

# NATURAL ENVIRONMENT

The Indicative Alignment seeks to avoid or minimise potential effects on ecologically sensitive environments. The Indicative Alignment largely avoids areas of ecological value that are identified in the Auckland Plan such as Significant Ecological Areas, Outstanding Natural Landscapes and Department of Conservation land.

From an environmental perspective, the Indicative Alignment has many benefits compared to other options considered. This is because:

- By bypassing Wellsford to the east the Indicative Alignment avoids the **Coastal Marine Area** and numerous sites of cultural significance surrounding Te Hana.
- **Sunnybrook Scenic Reserve and significant ecological areas in the Dome Valley are left untouched** as the Indicative Alignment passes to the west of the Dome Forest, through areas of exotic pine forest.
- **Avoiding wetlands and waterways of high ecological values.** The majority of stream crossings along the Indicative Alignment are located where ecological values are relatively low due to surrounding land use patterns. Where stream crossings do occur, revegetation and native planting will help to improve habitats and crossings will be designed to enable fish passage, where necessary.

Careful treatment of works will be part of the delivery of the project around watercourses and in areas of potential habitat for native species. The project will provide positive outcomes through revegetation or planting, provision for fish passage, fauna management and/or relocation, if necessary.

## EARTHWORKS

Design standards mean the road needs to have relatively flat gradients and gentle curves. The topography between Warkworth and Te Hana means a large amount of earthworks is required to cut slopes and fill gullies to achieve these standards.

Where the scale of earthworks is significant, or the ground conditions are challenging for road construction, structural solutions are considered, such as tunnels, viaducts and bridges.

The Indicative Alignment avoids areas of unstable ground to the south and east of Wellsford, which means less earthworks will be required in this section.

Steep terrain and deep gullies in the Dome Forest create challenges for the design team. A tunnel is proposed to pass under Kraack Hill.

The design team will seek to achieve a balance of cut and fill excavated during construction. This will mean soil will be redistributed within the project site, reducing truck movements on local roads where possible.

## PROTECTING WATERWAYS

The Indicative Alignment passes through three separate river catchments – the Mahurangi, Hotoe and Oruawharo. The Mahurangi catchment is considered particularly sensitive, as is the downstream habitat within the Kaipara Harbour, home to snapper nurseries and seagrass beds.

Careful management of construction activities and best practice sediment control are the main methods of minimising sediment effects on water bodies. The design of the new road's stormwater treatment and discharge is likely to have positive effects on water quality overall. This is because the level of stormwater treatment will be greater on the new road than the existing state highway, resulting in a higher quality discharge to the receiving environments.



LEFT: Banded Rail, CENTRE: Forest Gecko, ABOVE: Hochstetter's Frog.  
BELOW: SH1 in Dome Valley with Dome Forest beyond.

