

Yarrabilba Precinct 7 Town CentreRAL1 Precinct Network Plan – Water and Wastewater Infrastructure

PREPARED FOR Stockland | March 2026

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PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

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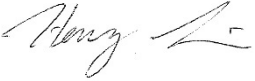
Revision schedule

Rev No	Date	Description	Signature of Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
00	27/10/2025	Draft for Stockland Review	H Lin	H Lin	-	-
01	27/11/2025	Final	H Lin	H Lin		
02	27/03/2026	Revision (EDQ comments addressed)	H Lin	H Lin	P Hall	P Flint

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Quality statement

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1 Introduction

This report outlines the requirements for the water and sewerage network for Precinct 7 Town Centre RAL1 located in the Yarrabilba development.

In accordance with the Yarrabilba Precincts 7 Town Centre Context Planning Area Strategy (Precinct 7 Town Centre CPAS) endorsed by Economic Development Queensland (EDQ), Precinct 7 Town Centre RAL1 is located to the south of approved Precinct 3D non-residential and to the west of Precinct 4 residential developments (refer to Figure 1). This RAL comprises of 24.9 ha of five non-residential lots (refer to Appendix A).



Figure 1: Locality of Precinct 7 Town Centre RAL1 Development

1.1 Previous Assessments

An infrastructure master plan (IMP) report entitled *Yarrabilba Water Supply and Sewerage – Infrastructure Master Plan 2017* was submitted to EDQ and endorsed by EDQ in August 2017 outlining the water supply and sewerage requirements for the entire Yarrabilba development area (it is noted that a 2023 IMP revision report will be also submitted to EDQ in September 2023). These works were based on an earlier proposed land use master plan with a total Yarrabilba equivalent persons (EP) of 46,869 EP and 47,647 EP for water and sewerage respectively. EDQ and Logan City Council (LCC) also instructed that an additional 1,486

future detached residential dwellings or 4,162 EP external to Yarrabilba are also in the priority development area (PDA) and are to be considered in the water and sewerage infrastructure plan.

Following the IMP, Precinct Network Plan (PNP) reports were prepared for the Precincts 1 to 6 and 8. A PNP is a detailed planning document that identifies all trunk infrastructure to service the proposed Precinct both internal and external to the site. These PNP reports include both interim and ultimate solutions in accordance with the revised regional strategy agreed by both EDQ and LCC.

For the water infrastructure, the PNP includes details of all the water infrastructure required to deliver peak demand, fire flow and pressure management (as required), including layout plans, pipe sizes, and details of pressure reduction areas and equipment.

For the sewerage infrastructure, the PNP includes details of all the sewerage infrastructure required, including layout plans, pipe sizes, conceptual design of the new pump station, vertical alignment of controlling sewer, and conceptual design of interim servicing infrastructure required to address development staging and odour/corrosion control.

Seven PNP reports were prepared for the Precincts 1 to 6 and 8. This PNP report is proposed for the Precinct 7 Town Centre RAL1 development.

1.2 Precinct 7 Town Centre RAL1

There are five non-residential lots and lands for street reserves, centre collector and access in the Precinct 7 Town Centre RAL1 development area (refer to Figure 2). It is noted that Lot 2 also comprises 248 senior living apartments development.

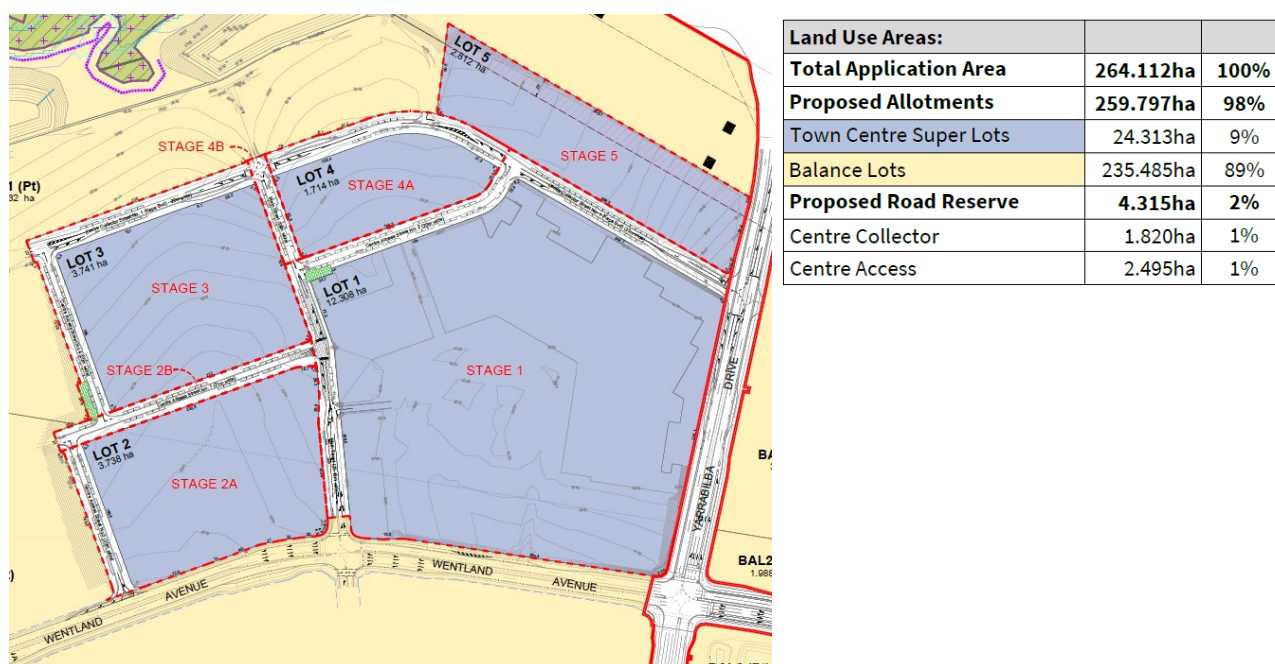


Figure 2: Precinct 7 Town Centre RAL1 Development Contents

1.3 Development Timeline

Stockland advises that the Precinct 7 Town Centre RAL1 development is likely to start in 2026 and this study assumes that the entire Precinct 7 Town Centre RAL1 development would be completed throughout 2027/2028.

2 Desired Standards of Service

The Desired Standards of Service (DSOS) adopted for this assessment are in accordance with the 2018 DSOS review report provided by LCC. The DSOS is provided in Appendix B and the key criteria are provided in the following sub-sections.

2.1 Water DSOS

An average day potable water demand (AD) of 165 L/EP/day plus an unaccounted for water (UFW) allowance of 25 L/EP/day was adopted. Adopted water supply peaking factors are summarised in Table 2-1.

Table 2-1: Potable Water Demand Peaking Factors

Peaking Factors	Residential Detached	Residential Attached	Commercial Education	Industry
Maximum Day (MD) / AD	1.7	1.6	1.3	1.3
Maximum Hour (MH) / AD	3.1	2.6	2.0	1.7
Mean Day Maximum Month (MDMM) / AD	1.3	1.3	1.2	1.2

The key water infrastructure sizing criteria applied to this study are outlined in Table 2-2.

Table 2-2: Potable Water Demand Peaking Factors

Parameter	Description
Minimum service pressure	22 m at the property boundary
Maximum service pressure	55 m
Fire flow demands	Residential: 15 L/s Non-Residential: 30 L/s
Residual pressure during fire flow event	12 m at the fire flow location
Background demand during fire	2/3 MH demand
Maximum allowable pipe headloss	5 m/km for diameter ≤ 150 mm 3 m/km for diameter > 150 mm

2.2 Sewerage DSOS

An average dry weather flow (ADWF) of 165 L/EP/day is adopted for this study in accordance with the 2014 LCC DSOS. As 'Reduced Infiltration Gravity Sewers' (RIGS) are utilised in the Yarrabilba development, the peak weather flow (PWWF) was calculated based on 1,000 L/EP/day. It is noted that gravity mains are designed to transfer PWWF of 1,000 L/EP/day with a depth of flow of 75% pipe depth and to meet self-cleansing velocities.

3 Population Development

3.1 Approach

Expected population growth and EP were assessed based on the proposed subdivision layouts (provided by Stockland) and the occupancy rates/densities agreed with LCC.

The residential populations for Precincts 1 to 6 and 8 were calculated using the following methodology:

- A lot-count was performed for areas where the subdivision layout was complete and where the future layout was sufficiently detailed.
- Terrace houses, town houses and senior living apartments were regarded as attached residential dwellings in the developed Precincts 1 to 3.
- Where the future layout was not available 11.2 % of the total number of residential lots was assumed to be attached residential dwellings

The projected yield for each village of future precincts (Precincts 9 to 17) of the Yarrabilba development was provided by Stockland. The map of future precincts outlines the extent of future commercial, industrial, open space and varying densities of residential development within the Yarrabilba PDA. The projected number of dwellings for each of future precincts was provided by Stockland (refer to YAR_CA_LL_241118.xlsx). The development staging plan provided by Stockland is also included in Appendix C. These documents form the basis of long-term population projection assessment.

3.2 Planning Densities and Occupancy Rates

The following planning density and occupancy rates were used for estimating the EP for Precincts 1 to 6:

- Residential occupancy rates:
 - Detached dwelling: 2.8 EP/dwelling
 - Attached dwelling: 1.78 EP/dwelling.
- Planning densities for non-residential development without the gross floor area (GFA) information:
 - Commercial and Industrial: 30 EP/ha (water) and 37 EP/ha (sewerage)
 - Education state and private primary schools: 166 EP, as per the Precinct 2 Yarrabilba State School population (138 EP) plus 20% planning allowance.
 - Education state and private high schools: 187 EP, as per the Precinct 3 Yarrabilba State Secondary College population (156 EP) plus 20% planning allowance.
 - Toilet block: 1.1 EP/toilet.
- Non-residential conversion rates for the non-residential development with the GFA information (refer to Table 3-1):

Table 3-1: LCC Non-residential EP Conversion Rates

Non-residential Development Type	Water EP per ha GFA	Sewerage EP per ha GFA
Commercial	55.9	50.31
Office	55.9	50.31
Warehouse Distribution	55.9	50.31
Education	105.3	84.24
Health	226.5	203.85
Industry Heavy	56.6	45.28
Industry Medium	47.25	37.8
Industry Light	37.8	30.24

Non-residential Development Type	Water EP per ha GFA	Sewerage EP per ha GFA
Retail Services	97.6	87.84
Showroom Bulk Goods	110.8	99.72
Accommodation	233.9	210.51

3.3 Population Summary

Precinct 7 Town Centre RAL1 comprises of five non-residential lots and 248 senior living apartments in Lot 2 (refer to Figure 2). A total of 1,744.1 EP for water and 1,593.2 sewerage EP were estimated for Precinct 7 Town Centre RAL1 in accordance with the planning densities documented above.

A summary of the EP in both earlier Precincts and Precinct 7 Town Centre RAL1 is provided in Table 3-2 and Table 3-3. The development applications of Precinct 8 ROL3 and Precinct 5 MIBA South ROL1 are also included and assumed to be developed before 2028.

Table 3-2: Estimated 2028 Water EP for Precincts 1 to 4, Precincts 6, Precinct 8 ROL1, Precinct 5 MIBA North & South ROL1 and Precinct 7 Town Centre RAL1

Precinct / Village	Residential Detached	Residential Attached	Commercial Employment/Retail/Community	Education	Total EP	Estimated 2028 EP*
1	1,658	110	375	101	2,244	2,244
2	5,432	320	0	392	6,144	6,144
3A	605	255	44	214	1,118	1,118
3B	1,249	59	0	0	1,308	1,308
3C	610	0	0	0	610	610
3D	0	0	317	0	317	317
4A	430	35	0	0	465	465
4B	405	33	0	133	571	571
4C	303	24	0	0	328	328
4E/6A	1,725	139	0	0	1,864	1,864
4D	1,021	82	0	0	1,104	1,104
5A MIBA North	0	0	393	0	393	393
6 ROL1	1,492	52	0	0	1,544	1,544
6 ROL2	1,159	100	0	0	1,259	1,259
4G (previously 5F)	325	0	0	0	325	325
6 ROL3	201.6	10.7	0	0	212.3	212.3
8 ROL1	2,337	59	0	0	2,397	2,397
5 MIBA South ROL1	0	0	438	0	438	438
4H (previously 5H)	392	0	9.1	0	401	401
7 Town Centre RAL1	0	414.4	1,096.2	206.4	1,744.1	1,744.1
Total	19,346	1,720	2,673	1,046	24,785	24,785

*: Based on development approvals up to and including 2028.

Table 3-3: Estimated 2028 Sewerage EP for Precincts 1 to 4, Precincts 6, Precinct 8 ROL1, Precinct 5 MIBA North & South ROL1 and Precinct 7 Town Centre RAL1

Precinct / Village	Residential Detached	Residential Attached	Commercial Employment/Retail/Community	Education	Total EP	Estimated 2028 EP*
1	1,658	110	460	101	2,329	2,329
2	5,432	320	0	392	6,144	6,144
3A	605	255	55	214	1,129	1,129
3B	1,249	59	0	0	1,308	1,308
3C	610	0	0	0	610	610
3D	0	0	390	0	390	390
4A	430	35	0	0	465	465
4B	405	33	0	133	571	571
4C	303	24	0	0	328	328
4E/6A	1,725	139	0	0	1,864	1,864
4D	1,021	82	0	0	1,104	1,104
5A MIBA North	0	0	484	0	484	484
6 ROL 1	1,492	52	0	0	1,544	1,544
6 ROL 2	1,159	100	0	0	1,259	1,259
4G (previously 5F)	325	0	0	0	325	325
6 ROL3	201.6	10.7	0	0	212.3	212.3
8 ROL1	2,337	59	0	0	2,397	2,397
5 MIBA South ROL1	0	0	540	0	540	540
4H (previously 5H)	392	0	11.2	0	403.2	403
7 Town Centre RAL1	0	414.4	986.6	165.1	1,593.2	1,593.2
Total	19,346	1,720	2,927	1,005	24,997	24,997

*: Based on development approvals up to and including 2028.

4 Water Supply Network Assessment

Water supply to the Yarrabilba development Precinct 7 Town Centre RAL1 is provided from the Travis Road reservoirs. In the interim, supply to Travis Road reservoirs is provided from the South Maclean pumping station with the long-term plan for supply being provided through a new connection to the Southern Regional Water Pipeline (SRWP) at Chambers Flat.

4.1 Water Demand

The ultimate maximum day (MD) and mean day maximum month (MDMM) demands for Precincts 1 to 6 and Precinct 8 ROL1 were calculated in accordance with the LCC DSOS stated in Section 2.1, and are summarised in Table 4-1. The sources of modelled population are:

- Precincts 1, 2 and 3A and 3B: Directly extracted from LCC water reticulation model, which includes the 2021 LCC infrastructure demand model (IDM) outcomes.
- Precincts 3C, 4, 5A MIBA North, 6, 8 ROL1, MIBA South ROL1 and Town Centre RAL1: Updated population (refer to Table 3-1) based on the development yields and layout provided by Stockland.

Table 4-1: Yarrabilba Precincts 1 to 4, 5A MIBA North, 6, 8 ROL1 and MIBA South ROL1 Demand Summary

Category	MD (ML/d)	MDMM (ML/d)
Detached residential	5.8	4.4
Attached residential	0.5	0.4
Commercial / education	0.6	0.5
Industry	0.2	0.2
Open space	0.0	0.0
Leakage/loss allowance	0.6	0.6
Total (ML/d)	7.7	6.2

In addition, fire flow was also considered at a requirement of 15 L/s for residential properties and 30 L/s for non-residential properties at a background demand of 2/3 peak hour.

4.2 Storage and Bulk Supply Assessment

The required reservoir volume to serve the Yarrabilba Precincts 1 to 4, 5A MIBA North, 6, 8 ROL1, MIBA South ROL1 Town Centre RAL1 plus 2026 Logan Village population (extracted from the LCC water reticulation model) was estimated as 6.1 ML. The existing Travis Road reservoir capacity is 9 ML. Hence there will be sufficient storage for Yarrabilba development until the end of Precinct 7 Town Centre RAL1 development.

LCC advised the timing of two sub-regional trunk mains for construction are as below:

- **600 mm diameter trunk main between the Seqwater SRWP and Travis Road reservoirs:** LCC advised that this trunk main will be delivered by the end of 2026.
- **600 mm diameter trunk main from the Travis Road Reservoir outlet on Camp Cable Road to the development:** LCC advised the schedule of this trunk main has been postponed and is constantly reviewed and monitored based on the real/operational demands growth from Logan Village and Yarrabilba. LCC will use their hydraulic network model with the operation scenario and interim solution to assist this study to access the need of this augmentation for the Precincts 1 to 4, 5A MIBA North, 6, 8 ROL1, MIBA South ROL1 and Town Centre RAL1 development (refer to Section 4.4).

4.3 Proposed Precinct Water Supply Layout

Precinct 7 Town Centre RAL1 will be also served by the new DN450 mm trunk water main (refer to the Figure 4.3 Ultimate Yarrabilba Water Network in the IMP report) on Yarrabilba Drive from the Precinct 3 development. One DN200 mm reticulation main teed of the DN450 Yarrabilba Drive trunk main is connected to the proposed Town Centre RAL1 reticulation mains shown in in Figure 3.

It is noted that the Wentland Avenue trunk main sizes were approved in 2024 and constructed now. Also, three more contingency connections between the Wentland Avenue trunk main and future Town Centre water reticulation mains have been provided along with the Wentland Avenue trunk main construction (part of Town Centre East-West Road construction, refer to approved memorandum, April 2024, in Appendix H).

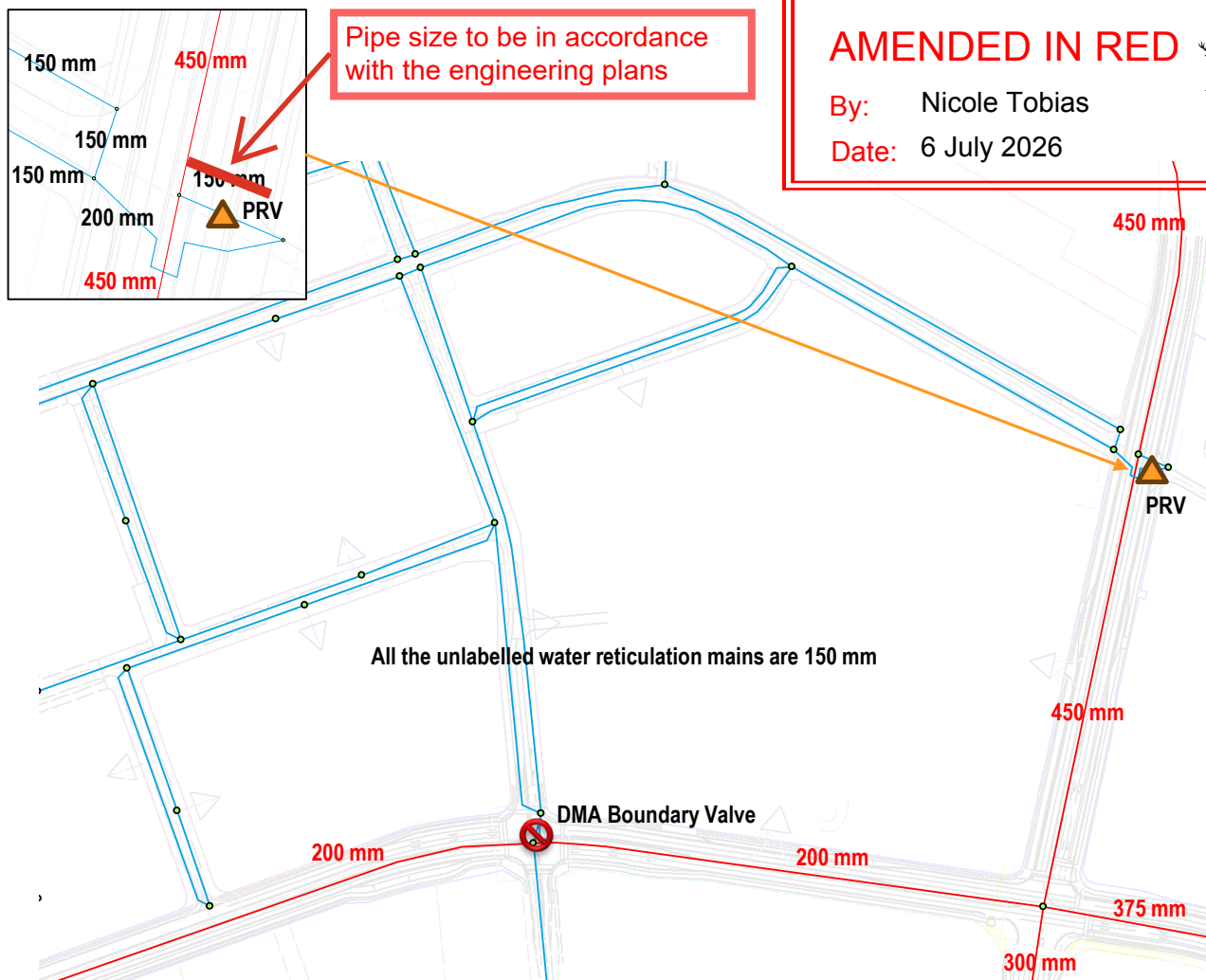


Figure 3: Proposed Precinct 7 Town Centre RAL1 Water Reticulation Mains

The preliminary elevations of the five Town Centre non-residential lots range from 38.5 m AHD to 46.5 m AHD. By comparing with the top water level (TWL) of 110 m AHD at the Travis Road reservoirs to the development elevations it is proposed that a new DMA with a modulated pressure reduce valve is required to comply with LCC DSOS.

The hydraulic performance of the network including Yarrabilba DMAs was assessed against the LCC DSOS with the forecast population in the ultimate planning horizon. Performance under the maximum hour (MH) demand scenario and the fire flow scenario were assessed, and the assessment outcomes are provided in Appendix D.

The detailed DMA device and cabinet drawings will be aligned with the LCC approved Precincts 6 and 8 DMA.

This study has updated the background future Yarrabilba population as 28,566 EP (the rest of Stockland Precincts 9 to 17 plus four external lots in the Yarrabilba PDA) based on the projected yield of each village of future precincts (Precincts 9 to 17) of the Yarrabilba development provided by Stockland. The Ultimate DMA, network size and layout required for servicing early precincts were approved in the 2022 endorsed PNP report assessment and therefore have not been reviewed in this report.

4.4 Interim Solution Assessment

Before the 600 mm diameter Travis Road Reservoir outlet trunk main is constructed, LCC advised that the interim operation scenarios will be checked through the LCC current InfoWorks WS Pro hydraulic model with the preferred operational settings and interim solution (a boost pump station downstream the Travis Road reservoir).

5 Sewerage Network Assessment

5.1 Overview of Sewerage System

Sewage from Precinct 1 and western portion of Precinct 2 are served by the existing pumping station SPS-084. Sewage from the eastern portion of Precinct 2 and western part of Precinct 3A are collected by the existing gravity sewers servicing Precincts 1 and 2 which deliver sewage to pumping station SPS 087. Pumping station SPS 087 transfers flow through the existing 200 mm diameter rising main to pumping station SPS 084. This pumping station transfers sewage via a 300/375 mm diameter rising main to LCC's Logan Village pumping station (SPS 081) and then to Chambers Flat and ultimately to the Loganholme sewerage treatment plant (STP).

Sewage from the eastern part of Precinct 3A, Precincts 3B, 3C, 3D, all stages of Precinct 4, Precinct 6, Precinct 5A MIBA North, Precinct 8 ROL1 and Precinct 5 MIBA South ROL1 will gravitate to the interim pumping station, SPS 153, located in the Precinct 3D area to the west of Yarrabilba Drive. The interim pumping station will be replaced in future by an ultimate regional pumping station PS 3, which is proposed to service approximately 50,000 EP. The interim pumping station SPS 153 transfers flows to SPS 084 and then to LCC's wastewater network at Logan Village.

The combined design flow for Precinct 7 Town Centre RAL1 lots are as follows:

- ADWF of 3.0 L/s; and
- PWWF of 18.4 L/s.

Sewage from Precinct 7 Town Centre South RAL1 lots will be collected by the local DN150 reticulation network before being transferred by the DN225/DN300/DN375 and DN675 trunk sewers to the pumping station SPS 153 (interim) or PS 3 (ultimate). The preliminary sewerage reticulation layout is provided in Appendix F. The revised PS3 catchment trunk sewerage infrastructure plan is provided in Appendix G. As the previous Yarrabilba precinct applications, the detailed longitudinal sections will be sent to LCC for further approvals before the construction phase.

5.2 Sewerage Interim Solution Assessment

In Section 5.1 of the 2018 endorsed PNP report, it was agreed with LCC that pumping station SPS 084 along with the 2 ML storage and the downstream Logan Village/Chamber Flats trunk infrastructure can service a capacity of 12,729 EP from the Yarrabilba development. This capacity cap was revised by the 2021 LCC study 'Chambers Flat Road 2 SPS Strategy Review - IP0011'. LCC recently advised that the spare capacity for the Yarrabilba development between SPS 084 and the Chambers Flat 2 pumping station is between 20,420 EP and 25,000 EP assuming that a 2 EY (twice in one year) event containment standard is adopted. This revised capacity cap is higher than the total sewerage EP of 23,001 EP from the Yarrabilba Precincts 1 to 4, 5A MIBA North, 6, 8 ROL1, MIBA South ROL1 and Precinct 7 Town Centre RAL1 development. A summary of the recent LCC capacity assessment is provided in Appendix E.

LCC latest assessment shows the SPS 153 'static' capacity is 6,869 EP, which equates to 79.5 L/s at 1,000 L/EP/day PWWF loading. The population contributing to SPS 153 has been higher than 6,869 EP after the MIBA North approval. As LCC adopts the dynamic containment standard for the SPS 153 catchment, and LCC is reviewing and monitoring the SPS 153 dynamic capacity since 2023. EDQ, LCC and Stockland agreed the following actions/approaches are to be used for the recent development applications, which include Precinct 5 MIBA South ROL1 and this application:

- Stockland is to provide the latest development rollout schedule to LCC.
- LCC is to revise the dynamic capacity of pumping station SP 153:
 - Stockland is to undertake the field investigation to remove the possible sources of fast response components of rainfall induced inflow and infiltration (RDII) in the network.
 - LCC is to install the flow gauges in the Yarrabilba gravity sewer network and to calibrate the fully developed pumping station SPS 084 catchment.
 - LCC is to re-assess the dynamic capacity of pumping station SP 153 by applying the modelling parameters obtained from the pumping station SPS 084 catchment.

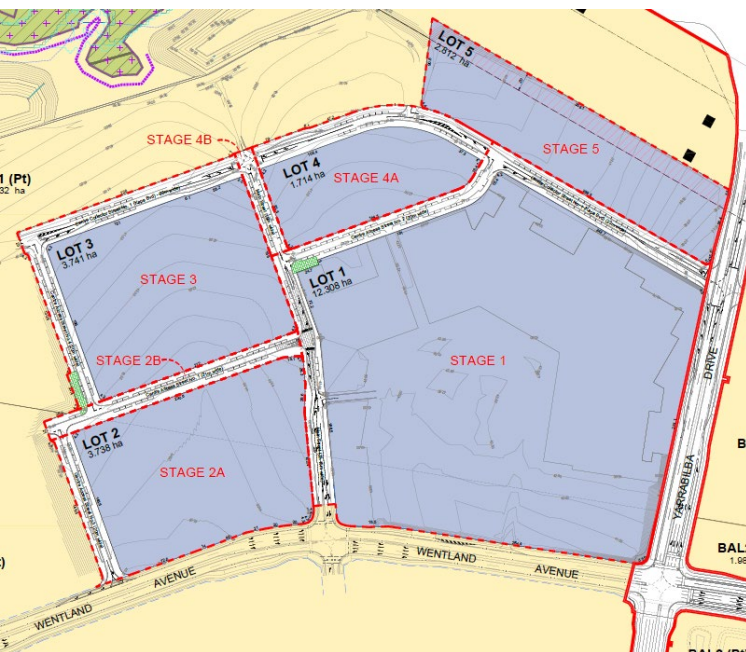
- LCC is to undertake the relevant option assessment between advancing the scheduled ultimate sub-regional sewerage infrastructure and local interim solutions (wet weather storage near SPS 153, larger SPS 153 pumps, or constructing and utilising the ultimate Yarrabilba PS3 rising main). The interim solutions will be at LCC's costs in accordance with the endorsed infrastructure agreement. LCC also advised "if SPS153 capacity is exceeded before 2031, a pump upgrade is probably the best option that can be employed in the interim".
- LCC has secured the funds in 2025 and been on schedule (before 2031) to deliver the pumping station PS3, PS3 trunk rising main and regional sewerage treatment plant in Chambers Flat.

6 Conclusions

The following conclusions are drawn from the assessment of the water supply and sewerage network requirements for Precinct 7 Town Centre RAL1:

1. 1,744.1 water EP and 1,593.2 sewerage EP were estimated for Precinct 7 Town Centre RAL1 development.
2. The estimated population of Precincts 1 to 4, 5A MIBA North, 6, 8 ROL1, MIBA South ROL1 and Precinct 7 Town Centre RAL1 is 24,785 EP for water and 24,997 EP for sewerage.
3. A total of 6.1 ML of storage capacity is required to supply Precincts 1 to 4, 5A MIBA North, 6, 8 ROL1, MIBA South ROL1 Precinct 7 Town Centre RAL1 plus the forecast Logan Village demand in the 2026 planning horizon. The existing Travis Road reservoir capacity is 9 ML. Hence there will be sufficient storage for Yarrabilba development until the end of Precinct 7 Town Centre RAL1 development.
4. The proposed water network layout, as outlined in Figure 3, can service the ultimate demands of Precincts 1 to 4, 5A MIBA North, 6, 8 ROL1, MIBA South ROL1 and Precinct 7 Town Centre RAL1 with the DMA arrangement outlined in the endorsed 2018 PNP report.
5. The water interim operation scenarios (before the 600 mm diameter Travis Road Reservoir outlet trunk main is constructed) of the recent development applications (Precinct 5 MIBA South ROL1 and Precinct 7 Town Centre RAL1) will be checked through the LCC current InfoWorks WS Pro hydraulic model with the preferred operational settings and interim solution (an interim boost pump station downstream the Travis Road reservoir).
6. The design sewage flows for the Precinct 7 Town Centre RAL1 lots are ADWF of 3.0 L/s and PWWF of 18.4 L/s respectively.
7. Sewage from Precinct 7 Town Centre RAL1 lots will be collected by the local DN150 reticulation network before being transferred by the DN225/DN300/DN375 trunk and DN675 sewers to the pumping station SPS 153 (interim) or PS 3 (ultimate).
8. Agreed actions provided in Section 5.2 are to be undertaken before the external trunk sewerage infrastructure are constructed.

Appendix A Precinct 7 Town Centre RAL1 Layout Plan and Population Development



Land Use Areas:		
Total Application Area	264.112ha	100%
Proposed Allotments	259.797ha	98%
Town Centre Super Lots	24.313ha	9%
Balance Lots	235.485ha	89%
Proposed Road Reserve	4.315ha	2%
Centre Collector	1.820ha	1%
Centre Access	2.495ha	1%

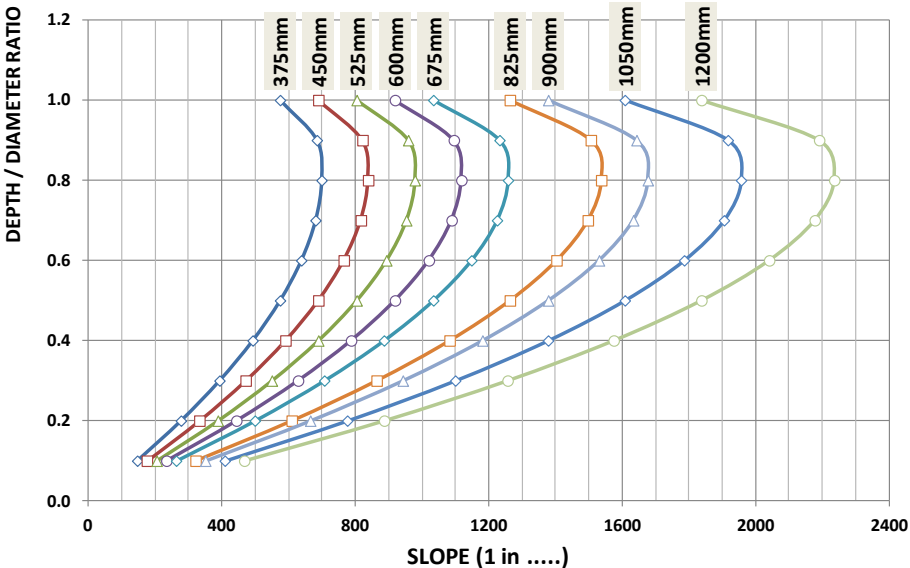
Translation Table				Water Res EP	Water Non-Res EP	Sewerage Res EP	Sewerage Non-Res EP
Stage 1 Lot no. 1		Use	GFA	Dwellings			
Lot 1		Retail	40,000 m ²			390.4	351.4
		Childcare	1,000 m ²			10.5	8.4
		Other Retail	3,190 m ²			31.1	28.0
		Food & Beverages	800 m ²			7.8	7.0
		Allied Health	1,700 m ²			38.5	34.7
		Commercial Office	10,420 m ²			58.2	52.4
	subtotal lot 1		57,110 m ²				
Lot 2		Library	1,500 m ²			8.4	7.5
		District Art Gallery	600 m ²			3.4	3.0
		Community Centre	900 m ²			5.0	4.5
		Commercial Office	2,900 m ²			16.2	14.6
		Food & Beverages	800 m ²			7.8	7.0
		Other Retail	600 m ²			5.9	5.3
		Gym/Wellness	500 m ²			11.3	10.2
		Allied Health (private)	750 m ²			17.0	15.3
	Senior Living (res counted in next column)		4,000 m ²	248	441.4		441.4
	subtotal lot 2:		12,550 m ²	248			
Lot 3		Education (Private School)	10,000 m ²			105.3	84.2
		Education (Tafe urban campus)	7,600 m ²			80.0	64.0
		Commercial Office	8,590 m ²			48.0	43.2
		Food & Beverages	500 m ²			4.9	4.4
		Child Care	1,000 m ²			10.5	8.4
		Other Retail	650 m ²			6.3	5.7
Lot 4			28,340 m ²				
		Public Health	7,000 m ²			158.6	142.7
		Allied Health (private)	2,950 m ²			66.8	60.1
		Private Hospital	5,200 m ²			117.8	106.0
Lot 5			15,150 m ²				
		Commercial	16,600 m ²			92.8	83.5
Total			129,750 m ²			1,744.1	1,593.2

Appendix B LCC DSOS



WASTEWATER NETWORK DSS

Parameter	Criteria	
Sewage load		
ADWF	165 L/EP/day	
PDWF	Use actual flow data; or $d \times 165 \quad \text{L/EP/d or;}$ $d \times 0.00191 \times EP \quad \text{L/s}$ Where: $d = 0.01(\log A)^4 - 0.19(\log A)^3 + 1.4(\log A)^2 - 4.66\log A + 7.57$ d = dry weather peaking factor A = gross plan area of development catchment, in hectares Refer to WSAA Sewerage Code of Australia; Part 1 Planning and Design	
Overflow Frequency Standard for assessment of existing networks and planning and design of augmentations for existing networks This standard is only to be used by Council and their consultants	Master Planning; - Manholes: Maximum of 1 overflow per year - Sewer designated outlet: Maximum of 2 overflows per year Detailed Planning: - Acceptable network overflow frequency standard to be determined using a risk or effects based approach. The standard is to be determined in consultation with Council.	
PWWF For planning and design of wastewater networks servicing greenfield development This standard is to be used by developers, Council and their consultants	Residential	1000 L/EP/d (6.1xADWF)
	Non-residential	840 L/EP/d (5xADWF)
	High density residential (minimum 3 storey development)	PDWF+0.2 L/s/Ha
	Common Effluent Drainage	660 L/EP/d (4xADWF)
Gravity sewer design		
Flow equation	Colebrook White to be used for all applications – design and modelling	
Pipe roughness general	Colebrook White $k = 1.5\text{mm}$	
Maximum velocity @ PWWF	3 m/s	
Depth of flow @ PWWF - Existing	Up to 1m below MH surface level and no spillage through overflow structures	
Depth of flow @ PWWF - Proposed/ new sewers	75% of pipe depth	
Depth of flow @ PDWF – Existing and new sewers	Maximum 60% of pipe depth	
Minimum shear stress	Minimum grades are to be based on achieving self-cleansing shear stress of 1.6 Pa at 75% of PDWF. Self-cleansing shear stress should be met within 5 years of constructing a pipeline in a greenfield area. The designer must consider the operational implications of not meeting self-cleansing shear over any timeframe.	

Slime Stripping shear stress	It is desirable where gradients permit to achieve slime stripping. A wall shear of 3.35Pa is required to achieve slime stripping. Slime stripping shear should be achieved at PWWF. Where gravity mains are constructed in greenfield areas, the operational implications of not meeting slime stripping shear in the early years of growth are to be considered.	
Minimum grades for self cleansing	Diameter (mm)	Grades (mm, 1 in X)
	150	180 (80 in last section between last manholes or to an end)
	225	300
	300	400
	375 - 1200	Minimum Grades are to be based on achieving Self Cleansing Shear Stress of 1.6 Pa at 75% PDWF, refer formula and figure below. $S_{min} = \frac{\tau}{\rho \cdot g \cdot R_p}$ Where: S_{min} = Minimum Grade τ = Self Cleansing Shear Stress = 1.6 Pa τ = Slime Stripping Shear Stress = 3.85 Pa ρ = Density of Water = 1000 kg/m³ g = Gravitational constant = 9.8 m²/s R_p = Hydraulic Radius Partial Full Pipe (m) = Wetted Perimeter / Cross sectional flow area  Note: Depth/Diameter ratio is based on flow conditions at PDWF

Gravity sewer design	
Flow criticality	If the gradient of a pipeline creates super critical flow conditions consideration must be given to appropriate manhole design to ensure flow disturbances do not occur. Flow criticality is determined by the Froude number: Fr<1.0 sub critical Fr= 1.0 critical Fr>1.0 super critical Where $Fr = \frac{v}{\sqrt{g D}}$ v=velocity m/s g=gravity m²/s D=hydraulic depth (m)
Sewerage pump stations	
Wet well operating requirements	$V (kL) = \frac{0.9 \times \text{pump rate (L/s)}}{N}$ Where N is the acceptable number of starts per hour Pump Rate (L/s) = capacity of the largest duty pump N = 12 for motors <= 15 kW N = 8 for motors 15kW - 200 kW N = 5 for motors > 200 kW Control levels shall be based on Table 5.1 of WSA04-2005. The minimum depth between duty start and duty off is 100mm and ideally should be 300mm or greater.
Emergency storage	Emergency storage volume requirement to be based on containment of 2 hours of PDWF. Where actual measured flow data is available, then volume should be based on containing 2 hrs measured PDWF provided it takes into account any future growth. Except where otherwise specified to meet the requirements of the overflow risk assessment If there is an overflow pipe - storage in the system is measured between the high level alarm and overflow pipe invert level. If there is no overflow pipe - storage is measured between the high level alarm and 300mm below the lowest upstream manhole or top of wet well.
Pump capacity Guidance Note: As pump stations (PS) are typically categorised as trunk infrastructure this standard shall also apply to pump stations in RIGS networks.	If PWWF <20L/s, then 2 pumps (duty/standby arrangement) shall be provided, with each pump being capable of delivering PWWF. If PWWF >20L/s and <200L/s, then 2 pumps (duty/duty assist arrangement) shall be provided, with each pump being sized such that the two pumps running in parallel are capable of delivering PWWF. The minimum single pump capacity shall be not less than the calculated PDWF, where PDWF is a minimum of 2.5xADWF. If calculated PDWF has a peaking factor <2.5xADWF then 2.5 shall be used. All pump stations with a capacity greater than 200 L/s are to be designed on a case by case basis in consultation with Logan City Council. Pump stations that discharge directly to a WWTP are to be designed to minimise flow variability in wet and dry weather conditions.
NPSH	Refer Clause 6.4 of WSA04-2005

Rising mains	
Flow equation	Colebrook White to be used for all applications
Friction mains	For preliminary design a Colebrook White Roughness (k) of 0.6 mm is to be used. For detailed design, roughness shall be based on velocity and pipe roughness at end of pump design life. However, pumps should be able to operate (not necessarily meet design flow) for Colebrook White roughness's between manufacturers specified roughness for new pipes and 0.6 mm
Minimum velocity	Minimum Velocity to be based on: • achieving an absolute minimum self cleansing shear stress of 1.6 Pa at single pump flow • achieving slime stripping shear stress of 3.85 Pa at the greater of PWWF or maximum pump station pumping capacity • If slime stripping shear cannot be met with single pump flow a regular flushing regime is required to prevent slime build up. The wall shear is to be calculated using the following equation: $\tau = \rho \cdot g \cdot (D/4) \times (HL/L)$ Where: τ = Wall Shear Stress (minimum of 1.6 Pa required for self cleansing) HL = Frictional loss over main length of L based on Colebrook White (m) L = Length of main (m) ρ = Density of Water = 1000 kg/m³ g = Gravitational constant = 9.8 m²/s D = Internal Diameter of Pipe (m)
Maximum velocity	3.0 m/s proposed systems Manufacturer's specifications for new systems
Max detention time	Maximum time of detention in pressure main and SPS wet well is 6 hours [2 hours in wet well and 4 hours in rising main] (based on daily average flows) to minimise potential for odour / hydrogen sulphide generation. Where high retention times are likely to occur, odour / sulphide control measures will be required to the satisfaction of Logan City Council. (Refer WSA 07-2007-1.1 section 3.15)
Reduced infiltration gravity sewers (RIGS) & NuSewers	
NuSewer	Are not permitted without Logan City Council approval
RIGS Design	Refer to SEQ WS&S D&C Code Section 6.7.2 Design Parameters
Low pressure sewers / vacuum pumps	
Low pressure sewers / vacuum pumps	Are not preferred and will only be allowed subject to approval from Logan City Council.
Private pump stations and rising mains	
Private pump stations and rising mains	Private pump stations and rising mains are permitted for single users only and no connection or sharing will be permitted without approval from Logan City Council.
Common effluent drainage	
Common effluent drainage (CED)	Not permitted without approval from Logan City Council.

Water Network Desired Standards of Service (DSS)				
Parameter	Criteria			
Water demand				
Average Day Demand (ADD)	On demand areas - 190 L/EP/d. Based on 165 L/EP/d residential consumption + allowance for leakage/losses (25 L/EP/d).			
	Constant flow areas -190 L/EP/d. Based on 165 L/EP/d residential consumption + allowance for leakage/losses (25 L/EP/d).			
Peaking factors	Category	MDMM/AD	MD/AD	PH/AD
Guidance Note: Peaking factors are to be applied to the residential component of demand, i.e. 165 L/EP/d. Leakage /loss levels will remain constant throughout all demand categories and should only be appended after any peaking escalation has occurred.	Residential detached	1.3	1.7	3.1
	Residential attached	1.3	1.6	2.6
	Rural residential / Constant flow	1	1	1.5
	Commercial	1.2	1.3	2.0
	Industry	1.2	1.3	1.7
	Parks / Open space	1.2	1.3	1.7
System planning				
Bulk supply and reticulation	3 days of MDMM. Reservoirs to have a net positive inflow and capable of continuous operation and not fall below the emergency level. 3 days of MD. Reservoirs should not fall below the emergency level. 5 days of AD. Reservoirs should fill from empty to full.			
Service pressures				
Minimum operating pressure at PH	On demand areas – 22m at the property boundary based on reservoir at minimum operating level (MOL). MOL defined as 15% of storage height or top of emergency storage.			
	Constant flow areas – 10m at the property boundary based on reservoir at minimum operating level (MOL) MOL defined as 15% of storage height or top of emergency storage.			
Maximum operating pressure	80 m at the property boundary based on the reservoir at TWL			
Target maximum operating pressure	55 m at the property boundary based on the reservoir level at TWL			
Fire fighting				
System pressure	On demand areas	12 m minimum at property boundary		
	Constant flow areas	no fire service provided		
Fire flow	Constant flow areas	no fire service provided		
	Rural Residential	7.5 L/s for 2 hrs		
	Rural Commercial / Industrial	15 L/s for 2 hrs		
	Residential	15 L/s for 2 hrs		
	Commercial & Industrial	30 L/s for 4 hrs		
	Special risk / hazard	to be advised by Logan City Council (LCC)		
Background demand	2/3 PH (as per DEWS requirements)			
Reservoir level	Minimum Operating Level (MOL)			

Water quality					
Drinking water quality		Drinking water to comply with the NHMRC Australian Drinking Water Guidelines			
Reservoir storage					
Ground level storage capacity		3 (MD - MDMM) + (Emergency storage) Emergency Storage = 4 hr MDMM demand in zone or 0.5 ML whichever is greater.			
Elevated storage capacity		6 (PH - 1/12 MDMM) + minimum firefighting reserve. Fire Fighting reserve = > 4800EP: - rural residential 0.11 ML - industry 0.54 ML - otherwise 0.22 ML < 4800 EP: - rural residential 0.05 ML - industry 0.43 ML - otherwise 0.11 ML			
Guidance Note: In-line pressure booster pumping without high-level storage shall be considered where satisfactory pressures can be provided by gravity flow during low demand periods or booster failure can be mitigated to an acceptable level (risk assessment required) and where there is no other feasible means of providing adequate pressure.					
Pumping capacity					
Pump supplying a ground level reservoir		MDMM over 20 hrs			
Pump supplying an elevated reservoir		(6PH – operating volume) / (6 x 3600) Operating volume = Elevated reservoir capacity - fire fighting reserve			
Standby pump capacity		To match duty, except where more than one duty pump or as determined by risk assessment.			
Reticulation booster pumps/pumped system		PH + fire flow			
Pipeline assessment & design					
Main capacity		Raw water mains & trunk feeding ground level reservoir: MDMM for a gravity supply and MDMM over 20hrs for a pumped supply Trunk Mains feeding elevated reservoir: capacity of pumps: Reticulation Mains: PH + fire flow.			
Mains size		Constant flow areas - where mains terminate in short runs such as cu- de-sacs minimum sizes that may be acceptable are: DN 63 up to 150 m from main DN 80 up to 350 m from main			
Guidance Note: New CF areas are not permitted by LCC.		On demand areas - minimum reticulation main 100mm in residential areas and 150mm in commercial and industrial areas.			
Friction default value	Existing Infrastructure		Future Infrastructure		
	Colebrook White k values (mm)		The design shall be conducted to achieve less than the following head losses: a) 5 m head/km for ≤DN 150 (CIOD) or ≤DN 180 (ISO). b) 3 m head/km for ≥DN 200 (CIOD) or ≥DN 250 (ISO). c) Head loss shall be calculated using computer models or hydraulic formulas.		
	Pipe Material	Pipeline Age (years)			
		< 10		10 to 25	> 25
	Asbestos Cement	0.15		0.3	0.3
	Plastic (UPVC, MDPE, Hobas, etc)	0.06		0.06	0.15
MSCL/DICL	0.3	0.3	0.6		
CICL	0.3	0.3	0.6		
Maximum velocity		2.5 m/s At peak hour for trunk mains and at peak hour including fire flow for reticulation.			

Standpipe and Hydrant Filling Points	
Hydraulic model	<u>Planning Scenario</u> All designated and planned standpipes and hydrant filling points are to be modelled at either anticipated flowrates or recorded flows from SCADA or field test (hourly patterns).
	<u>Operational Scenario</u> Operational scenario to be modelled at 15 min time steps to highlight actual likely impacts on network.
<u>Augmentation</u> – In general significant network augmentations would not be considered prudent to support new hydrant filling points. Alternate strategies such as relocation or management of hydrant filling point flows (while maintaining suitable service levels) should be considered to maintain DSS. Suitable service levels should be agreed with Council's Water Business & Customer Management team.	

Appendix C Yarrabilba Development Rollout Plan



LEGEND

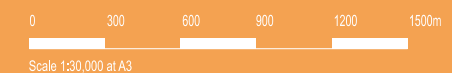
- YARRABILBA PROJECT SITE (WITHIN GREATER YARRABILBA STRUCTURE PLAN AREA)
- PROPOSED PRECINCT BOUNDARY
- RESIDENTIAL - STANDARD
- RESIDENTIAL - URBAN
- RESIDENTIAL - URBAN DETACHED
- RESIDENTIAL - URBAN SEMI-DETACHED
- RESIDENTIAL - TERRACES
- MAJOR ACTIVITY CENTRE - CORE
- MIXED USE - TOWN CENTRE CORE
- MIXED USE - TOWN CENTRE FRAME
- COMMERCIAL MIXED USE
- COMMUNITY
- LOCAL RETAIL
- EDUCATION
- MIXED INDUSTRY AND BUSINESS
- MIXED BUSINESS / INFRASTRUCTURE
- OPEN SPACE - EPBC FAUNA CORRIDOR & ENVIRONMENTAL PROTECTION
- OPEN SPACE - REMNANT VEGETATION OF CONCERN
- OPEN SPACE - CONSERVATION
- OPEN SPACE - DISTRICT AND MAJOR
- OPEN SPACE - LINEAR
- OPEN SPACE - NEIGHBOURHOOD PARK
- OPEN SPACE - LOCAL PARK
- OPEN SPACE - LAND UNDER Q100
- KOALA PROTECTION / WETLAND / BUSHFIRE AND ASSOCIATED BUFFERS
- ELECTRICITY EASEMENT AND BUFFER
- SOUTHERN INFRASTRUCTURE CORRIDOR
- MAJOR ROAD
- WATERFORD TAMBORINE ROAD WIDENING
- VILLAGE ROAD
- STORMWATER TREATMENT
- PRIMARY MOVEMENT NETWORK AS DESIGNED / APPROVED
- PRIMARY MOVEMENT NETWORK 40m
- PRIMARY MOVEMENT NETWORK 35m/33.5m
- PRIMARY MOVEMENT NETWORK 26.5m
- PRIMARY MOVEMENT NETWORK 25.6m
- KOALA HABITAT TO BE PROTECTED AND MANAGED (PLUS 10m BUFFER)
- EPBC OFFSET LAND - 195ha

THE CONTENTS OF THIS PLAN ARE CONCEPTUAL ONLY, FOR DISCUSSION PURPOSES. ALL AREAS AND DIMENSIONS ARE APPROXIMATE ONLY SUBJECT TO RELEVANT STUDIES, SURVEY, ENGINEERING AND DEVELOPMENT APPROVALS. THIS IS NOT A MASTERPLAN.

Yarrabilba Masterplan Land Use Commercial Assessment

DRAFT ONLY

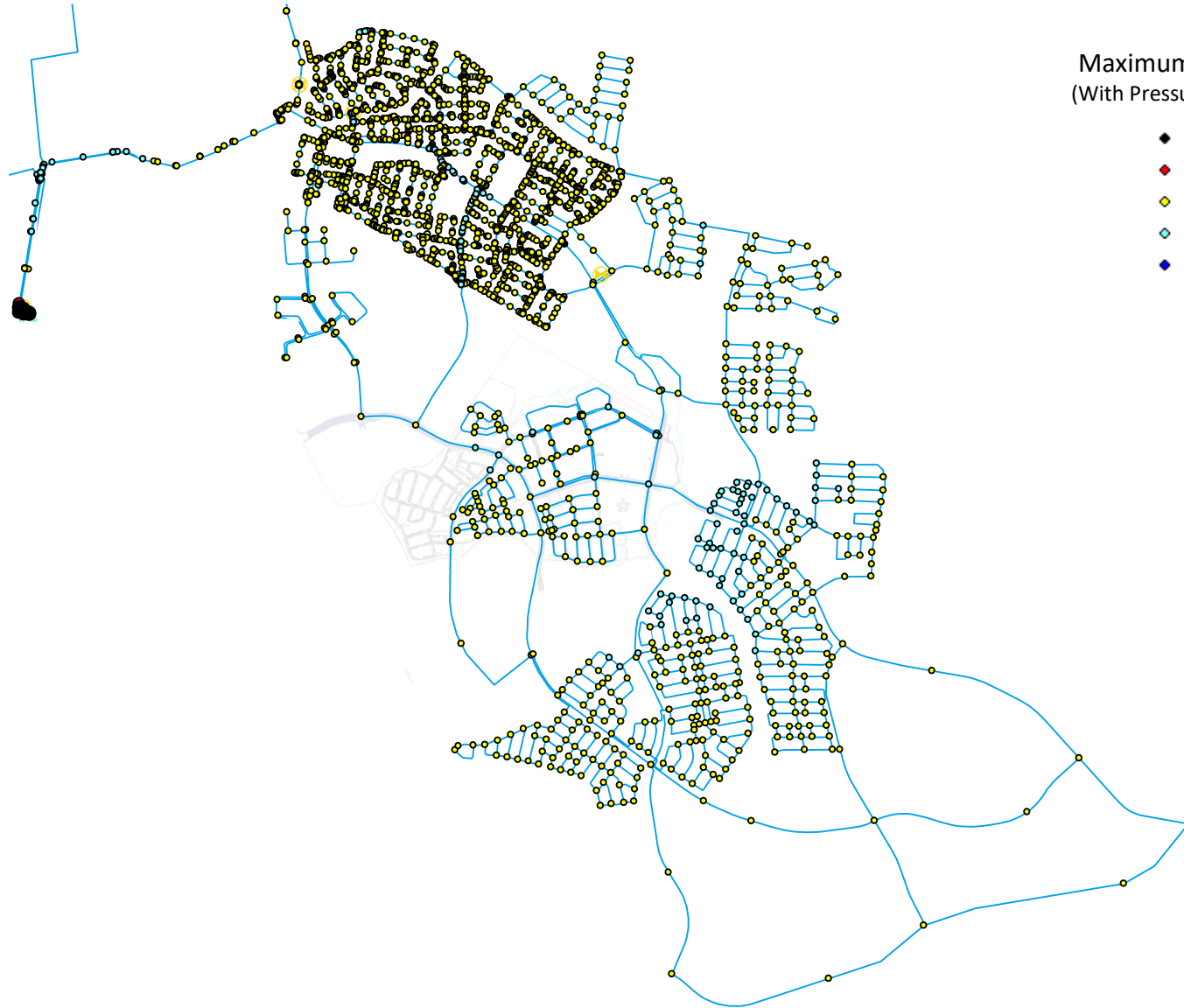
NOTE: This plan is indicative only, and specific uses, road alignment, boundaries, setbacks, and building layout shown may vary due to detailed design consideration. ©2024 Lend Lease Communities (Australia). All rights reserved. Except as permitted by Lend Lease, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the permission of Lend Lease.



Appendix D Water Reticulation Hydraulic Performance Assessment Outcomes

Maximum Hour Pressure (m)
(With Pressure Reduction, Ultimate)

- ◆ less than 12.00
- ◆ 12.00 ~ 22.00
- ◆ 22.00 ~ 55.00
- ◆ 55.00 ~ 80.00
- ◆ 80.00 ~ 128.86





Appendix E LCC Yarrabilba Sewerage Spare Capacity Assessment Summary



Lin, Henry

Subject: FW: Spare capacity for the Yarrabilba Development

From: Pollard, Matt <Matt.Pollard@wsp.com>

Sent: Wednesday, March 30, 2022 11:45 AM

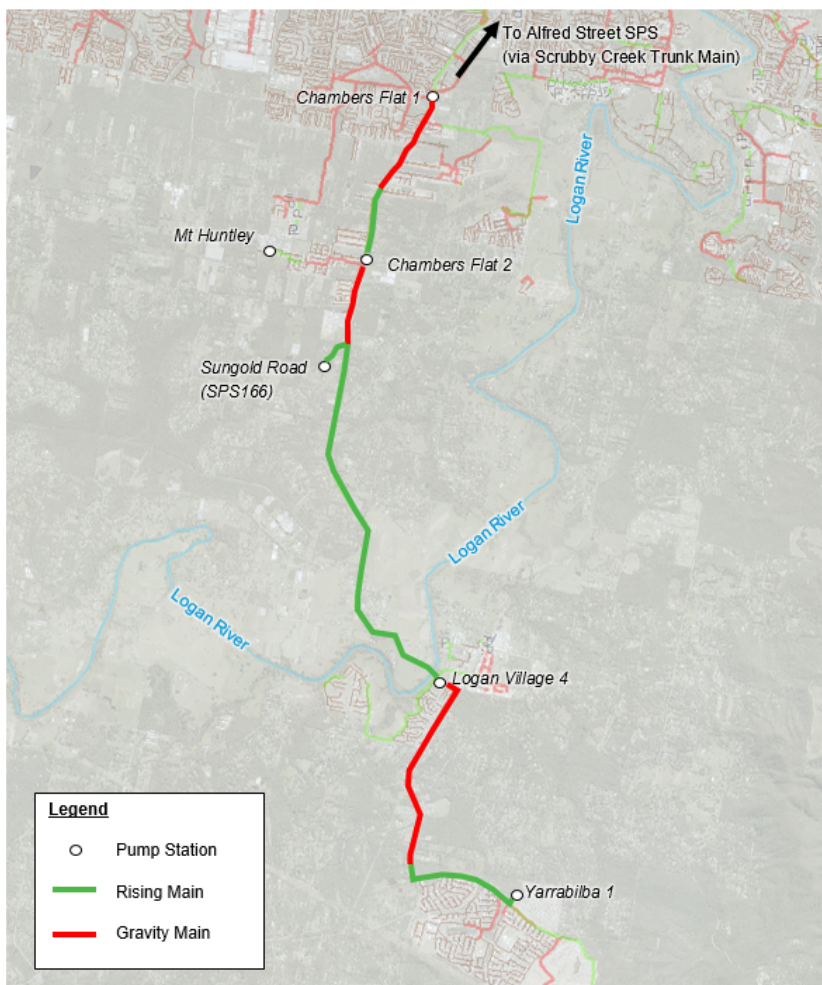
To: Lin, Henry <Henry.Lin@stantec.com>; Pollard, Matt <MattPollard@logan.qld.gov.au>

Cc: WaterDA <WaterDA@logan.qld.gov.au>; Daniel O'Brien <DanielO'Brien@logan.qld.gov.au>; Seymour, Michael <MichaelSeymour@logan.qld.gov.au>

Subject: RE: Spare capacity for the Yarrabilba Development

Hi Henry

A recent planning task undertaken by Logan Water (Chambers Flat Road 2 SPS Strategy Review - IP0011) has analysed the capacity of the existing system between Yarrabilba 1 and the Chambers Flat 2 SPS in detail. A map of this system is shown below:



The Task involved running the Loganholme calibrated model for this system for the 1EY and 2EY design storms. The model was calibrated based on flow data collected in 2019, which included 3 flow gauges within Yarrabilba. Conservative assumptions have been made for the wet weather response for future development / development not captured during the flow survey period.

For these runs, the adopted setting for the Yarrabilba 1 pump station was to limit pumped flows to 70 L/s at all times to minimise overflows in the downstream network and utilise the 2 ML storage. The outcomes for this assessment for different populations at Yarrabilba is shown in the following table.

		Option 2				
SPS		Yarrabilba (SPS084)			Logan Village 4 (SPS081)	Chambers Flat 2 (SPS082)
Yarrabilba Population	Event	Emergency Storage (% full)	Wet Weather Storage (% full)	Overflow Volume (m ³)	Overflow Volume (m ³)	Overflow Volume (m ³)
25,000 EP	2 EY	100%	100%	173	0	0
	1 EY	100%	100%	2,553	0	0
20,420 EP	2 EY	76%	76%	0	0	0
	1 EY	100%	100%	375	0	0
15,500 EP	2 EY	50%	0%	0	0	0
	1 EY	95%	95%	0	0	0

Logan Water stakeholders have agreed that for the Yarrabilba storage, the appropriate containment standard is the 2EY event and therefore the Yarrabilba population that the existing system can cater for is somewhere between 20,420 EP and 25,000 EP.

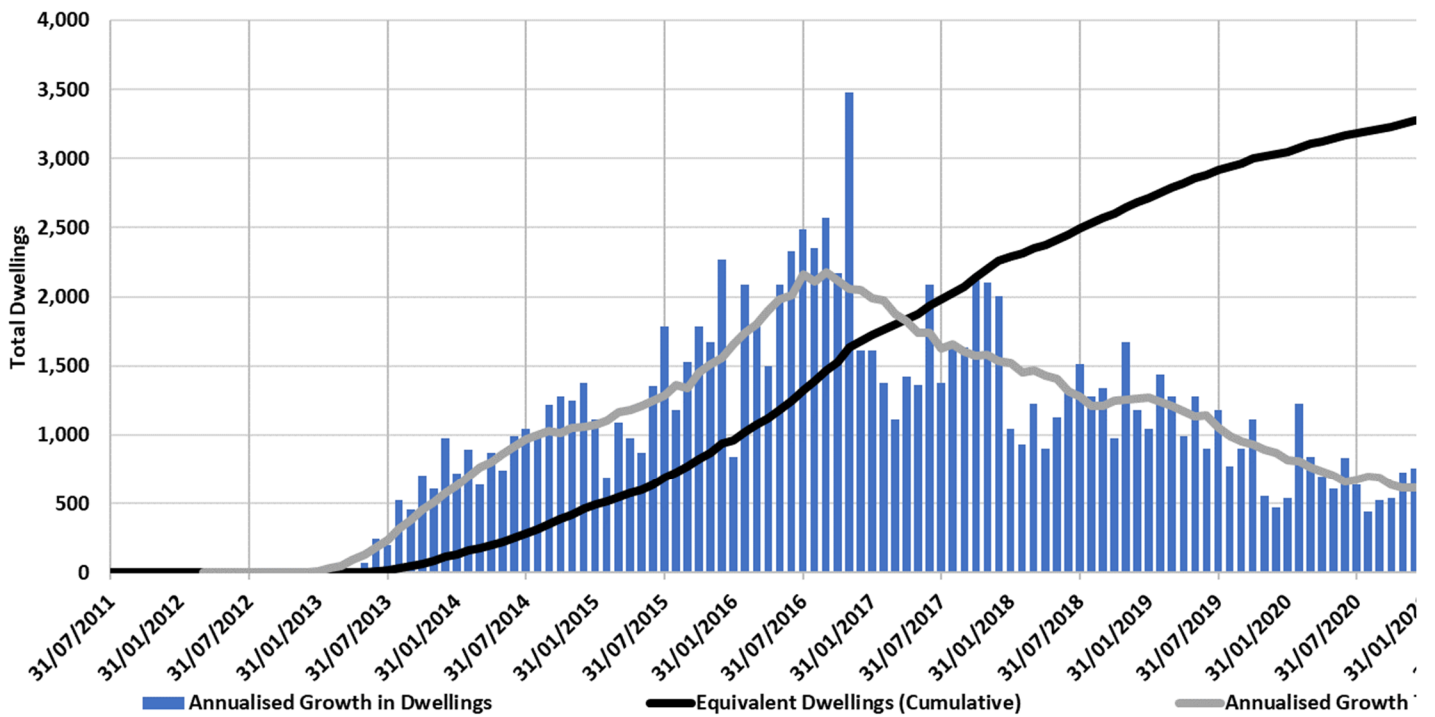
To achieve the performance outlined in the above table, works will be undertaken to upgrade the Chambers Flat 2 SPS. These works are included in the Subregional Infrastructure Program (SRIP).

Based on current growth rates, we expect that the existing system will have sufficient capacity to cater for Yarrabilba until sometime between 2033 and 2037 (refer graph below). If the recent increase in the rate of lot sales is sustained and converts to occupied dwellings that date may come forward.

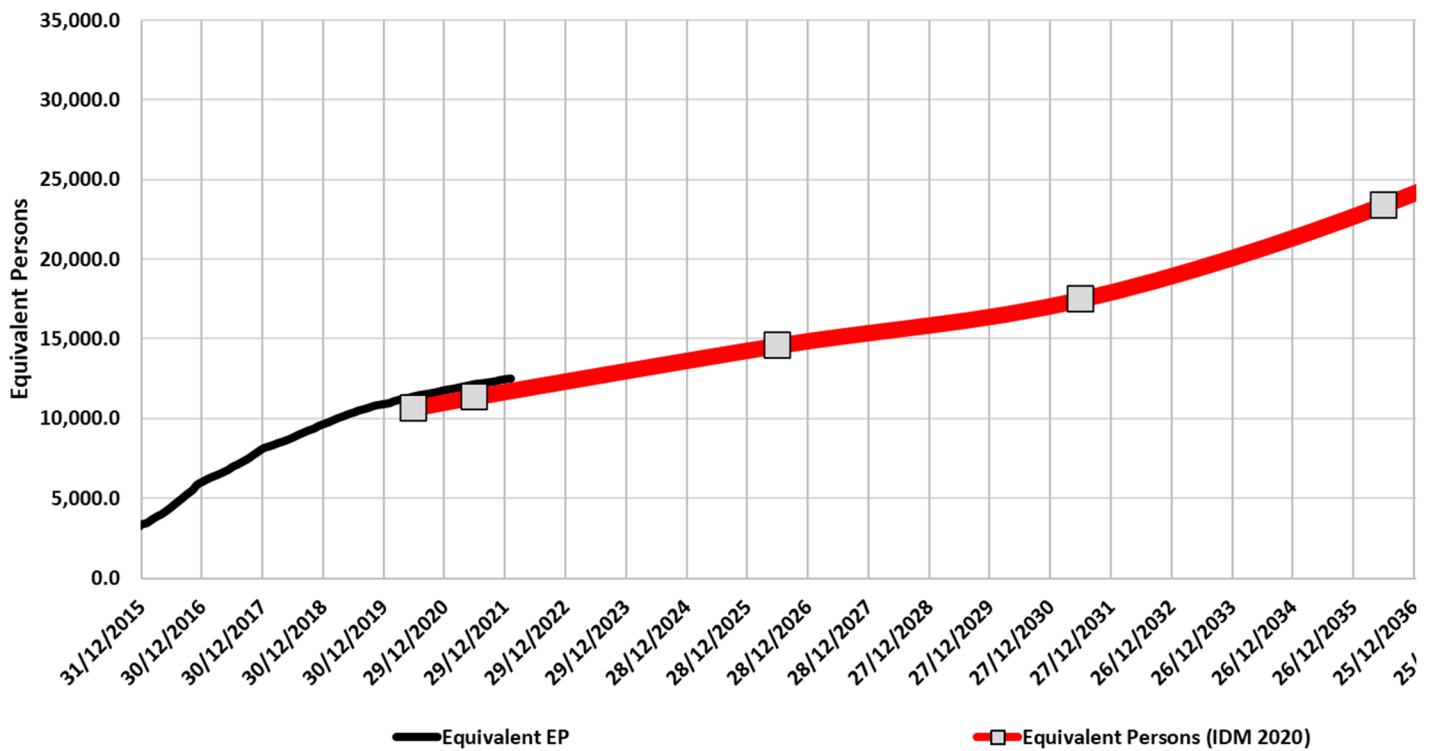
I note that as at the start of February 2022, we are still not seeing the increased lot sales translate into occupied dwellings. The charts below are taken from residential Bin data extracted from Councils data base on the 9th of February.

That aside, should the growth rates increase and be sustained, Council has already progressed planning for the Yarrabilba 3 regional / transfer pump station and the Chambers Flat WWTP so that the long term servicing solution can be brought forward if required.

Yarrabilba



Yarrabilba



Regards

Matthew Pollard
Principal Planning Engineer | Water Infrastructure Solutions

RELIABLE • SUSTAINABLE • COMMITTED

Mattpollard@logan.qld.gov.au | 07 3412 0000 | 0420 755 900 | Teams [Call](#) / [Chat](#)

Connect with us: [Website](#) | [Facebook](#) | [Twitter](#) | [LinkedIn](#)

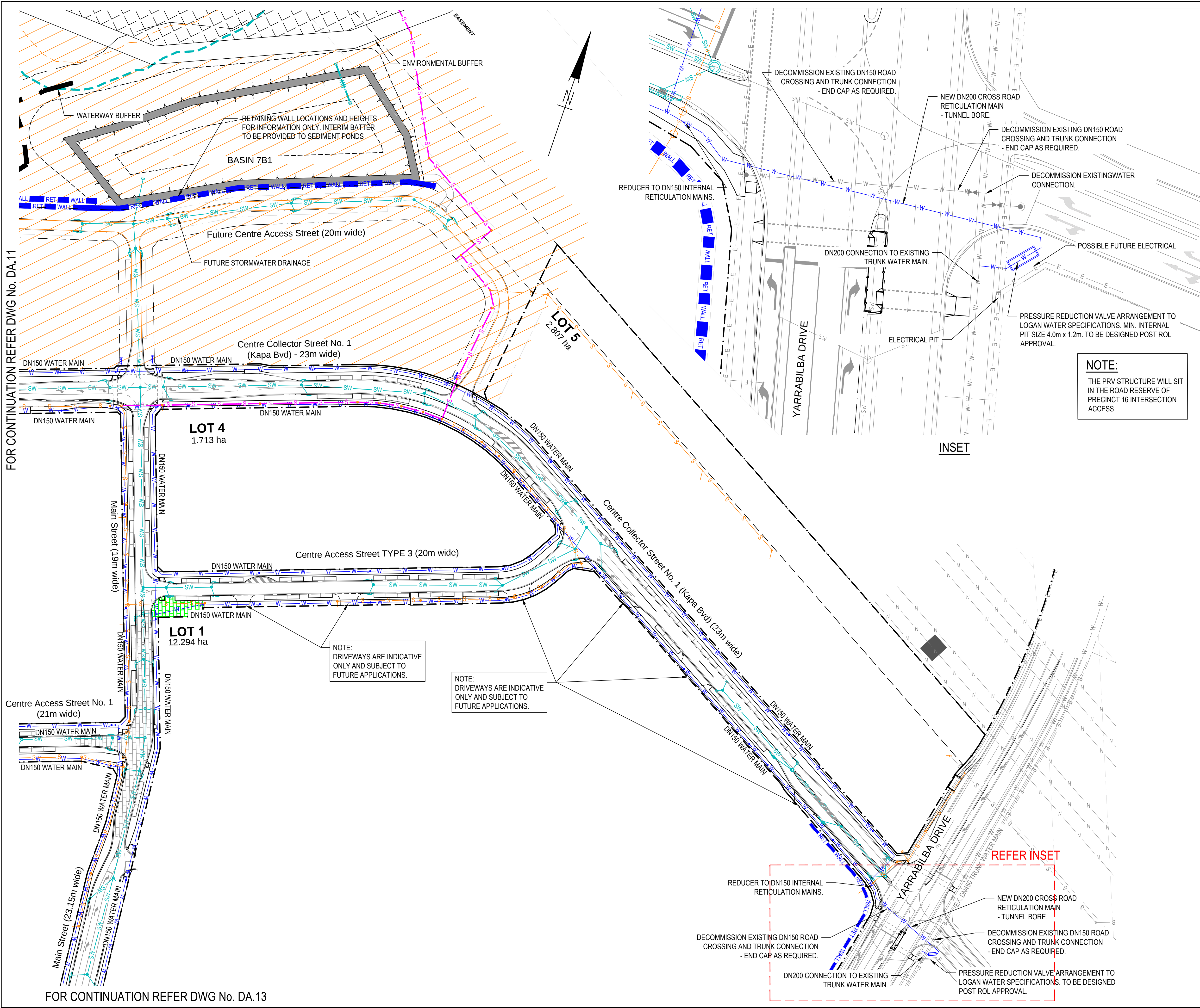


*Logan City Council acknowledges the Traditional Custodians of the lands and waterways across the City of Logan.
We pay our respects to Elders past, present and emerging.*

Appendix F Preliminary Water and Sewerage Reticulation Plan



FOR CONTINUATION REFER DWG No. DA.11



FOR CONTINUATION REFER DWG No. DA.13

EXISTING

PROPOSED

PROPERTY BOUNDARY

EASEMENT BOUNDARY

CONTOUR

BUILDING

CONCRETE

EDGE OF BITUMEN

KERB

KERB AND CHANNEL

FLUSH KERB

KERB RAMP

BOLLARD

STORM WATER MAIN

W W

S S

RM

G G

T T

TOP OF BATTER

FACE OF BATTER

TOE OF BATTER

RET WALL

SANDSTONE BLOCK WALL

RET WALL

RET WALL

RETAINING WALL

KOALA HABITAT 10m OFFSET

15m WATERWAY BUFFER

CONSERVATION BUFFER

EDGE KOALA HABITAT

DRIVEWAY (INDICATIVE)

LEGEND

PROPOSED

PROPERTY BOUNDARY

EASEMENT BOUNDARY

CONTOUR

BUILDING

CONCRETE

EDGE OF BITUMEN

KERB

KERB AND CHANNEL

FLUSH KERB

KERB RAMP

BOLLARD

STORM WATER MAIN

W W

S S

RM

G G

T T

TOP OF BATTER

FACE OF BATTER

TOE OF BATTER

RET WALL

SANDSTONE BLOCK WALL

RET WALL

RET WALL

RETAINING WALL

KOALA HABITAT 10m OFFSET

15m WATERWAY BUFFER

CONSERVATION BUFFER

EDGE KOALA HABITAT

DRIVEWAY (INDICATIVE)

CONCEPT ASSESSMENT ONLY FOR LAYOUT REVIEW. TO BE COMPLETED UNDER FUTURE APPLICATION

NOTE:

REFER TO DA.23 FOR SEWER NETWORK DETAILS

D	17.03.26	FOR APPROVAL	KC	LS
C	02.03.26	FOR APPROVAL	DG	LS
B	26.11.25	FOR APPROVAL	DG	LS
A	14.11.25	PRELIMINARY	DG	LS
ISSUE	DATE	AMENDMENT	BY	APP

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42 McDougall Street, Milton, QLD, 4064

CLIENT: Stockland

YARRABILBA TOWN CENTRE
MAJOR CENTRE CORE
STAGE 1 RAL PLAN
YARRABILBA DRIVE

SERVICES LAYOUT
SHEET 2

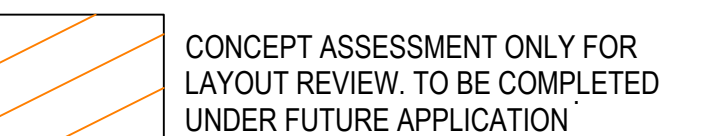
DESIGN: DG	DRAWN: DG	SCALES: AS SHOWN
CHKD:	APPRD:	DATE:

mpn JOB	DRAWING No.	REV
10467	DA.12	D

FOR APPROVAL

NOT FOR CONSTRUCTION

REFER INSET

[illegible]

NOTE:
REFER TO DA.23 FOR SEWER
NETWORK DETAILS

NOTE:
DRIVEWAYS ARE INDICATIVE
ONLY AND SUBJECT TO
FUTURE APPLICATIONS.

D	17.03.26	FOR APPROVAL	KC	LS
C	02.03.26	FOR APPROVAL	DG	LS
B	26.11.25	FOR APPROVAL	DG	LS
A	14.11.25	PRELIMINARY	DG	LS
ISSUE	DATE	AMENDMENT	BY	APP

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CLIENT:  Stockland

**YARRABILBA TOWN CENTRE
MAJOR CENTRE CORE**
STAGE 1 RAL PLAN
YARRABILBA DRIVE

SERVICES LAYOUT SHEET 3

DESIGN: DG	DRAWN: DG	SCALES: AS SHOWN
CHKD:	APPRD:	DATE:
mpn JOB 10467	DRAWING No. DA.13	REV D

FOR APPROVAL

NOT FOR CONSTRUCTION



NOTES

SEWER MAIN INVERT LEVELS HAVE BEEN OBTAINED BY GRADING SEWER MAIN FROM DOWNSTREAM INVERT AT MINIMUM GRADE UPSTREAM.

ALL LOTS CONTROLLED AT 1 IN 60 GRADE

SEWER DN150 UNLESS NOTED OTHERWISE

SIL - MINIMUM GRADE ON SEWER

HBIL - LOT CONTROL IL

LEGEND

- EXISTING SEWER MAIN
- PROPOSED SEWER MAIN DN150
- PROPOSED SEWER MAIN DN225
- PROPOSED CATCHMENT BDY

NOTES

SEWER EP VALUES ARE THE HIGHEST EXPECTED VALUES FOR THE DEVELOPMENT

C	17.03.26	FOR APPROVAL	KC	LS
B	02.03.26	FOR APPROVAL	DG	LS
A	18.02.26	FOR APPROVAL	DG	LS
ISSUE	DATE	AMENDMENT	BY	APP

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CLIENT: Stockland

**YARRABILBA TOWN CENTRE
MAJOR CENTRE CORE
STAGE 1 RAL PLAN
YARRABILBA DRIVE**

**PROPOSED SEWERAGE
NETWORK PLAN**

DESIGN: DG	DRAWN: DG	SCALES: AS SHOWN
CHKD:	APPRD:	DATE:

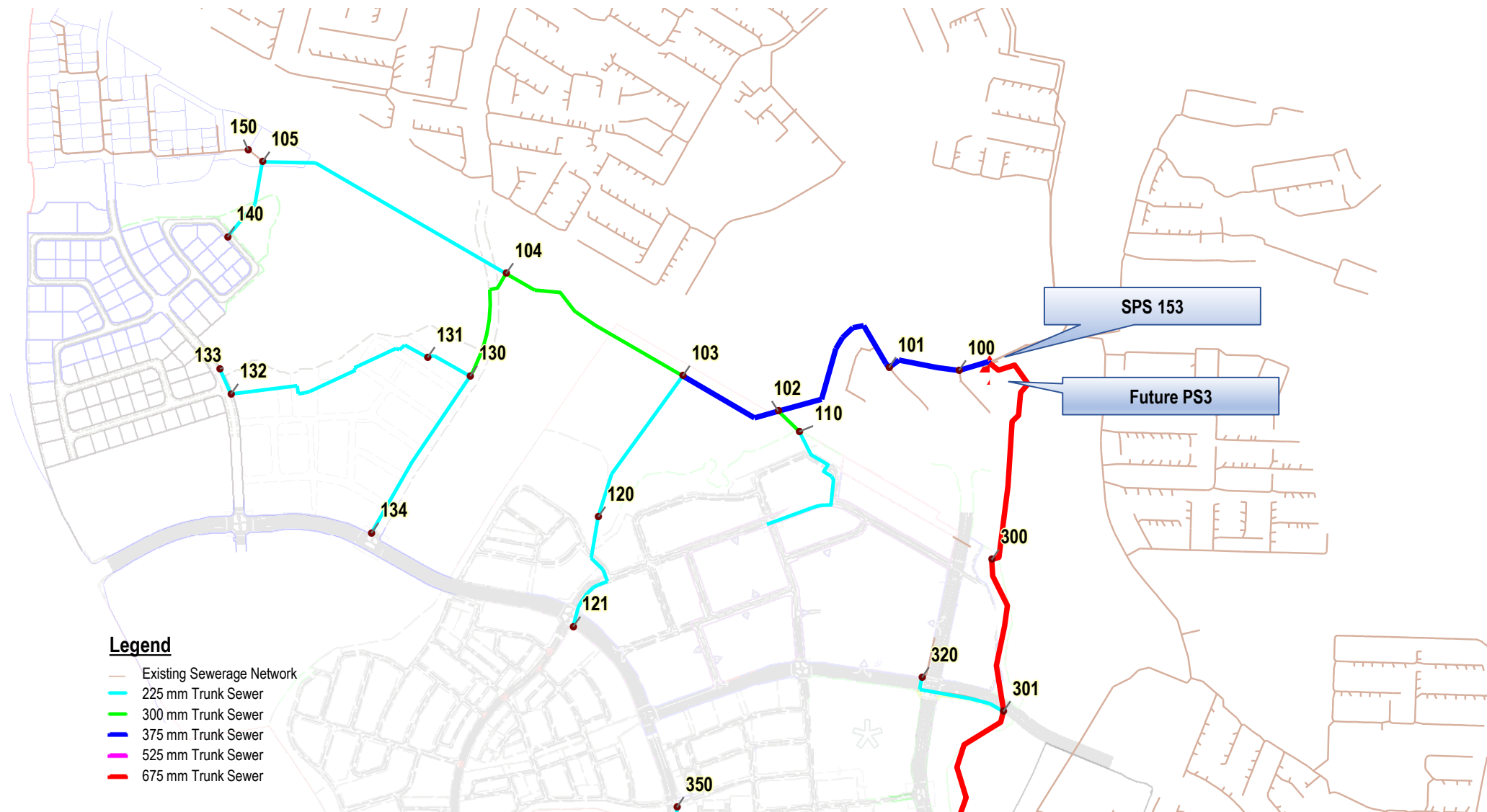
mpn JOB	DRAWING No.	REV
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FOR APPROVAL

NOT FOR CONSTRUCTION

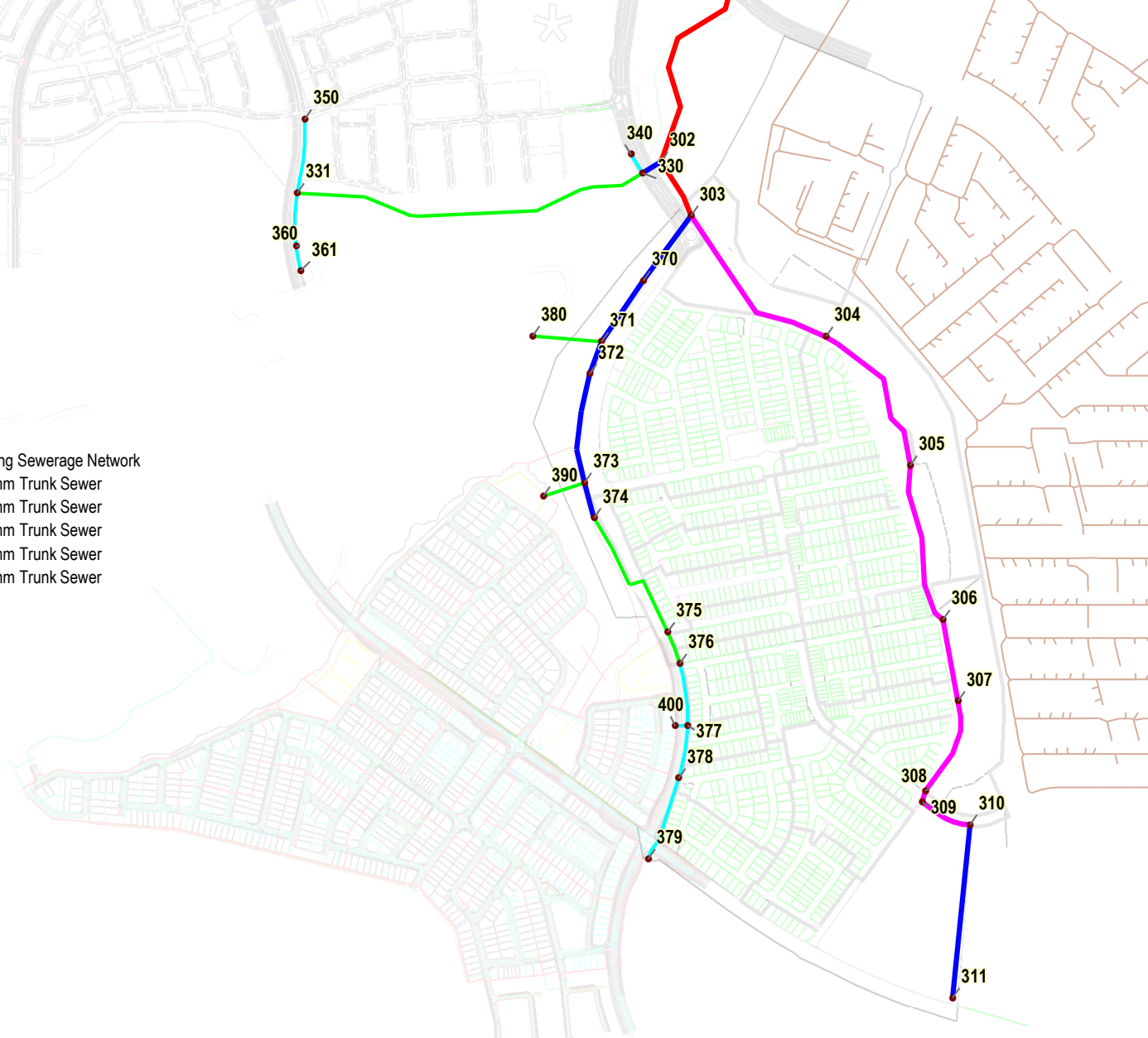
Appendix G Pumping Station PS3 Catchment Trunk Sewer information





Legend

- Existing Sewerage Network
- 225 mm Trunk Sewer
- 300 mm Trunk Sewer
- 375 mm Trunk Sewer
- 525 mm Trunk Sewer
- 675 mm Trunk Sewer



YARRABILBA - SEWERAGE SYSTEM CAPACITY REVIEW

NODE	CATCHMENT (Precinct)	CATCHMENT (Loading EP)	ACCUMMULATIVE (Loading EP's)	GRADE (1 in _)	DIAMETER/ MATERIAL (mm)	(Pipe 75% full)		(Pipe 100% Full)		n	ADWF L/EP/day	(Design Flow) ADWF (L/s)	C2	(Design Flow) PDWF (L/s)	(Design Velocity) PDWF (100% Full) (m/s)	(Design Flow) PWWF (L/s)	(Design Velocity) PDWF (75% Full) (m/s)	(Maximum) SYSTEM CAPACITY (L/s)	(Check) EXCESS CAPACITY (L/s)	(Maximum) SYSTEM CAPACITY (EPs)	(Check) EXCESS CAPACITY (EPs)
100	Existing P3D North + Node 101	191.61 8022.04	8213.65	300	375 SEWER MAX	0.088	0.781	0.109	1.172	0.0128	200	19.01	1.82	34.68	0.928	95.07	1.051	92.42	-2.64	7985	-228
101	Existing P3D South + Node 102	272.34 7749.70	8022.04	300	375 SEWER MAX	0.088	0.781	0.109	1.172	0.0128	200	18.57	1.83	33.96	0.928	92.85	1.051	92.42	-0.43	7985	-37
102	NODE 102 + Node 103 + Node 110	5312.20 2437.50	7749.70	317	375 SEWER MAX	0.088	0.781	0.109	1.172	0.0128	200	17.94	1.84	32.92	0.902	89.70	1.023	89.91	0.21	7768	18
103	NODE 103 + Node 104 + Node 120	3465.37 1846.83	5312.20	300	375 SEWER MAX	0.088	0.781	0.109	1.172	0.0128	200	12.30	1.91	23.48	0.928	61.48	1.051	92.42	30.94	7985	2673
104	NODE 104 + Node 105 + Node 130	1024.57 2440.80	3465.37	300	300 PVC	0.055	0.616	0.068	0.924	0.0128	200	8.02	2.00	16.02	0.791	40.11	0.897	48.99	8.89	4233	768
105	NODE 105 + Node 140 + Node 150	540.44 484.13	1024.57	325	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	2.37	2.27	5.38	0.653	11.86	0.740	25.61	13.75	2213	1188
110	P07B	1575.34 0.00 862.16	2437.50	300	300 PVC	0.055	0.616	0.068	0.924	0.0128	200	5.64	2.07	11.69	0.791	28.21	0.897	48.99	20.78	4233	1796
120	P13B + Node 121	284.50 126.00 143.80 1292.53	1846.83	280	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	4.28	2.13	9.12	0.704	21.38	0.797	27.59	6.22	2384	537
121	P11A & P11B	1125.60 81.88 85.05	1292.53	280	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	2.99	2.22	6.63	0.704	14.96	0.797	27.59	12.63	2384	1091
130	NODE 130 + Node 131 + Node 134	1803.56 637.24	2440.80	300	300 PVC	0.055	0.616	0.068	0.924	0.0128	200	5.65	2.07	11.71	0.791	28.25	0.897	48.99	20.74	4233	1792
131	P13A& P07C + Node 132	683.20 304.18 816.18	1803.56	280	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	4.17	2.14	8.93	0.704	20.87	0.797	27.59	6.72	2384	580
132	MIBA South App 2_Bulky Goods + Node 133	447.85 368.34	816.18	280	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	1.89	2.32	4.39	0.704	9.45	0.797	27.59	18.14	2384	1568
133	MIBA South App 2_Ind Lots	368.34	368.34	280	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	0.85	2.53	2.15	0.704	4.26	0.797	27.59	23.33	2384	2016
134	P07C	637.24	637.24	280	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	1.48	2.39	3.52	0.704	7.38	0.797	27.59	20.22	2384	1747
140	P5 MIBA South App 1	540.44	540.44	280	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	1.25	2.43	3.04	0.704	6.26	0.797	27.59	21.34	2384	1843
150	P5 MIBA North	484.13	484.13	150	150 PVC	0.014	0.314	0.018	0.471	0.0128	200	1.12	2.46	2.75	0.715	5.60	0.810	11.52	5.91	995	511
300	P07A + Node 301	41.76 32747.58	32789.34	333	675 GRP	0.328	1.508	0.407	2.262	0.0128	200	75.90	1.58	119.73	1.365	379.51	1.547	506.73	127.22	43781	10992
301	NODE 301 + Node 302 + Node 320	32045.04 702.54	32747.58	333	675 GRP	0.328	1.508	0.407	2.262	0.0128	200	75.80	1.58	119.59	1.365	379.02	1.547	506.73	127.70	43781	11034
302	NODE 302 + Node 303 + Node 330	27280.64 4764.40	32045.04	325	675 GRP	0.328	1.508	0.407	2.262	0.0128	200	74.18	1.58	117.29	1.382	370.89	1.566	512.93	142.03	44317	12272
303	NODE 303 + Node 304 + Node 370	21018.56 6262.08	27280.64	300	675 GRP	0.328	1.508	0.407	2.262	0.0128	200	63.15	1.61	101.56	1.438	315.75	1.630	533.87	218.12	46126	18846
304	P06 ROL1_5 + Node 305	210.00 20808.56	21018.56	300	525 GRP	0.202	1.183	0.251	1.775	0.0128	200	48.65	1.65	80.42	1.223	243.27	1.387	279.69	36.42	24165	3147
305	P06 ROL1_6 + Node 306	407.20 20401.36	20808.56	300	525 GRP	0.202	1.183	0.251	1.775	0.0128	200	48.17	1.65	79.70	1.223	240.84	1.387	279.69	38.85	24165	3357
306	P6 ROL2_5 + Node 307	228.50 20172.86	20401.36	300	525 GRP	0.202	1.183	0.251	1.775	0.0128	200	47.23	1.66	78.30	1.223	236.13	1.387	279.69	43.56	24165	3764
307	P06 ROL2_3 + Node 308	114.80 20058.06	20172.86	300	525 GRP	0.202	1.183	0.251	1.775	0.0128	200	46.70	1.66	77.51	1.223	233.48	1.387	279.69	46.21	24165	3992
308	P06 ROL2_2 + Node 309	240.80 19817.26	20058.06	300	525 GRP	0.202	1.183	0.251	1.775	0.0128	200	46.43	1.66	77.12	1.223	232.15	1.387	279.69	47.54	24165	4107
309	P6 Park + Node 310	406.50 19410.76	19817.26	300	525 GRP	0.202	1.183	0.251	1.775	0.0128	200	45.87	1.66	76.29	1.223	229.37	1.387	279.69	50.32	24165	4348
310	P6 School + Node 311	363.76 19047.00	19410.76	300	525 GRP	0.202	1.183	0.251	1.775	0.0128	200	44.93	1.67	74.89	1.223	224.66	1.387	279.69	55.03	24165	4755
311	P54 P55	8278.00 10769.00	19047.00	37	375 PVC	0.088	0.783	0.110	1.175	0.0128	200	44.09	1.67	73.63	2.646	220.45	2.999	265.05	44.60	22901	3854
320	P07A	369.60 332.94	702.54	250	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	1.63	2.36	3.84	0.745	8.13	0.844	29.20	21.07	2523	1820
330	NODE 330 + Node 331 + Node 340	2601.20 2163.20	4764.40	300	375 SEWER MAX	0.088	0.781	0.109	1.172	0.0128	200	11.03	1.93	21.30	0.928	55.14	1.051	92.42	37.28	7985	3221
331	NODE 331 + Node 350 + Node 360	929.60 1671.60	2601.20	300	300 PVC	0.055	0.616	0.068	0.924	0.0128	200	6.02	2.06	12.39	0.791	30.11	0.897	48.99	18.89	4233	1632
340	P11D & P16A	512.64 859.08 776.70 14.78	2163.20	280	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	5.01	2.10	10.51	0.704	25.04	0.797	27.59	2.55	2384	221

350	P11A, P11B & P11C	929.60	929.60	280	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	2.15	2.29	4.93	0.704	10.76	0.797	27.59	16.83	2384	1454
360	P9 ROL1 Stages 20 to 48 (50%) + Node 361	835.80 835.80	1671.60	280	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	3.87	2.16	8.34	0.704	19.35	0.797	27.59	8.24	2384	712
361	P9 ROL1 Stages 20 to 48 (50%)	835.80	835.80	280	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	1.93	2.32	4.49	0.704	9.67	0.797	27.59	17.92	2384	1548
370	P06 ROL1_4 + Node 371	336.00 5926.08	6262.08	250	375 SEWER MAX	0.088	0.781	0.109	1.172	0.0128	200	14.50	1.88	27.21	1.016	72.48	1.152	101.24	28.76	8747	2485
371	NODE 371 + Node 372 + Node 380	4140.17 1785.91	5926.08	250	375 SEWER MAX	0.088	0.781	0.109	1.172	0.0128	200	13.72	1.89	25.90	1.016	68.59	1.152	101.24	32.65	8747	2821
372	P06 ROL1_3 + Node 373	103.60 4036.57	4140.17	300	375 SEWER MAX	0.088	0.781	0.109	1.172	0.0128	200	9.58	1.96	18.79	0.928	47.92	1.051	92.42	44.50	7985	3845
373	NODE 373 + Node 374 + Node 390	1639.83 2396.74	4036.57	300	375 SEWER MAX	0.088	0.781	0.109	1.172	0.0128	200	9.34	1.97	18.37	0.928	46.72	1.051	92.42	45.70	7985	3949
374	P06 ROL1_2 + Node 375	394.80 1245.03	1639.83	300	375 SEWER MAX	0.088	0.781	0.109	1.172	0.0128	200	3.80	2.16	8.20	0.928	18.98	1.051	92.42	73.44	7985	6345
375	P06 ROL1_1 + Node 376	92.40 1152.63	1245.03	300	300 PVC	0.055	0.616	0.068	0.924	0.0128	200	2.88	2.22	6.41	0.791	14.41	0.897	48.99	34.58	4233	2988
376	P6 ROL2_4 + Node 377	235.20 917.43	1152.63	300	300 PVC	0.055	0.616	0.068	0.924	0.0128	200	2.67	2.24	5.98	0.791	13.34	0.897	48.99	35.65	4233	3080
377	NODE 377 + Node 378 + Node 400	0.00 705.15 212.28	917.43	300	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	2.12	2.30	4.88	0.680	10.62	0.770	26.66	16.04	2303	1386
378	P06 ROL2_1 + Node 379	439.60 265.55	705.15	60	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	1.63	2.36	3.85	1.520	8.16	1.723	59.60	51.44	5150	4445
379	P15A	265.55 0.00	265.55	150	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	0.61	2.62	1.61	0.961	3.07	1.090	37.70	34.62	3257	2991
380	P9 ROL1 Stages 2 to 17 plus non-re	1785.91	1785.91	300	300 PVC	0.055	0.616	0.068	0.924	0.0128	200	4.13	2.14	8.85	0.791	20.67	0.897	48.99	28.32	4233	2447
390	P8 ROL1	2396.74	2396.74	300	300 PVC	0.055	0.616	0.068	0.924	0.0128	200	5.55	2.08	11.52	0.791	27.74	0.897	48.99	21.25	4233	1836
400	P06 ROL3	212.28	212.28	300	225 PVC	0.035	0.490	0.043	0.735	0.0128	200	0.49	2.68	1.32	0.680	2.46	0.770	26.66	24.20	2303	2091

Appendix H Approved Town Centre East- West Road Memorandum

Client Ref: Lendlease

03 April 2024

Lendlease
Kingsgate, Kings Street, 2 King Street
BOWEN HILLS, QLD 4006

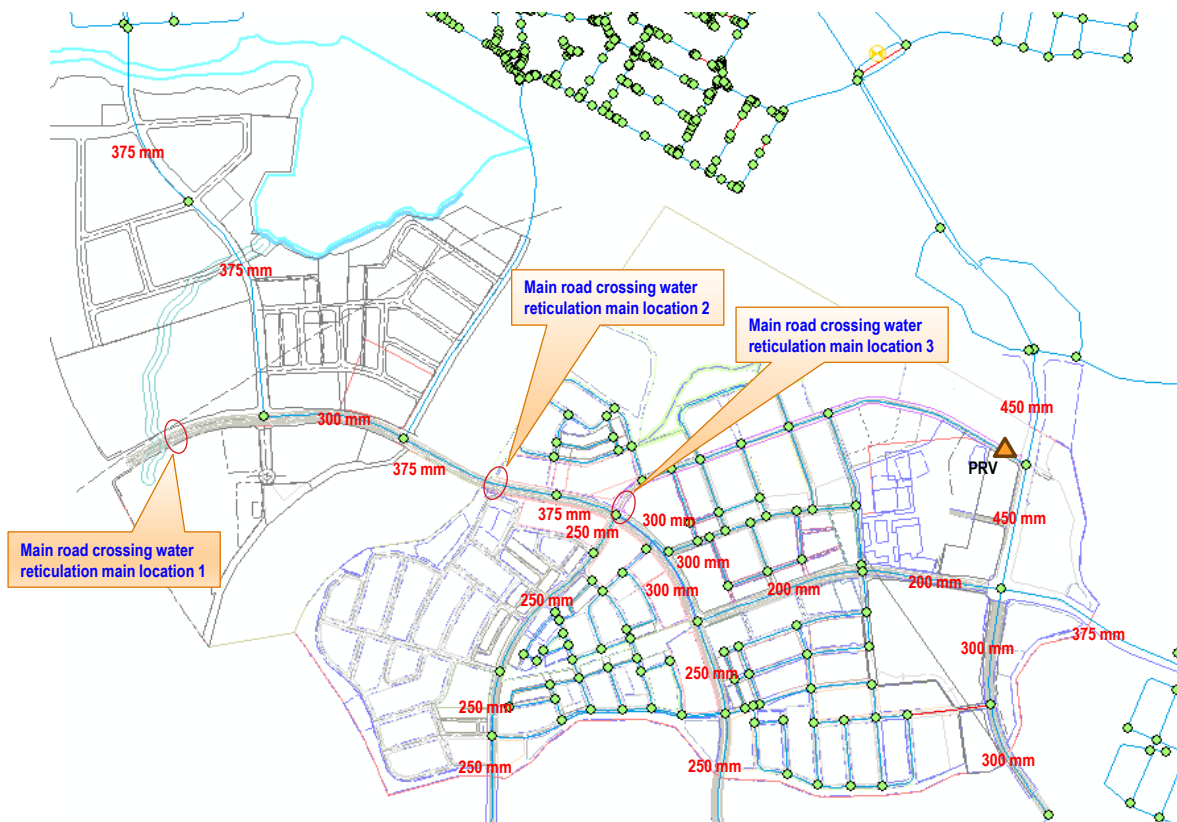
Attention: Andrew Erzetich

Dear Andrew,

Yarrabilba – Trunk and Reticulation Water Main Sizes Along Proposed Town Centre East-West Road

Lendlease has previously submitted the water reticulation layout plan drawing for the section along the proposed Yarrabilba Town Centre East-West Road (TCER) in March 2024. This letter provides the water trunk main sizes and the locations of cross-road water reticulation mains (not connected to the trunk water mains on the TCER), which can connect the future reticulation mains between both sides of TCER in the future. The water trunk main sizes were extracted from the overall Yarrabilba water network model, which has been provided to Logan City Council (LCC) in 2023. The proposed Yarrabilba water trunk mains sizes were tested against with the ultimate Yarrabilba PDA demands and the outcomes have been documented in the previous infrastructure master plan and precinct network plan reports.

A plan showing the water trunk main sizes and the locations of water reticulation mains crossing main roads is provided below:



Stantec Australia Pty Ltd
Level 3, SW1 52 Merivale Street
PO Box 3602
SOUTH BRISBANE, QLD 4101

ABN: 17 007 820 322
TEL +61 7 3029 5000
FAX +61 7 3029 5050

Ref No.: 300201033

YB TCER Tech Memo V01.docx

Please visit www.stantec.com to learn more about how Stantec design with community in mind.

The submitted water reticulation layout plan design drawings is also provided in Appendix A.

Please do not hesitate to contact the undersigned if you require any clarification on this assessment.

Yours sincerely

Henry Lin

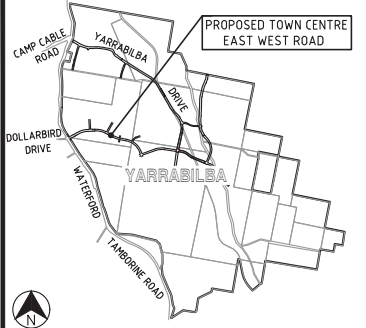
Stantec Australia Pty Ltd

Approved By: Phillip Hall RPEQ 23017.

Appendix A – TCER Water Reticulation Layout Plan Design Drawings



LOCALITY PLAN



REVISIONS

[illegible]

Client	
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Project



TOWN CENTRE
EAST-WEST ROAD



Approved

Digitally signed by Robert William
Mander BEng (Civil), CPEng, RPEQ
12805
Date: 2024.03.15 11:13:46+10'00'

Drawing Title

GENERAL
LOCALITY PLAN AND NOTES

Drawn SLK	Designed JAS	Checked RWM	Date MAR 24
Scale AS SHOWN			Sheet 01 of 176
A1	Drawing No 22-201- 01		Revision A



TOWN CENTRE
EAST-WEST ROAD
(WATERFORD - TAMBORINE RD TO YARRABILBA DRIVE)



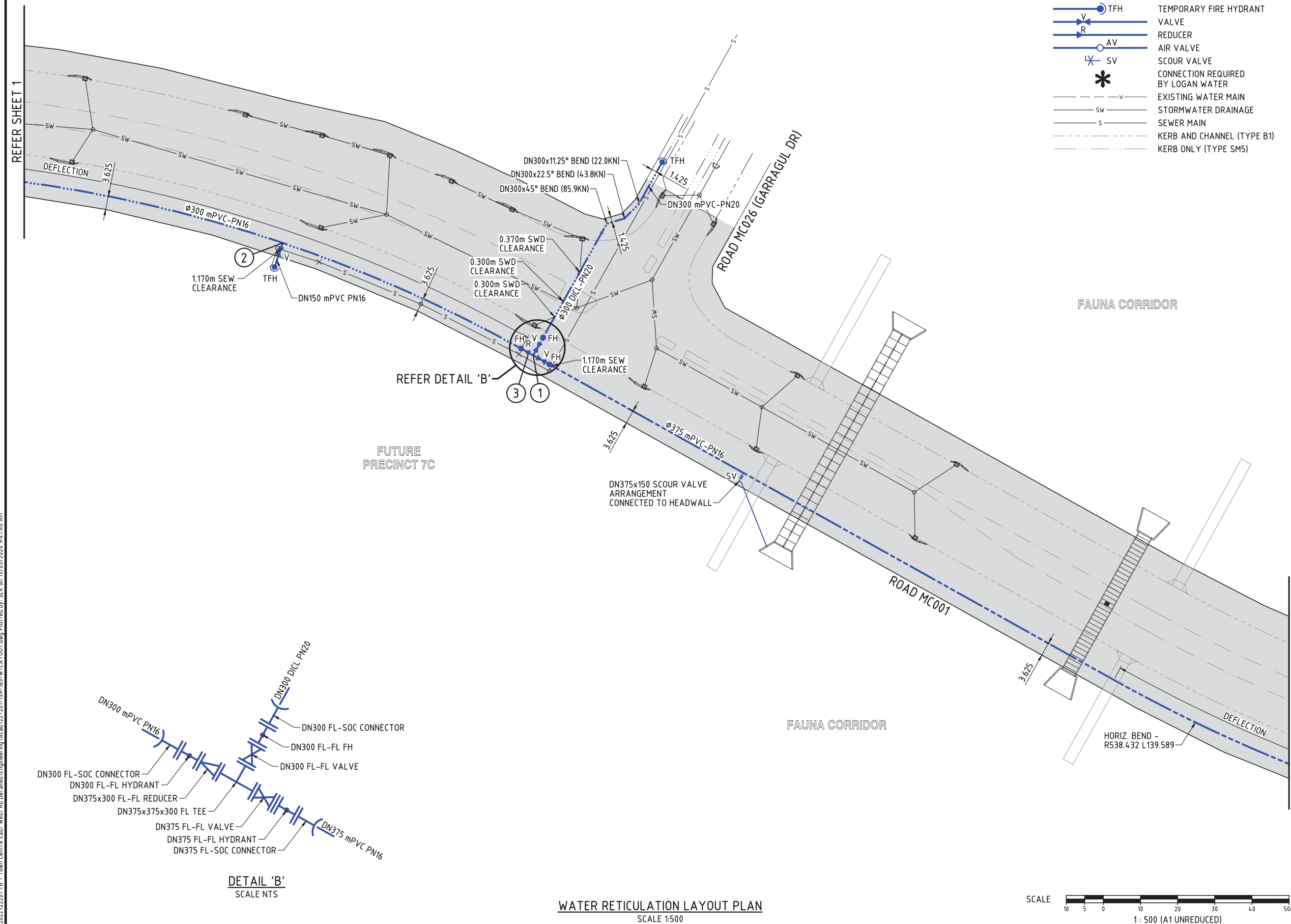
GENERAL NOTES

- | | | |
|----|---|--|
| 1. | ALL WORK SHALL BE JOINED NEATLY TO EXISTING CONSTRUCTION. | ON THE DRAWINGS, THE ACTUAL LIMITS SHALL BE DETERMINED ON |
| 2. | WHERE REFERENCE IS MADE ON THESE DRAWINGS TO A KERB LINE, IT SHALL BE TAKEN TO MEAN THE KERB INVERT LINE. | SITE BY THE ENGINEER AND SIMILARLY THE FINISHED SURFACE CONTOURS MAY BE ADJUSTED BY WRITTEN DIRECTION OF THE ENGINEER DURING CONSTRUCTION. |
| 3. | LEVELS FOR KERB AND CHANNEL CONSTRUCTION ARE SHOWN AT LIP OF CHANNEL UNLESS SHOWN OTHERWISE. | 10. THE MINIMUM CLEARANCE BETWEEN OUTER WALLS OF PIPES IN MANHOLES SHALL BE 150mm. |
| 4. | KERB AND CHANNEL AND SPOON DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH INSTITUTE OF PUBLIC WORKS ENGINEERING AUSTRALIA STANDARD DWG NO SEQ RS-80. SPOON DRAINS ACROSS ROAD INTERSECTIONS SHALL BE IN ACCORDANCE WITH INSTITUTE OF PUBLIC WORKS ENGINEERING AUSTRALIA STD DWG NO SEQ RS-80. THE CONCRETE SHALL BE CLASS N32 AND THE DEPTH INCREASED BY 50mm TO 175mm AT INVERT. FLUSH KERB TO BE INCREASED IN DEPTH BY 50mm TO 280mm. | 11. SUBSURFACE DRAIN CLEANING POINTS SHALL BE INSTALLED IN ACCORDANCE WITH IPWEAQ STD DWG NO SEQ RS-142. |
| 5. | IF MACHINE MADE KERB AND CHANNEL IS USED, EXTRA FINES AND 20mm SLUMP IS REQUIRED. | 12. CONSTRUCTION LOAD CONTROL ON THE INSTALLATION OF REINFORCED CONCRETE STORMWATER PIPE WORK SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE RECOMMENDATIONS DEFINED IN THE CONCRETE PIPE ASSOCIATIONS OF AUSTRALASIA'S "THE INSTALLATIONS OF STEEL REINFORCED CONCRETE PIPES - MINIMUM PIPE COVER REQUIRED FOR VARIOUS COMPACTORS". |
| 6. | ALL DRAINAGE CENTRE LINES ARE 2m FROM INVERT OF KERB UNLESS OTHERWISE SHOWN. | 13. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL ERECT A 2 STRAND WIRE FENCE INCLUDING SAFETY BARRIER MESH TO THE PERIMETER OF VEGETATION TO BE RETAINED AND/OR EXCLUSION ZONES. |
| 7. | GULLY CONNECTIONS AND STORM WATER PIPES SHALL BE 375mm DIAMETER CLASS '2' R.C. PIPES UNLESS SHOWN OTHERWISE. | 14. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF EXISTING SERVICES WITH RELEVANT AUTHORITIES/DIAL BEFORE YOU DIG PRIOR TO COMMENCING WORKS. |
| 8. | THE CONTRACTOR SHALL INITIALLY EXCAVATE THE PAVEMENT BOX TO 450mm BELOW THE FINISHED PAVEMENT LEVEL SHOWN ON THE DRAWINGS. HE SHALL THEN NOTIFY THE ENGINEER WHO WILL FIX THE PAVEMENT THICKNESS TO BE CONSTRUCTED FOLLOWING THE RESULTS OF SUB-GRADE TESTING. | 15. THE CONTRACTOR SHALL NOTE THE PRESENCE OF EXISTING SERVICES ASSOCIATED WITH THE WORKS. SPECIAL CARE MUST BE TAKEN BY THE CONTRACTOR IN THE VICINITY OF ALL SERVICES. |

REFER TO DWG
22-201-02 FOR
DRAWING INDEX

DATUM A.H.D.
P.S.M. No 59068
E 2125.967
N 26685.151
RL 46.040





DO NOT SCALE THIS DRAWING
IF IN DOUBT - ASK!

LOCALITY PLAN

REVISIONS

Client

Project

kn group

ABN 35 112 53 611
L1, 62 Astor Tce
Spring Hill Q 4000
07 3017 1900
www.knigroup.com.au

Approved

Drawing Title

A map of the proposed town centre area in Yarrabilba. The map shows a network of roads including Camp Cable Road, Dollabird Drive, Yarrabilba Drive, Mangrove Road, and East West Road. A north arrow is located in the bottom left corner. The word 'YARRABILBA' is written across the center of the map.

[illegible]

YARRABILBA
TOWN CENTRE
EAST-WEST ROAD

Approved

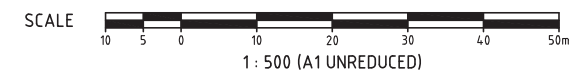


Digitally signed by Robert William
Mander BEng (Civil), CPEng, RPEQ
12805
Date: 2024.03.15 11:32:15+10'00'

Drawn SLK	Designed JAS	Checked RWM	Date MAR 24
Scale AS SHOWN			Sheet 161 of 176
A1	Drawing No 22-201-161		Revision A



	PROPOSED Ø150 WATER MAIN
	PROPOSED Ø200 WATER MAIN
	PROPOSED Ø250 WATER MAIN
	PROPOSED Ø300 WATER MAIN
	PROPOSED Ø375 WATER MAIN
	FIRE HYDRANT
	TEMPORARY FIRE HYDRANT
	VALVE
	REDUCER
	AIR VALVE
	SCOUR VALVE
	CONNECTION REQUIRED BY LOGAN WATER
	EXISTING WATER MAIN
	STORMWATER DRAINAGE
	SEWER MAIN
	KERB AND CHANNEL (TYPE B1)
	KERB ONLY (TYPE SM5)



[illegible]

YARRABILBA
TOWN CENTRE
EAST-WEST ROAD

Approved



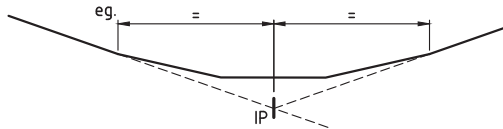
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12805
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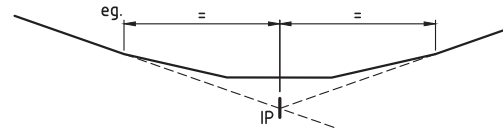
Drawn SLK	Designed JAS	Checked RWM	Date MAR 24
Scale AS SHOWN			Sheet 163 of 176
A1	Drawing No 22-201-163		Revision A



- SCALE 
1 : 500 (A1 UNREDUCED)

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE CURRENT WS&S CODE SPECIFICATIONS AND STANDARDS.
2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
3. ADOPT LIP OF KERB OR SHOULDER OF ROAD AS PERMANENT LEVEL.
4. COVER OVER MAINS FROM PERMANENT LEVEL TO BE AS SHOWN IN STANDARD DRAWING No. SEQ-WAT-1200-2.
5. MINIMUM EMBEDMENT (TYPE C MIN.) SHALL BE IN ACCORDANCE WITH STANDARD DRAWING Nos. SEQ-WAT-1200-2 TO SEQ-WAT-1203-1.
6. THRUST BLOCKS SHALL BE IN ACCORDANCE WITH AND PRESSURE TESTED TO 1200kPa AS PER STANDARD DRAWING No. SEQ-WAT-1205-1 AND SEQ-WAT-1206-1.
7. CONDUITS TO BE INSTALLED IN ACCORDANCE WITH THE STANDARD DRAWING No. SEQ-WAT-1110-1 AND 2.
8. A WATER METER IS TO BE INSTALLED AT THE RESIDENT'S COST, BY LOGAN WATER.
9. ALL MATERIALS USED IN THE WORKS SHALL BE AS FOLLOWS:
 - ALL DUCTILE IRON FITTINGS SHALL BE MANUFACTURED TO AS/NZS 2280 WITH SOCKET ENDS (UNLESS NOTED) AND DESIGNED FOR USE WITH PVC OR DI PIPES AS APPLICABLE. ALL DI PIPES SHALL BE CEMENT LINED TO AS/NZS 2280.
 - DICTL USED IN ROAD CROSSINGS WILL BE PN35 AS PER WATER AUTHORITY STANDARDS.
 - PRESSURE PIPES USED FOR WATER SUPPLY SHALL BE RRJ PIPES AND SHALL BE EITHER PVC CLASS PN16 (UNLESS NOTED OTHERWISE) MINIMUM AND MANUFACTURED TO (UPVC AS/NZS 1477), (PVC-M AS/NZS 4765) (PVC-0 AS/NZS 4441) OR DICTL PN 20, 35 OR FLANGED CLASS TO AS/NZS 2280).
 - DUCTILE IRON SLUICE AND SCOUR VALVES SHALL BE PN16 RESILIENT SEATED WITH DOUBLE "O" RING STEM SEALS MANUFACTURED TO AS 2638.
 - ALL VALVES, FITTINGS AND PIPE FITTINGS TO BE COATED INTERNALLY AND EXTERNALLY WITH FACTORY APPLIED THERMAL POLYMERIC CORROSION PROTECTION TO AS 4158.
 - ALL NUTS, BOLTS AND WASHERS, SHALL BE STAINLESS STEEL GRADE 316 CLASS 50, WITH AN ANTI-SEIZE APPLIED DURING ASSEMBLY.
 - ALL DUCTILE IRON FLANGES ARE TO COMPLY WITH AS/NZS 2280 AND SHALL BE RAISED FACE TO AS 4087.
10. ALL CONCRETE FOOTPATHS TO BE CLEAR OF WATER MAINS (WHERE APPLICABLE).
11. TEST/CHLORINATION POINTS TO BE INSTALLED IN ACCORDANCE WITH STANDARD DRAWING No. SEQ-WAT-1410-1.
12. MARKERS SHALL BE INSTALLED FOR ALL SERVICE CROSSINGS, HYDRANTS AND VALVES IN ACCORDANCE WITH STANDARD DRAWING Nos. SEQ-WAT-1107-1, SEQ-WAT-1300-1 AND SEQ-WAT-1300-2.
13. THE CONSTRUCTION OF THE WATER RETICULATION WORK SHOWN ON THIS DRAWING MUST BE SUPERVISED BY AN ENGINEER WHO HAS R.P.E.Q. REGISTRATION. WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT TO THE RETICULATION SYSTEM.
14. WATER MAIN SHALL BE LAID AT 1.425m ALIGNMENT FROM PROPERTY BOUNDARY UNLESS NOTES OTHERWISE.
15. WHERE PERMANENT HYDRANTS ARE NOT INSTALLED AT END OF MAINS OF EACH STAGE, A TEMPORARY HYDRANT WILL BE INSTALLED INSTEAD.
16. NO WORK SHALL BE BACKFILLED UNTIL PERMISSION IS GRANTED BY THE SUPERINTENDENT OR LOGAN WATER.

17. NOT ALL SERVICES HAVE NECESSARILY BEEN SHOWN. THE LOCATION OF SERVICES ON THESE PLANS ARE APPROXIMATE ONLY. NO RESPONSIBILITY IS TAKEN FOR THE ACCURACY OR COMPLETENESS OF THIS INFORMATION NO WORK IS TO BE UNDERTAKEN WITHOUT CONSULTING THE RELEVANT SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF THE WORK. DEPTH OF SERVICES AT POSSIBLE CONFLICT POINTS ARE TO BE CONFIRMED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ABOVE GROUND SERVICES AS SHOWN ON THE DRGS HAVE BEEN LOCATED BY FIELD SURVEY. ALL UNDERGROUND SERVICES HAVE BEEN PLOTTED FROM THE RELEVANT AUTHORITY'S RECORDS.
 18. ALL EXISTING FEATURES (eg. DRIVEWAYS, GARDENS, PATHS etc.) ARE TO BE REINSTATED WHERE DISTURBED BY THE WORKS. ALLOW FOR SUPPORT OF POWER POLES/STAYS, FENCES etc. ADJACENT TO TRENCHES.
 19. WHERE BEND FITTINGS ARE NOT SHOWN, MAKE CHANGES IN DIRECTION USING PIPE JOINT DEFLECTIONS. MAKE EQUAL NUMBER AND SIZE OF PIPE DEFLECTIONS EACH SIDE OF CHAINAGE SHOWN (MAX. DEFLECTION 3° PER JOINT). IL SHOWN ON LONG SECTIONS IS AT INTERSECTIONS POINT (IP). JOINT DEFLECTIONS MAY ALSO BE REQUIRED AT FITTINGS TO MEET ALIGNMENT AND LEVELS AS SPECIFIED.
- 
20. WATER SERVICE CONNECTIONS INCLUSIVE OF WATER METER BOXES ARE TO BE INSTALLED IN ACCORDANCE WITH STD DWGS SEQ-WAT-1110-1 & SEQ-WAT-1110-2 AND OTHER RELEVANT STANDARD DRAWINGS FROM THE SEQ DESIGN AND CONSTRUCTION CODE, AT NO COST TO COUNCIL.
 21. TERMINATE ALL WATER SERVICES AFTER INSTALLATION OF THE BALL VALVE (PRIOR TO THE WATER METER). THE APPLICANT IS NOT REQUIRED TO MAKE AN APPLICATION TO COUNCIL FOR THE PROVISION OF A WATER METER AT THIS TIME.
 22. THE POLYETHYLENE SERVICE LINE MUST COMPLY WITH AS/NZS4130 SERIES 1 DN20 PN16.
 23. TAPPING BANDS MUST BE USED WHEN PROVIDING CONNECTION, UNLESS OTHERWISE APPROVED BY COUNCIL.
 24. PROPERTY SERVICES WITHIN ANY FOOTWAY SHALL BE POSITIONED AT 90±5 DEGREES TO THE WATER MAIN OR KERB. WHERE REQUIRED TO CROSS THE ROAD CARRIAGEWAY, PROPERTY SERVICES SHALL BE LOCATED WITHIN THE SERVICE DUCTS (CONDUITS) POSITIONED AT 90±5 DEGREES TO THE ROAD CARRIAGEWAY OR FROM SIDE BOUNDARY TO SIDE BOUNDARY AND EXTENDING BEHIND EACH KERB IN ACCORDANCE WITH CLAUSE 5.11.3 OF THE SOUTH EAST QUEENSLAND WATER SUPPLY AND SEWERAGE DESIGN AND CONSTRUCTION CODE. THE CONDUIT SHALL HAVE A MAXIMUM LENGTH OF 25m AND EXTEND 300mm BEYOND THE BACK OF THE KERB OR CONCRETE/PAVED AREA.
 25. WHERE PRACTICABLE, PROPERTY SERVICE CONNECTION POINTS MUST BE LOCATED 300mm FROM THE RESIDENTIAL PROPERTY SIDE BOUNDARY ON THE OPPOSITE SIDE OF THE ALLOTMENT TO THE ELECTRICAL SERVICE PILLAR-BOX. SERVICES MUST BE LOCATED AT LEAST 1.0m FROM ALL ELECTRICAL SOURCES AND CLEAR OF EXISTING OR FUTURE DRIVEWAY. PROPERTY SERVICES LAID PARALLEL TO THE FOOTPATH AND/OR PROPERTY BOUNDARY ARE NOT PERMITTED (SEQ CODE CLAUSE 5.11.5). TERMINATE ALL WATER SERVICES AFTER INSTALLATION OF THE BALL VALVE (PRIOR TO THE WATER METER). THE APPLICANT IS NOT REQUIRED TO MAKE AN APPLICATION TO COUNCIL FOR THE PROVISION OF A WATER METER AT THIS TIME.



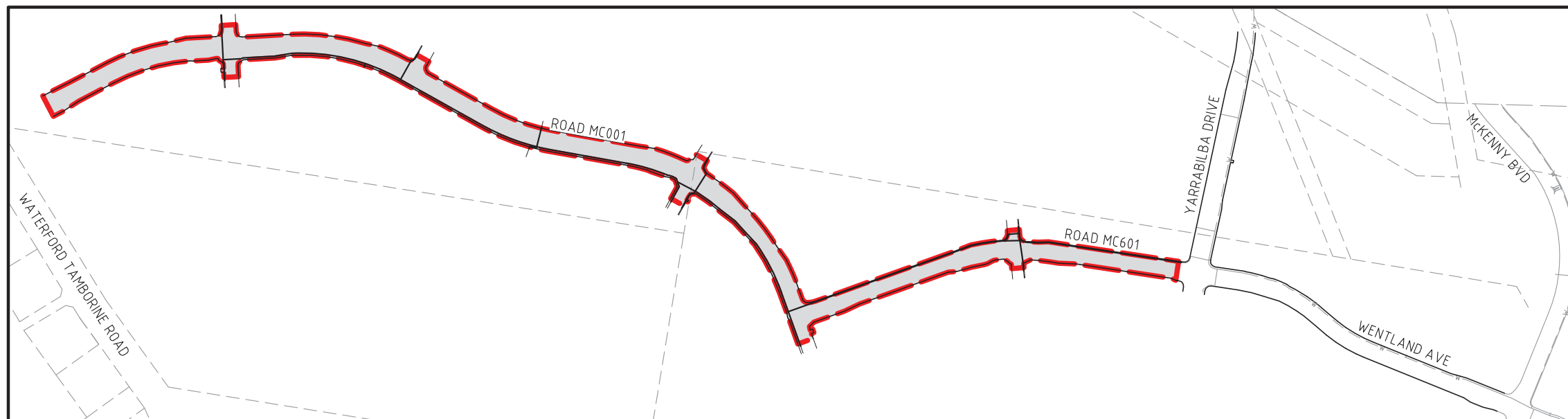
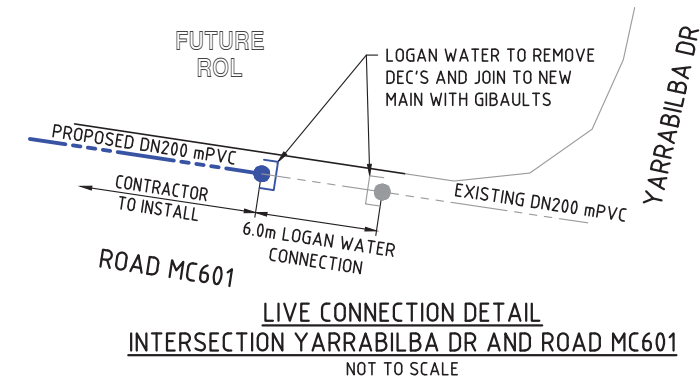
1. ALL DUCTILE IRON FITTINGS SHALL BE MANUFACTURED TO AS/NZS 2280 WITH SOCKET ENDS (UNLESS NOTED) AND DESIGNED FOR USE WITH PVC OR DI PIPES AS APPLICABLE. ALL DI PIPES SHALL BE CEMENT LINED TO AS/NZS 2280.
2. DI CL USED IN ROAD CROSSINGS WILL BE PN35 AS PER WATER AUTHORITY STANDARDS.
3. PRESSURE PIPES USED FOR WATER SUPPLY SHALL BE RRJ PIPES AND SHALL BE EITHER PVC CLASS PN16 (UNLESS NOTED OTHERWISE) MINIMUM AND MANUFACTURED TO (UPVC AS/NZS 1477), (PVC-M AS/NZS 4765) (PVC-0 AS/NZS 4441) OR DI CL PN 20, 35 OR FLANGED CLASS TO AS/NZS 2280).
4. DUCTILE IRON SLUICE AND SCOUR VALVES SHALL BE PN16 RESILIENT SEATED WITH DOUBLE "O" RING STEM SEALS MANUFACTURED TO AS 2638.
5. ALL VALVES, FITTINGS AND PIPE FITTINGS TO BE COATED INTERNALLY AND EXTERNALLY WITH FACTORY APPLIED THERMAL POLYMERIC CORROSION PROTECTION TO AS 4158.
6. ALL NUTS, BOLTS AND WASHERS, SHALL BE STAINLESS STEEL GRADE 316 CLASS 50, WITH AN ANTI-SEIZE APPLIED DURING ASSEMBLY.
7. ALL DUCTILE IRON FLANGES ARE TO COMPLY WITH AS/NZS 2280 AND SHALL BE RAISED FACE TO AS 4087.

- A. TREES LOCATED ALONG THE FOOTPATH SHALL BE, TRANSPLANTED PRIOR TO CONSTRUCTION, OR REPLACED IF DESTROYED.
- B. WHEN WORKING WITHIN 4m OF TREES, RUBBER OR HARDWOOD GIRDLES SHALL BE CONSTRUCTED WITH 1.8m BATTENS CLOSELY SPACED AND ARRANGED VERTICALLY FROM GROUND LEVEL. GIRDLES SHALL BE STRAPPED TO TREES PRIOR TO CONSTRUCTION AND REMAIN UNTIL COMPLETION.
- C. TREE ROOTS SHALL BE TUNNELLED UNDER, RATHER THAN SEVERED. IF ROOTS ARE SEVERED THE DAMAGED AREA SHALL BE TREATED WITH A SUITABLE FUNGICIDE. CONTACT RELEVANT COUNCIL ARBORIST FOR FURTHER ADVICE.
- D. ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY AN APPROVED ARBORIST.

- A. TOPSOIL AND SUBSOIL SHOULD BE STOCKPILED SEPARATELY.
- B. CARE SHOULD BE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE STORMWATER SYSTEM. THIS MAY INVOLVE PLACING APPROPRIATE SEDIMENT CONTROL AROUND STOCKPILES.

- A. SILTATION CONTROL MEASURES SHALL BE PLACED DOWNSTREAM OF ANY EXCAVATION WORK.
- B. APPROPRIATE SEDIMENT CONTROLS SHALL BE USED TO PREVENT SEDIMENT FROM ENTERING THE CREEK.
- C. NO SOIL SHOULD BE STOCKPILED WITHIN 5m OF CREEK.

- A. PREDISTURBANCE SOIL PROFILES AND COMPACTION LEVELS SHALL BE REINSTATED.
- B. PREDISTURBANCE VEGETATION PATTERNS SHALL BE RESTORED.



LOCALITY PLAN
SCALE 1:5000

CAMP CABLE ROAD

YARRABILBA

PROPOSED TOWN CENTRE
EAST WEST ROAD

YARRABILBA DRIVE

DOLLARBIRD DRIVE

WATERSFORD

T. A. MORING ROAD

YARRABILBA

N

[illegible]

YARRABILBA
TOWN CENTRE
EAST-WEST ROAD

kn group

ABN 35 112 53 611
L1, 62 Astor Tce
Spring Hill Q 4000
07 3017 1900
www.knigroup.com.au

Approved



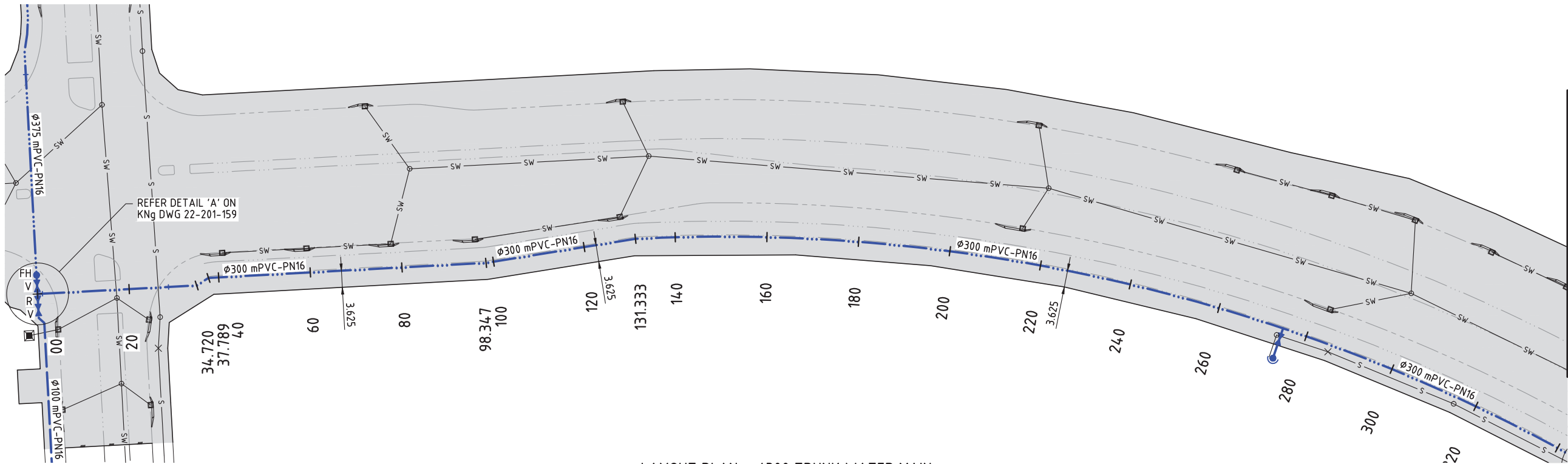
Digitally signed by Robert William
Mander BEng (Civil), CPEng, RPEQ
12805
Date: 2024.03.15 11:32:19+10'00'

Drawing Title

WATER RETICULATION
LIVE CONNECTION DETAILS
AND NOTES

Drawn SLK	Designed JAS	Checked RWM	Date MAR 24
Scale AS SHOWN			Sheet 166 of 170
A1	Drawing No 22-201-166		Revision A

MA2022-22201 YB - Town Centre East West Rd Detailed Engineering\Acad\22-201-167-174-W-TRUNK LAYOUT.dwg Plotted by: SLK on 15/03/2024 9:47:48 AM



LAYOUT PLAN - Ø300 TRUNK WATER MAIN
SCALE 1:500

LEGEND

- PROPOSED Ø150 WATER MAIN
- PROPOSED Ø200 WATER MAIN
- PROPOSED Ø250 WATER MAIN
- PROPOSED Ø300 WATER MAIN
- PROPOSED Ø375 WATER MAIN
- FH FIRE HYDRANT
- TFH TEMPORARY FIRE HYDRANT VALVE
- REDUCER
- AIR VALVE
- SCOUR VALVE
- EXISTING WATER MAIN
- STORMWATER DRAINAGE
- SEWER MAIN
- KERB AND CHANNEL (TYPE B1)
- KERB ONLY (TYPE SM5)
- CONNECTION REQUIRED BY LOGAN WATER

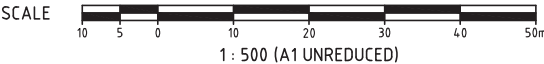
NOTE
FOR ALL PIPE BENDS,
DEFLECTIONS AND
CLEARANCES REFER TO KNg
DWG 22-201-159 TO 165

Vertical Geometry Grade
Vertical Geometry Length (m)
PIPE SIZE

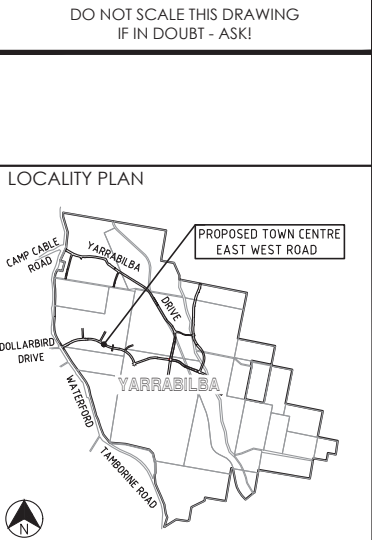
STAGE
DATUM R.L40.000

DESIGN SURFACE	DEPTH TO INVERT LEVEL	NATURAL SURFACE	DEPTH TO NATURAL INVERT LEVEL	PEGGED CHAINAGE
52.801	-1.570	58.726	-7.495	0.000
52.557	-1.596	57.869	-6.908	34.720
52.488	-1.551	57.789	-6.851	37.789
52.297	-1.455	57.338	-6.496	50.000
52.099	-1.334	57.051	-6.286	59.932
51.333	-1.317	55.475	-5.459	98.347
51.305	-1.321	55.395	-5.411	100.000
50.776	-1.403	54.738	-5.365	131.333
50.386	-1.377	54.078	-5.069	150.000
49.338	-1.305	52.317	-4.283	200.000
48.905	-1.348	51.345	-3.789	224.483
48.590	-1.301	50.046	-2.756	250.000
48.093	-1.299	47.663	-0.870	297.378
48.066	-1.307	47.523	-0.764	300.000

LONGITUDINAL SECTION - Ø300 TRUNK WATER MAIN
SCALE - H - 1:500
V - 1:100



REFER SHEET 2



No	Description	Date	By
A	FOR APPROVAL	14.03.24	SLK



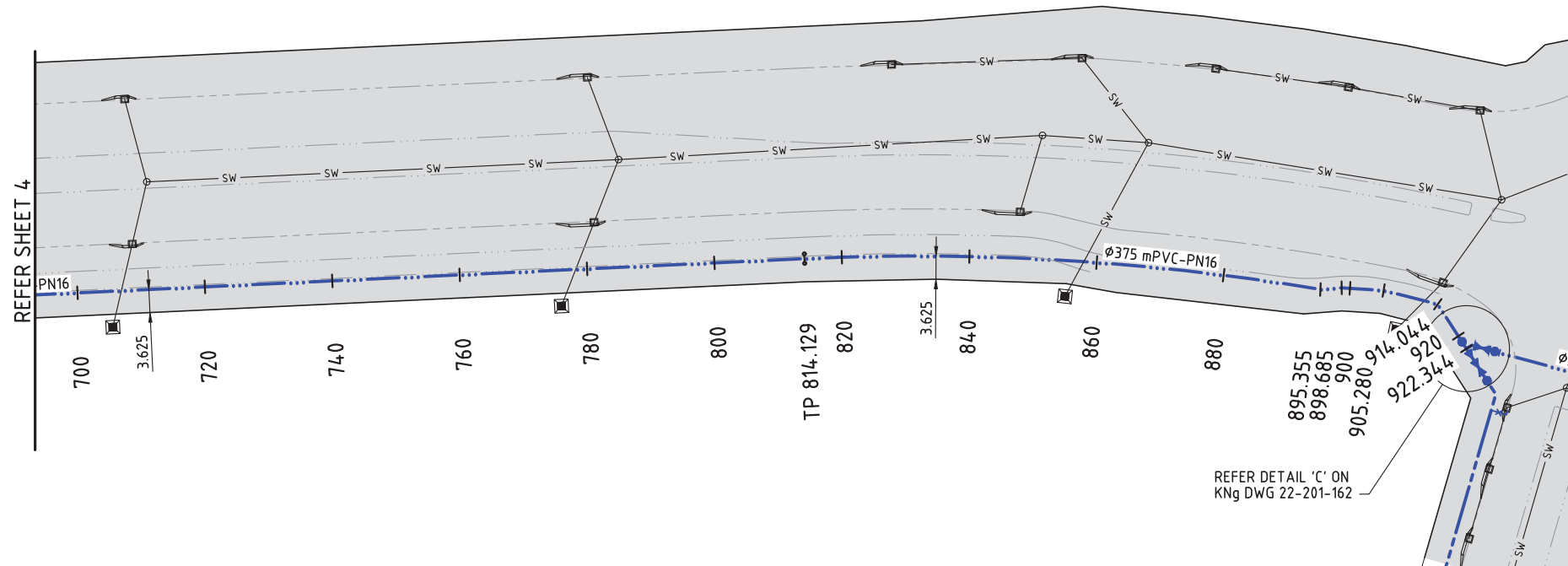
Project
YARRABILBA
TOWN CENTRE
EAST-WEST ROAD



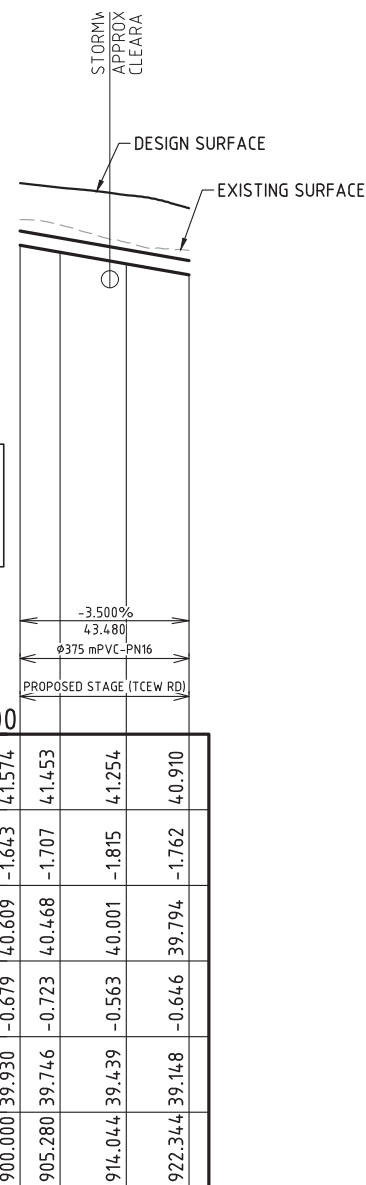
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Digitally signed by Robert William Mander BEng (Civil), CPEng, RPEQ 12805
Date: 2024.03.15 11:32:19+10'00'

Drawing Title
**WATER RETICULATION
LAYOUT & LONG. SECTIONS
SHEET 1**

Drawn SLK	Designed JAS	Checked RWM	Date MAR 24
Scale AS SHOWN	Drawing No 22-201-167	Sheet 167 of 176	Revision A



LAYOUT PLAN - Ø375 TRUNK WATER MAIN
SCALE 1:500



NOTE
FOR ALL PIPE BENDS,
DEFLECTIONS AND
CLEARANCES REFER TO KNG
DWG 22-201-159 TO 165

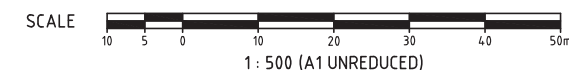
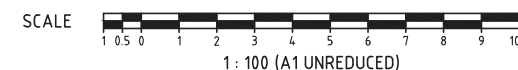
Vertical Geometry Grade
Vertical Geometry Length (m)
PIPE SIZE

STAGE
DATUM R.L.27.000

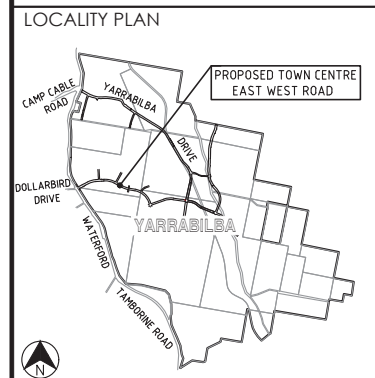
DESIGN SURFACE	41.574	41.453	41.254	40.910
DEPTH TO INVERT LEVEL	-1.643	-1.707	-1.815	-1.762
NATURAL SURFACE	40.609	40.468	40.001	39.794
DEPTH TO NATURAL	-0.679	-0.723	-0.563	-0.646
INVERT LEVEL	39.930	39.746	39.439	39.148
PEGGED CHAINAGE	900.000	905.280	914.044	922.344

LONGITUDINAL SECTION - Ø375 TRUNK WATER MAIN

SCALE - H - 1:500
V - 1:100



DO NOT SCALE THIS DRAWING
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Client	
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Project



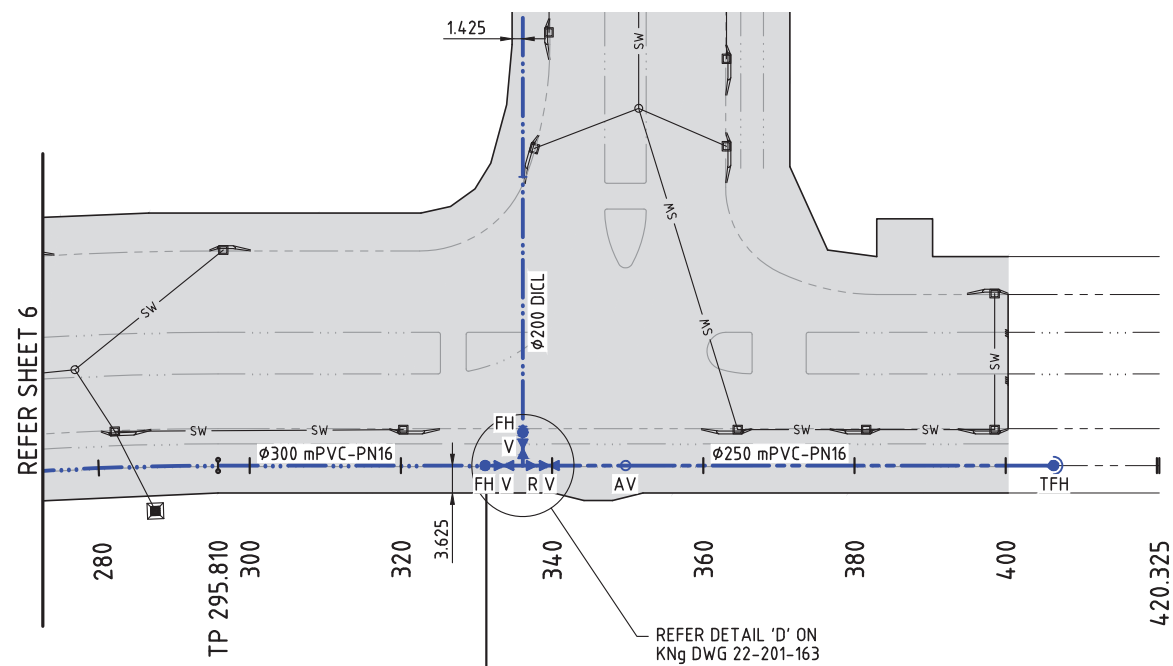
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Digitally signed by Robert William
Mander BEng (Civil), CPEng, RPEQ
12805
Date: 2024.03.15 11:32:21+10'00'

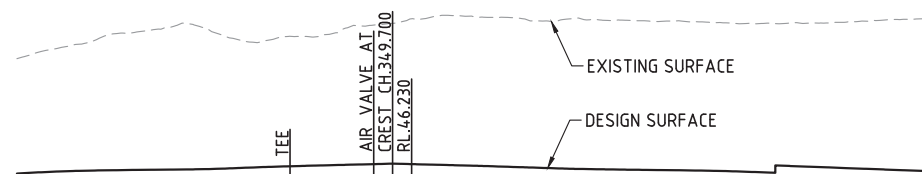
Drawing Title

WATER RETICULATION
LAYOUT & LONG. SECTIONS
SHEET 4

Drawn SLK	Designed JAS	Checked RWM	Date MAR 24
Scale AS SHOWN			Sheet 170 of 170
A1	Drawing No 22-201-170		Revision A



LAYOUT PLAN - Ø300 TRUNK WATER MAIN
SCALE 1:500

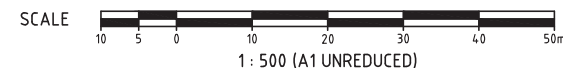
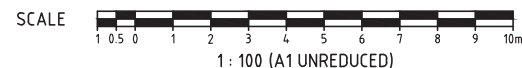


NOTE
FOR ALL PIPE BENDS,
DEFLECTIONS AND
CLEARANCES REFER TO KNG
DWG 22-201-159 TO 165

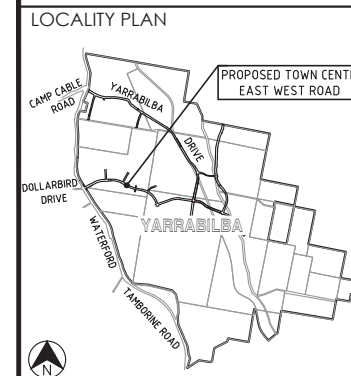
Vertical Geometry Grade
Vertical Geometry Length (m)
PIPE SIZE

STAGE		PROPOSED STAGE (TCEW RD)				FUTURE STAGE	
DATUM R.L.33.000							
DESIGN SURFACE	47.219	47.411	47.480	47.479		47.240	47.283
DEPTH TO INVERT LEVEL	-1.337	-1.313	-1.250	-1.250		-1.287	-1.442
NATURAL SURFACE	50.255	50.848	51.190	51.195		51.191	51.312
DEPTH TO NATURAL	-4.373	-4.749	-4.960	-4.967		-5.237	-5.470
INVERT LEVEL	45.882	46.099	46.230	46.228		45.953	45.842
PEGGED CHAINAGE	300.000	336.125	349.700	350.000		400.000	420.325

LONGITUDINAL SECTION - Ø300 TRUNK WATER MAIN
SCALE - H - 1:500
V - 1:100



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Client



Project



Approved

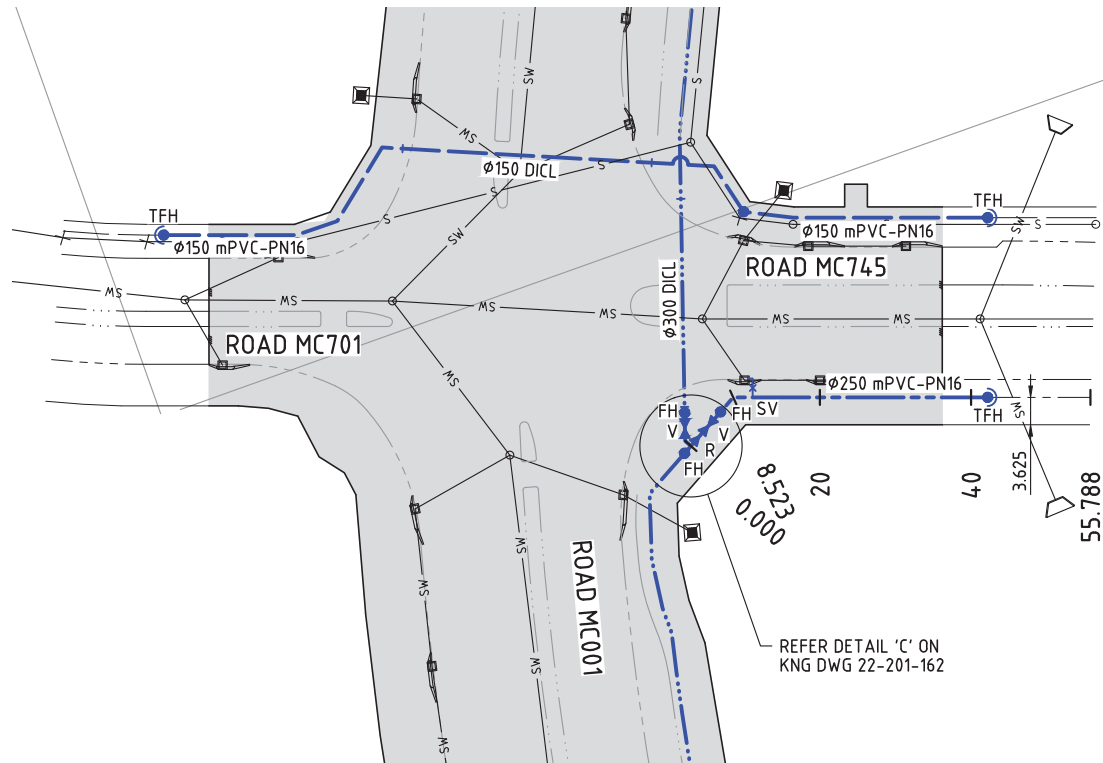
Digitally signed by Robert William
Mander BEng (Civil), CPEng, RPEQ
12805
Date: 2024.03.15 11:32:23+10'00'

Drawing Title

WATER RETICULATION
LAYOUT & LONG. SECTIONS
SHEET 7

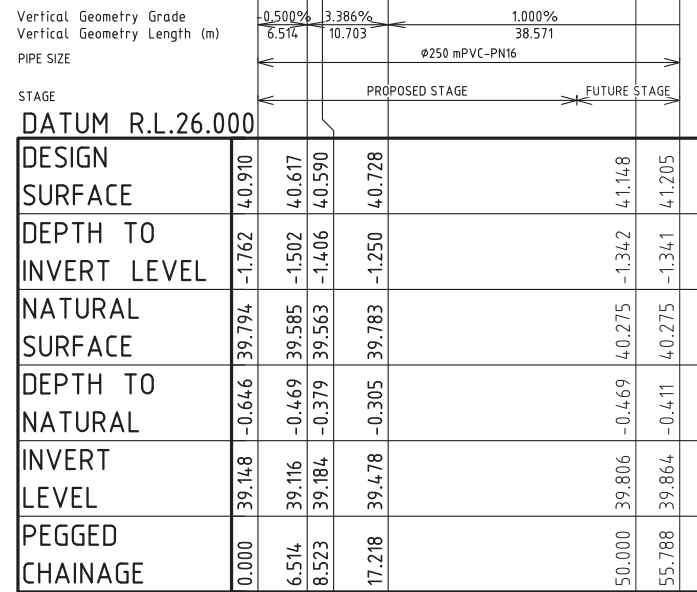
Drawn SLK	Designed JAS	Checked RWM	Date MAR 24
Scale AS SHOWN			Sheet 173 of 176
A1	Drawing No 22-201-173		Revision A

MA 2022-22201 YB - Town Centre East West Rd Detailed Engineering Acad 22-201-167-174-W-TRUNK LAYOUT.dwg Plotted by: SLK on 15/03/2024 9:47:52 AM

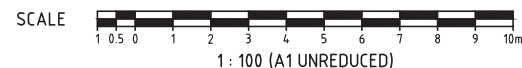


LAYOUT - Ø250 TRUNK WATER MAIN
SCALE 1:500

NOTE
FOR ALL PIPE BENDS,
DEFLECTIONS AND
CLEARANCES REFER TO KNG
DWG 22-201-159 TO 165



LONGITUDINAL SECTION - Ø250 TRUNK WATER MAIN
SCALE - H - 1:500
V - 1:100



LEGEND

- PROPOSED Ø150 WATER MAIN
- PROPOSED Ø200 WATER MAIN
- PROPOSED Ø250 WATER MAIN
- PROPOSED Ø300 WATER MAIN
- PROPOSED Ø375 WATER MAIN
- FIRE HYDRANT
- TEMPORARY FIRE HYDRANT
- VALVE
- REDUCER
- AIR VALVE
- SCOUR VALVE
- EXISTING WATER MAIN
- STORMWATER DRAINAGE
- SEWER MAIN
- KERB AND CHANNEL (TYPE B1)
- KERB ONLY (TYPE SMS)
- CONNECTION REQUIRED BY LOGAN WATER

Approved

Digitally signed by Robert Williams
Mander BEng (Civil), CPEng, RPEQ
12805
Date: 2024.03.15 11:32:24+10'00'

Drawing Title
**WATER RETICULATION
LAYOUT & LONG. SECTIONS
SHEET 8**

Drawn	Designed	Checked	Date
SLK	JAS	RWM	MAR 24

Scale	Sheet
AS SHOWN	174 of 176

Drawing No	Revision
22-201-174	A

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LOCALITY PLAN

REVISIONS

No	Description	Date	By
A	FOR APPROVAL	14.03.24	SLK

Client

lendlease

Project

YARRABILBA
TOWN CENTRE
EAST-WEST ROAD

kn group
ABN 35 112 53 611
L1, 62 Astor Tce
Spring Hill Q 4000
07 3017 1900
www.kngroup.com.au

Approved

Digitally signed by Robert Williams
Mander BEng (Civil), CPEng, RPEQ
12805
Date: 2024.03.15 11:32:24+10'00'

Drawing Title
**WATER RETICULATION
LAYOUT & LONG. SECTIONS
SHEET 8**

Drawn	Designed	Checked	Date
SLK	JAS	RWM	MAR 24

Scale	Sheet
AS SHOWN	174 of 176

Drawing No	Revision
22-201-174	A

CREATING COMMUNITIES

Communities are fundamental. Whether around the corner or across the globe, they provide a foundation, a sense of belonging. That's why at Stantec, we always **design with community in mind**.

We care about the communities we serve—because they're our communities too. We're designers, engineers, scientists, and project managers, innovating together at the intersection of community, creativity, and client relationships. Balancing these priorities results in projects that advance the quality of life in communities across the globe.

Australian offices:

Adelaide, Albany, Brisbane, Busselton,
Gold Coast, Karratha, Melbourne, Newcastle, Perth,
Rockhampton, Sydney

Stantec Australia Pty Ltd

Level 3, SW1 52 Merivale Street
PO Box 3602
SOUTH BRISBANE, QLD 4101

