

10.0 CONCLUSIONS

The investigation has shown that:

- The main body of the site is occupied by gully filling. The gully filling comprises generally granular fill soils and insitu testing typically indicates medium dense soil which is consistent with compacted filling.
- There is a clean interface between the fill soils and underlying weathered rock at the points explored and this indicates that the gully had been cleared of any unsuitable prior to filling.
- We understand the filling was inspected and certified.
- Stability analysis carried out on the critical fill slope profile indicates substandard factors of safety, particularly under ULS level of ground shaking. The analysis was for a 2D profile whereas a 3D model would better reflect in situ conditions and undoubtedly enhance the factors of safety.
- The site is perceived to have an acceptable low risk with respect to deep seated instability under static ground conditions. There is a risk of surface instability under seismic loads and this will have to be addressed by specific retaining as part of any development. In this context the site(s) are considered suitable for development.
- The upper part of the fill batter slope is oversteep and prone to shallow seated instability under earthquake shaking. Depending on the results of a site specific investigation that must be carried out for each of the sites, any shallow instability must be mitigated by specific design works.
- All development must recognise the potential for shallow seated instability during construction and that any steep cutting is likely to initiate slope instability that must be mitigated by temporary works as required.
- Temporary support is required to all cuts but depending on the heights of the cuts. All temporary support must be specifically designed by an experienced engineer.
- Foundations to support any dwelling must be taken down to and socket completely within the inferred weathered greywacke rock. The bearing capacity of the weathered rock is relatively high and lateral forces on the piles may govern the geometry of the pile foundations.