ASTM D2419: SAND EQUIVALENT

The mini-correlation sample is comprised of a single test sample. Prepare the test specimens in accordance with Procedure A or B. Report the average sand equivalent value to the nearest 0.1%. Include whether you used Procedure A or B in the comments of the report in the portal. The portal allows 2 decimals but only one is required.

ASTM D5821: PERCENTAGE OF FRACTURED PARTICLES IN COARSE AGGREGATE

Test the portion of the sample retained on the 4.75mm sieve only. Do not separate into individual size fractions. Determine the percentage of fractured particles with at least one fractured face by mass. Report the Percent Fractured particles to the nearest 0.1%.

ASTM D4791: PERCENT FLAT AND ELONGATED PARTICLES

The mini-correlation sample is comprised of a single test sample each, representing all of the size fractions combined. Do not separate into sized fractions. Test the portion of the sample retained on the 4.75mm sieve only. Test as a single fraction and report a Percent Flat and Elongated particles on that basis.
For Type D Superpave Properties ASTM D4791 use a 5:1 ratio.

Report the overall weighed average the result to the nearest 0.1%. The portal allows 2 decimals but only one is required.

SOILS TESTS

LS-702: PARTICLE SIZE ANALYSIS OF SOILS

Prepare the test specimens in accordance with T88. Use a freshly prepared dispersing agent with distilled water using 40 grams of sodium hexametaphosphate per litre of solution and ensure the pH value of the solution is adjusted to 8 or 9. The soil samples supplied should be dispersed in the stirring apparatus for 10 minutes.

Compute the specific gravity correction factor α and constant K using the value for the specific gravity of soil particles in the table below, depending on the mini year indicated on the sample bag (DO NOT use the values determined by your lab).

Mini year on label	Specific gravity of soils particles
2024	2.750

Upon completion of the test, compute Constant K, Coefficient of Viscosity η, and Particle Diameter D to four significant digits (i.e., 0.0001), and record the results in the comment of the portal report. Report the Percent passing the 2.0 mm, 425µm, 75µm, 20µm, 5µm and 2µm sieves to the nearest 0.1 percent.

Report the percent passing the 2.0 mm, 425µm, 75µm, 20µm, 5µm and 2µm sieves to one decimal (0.1 %). The portal allows 2 decimals but only one is required.

LS-703/ LS-704 /ASTM D4318: LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS

Determine the Liquid Limit, Plastic Limit and Plasticity Index of mini-correlation soil sample provided according to ASTM D 4318. Prepare the test specimens as outlined in Section 11.2 – Dry Preparation, and determine the Liquid Limit according to the procedure described in Section 12.0, Method A – Multi-point Liquid Limit. Determine the Plastic Limit using a minimum of two trials and report the mean value. Report the Liquid Limit, Plastic Limit and Plasticity Index to the nearest one decimal, i.e., 0.1 %. The portal allows 2 decimals but only one is required.

LS-706/ASTM D698: MOISTURE-DENSITY RELATIONSHIP

Follow ASTM D698 Method C to perform the test on only the materials passing 19.0 mm sieve for compaction. Use the following parameters to compute correction for oversize particles:

Bulk specific gravity of the oversize fraction = 2.600
Water content of the oversize fraction = 0.90%

Calculate corrected optimum moisture content according to equation (4) of ASTM D 4718.

Calculate corrected maximum dry density using the following equation:

$C\rho d = (100\ \rho F\ GM)/(\rho F\ PC + GM\ PF)$

where:
Cρd = corrected dry density of the total material (combined finer and oversize fractions),
GM = bulk specific gravity,
ρF = dry density of the finer fraction,
PC = Percent of oversize coarse fraction by weight, and
PF = Percent of oversize finer fraction by weight,

Example Calculation:

Given GM = 2.62, ρF = 2.250, PC = 12.2%, PF = 87.8%

$C\rho d = (100 \times 2.250 \times 2.62) / (2.250 \times 12.2 + 2.65 \times 87.8) = 2.289$

Report the maximum wet density in t/m3, corrected maximum dry density in t/m3, and corrected optimum moisture content in percentage. DO NOT REUSE THIS MATERIAL. (Note: t/m3 = g/cm3).