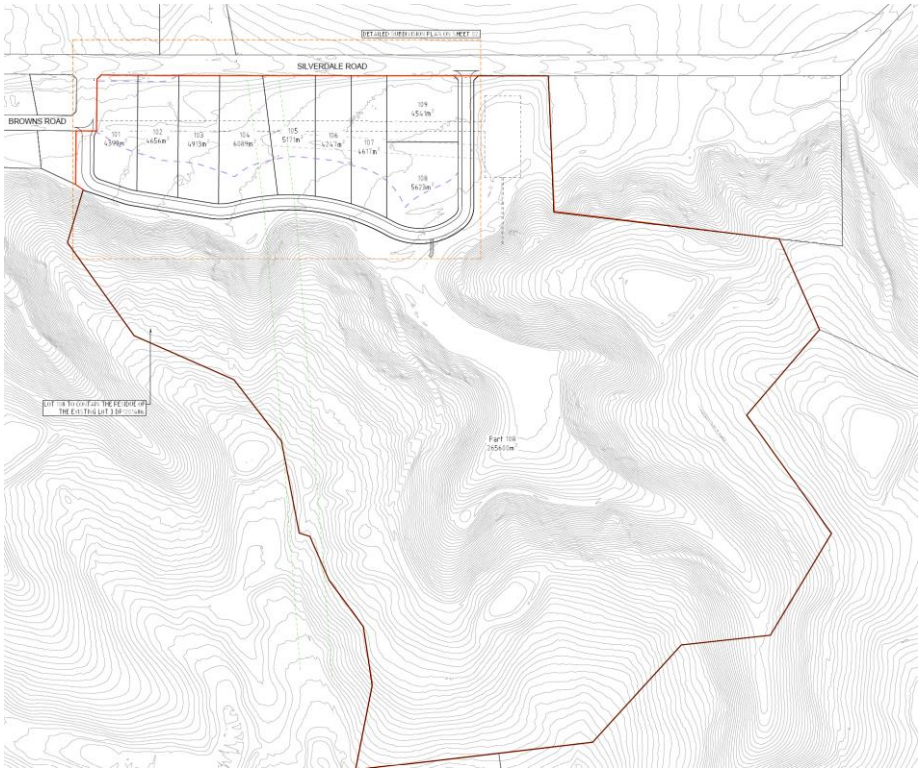
Electrical Connection Report
10 lot proposed subdivision of
Lot 3 DP1201486,
650 Burragorang Road, The Oaks.



Power Line Design Refer: PLD4686
Endeavour Energy Refer: ENL5060
Date: 24/04/24

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PO Box 338 Mittagong NSW 2575 | PO Box 867 BEGA NSW 2550

1. Scope

This report investigates the existing Low Voltage,11kV & 33kV electrical distribution networks present on and adjacent to Lot 3 DP1201486, 650 Burragorang Road, The Oaks and the services required to provide supply to the proposed 10 lot subdivision within the Endeavour Energy Network.

2. Location

The Site is located within the Endeavour Energy franchise area, located 82km South-West of Sydney, within the Macarthur region.

The local government Authority is Wollondilly Shire Council.

The site is currently zoned; RU2 (Rural Landscape) & is identified as a bush fire prone land as detailed by the NSW Planning Portal - Land Zoning Map.

3. Existing Network

Endeavour Energy Zone Substation "The Oaks" located in Silverdale Road directly across the road from the proposed Subdivision. The Zone Substation is supplied by the 33kV Feeder No. 303. Multiple 11kV Feeder radiate from the Zone Substation to supply The Oaks and adjacent localities.

Endeavour Energy has indicated as of April 2024, there is sufficient capacity in the 11kV network to provide a point of supply to the proposed subdivision.

4. Development Load Requirements

Endeavour Energy guidelines indicate a non-urban development be supplied with a minimum of 10kVA/Lot based on diversity, as result the 10 Lot development would require a minimum of 100kVA.

The proximity of the zone substation to the development would allow for a connection greater than 100kVA with minimal additional works if required.

It should be noted capacity is not reserved, and the conditions of supply may change at the time the proponent makes a firm application.

5. Existing Easements

Lot 3 DP1201486 is currently burdened by an easement for overhead the easement and the existing restrictions on land use associated with the easement are to remain unless arrangements such as undergrounding of the existing power lines are undertaken.

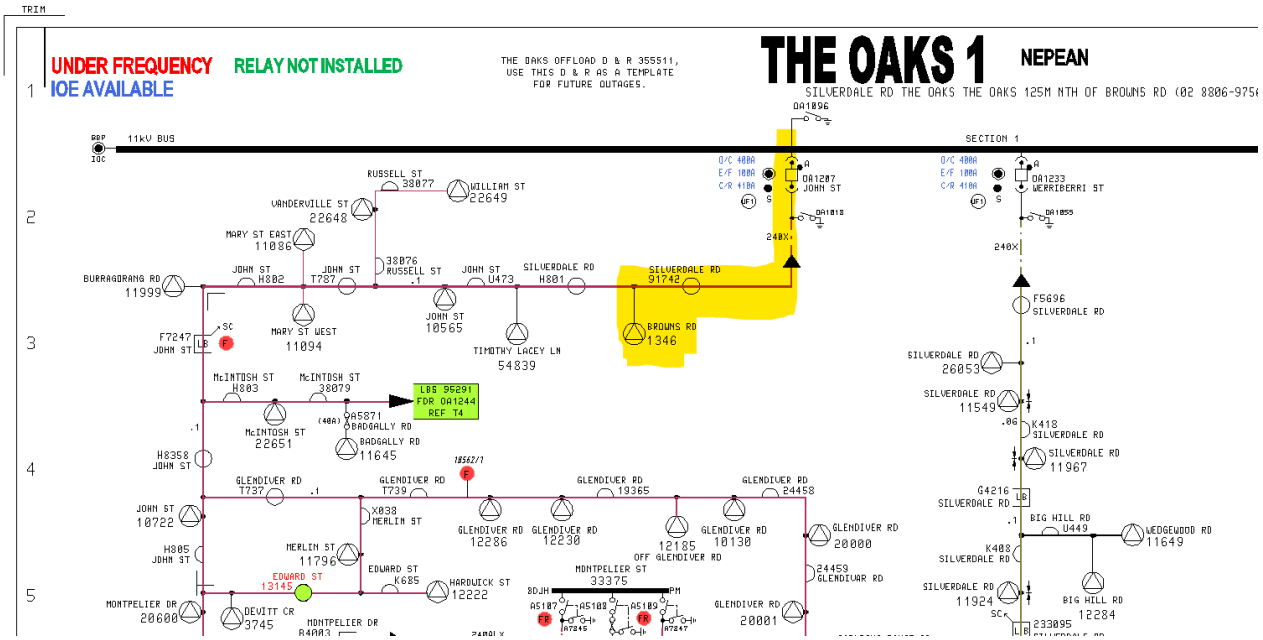
Endeavour Energy has indicated the existing 33kV feeder may be undergrounded. The minimum length of underground Endeavour Energy policies allow is 500m, the result of which may allow for a reduction in the easement width.

6. Connection Points

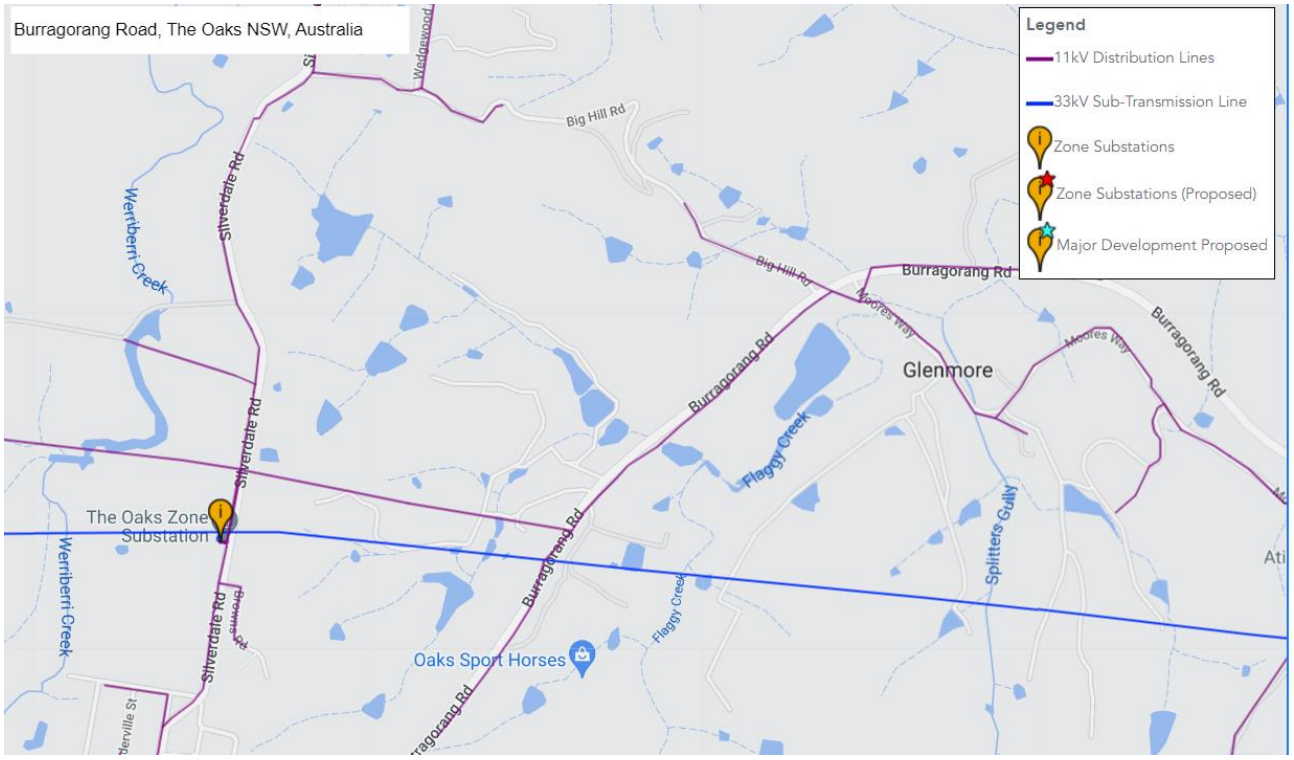
Nearest Distribution Substation No. 1346 is located on Browns Road, is fitted with a 200kVA Transformer. This Pole substation may be uprated to allow to provide supply to the development, alternatively a new 200kVA pole substation could be installed along Silverdale Road to supply the development.

A LV underground reticulation may be untilzed to extend the secondary supply LV Pillars to each of the new lots created by the development.

While it is possible to install a Padmount Substation to supply the development, it is not recommended as combination of higher than average soil resistance in combination the proximity of the Zone Substation and lack of adjacent multiple earthed network would result in extremely high EPR levels resulting in additional restrictions in land use.



Single Line Diagram illustrating 11kV networks adjacent to the Development



7. Summary

The installation of a new Pole Substation installed under the existing 11kV mains along Silverdale Road is recommended with Endeavour Energy standard LV UG reticulation to each of the lots. As this would provided the most cost effective while minimizing visual impact

While an Alternatively, the option to upgrade Pole Substation 1346 is available, significant works would be required between the Substation and the development to establish the connection.

Endeavour Energy also confirmed that in mitigating the footprint of the 33kV feeder through Lot 1, the 33kV feeder may be allowed to be underground provided the minimum undergrounding length is 500m; Network Planning would require the existing rating of 23 MVA be retained which accounts for derating.

It is advised to undertake a subdivision application as soon as possible with relevant supporting documentation including site plans, itemised maximum demand calculation based on AS3000 etc for an assessment of the required load and network HV & LV capacity to commence the process.

Kind Regards
Michael Baranowski

Senior Design Engineer

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POWER LINE DESIGN PTY LTD

Head Office: Po Box 338 Mittagong NSW 2575

P: 02 4872 1920 **F:** 02 4872 1240

Bega Office: Po Box 867 Bega NSW 2550 **P:** 0468 579 656

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