



HAZELWOOD REHABILITATION PROJECT

# Attachment 3

## Hazelwood Concept Master Plan



# HAZEL WOOD



## CONCEPT MASTER PLAN

JUNE 2019



This Concept Master Plan has been produced by Arup Australia Pty Ltd on behalf of ENGIE Australia and New Zealand.

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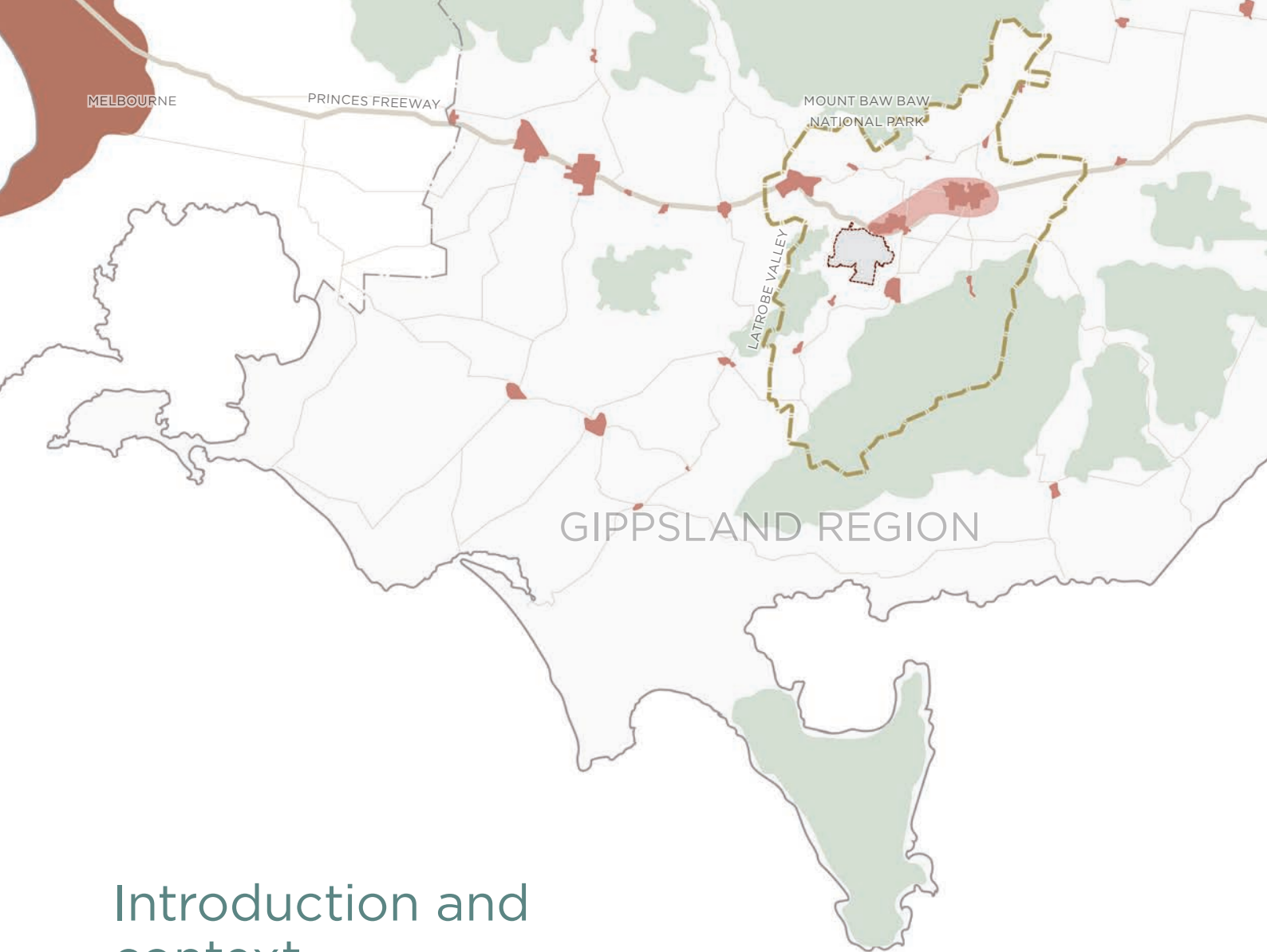
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Key messages



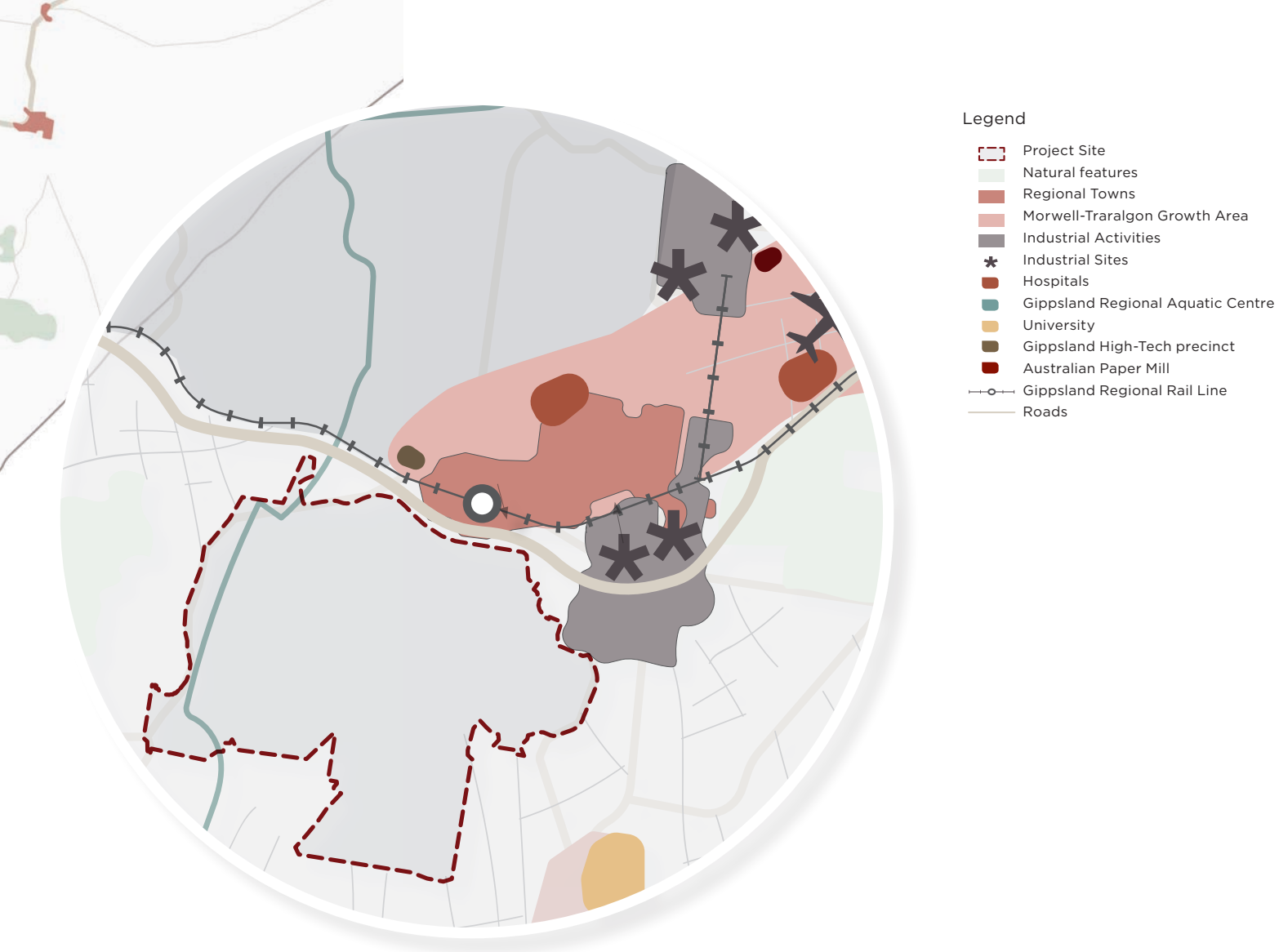
## Introduction and context

The closure of the 4000-hectare Hazelwood Power Station and Mine (Hazelwood), in the heart of the Latrobe Valley, presents an unprecedented redevelopment opportunity that has the potential to reinvigorate the Latrobe Valley and the wider Gippsland Region. In the context of the future closure of neighbouring Yallourn and Loy Yang mines (expected in the next 20-30 years), Hazelwood can catalyse a step change in the diversification of the economy of the area.

This Hazelwood Concept Master Plan, produced on behalf of ENGIE Australia & New Zealand (ENGIE), Hazelwood's current owner, conveys the extent of opportunity

for Hazelwood, and the future investment potential of the site, now and into the longer term. It takes an evidence-based approach that responds to detailed site constraints and potential economic opportunities and builds in the flexibility to respond to market and government desires for implementation. **It is hoped that this document will act as a starting point for future conversations with key partners and stakeholders required to deliver change at Hazelwood.**

In recent years, there has been substantial committed investment in the Latrobe Valley, which is now a designated Economic Growth Zone, including a pledge of \$266 million from



Government to help attract employers to the area. The economic focus in the area is centred around five main themes.

- **Agriculture** - already the most significant employers in the area, including traditional dairy farming and grazing, as well as plantations and intensive agriculture e.g. hydroponics.
- **Tourism, sport and recreation** - capitalising on a visitor spend of \$131 million in 2016, proximity to Melbourne, Mount Baw Baw and East Gippsland, home to a number of important assets (including Morwell National Park and Lake Narracan), and with a growing emphasis on events.
- **Clean energy and the circular economy** - drawing on the area's track record in energy production, while looking ahead, including energy from waste at Maryvale's Australian Paper Mill, solar, carbon capture, and other renewable energy sources.
- **Health, education and innovation** - with \$60 million investment in the designated Latrobe Health and Innovation Zone.
- **Defence, aviation and advanced manufacturing** - home to one of Australia's only commercial aircraft manufacturers, and investment in logistics and engineering in the area.

## LEGEND

- Site Boundary
- Boundary MIN5004
- Mine Void
- Overburden Dump Areas
- Leased Areas
- Power Station
- Switchyard
- Cooling Pond
- Wetlands
- Current Morwell River Corridor





# The Hazelwood site

Hazelwood contains a number of different land uses and landforms, including a 1,281-hectare mine void, operational switchyard, and decommissioned power station awaiting demolition, 524-hectare cooling pond, and a series of landfill and overburden dump areas.

In exploring options for site rehabilitation, ENGIE produced a detailed Options and Strategies document in 2017, which explored possible options for each of the elements of the site. Based on this work, ENGIE has identified preferred land forms for each of the elements of the site, which include:







- filling the mine void with water ‘the full lake scenario’ (assessed to be the lowest risk scenario with regard to safety and stability, and possible future opportunities);
- retaining the 8-hectare switchyard, to provide continued national grid connection;
- decommissioning, and demolition of all structures within the 36-hectare power station to enable alternative industrial uses;
- complete draining and rehabilitation of the cooling pond to be suitable for alternative uses;

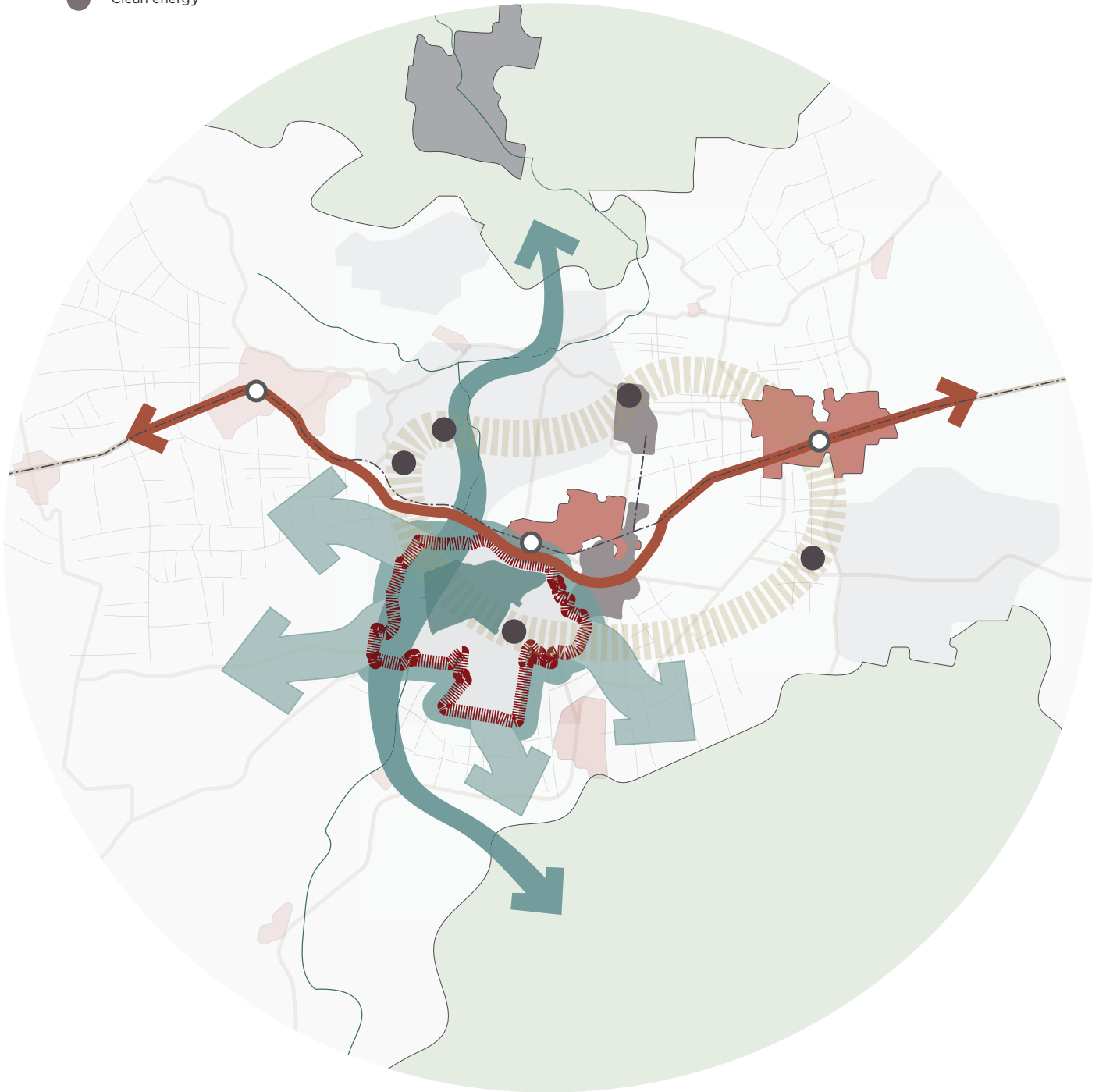
- rehabilitating land so as to be suitable for alternative uses, dependent on a range of factors, including contamination, land stability, locations etc.;
- exploring ownership and use of current leased land to enable flexibility in future land use options; and
- continuing to protect the existing wetland, conservation areas and offsets, in cooperation with relevant partners.

In order to achieve a full lake scenario for the mine void, a number of sources of water are required, including continued pumping of the aquifer that runs under the mine void, use of contracted water resources, potential re-diversion of Eel Hole Creek into the mine void, and water from the drained cooling pond.

In the long-term, once fill is assured, the possibility of the re-establishment of the currently diverted Morwell River to its original pathway through the site, could be explored by Government and the community (subject to environmental assessment and relevant approvals).

## LEGEND

-  Project Boundary
-  Key settlement areas
-  Tourism & recreation link
-  Growth corridor
-  Link to agricultural
-  Clean energy



# Vision

This Concept Master Plan assumes the following vision for the future of Hazelwood:

*Through the reinvigoration of the historic economies that have made the Latrobe Valley what it is today, Hazelwood will catalyse a new era of energy, agricultural production, recreation and tourism for the Latrobe Valley.*

At the nexus of key urban, agricultural and tourism growth corridors, Hazelwood will be re-established as the hub of the Latrobe Valley providing a range of opportunities for clean energy production, eco and agri-tourism, and sport and recreation. It will become the gateway to Gippsland's extensive tourism offering – Melbourne, Mt Baw Baw, Wilsons Promontory and East Gippsland – and will be a sought-out 'destination on the way'.

On site, the thousand-hectare lake will be the powerhouse for new communities, comprised of a sustainable mix of land uses that support a safe and responsive economic, social and environmental future for Hazelwood.

The new uses will create a lasting legacy for Hazelwood, providing an opportunity for new and existing communities alike to engage with the natural environment, and celebrate the site's historic value for many years to come.

## Key principles



Create an exemplar for other coal-powered plants and mines



Utilise the presence of the switchyard and grid connection opportunities



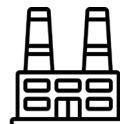
Respond to the site's physicality to provide a safe, stable and sustainable land use future



Complement the wider economic, social and environmental context of the region



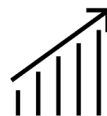
Adopt a nature responsive design approach



Celebrate the historic value of the site and the wider region



Provide flexibility in planning and design which supports a short, medium and long-term future



Support a productive economy that builds on the availability of a skilled workforce



Optimise the mine void and opportunities associated with the creation of a water body



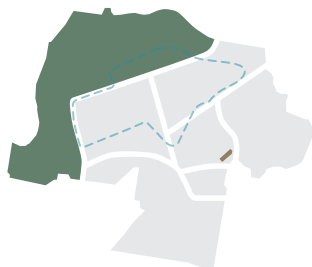
Provide a positive long-term legacy for the region, which generates value for all involved



# Concept Framework

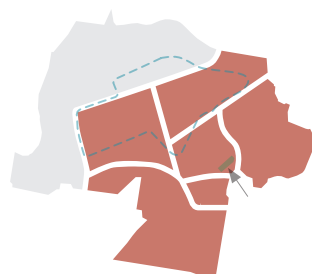
Drawing on the site land uses and preferred approach, wider economic context, and the vision and key principles, a concept framework has been developed which centres on dividing the site into three key areas:

## The Tourism Belt



The **Tourism Belt** will provide a centre for tourism, recreation and small-scale agriculture, centred around the filled mine void lake. The key drivers behind the Tourism Belt are: proximity to the identified growth hub of Morwell, the strongest site connectivity to road and rail infrastructure, and a lower topography around the lake edge.

## The Productivity Hub



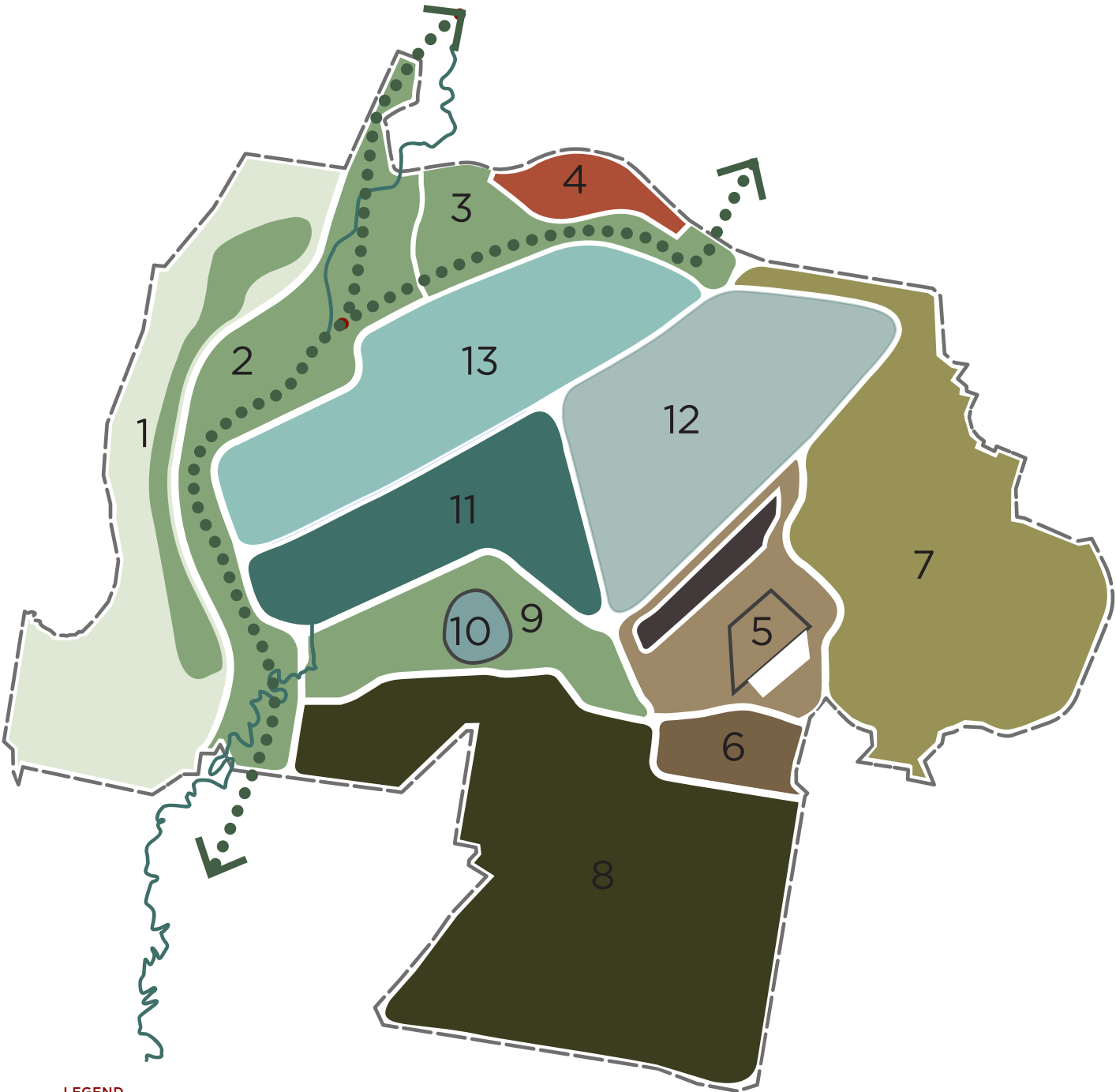
The **Productivity Hub** centres around the key asset of the switchyard. It will be home to a range of industrial, energy producing and agricultural uses that use and take from, and feed into the grid. Access to clean water and connectivity to road and rail infrastructure are also important to the Productivity Hub, as well as links to existing industry, energy and agricultural uses.

## The Mine Lake



The **Mine Lake** will be the heart of Hazelwood. It will be much more than just a water body, supporting a range of recreation activities and energy-related activities. Options for its use are informed by accessibility and topography. Potential uses may be constrained by future water access and quality, about which there is ongoing investigation.

# Concept Master Plan



**LEGEND**

- Site boundary
- Morwell River

**The Tourism Belt**

- 1 Western edge
- 2 Wetland & recreation
- 3 North-lake edge
- 4 Morwell expansion

**The Productivity Hub**

- 5 Industrial core
- 6 Industry-Agri-Energy Buffer
- 7 Overburden area
- 8 Cooling pond area
- 9 Southern lake edge
- 10 Water side processing

**The Mine Lake**

- 11 Productive lake
- 12 Clean-energy lake
- 13 Recreational lake



# Hazelwood's future imagined

In its end state, Hazelwood will benefit from a full lake; a proud focal point for all activities, visible from many aspects within the site. As the powerhouse for new communities, the lake will be the first of its kind to be fully utilised.

The western, shallower end of the lake will support The Tourism Hub which is alive with visitors who have come to Hazelwood to eat fresh produce, partake in and learn farm practices and take a stroll through the beautiful wetlands. Some enjoy an overnight stay on locally run farms or pamper themselves in a secluded luxury eco-tourism resort.

The Productive Hub is supported by a strong circular economy. Deeper portions of the lake could produce algae biofuel while floating solar panels provide a renewable energy source – both of which feed supporting industries and the grid.

Land within The Productive Hub is in high demand from nearby universities and many innovative start-up businesses who have set up incubator hubs. Entrepreneurs are drawn to the abundant benefits offered as a result, and happily test business ideas, connecting with like-minded professionals.

Still plentiful opportunity to come, the site has built-in flexibility and has successfully provided a 'no regrets' legacy championed by the region. As connectivity is consolidated over time the community determines that the Morwell River will be established to its original course, flowing into and out of The Mine Lake.

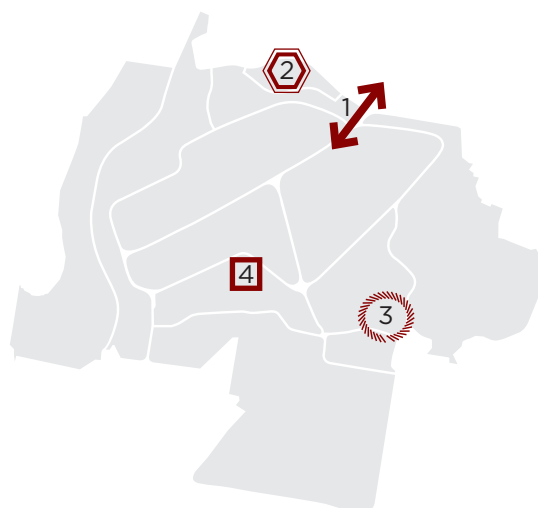
The growing successes at Hazelwood have catalysed change in its neighbouring areas also - with Loy Yang and Yallourn looking to build upon the opportunity and activities taking place

in Hazelwood to continue to drive a successful and diverse economy.

While Hazelwood could be used to activate any number of major initiatives, at this stage there are four key moves which will help to provide flexibility in planning and design:

- a new land bridge linking Hazelwood to Morwell;
- an anchor food-based retail asset to kick-start a broader tourism and recreation offering;
- rehabilitation of the power station area to be 'shovel ready' for future development; and
- possible water infrastructure to enhance access to water from the Mine Lake.

Each key move is underpinned by the land use and economic narrative for the site and will help to stimulate further investment in the site's redevelopment. Each of these key moves would need to be subject to detailed feasibility testing, site conditions analysis and impact assessment before progressing.





## Next steps

It is acknowledged, that further work is needed to translate this initial vision for Hazelwood into reality, and to further test the feasibility of proposals set out in this Concept Master Plan, including:

- further investigation into the proposed land uses to identify the likely feasibility of such uses, and possible risks and impacts;
- ongoing engagement with a broad range of stakeholders, including Government, the Latrobe City Council, other management authorities, private sector, and local community;
- a review of the likely impacts of proposed land uses upon sensitive uses, including nearby residential uses, identified receptors, and areas / assets of known significance;
- a review of residential and industrial land supply and demand in Latrobe City, and the need for Hazelwood to contribute to supply;
- analysis of the infrastructure capacity, requirements and impacts of development at Hazelwood;
- a review of proposed land uses in the context of bushfire risk and environmental factors;
- detailed consideration of the proposed land uses in the context of Latrobe City Council's planning strategy and planning scheme, and any planning or environmental approvals;
- a detailed master plan for Hazelwood which identifies the preferred approach, and delves further into the land uses, layout and associated infrastructure for the future of the site; and
- exploration of the wider opportunities for Gippsland, in the context of expected future closure of Loy Yang and Yallourn, and the dependencies between Hazelwood with other projects coming forward.





1



# Introduction



HAZELWOOD

# Introduction

**The closure of the Hazelwood Power Station and Mine in March 2017 presents an unprecedented redevelopment opportunity for the 4000-hectare site in the Latrobe Valley, Victoria.**

As the first site of its kind in the State, and in the context of the future closure of neighbouring Yallourn and Loy Yang mines (expected in the next 20-30 years), the redevelopment of Hazelwood provides a significant opportunity to be the catalyst to reinvigorate the Latrobe Valley and the wider Gippsland Region.

Worldwide, ENGIE is focusing its efforts on energy transition, with a focus on decarbonisation, decentralisation and digitalisation of energy systems. ENGIE is demonstrating commitment to getting it right, while supporting its employees and working in close collaboration with all stakeholders. With the right vision and driving force, the redevelopment of Hazelwood can lead the way in the transition from coal power generation, leaving a long-lasting legacy and exemplar for future mine closures across the region, State and nation.

The Hazelwood Concept Master Plan, produced on behalf of ENGIE, Hazelwood's current owner, conveys the extent of opportunity for

Hazelwood, and the future investment potential of the site, now and into the longer term. Driven by an ethos of highest and best-value uses, it presents an evidence-based concept plan that responds to detailed site constraints, potential economic opportunities and key stakeholders, and builds in flexibility to respond to market and government desires for implementation.

The aim of this Concept Master Plan is to present a vision for the future of the site, that a vast range of stakeholders can use and build upon to effect change at Hazelwood. It is hoped that this document will act as a starting point for future conversations with key partners, such as Government. However, it should be noted that the Concept Master Plan has been developed and led by ENGIE, and is not endorsed by any other stakeholder partners at this point.

The recommendations and proposals within this Concept Master Plan provide an initial view on the potential possibilities for Hazelwood. These have been based on evidence-based research, drawing on: site analysis; a review of social, environmental, economic and policy context; and significant historical and on-going work undertaken in relation to Hazelwood, its technical constraints and options for rehabilitation. It has also been informed by community engagement processes undertaken by ENGIE.



# Context

This Concept Master Plan is structured as follows:

- Section 2 - outlines the spatial and economic context and the extent of the opportunity for the future of Hazelwood;
- Section 3 - summarises the physical opportunities and constraints for redevelopment;
- Section 4 - sets out the vision for the future of Hazelwood and key principles for redevelopment;
- Section 5 - introduces the concept framework for Hazelwood, informed by understanding of the site and its surroundings;
- Section 6 - provides the Concept Master Plan and future land use options for Hazelwood; and
- Section 7 - identifies 'key moves' required to facilitate redevelopment of Hazelwood and responsibilities for delivery of the vision.

Figure 1 provides a summary of the process of developing this Concept Master Plan, and the wider context within which it sits.

Strategic background and technical research has helped to provide an overview of Hazelwood's component parts, and identify associated opportunities and constraints, in the context of site analysis, and wider socio-economic trends in the Latrobe Valley. The findings are summarised in section 3.

Parallel to undertaking work on the Hazelwood Concept Master Plan, ENGIE is progressing with a site Rehabilitation and Closure Plan (RCP), focussed on a safe, stable and sustainable future for the Hazelwood mine. Once complete, the RCP will define the approved rehabilitation required to in the mine licence area, relinquish the mine licence and enable sequential land uses. The final mine landform of Hazelwood will be determined in accordance with closure objectives and closure criteria as part of the RCP.

ENGIE works collaboratively with a wide range of stakeholders, including the local community and various Government agencies. This has included a range of public forums, open letters to the community, fact sheets and pop-up stands, as well as face-to-face meetings with Government representatives.

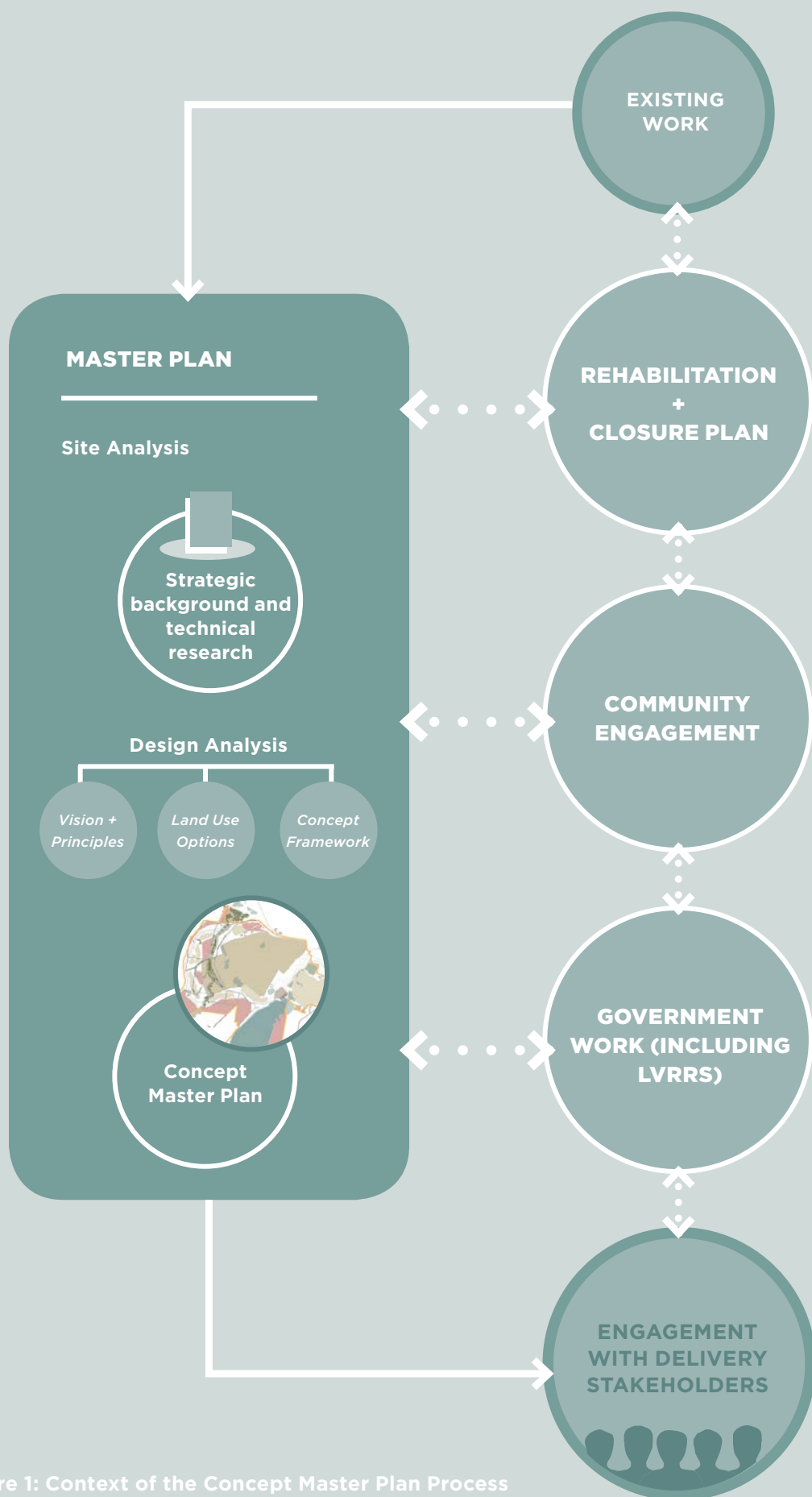


Figure 1: Context of the Concept Master Plan Process

# Translating the vision to reality

It is acknowledged, that further work is needed to translate this initial vision for Hazelwood into reality, and to further test the feasibility of proposals set out in this Concept Master Plan. This further work will be the responsibility of a range of stakeholders interested in driving forward a successful future for Hazelwood. Further work might include, but not be limited to:

- further investigation into the proposed land uses to identify the likely feasibility of such uses, and possible risks and impacts. This could include a cost-benefit-analysis for each development option, to determine a preferred approach;
- ongoing engagement with a broad range of stakeholders, including Government, the Latrobe City Council, other management authorities, private sector, and local community to understand the aspirations for, and impacts of future development at Hazelwood;
- a review of the likely impacts of proposed land uses upon sensitive uses, including nearby residential uses, identified receptors, and areas / assets of known significance;
- a review of residential and industrial land supply and demand in Latrobe City, and the need for Hazelwood to contribute to supply;
- analysis of the infrastructure capacity, requirements and impacts of development at Hazelwood, including analysis of the transport network, as well as digital, energy, water and waste infrastructure;
- a review of proposed land uses in the context of bushfire risk, and in particular the Latrobe City Council Bushfire Management Overlay (BMO);
- detailed consideration of the proposed land uses in the context of Latrobe City Council's planning strategy and planning scheme, and consideration of any required amendments and the justification / process for making such changes;
- a detailed master plan for Hazelwood which identifies the preferred approach, and delves further into the land uses, layout and associated infrastructure for the future of the site;
- the required planning, environmental and other regulatory approvals to enable the proposed land uses; and
- exploration of the wider opportunities for Gippsland, in the context of expected future closure of Loy Yang and Yallourn, and the dependencies between Hazelwood with other projects coming forward. This could include an investment plan for the Latrobe Valley to combine and align opportunities for the whole area.

All aspects of the site will also be subject to environmental clean-up plans to make them fit for best use.









2



Context





# Impetus for change

**Hazelwood is a former brown coal-fired thermal power station and mine, owned and managed by ENGIE. The mine became operational in the 1950s, with the eight unit 1600-megawatt power station built between 1964 and 1971 (reaching an eventual 1760-megawatts). At one stage Hazelwood supplied up to 25 percent of Victoria's base load electricity.**

In response to the rising demand for energy in high-growth countries and the profound changes under way in the world energy sector, ENGIE is leading change in Australia. It is focusing its efforts on energy transition; ceasing coal activities and concentrating on low-carbon projects for power generation, renewable energy and natural gas.

In this context, ENGIE announced, in 2016, that they would be closing Hazelwood with operations ceasing in March 2017. Hazelwood's neighbouring brown coal mines of Yallourn and Loy Yang are also expected to close in the coming decades.

For Victoria, brown coal fuels around 80 percent of Victoria's electricity generation and is subsequently one of the largest contributors to Victoria's total greenhouse gas emissions. To this end, the closure of Hazelwood, together with the future closure of Yallourn and Loy Yang brown coal mines, will have positive effects for climate change, reducing emissions that contribute to greenhouse gases.

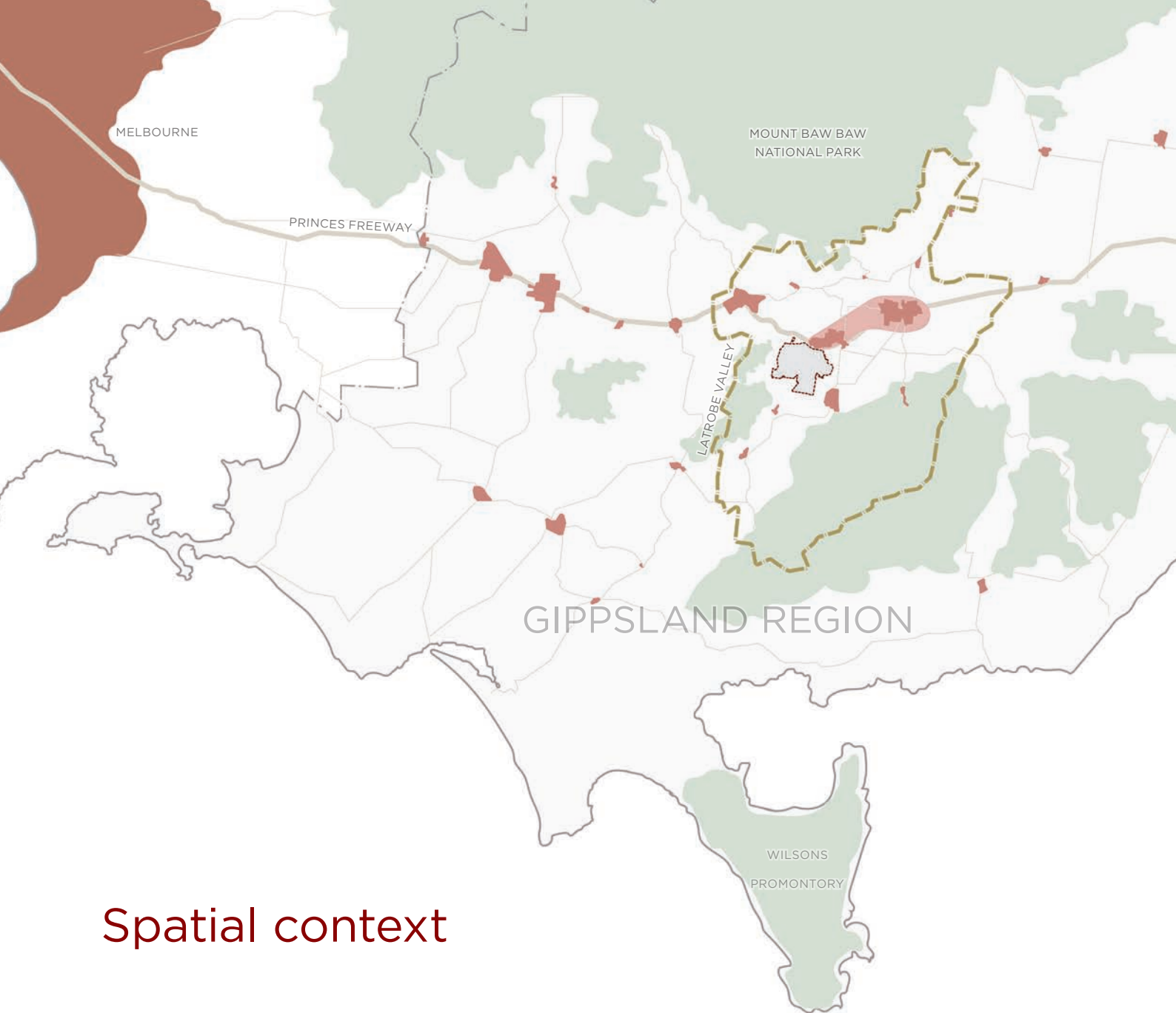
However, the transition to cleaner energy, while generally positive, will also have significant economic and social effects, presenting challenges for the Latrobe Valley, wider Gippsland Region and Victoria.

These challenges have been acknowledged by the Government. In a media statement on the closure of Hazelwood on 3 November 2016, the Government announced a \$22 million package of support available for Hazelwood workers and affected businesses. An additional \$20 million was also announced to fund the establishment of a dedicated Latrobe Valley Authority to lead the Government's response, and manage the transition and the future economic development of the Latrobe Valley.

This investment environment presents a major opportunity for Hazelwood to capitalise on existing projects, to catalyse a step change in a more diversified economy for the Latrobe Valley and Gippsland Region.

This section of the Concept Master Plan provides a summary of the wider socio-economic trends that are occurring around Hazelwood. This provides the context to inform the vision and proposals set out in later sections.





## Spatial context

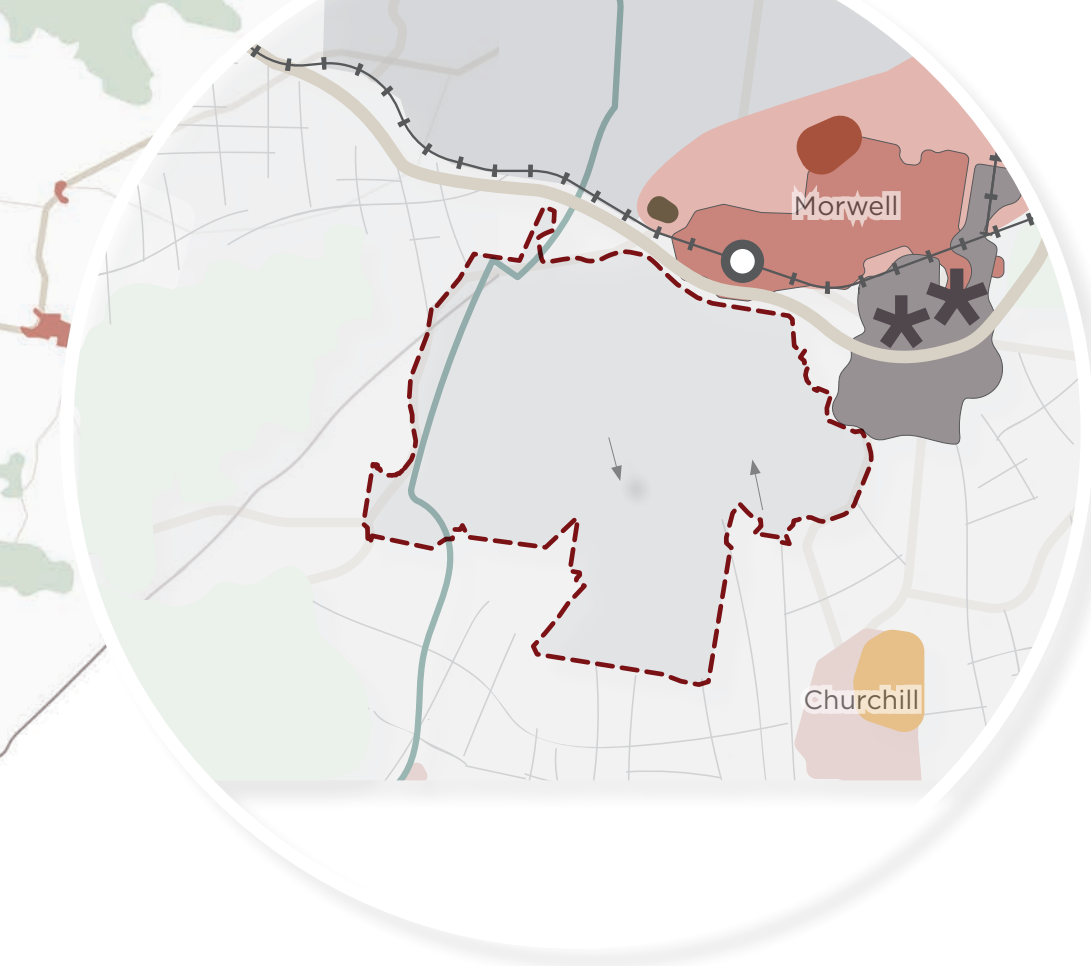
**Hazelwood is located within the heart of the Latrobe Valley and is the gateway to the wider Gippsland Region. At 160 kilometres east of Melbourne and 130 kilometres west of the Gippsland Lakes, it sits at the centre of these two key attractors within Victoria. It also sits between the recreational and environmental assets of Mount Baw Baw (north) and Wilsons Promontory (south) national parks.**

### **Housing and growth**

Hazelwood, within Latrobe City Local Government Area (LGA), sits immediately to the south of the township of Morwell - home

to a population of approximately 14,000 people. Morwell and neighbouring Traralgon are identified in the *Draft Latrobe City Housing Strategy (2017)* for development of a major mixed-use population and economic growth node for the Latrobe Valley. They are expected to merge, and experience population growth to between 40,000 and 50,000 people by 2050. A future industrial growth area is also identified in policy in the corridor to the north of Morwell.

The forecast population growth in the LGA would require 5,000 new homes. Latrobe City has approximately 1,000 hectares of zoned residential land, and a number of key housing projects coming forward, such as Morwell West and Morwell North West.



#### LEGEND

- Project Site
- Natural features
- Regional Towns
- Morwell-Traralgon Growth Area
- Industrial Activities
- \* Industrial Sites
- Hospitals
- Gippsland Regional Aquatic Centre
- University
- Gippsland High-Tech precinct
- Australian Paper Mill
- Gippsland Regional Rail Line
- Roads

### Transport and connectivity

Hazelwood is separated from Morwell by the Princes Freeway and Gippsland Regional Rail Line (which runs east-west to Melbourne). A committed \$500 million capital investment will see the dualling of the rail line to enable greater freight movement, and faster, more frequent passenger connections to the capital. The Latrobe Regional Airport is approximately 10 kilometres north-east of Hazelwood.

### Health and education

The Latrobe Regional Hospital in Traralgon West is the largest health service in the Gippsland Region, and one of the largest employers. Alongside this, the Gippsland Campus of Federation University in Churchill (co-located with Monash Rural Health Campus) is home to around 2,500 students, specialising in degrees in arts, sports, science, medicine, health and engineering. There are also two Federation Training Campuses offering TAFE courses. The closest, at Morwell, specialises in health, food and agriculture and hospitality. The Gippsland Tech School (also in Morwell and hosted by Federation Training) provides opportunities for secondary school students with a focus on science, technology, engineering, arts and maths.

### Key investments

In recent years, there has been substantial committed investment in the Latrobe Valley, which is now a designated Economic Growth Zone, including a pledge of \$266 million from Government to help attract employers to the area. Several strategic projects have been developed or are planned to unlock growth in the area, including:

- a proposed \$17 million Gippsland High-Tech Precinct in Morwell, with a centre for research, business incubation and new product development in the sectors of health, food and fibre, advanced manufacturing and new energy;
- an approved diversified Bio Refinery Project by the Australian Paper Mill at its Maryvale site (estimated to cost \$600 million) which will install a new 'waste to energy' system; and
- a commitment to an \$85 million investment package for sporting projects in Gippsland, including the \$40 million Gippsland Regional Aquatic Centre and the \$17 million redevelopment of the Gippsland Regional Indoor Sports and Entertainment Complex.

# Regional economic context

## Food and Agriculture

From the opening of the Yinnar Butter Factory in 1890, to the present-day Lion Dairy, Gippsland and the Latrobe Valley have long been home to a wide number and variety of agricultural and food-related businesses.

As the largest employment sector in the region, and with a sectoral employment well above the national average, agriculture and food-related industries represent a major economic growth opportunity in the area. This is reinforced by significant Government investment in the industry, such as the Food Source Victoria program, which seeks to grow and increase innovation in Victoria's agricultural, food and related industries.

The proximity of universities and further education campuses, with specialisms around agriculture and technology, together with a rise in innovative agricultural technologies both in Victoria and more widely, present a major opportunity for the Latrobe Valley's life post-coal.

A growing market in Asia for fresh produce from Australia, supported by the Australia-China Free Trade Agreement, also provides further opportunity for the agri-food industry in the Latrobe Valley. Proximity to the airport, currently only used for tourism and manufacturing purposes, could provide a significant opportunity to support high value agri-business for export.

Forestry and timber plantations are also a core part of this sector in the area. Latrobe City LGA is home to 30% of all Gippsland's plantations. Government committed \$110 million to establishing new timber plantations in the Latrobe Valley in 2018, demonstrating the continued importance of the industry to the future economy of the area.



### **Case study: Toowoomba, Queensland**

Building on a long history of agriculture and food production to strengthen trade with Asia through investment in facilities and infrastructure. Toowoomba has received significant public and private investment in infrastructure to support this growth, including the new Toowoomba Wellcamp Airport.



## Tourism, sport and recreation

In between the key attractions of Melbourne, East Gippsland Lakes/Coast, Mt Baw Baw and Wilsons Promontory, the Latrobe Valley is a strategic location for the visitor economy of Victoria. It already experiences over one million visitors per annum - largely domestic day visitors coming to the area to visit friends or relatives, or for recreational purposes. An opportunity exists to build on this strong connectivity and create a transitional tourism economy for Hazelwood.

The Latrobe Valley is also home to many tourism assets, including the natural features of Morwell National Park, Lake Narracan and Morwell River Falls Reserve. It has also been a focus for investment in sports, recreation and culture in recent years.

The Latrobe Valley is also home to a range of planned and existing arts, cultural and sporting assets, including: the planned Morwell Events and Exhibition Centre; the \$40 million Gippsland Regional Aquatic Centre; and a \$17 million Regional Indoor Sports and Entertainment complex. There is an opportunity to build on this planned investment, to bolster the recreational and sporting offerings of the Latrobe Valley.

Destination Gippsland also places an emphasis on food-related experiences as a key draw for the visitor economy in the area. This presents the opportunity to align with the growth of the agricultural and food economy in the area.

The mining character and history of the Latrobe Valley is also an attractor for visitors. This is supported by tourism infrastructure, such as the PowerWorks Energy Education Centre, which provides educational and interactive displays dedicated to the power industry.



### Case study: The Lake District, England

Using a natural landscape of mountains, valleys and lakes, and marketing the connectivity of a series of water bodies to attract tourism through recreation. The area saw 19.17 million visitors in 2017, and provides 18,565 tourism jobs.



## Clean energy and circular economy

The Latrobe Valley's history as an energy producing region is well-established; at its peak it provides approximately 80 percent of Victoria's energy. In response to the global shift toward clean energy and growing climate change concern, the Latrobe Valley is experiencing a period of transition from brown-coal, which has characterised the area for many years.

Hazelwood and its neighbouring mines and power stations offer a major opportunity to revitalise the area's energy economy, optimising their significant land areas and connectivity to the grid. This comes in the context of a number of clean energy projects receiving investment in proximity to Hazelwood, including Gippsland Infrastructure's CarbonTech project to produce carbon products in the former Energy Brix Briquette Factory to the north, and a proposed trial to produce hydrogen from coal at Loy Yang. Solar energy is also a particular focus in the Latrobe Valley, with Solar Victoria being based in Morwell (an authority promoting rollout of solar in homes across the State).

Energy from waste also provides a major opportunity in this shift to cleaner energy. This responds to a state-wide ambition to reduce the amount of waste diverted to landfill, in the context of a major increase in domestic and commercial waste, particularly from Melbourne.

Proximity to rail and road infrastructure provides an opportunity to support this growing industry at Hazelwood. The Australian Paper Mill is proposing an Energy from Waste plant at nearby Maryvale.



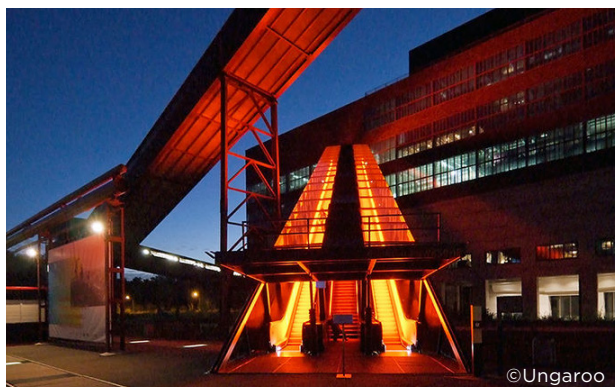
### Case study: Hunter Valley, New South Wales

A national hub for energy provision supported through a shift from traditional coal mining and coal power to a cleaner energy economy, focussed on advanced technology and biofuels. This was driven by the New South Wales Energy Strategy, and supported by the creation of the Hunter Valley Transition Alliance, which seeks to attract clean technology investment into the Hunter Valley.

## Health, education and innovation

In the context of predicted population growth, and an ageing population (18 percent of the Latrobe Valley's residents are over 65 compared to 14 percent nationally), the number of people employed in health care and social assistance is expected to grow by 10.5 percent by 2022. This, supported by the nearby Latrobe Regional Hospital, represents a major opportunity area for Hazelwood.

Hazelwood's proximity to the Gippsland Campus of Federation University (co-located with Monash Rural Health Campus) and nearby TAFE campuses also provides an opportunity for pilot projects and incubation spaces linked to specialisms of health, food, agriculture and hospitality.



### Case study: The Ruhr Valley, Germany

Diversification of a traditionally heavy-industrial area with a focus on an education-led service economy, with new universities, alongside investment in a site offering to inform and educate on the area's mining history. This has been driven by government policy, and direct subsidy to support diversification.

## Advanced manufacturing, defence and aviation

Advanced manufacturing is a key sector for regional and state government investment. This comes in the context of a global move towards greater automation and innovation in manufacturing technologies. The Gippsland High-Tech Precinct, Gippsland Logistics Precinct, and a new Heavy Industrial Park at the former Lurgi Coal and Gasification Plant, all provide opportunity to foster a hub for industry in and around Hazelwood.

This comes also in the context of existing, albeit niche industrial strength in the area, particularly around the Latrobe Regional Airport, which is home to GippsAero, one of the only commercial aircraft manufacturer in Australia.



### Case study: Greater Geelong, Queensland

Responding to the closure of a key manufacturing employer to diversify the economy, with a focus on advanced manufacturing, innovation and investment in entrepreneurial enterprises. This was driven by establishment of the Geelong Region Innovation and Investment Fund, and the recent opening of ManuFactures, an accelerator hub to attract investment in advanced manufacturing.



3



The site



## LEGEND

- Site Boundary
- Boundary MIN5004
- Mine Void
- Overburden Dump Areas
- Leased Areas
- Power Station
- Switchyard
- Cooling Pond
- Wetlands
- Current Morwell River Corridor



**Figure 2: Key site elements and land uses**

# The Hazelwood site

The 4000-hectare Hazelwood site is owned under freehold title by ENGIE, with some land leased to third parties. The site contains a mining license area of approximately 3,290 hectares (MIN5004).

The site contains a number of different land uses and landforms. These are illustrated in Figure 2, and include:

- a 1281-hectare mine void, which is 70-130 metres deep, and 6,000 by 4,000 metres wide at its widest point;
- the power station and switchyard (not included within the mine license area);
- the cooling pond, of 524 hectares (not included within the mine license area);
- the eastern overburden dump area, other landfill areas and other areas subject to contamination (including a series of fire holes) which cover approximately 682 hectares of land; and
- areas of leased land used for a number of varied land uses, from recreation to primary production.

To account for geotechnical stability surrounding the mine void, a buffer (ranging from 250-500 metres in width) is identified within which only certain uses can be accommodated.

The site can be accessed by vehicle from both the north (off the Princes Freeway) and south (off Monash Way). Pedestrian and cycling access from Morwell is possible via

an underpass below the Princes Freeway. Overhead power transmission lines and underground gas and fuel pipelines cross the site at various locations.

In exploring options for site rehabilitation, ENGIE produced a detailed Options and Strategies document in 2017, which explored a range of options for each of the elements of the site, including the power station, switchyard, cooling pond and mine void. This looked at a number of scenarios for each element, and assessed each in the context of the benefits and risks they presented. The Work Plan Variation of 2017 confirmed the preference to fill the mine void with water, based on initial investigations. More detailed technical studies are now underway to rigorously assess the options in the Work Plan Variation.

At present, ENGIE has identified preferred land use options for each of the elements of the site, which can be summarised as:

- filling the mine void with water to create a full water body (see overleaf for more information);
- retaining the 8-hectare switchyard, to provide continued connection to the national grid for 20+ years;
- decommissioning, and demolition of remaining structures (including unstable boiler chimneys and asbestos cladding on structures) within the 36-hectare power station to enable alternative industrial uses;

- complete draining and rehabilitation of the 524-hectare cooling pond - this will be suitable for alternative uses;
- rehabilitating land for re-use consistent with identified allowable beneficial uses, including overburden dump areas, and landfills;
- exploring ownership and use of current leased land to enable flexibility in future land use options; and
- continuing to protect the existing wetland, conservation areas and offsets, in cooperation with relevant partners.

Rehabilitation of the cooling pond, management of the eastern overburden dump and demolition of the power station will be in accordance with all environmental and safety standards, and subject to environmental audit programmes.

The Work Plan Variation 2017 and the developing Rehabilitation and Closure Plan provide further justification and investigation of technical constraints of the site. The Rehabilitation and Closure Plan will also provide further detail on site risks, and the type and timing of any mitigating actions required.

### **A full-lake solution**

In particular, the future of the mine void has been considered in some detail, with options including retaining an empty void, creating a partial lake, and creating a full lake. The most appropriate rehabilitation solution, identified by ENGIE through engineering studies, is to fully fill the mine void with water to create a full water body. This was assessed by ENGIE and its technical advisors to be the lowest risk scenario with regard to safety, stability, water management and future use opportunities.

In order to achieve a full lake scenario (+45m RL) a number of sources of water are required, including continued pumping of the aquifer that runs under the mine void, use of contracted water resources, possible re-diversion of Eel Hole Creek into the mine void, and water from the drained cooling pond.

Once the full lake has been assured, the possibility of the re-establishment of the currently diverted Morwell River to its original pathway through the site, could be explored by Government and the community (subject to environmental assessment and relevant approvals).

### **Planning policy for Hazelwood**

Under the Latrobe City Planning Scheme, the majority of the Hazelwood site is included within the Special Use Zone - Schedule 1 Brown Coal, which provides for brown coal mining, electricity generation and associated uses, and requires future uses to protect brown coal resources and the mining industry.

A range of other uses are also supported within this zone, including agriculture, crop raising, animal husbandry, certain industrial uses, and informal recreation. The cooling pond is within the Public Use Zone - Service and Utility, and can be used for public utility and community services and facilities.

The Latrobe City Planning Scheme also enshrines the requirement to develop and maintain buffers around mining and quarrying activities. A buffer of 750 metres from an urban settlement boundary is required to the perimeter of a 250 metre wide operational areas, and an area of 1 kilometre between the crest of an open cut mine and urban settlements. This is for the mutual protection of

urban amenity and coal development. Certain uses are permitted within these buffer areas, including high amenity, low intensity uses e.g. farming and recreation. Buffers are also enforced between industrial zones and local communities, around residual air emissions.

The current land use zoning and buffer overlays related to the site may impact on possible future uses. However, where there is demonstrable reasoning, Latrobe City Council can propose changes to the Latrobe Planning Scheme to reflect new circumstances and change the way the land can be used and developed. As set out in Section 1, a further step would be to explore any future proposals for Hazelwood with regard to their alignment with the Latrobe City Planning Scheme, and any requirements for amendments.

The site is bordered to the north by residential commercial and mixed uses within Morwell town, and to the south east by Churchill. The Special Use Zone extends the west of the site, with Farming Zone land further west (also found to the east and south). The Morwell Power Station and Briquette Factory, is immediately adjacent to the site (north-east). It is included on the Victoria Register as an asset of significant heritage value (although permission was granted in 2018 for demolition of the Power Station and associated infrastructure).

### **Environmental significance and assets**

The Morwell River corridor runs within the Hazelwood site, and a vegetated buffer zone of at least 30 metres width will be required for any future development along each side of the water way. Also, while not located in an area of high value terrestrial habitat itself (according to the Latrobe City Planning Scheme), Morwell

and the surrounding areas are considered to be of high value. The site also contains, and links into protected wetland areas - some of which are owned by ENGIE. The site also contains a series of conservation areas and offsets which require protection, and will need to inform future development.

Hazelwood also contains the Hazelwood Cemetery, adjacent to the cooling pond. The Cemetery was established in 1879 and contains around 4500 internments. The important environmental and historical characteristics of the cemetery are a key influence on the possible future land uses for the cooling pond area and the wider site.

As set out in Section 1, it is advised that further work is required to explore the impact of any future land uses upon areas of cultural significance.

Through strategic background and technical research, an analysis of the identified site elements and context, and the challenges and opportunities they might present for Hazelwood was undertaken. This analysis is consolidated in an assessment of site opportunities and constraints which is covered on the subsequent pages.

These have also been used to inform the Concept Framework (Section 5) and Concept Master Plan (Section 6) which takes into account site context and conditions (e.g. land stability and contamination) to provide evidence-based suggestions for the future development of Hazelwood.

- LEGEND**
- Project Boundary
  - Morwell River
  - Transmission Line & Buffer
  - Switchyard
  - Substation
  - Cemetery
  - Landfill / land subject to contamination
  - Mine Void
  - Mine Void Buffer Zone
  - Wetlands

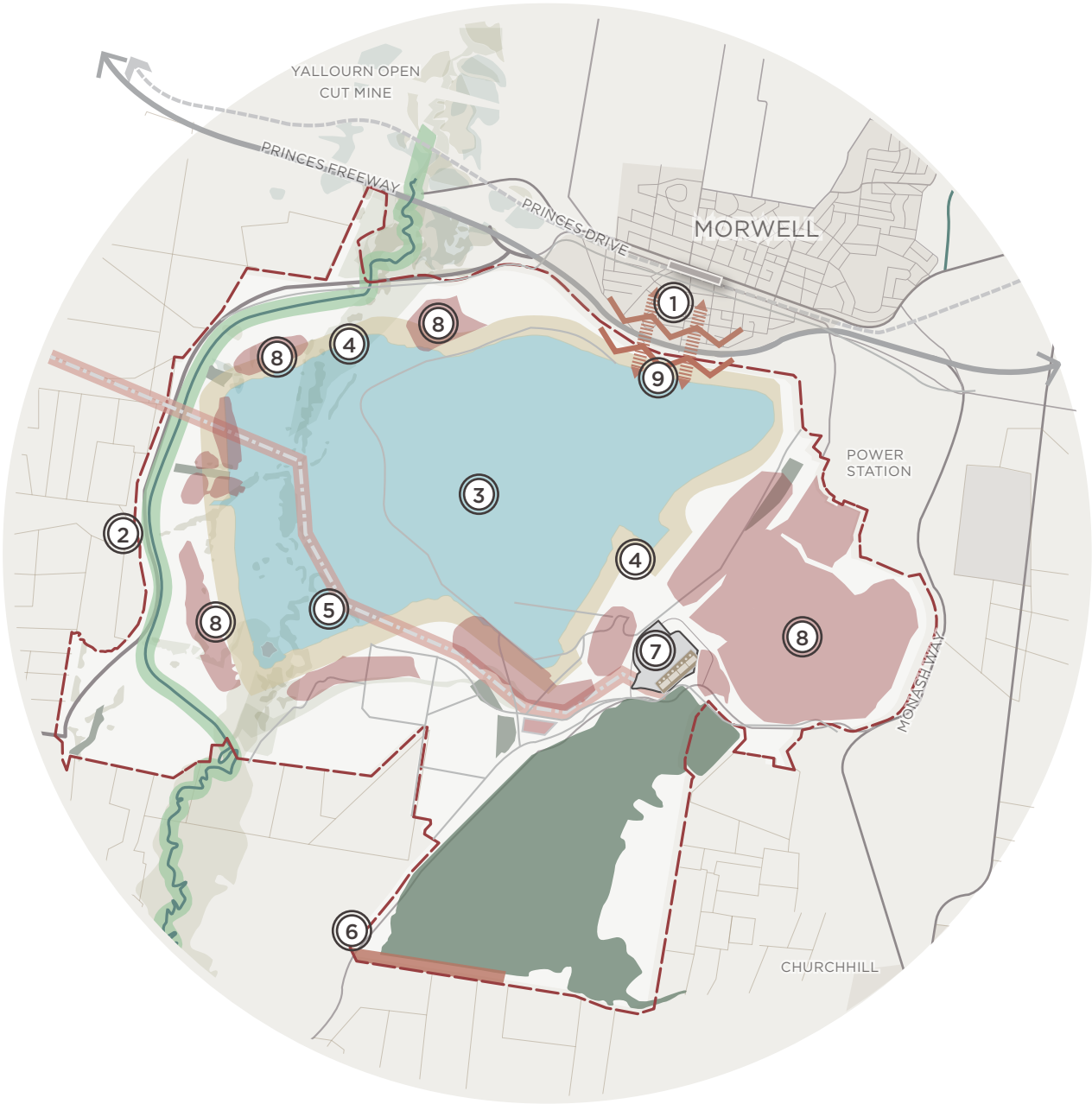


Figure 3: Site constraints



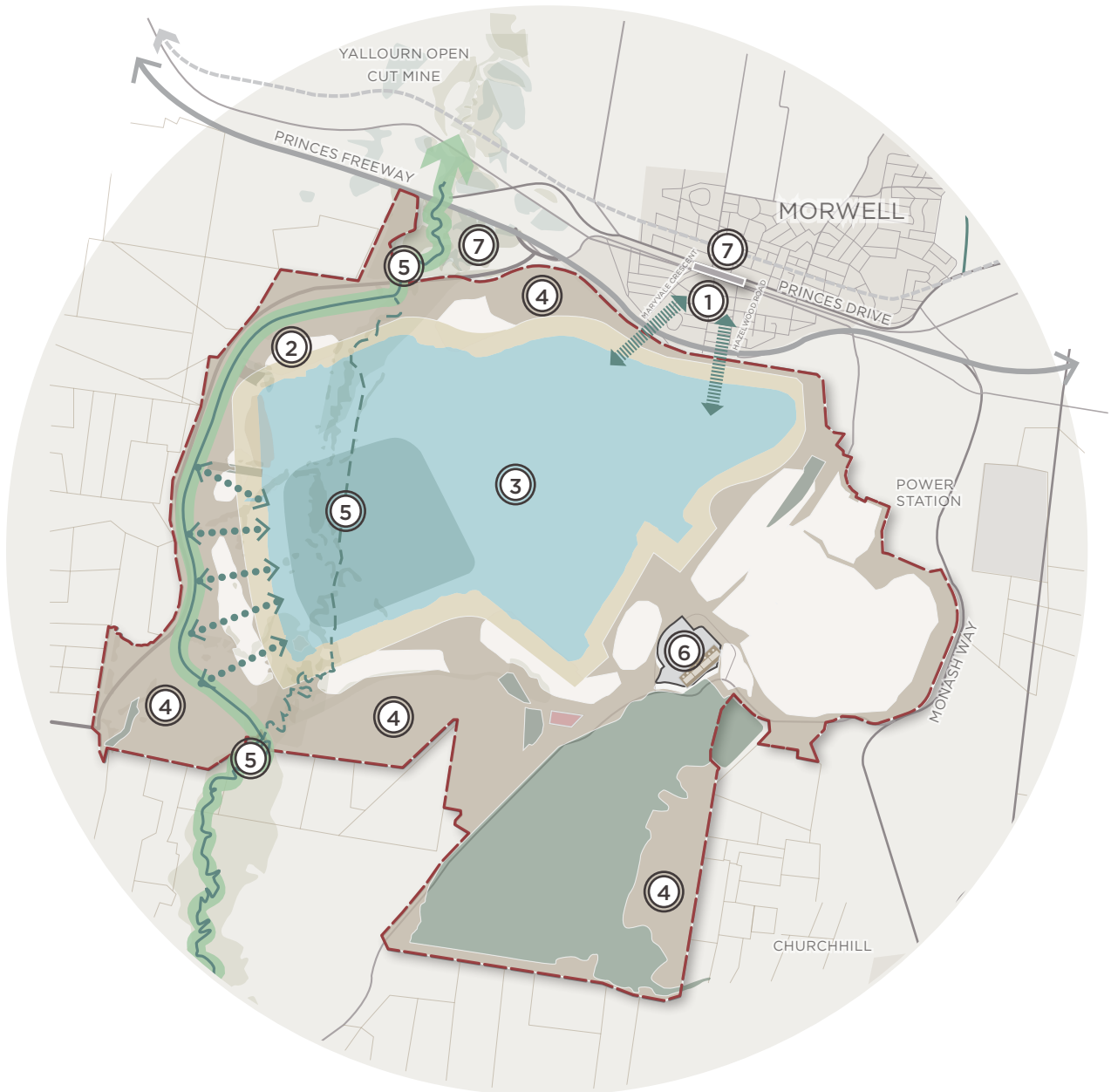
# Site constraints

The strategic background and technical research undertaken has informed a series of identified site constraints, which are summarised in Figure 3, and listed below.

- ① The Princes Freeway currently acts as a barrier between the site and Morwell, including the train station. This makes it difficult for pedestrians and cyclists to access.
- ② The Morwell River, currently diverted around the western boundary of the site, may result in flooding of low-lying land.
- ③ The mine void presents limited opportunity for development due to land stability. The desired intent for use of the mine void is a water body / lake.
- ④ The area immediately adjacent to the mine void, within the mine void buffer is not suitable for structures or buildings.
- ⑤ Overhead transmission lines restrict future land uses. Structures and buildings should be located a minimum of 60 metres away to maintain public safety and access for maintenance.
- ⑥ Existing underground gas and fuel pipelines need to be managed so as not to restrict future land uses. Prior to assessment and rehabilitation, new weight bearing structures should not be located on top due to land stability, public safety and access for maintenance.
- ⑦ The switchyard will remain in operation for 20+ years, limiting any short-medium term opportunities for redevelopment.
- ⑧ Landfills and land subject to environmental audit may be restricted with regard to future land uses. Some of these areas may be subject to restrictions consistent with approved beneficial usage which may include grazing and other intensive agricultural industries and uses.
- ⑨ Proximity of Hazelwood to the existing Morwell town presents a constraint. Land stability concerns will be modelled to understand possible impact on the town of Morwell and other known receptors, and inform management or mitigation.

## LEGEND

- Site Boundary
- Rediverted Morwell River
- Mine Void
- Mine Void Buffer Zone
- Switchyard
- Substation
- Cemetery
- Land Subject Minimal Constraint
- New links to Morwell
- Shallowest Section of the Mine Void
- Current Morwell River Corridor
- Potential Access for Recreation Use
- Potential Community Pathways & Connectivity to Existing Wetland Network
- Wetlands



**Figure 4: Site opportunities**

# Site opportunities

From the strategic background and technical research undertaken, a broad range of opportunities have been identified for Hazelwood, which are summarised in Figure 4, and include, but are not limited to:

- ① There is an opportunity to provide new links between Morwell and the site, across the Princes Freeway. Extending Maryvale Crescent and / or Hazelwood Road across the Princes Freeway to the site would significantly enhance connectivity between Morwell and the site. It would provide a logical extension of the Traralgon-Morwell primary population centre and regional employment hub. Key links would further support the Traralgon-Morwell-Moe-Churchill networked city, providing increased connectivity across the Princes Freeway for all modes of transport / travel.
- ② Low-lying land abutting the Morwell River presents an opportunity to provide large-scale recreational uses in a tranquil setting, overlooking the lake at the site. The provision of recreational uses will further enhance the Gippsland Region's extensive tourism offering and help to put Hazelwood on the map as a key destination in the region.
- ③ The mine void presents a major opportunity to create a significant water body at the centre of the site. A water body of this scale could provide for a range of activities relating to recreation and industry, noting that the south-western portion of the mine void will remain reasonably shallow and therefore more accessible. Opportunities are for both on-water and waters-edge uses that make the most of this major element of this site.
- ④ There are some large portions of land that have limited constraints. These present significant redevelopment opportunities for the site, particularly when considered in the context of the presence of some quantities of contaminated land on site. Where treated and capped appropriately, landfilled and contaminated land areas can be repurposed to support other uses.
- ⑤ Existing wetlands to the north and south of Hazelwood provide an opportunity to establish a wetland and water-based natural environment to both enhance landscape and environment, and provide recreational opportunity. Future opportunities in the long term may exist to re-align the Morwell River through the site.
- ⑥ The switchyard presents a significant opportunity for the site to support energy-related uses. This is both in terms of opportunities to feed into the grid and generate electricity for Victoria, and also to extract energy to support new uses on the site.
- ⑦ Proximity of the site to both the Princes Freeway and Gippsland Regional Rail (with a station at Morwell) provide significant opportunity to unlock growth for Hazelwood. As people travel these popular corridors between Melbourne and East Gippsland, and in the context of significant committed funding to enhance the rail corridor, there is an opportunity to optimise Hazelwood's location to create a destination.



4



Vision



## LEGEND

- Site boundary
- Residential/ Town centre
- Energy
- Recreation/Tourism
- Agriculture



Figure 5: Key influences

## Key influences

Emerging from the strategic and spatial context where Hazelwood sits, and the site opportunities and constraints, are a number of key influences, which help to understand what a future for Hazelwood might look like (Figure 5).

**Morwell and its planned expansion** provide one key influence. Proximity to residential and town centre uses are a key driver of the potential for Hazelwood, if challenges of accessibility can be overcome.

**Tourism and recreation** are also key influences within the area surrounding Hazelwood - to the east with Melbourne, and the west with the Gippsland lakes and East Gippsland Coast. Importantly to the north and south it also links in with key green links, and Mount Baw Baw and Wilsons Promontory as key attractors. Hazelwood's position makes it a prime location for such influences to take hold and unlock growth.

**Energy** has long been an influence in the Latrobe Valley and will continue to be so into the future. The history of Hazelwood and its power generating neighbours cannot be forgotten, especially when coupled with

exciting investments in clean energy nearby. With continued connectivity to the national grid, a strong driver for the future of Hazelwood is its energy past, present and future.

Finally, agriculture and the strong food production economy in the area is a major influence for Hazelwood. Agricultural land to the south and east of the site provides the backdrop for opportunities to rehabilitate the former mine land for productive uses.

These key influences, informed by the analysis set out in the preceding pages, have helped shape a future vision and a set of key principles. The vision captures the catalytic opportunity for Hazelwood to respond to these key influences and unlock a new chapter in Hazelwood's long and interesting history.

# LEGEND

- Project Boundary
- Key settlement areas
- Tourism & recreation link
- Growth corridor
- Link to agricultural
- Clean energy

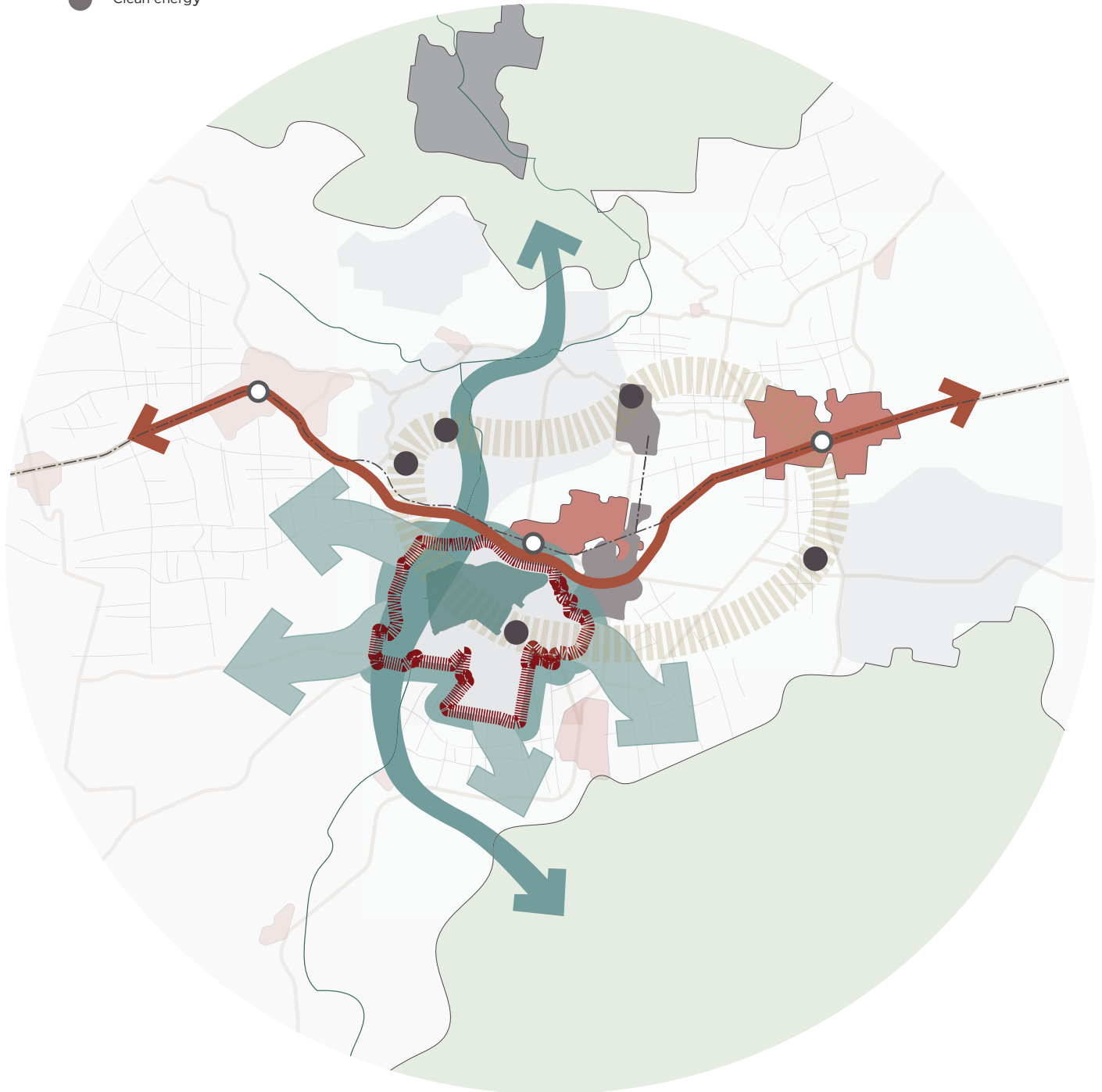


Figure 6: Vision

# Vision

This Concept Master Plan assumes the following vision for the future of Hazelwood:

*Through the reinvigoration of the historic economies that have made the Latrobe Valley what it is today, Hazelwood will catalyse a new era of energy, agricultural production, recreation and tourism for the Latrobe Valley.*

At the nexus of key urban, agricultural and tourism growth corridors, Hazelwood will be re-established as the hub of the Latrobe Valley providing a range of opportunities for clean energy production, eco and agri-tourism, and sport and recreation. It will become the gateway to Gippsland's extensive tourism offering – Melbourne, Mt Baw Baw, Wilsons Promontory and East Gippsland – and will be a sought-out 'destination on the way'.

On site, the thousand-hectare lake will be the powerhouse for new communities, comprised of a sustainable mix of land uses that support a safe and responsive economic, social and environmental future for Hazelwood.

The new uses will create a lasting legacy for Hazelwood, providing an opportunity for new and existing communities alike to engage with the natural environment, and celebrate the site's historic value for many years to come.

# Key principles

To support the overarching vision for Hazelwood, a series of principles have been developed to guide exploration of future options at the site. These are informed on the understanding of the regional economic, spatial and site context and opportunities at Hazelwood, drawn from the strategic background and technical research undertaken.



## **Create an exemplar for other coal-powered plants and mines**

In the context of a global shift towards a clean energy economy, and the future closures of neighbouring Yallourn and Loy Yang brown coal mines (expected in the next 20-30 years), there is an opportunity for Hazelwood to set a precedent for successful rehabilitation and reuse of former coal power stations and mines in Australia.



## **Utilise the presence of the switchyard and grid connection opportunities**

A connection to the national grid provides a key opportunity to build on Hazelwood's energy producing past and, in the context of the clean energy transition, explore opportunities to continue to contribute to energy production in Victoria, as well as providing a source of energy for new uses on site.



## **Respond to the site's physicality to provide a safe, stable and sustainable land use future**

Possible land uses at Hazelwood will need to respond to the landforms within the Rehabilitation and Closure Plan to ensure they are suitable for the post-coal environment. This will be of vital importance to securing a successful long-term future for Hazelwood.



## **Complement the wider economic, social and environmental context of the region**

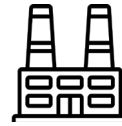
Opportunities to support strong and emerging sectors, catalyse on existing and proposed key assets, and respond to demographic trends should be explored to ensure the future Hazelwood draws upon the characteristics of the surrounding area.





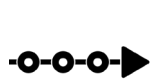
### **Adopt a nature responsive design approach**

The site is home to a number of important natural features and the Latrobe Valley's natural environment is one of its key assets. Ensuring that the post-coal landscape focuses on maximising natural capital will have benefits not only for the environment, but also in complementing wider context.



### **Celebrate the historic value of the site and the wider region**

Hazelwood's mining and energy generation past has played a strong part in the character and history of Morwell and the Latrobe Valley for many years. New uses should make the most of the area's energy past to ensure this vital part of history is remembered and integrated into Hazelwood's future.



### **Provide flexibility in planning and design which supports a short, medium and long-term future**

Planning for the future of Hazelwood will need to ensure that from day ONE, the best use is being made of the site's assets and opportunities. At the same time, it will need to consider the evolving opportunities the site presents and ensure Hazelwood's future uses are resilient to respond to changes and trends, long after the post-coal transition.



### **Support a productive economy that builds on the availability of a skilled workforce**

The Latrobe Valley is home to a number of key economic drivers and an employment base with strong skills across agriculture, industry and energy production. Hazelwood's future should provide support to that economy, both in providing employment for local people and in contributing more broadly to the productivity of the Latrobe Valley.



### **Optimise the mine void and opportunities associated with the creation of a water body**

The mine void represents over a quarter of the total site land area. The future uses of Hazelwood should seek to make best of the opportunities that a full lake presents in terms of water-front and water-based development and utilisation.

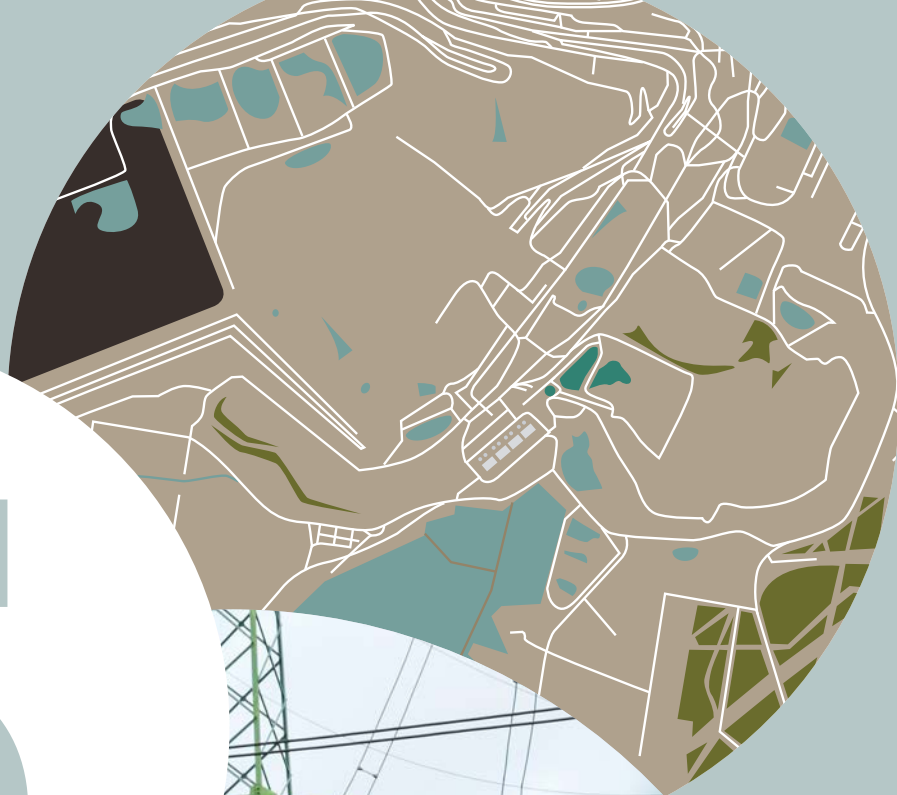


### **Provide a positive long-term legacy for the region, which generates value for all involved**

ENGIE's ultimate aim is to ensure Hazelwood leaves a positive lasting legacy in the area. The site's future uses should seek to support value creation for all stakeholders, including ENGIE, government, private investors and the community alike.



5



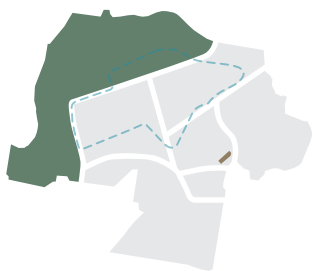
Concept framework





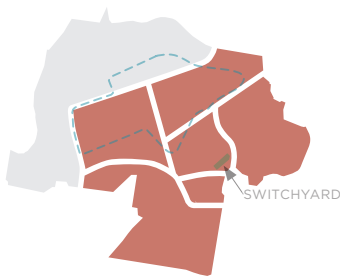


The vision and key principles, and key influences that informed them demonstrate that agriculture, tourism and recreation, energy and residential expansion present the major opportunities for Hazelwood's future. Exploring these in the context of the site opportunities and constraints (including site conditions such as contamination and land stability) analysed in section 3, the site can be divided into three key opportunity areas:



The Tourism Belt

The **Tourism Belt** will provide a centre for tourism, recreation and small-scale agriculture, centred around the filled mine void lake. The key drivers behind the Tourism Belt are: proximity to the identified growth hub of Morwell, the strongest site connectivity to road and rail infrastructure, and a lower topography around the lake edge.



The Productivity Hub

The **Productivity Hub** centres around the key asset of the switchyard. It will be home to a range of industrial, energy producing and agricultural uses that use and take from, and feed into the grid. Access to clean water and connectivity to road and rail infrastructure are also important to the Productivity Hub, as well as links to existing industry, energy and agricultural uses.



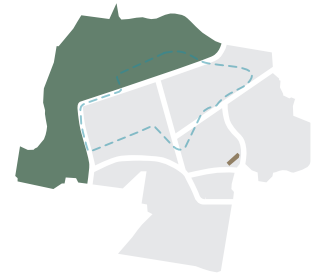
The Mine Lake

The **Mine Lake** will be the heart of Hazelwood. It will be much more than just a water body, supporting a range of recreation activities and energy-related activities. Options for its use are informed by accessibility and topography. Potential uses may be constrained by future water quality, about which there is ongoing investigation.





# The Tourism Belt



The Tourism Belt embeds Hazelwood as the nexus between key tourism and recreational attractors of Melbourne, East Gippsland, and Mount Baw Baw, providing a centre for ecotourism, agritourism and food tourism related uses. Running north-south through this portion of the site, the Morwell River and associated wetlands present a unique opportunity to create a large-scale wetland and recreation area, abutting the central lake, which will also provide recreational access for a range of water-based uses. Located on some of the least constrained land on the site (in terms of contamination and land stability in particular) and with proximity to the Princes Freeway and Morwell, it presents the opportunity to extend the Morwell-Traralgon Growth Area, by connecting established and new communities and enabling local and regional economic growth. Visitor and commercial attractors, supported by residential uses, rural residential and farms, will draw locals and tourists to the area, boosting Gross Regional Product.

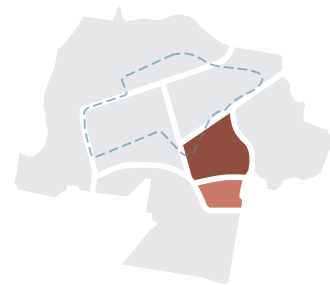
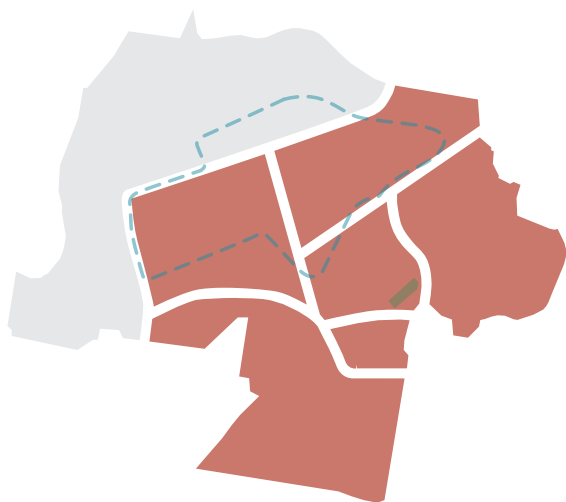
Opportunities for land uses and activities are:

- residential including low density residential and rural residential / farms to enable farm stays, support a program of events (including harvest festivals, farm tours) and foster a food tourism market (such as u-pick and food pedigree);
- small scale commercial and retail including restaurants and cafés etc., to enable a gourmet food tourism offering, provide food markets for local and visitors, and support a wider tourism market;
- tourism and recreational attractions (such as Eataly) to provide a focused anchor for tourism at Hazelwood, and support wider commercial and residential uses; and
- environmental including wetlands, parks and recreation trails which will support walking, cycling and horse riding for residents and visitors alike.

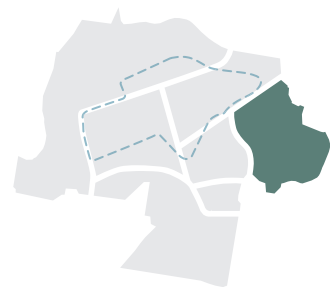
It should be noted that not all the land uses listed will be suitable across the whole Tourism Belt. The Concept Master Plan, in Section 6, takes into account site conditions, including land stability and contamination conditions, in articulating possible locations within The Tourism Belt for each of the land uses.

# The Productivity Hub

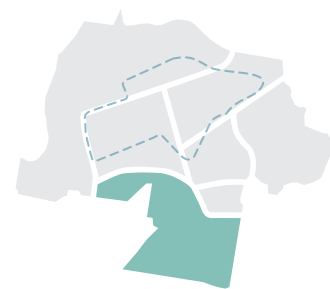
The Productivity Hub represents a range of land parcels on the eastern part of the Hazelwood site, which are symbiotically linked by the Industrial Core and its connectivity to the national grid. As a collective area, it has the potential to provide a range of industrial, energy-producing and agricultural uses to support existing character and interventions in the area.



Industrial Core + Buffer



The Energy-Agriculture Hub

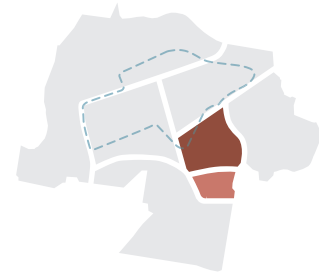


The Agriculture Hub



# The Productivity Hub

## The Industrial Core and Buffer



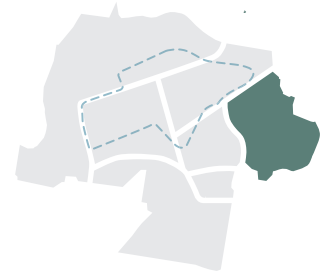
The Industrial Core capitalises on its proximity to the switchyard and distance from sensitive receptors, which provides the necessary infrastructure to create a successful, sought-after hub for clean energy, food processing, and biotech and innovation. Within a wider industrial corridor which links to Morwell and existing anchor businesses – including the Australian Paper Mill and Lion Dairy – it builds on the Latrobe Valley’s strong energy and food producing history to support: food preparation and packaging for export; possible energy generation plant to feed into the grid (and fuel the Hazelwood site); and smaller incubator spaces for technology and innovation. Proximity to nearby educational institutions which specialise in agriculture, science and food, alongside the proposed Gippsland High-Tech Precinct provide an opportunity for Hazelwood to become a centre for innovation in the food and energy industries.

Opportunities for land uses and activities are:

- clean energy production, including anaerobic digestion, energy from waste, bio-energy to enable supply of energy to the grid, and support wider clean energy production on neighbouring parts of the site;
- food processing plant for preparation and packaging to support a food export market, create a wider agricultural narrative for neighbouring parts of the site and bolster the gourmet, food tourism offer at Hazelwood;
- bio and agritech incubator spaces and innovation workspaces which could support pilot projects for innovative agricultural techniques, support intensive, hydroponic agricultural production and foster a start-up hub for sustainable industries and research and development; and
- an industry-agriculture-energy buffer which could act as an expansion of the industrial core to provide further food processing plant, or act as a site for testing pilot projects for innovative agricultural techniques.

# The Productivity Hub

## The Energy-Agriculture Hub



The Energy-Agriculture Hub edge builds on the specialisms established within The Industrial Core to support a productive agricultural economy for Hazelwood. As one of the most highly constrained parts of the Hazelwood site, opportunities for built structures or land intensive uses are limited. However, its proximity to The Industrial Core and switchyard, as well as connectivity to major transport routes present an important opportunity to provide biomes or glasshouses for hydroponic food growth, or lower-intensity agriculture for export.

Opportunities for land uses and activities are:

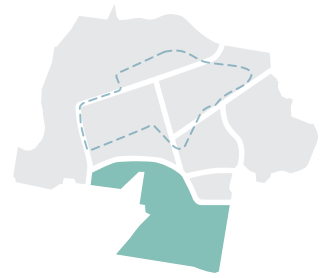
- animal grazing and large-scale non-intensive agriculture to support the strong cattle farming industry in the area, and drawing on wider agricultural influences at neighbouring sites, while reflecting the constraints of the site; and
- high-tech agriculture including hydroponics for intensive food production to feed into neighbouring food processing uses and support a food for export market, building on proximity to energy resources and innovation resources at the industrial core.





# The Productivity Hub

## The Agriculture Hub



The Agriculture Hub provides a significant opportunity for agriculture and forestry at Hazelwood, as the draining of the cooling pond will leave a relatively unconstrained pasture with fertile soils for certain crops and trees, and access both bulk and artesian water sources. Access to key transport infrastructure will provide the support for an export oriented economy for this part of the site – whether forestry plantations, biomes and glasshouses for hydroponic food growth or large-scale traditional agriculture – supported by proximity to the food processing and agritech hubs at The Industrial Core.



Opportunities for land uses and activities are:

- intensive soil-based agriculture for vegetables or grain utilising the fertile soils to support agricultural export market, and tie in with the food processing and agritech focus at The Industrial Core;
- high-tech agriculture including hydroponics for intensive food production to feed into neighbouring food processing uses and support a food for export market, building on proximity to energy resources and innovation resources at The Industrial Core; and
- hardwood forestry plantation to support the timber industry in the Latrobe Valley, drawing on the fertile soils this land parcel offers.







# The Mine Lake

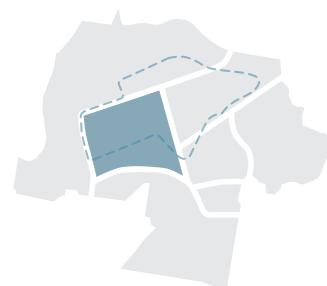
The Mine Lake provides the heart of the Hazelwood site. It is a key factor in informing the future characteristics and possible land uses of different parts of the site, and represents an opportunity for a range of water-based and waters-edge uses.

Reaching a full lake scenario will take between six and 24 years based on initial technical assessment. As the lake fills, different topography will open up different uses, unlocking several important opportunities on the site. The opportunity to re-establish the Morwell River could also be explored once the full lake has been assured.

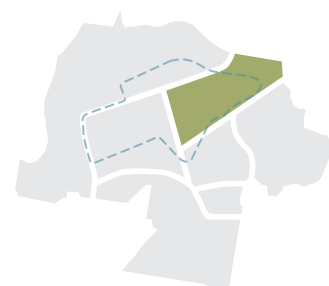
The site opportunities and constraints present a number of opportunities for different uses of the Mine Lake, considered overleaf.



The Recreational Lake



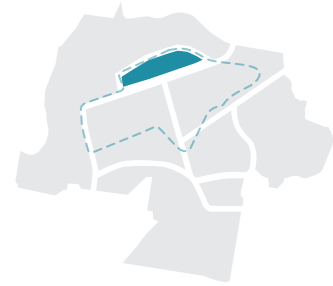
The Productive Lake



The Clean Energy Lake

# The Mine Lake

## The Recreational Lake



The Recreational Lake provides a tranquil backdrop for users of the adjoining wetland and other recreational interests, including walking and cycling tracks, as well as visitors attracted by the wider tourism offer at Hazelwood. The shallow nature of the lake at the western edge enables access to the water, which could facilitate water-based recreational activities.



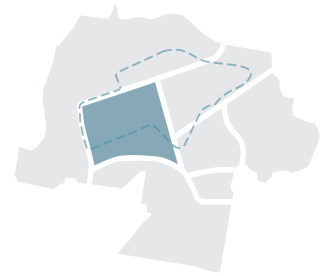
Opportunities for land uses and activities are:

- boating, watersports and other water-based activities such as fishing to support wider tourism and recreational uses at Hazelwood; and
- waters-edge recreation such as wetland, parkland or other open space that provides an attractive waterside landscape for community and visitors to enjoy the site.

Potential recreational uses of the full lake may be constrained by future water quality. Ongoing investigation is being undertaken to further understand the future water quality position over time.

# The Mine Lake

## The Productive Lake



The Productive Lake supports a hub for aquaculture within Hazelwood, which will be a resource for algae (and other aquatic produce), for export to market as fuel and feedstock. The water resources provided within this part of the site, alongside the lower lake-edge topography and proximity to The Industrial Core, make this the most suitable location for such uses within the site. Stable land on the lake edge presents a location for a supporting processing plant for aquaculture uses, as well as potential water treatment facility which would support aquaculture. It would also support the wider set of agricultural uses proposed on neighbouring sites.

Some elements of the lake-edge will not be suitable for built structures and therefore be best suited to accommodate non-load bearing supporting services, and possibly lower-intensity agricultural uses such as grazing.

Opportunities for land uses and activities are:

- aquaculture farming in the lake, utilising the available water resources to support export for fuel and feedstock and supporting plant;
- in the circumstance that further investigation identifies low water quality due to a lack of interconnection, a water treatment plant may be pursued by future industrial and agricultural users. However, it is expected that water usage opportunities will be maximised via interconnection in the medium term; and
- animal grazing and small-scale non-intensive agriculture to support the cattle farming industry in the area and draw on wider agricultural influences at neighbouring sites, while reflecting the constraints of the site.





## The Mine Lake

## The Clean Energy Lake



The Clean Energy Lake builds on the energy generating history of the site. Its proximity to The Industrial Core and energy generation, as well as access to the switchyard, would see it become the energy generator for Hazelwood. This would support opportunities to both provide power to the site (through a circular economy approach) and feedback into the grid to generate income.

Opportunities for land uses and activities are:

- floating solar PV to enable supply of energy to the grid, and support wider clean energy production on neighbouring parts of the site.





6



Concept Master Plan



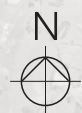
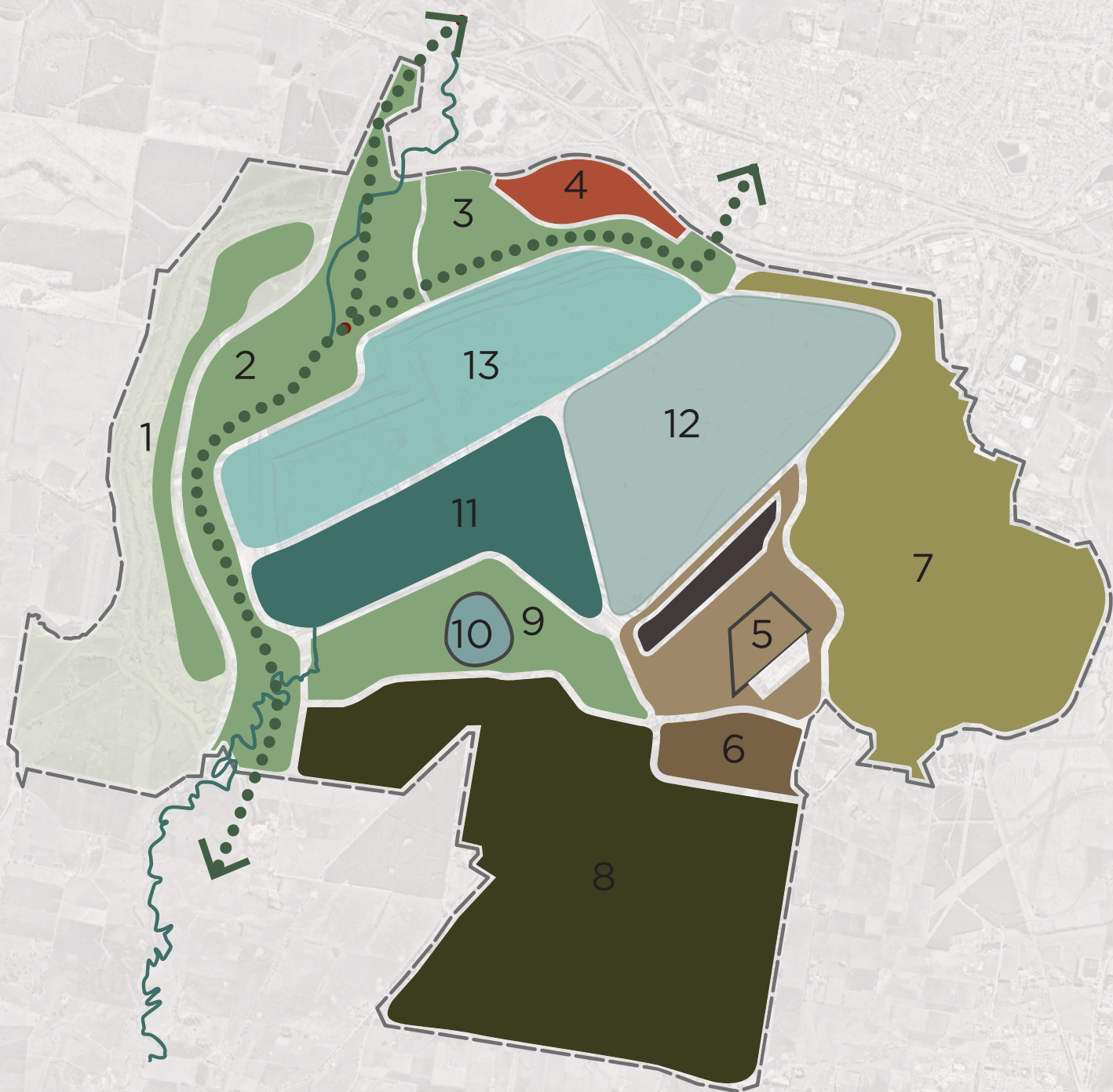


Figure 7: Long-term Concept Plan



Building on the Concept Framework, and the site specific opportunities and constraints, a concept master plan has been articulated for Hazelwood, in the long-term, and in a short to medium-term scenario:

## Hazelwood - long-term future

In its end state, Hazelwood will benefit from a full lake; a proud focal point for all activities, visible from many aspects within the site. As the powerhouse for new communities, the lake will be the first of its kind to be fully utilised.

The shallower end of the lake will support The Tourism Hub which is alive with visitors who have come to Hazelwood to eat fresh produce, partake in and learn farm practices and take a stroll through the beautiful wetlands. Some enjoy an overnight stay on locally run farms or pamper themselves in a secluded luxury eco-tourism resort.

The Productive Hub will be supported by a strong circular economy. Deeper portions of the lake could produce algae biofuel while floating solar panels provide a renewable energy source – both of which feed supporting industries and the switchyard.

Land within The Productive Hub will be in high demand from nearby universities and many innovative start-up businesses who have set up incubator hubs. Entrepreneurs will be drawn to the abundant benefits offered as a result, and happily test business ideas, connecting with like-minded professionals.

Still plentiful opportunity to come, the site will have built-in flexibility and has successfully provided a ‘no regrets’ legacy championed by the region.

It will catalyse change in its neighbouring areas also - with Loy Yang and Yallourn looking to build upon the opportunity and activities taking place in Hazelwood to continue to drive a successful and diverse economy.

**LEGEND**

--- Site boundary  
— Morwell River

**The Tourism Belt**

- 1 Western edge
- 2 Wetland & recreation
- 3 North-lake edge
- 4 Morwell expansion

**The Productivity Hub**

- 5 Industrial core
- 6 Industry-Agri-Energy Buffer
- 7 Overburden area
- 8 Cooling pond area
- 9 Southern lake edge
- 10 Water side processing

**The Mine Lake**

- 11 Productive lake
- 12 Clean-energy lake
- 13 Recreational lake



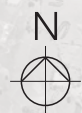
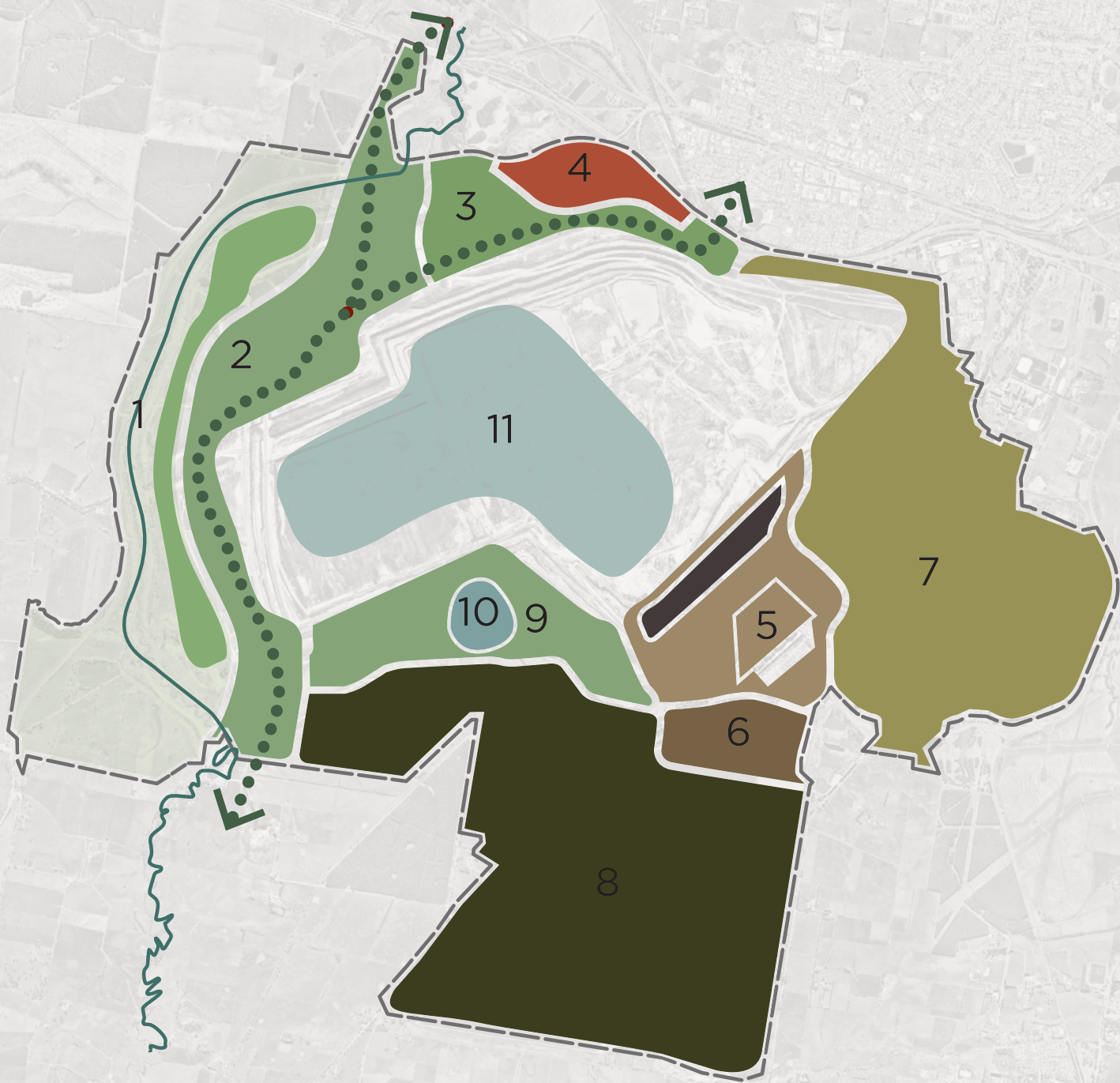


Figure 8: Short to Mid-term Concept Plan

# Hazelwood - short to mid-term future

The beginnings of The Tourism Hub will be visible from the Princes Freeway; a new tourism anchor, attracting a multitude of visitors each day as a key destination for good quality food and a relaxed ‘country’ experience.

A new connection across the Princes Freeway between this anchor and the Morwell town centre and train station pulls footfall in both directions and will help to reinvigorate Morwell which has seen new retail and commercial tenancies.

The mine void will be successfully filling up with clean water. The rehabilitated exposed batters above the expected final water line will be alive with greenery.

The land surrounding the mine void will be diverse and new industrial activities adjoining the switchyard will be seen to be taking shape.

The site will draw significant community interest as Morwell residents and visitors alike begin to enjoy the recreational space to the west.

Industry and government support for the future of Hazelwood will be growing, and the site will be increasingly appealing to investors looking to capitalise on the site’s vast and affordable offering.

LEGEND

- Site boundary
- Morwell River

The Tourism Belt

- 1 Western edge
- 2 Wetland & recreation
- 3 North-lake edge
- 4 Morwell expansion

The Productivity Hub

- 5 Industrial core
- 6 Industry-Agri-Energy Buffer
- 7 Overburden area
- 8 Cooling pond area
- 9 Southern lake edge
- 10 Water side processing

The Mine Lake

- 11 Partial lake





Land use	Minimum area (hectares)	Requirements	Timeframe
<b>1 - western edge</b>			
Farms	2-100 ha	<ul style="list-style-type: none"> <li>- clean water for irrigation</li> <li>- fertile soils suited to appropriate crops</li> <li>- limited topography and good climate</li> <li>- access by road and rail for visitors</li> <li>- small-scale rural residential uses</li> </ul>	Short, medium and long-term
Small-scale residential (community)	15+ha	<ul style="list-style-type: none"> <li>- land stability</li> <li>- complimentary commercial, tourism and recreational uses</li> <li>- access by road and rail</li> <li>- pedestrian and cycle networks</li> </ul>	Medium and long-term
Commercial / tourism	5-15ha	<ul style="list-style-type: none"> <li>- land stability</li> <li>- complimentary residential, tourism and recreational uses</li> <li>- access by road and rail</li> <li>- pedestrian and cycle networks</li> </ul>	Medium and long-term
Food and eco tourism attractions	10-15ha	<ul style="list-style-type: none"> <li>- access by road and rail for visitors</li> <li>- pedestrian and cycle networks</li> <li>- complimentary recreational, commercial and residential uses</li> <li>- attractive landscape</li> <li>- land stability</li> </ul>	Long-term
<b>2 - wetland &amp; recreation</b>			
Wetlands	Various	<ul style="list-style-type: none"> <li>- interconnectivity to existing wetland network</li> <li>- access to low energy, natural water in/out flows</li> <li>- depth &lt; 2 metres</li> </ul>	Short, medium and long-term
Sports / recreational facilities	Various (Tennis court = 37m by 18m; Basketball = 28m by 15m; Football/ rugby = 100 m x 75m)	<ul style="list-style-type: none"> <li>- access by road and rail for visitors</li> <li>- pedestrian and cycle networks</li> <li>- complimentary commercial, residential and tourism uses</li> <li>- supporting facilities e.g. changing rooms</li> </ul>	Medium and long-term
<b>3 - north-lake edge</b>			
Recreational greenspace	Various	<ul style="list-style-type: none"> <li>- pedestrian and cycle networks</li> <li>- complimentary recreational, commercial and residential uses</li> <li>- attractive landscape</li> </ul>	Short, medium and long-term



Land use	Minimum area (hectares)	Requirements	Timeframe
Sports / recreational facilities	Various (Tennis court = 37m by 18m; Basketball = 28m by 15m; Football/ rugby = 100 m x 75m)	<ul style="list-style-type: none"> <li>- access by road and rail for visitors</li> <li>- pedestrian and cycle networks</li> <li>- complimentary commercial, residential and tourism uses</li> <li>- supporting facilities e.g. changing rooms</li> </ul>	Medium and long-term

#### 4 - Morwell expansion

Food and eco tourism attractions	5-15ha	<ul style="list-style-type: none"> <li>- access by road and rail for visitors</li> <li>- pedestrian and cycle networks</li> <li>- complimentary recreational, commercial and residential uses</li> <li>- attractive landscape</li> <li>- land stability</li> </ul>	Short, medium and long-term
Residential (community and visitors)	5-15ha	<ul style="list-style-type: none"> <li>- land stability</li> <li>- complimentary commercial, tourism and recreational uses</li> <li>- access by road and rail</li> <li>- pedestrian and cycle networks</li> </ul>	Medium and long-term
Commercial / tourism	5-15ha	<ul style="list-style-type: none"> <li>- land stability</li> <li>- complimentary residential, tourism and recreational uses</li> <li>- access by road and rail</li> <li>- pedestrian and cycle networks</li> </ul>	Medium and long-term

#### 5 - Industrial core

Food processing	10-30ha	<ul style="list-style-type: none"> <li>- transport infrastructure for export</li> <li>- land stability</li> <li>- switchyard / power source</li> <li>- proximity to agricultural uses</li> </ul>	Short, medium and long-term
Bio / agritech and innovation	Various	<ul style="list-style-type: none"> <li>- smaller scale plots for start-up and workspaces</li> <li>- switchyard / power source</li> <li>- strong digital infrastructure</li> <li>- proximity/accessibility to universities and population centres</li> </ul>	Short, medium and long-term
Bio-energy	10-20ha	<ul style="list-style-type: none"> <li>- access to fuel source by road/rail (waste/biomass)</li> <li>- land stability</li> <li>- switchyard / grid connectivity</li> <li>- utilities infrastructure</li> </ul>	Medium and long-term

Land use	Minimum area (hectares)	Requirements	Timeframe
<b>6 - Industry-Agri-Energy Buffer</b>			
Food processing industries	10-30ha	<ul style="list-style-type: none"> <li>- transport infrastructure for export</li> <li>- land stability</li> <li>- switchyard / power source</li> <li>- proximity to agricultural uses</li> </ul>	Short, medium and long-term
Bio / agritech and innovation	Various	<ul style="list-style-type: none"> <li>- smaller scale plots for start-up and workspaces</li> <li>- switchyard / power source</li> <li>- strong digital infrastructure</li> <li>- proximity/accessibility to universities and population centres</li> </ul>	Short, medium and long-term
Bio / agritech 'pilot projects'	Various	<ul style="list-style-type: none"> <li>- proximity to other biotech</li> <li>- access to water for irrigation</li> <li>- switchyard / power source</li> <li>- proximity/accessibility to universities and population centres</li> </ul>	Short, medium and long-term
<b>7 - Overburden area</b>			
Animal grazing	av. 350ha	<ul style="list-style-type: none"> <li>- clean water for irrigation</li> <li>- transport infrastructure for export</li> </ul>	Short, medium and long-term
Hydroponics	10-100ha	<ul style="list-style-type: none"> <li>- access to water (can be treated)</li> <li>- transport infrastructure for export</li> <li>- switchard / power sources</li> </ul>	Medium and long-term
<b>8 - Cooling pond area</b>			
Animal grazing	av. 350ha	<ul style="list-style-type: none"> <li>- clean water for irrigation</li> <li>- transport infrastructure for export</li> </ul>	Short, medium and long-term
Hydroponics	10-100ha	<ul style="list-style-type: none"> <li>- access to water (can be treated)</li> <li>- transport infrastructure for export</li> <li>- switchard / power sources</li> </ul>	Short, medium and long-term
Soil-based agriculture	Vegetables = av. 250ha Grain = av. 2,000ha	<ul style="list-style-type: none"> <li>- access to clean water for irrigation</li> <li>- fertile soils suited to appropriate crop species</li> <li>- transport infrastructure for export</li> <li>- requires small-scale rural residential uses</li> </ul>	Short, medium and long-term
Forestry / Timber industries	100ha+	<ul style="list-style-type: none"> <li>- access to clean water for irrigation</li> <li>- fertile soils suited to appropriate tree species</li> <li>- transport infrastructure for export</li> </ul>	Short, medium and long-term

Land use	Minimum area (hectares)	Requirements	Timeframe
<b>9 - Southern lake edge</b>			
Animal grazing	av. 200ha	- clean water for irrigation - transport infrastructure for export	Short, medium and long-term
Aquaculture	Various from 5ha to 1,000ha+	- transport infrastructure for export - switchyard / power source - supporting processing facilities - full lake	Long-term
<b>10 - Water-side processing</b>			
Water infrastructure	10-30ha	- water for use - water pipe network	Short, medium and long-term
Aquaculture processing	30-50ha	- proximity to aquaculture farming	Medium and long-term
<b>11. Productive lake / partial lake</b>			
Partial Lake	n/a	- no uses, lake being filled	Short and medium-term
Aquaculture	Various from 5ha to 1,000ha+	- transport infrastructure for export - switchyard / power source - supporting processing facilities - full lake	Long-term
<b>12. Clean-energy lake</b>			
Floating solar farm	100ha (50MWe)	- switchyard / grid connectivity - utilities infrastructure - full lake	Long-term
<b>13. Recreational lake</b>			
Recreational water use	Various (Rowing lake = 2,500m x 150m; boating lake = 5ha+)	- access by road and rail - pedestrian and cycle networks - complimentary commercial, residential and tourism uses - supporting facilities e.g. changing rooms - full lake	Long-term







7



Catalysing change

**LEGEND**

-  Site Boundary
-  Existing Roads
-  Proposed Roads
-  New Community Pathways
-  Mine void
-  Wetlands



**Figure 9: Access and Connectivity**

The Concept Master Plan represents the future aspirations for development of Hazelwood. In order to catalyse this, key interventions are required. This section identifies a number of potential catalytic opportunities and potential key moves that could unlock change for Hazelwood.

## Access and connectivity

**To support the future growth and catalytic effects of Hazelwood for the wider region, there will need to be a strong access network within and around the site. Hazelwood is well connected to the wider Latrobe Valley, the Gippsland Region and Melbourne via existing infrastructure, fostering the ability to create a well connected site.**

The Princes Freeway is the major arterial road connecting Hazelwood to Melbourne and the greater Gippsland Region. Driving time to the site from Melbourne via the Princes Freeway, takes approximately two hours.

Other major roads connecting the site to the freeway include the Strzelecki Highway to the west of the site and Monash Way to the east, which connects to the town of Churchill. Once on-site, there are few formal existing roads; Brodribb Road, Yinnar Road and Switchback Road provide good access to the rehabilitated Cooling Pond and wetland area.

The V/Line train, which runs from Southern Cross Station in Melbourne to Bairnsdale Station, also connects several of the large towns in the Latrobe Valley, including Morwell, Moe and Traralgon. The train travels several times per day and takes approximately two hours 10 minutes to Morwell. Importantly, the Government has committed funding to undertake service improvements to this train line and improve connectivity.

Future development will need to use this connectivity to ensure growth opportunity is optimised. Access points from the Princes Freeway and regional rail will be important, particularly for unlocking the tourism belt and opportunities for recreational and related uses at Hazelwood. Access from the strategic road network will also be vital for enabling the growth of the productivity hub and opportunities for import and export of products into the site.

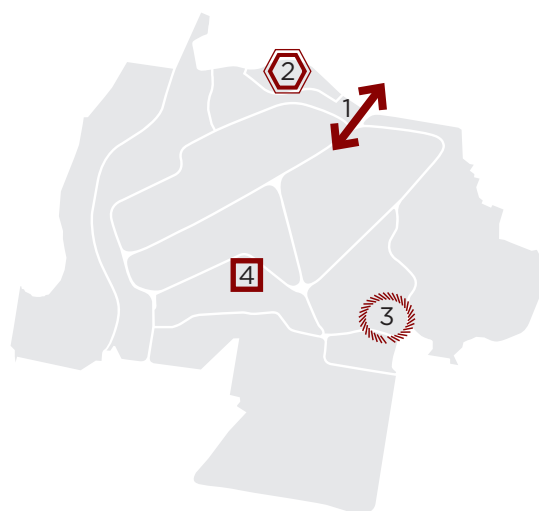
Further work and assessment will be required for any future development to determine transport capacity, requirements and demands. Engagement with road management authorities will also be necessary.



# Key moves

**In order to unlock the potential for Hazelwood and enable the different possible land uses for the site, a series of ‘key moves’ (or priority interventions) are required. If implemented, key moves will act to catalyse growth and change to help achieve the vision for Hazelwood.**

There are four key moves which will help to provide flexibility in planning and design into the short, medium and long-term future. Each key move is underpinned by the land use and economic narrative for the site and will help to stimulate further investment in the site’s redevelopment. Each of these key moves would need to be subject to detailed feasibility testing, site conditions analysis and impact assessment before progressing.





## 1. Land bridge



Current severance between Hazelwood and Morwell, caused by the Princes Freeway, acts as a barrier to accessing the site for train users, pedestrians and cyclists.

A well-designed land bridge over the freeway would enhance arrival to Hazelwood, inviting greater footfall to the site from residents and visitors. It would help to unlock opportunities for tourism and recreation investment at Hazelwood and propel The Tourism Hub into a thriving economic centre for the Latrobe Valley and Gippsland Region.

## 2. Food-based retail use or commercial farm



An anchor tourism asset, such as Eataly or The Farm at Byron Bay would help to kick-start a broader tourism and recreation offering at the site, attracting visitors to the area and building the site's prestigious reputation.

Such an anchor could draw on the existing agricultural character and history of food production in the area to provide a centre for 'farm to plate' tourism. It could further include remnants of the original power station to help embed and retain the important mining past of the site.

From this, there will be opportunities to expand into further tourism, commercial and residential uses, as well as recreation as the mine lake fills and landscape becomes established.

## 3. Power Station site rehabilitation



To enable the switchyard and industrial core to reach their potential, the site needs to be prepared for future development. A 'shovel ready' site will attract further investment into the area and opportunities around food, energy and innovation in agriculture.

## 4. Possible water infrastructure



A number of the potential uses for Hazelwood will be dependent on water access and quality from within The Mine Lake. Work is ongoing to explore future water quality, which will be affected by interconnection. Should interconnection not be possible, future industrial and / or agricultural users may need to take steps to manage water access and quality.

## Next steps and partners

This Concept Master Plan presents an initial ENGIE-led vision for the future of Hazelwood. Significant further work is needed, engagement and partnership working is needed to determine the best land uses, and to translate the vision set out herein into reality.

The success of the redevelopment of Hazelwood will be a collective effort and will involve multiple partners, including:

- the community;
- business (new and existing);
- investors and developers (new and existing);
- service providers (government and private); and
- other public sector partners / local / state / federal government.

Table 1 indicates, at this early stage, the possible roles and responsibilities of the partners identified.

This Concept Master Plan helps to demonstrate the size and scale of redevelopment opportunities across the site. It further helps to demonstrate that options for the redevelopment of the site are flexible and able to respond to catalytic events or activities driven by government or industry. It will provide a starting point for discussions between Government, community and key partners on how key moves and investments can be catalysed to create opportunities for private market (investment attraction) and community benefits via service delivery.

**Table 1: Potential roles and responsibilities**

ENGIE	Rehabilitation of land to enable future uses
	Visioning to identify opportunities for Hazelwood
	Support for key moves to unlock potential for investment
Community and Business	Input into vision and future directions for Hazelwood
	Future users of Hazelwood
Investors and Developers	Explore opportunities to fulfil the potential and vision for Hazelwood
	Purchase, invest in and/or develop particular land parcels and projects to drive forward future of Hazelwood
Service Providers	Continued management of service assets and review of future status in line with future vision
Government other public sector bodies	Consider the role of Hazelwood within the wider context of the Latrobe Valley Regional Rehabilitation Strategy and future of Latrobe Valley
	Support for future development strategy and involvement in key moves to unlock potential for investment

With regard to further work, as outlined in the introduction, next steps for ENGIE and the identified partners might include, but are not limited to:

- feasibility studies for the land uses proposed herein to identify economic costs and benefits, risks and impacts. This would then be supported by business cases to make the case for particular land use options;
- impact assessment of the proposed land uses upon sensitive uses, including nearby residential uses, identified receptors, and areas / assets of known significance;
- review of residential and industrial land supply and demand in the Latrobe Valley, and the need for Hazelwood to contribute to supply;
- analysis of the infrastructure (including transport) capacity, requirements and impacts of development at Hazelwood;
- detailed consideration of the proposed land uses in the context of Latrobe City Council's planning strategy and planning scheme, and consideration of any required amendments and the justification / process for making such changes; and

- identification of the required planning, environmental and other regulatory approvals to enable the proposed land uses.

This work should feed into development of any detailed site master plan for Hazelwood which draws upon the Concept Master Plan to identify a preferred approach, and delve further into the land uses, layout and associated infrastructure for the future of the site.

Another important piece of work, would be a regional piece which looks at the opportunities created by Hazelwood in collaboration with the other mine sites within the Latrobe Valley (Loy Yang and Yallourn). This would require collaboration between local and State government, ENGIE and future developers to produce an evidence-based study on the future of the Latrobe Valley and the collective offering of these sites to contribute to diversification of the economy. This could also involve an economic and investment plan for the Latrobe Valley that seeks to align and combine investment across the area.

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