

DESIGN BULLETIN #9/2002 (Superseded June 2005)

Details of Pavement Sideslope During Various Stages of Pavement Construction, Rehabilitation and Widening.

**June 2005 Update to Design Bulletin #9/2002:
Design Bulletin #27/2005 Supersedes Design Bulletin #9/2002**
<http://www.trans.gov.ab.ca/Content/doctype233/production/desbull.htm>

Summary: This technical bulletin is issued to clarify the details of pavement sideslope during various stages of construction, rehabilitation and widening of pavement structures. This bulletin is effective immediately.

1. Background & Definitions

In 1999, the Department adopted a strategy to address the problem of narrow pavements. The strategy was intended to reduce the need to grade-widen paved roads through the use of forward-thinking design concepts. A policy was subsequently developed to address the roadway width problem comprehensively in the three distinct phases of a roadway's life, namely: the new construction, rehabilitation and widening phases.

To clearly stipulate the sideslope/paving details to be used in each case, it is essential that "new construction", "rehabilitation" and "widening" type projects be clearly defined. Projects that involve building of a new grade, base and pavement on new alignment or full reconstruction (removal of the existing pavement) on an existing alignment are defined as "new construction". Projects that involve overlay or other types of surface treatment without widening are defined as "rehabilitation". Projects that involve existing pavements being widened i.e. where new base course is placed typically on the sides of an existing pavement, are defined as "widening". This may include an overlay of the entire roadway width. The choice of cross-section detail to be used on each project depends on the "type" of construction as shown above. This is because it is normal practice to construct new pavements in two stages whereas pavement overlays on widening projects are often done in one stage.

Under the adopted policy, the grade and base course for all new construction or widening projects are to be built wider to allow for two future 80mm overlays. Furthermore, to avoid the perception that the width of the traveled portion of the highway is reduced every time an extra layer of ACP is put on top of the existing pavement, the width of the top most layer is kept at the designed dimension at all times. This means that the sideslope of the pavement will have to be built at a flat slope initially and the slope will increase progressively upon repaving. As a result of this policy, there will be no reduction in surface width for a period of 45 to 50 years after the pavement is built or widened under normal circumstances.

To implement the policy, a series of standard cross-sections for various designations of highway were produced and were incorporated in the Highway Geometric Design Guide (1999 Edition) as Figures C-8.2a to C-8.2h. The drawings attached to this Bulletin provide additional detail on how the pavement edges are to be constructed on "new construction" and "widening" projects.

2. Operational Concerns

Subsequent to the implementation of the above-mentioned strategy on all projects built in the construction seasons during the years 2000 and 2001, feedback was received from staff of the Regional Offices that there were tendencies for the outside edge of the pavement sideslope to be broken up by errant vehicles due to the fact that they were too thin. This was particularly the case when the layer placed during First Stage Paving was only 60mm thick. Further investigations revealed that the sideslope of the top pavement layer was as flat as 25:1 in some cases, thus resulting in a thickness of only 20mm for a large part of the pavement sideslope.

3. Solution to Address Operational Concerns

To address the operational concerns and yet to maintain the strategy of not having to change the width of the pavement surface after initial paving, the design details have now been amended in such a way that the sideslope for the First Stage Paving layer will be the same as the ultimate design sideslope for the full pavement structure and the sideslope of the subsequent layers will vary to match. The steepness of the sideslope for the subsequent layers will depend on the thickness of the layers and, in general, ranges from 4:1 to 21:1 assuming standard thicknesses for the Final Paving and overlay layers.

4. Implementation of Revised Details

In order to avoid the same operational problems in the future, it is essential that the revised details be clearly stated in all contract documents when paving is required and that the details are fully implemented during the construction stage.

5. Contact

Any outstanding questions should be directed to Technical Standards Branch (Attention: Bill Kenny or Vijay Ghai, fax 422 2846).

6. Attachments

Drawing. No. CB6-3.50M5 (**Revised January 2003**)

Drawing. No. CB6-3.50M6 (**Revised January 2003**)

Drawing. No. CB6-3.50M7 (**Revised January 2003**)

Drawing. No. CB6-3.50M8 (**Revised January 2003**)