

Andina implements I-Site at Rio Blanco Mine in the Andes

Maptek I-Site™ is useful for geotechnical control. Andina, one of five mining divisions of Codelco Chile, mines the Rio Blanco orebody, which is perched high in the Andes mountains. Copper concentrate and molybdenum are the main products.



HIGHLIGHTS

I-Site scan data aids

- Geotechnical control of proposed design geometries
- Stockpile calculations
- Stability control
- Geotechnical control of waste dumps

The Andina operation employs both underground caving and open pit methods to produce copper concentrate. The Rio Blanco orebody is mined by underground methods from the Third Panel mine, while Don Luis and Sur Sur are open pit mines.

The Rio Blanco orebody is between 3,200 and 4,000 metres above sea level and about 60 km southwest from Los Andes and 50 km in a direct line from Santiago.

For this study, Andina was mining Phase 2 of the Don Luis pit and Phase 2 of the Sur Sur pit, with a total material movement of 80,000 tons per day (tpd), of which 25,000 tpd corresponds to sulphides with an average grade of 1% Cu.

The mine development follows an aggressive design geometry:

- Bench face angle – 80°
- Berm width – 10 m
- Bench height – 16 m
- Double bench height – 32 m
- Angles between ramps – 58°
- Maximum height between ramps – 150 m

Strict operational geotechnical control is required to avoid deviations or changes from the evaluated designs.

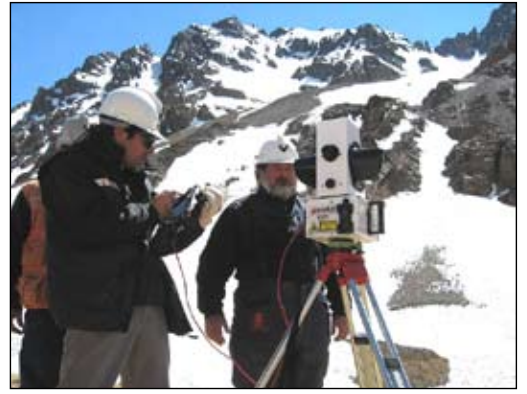
In 2006, the Andina Geotechnical Superintendent acquired a Maptek I-Site 4400LR Laser Imaging System. With a scanning range up to 700 m, this is ideal for geotechnical control of the proposed design geometries. Main applications include generation of program lines (toes and crests) as well as berm width, bench height and design angles (diagram overleaf).

The I-Site system is also used for geotechnical control of waste dumps, calculation of mineral stocks, and stability control in wedge areas that are prone to movement. The aim of these controls is to avoid deviation from the designs which have been geotechnically evaluated as economically feasible to build.

The I-Site system is operated in the field for acquiring data by the Surveyor, while post-processing is done by the Instrument and Design Engineer.



I-Site 4400LR in the open pit at Rio Blanco

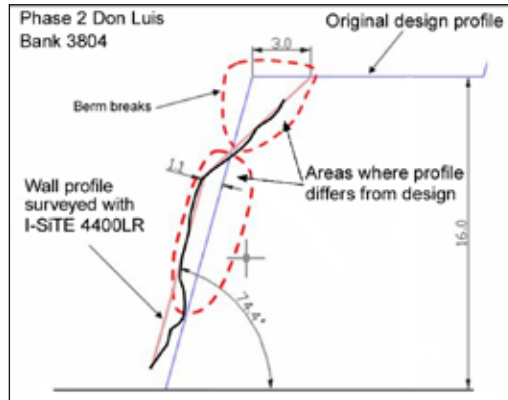


Sergio Balboa (left) and Juan Urra (right) operate the I-Site 4400LR at Rio Blanco

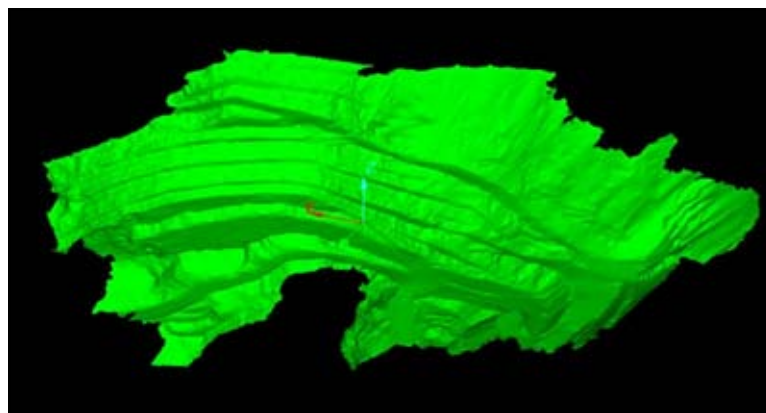
All of the data is processed using I-Site Studio software and then exported into Maptek Vulcan™ for mine planning.

*Thanks to
Emilio Farías, Chief of Geomechanics
Codelco Andina*

The I-Site 4400LR laser scanning system has allowed Andina to implement more stringent geotechnical controls to achieve the proposed mine design. This has also enabled the true field geometries to be captured with great accuracy for all geotechnical analysis.



Survey of Phase 2 of the Don Luis pit with the I-Site 4400LR



Plan of the geotechnical design for Phase 2 of the Don Luis pit generated from data captured using the I-Site 4400LR