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TECHNICAL MEMORANDUM: ENGINEERING SERVICES

North Lakes Anglican College

June 2026

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Bligh Tanner ref: 2020.0524.2

WATER SUPPLY

The site is well serviced by water supply infrastructure, with a large 750 mm diameter trunk main traversing the site and significant reticulation infrastructure in Endeavour Boulevarde, Copeland Drive and Finnegan Drive. Accordingly, there is likely to be adequate capacity and pressure to service the school.

The site is also serviced by a recycled water main which supplies treated effluent from the Murrumba Downs Sewerage Treatment Plant. Unitywater has confirmed this pipeline remains functional and investigations are underway to determine if the recycled water supply can be re-established.

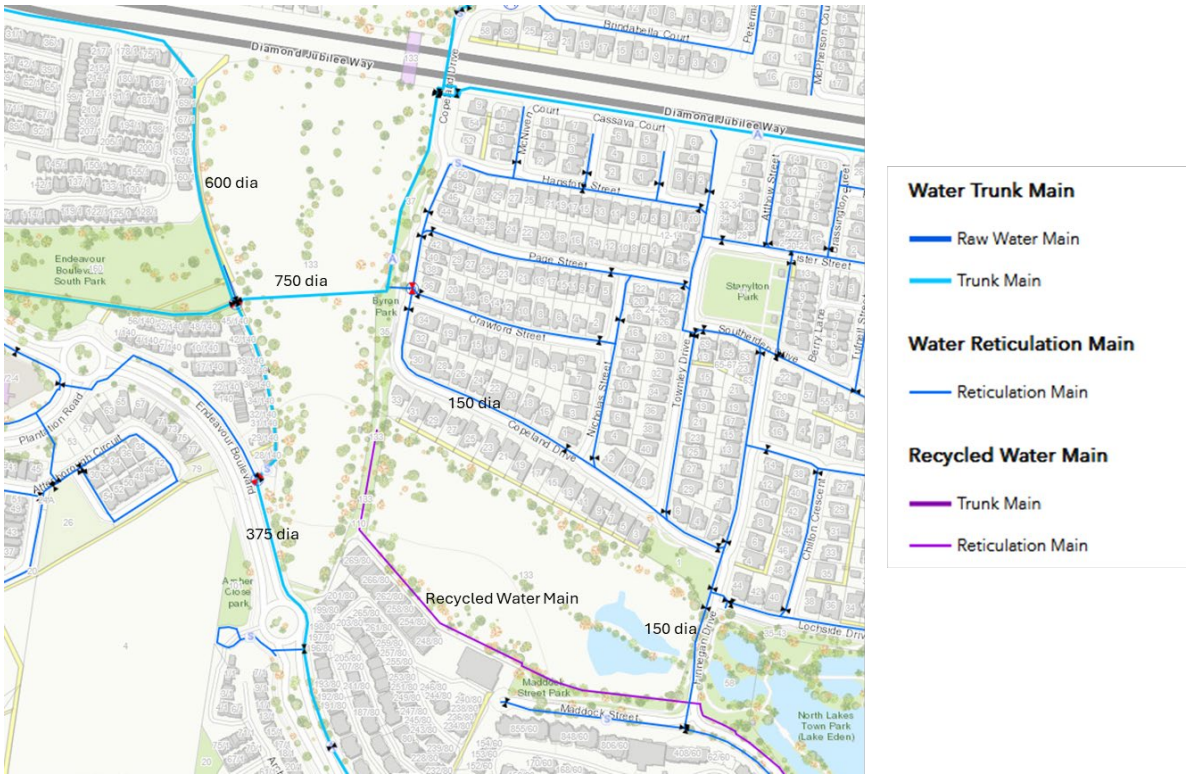


Figure 1 Existing water supply infrastructure

SEWERAGE

The site is well serviced by sewerage infrastructure, with two 300 mm diameter trunk mains passing through the site.

Sewer loads from schools are typically modest and occur out of phase with the morning and evening peak periods of residential sewage generation. Therefore, there is likely to be sufficient capacity in the network to accommodate the school.



Figure 2 Existing sewerage infrastructure

ELECTRICITY

Lot 2/SP291250

The site has the following road reserve frontages:

+ North section of the site along Diamond Jubilee Way
+ North-east section of the site along Copeland Drive
+ South-west section of the site along Endeavor Boulevard

Diamond Jubilee Way has no existing HV feeder infrastructure. Copeland Drive has an existing HV feeder located adjacent to the site boundaries which is assumed to be within the 0-900mm electrical alignment. Endeavour Boulevard has an existing High Voltage feeder along the south-western side of the road corridor (opposite side to the site). Existing electrical infrastructure is shown in Figure 3.

Minor local network works will be required to establish a supply to the site. A detailed maximum demand for the proposed works is required to understand the type of supply required (including best practice substation locations).

Lot 1/SP148201

This lot is predominantly landlocked by Council land except for an approximately 40 m frontage to Finnegan Drive.

Based on Energex provided mapping data there is no presence of existing Low/High Voltage infrastructure in the area due to bridge crossings and existing vegetation.

Mapping indicates no existing low-voltage (LV) or HV infrastructure in this frontage, likely due to bridge crossings and vegetation constraints. Lot 1 is likely to be serviced via Lot 2.

A detailed maximum demand assessment will inform the required supply type and substation locations.

Supply Arrangements

When considering the electrical supply for a development, Energex defines the connection arrangement based on the site's maximum demand and operating voltage:

Typical Supply (<1000 kVA)

+ Low-voltage supply (400/230 V) via a local distribution transformer.
+ Suitable for small to medium developments.
+ Energex owns the transformer and upstream assets; the customer owns downstream LV infrastructure.

Large Customer Connection (>1000 kVA)

+ Dedicated transformer/s located within an Energex-approved substation enclosure.
+ Required for high-demand developments such as schools or hospitals.

High Voltage (HV) Customer Supply

+ Customer receives supply at 11 kV and maintains onsite HV switchgear and transformers.
+ Generally adopted for large, specialised facilities with multiple transformers.

Energex's connection manual requires each lot to be supplied directly from the Energex network. As the proposed school spans multiple lots separated by Council land (Lot 11 / SP150148), land agreements or amalgamation may be required to secure a unified supply arrangement.

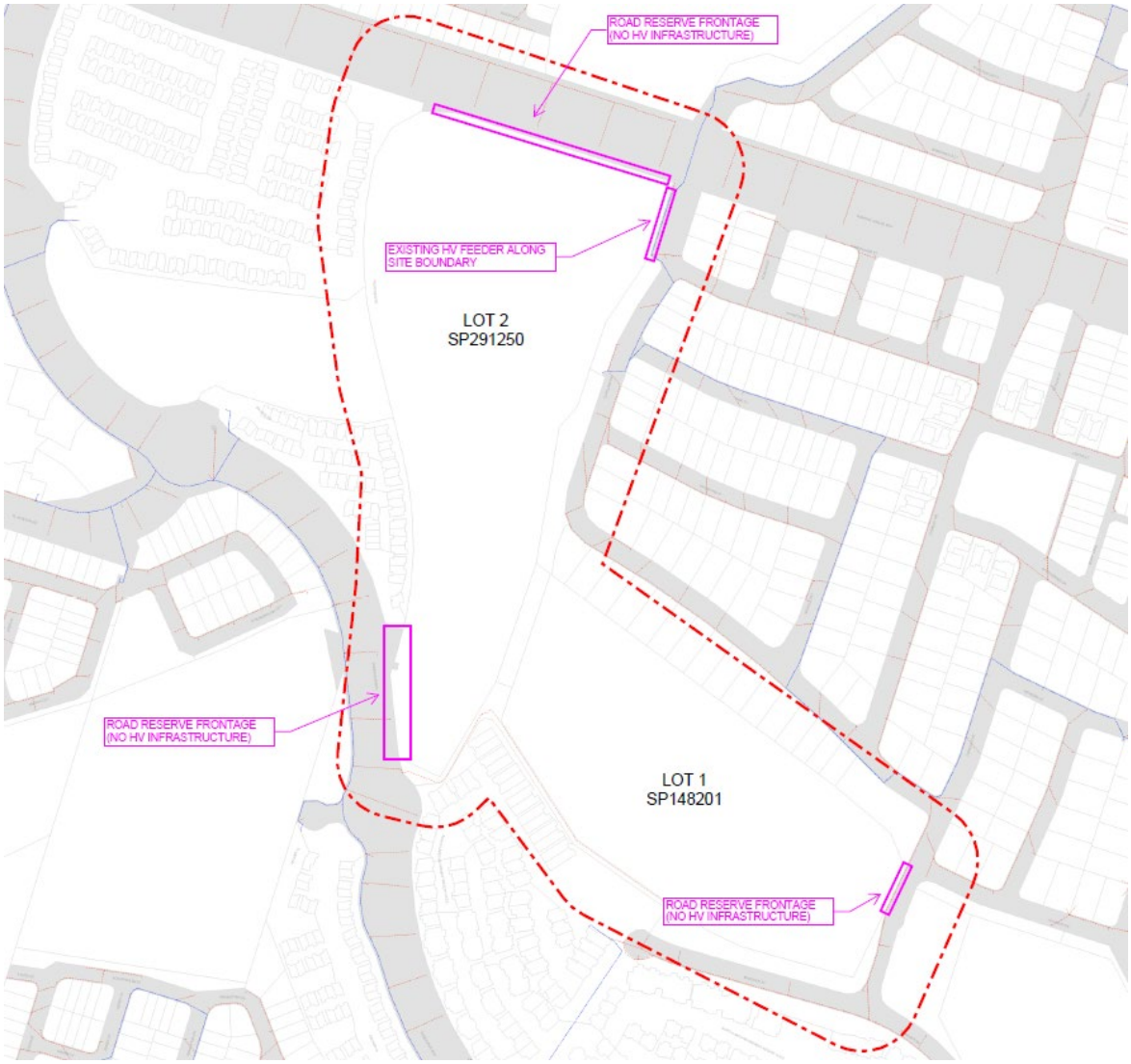


Figure 3 Existing electrical infrastructure and proposed connection locations

COMMUNICATIONS

Lot 2/SP291250

NBN: Existing NBN pit and pipe infrastructure is located on the south-western side of Endeavour Drive. Network augmentation will be required to service the site.

Telstra: Existing pit and pipe infrastructure is present along Copeland Drive (north-east side). See Figure 4.

Optus: Infrastructure is present along both Endeavour Drive and Copeland Drive. Further authority consultation is required to confirm connection viability.

Lot 1/SP148201

NBN: Existing infrastructure is limited to Finnegan Drive. Extension works will likely be required.

Telstra: No existing infrastructure along the boundary. Connection via Lot 2 / SP291250 will be required.

Optus: Infrastructure is present along Finnegan Drive; viability to be confirmed with the authority.

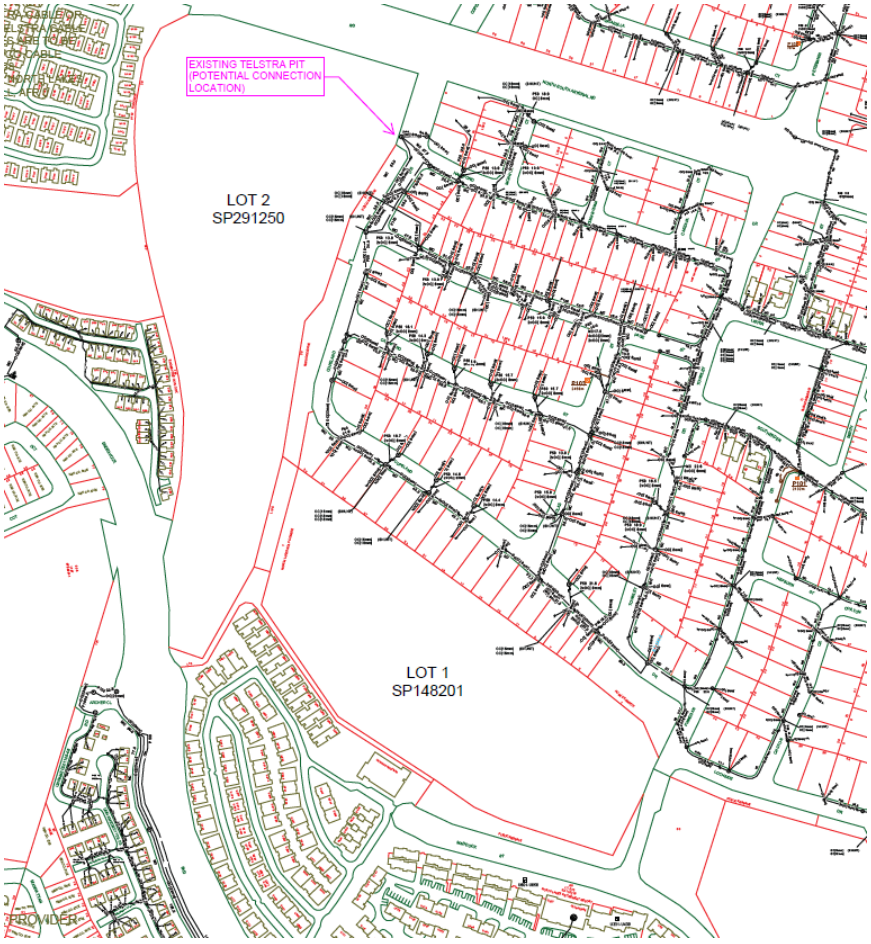


Figure 4 Existing communications infrastructure and proposed connection location