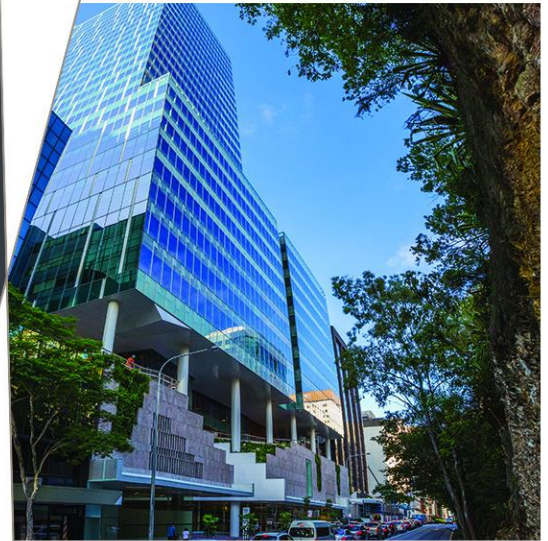


Infrastructure Services Assessment

Jacaranda Ponds

80215086



Prepared for
Celestino Pty Ltd

20 November 2018

Contact Information

Cardno (NSW/ACT) Pty Ltd

ABN 95 001 145 035

Level 9 - The Forum

203 Pacific Highway

St Leonards 2065

Australia

www.cardno.com

Phone +61 2 9496 7700

Fax +61 2 9496 7748

Author(s):

Ziwar Al-Sattouf

Undergraduate Engineer

Approved By:

Lauren Connors

Senior Project Manager

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Appendices

Appendix A Local Water Centre Site Plan

1 Executive Summary

Jacaranda Ponds is a 185ha parcel of land adjoining the southern edge of the township of Glossodia. Cardno has been engaged by Celestino Pty Ltd to undertake an Infrastructure Services Assessment for Jacaranda Ponds. The assessment has reviewed the provisions for electrical, sewer, potable water and telecommunications utilities to service the site.

Jacaranda Ponds is a residential development and was rezoned in December 2014. The approved zoning for the site included a mix of RE1 Public Recreation, R2 Low Density Residential, R5 Large Lot Residential and SP2 Infrastructure. The approved development yield for the project was 580 residential lots, with associated roads, utilities and open space being delivered in support of the development.

Celestino are seeking an amendment to the land zoning of the subject site, to address ecological issues present at the site and to protect through land zoning amendments, existing ecological communities present at the site. The land zoning of the site will be refined to achieve this outcome while at the same time maintaining the overall residential yield for the project. The land zoning amendments will seek a different mix of RE1 Public Recreation, R2 Low Density Residential, E2 Environmental Conservation, R5 Large Lot Residential and SP2 Infrastructure across the site.

This report summarises the current status of utilities and anticipated servicing requirements to meet the needs of the development.

The service investigations indicate the site can be serviced in the following ways:

Electrical

- A new underground feeder must be installed to provide a sufficient supply to the site
- The existing overhead feeders should be utilised to improve reliability of the electrical network.

Sewer

- A local water centre is proposed to be constructed to treat sewage flows from the development
- A pressure sewer and recycled water reticulation system will be constructed, to distribute refined water to residential areas for use in non-potable uses.

Potable Water

- The closest bulk water supply is the Glossodia reservoir, located to the west of the site.
- The water infrastructure in the area is thought sufficient to supply the development, with minimal network augmentation requirements necessary.
- A review of the water network has identified four potential connection points in the vicinity of the proposed site, with the most suitable connection in terms of water pressure and minimal lead-in works required being a DN450 water main located close to 361 Spinks Rd, adjacent to the Glossodia reservoir.

Communications

- Fibre optic infrastructure will be delivered to the area as part of National Broadband Network (NBN) roll out.
- NBN Co has commenced construction of their network in adjacent areas.

2 Infrastructure Review

2.1 General

A services search has been undertaken and based on the data provided by the relevant utility providers, it is evident that the majority of the utilities required to service the proposed development site are located in close vicinity to the subject site.

A feasibility study has been conducted by Endeavour Energy and Sydney Water, the following summary reflects advice provided to Cardno by the relevant service providers.

2.2 Electrical

2.2.1 Existing Electrical

Endeavour Energy is the energy supply authority for the site.

Endeavour Energy confirmed the proposed development could be serviced, however network augmentations are required to provide a sufficient supply to service the proposed development.

Endeavour Energy has estimated a load of 3.5MVA, for the proposed residential development of 580 torrens title lots. This load cannot be supported by existing high voltage and low voltage networks surrounding and within the proposed development. There are three existing 11kV overhead feeders off Glossodia Zone Substation servicing the existing lots in the vicinity of the proposed development, however these feeders do not have sufficient spare capacity to accommodate the full expected load of the proposed development.

2.2.2 Future Requirements

To provide adequate supply for the development, a new 11kV underground feeder must be established off Glossodia Zone Substation, which will extend the network into the development allowing for suitable high voltage and low voltage reticulation. To increase overall reliability of the network, the three existing overhead feeders will be integrated into the system, allowing a sufficient supply during planned outages and maintenance.

2.2.3 Internal Reticulation

The HV reticulation network from the zone substation to service the development will be constructed by the developer.

An application to connect to Endeavour Energy's network needs to be lodged; in reply Endeavour Energy will issue a design brief outlining the requirements to service the proposed development.

2.3 Sewer Service

2.3.1 Existing Sewer

Sewer services can be provided by a number of utility suppliers (in accordance with the Water Industry Competition Act 2006); however Sydney Water is a supplier of both services and is the primary supplier within the Sydney metropolitan region. Consultation has solely been undertaken with Flow Systems for the purpose of this report.

The site is not currently serviced with Sydney Water's sewer infrastructure.

2.3.2 Future Sewer requirements

The proposed sewer servicing strategy for the development is for Flow Systems to construct and operate a water recycling facility at the site, which will operate in conjunction with pressure sewer and recycled water reticulation systems.

The local water centre is proposed to be located in the south-eastern corner of the Jacaranda Ponds development and will utilise sewage from the residential area, and through a treatment process produce high quality water. The refined water will be plumbed into houses for non-potable uses such as toilet flushing, washing machines, irrigation and car washing, thus reducing potable water demand.

The water recycling facility is an alternative to a traditional sewage treatment plan, with limited off-site impacts.

2.3.3 Internal Reticulation

A pressure sewer network will be constructed to service the proposed development. In addition, a recycled water network will also be constructed throughout the development to distribute the refined water to residents.

2.4 Potable Water

2.4.1 Existing Potable Water

The proposed development is located within the Sydney Water area of operations and therefore all water infrastructure will be designed and constructed to Sydney Water requirements and standards.

Water services can be provided by a number of utility suppliers (in accordance with the Water Industry Competition Act 2006); however Sydney Water is a supplier of both services and is the primary supplier within the Sydney metropolitan region. Consultation has solely been undertaken with Sydney Water for the purpose of this report.

The closest bulk water supply is the Glossodia reservoir, located to the west of the site. A preliminary assessment has been undertaken to assess potable water servicing to the development. The water infrastructure in the area is thought sufficient to supply the development, with minimal network augmentation requirements necessary.

A review of the water network has identified four potential connection points in the vicinity of the proposed site, with the most suitable connection in terms of water pressure and minimal lead-in works required being a DN450 water main located close to 361 Spinks Rd, adjacent to the Glossodia reservoir.

A DN375 water main that is installed within the vicinity of 103 Spinks Road located on the northern border of the proposed development area is also considered a suitable connection point.

2.4.2 Future Potable Water requirements

The proposed land release is from east to west; the initial water connection would be from the DN375 water main located at 103 Spinks Road. From this connection the internal reticulation network would be expanded as each stage of the development is released. It is recommended that as part of the final stage development, a secondary connection in the vicinity of 361 Spinks Road be made to provide reliability and robustness to the regional water supply system. This secondary connection may not be necessary from a supply aspect, as the 103 Spinks Road 450DN connection should have the capacity to supply the development.

2.4.3 Internal Reticulation

Standard water reticulation can adequately service the site, the watermain sizes are likely to be 100mm to 300mm diameter mains.

Either a water extension or Section 73 Certificate application to Sydney Water will be necessary. Sydney Water will issue a Notice of Requirements and a Developers Agreement to outline the servicing requirements for the proposed development.

2.5 Communications

2.5.1 Existing NBN

Fibre optic infrastructure will be delivered to the area as part of National Broadband Network (NBN) roll out, a Federal Government initiative to deliver high speed broadband network. NBN Co. is a company established to design, construct and operate the NBN.

NBN Co. state fibre optic infrastructure will be installed into new developments of 100 premises (dwellings/units) or more released over a three year period. It is assumed NBN Co. will service the Jacaranda Ponds development.

To confirm NBN Co. will service the site, it will be necessary to register the development with NBN Co as early as possible. Registration can be completed online at on the NBN website <http://www.nbnco.com.au/industry/new-developments.html>. All new developments requesting fibre from NBN Co. will be assessed to determine if they are within NBN Co.'s long-term fibre footprint. Information on NBN Co.'s proposed fibre footprint is available on the NBN Co. website. Registration of the development with NBN requires the submission of the Masterplan.

NBN Co. will assess the application for service and issue a Developer's Agreement to confirm the serving requirements for the site.

According to current NBN Co rollout maps, adjacent to the proposed site construction has commenced.

2.5.2 Internal Reticulation

The developer would fund the construction of the pit and pipe reticulation as per the current servicing policies.

3 Conclusion

All service reviews undertaken in this report indicate the proposed development can be serviced. The revised planning proposal does not generate any additional demand and/or any additional impact on utility services in the vicinity of the site.

APPENDIX

A

LOCAL WATER CENTRE SITE PLAN



JACARANDA PONDS | MASTER PLAN

19TH NOV 2018



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