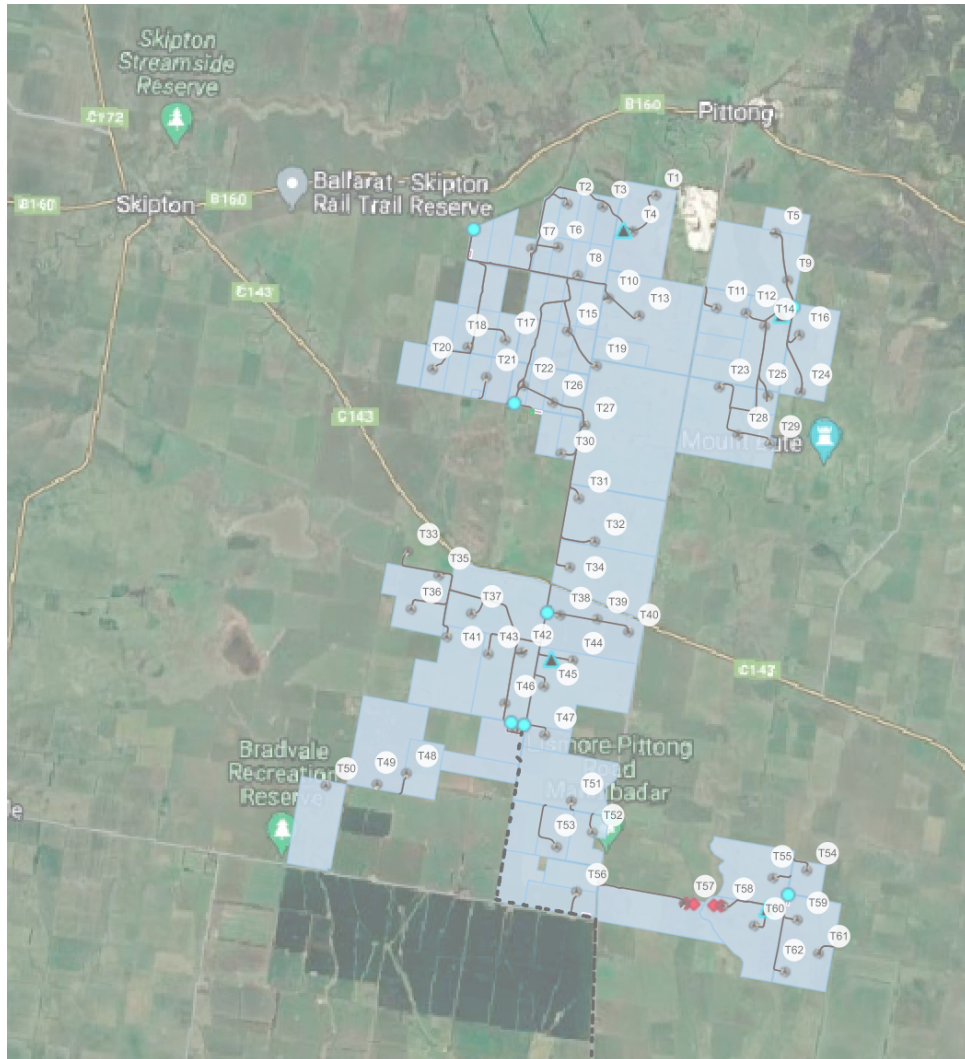




# Geotechnical Desktop Study



Proposed wind farm at

## Moreton Wind Farm

**File No:** 230350  
**Date:** 31 October 2023  
**Client:** MHWF Nominees Pty Ltd  
L1, 17 Moore Street  
CANBERRA ACT 2601





## **Introduction**

A desktop study was undertaken to provide an initial geotechnical assessment of the proposed Moreton Wind Farm site. Relevant geological maps were examined with the purpose of providing feasibility foundation and pavement advice for the proposed construction of the forty-five proposed wind turbines, access tracks, substation, underground transmission line and a batching plant.

## **Scope of the Study**

The study is limited to a desktop review only.

The scope of this report is to provide comments on the anticipated foundation systems and pavement options, based on experience in the region and its geology, as interpreted from appropriate maps.

Site investigation work will be required to confirm the assumptions made in this report and for any design purpose.

## **Site Description**

The site of the Moreton Wind Farm is located approximately 135km Northwest of Melbourne and approximately 5km East of Skipton. (Figure 1). The proposed turbine locations appear to be predominately constructed on existing pastoral grazing / farming land, and adjacent quarry to the northeast and on flat basalt plains tot the south. Aerial images suggest the site has a sparse ground cover of trees and shrubs and an underlying cover of grasses.



*Figure 1. Location Plan*

## **Subsurface Conditions**

### ***Regional geology***

The site is identified on the 'Geological Survey of Victoria' Ballarat Sheet (1:250,000), Figure 2 below as being in the province of the Devonian granite, and the Quaternary "Newer Volcanics" formations, with some localised zones of Quaternary low-level alluvium, Quaternary lagoon and swamp deposits, and Tertiary "Newer Volcanic hill wash".







With reference to Figure 3, Visualising Victoria's Groundwater (VVG), the local groundwater table appears to be variable across the development site, with an average depth expected to be between 5m - 10m.

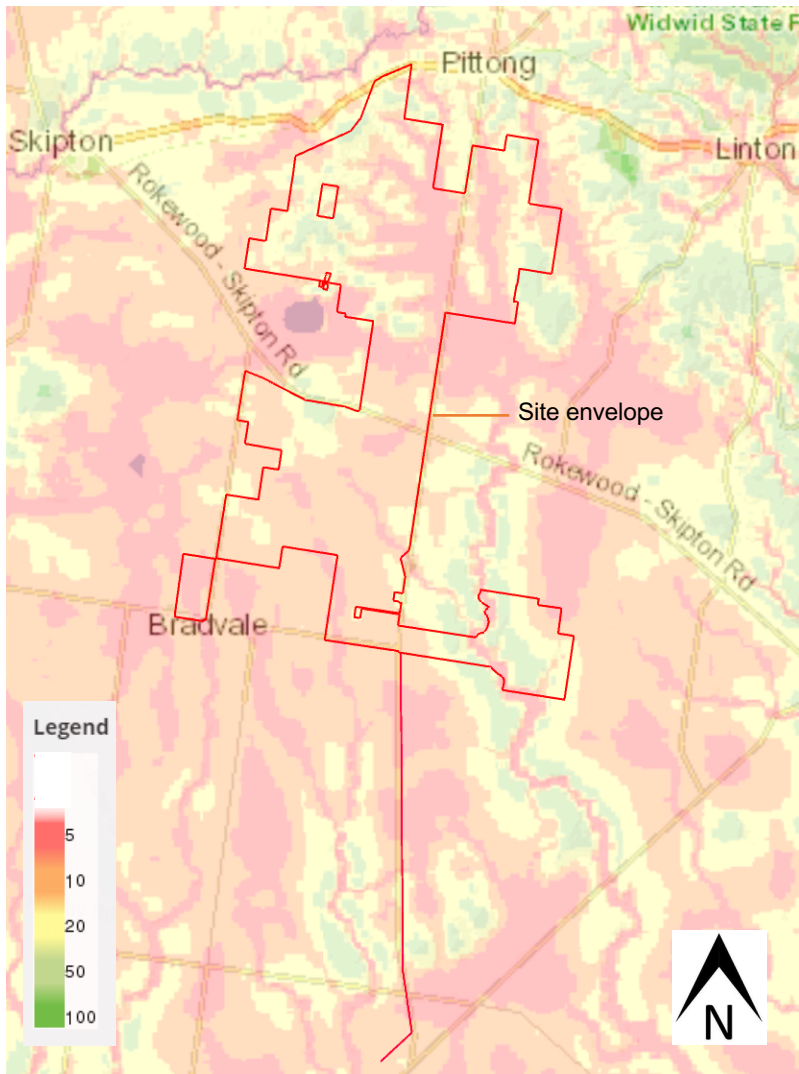


Figure 3. Extract from 'Visualising Victoria's Groundwater' database, showing the approximate depth to the local groundwater table. Legend depth in meters.

Transient perched groundwater may form within the upper topsoils at shallow depths during the wetter months. The regional groundwater regime would be investigated during a detailed geotechnical investigation, as necessary.

The geological setting is favourable in terms of interaction between the soil mass and groundwater regime.

### **Foundation options**

It is understood that loading conditions are relatively light for wind turbine structures, with overturning movements usually the critical loading condition in the order of 200kPa (peak edge pressures). The natural CLAY soil or granite/basalt ROCK should readily accommodate such loads.

It is expected that a mass pad footing will provide the most practicable foundation type for the structure.

Where shallow or outcropping rock is locally present, high bearing pressures will be available at the surface and the footing could be formed above ground to avoid or minimise excavation.







Inland acid sulphate soils are much less common. An inland occurrence has been recorded to the west of Grampians National Park (referenced 1). No records were identified to be associated with the area around the Moreton Hill Wind Farm.

### **Report notes**

This report contains information for the feasibility stage of the proposed development. Detailed geotechnical site investigation and reporting will be required for design purposes.

During the construction period, land may be disturbed and exposed to erosion. Erosion and sediment runoff can be minimised/controlled by adopting good construction practices referenced below (2), (3) and (4). Further information regarding geotechnical site investigation reports is referenced below (5).

Should there be any further queries please do not hesitate to contact this office for further advice.

Yours faithfully,

**Melbourne Geotechnics Pty Ltd**

### **References**

1. Fawcett Jon, Rob Fitzpatrick, Rob Norton 2008. Inland Acid Sulfate Soils of The Spring Zones Across the Eastern Dundas Tableland, South Eastern Australia. In *Inland Acid Sulfate Soil Systems Across Australia* (Eds. Rob Fitzpatrick and Paul Shand). pp 268-280. CRC LEME Open File Report No. 249. (Thematic Volume) CRC LEME, Perth, Australia.
2. Centre for eResearch and Digital Innovation, Federation University Australia, 2016. Visualising Victoria's Groundwater, <http://www.vvg.org.au/>, viewed 31 August 2016.
3. Environment Protection Authority. 1996 *Environmental Guidelines for Major Construction Sites*. Best Practice Environmental Management.
4. Environment Protection Authority. 1991 *Construction Techniques for Sediment Control*. Publication 275.
5. AS1726-2017. "Geotechnical Site Investigations".
6. Ransom, M.J., 1987: *Control of erosion on construction sites*. Department of Conservation Forests and Lands, Victoria
7. Institution of Engineers, Australia. 1987. *Guidelines for the Provision of Geotechnical Information in Construction Contracts*, Institution of Engineers, Australia, 1987.