

## Survey solution for diamond mine

The Maptek™ I-Site™ 8800 laser scanning system helps De Beers track and manage pit surfaces, ore stockpiles and waste dumps at the Venetia Mine in South Africa.



In 2006 the De Beers survey team began using I-Site laser scanning to survey the pit and stockpiles, upgrading to the I-Site 8800 laser scanner in 2012. The longer range laser scanner surveyed the pit more efficiently, and handled the large stockpiles with ease.

De Beers Venetia Mine, in Limpopo Province, is close to the border of Botswana and Zimbabwe. The mine opened in 1992 and produces about 3 million carats/year, making it the leading producer of diamonds in South Africa.

### Challenges

With a pit measuring more than 2100 m x 1300 m and still expanding there is a continual problem with overspill material falling from the top benches onto ramps and benches below.

This needs to be measured for month end reconciliation and could not be achieved safely or accurately before I-Site technology was introduced.

Rehabilitation on waste dumps is an integral part of the Venetia operation. Despite their vast area of 6.7 million square metres, the dumps are easily measured with the I-Site laser scanner. Plans can continually be updated to track progress.

### Solution

I-Site Studio™ software is used to create a pit surface for month end production calculations.

The pit surface is important for identifying the amount of waste and ore mined. This is measured by making the waste and ore block models part of the overall volume calculations.

Toes and crests, and contours from this surface are applied to generate plans for different departments.

I-Site Studio is used to model Venetia's 9 ore stockpiles and generate volumes in the order of 7.1 million cubic metres.

### Benefits

Previously, surveyors had to enter every loading area to record material being loaded. The long range laser scanner requires far fewer setups, which saves time and minimises safety issues.

Measuring the rehabilitated waste dumps with a GPS or Total Station typically took 1 day. This was cut to 3 hours with the I-Site 8800 laser scanner, with fewer setups reducing the physical effort as well.

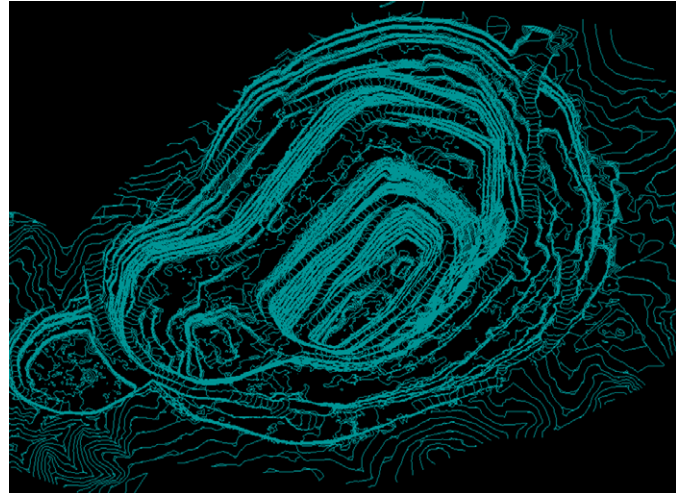
'One of the biggest advantages of the Maptek I-Site 8800 laser scanner is the integrated telescope, making orientation and registration of the data seamless.'

'I-Site Studio is easy to use - especially for combining surfaces, which can be very difficult in other software.'

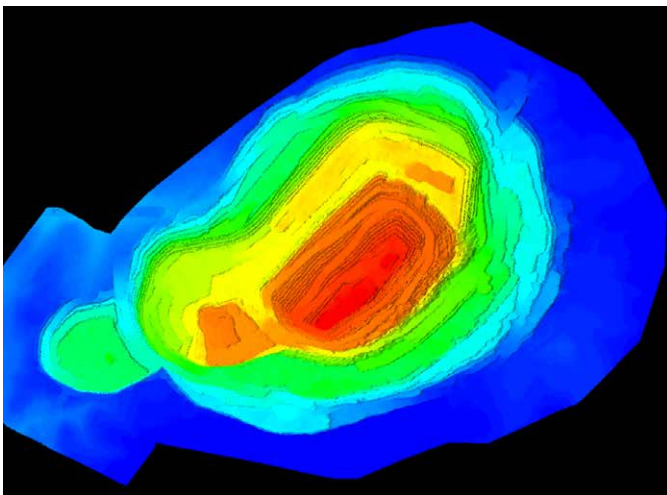
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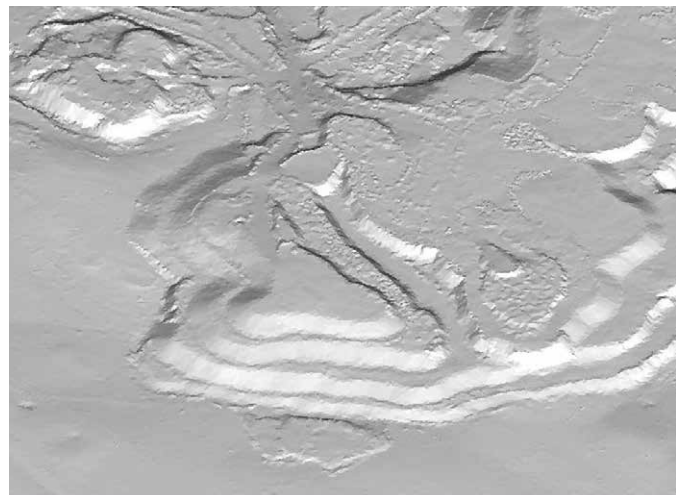
*Overspill material is measured for end of month calculations*



*Contour maps are handed off to planning*



*Pit model provides accurate surfaces*



*Scanned surfaces help monitor waste dumps*