08 September 2017

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Dear Sandra,

Preliminary Servicing Advice – Catherine McAuley Catholic College – 507 Medowie Road Medowie.

The following information is provided in response to your enquiry regarding proposed Catholic College, Medowie Road Medowie. Network connection requirements in response to your Connection Application will be dealt with in a separate letter.

As you are aware the proposed development site is adjacent to Ausgrid's Medowie Zone Substation. Comment was sought from Ausgrid's internal stakeholders in order to provide a response that identifies operational and safety impacts Medowie Zone Substation may have on the design, construction and ongoing operation of the college.

Existing Assets and Easements

The existing overhead sub-transmission (33kV) and distribution (11kV) assets associated with the Zone Substation, located within the proposed development site, are protected by easements in favour of Ausgrid. The purpose of the easements are to protect Ausgrid assets and to provide adequate working space along the route of the line for construction and maintenance work and also to ensure that no work or other activity is undertaken under or near the assets which could either by accident or otherwise create an unsafe situation for persons or for the security of the assets.

Under the terms of the easement any works proposed within the easement must be approved by Ausgrid.

Ausgrid requires any works undertaken within the easement and adjacent to our assets be undertaken with care in accordance with all relevant statutory requirements including, but not limited to:

Safework Document – Work Near Overhead Powerlines: Code of Practice
Ausgrid Network Standard Document NS 220 – Overhead Design Manual.
Ausgrid Network Standard Document NS 209 – Operating Cranes and Plant in Proximity to Overhead Power Lines.

Should any existing Ausgrid assets require relocating to facilitate the college development, this relocation work is generally at the applicants cost. These costs would not only include the cost of the works but also all costs associated with the creation of revised easements.

Earthing Requirements

The impact of the new college development on earthing compliance has been reviewed.

As the earthing designs undertaken for the construction and commissioning of the Medowie Zone Substation, and the associated feeders and equipment, did not consider the construction of such a development in close proximity to the substation, the proposed development must consider the earthing requirements as part of the design and construction of the development.

Energy Networks Association Document - EG-0 Power System Earthing Guide - criteria is to be used for earthing compliance assessment. The developer is to provide a proof of compliance for Ausgrid approval.

The main issues that this assessment should elaborate on are:

1. High touch voltages measured at the Ausgrid owned property south of the substation due to the 33kV pole being located right in front of the house. A similar configuration may exist around the poles and neighbouring properties on the college property.

2. The expected high number of students in the college having access to the 33kV poles in the neighbouring Ausgrid easement.

3. Touch voltage associated with the 33kV poles located on the college property.

4. Touch voltage associated with the neighbouring buildings and their low voltage supply.

The following information may help with the assessment:

33kV Single Line to Ground fault level at Medowie ZS:	4053A
33kV Single Line to Ground fault clearing time:	0.7s
11kV Single Line to Ground fault level at Medowie ZS:	8936A
11kV Double Line to Ground fault level at Medowie ZS:	10322A
11kV Single Line to Ground fault clearing time:	0.1s
Medowie ZS 33kV Earth Potential Rise:	191V
Medowie ZS 11kV Earth Potential Rise:	503V
Switchyard fence maximum touch voltage:	23.6% of sub EPR
House 527 Medowie Rd maximum touch voltage:	74.1% of sub EPR
33kV UGOH pole max touch voltage:	45.6% of sub EPR
Pole KS-90032 local fault Earth Potential Rise:	708V (estimated)
Soil Resistivity:	200 ohm

Please do not hesitate to contact me if you require any further information or assistance.

Yours sincerely

Peter Keith
Engineering Officer
Customer Supply – Planning & Reliability
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