PRELIMINARY GEOTECHNICAL ASSESSMENT:

103 Arthur Street, Forestville

1.0	***LANDSLIP RISK CLASS*** *(Highlight indicates Landslip Risk Class of property)*
☐	*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 pool on the downhill side of the property by excavating to a maximum depth of ~1.8m.

2.2 Re-landscape the downhill side of the property by filling to a maximum height of ~2.2m.

2.3 Various other minor external alterations.

2.4 Details of the proposed development are shown on 1 drawing prepared by Space Landscape Designs, Project number 252279, drawing numbered L-100, Revision B, dated 27/8/25.

3.0 Site Location

3.1 The site was inspected on the 15th September, 2025.

3.2 This residential property is on the low side of the road and has a S aspect. It is located on the gentle to moderately graded upper reaches of a hillslope. Medium Strength Hawkesbury Sandstone bedrock outcrops and steps down 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 an excavation for the house and with filling used for landscaping across the property. The proposed development will require an excavation to a maximum depth of ~1.8m for the pool and filling to a maximum height of ~2.2m for the proposed 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 rises across the site at an average angle of ~11°. At the road frontage, a concrete driveway runs down the slope to a garage on the upper ground floor of the house. Competent Medium Strength Sandstone outcrops beside the driveway. Between the road frontage and the house are gently sloping lawns and low garden beds supported by low stable rendered masonry retaining walls. The part two-storey brick house is supported on brick walls and brick piers. No significant signs of movement were observed in the supporting walls and the supporting piers stand vertically. However, one of the supporting brick piers under the deck on the uphill side of the house was observed to be partially undermined (Photo 1). An acrow prop was positioned immediately beside this brick pier. Similarly, the concrete path along the W side of the house was also observed to be partially undermined (Photo 2). We recommend these be assessed by the structural engineer for their structural adequacy as part of the proposed works.

Photo 1

Photo 2

The cut for the lower ground floor was taken through sandstone bedrock. No significant geological defects were observed in the rock face and it is considered stable. The cut is supported between the house and the E common boundary by a rough but stable stack of bricks and concrete slabs. A gently-sloping lawn-covered fill extends off the downhill side of the house. The fill is battered to stable angles. Sandstone bedrock outcrops through the fill batter. The area surrounding the house and driveway is mostly lawn and garden-covered with some paved areas. No significant signs of movement associated with slope instability were observed on the grounds. No cliffs or large rock faces were observed on the property or in the near vicinity. No geotechnical hazards that could impact on the subject property were observed on the surrounding neighbouring properties as viewed from the subject property and the street.

5.0 Recommendations

The proposed development and site conditions were considered and applied to the current council requirements. See below for advice regarding the proposed fill. Additionally, see **Section 6.0** for the required inspections that are to be carried out during construction and are a requirement for the final geotechnical certification. Apart from the below fill advice and inspections, it is not expected additional geotechnical input will be required provided good design and building practices are followed.

From the plans, it is apparent that a fill to maximum height of ~2.2m will be placed on the downhill side of the property for landscaping. All fill brought onto site is to be certified as 'clean fill' with a VENM certificate or similar documentation in accordance with EPA guidelines. No fill is to be laid until retaining walls are in place. Filling to this depth without appropriate compaction will result in a significant settlement.

To avoid excessive settlement, the fill is to be placed in loose layers not exceeding 0.3m thick before being compacted as follows:

The surface is to be prepared before fills are lain. Strip the existing topsoil and remove all organic matter, stockpiling for later use as topsoil or remove from site.

Non-Cohesive Soils (sandy fills)
The proposed fill for landscaping is to be compacted over the prepared surface to a Minimum Density Index (ID) of 65%.

Cohesive Soils (clayey fill & excavated bedrock)
The proposed fill for landscaping is to be compacted over the prepared surface to at least 95% of Standard Maximum Dry Density.

The geotechnical consultant is to inspect and test the fill as it is laid in not more than 1.0m rises to ensure the required density has been achieved.

Filling within 1.5m behind retaining walls should be compacted with light weight equipment such as a hand-operated plate compacter or similar so as to not damage the wall. Where hand-held equipment is used, the loose depth of placed fill should not exceed 150mm before compaction occurs. No pavements or structures are to be supported on fill.

6.0 Inspections

The client and builder are to familiarise themselves with the following required inspections as well as council geotechnical policy. We cannot provide geotechnical certification for the owners or the regulating authorities if the following inspections have 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.

- The geotechnical consultant is to inspect and test the fill in not more than 1.0m rises. This is to ensure the required density has been achieved during compaction.

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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.