PRELIMINARY GEOTECHNICAL ASSESSMENT:

43 Parni Place, Frenchs Forest

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 Construct a granny flat on the downhill side of the property by excavating to a maximum depth of ~1.4m.

2.2 No significant filling is shown on the plans.

2.3 Details of the proposed development are shown on 5 drawings prepared by RK Designs, project number 23-64, sheets numbered 1 to 5. All issue F. All dated 14/02/24.

3.0 Site Location

3.1 The site was inspected on the 15th February, 2024.

3.2 This residential property is on the high side of the road and has a S aspect. It is located on the moderately graded lower reaches of a gully. Medium Strength Sandstone outcrops at the road frontage and across the property in several locations. 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 low cuts and

fills for the pool, as well as lawn and garden areas across the property. The proposed development will require a ~1.4m excavation for the granny flat.

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 property at an average angle of ~17°. At the road frontage, a concrete driveway runs to a parking area on the downhill side of the house. Detached sandstone joint blocks are scattered across the slope in between the road frontage and the house and were observed to be sufficiently embedded in stable positions. A ~3.8m high sandstone rock face rises immediately below the house (Photo 1). This rock face was measured to be undercut up to ~2.0m. However, the overhanging joint block has a relatively thick cantilever arm in relation to its overhang length, displays no significant cracking when viewed from above or below, and is bridged at both ends. No other significant geological defects we observed in the rock face. As such, it is considered stable. The two-story brick house is supported on brick walls and brick piers. Some of the supporting piers were observed to be supported on outcropping competent Medium Strength Sandstone from within the foundation space of the house. No significant signs of movement were observed in the supporting walls, and the supporting piers stand vertical. A pool that shows no significant signs of movement has been cut into the slope on the E side of the house. The land surface surrounding the house is mostly garden bedding, with some paved areas. No significant signs of movement associated with slope instability were observed on the grounds.

5.0 Recommendations

The proposed development and site conditions were considered and applied to the current council requirements. See the required inspection below that is to be carried out during construction and is a requirement for the final geotechnical certification.

5.1 Vibrations

Possible vibrations generated during excavations through fill, soil, and clay will be below the threshold limit for building damage utilising a domestic-sized excavator up to 16 tonnes. It is expected that the majority of the excavation will be through Medium Strength Sandstone or better.

Excavations through Medium Strength Rock or better should be carried out to minimise the potential to cause vibration damage to the subject house, the W neighbouring house, and the undercut rock outcrops to the N and W of the excavation. Allowing ~0.5m for backwall drainage, the setbacks from the proposed excavation to the existing structures are as follows:

- ~8.0m from the subject house.
- ~0.8m from the undercut outcrop to the N below the house (Photo 1).
- ~3.5m from the undercut outcrop to the W below the neighbouring house. (Photo 2)
- ~4.5m from the W neighbouring house.

Dilapidation reporting carried out on the W neighbouring property is recommended prior to the excavation works commencing to minimise the potential for spurious building damage claims.

Close controls by the contractor over rock excavation are recommended so excessive vibrations are not generated.

Excavation methods are to be used that limit peak particle velocity to 5mm/sec at the undercut outcrops. Vibration monitoring will be required to verify this is achieved. Vibration monitoring must include a light/alarm so the operator knows if vibration limits have been exceeded. The equipment is to 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, as well as reducing hammer size as necessary.
- Use of rock grinders (milling head).

Should excavation induced vibrations exceed vibration limits after the recommendations above have been implemented, excavation works are to cease immediately and our office is to be contacted.

It is worth noting that vibrations that are below thresholds for building damage may be felt by the occupants of the neighbouring houses.

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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Photo 1

Photo 2

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.
