AGRIBUSINESS ANALYSIS

PROPOSED PARWAN EMPLOYMENT PRECINCT

MOORABOOL SHIRE COUNCIL

CBRE

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DISCLAIMER

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Section 1

1. EXECUTIVE SUMMARY

S1

- This report provides an analysis and evaluation of the current and prospective employment activities within the Proposed Parwan Employment Precinct, with a specific focus on increasing long term sustainable employment through agribusiness focused activities.
- The most probable use having regard to highest and best use principles was not limited to a single agribusiness but rather a range of mainly vertically integrated businesses, which have the ability to drive local prosperity and employment growth.
- Industry analysis identified hydroponic glass house fruit and vegetable production, red meat processing, and poultry production as the most probable uses under the prevailing market conditions.
- It was apparent through discussions with business operators that the predominant constraint within the proposed employment precinct is the provision of services; specifically natural gas, as well as adequate road access. These aspects were perceived critical to activating intensive agribusiness development. CBRE also considers the provision of Class A water supply to be critical, notwithstanding that businesses immediately requiring Class A water are likely to construct their own water treatment infrastructure. While not raised by current occupiers, it is considered that more concentrated development will require an upgrade of power supplies within precinct. The provision of NBN broad band would enhance the overall competitiveness of the study area.
- Based on our enquiries with existing and potential occupiers, the most probable uses, assuming the above servicing issues are resolved, would be for a mix of meat processing, feedlot/sale yards, mushroom, poultry and hydroponics along with associated co-located industries.
- The Proposed Parwan Employment Precinct's comparative advantages are clearly articulated when compared to opposing Agribusiness Employment areas, with key competitive driving forces detailed and explained herein.
- A co-location matrix has been completed which identifies compatible industries and businesses which require inter-industry separation. Legislative and guideline inter-industry (like industries) buffers are discussed in relation to the co-location of various agribusiness site uses. In regard to the construction of the matrix, we have not necessarily had regard to all planning policies and industry codes. However, we have taken a practical approach in outlining industry and inter-industry separation requirements.
- Forecast employment levels have been made in relation to the Proposed Parwan Employment Precinct defining the sustainable level of full time equivalent labour units to be approximately 1,200, assuming CBRE recommendations are implemented.

Our quantitative industry matrix has been completed on two bases:

(i) assuming existing site attributes and;
(ii) assuming gas connection and improved Freeway access.

Basis (i) analysis depicted the most favourable industries as mushroom production, bulk distribution, hydroponics, poultry and red meat processing respectively, albeit these were at levels unlikely to activate increased agribusiness development. Basis (ii) analysis depicted the most favourable industries as hydroponics, mushroom production, bulk distribution and red meat processing respectively.

1. EXECUTIVE SUMMARY cont.

S1

Key recommendations from CBRE analysis reveal the following agribusiness sectors which are likely to accord with the Proposed Employment Precinct		
Recommendations	**Required Infrastructure**	**Funding Responsibility**
Hydroponics	Natural Gas Irrigation water (12Ml/Ha of development)	Natural gas funding, possible one third Council, two thirds land owners
Mushroom Production	Natural Gas Compost facilities	Land holder (compost only)
Bulk Distribution (including fertiliser and bulk storage facilities)	Increased road connection	Federal/State funding
Red/White Meat Processing	Natural Gas Industrial water	Landholder/Private Funding

Further key Recommendations from CBRE Analysis reveal the following initiatives Council should undertake to attract/capture business in the above sectors		
Recommendations	**Required Infrastructure**	**Funding Responsibility**
Improvement of road linkages, particularly accessibility to the Western Highway	Diamond intersection connecting the M8 Western Freeway. Possibility to connect proposed Bacchus Marsh East Bypass.	Federal/State Government and local Council.
Provision of Natural Gas	Natural Gas node connected to existing gas line which traverses the precinct.	Council to possibly contribute one third of cost or alternatively offer interest free loans to the fund required capital investment.
Provision of Class A water supply	Possibility to reticulate water from Bacchus Marsh to Melton, Western Water Treatment Plants.	Mutual agreement between Council and precinct stakeholders.
Appropriate town planning provisions	Increase approval ability for “Offensive Uses”.	Council responsibility.
Potential municipal rate subsidy	Anticipated subsidy of 30% per annum over the first 10 years of occupancy.	Council responsibility.
NBN Connection	Not deemed to be immediately necessary for proposed development however, the connection would enhance development potential.	Private Developers.

To further consider these recommendations, CBRE recommends a more detailed study of each individual project to arrive at a more robust understanding of likely project costs.

2. VISION STATEMENT

S1

The promotion of natural site attributes, proximity to one of Australia's largest residential areas, favorable access to sea, rail and air freight, and clear access to Australia's major arterial road linkages, with the right support, will drive development demand. Over the long term, the Proposed Parwan Employment Precinct should drive local Gross Domestic Product and could be a key contributor to the region's economic prosperity.

MOORABOOL SHIRE COUNCIL

CBRE

3. INTRODUCTION

S1

3.1 BACKGROUND AND PURPOSE

Moorabool Shire Council engaged CBRE to undertake a Research Strategy Report incorporating the following;

- Investigate review of potential employment activities, with a focus on agribusiness and related supply chain opportunities.
- Presentation of potential sectors and criterion for the success of each industry.
- Discussion of points of difference and points of similarity of each potential use.
- Choice of potentially feasible uses.
- Consideration of existing uses and the impacts of the potential uses.
- Recommendation of sectors which Moorabool Shire Council is best placed to capture, and identification of the key benefits of each as well as constraints and potential risks.
- Assessment of property market conditions from both a quantitative and qualitative perspective.
- Recommendation of the initiatives Council should consider to attract/capture businesses in the recommended sectors.

3.2 AGRIBUSINESS OVERVIEW

As structural and location change occurs in the agricultural practices of Victoria, there will be increasing pressure to diversify sources of income of employment as a way of providing stability to local communities. There has been an emergence of large agribusinesses integrated across supply chains ('vertical integration'), including:

- Production.
- Processing.
- Marketing.
- Distribution.
- Intensification and extension to maximise efficiencies and return on investment.
- Improving standards of management of environmental impacts and compliance with industry codes.

3. INTRODUCTION cont.

3.3 CBRE APPROACH (Rationale)

CBRE's scope was to provide an in-depth analysis into the potential development of existing and potential agribusinesses within the Proposed Parwan Employment Precinct. The scope of this analysis was underpinned by identifying opportunities and limitations with regard to the following;

- Existing use.
- Profitability and marketability.
- Financial and social constraints.
- Legal constraints and regulatory controls.
- Physical and functional limitations.
- Zoning provisions.

We have made enquiries both locally and regionally to obtain an understanding of existing/potential users' interest within the precinct, importantly answering the following questions;

- What would activate development?
- Are there any regulatory constraints?
- What are the servicing requirements?

CBRE aimed to determine likely successful agribusiness sectors for potential expansion, redevelopment, re-location and co-location.

Major references included the identification of market linkages and legal/political limitations, whilst analysing potential uses via qualitative and quantitative criteria. Broad industry financial analysis and/or commentary are considered to test industry strength whilst a review of capital investment within land and buildings was also undertaken to understand the capital requirements of such investment.

CBRE also sought to identify core anchor industries which would assist in promoting development within the precinct.

3. INTRODUCTION cont.

3.4 PRINCIPLES

Highest and best use principles have been taken into consideration through industry analysis with regard to the scope. The highest and best use of a site can generally be defined as “that reasonable and probable use that will support the highest present value of the property as at the date of valuation. The opinion of such use may be based upon the highest and most probable use of the property as at the date of valuation or the use likely to be in demand within the reasonably near future.”
In determining the highest and best use, a number of factors are considered:

- The use of the site must be financially feasible.
- The use of the site must be legally permissible.
- The use of the site must be physically possible.
- The use of the site must be reasonably probable.

3.5 SITE IN SEARCH OF A USE (Real Estate Development)

In relation to conducting a search of an agribusiness use for a site, we have taken Real-Estate Development theory into consideration. We have had particular regard to James Graaskamp’s Principles and Fundamentals of Real Estate (Graaskamp, 1981).

“Site in Search of a Use” revolves around real-estate theorem researched by Graaskamp that replicates the basic real-estate relationships within three space groups; consumer group, production group and services group:

- The consumer group maintains individuals/businesses or companies which require real-estate space to house specific needs.
- The production group indicates forms of expertise necessary to convert vacant land to developed land. Stakeholders include: mortgage bankers, lawyers, city planners etc.
- The public infrastructure group initiates enterprises which provide tangible and intangible systems for space users. These include physical networks such as electricity, sewage, broadband internet (Graaskamp, 1981).

“Site In Search of a Use”, defines land and location, wherein land is not a location or property right but a natural resource on which real-estate decisions and developments can take place. Physical land attributes, political constraints, legal attributes, dynamic attributes, and attributes of a larger environmental system lead to site creation.

Interestingly, location is often understood as a critical factor within a site, albeit it is important to understand that the location relates to the functional needs of the activity and not the site itself.

3. INTRODUCTION cont.

3.6 SITE IN SEARCH OF A USE (Issues Surrounding Relocation)

With the underlying aim to find potential industries to locate/relocate to the Proposed Parwan Employment Precinct, we have taken into consideration the following factors to garner an understanding of that probability:

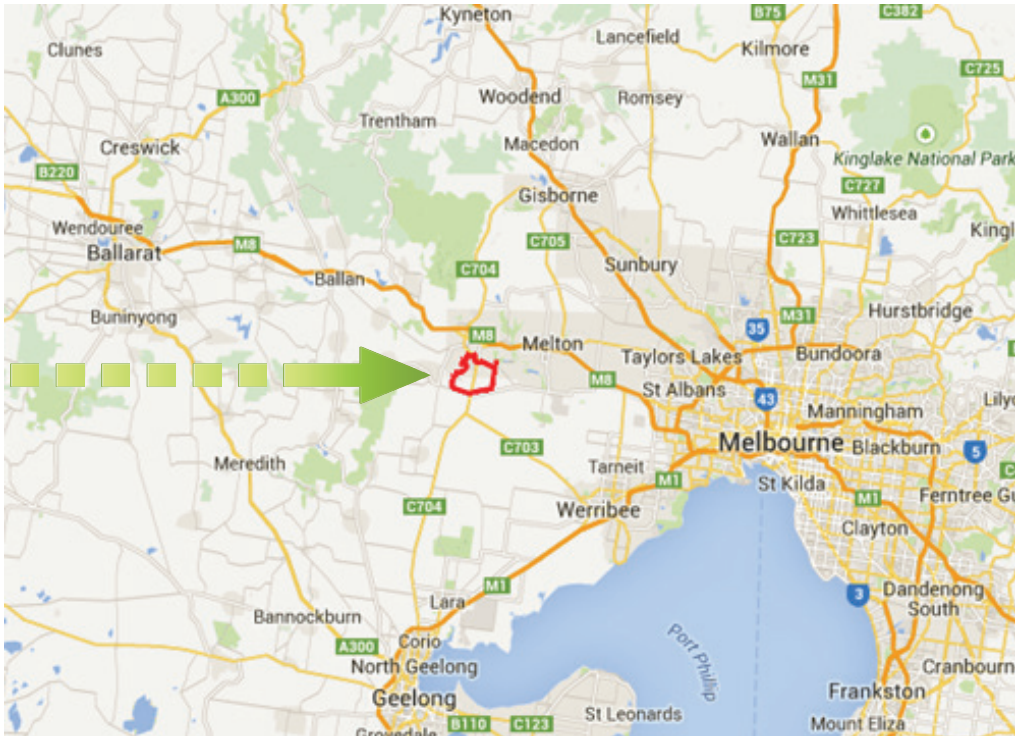
- Agribusiness operators currently working in the urban fringe are likely to experience suboptimal returns on capital and operate under sufferance of urbanisation, i.e. traffic issues, hours of operation and restrictions on development.
- Key limitations impeding spatial change directly relates to the capital requirement to do so, the economic cash flow risk associated with physical relocation, and economic feasibility of the subject industry at the time of transfer.
- Operations of the broader metropolitan planning schemes also pose challenges to agricultural relocation in conditions around allowable land use. Favourable land use planning systems or changes to such systems pose inherent risks to intensive agriculture relocations. The significance of this constraint increases with intensive livestock operations such as poultry, meat processing and feedlotting, notwithstanding the degree of constraint associated with freight movements and chemical requirements of intensive vegetable production.
- The significance of such relocation issues is further amplified through community driven issues such as noise, odour, political correctness of operations, which all heighten land use conflict, creating difficulty for agribusiness relocation.

4. SITE ATTRIBUTES

S1

4.1 LINKAGE ATTRIBUTES

The proposed Parwan Employment Precinct is strategically located within close proximity to Victoria's key regional growth areas including Bacchus Marsh, Brookfield, Melton, Mount Cottrell and Eynesbury. The broader area encompasses predominately broad hectare dryland cropping, grazing and residential areas with Bacchus Marsh situated approximately 5 radial kilometres to the north.



Source: Site Maps (CBRE Earth & Google Maps 2015)

4. SITE ATTRIBUTES cont.

S1

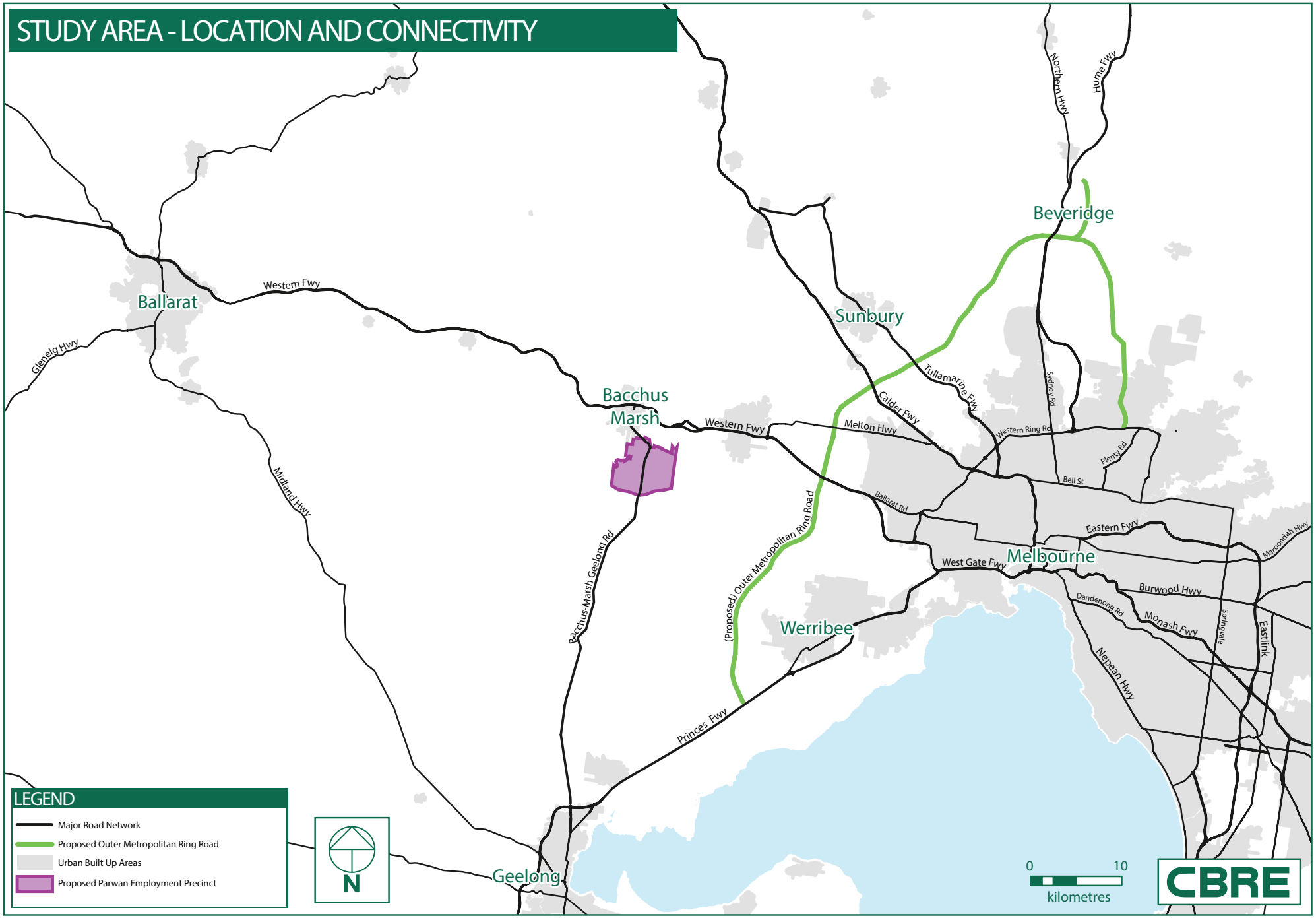
TRANSPORT ROUTES AND ADVANTAGES

State-wide transport is facilitated via linkage to the Western, Calder and Princes Freeways which are all within 15 radial kilometres of the subject precinct whilst the Hume Freeway is situated within 50 radial kilometres and is accessible via the Calder Freeway and Western Ring Road. Melbourne (CBD) access is via the linkage connection to the Western Freeway. Rail access is available to the north of the precinct, on the southern boundary of the township of Bacchus Marsh.

The future Outer Metropolitan Ring Road (not currently funded) is located approximately 10 radial kilometres east of the Proposed Employment Precinct and on construction will further facilitate travel and improve site linkage, state-wide access, port access and Melbourne CBD access.

The Outer Metropolitan Ring road will facilitate travel from Werribee (west of Melbourne) to Beveridge (north of Melbourne) and is illustrated on the following map.

Linkage attributes within the site are advantageous for future agribusiness development notwithstanding restricted access to the Western Freeway (M8). The proximity of abovementioned attributes, in particularly proximity to the Melbourne CBD, makes the subject study area favourable for development, and a likely choice of large scale vertically integrated agribusiness. Refer Study Area Location and Connectivity Map overleaf.


STUDY AREA - LOCATION AND CONNECTIVITY
Beveridge
Northern Hwy
Hume Fwy
Ballarat
Western Fwy
Glenelg Hwy
Sunbury
Tullamarine Fwy
Calder Fwy
Bacchus Marsh
Western Fwy
Melton Hwy
Western Ring Rd
Sydney Rd
Plenty Rd
Bell St
Ballarat Rd
Midland Hwy
Bacchus Marsh Geelong Rd
(Proposed) Outer Metropolitan Ring Road
Eastern Fwy
Maroondah Hwy
West Gate Fwy
Melbourne
Burwood Hwy
Dandenong Rd
Monash Fwy
Springvale
Eastlink
Nepean Hwy
Werribee
Princes Fwy
Geelong
LEGEND
Major Road Network
Proposed Outer Metropolitan Ring Road
Urban Built Up Areas
Proposed Parwan Employment Precinct
N
0
10
kilometres
CBRE

4. SITE ATTRIBUTES cont.

S1

4.2 SURROUNDS

Land holdings situated on the eastern half of the Proposed Parwan Employment Precinct are predominately utilised for equine, rural lifestyle and small scale primary production in the form of dryland cropping and grazing. Land areas range from approximately 5 to 180 hectares which are mainly level in topography especially east of the Geelong-Bacchus Marsh Road.

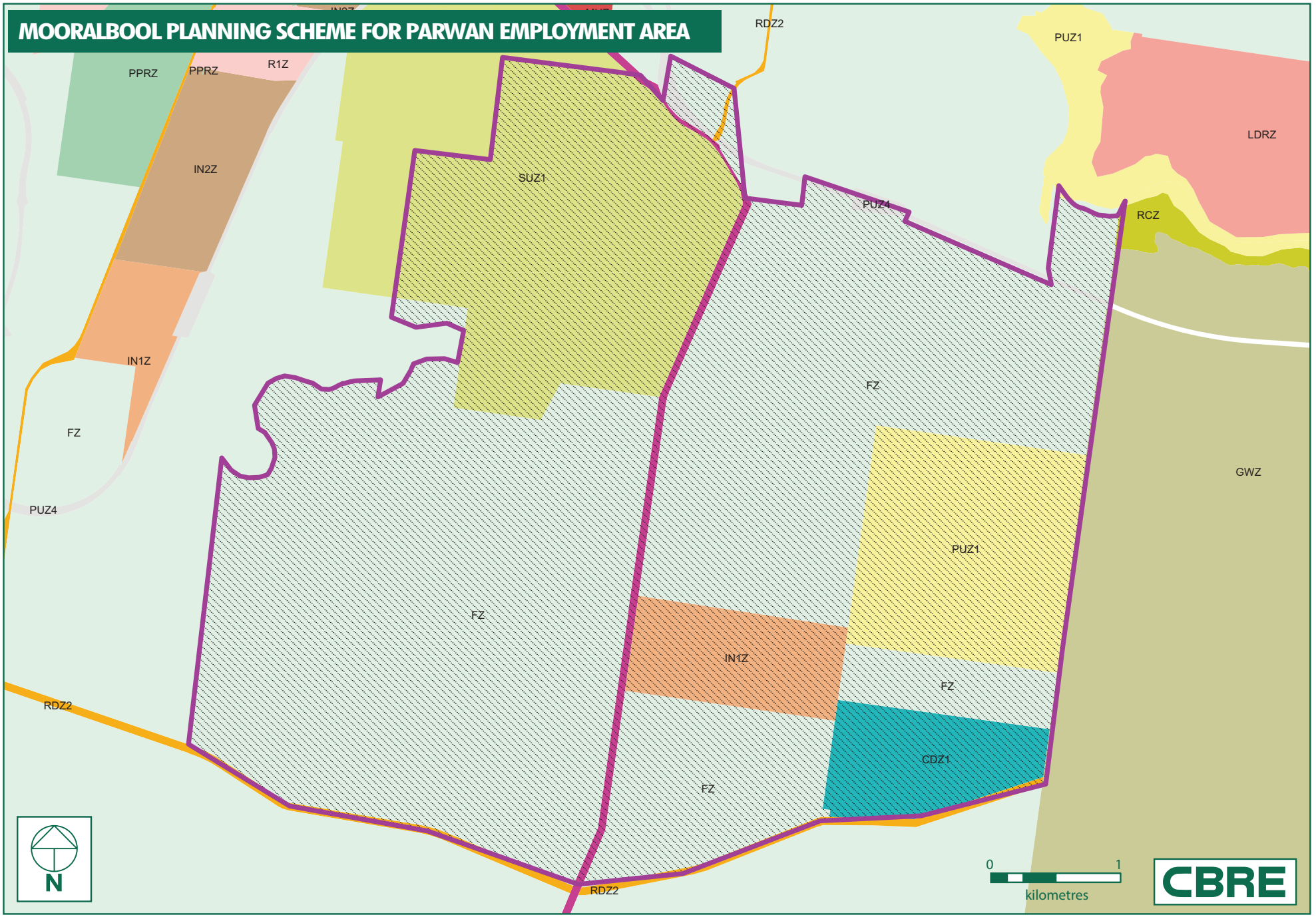
Maddingley Brown Coal Pty Ltd is situated on the north-western corner of the precinct, and the Bacchus Marsh Western Water Treatment Plant is situated on the eastern boundary. The treatment plant treats and reticulates Class C water to multiple centre pivot irrigators for Lucerne production. The Parwan Creek traverses a portion of the western boundary in a south-westerly to north-easterly direction.

SURROUNDING POPULATION COMMENT

The surrounding population is expected to grow at faster rates than other local government areas within a 100 kilometre radius. Population growth is detailed in the following the table:

Moorabool Shire Population	The official population of Moorabool Shire in 2014 was 31,000. This is estimated to grow to 32,700 by the end of 2016. More than half the population lives in Bacchus Marsh and surrounds (approximately 19,032). The Shire's second largest population can be found in and around Ballan (6,534). The remaining population is distributed throughout the large number of small towns, hamlets and farming areas within the Shire. The majority of people who relocate to Moorabool Shire are young families seeking a semi-rural lifestyle. Moorabool's demographic reflects this trend
Population Growth	By 2016, Moorabool's population was projected to increase to 32,700 at an average annual growth rate of 2.1%. However the latest Shire population figures from the ABS indicate that Moorabool's population grew by 3.3% last financial year. Based on this trend, Moorabool's population may reach 32,700 much sooner. By 2041 the population is forecast at 54,418.

Source: Moorabool Shire Council population growth (Moorabool Shire Council 2014)


MOORALBOOL PLANNING SCHEME FOR PARWAN EMPLOYMENT AREA
PPRZ
PPRZ
R1Z
RDZ2
PUZ1
LDRZ
IN2Z
SUZ1
PUZ4
RCZ
IN1Z
FZ
FZ
GWZ
PUZ4
PUZ1
FZ
IN1Z
FZ
RDZ2
CDZ1
FZ
RDZ2
N
0
1
kilometres
CBRE

4. SITE ATTRIBUTES cont.

S1

4.3 LEGAL ATTRIBUTES

The Proposed Parwan Employment Precinct encompasses 5 zoning types:

Zoning within the Proposed Parwan Employment Precinct		
• Industrial Zone (IN1Z)	• Farming Zone (FZ)	• Comprehensive Development Zone (CDZ1)
• Public Use Zone (PUZ1)	• Special Use Zone (SUZ1)	

ZONING DISCUSSION

- The Industrial Zone land is owned by Westside Meats Pty Ltd or shareholders of Westside Meats Pty Ltd.
- Originally, the company had plans to construct a rendering plant on the subject land but due to drainage issues the proposal could not be executed.
- Currently, an application to rezone land directly south of the Industrial Zoned land from Farming Zone to Industrial Zone and, to rezone the current Industrial Zone to Farming Zone has been made. These zoning applications have occurred due to the current industrial zone not being able to support Westside Meats' rendering plant.

COMMENT

- We understand the allotment, which is currently awaiting approval to rezone to industrial, is formally known as 3922 Geelong-Bacchus Marsh Road, Parwan 3340, with a land area of approximately 190 hectares.
- The Industrial Zoned land is likely to attract agribusinesses uses such as meat processing (abattoirs, hide processing) and other heavy industrial uses including but not limited to engineering and localised warehousing. The subject study area is not currently conducive for distribution facilities or intermodal freight purposes due to limited freeway access.

4. SITE ATTRIBUTES cont.

ZONING OVERVIEW (Outline of Industrial and Farming Zoning Objectives)

Industrial Zoning Objectives	Farming Zone Objectives
To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies. To provide for manufacturing industry, the storage and distribution of goods and associated uses in a manner which does not affect the safety and amenity of local communities.	To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies. To provide for the use of land for agriculture. To encourage the retention of productive agricultural land. To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture. To encourage the retention of employment and population to support rural communities. To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.
Prohibited Use (applicable to CBRE's Agribusiness Analysis)	**Prohibited Use (applicable to CBRE's Agribusiness Analysis)**
Intensive animal husbandry	Prohibited uses do not appear to impact on the outcome of CBRE's agribusiness analysis. We note the major restriction is the inability to subdivide into lots smaller than 40 hectares. The minimum subdivision restricts the ability for stakeholders to capitalise on needed investment and the value chain industries likely to follow business expansion and hence create jobs. For example, in the event land owners were to invest in a Natural Gas Node, the right to further subdivide land would facilitate a return on the investment through the likely uplift in land value. Further subdivision will increase the overall probability of increasing business development and employment potential.

4. SITE ATTRIBUTES cont.

S1

ADDITIONAL COMMENTARY

- Under the current zoning, a reduction in lot size may make the area more attractive for the desired activities/enterprises, but will not guarantee that they will establish in the area. It could make the area even more attractive for rural life stylers or harness racing training establishments which do not fit within the purposes of the Proposed Parwan Employment Precinct.

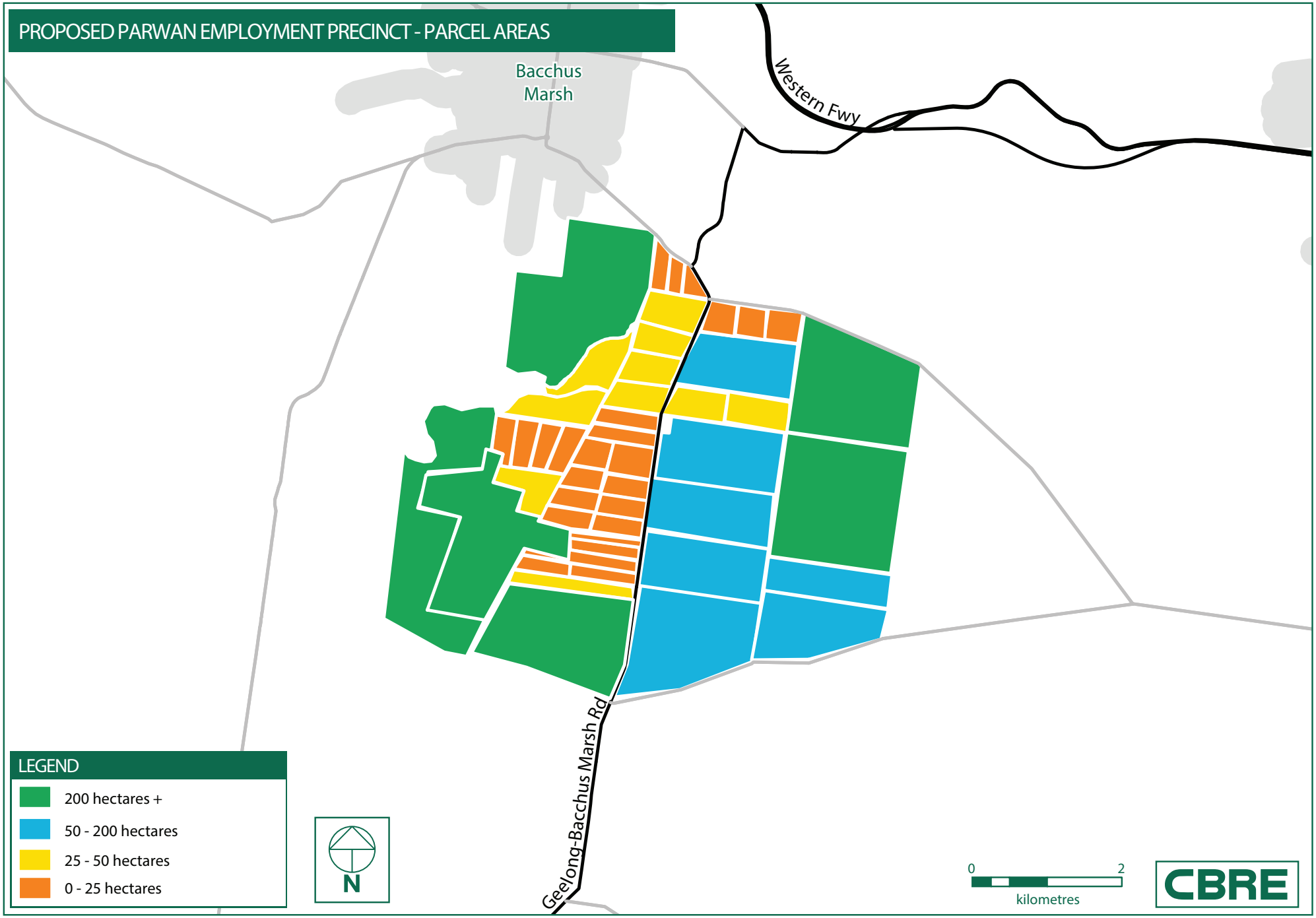
  An alternative to the current zoning may be required to provide a regulatory framework to ensure that the vision for the area is achieved. Changes to lot sizes may need to be implemented on a staged basis across the area to prevent non-compliant land uses. Therefore, it might be prudent that a structure plan be developed to resolve a range of planning issues on lot size, zoning, land use, standards and policy direction to facilitate investment in the Proposed Parwan Employment Precinct.
- Large lots can be beneficial for uses, such as, feedlots by allowing them to produce their own fodder/grain, rather than purchasing from fodder/grain producers. However we note the area associated with the Parwan Employment Precinct is not large enough to support a feedlot which is capable of supporting its feed requirements.

Refer to map overleaf.

PLANNING OVERLAY

The Proposed Parwan Employment Plan is subject to multiple planning overlays which are detailed below. In analysing the varying overlays we note further investigation is needed to confirm Hydroponic Glasshouses can be constructed on land that is subject to Design and Development Overlays, due to potential reflective issues that could be seen to impact visual amenity. CBRE understands that a range of purpose developed glass types can reduce such reflection.

Planning overlays within the Proposed Parwan Employment Precinct	
• Design and Development Overlay per Schedule 2. (DD02)	• Airport Environs Overlay (AEO)
• Environmental Significance Overlay per Schedule 4 (ESO4)	• Development Plan Overlay (DPO)


PROPOSED PARWAN EMPLOYMENT PRECINCT - PARCEL AREAS
Bacchus Marsh
Western Fwy
Geelong-Bacchus Marsh Rd
LEGEND
200 hectares +
50 - 200 hectares
25 - 50 hectares
0 - 25 hectares
N
0
2
kilometres
CBRE

4. SITE ATTRIBUTES cont.

S1

PLANNING OVERLAY cont.

Overlay Descriptions	
Design and Development Overlay objectives per Schedule 2: • To enhance visual amenity in rural, township and vegetated areas of the Moorabool Shire. • To encourage the use of external cladding, such as non-reflective materials for building construction. • To discourage the use of materials, such as reflective cladding for building construction, which could have a detrimental effect on amenity. *We recommend this guideline is amended within the Proposed Parwan Employment Precinct to reduce planning regulations in order to facilitate construction of Hydroponic Glasshouses which may be seen as reducing visual amenity of the area.*	**Environmental Significance Overlay per Schedule 4 objectives include the following objectives:** • To protect the environmental and scientific significance of the wetland vegetation. • To protect the habitat significance of the wetland vegetation. • To protect the area's high landscape values. *The area subject to environmental significance overlay is minimal within the study area and not seen as a direct impediment (if appropriately managed).*
Airport Environs Overlay Objectives: • To ensure that land use and development are compatible with the operation of airports in accordance with the appropriate airport strategy or master plan and with safe air navigation for aircraft approaching and departing the airfield. • To assist in shielding people from the impact of aircraft noise by requiring appropriate noise attenuation measures in new dwellings and other noise sensitive buildings. • To limit the number of people residing in the area or likely to be subject to significant levels of aircraft noise. *We do not envisage this overlay will adversely affect the Proposed Parwan Employment Area due to the nature of proposed development.*	**Development Plan Overlay objectives:** • To identify areas which require the form and conditions of future use and development to be shown on a development plan before a permit can be granted to use or develop the land. • To exempt an application from notice and review if it is generally in accordance with a development plan. *We would envisage the Proposed Parwan Employment Precinct will generate some refinements to the application of this overlay.*

4. SITE ATTRIBUTES cont.

S1

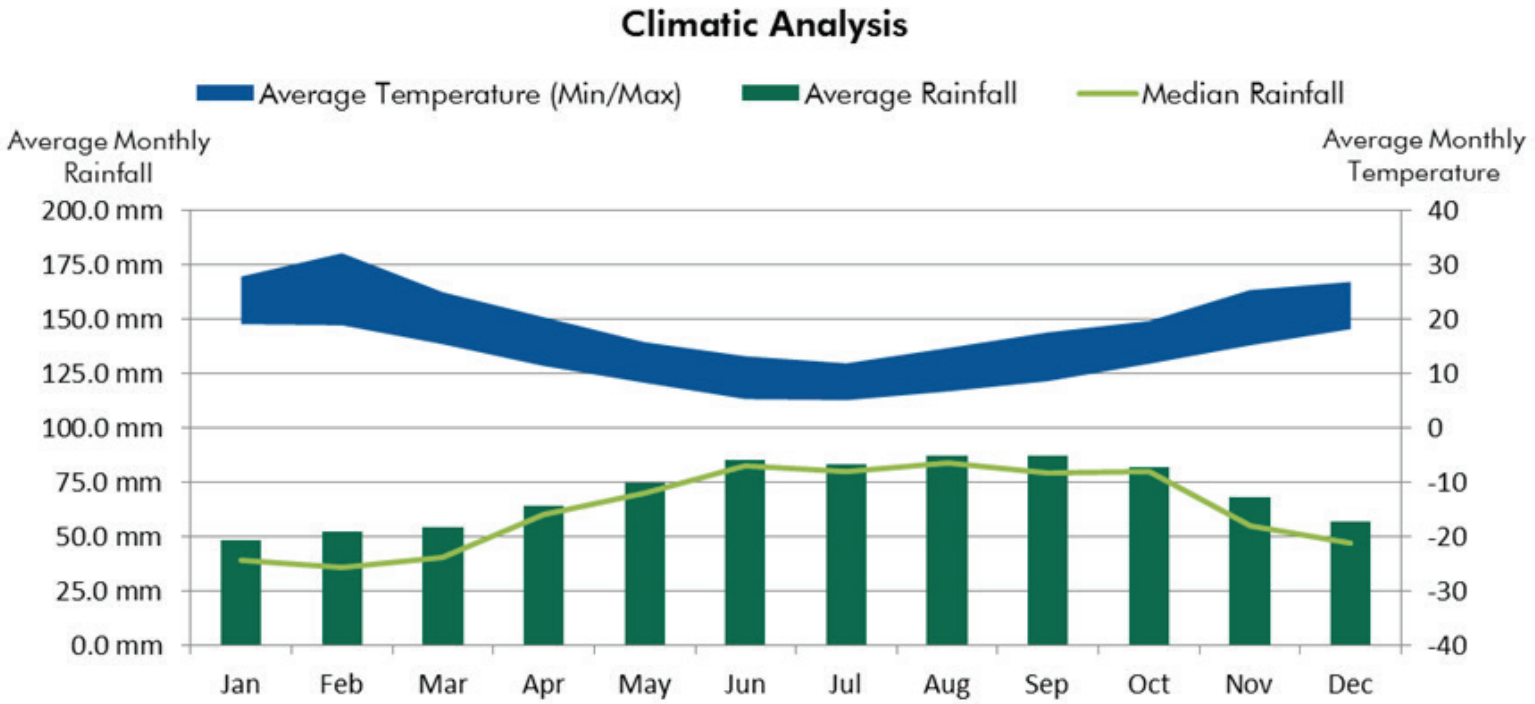
APPLICABLE PLANNING OBJECTIVES

- To provide for a range of industrial development and activities in proximity to transport networks and existing infrastructure and avoid off-site impacts on residential amenity, environmental quality, or agricultural values
- To protect good quality agricultural land and support the productivity and sustainability of existing and future agricultural and horticultural activities.
- Support the development and facilitation of increased local employment opportunities in order to strengthen the local community.
- To provide high amenity rural lifestyle opportunities while protecting irrigated horticultural land and the sustainability of environmental assets.
- To improve the urban design throughout Bacchus Marsh.
- Work with VicRoads (Roads Corporation of Victoria) to improve to the Bacchus Marsh arterial road network in accordance with adopted strategies such as the Bacchus Marsh Arterial Road Strategy and the Bacchus Marsh Accessibility, Traffic Management and Parking Study. This includes supporting a detailed planning study by VicRoads of the northward extension of Woolpack Road and further investigation of the feasibility of providing an additional north-south route.

4. SITE ATTRIBUTES cont.

4.4 CLIMATE

The Bureau of Meteorology weather station at Merrimu Reservoir has recorded an average rainfall of 500 mm per annum from 1961 to 2014. The chart below depicts the temperature and rainfall characteristics of the nearby locality. This climate is temperate and considered well suited to various forms of agricultural activity.



Source: Climate Analysis (Bureau of Meteorology, 2015)

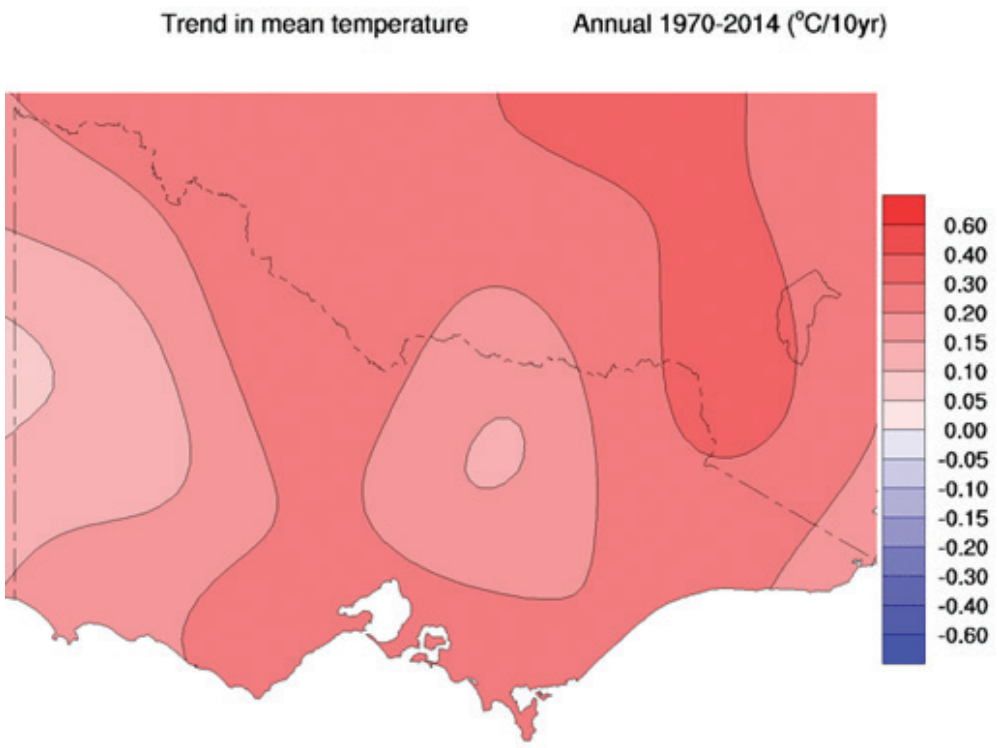
Interestingly, rainfall appears to peak between August and October when temperatures are higher. Such factors favour increased production during longer growing seasons. Rainfall throughout the rest of the year appears broadly consistent.

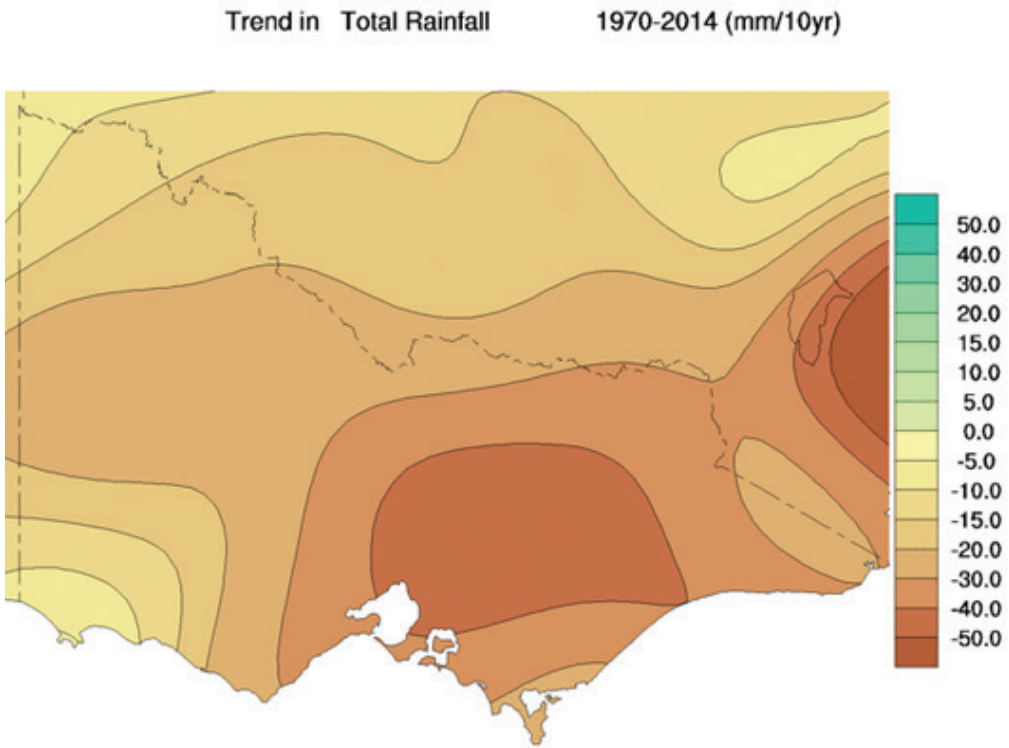
4. SITE ATTRIBUTES cont.

S1

CLIMATE VARIATION

- We do not anticipate potential increases in temperature and reduced rainfall in the foreseeable future, hence climate factors are not considered likely to adversely affect productivity within the Proposed Parwan Employment Precinct. Temperature and rainfall trends are outlined below, depicting increased temperatures from 1970 to 2014 of 0.2 degrees and rainfall decline of 30 millimetres over the same period.
- The CSIRO and Bureau of Meteorology (2007) broadly project a gradual reduction in rainfall for southern areas of Australia, especially in winter, and in southern and eastern areas in spring (based on the median and the majority of individual model results, caused by the contraction in the rainfall belt towards the higher (more southern) latitudes.





Source: Climate Variation (Bureau of Meteorology, 2015)

4. SITE ATTRIBUTES cont.

4.5 WATER

Western Water Corporation is the subject locality's regional urban water corporation and is the sole provider of irrigation water within the Proposed Parwan Employment Precinct.

There are 2 water treatment plants providing Class C (irrigation standard) water in close proximity to the Proposed Parwan Employment Precinct, the Bacchus Marsh Water Treatment Plant (located inside the employment precinct) and the Melton Water Treatment Plant which is located approximately 10 radial kilometres to the east.

BACCHUS MARSH WATER TREATMENT PLANT

Western Water's Bacchus Marsh treatment plant provides water and sewer services to more than 21,000 residents in the Bacchus Marsh area. By 2021, this population is expected to increase by almost 20% to be more than 25,000. This forecast appears realistic as the area has experienced strong population growth over recent years.

Our enquiries of Western Water revealed the following:

- Output of approximately 500 to 600 megalitres of Class C water annually.
- 400 megalitres of Class C water are currently used on Western Water's Irrigation farm. The supply is contracted via a lease which is due to expire in mid-2016. The balance of water is used by various external clients.
- Current and future water supply to external customers is intended to be sold on a cost recovery basis.
- Water treatment volumes are expected to increase to 1,400 megalitres with population growth and when associated upgrade works are built by 2022.

There are currently more than 20 projects planned for the Bacchus Marsh area in the Water Plan 2013 – 2018, for a total cost of $27.3 million. The major projects are outlined below; the most significant (in terms of increasing the study area's water supply) is the expansion of Bacchus Marsh Water Treatments Plant's storage lagoons.

Water system and networks	Build and expand water supply systems	$5.5 million
Sewer system and networks	Build and expand Bacchus Marsh sewer systems and network	$13.0 million
Storage lagoon expansion	Improve and expand the capacity of storage lagoons at Bacchus Marsh's Parwan South Recycled Water Plant (Bacchus Marsh Water Treatment Plant) to meet expected increased flows, and to store more treated recycled water for use in dry periods.	$5.6 million

Source: Major Projects (Western Water, 2013)

4. SITE ATTRIBUTES cont.

S1

MELTON WATER TREATMENT PLANT

Melton has maintained a steady population growth which is set to continue with the Victorian Growth Area Authority extending Melbourne's Urban-Growth Boundary in the west. Western Water currently provides water and sewer services to almost 60,000 residents within and around Melton. By 2021, this population is expected to reach more than 100,000. The future of the water treatment plant is incorporated into the "Melton Integrated Water Management Plan" as part of the state governments "Future West" strategy.

Enquiries of Western Water indicate the following:

- Approximately 3,500 megalitres of Class C water is provided annually. 1,800 megalitres are committed and used to irrigate the water corporation's property adjoining the treatment plant. A Class C pipe line supports water flow to the Eynesbury development.
- Provisions of approximately 400-500 megalitres of Class A water exist. Class A water is piped south to the Eynesbury residential area and north to the Toolern residential area.
- Water treatment volumes are expected to increase to approximately 5,000 megalitres (predominately Class C) by 2022.

Water availability is detailed in the table below:

Treatment Plant	Class C Water Availability by 2016
• Bacchus Marsh Waste Water treatment Plant	• 400-500 megalitres.
• Melton Waste Water Treatment Plant	• No water able to be provided until a pipeline is constructed which links the Bacchus Marsh Waste Water Treatment Plant to the Melton Waste Water Treatment Plant.

Source: Water Summary (Western Water 2015)

4. SITE ATTRIBUTES cont.

S1

The Environmental Protection Authority's Guidelines for Environmental Management – Use of Reclaimed Water 2003 and Dual Pipe Water Recycling Schemes 2005 is detailed below, describing the characteristics of each class of recycled water.

Water Class	Water Quality Objectives	Treatment Process	Acceptable Uses	
A	<10 E coli org/100mL 7 – log virus reduction 6 – log protozoa reduction	Tertiary treatment & pathogen reduction with sufficient log reduction to achieve bacteriological parameters.	Raw human food crops exposed to the recycled water (e.g. tomatoes, lettuce) Livestock drinking (excluding pigs) Dairy cattle grazing/fodder Cooked/processed human food or selected crops not directly exposed to the recycled water Grazing and fodder for cattle, sheep, horses, goats, alpacas etc (excluding pigs).	Non-food crops. Residential. Unrestricted public access areas. Open industrial systems. Road construction.
B	<100 E Coli org/100mL <20mg/L suspended solids pH 6-9	Secondary treatment & pathogen reduction.	Livestock drinking (excluding pigs) Dairy cattle grazing/fodder Cooked/processed human food or selected crops not directly exposed to the recycled water Grazing and fodder for cattle, sheep, horses, goats, alpacas etc (excluding pigs).	Non-food crops. Restricted public access areas. Golf courses. Closed industrial systems Road construction.
C	<1000 E colo org/100mL <20mg/L BOD 30mg/L suspended solids pH 6-9	Secondary treatment & pathogen reduction.	Cooked/processed human food or selected crops not directly exposed to the recycled water Grazing and fodder for cattle, sheep, horses, goats, alpacas etc (excluding dairy cattle & pigs).	Non-food crops. Restricted public access areas. Closed industrial systems. Road construction.
D	Secondary Treatment	Secondary treatment.	Non-food crops e.g. woodlots, turf, flowers.	

Source: Recycled Water Class Definitions (Coliban Water, 2013)

4. SITE ATTRIBUTES cont.

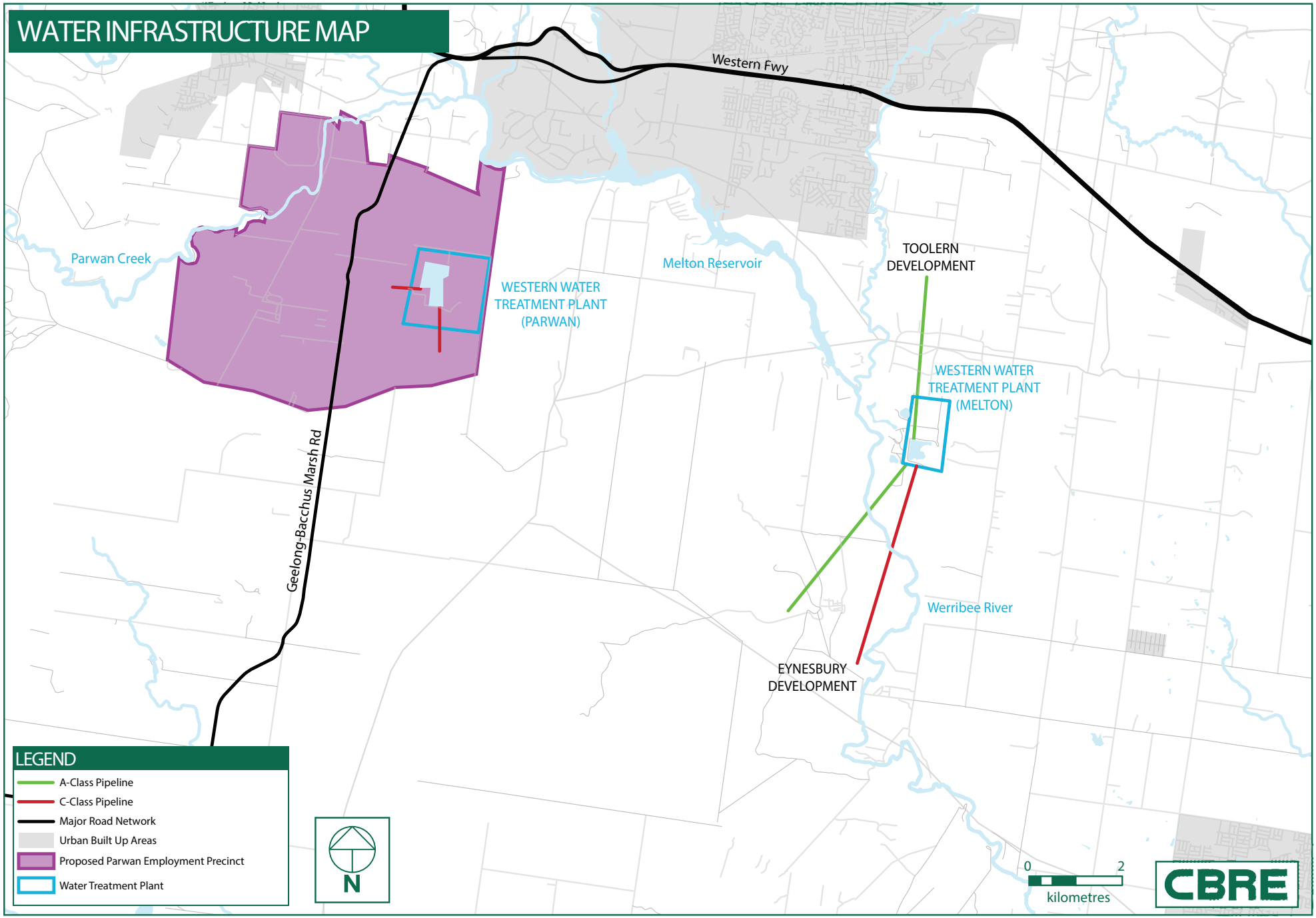
S1

WATER COMMENT

We have been advised by personnel of Western Water that there have been discussions in relation to the potential linking of the Melton and Parwan water treatment plants. We understand as part of the “Melton Integrated Water Management Plan” preliminary analysis has commenced regarding the transfer of water to the Bacchus Marsh Irrigation District. It is also noted that this initial analysis indicated the capital costs of facilitating such a transfer were significant.

Whilst the purpose of the Proposed Employment Precinct is to provide for long term employment growth, we consider the integration of the Melton water treatment plant to be a future opportunity, (particularly for land to the south) for irrigated cropping which appears ideally co-located adjacent to the precinct. The integration of the water networks, with regard to C class water, may become under allocation risk due to demand throughout the Eynesbury and Toolern development. Notwithstanding hydroponic glasshouses maintain the ability to capture and store water run off at an anticipated rate of on a per hectare basis of approximately 4 megalitres (per hectare) given subject climatic conditions.

Agribusinesses that might benefit from a nearby supply of irrigated crops include intensive livestock businesses (such as feedlots, poultry and pork facilities) and protected cropping facilities (where compost is required). Refer to the map overleaf for a summary of recycled water pipelines for both the Melton & Bacchus Marsh Western Water treatment Plants.


WATER INFRASTRUCTURE MAP
Western Fwy
Parwan Creek
Melton Reservoir
WESTERN WATER TREATMENT PLANT (PARWAN)
TOOLERN DEVELOPMENT
WESTERN WATER TREATMENT PLANT (MELTON)
Geelong-Bacchus Marsh Rd
Werribee River
EYNESBURY DEVELOPMENT
LEGEND
A-Class Pipeline
C-Class Pipeline
Major Road Network
Urban Built Up Areas
Proposed Parwan Employment Precinct
Water Treatment Plant
N
0
2
kilometres
CBRE

4. SITE ATTRIBUTES cont.

S1

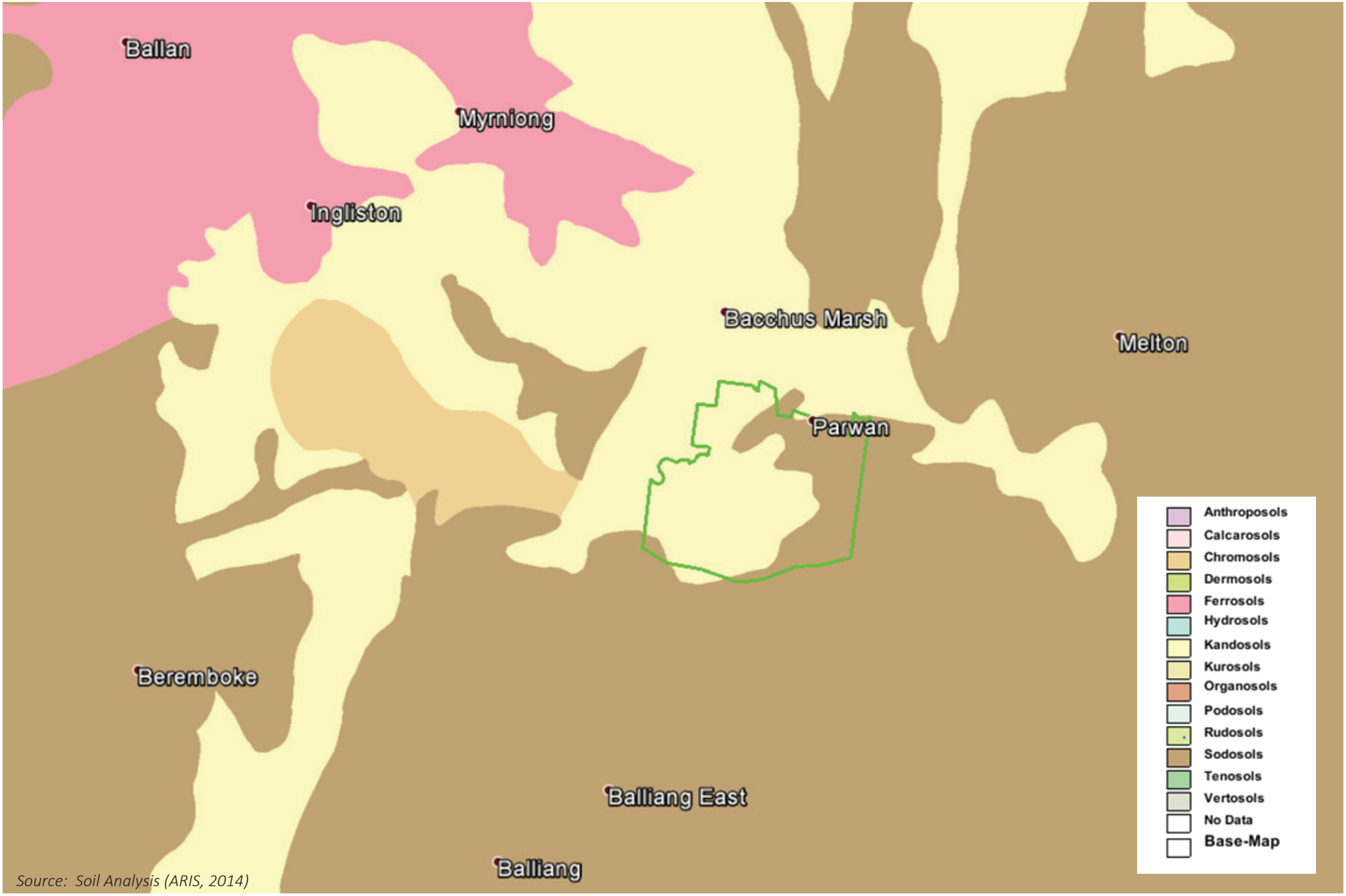
4.6 SOILS

Soils present within the Proposed Employment Precinct include Mottled Brown Sodosols and Brown Kurosol which are described below:

Mottled Brown Sodosol	These soils have yellow to brownish yellow coloured upper subsoil horizons that are usually mottled. The subsoils are usually coarsely structured. They commonly occur in the Uplands regions as well as in the western volcanic plains and southern plains of Victoria. These soils mainly support dryland sheep grazing.
Brown Kurosol	Duplex soils with generally a clay loam texture. Generally, the major limitation of these soils in their natural state is their low nutrient status, including trace element deficiencies. Appropriate fertiliser applications are able to correct such deficiencies. The major soil degradation issues are erosion (sheet, rill and landslip), compaction and nutrient decline.

Generally speaking these soils are not suitable for intensive cultivation which is a limitation on some forms of intensive agriculture and this has been taken into account in our analysis. However, there has been successful lucerne production inside the Proposed Parwan Employment Precinct. Lucerne production would benefit feedlot and equine type activities albeit returns are sub-optimal compared to industries recommended within the report.

An Australian Resource Information System soil map is provided overleaf.



Source: Soil Analysis (ARIS, 2014)

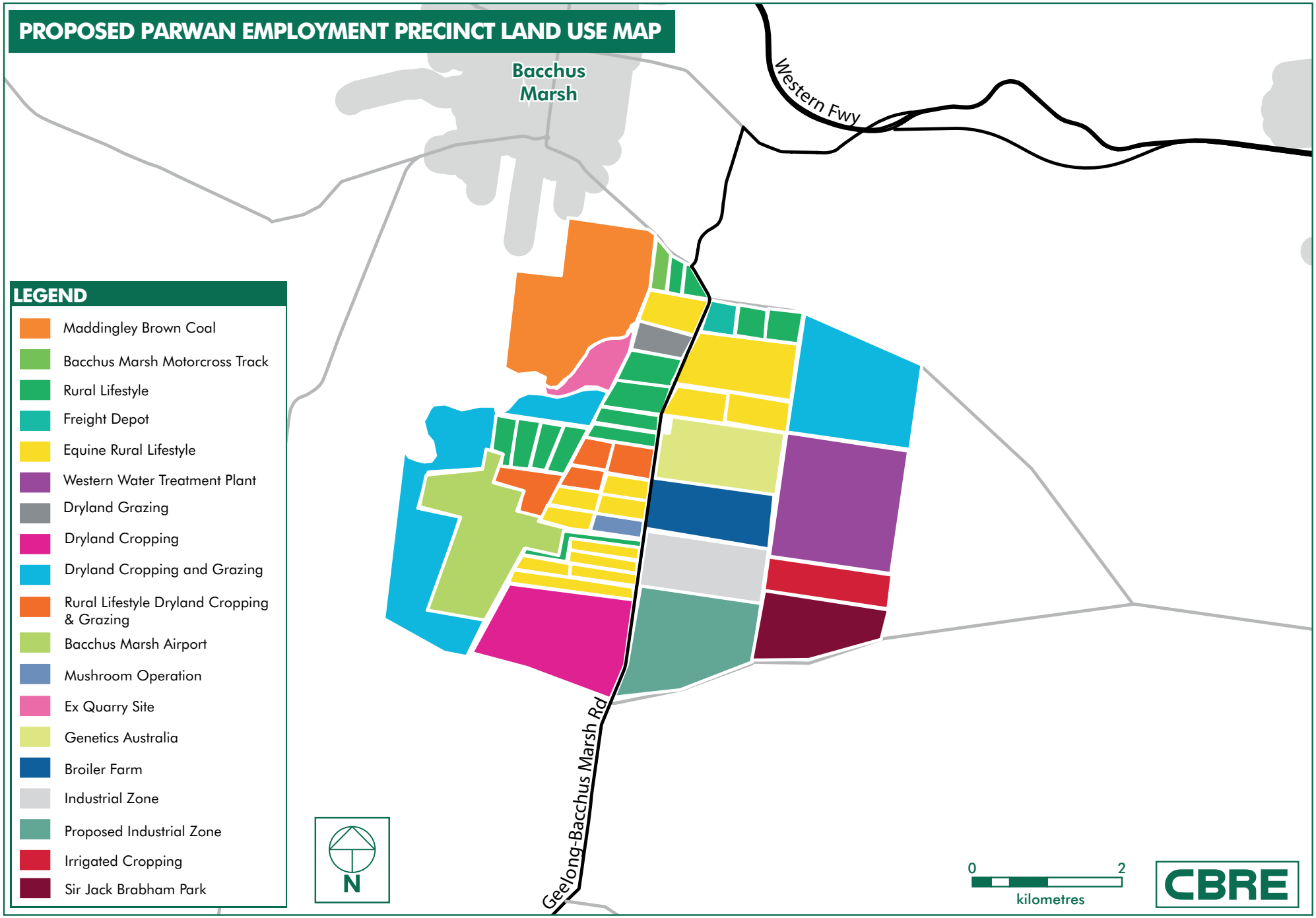
5. EXISTING CONDITIONS

S1

5.1 CURRENT LAND USE

- Current major industries and activities operating within the precinct zone include a commercial mushroom farm, aerodrome, waste water treatment plant, motor raceway, live export cattle quarantine facility, logistics depot, brown coal mine, rural lifestyle, equine, irrigated cropping and poultry.
- We have made various enquiries with existing occupiers, specifically in relation to current and proposed activities within the Proposed Parwan Employment Precinct. Our enquiries have endeavoured to determine any regulatory constraints, servicing requirements and any desired related uses to activate new development. Our findings are summarised herein.

PROPOSED PARWAN EMPLOYMENT PRECINCT LAND USE MAP



5. EXISTING CONDITIONS cont.

S1

WESTSIDE MEATS AUSTRALIA PTY LTD

- Currently located to the north of the Proposed Employment Precinct, West Side Meats Australia operates a domestic abattoir processing beef, mutton and lamb for domestic trade. The company processes 1,000 large units (beef) and 6,000 small units (lamb) per week. The boning room capacity is 120 large carcases and 400 small carcases per week.
- We are advised the company employs 100 full time equivalent staff and is in expansion phase. West Side Meats intends to construct a rendering plant within the proposed employment precinct creating an additional 100 full time equivalent labour units. Construction is expected to begin once planning and headwork servicing issues are resolved.
- Over the longer term Westside Meats Australia wish to re-locate total business operations to the Proposed Parwan Employment Precinct wherein further expansion and value chain investment can occur within desirable transport distances.

5. EXISTING CONDITIONS cont.

S1

Regulatory Constraints	• Westside Meats don't see regulatory constraints as a major impediment to their business expansion.
Servicing Requirements	• A major servicing requirement is the direct connection of natural gas. The directors of Westside meats appear to be familiar with headwork and servicing costs. CBRE have been informed that natural gas connection costs are in the order of $3 million to tap off the high pressure gas main which traverses the employment precinct. The absence of this gas connection is a significant constraint for major future development. • The Directors of Westside Meats have advised a major arterial road linkage to the Western Freeway via Woolpack Road is another important limitation for their business and an upgrade of this linkage would significantly improve the overall attractiveness of the area for development. CBRE assume the linkage may not necessarily be formed via Woolpack Road. • The company plans to relocate their whole business to the Proposed Employment Precinct in stages. Once required zoning is approved the first stage of relocation will be implemented with the construction of the rendering plant. • The reticulation of Three Phase electricity throughout the precinct is seen as necessary to advance. • It is unlikely that bioenergy would generate enough energy to solely supply an abattoir and if so the supply would not potentially be financially feasible due capital costs.
Associated Support Industries Requirements	• Westside Meats is not directly dependant on support industries, however co-location of livestock exchanges (saleyards) and close proximity of semi-skilled labour is vital to their long term sustainability.
Land Use Buffering Requirement	• If processing more than 200 tonnes per year the rendering plant needs to be 1,000 metres from any sensitive use such as a residential dwelling. • The abattoir is required to maintain 500 metres from a sensitive use.


PARWAN VALLEY™
new generation mushrooms
BOOSTER
W

5. EXISTING CONDITIONS cont.

S1

PARWAN VALLEY MUSHROOMS

- Parwan Valley Mushrooms Pty Ltd is a joint venture between Perfection Fresh Australia (Simonetta family and the Victor Smorgon Group) and asset management company, Mecrus Pty Ltd.
- Perfection Fresh (based in Sydney), is a leading Australian food company with more than 30 years' experience in marketing fresh fruit and vegetables.
- Parwan Valley Mushrooms Pty Ltd produces some 50 tonnes per week of white and brown *agaricus bisporus* mushrooms from a 6,000 sqm purpose-built mushroom facility.
- The company employs 50 full time direct staff and 20 indirect staff including specialist growers, harvesters, harvest and maintenance managers, quality assurance, human resources and administration personnel.
- Parwan Valley Mushrooms are beginning to plan their first stage of expansion. The business intends to double production to 100 tonnes of Mushrooms per week, employing an additional 50 full time staff. Construction is expected to commence within the next 12 to 24 months.
- The second stage of expansion involves the construction of a compost facility whereby bi-product will be broken down, sterilised and reused for mushroom production.

Regulatory Constraints	• Considered limited. The product is sold domestically only.
Servicing Requirements	• Major servicing requirements include the direct connection of natural gas. Parwan Valley Mushrooms Pty Ltd have held brief discussions with Westside Meats in relation to understanding the possible contribution to jointly fund a gas connection. • Sourcing water for an additional 50 tonnes of production is considered a major concern. Currently the plant is believed to require 20 megalitres of water annually which is expected to rise to 50 megalitres annually post expansion. • Another major issue revolves around sourcing an additional 50 full time staff equivalents. In the past Parwan Valley Mushrooms Pty Ltd have indicated issues with maintaining a reliable labour force. The company has indicated that, in the past, staff has not returned after planned breaks causing serious labour shortages during that period. We understand this was due to labour management and not labour availability.
Associated Support Industries Requirements	• Considered limited, albeit composting facilities are required nearby to minimise freight costs.
Land Use Buffering Requirement	• Case Dependant, CBRE is not privy to how the Parwan Valley Mushrooms Pty Ltd could be affected, however the business is located 120 radial metres from a sensitive use (dwelling).

5. EXISTING CONDITIONS cont.

S1

FERNANDO FERREIRA - CHICKEN BROILER GROWER

- CBRE's information in relation to Mr Fernando Ferreira and his chicken enterprise is limited due to communication issues.
- Mr Ferreira has recently completed construction of the first stage (8 sheds) of a broiler development. A second stage of 8 sheds is currently under way. When fully developed (we are advised that) the total bird capacity will be 800,000 birds.

Regulatory Constraints	• Facilities are located within the buffer area of the Bacchus Marsh Western Water Treatment Plant, which is a regulatory advantage. • Mr Fernando Ferreira's development generated some 20 objections. A planning permit was granted.
Servicing Requirements	• Sources Class C water from Western Water and reticulates through an ultra violet sterilising unit to improve water quality. The proprietor's major concern is water supply. Additional water supply is needed to facilitate further expansion. Other requirements needed to facilitate further expansion include 3 phase power and gas supply. • Stormwater could be used with the assistance of an Ultra Violet Sterilisation System.
Associated Support Industries Requirements	• Close to chicken abattoir to minimise freight costs and located within close proximity to composting facilities.
Land Use Buffering Requirement	• 500 metres from a sensitive use.

5. EXISTING CONDITIONS cont.

S1

MADDINGLEY BROWN COAL MINE

- The mine (picture overleaf) reportedly employs 30 full time staff and approximately 50 to 60 indirect staff.
- The mine has ample coal reserves which are estimated to be 45 million tonnes. The company currently extracts 20,000 tonnes per annum with a maximum extraction capacity of 50,000 tonnes per annum.
- Despite the mine operating as a coal mine, the primary income stream is sourced via land fill. Non-putrescible waste grade land fill is deposited in 850,000 cubic metres of previously mined air space.
- We are advised by management that brown coal is extracted on an ad-hoc basis in line with landfill requirements.
- Whilst the whole site does not have a works approval for land filling, we are advised by management that assuming the site were able to gain works approval for further extraction and land filling, the site would have an expected life of in excess of 20 years.
- The business also produces a coal fertiliser mix for agricultural uses.

Regulatory Constraints	• Due to regulatory constraints the mine is only able to operate between 6am to 6pm Monday to Friday. It is understood weekend operations are limited to 6.30am to 12.30pm on Saturdays. This is not seen as a direct impediment on the business in its current state; however if expansion was to occur, operational hours would need to be reviewed.
Servicing Requirements	• Additional Council road maintenance would be preferred.
Associated Support Industries Requirements	• Considered limited.
Land Use Buffering Requirement	• Case dependant.

5. EXISTING CONDITIONS cont.

S1

WESTERN WATER - BACCHUS MARSH WATER TREATMENT PLANT

- The Bacchus Marsh water treatment plant (Western Water) is the subject locality's regional urban water corporation and is the sole provider of irrigation water within the Proposed Employment Precinct. Currently the plant only provides Class C water which is used to irrigate crops.
- Western Water intends to improve the plant to further facilitate recycling capacity.
- We have been advised by personnel of Western Water that the Bacchus Marsh Western Water Treatment Plant processes a treated water volume of 500 to 600 megalitres annually. The majority is used within Western Water's Irrigation farm and offsite customers, currently 400 C Class megalitres is allocated and used on adjoining land. This allocation is due to expire in mid-2016.
- This volume of water is expected to increase to 1,400 megalitres as associated upgrade works are built by 2022.

Land Use Buffering Requirement	1.4 to 2.2 kilometres depending on population size. In accordance with the Environmental Protection Authority separation distances.


Genetics
AUSTRALIA
'Parwan Park South'
QUARANTINE FACILITY

5. EXISTING CONDITIONS cont.

S1

GENETICS AUSTRALIA

- Genetics Australia has its registered office at 'Parwan Park', Woolpack Road, Bacchus Marsh. Its activities are conducted from four properties- 'Parwan Park', 'Woodside', 'Parwan Park South' and 'Birregurra' comprising a total of 750 hectares of land.
- Genetics Australia is a co-operative, owned by members who are shareholders.
- Core business activity is the collection and supply of bull semen which is then sold into the dairy industry. The company has been operating since 1957. Imported semen sales are a major area of competition and the business has been consistently losing market share over a number of years. Currently the company employs 35 full time staff whilst 18 months ago the company reportedly employed close to 100 staff.
- International competition is highlighted as the biggest factor affecting this business. Changes from in-house sales to contracted agents are the biggest factor in reducing the number of full time employees.

Regulatory Constraints	• We understand that Genetics Australia objected to the planning permit to construct the broiler farm development discussed elsewhere in this report due to bio security concerns and we see this as a contentious issue for any intensive livestock development within the precinct.
Servicing Requirements	• The company see NBN internet connectivity as a desired requirement for their business to assist in the improvement of productivity.
Associated Support Industries Requirements	• Minimal due to Genetics Australia selling their product throughout Australia and abroad. The company own an additional property in south-western Victoria at Birregurra, which is used to supply the business with fodder and offer grazing for progeny test bulls.
Land Use Buffering Requirement	• Buffer areas and distances are not legislated for this type of land use, however inter-industry separation is ideal to reduce biosecurity risks.

5. EXISTING CONDITIONS cont.

BACCHUS MARSH AIRPORT

- According to the Bacchus Marsh Industry and Investment Opportunity Study, Aerodrome Precinct Completed February 2009 by GHD, the airport is owned by the Moorabool Shire Council and is leased to Bacchus Marsh Aerodrome Management Inc. until 2018 whereby the lease can be renewed until 2048. The airport comprises two semi sealed mixed surface runways that are 1,554 metres and 1,525 metres Take Off Run Available (TORA) in length and 18 metres in width.
- We believe that the Moorabool Shire Council has expressed views that the Aerodrome Precinct has future development potential. The primary area for future investment is expected to be air industry related and other compatible development such as warehousing and related freight forwarding. As expansion occurs, opportunities may arise to sell ground leases for hangers and adjacent airport services.
- Improvement works that are incorporated into the aerodrome master plan are detailed below. The improvements focus on increasing airport utility for larger aircraft to enable the facilitation of air freight.

Improvement Works

- The Aerodome Master Plan aims to develop the aerodome facility to accommodate medium sized twin engine light aircraft, more officially known as Class 2B aircraft operations. Fokker Friendship F27 aircraft (or Class 3C aircraft) operations may be considered in the longer term. The inability of the Aerodome to accommodate heavier aircraft is a potential limitation on the attraction of investment in the Aerodome related businesses that would rely on aircraft with freight capacity.
- The runways at Bacchus Marsh Aerodome are non-instrument runways (without any instrument approach aids), and provide for operation in Visual Meteorological Conditions.
- Planned improvement works to the runways to better accommodate existing traffic are constrained by the financial position of the BMAM and include:
  - *Seal the 09-27 Runway 185m from the runway intersection to western displaced threshold to 18m width.*
  - *The Aerodome Manager has indicated that these works are not critical and can be delayed until demand requires it and finances permit. Resealing works are to be carried out on the existing bitumen surfaces of the two runways in 2008-09. Accordingly if finances would permit, then this would be an efficient time to carry out sealing this 185m section.*
  - *Seal the remainder of the 09-27 Runway parallel taxiway to 8m width.*
  - *Similar to the above, these works are non-critical and can be delayed.*
  - *Install sealed glider take off pads on the 19 and 27 Runway strip ends, or refurbish the existing grass areas following an economic study of the options.*
  - *The Aerodome Manager has advised that Council has approved the installation of glider take-off strips. A project has been established by the clubs with the Australia Sports Foundations (ASF) to facilitate and promote donations from amongst members. Substantial funds have been secured.*
  - *Sealing the 09-27 Runway 168m from the western displaced threshold to the west end bitumen pad is left to the longer term when funds and priorities dictate action.*
  - *The Aerodome Manager has indicated that these works are not critical and can be delayed until demand requires it and finances permit.*
  - *The BMAM may choose to undertake the full runway sealing works (i.e. full 1550m lengths and the full 30m widths) if finances improve.*

Source: GHSD Investment Opportunity Study 2009

6. POTENTIAL LAND USE AND SUPPORT INDUSTRIES

S1

Broiler Farming (including Breeder Farms & Hatcheries)

Meat processing/Boning and Packaging/Rendering

Stock Feedlot

Agri Tourism

Intensive Horticulture

Protected Cropping

Chemical and Fertiliser Manufacturing

Feed Milling Operations

Animal Feed Manufacturing

Timber Milling

Direct (fresh) Horticultural Air Freight Export

Live Export Animal Quarantine

Bulk Commodity Storage

Goat Milk Production

Irrigated Cropping

Alternate energy sources (bio-energy)

Wool Scouring

Wool Manufacturing

Composting

Fats & Oils Processing

Grain Processing / Containerising

SECTION 2

7. INDUSTRY ANALYSIS

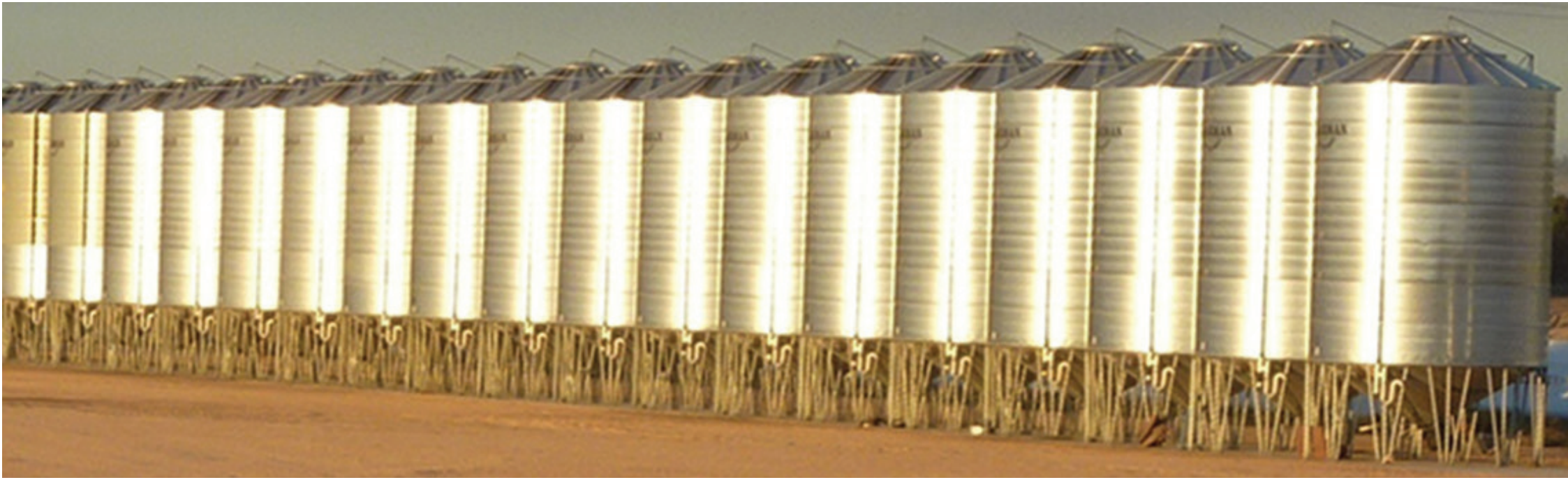
S2

The past 5 years have seen significant market changes within key agribusiness sectors. In terms of increased industry profitability, CBRE notes profit margins within the meat processing sector have been strong, leading to the re-commissioning of mothballed abattoirs and activation green field developments. Currently the industry as a whole is in a growth phase despite experiencing a series of consolidations during the latter half of the last decade.

Protected cropping horticulture continues to establish a market presence in Australia. It is an industry which holds a large degree of expansion opportunity. Existing operators have successfully and significantly expanded over the past 5 years whilst multiple large scale green field developments have taken place.

We have also seen an increase in development of renewable energy generation facilities co-located to agribusiness, which include methane powered turbines; biomass boilers and gasification plants, etc.

As such, we have undertaken an industry analysis with the aim of identifying industries which hold opportunity for the Proposed Parwan Employment Precinct. This analysis is the first stage of identifying core anchor industries which are financially feasible and physically possible within the broader Australian Agribusiness sector.



7. INDUSTRY ANALYSIS cont.

7.1 POULTRY

OVERVIEW

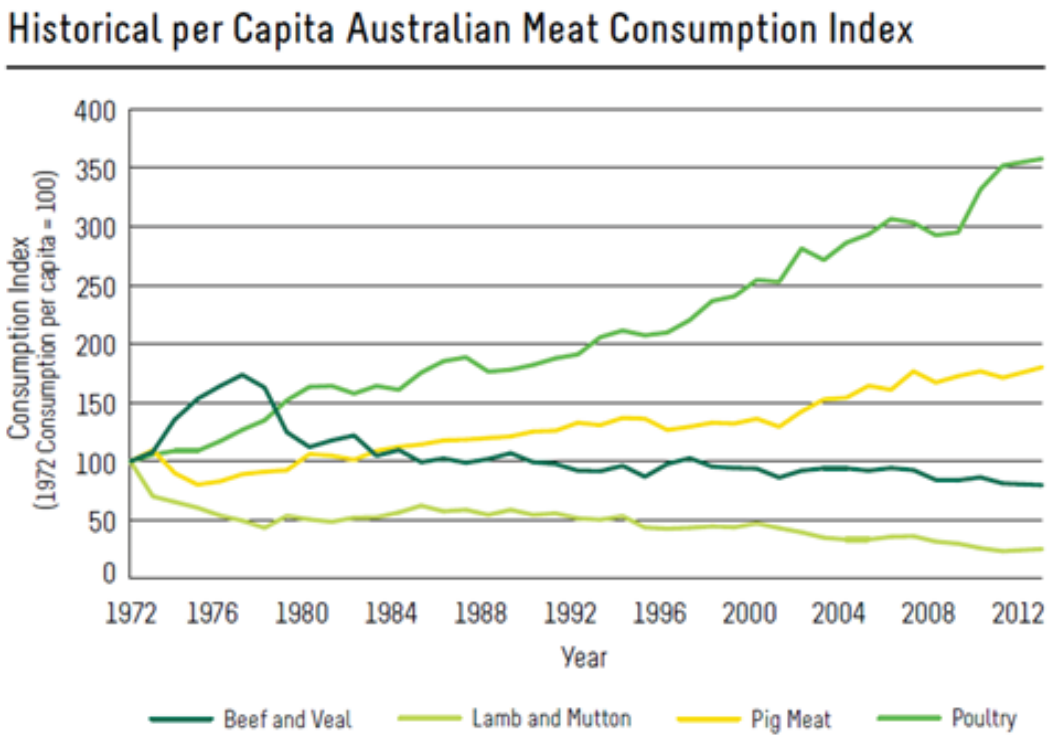
Conditions remain favourable for large scale vertically integrated poultry producers and processors. Increased domestic consumption has been the main driver whereby Chicken meat is seen as a cheaper lean protein source to that of Beef and Lamb. Demand has also increased by developing a more diverse product range which is deemed healthy by the consumer.

- Per Capita poultry consumption has grown faster than any other meat protein in Australia and is now the leading source of protein in Australia.
- Chicken is the most affordable protein for consumers, underpinned by considerably lower costs of production compared to other protein products. This has driven increased consumption, and has provided chicken with greater resilience to weakness in the broader economy as consumers maintain their spending, or switch expenditure from more expensive proteins to Chicken.
- There is increasing activity in the general market place for poultry industry assets with a range of investors, existing producers and agribusiness funds seeking to identify suitable opportunities for industry development to meet demand.
- The industry has been able to reduce supply costs by consistently raising both on-farm and off-farm productivity and although this has taken a number of years, the combination of better management, genetic improvement, economies of scale and mechanisation in processing has resulted in higher returns and subsequently increased investor interest in the sector.
- The majority of Breeder and Broiler farms located in Victoria are in the Melbourne, Barwon, Gippsland, Goulburn and Loddon regions.

7. INDUSTRY ANALYSIS cont.

MAJOR PLAYERS

- There are 4 main processing companies that control the majority of the market in Victoria being Inghams Enterprises Pty Ltd, Baiada Poultry Pty Ltd, Hazeldene Chickens Pty Ltd and Turi Foods Pty Ltd.
- The adjacent graph depicts the increased domestic consumption of Chicken meat relative to other protein sources.



Source: ABARES

7. INDUSTRY ANALYSIS cont.

OUTLOOK

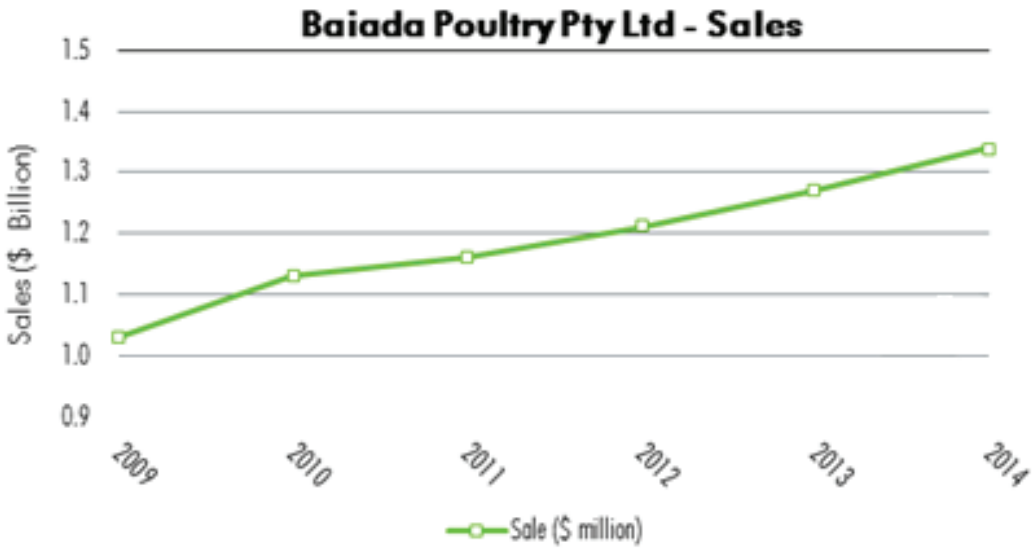
Over the next 5 years growth in the poultry processing industry is expected to continue. Poultry market growth in Australia is expected to increase at 2.4% per annum between 2015 and 2018, driven by:

- Increased consumption per capita, underpinned by the ongoing cost competitiveness of poultry relative to other proteins.
- Heightened consumer demand for healthier food options (with poultry being the healthiest meat).
- Consumer preference and product innovation driving increased demand, particularly for free range products.
- Increased demand for turkey, trending towards the levels of other developed countries.
- Animal welfare is a significance component of poultry industry. Animal welfare is regulated through the National Animal Welfare Standards which applies to the chicken industry.

CASE STUDY

Baiada Poultry Pty Ltd is the largest Australian-owned processing company. Operations include broiler (poultry meat) and breeder farms, hatcheries, processing plants, feed mills, and protein recovery. The company has 8 processing plants around the country which are expected to have the capacity to process about 1.5 million birds per week.

The vertically integrated business has maintained consistent revenue growth from 2009-10 which is demonstrated in the following graph.



Source: Case Study (IBIS World 2014)

7. INDUSTRY ANALYSIS cont.

S2

BARRIERS TO ENTRY/FINANCIAL ANALYSIS

Whilst capital constraints remain a significant barrier to entry, finding a desirable location which is unlikely to create land use conflict remains the primary limiting factor. In relation to construction costs, various types of poultry farms have differing cost structures. Barriers to entry primarily revolve around regulatory constraint, which are increased due the “offensive” nature of intensive poultry practices.

Like other industries the industry requires guaranteed supply of electricity and water. It requires accessibility for heavy transport, (realising the need for access for both fully laden feed trucks and live poultry haulage vehicles).Further requirements are an available source of labour (depending on farm size) and the availability of tradesman.

The following table is indicative of the capital requirements, returns and employment potential of a 400,000 bird poultry farm.

Poultry Farm- Financial Analysis	
Chicken Capacity (Birds)	400,000
Construction Costs	$5,400,000
Analysed Percentage Return on Investment	15-20 percent
Full Time Equivalent (Employment potential)	3

Source: Poultry Farm Financial Analysis (CBRE, 2015)

7. INDUSTRY ANALYSIS cont.

S2

Regulatory Constraints	• State Environmental Protection Agency Works Approval. • Development Application (must comply with the Victorian Code of Broiler Farms). • The planning permit must also comply with the Broiler Farm Odour Environmental Risk Assessment. • Victorian Environmental Protection Agency must be notified prior to development to ensure the development is within regulatory requirements. • Operating within the Victorian Code of Broiler Farms 2009 policy. • Must comply with the Public Health and Wellbeing Act 2008 due to the "offensive" nature of the industry.
Water Requirements	• Water consumption varies depending on bird age, but as an approximate guide the abovementioned shed would require 250,000 to 300,000 litres per day. This equates to an indicative amount 80-100 megalitres per annum.
Potential Flow on Effects	• Victoria's main poultry regions are situated around Melbourne within the Mornington Peninsula, Geelong and Bendigo. Parwan's close proximity to existing growing areas and the existing Fernando Ferreira poultry operation, make the likelihood of further development probable and the development of co-located industry high. Potential industries suitable to co-locate are summarised below: - Feed Mill – producing feed for breeders and meat chicken; - Broiler Farms – Chicken meat; - Processing Plant – to process and market chicken meat - Veterinary Services.

7. INDUSTRY ANALYSIS cont.

7.2 RED MEAT PROCESSING

OVERVIEW

- In the last 24 months meat processers have been operating within optimal conditions. The supply and demand equilibrium has been tilted very much in their favour with high profit margins being derived from subdued domestic cattle prices (fuelled by domestic drought and oversupply) coupled with strong export demand albeit hindered to a degree by unfavourable exchange rates.
- In the short term cattle processing margins are tipped to remain strong due to a declining domestic currency despite increased cattle prices, attributed to wide spread rain throughout Queensland, increasing re-stocker demand and continuing live-export demand.

  Further optimism is evident within the industry due to:
  - Recent Free Trade Agreements providing further export opportunities with China and South Korea (amongst others) which maintains positive externalities that are yet to be reflected in the market place.
  - Strong export demand coupled with the decreasing domestic exchange rate (in US Dollar terms).
- From a 10 year perspective, the Australian Meat Processing Industry has experienced a period of rapid consolidation. The high Australian dollar experienced during 2011 to early 2013, constraints on finished livestock availability due to persistent drought in some regions and weakening export demand were the major contributing factors driving consolidation, as well as a number of long-time industry players seeking to exit the industry.
- The size and scale of participants in the Australian Meat Processing industry differs significantly with both large listed corporate enterprises and small family owned processing plants.
- “JBS (Swift) Australia” has been the most active corporate, gradually acquiring a portfolio of meat processing plants, feedlots and other facilities to increase the controlled links they have across the supply chain to value-add their product.
- The current growth phase of the industry is evident by the recent opening of Darwin based, Australian Agricultural Company (AACo) cattle processing facility as well as the commencement of re-commissioning the former Dandenong and Deniliquin abattoirs by The Australian Meat Group (AMG) (headed by industry participants Joe Catalfamo and Gilbert Cabral).
  - Refurbishment of the Dandenong plant, (including reconfiguration from a lamb to beef operation) will cost in the order of $30 million and is anticipated to be operational in 2015.
  - The Deniliquin plant is also being refurbished, albeit with the current stage requiring a much smaller quantum of dollars when contrasted to the Dandenong plant. The abattoir is currently processing 1,000 lambs a day during the commissioning phase and will work towards 3,000 a day at full capacity.

7. INDUSTRY ANALYSIS cont.

MAJOR PLAYERS- MEAT PROCESSING

Company Name	Details
Fletcher International	Situated at Dubbo, New South Wales is the largest sheep processing plant in the world. The company also has a processing plant in Albany, Western Australia.
NH Foods	The company hold 3 abattoirs, 2 based in Queensland and 1 in northern New South Wales.
JBS Australia	Described within the case study that follows.
Thomas Foods	Head office located at Murray Bridge, South Australia, which includes 2 processing plants. The family business holds additional processing facilities in New South Wales & Queensland.
Midfield Meats	Situated at Warrnambool, Victoria, employing 1,200 staff.
Teys/Cargill Australia	Situated throughout Australia with 6 processing plants.

Source: Major Players - Meat Processing (IBIS World, 2014)

OUTLOOK

Industry profit margins are expected to (on an overall basis) increase over the next 5 years to 2020. Plant and equipment upgrades and technology advancement is tipped to ensure this. Vertical integration between livestock producers, meat processors, wholesalers and retailers is anticipated to provide opportunity to garner greater economies of scale. Export growth will be the main influence on profit growth through increased sales, noting that the volume of Australian exported beef is expected to grow over the medium term.

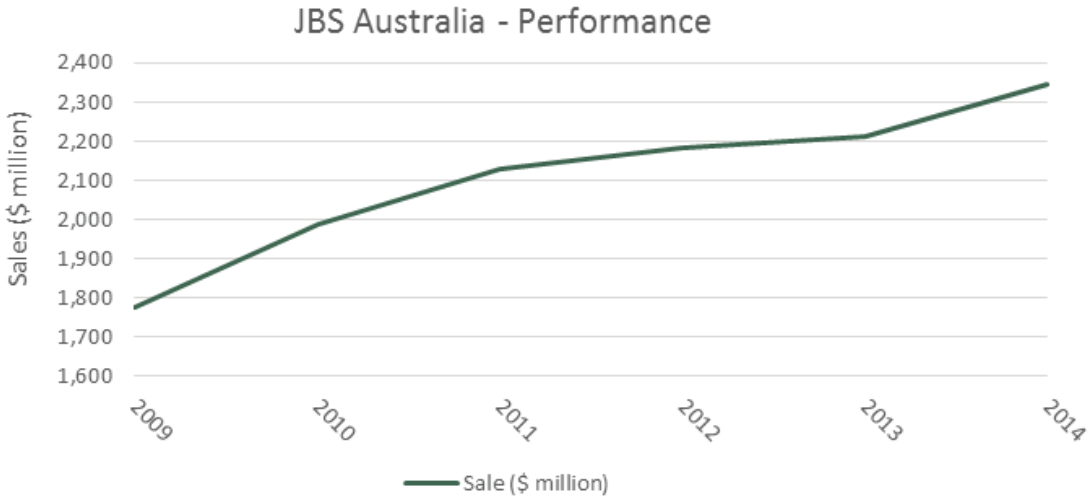
7. INDUSTRY ANALYSIS cont.

S2

CASE STUDY

JBS Australia is a foreign owned company that generates the majority of income from meat processing. Over the past 5 years JBS has expanded rapidly, with a strategic acquisition of a number of meat companies. JBS have purchased Tasman, Tatiara Meat Company, Rockdale Beef, and numerous other processing facilities. The company appears to be engaging in high profile acquisitions of smaller abattoirs and rival meat companies which appear to defy the trend of industry rationalisation. Sales have increased considerably since 2009 with revenue growth displayed in the adjoining graph.

Source: Case Study (IBIS World 2014)



BARRIERS ENTRY/FINANCIAL ANALYSIS

- Major barriers to entry include the cost of licensing, environmental, skilled labour and regulatory constraints.
- Construction costs vary greatly depending on the size of the abattoir, the associated kill lines, boning infrastructure and chilling capacity.
- The following table is indicative of the capital requirements, returns and employment potential of an abattoir with a 20,000 head (cattle) annual throughput.

Abattoir- Financial Analysis	
Annual Throughput	60,000
Construction Costs	$60,000,000
Analysed Percentage Return on Investment	12 to 20 percent
Full Time Equivalent (employment Potential)	250

Source: Abattoir Financial Analysis (CBRE, 2015)

7. INDUSTRY ANALYSIS cont.

S2

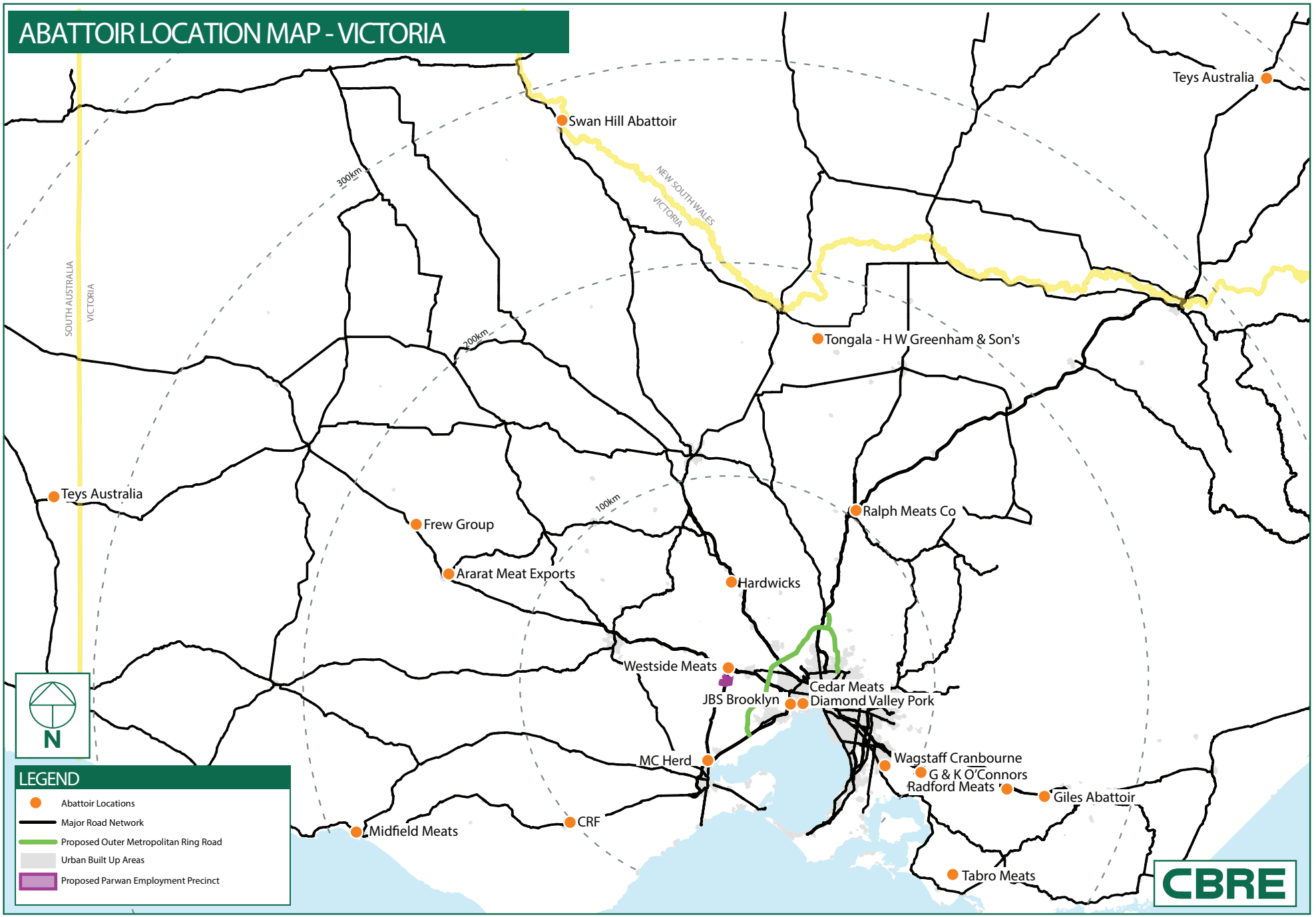
REGULATORY CONSTRAINTS - water requirements are detailed below:

Regulatory Constraints	• Development Application (will require Environmental Protection Agency Involvement). • Traffic Report. • State Licence(Required within all states). • Gaining Occupancy Certificate. • AQIS/DAFF establishment number (Australian Agriculture Fisheries and Forestry inspection). • Ausmeat certification (mandatory under Commonwealth legislation for export operators).
Water Requirements	• Reliable high volumes of water are required.

POTENTIAL OPPORTUNITIES - Geographical Analysis- Flow on Effects

- As industry consolidation and the trend towards abattoir export accreditation continues the ability to offer private kill lines diminishes. Private kills lines have traditionally supported smaller scaled vertically integrated businesses which use “paddock to plate”, “organic” and “farmer market” sales systems. The type of abattoir is likely to cost between $5 to $7 million and could be facilitated via private investors or within a co-operative structure. Likely stakeholders include business owners operating abovementioned business models, local councils and commercial investors.

The map overleaf illustrates the majority of Victorian abattoirs.


ABATTOIR LOCATION MAP - VICTORIA
Swan Hill Abattoir
Teys Australia
NEW SOUTH WALES
VICTORIA
SOUTH AUSTRALIA
VICTORIA
300km
200km
100km
Tongala - H W Greenham & Son's
Teys Australia
Frew Group
Ararat Meat Exports
Hardwicks
Ralph Meats Co
Westside Meats
JBS Brooklyn
Cedar Meats
Diamond Valley Pork
MC Herd
Wagstaff Cranbourne
G & K O'Connors
Radford Meats
Giles Abattoir
Midfield Meats
CRF
Tabro Meats
N
LEGEND
Abattoir Locations
Major Road Network
Proposed Outer Metropolitan Ring Road
Urban Built Up Areas
Proposed Parwan Employment Precinct
CBRE

7. INDUSTRY ANALYSIS cont.

7.3 FERTILISER AND BULK STORAGE FACILITIES

OVERVIEW

- The value of the fertilizer industry to the Australian economy is much greater than its value of output or value-added to the broad economic aggregates. Its down-stream contribution to the total economy is magnified by its impact on the productivity and production potential of Australia's agricultural sector.
- The majority of Australian fertilizers are imported.

MAJOR PLAYERS

The Australian fertiliser market is relatively concentrated. The two top players are Wesfarmers and Incitec Pivot who make up 49.8%. Wesfarmers manufactures, imports and distributes in Western Australia only, while Incitec Pivot operate within the eastern states with manufacturing facilities located in Queensland, New South Wales and Victoria. Impact fertilizers (third player) also run manufacturing plants in Geelong and Portland.

OUTLOOK

The medium-term outlook for agriculture remains favourable overall. Tight market conditions and firm prices for the main agricultural commodities are expected to reflect higher fertiliser prices.

World consumption is expected to maintain annual growth of 1.8% per annum with global demand tipped to reach 200 million tonnes by 2017/2018.
Domestically, fertiliser prices are expected to increase due to the declining Australian Dollar, which will improve profit margins on domestically manufactured product.

BARRIERS TO ENTRY

Major barriers to entry exist within fertilizer manufacturing; sites are nearly always located within close proximity to Ports. Major opportunities for the Proposed Parwan Employment Precinct lie within the distribution of fertiliser.

7. INDUSTRY ANALYSIS cont.

7.4 PROTECTED CROPPING

OVERVIEW

- The protected cropping industry is one of the fastest growing food production sectors in Australia with a farm gate value of approximately $1.8 billion per annum.
- The Hydroponic glasshouse industry is one of Australia's major horticultural growth industries; the implementation of improved technology and growing systems has expedited the growth in Australia on the back of increase profit margins.
- Hydroponic glasshouse technology has emerged as a commercial alternative to in-field production. Significant crops include tomatoes, cucumbers, capsicum, lettuce, strawberries, Mediterranean and Asian herbs, Asian greens, Asiatic and Oriental lilies and cut flowers such as roses, gerberas, carnations, lisianthus and chrysanthemums.
- It is estimated that the protected cropping industry employs in excess of 10,000 people throughout Australia, with the industry expanding at between 4-6% per annum.
- The biggest risk for Australian Hydroponic glasshouse growers is the Potato Spindle Tuber Viroid (pstvD) which could be introduced from imported NZ tomatoes. If this virus gets into green waste in Australia, it will be impossible to eradicate. This exotic viroid can cause serious effects in three crops- potato, tomato and eggplant. Severe strains in tomatoes can result in a 50% reduction in yield.

OUTLOOK

- Tomato and cucumber production is progressing through a period of transition from conventional growing methods (field production for tomatoes and greenhouse / tunnel growing systems for cucumbers) to hydroponic production.
- Declining margins for non-protected cropping and pressure of regular supply is impacting the dynamics of the fresh tomato and cucumber industries, causing an expedited move to hydroponic growing practices.

CASE STUDY

- Maria's Farm Veggies, a 16.4 hectare glass house development is currently in construction phase. The development is situated to the north of Newcastle.
- The structure includes packing and cool room facilities and propagation areas.
- The project is C02 neutral by utilising waste C02 to increase vegetable yields in the Glasshouse.
- The project is expected to cost $75 million and employ 125 new full time staff of which 90% will be semi-skilled labour.

7. INDUSTRY ANALYSIS cont.

MAJOR PLAYERS

- D'Vine Ripe (Victor Smorgon Group/Perfection Fresh) – Located at Two Wells in South Australia.
- Blush Tomatoes (Costa Exchange) – Located at Guyra in New South Wales.
- Flavorite Hydroponic Tomatoes – Located at Warragul in Victoria.
- Katunga Fresh – Located at Katunga in Victoria.
- Murphy Fresh – Mansfield in Victoria.
- Flavourwave- Katunga in Victoria.

BARRIERS TO ENTRY/FINANCIAL ANALYSIS

- Major barriers to entry include capital requirements to develop, proximity to skilled labour, reliable fresh source of water and gas connection.
- In relation to construction costs, our enquiries with various greenhouse builders indicate construction costs excluding site works are in the vicinity of $200 to $220 per square metre of glasshouse area.
- Suitable climatic conditions (including high sunlight levels), access to water and gas, close proximity to labour resources are key factors when determining a suitable site.

7. INDUSTRY ANALYSIS cont.

S2

- The industry supports high levels of employment potential in comparison to other industries. Employment requirements are typically measured at approximately 12 people per hectare of glasshouse area.
- The following table is indicative of the capital requirements, returns and employment potential of a 5 hectare glass house.

Hydroponic Glasshouse - Financial Analysis	
Total Area	5 hectares
Construction Costs	$10,000,000- $14,000,000
Analysed Percentage Return on Investment	15 to 25 percent
Full Time Equivalent (employment Potential)	40-60

REGULATORY CONSTRAINTS - water requirements are detailed below:

Regulatory Constraints	• Planning Permits and Building permits are required for Hydroponic glasshouse development. • Hydroponic glasshouse growers will soon be required to obtain a 'Farmers Licence' to use Ammonium Nitrate and possibly other fertilisers used in crop production. To obtain a licence, growers will need to demonstrate a legitimate need, provide safe and secure storage and handling, and undergo background checks by Police and the Australian Security & Intelligence Organisation (ASIO), among other requirements.
Water Requirements	• Hydroponic glasshouses require between 20 to 25 megalitres of water per hectare of glasshouse area annually. This can be reduced with a re-use system using ultra-violet technology.

Source: Glass House Financial Analysis (CBRE, 2015)

7. INDUSTRY ANALYSIS cont.

7.5 RENEWABLE ENERGY

Advances in alternate energy technology have seen uplift in renewable energy integration within existing agribusinesses throughout Australia. Implemented technologies include Biomass systems, methane gas fuelled micro-turbines and gasification processes.

Biomass systems use any organic matter, (including wood, agricultural residues and organic waste) that can produce bioenergy in a carbon neutral and renewable energy form. Biomass can be converted into a variety of bio energies including electricity, heat and fuel. Common methods include boiler systems whereby biomass is combusted to heat water, creating steam which can be used for heating/cooling processes and to power Organic Rankine Cycle Generation systems.

Biomass input materials include agricultural by-products such as stalks, husks, nut shells, logging and mill residues, marc (the residue of grapes that have been pressed for winemaking) and bagasse (the residue of sugar cane left after the extraction of juice), piggery waste and poultry litter. This can ascribe a value to materials which may otherwise go to waste. Access to an electricity grid is not an immediate requirement assuming generated electricity is used onsite which would be integrated with specific development such as a Hydroponic glasshouse.

EXAMPLE OF IMPLEMENTATION INCLUDES:

Australian Tartaric Products (ATP) – Biomass Boiler heating water to create steam, powering an Organic Rankine Cycle Generator	The plant uses 90,000 tonnes of grape marc and other onsite waste streams as the feedstock. ATP decided to install the biomass boiler due to large and increasing power bills and the need to control costs in the face of increased competition from China. It is estimated ATP's annual energy costs will drop by $1.52m. ATP also received funding from Regional Development Victoria ($1.8m), Clean Technology Food and Foundries Investment Program ($1.71m) and Australian Industry Group ($40,000).
Morton Seeds and Grain (MSG)	Constructing two biomass boilers that will use oat husks to generate both steam and electricity to run oat-mill operations. The project is estimated to save MSG $900,000 per year in energy costs. MSG received funding from Clean Technology Food and Foundries Investment Program ($917,500).

Source: Carrs Chambers Westgarth Lawyers 2014

7. INDUSTRY ANALYSIS cont.

S2

BIOGAS SYSTEMS

In Biogas Systems organic waste is collected and treated in an anaerobic digester to produce biogas to fuel a single engine generator. A hydrogen sulphide scrubber unit removes hydrogen sulphide from the biogas to extend the working life of the engines and ensure consistency of gas flow into the gas treatment system.

Examples of this technology being implemented in Australian Agribusinesses are detailed below:

Darling Downs Fresh Eggs – 390,000 bird operation	• $2.86 million total project cost. • Reduced carbon emissions of up to 1,000 tonnes per annum, through the reduced electricity and LPG usage. • Reduced methane emissions by over 6,000 tonnes of CO2 equivalents a year. Reduce methane emissions by over 6,000 tonnes of CO2 equivalents a year. • Reduced grid electricity usage by 60 per cent in the first year. • Eliminates about half the labour and transporting costs associated with the disposal of poultry farm waste products.
Blantyre Farms- 220 sow piggery	• Prior to installing the renewable energy project Blantyre Farms electricity cost was approximately $15,000/month. After installation the existing electricity costs had been abated in full and the farm is receiving approximately $5,000/month from the sale of surplus electricity. • Additionally, new revenue of approximately $7,500/month was created from the generation of Renewable Energy Certificates.

Source: Alternate Energy Examples (Carrs Chambers Westgarth Lawyers 2014)

Overall the implementation of renewable energy sources is financially feasible and physically possible. Such systems have the ability to significantly reduce the Proposed Employment Precinct's carbon footprint whilst reducing agricultural waste and waste removal costs as well as creating additional long term employment. These systems are typically integrated with conventional services and are utilised during peak energy demand times when conventional systems are too costly.

7. INDUSTRY ANALYSIS cont.

7.6 FEEDLOTS

OVERVIEW

- In recent years the Australian feedlot industry has undergone a period of contraction. Primary factors sighted for the reduction in cattle on feed are:
  - Decreased Australian cattle numbers.
  - A reduction in Australia's competitiveness on world meat markets due to the relatively high Australian dollar and the USA's successful push into the beef markets of Japan and Korea.
- Despite the above, Australia has recently seen the highest number of Australian cattle on feed since 2006. The increase has occurred on-the-back of drier conditions throughout New South Wales and Queensland, limiting pasture quality and availability, notwithstanding recent rains throughout Queensland.
- Industry consolidation is evident through an aggressive acquisition campaign, when JBS acquired the US meat processor Swift & Co in 2007. The takeover allowed the company to gain control of its subsidiary, Australian Meat Holdings, which owned and operated five abattoirs and four feedlots on the eastern sea board of Australia.
  - In 2008 JBS acquired the Tasman Group increasing its assets in Australia by three abattoirs in Tasmania, two abattoirs in Victoria and a feedlot in New South Wales.
  - Having secured a significant stake in Australia's feedlotting and meat processing industries the business began a process of integrating the various assets. In 2009 the group again increased their feedlot and abattoir holdings with the purchase of "Rockdale Beef feedlot and Abattoir", the largest feedlot in southern Australia.
  - After three years of operation JBS elected to consolidate feedlotting operations in Southern New South Wales with the closure of the "Yambinya" feedlot located north-west of Burraboi. In April 2012 JBS continued to consolidate their feedlot operations with the closure of the "Prime City" facility at Tabita also in the Riverina region of New South Wales. The closure of the two feedlots resulted in a reduction in capacity for the Australian beef feedlot industry by 5% or 53,000 head.
- Outside the activities of JBS, the industry has also consolidated through the closure of a number of smaller feedlots such as the 6,500 head "Ladysmith Feedlot", south-west of Wagga Wagga, New South Wales, as well as a general reduction of numbers on feed in operating feedlots.

OUTLOOK

The feedlot industry is expected to pick up over the next 5 years. Industry gains are expected to arise from additional export demand. Export demand is expected to increase at approximately 3.6% annually, which in turn, will increase employment.

7. INDUSTRY ANALYSIS cont.

MAJOR AND LOCAL PLAYERS

Major and Local players in the feedlot industry are detailed in the table below:

Major Players	• JBS Swift hold 8.4% market share. • NH Foods hold 6.7% market share. • Teys Australia hold 6.2% market share.
Local Players	• Jalna Feedlot, situated at Anakie, Victoria operate a 10,000 head feedlot (capacity) which aims to finish cattle to 420 – 500 kilograms (live weight) over a 70 day period for the domestic market. • Charlton Feedlot, situated at Charlton, Victoria maintains a 20,000 head (capacity) feedlot which aims to fatten cattle for the domestic market. • Peechelba Feedlot, situated near Wangaratta, Victoria custom-feeds Wagyu, Wagyu Cross, European and British breed cattle for clients providing beef for the domestic and export markets. Feeding periods of 70 days for domestic short-fed cattle, 100-120 days for longer-fed domestic and export cattle and 150-600 day custom-feeding programs.

Source: Major & Local Players (CBRE & IBIS World 2014)

REGULATORY CONSTRAINTS AND WATER REQUIREMENTS are detailed below:

Regulatory Constraints	• Legislation stipulates that feedlots of 5,000 head and above require a Works Approval from the EPA (Environmental Protection Authority, Victoria. Other Victorian legislation which may apply includes the Flora and Fauna Act 1988, the Archeological and Aboriginal Relics Act 1972 and the Environmental Effects Act 1978. • Most commercial feedlots in Australia are licensed to operate at space allowances between 15 sqm and 25 sqm per Standard Cattle Unit (SCU). If cattle are shedded, 2.5 sqm per SCU must be provided. Please refer to the Victorian Code of Feedlots for further clarification of a Standard Cattle Unit (SCU).
Water Requirements	• Water security is a vitally important issue for the Australian cattle feedlot sector as the daily requirement per SCU can range from 45 to 90 litres depending on weather conditions and feed ration. At the upper end of water consumption this equates to approximately 165 ML for a 5,000 head feedlot.

Source: Regulatory Comments (Victorian Code of Cattle Feedlots

7.7 PIGGERY

OVERVIEW

- Large scaled vertically integrated businesses continue to maintain profitability and revenue growth whilst smaller operators continue to face the challenges of declining terms of trade.
- The Australian Pork Industry is relatively small, contributing only a small proportion of total farm income across the meat producing sector. The market for commercial piggeries has been depressed for some time.
- The Australian Pork Industry has been pressured by escalating feed costs and growing import competition.
- Important considerations going forward are the increasing scrutiny of the industry by animal welfare groups regarding sow stalls, and the maintenance of Australia's disease free status.

MAJOR PLAYERS

- George Weston Foods operate 5 piggeries in Australia, 3 in South Australia and 2 in Victoria.
- Craig Mostyn & Co is a debt free business looking for further expansion opportunities. The company operates five pig farms, supplying 3,000 pigs per week to their Linley Valley Pork abattoir in Western Australia.
- Primo was recently purchased by JBS for $1.45 billion, however Primo predominately source pigs from contract growers.
- Hamsdale Australia (known as riverlea), operates pig farming sites at Corowa NSW, Huntly VIC, Balpool Station NSW, Bungowannah NSW and St Arnaud VIC, and contracts a large number of 'grower' farms in NSW and VIC.

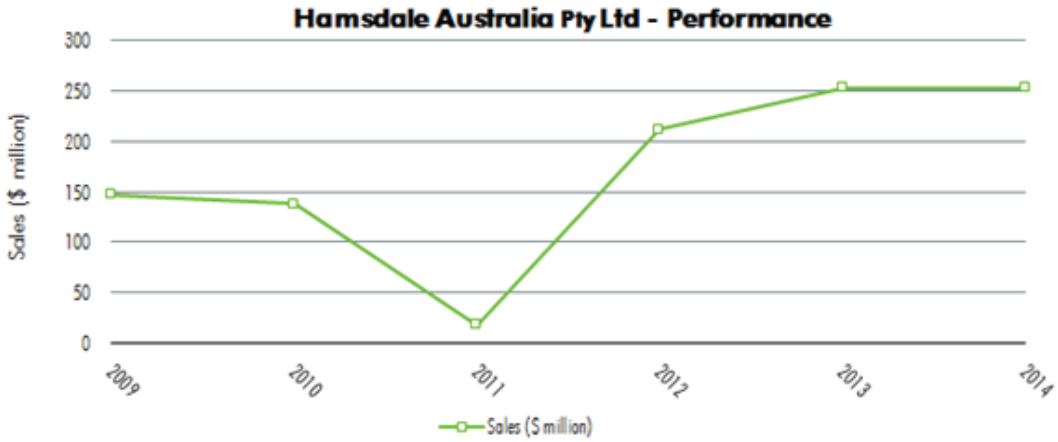
OUTLOOK

Industry growth over the last 5 years has been modest with annual compounded revenue growing by 0.2%. Profit margins have been constrained by high feed prices and cheaper imports. Despite this, larger operators have been able to maintain profit margins through increasing economies of scale to facilitate lower unit costs. Vertically integrated business models within the sector have also maintained high profit margins.

7. INDUSTRY ANALYSIS cont.

CASE STUDY

- Hamsdale Australia (known as Riverlea) is Australia's largest pig producer holding 25% market share. Hamsdale Australia also holds an 80% interest in Diamond Valley Pork which operates boning rooms and an abattoir business in Melbourne. In 2014 the vertically integrated company's operations included feed milling, farming operations, pork processing, sales and distribution. The company has several farms throughout Victoria and New South Wales and a number of third party producers also used to carry out production. Contract production accounts for 50% of total production; in 2010 the company produced and sold 763,000 head or 46,000 metric tonnes of pork.
- Financial performance is expected to increase. Compounded revenue growth is expected to grow at a rate of 11.4% over the next 5 years. Historical performance has increased significantly since 2009, noting a challenging period in 2011



Source: Case Study (IBIS World 2014)

7.8 MUSHROOMS

OVERVIEW

- The Australian Mushroom industry is based on fresh domestically consumed product; industry exports are minimal given the short shelf life of the product. Mushrooms remain the main vegetable grown undercover. In the past, mushrooms have generally grown outdoors as a seasonal vegetable, however improvements in greenhouse technology have allowed year round production, thus allowing mushrooms to become a staple item for Australian Households.
- According to the Australian Mushroom Industry, 17% of total undercover domestic production occurs inside Victoria, whilst 28.7% occurs in New South Wales, 25.5% in Queensland, 13.4% in South Australia and 9.9 % in Western Australia, with the balance coming from the Northern Territory and Tasmania.

OUTLOOK

Like many other industries in agriculture, the mushroom industry has been going through a period of consolidation. Over the past 15 years smaller non-vertically integrated businesses have exited, having been taken over or merged with larger operators. According to the Australian Mushroom Growers Association, 3 growers represent over 50% of production and 15 (including the top 3) represent over 75%. Recent industry consolidation has resulted in fall in supply of 100 tonnes of product per week, increased prices and improved profit margins. Current industry fundamentals are expected to translate into further expansion by large scale vertically integrated mushroom producers.

MAJOR PLAYER

- Costa Exchange is Australia largest mushroom producer growing 500 tonnes per week.
- Produces mushrooms in Queensland, New South Wales, South Australia, Victoria and Western Australia whilst the Mernda (Victoria) facility is the largest mushroom farm in the Southern Hemisphere. The company employs between 1,000 and 1,200 people across 4 mushroom facilities.

CASE STUDY

Overall Costa Exchange grows mushrooms, berries, citrus fruit, avocados, table grapes. In March 2013 Costa acquired Adelaide Mushrooms, which bolstered total production to 500 tonnes per week. In conjunction, Costa Exchange grow approximately 10 million tonnes of greenhouse produced tomatoes. Costa Group's industry-specific revenue from mushroom and tomato growing is projected to grow by an annualised 6.9% over the next 5 years from 2014. The company benefits from large scale vertical integration which is further reinforced by integrated packing, storage logistics and wholesale operations.

7. INDUSTRY ANALYSIS cont.

S2

BARRIERS TO ENTRY/FINANCIAL ANALYSIS

Major barriers to entry into the mushroom industry include capital requirements to develop, proximity to skilled labour and a reliable source of fresh water. In additional to this we note the availability of Natural Gas would create an optimal operating environment.

- Construction costs- our enquiries with various builders of housed mushroom facilities indicate construction costs excluding site works are in the vicinity of $200 to $220 per square metre of production area.
- Site requirements:
  - Level to near level contour.
  - Access to water, gas and electricity.
  - Proximity to labour source.
- The following table is an indicator of the capital requirement returns and employment potential of a 50 tonne mushroom farm:

Mushroom - Financial Analysis	
Annual Production (tonnes)	50 (tonnes)
Construction Costs	$10,000,000
Analysed Percentage Return on Investment	10 to 25 percent
Full Time Equivalent (Employment Potential)	40-60

REGULATORY CONSTRAINTS - water requirements are detailed below:

Regulatory Constraints	We are advised by the Moorabool Shire Council that buildings for a Mushroom Farm do not require planning approval.
Water Requirements	Require large volumes of high quality water.

Source: Mushroom Businesses Financial Analysis (CBRE, 2015)

POTENTIAL OPPORTUNITY

The Proposed Parwan Employment Precinct holds potential to expand the existing industry albeit natural gas supply is considered important for further development.

7. INDUSTRY ANALYSIS cont.

7.9 OTHER AGRIBUSINESS INDUSTRY

In addition to the industry already examined in detail there are a number of other possible opportunities including:

- Various commodity holding/handling businesses such as grain handlers/container packers and fertiliser distribution.
- Livestock sale yards/feedlot. The ability for development is considered limited at the current time due to geographical barriers and competition from primarily existing sale yards such as Pakenham and Ballarat. Geelong is not considered a major livestock selling centre in respect to Pakenham and Ballarat.
- Niche milking businesses (goat/sheep).
- Further irrigation expansion (dependant on water availability).

INDUSTRY CODES

The regulatory framework is critical to the long term sustainability of the precinct. The Proposed Parwan Employment Precinct will need to comply with the following codes in relation to the potential uses:

- Victorian Code of Practice – Piggeries.
- Victorian Code for Broiler Farms.
- Victorian Code for Cattle Feedlots.
- Australian Code of Practice for selling livestock.

With the inclusion of intensive animal systems such as piggeries, poultry, feedlots and saleyards a range of emission (odour & noise) and biosecurity issues are created. These need to be dealt with and monitored correctly to reduce the land use conflict.

Well-designed intensive animal operations have the ability to omit dust, noise and odour creating negative aesthetic and environmental externalities. The successful implementation of these industries relies on location relative to sensitive land uses such as residential areas, intensive livestock enterprises, and particular industrial and processing infrastructure.

7. INDUSTRY ANALYSIS cont.

Disease risk management also needs to be considered. The spread of biological disease from one facility to another is a predominant risk which can be mitigated by appropriate buffer zones and transport routes.

Biosecurity standards are important in protecting these industries. The Victorian Department of Primary Industries (DEPI) is the relevant body in animal health and welfare. To minimise these issues certain sectors have specified minimum separation distances for biosecurity purposes. These guidelines administered by the Environmental Protection Authority and the Victorian Department of Primary Industry.

Appropriate buffer distances are defined via additional guidelines:

- Composting- Separation distances for large composting facilities, EPA Publication 1495, 2012 Draft guidelines for separation distances for composting facilities, EPA Publication 1445, 2012.
- Land Fill- Best Practice Environmental Management – Siting, Design, Operation and Rehabilitation of Landfills, EPA Publication 788.10, 2010.
- Stock Feedlot - Victorian Code for Cattle Feedlots, Department of Primary Industries, 1995.
- Poultry Meat – Victorian Code for Broiler Farms, Department of Primary Industry, 2009.
- Poultry Free Range – Applying for a permit to farm chickens, Practice note 63, Department of Planning and Community Development, 2012.
- Poultry Eggs – Environmental Guidelines for the Australian Egg Industry, Australian Egg Corporation Limited, 2008.
- Piggery – Code of Practice Piggeries , Department of Primary Industry, 2009.
- Code of Practice, Piggeries, Department of Planning and Housing and Department of Food and Agriculture, 1992.
- AS 2021-2000 Acoustics – Aircraft Noise Intrusion – Building Siting and Construction.

7. INDUSTRY ANALYSIS cont.

S2

Industry buffers to sensitive uses are described in the table below:

Industry	Buffer to Sensitive Land Use (metres)
Grain & Stock Feed Mill	250
Mushroom Farm	By Case
Poultry –Meat	As per Victorian Code for Broiler Farms
Poultry Free Range	As per Victorian Code for Broiler Farms
Poultry – Eggs	As per Victorian Code for Broiler Farms
Stock Feedlot	As per Victorian Code for Cattle Feedlots
Stock Sale Yard	500
Abattoir – no rendering	1,000
Pet Food – Production	500
Rendering & Casings Works	1,000
Open Cut Coal Mine	1,000
Wastewater Treatment Plant	Typically 500 (metres) or greater. Calculation is linked to population size.
Wool Manufacturing	500
Wool Scouring	250
Composting	800 – 2,000 As per EPA guidelines.

Source: Recommended Separation Distances (EPA, 2009)

7. INDUSTRY ANALYSIS cont.

S2

SENSITIVE USE AND INDUSTRY SEPARATION DISTANCES: POULTRY- MEAT

The risk associated with proposed development varies depending on the separation of emission sources from sensitive uses and existing and proposed broiler sheds.

The code classifies different broiler farms by the number of birds kept, the ability to contain the separation distance within the broiler farm boundary and the proximity to other existing and proposed broiler sheds.

The separation distance is described as the distance from the nearest external edge of the new or proposed broiler farm to the nearest sensitive use. Dwellings which are directly associated with the broiler farm (e.g. workman's housing) are excluded from the requirements.

The broiler farm classifications are detailed below:

Industry	Class A Broiler Farm	Class B Broiler Farm	Special Class Broiler Farm	Farm Cluster
Requirements	• Farm capacity less than or equal to 400,000 birds. • The minimum separation distance requirement (as defined by formula 1) is fully contained within the broiler farm boundary.	• Farm capacity of less than 400,000 birds. • The development can meet the minimum separation distance (as defined in formula 1) but a reduction in separation distance is warranted through the adoption of odour reduction technology on farm.	• The farm capacity is greater than 400,000 birds. • The development is unable to meet the minimum separation distance requirement (as defined by Formula 1) but a reduction in separation distance is warranted through the adoption of odour reduction technology on farm (see 'Farms that cannot meet the minimum separation distance requirements' below).	• The minimum separation distance requirement (as defined by Formula 1) overlaps with the minimum separation distance requirement of any existing broiler farm, a broiler farm approved by a planning permit or a proposed broiler farm that is the subject of a permit application that has been lodged with the responsible authority. • The combined farm capacity of the broiler farms with overlapping minimum separation distances (as defined by Formula 1) is greater than 400,000 birds.

7. INDUSTRY ANALYSIS cont.

SEPARATION DISTANCE CALCULATION METHODOLOGY

New broiler farm development or expansion is not permitted for farms that cannot meet the minimum separation distance requirements in the below table. However, the responsible authority may approve a reduction in separation distance if odour reduction technology is implemented into farm design. This application would be assessed as a Special Class Farm. The formula for calculating separation distances is detailed in the table below. Examples of separation distances for Class A and Class B farms are graphed to illustrate separation requirements.

Poultry - Separation Distance Formula (1)

- The separation distance for a Class A or Class B broiler farm must be at least 250m or as otherwise calculated in accordance with the following formula (whichever is larger): D = 27 x N0.54 D = Separation Distance (metres).
- N = farm capacity /1000 0.54 is an exponential factor that is applied to N.
- The formula is applicable to farms up to or equal to 400,000 birds.
- For example, for a 100,000 bird farm: D = 27 x (100)0.54 = 325m.

Poultry - Separation Distance Example Based on Formula (1)

Source: Separation Distance Requirements (Victorian Code of Broilers, 2009)

7. INDUSTRY ANALYSIS cont.

S2

SENSITIVE USE SEPARATION: COMPOSTING

Separation distances for large composting facilities are depicted within the Victorian Environmental Protection Authority, publication 1588.
Buffer areas are demonstrated below noting that the separation distance are measured from the activity boundary to the sensitive land use or residential dwelling.

Feedstock	Technology Being Used	Topography	Plant Capacity	Separation Distance (metres)
Green Waste	• Open Air Receival. • Enclosed aerobic composting with secondary odour capture equipment. • Open air maturation.	• Standard	• 1,200 tonnes per annum. • 14,000 tonnes per annum. • 36,000 tonnes per annum. • 55,000 tonnes per annum. • 75,000 tonnes per annum. • 90,000 tonnes per annum.	• >300 • >500 • >800 • >1,000 • >1,200 • >1,400

7. INDUSTRY ANALYSIS cont.

7.10 SITE COMPATIBILITY

Notwithstanding legislated buffer areas CBRE have considered the various uses and their respective co-locations with other industries on a practical basis. Land use constraints, buffer areas, biosecurity issues and industry compatibility are important considerations when recommending site uses. To determine these issues CBRE have constructed an industry site use compatibility matrix. The matrix indicates industries which are likely to co–exist within an intensive agribusiness precinct, whist determining industries which require appropriate buffering zones or emergency management plans for biosecurity reasons.

The findings of the analysis are outlined below:

Compatibility Matrix	Sewage Treatment Plant	Mushroom Farm	Poultry - Broiler	Protected Cropping	Intensive Horticulture	Live Export Animal Quarantine	Alternate Energy Sources	Bulk Commodity Storage	Abattoir (Meat Processing)	Abattoir (Rendering)	Stock Feedlot	Stock Sale Yard
Sewage Treatment Plant	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mushroom Farm	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Poultry- Broiler	✓	✓	×	✓	✓	×	✓	✓	×	✓	✓	✓
Protected Cropping	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Intensive Horticulture	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Live Export Animal Quarantine	✓	✓	×	✓	✓	×	✓	✓	×	✓	×	×
Alternate Energy Sources	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bulk Commodity Storage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Abattoir (Meat Processing	✓	✓	×	✓	✓	×	✓	✓	✓	✓	×	×
Abattoir (Rendering)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Stock Feed Lot	✓	✓	×	✓	✓	×	✓	✓	×	✓	×	×
Stock Sale Yard	✓	✓	×	✓	✓	×	✓	✓	×	✓	×	✓
Equine & Lifestyle	×	×	×	×	×	×	×	×	×	×	×	×

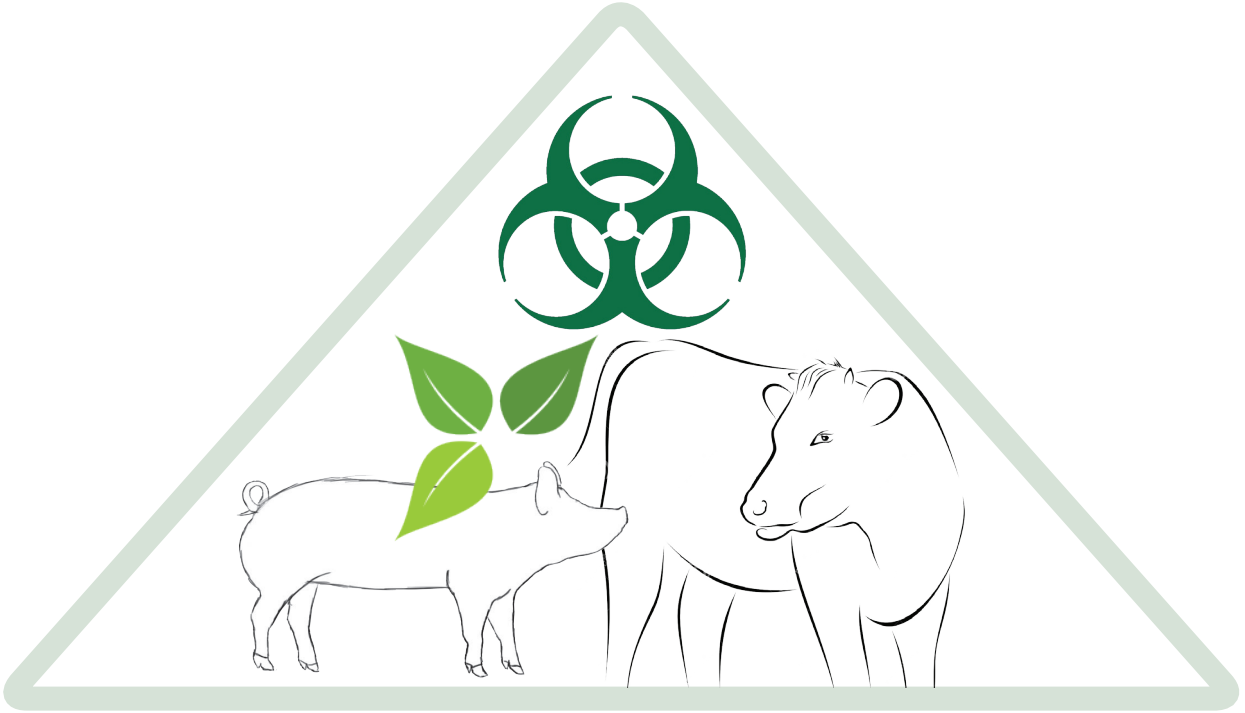
7. INDUSTRY ANALYSIS cont.

S2

LAND USE COMPATIBILITY DISCUSSION

The following segment provides commentary around non-compatible land uses which are highlighted from the Co-location Matrix. Where applicable, industry buffer areas are highlighted, noting that poultry is covered in the previous section.

From our analysis it is evident that biosecurity issues are the primary factor driving non-compatible land use. Industries such as poultry, stock sale yards, feedlots and abattoirs are immediately non-compatible; however, with the correct planning in line with relevant codes and guidelines, these industries (to a certain extent) have the ability to co-locate within the Proposed Parwan Employment Precinct. For these industries to successfully co-locate within the Proposed Parwan Employment Precinct, buffers monitoring the proximity of location of certain industries and biosecurity management plans are required to be followed or implemented as necessary.



7. INDUSTRY ANALYSIS cont.

SALE YARD- ABATTOIR CO-LOCATION

Although known to be legislated there are various biosecurity issues associated with the co-location of animal sale yards and abattoirs. The potential to enhance the spread of disease such as Foot and Mouth and Bovine Johne's Disease needs to be monitored. Action and emergency plans need to be designed to handle such disease outbreaks if they occur. We note the following case study regarding the Dubbo Sale Yards, which are located in close proximity to one of the largest sheep abattoirs in the southern hemisphere. The case study outlines various management plans which deal with the abovementioned biosecurity issues. If the co-location of these industries was to occur within the Proposed Parwan Employment Precinct a similar Emergency Management Plan may need to be created and a local emergency management committee would need to be implemented. Please refer to the Australian Code of Practice for Selling Livestock, 2007 for further information. Other examples of Abattoir and Sale yards co-locations exist in Scone NSW whereby a Local Emergency Management Committee have implemented a Response Plan for Animal Health Emergency in the Scone Saleyard & Abattoir.

DUBBO ABATTOIR AND SALE YARD CO-LOCATION EXAMPLE

- The Dubbo Saleyards is one of the largest sheep and cattle selling centres in Australia.
- A privately owned abattoir (Fletcher International) is in close proximity to the saleyard and is one of the biggest sheep abattoirs in Australia. Adjacent to both is a smaller pet meat processing facility (Murrumbar Meats).
- At any one time up to 5,000 cattle and 35,000 sheep could be within the confines of the saleyard/abattoir. This plan identifies actions that will be taken and resources that will be needed if Foot and Mouth Disease (FMD) or any other exotic disease is detected at the saleyard, in particular and most likely in conjunction with the abattoir(s). The saleyard and abattoir will be referred to as "The Complex" with regard to this plan.
- The Complex has been identified as a hazard under the Dubbo Local Disaster Plan.
- The Response Plan is aimed at setting out procedures that will be followed if exotic disease is detected in The Complex. It may also be activated for other emergency animal diseases where approved by the state and national Chief Veterinary Officer (CVO).
- The Response Plan should be read in conjunction with the Dubbo Local Disaster Plan and the State Animal Health Emergency Plan which is a supporting plan to the State Disaster Plan.
- The Plan should also be read in conjunction with the Australian Veterinary Emergency Plan (AUSVETPLAN) and in particular the Operational Documents on Destruction of Animals, Decontamination, Disposal Procedures, Public Relations, Valuation and Compensation, Enterprise Manual on Saleyards and Transport, Enterprise Manual on Meat Processing and Disease Strategy- FMD. Local Disease Control Centre (LDCC) Standard Operating Procedures (SOPs) can be obtained from NSW Agriculture Senior Field Veterinary Officer at Dubbo.
- The Plan will be activated in situations where FMD is diagnosed in The Complex or it is classed as an infected premise or a dangerous contact property by the CVO.

Source: Dubbo Abattoir & Sale Yard Co Location (Source Australian Code of Practice, 2007)

7. INDUSTRY ANALYSIS cont.

S2

FEEDLOT CO-LOCATION

The Victorian Code for Cattle Feedlots, 1995, demonstrates buffer areas for feedlots in close proximities and access to areas for solid and liquid waste disposal. Stock feedlot buffers should reflect the potential impact of the operation. Generally the separation buffers should be applied to neighbours, public areas and watercourses to avoid odour and water pollution concerns. Separation distance in the cattle feedlot industry are measured via "receptors". Receptors are a radial buffer and are calculated depending on the number of standard cattle units (SCU). The table below demonstrates the formula used to calculate receptors or buffer areas as well as the required buffer distances for co-location of individual feedlots:

Feedlots – Separation Distance Formula (1)
• AM1 Separation Distance and Number of Standard Cattle Units. The following formula provides the basis for estimating the number of cattle allowable, "N", for a site at distance "0" metres from an impact location. It also allows the calculation of the distance required for a specified number of Standard Cattle Units (SCUs). • N = (O+S)1, alternatively 0= Sv'N • N = number of SCU o = separation distance in metres from the feedlot • S = the composite site factor S1 x S2 x S3 x S4, where: - S1 = the stocking density for different classes of feedlot - S2 = the receptor type (i.e. from single farmhouse to large town) - S3 = terrain characteristics - S4 = vegetation cover

Minimum Buffer Separations Provided Include:		
Distance from land application of liquid wastes to:	Distance from solid waste spreading areas to:	Distance from feedlot works areas to:
• site boundary - 20 m • public area - .100 m • watercourse, bore or spring - 100 m • offsite residence - 200 m • flood prone land (1 in 100 year flood level) - 200m	• site boundary - 20m • public area - 100m • watercourse, bore or spring off site residence • flood prone land (1 in 100 year flood level) - 200m	• site boundary 50m • watercourse, bore or spring 200m • flood prone land 1 in 100 year flood level) - 200m

Source: Separation Distances (EPA 2013)

8. QUALITATIVE ANALYSIS

S2

Qualitative analysis has been conducted by both direct and indirect communication with existing and potential occupiers within the Proposed Employment Precinct with an aim to identify the following:

- Physical constraints that may impede development.
- Legal and regulatory constraints that may impede development.
- Proposed developments.

EXISTING OPERATORS WITHIN THE PROPOSED EMPLOYMENT PRECINCT COMPRISE:

- Bacchus Marsh Purification Plant managed by Western Water.
- Fernando Ferreira – Poultry Farmer.
- Parwan Valley Mushrooms.
- Significant land holding by shareholders of Westside Meats Pty Ltd, portion of which is zoned Industrial 1 Zone (IN1Z).
- Genetics Australia, quarantine facility.
- Rural lifestyle and equine associated uses.
- Spargo Transport.
- Bacchus Marsh Airport.
- Rolling Thunder Raceway.

All of the above associated uses, with the exception of rural lifestyle and equine properties are categorised to be, in varying degrees, offensive uses.

These uses appear to co-exist with minimal land use conflict, however we understand there have been some bio-security concerns in relation to the distance between the Genetics Australia quarantine facility and the chicken broiler farm which is currently under construction.

8. QUALITATIVE ANALYSIS cont.

S2

Our enquiries with existing occupiers for which our findings are summarised in Section 3 – Existing Conditions, revealed the following:

- The Proposed Parwan Employment Precinct, in principle, offers synergies between employment and agribusiness.
- Accessibility to the Proposed Parwan Employment Precinct is restricted from the intersection of Bacchus Marsh Road (The Avenue of Honour) and Woolpack Road.
- No availability of natural gas.
- No availability of Class A water.
- Localised drainage issues during high rainfall events.
- Existing zoning provisions are not favourable for intensive agribusiness industry for the following reasons with associated recommendations:
    - The Farming Zone has a minimum lot size for subdivision, which restrict land use in Proposed Parwan Employment Precinct (this could be addressed in the schedule, or via an alternative zoning).
    - Clarification is needed in terms of buildings and uses near the aerodrome (Airport Environs Overlay).
    - Clarification may be needed in terms of impact on buildings and uses on the landscape (Design and Development Plan Overlay).
    - A clear strategy on the consolidated impact of zones, overlays, state and local planning policy, lot size, and development staging on investment attraction in the Proposed Parwan Employment Precinct would be beneficial.
- Red meat processing, mushroom and poultry industries are in a period of expansion with existing land owners planning to increase current business activities.

The other major impediment to development is road linkages, particularly accessibility to the Western Highway. Furthermore, if the above constraints were mitigated the consensus was that the Proposed Parwan Employment Precinct had potential to activate significant agribusiness development.

Existing occupiers within the Proposed Employment Precinct identified agribusiness sectors likely to activate development (subject to mitigating the above constraints), included meat processing/rendering, livestock sale yards, feedlot, poultry and mushroom production.

Poultry farming is well suited to the Proposed Parwan Employment Precinct given the presence of the established buffer area, (created by Bacchus Marsh Water Treatment Plant) which allows poultry to be established within the study area. However, poultry farming is not conducive to employment, as a typical chicken broiler farm only requires 2-3 full time equivalent labour units.

9. QUANTITATIVE MATRIX

S2

Quantitative analysis has been conducted via the construction of a matrix which ranks potential industries for their physical, dynamic, linkage and legal attributes along with production/processing risk. These 5 characteristics have been scored for their impact on each potential use based on CBRE analysis (0 being poor and 3 being excellent).

The 6 characteristics are defined below:

Attribute	Definition
Linkages	Location, amenities and road access.
Physical	Topography, climate, soil type and services.
Legal	Planning provisions and planning applications.
Dynamic	Emotional, environmental and political aspects.
Employment	Employment potential.
Processing Production Risk	Degree of volatility of input costs and throughput.

The matrix has been completed on 2 bases: Firstly (basis 1) assuming existing site attributes and secondly (basis 2), assuming gas connection and improved road access.

Basis 1 indicates the top 5 most probable agribusiness uses as mushrooms, bulk distribution, Hydroponic glasshouses, poultry and abattoirs.

Basis 2 predicted the top 4 most probable agribusiness uses as Hydroponic glasshouses, mushrooms, bulk distribution and abattoirs.

9. QUANTITATIVE MATRIX cont.

S2

BASIS 1 Matrix is summarised below:

SITE USE MATRIX								
Attribute/Use	Hydroponics	Abattoirs	Poultry	Piggery	Bulk Distribution	Alternative Energy	Feedlot/Sale Yards	Mushroom
Linkages	2	2	2	2	1	2	1	2
Physical	1	1	3	2	3	3	2	2
Legal	3	2	2	2	3	2	2	3
Dynamic	3	2	2	2	3	3	2	2
Employment	3	3	1	1	0	0	2	3
Processing/Production Risk	0	2	2	2	3	1	2	2
Total Weighted	66.67%	66.67%	66.67%	61.11%	72.22%	61.11%	61.11%	77.78%

Use	Rank
Mushroom	1
Bulk Distribution	2
Hydroponics	3
Poultry	3
Abattoirs	3
Alternative Energy	6
Piggery	6
Feedlot / Sale Yards	6

9. QUANTITATIVE MATRIX cont.

S2

BASIS 2 Matrix is summarised below:

SITE USE MATRIX								
Attribute/Use	Hydroponics	Abattoirs	Poultry	Piggery	Bulk Distribution	Alternative Energy	Feedlot/Sale Yards	Mushroom
Linkages	3	3	3	3	3	3	3	3
Physical	3	3	3	3	3	3	3	3
Legal	3	2	2	2	3	2	2	3
Dynamic	3	2	2	2	3	3	2	2
Employment	3	3	1	1	0	0	2	3
Processing/Production Risk	3	2	3	2	3	3	2	3
Total Weighted	100.00%	83.33%	77.78%	72.22%	83.33%	77.78%	77.78%	94.44%

Use	Rank
Hydroponics	1
Mushroom	2
Bulk Distribution	3
Abattoirs	3
Alternative Energy	5
Feedlot / Sale Yards	5
Poultry	5
Piggery	8

10. ADDITIONAL REPORTING

S2

10.1 EMPLOYMENT POTENTIAL

In accordance with the scope of this strategy paper we tabulate the employment potential (full time equivalents (FTE)) of the Proposed Parwan Employment Precinct as follows:

Industry	Development Potential	Employment Potential (FTE)
Hydroponics	Growing area of 50 hectares of glass house.	600
Mushroom (Composting)	Double growing area of existing development area as well as construction composting facility.	135
Bulk Distribution	Construction of commodity intermodal distribution.	10
Abattoirs (meat processing)	Construction of Westside Meat rendering plant and eventual relocation of Westside Meats Abattoir.	400
Feedlot / Sale Yards	Speculative development of sale yard/ feedlots.	15
Poultry	Further poultry development.	6
Alternative Energy	Construction of various renewable alternate energy sources associated with above uses.	15
Other	Including transport and other co-located industries.	15
Total		1,196

The construction of Westside Meats' rendering plant, in the Proposed Parwan Employment Precinct is expected to support approximately 210 Full Time Equivalent Labour Units.

Assuming the recommendations of this report are adopted CBRE envisages the scope for forward employment for each sector to be significantly greater than today's levels. Our employment forecasts are detailed below on an industry basis, noting the increased levels of employment are affiliated with industries selected within our quantitative analysis.

10. ADDITIONAL REPORTING cont.

S2

10.2 INDUSTRY WATER USE BASED ON DEVELOPMENT POTENTIAL

Industry	Development Potential	Total Water Usage Class A	Total Water Usage Class C
Hydroponics	50 hectares of glass house.	1,000 – 1,250 Megalitres	
Mushroom (Composting)	Double growing area of existing development area as well as construction composting facility.	100 megalitres	
Bulk Distribution	Construction of commodity intermodal distribution.		1 megalitre
Abattoirs (meat processing)	Construction of Westside Meat rendering plant and eventual relocation of Westside Meats Abattoir.		50 megalitres
Feedlot / Sale Yards	Speculative development of sale yards feedlots.		10 megalitres
Poultry	Further poultry development (800,000 Birds).	160- 260 megalitres	
Alternative Energy	Construction of various renewable alternate energy sources associated with above uses.		
Other	Including transport and other co-located industries.		5 megalitres
Total		**1,260 -1,610 megalitres**	**66 megalitres**

11. COMPETITOR ANALYSIS

S2

VICTORIAN AGRIBUSINESS PRECINCT COMPETITOR ANALYSIS

Ararat Agribusiness Precinct					
Uses	Competitive Advantages	Limitations	Markets	Funding	Employment Projection (Current)
• Intensive Food Production • Hydroponics/Glasshouse (proposed) • Micro-processing: • Poultry, wine, honey, bread, pastry, goat, meat (proposed) • Meat Processing (Meat slaughtered $111m) • Agri-Tourism/Events	• Opportunity for carbon offsets & renewable energy. • Opportunity for micro-processing. • Niche food – olives, wine, fruit, vegetables, honey, rabbit, and goat. • Availability of skilled agricultural workers.	• Distance from major urban centres, freight terminals, and port and air freight.	• Export via sea and air freight.	• Unknown	• 721 (current) people employed through both intensive and broad hectare agriculture.
Comment	• The centre is located approximately 185 radial kilometres west of the Melbourne CDB and is therefore the furthest agribusiness development from key markets, transport infrastructure and intermodal freight centres. • Forecast employment projections are not available.				

Source: Ararat Rural City Council

11. COMPETITOR ANALYSIS cont.

S2

East Werribee Agribusiness Precinct					
Uses	Competitive Advantages	Limitations	Markets	Funding	Employment Projection (Current)
• Production – processing – marketing produce • Werribee Irrigation District (3,000 hectares) • Technology: Food, food packaging and biotechnology • Research Institutes FUTURE USES • Fresh veg exports (Asia) • Hydroponics • Cryovac packaging • Aquaculture	• Designated National Employment Cluster. • Strong industry including: industrial, retail, commercial, intensive vegetable growing, dry land grazing. • Infrastructure. • Market Gardens. • Tourism Icons (Werribee Park). • Transport/Logistics. • Recycling.	• Urban Expansion. • Climate change. • Irrigation. • Small lot sizes (32% less than 0.4 hectares). • Consolidation. • Buffer Issues. • Water. • Discouraging Intensive Animal Farming (no Broiler Farms).	• Close proximity to markets: Melbourne/ Export. • Asia (emerging).	• 1,500 ha zoned industrial land. • Potential for 850 hectares additional.	• Proposed to be 60,000 FTE.
Comment	• Close proximity to the Melbourne CBD offering key logistical advantages with what appears a succinct development pathway.				

Source: Wyndham City Council

11. COMPETITOR ANALYSIS cont.

S2

Golden Plains Food Production Precinct					
Uses	Competitive Advantages	Limitations	Markets	Funding	Employment Projection (Current)
• Food Production Precinct (Proposed feedlots, piggeries, abattoir) • Tourism (Festivals / Events)	• Large area (4,000 hectares). • The region currently produces 11% of the states poultry, 21% of the state's eggs and 5% of the state's pigs. • Processing (i.e., Holy Goat cheese). • Aerodrome (SUZ). • Supply Chain agribusinesses: grain, waste, vet services, hatchery. • Barwon Water connection.	• Road upgrades • Wastewater / sewage. • Natural gas.	• Geelong, Melbourne Ballarat. • Domestic / Export.	• $12m water pipeline. • State/Fed Gov't. • Golden Plains Shire. • Barwon Water. • Projected to attract $160m in investment.	• 770 (projected).
Comment	• The food production precinct has funding, planning approval and Barwon Water Connection. In terms of location the precinct is further from key markets and does not enjoy the freight advantages of the East Werribee Agribusiness Precinct.				

Source: Golden Plains Food Production Precinct Conception Plan

11. COMPETITOR ANALYSIS cont.

S2

Sustainable Farms Agribusiness Project- Lara					
Uses	Competitive Advantages	Limitations	Markets	Funding	Employment Projection (Current)
• Food Production Precinct (Proposed Feedlots, piggeries, abattoir) • Tourism (Festivals/Events)	• Ridley Agriproducts to build a new industrial feed mill worth more than $20 million in Lara, just outside of Geelong. The mill will deliver up to 20 new ongoing on-site jobs by June 2017, as well as up to 250 trade and building jobs during construction. • Hydroponics.	• Road upgrades. • Wastewater / sewage. • Natural gas.	• Geelong, Melbourne • Domestic / Export.	• Mercer and Stokes, HRL Developments and Fresh Select. Geelong Region Innovation Investment Fund – $800,000.	• 20 ongoing. • (projections). • 25 downstream.
Comment	• Competitive advantages include a key anchor tenant and planned development through Ridley Agriproducts, an ASX listed company. • The project incorporates the $320 million sustainable farming precinct near Avalon which includes the construction of 60 hectares of hydroponic glasshouse. 120 Megawatt hours of electricity is anticipated to be generated on site. Overall the development is expected to create 1,000 jobs (Weekly Times 31 July 2014).				

Source: Regional Economic News Summary

- We also understand there is Central Highlands Regional Growth Plan but have been unable to determine any detail.

12. PARWAN'S COMPETITIVE ADVANTAGE

S2

12.1 IDEAL SITUATION AND DESIRE FOR DEVELOPMENT

The availability of irrigation water supply and the willingness for existing occupiers to expend private capital (to improve services) is a significant statement in itself, which demonstrates the substantial competitive advantage of the site.

THE SITUATION

The Proposed Parwan Employment Precinct is situated in a highly desirable area, conducive to agribusiness development. The site's location is positioned in close proximity to sea, rail, air freight and markets relative to other agribusiness precincts, which is key to successful vertically integrated agribusiness supply chain developments.

Parwan's accessibility to the Avalon and Melbourne Airports allows efficient global movement of fresh produce, livestock and heavy equipment, whilst sea freight is effectively facilitated via the sea ports of Geelong and Melbourne.

The Geelong Port provides a specialised base for handling bulk goods including, petroleum, chemicals and crude oil as well as grains, fertilizers, woodchips and timber and a range of other bulk and break-bulk goods. The Proposed Parwan Employment Precinct also offers significant logistical freight advantages to Australia's most productive dryland and irrigated agricultural regions, including Western Victoria, Central Victoria, and South, East and West Gippsland as well as the Riverina region of New South Wales.

DESIRE FOR DEVELOPMENT

Parwan Valley Mushrooms and Westside Meats' are both businesses with high employment potential. The businesses have indicated their willingness to assist Council with the funding of a Natural Gas Node. The private funding is considered to be highly desirable to the Moorabool Shire Council and proves that development demand is resilient despite poor Freeway connection and access to three phase power.

Perfection Fresh (an equity partner in Parwan Valley Mushrooms) is the largest hydroponic tomato producer's in the southern hemisphere. Their business cycle is currently in an expansion phase and CBRE understands that they are considering completing further hydroponic development in the short to medium term. Furthermore, CBRE understand that Perfection Fresh has indicated that the Proposed Parwan Employment Precinct could potentially be a preferred development site due to the co-location of Parwan Valley Mushrooms, allowing a locational advantage by centralising operations.

13. RECOMMENDATIONS

S2

13.1 INDUSTRY RECOMMENDATIONS

Key recommendations from CBRE analysis reveal the following agribusiness sectors which are likely to accord with the purpose of the Proposed Parwan Employment Precinct:

- Hydroponics
- Mushroom Production
- Bulk Distribution
- Red Meat Processing

These industries are conducive to a large degree of employment potential and are currently experiencing high returns on investment which warrant the capital investment.

Both the Hydroponic glasshouse and meat processing industries have a favourable business profiles and industry outlook. Both industries hold a large amount of development potential within the Proposed Employment Precinct and have a higher probability of increasing investment opportunity to that of other industries. Noting this, we are aware of the profitable operating environment of the Mushroom Industry which is correlated with a high level of employment potential. We suggest these industries, inclusive of Bulk Distribution, are highly suited to the Parwan Employment Precinct.

13. RECOMMENDATIONS cont.

13.2 DIRECT SERVICES RECOMMENDATIONS

Key Recommendations from CBRE Analysis reveal the following initiatives Council should undertake to attract/capture agribusiness include:

- Provision of natural gas
- Improvement of road linkages, particularly accessibility to the Western Highway
- Appropriate town planning provisions.
- Municipal rate subsidies in order to attract an anchor occupier.

NATURAL GAS

- It is evident through discussions with existing occupiers that the predominant restriction to agribusiness development is the provision of natural gas supply. We are aware there is an high pressure gas transmission line (owned by APA GasNet Australia (operations) Pty Ltd) traversing the centre of the Proposed Parwan Employment Precinct. Various stakeholders have expressed their support of partially funding a gas regulator/interface, however, each potential stakeholder is concerned their investment will be accessed (without reimbursement) by future occupiers of the Parwan Employment Precinct.
- The existing occupiers within the Proposed Parwan Employment Precinct offer significant expansion opportunity subject to the provision of natural gas, and are likely to attract anchor occupiers, particularly for industries which do not exist in the precinct, such as hydroponics.

IMPROVEMENT OF ROAD LINKAGES

- Improved road linkages to the subject site will complement future agribusiness and industrial development. A detailed transport study would need to be commenced to garner a greater understanding of potential options. We are not aware of and have not been provided with information concerning further transport plans affecting the Precinct.

APPROPRIATE TOWN PLANNING PROVISIONS

- Appropriate town planning is required to encourage agribusiness and industrial development. Site attributes are conducive to both types of development and appropriate zoning would further compliment the Precinct. A certain and well defined mix of Industrial Zone and Farming Zone would be applicable, noting that Farming Zone minimum subdivision areas would need to be reduced to increase development density. A conflicting land use buffer would ideally be created with the aim to restrict neighbouring residential, rural lifestyle and equine development. A Special Use Zone (or similar) may be appropriate in supporting the co-location of agribusiness. Furthermore consideration must be given to the use of a rural activity zone. Its purpose to include:
  - To provide for the use of land for agriculture.
  - To provide for other uses and development, in appropriate locations, which are compatible with agriculture and the environmental and landscape characteristics of the area.
  - To provide for the use and development of land for the specific purposes identified in a schedule to this zone.

13.2 DIRECT SERVICES RECOMMENDATIONS cont.

MUNICIPAL RATE SUBSIDIES

- To gain the highest employment and economic return in funding reduced rates, it would be advantageous to attract large scaled vertically integrated hydroponic producers, mushroom producers, bulk distribution and red meat processors.
- Defining the appropriate rate is difficult given agribusiness and industrial municipal rating statistics are limited. However, assuming natural gas access, we anticipate an initial five year rate free period would entice likely anchor occupiers.

13.3 TIMELINE AND RESPONSIBILITY

We acknowledge our aforementioned key findings and have articulated further viewpoints with regard to the timing and methodology behind the application of notional results. We have outlined required processes which need to be developed, understood and clarified to allow for timely establishment of each recommendation, whilst indicating the responsibilities for varying studies and investigations to further develop the Proposed Parwan Employment Precinct.

TIMELINE AND RESPONSIBILITY (GAS)

- Our analysis and interviews with various stakeholders has indicated that the most logical way to attract investment and employment growth is to assist with the implementation of a Gas Node. The implementation is likely to see immediate gains as various stakeholders have indicated their interest in investing and growing their business within the subject area. CBRE recommends Council to initiate a Gas Node services plan with costings be developed in order to ascertain exact cost of a Gas Node. Once completed, a Gas Node Funding Investigation will need to be undertaken, with the aim to determine the proportion of funding each stakeholder (including Council, State or Federal bodies) would need to be contributed.
- In line with indications from Westside Meats Australia Pty Ltd and Parwan Valley Mushrooms (assuming construction costs of $3 million), we suggest that head works costs could be split three ways (thirds) with Council taking up the final third. Future users would be required to pay a determined access fee using a contributory model to initial investors, thus making the initial capital outlay somewhat attractive on a return on investment basis. This type of model is known as a contributory model.

Timing and recommendations are outlined below:

Action Based Recommendation	Implementation Timeline	Responsibility
Commission a Gas Node Services Plan with Costings	October 2015	Moorabool Shire Council
Commission a Gas Node Funding Investigation	November 2015	Moorabool Shire Council

13. RECOMMENDATIONS cont.

S2

TIMELINE AND RESPONSIBILITY (TOWN PLANNING)

- Appropriate Town Planning amendments are required to activate development within the Precinct. Investors are less likely to deploy expansion funds in a locality where future land uses are not clearly articulated and classified via planning schemes. A clearly articulated town planning scheme which protects industry, intensive agriculture, agri processing and other industrial uses will have a positive effect in attracting investment.
- Commissioning of a zoning investigation which would be most likely completed by the Moorabool Shire Council, is likely to define strategic land constraints which are likely to impede future agribusiness and industrial development.

Strategy Based Action	Implementation Timeline	Responsibility
Commission a zoning investigation	October 2015	Moorabool Shire Council

TIMELINE AND RESPONSIBILITY (MUNICIPAL RATE SUBSIDIES)

- To receive the highest return on investment through the utilisation of Council rate subsidies highly profitable vertically integrated agribusinesses. CBRE believes the site attributes have significant potential to attract non-existing agribusiness anchor tenants.
- To implement Municipal Rate Subsidies, major industry player's expansion and relocation plans need to be identified. Companies that fit the specified requirements and are within the recommended industry categories would need to be included into this analysis. Methodology indicating businesses which may be more likely to relocate is mentioned earlier in this report under Site in Search of a Use (issues surrounding relocation).

Advocacy Based Action	Implementation Timeline	Responsibility
Industry Expansion and Relocation Analysis	March 2016	Moorabool Shire Council / Agribusiness Advisory Company.

TIMELINE AND RESPONSIBILITY (IMPROVEMENT OF ROAD LINKAGES)

- To comment on potential linkages is outside our professional scope. However, to further amplify the current desirable attributes the integration of the Proposed Parwan Employment Precinct into future road alterations is highly recommended.
- To understand the most economical way to improve road linkages of the subject site a transport study should be undertaken.

Strategy Based Action	Implementation Timeline	Responsibility
Transport Study	Not Assessed	Moorabool Shire Council

13. RECOMMENDATIONS cont.

S2

13.4 SERVICE RECOMMENDATION SUMMARY

- The Proposed Parwan Employment Precinct has significant potential to capitalise on desirable site attributes with almost immediate development likely to occur once gas connection and “appropriate zoning” is clarified and approved.
- Longer term agribusiness and industrial development will be driven by improved road linkages and the attraction of anchor tenants. Anchor tenant attraction could be encouraged by municipal rate subsidies.
- Future road alterations, bypass construction or specialised access routes should be integrated with the Proposed Parwan Employment Precinct to further drive economic growth within the region and encourage long term agribusiness development, further capitalising on conducive site attributes.

13.5 INDIRECT RECOMMENDATIONS

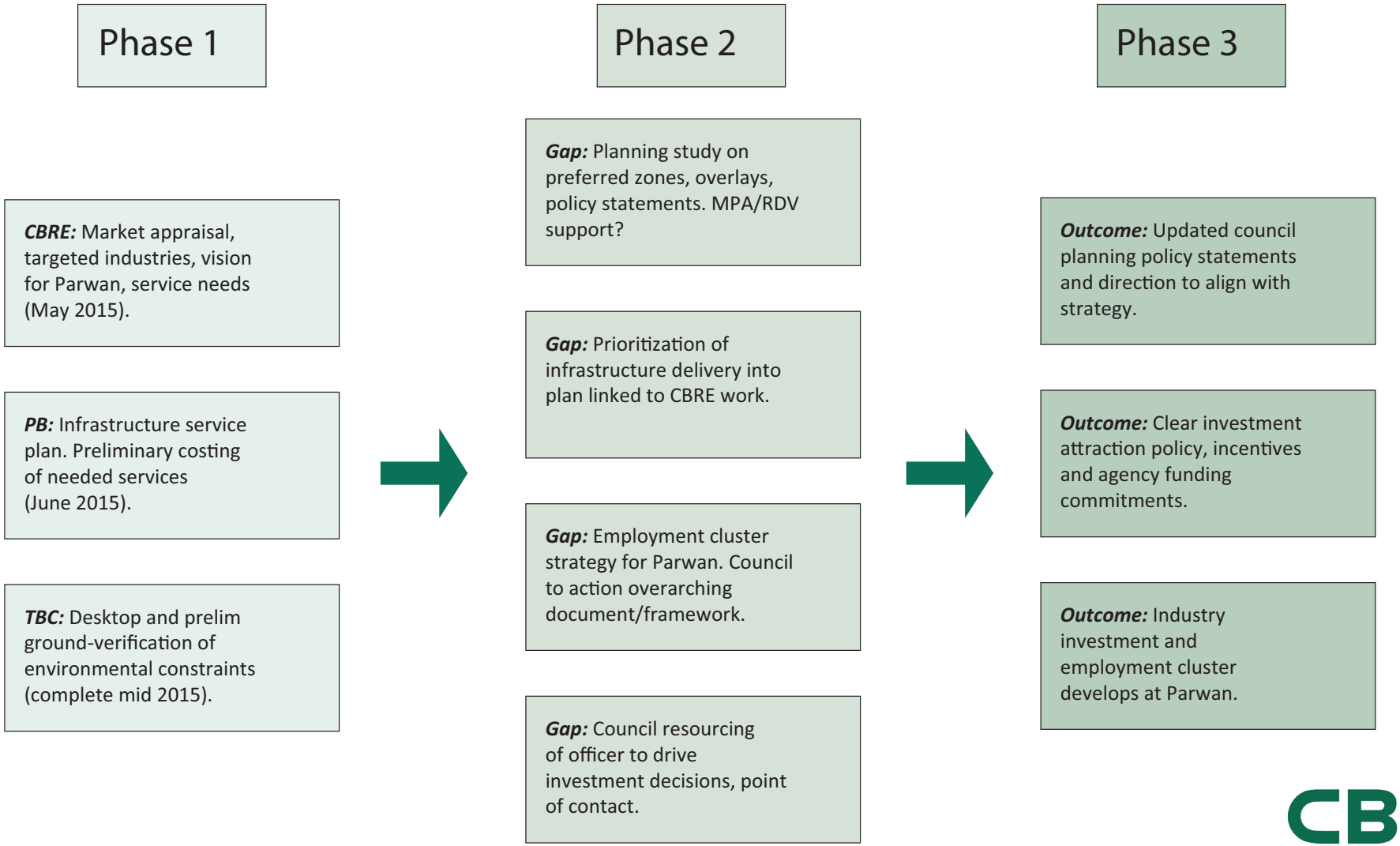
- To further add to direct aforementioned recommendations, we note the study of potential employment capacity and a study of opposing agribusiness precincts will allow Council to make strategically informed decisions with regard to the future of the Proposed Parwan Employment Precinct.
- A two stage economic model could be created, measuring forecast employment potential, whilst analysing the Proposed Employment Precinct’s anticipated Gross Domestic Product. The first stage would be completed assuming natural gas connection and “appropriate” approved town planning. The second stage could be modelled assuming improved road linkages. The study could allow for cost benefit analyses on future capital outlays to allow financial examination of future capital outlays.
- A single stage analysis could be completed on each proposed and approved agribusiness employment precinct within Victoria. The study would encompass and compare the comparability of legal, dynamic, physical, employment and production risk attributes.

Strategy Based Action	Implementation Timeline	Responsibility
Economic Benefit Study	October 2015	Moorabool Shire Council / Agribusiness Advisory Company.
Agribusiness Precinct Comparability Study	October 2015	Moorabool Shire Council / Agribusiness Advisory Company.

13. RECOMMENDATIONS cont.

S2

CONCEPTUAL FRAMEWORK - PARWAN



CBRE

Moorabool Shire Council

Parwan Servicing Plan

15 June 2015

PARSONS BRINCKERHOFF

Client: Moorabool Shire Council
Title: Parwan Servicing Plan
Document No: 2259507A-REP-1 Rev1
Date: 15 June 2015

Rev	Date	Details
1	15/06/2015	Servicing Report
2	07/07/2015	Address Moorabool Shire Council feedback

Author, Reviewer and Approver details			
Prepared by:	Sri Lais	Date: 15/06/2015	Signature: 
Reviewed by:	David Rotton	Date: 15/06/2015	Signature: 
Approved by:	David Rotton	Date: 15/06/2015	Signature: 

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Contents

1. Background

Parsons Brinckerhoff was engaged by Moorabool Shire Council to develop a servicing report to address the current infrastructure available in Parwan, and to provide advice on potential upgrades and extensions required to meet future demand.

Parwan is located 45km west of Melbourne and the nearest town is Bacchus Marsh. The site is well placed in terms of proximity to existing service infrastructure. Existing services requests and consultation with the major utility providers in the area has revealed that sewer, water, electricity and Telstra services are all available in the study area. This report does not include road and drainage infrastructure, Furthermore it should be noted that there is no underground drainage infrastructure within the study area, thus overland flows from rainfall events are stored in natural on-site depressions.

This report provides an assessment of the utilities present in the area, identifies service gaps and a potential servicing strategy including logical staging of services into the area. This report will be used by Council to determine which existing utilities need to be prioritised in order to support local employment and attract business investment in the area.

2. Existing Infrastructure

2.1 Potable Water, Recycled Water and Reticulated Sewerage

2.1.1 Potable Water

Western Water is the responsible authority for the provision of water supply to the region. Figure A.1 in Appendix A shows the existing layout of potable water services in the study area.

The major potable water supply network in the Parwan area originates from the Maddingley Tank. The Maddingley Tank sits at an elevation of 220m AHD, thus this tank can feed properties that sit below the 180m contour. However, according to Western Water there are currently some supply issues within the existing area, particularly during the daytime peak.

There are existing watermains in the study area including 100mm diameter PVC mains running along Geelong-Bacchus Marsh Road and 150mm diameter PVC mains running along Parwan South Road. According to Western Water, these existing watermains will not have the capacity to service potential future developments that have been identified.

2.1.2 Recycled Water

An existing 300mm diameter PVC recycled water Class C main comes from the existing sewerage treatment plant and runs along Parwan South Road. Class C recycled water may be used for cooked or processed human food crops including wine grapes and olives, for livestock grazing or fodder, municipal water use and human food crops grown over a metre above the ground and eaten raw such

as apples, pears, table grapes and cherries. Figure A.1 in Appendix A shows the existing layout of recycled watermains in the study area.

The existing recycled water plant is positioned at an elevation of approximately 140m. Most of the recycled water produced from the Bacchus Marsh treatment plant is used on farm leases. A $4.7 million upgrade is proposed for the Bacchus Marsh treatment plant to provide extra storage capacity to keep up with the population's growth.

According to Western Water's website, a long term agreement has been undertaken with the development adjacent to the treatment plant to upgrade temporary connection to permanent supply. Based on information provided on Western Water's website, currently there are two properties in the study area that take advantage of recycled water, mainly for stock grazing. The total area irrigated by the system is around 172 ha. Different irrigation methods are being used to irrigate the farm including centre pivot, travelling irrigators and also monsoon irrigators.

2.1.3 Reticulated sewerage

Western Water is the responsible authority for the provision of sewer reticulation to the region. Figure A.2 in Appendix A shows the existing layout of reticulated sewer in the study area.

There is an existing sewer treatment plant in the study area located between Mills Road and Aerodrome Road. There is also an existing 450mm DICL sewer rising main running along Parwan South Road transferring sewer from the Bacchus Marsh sewerage catchment to the treatment plant.

It was found that there is no reticulation sewer present in the study area, thus new sewer infrastructure will be required to service any new areas of proposed development. Due to the flat nature of the site, the majority of any proposed development will likely not be able to be serviced by a gravity sewer. Therefore, pump stations and rising main sewers will most likely be required to service a significant proportion of proposed development.

According to Western Water, the proposed development catchment will be discharged into the Bacchus Marsh treatment plant. However, this will need to be confirmed during Western Water's master planning process.

2.2 Electricity

Citipower/Powercor is the main provider responsible for electricity in the Parwan study area. Figure A.3 in Appendix A shows the existing layout of electricity in the study area.

Plans received from Powercor indicate that Powercor has extensive electricity networks in the area. On this basis all new industrial precincts are well positioned to make connection to an electricity source. Within the study area, there are a combination of 22kV lines (three and single phase) and Single-Wire Earth Return (SWER) power line. Furthermore there is also 66kV (three phase) line running east-west at the southern end of the study area as shown in Figure 1 below.

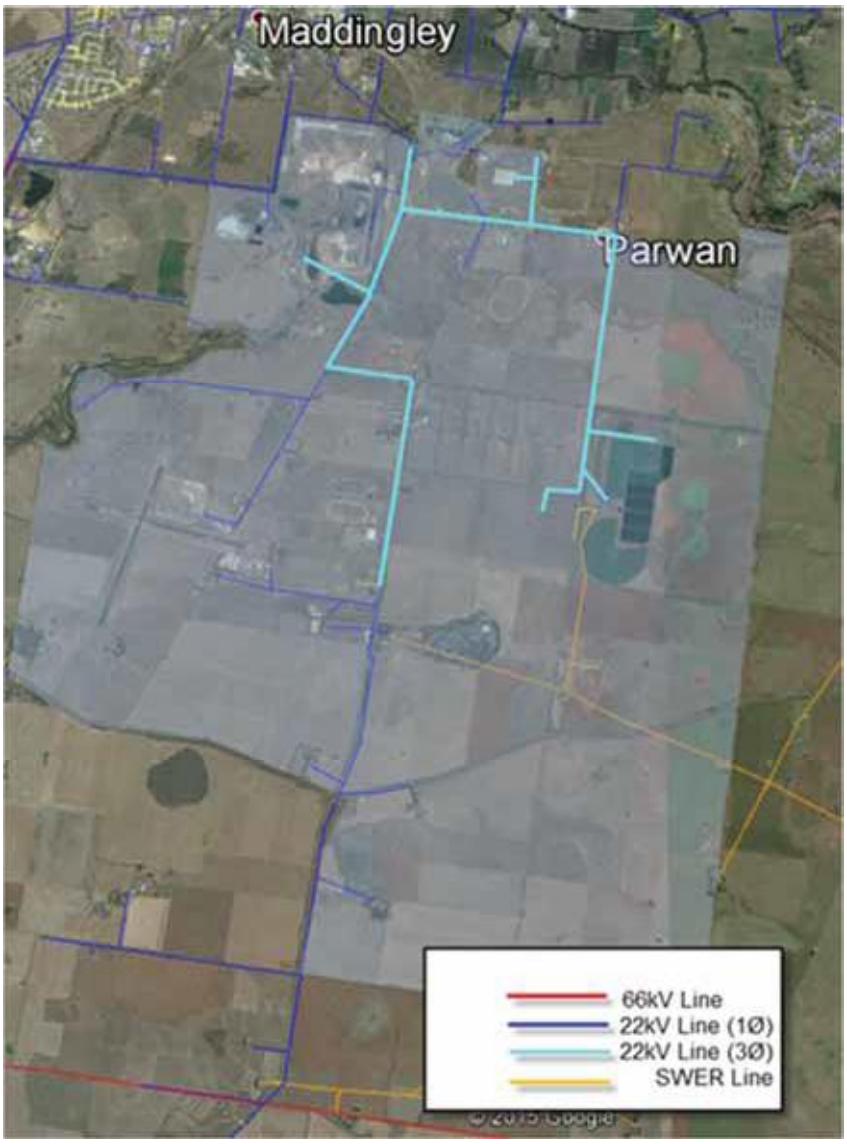


Figure 1: Existing electricity supply in study area

2.3 Telecommunications

From Dial Before You Dig information, it was found that Telstra is the main telecommunications provider in the Parwan area. The study area has relatively good access to telecommunications connections.

Legislation requires Telstra to provide a basic communication service to all new developments. As a result Telstra services currently extend to all residential and industrial buildings in the study area. On this basis it can be concluded that the current telecommunications assets around Parwan will be sufficient to support future development.

2.3.1 Optic Fibre

NBN is responsible for providing fast, reliable and affordable telephone and internet services around Australia. From Dial Before You Dig information, it was found there are no optic fibre cables within the study area. According to NBN, the study area is not listed in their 2016 construction plan. However, they have advised that optic fibre will be provided throughout Australia by 2023. There is no

procedure whereby Moorabool Shire Council can speed up the fibre optic roll out process in the study area. It was also advised by NBN that a standard installation to a property is currently free of charge.

2.4 Gas

APA Group owns an underground gas transmission pipeline in the study area, with an existing 150,000 kPa underground high pressure pipe in the vicinity of the site. Figure A.4 in Appendix A shows the existing layout of gas transmission pipe in the study area.

The APA Group high pressure pipeline passes through the middle of the study area in an east-west direction crossing both Geelong-Bacchus Marsh Road and Parwan South Road.

3. Potential Servicing Strategy

3.1 Reticulated Water and Sewer

Sewer and water are essentially the most important basic services to be provided in order to attract investors to the study area. The services will need to have capacities that are able to keep up with proposed growth. Based on outcomes of this investigation, the current sewer and water will be the first services that need to be augmented, as the nature of the business that are proposed to be developed in the area will require a reliable water supply connection to feed the grazing stock; similarly sewer upgrade will also be required for disposal of the waste water produced from the abattoir.

A comprehensive sewer and water servicing strategy for a site previously proposed for the abattoir has been developed by MWH for Western Water in a report titled “Parwan South Industrial Estate Feasibility Study, Bacchus Marsh, April 2012”[2]. The report suggested extensive upgrade works would be required to the existing watermains in the Parwan area to service the proposed westside abattoir/rendering plant. The area of the proposed development has now increased significantly since the report was prepared thus some of the suggestions mentioned in the report may need to be reviewed.

3.1.1 Water

Below is a summary of the ultimate extent of watermain works recommended to be undertaken in the area according to the report, including:

- Revising the proposed 225mm diameter connecting main proposed to be completed in 2019 along Griffith Street/ Parwan Road, to 375mm diameter.
- Additional 300mm diameter watermain following the existing 150mm diameter watermain along Geelong-Bacchus Marsh Road between Parwan-Exford Road and East Maddingley Road.
- Additional 300mm diameter watermain along Geelong-Bacchus Marsh Road from East Maddingley Road to Land Parcel PC 362391.

- Construction of a new 300mm diameter watermain along the north side Land Parcel PC 362391 connecting the additional 300mm main along Geelong-Bacchus Marsh Road and existing 150mm diameter water main along Parwan South Road.
- It also suggested that a booster pump should be considered to service the property during a peak period if the pressure is deemed unacceptable.

Without doing any detailed modelling for the area and not knowing details of the future orientation of the site, below is a list of minimum possible additional recommendations that can be considered by Moorabool Shire Council to service the study area in the future:

- Formally advise Western Water of the proposed additional developments in the study area so that they can bring the upstream watermain augmentation programs forward to support the area. This would include upgrading the connecting main along Griffith Street/Parwan to 375mm diameter instead of 225mm diameter.
- Extend the proposed 300mm diameter duplications along Geelong-Bacchus Marsh Road up to the southern end of the study area.
- Extend the 150mm diameter watermain on Parwan South Road to the southern end of the study area.
- Construct 300mm diameter watermain along the eastern part of Nerowie Road to provide a complete loop connection.

Figure B.1 in Appendix B illustrates the proposed watermain for future development.

3.1.2 Recycled Water

Based on a draft report that was prepared by CBRE for Moorabool Shire Council titled “Agribusiness Analysis – Proposed Parwan Employment Precinct“[4], provision of Class A recycled water for business operators in the study area is deemed important. From discussions with Western Water, they clearly advised that there are no plans and they have not set aside any budget to upgrade the current Class C recycled water to Class A in the study area. With this in mind it is suggested that Council initiate the process of application for provision of Class A recycled water in the area through Western Water, so that it can be included in their greater plans.

3.1.3 Sewer

From the abovementioned CBRE report, proposed sewerage infrastructure augmentation in the study area can be summarised as below:

- Assume the treatment plant has sufficient capacity for additional flow. All future sewerage waste will be transferred to the treatment plant.
- Construct a new pump station in Parwan South Road, south of the treatment plant. According to “*Servicing Report, Faili-Parwan*”[5] prepared by Urban Design and Management on 31 October 2014, the construction of the pump station has since been commenced.
- Construct a new 300mm diameter rising main from the pump station to the inlet of treatment plant.

Without doing any detailed modelling for the area and not knowing details of the future orientation of the site, below is a list of minimum possible additional recommendations that can be considered by Moorabool Shire Council to future service the study area:

- Formally advise Western Water of the proposed additional developments in the study area so that they can include the proposed area into their master planning and confirm the available capacity of the existing treatment plant.
- Extend the proposed 300mm diameter rising main from the pump station to the southern end of the study boundary to pick up sewerage from the proposed development.
- Construct a 300mm diameter rising main at the northern boundary of Land Parcel PC 362391.

Figure B.1 in Appendix B illustrates the proposed sewer for future development.

3.2 Electricity

Electricity is another important utility service that will need to be augmented in the area in order to fully support the proposed developments. As the number of proposed developments grows, the demand for electricity supply will also increase and hence place additional load on the overall system.

According to Powercor, the study area is serviced by Powercor's Bacchus Marsh (BMH) BMH006 feeder. The general network's system capacity at BMH006 feeder is relatively highly loaded as shown in Table 1 below. Table 1 shows the anticipated increase in demand for power from 2015 to 2018. Electricity demand each year will vary widely depending upon prevailing weather conditions as well as the general randomness inherent in individual usage. This variability can be seen in the difference between the expected peak demand at the 1-in-10-year Probability of Exceedance (10% PoE) level and the peak demand level expected to be exceeded 5 in 10 years (or 50% PoE).

Information presented in Table 1 does not account for individual spur ratings, and in some areas the line loading may be considerably higher. In order to maintain security of supply for existing customers it is likely that further large scale connections will trigger additional upgrade works to the feeder.

BMH006	Line Rating	2015 Loading		2016 Loading		2017 Loading		2018 Loading	
	Amps	Amps	% Rating	Amps	% Rating	Amps	% Rating	Amps	% Rating
50%PoE	320	203	63	210	66	217	68	225	70
10%PoE		227	71	235	73	243	76	252	79

Table 1: BMH006 feeder system capacity

Extra capacity of approximately 5MVA (Mega Volt Ampere) may be released in the BMH006 feeder in the future if the Melton Zone Substation 3rd Transformer project were to go ahead. However, this project is currently the subject of a Regulatory Test and therefore capacity release is not certain at this stage as the full consultation on other options has not been completed.

Powercor has also advised that there is a long term plan in the study area to establish additional 22kV feeders from BMH zone substation along with additional capacity at the BMH zone substation. They anticipate that all the proposed new developments in the study area would bring forward the long term plan. At this stage it is not possible to estimate the costings on the upgrade of the power lines to service the area without knowing the specific additional usage load, as Powercor don't know what additional feeder capacity is to be designed for.

Powercor also explained that any request for connection to the distribution network can only be made after formal assessment by Powercor on the proposed load to be connected, and some costs may be applicable for these connections. Powercor offer a number of supply options, including full design and construction by Powercor, preparation of design only by Powercor (developer to construct), etc.

3.3 Optic Fibre

The provision of optic fibre in the area is not immediately critical, however it will ultimately enhance the overall attractiveness of the study area for business investment. Genetic Australia is an existing development that would benefit from optic fibre connection to assist in the improvement of productivity. To the rest of the proposed developments, optic fibre will be a valuable asset in the future to support their business.

3.4 Gas

The augmentation of gas distribution mains in the study area will be undertaken by AusNet Services. As the gas distributor in the study area, AusNet Services own city gates installed at South Maddingley Road, which tap off APA's transmission network. A city gate is a measuring station/point at which a distributing gas utility receives gas from a natural gas pipeline company or transmission system. The new gas main will start from South Maddingley Road then to Tilleys Road and run along Geelong-Bacchus Marsh Road.

According to AusNet Services, it is possible to construct another city gate closer to the study area though it will take extra time and cost. Considering the quantity of gas required for the proposed developments, it is likely to be more cost effective to connect to existing reticulation without the need for a new city gate. Figure 2 below shows the indicative location of a potential future gas main to service the area. As suggested by AusNet Services, a total of 8.4km of 180mm polyethylene pipe would be required to service the proposed developments.

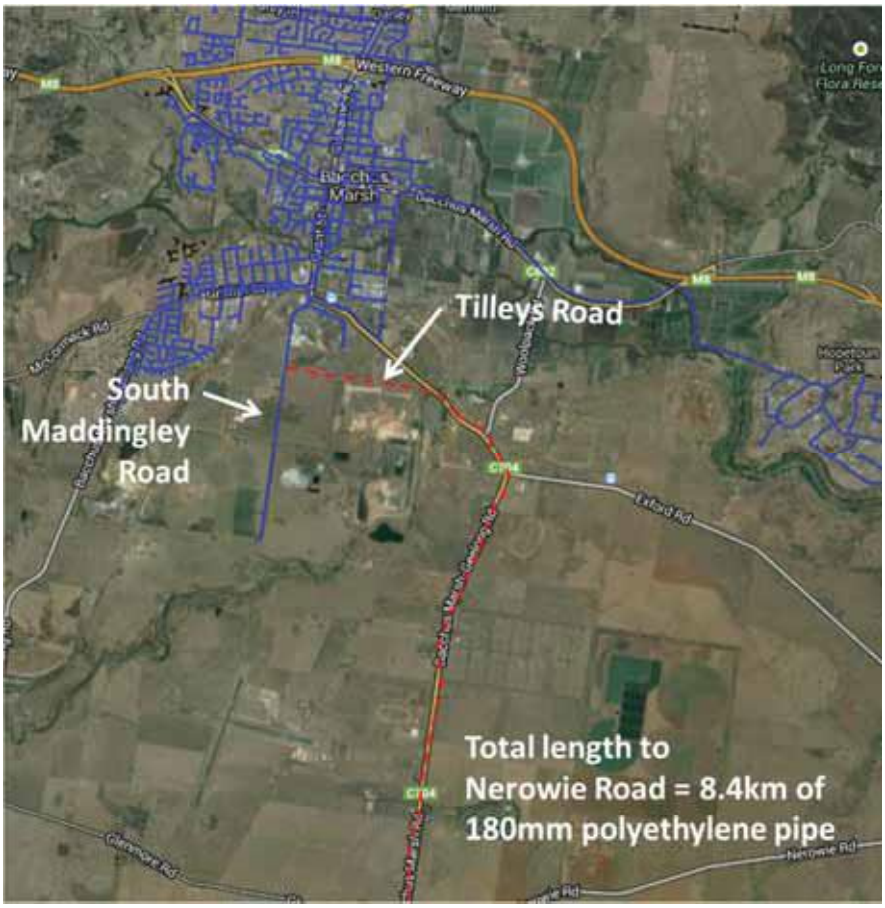


Figure 7: Proposed gas main in the study area

4. Costing

4.1 Water and Sewer

Estimated high level costs to extend trunk utilities per linear meter based on information from Rawlinsons Construction Handbook, 2015 Edition and rates from Western Water's report (with inflation factor to reflect the current cost), are shown below:

Road	Diameter (mm)	Length (km)	Rate ($/m)	Capital Cost ($)
Geelong-Bacchus Marsh Road	300	7.09	420	$2,977,800.00
Nerowie Road	300	3.70	420	$1,554,000.00
Aerodrome Road	300	1.60	420	$672,000.00
Parwan South Road	150	2.33	260	$605,800.00
Total				$5,809,600.00

Table 2: Watermain Cost Estimate

Road	Diameter (mm)	Length (km)	Rate ($/m)	Capital Cost ($)
Aerodome Road	300	1.6	420	$672,000.00
Parwan South Road	300	4.4	420	$1,848,000.00
Total				$2,520,000.00

Table 3: Sewer Cost Estimate

Costs referred to above have been derived using the following assumptions:

- The above costs are for trunk service infrastructure only. The construction of reticulation services internal to individual land holdings are typically funded by the developer, following confirmation of the layout of internal servicing requirements.
- Indicative rates only based on the expected ranges of pipe sizes that could be anticipated being required for proposed developments in the study area.
- No modelling has been undertaken while preparing the above cost.
- No allowance for rock excavation has been made.
- No allowance for flora and fauna studies or native vegetation issues has been made.
- Stakeholder consultation has been allowed for in the form of 5% of construction costs.
- Design and Authority administration has been allowed for in the form of 15% of construction costs.
- Contingency has been allowed for in the form of 35% of construction costs.

4.2 Gas

According to AusNet services, the indicative cost of gas main augmentation for the proposed developments is in the order of $4,000,000- $4,500,000 based on following assumptions:

- The total length of gas main to be augmented is approximately 9km.

- The augmentation is located in the main road to provide a trunk main to the area, and does not take into consideration individual connections.
- Assuming connections required do not produce a load of more than 100m^3/hr, a new city gate will not be required. Anything greater than this number will require a new city gate. The installation cost of a new city gate is around $1million.
- No modelling has been undertaken while preparing the above cost.
- No allowance for rock excavation has been made.
- No allowance for flora and fauna studies or native vegetation issues has been made.

4.3 Cost Sharing

Based on our understanding and experience, where new trunk infrastructure has potential to provide capacity for other developments there is often scope for the developer constructing the infrastructure to put forward a case to the relevant agency to seek a degree of funding or reimbursement for the service being constructed. Further assessment and discussion will be required as development plans for this precinct progress, in order to seek government agency support to foster consolidation of an employment cluster. However through our investigation and consultation with the authorities for this particular study area, the following general information gives some indication of the likely position of the authorities with regard to cost sharing:

- Sewer and water – With reference to MWH's report, "Parwan South Industrial Estate Feasibility Study, Bacchus Marsh, April 2012"[2], there is a suggestion based on a limited understanding of Essential Services Commission guidelines, that where there is more than one development that affects the need for new infrastructure, this would be Western Water funded. Further, our broader interpretation of this is that where infrastructure upgrades contribute to other areas beyond a proposed development this may be funded by Western Water, and conversely where proposed infrastructure is to serve one development only this would be funded by the developer. However, this understanding would be clarified by Western Water on formal application in line with their guidelines.
- Electricity - According to Powercor, the augmentation cost to supply additional load will need to be modelled to determine the contribution allocation between the initiator/s and Powercor. However the costs for connection to the distribution network can only be determined once formal assessment and design is completed. The suggested next step to determine the cost sharing arrangement for a development is to submit a formal application for supply to the power authority.
- Gas - According to AustNet Services, the cost of supply to the area is normally covered by the developer/company requesting the augmentation. However there has been one known case previously where a local council has taken on the role of developer, in order to progress the augmentation process into an area to enhance investor attraction to the area.

5. Staging of services

The infrastructure cost of augmenting the existing trunk utilities will be in the order of $12 million - $15 million, which is the indicative cost of provision of water, sewer and gas services. The cost of electrical and telecommunications infrastructure upgrade are not included in this figure due to reasons outlined in the report. Assessment of road networks and drainage infrastructure is not considered in this report and thus there are likely to be additional costs for the provision of and/or upgrading of this infrastructure.

It is understood that Land Parcel PC 362391 is to be backzoned from industrial to farming. With this in mind and based on the availability of the existing services in the study area, it would be most logical to develop the land parcel at 3922 Geelong-Bacchus Marsh Road as a priority. As potential abattoir land in this general area has been included in greater Western Water overall plans, a budget allowance has been previously considered by Western Water for upgrade works to service this area. The development of this portion of the abattoir site will likely trigger this augmentation process.

The extension of the mushroom farm should proceed prior to the remainder of the abattoir land parcels. Given the close proximity to the potential investment in infrastructure, this site and the existing chicken broiler farm are positioned in strategic locations to enable them to tap into the augmented services.

Further extension of infrastructure will be required to service the remainder of the abattoir land parcels, which makes these parcels the next logical stage of development.

In summary and from an overall perspective, the eastern side of the study area is where the augmentation process should focus on, as the majority of the proposed development is located in this area.

6. Conclusion

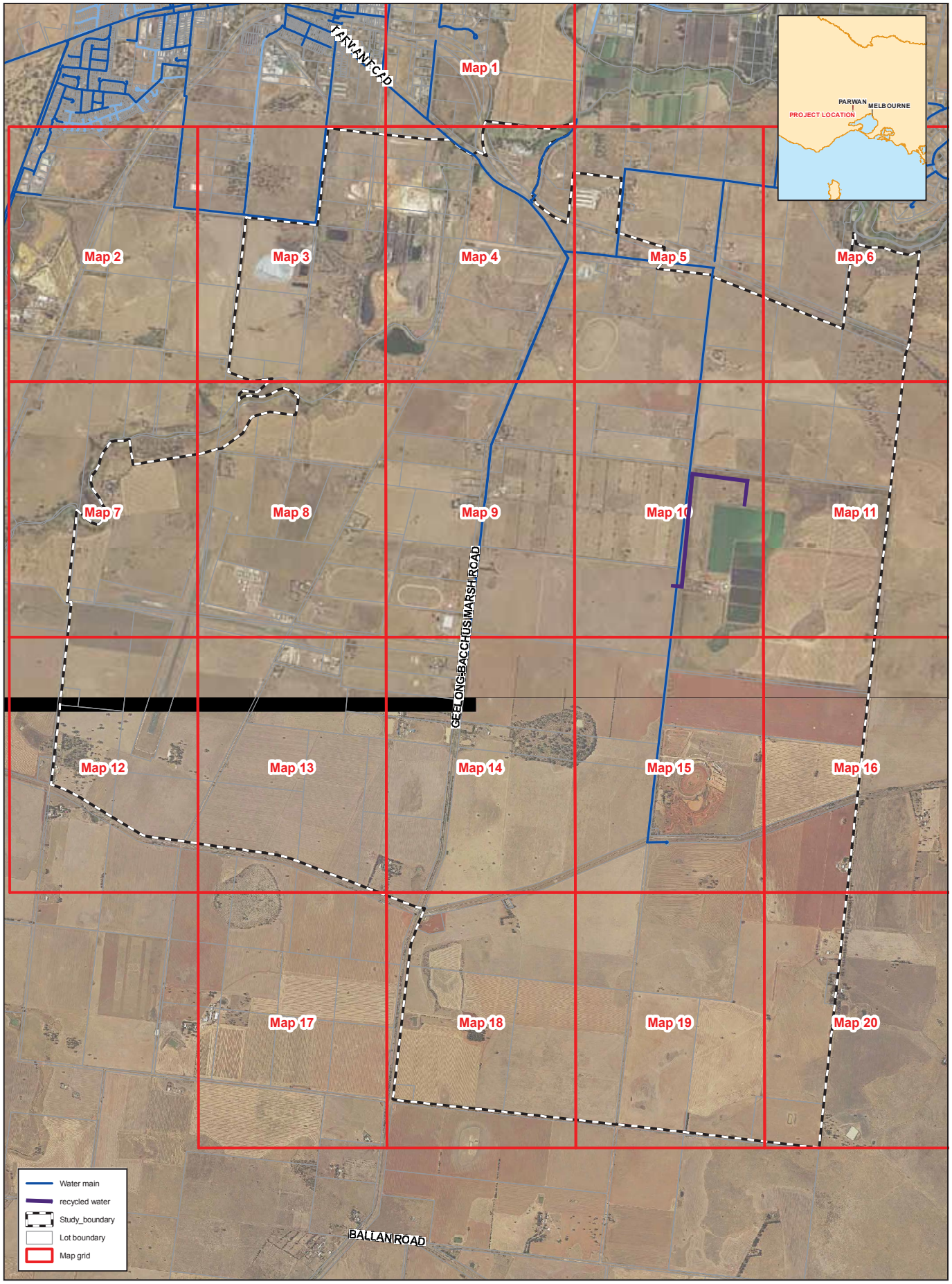
This report provides a general assessment of the existing utility services located in the study area and servicing strategies that can be adopted while developing the area. To obtain detailed advice in relation to servicing for specific developments, the developer will be required to submit a formal application to the relevant authority.

7. References

1. Western Water, *Optimising Local Resources Recycled Water Report 2012/13,* Western Water. http://www.westernwater.com.au/SiteCollectionDocuments/Reports/Recycled%20Water%20Reports/RW%20Report%202013.pdf (Accessed 28/05/2015)
2. MWH 2012, *Parwan South Industrial Estate Feasibility Study, Bacchus Marsh,* Western Water, Melbourne, April 2012.
3. Reserve Bank http://www.rba.gov.au/calculator/annualDecimal.html (Accessed 29/05/2015)
4. CBRE, *"Agribusiness Analysis – Proposed Parwan Employment Precinct* (Draft), Moorabool Shire Council, Melbourne.
5. Urban Design and Management, *Servicing Report, Faili-Parwan*, Melbourne, 31 October 2014.

Appendix A

Existing Utilities



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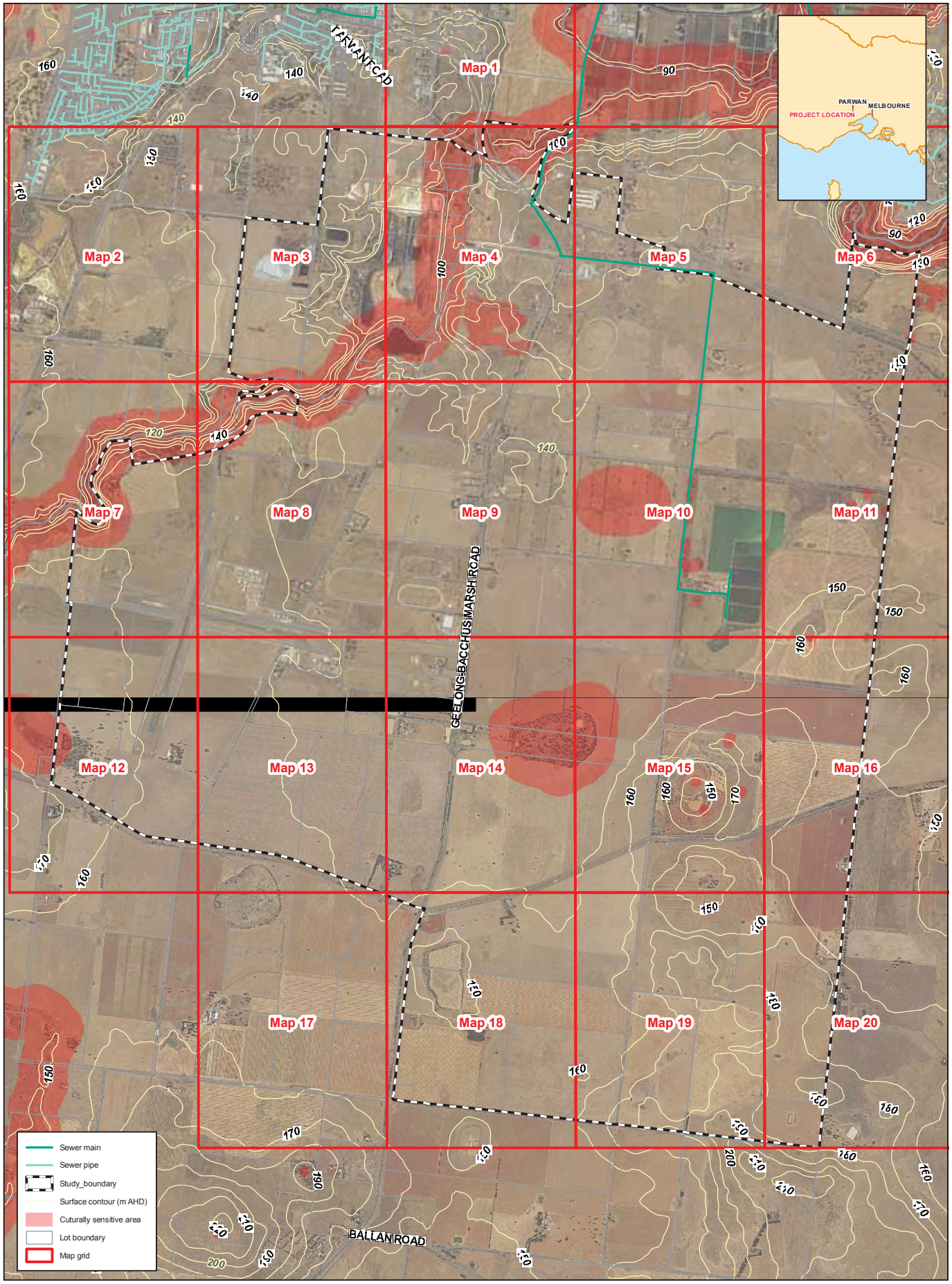
Parwan Servicing Plan
Figure A.1:Potable and Recycled Water Plan
Overview

PRELIMINARY



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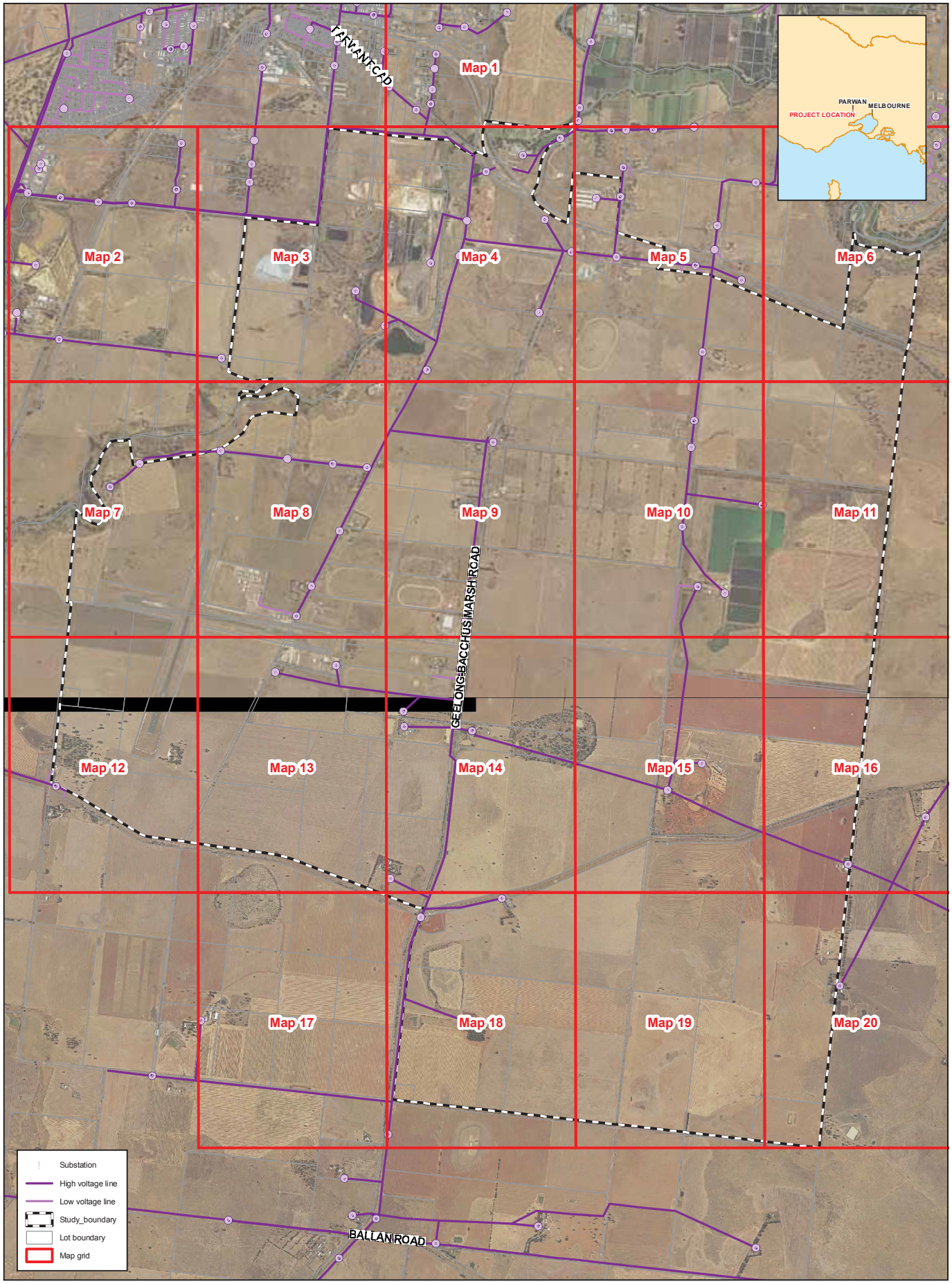
Parwan Servicing Plan
Figure A.2:Sewer Plan
Overview

PRELIMINARY



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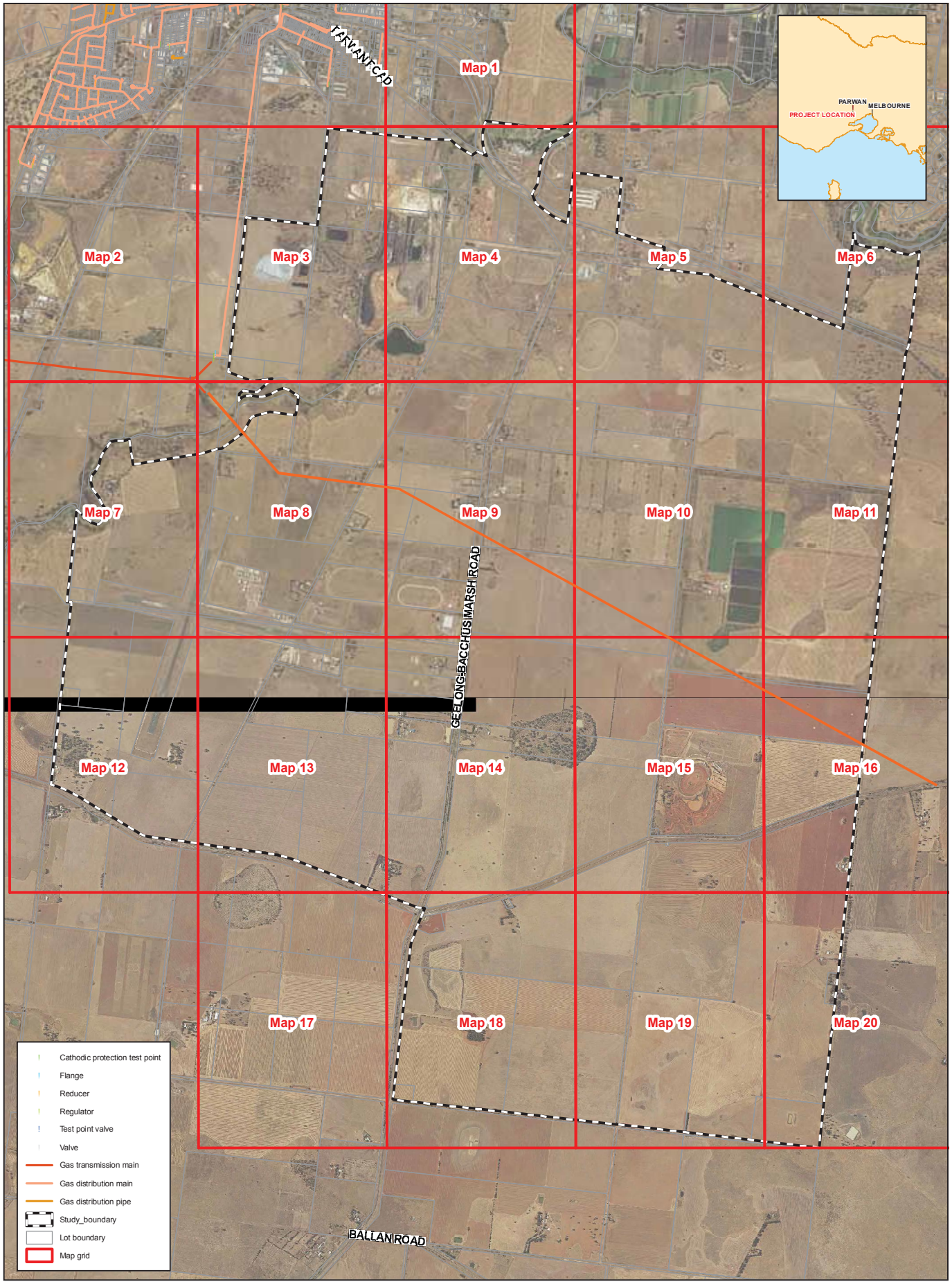
Parwan Servicing Plan
Figure A.3:Electricity Plan
Overview

PRELIMINARY



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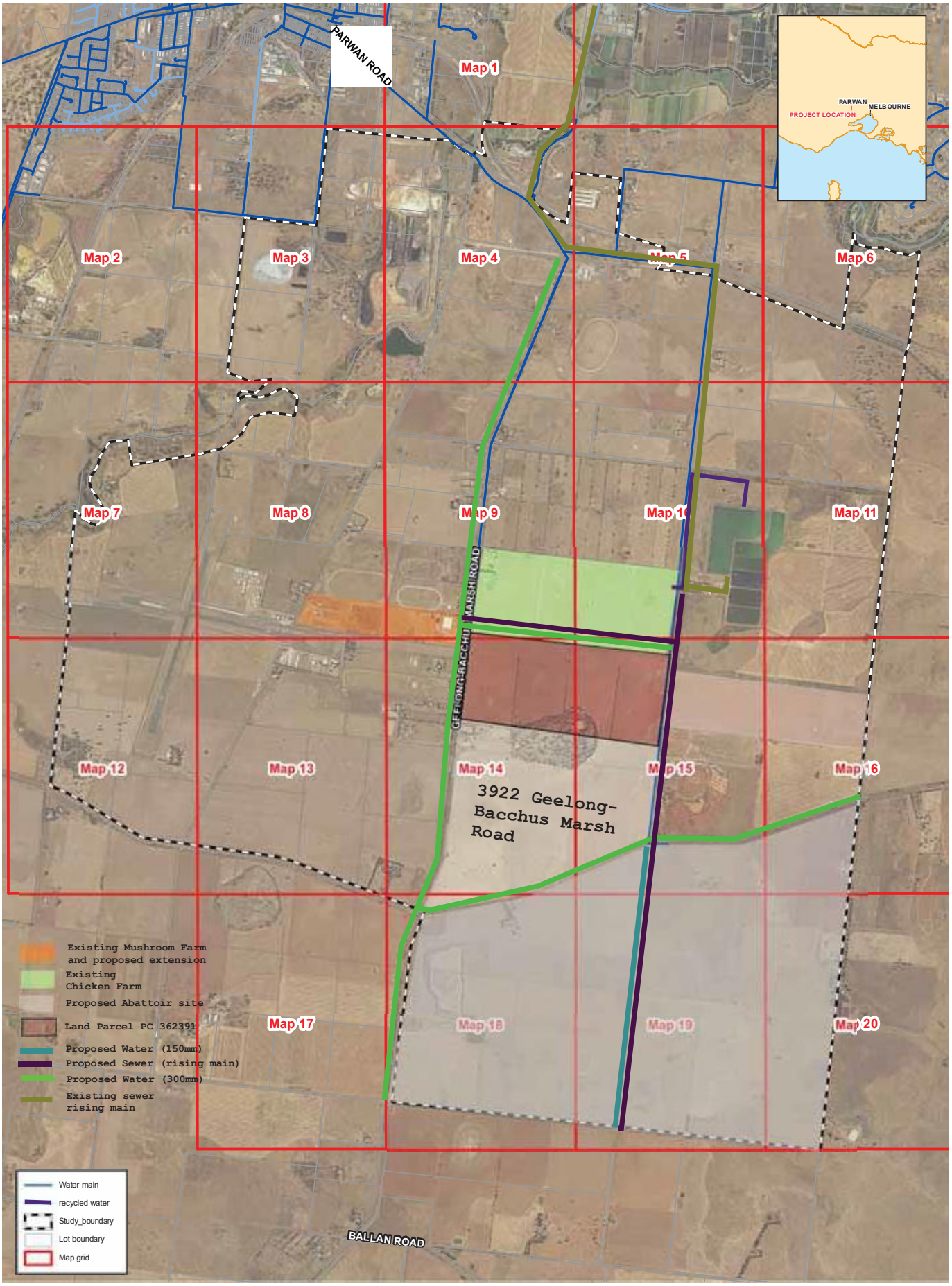
PRELIMINARY

Parwan Servicing Plan
Figure A.4: Gas Plan
Overview

Appendix B

Proposed Layout



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Parwan Servicing Plan
Figure B.1 :Proposed Potable Water and Sewer Plan
Overview

PRELIMINARY