

17 September 2010

Suburban Estates Ltd  
Level 3  
217 Gloucester Street  
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Christchurch

**Attention: Kim Sanders**

**SOVEREIGN PALMS SUBDIVISION (STAGE 1 & 2), KAIAPOI**  
**Geotechnical review of earthquake-induced ground deformation**  
**(Interim Report)**

Following the M7.1 Canterbury Earthquake on 4<sup>th</sup> September 2010 we have conducted a geotechnical review of earthquake-induced ground deformation at the Sovereign Palms Subdivision (Stage 1 & 2), which is currently under construction – refer to attached Stage location plan.

This interim report provides a summary of the findings from geotechnical visual walkover inspections (5<sup>th</sup> & 8<sup>th</sup> September) and a review of pre- and post-earthquake detailed topographic survey records.

The Land-Use Consent for the site requires the earthworks to take into account the potential for liquefaction of the ground and effects of associated ground settlement and lateral spreading. The maximum allowable vertical movement is 100mm and for lateral movement 250mm based on a 1 in 150 year earthquake.

The recent M7.1 earthquake was a major event that subjected the site to an intensity of seismic loading well in excess of a 1 in 150 year earthquake.

Our site inspections and a review of the topographic survey records found no evidence of earthquake-induced ground deformation.

The earthquake performance of the site comfortably satisfies the Waimakariri District Council's Land-Use Consent requirements for earthquake-induced ground deformation. The site has displayed excellent earthquake resilience.

For and on behalf of Coffey Geotechnics (NZ) Limited



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Associate Geotechnical Engineer

Attached – Sovereign Palms stage location plan

**Coffey Geotechnics (NZ) Limited**

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