

20 September 2024  
E25203.G99

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## Comments Matrix for Landslide Risk Assessment 1112-1116 Barrenjoey Road, Palm Beach NSW

The attached comments matrix is provided, based on the extracts from the Northern Beaches Council's (NBC) comments on EI's Landslide Risk Assessment (LRA) report (ref. E25203.G14, dated 8 August 2024). The NBC comments stated as follows:

*"The LRA report is generally as required of the Council policy – though there are some deficiencies in the actual risk analysis.  
It contains the Forms 1 and 1a of the policy for the DA and provides recommendations for maintenance of stability/maintenance of slope/risk.  
The risk assessment appears to be only for 1 landslide option, a relatively shallow earth slide at the crest of the site, from within the neighbouring property. With the impact being to a dwelling – there is no reference to any particular dwelling or location (have to assume it is only to the dwelling at the crest of the site (21a Palm Beach Road).  
I should assess the risk related to a larger/deep seated slide (considering the scale of excavation) and assess risk to individual locations and structures around the perimeter of the site due to the scale of the works proposed.  
As they are proposing a pre-excavation support wall and include an option for 'failure of the support system', they should also assess the risk from a large slide in that option as well.  
There doesn't appear to be any assessment for a shallow slide at the excavation sides, though the risk assessment is relatively generic talking about dwellings at risk but not outlining which ones. It should cover the neighbouring property to the north which seems to be sitting over saturated fill/sand and directly adjacent to the boundary. Barrenjoey House is also not mentioned and whilst it is a distance away from the excavation – its high value means it should be included in the analysis.  
In the Risk to Life they list Occupancy (Proportion of Time) for the dwellings as being 8hrs per day (0.3) – however considering most people sleep longer than each night that is too low, especially should there be a stay at home mum, retired person in the dwelling. They should be at least looking at 12hrs/day (0.5) – so that impacts their risk level (they undervalue it).  
They undervalue the risk related to failure of the support system in the Vulnerability column and don't assess the road reserve or adjacent driveway.  
Although the risk analysis is generally in line with the policies it references, it is too generic and doesn't cover the risks related to the development correctly."*

Elements of the NBC Comments were initially highlighted and numbered. These are tabulated in the attached Table/Matrix, together with EI's responses. The LRA Report has been updated as Revision 2 (ref. E25203.G14\_Rev2, dated 19 September 2024).

For and on behalf of:  
**EI Australia**



Warwick Davies  
Principal Geotechnical Engineer

Comment reference	Northern Beaches Council's Comments	EI's Response
1.1	<i>"The risk assessment appears to be only for 1 landslide option"</i>	<p>The LRA was deliberately limited to the single hazard H1. This was explained in the LRA with the statement on page A2:</p> <p><i>"A premise/assumption for this LRA is that the engineering design, methodology and controls for undertaking the bulk excavation on 1112 – 1116 will be properly implemented for the construction in accordance with recommendations herein, and consequently will not result in an unacceptable risk for adjoining property."</i></p> <p>The report has been updated and includes additional hazards.</p>
1.2	<i>"there is no reference to any particular dwelling or location"</i>	<p>On pA2, the risk analysis in Table A1 is clearly linked with the development at 21A Palm Beach Rd:</p> <p><i>"Damage to property occasioned from a slope failure of this type and scale could affect No.21A at a range of consequence levels as treated below in Table A1."</i></p> <p>The property at 23 Palm Beach Rd has been added to the assessment. The risk outcomes are unchanged.</p>
2	<i>"I should assess the risk related to a larger/deep seated slide (considering the scale of excavation) and assess risk to individual locations and structures around the perimeter of the site due to the scale of the works proposed."</i>	<p>The scale of hazard for a larger/deep seated slide has been addressed in Rev 2 of the LRA Report.</p> <p>H4 has been added.</p>
3.1	<i>"they should also assess the risk from a large slide in that option as well"</i>	<p>As for Comment 2. H4 has been added</p>
3.2	<i>"There doesn't appear to be any assessment for a shallow slide at the excavation sides"</i>	<p>For a fully engineered support system, the risk will be far less for a shallow failure affecting adjoining property.</p> <p>There is no need for assessing yet another scale of failure that can be judged adequately against the hazards already analysed.</p>
3.3	<i>"It should cover the neighbouring property to the north which seems to be sitting over saturated fill/sand and directly adjacent to the boundary. Barrenjoey House is also not mentioned and whilst it is a distance away from the excavation – its high value means it should be included in the analysis."</i>	<p>Hazards H2(iv), H3 and H4 have been added to Rev 2 of the LRA Report addressing neighbouring properties.</p>
4	<i>"They should be at least looking at 12hrs/day (0.5) – so that impacts their risk level (they undervalue it)"</i>	<p>This has been addressed in Rev 2 1 of the LRA Report. Refer Tables A2(a) and A2(b).</p>
5	<i>"They undervalue the risk related to failure of the support system in the Vulnerability column"</i>	<p>Please refer to the stated limitation on page LRA Report page A2, as for Comment 1.</p> <p>The vulnerability ratings have been reviewed. Refer Tables A2(a) and A2(b).</p>
6	<i>"don't assess the road reserve or adjacent driveway."</i>	<p>These have been addressed in the Rev 2 of the LRA Report. Refer H2(i), H2(ii) and H3 in Appendix A.</p>
7	<i>"it is too generic and doesn't cover the risks related to the development correctly."</i>	<p>The report is detailed and entirely site-specific where it needs to be. The Council's comment is not accurate.</p>