



SPECIFICATION FOR SKID RESISTANCE DEFICIENCY INVESTIGATION AND TREATMENT SELECTION

1. SCOPE

This specification outlines the process for identifying skid resistance deficiencies and provides guidelines for prioritising the programming of resurfacing treatment.

2. INVESTIGATORY LEVELS (IL's)

The IL's for different site categories are shown in Table 1. Site categories 1, 2 and 3 are defined as High Demand and sites 4 and 5 as Low Demand. These demand levels impact on the treatment selection.

Table 1

Investigatory Skid Resistance Levels

Site Category	Site Definition	Investigatory Level (SFC)*	Demand Category
1	Approaches to railway level crossings, traffic lights, pedestrian crossings, roundabouts, Stop and Give Way controlled intersections (SH only), One Lane Bridges (including bridge deck).	0.55	High Demand
2	Curve < 250m radius Down gradients > 10%	0.50	High Demand
3	Approaches to road junctions Down gradients 5 - 10% Motorway junction area including On/Off Ramps	0.45	High Demand
4	Undivided carriageways (event - free)**	0.40	Low Demand
5	Divided carriageways (event - free)	0.35	Low Demand

*SFC = Sideways Force Coefficient

**Event-Free = Where no other geometrical constraint influences the frictional demand.

3. MODIFICATION OF THE INVESTIGATORY LEVEL

Where crashes occur as a result of 'loss of control' or 'skidding in the wet' and the road surface at the site has a Sideways Force Coefficient Routine Investigation Machine (SCRIM) value at or above the IL, it may be necessary to review the IL. Guidelines for modifying the IL levels at selected sites are outlined in the Notes to this specification.

A sensible approach must be taken when modifying the default IL's to ensure that they are modified only where required.

4. ANALYSIS OF SKID RESISTANCE DEFICIENCIES

To determine the priority for treating sites which are deficient in skid resistance generate a report entitled "SCRIM Deficiency by Seal Length and Site Category" from the RAMM database. This report identifies sites where the average deficiency is greater than or equal to the threshold level over the site category length, within a seal length. The threshold is defined as sites that have a SCRIM value of ≥ 0.1 below the IL.

Refer to the SCRIM Deficiency Report User Guidelines which sets out the three levels for analysing the deficiencies. These levels determine the priority for addressing the deficient lengths:

Level 1 Site Categories with an average deficiency over the total length of the site category.

Level 2 Rolling average deficiencies within a site category.
Use the criteria outlined for High and Low Demand sites in Table 2 to determine the minimum length for treatment.

Table 2

<i>Demand Category</i>	<i>Criteria</i>
High Demand (Site Categories 1, 2 & 3)	≥ 5 consecutive 10m lengths, (ie a ≥ 50 m continuous length) which has a deficiency \geq the threshold value, (currently ≥ 0.1 below the IL)
Low Demand (Site Categories 4 & 5)	≥ 10 consecutive 10m lengths, (ie a ≥ 100 m continuous length) which has a deficiency \geq the threshold value, (currently ≥ 0.1 below the IL)

Level 3 Isolated intermittent lengths of deficiency not identified in Levels 1 or 2. These skid deficient lengths are still potentially hazardous and must be investigated for treatment as soon as practicable as part of routine highway maintenance.

From the sites identified in the report, ensure the following have been subtracted:

- sites which are already included in the forthcoming resurfacing programme; and
- sites that have been treated to improve the surface texture depth. These include activities such as "burning" to remove excess bitumen at flushed sites.

4.1 Temporary Reductions in SCRIM Values

Excess binder coating the tops of the surfacing aggregate can influence the SCRIM values. Where sites have experienced "bleeding" during the summer months and excess binder has tracked along the wheel paths, there can be a temporary reduction in the measured skid resistance values. As this is generally only temporary and the skid resistance is restored when the binder wears off the aggregate, identification and appropriate treatment of these sites is important before programming for resurfacing.

To determine which sites may have been affected the following actions are necessary for sites identified in the SCRIM Deficiency report:

- Determine if bleeding occurred during the summer months, typically by researching the gritting or associated bleeding repair maintenance activities;
- Produce a graph of the previous year's SCRIM results (see notes to this specification) for the affected sites to compare with the current year's results and determine if there has been a significant reduction in the skid resistance between surveys (usually 12 months);
- Undertake a site investigation to further examine evidence of bleeding and compare with adjacent sites and across the full lane width (e.g. take particular note of blackened or even slightly discoloured wheel paths).

Where a significant reduction in SCRIM values has occurred from one year to the next, and indications are that the chip has not polished, then the SCRIM deficiency should be considered temporary. The site should be treated to eliminate the cause of the excess binder (including any adjacent areas causing the problem) and monitored to ensure that excess binder does not influence the SCRIM results next summer.

5. TREATMENT SELECTION

Determine the appropriate treatment with due consideration to the minimum Polished Stone Value Requirements and Resurfacing Lengths as outlined below.

5.1 Polished Stone Value Requirements

All resurfacing shall be performed with aggregate that has an appropriate polished stone value (PSV) to maintain the skid resistance above the IL for the design life of the surface. The following equation gives the relationship between skid resistance and PSV:

$$PSV = 100 * SR + 0.00663 * CVD + 2.6$$

SR = Investigatory Level value for the site in units of SFC

CVD = flow of commercial vehicles per lane per day. In this case a commercial vehicle is any vehicle that has a weight of 3.5 tonnes or more.

PSV = Minimum Polished Stone Value of aggregate

5.2 Resurfacing Lengths

To determine the length to be resurfaced, refer to Chapter 3 of the Austroads Rural Road Design. This chapter provides details on road geometry factors to be considered when determining an appropriate length to be treated. The length should be consistent for areas with high friction demand and due consideration given to geometric traps (e.g. a sudden tight curve amongst higher speed curves).