Executive summary

This report has been prepared by GHD to outline the Electrical supply infrastructure management for the Mudgee Hospital Redevelopment site and to identify mitigation strategies for the control of noise and light spill from the site.

Electrical supply infrastructure is governed by the requirements of Essential Energy which requires separate environmental impact assessments and includes community and council consultation.

Noise and light spill from the facility will be minimised as far as practicable through measure implemented during the design.

The existing Telstra connection on Meares Street will be made redundant by the new works. A new connection will be provided from an existing Telstra pit on Meares Street.
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1. Introduction

1.1 Purpose of this report

GHD has been engaged by NSW Health Infrastructure as Electrical and ICT consultants to complete Parts 1 to 9 (Electrical and ICT) for the Mudgee Hospital Redevelopment (MHR). This report outlines the key design considerations relevant to the State Significant Development Application and the Secretary’s Environmental Assessment requirements and addresses the electrical supply infrastructure, its environmental impact, Light spill and the potential for noise to emanate from the site.

1.2 Scope and Limitations

This report has been prepared by GHD for NSW Health Infrastructure and may only be used and relied on by NSW Health Infrastructure for the purpose agreed between GHD and NSW Health Infrastructure as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than NSW Health Infrastructure arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by NSW Health Infrastructure and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.
2. Existing Infrastructure

2.1 Authority Infrastructure

2.1.1 Existing Essential Energy supply

The existing Mudgee Hospital campus is currently supplied from a 22 kV High Voltage (HV) connection on Meares Street. The supply connects to a 22 kV substation located to the east of the access lane that services the old boiler building and back-of house areas. The substation is located in a brick enclosure and rated to 300 kVA which is capable of supplying approximately 440 A per phase. The supply authority for Mudgee is Essential Energy (EE).

The substation appears in reasonable condition however, as it is an EE asset, the responsibility for its maintenance and supply capacity resides with EE. The existing substation is undersized for the anticipated load of the new facility. A new substation will therefore be required to be incorporated into the redevelopment.

On completion of new facility, the existing 300kVA substation will be decommissioned and demolished along with the existing HV supply cabling.

2.1.2 Existing Communications Connections

There are two existing underground Telstra connections to the site from a common pit on Meares Street that will be made redundant by the new works.
3. Proposed Infrastructure

3.1 Authority Infrastructure

3.1.1 New Essential Energy supply

As an output of consultation with Essential Energy, a Design Information Pack (DIP) has been issued to the ASP Level 3 Designer (GHD) which prescribes the technical, environmental and consultative requirements for the new installation.

A new stand-alone substation will be established on Church Street to supply the new facility. This will allow the existing substation to supply the existing hospital site during construction without the need for a single substation to carry the load of both facilities during commissioning and decanting. Therefore, both substations will be operational during the commissioning of the new hospital and during the decanting of the existing hospital to the new.

As EE’s standard supply regulations only allows an overlap of four hours for two supplies for one lot title, a dispensation has been provided within the DIP to allow the extended supply overlap. The EE DIP also outlines the technical requirements of the design.

A 22 kV, 1000 kVA padmount substation to be provided in close proximity to the hospital and located on Church Street near the existing substation that supplies the adjacent medical centre. The final location has been selected to allow a ring main to be established in accordance with EE’s requirements and to limit easements on the site.

The EE DIP requires a connection to the existing substation located on the adjacent Medical Centre site. Therefore, a high voltage (HV) Ring Main Unit (RMU) will be installed within the new substation. In this scenario, an easement will be required from the HV end of the existing substation to the new substation location.

To complete the ringmain, a HV underground cable will be provided from the new substation and extended along Church Street to the EE preferred connection point on Meares Street. It is proposed to run this cable along the Church Street verge and keeping as far away from the existing trees as possible. The route passes under the drip line of 2 established trees and will be hydrovac excavated in these locations to protect the existing tree roots.

The proposed substation and associated HV and LV interconnections are not included within the subject SSDA as a separate application will be prepared by the Level 3 ASP Designer.

The Level 3 ASP must seek approvals from the local council, all road controlling authorities and any land occupier affected by the proposed electrical works. The Electricity Supply Act 1995 (NSW), State Environmental Planning Policy (Infrastructure) 2007 (NSW) and the Roads Act 1993 (NSW) have specific requirements in this regard.

In accordance with Section 45 of the Electricity Supply Act, notification of the proposed works must be given to the local council. The council is allowed up to 40 days to comment and the ASP required must duly consider all responses received. An arborist has been consulted regarding the proposed cable route along Church Street. GHD met on site with Council who expressed no objections to the proposed works. A formal submission will be made to Council in accordance with the requirements of the DIP once the Arborist advice is formally received.

Initial verbal feedback from the Arborist is in favour of the proposed route and trenching methodology nominated in the design.
In accordance with Regulation 42 of the State Environmental Planning Policy (Infrastructure) 2007, notification of proposed substations, or works on an existing substation, must be given to both the local council and to occupiers of all adjacent land. The council and adjacent land owners are allowed up to 21 days to comment. The Level 3 ASP must duly consider all responses received. Public consultation is under way with the mandatory 21 day comment response time expired.

For works in, on or over a classified road, Section 138 of the Roads Act requires the proponent to obtain consent from the appropriate road controlling authority, and either consent, or concurrence from the RMS.

Copies of notices to the local council and occupiers of adjacent land, any comments received or a letter stating that no response was received, and any required consent letters are to be provided to Essential Energy with the certification package.

Copies of notices to the RMS (and other road controlling authorities where applicable) and the written consent received must be provided to Essential Energy with the certification package for any works on classified roads.

### 3.1.2 New Communications Connection

A new underground communications connection will be provided to the new hospital building from the existing Telstra pit on Meares Street that currently services the site. Communications and data services will be distributed throughout the new building from a central computer room.
4. **Noise and Light Spill Mitigation**

4.1 **Noise emanations**

The generator is considered the only source in the electrical infrastructure that will emit noise from the site. The generator proposed for the site will be sized as small as possible to support the required essential electrical load and also be enclosed in a packaged acoustic enclosure. Minimising the size will reduce the noise output as far as practicable.

The generator will be located on the north-east corner of the new building, set back from both Church and Meares Streets as much as possible. The location also uses the new building to shield residential receptors on both Church Street and Meares Street from generator noise.

An acoustics consultant will provide input to the final design.

4.2 **Light spill**

As part of our design, GHD will also ensure that there is no light spill into any residential receptors along Meares Street and Church Street during the building operation. This will be achieved by providing full cut-off luminaires for all car park, building façade and security lighting. The light source from these luminaires will not be visible from any neighbouring properties.

Light spill during construction will need to be managed by the builder. However, measures such as aiming all mobile trade lighting inward towards the building and not outwards will assist with minimising spill light. All security lighting during construction should also be focused into the site rather than outward.
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