The engineer in his own way is an artist too - and not just a dead fish with a slide rule.
Jørgen Varming

Mechanical Engineering
Lighting Design
Sustainable Design
Electrical Engineering

Copenhagen
London
Sydney
Canberra
Hong Kong
New York

Level 8, 9 Castlereagh Street
Sydney NSW 2000, Australia
ABN 50 001 189 037
t : +61 / 2 9967 2200
e : info@steensenvarming.com

ELECTRICAL ENGINEERING

STEENSEN VARMING

Northeast Building
Telecommunications & Electrical Utilities Report

Level 8, 9 Castlereagh Street
Sydney NSW 2000, Australia
ABN 50 001 189 037
t : +61 / 2 9967 2200
e : info@steensenvarming.com

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Michael Fearnley
Associate Director

Michael.Fearnley@steensenvarming.com
+61 / 2 9967 2200

Level 8, 9 Castlereagh Street
Sydney NSW 2000, Australia
ABN 50 001 189 037
t : +61 / 2 9967 2200
e : info@steensenvarming.com

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Level 8, 9 Castlereagh Street
Sydney NSW 2000, Australia
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STEENSEN VARMING

1.0 Utilities Report

1.1 Northeast Building Site Location and Services Diversions

The Albury Wodonga Regional Hospital Project Northeast Building is a proposed new two-story building located adjacent East Street. The building will accommodate Administration and Education on level B01, with Allied Health and Pharmacy located on level 00.

The Northeast building is to be located at the north / eastern side of the Albury Hospital and extends into the existing car park area. Prior to the construction of the Northeast Building, some minor inground services (car park lighting sub-circuits and communications conduits will need to be diverted from the area of the works.

The following diagrams identify the location of the Northeast Building on the site and the existing inground services to be diverted.

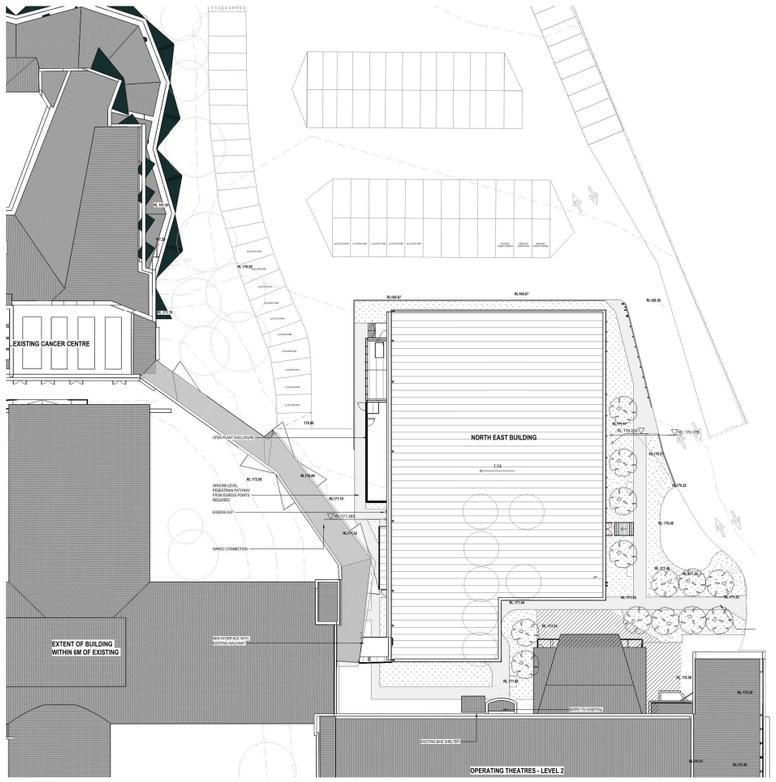

Figure 1 – Northeast Building Site Plan

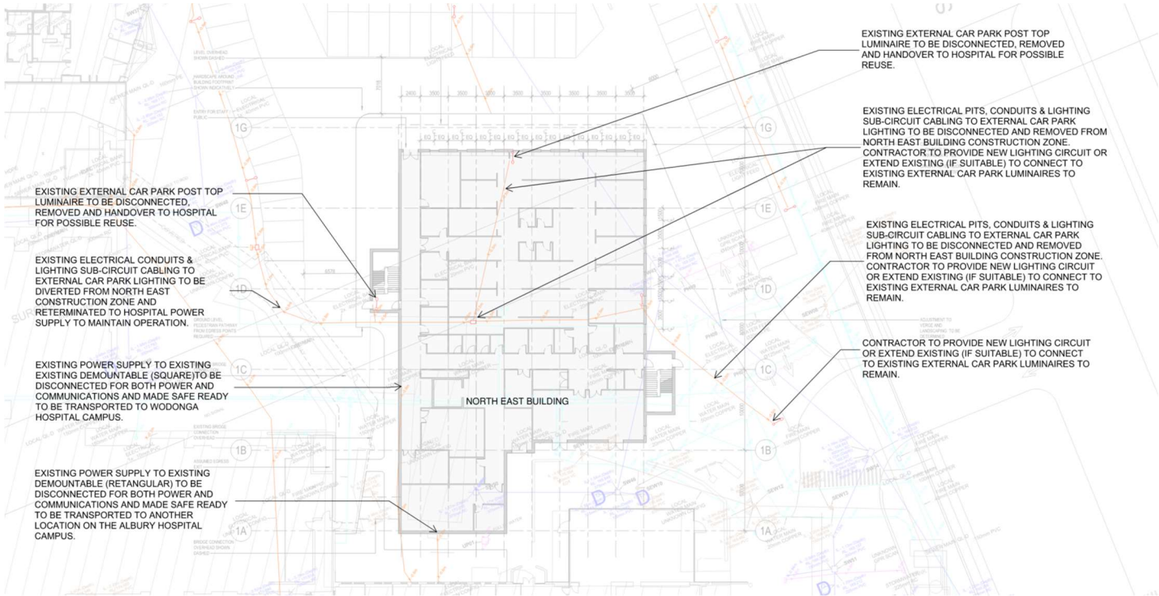

Figure 2 – Northeast Building – Electrical & Communications services diversions

1.2 Northeast Building Maximum Demand Calculation (Preliminary)

The Northeast Building will be an electrified building with a preliminary maximum demand of approximately 340kVA or 500 Amps/phase.

A preliminary breakdown of the Northeast Building maximum demand in VA/m2 is indicated below.

Room Name	Total Area of Room Space(m^2)	Lighting and Power VA/m2	Mechanical VA/m2	Total VA
Level 1	1341	50	70	160920
				0
				0
Level 2	1500	50	70	180000
				0
				0
				0
				0
Totals	**2841**			
VA/m2	**120**		**Total KVA**	**341**
			kVA After Applying 10% Divesity Factor	**307**
			Current Per Phase (A)	**547**
			Current Per Phase (A) with 10% Diversity	**492**

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1.3 Telecommunication Services Standards

Standards

The design of the telecommunications system will align with the relevant Australian Standards, not limited to the following ICT Standards:

- NSW Health Engineering Services Guidelines -2026.
- NSW Health ICT Cabling Standard V4.0.
- NSW Health Infrastructure Design Guidance Notes.
- Australian Health Facilities Guidelines.
- Green Guide for Healthcare.
- NSW Health Wi-Fi Standard.
- AS/NZS 3080: Telecommunications installations - Generic cabling for customer premises.
- AS/NZS 3084: Telecommunications installations – Telecommunications pathways and spaces for commercial buildings.
- AS/NZS 11801.1: Information technology – Generic cabling for customer premises General requirements.
- AS/NZS 3835.1: Earth potential rise – Protection of telecommunications network users, personnel and plant – code of practice.
- AS/NZS IEC 61935.1: Testing of balanced communication in accordance with ISO/IEC 11801 – Installed cabling.
- AS/NZS IEC 61935.2: Testing of balanced communication in accordance with ISO/IEC 11801 – Patch cords and work area.
- AS/CA S008:2020 Requirements for Customer Cabling Products.
- AS/CA S009:2020 Installation requirements for Customer Cabling (Wiring Rules).
- AS/NZS 14763.2: Information technology — Implementation and operation of customer premises cabling, Part 2: Planning and installation.
- AS/NZS 14763.3: Information technology — Implementation and operation of customer premises cabling, Part 3: Testing of optical fibre cabling.
- AS/NZS 3835.2:2006 Earth potential rise – Protection of telecommunications network users, personnel and plant – Application guide.
- IEEE 802.11ax Wireless Communications.
- Mobile Carriers Forum MCF2022 Specification.
- AS/NZS 1367 Multiple Outlet Distribution Systems – Sound and Vision.
- Telecommunications Act 1997.
- Australian Communications and Media Authority (ACMA) - Regulation of telecommunications, broadcasting, radio communication.

Design Statement

The telecommunication services (voice & data) for the new Northeast Building will originate from dedicated communication floor distributor rooms located on each level of the Northeast Building.

The communication services for the Northeast Building will be obtained from the existing Albury Hospital Cancer Centre communications room and Albury Hospital IDF/PABX room, via optical fibre communications infrastructure cabling.

The existing Albury Hospital communications network has capacity to connect the communication requirements of the Northeast Building.

The Northeast Building communications structured cabling system and associated passive equipment, will provide facility to accommodate the active equipment necessary to support voice, data and clinical application services throughout the Northeast Building. The communications structured cabling system will also support the various building services communications systems such as BMS, Nurse Call, Security, CCTV and Intercom systems within the Northeast Building.

1.4 Electrical Services Standards

Standards

- NSW Health Infrastructure Design Guidance Notes
- NSW Health Engineering Services Guidelines -2026.
- Australian Health Facilities Guidelines
- Green Guide for Healthcare
- NSW Service and Installation Rules
- AS/NZS 3000 – Wiring Rules.
- AS/NZS 3003 Electrical installations – Patient Areas
- AS/NZS 3009 Electric installations – Emergency power supplies in hospitals
- AS/NZS 3010 Electrical installations – Generating sets
- AS/NZS 3008 Selection of Cables
- AS/NZS 61439 Switch and Switchboard Construction
- ISO 8528 - 1 - Reciprocating Internal Combustion Engine Driven Alternating Generating Set.
- AS 6A2040.1.1 Uninterruptible Power Systems (UPS)
- AS/NZS 1768 Lightning Protection Systems
- AS1428 Design for Access and Mobility
- AS/NZS 3013:2005 Electrical Installation - Classification of the fire and mechanical performance of wiring system elements.
- BSRIA Power Quality Guide – Application Guide AS 2/2000.
- ENA Guidance on Electrical Installation Practices to Reduce EMF from Low Voltage Wiring.

Design Statement

The Northeast Building will be an electrified building with a preliminary maximum demand of approximately 340kVA or 500 Amps/phase.

The Albury Hospital obtains its electricity supply from an existing chamber substation incorporating two 1,500kVA transformers and two 2,500Amps/phase Supply Protection Devices & consumers main feeders to the hospital main switchboards.

The existing Albury Hospital substation and Cancer Centre Main Switchboard have capacity to accommodate the additional load of the Northeast Building. It is proposed that two new circuit breakers are installed to the essential and non-essential sections of the Cancer Centre Main Switchboard to connect new submains via the existing link under croft space to access the Northeast Building.

To facilitate the new circuit breaker installation works at the Cancer Centre Main Switchboard, it is anticipated that a temporary standby generator and associated submain may be required to maintain power supply to the Hospital Data Cantre which is located with the Cancer Centre building. The Data Centre provides voice and data services for the Albury Hospital and is also supported by a UPS

The new submains will terminate at the Northeast building main switchboard to enable power distribution throughout the Northeast Building. The existing hospital main switchboards incorporates the following spare spaces which can be utilised with some modification works to supply non-essential and essential electrical supply to the Northeast Building.

Level 8, 9 Castlereagh Street
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1.5 Temporary Car Park - Northwest

The construction of the Northeast Building will remove some spaces from the existing on-grade car park. To mitigate the impacts of this loss, temporary parking is proposed on the northwestern side of the site near Keene Street. Please refer to the Traffic Engineering Report for the exact number of parking spaces for the temporary car park.

The temporary car park could take the form of a gravelled area with marking dots delineating parking spaces. This arrangement is intended to minimise the cost of future demolition work. The area is already used by some staff as an informal parking area.

The electrical and lighting services associated with this temporary car park comprises the following:

- Lighting – provision of artificial lighting to illuminate the car park at night to satisfy minimum requirements of AS/NZS 1158,
- CCTV – provision of cctv coverage of the car park from two weatherproof cctv cameras
- Electrical – it is proposed the electrical supply for the car park lighting is obtained from Nolan House initially and then extended to the Medical Ward building to align with staging.

Figure 3 – Temporary Northwest Car Park (outlined in red)