



C O N S U L T I N G

Infrastructure Capability Audit

Mullumbimby Hospital

Prepared for Byron Shire Council
By Planit Consulting Pty Ltd

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1 Introduction

As part of the recent NSW Government North Coast Regional Plan 2041 Byron Shire Council is investigating several options for potential future housing sites throughout the Shire to assist in addressing critical housing shortages. Council is undertaking a strengths and gaps analysis of infrastructure to meet the demands of several proposed housing projects, with one of the prospective sites being the former Mullumbimby Hospital site, Lot 1 DP 115861, Lot 138 DP 755722 and part of Lot 188 DP728535.



Figure 1-1 | Site Location

The identification of the infrastructure required to meet the demands of future housing projects will assist Council and allow for the efficient and effective progression of the critical housing projects.

As part of these investigations Planit have been engaged to undertake an Infrastructure Capability Audit to assess the infrastructure required to cater for the proposed development.

This assessment has been prepared to assess the water and sewer infrastructure required to service the former Mullumbimby Hospital site if it were redeveloped into residential and identify any augmentations that may be required in order to support a planning proposal.

2 Existing Water and Sewer Servicing

Council is the responsible Authority for providing water and sewer services throughout Mullumbimby and currently have existing water and sewer network supply and collection infrastructure located throughout the town.

2.1 Water Supply

Water is currently supplied to Mullumbimby via a Council operated Water Treatment Plant (WTP) located at Laverty's Gap. Water is collected at the Laverty's Gap weir, treated and then conveyed into Councils existing water supply reservoirs located at Left Bank Road and Azalea Street.

From the reservoirs there is a network of water distribution and supply mains that reticulates the water supply throughout Mullumbimby.

2.2 Sewerage Servicing

Mullumbimby is serviced by a traditional gravity sewer system consisting of a network of gravity sewer collection pipes, sewer pump stations and rising mains.

Sewerage from Mullumbimby is transported via the sewerage network out to the Brunswick Heads Sewerage Treatment Plant (STP). Brunswick STP currently caters for both Mullumbimby and Brunswick Heads residential areas.

3 Proposed Development

While the site was in use as the Hospital it had an equivalent tenement demand of 40ET, when the hospital was decommissioned, and the Ewingsdale Road Hospital developed there was an ET transfer for the new Ewingsdale development that reduced the ET for the site down to 11ET and transferred 29ET to Ewingsdale.

Council have prepared an estimated development yield based for the site with the site being proposed to yield approximately 130 dwellings as R1 Diversity mix. For the purpose of assessing the water and sewer infrastructure requirements for the proposed development we have assumed that one (1) dwelling is the equivalent of one (1) Equivalent Tenement.

Table 3-1 | Development Yield

Site Details/Location	Estimated Dwelling Yield (From Council)	Equivalent Tenements (ET)
Old Mullumbimby Hospital Part of Lot 188 DP728535, Lot 1 DP 1159861 & Lot 138 DP 755722	130 Dwellings (R1 Diversity Mix)	130 ET

Whilst the proposed development of the hospital site may incorporate a higher density dwelling style than a standard residential lot for this level of preliminary assessment we have used the assumption that 1 dwelling is equivalent to 1 ET, this will provide a conservative assessment of the water and sewer infrastructure assets required to service the site as a standard residential dwelling has a slightly larger number of Equivalent People per ET than medium and higher density dwellings.

3.1 Water Demand Estimate

Based on the proposed dwelling yield the site will have the following Daily water demand based on Byron Shire Councils Water and Sewer Equivalent Tenements Policy 2022.

Table 3-2 | Average Day Water Demand Estimate

Equivalent Tenements (ET)	Demand Per Day/ET (L/Day/ET)	Total Daily Demand (KL)
130 ET	630L/Day/ET	81.9 KL

3.2 Sewer Flow Generation Estimate

Based on the proposed dwelling yield the site will generate the following sewer flows based on Byron Shire Councils Water and Sewer Equivalent Tenements Policy 2022.

Table 3-3 | Sewer Flow Estimate

Equivalent Tenements (ET)	Sewer Loading Per ET (L/Day/ET)	Daily Sewage Generation (KL)
130 ET	590 L/Day/ET	76.7 KL

4 Capacity Assessment

The proposed site is currently serviced by existing water and sewer assets that currently service the existing aged care facility onsite and previously provided service to the former hospital.

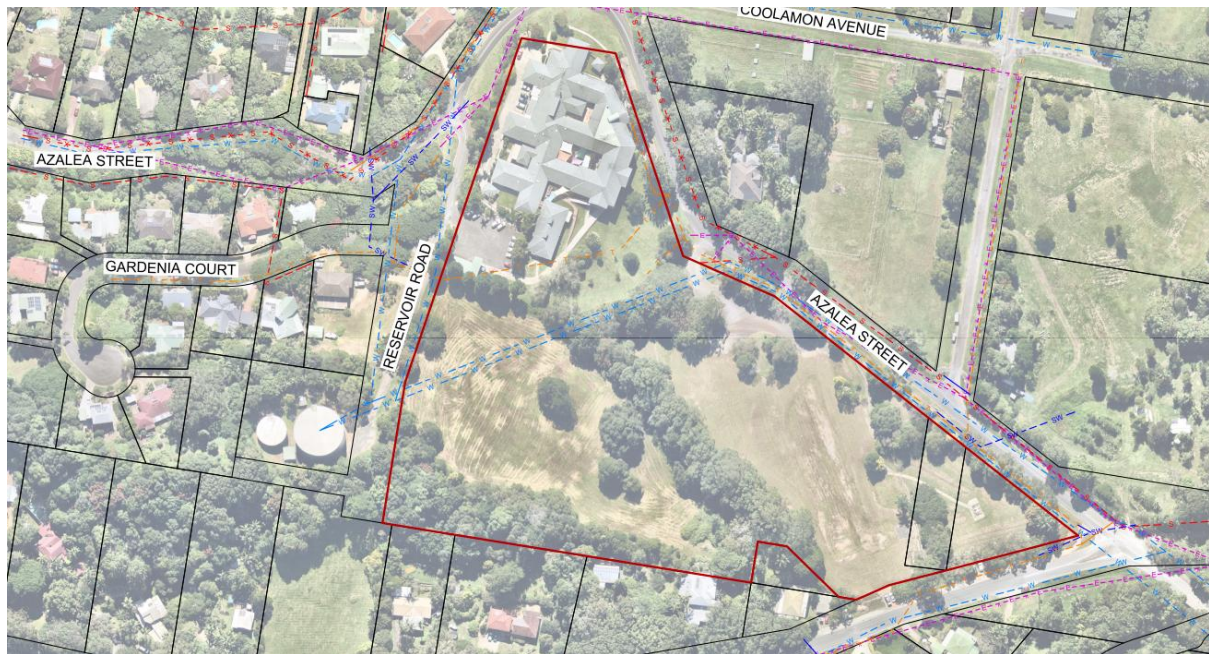


Figure 4-1 | Existing Services

4.1 Water Supply Capacity

The Azalea Street Water Reservoirs are located adjacent to the South Western boundary of the proposed site these provide water supply to the majority of Mullumbimby. The trunk mains from the reservoirs currently run through the proposed site. These trunk mains from the reservoir are currently undergoing detailed design to be relocated around the proposed development site into Azalea Street.

The water mains that exist within Azalea Street are larger diameter due to the close proximity of the reservoirs and can more than adequately provide sufficient flow in the pipe work to cater for the proposed demands from development without the need to augment any pipework.

There is however an overarching water supply capacity issue for Mullumbimby as the existing Council water treatment plant and Laverty's Gap weir are at maximum supply capacity and cannot cater for any additional demands to be placed on the system without significant upgrade or augmentation the treatment plant or alternative water supply being provided.

There is potential for water to be supplied from Rous Water as an alternative to Council's existing water treatment plant. A new 375mm water supply main is currently being designed from Rous Water's existing bulk water supply main near Gulgarn Road through to the Azalea Street Reservoir. The main is scheduled for construction in the next 12 months as is being provided as part of the flood recovery program funded by Public Works. Once constructed the main will provide an alternative water supply pipeline to secure water supply to Mullumbimby during emergencies.

Based on network modelling assessments undertaken by H2One, it was identified that in order to cater for Mullumbimby's 2046 Planning Horizon network demands a dedicated 300mm ID trunk water main would need to be installed from the Pacific Motorway to the Azalea Street reservoirs. The new 375mm main proposed to be installed as part of the flood recovery program would have

sufficient capacity to cater for the proposed additional development yields identified within this report together with the future 2046 Council design horizon demand requirements.

Whilst there is currently an approval/resolution for the temporary “emergency” supply arrangement from Rous, there is no resolution or formal approval for a permanent connection to be established. The system has capacity to provide the necessary permanent supply capacity subject to a resolution being adopted between Rous and Council.

Should the total supply capacity issue be resolved then the proposed development can be readily supplied by the existing water supply network from the Azalea Street reservoirs.

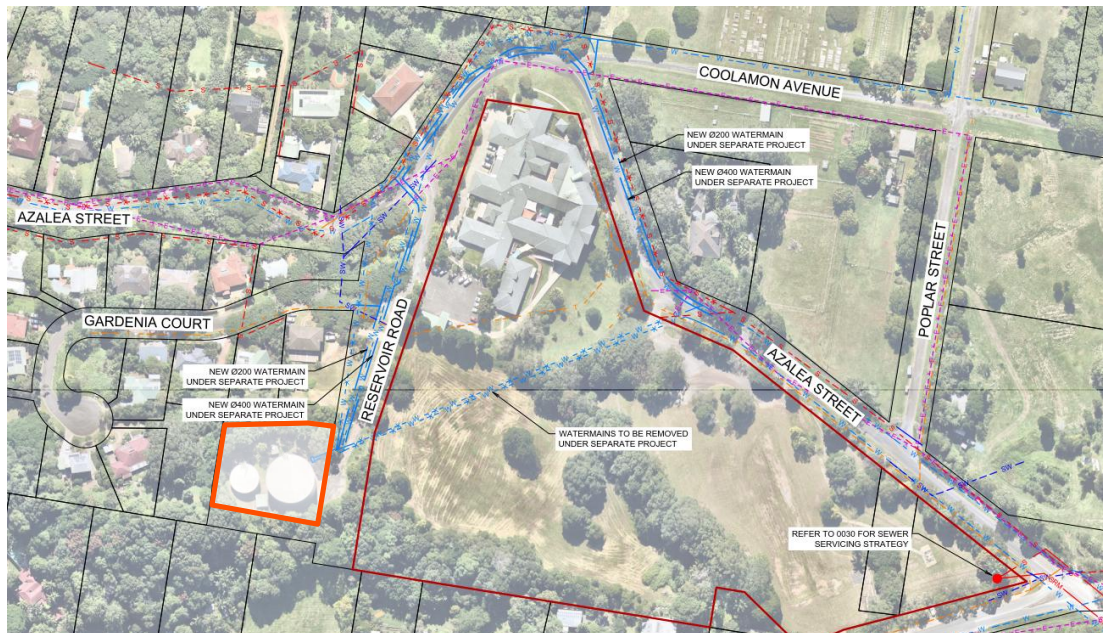


Figure 4-2 | Proposed Water Main Realignment

4.2 Sewer Capacity

There is an existing 150mm gravity sewer main located at the South Eastern corner of the site that formerly serviced the hospital. This gravity sewer runs down Coolamon Scenic Drive, along Fern Street and discharges into the existing sewer pump station located in Stuart Street. The Stuart Street pump station has recently been refurbished and new sewer rising mains installed, and has adequate capacity at the station to cater for the additional flows that would be generated from the proposed development.

The existing gravity sewer in Azalea street north of the proposed development site previously collected sewer from a larger catchment area, however this catchment has been recently diverted into a the Tallowood sewer network and now discharges into a different northern sewer catchment area. This diversion has increased the available capacity of the existing gravity sewer from Azalea Street.

Based on the increased capacity from the upstream diversion of the northern Azalea Street sewer catchment plus the existing capacity in the system that catered for the former hospital site, there should be sufficient capacity within the existing gravity sewer to cater for the proposed 130 dwellings at the site.



Figure 4-3 | Sewer Servicing Options

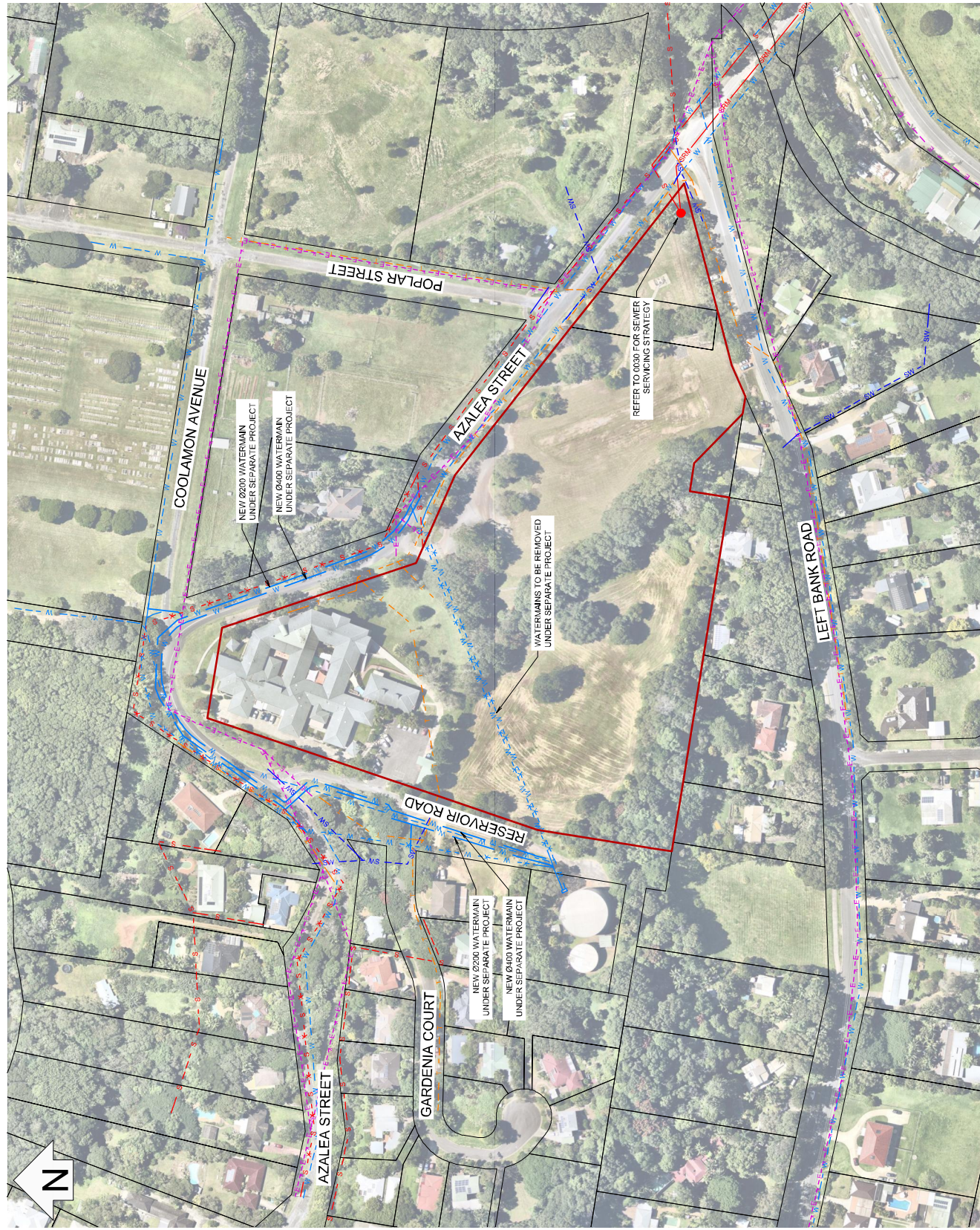
Should the dwelling/ET yield increase significantly above the proposed 130 ET or additional development parcels be progressed further North or West of the development site then there may be insufficient capacity within the existing gravity network and in this case a new sewer pump station could be installed at the development site to cater for the future development flows and discharge to the existing Stuart Street Sewer Pump Station via new rising main. The diagram below shows the existing gravity sewer alignment and the possible sewer pump station location if the pumped option is pursued.

5 Conclusion

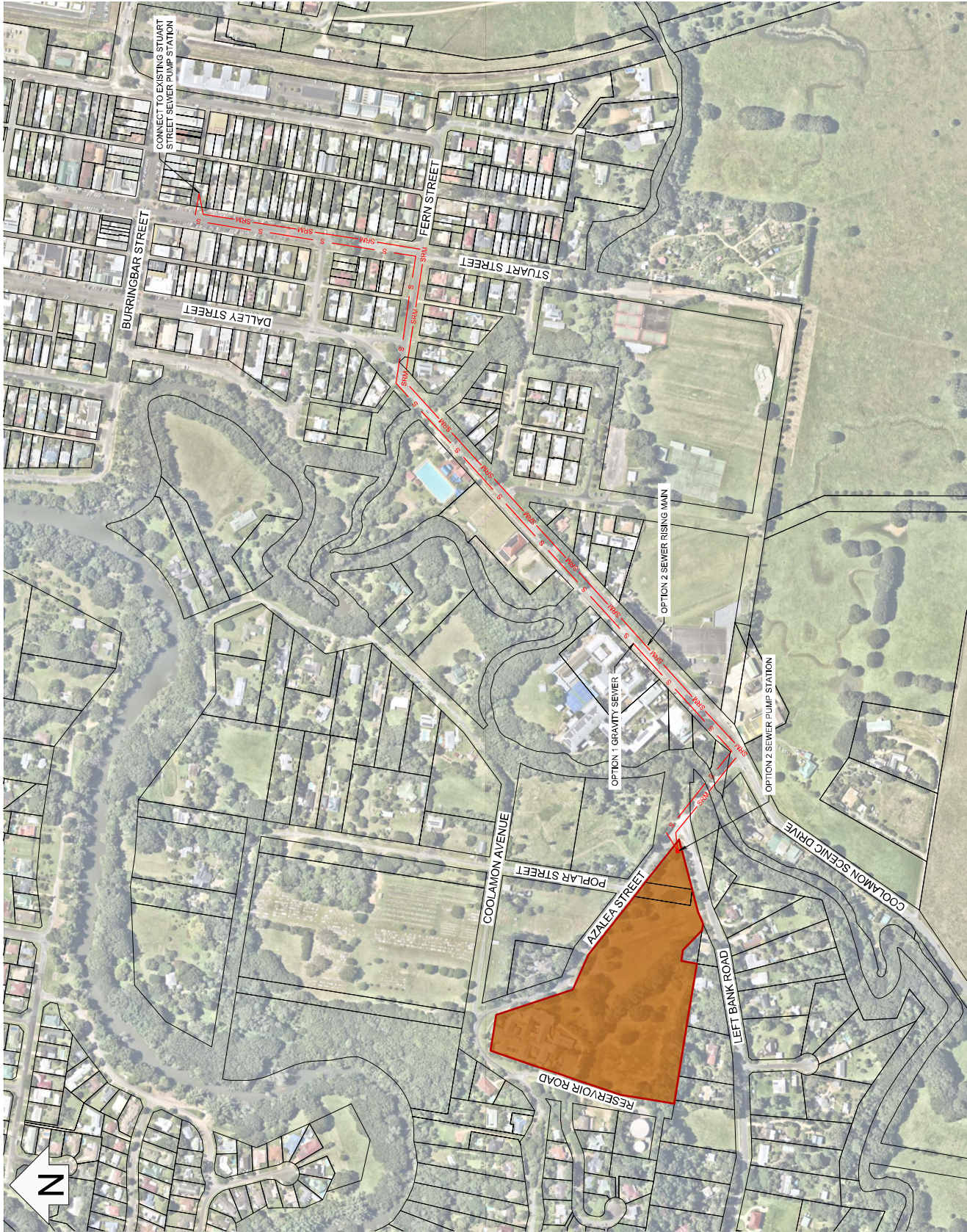
Based on our assessment of the existing water and sewer infrastructure the site can be readily serviced by both the existing water supply network and the existing gravity sewer network without the need to undertake any pipeline or network augmentations for an estimated development yield of approximately 130ET. Therefore from a water and sewer servicing capacity we believe this site is suitable for the proposed development to proceed.

This is subject to a satisfactory outcome being identified/agreed with Rous Water to address the overall Mullumbimby water supply capacity constraints.

Appendix A – Servicing Plans



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LEGEND

- HOSPITAL REDEVELOPMENT SITE
- OPTION 1 - GRAVITY SEWER
- OPTION 2 - SEWER RISING MAIN

INTERNAL REVIEW

NOT FOR CONSTRUCTION

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