MIDCOAST council

APPENDIX 12

January 2026

Wingham Urban Release Area 1

WATER AND SEWER SERVICING STRATEGY

Water & Sewer Servicing Strategy

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Wingham NSW 2429

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Revision 5

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Revision Log:

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Version No.	Clause No.	Description of Revision
01	-	Initial Issue
02	-	Second issue following developer comments
03	-	Third issue following second round of developer comments
04	-	Fourth issue following Midcoast Council comments
05	-	Fifth issue following third round of developer comments

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1. INTRODUCTION & SCOPE OF WORK

Colliers International Engineering & Design (NSW) has been engaged by Hampstead Property to undertake a high-level water and sewer servicing strategy for the proposed development within Lot 92, DP1285477 (referred to as "the proposed development" and "the site") located in Wingham, NSW 2429.

The scope of work, as communicated by Midcoast Council and Hampstead Property, is to produce a water and sewer servicing strategy required for the project planning proposal. The development is a rezoning of 62 hectares of existing rural land zoned RU1 to R1 General Residential, SP2 Infrastructure, C2 Environmental Protection and C4 Environmental Living. The draft precinct plan shows the rezoning has potential to accommodate approximately 295 dwellings.

The strategy is to outline the following:

- Estimated Loading
- Estimated Staging
- Preliminary calculations of peak flows within the area
- Whether large infrastructure may be required (such as a pump station or treatment works)
- Whether existing water infrastructure exists across the site
- Locations where the developer plans to connect into the reticulated system
- A description around gravity sewer can be achieved across the area
- Commentary around whether adequate water pressures can be achieved across the area. As no hydraulic modelling is required at this stage, the commentary around adequate water pressures is based on estimates around the height of the reservoir and the height of the proposed development site – as requested by Midcoast Council.
- Commentary on the need for decommissioning of existing WG SPS 03 and directing the new pumping station to the existing WG SPS 01.

This report will detail the initial assessment undertaken to determine that the proposed development can be serviced by existing water and sewer infrastructure including the Irkanda Reservoir boosting from Kolodong 1 Reticulation Main and Sewer Pumping Station WG SPS 01 respectively. Recommendations for the next stages are provided at the end of this report.

2. BACKGROUND

The proposed development is located in Wingham NSW which has a population of approximately 5,395 residents (Census 2021). Figure 1 shows the location of the site which is directly northeast of the Wingham town centre and is bordered by Cedar Party Creek.

The site is approximately 62 hectares, and the effective area of residential dwellings is approximately 20 hectares (excluding roads).

Midcoast Council is the water authority in the region, and the proposed development would be classified as significant growth in the area.

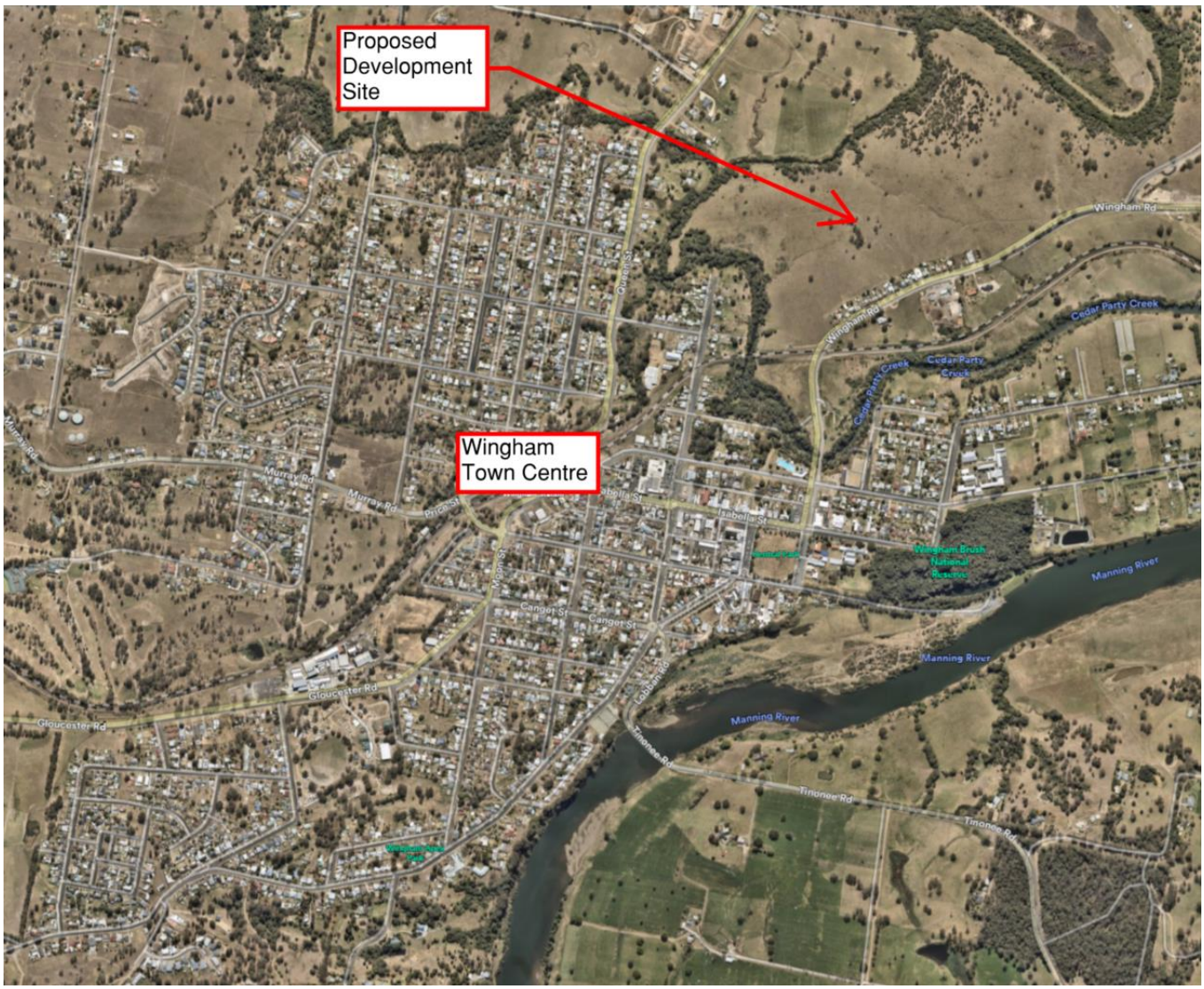

Figure 1 – Site Locality Plan

3. METHODOLOGY & CONSULTATIONS

The methodology for developing the servicing strategy required several steps to ensure servicing of the proposed development is possible and can be undertaken adequately.

The process to undertake the servicing strategy involved:

- Analysis of the bulk earthworks drawings to understand the hydraulic requirements of the water and sewer within the proposed development
- Consultation with Midcoast Council to understand existing network, sewer catchments and water supply zones
- Obtaining access to Midcoast Council GIS systems to analyse the existing infrastructure in relation to the new proposed infrastructure
- Working with internal planning teams to incorporate the urban design and proposed development layout to size and place water and sewer infrastructure sufficiently
- Colliers Engineering & Design prepared servicing strategy maps (refer to figures 3 & 4) for water and sewer, showing the infrastructure requirements for the proposed development
- Producing a report to outline all works undertaken including the servicing strategy, design assumptions, recommendations and visual maps

Numerous consultations were undertaken with Midcoast Council. Predominately, the consultations were with the Water and Sewer Asset Planning Coordinator, however some discussions also involved the Senior Water and Sewer Technical Officer and the GIS Coordinator. The purpose of these consultations was to understand how the existing water and sewer networks operate, including hydraulic levels of assets, availability and constraints of existing infrastructure and potential servicing solutions.

Midcoast Council presented two feasible options to provide water supply to the development. Council also issued data/information on the sewer retic and pumping stations in the vicinity of the proposed development site.

For the sewer servicing solution developed as part of this report, and following discussion with Midcoast Council, consideration has been given to providing a new SPS which services the proposed development site while minimising the amount of operation and maintenance required for Midcoast Council and mitigating disruption to customers serviced as part of the existing sewer network.

Through a confidentiality data licence agreement, access was gained to Midcoast Council's Geographic Information System mapping data which allowed analysis of the existing water and sewer networks and identify the most adequate connection points from the proposed development.

Following the above, all the existing information was analysed and a servicing solution was created which incorporates servicing the proposed development (greenfield) to ultimately connect to the existing network (brownfield).

4. WATER SERVICING STRATEGY

Refer to Figure 3 for the water servicing strategy plan, developed by Colliers Engineering & Design.

The proposed development will be serviced with water from the Kolodong 1 to Irkanda boosted line which runs along Wingham Road and is supplied by the Kolodong reservoir six kilometres southeast of the site. This reticulation main is predominately a DN200 O-PVC main at the connection point and the connection location has been chosen as it is between two isolation valves which would make for an efficient connection with minimal disruption to the downstream customers (25 dwellings). Refer to Figure 3 showing the configuration of watermains adjacent the proposed development site including the DN450 steel pressure main and PVC mains ranging from DN200, DN225 and DN300.

The indicative layout of the water reticulation within the proposed development will closely follow the layout of the internal roads to ensure all future properties are supplied. The internal reticulation will connect to the existing network at 2 locations, as shown in figure 3. During detail design, the developer may need to consider potholing of the existing Kolodong Distribution Main to ensure development occurs outside of the zone of influence. The watermain is thought to be a DN450 steel cement lined pipe running along the northern boundary. Potholing of the main would positively identify its location and size and ensure construction works, including bulk earthworks, do not have any detrimental impact to the asset. Midcoast Council prefer connections to the Kolodong reticulation rather than the DN450 distribution main. This advice will be reevaluated following detailed hydraulic modelling in the future.

5. SEWER SERVICING STRATEGY

Refer to Figure 4 for the sewer servicing strategy plan, developed by Colliers Engineering & Design.

The proposed servicing solution for sewer will be via a new sewage pumping station (SPS) located at the base of the R1 residential lots. The SPS location has been chosen at a low point to allow gravity flows of the internal reticulation network, while keeping outside of the 1:100-year flood zone. The exact location of the SPS is subject to further investigation including detail survey and design in the next phase of the project.

The new SPS will have a respective rising main which leads into the existing sewage pumping station WG SPS 01. Detailed hydraulic modelling should be undertaken at DA stage to confirm the pumping station retains capacity for the development. Midcoast Council has reviewed the Wingham sewer catchment and preliminary hydraulic model and provided the advice that the upstream network, the pumping station, WG SPS 01, and the downstream network to the sewer treatment plant all have capacity to accommodate the proposed development site. Figure 2 shows the six sewer catchments which service Wingham. The proposed development will fall under WG SPS 03 catchment.

It is noted that an alternative option was previously selected to send the proposed development's sewer flows to WG SPS 03 from the new SPS. However, in consultation with Midcoast Council after submitting the first copy of this report, it was advised that an additional pumping station was not preferred as it would add to additional operation and maintenance requirements. Therefore, a new strategy has been proposed as part of this report where WG SPS 03 has been identified for decommissioned in the future, and the new pumping station will send sewer flows to WG SPS 01 instead.

In this current version of the report, careful consideration has been given to ensuring Midcoast Council would not have to operate and maintain an additional pumping station and that the existing 25 properties serviced by WG SPS 03 would have little to no disruptions during the change over to the new sewer pumping station. Details and design levels of relocating the existing 25 properties to the new SPS will be considered in the detail design phase. If building over the relocated sewer main is required, Midcoast Council's Building Over Sewer guidelines shall be followed.

There is potential for staging of the proposed new pumping station based on the staging of the proposed development and when dwellings become available for connection to the sewer network. Once the new SPS is online and servicing the initial developments, the 25 existing properties being serviced by WG SPS 03 can be cut-over to the new SPS and WG SPS 03 can be decommissioned. It is anticipated that WG SPS 01 does not need to be upgraded for the foreseeable future as part of Midcoast Council's preliminary modelling. This will be verified by detailed modelling in the future.

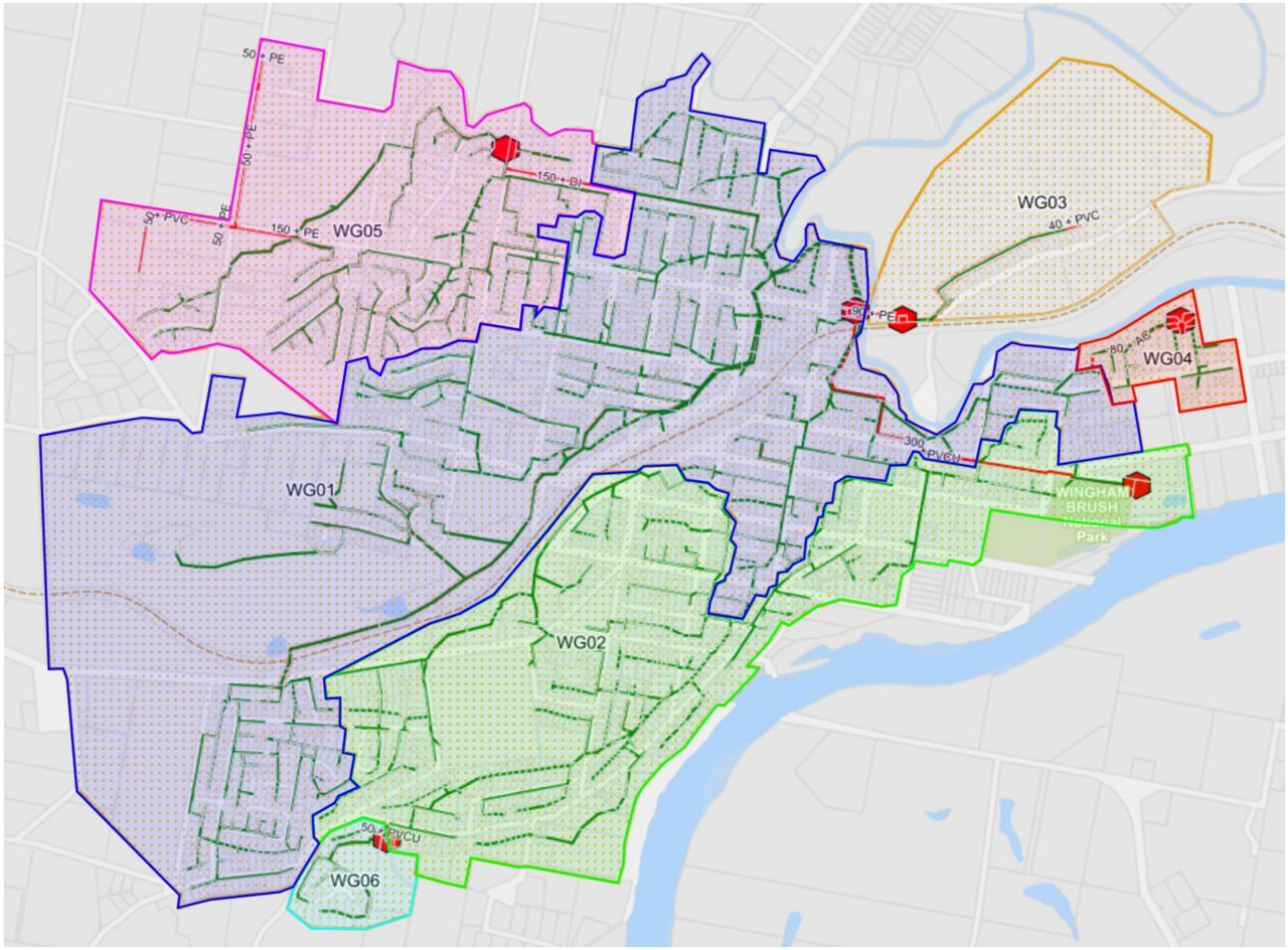

Figure 2 –Wingham Sewer Catchments

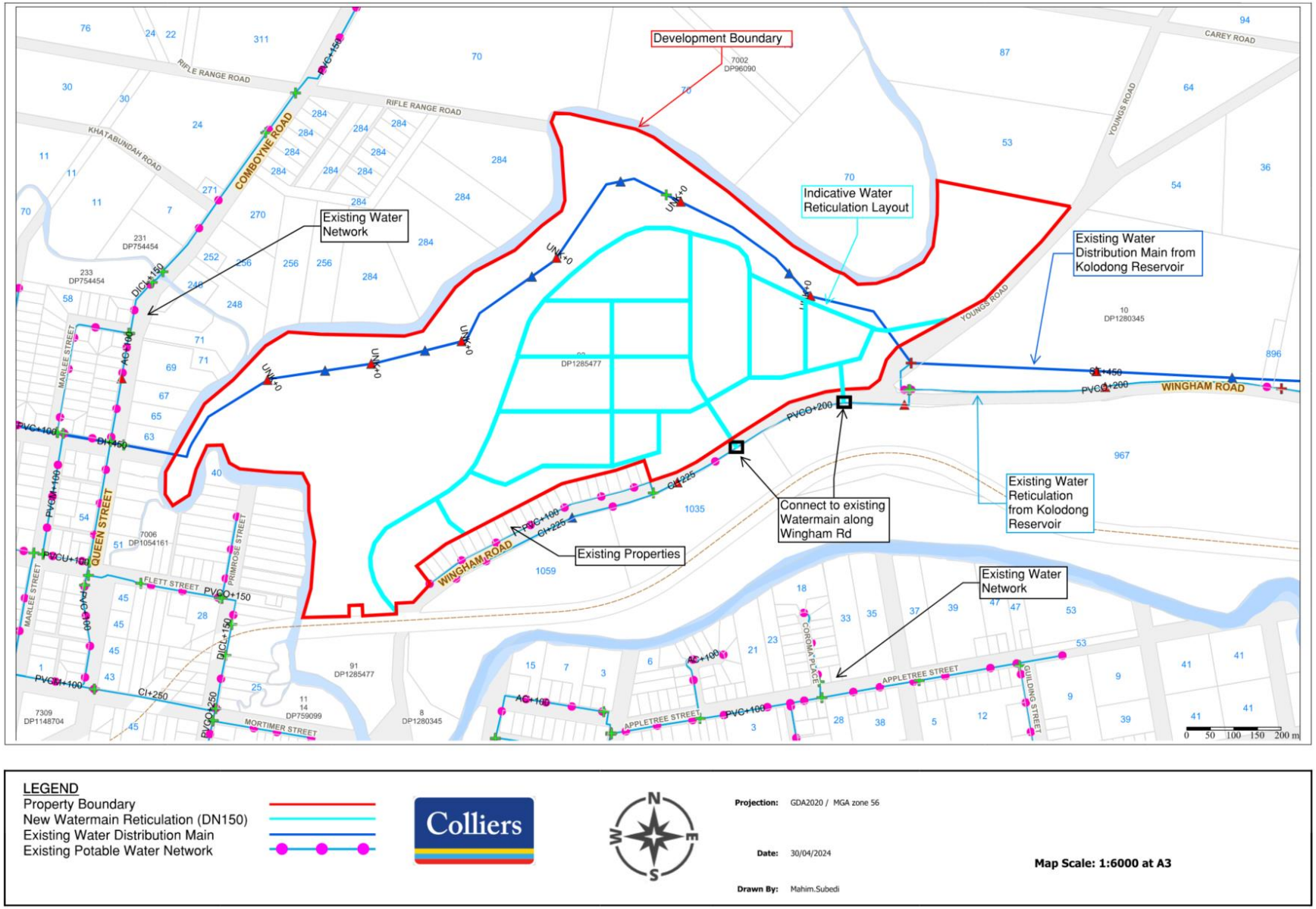

Figure 3 – Water Servicing Strategy

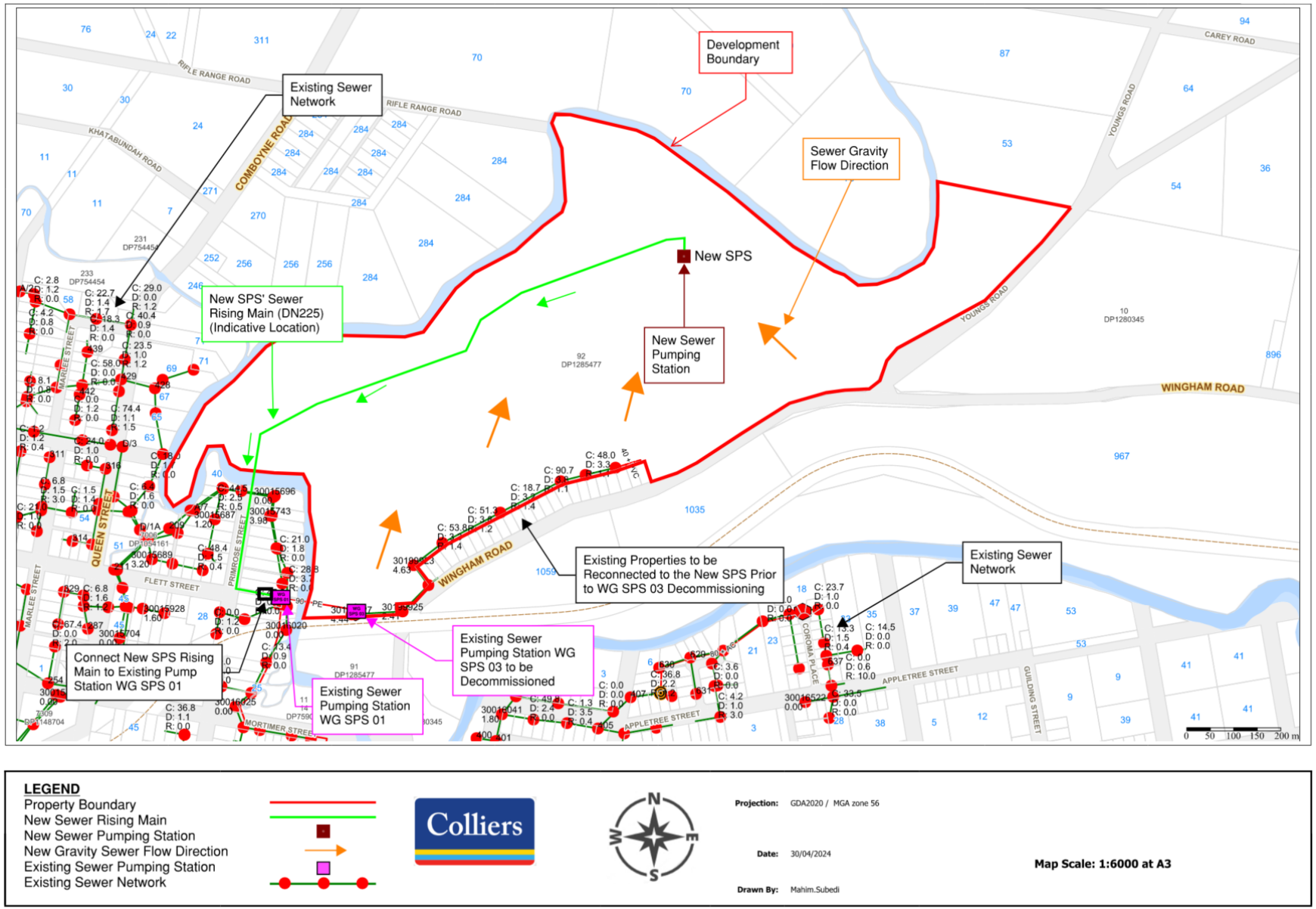

Figure 4 – Sewer Servicing Strategy

6. DESIGN ASSUMPTIONS

6.1 General

The latest layout plans for the proposed development shows an effective area of 20 hectares for R1 residential lots.

The total Equivalent Population (EP) is anticipated to be 708* with 295 Equivalent Tenements (ET) based on the below:

- R1 Small Lots – 81 Dwellings
- R1 Medium Lots – 186 Dwellings
- R1 Large Lots – 28 Dwellings

*Midcoast Council Aus-Spec 2022 Standards nominates an occupancy ratio of 2.4 EP/ET for the Wingham service area.

6.2 Water

It is anticipated that the Kolodong Reservoir will have adequate pressure to service the proposed development site as Midcoast Council confirmed the Top Water Level (TWL) of the reservoir supply zones are:

- Kolodong 1 = 53.4m AHD
- Irkanda = 86m AHD
- Wingham = 88m AHD

The proposed developments within the site are between approximately 14m AHD and 27m AHD. The pressure losses (dynamic headloss) along the Kolodong reticulation main (6km in length) would be marginal compared to the difference in static head between TWL and the proposed development site. At this early stage, no additional infrastructure is proposed to the upstream water network as the existing infrastructure looks adequate to supply the site.

Notwithstanding the above, detailed hydraulic modelling of the Kolodong Water Supply Zone is required to understand the reservoir water levels during peak demand periods and whether additional storage is required in the network.

The following design assumptions have been used for the water servicing strategy:

- Average demand water usage has been agreed with Midcoast Council at 500 L/ET/day
- Total estimated average day consumption = 148 kL/day
- Headloss per kilometer of the Kolodong Reticulation main has been assumed at 5m/km (to be verified in the next stage following detailed hydraulic modelling)
- Maximum Day Demand factors are anticipated to be 3 - 3.5 times greater than the Average Day Demand

Pipe sizing for the water reticulation is anticipated to be DN100, subject to hydraulic modelling.

6.3 Sewer

As per the Sewerage Code of Australia, WSA02, and Midcoast Council Aus-Spec 2022 0076 Sewerage Systems, the below design assumptions have been used for the sewer servicing strategy:

- Average dry weather flow has been assumed at 150 L/EP/day
- Total average dry weather flow (ADWF) for the entire development site has been calculated at 107 kL/day.
    - R1 small lots = 81 dwellings (194 EP)
    - R1 medium lots = 186 dwellings (447 EP)
    - R1 large lots = 28 dwellings (67 EP)
    - ADWF = 107 kL/day
    - Peak Dry Weather Flow (PDWF) = 360 kL/day
    - Peak Wet Weather Flow (PWWF) = 1081 kL/day

Pipe sizing is anticipated to be 75% DN150 and 25% DN225. The rising main from the new SPS will be a DN225.

These sizes will need to be re-evaluated during the detail design stage and any upgrades or amplifications to the existing network will be identified by Midcoast Council in the future.

7. LIMITATIONS

The current servicing strategy is a high-level assessment of potential scenarios and these need to be further verified via detailed hydraulic modelling and detailed design of the new proposed network along with the existing Midcoast Council water and sewer networks as part of a development application. However, it is noted that Midcoast council undertook a preliminary hydraulic modelling analysis and advised it is acceptable to service the proposed development via WG SPS 01.

8. CONCLUSION

From the water and sewer investigations outlined in this report, and preliminary hydraulic modelling undertaken by Midcoast Council, it is clear that the site is suitable for rezoning and sufficient water and sewer servicing can be achieved. The site is infrastructure ready.

Water will be supplied via the Kolodong Reservoir and will be drawn from 2 points on the Kolodong Reticulation, off Wingham Road.

Sewer will be serviced via a pumping station which will pump sewage to the existing network located at a higher elevation. The sewage will be transferred to the existing WG SPS 01 sewer pumping station. Ultimately, the sewage will end up in the Wingham Wastewater Treatment Plant.

The existing WG SPS 03 will need to be decommissioned once the new SPS is constructed.

Any upgrades, along with further investigations (detail design and detailed hydraulic modelling), will need to be undertaken at the DA stage and beyond.

9. RECOMMENDATIONS

The recommendations for next steps are:

- Refine the servicing strategy based on new development information as it becomes available including lot layouts and staging
- Undertake detailed hydraulic modelling looking at the water network from the reservoir to the development site and checking pressures, headloss, fire fighting capability of hydrants and reservoir levels during max day scenarios

- Hydraulic modelling of the water network needs to confirm that during the peak instantaneous demand, 3 - 3.5 times the average of 500L/ET/day shall be supplied without any issues in the reticulation system
- Undertake detailed hydraulic modelling of the sewer network from the proposed new dwellings and new sewage pumping station to the existing network including any capacity constraints in pipelines, pumping stations and the treatment plant which services the entire catchment
- Based on outcomes of the detailed hydraulic modelling, if required, upgrade and amplify the existing water and sewer network as required to cater for the proposed development
- Produce a detailed design and undertake a pipeline trace verify the existing water distribution main which runs through the site and understand any impacts that may affect the development (including any easement constraints). Construction activities need to stay clear of the water main's 5m easement.
- Decommission WG SPS 03 after connecting the existing 25 properties to the new SPS

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