

EDITHVALE AND BONBEACH
LEVEL CROSSING REMOVAL PROJECTS
ENVIRONMENT EFFECTS STATEMENT

EES TECHNICAL REPORT J
Landscape and Visual Impact Assessment

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Table of Contents

Executive Summary.....	viii
Abbreviations.....	xii
Glossary	xiii
1 Introduction	1
1.1 Purpose.....	1
1.2 Why understanding landscape and visual impact is important?	1
1.3 Project description.....	1
1.4 Project area.....	4
2 Scoping requirements	9
3 Legislation, policy and guidelines	10
4 Method	12
4.1 Existing conditions assessment	13
4.2 Risk assessment method	13
4.3 Impact assessment method	14
4.4 Environmental Performance Requirements	20
4.5 Design assumptions.....	20
4.6 Linkage to other reports	21
5 Existing conditions.....	22
5.1 Landscape character zones	22
6 Risk assessment	35
7 Impact assessment	36
7.1 Landscape character effects - Edithvale	36
7.2 Landscape character impacts – Bonbeach	42
7.3 Visual impacts - Edithvale	46
7.4 Visual impacts - Bonbeach.....	66
7.5 Summary of impacts	88
8 Environmental Performance Requirements.....	90
9 Conclusion	94
10 References.....	96

Table Index

Table 1	Primary legislation and policy.....	10
Table 2	Sensitivity of landscape to change.....	15
Table 3	Magnitude of landscape effect	16
Table 4	Proposed residential developments	25
Table 5	Landscape and visual risks	35
Table 6	Edithvale - landscape impact assessment	36
Table 7	Bonbeach – landscape character impacts assessment	42
Table 8	Representative visual receptor locations.....	46
Table 9	Specific visual receptor location.....	47
Table 10	Illustrative visual receptor location	47
Table 11	Edithvale – visual impacts assessment.....	52
Table 12	Representative visual receptor locations.....	66
Table 13	Specific visual receptor location.....	67
Table 14	Illustrative visual receptor location	67
Table 15	Bonbeach – visual impacts assessment	72
Table 16	Summary of landscape character impacts	89
Table 17	Summary of visual impacts	89
Table 18	Summary of landscape character impacts	90
Table 19	Summary of visual impacts	90
Table 20	Edithvale and Bonbeach Environmental Performance Requirements.....	91
Table 21	Level Crossing Removal Authority Urban Design Framework – mitigation measures	92

Figure Index

Figure 1	Edithvale project area	5
Figure 2	Bonbeach project area	6
Figure 3	Overview of impact and risk assessment process.....	12
Figure 4	Rating and significance of landscape effects	17
Figure 5	Significance of visual impacts	19
Figure 6	Landscape Character Zones for Edithvale	23
Figure 7	Typical character of LCZ 1 as viewed from the Nepean Highway	24
Figure 8	Typical character of LCZ 2 west of the rail corridor and visual connection to the foreshore.....	25
Figure 9	Typical character of LCZ 2 east of the rail corridor, showing limited street trees, high fencing along busier roads and typical overhead power and lighting in the street.....	26
Figure 10	Typical character of LCZ 3 along Nepean Highway	27
Figure 11	Typical character of LCZ 4 at Beeson Reserve looking towards the existing railway station with the war memorial in the foreground	28
Figure 12	Panorama view of Beeson Reserve taken from the Edithvale Life Saving Club	28
Figure 13	Typical character of LCZ 5 at Edithvale	29
Figure 14	Detail of boat storage and bathing boxes.....	29
Figure 15	Landscape Character Zones for Bonbeach.....	30
Figure 16	Typical character of LCZ 1	31
Figure 17	Typical character of LCZ 2.....	32
Figure 18	Typical character of LCZ 3.....	33
Figure 19	Typical character of LCZ 5.....	34
Figure 20	Visual receptor location map for Edithvale	49
Figure 21	Visual envelope map for Edithvale	50
Figure 22	Visual receptor location map for Bonbeach.....	69
Figure 23	Visual envelope map for Bonbeach	70

Appendices

Appendix A – Relevant legislation and policy

Appendix B – Risk Assessment

Executive Summary

The Victorian Government is removing 50 of Melbourne's most dangerous and congested level crossings. The Edithvale Road, Edithvale and Station Street/Bondi Road, Bonbeach level crossing removal projects were referred to the Minister for Planning who decided an Environment Effects Statement (EES) was required.

This report addresses the Scoping Requirements of the EES in relation to potential impacts to landscape and visual amenity resulting from construction and operational changes as a result of the projects.

Landscape and Visual context

This report undertakes a Landscape and Visual Impact Assessment (LVIA) for the Edithvale Road, Edithvale (Edithvale) and the Station Street/Bondi Road, Bonbeach (Bonbeach) level crossing removal projects.

Method

The methodology focusses on identifying the key likely or potential effects that the project will have on identified landscape zones and visual receptors relevant to the project.

Landscape character zones reflect the natural and cultural influences that shape the low-lying coastal landscape of the project and are identified as sharing broadly homogenous characteristics or spatial qualities. A total of five landscape character zones were identified within the vicinity of the projects.

Potential effects on visual amenity were considered across five different receptor types comprising: residents; recreational users; commercial users; road users; and rail users. These were then assessed through 19 visual receptor locations for visual impact. Each visual receptor location was chosen on the basis of it being:

- a 'representative viewpoint' where larger numbers of viewpoints cannot all be included individually, and where the significant effects are unlikely to differ
- a 'specific viewpoint' as they are considered to be key, or, for example, viewpoints with particular cultural landscape associations
- an 'illustrative viewpoint', chosen specifically to demonstrate a particular effect or specific issue.

The methodology in this report provides for an LVIA that has informed the risk assessment in a similar way as the air quality or noise assessment models have informed the risk assessment for those aspects of the environment. Essentially the LVIA assessment is a standalone technical assessment which uses a methodology specific for landscape and visual impact assessment. The outputs of this methodology are then used to inform a risk assessment and assign a risk rating using a separate risk methodology.

The LVIA methodology utilises terminology that is similar to that used in the risk assessment framework, however these are not comparable. For example, the criteria for a moderate rating in the impact assessment is not the same as a moderate rating under the risk assessment framework. Because of this, the conclusions of the impact assessment may not always correlate directly with the outcomes of the risk assessment.

Existing conditions – Edithvale

The existing rail corridor, in conjunction with the adjoining Nepean Highway and Station Street road network, form a visually dominant north-south infrastructure corridor running through the project area. This passes through predominantly modest one and two storey commercial and residential developments that front the adjacent infrastructure corridor. The rail corridor contains existing rail infrastructure including power gantries and associated overhead wiring station, and car parking, together with some intermittent low-growing regrowth shrubs and trees that reflect the broader low, endemic coastal landscape character associated with the Frankston rail corridor. The infrastructure corridor runs parallel to the Port Phillip Bay foreshore, which is located some 200m east of the corridor. A locally significant war memorial park is located opposite the rail station (Beeson Reserve), and forms a link between the foreshore and Nepean Highway.

Existing conditions – Bonbeach

The character of Bonbeach project area is similar in many respects to Edithvale with regard to: proximity to Port Phillip Bay; visual dominance of the rail/road infrastructure corridor passing through it; the scale and location of adjacent commercial and residential development; and intermittent cover of endemic low-growing regrowth shrubs and trees within the rail corridor. Unlike Edithvale, there are no significant parks within the project area.

Impact assessment – Edithvale

The LVIA assessment found that no landscape character zones would be subject to High impacts, and that Moderate impacts would occur for LCZ 1 – Infrastructure corridor, comprising the loss of existing endemic vegetation currently present within the rail corridor due to hard infrastructure occupying more of the rail corridor.

The assessment found that no visual receptor locations would be subject to high impacts and four would comprise moderate visual impacts:

- V01 – Residential receptors located on the Nepean Highway
- V07 – Residential receptors located on Station Street
- V08 – Residential receptors located at the corner of Station Street and Fraser Avenue
- V09 – Rail travel receptors located at Edithvale Station.

Impact assessment – Bonbeach

The LVIA assessment found that no landscape character zones would be subject to High impacts, and that Moderate impacts would occur for LCZ 1 – Infrastructure corridor, comprising the loss of existing endemic vegetation currently present within the rail corridor due to the project requiring a greater corridor width being dedicated to hard infrastructure.

The assessment found that one visual receptor location would be subject to High visual impacts, comprising:

- V09 – Residential receptors located at the corner of Station Street and Cannes Avenue.

Environmental Performance Requirements

The following environmental performance requirements are recommended for the Edithvale and Bonbeach level crossing removal projects:

EPR ID	Environmental Performance Requirement	Stage
LV1	<p>Landscape and visual opportunities</p> <p>Minimise negative landscape and visual impacts, and maximise opportunities for enhancement of public amenity and facilities to the extent practicable, through the application of the Urban Design Guidelines specific to each project in consultation with relevant stakeholders, including the Kingston City Council.</p>	<p>Construction</p> <p>Operation</p>
LV2	<p>Lighting</p> <p>Design lighting used during operation of permanent structures in accordance with relevant standards to minimise light spillage and protect the amenity of adjacent land uses to the extent practicable.</p>	Operation
LV3	<p>Light spillage</p> <p>Light spillage must be minimised during construction to protect the amenity of adjacent land uses to the extent practicable.</p> <p>The environmental management plan(s) and other plans must include requirements and methods to minimise light spillage, to the extent practicable, during construction to protect the amenity of adjacent surrounding residential land uses, neighbourhoods, parks, community facilities including urban environments, and any known significant native fauna habitat in consultation with relevant stakeholders.</p>	Construction
UD1	<p>Urban Design Guidelines</p> <p>Design projects in accordance with the LXRA Urban Design Framework and project specific Urban Design Guidelines. The Urban Design Guidelines must consider:</p> <ul style="list-style-type: none"> a. identity b. connectivity and wayfinding c. urban integration d. resilience and sustainability e. amenity f. vibrancy g. safety h. accessibility <p>Seek the advice of the LXRA Urban Design Advisory Panel (chaired by the Office of the Victorian Government Architect, and includes officers of Kingston City Council) during the preparation of detailed design to ensure an appropriate response to the LXRA Urban Design Framework.</p>	Operation
UD2	<p>Hoardings</p> <p>Minimise visual impacts during construction (where possible) with the installation of hoardings. Hoarding must be installed</p>	Construction

EPR ID	Environmental Performance Requirement	Stage
	to LXRA's hoarding requirements in consultation with the Kingston City Council.	

Abbreviations

Term	Definition
AHD	Australian height datum
DEDJTR	Department of Economic Development, Jobs, Transport and Resources
DEPI	Department of Environment and Primary Industry
DELWP	Department of Environment, Land, Water and Planning
EES	Environment effect statement
EPA	Environment Protection Authority Victoria
EPBC	Environment Protection and Biodiversity Conservation Act 1999
ESO	Environmental Significance Overlay
JV	Joint Venture
km	kilometres
LCZ	Landscape character zone
LPPF	Local Planning Policy Framework
LXRA	Level Crossing Removal Authority
LXRP	Level Crossing Removal Projects
mm	millimetre
m	metres
m ²	square metres
RL	relative level
SBO	Special Building Overlay
SEPP	State Environment Protection Policy
SPPF	State Planning Policy Framework
UDF	Urban Design Framework
VEM	Visual envelope map

Glossary

Term	Definition
Aeolian	Geology deposited or formed by wind, as loess or dunes.
Alignment	The geometric layout of a road or railway line in plan (horizontal) and elevation (vertical).
At-grade	A road at ground level, not on an embankment or in a cutting.
Concept design	Initial functional layout of a rail/road system or other infrastructure. Used to facilitate understanding of a project, establish feasibility and provide basis for estimating and to determine further investigations needed for detailed design.
Dn	Down – train travel away from Melbourne/Flinders Street Station.
Heritage item	Any place, building or object listed on a statutory heritage register.
Landscape Character Zones (LCZ)	These are distinct zones of the landscape that are relatively homogenous in character. They are generic in nature in that they may occur in different areas, but wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, vegetation and historical landuse and settlement pattern, and perceptual and aesthetic attributes.
Ramsar	A site protected by an international treaty on the conservation and wise use of wetlands and their resources.
Up	Up – train travel toward Melbourne/Flinders Street Station.
Vista	A view or prospect, especially one seen through a long, narrow avenue or passage, as between rows of trees, houses, or the like.
Visual receptor	Individual and/or defined groups of people who have the potential to be affected by a proposal.
View	A sight or prospect of some landscape, scene, etc.

1 Introduction

1.1 Purpose

The Victorian Government is removing 50 of Melbourne's most dangerous and congested level crossings, inclusive of the level crossings at Edithvale Road, Edithvale (Edithvale) and Station Street/Bondi Road, Bonbeach (Bonbeach).

The Victorian Government is removing 50 of Melbourne's most dangerous and congested level crossings, including the level crossings at Edithvale Road, Edithvale (Edithvale) and Station Street/Bondi Road, Bonbeach (Bonbeach).

The level crossing removal projects have three core objectives. To provide:

- improved productivity from more reliable and efficient transport networks
- better connected, liveable and thriving communities
- safer communities.

The Edithvale and Bonbeach level crossing removal projects were referred to the Minister for Planning on 9 March 2017. On 5 April 2017, the Minister issued a decision determining that an Environment Effects Statement (EES) is required for the projects due to the potential for a range of significant environmental effects.

This report provides a Landscape and Visual Impact Assessment (LVIA) for the Edithvale and Bonbeach level crossing removal projects. The purpose of this report is to provide an LVIA for the changes to the landscape and changes in views and amenity as a result of removing these level crossings, and to recommend measures to minimise potential impacts.

1.2 Why understanding landscape and visual impact is important

An understanding of landscape and visual impact is an important tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource on its own right and on people's views and visual amenity.

1.3 Project description

1.3.1 Overview

Edithvale

The Level Crossing Removal Authority (LXRA) proposes to remove the level crossing by lowering the Frankston railway line into a trench under Edithvale Road while maintaining Edithvale Road at the current road level. The trench would be located between Lochiel Avenue and Berry Avenue. It would be up to 1300 metres in length and 14 metres wide at its narrowest point, widening to up to 24 metres (including pile widths) at the new Edithvale station platforms.

The rail track would be approximately eight metres below ground level, and sit above the trench base slab and infrastructure to collect and divert rain water from the trench. The maximum depth of the excavation would be 15 metres. Pile depths would be a maximum of 24 metres at the deepest point of the trench.

Barriers, fencing and screening would be erected along the trench at road level to prevent unauthorised access by vehicles or people. Decking above the rail trench would provide for the new station building, car parking and a new substation required to ensure sufficient power is available for passenger services on the Frankston railway line. New pedestrian bridges would be constructed to retain pedestrian access across the railway line. A new station is to be constructed with lift, ramp and stair access to the below-ground train platforms.

Bonbeach

LXRA proposes to remove the level crossing by lowering the Frankston railway line into a trench under Bondi Road while maintaining Bondi Road at the current road level. The trench would be located between Golden Avenue and The Glade. It would be up to 1,200 metres in length and 14 metres wide at its narrowest point, widening to up to 24 metres (including pile widths) at the new Bonbeach station platforms.

The rail track would be approximately eight metres below ground level, and sit above the trench base slab and infrastructure to collect and divert rain water from the trench. The maximum depth of the excavation would be 15 metres. Pile depths would be a maximum of 24 metres at the deepest point of the trench.

Barriers, fencing and screening would be erected along the trench at road level to prevent access by vehicles or people. Decking above the rail trench would provide for the new station building and car parking. New pedestrian bridges would be constructed to retain pedestrian access across the railway line. A new station building would be constructed with lift, ramp and stair access to the below-ground train platforms.

1.3.2 Construction

The key construction activities for the Edithvale and Bonbeach level crossing removal projects include:

- site establishment including:
 - clearing of vegetation and ground levelling
 - establishment of site fencing, staff facilities and temporary construction areas
- protection and/or relocation of utility services
- excavation for piling, foundations and the rail trench
- on site waste management including removal, management and appropriate disposal of excavated soil, rock, stormwater and groundwater
- transport of spoil, excavated material and groundwater offsite
- demolition of existing stations and removal of existing rail and road infrastructure
- construction of bridge/deck structures to support Edithvale Road and Station Street/Bondi Road where they cross the rail line
- construction of base slab and waterproofing, including stormwater tanks
- construction of new station infrastructure including platforms and buildings
- construction of pedestrian overpasses and decking over the rail trench
- installation and commissioning of new rail infrastructure including ballast, overhead line equipment and rail.

In preparation for the main rail occupation, the existing Edithvale and Bonbeach stations would be closed approximately four weeks in advance. Both projects would be constructed concurrently under the same rail closure which is anticipated to take six weeks.

During the closure of the rail corridor, construction activities would occur 24 hours per day, seven days per week. Additional periodic road closures and lane closures would be required and access along adjacent streets could be restricted. Additional weekend rail shutdowns would likely be required prior to and after the main rail occupation. Construction is expected to be completed within an 18 month period.

1.3.3 Operations and maintenance

Following the construction of the Edithvale and Bonbeach level crossing removal projects, the key operation and maintenance phase activities would include:

- operation – monitoring, controlling and operation of the asset in accordance with the rail and road network requirements
- maintenance – routine inspection and monitoring of the condition of the asset, planned routine maintenance and refurbishment work, and unplanned intervention and repair of the asset.

Operation and maintenance activities would be consistent with existing practices and subject to the evolving operational demands of the road and rail networks.

1.3.4 Landscape character and visual amenity considerations

The following section describes those components of the projects that have potential to affect landscape character and visual amenity.

Construction

Proposed construction activities associated with the project with potential to affect landscape character and visual amenity include the following:

- site preparation and removal of existing vegetation
- construction activities associated with:
 - excavation for piling, foundations and the rail trench
 - lowering of rail infrastructure
 - new stations including concourse, buildings, platforms and vertical access infrastructure
 - removal of existing level crossing infrastructure
 - reinstatement of roads at their existing level
 - new pedestrian overpasses and decking over the rail trench, including new station infrastructure
 - new rail corridor including excavation and installation of ballast, overhead line equipment and rail

Operational

Proposed operational structures and elements of the project which are assessed with potential to affect landscape character and visual amenity include the following:

- pedestrian ramps and overpasses that maintain access across rail corridor
- station buildings and forecourt areas
- commuter car parking located on decking over part of the rail corridor
- crash barriers, throw screens and security fencing along rail corridor
- rail infrastructure including electricity stanchions and gantries
- landscaping in the rail corridor and road reserves
- substation at Edithvale.

Pedestrian ramps would be required to be designed in compliance with the *Disability Discrimination Act 1992* and would require approximately six metres of clearance above the rail level to allow room for the electricity gantries that power the trains from overhead. The height of the ramps from ground level will vary depending on the depth of the trench. For the purpose of this assessment, it has been assumed that, as a worst case scenario, the bridge would be approximately six metres above ground level.

The new station buildings would replace the existing stations which were constructed in the 1980s, and would be constructed on a deck slightly south of their current positions. At Edithvale, a new substation structure would be established on a deck located south of the main station area, and adjacent to the carpark. These new buildings would be approximately five to six metres tall.

For safety reasons, crash barriers would surround the trench where there is no deck. These would be approximately 2.4 metres high, consisting of a solid barrier below a perforated throw screen. For the purpose of the LVIA, it has been conservatively assumed that the solid portion of the barrier would be 1.8 metres high.

The design used in the photomontages prepared for this assessment is indicative and subject to further refinements during the detailed design stage.

Further information of the design is provided in EES Chapter 2 Rationale and *project descriptions*.

1.4 Project area

1.4.1 Edithvale

The Edithvale Road, Edithvale level crossing project investigation area (Edithvale project area) extends from Lincoln Parade, Aspendale to Chelsea Road, Chelsea. It includes the rail corridor and all of Station Street and Nepean Highway to the east and west of the rail corridor, and small sections of adjacent road reserves. Refer to Figure 1.

1.4.2 Bonbeach

The Station Street/Bondi Road, Bonbeach level crossing removal project area (Bonbeach project area) extends from Chelsea Road, Chelsea to Patterson River, Bonbeach. It includes the rail corridor and all of Station Street and Nepean Highway located to the east and west of the rail corridor, and small sections of adjacent road reserves. Refer to Figure 2.

1.4.3 Temporary construction areas

Specific construction laydown areas have not been identified at this time. Temporary laydown areas would be used for site offices, storing materials, plant and equipment, parking for construction works and construction traffic standby.

1.4.4 Study area

For the purpose of this assessment, the landscape and visual impact study area is considered to be those areas within a 500 metre offset from the proposed infrastructure and includes:

- Edithvale – between Lochiel Avenue and Berry Avenue
- Bonbeach – between Golden Avenue and the Glade.

Beyond this area, it is anticipated that the combined effects of distance, intervening landform, built form and vegetation will combine to render landscape and visual impacts negligible.



Figure 1 Edithvale project area



Figure 2 Bonbeach project area



Figure 3 Edithvale study area



Figure 4 Bonbeach study area

2 Scoping Requirements

In order to meet statutory requirements, protect environmental values and sustain stakeholder confidence, the EES will include an Environmental Management Framework (EMF). The EMF will provide a transparent framework with clear accountabilities for managing and monitoring environmental effects and hazards associated with the construction and operational phases of the projects.

Section 3.5 of the Scoping Requirements (issued September 2017), states Environmental Performance Requirements (EPRs) 'should be clearly described in the EMF'. The proposed objectives, indicators and monitoring requirements to be described that are relevant to this study are:

- social outcomes (with respect to landscape and visual amenity).

3 Legislation, policy and guidelines

There is no legislation specific to the field of LVIA, and furthermore, there is no accepted national published guidance on landscape and visual amenity impact assessment specific to Australia. Therefore, this LVIA assessment is made with reference to an understanding of techniques set out in the following good practice document: *The Guidelines for Landscape and Visual Impact Assessment, Third Edition* (2013), (GLVIA) developed by the Landscape Institute and Institute for Environmental Management (United Kingdom), further discussed in Section 4.3. First published in 1995, the method has been updated in response to changing practice in 2002 and then again in 2013. As such, it comprises a responsive and thoroughly tested method that is regularly cited. Table 1 summarises some of the other relevant planning policies and the urban design framework that apply to the Edithvale and Bonbeach level crossing removal projects, as well as the implications and required approvals. The guidelines used to guide this LVIA are discussed in Section 4.3. Descriptions of all legislation relevant to the projects are contained in Appendix A of this report.

Table 1 Primary legislation and policy

Policy	Key policies	Implications for this project
<i>State Planning Policy Framework (SPPF)</i>	Clause 12.04-2 Landscapes	Provides guidance to protect landscapes and significant open spaces that contribute to character, identity and sustainable environments.
	Clause 15 Built environment and heritage	Planning should achieve high quality urban design and architecture that enhances amenity of the public realm.
	Clause 15.01-1 Urban design	Focuses upon the provision of environments that are safe and functional and which reinforce a sense of place and cultural identity.
	Clause 15.01-5 Cultural identity/ neighbourhood character	Provides guidance to recognise and protect neighbourhood character and sense of place with specific regard for the built environment and heritage elements.
<i>City of Kingston Local Planning Policy Framework (LPPF)</i>	Clause 21.02 Municipal overview (Environment and heritage)	The environmental landscape of the City of Kingston is recognised for its diversity and significance in both a local and regional context. It includes the Port Phillip Bay and foreshore reserve, other natural and man-made waterways, wetland systems, floodplains, heathlands and significant flora and fauna habitats
	Clause 21.04 Vision: (Environment and infrastructure)	To protect and enhance the quality and unique character of Kingston's natural and built environments and infrastructure assets.
	Clause 21.05 Residential land use	Protect areas/elements in the built form and natural landscape which have an identified and valued character.
	Clause 21.06 Retail and commercial land use	Reinforcing the role the Nepean Highway and Frankston Train Line perform in linking Kingston's principal and major activity centres.
	Clause 21.11 Open space	Ensure that new development adjacent to existing public open space is responsive to the natural landscape

Policy	Key policies	Implications for this project
		features of the open space area.
	Clause 21.12 Transport, movement and access	To protect and enhance the amenity of Kingston's residential areas and other sensitive land uses through appropriate management of transport networks.
<i>Level Crossing Removal Authority Urban Design Framework</i>	Eight key principles	Seeks to minimise impacts and ensure the provision of a high quality urban design outcome.

4 Method

This section describes the method that was used to assess the potential impacts of the Edithvale and Bonbeach level crossing removal projects.

A systematic risk based approach was applied to understand the existing environment, potential impacts of the projects and how to avoid, minimise or manage the risk of impact.

The iterative nature of the assessment is illustrated in Figure 5.

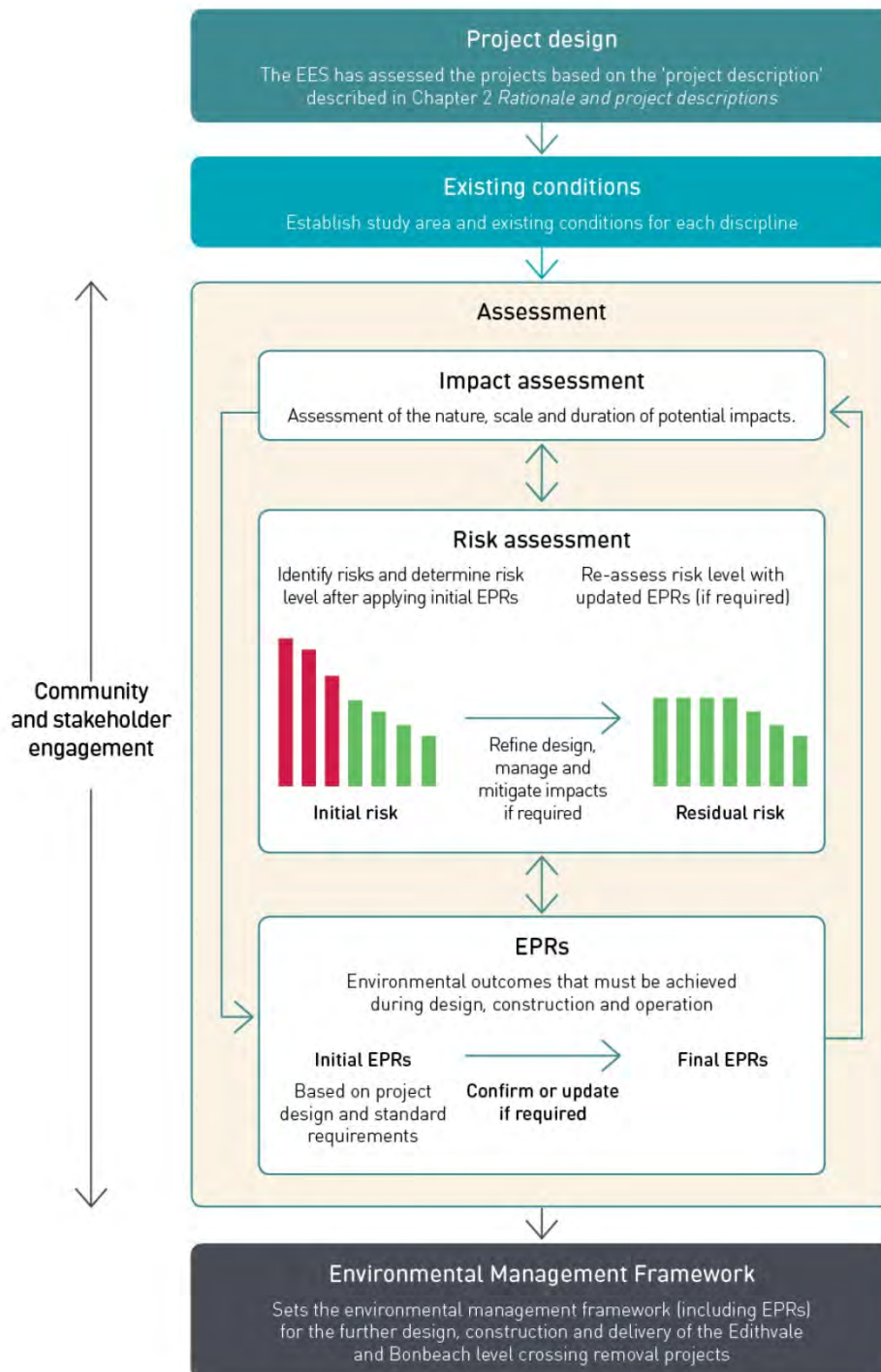


Figure 5 Overview of impact and risk assessment process

The following sections outline the methodology for the landscape and visual impact assessment.

The methodology in this report provides for an LVIA that has informed the risk assessment in a similar way as the air quality or noise assessment models have informed the risk assessment for those aspects of the environment. Essentially the LVIA assessment is a standalone technical assessment which uses a methodology specific for landscape and visual impact assessment. The outputs of this methodology are then used to inform a risk assessment and assign a risk rating using a separate risk methodology as described in Section 4.2.

The LVIA methodology utilises terminology that is similar to that used in the risk assessment framework however these are not comparable. For example, the criteria for a moderate rating in the impact assessment is not the same as a moderate rating under the risk assessment framework. Because of this, the conclusions of the impact assessment may not always correlate directly with the outcomes of the risk assessment.

4.1 Existing conditions assessment

The existing conditions of the two project areas were assessed to understand the nature of the landscape, with a primary focus on landscape character, suitable to inform the following project assessment phase. Five landscape character zones (LCZ) were determined, each of which exhibited broadly consistent physical, visual and perceptual qualities. The LCZs provide a baseline against which to assess the effects of the projects on the character of the landscape in its own right, and the visual amenity experienced by key visual receptor groups.

4.2 Risk assessment method

A risk-based approach is integral to the EES as required by Section 3 of the Scoping Requirements for the EES.

The risk management approach adopted for the Edithvale and Bonbeach EES is consistent with AS/NZS ISO 31000:2009 Risk Management Process and involves the following steps:

- establishment of the context of the risk assessment – this identifies the boundaries of the projects including the project definition, the duration of construction and operation, the design and environmental controls that would be in place (initial Environmental Performance Requirements (EPRs) – refer to Section 7.5.1), and the location of the projects
- risk identification – identification of risk pathways by specialists in each relevant discipline area
- risk analysis – assessment of risk for each risk pathway, whereby risk is a combination of:
 - the likelihood of an event and its associated consequences occurring
 - the magnitude of potential consequences of the event.
- risk evaluation – review key risks posed by the projects to focus effort in terms of impact assessment and mitigation.
- risk treatment – identification of additional management and mitigation where required to reduce risk levels where possible.

An initial risk assessment was undertaken to assess potential risks to the environment arising from the implementation of the projects. Where risks were minor or above, further mitigation was explored. Risks were re-assessed to determine the residual risk based on further mitigation.

A more detailed description of each step in the risk assessment process is provided in EES Attachment II *Environmental Risk Report*.

This technical report describes the risks associated with the projects on landscape and visual impact.

4.3 Impact assessment method

This impact assessment has been undertaken to inform the risk based approach adopted by the EES. The methodology provides for a LVIA model that has informed the risk assessment; while the LVIA methodology utilises terminology that is similar to that used in the risk assessment framework, these are not comparable.

There is no accepted national published guidance on landscape and visual amenity impact assessment specific to Australia. Therefore, the assessment is made with reference to an understanding of techniques set out in the following good practice document: *The Guidelines for Landscape and Visual Impact Assessment, Third Edition* (2013), (GLVIA) developed by the Landscape Institute and Institute for Environmental Management (United Kingdom) as discussed in Section 2.

The methodology focusses on identifying the key likely or potential effects on landscape and visual receptors including community members. The method is taken directly from the GLVIA except where otherwise cited. The study methodology comprises the following key tasks:

- Describe characteristics of proposal.
- Define project area.
- Identify EES evaluation objectives and scoping requirements relevant to landscape and visual impact outcomes in the context of potential project effects.
- Review relevant policies and guidelines.
- Establish existing conditions: Understand and describe the character of the landscape within which the project is set (including the mapping of landscape character zones); individual elements and aesthetic and perceptual aspects of the landscape; and the condition of the landscape; all undertaken via desktop studies and site work, against which effects associated with the project can be assessed.
- Identify construction and operational risks.
- Undertake an assessment of landscape effects and visual effects to determine landscape and visual impacts:
 - a. Landscape effects:
 - i Undertake a landscape character impact assessment.
 - b. Visual effects:
 - i Map the visibility of the project.
 - ii Identify key existing receptor types and locations.
 - iii Assess visual effects of the project (based upon the concept design).
- Identify Environmental Performance Requirements to avoid, minimise or manage any adverse landscape and visual effects. These mitigation measures fall into two categories:
 - i Primary measures, developed through the iterative design process, which have become integrated or embedded into the project design.
 - ii Standard construction and operational management for avoiding and reducing environmental effects.

Additionally, while mitigation is linked to significant adverse landscape and visual effects, proposals may seek to improve the landscape resource and visual amenity of the proposed development site and its wider setting, over and above its baseline condition. This is addressed

through provision of design opportunities such as new station buildings, and public realm improvements in station forecourts and streetscapes surrounding the projects.

4.3.1 Assessment of landscape impacts

Assessment of landscape effects deals with the effect of a visible change on the landscape and development on the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character. The assessment comprises the combination of the following assessments outlined below.

4.3.1.1 Sensitivity of landscape to change

The identification of the sensitivity of the landscape to a specific change encompasses the components outlined below.

Susceptibility to change

The existing landscape baseline is assessed to understand the capacity to accommodate the proposal based on landform, land use, scale and design; as well as the capacity to achieve any landscape policy and strategy objectives.

Value of the landscape

This assesses whether the value of the landscape would be affected based on existing landscape character designations (be they internationally, nationally or locally recognised landscapes), and the value of particular landscape features or notable aesthetic, perceptual or experiential qualities.

These individual components are combined to achieve a landscape sensitivity that is broadly defined in the following way:

Table 2 Sensitivity of landscape to change

Sensitivity of landscape to visible change	
High	Landscapes of international designation and/or landscapes that have high sensitivity to the type of development proposed which could have a detrimental effect on the landscape character or value. Mitigation measures will be unlikely to reduce all of the effects of the change.
Moderate	Landscapes of regional designation or valued more locally and tolerant of moderate levels of change. Any change would be unlikely to have a significant adverse effect on the landscape character or value and mitigation would neutralise some of the effects.
Low	Landscapes of local designation that are more commonplace and potentially tolerant of noticeable change or are undergoing substantial development themselves, with mitigation measures likely to neutralise or improve the landscape character.
Negligible	Landscapes of local designation and/or with low sensitivity to the type of change proposed with mitigation likely to completely neutralise any effects or not required at all.

4.3.1.2 Magnitude of landscape effect

The magnitude of landscape effects is comprised of the components outlined below.

Size or scale of change

An assessment of size or scale of change in the landscape likely to be experienced as a result of the proposed development which may include the extent of loss of an existing landscape element, the degree of alteration to aesthetic or perceptual aspects of the landscape, or any change to key characteristics of the landscape.

Geographical extent of effects

This considers the geographical extent over which the landscape effects will be felt, and is distinct from the size or scale of the change. This is influenced by site levels, the immediate context, and landscape character types in the vicinity.

Duration and reversibility of the effects

Duration is judged on a scale of short term (zero to five years), medium term (five to ten years) and long term (more than ten years). Reversibility is a professional judgement about the prospects of the effect being reversed, for example, a project such as a temporary sporting facility that might have a limited life.

These individual components are combined to achieve a magnitude of landscape effect that is broadly defined in the following way:

Table 3 Magnitude of landscape effect

Magnitude of landscape effect	
High	A substantial/obvious change to the landscape due to total loss of, or change to, elements, features or characteristics of the landscape. Change would cause a landscape to be permanently changed and its quality diminished.
Moderate	Discernible changes in the landscape due to partial loss of, or change to key elements, features or characteristics of the landscape which may be partly mitigated. The change would be out of scale with the landscape, at odds with the local character, and would leave an adverse impact on the landscape. The change would partially obstruct or change a view.
Low	Minor loss or alteration to one or more key landscape features or characteristics, or the introduction of elements that may be visible but may not be uncharacteristic within the existing landscape.
Negligible	Almost imperceptible or no change in the landscape or views as there is little or no loss of, or change to the elements, features or characteristics of the landscape.

Overall rating of landscape impacts

Once the sensitivity of the landscape to visual change and the magnitude of the landscape effect is determined, a rating matrix is used to determine an overall rating of landscape effects, and made on the level of significance of the effect, described as being Negligible, Low, Minor, Moderate - Low, Moderate, High - Moderate or High (refer to Figure 6).

		Magnitude of effect			
Sensitivity		High	Moderate	Low	Negligible
	High	High	High - Moderate	Moderate	Negligible
	Moderate	High - Moderate	Moderate	Moderate - Low	Negligible
	Low	Moderate	Moderate - Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible



 Significant change
 Potentially significant change

Figure 6 Rating and significance of landscape effects

Professional judgement on the significance of a landscape effect is specific to every place and a combination of the location, landscape context and type of proposal. While there are no absolute rules that define what makes a significant effect, this assessment considers an overall High matrix rating to be a significant change, and an overall High – Moderate rating to be a potentially significant change. A further professional judgement can be made about the quality of the landscape effects once a project design is developed, which can be adverse, neutral or positive. These ratings help inform where mitigation may be required to minimise or improve the quality of the landscape character. This report has assessed the scope elements included in the Project Description identified for the EES and mitigated by the application of the LXRA Urban Design Framework. The report identifies the need for an Environmental Performance Requirement for detailed Urban Design Guidelines to be prepared to guide the development of detailed design.

4.3.2 Assessment of visual impacts

Assessment of visual impacts deals with the impact of changes to the landscapes perceived by individuals or groups of people. This identifies the change or loss of existing elements of the visual landscape and/or introduction of new elements to relevant users.

Visual Context

The project will be visible from various types of locations including: public viewpoints; transport routes; places where people work, and residential properties. Viewpoints fall into three categories:

- Representative viewpoints, selected to represent the experience of different types of visual receptor, where larger numbers of viewpoints cannot all be included individually, and where the significant effects are unlikely to differ.
- Specific viewpoints, chosen because they are key and sometimes promoted viewpoints within the landscape, including for example specific local visitor attractions, viewpoints in areas of particularly noteworthy visual and/or recreational amenity such as landscapes with statutory landscape designations, or viewpoints with particular cultural landscape associations.
- Illustrative viewpoints, chosen specifically to demonstrate a particular effect or specific issue, which for example, might be the restricted visibility at certain locations.

Photomontages were prepared for select viewpoints that best addressed the above categories to demonstrate the potential impacts associated with the main project elements.

Receptor Types

The viewpoints have been organised in key receptor types, each of which are considered typically to share defined levels of sensitivity to changes in the context and character of views. The receptor types that form this assessment include:

- nearby residential properties
- recreational users, shared trails and parks
- commercial properties
- road users
- rail users.

Visual Envelope Mapping

The likely visibility of the proposed elements of the project at operation from surrounding areas is broadly mapped to define a visual envelope. This map indicates 'worst case' and is indicative only as it does not include nor consider the effects of existing vegetation cover.

4.3.2.1 Sensitivity of visual receptors

The sensitivity of visual receptors encompasses the components outlined below.

Susceptibility of visual receptors to change

The susceptibility of different visual receptors to changes in views and visual amenity is mainly a function of the activity of people experiencing the view and the extent to which their attention or interest may therefore be focused on the view.

Visual receptors most susceptible to change are generally residents who are likely to occupy these locations for long periods of time, people engaged in outdoor activity, visitors to attractions where the surroundings are part of the experience, and communities where the landscape setting is an important contributor to the amenity of their environment.

Visual receptors with a moderate susceptibility to change are generally travellers on road and rail transport. Where travel involves recognised scenic routes awareness of views may be particularly high.

Visual receptors with less sensitivity to change include people engaged in outdoor sport and people at their place of work where attention is focussed on their activity and the setting is less important to their experience.

Value attached to views

This assessment considers:

- the recognition of the value attached to particular views, either in relation to heritage assets or through planning designations, planning policy or other existing planning or urban design studies
- indications of the value attached to views, either through inclusion in guidebooks or on tourist maps, provision of facilities for their enjoyment such as sign boards and interpretive material
- reference to them in literature or art.

These components are combined to produce a sensitivity assessment that ranges from High to Negligible.

4.3.2.2 Magnitude of the visual effects

The magnitude of visual effects is comprised of the components outlined below.

Size or scale of the change

This assessment takes account of the scale of change in the view with respect to: the loss or addition of features in the view; the degree of contrast or integration of any new features or changes and characteristics in terms of form, scale and mass, line, height, colour and texture; and the nature of the view of the proposal and whether views will be full, partial or glimpses.

Geographical extent of effects

The geographical extent of a visual effect will vary with different viewpoints and is likely to reflect the angle of the view, the distance of the viewpoint, and the extent of the area over which changes would be visible.

Duration and reversibility of the effects

Duration is judged on a scale of short term (zero to five years), medium term (five to 10 years) and long term (more than 10 years). Reversibility is a professional judgement about the prospects of the effect being reversed.

These components are combined to produce a magnitude of visual effect assessment that ranges from High to Negligible.

Overall significance of visual effects

Once the sensitivity of the landscape to visual change and the magnitude of the landscape effect is determined, a rating matrix is used to determine an overall rating of visual effects, and made on the level of significance of the effect, described as being Negligible, Low, Minor, Moderate - Low, Moderate, High - Moderate or High, as set out in Figure 7.

		Magnitude of effect			
		High	Moderate	Low	Negligible
Sensitivity	High	High	High - Moderate	Moderate	Negligible
	Moderate	High - Moderate	Moderate	Moderate - Low	Negligible
	Low	Moderate	Moderate - Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible



 Significant change
 Potentially significant change

Figure 7 Significance of visual impacts

While there is no standard approach to determining what makes a significant effect, this assessment considers an overall High matrix rating to be a significant change, and an overall High – Moderate matrix rating to be a potentially significant change.

A further professional judgement can also be made about the quality of the effects, which can be adverse, neutral or positive. These ratings help inform where mitigation may be required to minimise or improve the quality of the visual impact. For the purposes of this report, these ratings have been undertaken assuming the application of the Environmental Performance Requirements.

4.3.2.3 Lighting effects

In some circumstances, the visual effects of lighting may be an issue. In these cases night-time 'darkness' surveys of the existing conditions can be undertaken to assess the potential effects of lighting. A qualitative assessment of the visual effects of predicted light levels could be undertaken on night-time visibility of a suitably detailed design.

It was considered that the undertaking of an assessment of night lighting effects was not warranted within the context of these two projects given:

- the existing night lighting conditions including street lights and headlights on the adjoining Nepean Highway and Station Street
- the almost exclusively low rise nature of the dwellings within which residents live (key sensitive receptor)
- the relatively low number of these sensitive receptors (generally facing on to the rail corridor from Nepean Highway and Station Street)

EPRs specific to lighting would be applied, mitigating project impacts within the context of the above.

4.4 Environmental Performance Requirements

The environmental outcomes that must be achieved during design, construction and operation of the projects are referred to throughout the EES as Environmental Performance Requirements (EPRs). EPRs must be achieved regardless of the construction methodology or design solutions adopted. Measures identified in this EES to avoid or minimise environmental impacts have formed part of the recommended EPRs for the projects.

The development of a final set of EPRs for the project has been iterative.

4.4.1 Initial EPRs

Environmental performance requirements were identified to inform the assessment of initial risk ratings (where appropriate). These initial EPRs were based on compliance with legislation and standard requirements that are typically incorporated into the delivery of construction contracts for rail projects.

4.4.2 Confirm or update EPRs

The risk assessment either confirmed that these EPRs were adequate or identified the need for further refinement.

EPRs were updated or new EPRs were developed for any initial risk that could not be appropriately managed by standard requirements. The risk and impact assessment processes confirmed the effectiveness of new or updated EPRs to determine the residual risk rating.

4.4.3 Final EPRs

The EPRs recommended for the projects are outlined in Section 7.5.1 of this report and are included in the EES Environmental Management Framework.

The EPRs are applicable to the final design, construction approach and operation and provide certainty regarding the environmental performance of the projects.

4.5 Design assumptions

Given the project is at early stage of development with regard to landscape and urban design; the following assumptions have been made to facilitate the assessment process:

- This report should be read in conjunction with the LXRA's Urban Design Framework.

- An integrated traffic barrier/security fence/throw screen system will include architectural treatments or landscape elements, including planting, to minimise the visual impact of these structures to the extent practical in line with the site specific Urban Design Guidelines.
- Where vegetation and planting cannot be used to mitigate visual impacts (e.g. where insufficient space is available between a traffic barrier and an adjacent road), architectural elements and hard landscape features will be used to minimise the visual impact of the projects.

4.6 Linkage to other reports

This report relies on, or informs the following sections of the EES:

- EES Technical Report F *Land use*
- EES Technical Report L *Social*
- EES Attachment VII *Urban Design Guidelines – Edithvale*
- EES Attachment VIII *Urban Design Guidelines – Bonbeach*

5 Existing conditions

5.1 Landscape character zones

Based upon the assessment of the existing natural and cultural influences that shape the landscape and visual context of the study area, LCZs have been identified.

Each character zone identified represents a relatively homogenous character based on the consideration of the following attributes:

- landscape value (for example landscapes designated for their scenic or landscape importance or valued recreational function)
- landscape elements that contribute to defining character (for example residential development, infrastructure corridors, landform and open space et cetera)
- landscape character attributes (including scale, grain and perceptual characteristics such as the sense of remoteness, tranquillity and/or its perceived character).

The five LCZs identified near to Edithvale and Bonbeach are outlined below.

- **LCZ 1** – Infrastructure corridor
- **LCZ 2** – Residential
- **LCZ 3** – Commercial
- **LCZ 4** – Open space
- **LCZ 5** – Foreshore.

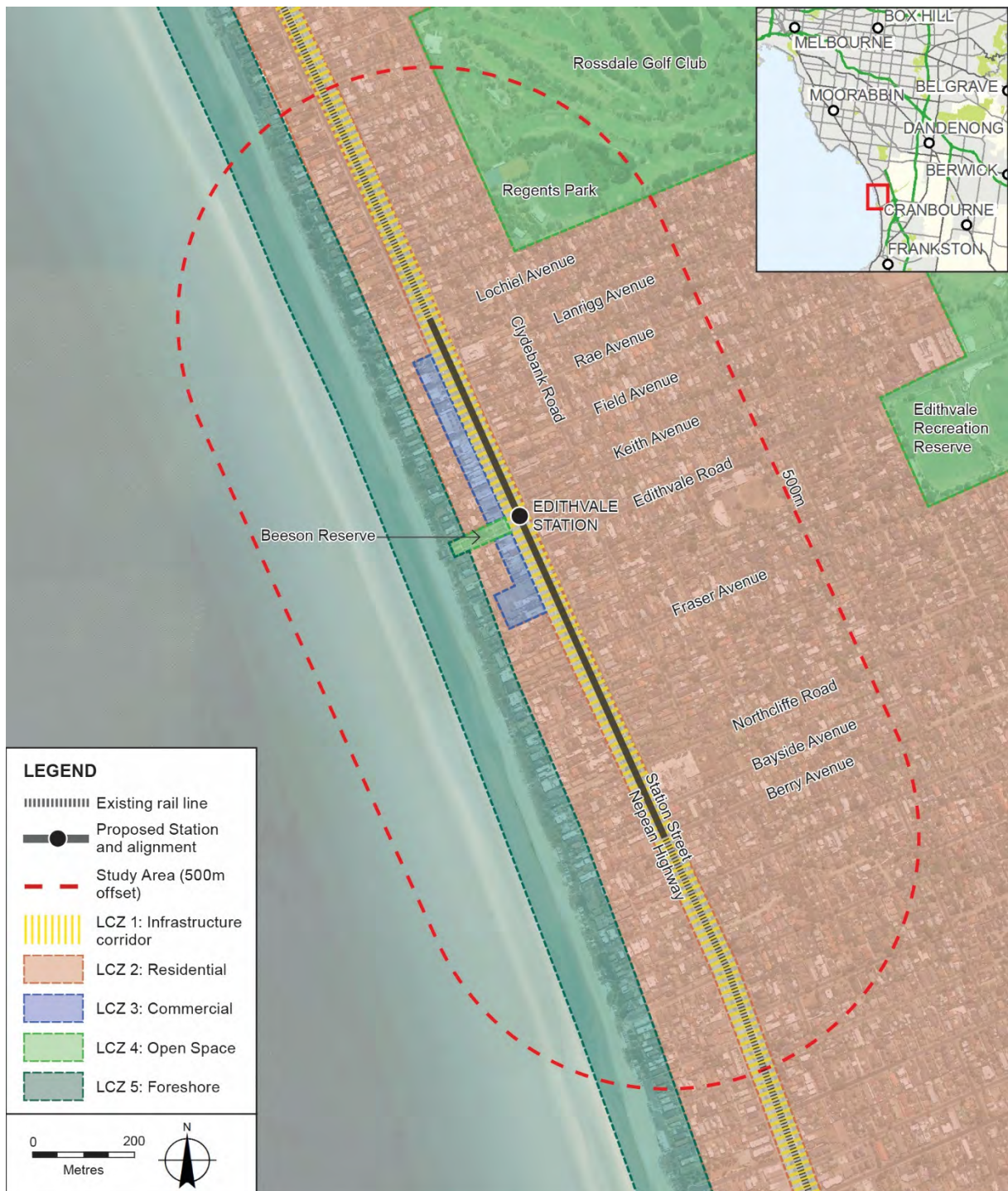


Figure 8 Landscape Character Zones for Edithvale

5.1.1 Edithvale

5.1.1.1 LCZ 1 – Infrastructure Corridor

This LCZ contains the existing Frankston railway line, railway corridor and Station Street and Nepean Highway. This LCZ runs in a north-south alignment through the project study area and is located approximately 200 metres to the east of the Port Philip Bay foreshore. The LCZ is characterised by existing rail and road infrastructure including: regularly spaced gantries that support the overhead power supply for the trains, domestic and commercial power network including poles and wiring, street lighting, train station, hard infrastructure, road surfaces, car parking and other associated bus and road infrastructure.

The rail corridor also contains intermittent vegetation cover characterised by endemic low-growing shrubs and trees, the height of which is likely to be limited by regular exposure to salt laden winds from Port Phillip Bay (refer Figure 9). This vegetation typology and distribution defines the vegetation component of the LCZ. Further, this LCZ is the primary location within which this vegetation community is still present within the project area and is therefore considered to be an important contributor to the sense of place for Edithvale.



Figure 9 Typical character of LCZ 1 as viewed from the Nepean Highway

5.1.1.2 LCZ 2 – Residential

This LCZ is located within the low-lying coastal environment of Port Phillip Bay, consisting of a combination of old and new residential development, with a predominance of new development on the bay side of the project – refer Figure 10. Built form ranges from typically single and double storey housing, up to four storeys in some locations. LCZ 2 as a whole is bisected by the railway line, Station Street and Nepean Highway, which interfaces with the two residential areas on either side. The residential west of the railway line is typically subject to substantial levels of renovation and redevelopment, with less development occurring east of the railway line.

Planning policy for the bay side of the LCZ 2 has a height objective to preserve the coastal environs; planning policy directs increased densification of dwellings onto the eastern side of the railway line.

The landscape incorporates scattered remnant vegetation and limited street tree planting in residential streets. Figure 11 illustrates typical character within this LCZ.

Future medium density and mixed use development (three storeys or more) are proposed within this LCZ and listed in the Table 4 below:

Table 4 Proposed residential developments

ID Number	Address	Description
A	194 Station Street	4 storeys, 16 dwellings
B	195-197 Station Street	4 storeys, 50 dwellings
C	8 Clydebank Road	3 storeys, 30 dwellings



Figure 10 Typical character of LCZ 2 west of the rail corridor and visual connection to the foreshore



Figure 11 Typical character of LCZ 2 east of the rail corridor, showing limited street trees, high fencing along busier roads and typical overhead power and lighting in the street

5.1.1.3 LCZ 3 – Commercial

This LCZ is defined by a linear commercial centre containing a mix of shops, small businesses and cafes/restaurants on the western side of the Nepean Highway. Refer Figure 8 for extent of this zone. The commercial centre is generally located in one or two storey premises with ground floor shops and residential above. Figure 12 shows a photograph of this zone.

The character is primarily influenced by the utilitarian nature of the LCZ 1 Nepean Highway setting with business and commercial development prominent on the western side of the Nepean Highway, with no significant level of setback from the highway and no street trees.



Figure 12 Typical character of LCZ 3 along Nepean Highway

5.1.1.4 LCZ 4 – Open Space

LCZ 4 comprises Beeson Reserve, a flat, linear park located between Edithvale Station and the foreshore, situated in the centre of the project area, and Regents Park, situated on the northern boundary of the project area. Beeson Reserve features a paved war memorial space, raised terraces at both ends and a turfed picnic area (refer to Figure 13). An important gateway between the station and the coast, the reserve includes formal planting, with fringing vegetation and low scattered trees on the boundary adjacent to The Esplanade.

The recreational land on the northern boundary of the project area comprises Regents Park; Edithvale Recreational Reserve, and Rossdale Golf Club, although only Regents Park and small portion of the Rossdale Golf Club lie within the project area boundary.



Figure 13 Typical character of LCZ 4 at Beeson Reserve looking towards the existing railway station with the war memorial in the foreground



Figure 14 Panorama view of Beeson Reserve taken from the Edithvale Life Saving Club

5.1.1.5 LCZ 5 – Foreshore

This LCZ forms part of Aspendale to Carrum Foreshore Reserve which comprises a long coastal strip that extends from Mordialloc Creek to Carrum in Port Phillip Bay. The LCZ incorporates low dunes vegetated with Coastal Dune Scrub / Coastal Dune Grassland EVC, adjoined by residential development that addresses Port Phillip Bay. The beachfront is notable for the regular provision of small boat sheds and bathing boxes built on the foredune (refer to Figure 15 and Figure 16).

This LCZ is considered to embody important landscape character values of: naturalness; openness within the context of the adjacent built-up urban setting; solitude; and retreat from the sound and movement of road and rail traffic.

This LCZ is adjoined by LCZ 2 Residential, and briefly by LCZ 4 Open Space in the form of Beeson Reserve and the Edithvale Surf Life Saving Club.



Figure 15 Typical character of LCZ 5 at Edithvale



Figure 16 Detail of boat storage and bathing boxes



Figure 17 Landscape Character Zones for Bonbeach

5.1.2 Bonbeach

5.1.2.1 LCZ 1 – Infrastructure Corridor

This LCZ contains the existing Frankston railway line, railway corridor and Station Street and Nepean Highway. This LCZ runs in a north-south alignment through the project study area and is located approximately 200 metres to the east of the Port Philip Bay foreshore. The LCZ is characterised by existing rail and road infrastructure including: regularly spaced gantries that support the overhead power supply for the trains, domestic and commercial power network including poles and wiring, street lighting, train station, hard infrastructure, road surfaces, car parking and other associated bus and road infrastructure.

The rail corridor also contains intermittent vegetation cover characterised by endemic low-growing shrubs and trees, the height of which is likely to be limited by regular exposure to salt laden winds from Port Phillip Bay (refer Figure 9). This vegetation typology and distribution defines the vegetation component of the LCZ. Further, this LCZ is the primary location within which this vegetation community is still present within the project area and is therefore considered to be an important contributor to the sense of place. for Edithvale

Figure 18 illustrates the typical character within LCZ 1 as viewed from the Nepean Highway.



Figure 18 Typical character of LCZ 1

5.1.2.2 LCZ 2 – Residential

This LCZ is located within the low-lying coastal environment of Port Phillip Bay. This relatively flat land consists of a combination of old and new residential development. Built form ranges from typically single and double storey housing, up to four storeys in some locations. LCZ 2 as a whole is bisected by the railway line (infrastructure corridor landscape character zone) and Nepean Highway, which forms a barrier between the two residential areas on either side. The residential west of the railway line is typically subject to substantial levels of renovation and redevelopment, with less development occurring east of the railway line.

The landscape comprises scattered remnant vegetation and limited street tree planting in residential streets. Figure 19 illustrates the typical character within LCZ 2.



Figure 19 Typical character of LCZ 2

5.1.2.3 LCZ 3 – Commercial

This LCZ is located within a small linear commercial centre containing a mix of shops, small businesses and cafes/restaurants on the western side of the Nepean Highway. Refer to Figure 17 for extent of this zone. The commercial centre is generally located in one or two storey premises with ground floor shops and residential above. Figure 20 shows a representative view of this zone. Bonbeach Station forms a distinctive element of this view and acts as a wayfinding landmark for users of the commercial centre.

The character is primarily influenced by the utilitarian nature of the road setting with business and commercial development prominent on the western side of the Nepean Highway.



Figure 20 Typical character of LCZ 3

5.1.2.4 LCZ 4 – Open Space

Landscape Character Zone 4 has not been assessed for Bonbeach since it does not occur in the study area.

5.1.2.5 LCZ 5 – Foreshore

This LCZ forms part of Aspendale to Carrum Foreshore Reserve which is a long coastal strip that extends from Mordialloc Creek to Carrum in Port Phillip Bay. The LCZ comprises low dunes and a variety of remnant vegetation.

The LCZ is highly valuable as a recreational reserve supporting the local Bonbeach Life Saving Club. The beach can be accessed easily from the many local residential streets which terminate and meet with this LCZ.

Residential housing backs onto the foreshore with many beach houses scattered along the foreshore. The beachfront is notable for the regular provision of small boat sheds and bathing boxes built on the frontage of many properties immediately in front of the foredune (refer to Figure 21).



Figure 21 Typical character of LCZ 5

6 Risk assessment

A risk assessment of project activities was performed in accordance with the methodology described in Section 4.2. Risks were assessed for the construction and design/operation phases (where relevant).

The residual landscape and visual risks associated with the projects are listed in Table 5. The likelihood and consequence ratings applied during the risk assessment process are provided in Appendix B. There was no change in the initial risk and final risk levels for landscape and visual.

Table 5 Landscape and visual risks

Risk ID	Risk name	Risk pathway	Final EPR	Residual risk level
Construction risks				
LV 37	Lighting	Lighting leads to disturbance to sensitive receptors/fauna and leads to a perceived loss of amenity.	EPR LV3 Light spillage	Negligible
LV 39	Visual Impact	Visual impact of construction activities, ancillary facilities and new rail facilities results in perceived loss of visual amenity by rail users.	EPR UD2 Hoardings	Minor
Operational risks				
LV 37	Lighting	Lighting leads to disturbance to sensitive receptors/fauna and leads to a perceived loss of amenity.	EPR LV2 Lighting	Negligible
LV 38	Landscape character	Change of landscape character in infrastructure corridor/commercial/residential/open space/foreshore areas resulting in perceived loss of amenity.	EPR LV1 Landscape and visual opportunities EPR UD1 Urban Design Guidelines	Negligible
LV 40	Visual Impact (general)	Visual impact of changes to rail infrastructure (excluding pedestrian overpasses and substation) results in perceived loss of visual amenity by residents or the community	EPR LV1 Landscape and visual opportunities EPR UD1 Urban Design Guidelines	Minor
LV 41	Visual Impact (pedestrian overpasses, substation)	Visual impact of new pedestrian overpasses (Edithvale and Bonbeach) and substation (Edithvale) results in perceived loss of visual amenity by residents or the community	EPR LV1 Landscape and visual opportunities EPR UD1 Urban Design Guidelines	Moderate

For further details refer to the EES Attachment II *Environmental Risk Assessment* which includes the full risk register.

7 Impact assessment

7.1 Landscape character effects - Edithvale

Five LCZs have been identified for the project (refer Figure 8). For a description of each LCZ within this area, refer Section 5.1.1. The landscape character assessment is provided in Table 6.

Table 6 Edithvale - landscape impact assessment

Landscape Character Zone 1 – Infrastructure corridor
Anticipated change to LCZ <p>The project will result in changes to the existing rail infrastructure within the LCZ. Most of the corridor will be in a trench with concrete retaining walls in the order of 1300 metres long and up to eight metres deep, passing under Edithvale Road. Current pedestrian level crossings will be replaced with pedestrian overpasses, with the final location of these to be determined as part of the detailed design in consultation with the community. While this will result in a change to the existing infrastructure, the change is consistent with that of a rail corridor, and limited to within the rail corridor. The project would result in the loss of a component of the existing endemic vegetation currently present within the rail corridor.</p>
<p>Sensitivity to change: Moderate*</p> Susceptibility to change <p>As a highly modified landscape, the LCZ is considered to have a moderate potential to accommodate the proposed change without long-term landscape character impacts. This is due to the project potentially requiring a greater width of the LCZ being dedicated to hard infrastructure and the height (and therefore character) of any replacement vegetation potentially being limited due to the requirement that landscaping maintain minimum horizontal / vertical clearances from rail infrastructure.</p> <p>The substantive component of the project will comprise of a below ground trench that will largely be imperceptible (with the exception of throw screens); the new station concourse and structures will replace existing station infrastructure; the substation will introduce a new rail infrastructure component within the LCZ.</p>
Value of LCZ <p>This LCZ provides a utilitarian infrastructure corridor character consistent with its transport and utility functions, with the existing station buildings nearing the end of their design life. The naturalistic nature of regenerating endemic vegetation within this LCZ contributes to the coastal landscape character of the broader area, and comprises a pervasive 'sense of place' element associated with this LCZ, and the adjoining edges of LCZ 2 - Residential, and adjoining LCZ 3 - Commercial.</p>
<p>Magnitude of change: Moderate*</p> Size/scale <p>The scale of change in the landscape would be moderate, given the size and uncharacteristic form of the rail trench within this existing low coastal setting, but taking into consideration that this occurs within the context of an infrastructure corridor.</p> <p>Additionally, there is potential for some reduction in the replacement of existing endemic regrowth vegetation over that currently in place, particularly trees, which could impact upon this key 'sense of place' element within the project area.</p>
Geographic extent <p>The project is contained within the existing rail corridor and comprises a length of about one kilometre.</p>
Duration/reversibility <p>The project would introduce permanent changes that are consistent with the identified character of the landscape.</p>
Significance of landscape character effect: Moderate*

**Refer to Section 4.3.1 in Methodology for assessment rational.*

Anticipated change to LCZ

The project borders LCZ 1 to the east and west. Most of the corridor will be in a trench, passing under Edithvale Road. Pedestrian/cyclist rail crossings are located at Lochiel Avenue, Edithvale Road, Denman Avenue, Fraser Avenue and Berry Avenue, these will be replaced by overhead bridges, with the final locations to be determined as part of the detailed design. The project would result in the loss of vegetation within the adjacent infrastructure corridor resulting in a potential impact to this LCZ where it is adjacent to the infrastructure corridor. Loss of vegetation in the infrastructure landscape zone would not generally be visible in the broader residential landscape zone.

Sensitivity to change: **Moderate**

Susceptibility to change

The vegetation within the rail corridor (LCZ 1) is important to the landscape character of this LCZ. However, any impacts arising from loss of this vegetation on the existing character of LCZ 2 are largely isolated to the two edges adjacent to the rail corridor. Within this context, the scale and form of the rail trench and associated fencing / traffic barrier infrastructure also affects the landscape character of this LCZ, but as above this is primarily limited to those edges adjacent to the project.

Value of LCZ

LCZ 2 is considered to be of local value due to the contribution of tree planting within residential lots to the wider landscape character, in addition to associated limited public realm planting.

Magnitude of change: **Low**

Size/scale

The scale of change in this LCZ would be locally moderate, given the size and uncharacteristic form of the rail trench within this existing low coastal setting, and other structures including a substation, pedestrian overpasses and corridor infrastructure such as security fencing, traffic barriers and potentially noise walls. However, taking into consideration that these impacts occur within the infrastructure corridor, and within the boundary of that LCZ, the effect is considered to be low. New structures, including substation, noise walls, pedestrian overpasses, car parking, security fencing and traffic barriers would also impact the existing landscape setting of these properties. However, beyond the edge with LCZ 1, impacts on this extensive LCZ rapidly decrease with distance from the project. Replanting of vegetation and hard landscaping in accordance with the LXRA Urban Design Framework and specific Urban Design Guidelines prepared for the project will also seek to mitigate any adverse landscape character impacts arising from the project.

Geographic extent

The extent of change within this LCZ is likely to be limited to enabling roadworks, and potentially the addition of street trees within parts of the road reserve adjoining LCZ 1, over a distance of approximately 1300 metres. The impacts of coastal character vegetation loss are expected to be felt primarily alongside the northern end of the station precinct and the pedestrian ramp immediately north of the station, with limited vegetation present within the remainder of existing area of the proposed station / car parking precinct.

Duration/reversibility

The project would comprise a permanent change to the sections of this LCZ adjacent to the extent of works.

Significance of landscape character effect: **Moderate - Low**

Anticipated change to LCZ

The project borders LCZ 1 to the east of the Nepean Highway and LCZ 2 to the west. Most of the corridor will be in a trench, passing under Edithvale Road. Pedestrian/cyclist rail crossings are located at Lochiel Avenue, Edithvale Road, Denman Avenue, Fraser Avenue and Berry Avenue. The project would likely result in the loss of a component of the existing endemic vegetation currently present within the rail corridor.

Sensitivity to change: **Low**

Susceptibility to change

The susceptibility to change for LCZ 3 is limited due to the built up, commercial nature of the Edithvale neighbourhood centre and the interface with Nepean Highway, a major transport corridor.

Value of LCZ

The landscape value of LCZ 3 is defined by low levels of visual amenity and limited vegetation within the zone and along the Nepean Highway. The high visibility of rail infrastructure and utilities also minimise the landscape value of the zone.

Magnitude of change: **Low**

Size/scale

The scale of change in the landscape is expected to be low for this LCZ given the lowering of the rail infrastructure beneath ground level. However, notwithstanding the implementation of the LXRA Urban Design Framework and project specific Urban Design Guidelines, elements such as the station building, pedestrian overpasses, barriers, car parking and traffic requirements may limit the opportunity to reinstate significant areas of soft landscaping in those areas of the project.

Geographic extent

The identified commercial zone interfaces with approximately half of the project extent along Nepean Highway.

Duration/reversibility

The project would comprise a permanent change to the setting of this LCZ.

Significance of landscape character effect: **Low**

Anticipated change to LCZ

The change to this LCZ component (Beeson Reserve) is primarily related to the eastern backdrop to the reserve, which comprises an east-west formal axial design focussed on a war memorial at the eastern end of the park. The current backdrop of the station building which is nearing the end of its design life would be replaced with a consistent, horizontal element comprising an 1800 millimetre high traffic barrier with 600 millimetre mesh throw screen atop, which may have room to also accommodate a shrub planting along the foot of the traffic barrier. These elements would be subject to the LXRA Urban Design Framework and project specific Urban Design Guidelines. This consistent combination of elements would provide an appropriately neutral, horizontal backdrop element to the reserve.

Sensitivity to change: **Low**

Susceptibility to change

The LCZ is considered to have a high capacity to accommodate the above described change.

Value of LCZ

Beeson Reserve is considered to have local value given its location adjoining the beach and designation as a war memorial site.

Magnitude of change: **Low**

Size/scale

The scale of change in the landscape is expected generally to be low for this LCZ given no physical works are proposed in the LCZ, and the proposed backdrop as described above would be complementary to the axial design of the reserve.

Geographic extent

The geographical extent of the edge effect relative to the area of LCZ 4 is low, given a relatively small interface with the rail reserve (approximately 35 metres).

Duration/reversibility

The project would comprise a minor permanent change to this LCZ.

Significance of landscape character effect: **Low**

Anticipated change to LCZ

There is no significant change anticipated from the project on this LCZ given its substantial separation from the project.

Sensitivity to change: **Low**

Susceptibility to change

The ability of this LCZ to accommodate the proposed change without impacts on its landscape character is considered to be high given its substantial separation from the project.

Value of LCZ

This LCZ is considered to embody important landscape character values of: naturalness; openness within the context of the adjacent urban setting; solitude; and retreat from the sound and movement of road and rail traffic.

This LCZ is also considered to comprise a Local value landscape on the basis of it being designated a Foreshore Reserve within the context of the Kingston Planning Scheme (Mordialloc to Carrum Foreshore Reserve).

Magnitude of change: **Negligible**

Size/scale

The scale of change in the landscape would be negligible given its clear separation from the project.

Geographic extent

The extent of the change is considered to be negligible for this LCZ.

Duration/reversibility

There is no visible impact to this LCZ.

Significance of landscape character effect: **Negligible**

7.1.1 Assessment of risk level

The assessment of landscape character impacts on each LCZ described above have been used to inform a level of risk associated with the project. The level of risk to landscape character has been assessed holistically and with application of the risk methodology described in EES Attachment II *Environmental Risk Report*.

Impacts would be expected to be greatest for the landscape within the infrastructure corridor (LCZ 1) where the main changes are occurring, as well as at the interfacing residential areas (LCZ 2) that overlook the rail corridor (**risk LV40** and **risk LV41**). It should be noted that the residential area would be expected to be impacted only at the interface with the rail corridor, and impacts would diminish with distance from the rail corridor.

Adherence to the Urban Design Guidelines applicable to each site would minimise impacts to the extent possible by ensuring the detailed design is locally responsive and results in high quality urban design outcomes to improve amenity (**EPR_UD1** and **EPR_LV1**). As a result, the risk associated with a change in landscape character resulting in a perceived loss of amenity is considered negligible.

7.2 Landscape character impacts – Bonbeach

Four LCZs have been assessed for the project below (refer Figure 17). For a description of each LCZ within this area, refer to Section 5.1.2.

Table 7 Bonbeach – landscape character impacts assessment

Landscape Character Zone 1 – Infrastructure corridor
Anticipated change to LCZ <p>The project will result in changes to the existing rail infrastructure within the LCZ. Most of the corridor will be in a trench (about 1200 metres in length and up to eight metres deep). The corridor would pass under Bondi Road. Three pedestrian overpasses would generally be located: south of Golden Avenue; south of Broadway; and south of Brixton Street, with the final location of these overpasses to be determined in consultation with the community. The project would include a new station building of similar height to adjacent development, with: forecourt fronting onto Station Street; a new commuter/neighbourhood carpark; and DDA-compliant access to lowered platforms, all located on-structure above the rail trench. This would result in the loss of endemic vegetation present within the rail corridor, potentially with limited opportunity for the reinstatement of trees in particular, due to a combination of rail safety requirements, and space needed for shared user paths on Station Street.</p>
Sensitivity to change: Moderate
Susceptibility to change <p>The LCZ is considered to have a moderate potential to accommodate the proposed change without long-term landscape character impacts. The rail trench may potentially require a greater width of the LCZ being dedicated to hard infrastructure compared with existing, and the height (and therefore character) of any replacement vegetation potentially being limited due to rail landscape safety policy requirements where it is located within proximity of rail infrastructure. The trench structure comprises a large and uncharacteristic new element within the landscape.</p>
Value of LCZ <p>The informal and naturalistic nature of endemic regrowth vegetation within this LCZ contributes to the coastal landscape character of the broader area, notwithstanding that it is also compromised by transport and utility functions and comprises intermittent stands.</p>
Magnitude of change: Moderate
Size/scale <p>The scale of change in the landscape would be moderate, given the size and uncharacteristic form of the rail trench within this existing low coastal setting, but taking into consideration that this occurs within the context of an infrastructure corridor. Additionally, there is potential for some reduction in the replacement of existing vegetation over that currently in place, particularly trees, which could impact upon this key 'sense of place' element within the project area.</p>
Geographic extent <p>The project is contained within the existing rail corridor and comprises a length of approximately one kilometre.</p>
Duration/reversibility <p>The project would comprise a permanent change to the character of the landscape.</p>
Significance of landscape character effect: Moderate

Anticipated change to LCZ

The project would comprise an uncharacteristic new terrain element within the landscape, including a long rail trench with vertical sides, which would be likely to result in the loss of most if not all of the existing endemic trees and shrubs within the rail corridor. The rail trench would comprise a new, dominant landform and barrier element adjacent to the Residential LCZ, which would be lined with crash barriers and security fencing. The project corridor could therefore potentially have a lower height of vegetation, and reduced area of vegetative cover. The above impacts would potentially cause a change in the landscape character of the residential edge.

Sensitivity to change: **Moderate**

Susceptibility to change

The vegetation within the rail corridor (LCZ 1) is important to the landscape character of this LCZ. However, any impacts arising from loss of this vegetation on the existing character of LCZ 2 are largely isolated to the two edges adjacent to the rail corridor. Within this context, the scale and form of the rail trench and associated fencing / traffic barrier infrastructure also affects the landscape character of this LCZ, but as above this is primarily limited to those edges adjacent to the project.

Value of LCZ

LCZ 2 is considered to be of local value due to the contribution of tree planting within residential lots to the wider landscape character, in addition to associated limited public realm planting.

Magnitude of change: **Low**

Size/scale

The loss of coastal vegetation within the rail corridor could alter the landscape setting of properties immediately adjacent to the project. However, a substantial area of the project is expected to be reinstated to vegetation that reflects this coastal character, particularly south of Bond Road. The proposed structures, including noise walls, pedestrian overpasses, car parking, security fencing and traffic barriers would also impact the existing landscape setting of these properties. However, beyond the edge with LCZ 1, impacts on this extensive LCZ rapidly decrease with distance from the project.

Geographic extent

The extent of change within this LCZ is likely to be limited to enabling roadworks, and potentially the addition of street trees within parts of the road reserve adjoining LCZ 1, over a distance of approximately 1 kilometre. The impacts of coastal character vegetation loss are expected to be felt primarily alongside pedestrian ramps, with limited vegetation present within the existing area of the proposed station / car parking precinct.

Duration/reversibility

The project would comprise a permanent change to the sections of this LCZ that are adjacent to the extent of works.

Significance of landscape character effect: **Moderate - Low**

Anticipated change to LCZ

The project would comprise an uncharacteristic new terrain element within the landscape, including a long rail trench with vertical sides, which would result in the loss of existing endemic tree and shrub cover within the rail corridor project area. The rail trench would comprise a new, dominant landform and barrier element lined with integrated crash barriers and throw screens subject to both the LXRA Urban Design Framework and a project specific Urban Design Framework. The adjacent project corridor would therefore potentially generally have a lower height of vegetation, and reduced area of vegetative cover. However, the station precinct opposite this LCZ is likely to be subject to tree planting, providing in conjunction with the new station building an amenity benefit within the LCZ 3 landscape setting.

Sensitivity to change: **Low**

Susceptibility to change

The susceptibility to change of LCZ 3 is limited due to the built up, commercial nature of the Bonbeach neighbourhood centre and the interface with Nepean Highway, a major transport corridor. Low visual amenity and limited vegetation is also noted within this LCZ.

Value of LCZ

The landscape value of LCZ 3 is defined by low levels of visual amenity and limited vegetation within the zone and along Nepean Highway. The high visibility of rail infrastructure and utilities also minimise the landscape value of the zone.

Magnitude of change: **Low**

Size/scale

The scale of change in this LCZ is expected to be low given the lowering of the rail infrastructure beneath ground level. However, elements such as the station building, pedestrian overpasses, car parking and traffic requirements may limit opportunity to establish any significant landscaping to mitigate the effects in that part of the project.

Geographic extent

The identified commercial zone interfaces with approximately half of the project extent along Nepean Highway.

Duration/reversibility

The project would comprise a permanent change to those parts of the LCZ adjoining the project.

Significance of landscape character effect: **Low**

Summary description of landscape character

This LCZ forms part of the Aspendale to Carrum Foreshore Reserve, which extends from Mordialloc Creek to Carrum. The LCZ comprises a high value recreational and landscape resource. The beach can be accessed easily from each of the nine streets that run off the Nepean Highway, opposite the project. Residential housing faces onto the foreshore. The beachfront is notable for the regular provision of small boat sheds and bathing boxes/changing facilities built on the foredune frontage of many properties.

Anticipated change to LCZ

There is no significant change anticipated from the project on this LCZ.

Sensitivity to change: **Moderate**

Susceptibility to change

The ability of this LCZ to accommodate the proposed change without adverse impacts on its landscape character is considered to be high given its substantial separation from the project.

Value of LCZ

This LCZ is considered to comprise a Local highly valued landscape (Mordialloc to Carrum Foreshore Reserve).

Magnitude of change: **Low**

Size/scale

The scale of change in the landscape would be negligible given its clearly defined extent and physical separation for the project.

Geographic extent

The extent of the change felt by the LCZ is considered to be negligible.

Duration/reversibility

The project would comprise a permanent change.

Significance of landscape character effect: **Moderate - Low**

7.2.1 Assessment of risk level

As is the case for Edithvale, the assessment of landscape character impacts on each LCZ described above have been used to inform a level of risk associated with the project. The level of risk to landscape character has been assessed holistically and with application of the risk methodology described in EES Attachment II *Environmental Risk Report*.

Impacts would be expected to be greatest for the landscape within the infrastructure corridor (LCZ 1) where the main changes are occurring, as well as at the interfacing residential areas (LCZ 2) that overlook the rail corridor (**risk LV40** and **risk LV41**). It should be noted that the residential area would be expected to be impacted only at the interface with the rail corridor, and impacts would diminish with distance from the rail corridor.

Adherence to the Urban Design Guidelines applicable to each site would minimise impacts to the extent possible by ensuring the detailed design is locally responsive and results in high quality urban design outcomes to improve amenity (**EPR_UD1** and **EPR_LV1**). As a result, the risk associated with a change in landscape character resulting in a perceived loss of amenity is considered negligible.

7.3 Visual impacts - Edithvale

7.3.1 Visual context

7.3.1.1 Representative viewpoints

A total of seven representative viewpoints (visual receptor locations) have been identified within the Edithvale project area as shown in Figure 22. These viewpoints are listed with reasoning behind their selection and their relationship to the proposed rail corridor and stations in Table 8 below.

The visual receptor locations have been selected to identify locations that have sensitive visual receptors and/or a relatively high number of visual receptors. Refer to Section 7.3.4 for photographs of the visual receptor locations.

Table 8 Representative visual receptor locations

Visual receptor number	Visual receptor location and description
V01	<p>Nepean Highway – view looking south-east across Nepean Highway.</p> <p>The view is representative for residential receptors living on the Nepean Highway, which will have for example; a different experience to residents living on Station Street, notwithstanding the project will be in the immediate foreground for both receptor locations.</p>
V02	<p>Edithvale Life Saving Club, The Esplanade – view looking north-east across Beeson Reserve.</p> <p>The view is representative for recreational receptors of Beeson Reserve, and for recreational users leaving the beach / lifesaving club café, where the project will be seen as a focal view set against the skyline.</p>
V03	<p>Chelsea Foreshore Reserve viewing platform – view looking north-east along Bank Road.</p> <p>The view is representative for recreational receptors leaving the beach, where the project will be seen as a focal view set against the skyline.</p>
V04	<p>Corner of Nepean Highway and Bank Road – view looking north-east across Nepean Highway.</p> <p>The view is representative for commercial receptors, where the project would be seen as a detail view at its greatest height, with the proposed new station set against the skyline.</p>
V06	<p>Edithvale Road – view looking south-west to level crossing.</p> <p>The view is representative for residential receptors living on Edithvale Road who would have highly oblique views towards the project, i.e. they would view the project only when leaving and entering their residence.</p>
V07	<p>Station Street – view looking north-west across Station Street</p> <p>The view is representative for residential receptors where the project will be in the immediate foreground.</p>
V08	<p>Corner of Station Street and Fraser Avenue – view looking north-west across Station Street.</p> <p>The view is representative for residential receptors where the project will be</p>

Visual receptor number	Visual receptor location and description
	in the immediate foreground of views from residences.

7.3.1.2 Specific viewpoint

This viewpoint has been provided specifically to demonstrate the visual impacts of the immediate view that would be experienced daily by residents as they leave and enter their homes, as opposed to for instance a broader street view that would be experienced by local residents as part of a longer walk through the neighbourhood.

The view additionally provides visual detail of the station precinct. Refer to Figure 22 and Table 9.

Table 9 Specific visual receptor location

Visual receptor number	Visual receptor location and description
V05	<p>Station Street – view looking south-west to Edithvale Station.</p> <p>The view is specific for residential receptors living on Station Street, looking face-on to the station, which will be seen in very high levels of detail at its greatest height, in conjunction with car parking and other station infrastructure, and the regular movement associated with transport nodes.</p>

7.3.1.3 Illustrative viewpoint

This viewpoint has been provided specifically to demonstrate the visual impacts for rail users, creating a tightly enclosed view of the walls of the rail trench for this receptor type. Refer to Figure 22 and Table 10.

Table 10 Illustrative visual receptor location

Visual receptor number	Visual receptor location and description
V09	<p>View from Edithvale Station platform looking south-west.</p> <p>The view is illustrative for rail travel receptors, demonstrating the loss of view associated with the project from the new platform.</p>

7.3.2 Receptor types

The viewpoints have been organised into key receptor types, each of which are considered typically to share defined levels of sensitivity to changes in the context and character of views.

7.3.2.1 Nearby residential properties (V01, V05, V06, V07 and V08)

Residents are interested in the outlook from their properties and typically have regular and prolonged viewing opportunities towards the project, so are considered to have a high level of sensitivity to the proposed change. All of these viewpoints are representative of views from a moderate to high number of residential receptors, where the project would be located within the immediate foreground, and therefore seen in a high level of detail. The provided representative views are located within publicly accessible areas.

7.3.2.1 Recreational users, shared trails and parks (V02 and V03)

Passive recreational users are usually interested in the appearance of their surroundings, specifically seeking out recreational opportunities in visually pleasant environments and so are considered to have a high sensitivity to change.

7.3.2.2 Commercial properties (V04)

Workers and commercial users are generally regarded as having a low sensitivity to change. While they may have some interest in the quality of their surrounding environment, the attention of this user group is expected to be primarily focused on their work or activity.

7.3.2.3 Road users

Road users and passengers are considered likely to generally have only a passing interest in the quality of their surroundings as they are travelling through the landscape (especially on Nepean Highway), and the project comprises only a small component of the landscape through which they are travelling. Additionally, drivers would be expected to have much of their concentration focussed on road conditions, particularly as they enter higher built-up areas/commercial areas where pedestrian activity is likely, and so are considered to have a moderate to low sensitivity to change. Local road users may have a moderate sensitivity to change, given the potential for these receptors to have a sense of proprietary interest in their local environment. Views from roads are considered to be encompassed within viewpoints V01, V06, V08 (residential receptors), V04 (commercial receptors) and V03 (recreational receptors).

7.3.2.4 Rail users (V09)

As for road users, rail users are also considered generally likely to have only a passing interest in the quality of their surroundings as they are travelling through the landscape. Further, it can be expected that many rail users will regularly patronise the system, for example commuting workers, with the view potentially becoming a familiar backdrop to which little close attention is paid.

Rail users would be subject to views of a rail trench with engineered walls, a view type not currently available to them. This would typically have the potential to comprise reduced levels of visual amenity over the existing condition.

7.3.2.5 Visual envelope mapping

The likely visibility of the proposed elements of the project at operation from surrounding areas has been broadly mapped to define a visual envelope (refer to Figure 23). This provides an indication of where the project is potentially visible from. This map indicates 'worst case' and is indicative only as it does not include nor consider the effects of existing vegetation cover.



Figure 22 Visual receptor location map for Edithvale



Figure 23 Visual envelope map for Edithvale

7.3.3 Construction impacts

Landscape character and visual impacts during the construction stage would result from the introduction of construction activities and ancillary facilities into the existing landscape. The proposed construction activities as outlined in Section 1.3.2 are temporary (expected to be completed within an 18 month period) and would be subject to the Environmental Performance Requirements listed in Section 7.5.1.

Construction activities of particular relevance to landscape character and visual amenity include:

- ground levelling to those areas adjoining the trench, and the resulting loss of the existing endemic tree and shrub cover within these areas
- protection and/or relocation of utility services
- views of machinery such as piling plant, excavators and trucks seen above work site hoardings
- transport of spoil, excavated material and groundwater offsite, potentially visually impacting views along some local roads
- night lighting during the six week rail corridor closure period where works would take place 24 hours per day
- construction of above ground elements including station and substation buildings, pedestrian overpasses and decking over the rail trench.
- new rail infrastructure including excavation and installation of ballast, overhead line equipment and rail (**risk LV39**).

The following Environmental Performance Requirements (refer Section 7.5.1) would provide mitigation of the above effects:

- Light spillage: measures to minimise light spillage within adjacent neighbourhoods, parks and community facilities (**EPR_LV2**).
- Hoardings: Requires where relevant, the installation of hoardings to minimise visual construction impacts, which must be installed to LXRA's hoarding requirements (**EPR_UD2**).

7.3.4 Operational impacts

7.3.4.1 Visual impacts assessment

A total of nine visual receptor locations have been identified within the project area as shown in Figure 22. These viewpoints are listed with reasoning behind their selection and their relationship to the proposed rail corridor and stations in Section 7.3.1.

Table 11 Edithvale – visual impacts assessment

V01 – Nepean Highway



Existing view south-east across Nepean Highway

Description of current view

V01 is located between Alexandra Street and Natal Avenue on the western side of the Nepean Highway looking in a south-east direction. The predominant receptor for this view is Nepean Highway road users and adjacent residential neighbours. The Nepean Highway has relatively little landscape planting within the road reserve, set predominantly within a narrow strip between the rail corridor boundary and the highway kerb.



Photomontage of proposed view south-east across Nepean Highway

Anticipated change to view

Changes to this view will include: substantial removal of existing vegetation within the rail corridor in the location of the new trenches; rail corridor concrete traffic barriers and integrated throw screens; and a pedestrian overpass shown in the distance crossing the rail corridor trench either side of the station, affording detailed views into the station and rail corridor wall. (Note: Shown location of pedestrian overpass is notional for purposes of illustrating an example of this element. The location of pedestrian overpasses will be undertaken in consultation with the community.) A continuous low shrub planting will be in place alongside the traffic barriers. The skyline of the rail / road corridor would be substantially less visually cluttered due to the moving of overhead powerlines from the eastern to western side of Nepean Highway (Note: Further work will be done at the detailed design stage to confirm the location of these powerlines, and whether they should be relocated above or below ground).

Sensitivity to change: **Moderate**

Susceptibility of visual receptor to proposed change

Residents are likely to be moderately sensitive to the proposed changes in the view, particularly with regard to the loss of vegetation. However, the level of sensitivity would likely be tempered given the fact that these residents adjoin and view the rail corridor across the busy intervening Nepean Highway, which exhibits very low levels of visual amenity. Existing residences are often screened with high front fences, which is considered to reduce impacts to these visual receptors. The residential receptors would also be viewing a broad stretch of the highway/rail corridor in the immediate foreground, in high levels of detail on a daily basis.

Value attached to view

The value attached to the view is considered to be moderate within the context that the rail corridor and adjoining Nepean Highway edge providing virtually the only significant vegetated area within the view catchment of this receptor. This has a unified character of form, line, colour and texture given that it comprises elements of a regrowth endemic vegetation community.

Magnitude of change: **Moderate**

Size/scale

The scale of the change in the view is considered potentially to be high to moderate, notwithstanding that much of the project would be located within a trench, of which only a relatively small component may be apparent due to screening by traffic barriers. However, the loss of substantial endemic vegetation within this part of the corridor appears likely to be extensive, fundamentally changing the character of the view from one that has a moderately well vegetated naturalistic component, to one that has a substantially reduced and relatively uniform vegetative cover. This would result in an increased 'hardening' of the landscape.

Geographic extent

Within the context of visibility from this viewpoint, the geographical extent of potential substantial vegetation loss could be extensive looking south along the Nepean Highway, and in this context, would be considered moderate.

Duration and reversibility of visual impacts

The duration of impacts could be expected to be long term, short of measures being put in place by others on the Nepean Highway, for example planting of an avenue either side of the Nepean Highway, or planting within parking lanes, assuming planting setback distances could be sufficient to meet road and rail safety policy requirements, and taking into consideration existing power lines running immediately alongside the highway/rail corridor boundary.

Significance of visual effect: **Moderate**



Existing view north-east across Beeson Reserve

Description of current view

V02 is located at Edithvale Life Saving Club on The Esplanade looking north-east across Beeson Reserve. Beeson Reserve is a gently sloping, linear park with formal/ornamental planting, fringing vegetation and low scattered trees. The predominant receptor for this view is residences and recreational users.

Anticipated change to view

The project will be in a trench up to eight metres deep through this area. The existing vegetation in Beeson Reserve will provide partial screening of the view to the project from this location. Changes to this view will include minor view to end of new station building.

Sensitivity to change: **Low**

Susceptibility of visual receptor to proposed change

Recreational users are generally considered likely to have a low level of sensitivity to the proposed changes in the view. This is due to the project being located on the other side of the Nepean Highway; the scale of the project is similar to that of surrounding development. The main views from the site look north and south to the adjoining residential streetscape. Receptor numbers are considered generally to be low, other than on memorial days such as ANZAC Day and, Remembrance Day et cetera. Passive recreational users are considered likely to be most aware of the adjoining open streetscape rather than the station.

Value attached to view

A high local value is applicable to views within the park, and in particular the formal view from the foreshore end of the reserve looking east towards the memorial setting. Additionally, the reserve also provides pleasant framed views through to Port Phillip Bay when sitting at the eastern end.

Magnitude of change: **Low**

Size/scale

The scale of the change in the view is considered to be low, within the context of the proposed location of a uniform, horizontal line of integrated traffic barrier / throw screen and shrub planting along this edge within the context of the formal axis of Beeson Reserve, as described in Section 7.1 – Landscape Character Zone 4 – Open Space.

Geographic extent

The visibility of the project is limited, given its location approximately 150 metres from this viewpoint. The rail corridor is also subject to visual screening by the vegetation and streetscape elements such as signage and fencing within the immediate foreground.

Duration and reversibility of visual impacts

The duration of impacts could be expected to be permanent.

Significance of visual effect: **Low**



Existing view north-east across Bank Road

Description of current view

V03 is located in Chelsea Foreshore Reserve looking north-east along Bank Road from the viewing platform. The existing scenic setting comprises gently undulating dunes and a variety of remnant vegetation, providing recreational receptors and residents in properties facing the foreshore with high levels of visual amenity. The composition of this view is a feature terminus, focussing the view of passive recreational users to the terminating point of the road, framed by generally contemporary housing. As with most of the views within Edithvale, the low-lying gently undulating landscape is characterised by the absence of elevated terrain, resulting in most views being seen in sharp relief against the skyline.

Anticipated change to view

The project will be in a trench up to eight metres deep through this area. Changes to this view would be likely to be confined to an integrated traffic barrier / mesh throw screen. Considering the distance of some 160 metres to these elements, it is considered unlikely that the project will be readily perceived from this location.

Sensitivity to change: **Low**

Susceptibility of visual receptor to proposed change

Recreational users are generally considered likely to have a low level of sensitivity to the proposed changes in the view given the likely low visual prominence of the project elements as seen from this location. The number of receptors is considered likely to be generally low, with periodic higher rates of visitation.

Value attached to view

The view comprises a threshold between the street and the beach, resonant with the expectation and pleasure that pertains to this memorable Port Phillip Bay landscape. As such it is considered to have local value.

Magnitude of change: **Low**

Size/scale

The scale of the change in the view is considered to low given the minor proportion of the view that would be occupied by the project.

Geographic extent

Within the context of visibility from this viewpoint, the project is located some 200 metres from this viewpoint, and the extent of area over which the changes would be visible are minimal.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **Low**



Existing view north-east across Nepean Highway

Description of current view

V04 is located between The Esplanade and Bank Road on the western side of the Nepean Highway looking in a north-east direction. The predominant receptor for this view is commercial neighbours and shoppers. The view has a very low level of amenity, including: no street trees; limited planting within the rail corridor; perceptions of high visual and physical exposure from close busy traffic on the Nepean Highway and high levels of glare.

Anticipated change to view

The project will be located in a trench up to eight metres deep through this area. Changes to this view will include: removal of existing vegetation along the rail corridor for the length of the rail trench; new rail infrastructure including new station building; traffic barrier / throw screen with low shrub planting edge. The station precinct would include an architecturally well-considered station building located within a setting of trees. The skyline would be substantially visually less cluttered due to the undergrounding of electricity power poles and lines (subject to detailed design) along this section of Nepean Highway and lowering of rail gantries and wiring out of site within the rail trench.

Sensitivity to change: **Low**

Susceptibility of visual receptor to proposed change

The susceptibility of retailers to the project is anticipated to be low. Workers and commercial users are likely to have a low level of sensitivity to the project given they are generally considered to be focussed on their shopping trip more than their surrounding environment, and current levels of visual and physical exposure to the Nepean Highway and the project from the footpath.

Value attached to view

The value attached to this view is considered to be low, on the basis of the existing harsh highway and railway setting of the shopping centre and limited landscape amenity, including soft landscape.

Magnitude of change: **Moderate**

Size/scale

The scale of the change in the view is considered to be moderate given the architecturally well-considered new station building and associated tree planting; traffic barrier / throw screen with low shrub planting edge; and visual decluttering of the skyline.

Geographic extent

The project is located some 15 metres from this viewpoint and therefore seen in a very high level of detail. The extent of area over which the changes would be visible is moderate. The project would be in trench opposite the commercial strip, and therefore views of the project broadly limited to the at-grade station building and associated tree planting, and traffic barrier / throw screen planted edge.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **Moderate – Low**



Existing view south-west to Edithvale Station

Description of current view

V05 is located opposite Edithvale Station on the eastern side of Station Street looking in a south-west direction. The predominant receptor for this view is residential neighbours. The view exhibits a low level of visual amenity with the closer row of trees appearing to be failing, a narrow pedestrian edge with limited streetscape elements, and station buildings nearing the end of their design life.



Photomontage of proposed view south-west to Edithvale Station

Anticipated change to view

The project will be located in a trench up to eight metres deep through this area. Changes to this view will include: removal of existing vegetation along the rail corridor; architecturally well-considered station building (notional design shown) with associated tree planting; row of street trees along much of Station Street, and rail gantries located out of site within the rail trench, providing a less cluttered skyline than for the existing situation. However, the provision of traffic barriers / throw screens along street edges without a substantial edge of shrub planting potentially increases the likelihood of these structures being subject to graffiti and bill posters. This issue will be addressed as part of the site specific Urban Design Guidelines for the project.

Sensitivity to change: **Low**

Susceptibility of visual receptor to proposed change

The susceptibility of residents to the proposed changes is anticipated to be low given that the view currently overlooks the transport corridor and existing Edithvale station which has a low level of visual amenity. The amenity of the proposed view would be relatively high as described above and would be seen on a daily basis when entering and leaving residences, and potentially also from rooms within the house which are occupied in waking or daylight hours.

Value attached to view

The value attached to the existing view from this location is considered to be low as described above for 'current view'.

Magnitude of change: **Moderate**

Size/scale

The scale of the change in the view is considered to be moderate notwithstanding that much of the station will be out of sight within the rail trench, but taking into account: the new station building and the introduction of barriers along the perimeters of the rail trench.

Geographic extent

The project is located some 20 metres from this viewpoint and therefore seen in a very high level of detail. The extent of area over which the changes would be visible is considered to be moderate given: the flat nature of the landscape and view along Station Street. However the street tree planting along Station Street appears likely to screen a portion of the project, most notably the extent of the traffic barrier / throw screen running alongside Station Street.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **Moderate - Low**



Existing view south-west to level crossing with commercial area beyond

Description of current view

V06 is located on the northern side of Edithvale Road, facing south-west towards the existing level crossing. The predominant receptor for this view is residential neighbours. The view is very much a hardscape with the exception of a homogenous planting of small trees within the private property across the road, and is considered to be of low amenity.

Anticipated change to view

The project will be in a trench up to eight metres deep under Edithvale Road through this area. Changes to this view will be limited to: a new upgraded intersection with Nepean Highway; a view of the traffic barrier / throw screen south of the intersection; and less visual clutter against the skyline due to the removal of power poles and associated wiring due to the undergrounding of power along Nepean Highway, the locating of rail gantries and associated wiring out of site within the rail trench.

Sensitivity to change: **Low**

Susceptibility of visual receptor to proposed change

The susceptibility of residents to the proposed change in the view and visual amenity would be low given most would only see the project when entering or leaving their home, due to residences facing onto the road rather than facing onto the project, and the visible extent of change is low.

Value attached to view

The view is considered to be of low value due to the relatively unrelieved hardscape of the setting and unremarkable built form.

Magnitude of change: **Low**

Size/scale

The scale of the change in the view is considered to be low, as described above.

Geographic extent

The project is located some 50 metres and greater from this viewpoint and seen at an oblique angle to the frontage of the residences. The project would take up a relatively small proportion of the street view.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **Low**



Existing view north-west across Station Street

Description of current view

V07 is located on the eastern side of Station Street between Edithvale Road and Fraser Avenue looking in a north-west direction. The predominant receptor for this view is residential neighbours. The view contains a relatively green rail corridor with a moderate number of trees. Car parking, rail gantries and associated wiring. Power poles and wiring to both Station Street and the eastern side of Nepean Highway are seen against the skyline, and in conjunction with the rail gantries are prominent in the view.

Anticipated change to view

Changes to this view will include: removal of probably all of the existing vegetation along the above seen section of the rail corridor; relocation of power poles from the eastern to part of the western side of Nepean Highway, and from the western to eastern side of Station Street; new rail infrastructure including car parking set back from the road, DDA-compliant access to street level and traffic barrier / throw screen around the structural void over the station; and a row street tree planting along the rail corridor side of Station Street. Much of the traffic on the Nepean Highway and the residential/commercial development fronting onto it is currently partially screened and would become more visible from this location.

Sensitivity to change: **Moderate**

Susceptibility of visual receptor to proposed change

The susceptibility of residents to the proposed change in the view and visual amenity would be moderate - high given the loss of the green corridor, and the introduction of the new infrastructure elements listed above. The residents would look directly onto the project on a daily basis, and potentially have views to the project from living areas. Residents in single and two storey dwellings would have uninterrupted, broad views across Station Street (a local street) to the rail corridor.

Value attached to view

The view is considered to be of a moderate value due to the partial green corridor which breaks up and screens the extent of traffic on the Nepean Highway and residential/commercial development fronting onto it, and provides visual relief from the character of the infrastructure elements of the rail corridor.

Magnitude of change: **Moderate**

Size/scale

The new project elements are generally of similar scale to that of existing development. The project would take up a moderate proportion of the existing view, notwithstanding that the car parking element would potentially appear as similar in size to the existing 90 degree parking.

Geographic extent

The project is located directly across the road from the residences. The area over which changes would be visible would comprise increased views of the Nepean Highway and adjoining development, in addition to the project. The residents would look directly onto the project at very close range, in a large amount of detail.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **Moderate**



Existing view north-west across Station Street

Description of current view

V08 is located on the eastern side of Station Street near the corner of Fraser Avenue looking in a north-west direction. The predominant receptor for this view is residential neighbours. The view comprises a relatively green rail corridor with a moderate to high informal cover of small trees and tall shrubs which screens much of the ground plane and views of Nepean Highway. Gantries and overhead powerlines with associated wiring, a fenced rail corridor crossing point and a section of the rail lines are visually prominent from this location.



Photomontage of proposed view north-west across Station Street

Anticipated change to view

Changes to this view would include: removal of potentially all of the vegetation within the above seen section of the rail corridor; relocation of power poles from the eastern to western side of Nepean Highway, and from the western to eastern side of Station Street; new rail infrastructure including car parking set back from the road, traffic barrier / throw screen around the trench incline; new substation building with compound security fencing; and a substantial row street tree planting along the rail corridor side of Station Street. The combined effect of the traffic barrier / throw screen, substation and street tree planting will restrict views to traffic on the Nepean Highway and residential/commercial development fronting onto it. As for V05 above, lack of vegetative screening in front of the traffic barriers potentially increases the likelihood of these structures being subject to graffiti and bill posters. This issue will be addressed as part of the site specific Urban Design Guidelines for the project.

Sensitivity to change: **Moderate**

Susceptibility of visual receptor to proposed change

The susceptibility of residents to the proposed change in the view and visual amenity would be moderate given the visual 'hardening' of the view with traffic barriers and substation / compound. The character of the street would change from that of one bounded by an informal cover of small endemic trees and tall shrubs which screen much of the ground plane and views of Nepean Highway, to a formalised edge with no significant vegetation within the immediate foreground, transitioning to a substantial row of street trees adjacent to the substation and stretching along much of the street towards Edithvale Road.

The residents would look directly onto the project on a daily basis, and potentially have views to the project from living areas. Residents in single and two storey dwellings would have uninterrupted, broad views across Station Street (a local street) to the rail corridor from where rail incline commences, but also have a substantial street tree planting commencing not far north of this location as above.

Value attached to view

The view is considered to be of a moderate value due to the partial, informal green corridor of predominantly endemic vegetation which breaks up and screens the extent of traffic on the Nepean Highway and residential/commercial development fronting onto it currently, and which provides visual relief from the character of the infrastructure elements of the rail corridor.

Magnitude of change: **Moderate**

Size/scale

The scale of change is considered to be moderate, changing from that of an informal, relatively well vegetated corridor to that of a more built form landscape comprising traffic barriers, substation and compound, with a formal row of trees commencing north of Fraser Avenue. The project would take up a substantial proportion of the existing view compared to the existing situation.

Geographic extent

The project is located directly across the road from the residences, with residents looking directly onto the project at very close range in a high level of detail. Notwithstanding increased visibility of corridor infrastructure, the perceived geographic extent of the project is considered likely to be similar to that currently in place.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **Moderate**



Existing view from Edithvale Station platform looking south-west

Description of current view

V09 is located on the southern end of the Down platform of Edithvale Station. The visual receptor for this view is rail customers. The view comprises predominantly open views along the rail corridor, Nepean Highway and adjoining commercial and residential developments.

Anticipated change to view

Changes to this view will include removal of all existing vegetation within the rail corridor. The viewer would be located on the station platform within the rail corridor trench with retaining walls and the rail ascending north to ground level, and south under the station precinct and Edithvale Road, through an area open to the sky, then under the commuter car park and substation over a distance of some 300 metres, before ascending back towards ground level.

Sensitivity to change: **Low**

Susceptibility of visual receptor to proposed change

The susceptibility of rail customers to the proposed change in the view and visual amenity would be low given most likely travel five days a week on the line, and therefore after an initial peak in interest, their level of interest in the station could also be expected quickly to return to a low level.

Value attached to view

The level of visual amenity associated with the station precinct is generally considered to be low, notwithstanding that the rail corridor south of the station has a moderate level of small trees and tall shrubs within it, and partial views are available to Beeson Reserve and beyond to Port Phillip Bay from the southern end of the station platforms and from the main station building. Otherwise, the majority of views from the station to adjoining development comprise a mix of unremarkable commercial and residential development.

Magnitude of change: **High**

Size/scale

The new project elements would be very different to those existing, comprising: the new elements described above; marked change in composition of the station elements set within a rail trench; and the view from the station platforms being fully enclosed by the project. The project would be in strong contrast to the existing, and viewed for moderate periods of time as rail customers waited for trains.

Geographic extent

The view from the station platforms would be highly enclosed, with the project seen in very high levels of detail, and the surrounding landscape effectively lost to view.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **Moderate**

7.3.4.2 Impacts of lighting

Lighting associated with the project is considered likely in general to be limited to the immediate station precinct, including car parking, station building and plaza, with levels sufficient to meet relevant standards for security and safety levels.

It is considered that the following EPRs will be sufficient to manage these impacts to a negligible risk level:

- Designing lighting used during operation of permanent structures in accordance with relevant standards (**EPR_LV2**)
- Measures to control Light Spill during construction (**EPR_LV3**)
- Requires where relevant, the installation of hoardings to minimise visual construction impacts, which must be installed to LXRA's hoarding requirements (**EPR_UD2**).

7.3.5 Assessment of risk level

The assessment of visual impact on each viewpoint described above has been used to inform a level of risk associated with the project. The level of risk to visual amenity has been assessed holistically and with the application of the risk methodology described in EES Attachment II *Environmental Risk Report*.

As described above, some of the main project elements that could affect visual amenity include; new station buildings, safety barriers and throw screens required around the trenches, new pedestrian over passes, and the new substation building (**risk LV37, risk LV38, risk LV40 and risk LV41**).

The projects would be designed in accordance with the Urban Design Guidelines specific to each site (**EPR_UD1, EPR_LV1 and EPR_LV2**). In doing so, the design would be required to ensure the detailed design is locally responsive and results in high quality urban design outcomes.

Consultation with stakeholders during the detailed design process would ensure the design of the new structures minimises the potential for visual impacts on nearby residents and the surrounding community (**EPR_LV1**). As a result, the risk associated with a change to views within the project areas resulting in a perceived loss of amenity would generally be considered minor.

Given the new pedestrian overpasses would be elevated structures, and the substation would be a new structural element adjacent to the trench, these elements have the potential to result in greater impacts to visual amenity. The residents that directly overlook these new infrastructure elements would experience a high level of impact, resulting in a moderate risk of perceived loss of visual amenity for these residents. Other users of the area affected by these structures would experience the visual change for a short period as they pass the structures on foot, bicycle, car or train or access the railway station.

During construction, hoarding (**EPR_UD2**) would help to minimise potential visual impacts and the risk during that phase would be considered minor.

7.4 Visual impacts - Bonbeach

7.4.1 Visual context

7.4.1.1 Representative viewpoints

A total of eight representative viewpoints (visual receptor locations) have been identified within the project area as shown in Figure 24. These viewpoints are listed with reasoning behind their selection, and their relationship to the proposed rail corridor and stations in Table 12.

The visual receptor locations have been selected to identify locations that have sensitive visual receptors and/or a relatively high number of visual receptors. Refer to Section 7.4.4 for photographs of the visual receptor locations.

Table 12 Representative visual receptor locations

Visual Receptor No.	Visual receptor location and description
V01	<p>Nepean Highway – view south-east across Nepean Highway</p> <p>The view is representative for residential receptors living on the Nepean Highway, which will be a different experience to residents living on Station Street, notwithstanding the project will be in the immediate foreground for both receptor locations.</p>
V02	<p>Nepean Highway - view south-east across Nepean Highway</p> <p>The view is representative for residential receptors living on the Nepean Highway, where the project will be in the immediate foreground for both receptor locations.</p>
V03	<p>Station Street – view south-west across Station Street</p> <p>The view is representative for recreational receptors living on the opposite side of Station Street, where the project would be seen as a detail view and set against the skyline.</p>
V04	<p>Harding Avenue – view north-east across Harding Avenue</p> <p>The view is representative for recreational receptors leaving the beach, where the project will be seen as a portal focal view set against the skyline.</p>
V05	<p>Corner of Nepean Highway and Harding Avenue – view north-east across Nepean Highway</p> <p>The view is representative for commercial receptors, where the project would be seen as a detail view at its greatest height, and set against the skyline.</p>
V06	<p>Bondi Road – view south-west to level crossing</p> <p>The view is representative for residential receptors living on Bondi Road who would have highly oblique views towards the project, i.e. they would view the project only when leaving and entering their residence.</p>
V08	<p>Corner of Nepean Highway and Lord Weaver Grove – view north-east across Nepean Highway</p> <p>The view is representative for residential receptors where the project will be in the immediate foreground of views from residences, and seen as a long view of the rail corridor towards the station.</p>
V09	<p>Corner of Station Street and Cannes Avenue – view north-west across Station Street</p> <p>The view is representative for residential receptors where the project will be in the immediate foreground of views from residences.</p>

7.4.1.2 Specific viewpoint

This viewpoint has been provided specifically to demonstrate the visual impacts of the immediate view that would be daily experienced by residents as they leave and enter their homes, as opposed to for instance a broader street view that would be experienced by local residents as part of a longer walk through the neighbourhood. The view additionally provides visual detail of the station precinct. Refer to Figure 22 and Table 13.

Table 13 Specific visual receptor location

Visual Receptor No.	Visual receptor location and description
V07	<p>Station Street – view north-west across Station Street</p> <p>The view is specific for residential receptors living on Station Street, looking face-on to the station, which will be seen in very high levels of detail at its greatest height, in conjunction with car parking and other station infrastructure, and the regular movement associated with transport nodes.</p>

7.4.1.3 Illustrative viewpoint

This viewpoint has been provided specifically to demonstrate the visual impacts for rail users, creating a tightly enclosed view of the walls of the rail trench for this receptor type. Refer to Figure 22 and Table 9.

Table 14 Illustrative visual receptor location

Visual Receptor No.	Visual receptor location and description
V10	<p>View from Bonbeach Station platform looking south-west.</p> <p>The view is illustrative for rail travel receptors, demonstrating the loss of view associated with the project from the new platform.</p>

7.4.2 Receptor types

The viewpoints have been organised into key receptor types, each of which are considered typically to share defined levels of sensitivity to changes in the context and character of views.

7.4.2.1 Nearby residential properties (V01, V02, V03, V06, V07, V08 and V09)

Residents are considered likely to have particular interest in the outlook from their properties and have prolonged viewing opportunities, so are typically considered to have a high sensitivity to change. The provided representative views are located within publicly accessible areas as access was not permitted to private property.

7.4.2.2 Recreational users, shared trails and parks (V04)

Recreational users are usually interested in the appearance of their surroundings, specifically seeking out recreational opportunities in visually pleasant environments, so are typically considered to have a high sensitivity to change.

7.4.2.3 Commercial properties (V05)

Workers and commercial users are generally regarded as having a moderate sensitivity to change. While they may have some interest in the quality of their surrounding environment, the attention of this user group is expected to be primarily focused on their work or activity. Motorists usually only have a passing interest in the quality of their surroundings as they are travelling through at speed (especially on Nepean Highway) and concentrating on road conditions, so are typically considered to have a lower sensitivity to change.

7.4.2.4 Road Users

Road users are considered likely generally to have only a passing interest in the quality of their surroundings as they are travelling through the landscape (especially on Nepean Highway), and the project comprises only a small component of the landscape through which they are travelling. Additionally, drivers would be expected to have much of their concentration focussed on road conditions, particularly as they enter higher built-up areas / commercial areas where pedestrian activity is likely, and so are considered to have a moderate to low sensitivity to change.

Local road users may have a moderate sensitivity to change, given the potential for these receptors to have a sense of increased interest in their local community environment.

Views from roads are considered to be encompassed within viewpoints V01, V02, V03, V05, V06, V07, V08, V09 (residential receptors) and V05 (Commercial receptors).

7.4.2.5 Rail Users (V10)

As for road users, rail users are also considered likely generally to have only a passing interest in the quality of their surroundings as they are travelling through the landscape. Further, it can be expected that many rail users will regularly patronise the system, e.g. commuting workers, with the view potentially becoming a familiar backdrop to which little close attention is paid.

Rail users would be subject to views of a rail cutting with engineered walls, also a view type not currently available to them, and which would typically have the potential to comprise reduced levels of visual amenity over the existing condition.

7.4.2.6 Visual envelope mapping

The likely visibility of the proposed elements of the project at operation from surrounding areas has been broadly mapped to define a visual envelope (refer to Figure 25). This provides an indication of where the project is potentially visible from. This map indicates 'worst case' and is indicative only as it does not include nor consider the impacts of existing vegetation cover.



Figure 24 Visual receptor location map for Bonbeach



Figure 25 Visual envelope map for Bonbeach

7.4.3 Construction impacts

Landscape character and visual impacts during the construction stage would result from the introduction of construction activities and ancillary facilities into the existing landscape. The proposed construction activities as outlined in Section 1.3.2 are temporary (expected to be completed within an 18 month period) and would be subject to the Environmental Performance Requirements listed in Section 7.5.1.

Construction activities of particular relevance to landscape character and visual amenity include:

- ground levelling to those areas adjoining the trench, and the resulting loss of the existing endemic tree and shrub cover within these areas
- protection and/or relocation of utility services
- views of machinery such as piling plant, excavators and trucks seen above work site hoardings
- transport of spoil, excavated material and groundwater offsite, potentially visually impacting views along some local roads
- night lighting during the six week rail corridor closure period where works would take place 24 hours per day
- construction of above ground elements including station and substation buildings, pedestrian overpasses and decking over the rail trench
- new rail infrastructure including excavation and installation of ballast, overhead line equipment and rail.

The following Environmental Performance Requirements (refer Section 7.5.1) would provide mitigation of the above effects:

- Lighting: which would develop measures to minimise light spillage within adjacent neighbourhoods, parks and community facilities (**EPR_LV2**)
- Hoardings: Installation of hoardings to minimise the visual impacts of construction, and installed to LXRA's hoarding requirements (**EPR_UD2**).

7.4.4 Operational impacts

7.4.4.1 Visual impacts assessment

A total of ten visual receptor locations have been identified within the project area as shown in Figure 24. These viewpoints are listed with reasoning behind their selection and their relationship to the proposed rail corridor and stations in Section 7.4.1.

The assessment is provided in Table 15 on the following pages.

Table 15 Bonbeach – visual impacts assessment

V01 – Nepean Highway



Existing view south-east across Nepean Highway

Description of current view

V01 is located between just north of Wellwood Road on the western side of the Nepean Highway looking in a south-east direction. The predominant receptors for this view are Nepean Highway road users and adjacent residential neighbours. The Nepean Highway has relatively little landscape planting within the road reserve, set predominantly within a narrow strip between the rail corridor boundary and the highway kerb. There are no street trees.



Photomontage of proposed view south-east across Nepean Highway

Anticipated change to view

Changes to this view will comprise: removal of potentially all vegetation within the road / rail corridor seen in the above existing view; addition of new pedestrian overpass bridge, traffic barrier / throw screen edge to rail trench with moderate height shrub planting; and relocation of overhead power lines to western side of Nepean Highway, which is likely to result in a substantial visual decluttering of the skyline associated with the road / rail corridor.

Sensitivity to change: **Moderate**

Susceptibility of visual receptor to proposed change

Residents are likely to be susceptible to any proposed changes, given the visibility of the project from their homes, particularly if a significant level of revegetation is not possible within the rail corridor. However, it is noted that existing high fences and vegetation currently limit direct views of the rail corridor and Nepean Highway from many adjacent ground floor and single storey dwellings.

Value attached to view

Vegetation along the rail corridor provides a visual buffer for residents and contributes to the coastal character of the streetscape. However, planting is intermittent and compromised by transport and utility functions along Nepean Highway which results in variable levels of visual amenity.

Magnitude of change: **Moderate**

Size/scale

The scale of change will be substantial, with the view changing from: a relatively open one looking across the rail corridor through intermittent stands of endemic low trees and shrubs to housing on Station Street; to a view of the pedestrian overpass and traffic barrier / throw screen with a row of moderate height shrub planting along the foot of the barrier. This has the potential to create a relatively hard, walled edge to Nepean Highway, and restrict longer views across the corridor.

Geographic extent

The geographic extent of the project will increase with the increased width of rail infrastructure including: rail trench, vehicle barrier / throw screen and pedestrian overpass, and loss of existing endemic vegetation.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **Moderate**



Existing view south-east across Nepean Highway

Description of current view

V02 is located on the western side of the Nepean Highway at the corner of Wellwood Road, looking in a south-east direction. The view is very similar to V01, other than it demonstrates a part of the project corridor with a substantial cover of screening vegetation / green backdrop for these residential receptors. The predominant receptor for this view is residential neighbours.

Anticipated change to view

Changes to this view will include: potentially complete removal of existing vegetation within the rail corridor adjacent to the proposed trench; new rail infrastructure including: pedestrian overpass bridge, traffic barrier / throw screen edge to rail trench with a row of moderate height shrub planting along the foot of the barrier; and relocation of overhead power lines to western side of Nepean Highway. As above, this has the potential to create a relatively hard, walled edge to Nepean Highway, and restrict longer views across the corridor.

Sensitivity to change: **Moderate**

Susceptibility of visual receptor to proposed change

Residents are likely to be susceptible to any proposed changes, given the visibility of the project from their homes. However, it is noted that dense and taller vegetation as currently shown in the above photo may not be able to be reinstated within the rail corridor.

Value attached to view

Vegetation along the rail corridor provides a visual buffer for residents and contributes to the coastal character of the streetscape. This planting provides virtually the only significant vegetated area within the view catchment of this receptor.

Magnitude of change: **Moderate**

Size/scale

The scale of change will be substantial, with the view changing from: a relatively naturalistic cover of endemic species within and adjoining the rail corridor, to a view of the pedestrian overpass and traffic barrier / throw screen with a row of moderate height shrub planting along the foot of the barrier. This has the potential to create a relatively hard, walled edge to Nepean Highway, as described above.

Geographic extent

The geographic extent of the project will increase with the increased width of rail infrastructure including: rail trench, vehicle barrier / throw screen and pedestrian overpass, and loss of existing endemic vegetation.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **Moderate**



Existing view south-west across Station Street

Description of current view

V03 is located between Broadway and York Street on the eastern side of Station Street looking in a south-west direction. The predominant receptor for this view is residential neighbours. The view contains a relatively green corridor with a moderate number of low trees, with much of the vegetation located within the road reserve rather than the rail reserve. The vegetation on the road verge can be seen to require on-going shearing along the line of the kerb to keep it clear of the carriageway, reducing the sense of naturalness for this edge planting. The view presents much more as a 'local street' than do V01 and V02 on the Nepean Highway, with street trees and residents using their front garden spaces for recreation as demonstrated by the trampoline in the above photo. The partial view of the rail corridor presents as barren with rails, overhead wiring and a wire mesh security fence, although stands of small trees and shrubs are visible on the other side of the corridor in addition to confined views to the Nepean Highway.

Anticipated change to view

The view would change substantially from one with a well vegetated edge including small trees, and intermittent views into the rail corridor, to a formalised edge with traffic barrier / throw screen and a row of moderately sized shrub planting. This would be adjoined by a new share path and grassed verge to the kerb line. The 1.8 m high traffic barrier would effectively exclude views to the west, including views of the rail corridor and Nepean Highway. However, this would also reduce awareness of the busy Nepean Highway from sensitive residential receptors, including potential removal of views of moving traffic from single storey residences, with associated reductions in traffic noise.

Rail gantries and associated wiring would not be visible above the 1800 mm high traffic barrier. In conjunction with the relocation of power lines on Nepean Highway to the western side of the road, this would substantially reduce the current visual clutter of gantries, poles and wiring currently present within and adjoining the rail corridor.

Sensitivity to change: **Moderate**

Susceptibility of visual receptor to proposed change

Residents at this viewpoint are likely to be susceptible to any proposed changes, given the visibility of the project from their homes and the potential for limited capacity for replanting within and adjoining the road corridor. However, it is noted that existing high fences and corridor vegetation currently limit direct views of the rail line from some adjacent ground floor and single storey dwellings on Station Street.

Value attached to view

Vegetation along the rail corridor provides a visual buffer for residents and is important to the existing streetscape character. The extent of this vegetation is high within this section of Station Street (between Glenola Road and Bonbeach Station). However, the character of this vegetation is visually impaired where shearing of vegetation is required due to its proximity to the carriageway (refer above existing view).

Magnitude of change: **Moderate**

Size/scale

The visibility of any major built form or structure is limited due to the lowering of the rail line. The character of the street will change from that of: a 'green wall' comprising frequent stands of a semi-naturalistic endemic vegetation including low trees, which provides periodic views into and beyond the corridor, to that of: a formal edge comprising traffic barrier / throw screen, a row of shrub planting and grassed verge with share path. The width of the trench will limit the opportunity to reinstate significant landscaping, including the provision of street trees.

Geographic extent

The loss of vegetation, and introduction of barriers/fencing at this viewpoint will alter the existing outlook towards the rail corridor from adjacent housing and the existing streetscape character. Views along Station Street are maintained. The geographic extent of the project will broadly be similar to that currently in place.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **Moderate**



Existing view north-east across Harding Avenue

Description of current view

V04 is located at the end of Harding Avenue near Bonbeach beach looking in a north-east direction to the rail corridor. The view incorporates a cover of small and large shrubs, power poles and wiring. The predominant receptor for this view is residential neighbours and recreational users.

Anticipated change to view

The proposed view will incorporate the new station building and associated street tree planting. However, at a viewing distance of 200 metres, this is unlikely to comprise a visually prominent element of the view.

Sensitivity to change: Low

Susceptibility of visual receptor to proposed change

The sensitivity of receptors to the project is considered to be low given the viewing distance of 200m to the building, and which would not be expected to comprise a visually prominent element within the context of the overall streetscape. Further, the number of recreational receptors would generally be low in number.

Value attached to view

This viewpoint along Harding Road is considered generally to be one of low amenity.

Magnitude of change: Low

Size/scale

While the proposed station building at the terminus of this street will change the focal terminus point of the view, the scale of change will be low as described above.

Geographic extent

The geographic extent of the project will broadly be similar to that currently in place.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: Low



Existing view north-east across Nepean Highway

Description of current view

V05 is located at the corner of Harding Avenue on the western side of the Nepean Highway looking in a north-east direction. The predominant receptor for this view is commercial neighbours. Notwithstanding the presence of a moderate amount of vegetation on the station side of the road, the view has a relatively low level of amenity, including: no street trees; a haphazard planting layout within the rail corridor; perceptions of high visual and physical exposure from close busy traffic on the Nepean Highway; morning sun / radiated heat from hard surfaces, and high levels of glare. The skyline contains a visual clutter of rail gantries and power poles with associated wiring.



Photomontage of proposed view north-east across Nepean Highway

Anticipated change to view

The project will be in a cutting up to eight metres deep through this area. Changes to this view would include: removal of existing vegetation along the rail corridor for the length of the rail trench; new rail infrastructure including new station building and forecourt spaces with associated street tree planting; one and potentially two pedestrian overpasses to far left of frame; traffic barriers / throw screens and shrub planting to Nepean Highway edge with moderately sized shrub planting. Undergrounding of existing power Nepean Highway. The proposed rail station building, plaza and car park and pedestrian overpasses would be visually prominent, generally seen in sharp relief against the skyline. The skyline view would substantially be cleared of the above described visual clutter of gantries, poles and wiring as discussed above.

Sensitivity to change: **Low**

Susceptibility of visual receptor to proposed change

The susceptibility of receptors at this location to the proposed change is low given the nature of the activities at the Bonbeach neighbourhood centre, short-term occupation of the area by users and the busy, highly exposed character of the area as described above.

Value attached to view

The value attached to this view is low given the current visual outlook to the Nepean Highway, car parking and infrastructure elements. Landscaping is intermittent.

Magnitude of change: **Moderate**

Size/scale

The scale of the change in the view is considered to be moderate given the similar scale of the existing and proposed station buildings, and the opportunity to provide a well-considered urban design and landscape outcome to the area, including the provision of trees.

Geographic extent

The geographic extent of the project will broadly be similar to that currently in place.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **Moderate - Low**



Existing view south-west to Station Street from Bondi Road

Description of current view

V06 is located on the northern side of Bondi Road looking in a south-west direction. The predominant receptor for this view is residential neighbours. The viewpoint is set within a clearly residential streetscape. The view of the opposite shopping strip is seen across a barren intersection, and is of low amenity.

Anticipated change to view

The project will be in a trench up to 8 metres deep under Bondi Road through this area. Changes to this view will comprise a 1.8 m high traffic barrier with integrated mesh throw screen atop to centre of frame with (behind the existing street tree), and the southern end of the new station building with forecourt and tree planting to centre right of frame. The proposed rail station building will be of similar height to the existing commercial development on Nepean Highway.

Sensitivity to change: **Low**

Susceptibility of visual receptor to proposed change

The susceptibility of residents to the proposed change in the view and visual amenity is limited due to existing low amenity / built up and commercial nature of the area, notwithstanding the obviously residential character of the street. The proposed landscape will incorporate an architecturally well-considered, contemporary building located within a forecourt setting including trees. There will be relatively limited visible change from this viewpoint due to the lowering of the rail line beneath the road.

Value attached to view

A low landscape value is ascribed to the existing view from this location due to the barren and exposed nature of the view, the limited level of soft landscaping.

Magnitude of change: **Moderate**

Size/scale

The scale of the change in the view is considered to be moderate, given the addition of a new station building and associated pedestrian plaza. This would change the composition of the view by introducing a substantial new middle ground element which would create a new visual focus point, and increase the proportion of the view taken up by the project. The project elements would be expected to be well integrated into the view, within the context of the scale, massing, height and contemporary form of the building.

Geographic extent

The project is located some 40 m and greater from this viewpoint and seen at an oblique angle to the frontage of the residences. The project would take up a moderate proportion of the view, and be seen in a high level of detail.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **Moderate - Low**



Existing view north-west across Station Street

Description of current view

V07 is located on the eastern side of Station Street, facing north-west towards the existing level crossing. A key feature of this view is the visual clutter of overhead rail gantries, power poles and street lighting. The predominant receptor for this view is residential neighbours.



Photomontage of proposed view north-west across Station Street

Anticipated change to view

The project will be in a trench up to eight metres deep under Bondi Road through this area. Changes to this view would include: removal of existing vegetation within the rail corridor adjacent to the trench; new rail infrastructure including the new station building and associated plaza space and tree planting; 1.8m high traffic barrier with mesh throw screen atop, and substantially reduced visual clutter of overhead infrastructure. Opportunities for planting associated with the traffic barrier are limited. The proposed rail station building would be visually prominent, and of similar height and scale to the existing commercial development on Nepean Highway.

Sensitivity to change: **Moderate**

Susceptibility of visual receptor to proposed change

Residents at this location are likely to be susceptible to any proposed changes, given the visibility of the project from their homes. However, the current view is comprised of the station car park and visually prominent rail corridor which provides little visual amenity for adjacent residents.

Value attached to view

The value attached to this view is limited given the outlook towards the station car park and rail corridor, and highly exposed and infrastructure focussed character of the area, with limited soft landscaping.

Magnitude of change: **Moderate**

Size/scale

The scale of the change in the view is considered to be moderate given the low scale of the project, and

the removal of the existing exposed rail corridor, parking and associated regular train movements.

Geographic extent

While the outlook from this viewpoint is altered, new structures and uses do not generally disrupt long range views down Nepean Highway or across to Station Street. The geographic extent of the project will broadly be similar to that currently in place.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **Moderate**



Existing view north-east across Nepean Highway

Description of current view

V08 is located between midway Harding Avenue and Lord Weaver Grove on the western side of the Nepean Highway looking in a north-east direction. The predominant receptor for this view is residential. The Nepean Highway has limited and somewhat haphazard landscape planting, which is located in the road reserve between the rail corridor boundary and the highway kerb. The view provides regular openings to the rail corridor and residential development beyond.

Anticipated change to view

Changes to this view will include: new rail infrastructure including on-structure commuter/ neighbourhood car park, traffic barriers, and station building and plaza, all of which will be visible in high to moderate levels of detail. It is likely there will be opportunity for landscaping along the Nepean Highway verge adjoining the rail corridor in this location, including tree planting associated with the new station precinct. There is also likely to be less vegetation within the rail corridor than is currently the case, particularly with regard to trees and both lack of space and access to deep insitu soil, e.g. for the commuter carpark which is located on a concrete deck over the rail trench. Existing overhead powerlines on the rail corridor side of the Nepean Highway would be relocated to the western side of the road, and rail gantries would be located below ground level within the trench, reducing the visual clutter of overhead infrastructure.

Sensitivity to change: **Moderate**

Susceptibility of visual receptor to proposed change

Residents at this viewpoint are likely to be susceptible to any proposed changes, given the visibility of the project from their homes. However, it is noted that existing fencing and corridor vegetation currently limit direct views of the rail line from some adjacent ground floor and single storey dwellings.

Value attached to view

Vegetation along the rail corridor provides a visual buffer for residents and is important to the existing streetscape / coastal character. However, planting is intermittent and is compromised by transport and utility functions along Nepean Highway which results in a limited level of visual amenity. Additionally the number of high front fences and screening vegetation suggest the view towards the Nepean Highway is not significantly valued.

Magnitude of change: **Low**

Size/scale

The visibility of built form is broadly limited due to the traffic barriers and new station building due to the lowering of the rail line. Given the above noted opportunity for landscaping along the Nepean Road verge adjoining the rail corridor and tree planting associated with the rail station precinct, the extent of replacement vegetation may be similar to, or potentially increased over that currently in place.

Geographic extent

V08 –Nepean Highway near Lord Weaver Grove.

The geographic extent of the project will broadly be similar to that currently in place.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **Moderate - Low**



Existing view north-west across Station Street

Description of current view

V09 is located on the eastern side of Station Street near the corner of Cannes Avenue looking in a north-west direction. The predominant receptor for this view is residential neighbours. The view comprises a substantially green rail corridor with a moderate to high cover of small trees and tall shrubs, which screens much of the corridor ground plane (virtually all of this vegetation is within the rail corridor). This vegetation comprises a high cover of low-growing regrowth endemic shrubs and trees, which is considered to be of local landscape value in that it reflects the broader low, coastal landscape character associated with the Port Phillip Bay and large parts of the Frankston rail line corridor, and is an important contributor to the 'sense of place' for Bonbeach. Other than the vegetation within the rail corridor, there is little in the way of landscape vegetation within adjacent areas of public domain.

Rail overhead power cabling and a partial view of the rail lines, in addition to commuter car parking further down the street are visible in the immediate foreground, and therefore in moderate levels of detail. The street exhibits a number of 'local street' character traits including: street trees, relatively low traffic volumes, and a substantial component of 'open' front gardens that embrace the view of the green corridor, e.g. as opposed to much of the housing on the Nepean Highway that seeks to screen views of the road/ rail corridor.

Anticipated change to view

Changes to this view would include: likely removal of all vegetation within the rail corridor adjacent to the trench, with potential limited opportunity to reinstate vegetation due to rail safety policy limitations, and lack of planting space; 1.8 metre high traffic barriers with mesh throw screens atop, and commuter car park located on deck above the rail trench; and verge with share path, with sections of the verge likely to be suitable for street tree planting. As per above receptors locations, there would also be a substantial reduction in the extent of overhead infrastructure.

Sensitivity to change: **High**

Susceptibility of visual receptor to proposed change

The susceptibility of residents to the proposed change in the view and visual amenity would be high given the potential for almost complete loss of the existing green corridor seen in this view, and replacement of this view with the new infrastructure elements including traffic barriers substantial areas subject to traffic barriers (to the perimeter of all trench walls).

Value attached to view

The value attached to this view is related to the corridor small trees and tall shrubs, which screens much of the existing rail infrastructure. This vegetation comprises a high cover of endemic low-growing regrowth shrubs and trees which are considered to comprise a key coastal character sense of place element for Bonbeach.

Magnitude of change: **High**

Size/scale

The new project elements would introduce lengths of substantial lengths of traffic barriers that would change the existing landscape character of this view from a substantially naturalistic one to the more formalised one, much of which may have limited opportunity for reinstatement of a significant landscape planting.

Geographic extent

The project is located 20 metres from this viewpoint and would alter views and outlooks from adjacent residences. The geographic extent of the project will broadly be similar to that currently in place.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **High**

Description of current view

V10 is located towards the southern end of the station building Up line platform of Bonbeach Station. The visual receptor for this view is rail customers. The viewpoint looks along the rail corridor with edge vegetation, and west to Nepean Highway and associated commercial development / housing, and east to Station Street with associated housing.

Anticipated change to view

Changes to this view will include: removal of potentially all existing vegetation within the rail corridor adjacent to the trench; viewpoint about six metres below ground level within the rail trench looking at retaining walls and then through a tunnel under the station building; Bondi Road and the commuter/ neighbourhood car park to a view of the ascending rail trench and gantries.

Sensitivity to change: **Low**

Susceptibility of visual receptor to proposed change

The susceptibility of rail customers to the proposed change in the view and visual amenity would be low given most of them potentially travel five days a week on the line, and therefore after an initial peak in interest, their level of interest in the station could also be expected to quickly return to a low level.

Value attached to view

The level of visual amenity associated with the station precinct is considered to be low, notwithstanding that the rail corridor south of the station has a moderate level of small trees and tall shrubs within it. Views from the station to adjoining development comprise a mix of unremarkable commercial and residential development.

Magnitude of change: **High**

Size/scale

The new project elements would be very different to those existing, comprising: the new elements described above; marked change in composition of the station elements set within a rail trench; and effectively all of the view occupied by the project. The project would be in strong contrast to the existing conditions with regard to form, line, height, colour and texture, and viewed for moderate periods of time as rail customers waited for trains. The view of / from the project would be fully enclosed.

Geographic extent

The view from the station platforms would be highly enclosed, with the project seen in very high levels of detail, and the surrounding landscape effectively lost to view.

Duration and reversibility of visual impacts

The duration of impacts would be permanent.

Significance of visual effect: **Moderate**

7.4.4.2 Impacts of lighting

Lighting associated with the project is considered likely in general to be limited to the immediate station precinct, including car parking, station building and plaza, with levels sufficient to meet relevant standards for security and safety levels.

It is considered that the following EPRs will be sufficient to manage these impacts to a negligible risk level:

- designing lighting used during operation of permanent structures in accordance with relevant standards (**EPR_LV2**)
- measures to control light spillage during construction (**EPR_LV3**)
- requires where relevant, the installation of hoardings to minimise visual construction impacts, which must be installed to LXRA's hoarding requirements (**EPR_UD2**).

7.4.5 Assessment of risk level

The assessment of visual impact on each viewpoint described above has been used to inform a level of risk associated with the project. The level of risk to visual amenity has been assessed holistically and with application of the risk methodology described in EES Attachment II *Environmental Risk Report*.

As described above, some of the main project elements that could affect visual amenity include; new station buildings, safety barriers and throw screens required around the trenches and new pedestrian over passes (**risk LV37**, **risk LV38**, **risk LV40** and **risk LV41**).

The projects would be designed in accordance with the Urban Design Guidelines specific to each site (**EPR_UD1**, **EPR_LV1**, and **EPR_LV2**). In doing so, the design would be required to ensure the detailed design is locally responsive and results in high quality urban design outcomes.

Consultation with stakeholders during the detailed design process would ensure the design of the new structures minimises the potential for visual impacts on nearby residents and the surrounding community (**EPR_LV1**). As a result, the risk associated with a change to views within the project areas resulting in a perceived loss of amenity would generally be considered minor.

Given the new pedestrian overpasses would be elevated structures, and the substation would be a new structural element adjacent to the trench, these elements have the potential to result in greater impacts to visual amenity. The residents that directly overlook these new infrastructure elements would experience a high level of impact, resulting in a moderate risk of perceived loss of visual amenity for these residents. Other users of the area affected by these structures would experience the visual change for a short period as they pass the structures on foot, bicycle, car or train or access the railway station.

During construction, hoarding (**EPR_UD2**) would help to minimise potential visual impacts and the risk during that phase would also be considered minor.

7.5 Summary of impacts

7.5.1 Edithvale

The tables below summarise the significance of the landscape character impacts and visual impacts identified. The conservative approach that has been undertaken during this assessment highlights the likely maximum impacts on landscape character zones and viewpoints that are immediately adjacent to the project. The viewpoints therefore have a higher level of sensitivity than the broader community would experience.

Impacts on landscape character fall within the range of Moderate – Low to Negligible, except for LCZ 1 Infrastructure Corridor, for which impact was rated as Moderate, due primarily to the loss of endemic regrowth plant associations within the corridor that are considered to provide an important sense of place element for Edithvale, and often the only significant source of substantial vegetation within the immediate environs of the project.

Visual impacts for key receptor locations were spread relatively evenly between Moderate and Low.

Table 16 Summary of landscape character impacts

LCZ	Landscape character type	Sensitivity to change	Magnitude of change	Significance of landscape effect
LCZ 1	Infrastructure corridor	Moderate	Moderate	Moderate
LCZ 2	Residential	Moderate	Low	Moderate-Low
LCZ 3	Commercial	Low	Low	Low
LCZ 4	Open space	Low	Low	Low
LCZ 5	Foreshore	Low	Negligible	Negligible

Table 17 Summary of visual impacts

Viewpoint	Receptor	Sensitivity to change	Magnitude of change	Significance of visual effect
V01	Nepean Highway	Moderate	Moderate	Moderate
V02	Edithvale Life Saving Club, The Esplanade	Low	Low	Low
V03	Chelsea Foreshore Reserve	Low	Low	Low
V04	Corner of Nepean Highway and Bank Road	Low	Moderate	Moderate-Low
V05	Station Street	Low	Moderate	Moderate-Low
V06	Edithvale Road	Low	Low	Low
V07	Station Street	Moderate	Moderate	Moderate
V08	Corner of Station Street and Fraser Avenue	Moderate	Moderate	Moderate
V09	Edithvale Station	Low	High	Moderate

7.5.1 Bonbeach

The tables below summarise the significance of the landscape character impacts and visual impacts identified. The conservative approach that has been undertaken during this assessment highlights the likely maximum impacts on landscape character zones and viewpoints that are immediately adjacent to the project. The viewpoints therefore have a higher level of sensitivity than the broader community would experience.

Impacts on landscape character fall within the range of Moderate – Low to Negligible, except for LCZ 1 Infrastructure Corridor, for which impact was rated as Moderate, due primarily to the loss of endemic regrowth plant associations within the corridor that are considered to provide an important sense of place element for Bonbeach, and often the only significant source of substantial vegetation within the immediate environs of the project.

Visual impacts for key receptor locations were generally spread between Moderate and Moderate - Low. The one High rating for V09 - Corner of Cannes Street and Station Street, was due to the loss of a substantial area of endemic regrowth plant associations, considered as an important sense of place element as described above.

Table 18 Summary of landscape character impacts

LCZ	Landscape character type	Sensitivity to change	Magnitude of change	Significance of landscape effect
LCZ 1	Infrastructure corridor	Moderate	Moderate	Moderate
LCZ 2	Residential	Moderate	Low	Moderate-Low
LCZ 3	Commercial	Low	Low	Low
LCZ 5	Foreshore	Moderate	Low	Moderate-Low

Table 19 Summary of visual impacts

Viewpoint	Receptor	Sensitivity to change	Magnitude of change	Significance of visual effect
V01	Nepean Highway	Moderate	Moderate	Moderate
V02	Nepean Highway	Moderate	Moderate	Moderate
V03	Station Street	Moderate	Moderate	Moderate
V04	Harding Avenue	Low	Low	Low
V05	Corner of Nepean Highway and Harding Avenue	Low	Moderate	Moderate-Low
V06	Bondi Road	Low	Moderate	Moderate - Low
V07	Station Street	Moderate	Moderate	Moderate
V08	Corner of Nepean Highway and Lord Weaver Grove	Moderate	Low	Moderate - Low
V09	Corner of Station Street and Cannes Avenue	High	High	High
V10	Bonbeach Station	Low	High	Moderate

8 Environmental Performance Requirements

The EPRs required for the projects to achieve acceptable environmental outcomes are summarised below. The EPRs are applicable to the final design and construction approach and provide certainty regarding the environmental performance of the projects.

Table 20 Edithvale and Bonbeach Environmental Performance Requirements

EPR ID	Environmental Performance Requirement	Stage
LV1	<p>Landscape and visual opportunities</p> <p>Minimise negative landscape and visual impacts, and maximise opportunities for enhancement of public amenity and facilities to the extent practicable, through the application of the Urban Design Guidelines specific to each project in consultation with relevant stakeholders, including the Kingston City Council.</p>	Construction Operation
LV2	<p>Lighting</p> <p>Design lighting used during operation of permanent structures in accordance with relevant standards to minimise light spillage and protect the amenity of adjacent land uses to the extent practicable.</p>	Operation
LV3	<p>Light spillage</p> <p>Light spillage must be minimised during construction to protect the amenity of adjacent land uses to the extent practicable.</p> <p>The environmental management plan(s) and other plans must include requirements and methods to minimise light spillage, to the extent practicable, during construction to protect the amenity of adjacent surrounding residential land uses, neighbourhoods, parks, community facilities including urban environments, and any known significant native fauna habitat in consultation with relevant stakeholders.</p>	Construction
UD1	<p>Urban Design Guidelines</p> <p>Design projects in accordance with the LXRA Urban Design Framework and project specific Urban Design Guidelines. The urban design guidelines must consider:</p> <ul style="list-style-type: none"> a. identity b. connectivity and wayfinding c. urban integration d. resilience and sustainability e. amenity f. vibrancy g. safety h. accessibility <p>Seek the advice of the LXRA Urban Design Advisory Panel (chaired by the Office of the Victorian Government Architect, and includes officers of Kingston City Council) during the preparation of detailed design to ensure an appropriate response to the LXRA Urban Design Framework.</p>	Operation

EPR ID	Environmental Performance Requirement	Stage
UD2	Hoardings Minimise visual construction impacts during construction (where possible) with the installation of hoardings. Hoarding must be installed to LXRA's hoarding requirements in consultation with the Kingston City Council.	Construction

A range of measures that can mitigate the landscape and visual impacts identified in this report can be used as the design of the project is further developed. Measures should be specific and locally appropriate to the existing landscape and streetscape features.

Any proposed measures will be guided by the principles and measures that form the Level Crossing Removal Authority's Urban Design Framework. This document outlines the expectations of the State and Local Governments for achieving high quality, context sensitive urban design outcomes at each level crossing removal site.

The document plays a dual role by informing the design process as well as providing a basis for the evaluation of design solutions. The Framework identifies eight key principles inherent to successful level crossing removal projects, which address identity, connectivity, urban integration, sustainability, amenity, vibrancy, safety, and accessibility.

The document also identifies specific mitigation approaches that need to be considered as projects are developed. These are listed in Table 21.

Table 21 Level Crossing Removal Authority Urban Design Framework – mitigation measures

Specified measures	Potential mitigation approaches identified
6.1 Whole of project	Seeks the development of a design response that provides an integrated landscape, architectural and urban design outcome that minimises visual clutter, aligned with local character.
6.2 Train stations	Seeks the development of station designs that provide high quality civic places, enhance local context, are sensitively sited and integrate public area and car parking as part of a high quality landscape design.
6.4 Open cuttings (rail trenches)	Seeks the minimisation of disconnection and improvement to visual connectivity, and integration of visually prominent elements such as elevated pedestrian and cycling connections.
6.6 Landscape and natural environments	Seeks the enhancement of the quality of existing landscapes through cohesive landscape design concepts, minimised loss and maximised replanting of trees, integrated landform, planting and water sensitive urban design outcomes.
6.9 Materials and finishes	Seeks the development of materials and finishes that are sensitive to local environments and contribute positively to local identity.
6.10 Noise attenuation	Seeks to mitigate noise pollution of the surrounding areas.
6.11 Lighting	Seeks to provide design lighting that is sensitive to the surrounding environment and orientated to minimise any light pollution.
6.12 Integrated Public Art	Seeks the inclusion of integrated public art that responds to the local character of the urban setting and creates a new positive visual landmark.

Building on the principles of the UDF, urban design guidelines specific to the project will be developed by the Authority and will provide further guidance of the State Government's expectations on the design of the project. These guidelines will more specifically shape and enforce mitigation measures and a level of considered design to ensure high quality outcomes for local residents and station users.

9 Conclusion

A landscape and visual impact assessment has been undertaken for the Edithvale and Bonbeach level crossing removal projects to determine the impacts on landscape character and visual amenity as a result of the projects and to identify management in order to reduce potential risks of the projects.

The methodology in this report provides for an LVIA that has informed the risk assessment in a similar way as the air quality or noise assessment models have informed the risk assessment for those aspects of the environment. Essentially the LVIA assessment is a standalone technical assessment which uses a methodology specific for landscape and visual impact assessment. The outputs of this methodology are then used to inform a risk assessment and assign a risk rating using a separate risk methodology as described in Section 4.2.

The LVIA methodology utilises terminology that is similar to that used in the risk assessment framework, however these are not comparable. For example, the criteria for a moderate rating in the impact assessment is not the same as a moderate rating under the risk assessment framework. Because of this, the conclusions of the impact assessment may not always correlate directly with the outcomes of the risk assessment.

Existing conditions

This landscape and visual impact assessment has been undertaken to understand the potential impacts that the project will have.

A total of five landscape character zones (LCZs) were identified as having the potential to be impacted by the project. The LCZs reflect the natural and cultural influences that shape the low-lying coastal landscape of the project and are identified as sharing broadly homogenous characteristics or spatial qualities.

A total of nineteen visual receptor locations were assessed for visual impacts. Potential impacts on visual amenity were considered across five different receptor types comprising: residents; recreational users; commercial users; road users; and rail users.

Impact assessment

The assessment found that no LCZs would be subject to High impacts, and that Moderate impacts would occur for LCZ 1 – Infrastructure corridor, comprising the loss of existing endemic vegetation currently present within the rail corridor due to the project requiring a greater corridor width being dedicated to hard infrastructure.

The assessment found that the projects have generally moderate to low impacts of change on views to receptors and their visual amenity.

Whilst the project is still in its design and planning phase, there are potential mitigation approaches that may be used to reduce the visual impacts of the proposal. Such approaches are required and guided by the site specific Urban Design Guidelines. These documents will ensure that high quality urban design and landscape outcomes for local residents and station users are achieved, particularly with regards to visual impacts.

Residual risk

The assessment of landscape and visual impacts described above has been used to inform a level of risk associated with the project. The level of risk to landscape and visual amenity has been assessed holistically and with application of the risk methodology described in EES Attachment II *Environmental risk report*.

With the application of the EPRs, the risk associated with landscape and visual impacts within the project areas resulting in a perceived loss of amenity would range from negligible to moderate. Moderate impacts may be experienced by a small number of residents that directly overlook the new pedestrian overhead bridges or electrical substation. Other users of the area affected by these structures would experience the visual change for a short period as they pass the structures on foot, bicycle, car or train or access the railway station.

10References

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Landscape Institute, Institute of Environmental Management & Assessment (2013). *Guidelines for Landscape and Visual Impact Assessment*. 3rd ed.

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Appendix A – Relevant legislation and policy

Commonwealth legislation

There is no Commonwealth legislation relevant to landscape and visual amenity.

State legislation

(1) *Planning and Environment Act 1987*

The *Planning and Environment Act 1987* (Vic) establishes the framework for use, development and protection of land in Victoria. The Act provides the standard provisions for planning schemes which are administered by local government.

The most relevant objectives in terms of LVIA are:

- (c) To enable land use and development planning and policy to be easily integrated with environmental, social, economic, conservation and resource management policies at State, regional and municipal levels
- (d) To ensure that the effects on the environment are considered and provide for explicit consideration of social and economic effects when decisions are made about the use and development of land.

(2) *Transport Integration Act 2010*

The *Transport Integration Act 2010* (Vic) provides the policy framework for an integrated and sustainable transport system, developed after a comprehensive program of consultation with transport stakeholders. The Act brings together all elements of the transport portfolio (including roads, rail, ports and marine) under one statute. The Act requires transport agencies and other areas of government to have regard to broader social, economic and environmental considerations, a clear triple bottom line framework, when making decisions about the transport system. Section 10 of the Act requires that 'the transport system should actively contribute to environmental sustainability by: (a) protecting, conserving and improving the natural environment; and (b) avoiding, minimising and offsetting harm to the local and global environment, including through transport-related emissions and pollutants and the loss of biodiversity.' Section 11.4, Integration of Transport and Land Use, states that '...the transport system should improve the amenity of communities and minimise impacts of the transport system on adjacent land uses'.

(3) *Public Transport – Guidelines for Land Use and Development 2008*

The Public Transport Guidelines for Land Use and Development aim to assist decision making on statutory and strategic planning proposals for land use developments that affect public transport planning and delivery. It is intended that these Guidelines will assist with site design to facilitate the delivery and use of public transport services. Good design for public transport helps ensure the provision of a sustainable transport network now and for the future.

(4) *Urban design framework*

The Urban Design Framework (UDF) establishes the expectations of the State and Local Governments for high quality, context sensitive urban design outcomes from the project. The aim is to achieve a high quality urban design response which enhances urban amenity and minimises adverse impacts which may result from the proposed project and its associated structures.

The UDF identifies eight key principles inherent to successful level crossing removal projects and identifies two key objectives relating to landscape and visual impacts as outlined below:

- **Principle 1 – Identity:** a well-defined identity and sense of place are key to creating strong and vibrant communities.
- **Principle 2 – Connectivity and Wayfinding:** well-connected and legible places contribute significantly to strong economies and healthy, inclusive communities.
- **Principle 3 – Urban Integration:** well-integrated environments provide a sound framework for the successful development of great places.
- **Principle 4 – Resilience and Sustainability:** places must be sustainable, enduring and resilient in order to support and nurture current and future generations.
 - *Objective 4.4 Pollution mitigation:* Enhance the quality of the surrounding environment by designing to mitigate negative impacts including those associated with noise, spilled light, air and visual pollution.
- **Principle 5 – Amenity:** high quality urban amenity associated with access to services and the experience of great public places contributes to successful, equitable and prosperous communities.
- **Principle 6 – Vibrancy:** animation of key civic spaces and diversity in the experience of urban places support prosperous and healthy communities.
- **Principle 7 – Safety:** safe environments are essential for strong, connected and happy communities.
 - *Objective 7.3 Visual connectivity:* Maximise visibility and visual connections through design for clear sightlines and direct, intuitive site navigation routes, minimising obstructions including those associated with overpasses, underpasses and hidden corners.
- **Principle 8 – Accessibility:** Highly accessible and inclusive environments encourage positive activation and contribute to prosperity, well-being and the perception of care within communities.

Performance measures are also identified in the UDF which provide performance requirements as the basis upon which all urban design proposals will be developed and evaluated. Qualitative benchmarks are used to illustrate the minimum standard of design quality expected of project outcomes.

Kingston Planning Scheme

(5) State Planning Policy Framework

The State Planning Policy Framework (SPPF) informs planning and responsible authorities about the planning policies that need to be taken into account when planning in their respective areas. A list of the relevant sections of the SPPF is located in Table A1 below.

Table A1 SPPF clauses relevant to the landscape and visual values of the project

Clause	Relevance to landscape and visual values of the project
11. Settlement	Planning is to recognise the need for, and as far as practicable contribute towards a high standard of urban design and amenity.
11.01-2 Activity centre planning	Activity Centre Planning is to improve the amenity of the centre.
11.03-1 Open space	Ensure that land use and development adjoining regional open space networks, national parks and conservation reserves complements the open

Clause	Relevance to landscape and visual values of the project
planning	space in terms of visual and noise impacts, and preservation of vegetation
11.04-3 A more connected Melbourne	Improve the efficiency of freight networks while protecting urban amenity.
12.04-2 Landscapes	Provides guidance to protect landscapes and significant open spaces that contribute to character, identity and sustainable environments.
12.02-4 Coastal tourism	Ensure developments are of an appropriate scale, use and intensity relative to its location and minimises impacts on the surrounding natural visual, environmental and coastal character.
12.05-1 River corridors	Provides strategies to protect and enhance the significant river corridors of metropolitan Melbourne.
13.04-1 Noise abatement	Aim to assist in the control of noise effects on sensitive land uses, including a strategy to ensure that development is not prejudiced and community amenity is not reduced by noise emissions.
15 Built environment and heritage	Planning should achieve high quality urban design and architecture that enhances amenity of the public realm.
15.01-1 Urban design	Focuses upon the provision of environments that are safe and functional and which reinforce a sense of place and cultural identity.
15.01-2 Urban design principles	Seeks to achieve urban design outcomes which contribute positively to local urban character and minimise detrimental impacts upon neighbouring properties, including a strategy that landmarks, views and vistas should be protected and enhanced or, where appropriate, created by new additions to the built environment.
15.01-5 Cultural identity/ neighbourhood character	Provides guidance to recognise and protect neighbourhood character and sense of place with specific regard for the built environment and heritage elements
15.03-1 Heritage conservation	Seeks to ensure the conservation of places of heritage significance. Provide for the conservation and enhancement of those places which are of, aesthetic and architectural value. Encourage appropriate development that respects places with identified heritage values.
18.01-1 Land use and transport planning	Seeks to create a safe and sustainable transport system by integrating land-use and transport, including a strategy to ensure access is provided to developments in accordance with forecast demand, taking advantage of all available modes of transport and to minimise adverse impacts on existing transport networks and the amenity of surrounding areas.
18.01-2 Transport system	<p>Strategies:</p> <ul style="list-style-type: none"> • Locate transport routes to achieve the greatest overall benefit to the community and with regard to making the best use of existing social, cultural and economic infrastructure, minimising impacts on the environment and optimising accessibility, safety, emergency access, service and amenity • Locate and design new transport routes and adjoining land uses to minimise disruption of residential communities and their amenity. • Ensure transport practices, including design, construction and management, reduce environmental impacts.

Clause	Relevance to landscape and visual values of the project
18.02-4 Management of the road system	Plan and regulate the design of transport routes and nearby areas to achieve visual standards appropriate to the importance of the route with particular reference to landscaping, the control of outdoor advertising and, where appropriate, the provision of buffer zones and resting places.
18.02-5 Car parking	To ensure an adequate supply of car parking that is appropriately designed and located. Achieve a high standard of urban design and protect the amenity of the locality, including the amenity of pedestrians and other road users.

(6) **Local Planning Policy Framework**

The project area lies within the local government area of City of Kingston. Table A2 provides a summary of local planning policies within the Kingston Planning Scheme specifically relevant to landscape and visual values.

Table A2 Planning schemes relevant to landscape and visual values of the project

Clause	Relevance to landscape and visual values of the project
21.02 Municipal overview	<p>Environment and heritage:</p> <ul style="list-style-type: none"> The environmental landscape of the City of Kingston is recognised for its diversity and significance in both a local and regional context. It includes the Port Phillip Bay and foreshore reserve, other natural and man-made waterways, wetland systems, floodplains, heathlands and significant flora and fauna habitats Other environmentally significant areas within Kingston include Braeside Park, the Grange Reserve, Bradshaw Park, Kararook Park, the Patterson River, Mordialloc Creek, and the Edithvale/Seaford Wetlands, which are presently under consideration by RAMSAR for inclusion as an internationally significant wetland.
21.04 Vision	<p>Environment and infrastructure:</p> <ul style="list-style-type: none"> To protect and enhance the quality and unique character of Kingston's natural and built environments and infrastructure assets.

Clause	Relevance to landscape and visual values of the project
21.05 Residential land use	<p>Issues:</p> <ul style="list-style-type: none"> • Management of the interfaces between residential areas and other sensitive/strategic land uses. <p>Strategies:</p> <ul style="list-style-type: none"> • Protect areas/elements in the built form and natural landscape which have an identified and valued character • Recognise the five areas of 'special character' identified in Kingston's Neighbourhood Character Study and ensure that development proposals respond to all identified major or critical elements in such a way that any new development does not detract from the special character of these areas • Protect areas/buildings of recognised historical/cultural significance.
21.06 Retail and commercial land use	<p>Relevant strategic directions for Neighbourhood Activity Centres – Edithvale:</p> <ul style="list-style-type: none"> • New use and development in all neighbourhood activity centres is to be guided by Structure Planning • Encourage built form to be consistent with the neighbourhood character of the centres and local function. <p>Strategies:</p> <ul style="list-style-type: none"> • Ensure activity centre structure plans provide direction in respect of: <ul style="list-style-type: none"> ○ Reinforcing the role the Nepean Highway and Frankston Train Line perform in linking Kingston's principal and major activity centres ○ Enhancement of the character and physical image of the centre <p>Identification of scale and built form parameters for particular locations within the activity centre.</p>
21.08 Foreshore	<p>Key issues:</p> <ul style="list-style-type: none"> • Impact of high degree of urbanisation and encroachment of residential development on the coastal environment including beach and dune erosion, environmental weeds, visual and aesthetic degradation • Need to protect environmentally and visually sensitive areas from inappropriate development. <p>Objective:</p> <ul style="list-style-type: none"> • To promote opportunities for innovative recreational, tourism and commercial development in recognised 'activity nodes' on the foreshore where development is sensitive to natural coastal systems and compatible with the character and scale of the surrounding landscape. <p>Strategies:</p> <ul style="list-style-type: none"> • Achieve high quality urban design outcomes compatible with the scale of the surrounding landscape • Develop detailed siting and design guidelines for new development within activity nodes, which encompass issues relating to landscaping, built form, setbacks, building heights, urban design, architectural treatment and integration with the coastal environment. Proposals for new development should be consistent with the requirements of the

Clause	Relevance to landscape and visual values of the project
	<p>'Victorian Siting and Design Guidelines' (1996)</p> <ul style="list-style-type: none"> Protect existing height controls along the foreshore reserve and in adjacent residential areas.
21.11 Open space	<p>Strategies:</p> <ul style="list-style-type: none"> Ensure that new development adjacent to existing public open space is responsive to the natural landscape features of the open space area.
21.12 Transport, movement and access	<p>Objective:</p> <ul style="list-style-type: none"> To protect and enhance the amenity of Kingston's residential areas and other sensitive land uses through appropriate management of transport networks.
21.13 Heritage	<p>Objectives:</p> <ul style="list-style-type: none"> To ensure new development and renovation does not adversely affect the significance of heritage places and areas, and contributes positively to identified heritage values. <p>Strategies:</p> <ul style="list-style-type: none"> Encourage all new development within a Heritage Overlay to visually and harmoniously integrate with and be recessive to the original character of the streetscape or heritage place Ensure new buildings and works complement and are sympathetic to the heritage place in terms of views, vistas, existing vegetation, landmarks, building form, setbacks, frontage width, height, finish and fenestrations without necessarily replicating historical detailing Strengthen, design and encourage the design of public spaces where it contributes to the identified heritage characteristics of the area.
22.16 Heritage policy	<p>Objectives:</p> <ul style="list-style-type: none"> To recognise, conserve and enhance places and elements in the City identified as having scientific, aesthetic, architectural or historical interest or other special cultural values To conserve heritage places by respecting the historic and architectural integrity of buildings, streetscapes and vistas To promote design excellence that clearly and positively supports the ongoing significance of heritage places. <p>Policy:</p> <ul style="list-style-type: none"> To encourage additions and new works to heritage places that: Do not obscure principal view lines to heritage buildings or their features, such as verandahs, towers and porticos Respect the context of adjacent contributory heritage buildings Do not adversely impact on the cultural significance, character, architectural value of the building and/or precinct or its contribution to the streetscape To ensure that development on sites adjacent to heritage buildings and precincts is sympathetic to the heritage place in terms of bulk, setbacks, materials, colour scheme, form, and character of the place, streetscape and surrounding area.

(7) City of Kingston zones and overlays

Zones and overlays specifically relevant to landscape and visual values are outlined in Table A3. Relevant planning designations are shown in planning map zones Figure A1, Figure A3 and planning map overlays Figure A5 and Figure A7.

Table A3 Zones and overlays relevant to landscape and visual values of the project

Clause	Relevance to landscape and visual values of the project
General Residential Zone – Schedule 2	To encourage development that respects the neighbourhood character of the area.
Commercial Zone - Schedule 1	<p>To create vibrant mixed use commercial centres for retail, office, business, entertainment and community uses.</p> <p>To provide for residential uses at densities complementary to the role and scale of the commercial centre.</p>
Design and Development Overlay – Schedule 2	<p>Patterson Lakes Residential Waterways Area:</p> <ul style="list-style-type: none">• To protect the amenity, character and appeal of the waterway environment.• To ensure that development is compatible with the scale and character of existing buildings and the waterway environment.• To ensure the open appearance of the three metre waterfront boundary easement for right of carriageway, visual amenity and maintenance purposes.
Design and Development Overlay – Schedule 1 and Schedule 7	<p>Design and Development Overlay Schedule 1 – Urban Coastal Height Control Area</p> <ul style="list-style-type: none">• To protect and enhance the foreshore environment of Mentone, Parkdale, Mordialloc, Aspendale and Chelsea and adjacent areas including Port Phillip Bay.• To ensure that new buildings, works, renovations and extensions are compatible with surrounding buildings and natural features, and sympathetic to the surrounding natural landscape and environment.• To relate building heights, building bulk and setbacks to adjoining sites so that they are compatible with and enhance the appearance and character of the immediate locality. <p>Design and Development Overlay Schedule 7 – Urban Coastal Foreshore Setback Control</p> <ul style="list-style-type: none">• To protect and enhance the visual and aesthetic appearance of the foreshore area.• To encourage new buildings and works which are sympathetic to the surrounding foreshore environment.

Clause	Relevance to landscape and visual values of the project
Development Plan Overlay – Schedule 2 and Schedule 6	<p>To identify areas which require the form and conditions for future use and development to be shown on a development plan before a permit can be granted to use or develop the land. In particular:</p> <ul style="list-style-type: none"> • Development Plan Overlay Schedule 2 – • Development Plan Overlay Schedule 6 – 29-63 Breeze Street, Bonbeach: <ul style="list-style-type: none"> ○ This Schedule applies to land located at 29-63 Breeze Street, Bonbeach, bounded by the Bonbeach Primary School, the Patterson River Country Club and Brixton Street, Bonbeach.
Public Park and Recreation Zone	<p>To recognise areas for public recreation and open space.</p> <p>To protect and conserve areas of significance where appropriate.</p>
Public Use Zone 4 Transport	To recognise public land use for public utility and community services and facilities
Road Zone Category 2	<p>To identify significant existing roads.</p> <p>To identify land that has been acquired for a significant proposed road.</p>
Heritage Overlay	<p>To conserve and enhance heritage places of natural or cultural significance.</p> <p>To conserve and enhance those elements which contribute to the significance of heritage places.</p> <p>To ensure that development does not adversely affect the significance of heritage places.</p>
Environmental Significance Overlay	To identify areas where the development of land may be affected by environmental constraints.
Land Subject to Inundation Overlay	To ensure that development maintains free passage and temporary storage of floodwaters, minimises flood damage, is compatible with the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.
Special Building Overlay	To ensure that development maintains the free passage and temporary storage

(8) Heritage

Heritage sites identified in and immediately adjacent to the project area of Edithvale and Bonbeach are listed in Table A4 below and Figure A5 and Figure A7.

Table A4 Identified heritage sites

Heritage site	Site code/s	Listing type	Description
St Columba's Anglican Church 6 Lochiel Avenue, Edithvale	HO47	Heritage Overlay	The site of the former St Columba's Anglican Church which was deconsecrated and sold in 2007.
Former Edithvale Cinema	HO48	Heritage Overlay	Former Edithvale Cinema

Heritage site	Site code/s	Listing type	Description
254-258 Nepean Highway, Edithvale			
House 50 Clydebank Avenue, Edithvale	HO49	Heritage Overlay	The building is of heritage significance that broadly retains its early architectural character.
Edithvale Primary School 42-54 Edithvale Road, Edithvale	HO50	Heritage Overlay	Edithvale Primary School is of historical significance for its 1942 building and its setback from Edithvale Road and French Avenue.
House 67 Edithvale Road, Edithvale	HO51	Heritage Overlay	Single dwelling noted for its architectural significance.
The Pines 23 Fraser Avenue, Edithvale	HO52	Heritage Overlay	The dwelling was constructed in 1927 and of historical and architectural significance at a local level.
House 3 Lord Weaver Grove, Bonbeach	HO110	Heritage Overlay	The building is of heritage significance that broadly retains its early architectural character.
Patterson River Country Club, The Fairway, Bonbeach	HO18	Heritage Overlay	The heritage place includes the clubhouse accessed from The Fairway, and adjoining putting green situated east of the clubhouse

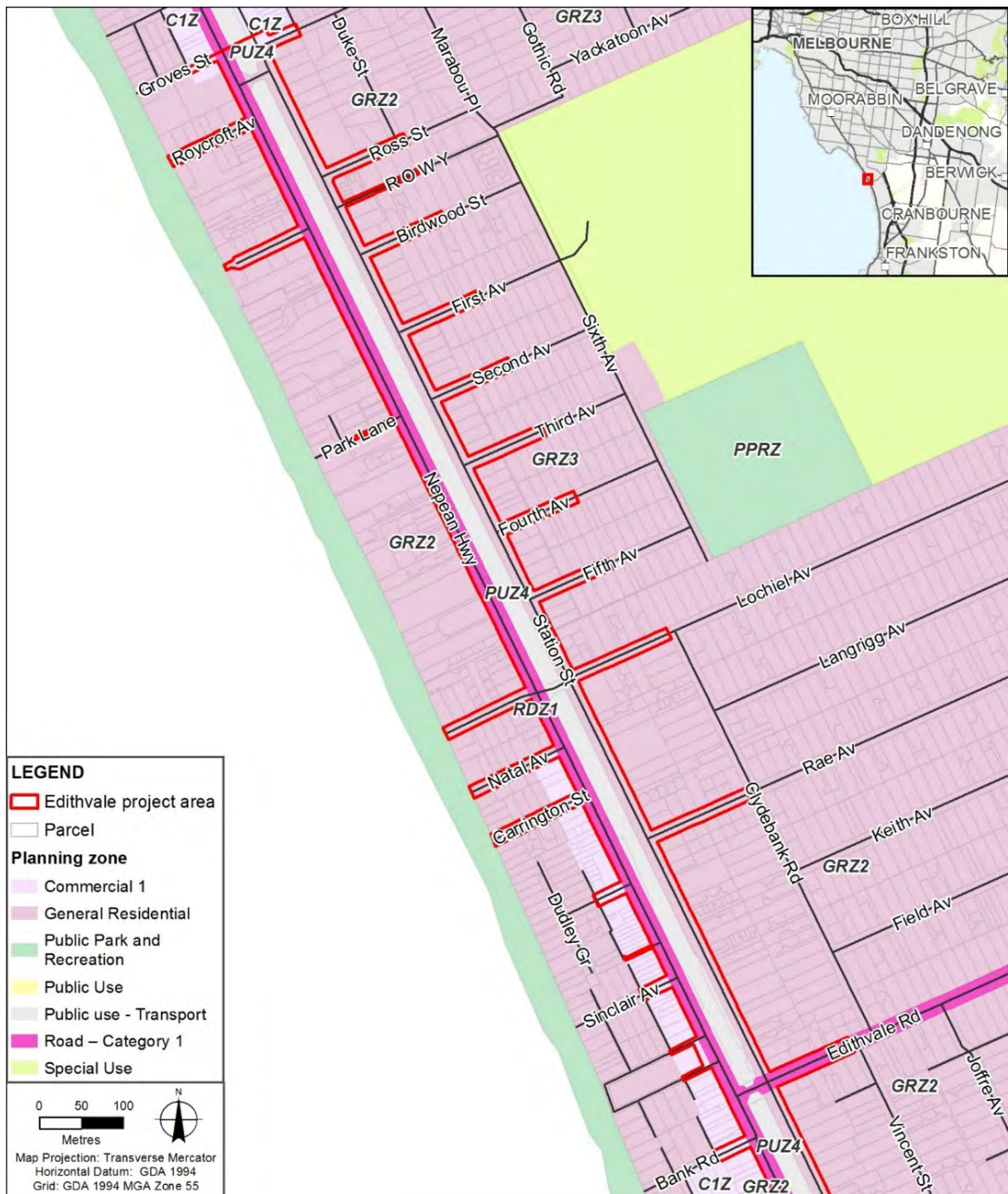


Figure A1 Planning map zones – Edithvale



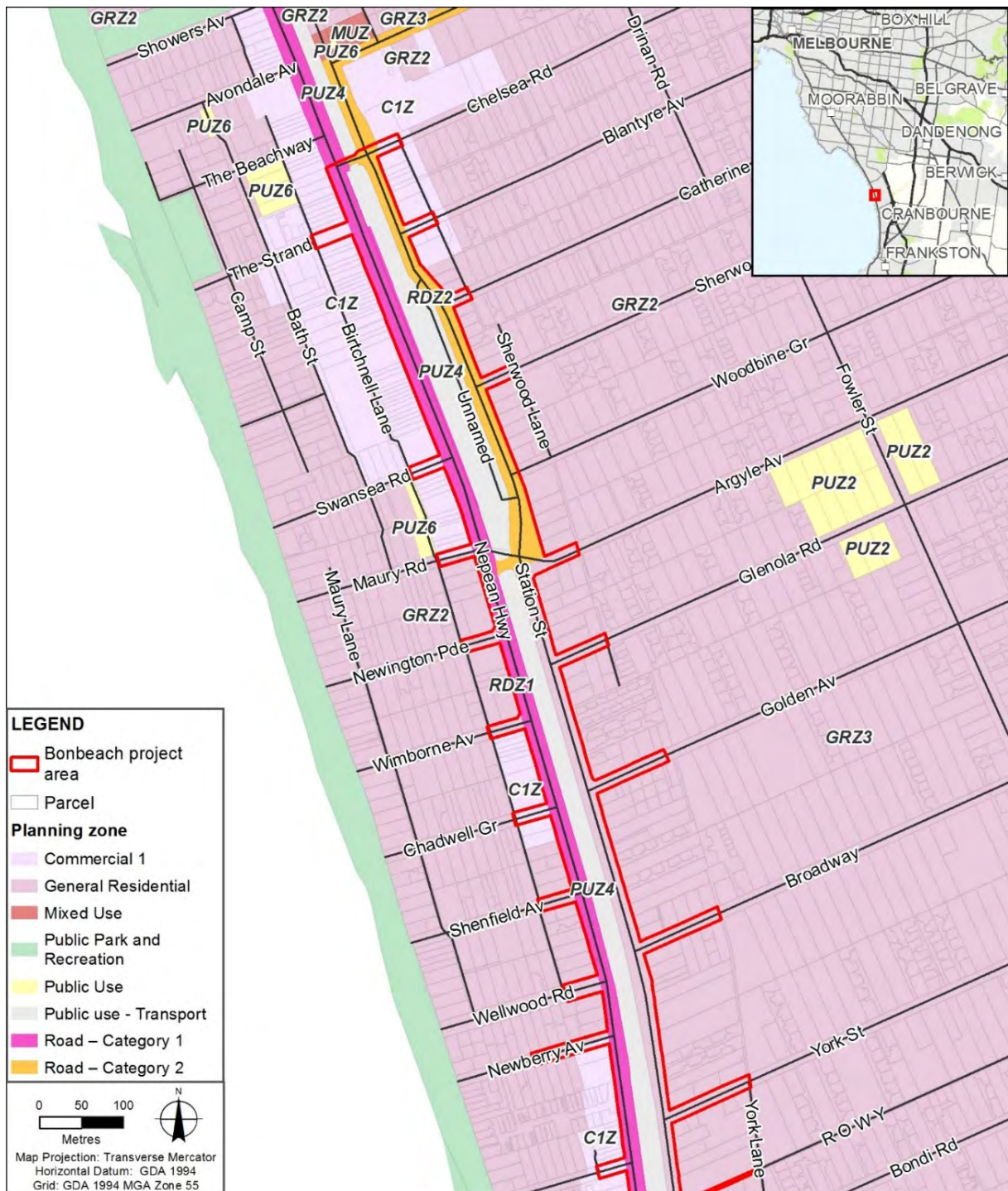


Figure A3 Planning map zones – Bonbeach

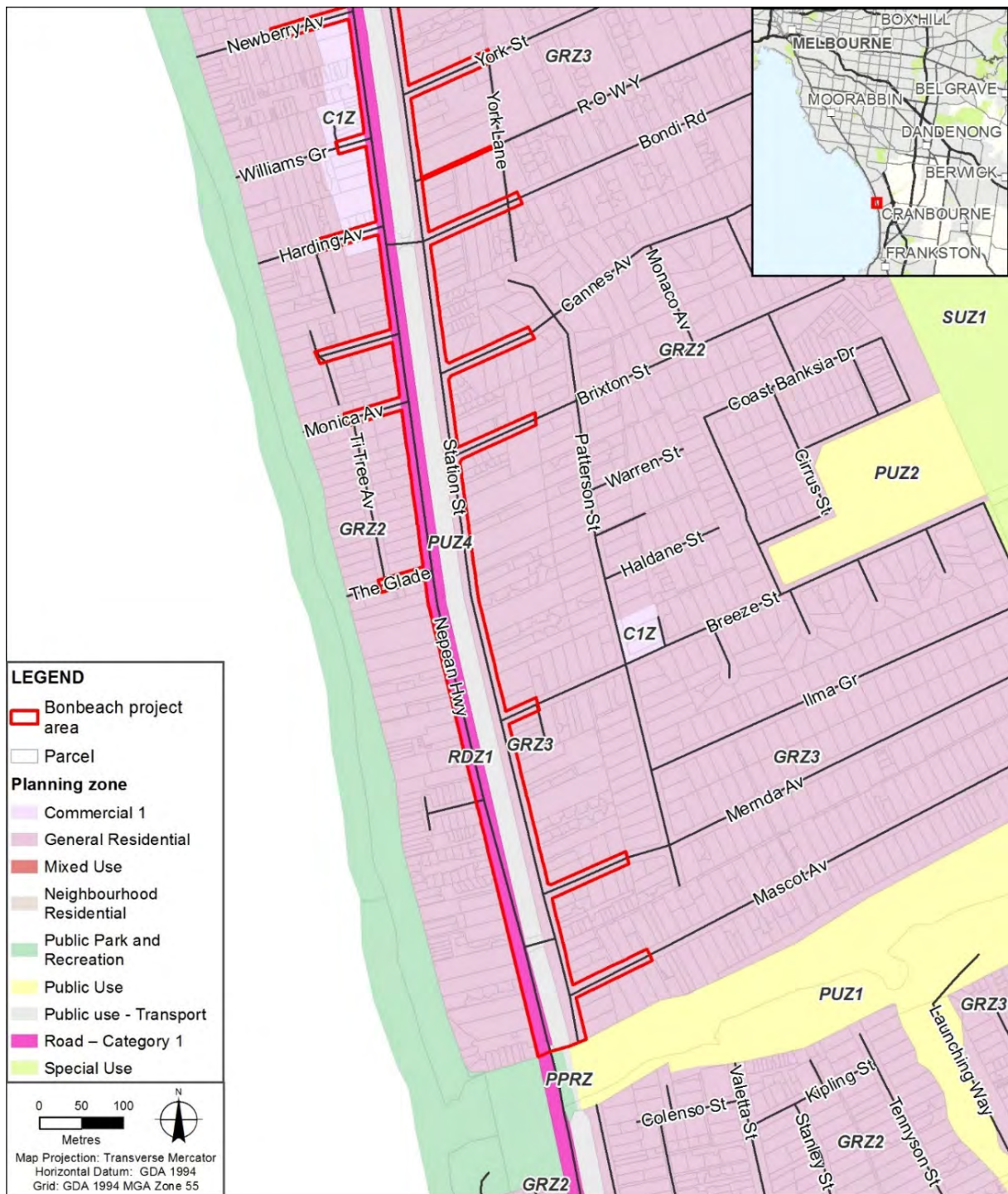


Figure A4 Planning map zones - Bonbeach

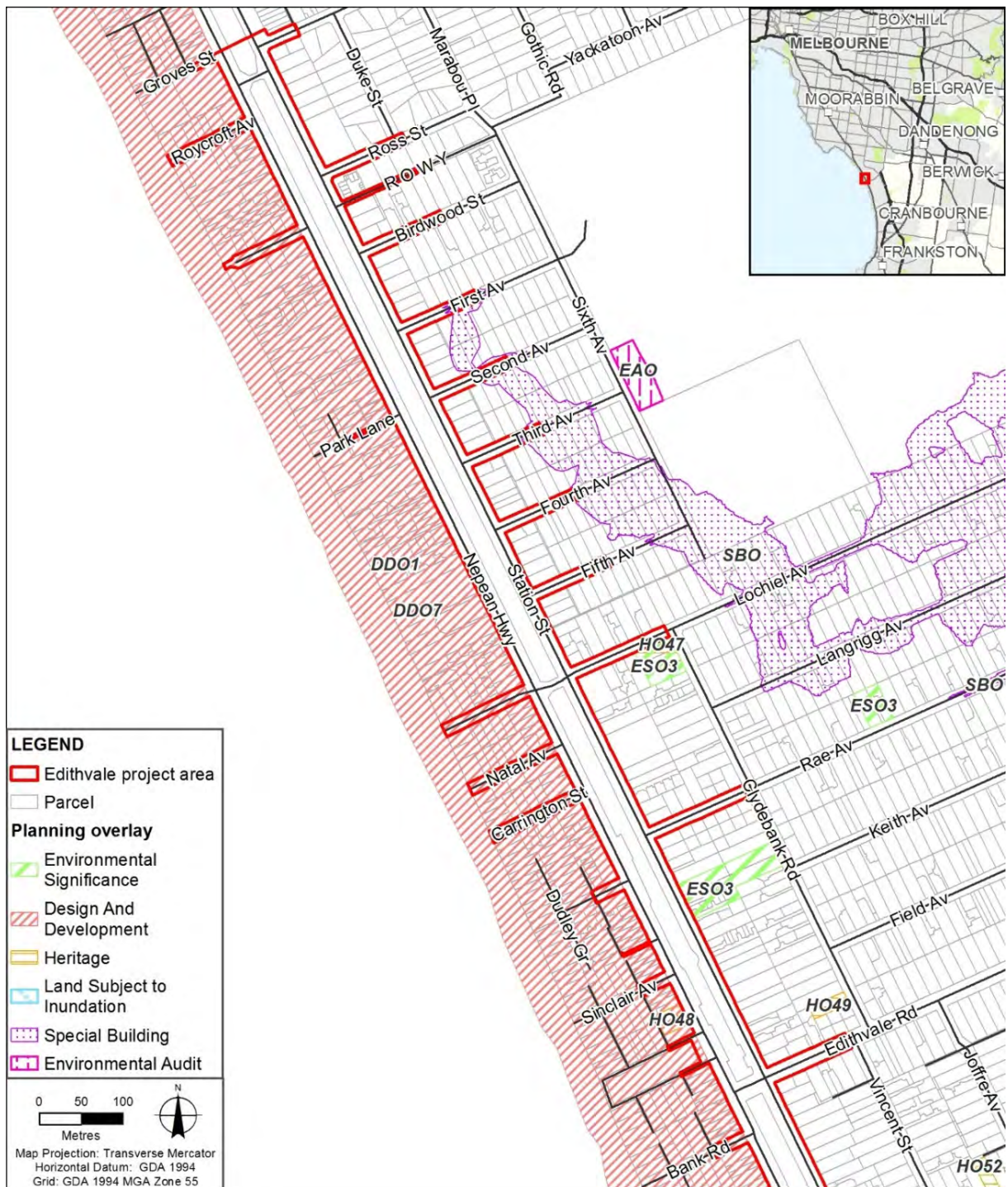


Figure A5 Planning map overlays – Edithvale

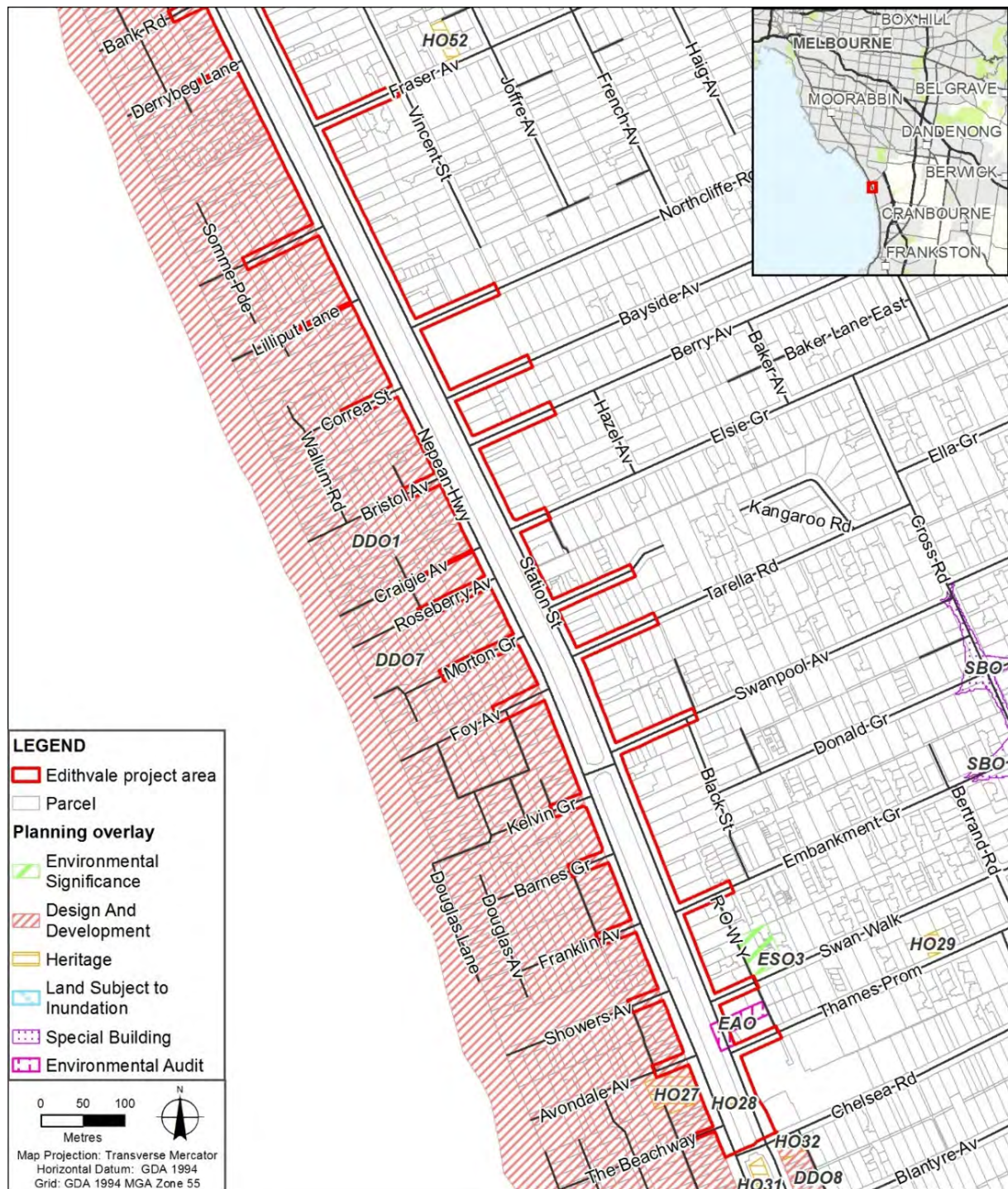


Figure A6 Planning map overlays - Edithvale

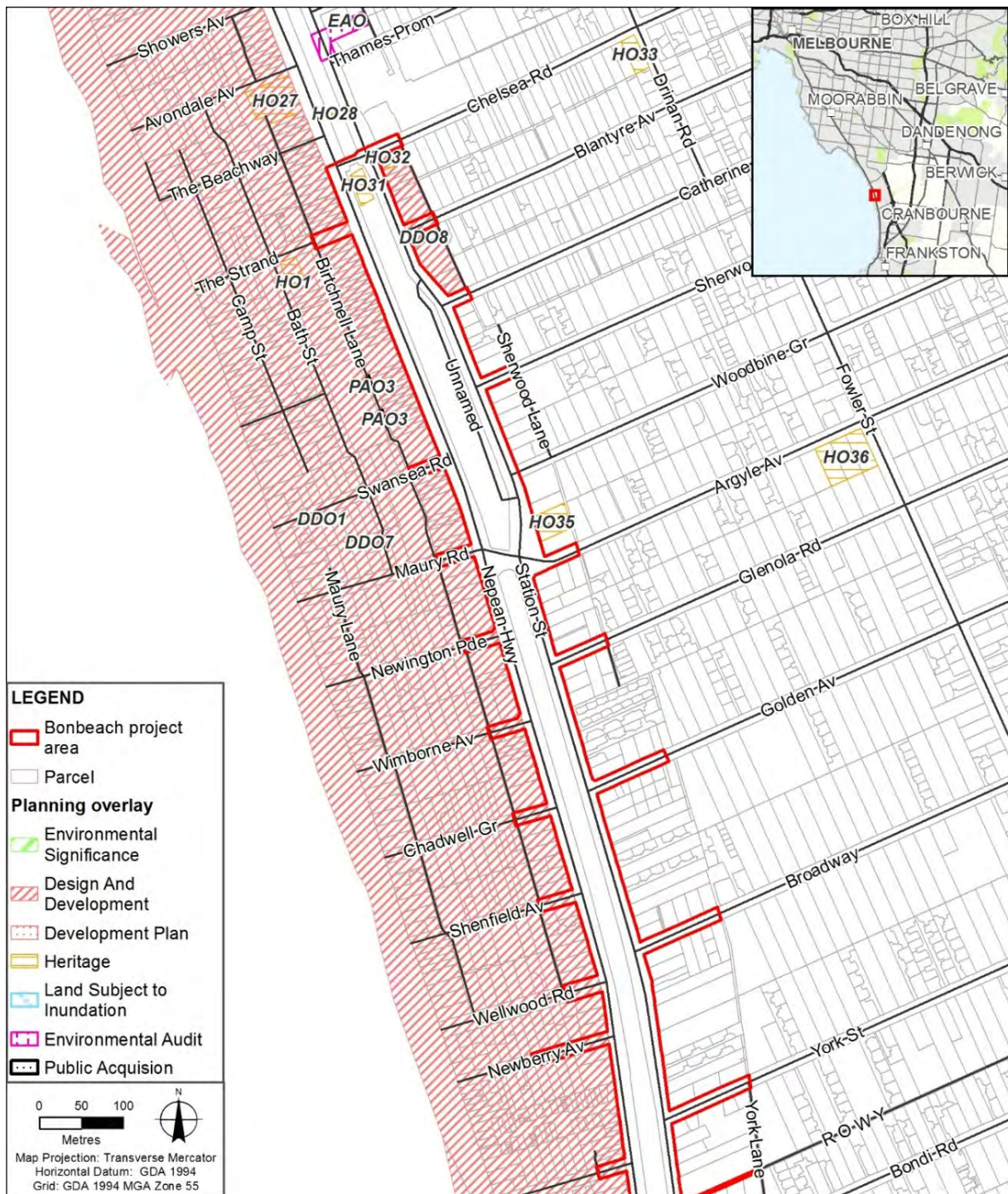


Figure A7 Planning map overlays – Bonbeach

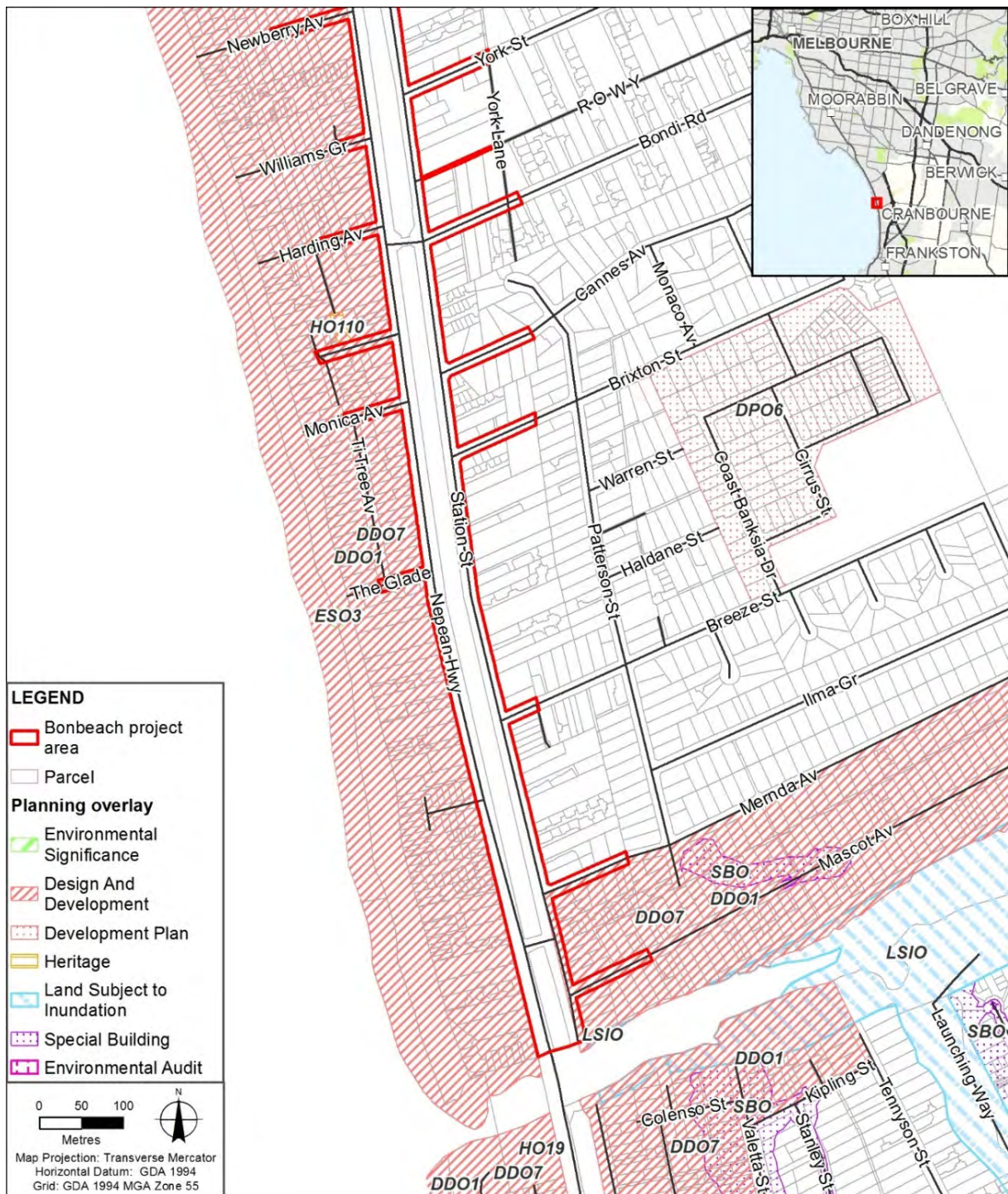


Figure A8 Planning map overlays - Bonbeach

Appendix B – Risk Assessment

Table B1 Guide to quantification of likelihood

Qualitative descriptions	Probability over a given time period	Basis
A. Certain	1 (or 0.999, 99.9%)	Certain, or as near to as makes no difference
B. Almost certain	0.2 – 0.9	One or more incidents of a similar nature has occurred here
C. Highly probable	0.1	A previous incident of a similar nature has occurred here
D. Possible	0.01	Could have occurred already without intervention
E. Unlikely	0.001	Recorded recently elsewhere
F. Very unlikely	1×10^{-4}	It has happened elsewhere
G. Highly improbable	1×10^{-5}	Published information exists, but in a slightly different context
H. Almost impossible	1×10^{-6}	No published information on a similar case

Source: Bowden, A.R., Lane, M.R. and Martin, J.H., 2001, *Triple Bottom Line Risk Management – Enhancing Profit, Environmental Performance and Community Benefit*, Wiley and Sons, New York, 314 pp.

Table B2 Consequence table

Qualitative descriptor	Negligible			Minor			Moderate	Major	Extreme
Consequence description	Minimal, if any impact for some communities. Potentially some impact for a small number (<10) of individuals			Low level impact for some communities, or high impact for a small number (<10) of individuals			High level of impact for some communities, or moderate impact for communities area-wide	High level of impact for communities area-wide	High level of impact State-wide
	0.1	0.3		1	3		10	100	1000
SOCIAL Land Use Planning	Negligible impact on existing and potential future land uses. Land use changes consistent with planning policies and zoning.			Minor impact on existing and potential future land uses. Land use changes result in minor inconsistency with local or State planning policies and zoning.			Moderate impact on existing and potential future land uses. Land use changes result in significant inconsistency with local planning policies and zoning.	Major impact on existing and potential future land uses. Land use changes result in significant inconsistency with State planning policies and zoning.	Catastrophic and permanent impact on existing and potential future land uses. Land use changes result in complete inconsistency with local or State planning policies and zoning.
SOCIAL Amenity (Traffic/air/noise/odour/visual impacts)	Short term impacts that alter perception of area as a high amenity place to live / visit. Region still seen as attractive place to live.			Short term (months) localised impacts that alter perception of area as a high amenity place to live / visit. Region not locally seen as attractive place to live.			Medium term (1-2 years) regional impacts that alter perception of area as a high amenity place to live / visit. Region not widely seen as attractive place to live.	Community perception that the area is significantly damaged. Area loses appeal as residential area. Recovery > 2 yrs.	Community perception that the area has experienced major damage. Area is a place to be avoided. Recovery, if at all, >10 yrs.

Table B3 Landscape and visual risks

Risk ID	Risk name	Risk pathway	EPR ID (initial)	Initial risk		EPR ID (final)		Residual risk		
				Likelihood	Consequence	Risk		Likelihood	Consequence	Risk
Construction risks										
LV 37	Lighting	Lighting leads to disturbance to sensitive receptors/fauna and leads to a perceived loss of amenity.	EPR LV3 Light spillage	Possible	Minor	Negligible	As initial EPR	Possible	Minor	Negligible
LV 39	Visual impacts (construction)	Visual impact of construction activities, ancillary facilities and new rail facilities results in perceived loss of visual amenity by rail users.	EPR UD2 Hoardings	Highly probable	Moderate	Minor	As initial EPR	Highly probable	Moderate	Minor
Operation risks										
LV 37	Lighting	Lighting leads to disturbance to sensitive receptors/fauna and leads to a perceived loss of amenity.	EPR LV2 Lighting	Unlikely	Minor	Negligible	As initial EPR	Unlikely	Minor	Negligible
LV 38	Landscape character	Change of landscape character in infrastructure corridor/commercial/residential/open space/foreshore areas resulting in perceived loss of amenity.	EPR LV1 Landscape and visual opportunities EPR UD1 Urban Design Guidelines	Possible	Minor	Negligible	As initial EPR	Possible	Minor	Negligible
LV 40	Visual impacts	Visual impact of changes to rail infrastructure (excluding	EPR LV1 Landscape	Highly	Minor	Minor	As initial	Highly	Minor	Minor

Risk ID	Risk name	Risk pathway	EPR ID (initial)	Initial risk			EPR ID (final)	Residual risk		
				Likelihood	Consequence	Risk		Likelihood	Consequence	Risk
LV 41	(general)	pedestrian overpasses and substation) results in perceived loss of visual amenity by residents or the community	and visual opportunities EPR UD1 Urban Design Guidelines	probable			EPR	probable		
	Visual impacts (pedestrian overpasses, substation)	Visual impact of new pedestrian overpasses (Edithvale and Bonbeach) and substation (Edithvale) results in perceived loss of visual amenity by residents or the community	EPR LV1 Landscape and visual opportunities EPR UD1 Urban Design Guidelines	Certain	Moderate	Moderate	As initial EPR	Certain	Moderate	Moderate