INFRASTRUCTURE SERVICING REPORT PRECINCT 5, OLD MELBOURNE ROAD, BALLAN

16 JANUARY 2024

PREPARED FOR OMRB DEVELOPMENTS PTY LTD

This report has been prepared by the office of Spiire
115 Doveton Street South, Ballarat

Issue Date	Rev No	Authors	Checked	Approved
24/05/2022	A	A. Wilkie	C. Clarke	C. Clarke
31/05/2022	B	A. Wilkie	C. Clarke	C. Clarke
29/06/2023	C	A. Wilkie / K. Wilkinson	A. Wilkie	K. Wilkinson
16/01/2024	D	A. Wilkie / K. Wilkinson	A. Wilkie	K. Wilkinson

Spiire Job Number: 310024

Citation: Spiire 2024 INFRASTRUCTURE SERVICING REPORT PRECINCT 5, OLD MELBOURNE ROAD, BALLAN Report for OMRB DEVELOPMENTS PTY LTD.
Authors: A. Wilkie / K. Wilkinson Spiire Australia Pty Ltd. Project Number 310024

File Name: O:\31\310024\G08 001 Ballan Infrastructure Servicing Report Rev D.docx

TABLE OF CONTENTS

1. INTRODUCTION

OMRB Developments Pty Ltd has engaged Spiire to undertake an infrastructure serving report for the proposed residential subdivision development at Old Melbourne Road, Ballan Victoria. The purpose of this report it to review the servicing requirements for the proposed development of the site based on information and advice from the service authorities. The advice provided in this report is subject to formal servicing advice and agreements with the relevant authorities.

2. SITE DESCRIPTION AND CONTEXT

The site is approximately 85.6ha and is bounded by the Western Freeway to the north, the Geelong-Ballan Rd to the west, the Old Melbourne Rd to the south and the Werribee River to the east.

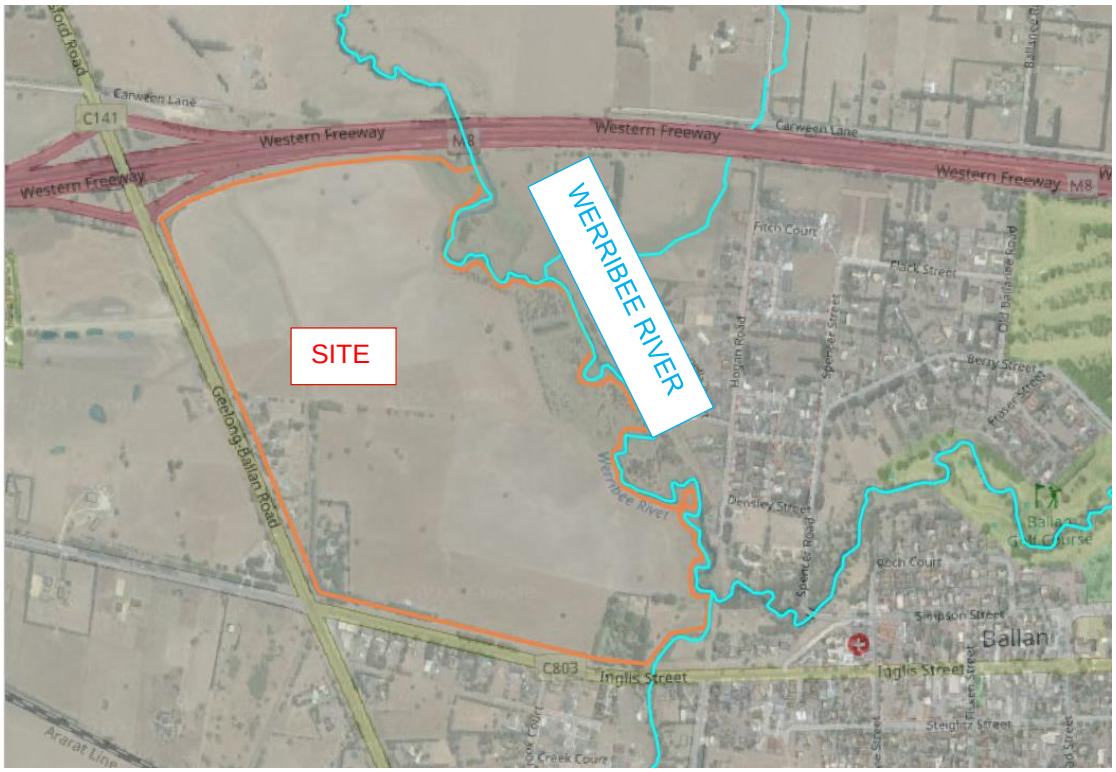
The site is located within Precinct 5 in the Ballan Framework Plan and is intended for future residential development. It is located on the western edge of the Ballan town centre and approximately 80km to the north west of Melbourne. Land use and development surrounding the site is predominantly for a mix of residential and rural land uses.

The site itself is largely cleared, despite some scattered vegetation and an existing shed within the southern portion of the site. Werribee river abuts the sites eastern boundary and a number of low density residential properties are located adjacent to the sites south western boundaries. The site generally falls to the east toward the Werribee River that flows to the south.

There is an existing Barwon Water rural irrigation channel which traverses through the western portion of the site. Council have indicated that this channel is proposed to be decommissioned by Barwon Water. Barwon Water are currently going through approval of the sale process of the portion of land containing the channel. This is discussed in further detail in the following sections of the report.

Road access to the site is currently provided via a crossover on Geelong-Ballan Road and Old Melbourne Road.

The site is shown in **Figure 1** below.



3. PROPOSED DEVELOPMENT

The approximate Net Developable Area of the site is 60.9ha. A copy of the proposed concept masterplan is shown in Figure 2 below. The servicing review and advice has been based upon this concept plan and indicative yield.

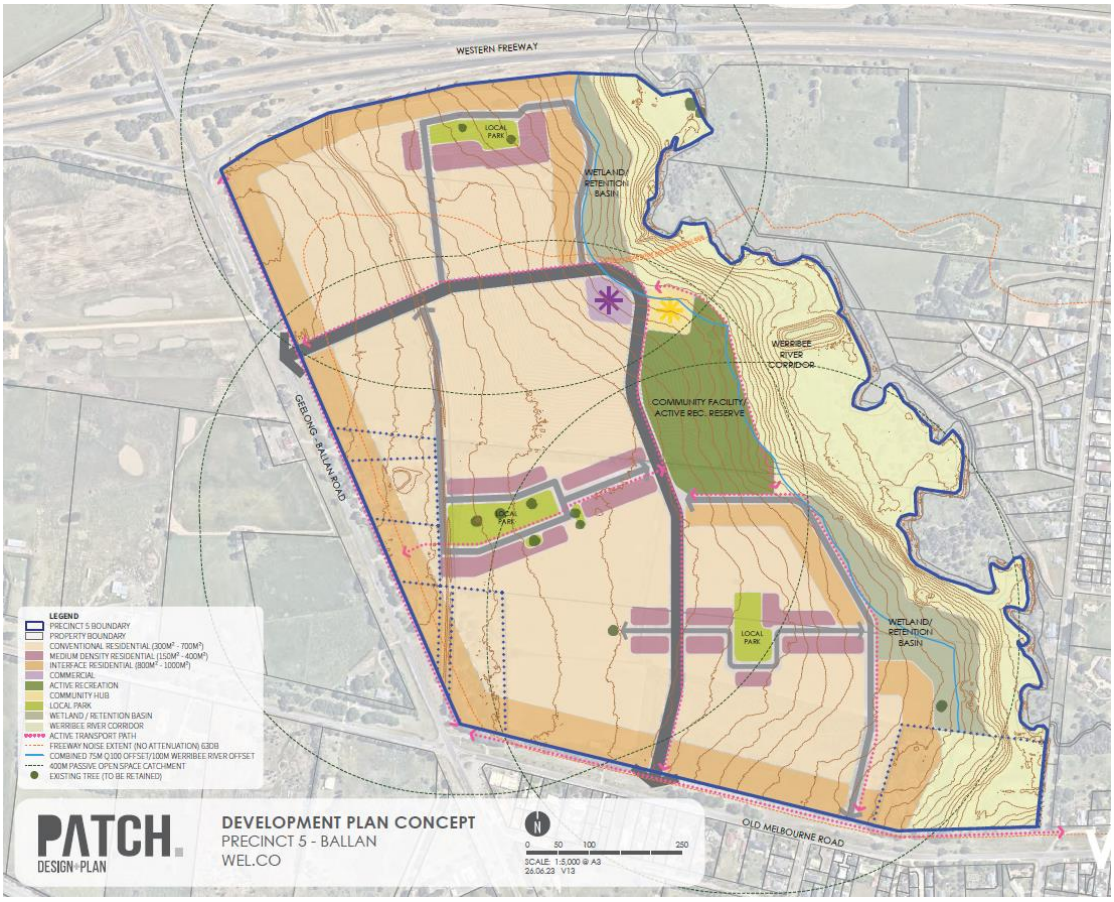


Figure 2: Concept Plan (V13) showing proposed development elements

4. INFRASTRUCTURE SERVICING

The following services and respective authorities have been reviewed and consulted with:

- Sewerage – Central Highlands Water (CHW).
- Potable Water – Central Highlands Water (CHW).
- Gas – AusNet Services.
- Telecommunications – NBN Co.
- Electricity – PowerCor.
- Main Drainage – Melbourne Water Corporation.
- Internal Drainage – Moorabool Shire Council.

5. SEWERAGE INFRASTRUCTURE

Central Highlands Water (CHW) is the responsible authority in this area. Preliminary advice and asset plans have been provided by CHW and can be seen in Figure 3 below.

There is existing gravity sewer that currently runs through the subject site from Geelong-Ballan Road east before heading south following the Werribee River. This gravity main increases in size from 150mm to 225mm through the subject site before discharging to a 300mm main immediately east of the subject site. The existing gravity sewer that traverses through the site is likely required to be relocated to better suit the proposed lot layout.

The existing infrastructure has capacity to service between 60-100 residential lots. CHW is currently undertaking flow monitoring on the existing network and results are due September 2022. The results of this flow monitoring will inform a more exact estimate of excess capacity and possible solutions for servicing future lots. CHW has advised that external infrastructure including the trunk gravity main, Wastewater Treatment Plant (WWTP), Sewer Pump Station and rising main would require augmentation to cater for the entire proposed development.

A possible alternative to upgrading external infrastructure is to provide a Sewer Pumping Station with flow control storage in the south-east of the site to retard flows during wet weather events pending approval of CHW.

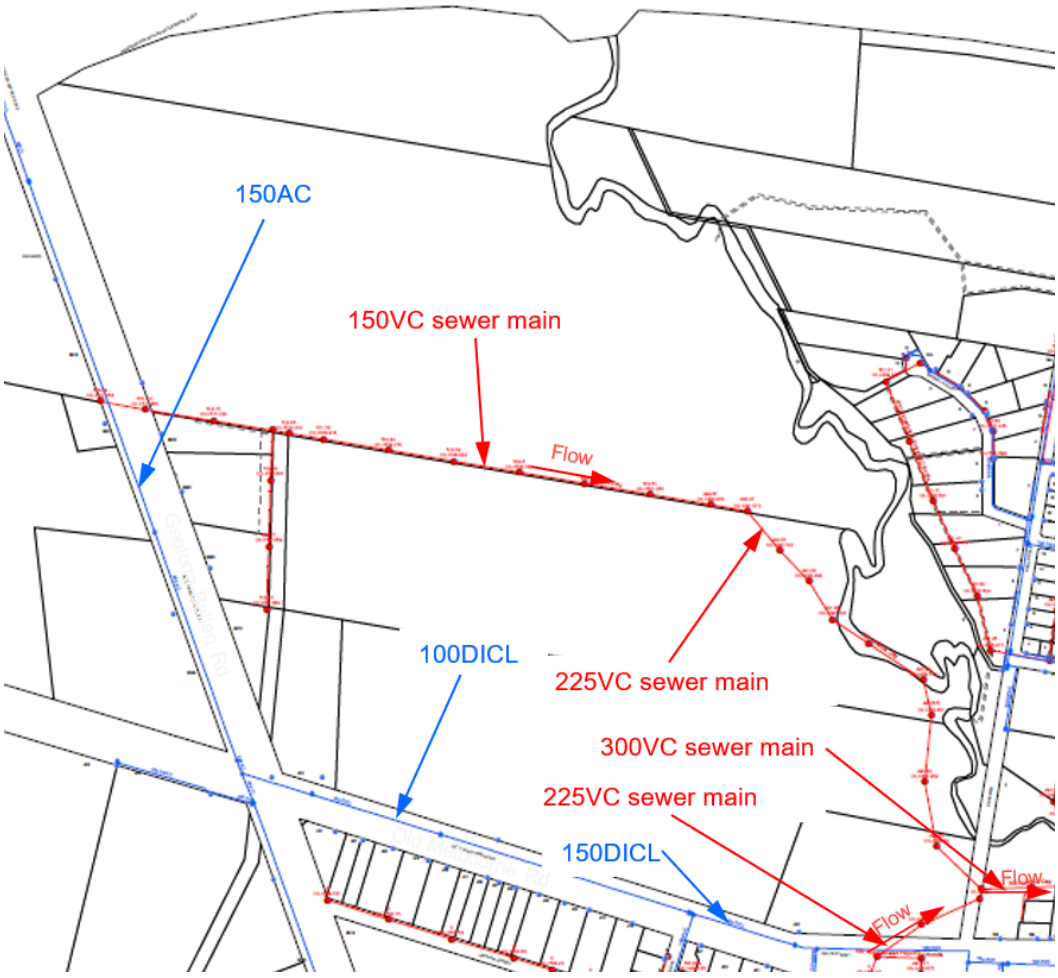


Figure 3: Central Highlands Water sewer and water asset plan

CHW is a referral authority for the rezoning application. Their response to the application (dated 17th November 2022) as a referral authority in relation to sewerage is as below:

"The subject land is within the Ballan Sewerage District and the existing reticulation system has been generally extended to this precinct. Developer funded extensions of the sewerage reticulation system in this area will be required to service further development of the land under standard land development processes.
There will however, in addition, be a requirement for sewerage system augmentation to cater for the full development in all weather conditions. The extent and options for these works will be further investigated as a component of the servicing strategy discussed above. It is anticipated that the Developer of the subject land will be required to meet a significant portion of the funding of the augmentation works.

In the short-term CHW is in a position to approve the connection of around 60-90 lots before the augmentation works would be triggered, unless the abovementioned servicing strategy investigations identify additional short-term capacity."

6. WATER INFRASTRUCTURE

6.1 POTABLE WATER

An existing 150AC water main runs parallel to the western boundary of the site down the western side of the Geelong-Ballan Road. A 100DICL main runs adjacent to the southern boundary of the site and upsizes to a 150DICL at the south-east corner of the site (see Figure 3 above). There is a 300mm PVC main 1.3km to the east in Old Ballanee Road that could be extended parallel with the Western Freeway to service later stages of the development pending further advice from CHW.

The MRWA water code suggest a 150DI main can service around 125 to 160 residential lots (see Figure 4 below) and hence it is expected that a larger main will need to be extended from the Ballan township to the east or from the existing trunk main in Old Ballanee Road. CHW has advised that the existing water network has capacity to service 300 residential lots, beyond this, external upgrades and extensions would be required. As with the sewer, Central Highlands Water has not yet had sufficient time to determine where in the system would have sufficient capacity for the proposed development to ultimately connect to. Subject to agreement from CHW it may be possible to service initial stages of the development from the existing water infrastructure.

TABLE 3.2

EMPIRICAL GUIDE FOR PIPE SIZING IN DRINKING WATER ONLY SYSTEMS

Nominal size of main DN		Capacity of main (single direction feed only)			
PVC or DI	DNPE	Residential (lots)	Rural residential (lots)	General/ light industrial (ha)	High usage industrial (ha)
100	125	40	10	N/A	N/A
150	180	160	125	23	N/A

Figure 4: MRWA empirical guide for pipe sizing to be used as an approximate guide

CHW is a referral authority for the rezoning application. Their response to the application (dated 17th November 2022) as a referral authority in relation to water is as below:

"The subject land is within the Ballan Water Supply District and the existing reticulation system has been generally extended to this precinct. Developer funded extension of the water reticulation system in this area will be required to service the further development of the land under standard land development processes.
There will also be a requirement for water supply system upgrades to cater for the full development. The extent, options and funding requirements for these works will form a component of the servicing strategy discussed above.
In the short-term CHW is in a position to approve the connection of around 300 lots to water in Precinct 5 before the augmentation works will be triggered, although the delivery of the sewer capacity augmentations discussed above are likely to be the limiting factor in the short-term. It is expected augmentation works would need to be incrementally delivered.

We also note that no direct connections would be permitted to the existing water mains in Old Melbourne and Ballan-Daylesford Roads."

6.2 RECYCLED WATER

CHW does not have an extensive recycled water supply network and there is no recycled water currently available in Ballan. It is expected that recycled water will not be available or required for this development.

6.3 CHW: BALLAN WATER AND SERVICING STRATEGY

CHW is currently preparing the Ballan Water and Servicing Strategy which is expected to be published in September / October 2023. This is being prepared by CHW to develop a strategy to service the long-term growth of Ballan.

7. DRAINAGE INFRASTRUCTURE

Moorabool Shire Council is the responsible authority for local drainage facilities. Whereas Melbourne Water Corporation (MWC) is the responsible authority for larger precinct scale drainage assets. Typically MWC catchments are greater than 60 Ha. The development of this site will need to comply with both Moorabool Shire Council and MWC.

The site falls within Melbourne Water's **Ballan North West Drainage Scheme (no. 8101)** as shown in Appendix A. MWC implement drainage schemes to collect financial contributions paid by developers when development occurs. The amount of contribution to be paid is determined by the size and by the type of development. The contributions are separated into two components; Hydraulic and Water Quality. At the date of this report (June 2023) the contributions payable under the Ballan North West Drainage Scheme (no. 8101) are:

- Hydraulic $40,295 per Ha
- Water Quality $40,604 per Ha.

As shown in the MWC scheme plan (Appendix A) there are a number of proposed "precinct scheme assets" (pipes and wetlands) which will not only cater for this subject development but other surrounding development. Such "precinct scheme assets" are constructed by the developer and reimbursed from the contributions paid under the scheme.

7.1 MAIN DRAINS – MELBOURNE WATER

There are three main scheme drains running west to east through the site and another running south-east connecting two of the proposed wetlands and two drainage outfalls to the Werribee River. These drains consist of node A1 through to node A8, node B1 through to node B6 and node C1 through to node C7. These drains will be required to be installed to convey runoff from upstream parcels of land to the Werribee River. As the catchments for these pipes are less than 60 ha, they will be designed and built to Council standards, but reimbursed by MWC.

The very south-eastern corner of the site discharges to a separate scheme drain (node D1 to D3), however it is anticipated that this could be re-directed to the wetland to the north to outfall through the node C7.

7.2 INTERNAL DRAINAGE

The site is within Moorabool Shire Council area and will need to be designed and constructed to their requirements. The internal site drainage for roads and lots will need to discharge to the Melbourne Water scheme drains in order for rainfall runoff to be captured and directed to the wetlands for stormwater quality treatment.

7.3 WATERWAYS AND FLOODING

The Werribee River is the receiving waterway for all the site drainage. The topography of the site falls generally to the east towards the river with steep banks falling sharper down to the river on the eastern boundary. Flooding is restricted to the low-lying land adjacent to the river at the bottom of these steep banks and as such the area proposed for residential subdivision is free from inundation. The banks and flood prone land immediately adjacent to the river are proposed to be retained as open space areas.

7.4 STORMWATER MANAGEMENT STRATEGY

A detailed Stormwater Management Strategy has been prepared by Spiire and is to be read in conjunction with this report.

8. POWER INFRASTRUCTURE

PowerCor is the responsible authority for power supply in this area.

The proposed development site has an existing 22 kV overhead feeder line at the south end of the site, running east-west along Inglis Street (Old Melbourne road). This feeder line is known as the BMH003 Feeder which is supplied out of the Bacchus Marsh Zone Substation. As the BMH003 feeder currently services the Ballan township and runs past the proposed site, it is highly likely this feeder will be used to supply power to the development.

Early preliminary discussions with PowerCor regarding the electrical supply to the proposed development have revealed the BMH003 feeder is nearing its design capacity, and that augmentation / upgrade works to the feeder is likely required to support the supply needs of the development. Such works may attract a portion of developer contribution, depending on how much of the increased network capacity created by the augmentation works is required by the development. For example, if the development is to use all the capacity created by the augmentation works, the full cost of those works may likely be passed onto the developer. This is based upon current PowerCor Augmentation Policy.

A 800 lot development would typically have an actual demand on the power network in the order of 2.0MW to 2.4 MW, and also consideration needs to be given for possible solar exports to the power network grid during the augmentation design stage.

As its likely this large lot development will be constructed in stages, the load will therefore be progressively added to the network, therefore the augmentation works will also likely be progressively identified and costings allocated to certain stages as the project proceeds.

PowerCor System Planners will assess the impact of the additional new loads on the network and carry out studies to determine what parts of the network have the most impact to increase network capacity. They will also assess what additional capacity can be created by any identified augmentation or upgrade work.

Augmentation works to the feeder could be either or both of:

- Increase feeder backbone conductors to a larger size, to increase carrying capacity of the feeder,
- Uprate the thermal capacity of the existing OH conductors so they can operate at higher temperatures, as a result of carrying higher loads. This is most likely used on larger existing conductors, rather than smaller conductors due to the potential to introduce voltage drop issues.

There is scope to increase supply capacity on the BMH003 feeder line, therefore supply to the proposed development is possible with the likelihood of network augmentation / upgrade works required.

9. TELECOMMUNICATIONS INFRASTRUCTURE

NBN Co. are the default provider of telecommunications facilities to the site. No details were available at time of writing this report, but NBN advised that they do have very good coverage in the area (see Figure 5 below) so it is expected that this means they will be able to supply the proposed development.

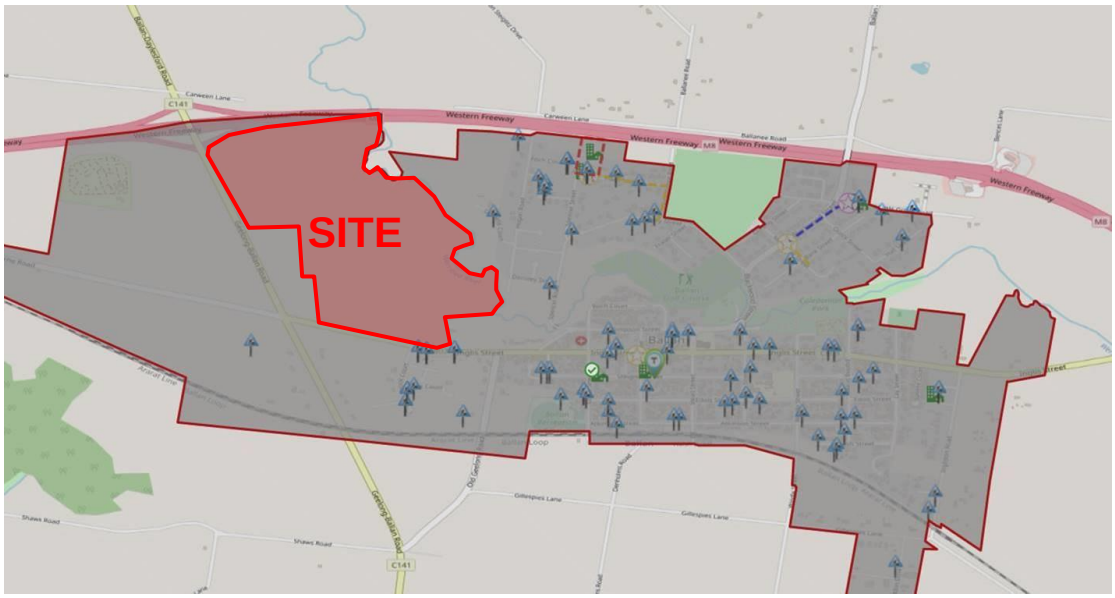


Figure 5: Map of new developments listed/completed within the area as supplied by NBN.

10. NATURAL GAS INFRASTRUCTURE

AusNet is the responsible distributor for the provision of gas supply facilities to the proposed development. A 63PE AusNet gas main exists on the opposite side of the Old Melbourne Road to the development site (see Figure 6 below). The existing network again has capacity to service initial development of up to 50 residential lots but ultimately external networks upgrades would be required.

AusNet has advised that ultimately a 1.2km mains extension would be required from the corner of Denholms Rd and Gillespies Lane to the existing main in Old Geelong Road. The cost of the mains extension would be subject to the financial modelling of AusNet and may require developer funding to complete.

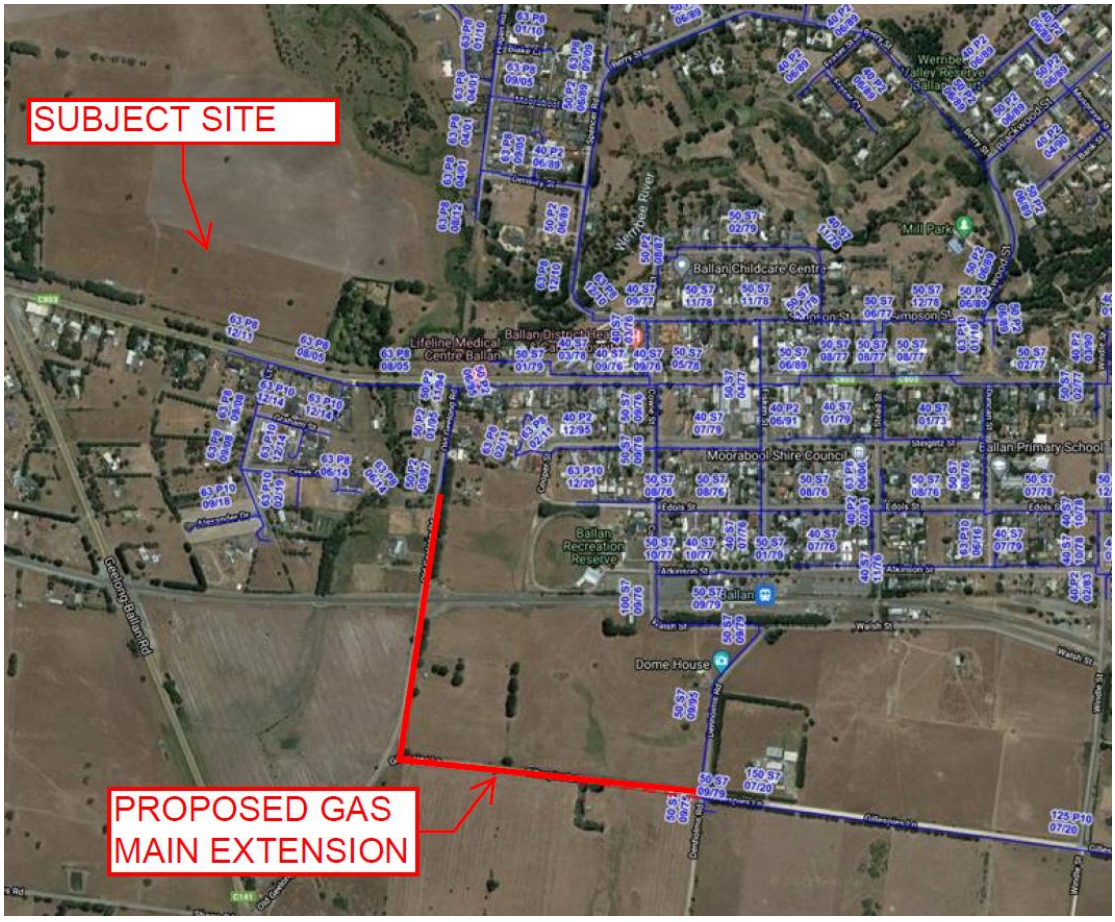


Figure 6: Proposed mains extension based on AusNet advice

APPENDIX A: MELBOURNE WATER DRAINAGE SCHEME

Melbourne Water

8101 - Ballan North West DSS Infrastructure 1/1

N

VicMap Ref: 294 E2

Author: Rebekah Campbell

Scale @ A1 1:3000

DSCM Legend

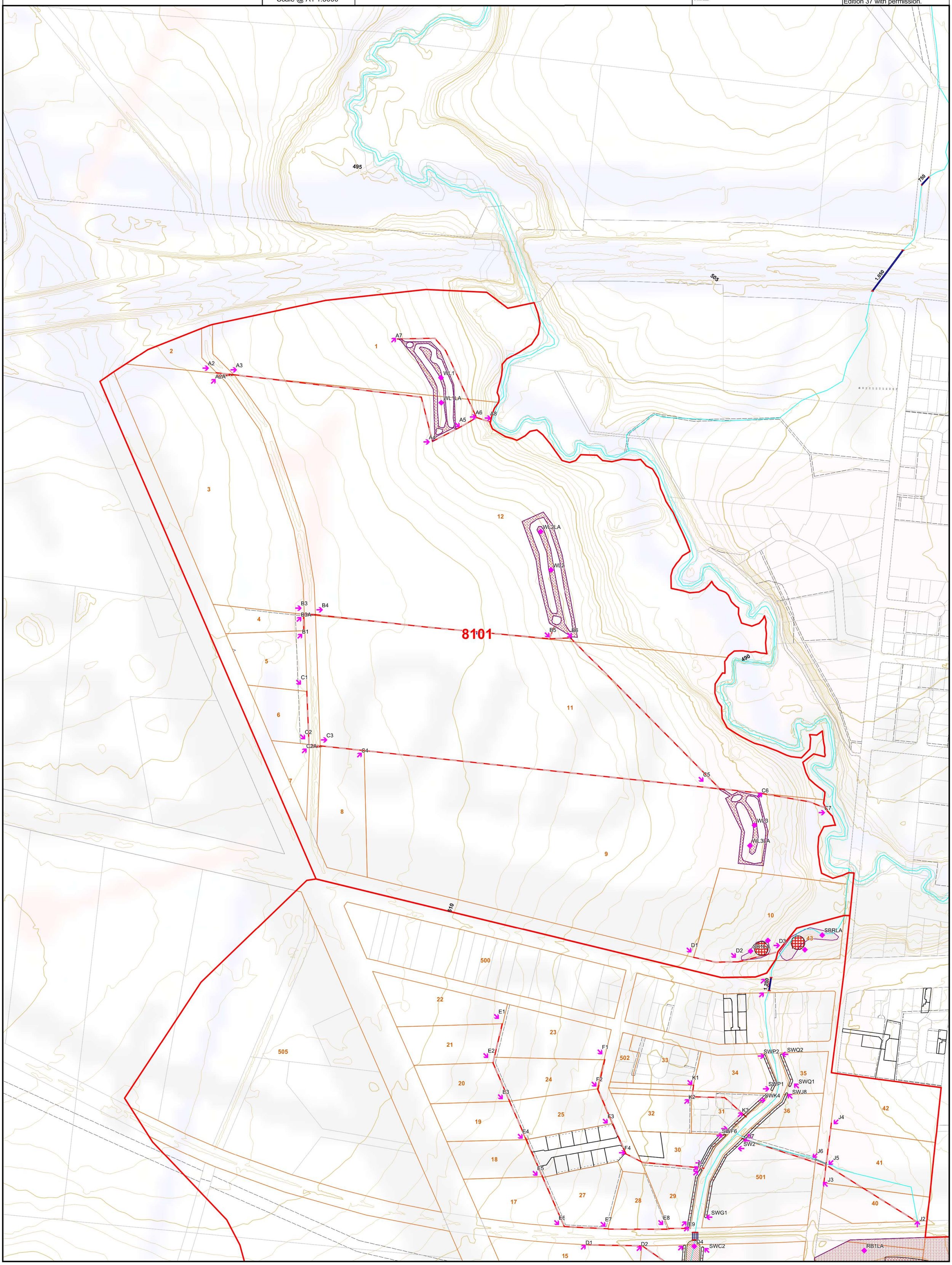
- DSS Boundary
- DS Strategy Boundary
- DSCM Property
- Stage (Allocated)
- Stage (Works in Progress)
- Stage (Finalised)
- Nodes
- Bio-Retention Swale
- Channel
- Cleanout works
- Culvert
- Grassed Swale
- Low flow pipe with Channel
- Overland flow path
- Pipeline
- Soft Engineering
- Bio-Retention Basin
- Buffer Strip
- Inlet/Outlet Structure
- Junction Pit
- Litter trap
- Retarding Basin
- Sediment trap
- Wetland

As Constructed Legend

- Channel
- Natural Waterway
- Sewer Main
- Underground Drain
- Water Main
- Flood Extents
- Lake
- Retarding Basin
- Sediment Trap
- Wetland

Plan Date: April 2017

Melbourne Water is providing our indicative assets information and is not to be used as the basis of future design and expects that the appointed engineering consultant will perform their own calculations as part of requirements for their development.
Please note that as schemes develop and Melbourne Water receives additional information, the conceptual/indicative advice you have been provided as part of the feasibility request may become ou-dated. Under the QA process it is the responsibility of the consultant to ensure that Melbourne Water's feasibility advice is current and to certify that all information ultimately provided to Melbourne Water for acceptance is correct having completed their own detailed catchment analysis.



APPENDIX B: CHW REFERRAL RESPONSE

Doc code: 22/3840
Your ref:

17th November 2022

Rod Davison
Senior Strategic Planner
Moorabool Shire Council
PO Box 18
Ballan, Victoria, 3342

Dear Rod

Moorabool Planning Scheme Amendment – Ballan Precinct 5

I refer to your letter dated 18th October 2022 seeking preliminary comments from Central Highlands Water (CHW) in relation to a proposal to rezone approximately 96 hectares of land in Ballan Precinct 5 from the Rural Living Zone to Neighbourhood Residential Zone and Commercial 1 Zone and to delete the existing Design and Development Overlays 2 and 3 from the land.

In response CHW offers the following preliminary input, noting that we will have an opportunity to make further comment during the formal exhibition period.

Background

CHW provides water supply and sewerage sewerage services within the region, for around 140,000 people, including for Ballan.

Ballan Water and Sewerage Servicing Strategy

I confirm from recent discussions with Council Officers that CHW is developing a strategy for the provision of water supply and sewerage to service longer-term growth in Ballan. The Ballan Framework Plan within the Moorabool Planning Scheme will be an input for this strategy however CHW would welcome any further information Council could provide to assist with our understanding of the potential timing and sequencing of growth. CHW is aiming to have this strategy completed in the second half of 2023.

Sewerage

The subject land is within the Ballan Sewerage District and the existing reticulation system has been generally extended to this precinct. Developer funded extensions of the sewerage reticulation system in this area will be required to service further development of the land under standard land development processes.

There will however, in addition, be a requirement for sewerage system augmentation to cater for the full development in all weather conditions. The extent and options for these works will be further investigated as a component of the servicing strategy discussed above. It is anticipated that the Developer of the subject land will be required to meet a significant portion of the funding of the augmentation works.

In the short-term CHW is in a position to approve the connection of around 60-90 lots before the augmentation works would be triggered, unless the abovementioned servicing strategy investigations identify additional short-term capacity.

Water

The subject land is within the Ballan Water Supply District and the existing reticulation system has been generally extended to this precinct. Developer funded extension of the water reticulation system in this area will be required to service the further development of the land under standard land development processes.

There will also be a requirement for water supply system upgrades to cater for the full development. The extent, options and funding requirements for these works will form a component of the servicing strategy discussed above.

In the short-term CHW is in a position to approve the connection of around 300 lots to water in Precinct 5 before the augmentation works will be triggered, although the delivery of the sewer capacity augmentations discussed above are likely to be the limiting factor in the short-term. It is expected augmentation works would need to be incrementally delivered.

We also note that no direct connections would be permitted to the existing water mains in Old Melbourne and Ballan-Daylesford Roads.

Design and Development Overlays 2 and 3

CHW has no comment in relation to the proposal to delete the above Overlays from the subject land at this time.

We thank Council for seeking our input and advice on this matter and advise that you contact me on (03) 53203123 or stephen.carter@chw.net.au if you you have any further queries.

Yours faithfully,

Stephen Carter
Acting Manager Growth and Development