



Environmental Management Framework: Western Outer Ring Main

FINAL REPORT

Prepared for APA

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1. Introduction and context

1.1 Introduction

Biosis Pty Ltd was commissioned by APA to prepare an environmental management framework (EMF) that sets out the environmental management objectives to be achieved during detailed design, construction and operation of the Western Outer Ring Main (WORM) and its ancillary infrastructure (the Project).

This EMF is a strategic document that summarises potential environmental impacts, drawing on desktop assessments prepared by Biosis, Alluvium and Golder in support of a referral under the *Environment Effects Act 1978* (Vic) (EE Act).

The desktop assessments (Desktop reports) completed for the Project are:

- Western Outer Ring Main – Surface Water and Groundwater desktop assessment (Alluvium 2019).
- Western Outer Ring Main, Cultural Heritage Preliminary Desktop Assessment (Biosis 2019b).
- Western Outer Ring Main (WORM): Desktop biodiversity assessment (Biosis 2019c).
- Western Outer Ring Main, Desktop Land Use and Planning Assessment (Biosis 2019d).
- Geological and Soils Desktop Study - Western Outer Ring Main Project (Golder 2019a).
- Noise and Air Quality Assessment Desktop Study - Western Outer Ring Main (WORM) Project (Golder 2019b).
- APA Wollert Compression Station Noise Assessment (Wood 2019).

(Referred to collectively as 'desktop assessments').

1.2 Purpose

The EMF provides a framework to deliver performance based environmental objectives designed to avoid, minimise and mitigate impacts of the Project. This framework has been developed on the basis of the desktop assessments and it is expected that the EMF would be refined further through the assessment process. As an overview, the environmental objectives seek to:

- Establish a framework to ensure compliance with statutory requirements and manage environmental risks.
- Identify environmental aspects and values as part of the project delivery phases.
- Identify environment management systems and project documents required to capture environmental risks and controls during project delivery phases.
- Identify higher level reporting and monitoring requirements.

The EMF will be used to guide the preparation and implementation of subsidiary documents, including:

- Construction Environmental Management Plan (CEMP) for the Project, required by the *Pipelines Act 2005* (Vic) (Pipelines Act).
- Consultation plan as defined in the Pipelines Act.
- Operational Environmental Management Plan (OEMP).

The subsidiary documents, for the Project should be developed to be consistent with the EMF and be prepared in consultation with:

- Relevant stakeholders, including local governments, the Department of Environment, Land, Water and Planning (DELWP), and Melbourne Water.
- The Registered Aboriginal Party (RAP) and Aboriginal Victoria (AV).
- The contractor appointed to manage and construct the Project.

2. Project description

2.1 Overview

The Project comprises a 50 kilometre high pressure gas transmission pipeline, which will provide a high pressure connection between the eastern and western sections of the Victorian Transmission System (VTS). The Project is located between Plumpton and Wollert, Victoria.

The Project consists of the following components:

- The pipeline.
- Aboveground facilities, including an end of line scraper station, mainline valves (MLVs), cathodic protection and pipeline marker signs.
- Wollert compressor station upgrade.

The pipeline and all associated facilities will be designed, constructed, commissioned and operated in accordance with Australian Standard AS/NZS 2885 series - Pipelines – Gas and Liquid Petroleum and a Pipeline Licence, which is required pursuant to the Pipelines Act.

A full description of the Project is contained in the *Western Outer Ring Main (Worm) project description* report (Biosis 2019a). Figure 2 at the rear of this report shows the location of the Preliminary Pipeline Alignment (PPA).

2.2 Project phases

The key phases of the Project are:

- Design.
- Pre-construction.
- Construction.
- Operation.

2.3 Key construction activities

The majority of the impacts that need to be managed will occur during the construction phase of the Project. The main construction activities associated with the Pipeline and Wollert Compressor Station include the following:

- Survey: Preliminary survey works will be undertaken to mark the extent of the construction footprint. Markers will be placed along the alignment to identify the pipeline centerline, the boundaries of the ROW, any additional work spaces and access roads, if required.
- Site establishment: Preliminary activities will be undertaken to facilitate the construction of the pipeline, including but not limited to, establishment of a site depot, proving of existing third party assets, installation of temporary gateways at fence crossings and relocation of any infrastructure within the ROW.

- Clear and grade: Clearing and grading of the ROW is undertaken to provide a safe and efficient area for construction activities. Clearing will be required to remove trees, shrubs and groundcover vegetation. Graders, bulldozers and excavators are generally used to clear and level the ROW.
 - Cleared vegetation will be stockpiled on one or both sides of the ROW. Breaks will be left in stockpiled vegetation to allow continued access for stock, fence lines, tracks and drainage lines.
 - Temporary access tracks over watercourses and access points to local roads will be constructed during the clear and grade phase.
- Pipe stringing and bending: Stringing involves distributing pipe segments along the ROW in preparation for welding. Where required, pipe lengths will be bent using a hydraulic bending machine to match changes in either elevation or direction of the alignment.
- Welding: Pipe segments will be welded in strings. All welding is tested to ensure quality. The areas of the weld are cleaned and pipe joints are coated to reduce the possibility of corrosion.
- Trenching: Specialised trenching machines and excavators will be used to excavate the trench to a depth of approximately 1800 millimeters and approximate width of 800 millimeters. Spoil generated during trench excavation will be stockpiled separate from vegetation and topsoil stockpiled earlier in the construction program.
 - Rock breaking processes such as the use of rock saws/hammers and/or blasting may be required to excavate the trench in areas of rock.
- Lowering and Backfilling: The pipe will be lowered into the trench with suitable bedding material. The trench is backfilled with the previously excavated subsoil material. Care is taken to maintain separation between topsoil and subsoil during this process. The subsoils are compacted to limit settlement of the trench through the operational life of the project.
- Horizontal Directional Drilling (HDD): Where required, drilling is conducted by a specific HDD rig, operated by a specialist contractor. The size of the HDD rig and its associated footprint will depend upon the nature of the subsurface geology and the length of the drill.
- Horizontal boring: Where required, horizontal boring involves excavation of pits either side of the obstacle. The boring machine is located within the entry pit, which uses a hydraulic ram to jack the pipe section, behind a cutting head, in a straight line through the ground to the receiving pit.
- Slab Construction: Bulk earthworks and excavations will be undertaken to cut into the existing surface material to facilitate construction of a concrete slab and footings to provide a firm base for the compressor.
- Compressor: Various components of the compressor are assembled offsite. When delivered to site the various components are assembled together onsite. Cranes are used to lift the compressor into place with all connecting pipework fitted.
- Testing and commissioning: The pipeline will be pressure tested (in accordance with AS/NZS 2885.5 Pipelines – Gas and liquid petroleum Part 5: Field pressure testing (AS/NZS 2885.5)) prior to commissioning to ensure that the pipeline passes strength and leak tests. This is done through a process called hydrostatic testing whereby sections of the pipeline (test sections) are filled with water and then pressurised. The pipeline will be commissioned following completion of hydrostatic testing.
- Rehabilitation: Rehabilitation of the construction footprint will be undertaken in accordance with best practice for pipeline construction with the view to returning land to its previous use within a reasonable timeframes. Key activities will include:
 - Re-establishing topsoil cover.

- Reinstating roadways and road reserves in accordance with the requirements of local councils.
- Reinstating natural drainage patterns.
- Application of seed, where appropriate.
- Reinstating waterways to meeting Catchment Management Authority requirements.

Figure 1 below illustrates the construction phase.



Figure 1 Pipeline construction phase

3. Relevant legislation and standards

The Project is subject to various applicable State and Federal legislation and approval requirements, described as follows.

3.1 Pipelines Act

The design, construction and operation of the Project is primarily governed through the Pipelines Act. Approvals are granted by the Victorian Minister for Energy, Environment and Climate Change. A licence is required to construct and operate a pipeline.

In order to obtain a license under the Pipelines Act, comprehensive Construction Environmental Management Plans (CEMPs) are required to guide practical delivery of the Project and stakeholder consultation plans need to be approved by the Minister for Energy, Environment and Climate Change.

3.2 Standards and guidance

There are Australian and international Standards or voluntary standards relating to the development of environmental management systems and risk assessments which provide benchmark guidance for the Project. Relevant standards include:

- Pipelines Act and Regulations 2017.
- AS/NZS ISO 14004:2004 *Environmental management systems – General guidelines on principles, systems and support techniques* (Council of Australian Standards 2004a).
- AS/NZS ISO 14001:2004 *Environmental management systems – Requirements with guidance for use* (Council of Australian Standards 2004b).
- HB 203:2012 *Managing environmental-related risk* (Council of Australian Standards 2012).
- AS/NZS ISO 31000:2009 *Risk management – Principles and guidelines* (Council of Australian Standards 2009).
- AS 2885 Pipelines – Gas and liquid petroleum (Council of Australian Standards 2008).

3.3 Other environmental legislation

The Project is subject to legislation and approval requirements. In addition to the requirements under Pipelines Act, the other key environmental legislation that may apply to the Project is summarised in Table 1 below. A more detailed review of relevant legislation is provided in the EES referral documentation.

Table 1 Legislation applicable to the Project

Environmental value / risk	Legislation	Requirement	Regulator
General	<i>Environment Protection Act 1970</i>	Comply with SEPP's	EPA
Biodiversity	<i>Environment Protection and Biodiversity Conservation Act</i>	Referral for any potential impacts on matters of	Commonwealth Minister for Energy, Environment and

Environmental value / risk	Legislation	Requirement	Regulator
	<i>(Cth) 1999</i>	national environmental significance.	Climate Change
	<i>Environment Effects Act 1978</i>	Referral of project	Minister for Planning and Environment
	<i>Flora and Fauna Guarantee Act 1988 (FFG Act)</i>	Permit to take protected flora from public land	DELWP
Cultural heritage	<i>Aboriginal Heritage Act 2006 (AH Act)</i>	Approval of (2) two x Cultural Heritage Management Plans which are currently under preparation. (KP 0 – 8 and KP 8 – 50)	Registered Aboriginal Parties (RAPs) Aboriginal Victoria (AV)
	<i>Heritage Act 2017</i>	Permit for works or alterations in relation to a registered place or object	Heritage Victoria
Bushfire	<i>Country Fire Authority Act 1958</i>	Hot works Permit	Country Fire Authority (CFA)
Air quality	<i>Environment Protection Act 1970 (EP Act)</i>	Works Approval for Wollert compressor site	Environment Protection Authority (EPA)
Water environments	<i>Fisheries Act 1995</i>	General permit	DELWP
	<i>Water Act 1989</i>	Permit for Works on Waterways	Melbourne Water
	<i>Wildlife Act 1975</i>	Management Authorisation	DELWP
Weeds	<i>Catchment and Land Protection Act 1994</i>	Discussion with the Port Phillip & Westernport Catchment Management Authority to understand management of noxious weeds and pest animals	Port Phillip & Westernport Catchment Management Authority
Infrastructure	<i>Local Government Act 1989</i>	Road Opening Permit Works permit for construction across or beneath roads	Relevant LGA
	<i>Rail Safety (Local Operations) Act 2006</i>	Works permit for construction across or beneath a railway	VicTrack
	<i>Road Management Act 2004</i>	Road Opening Permit Permit to conduct works on or in a roadway, including a Traffic Management Plan	VicRoads

4. Environmental assessments

4.1 Environmental aspects

The following key environmental and social aspects are considered for the project, that will require management prior to and during construction:

- Aboriginal Cultural Heritage
- Heritage
- Air Quality
- Biodiversity
- Erosion and Sediment
- Groundwater
- Surface Water
- Waste
- Weeds and Pathogens
- Greenhouse Gas
- Soil Management
- Noise and Vibration

4.2 Key environmental impacts

Environmental impacts are detailed in the desktop assessments for the Project. Please refer to these reports for specifics of values within or in proximity to the Project.

Based on the desktop assessments completed to date, the most significant environmental effects of the Project are likely to be:

- Loss of native vegetation.
- Impacts on flora and fauna.
- Impacts on aboriginal cultural heritage values.
- Greenhouse Gas impacts.
- Amenity impacts, land use changes and general disturbance in urban growth areas (which are already undergoing significant transformation) during the construction phase.

It is expected that the impacts identified in the referral will be significantly reduced following:

- On-ground detailed surveys.
- Approved Cultural Heritage Management Plan(s).
- Alignment refinement.

- Refinement of construction methodology.
- Detailed design.
- Development of construction program.
- Implementation of the Environmental Management Framework (EMF).

4.2.1 Loss of native vegetation

An estimated maximum area of 59.57 hectares of native vegetation may be impacted by the Project using desktop information and rapid field assessments as information sources. This calculation is conservative and assumes that areas that appear to have been cultivated (but not recently) is classified as native vegetation.

This area is generally based on a 30m wide construction corridor, with additional ancillary areas for HDD, material storage and truck turnaround. The existing Wollert Compressor Station will also require additional areas to facilitate construction works.

The project broadly lies within Victorian Volcanic Plain (VVP) Bioregion with the following EVC's.

- (VVP_0055) Plains Grassy Woodland.
- (VVP_0125) Plains Grassy Wetland.
- (VVP_0132) Plains Grassland.
- (VVP_0641) Riparian Woodland.
- (VVP_0649) Stony Knoll Shrubland.
- (VVP_0654) Creekline Tussock Grassland.
- (VVP_0068) Creekline Grassy Woodland.

Where-ever possible, the proposed pipeline alignment (PPA) has been collocated with existing or proposed linear infrastructure corridors to minimise the impact on current and future land use.

The PPA has considered avoidance of scattered trees (and can be further refined), however there is a potential that scattered trees will be lost as a result of the Project.

In line with the *Guidelines for the removal, destruction or lopping of native vegetation* (Guidelines), native vegetation losses will be avoided and minimised to the extent practicable. Any unavoidable impacts will be offset in accordance with relevant regulatory guidance and in consultation with DELWP and DOEE.

Under the Flora and Fauna Guarantee Act 1988 (FFG Act) any protected flora impacted as part of the Project will require a flora permit for removal.

4.2.2 Impacts on flora and fauna

There are a number of flora and fauna species which are predicted to occur which could be impacted by the Project. A study area of approximately 100m wide corridor either side of the PPA has been used during the desktop assessment.

Areas of potential habitat for significant flora include areas of Plains Grassland, Plains Grassy Woodland, and Grassy Woodland, uncultivated areas along roadsides and within paddocks, along drainage lines and wetlands and areas of Riparian Woodland, Plains Grassy Wetland and Grey Clay Drainage-line Aggregate.

Areas of potential habitat for significant fauna include forest, grassland and grassy woodland habitat, pasture supporting spear grasses and wallaby grasses, grassland dominated by introduced tussock grasses, scattered

indigenous and planted eucalypts, wetlands and farm dams, and aquatic habitat along Jacksons Creek, Deep Creek and Merri Creek.

Further targeted surveys need to be conducted to consider the presence of significant flora and fauna. The survey data will then be used to refine the route of the alignment, tailor the construction methodology and identify specific mitigation measures to avoid and minimise impacts.

4.2.3 Aboriginal cultural heritage

The Study Area contains a total of 26 previously recorded Aboriginal places, comprising 87 components, intersect with the Study Area. Of these places, 19 are located within the Study Area. There are a significant number of previously registered Low Density Artefact Distributions (LDADs) situated within the western extent of the Study Area, all located in an area of ploughed land, near Plumpton. There appears to be no consistent spatial patterns of the Aboriginal cultural heritage found in this area, and the artefacts were not located in close proximity to any watercourses.

There are also several scarred trees and an earth feature found within, or in close proximity to, the Study Area. The locations of most of the scarred trees appear to follow predictive patterns as they are located near watercourses, namely Merri Creek.

The Project could have a significant impact on areas and places of cultural heritage sensitivity. Cultural Heritage Management Plans (No 16594 & 16593) are being completed for the project. As part of the assessment process, route refinement and specific mitigation measures will be identified and integrated into the design process.

4.2.4 Amenity impacts, land use changes and general disturbance in urban growth areas

The Study Area traverses the urban fringe of metropolitan Melbourne where rural, peri-urban and urban land uses merge. Approximately half of the Study Area intersects with either existing or future planned urban land uses. The Study Area intersects seven PSP areas and is adjacent to two PSP areas (approximately 25 kilometres) as well as existing urban areas (approximately 3 kilometres).

A key sensitivity is the rapid progression of urban development that is occurring within the PSP areas. During the construction phase, the Project could impact on the amenity of existing residential communities via noise, dust, vibration and general disturbance. The project will have localised and short term impacts on the communities in proximity to the pipeline corridor. To minimise this impact, works will occur within a defined construction corridor which connects into local roads.

The construction methodology and program will aim to minimise adverse amenity impacts to the extent practicable.

Where-ever possible, the proposed pipeline has been collocated with existing or proposed linear infrastructure corridors to minimise the impact on current and future land use. This will allow the Project to be integrated with PSPs and ensure incompatible uses (or sterilisation of future land-uses) is minimised.

4.2.5 Greenhouse Gas impacts

Wollert Compressor Station upgrades for the project will require an EPA Works Approval under Schedule 1 of the Environment Protection (Scheduled Premises) Regulations 2017 (General emissions to air).

4.3 Environmental Objectives

The Desktop Assessments identify measures to avoid, minimise and mitigate adverse environmental impacts of the Project. These measures have been reviewed and integrated as the basis for the environmental objectives set out in Table 2.

Table 2 Environmental performance objectives

Ref.	Environmental aspect	Legislation / regulatory approvals	Objective	Controlling documents or guidance	Phase
1	Ecological values - native vegetation, and threatened flora and fauna	<ul style="list-style-type: none"> • Pipelines Act • EPBC Act • <i>Flora and Fauna Guarantee Act 1988</i> (FFG Act 1988) (Permit to take protected fauna / flora) • <i>Catchment and Land Protection Act 1994</i> (CaLP Act 1994) • <i>Wildlife Act 1975</i> (Wildlife Act) permit regarding wildlife management and salvage. 	<ul style="list-style-type: none"> • Design the Project to avoid, minimise or manage adverse impacts on ecological values. • No harm or disturbance to terrestrial or aquatic wildlife. • Provide offsets for approved ecological losses. • Prevent the spread of invasive plants and soil pathogens from construction activities. • Manage invasive plants and soil pathogens over the operational life of the Project. 	<ul style="list-style-type: none"> • CEMP. • OEMP. • Project approvals. • APGA Code of Environmental Practice – Guidance. • Ecological assessments and recommendations. 	<ul style="list-style-type: none"> • Design • Pre-construction • Construction • Operation
2	Aboriginal cultural heritage	<ul style="list-style-type: none"> • AH Act and Regulations 2018. 	<ul style="list-style-type: none"> • Preserve Aboriginal cultural heritage sites to the extent practicable in accordance with CHMP. • Meet requirements of AH Act. 	<ul style="list-style-type: none"> • CEMP. • CHMP. 	<ul style="list-style-type: none"> • Design • Pre-construction • Construction
3	Historic heritage	<ul style="list-style-type: none"> • <i>Heritage Act 2017</i> 	<ul style="list-style-type: none"> • Preserve historic heritage sites to the extent practicable. • Meet requirements of the <i>Heritage Act 2017</i>. 	<ul style="list-style-type: none"> • CEMP. • Heritage impact statement. 	<ul style="list-style-type: none"> • Design • Pre-construction • Construction

Ref.	Environmental aspect	Legislation / regulatory approvals	Objective	Controlling documents or guidance	Phase
4	Surface and ground water	<ul style="list-style-type: none"> • <i>Environment Protection Act 1970</i> • <i>Environment Protection Amendment Act 2018 (EPA Act)</i> • <i>Water Act 1989 (Works on waterways permit)</i> 	<ul style="list-style-type: none"> • Avoid adverse impacts on surface or ground water quality and beneficial uses of water. • Prevent significant adverse impacts on ecological health of water environments. • Design the pipeline to as far as possible avoid disturbance to stream beds and wetland beds. 	<ul style="list-style-type: none"> • CEMP. • OEMP • <i>State Environmental Protection Policy (Waters)</i>. • EPA Publications 275, 480 (EPA Victoria 1991, EPA Victoria 1996). • APGA Code of Environmental Practice. 	<ul style="list-style-type: none"> • Design • Pre-construction • Construction • Operation
5	Energy and greenhouse gasses	<ul style="list-style-type: none"> • <i>Victorian Climate Change Act 2017</i> 	<ul style="list-style-type: none"> • As far as practical adopt technologies and practices that are energy efficient and that minimise greenhouse gas emissions. 	<ul style="list-style-type: none"> • CEMP. • OEMP. • APGA Code of Environmental Practice. • Works approval. 	<ul style="list-style-type: none"> • Design • Pre-construction • Construction • Operation
6	Social environments, community and social impacts	<ul style="list-style-type: none"> • Pipelines Act 	<ul style="list-style-type: none"> • Consult with communities adjacent to the Project. • As far as practicable design and construct the Project to minimise adverse impacts on sensitive receptors. 	<ul style="list-style-type: none"> • CEMP. • Consultation Plan. 	<ul style="list-style-type: none"> • Design • Pre-construction • Construction
7	Recycling and waste management	<ul style="list-style-type: none"> • <i>The Litter Act 1987</i> • EP Act 	<ul style="list-style-type: none"> • Avoid waste generation through Project design and procurement. • Where possible, prioritise use of recyclable materials. • Manage waste according to legislation. 	<ul style="list-style-type: none"> • CEMP. • <i>EPA Publication 1655 - Toolkit for the management of solid waste from civil and construction & demolition sites (EPA Victoria 2017)</i>. • <i>EPA Publication 480 - Environmental Guidelines for Major Construction Sites (EPA Victoria 1996)</i>. 	<ul style="list-style-type: none"> • Design • Pre-construction • Construction

Ref.	Environmental aspect	Legislation / regulatory approvals	Objective	Controlling documents or guidance	Phase
8	Air quality and air pollution	<ul style="list-style-type: none"> EP Act 	<ul style="list-style-type: none"> Avoid or minimise impacts of dust or other air pollution arising from the Project. 	<ul style="list-style-type: none"> CEMP. <i>Environment Protection (Scheduled Premises and Exemptions) Regulations 2017.</i> <i>State Environment Protection Policy (Ambient Air Quality) (SEPP(AAQ)) 2016.</i> <i>State Environment Protection Policy (Air Quality Management) (SEPP(AQM)) 2016.</i> APGA Code of Environmental Practice. Works approval. 	<ul style="list-style-type: none"> Design Construction Operation
9	Noise and vibration	<ul style="list-style-type: none"> EP Act 	<ul style="list-style-type: none"> Construction and operational noise to meet EPA Standards. 	<ul style="list-style-type: none"> CEMP. <i>State Environmental Protection Policy (Control of Noise from Commerce, Industry and Trade) 2001</i> <i>EPA Publication 480 - Environmental Guidelines for Major Construction Sites (EPA Victoria 1996).</i> 	<ul style="list-style-type: none"> Design Construction Operation
10	Weeds	<ul style="list-style-type: none"> EP Act 	<ul style="list-style-type: none"> Manage spread of weeds during operational and maintenance life of the project in compliance with State Prohibited noxious weeds. 	<ul style="list-style-type: none"> CEMP. <i>Port Phillip CMA Catchment Strategy and regional invasive plants and animals action plan.</i> 	<ul style="list-style-type: none"> Construction Operation
11	Soil	<ul style="list-style-type: none"> EP Act <i>Catchment and Land Protection Act 1994</i> 	<ul style="list-style-type: none"> Prevent contamination of soil and soil pathogens during construction phase. 	<ul style="list-style-type: none"> CEMP. <i>EPA Publication 480 - Environmental Guidelines for Major Construction Sites (EPA Victoria 1996).</i> 	<ul style="list-style-type: none"> Construction

Ref.	Environmental aspect	Legislation / regulatory approvals	Objective	Controlling documents or guidance	Phase
12	Contaminated land	<ul style="list-style-type: none"> EP Act 	<ul style="list-style-type: none"> Prevent mobilisation of contamination during the construction process. 	<ul style="list-style-type: none"> CEMP. <i>State Environment Protection Policy (SEPP) Prevention and Management of Contaminated Land.</i> <i>Environmental Guidelines for Major Construction Sites, EPA Publication 480.</i> <i>EPA Industrial Waste Resource Guidelines 2009 (IWRG), including any testing and analysis.</i> 	<ul style="list-style-type: none"> Design Construction.

5. APA Health, Safety and Environmental Policy

APA incorporates its environment policy with its health and safety policy to deliver an integrated high level Health, Safety and Environment (HSE) Policy (APA Melbourne 2018). APA acts on its policy through its HSE Management System which provides detailed HSE commitments and allows for monitoring and reporting.

APA's HSE policy objective is:

We are providing a zero harm work environment for our employees, contractors and visitors, managing our operating risk and protecting the environment from harm.

Under the HSE Policy, APA makes the following commitments:

- *Provide leadership and direction to drive accountability for our HSE performance.*
- *Document, implement and maintain an appropriate HSE Management System.*
- *Comply with applicable HSE legislation and, where applicable, adopt best practice requirements.*
- *Establish and regularly monitor measurable objectives and targets to ensure continued improvement against established standards.*
- *Communicate HSE commitments and information to employees, contractors and applicable stakeholders.*
- *Recognise and reward excellence in HSE performance.*
- *Proactively seek to identify hazards and reduce the risk of injury, uncontrolled harmful substance release and environmental harm by investigating all reported accidents, incidents and near misses promptly and taking appropriate actions to prevent a reoccurrence.*
- *Provide appropriate training and supervision specialist support and other resources to HSE matters.*
- *Consult and engage with our employees and other stakeholders to build relationships based on our values to assist in meeting the goals of our HSE Policy.*
- *Partner with companies having similar HSE standards and values as APA Group.*
- *Ensure processes are in place to protect the environment from harm.*
- *Manage the operating risks and the critical controls that prevent or mitigate major incident events.*

The HSE policy and HSE Management System demonstrate APA's commitment and organisational capacity achieve the environmental objectives for the Project.

6. Governance framework

The purpose of the governance framework described here is to ensure the Project is delivered according to APA's HSE Policy and within the requirements of the Pipelines Act and other approvals. The governance structure covers the design, construction and operational phases of the Project.

APA maintains overall responsibility for the Project with aspects of construction and operation divided between APA, the Lead Construction Contractor and any contractors engaged in operations and maintenance activities. The approvals processes and control documents are linked via this EMF and the control documents are governed by the compliance processes.

6.1 Environmental risk assessment approach

Potential environmental impacts for the Project have been identified through the desktop assessments and are summarised in Section 4. These risks are considered in the design phase where measures to avoid, mitigate, manage risk are developed.

Subsidiary EMPs for construction and operational phases will include a risk assessment as part of their methodology for development based on the Australian Standard – *Risk management – Principles and guidelines* (Council of Australian Standards 2009). The general risk assessment methodology will include assessment of 'inherent risk' (risk without controls in place) and 'residual risk' (risk with controls in place). The steps in controlling hazards and risks are to be applied across all environmental factors.

An adaptive project management approach to recognise and manage potential uncertainties during all construction / operation is essential. Any uncertainty will be considered when developing subsidiary EMPs by ensuring each plan is structured to allow for adaptive management and to include timely monitoring and reporting.

Monitoring and reporting will provide evidence to adapt EMP practices as any challenges arise.

6.2 Consultation / communications

Development of subsidiary EMPs and other control documents will include consultation with relevant stakeholders. Minimum consultation requirements are detailed in the Pipelines Regulations (Regulation 47) and the approved Consultation Plan for the project.

A communications plan must be included in subsidiary CEMPs and other control documents to inform neighbours and other stakeholders of timing and progress of construction works and how environmental aspects are being appropriately managed.

6.3 External Stakeholders

Key external stakeholders for the project are state, federal, local government department and statutory authorities that are responsible for issuing applicable environmental approvals and permits.

Liaison with these stakeholders at each stage of the project is critical to ensure that all of the legislative and statutory obligations are clearly defined and met. Key stakeholders have been consulted in the planning stages and will continue to be consulted (as applicable) during various phases of the project delivery. A description of the key stakeholders relevant to the project is summarised below.

- Aboriginal Victoria.
- Commonwealth Department of Environment and Energy.
- Councils and Shires – Melton, Hume, Mitchell and Whittlesea.
- DELWP.
- EPA.
- Melbourne Water.
- VicRoads.
- VicTrack.
- Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation (WWWCHAC).

The other agencies consulted include:

- City West Water.
- Yarra Valley Water.

6.4 Compliance

Compliance with this EMF and subsidiary control documents, such as the CEMPs and OEMP, will likely be a condition of any pipeline licence under the Pipeline Act or other subsidiary approval.

Roles and responsibilities will be clearly identified in the CEMP and OEMP and these responsibilities will be explicitly defined in personnel position descriptions and works contracts as the most effective means of ensuring accountability for CEMP outcomes.

During the operational phase, APA will be responsible for inducting or training of staff to achieve environmental compliance.

6.5 Training for personnel

During the construction phase, the Lead Construction Contractor will be responsible for training and informing all staff and subcontractors of the Environmental Compliance Requirements relevant to their role and tasks, through the following recommended methods:

Training	Outcomes
Inductions	A formal induction process shall be undertaken for all project personnel (including subcontractors) prior to commencement of works onsite. Inductions will include: <ul style="list-style-type: none"> • CEMP requirements. • Conditions of environmental permits and approvals. • Emergency response procedures and reporting processes for environmental incidents. Inductions will be regularly reviewed and updated, as required. Induction records will be maintained to conform all relevant personnel have been appropriately inducted.
Pre-Start meetings	Pre-start meetings will be undertaken at the beginning of each day before works commence with project personnel and subcontractors.

	Raise any specific environmental risks or issues relevant to the works being undertaken.
Toolbox meetings	Environmental awareness training will be provided to project personnel and subcontractors via toolbox meetings.
SQE Alerts	Distributed at toolbox meetings.

6.6 Monitoring, auditing and reporting

The Project environmental objectives will be managed through monitoring, inspections and audits, as follows:

Inspections:

- Environment inspections shall be undertaken during the construction phase. Inspection results shall be recorded along with any corrective actions identified.

Monitoring:

- Monitoring will be undertaken against the requirements in the CEMP. Details of any specific monitoring requirements shall be recorded along with any corrective actions identified.
- Audits:
Environmental audits of the Project shall be undertaken to verify compliance against CEMP requirements.
- Internal audits shall be carried out by the Lead contractor.
- Audit reports shall be provided for the project.
- 3rd Party audits shall be carried out to verify compliance with project requirements, including the CEMP

Environmental management performance objectives are set out in Table 3. These objectives provide a framework for the implementation of measures into existing processes.

6.7 Emergency response and contingency measures

Environmental emergency and contingency management procedures are to be detailed in the CEMPs and OEMP and other relevant project control document.

The following procedures shall be required to demonstrate management of project requirements;

- Incident management.
- Emergency response.
- Complaints management .
- Non-conformance and corrective action management.

There is a requirements for a safety management plan (SMP) to be prepared under section 126 of the Pipelines Act.

7. Environmental project management

Table 3 Environmental project management objectives

Ref.	Environmental / heritage aspect or management task	Objective	Measures to achieve objectives
1	Project monitoring, auditing and reporting.	<ul style="list-style-type: none"> Maintain project records according to CEMP or approvals requirements. Undertake appropriate level of inspections, monitoring, audits and reporting on approval and compliance required during delivery of the Project. Establish processes to ensure corrective action in response to auditing or reporting to achieve accountability and conformity with CEMP and other controlling document objectives and standards. Establish processes to manage incidents and emergency response. 	<ul style="list-style-type: none"> Procedures required to manage compliance through inspection, monitoring and audits during the project construction phase.
2	Construction right of way site preparation and values identification.	<ul style="list-style-type: none"> Clearly identify ecological, heritage and sensitive receptors in Project environmental plans. To identify ecological, heritage and sensitive receptors to manage the prevention of inadvertent access or harm during construction. To ensure environmental values to be retained are clearly distinguished from those that are to be removed or impacted. To maintain identification and security of values during construction and operation. 	<ul style="list-style-type: none"> CEMP and project design.
3	Induction, Training & Awareness.	<ul style="list-style-type: none"> All project personnel and subcontractors working in the Project are inducted into the project and are aware of CEMP and other project controls. Undertake training and awareness of CEMP. 	<ul style="list-style-type: none"> Prepare induction plans, processes. Prepare training and awareness material
4	Project contracts.	<ul style="list-style-type: none"> Implement EMF objectives, CEMP and other project approvals requirements required in all Project works contracts and personnel employment contracts/KPIs (as relevant to their role). 	<ul style="list-style-type: none"> Works and employment contracts

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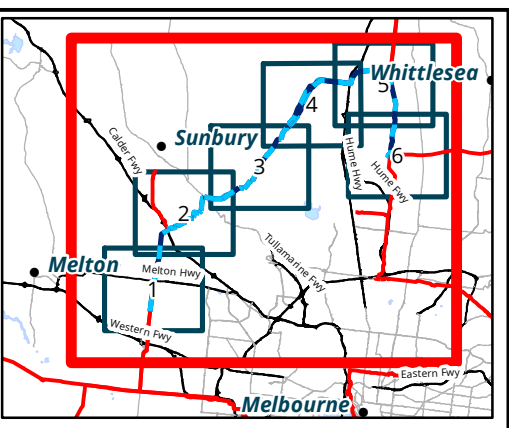
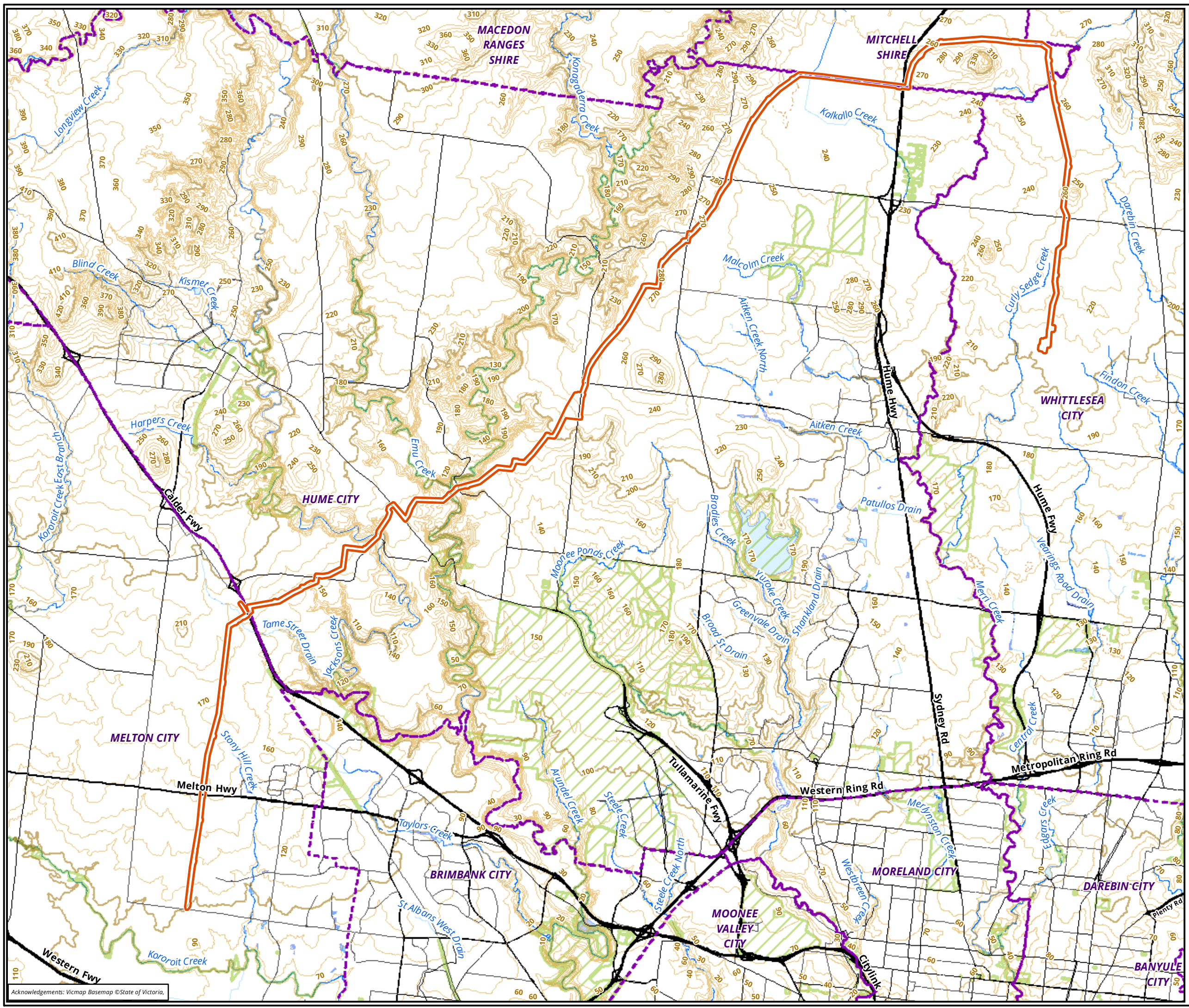
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Legend

- Study area
- Crown Land
- Local government area

Contour

- Major
- Minor
- contour_dep

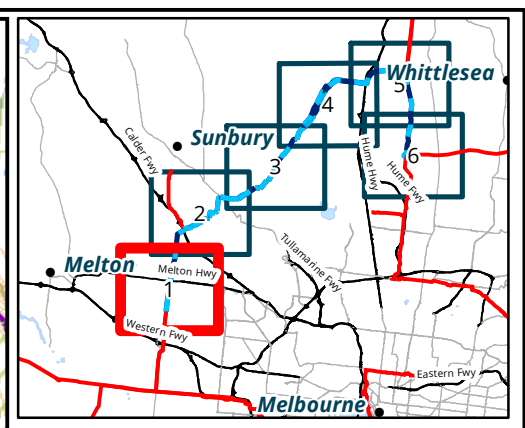
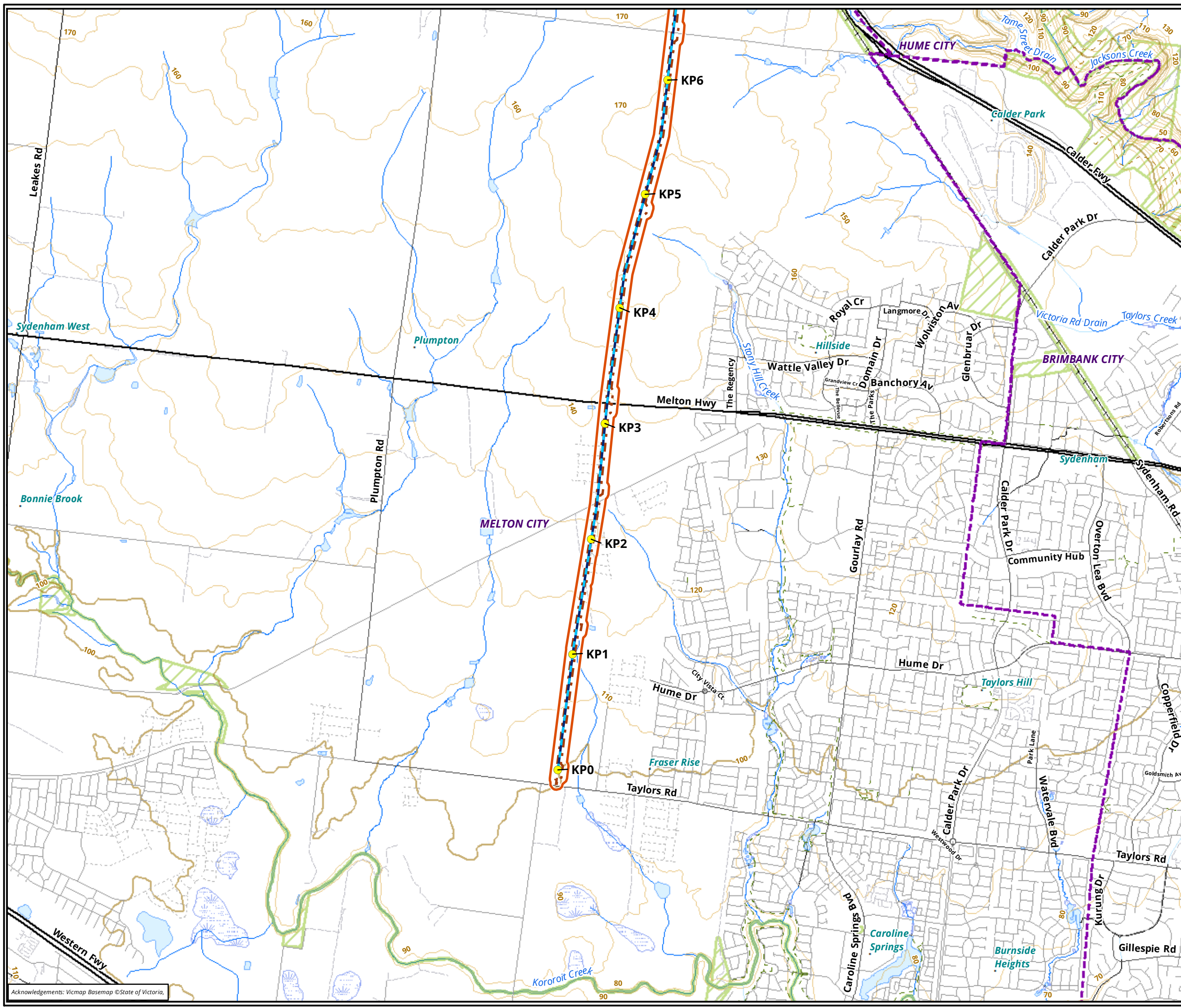
Figure 2. Overview Study area, Western Outer Ring Main - Preliminary alignment

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- Legend**
- Study area
 - Kilometre Point
 - Preliminary Pipeline Alignment
 - Construction footprint
 - Crown Land
 - Local government area
- Contour**
- Major
 - Minor

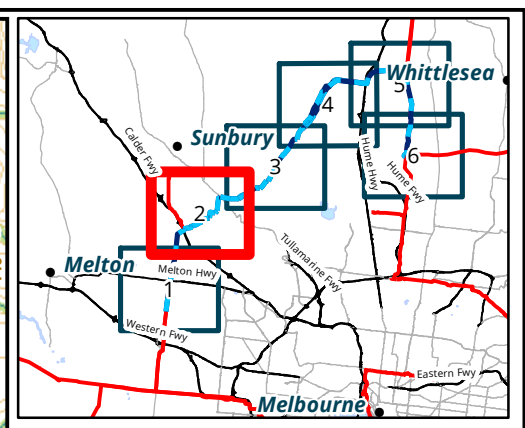
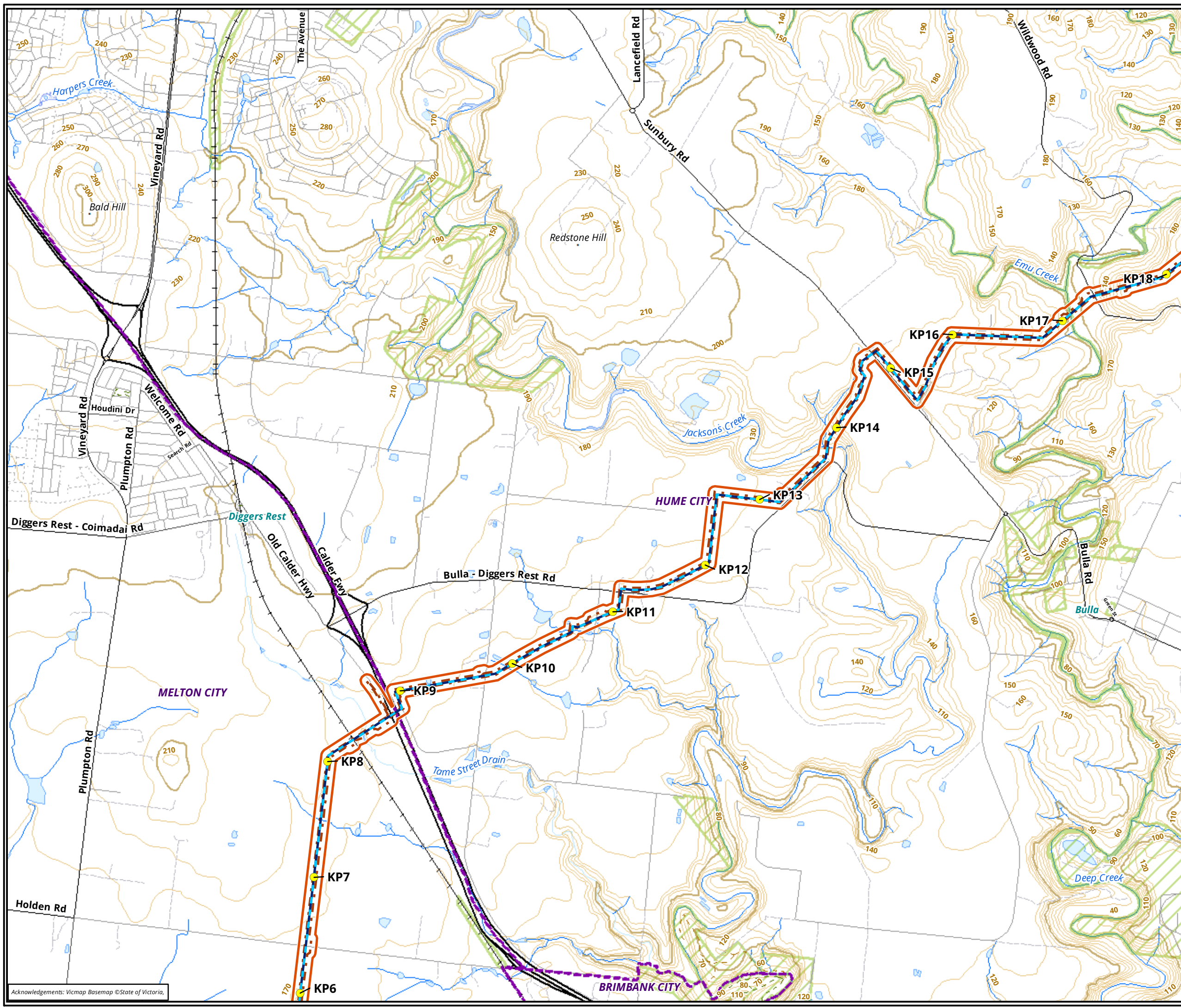
Figure 2.1 Study area, Western Outer Ring Main - Preliminary alignment

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 Coordinate System: GDA 1994 MGA Zone 55



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- Legend**
- Study area
 - Kilometre Point
 - Preliminary Pipeline Alignment
 - Construction footprint
 - Crown Land
 - Local government area
- Contour**
- Major
 - Minor

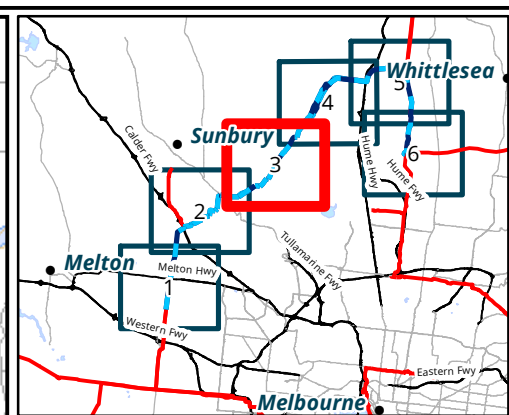
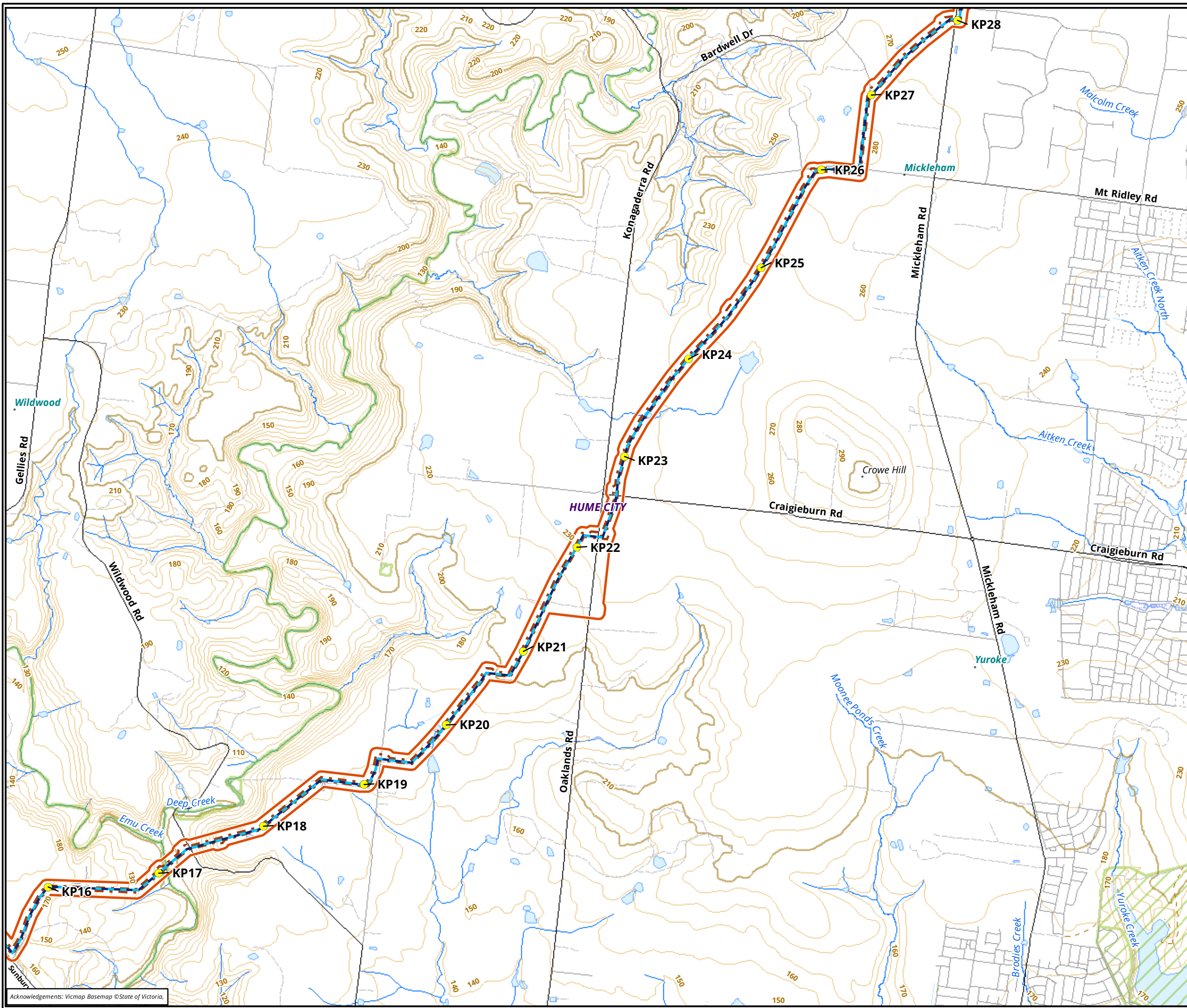
Figure 2.2 Study area, Western Outer Ring Main - Preliminary alignment

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- Legend**
- Study area
 - Kilometre Point
 - Preliminary Pipeline Alignment
 - Construction footprint
 - Crown Land
 - Local government area
- Contour**
- Major
 - Minor

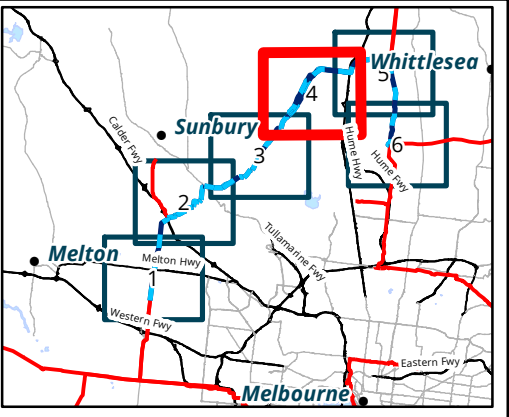
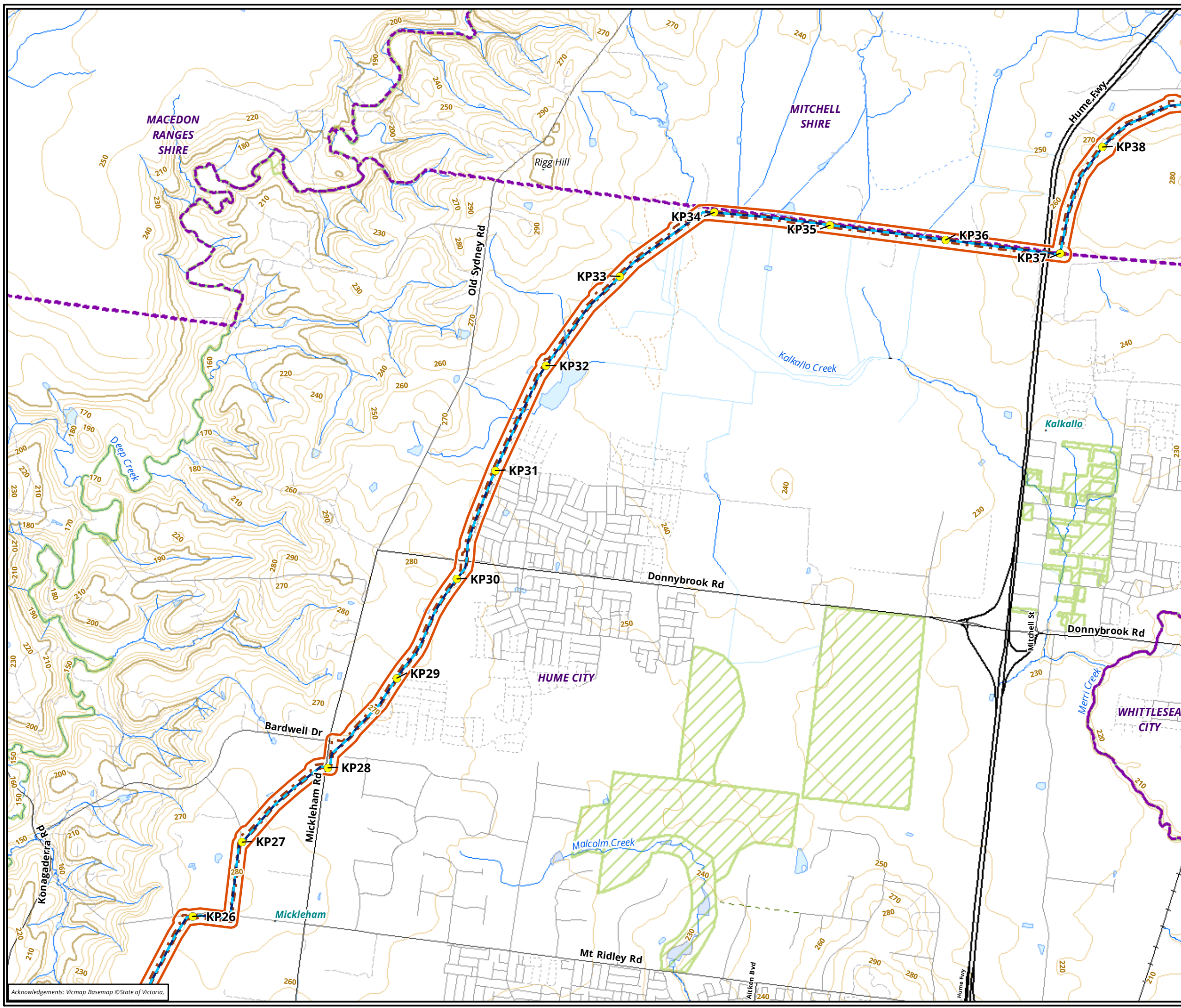
Figure 2.3 Study area, Western Outer Ring Main - Preliminary alignment

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- Study area
- Kilometre Point
- Preliminary Pipeline Alignment
- Construction footprint
- Crown Land
- Local government area

Contour

- Major
- Minor
- contour_dep

Figure 2.4 Study area, Western Outer Ring Main - Preliminary alignment

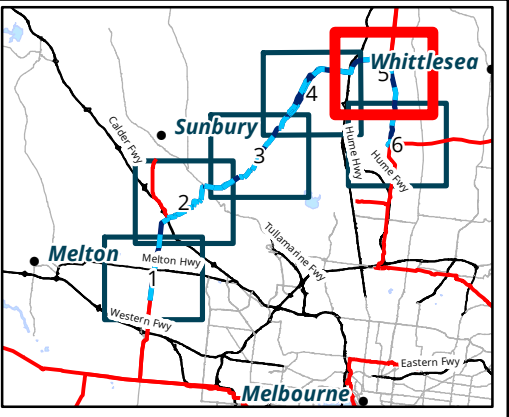
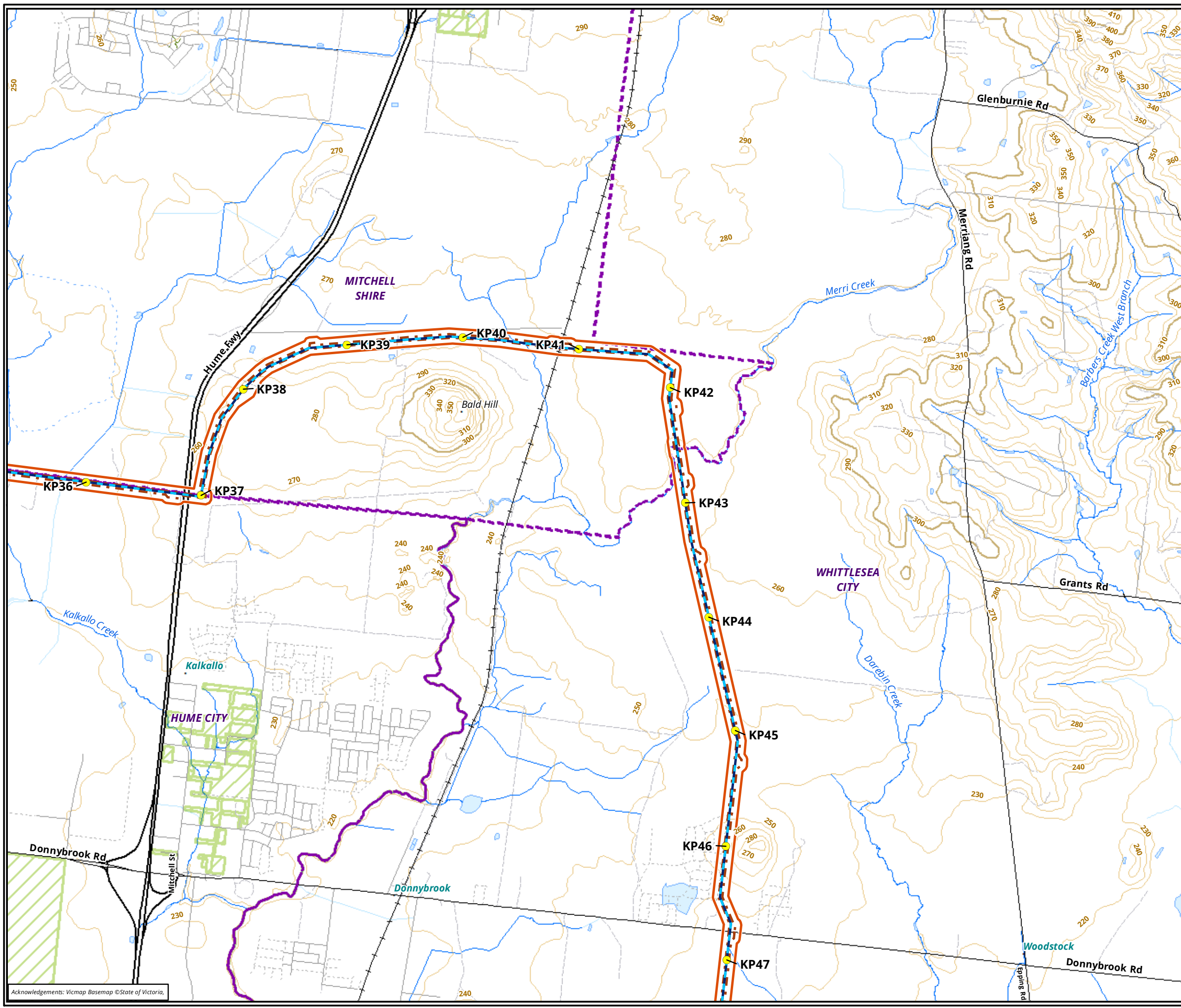
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- Legend**
- Study area
 - Kilometre Point
 - Preliminary Pipeline Alignment
 - Construction footprint
 - Crown Land
 - Local government area
- Contour**
- Major
 - Minor

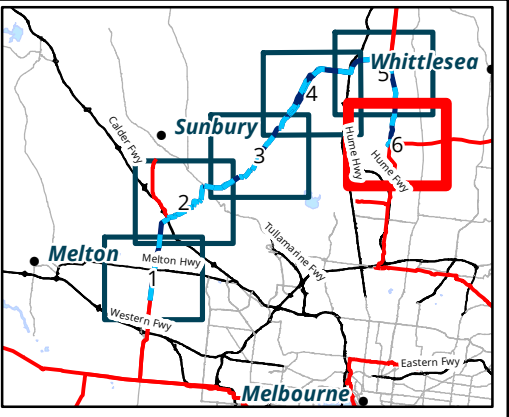
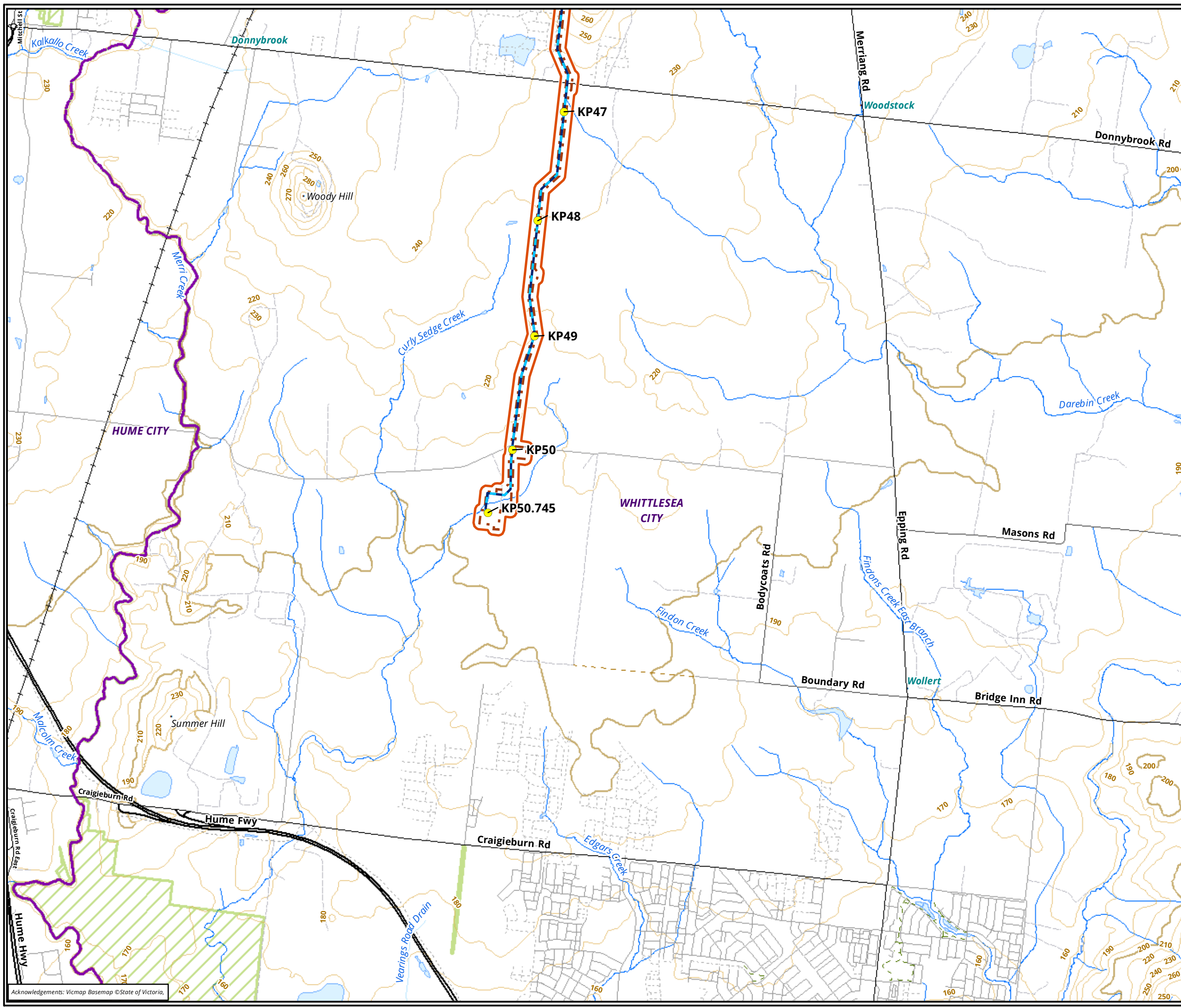
Figure 2.5 Study area, Western Outer Ring Main - Preliminary alignment

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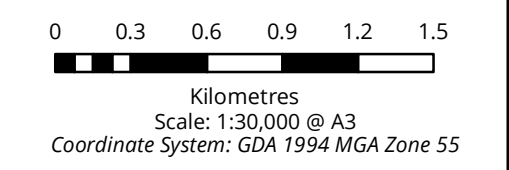
Legend

- Study area
- Kilometre Point
- Preliminary Pipeline Alignment
- Construction footprint
- Crown Land
- Local government area

Contour

- Major
- Minor

Figure 2.6 Study area, Western Outer Ring Main - Preliminary alignment



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