

Case Study

November 2021

Conserving natural wetlands at Pukekawa quarry.

Pukekawa Quarry

On the banks of the Waikato River, Winstone Aggregates has taken quarrying to the next level in a partnership with local iwi, and nature conservation work. At Pukekawa quarry, the wetlands and other waterways are on the rebound.

Introduction

Pukekawa quarry has been operating on the banks of the Waikato River since the 1920s, a hard rock basalt quarry, and for the past 10 years, a sand extraction operation from the Waikato River. As part of the ongoing development and future of this North Waikato / South Auckland site, Winstone Aggregates prioritises the managing of environmental impacts, and engagement with iwi and local community.

Twelve people are employed on site, each multiskilled to cover a full range of materials extraction, processing and sales loadout. River dredging brings sand ashore for processing through a series of screens and gravity spirals, while basalt is blasted from the rockface and fed through a four-stage crushing and screening process, to produce a broad range of sand, roading and building products.



Enhancing ephemeral waterways in the Waikato.

Managing overburden

As is the case for quarrying generally, overburden management is the largest waste stream and can only be managed economically on site. Four years ago, Winstones renewed its resource consents for storing overburden, best placed in gullies to absorb the volume in as small a space as practicable. Therein lies an issue of managing impacts on ephemeral waterways, and wetted pasture areas, under resource consent conditions.

To offset the impacts, Winstone Aggregates fenced off 4.8ha along a nearby stream, tributaries and wetlands, in all, 2.3km of fencing to exclude livestock on land leased to a drystock farmer. The company has controlled weeds, including willow, pampas grass, woolly nightshade and gorse; and animal pests, in particular, mustelids (stoats, weasels, ferrets).

Part of this work is the western stream enhancement, which started in 2017. This entailed 400 metres of fencing around the perimeter of the stream and an associated wetland.

Weed control and planting occurred first in the area referred to as Stream B (Appendix). Wetland 3b has been the focus since 2019, where willow was prolific. There have been three seasons of treating the willow with a drill-and-poison method.

Works have proceeded in a staged manner, to improve the condition of streams and wetlands in the gully environment. 5300 eco-sourced native seedlings have been planted within this ecological restoration area, including kānuka, mānuka, mahoe, pittosporum, and harakeke/flax.

A stream diversion for placing overburden necessitated the collection of native in-stream fauna and moving them to unimpacted habitat. To date Winstone Aggregates has translocated 9 longfin and 39 shortfin tuna (eels), 18 kōura (freshwater crayfish), one banded kōkopu, and 4 inanga (whitebait). More translocations will occur as overburden is progressively placed.



Shortfin eels (tuna)



Kōura (freshwater crayfish)



Inanga (whitebait)

Flax for Māori weavers

Winstone Aggregates has built a strong relationship with three local iwi, Ngāti Tamaoho, Ngāti Te Atua, and Ngāti Amaru. Established as part of the sand extraction from the Waikato, a kaitiaki forum helps select plant species for site rehabilitation and ecological restoration.

In conjunction with the kaitiaki forum, Winstone Aggregates is planning to plant harakeke of a type suitable for local weavers to harvest. The area has to be accessible, provide open space for processing harakeke, and not be located within active quarrying operations. The company holds regular hui four times a year with the kaitiaki forum to discuss kaitiakitanga (stewardship) responsibilities in relation to quarrying operations and environmental management.

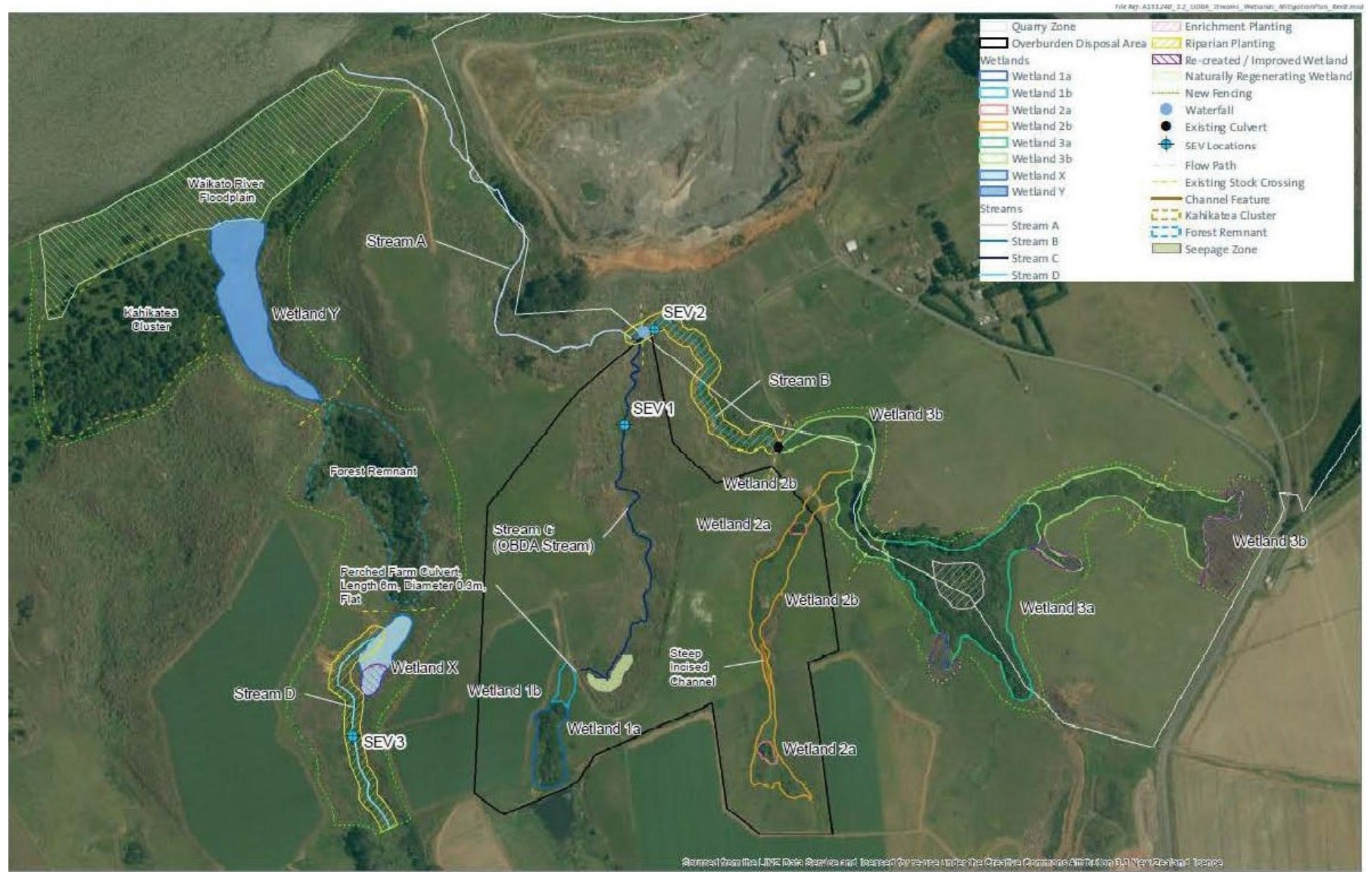
Local Māori are also interested in other plant species of cultural importance, eg for traditional medicinal use (rongoā), and again, a priority is to provide access to these plants.

Winstone Aggregates has also safeguarded access to a cultural site of significance for iwi, a tohu (landmark) in the form of a very large stone.

Held at the quarry, the hui are also an opportunity to share information on upcoming works of interest, and also what's happening for iwi of interest. Both sides also explore opportunities for partnership, for example funding an ecological survey of Namuheiro Island further down the Waikato River and supply of aggregate product to enable improved access to a burial area.

Case study source: Winstone Aggregates, in partnership with Ngāti Tamaoho, Ngāti Te Atua, and Ngāti Amaru.

Appendix



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Data Sources: Winstone Aggregates, LINZ and Eagle Technology Aerials, Boffa Miskell
 Projection: NZGD 2000 New Zealand Transverse Mercator

A151248 Pukekawa Quarry
Figure 2: Mitigation Plan
 Date: 20 July 2016 | Revision: B
 Plan prepared for Winstone Aggregates by Boffa Miskell Limited
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Figure 1: Areas to be legally protected from stock are the new fencing areas around Wetland 3 and the western gully. The existing stock crossings shall remain available for stock crossing purposes.