Mt Messenger Alliance

Te Ara o Te Ata

Talking points on Mt Messenger options

Project update for Fergus Gammie

3 August 2017

Outline of three key points for discussion

1. 9(2)(g)(i) [redacted]

2. **Why has this changed?** Our investigations have revealed new and significant geotechnical, ecological, landscape and cultural information, including:
   - two large-scale and active landslides along the proposed western corridors.
   - very weak alluvial plains 15m – 30m deep.
   - a wide range of nationally significant habitats/species, including:
     - unbroken sequences of high quality, predator-controlled, forest from marine to mountain (unique on the North Island) with clumps of totara and rimu trees between 500 to 800 years old. Other species include NZ cress Matangaoa (Acutely Threatened) and Pingao (Nationally Endangered).
     - North Island brown kiwi – classified as endangered.
     - Kokako – at risk, recovering; (Bird of the year 2016); re-introduced by iwi and DOC in 2017.
     - New Zealand falcon, classified as Nationally Vulnerable.
     - Long-tailed and short-tailed bats (classified as Nationally Vulnerable – Threatened).
   - Regionally Significant Landscape areas (Waipingao) NPDC District Plan, to be reclassified as Outstanding Natural Landscapes (ONL) in draft Plan later in 2017.
   - Treaty Settlement Land with associated cultural and environmental values.

3. Implication of these changes to the western route are:

- Increased costs from $89M (2015) to $240M (2017), associated mostly with:
  - additional ground improvements, including large buttress fills (to mitigate landslide effects) and wick drains, stone columns and associated land stability improvements in 30m to 35m of weak alluvial plains.
  - mitigating negative ecological and landscape effects, including bridges (up to 610m long across Waipingao valley) and tunnels (up to 240m long) under northern ridgeline.
- Increased risks and high degree of uncertainty of consenting success.
- Residual risks associated with resilience of northern section of the western bypass.

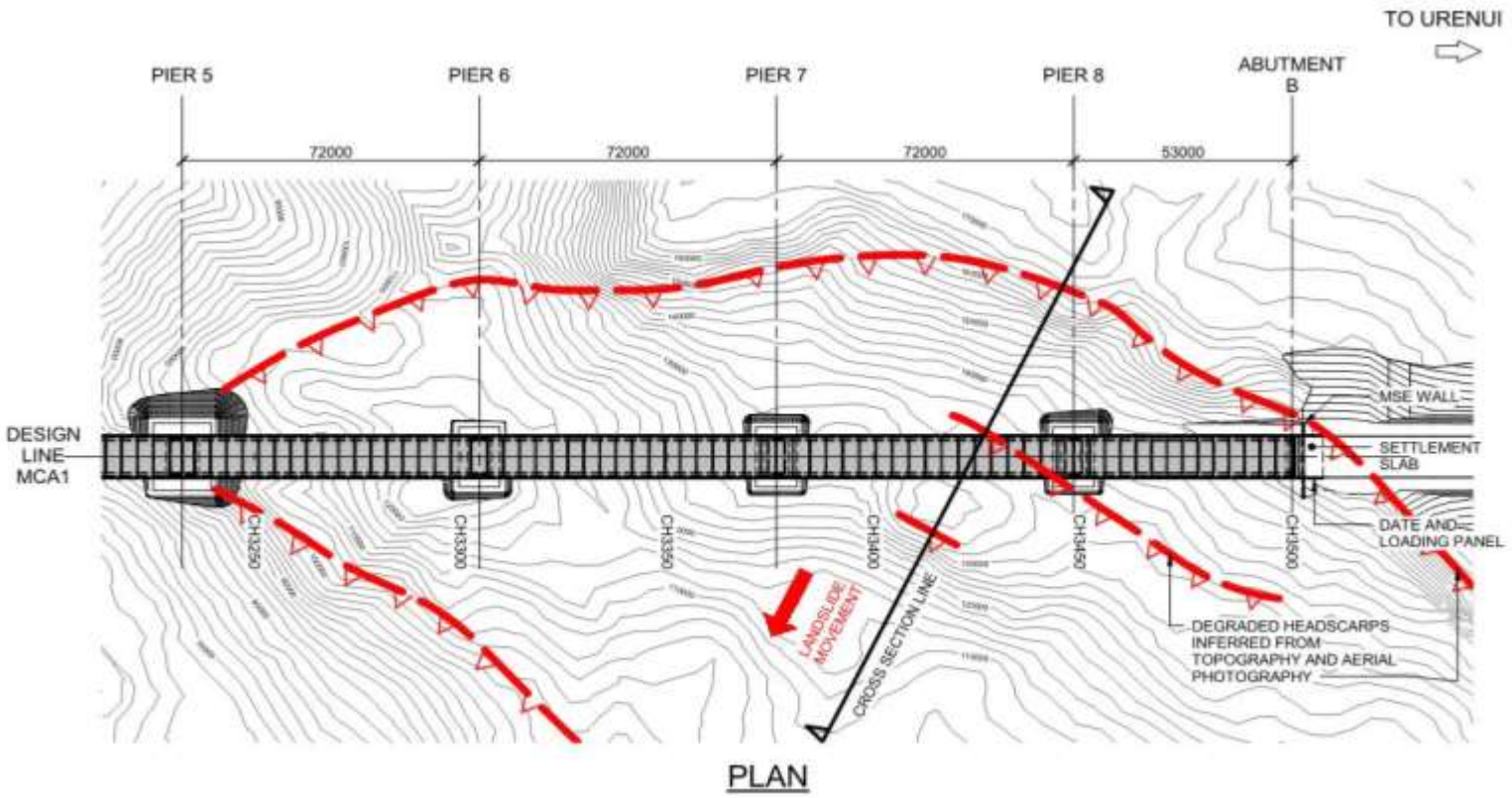
4. Implications of recommending the alternative eastern route are:

- 9(2)(g)(i)
- Expected cost for the eastern route option is $199.6M versus Crown funding of $90M to accelerate the delivery of approx. $114M of benefits (safety, resilience, travel time savings).
- In the absence of any additional Crown funding, the Alliance would seek Board approval for an additional $110M of funding in order to deliver on these benefits.

Geotechnical and ground conditions

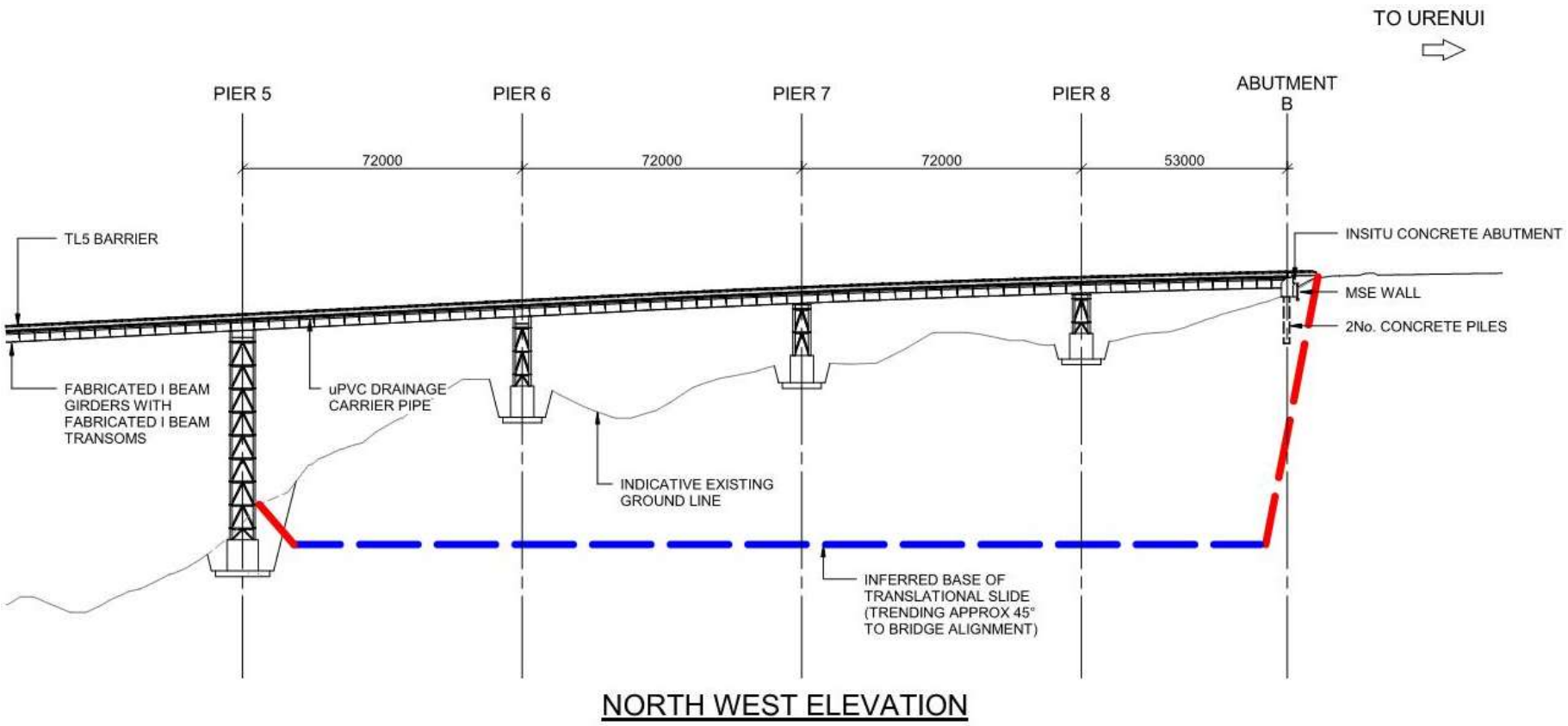
- Large and active landslide in northern slopes.

Western route viaduct – Landslide at South Abutment



This sketch illustrates the bridge crossing the landslide in the Waipingao Valley.

Western route viaduct – Landslide at South Abutment



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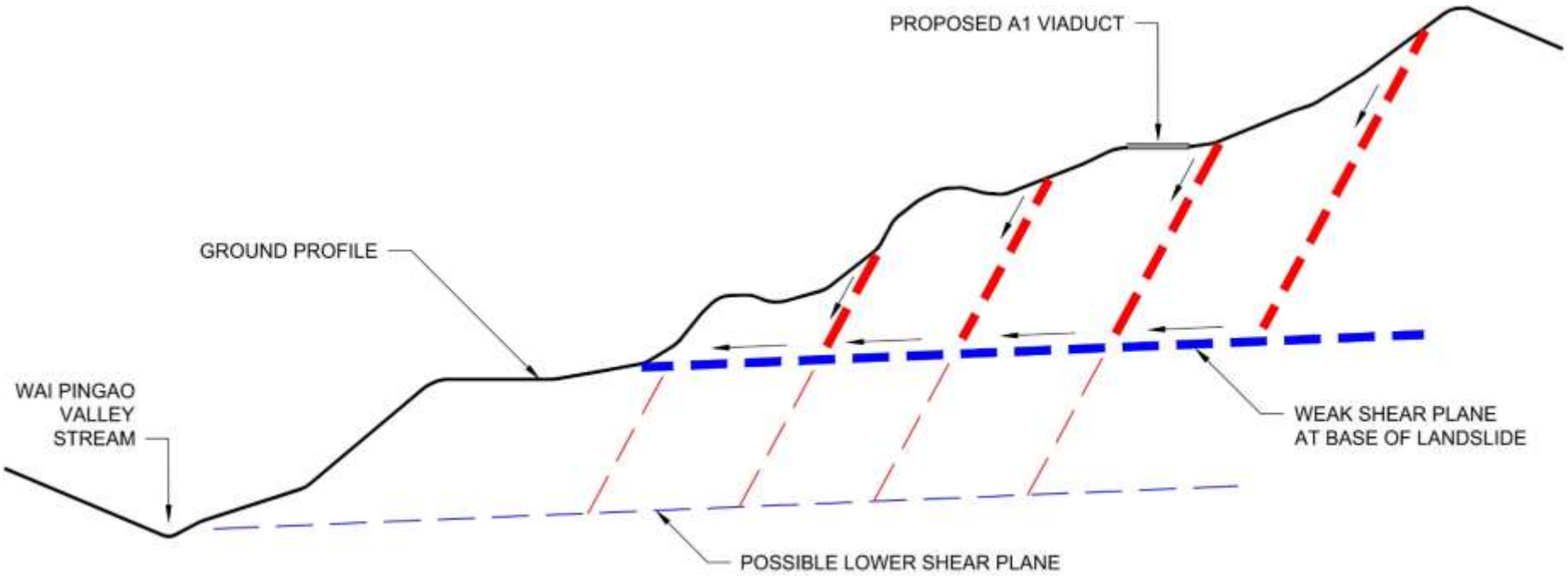
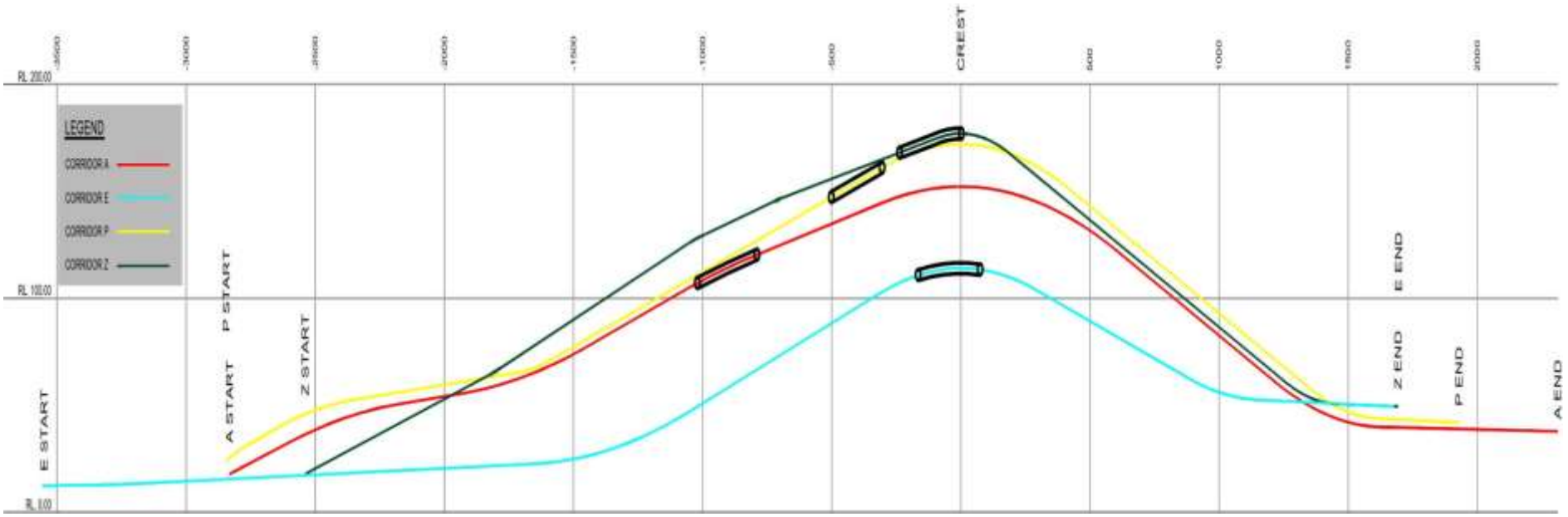


CROSS SECTION OF LANDSLIDE

This sketch illustrates the bridge crossing the weak shear planes at the base of the landslide in the Waipingao Valley.

Route profiles - comparison

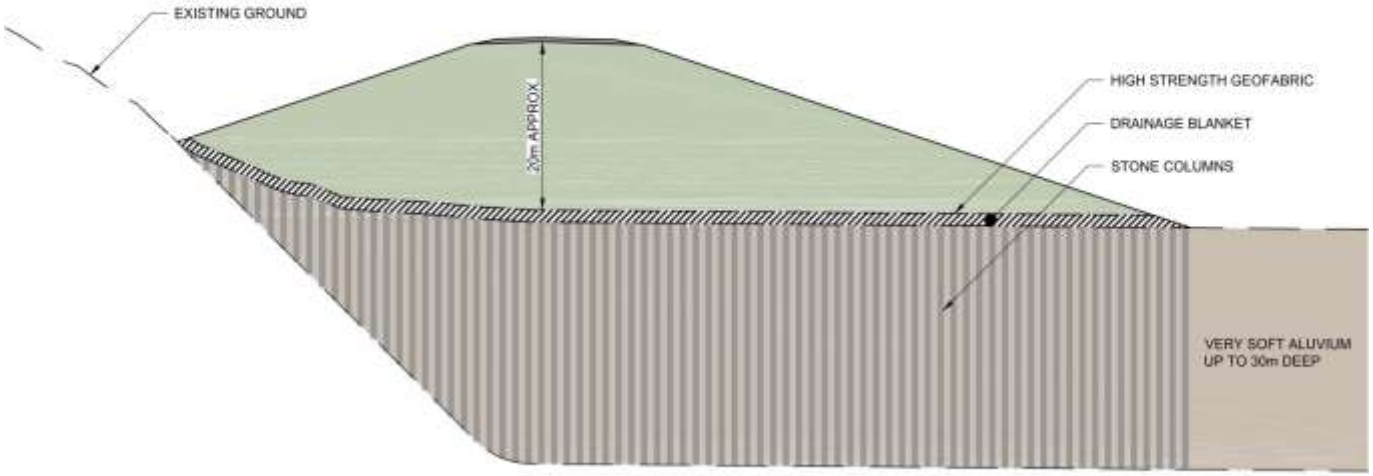


This profile illustrates the relative differences in height/summit of each route.

The eastern route (corridor E) offers the lowest summit at 110m, compared to the existing route (corridor Z) of 175m.

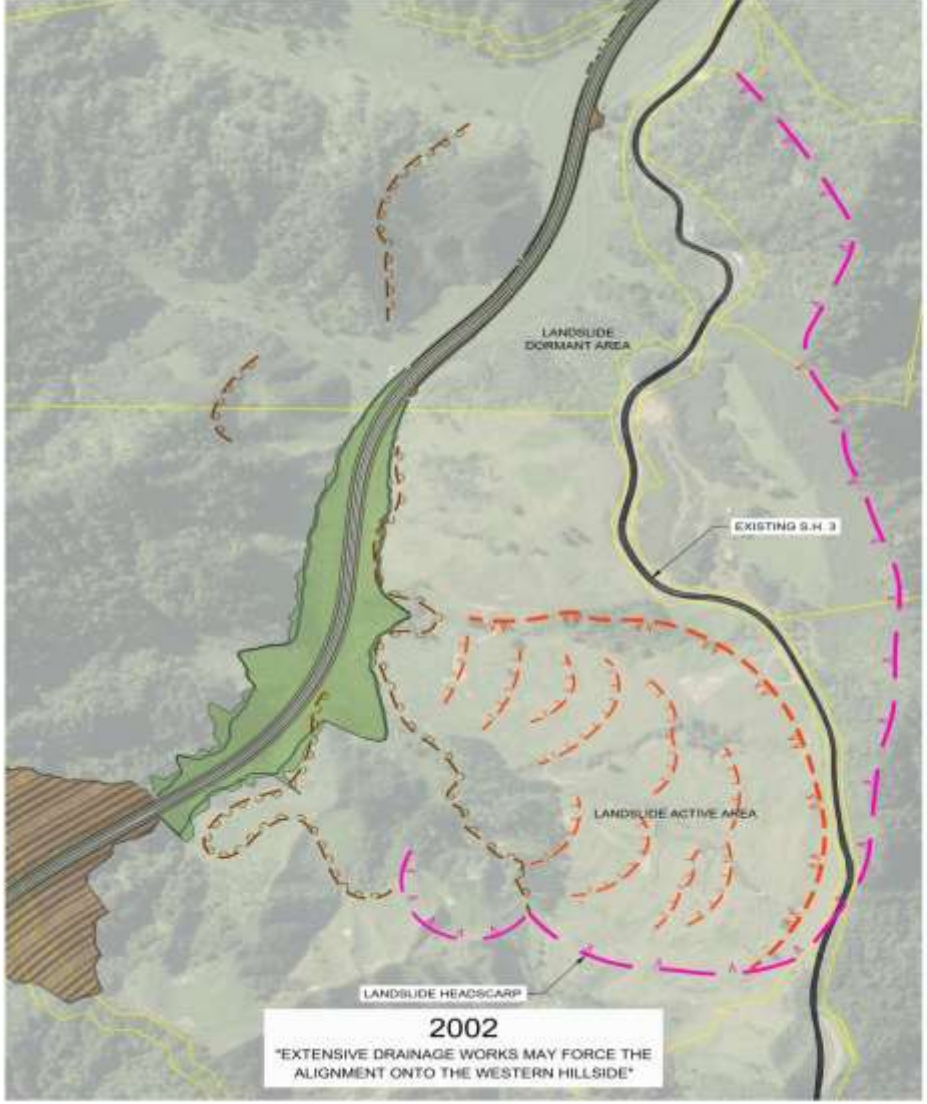
2002 Embankments Comparison

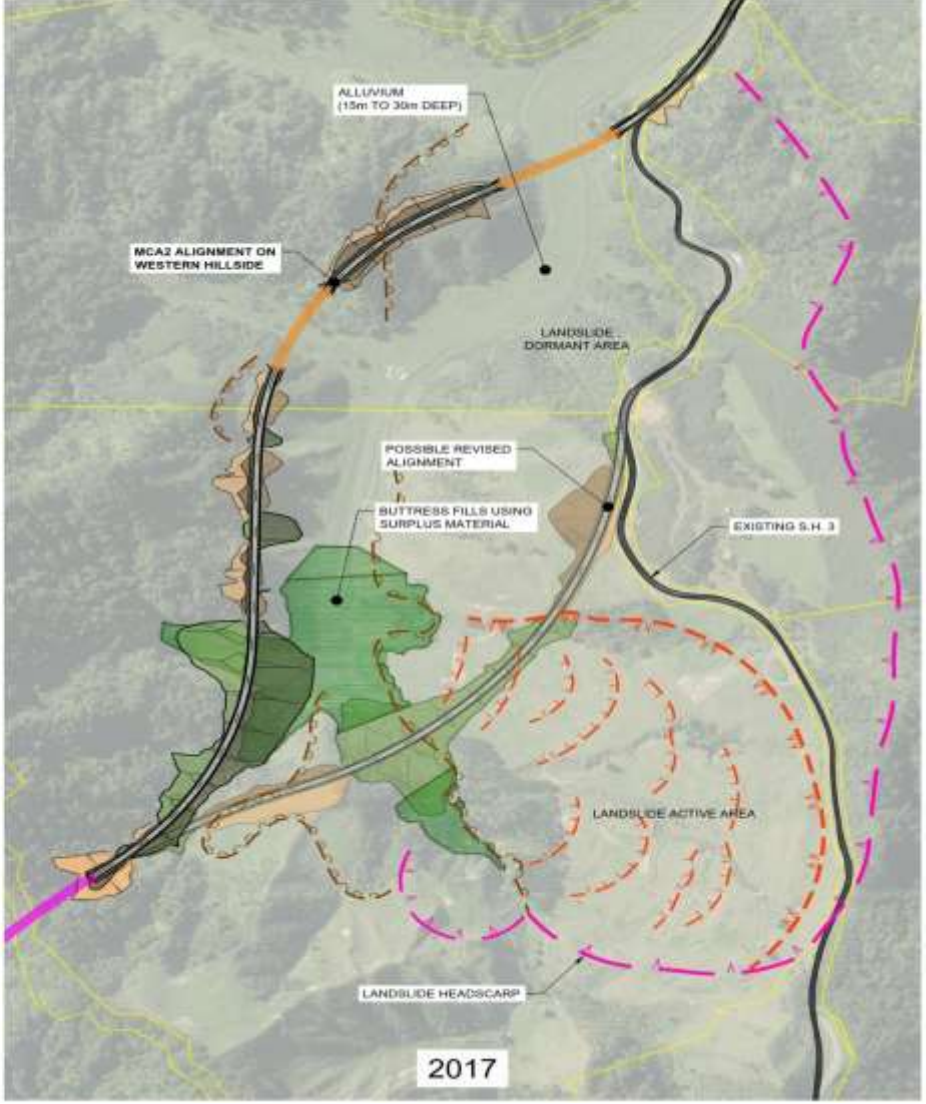
2002 TYPICAL CROSS SECTION



CROSS SECTION (BASED ON CPT DATA)
SOUTH END, 2002 WESTERN OPTION

The top sketch illustrates the ground improvements allowed for in the 2002 study.
The bottom sketch illustrates the recommended ground improvements based on 2017 geotechnical investigations.





The sketch (left) illustrates the suggestion from 2002 which was that "*extensive drainage works may force the alignment onto the western hillside"*.

The sketch (right) illustrates the implications of following the western hillside - large scale buttress fills and bridge structures, not allowed for in the 2002 nor 2015 cost estimates.

Ecology and Vegetation

- Waipingao Valley on western route looking from South abutment

Ecology and Vegetation

- 500+ year old Rimu

Ecology

Kokako – classified as “at risk, recovering”; (Bird of the year 2016).

Short-tail bat – classified as “Nationally Vulnerable and Threatened”

New Zealand falcon, classified as “Nationally Vulnerable”

Kokako – re-introduced to Waipingao Valley by Ngati Tama and DOC in June and July 2017.