

PRELIMINARY GEOTECHNICAL ASSESSMENT:

102 Grace Avenue, Forestville

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

2.0 Proposed Development

- 2.1** Install a new pool on the downhill side of the property by excavating to a maximum depth of ~2.0m.
- 2.2** Extend the NE side of the house and construct a new lower ground floor addition by excavating to a maximum depth of ~1.9m.
- 2.3** Construct a new carport on the uphill side of the house.
- 2.4** Construct a new deck on the downhill side of the house.
- 2.5** Various other internal and external modifications.
- 2.6** Details of the proposed development are shown on 11 drawings prepared by Sally Gardner Design & Draft, Job number 5-0818, drawings numbered S1, and A1 to A10, dated 19/11/2018.

3.0 Site Location

- 3.1** The site was inspected on the 25th March, 2019.

3.2 This residential property is on the low side of the road and has a NW aspect. It is located on the gently graded upper reaches of a hillslope. Medium Strength Hawkesbury Sandstone bedrock outcrops on the downhill side of the property. Where sandstone is not exposed, it is expected to underlie the surface at relatively shallow depths. The natural surface of the block has been altered with a fill to a maximum height of ~4.0m for a gently sloping lawn on the downhill side of the house. The proposed development will require an excavation to a maximum depth of ~2.0m for the pool and another excavation to a maximum depth of ~1.9m for the proposed addition to the NE side of the house.

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 from the road frontage at gentle angles to a rock face at approximately the midpoint of the property. The slope then continues at gentle angles to the lower common boundary. At the road frontage, a concrete driveway runs to a brick garage attached to the NE side of the house. Between the road frontage and the house is a gently sloping lawn-covered fill. The fill is supported by a stable rendered masonry retaining wall ~1.0m high that lines the SW common boundary. The single-storey brick house is supported on brick walls and brick piers. Some minor cracking was observed on the S corner of the house but we do not attribute this crack to ground movement. The supporting walls display no other significant signs of movement. The supporting brick piers stand vertical. Another gently sloping lawn-covered fill falls from the downhill side of the house. The fill is supported by a ~4.0m high makeshift concrete gravity wall (Photo 1). It is constructed of broken up slabs of concrete paving. It is not an 'engineered' retaining wall but the concrete components show no signs of detrimental movement and the wall is constructed with a slight tilt back into the slope. Additionally, no ground movement was observed in the lawn area above the wall. The wall is

currently considered stable but see **Section 5.0** for ongoing maintenance advice. Competent Medium Strength Sandstone bedrock outcrops beside the wall and steps down twice to a gently sloping lawn area below. The upper step is undercut ~1.0m (Photo 2). The undercut rock has a relatively thick cantilever arm in relation to its overhang length and does not show any cracking through the supporting cantilever arm as viewed from above or below. As such, we consider it to be currently stable. The lawn area below continues to the lower common boundary. The area surrounding the house is mostly paved or lawn covered. No signs of movement associated with slope instability were observed on the grounds. The adjoining neighbouring properties were observed to be in good order as seen from the road and the subject property.

5.0 Recommendations

The proposed development and site conditions were considered and applied to the Council Flow Chart.

Excavations through rock should be carried out to minimise the potential to cause vibration damage to the makeshift concrete gravity wall, subject house, and neighbouring houses. Close controls by the contractor over rock excavation are recommended so excessive vibrations are not generated.

If a milling head is used to grind the rock, vibration monitoring will not be required. Alternatively, if rock sawing is carried out around the perimeter of the excavation boundaries in not less than 1.0m lifts, a rock hammer up to 300kg could be used to break the rock without vibration monitoring. If this is not possible due to the relatively large required saw diameter and the limited access, excavations can be sawn up with a smaller rock saw and rock sections 'picked out' without the use of pneumatic hammers. Alternatively, hand tools such as rock saws and jack hammers may be used for excavations through rock. No vibration monitoring will be required if these excavation methods are used.

To be prudent, we recommend the retaining wall (Photo 1) be inspected by the owners on a biannual basis or after heavy prolonged rainfall, whichever occurs first, keeping a photographic record of the inspections. We can carry out these inspections upon request. Should any new movement be observed, the geotechnical consultant is to be engaged to assess the movement and provide remedial advice if necessary.

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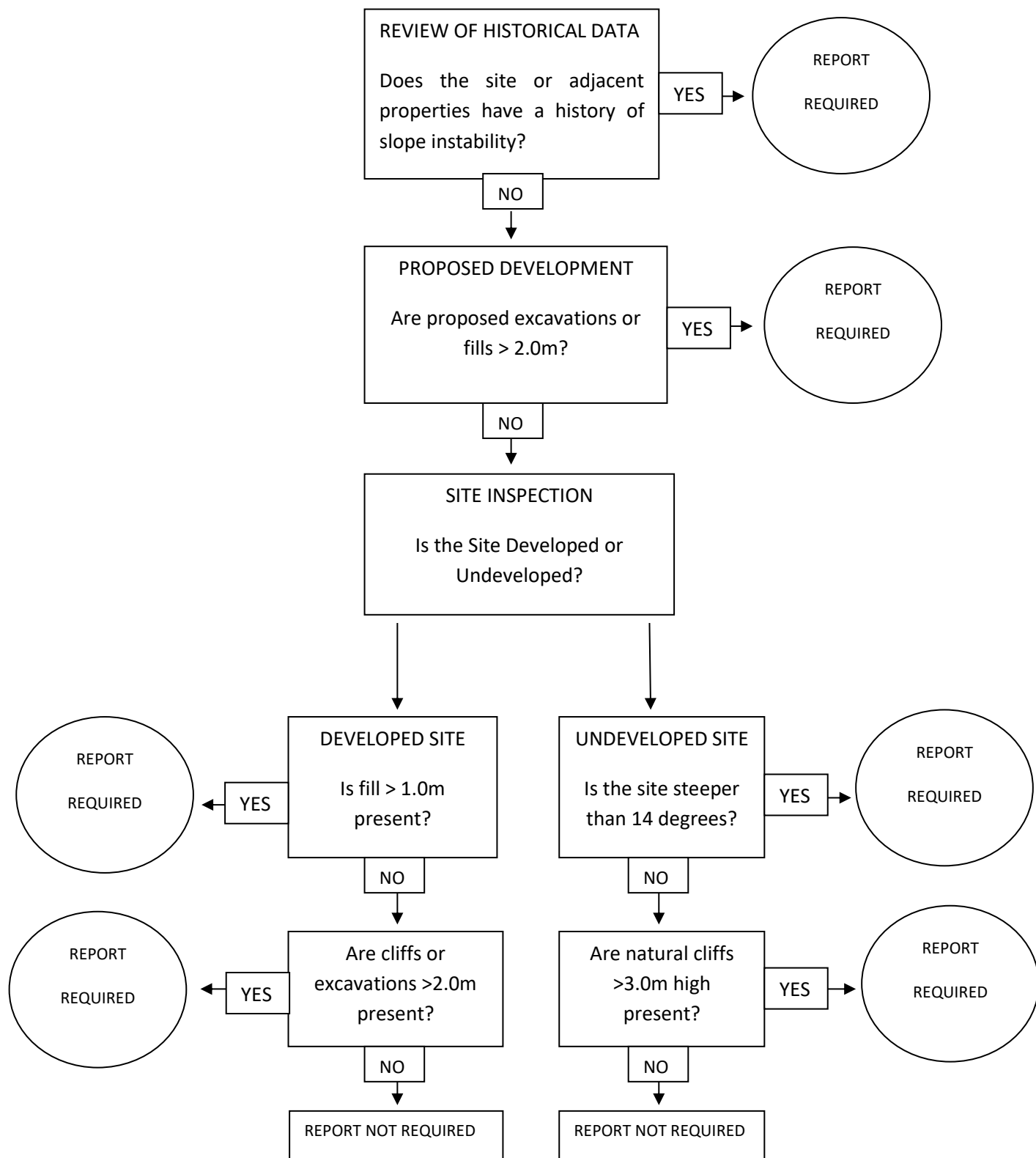


Photo 1



Photo 2

Preliminary Assessment Flow Chart – Norther Beaches Council (Warringah)



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.
