ARUP

NSW Department of Education

Bungendore North Campus High School

Electrical and ICT Services Report

Reference: EL-BTH-RPT-002

3 | 14 August 2025

Job number 304002-00

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1. Executive Summary

This Electrical and ICT Services Assessment Report has been prepared to support a Review of Environmental Factors (REF) for the NSW Department of Education (DoE) for the construction and operation of the new Bungendore North Campus High School (the activity).

The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by *State Environmental Planning Policy (Transport and Infrastructure) 2021* (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37A of the T&I SEPP.

This document has been prepared in accordance with the Guidelines for Division 5.1 assessments (the Guidelines) by the Department of Planning, Housing and Infrastructure (DPHI) as well as the Addendum Division 5.1 guidelines for schools and Addendum October 2024 (Consideration of environmental factors for health services facilities and schools).

The purpose of this report is to assess the electrical and ICT services at Bungendore North Campus High School to provide additional capacity to the existing Bungendore Southern Campus High school while the new high school is being constructed.

2. Site description

The project site, and land to which the REF applies (the site) includes Nos. 4-6, and 10 Majara Street, part Lot 1 DP 1276279 (Majara Street road reserve) and part Lot 1 DP 1276282 as identified in Figure 1.

As shown at Figure 2, the Bungendore North Campus High School will utilise the former Council administration building and car park located at 10 Majara Street. Demountable buildings are proposed to be placed north of the existing building. Public domain upgrades will feature in part Lot 1 DP 1276279 and part Lot 1 DP 1276282.

The site is located between Mick Sherd Oval (to the west) and the rail corridor (to the east). The site is located approx. 170m north of the Bungendore Train Station and Bungendore Primary School. The Bungendore Primary School, located on the corner of Gibraltar Street and Majara Street currently accommodates Bungendore High School on a temporary basis.

Figure 1 Aerial Photograph of the Site (TKD, 2025)

3. Proposed Activity Description

The proposed activity is for the construction and operation of the new Bungendore North Campus High School. The high school will accommodate the operational needs of the high school on a temporary basis (together with the existing high school located within the grounds of Bungendore Public School) as students as enrolments continue to grow. These facilities will be utilised until such time the permanent high school at Birchfield Drive is established.

Specifically, the project involves the following:

- Use of the former Council administration building as part of the new Bungendore North Campus High School,
- New demountable classrooms,
- Landscaping, outdoor play areas, shade structure and basketball court,
- On site staff parking which utilises the existing car park and access from Majara Street, and
- Public domain upgrades to part Lot 1 DP 1276279 (Majara Street Road reserve) and part lot 1 DP 1276282 to enable kiss and drop from Majara Street and pedestrian connectivity to surrounding areas.

The North Campus facilities proposed will supplement the existing high school facilities located within the Bungendore Primary School site.

Refer to the Review of Environmental Factors (REF) for the detailed scope of works and operational details.

Figure 2 Overall Campus Plan Site and Roof Plan

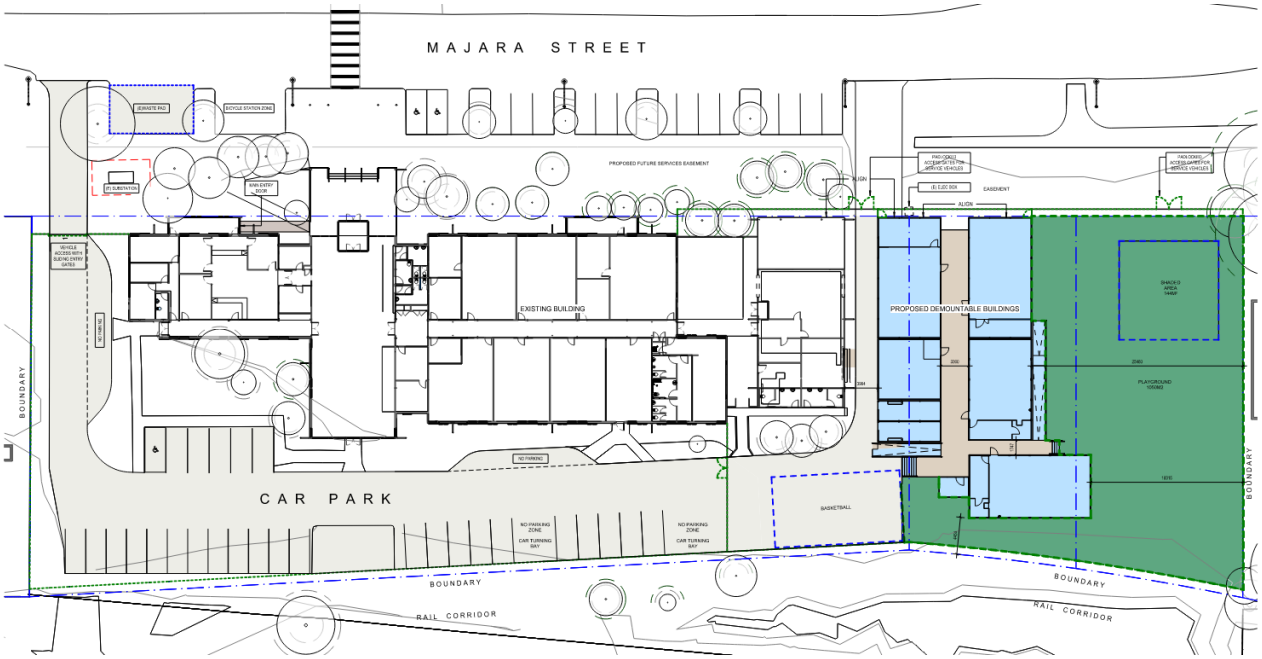

Figure 2 - Overall Campus Plan Site and Roof Plan

3.1.1 Existing Electrical Services

A desktop Before You Dig Australia (BYDA) study was conducted for the proposed Bungendore North Campus High School site and the surrounding area, including the existing high school located at 37 Gibraltar St. The following outlines the existing services and infrastructure around the site, providing context for the proposed development's servicing strategy.

HV Connection: The nearest HV connection is at 10 Majara St. The Essential Energy kiosk transformer provides power to the existing council chambers building.

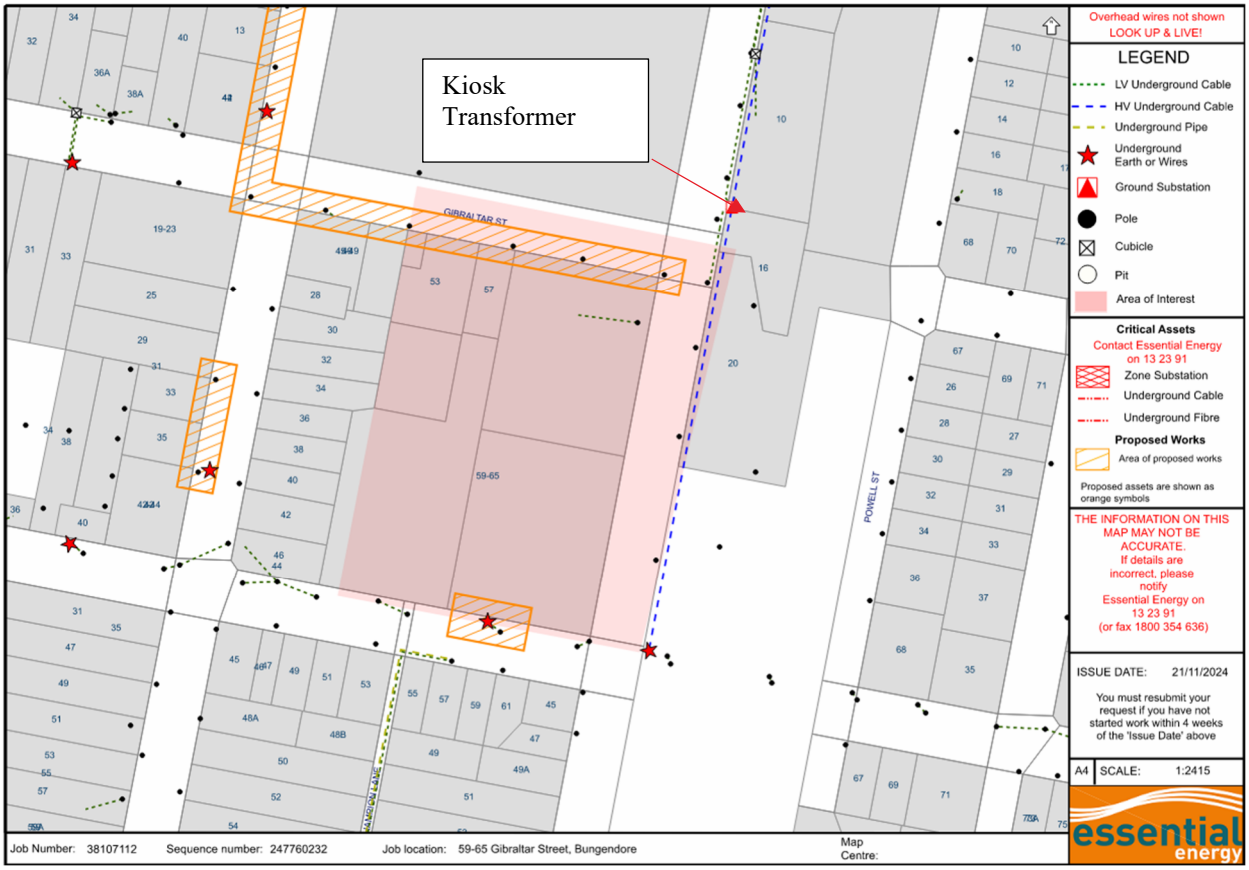

Figure 3 - Existing HV along Majara Street

Both HV and LV underground cabling exists in the easement along the front of 10 Majara St, with an underground LV cable providing power to the council chambers main switchboard and distribution boards, fed from the kiosk transformer located adjacent to the building at 10 Majara St.

3.1.2 ICT Services

The ICT services to the Bungendore North Campus High School will be provisioned with a new wireless connection to the existing high school at 37 Gibraltar St. The wireless link will provide both internet connectivity and connectivity to the school's server.

Figure 4 - Proposed Wireless Path

4. Description of Proposed Services

4.1 Electrical Utilities Infrastructure

The existing council chambers is powered from and existing 300kVA kiosk substation and main switchboard located within the facility.

Preliminary maximum demand calculations have been conducted with the total electrical demand for the site approximately **160kVA**. This suggests that it is viable to retain the existing supply for the proposed use of the temporary school, pending engagement with the utilities provider and a detailed assessment of the existing site usage.

The utilities provider will conduct their own assessment as to the viability of reusing the existing kiosk for the proposed, including a maximum demand, taking into consideration services in which the existing kiosk may be serving outside of the proposed site.

4.1.1 Proposed Electrical Infrastructure

The proposed electrical infrastructure is to retain and reuse this infrastructure, this includes the new demountable buildings which can be provided by the existing kiosk and main switchboard.

- **Retain Existing Substation:** An existing 300kVA kiosk substation presently provides power to the existing site for the temporary high school.
- **Retain Main Switchboard:** Located within a cupboard inside the council chambers and supplies power to several distribution boards.

- **Retain and augment existing LV Distribution:** the present main switchboard supplies power to several distribution boards, as well as general light and power to the facility. Additional distribution boards will be provided as needed to power the new temporary demountable buildings.
- **Retain Solar PV System: 46** kW installation on the roof of the existing council chambers.

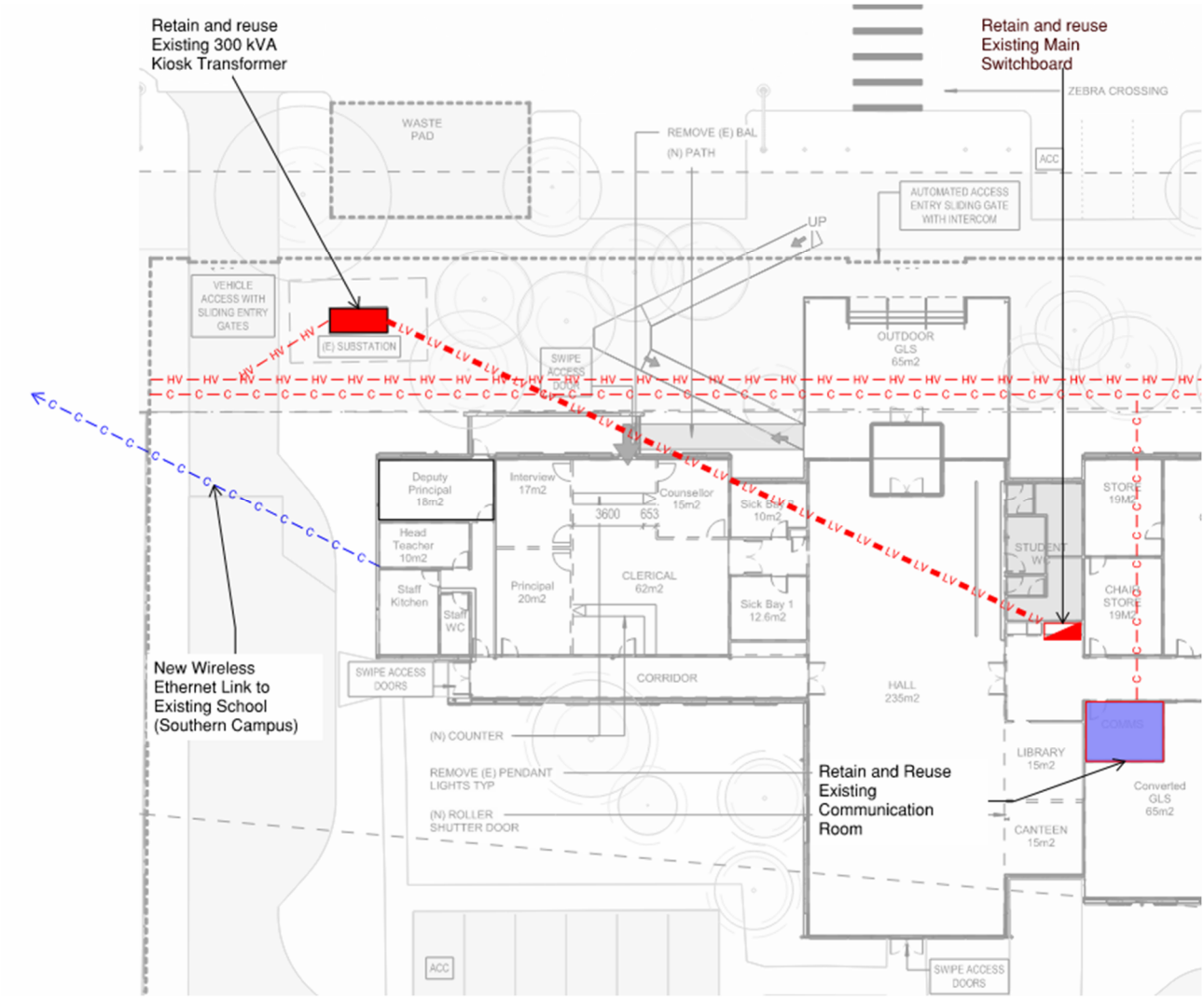

Figure 5 Proposed HV, Substation and Main Switchroom

4.1.2 Electrical Infrastructure Alternative Arrangement

The alternative arrangement is to upgrade the Kiosk transformer, main switchboard and LV cabling, if the maximum demand of the total site, including the new demountable buildings cannot be provided by the existing kiosk and main switchboard.

- **Upgrade Existing Substation:** An existing 300kVA kiosk substation will be upgraded to a kiosk substation sized to provide the existing loads, plus the maximum demand of the site, including the new temporary demountable buildings.
- **Upgrade Main Switchboard:** Upgrade the main switchboard located within a cupboard inside the council chambers to supply existing LV distribution and sized to provide the maximum demand of the existing infrastructure and the new temporary demountable buildings
- **Retain and augment existing LV Distribution:** keep existing LV distribution boards, as well as general light and power to the facility. Additional distribution boards will be provided as needed to power the new temporary demountable buildings.

- **Retain Solar PV System: 46** kW installation on the roof of the existing council chambers.

4.2 Evaluation of Environmental Electrical Infrastructure Impacts

Option 1 – Retain and Reuse Kiosk transformer and Main Switchboard

- **Impact**: No Impact.
- **Mitigation**: No Mitigation.

Option 2 – Upgrade Kiosk transformer and Main Switchboard

- **Impact**:
    - Ground disturbance during trenching and substation installation.
    - Trenching for underground cabling could disturb soil and vegetation.
    - Noise from construction activities may temporarily affect surrounding areas.
    - Visual impact from above-ground installations like the substation.
- **Mitigation**: Erosion control and noise management plans.

4.3 Proposed ICT Infrastructure

- **Main Communications Room (MCR):** acts as the campus distributor.
- **Building Communications Rooms (BCRs):** Strategically placed to ensure compliance with a 75m cable radius.
- **Internet Services:**
    - Provided from Southern Campus via wireless link
- **Wireless Access Points (WAPs):** Distributed throughout indoor and covered outdoor areas for seamless connectivity.

4.4 Evaluation of Environmental ICT Infrastructure Impacts

Install Wireless link to southern campus

- **Impact**: No Impact.
- **Mitigation**: No Mitigation

The extent and nature of potential impacts are low and will not have significant impact on the locality, community and/or the environment.

4.5 Lighting Impact Assessment

External Lighting Considerations

The project will primarily retain existing external street and car park lighting, with minimal additional installations around building perimeters at main exits. A new pedestrian crossing is proposed which will require new external lighting. Key considerations for external lighting include:

1. **Light Pollution Control**: Any new external lighting will comply with Australian Standard AS/NZS 4282:2019, "Control of the Obtrusive Effects of Outdoor Lighting," which provides guidelines to minimise light spill and its impact on surrounding areas. This includes using shielded fixtures to direct light appropriately.

2. **Energy Efficiency**: Additional lighting will utilise energy-efficient LED fixtures to align with sustainability goals.
3. **Compliance**: All lighting will adhere to relevant Australian Standards for outdoor illumination, ensuring safety and security while considering environmental impact.
4. **Wildlife and Residents**: Retaining existing lighting minimises disruption to local wildlife and neighbouring areas.
5. **TfNSW Rail Corridor:** The design, installation and use of lights, signs, and reflective materials, whether permanent or temporary, which are (or from which reflected light might be) visible from the rail corridors must limit glare and reflectivity to the satisfaction of UGLRL on behalf of TfNSW. The applicant shall not use red, amber, or green lighting colours to avoid adverse effects on train running schedules and safety issues due to misidentification of lighting colours. The applicant is advised to contact UGLRL's Development team via development@uglregionallinx.com.au for more information in this regard.

4.6 Compliance with Standards and Regulations

- The design aligns with:
- **NCC 2022** and relevant Australian Standards, including AS3000:2018, AS1768 (Lightning Protection), and AS2293.1 (Emergency Lighting).
- NSW Department of Education's EFSG 2.0 and Structured Cabling Systems Specifications.
- Australian standards
- Utility standards

4.7 Stakeholder Consultation

- DBYD for Telstra, NBN and Essential Energy complete
- Coordination with Essential Energy for electrical connections and approvals will commence at the next stage of design.
- Engagement with NBN for ICT infrastructure integration will commence at the next stage of design, if option 2 is selected.

4.8 Recommendations

- Early engagement with utility providers to confirm connection points and design approvals.
- The preliminary calculations suggests that the anticipated maximum demand of the site is within the supply capacity of the existing substation kiosk suggesting that option 1 is viable. Early engagement with utility providers is recommended to confirm this and facilitate a decision on whether an upgrade to the kiosk is necessary.
- Implementation of detailed erosion, sediment control, and noise management plans during construction.
- Close coordination with the design team to integrate sustainability measures, including the PV system and ICT infrastructure, while minimising environmental impacts.