METHOD OF TEST FOR RESISTANCE TO DEGRADATION OF COARSE AGGREGATE BY ABRASION AND IMPACT IN THE LOS ANGELES ABRASION MACHINE

1. SCOPE

This method covers the determination of resistance to degradation of coarse aggregate by abrasion and impact using the Los Angeles testing machine.

2. RELEVANT DOCUMENTS

2.1	AASHTO T 96	Standard Method of Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
2.2	ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
2.3	ASTM C535	Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
2.4	CSA-A23.2-16A	Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
2.5	CSA-A23.2-17A	Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

3. PROCEDURE

Procedures of ASTM C131 and C535 shall be followed, except as noted below, for the determination of degradation of coarse aggregate by abrasion and impact using the Los Angeles testing machine.

4. EXCEPTIONS

4.1 SIEVES: Conforming to ASTM E11, except use 13.2 mm sieve size instead of 12.5 mm.

4.2 Replace ASTM Standard Clause 5.4.1, with Table 1 as follows:

The abrasive charge, depending upon the grading of the test sample as described in Table 2, shall be as follows:

Table 1

GRADING	# OF SPHERES	MASS, g
A	12	5000 ± 25
B	11	4580 ± 25
C	8	3330 ± 20
D	9	3740 ± 20

Table 2 - Gradation of Test Samples

SIEVE SIZE		MASS OF INDICATED SIZES, g			
PASSING	RETAINED	A	B	C	D
37.5 mm	26.5 mm	1250 ± 25			
26.5 mm	19.0 mm	1250 ± 25			
*19.0 mm	13.2 mm	1250 ± 10	2500 ± 10	-	2500 ± 10
13.2 mm	9.5 mm	1250 ± 10	2500 ± 10	-	1250 ± 10
* 9.5 mm	4.75 mm	-	-	-	1250 ± 10
9.5 mm	6.7 mm	-	-	2500 ± 10	-
6.7 mm	4.75 mm	-	-	2500 ± 10	-
	TOTAL	5000 ± 10	5000 ± 10	5000 ± 10	5000 ± 10

* Material previously separated into individual sizes shall be recombined in proportion to the original or laboratory crushed gradation.

5. USE OF LABORATORY CONTROL AGGREGATE

5.1 Every ten samples, but at least every week in which a sample is tested, a sample of a reference aggregate shall also be tested. The material shall be taken from a stock supply maintained by the laboratory.

Note: The material selected by the laboratory may be calibrated against a supply of Drain Brothers Stoney Lake Quarry stone. When prepared to an 11-B grading, the mean loss of the Stoney Lake Brothers Quarry standard reference aggregate is 26.0% (MERO-036, 2010). Individual test data should not normally be greater than 28.8%, or less than 23.2%.

5.2 Control Chart Use: The percent loss of the last 20 samples of reference material shall be plotted on a control chart in order to monitor the performance of the laboratory.

6. REPORT

The report shall also include the following:

6.1 The percent loss of the reference sample, tested closest to the time at which the aggregate sample was tested, to one decimal place.

6.2 The percent loss of the last 2 samples of reference material on a control chart.

Ministry of Transportation
Ontario

LOS ANGELES ABRASION TEST

LAB. NO.	% CRUSH	NO. OF BALLS	TYPE OF GRADE	MASS RETAINED							TOTAL MASS	RET. 1.70 mm (500 REV'S.)	
				26.5 mm	19.0 mm	16.0 mm	13.2 mm	9.5 mm	6.7 mm	4.75 mm		BEFORE WASHING	AFTER WASHING

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Date _____ Operator _____ Computed by _____

Figure 1 - Los Angeles Abrasion Data Card