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Secretary national Environment Service
Tupapa
Rarotonga

Attention Phillip Strickland
Kia Orana,

ISLAND QUARRY'S Ltd EIA : Vaitamanga-ki-Uta Part Sect 108
Exploration Result Summary

- The activities around testing the rock materials within the 108 valley system in the first instance required the removal of 2,500 cubic metres of over burden.
- This over burden sits on the land block having been stockpiled on the access developed on the southern side of the stream.
- The first means to determine the rock strength was to attempt drilling and retain samples from the drilling for testing.
- This proved very difficult due to the inability to drill in dry conditions since the underlying rock had a series of fissures that retained water from the regular rainfall received, making it impossible to drill and retain clean samples.
- Larger rock was then removed from the face and put through the crusher to produce both basecourse and sealing chip.
- Basecourse was crushed and delivered to recent roading works and monitored by ICI.
- The basecourse has been shaped and compacted to the roads providing a very good surface for sealing without the need for cement stabilization.
- Past roading upgrades on the Rarotonga roading system have required cement stabilization when material from the existing quarries has been used.
- A method of testing of pavement strength and deflection on the roading improvements prior to sealing is to use a 'Cleg Hammer'
- A correctly calibrated 'new' Cleg Hammer was used and produced results between 30 and 50.

- Results from the high 20's upwards suggests very good pavement strength.
- These tests were carried out in the presence of ICI supervisory staff who have been very pleased with the basecourse quality and pavement strength arrived at without cement stabilization.
- A recognized means to test sealing chip is to undertake a 'Los Angeles Abrasion Test'
- A series of tests were carried out using a 'Humbolt LA Tester'. This equipment effectively rotates a sample of material a number of times (usually 500) and then the rotated material is put to a sieve of 4.75mm.
- The volume of fines passing thru the sieve is weighted, and the rock remaining in the tumbler is weighted. ----- refer results below. Results will not necessarily run to exactly 100% since dust and very small particles are lost during the test.

Test 1.

10kg sample, 500 tumbles
 Fines passing 4.75mm sieve 2.25kg ----- or 23%
 Therefore rock value 7.60kg ----- or 76%

Test 2.

10kg sample, 500 tumbles
 Fines passing 4.75mm sieve 2.35kg ----- or 24%
 Therefore rock value 7.4kg-- ----- or 74%

Test 3.

10kg sample, 500 tumbles
 Fines passing 4.75mm sieve 2.25kg ----- or 23%
 Therefore rock value 7.6kg ----- or 76%

Test 4.

10kg sample, 500 tumbles
 Fines passing 4.75mm sieve 2.38kg ----- or 24%
 Therefore rock value 7.5 kg ----- or 75%

- The results show good consistency and prove the rock to be very strong.
- The geologist 'Simon Carryer' has commented within his report that the rock so far crushed is of high quality and strength and that as the quarry is developed further into the hillside then rock of even higher quality is likely to be struck.



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