

Project: Otira Gorge Rockfall Protection Works
Date: June 2012
Client: NZTA
Location: Arthurs Pass Town



Hybrid/Attenuator Fence

The SH73 cuts through mountainous terrain via Arthur's Pass. It is the main road that links Christchurch with the West Coast. The Otira Gorge site is approximately 8km north of Arthur's Pass township and is an area subject to constant rockfall risk for travellers. Following the success of the adjacent hybrid fence installed just over a year ago; the engineer specified a similar type of Hybrid Fence system for this particular site. Rockfall analysis from the engineer revealed that a 500kJ maximum kinetic impact energy was required to intercept falling rocks. The rocks that fell were typically 200-300mm maximum in diameter and rock sources could be high up on a 50-60 degree rock bluff on top of the fence location.

Hybrid fences combine high dynamic energy impact capacities (when the rock hits the net) and with a containment function where the mesh "tail" guides the rock down to the end the drape without stopping the rocks. Thus, the governing criteria for the functionality of these systems is the dynamic resistance of the net at the time of impact and the capacity of the drapery to resist damage due to the cutting and puncturing actions that result from the descending rocks.

In order to satisfy the designer's requirements for a rockfall barrier system with European Technical Approval (ETA) and the performance requirements of a hybrid fence; Geofabrics proposed a specific hybrid fence derived from a variant of the CTR 05/07/B dynamic catch fence. (This 500kJ MEL catch fence system was tested in accordance with the ETAG 27 and is certified to exceed the relevant performance requirements of Category A.) The Hybrid system uses **HEA** (wire rope) panels as the primary interception mesh. Maccaferri **HEA panels** performed the best in resisting damage among the 11 different panel types tested in the Colorado DOT field trials for attenuator/hybrid fences drape application.



Completed rockfall hybrid fence
(Photo courtesy of Abseil Access Ltd)



Rockfall hybrid fence
(Photo courtesy of Abseil Access Ltd)



Rockfall hybrid fence
(Photo courtesy of Abseil Access Ltd)

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