

SERVICING STRATEGY – SENIORS HOUSING DARRELL RD, CALALA

*Prepared for **Tony & Linda Summers***

16 JANUARY 2019

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Document Status

Version	Purpose of Document	Orig	Review	Review Date
Ver.1	Council Review	I.M.		

Approval for Issue

Name	Signature	Date
Ian Murphy		

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Terms and Abbreviations

AHD	Australian Height Datum
RL	Reduced Level
RPS	RPS Australia East Pty Ltd
TRC	Tamworth Regional Council

I.0 Introduction

RPS Australia East Pty Ltd has been commissioned by Perception Planning on behalf of Tony & Linda Summers to prepare a water and sewer servicing report for a proposed Seniors Housing development at 47 Darrell Rd, Tamworth.

Tamworth Regional Council required anticipated water demand and sewer loadings to determine whether there is capacity available in the existing systems to service the proposed development.

I.1 Location

The development site is Lot 1 DP220319 No.47 Darrell Rd, Calala. The proposed development will occupy approximately 9.4ha of the site.

I.2 Methodology

Consultation has been undertaken with Tamworth Regional Council (TRC) for the provision of water and sewer services to the proposed development.

2.0 Water

The development site is traversed a by a 150mm watermain and is adjacent to the Calala Pressure Boosted Zone. The Calala Pressure Boosted Zone will need to be expanded to include the development site.

The 150mm watermain does not form part of the Calala Pressure Boosted Zone and as such a main extension will be needed to service the site. The proposed watermain extension involves the construction of approximately 100m x 150mm main along Darrell Rd to provide the development site with a frontage.

The proposed development footprint is over the existing watermain and as such the main will need to be relocated. The proposed watermain relocation involves the construction of approximately 175m x 150mm main.

TRC has advised that the proposed development will need to connect to the Calala Pressure Boosted Zone. The zone is highlighted on the plan attached in **Appendix 2**.

Design water demands for the development are detailed below. TRC will use this information to determine whether there is capacity available in the existing system to service the proposed development.

A plan indicating the existing water infrastructure and proposed watermain relocation is in **Appendix 2**.

2.1 Design Water Demands

Design flows for development in the study area have been estimated using values in the Water Services Association of Australia (WSAA) Water Supply Code of Australia Version 2.0 to determine theoretical loadings in equivalent tenements (ET). An ET is the theoretical water demand for an average residential lot. The criteria used to determine theoretical water design flows are summarised below:

Average Day Demand for new residential properties is based on 230 kL/yr

For this project loadings have been determined at:

Independent Living Unit = 0.5 ET

2 Bedroom Home = 1.0 ET

3 Bedroom Home = 1.0 ET

- Average Day Demand (L/s) = 0.0073/ET
- Peak Day Demand (L/s) = ADD x PDD Factor
- Peak Day Factor – 2.2
- Unaccounted Water = 15% of Average Day Demand

Design flows based on the proposed development yield are shown in **Table 1** below:

Table 1 Total Theoretical Water Demand

Development Type	Estimated ET	Average Day Demand (l/s)	Peak Day Demand (l/s)	Unaccounted Water (l/s)
20 x Independent Living Units	10	0.07	0.33	0.01
30 x 2 Bedroom Homes	30	0.22	0.89	0.03
19 x 3 Bedroom Homes	19	0.14	0.59	0.02
Total	59	0.43	1.63	0.07

3.0 Sewer

The development site does not have a point of connection to the existing TRC sewer reticulation system. There are reticulation mains adjacent to the site in Darrell Rd which can be extended to provide the site with an adequate point of connection.

Provision of a point of connection will involve the construction of approximately 8m x 150mm sewermain.

Design sewer loadings for the development are detailed below. TRC will use this information to determine whether there is capacity available in the existing system to service the proposed development.

A plan showing existing sewer infrastructure in the vicinity of the proposed development site and the proposed sewermain extension is attached as **Appendix 2**.

3.1 Design Sewerage Loading

Design flows for development have been estimated using values in the Water Services Association of Australia (WSAA) Sewerage Code of Australia Version 2.0 to determine theoretical loadings in equivalent tenements (ET). An ET is the theoretical sewage flow from an average residential lot.

The criteria used to determine theoretical sewer design flows are summarised below:

For this project loadings have been determined at:

Independent Living Unit = 0.67 ET

2 Bedroom Home = 1.0 ET

3 Bedroom Home = 1.0 ET

- Average Dry Weather Flow (ADWF) = 0.011l/s per ET
- Peak Dry Weather Flow (PDWF) = ADWF x 'r'
- Storm Allowance = 0.058 l/s per ET (for gravity systems)
- Peak Wet Weather Flow (PWWF) = PDWF + SA

Note: 'r' factor is from an empirical relationship based on ET.

Design loadings based on the proposed development yield are shown in **Table 2** below:

Table 2 Overall Sewer Loadings

Development Type	ET	ADWF	r	PDWF	SA	PWWF
		(L/s)		(L/s)	(L/s)	(L/s)
20 x Independent Living Units	13.4	0.15	4.00	0.59	0.78	1.37
30 x 2 Bedroom Homes	30	0.33	4.00	1.32	1.74	3.06
19 x 3 Bedroom Homes	19	0.21	4.00	0.84	1.10	1.94
Total	62.4	0.69	3.53	2.42	3.62	6.04

4.0 Conclusion

Liaison with Tamworth Regional Council indicates that water and sewer mains are available in the immediate vicinity of the site that can be extended to provide the development with adequate points of connection.

TRC need to complete modelling of the existing water and sewer systems to confirm whether there is capacity available to service the proposed development.

It should be noted that if there is not enough capacity available augmentation of the existing water & sewer systems may be required.



Appendix I

Authority Correspondence

Ian Murphy

From: Hill, Doug <d.hill@tamworth.nsw.gov.au>
Sent: Friday, 23 November 2018 12:35 PM
To: Ian Murphy
Cc: Morgan, Nathan; Manners, Alex; Lobsey, Sam
Subject: [EXT] RE: Seniors Living Darrell Road, Calala
Attachments: Scan from RWH Xerox

Hi Ian,

In response to your enquiry below regarding the proposed seniors living development at 47 Darrell Road, it would be acceptable to Council for you to calculate the water and sewer loadings for the development from the WSAA Guidelines. When submitting the additional information and loadings could you please document the adopted values for the various parameters and any assumptions that may be relevant to our review of the projected loadings.

With regard to sewer main information I've attached a plan showing the existing mains and SPS at the end of Darrell Road.

The RL indicated at each manhole is the level at centre of manhole cover and the Depth is the depth from centre of manhole cover to invert.

Contour levels are LiDAR levels from Council's GIS system.

We recommend that all levels be verified on site.

Water supply to the development will need to be provided via the Calala Pressure Boosted System.

I've included a plan which indicates this zone as highlighted in pink.

Also attached is a plan of the reticulation main at the end of Darrell Road.

When the projected loadings are available we will need to model whether there is adequate capacity within the systems cater for the proposed development.

Please give me a call if you have any questions or require additional information.

Regards,

Doug Hill

Water Strategy, Developments and Infrastructure Manager

Tamworth Regional Council

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~ Tamworth Country Music Festival 2017 ~ Friday 18 to Sunday 27 January 2019 ~ www.tcmf.com.au

From: Ian Murphy [mailto:Ian.Murphy@rpsgroup.com.au]
Sent: Wednesday, 21 November 2018 8:22 AM
To: Hill, Doug
Subject: Seniors Living Robert St Calala

Hi Doug

RPS has been engaged to provide the additional information required by Council for the proposed Seniors Living Development at 47 Darrell Rd, Calala. Would you like us to determine water and sewer loadings from the WSAA Guidelines or does TRC have local figures you would like us to use.

Could you please also provide plans of the nearest water and sewer mains so we can prepare concept designs. Would be ideal if we could get invert and surface levels on the sewer.

Please give me a call if you would like to discuss.

Cheers

ian



Ian Murphy

Practice Leader / Water & Sewer Strategist

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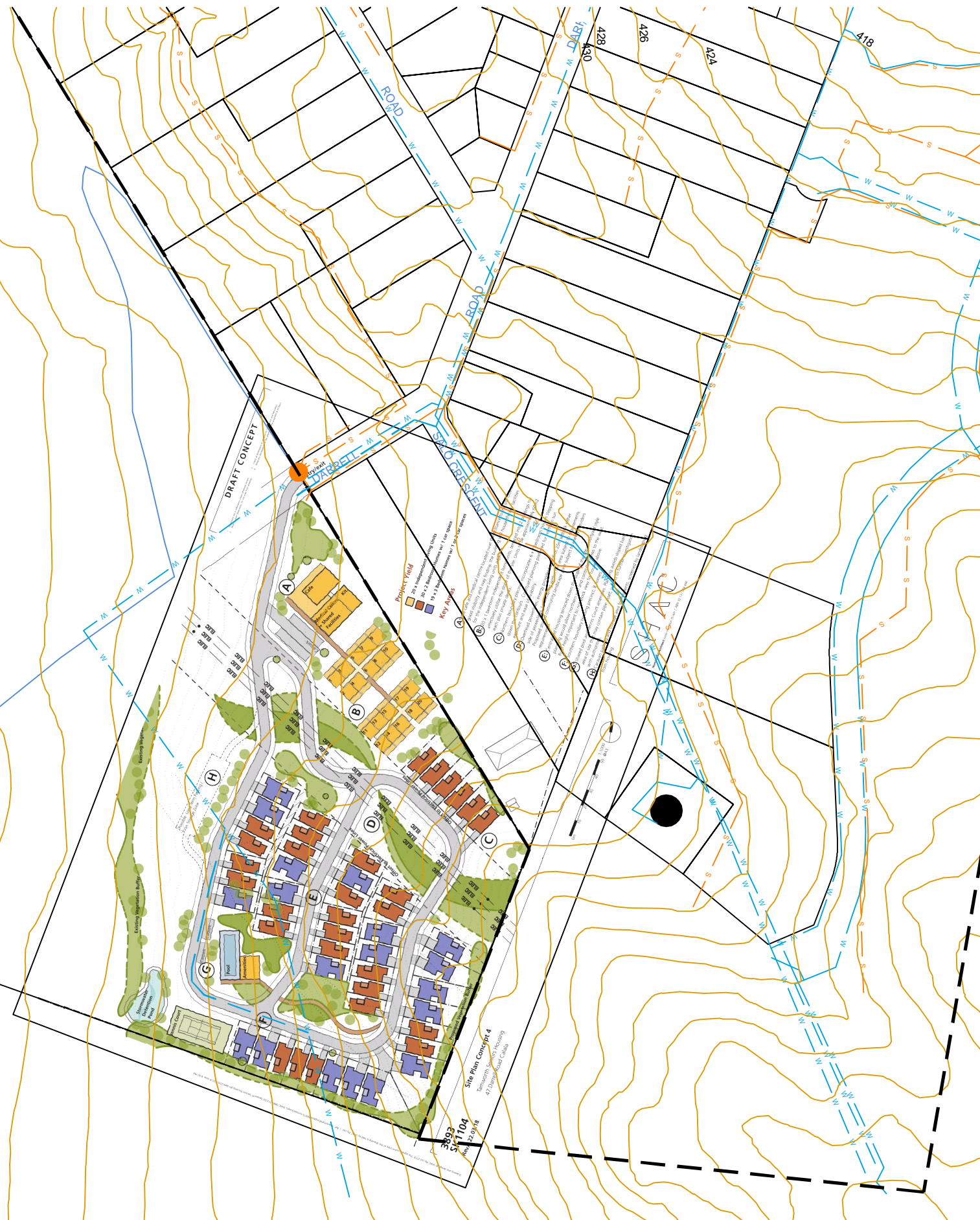


Appendix 2

Water & Sewer Infrastructure

LEGEND

- S — EXISTING SEWER
- W — EXISTING WATER
- W — PROPOSED WATER
- S — PROPOSED SEWER
- CALALA PRESSURE BOOSTED ZONE
- EXISTING SEWER PUMP STATION
- EXISTING RESERVOIR



0 50 100 150
SCALE 1 : 3000 (A3)

CLIENT:
TONY & LINDA SUMMERS

PROPOSED DEVELOPMENT
DARRELL ST
CALALA

REF: 142623 SCALE: 1:3000
DATE: 17.01.2019 ORIGINAL SIZE: **A3**

DRAWN: NW DESIGNED: IM SHEET 1 OF 2 SHEETS

PRELIMINARY ISSUE

			REV:
			A
A	17.1.2019	PROPOSED WATER & SEWER	IM