

Murray Donaldson

From: Brody Atterby [B.Atterby@auroraprojects.com.au]
Sent: Thursday, 12 March 2009 16:49
To: Murray Donaldson
Subject: FW: 08718 - FW: ENL0886 - Additional Supply Enquiry - Nepean Hospital, Kingswood. [Your reference 08718 - Nepean Hospital Penrith]

From: Roland Towning [mailto:roland.towning@steensenvarming.com.au]
Sent: Wednesday, 11 March 2009 1:50 PM
To: Brody Atterby
Subject: 08718 - FW: ENL0886 - Additional Supply Enquiry - Nepean Hospital, Kingswood. [Your reference 08718 - Nepean Hospital Penrith]

Brody

We approached integral energy regarding system capacity and this is their advise. See below. Basically they have capacity for East Block but not for the Mental Health Building.

Regards
Roland

From: Brian Holdsworth [mailto:Brian.Holdsworth@integral.com.au]
Sent: Friday, 5 September 2008 11:19 AM
To: Roland Towning
Subject: ENL0886 - Additional Supply Enquiry - Nepean Hospital, Kingswood. [Your reference 08718 - Nepean Hospital Penrith]

Roland

I have a response to your query. Mixed news.

We agree that the peak demand for the site has been about 4 MVA; a good base figure to start from.

We do not agree that each of the two possible incoming supplies is rated at 200 amps at 11 kV (3.8 MVA).

Normal Supply:

The Hospital is normally supplied from a dedicated feeder from Kingswood Zone Substation (cnr Smith and Fragar Streets). From the zone substation to the point where it enters hospital grounds it is 240 sq mm Cu, XLPE insulated, installed in ducts (rated at 8 MVA), but de-rated to 6 MVA in the street near the zone substation due to mutual heating. It could be further de-rated in future if additional cables are installed near the zone substation - which is a distinct possibility. This section of cable can handle your initial load increase of 1 MVA, but would be incapable, even now, of the second increase of 1.5 MVA, taking total site load to 6.5 MVA.

The section of cable within hospital grounds which carries this normal supply from the Parker Street frontage to the hospital is smaller - 240 sq mm Al, paper insulated, installed in ducts (rated at about 5 MVA), and thus capable of handling the first stage additional load of 5 MVA, but only just! This rating is based on there being no other cables installed in the ductline; Integral has no record of spare ducts being used by the Hospital HV system.

16/03/2009

Alternate Supply:

The Hospital is rarely supplied using the alternate supply cable which enters from the Derby Street frontage. This cable is identical to the one run from the Parker Street frontage, but our records indicate that there is at least one hospital HV cable in the same ductline for part of the route - we have no knowledge of the load on this cable, and thus are not capable of determining what de-rating applies to the Integral cable. Worst case scenario is that this would de-rate the Integral cable to 4.2 MVA, which is sufficient for the existing load, but not for any level of proposed future load indicated by you.

The source of supply for this alternate supply cable is another feeder cable (smaller than the dedicated feeder) from Kingswood Zone Substation. This feeder is currently loaded right up to its current rating (4 MVA), also reduced due to mutual heating in ducts adjacent to Kingswood Zone Substation. In fact, it occupies the same group of ducts as the Hospital dedicated feeder outside the Zone Substation. Any time this alternate supply is called upon, Integral would be required to perform quite extensive system switching to temporarily unload this feeder on to adjacent feeders to provide hospital alternate supply. It does not have capacity to provide more than 4 MVA to the Hospital (due to this cable rating limitation), and in fact it would be quite difficult these days for it to provide anything approaching 4 MVA, let alone 5 MVA or 6.5 MVA. It is good only for a nominal alternate supply, and hospital emergency planning should take this into account.

Two supplies:

It is quite uncommon for Integral to provide two simultaneous supplies to a load such as the Hospital - it is a case of one supply, or the other - not both together. So, even if the alternate supply feeder was not loaded to its limit outside the zone substation, and could assist the Hospital supply by providing a second source of normal supply, we would not operate in this condition. The only way this could possibly happen would be if the Hospital had two dedicated feeders, with the Hospital taking supply off both, with the 11 kV bus bar tie between them operated normally open.

Summary:

The proposed first stage 1 MVA additional load can be supplied via the existing normal supply system to the Hospital, but there is little alternate supply for this, or even the exiting, load.

The proposed second stage 1.5 MVA additional load cannot be supplied via existing infrastructure nor supported with alternate supply from existing infrastructure - either internal or external to Hospital grounds.

If you have further enquiries, please get in touch.

Regards

Brian

From: Brian Holdsworth

Sent: Tuesday, 2 September 2008 8:18 AM

To: 'roland.towning@steensenvarming.com.au'

Subject: ENL0886 - Additional Supply Enquiry - Nepean Hospital, Kingswood. [Your reference 08718 - Nepean Hospital Penrith]

16/03/2009

Good morning Roland

Your enquiry has been passed to me for assessment.

I will perform that task in conjunction with my network planning colleagues.

I anticipate being in a position to respond within a week.

Regards

Brian

Brian Holdsworth
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