

Our Ref: L19062e

27 August 2020

SH 16 Limited
PO Box 540
Silverdale

Attn: Paul Boocock

Dear Paul,

**RE: INFRASTRUCTURE DESIGN ENGINEERING REVIEW
AT MADDIES ROAD, KAUKAPAKAPA
FOR SH16 LIMITED**

We have carried out a high level review for future access and stormwater infrastructure design for the proposed plan change at Maddies Road, Kaukapakapa.

A desktop study has been completed of the site using Auckland Council GeoMaps. Refer attached GeoMaps aerial and contour plan with potential access alignment and culvert locations.

The site is accessed from the northern end of a cul-de-sac head located on Maddies Road and provides the site with all-weather access.

The topography of the subject site should allow access to future developments with a longitudinal gradient less than 1 in 5 (20%) in accordance with Auckland Council engineering standards.

It is likely surface runoff from the proposed accessways would be controlled by grassed swales (or similar) to keep consistent with the existing stormwater management of the surrounding area. Swales would discharge to surrounding gullies and would require rock check dams where the gradient of the swale is steeper than 5%.

Based on preliminary catchment calculations it is expected that around 3 minor cross culverts would be required to cater for the accessways. These would be positioned at the head of the overland flow paths mapped on GeoMaps. Based on preliminary hydraulic calculations the culverts would be in the order of 375mm diameter.


Proposed culvert length should be minimised under accessways. Based on typical accessway widths of up to 6.0m culverts should generally be in the order of 10m in length.


Suitable inlet and outlet scour protection would be required at each culvert to be detailed at engineering stage.

Should you wish to discuss any aspects of the above information, please contact this office.

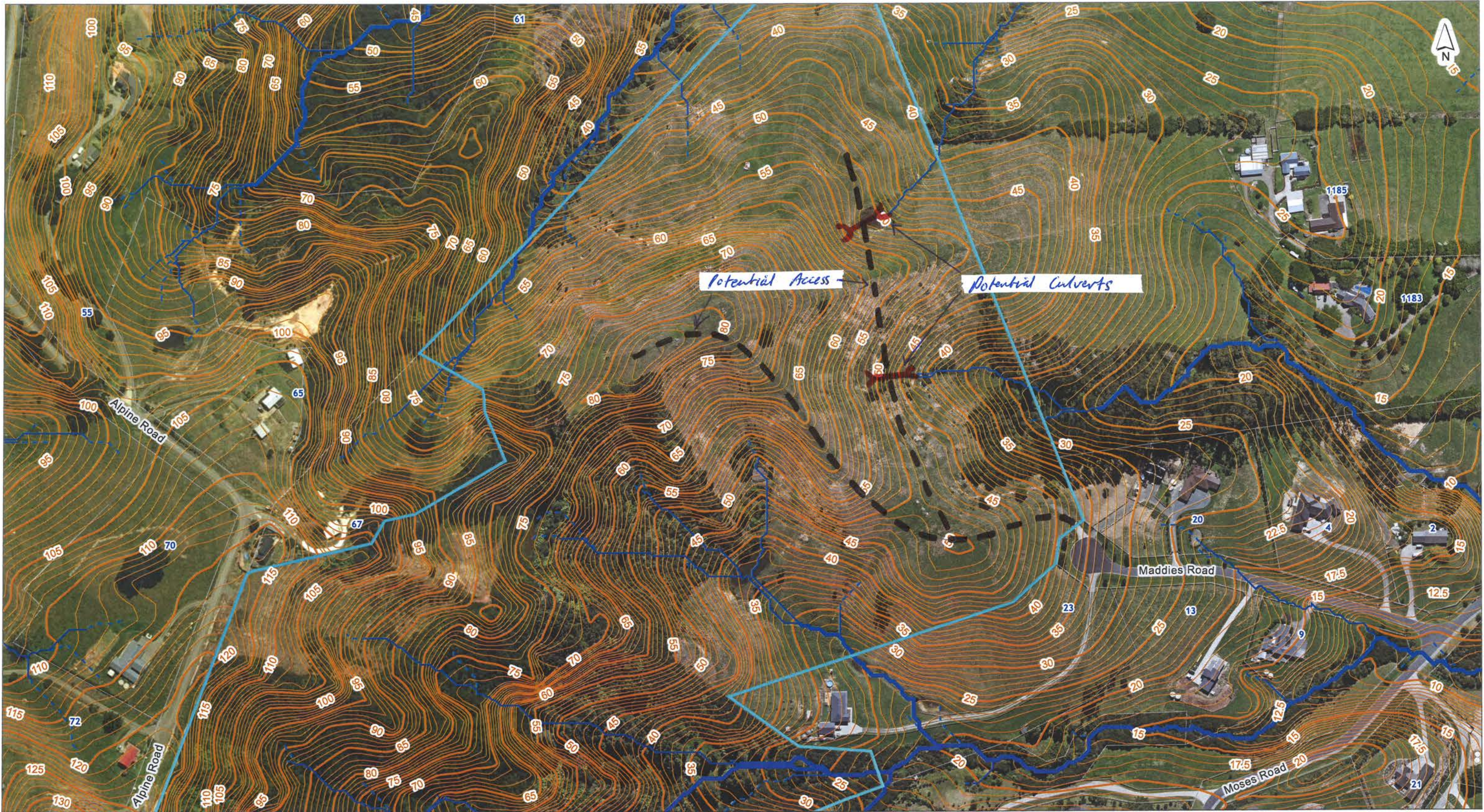
We trust this meets with your approval.

Yours faithfully,
IAN HUTCHINSON CONSULTANTS LTD

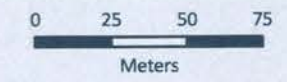
Prepared by  M. Symons
ENGINEER

Reviewed by  I. T. Hutchinson
MANAGING DIRECTOR

Reviewed by  P. Farley
CIVIL MANAGER



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