

PRELIMINARY GEOTECHNICAL ASSESSMENT: **10 Binalong Avenue, Allambie Heights**

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| 1.0 | LANDSLIP RISK CLASS (<i>Highlight indicates Landslip Risk Class of property</i>) |
| <input checked="" type="checkbox"/> | <i>A - Geotechnical Report not normally required</i> |
| <input checked="" type="checkbox"/> | <i>B - Geotechnical Engineer (Under Council Guidelines) to decide if Geotechnical Report is required</i> |
| <input type="checkbox"/> | <i>C - Geotechnical Report is required</i> |
| <input type="checkbox"/> | <i>D - Geotechnical Engineer (Under Council Guidelines) to decide if Geotechnical Report is required</i> |
| <input type="checkbox"/> | <i>E - Geotechnical Report required</i> |

2.0 Proposed Development

- 2.1** Widen the existing driveway and construct a new concrete pathway on the uphill side of the house.
- 2.2** Extend the lower ground floor of the existing house on the downhill side by excavating to a maximum depth of ~0.7m.
- 2.3** Other minor internal and external alterations and additions.
- 2.4** Install a new pool near the SE corner of the property by excavating to a maximum depth of ~1.5m.
- 2.5** Landscaping works requiring minor filling.
- 2.6** Details of the proposed development are shown on 15 drawings prepared by Sally Gardner Design and Draft, job number 23-0301, drawings numbered N1, N2, E1 to E3, A1 to A7 and S1 to S3, dated 23/5/24.

3.0 Site Location

- 3.1** The site was inspected on the 30th January, 2024.

3.2 This residential property is on the low side of the road and has an E aspect. It is located on the gently graded middle reaches of a hillslope. No rock outcrops on the subject property, but sandstone bedrock was observed on the uphill side of the road. The Sydney 1:100 000 Geological Sheet indicates the site is underlain by Hawkesbury Sandstone that is described as a medium to coarse grained quartz sandstone with very minor shale and laminite lenses. Sandstone bedrock is expected to underlie the surface at relatively shallow depths. The natural surface of the block has been altered with fills for lawn, garden and paved areas across the property. The proposed works require excavations to maximum depths of ~0.7m and ~1.5m respectively for the proposed lower ground floor and pool, and minor filling for landscaping.

3.3 The site shows no indications of historical movement in the natural surface that could have occurred since the property was developed. We are aware of no history of instability on the property.

4.0 Site Description

The natural slope falls across the property at an average angle of ~5°. At the road frontage, a concrete driveway runs down the slope to a garage on the ground floor of the house. Between the road frontage and the house is a gently sloping lawn and garden area. The part three storey rendered brick house is supported on brick walls, brick piers and steel posts. The supporting walls show no significant signs of movement and the supporting piers/posts stand vertical. A timber balcony extends off the downhill side of the house. The posts that support the balcony stand vertical. Fills provide level platforms for lawn and garden areas on the downhill side of the house. A timber retaining wall ~0.8m high supports the upper fill. The wall is rotting and is tilting downslope slightly, but will be demolished as part of the proposed works. The area surrounding the house is mostly lawn or garden covered with some paved areas. Apart from the rotted and tilting timber retaining wall supporting fill, no signs of movement related to slope instability were observed on the grounds. No cliffs or large rock

faces were observed on the property or in the near vicinity. The adjoining neighbouring properties were observed to be in good order as seen from the street and subject property.

5.0 Recommendations

The proposed development and site conditions were considered and applied to the current Council requirements.

Due to the proximity of the proposed pool excavation to the sewer main, the recommendations below are to be followed.

5.1 Vibrations

Excavations through rock should be carried out to minimise the potential to cause vibration damage to the sewer main (150mm diameter vitrified clay pipe) and the subject house. The pool excavation is set back ~0.8m from the sewer main and ~5.0m from the subject house.

Excavation methods are to be used that limit peak particle velocity to 5mm/sec at the subject house and 3mm/s at the sewer main. Vibration monitoring will be required to verify this is achieved. The vibration monitoring equipment must include a light/alarm so the operator knows if vibration limits have been exceeded. It also must log and record vibrations throughout the excavation works.

In Medium Strength Rock or better, techniques to minimise vibration transmission will be required. These include:

- Rock sawing the excavation perimeter to at least 1.0m deep prior to any rock breaking with hammers, keeping the saw cuts below the rock to be broken throughout the excavation process.
- Limiting rock hammer size.
- Rock hammering in short bursts so vibrations do not amplify.

- Rock breaking with the hammer angled away from the nearby sensitive structures.
- Creating additional saw breaks in the rock where vibration limits are exceeded.
- Use of rock grinders (milling head).

Where the pool excavation is set back less than 5.0m from the sewer main, the excavation through rock is to be sawn up into segments with rock saws, so the rock can be 'picked out' without the use of pneumatic hammers. Vibration impacts on the sewer main are expected to be less than a peak particle velocity of 3mm/sec using this method.

See the required inspection below that is to be carried out during construction and is a requirement for the final geotechnical certification. Apart from this inspection and the above recommendations, it is not expected additional geotechnical input will be required provided good design and building practices are followed.

6.0 Inspection

The client and builder are to familiarise themselves with the following required inspection as well as council geotechnical policy. We cannot provide geotechnical certification for the owners or the regulating authorities if the following inspection has not been carried out during the construction process.

- All footings are to be inspected and approved by the geotechnical consultant while the excavation equipment and contractors are still onsite and before steel reinforcing is placed or concrete is poured.

White Geotechnical Group Pty Ltd.



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Information about your Preliminary Assessment

This Preliminary Assessment relies on visual observations of the surface features observed during the site inspection. Where reference is made to subsurface features (e.g. the depth to rock) these are interpretations based on the surface features present and previous experience in the area. No ground testing was conducted as part of this assessment and it is possible subsurface conditions will vary from those interpreted in the assessment.

In some cases, we will recommend no further geotechnical assessment is necessary despite the presence of existing fill or a rock face on the property that exceed the heights that would normally trigger a full geotechnical report, according to the Preliminary Assessment Flow Chart. Where this is the case, if it is an existing fill, it is either supported by a retaining wall that we consider stable, or is battered at a stable angle and situated in a suitable position on the slope. If it is a rock face that exceeds the flow chart limit height, the face has been deemed to be competent rock that is considered stable. These judgements are backed by the inspection of over 5000 properties on Geotechnical related matters.

The proposed excavation heights referred to in section 2.0 of this assessment are estimated by review of the plans we have been given for the job. Although we make every reasonable effort to provide accurate information excavation heights should be checked by the owner or person lodging the DA. If the excavation heights referred to in in section 2.0 of this assessment are incorrect, we are to be informed immediately and before this assessment is lodged with the DA.