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WATER & WASTEWATER SERVICING REPORT

101 IRONBARK ROAD, MUSWELLBROOK

Prepared for: FREEDOM DEVELOPMENT GROUP

Document no: NA231018/3

Revision no: REVISION 01

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Revisions

Revision	Description	Date	Prepared by	Approved by	Signature
01	Water & Wastewater Servicing Report	02.11.23	M Russell	G Couch/M Salatic	

Review Panel

Division/ office	Name
Newcastle	Greg Couch
Sydney	Milos Salatic

Table of Contents

1 Introduction

Freedom Development Group (FDG) are undertaking due-diligence for two adjoining properties totalling 80-hectares, identified as lot 101, DP 1170190 Ironbark Rd, Muswellbrook. The property is located within the Muswellbrook Shire Council (MSC) region, approximately 3.5km southeast of the centre of Muswellbrook. The property is currently zoned R1; General Residential and C3; Environmental Management Zone. The property is bounded by large lot residential to the south and west, general residential to the north and an environmental management zone to the east.

Freedom Development Group have engaged ACOR Consultants to assist in water & wastewater servicing feasibility assessment relating to the property to inform the development due diligence process and servicing opportunities/methodology.

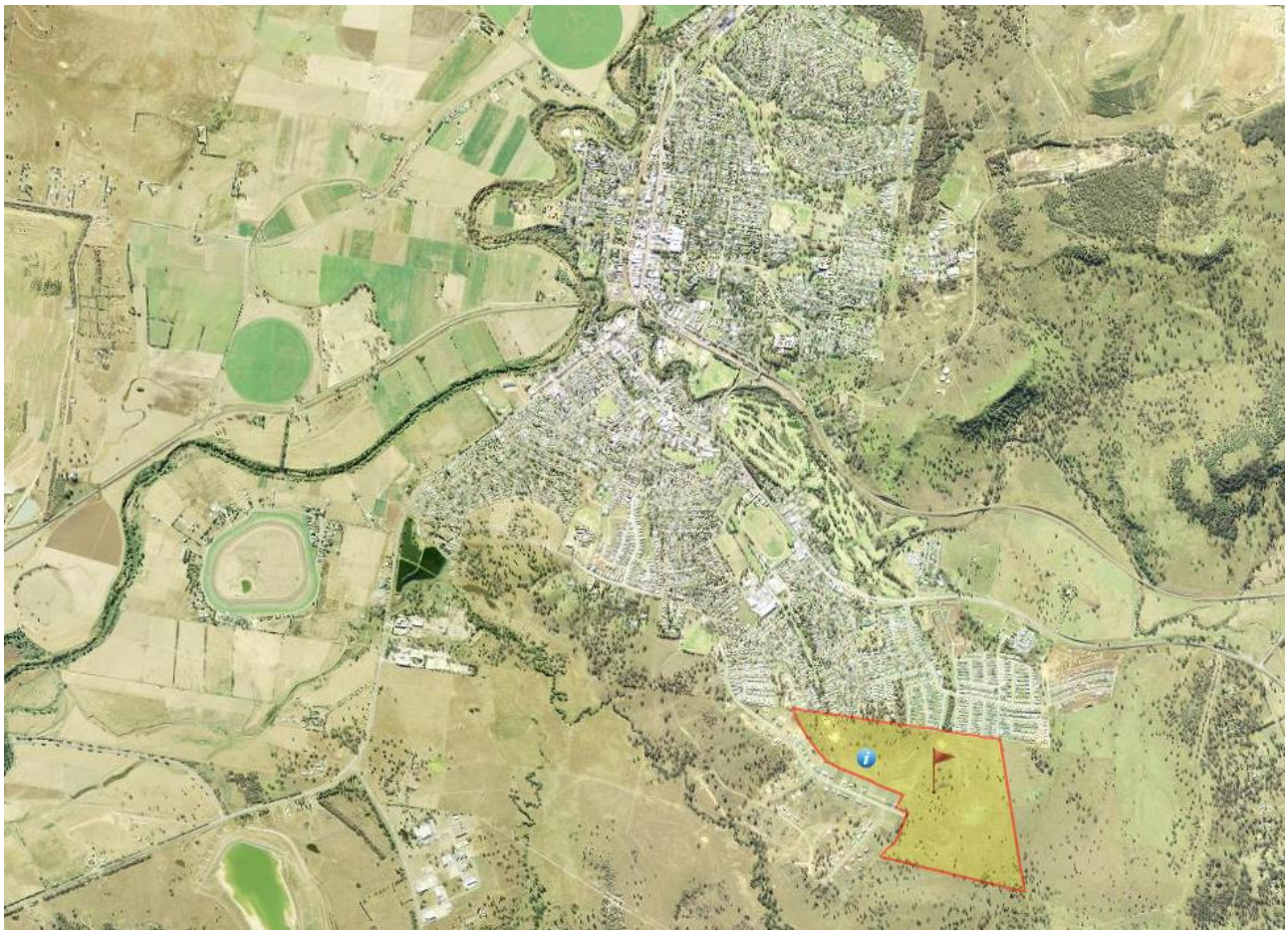

Figure 1: Site Locality Plan (Source: Six Maps)

2 Objective

The objective of this report is to help inform Freedom Property Group's due diligence process to understand options available for water and wastewater servicing of the proposed development. This will ultimately assist in Freedom Development Group's negotiations with landowners.

3 Scope

- Assessment of the property boundaries and topographical constraints.
- High level investigation of existing MSC water & wastewater assets adjacent to the property.
- Investigation of water & wastewater servicing concepts with respect to the existing water & wastewater assets.
- Identification of suitable water & wastewater servicing options.

4 Criteria

The assessment will be based on the current versions of legislation and standards which are deemed to be applicable for the project. The following publications may be relevant.

- Muswellbrook Shire Council DCP 2009
- Muswellbrook Shire Council LEP 2009
- Concept Plan 205116_layout_onsite offset_v5
- Concept Plan 205116_layout_sewer_v5-Layout1
- Muswellbrook Shire Council edition AUS-SPEC
- WSA-02: 2014 - Version 3.1 Gravity Sewer Code of Australia
- WSA-03: 2011 – Version 3.1 Water Supply Code of Australia
- AS/NZS 1546.1: 2008 – On-Site Domestic Wastewater Treatment Units Septic Tanks
- AS/NZS 1547: 2000 – On-Site Domestic Wastewater Management

5 Muswellbrook Shire Council Water & Wastewater Engineering Requirements

5.1 Water and Wastewater

- Muswellbrook Shire Council (MSC) utilise Aus-Spec Development specification accompanied with WSA-02: 2014 - Version 3.1 Gravity Sewer Code of Australia and WSA-03: 2011 – Version 3.1 Water Supply Code of Australia.

Generally, these standards, specifications and codes are considered in accordance with industry best practice. Take outs from review of the associated standards, specifications, and codes, relevant to water supply networks and servicing are as follows:

5.1.1 General:

- MSC require submission of an application for Notice of Requirements made under the Water Management Act 2000 in order to be eligible to receive a certificate of compliance under section 306 of this act.
- MSC require concept servicing plans and associated documentation (with supporting calculations, existing, proposed, and future loading etc) submitted, reviewed, and approved prior to detailed design.

- Single residential lots are considered as one (1) Equivalent Tenement (ET) for planning.

5.1.2 Water Supply Requirements:

- Minimum water main requirements are in accordance with WSA 03: 2011 – Version 3.1 Water Supply Code of Australia.
- Water mains typically aligned within the road reserve in accordance with the NSW Streets Opening Coordination Council.
- Capacity within the MSC water supply network and associated amplification/extension requirements shall be determined on receipt of a Notice of Formal Requirements.

5.1.3 Wastewater Requirements:

- Design flow estimation in accordance with WSA-02: 2014 - Version 3.1 Gravity Sewer Code of Australia, section 3.
- In accordance with WSA-02: 2014 - Version 3.1 Gravity Sewer Code of Australia.

6 Water and Wastewater Servicing Options

6.1 Water Servicing

6.1.1 Existing MSC Water Supply Assets

The subject property is located adjacent to existing developed R1 and R5 zoned land. Existing water supply assets are available for connection following assessment by MSC, however these assets are considered suitable for connection to the subject property to supply potable water, fire water and security of supply requirements given the proposed subdivision exceeds 100 lots.

An existing MSC owned water supply/pressure reservoir is located adjacent to the subject property and may provide suitable pressure and flow requirements for the development.

Further assessment of the existing water supply network, reservoirs, including pressure and flow requirements will be required to be undertaken at detailed design phase including MSC consultation to confirm capacity and suitability for connection and extension of the existing water supply network.

Refer Appendix A.

6.1.2 Water Servicing Optioneering

6.1.2.1 Watermain Extension & Reticulation.

As per section 6.1.1 above, existing MSC owned water supply assets are located adjacent to and within the subject property and may be available for connection and extension to provide the subdivision with water supply assets. Minimum water supply frontage for R1, Residential Lots is DN100.

An internal reticulation system will provide suitable water main frontage for the proposed lots. Pipe size to be determined following receipt of MSC Notice of Requirements letter. Four available water supply connection locations have been identified within Ironbark Rd, Calgaroo Ave, Acacia Dr and John Howe Cct.

An existing watermain (unknown size, material) traverses the subject property from north to south and will likely require re-alignment to a position as per MSC requirements. This water main may also provide frontage and connection for subdivided lots. Refer Appendix ‘A’.

As the lot yield is expected to exceed 100 lots, it is anticipated multiple connection to the water supply network will be necessary to satisfy security of supply requirements. The existing water supply network may accommodate this requirement subject to receipt of advice via the Notice of Requirements (NoR) letter.

A detailed assessment of the existing water supply network will be necessary and documented within a water servicing strategy. This strategy would look at existing, proposed, and future loading on the water supply network, aiming to determine any necessary upgrades/amplification to enable connection.

6.2 Wastewater Servicing

6.2.1 Existing MSC Wastewater Assets

The subject property is currently considered remote from existing MSC wastewater assets. Existing wastewater assets are located adjacent to the subject property and may provide suitable points of connection for an internal wastewater reticulation network. Refer appendix 'B'.

Further assessment of connecting wastewater assets will be necessary to determine existing capacity within the downstream networks including Wastewater Pump Stations (WWPS) and Wastewater Treatment Works (WWTW). This would be determined following MSC review and accompanying NoR.

6.2.2 Wastewater Servicing Optioneering

6.2.2.1 Gravity Reticulation and WWPS.

As noted above, the subject properties are remote from wastewater assets. On review of the topography, the vast majority could be serviced via a gravity wastewater network, connecting into existing MSC wastewater assets at multiple locations (11) as identified within appendix 'B'. Minimum wastewater connection within each lot is DN150.

The remaining proposed lots could be serviced via onsite wastewater treatment or through construction of and connection to a new WWPS, positioned at the geographic low points (south-east) of the subject property. Should a new WWPS be necessary, pumped flow could be discharged to multiple locations adjacent to the subject property.

It's noted that several wastewater connection locations are sited within third party property. Negotiation and permission to enter would be necessary.

A detailed assessment of the existing wastewater network will be necessary and documented within a wastewater servicing strategy. This strategy would look at existing, proposed, and future loading on the water supply network, aiming to determine any necessary upgrades/amplification to enable connection.

7 Cost Estimate

7.1 Water Supply Extension and Internal Reticulation

Assumes construction methodology as discussed in section 6.1.2.1.

Water Supply Reticulation. 470 lots @ $1000/lot	$470,000.00

7.2 Wastewater Extension and Internal Reticulation

Assumes construction methodology as discussed in section 6.2.2.1.

The wastewater reticulation cost estimate are based on the lot layout as per appendix 'B'.

Wastewater Reticulation. 470 lots @ $1000/lot	$470,000.00
Wastewater Pump Station	$500,000.00

Please note, this cost estimate is considered to be in accordance with Class 5 estimate, as per AACE International Recommended Practice No. 18R-97.

ESTIMATE CLASS	LEVEL OF PROJECT DEFINITION Expressed as % of complete definition	END USAGE Typical purpose of estimate	METHODOLOGY Typical estimating method	EXPECTED ACCURACY RANGE Typical variation in low and high ranges [a]	PREPARATION EFFORT Typical degree of effort relative to least cost index of 1 [b]
Class 5	0% to 2%	Concept Screening	Capacity Factored, Parametric Models, Judgment, or Analogy	L: -20% to -50% H: +30% to +100%	1

8 Conclusion

Following review and assessment of the subject property located at lot 101, DP 1170190 Ironbark Rd, Muswellbrook, against MSC and WSA codes, standards and policies, water and wastewater servicing of the subject property is considered feasible.

It is anticipated that existing MSC water and wastewater assets will support connection and servicing of the subject property, however, further detailed assessment and consultation with MSC will be necessary to determine existing capacity and future loading on the existing water and wastewater networks.

This report has identified water and wastewater network supply alignments that are considered in-line with MSC's and WSA requirements and minimum standards.

Water & Wastewater Internal Reticulation: Considered feasible. Further assessment required following pre-DA and receipt of MSC Notice of Requirements (NoR).

In conclusion, it is anticipated the development site can be suitably serviced from a water supply and wastewater servicing perspective. Options as listed will enable Freedom Development Group to make an inform decision on future servicing whilst being in accordance with Muswellbrook Shire Council and the Water Services Association of Australia requirements and standards.

Yours faithfully,

ACOR Consultants Pty Ltd

Matthew Russell
Senior WSC Project Manager/Designer

Appendix A - Water Servicing Optioneering

POTABLE WATER CONNECTION 1

POTABLE WATER CONNECTION 2

POTABLE WATER CONNECTION 3

POTABLE WATER CONNECTION 4

EXISTING WATER MAIN TO BE RE-ALIGNED TO SIT WITHIN COUNCIL WATER MAIN ALLOCATION, APPROX 0.8M BOK

R1 GENERAL RESIDENTIAL (413 LOTS)

R5 LARGE LOT RESIDENTIAL (57 LOTS)

OFFSET AREA (15.04ha Excluding Detention Basisns)

NOTE:
THIS PLAN HAS BEEN PREPARED FOR MR. IAN AND MRS. FAYE WEBBER FOR THE PURPOSES OF AN APPLIACTION FOR REZONING OF THE LAND. THE LOT LAYOUT IS SUBJECT TO CHANGE PENDING CONSULTATION WITH MUSWELLBROOK SHIRE COUNCIL.
THIS NOTE FORMS AN INTEGRAL PART OF THIS PLAN.

MM HYNDES BAILEY & Co.
REGISTERED SURVEYORS - TOWN PLANNING - CIVIL DESIGN
Surveying the Hunter since 1920
Ph: 02 65432475 Fax: 02 65434400 Email: office @hbsurveys.com.au
PO Box 26, MUSWELLBROOK NSW 2333

PLAN OF SUBDIVISION OF LOT 101 & 103 IN DP1170190
PROPOSAL IF ON-SITE OFFSETS USED

H.SCALE 1:2500	DATUM
VERT. SCALE	CONTOUR INTERVAL Varies
DATE 20.08.2020	FILE 205116 offset_v5
MICHAEL COLE Registered Land Surveyor	

CLIENT: MR IAN WEBBER

LGA: MUSWELLBROOK	SHEET 1	OF SHEETS 1
PARISH: BROUGHAM	JOB REF: 205116	
COUNTY: DURHAM		

Appendix B - Wastewater Servicing Optioneering

SEWER CONNECTION 1

SEWER CONNECTION 2

SEWER CONNECTION 3

SEWER CONNECTION 4

SEWER CONNECTION 5

SEWER CONNECTION 6 & 7

SEWER CONNECTION 8 & 9

SEWER CONNECTION 10

SEWER CONNECTION 11

FUTURE DRAINAGE EASEMENT

Diuris Tricolor (Donkey Orchid) Reserve

OFFSET AREA

JOHN HOWE CIRCUIT

WANARUAH CIRCUIT

CALGAROO AVE

IRONBARK ROAD

DP1156856

DP740809

DP1170190

DP597534

R1 GENERAL RESIDENTIAL (413 LOTS)

R5 LARGE LOT RESIDENTIAL (57 LOTS)

OFFSET AREA (15.04ha Excluding Detention Basisns)

POTENTIAL TO SERVICE LARGER LOTS VIA CONNECTION TO PROPOSED WWPS, VIA ONSITE WASTEWATER TREATMENT OR GRAVITY CONNECTION TO COUNCIL SEWER MAIN

POTENTIAL LOCATION OF WWPS

NOTE:
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