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File: 3263

11 December 2002

Boffa Miskell  
PO Box 91250  
AUCKLAND

Attention: Max Dunn

Dear Sir

**PROPOSED SUBDIVISION**  
**Pt Lot 1 DP 128728 for A & H Ryan-Kidd**

This report addresses the suitability of the above property for subdivision into six residential allotments.

#### Proposal

Mr & Mrs Ryan-Kidd own a property located just north of Tutukaka Harbour. The property is made up of a series of steep ridges and troughs and is presently in pasture. Access to the bulk of the property is via a ROW over Lot 2 DP 141189. The proposal is to subdivide the property into six allotments as shown on the attached base plan by Wood & Partners.

#### Geology

The New Zealand Land Inventory Maps describe the geology as interbedded sandstone and mudstone (greywacke and argillite), hard to very hard – weathered to soft brown sandy clay with harder cores to depths of 30 m. This same rock type covers most of the coastal area north and east of Whangarei. The sheer rock cliffs along the Tutukaka Coastal are evidence of the hard nature of the unweathered greywacke.

The main ridgeline runs in an easterly direction from Matapouri Rd to the coast. The ROW and southern boundary of the property more or less follows this ridgeline. A series of buttress ridges (spurs) and troughs project from this ridgeline.

The buttress ridges on this property and the neighbouring properties to the east all run in a north-north-east direction, with the exception of the first buttress ridge which runs in an east-north-east direction. A number of slips are evident on the steeper slopes together with surface creep. The slips are more significant, with several still active, on the first buttress ridge. This is likely to be related to the particular geological characteristics of this ridge, skewed in a different direction to the adjacent buttress ridge. Some recent slumping is also evident in the slopes above and below the ROW from its intersection with Matapouri Rd to approximately Chainage 400 m.

### **Site Suitability**

A walkover survey of proposed building sites and access routes has been undertaken. This, together with geotechnical data obtained on adjacent land, has been used to establish the preferred building sites. These sites are described below. It is intended that subsurface investigations be undertaken to identify any possible building consideration or restrictions. It is recommended that these investigations and specific lot requirements be established prior to issue of the 223 Certificate.

#### **Lot 1**

The proposed house site sits on the broad crest of a ridgeline dipping to the south at a gradient of  $14^\circ$  (1 in 4.0). The site is well elevated and has coastal views. No signs of instability were noted at the proposed house site. Evidence of past slumping is limited to the steeper slopes away from the crest. These slopes have gradients in the order of  $25^\circ$  (1 in 2.0). Some minor surface creep is evident at the building site, so it is recommended that foundations be designed by a suitably qualified engineer. Any excavations of significance will need to be retained. Detailed recommendations will be confirmed following subsurface geotechnical investigations.

Access to the building site will need to run down the ridgeline to the ROW at approximate Chainage 470 m. Adequate sight distance is available at this location.

#### **Lot 2**

The proposed house site sits on a narrow ridgeline dipping at an average gradient of  $9.5^\circ$  (1 in 6) in an east-north-east direction. The ridge side slopes are steep at  $32^\circ$  (1 in 1.6) to the north and  $25^\circ$  (1 in 2.2) to the southeast. Numerous large scale slips are present on both faces reaching close to the ridgeline. The dwelling site will need to be set back from the steep slopes to ensure regression of the slumping up to the ridgeline does not affect the dwelling site. To this end it is anticipated that a satisfactory building site will be established by excavating a level platform on the ridgeline to sufficient depth to provide the required setback. Piled foundations may also be necessary to ensure the building is founded on competent material.

These recommendations will be confirmed following subsurface geotechnical investigation.

Access to the building site will come off the main ROW at the same location as Lot 1. From here it will run around the base of the ridge and then climb up the ridge along the crest to the dwelling site. This will be necessary to avoid excavation through the steeper side slopes. It is noted that the existing track does traverse slip debris in several areas and as such some ongoing maintenance requirements through these areas is likely. Alternatively, the property owner may wish to construct retaining works to alleviate this possibility.

### Lot 3

A number of house sites are available on this lot along the gently sloping ridgeline. No stability issues are evident from the walkover survey however setback from the edge of the crest will be required to avoid the possibility of shallow surface creep/slumping effecting the building site. Alternatively piled foundations could be utilised to overcome this possibility. These recommendations will be confirmed following subsurface geotechnical investigations.

Access to the building site will follow the ridgeline from the main ROW. Satisfactory sight distance is available.

### Lot 4

*New Lot 3*

The dwelling site on this lot is located on the alignment of the existing ROW which will be realigned to create a suitable building site.

The area is relatively level and at the junction of the main ridgeline and a buttress ridge. There are no stability concerns with this lot and the site is considered suitable for dwellings complying with NZS 3604: Timber Framed Buildings, or NZS 4229: Concrete Masonry Buildings Not Requiring Specific Engineering Design. Foundations will however need to be taken down to a minimum of 500 mm to account for the expansive nature of the clays.

With the proposed realignment of the main ROW, satisfactory sight distance will be available at the entrance location.

Lots 5 and 6 *Now lot 4 + 5*

Both these lots are on the same buttress ridge as Lot 4. The ridge is gently sloping with a wide relatively level crest and side slopes of 23° (1 in 2.3) average. Sufficient area exists for dwellings to be sited away from the steep side slopes to avoid the possibility of any surface creep or slumping affecting the building site. Such set backs and any specific foundation recommendations will be detailed following subsurface geotechnical investigation of the site.

Access to these lots will be by way of a shared access running along the north-east edge of the ridge crest. As with Lot 4, satisfactory sight distance will be available with the proposed realignment of the main ROW.

#### **On-site Effluent Management**

Rapid soakage tests in the area indicate that soils would be suitable for conventional septic tank/disposal trenches. When siting disposal field however consideration needs to be given to the effect of subsurface water on downslope stability. It is therefore recommended that disposal areas be kept away from any existing slip areas and generally run along the ridgelines or more gentle side slopes. Disposal by means of low rate/trickle irrigation beds is recommended, in particular for Lots 1 and 2.

All lots are considered to be of adequate size to enable suitable systems to be installed. Full design will be required for building consent purposes and may include a range of systems depending on desired location and proposed loading. Such design should consider stability issues noted above.

#### **Stormwater**

For each lot, stormwater from roofs and paved areas should be directed to stable watercourse to avoid erosion of the steep slopes or aggravation of any existing unstable areas.

#### **Access**

A separate report covering the main ROW and intersection with Matapouri Rd is appended. In addition to this, privateways will be required to serve Lots 1 and 2, and Lots 5 and 6.

Council's standards call for a privateway servicing two properties to be constructed to a width of 3.0 m. The shared access for Lots 1 and 2 will be relatively short (approximately 10 m), whereas the shared access for Lots 5 and 6 will be approximately 120 m in length. No difficulties are foreseen in complying with Council's standards for these privateways.

### Summary and Conclusion

The proposed subdivision creates six allotments for residential development. All lots are large and have house sites identified. Specific recommendations for building at these identified sites will be confirmed by subsurface geotechnical investigations prior to issue of the 223 Certificate. Sufficient land is available on each lot for on-site effluent disposal. Full design of individual systems will be required at the time of building consent application and should consider the stability issues noted in this report.

Stormwater from roofs and paved areas will need to be directed to stable watercourses to avoid erosion and aggravation of slip areas.

Upgrading of the main ROW to a sealed standard is proposed. The first 450 m cannot practically be widened to comply with Council's standard for rural privateways serving in excess of five properties (i.e. 5.5 m carriageways). Widening and passing bays where possible will however be provided as set out in the appended report. From Chainage 450 m the ROW will be upgraded to fully comply with Council's standards.

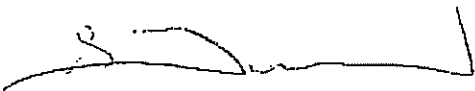
The main ROW intersection with Matapouri Rd will be upgraded to improve sight distance and sealed for better traction.

Two ROWs servicing two lots each are required within the subdivision. These will be constructed to a 3.0 m standard to comply with Council's rural privateway standards.

### Limitation

This report has been prepared solely for the benefit of A & H Ryan-Kidd with respect to the brief. The reliance by other parties on the information or opinions contained in the report shall, without our prior review and agreement in writing, be at such parties sole risk.

Yours faithfully



Steve Turner  
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