HIGH LEVEL SERVICING AND INFRASTRUCTURE ASSESSMENT REPORT

PARWAN EMPLOYMENT PRECINCT

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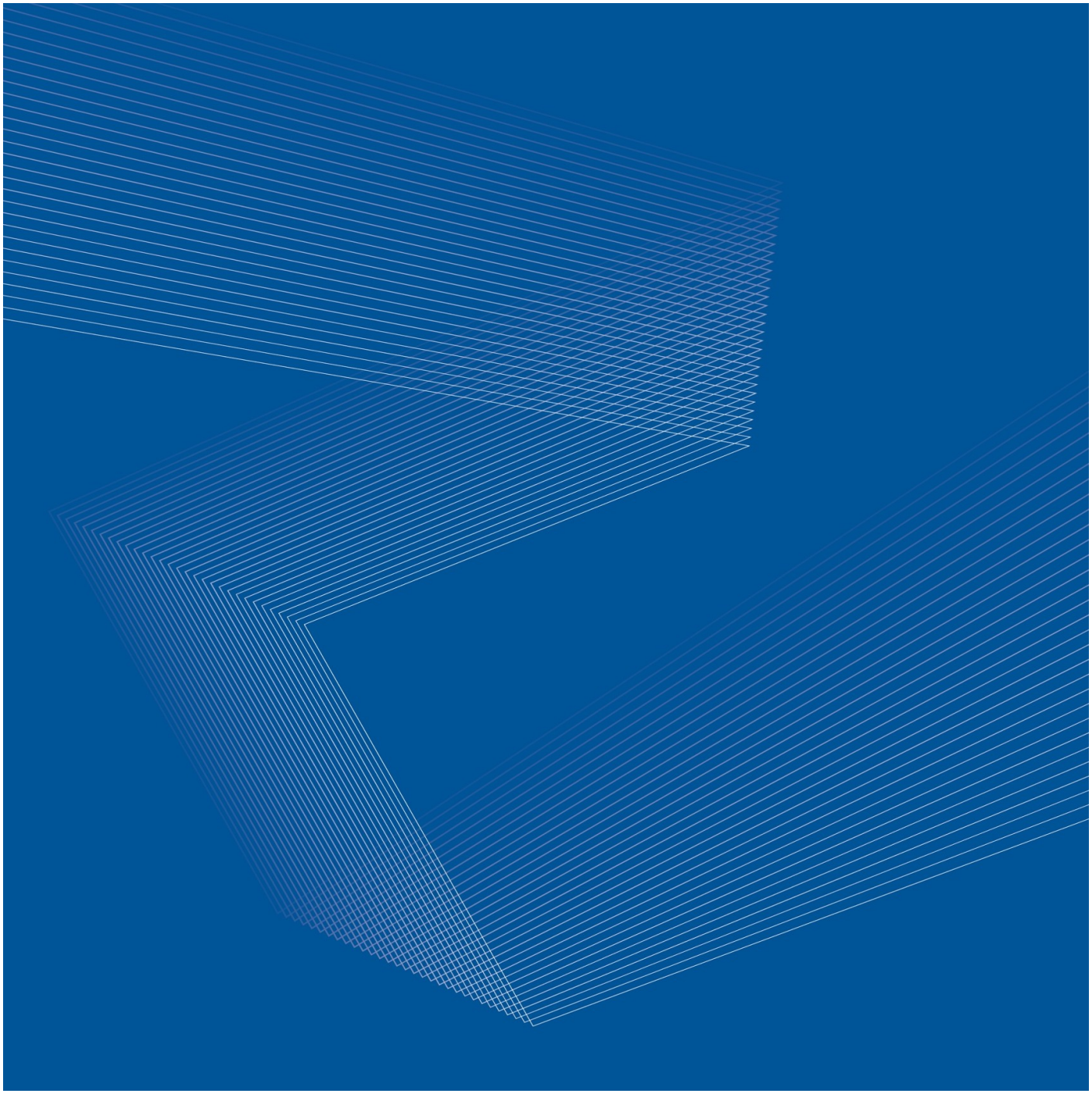

EXECUTIVE SUMMARY

This high-level servicing report has been prepared at the request of the Victorian Planning Authority to provide an infrastructure assessment of the Parwan Employment Precinct (PEP).

At present, Parwan is primarily used for agricultural and rural purposes, with isolated special use businesses that include the Bacchus Marsh Aerodrome, Parwan Protein & Tallow Facility, Golden Fries, Genetics Australia, a broiler farms, the Greater Western Water Recycled Water Plant and the Sir Jack Brabham Park motor sport complex.

Parwan is well located in terms of its regional proximity to Bacchus Marsh, Melbourne, Geelong, Ballarat and the associated major transport hubs of each city. The development of the PEP into an agribusiness area is a logical extension of nearby existing business and development, however this development will be dependent upon provision of services to the area.

Reeds Consulting have met with Greater Western Water and received advice from Melbourne Water, NBN and Powercor updates on the future servicing of the Parwan Employment Precinct, and their advice has been incorporated into this report. The infrastructure needs of the immediate Parwan areas have been assessed in consideration of the wider Bacchus Marsh, Maddingley, Hopetoun Park, Melton and future Merrimu PSP areas.

Parwan is currently serviced by scattered infrastructure that is by-and-large already at capacity. Although both a gas transmission main and City Gate and sewer main are located within the PEP, the precinct do not have functional use of these facilities without significant augmentation of infrastructure. There is a lack of trunk infrastructure in the precincts for all essential services, and significant infrastructure extensions will be required to be constructed to provide services for the future development of the precincts.

This report considers the presence of existing services, anticipates the likely future servicing requirements including specific alignments of trunk utilities, considers the interim and ultimate staging of trunk installation, and nominates ballpark costs and expected funding arrangements of each utility construction.

This report should be read in conjunction with the Bacchus Marsh Urban Growth Framework document and previous reports completed for the Parwan Employment Precinct.

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Rev D	28/08/2026	Minor updates after client review	G. Templeton		
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1 INTRODUCTION

This high-level servicing report has been prepared at the request of the Victorian Planning Authority (VPA) to provide an infrastructure assessment of the Parwan Employment Precinct (PEP).

The Parwan Employment Precinct has been identified as a strategic precinct in the Bacchus Marsh Urban Growth Framework (UGF). Moorabool Shire Council (Council) in collaboration with Regional Development Victoria and the VPA have previously funded development studies in the Parwan area; and all pertinent authorities are actively considering development of the Parwan areas.

In conjunction with the servicing plans prepared by Reeds Consulting, this report reviews and confirms the engineering servicing infrastructure requirements for the application area, and considers adequate provision is made for future servicing of the area.

This report provides preliminary costing estimates for both interim and ultimate servicing of the PEP. The report notes existing funding mechanisms in place for the construction of utility infrastructure and makes recommendation for alternative funding arrangements where capital works costs exceed independent development's and relevant authority's capacity to deliver.

The information contained in this report is based on investigations by Reeds Consulting that have been facilitated by our inquiries and dealings with Moorabool Council, Greater Western Water, APA Group, Ausnet, Powercor and NBN. The servicing outcomes detailed in this report should be read in conjunction with the following planning documents:

- Victorian Planning Authority: **Project Brief**
- Moorabool Shire Council:
  - **Bacchus Marsh Urban Growth Framework (August 2018)**
  - **Parwan Employment Precinct Business Case (March 2018)**
  - **Agribusiness Analysis Proposed Parwan Employment Precinct (2015)**
  - **Parwan Servicing Plan (12 June 2015)**
- Greater Western Water
  - **Sewer and Water Servicing Plans (January 2025)**
  - **Parwan South Industrial Estate Feasibility Study, Bacchus Marsh (April 2012)**

The proposed PEP will likely comprise of mixed use industrial and agribusiness developments. To facilitate the development of the site through the construction of internal roadworks, drainage infrastructure, sewerage, water reticulation, electrical, telecom and gas extensions will be required.

2 GENERAL

2.1 SITE LOCATION

The PEP is located approximately 45km north-west of Melbourne CBD in Moorabool Shire Council and have a range of existing zonings. Refer to **Figure 1** below for the general location of the subject site and its immediate surrounds.

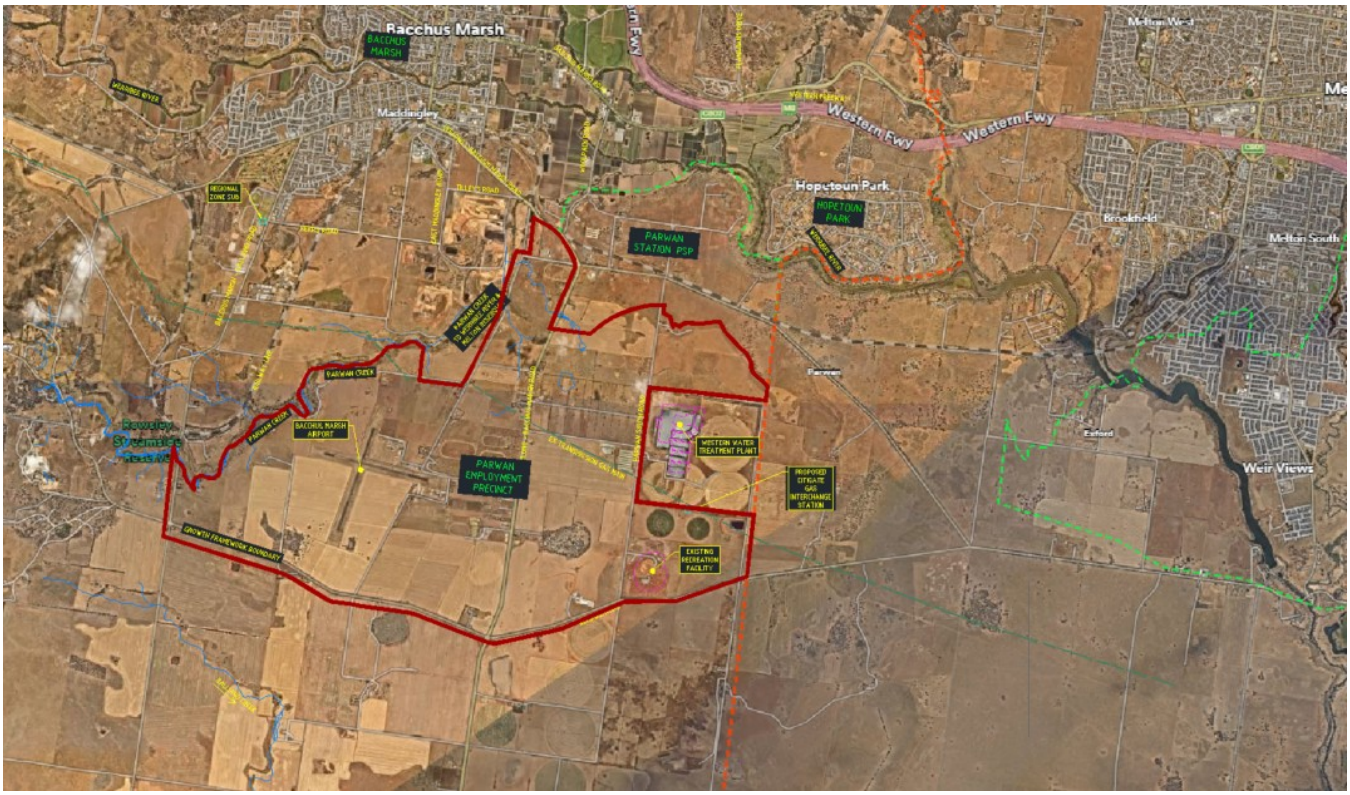


Figure 1: Parwan Site Regional Location (*Source: NearMap*)

The proposed PEP is located within the Parwan Valley. The Parwan Valley lies between the Brisbane Ranges, Werribee Gorge State Park and the You Yangs. The nearest town to Parwan is Bacchus Marsh to the immediate north, with Melton located approximately 8km to the north east of Parwan. Other major population centres are Werribee 22km to the south east, Ballarat 56km to the north-west and Geelong 48km to the south.

2.2 PROPOSED SITE DESCRIPTION

Parwan Employment Precinct (PEP)
The aim of the PEP is to unlock the economic and job growth potential of the Bacchus Marsh area to provide local employment opportunities relating to agribusiness. This will encourage local job growth, assist the Victorian strategic vision of de-centralising the Melbourne employment market and mitigate the number of work destination trips into the CBD.

The PEP is located south of the current Bacchus Marsh town centre, adjacent to Geelong-Bacchus Marsh Rd. It is an area of approximately 2,480ha, incorporating over 80 separate properties and is intended for employment and agribusiness only uses. Much of the land within the precinct is currently used for agriculture and rural residential uses, with a limited range of commercial, recreation and utility uses.

2.3 EXISTING SITE OVERVIEW

The PEP is generally bordered by the Parwan Creek on the west boundary, the north boundary is irregular line moving east ward opposite the Sir Jack Brabham Park motor sport complex and intersecting with the Parwan-Exford Road at a slight bend, the east boundary is the title boundary extending north Nortons Road, Miles Road/Parwan South Road the southern boundary of the GWW Bacchus Marsh Recycled Water Plant/Nortons Road, the southern boundary is Nerowie Road/Glenmore road . See Figure 2 below for the aerial image of the PEP.

Figure 2: Parwan Site (*Source: NearMap*)

The Parwan area has historically been used as farming land from the mid 1850's onwards, with isolated homesteads and scattered rural living present across the area. At present, both PEP are still predominantly used for agriculture.

The PEP area is generally undulating, with a minor fall from the south to the north. The highpoint of the precinct is along the Nerowie / Glenmore Roads on the south boundary of the site, with a high point of ~177m Reduced Level (RL). The low-point of the PEP is in the north west corner. The majority of the PEP varies between 130m to 170m RL.

Currently the majority of stormwater runoff is not controlled on-site. Due to the undeveloped nature of the precincts, stormwater runoff currently discharges directly into site dams, local depressions, and local informal water courses. The existing Parwan Creek serves the ultimate catchment of the PEP, however there are multiple depressions located within the employment district that act as local trapped low-points.

Natural features within the precincts include the Bingham Swamp located within the PEP.

The Melbourne to Ballarat train line is located to the north east of the PEP, with the Parwan Railway Station opening in 1886, but closing in the 1980's. It is noted that a future re-opening of the Parwan station is planned to be constructed as part of the Parwan Station PSP development.

There are a number of existing special use properties in the general area. In summary, these properties and businesses of note include:

- Parwan Protein & Tallow Facility
- Golden Fries
- Genetics Australia
- A Broiler Farms
- Edenhills Pet Cremation
- Greater Western Water's Bacchus Marsh Treatment Plant
- Sir Jack Brabham Park motor sport complex

It is noted that the Maddingley Composting, Coalmine, Landfill & Waste and Resource Recovery Hub is located along the north-west boundary of the PEP. Although technically outside of the PEP, the buffers will impact sensitive land use within the precincts. The summary of existing land uses which impact sensitive land use are listed below, with corresponding buffer distances.

- Greater Western Water Bacchus Marsh Treatment Plant – **1,414m buffer**
- Maddingley Composting, Coalmine, Landfill & Waste and Resource Recovery Hub – **2,000m from mining licence buffer, 2,000m from composting operations buffer, 500m landfill buffer**
- Geelong-Bacchus Marsh broiler farm **- 686m buffer**
- Brooklyn-Ballan Gas Pipeline – **210m buffer**
- Parwan Protein & Tallow Facility **– 1,000m buffer**

It is assumed that the future development of the precincts will accommodate the above existing land uses, and that Parwan sensitive land uses will be located outside of the buffer zones.

2.4 PROPOSED STRATEGIC DEVELOPMENT

The PEP is a VPA planning precincts within Moorabool Shire Council in close proximity to the existing Bacchus Marsh township and Hopetoun Park. It is noted that in a wider regional strategic context, that additional precinct structure plans are currently in progress to the north of the PEP. These PSP areas are the Parwan Station, Merrimu and the Hopetoun Park North precincts, as seen in **Figure 3** below.

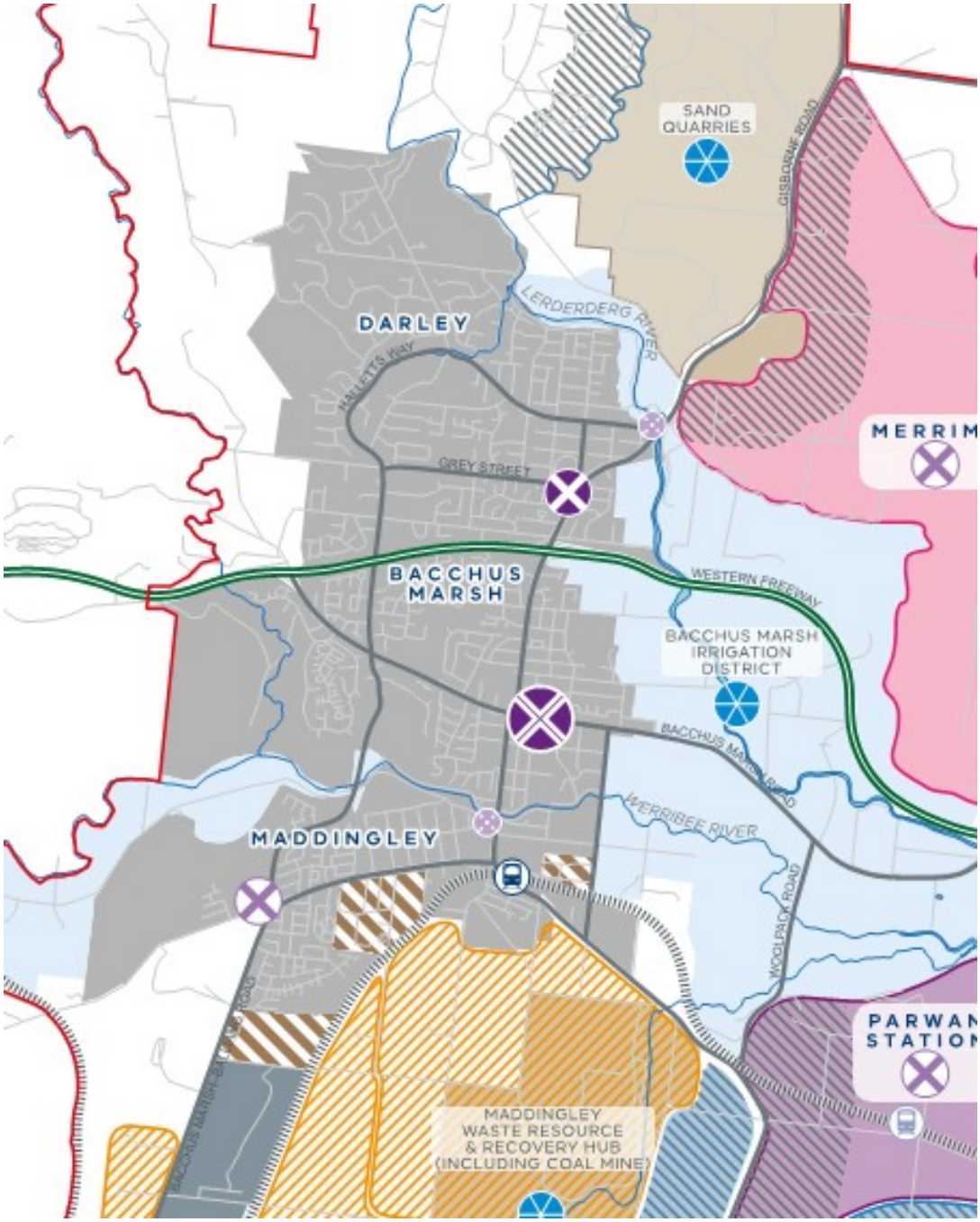


Figure 3: Existing and Future Bacchus Marsh Precincts (*Source: Plan 5, Bacchus Marsh UGF 2018*)

Further detail regarding existing development and these development precincts follow below.

2.4.1 BACCHUS MARSH TOWNSHIP

Bacchus Marsh is the nearest urban centre to the proposed Pep and is the largest population centre in the immediate vicinity.

Currently the population of Bacchus Marsh is 21,692 as recorded in the 2021 census. According to the Forecast ID for the Bacchus March area (2021), by 2046 there is expected to be a population of 50,738; a growth of over 100% across 35 years.

This sustained for Bacchus Marsh and will result in ongoing infill development of previously undeveloped land within Bacchus Marsh area and increased population is the new and proposed PSPs along.

It is noted that Bacchus Marsh there are limitations to develop further east. The Bacchus Marsh Irrigation District (BMID) is located east of Bacchus Marsh and cannot be developed as it is a regionally significant farming zone and subject to major flood inundation from the Lerderderg River. The Maddingley Waste & Resource Recovery Hub prevents further development to the south-east and the Sands Quarry prevents development to the nor north-east. The proposed Merrimu PSP is only available site to extend development. Land to the west of Bacchus Marsh is currently zoned rural/farming, with availability of services and steepness of existing terrain not conducive for immediate development.

2.4.2 PARWAN STATION DEVELOPMENT

The Parwan Station PSP area population is 188 as record in the 2021 census. . According to Forecast ID (Nov 2021), by 2046 there is expected to be a population of ,4828; a growth of ~18% per year.

The Parwan Station PSP is proposed to be dominantly a residential precinct, with a new train station and adjacent commercial/retail areas. The ultimate capacity of Parwan Station will be ~13,000 people.

The proximity of Parwan Station to the PEP will create a shared reliance on the construction of new infrastructure to service both precincts.

2.4.3 MADDINGLEY DEVELOPMENT

Currently, the population of Maddingley is 5,491 as recorded in the 2021 census. According to Forecast ID (Nov 2021), by 2046 there is expected to be a population of 9,048; a growth of ~2% per year.

This growth will likely be facilitated through continued build-out of existing zoned residential areas such as Stonehill Estate. It is noted that future density of Maddingley is likely be higher than the existing development in Bacchus Marsh to provide sufficient housing for future growth.

The proximity of Maddingley to the PEP will create a shared reliance on the construction of new infrastructure to service both precincts.

2.4.4 HOPETOUN PARK DEVELOPMENT (A MASTERPLANNED COMMUNITY)

Currently the population of Hopetoun Park is 914 as recorded in the 2021 census. According to Forecast ID (Nov 2021), by 2046 there is expected a shared population with Merrimu of 19,558. The ultimate capacity of Hopetoun is anticipated to reach an upper region of 3,200 people, pending densities.

This growth will be facilitated through the Hopetoun Park North Precinct. This precinct is currently in planning phase with Moorabool Shire Council with assistance from the local developer. It is noted that future density of Hopetoun Park north will be significantly higher than the existing Hopetoun Park.

The proximity of the new Hopetoun Park development to the PEP will contribute to a shared reliance on the construction of new infrastructure to service both precincts.

2.4.5 PROPOSED MERRIMU PRECINCT

Merrimu is the largest PSP proposed in the vicinity of Bacchus Marsh and also consists of previously undeveloped land.

This growth will be facilitated through two Merrimu precincts, North and South and will provide 8,000 homes.

Currently the population of Merrimu as recorded as 397 in the 2021 census. According to Forecast ID (Nov 2021), by 2046 there is expected a shared population with Merrimu of 19,558. The ultimate capacity of both precincts is expected to be between 14,000 – 24,000 people.

The proximity of the new Merrimu PSPs to the PEP will create a shared reliance on the construction of new infrastructure to service both precincts, particularly water main infrastructure from the Merrimu Reservoir.

2.5 PROPOSED PARWAN EMPLOYMENT PRECINCT YIELD

The PEP is currently recorded to have a population of 393, with 162 jobs.

The PEP is proposed to be developed for agribusiness/employment purposes, with no proposed residential development. According to the VPA it is expected by 2041 that there will be 1,304 jobs in the area, with an ultimate capacity of 2,000+ pending future land uses, investments and provision of utility infrastructure.

To facilitate the above development, significant new infrastructure will be required to provide access, essential services and amenities to the PEP. As noted above, due to the proximity of nearby precincts and communities being concurrently developed, much of the below proposed infrastructure will be mutually beneficial to all Bacchus Marsh precincts.

3 ROAD AND DRAINAGE NETWORK

3.1 EXISTING ROAD AND DRAINAGE NETWORK

Parwan is currently only serviced by one major arterial road, the Geelong-Bacchus Marsh Road. This road is managed by the Department of Transport and Planning and is classified as a 'Transport Zone Category 1' under the planning scheme.

Geelong-Bacchus Marsh Road runs through the centre of the PEP in a north-south alignment; and is currently a single traffic lane sealed road with narrow sealed shoulders in each direction.

This road provides inter-connectivity to Bacchus Marsh, Geelong and Werribee; and through access to the Western Freeway greater access to regional centres in Melbourne and Ballarat.

It is noted that there are other Council sealed roads in the area, being Nerowie and Glenmore Road on the south Boundary of Parwan, Parwan South Road, Parwan-Exford Road, Aerodrome Road, Cummings Road, Smiths Road and Jensz Road. All other existing roads are crushed rock, or 'paper roads' (crown land with no constructed road).

Apart from Parwan Creek on the western site boundary and the relatively flat nature of the area there are no major drainage lines or assets within the study area.

Local drainage is the responsibility of the Council and major drainage for catchments larger than 60 hectares is the responsibility of Melbourne Water.

Moorabool Shire Council has some minor drainage assets within the site.

Melbourne Water have advised that the site in within the Parwan Raceway DSS (8802) but this has not been completed.

3.2 PROPOSED ROAD AND DRAINAGE NETWORK

The proposed road network for the PEP is currently undetermined and subject to detailed traffic reports to be prepared by qualified traffic engineers.

It is anticipated that the Geelong-Bacchus Marsh Road will be ultimately widened and upgraded by the Department of Transport and Planning to a 4-lane arterial road. Funding for part of the construction of this ultimate road may be facilitated through a future Development Contribution Plan (DCP) levy for the PEP.

Major intersections are also anticipated to be constructed along the length of Geelong-Bacchus Marsh Road. These proposed intersections and associated turning lanes will be subject to a detailed traffic impact reports and functional design by traffic engineers to the requirements and approval of Moorabool Council and Department of Transport.

The internal roadworks for the proposed PEP will be designed in accordance with the agreed road cross section and functional requirements detailed in Consultant Traffic Reports and Moorabool Council standards. All roads will be fully sealed with approved surfacing, kerb and channel, footpaths, drainage, and incorporate underground power and other services.

Apart from Council drainage constructed with the upgraded and or new roads there will need to be drainage lines constructed to the ultimate outfalls which maybe the Parwan Creek, swales, retarding basins, wetlands or similar.

The Melbourne Water Parwan Raceway DSS (8802) will include water quantity and water quality requirements. In the short term Melbourne Water advise that developments should treat and detain stormwater on site via a drainage strategy that does not cause any detriment to the receiving discharging connection.

4 SERVICES

4.1 SEWERAGE

Greater Western Water (GWW) is the Sewerage Authority for the PEP and surrounding area.

4.1.1 EXISTING SERVICES

Existing sewerage infrastructure in the vicinity of Parwan includes the Parwan South (Bacchus Marsh) Recycled Water Plant (RWP) and a 450mm dia. rising main sewer that runs along Parwan South Road, Parwan-Exford Road and Geelong-Bacchus Marsh Road. This existing 450mm dia. rising main is connected to the Avenue of Honour Sewer Pump Station (SPS) and discharges directly into the RWP. This SPS and rising main provides the effective sewer outfall for the entire Bacchus Marsh township.

The existing Bacchus Marsh RWP is located on the east boundary of Parwan South Road on a title of approximately 269 ha of area. The RWP currently consists of a winter storage pond and six primary lagoons, see **Figure 4** below. There are no existing anaerobic pots or activated sludge modules in the RWP. The plant currently produces Class C recycled water.

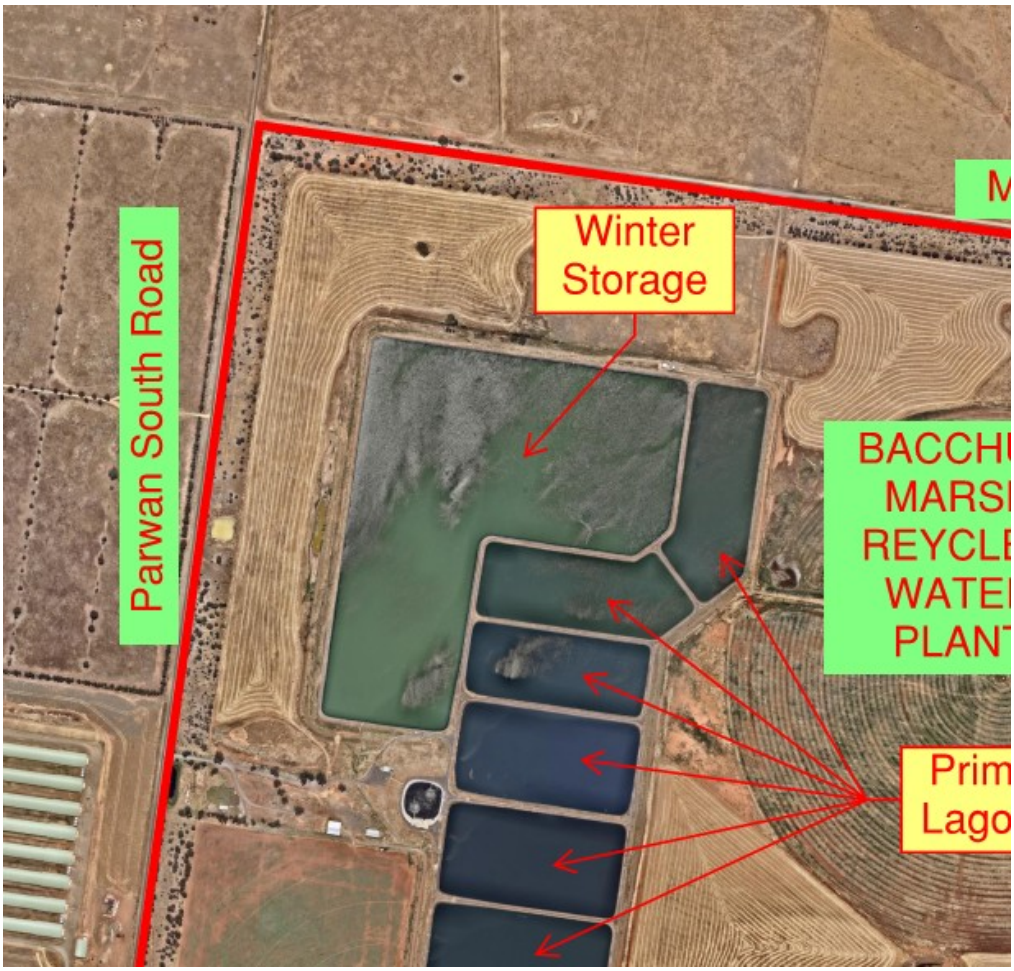


Figure 4: Bacchus Marsh Recycled Water Plant (RWP) (*Source: NearMap*)

There are no existing gravity sewers in the Parwan area and no existing businesses and rural homesteads are connected to sewerage reticulation and all are serviced by private on-site septic systems.

4.1.2 CURRENT SERVICING STRATEGIES

Greater Western Water has released a revised servicing strategy for their relevant service areas, dated 24 January 2025. This servicing strategy was prepared in support of their submission to the Essential Services Commission for the pricing period between 2024 – 2028.

The image below shows the wider Bacchus Marsh area, indicating the current major sewer infrastructure.

The current servicing strategy proposes to upgrade the existing Avenue of Honour SPS and construct a new SPS in the west of Bacchus Marsh north of Werribee River.

New 450mm dia. rising main sewers are proposed to be constructed along both Geelong-Bacchus Marsh Road and Woolpack Road to cater for the future Bacchus Marsh growth, to then combine into a new 600mm dia. rising main sewer proposed to be constructed along Parwan-Exford and Parwan South Road. This 600mm dia. rising main will then discharge into the Bacchus Marsh RWP, and as per the strategy is nominated to be constructed within the 2038-2050 financial years.

It is noted that the future Parwan and Merrimu precincts are now considered in the current Greater Western Water strategy, and allowance has been made for their growth.

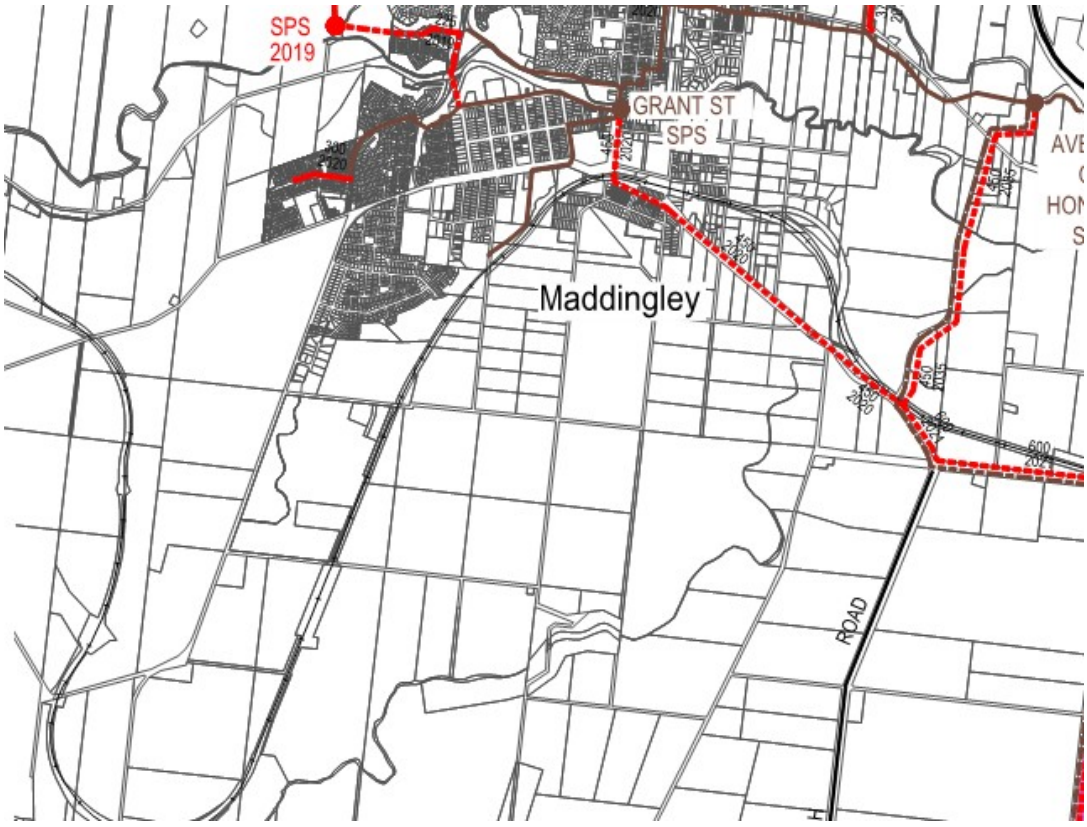


Figure 5: Bacchus Marsh/Melton Sewer Servicing Strategy (*Source: Greater Western Water, June 2018*)

4.1.3 INTERIM SERVICING ARRANGEMENTS

Advice received from GWW confirms that the Avenue of Honour SPS is functioning at capacity with a discharge rate of 105 L/s, which caters for 7,000 lots (existing Bacchus Marsh township). The new 600mm dia. rising main will deliver an effective discharge rate of up to 500L/s, which will cater for a total of 15,000 lots. GWW are currently designing the upgrade of the Avenue of Honour SPS to cater for the ultimate growth of Bacchus Marsh, Maddingley Parwan and Merrimu is serviced by the new 600mm dia. rising main or the SPS upgrade.

GWW have indicated that the existing Bacchus Marsh RWP does not have any volume capacity issues, however it only has capability for an additional ~1,000 residential lots to treat the additional nutrient load.

Any additional residential development in the Parwan or Bacchus Marsh area that exceeds 1,000 lots will trigger a significant upgrade of the treatment plant.

As such, interim servicing of the PEP is anticipated to require the upgrade of the Bacchus Marsh RWP. Upgrades to the Bacchus Marsh RWP due to additional residential flows are subject to further GWW investigation.

The development of the Parwan Protein & Tallow Facility and Golden Fries in the south of the PEP have in the short term their own onsite treatment plants.

Ultimately as these business add nutrient load a significant upgrade of the RWP will be required that would be in addition to the residential lot triggered upgrade. The upgrade to cater for the full development of the Parwan Protein & Tallow Facility and Golden Fries (equivalent of 30,000 EP) would require an additional two anaerobic pots, primary lagoon, and additional HV power upgrades to the Powercor network; based on advice from GWW. Conceptual pricing estimates put this cost at $63 million.

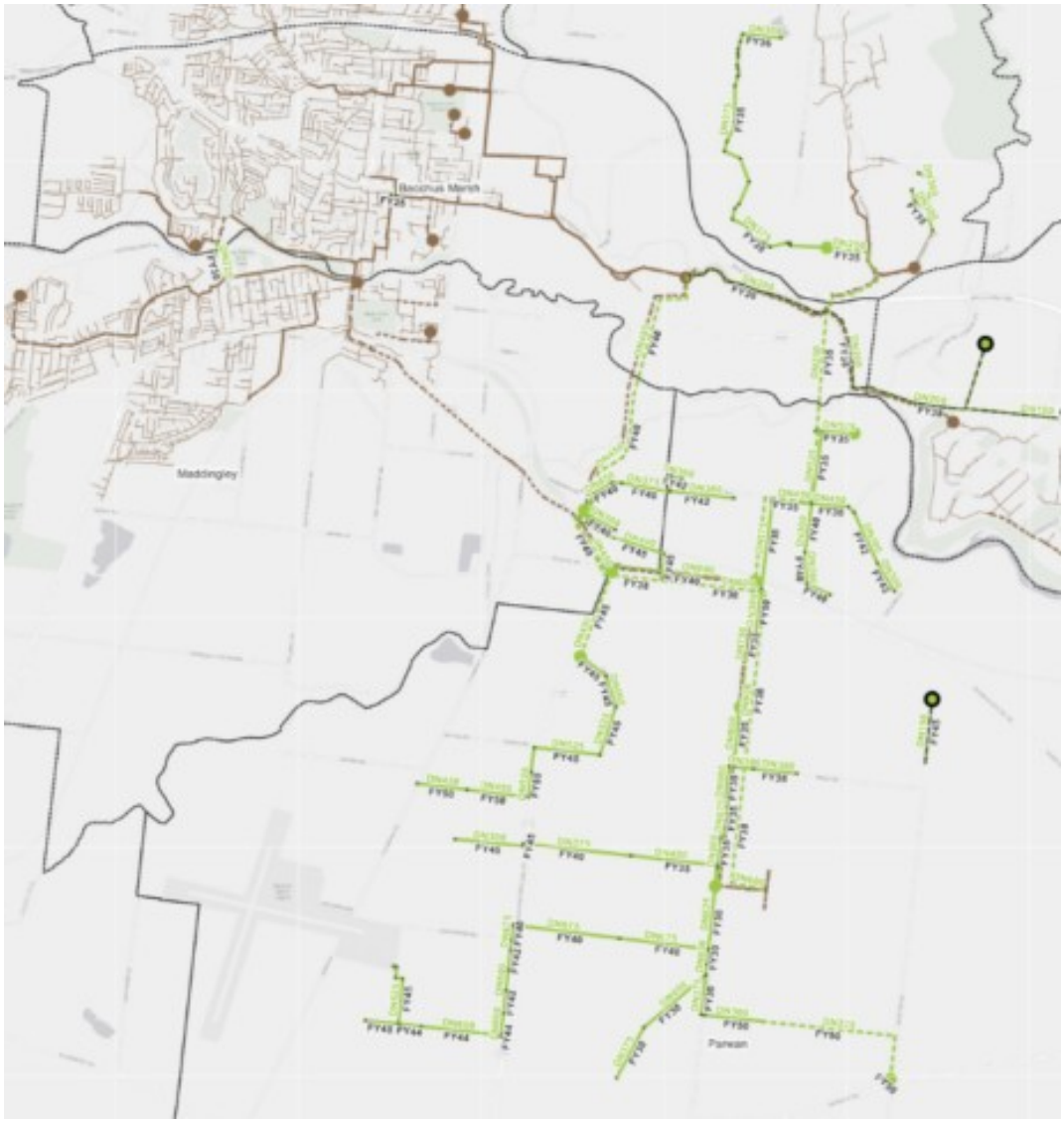


Figure 6: Parwan Station Sewer Servicing Strategy (*Source: GWW 24/01/2026)*)

To service the PEP, new sewer infrastructure will be required to be constructed. Considering the existing contours of the precinct, there is a consistent grade from Glenmore & Nerowie Road at the south-west and south-east reaches to the north boundary of the precinct. Due to the large distances, the presence of multiple large local depressions and the unknown land uses of the industrial precinct, it is not practical or economically viable to plan gravity sewers for the PEP.

It is anticipated that a mixed rising main / pressure sewer system will be implemented for the PEP. Future sizing and loadings of this system are currently unknown due to the unknown future uses of the precinct and the wide variety in typical loading from different use developments. At minimum is it expected that a rising main / pressure sewer system will discharge directly into the Bacchus Marsh RWP on Parwan South Road.

Further investigation is required by GWW into the specific upgrade works required for the treatment plant, and the future loadings of the Parwan, Maddingley and Merrimu precincts.

4.1.4 ULTIMATE SERVICING ARRANGEMENTS

Greater Western Water has confirmed that the Parwan and Merrimu precincts are now accommodated into the servicing plans.

Advice received from GWW indicates that the ultimate 2061 treatment capacity of the GWW treatment plant will be 27,000 lots. This will cater for the Bacchus Marsh, Maddingley, Merrimu and Parwan areas. The design discharge into the treatment plant will be 800 L/s, which will be much greater than the current capacity of the existing plant, 105 L/s.

As noted above, significant upgrades to the Bacchus Marsh RWP will be required to cater for the future growth of the Bacchus Marsh, Parwan and Merrimu areas. Due to the significant cost, the upgrade of the RWP is likely to be staged to provide additional treatment capacity as required.

The PEP will typically require the construction of normal developer designed and constructed 63mm & 150mm diameter pressure sewer reticulation mains within each development to service the proposed lots plus payment of New Customer Contributions.

The sewers servicing each individual lot within the precincts must accommodate full gravity drainage of the serviced area of the lot as defined in the WSA 02-2014-3.1 Sewerage Code of Australia.

Accordingly, the PEP will be able to progress in a planned and logical sequence without the need for major on-site temporary infrastructure facilities. If required, temporary management of sewer flows by eduction based on a specific eduction management plan may be implemented subject to specific requirements and approval of GWW.

4.1.5 EXPECTED FUNDING ARRANGEMENTS

Current Greater Western Water policy, under GWW's New Customer Contributions Guidelines, as approved by the Essential Services Commission, is to fund sewers that are typically 300mm diameter and larger, and generally permanent fixtures such as sewer pump stations, where the inlet sewer is equal to or greater than 300mm diameter. This infrastructure is partly funded through New Customer Contributions paid by greenfield developers, typically on a per lot basis for residential. New Customers Contributions, which are standardised within growth areas across the GWW region, also partly fund new headworks assets, including treatment upgrades, required to service new growth. Developers fund sewerage infrastructure smaller than 300mm diameter.

GWW do not provide any reimbursement or funding for temporary or interim assets.

Based on discussion with GWW, Reeds have prepared a conceptual costing for the significant interim and ultimate branch infrastructure required to service the PEP. The interim costings noted below are works required upfront to provide immediate supply and can be viewed more as a 'Stage 1' of ultimate infrastructure to be delivered. Further investigation is required by GWW into the specific staged upgrade works required for the treatment plant, and to provide firm cost estimates.

Table 1 - Sewer Estimate Costing Table – 2026

Item	Rates Used	Interim Costing	Ultimate Costing
Sewer Pump Station	$3.5 million each 5 in total	$ 10,500,000	$ 17,500,000
Rising Main	Varies from $700 to $1,700 per linear metre (~10km in total)	$ 6,540,000	$ 12,640,000
Gravity sewer	Varies from $570 to $2,250 per linear metre (~17km in total)	$ 9,340,000	$ 22,150,000
Bacchus Marsh RWP Upgrade	$12.5 million each primary lagoon $25 million each anaerobic pot	$ 62,000,000	$ 75,000,000
TOTAL		**$ 88,880,000**	**$ 127,290,000**

Where a specific area or facility contributes to significant upgrades of Greater Western Water's infrastructure, GWW may require a specific infrastructure charge for that area or facility, to avoid burdening the wider customer base. The PEP, or specific customers within that precinct, may trigger a specific infrastructure charge.

Further investigation is required by GWW into the specific upgrade works required for the provision of sewer services to the areas, including treatment plant upgrades, to provide firm cost estimates and funding arrangements.

4.2 POTABLE WATER RETICULATION

Greater Western Water (GWW) is the Potable Water supply Authority for the PEP and surrounding area.

4.2.1 EXISTING SERVICES

Existing water infrastructure in the vicinity of the PEP includes a 100mm dia. water main in Geelong-Bacchus Marsh Road, which terminates south of the Aerodrome Road entrance and a 150mm dia. water main in Parwan South Road at the frontage of the Bacchus Marsh RWP. See **Figure 8** below for an excerpt from the Dial Before You Dig asset service.

Figure 7: Existing Greater Western Water Assets - PEP (*Source: DBYD*)

The existing water mains service the existing rural homesteads and have no additional capacity for future development of the PEP.

4.2.2 CURRENT SERVICING STRATEGIES

Greater Western Water has released a servicing strategy for their relevant areas, dated 24 January 2026. This servicing strategy was prepared in support of their submission to the Essential Services Commission for the pricing period between 2024 – 2028.

Sheet 2 of this servicing strategy shows the wider Bacchus Marsh area; is attached in **Annexure 2** of this report, and an excerpt is shown below in **Figure 9**.

The current servicing strategy proposes to upgrade the existing 150mm dia. main in Geelong-Bacchus Marsh Rd up to East Maddingley Road into a 300mm dia. water main. As per the strategy, this upgrade is to be constructed into three parts, with the southern portion nominated to be constructed within the 2034 and 2035 financial year, with the balance to the north west to be constructed in the 2031 financial year.

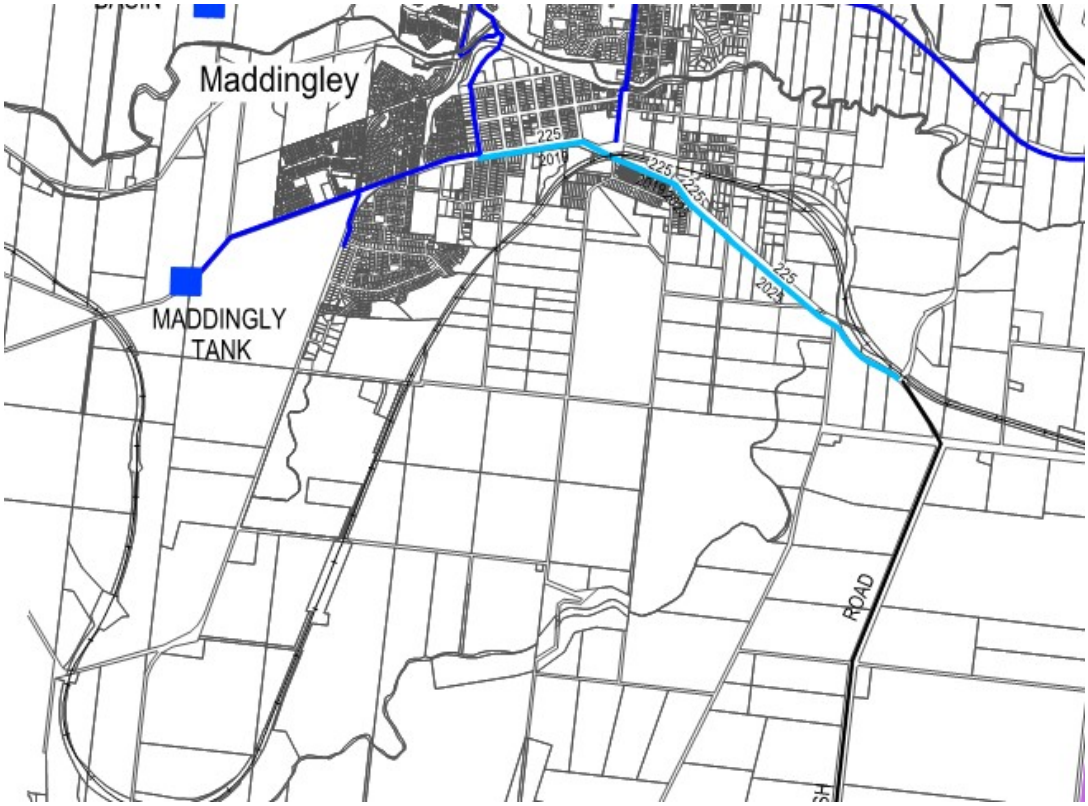


Figure 8: Bacchus Marsh/Melton Potable Water Servicing Strategy (*Source: Greater Western Water, June 2018*)

It is noted that the future Parwan and Merrimu precincts are now considered in the current GWW strategy, and allowance has been made for their growth.

4.2.3 INTERIM SERVICING ARRANGEMENTS

GWW have previously confirmed that the existing 100mm and 80mm dia. water mains in the PEP did not have any capacity to service additional development.

Advice received from GWW indicated that the sizing of the new water main in Geelong-Bacchus Marsh Road has been increased in size. GWW noted that the new water main will be a 300mm dia. size, and has been completed to East Maddingly Road.

It is noted that the remaining sections of 300mm dia. water main to the east in Geelong-Bacchus Marsh Rd are noted by GWW to be completed in 2031; and are currently part of the GWW capital works program.

Advice received from GWW indicates that there will also be upgrade works of the water Pump Station in the centre of Bacchus Marsh township as part of these 'Stage 2' works. This will upgrade the capacity of the local water main network from 70 L/s to 160L/s in 2025.

As noted by GWW, there will effectively be a surplus interim supply of 90 L/s in the Bacchus Marsh system, which will be delivered to Woolpack Road by 2025. It was highlighted by GWW that this will be the immediate surplus supply available to the Bacchus Marsh vicinity. Noting that Maddingley will be progressing forward with additional development, future development in Maddingley or Bacchus Marsh township may proportionally decrease this interim supply available for the PEP.

Figure 9: Parwan Potable Water Servicing Strategy (*Source: GWW 24/01/2026*)

It is expected that by the time the Parwan Station PSP is gazetted, developments proceed, and houses connect to the reticulation system; that 1,000 lots would have already been delivered by the anticipated growth in Bacchus Marsh and Maddingley. As such, there will be reduced interim potable water supply available to Parwan at the time of development.

The Parwan Protein & Tallow Facility is in the south of the PEP. The potable water supply requirement for Parwan Protein & Tallow peak flow would be in the vicinity of 74 L/s. As such, reduced potable water supply will be available to the other PSP in the area at the time of development.

To service the Parwan Station PSP, new water infrastructure will be required to be extended from the proposed 300mm dia. main noted above (Stage 2b). Noting that there is now a formal GWW servicing strategy for the Parwan areas yet; based on discussions with GWW, it is anticipated that Parwan Station will require a 450mm dia. water main.

To service the PEP, new water infrastructure will be required to be extended from the proposed 300mm dia. main noted above (Stage 2b). GWW are indicating that a 300mm dia. water main will be extended along Geelong-Bacchus Marsh Road. The Potable Water servicing plan in **Annexure 3** has nominally shown the shared asset size of 300mm dia. ending just south of the Aerodrome Road. Future sizing and loadings of the system are currently unknown due to the unspecified future uses of the precinct and the wide variety in typical supply requirements from different use industrial developments. GWW have made some assumption of the proposed developments and prepared their servicing strategy for the Parwan, Maddingley and Merrimu precincts

4.2.4 ULTIMATE SERVICING ARRANGEMENTS

Greater Western Water has confirmed that the Parwan and Merrimu precincts are now accommodated into the servicing plans.

GWW has indicated that once the additional 90 L/s interim water supply is depleted, there is limited ability for additional capacity from the Bacchus Marsh network.

As such, once the water supply capacity in Bacchus Marsh is exhausted, any further development in Parwan or Hopetoun Park or Merrimu will trigger the construction of a major pipeline from the Merrimu Water Filtration Plan (WFP) down Flanagans Drive. The Merrimu WFP is ~40m higher than the Parwan region, as such there would be sufficient head to cater for the supply of the precincts.

According to the GWW's current servicing strategy (2026), this water main is proposed to be a 450mm dia water main constructed in 2048, 600mm dia water main constructed in 2032 and 525mm dia. water main constructed in 2032.

In order to provide additional supply to the PEP, this 450/600/525mm dia. water main will need to extend 13.4km from the intersection of Woolpack Road and Geelong-Bacchus Marsh Road, cross the Werribee River, cross the Western Freeway, and continue north to the Merrimu WFP. See **Figure 11** below for the regional plan of this major pipeline.

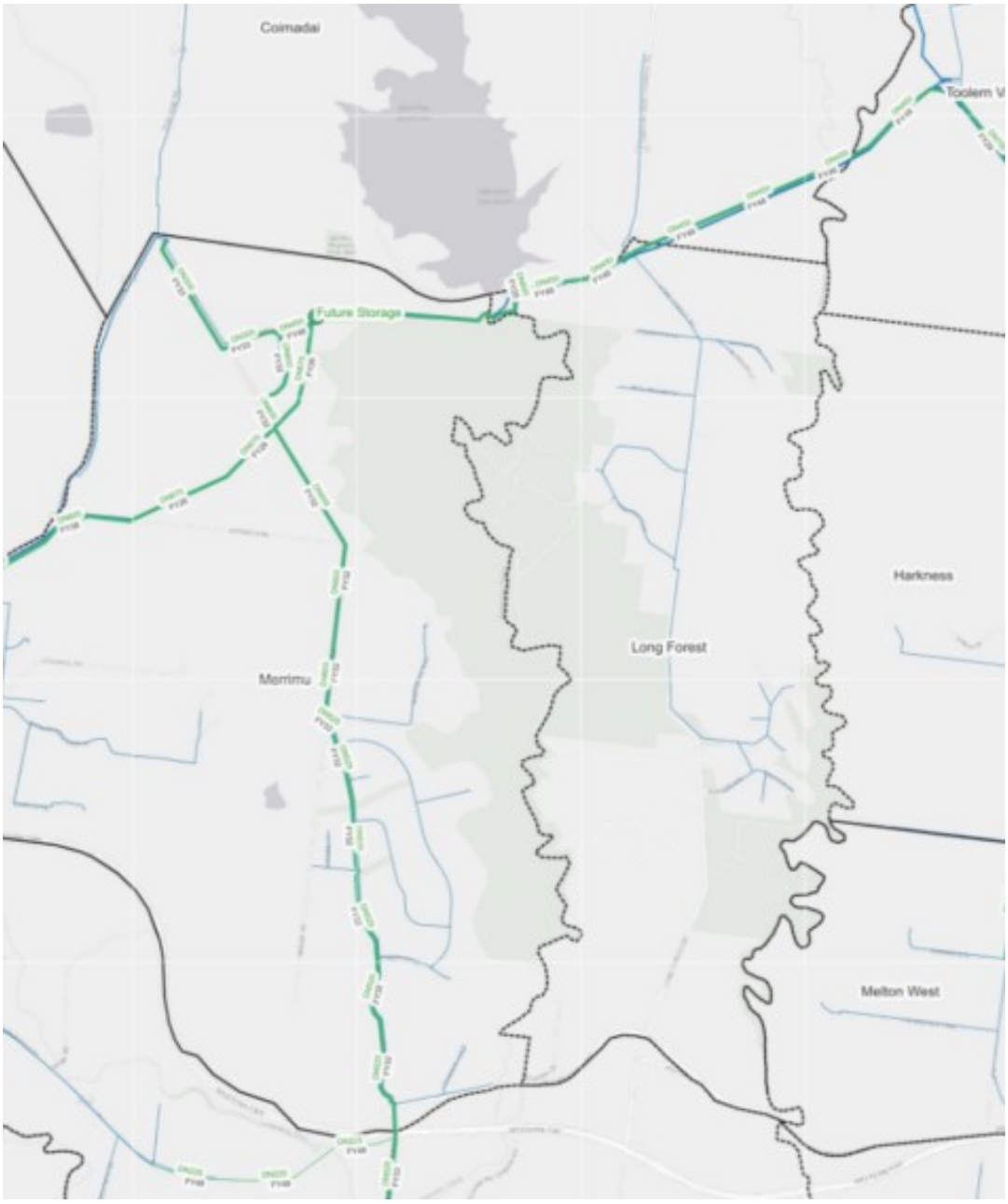


Figure 10: Parwan Station Potable Water Servicing Strategy (*Source: GWW 24/01/2026*)

Greater Western Water has advised that the capacity of Merrimu WFP is 15,000 lots. Noting that the current number of lots being supplied is ~7,000, there is currently capacity in the WFP for interim development of the Parwan and Merrimu precincts.

However, it is anticipated that by 2033 there will be in excess of 15,000 households in the Bacchus Marsh region. GWW has advised that a new supply from the Melbourne Water system is likely to be required at this point. This will require new infrastructure to be constructed between the Merrimu WFP and existing Melbourne potable water infrastructure in Melton.

As GWW originally noted the 450mm dia. water main from Merrimu WFP to be long-term infrastructure (2048 delivery date) along with a future storage, there is limited detailed information available for the pipeline and the proposed alignment is not confirmed.

Further investigation is required by GWW into the specific works required and to provide firm cost estimates.

The delivery timing for the water mains is developer-driven, by being dependent upon development to trigger & construct down-stream headworks. Bring-forward construction costs may apply if development is required to construct the down-stream water mains in their entirety prior to the GWW nominated delivery timelines.

The PEP will typically require the construction of normal developer designed and constructed 150mm-100mm diameter water reticulation mains within each development to service the proposed lots plus payment of New Customer Contributions. All works are to be constructed in accordance with the Water Standards Association of Australia - Water Supply Code of Australia WSA 03-2011-3.1 Melbourne Retailer's Edition Version 2.

4.2.5 EXPECTED FUNDING ARRANGEMENTS

Current Greater Western Water policy, under GWW's New Customer Contributions Guidelines as approved by the Essential Services Commission, is to fund water main that are typically 225mm diameter and larger, and generally permanent fixtures such as water tanks. This infrastructure is partly funded through New Customer Contributions paid by greenfield developers, typically on a per lot basis for residential. New Customers Contributions, which are standardised within growth areas across the GWW region, also partly fund new headworks assets, including treatment upgrades, required to service new growth. Developers fund potable water infrastructure smaller than 225mm diameter. GWW also do not provide any reimbursement or funding for temporary or interim assets.

Based on discussion with GWW, Reeds have prepared a conceptual costing for the significant interim and ultimate infrastructure required to service the PEP. Further investigation is required by GWW into the specific upgrade works required for the provision of water services to the areas, including treatment plant upgrades, to provide firm cost estimates and funding arrangements.

Table 2 – Potable Water Estimate Costing Table - 2026

Item	Rates Used	Interim Costing	Ultimate Costing
Water Pump Station		Stage 2b= $ 1,875,000 (*ballpark only*)	*TBC – modelling to be completed by GWW*
PEP Water Main	Varies from $750 to $1,125 per linear metre (~24km in total)	= $ 21,250,000	= $ 21,250,000
PEP External Water Main from Merrimu WFP	Varies from $1,25 to $1,375 per linear metre (~13.4km in total)	= $ 16,780,000	= $ 16,780,00
TOTAL		**$ 39,905,00**	**$ 39,905,000**

Where a specific area or facility contributes to significant upgrades of Greater Western Water's infrastructure, GWW may require a specific infrastructure charge for that area or facility, to avoid burdening the wider customer base. The PEP, or specific customers within that precinct, may trigger a specific infrastructure charge.

4.3 RECYCLED WATER

Greater Western Water (GWW) is the Recycled Water supply Authority for the PEP and surrounding area.

4.3.1 EXISTING SERVICES

According to the Dial Before You Dig (DBYD) information received from Greater Western Water, there does not appear to be any existing authority Class A recycled water infrastructure in the vicinity of the Parwan Region.

It is noted that the Bacchus Marsh Recycled Water Plant (RWP) currently produces Class C recycled water, which is not suitable for residential use. GWW has indicated that a number of local businesses in the area currently use this Class C recycled water.

4.3.2 ULTIMATE SERVICING ARRANGEMENTS

Previous advice received from GWW indicated that if an upgrade of the Bacchus Marsh RWP goes ahead, it will cost an additional ~$12.5 million to install specific facilities to produce Class A recycled water. If this facility is installed, then recycled water mains could proceed from the treatment plant to provide supply to Parwan. See **Figure 12** below.

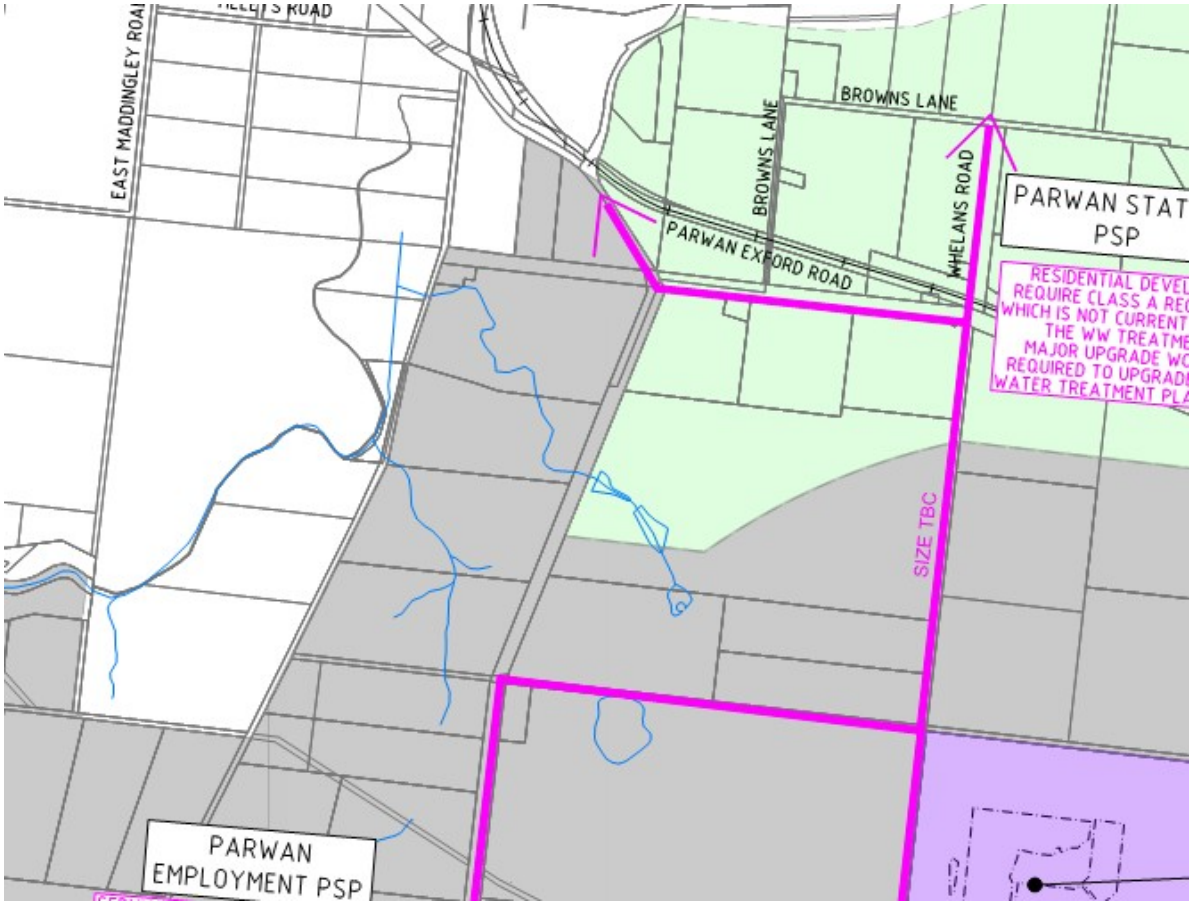


Figure 11: Parwan Station Recycled Water Servicing Strategy (*Source: Reeds Consulting*)

Further investigation is required by GWW into the specific works required for pipeline sizes, to determine if supply will be extended to service the greater Bacchus Marsh region and to provide firm cost estimates.

If the precinct construction precedes timing for recycled water infrastructure in the area, future development may be required to construct temporary potable cross connections to charge the recycled main reticulation. This cross connection would be removed when recycled water reticulation is brought to the subject site by GWW in the future.

If recycled water is mandated by GWW, development will typically require the construction of normal developer funded 100mm -150mm diameter water reticulation mains within each site to service the proposed lots. Payment of New Customer Contributions will be required for each lot prior to compliance of individual internal stages.

All works are to be constructed in accordance with the Water Standards Association of Australia - Water Supply Code of Australia WSA 03-2011-3.1 Melbourne Retailer's Edition Version 2.

GWW wish to note that they are no longer building Class A recycled water infrastructure in the residential growth areas of Melton and Sunbury. Indications suggest that there would be sufficient demand for Class C recycled water within the Balliang area that may limit an available supply for Class A recycled water.

GWW may review the need for a Class A plant if there is sufficient demand from local industries, rather than residential areas, by having a positive impact on the supply into the area by substituting potable water supply with recycled water.

4.3.3 EXPECTED FUNDING ARRANGEMENTS

Greater Western Water no longer mandates the need for a Class A recycled water network for new developments. As it is not mandated, the ESC guidelines for funding of the infrastructure are not applicable. This places the delivery and funding of a Class A recycled water network, as well as the required recycled water plant upgrades on any prospective land owners that request recycled water supply.

Based on discussion with GWW, Reeds have prepared a conceptual costing for the interim and ultimate recycled water infrastructure required to service the PEP. The interim costings noted below are works required upfront to provide immediate supply and can be viewed more as a 'Stage 1' of ultimate infrastructure to be delivered. Further investigation is required by Greater Western Water into the specific staged upgrade works required for the treatment plant, and to provide firm cost estimates, if recycled water is mandated by GWW in future.

Table 3 – Recycled Water Estimate Costing Table-2026

Item	Rates Used	Interim Costing	Ultimate Costing
Bacchus Marsh RWP Upgrade	$12.5 million to provide Class A	$ 12,500,000	*TBC – modelling to be completed by GWW*
Water Main	225mm = $750 /m 300mm = $875 /m	PEP (~6.3km length) = $5,200,000	PEP = TBC – *dependent upon future developments and land uses*
TOTAL		**$ 17,700,00**	

4.4 ELECTRICAL RETICULATION

Powercor is the electrical authority responsible for supply to the PEP and surrounding area.

4.4.1 EXISTING SERVICES

According to the Dial Before You Dig (DBYD) information received from Powercor, there is existing High Voltage (HV) infrastructure in the vicinity of the Parwan Region.

Advice received from Powercor confirms that the closest regional zone substation is the Bacchus Marsh Zone Substation (BMH) on Kerrs Road. See **Figure 13** below for an excerpt from the Powercor Project Assessment report for the Bacchus Marsh & Melton areas from 2016. The PEP are located within the BMH nominated zone substation coverage area.

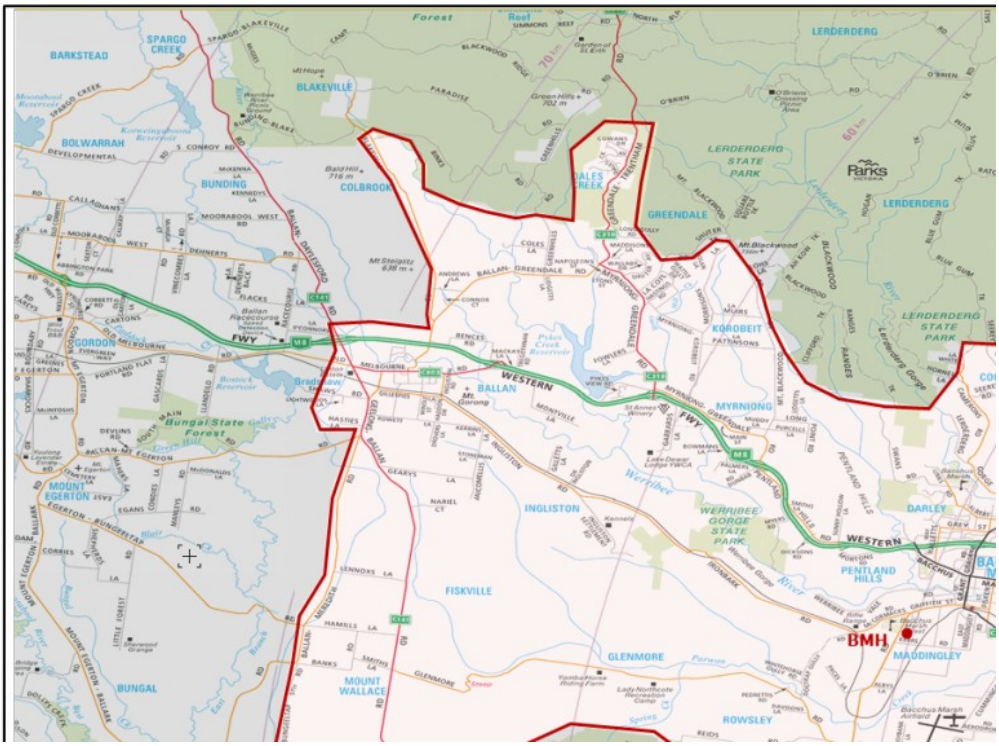


Figure 12: Parwan Electrical Servicing Strategy (*Source: Powercor 2016*)

Quoting the Powercor project assessment report (2026) for the Bacchus Marsh zone sub:

"BMH is currently supplied by a 66kV sub-transmission line from the Deer Park terminal station (DPTS) with backup supply via a 66kV sub-transmission line from the Ballarat terminal station (BATS). The zone substation is a banked station consisting of two 10/13.5 MVA 66/22kV transformer supplying two 22kV buses with four distribution feeders. The zone sub experiences both summer evening and winter hot load peaks."

4.4.2 INTERIM SERVICING ARRANGEMENTS

Powercor provided servicing advice email dated 26 February 2026.

See **Figure 14** below for a plan of the PEP and the existing HV network 22kV in orange, and the 66kV sub-transmission network in thick red.

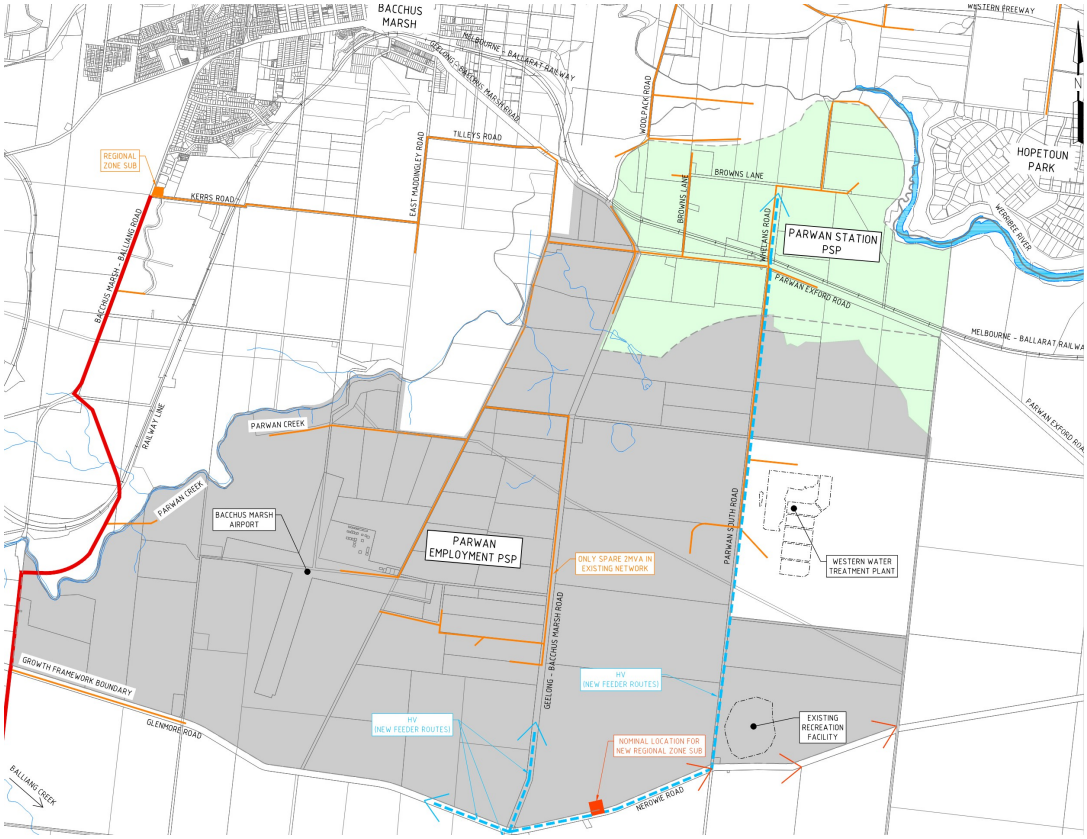


Figure 13: Parwan Electrical Servicing Strategy (*Source: Reeds Consulting*)

Note that the PEP boundary is not up to date.

Powercor has advised that there is only 2 MVA capacity remaining in the current HV 22kV feeders in Parwan. Specifically, the existing overhead lines only have capacity in Geelong-Bacchus Marsh Road up to the Aerodrome Road, with minimal supply available south of Aerodrome Road.

It is noted that this is the existing condition of the network, even after upgrade works to the Melton (MLN) zone sub were completed in 2018 which offloaded 5 MVA of load from the BMH zone sub.

The existing zone substation (BMH) in Kerrs Road does not have sufficient existing capacity to provide any additional supply over the 2 MVA noted above. A possible interim option nominated by Powercor is to upgrade the existing BMH by installing another bus node and transformer within the existing kiosk substation reserve. As per similar upgrades completed in Melton recently as per Powercor Project Assessment report (2016), Reeds estimate the cost of this additional bus node and transformer to be in the region of $5 million, and new overhead feeders will also be required to be installed from Kerrs Road into Parwan at additional cost.

4.4.3 ULTIMATE SERVICING ARRANGEMENTS

Powercor has provided advice regarding the ultimate servicing of the Parwan precinct with electrical supply.

Powercor preliminary advice indicates that when the ultimate capacity from the Bacchus Marsh zone sub is exhausted, a new zone substation will be required to service the Parwan areas.

See **Figure 14** below which provides a schematic diagram for where the Parwan substation would likely be installed within the existing 66kV sub-transmission network.

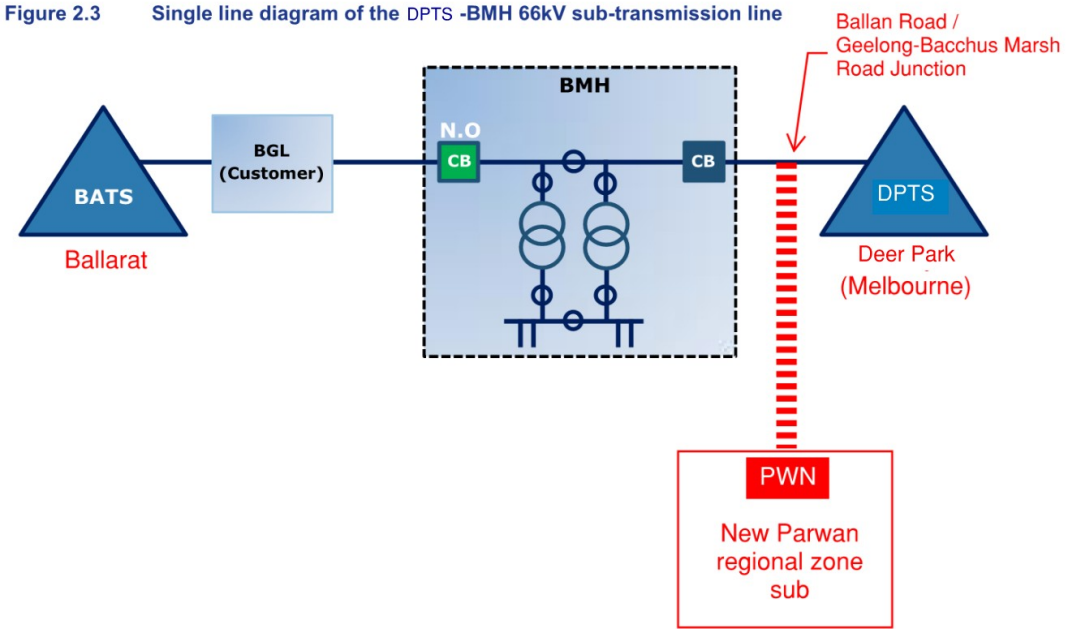


Figure 14: Parwan Electrical Servicing Strategy (*Source: Reeds Consulting*)

See **Figure 15** below, it is anticipated that this new 66kV sub-transmission line from the Deer Park Terminal Station (DPTS) would flow along the M8, Greigs Road and Exford Road to Nerowie Road in Parwan, approximately 27.5km.

Figure 15: Parwan Electrical Servicing Strategy DPTS to the east (*Source: Reeds Consulting*)

The new Parwan zone substation would require a 100m x 100m reserve purchased by Powercor. As shown in **Figure 16** below, a nominal location for the zone substation has been shown to scale. This is not confirmed and is subject to landowner agreement and further Powercor planning.

The proposed Parwan zone sub will be expandable, with up to four total bus upgrades possible to be installed after the initial construction. Due to the significant cost, the future upgrade of the zone sub will be staged to provide additional supply to the PEP as required.

The delivery timing for the zone substation is subject to a minimum 19-month program with a $200,000 up-front payment to Powercor for network design and specification. This program includes 5 months for preliminary design and issue of a firm offer; 2 months for detailed specification; and a minimum 12 months for construction. Powercor note that this timeline is preliminary only, and subject to availability of materials and electrical components in the international market. Based on the Powercor Project Assessment report (2016) and the Powercor Connection Policy, Reeds estimate the cost for the first stage of the zone substation will be in the vicinity of $12.5 million.

New 22kV feeders (shown in light blue in **Figure 16** below) would continue from the new Parwan regional zone sub and extend north, east and west as required to service new developments within the PEP.

Powercor advise that the installation of the Parwan zone substation will assist system redundancy and re-distribution of loads from the BMH zone substation. As such, there will likely be opportunities to disseminate existing Parwan loads such as the RWP into the new Parwan sub, and provide supply to the Parwan Station precinct from an existing overhead HV network.

Powercor need to complete additional design and modelling to confirm the future network loads and likely feeder alignments for Parwan development.

Figure 16: Parwan Electrical Servicing Strategy (*Source: Reeds Consulting*)

Underground power HV and LV cables and suitably located kiosk substation facilities will be master planned for each development within the precinct. The detailed design of electrical works, cabling, lighting and the final siting of kiosk substation/s will be undertaken on a stage by stage basis in accordance with the proposed network scope and general requirements of Powercor.

The installation of electricity conduits, service pits, trenching and backfill works will be carried out by each developer's civil contractor and the cabling and jointing will be undertaken by an approved electrical contractor under the project management and auditing requirements of the electrical company. Street lighting and in particular the type of pole and light fittings internal to the development will be subject to approval of Council and Powercor and externally, in the arterial road network, lighting will require the relevant road authority's approval.

4.4.4 EXPECTED FUNDING ARRANGEMENTS

Powercor's charges for connection services and their calculation is publicly available and on their website within the "Powercor Connection Policy". To provide initial supply to the Parwan areas, a 'negotiated connection service' will be required from Powercor.

Powercor's connection charge is calculated according to the following formula:

$$Connection\ charge = AS + CC + PS$$

where:

AS is the total charge payable for all applicable ancillary services

CC is the total capital contribution payable for all standard control connection services, which are calculated with reference to the cost-revenue-test set out below

PS is the total charge payable to account for any pioneer scheme applying to the assets to which the customer connects

Powercor typically provide HV Equalisation Rebates to customers through the above CC (Capital Contribution) item in their above formula. This rebate usually extends to the construction of shared HV infrastructure, including substation kiosks and HV transmission lines. Low Voltage works for each development, including all civil construction costs for public lighting and residential supply networks will typically be at the cost of each developer.

Based on discussion with Powercor and review of industry reports, Reeds have prepared a conceptual costing for the significant interim and ultimate branch infrastructure required to service the PEP. The interim costings noted below are works required upfront to provide immediate supply and can be viewed more as a 'Stage 1' of ultimate infrastructure to be delivered. Further investigation is required by Powercor into the specific staged upgrade works required, and to provide firm cost estimates. These costs are to be confirmed by Powercor.

Table 4 – Electrical Estimate Costing Table - 2026

Item	Rates Used	Interim Costing	Ultimate Costing
Parwan Zone Substation	$12.5 million for substation establishment $6 million for each bus upgrade	$ 12,500,000 *(does not include procurement of land area)*	All four bus upgrades: $25,000,000
HV feeders	66kV OH extension = $1,000 /m 22kV OH extension = $600 /m	Extension from Deer Park Terminal Station (~24.7km) = $ 40,000,000	*TBC – each additional HV feeder to be treated as an individual project, specific to development applications*

TOTAL		**$ 52,500,000**	**$ 25,000,000**

The upfront cost associated with funding the zone substation is not feasible for a single developer to deliver and carry. It is hopeful that dedicated State government funding can be provided to facilitate the initial capital works investment required to provide supply to initial development of the PEP. A pioneer scheme may also apply to the new Parwan zone substation as follows:

"*If a network extension ceases, within 7 years after its installation and energisation, to be dedicated to the exclusive use of the customer occupying the premises, the customer may be entitled to a partial refund of connection charges under our pioneer scheme.*"

This pioneer scheme charge noted above in the formula (PS) would be applicable to all future users after the first-in customer and would be passed through to the first-in customer as a refund. This should be considered by the State government in any grant proposals or infrastructure funding models to enable the economical progression of the PEP, as the PS could be a mechanism through which the State government could partially recoup its costs.

4.5 GAS RETICULATION

Ausnet Gas is the gas company responsible for gas supply to the PEP and the surrounding area.

4.5.1 EXISTING SERVICES

According to the Dial Before You Dig (DBYD) information received from APA Group, there is an existing high-pressure transmission gas main that bisects the PEP in an east-west alignment. See **Figure 18** below for an excerpt from the DBYD plan received from APA Group.

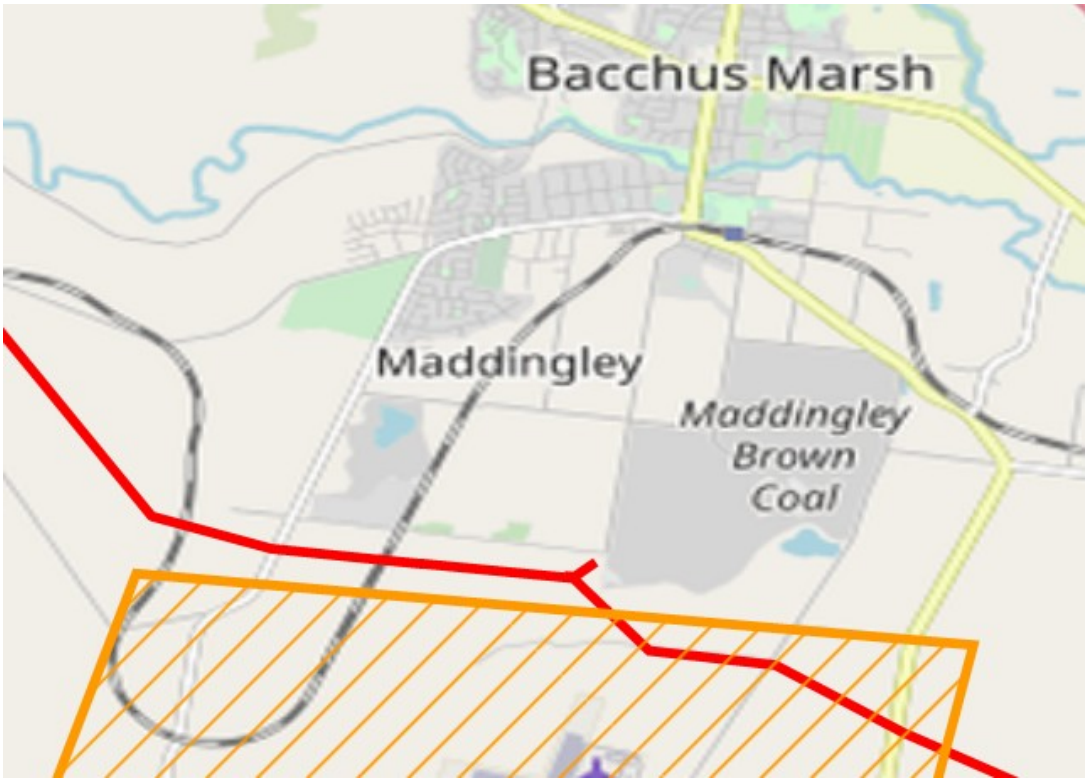


Figure 17: APA Group Asset Plan– Gas Transmission Main (*Source: DBYD*) N.T.S

APA Group has confirmed the specifications of the transmission gas main as noted below and provided additional information packages for pipeline safety see **Annexure 3**.

- Name: **Brooklyn-Ballan**
- Size: **200 mm diameter**
- Material/type: **API 5L Gr B**
- Pressure: **7390**
- Date of construction: **1972**
- Easement width: **20m**
- Buffer distance: **210m**

4.5.2 ULTIMATE SERVICING ARRANGEMENTS

In August 2022 a new $2.7 million City Gate Gas Connection Project was completed providing gas supply to PEP and the surrounding areas.

City Gate is located to the south of the Greater Western Water Bacchus Marsh RWP, east of Parwan South Road. See **Figure 18** below which provides an overall plan for where the Parwan Citygate was installed, and the probable gas reticulation extensions through the PEP.

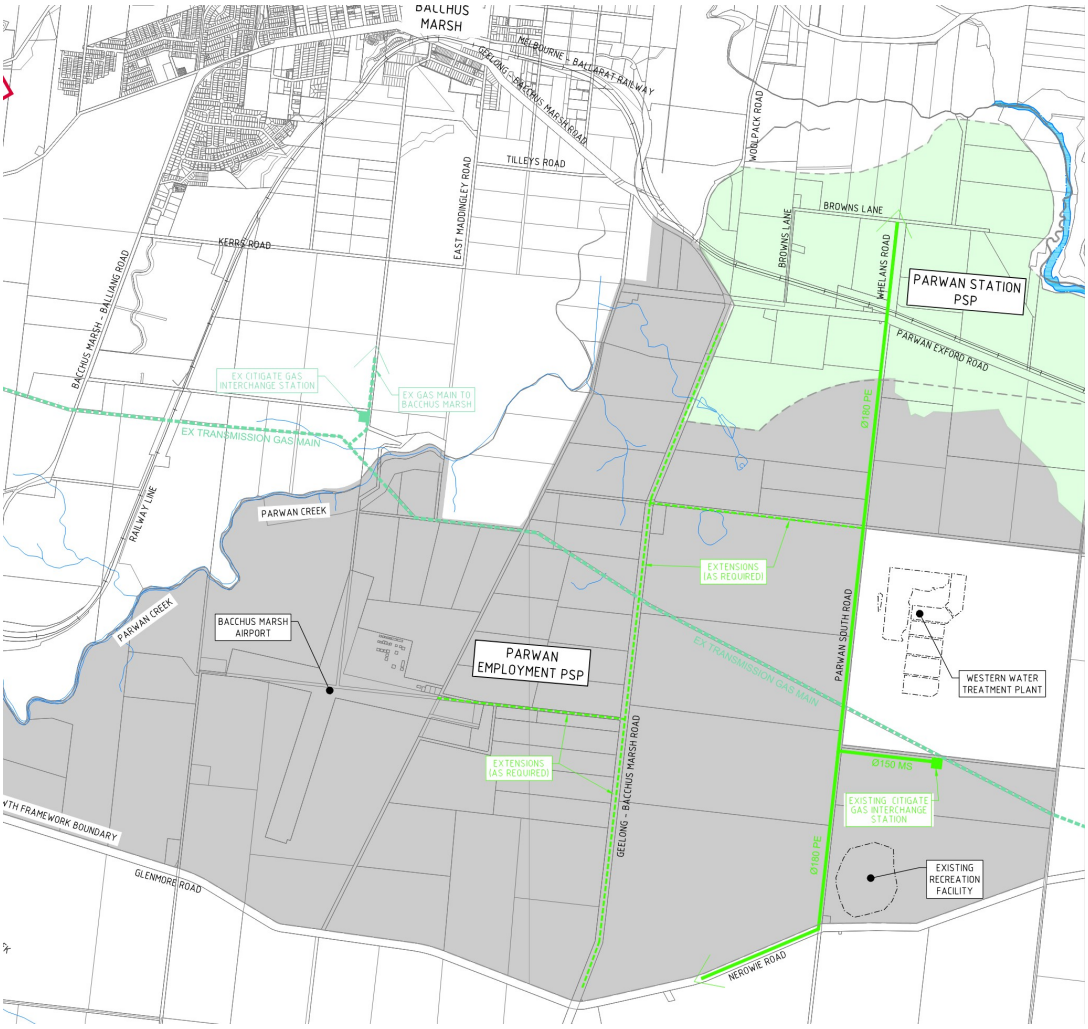


Figure 18: Parwan Gas Servicing Strategy (*Source: Reeds Consulting*) N.T.S

Note the PEP boundary is not up to date.

The Ausnet design of the new city gate includes a risk assessment using a combined HAZID/QRA which will determine the risk contours for future urban development around the new city gate. The proponent will need to enter into a commercial agreement with Ausnet and APA Transmission to allow the risk assessment to take place. Ausnet and APA transmission will attend the HAZID workshop. Advisors are required to conduct the combined HAZID/QRA using recent examples such as the Soldier Rd Clyde North, Hillcrest Christian College template.

APA Group have advised that prior to the PEP being progressed further, they will require a Safety Management Strategy (SMS) briefing to be completed with the VPA to inform if any specific safety or protective measures will need to be implemented. The cost of this SMS will be borne by the VPA; and requires the HAZID/QRA to have already taken place, as the QRA risk contours from the new City Gate are required to have the urban development comply with the risk contours.

APA Group have also provided additional advice regarding their transmission main noting that the capacity of the transmission system will need to be checked once the load forecasts to the new City Gate Station can be forecast. The requirements (and costs) for any additional pipeline augmentation (if required) would be determined at that stage.

Ausnet have advised that gas reticulation can be extended north through Parwan South Road to form the basis of gas supply for the Parwan Station Precinct. Gas reticulation will also be extended south as required to service the PEP.

4.5.3 EXPECTED FUNDING ARRANGEMENTS

Current Victorian Government policy is to not provide gas reticulation within residential development but supply can be provided to industrial sites.

Current Ausnet policy regarding industrial sites is that they are not mandated to provide gas for industrial developments. This also applies to the expected use the PEP being agribusiness in nature. As such, all gas main extensions within the PEP will be subject to individual development supply requirements; and will be entirely at each development's own cost. Any and all gas extensions within the PEP will be developer-driven, with timing entirely depending upon individual development timing and supply requirements.

Further investigation is required by Ausnet Gas into the specific upgrade works required for the PEP, and to provide firm cost estimates for the headworks required.

4.6 TELECOMMUNICATIONS

Telstra, NBN and Optus are all relevant authorities for telecommunications supply in the PEP and wider Bacchus Marsh area.

4.6.1 EXISTING SERVICES

Telstra currently have assets located within the Parwan precinct.

NBN do not have any fixed line networks within the PEP, however they provide wireless, as requested by individual customers in the area.

4.6.2 ULTIMATE SERVICING ARRANGEMENTS

NBN provided written servicing advice via email on 21 January 2026 confirming that there are no updates to their advice provided on 26 November 2019, as follows:

Proposed network upgrades

Currently there are no plans to install or upgrade any infrastructure within this
constraints or issues with future standard infrastructure installation. There are

Noting the above, that there are no current plans to provide fixed-line NBN to Parwan, NBN has provided further advice on providing fixed-line service to the precincts:

Servicing the precinct area

Servicing of the Precinct would be planned on a case by case application basis a
New infrastructure would be deployed utilising a mixture of existing Telstra, new N
shared trenching arrangements. Any new build (multiple conduit) to this precinct i
Bacchus Marsh Rd at the western end of the Parwan Station Precinct. It is envisi
required within the entire precinct.
Any extension of the Fixed line footprint to Parwan precincts will connect to the N

NBN Co, as the responsible agency, will determine the requirements for initial and ultimate fibre optic-based telecommunication services to proposed development within the precincts. Application and registration requirements for the provision of telecommunication services to the proposed development will be made through NBN Co by each individual development within the precincts.

An approved NBN Co provider will typically design and install the infrastructure within each development on a staged basis and also install the extension of the network or backhaul to the development as required.

Other options for telecommunication fibre provision to the site are available from private providers, such as Opticomm. Further information and quotes on private fibre can be obtained upon request.

4.6.3 EXPECTED FUNDING ARRANGEMENTS

The cost of network extension, if applicable, is subject to various factors including the access, distance and capacity of an exchange. If the length of backhaul is typically over 1.0km, then there will be additional charges to be paid by the developer to bring NBN fixed-line optic fibre to their site.

As such, for the PEP, it is expected that the cost of backhaul and external pit & pipe headworks will be borne by the 'first-in' development.

NBN Co subdivision provisioning requirements will also apply, requiring each developer to install pits and conduits within the development to NBN Co standards in a co-ordinated manner with the other civil works, at their own cost.

A contribution will be required to be paid for all development within the PEP which will be based on individual property assessment.

SUMMARY & CONCLUSION

This report has provided an engineering assessment of the key servicing requirements for the proposed Parwan Employment Precinct.

Our investigation has reviewed the availability and requirements for all necessary infrastructure including potable water supply, recycled water supply, sewerage, utility services including electricity / lighting, telecommunications and gas and also provided an overview of proposed roadworks and earthworks requirements.

Key Constraints

Based on the investigation and analysis of the engineering servicing report, we note that there are no existing assets within Parwan with effective capacity to service immediate future development within the PEP. We conclude that the PEP will require significant planned upgrades and augmentation of existing services to meet the demands of both interim and ultimate development.

The future Bacchus Marsh Eastern Link Road, based on the current Option B Alternative – 2023incldues a large roundabout near the northern site boundary and doesn't appear to have any impacts on the PEP at this time

We have summarised below the major service trunk infrastructure required to provide an interim supply of services for the precincts.

- Sewerage — Bacchus Marsh RWP Upgrade
- Potable Water — External 450/525/600mm dia water main from Merrimu WFP
- Recycled Water — **not currently mandated**. However, if required, a Bacchus Marsh RWP upgrade for Class A production, ~4.1km of DN300 for PEP.
- Electrical — New zone substation construction at Nerowie Rd, ~24.7km HV 66kVA extension from Deer Park TS
- Gas — New Citygate constructed.
- Telecommunications — Extensions as required by NBN.

Key Opportunities

It is noted that delivering the infrastructure outlined in this report will benefit not just the subject PEP, however the wider region of Bacchus Marsh. Three critical examples of this servicing synergy are outlined below.

First, the Bacchus Marsh RWP upgrade will provide additional sewer treatment capacity for the PEP and surrounding areas.

Second, the ultimate 11.8km length DN600 water main to be brought from the Merrimu WFP down to Geelong-Bacchus Marsh Road will provide potable supply directly to the PEP and surrounding areas.

Third, the construction of the new Parwan zone substation will alleviate the capacity issues within the existing Bacchus Marsh zone sub. This will enable continued growth within PEP and surrounding areas.

It is concluded that constructing the above key infrastructure will enable both immediate development for the PEP and continued development of the greater Bacchus Marsh region.

Staging

As noted above, there are three major infrastructure projects required to facilitate development in the PEP. From an authority and utility servicing perspective, staging cannot be determined by land release or vehicle access alone. It must also respond to the location, capacity, timing and approval requirements of each servicing authority's trunk network. The practical staging of the precinct will therefore be governed by the earliest point at which sewer, potable water, electricity, gas and telecommunications can be extended or augmented to provide a compliant and reliable level of service.

For sewerage, Greater Western Water's capacity, treatment requirements and acceptance criteria will be a primary staging constraint. The upgrade works to the Bacchus Marsh Recycled Water Plant may be able to be delivered progressively, or alternatively some early developments may need to rely on approved on-site treatment solutions where flows and trade waste characteristics are suitable. Sites closer to the BMRWP and existing sewer infrastructure are likely to be more readily serviced, however any interim treatment or discharge arrangement will remain subject to GWW approval, EPA requirements where applicable, and confirmation that interim works do not compromise the ultimate network solution.

For potable water, staging will be influenced by GWW's programmed trunk main upgrades and the availability of interim capacity within the Bacchus Marsh system. The external water main works from Merrimu WFP are programmed across the FY32–FY48 horizon, and any development that seeks to proceed ahead of these programmed authority works may trigger bring-forward obligations or require interim supply arrangements. Sites toward the northern boundary of the PEP may be more readily serviced due to their relative proximity to the future trunk connection points, however this will depend on confirmed hydraulic modelling, authority timing, pressure requirements and the relative demand generated by other growth areas including Maddingley, Parwan Station, Hopetoun Park and Merrimu.

For electricity, the new Parwan zone substation and associated 66kV and 22kV feeder works represent a significant authority-led constraint on staging. Powercor has indicated that existing capacity is limited and that a new staged zone substation solution may be required to support ultimate development. Sites toward the southern boundary of the PEP may be more readily serviced if they align with the preferred zone substation location and feeder extensions; however, early stages will need to be tested against Powercor's connection process, network modelling, land acquisition requirements, lead times for electrical plant, and potential pioneer or cost-sharing arrangements for first-in customers.

The result is that staging for the PEP is unlikely to follow a single linear progression across the precinct. Instead, staging should be considered as a utility-led sequencing exercise, where each development front is assessed against the authority with the most constrained or longest-lead infrastructure requirement. In some locations, sewer or water may be the limiting service; in others, electricity capacity or trunk feeder timing may be the critical path. Gas and telecommunications are more likely to be development-driven, but still require early authority engagement to confirm backhaul, network extension, risk assessment and commercial requirements.

Accordingly, the preferred staging approach should be developed in consultation with GWW, Powercor, Ausnet, NBN, Moorabool Shire Council, Melbourne Water and the relevant road authorities. Early stages should prioritise areas where authority trunk infrastructure can be delivered with the least abortive work, where interim solutions can transition into the ultimate network, and where first-in infrastructure costs can be equitably recovered through contribution, reimbursement, pioneer or government funding mechanisms. While vehicle access and proximity to existing development will remain relevant, the authority utility lens indicates

that service availability, network capacity, statutory approvals and funding responsibility will be the dominant staging drivers for the PEP.

Costing

Based on discussion with authorities, Reeds have prepared a conceptual costing for the significant interim and ultimate infrastructure required to service the PEP. The interim costings noted below are works required upfront to provide immediate supply and can be viewed more as a 'Stage 1' of ultimate infrastructure to be delivered. Further investigation is required by authorities into the specific staged upgrade works required, and to provide firm cost estimates of trunk infrastructure.

Table 5 – Summary Estimate Costing Table

Item	Interim Costing	Ultimate Costing
Sewer	$ 88,880,000	$ 127,290,000
Potable Water	$ 39,990,500	$ 38,030,000
Recycled Water	$ 17,700,00	$ 17,700,000
Electrical	$ 52,500,000*	$ 25,000,000
Gas	$ -	-
TOTAL	**$ 147,140,500**	**$ 190,320,000**

** does not include procurement of land*

Further Investigations

Due to the significant upfront costs associated with the construction of the interim infrastructure, it is recommended that options for dedicated State government funding are investigated to facilitate the initial capital works investments. It is noted that the above report is a result of discussions directly with all servicing authorities and each authority has expressly noted that further modelling and investigations are required to assess future servicing of the Parwan Employment Precinct.

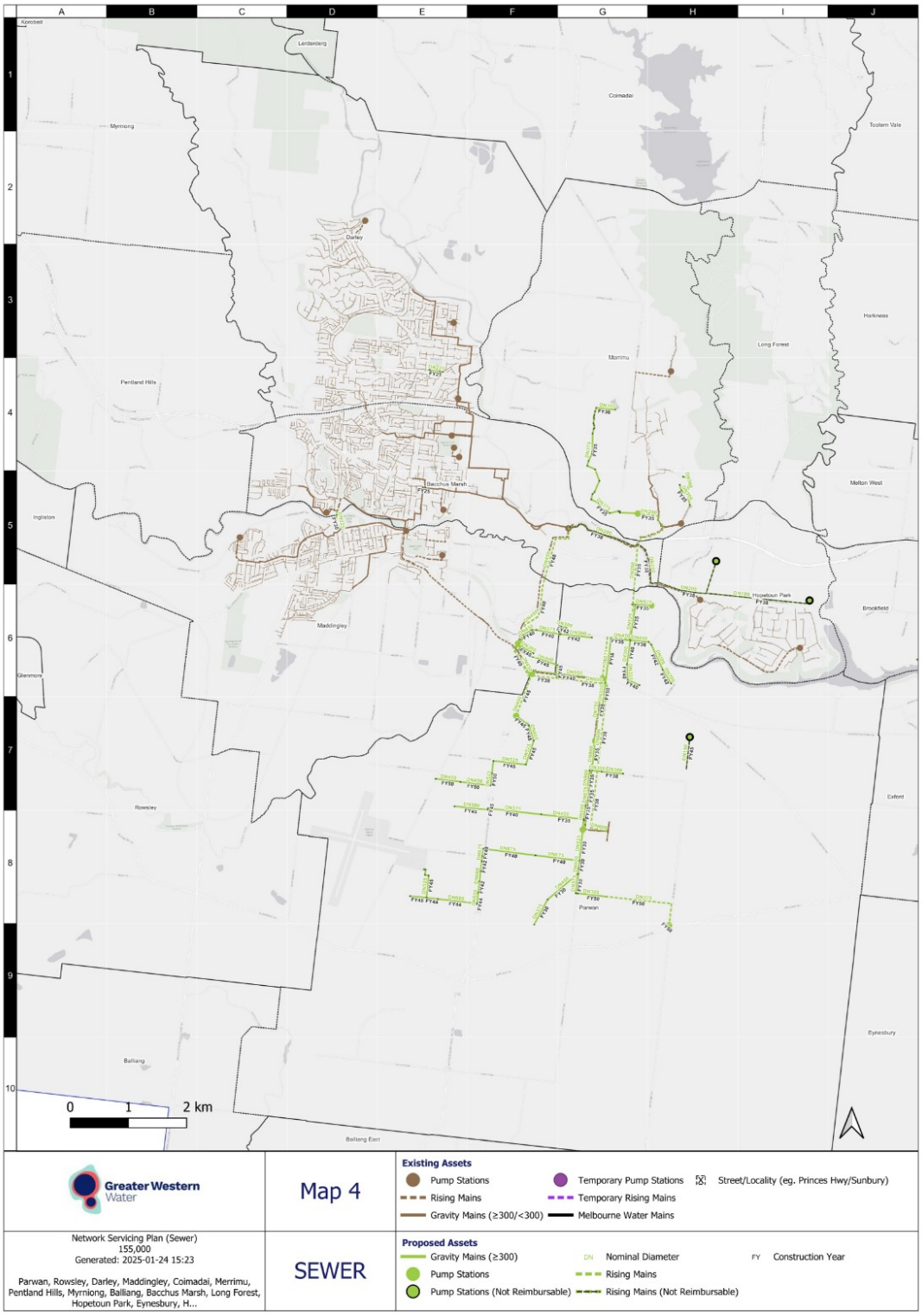
Prepared by:
REEDS CONSULTING PTY LTD

GORDON TEMPLETON
Engineering Operations Manager

Disclaimer

The information contained within this report has been obtained from various servicing Authorities either verbally or in writing however, until such time as formal applications made and the applicable written conditions, statutory permits and all relevant approvals obtained it should only be used as a guide. Any party wishing to use the material contained within this report should make their own inquiries to satisfy themselves to the accuracy of the information.

ANNEXURE 1 – Greater Western Water Sewer Servicing Strategy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Toolern Vale
Darley
Pentland Hills
Merrimu
Long Forest
Harkness
Bacchus Marsh
Melton West
Ingliston
Maddingley
Hopetoun Park
Brookfield
Glenmore
Rowsley
Exford
Parwan
Eynesbury
Balliang
Balliang East
0
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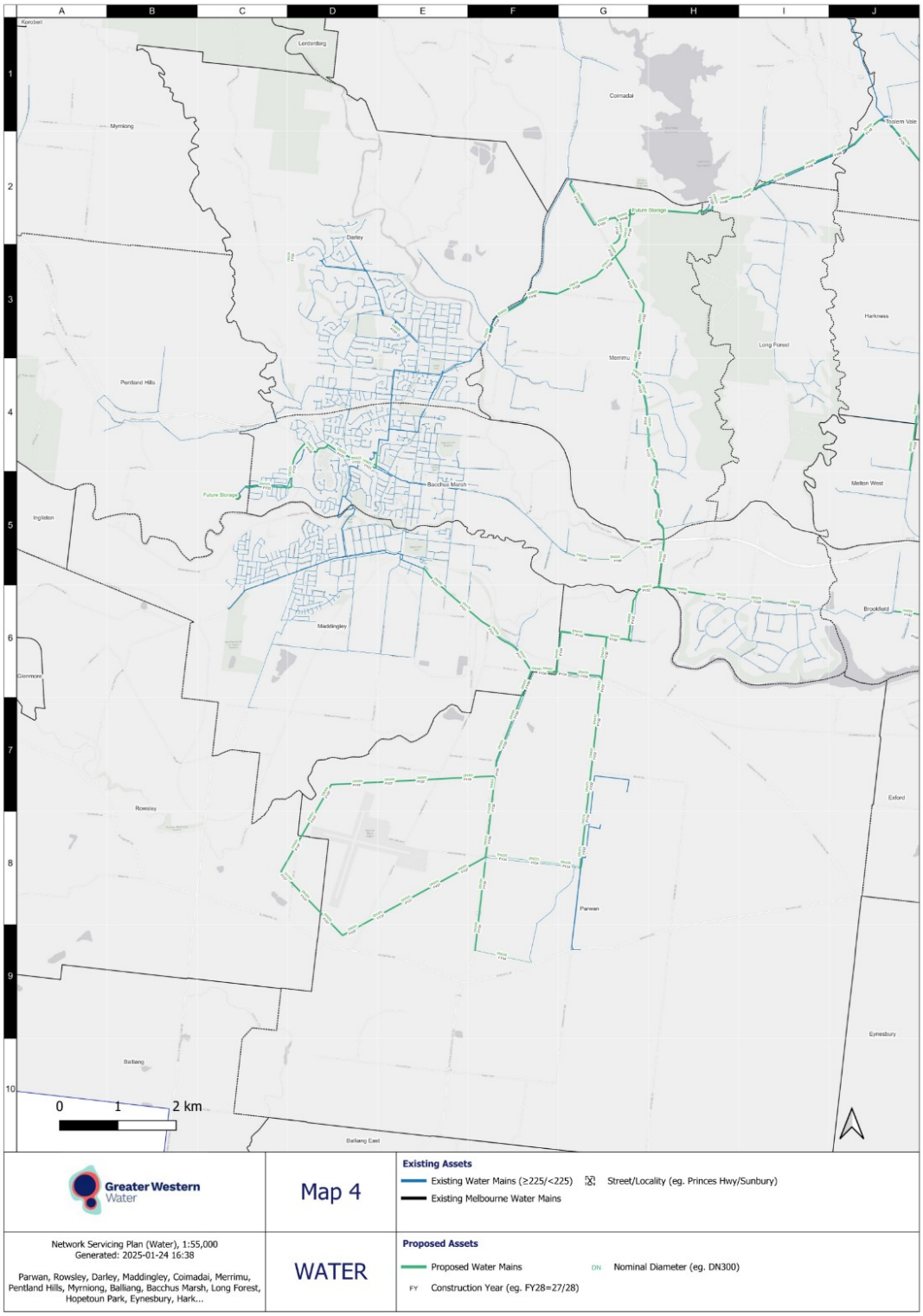
2 km
Greater Western Water
Map 4
Existing Assets
Pump Stations
Temporary Pump Stations
Street/Locality (eg. Princes Hwy/Sunbury)
Rising Mains
Temporary Rising Mains
Gravity Mains (≥300/<300)
Melbourne Water Mains
Network Servicing Plan (Sewer)
155,000
Generated: 2025-01-24 15:23
Parwan, Rowsley, Darley, Maddingley, Coimadai, Merrimu, Pentland Hills, Myrniong, Balliang, Bacchus Marsh, Long Forest, Hopetoun Park, Eynesbury, H...
SEWER
Proposed Assets
Gravity Mains (≥300)
DN Nominal Diameter
FY Construction Year
Pump Stations
Rising Mains
Pump Stations (Not Reimbursable)
Rising Mains (Not Reimbursable)

ANNEXURE 2 - Greater Western Water Potable Water Servicing Strategy



ANNEXURE 3 – APA Group Gas Pipeline - Information Package

Proving Contractor Accreditation methodology as below

Before Mechanical Excavation is used to disturb the natural ground surface by more than 300 mm within 3 m from the edge of the pipeline, the pipeline must be positively sighted using Non Destructive Digging (NDD) method.

APA requires the use of APA preferred NDD contractors or alternatively the qualification of alternative NDD contractor's to perform NDD on our pipelines.

The method of qualification is for NDD Operators to have a Verification of Competency (VOC) Card issued by a RTO. This is an industry VOC and not necessary to be APA-specific. Evidence of this is required prior to APA issuing the Third Party Works Authorisation for the NDD on our pipeline. The APA Permit Issuing officer will also perform an on-the-job assessment which requires the NDD Operator to follow the strict adherence to the SWMS which in turn must be fully compliant with the following APA requirements:-

1. 580-POL-L-0001_2 Standard Conditions for Works near APA Group Gas Transmission Pipelines (Attached)
2. 320-PR-OM-0067_2 Gas Transmission Excavation Procedure (Attached)

The specific equipment required for Coal Tar Enamel pipelines include the following key items:

1. 530-DWG-L-0009 – Hydro pot holing of coal tar or poorly coated pipelines (Attached)
2. 530-DWG-L-0011 – Water & Air Lance (Attached)

FYI, APA's current list of Preferred NDD Contractors is as follows:

1. Construction Science Jose Gomar, Project Manager, Phone +61 438 814 618, Address 15 Teton Court, Highett, 3190 Victoria Australia
2. Vac Group Jordan Avramides Project Engineer 0447 466 331,Jordan.Avramides@vacgroup.com.au
3. Utility Mapping http://utilitymapping.com.au/solutions/non-destructive-digging/Melbourne Office (HQ), Suite 2, 85 Salmon Street, Port Melbourne, VIC 3207, E: melbourne@utilitymapping.com.au, 1300 627 746
4. Qest Web address: www.qest.net.auhttps://www.qest.net.au/underground-services/non-destructive-excavation/ 32 Agosta Drive Laverton North, VIC Australia T: 1300 308 172 Email: info@qest.net.au
5. Abaxa http://abaxa.com.au/services/vacuum-excavation/ 1300 369 642
6. Environmental Services Group Chris Stonard | Logistics Manager Ph: 1300 369 916 Mob: 0429 268 825 Nicholas Drive, Victoria 3175 www.esgrp.com.au
7. Citywide Andrew.Hutchins@citywide.com.au Mob 0418457892
8. Access Utility Engineering-www.accessue.com.au
9. Tox Free Australia Pty Ltd -https://www.cleanaway.com.au/service/hydro-excavation/

The Parwan City Gate Gas Connection Project is a completed industrial infrastructure project in Victoria, Australia, designed to supply natural gas to the Parwan Employment Precinct (PEP) and the wider Bacchus Marsh region. It aims to attract agribusinesses and generate up to 1,500 jobs by 2027.

Key Details of the Parwan City Gate Project

- **Purpose:** To provide necessary industrial-grade gas infrastructure to the 2,880-hectare Parwan Employment Precinct, facilitating development for intensive agriculture and agribusinesses.
- **Location:** Situated within the Parwan Employment Precinct, positioned between the Bacchus Marsh Aerodrome and the Western Water Treatment Plant.
- **Funding & Development:** The project was completed in 2022, backed by $2.7 million from the Premier of Victoria and the Victorian Government's Building Works package, in partnership with Moorabool Shire Council and L&G Meats.

- **Impact:** Enables businesses to access reliable energy, supporting firms like Parwan Valley Mushrooms and accelerating the development of the area into a major industrial hub.

The project is a crucial component of the broader,, long-term development of the Parwan Employment Precinct

ANNEXURE 4 – NBN Servicing Advice

From: Joe Cannatelli <joecannatelli@nbnco.com.au>
Sent: Wednesday, 21 January 2026 1:53 PM
To: Meyling Rensford
Cc: Gordon Templeton
Subject: RE: Parwan Employment Precinct & Parwan Station Precinct Structure Plan - High Level Servicing Assessment - NBN

External sender <joecannatelli@nbnco.com.au>
Make sure you trust this sender before taking any actions.

Hi Meyling,

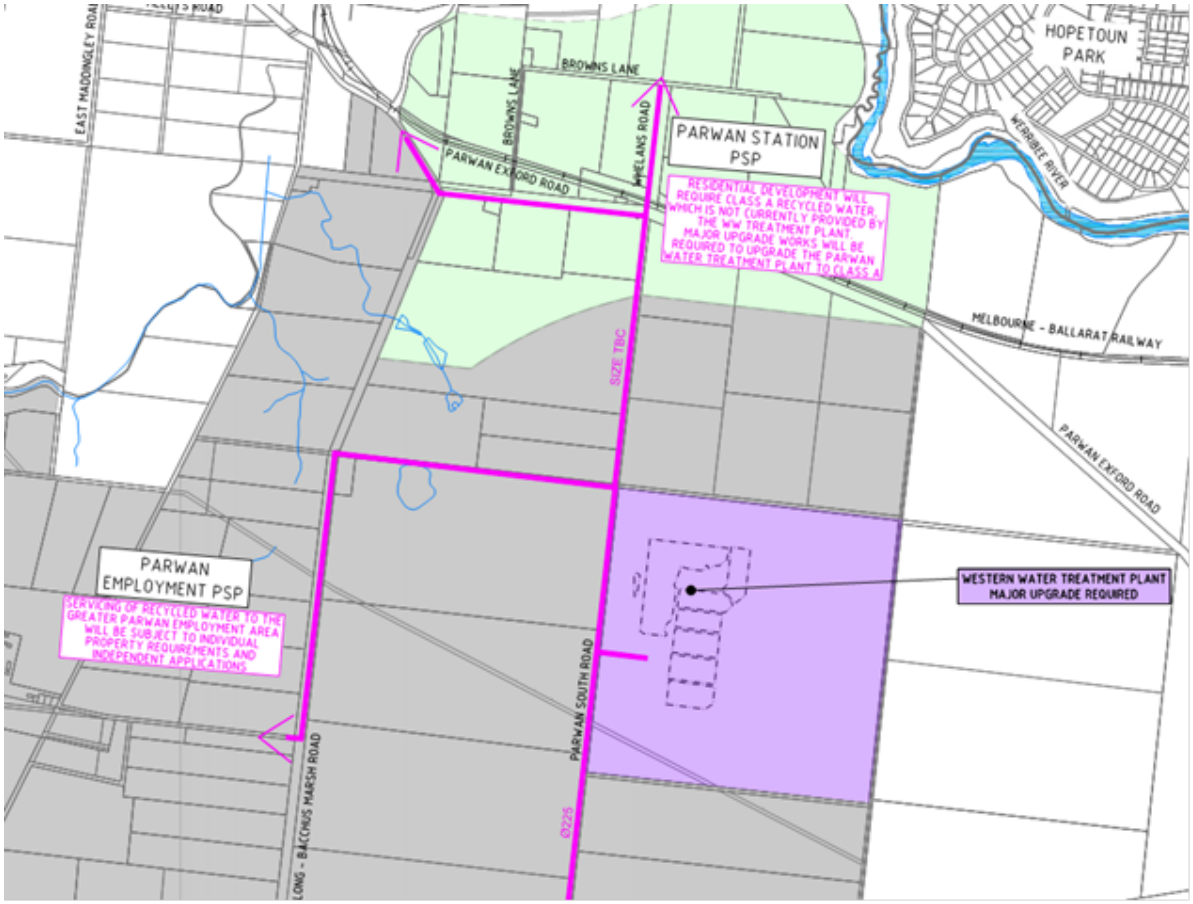
I hope you are doing well. I wanted to update you on the High-Level Servicing Assessment for the Parwan area. After reviewing the information, I can confirm that there are no updates to the initial assessment. The area remains within the Wireless & Satellite footprint, and there are no current plans to extend the network to the precinct unless it is initiated by a customer, such as a New Developments Property Developer.

Please let me know if there are any further questions or if there's anything else I can assist with.

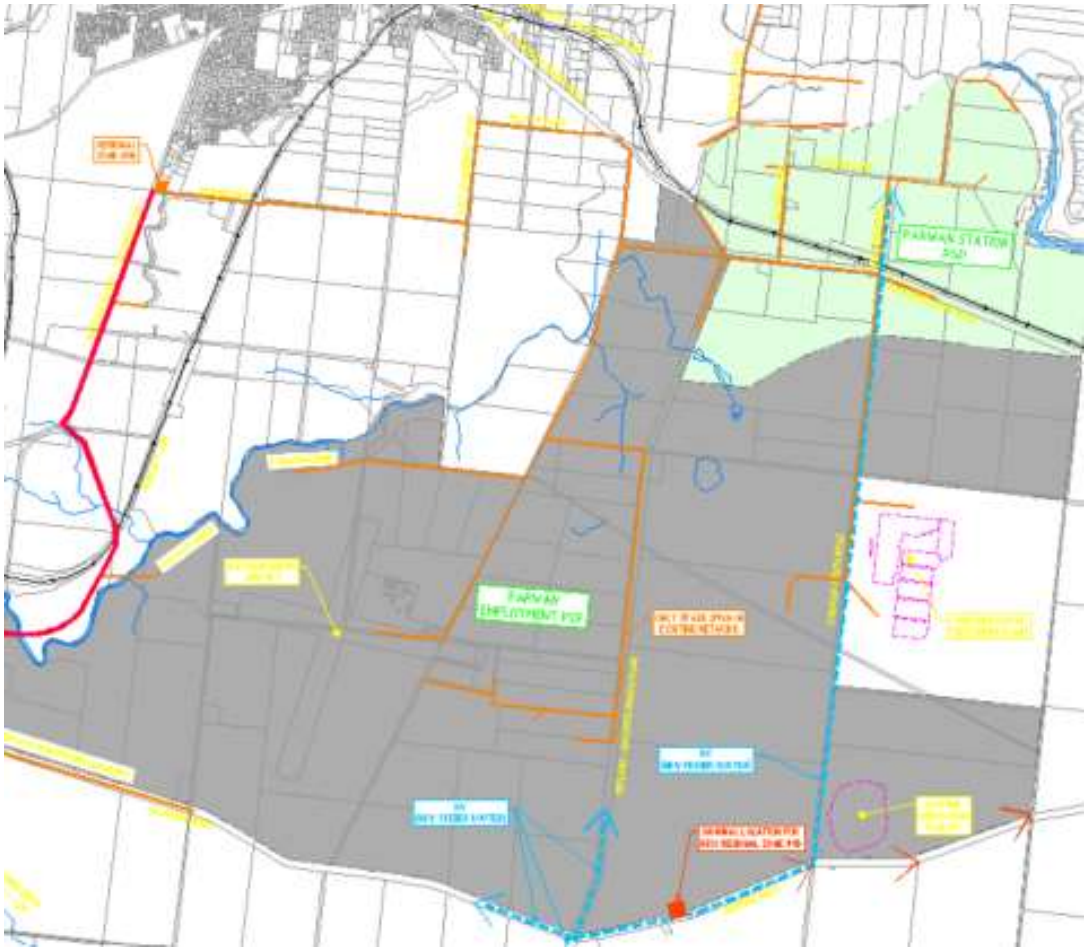
Kind regards,

Joe Cannatelli
Senior Account Manager, nbn New Developments (Vic/Tas)
M 0434 33 66 99 | E JoeCannatelli@nbnco.com.au
Wurundjeri Country
Collins Square, Tower 5, 727 Collins Street Melbourne VIC.

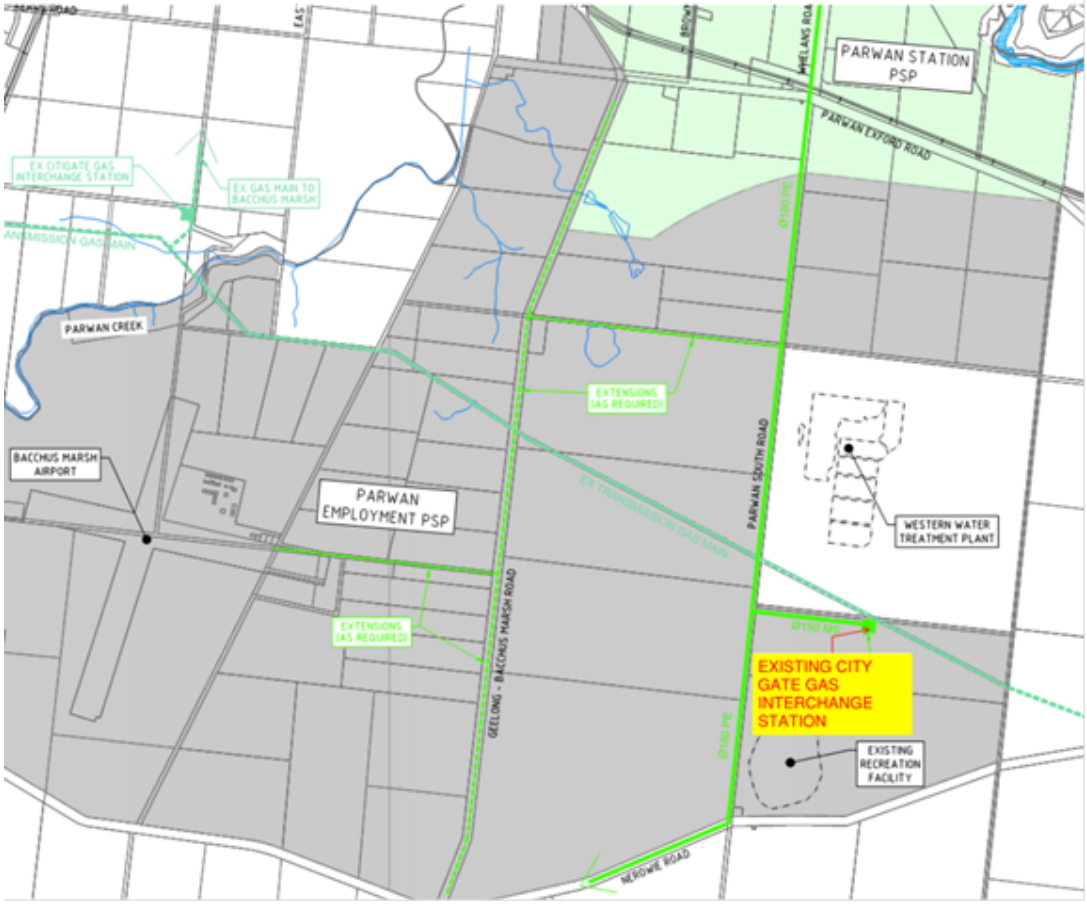
ANNEXURE 5 – Reeds Utility Servicing Plans



Parwan Station Recycled Water Servicing Strategy (*Source: Reeds Consulting*)
Note the PEP boundary is not up to date.



Parwan Electrical Servicing Strategy (*Source: Reeds Consulting*)



Parwan Gas Servicing Strategy (*Source: Reeds Consulting*) N.T.S

ANNEXURE 6 – Meeting Minutes with Service Authorities

REEDS CONSULTING
LAND SURVEYING
CIVIL ENGINEERING
PLANNING
DEVELOPMENT CONSULTING

Meeting Minutes

PROJECT:	Parwan Employment Precinct	**DATE:**	3 February 2026 09:00am
LOCATION:	Online Teams Meeting	**MEETING No:**	01
ATTENDING:	Gordon Templeton (Reeds) Meyling Rensford (Reeds)		Adam Heaton (Greater Western Water)
APOLOGIES:			

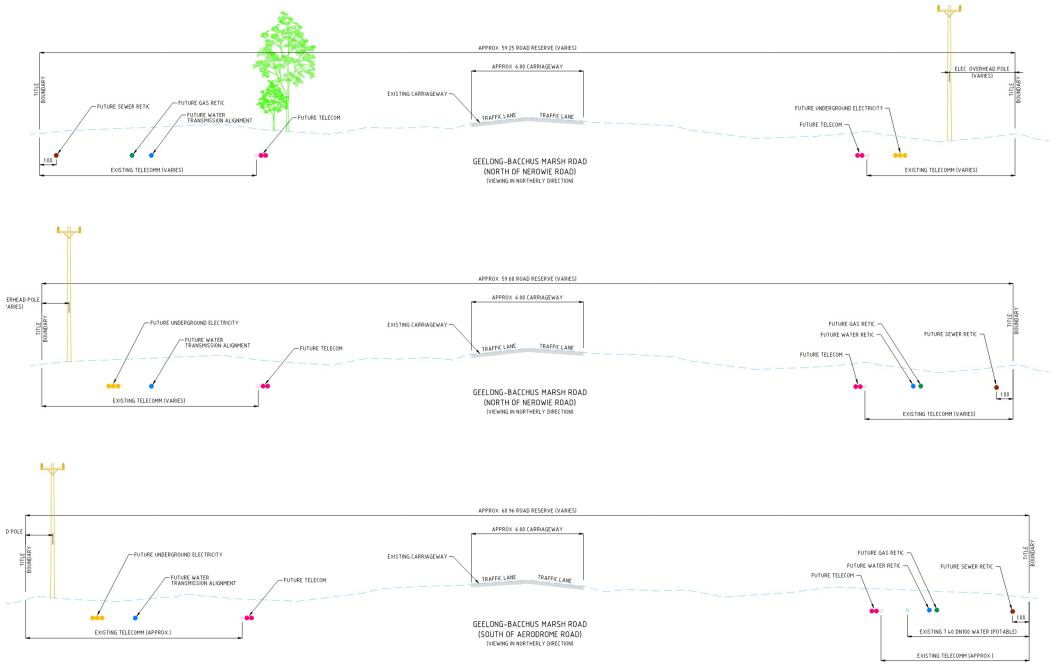
Item	Description	Action By	Due Date
(1)	**Introductions** Parwan Employment Precinct Report required by DTP (formerly VPA). Update required from initial 2019 meeting		

(2)	**Overview of Scope and Tasks**
	• Reeds High Level Servicing Assessment
	  ○ Existing services
	  ○ Future servicing arrangements
	  ○ Expected funding arrangements
	• Key dates for delivery – draft report is required before end of February 2026		

(3)	**Parwan Station / Parwan Employment Assessment Areas** • PSP and DP areas were outlined by Reeds • Anticipated rate of development & staging outlined by Reeds		

(4)	**Greater Western Water Discussions**
	
	POTABLE WATER
	• GWW will provide their asset map
	• Capacity of existing infrastructure is only suitable for existing development in Bacchus Marsh, no current capacity for Parwan.
	• Upgrade works / future infrastructure required to service Parwan areas:
	  ○ The existing pump station in Bacchus Marsh has been upgraded from 70 L/s to 160 L/s.
	  ○ New DN300 has been delivered through Geelong-Bacchus Marsh Road (shown as DN225 in asset map) in THREE sections has been completed
	  ○ One section south of railway line between Griffith St to E-Maddingley Rd has been completed
	  ○ Two other DN300 sections will deliver 90 L/S capacity to Woolpack Road, and are on the capital works program, however, was timed for delivery by 2025 and has now been deferred
	  ○ Additional DN225 will be required from Woolpack Rd for interim servicing of new Parwan PSP areas
	  ○ Ultimate servicing of Parwan will require a ~DN600 main from Merrimu Water Filtration Plan (WFP) down		

	Flanagans Drive. Sizing to be confirmed. Current timing is for 2050 – however this to be reviewed by GWW. ○ Upgrade works at Merrimu WFP may be required • Water Servicing Plan updated in 2024 includes Parwan • Merrimu has a capacity of 15,000 lot total. Currently services ~7,000 lots, therefore if development of BM, Parwan, Hopetoun Park, Merrimu exceeds this total, then potable water supply will need to be obtained from the Melbourne Metro network (through Melton). • GWW to confirm funding model, however a special area contribution rate may be applicable **RECYCLED WATER** • GWW will provide their asset map • Bacchus Marsh RWP only creates Class C NDW, not suitable for residential use (which requires Class A). • Upgrade to RWP to create Class A will cost ~$10 million • A new 2nd pipe network would be required to be constructed to provide NDW supply, as no existing infrastructure exists • GWW do not currently mandate recycled water supply; provision of recycled water is only required if a specific development or end user seeks it out. • Funding for recycled water supply will likely be at the cost of the end-user, as it is not currently mandated by GWW. • Proposed to be interconnected with Melton Treatment Plant – greater storage and license. Proximity to buffer. **SEWER** • GWW will provide their asset map • Capacity of existing infrastructure is only suitable for existing development in Bacchus Marsh, no current capacity for Parwan. • Avenue of Honour SPS currently has a capacity of 105 L/S, equivalent of 8,000 lots. • New SPS in Bacchus Marsh required a new DN450 outfall rising main – construction commenced early 2020 and has now been completed • Upgrades to AoH SPS are required in future • Bacchus Marsh RWP only has capacity for another 1,000 lots worth of nutrient load. After this point, a significant upgrade to the RWP will be required. New primary lagoons and 2x min. anaerobic pods ~$40 million cost. • Parwan precincts will likely prompt RWP upgrade works • Parwan Station PSP likely to be serviced by a local gravity network, sewer pump stations, then a rising main back to the Bacchus Marsh RWP • PEP are likely to be serviced by rising main / gravity and PS • Sewer Servicing Plan updated in 2024 to include Parwan		

(5)	**Other Matters**		
(6)	**Meeting Closed** Time: 9:40am		

ANNEXURE 7 – Geelong-Bacchus Marsh Rd Typical Cross Section