



STRATERRA
MINERALS FOR A SUSTAINABLE FUTURE

Case Study

December 2021

Wetland at Supreme Lime.

Ravensdown's Supreme Lime quarry

Wetland restoration, finding a use for waste rock, and a partnership with local iwi make for sustainable limestone quarrying at Ravensdown's Supreme Lime operation in the Waikato.

Introduction

Ravensdown's Supreme Lime quarry occupies rolling King Country grazing land near Waitomo, producing around 100,000 tonnes of mostly agricultural limestone annually to a central and lower North Island market. Crushed limestone promotes pasture soil health by raising pH to levels at which nutrients are available to plants.

The operation dates from the 1940s, and employs four full-time staff and, depending on the time of year, 2-4 full-time contractors.



Crusher at Supreme Lime.

Wetland Conservation

Like most quarrying and mining operations, storage of overburden is a key environmental management issue for Supreme Lime. In 2016 Ravensdown sought to store 500,000 cubic metres of clay and sub-soil, in stages over 20-30 years, in a natural bowl in pastoral landscape. The proposal hit an early snag with Waikato Regional Council because it would have filled in a muddy area of the paddock that could have been a future wetland.

The Council instead granted consent for the agricultural fertiliser producer to rejuvenate two wetlands elsewhere within the quarry footprint, as an offset or compensation for the loss of potential wetland habitat.

Ravensdown converted two small adjacent dams in a gully used as bioremediation for quarry process water, in an area frequented by cattle, as well as a small gully on higher ground. This entailed fencing off the dams with an appropriate set back, and planting riparian indigenous vegetation around each of them. Species include cabbage trees, mānuka, harakeke (flax), grasses, and toetoe in the wetter areas, and pittosporums, broadleaf, kānuka, and other trees further back from the wetland margin.



Wetland fringed in indigenous vegetation at Supreme Lime.

Improved Pasture

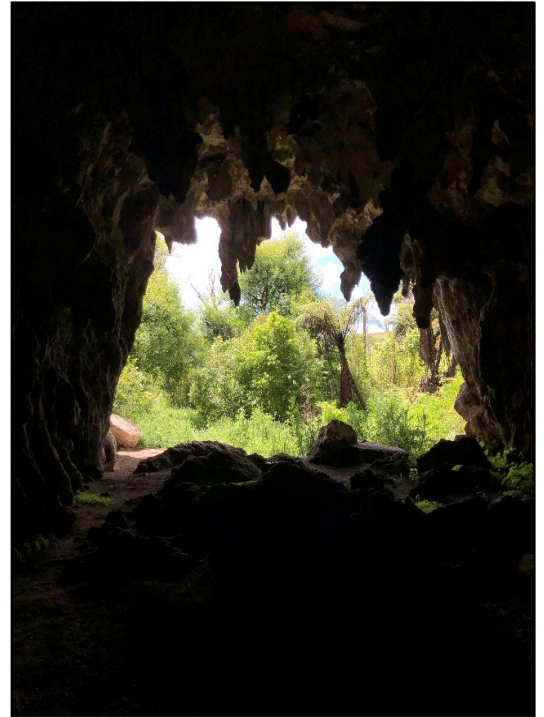
On completion of overburden placement, the former gully will become an area of rolling grazing land. This will be an engineered landform covering 6.4 hectares. Runoff is managed through sediment retention ponds, meeting the regional council's specification, until the area is at final height, when grass cover will stabilise the soil.

Engagement with Iwi

Quarrying at Supreme Lime has taken place wholly or partly on a neighbouring Māori trust land block administered by the Pukeroa Hangatiki Limestone Trust. The Trust oversees the land use on behalf of its many shareholders whose whakapapa is connected to the land and are the tangata whenua of the area (Māori who hold ancestral connections to the area).

Previous owners of the quarry, and now Ravensdown, have entered long-term royalty agreements with the Trust to ensure access to the limestone. Representatives from Ravensdown meet regularly with the Trustees to discuss matters relating to the agreement.

The main aspect that the agreement covers is the preservation and enhancement of a culturally significant cave called Te Anaureure, commonly known as Maniapoto's Cave. Ravensdown has supported the Trust's efforts to enhance the area over the years, and most recently has created a new path to the cave. Current plans are to remove a stand of willows that are shading the area.



Te Anaureure, Maniapoto's Cave.

As well, Ravensdown has provided technical support to aid the Trust's applications to access funding for waterway improvement projects. Specifically, it has mapped and calculated distances and areas the Trust would need for stream riparian conservation work on its land.

Upcycling Waste Management

A longstanding issue at Supreme Lime has been the accumulation of piles of clay-contaminated limestone scalplings, regarded until recently as unprocessable and stockpiled. 150,000 tonnes of this material is stockpiled onsite, in the hope and expectation it could become a by-product for the quarry.

Ravensdown is now washing and screening this waste, recovering up to 65% of the saleable limestone as decorative stone and limestone chip. Some of this material goes to a crushing plant at Te Pahu, 20km southeast of Hamilton, which grinds the material into lime flour, as a stock feed additive to deliver extra calcium to lactating cows.

At present, Ravensdown is hiring a small washing plant to show proof of concept for larger-scale upcycling of clay waste, and will explore the installation of appropriate fixed plant for that.

Case study source: Ravensdown