Transport Roads & Maritime Services

NSW GOVERNMENT

Test method T369

Longitudinal profile testing

OCTOBER 2012

Revision Summary

Ed/Rev Number	Clause Number	Description of Revision	Authorisation	Date
		Reformatted and Revision Summary Added	D.Dash	May 1999
		Date on Test Method Revised to Agree with Date on Revision Summary	D.Dash	Feb 2001
Ed 2/ Rev 0	All	Reformatted RMS template	J Friedrich	October 2012

Note that Roads and Maritime Services is hereafter referred to as 'RMS'.

The most recent revision to Test method T369 (other than minor editorial changes) are indicated by a vertical line in the margin as shown here.

Test method T369

Longitudinal profile testing

1. Scope

This test method sets out the procedure for determining and assessing the longitudinal surface profile of a concrete surface such as a pavement or bridge deck.

2. Test Equipment

"ARRB Walking Profiler", produced by ARRB Transport Research Pty Limited of Melbourne, Victoria.

3. Testing Procedure

(a) Test the pavement surface profile along a straight line within 0.3 m of the centre of a traffic lane (or potential lane), in accordance with the instruction manual for the ARRB Walking Profiler and RTA Test Method T370

(b) At discontinuities in testing within a lane, provide an overlap of at least 3 m on a line within 0.05 m of the original, and identify the chainage (longitudinal location) to an accuracy of at least 0.2 m. A discontinuity in testing occurs when the data recorder is reset, but not when merely a pause occurs in the Profiler's movement.

(c) At junctions of testing lines at ramps and intersections, extend the testing for a distance of at least 1 m beyond the junction, and identify the point of intersection to an accuracy of 1m in both test series.

(d) On pavement at the approach to a bridge structure, extend the pavement profile testing onto the bridge approach slab or abutment by at least 10m, or whatever lesser length is available.

(e) Plot the test results to scales of 1:25 horizontally and 1:0.25 vertically.

4. Analysis of Results

4.1 Bump Template

(a) For continuous profiles, graphically assess the plot using "bump templates" of transparent plastic, as shown in Figure 1, to identify pavement areas which might need surface correction. The templates correspond to actual profile dimensions of 7.5 m horizontally and 7 or 10 mm vertically.

(b) Move each template in turn along the profile plot so that the lower edge forms a chord along the base of the plot, as shown in Figure 2. The template does not remain horizontal during this trace, for which a continuous plot of the profile is needed.

(c) Using the wider template, mark any portion of the plot which extends above the upper edge of the template, as high by more than 10 mm.

(d) Using the narrower template, mark portions of the plot which extend above the upper edge of the template, as high by more than 7mm.

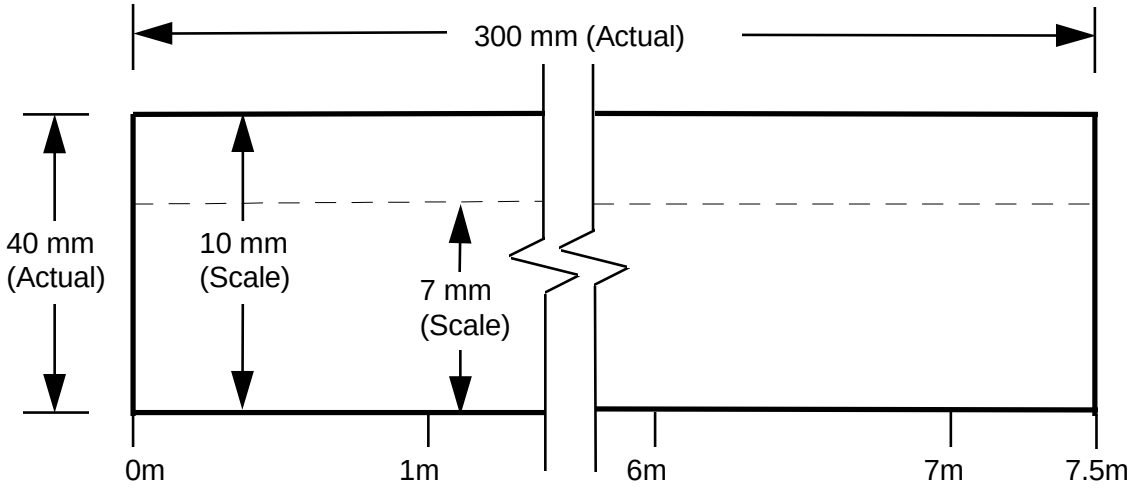
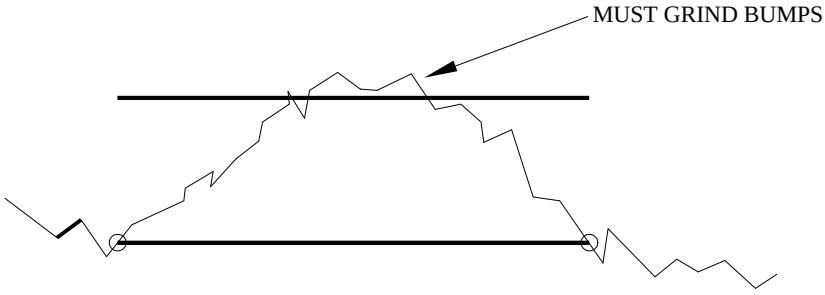
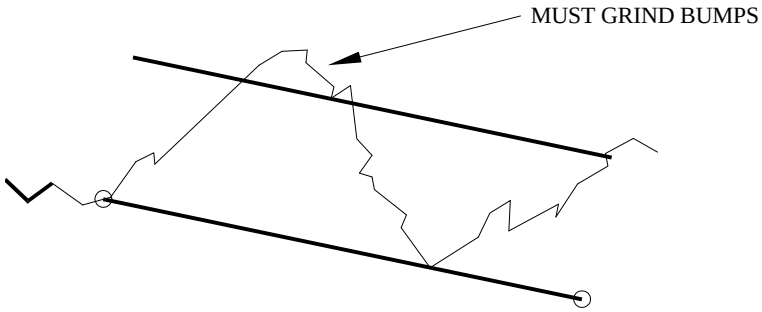


Figure 1. Bump Template



(a) Baseline approx. 7.5m



(b) Baseline less than 7.5m

Figure 2. Use of the Bump Template

Not to scale

4.2 Blanking Template

(a) For discontinuous profiles, graphically assess the plot using a "blanking template" of transparent plastic, as shown in Figure 3, to determine a Profile Index. The template corresponds to actual profile dimensions of 7.5 m horizontally and 15 mm vertically (with 5 mm blanked).

(b) Place the template over the profile plot, sequentially in 300 mm steps, so as to cover as much of the trace as possible with the blanking band, as shown in
Figure 4. The template does not necessarily remain horizontal for this analysis. A continuous plot of the profile is not needed, but the minimum length of any plot should be 300 mm.

(c) Measure the height of all loops above and below the blanking band to the nearest 1 mm.

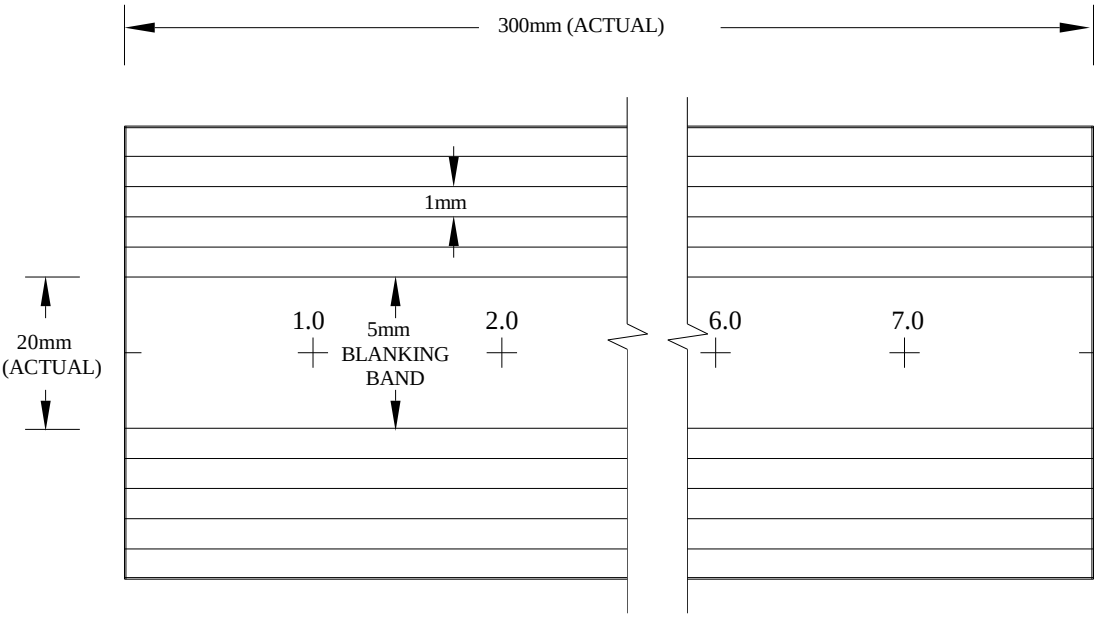


Figure 3. Blanking Template

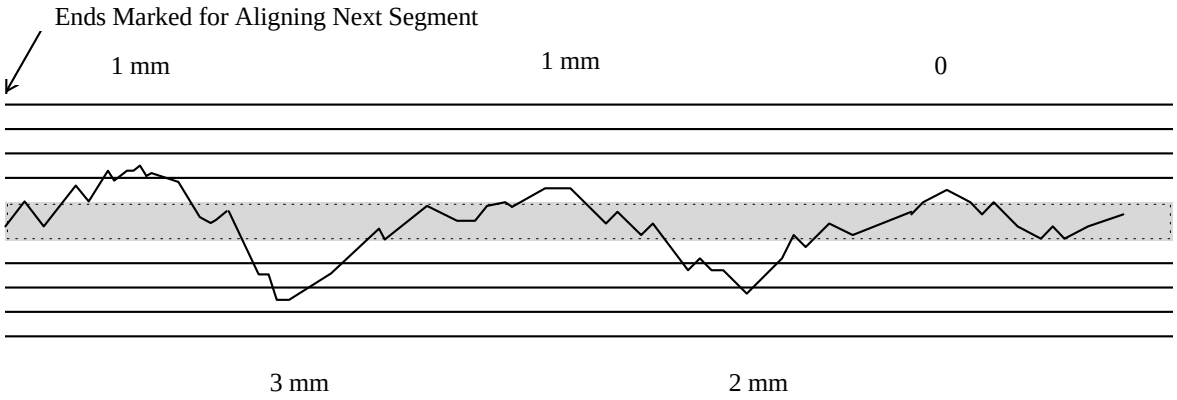


Figure 4. Use of the Blanking Template

Not to scale

5. Calculations

Calculate the profile index for each traffic lane of each section (*eg* bridge approach) as follows:

$$\text{Profile index (mm/km)} \quad PI = \frac{\text{Sum of plot loop heights (mm)}}{\text{Section length (m)}} \times 1000$$

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