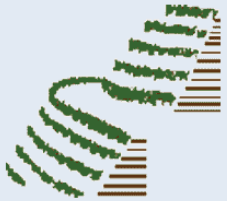
EFFECTIVENESS OF VETIVER SYSTEM TECHNOLOGY AS COMPARED WITH SOME OTHER MEASURES AS A TOOL OF BIOENGINEERING



Paul Truong

Veticon Consulting

www. Veticon.com.au

Brisbane, Australia.

INTRODUCTION

This presentation shows the effectiveness of Vetiver System Technology (VST) as a tool of bioengineering as compared with other commonly used methods to control erosion on steep slopes.

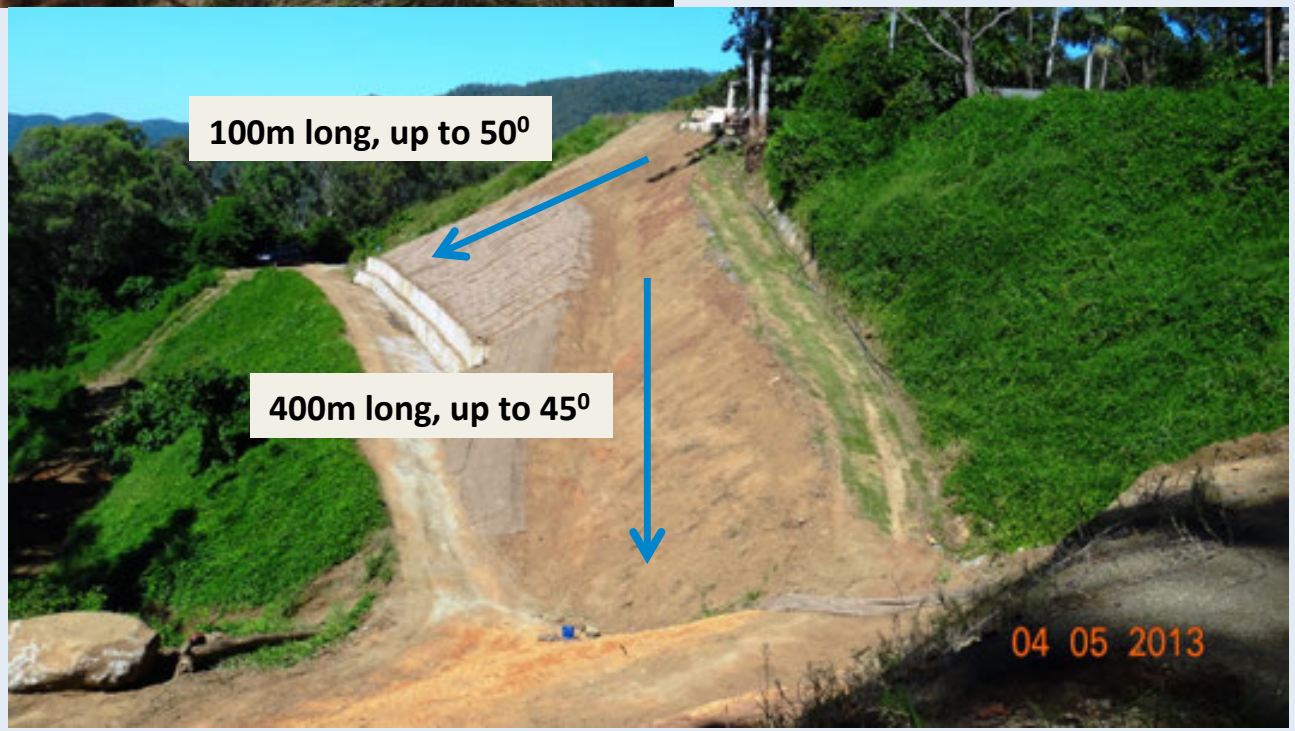
The site was on a highly erodible fill materials consisted of weathered sandstone and sandy soil. It is on a very steep gradient, averaging 45 degrees and up to 50 degrees at some sections.

The original batter was built from material excavated and pushed down slope for a home site on a very steep mountain range

The climate is subtropical, with cool and occasional frost in winter, and wet summer with prolonged period of high intensity rainfall and occasional cyclonic downpour

This presentation shows the result two years after implementation after numerous storms and recently a 350mm rainfall over a 5 day period.

This is a very complex site, with very steep gradient in two directions, with slope gradient up to 50^0 in some parts



Original batter from material excavated and pushed down slope for a home site

Original batter from material excavated and pushed down slope

Front of the house

100m long, up to 50^0

Hydroseeding with turf grass to control erosion and stabilise the batter

Rilling started soon after Hydroseeding

Rilling started soon after Hydroseeding

Rilling was so severe that a geofabrics was used to cover the whole batter to prevent further erosion

A very elaborate and expensive operation, including sand bags to weight down the geofabrics cover

Lomandra, a shallow rooted ornamental species was planted to stabilise the batter

Despite this costly measure the batter collapsed during an average summer rainfall and it was rebuilt with imported fill materials

The batter was rebuilt with imported fill

Concrete blocks was built as retaining wall at the foot of the batter

Rebuilt batter is ready for Vetiver planting

Highly erodible sandy soil with gradient up to 50o at some sections

Laying Geofbrics: Jutemesh

Vetiver planting

Vetiver planting

Six months after planting

8 months after planting

10 months after planting

Two years after planting, before slashing

Two years after planting, after slashing

Two years after planting, after slashing

Two years after planting, prolific growth, 2.5m high with roots to at least 2m deep

Practically no sediment in downslope drain

CONCLUSION

This presentation shows the superiority of VST as compared with other commonly used methods to control erosion on steep slopes, both in term of effectiveness and cost.

VST has passed the ultimate test two years after implementation with a recent rainfall period of over 350mm in 5 days.

In addition to its steep slope stabilisation efficiency, it also completely prevented sediment moving down the slope