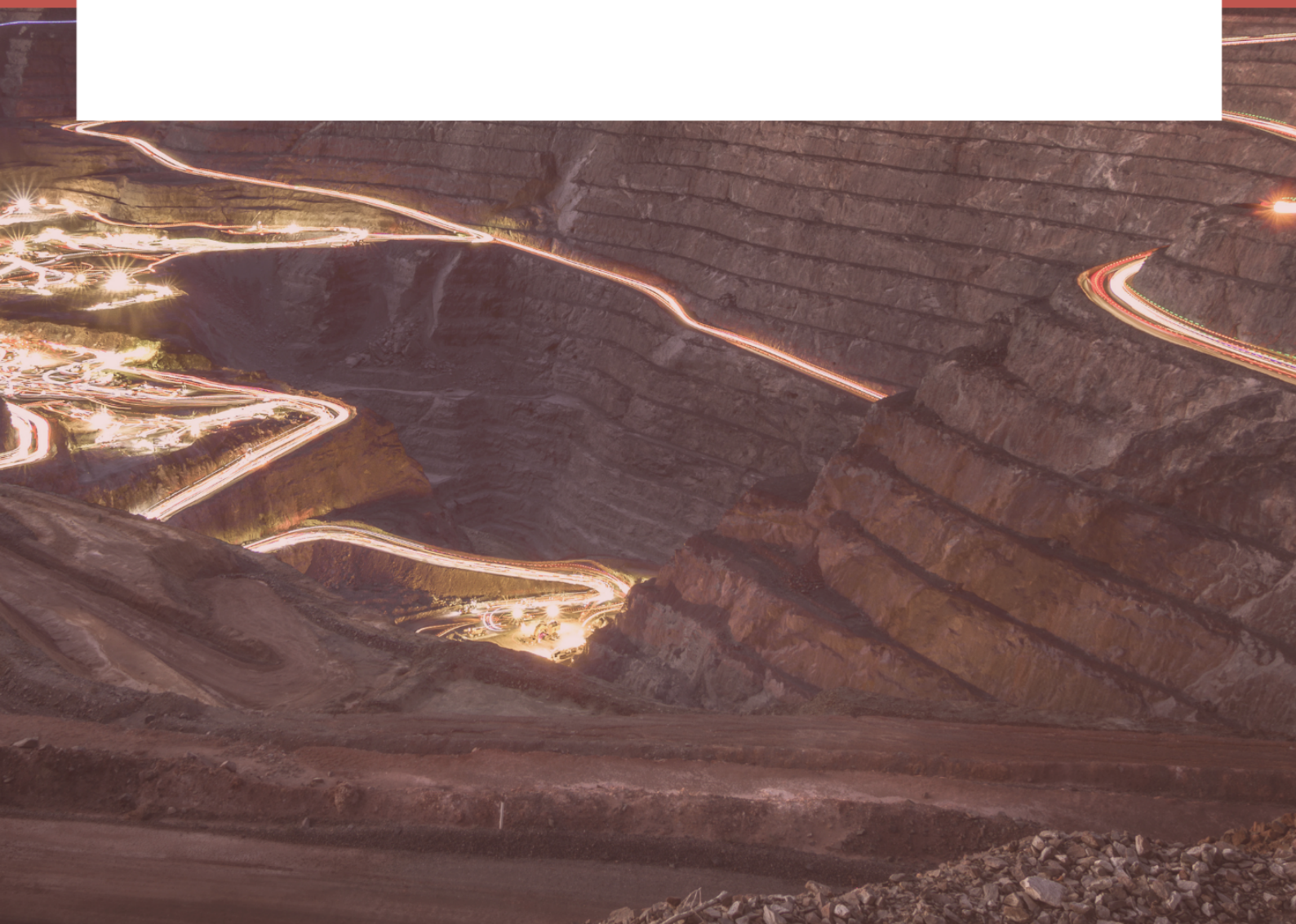
DATAMINE

STUDIO NPVS

# Studio NPVS, Studio Maxipit

## Changes to Pit Slope Calculations



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# Changes to pit slope calculations

## Technical Note: TN0045

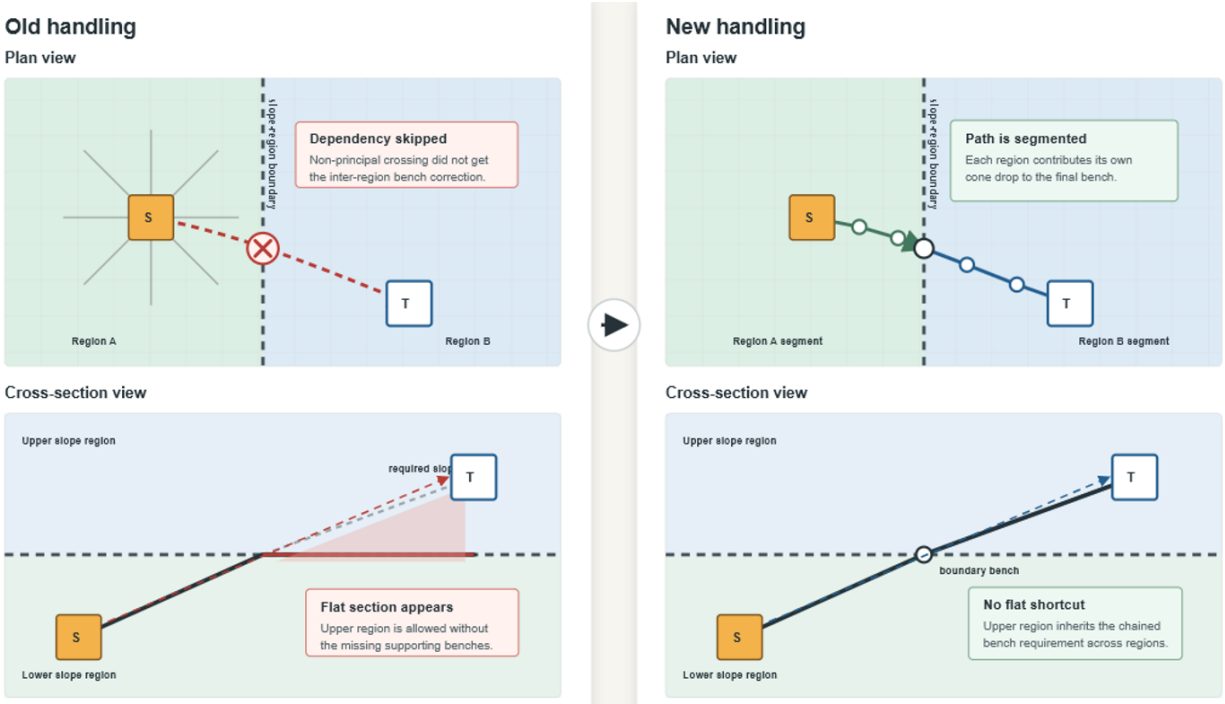
The following article describes why pit slope calculations in versions of Studio NPVS and Studio Maxipit differ between **versions prior to 3.1 and versions 3.1 and later**.

In **Studio NPVS** and **Studio Maxipit**, pit slope constraints are enforced by generating dependencies between a source block in the block model and higher target blocks that need to be mined before the source block can be accessed. These constraints are calculated from the relative positions of the source and target blocks and the slope regions in between.

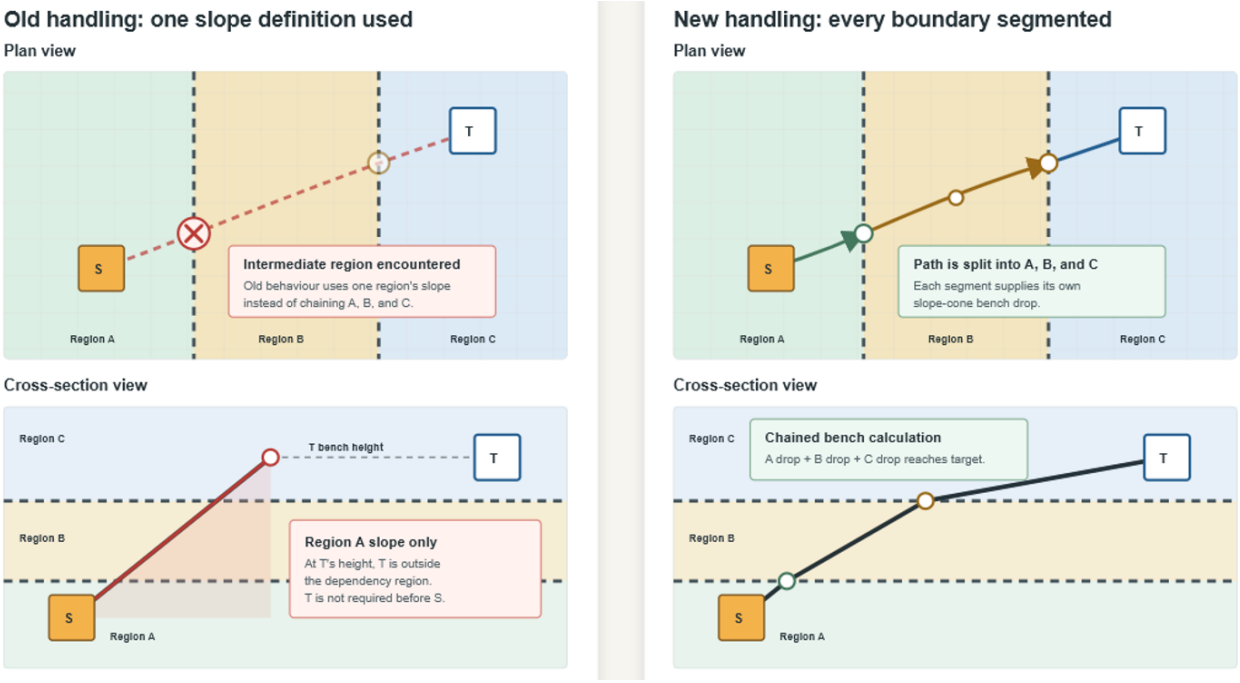
Errors can occur in this calculation when constraints between source and target blocks are either ignored or miscalculated.

Recent changes address two previous flaws in calculations of the ultimate pit boundary in the presence of multiple slope regions.

The first and more obvious flaw was the presence of flat sections at slope region boundaries. This was caused by an approximation where constraints were only calculated for blocks in the eight principal directions (N, S, E, W, NW, SW, NE, SE) across slope boundaries and skipped for other directions. The constraint is now applied regardless of direction.



The second and more subtle flaw caused miscalculation of the slope constraint when the path between the source and target block passes through more than two slope regions. Previously, it was assumed that there was at most one slope change between source and target. If another region was encountered in between, the source block region's slope constraint was applied. Now all slope changes are accounted for.




In summary, pit slope calculations are performed more robustly in Studio NPVS and Maxipit version 3.1 onwards, when compared to legacy versions.

*AI-assisted tools were used to support the preparation and review of this document.*

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