



## TSLOPE3

## OPEN PIT MINE EXAMPLE

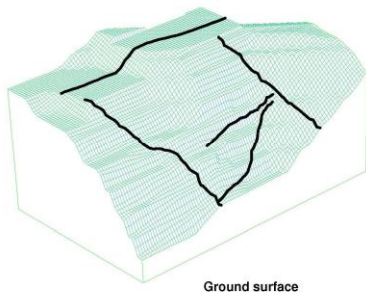


This TSLOPE3 example is based on a slope failure in an open pit mine. The rock is a strongly foliated metamorphosed schist that has been extensively mineralised.

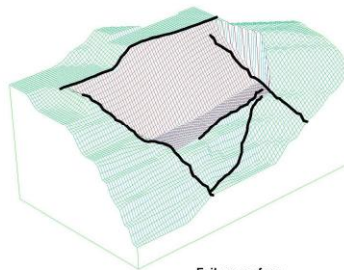
The slope failure was controlled by a number of clay-filled faults. The failure surface was modelled as a composite surface based on fault outcrop and projected orientations.

Topographical survey data were used for the top surface and the phreatic surface was estimated from recorded piezometric levels.

TECHBASE, a geological GIS software package, was used for generating the modelled surfaces and imported as ASCII (XYZ) gridded points into TSLOPE3

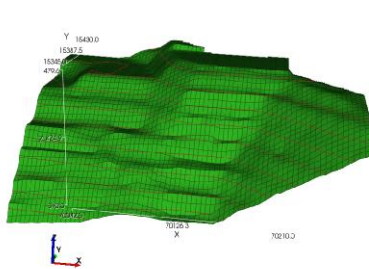


Ground surface

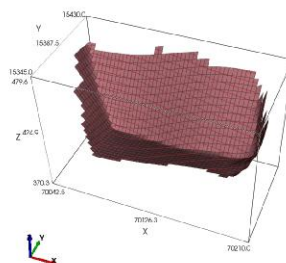


Failure surface

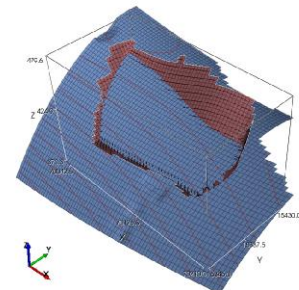
The surfaces were imported to TSLOPE3 as a 'cloud of points'.



TSLOPE3 top surface



TSLOPE3 failure surface



TSLOPE3 phreatic surface with failure surface

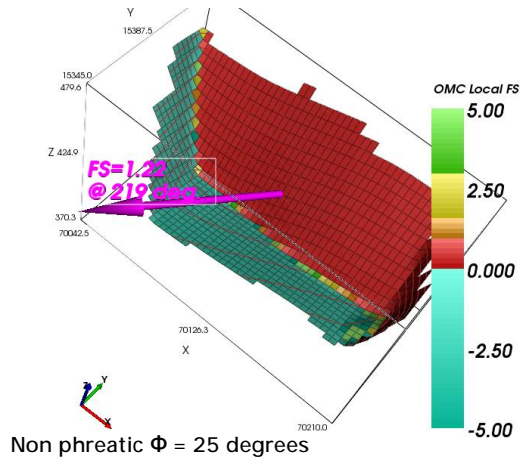




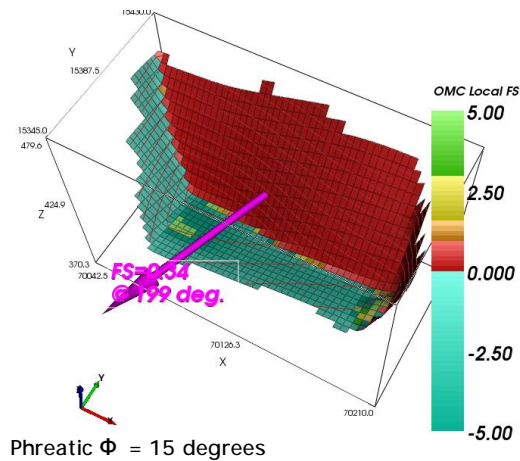
To estimate 'Factors of Safety' the default material properties were adopted. Two slope cases were analysed: one without a phreatic surface and one with a phreatic surface. The friction angle was varied and tested at 15° and 25°.

Mohr-Colomb	Cohesion	0	0
	Friction angle	15°	25°

### RESULTS—Factors of Safety



3D Cases	FoS	Direction
Dry - 15°	0.70	219
Dry - 25°	1.22	219
Phreatic - 15°	0.34	199
Phreatic - 25°	0.59	199



2D Cases	FoS	XS Bearing
Dry - 15°	1.10	193
Dry - 25°	2.32	193
Phreatic - 15°	0.95	193
Phreatic - 25°	1.66	193

