

AQUATIC ECOLOGICAL EFFECTS

OVERVIEW

The land surrounding much of our existing mining operation is generally open and mostly grazed pasture with some areas of plantation pine, native vegetation and low-density rural dwellings. The land is typically low-lying with some rolling hills and small ridges. The exception is the Martha pit which is surrounded by residential areas and the town centre.

Considerable planting has been undertaken across the Waihi site and surrounding area by OceanaGold Waihi and its predecessors, with over 455,000 plants, planted since 1995. These plantings have improved the ecological value and function of the watercourses and wetlands surrounding our operation and are the major contributor to the areas of high ecological value. Prior to planting, these areas were typically degraded pastureland habitats and willow-dominated wetlands. Much of the native vegetation that could be impacted by Project Quattro exists due to this extensive planting programme.

The four main elements of Project Quattro (Martha Pit, Gladstone Pit, the Northern Rock Stack, and the new Tailings Storage Facility) will all impact streams and wetlands to varying degrees. Where impacts are unavoidable, OceanaGold Waihi has proposed management measures to mitigate the effects to maintain or enhance biodiversity. Our objective is to achieve no nett loss of ecological values as a minimum outcome, and to achieve an enhancement of ecological values wherever practical.

KEY EFFECTS

MARTHA OPEN PIT PHASE 5

The eastern noise bund, part of the Martha pit expansion works, will require a diversion of the Eastern Stream and the loss of a small wetland. This wetland is the result of the damming of a stream to provide water for historic mining processes. Our initial studies have found that this wetland is unlikely to be an important habitat due to its highly-modified surrounds.

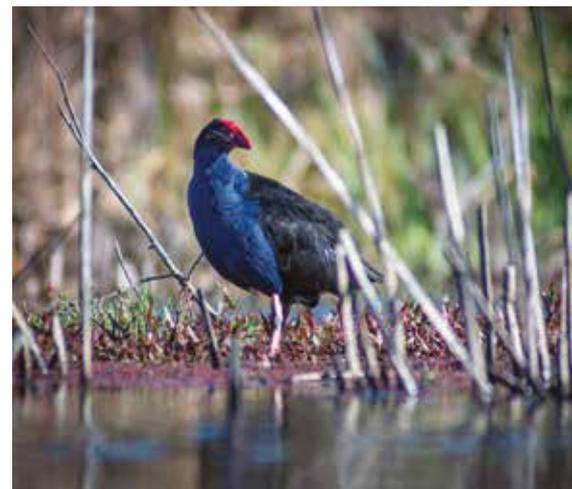
GLADSTONE OPEN PIT

Mining the Gladstone pit will affect the shallow groundwater within the surface of Gladstone Hill and interrupt a spring on the hill's southern flank. This spring currently maintains a small wetland with significant ecological values.

NORTHERN ROCK STACK AND TSF3

The Northern Rock Stack and TSF3 will affect several watercourses,

marshy spring-fed seepages and small wetland areas with mixed ecological values.





“Company-initiated riparian, wetland and gully planting programmes have improved the ecological value and function of the watercourses and wetlands.”

TREATED WATER DISCHARGE

In the mid to lower reaches of the Ohinemuri River, generally moderate ecological values exist. There is no evidence that the discharges associated with mining activities at Waihi have an adverse impact on the ecological values of the Ohinemuri River. The algae and macro-invertebrate communities have not varied much over the monitoring period, which began some years before the modern mines.

The ecological values of the Ohinemuri River in the vicinity of Martha Mine are not predicted to change with a continuation of existing practices under the proposed Project Quattro.

MANAGEMENT MEASURES

If the project is approved, we will apply an effects management hierarchy to ensure that the adverse effects associated with Project Quattro are as small as is practicable.

Where residual adverse effects remain, we will assess opportunities to undertake additional actions to offset or compensate for those effects where they are more than minor.

Our objective is to achieve no nett loss of ecological values as a minimum outcome, and to achieve an enhancement of ecological values where appropriate and practicable.

Mitigation measures may include:

- Developing an Eastern Stream diversion around the Martha pit eastern noise bund that enables improvement of the in-stream ecological values, and includes the development of enhanced wetland areas to replace the area lost to the project.
- For Gladstone pit, discharging a small flow of treated water to the head of the Gladstone Hill wetland to replace the lost spring flow until the natural groundwater levels re-establish. Avoiding the wetland when siting ancillary works such as stockpiles, and providing appropriate erosion and sediment control around those works.
- For the Northern Rock Stack and TSF3 area, constructing stream diversions that enhance habitat and hence ecological values.
- Undertaking appropriate riparian planting along both the diversions and unaffected stretches of streams.
- Providing for appropriate fish passage in all diversions.
- Expanding the areas of existing riparian plantings along watercourses and streams on OceanaGold Waihi-owned land.
- Commencing mitigation works early. Preferably before, or at the time of loss where practicable.

CONCLUSION

The areas of restorative plantings that took place between 1995 and 2016 in and around Waihi totals 35.31 ha. These restorative plantings have directly improved the ecological value and function of the watercourses and wetlands surrounding the elements of Project Quattro.

Project Quattro will impact aquatic ecology; however, our initial studies have found that the proposed management measures will positively contribute to an enhanced habitat and improved ecological values. Our assessments also forecast a nett material gain in both watercourse length and wetland area.

We welcome your input into developing Project Quattro.

If you have an idea, concern, question or opinion, we want to hear from you. You can contact us through our website;

www.waihigold.co.nz

or visit us at our Project Information Office;

86 Seddon Street, Waihi.

Or use our Community Engagement Line;

0800 924 444