



# Te tiaki i te taiao

## Protecting the environment



Waka Kotahi NZ Transport Agency values New Zealand's natural resources and we work hard to make sure the natural environment is protected.

### Mitigating our impacts

The state highway network passes through areas of significant ecological value, including national parks, native forests and areas of indigenous biodiversity. It can have an impact on terrestrial, aquatic and coastal ecology in several ways, including altering the features of the physical environment, such as soil density and surface water flow. Altering the environment can result in habitat loss and changes in animal behaviour.

Waka Kotahi aims to avoid, remedy or mitigate potential adverse effects on these ecological features and resources. We consider environmental management integral to the planning, design, construction and maintenance of state highways.

We mitigate ecological impacts through best practice sediment and erosion control, stormwater management that protects water bodies, and environmental research.

### Investigations

Waka Kotahi undertakes technical investigations for our infrastructure projects that include water quality monitoring and ecological surveys to help us understand the environment and identify the habitats and species that exist within an area.

When undertaking environmental investigations, we follow recognised standards and guidelines that mean we have a nationally consistent approach.

### Water quality monitoring

We take samples and analyse the characteristics and sediment qualities of the freshwater and marine environments a project might affect.

The information we collect is used to inform resource consent applications. It also gives us a baseline so that we can assess any impact caused by the construction and operation of new roads.



## Environmental investigations

We will be conducting investigations to better understand the natural environment as part of the consenting and design development for the SH1 Whangārei to Port Marsden Highway project.

The investigations will help us assess the potential effects of construction and operation of the upgraded corridor on the environment. They will inform how any adverse effects can be avoided, minimised or mitigated.

There are various types of investigations engineers and environmental experts will carry out.

### 'Intrusive' sampling

#### Geotechnical or hydrological sampling

This usually involves drilling boreholes with specialised equipment and taking physical samples of soil. Drilling rigs will be on site for 2-4 days per borehole location.

In some cases the boreholes will be filled back in immediately after samples have been extracted.

At other locations devices that measure ground water - called piezometers - will be installed and left on site for a year or so, protected where necessary with 2m x 2m fencing. Geotechnical professionals will need to access and monitor these periodically.

### Cone penetrometer tests

These tests involve pushing a probe up to 20m into the ground. Sensors record information including the soil and groundwater pressure on the probe. Each test typically takes 1-2 hours.

### Test pits

In some instances we use a hydraulic excavator to dig a 1.5m x 5m test pit, up to 5m deep. A geotechnical engineer will examine the soil material that is excavated before the pit is filled back in and the pre-existing surface reinstated. This normally takes no longer than a day.

### Walk-over surveys and 'non-intrusive' sampling

There are some investigations that will require engineers or environmental experts to walk over the land and examine the surface features, streams and flora and fauna present.

As part of these environmental surveys, we will sometimes take samples - water or vegetation cuttings, for example. In other cases we might monitor noise or assess air quality.

Monitoring equipment will need to be left at some sites, normally for a week or two, in order to gather data. These are generally small devices that experts need to monitor periodically.



For more information, visit the project webpage or contact the project team



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