Urban Design and Landscape Plan

North East Link Eastern Freeway Upgrades — Tram Road to Springvale Road
April 2026

BIG BUILD
EASTERN FREEWAY

PLANNING AND ENVIRONMENT ACT 1987

WHITEHORSE AND MANNINGHAM PLANNING SCHEMES

CONDITION 4.9 OF THE NORTH EAST LINK PROJECT INCORPORATED DOCUMENT DECEMBER 2019 (AMENDED SEPTEMBER 2023)

ENDORSED PLAN
(356 sheets)

SIGNED.....
ON BEHALF OF THE MINISTER FOR PLANNING

DATE 24/04/2026

Acknowledgement

The North East Link Program wishes to acknowledge the Wurundjeri Woi-wurrung people as the Traditional Custodians of the land on which our work takes place.

We pay our respects to ancestors and Elders, both past and present. We value and respect the deep connection the Wurundjeri Woi-wurrung people have to Country; embedding their local knowledge is critical to the sustainability and health of the land and the environment. We also acknowledge Aboriginal and Torres Strait Islander Peoples as the Traditional Custodians and First Nations Peoples of Australia.

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Terms and abbreviations

Term	Definition
Birrarung	'Birrarung' is used throughout this UDLP as the Wurundjeri Woi-wurrung term for what is otherwise known as the Yarra River
CCP	Construction Compound Plan
CEMP	Construction Environmental Management Plan
CHMP	Cultural Heritage Management Plan
Co-design	Engagement approach undertaken with the Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation
CPTED	Crime Prevention Through Environmental Design
CNVMP	Construction Noise and Vibration Management Plan
Cultural integration	Cultural wisdom that has been shared by Wurundjeri Woi-wurrung Elders and translated into the design outcomes
DAQMP	Dust and Air Quality Management Plan
DDA	Disability Discrimination Act 1992
DEECA	Department of Energy, Environment and Climate Action
DTP	Department of Transport and Planning *(Formerly the Department of Transport. Now incorporates the planning division of the former Department of Environment Land Water and Planning (DELWP) and the authorities formerly known as the Roads Corporation, Public Transport Development Authority and Transport for Victoria.)*
EE Act	Environment Effects Act 1978
EES	Environment Effects Statement
EMF	Environmental Management Framework
EP Act	Environment Protection Act 2017 (Vic), as amended by the Environment Protection Amendment Act 2018 (Vic)
EPA Victoria	Environment Protection Authority Victoria
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cth)
EPR	Environmental Performance Requirement
ESD	Environmentally Sustainable Design
EVC	Ecological Vegetation Classes
GWMP	Groundwater Management Plan
IEA	Independent Environmental Auditor
Incorporated Document	North East Link Incorporated Document, December 2019 (Amended September 2023)
IS	Infrastructure Sustainability [Council]
ITS	Intelligent Transport System
Koonung Koonung	'Koonung Koonung' is used throughout this UDLP as the Wurundjeri Woi-wurrung term for what is otherwise known as the Koonung Creek

Term	Definition
LUMS	Lane Use Management Signs
MRPP	Moulded Rotationally Plastic Panels
NEL	North East Link
NELP	North East Link Program (comprised of the North East Link, M80 Ring Road Completion and Eastern Freeway Upgrades)
OEMP	Operational Environmental Management Plan
SCM	Supplementary Cementitious Materials
SCO	Specific Controls Overlay
SMP	Spoil Management Plan
SuMP	Sustainability Management Plan
SWMP	Surface Water Management Plan
TCRP	Tree Canopy Replacement Plan
TMLG	Transport Management Liaison Group
TMP	Transport Management Plan
TRPP	Tree Removal and Protection Plan
UDAP	Urban Design Advisory Panel
UDLP	Urban Design and Landscape Plan
UDS	North East Link Urban Design Strategy
WSUD	Water Sensitive Urban Design
WEMP	Worksite Environmental Management Plan
WWCHAC	Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation

Urban Design and Landscape Plan

Document control

Document title	Urban Design and Landscape Plan — North East Link Eastern Freeway Upgrades — Tram Road to Springvale Road
Revision number	2

UDLP review and approval

Incorporated Document — Clause 4.9.1

Prior to the commencement of development of permanent above-ground buildings or structures (excluding preparatory buildings and works under Clause 4.13.1 of the Incorporated Document), an Urban Design and Landscape Plan must be prepared to the satisfaction of the Minister for Planning.

Amendment of an approved UDLP

Incorporated Document — Clause 4.9.8

An UDLP may be amended from time to time, to the satisfaction of the Minister for Planning. The Minister for Planning must require an application for approval of an amendment to an UDLP to comply with the requirements of Clause 4.9.2, Clause 4.9.3, Clause 4.9.4 and Clause 4.9.5 unless, in the opinion of the Minister the proposed amendment:

(a) would not result in a material detriment to any person; or a person who may suffer a material detriment as a result of the Minister's approval of the amendment has already been consulted in respect of the proposed amendment; and

(b) any proposed amendment does not involve any change to an approved Environmental Performance Requirement.

UDLP applicability and validity

This UDLP applies to all personnel, suppliers, subcontractors, consultants and representatives whose scopes of work influence, contribute to, or otherwise assist in, delivering the project activities.

The current reviewed and approved version of this UDLP is available on the collaboration system for all project personnel to access.

Downloaded documents are deemed uncontrolled and it is the responsibility of the user to ensure they are using the latest revision.

Document control — revision history

Rev. No.	Date	Description of change	Prepared by
0	1 September 2025	Issue for Public Exhibition	TSA
1	19 December 2025	UDLP Final Submission	TSA
2	1 April 2026	Issued for Approval	TSA

Design development

The term ‘design development’ when used throughout this Urban Design and Landscape Plan typically refers to the following processes:

- The design development involves improving the level of detail rather than the basis for re-design.
- The design will be developed from a technical documentation perspective from Preliminary Design, Detailed Design, Final Design through to Issue For Construction. This process includes consultation with the relevant stakeholders and asset owners.
- The refinement of the design is to be consistent with the Urban Design and Landscape Plan, Urban Design Strategy (Amended 2025), and Environmental Performance Requirements.
- As part of this design process, consultation will occur as required with the relevant stakeholders, including the Urban Design Advisory Panel, the Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation, relevant councils, affected residents, and authorities.
- The relevant floodplain manager, drainage authority or asset owner (typically Melbourne Water) will participate where required, in consultation during the design development process and any relevant acceptances will be obtained consistent with Environmental Performance Requirements and other regulatory requirements.
- Additional information will be obtained and analysed throughout this design phase to inform the design such as site investigations, technical assessments constructability assessments, material availability and inputs from suppliers.
- If design development results in changes that are not generally in accordance with endorsed documents, an amendment to the Urban Design and Landscape Plan would be required to be submitted to the Minister for Planning for consideration, in accordance with condition 4.9.8 and 4.9.9 of the North East Link Project Incorporated Document, December 2019 (Amended September 2023) (Incorporated Document).

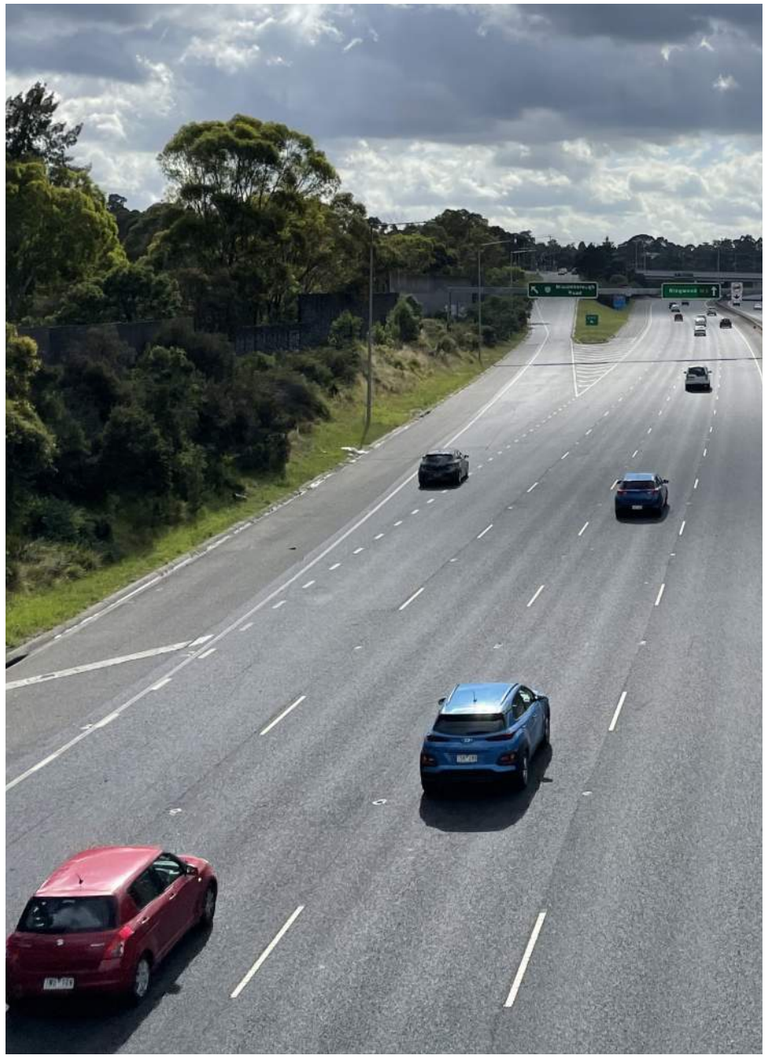

Figure 1: Summary of design development process

Foreword

The North East Link is located on the lands and waters of the Wurundjeri Woi-wurrung Traditional Custodians. Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation (WWCHAC) is the representative body and Registered Aboriginal Party legally recognised under the *Aboriginal Heritage Act 2006* (Vic).

North East Link will make travel faster and easier — connecting more people to employment, education, community, and opportunity. North East Link will connect the M80 Ring Road to an upgraded Eastern Freeway, slashing travel times by up to 35 minutes and taking 15,000 trucks a day off local roads.

Melbourne's population is forecast to reach eight million people by 2050 and North East Link will accommodate this future growth in the north eastern suburbs of Melbourne. Victorians will have better access to goods, services, employment, and education.

North East Link will provide the missing link in Melbourne's road network by improving connections between the east and north of Melbourne, providing a quicker and easier link for 135,000 vehicles a day — reducing travel times and leaving local roads for local trips.

In addition to tunnel construction, the North East Link Program involves upgrades and improvements to key road, pedestrian and cycling infrastructure through five separate but interrelated projects:

- M80 Ring Road Completion
- North East Link tunnels
- Eastern Freeway Upgrades — Hoddle Street to Burke Road
- Eastern Freeway Upgrades — Burke Road to Tram Road
- Eastern Freeway Upgrades — Tram Road to Springvale Road.

This Urban Design and Landscape Plan (UDLP) has been prepared by the Tram to Springvale Alliance to design and construct the Eastern Freeway Upgrades — Tram Road to Springvale Road (the Project).

It outlines the design for the road upgrades, as well as bridges, noise walls and other structures, landscape design and associated improvements to adjacent open space and pedestrian and cycling connections.

Figure 2: Eastern Freeway at Middleborough Road

This UDLP provides a detailed assessment of how the design complies with the Project's Environmental Performance Requirements (EPRs) and is in accordance with the North East Link Urban Design Strategy (UDS).

Key outcomes that will be facilitated through this UDLP include:

- upgrades to the Eastern Freeway between Tram Road and Springvale Road providing additional lanes in both directions, new ramps and safety barriers, road reprofiling, and other roadworks
- dedicated lanes between Tram Road and Middleborough Road for use as a local link, drawing traffic off local roads
- upgrades to existing pedestrian and cycling paths, including the Koonung Creek Trail, to improve safety and intuitive navigation; provide rest areas for cyclists and pedestrians; and incorporate architecturally designed features and material treatments inspired by the surrounding landscape
- replacement of the existing Eram Road pedestrian bridge to accommodate the widened freeway, which provides opportunities to enhance the existing north-south pedestrian and cycling connection across the Eastern Freeway for Koonung Creek Trail users
- landscaping and plantings along the Koonung Koonung* and surrounding parklands including water-sensitive urban design (WSUD) treatments like vegetated swales and biofiltration basins to improve the local and downstream health of the creek, which is a tributary of the Birrarung**
- focused improvements to public spaces to enhance recreation, wayfinding, social and ecological outcomes in Eram Park, Junction Road Reserve and along Koonung Creek Trail
- provision of new open-graded road surface and new noise walls to manage traffic noise to meet Victoria's most stringent standards for a road project.

This UDLP was exhibited to the public from 1 to 28 September 2025 for inspection and comment, in accordance with the requirements of the Incorporated Document. Feedback received during this period has been considered and responded to in the finalisation of this UDLP prior to submission to the Minister for Planning for approval.

'Koonung Koonung' is used throughout this UDLP as the traditional Wurundjeri Woi-wurrung name for what is otherwise known as the Koonung Creek.

**'Birrarung' is used throughout this UDLP as the traditional Wurundjeri Woi-wurrung name for what is otherwise known as the Yarra River.*

1. Introduction

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1. Introduction

1.1 Project background

In 2016, Infrastructure Victoria — Victoria's independent infrastructure advisors — named North East Link the State's priority road project.

More than five years of intensive and robust strategic planning, approvals and community consultation has developed the project into a major program of works spanning the road, bus, and active transport network, together with new and upgraded public transport hubs and associated parking facilities.

The North East Link Program (NELP) will now deliver:

- Victoria's longest road tunnels — protecting sensitive environmental areas including the Birrarung and surrounding parklands and creating more land above for open space and future development opportunities
- a completed M80 Ring Road in Greensborough
- a major modernisation of the Eastern Freeway
- Melbourne's first dedicated busway with park and rides in Bulleen and Doncaster
- active transport infrastructure, including more than 34 kilometres of new and upgraded pedestrian and cycling paths.

The five interconnected pieces of the North East Link Program will be delivered by dedicated construction partners, with timing staged so the whole project can open in 2028.

This UDLP applies to land in the City of Manningham and the City of Whitehorse. The Koonung Creek Trail, which runs through the project area, continues to the City of Boroondara.

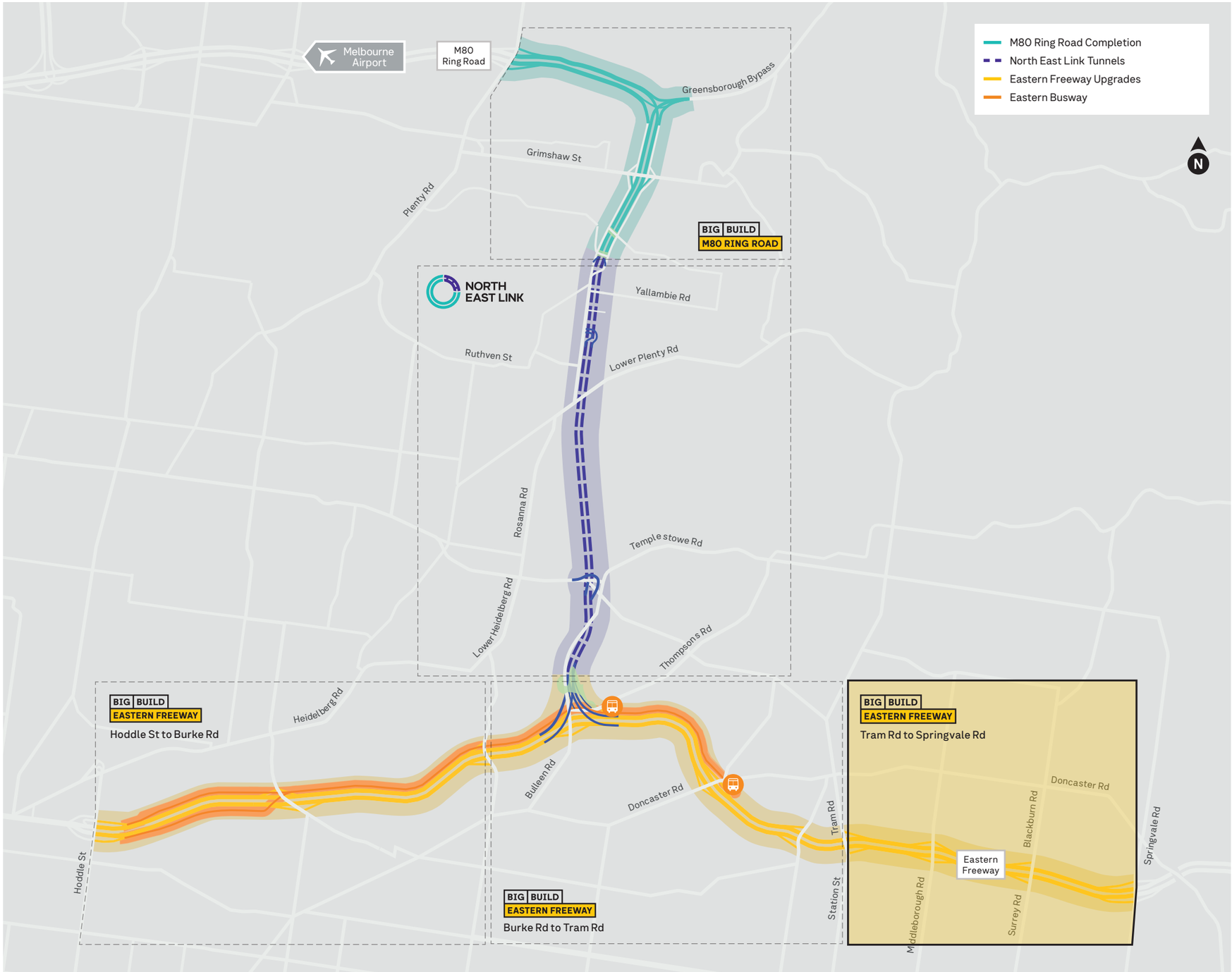

Figure 3: North East Link Program

1. Introduction

1.2 Purpose of an Urban Design and Landscape Plan

The purpose of a UDLP is to detail the overarching urban design and landscape concept for the design, siting and treatment of all permanent structures, buildings and other above ground works forming part of the overall North East Link Program. All UDLPs must be prepared to the satisfaction of the Minister for Planning and approved prior to the construction of permanent above ground buildings and structures, excluding specified preparatory buildings and works.

This UDLP has been prepared by the Tram to Springvale Alliance to design and construct the Project. It outlines the design for the road upgrades, as well as bridges, noise walls and other structures, landscape design and associated improvements to adjacent open spaces and pedestrian and cycling connections.

> The UDLP also provides a detailed assessment of how the design responds to the requirements of the UDS and EPRs. Compliance with these documents, which form the framework and parameters for the design, construction, and management of the North East Link Program, is a key project approval requirement.

This UDLP has been prepared in accordance with guidance from MRPV and is consistent with other UDLPs developed and approved across the North East Link Program.

This UDLP includes:

- an introduction to the Incorporated Document requirements and community consultation process (Section 2)
- an analysis of the site and context (Section 3)
- a description of the Project, design response and the urban design and landscape documents (Section 4)
- an assessment against design requirements of the UDS demonstrating consistency (Section 5)
- an assessment against the EPRs demonstrating compliance (Section 6).

Public exhibition, held in September 2025, provided an opportunity for the community and stakeholders to view and comment on the UDLP, including design elements such as bridges, noise walls, landscaping and changes to open spaces, pedestrian and cycling paths and trails. Feedback received during the public exhibition was considered and responded to in the finalisation of this UDLP, forming part of the submission to the Minister for Planning for approval.

Figure 4: Existing Koonung Road pedestrian and cycling bridge approach

Figure 5: Existing Cabena Street pedestrian and cycling bridge approach

Figure 6: Artist's impression of Cabena Street pedestrian and cycling bridge, Nunawading

1. Introduction

1.3 Existing approvals

An Environment Effects Statement (EES) was prepared for North East Link under the provision of the *Environment Effects Act 1978* (Vic). The EES process considered a wide range of potential environmental outcomes associated with the Reference Design and set out a comprehensive suite of EPRs detailing the minimum environmental outcomes the Project must achieve across its design, construction, and operational phases. The Minister for Planning released an assessment of the EES on 3 December 2019, which informed subsequent approval decisions including approval of the Incorporated Document.

The following approvals have been obtained for North East Link works:

- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) — North East Link is a 'Controlled Action'. Approval of EPBC 2018/8142 issued under Part 9 of the EPBC Act, dated 12 December 2019 and as varied on 28 August 2020 and on 29 June 2021. The approval has several conditions to mitigate environmental impacts that must be undertaken in delivery of the project.
- *Planning and Environment Act 1987* (Vic) — Planning Scheme Amendment GC98 and subsequent amendments to the Banyule, Manningham, Boroondara, Yarra, Whitehorse, Whittlesea, and Nillumbik planning schemes. Amendment GC98 facilitates North East Link by:
  - Applying the Specific Controls Overlay to land required for the project and allowing the use and development of that land in accordance with the specific control in the Incorporated Document (the requirements of the Incorporated Document are addressed in Section 2 of this UDLP)
  - Applying the Design and Development Overlay to land in Banyule and Manningham to ensure new development does not compromise the structural integrity or operation of project infrastructure.
- *Major Transport Projects Facilitation Act 2009* (Vic) (MTPF Act) — The project area for the North East Link Program was designated by the Minister for Planning under Section 95(2)(a) of the MTPF Act by an order published in the Victorian Government Gazette on 5 February 2020. This approval facilitates the delivery of the North East Link Program by applying the delivery powers under the MTPF Act (excluding Parts 3 and 8 of the Act).
- *Aboriginal Heritage Act 2006* (Vic) — Cultural Heritage Management Plan (CHMP) No. 15576 (North East Link Project) was approved under the Aboriginal Heritage Act. The CHMP's purpose is to assess the potential impact of North East Link on Aboriginal cultural heritage and provide measures to be undertaken to manage and protect Aboriginal cultural heritage.
- *Environment Protection Act 2017* (Vic) — Development Licence authorising the development and installation of the road tunnel ventilation systems for the North East Link Program was originally issued as a 'Works Approval' on 10 February 2020, and subsequently amended on 10 August 2022, followed by transfer from the State to Spark (the consortium delivering the North East Link tunnels) on 16 December 2021.

The following plans were prepared and approved by the Minister for Planning in accordance with the Incorporated Document and are relevant to this UDLP:

- North East Link Environmental Management Framework (EMF), as required under Clause 4.5 of the Incorporated Document was approved by the Minister for Planning on 9 February 2020 and amended on 21 July 2021 to reflect the *Environment Protection Amendment Act 2018* (Vic). This document outlines 110 EPRs which are performance-based environmental standards and outcomes that apply to the design, construction, and operation of the Project. Refer to Section 6 of this UDLP for further information.
- North East Link UDS, as required under Clause 4.8 of the Incorporated Document was approved by the Minister for Planning on 23 March 2020 and amended in March 2025. Compliance with the relevant objectives of the UDS are outlined in Section 5 of this UDLP.

Figure 7 outlines the environmental management and approvals process for the North East Link Program.

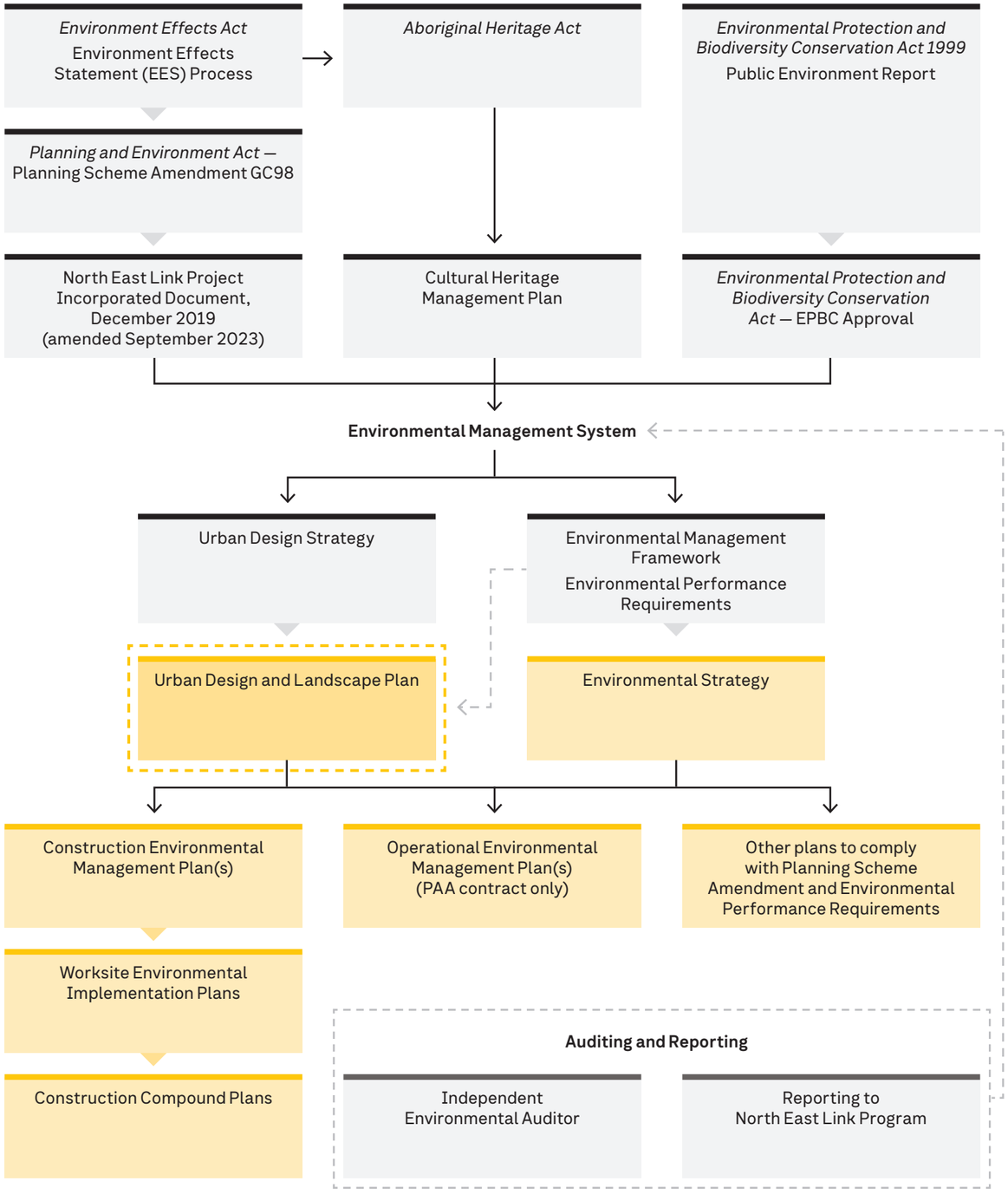

Figure 7: Key environmental management and approvals processes

1. Introduction

1.4 Other approved Urban Design and Landscape Plans

The following UDLPs were previously approved by the Minister for Planning under the Project's Incorporated Document (as shown at Figure 8):

- Bulleen Park and Ride UDLP, approved March 2021
- M80 Interchange Telecommunications Facility Relocation UDLP, approved July 2021
- Watsonia Station Telecommunications Facility Relocation UDLP, approved September 2021
- North East Link Tunnels UDLP, approved February 2023
- Eastern Freeway Upgrades — Burke Road to Tram Road UDLP, approved September2024
- M80 Ring Road Completion UDLP, approved September 2024
- Doncaster Park and Ride UDLP, approved May 2025.

UDLPs will also be prepared for the following project areas:

- Eastern Freeway Upgrades — Hoddle Street to Burke Road
- Watsonia Station Car Park.

1.4.1 Eastern Freeway Upgrades — Burke Road to Tram Road UDLP

The Eastern Freeway Upgrades — Burke Road to Tram Road UDLP provides approval for the development of the existing Eastern Freeway reserve and adjoining open space areas between Burke Road and Tram Road, including the interchange with the North East Link tunnels at Bulleen.

The design approved under the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP includes a small portion of land within the boundary of this UDLP. This overlapping interface occurs approximately 150 metres west of Tram Road to approximately 250 metres east of Tram Road, and includes the design for works to the Tram Road bridge.

The Project intends to commence the development of permanent above-ground buildings and structures under the approval provided by the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP where the use and development remains generally in accordance with the final built form shown in the approved Eastern Freeway Upgrades — Burke Road to Tram Road UDLP.

This UDLP seeks a new approval for project activities proposed on the land in this area. If approved by the Minister for Planning, this UDLP will replace the approval provided by the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP for works associated with the Tram Road to Springvale Road Package.

While the design presented in this UDLP is largely consistent with the approved Eastern Freeway Upgrades — Burke Road to Tram Road UDLP, the small number of design changes between each UDLP are outlined at Section 4.4.

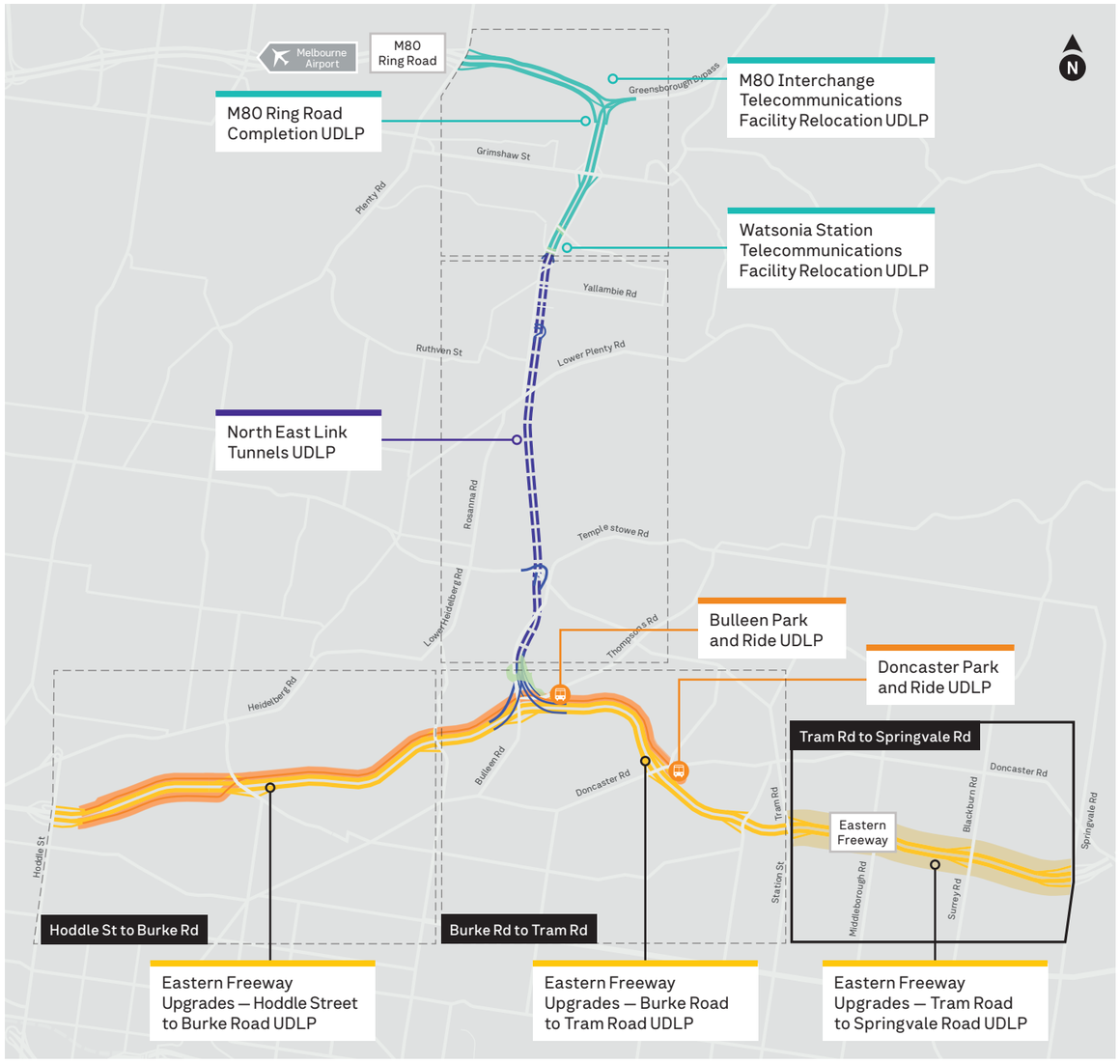

Figure 8: Eastern Freeway Upgrades — Tram Road to Springvale Road UDLP area in relation to other NEL UDLPs

2. Requirements for the Urban Design and Landscape Plan

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2. Requirements for the Urban Design and Landscape Plan

2.1 North East Link Incorporated Document

The Incorporated Document was originally approved by the Minister for Planning in December 2019 and amended in September 2023. It provides the overarching planning approval for the North East Link Program and forms part of all council planning schemes that apply to land within the North East Link project boundaries. The Incorporated Document is implemented through the Specific Controls Overlay — Schedule 12 (SCO12).

The Incorporated Document includes conditions and requirements that must be met in the detailed planning, design, construction, and operation of North East Link. Clause 4.9.1 of the Incorporated Document requires that a UDLP be prepared to the satisfaction of the Minister for Planning prior to the construction of permanent above ground buildings or structures (excluding preparatory buildings and works specified under Clause 4.13.1).

The use and development of the Project must be carried out generally in accordance with the approved UDLP. The UDLP must be prepared in accordance with the relevant requirements in the Incorporated Document, this includes design and consultation requirements. A summary of this UDLP's compliance with the requirements of the Incorporated Document is outlined in Table 1.

Table 1: Incorporated Document requirements

Clause	Condition	Response
4.9.1	Prior to the commencement of development of permanent above-ground buildings or structures (excluding preparatory buildings and works under Clause 4.13.1), UDLPs must be prepared to the satisfaction of the Minister for Planning.	This UDLP sets out the design for all permanent above-ground buildings or structures in the project area. Approval of the UDLP by the Minister for Planning is required prior to commencing the development of permanent above-ground buildings or structures.
4.9.2	The UDLPs must show the final built form design for the Project and include, where relevant:	
	(a) A site layout plan that shows the location of permanent above-ground buildings and structures (including but not limited to proposed bridges, elevated roads, tunnel portals, ventilation structures, flood walls, noise walls, public transport infrastructure, and walking and cycling facilities).	Site layout plans showing the location of all permanent above-ground buildings and structures are included at: – **Attachment 1:** Architecture and Urban Design – **Attachment 2:** Landscape Design.
	(b) Architectural plans, including sections and elevations, with materials and finishes.	Architectural plans are included at: – **Attachment 1:** Architecture and Urban Design.
	(c) Landscape plans, including sections and elevations, with plant species.	Landscape plans are included at: – **Attachment 2:** Landscape Design.
4.9.3	An Urban Design and Landscape Plan (UDLP) must be accompanied by the following, where relevant:	
	(a) An explanation demonstrating how the UDLP is in accordance with the approved UDS including any relevant urban design framework plan	Project compliance with the approved UDS is demonstrated in Section 5 of this UDLP.
	(b) An explanation demonstrating how the UDLP would comply with the EPRs included in the approved EMF.	Project compliance with the approved EMF, including EPRs, is demonstrated in Section 6 of this UDLP.
	(c) A plan which shows the extent of the UDLP area in relation to any publicly available or approved UDLP/s.	Figure 8 (Refer to Section 1.4 of this report) — shows the extent of this UDLP area in relation to the other publicly available or approved NEL UDLPs.
	(d) A plan which shows the boundary of the Project Land and location of areas to be used for construction compounds consistent with the approved Construction Compound Plan under Clause 4.12.	The boundary of the project area is shown at Section 3.1, and is illustrated in Attachments 1, 2 and 4. Construction Compound Plans (CCPs) were approved by the Minister for Planning for locations at Eram Park (approved 18 November 2025) and Springvale Road (approved 12 December 2025). The locations of these construction compounds are shown in Attachment 2 — Landscape Design, drawings NEL-EST-TSA-6600-ULS-DRG-2911 to 2913. Should any additional CCP be prepared and approved prior to the finalisation of this UDLP and submission to the Minister for Planning for approval, the UDLP will be updated to include any additional plans in accordance with this requirement.
4.9.4	Prior to the submission of an UDLP to the Minister for Planning for approval, an UDLP must be:	

2. Requirements for the Urban Design and Landscape Plan

Clause	Condition	Response
	(a) Provided to the UDAP [Urban Design Advisory Panel] and relevant council/s for consultation	A copy of this UDLP has been provided to UDAP and the relevant councils as part of the public exhibition process. A summary of consultation is included at Section 2.2.
	(b) Provided to the Department of Transport, Roads Corporation, Public Transport Development Authority, Melbourne Water, Heritage Victoria, the Department of Environment, Land, Water and Planning (DELWP), Parks Victoria and the Head, Transport for Victoria for consultation where relevant.	A copy of this UDLP has been provided to the relevant stakeholders as part of the public exhibition process. A summary of consultation is included at Section 2.2.
	(c) Made available for public inspection and comment on a clearly identifiable Project website. The website must set out details about the entity and contact details to which written comments can be directed during that time and specify the time and manner for the making of written comments. The minimum period for public comment must be 21 days. For the avoidance of doubt, consultation in accordance with (a) and (b) can occur prior to, during and after the public inspection and comment period in (c).	This UDLP was made available for public inspection and comment on the Engage Victoria website for a period of 28 calendar days, from 1 September to 28 September 2025.
4.9.5	Before, or on the same day as an UDLP is made available in accordance with Clause 4.9.4(c), a notice must be:	
	(a) Published in a newspaper generally circulating in the area to which an UDLP applies informing the community of the matters set out in Clause 4.9.4(c).	Notices have been published in newspapers as part of the public exhibition process.
	(b) Provided to owners and occupiers of land adjacent to the area/s to which an UDLP applies informing them of the matters set out in Clause 4.9.4 The minimum period for comment must be 21 days.	Notices have been provided to owners and occupiers of the land adjacent to the project area as part of the public exhibition process. This UDLP was made available for public inspection and comment on the Engage Victoria website for a period of 28 calendar days, from 1 September to 28 September 2025.
4.9.6	An UDLP submitted to the Minister for Planning for approval under Clause 4.9.1 must be accompanied by:	
	(a) A summary of the consultation carried out under Clause 4.9.4 and Clause 4.9.5, all written comments received and a response to issues raised.	Following completion of public exhibition a summary of all written submissions received, and responses, was prepared to accompany the UDLP submission to the Minister for Planning for assessment and approval.
	(b) Written advice from the UDAP addressing the extent to which the UDLP is consistent with all relevant matters set out in the Minister's Assessment dated 3 December 2019 made pursuant to the *EE Act [Environment Effects Act 1978)]*, the EPRs included in the approved EMF, and the approved UDS including any relevant urban design framework plan.	This will be sought from UDAP prior to the submission of this UDLP to the Minister for assessment and approval.
4.9.7	An UDLP may be prepared and approved in stages but an UDLP for any stage must be approved before commencement of development (excluding preparatory buildings and works under Clause 4.13.1) for that stage.	This UDLP has been prepared for the project area from approximately 150 metres west of Tram Road to Springvale Road.
4.9.9	The use and development of the Project must be carried out generally in accordance with the approved UDLPs.	The use and development of the Project will be carried out generally in accordance with an approved UDLP, as approved by the Minister for Planning.

2. Requirements for the Urban Design and Landscape Plan

2.2 Community and stakeholder engagement

The statutory requirements for consultation with the community and stakeholders as part of the preparation of the UDLP are outlined at Clause 4.9.4 and 4.9.5 of the Incorporated Document. These requirements have been incorporated into, and form part of, a broader program of engagement that has informed the preparation of this UDLP. This engagement builds on previous consultation undertaken by NELP through the EES process in 2019 and on previously approved UDLPs.

Key communication and engagement activities for this UDLP are outlined in this section.

Public authorities

Consultation has been undertaken with a number of public authorities to inform the preparation of this UDLP. This consultation involved briefing sessions where the UDLP design was presented and key issues were discussed, including to understand the regulatory, management and maintenance remit of each public authority. These public authorities include the following:

- Department of Transport and Planning (DTP)*: Consultation focused on DTP's management and maintenance of bridges, noise walls, and of landscaping within the freeway corridor and adjacent arterial roads.
- Department of Energy, Environment and Climate Action (DEECA)*: Consultation focused on opportunities to avoid and minimise biodiversity impacts across the Project, as well as DEECA's responsibility to manage Crown land areas such as the Koonung Koonung and Junction Road Reserve.
- Melbourne Water: Consultation focused on the Project's approach to manage the Koonung Koonung, in particular through the proposed realignment of the Koonung Koonung and opportunities to improve the creek's health and function. Consultation also addressed flood modelling and mitigation approaches and Melbourne Water's role as a floodplain management authority.
- Heritage Victoria: Consultation was limited to providing a briefing on the overarching UDLP design due to limited historical heritage within the project area.
- Parks Victoria: Due to minimal interface with Parks Victoria managed land, consultation was limited to outlining the nature of the Project and UDLP process.

In addition to feedback and comments received during preparation of the UDLP, submissions made by authorities during the public exhibition have also been considered in the finalisation of this UDLP.

Councils

The UDLP covers land in the Manningham City Council and Whitehorse City Council boundaries and includes pedestrian and cycling paths, landscaping and open space areas that will be returned to each council following project completion.

Each council has been consulted through a series of site walks, workshops and presentations leading up to the public exhibition period to provide feedback on elements directly related to this UDLP and on the consultation approach with their communities.

Introductory briefings focused on the design opportunities that each council wanted to see reflected in the UDLP design. More detailed design workshops were facilitated to further discuss design elements each council were interested in.

Public exhibition of the UDLP provided both councils further opportunity to review the plan and provide written comments. Submissions received by each council were considered as part of the final UDLP submission to the Minister for Planning for approval.

Urban Design Advisory Panel

The UDAP for the North East Link Program was formed under Clause 4.7 of the Incorporated Document.

UDAP's role is to provide ongoing expert guidance and advocate for high quality design outcomes through an integrated design approach for the project. Members include urban design specialists from the Office of the Victorian Government Architect, DTP, WWCHAC and independent design specialists.

UDAP has been consulted during the early design process for this Project. This engagement provided UDAP with opportunities to issue detailed urban design advice to inform design development and the design response. Pre-exhibition engagement with UDAP included reviews of the draft UDLP.

Following the public exhibition period, UDAP provided written advice addressing the extent to which the UDLP is consistent with all relevant matters set out in the Minister's Assessment, the EPRs included in the approved EMF, and the approved UDS.

Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation

NELP recognises the land and waters on which this project takes place as the traditional lands and waters of the Wurundjeri Woi-wurrung Traditional Custodians. The WWCHAC is the Registered Aboriginal Party and Traditional Owner legally recognised under the Victorian *Aboriginal Heritage Act*. WWCHAC is also a member of UDAP.

Genuine and meaningful engagement with WWCHAC commenced early in the design development and design response process through ongoing iterative sessions as well as WWCHAC feedback on the draft UDLP.

This approach will continue throughout the project lifecycle, beyond UDLP development and submission, to inform the urban design, architectural and landscape outcomes and cultural heritage compliance.

Public exhibition

The UDLP was made available for public exhibition and comment for a period of 28 days from 1 September to 28 September 2025.

During public exhibition the UDLP was available:

- online at Victoria's Big Build Engage Victoria website **engage.vic.gov.au/bigbuild**
- in hard copy at community information events
- in hard copy at local council offices and libraries.

Written submissions were made online at the Engage Victoria website, in-person at community events or via the project call centre.

The Engage Victoria website provided information about how to make a submission online, when submissions closed and contact details for community enquiries.

Support to make a submission by email, post or other written method was also available if needed.

In addition to the Engage Victoria website, the UDLP exhibition was supported by a range of communication and engagement activities to promote the UDLP and assist people in understanding the information included in the UDLP and the UDLP process. These included:

- extensive advertising through print and digital channels including social media, letterbox drops, door knocks and media
- community information events, with locations and dates promoted extensively
- supporting material, including information on the North East Link website **northeastlink.vic.gov.au**, an interactive online map, facts sheets, artist impressions and translated information.

All written submissions received during the public exhibition period have been considered in the finalisation of this UDLP.

A Consultation Summary Report addressing written comments received during public exhibition and responses to issues raised will be provided to the Minister for Planning at the time of final UDLP submission.

Reporting on the outcomes of the UDLP process

Following the Minister for Planning's decision on this UDLP, NELP will report back to stakeholders and the community about how issues and opportunities raised through the public exhibition process were considered, including where any changes were made to the UDLP in response.

Ongoing engagement

Engagement with stakeholders and the community will continue throughout the life of the Project to keep people informed of progress and to ensure community and stakeholder priorities, concerns and opportunities are considered and responded to in a timely and transparent way. This will include ongoing engagement with local councils to consider local projects and contexts.

Figure 9: Existing cross-corridor pedestrian bridge at Cabena Street

** As of 1 January 2023, the planning and environment functions of the former Department of Environment, Land, Water and Planning (DELWP) were incorporated into DTP and DEECA, respectively. DTP also incorporates the state transport functions provided by the former Department of Transport (DoT) through the previous Roads Corporation (VicRoads), Public Transport Development Authority, and Transport for Victoria. The Incorporated Document references DELWP and DoT, as this was accurate at time of gazettal (January 2020). Any mention of DELWP and DoT in this UDLP is to be read as a reference to DEECA and DTP, respectively.*

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3. Site analysis

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3. Site analysis

3.1 Location and existing conditions

This UDLP includes land in and immediately adjacent to the existing Eastern Freeway road reserve between Tram Road, Doncaster and Springvale Road, Nunawading.

Key existing landscape features, transport infrastructure, open space areas and land uses inside, and in proximity to, the UDLP area are shown in Figure 10.

1. Applewood Retirement Village
2. Frank Sedgman Reserve
3. North Box Hill Tennis Club
4. Tram Road Reserve
5. Eram Park
6. Windella Quadrant Playground
7. Eram Road pedestrian and cycling bridge
8. Doncaster Zone Electrical Substation
9. Koonung Creek pedestrian and cycling bridge
10. Koonung Koonung
11. Joseph Street Industrial Precinct
12. Boronia Grove Reserve BMX Track
13. Boronia Grove Reserve
14. Koonung Road pedestrian and cycling bridge
15. Middlefield Drive Reserve and Tennis Court
16. 6th Box Hill Scout Group Hall
17. Calvary Millward Aged Centre
18. Beverly Hills Primary School
19. Slater Reserve Stadium
20. Koonung Creek Linear Park
21. Darvall Street Playground
22. Cabena Street pedestrian and cycling bridge
23. Warekila Preschool
24. Donvale Primary School
25. Heatherwood School
26. Junction Road Reserve
27. R.E. Gray Reserve

Figure 10: Locality plan

3. Site analysis

3.2 Landscape character areas

The UDS identifies three distinct landscape character areas in the North East Link Program corridor — Ridgeline, Yarra River Valley and Koonung Creek Valley — each of which have their own distinct social, cultural, landscape and biodiversity attributes. This UDLP covers land in the Koonung Creek Valley character area and uses the UDS-recommended design requirements in developing the design concept.

Ridgeline

The Ridgeline has been covered by the North East Link Tunnels UDLP and the M80 Ring Road Completion UDLP and is not directly applicable to this UDLP.

Yarra River Valley

The Yarra River Valley has been covered by the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP and the North East Link Tunnels UDLP and is not directly applicable to this UDLP.

However, this UDLP considers the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP to ensure a coordinated design response across the different landscape character areas.

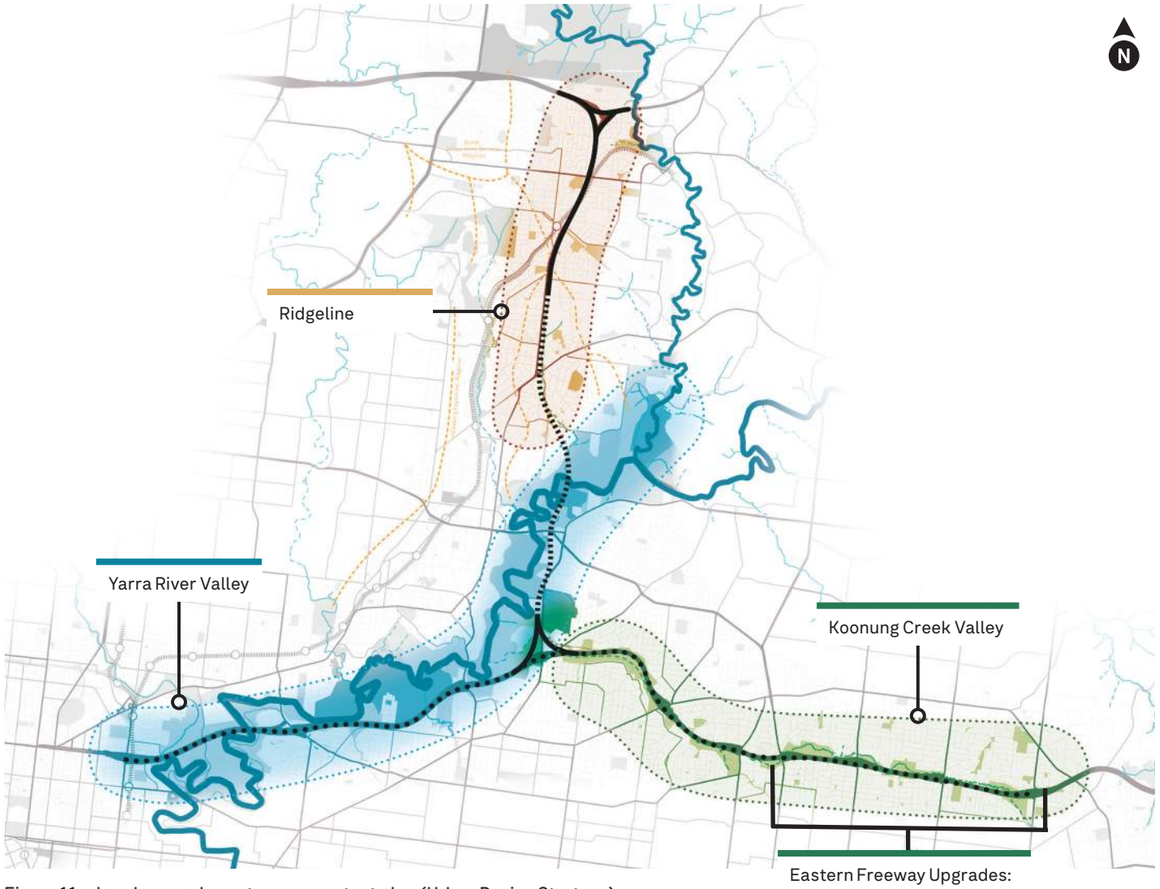


Figure 11: Landscape character area context plan (Urban Design Strategy)

Koonung Creek Valley

The Koonung Creek Valley is a distinct landscape character area in the UDS. It is defined by the Koonung Koonung, a small and highly modified tributary of the Birrarung, which navigates through a narrow rocky upper valley before transitioning to the alluvial floodplains.

The area includes several interconnected systems: the creek itself, culverts, pedestrian and cycling paths, open spaces, and natural systems. These systems weave around the Eastern Freeway, connecting communities both urban and natural. The Koonung Creek Valley landscape character area is directly applicable to the extent of this UDLP.

The Koonung Koonung, like all waterways on Wurundjeri Woi-wurrung Country, holds both tangible and intangible cultural value and connection. Waterways are the bloodlines of Country, travel and trade routes previously connecting clans to significant ceremony places and provided necessary resources to sustain their way of life.

While the current condition of the Koonung Koonung and its surrounds is highly modified, there is an opportunity through partnership with WWCHAC to strengthen ongoing connection, improve waterway health and biodiversity and support the continuity of culture for future generations.

The Koonung Creek Valley encompasses the Eastern Freeway corridor, the creek channel, adjacent wetlands, and linear parklands, all in a lower density residential setting. The freeway is carved through sandstone rock formations and valley floors, creating a dynamic driver experience framed by vegetated mounds, tree canopies, and noise walls. These elements create undulating landscapes that blend the green of the roadside planting with the freeway infrastructure. Distinctive bridges span the freeway, linking neighbourhoods and serving as landmarks.

As the Eastern Freeway passes through this landscape area, the freeway's proximity to suburban areas varies; at times it closely borders residential neighbourhoods, while other sections are separated by wider green parklands.

On the north side of the freeway, large open space areas and dense vegetation typically provide a buffer between the freeway and adjacent residential areas; while the open space on the south side of the freeway is generally narrower with the exception of a small number of parks.

These open space areas are highly valued by the community for passive recreation and social interaction. The Koonung Creek Trail is a popular east-west route that bridges over the freeway, facilitating pedestrian and cycling connections across the corridor and to surrounding regions including the Melbourne CBD.

A Historical Heritage Assessment undertaken as part of the EES identified no historic heritage places within the Project Boundary of the Eastern Freeway Upgrades between Tram Road and Springvale Road. A heritage overlay applies partly within the Project Boundary to the east of Middleborough Road, however this site relates to a place of Aboriginal heritage significance and is managed in compliance with the approved CHMP.

An Archaeological Heritage Assessment undertaken by the project identified a new archaeological place in Junction Road Reserve, partly within the Project Boundary. This site has been included on the Victorian Heritage Inventory by Heritage Victoria (H7922-0541 Yarrandoo Park Former Farm Site). The heritage place relates to a former farm and homestead that was present at the site during the 19th and 20th centuries. Whilst the heritage place is partly within the Project Boundary, no ground disturbing works are proposed as part of this UDLP. If works are required within the site extent, the Project will apply for a consent under the Heritage Act 2017 from Heritage Victoria.

Figure 12: The Koonung Koonung defines the Koonung Creek Valley landscape character area

Figure 13: Open spaces on the northern side of the freeway are highly valued by the community

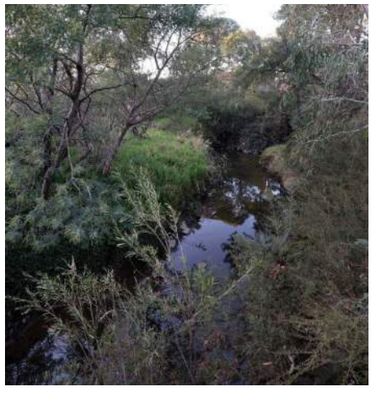


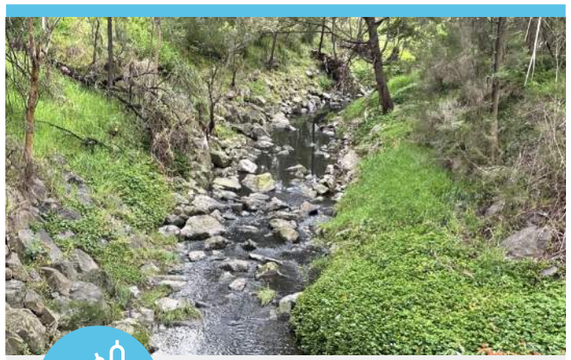
Figure 14: The Koonung Koonung at Eram Park

3. Site analysis

3.3 Key landscape features

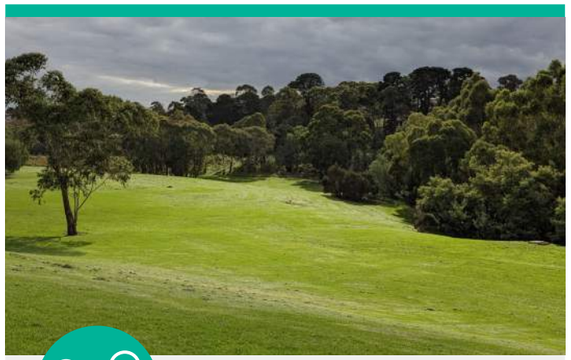
An analysis of the site and the UDS has identified that the character of the Koonung Creek Valley can be broadly categorised into the following three landscape features.

Figure 15 indicates where each of these key landscape features is located in the project area.



Waterways and biodiversity

Features of tangible and intangible cultural value and ecological function



Open space

Spaces of active and passive recreation or of pause and reflection

Movement corridors

Active spaces of movement and direction

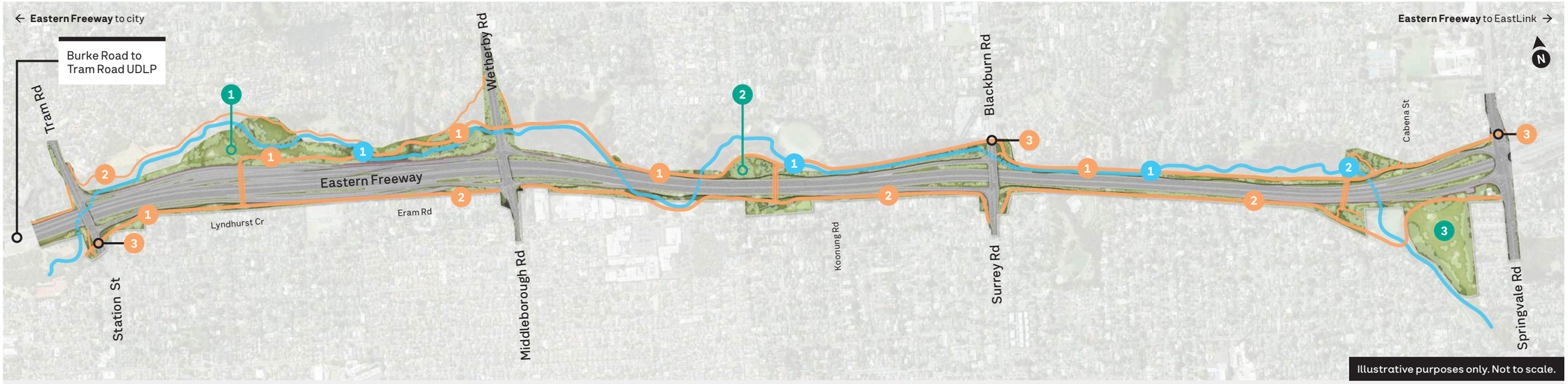


Figure 15: Key landscape features

3. Site analysis

3.3.1 Waterways and biodiversity

The Koonung Koonung originates in Nunawading near Springvale Road and flows approximately 12 kilometres to meet the Birrarung at the junction of Ivanhoe East, Bulleen and Balwyn North. The creek meanders back and forth either side of the Eastern Freeway for much of its length before it flows into the Birrarung.

The Koonung Koonung is considered urbanised and receives high volumes of urban stormwater drainage. The creek has been extensively modified in the landscape, with erosion control works, tunnelling where the creek is directed underground, and realignment all impacting the natural geomorphology and in-stream habitat of the waterway.

There are extensive areas of amenity-planted vegetation comprising predominantly indigenous or native species. As well as amenity-planted vegetation, patches of native vegetation exist along the Koonung Koonung. This includes four ecological vegetation classes (EVCs) — primarily Swampy Riparian Woodland (EVC 83) but also small patches of Valley Grassy Forest (EVC 47), Swamp Scrub (EVC 53) and Tall Marsh (EVC 821).

Despite the catchment being almost entirely urban, the creek passes through substantial parklands and still has the potential to support native fish species, water birds, and sites of Aboriginal heritage on its floodplain. The creek is also home to five species of frogs: the Common Eastern Froglet, the Spotted Marsh Frog, the Striped Marsh Frog, the Eastern or Pobblebonk Frog, and the Southern Brown or Ewing's Tree Frog.

While the Koonung Koonung has the potential to support native fish species, it has numerous covered lengths that act as barriers to fish and wildlife passage and may impede the upstream movement of fish from the Birrarung and its overall function as a wildlife corridor. This habitat fragmentation presents issues to connectivity for both native and introduced species.

> Project works will regenerate, enhance habitat and create moments for interaction with the Koonung Koonung.

Figure 16: The Koonung Koonung landscape

3. Site analysis

3.3.2 Open Space

Within the boundary of this UDLP, several open spaces form part of the wider Koonung Creek Linear Park and Eastern Freeway Linear Reserve networks, providing access to light, active and passive recreation and open views. These contrast with heavily shaded or narrow areas of space and are well interconnected by the Koonung Creek Trail either side of the Eastern Freeway.

Open spaces include Eram Park, connections to Slater Reserve, Boronia Grove Reserve and Tram Road Reserve beyond the UDLP boundary, and the significant open space at Junction Road Reserve on the southern side of the freeway near Springvale Road.

The open grassed areas, combined with areas of dense tree canopy, moments of interaction with the Koonung Koonung, and connections back into residential areas, present an opportunity to offer respite and varied experiences to users. In addition to recreational amenities, the parks play a role in preserving local biodiversity, human health and overall liveability. Views of the Eastern Freeway from nearby residences and adjacent streets are screened by a combination of mature landscaping, mounds, and noise walls. These screening elements are generally set back from residential boundaries within a series of interconnected linear open spaces that incorporate the northern section of the Koonung Creek Trail.

Tram Road Reserve and Eram Park

Tram Road Reserve and Eram Park feature a range of recreational areas and open green spaces.

A popular spot for local residents, the reserves support various uses and include pedestrian and cycling paths, and a dog off-lead area at Eram Park.

Boronia Grove Reserve

Located outside the boundary of this UDLP, the Koonung Creek Trail provides a connection from the UDLP area to Boronia Grove Reserve, which is noted as a key location in the Koonung Creek Valley landscape character area.

This reserve is characterised by more secluded and natural landscapes, mature trees, and the scenic presence of the Koonung Koonung. Walking trails meander through Boronia Grove Reserve and provide an immersive experience in nature. Picnic areas and play spaces for children are also available.

Junction Road Reserve

Junction Road Reserve stretches along the southern side of the Eastern Freeway and acts as a connecting greenway between various open spaces and reserves.

The reserve is lined with native vegetation, providing habitat for local wildlife and hosts a large dog off-lead area. A network of intertwined pedestrian and cycling paths offer safe and scenic routes for commuters and recreational users and provide access to surrounding reserves and parks, enhancing connectivity and enjoyment of green spaces. However, these are not well sign posted and wayfinding could be improved for users.

> Project works will protect and enhance the uses, biodiversity and experience of open spaces.

Figure 17: Open spaces at Eram Park

3. Site analysis

3.3.3 Movement corridors

The Koonung Creek Trail weaves a scenic and practical network of paths along the northern and southern sides of the Eastern Freeway, stretching beyond the boundary of this UDLP at Tram Road and Springvale Road. This network includes a primary path, part of Victoria's Strategic Cycling Corridor, and secondary paths that provide connections to local street networks.

Cross-corridor pedestrian and cycling bridges connect either side of the freeway corridor, while underpasses bypass roads and difficult terrain, providing uninterrupted journeys and a cohesive experience for users.

Commencing on the southern side of the Eastern Freeway before crossing over the existing Eram Road pedestrian bridge to the northern side, the primary path is a sealed, continuous trail following the Koonung Koonung, providing a smooth route that connects reserves such as Eram Park and Boronia Grove Reserve.

Secondary paths of the Koonung Creek Trail are gravel and unsealed paths that connect to the pedestrian and cycling bridges, providing access to the primary path of the Koonung Creek Trail. They connect to amenities such as playgrounds, picnic areas, and scenic spots along the creek, offering a balanced mix of leisurely walks and opportunities for nature observation.

A secondary path also runs between Middleborough Road and Springvale Road, connecting users between local destinations on the southern side of the freeway corridor including Junction Road Reserve.

Several pedestrian bridges span the Koonung Koonung and its tributaries, ensuring safe passage and uninterrupted travel along the trail.

Noise walls are located along significant portions of the trail adjacent to the freeway to minimise traffic noise and result in improved screening of views toward the freeway where possible, creating a more pleasant environment.

These walls are designed to be visually unobtrusive, often combined with landscaping to blend into the natural surroundings.

Despite the comprehensive network of paths and bridges, some fragmentation occurs due to the freeway, creating physical and visual separation between the northern and southern reserves. Underpasses and overpasses help mitigate this fragmentation, although challenges remain, particularly during peak traffic hours or for specific user groups such as cyclists and people with disability.

The design presented in this UDLP seeks to address this fragmentation where possible by improving sight lines through the placement and design of noise walls, improved accessibility at pedestrian and cycling bridges, integrated landscaping, and legible wayfinding. Where fragmentation cannot be fully addressed, particularly outside of the UDLP boundary, design interventions provide a positive collective impact that will improve the enjoyment and use of these movement corridors.

Central to the design in this UDLP is the use of landscape elements to intuitively guide users, achieved through strategically placed 'navigation nodes' at key intersections and access points.

Primary navigation nodes will direct users at key junctions or the approaches to pedestrian and cycling bridges at Eram Road, Koonung Road and Cabena Street. Marked with wayfinding signs and maps to guide users along the trail, primary navigation nodes will incorporate seating, lighting, different paving types and targeted landscaping to create moments of rest along the path before transitioning users to their next destination.

Secondary navigation nodes will be positioned where secondary paths diverge from primary ones and on the approaches to underpasses to enhance the usability of the Koonung Creek Trail. Planting and rest points will enhance navigation by providing visual cues to delineate different paths and decision points where paths split.

> **Project works will make journeys safer, more comfortable, and more memorable.**

Figure 18: Koonung Creek Trail paths and interfaces

3. Site analysis

3.4 Wurundjeri Woi-wurrung Country

The Eastern Freeway Upgrades — Tram Road to Springvale Road UDLP alignment extends across Wurundjeri Woi-wurrung lands and waters, including the Koonung Koonung. Wurundjeri Woi-wurrung peoples hold deep, ongoing connection to Country, including waterways. The cultural landscape is central to identity, ways of being, connection to ancestors and ongoing cultural practices, including ceremony.

Koonung Koonung headwaters meet near the borders of Nunawading and Donvale and flows westerly to the Birrarung. The waterway has been mapped as part of the river systems as far back as 1837 and is identified in the VicPLAN map of pre-1750's conditions. The Eastern Freeway corridor traces the historic path of the Koonung Koonung. Areas adjacent to waterways and sources are central to the Wurundjeri Woi-wurrung way of life. Prior to colonisation there was an abundance of resources throughout the landscape that provided a wide range of tools and belongings, medicinal remedies and food sources such as aquatic plants, aquatic birds, fish, eels, echidna, kangaroo, emu and bandicoot. Gullies and creek valleys were culturally burned to support land management and plant regeneration, partially to promote murnong (yam daisies). The landscape was carefully cultivated to ensure resources remained abundant throughout each season.

Since colonisation the landscape and waterway has been drastically altered to make way for farming, orchards, roads, houses and freeways. The Project presents an opportunity to revitalise and heal the Koonung Koonung and to support ongoing connections.

NELP respects ongoing connections to Country. Through ongoing partnership with WWCHAC since 2018, NELP has amplified WWCHAC aspirations for Country, community and culture throughout the planning and implementation process. WWCHAC's involvement has supported the development of practical measures while upholding connections to and honouring the value of Country.

This includes the development of the three Core Pillars for the project — Connection to Country, Caring for Country, and Connecting People. The Core Pillars support lasting legacy and embody WWCHAC aspirations while promoting sustainable designs that enhance community inclusivity. Embedding the Wurundjeri Woi-wurrung in both the governance and lifecycle of the Project supports two-way learning and is ultimately delivering richer outcomes for stakeholders and the broader community, including:

- preserving and protecting Wurundjeri Woi-wurrung living cultural heritage both tangible and intangible
- creating sustainable architecture designs that are sensitive to the environment and built to last
- re-creating a landscape that recognising the value and importance of lands and waterways
- promoting social cohesion, inclusivity, reconciliation and enhancing community wellbeing
- empowering Wurundjeri Woi-wurrung in decision-making processes in line with State commitments.

This reciprocal process will look to garner better outcomes for the Project, but more importantly, greater outcomes for all moving forward.

THREE CORE PILLARS

Connection to Country

- Vision alignment
- Key stakeholder consultation
- Connecting to Country principles co-design
- Precedent studies

Caring for Country

- Key stakeholder consultation
- Cultural sustainability
- Economic sustainability
- Environmental sustainability
- Procurement opportunities

Connecting People

- Establishing relationships and engaging with First Nations stakeholders
- Create opportunities for community events, promotion of access and community purpose

Figure 19: The Three Core Pillars

Figure 20: Historical survey of the Koonung Koonung

'The North East Link Project is proposed over areas with recognised cultural significance, including the Birrarung, the Koonung Koonung, and Wurundjeri Woi-wurrung Country more broadly in an effort to support Healthy Country, Healthy People, and Healthy Waterways. This significance is an inextricable aspect of Wurundjeri Woi-wurrung culture which the WWCHAC strives to preserve, rejuvenate, and highlight through meaningful partnerships such as that pursued by NELP.'

— Jones and Wandin 2025

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4. Project description and design response

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4. Project description and design response

This UDLP provides the design of all permanent above-ground buildings and structures associated with the North East Link Eastern Freeway Upgrades — Tram Road to Springvale Road.

4.1 Scope of works

The scope of works covered by this UDLP (and presented in Attachments 1 to 4 to this UDLP) is summarised below.

Figure 21: Proposed Eram Road pedestrian and cycling bridge design (looking west)

Figure 22: Eastbound off-ramp design at Tram Road

Figure 23: Noise wall design at Eram Road bridge interface

Roads

- Widening of the existing Eastern Freeway from near Tram Road to near Springvale Road involving widening the carriageway in both directions by adding additional lanes and widening the shoulders
- Renewal of asphalt pavements to existing carriageways, bridge pier protection works on the main carriageway, centre median works, installation of traffic barriers, gantries including for signage, managed motorway devices and intelligent transport systems, and new drainage and spill containment for accidental spill protection
- Installation of four retaining wall types with design treatments to provide a cohesive corridor wide retaining and noise wall design suite
- Targeted landscaping including reinstatement of tree canopies alongside the realigned freeway corridor and planting in road corridor reserves

Bridges

- Construction of new eastbound and westbound road bridges between Tram Road and Middleborough Road, inclusive of on- and off-ramps and the local link between Tram Road and Middleborough Road either side of the corridor
- Replacement of the existing pedestrian bridge over the freeway at Eram Road to accommodate freeway widening and improve cross-corridor connectivity for walking and cycling
- Replacement of the existing bridge over the Koonung Koonung at Eram Park to improve pedestrian and cycling access to the park
- Retention of existing pedestrian bridges over the freeway at Koonung Road and Cabena Street, including upgrades to improve the functionality, safety and accessibility for pedestrians and cyclists

Noise walls

- Provision of new, retained or upgraded noise walls along the Eastern Freeway. Approximately 5 kilometres of existing noise walls will be retained and 3.5 kilometres of new noise walls are required to be installed. The noise walls have been designed and sited to manage freeway noise to adjacent residential properties and open spaces in line with the relevant EPRs

4. Project description and design response

Figure 24: Cabena Street pedestrian and cycling bridge

Pedestrian and cycling paths

- Upgrades to pedestrian and cycling paths at sections of the Koonung Creek Trail inside the project boundary which are in disrepair, realigned or otherwise impacted by construction.
- A new gravel path connecting the Koonung Road pedestrian and cycling bridge to the footpath network
- A new gravel path at the base of the Eram Road pedestrian and cycling bridge leading to a rest area under the bridge ramp and the open grassed space of Eram Park.
- Upgrades to existing pedestrian and cycling path underpasses at Station Street, Blackburn Road and Springvale Road to enhance surface treatments, landscaping, planting and lighting to improve user experience and safety
- Provision of focused navigation nodes at key decision points and junctions along the Koonung Creek Trail to improve natural and intuitive navigation, and overall user experience

Figure 25: Landscape design at the Koonung Creek pedestrian and cycling bridge

Waterways, flooding and drainage

- Realignment of a section of the Koonung Koonung west of Middleborough Road to allow for freeway widening works will involve WSUD measures, as detailed in Attachment 2, landscaping and new riparian planting
- Broader landscaping and rehabilitation works along the creek corridor such as enhanced understorey planting and treatments to stabilise banks to improve water quality, support biodiversity and enhance amenity
- Installation of flood mitigation measures to manage and avoid flood impacts to surrounding open space and residential areas
- Installation of flood walls to protect road infrastructure and surrounding land uses from flood impacts. Where possible, these walls have been structurally integrated with noise walls and retaining walls to serve multiple purposes, reducing the overall footprint of the works

Figure 26: Junction Road Reserve

Open space

- Upgrades, improvements and refurbishment of open space areas adjacent to the freeway corridor at Eram Park and Junction Road Reserve to support a combination of passive and active recreation uses such as new pedestrian and cycling path connections and opportunities to reinforce existing qualities
- Landscaping through focused treatments at areas along the Koonung Creek Trail and open space network, creek rehabilitation, as well as new understorey planting to increase biodiversity and assist weed management
- Replacement planting of tree canopy and vegetation through the project corridor and surrounding environment to support NELP in achieving a net gain in tree canopy cover by 2045, as well as maintain at least a ratio of 2:1 for replacement of amenity trees, in compliance with requirements under EPR AR3 (refer to Section 6.2 for further detail on how the Project will meet tree canopy and revegetation requirements)

Figure 27: Overhead structures to support signage along the freeway corridor

Other

- Provision of overhead structures, gantries and electrical systems along the Freeway corridor to support road signage and intelligent transport systems
- Provision of maintenance gaps in noise and retaining walls along the road corridor for access by maintenance personnel and vehicles
- Provision of a dedicated incident response area west of Springvale Road for personnel and vehicles to respond to incidents in the freeway corridor

4. Project description and design response

4.1.1 Benefit to the community from the design presented in this UDLP

The design presented in this UDLP has been developed with consideration of the UDS, which sets out the expectations of the Victorian Government for the design outcomes required to be achieved by the North East Link Program.

The UDS ensures consistent, high-quality and context-sensitive urban design outcomes for the North East Link Program in order to deliver the scope of works while providing the maximum benefit to the communities of the project area and Victoria more broadly.

This UDLP presents the design for permanent above ground buildings and structures throughout Section 4 and demonstrates how the design meets the requirements of the UDS in Section 5.

The key benefits of the Eastern Freeway Upgrades between Tram Road and Springvale Road are summarised below.

Waterways and biodiversity

Koonung Koonung improvements

- Additional trees, shrubs and grasses will be planted along the creek at key locations between Eram Park and Junction Road Reserve. Planting native species indigenous to the local area will contribute to water health, enhance wildlife habitat, and provide more enjoyable experience for people interacting with the creek.
- The design also includes filtration basins and bio-swales, which mimic the function of natural wetlands and act to filter water running into the creek, further enhancing its habitat value for wildlife.
- A 150-metre section of the Koonung Koonung that needs to be realigned to avoid the new freeway will be landscaped to recreate a natural creek. Differing widths and depths and a combination of vegetated banks and rocky edges will provide habitat for aquatic fauna and a picturesque, easier to access area for people to view the creek on the Koonung Creek Trail.

More trees and plants

- The project will plant over 2,000 new trees and more than 1 million new plants and grasses. New plantings will be mostly native and indigenous species providing habitat and biodiversity benefits as well general amenity and views for the community.

Detail on the ways the design considers and enhances waterways and biodiversity is provided in Section 4.6.1.

Open spaces

Better connections to open space

- The new Eram Road and Koonung Creek pedestrian and cycling bridges and new and upgraded sections of Koonung Creek Trail will make it easier for people of all abilities to access Eram Park and surrounds.
- A better connection for the Koonung Creek Trail at Springvale Road will make it easier for people to access open space at Junction Road Reserve.

Better amenities

- Two new drinking fountains will be installed at Eram Park and Junction Road Reserve to improve the amenity of these spaces for park users.
- The design also has provision for new community facilities around Junction Road Reserve, such as fitness equipment or a nature-based play area, with exact plans and locations to be agreed with council.
- New landscaped 'navigation nodes' at the approaches to the new Eram Road and Koonung Creek pedestrian and cycling bridges and the retained bridges at Koonung Road and Cabena Street will include seating and landscaping with new trees and plants, providing places to stop, meet and rest.

Detail on the ways the design considers and enhances open spaces is provided in Section 4.6.2.

Movement corridors

More efficient roads

- New lanes on the Eastern Freeway, including express lanes and dedicated lanes for local traffic, will ease bottlenecks and improve travel times.
- The project will provide a seamless connection with the new North East Link, connecting Melbourne's east with the M80 Ring Road, cutting travel times by 35 minutes and taking 15,000 trucks off local roads a day.

Better walking and cycling connections

- Over 2 km of new and upgraded walking and cycling paths will be delivered along the Koonung Creek Trail and secondary pathways.
- Two new walking and cycling bridges, one over the Eastern Freeway and one over the Koonung Koonung, will make it easier to access Eram Park in Box Hill North.
- The design lowers the freeway so existing bridges at Koonung Road and Cabena Street can be kept instead of demolished and replaced. This will keep existing trees and reduce construction disruption. The bridges will be upgraded with new handrails to make them safer to use.
- A new set of stairs on the south side of the Cabena Street bridge, and a new path on the south side of the Koonung Road bridge will provide better connections to Koonung Creek Trail for pedestrians and cyclists.
- New secondary navigation nodes at the approaches to pedestrian and cycling bridges, underpasses and at-grade crossings will provide better natural wayfinding and improve path user experience. New signage will make it easier for people to find their way.
- The existing Koonung Creek Trail underpasses at Station Street, Blackburn Road and Springvale Road will be upgraded with new artistic surface treatments, landscaping, planting and lighting to make them easier and safer to use.
- The design also has provision for two new bicycle repair stations along the Koonung Creek Trail, with exact locations to be agreed with council.

New noise walls

- The Project is being designed and built to meet a stringent noise standard of 63 decibels during the day and 58 decibels at night — the most stringent traffic noise standards for a road project in Victoria.
- Over 3.5 km of new noise walls will be delivered. Designed to blend with the existing noise walls and the local environment, they will include solid recycled plastic panels and transparent acrylic panels to allow for natural light and views in key locations.

Detail on the ways the design considers and enhances movement corridors is provided in Section 4.6.3.

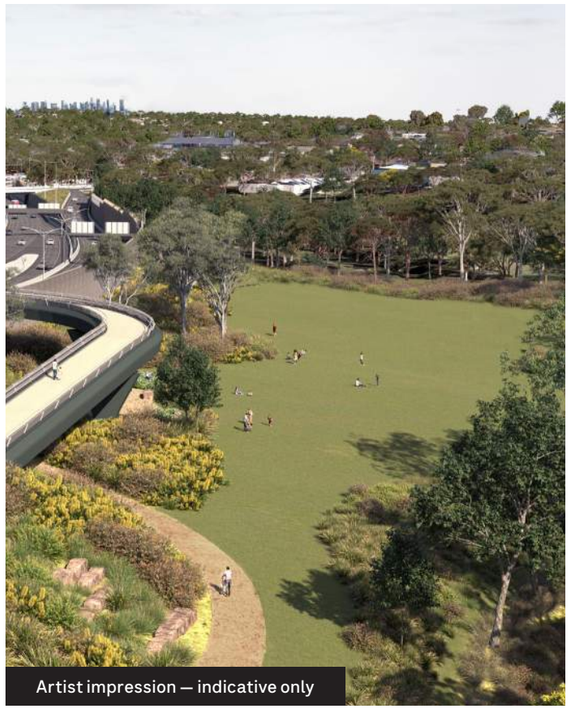


Figure 28: Open spaces and new plantings at Eram Park, Box Hill North

Figure 29: New navigation node and shared use path near Eram Road, Box Hill North

4. Project description and design response

4.2 Activities not subject to this UDLP

Clause 4.13.1 of the Incorporated Document requires a UDLP to be prepared prior to the commencement of development of permanent above-ground buildings and structures including, but not limited to, proposed bridges, elevated roads, tunnel portals, ventilation structures, flood walls, noise walls, public transport infrastructure, and pedestrian and cycling facilities; and excluding preparatory buildings and works.

Therefore, this UDLP does not address, or provide approval for, a range of temporary and below ground activities. The design, construction and operation of works associated with these activities are managed through other approvals required under the Incorporated Document and the environmental management system established under the EMF.

Activities that are not subject to this UDLP can be summarised as:

- works associated with minor utilities including sewer relocations, drainage infrastructure and electricity relocations
- internal strengthening works to existing structures that facilitate passage of the Koonung Koonung under the Eastern Freeway
- temporary construction activities such as site investigations, site establishment, bulk earthworks, contamination remediation, temporary creek realignment, temporary roadworks and staging
- installation of below-ground buildings and structures
- establishment of construction compounds.

The spatial extent of the Project's planning approval is defined by the Project Land (i.e. SC012) and, as such, this UDLP does not include (or provide approval to undertake activities on) land outside the extent of the Project Land.

In locations where the Project Land does not incorporate broader or interconnected areas such as existing parklands, waterways and pedestrian and cycling paths (e.g. Koonung Creek Trail), the Project has been designed to ensure any improvement works are integrated with the existing conditions of the land outside the Project Land, in consultation with relevant land and asset owners.

Should flood mitigation measures be required outside the Project Land, these would be subject to further planning approval to the satisfaction of Melbourne Water.

In addition to this UDLP, EPR LP5 requires the State to prepare a Public Open Space Relocation and Replacement Plan that aims to replace public open space on a 'like for like' basis across the North East Link Program.

4. Project description and design response

4.3 Design changes following the Environment Effects Statement Reference Design and other UDLPs

This section provides a summary of the design elements presented in this UDLP that are different to the EES Reference Design considered in 2019.

It also presents changes to design elements presented within the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP (where there is overlap with this UDLP).

A rigorous review of the EES Reference Design identified potential options for improved and enhanced urban design outcomes, while remaining compliant and/or aligned with the EPRs, UDS, and any relevant sections of the Minister for Planning's Assessment of the EES.

General elements of the EES Reference Design that have evolved or improved on in this UDLP include:

- retaining two key pedestrian bridges over the Eastern Freeway
- realigning the road design for key ramp structures
- rearranging noise walls near Eram Road
- moving the location of the new Eram Road pedestrian and cycling bridge
- removing portal piers from the design of road bridges
- realigning a section of the Koonung Koonung.

The design approved under the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP includes a small portion of land in the project area for this UDLP, from the limit of works that is approximately 150 metres west of Tram Road to approximately 250 metres east of Tram Road.

Key differences between the design presented in this UDLP and the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP include the alignment of noise wall design and the landscape design along adjacent pedestrian and cycling paths. These are explained further below.

Figure 30: Retained bridge at Koonung Road upgraded for better pedestrian and cycling connectivity

4. Project description and design response

4.3.1 Retaining two key pedestrian bridges over the Eastern Freeway

The EES Reference Design included demolition of existing pedestrian bridges over the Eastern Freeway at Koonung Road and Cabena Street as they would not have achieved the required vertical clearance from the new Eastern Freeway road alignment. These bridges were to be replaced with new bridges in proximity to the existing locations.

The Project's design solution has made changes to the road geometry, including lowering the level of the freeway, to ensure the bridges at Koonung Road and Cabena Street meet vertical clearance requirements and can be retained.

Figure 31 shows the proposed alignment of the replacement bridges in the EES Reference Design compared to the current positions retained as part of the design.

The design upgrades the approaches to both retained bridges with navigation nodes featuring new plantings, seating and signage. This will make it easier for the community to see and access the bridges. Improvements to handrails on the retained Koonung Road and Cabena Street bridges will also be undertaken to provide greater safety for users.

The pedestrian and cycling paths in the approaches, and the bridges themselves will also be upgraded with new artistic surface treatments to be developed in consultation with WWCHAC.

Benefits of improved design solution

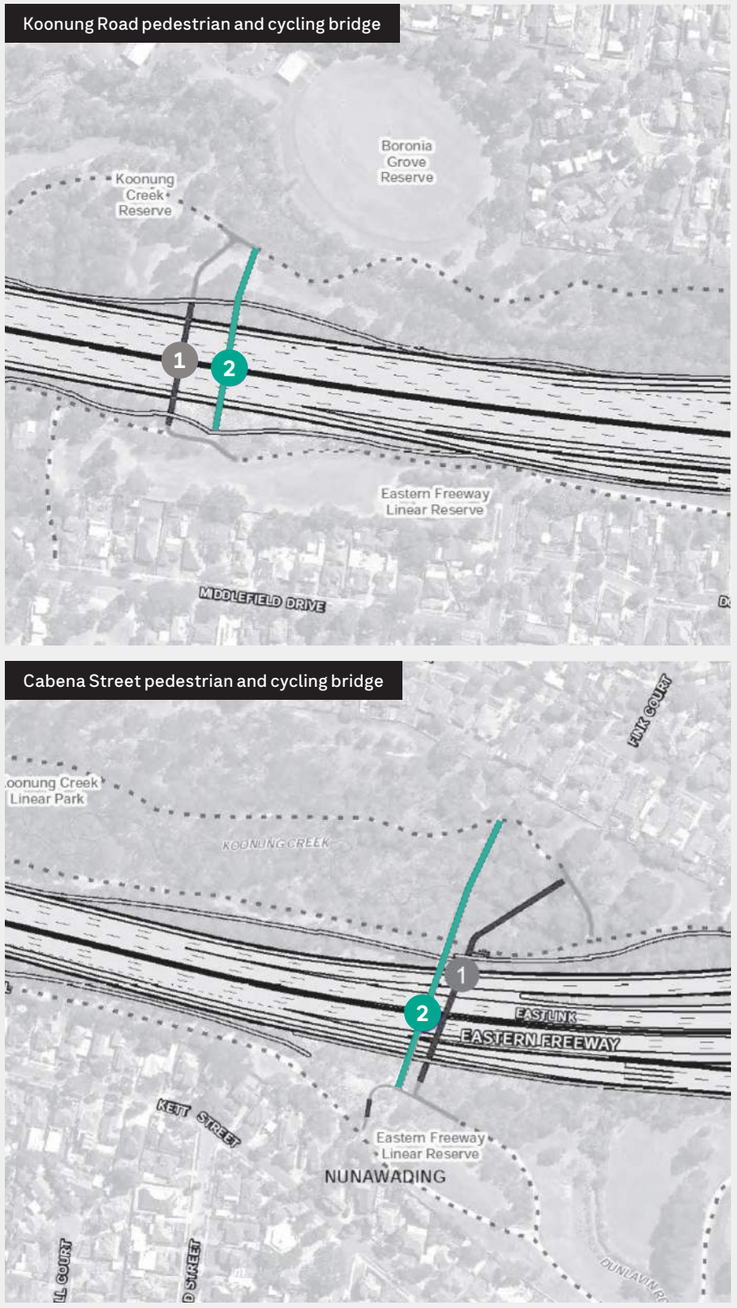
The change benefits the communities around Koonung Road and Cabena Street by:

- avoiding the loss of two existing bridges constructed in the 1990s, which are highly valued for their design merit, elegant simplicity and structural integrity
- providing better access and wayfinding around the existing bridges, making them more inviting and easier to use for pedestrians and cyclists of all abilities
- reducing traffic impacts to the Eastern Freeway during construction by removing the need for lane closures to install new bridge structures
- reducing active transport impacts during project delivery by minimising the need to detour Koonung Creek Trail users
- minimising the removal of vegetation and impacts to pedestrian and cycling paths at the open space areas where construction would have occurred to install new bridges
- aligning with the UDS vision of minimising the project footprint, acknowledging and valuing the identity of local places, and protecting the physical and visual amenity of the local community
- supporting project requirements relating to sustainability and waste reduction.

This design change is consistent with UDS requirements 1A of Map K5 and 1A of Map K6, both of which were amended to require upgrades to the existing Koonung Road and Cabena Street pedestrian bridges.

Retention of the two bridges is an outcome that is supported by DTP as the asset owner and UDAP, as it preserves both the function and aesthetic designs of the structures.

Details on how compliance with the two UDS requirements, including details on connectivity and wayfinding legibility, are provided in Section 5.4.



1. EES Reference Design: proposed pedestrian and cycling bridge location
2. UDLP Design solution: retained pedestrian and cycling bridge location

Figure 31: Removal and retention design comparison of the Koonung Road (top) and Cabena Street (bottom) pedestrian bridges

4. Project description and design response

4.3.2 New arrangement of eastbound and westbound bridges between Tram Road and Middleborough Road

The EES Reference Design proposed a road alignment that included an arrangement of bridges and ramps between Tram Road and Middleborough Road to direct traffic entering and exiting the Eastern Freeway. Dedicated lanes for local trips between Tram Road and Middleborough Road were also provided to avoid the need for these trips to merge onto the freeway. The additional traffic lanes and relocated entry and exit ramps require widening of the freeway corridor and permanent use of open space to the north and south of the freeway.

This UDLP design solution optimises the arrangement by reconfiguring the layout and connections of the on- and off-ramps and local trip lanes, specifically:

- The positions of the eastbound Tram Road on-ramp and the eastbound direct (local trip) connection between Tram Road and Middleborough Road are swapped, repositioning the on-ramp to the north and the direct connection to the south. The direct connection will merge from the Tram Road on-ramp approximately 170 metres further east.
- The merge point of the westbound direct (local trip) connection between Middleborough Road and Tram Road is repositioned to be after the Middleborough Road on-ramp bridge structure as opposed to before.

The revised layout will reduce complexity for road users with a simpler lane configuration and provides more space in the road corridor for plantings. Directional signage will be installed in accordance with the UDS to ensure motorists are aware and familiar with the new corridor layout and incoming lane changes (UDS Detailed Requirement 19. Road signage).

The change from the EES Reference Design also brings the Project further in accordance with the UDS by reducing negative impacts on the community and the environment through minimising the project footprint and visual bulk (UDS Objective 3.4 — Minimise footprint).

The change allows a minor reduction to the permanent widening of the future freeway corridor to the north at Eram Park (west of the new Eram Road pedestrian and cycling bridge) and to the south at the eastern end of Eram Road (allowing for the improved shared use path arrangement described in section 4.3.3).

The arrangement of lanes and changed pier designs (refer section 4.3.5) reduce the visual bulk of structures for road users, park users and residents. Where the footprint could not be reduced, the design has used the existing road reserve for expansion so far as is possible.

Benefits of the revised arrangement when compared to the EES Reference Design are outlined below. Figure 32 and Figure 33 illustrate the changed lane arrangements between the EES Reference Design and the design solution presented in this UDLP.

Eastbound bridge — Tram Road on-ramp and direct connection between Tram Road and Middleborough Road

Benefits of improved design solution:

- Avoided requirement for a bridge structure for the Tram Road on-ramp, resulting in reduced visual impacts for residents and park users beyond the freeway corridor by removing retaining walls and other visually bulky elements.
- Simplified construction methodology and reduced maintenance, reducing overall carbon emissions by 4% and fuel use by 185 kilolitres when compared to the EES Reference Design.

Encroachment into Eram Park:

- The project requires permanent widening of the freeway into Eram Park as identified in the EES Reference Design, which reduces public open space available for community use at Eram Park.
- The Project has achieved a minor reduction to the overall footprint when compared to the EES Reference Design, which comprises:
  - Reduction in encroachment to the western end of Eram Park towards Tram Road, increasing the amount of green space returned in this area.
  - Small increase in the encroachment east of the Eram Road pedestrian and cycling bridge. This reduces the public open space in this area and limits the offset between the realigned creek and new built infrastructure.'.

Westbound bridge — direct connection between Middleborough Road and Tram Road along the Middleborough Road on-ramp

Benefits of improved design solution:

- Reduced footprint, resulting in fewer impacts to residential areas at Eram Road and avoiding significant realignment of the Koonung Creek Trail.
- Simplified bridge structure from a 160-metre-long, five-span bridge to a 39-metre-long, single-span bridge, reducing the land required for the bridge and the amount of materials required for construction.
- Increased opportunities for landscaping and corridor lighting in road reserves that would otherwise be required to deliver the 160-metre-long bridge under the EES Reference Design.
- Simplified construction methodology for the Middleborough Road on-ramp, allowing works to occur with fewer impacts to traffic on the existing freeway.

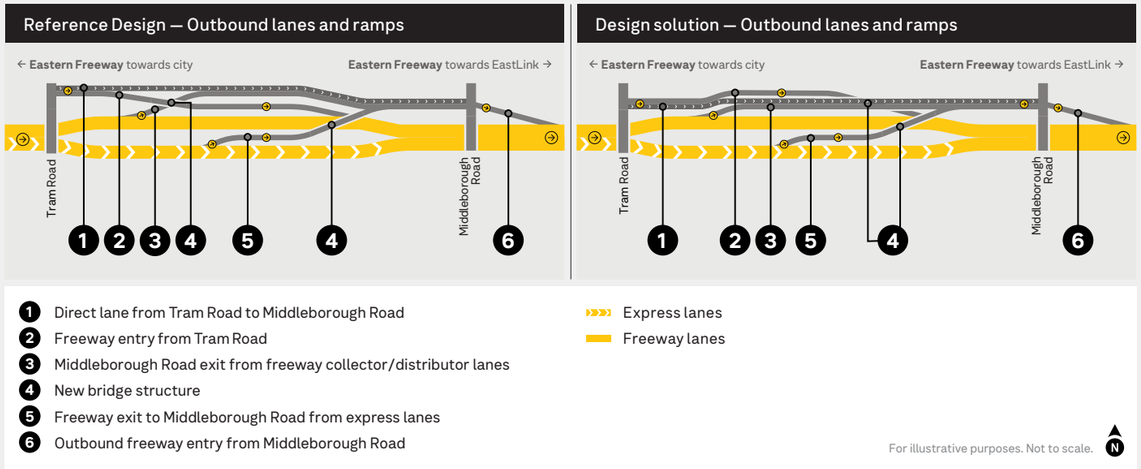


Figure 32: Schematic diagram of change since EES Reference Design - outbound

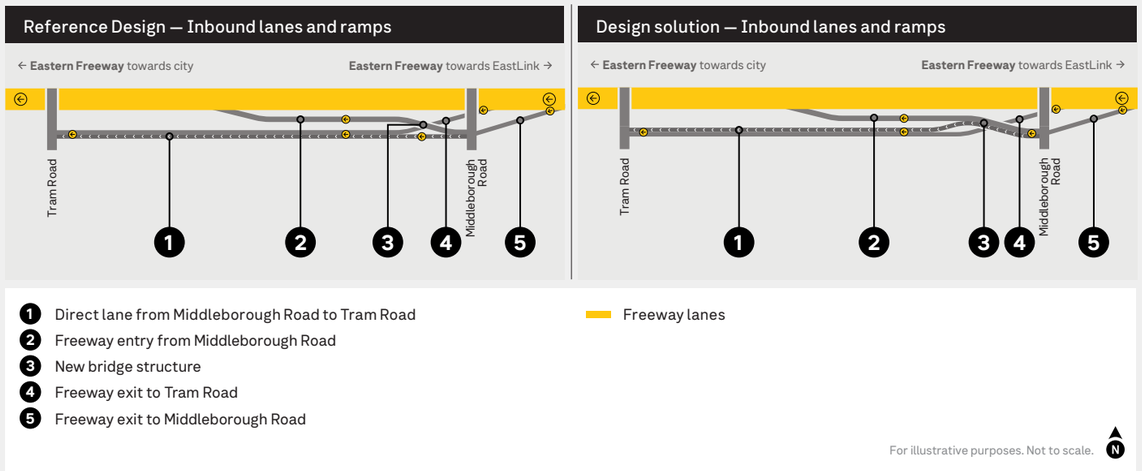


Figure 33: Schematic diagram of change since EES Reference Design - inbound

4. Project description and design response

4.3.3 Improved noise wall arrangements as a result of revised lane design

> The revised freeway design between Tram Road and Middleborough Road allowed the project team to address community feedback on the EES Reference Design and improve the arrangement of the new noise walls and upgraded Koonung Creek Trail south of the freeway.

The design places the noise walls further from residential property boundaries in this area. In the vicinity of Eram Road, noise walls are rearranged so that the Koonung Creek Trail is aligned between property boundaries and the noise walls, as shown in Figure 34.

Benefits of improved design solution:

- Improved amenity for residents and path users
- Minimises overshadowing impacts to secluded private open space
- Provides an improved visual outcome for residents
- A better path user experience through greater separation from the freeway.

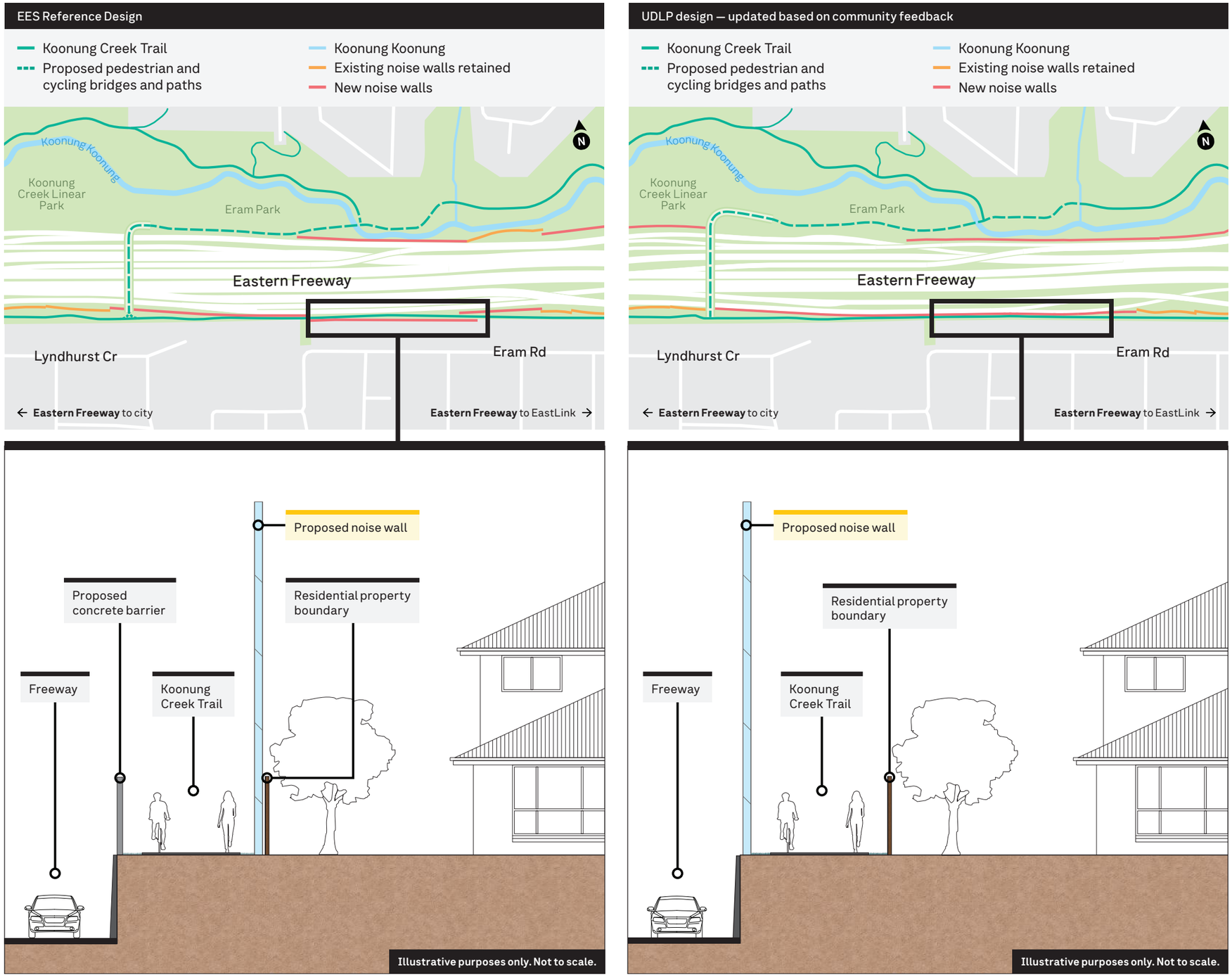


Figure 34: UDLP design places noise walls further away from residential property boundaries south of the freeway near Eram Road

4. Project description and design response

4.3.4 New Eram Road pedestrian and cycling bridge location for better connectivity and improved landscaping

The revised lane arrangement between Tram and Middleborough Roads reduces the amount of space required in Eram Park for the widening of the freeway.

The revised arrangement also allows the design to shift the Eram Road pedestrian and cycling bridge west of the location proposed in the EES Reference Design.

Benefits of improved design solution:

This allows for better wayfinding and access and creates more space for the inclusion of a 'navigation node' at the southern access to the bridge with seating, landscaping and signage.

The navigation node creates a creating a wider, more visible and safer interface that, with the use of transparent acrylic panels in noise walls, will be visible from a distance to the east and the west.

On the northern side, the revised location and bridge design provides more space for plants and passive recreation areas underneath the access ramp and better integration with Eram Park and the existing path network.

The design also provides an additional informal path at the base of the new bridge access ramp leading to the grassed open space of Eram Park

An assessment of the impacts of location change on the walkability of the area was undertaken as shown in Figure 35. The assessment shows that that the existing location provides greater penetration to the southeast. The reference design location and that presented in the UDLP are more similar, especially when considering the 800 m and 1200 m assessments, and both provide better connectivity to the west and southwest than the existing location.

Considering the new bridge provides greater accessibility for pedestrians and cyclists, is wider and incorporates improved safety barriers and lighting, the overall accessibility and connectivity is considered to be equal to or better than that currently provided.

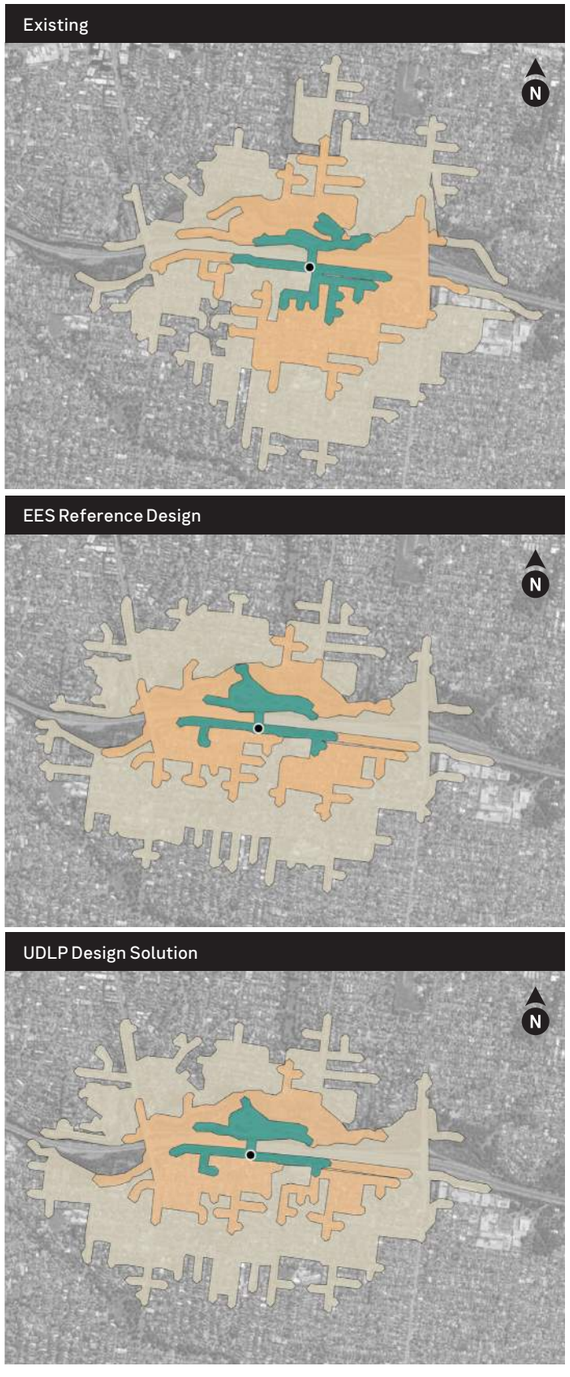


Figure 35: Walkability assessment of Eram Road pedestrian and cycling bridge locations

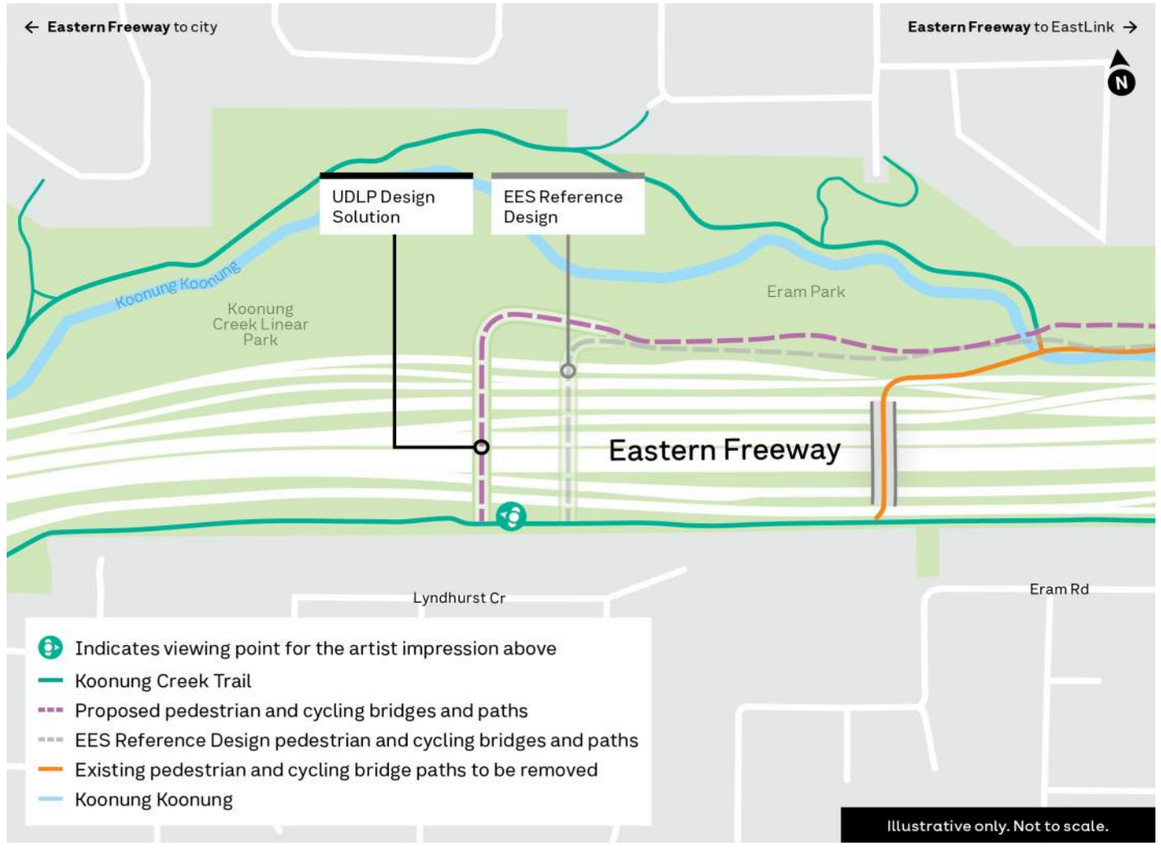


Figure 36: Location of new Eram Road pedestrian and cycling bridge compared to EES Reference Design

4. Project description and design response

4.3.5 Removal of portal piers

The design for the freeway ramp structures differs from the EES Reference Design by removing the use of portal piers at both new ramps between Tram Road and Middleborough Road and instead adopting piers with cantilevering cross heads for the outbound bridge structure and a skewed, single-span structure for the inbound bridge.

Benefits of improved design solution:

- Reduced visual bulk of the structure
- Improved visibility for drivers
- Reduced unused space beneath the bridge spans where litter could accumulate.

Figure 38 provides an artist impression of the design solution using cantilevered cross head structures, which corresponds to the structural drawings at Figure 39.

Figure 37 shows an example of a portal pier which is superseded by the cantilevered cross head structure design proposed in this UDLP.

Figure 37: Example of portal piers at Tullamarine Freeway — Mickleham Road interchange inbound entry ramp

Figure 38: Example of a revised pier design at Tram Road

Figure 39: Designs of new pier types for bridge structures

4. Project description and design response

4.3.6 New realignment of the Koonung Koonung and the Koonung Creek Trail

The UDLP design realigns a section of the Koonung Koonung in Eram Park to facilitate widening of the freeway. The EES Reference Design acknowledged that this section of the creek would be impacted but did not present a realignment design.

The UDS indicated the creek might be realigned to avoid undergrounding in this location but did not provide detail. It underlined the importance of maintaining natural light on waterway health in detailed requirement 18.3 Daylighting waterways.

In keeping with UDS detailed requirement 18.3 Daylighting waterways, the UDLP design avoids this section of the creek being underneath the new road. This decision has a positive influence on the ecological and habitat value of the creek, as well as the social use of the surrounding area.

This change, and the UDLP design for the realigned section of the Koonung Koonung, was developed in consultation with the Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation and Melbourne Water, balancing technical, amenity and environmental considerations.

The realigned creek section will include native plantings as shown in Attachment 2, drawing NEL-EST-NEA-6600-ULS-DRG-2373, creating a natural environment that provides habitat for a range of native species.

Benefits of improved design solution:

- Increased natural light reaching the creek and additional space for localised widening and deepening, which improves water flow and supports healthier ecosystems providing better in stream habitat for insects, fish and amphibian species
- A combination of soft, vegetated edges and rocky banks provide stability, protection against erosion and a varied habitat for different types of aquatic fauna
- Enhanced durability through relocation of the creek bank behind a protective flood wall, protecting against debris build-up, water flow erosion, and other potential damage from storm events
- Increased opportunities for landscaping, making the area more visually appealing and enhancing public interaction with the creek through defined public spaces and recreational areas
- Eliminated conflicts with planned power line relocations and the requirement for the Koonung Creek Trail to run between proposed power poles, providing a more enjoyable experience
- Enhanced safety and accessibility, providing a pedestrian and cycling path that is fully compliant with relevant standards and seamlessly connects to the existing pathway network to the north-west, improving overall connectivity
- Simplified landscaping and maintenance due to slopes (batters) surrounding the creek and path being designed to align with the surrounding vegetation, making them easier to plant and mow.

In addition to the realignment, works are required to manage the risk of flooding along the Koonung Koonung. This includes works to limit flow thresholds at a location upstream of Tram Road. The design of any flood mitigation structures will be undertaken to the satisfaction of Melbourne Water under EPR SW6.

The existing Koonung Creek Trail at this location is also realigned further north in comparison to the EES Reference Design to accommodate the new creek alignment.

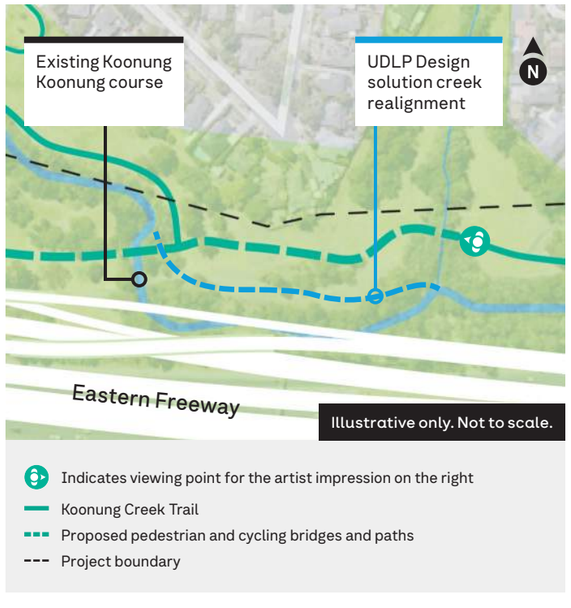


Figure 40: Koonung Koonung realignment design revision

Figure 41: Realigned Koonung Koonung and new pedestrian and cycling bridge to Eram Park

4. Project description and design response

4.4 Differences to Eastern Freeway Upgrades — Burke Road to Tram Road UDLP

The approved Eastern Freeway Upgrades — Burke Road to Tram Road UDLP includes elements in the area covered by this UDLP from approximately 150 metres west to 250 metres east of Tram Road.

The design presented in this UDLP considers the Burke Road to Tram Road UDLP to create a consistent experience for road users while providing distinct urban design characters for the communities living or using the spaces adjacent to the upgraded freeway.

As outlined at Section 1.4.1, this UDLP will (if approved) replace the approval provided by the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP for works associated with the Tram Road to Springvale Road section.

The design presented in this UDLP remains largely consistent with the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP for key features such as the freeway road alignment, the number of traffic lanes and the Tram Road bridge.

However, design development for this UDLP has resulted in a small number of key design differences between this UDLP and the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP. The differences, and the rationale for each difference, are described below.

4.4.1 Noise wall and retaining wall design

The design for the Eastern Freeway Upgrades — Tram Road to Springvale Road, and associated noise modelling, has resulted in differences to the proposed alignment of new noise walls west of Tram Road presented in the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP, following its approval by the Minister for Planning in September 2024.

The Eastern Freeway Upgrades — Burke Road to Tram Road UDLP proposed new noise walls directly north and south of the Eastern Freeway to a height of eight metres. The height of noise walls proposed under this UDLP is nine to 10 metres on the south side of the freeway and nine metres on the north side.

The alignment of the noise wall and retaining wall north of the Eastern Freeway remains consistent with the Eastern Freeway Upgrades —Burke Road to Tram Road UDLP, while the noise wall alignment on the south side is further offset from the Eastern Freeway towards the existing Frank Sedgman Reserve.

The noise wall has been adjusted as part of design development to follow the topography of the site and now runs along an existing embankment which represents the boundary between the road reserve and the public open space.

The noise wall is substantially constructed in road reserve land and follows an existing fence line, meaning there is no impact on the usable public open space.

A section of retaining wall that is absent in the Eastern Freeway Upgrades - Burke Road to Tram Road UDLP is included south of the Eastern Freeway at the Tram Road bridge.

The design of noise walls and retaining walls in this interface area will utilise the same architectural concept, materials, colours and patterns as the noise walls being delivered by the Eastern Freeway Upgrades — Burke Road to Tram Road, shown in Attachment 1 (drawing no. NEL-EST-NEA-6600-UUD-DRG-DET-1504) to ensure consistency up until the Tram Road bridge. New noise walls and retaining walls east of Tram Road will utilise the design articulated in Attachment 1 (drawing nos. NEL-EST-NEA-6600-UUD-DRG-DET-1500 to 1503 and NEL-EST-NEA-6600-UUD-DRG-DET-1600 and 1601).

This noise wall design ensures operation of the Eastern Freeway meets traffic noise requirements outlined in the EPRs.

4.4.2 Tree canopy removal

The Eastern Freeway Upgrades — Burke Road to Tram Road UDLP indicated that existing tree canopy on the north side of the Eastern Freeway adjacent to the property boundary of the Applewood Retirement Village would not be subject to removal.

As a result of detailed construction planning, it has been determined that this vegetation will require removal.

Canopy on the south side of the Eastern Freeway in Frank Sedgman Reserve identified for removal in the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP will be removed to facilitate freeway widening works and to install new noise walls.

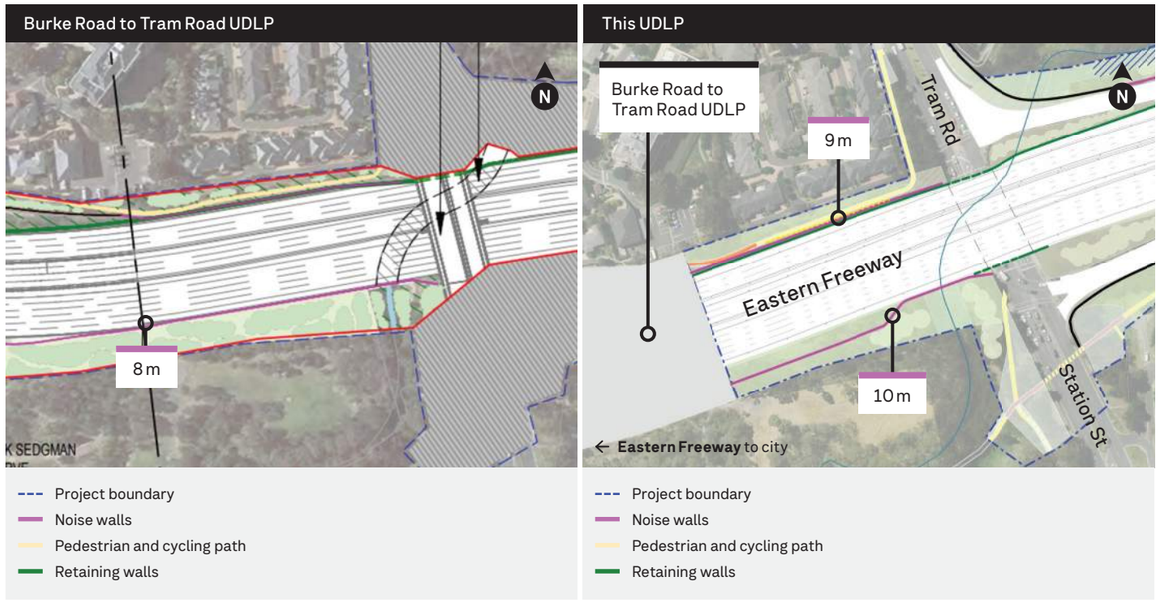


Figure 42: Noise wall design in Eastern Freeway Upgrades — Burke Road to Tram Road UDLP and this UDLP

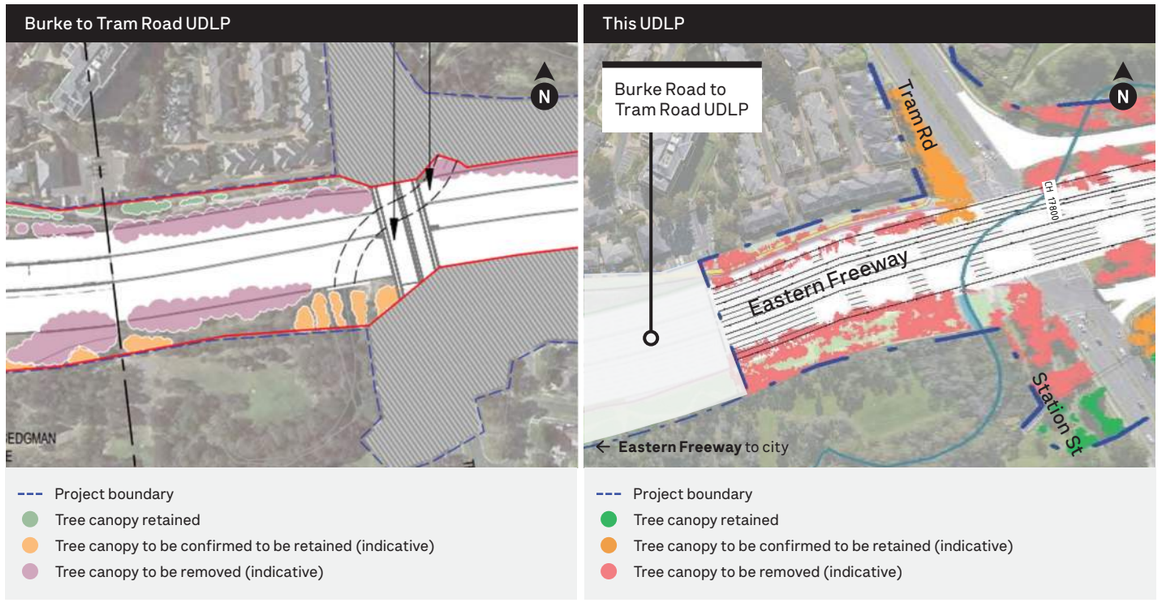


Figure 43: Tree canopy removal plan in Eastern Freeway Upgrades — Burke Road to Tram Road UDLP and this UDLP

4. Project description and design response

4.5 Design approach and response

4.5.1 Overview

The design response presented in this UDLP builds on the work already undertaken by MRPV, in partnership with WWCHAC and in consultation with key stakeholders such as DTP, DEECA, local councils and Melbourne Water to establish the overall urban design vision and framework for the North East Link Program.

This section outlines the approach to using this overarching framework, as well as the understanding of the landscape character area and the particular site characteristics, to inform the design approach and response.

The UDS outlines the expectations of what the design should achieve to ensure consistent, high-quality and context-sensitive urban design outcomes. In addition to the UDS, three core pillars have been established in partnership with WWCHAC — Connection to Country, Caring for Country, and Connecting People.

The design approved through other UDLPs has also played an important role in shaping the design outcomes ensuring a consistent design language and user experience across the North East Link Program. This alignment spans all design elements, with some replicating other UDLPs, such as barrier parapet reliefs, while others are inspired by it, like retaining walls incorporating cultural practice references, noise walls with colours from Country and culture, and bridge forms consistent with initial bridge concepts related to traditional travel paths, migration and place-specific cultural design responses. The designs of other UDLPs also serve as a guide for 'furniture and fixing' elements in the landscape, ensuring a cohesive visual and functional integration throughout the project.

4.5.2 Approach

To develop the design response the EES Reference Design was revisited and assessed in the context of the UDS and the three core pillars prepared by NELP in partnership with WWCHAC. Desired outcomes established an overarching tone, while key design directions enabled ongoing validation of the design approach. Developing the design to respond to existing conditions, the Project focused on key principles and requirements specific to the Koonung Creek Valley landscape area, emphasising three key landscape features: waterways and biodiversity, open space, traditional navigation practices and movement corridors.

Figure 44 illustrates the approach taken to understand how the overarching urban design framework and key design inputs are translated into the four key drivers of the design, ultimately culminating in the design solution.

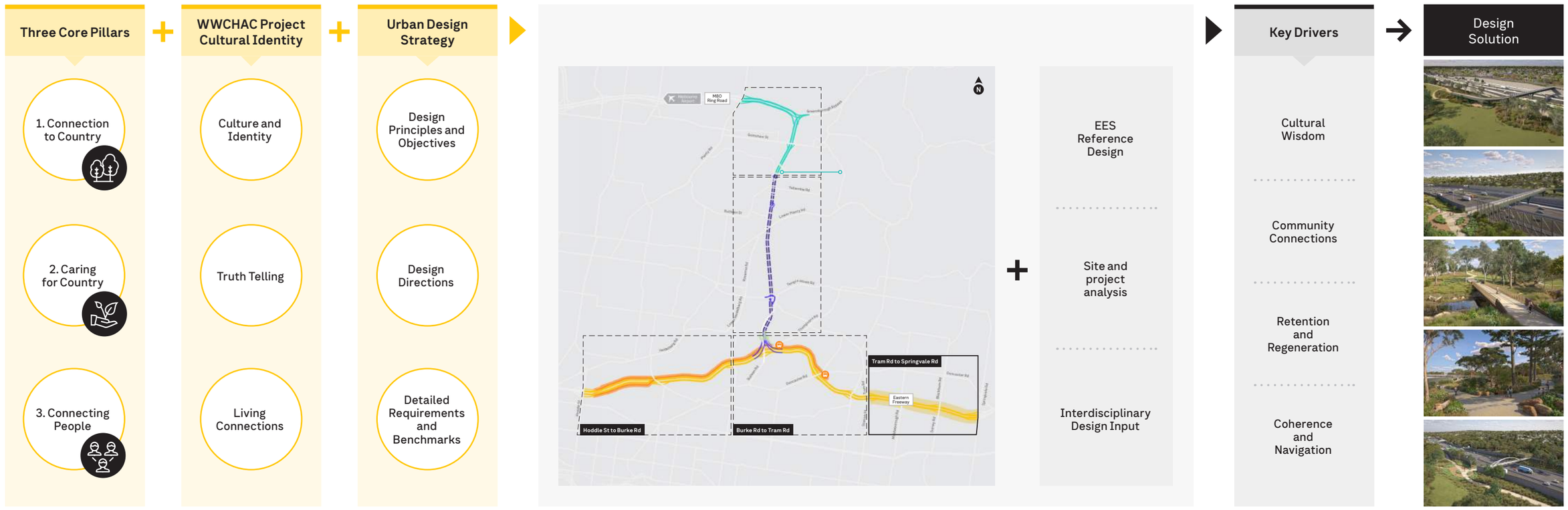


Figure 44: Eastern Freeway Upgrades — Tram Road to Springvale Road UDLP design process

4. Project description and design response

4.5.3 Response

The Eastern Freeway corridor traces the historic path of the Koonung Koonung, a tributary of the Birrarung. All waterways hold strong cultural significance to the local landscape and tell an important function of the area's past, as well as defining its future cultural connectivity, resilience and ecology.

With this in mind, the overarching design approach speaks to the fundamental belief that water is life, echoing the Wurundjeri Woi-wurrung people's interconnection with water as a cultural foundation, sustainer of life, and vital resource that reflects the health of both Country and community. Also identified as a key cultural theme through NELP's early engagement with WWCHAC, this Country-centred approach aligns project objectives with Wurundjeri Woi-wurrung cultural wisdom. This is also aligned with UDS Key Direction 3.

The experience along the Koonung Koonung reflects water's living presence in different expressions: flowing waters of movement and connection and gathering waters of reflection and sustenance. Through this understanding, architectural concepts have been developed as 'connecting spaces' of movement and direction, such as pedestrian and cycling bridges across the freeway, and 'gathering spaces' of pause and reflection, such as the landscaped navigation node adjacent to Eram Park. Beyond the creek itself, the design solution transitions and interconnects the freeway's design with the Koonung Creek Valley landscape character area.

A holistic approach ensures a cohesive and harmonious design that respects the natural landscape, honours the cultural landscape and ongoing connections to Country and enhances the overall experience for users of the Eastern Freeway corridor, while ensuring consistency in design elements approved under the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP, such as noise wall treatments and landscaping design.

The urban design and landscape solution has been developed through a multi-disciplinary approach that integrates with the engineering design and constraints to ensure the proposed outcomes not only meet the urban design requirements, but are constructible and optimal for project success.

A direct example of this is the design of the Eram Road pedestrian and cycling bridge that intertwines the architectural and structural solution mitigating the need for cladding and additional framing.

Drawing on the EES Reference Design, UDS and the design of other approved UDLPs, the Project developed four urban design key drivers expressed in this UDLP:

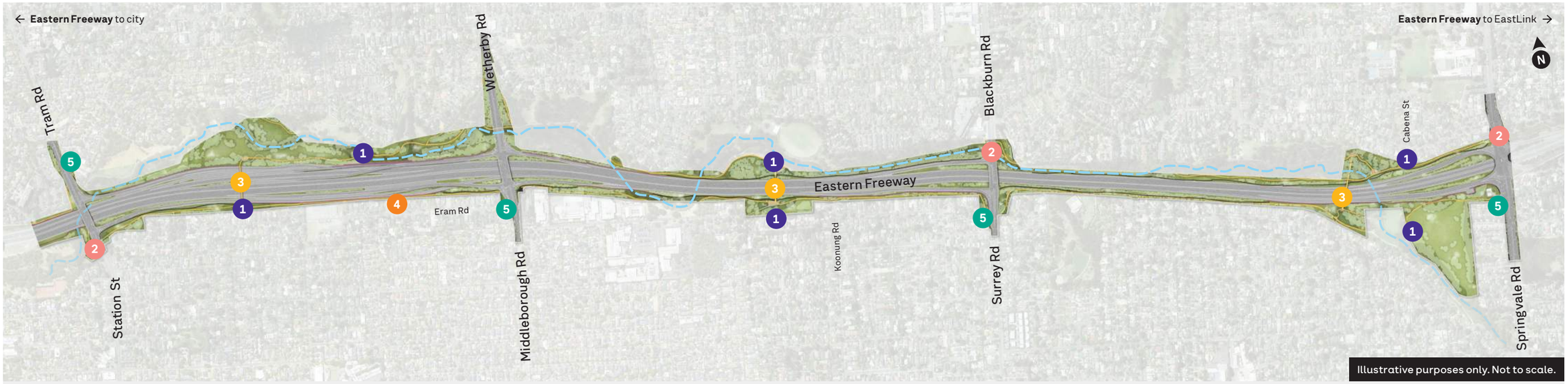
1. **Promoting place-specific cultural wisdom**
2. **Facilitating community connections**
3. **Promoting retention and regeneration wherever possible**
4. **Ensuring coherent experiences along the corridor**

Each of the key drivers align with the three core pillars, WWCHAC Project Cultural Identity and the UDS key directions.

Through these drivers, the design aims to improve the road corridor, while retaining and enhancing the existing function of the broader public realm. With a primary focus on engaging people both inside and outside of the road corridor with the environment, the design transitions users into an immersive cultural experience while creating greater visibility to the Koonung Koonung and integrating narratives across all elements.

Following establishment of the four key drivers, these were then applied to the design inputs and baseline assessments to identify how these would be translated into specific design treatments and outcomes across the UDLP area — taking into account ongoing feedback from key stakeholders.

This process also involved detailed review of how these treatments could be applied at a more granular, place-specific level in the three landscape character areas described in Section 3.2 to ensure the benefits of interventions were not siloed to a single key landscape feature. The design interventions for the three landscape character areas are detailed later in this section.



1. Spatial design, species selection, planting design, co-design and interpretive signage at pedestrian and cycling bridge primary navigation nodes (six locations with three possible narratives)
2. Integration of lighting and surface artwork at underpass secondary navigation nodes (three locations)
3. Lighting and artistic surface treatments to pedestrian and cycling bridges and integration of artwork to the new Eram Road pedestrian and cycling bridge throw screen mesh
4. Integration of surface artwork at narrow areas of pedestrian and cycling path along the southern secondary route
5. Species selection and planting design at the at-grade road crossing secondary navigation nodes (four locations)

Figure 45: Co-design opportunities and sites along the project alignment

4. Project description and design response

4.5.4 Embedding Wurundjeri Woi-wurrung wisdom and values

The design presented in this UDLP has considered Wurundjeri Woi-wurrung wisdom aspirations for Country, community and culture articulated through the work previously undertaken between NELP and WWCHAC, and recent engagement sessions.

The Project acknowledges it is early in the process of engagement with WWCHAC and recognises that this ongoing engagement will continue to develop the opportunities to embed Wurundjeri Woi-wurrung wisdom and aspirations in the design.

The three core pillars are an integral tool to help shape design in way that aligns with Wurundjeri Woi-wurrung aspirations for Country, community and culture.

Opportunities and examples of how the design response aligns with each key pillar is provided below, noting that these will be updated as the design is developed in partnership with WWCHAC.

Figure 45 (previous page) outlines aspects of the Project that may present opportunities to embed Wurundjeri Woi-wurrung wisdom into the architectural and landscape design. The list of opportunities will be further developed in partnership with WWCHAC throughout the project lifecycle and reflected through updates to this UDLP.

Connection to Country

‘The story of Wurundjeri Woi-wurrung Country is eternal and is borne of each one of us, our Ancestors, and our future. We encourage all efforts, including those of NELP, to revitalise Country and Culture with the continuation of these stories.’

– Jones and Wandin 2025

Design response: The UDLP embodies this core pillar through an approach to open space that enhances and complements the natural environment.

Connection to Country is achieved by responding to the different aspects of living Country across the Project area through integrating cultural wisdom shared by Wurundjeri Woi-wurrung Elders. This integration is expressed through:

- form and spatial arrangements that reflect cultural understanding
- materials that connect to Country and acknowledge place
- cultural practices embedded in the design experience.

The design includes interpretive elements that serve as both practical wayfinding and as cultural pedagogy, helping inform visitors about the living Country they are experiencing and its ongoing significance. These elements will be finalised the ongoing consultation with WWCHAC through detailed design development.

Caring for Country

‘The health of Country, and its enjoyment by others, is reliant on our ongoing protection and replenishment of it. The Wurundjeri Woi-wurrung have lived on Country, maintained it, and respected it for generations. Cooperative efforts are the only way for Country and Culture to flow on to future Australians.’

– Jones and Wandin 2025

Design response: The UDLP honours this core pillar by approaching design as an act of healing and restoration.

The design approach reduces permanent encroachment to the western end of Eram Park towards Tram Road, while preserving existing pedestrian and cycling connections, but goes further by actively regenerating habitats and waterway health.

The design incorporates traditional ecological knowledge through indigenous plantings that support biodiversity, water-sensitive urban design that respects the natural flow of water, and healing interventions where Country has been disturbed.

The design supports the continuation of cultural practices that maintain reciprocal relationships between people and Country. This reflects an understanding that the health of Country and community are inseparable.

Connecting People

NEL connects people. It connects people to economic opportunity, relieving the congestion burden of north-east Melbourne and making it faster and easier to travel for work, business, education and leisure. NEL also offers opportunities to bring people together.

Design response: The UDLP honours this core pillar by recognising that Country itself provides powerful opportunities for connection between people.

The collaborative approach with DEECA, Whitehorse City Council and WWCHAC which is ongoing through design development creates spaces that enable community members to experience cultural knowledge through sensory engagement with the landscape.

Junction Road Reserve has been identified as a priority site where the design facilitates gathering and sharing on Country. Understorey planting and new trees will enhance existing native vegetation and topographical features will create areas of visual interest that encourage people to gather.

By centring traditional practices of gathering and knowledge-sharing, the design supports community cohesion through shared experiences of place, stories and seasonal changes.

This approach acknowledges that connecting with Country inherently connects people to each other, creating meaningful relationships across diverse community members.

4. Project description and design response

4.5.5 Sustainability

The North East Link Program has established a set of sustainability objectives and targets which represent commitments and performance expectations for the Project. These objectives and targets have been developed around six key sustainability themes: leadership, resource efficiency, urban ecosystems, communities, economic opportunities, and climate change. Opportunities and examples of how the design response supports the themes is provided below.

Leadership

Achieve excellent environmental, social and economic outcomes across all phases of NEL

Design response: The North East Link Program has adopted a comprehensive rating scheme, the Infrastructure Sustainability Council's IS Rating Tool v2.1, to effectively measure sustainability performance.

This tool independently verifies and certifies that the Project has been designed and built to best-practice industry standards and that it delivers measurable cultural, governance, social, environmental, and economic benefits.

The landscape and urban design approach for the Project will be assessed under the tool's Pla-2 Urban and Landscape Design credit.

Resource efficiency

Embed energy, water, material and waste reduction initiatives into the design, construction and operation of the Project

Design response: The design has limited the energy, water, materials, and waste across the project lifecycle through various initiatives.

The Project has avoided resource use by retaining existing assets where possible, such as the two pedestrian bridges at Koonung Road and Cabena Street.

Design optimisation has enabled reductions in material demands, with continuous efforts underway including exploring soil and tree reuse on site.

Materials like concrete, asphalt and steel are chosen to reduce the lifecycle impacts. Measures like reducing the amount of Portland Cement content in concrete, maximising the use of recycled asphalt pavement and using moulded rotationally plastic panels (MRPP) with recycled content for noise walls enhance resource efficiency.

Additionally, initiatives to reduce water use and maximise reuse are being proposed, as are initiatives to reduce spoil quantities and maximise the beneficial reuse of uncontaminated spoil.

Urban ecosystems

Protecting and seeking opportunities to enhance natural environments

Design response: The design approach acknowledges that caring for Country is a cultural obligation and responsibility, not just an environmental consideration. By incorporating Wurundjeri Woi-wurrung wisdom into ecological restoration practices, the Project respects traditional methods of caring for waterways and Country.

To protect and enhance biodiversity along the Koonung Koonung, the Project focuses on the regeneration and enhancement of habitats to create varied conditions. This includes ecological restoration efforts such as infill understorey planting and buffer planting.

Furthermore, a mitigation hierarchy strategy seeks to avoid, mitigate, and offset tree removal, minimising the number of trees removed and integrating new ones wherever possible and in line with the broader open space and ecological restoration design. A timber reuse strategy is to be developed in line with project requirements, exploring suitability of any lopped trees for furniture or landscape elements and importantly ecological logs and woody debris as part of the ecological restoration.

Communities

Making a positive contribution to social, cultural and community wellbeing

Design response: The integration of cultural wisdom at key locations like the new Eram Road pedestrian and cycling bridge allows community members to engage with and learn from these ongoing relationships to Country. This approach recognises that environmental restoration is most effective when it draws on thousands of years of traditional ecological knowledge that understands the interconnected nature of plants, animals, waterways and people. The collaborative process with WWCHAC ensures that cultural protocols are respected throughout, supporting intergenerational knowledge transfer and strengthening community understanding of how caring for Country benefits all.

Improvements to the Junction Road Reserve will be explored such as enhancing native plantings through understorey planting with multi-tiered vegetation layers, improving canopy coverage through additional tree planting, and reuse of site fill to create areas of topographical interest and passive recreation. This requires further consultation with Whitehorse City Council, WWCHAC, and adjacent communities during detailed design development.

Economic opportunities

Facilitating opportunities for economic development, provide a skilled local workforce and promote diversity and inclusion

Design response: The Project will implement social and sustainable procurement practices that deliver on relevant legislative and policy frameworks, including Victoria's Social Procurement Framework.

The Project is investigating opportunities to engage local businesses including social enterprises and Aboriginal businesses. Further, the Project will promote sustainability awareness among staff and subcontractors.

Climate change

Playing a part in Victoria achieving its emission reduction targets while preparing for the challenges presented by climate change

Design response: The Project will implement a climate resilience plan which addresses high and extreme climate change risks.

The UDLP design includes mitigation measures such as increasing tree canopy coverage at key locations to reduce urban heat island effect by shading hardscaped surfaces including pedestrian and cycling paths and rest spots.

Additionally, opportunities for permeable pavements like gravel rather than concrete are proposed for secondary paths to minimise stormwater runoff, manage flooding, and replenish groundwater.

Flood modelling and the design of flood mitigation measures includes consideration of climate change rainfall events to ensure the project responds to current and future climate scenarios.

4. Project description and design response

Figure 46: View towards Eram Road pedestrian and cycling bridge

Figure 47: Landscaped navigation node at the approach to the Cabena Street pedestrian and cycling bridge

4.6 Identified opportunities and design interventions

The following section details the identified opportunities and design interventions for each of the three nominated key landscape features.

The design interventions respect the legacy of the original 1990s Eastern Freeway design and are primarily aimed at restoration and enhancement, particularly regarding the safety and functionality of paths for pedestrians and cyclists. The Project includes improved wayfinding primarily through 'navigation nodes': landscaped landmarks located along primary and secondary paths of the Koonung Creek Trail network at key junctions, and at approaches to pedestrian and cycling bridges and underpasses to indicate approaching decision points and transitions between spaces.

Navigation nodes aim to enhance intuitive navigation by resolving existing navigation confusion, creating a distinct character and experience at each node that over time becomes a guiding feature for users along the pedestrian and cycling path network.

Wayfinding is further improved through the integration of enhanced lighting and surface treatments at critical points. By prioritising these aspects, the Project creates a safe, intuitive, and enjoyable experience for users. The improvements to existing pedestrian bridges, underpasses, and roadways ensure integration with the urban fabric, fostering a user-friendly environment that supports active transport and community connectivity.

For the landscape elements, the design interventions are similarly focused on restoring the open space areas back to their original conditions and to deliver improvements during reinstatement, focusing on enhancing the biodiversity of the environment. This involves a variety of ecological improvements such as enhanced understorey planting and creek treatments to stabilise banks and options to improve water quality.

By implementing these strategies, the Project seeks to not only restore but also deliver the capacity to enrich the natural habitats, ensuring a thriving ecosystem for native flora and fauna. Efforts such as the reuse of trees for ecological logs and the management of invasive species further underline the commitment to creating resilient, biodiverse open spaces.

Navigation nodes

The term 'navigation node' is used throughout this UDLP to describe areas at decision points along the Koonung Creek Trail that are landscaped to provide natural and intuitive wayfinding for people.

Nodes can include seating and lighting, as well as different pavement treatments and plants to make them stand out. They also have signs to let people know where they are and which way to go to get to key destinations.

4. Project description and design response

4.6.1 Waterways and biodiversity

The Koonung Koonung flows through major parklands from Nunawading to the Birrarung, acting as an important cultural and ecological corridor. Despite extensive urban development, the creek remains a vital part of the local environment, supporting a variety of plant and animal species and providing valuable recreational space for communities. For the Wurundjeri Woi-wurrung peoples, the Koonung Koonung represents a living cultural landscape that has sustained connection to Country and cultural practices for countless generations. The Project presents several opportunities to enhance and protect this natural asset while improving community access and interaction with the creek.

Project opportunities

Increased interaction with the Koonung Koonung (Cultural Wisdom; Community Connection)

By improving public access to the creek through enhanced pathways, seating areas, and viewing points, the Project will encourage greater connection with the waterway. These improvements will not only strengthen community ties to the creek but also provide potential for cultural immersion and storytelling, honouring the area's rich heritage.

Protecting and enhancing the creek and biodiversity (Retention & Regeneration)

A key focus is safeguarding and improving the creek's natural environment. Measures such as erosion control, habitat restoration, and pollution reduction will ensure that native flora and fauna continue to thrive, promoting a healthier and more sustainable ecosystem.

Integrating with open spaces via interfacing movement networks (Community Connection; Coherence & Navigation)

The Project will create better connections between the Koonung Creek Trail, upgraded pedestrian and cycling bridges, and surrounding parklands, making it easier for people to move through the area. By improving accessibility and wayfinding, these enhancements will encourage greater use of open spaces for active and passive recreation, and relaxation. These movement networks respect traditional pathways and create opportunities for people to connect with Country through sensory experiences as they travel through the landscape.

Consistent/holistic habitat corridor (Retention & Regeneration)

Improved sections of habitat connection will provide native species the opportunity to move more freely and support ecological balance. This approach ensures that the natural landscape is preserved and strengthened, helping maintain biodiversity across the region. This ecological connectivity reflects Wurundjeri Woi-wurrung understanding of the interdependence of all living things and supports the health of Country as a living, cultural landscape.

Figure 48: Koonung Koonung interface and culvert

4. Project description and design response

Design interventions and benefits

To achieve these goals, the project will implement several targeted design solutions. These approaches acknowledge the Koonung Koonung as a living cultural entity.

Creek treatments and water-sensitive urban design

Restoration of the Koonung Koonung will improve water quality by stabilising creek banks, and applying WSUD principles to manage stormwater effectively, reducing erosion and pollution.

This includes implementing swale systems and biofiltration basins, which use specific plants and soil mediums to filter stormwater before it enters the creek to improve water quality.

This approach complements traditional knowledge about sustainable water management and the relationship between healthy water and community wellbeing

Increased biodiversity

Planting more native vegetation will help restore the natural ecosystem, supporting local wildlife and further improving water quality.

The selection of plant species will include those with cultural significance to the Wurundjeri Woi-wurrung, supporting both ecological restoration and cultural knowledge transmission.

Enhanced landscaping and planting

The Project will introduce carefully selected plant species along the road corridor with tree planting to create a resilient environment that supports successful establishment and maintenance of vegetation .

Enhanced plantings outside the freeway corridor will improve understorey vegetation, support native plant and animal species, tree canopy reinstatement, as well as diversifying creek habitat conditions through riparian plantings along the banks.

The design draws on traditional knowledge of plant communities and their seasonal relationships.

Designing with trees

Trees will be strategically placed throughout the project area to provide shade, improve air quality, and enhance the overall visual appeal of the landscape. The placement of trees at navigation nodes will reflect cultural understanding of the importance of trees as markers, gathering places, and resources.

Trees will also contribute valuable habitat along the corridor and provide resilience to climate change through providing shade.

Tree reuse strategy

Where possible, fallen or removed trees will be used for creating furniture and ecological logs to improve understorey habitat. This approach honours traditional practices of respecting the full lifecycle of trees and finding continued purpose for timber resources on Country.

Enhanced planting of the Koonung Koonung

Replanting native riparian vegetation along the banks will further enhance the health of the waterway and its surrounding environment, particularly in areas where culverts are modified. This work respects cultural understanding of waterways as living entities that connect people to Country.

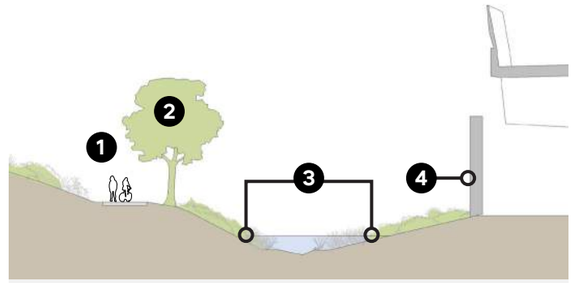
Realignment of the Koonung Koonung

The creek's shape and flow will be adjusted where necessary to facilitate the freeway widening. The design will ensure the creek is not undergrounded and the function of the creek maintained during construction through temporary diversions. This realigned section will feature improved bank stability and resilience and better natural light to improve habitat. It will also be replanted with a range of native vegetation, further improving biodiversity. Design and delivery of the realignment will be in accordance with EPR SW8, and ongoing maintenance transferred to the returned asset owner post completion.

Koonung Koonung flood mitigation

Works are required to manage the risk of flooding along the Koonung Koonung. This includes works to limit flow thresholds at locations upstream of Tram Road. The design of any flood mitigation structures will be to the satisfaction of Melbourne Water under EPR SW6.

Figure 49 outlines the locations in the project area where the design includes interventions targeted at improving outcomes for waterways and biodiversity. Details for these elements will be finalised during design development to the satisfaction of the future asset owners.



Example of a design intervention at Koonung Koonung interface:

1. New pedestrian and cycling path alignment
2. New landscape planting
3. New planting to creek banks
4. Combined flood and noise wall

Figure 49: Waterways and biodiversity interventions

4. Project description and design response

4.6.2 Open space

The Koonung Creek Trail connects several open spaces, including Tram Road Reserve, Eram Park, and Junction Road Reserve. These green spaces play a vital role in the community, offering areas for relaxation, sports, and recreational activities.

By enhancing these spaces and their connections to each other, the Project aims to improve accessibility, strengthen community ties, and create more opportunities for people to engage with nature.

These connected spaces also provide opportunities to experience and learn about the cultural significance of the landscape, supporting deeper understanding of Wurundjeri Woi-wurrung peoples' ongoing relationship with Country.

Project opportunities

Protect and enhance open space character, use, and experience (Community Connection; Coherence & Navigation)

While the Project will result in some unavoidable temporary and permanent impacts to open spaces, the Project has focused on minimising the adverse impacts in both duration and physical extent, ensuring open spaces can remain welcoming, functional, and easy to navigate. An example of this is the efficient road design that has minimised permanent encroachment to the western end of Eram Park towards Tram Road.

As part of reinstating land involved in project delivery, pathways, seating, and landscaping will be upgraded where possible.

These enhancements will respect and highlight the ongoing cultural significance of these spaces to Wurundjeri Woi-wurrung peoples.

Creek integration and connectivity with open spaces (Cultural Wisdom; Community Connection; Coherence & Navigation)

Strengthening the relationship between the Koonung Koonung and surrounding open spaces will contribute to the cultural significance of the area and improve access for visitors. This will create a more cohesive experience, where the creek and parklands feel like a unified, natural extension of each other.

The Project acknowledges the creek as a living cultural entity that continues to hold meaning and connection for Wurundjeri Woi-wurrung peoples.

Protect and enhance vegetation/biodiversity and habitat (Cultural Wisdom; Retention & Regeneration)

The Project will safeguard existing vegetation where possible and introduce new native plantings to support biodiversity as part of reinstating land affected by construction. By restoring impacted natural habitats and incorporating Indigenous cultural elements, the design will celebrate local heritage while promoting ecological sustainability. Plant selection will draw on traditional knowledge about ecological relationships and seasonal indicators.

Transition open spaces from passive spaces to local landmark destinations (Coherence & Navigation; Community Connection)

Open spaces will be designed as places where people can gather, rest, and move between different areas with ease.

Improved wayfinding, better pathway connections, and well-placed amenities will encourage movement and social interaction, making these spaces more dynamic and functional.

Emphasis on natural systems will drive the design of these open spaces in line with the design's approach to reinstate and enrich local biodiversity, delivering a wilder and less structured space that better reflects the features of the Koonung Creek Valley landscape character area.

These spaces will provide opportunities for cultural learning and sharing, strengthening community understanding of Wurundjeri Woi-wurrung knowledge and ongoing connection to Country.

Figure 50: Open spaces at Eram Park

4. Project description and design response

Design interventions and benefits

Eram Park enhancement

Opportunities for upgrades to Eram Park will be explored in consultation with the City of Whitehorse to introduce improved landscaping to support natural features, maintaining the park as a vibrant and enjoyable space for the community. Enhancements will incorporate cultural elements that acknowledge the park as part of Wurundjeri Woi-wurrung Country. Where new infrastructure is visible from Eram Park, fast growing trees, creepers and shrubs will be used to screen views, while slower growing species are given time to establish. Noise wall colours and textures are drawn from the natural environment, allowing them to blend with plantings, increasing a sense of being in nature.

Junction Road Reserve enhancement — enhancing passive open space

Improvements at Junction Road Reserve will focus on opportunities to enhance this significant landscape site including the potential to introduce new and engaging topographic landscape mounds to create a more inviting and secluded environment, ensuring it remains a valuable retreat for the community. Opportunities like a nature-based play area or fitness equipment on land owned by Whitehorse City Council will be explored through design development. Enhancements will reflect cultural understanding of the landscape and create opportunities for connecting with Country.

Retention and return of open grassed areas

Enhancing these areas through understorey planting, additional tree planting, and creating topographic landmarks of interest using site fill, particularly in areas where construction impacts are unavoidable, to ensure land is reinstated to pre-construction conditions, including returning spaces currently enjoyed by the community for passive recreation, exercise and off-lead dog walking. Opportunities to introduce native plantings will be explored to ensure local biodiversity is enriched by grass species that provide ecological benefits and are resilient to the local climate, particularly dry periods and long lasting drought. Native species will be selected with consideration for their cultural uses and significance.

New creek experiences at Eram Park

Interactive features along the creek, such as seating areas, lookout points, and improved access to the water's edge, will allow visitors to engage more closely with the natural surroundings. These experiences will provide opportunities to learn about traditional connections to waterways and their cultural importance.

Improved understorey planting to areas of established tree canopy

Enhancing the vegetation layer under existing trees to support biodiversity. Understorey species will include plants with traditional uses, supporting cultural knowledge transmission alongside ecological benefits.

Underpass treatments

Landscaping at the approaches will enhance user experience and develop underpasses at Station Street, Blackburn Road and Springvale Road into secondary navigation nodes as they transition users from one area to another. In combination with lighting improvements and artistic surface treatments to the path, this will create safer, more welcoming connections between different areas. Design elements will incorporate cultural references that maintain connection to Country even in these built environments. Further detail on underpass designs is provided in Section 5.5, UDS Requirement 15.

Improved landscaping at the approach to Cabena Street pedestrian and cycling bridge

New landscaping will improve the open space to the south of the upgraded pedestrian and cycling bridge at Cabena Street. Landscape features will improve visibility and access to ensure a smoother, safer, and more user-friendly transition from the Koonung Creek Trail. The design also provides stairs between the path and the bridge's southern approach as an option for users. The bridge crossing will incorporate elements that acknowledge movement across Country and traditional pathways.

Acrylic noise wall panels to benefit open space

The design will use acrylic panels on noise walls at select locations to reduce overshadowing, improve visibility in open spaces, and better integrate noise walls into the surrounding environment.

Creating a hierarchy of spaces and experiences

Thoughtful planning will ensure that different areas in the open space network serve a variety of purposes, from quiet rest areas to active gathering spaces. This approach will provide diverse experiences, catering to different community needs and enhancing the overall usability of the space. The spatial hierarchy draws inspiration from traditional Wurundjeri Woi-wurrung understanding of how people gather, move through, and connect with Country. This addition acknowledges that traditional cultural knowledge includes sophisticated understanding of spatial relationships and how people interact with different types of places. It connects the modern design principle of spatial hierarchy with long-standing cultural practices.

Figure 51 outlines the locations in the project area where the design includes interventions targeted at improving outcomes for open space. Details for open spaces will be finalised through design development and will be to the satisfaction of future asset owners.

Figure 51: Example of a design intervention at Junction Road Reserve interface

4. Project description and design response

1 View towards Eram Road pedestrian and cycling bridge

2 Navigation node at the southern approach to the Koonung Road pedestrian and cycling bridge

Figure 52: Open Space design interventions

4. Project description and design response

4.6.3 Movement corridors

The Koonung Creek Trail and its network of paths, nodes, and bridges form a well-connected and crucial piece of active transport infrastructure for pedestrian and cycling journeys through the area. By harnessing opportunities to enhance the network, the Project will improve accessibility, safety, and the overall integration of transport systems and public spaces.

Project opportunities

Enhance active transport and road corridor experience (Community Connection; Coherence & Navigation)

Improvements will focus on making walking and cycling safer and more convenient while also enhancing the road corridor for drivers, incorporating elements that acknowledge the cultural significance of movement through Country and create opportunities for deeper connection to place.

Create a more cohesive, safer, more comfortable and more memorable travel experience (Cultural Expression; Community Connection; Coherence & Navigation)

The Project will create a seamless experience for pedestrians, cyclists and drivers by designing clear, safe, and well-integrated pathways and roads. In response to path user concerns, pedestrian-cyclist conflicts at pinch-points will be reduced through improvements such as upgraded surfaces, and better wayfinding and visibility at navigation nodes.

By prioritising user-friendly design along new and reinstated sections of the Koonung Creek Trail, the enhancements will make movement through the area more intuitive and enjoyable, particularly from maximising opportunities to reinstate tree canopy coverage alongside the widened road corridor where vegetation is impacted by construction to ensure views toward freeway infrastructure are again screened from pedestrian and cycling paths.

The design reflects cultural understanding of how people connect with Country through movement and the importance of visual connection to natural elements rather than built infrastructure.

Creating a hierarchy of spaces (Cultural Wisdom; Coherence & Navigation)

The design develops users' perceptions of safety along pedestrian and cycling paths through navigation nodes that signify approaching decision points or changed conditions such as a path junction or a transition into an open space, establishing distinct zones for different activities, such as walking, cycling, resting, and socialising. This structured approach maximises user familiarity and confidence in their over time by instilling memories of experiences with each node and transition. Drawing on traditional wisdom of how people gather and move through Country, this approach acknowledges the cultural significance of different types of spaces and transitions between them.

Revealing creek views (Cultural Wisdom; Retention & Regeneration)

The Project will open up and enhance views of the creek where possible, reinforcing its cultural and environmental significance. Thoughtful design will ensure that key vantage points are preserved and highlighted, allowing passersby to appreciate the natural beauty of the landscape. These vantage points create opportunities to understand the Koonung Koonung as a living cultural landscape that connects to broader Wurundjeri Woi-wurrung stories and ongoing relationship with waterways.

Retaining existing noise walls (Retention & Regeneration)

A key feature of the design is to retain the existing noise walls along the Eastern Freeway wherever possible. These noise walls are recognised for their architectural merit and play an important role in the enjoyable driver user experience along the Eastern Freeway and the experience of those using the Koonung Creek Trail. Retaining existing noise walls where possible also allows retention of existing tree canopy and native vegetation in these areas and reduces potential disruption to the existing movement corridors during construction. New noise walls have been designed to integrate with the style and character of the existing noise walls as well as noise walls approved under the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP, and sited to manage freeway noise to residential properties and open spaces in line with the relevant EPRs.

Figure 54 shows the extent of noise walls retained between Blackburn Road and Springvale Road.

Figure 53: Koonung Creek Trail paths and interfaces, including park furniture and creek crossings

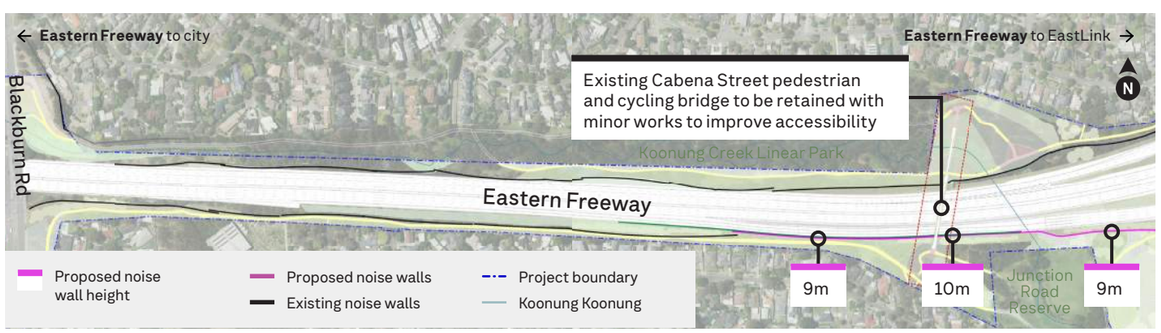


Figure 54: Noise wall retention between Blackburn and Springvale Roads (Att. 1 drawings NEL-EST-6600-UUD-DRG-GEN-1405 & 1406)

4. Project description and design response

Design interventions and benefits

Enhance intuitive navigation through nodes

Navigation nodes are areas along the Koonung Creek Trail that are landscaped to provide natural wayfinding for people. Nodes can include seating and lighting, as well as different plants to make them stand out. They also have signs to let people know where they are and which way to go to get to key destinations.

These navigation nodes and other upgrades such as clear signage and well-marked paths, will make it easier for people to navigate through the area, ensuring a smooth and logical flow between key destinations.

These wayfinding elements will incorporate cultural teachings that connect people to the living knowledge navigating Wurundjeri Woi-wurrung Country.

Pedestrian and cycling paths, bridges, and underpasses

The Koonung Creek Trail and secondary pathways will be upgraded throughout the project corridor. The design identifies areas where targeted upgrades will occur. Condition assessment during construction will identify any additional areas within the project boundary requiring upgrade due to poor condition or impacts from construction.

New pedestrian and cycling bridges will be constructed over the freeway at Eram Road, Box Hill North, and over the Koonung Koonung in Eram Park.

Existing crossings, underpasses and bridges will be upgraded to improve safety and accessibility for pedestrians and cyclists, and to enhance visual appeal.

Upgrades will include targeted planting to create navigation nodes at bridge, crossing and underpass approaches. Underpasses at Station Street, Blackburn Road and Springvale Road will receive new strip lighting from end to end. Sections of shared use path at underpasses and bridge approaches will be upgraded with new artistic surface treatments. Retained bridges at Koonung Road and Cabena Street will have handrails along the structures upgraded to improve safety for all users.

These enhancements will encourage more people to walk and cycle and to take advantage of safer, more comfortable and more memorable journeys, while acknowledging cultural practices, storytelling and connection to Country when traversing built infrastructure.

Figure 55 summarises design enhancements to upgrade the function, accessibility and amenity of the Koonung Road pedestrian and cycling bridge.

Road bridges treatments

Incorporating architectural designs and acrylic segments to noise walls on the eastbound and westbound ramps will improve both their aesthetic appeal, ensuring they blend with the surrounding landscape while maintaining safety and structural integrity.

Design elements will draw on the Eastern Freeway Upgrades — Burke to Tram design solution to ensure a continuous language throughout the corridor, as well as inspiration from cultural understanding and connection to Country.

Improved creek access through enhanced views

The project will introduce design strategies that improve both physical and visual access to the creek, including by using acrylic noise walls where needed, allowing people to better experience and appreciate this important natural feature.

These viewpoints create opportunities to understand the Koonung Koonung as a living cultural landscape with continuing significance to Wurundjeri Woi-wurrung peoples.

Noise walls — scale and appearance; acrylic treatments

Thoughtful design of noise barriers will reduce both visual impact and traffic noise and will be architecturally cohesive with the noise walls located in the interfacing Eastern Freeway Upgrades — Burke Road to Tram Road.

Acrylic treatments will be used strategically to maintain openness while ensuring effective noise reduction and will be sourced to ensure durability of the material to minimise maintenance requirements from impacts like lichen coverage and graffiti.

These elements will incorporate design motifs developed in collaboration with WWCHAC to maintain cultural connection across the infrastructure.

Other walls/panels

Additional structural elements will be integrated into the landscape to support movement, enhance connectivity, filter views, reduce traffic noise, and contribute to the overall aesthetic quality and design of the area.

These elements provide opportunities to incorporate cultural design elements that tell stories of Country, culture and community connection.

Figure 56 outlines the locations in the project area where the design includes interventions targeted at improving outcomes for movement corridors. Details for these elements will be finalised during design development to the satisfaction of the future asset owners.

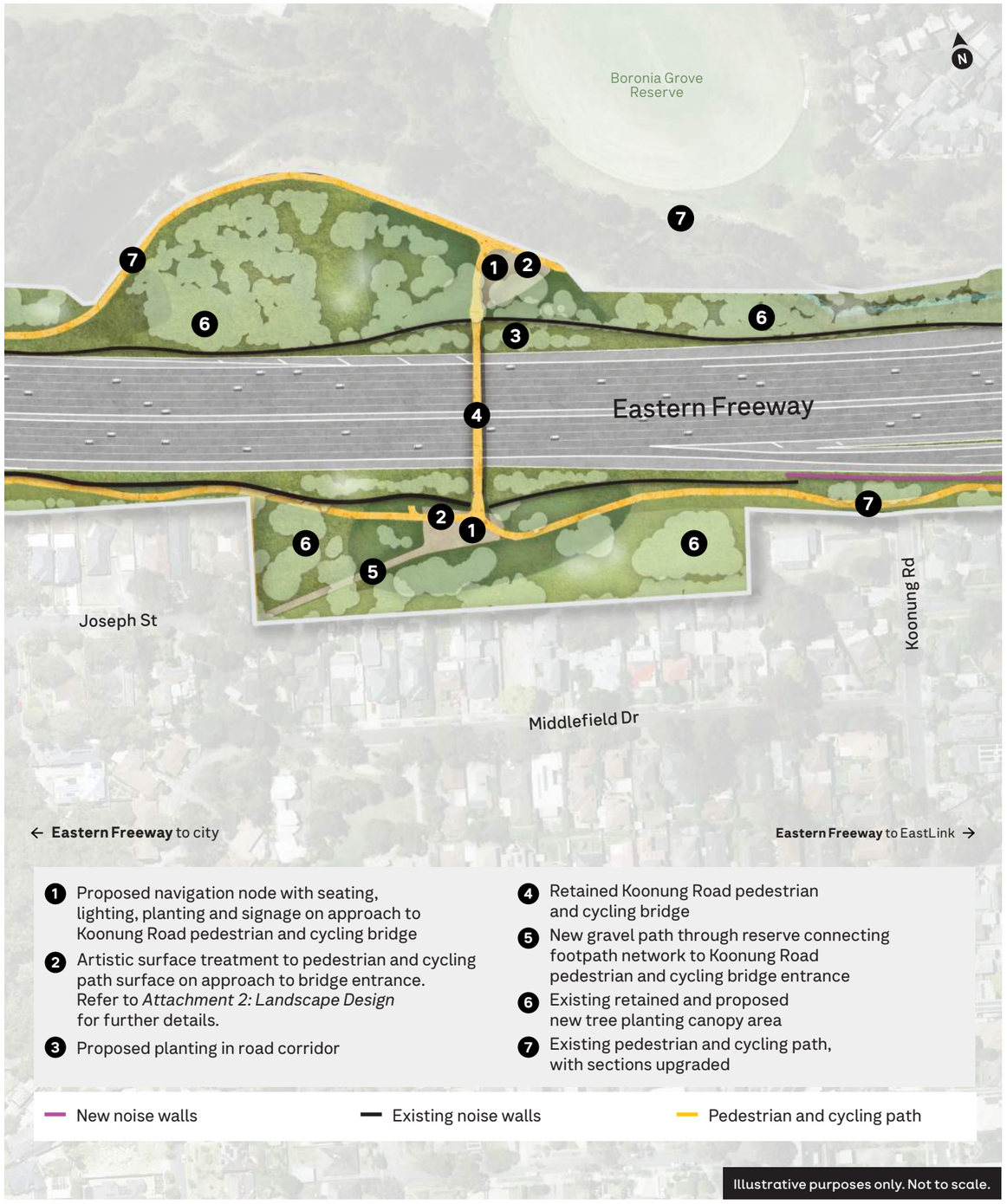


Figure 55: Navigation node design solution at Koonung Road pedestrian and cycling bridge

4. Project description and design response

Noise wall designs transposed into the freeway corridor:

1. Use of acrylic panels to increase light available for pedestrians and cyclists
2. View towards noise walls from freeway corridor

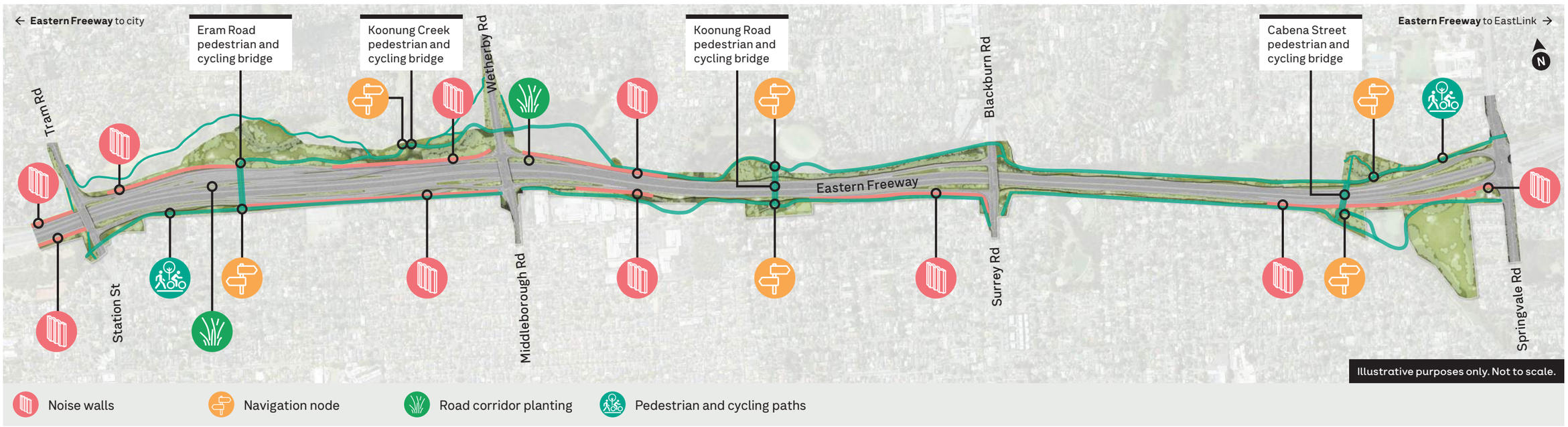
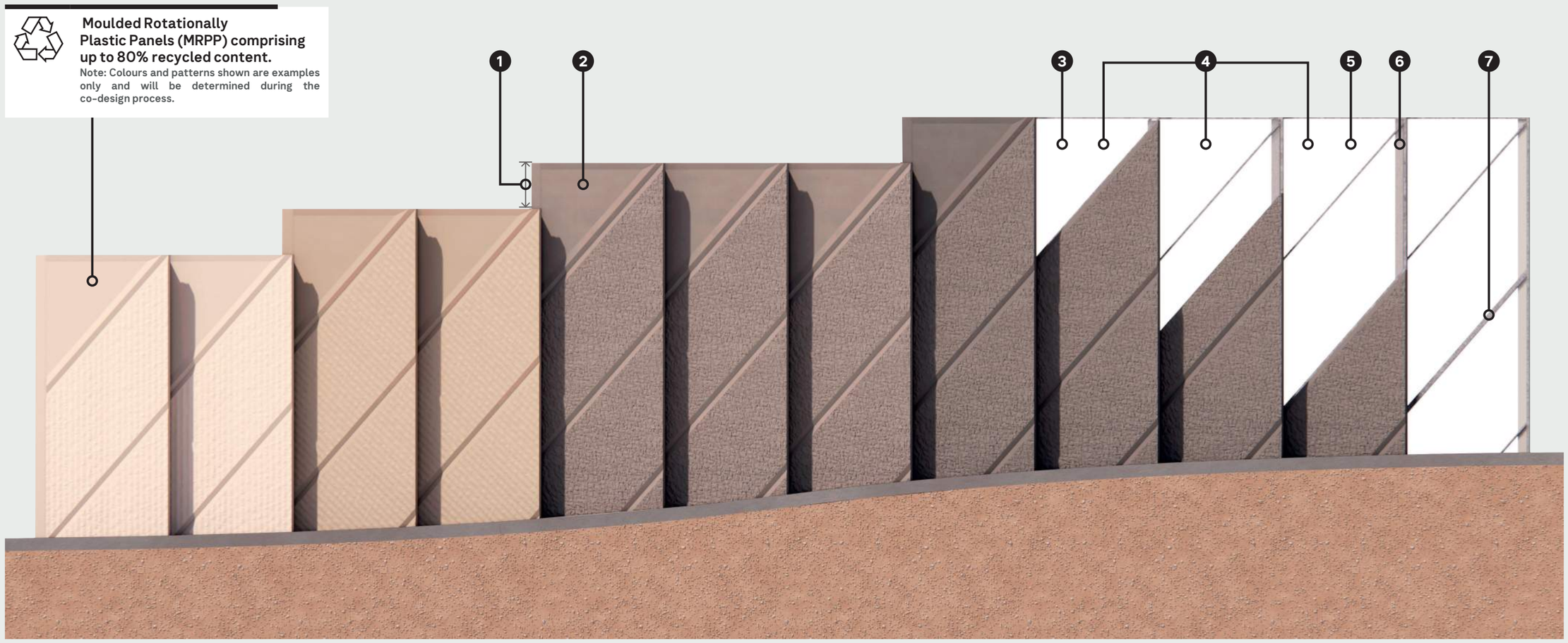


Figure 56: Movement corridor design interventions

4. Project description and design response



1. Panels step at a minimum of one-metre increments
2. Where panel changes height, the panel type (colour and pattern) will also change
3. Upper triangle will be replaced with acrylic where overshadowing occurs*
4. Acrylic extent will transition across multiple panels to reach the desired height
5. Top of noise wall will remain horizontal, with height in line with existing noise walls
6. Posts will be concealed behind the noise wall panel
7. Galvanised steel

*Locations to be confirmed in detailed design.

Figure 57: Selection of noise wall designs, including acrylic inserts — design locations to be confirmed during detailed design

4. Project description and design response

4.7 Urban Design and Landscape Plan documents

The UDLP design documents listed in Table 2 support this report.

UDLP design documents

The UDLP design documents are included in the following attachments:

- **Attachment 1:** Architecture and Urban Design
- **Attachment 2:** Landscape Design
- **Attachment 3:** Urban Design Visualisations (Artistic renderings and images as shown are indicative and provided for context only and will not form part of the UDLP approval.)
- **Attachment 4:** Urban Design Overshadowing Assessment.

The attachments contain design information such as:

- Site plans
- Elevations
- Sections
- Materials and planting schedules
- Visualisations.

These documents have been prepared in line with the design response to comply with the UDS (refer to Section 5) and to comply with the EPRs (refer to Section 6).

The UDS and EPRs are performance-based to ensure design changes are assessed and result in appropriate outcomes.

Table 2: UDLP Drawing List

Drawing Code	Drawing No.	Drawing Title
ATTACHMENT 1: ARCHITECTURE AND URBAN DESIGN		
NEL-EST-NEA-6600-UUD-DRG-GEN	**1000**	COVER SHEET
NEL-EST-NEA-6990-UUD-DRG-GEN	**1002**	URBAN DESIGN ELEMENT AND FINISH SCHEDULE
NEL-EST-NEA-6600-UUD-DRG-PLA	**1050**	ALIGNMENT KEY PLAN
NEL-EST-NEA-6600-UUD-DRG-PLA	**1051**	GENERAL ARRANGEMENT - SHEET 01
NEL-EST-NEA-6600-UUD-DRG-PLA	**1052**	GENERAL ARRANGEMENT - SHEET 02
NEL-EST-NEA-6600-UUD-DRG-PLA	**1053**	GENERAL ARRANGEMENT - SHEET 03
NEL-EST-NEA-6600-UUD-DRG-PLA	**1054**	GENERAL ARRANGEMENT - SHEET 04
NEL-EST-NEA-6200-UUD-DRG-PLA	**1055**	GENERAL ARRANGEMENT - SHEET 05
NEL-EST-NEA-6600-UUD-DRG-PLA	**1056**	GENERAL ARRANGEMENT - SHEET 06
NEL-EST-NEA-6600-UUD-DRG-PLA	**1057**	GENERAL ARRANGEMENT - SHEET 07
NEL-EST-NEA-6600-UUD-DRG-PLA	**1058**	GENERAL ARRANGEMENT - SHEET 08
NEL-EST-NEA-6600-UUD-DRG-PLA	**1059**	GENERAL ARRANGEMENT - SHEET 09
NEL-EST-NEA-6600-UUD-DRG-PLA	**1060**	GENERAL ARRANGEMENT - SHEET 10
NEL-EST-NEA-6600-UUD-DRG-PLA	**1061**	GENERAL ARRANGEMENT - SHEET 11
NEL-EST-NEA-6600-UUD-DRG-XSC	**1100**	SECTION - TRAM ROAD BRIDGE
NEL-EST-NEA-6600-UUD-DRG-XSC	**1101**	SECTION - TRAM ROAD RESERVE
NEL-EST-NEA-6600-UUD-DRG-XSC	**1102**	SECTION - ERAM PARK
NEL-EST-NEA-6600-UUD-DRG-XSC	**1103**	SECTION - KOONUNG CREEK LINEAR PARK 01
NEL-EST-NEA-6600-UUD-DRG-XSC	**1104**	SECTION - KOONUNG CREEK LINEAR PARK 02
NEL-EST-NEA-6600-UUD-DRG-XSC	**1105**	SECTION - MIDDLEBOROUGH ROAD BRIDGE
NEL-EST-NEA-6600-UUD-DRG-XSC	**1106**	SECTION - BORONIA GROVE
NEL-EST-NEA-6600-UUD-DRG-XSC	**1107**	SECTION - EASTERN FREEWAY LINEAR RESERVE
NEL-EST-NEA-6600-UUD-DRG-PLA	**1150**	INCIDENT RESPONSE STAGING AREA PLAN AND ELEVATION
NEL-EST-NEA-6600-UUD-DRG-GEN	**1200**	GENERAL ARRANGEMENT - OVERVIEW ROAD BRIDGES
NEL-EST-NEA-6600-UUD-DRG-ELV	**1210**	ELEVATION - OUTBOUND BRIDGE SOUTH - SHEET 01
NEL-EST-NEA-6600-UUD-DRG-ELV	**1211**	ELEVATION - OUTBOUND BRIDGE SOUTH - SHEET 02
NEL-EST-NEA-6600-UUD-DRG-ELV	**1212**	ELEVATION - OUTBOUND BRIDGE NORTH
NEL-EST-NEA-6600-UUD-DRG-GEN	**1213**	GENERAL ARRANGEMENT - INBOUND BRIDGE
NEL-EST-NEA-6600-UUD-DRG-ELV	**1214**	ELEVATION AND SECTION - INBOUND BRIDGE
NEL-EST-NEA-6600-UUD-DRG-GEN	**1300**	GENERAL ARRANGEMENT - ERAM ROAD PEDESTRIAN AND CYCLING BRIDGE
NEL-EST-NEA-6600-UUD-DRG-ELV	**1301**	ELEVATIONS - ERAM ROAD PEDESTRIAN AND CYCLING BRIDGE
NEL-EST-NEA-6600-UUD-DRG-XSC	**1302**	SECTIONS - ERAM ROAD PEDESTRIAN AND CYCLING BRIDGE
NEL-EST-NEA-6600-UUD-DRG-DET	**1303**	DETAILS - ERAM ROAD PEDESTRIAN AND CYCLING BRIDGE
NEL-EST-NEA-6600-UUD-DRG-GEN	**1304**	GENERAL ARRANGEMENT - KOONUNG CREEK PEDESTRIAN AND CYCLING BRIDGE
NEL-EST-NEA-6600-UUD-DRG-ELV	**1305**	ELEVATIONS - KOONUNG CREEK PEDESTRIAN AND CYCLING BRIDGE
NEL-EST-NEA-6600-UUD-DRG-XSC	**1306**	SECTIONS - KOONUNG CREEK PEDESTRIAN AND CYCLING BRIDGE

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Drawing Code	Drawing No.	Drawing Title
NEL-EST-NEA-6600-UUD-DRG-GEN	**1307**	GENERAL ARRANGEMENT - KOONUNG ROAD PEDESTRIAN AND CYCLING BRIDGE
NEL-EST-NEA-6600-UUD-DRG-ELV	**1308**	ELEVATIONS - KOONUNG ROAD PEDESTRIAN AND CYCLING BRIDGE
NEL-EST-NEA-6600-UUD-DRG-GEN	**1309**	GENERAL ARRANGEMENT - CABENA STREET PEDESTRIAN AND CYCLING BRIDGE
NEL-EST-NEA-6600-UUD-DRG-ELV	**1310**	ELEVATIONS - CABENA STREET PEDESTRIAN AND CYCLING BRIDGE
NEL-EST-NEA-6600-UUD-DRG-GEN	**1400**	NOISE WALL, FLOOD WALL, RETAINING WALL HEIGHTS PLAN - SHEET 01
NEL-EST-NEA-6600-UUD-DRG-GEN	**1401**	NOISE WALL, FLOOD WALL, RETAINING WALL HEIGHTS PLAN - SHEET 02
NEL-EST-NEA-6600-UUD-DRG-GEN	**1402**	NOISE WALL, FLOOD WALL, RETAINING WALL HEIGHTS PLAN - SHEET 03
NEL-EST-NEA-6600-UUD-DRG-GEN	**1403**	NOISE WALL, FLOOD WALL, RETAINING WALL HEIGHTS PLAN - SHEET 04
NEL-EST-NEA-6600-UUD-DRG-GEN	**1404**	NOISE WALL, FLOOD WALL, RETAINING WALL HEIGHTS PLAN - SHEET 05
NEL-EST-NEA-6600-UUD-DRG-GEN	**1405**	NOISE WALL, FLOOD WALL, RETAINING WALL HEIGHTS PLAN - SHEET 06
NEL-EST-NEA-6600-UUD-DRG-GEN	**1406**	NOISE WALL, FLOOD WALL, RETAINING WALL HEIGHTS PLAN - SHEET 07
NEL-EST-NEA-6600-UUD-DRG-GEN	**1407**	NOISE WALL, FLOOD WALL, RETAINING WALL HEIGHTS PLAN - SHEET 08
NEL-EST-NEA-6600-UUD-DRG-DET	**1500**	DETAILS - MRPP NOISE WALL TYPES - SHEET 01
NEL-EST-NEA-6600-UUD-DRG-DET	**1501**	DETAILS - MRPP NOISE WALL TYPES - SHEET 02
NEL-EST-NEA-6600-UUD-DRG-DET	**1502**	DETAILS - ACRYLIC NOISE WALL TYPES - SHEET 01
NEL-EST-NEA-6600-UUD-DRG-DET	**1503**	DETAILS - ACRYLIC NOISE WALL TYPES - SHEET 02
NEL-EST-NEA-6600-UUD-DRG-DET	**1504**	DETAILS - MRPP NOISE WALL TYPES - SHEET 03
NEL-EST-NEA-6600-UUD-DRG-DET	**1505**	DETAILS - NOISE WALL CHANGE IN HEIGHTS
NEL-EST-NEA-6600-UUD-DRG-DET	**1550**	DETAILS - ON STRUCTURE ACRYLIC NOISE WALL
NEL-EST-NEA-6600-UUD-DRG-DET	**1560**	DETAILS - TYPICAL FLOOD WALL
NEL-EST-NEA-6600-UUD-DRG-DET	**1600**	DETAILS - RETAINING WALLS - SHEET 01
NEL-EST-NEA-6600-UUD-DRG-DET	**1601**	DETAILS - RETAINING WALLS - SHEET 02
NEL-EST-NEA-6600-UUD-DRG-DET	**1610**	DETAILS - L WALLS
NEL-EST-NEA-6600-UUD-DRG-DET	**1620**	DETAILS - RSS WALLS
NEL-EST-NEA-6600-UUD-DRG-DET	**1700**	DETAILS - GANTRY TYPES - SHEET 01
NEL-EST-NEA-6600-UUD-DRG-DET	**1701**	DETAILS - GANTRY TYPES - SHEET 02
NEL-EST-NEA-6600-UUD-DRG-DET	**1702**	DETAILS - GANTRY TYPES - SHEET 03
NEL-EST-NEA-6600-UUD-DRG-DET	**1800**	DETAILS - PIER TYPES - SHEET 01
NEL-EST-NEA-6600-UUD-DRG-DET	**1801**	DETAILS - PIER TYPES - SHEET 02
NEL-EST-NEA-6600-UUD-DRG-DET	**1900**	DETAILS - TYPICAL PARAPET BARRIER

Drawing Code	Drawing No.	Drawing Title
ATTACHMENT 2: LANDSCAPE DESIGN		
NEL-EST-NEA-6600-ULS-DRG	**2100**	COVER SHEET
NEL-EST-NEA-6600-ULS-DRG	**2101**	GENERAL NOTES AND LEGEND
NEL-EST-NEA-6600-ULS-DRG	**2311**	LANDSCAPE PLANTING SPECIES LIST - SHEET 01
NEL-EST-NEA-6600-ULS-DRG	**2312**	LANDSCAPE PLANTING SPECIES LIST - SHEET 02
NEL-EST-NEA-6600-ULS-DRG	**2313**	LANDSCAPE PLANTING SPECIES LIST - SHEET 03
NEL-EST-NEA-6600-ULS-DRG	**2314**	LANDSCAPE PLANTING SPECIES LIST - SHEET 04
NEL-EST-NEA-6600-ULS-DRG	**2315**	LANDSCAPE PLANTING SPECIES LIST - SHEET 05
NEL-EST-NEA-6600-ULS-DRG	**2316**	LANDSCAPE PLANTING SPECIES LIST - SHEET 06
NEL-EST-NEA-6600-ULS-DRG	**2371**	LANDSCAPE PLANTING PALETTE - SHEET 01
NEL-EST-NEA-6600-ULS-DRG	**2372**	LANDSCAPE PLANTING PALETTE - SHEET 02
NEL-EST-NEA-6600-ULS-DRG	**2373**	LANDSCAPE PLANTING PALETTE - SHEET 03
NEL-EST-NEA-6600-ULS-DRG	**2501**	LANDSCAPE GENERAL ARRANGEMENT KEY PLAN
NEL-EST-NEA-6600-ULS-DRG	**2511**	LANDSCAPE GENERAL ARRANGEMENT PLAN - SHEET 01
NEL-EST-NEA-6600-ULS-DRG	**2512**	LANDSCAPE GENERAL ARRANGEMENT PLAN - SHEET 02
NEL-EST-NEA-6600-ULS-DRG	**2513**	LANDSCAPE GENERAL ARRANGEMENT PLAN - SHEET 03
NEL-EST-NEA-6600-ULS-DRG	**2514**	LANDSCAPE GENERAL ARRANGEMENT PLAN - SHEET 04
NEL-EST-NEA-6600-ULS-DRG	**2515**	LANDSCAPE GENERAL ARRANGEMENT PLAN - SHEET 05
NEL-EST-NEA-6600-ULS-DRG	**2516**	LANDSCAPE GENERAL ARRANGEMENT PLAN - SHEET 06
NEL-EST-NEA-6600-ULS-DRG	**2517**	LANDSCAPE GENERAL ARRANGEMENT PLAN - SHEET 07
NEL-EST-NEA-6600-ULS-DRG	**2518**	LANDSCAPE GENERAL ARRANGEMENT PLAN - SHEET 08
NEL-EST-NEA-6600-ULS-DRG	**2519**	LANDSCAPE GENERAL ARRANGEMENT PLAN - SHEET 09
NEL-EST-NEA-6600-ULS-DRG	**2520**	LANDSCAPE GENERAL ARRANGEMENT PLAN - SHEET 10
NEL-EST-NEA-6600-ULS-DRG	**2521**	LANDSCAPE GENERAL ARRANGEMENT PLAN - SHEET 11
NEL-EST-NEA-6600-ULS-DRG	**2601**	LANDSCAPE FOCUS AREA KEY PLAN
NEL-EST-NEA-6600-ULS-DRG	**2611**	LANDSCAPE FOCUS AREA PLAN - SHEET 01
NEL-EST-NEA-6600-ULS-DRG	**2612**	LANDSCAPE FOCUS AREA PLAN - SHEET 02
NEL-EST-NEA-6600-ULS-DRG	**2613**	LANDSCAPE FOCUS AREA PLAN - SHEET 03
NEL-EST-NEA-6600-ULS-DRG	**2614**	LANDSCAPE FOCUS AREA PLAN - SHEET 04
NEL-EST-NEA-6600-ULS-DRG	**2615**	LANDSCAPE FOCUS AREA PLAN - SHEET 05
NEL-EST-NEA-6600-ULS-DRG	**2616**	LANDSCAPE FOCUS AREA PLAN - SHEET 06
NEL-EST-NEA-6600-ULS-DRG	**2617**	LANDSCAPE FOCUS AREA PLAN - SHEET 07
NEL-EST-NEA-6600-ULS-DRG	**2711**	TYPICAL CROSS SECTION - SHEET 01
NEL-EST-NEA-6600-ULS-DRG	**2712**	TYPICAL CROSS SECTION - SHEET 02
NEL-EST-NEA-6600-ULS-DRG	**2713**	TYPICAL CROSS SECTION - SHEET 03
NEL-EST-NEA-6600-ULS-DRG	**2714**	TYPICAL CROSS SECTION - SHEET 04
NEL-EST-NEA-6600-ULS-DRG	**2801**	TREE RETENTION AND REMOVAL OVERVIEW PLAN
NEL-EST-NEA-6600-ULS-DRG	**2811**	TREE RETENTION AND REMOVAL PLAN - SHEET 01
NEL-EST-NEA-6600-ULS-DRG	**2812**	TREE RETENTION AND REMOVAL PLAN - SHEET 02

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Drawing Code	Drawing No.	Drawing Title
NEL-EST-NEA-6600-ULS-DRG	**2813**	TREE RETENTION AND REMOVAL PLAN - SHEET 03
NEL-EST-NEA-6600-ULS-DRG	**2901**	CONSTRUCTION COMPOUND OVERVIEW PLAN
NEL-EST-NEA-6600-ULS-DRG	**2911**	CONSTRUCTION COMPOUND PLAN - SHEET 01
NEL-EST-NEA-6600-ULS-DRG	**2912**	CONSTRUCTION COMPOUND PLAN - SHEET 02
NEL-EST-NEA-6600-ULS-DRG	**2913**	CONSTRUCTION COMPOUND PLAN - SHEET 03
ATTACHMENT 3: VISUALISATIONS		
	N/A	3D VIEW LOCATION PLAN
	VIEW 01	EASTERN FREEWAY OUTBOUND - BETWEEN TRAM AND MIDDLEBOROUGH ROADS
	VIEW 02	ERAM PARK OVERVIEW TOWARDS EASTERN FREEWAY
	VIEW 03	KOONUNG CREEK PEDESTRIAN AND CYCLING BRIDGE AND CREEK REALIGNMENT
	VIEW 04	ERAM ROAD PEDESTRIAN AND CYCLING BRIDGE - SOUTHERN APPROACH
	VIEW 05	EASTERN FREEWAY INBOUND - LOOKING TOWARDS TRAM ROAD
	VIEW 06	EASTERN FREEWAY INBOUND AT KOONUNG ROAD PEDESTRIAN AND CYCLING BRIDGE
	VIEW 07	KOONUNG ROAD PEDESTRIAN AND CYCLING BRIDGE - SOUTHERN APPROACH
	VIEW 08	EASTERN FREEWAY OUTBOUND - LOOKING TOWARDS BLACKBURN ROAD
	VIEW 09	KOONUNG CREEK TRAIL TOWARDS CABENA STREET PEDESTRIAN AND CYCLING BRIDGE - NORTHERN APPROACH
	VIEW 10	CABENA STREET PEDESTRIAN AND CYCLING BRIDGE - SOUTHERN APPROACH
	VIEW 11	JUNCTION ROAD RESERVE OVERVIEW TOWARDS EASTERN FREEWAY
ATTACHMENT 4: URBAN DESIGN OVERSHADOWING ASSESSMENT		
NEL-EST-NEA-6600-UUD-DRG-GEN	**4000**	COVER SHEET
NEL-EST-NEA-6600-UUD-PLA	**4001**	OVERSHADOWING ALIGNMENT KEY PLAN
NEL-EST-NEA-6600-UUD-PLA	**4002**	GA_01 - OVERSHADOWING ANALYSIS TRAM RD 9AM - 3PM
NEL-EST-NEA-6600-UUD-PLA	**4003**	GA_02 - OVERSHADOWING ANALYSIS - LYNDHURST CRES 9AM
NEL-EST-NEA-6600-UUD-PLA	**4004**	GA_02 - OVERSHADOWING ANALYSIS - LYNDHURST CRES 12PM
NEL-EST-NEA-6600-UUD-PLA	**4005**	GA_02 - OVERSHADOWING ANALYSIS - LYNDHURST CRES 3PM
NEL-EST-NEA-6600-UUD-PLA	**4006**	GA_03 - OVERSHADOWING ANALYSIS - ERAM RD 9AM
NEL-EST-NEA-6600-UUD-PLA	**4007**	GA_03 - OVERSHADOWING ANALYSIS - ERAM RD 12PM
NEL-EST-NEA-6600-UUD-PLA	**4008**	GA_03 - OVERSHADOWING ANALYSIS - ERAM RD 3PM
NEL-EST-NEA-6600-UUD-PLA	**4009**	GA_04 - OVERSHADOWING ANALYSIS - MIDDLEBOROUGH RD 9AM
NEL-EST-NEA-6600-UUD-PLA	**4010**	GA_04 - OVERSHADOWING ANALYSIS - MIDDLEBOROUGH RD 12PM
NEL-EST-NEA-6600-UUD-PLA	**4011**	GA_04 - OVERSHADOWING ANALYSIS - MIDDLEBOROUGH RD 3PM
NEL-EST-NEA-6600-UUD-PLA	**4012**	GA_05 - OVERSHADOWING ANALYSIS - KOONUNG RD BRIDGE 9AM
NEL-EST-NEA-6600-UUD-PLA	**4013**	GA_05 - OVERSHADOWING ANALYSIS - KOONUNG RD BRIDGE 12PM
NEL-EST-NEA-6600-UUD-PLA	**4014**	GA_05 - OVERSHADOWING ANALYSIS - KOONUNG RD BRIDGE 3PM
NEL-EST-NEA-6600-UUD-PLA	**4015**	GA_06 - OVERSHADOWING ANALYSIS - CONRAD CT BRIDGE 9AM
NEL-EST-NEA-6600-UUD-PLA	**4016**	GA_06 - OVERSHADOWING ANALYSIS - CONRAD CT BRIDGE 12PM
NEL-EST-NEA-6600-UUD-PLA	**4017**	GA_06 - OVERSHADOWING ANALYSIS - CONRAD CT BRIDGE 3PM
NEL-EST-NEA-6600-UUD-PLA	**4018**	GA_07 - OVERSHADOWING ANALYSIS - CABENA ST BRIDGE 9AM
NEL-EST-NEA-6600-UUD-PLA	**4019**	GA_07 - OVERSHADOWING ANALYSIS - CABENA ST BRIDGE 12PM
NEL-EST-NEA-6600-UUD-PLA	**4020**	GA_07 - OVERSHADOWING ANALYSIS - CABENA ST BRIDGE 3PM
NEL-EST-NEA-6600-UUD-PLA	**4021**	GA_08 - OVERSHADOWING ANALYSIS - SPRINGVALE RD 9AM
NEL-EST-NEA-6600-UUD-PLA	**4022**	GA_08 - OVERSHADOWING ANALYSIS - SPRINGVALE RD 12PM
NEL-EST-NEA-6600-UUD-PLA	**4023**	GA_08 - OVERSHADOWING ANALYSIS - SPRINGVALE RD 3PM
NEL-EST-NEA-6600-UUD-PLA	**4050**	GA_03 - FOCUSED OVERSHADOWING ANALYSIS - ERAM RD 01 9AM-11AM - TYPE 1 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4051**	GA_03 - FOCUSED OVERSHADOWING ANALYSIS - ERAM RD 01 12PM-2PM - TYPE 1 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4052**	GA_03 - FOCUSED OVERSHADOWING ANALYSIS - ERAM RD 02 9AM-11AM - TYPE 1 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4053**	GA_03 - FOCUSED OVERSHADOWING ANALYSIS - ERAM RD 02 12PM-2PM - TYPE 1 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4054**	GA_06 - FOCUSED OVERSHADOWING ANALYSIS - CONRAD CT 9AM-11AM - TYPE 1 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4055**	GA_06 - FOCUSED OVERSHADOWING ANALYSIS - CONRAD CT 12PM - TYPE 1 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4056**	GA_03 - FOCUSED OVERSHADOWING ANALYSIS - ERAM RD 01 9AM-11AM - TYPE 3 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4057**	GA_03 - FOCUSED OVERSHADOWING ANALYSIS - ERAM RD 01 12PM-2PM- TYPE 3 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4058**	GA_03 - FOCUSED OVERSHADOWING ANALYSIS - ERAM RD 02 9AM-11AM - TYPE 3 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4059**	GA_03 - FOCUSED OVERSHADOWING ANALYSIS - ERAM RD 02 12PM-2PM - TYPE 3 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4060**	GA_06 - FOCUSED OVERSHADOWING ANALYSIS - CONRAD CT 9AM-11AM - TYPE 3 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4061**	GA_06 - FOCUSED OVERSHADOWING ANALYSIS - CONRAD CT 12PM - TYPE 3 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4062**	GA_03 - FOCUSED OVERSHADOWING ANALYSIS - ERAM RD 01 9AM-11AM - TYPE 5 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4063**	GA_03 - FOCUSED OVERSHADOWING ANALYSIS - ERAM RD 01 12PM-2PM- TYPE 5 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4064**	GA_03 - FOCUSED OVERSHADOWING ANALYSIS - ERAM RD 02 9AM-11AM - TYPE 5 ASSESSMENT

4. Project description and design response

Drawing Code	Drawing No.	Drawing Title
NEL-EST-NEA-6600-UUD-PLA	**4065**	GA_03 - FOCUSED OVERSHADOWING ANALYSIS - ERAM RD 02 12PM-2PM - TYPE 5 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4066**	GA_06 - FOCUSED OVERSHADOWING ANALYSIS - CONRAD CT 9AM-11AM - TYPE 5 ASSESSMENT
NEL-EST-NEA-6600-UUD-PLA	**4067**	GA_06 - FOCUSED OVERSHADOWING ANALYSIS - CONRAD CT 12PM - TYPE 5 ASSESSMENT

5. Consistency with the Urban Design Strategy

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5. Consistency with the Urban Design Strategy

The UDS outlines the expectations of the Victorian Government for the design outcomes required to be achieved by the North East Link Program. Compliance with the UDS ensures consistent, high-quality and context-sensitive urban design outcomes for the North East Link Program while encouraging innovation and ideas from industry.

The purpose of the UDS is to:

- establish and communicate the urban design requirements for the North East Link Program
- provide a proposal that is developed with integrated urban design solutions
- provide the framework for a performance-based assessment of UDLPs.

The UDS is comprised of four key sections:

1. Corridor-wide requirements which set out a design approach for the North East Link Program that includes principles, objectives and key design directions
2. Place-specific requirements which guide design development within three distinct character areas so that existing landscape and natural features influence the design
3. Detailed requirements and benchmarks which relate to specific design elements and inform the minimum standard of the design quality expected for the North East Link Program
4. Urban Design Framework Plans which set out design and development priorities for five key locations to guide design development and to minimise landscape and visual impacts at these locations

The UDS was originally approved by the Minister for Planning in March 2020. An amendment to the UDS was approved by the Minister for Planning in 2025 which made changes to requirements that relate to existing pedestrian bridges over the Eastern Freeway.

Sections 5.1 to 5.6 of this UDLP describe how the Eastern Freeway Upgrades — Tram Road to Springvale Road design aligns with the UDS requirements.

The responses should be read in conjunction with the design documents provided as attachments to this UDLP, and the UDS.

5. Consistency with the Urban Design Strategy

5.1 Urban design principles and objectives

This section of the UDLP demonstrates compliance against Section 3.1 of UDS. The eight principles outlined in the UDS inform a whole-of-corridor design approach that is applied locally to develop a context-sensitive design.

Details will be finalised through design development and will be to the satisfaction of the future asset owners.

Table 3: Response to UDS principles and objectives

UDS reference	Urban design outcome	UDLP response
	Principle 1 — Identity **A well-defined identity and sense of place add to people's experience and understanding of a place.**	
Objective 1.1 — Sense of Place	Protect, maintain and enhance the identity of local places, and respectfully represent Indigenous and non-indigenous cultural values. This includes appropriate consideration of local community facilities, the natural environment, European and Indigenous history, and cultural places such as the Bolin Bolin Billabong, Yarra Bend Park, and Heide Museum of Modern Art.	The design connects the freeway in the Koonung Creek Valley landscape character area. It respects the natural landscape, honours living cultural heritage and acknowledges the interconnectedness of all elements of Country. A Historical Heritage Assessment undertaken as part of the EES identified no historic heritage places within the Project Boundary. A heritage overlay applies partly within the Project Boundary to the east of Middleborough Road, however this site relates to aplace of Aboriginal heritage significance and is managed in compliance with the approved CHMP. An Archaelogical Heritage Assessment undertaken by the project identified a new archaeological place in Junction Road Reserve, partly within the Project Boundary. This site has been included on the Victorian Heritage Inventory by Heritage Victoria (H7922-0541 Yarrandoo Park Former Farm Site). The heritage place relates to a former farm and homestead that was present at the site during the 19th and 20th centuries. Whilst the heritage place is partly within the Project Boundary, no ground disturbing works are proposed as part of this UDLP. If works are required within the site extent, the Project will apply for a consent under the Heritage Act 2017 from Heritage Victoria. The design presented in this UDLP responds to Indigenous cultural themes by carrying forward the work already undertaken by NELP in partnership with WWCHAC, through development of the UDS and other UDLP designs. It will continue to be developed in consultation with WWCHAC and adopt the outcomes of this co-design process to incorporate traditional ecological wisdom and cultural knowledge. The Project will foster a sense of place and identity for the community through targeted urban design and landscaping interventions. Navigation nodes will enhance intuitive navigation and create moments of pause along the Koonung Creek Trail and the intersecting path network. Located at junctions, underpasses or at-grade road crossings, nodes are embedded in the landscape, offering an opportunity for Wurundjeri Woi-wurrung culture to be integrated and creating spaces where stories, knowledge and connection to Country can be experienced. Open space designs reinstate and enhance grassed areas at Eram Park, Junction Road Reserve and smaller parklands, which provide access to light and views and contrast to shaded areas. These parklands will be reinstated so that current uses can be ongoing, aligning with community sentiment. These spaces are enhanced through new and upgraded gravel paths connecting users to the Koonung Creek Trail, transitioning through navigation nodes, and providing access across the open spaces themselves. Topographic features, such as mounds, will enhance Junction Road Reserve by creating areas for visitors to explore and interact with. The design also provides for community facilities, such as fitness equipment or a nature-based play area, with the final function and location to be agreed with council during the design development process. Landscaping and canopy reinstatement either side of the freeway corridor will enhance the existing visual and ecological identity, particular where revegetation occurs along the Koonung Koonung.

5. Consistency with the Urban Design Strategy

UDS reference	Urban design outcome	UDLP response
Objective 1.2 — Recognise the Yarra River (Birrarung)	Provide a design that respects and promotes the Yarra River (Birrarung) and its environs which encompass its tributaries, wetlands, billabongs, native vegetation and parklands such as Banyule Flats, and seek opportunities to celebrate this iconic Melbourne asset and ceremonial meeting place for the benefit of Traditional Custodians and the general public.	The Project does not interact with the Birrarung directly, but will have a strong relationship with the Koonung Koonung, which is a tributary of the Birrarung. The Koonung Koonung holds ongoing cultural significance as part of an interconnected system of waterways that have sustained Wurundjeri Woi-wurrung peoples for generations. The design includes the following elements that promote and celebrate the Koonung Koonung (and by extension the Birrarung): – Revegetation and enhancement focusing on the banks of the Koonung Koonung. Indigenous plants will promote the local ecosystem and create habitat for fauna, aided by targeted weeding of the understorey. These plantings will be informed by traditional ecological knowledge, seasonality and relationships with wildlife. – Rest points along the Koonung Creek Trail are designed to provide places to relax and enjoy the scenery. These areas will be enhanced with native vegetation to maintain the natural aesthetic and benefit the local environment. Rest points are also opportunities for connection to Country, incorporating design elements that acknowledge cultural practices. – Realigned sections of the Koonung Koonung and surrounding landscape treatments will create opportunity for interaction with the creek and highlight the cultural importance of the Koonung Koonung as a living entity. – Spaces for community gatherings and ceremonies are incorporated, recognising the cultural significance of the area to the Wurundjeri Woi-wurrung. Design elements that facilitate knowledge sharing and storytelling reflect traditional practices of coming together on Country and support cultural continuity. – Improved pedestrian and cycling connections will facilitate greater community access to recreational and habitat areas while acknowledging traditional travel routes. This encourages more visitors and promotes an active, outdoor lifestyle.
Objective 1.3 — Landscape and Visual Amenity	Sensitively enhance landscape and visual outcomes and reduce physical and visual impacts associated with the project.	The design considered multiple user groups, including drivers, public transport users, cyclists and pedestrians using the Koonung Creek Trail, to ensure enhancements cater to diverse needs and experiences. The following elements of the design enhance landscape and visual outcomes or reduce impacts: – The character of existing public open spaces is maintained, ensuring consistency in the overall landscape. – The new Eram Road pedestrian and cycling bridge design is consistent with the family of bridges along the Eastern Freeway corridor, promoting harmony and visual continuity. – Existing infrastructure, such as the Cabena Street bridge, Koonung Road bridge and existing noise walls, are maintained to preserve the recognised and valued urban design character. – The design of patterns and materials for new noise walls creates visual interest while being visually consistent with the existing structures and the landscape. Acrylic panels are used in some noise walls to facilitate views of the landscape. – A variety of planting characters throughout the Project, including along roadways, at navigation nodes, and within public open spaces, enhance visual interest and environmental quality. – Design elements incorporate Wurundjeri Woi-wurrung cultural values by responding to the visual and sensory qualities of Country, acknowledging that landscape qualities are connected to cultural continuity and knowledge systems that have evolved over thousands of years.
Objective 1.4 — Existing Landscape Character	Provide a high quality design outcome that responds sensitively to the distinctive character of this part of Melbourne, takes advantage of existing landmarks and vegetation, views and significant places, protects landscape and vegetation, and seeks to enhance the way in which people experience and interact with the landscape.	The design presented in this UDLP responds sensitively to the character of the Koonung Creek Valley area and Eastern Freeway. Section 5.3 details opportunities aligning with the characteristics of the Koonung Creek Valley landscape character area in which the Project occurs. A key example is the enhanced areas along the Koonung Koonung, which will foster community connections, improve the creek's natural habitat, and encourage ecological growth. Seamless integration with movement networks along Koonung Creek Trail will enhance access to and usability of the spaces around the Koonung Koonung and encourage interaction with the enhanced waterway. The design acknowledges that ecological restoration supports not only environmental outcomes but also cultural continuity and knowledge sharing.

5. Consistency with the Urban Design Strategy

UDS reference	Urban design outcome	UDLP response
Objective 1.5 — Sense of Place	Make a positive architectural contribution to infrastructure including bridges, noise walls and other structures.	The design for key pieces of infrastructure — bridges, noise walls and other structures — maintains the high quality of the existing Eastern Freeway, the interfacing EastLink and other North East Link UDLPs. For example, the new Eram Road pedestrian and cycling bridge builds architectural expression into the shape of the girder itself, rather than cladding. Throw screens along the bridge are made from stainless steel mesh maximise visibility on and off the bridge, improving surveillance while creating a lightness above the structural form. The bridge lookout creates an opportunity for visitors to appreciate the cultural value of Country. This designed viewpoint acknowledges that 'sense of place' is deeply connected to cultural wisdom and ongoing connection to Country. The designs of noise walls are of a high quality and look to complement the award winning Wood Marsh concrete noise walls being retained along the project corridor. Noise walls also use recycled plastic panels for better sustainability.

5. Consistency with the Urban Design Strategy

Navigation nodes

The term 'navigation node' is used throughout this UDLP to describe areas at decision points along the Koonung Creek Trail that are landscaped to provide natural and intuitive wayfinding for people.

Nodes can include seating and lighting, as well as different pavement treatments and plants to make them stand out. They also have signs to let people know where they are and which way to go to get to key destinations.

UDS reference	Urban design outcome	UDLP response
	Principle 2 — Connectivity and Wayfinding **Well-connected and legible networks and places contribute to strong economies and healthy, inclusive communities.**	
Objective 2.1 — Connectivity	Improve people's ability to move through the immediate and wider area with ample, efficient and quality links across and along the corridor for all transport modes, including pedestrians and cyclists	The design seeks to improve people's ability to move through, along and across the freeway corridor and surrounding open spaces in the following ways: – The highly valued Koonung Creek Trail will be improved by replacing existing Eram Road pedestrian bridge with a new structure to ensure safe and accessible pedestrian and cycling connections either side of the Eastern Freeway. – Widening the Eastern Freeway will ensure smooth and continuous connection to other areas of Melbourne for drivers. – The design for the new Koonung Creek pedestrian and cycling bridge on the Koonung Creek Trail at Eram Park meet latest design standards for accessibility. – Upgrades to the approaches to existing pedestrian bridges at Koonung Road and Cabena Street will improve sightlines and accessibility for pedestrians and cyclists of all abilities to create a safer, more intuitive connection. – As people travel along the Koonung Creek Trail, interpretative signage and other elements reflecting the Wurundjeri Woi-wurrung way of life on this part of Country will create an immersive cultural experience and support traditional ways of navigating through Country.
Objective 2.2 — Transport Integration	Maximise the benefits of the project by facilitating seamless access to a variety of public transport, walking and cycling choices as part of a connected intermodal network.	The design facilitates access to different transport choices in the following ways: – The existing network of paths adjacent the Eastern Freeway along the Koonung Creek Trail west towards Doncaster and east towards Nunawading are enhanced through improved wayfinding facilitated by signage and landscaped navigation nodes at approaches to key decision points. – A new pedestrian and cycling bridge over the Eastern Freeway at Eram Road will provide improved access for pedestrians and cyclists across the freeway corridor. – Upgrades to the existing pedestrian bridges at Koonung Road and Cabena Street will provide clearer sightlines and make the bridges more accessible to both pedestrians and cyclists through enhanced approaches and handrail improvements. – Pedestrian and cycling paths will offer opportunity for cultural immersion and deeper appreciation of the natural landscape. – Upgrades to an existing bus stop at Middleborough Road and delivery of a new bus stop will provide better public transport connectivity, integrating with the Park and Ride facilities at Doncaster and Bulleen and the Eastern Busway. Existing bus network connectivity is maintained by using the shoulder as a de facto bus lane.
Objective 2.3 — Legibility and Wayfinding	Provide a coordinated design that promotes visual connections and wayfinding, reduces reliance on signage and minimises visual clutter and obstructions to key views.	This UDLP presents a coordinated design that promotes visual connections and wayfinding through the following strategies: – The landscape strategy incorporates navigation nodes, wayfinding planting, and visual treatments to paths to communicate decision points and establish journey markers along the Koonung Creek Trail. These elements naturally guide users without the need for excessive signage. – Areas with poor visual connections will be upgraded. This includes improvements to the southern approach to the Cabena Street pedestrian and cycling bridge and a new staircase, enhancing sightlines and overall visual connections to create a more cohesive and navigable environment. – Wayfinding elements will incorporate cultural wisdom creating opportunities for visitors to acknowledge and learn the history of this part of Country. – Navigation nodes are strategically located to create new rest points at natural pauses and providing opportunities for users to enjoy key views along the Koonung Creek Trail.

5. Consistency with the Urban Design Strategy

UDS reference	Urban design outcome	UDLP response
	Principle 3 — Urban Integration **Well integrated infrastructure provides a sound framework for successful cities and places.**	
Objective 3.1 — Integration with Context	Avoid, minimise and mitigate any severance of communities. Provide a well-integrated corridor environment that enhances the street network and takes advantage of opportunities to connect and integrate with the broader commercial, residential and open space functions and environment.	The design minimises its footprint as much as possible to avoid severing communities, access to open spaces or movement networks, both in the immediate and wider surrounds of the Eastern Freeway. The number of crossings and access points of the Eastern Freeway and the Koonung Koonung is maintained, allowing existing connections to destinations nearby and further afield to remain with improvements to the quality of these connections provided where possible. Retention of the existing Koonung Road and Cabena Street pedestrian bridges minimises tree removal and existing noise wall removal. This retains the functionality of the site and allows local residents to continue to use their existing paths of travel across the corridor. The approaches to both bridges will be upgraded with landscaped navigation nodes, making them easier to find and to access for people of all abilities. While some open space areas will be reduced as a result of freeway widening, this impact is balanced by focused and localised improvements to the open space and landscaping.
Objective 3.2 — Integration of Design	Ensure an integrated engineering, urban design, architectural and landscape architectural approach that sensitively addresses social, cultural, functional and physical aspects of the project.	Urban design, landscape, architectural and engineering design were developed alongside one another to ensure an integrated and cohesive solution. The design addresses functional and social elements through enhanced wayfinding and accessibility along the Koonung Creek Trail, better lighting and surfacing at underpasses, and reinstated and enhanced landscaped open spaces in Eram Park and Junction Road Reserve. The urban design drivers of cultural wisdom, community connection, coherence and navigation, and retention and regeneration, guide the design process to improve the road corridor, while retaining and enhancing the public realm. The physical design of the widened freeway, noise walls and the new pedestrian and cycling bridge at Eram Road engage people inside and outside of the road corridor with the environment, transitioning users 'through, on and above Country' creating greater visibility of the Koonung Koonung and integrating narratives across all design elements while maintaining functionality. The design speaks to the fundamental belief that water is life, acknowledging the Wurundjeri Woi-wurrung peoples' deep interconnection with waterways. It provides an experience of water in different expressions: flowing waters of movement and connection and gathering waters of reflection. Architectural concepts have developed as 'connecting spaces' of movement and direction, such as pedestrian and cycling bridges, and 'gathering spaces' of pause and reflection, such as the navigation node east of Eram Park, adjacent to the Koonung Koonung.
Objective 3.3 — Strategic Alignment	Provide an integrated transport infrastructure and land use solution that responds to strategic transport and land use planning for the broader precinct in consultation with local government and authorities.	The North East Link Program has been informed by state-wide and regional strategic transport and land use planning, in consultation with local government and authorities. The EES Reference Design considered key strategic planning documents and legislation such as Plan Melbourne 2017–2050 (and 2019 Addendum), Healthy Waterways Strategy 2018–2028 and Victorian Cycling Strategy 2018–28, Public Transport Guidelines for Land Use Development and the Yarra River Protection (Wilip-gin Birrarung murron) Act 2017. These were reflected in the UDS approved by the Minister for Planning, which sets out the urban design outcomes and objectives this project will achieve. The design presented in this UDLP is in accordance with the UDS, and by nature, the broader strategic transport and land use strategies that informed it.

5. Consistency with the Urban Design Strategy

UDS reference	Urban design outcome	UDLP response
Objective 3.4 — Minimise Footprint	Minimise negative impacts on the community and the environment by minimising the project footprint and visual bulk, particularly where it intrudes on sensitive land uses including open space and existing vegetated areas.	The design seeks to reduce the project footprint and visual bulk of structures using the following measures: – The constrained width of the Eastern Freeway reserve in the UDLP area limited opportunities to significantly reduce the overall footprint of roadworks. However, the design achieves an improved outcome at Eram Park by optimising the arrangement of the eastbound ramp structures, reducing the visual bulk. – The design retains existing noise walls where possible, minimising the construction associated with installing new noise walls and avoiding the need to remove existing vegetation and trees. Where existing noise walls are retained, visual bulk is not adversely impacted since existing conditions are preserved. – Screening plantings, focused understorey planting, and weed management in Eram Park create layered views toward the freeway, enhancing the visual quality and natural feel of the area. – Acrylic sections in noise walls allow visual and solar permeability, softening visual bulk by making the structures transparent and less intrusive without compromising on traffic noise reduction.
Principle 4 — Resilience and Sustainability **Infrastructure must be sustainable, enduring and resilient to support current and future generations.**		
Objective 4.1 — Enduring and Durable	Provide a design that is enduring and functional for generations to come, is readily maintainable and will age gracefully in concept and detail, ensuring a positive built form legacy.	To provide an enduring and functional design the following strategies have been implemented: – The existing Koonung Road and Cabena Street pedestrian bridges will be retained and upgraded for better walking and cycling access. Designed by Bruce Day, these bridges are valued for their elegant and simple forms without the use of claddings or heroic architectural gestures. Their retention leaves a historical legacy intact. – Material selection for noise walls favours MRPP for their recycled content, low carbon footprint, maintainability, and constructability advantages due to their weight. A textured finish on both faces will enhance visual appeal and act as a graffiti deterrent, ensuring durability and ease of maintenance. – Both landscape and architectural solutions are grounded in Wurundjeri Woi-wurrung culture to create spaces that support cultural continuity and foster community connection across generations. – The landscape and open space design aspires to regenerate the area, enhance habitat, and create moments for interaction with the Koonung Koonung. The realignment of the Koonung Koonung at Eram Park includes shallow embankments planted with riparian and aquatic vegetation, contrasted with rock edge treatments using locally sourced rock. To ensure longevity, the design of landscaping, open spaces and the Koonung Koonung realignment has been prepared to meet returned asset owner maintenance requirements as required by relevant EPRs. – Materials, furniture, and fixtures have been chosen for their durability and sustainability, in line with asset owner requirements, so they are easy to maintain and to replace if necessary. – Placemaking initiatives at navigation nodes and enhancements along Koonung Creek Trail, such as lighting and path surface treatments, have been selected to improve safety and wayfinding for the community into the future.

5. Consistency with the Urban Design Strategy

UDS reference	Urban design outcome	UDLP response
Objective 4.2 — Resilience and Future Proofing	Ensure the infrastructure is able to survive, adapt and perform when subjected to acute stresses and shocks such as changes in climate, technology, future fleets, road use and extreme events.	The design ensures resilient infrastructure in the following ways: – A climate and natural hazards risk assessment and treatment plan is being developed in accordance with IS version 2.1 credit Res-1 to support delivery of a future-proofed outcome. Risks have been identified by the design team and evaluated for severity and likelihood using Representation Concentration Pathway (RCP) 8.5 climate projections. – Mitigation methods are being developed and integrated into the design and operation of the asset to increase the Project's resilience to a changing climate. – Flood modelling considers climate change rainfall intensity and design of flood walls, flood retention and drainage systems can accommodate current and future rainfall events. – A resilience plan is being developed in accordance with IS version 2.1 credit Res-2 that identifies and mitigates acute shocks and chronic stresses likely to impact the asset to ensure the infrastructure contributes to broader community resilience. – Landscapes are being designed to support a resilient outcome from new ecosystems that are better able to manage flood events, such as at the Koonung Koonung, to landscapes that expand over time, such as the batters planted with species that self-colonise and thrive in harsh conditions. – Integrating Wurundjeri Woi-wurrung ecological wisdom in the approach enhances the Project's resilience while supporting cultural continuity. It is based on 65,000 years of continuous connection.
Objective 4.3 — Environmental Sustainability	Optimise environmental performance and embed sustainability initiatives into the design response. This includes integrated water management, biodiversity and habitat enhancement and connections, green infrastructure provision and sustainable use of energy and materials.	The design is committed to embedding sustainable initiatives to optimise environmental performance through the following strategies: **Resource efficiency** – Pavement design has optimised the geometry, thicknesses and material selection to reduce impacts. – Lower carbon concrete is adopted through reduction of Portland Cement and trialling of emerging concrete technologies. – Noise wall design has maximised retention, minimised dimensions and adopted MRPP panels with recycled content. **Urban ecosystems** – WSUD principles have been applied to manage stormwater effectively, such as swale systems and bio-filtration basins. – The shape and flow of the Koonung Koonung are adjusted to improve stability and resilience. The riparian environment is improved and protected through native plantings. – Understorey biodiversity is improved by controlling invasive species and planting natives. – A continuous and well-connected habitat corridor is supported through plantings and improvements along the Koonung Koonung. **Communities** – Improved connections are provided between the Koonung Creek Trail, pedestrian and cycling bridges, and surrounding parklands. – Eram Park and Junction Road Reserve are upgraded through multi-tiered vegetation layered planting, canopy reinstatement, and reuse of cleared vegetation and site fill. – The design provides multi-functional areas in the open space network – Public access to the creek is improved through enhanced pathways, seating areas, and viewing points.

5. Consistency with the Urban Design Strategy

UDS reference	Urban design outcome	UDLP response
Objective 4.4 — Whole of Life	Ensure the design is appropriate having regard to ongoing maintenance, operations and upkeep; and effective governance arrangements are established to ensure its functionality, design qualities and appearance is able to meet community expectations.	As part of the design development process, design reports include an operations and maintenance review of the design, covering maintenance access, material maintenance considerations and durability assessments. Coordination with relevant authorities will ensure ongoing maintenance delivers best outcomes. The design will deliver outcomes for landscape and infrastructure that meet community expectations and maintenance requirements. Agreements with proposed asset owners will be obtained to ensure the standard and final design accords with the stakeholders' expectations. North East Link is targeting net zero emissions in operation and maintenance. The Project will support this objective through initiatives that minimise operational energy and ongoing maintenance requirements and incorporation of adaptability and end of life considerations, such as in the event of future major changes to technology or capacity, and response to emergency situations.
 **Principle 5 — Amenity** **High quality urban amenity afforded by well-designed infrastructure contributes to successful, equitable and prosperous communities.**		
Objective 5.1 — Improved Amenity	Enhance urban amenity through a highly considered and site-specific response to realise opportunities and address challenges to create better places for people.	The design enhances built, cultural, and natural amenities and creates opportunities for active and passive recreation using the following strategies: – Where new noise walls are required to meet the traffic noise standard for the project, the design is aligned with the interfacing Eastern Freeway Upgrades — Burke Road to Tram Road UDLP, EastLink, and the existing conditions of this UDLP corridor. Noise walls blend into the urban landscape using materials that weather and soften over time to minimise visual impact for the community. Acrylic panels are used to avoid overshadowing where necessary, improving both function and aesthetics. Representations of cultural elements will be incorporated in the noise wall surface patterns celebrating Wurundjeri Woi-wurrung connection to place and enhancing visual interest and sense of place for the community more broadly. These elements will be finalised in consultation with the Wurundjeri Woi-wurrung during design development. – The new Eram Road pedestrian and cycling bridge makes it easier for pedestrians and cyclists to traverse the area. Its new location slightly west toward Tram Road will provide a more visible, safer and more accessible route, contributing to the overall functionality and recreational value of the area. – New native understorey and riparian planting, natural swale systems and bio-retention basins, as well as possibilities for habitat creation through reuse of trees impacted by construction along the Koonung Koonung will enhance the natural habitat and aesthetic appeal of the area while also improving the natural systems locally and further downstream. – Where the Koonung Koonung must be realigned to accommodate the widened freeway, the new alignment will be landscaped and planted to mimic a natural environment, with more native plantings to support biodiversity and more places to stop and view the creek. This will enhance the amenity for residents, commuters and visitors to this section of the creek. – Access is improved at the southern approach of the Cabena Street bridge with better visibility resulting from a navigation node and a new stepped access to the bridge to ensure more people can use this link with ease to reach and enjoy the amenities afforded by Koonung Creek Trail and the Koonung Koonung itself. It makes the area more inclusive and accessible, fostering community connection and use. – Using a navigation nodes strategy, the Project enhances the amenity along the Koonung Creek Trail, creating engaging and user-friendly points of interest and opportunities for passive recreation at landmarks and open spaces as familiar navigation markers for users. Wayfinding that explores Wurundjeri Woi-wurrung wisdom and knowledge of Country and cultural practice will be incorporated in these areas through the co-design process as the design develops. These enhancements make the trail more attractive for recreational use and improve the overall experience for visitors.

5. Consistency with the Urban Design Strategy

UDS reference	Urban design outcome	UDLP response
Objective 5.2 — Landscape Values	Create positive outcomes for the community with a coherent landscape response that embraces natural qualities and values.	To create positive outcomes for the community with a coherent landscape response that embraces natural qualities and values, the project incorporates a variety of landscape planting types and applications across different areas. These efforts ensure the suitability and integration of natural elements into the urban environment, ultimately enhancing the community's experience and ecological value. The following strategies are incorporated in the design to achieve this requirement: – Different planting types are employed across the road corridor, along Koonung Creek Trail, at navigation nodes and within open spaces such as Eram Park and Junction Road Reserve. The planting design includes a variety of species, chosen to be consistent with existing approved UDLPs, to respond to individual site conditions, to meet asset owner requirements, be easy to maintain and considering the future conditions created by climate change. Planting types create distinct identities across the project area. Returned asset owner input and experience has been considered in developing the species lists for different locations. – The Project enhances the natural environment by to reincorporating native plant species into these open spaces and integrating repurposed trees and other vegetation impacted during construction elsewhere, while enhancing the existing recreation areas for use by the community. – Navigation nodes are strategically placed along the Koonung Creek Trail and involve: Primary nodes located at key decision points such as path junctions and at approaches to pedestrian and cycling bridges; and secondary nodes at road crossings and underpasses — to enhance intuitive navigation, to provide opportunities for placemaking, showcase the natural qualities and values of the trail. These nodes serve as points of interest and passive recreation, integrating natural elements and making the trail more enjoyable for the community. – Opportunities to restore the Koonung Koonung habitat through WSUD elements such as appropriate weed management and integrated water management through passive irrigation to improve water quality and provide a sustainable environment for flora and fauna that in turn creates an attractive destination for community enjoyment. – The landscape design incorporates Wurundjeri Woi-wurrung cultural wisdom through plant selection and spatial arrangements that reflect traditional understanding of Country. This approach connects ecological restoration with cultural continuity, creating landscapes that support ongoing connection to Country across generations. – The landscape design is carefully considered to ensure that each intervention is appropriate for its specific location. This includes selecting plant species that thrive in the local conditions and designing landscapes that complement the natural qualities and values of the area. The reuse of soils and other natural material will be carefully managed to ensure any risk of adverse ecological impact is avoided.

5. Consistency with the Urban Design Strategy

UDS reference	Urban design outcome	UDLP response
Objective 5.3 — High Quality	Provide a high quality design outcome that makes a positive contribution to the local built and natural environment and minimises physical and visual impact on the surrounding community.	The integration of purposeful architectural forms and natural elements ensures minimal visual and physical impact while enhancing the ecological and recreational value of the area. The following are examples of these design forms and elements: – **Urban design noise wall strategy:** The noise wall strategy is site-specific, responding to existing conditions within this UDLP and with the interfacing Eastern Freeway Upgrades — Burke Road to Tram Road UDLP and EastLink. Sections of existing noise walls will remain, allowing for established vegetation in these areas to be retained, maintaining existing built and natural conditions and directly minimising the physical and visual impact on the surrounding community. Materials for new noise walls have been intentionally chosen to remove a sense of "new versus old" by ensuring new sections of walls can naturally weather and soften to integrate with the recognised aesthetic of existing walls. Siting of new noise walls reflects arrangements of existing walls and spaces for plants and trees has been included where possible to help screen the noise walls, thereby minimising visual impacts on local communities and enhancing the natural environment. The cultural elements represented in the noise walls will be complementary to existing conditions while celebrating Wurundjeri Woi-wurrung connection to place. – **Purposeful architectural forms at pedestrian and road bridges:** The Eram Road pedestrian and cycling bridge is designed with architectural forms that avoid the use of superfluous materials which would otherwise risk delineating the proposed structure from the design language of existing pedestrian bridges at Koonung Road and Cabena Street. Likewise, the eastbound and westbound ramps between Tram Road and Middleborough Road interchanges have been designed without portal piers which are considered an undesirable urban design outcome due to their visual scale and bulk. The elegant forms of both types of structures not only promote their landmark features and function but also reduce visual clutter, providing a cohesive and high-quality design. The Eram Road pedestrian and cycling bridge will be a focal point for Wurundjeri Woi-wurrung storytelling and expressions of culture. – **Koonung Koonung realignment and landscape approach:** The landscape approach reimagines the Koonung Koonung corridor, enhancing biodiversity and improving water quality and habitat. The design notes the importance of the waterway and its surrounding environment to the community, ensuring landscaping and urban design opportunities during creek realignment contribute positive outcomes to the waterway and surrounds which can be enjoyed by the community through focused placemaking interventions. The realignment will be sympathetic to existing strategies and policies which outline best practice approaches and embedded wisdom from Wurundjeri Woi-wurrung living cultural values. – **Enhanced Koonung Creek Trail:** The Koonung Creek Trail is improved with new surface treatments, lighting and signage at key crossings and intersections. Underpasses at Station Street, Blackburn Road and Springvale Road are improved with new lighting and landscaping. Navigation nodes also provide clearer wayfinding for pedestrians and cyclists and places to meet and rest along the trail, enhancing the recreational value of the trail and better aligning with the objectives of a Strategic Cycling Corridor, contributing positively to active transport infrastructure. – **Landscape planting types and applications:** A variety of landscape planting types are applied across the road corridor, navigation nodes along Koonung Creek Trail, and in open spaces. This enhances the natural landscape, creates habitat, and improves visual amenity including siting to screen views of project infrastructure, leading to areas that are appropriately landscaped to match their respective conditions and use. A tree retention and removal strategy realigns the existing buffer vegetation to the future alignment and will include native species supported by multi-tiered plantings in existing open spaces and interfacing surrounding land uses. There will be a strong emphasis on plant species that are important to Wurundjeri Woi-wurrung culture and way of life.

5. Consistency with the Urban Design Strategy

UDS reference	Urban design outcome	UDLP response
Objective 5.4 — Experiential	Provide a great journey for motorists, public transport users, pedestrians and cyclists with consideration of the varying speeds and journey types. Prioritise the visual amenity of the community over the road user.	The design aligns infrastructure to maximise community space and enhance visual appeal through thoughtful landscaping and materials that acknowledge and celebrate Wurundjeri Woi-wurrung living cultural values. The following strategies and intervention opportunities are incorporated in the design to achieve this requirement: – New noise walls are aligned as close to the new freeway alignment as possible. This provides more physical space for the community by reducing the footprint of road infrastructure. As a result, screening planting can be implemented in the open spaces, enhancing the visual and physical environment for community members. – High-quality materials are selected to maintain the recognised visual appeal of existing noise wall designs, consolidating new with old and providing a backdrop for further amenity and landscaping improvement opportunities. – Open spaces such as parks and trails are thoughtfully landscaped to create inviting environments for pedestrians and cyclists with strategic planting and navigation nodes. – Infrastructure such as the Eram Road pedestrian and cycling bridge is designed with an emphasis on minimalism and elegance, reflective of the design of the existing bridge that it replaces, delivering a structure that is visually appealing and unobtrusive. – Plants and trees are strategically planted to screen infrastructure and enhance open spaces once mature, providing a reinstated vegetation buffer between road and residential land uses that seeks to minimise views of the freeway corridor and traffic noise – The Project considers the varying speeds and journey types of users. Pedestrians and cyclists benefit from enhanced, safe, and visually appealing pathways, while motorists and public transport users experience well-designed roads that integrate seamlessly with the surrounding landscape.

5. Consistency with the Urban Design Strategy

UDS reference	Urban design outcome	UDLP response
	Principle 6 — Vibrancy **Vibrant communities are places where people want to visit, experience or live.**	
Objective 6.1 — Putting People First	Provide places that are comfortable, inclusive and pleasant for the local community, support active and healthy lifestyles, and encourage diverse social interaction within public spaces.	By integrating thoughtful design elements and strategies informed by Wurundjeri Woi-wurrung cultural wisdom and connection to Country, the project will create public spaces that enhance the quality of life for the local community. The following thoughtful design elements and strategies are integrated to create public spaces that enhance the quality of life for the local community: – **Koonung Creek Trail improvements:** The Koonung Creek Trail is enhanced with a landscape navigation node strategy. These nodes improve the amenity by creating engaging and user-friendly points of interest along the trail. Each node provides places for rest, social interaction, and enjoying the natural surroundings, making the trail a more comfortable and pleasant place for the community. – **Eram Road and Koonung Creek pedestrian and cycling bridges:** The two pedestrian and cycling bridges are designed to meet the latest accessibility standards. These bridges provide safe, comfortable, and pleasant journeys for users, including those with disabilities. The alignments of the bridges and new path segments ensure easy access and smooth transitions within the trail network. – **Planting enhancements and revegetation:** Enhancing the planting within the Koonung Creek Trail and revegetating the Koonung Koonung enhances human-nature connections. These efforts create a more aesthetically pleasing environment that promotes relaxation and well-being. The natural landscape encourages active and healthy lifestyles by providing a serene and inviting space for walking, cycling, and other outdoor activities. – **Inclusive public spaces:** The project creates inclusive public spaces that cater to diverse community needs. By considering accessibility and comfort in the design of bridges and trails, the spaces are welcoming to people of different ages and abilities. This inclusivity fosters social interaction and community engagement, enabling diverse groups to come together and enjoy the public amenities. – **Encouraging diverse social interaction:** The navigation nodes along the Koonung Creek Trail are designed to encourage social interaction. These nodes provide seating, shaded areas, and gathering spots where community members can meet, socialise, and participate in recreational activities. The design promotes a sense of community and connection among users. – **Supporting active and healthy lifestyles:** The overall design of the trail and bridges supports active and healthy lifestyles. By providing well-planned, accessible, and visually appealing paths and recreational areas, the project encourages regular physical activity such as walking, jogging, and cycling. This, in turn, contributes to the health and well-being of the local community.

5. Consistency with the Urban Design Strategy

UDS reference	Urban design outcome	UDLP response
Objective 6.2 — Places for People	Improve local neighbourhoods where there are opportunities to create inviting, people-friendly streets and public places.	The design seeks to maximise improvements to existing infrastructure and public spaces to make neighbourhoods more welcoming and accessible, guided by Wurundjeri Woi-wurrung principles of caring for Country and connecting people. This is achieved using the following strategies: – The southern approach to the upgraded Cabena Street pedestrian and cycling bridge will be landscaped to provide better visibility and connectivity to the Koonung Creek Trail and Kett Street to enhance comfort, accessibility, and safety for users. The area will become a landscaped navigation node, with feature planting, stairs, and seating to create more inviting and people-friendly connection with the neighbourhood, accessible to people with a range of abilities. – The location of the new Eram Road pedestrian and cycling bridge also creates a more visible, accessible and inviting southern approach, where a landscaped navigation node with seating and signage will complement the bridge's lit handrails and be visible from the Koonung Creek Trail in both directions and from Lyndhurst Crescent, providing a new public space integrated with the existing urban environment and supporting and enhancing existing uses. The navigation node will also provide a level of speed calming to slow cyclists entering and exiting the bridge, reducing potential conflicts with pedestrians. – Enhancements to existing cross-corridor bridges and pathways improve connectivity within the neighbourhood, making it easier for people to move around and access different areas. These improvements contribute to a more walkable and connected community, encouraging people to utilise and enjoy public spaces. – Upgraded infrastructure serves as a catalyst for increased community engagement. By making these areas more inviting and functional, the project fosters a sense of community and encourages people to spend more time in public spaces. – Public spaces required for construction in Eram Park and Junction Road Reserve will be returned to the community with upgraded pathways, landscaping and planted areas making them more inviting for recreational use. Existing uses are respected and maintained in the design for the returned spaces with future uses and council aspirations for these areas also considered and accommodated. – New noise walls are aligned as close to the new freeway alignment as possible. This provides more physical space for the community by reducing the footprint of road infrastructure. As a result, screening planting can be implemented in the open spaces, enhancing the visual and physical environment for community members using shred use paths and parks as well as residential outlooks.
Principle 7 — Safety **Safe environments are essential for strong, connected and liveable communities.**		
Objective 7.1 — Safer Places	Reduce the opportunity for crime, maximise passive surveillance and support safe, comfortable and enjoyable places that meet Crime Prevention through Environmental Design (CPTED) principles.	The design incorporates the following strategies based on CPTED principles to ensure that the environment is safe and inviting for users: – The design explicitly incorporates CPTED principles to create spaces that are less conducive to crime. This includes strategies that enhance natural surveillance; access, movement and sightlines; activity; ownership; management and maintenance – The new path segments of the Koonung Creek Trail are designed to promote visibility and safety. These paths are laid out to ensure clear sightlines, reducing hidden areas where potential criminal activities could occur. The alignments are direct and logical, facilitating easy movement and surveillance. – Lighting at the approaches to and within underpasses is enhanced and upgraded to improve visibility and safety through their full extent. Bright, energy-efficient lighting reduces shadows and dark areas, deterring criminal activity and making these spaces feel safer and more comfortable for users at all times of day. – The alignment on the south side of the Koonung Creek Trail is constrained, which requires tailored safety considerations. Use of acrylic segments for noise walls in this area, particularly on the southern approach to the Cabena Street pedestrian and cycling bridge, ensures that these barriers do not obstruct sightlines, maintaining clear visibility for passive surveillance. Additionally, the routes are direct, and planting height and form are limited to ensure that they do not create visual barriers. This approach helps maintain open sightlines and enhances the feeling of security for path users.

5. Consistency with the Urban Design Strategy

UDS reference	Urban design outcome	UDLP response
Objective 7.2 — Road Safety	Prioritise safety for all users including motorists, cyclists, pedestrians and public transport users, and avoid unnecessary distractions.	The design incorporates measures to ensure that users can navigate the area safely and efficiently, such as: – The new path segments of the Koonung Creek Trail are designed with direct routes and clear sightlines. This minimises confusion and potential hazards, providing a safe and straightforward path for pedestrians and cyclists. – Upgraded lighting within underpasses improves visibility, reducing shadows and dark areas that could compromise safety. Bright, energy-efficient lighting ensures that these underpasses are well-lit, making them safer for pedestrians and cyclists, especially during night and early morning hours. – Signage and markings are used strategically to provide clear and unambiguous information to users. This includes directional signs, warnings, and other essential information that help prevent confusion and ensure safe navigation. – The Koonung Creek Trail alignment on the south side is designed with a particular focus on safety through the use of acrylic segments for noise walls, maintaining clear sightlines and avoiding visual obstructions, including those that contribute to unwanted overshadowing. Acrylic segments will involve a mix of solutions including minor treatments and full height acrylic walls where necessary to provide visibility for users on both sides of the noise wall. This helps prevent potential conflicts and ensures that path users can see and be seen, particularly at narrow points. Additionally, the height and form of plantings are limited at necessary locations to avoid creating blind spots, further enhancing safety and visibility for users. – Noise walls are aligned closer to the road corridor where possible, providing more physical space for the community and allowing for screening planting within open spaces. This strategy helps to separate road users from pedestrians and cyclists effectively, reducing distractions and improving safety. – CPTED principles are applied throughout the project to enhance natural surveillance; access, movement and sightlines; activity; ownership; management and maintenance. This includes ensuring that all paths and public spaces are designed with visibility and safety in mind.

5. Consistency with the Urban Design Strategy

UDS reference	Urban design outcome	UDLP response
	Principle 8 — Accessibility **Highly accessible and inclusive environments encourage positive activation and are vital to community wellbeing, inclusion and health.**	
Objective 8.1 — Universally Inclusive	Enhance universal access across the affected and surrounding area for all members of the community.	To ensure that public spaces and pathways are accessible, comfortable, and inclusive, the design includes the following: – The surface of the Koonung Creek Trail primary path is upgraded at sections within the project boundary where the path is in disrepair, realigned or otherwise impacted by construction. These sections of path are reinstated with a smooth, even surface and include artistic surface treatments and finishes on approaches to underpasses and navigation nodes to indicate decision points and changes in path direction. This improvement enhances accessibility, making the trail more welcoming and usable for people with disability, parents with prams and cyclists. – The upgraded southern approach to the Cabena Street pedestrian and cycling bridge features a new staired access in addition to the main access pathway. The staired access replaces the existing goat track down a steep incline with a manageable alternative for those seeking more direct access to the Kett Street interface. – Both the Eram Road and the Koonung Creek pedestrian and cycling bridges are designed to comply with accessibility standards, such as gradual sloping at the Eram Road structure for ease of use and adequate path widths at both bridges. The Eram Road bridge will also include functional lighting through handrail installations for improved user visibility. These accessible designs provide safe, easy, and comfortable crossings and allow users to navigate the area effectively. Retained bridges at Koonung Road and Cabena Street will receive improvements to handrails to provide greater safety for users. – The Koonung Creek Trail is graded and sloped at realigned and reinstated sections to meet the latest accessibility standards. These improvements ensure that the path is comfortable and accessible for users, including people with disability. Smooth gradients and appropriate slopes help prevent fatigue. – More seating and rest points are added along the Koonung Creek Trail, with most provided at navigation nodes in addition to secondary nodes. These amenities provide convenient places for users to rest and enjoy the surroundings, making the trail more usable and comfortable, including for seniors, children, and people with disability. – The design incorporates opportunities for cultural storytelling, education and reflection that honour Wurundjeri Woi-wurrung connection to place. These elements contribute to social cohesion and reconciliation by creating shared spaces where diverse community members can learn about and respect the traditional stewards of Country.

5. Consistency with the Urban Design Strategy

UDS reference	Urban design outcome	UDLP response
Objective 8.2 — Twenty-Minute Neighbourhoods	Support and enhance 20-minute neighbourhoods for convenient and desirable access to everyday services and facilities (within a 20-minute walk from their home, or faster by bicycle or local public transport).	The Project supports and enhances 20-minute neighbourhood connections where possible within the constraints of the scope, location and project boundary. The design considered existing connections, destinations and uses, and enhances these where possible. The Koonung Creek Trail and surrounding paths within the boundary of this UDLP are improved to meet current accessibility standards, contributing to a better connected pedestrian and cycling path network. The surface is upgraded to provide a smooth, accessible and desirable route for walking and cycling that residents can use to easily reach nearby services and facilities. The path is graded and sloped where reinstated or realigned to meet the latest standards, improving accessibility and comfort for users. This ensures that the path is user-friendly for people of different ages and abilities, encouraging more community members to use active transportation methods. Upgraded lighting in underpasses ensures that these routes are safe and well-lit for pedestrians and cyclists. Improved visibility makes these paths more appealing and secure for use at all times of day. Design elements incorporate CPTED principles to create safe, comfortable, and enjoyable spaces. This enhances the desirability of active routes and public spaces, encouraging community members to use these routes more frequently for their daily needs. The design maintains the number of crossings between the north and south sides of the freeway corridor with improvements to better accommodate cyclists at Koonung Road and Cabena Street bridges. A new Eram Road pedestrian and cycling bridge provides a safer and more accessible link to Eram Park or to the schools and shops on the southern side of the corridor. An assessment of the connectivity impacts of the new location is provided in Section 4.3.4. The improved southern approach of the upgraded Cabena Street pedestrian and cycling bridge adds a new stairway for enhanced accessibility, facilitating quicker, easier and more direct access for the community and encourages use of active transport to connect with local amenities. More seating and rest points are added along the Koonung Creek Trail. These amenities support active transportation by providing places to rest, making longer walks or cycle journeys more manageable and comfortable. This encourages more residents to travel by foot or bicycle to access everyday services and facilities.

5. Consistency with the Urban Design Strategy

UDS reference	Urban design outcome	UDLP response
Objective 8.3 — Active Transport	Encourage walking and cycling for transport and recreation with an integrated active transport infrastructure that meets future growth in demand and connects seamlessly with surrounding networks and with proposed infrastructure being delivered by others.	Examples of the strategies and intervention opportunities incorporated within this design to encourage walking and cycling include: – Maintaining connections to surrounding networks: The project ensures that existing connections to surrounding pedestrian and cycling networks are maintained. By preserving these vital links, the infrastructure supports continuous and uninterrupted routes for active transport users, facilitating easy movement between different areas. – Improving the amenity of Koonung Creek Trail: The amenity of the Koonung Creek Trail, which is extensively used for walking and cycling, is improved through a series of enhancements. This includes the focus node approach and other key upgrades: – Strategic navigation nodes are introduced along the Koonung Creek Trail to create engaging and user-friendly points of interest. These nodes not only enhance the visual appeal but also provide functional amenities that support active transport users. – New rest points and seating areas are added along the trail, offering convenient places for users to take breaks, socialise, and enjoy the surroundings. These features make walking and cycling more comfortable and appealing, encouraging more people to use the trail for both transport and recreation. – The trail is enhanced with additional planting, creating a more pleasant and aesthetically pleasing environment. This not only improves the overall experience for users but also promotes a stronger connection with nature, making the trail a more attractive option for daily commutes and leisure activities. – Support for future growth in demand: The enhancements are designed to meet future growth in demand. By providing high-quality amenities and ensuring the infrastructure can handle increased usage, the project supports a growing number of active transport users. – Seamless integration with proposed infrastructure: Although no new network or active transport infrastructure is being created, the project ensures that improvements align with and connect to proposed infrastructure being delivered by others. This coordination maximises the effectiveness of regional active transport networks, offering coherent and integrated routes for users.

5. Consistency with the Urban Design Strategy

5.2 North East Link key design directions

The Incorporated Document requires that this UDLP is consistent with the Urban Design Strategy (UDS). As per Section 3.2 of the UDS, the Project must demonstrate effective integration of disciplines to deliver an innovative and integrated design solution in response to the five corridor-wide key design directions. This section outlines this UDLP's consistency with the key design directions outlined in the below table.

Details will be finalised through design development and will be to the satisfaction of the future asset owners.

Table 4: Response to North East Link key design directions

Key direction	Requirement	UDLP response
1 **Develop an integrated design response**	The project must demonstrate the effective integration of engineering and urban design to deliver an innovative and balanced design solution.	The urban and landscape design teams have worked closely with engineering and construction teams to ensure that the proposed outcomes meet urban design requirements while remaining constructible and optimised for successful and long term use as a key piece of road infrastructure. Likewise, engineering solutions have been evaluated against and managed where possible to contribute to the project's four core urban design objectives: Cultural Wisdom; Community Connection; Coherence & Navigation; and Retention & Regeneration. This integration is evident in the design of the Eram Road pedestrian and cycling bridge, which is designed to eliminate the need for cladding and additional framing, making it easier to construct and architecturally consistent with the existing bridges being upgraded at Cabena Street and Koonung Road. The Project also incorporates WSUD principles to respond to changes in land conditions resulting from project delivery, to enhance water quality with new planting along the Koonung Koonung, including vegetated swales and bio-retention basins. Noise wall designs fulfil urban design requirements by blending with the natural environment, existing infrastructure and the designs of the adjacent Burke Road to Tram Road UDLP, while supporting more agile and less disruptive construction by being fabricated from MRPP plastic which is lighter and easier to install. These walls also incorporate recycled plastic content to contribute to project sustainability outcomes. This holistic approach ensures an innovative and balanced design that addresses both functional and aesthetic considerations.
2 **Support a natural and connected corridor**	The project must demonstrate a design that responds to the natural, movement and open space systems and improve connectivity to 'stitch' communities across the project corridor.	The design of the project responds to the natural, movement and open space systems, informed by Wurundjeri Woi-wurrung understanding of Country and connecting and 'stitching' between the Project's interfaces, particularly with the Eastern Freeway Upgrades — Burke Road to Tram Road UDLP and EastLink. The resulting design inputs identify the key landscape features — Waterways & Biodiversity; Open Spaces; and Movement Corridors — which have all informed the necessary interventions and solutions to align the design with the local environment, project requirements and engineering solutions, and the North East Link design. For instance, the realignment of the Koonung Koonung integrates all three key landscape features, noting a meandering creek alignment and batter slopes to ensure bank stability, which, combined with WSUD and targeted landscaping interventions, enhances the relationship with surrounding open spaces as well as reinforcing its connection and enjoyment among the surrounding community and visitors. Additionally, the project includes the retention and upgrade of existing pedestrian bridges at Koonung Road and Cabena Street and a new Eram Road pedestrian and cycling bridge. These structures maintain familiar cross-corridor connections with improved connectivity for both pedestrians and cyclists through upgrades to their approaches, alongside other improvements in accessibility. Underpasses at Station Street, Blackburn Road and Springvale Road will also be upgraded with new surface treatments, lighting and landscaping to improve connectivity and safety. This holistic approach, guided by Wurundjeri Woi-wurrung living cultural values of connection to Country, ensures that the design not only meets functional requirements but also enhances the overall connectivity and integration of the project with the surrounding communities while honouring traditional relationships to place.

5. Consistency with the Urban Design Strategy

Key direction	Requirement	UDLP response
3 **Recognise cultural and historic values**	The project must demonstrate a design philosophy and approach that recognises, protects and promotes Indigenous cultural heritage values, and celebrates and interprets places and objects of historical heritage importance.	The design philosophy recognises Wurundjeri Woi-wurrung peoples as Traditional Custodians through ongoing consultation with WWCHAC. This co-design process directly supports the Three Core Pillars framework by ensuring cultural values are embedded throughout the project. The co-design process is ongoing throughout the design development, limiting the level of detail which can be presented in this UDLP, as information and motifs that are sensitive to the Wurundjeri Woi-wurrung and cannot be shared publicly until confirmed with the WWCHAC and permitted for public release. The design celebrates cultural wisdom shared by Wurundjeri Woi-wurrung Elders by consideration of navigation nodes as gathering spaces and interpretive elements referencing Country in the design of infrastructure like noise wall panels, artistic surface treatments for shared use paths and the design of the new Eram Road pedestrian and cycling bridge. These elements reinforce Connection to Country through form, spatial arrangements and materials that acknowledge place while supporting Caring for Country by incorporating traditional ecological knowledge into habitat restoration and waterway health. The collaborative approach creates spaces that enable community members to experience cultural knowledge through sensory engagement with landscape and plantings. This directly supports Connecting People by recognising that Country provides powerful opportunities for connection, reinforcing how connecting with Country inherently connects people to each other through shared experiences of place and seasonal changes. Cultural practices embedded in the design experience support the continuation of reciprocal relationships between people and Country, reflecting the understanding that the health of Country and community are inseparable. The design of walls, paths, navigation nodes, and structures responds to the surrounding landscape and acknowledges living culture for all users – motorists, pedestrians, and cyclists.
4 **Provide a great experience for road users**	The project must demonstrate a design that creates a great journey for road users, with a consistent experience that coherently links to adjacent freeways and provides a design hierarchy that allows for intuitive navigation.	The design provides an enjoyable journey for road users by providing a consistent experience that coherently links to the interfacing Eastern Freeway Upgrades — Burke Road to Tram Road UDLP and EastLink through a well-integrated design language and established design hierarchy that complements the road layout and corridor engineering, to deliver intuitive navigation. The design is integrated as though the road is a destination in itself and not just a simple piece of road infrastructure. A motorist's journey starts at on- and off-ramps, guided by clear signage into an inviting environment between recognised natural and architectural landmarks. This UDLP's design respects the existing noise walls, appreciating their structural character, bulk, form, complexity and setback, and has therefore retained them where possible. While these walls are not heritage listed, their cultural significance is recognised and their aesthetics is acknowledged for their place within Melbourne's architectural and infrastructural design excellence.
5 **Create a context sensitive design**	The project must demonstrate a design that protects, maintains and enhances the local context through which the project passes.	The design considers the local context, identifying its values, distinct character and appeal, and the overall need to protect, maintain and enhance its environment and assets. Using the Koonung Creek Valley landscape character area to define the local context, the design has been developed to interact with the Koonung Koonung, surrounding linear open spaces, alluvial and colluvial soils, sandstone geology and distinct vegetation. Maintaining the local context is achieved primarily through solutions involving minimal intervention where conditions allow, or through employing mitigation measures to ensure an asset's value or appeal is not reduced. On the community side, the majority of these solutions will occur between Tram Road and Middleborough Road. Elsewhere the design involves minimal changes to the alignment of the Koonung Creek Trail, though they maintain and enhance the local context by improving existing conditions through planting and other urban design and landscaping treatments. The design largely protects the local context through maintaining the existing conditions between Middleborough Road and Springvale Road, most significantly through the retention of Koonung Road and Cabena Street bridges and large extents of existing noise walls. This has associated benefits through the protection of existing landscaping on either side of existing bridges and noise walls. The design proposes interventions seeking to improve existing conditions of the Koonung Koonung through revegetation. Within the road corridor, the materiality and patterns of new noise walls, retaining walls and fascia panels maintain the design character of the local context by replicating the designs of existing walls.

5. Consistency with the Urban Design Strategy

5.3 Design character area key design requirements

The UDS defines three distinctive design character areas — Ridgeline, Yarra River Valley, and Koonung Creek Valley — each containing distinct landscape and biodiversity values. This UDLP applies to land within the **Koonung Creek Valley landscape character area.**

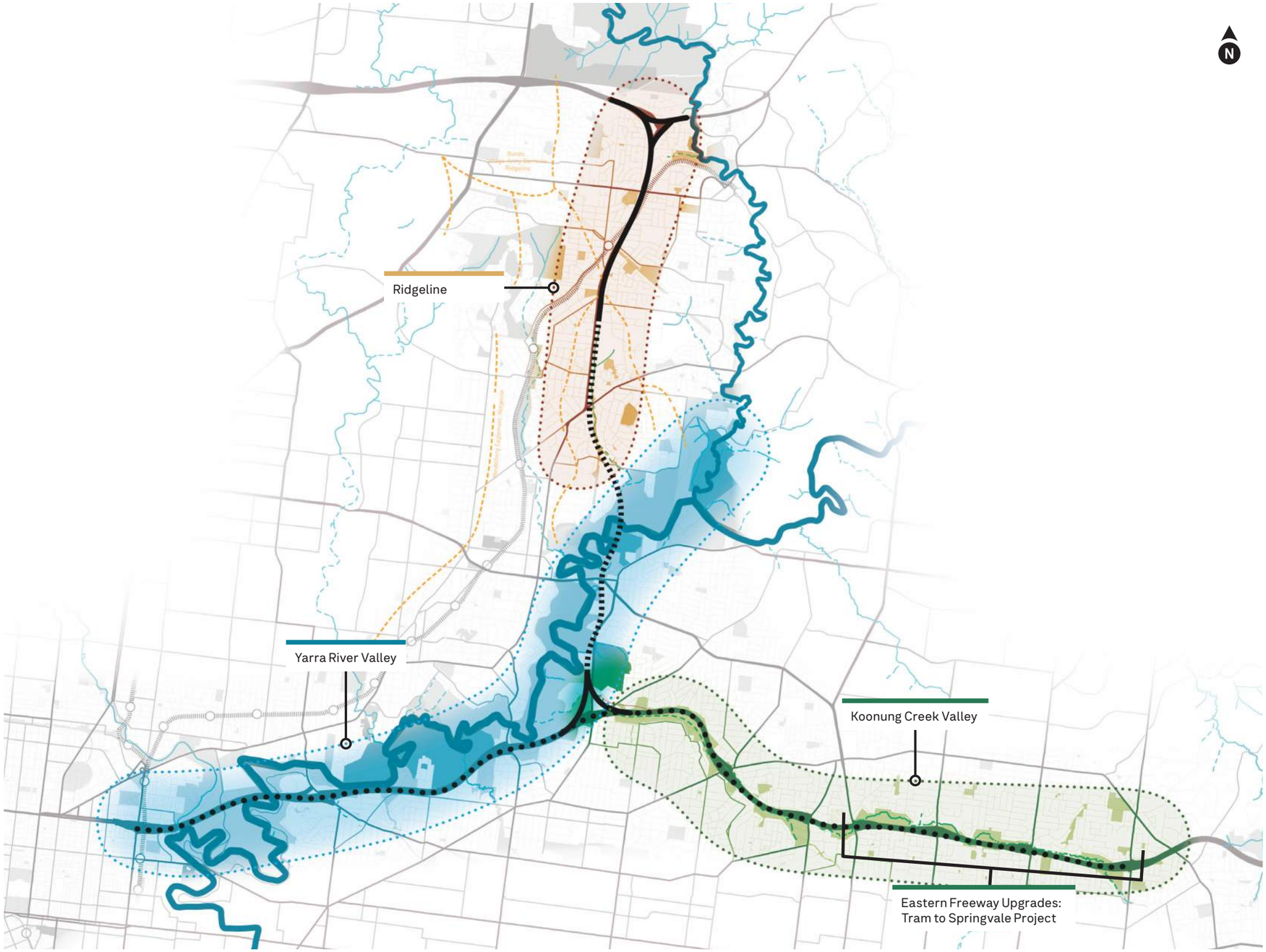

Figure 58: Landscape Character Area context plan (Urban Design Strategy)

5. Consistency with the Urban Design Strategy

Koonung Creek Valley Design Character Area

Table 5: Koonung Creek Valley Design Character Area

1.K

Optimise the existing open space functions and upgrade the open spaces that run parallel to the Eastern Freeway

The design optimises and upgrades the existing functions of the open space network running parallel to the Eastern Freeway alignment, informed by Wurundjeri Woi-wurrung understanding of natural movement patterns and connectivity.

Currently, there are gaps and barriers between open spaces that inhibit a seamless transition from one to another, resulting in a fragmented user experience. To address this, a nodal approach has been employed, enhancing the function of existing open spaces by coordinating upgrades to their interfaces, in particular the Koonung Koonung and the Koonung Creek Trail. These navigation nodes are designed to fill-in the missing links, introducing new and inviting places with unique landscaping characters inviting pedestrians and cyclists to meet, rest and engage with their surroundings. This intuitive transition to the next space is achieved without interruption or hazard through universal accessibility improvements on the approach to pedestrians bridges and structures themselves.

The Koonung Koonung plays a significant role in enhancing open spaces, with its meandering alignment creating diverse areas for community enjoyment and biodiversity. Recognising Wurundjeri Woi-wurrung cultural connection to waterways, the creek's realignment at Eram Park and the revegetation strategy along its banks will enhance open spaces by improving ecological quality with understorey planting, weed management and reuse of lost trees resulting from construction impacts.

Recognising the interconnected nature of open spaces with waterway and movement networks, and drawing on Wurundjeri Woi-wurrung knowledge of Country's natural systems, these interventions address the fragmentation of the open space network. The result is an improved functional design along the Koonung Koonung and the Koonung Creek Trail, contributing to a cohesive, accessible, and enjoyable experience for all users.

2.K

Respect the original architectural and landscape design of the Eastern Freeway

This UDLP has considered the aesthetic appeal and architectural value of a number of assets both natural and built throughout the project alignment, with due respect given to individual landmarks that hold a particular interest for the community.

Where possible the need for intervention in respect to these assets has been minimised, or removed entirely. The retention and upgrade of the Koonung Road and Cabena Street pedestrian and cycling bridges are examples of minimal intervention with their elegant, simple and pared—back aesthetics celebrated by engineering, design and architectural communities. These structures are also part of the wider 'family of bridges' along the freeway corridor and are therefore contributory elements to the corridor's design language, which has informed the sympathetic design for the new Eram Road pedestrian and cycling bridge, aligning the new with the old. These design values combined with their appropriate function in-situ and their structural integrity warrants an avoidance approach, with only the absolute necessary modifications to improve accessibility and safety, and the overall user experience being delivered.

New walls within the road corridor are sympathetic to the unique landscaping etched throughout the project alignment, so much so that where noise or flood walls are not reused, new panels have been designed to weather and soften over time to blend in with the unique character of the original panels.

In other cases, interventions are required for elements to protect or enhance their conditions. This includes landscaping within the road corridor to regenerate and protect corridor vegetation and opportunities to improve buffering and screening of views between the neighbourhood interface, as well as rehabilitation of the Koonung Koonung to improve the quality and function of the waterway, and tree retention and reinstatement strategies where vegetation impacts are felt. This approach aligns with Wurundjeri Woi-wurrung principles of Caring for Country by recognising the natural flow and connectivity of landscape systems.

3.K

Maximise opportunities to connect the communities to the north and south of the Eastern Freeway

North to south connections are maintained, therefore opportunities to maximise connections are limited to improving the quality of existing links.

The new Eram Road pedestrian and cycling bridge has provided ample opportunity to design this structure with universal accessibility front of mind. The approaches ensure a gradual transition with a bridge path that is an appropriate width and compliant with accessibility standards, and lighting is adequate and compliant for night time use.

The design also upgrades the approaches to the retained Cabena Street and Koonung Road pedestrian and cycling bridges to better accommodate cycling connections and improve accessibility by incorporating gradual gradients, transitioning from navigation nodes to promote a seamless transition onto and off the structures.

4.K

Improve transport and road connections to key activity centres

The design improves road connections to key activity centres currently served by the existing Eastern Freeway. Connections will be improved through an enhanced freeway corridor linking Melbourne's eastern suburbs, particularly nearby destinations at Box Hill, Nunawading and Doncaster, as well as inbound towards the Melbourne's inner suburbs and CBD, and Melbourne's orbital freeway network via the North East Link and M80 Ring Road Completion UDLPs. Trips to activity centres at Ringwood, Dandenong, Frankston and beyond via the interfacing EastLink from Springvale Road will also benefit from this UDLP's functional design.

Improved on and off ramps at Tram Road, Middleborough Road, Blackburn Road and Springvale Road will improve road connectivity to surrounding activity centres.
The design improves connectivity within open spaces and provides an improved user experience as a route between local destinations beyond the project boundary.

5. Consistency with the Urban Design Strategy

5.K

Create a great bus user experience and upgrade the existing Doncaster Park and Ride into a well-resolved facility

The Doncaster Park and Ride facility is not within this UDLP's scope. Refer to the response provided in the Doncaster Park and Ride UDLP.

6.K

Support active transport along the Koonung Creek Trail

Active transport along the Koonung Creek Trail is supported through an enhanced user experience resulting from improvements to existing infrastructure that intends to meet future demand and that ensures seamless connections between local destinations including the surrounding open spaces and locations along the Koonung Koonung.

A nodal design approach has resulted in improved amenity of the Koonung Creek Trail, such as:

- navigation nodes located at semi-frequent intervals that introduce a distinct feature without adversely impacting existing routes familiar to the local community
- retention of existing pedestrian bridges at Koonung Road and Cabena Street to retain familiar cross-corridor connections and upgrades to the approaches to improve visibility, accessibility and wayfinding for pedestrians and cyclists
- a new Eram Road pedestrian and cycling bridge relocated westward from its existing location to maximise connectivity opportunities either side of the freeway
- improved perceptions of safety stemming from enhanced visibility at narrow points, improved intuitive navigation at path junctions, and appropriate lighting along pedestrian and cycling paths and bridges.

7.K

Reinstate and enhance buffer vegetation to filter views to freeway infrastructure and blend interfaces with surrounding treed neighbourhood character

The design has incorporated a tree retention and removal strategy that realigns the existing buffer vegetation from within the road corridor to the future alignment interfacing with surrounding land uses. This strategy enhances filtered views of future freeway infrastructure from community view points and maintains a blended interface with the surrounding treed neighbourhood area.

Key factors influencing the approach and timing of canopy reinstatement includes the benefits of shade, reduced heat island impacts, and carbon sequestration as well as positive visual amenity and screening of views towards freeway infrastructure. Fast growing pioneer species will be densely planted to establish canopy quickly, while slower growing overstorey canopy trees will outlive the pioneers, resulting in a long term broad mature tree canopy reinstating the benefits lost at removal. Introducing native planting to existing open spaces within this freeway-to-neighbourhood buffer will be used to increase biodiversity benefits that native species bring to such spaces, particularly its resilience to drought and minimal ongoing maintenance.

8.K

Celebrate, maximise and reinstate natural vegetation, wetlands and open waterways including the Koonung Koonung

As a culturally significant landmark to Wurundjeri Woi-wurrung and a key landscape feature, the successful protection and enhancement of the Koonung Koonung and its immediate surrounds is a key focus for this UDLP. The design approach includes revegetation and enhancement of the Koonung Koonung, in particular at Eram Park where the creek is being realigned to accommodate the widening of the freeway and to avoid undergrounding the waterway. Maintaining an open Koonung Koonung through the realignment will allow for WSUD interventions and flooding management, such as possible swale systems and retarding basins for water quality in line with asset owner requirements. Understorey planting will occur elsewhere along the Koonung Koonung and at areas of open space with established tree canopies to help reinstate and support the natural function of the waterway and surrounds after realignment. The realignment avoids conflicts with project works that would otherwise detrimentally affect the creek and provides opportunities for navigation nodes for increased community connectivity between the Koonung Creek Trail and the creek environment, resulting in a more coherent and connected natural corridor.

The Project also applies a diverse range of plant mixes in open spaces and along Koonung Creek Trail, focusing on native species to maintain existing vegetation conditions and enhance biodiversity. Planting palettes — colouring, density, and abundance — reflects the Koonung Creek Valley landscape character area, ensuring a consistent natural aesthetic appeal alongside regenerative benefits focusing on improving vegetation and the health and quality of the Koonung Koonung.

5. Consistency with the Urban Design Strategy

5.4 Place-specific requirements

This section of the UDLP outlines compliance with the place-specific requirements of the UDS. Compliance with these requirements is demonstrated in Table 5 and demonstrates a context driven approach to design resolution.

Details will be finalised through design development and will be to the satisfaction of the future asset owners.

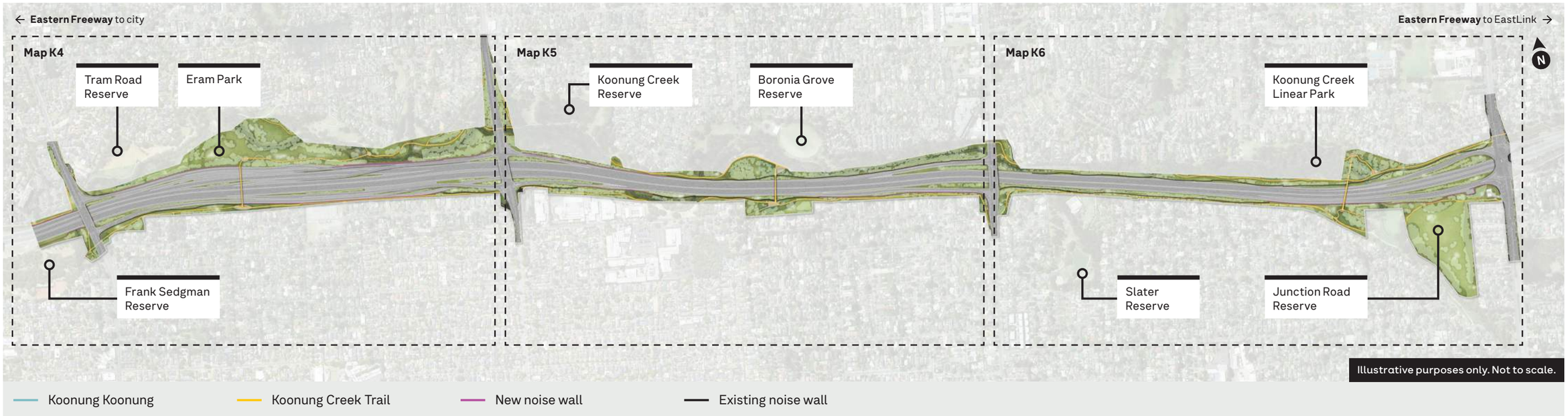

Figure 59: Koonung Creek Valley Landscape Character Area — Tram Road to Springvale Road extent

5. Consistency with the Urban Design Strategy

Koonung Creek Valley Area — Map K4: Elgar Road to Middleborough Road

Figure 60: Koonung Creek Valley Area — Map K4: Elgar Road to Middleborough Road

5. Consistency with the Urban Design Strategy

Table 6: Map K4 'Elgar Road to Middleborough Road'

Requirement		UDLP response
Connectivity, wayfinding and accessibility		
1A	Replace and relocate existing bridge near Eram Road over Eastern Freeway with a new walking and cycling crossing that connects to the Koonung Creek Trail and surrounding path networks. Entries to the bridge are to be clear, legible and are to include wayfinding to the entry points.	The existing Eram Road pedestrian bridge will be demolished and rebuilt as a new pedestrian and cycling bridge at a new location towards the Tram Road interchange. The new location of the bridge will maintain connections for the primary Koonung Creek Trail, enabling pedestrian and cycling connections to other desired paths and alternate routes. Visibility of entrances towards the pedestrian and cycling bridge will be ensured through clear and consistent wayfinding accompanied by landscape treatments including improved accessibility through shallower ramp access and delivery of a navigation node. Handrails are designed to ensure the safety of users along the bridge. Wurundjeri Woi-wurrung cultural elements will be considered for the navigation node in consultation with WWCHAC during detailed design development. User safety will be addressed through surface treatments, planting around ramps and lighting along the bridge.
1B	Ensure any changes or upgrades to the Frank Sedgman Reserve interface support Whitehorse Council's proposed Easy Ride Routes which provide low stress cycling routes to key local destinations and facilities such as Box Hill North Primary School.	Works within Frank Sedgman Reserve proposed through this UDLP are limited to landscaping and installation of noise walls along the northern boundary. Frank Sedgman Reserve interfaces this UDLP via the Koonung Creek Trail and underpass at Station Street. The design largely maintains existing conditions at this location and does not include any alterations to access into the reserve from the UDLP area. Consistent with interventions elsewhere along the Koonung Creek Trail, surface treatments to the underpass path and planting on the approaches either side of the underpass will be provided. These works provide an appropriate interface to support Whitehorse Council's proposed Easy Ride Routes to connect local destinations and facilities by improving perceptions of safety, maximising opportunities where possible to reinstated pedestrian and cycling paths through specific surface treatments such as sharrows and path decals, and wayfinding elements designed for Easy Ride Routes to further support the active transport strategy.
1C	*Consider improving the ability for pedestrians to cross the Koonung Koonung to access underutilised open space within Eram Park.	Upgraded paths will provide new connections towards and within Eram Park. The landscape design within Eram Park creates informal grassed pathways to access underutilised open space within the western extents of Eram Park. Relocating the Eram Road bridge further west from its existing location will be an improvement from the existing structure due to improved access to the Koonung Creek Trail's pedestrian and cycling network, improved accessibility through wider paths and appropriate grading, and access to the underutilised open space within Eram Park.
1D	Do not preclude provision of a new path to link the Koonung Creek Trail to Colston Close and Hampshire Road play space by others (refer to Manningham City Council's Koonung Creek Linear Park Management Plan 2011).	The design maintains the alignment of the Koonung Creek Trail and will not preclude the ability to provide a future connection from the trail to Colston Close and Hampshire Road play space. A connection siding the west of the Koonung Koonung tributary (running north-south between Colston Close and the Koonung Creek Trail) is recommended to be delivered by others.
1E	Should project works directly impact existing secondary paths at the Koonung Creek Trail on the north side of the Eastern Freeway, provide replacement walking paths in high use areas where safe and practicable to reduce the potential for conflict between walkers and cyclists along the Trail and provide additional amenity for the community.	No direct impacts to the existing secondary paths of the Koonung Creek Trail along the northern side of the Eastern Freeway are expected. Should any impacts eventuate from construction works, replacement paths will be provided where possible to maintain connectivity during construction; and affected secondary paths will be reinstated and realigned.
1F	Should project works directly impact on existing shared use paths, consider opportunities for upgrades to walking and cycling paths along the Koonung Creek Trail (to the east and west of Elgar Road).	No direct impacts are expected to the existing paths of the Koonung Creek Trail along the northern side of the Eastern Freeway to the east and west of Elgar Road. Should any impacts eventuate from construction works, replacement paths will be provided where possible to maintain connectivity during construction; and affected paths will be reinstated and realigned. Reinstated and realigned paths will be designed as per accessibility standards and compliant with minimum path widths and gradients to ensure universal accessibility and facilitate integration with navigation nodes.

** Opportunities which are outside the scope but may be delivered by others and/or would be beneficial for the contractor to implement.*

5. Consistency with the Urban Design Strategy

Requirement	UDLP response
1G Should project works directly impact existing secondary paths in Frank Sedgman Reserve, provide replacement walking paths in high use areas where safe and practicable to reduce the potential for conflict between walkers and cyclists along the Koonung Creek Trail and provide additional amenity for the community.	Works within Frank Sedgman Reserve proposed through this UDLP are limited to landscaping, installation of noise walls along the northern boundary. Encroachment of Freeway infrastructure into Frank Sedgman Reserve has been minimised through the substitution of batters and/or verges with retaining walls to accommodate the Freeway widening. Noise walls have also been sited as close to the Freeway interface as practicable to minimise impacts on usable open space areas, while incorporating landscaping buffers and topography as screening measures. No direct impacts are expected to the existing secondary paths with Frank Sedgman Reserve. Should any impacts eventuate from construction works, replacement paths will be provided where possible to maintain connectivity during construction; and affected secondary paths will be reinstated and realigned.
Amenity, vibrancy and safety	
2A Ensure narrow areas along the Koonung Creek Trail have good lighting, open sightlines and are attractive to users.	Where the Koonung Creek Trail narrows, in particular north of Padgham Court, and more generally along both northern and southern sides of the freeway, improvements to maximise perceptions of safety are provided. The design includes acrylic inserts for noise walls noise walls within 4 metres of the Koonung Creek Trail to manage overshadowing at narrow points and to support open sightlines for users of the pedestrian and cycling path, improving a user's spatial awareness as well as passive surveillance. Light spill from the freeway corridor will provide supplementary lighting for users at night, helping to maintain sight lines at all hours. At narrow sections of path, including between noise walls and residential fences, noise walls feature transparent acrylic inserts to illuminate areas that would otherwise not be exposed to light at night. Planting is specifically selected to ensure open sight lines are not decreased over time due to vegetation overgrowth where existing growth is minimal, particularly where overgrowth would otherwise exacerbate safety concerns at narrow points of the pedestrian and cycling path.

5. Consistency with the Urban Design Strategy

Requirement		UDLP response
2B	Maintain the existing alignment of noise walls south of the Eastern Freeway between Station Street and Middleborough Road where possible to minimise impacts along this narrower section of the Koonung Creek Trail. Ensure any new noise walls maximise solar access (particularly on the southern side) and minimise overshadowing to residential properties.	Noise modelling assessments underpin the noise wall design and decisions as to whether existing noise walls can be retained. Existing noise walls are retained where construction and temporary works do not cause impacts unless deemed incompatible with cohesive design outcomes i.e. avoiding minor insertions of noise wall types that would result in a clear break between design languages. This approach retains sections of noise walls along the narrow sections of the Koonung Creek Trail south of the Eastern Freeway between Station Street and the new Eram Road pedestrian and cycling bridge, and at a second smaller section along Eram Road between Second Avenue and Middleborough Road. New noise walls are required between the Eram Road pedestrian and cycling bridge and the second section of retained noise walls due to construction impacts associated with the freeway widening and to be realigned with the future freeway alignment. An overshadowing assessment conducted in accordance with EPR LP4 is provided at Attachment 4 to demonstrate impacts to secluded private open space of residential properties. An area wide analysis (Attachment 4 drawing nos. NEL-EST-NEA-6600-UUD-SKE 4006-4008) demonstrates that minor overshadowing will occur at a number of properties along Eram Road, assuming that full height solid walls will be installed. A focused analysis (Attachment 4 drawing nos. NEL-EST-NEA-6600-UUD-SKE 4050-4051) was prepared which demonstrates that additional overshadowing on most of these properties is less than 50% of the total secluded private open space as required by EPR LP4. Measures to minimise potential overshadowing impacts to these properties will include the use of acrylic panels in the noise wall solution to maximise the amount of light that travels either side of the noise wall. This measure also helps to minimise any overshadowing of open space areas, such as the Koonung Creek Trail on the south side of the Eastern Freeway. Consultation will occur with relevant landowners as part of this UDLP to develop the parameters of these noise walls including location, design and materials. The focused analysis (Attachment 4 drawing nos. NEL-EST-NEA-6600-UUD-SKE 4054-4055) demonstrates that once acrylic treatment is incorporated into the design solution, any additional overshadowing impacts are mitigated. The detailed design process will incorporate further information gathered from site surveys, including the location of existing buildings and associated private open space, heights of existing fences and site levels. Detailed design will then seek to further minimise the extent of overshadowing by considering the detailed surveys, any updated noise modelling assessments as well as structural optioneering of noise wall heights, extents and pole placements. Agreement and consent to the proposed design will be obtained from directly affected landowners where the overshadowing conditions of EPR LP4 cannot, or will not, be achieved. The Project will make all reasonable endeavours to reach an acceptable design outcome and obtain land owner consent. If this cannot be achieved exceptional circumstance will apply.
2C	Establish and/or reinstate buffer landscape treatments (such as vegetation and mounding) adjacent to the Eastern Freeway road reserve to filter views from parkland and residential areas towards the freeway and noise walls. Landscaping and planting is to complement the existing open space planting themes and local character.	Landscaping to enhance filtered views between the freeway and surrounding parklands and residential areas along the Koonung Creek Trail will be achieved through habitat planting, retaining existing trees and planting of new trees. Planting design is reflective of other UDLPs for consistency and the ecological conditions at relevant locations along the project alignment for viability and will include native species. Open grassed areas will be enhanced through understorey planting, additional tree planting, and creating topographic interest using suitable quality site fill. Tree canopy reinstatement supported by understorey planting will occur at Eram Park, in particular the side abutting the freeway alignment. Tree canopy reinstatement at this interface will offset the vegetation buffering as a result of the widened freeway alignment between Tram Road and Middleborough Road by reinstating the buffer along the new alignment.
2D	*Consider enhancements to the Tram Road Reserve by providing shade planting around the existing playground and planting vegetation. Consider other open space improvements in consultation with Manningham City Council.	This opportunity is not included in this UDLP as it is located beyond the project boundary.
2E	*Consider enhancements to the landscaping, plant on hillside and realign path around the north-east side of the Koonung Creek Linear Park (refer to Manningham City Council's Koonung Creek Linear Park Management Plan 2011).	This requirement is located outside of this UDLP and is addressed in the UDLP prepared for the Eastern Freeway Upgrades — Burke Road to Tram Road.

5. Consistency with the Urban Design Strategy

Requirement		UDLP response
2F	Do not preclude the opportunity for enhancements to Eram Park to support dog recreation activities (to be provided by others).	The design does not prevent future enhancements to support dog recreation activities within Eram Park. Eram Park's use as an open grassed area characterised with habitat clusters will be retained..
Resilience and sustainability		
3A	*Consider improving biodiversity and habitat links between Frank Sedgman Reserve and Tram Road Reserve by providing habitat infrastructure across the Eastern Freeway	Due to the horizontal width of the freeway corridor, it is impractical to provide habitat infrastructure across the Eastern Freeway.

5. Consistency with the Urban Design Strategy

Koonung Creek Valley Area — Map K5: Middleborough Road to Blackburn Road

Figure 61: Koonung Creek Valley Area — Map K5: Middleborough Road to Blackburn Road

5. Consistency with the Urban Design Strategy

Table 7: Map K5 'Middleborough Road to Blackburn Road'

	Requirement	UDLP response
Connectivity, wayfinding and accessibility		
1A	Upgrade existing bridge over the Eastern Freeway near Koonung Road to provide for walking and cycling crossing that connects to the Koonung Creek Trail and surrounding path networks. Entries to bridge are to be clear, legible and are to include wayfinding to the entry points.	The existing Koonung Road pedestrian bridge provides adequate pedestrian connections over the Eastern Freeway for users of the Koonung Creek Trail, however does not provide adequate connectivity for cyclists. The design includes upgrades to the approaches either side of the bridge to accommodate cyclist traffic, improving connections for both pedestrians and cyclists over the Eastern Freeway between the Koonung Creek Trail and surrounding path networks. Entries to the upgraded pedestrian and cycling bridge either side of the Eastern Freeway will be enhanced to provide clear and consistent wayfinding accompanied by appropriate landscape treatments which include a navigation node on both the north and south approaches. These enhancements are accompanied by handrail improvements along the bridge for safety and accessibility.
1B	*Consider improving access to the open space north of Joseph Street that is underutilised due to poor opportunities to cross the Koonung Koonung.	This opportunity is not included in this UDLP. Access to the underutilised area within the project boundary between the freeway and the Koonung Koonung north of Joseph Street will be maintained under existing conditions. Further connections to this land have not been developed due to expected impacts to the Koonung Koonung that would result from a new bridge crossing, which would not support project objectives to preserve the health and quality of the creek and to avoid impacts where possible.
1C	*Consider upgrades to the poor quality sections of paths along the Koonung Creek Trail (west of Blackburn Road around Boronia Grove) to be high quality, suitable wide and functional.	Sections of the Koonung Creek Trail between Boronia Grove and Blackburn Road are located outside of this UDLP and are not included in the design. However, paths within this UDLP connecting to this lower quality section will be upgraded to be high quality and suitably wide with a focus on connections to navigation nodes including nearby at the upgraded Koonung Road pedestrian and cycling bridge.
1D	*Consider formalising the unmade paths at the open spaces on either side of Wetherby Road into walking and cycling paths	Formalising the unmade paths has not been adopted in this UDLP. Opportunities have been focused on junctions of primary and secondary paths where either construction impacts are expected or where navigation nodes are proposed.
1E	*Consider improving the connectivity of the Koonung Creek Trail on the east side of Middleborough Road in Blackburn North.	New connections have not been established along the Koonung Creek Trail on the eastern side of Middleborough Road in Blackburn North. Improvements to navigation through navigation nodes are proposed in areas within the project boundary at junctions of primary and secondary paths. Wurundjeri Woi-wurrung wisdom will be embedded throughout the navigation nodes.
1F	Should project works directly impact existing secondary paths in Koonung Creek Reserve, provide replacement walking paths in high use areas where safe and practicable to reduce the potential for conflict between walkers and cyclists along the Koonung Creek Trail and provide additional amenity for the community.	No direct impacts are expected to the existing secondary paths of the Koonung Creek Trail. Should any impacts eventuate from construction works, replacement paths will be provided where possible to maintain connectivity during construction; and affected secondary paths will be reinstated and realigned.
Amenity, vibrancy and safety		
2A	Ensure narrow areas along the Koonung Creek Trail have good lighting, open sightlines and are attractive to users.	Where areas along the Koonung Creek Trail narrow, in particular south of Gedye Street and more generally along both the northern and southern sides of the freeway, improvements to maximise perceptions of safety are provided. The design includes acrylic inserts for noise walls within four metres of the Koonung Creek Trail to manage overshadowing at narrow points and to support open sightlines for users of the pedestrian and cycling path, improving a user's spatial awareness as well as passive surveillance. Light spill from the freeway corridor will provide supplementary lighting for users at night, helping to maintain sight lines at all hours. At narrow sections of path, including between noise walls and residential fences, noise walls feature acrylic inserts to illuminate areas that would otherwise not be exposed to light at night. Planting is specifically selected to ensure open sight lines are not decreased over time due to vegetation overgrowth where existing growth is minimal, particularly where overgrowth would otherwise exacerbate safety concerns at narrow points of the pedestrian and cycling path.

** Opportunities which are outside the scope but may be delivered by others and/or would be beneficial for the contractor to implement.*

5. Consistency with the Urban Design Strategy

Requirement		UDLP response
2B	Where project works directly affect the Koonung Creek Trail, consider opportunities to provide exercise equipment or fitness stations or bicycle maintenance stations at strategic locations.	The design at this location is minimal and limited to works associated with the navigation node at the northern approach of the upgraded Koonung Road pedestrian and cycling bridge, and minor understorey planting. The approach to this area is to maintain existing conditions as demonstrated by the high level of tree and vegetation retention within and surrounding the navigation node, meaning any change would be minimal. Due to the small scale of works and the approach to maintain existing conditions at this location, exercise equipment, fitness stations and bicycle maintenance stations are not included at this navigation node. However, opportunities for these items and other further amenity will be considered where possible through engagement with relevant councils and stakeholders during the design development process.
2C	Do not preclude enhancements to Boronia Grove Reserve by others (refer to Manningham City Council's Koonung Creek Linear Trail Future Works Program 2011).	Enhancements by others to Boronia Grove Reserve are not precluded by this UDLP design, as the reserve is located beyond the project boundary.
Resilience and sustainability		
3A	Maintain and consider enhancements to the wetlands in Koonung Creek Reserve northeast of the Wetherby Road interchange.	The wetlands are maintained, however direct enhancements are not included in this UDLP as the area is beyond the project boundary. Proposed understorey habitat planting, infill planting to the riparian corridor, planting to achieve bio-filtration areas, and improvements to creek culvert outlets may indirectly benefit the wetlands through improved water quality, reduced weed seeds and increased species habitat.
3B	Maintain and consider enhancements to the wetlands in Boronia Grove Reserve	The wetlands are maintained, however direct enhancements are not included in this UDLP as the area is beyond the project boundary. Proposed understorey habitat planting, infill planting to the riparian corridor, planting to achieve bio-filtration areas, and improvements to creek culvert outlets may indirectly benefit the wetlands through improved water quality, reduced weed seeds and increased species habitat.
3C	Consider improving biodiversity and habitat links under Wetherby Road bridge at Koonung Creek Reserve by providing additional habitat where appropriate, subject to approval of the land owner/manager and relevant authorities.	The design aims to improve biodiversity and habitat links at this location by providing enhanced riparian planting to interface with culverts under Wetherby Road at Koonung Creek Reserve, and additional habitat planting and strategic creek line management to the Koonung Koonung within the project boundary.

5. Consistency with the Urban Design Strategy

Koonung Creek Valley Area — Map K6: Blackburn Road to Springvale Road

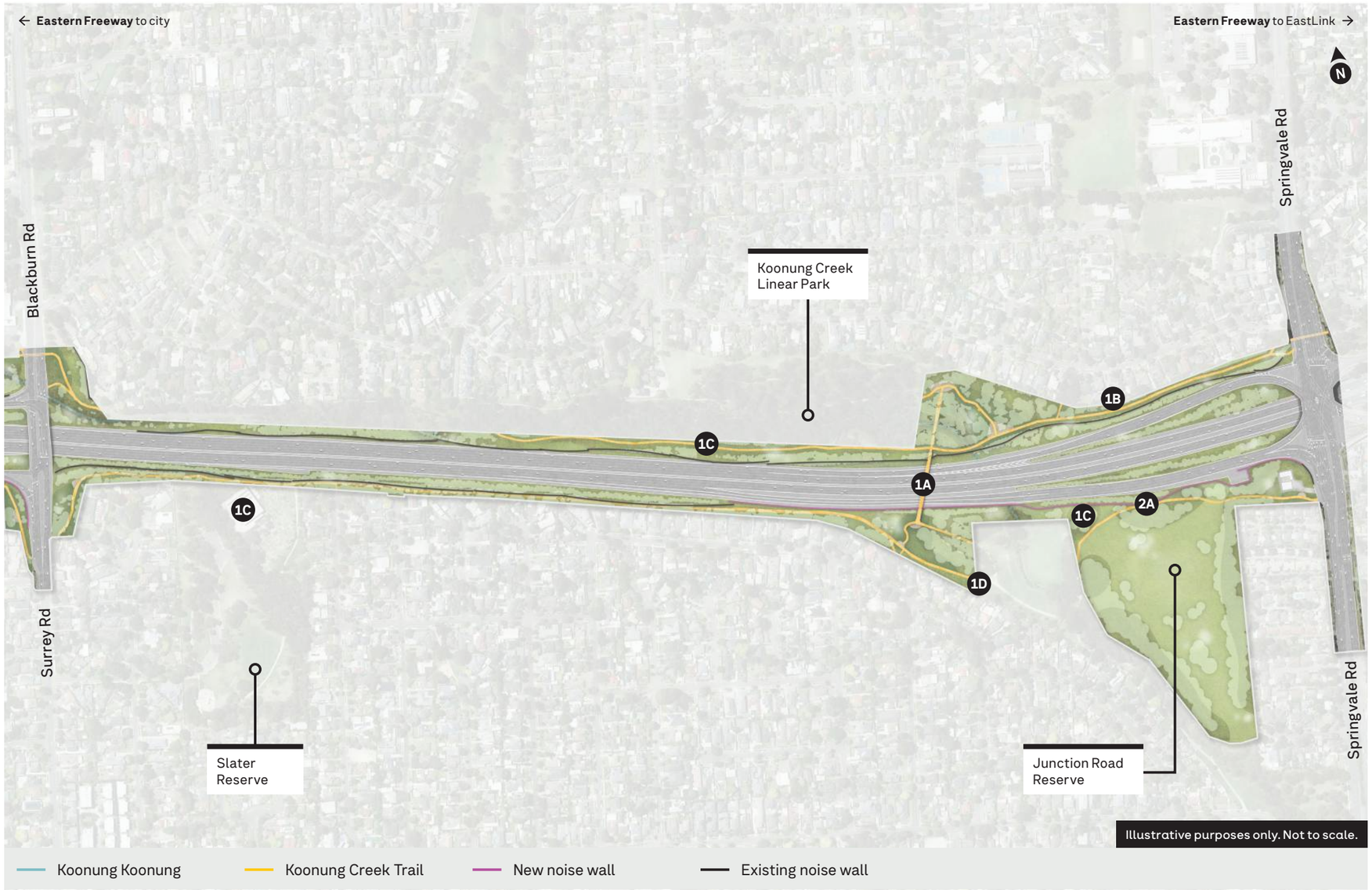

Figure 62: Koonung Creek Valley Area — Map K6: Blackburn Road to Springvale Road

5. Consistency with the Urban Design Strategy

Table 8: Map K6 'Blackburn Road to Springvale Road'

Requirement		UDLP response
Connectivity, wayfinding and accessibility		
1A	Upgrade existing bridge over the Eastern Freeway and the Koonung Koonung near Kett Street to provide for walking and cycling crossing that connects to the Koonung Creek Trail and surrounding path networks. Entries to bridge are to be clear, legible and are to include wayfinding to the entry points.	The existing Cabena Street pedestrian bridge provides adequate pedestrian connections over the Eastern Freeway for users of the Koonung Creek Trail, however does not provide adequate connectivity for cyclists. The design includes upgrades to the approaches either side of the bridge to accommodate cyclist traffic, improving connections for both pedestrian and cyclists over the Eastern Freeway between the Koonung Creek Trail and surrounding path networks. Entries to the upgraded pedestrian and cycling bridge either side of the Eastern Freeway will be enhanced through clear and consistent wayfinding accompanied by appropriate landscape treatments which includes a navigation node on both north and south approaches. New stair access is provided at the southern approach to the upgraded pedestrian and cycling bridge to guide users towards the crossing from the pedestrian and cycling path below. The existing path access connecting the southern approach of the bridge to Junction Road Reserve is maintained, providing dual access along with the new stairs. These enhancements are accompanied by handrail improvements along the bridge for safety and accessibility.
1B	*Consider upgrading unsealed path north of Koonung Creek Trail, and the path connecting into the residential area through to Aranga Reserve with a suitably wide and functional pathway	This opportunity is not included in this UDLP. This design element will be explored during the design development process as part of navigation node enhancements to the Cabena Street bridge.
1C	Should project works directly impact existing secondary paths, provide replacement walking paths in high use areas where safe and practicable to reduce the potential for conflict between walkers and cyclists along the Koonung Creek Trail and provide additional amenity for the community.	No direct impacts are expected to the existing secondary paths of the Koonung Creek Trail. Should any impacts eventuate from construction works, replacement paths will be provided where possible to maintain connectivity during construction; and affected secondary paths will be reinstated and realigned.
1D	Where project works directly affect the Koonung Creek Trail, upgrade the connection from the Trail (to the north of Kett Street) to the walking and cycling bridge over the Eastern Freeway	The design at this location will deliver improvements to the southern access path of the upgraded Cabena Street pedestrian and cycling bridge to enhance safety, reduce vulnerability and increase natural navigation. A rest area will also be incorporated into the design at the navigation node.
Amenity, vibrancy and safety		
2A	Establish and/or reinstate buffer landscape treatments (such as vegetation and mounding) adjacent to the Eastern Freeway Linear Reserve to screen and filter views towards the Eastern Freeway and any associated walls and infrastructure.	Landscaping to enhance filtered views between the freeway and the Eastern Freeway Linear Reserve (referred to in this UDLP as 'Junction Road Reserve') will be achieved through habitat planning, retaining existing trees and planting of new trees. Planting design is consistent with other UDLPs and the ecological conditions at relevant locations along the project alignment. Open grassed areas will be enhanced through understorey planting, additional tree planting, and creating topographic interest using site fill. Understorey planting will also enhance the vegetation layer under existing trees to support biodiversity. Interventions will also include mounding within Junction Road Reserve to further screen and control views to the Eastern Freeway through playful topographical features. Fencing surrounding the incident response area is minimal by aligning noise walls to wrap around either side of the space, shielding it from view at Junction Road Reserve and surrounding paths. Options for architectural fencing to provide adequate screening will be considered in detailed design development.

** Opportunities which are outside the scope but may be delivered by others and/or would be beneficial for the contractor to implement.*

5. Consistency with the Urban Design Strategy

5.5 Detailed requirements and benchmarks

This section of the UDLP outlines compliance with the element-based detailed requirements and qualitative benchmarks outlined in the UDS. Compliance with these requirements is demonstrated in Table 9 and demonstrates a consistent and high quality corridor-wide approach to design resolution.

Details will be finalised through design development and will be to the satisfaction of the future asset owners.

The following element-based requirements are applicable to the scope of works proposed through this UDLP:

1. Multi-span bridges
2. Road bridges
4. Open cuttings
6. Project buildings and ancillary structures
7. Public open space
9. Walls, fencing, barriers and screens
10. Bus park and ride facilities and bus lanes
12. Lighting
13. Walking and cycling infrastructure
14. Walking and cycling bridges
15. Walking and cycling underpasses
16. Navigational nodes and thresholds
17. Landscape
18. Water
19. Road signage
20. Materials and finishes.

Table 9 demonstrates consistency with Section 7 of the UDS for the Project with regard to detailed requirements and benchmarks.

Please note, the following element-based requirements are not applicable to the scope of works proposed in this UDLP and are therefore not included in Table 9:

3. Land bridges
5. Ventilation structures, portals and tunnels
8. Local streets, schools and neighbourhoods
11. Car parking.

Table 9: Response to detailed requirements and benchmarks

Design element	Requirement	UDLP response
1. Multi-span bridges		
1.1 Viaduct design	Viaducts (continuous multi-span bridges) and ramps are well designed and well proportioned to complement the surrounding area and appropriately address sensitive interfaces. Viaduct profile and design employ a high quality aesthetic when viewed from and to the structure, and are designed to minimise visual bulk. Abrupt changes of size and depth of structures is avoided and transitions are smooth. Structural solutions are durable and avoid the need for cladding.	The eastbound road bridge at Middleborough Road represents the only multi-span bridge in this project. Consideration for how the profile of the structure achieves a quality level of urban design is central to the design approach for the multi-span bridge with high quality aesthetics, visual bulk and physical scale, and complementary integration with the surrounding environment being key design drivers. Regarding changes in size and depth of the bridge structure, dramatic transitions are reduced and further refined from minimising the 'super T depth' from 1800 millimetres to 1500 millimetres while also refining and incorporating the structural element through inverted T crossheads that further reduce the visibility of stepping between each. Lastly, all treatments to the viaduct have been provided through integrated solutions, resulting in a durable structure that mitigates any use of claddings.
1.2 Integration	New elements such as elevated roads and ramps are integrated well with connected structures and/or other built elements, the surrounding land form, local context and road network. Any widening of existing structures are carefully integrated with existing structures to create a cohesive design. Widened structures shall match with existing in size, shape and structural form. Where bridges are duplicated, new soffit lines do not protrude below existing soffit lines and match existing profile. Superstructure, piers, beams, barriers, railings, associated furniture, deck, abutment and feature lighting are carefully integrated together to provide a high quality and durable design solution for all users above and below the structure. Opportunities are maximised to structurally integrate pier cross heads into the bridge and viaduct superstructure.	The approach to design of elevated roads and ramps ensures integration with other built elements and the surrounding land form and context. Design also considers the surrounding form and context in how abutments and bridge spans interrelate. All bridge parapets have been designed to cover the top of RSS panels below to create a cohesive design language and integrate with a corridor-wide approach. All elements of the eastbound road bridge — piers, beams, barriers, railings, etc. — and their interfaces and have been designed to conceal services where possible through flushed surfaces, integrating conduits and supports in the structures.
1.3 Minimising impacts	Elevated roads and structures are designed with minimal visual bulk. The design of these structures is to minimise overshadowing of residential properties, impacts on the use of nearby areas (including through generation of noise and disruption of access), and visual impacts from sensitive viewpoints. The visual impact of the elevated roads and structures on road users is also minimised.	The design of the road bridge and structures considers visual bulk resulting in a well-integrated structure that provides a visually appealing transition between heights. Given the minimal size of the structure, overshadowing issues to adjacent residents are not created, though noise attenuation measures through noise walls have been provided atop of the eastbound bridge structure to limit noise spill to dwellings to the north. Despite the additional noise attenuation measures, parapet barriers and other structural elements, visual impacts on road users are minimised by a design that eliminates unnecessary visual clutter that may interfere with a road user's sight line or that may lead to distraction or confusion when approaching a decision point.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
1.4 Visual clutter	Visual clutter is avoided and the number of piers are minimised. Piers and towers are located to avoid the need for additional structures (such as protection barriers). Where pier protection barriers are unavoidable, reduce the scale and carefully integrate with the bridge design. Elements such as the edge of the deck, drainage pipes, services and ducts are concealed from view.	Revisions to the EES Reference Design has included removal of portal piers at ramp structures on the basis of being an undesirable urban design outcome. The eastbound road bridge has been optimised as a result to reconfigure the layout of piers and crossheads. At the Middleborough Road outbound off-ramp (eastbound), the portal pier has been replaced by several piers with cantilevering crossheads without delineating from the fundamental design intent. By utilising eccentric piers, the design of the eastbound bridge and ramp minimised the visual clutter to the ground plane. The Middleborough Road inbound on-ramp (westbound) on the other hand is a highly skewed single-span structure, eliminating the need for a central pier, itself eliminating the need for a portal pier and provides notable reduction in structural depth.
1.5 Passive surveillance	Where there is access below structures, passive surveillance is maximised to deter undesirable behaviour. Materials, textures and finishes are used to deter graffiti. Solar access is maximised to spaces beneath the structure.	The design has approached eliminating unwanted access below structures by minimising opportunities for unused spaces under bridges. Abutments have been located close to the road corridor to limit open space and to maintain sight lines to ensure passive surveillance further mitigates the risk of graffiti, vandalism and other undesirable behaviours. This design approach is also implemented to limit space where litter can collect. Proposed abutments do not preclude solar access or access for maintenance purposes. Anti-graffiti coatings to structures will be finalised in the design development process to ensure compliance with DTP and VicRoads standards, including a decision on wash-off or paint-over graffiti rehabilitation.
2. Road bridges		
2.1 Bridge design	All new bridges continue the form of the existing Eastern Freeway bridges. New road bridges and modifications to existing bridges are well designed, complement the surrounding area and appropriately address sensitive interfaces. Bridges are designed to a high quality standard, to minimise visual bulk, and to be visually pleasing when viewed from and to the structure. The overall structure and the various parts of the bridge structure are geometrically proportioned and have a harmonious relationship. Structural solutions are durable and avoid the need for cladding. New piers match existing pier shape, angle and proportion in both directions. Base of bridge beams match the existing beams in profile.	With the exception of the east and westbound road bridges, no new road bridges are proposed. All existing road bridges will be retained with minimal intervention.
2.2 Identity	Sets of bridges within a corridor visually complement one another. There is a clear relationship between bridges, with a consistency of bridge elements demonstrated along the length of the project.	The design of the eastbound and westbound road bridges, no new road bridges are proposed. All existing road bridges will be retained with minimal intervention. With respect to the designs of the eastbound and westbound bridges delivered by the project, their structural designs and associated elements demonstrates a clear relationship with each other and the rest of the design. The following examples represent this cohesiveness: – The designs and scale of RSS panel designs, reflecting new and old aesthetics and continuing the design language across from once section of the Eastern Freeway to another. – The structural aesthetic of the eastbound and westbound ramps which has emerged as an identifiable visual feature of the project, mirroring design precedents set by other UDLPs such as the Eastern Freeway Upgrades — Burke Road to Tram Road including the interchange with North East Link at Bulleen Road. – The consistent parapet design shared across the Project.
2.3 Integration	New bridges and modifications to existing bridges are well integrated with any connected structures or other built elements, the surrounding land form, local context and road network. Superstructure, piers, beams, barriers, railings, associated furniture, deck, abutment and feature lighting are carefully integrated together to provide a high quality design solution for all users above and below the structure. Opportunities are maximised to structurally integrate pier cross heads into the bridge superstructure.	The design the eastbound bridge has been approached with a common geometry in mind with regards to the design of the family of pier types to ensure a well-integrated structural and design connectivity with other structures. This has included outcomes including inverted T crossheads which have been implemented to ensure clearance envelopes are maintained below. The westbound bridge consists of urban design treatments to the abutments which carefully integrate with the super T structure. In the spirit of quality urban design outcomes, 'embedded' elements have been introduced to the road bridge's abutment to instil a transitional component for road users to experience when moving between the ground plane and the elevated road structure.
2.4 Views	Scenic views and vistas seen from bridges are maximised for road users and pedestrians.	Ensuring vistas and scenic views are maintained and that user experiences are maximised are integral components of the Tram Road to Springvale Road design as part of showcasing and celebrating the unique characteristics of the Koonung Creek Valley. By way of a risk assessment, the project does not warrant onerous throw screens or structures, thereby maximising vistas and scenic views across the freeway corridor and into the Koonung Creek Trail and surrounding parklands.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
2.5 Minimising impacts	Road bridges are designed to minimal height and width to reduce landscape and visual impacts and overshadowing of residential properties and other sensitive land uses. The visual impact of the bridge structure on road users is minimised.	Drawing on the approach that informed eliminating visual bulk and clutter, the height and width of the eastbound road bridge has been minimised within the limits of engineering standards and acceptability, providing a solution that minimises bridge spans while also mitigating issues of unwanted and unused triangles shaped road surfaces commonly seen in skewed bridges. The resulting design minimises this unusable space under the structure that would collect litter and become a potential risk for unwanted behaviours. The design also reduces the overall project footprint, allows for increased green space and street lighting opportunities between the ramp and the mainline, and reduces the eastbound road bridge's impact to Eram Park.
2.6 Visual clutter	Visual clutter is avoided and the number of piers are minimised. Piers and towers are located to avoid the need for additional structures (such as protection barriers). Where pier protection barriers are unavoidable, reduce the scale and carefully integrate with the bridge design. Elements such as the edge of the deck, drainage pipes, services and ducts are concealed from view	The design approach and solution for both east and westbound road bridges have assessed engineering options that consider visual clutter minimisation in the ground plane as a key driver. Reduction if both the quantity of piers and the optimisation of pier types, such as the removal of portal piers, has assisted in producing a beneficial urban design outcome.
2.7 Passive surveillance	Where there is public access below structures, passive surveillance is maximised to deter undesirable behaviour. Materials, textures and finishes are used effectively to deter graffiti. Solar access is maximised to spaces beneath the structure.	Public access below road bridges has not been included in the scope of this project and no new underpasses are proposed, with existing road bridge underpasses having upgrades to the approaches. These upgrades are similar to the interventions at narrow points of the Koonung Creek Trail and at other vulnerable locations. These include anti-graffiti materials and surfaces, improved approaches to that enable passive surveillance, improved solar access and reduced overshadowing where possible.
2.8 Retrofitting	New built elements (e.g. throw screens, traffic barriers around piers, structures, fencing, walls etc.) on existing road bridges are bespoke, innovative and designed to complement the original form and aesthetic qualities.	Existing road bridges along the entire freeway corridor are known and celebrated for their aesthetic appeal and architectural value, requiring the design to be minimally invasive and complementary to their original form and visual quality. Protection barriers proposed on existing road bridges have been designed with minimal engineering solutions in mind so as to not draw attention away from the celebrated structure. Other engineered solutions protect and enhance the sharp geometric language of the existing road bridges.
2.9 Signage on bridges	Advertising and road signage are not located on bridges. Intelligent Transport System (ITS) signage on bridges is avoided or well integrated into the bridge design.	Advertising and road signage, including ITS signage, are not located on road bridges, with directional signage sited in the freeway reserves or installed on gantries.
4. Open cuttings		
4.1 Connectivity	The design of open cuttings is part of a holistic urban design response to improve permeability, legibility and accessibility along and across the corridor, and severance impacts on communities are avoided. The quality and number of path crossings over the project corridor are maintained to better connect communities, provide access to local facilities and link movement networks.	The design of open cuttings is part of a holistic urban design response across the corridor and their physical presence does not adversely impact the existing connections over the corridor during construction or upon delivery. The number of path crossings over the project corridor is maintained and the quality is improved with interventions at each to improve connectivity and accessibility. The overall improvement ensures limited disruption to local communities and provides continued and familiar access to local facilities.
4.2 Cutting design	High quality finishes, materials and hard and soft landscapes are used in cuttings. Cuttings are designed to mitigate adverse amenity impacts for adjacent residents and the local community, and to provide spaces that are considered and well resolved as part of the overall design solution.	Cuttings have been designed with engineering to ensure finishes are of a high quality and detail. For the majority of the project design, non-integral fascia panels have been provided in lieu of exposed shotcrete and underlying support structure for an improved visual aesthetic by re-imagining the original geology and rock form of the cuttings hidden by the shotcrete. Shotcrete may be used for some retaining walls west of Tram Road to achieve consistency with the design solution for Eastern Freeway Upgrades – Burke Road to Tram Road. The visual aesthetic provided by the fascia panels allows for a coherent design along the freeway corridor by using materials chosen intentionally for their natural properties that will integrate with existing walls over time. This design element eliminates a landscape and visual impact that would otherwise deliver a wall design incompatible with both the immediate and design and other UDLPs for the North East Link Program.
4.3 Landscaping	Landscape design and plant species selection within open cut areas are appropriate to local conditions, micro-climate, urban design concepts and local character.	The landscape design considers conditions in the freeway corridor relative to elsewhere along the project alignment and selects plant species accordingly to deliver resilient plantings. A selection of planting designs and species types has been prepared for each landscape condition throughout the Project — tree canopy; understorey planting; navigation node; road corridor; riparian planting and grasses. These selections, shown in Attachment 2 — Landscape Design (drawing nos. NEL-EST-NEA-6600-ULS-DRG 2311-2316 and 2371-2373), are deliberately broad so that species can be refined to meet asset owner requirements, and the most reliable, low maintenance and climate resilient species are planted.
4.4 Visual considerations	Barriers on or adjacent to land bridges provide good visual connectivity, maximise passive surveillance, and minimise visual obstructions to views and landmarks for the surrounding community.	Land bridges are not in the scope of works for this UDLP.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
6. Project buildings and ancillary structures		
6.1 Siting	New above-ground service and utility infrastructure are located to avoid or minimise impacts to existing to adjoining properties, and to reduce the need to remove vegetation. The number and size of utility buildings and structures within public open space are minimised. Above-ground utility buildings and structures are co-located with nearby existing structures and adjacent to vegetation to better integrate with the surrounding area. They are located to maintain the amenity and function of the places they occupy, and minimise visual impacts on significant buildings, monuments, trees, open spaces and landscape vistas.	One above-ground building will be delivered as part of the project, associated with the incident response staging area near Springvale Road. The building is required to provide amenity facilities for incident response worker. The building will be small and in a discrete location adjacent to noise walls and will be barely visible to road users and the nearby pedestrian and cycling paths.
6.2 Integrated and coordinated	Project buildings, technical shelters, compounds and structures integrate sensitively with their surrounds, and complement and coordinate with existing nearby structures and fencing where appropriate. The obtrusive appearance of utility buildings and structures from the public realm (public realm refers to all public open space along with other publicly-owned land between buildings including streets) is minimised through the use of appropriate landscaping screening (e.g. planting and land form), architectural façades, and/or security fencing that also function as a visual screen.	An incident response area abutting the southern freeway corridor at the Springvale Road interchange is well integrated and hidden in the surrounding environment due to being surrounded by noise walls. This area will include a small building to provide amenity facilities for workers, however architectural aluminium screening will feature on the interface with the Koonung Creek Trail and Junction Road Reserve. The screening has been designed to integrate with the surrounding environment and avoids visual impacts with the open space interface. Buffer landscaping at this location will improve the transition between the incident response area and the open space further reducing any potential impacts.
7. Public open space		
7.1 Integration with surroundings	The design maximises continuity of public realm, extends surrounding public open space (land primarily used for recreation, nature conservation and passive outdoor enjoyment) and movement patterns, and mitigates any severing of communities and places. Access to public open space within and at the interface of the project is enhanced. Opportunities to create additional functional and high quality open space within the project corridor are maximised. The open space function of the open spaces within and along the project corridor is maintained. Encroachment and impacts on adjacent open space by freeway infrastructure and roadside landscaping (planting within the road reserve) is minimised.	As one of the three Key Landscape Features described in Section 3, delivery of a cohesive network of open spaces that integrates with waterways and movement networks is at the core of this UDLP. The design maximises the continuity of public realm by seeking to improve existing open space connections through enhanced navigation and place-making at focused locations identified as navigation nodes. The design enhances access to public open space within and at project interfaces via these navigation nodes which themselves create functional meeting and rest spaces, providing an intentional yet nuanced transition towards the nearby open space. The project boundary and location limit the possibility of new open spaces. The design focuses instead on minimising impacts on adjacent open space where possible. The current open space function in and along the project corridor is maintained, noting opportunities for enhanced amenity will be explored during detailed design development with key stakeholder input.
7.2 Open space infrastructure	Opportunities to upgrade the existing open spaces along the project corridor are maximised to create consistent, high quality, multifunctional and efficient spaces. This includes public open space infrastructure to enhance the function and enjoyment of the open space, such as seating, natural shade, drinking fountains, dog drinking bowls, emergency markers, bicycle leaning rails/ hoops and rest areas. Public open spaces are consistent with local council or Parks Victoria furniture, material palettes and standards, and playground guidelines. Park and recreation facilities are clustered within open spaces to encourage people to gather together and to have positive social interactions.	Opportunities to upgrade existing open spaces have focused on establishing natural navigation through navigation nodes designed to create rest and meeting areas that provide an opportunity to engage with the Koonung Creek Trail landscape. Added amenity includes seating, natural shade, vibrant planting, and Wurundjeri Woi-wurrung cultural learning landscapes. The focused navigation nodes cluster activities within and between open spaces, encouraging people to gather and have positive social interactions. Public open space designs are consistent with local council, Melbourne Water, DTP and other asset owner requirements. These designs have been developed to consider future development plans of stakeholders, particularly at Junction Road Reserve. The design includes provision for two new drinking fountains at Eram Park and Junction Road Reserve and two new bicycle repair stations along the Koonung Creek Trail. The exact design and location will be agreed with local councils during design development. The Project will also consult with Whitehorse City Council during design development to identify opportunities to deliver a nature-based play area or fitness equipment on land owned by Whitehorse City Council in the vicinity of Junction Road Reserve.
7.3 Positive use of space	The design promotes and enables the positive use of public open space through design, with the resulting spaces being useful, attractive, activated, safe and sustainable. This includes incidental spaces such as those under ramps and viaducts, as well as pocket parks alongside the roadway. Places are well designed to cater for a diversity of uses that promote opportunities for positive social interactions and incidental physical activity	The design promotes and enables the positive use of public open space through design with focused interventions at junctions between the Koonung Creek Trail's primary and secondary path networks, access paths and bridges, and narrow areas of paths and underpasses. This is further enhanced by habitat vegetation and treatments along the Koonung Koonung to create attractive spaces. These interventions cater for a variety of passive uses, diversity of users, and positive social interaction through improved navigation, wayfinding, rest opportunities and opportunities for engagement with and connections to the landscape.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
7.4 Pedestrian realm	Public open spaces are inclusive, pleasant and welcoming. Seating, shade, shelter, 'pause points' and lighting are provided, as appropriate, and at regular intervals in open spaces at transport stops, on key pathways, and in community spaces associated with the project. Natural daylight is maximised into public spaces below and adjacent structures.	The design intent is to create inclusive, pleasant and welcoming spaces through focused interventions that improve accessibility, minimise vulnerability and create places. These 'pause point' interventions, as navigation nodes, cater for a diversity of passive uses and users through improved natural navigation, wayfinding, rest opportunities and are strategically located at regular intervals and junctions within the project boundary. Where possible, natural daylight is maximised into public spaces below and adjacent to structures. Where natural daylight is currently accessible, particularly in the larger open spaces, the design intent is to maintain this open character. Quality enhancements, such as planting, artistic or material elements, are sought where structures impact natural daylight, for example acrylic inserts on noise walls where sited within four metres of the Koonung Creek Trail and elsewhere where possible. Lighting is provided at underpasses, the approaches to the Koonung Creek and Koonung Road pedestrian and cycling bridges and along the new Eram Road pedestrian and cycling bridge to increase amenity of the pedestrian realm.
7.5 Safety	New spaces created around the project feel safe, comfortable and welcoming to users during both day time and night time, maximising passive surveillance, clear sight lines and appropriate lighting.	The open spaces interventions focus on safety and comfort to ensure a welcoming open space during both the day and night. Acrylic noise wall panels provide natural daylight and light spill from the freeway at night as well as optimising sight lines and passive surveillance. Lighting at underpasses, the approaches to the Koonung Creek and Koonung Road pedestrian and cycling bridges and along the new Eram Road pedestrian and cycling bridge also enhances safety and visibility in these environments. The lighting design strategy considers the transitions from lit north-south crossings at Eram Road and Koonung Road to the wider urban context and the lit street-side footpath network to provide an increased perception of safety at night time. Junctions and pathway exit points to the wider urban context are further highlighted through planting design, making these areas visually distinct.
9. Walls, fencing, barriers and screens		
9.1 Noise and visual mitigation	Noise attenuation elements are high quality and context sensitive. Innovative methods of noise mitigation are maximised to reflect/refract and/or absorb noise. Landscaping and landscaped embankments enhance and soften the appearance of walls and barriers, reduce height and bulk, and better integrate the structures into the surrounding area.	Noise attenuation elements are of a high quality and are context sensitive. Proposed noise wall panels have been designed to complement the existing retained noise walls, while offering a visual language that speaks to the broader corridor-wide design solution. MRPP noise walls achieve the required project durability and design life criteria compared to precast concrete solutions and will cut embodied carbon emissions by over half and are 100% recyclable at end-of-life. The patterns of the noise walls will be finalised during the design development process in consultation with key stakeholders.
9.2 Integrated and coordinated	Noise walls, flood walls, fences, screens and traffic barriers are coordinated and integrated to minimise visual and physical clutter. These elements integrate with existing or proposed elements to reduce the need for additional structures and transition seamlessly into the existing elements. Opportunities to incorporate new built form as noise mitigation are maximised to replace the need for noise walls. Transitions in wall and fencing heights are well considered and seamless. Materials and colour palettes are coordinated, and finishes are high quality.	Individual MRPP noise wall panels are designed in trapezoidal elements that eliminate issues surrounding panel misalignment across the extent. The staggered arrangement also reduces the visibility of any misalignments. The patterns of the noise walls will be finalised during the design development process in consultation with key stakeholders. Where possible, the noise wall alignment minimises effective panel height by offsetting the wall further up the embankment. With regards to transitions, the walls follow the same logic as the existing noise walls, with determined stepping in the panels retaining horizontal datums to the top of panels. The noise walls have also adopted a set of rules regarding interfaces on the Koonung Creek Trail paths. These dictate where full height acrylic noise wall panels are needed for lighting and views to provide a pleasant experience on the community side. Where publicly visible and elevated, architectural parapets have been designed into the backs of the traffic barriers to create a visually interesting texture and finish. These traffic barriers have been adjusted to sit over the top of the RSS walls. The design of these parapets and barriers aligns with other UDLPs, ensuring continuity along the North East Link Program alignment.
9.3 Local context and scale	Walls, fencing and screens are designed in response to the surrounding areas, with careful consideration to form, texture and colour on both sides of the walls. Use of colour is appropriate to location, and minimises the impact on residential and sensitive uses, including negative impacts from coloured light from transparent materials. Both faces are designed to the same standard of quality, with a front and a front, rather than a front and a back. Walls are appropriately designed to address the speed at which they are viewed. Design on public and residential interfaces reflects a pedestrian scale, whereas the roadside interface reflects the scale of a high-speed vehicle environment. Walls and other structures are sensitively sited and proportionate to the surrounding structures, landscape and urban elements.	Walls and barrier design considers both motorists and the community, with both sides offering colours and textures that cohere with the design language applied in other UDLPs and the existing context of this project area. The scale of the patterns has been designed using treatments to maintain a sense of legibility at different speeds. This includes the macro scale and motorist speed, as well as the micro scale for pedestrians passing at a slower speed. The patterns of the noise walls will be finalised during the design development process in consultation with key stakeholders. Ongoing co-design workshops will take place with Wurundjeri Woi-wurrung to embed culture into the design outcome. Refer to Attachment 1 - Architecture and Urban Design (drawing nos. NEL-EST-NEA-6600-UUD-DRG-DET 1500-1505) for examples of the detail on noise wall panels on the road and community side.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
9.4 Interfaces	The creation of unsafe narrow areas between noise walls and residential properties are avoided and minimised. Innovative solutions are included to ensure any narrow spaces are pleasant and safe. Walls respond to the adjacent land uses and boundaries and maximise opportunities for dual use.	Working in a tight corridor, the solution balances noise wall alignment to minimise narrow areas. Where possible buffer planting is provided between the pedestrian and cycling paths and the noise walls to soften the interface with residential fences, particularly along the narrow section between the new Eram Road pedestrian and cycling bridge and Middleborough Road. The staggering of the noise walls also helps to create a dynamic shadow-line to the top of the walls that shifts across the day to the ground-plane. Where new noise walls are within four metres of the pedestrian and cycling paths, full-height acrylic panels are utilised to allow for natural light and high visibility. Navigation nodes at the southern approach of both the new Eram Road and Koonung Road pedestrian and cycling bridges, and at Norfolk Circuit maximise their narrow locations along the Koonung Creek Trail, delivering dual uses in a constrained area. The rearrangement of the eastbound on-ramp at Middleborough Road has reduced the project footprint that would otherwise have interfaced with properties, avoiding a particularly narrow and potentially unsafe area.
9.5 Transitions	Transitions in types and materials of walls, barriers and fencing appropriately address adjacent sensitive land use, property boundaries and vegetation. Changes in wall heights and materials types in walls, barriers and fencing are well considered.	Taking reference from the heights established by existing noise walls, proposed noise walls follow a similar stepped profile maintaining the design language within the corridor. In keeping with this design precedent, the aim is to allow shifts in both pattern and colour to create a consistent approach to the wall design. Where sensitive adjacent land-uses require additional daylight, acrylic inserts have been provided to ensure overshadowing is mitigated. These areas consist of overshadowing to the creek, and locations of panel length above 8m which include the rear of properties impacted by minor overshadowing along Eram Road. The addition of full height acrylic noise walls were determined by multiple factors such as if the noise walls extents fall within a 4 m range of the pedestrian and cycling path, areas where noise walls interface with surrounding landscape vegetation, and areas with visibility to the creek to allow for light and visibility. Where full height acrylic noise walls transition to solid MRPP noise walls along the corridor, acrylic panels will provide a cohesive visual transition.
9.6 Visual connectivity and solar access	Transparent barriers are used to take advantage of scenic and adjacent views of surrounding landscape, and reduce the bulky appearance of structures. Walls and barriers are designed (for example sited or angled) to avoid or minimise overshadowing of properties, waterways and open space. Transparent barriers are used to optimise solar access, and to maximise visual connectivity across corridor to connect communities. Walls and barriers are responsive to the local environment and allow sunlight to waterways and ecological areas.	Where noise walls are required on structures, coloured acrylic has been nominated that allows road users the ability to take advantage of scenic views in the Koonung Koonung corridor. In addition, off structure noise walls have also been designed to incorporate acrylic inserts either into the upper section or within the full extent of the panel, to limit overshadowing to sensitive interfaces as well as the Koonung Koonung.
9.7 Anti-throw screens, public safety barriers (PSB) and privacy screens	Anti-throw screens, public safety barriers and privacy screens are well integrated with bridge and road structures and utilise high quality architectural materials while maintaining a high quality aesthetic form. The scale and visual bulk of throw screens are minimised. Screens are designed to avoid the perception of entrapment that may become a barrier to use. Anti-throw screens have good visual permeability when viewed from adjacent areas, to maximise passive surveillance.	Anti-throw, public safety barriers and privacy screens have been designed out of most of the project scope through risk assessments, reducing the amount of 'structures' within the road corridor. Throw-screens have been integrated into the Eram Road pedestrian and cycling bridge, featuring widely paced articulated posts to reduce the feeling of enclosure for users and visual bulk, and to not restrict views from the bridge. Webnet screens have also been used along these posts to ensure visual permeability.
9.8 Flood walls and retaining walls	Walls are carefully integrated with the landform. Opportunities to use earth embankments and screen planting to mitigate the visual height and bulk of walls are maximised. Walls are integrated with traffic barriers, fencing, throw screens and other structures to reduce visual clutter. Walls have a consistent form, design and material palette. Wall design appropriately reflects the surrounding landscape, urban form and the local context. Walls at the entrance to tunnels and along the road corridor use a consistent design and materials, are integrated with the landscape and have appropriate maintenance access.	The project scope encompasses existing walls being retained and new walls, with prioritisation given to creating continuity between the two throughout the corridor. The design carefully considers interfaces and details where they are publicly visible. These considerations include minimising vertical surfaces where possible, and instead increasing landscaped berming in areas such as at Eram Park, which has resulted in deleting flood wall elements in the area. Another example is design of the noise walls that use a stepped arrangement to semi-conceal posts to both sides of the noise wall.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
9.9 Deterring graffiti	High quality materials and textured surfaces are used on walls, fencing and screening to deter graffiti, particularly at lower levels of the noise wall. Other opportunities for innovative solutions to deter graffiti are maximised.	While the finalised location and extent of anti-graffiti coatings is to be determined in the design development process, textured faces and staggered alignments help to deter graffiti, breaking up large extents of continuous surface. In addition to this, landscaping will be used where possible to the front and back faces of noise walls to create a physical buffer to assist in deterring vandalism and graffiti. The use of MRPP for the off structure noise walls reduces the impact of graffiti, as it is easier to remove from the plastic surface when compared to other noise wall surfaces, such as concrete or wood.
9.10 Maintenance	Walls are designed to minimise maintenance burden through the selection of high quality materials that are durable, not subject to environmental damage and can be accessed to maintain their high quality	Non-integrated fascia panels will be used for the majority of the retaining wall faces along the corridor, with a design that provides spacing for inspection and maintenance. Shotcrete may be used for some retaining walls west of Tram Road to achieve consistency with the design solution for Eastern Freeway Upgrades – Burke Road to Tram Road. The panelled nature of the MRPP noise walls allow for easy maintenance with all structural posts to be inspected from the same side. The MRPP itself is set to meet returned asset owner maintenance and design-life requirements, will provide a durable material of which is 75% recycled and 100% recyclable at end-of-life. Acrylic inserts, which are recyclable, on noise walls will be sourced to ensure durability of the material to minimise operational maintenance obligations such as those associated with potential impacts from lichen coverage and graffiti.
10. Bus park and ride facilities and bus lanes		
10.1 Bus interchanges	Bus interchanges provide a high quality experience for commuters that enhances their journey, provides intermodal connections and increases neighbourhood connectivity. Interchanges have demonstrated capacity to support or facilitate future service changes.	This requirement is not relevant to this UDLP and is addressed as relevant by the Bulleen Park and Ride UDLP, and the Doncaster Park and Ride UDLP.
10.2 Bus station design	The design of the interchange optimises their dual role as service points for public transport infrastructure and as public landmarks. Architecture of the bus interchange is high quality and provides a positive built-form contribution to the local area. The public realm promotes pedestrian activity, creates vibrant spaces, uplifts connectivity, and integrates the interchange precinct into the surrounding area. Complementary land use and activation opportunities such as commercial, retail and public facilities are maximised. Car parking areas are safe and positive places. Weather protection must be provided such as shelters and passenger lounges. Break rooms and toilets for drivers are conveniently located to minimise disruption to services.	This requirement is not relevant to this UDLP and is addressed as relevant by the Bulleen Park and Ride UDLP, and the Doncaster Park and Ride UDLP.
10.3 Innovation	Innovative design solutions that add value to project should be incorporated into the design. These are solutions that are not commonly used in the Victoria and are beyond business-as-usual approaches. These solutions include locating of ticketing devices on platforms, creating more attractive 'airport' style waiting spaces, integrating retail and public amenities into station building, initiatives that support intermodal interchange such as shower and change room facilities, integrating future-thinking technologies, and built form sustainability initiatives that contribute to beyond business-as-usual sustainability outcomes.	This requirement is not relevant to this UDLP and is addressed as relevant by the Bulleen Park and Ride UDLP, and the Doncaster Park and Ride UDLP.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
10.4 Transport and active travel connections	Interchanges provide the ability for commuters to undertake effective, safe and comfortable intermodal connections to public transport, vehicles and active transport. Customers are provided with clear and open movement within the bus precinct/station. Walking and cycling along priority routes into the precinct, along desire lines and at entry points (both existing and future) within the precinct is improved. Walking and cycling connections link into the surrounding network, and are convenient, direct and attractive to use. End of trip and bicycle amenities including bicycle parking are provided. Clear sight lines and well-integrated connections are provided to feeder bus services and other modes of transport. The entry and exit to facilities and stops are identifiable and easy to access.	This requirement is not relevant to this UDLP and is addressed as relevant by the Bulleen Park and Ride UDLP, and the Doncaster Park and Ride UDLP.
10.5 Bus lanes and busway	The design creates a clear corridor that supports the efficient, safe and high speed movement of buses. The corridor infrastructure has a strong visual identity, works to break-up the perceived expanse of freeway, is responsive to the adjacent landscape and urban form, and creates a memorable public transport experience. The busway design is sympathetic to the design of the Eastern Freeway. Busway is designed to achieve high quality urban design and landscape outcomes	No busways or formal bus lanes are within the scope of this UDLP. However, the design incorporates sufficient shoulder widths to allow buses to use the shoulder as a de facto bus lane, supporting efficient public transport. This maintains the existing use of the shoulder in both directions between Tram Road and Middleborough Road for Route 303 (City <-> Ringwood North) and Route 318 (City <-> Deep Creek), and further to Blackburn Road for Route 906 (City <-> Warrandyte via The Pines Shopping Centre).
12. Lighting		
12.1 General lighting	Functional lighting design and light elements for roads and paths integrate with infrastructure and surrounding areas and are appropriate to surrounding land uses and enhance personal safety. Lighting creates a cohesive identity for the project and is integrated with built elements and the general lighting approach.	Integrated lighting is a key feature of the urban design response to provide adequate lighting for road and pedestrian users at a level that is appropriate for surrounding land uses. The functional lighting design includes the following: – Freeway corridor: The existing centre-median lighting infrastructure is removed in favour of high mast and LED lighting infrastructure sited at frequent intervals either side of the road corridor and along the eastbound and westbound road bridges. Lighting is also provided along on- and off-ramps and on interchange junctions as required. Under-structure LED lighting to illuminate the road corridor below is provided under the eastbound and westbound road bridges, and under the Tram Road and Middleborough Road interchange bridges. – Pedestrian and cycling bridges: Handrail lighting is provided to improve accessibility and perceptions of safety on the new Eram Road pedestrian and cycling bridge. Light spill from the road corridor will provide light for the retained Koonung Road and Cabena Street pedestrian and cycling bridges. – Koonung Creek Trail and other paths: Lighting of underpasses under Station Street, Blackburn Road and Springvale Road will be upgraded to achieve a higher level of path illumination. Lighting along the new Eram Road pedestrian and cycling bridge will provide for intuitive navigation at night. There will also be new lighting on the trail at the approaches to the new Koonung Creek pedestrian and cycling bridge and the retained Koonung Road pedestrian and cycling bridge. Light spill from the freeway will provide supplementary lighting to areas of the trail. The new high mast lighting structures reflect the lighting strategy and design used by the interfacing Eastern Freeway Upgrades — Burke Road to Tram Road UDLP, providing a cohesive design between these two sections of the Eastern Freeway. All elements and conduits are integrated in the light mast structures.
12.2 Feature lighting	Feature lighting is integrated with road lighting to enhance navigation and user experience. All lighting appropriately addresses impacts to sensitive adjacent land uses.	Feature lighting is provided at underpasses and primary navigation nodes and has been carefully considered in its placement, with strong awareness of potential issues arising through a road safety audit. In addition, the lighting design has been conscious of impacts to habitat along the Koonung Creek Trail and secondary paths. Issues of light spill from feature lighting onto adjacent land have been mitigated where possible through the selection of alternate and low impact lighting options. Feature lighting at navigation nodes and at other strategic locations along the Koonung Creek Trail for both navigation and safety purposes will be considered during detailed design development.
12.3 Light pollution	Lighting employed in the project is designed sensitively for the surrounding environment and to avoid or minimise light pollution.	Light sensitivity has been considered in the approach, with appropriate shielding taken into account to reduce unwanted light spill. Low impact lighting options will be used where possible to illuminate paths to further minimise light pollution. Light spill is harnessed for areas where it can provide adequate lighting, such as the Koonung Road and Cabena Street pedestrian and cycling bridges, therefore reducing light pollution on the surrounding environment.
12.4 Maintenance	General and feature lighting include designs and elements that maximise road safety, are environmentally friendly and can be safely maintained.	Lighting will feature LED elements which are reliable technologies, environmentally friendly, easily maintained, and long lasting. Lighting is designed and oriented to avoid unintended glare or reflection where particular treatments or coatings are featured on road, wall, path and other surfaces. Similarly, where road safety issues could conflict with feature lighting, the urban design has specified products to limit the extent of illumination to the structural elements themselves, mitigating light spill to the road.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
12.5 Energy efficiency	Energy efficient lighting is used to reduce ongoing energy consumption.	The siting and design of light infrastructure results in a greater flooding of light compared to the existing centre-median lighting scheme. This has meant an overall reduction in the number of light poles and a lower operational demand for energy to illuminate the road corridor. The larger flooding of light also provides light spill onto nearby open spaces either side of the road corridor and along the Koonung Creek Trail, reducing the need for lighting infrastructure interventions at these locations. Targeted lighting is provided outside of the road corridor where warranted and will be further considered and refined during detailed design development.
13. Walking and cycling infrastructure		
13.1 Pedestrian and cycling network	The project maintains or enhances the existing pedestrian and cycling network. Walking and cycling connectivity through local neighbourhoods is improved with integrated links and connections across the project. Clear visual and movement linkages between streets, footpaths, bicycle paths, and public open spaces connect public transport, neighbourhood activity centres, schools and other key community facilities and services.	The Project maintains the existing pedestrian and cycling network and enhances the network through focused interventions at key path junctions. Overall pedestrian and cycling connectivity through local neighbourhoods is maintained and improvements to these links are proposed by enhancing pedestrian overpass locations to facilitate more efficient and clear navigation. Within the project boundary, clear visual and movement links have been strategically enhanced with a focus on establishing cues for natural navigation through realigned paths where safety or accessibility improvement opportunities were identified, creation of navigation node meeting and rest areas, and avoiding impacts to current links.
13.2 Encourage cross-community connectivity	Opportunities to remove barriers that discourage walking and cycling, cross-project corridor connectivity, and the community's ability to reach everyday services and facilities within a 20 minute walk are maximised. These barriers include physical obstructions, and a lack of shade and rest stops. Pedestrian and cycle crossings of the project corridor are celebrated and emphasised to encourage greater sense of connectivity.	The design encourages walking and cycling by creating a quality, cohesive open space with improved natural navigation, realigned paths where necessary such as the Cabena Street pedestrian and cycling bridge access point from the Koonung Creek Trail, facilitating an easy, comfortable and accessible network within the project boundary. Pedestrian and cycle crossings of the project corridor are recognised and emphasised through the creation of navigation nodes that provide intuitive cues to overpass locations, junctions and underpasses while also providing areas to meet, gather and rest.
13.3 Pathways and connections	Connectivity and continuity of on-road and offroad walking and cycling routes along and around the corridor are maintained and enhanced. Any existing trails impacted by works are realigned to retain connectivity. Pathways are direct and convenient. Access is maintained or improved with direct, pleasant and safe pedestrian and cycling links. Opportunities for grade separation of walking and cycling paths from roads are maximised. Off-road walking and cycling paths are high quality, suitably wide, functional and aligned appropriately. The transition between cycling paths is continuous and seamless with direct routes and consistent design elements. The riding environment is safe and appealing. Extent of local and strategic cycling corridors is maximised.	Connectivity and continuity of pedestrian and cycling routes along and around the corridor is maintained and strategically enhanced through alignment improvements, resurfacing, enhancement of adjacent planting or creation of evenly spaced rest spots. Any change to alignment creates improved access that is direct and convenient while also an improvement on safety and experience. Existing grade separation of paths from roads have been maintained. No new grade separations are proposed. Improvements to off-road pedestrian and cycling paths will be delivered in line with asset owner requirements with focus on high quality, suitably wide, and appropriately functional and aligned paths, maximising seamless connectivity to the surrounding path network. Pedestrian and cycling path transitions between retained, upgraded and interfacing networks are consistent. Proposed interventions create a safe and appealing environment that focuses on integration with public realm continuity, particularly between and within open spaces. .
13.4 Path separation	Separated walking and cycling paths are used in high-use areas where appropriate, and avoid and minimise the potential for conflict between intersecting travel paths.	No new separated pedestrian and cycling paths are proposed within the project boundary. Opportunities to remedy conflicts at intersecting travel paths have been identified. The design focuses on minimising these conflicts through enhanced natural navigation as part of the approach to create a coherent open space as part of the navigation nodes.
13.5 Pedestrian crossings	Pedestrian crossings are provided at strategic points to encourage safe travel behaviour and enhanced connectivity. They are regularly spaced. The distances between them minimised.	No new pedestrian crossings are proposed within the project area. All existing crossings are retained and enhanced through focused interventions as navigation nodes providing users with cues within landscape junctions or changes in conditions. This includes feature planting, seating, and co-design opportunities for art or interpretation.
13.6 Perceived safety	Perceptions of safety along walking and cycling paths are improved for pedestrians and cyclists, through good design, to remove barriers to participation.	The design addresses perceptions of safety for pedestrians and cyclists through enhanced habitat planting, feature planting and focused interventions at junctions, which provide rest areas, and, where appropriate, lighting and co-design art installations. These interventions aim to provide a high quality, coherent open space that provides a feeling the open space is cared for, used and accessible. Lighting improvements through upgraded LED luminaires will enhance perceptions of safety in underpasses. Handrail lighting along the new Eram Road pedestrian and cycling bridge and associated ramps comply with required standards. The acrylic inserts for noise walls at narrow points of pedestrian and cycling paths will result in lower levels of overshadowing and avoiding uninviting pockets, further mitigating vulnerability risks and increasing perceptions of safety.
13.7 Shade	Canopy trees are maximised along pedestrian and cycle routes, to provide amenity and shade.	Existing tree canopy has been retained where possible. In areas where tree canopy must be removed, new canopy tree planting is proposed, suited to the conditions. Outside the road corridor tree planting will take a transitional approach utilising quick growing pioneer species, followed by slower longer lived species.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
13.8 Prioritise pedestrians	Pedestrian priority is maximised on key walking routes into and around key community facilities and destinations (including activity centres, Park and Rides and nearby schools and aged care facilities) by providing a high quality walking environment. This includes shade, drinking fountains at appropriate intervals and rest stops with seating. Pedestrian-friendly walkways are free from obstructions and have a smooth surface. Outdoor furniture and fixtures such as bins, bicycle parking and drinking fountains are offset from pedestrian pathways.	Pedestrian priority is maintained in line with existing conditions. In general, a high quality walking environment is proposed with enhanced understorey planting and reinstated tree canopy where lost. Regular rest areas and opportunities to interact with the Koonung Creek Trail landscape have been integrated as part of the open space navigation nodes. Primary and secondary paths are free from obstructions and where reinstatement or realignment of paths are proposed, they are smooth and align with interfacing surfaces. Adequate offsets are provided within navigation nodes to incorporate any outdoor furniture and fixtures included at detailed design stage, in consultation with returned asset owners.
13.9 Wayfinding	Wayfinding and signage is used to improve the ability for people to find their way to key destinations.	Intuitive wayfinding has been proposed where possible to minimise the need for a visual clutter of signage along the corridor. This has been primarily done through navigation nodes which are visually distinct from the broader environment due to landscaping and planting palettes and are visible from multiple direction on approach. Further wayfinding signage incorporating storytelling and Wurundjeri Woi-wurrung traditional wayfinding practices is to be co-designed in ongoing sessions with WWCHAC.
13.10 Wayfinding signage design	Wayfinding signage provides clear and reliable information, as well as being appropriate and sensitive to the environment and users of varying abilities. A balance is struck between sufficient signage and visual clutter. Obstructions to key sightlines are avoided or minimised. Signage is consistent and well integrated with any existing local signage systems. Route hierarchy is coherent. Standard route naming is adopted along entire routes, negotiated with the relevant authority. Individual branding incorporating graphic devices is employed, such as the Koonung Creek Trail branding. A list of 'standard' destinations is developed for each route in consultation with the relevant authority. Names and notation are consistent with those used on other wayfinding signs and maps. Signage is provided where users join the route, at the ends of the route and at any significant intersection with another, route, trail, path or road. Alternative routes are signed where appropriate, such as where the main route may flood. Signage is provided at any point where route continuity is unclear. Signage is high quality, graffiti proof, weatherproof and low maintenance.	Signage has been proposed at primary junctions along the path network within the project boundary, including at navigation nodes, as well as at decision points at secondary paths, underpass junctions and at grade crossing. Siting, design and details of wayfinding will continue to be refined in line with council and asset owner requirements, and will ensure integration with local sign types to ensure route hierarchy is coherent. The wayfinding signage is part of a broader wayfinding strategy that emphasises natural navigation through landscape cues and balanced with signs and interpretation elements avoiding over-cluttered open space. Standard route naming will be adopted along entire routes and developed and negotiated with the relevant authority during detailed design development. A list of 'standard' destinations for each route, including names and notation are consistent with those used on other wayfinding signs and maps, will be finalised during detailed design development in consultation with the relevant authority. Signage developed during detailed design will be high quality, graffiti resistant, weatherproof, low maintenance.
14. Walking and cycling bridges		
14.1 Walking and cycling bridge design	Walking and cycling bridges are high quality and suitably wide to allow for passive surveillance and maintenance vehicles. Walking and cycling bridges are well designed and proportioned, and are visually appealing design elements for the roadway and adjacent communities. Bridges are structurally expressive and durable and the need to enhance the appearance of the bridge by use of cladding is avoided. Walking and cycling bridges use structural form, materials, texture and colour to create an identity for the project. Bridges respond to the surrounding context and are sensitive to the local character of the area.	The new Eram Road and Koonung Creek pedestrian and cycling bridges provide upgraded path widths and gradients across the entire structure in line with AustRoads standards, allowing for passive surveillance and passage of maintenance vehicles. This compliance has not hindered the design's elegant structural and architectural form taking reference from the broader network of pedestrian and cycling bridges along the Eastern Freeway. The fabricated box girder of the Eram Road bridge changes profile across its length, articulating its changing surfaces instead of using bridge cladding to provide this architectural design feature. The path widths and gradients of the retained bridges at Koonung Road and Cabena Street are not upgraded. However, the approaches to both bridges are being upgraded with new navigation nodes which will enhance visibility, accessibility and natural wayfinding. At the southern approach of the Cabena Street pedestrian and cycling bridge the design adds stepped access to create a new connection to the secondary path of the Koonung Creek Trail, offering improved sightlines to the bridge and more direct access for users entering the trail from Kett Street.
14.2 Entries	Bridges have a sense of openness at the approach, with a clearly identifiable entry and effective wayfinding.	The landscaping and design of pedestrian and cycling paths has been carefully considered to provide intuitive wayfinding to the bridge approaches across the project. The southern entry to the new Eram Road pedestrian and cycling bridge is made obvious through the extension and transition of posts and screens at its end point. Likewise, the approach either side of the new Koonung Creek pedestrian and cycling bridge provides an intuitive entry point marking the Koonung Creek Trail's transition to and from a movement corridor and the new creek experience. Considerable work has been done to the design of the Koonung Road and Cabena Street pedestrian and cycling bridges with select planting and upgraded approaches to ensure there is a legibility to the entries, allowing for intuitive navigation.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
14.3 Safety	Bridges provide a high level of passive surveillance and perception of safety.	The floor of the new Eram Road pedestrian and cycling bridge has been lifted quite high within the structure to maintain sightlines and visual permeability from the freeway corridor to the bridge deck. The throw-screens are angled to minimise their overall height and keep the structure open through most of its width, improving the perception of safety. Handrails along the bridge have been designed to ensure safety for users. The Cabena Street and Koonung Road pedestrian and cycling bridges that have been retained were not designed with throw screens and are quite elevated, resulting in a high level of passive surveillance and visual permeability. Handrails on these bridges will be improved to enhance safety for users. The new Koonung Creek pedestrian and cycling bridge sits at ground level with the Koonung Creek Trail and is not designed with throw screens, maintaining the passive surveillance and visual permeability currently provided by the existing bridge structure to and from the Koonung Creek Trail
14.4 Minimising impacts	Elevated structures are designed to minimise landscape and visual impacts, overlooking and overshadowing of residential and other sensitive areas. The visual impact of the bridge structure on road users is minimised. Planting is used to integrate ramps with their surroundings and reduce their visual impacts.	Retaining the existing pedestrian and cycling bridges at Koonung Road and Cabena Street minimises overall landscape and visual impacts around the structures themselves. The existing noise walls are also retained avoiding the need for new cut outs and in fills. The design of the new Eram Road pedestrian and cycling bridge minimises visual clutter for drivers on the freeway and for the community using the adjacent parks and pathways. The new Koonung Creek pedestrian and cycling bridge sits level with the Koonung Creek Trail, enhancing integration with the surrounding environment. There is no overlooking or overshadowing of residential areas or other sensitive areas from these new bridges.
14.5 Access	Walking and cycling bridges meet universal access requirements with ramps and stairs for direct access.	The new Eram Road pedestrian and cycling bridge complies with universal access requirements. Access is designed to deliver a shallow and gradual slope which is complemented by landings for enhanced comfort and ease for all user abilities. At the retained bridges, consideration has also been given to their tie-in access, with new stairs at the southern end of the Cabena Street bridge providing direct access to and from the Koonung Creek Trail. This provides a more accessible and visible route for pedestrian and cycling paths leading to the bridge.
14.6 Views	The design takes advantage of scenic views and vistas, and space for stopping and viewing does not significantly interrupt pedestrian and cycle movement.	With two of the bridges being retained, the opportunity for new vistas is isolated to the Eram Road pedestrian and cycling bridge. A lookout is provided to the north-west of the bridge providing views across Eram Park. The grade and width of the Eram Road pedestrian and cycling bridge is also adequate for users to stop along the bridge and interact with scenic views and vistas without interrupting moving pedestrian and bicycle traffic.
14.7 Lighting	Lighting is integrated into the design to make the crossing attractive and appropriate for night time use.	Handrail lighting is proposed along the new Eram Road pedestrian and cycling bridge to ensure adequate illumination for users. Light spill from lighting located within the freeway corridor is harnessed for further illumination along the bridge. Lighting on the retained pedestrian bridges at Koonung Road and Cabena Street is to be provided by spill from freeway corridor lighting. This spill achieves the performance and design requirements for public lighting in pedestrian areas and is appropriate for illuminating the bridge structures for night-time use. This solution avoids installing power conduits and lighting along the length of the existing bridges. The design provides lighting at the approaches to the Koonung Creek and Koonung Road pedestrian and cycling bridges, further contributing to the amenity of these crossings for night time use. Lighting for all pedestrian and cycling bridges will be assessed in accordance with **AS1158.3.1** as part of the design development process to confirm relevant requirements are achieved.
15. Walking and cycling underpasses		
15.1 Entries	Underpasses have a sense of openness at the approach, with a clearly identifiable entry and effective wayfinding.	Where possible within the scope of the project, underpass approaches have been designed to ensure clear sight-lines are provided and maintained to ensure safety and ease of navigational wayfinding. Surfaces on the approach and through underpasses are treated with reflective finishes to guide users through with opportunities for integration with navigation nodes through targeted landscaping.
15.2 Connections	Underpasses are strategically located to improve any gaps in the existing path network. Topography and entry points are integrated with the existing path network to provide a seamless and safe journey with clear sight lines. Paths are generously proportioned with room for pedestrians and cyclists traveling in both directions.	No new underpasses are included in the design scope. The design incorporates navigation nodes which will improve connectivity and integration with existing paths.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
15.3 Safety	Underpasses have clear visual connections through to the streetscape and public spaces on either side. Underpasses are wide enough to provide a high level of passive surveillance and perception of safety. The length of underpasses is minimised.	No new underpasses are included in the design scope. However, where upgrades to the Koonung Creek Trail and new navigation nodes are delivered, interventions will avoid reducing sight-lines through to entry and exit of the underpass.
15.4 Deterring graffiti	Internal and external walls use high quality materials with graffiti-resistant surfaces.	Textured surfaces along with anti-graffiti coatings will help deter vandalism and graffiti within the corridor, including within underpasses. Anti-graffiti coatings will be finalised in detailed design development as part of paint and material finalisation in consultation with the relevant returned asset owner.
15.5 Natural lighting	Opportunities to incorporate openings for natural daylight are maximised to improve lighting and reduce operating costs.	This UDLP does not include opportunities to change solar access within existing underpasses because the associated arterial road structures will not be changed. The design minimises overshadowing, particularly at narrow points of the Koonung Creek Trail, by including acrylic panels for noise walls to maintain solar access. This approach will improve perceptions of safety in public space and provide better solar access for canopy and vegetated areas. The design of noise walls and associated acrylic panels also considered the approaches to underpasses to extend sun exposure as far down an underpass as possible where this can be achieved.
15.6 Artificial lighting	High quality artificial lighting is used to enhance safety for pedestrians and cyclists. Lighting elements are included as design features integrated into the structure.	Lighting of underpasses under Station Street, Blackburn Road and Springvale Road will be upgraded to achieve a higher level of path illumination (compliant with public lighting standards — AS1158.3.1 / PE1). Experiential lighting options, such as artistic projections from elements integrated within the underpass structure, to improve user experience in addition to enhanced perceptions of safety, will be considered in detailed design development.
16. Navigational nodes and thresholds		
16.1 Hierarchy	A hierarchy of identifiable elements are located along the corridor, in accordance with the key design directions set out in this document, to help the community to navigate and identify their location. These elements should incorporate scenic views to the city, mountains, ridgelines and existing natural or built features; or through the design of elements that respond to cultural and historic values, geology, topography, water course, vegetation, above-ground characteristics and places above tunnels, and/or the urban setting.	Both the urban design elements and landscape have been used to provide navigational input along the corridor. Pedestrian and cycling bridges both retained and proposed are of differing styles reinforcing differing locations along the journey. Landscape planting has also been considered in this approach, with specific planting mixes reserved for key directional decisions including primary and secondary path deviations, and bridge approaches.
16.2 Structures as features	Opportunities are maximised for attractive, identifiable and well-designed structures (interchanges, ramps, bridges etc.) that also act as navigational nodes and threshold treatments. Built features and elements are meaningful and are not superfluous visual elements.	The pedestrian and cycling bridges and their associated treatments are the key navigational nodes across the project. The visual appearance of the proposed Eram Road pedestrian and cycling bridge working alongside new treatments to the retained bridges provides a 'family' of elements along the corridor that contribute to the road user's experience. The associated landscape treatments at bridge thresholds create a series of key rest spaces with linking themes and elements to create a cohesive experience for pedestrians and cyclists. This is further complemented with treatments to underpasses and road crossing thresholds.
16.3 Visual clutter	Visual clutter is to be minimised including from road lighting.	Co-locating elements within the road corridor has been worked through to help reduce the visual clutter across the project. LUMS signage has been incorporated into structure of the proposed Eram Road pedestrian and cycling bridge, mitigating the need for an additional ITS gantry. Efforts are also made to reduce clutter outside the road corridor through the integration of infrastructure with landscape features where possible, such as at the creek realignment. Visual clutter has been minimised at each previous stage of design development and opportunities for further reduction may be identified at later stages of the design development.
17. Landscape		
17.1 Green corridors	The project enhances the quality of the surrounding landscape and strengthens existing green corridors. New landscape work complements the existing soft landscaping and is distributed evenly throughout the project. Landscaping is undertaken early in the construction process where practicable, prioritising areas that will not be impacted by future construction, in order to maintain the green character of the area.	The design enhances the surrounding landscape through focused re-vegetation and canopy reinstatement to areas impacted by construction. The design includes focused interventions at navigation nodes to create moment for rest and interaction with the landscape as well as natural navigation. Landscape works will be aligned to construction programming to ensure landscape establishment periods are maximised and are aligned to ideal planting seasons to reinstate the green character of the area.
17.2 Roadway identity	Landscaping unifies the road corridor, contributes to the identity of the roadway and enhances the experience when driving through the area.	The design builds on the existing character of the road corridor, with focused understorey planting and re-establishment of greenery where tree and vegetation removal is required. The planting design intent is to create three colour themes in the understorey and to reinstate and build on the existing tree canopy to enhance the roadway experience.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
17.3 Integration	The landscape design integrates the road environment into the existing landscape character and urban fabric. Landscape areas are clearly defined and are not left-over and undesirable spaces.	The landscape design intent is to integrate the road environment within the existing landscape. Most areas will be enhanced through understorey planting or reinstatement of tree canopy where tree and vegetation removal is required for construction. Where the new road alignment is proposed on existing open spaces, particularly between Tram Road and Middleborough Road, tree canopy and vegetation required to be removed for construction will be reinstated where possible, such as at Eram Park. Landscape areas are clearly defined as pedestrian and cyclist movement corridors, focused navigation nodes, retained open passive parklands, creek corridor or habitat planting areas. Leftover areas are minimised through integration of noise walls and retaining walls. Landscape clearing envelopes at appropriate locations will be considered (subject to returned asset owner requirements) during design development to minimise vegetation impacts from encroachment onto paths and roads as well as reducing the frequency and scale of ongoing maintenance such as pruning.
17.4 Minimising loss	The removal of mature trees, planted and remnant native trees and remnant vegetation, (particularly large amenity trees, heritage vegetation and vegetation within or connected to open space) is minimised. Opportunities to retain all valuable habitat linkages or corridors are maximised. An approach for the reuse of existing vegetation to be removed is developed.	The design shown in this UDLP has minimised tree removal through a number of key design decisions. Examples include the retention of the existing Cabena Street and Koonung Road pedestrian bridges which has avoided a significant amount of tree impacts where new bridges would have needed to be constructed under the EES Reference Design. Opportunities to retain and enhance the Koonung Koonung habitat linkages and corridors are maximised. The project team have mapped tree canopy, amenity trees and scatter trees using available data and larger trees have been identified within the data set. This data has been embedded into the construction, engineering, land, planning and environment and urban design workflows to ensure the team is cognisant of trees. A tree reuse strategy has been identified and will be finalised during detailed design development. Trees and vegetation to be removed will be reused on site wherever possible for mulch, ecological logs, informal play/seating and where appropriate milled for furniture use on site. Translocation of any understorey planting will be explored in detailed design development.
17.5 Enhance habitat and biodiversity	New landscapes corridors are developed to enhance biodiversity and habitat links (both new and existing). Indigenous vegetation is planted in existing habitat linkages and corridors to strengthen biodiversity and provide habitat links for native fauna to move more easily through the urban landscape. Opportunities to create fauna habitat and links are maximised, including the use of hollow logs, nesting boxes and rope ladders as part of any landscape works undertaken within biodiversity zones and natural open spaces.	The Koonung Linear Park forms an existing landscape corridor to the north and south of the freeway and the project has identified opportunities to enhance the understorey biodiversity, which is currently in poor condition, through understorey habitat planting. Planting will focus on indigenous species and native species suited to the modified environment such as the Ecological Vegetation Classes — Valley Heathy Forest, Swampy Riparian Complex in addition to Valley Grassy Forest. Engagement with WWCHAC will formalise the final species lists. Opportunities to enhance habitat for fauna has been developed in consultation with the Project's ecologist and an understanding of the current site conditions. The approach focuses on understorey planting, introduction of coarse woody debris (currently lacking on site), retention of large canopy trees and complexity of conditions as part of the creek realignment to provide diverse conditions for flora and fauna and improve habitat connectivity.
17.6 Visual mitigation	Landscaping is used to filter or screen views of road infrastructure and head light glare. The punctuation of built form and structures above treed ridgelines is minimised. Support a canopy of mature trees as the dominant visual element throughout the project corridor. Roadside landscape is used to mitigate the visual impact of large expanses of asphalt and to enhance the driver experience.	Enhanced and reinstated landscaping, including canopy trees, acts to filter the view of road infrastructure in combination with noise walls. The design acknowledges the connective, green visual amenity role the current tree canopy provides, by prioritising retention and reinstatement of canopy where removal cannot be avoided, as well as avoidance of structures above tree lines where possible. Loss of the Eram Park ridge-line canopy, currently experienced from the road, will be reinstated as quickly as possible through a transitional tree planting approach utilising pioneer species followed by slower growing, longer lived species. Where possible, roadside planting will be enhanced and reinstated to mitigate visual impacts of increased expanse of asphalt, with a particular focus between Tram Road and Middleborough Road.
17.7 Be inspired by local assets	The landscape design takes cues and is inspired by nearby local environmental assets including the Yarra Valley Parklands, Koonung Koonung, Plenty River Gorge, Gresswell Nature Forest, Banyule Creek and Simpson Barracks. Landscapes along river and creek corridors that are impacted by the project are rehabilitated and naturalised for ecological and experiential benefits.	The landscape design takes cues from the adjacent Koonung Koonung as the primary landscape feature running through the project area. A key objective and driver of the urban and landscape design is the retention and regeneration of the key landscape features and local assets endemic to the Koonung Koonung waterway and its surrounds, as well as those at other local sites up and down stream across the entire corridor alignment. This includes understorey habitat planting, strategic weeding, and complexity of edge conditions for diverse flora and fauna establishment at the creek realignment. The open space design's focused interventions at navigation nodes, draw on the landscape opportunities to create moments of engagement and experience of the creek. Details of the landscape design will be finalised through design development and will be to the satisfaction of the future asset owners.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
17.8 Urban forest	New tree planting and vegetation is prioritised within the project corridor, including adjoining streets, medians, buffers and in carparks, to support the urban forest. Opportunities for tree planting within the roadway landscape, local streetscapes, in buffer planting, and on highpoints and ridgelines is maximised. Innovative engineering solutions are used to maximise tree planting. Where there is a conflict between planting canopy trees and maintaining views, canopy tree and buffer planting may take precedence. Services are located to optimise tree planting.	New tree and understorey planting is prioritised within the project boundary. This includes within the roadway, habitat areas and high-points. An integrated approach to engineering and landscape prioritises retention of trees. Reinstatement and new tree planting is then pursued through an integrated design approach to align with the open space design. Working closely with the project arborist and soil specialist where needed, tree planting will be appropriate to site conditions and asset owner requirements Where there is a conflict between planting canopy trees and maintaining views, canopy tree planting may take precedence due to compliance with EPRs relating to tree canopy reinstatement to which the delivery of the project must adhere. Eram Park and Junction Road Reserve, which are currently open grassed areas with access to views and sunlight, present key areas for tree canopy reinstatement and understorey planting. Efforts to increase canopy cover at these locations have sought to balance the need to maintain open space areas for recreation purposes and have therefore targeted canopy replacement along open space edges, pedestrian paths and existing canopy lines. An integrated approach to utilities and services will ensure tree planting is optimised and will be further refined in detailed design development.
17.9 Plant health	The design provides sufficient set-backs, soil, and conditions for new and existing trees and vegetation to maintain and support plant health and growth.	The design provides sufficient setbacks aligned to asset owner and specific project requirements, soil, and conditions for new and existing trees and vegetation to maintain and support plant health and growth. Understorey planting to existing trees will be strategic and where soil from site cannot be ameliorated, topsoil will be imported, and subsoil cultivated to ensure appropriate soil profiles, microbes and drainage
17.10 Plant selection	Planting throughout the project is self-reliant, sustainable and requires minimal maintenance. Native species of local provenance are used in environmentally sensitive areas and/or identified biodiversity sites and corridors. The potential for impacts on identified biodiversity and habitat corridors and sites, and the Yarra River corridor by introduced species, is minimised. Trees and other vegetation are selected, to take into account predicted future changes in climate. Plant species selection is consistent with State and local government guidance. New tree planting, within or adjacent to the road reserve, is appropriate to the scale for the road environment and considers maintenance access.	Planting throughout the project is suited to the site conditions to ensure climate resilient, drought tolerant, low maintenance and regenerative planting is provided and that promotes natural recruitment. Native species of local provenance — Valley Grassy Forest and Swampy Riparian Complex species — are proposed throughout open spaces, with Valley Heathy Forest species introduced on dried ridge lines. Species within the road corridor will also draw on these species but priorities are made for high performing cultivated species where appropriate to ensure quick and consistent cover. Plant species selection is consistent with State and local government guidance. Ongoing engagement with relevant stakeholders will inform replacement planting. New tree planting, within or adjacent to the road reserve, is appropriate to the scale for the road environment, considers maintenance access, aligned with asset owner requirements and is suited to the condition with a focus on long lived, small to medium sized trees and trees know to have minimal limb drop.
17.11 Buffer planting and land form	Landscape design elements including buffer planting (planted vegetation situated outside the road reserve) and land form are used to create a visual buffer between the roadway and surrounding areas. Existing buffer planting is retained at the edges of any widened road corridors. Land form is used to reduce the apparent height of walls, barriers and road infrastructure. A suitable width of low planting is used to separate pedestrian and roadside traffic.	The landscape design proposes buffer planting within the road corridor and adjacent areas (habitat planting). While land-forming opportunities within the road corridor have not been applicable, noise walls have been pulled away from the road in areas to increase placement of buffer planting in front of the wall, and reduce the effective noise wall height, with the landscape moving up as you move away from the road. Where the freeway corridor is widened between Tram Road and Middleborough Road, and tree and vegetation removal is required, the landscape design focuses on reinstatement. Opportunities for landform use have been adopted where possible including through increasing landscaped berming in areas such as at Eram Park, which has resulted in deleting flood wall elements in the area.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
18. Water		
18.1 Water sensitive design	A 'water-sensitive design' approach is used to integrate water management objectives into the project's urban design and achieve a broad range of community and environmental benefits. This includes the use of passive irrigation techniques, and the incorporation of Water Sensitive Urban Design infrastructure such as swales, bio-filtration systems (rain gardens) and wetlands. A holistic approach to integrated water management across the entire project should be adopted.	Consideration for waterways has been critical in developing the design. Alongside the interventions at open spaces and movement networks, WSUD solutions along the Koonung Koonung and its tributaries are paramount to delivering a successful and well- integrated design language and narrative reflective of key design directions and project- specific urban design objectives. The Koonung Koonung is a heavily modified waterway. Landscape and urban design teams have worked collaboratively with construction and engineering teams, informed by ongoing consultation with the Wurundjeri Woi-wurrung to incorporate traditional wisdom of waterway systems and incorporate cultural understanding of the relationship between water quality, habitat health, and community wellbeing. The design and engineering teams have also consulted with Melbourne Water to undertake flood modelling and understand their waterway management requirements. This integrated and holistic design approach has informed the design, which includes WSUD elements such as bio-filtration areas, spill containment and flood mitigation measures to achieve multifunctional outcomes for people, nature and project functional requirements. The realigned section of the Koonung Koonung in Eram Park represents the most substantial impact on the waterway. This 150-metre (approx.) section includes habitat and water filtration planting along the banks. Water management elements include increased opportunity for localised widening and deepening to improve water flow, relocation of the creek bank behind a flood wall to protect against debris build up, erosion and potential storm event damage. Section 4.3.6 provides further detail on the creek realignment and the benefits of its design to the community. Attachment 2 – Landscape Design shows detail of the extents (drawing no. NEL-EST-NEA-6600-ULS-DRG 2613) and types of riparian and WSUD planting mixes (drawing nos. NEL-EST-NEA-6600-ULS-DRG 2316 & 2373) proposed in this area. Extensions of culverts and BEBO arches (culvert structures used for larger waterway diversions) use strategic species planting to further assist erosion control and water filtration as well as habitat. Understorey habitat planting and buffer planting along the creek corridor within the project boundary will also enhance habitat and water quality. Existing adjacent wetlands, outside the project boundary, will also benefit from improved water quality and extension of quality habitat in the creek corridor.
18.2 Healthy waterways	The project maintains or improves the river health of the waterways that it crosses. Drainage infrastructure maximises opportunities to replicate natural processes in the treatment of water, and enhances stormwater management outcomes, as well as broader urban design and ecological values.	The project maintains and improves the Koonung Koonung within the project boundary. Drainage infrastructure maximises opportunities to replicate natural processes in the treatment of water, and enhances storm-water management outcomes, as well as broader urban design and ecological values wherever possible. At the realignment of the Koonung Koonung, an integrated approach aims to enhance the natural character, create diverse edges, depths and widths to diversify habitat and slow water, ultimately providing broader community, social and ecological values.
18.3 Daylighting waterways	Opportunities are maximised to preserve and restore natural and open waterways, and to 'daylight' (restore to a more natural state above ground) sections of creeks and streams that have previously been diverted into a culvert, pipe or drainage system to improve aesthetics, amenity and ecological values. Roadway crossings of waterways and wetland are minimised.	Opportunities are maximised to preserve the natural open waterway of the Koonung Koonung, incorporating Wurundjeri Woi-wurrung traditional wisdom relating to waterway management to maintain aesthetics, amenity and ecological values. Minor extensions of culverts and BEBO arches (culvert structures used for larger waterway diversions) are required as part of the road widening, however these interventions are minimal, and the majority of the creek has access to day light except for where it currently extends under the roadway. The realignment of the Koonung Koonung at Norfolk Court (west of Middleborough Road) is required to accommodate the widened freeway corridor. The design avoids undergrounding the creek and the realignment has been designed to improve the overall aesthetic appeal of the Koonung Koonung at this location and contribute to improved environmental outcomes stemming from riparian planting and enhanced natural lighting. No new road crossing of waterways and wetlands are proposed, and existing crossings of the Koonung Koonung are retained. This design will be developed in conjunction with Melbourne Water, WWCHAC, and Wurundjeri Woi-wurrung Water Team to amplify traditional wisdom of riparian ecosystems to inform habitat creation and waterway management approaches.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
18.4 Minimise habitat impacts	Road infrastructure is designed, located and constructed to minimise short and long-term impacts on riparian, riverbed and aquatic habitat.	Road infrastructure is designed, located and constructed to minimise short and long-term impacts on riparian, riverbed and aquatic habitat. The road widening between Tram Road and Middleborough Road requires a section of the Koonung Koonung to be realigned to avoid placing the creek underground at this location. The alignment of the Koonung Koonung has allows for improved integration with surrounding landscape and open space features. As part of the landscape design, it is proposed to increase the ecological outcomes by ensuring a meandering character that reflects the existing watercourse, wider and deeper areas and a mix of rock and planted riparian edges to create diverse habitats. This design will be developed in conjunction with Melbourne Water and the WWCHAC.
18.5 Drainage infrastructure and retarding basin design	Drainage infrastructure and retarding basins are located and designed to not adversely impact on the function of public open space. Drainage infrastructure within public open space does not inhibit the ability of local residents to have access to open space near where they live. New infrastructure enhances recreational values, and contributes positively to the quality and function of the open space. Low points in basins are strategically located to maximise useable open space, and to minimise disruption to the community's enjoyment of open space, particularly following wet periods. Drainage infrastructure is designed to visually blend into the surrounding landscape.	No new retarding basins are proposed within the project boundary. With regards to drainage infrastructure, an integrated approach has been applied to ensure their locations and designs do not adversely impact on the function of or access to public open space, but rather contribute to the open space quality, function and visual amenity. This includes infrastructure within Eram Park and the adjacent creek realignment.
18.6 Maximise community and environmental benefits	Opportunities for community education and to integrate community recreational infrastructure (e.g. seating, paths, boardwalks) are maximised. Water Sensitive Urban Design infrastructure is prioritised at locations where there are opportunities for water harvesting, treatment and reuse that support community facilities (such as providing a source of treated water for the irrigation of sporting fields). Water Sensitive Urban Design infrastructure does not limit opportunities to use landscape to mitigate visual impacts of the project (that is, by reducing available space for planting of trees and vegetation to filter views towards infrastructure). Water Sensitive Urban Design infrastructure is located and designed to support the proposed hierarchy of navigational nodes.	Opportunities for community recreational infrastructure are maximised as part of the navigation nodes. Within these place-making and navigational nodes, opportunities for interpretation and cultural narratives will be explored collaboratively with WWCHAC to ensure authentic representation of Wurundjeri Woi-wurrung wisdom and connection to place. WSUD infrastructure, spill containment and bio-filtration, are prioritised at locations where they align with the urban drainage and natural drainage systems of the Koonung Koonung. Where possible they may provide opportunities for education, however opportunities for water harvesting, treatment and reuse that support community facilities are poor. Location of WSUD and its associated maintenance access requirements will be further refined during detailed design development to ensure it does not limit opportunities to use landscape to mitigate visual impacts of the project, including trees and understorey planting and limits impacts to existing tree canopy. WSUD infrastructure is located and designed to support the proposed hierarchy of navigational nodes where they interface with the alignment of urban and natural drainage systems to ensure WSUD infrastructure is efficient and appropriate.
18.7 Raingarden and wetland design	Water Sensitive Urban Design infrastructure is integrated with the surrounding context and is designed to enhance the aesthetic appeal and ecological values of the area. Water Sensitive Urban Design maintains existing and planned key walking and cycling movement connections. Wetlands and raingardens located within or near the Yarra River floodplain or along creek and waterway corridors are naturalistic in form and aesthetics. The location of these elements avoids or minimises impact on existing recreational values. New wetland shapes respond to the contours of the land. The design provides a balance between natural areas for animal and bird life, and areas for public amenity, including places for respite, recreation and seclusion.	WSUD infrastructure is integrated into the surrounding context and is designed to enhance the aesthetic appeal and ecological values of the area with a focus on alignment of urban and natural drainage systems to ensure aesthetic integration. Existing and proposed path network is maintained. Bio-filtration areas adjacent to the Koonung Koonung will be finalised during detailed design development to have a naturalistic form, aesthetic and respond to the contours of the land, incorporating traditional ecological wisdom where appropriate. The locations do not impact existing recreational values, but rather enhance. The design provides a balance between natural areas for animal and bird life, and enhancing areas for public amenity, including places for respite recreation and seclusion as part of the navigation nodes and creek realignment. Due to a lack of woody debris along the creek, ecological logs from removed trees will be integrated at strategic locations with advice from the Project's ecologist, to create habitat for amphibians, insects, small mammals and birds to access the water edge and find refuge, while also providing habitat for micro-organisms to establish, crucial for healthy soils, water and resilient plants. Options have been explored to maximise vegetation planting within the reprofiled creek, including shallow embankments planted with riparian and aquatic vegetation. Edge treatment options include the use of rock, which balances spatial requirements and vegetation opportunities to enhance the amenity of the Koonung Creek Trail.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
19. Road signage		
19.1 Strategic approach	A consistent, coordinated, whole-of-corridor signage and wayfinding approach is developed to enhance driver legibility and safety, and to improve the overall experience.	The urban design team has worked closely with the civil and structural team to ensure road signage, and associated structures has been considered across all disciplines. The design incorporates finishes consistent with other North East Link Program UDLPs offering a continued design language. The designs of directional signage and the information provided on each adhere to relevant design standards and guidelines as required for all directional signage in Victoria, resulting in familiarity and ease of reference for road users. Safety is paramount in this regard and road users must be aware of approaching decision points such a merging lane or interchanges. While appropriate in other settings where wayfinding is intentionally attractive, road signage designs have been designed to not be eccentric, distracting or seeking to challenge the status quo, to eliminate impacts to legibility, and the overall safety and experience for road users.
19.2 General signage	Signage, toll points, gantries, and associated infrastructure are sited and designed to be well integrated along the corridor. The scale and character of the area is not undermined with a dominating skyline, or with significant views blocked by signage infrastructure. Minimise visual impacts from signage and toll points on local communities and on the quality of the adjoining public realm. Signage infrastructure is located sensitively, relative to topography, access, safety, security, visual impact, landform and vegetation.	It has been a key objective in the design of road signage and gantries to ensure structures are simple in form, and do not deliver unbalanced, overwhelming structures. Architectural finishes of structures are of a similar colour scheme to those located elsewhere across the corridor. Beyond the finish and types of cladding to the structures, the urban design team also worked closely with both civil and structures disciplines to best locate signage gantries and arrange them to minimise visual clutter within the road corridor. Elegant single structures have been preferred over gantries that span multiple vertical alignment with complex fixing arrangements.
19.3 Design	Signage and gantries are consistent, with a simple structure and with consideration to form, shape and colour. Unauthorised access and vandalism is prevented	The proposed design for the signage and gantry structures is consistent with other UDLPs, ensuring continuity along the entire North East Link Program alignment.
19.4 Siting to reduce visual clutter	Signage and gantries are consolidated and rationalised where appropriate to minimise the number of overhead elements. The locating of signage on bridges and structures is minimised. Signage at tunnel entries is avoided. Signage is well integrated with the design of project elements. The locating of gantries on ramps and elevated structures, or within close proximity to bridges is minimised. Gantries are integrated inside tunnel ceilings to avoid visual clutter at portals. Opportunities are maximised to co-locate features such as signage, toll points, Lane Use Management Signs (LUMS), Closed Circuit Television (CCTV), Variable Speed Limit (VSL) signs and Variable Message Signs (VMS) on shared gantries, light poles and other shared assets. Alternative tolling solutions and the 'designing out' of radio frequency (RF) barriers are considered, to avoid or minimise visual impacts.	The approach to road furniture, including gantries and signage, focuses on minimising visual clutter within the road corridor. This not only enhances road safety but also expands road users' perceptions architecturally, increasing their visibility of the adjacent natural landscape. Road signage has been integrated into existing road bridges, with only minimal ITS signage proposed for the new Eram Road pedestrian and cycling bridge as LUMS signage. The design at the new bridge ensures LUMS are integrated with the bridge structure itself, avoiding the need for droppers and support structures to hold the signage in place and creating a seamless transition between the fixture and structure. The integrated approach is further supported by concealed conduits required to operate the LUMS signage units, which are hidden within the new pedestrian and cycling bridge.
20. Materials and finishes		
20.1 High quality	Materials and finishes used in the project are high quality, durable, robust, easy to maintain, and will weather and age well over time.	With precedent within the project boundary of exemplary design quality, the proposal has looked to provide equal levels of design finish and quality, and ease of maintenance for returned asset owners. The design and use of MRPP has sought to achieve a maintainable outcome that works to the materials benefits. The MRPP material has a long design life and will provide a durable material of which is recycled and allows for it to be recycled at end-of-life. Concrete selected for walls balance urban design outcomes with ease of maintenance and are durable and long lasting. To expose the natural materiality of concrete, no paint treatments are proposed on the piers and crossheads for the road bridge structures.
20.2 Colour palette	The colour palette for the materials and finishes is consistent along the project's design character areas, sensitive to the local environment and reinforces the broader wayfinding approach for the corridor	The design has taken a context driven approach to the material palette, informed by Wurundjeri Woi-wurrung cultural wisdom and taking reference from the existing character as well as the other North East Link Program UDLPs. Colours of Country and culture will be showcased through colours for retaining and noise walls. The design of the noise walls has adopted a colour palette to reflect natural earthy tones and remain sensitive to the local environment. Facilitated in partnership with WWCHAC, co-design workshops will take place to support a holistic Country-centred design approach.
20.3 Reflectivity	New materials and finishes minimise light pollution in the surrounding areas from reflectivity.	Where painted finishes are nominated, low sheen or matte specifications have been provided to minimise light pollution in surrounding areas resulting from reflectivity.
20.4 Vandalism	Selection and application of materials and finishes discourages and minimises the potential for vandalism including graffiti.	Textured surfaces along with anti-graffiti coatings will help deter vandalism and graffiti within the corridor. In addition, the use of MRPP material for noise walls, which has graffiti resilient properties, will minimise ongoing maintenance for the project. Anti-graffiti coatings will be finalised in detailed design development as part of paint and material finalisation in consultation with returned asset owners to provide the most maintainable solution.

5. Consistency with the Urban Design Strategy

Design element	Requirement	UDLP response
20.5 Identity through design	The design elements along the freeway corridors are coordinated and designed to promote a cohesive identity through colour, materials, patterns and form. These design features include noise attenuation elements, retaining walls, SUP bridges, signage and buildings. This coordinated approach creates a consistent, high quality experience for road users and the local community.	Taking consideration from both the North East Link Program design language as well as the original 1990s Eastern Freeway designs, materials and finishes have been coordinated to create a referential but unique response along the corridor. Where existing walls feature a continual horizontal datum across a length of extent of wall, the new walls seek to replicate this design feature with stepped profiles at select locations. This approach to a context driven design is noticeable across all elements, with the Eram Road pedestrian and cycling bridge also taking cues from other bridges elsewhere along the entire corridor, with a strong structural base and a minimal throw screen speaking to the 'light touch' approach applied to structures across the North East Link Program. The design approach, desired outcomes, structural forms, textures and colours have been developed based on ongoing engagement with UDAP, WWCHAC and in alignment with the Eastern Freeway Upgrades — Burke Road to Tram Road design. Ongoing design development will include engagement with these stakeholders to ensure design outcomes are confirmed generally in accordance with this UDLP.
20.6 Use resources efficiently	Opportunities are maximised to use materials that are recycled, recovered, have lower embodied energy and are ethically sourced.	Materials specified for the project are chosen to minimise environmental impacts and support circular economy principles. This supports the program's objectives of reducing embodied carbon and maximising recycled content, including measures like reduced Portland cement in concrete and the extensive use of reclaimed asphalt pavement in the pavement design. Additionally, design optimisation has achieved significant material reductions, with continuous efforts underway to further reduce material quantities throughout the design development. Other examples of materials include the following: – Concrete elements consisting of up to 50% supplementary cementitious materials (SCM) to reduce concrete embodied emissions. The two most common SCMs are slag and fly ash, which are derived from steel production and coal-powered electricity generation. – Pavements consisting of up to 40% reclaimed asphalt pavement, and pavement layers consisting of up to 100% recycled crushed concrete – Use of MRPP noise walls consisting of up to 85% recycled material in lieu of precast noise walls.

5. Consistency with the Urban Design Strategy

5.6 Managing construction impacts

The design approach is to avoid, minimise and mitigate adverse impacts on the community from temporary works and construction activities.

Design requirements for temporary and construction works are to be designed and carried out in accordance with the urban design principles and objectives, and section 7.2 of the UDS, to meet the Environmental Performance Requirement (EPR LV2).

The following key items are listed in the UDS:

- Maintaining access and connections
- Maintaining community functions
- Protecting viability and amenity
- Protecting features
- Landscaping
- Temporary uses
- Visual impacts and presentation
- Waste generation and reuse
- Innovation.

The Construction Environmental Management Plan (CEMP) and associated supporting management plans have been developed, addressing the key items as listed in Section 7.2 of the UDS, demonstrating how the project uses design to help manage construction impacts.

Construction Compound Plans (CCPs) were approved by the Minister for Planning for locations at Eram Park (approved 18 November 2025) and Springvale Road (approved 12 December 2025).

The location and boundary of these compounds are shown in Attachment 2 — Landscape Design, drawings NEL-EST-TSA-6600-ULS-DRG-2901 to 2913.

The locations of these construction compounds considers the temporary and permanent works to minimise the need to re-establish construction compounds in other areas at a later date, which also contributes to reducing impacts on the community.

Any additional construction compound approved for the Project will be located within the project boundary and suitable control measures will be put in place prior to the commencement of construction activities, any potential impact on the community will be minimised.

The CEMP has been prepared to respond to relevant environmental performance requirements and address issues such as:

- noise, dust and vibration controls
- site compound layouts including the locations, security, visual appearance from the public, worker parking
- temporary traffic management including roads, pedestrians and cyclists
- temporary barriers, signage, fencing
- communication protocols
- protection of features such as vegetation, memorials, cultural heritage values, both tangible and intangible
- staging of the works
- hours of construction works.

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6. Compliance with Environmental Performance Requirements

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6. Compliance with Environmental Performance Requirements

Clause 4.9.3(b) of the Incorporated Document requires that a UDLP be accompanied by an explanation demonstrating how the UDLP complies with the Environmental Performance Requirements (EPRs) included in the approved Environmental Management Framework (EMF). The EPRs set out the minimum environmental outcomes the Project must achieve during design, construction, and operation.

The EPRs have been informed by the Minister for Planning's assessment of the EES, the Incorporated Document, relevant environmental legislation and policy requirements, and Project specific measures recommended by subject matter experts. This approach to the development of the EPRs seeks to minimise risk and avoid, reduce, or offset environmental impacts identified through the EES risk and impact assessment process. The EPRs were approved by the Minister for Planning in 2021 as part of the North East Link Project EMF.

6.1 Purpose of the Environmental Management Framework

The purpose of the EMF is to provide a transparent and integrated governance framework to manage the environmental aspects of the North East Link Project in order to meet statutory requirements, protect environmental values and sustain stakeholder confidence.

6. Compliance with Environmental Performance Requirements

6.2 Environmental Performance Requirement assessment

This section of the UDLP report identifies all relevant EPRs and demonstrates how the Project, as detailed through this UDLP, will comply with the applicable requirements.

Table 10: Response to EPRs

EPR code	Environmental Performance Requirement	Phase	UDLP response
1. Environmental Management (EMF)			
EMF1	**Deliver project in general accordance with an Environmental Management System** Develop, implement and maintain an Environmental Management System (EMS) that conforms to Australian Standard AS/NZS ISO 14001:2015 Environmental Management Systems — requirements with guidance for use through design, construction and operation of North East Link.	ALL	**Design, construction and operation** The Project has prepared an EMS that conforms with Australian Standard AS/NZS ISO 14001:2015. The EMS will guide the design and construction of the Project. The EMS conforms with the EMF, which is a statutory requirement under the Incorporated Document.
EMF2	**Deliver project in accordance with an Environmental Strategy and Management Plans** Prepare and implement an Environmental Strategy, Construction Environmental Management Plan (CEMP), Worksite Environmental Management Plans (WEMPs), Operation Environmental Management Plan (OEMP) (operator only) and other plans as required by the Environmental Performance Requirements (EPRs) and in accordance with the Environmental Management Framework (EMF). The Environmental Strategy, CEMP, WEMPs and OEMP must be developed in consultation with relevant stakeholders as listed in the EMF and as required by NELP or under any statutory approvals. The CEMP must be prepared with reference to best practice and EPA Publication 1834, Civil construction, building and demolition guide.	ALL	**Design, construction and operation** The Project will prepare an Environmental Strategy, CEMP, necessary WEMPs, OEMP (operator only), and other management plans required by the EPRs in accordance with the EMF. Consultation with relevant stakeholders outlined in the EMF and required by NELP will be undertaken to implement each in time for the Design and Pre-construction phases of the project. The CEMP will be prepared with reference to best practice and EPA Publication 1834 — Civil construction, building and demolition guide.
EMF3	**Audit and report on environmental compliance** Appoint an Independent Environmental Auditor (IEA) to: – Review the Environmental Strategy, CEMP, WEMPs, OEMP and other plans required by the EPRs for compliance with the EMF and the EPRs – Undertake environmental audits of compliance with and implementation of the EPRs and the Environmental Strategy, CEMP, WEMPs, OEMP and other plans required by the EPRs. The IEA must include persons with expertise, based on qualifications and experience, appropriate to allow the roles specified for the IEA in the EMF to be properly carried out; including a person(s) appointed by the EPA as an environmental auditor for contaminated soil and groundwater given the potential risk of acid sulfate soils, and to ensure that there is no risk of vapour or gas intrusion from former landfills. Audits must occur during construction and for five years after opening of North East Link, or as otherwise agreed with the Minister for Planning. A six-monthly summary report must be provided to the Minister for Planning that summarises the findings of audits carried out during the reporting period. A close-out report must be provided to the Minister for Planning at the conclusion of the auditing and reporting period. The summary reports must be made publicly available on a project website for the period of construction and a minimum of five years after opening of North East Link.	DESIGN CONSTRUCTION OPERATION	**Design and construction** NELP has appointed the IEA to review, verify and audit Project documentation and environmental performance. The IEA is responsible for reviewing and verifying the Environmental Strategy, CEMP, WEMPs and other plans required by the EPRs for compliance with the EMF and the EPRs. These reviews have been completed or are underway for a range of environmental management documents prepared by the Project. IEA review and verification is required before their implementation during construction. The IEA will undertake environmental audits to verify compliance with and implementation of the EPRs and the Environmental Strategy, CEMP, WEMPs, OEMP and other plans required by the EPRs, including the UDLP. The Environmental Strategy and CEMP set out the approach to the IEA audit program management. The Project will maintain an IEA Audit Findings and Close Out Register to record and monitor audit findings and track the actions, assigned responsibilities and timing of close-out of each finding. A report summarising the findings of IEA audits will be prepared and published every six months during construction and will be available online for up to five years post-completion of the Project. **Operation** The IEA role and responsibilities for the operations phase will be facilitated by the State.
EMF 4	**Complaints Management System** Prior to the commencement of works a process for recording, managing, and resolving complaints received from affected stakeholders must be developed and implemented. The complaints management arrangements must be consistent with Australian Standard AS/NZS 100002: 2014 Guidelines for Complaints Management in Organisations. The complaints management system must be consistent with the Communications and Community Engagement Plan required under EPR SC3.	DESIGN CONSTRUCTION OPERATION	**Design and construction** NELP has implemented a complaints management system as defined in the Communications and Community Engagement Plan (CCEP). The CCEP includes a process to identify community issues and to record, manage and resolve complaints from affected stakeholders consistent with AS/NZS 10002:2022 Guidelines for Complaint Management in Organisations (supersedes AS/NZS 10002:2014). This process aligns with and complements the Victorian Infrastructure Delivery Authority (VIDA) Complaint Management Policy. Under this Policy, complaints can be made by calling 1800 105 105. A Consultation Manager database is used to record complaints, concerns, and requests for information. **Operation** Complaints management during the Project's operation will be managed by the State.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
2. Aboriginal Heritage (AH)			
AH1	**Comply with the Cultural Heritage Management Plan** Implement and comply with the Cultural Heritage Management Plan (CHMP) approved under the *Aboriginal Heritage Act 2006* (Vic).	DESIGN CONSTRUCTION	Cultural Heritage Management Plan (CHMP) **No.15576** has been prepared for the North East Link Program and approved under the *Aboriginal Heritage Act 2006* (Vic). **Design** The CHMP identifies sensitive areas and registered sites in the project area. The Project will comply with the conditions of the CHMP including: – avoiding and minimising impacts on sensitive areas identified in the CHMP. – ensuring that urban and landscape design considers Aboriginal places and any management triggers. In addition to compliance with the CHMP, the Project has embedded Indigenous design and consultation with the WWCHAC throughout the UDLP preparation and design process. **Construction** During construction, the Project will carry out development activities in compliance with CHMP No. 15576, including: CHMP inductions chaired by the Registered Aboriginal Party representative for all personnel involved in ground disturbing activities ongoing consultation with the WWCHAC for the Project area.
3. Air Quality (AQ)			
AQ1	**Implement a Dust and Air Quality Management and Monitoring Plan to minimise air quality impacts during construction** Prepare and implement a Dust and Air Quality Management and Monitoring Plan(s), in consultation with EPA, which sets out best practice measures and controls to minimise and monitor impacts on air quality during construction. The plan(s) must: – Set out how the project will monitor and control the emission of smoke, dust, fumes, odour and other pollution into the atmosphere during construction using best practice measures with reference to EPA Publication 1834, Civil construction, building and demolition guide – Identify the main sources of dust and airborne pollutants, and the location of sensitive land uses relevant to each construction area – Describe the monitoring requirements for each construction area including real-time particulate matter monitoring to manage dust control where deemed to be required, and with reference to sensitive receptors and utilising consistent and common monitoring equipment across the project – Describe the air quality triggers for investigation, the mitigation measures, and the processes for implementing appropriate controls	CONSTRUCTION	**Construction** The Project is preparing a Dust and Air Quality Management and Monitoring Plan in accordance with AQ1 requirements, including with reference to EPA Publication 1834. The plan will be prepared in consultation with EPA Victoria. The Dust and Air Quality Management and Monitoring Plan needs to be verified by the IEA in compliance with the requirements of the EMF.
AQ2	**Design tunnel ventilation system to meet EPA requirements for air quality** Design, construct and operate the permanent tunnel ventilation system in accordance with the requirements of the EPA Victoria Development Licence and the EPA Victoria Operating Licence. The design should include provision for retrofitting of tunnel ventilation particulates pollution control equipment if subsequently required.	DESIGN CONSTRUCTION OPERATION	Not applicable — no road tunnels are proposed or required to be delivered in the area subject to this UDLP.
AQ3	**In-tunnel air quality performance standards** Design, construct and operate a tunnel ventilation system to introduce and remove air from the tunnels to meet the in tunnel air quality requirements for carbon monoxide (CO) and for NO2 listed below and in accordance with the EPA Victoria Development Licence and EPA Victoria Operating Licence. In tunnel air quality must meet the following CO standards: – Maximum peak CO value of 150 ppm – 15 minute average CO value of 50 ppm – 2-hour average CO value of 25 ppm. The tunnel ventilation system must also be designed and operated so that the tunnel average nitrogen dioxide (NO2) concentration is less than 0.5 ppm as a rolling 15 minute average. Develop and implement contingency measures to manage in-tunnel air quality in the event of incidents or emergencies. Apply best practice Australian management techniques to minimise impacts on health from in-tunnel exposure to PM2.5 and PM10.	DESIGN CONSTRUCTION OPERATION	Not applicable — no road tunnels are proposed or required to be delivered in the area subject to this UDLP.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
AQ4	**Monitor ambient air quality** Develop and undertake an ambient air quality monitoring program in consultation with EPA Victoria to measure the air quality impacts of North East Link during construction and operation. The ambient air quality monitoring program must be undertaken at a minimum of six locations (including a site where the highest increases of air pollution are predicted to occur), unless otherwise agreed by EPA Victoria; include at least one year of monitoring before operation; continue for 5 years after commencement of North East Link operation; and, for the ventilation structures, be in accordance with the EPA Victoria Operating Licence. Monitoring results must be compared against the indicators and objectives (excluding odour) in Table 2.2 of the Environment Reference Standard (Ambient Air). Results (unvalidated) of the monitoring program are to be made publicly available on a website related to the project, or through EPA Victoria's Air Watch website, on a daily basis.	CONSTRUCTION OPERATION	**Construction and operation** NELP has developed, and will be undertaking and reporting the results of, an ambient air quality monitoring program in consultation with EPA Victoria in accordance with this EPR.
AQ5	**Monitor compliance of in-tunnel air quality and ventilation structure emissions** Monitor the in-tunnel air quality and ventilation structure emissions during operation of the ventilation system to demonstrate compliance with EPR AQ2, EPR AQ3 and the EPA Victoria Operating Licence to the satisfaction of EPA Victoria. Report the monitoring results publicly after validation and in accordance with the EPA Victoria Operating Licence. If standards outlined in EPR AQ2, EPR AQ3 and the EPA Victoria Operating Licence are not met, report to EPA Victoria, investigate the cause of the exceedance, and take remedial action as appropriate to the satisfaction of EPA Victoria.	OPERATION	Not applicable — no road tunnels are proposed or required to be delivered in the area subject to this UDLP.
AQ6	**Construction Haulage Vehicle Fleet** Incentives must be provided for contractors and subcontractors to preferentially select on-road heavy vehicles for haulage that comply at a minimum with the Euro V European emission standards. The incentives must seek to increase the proportion of on-road heavy vehicles that comply at a minimum with Euro V European emission standards within the project's construction haulage fleet over the construction life of the project.	CONSTRUCTION	**Construction** Incentives and a procurement strategy will be developed to increase the proportion of on-road heavy vehicles that comply, at a minimum, with Euro V European emission standards in the Project's construction haulage fleet during the construction phase.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
4. Arboriculture (AR)			
AR1	**Develop and implement a Tree Removal Plan** Develop and implement a Tree Removal Plan, as part of the CEMP, that identifies all trees within the project boundary and includes: – Trees to be removed or retained as part of the works – Confirmation of the condition and arboricultural value of the amenity trees to be removed – The canopy area of all trees to be removed – The procedure for tree removal that addresses the requirements of EPR FF1, EPR FF2 and EPR FF5. Tree retention must be maximised to the extent practicable through detailed design and selection of construction methods to minimise canopy loss, and in accordance with EPR FF1, including by retaining trees where practicable and minimising potential impacts to trees. This includes the River Red Gum (Caltex Tree) at 39 Bridge Street, Bulleen. Arboricultural assessments are to verify existing details and inform the detailed design, Tree Removal Plan and Tree Canopy Replacement Plan (required by EPR AR3) in order to maximise tree retention and long-term viability of amenity plantings in accordance with Australian Standard AS4970:2009 Protection of Trees on Development Sites. The Tree Removal Plan must be informed by a pre-construction site assessment to confirm the area and number of trees and other vegetation proposed to be impacted. Trees to be retained must be protected in accordance with EPR AR2. Vegetation removal is to occur in a staged manner with removal only occurring once necessary for the current stage of works. The area and number of trees and other vegetation actually removed is to be confirmed through a post-construction assessment.	DESIGN CONSTRUCTION	**Design** A Tree Protection and Removal Plan will be prepared as part of the CEMP which is required to be reviewed by NELP and reviewed and verified by the IEA. Visual representation of tree removal and retention at the pre-UDLP approval stage is provided in Attachment 2 – Landscape Design (drawing nos. NEL-EST-NEA-6600-ULS-DRG 2811-2813). All trees within the project boundary will be further assessed by a suitably qualified professional and the information gathered will be used in the design development to minimise impacts to trees as far as reasonably practicable. Mitigation measures will be identified to protect identified trees and may include establishing tree protection zones, structural root zones, trunk and ground protection, and restricting activities in wither of these zones. The Project will further maximise tree retentions in the detailed design phase where possible. This will be achieved based on detailed arboricultural assessments, through which extent of tree retention may be furthered through construction methodology or detailed design. **Construction** A qualified Arborist will undertake arboriculture assessments to identify trees to be removed and retained Arboriculture assessments will include the condition and arboriculture value of trees to be removed (and retained). Ongoing on-site inspections will be carried out by a suitably qualified professional to ensure all works are occurring in accordance with Australian Standard AS4970-2009 Protection of Trees on Development Sites and meeting any conditions or mitigation measures within a tree protection zone and structured root zone. Trees to be protected will be monitored for a three-year period following the date of project operation to assess ongoing viability, with maintenance or replacement of stressed or damaged trees to be undertaken. The Project will avoid and minimise tree removal and reuse trees where possible.
AR2	**Implement a Tree Protection Plan(s) to protect trees to be retained** The CEMP must include a Tree Protection Plan(s), which is to be developed and implemented in accordance with Australian Standard AS4970-2009 Protection of Trees on Development Sites. The Tree Protection Plan(s) must provide details of any tree protection actions that will ensure that trees proposed to be retained are adequately protected from the impact of construction or related activities, prior to those works being undertaken. Tree Protection Plans must be prepared based on detailed construction drawings and surveyed tree locations. Trees subject to protection must be monitored for a three-year period following completion of construction works in that location to assess ongoing viability, with maintenance or replacement of stressed or damaged specimens to be undertaken.	DESIGN CONSTRUCTION OPERATION	**Design, construction and operation** Tree protection plans are prepared by a qualified arborist in accordance with Australian Standard AS 4970-2009 and outline the mechanisms through which retained trees will be protected through the construction period. These plans will also detail requirements for monitoring tree health during and post construction. Trees that meet the criteria for monitoring will be monitored by a suitably qualified professional arborist. The Tree Protection Plan is to be reviewed and verified by the IEA in compliance with the requirements of the EMF and details the requirements that must be adhered to throughout construction associated with tree retention.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
AR3	**Implement a Tree Canopy Replacement Plan** Develop and implement a Tree Canopy Replacement Plan to replace the canopy of native vegetation and amenity plantings removed as a result of the project and achieve a net gain in tree canopy cover by 2045. The plan must: – Show the location, size (including canopy spread) and species of replacement trees, in consultation with councils and other relevant land managers – Specify requirements to support the long-term viability of all replacement plantings including appropriate soil requirements, establishment works and ongoing maintenance. – Maintain at least a ratio of 2:1 for replacement of amenity plantings Replanting should generally follow the hierarchy of: – Within the North East Link Project boundary — as first priority, in locations in close proximity to where trees are removed – Outside the Project boundary and within 400m walking catchment from where trees are removed – Within Victorian Government and local Council land within the municipalities of Manningham, Boroondara, Nillumbik, Yarra, Whitehorse and Banyule outside the Project boundary – Within the wider north east area of metropolitan Melbourne outside the Project boundary, if required. – Note: all locations selected must provide for long-term tree growth – Within the project boundary, include understorey plantings in addition to the tree canopy replacement plantings where feasible in consultation with Councils and/or the land manager – Specify requirements for the ongoing responsibility for maintenance and monitoring of the Tree Canopy Replacement Plan. The replacement planting should commence as soon as possible and in stages, once tree removal extent is confirmed and suitable replacement sites have been determined in consultation with relevant councils and authorities. A post-construction assessment is to be undertaken to confirm extent of tree removal and that the Tree Canopy Replacement Plan will achieve the net gain target set out above	DESIGN CONSTRUCTION OPERATION	**Design, construction and operation** A Tree Canopy Replacement Plan will be developed for the Project, consistent with this EPR. The Plan is informed by current tree data from the EES and will be updated to capture validated data from a full arboriculture assessment of the Project corridor. This includes native and amenity vegetation so that canopy replacement can be accurately informed. As part of implementation of this plan, the replanting program will ensure that the 2:1 ratio is met for amenity trees impacted by the Project and will fulfil other replanting requirements of this EPR (AR3). This replanting ratio is incorporated in the landscape design and replanting will be prioritised within the project boundary where possible. Key locations for amenity replacement plantings include, but are not limited to, Koonung Creek Linear Park, Koonung Creek Trail (north and south of the Freeway), and at realigned sections of the freeway corridor where canopy coverage currently provides vegetated buffering with adjacent open space and residential areas. A post-construction vegetation reconciliation report will also be prepared to capture the extent of tree removal so that canopy replacement can be reassessed against target values to ensure it achieves the required net gain. Further engagement will occur with councils, NELP and landowners as relevant, to support the implementation of the Tree Canopy Replacement Plan as required by this EPR.
5. Business (B)			
B1	**Business disruption mitigation plan** Prepare and implement a Business Disruption Mitigation Plan in accordance with the Victorian Small Business Engagement Guidelines (Victorian Small Business Commission) to ensure that business disruption for small businesses, including all disrupted businesses in the Bulleen Industrial Precinct, arising from the project is mitigated to the extent practicable.	DESIGN CONSTRUCTION	**Design and construction** A Business Disruption Mitigation Plan is being prepared for the Project to eliminate or minimise impacts on businesses in the project area. Proposed impact mitigation and management strategies will be communicated with relevant stakeholders, with opportunities for feedback on the rollout of activities to mitigate or manage impacts during construction, to ensure activities are fit-for-purpose and effective. The Business Disruption Mitigation Plan is to be verified by the IEA in compliance with the requirements of the EMF.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
B2	**Business Relocation Strategy** VIDA must develop and implement a Business Relocation Strategy to assist businesses directly affected by acquisition. The strategy must be developed in consultation with affected businesses, relevant local Councils, relevant local trader associations, and other affected stakeholders affected, immediately on approval of the EMF. The strategy must include, but not be limited to: – The identification of affected businesses and other relevant stakeholders – Provide a program to support the relocation of businesses including identifying services and support programs. The appointment of an independent specialised relocation adviser(s) to support affected businesses. Procedures to disseminate information, including through the Business Liaison Group (EPR B8) regarding the business relocation strategy and services, key project milestones that may impact on business relocations, and other changes that may affect businesses during the closure of existing operations. Assistance in the provision of targeted marketing and promotional initiatives to build community and customer awareness for relocated businesses. Procedures to work with business and landowners to endeavour to reach agreement on the timeframe for possession of the land. Procedures to engage with businesses and other stakeholders, and through which affected businesses and relevant local trader associations can provide comment or feedback in relation to the relocation strategy and its associated services. NELP should also work with councils to identify and assess the feasibility of alternative location options for displaced businesses. In parallel with the Business Relocation Strategy, the independent specialised relocation adviser(s) must provide individual business planning and support to the businesses in the Bulleen Industrial Precinct, including to prepare and implement individual business plans prepared with each business in the Bulleen Industrial Precinct (except where a business has requested not to be part of such assistance) that: – Understands at a fine-grained level their current operation • Desire to relocate or cease operations – Business needs for new sites – Preliminary specific site identification – Practical and reasonable assistance to implement these plans. – Note: the requirements of this EPR are in addition to any rights or entitlements available under compulsory acquisition legislation.	DESIGN CONSTRUCTION	**Design and construction** NELP has developed and implemented a Business Relocation Strategy for any businesses that are displaced by the Project. The Strategy is managed by NELP; however, no businesses are expected to be displaced within the Eastern Freeway Upgrades — Tram Road to Springvale Road project area.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
B3	**Employee Assistance Strategy** VIDA must develop and implement an Employee Assistance Strategy to provide relevant workforce support measures for employees of businesses closing or relocating as a consequence of acquisition for the Project. The strategy must include, but not be limited to: – The identification of affected businesses and employees – Provide a co-ordinated link to support services for affected employees (for example, access to a range of services such as training advice, careers advice, resume workshopping, advice on government entitlements, referral to other job support services, and skills assessments). – The identification of relevant government agencies and support services – Procedures to disseminate information including through the Business Liaison Group (EPR B85), regarding the employee assistance strategy and services, key project milestones that may impact on business closures and relocations, and other changes that may affect businesses and their employees during the closure of existing operations. In parallel with the Employee Assistance Strategy, VIDA with appropriate expert advice, must prepare and implement a package of individual employee assistance plans prepared with and for each employee who requests it, in consultation with the employer, that: – Understands at a fine-grained level their future employment plans – Need for training and development – Factors that would influence their desire to remain employed with a Bulleen Industrial Precinct business – Practical and reasonable assistance to implement their assistance plan.	DESIGN CONSTRUCTION	**Design and construction** NELP has developed and implemented an Employee Support Strategy to support employees of businesses impacted by acquisition. This included delivering the Employee Support Program to provide employees with tailored Individual Support Plans. There are no businesses directly affected by acquisition in the area subject to this UDLP.
B4	**Minimise disruption to businesses from land acquisition and temporary occupation** Minimise disruption to businesses from permanent acquisition or temporary occupation of land to the extent practicable, and work with affected businesses and land owners to endeavour to reach agreement on the terms for possession of the land in accordance with relevant legislation. Efforts to provide for Bulleen Art and Garden's continued operation from its current site should be undertaken.	DESIGN CONSTRUCTION	**Design and construction** There are no businesses directly affected by permanent acquisition in the area subject to this UDLP. Any temporary occupation affecting any business will be minimised to the extent possible in accordance with the Business Disruption Mitigation Plan prepared under EPR B1.
B5	**Minimise and remedy damage or impacts on third party property and infrastructure** Through detailed design and construction, and in consultation with relevant land owners and parties as necessary, design and construct the works to minimise, to the extent practicable, impacts to, and interference with, third party property and infrastructure and to ensure that infrastructure and property is protected during construction and operation. Any damage caused to property or infrastructure as a result of North East Link must be appropriately remedied in consultation with the property or asset owner.	DESIGN CONSTRUCTION	**Design** The design considers the risk of damage to third party property and infrastructure. Where possible, the footprint of the Project has been minimised to reduce the potential for any damage to private properties and existing infrastructure. Through the detailed design development process, potential impacts to third party properties and infrastructure will be considered and identified, and consultation with relevant property or asset owners undertaken as required in accordance with the Business Disruption Mitigation Plan prepared under EPR B1. This will include identification of moderate to high-risk activities being undertaken adjacent to businesses/ utilities. Implementation of elimination or mitigation measures could, for example, include a change in design/construction methodology, asset protection or monitoring. **Construction** Should damage be sustained to third party property or infrastructure that is determined to be caused by the Project, the damage will be appropriately remedied in consultation with the property or asset owner.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
B6	**Minimise access and amenity impacts on businesses** Any reduction in the level of access, amenity or function of any business or commercial facility must be minimised to the extent and duration necessary to carry out the relevant construction related works. Affected business and commercial facilities must be provided with adequate notification of potential impacts and temporary access arrangements. Emergency access must be maintained at all times. Access must be maintained for customers, delivery and waste removal unless there has been a prior arrangement with affected businesses. As well as minimising impacts above, temporary occupation of sites for construction must: – Minimise impacts on the viability of nearby businesses – Minimise adverse amenity impacts on views and amenity experience from nearby businesses – Minimise significant increases in travel time from residential areas to businesses and shopping precincts including Watsonia Village – Not reduce car parking available to shoppers and traders in shopping areas including Watsonia Village. All permanent access to business and commercial facilities affected by North East Link works is to be reinstated, or relocated as agreed with the relevant property owner, including associated landscaping and reinstatement works, and temporary access arrangements put in place for construction must be removed when relevant construction activities have ceased.	DESIGN CONSTRUCTION	**Design** The Project will prepare and implement a Business Disruption Mitigation Plan under EPR B1. Impacts on access, amenity or function of businesses are minimised through the design process. Where there is a reduction, access will be reinstated or relocated as agreed with the relevant property owner. **Construction** Major access points at businesses will be maintained to ensure that operations of businesses continue during construction of the Project, wherever possible. The Project is preparing construction management plans that include measures for minimising access and amenity impacts during construction, including: – CEMP – Construction Noise and Vibration Management Plan (CNVMP) – Dust and Air Quality Management Plan – Transport Management Plans. Relevant management plans to facilitate this Project are to be verified by the IEA to ensure compliance with the EMF requirements.
B7	**Protect utility assets** Protect or, where required, relocate utility assets to the reasonable satisfaction of the service provider and/or asset owners.	DESIGN CONSTRUCTION	**Design and construction** The Project will prepare and implement a Utility Relocation Plan. The design has considered major existing and proposed utilities and structures/permanent infrastructure (such as landscaping, shared use paths and buildings) has been located to avoid existing or proposed utilities where possible if avoidance measures cannot be achieved protection or relocation measures will be implemented with consultation with the utility service provider or asset owner.
B8	**Business liaison groups** Contractors must participate in the Business Liaison Groups established and managed by the North East Link Project to facilitate business and stakeholder involvement for the construction phase of the project. Participation must include: – Attendance at meetings – Regular and timely reporting of design and construction activities and key project milestones – Provision of advance notice about changes to traffic and parking conditions and the duration of impact – Timely provision of relevant information, including response to issues raised by the group – Regular reporting and monitoring of business community feedback, impacts and discussion of mitigation measures and their effectiveness – Recording, managing and resolving complaints from affected businesses in accordance with the complaints management process required under EPR EMF4.	DESIGN CONSTRUCTION	**Design and construction** The Project will participate in the Business Liaison Groups established by NELP as required. Participation will accord with the EPR including providing feedback and responses to Project issues if raised. Feedback from the Business Liaison Groups will be considered and used (as appropriate) to inform continuous improvement in project delivery, stakeholder engagement and construction operation.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
6. Contamination and soil (CL)			
CL1	**Implement a Spoil Management Plan** Prepare and implement a Spoil Management Plan (SMP) in accordance with relevant regulations, standards and best practice guidelines and with reference to the Spoil Management Strategy contained within the EES (Technical Report O). The SMP must be developed in consultation with the EPA Victoria, any relevant public land managers and, in respect of transport of spoil, the relevant road authorities. The SMP must include processes and measures to manage spoil, define roles and responsibilities and include requirements and methods for: – Complying with applicable regulatory requirements – Completing a detailed site investigation (in accordance with Australian Standards AS 4482.1:2005 Guide to the investigation and sampling of sites with potentially contaminated soil, AS 4439.2:1997 Wastes, sediments and contaminated soils (Part 2: Preparation of leachates — Zero headspace procedure), AS 4439.3:1997 Wastes, sediments and contaminated soils (Part 3: Preparation of leachates — Bottle leaching procedure), EPA Victoria Industrial Waste Resource Guideline 702 with respect to the twenty times leachable concentration threshold approach (the 'Twenty Times Rule'), and EPA Publication 1828.2 Waste disposal categories — characteristics and thresholds) prior to any excavation of potentially contaminated areas to identify location, types and extent of impacts and to characterise spoil to inform spoil and waste management – Identifying the nature and extent of spoil (clean fill and contaminated spoil) – Identifying, in consultation with the waste industry, the capacity for contaminated spoil material to be treated and/or disposed – Storage, handling, transport and disposal of spoil in a manner that protects human health and the environment and is consistent with the transport management plan(s) required by EPR T2. This includes requirements and methods for the appropriate treatment/remediation of any contaminated excavated spoil and contaminated residual material left on site – Design and management of temporary stockpile areas – Minimising impacts and risks from disturbance of acid sulfate soils (as per EPR CL2), odour (as per EPR CL3) and vapour and ground gas intrusion (as per EPR CL4) – Transport of spoil along appropriate roads with reference to the transport management plan(s) required by EPR T2 – Management of hazardous substances, including health, safety and environment procedures that address risks associated with exposure to hazardous substances for visitors, the general public; and local fauna; contain measures to control exposure in accordance with relevant regulations, standards and best practice guidance and to the requirements of WorkSafe and EPA Victoria; and include method statements detailing monitoring and reporting requirements	DESIGN CONSTRUCTION	**Design and construction** The Project will prepare and implement a Spoil Management Plan in consultation with the EPA and in accordance with relevant regulations, standards and best practice to manage spoil, define roles and responsibilities in line with this EPR. The Spoil Management Plan will be reviewed by NELP and is to be verified by the IEA in compliance with the requirements of the EMF.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
CL1	– Identifying where any contaminated or hazardous material is exposed during construction (notably through former landfills, service stations and industrial land) and how it will be made safe for the public and the environment. Environmental values of land and National Environment Protection (Assessment of Site Contamination) Measures 2013 guidance on criteria protective of those environmental values must be considered for the land uses in these areas. This must include methods for: – Construction of appropriate cover (soil, concrete, geofabric etc) such that no contamination is left exposed at the surface or where it may be readily accessed by the public and local fauna such that it cannot generate runoff or leachate during rain events – Maintenance of the cover – Identification of the nature and depth of the contaminants – Mitigating impacts during sub-surface works in those areas, e.g.. drilling and excavation – Monitoring and reporting – Identifying locations and extent of any industrial waste, priority waste, reportable priority waste, other waste, and the method for characterising industrial waste, priority waste, reportable priority waste and other waste prior to excavation – *Application of the Environment Protection Act 2017* waste management hierarchy, including: – Ongoing identification and, where practicable, adoption of options for the reuse of spoil – Identification of options for management of spoil – Identifying suitable sites for disposal of any waste. This includes identifying contingency arrangements for management of waste, where required, to address any identified capacity issues associated with the licensed landfill's ability to receive PIW and other waste – In areas used for temporary construction works, and the construction of surface water management works, contamination attributable to the project must be appropriately remediated in consultation with the relevant land manager.		
CL2	**Minimise impacts from disturbance of acid sulfate soil** The SMP referenced in EPR CL1 must include requirements and methods to minimise impacts from disturbance of acid sulfate soil, including but not limited to: – Characterising acid sulfate soil and rock prior to excavation – Developing appropriate stockpile areas including lining, covering and runoff collection to prevent release of acid to the environment, including wetlands, and impact to human health – Identifying suitable sites for re-use management or disposal of acid sulfate soil and rock – Preventing oxidation that could lead to acid formation if possible through cover and/or scheduling practices, i.e. ensuring acid sulfate soil and rock is not left in stockpiles for any length of time and/or addition of neutralising compounds. – Requirements and methods must be in accordance with the relevant sections of EPA Publication 1834 Civil construction, building and demolition guide, EPA Victoria Publication 655.1 Acid Sulfate Soil and Rock, and the Department of Sustainability and Environment's Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soil.	CONSTRUCTION	**Construction** The Spoil Management Plan being prepared under in EPR CL1 will consider this EPR. From the initial investigations, the likelihood of potential acid sulphate soil is minimal in the area subject to this UDLP. Where potential acid sulphate soil (PASS) may be intersected, these areas will have specific management controls for the spoil generated as per the Spoil Management Plan for the construction phase. The Spoil Management Plan is to be verified by the IEA in compliance with the requirements of the EMF.
CL3	**Minimise odour impacts during spoil management** The SMP referenced in EPR CL1 must include requirements and methods for odour management (in accordance with EPA Victoria requirements) during the excavation, stockpiling and transportation of contaminated material including: – Identifying the areas of contamination that may pose an odour risk – Monitoring of the excavated material for possible odour risk – Management measures to minimise odour.	CONSTRUCTION	**Construction** The Spoil Management Plan being prepared under EPR CL1 outlines control measures to eliminate or minimise odour if odorous spoil is encountered. This includes avoiding or minimising stockpiling of odorous materials, with direct removal and disposal being the primary objective. If stockpiling is required, odour mitigation measures will be implemented consistent with the controls in the Spoil Management Plan. The Spoil Management Plan is to be verified by the IEA in compliance with the requirements of the EMF. The Project Communications and Community Engagement team will work with potentially impacted residents and Councils (where required), if odour is anticipated or reported.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
CL4	**Minimise risks from vapour and ground gas intrusion** Relevant North East Link sections must be designed and constructed to prevent ingress of vapours and gases associated with any construction that interfaces with landfill sites or contaminated areas. The SMP referenced in EPR CL1 must include requirements for assessment, monitoring and management of intrusive vapour including potentially toxic, flammable or explosive conditions in enclosed spaces or other impacts on human health and the environment. The plan must address vapour risks associated with excavation of impacted soils, extraction of impacted groundwater, open excavations and stockpiles and gases associated with landfills. This must include, where relevant: – Securing of the excavation and stockpile area from the public and signage warning of open excavations – Monitoring of vapours and odours while excavations are open and stockpiles remain on site – Mitigation measures to prevent fugitive releases of vapours and gasses during construction.	DESIGN CONSTRUCTION	**Design and construction** Considerations during both the design and construction phases of the project will be made to minimise interaction and impacts historic landfill and contaminated areas. Where interaction with areas of historic landfills is unavoidable, the outcome of contamination investigations will inform the risk of vapour and ground gas intrusion and identify further mitigations to be implemented during the construction phase. Implementation of the Spoil Management Plan will include: – identification of areas that may pose vapour and ground gas intrusion risk (e.g., former landfills) – assessment of design options (elimination/minimisation) and working with the Project's Environment Team to manage risk in line with the Spoil Management Plan – identification of opportunities to further limit the extent of excavation required in areas interfacing with landfill sites or contaminated soils, and implementation through detailed design and construction plans. In addition, hazardous material events are also captured in the Emergency Response and Incident Management Sub Plan, demonstrating further compliance with these EPR requirements.
CL5	**Manage chemicals, fuels and hazardous materials** The CEMP and OEMP must include requirements for management of chemicals, fuels and hazardous materials including: – Minimise chemical and fuel storage on site and store hazardous materials and dangerous goods in accordance with the relevant guidelines and requirements – Comply with the Victorian WorkCover Authority and Australian Standard AS1940 Storage Handling of Flammable and Combustible Liquids and with reference to EPA Victoria Publication 1834 Civil construction, building and demolition guide and 1698 Liquid Storage and Handling Guidelines – Develop and implement management measures for hazardous materials and dangerous substances, including: – Creating and maintaining a dangerous goods register – Disposing of any hazardous materials, including asbestos, in accordance with regulations and relevant guidelines – Implementing requirements for the installation of bunds and precautions to reduce the risk of spills – Contingency and emergency response procedures to handle fuel and chemical spills, including availability of on-site hydrocarbon spill kits.	DESIGN CONSTRUCTION OPERATION	**Design** Design has been prepared to avoid, where possible, chemical and fuel storages in locations that may impact on sensitive receivers and human health and the environment. **Construction** A CEMP is being prepared by the Project to respond to the requirements in this EPR. The CEMP is to be verified by the IEA in compliance with the requirements of the EMF. **Operation** An OEMP will be prepared for the operation phase. Suitable contingency and emergency responses procedures will be developed in compliance with this EPR and relevant work safety requirements.
CL6	**Minimise contamination risks during operation** The OEMP must include requirements and methods for minimising contamination risks during operation and maintenance of North East Link including: – Maintaining relevant controls and preventing impacts during operation from contaminated material, odour, vapour and gas – Maintaining controls implemented as part of North East Link to make any known areas of contamination or hazardous material that were exposed during construction (notably through former landfills) safe for the public and the environment – Mitigating impacts during sub-surface works in any identified areas of contamination or hazardous materials, e.g. drilling and excavation – Implementing contingency measures, where required, to address any potential contamination, odour, vapour or gas impacts or incidents. – Monitoring any potential mobilisation of contaminants towards ecological and recreational assets including the Yarra River and wetlands and must include a groundwater monitoring program, intervention trigger levels and mitigation actions.	OPERATION	**Operation** NELP will prepare an OEMP to manage soil and groundwater conditions during operation.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
7. Flora and Fauna (FF)			
FF1	**Avoid and minimise impacts on fauna and flora** The CEMP must include requirements and methods for avoiding, or where avoidance is not feasible minimising to the greatest extent reasonably possible, for: – Managing fauna that may be displaced due to vegetation removal or encountered on site during construction works in compliance with the *Wildlife Act 1975* and in consultation with public land managers where relevant – Complying with the *Fisheries Act 1995* – Undertaking pre-clearing surveys and inspections to confirm the on-site location of fauna immediately prior to habitat removal or, where relevant, works on waterways, and to assist fauna to safety as necessary – Prepare a Kangaroo Management Plan for the project interface with Simpson Barracks and for the M80 interchange in consultation with DELWP – Contingency and reporting procedures for the event that a listed threatened species is identified in order to mitigate any potential for significant impacts on the listed threatened species. Protection of all vegetation inside and adjacent to the Project area that is not required to be removed, provided that such measures should be limited to activities undertaken inside the project boundary. Surveys, inspections and management actions must be undertaken by a qualified wildlife ecologist or aquatic ecologist with all necessary authorisations obtained prior to removal of fauna habitat. The CEMP must be prepared in consultation with relevant land managers. A copy of the flora and fauna sub plan(s) of the approved CEMP must be provided to relevant land managers and each relevant municipal Council.	CONSTRUCTION	**Construction** The Project is preparing a CEMP that incorporates the requirements for managing and minimising construction ecological impacts for relevant areas of the Project, as required and outlined under this EPR. This requires 'Avoid and Minimise' statements to be prepared for each stage of construction to justify removal of native vegetation and pre-clearance surveys undertaken prior to construction. A Flora and Fauna Management Sub-plan will be prepared and implemented as part of the CEMP and has been provided to the relevant land managers and municipal councils as required. The CEMP is to be verified by the IEA in compliance with the requirements of the EMF.
FF2	**Minimise and offset native vegetation removal** Through detailed design, avoid, or where avoidance is not feasible, minimise to the greatest extent reasonably possible, the removal of native vegetation and fauna habitat and impacts on habitat connectivity, in particular in relation to *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* or *Flora and Fauna Guarantee Act 1988* listed threatened species. This must include minimising removal of Matted Flax Lily, the locally endemic Studley Park Gum and the loss of potential foraging habitat for the Powerful Owl, Swift Parrot and Grey-headed Flying Fox. Key areas for minimisation efforts must include Simpson Barracks, Yarra Bend, Trinity Grammar wetlands, Banksia Parkland, River Gum Walk Creek Bend Reserve and the Koonung Creek valley. The CEMP must include requirements for protection of native vegetation and listed species, including establishment of no-go zones to protect vegetation and habitat to be retained and Tree Protection Plan(s) as required by EPR AR2. No-go zones must also be established for: – The Grey-headed Flying fox Campsite within the Yarra Bend Park – Bolin Bolin Billabong – The Plains Grassy Woodland community between Enterprise Drive and the M80 Ring Road in Bundoora – The portion of 49 Greenaway Street, Bulleen (former Drive-in) heavily vegetated with trees along the Yarra River – Surface impacts in the Banyule Flats and Warringal Parklands and the Heide Museum of Modern Art. Every effort must be made to avoid ecological impacts in other locations that are known to provide high habitat value for significant fauna species. Where the removal of native vegetation is unavoidable the project must meet the offset requirements of the Guidelines for the removal, destruction or lopping of native vegetation, DELWP December 2017 except as otherwise agreed to by the Secretary to DELWP. Where appropriate for the landscape and project location, tree replacement (as required by EPR AR3) and landscaping is to use locally indigenous species (utilising seed collected from species within the project boundary where appropriate and practical), which are suited to the landscape profile and setting being revegetated, and seek to maximise habitat value and connectivity for native fauna. Where practicable and appropriate for the landscape and project location, best practice measures must be applied to retain and reinstate topsoil to support growing conditions for native species. Where topsoil cannot be retained or reused for North East Link, alternative opportunities for reuse must be explored.	DESIGN CONSTRUCTION	**Design** The Project will undertake an arboriculture and ecological survey to inform constructability and detailed design and ensure that the removal of native vegetation and fauna habitat is minimised to the greatest extent reasonably possible. The arboriculture and ecological surveys will be prepared by suitably qualified professionals* and will inform the required native vegetation removal approvals. The design response presented through this UDLP is consistent with this EPR in the following ways: – The overall footprint of the Freeway widening has been reduced in comparison with the Reference Design, minimising impacts on vegetation in adjoining open spaces and along road reserves. – New and replacement landscape planting has incorporated low maintenance, local species, with trees for canopy cover wherever possible. **Construction** A Flora and Fauna Management Sub-plan will be developed as part of the CEMP. The plan will include processes and procedures to minimise native vegetation removal and impacts on fauna during construction. Offsets will be obtained for native vegetation removal. The plan will also include best practice measures to retain and reinstate topsoil to support growing conditions for native species. Retention and reinstatement of topsoil will be consistent with the Sustainability Management Plan (SuMP) and Spoil Management Plan. The CEMP is to be verified by the IEA in compliance with the requirements of the EMF. ** Suitably qualified professionals may include project arborist and other specialists when required by EPRs in relation to ecological, habitat, heritage and/or cultural matters.*

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
FF3	**Avoid introduction or spread of weeds and pathogens** The CEMP must include measures to avoid the spread or introduction of weeds and pathogens during construction, including vehicle and equipment hygiene.	CONSTRUCTION	**Construction** A Flora and Fauna Management Sub-plan will be prepared and implemented and include requirements for managing weeds and pathogens. The plan will be a sub-plan to the CEMP, which is to be verified by the IEA in compliance with the requirements of the EMF. This EPR will support the objectives of the UDLP, where the naturalistic setting is to be enhanced by new planting. Control of weeds and pathogens contributes to the success of landscaping.
FF4	**Protect aquatic habitat** In consultation with public land managers and Melbourne Water where relevant, design, locate and construct structures to minimise short and long term adverse impacts on riparian, riverbed and aquatic habitat in waterways and wetlands, including billabongs. The CEMP must contain and require implementation of measures to minimise adverse impacts from construction activities on riparian, riverbed and aquatic habitat and aquatic fauna connectivity	DESIGN CONSTRUCTION	**Design** Where possible, as part of the drainage design, measures have been developed to minimise adverse impacts on riparian, riverbed and aquatic habitat around the Koonung Koonung. **Construction** A Flora and Fauna Management Sub-plan will be developed and implemented, containing measures to minimise adverse impacts from construction activities on riparian, riverbed and aquatic habitat. Consultation will occur with public land managers and Melbourne Water as required. This EPR supports the objectives of the UDLP, where aquatic environments are to be improved by more effectively treating stormwater runoff. Minimising and controlling impact to aquatic environments during construction will contribute to achieving the objectives of enhanced water quality objectives, both during and post construction.
FF5	**Obtain Flora and Fauna Guarantee Act 1988 permits** Prior to commencement of relevant works, a permit(s) must be obtained to take and destroy flora species protected under the *Flora and Fauna Guarantee Act 1988*.	CONSTRUCTION	**Construction** In accordance with the CEMP and relevant WEMPs, and in consultation with DEECA, the Project will obtain all necessary approvals and permits prior to construction activities that may destroy flora species protected under the Flora and Fauna Guarantee Act. This EPR supports the objectives of tree retention within the UDLP.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
FF6	**Implement a Groundwater Dependent Ecosystem Monitoring and Mitigation Plan** Prepare and implement a Groundwater Dependent Ecosystem Monitoring and Mitigation Plan with no objection from the relevant water authorities. The Groundwater Dependent Ecosystem Monitoring and Mitigation Plan must be informed by the groundwater modelling and groundwater monitoring required by EPR GW1 and EPR GW2, and must include (but not be limited to): – Identification of Groundwater Dependent Ecosystems (GDEs) predicted to be impacted prior to relevant construction commencing, including Bolin Bolin Billabong if relevant. – Details of the monitoring procedures and program for each relevant GDEs including monitoring periods appropriate to each GDE Specific procedures to monitor groundwater levels at GDEs predicted to be impacted including monitoring as close as possible to the GDE (considering ecological and access constraints) and for aquatic GDEs monitoring the surface water levels and quality as appropriate, including Bolin Bolin Billabong. These procedures should include: – Groundwater monitoring of the alluvium by specific monitoring bores as close as possible to billabongs must be undertaken before, during and after construction. – Monitoring of water levels and water quality in billabongs must be undertaken before, during and after construction. Estimation of water balance input and output volumes to and from billabongs must be undertaken before, during and after construction, based on analysis of the monitoring of water levels in the billabong and surrounding groundwater monitoring bores Identification of relevant monitoring and management programs by Melbourne Water or other authorities and how these are referenced in the Groundwater Dependent Ecosystem Monitoring and Mitigation Plan Measures to mitigate monitored changes in water levels and quality that could impact the billabongs or other GDEs, which take into account the natural variability Where the survival of Groundwater Dependent Large Trees not requiring removal is predicted to be affected by groundwater draw-down during construction or operation based on groundwater modelling outputs, include measures to maintain the health of large trees In relation to any trees unlikely to survive during operation as a consequence of groundwater drawdown, processes for offsets to be obtained in accordance with EPR FF2 The process for review of the Plan, including how the groundwater modelling and monitoring under EPR GW1 and EPR GW2 will be considered and the GDE monitoring program and periods subsequently reviewed. ** All reasonable endeavours must be made to reach a position of no objection, provided the stakeholder responds within a reasonable timeframe.*	CONSTRUCTION OPERATION	**Construction and operation** The need for a Groundwater Dependent Ecosystem Monitoring and Mitigation Plan is determined as part of the Groundwater Management Plan (through which the risk is assessed, and a determination made as to whether this plan is triggered by the Project with relevant procedural requirements outlined). The Project will develop and implement a Groundwater Management Plan, which has the objective to avoid or minimise adverse effects on groundwater and groundwater-related receptors, including groundwater dependent ecosystems. It is also noted that during the pre-construction works phase, development site-specific risk assessments for the management zones, a monitoring program will be developed into the Groundwater Management Plan as well as the site-specific WEMPs, which are to be verified by the IEA (including the Groundwater Impact Assessment). The Groundwater Management Plan is to be verified by the IEA in compliance with the requirements of the EMF.
FF7	**Implement a salvage and translocation plan for Matted Flax-lily** Where direct impacts on Matted Flax-lily occur, a salvage and translocation plan must be developed and implemented to the satisfaction of the Department of Environment, Land, Water and Planning and the Commonwealth Department of Environment and Energy, prior to the commencement of relevant works.	CONSTRUCTION OPERATION	**Construction and operation** No Matted Flax-lily has been identified in the Tram Road to Springvale Road project area. However, as NELP is responsible for implementation of the salvage and translocation plan for Matted Flax-lily in accordance with the EPBC Act approval conditions, the Project team will notify NELP should any Matted Flax-lily be identified.
FF8	**Minimise intense noise and vibration impacts on Australian Grayling** The CEMP must include and require implementation of reasonable measures to avoid and mitigate intense noise and vibration impacts in or near the Yarra River (eg from activities such as pile driving and similar activities). This must include, to the extent practicable: – Selection of work methods to minimise noise and vibration – Avoiding activities that may generate intense noise and vibration and impact on the Australian Grayling during critical migration or breeding periods (March to June, September to November) as defined within the National Recovery Plan for the Australian Grayling Prototroctes maraena (Backhouse, G, Jackson, J & O'Connor, J 2008) – Management and monitoring of noise and vibration in accordance with the CNVMP (EPR NV4).	CONSTRUCTION	**Construction** The Project will develop and implement a Flora and Fauna Management Sub-plan and the CNVMP. Programming of excessive noise or vibration generating activities will be reviewed against migration and breeding periods, or alternative methods of construction considered (where feasible). These management plans are to be verified by the IEA in compliance with the requirements of the EMF.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
FF9	**Protect fauna habitat values in existing waterbodies that are modified for drainage purposes** Where existing waterbodies within or near the project boundary are to be modified for drainage purposes (for example Simpson's Lake, billabongs, and the southernmost waterbody in the Freeway golf course), the CEMP must include and require implementation of measures to minimise impacts on waterbirds and other fauna that use the wetlands including: – Retain dead and alive standing trees and other vegetation in and surrounding the waterbody – As far as practicable, undertake activities outside the typical nesting period for waterbirds (typically Sept to Jan) – Minimise the construction period to the extent practicable and refill the wetlands post construction if they have been drained – Use of gross pollutant traps and water quality treatment measures to the requirements of the relevant waterway manager.	CONSTRUCTION	**Construction** The Project will develop and implement a Flora and Fauna Management Sub-plan, as part of the CEMP to minimise disturbance to existing waterbodies and nesting periods for water birds. The CEMP will include and implement measures to minimise impacts on aquatic fauna during the construction phase.
FF10	**Studley Park Gum Mitigation** To mitigate impacts on the Studley Park Gum, a Studley Park Gum Management Framework must be developed and corresponding management plan must be developed and implemented in consultation with DELWP.	DESIGN CONSTRUCTION OPERATION	**Design, construction and operation** NELP have commissioned a specialist ecologist to review the potential presence of Eucalyptus x studleyensis within the area subject to this UDLP. Any required action will be determined based on the outcome of the field assessment and managed in accordance with relevant requirements in consultation with the Department of Energy, Environment and Climate Action (DEECA). The Project will also comply with the Studley Park Gum Management Framework where applicable.
8. Ground Movement (GM)			
GM1	**Design and construction to be informed by a geotechnical model and assessment** Develop and maintain geological and groundwater model(s) (as per EPR GW1) to inform tunnel and trench design and the construction techniques to be applied for the various geological and groundwater conditions. The model(s) are to: – Identify sensitive receptors that may be impacted by ground movement – Inform monitoring of ground movement and ground water levels prior to construction to identify pre-existing movement – Inform tunnel design and the construction techniques to be applied for the various geological and groundwater conditions – Assess potential drawdown and identify trigger levels for implementing additional mitigation measures to minimise potential primary consolidation settlement – Assess potential ground movement from excavation and identify trigger levels for implementing additional mitigation measures to minimise potential ground movement.	DESIGN CONSTRUCTION	**Design and construction** A geological and groundwater model will be developed to inform expected ground conditions and groundwater management requirements. The Ground Movement Plan outlines a procedure for identifying high risk activities that have the potential to cause ground movement. Mitigation measures are to be appropriately implemented in response to the Ground Movement Risk Assessment.
GM2	**Implement a Ground Movement Plan to manage ground movement impacts** Develop and implement a Ground Movement Plan(s). The Ground Movement Plan must be informed by EPR GM1 and EPR GW1 (predictive model) and: – Address the location of structures/assets which may be susceptible to damage by ground movement – Identify baseline ground movement monitoring prior to construction. A baseline monitoring report is to be compiled summarising the results of the baseline surveys undertaken and included in the plan – Identify appropriate ground movement impact acceptability criteria – Identify appropriate mitigation measures should the geotechnical model (EPR GM1), predictive groundwater model (EPR GW1), or subsequent monitoring program indicate acceptability criteria may not be met – Establish ground movement monitoring requirements for the area surrounding proposed project works to measure ground movement consistency with the anticipated ground movement in the predictive model.	DESIGN CONSTRUCTION	**Design and construction** A Ground Movement Plan will be developed and implemented during the construction phase. This plan will respond to and comply with all items as listed in this EPR. The Ground Movement Plan is to be verified by the IEA in compliance with the requirements of the EMF.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
GM3	**Carry out Condition surveys for potentially affected property and infrastructure** Conduct condition survey(s) of property and infrastructure predicted to be affected by ground movement based on the results of the geological and groundwater model (EPR GM1) or, where a property owner reasonably expects to be potentially affected and has requested a pre-construction condition survey. Develop and maintain a database of preconstruction and as-built condition information for each potentially affected structure identified as being in an area susceptible to damage (see EPR GM1) or where a property owner has requested a pre-construction condition survey, specifically including: – A list of identified structures/assets which may be susceptible to damage resulting from ground movement resulting from project works – Results of pre-construction condition surveys of structures, pavements, significant utilities and parklands to establish baseline conditions and potential vulnerabilities – Records of consultation with land owners in relation to the condition surveys – Post-construction stage condition surveys conducted, where required, to ascertain if any damage has been caused as a result of project works. Pre- and post-condition assessments must be proactively shared with the property owner. All stakeholder engagement activities must be undertaken in accordance with the Communications and Community Engagement Plan (see EPR SC2).	CONSTRUCTION	**Construction** Condition surveys will be undertaken for property and subsurface assets as part of the site investigation enabling works phase. As per the Ground Movement Plan, condition surveys are to be undertaken on assets and structures that have been identified to be at risk of damage from ground movement.
GM4	**Rectify damage to properties and assets impacted by ground movement or settlement** For properties and assets (including natural landscapes and parklands) damaged by ground movement caused by the project, undertake necessary repair works or other actions as agreed with the relevant property or asset owner (or land manager). For places listed on the Victorian Heritage Register, consultation with Heritage Victoria must be undertaken. Establish an independent mediation process for the assessment of claims for property and asset damage that cannot be agreed between the Project and the property or asset owner.	CONSTRUCTION	**Construction** Verification surveys will be periodically undertaken to monitor potential ground movement. The Victorian Heritage Register will be checked to identify properties or land that will be impacted by Project civil works.
9. Groundwater (GW)			
GW1	**Design and construction to be informed by a groundwater model** Develop a predictive and numerical groundwater model in consultation with EPA Victoria, informed by field investigations, to predict changes in groundwater levels and flow and quality, as they are affected by construction, and develop mitigation strategies, as per EPR GM1. The groundwater model must be of a standard that is at least comparable to the modelling documented within the Report on Additional Groundwater Modelling prepared by GHD and dated July 2019 and must be updated to take account of any changes to construction techniques or operational design features, and additional monitoring data from EPR GW2. The groundwater model must be developed with a process that involves independent review by the Independent Environmental Auditor consistent with the Australian Groundwater Modelling Guidelines (June 2012).	DESIGN CONSTRUCTION	**Design** The current numerical groundwater model will be progressively upgraded and recalibrated to account for changes in design. **Construction** The numerical groundwater model will be verified and updated during construction based on the findings of site investigations and ongoing baseline monitoring data.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
GW2	**Monitor groundwater** Develop and implement a pre-construction, and construction groundwater monitoring program to: – Establish baseline water level and quality conditions throughout the study area, including the delineation (to the extent practicable) of those portions of existing contaminant plume(s) that may be impacted by the project – Calibrate the predictive model prior to commencement of construction, manage construction activities, and verify the model predictions – Assess the adequacy of proposed design and construction methods, and where required, identify and implement any additional measures required to mitigate impacts from changes in groundwater levels, flow and quality. A post-construction groundwater monitoring program must be developed and implemented to: – Confirm the acceptability of resultant water quality and water level recovery (and potential mounding) as predicted by the numerical groundwater model. Acceptability is to be assessed with consideration to the Groundwater Dependent Ecosystem Monitoring and Mitigation Plan (as required by EPR FF6) and other identified environmental values of groundwater – Confirm the effectiveness of applied measures as identified in the Groundwater Management Plan (refer EPR GW4) and if required, identify and implement contingency measures to restore groundwater to an acceptable level. The duration of post-construction monitoring must be a minimum of two years or until acceptable restoration of groundwater and a relatively stable hydrogeological regime, taking into account prevailing climatic conditions and natural variability, has been confirmed by the Independent Environmental Auditor, in consultation with EPA Victoria and Melbourne Water. The pre-construction, construction and post-construction monitoring program(s) must be developed in consultation with EPA Victoria and Melbourne Water, and be consistent with EPA Victoria Publication 668 Hydrogeological assessment groundwater quality guidelines, EPA Victoria Publication 669 Groundwater Sampling Guidelines, and the State Environment Protection Policy (Waters).	DESIGN CONSTRUCTION OPERATION	**Design** In the design phase, a staged approach will be adopted to manage groundwater monitoring and meet the requirements of this EPR. The approach includes development of an initial monitoring program to support design. This will include measures to maximise passive irrigation to support groundwater recharge, reduce urban salinity and riparian ecosystem health. **Construction and operation** The construction phase will be informed by site-specific risk assessments for groundwater management zones, and the groundwater monitoring strategy will be implemented. The Project will prepare and implement a Groundwater Management Plan that outlines this strategy, and that will be developed in consultation with the Victorian Environment Projection Authority and Melbourne Water. The Groundwater Managment Plan is to be verified by the IEA in compliance with the requirements of the EMF.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
GW3	**Minimise changes to groundwater levels through tunnel and trench drainage design and construction methods** Design long term tunnel and trench drainage and adopt construction methods which minimise changes to groundwater levels during construction and operation to manage, mitigate and/or minimise to the extent practicable: – Requirements for groundwater management and disposal – Mobilisation of contaminated groundwater – Dewatering and potential impacts of acid sulfate soils, including both unconsolidated sediments and lithified sedimentary rock – Potential impacts on waterways and potential groundwater dependent ecosystems, including terrestrial ecosystems – Any other adverse impacts of groundwater level changes such as subsidence Design and implement engineering control measures and/or ground treatment to limit to the extent practicable groundwater inflow and groundwater drawdown during excavation, construction and operation of tunnels and trenches, cross passages and subsurface excavations. The Groundwater Management Plan (as required by EPR GW4) must contain measures and/or controls to minimise groundwater inflow during construction to excavations and groundwater drawdown, including contingency measures should monitoring indicate adverse impacts are occurring. These must include measures to: – Minimise to the extent practicable reduction or loss of groundwater discharge to waterways or loss of water availability for terrestrial ecosystems – Manage, mitigate and minimise the oxidation of acid sulfate soil materials and acidification of groundwater – Manage, mitigate and minimise any movement of contamination that is identified – Manage, mitigate and minimise impacts on environmental values and risk of vapour intrusion – Ensure that groundwater seepage is collected, treated and disposed during construction in accordance with the *Environment Protection Act 2017* waste management hierarchy and EPA Victoria requirements. Obtain a trade waste agreement from the relevant water authority where disposal to sewer is required or approval from EPA and the relevant water authority (as required) if discharge to waterways is determined to be appropriate.	DESIGN CONSTRUCTION	This UDLP does not include any road tunnels; therefore, this requirement for tunnel and trench drainage design is not relevant to the scope of this UDLP.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
GW4	**Implement a Groundwater Management Plan to Protect groundwater quality and manage groundwater interception** A Groundwater Management Plan must be developed in consultation with EPA Victoria and Melbourne Water and implemented to protect groundwater quality and manage interception of groundwater including documenting the measures required to achieve EPR GW2 and EPR GW3. The Groundwater Management Plan must be informed by the groundwater modelling required by EPR GW1 and updated where required in response to modelling results, new information resulting from the monitoring programs required by GW2 and assessment of the adequacy or effectiveness of controls. The Groundwater Management Plan must include requirements and construction methods to protect groundwater quality including where appropriate, but not limited to: – Selection and use of sealing products, caulking products, lubricating products and chemical grouts during construction that will not diminish the groundwater quality – Selection and use of fluids for artificial recharge activities that will not diminish the groundwater quality – Requirements to ensure compatibility of construction material with groundwater quality to provide long term durability for infrastructure design life – Design and development of drainage infrastructure that minimises clogging and maintenance risks from dissolved constituents in groundwater precipitating out of solution – Measures to assess, remove and dispose of contaminated groundwater and impacted soils associated with excavation and construction – Reinjection borefields for hydraulic control of drawdowns (or contaminated groundwater plumes) – Remedial grouting – The Groundwater Management Plan must include requirements and methods for management of groundwater interception during construction including where appropriate, but not limited to: – Identification, treatment, disposal and handling of contaminated seepage water and/or slurries including vapours in accordance with relevant legislation and guidelines – Assessment of barrier/damming effects – Subsidence management – Dewatering and potential impacts on acid sulfate soils, including both unconsolidated sediments and lithified sedimentary rock – Protection of waterways and potential groundwater dependent ecosystems – Management of unexpected contaminated groundwater eg using treatments, hydraulic controls, grouting and exclusion methods – Management of possible impact to groundwater monitoring and management by third parties of existing contamination plumes – Contingency actions when interventions are required. The Groundwater Management Plan must also include a review to confirm the status of potential use of extraction bores within the estimated construction drawdown area. Where required, measures must be developed and implemented, to the satisfaction of Southern Rural Water, to maintain water supply to identified, impacted groundwater users.	DESIGN CONSTRUCTION	**Design** The design of the Project has considered, and will address through detailed design, any groundwater potential impacts and suitable mitigation outcomes. **Construction** A Groundwater Management Plan will be developed in consultation with the EPA and Melbourne Water and implemented to protect groundwater quality and manage interception of groundwater including documenting the measures required to achieve EPR GW2 and EPR GW3. The Groundwater Management Plan is to be verified by the IEA in compliance with the requirements of the EMF.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
GW5	**Manage groundwater during operation** Prepare as part of the OEMP and implement measures for management, monitoring, reuse where possible and disposal of groundwater inflows during operation that comply with relevant legislation and guidelines (and include provisions of EPR FF6 where relevant), including but not limited to: – State Environment Protection Policy (Waters) – Environment Reference Standard (Land) – Environment Protection Regulations 2021 – *Water Act 1989* and Water Industry Regulations 2006 – *Occupational Health and Safety Act 2004* and Occupational Health and Safety Regulations 2017. The OEMP must include contingency measures and emergency response plans if unexpected groundwater contamination is encountered and requires disposal. A trade waste agreement from the relevant water authority must be obtained in accordance with regulatory requirements, where disposal to sewer is proposed. Approval from EPA and the relevant water authority (as required) must be obtained in accordance with regulatory requirements, where discharge to waterways is proposed.	OPERATION	Geotechnical assessment indicates ongoing extraction or induced recharge of groundwater is not expected to be required post-construction in this project area.
10. Historical Heritage (HH)			
HH1	**Design and construct to minimise impacts on heritage** Undertake detailed design of the permanent and temporary works to minimise impacts to the greatest extent practicable on the cultural heritage values of heritage places in consultation with Heritage Victoria and/or local councils (as applicable). Prior to commencement of works with capacity to affect heritage places, structures or features, directly or indirectly, develop and implement in consultation with the relevant heritage authority: – Physical protection measures for potentially affected heritage places, structures or features as appropriate – Where required, a methodology for any required dismantling, storage or reinstatement of heritage fabric (with reference to the ICOMOS Burra Charter 2013) and works to ensure an appropriate setting if relocation is required.	DESIGN CONSTRUCTION	A Historical Heritage Assessment undertaken as part of the EES identified no historic heritage places within the Project Boundary. A heritage overlay applies partly within the Project Boundary to the east of Middleborough Road, however this site relates to aplace of Aboriginal heritage significance and is managed in compliance with the approved CHMP. An Archaeological Heritage Assessment undertaken by the project identified a new archaeological place in Junction Road Reserve, partly within the Project Boundary. This site has been included on the Victorian Heritage Inventory by Heritage Victoria (H7922-0541 Yarrandoo Park Former Farm Site). The heritage place relates to a former farm and homestead that was present at the site during the 19th and 20th centuries. While the heritage place is partly within the Project Boundary, no ground disturbing works are proposed as part of this UDLP. If works are required within the site extent, the Project will apply for a consent under the Heritage Act 2017 from Heritage Victoria.
HH2	**Implement an Archaeological Management Plan to avoid and minimise impacts on historic archaeological sites and values** Develop and implement an Archaeological Management Plan in consultation with Heritage Victoria detailing measures to avoid, minimise, mitigate and manage disturbance of archaeological sites and values affected by the project. Undertake investigations in accordance with the Guidelines for Investigating Historical Archaeological Artefacts and Sites, Heritage Victoria 2015 and to the satisfaction of the Executive Director, Heritage Victoria. The Archaeological Management Plan must include: – Requirements for background historical research, excavation methodology, research design, reporting and artefact management, artefact conservation, and analysis – Protocols for managing previously unidentified historical archaeological sites discovered during the works.	CONSTRUCTION	**Construction** The Project will develop and implement an Archaeological Managment Plan in consultation with Heritage Victoria. An Archaeological Heritage Assessment undertaken by the project identified a new archaeological place in Junction Road Reserve, partly within the Project Boundary. This site has been included on the Victorian Heritage Inventory by Heritage Victoria (H7922-0541 Yarrandoo Park Former Farm Site). While the heritage place is partly within the Project Boundary, no ground disturbing works are proposed as part of this UDLP. If works are required within the site extent, the Project will apply for a consent under the Heritage Act 2017 from Heritage Victoria, and any works will be conducted in line wiht the approved Archaeological Managment Plan.
HH3	**Monitor condition of heritage sites** Undertake pre-construction and post-construction condition survey(s) in accordance with EPR GM3 for heritage places at risk of impact from settlement and structural integrity disturbance as a result of the project. Measures to manage and monitor potential vibration impacts on heritage places during construction must be implemented in accordance with the Construction Noise and Vibration Management Plan required by EPR NV4 and Groundwater Management Plan required by EPR GW4. Report the results of monitoring for heritage places to the Executive Director, Heritage Victoria and take remedial action, if required, to the satisfaction of the Executive Director, Heritage Victoria.	CONSTRUCTION	**Construction** An Archaeological Heritage Assessment undertaken by the project identified a new archaeological place in Junction Road Reserve, partly within the Project Boundary. This site has been included on the Victorian Heritage Inventory by Heritage Victoria (H7922-0541 Yarrandoo Park Former Farm Site). No ground disturbing works are proposed as part of this UDLP and the site is not considered at risk of impact from settlement or structural integrity disturbance as a result of the project. Measures to monitor and manage vibration and other impacts will be undertaken as per the requirements of EPRs NV4 and GW4. Results of any monitoring required will be reported Heritage Victoria and any required remedial aciton will be undertaken to the satisfaction of Heritage Victoria.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
HH4	**Undertake archival photographic recording** Prior to commencement of relevant works, undertake archival photographic recording of all heritage places (including trees) and their settings, demolished or modified by the works in accordance with Heritage Victoria's specification for the archival photographic recording of heritage places or alternative applicable Heritage Victoria guidelines as updated, to the satisfaction of the Executive Director, Heritage Victoria.	CONSTRUCTION	**Construction** Should any Victorian Heritage Inventory sites be identified as potentially impacted as part of the Project, archival photographic recording will be undertaken in accordance with Heritage Victoria guidelines.
HH5	**Minimise impacts on heritage trees** Comply with any requirements of Heritage Victoria if the trees that are to be impacted by the project are listed on the Victorian Heritage Register.	CONSTRUCTION	**Construction** The Project has a contingency plan in place as part of the CEMP, as there are no identified Victorian Heritage Register trees.
11. Land Use Planning (LP)			
LP1	**Minimise land use impacts** The project must be designed and constructed to: – Minimise the construction and design footprint and avoid, or, where avoidance is not feasible, minimise to the greatest extent reasonably possible, any temporary and permanent impacts on the following land uses: – Parks and reserves including passive and active open space and pathways – Significant landscapes including those around the Yarra River – Other sensitive land uses such as educational facilities – Sport, recreational and community facilities – Residential properties – Commercial and industrial sites – Sites of identified cultural or social value including Heide Museum of Modern Art and Bulleen Art and Garden – Consolidate or minimise the fragmentation of, and provide access to, residual land parcels to support future viable land use to the extent practicable.	DESIGN CONSTRUCTION	**Design** The Project is designed to minimise land use impacts by way of reducing the construction and design footprint to the extent feasible, practical and reasonable, with particular regard to impacts on public open space, educational facilities, recreational and community facilities and residential and commercial sites. The following are key examples in the design demonstrating minimised impacts: – Parks and Reserves, including passive and active open space and pathways: – Optimisation of the eastbound ramp structure reduces extent of land required in Eram Park. This retains more public open space at this highly valued location – Maximising usable open space considered through the realigned section of the Koonung Koonung and trail interface. – Residential and commercial properties: – No direct land use impact is expected to residential and commercial properties. Measures to minimise ancillary and amenity impacts have been included, such as developing a noise wall design that ensures the project will comply with EPR noise requirements – Sport, recreational and community facilities: – No direct impact to active recreation facilities is expected – Permanent impacts to passive recreation areas has been minimised by optimising the road design to reduce encroachment to public open space areas. **Design and construction** The design and construction methodology will minimise impact on existing vegetation where possible.
LP2	**Minimise impacts from location of new services and utilities** New above ground services and utility infrastructure are to be located in a way that minimises impacts to existing residential areas, public open space and recreational facilities. This must include considering options to co-locate infrastructure where practicable.	DESIGN	**Design** New above ground services and utility infrastructure has been designed and located to minimise impacts to existing residential areas, public open space and recreational facilities.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
LP3	**Minimise inconsistency with strategic land use plans** Design and development of the project must have regard to relevant approved urban design and land use strategies, plans and frameworks including the Yarra Strategic Plan and Draft Yarra River Bulleen Precinct Land Use Framework Plan when approved or any approved superseding document. Consultation must occur with land managers and authorities responsible for the implementation of the relevant strategic land use plans and policies in preparing Urban Design Framework Plans required by the Incorporated Document. An integrated approach must be adopted to the Manningham Interchange in consultation with Manningham City Council which supports viable future land uses (such as commercial and industrial) and includes maximising the developable area at surface level to the extent practicable in addition to requirements for the Urban Design Framework Plan for this interchange to be approved under the Incorporated Document as part of the Urban Design Strategy. The project must avoid, or where avoidance is not feasible, minimise to the greatest extent reasonably possible, impacts on residential, commercial, industrial, open space, culturally valued and community facility land uses from project development and operations which would be inconsistent with approved strategic land use policies.	DESIGN	**Design** Design and development of the Project has had regard to relevant approved urban design and land use strategies, plans and frameworks. Broadly, consultation will occur with land managers and authorities responsible for the implementation of the relevant strategic land use plans and policies as part of the UDLP consultation program. Manningham and Whitehorse City Councils have been consulted in the development of this UDLP design to understand their strategic land use plans. This UDLP is in accordance with the UDS, which has had regard to a wide range of state and local strategic planning and urban design documents.
LP4	**Minimise overshadowing from noise walls and elevated structures and overlooking from elevated structures** Overshadowing from elevated structures and noise walls to residential properties (including existing solar panels), community facilities, open spaces, waterways and valuable natural habitats must be minimised through detailed design. Consultation must occur with directly affected property owners and occupiers to inform formulation of parameters for these structures including location, design and materials. Unless with the consent of an affected landowner or in exceptional circumstances, the extent of additional overshadowing of residential properties from non transparent structures: – Should be no greater than the existing shadowing of secluded private open spaces associated with residential properties cast by existing structures including existing noise walls and other structures (e.g. elevated walkways) between the hours of 9:00 am to 3:00 pm as measured on September 22. – If additional overshadowing occurs it must not be greater than 50% of the secluded private open space or 40 sqm, whichever is the greater, between the hours of 9:00 am to 3:00 pm as measured on September 22. – Overlooking from elevated structures, especially within a distance of 15 metres to secluded open space and habitable room windows of residential properties, must be minimised through detailed design as far practicable. Consultation must occur with directly affected property owners and occupiers to inform formulation of parameters, designs and materials for these structures.	DESIGN	**Design** The Project has the potential to cause additional overshadowing from new sections of noise walls designed to meet the noise reduction requirements set out in the EPRs. Designs for other elevated structures such as the new Eram Road pedestrian and cycling bridge and road bridges do not result in overshadowing of residential properties (including existing solar panels), community facilities, open spaces, waterways and valuable natural habitats. An overshadowing assessment has been completed and is provided at Attachment 4 to this UDLP. The overshadowing assessment includes an area wide analysis, which assumed that 100% solid noise walls to maximum height will be installed, representing a 'worst case scenario' for overshadowing impacts. This informed locations where a more focused analysis is required, considering information like fence heights and options to minimise overshadowing, such as acrylic panels in noise walls to let light through. This measure also helps to minimise any overshadowing of open space areas, such as the Koonung Creek Trail on the south side of the Eastern Freeway. Consultation will occur with relevant landowners as part of this UDLP to develop the parameters of these noise walls including location, design and materials. The focused analysis demonstrates that once acrylic treatment is incorporated into the design, overshadowing impacts are mitigated. The detailed design process will seek to further minimise the extent of overshadowing by considering detailed site surveys, any updated noise modelling assessments, as well as structural optioneering of noise wall heights, extents and pole placements. Agreement and consent to the proposed design will be obtained from directly affected landowners where the overshadowing conditions of EPR LP4 cannot, or will not, be achieved. The Project will make all reasonable endeavours to reach an acceptable design outcome and obtain land owner consent. If this cannot be achieved exceptional circumstance will apply. Attachment 4 also includes an overlooking assessment that demonstrates that elevated structures proposed as part of the Project do not overlook secluded open space areas and habitable room windows of residential properties. The detailed design process will include ongoing review of the design of these structures to ensure that the eights and alignments do not result in any additional overlooking impacts.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
LP5	**Prepare and implement a Public Open Space Relocation and Replacement Plan** Prior to operation of the Project, the Proponent in conjunction with the State and in consultation with relevant stakeholders including DELWP, Parks Victoria, Melbourne Water and Birrarung Council, must develop and implement a Public Open Space Relocation and Replacement Plan to provide for replacement of public open space permanently required for the project, where not already being replaced in accordance with EPR SC5. The plan should reflect an underlying philosophy of replacement on a like-for-like basis. The Public Open Space Relocation and Replacement Plan must set out the process for selecting and acquiring replacement public open space, including but not limited to: – Identifying public open space to be permanently required for the project, including public land used for parkland, reserves, passive open space and active open space including recreation facilities (where not addressed by EPR SC5) – A process for the acquisition of replacement land, including within the Public Acquisition Overlay or land in key strategic locations Assessment of the suitability of potential replacement land by reference to: – the location and characteristics of the land – relevant approved strategic land use plans and policies, including those within planning schemes – existing and proposed public purpose reservations – the Yarra Strategic Plan (when released), reference to the Yarra River Bulleen Land Use Framework Plan (when released) – An approach for the preparation of functional concept plans for the future use of each replacement site, where the plans will be prepared with input from relevant councils, land managers, public asset owners and stakeholders (in the case of formal sporting uses being replaced) – A program identifying the timing and scope of works to be undertaken to implement the functional concept plans and provide appropriate or upgraded facilities at the replacement sites. In addition, where public open space is to be temporarily lost during construction, residual public open space should be enhanced where practical to minimise and mitigate land use impacts. *Note: * Land in a Road Zone is excluded from the replacement calculation and land on a land bridge that is part of the access network will not count as replacement public open space.*	DESIGN CONSTRUCTION	**Design and construction** NELP will develop and implement the Public Open Space Relocation and Replacement Plan in advance of the operation of the North East Link.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
12. Landscape and Visual (LV)			
LV1	**Design to be in accordance with the Urban Design Strategy** Urban Design and Landscape Plans must be developed and implemented for permanent above-ground buildings or structures (excluding preparatory buildings and works) in accordance with the North East Link Project — Incorporated Document. The design response must be in accordance with the North East Link Urban Design Strategy and, to the extent practicable: – Avoid or minimise landscape and visual, overlooking, and shading (with reference to EPR LP4) impacts in extent, duration and intensity. – Maximise opportunities for enhancement of public and private receptors including public amenity, open space and facilities, and heritage places by the project including by facilitating value add/capture opportunities. – Respond to opportunities and constraints identified in an Urban Design Framework Plan forming part of the approved Urban Design Strategy for key interchanges, activity centres and interfaces identified in the Incorporated Document (where applicable). – Identify residential areas with the potential for high visual impact and develop targeted design options to avoid or minimise amenity impacts on these areas, including as a result of the proposed noise walls. – Detailed design to ensure landmark elements balance visual impact with minimal overshadowing.	DESIGN CONSTRUCTION	**Design** The design has been developed in accordance with the UDS, including corridor-wide requirements, Koonung Creek Valley area requirements, detailed requirements and benchmarks. The design avoids overlooking in accordance with EPR LP4 and minimises potential impacts associated with overshadowing to residential receivers, open spaces and waterways through the use of acrylic panels within the noise walls. The design in this UDLP focuses on providing targeted urban design and landscape interventions at key open spaces and movement corridors across the alignment. This approach is aimed at improvement public amenity for people that use the open spaces for passive recreation, as well as those that use the Koonung Creek Trail for journeys through the project area. There are no value capture development opportunities as part of the Eastern Freeway Upgrades — Tram Road to Springvale Road. New noise walls will become landmark elements that stand alongside the existing noise walls. The design approach has balanced the overall design intent with the need to minimise overshadowing through the use of acrylic panels. Landscape and urban design materials and finishes have been selected in accordance with the UDS, to create a context sensitive design that aligns with the interfacing Eastern Freeway Upgrades — Burke Road to Tram Road works, EastLink and contextual landscape. The landscape design includes design of sensitive lighting for pedestrian tunnels (underpasses). This includes feature lighting in addition to the functional lighting required for the project. Post lighting within pedestrian and cycling paths and open space adjacent to the Koonung Koonung, are proposed with the use of a variable controller to moderate lighting to minimise negative environmental impacts at night on flora and fauna. **Construction** The UDS includes requirements that relate to reduce the visual impact of construction sites during the construction phase. The Project will provide measures to minimise adverse visual impact of project works and provide visual appeal, which may be achieved by using temporary landscaping, features or structures during construction. If/when temporary landscape treatments, features or screening are employed, these treatments or features may be reused across the project, where appropriate and feasible.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
LV2	**Minimise landscape and visual impacts during construction** Temporary and construction works must be located, designed and carried out in accordance with a Construction Compound Plan to be approved under the Incorporated Document and the Urban Design Strategy guidance on using design to help manage construction impacts. Areas disturbed by temporary and construction works must be reinstated with no objection from the relevant land manager, waterway manager and any relevant public asset owners.* Design of acoustic sheds used during construction, to contribute to the image and identity of the area. Develop and implement measures to use temporary landscaping, features or structures (including viewing portals) during construction to minimise adverse visual impact of project works and provide visual appeal. Temporary landscape treatments, features or screening must be reused across the project, where appropriate. Implement landscaping enhancement including early tree planting (with reference to EPR AR3 as part of permanent works) prior to construction works commencing, where practicable. ** All reasonable endeavours must be made to reach a position of no-objection, provided the relevant stakeholder responds within a reasonable timeframe.*	DESIGN CONSTRUCTION	**Design and construction** A Construction Compound Plan (CCP) helps manage construction impacts and the design for a construction compounds seeks to minimise adverse visual impacts and provide visual appeal where possible. CCPs identify where temporary and permanent works will be located and describe the proposed construction activities, hours of operation, potential environment and community impacts, including mitigations and controls, associated with the construction and operation of the relevant construction compound in accordance with the requirements in the Incorporated Document (December 2019, amended September 2023) and relevant EPRs. CCPs consider all appropriate acoustic measures used during construction; if deemed necessary, the design of acoustic measures will contribute to the image and identity of the area. Each CCP also provides measures to minimise adverse visual impact of project works and provide visual appeal, which may be achieved by using temporary landscaping, features or structures during construction. If/when temporary landscape treatments, features or screening are employed, these treatments or features may be reused across the Project, where appropriate and feasible. Where possible and in locations that will not be subject to further construction activities, early planting of permanent landscaping will be explored to further mitigate landscape and visual impacts from construction sites and compounds. Other EPRs (such as AR3) have been considered with relevant measures and treatments recommended and implemented in each CCP as relevant and practical. CCPs were approved by the Minister for Planning for locations at Eram Park (approved 18 November 2025) and Springvale Road (approved 12 December 2025). The approved CCPs detail how potential impacts to sensible users are managed; and outlines the approach to communications, stakeholder and community engagement as required by relevant EPRs. Construction activities will be undertaken in alignment with the approved CEMP and CCP. The construction compound areas will be regularly maintained to ensure a suitable safe and aesthetically acceptable appearance is achieved throughout the construction period. Refer to the plans provided in Attachment 2 - Landscape Design, drawings NEL-EST-TSA-6600-ULS-DRG-2901 to 2913. Any future CCPs will be subject to future ministerial approval.
LV3	**Minimise construction lighting impacts** Develop and implement effective measures to minimise light spillage and glare during construction including from construction vehicles and equipment to protect the amenity of adjacent neighbourhoods, parks, community facilities and any known significant native fauna habitat to the extent practicable. Such measures must have regard to the content of guidelines or Australian Standards pertaining to outdoor lighting and best available technology and best practice.	DESIGN CONSTRUCTION	**Design and construction** Temporary lighting will be designed to minimise impacts on sensitive residential receivers and light sensitive native fauna and will include measures to minimise light spill impacts. Lighting design will consider Australian Standard AS4282-1997 Control of the obtrusive effects of outdoor lighting. Construction lighting will be managed in accordance with the CEMP. The CEMP is to be verified by the IEA in compliance with the requirements of the EMF.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
LV4	**Minimise operation lighting impacts and maximise operational lighting benefits for open space** Design and install lighting used during operation of permanent structures and resulting from the orientation of all permanent structures (including from vehicle headlights) in accordance with relevant standards, including but not limited to relevant guidelines and Australian Standards pertaining to outdoor lighting and the protection of beneficial uses. Design and install lighting to minimise light spill and disturbance to significant fauna sites including the Grey-headed Flying fox colony at Yarra Bend, wetlands and waterways immediately adjacent to roadways. Subject to consultation with and the views of future asset owners, provide sensitively designed lighting to shared user paths and open spaces to provide improved safety for users without causing unreasonable effects on residential amenity or environmental and landscape values. Designs must consider Crime Prevention Through Environmental Design, including effects on safe movements of pedestrians and cyclists; including within undercrofts, bicycle and pedestrian tunnels and open spaces areas.	DESIGN CONSTRUCTION	**Design** The landscape design includes design of sensitive lighting for pedestrian tunnels (underpasses), which balances the need to deliver feature lighting in addition to functional lighting. Post lighting within pedestrian and cycling paths and open space adjacent to the Koonung Koonung, are proposed with the use of a variable controller to moderate lighting to minimise negative environmental impacts at night on flora and fauna. The design considers CPTED principles to avoid facilitating criminal or other harmful behaviours. Improved lighting at underpasses, harnessing light spill on the SUP, increased open sight lines and passive surveillance through selective landscaping and planting, the presence of identifiable Navigation Nodes and other targeted interventions accumulatively contribute to a CPTED approach. **Construction** A CCP helps manage construction impacts and the design for a CCP seeks to minimise adverse visual impacts and provide visual appeal where possible. More specifically, a CCP identifies where temporary and construction works will be located and describes the proposed construction activities, hours of operation, potential environment and community impacts including mitigation and management controls associated with the construction and operation of the relevant construction compound in accordance with the requirements in the Incorporated Document (December 2019, amended September 2023) for the NELP and relevant EPRs. The preparation of a CCP will consider all appropriate lighting used during construction; if deemed necessary, the design of lighting will contribute to the image and identity of the area.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
13. Noise and Vibration (NV)			
NV1	**Achieve traffic noise objectives** Design, construct and maintain the works to meet the following traffic noise objectives. (a) Traffic noise from North East Link Project Roads* must be no greater than: – 63 dBA (L10,18hr) measured between 6 am and midnight at Category A buildings** – 63 dBA (L10, 12hr) measured between 6 am and 6 pm at Category B buildings**. (b) For Category A and Category B buildings on non-Project Roads which: – abut the North East link project roads, or directly intersect with North East Link project roads, and – where total traffic noise for the design year and with Project exceeds the thresholds listed in paragraph (a). The combined noise from North East Link Project Roads and non-Project Roads must not be more than 2 dBA higher than the predicted traffic noise level under the design year 'do nothing' scenario. Intersecting non-Project Roads must be modelled for a distance of 100 m from the intersection with North East Link Project Roads or to the first traffic intersection (whichever is the lesser). (c) Night-time traffic noise for category A buildings must meet the WHO 2009 interim target of LAeq night 55dB when adjusted to Australian conditions as per the EES Technical Appendix C i.e be no greater than 58dB LAeq 8hr (including façade correction). The 8hour time period is to be between 2200-0600hrs as consistent with the Better Apartment Design Standards. (d) The noise criteria in paragraphs (a), (b), and (c) above and (e) are to apply to the lowest habitable level of Category A buildings and Category B buildings at both the year of opening and 20 years thereafter. Traffic noise mitigation measures must be maintained throughout this period. For the purposes of this EPR, Category A buildings and Category B buildings to be considered are those that are either existing or known to have planning approval prior to exhibition of the North East Link Environment Effects Statement. (e) Where external traffic noise cannot be mitigated through project design solutions to meet the criteria outlined in paragraphs (a), (b) and (c), at-property treatments will be required to be designed and constructed so that internal noise levels achieve the following: – 35dBA for bedrooms assessed as an LAeq, 8 h from 10pm -6am – 40dBA for living areas assessed as LAeq, 16h from 6am-10pm At-property treatments would be undertaken in accordance with section 7.3 of the NSW Road and Maritime Services document 'Noise Mitigation Guidelines 2015 — Roads and Maritime Services', and in consultation with the owner of the relevant building. In circumstances where at-property treatments are proposed, the Independent Environmental Auditor must review the project design solutions to confirm that the criteria outlined in paragraphs (a), (b) and (c), could not be achieved by the adoption of reasonable and feasible detailed design measures. ** Project Roads are defined to be the M80 Ring Road (east of Plenty Road), the Greensborough Bypass (west of the Plenty River bridge and up to the M80 interchange with North East Link), the upgrade of the Eastern Freeway (between Hoddle Street and Springvale Road) and the new North East Link freeway (connecting the M80 Ring Road to the Eastern Freeway), including all access ramps.* *** Category A Buildings and Category B Buildings means: — Category A Buildings — Residential dwellings, aged persons homes, hospitals, motels, caravan parks and other buildings of a residential nature — Category B Buildings — Schools (including buildings within the Carey Sports Complex), kindergartens, libraries and other noise-sensitive community buildings.* *Note: If a resident of a dwelling advises NELP that they consider their residence to be noise affected, external noise levels must be investigated against the above criteria. If the external noise levels do not comply and mitigation is not feasible (as confirmed by the IEA) then at property treatment to achieve the required internal noise levels must be undertaken in accordance with (e) above.*	DESIGN CONSTRUCTION OPERATION	**Design** The design will be informed by noise modelling and will achieve the relevant noise objectives for Project and non-Project roads during the operational phase of the Project. Further refinement of noise walls, informed by noise modelling, will occur through the detailed design process of the Project including an assessment of additional design measures that may be incorporated to further mitigate noise impacts. In the event this is unable to be achieved, an assessment will be undertaken by a suitably qualified acoustic engineer to determine appropriate at-property treatment to achieve compliance with NV1, in consultation with the property owner. **Construction** Material selection is a consideration that feeds into the noise modelling and installation of at-property treatment if required in limited instances. **Operation** Compliance with the EPR is measured and conformance to the noise criteria is demonstrated through the monitoring program developed and implemented by the State as described in EPR NV2. The timeline and criteria for any remedial action required because of the non-compliant noise levels post completion will be determined by the IEA and will be fulfilled by the Project, with subsequent reporting of compliance provided to the Minister for Roads.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
NV2	**Monitor traffic noise** Traffic noise monitoring must be carried out for at least the following time periods: – Baseline traffic noise must be remeasured after project award and prior to construction works – Traffic noise must be remeasured within six months of project opening during normal traffic flows (outside school or public holidays). For the purpose of determining compliance, the measurements conducted after project opening must be adjusted to the 10 year traffic flows – Traffic noise must be remeasured 10 years and 20 years after project opening. All traffic noise monitoring must be undertaken in accordance with the VicRoads Traffic Noise Measurement Requirements for Acoustic Consultants — September 2011, to verify conformance with the external traffic noise objectives set out in EPR NV1. The adequacy of the monitoring program is to be verified by the Independent Environmental Auditor. Remedial action must be taken in the event that the measured traffic noise levels demonstrate that the external traffic noise objectives set out in EPR NV1 are not met. The timeframe and the criterion for remedial action must be determined by the IEA and reporting of compliance must be provided to the Minister for Roads or his/her successor.	DESIGN OPERATION	**Design** Baseline traffic noise will be measured by the Project prior to the commencement of construction works. Traffic noise will be re-measured and captured as specified by the State in the operations phase. **Operation** A traffic noise monitoring program to address the requirements of EPR NV2 will be developed and implemented by the State for the operation phase. If required, remedial actions will be undertaken to meet the traffic noise objectives in accordance with EPR NV2..
NV3	**Minimise construction noise impacts to sensitive receptors** Construction noise and vibration must be managed in accordance with the Construction Noise and Vibration Management Plan (CNVMP) required by EPR NV4. *Non-residential sensitive receptors* For sensitive land uses (based on AS/NZS 2107:2016) implement management actions as per EPR NV4 if construction noise is predicted to or does exceed the internal or external noise management levels set out in the table below, and a noise sensitive receptor is, or is predicted to be, adversely impacted. If construction exceeds the noise management levels below, in determining whether a noise sensitive receptor is, or is predicted to be, adversely impacted: – Consider the duration of construction noise – Consider the existing ambient noise levels – Consult with the owner or operator of the noise sensitive receptor – Consider any specific acoustic requirements of land uses listed below to determine whether a noise sensitive receptor is adversely impacted.	CONSTRUCTION	**Construction** A CNVMP will be developed and will include measures to meet the construction noise management levels and construction noise guideline targets. Some work activities will be required to be undertaken near sensitive receivers in some isolated locations. Application of the noise hierarchy will be implemented to minimise disruption as far as reasonably practicable. Construction noise impacts on sensitive receptors will be further mitigated through the following actions: – identification of sensitive receivers on WEMPs – noise modelling to inform construction phase mitigation techniques – selection of quieter equipment where feasible, noise mitigation and community notification – application of the unavoidable works process, including IEA verification – implementation of the CNVMP – noise monitoring to verify noise levels are consistent with modelling outputs – consideration of construction scheduling/timing – stakeholder consultation. The CNVMP is to be verified by the IEA in compliance with the requirements of the EMF.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement		Phase	UDLP response
	Land Use	**Construction noise management level, LAeq(15 min) applies when properties are in use**		
	Classrooms in schools and other educational institutions	Internal noise level 45 dB(A)		
	Healthcare facilities with inpatient care including hospital wards and operating theatres, and rehabilitation centres	Internal noise level 45 dB(A)		
	Places of worship	Internal noise level 45 dB(A)		
	Active recreation areas characterised by sporting activities and activities which generate their own noise, making them less sensitive to external noise intrusion	External noise level 65 dB(A)		
	Passive recreation areas characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example reading, meditation School grounds used for teaching purposes are to be considered as passive recreation areas, where feasible and reasonable ***	External noise level 60 dB(A)		
	Community centres	Depends on the intended use of the centre. Refer to the recommended upper internal levels in AS/NZS 2107:2016 for specific uses		
	Industrial premises	External noise level 75 dB(A)		
	Offices, retail outlets	External noise level 70 dB(A)		
	Other noise sensitive land uses as identified in AS/NZS 2107:2016	Refer to the noise levels in AS/NZS 2107:2016		

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response

Residential receptors

For residential dwellings, management actions must be implemented as per EPR NV4 if noise from construction works during normal working hours is predicted to or does exceed the noise management levels for normal working hours below.

Noise from construction works during weekend/evening work hours and the night period must meet the weekend/evening and night period noise guideline targets in the table below unless they are Unavoidable Works verified by the Independent Environmental Auditor as per EPR NV4. All reasonable strategies to mitigate the impacts of such Unavoidable Works must be applied.

Time of day	Construction noise guideline targets
Normal working hours: 7 am–6 pm Monday to Friday 7 am–1 pm Saturday	– Noise affected: Background LA90+10 dB – Highly noise affected: 75 dB(A) *Source: NSW Interim Construction Noise Guideline (ICNG) Chapter 4.1.1 Table 2* – The noise affected level represents the point above which there may be some community reaction to noise – The highly noise affected level represents the point above which there may be strong community reaction to noise.
Weekend/evening work hours: 6 pm–10 pm Monday to Friday 1 pm–10 pm Saturday 7 am–10 pm Sunday and public holidays	– Noise level at any residential premises not to exceed background noise (LA90) by: 10 dB(A) or more for up to 18 months – 5 dB(A) or more after 18 months *Source: EPA Publication 1834 Chapter 4*
Night period: 10 pm–7 am Monday to Sunday	– Noise inaudible within a habitable room of any residential premises *Source: EPA Publication 1834 Chapter 4*

Note:

** Where any reference is made to the rating background level (RBL) or background LA90; the 'average background':*

- *it applies to each discrete time period to ensure that averaging does not necessarily occur over day, evening or night-time hours. For example, background noise between 0100 and 0400 may be substantially different to that between 2200 and 0100 and hence should not be averaged over the entire night time period; and*
- *over the assessment period as per Victorian noise policy practices is to be used. This applies to all receptors and all time periods.*

*** In relation to sensitive receptors, the construction noise guideline targets apply to construction works and construction compounds.*

**** Consultation with affected schools should be undertaken to designate the most sensitive areas where teaching occurs within school grounds.*

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
	Unavoidable Works Unavoidable Works must be verified by the Independent Environmental Auditor for each instance they are undertaken, as per EPR NV4 and include the following: – The delivery of oversized plant or structures that police or other authorities determine require special arrangements to transport along public roads – Emergency work to avoid the loss of life or damage to property, or to prevent environmental harm – Maintenance and repair of public infrastructure where disruption to essential services and/or considerations of worker safety do not allow work within standard hours – Tunnelling works including mined excavation elements and the activities that are required to support tunnelling works (ie spoil treatment facilities) – Road and rail occupations or works that would cause a major traffic hazard – Other works where a contractor demonstrates and justifies a need to operate outside normal working hours and exceed the noise guideline targets such as work that once started cannot practically be stopped.		
NV4	**Implement a Construction Noise and Vibration Management Plan (CNVMP) to manage noise and vibration impacts** Prepare, implement and maintain a Construction Noise and Vibration Management Plan (CNVMP) in consultation with EPA Victoria, relevant councils and relevant stakeholders. The CNVMP must comply with and address the Noise and Vibration EPRs, be informed by the noise modelling and monitoring results and must include (but not be limited to): – Identification and assessment of noise and vibration sensitive receptors along the project alignment, including but not limited to: – habitat for listed threatened fauna likely to be impacted by the project (refer to EPR FF8) – buildings used for shop, gallery, commercial, office or industrial purposes including Bulleen Art and Garden and the Heide Museum of Modern Art – school buildings and school grounds – residential buildings – Construction noise and vibration targets as per EPRs NV3, NV5, NV8, NV9, NV10, NV11 and NV12, including any details of conversions between alternative metrics – Details of construction activities and an indicative schedule for construction works, including the identification of key noise and/or vibration generating construction activities that have the potential to generate airborne noise and/or surface vibration impacts on surrounding sensitive receivers – How construction noise (including truck haulage) and vibration would be minimised (see EPR T2) – A requirement for preliminary tests using the actual equipment to validate modelling for vibration and regenerated noise and review, with predictions to be remodelled as necessary and confirm prevention/mitigation/remediation measures confirmed – Management actions and notification and mitigation measures to be implemented with reference to the Appendix B and Appendix C of the New South Wales Roads and Maritime Services Construction Noise and Vibration Guideline 2016 (CNVG) – Any processes and measures to be implemented as part of the Communications and Community Engagement Plan including managing matters of interest raised by key stakeholders through CCEP processes, and measures concerning complaints management (see EPR SC2) – Requirements to assess and manage vibration impacts to scientific or medical establishments to the higher of ambient levels or ASHRAE VC Standards (as defined in the 2015 handbook), or manufacturers equipment levels (unless by agreement with occupant) – Measures to ensure effective monitoring of noise and vibration associated with construction with consideration to the construction noise and vibration targets – Measures to minimise noise and vibration impacts from temporary traffic diversions and altered access to parking facilities .	CONSTRUCTION	**Construction** A CNVMP will be developed and implemented on the Project and will includes measures to meet the construction noise and vibration guideline targets. The CNVMP includes requirements for noise modelling to predict impacts on sensitive receivers and establish noise management levels, which will inform mitigation measures. The CNVMP has been prepared in consultation with the EPA and relevant councils. The CNVMP is to be verified by the IEA in compliance with the requirements of the EMF.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
	The Unavoidable Works (refer to EPR NV3) that would be undertaken, including their location, timing and duration. The CNVMP must either include a clear rationale for defining works or a list of the type of planned works that constitute Unavoidable Works and response strategies to mitigate the impacts of these Unavoidable Works, consistent with Chapter 4 of EPA Victoria Publication 1834 Civil construction, building and demolition guide and with reference to Appendix B and Appendix C of the CNVG. The Independent Environmental Auditor must verify that the proposed Unavoidable Works meet the definition of Unavoidable Works (refer to EPR NV3) for each instance they are undertaken. Details of Unavoidable Works must be made publicly available. For emergency Unavoidable Work, a rationale must be provided to the satisfaction of the Independent Environmental Auditor as soon as practicable Noise from construction works during weekend/evening work hours and the night period must meet the weekend/evening work hours and night period noise guideline targets unless they are unavoidable works verified by the Independent Environmental Auditor. All reasonable measures must be implemented to mitigate the impacts of such unavoidable works. A clear framework for managing Unavoidable Work must be developed and include noise level thresholds and details of mitigation measures. The framework must be approved by the Independent Environmental Auditor. The CNVMP must be reviewed (including consultation with external stakeholder as required) and updated as appropriate on a six monthly basis, and verified by the Independent Environmental Auditor. *Note: * The CNVMP applies to construction works and construction compounds.*		
NV5	**Establish vibration guidelines to protect utility assets** Prior to commencement of relevant works, undertake condition assessments of above and below ground utility assets (EPR GM3) and consult with asset owners to establish and agree construction vibration guidelines to maintain asset integrity. In all cases the asset owner's criteria takes precedence. Where construction vibration guidelines are not proposed by the asset owner, reference should be made to the relevant sections of German Standard DIN 4150 — Part 3 — Structural Vibration in Buildings — Effects on Structures (2016) for guideline assessment procedures for buried pipework or underground infrastructure. The integrity of the asset should be reviewed and assessed (by the contractor, in conjunction with the asset owner) to confirm these values are appropriate. If necessary, based on this assessment, limits must be reduced to the level necessary to maintain asset integrity. Monitor vibration levels during construction to demonstrate compliance with agreed vibration guidelines. Identify contingency measures to be implemented if guidelines are not met. Where necessary rectify any defects that are attributable to the project. An overview of the key vibration guidelines values is presented below. In all cases, the supporting documentation within the Standard which describes, clarifies and sometimes modifies the tables below must be considered.	CONSTRUCTION	**Construction** A CNVMP will be developed and implemented on the Project and will include measures to meet the construction noise and vibration guideline targets. The CNVMP is to be verified by the IEA in compliance with the requirements of the EMF.

6. Compliance with Environmental Performance Requirements

<table>
<tr><th>EPR code</th><th>Environmental Performance Requirement</th><th>Phase</th><th>UDLP response</th></tr>
<tr><td></td><td>
Table 2 Guideline values for vi, max, for evaluating the effects of short-term vibration on the lining of underground cavities
<table>
<tr><th>Line</th><th>Lining Material</th><th>Guideline values for vi, max in mm/s perpendicular to lining surface</th></tr>
<tr><td>1</td><td>Reinforced or sprayed concrete, tubbing segments</td><td>80</td></tr>
<tr><td>2</td><td>Concrete, stone</td><td>60</td></tr>
<tr><td>3</td><td>Masonry</td><td>40</td></tr>
</table>
Note: The guideline values were measured during nearby mine blasting operations and apply only to the lining of underground structures, but not to any associated installations.
Table 3 Guideline values for vi, max, for evaluating the effects of short-term vibration on buried pipework
<table>
<tr><th>Line</th><th>Lining Material</th><th>Guideline values for vi, max in mm/s perpendicular to lining surface</th></tr>
<tr><td>1</td><td>Steel, welded</td><td>100</td></tr>
<tr><td>2</td><td>Vitrified clay, concrete, reinforced concrete, prestressed concrete, metal (with or without flange)</td><td>80</td></tr>
<tr><td>3</td><td>Masonry, plastics</td><td>50</td></tr>
</table>
</td><td></td><td></td></tr>
<tr><td>NV6</td><td>Design permanent tunnel ventilation system and relevant fixed infrastructure to meet EPA requirements for noise
Design and construct the permanent tunnel ventilation system and relevant fixed infrastructure that is subject to EPA Publication 1826.4 Noise Protocol to achieve compliance with EPA Publication 1826.4 Noise Protocol and in accordance with the EPA Victoria Development Licence.
Where EPA Victoria Publication 1826.4 Noise Protocol does not apply, design and implement the permanent tunnel ventilation system to comply with the internal lower Recommended Design Sound Levels as defined in AS/NZS 2107 for the types of occupancies, relevant to spaces within the affected Category A and Category B buildings, as defined in EPR NV1.
If the existing internal background noise level within any identified relevant Category A or Category B buildings already exceeds the upper Recommended Design Sound Level in AS/NZS 2107 for the types of occupancies relevant to spaces within these buildings, then noise from the fixed plant associated with the Project must not exceed the existing background levels within these buildings.</td><td>DESIGN
CONSTRUCTION</td><td>The Project does not include any road tunnels. Therefore, this requirement for tunnel ventilation is not relevant to the scope of this UDLP.</td></tr>
<tr><td>NV7</td><td>Monitor noise from tunnel ventilation system and relevant fixed infrastructure
Measure noise from the permanent tunnel ventilation system and relevant fixed infrastructure that is subject to EPA Publication 1826.4 Noise Protocol on commencing road operation and monitor noise from the tunnel ventilation system post opening of the North East Link, as agreed with EPA Victoria, to verify compliance with EPA Publication 1826.4 Noise Protocol and the EPA Victoria Operating Licence. Identify and implement contingency measures to be implemented if noise level limits are not met.</td><td>OPERATION</td><td>The Project does not include any road tunnels. Therefore, this requirement for tunnel ventilation is not relevant to the scope of this UDLP.</td></tr>
</table>

6. Compliance with Environmental Performance Requirements

<table>
<tr><th>EPR code</th><th>Environmental Performance Requirement</th><th>Phase</th><th>UDLP response</th></tr>
<tr><td>NV8</td><td>Minimise construction vibration impacts on amenity
Implement management actions if the following guideline target levels for vibration from construction activity to protect human comfort of occupied buildings (including heritage buildings) are not achieved (levels are calculated from the British Standard BS6472-1:2008 Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting.).
<table><tr><th>Type of space occupancy</th><th colspan="4">Vibration Dose Values (m/s1.75)</th></tr><tr><th></th><th colspan="2">Day (7am to 10pm)</th><th colspan="2">Night (10pm to 7am)</th></tr><tr><th></th><th>Preferred Value</th><th>Maximum Value</th><th>Preferred Value</th><th>Maximum Value</th></tr><tr><td>Residential</td><td>0.2</td><td>0.4</td><td>0.1</td><td>0.2</td></tr><tr><td>Offices, schools, educational institutions, places of worship</td><td>0.4</td><td>0.8</td><td>0.4</td><td>0.8</td></tr><tr><td>Workshops</td><td>0.8</td><td>1.6</td><td>0.8</td><td>1.6</td></tr></table>Notes:
1. The Guideline Targets are non-mandatory; they are goals that should be sought to be achieved through the application of practicable mitigation measures. If exceeded then management actions would be required.
2. The Vibration Dose Values may be converted to Peak Particle Velocities within a noise and vibration construction management plan.
3. For the purpose of this EPR, the guideline target levels for ‘offices, schools, educational institutions, places of worship’ also apply to the Heide Museum of Modern Art and the outdoor sculpture exhibition area at Heide Museum of Modern Art.</td><td>CONSTRUCTION</td><td>Construction
A CNVMP will be developed and implement don the Project and will include measures to meet the human comfort goals where reasonable and feasible.
The CNVMP is to be verified by the IEA in compliance with the requirements of the EMF.</td></tr>
<tr><td>NV9</td><td>Minimise construction vibration impacts on structures
Construction vibration targets for structures based on German Standard DIN 4150 — Part 3 — Structural Vibration in Buildings — Effects on Structures (2016) must be adopted. All sections of the German Standard DIN 4150 — Part 3 — Structural Vibration in Buildings — Effects on Structures (2016) standard apply, noting the guideline levels detailed in Section 5 and Section 6 (and any references sections).
An overview of the key vibration guidelines values is presented below. In all cases, the supporting documentation within the Standard which describes, clarifies and sometimes modifies the tables below must be considered.</td><td>CONSTRUCTION</td><td>Construction
A CNVMP will be developed and implemented and will include measures to meet the construction noise and vibration guideline targets.
The CNVMP is to be verified by the IEA in compliance with the requirements of the EMF.</td></tr>
</table>

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response

Table 1 — Guideline values for vibration velocity, vi, max, for evaluating the effects of short-term vibration on structures

Type of structure		Guideline values for vi, max in mm/s				
		Foundation, all directions, i = x, y, z, at a frequency of			Topmost floor, horizontal direction, i = x, y	Floor slabs, vertical direction, i = z
		1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz (a)	All frequencies	All frequencies
Column Line	1	2	3	4	5	6
1	Buildings used for commercial purposes, industrial buildings, and buildings of similar design	20	20 to 40	40 to 50	40	20
2	Residential buildings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15	20
3	Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of great intrinsic value (eg listed buildings)	3	3 to 8	8 to 10	8	20 (b)

Note: Even if guideline values as in line 1, columns 2 to 5, are complied with, minor damage cannot be excluded.

(a) At frequencies above 100 Hz, the guideline values for 100 Hz can be applied as minimum values.

(b) Paragraph 2 of 5.1.2 must be observed.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response

Type of building		Guideline values for vi, max, in mm/s	
		Topmost floor, horizontal direction, all frequencies	Floor slab, vertical direction, all frequencies
Column Line	1	2	3
1	Buildings used for commercial purposes, industrial buildings, and buildings of similar design	10	10
2	Residential buildings and buildings of similar design and/or occupancy	5	10
3	Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of great intrinsic value (eg listed buildings)	2.5	10 (a)

Note: Even if guideline values as in line 1, column 2, are complied with, minor damage cannot be ruled out.

(a) Section 6.1.2 must be observed.

(b) Vibration levels above apply to all works, including unavoidable works as defined in NV3.

NV10

Minimise impacts from ground-borne (internal) noise

Implement management actions in consultation with potentially affected land owners to protect amenity at residences where the following ground borne noise guideline targets based on Section 4.2 of the New South Wales Interim Construction Noise Guidelines are exceeded during construction

Time of Day	Internal noise level measured at the centre of the most affected habitable room
Evening (6 pm to 10 pm)	LAeq(15 minute) = 40 dBA
Night (10 pm to 6 am)	LAeq(15 minute) = 35 dBA

Notes

1. *Levels are only applicable when ground borne noise levels are higher than airborne noise levels.*
2. *Management actions include community consultation to determine acceptable level of disruption and provision of respite accommodation in some circumstances.*
3. *Noise levels above apply to all works, including unavoidable works as defined in NV3*

CONSTRUCTION

Construction

The Project will develop and implement a CNVMP.

The Project does not include any road tunnels. Therefore, this requirement that seeks to minimise impacts from ground-borne (internal) noise is unlikely to be triggered by the scope of works within this UDLP.

6. Compliance with Environmental Performance Requirements

<table>
<tr><th>EPR code</th><th>Environmental Performance Requirement</th><th>Phase</th><th>UDLP response</th></tr>
<tr><td>NV11</td><td>Minimise amenity impacts from blast vibration
Implement management actions if the following vibration values are not achieved. Blasting activities must comply with Australian Standard AS2187.2-2006, Explosives — Storage and use Part 2 — Use of explosives for all blasting.
<table><tr><th>Category (as defined in AS 2187.2-2006)</th><th>Type of blasting operations</th><th>Peak component particle velocity (mm/s)</th></tr><tr><td>Sensitive site</td><td>More than 20 blasts</td><td>5 mm/s for 95% blasts per year
10 mm/s maximum (unless by agreement with occupier)</td></tr><tr><td>Sensitive site</td><td>Less than 20 blasts</td><td>10 mm/s maximum (unless by agreement with occupier)</td></tr><tr><td>Non-sensitive site (with occupants)</td><td>All blasting</td><td>25 mm/s maximum value (unless by agreement with occupier).</td></tr><tr><td>Scientific equipment</td><td>All blasting</td><td>Existing ambient levels or ASHRAE VC Standards (as defined in the 2015 handbook) (whichever is the higher) or manufacturers equipment levels (unless by agreement with occupier)</td></tr></table></td><td>CONSTRUCTION</td><td>The Project does not include any blasting activities. Therefore, this requirement is not relevant to the scope of this UDLP.</td></tr>
<tr><td>NV12</td><td>Minimise amenity impacts from blast overpressure
Implement management actions if the following overpressure values are not achieved. Blasting activities must comply with Australian Standard AS2187.2-2006, Explosives — Storage and use Part 2 — Use of explosives for all blasting.
<table><tr><th>Category (as defined in AS 2187.2-2006)</th><th>Type of blasting operations</th><th>Peak component particle velocity (mm/s)</th></tr><tr><td>Sensitive site</td><td>More than 20 blasts</td><td>115 dBL for 95% blasts
120 dBL maximum (unless by agreement with occupier)</td></tr><tr><td></td><td>Less than 20 blasts</td><td>120 dBL for 95% blasts
125 dBL maximum (unless by agreement with occupier)</td></tr><tr><td>Occupied non-sensitive sites such as factories and commercial premises</td><td>All blasting</td><td>10 mm/s maximum (unless by agreement with occupier)</td></tr></table></td><td>CONSTRUCTION</td><td>The Project does not include any blasting activities. Therefore, this requirement is not relevant to the scope of this UDLP.</td></tr>
<tr><td>NV13</td><td>Noise mitigation — noise walls
Construction of permanent noise attenuation must, where feasible, be installed in advance of adjacent works. Where the ultimate wall cannot be constructed prior to demolition of the existing wall and noise sensitive premises will be exposed to significantly increased traffic noise for an extended period, install temporary noise walls where practicable</td><td>CONSTRUCTION</td><td>Construction
In locations where new permanent noise walls are being installed, the Project will aim to provide continuity of noise protection through the construction process, particularly to residential interfaces and schools. Final details of construction staging, including where temporary noise walls may be required, will be planned and implemented in accordance with the requirements of the CNVMP.</td></tr>
<tr><td>NV14</td><td>Reduce impacts from engine brake noise
Measures to encourage heavy vehicle drivers to reduce use of engine brakes must be considered and implemented, where practicable.</td><td>DESIGN
CONSTRUCTION
OPERATION</td><td>Design
The Project will optimise the permanent design to reduce potential for engine break usage.
Construction
The Project will ensure heavy vehicles are fitted with a maintained Original Equipment Manufacturer exhaust silencer or a silencer that complies with the National Transport Commission’s ‘In-service test procedure’ and standard.
Engine break noise mitigations will be included in the WEMPs to be developed for the Project.</td></tr>
</table>

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
NV15	**Noise at public open space and school recreation grounds** Predicted noise levels at existing public open space and school grounds detailed in updated noise modelling for the final design and as-built construction of the Project must not exceed the predicted design year noise levels detailed in the EES -Technical Appendix C. Noise monitoring at appropriate locations must be performed post construction to verify that predicted levels have been achieved. Monitoring must be performed 10 years and 20 years after Project opening.	DESIGN OPERATION	**Design** The Project is designed to achieve predicted design year noise levels. Additional noise modelling will be undertaken during the development of the design and suitable acoustic treatments, such as noise-reducing pavements, applied to the Project to ensure all relevant EPRs are met. Where required, additional mitigation measures will be assessed as part of the detailed design to ensure proposed noise attenuation adequately meets relevant EPRs. **Operation** Operational phase monitoring will be undertaken by returned asset owners.
NV16	**Monitoring of Ongoing performance of operational traffic noise mitigation measures** Permanent noise monitoring stations must be established in representative locations based on a programme developed in consultation with the IEA and the EPA, to enable the ongoing real time monitoring of operational traffic noise. Where open graded asphalt is used and is relied on to achieve compliance with noise limits the acoustic performance of the OGA must be assessed at least once in each 12 months to ensure that it continues to reduce operational traffic noise to the project traffic noise objectives in EPR NV1. *NELP interactive noise tool* The following information is to be made freely available on a publicly accessible website as interactive layers: – Existing (pre-Project) noise levels – Final operational road traffic noise contours for the Project – Operational noise criteria for the Project – Operational noise monitoring data for the Project. The maps are to be interactive so as to enable the public to locate their position on a map, identify the operational noise criteria and data relevant to their location and submit a query or complaint to NELP online.	OPERATION	**Operation** Performance of the Project's traffic noise mitigation measures will be monitored and managed by the State. Permanent noise monitoring stations and an interactive noise tool will be established by the State and developed in consultation with the IEA and EPA Victoria.
14. Social and Community (SC)			
SC1	**Reduce community disruption and adverse amenity impacts** Design and construct the project to reduce disruption to residences, community infrastructure facilities and open space from direct acquisition or temporary occupation, to the maximum extent reasonably possible to preserve acceptable levels of amenity.	DESIGN CONSTRUCTION	**Design** Where possible, the Project infrastructure has been located to reduce disruption to residences, or direct acquisition or temporary occupation of community infrastructure and open space, and to preserve acceptable levels of amenity. Many of the locations of permanent infrastructure have been determined by the location of existing bridges and the Eastern Freeway design. **Construction** The Project will develop and implement a CCEP and CCPs that will include initiatives to mitigate the risk of community disruption and adverse amenity impacts.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
SC2	**Minimise and manage impacts of land acquisition and occupation** Where private land is to be permanently acquired or temporarily occupied, the project must: – Minimise the extent of the acquisition or the extent or duration of the occupation – Use a case-management approach for project interactions with affected land owners and occupants including appointing a social worker, buyers' advocate or equivalent to assist households with special needs to manage the transition, except where a land owner or occupier has requested not to be part of such assistance – Endeavour to reach agreement on the terms for possession of the land including purchasing properties early when identified for permanent acquisition and agreed by the landowner – Consider the relative vulnerability and special needs of land owners and occupants – Communicate likely timing and steps to be taken including updates as relevant – Return private land not required for permanent project infrastructure to its pre-existing use post-construction as soon as practicable, unless otherwise agreed with the land owner – Where public land is to be permanently acquired or temporarily occupied, the project will: – Minimise the extent of the acquisition or the extent or duration of the occupation – Stage works to the greatest extent reasonably possible to maintain functionality of the land for all users either within the site or on proximate land, subject to the Public Open Space Relocation and Replacement Plan required by EPR LP5 – Endeavour to reach agreement with the land manager on the terms for possession of the land – Return public land not required for permanent project infrastructure to its pre-existing use post-construction as soon as practicable, including with all relevant reinstatement works, unless otherwise agreed with the land manager – In the case of public land used for formal active recreation, ensure that impacts are minimised in accordance with SC5.	DESIGN CONSTRUCTION	**Design** There is no compulsory acquisition of private land required in this UDLP area. **Construction** The Project will develop a Land Access Management Plan to be reviewed and approved by NELP. During construction, the Project will minimise temporary occupation of any private and public land, including for construction access. Where access to land is required, the Project will stage access and only use land as required. The acquisition of public land is necessary to build the approved project solution. Where possible, the design of the permanent Project infrastructure such as pedestrian and cycling bridges and road bridges have been determined by the location of existing bridges and Eastern Freeway design to minimise the extent of permanent acquisition of public land. The temporary occupation of open space has been carefully considered and staged with construction works and planned to return the land to the pre-existing use/condition as soon as possible or as otherwise agreed with the landowner/manager. The Land Access Management Plan and Asset Transfer Strategy will detail the process for returning land to the appropriate land owner/manager.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
SC3	**Implement a Communications and Community Engagement Plan** Prior to construction, prepare and implement a Communications and Community Engagement Plan to engage the community and potentially affected stakeholders and communicate progress of construction activities and operation. The plan must include: A process for identifying community issues and the recording, management and resolution of complaints from affected stakeholders including business owners, community service providers, education providers, public and active transport key user groups and residents, consistent with Australian Standard AS/NZS 10002:2014 Guidelines for Complaint Management in Organisations *Approach to stakeholder identification* Enquiry management and record keeping approach and procedures including making available an attended 24-hour telephone number, postal address, and an email address and publishing these on the project website Approach to communicating and engaging with the community and potentially affected stakeholders in relation to: – Construction activities including temporary facilities and impacts that may affect the community, businesses or individual stakeholders (eg dust, noise, vibration and light) and relevant mitigation (eg relocations policy) – Changes to transport conditions and relevant mitigation (eg road closures, detours) – Timelines and an outline of works that will affect particular local areas, to be updated to reflect current and anticipated conditions – Identifying how stakeholders can access information on environmental performance that is to be made publicly available – Incident and emergency communications, including notification methods and timeframes in the event of a major incident or overrun – Approach and processes to ensure that the workforce has appropriate community awareness and sensitivity including to prevent the workforce from parking in local roads and in public parking in the vicinity of local shopping areas except when frequenting those areas for private purposes. – Innovative communications tools and methods to enhance the project's ability to effectively communicate and engage with the community and stakeholders including best available technology in addition to conventional means – Approach to engaging with local schools to ascertain safety requirements (including evacuation procedures) and to provide education opportunities on project activities. – Approach to making relevant project information available to the community, including updates on project works, with specific consideration to vulnerable groups (including culturally and linguistically diverse groups) and a responsive process for resolving complaints by vulnerable groups or individuals – How it will evaluate the effectiveness of the communication and engagement under the Communications and Community Engagement Plan. The Communications and Community Engagement Plan must consider and where appropriate address matters of interest or concern to the following stakeholders, and provide for the appointment of a dedicated liaison officer (as appropriate): – Municipal councils – Recreation, sporting clubs and community groups – Schools and other educational institutions – Potentially affected residents and property owners – Potentially affected business – Other public facilities in proximity – Traditional Custodians – Religious and worship groups – Vulnerable groups – Public transport users.	DESIGN CONSTRUCTION OPERATION	**Design** This UDLP has been informed by consultation with key stakeholders such as councils, agencies and the community, as per the requirements of the North East Link Incorporated Document (December 2019, amended September 2023). **Construction and operation** The Project will prepare and implement a CCEP to guide community engagement and communications through construction and operation of the Project. The Plan will align with the requirements of EPR SC3, including: – identify community issues and recording, managing, and resolving these issues – maintain regular engagement and timely communications such as letterbox drops, newsletters, community meetings – host information sessions and social media posts, to maintain awareness of the Project and communicate overall Project benefits – ensure stakeholders are kept informed of construction progress and acknowledge and work through community and stakeholder – identify and respond to or communicate any other matters of interest or concern. The CCEP is to be verified by the IEA in compliance with the requirements of the EMF.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
SC4	**Participate in the Community Liaison Group** Contractors must participate in the Community Liaison Group (CLG) that has been established and managed by North East Link Project, to facilitate community and stakeholder involvement for the design and construction phases of the project. Participation must include: – Attendance at meetings – Regular reporting of design and construction activities – Timely provision of relevant information, including response to issues raised by the group – Regular reporting and monitoring of community feedback, impacts and discussion of mitigation measures and their effectiveness.	DESIGN CONSTRUCTION	**Design and construction** The design will be informed by consultation with key stakeholders such as councils and the community, through public exhibition activities during the public exhibition period. The Project will participate in the Community Liaison Group and the Business Liaison Groups established by NELP, as required, which will include feedback and responses to project issues, as required by the EPR.
SC5	**Minimise impacts of displacement of formal active recreation facilities** The project must be designed and delivered to minimise displacement of formal active recreation facilities including facilities on private land such as schools. Where formal active recreation facilities are displaced by the construction or operation of the project, the project must facilitate the reasonable relocation of all such facilities to enable their continued functionality at a reasonable level of service for those activities (except where otherwise agreed with the relevant facility owner or where other compensation is provided by agreement or under relevant legislation). The Proponent must work in collaboration with facility operators, local Councils, public land managers and relevant State authorities, to prepare and implement a Formal Active Recreation Facilities Relocation Plan. The Plan must: – seek to relocate all formal active recreation facilities to reasonable relocation sites to the extent possible before existing facilities are discontinued – document measures to be provided by the Proponent to provide reasonable replacement facilities at all relocation sites – where facilities are not permanently displaced, document measures to be provided by the Proponent to restore facilities that have been vacated to at least the same standard than when the use was discontinued, accounting for identified growth of clubs (where applicable) and for any decline in condition of the facility during the time of disuse – consider and provide a suite of reasonable measures to enable the ongoing viability of relevant sporting and recreation clubs affected by displacement and to reduce material disadvantage	DESIGN CONSTRUCTION OPERATION	**Design** NELP has developed and implemented, in consultation with relevant councils and other stakeholders such as sports clubs, a Formal Active Recreation Facilities Relocation Plan for sports clubs impacted by the North East Link Program. The design has minimised impacts to formal active recreation facilities, including facilities on private land such as schools, to avoid any permanent displacement or encroachment into these facilities as a result of Project works. **Construction** Consultation will occur through the UDLP process with relevant councils and any impacted recreational groups. Reinstatement and restorative works will be undertaken prior to Project completion. Design and construction teams will work collaboratively on programming works, minimising construction footprint and assessing options (where possible) to drive the best outcomes for the community. The Project team will work closely with NELP on stakeholder liaison. **Operation** WEMPs developed for the Project which will include actions to mitigate construction work impact on recreation facilities.
SC6	**Minimise impacts on formal active recreation and other facilities** Where construction or operation activities directly impact formal active recreation facilities or community infrastructure facilities not on public land such as schools, child care centres, and aged care centres, consultation must occur with facility operators, owners and user groups of the facilities to understand and, implement any practical measures that can be taken to avoid or minimise impacts. Such measures must provide for the continued operation of each facility (except where the facility is permanently displaced), with suitable access, provision of generally proximate parking comparable to predevelopment conditions (where possible), reasonable protection of amenity, and maintenance of the current level and nature of activity, except where otherwise agreed with relevant facility owners.	DESIGN CONSTRUCTION OPERATION	**Design** The design has minimised impacts on formal recreation facilities or community infrastructure facilities not on public land such as schools, child care centres, and aged care centres. Consultation is underway with operators of key facilities to inform any specific design considerations. **Construction and operation** Further consultation will occur with facility operators, owners and user groups of the facilities to understand and implement any practical measures that can be taken to avoid or minimise ongoing construction impacts. A CCEP will also be developed and implemented by the Project. Additionally, relevant sub-plans, such as traffic management plans, will be developed to address relevant functionality and access requirements in consultation with relevant stakeholders. Communications and Community Engagement Sub-plans will also be developed as required, outlining measures to minimise construction impacts on formal active recreation facilities or community infrastructure facilities not on public land such as schools, child care centres, and aged care centres. Controls may include notification to stakeholders of construction activities and contingency measures where disruptions cannot be avoided. Details of full compliance with this EPR are also provided in the detailed design process.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
SC7	**Implement a Community Involvement and Participation Plan (CIPP)** Develop and implement a CIPP in consultation with local councils for communities within those council areas affected by the impacts of the Project, in order to improve community connectedness and cohesiveness, enhance the local area and create a positive project legacy. The plan must include: – Identification of affected communities relevant to the CIPP – Approach and processes for funding allocation with funding to be proportionate to the level of impact on each community – Identification of types of initiatives that the CIPP may facilitate including community led, community partnership programs; community support grants; community events; sponsorships of local sporting clubs; small capital works projects targeting community, sporting and recreation facilities.	CONSTRUCTION OPERATION	**Construction and operation** NELP has developed and implemented a CIPP in consultation with relevant local councils, in accordance with the requirements of this EPR.
SC8	**Implement a voluntary purchase scheme for residential properties** Develop and implement a voluntary purchase scheme for residential properties that satisfy defined criteria relating to significant amenity impacts. The voluntary purchase scheme must include principles and criteria for eligibility of residential properties for inclusion in the voluntary purchase scheme. The principles and criteria must be developed having regard to: – Construction impacts including proximity of the residential property to major works and likely extent and duration of proximate works; and – Built form impacts on the residential property including visual intrusion and overshadowing. – In applying the principles and criteria of the voluntary purchase scheme, consideration must also be given to the presence of vulnerable occupants of residential properties.	CONSTRUCTION OPERATION	**Construction and operation** NELP has developed a Voluntary Purchase Scheme for residential properties that satisfy defined criteria relating to significant amenity impacts (including overshadowing and visual intrusion). The scheme will be applicable to residents affected by the final project design, where defined criteria are met. However, the Project will be required to minimise any impacts through design and construction.
15. Surface Water (SW)			
SW1	**Discharges and runoff to meet State Environment Protection Policy (Waters)** Meet the State Environment Protection Policy (Waters) requirements for discharge and run-off from the project, including by complying with the Victorian Stormwater Committee's Best Practice Environmental Management Guidelines for Urban Stormwater (as published by CSIRO in 1999 with assistance from EPA Victoria and others).	DESIGN CONSTRUCTION OPERATION	**Design, construction and operation** The proposed drainage design and WSUD will meet the State Environment Protection Policy (Waters) — also referred to as Environmental Reference Standard (ERS) — for discharge and runoff from the Project, including by complying with the Victorian Stormwater Committee's Best Practice Environmental Management Guidelines (BPEMG) for urban stormwater. Pollutants potentially generated by the Project and WSUD mitigation measures will be assessed using MUSIC ('Model for Urban Stormwater Improvement Conceptualisation') software to confirm compliance with the BPEMG. This MUSIC model will be further updated during the detailed design phase to further ascertain the level of pollutant reduction to be achieved and where additional WSUD features may be required.
SW2	**Design and implement spill containment** Design and construct the spill containment capacity of the stormwater drainage system for all freeway pavements (including ramps) to manage the risk of hazardous spills from traffic accidents at or prior to every stormwater outlet, to meet AustRoads requirements (Part 5 Drainage — General & Hydrology Considerations). The design and location of spill containment must consider the risk and potential impact of a spill, as well as the effectiveness in reducing the risks associated with a spill on the environment. Develop procedures for freeway roads and ramps to be implemented in response to a hazardous spill. The OEMP must include requirements to maintain spill containment infrastructure and implement associated procedures.	DESIGN CONSTRUCTION OPERATION	**Design** Spill containment capacity of the stormwater drainage for all Freeway pavements will be considered in the detailed design phase. **Construction and operation** The Project will be constructed with consideration of spill containment capacity of the stormwater drainage system for all freeway pavements. The CEMP will include further requirements to address this EPR.
SW3	**Waste water discharges to be minimised and approved** The Surface Water Management Plan (refer EPR SW5) and OEMP must include requirements and methods for minimising, handling, classifying, treating, disposing and otherwise managing waste water. Any proposed discharge of waste water from the site must be approved by the relevant authority prior to discharges occurring and meet the State Environment Protection Policy (Waters) requirements.	CONSTRUCTION OPERATION	**Construction and operation** The Project will prepare and implement a Surface Water Management Plan (SWMP) for construction in consultation with the EPA. The SWMP will include requirements and methods for minimising, handling, classifying, treating, disposing and/or otherwise managing wastewater. All proposed discharge of wastewater from the site will be approved by the relevant authority prior to discharges occurring and will meet Victorian Government requirements. The SWMP is to be verified by the IEA in compliance with the requirements of the EMF.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
SW4	**Monitor water quality** Develop and implement a surface water monitoring program prior to commencement of, and during construction, to assess surface water quality in multiple locations at suitable distances upstream and downstream of works to establish baseline conditions, and enable assessment of construction impacts on receiving waters. The surface water quality monitoring program must be implemented for a period up to three years after commencement of North East Link operation, or a lesser period agreed with the EPA, to assess the discharges and runoff from the project against SEPP (Waters) requirements and confirm the effectiveness of environmental controls. The monitoring program must be developed in consultation with EPA Victoria and the asset owner/manager and as appropriate with reference to applicable policies and guidelines, including SEPP (Waters), Victorian Stormwater Committee's Victoria Best Practice Environmental Management Guidelines for Urban Stormwater (as published by CSIRO in 1999 with assistance from EPA Victoria and others), EPA Victoria Publication 596 Point source discharges to streams: protocol for in-stream monitoring and assessment and Industrial Waste Resource Guideline 701 Sampling and analysis of waters, wastewaters, soils and wastes. The surface water monitoring program is to be used to inform the development and refinement of the Surface Water Management Plan (EPR SW5).	DESIGN CONSTRUCTION OPERATION	**Design** The surface water monitoring program will be developed incorporating relevant requirements relating to the design, ensuring that monitoring locations are suitable based on the extent of work and proposed activities. **Construction and operation** The Project will develop and implement the surface water monitoring program in consultation with EPA Victoria and the asset owner/ manager as appropriate, with reference to applicable policies and guidelines. A SWMP for construction will be developed and implemented in consultation with EPA Victoria. The SWMP is to be verified by the IEA in compliance with the requirements of the EMF.
SW5	**Implement a Surface Water Management Plan during construction** Develop and implement a Surface Water Management Plan, in consultation with EPA Victoria, for construction that sets out requirements and methods for: – Best practice sediment and erosion control and monitoring, in general accordance with EPA Victoria publications 275 Construction techniques for sediment pollution control, 1834 Civil construction, building and demolition guide, and Industrial Waste Resource Guideline 701 Sampling and analysis of waters, wastewaters, soils and wastes – Maintaining the key hydrologic and hydraulic functionality and reliability of existing flow paths, drainage lines and floodplain storage – Retain existing flow characteristics to maintain waterway stability downstream of construction – Location and bunding of any contaminated material (including tunnel spoil and stockpiled soil) to the 1% AEP flood level and to the requirements of EPA Victoria and the relevant drainage authority – Works scheduling to reduce flood related risks – Bunding of significant excavations including tunnel portals and interchanges to an appropriate level during the construction phase – Protecting against the risk of contaminated discharge to waterways when working in close proximity to potential pollutant sources (eg landfill or sewer infrastructure) – Documenting the existing condition of all drainage assets potentially affected by the works (including their immediate surrounds) to enable baseline conditions to be established and potential construction impacts on these assets to be assessed and managed.	CONSTRUCTION	**Construction** The Project will develop and implement a SWMP for construction in consultation with EPA Victoria. The SWMP is to be verified by the IEA in compliance with the requirements of the EMF.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
SW6	**Minimise risk from changes to flood levels, flows and velocities** Permanent works and associated temporary construction works must not increase overall flood risk at relevant locations or modify the flow regime of waterways without the acceptance of the relevant flood plain manager, drainage authority or asset owner (typically Melbourne Water) and in consultation with other relevant authorities (eg Council, Department of Transport, Parks Victoria, SES, emergency services). Prior to commencement of relevant works, flood risk should be appropriately assessed using modelling of the design of permanent and temporary works to demonstrate the resultant flood levels and risk profile in accordance with Melbourne Water Standards for Infrastructure Projects in Flood-Prone Areas (2019). This modelling analysis is to include sufficient events (at least up to and including the 1% AEP event) and scenarios (eg with and without blockage) to support the estimation of tangible (eg average annual damages) and intangible flood damages. If significant increases in flood risk are predicted for any events analysed, an assessment of overall flood risk considering tangible and intangible flood damages must be prepared and presented with appropriate mitigation measures for the acceptance of the relevant drainage authority or asset owner prior to commencement of construction for the relevant section of the works. If there are significant design changes during construction, the model must continue to be updated, as appropriate to represent those changes.	DESIGN	**Design** The Project has carefully reviewed and considered the Incorporated Document (December 2019, amended September 2023) and all background materials in the EES process including EES Report, EES Technical Report, IAC Final Report and the Minister's Assessment (all publicly available on the Victoria Big Build's website); and is committed to appropriately mitigating potential surface water impacts as required by relevant EPRs. The response to SW6 is outlined below: – During the Detailed Design phase, relevant acceptances will be obtained through consultation with relevant authorities (particularly having regard to floodplain management authority, in this case, Melbourne Water) thereby minimising risk from changes to flood levels, flows and velocities. – The UDLP shows the final built form for the design as required by the Incorporated Document. Design details such as flood levels or exact flow paths and velocities are not required to be shown, however have been considered in development of this UDLP. – The UDLP plans have incorporated annotations confirming that all amenities and facilities will be placed and maintained with ultimate future owners (which does not preclude floodplain management authority). – The design of permanent structures, buildings and landscaping is informed by flood modelling, which demonstrates any change to overall flood risk and includes an analysis of sufficient events up to and including the 1% AEP, and scenarios to support tangible and intangible flood damages and proposed mitigations). – During the Design Packages review period, the Project will actively carry out consultation with relevant authorities as required, which may include coordination meetings and workshops where reviews of design packages are undertaken so as to obtain relevant acceptances prior to commencement of relevant works in accordance with this EPR. – Prior to the commencement of development of permanent above-ground buildings or structures (excluding preparatory buildings and works), the acceptance of the relevant floodplain manager (Melbourne Water) will be obtained, where permanent or associated temporary constructions will increase overall flood risk or modify the flow regime of waterways.
SW7	**Develop flood emergency management plans** Develop and implement flood emergency management plans for each of construction and operation. Flood emergency management plans are to include but not be limited to measures to manage flood risk to construction sites (including consideration of scheduling works), the tunnels and tunnel portals including interchanges and substations, and operation, maintenance and emergency management procedures for flood protection works.	CONSTRUCTION OPERATION	**Construction and operation** The Project will develop and implement a Flood Emergency Management Plan (FEMP) for construction. The FEMP is to be verified by the IEA in compliance with the requirements of the EMF.
SW8	**Minimise impacts from waterway modifications** Where waterway or flow regime modification is necessary, modifications will be designed and undertaken in a way that mitigates to the extent practicable the effects of changes to flow and minimises, to the extent practicable, the potential for erosion, sediment plumes, impacts on bed or bank stability and exposure or mobilisation of contaminated material during construction and operation to the requirements of Melbourne Water or the relevant drainage authority. Waterway modifications are to be designed and undertaken in a way that supports the visual and aesthetic amenity and environmental conditions (including habitat, connectivity, refuge and hydraulic conditions) to support aquatic ecosystems of the waterways having regard to relevant strategies, policies and plans for that waterway and in consultation with Melbourne Water or the relevant drainage authority.	DESIGN CONSTRUCTION	**Design** Where waterway or flow regimes are to be modified, with a particular focus on Koonung Koonung modifications, these modifications will be designed and undertaken in consultation with Melbourne Water with the intent to mitigate (to the extent practicable) any negative effects, such as erosion or impacts on bank stability. Any residual impacts to nearby waterways will also be considered. This UDLP identifies the landscaping design elements relating to any modified waterways and considers the visual and aesthetic amenity and any environmental conditions of these waterways, such as the Koonung Koonung. This will include integrated water management techniques that maximise on site infiltration to reduce run off, maximise on site treatment, groundwater recharge and passive irrigation. **Construction** A SWMP will be developed and implemented and will consider the impacts resulting from the modification of waterways and the flow regime.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
SW9	**Maintain bank stability** Develop and implement appropriate measures to minimise erosion and protect bank stability of waterways affected by construction or operation activities both directly or indirectly (for example as a result of site access), to the requirements of Melbourne Water or the relevant drainage authority.	DESIGN CONSTRUCTION OPERATION	**Design** Where waterways or flow regimes will be permanently modified (for example the Koonung Koonung in some locations), appropriate mitigations will be included in the drainage design to maintain bank stability. Bank stability will be assessed as part of the geotechnical design process to the satisfaction of Melbourne Water or the relevant drainage authority. **Construction and operation** A SWMP that includes reference to erosion and sedimentation controls will be developed and implemented.
SW10	**Provide for access to Melbourne Water and other drainage assets** Provide adequate clearances and access for ongoing maintenance of Melbourne Water and other drainage authority assets to the requirements of the relevant drainage authority.	DESIGN CONSTRUCTION	**Design and construction** An Asset Allocation Strategy is being developed and will be implemented to manage access to stakeholder assets, including drainage authority assets. The permanent design will include adequate access for asset owners post construction. Adequate clearances and access will be provided for the ongoing maintenance of Melbourne Water and other drainage authority assets in the project area.
SW11	**Adopt Water Sensitive Urban and Road Design** Adopt and implement water sensitive urban design and integrated water management principles in the stormwater treatment design in consultation with the relevant flood plain manager, drainage authority, asset owner or land manager and in general accordance with the Urban Design Strategy, the specifications of the relevant local council as applicable, and VicRoads Integrated Water Management Guidelines (June 2013), the Victorian Stormwater Committee's Victoria Best Practice Environmental Management Guidelines for Urban Stormwater (as published by CSIRO in 1999 with assistance from EPA Victoria and others) and the DELWP Integrated Water Management Framework for Victoria (September 2017).	DESIGN CONSTRUCTION	**Design and construction** WSUD principles are being implemented on the Project in consultation with relevant authorities and land managers in accordance with this EPR and the UDS. Targeted consultation continues to occur with Melbourne Water and Councils as asset owners / and managers as part of detailed design and is part of the consultation process for this UDLP. The stormwater treatment design will consider the principles of WSUD and integrated water management.
SW12	**Minimise impacts on irrigation of sporting fields** Maintain existing storage and available water supply of a quality that is suitable for the irrigation of sporting fields impacted by the project as necessary in consultation with the impacted stakeholders.	DESIGN CONSTRUCTION OPERATION	**Design, construction and operation** A SWMP that includes initiatives to mitigate the impact of the Project on the irrigation of sporting fields will be developed and implemented.
SW13	**Consider climate change effects** The flood risk assessment (as required by EPR SW6) must consider current climate conditions as well as the potential effects of climate change on pre and post work scenarios for future climate conditions (i.e. increased rainfall intensity and sea-level rise) as predicted at the end of the asset's design life using RCP8.5 projections from CSIRO to the requirements of Melbourne Water or the relevant drainage authority.	DESIGN	**Design** The flood risk assessment (as required by EPR SW6) considers current climate conditions as well as the potential effects of climate change on pre and post work scenarios for future climate conditions in accordance with this EP requirement; which informs the design. It is also noted that drainage design has been appropriately considered and incorporated in this UDLP.
SW14	**Meet existing water quality treatment performance** Retain or replace existing water quality treatment assets to meet or exceed water quality treatment performance as originally designed for that asset. In consultation with relevant asset owner or land manager, consider climate change effects and the potential for improved treatment outcomes where practicable.	DESIGN CONSTRUCTION	**Design and construction** The Project will develop and implement a SWMP and WSUD to meet baseline as a minimum. In the SWMP, existing water quality treatment assets will be clearly outlined and where improvements through the WSUD strategy can be made are specified. The existing water quality treatment assets that may be affected by the Project will be assessed and managed to ensure baseline conditions are met or improved. This process also involves consultation with relevant asset owners and/or land managers and considers climate change effects and the potential for improved treatment outcomes where practicable.
SW15	**Water Sensitive Urban Design asset transfer strategy** Prepare a strategy identifying Water Sensitive Urban Design assets constructed as part of the Project to be transferred to public authorities. The strategy must include a process to consult with relevant asset managers to confirm the relevant delivery and maintenance standards to be met.	DESIGN CONSTRUCTION OPERATION	**Design, construction and operation** The Project team will develop and implement an Asset Transfer Strategy, which will include the WSUD assets.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
16. Sustainability and Climate Change (SCC)			
SCC1	**Implement a Sustainability Management Plan** North East Link Project must set sustainability targets and specify ratings to be achieved under the Infrastructure Sustainability Council of Australia's Infrastructure Sustainability Rating Tool. Contractors must develop and implement a Sustainability Management Plan that contains measures to meet, as a minimum, the sustainability targets and specified ratings.	DESIGN CONSTRUCTION OPERATION	**Design and construction** A Sustainability Management Plan (SuMP) will be developed and implemented on the Project to support achievement of the Project's sustainability objectives and targets, including the Infrastructure Sustainability rating. The SuMP details the measures in place to meet the sustainability targets and specified ratings for the Project. The SuMP is to be verified by the IEA in compliance with the requirements of the EMF. **Operation** The SuMP details that handover documentation must be prepared for the operator at the completion of the Project. This will include sustainability targets, operational sustainability initiatives, roles and responsibilities for objectives, reporting and review requirements.
SCC2	**Minimise greenhouse gas emissions** Integrate sustainable design practices which are best practice for major road and tunnel infrastructure projects into the design process and implement these to minimise, to the extent practicable, greenhouse gas emissions arising from construction, operation and maintenance of North East Link. In detailed design, select materials and consider energy and carbon during construction, to target: – At least a 30% reduction in carbon emissions from the construction of North East Link against an Infrastructure Sustainability Council of Australia (ISCA) verified base case calculated in accordance with their independent standards (IS v1.2 Ene-1 Level 3 or v2.0 equivalent) – Use of a minimum of 50% of renewable energy for electricity used to construct North East Link (IS v1.2 Ene-2 Level 1.5 or v2.0 equivalent) – Net zero emissions in the operation and maintenance of North East Link (excluding emissions from traffic) with reference to the IS v2.0 energy and carbon guideline – Reduction of the amount of Portland Cement content in concrete across the project by a minimum of 30% against Green Building Council of Australia reference mix design levels subject to durability and strength requirements.	DESIGN CONSTRUCTION OPERATION	**Design and construction** A SuMP will be developed and implemented on the Project to support achievement of the Project's sustainability objectives and targets, including the Infrastructure Sustainability rating. The SuMP details the measures in place to meet the sustainability targets and specified ratings for the Project. The SuMP is to be verified by the IEA in compliance with the requirements of the EMF. **Operation** The SuMP details that handover documentation must be prepared for the operator at the completion of the Project. This will include sustainability targets, operational sustainability initiatives, roles and responsibilities for objectives, reporting and review requirements.
SCC3	**Apply best practice measures for energy usage for tunnel ventilation and lighting systems** Best practice measures for energy usage are to be applied for the tunnel ventilation and lighting systems in accordance with the Protocol for Environmental Management (Greenhouse Gas Emissions and Energy Efficiency in Industry), the EPA Victoria Development Licence and the EPA Victoria Operating Licence.	DESIGN OPERATION	The Project does not include any road tunnels. Therefore, this requirement for tunnel ventilation is not relevant to the scope of this UDLP.
SCC4	**Minimise and appropriately manage waste** Develop and implement management measures for waste (excluding soils) minimisation during construction and operation in accordance with the Environment Protection Act 2017 waste management hierarchy and management options, to address: – Litter management – Construction and demolition wastes including, but not limited to, washing residues, slurries and contaminated water – Organic wastes – Inert solid wastes.	CONSTRUCTION OPERATION	**Design and construction** A SuMP will be developed and implemented on the Project to support achievement of the Project's sustainability objectives and targets, including the Infrastructure Sustainability rating. The SuMP details the measures in place to meet the sustainability targets and specified ratings for the Project. The SuMP is to be verified by the IEA in compliance with the requirements of the EMF. **Operation** The SuMP details that handover documentation must be prepared for the operator at the completion of the Project. This will include sustainability targets, operational sustainability initiatives, roles and responsibilities for objectives, reporting and review requirements.
SCC5	**Minimise potable water consumption** Stormwater, recycled water and groundwater inflow to tunnels or other water sources must be used in preference to potable water for construction activities, including concrete mixing and dust control, where this is available, practicable, of suitable quality, and meets health and safety requirements.	CONSTRUCTION	**Design and construction** A SuMP will be developed and implemented on the Project to support achievement of the Project's sustainability objectives and targets, including the Infrastructure Sustainability rating. The SuMP details the measures in place to meet the sustainability targets and specified ratings for the Project. The SuMP is to be verified by the IEA in compliance with the requirements of the EMF. **Operation** The SuMP details that handover documentation must be prepared for the operator at the completion of the Project. This will include sustainability targets, operational sustainability initiatives, roles and responsibilities.

6. Compliance with Environmental Performance Requirements

EPR code	Environmental Performance Requirement	Phase	UDLP response
17. Traffic and Transport (TT)			
TT1	**Optimise design performance** Optimise the design of the works in consultation with appropriate road management authorities, public transport authorities, relevant land managers and local councils as part of the detailed design process to: – Minimise adverse impact on travel times for all transport modes, including walking and cycling – Maintain, and where practicable, enhance the traffic movements at interchanges and adjacent intersections within the project boundary – Design the road, walking and cycling and public transport elements to meet relevant road and transport authority requirements – Design any truncation of local access roads in consultation with directly affected residents – Maintain, and where practicable, enhance pedestrian movements, bicycle connectivity, and shared use paths, including access (both vehicular and pedestrian) to public open space and reserves – Work with relevant public transport authorities and road authorities to minimise impacts on buses, trams and rail and, where practicable, enhance public transport facilities and services that cross or run parallel to the alignment of North East Link – Replace and enhance commuter car parking, where affected by the Project, in consultation with the Department of Transport – Minimise loss of other car parking in consultation with relevant local councils and other directly affected stakeholders.	DESIGN	**Design** The Project seeks to optimise design performance as the design of the works is further developed through consultation with the appropriate road management authorities/public transport providers, land managers and local councils through detailed design. The Project does not include any road truncations. Any proposed changes to local road access will be conducted in consultation with directly affected residents and local councils as appropriate and in line with the IAP2 (International Association of Public Participation) Spectrum of Public Participation, to optimise design performance. The Project will not result in the permanent closure or change in access of any local roads that is beyond the project area, and no permanent changes to existing car parking provision is proposed. The Project will work closely with the transport arm of the Department of Transport and Planning, public transport operators, local councils and other directly affected stakeholders to minimise public transport disruptions and car parking loss. Where disruption or loss of car parking spaces is unavoidable, the Project will clearly communicate this information in a timely manner to relevant stakeholders and the local community.
TT2	**Transport Management Plan(s) (TMP)** Prior to commencement of relevant works, develop and implement Transport Management Plan(s) (TMP) to minimise disruption to affected local land uses, traffic, car parking, public transport (rail, tram and bus), pedestrian and bicycle movements and existing public facilities during all stages of construction. The TMP must be informed and supported by an appropriate level of transport modelling and must include: – Requirements for maintaining transport capacity for all travel modes in the peak demand periods – Requirements for limiting the amount of construction haulage during the peak demand periods – A monitoring program to assess the effectiveness of the TMPs on all modes of transport – Where monitoring identifies adverse impacts, implement practicable and appropriate mitigation measures – Consideration of construction activities for other relevant major projects occurring concurrently with construction activities for North East Link and potentially impacting modes of transport in the same area – Potential routes for construction haulage and construction vehicles travelling to and from the project construction site, recognising sensitive receptors and avoiding the use of local streets where practicable – Suitable measures, developed in consultation with emergency services, to ensure emergency service access is not inhibited as a result of project construction activities – Provision of alternative parking where practicable to replace public, private and commuter parking lost as a result of project construction activities – Requirements to minimise impacts on local streets, community and commercial facilities by providing parking for construction workers at construction compounds where practicable – Measures to ensure connectivity and safety for all transport network users during construction – Measures to limit the extent of road closures – Consultation with the Department of Transport, relevant transportation authorities and relevant local Councils. A TMP may be split into precincts where appropriate but must consider other precinct TMPs through the Transport Management Liaison Group as per EPR TT3. TMPs must be submitted to the relevant authority for approval.	CONSTRUCTION	**Construction** A Transport Management Plan will be developed and implemented prior to commencement of relevant works to minimise disruption to all affected land uses and transport modes during the construction of the Project. Worksite transport management plans will be approved by the relevant road authority. The Transport Management Plan is to be verified by the IEA in compliance with the requirements of the EMF.

EPR code	Environmental Performance Requirement	Phase	UDLP response
TT3	**Transport Management Liaison Group** A Transport Management Liaison Group (TMLG) must be established and convene prior to the commencement of any works that may impact on existing roads, paths or public transport infrastructure. The TMLG must include representatives from the State, the Department of Transport, emergency services, the project, relevant transportation authorities and relevant local councils. The TMLG will be a forum for exchange of information and discussion of issues associated with Transport Management Plans. This must include review of proposed haulage routes for construction sites to minimise reliance on a single haulage route between Bell Street and the M80 Ring Road and facilitate different sites using different haulage routes. The TMLG must be provided with the Transport Management Plans, details as to timing of implementation, information about construction traffic monitoring conducted by the project, relevant sections of road safety audit reports and other reports, as relevant. Where construction activities have the potential to significantly impact on specific stakeholder or community group facilities, the TMLG should be satisfied that there has been adequate consultation to inform the Transport Management Plans and should consider inviting stakeholder representatives to relevant TMLG meetings. The TMLG must meet at least monthly until the completion of construction.	DESIGN CONSTRUCTION	**Design and construction** NELP has established the Transport Management Liaison Group (TMLG) as part of the Early Works Program. The Project team will prepare and implement a Transport Management Plans which has been verified by the IEA. The Project representatives will attend the TMLG meetings and fulfil other obligations as specified in this EPR requirement.
TT4	**Road safety design** Undertake independent road safety audits after each stage of detailed design and during and after construction. The project design and operational activities must meet all relevant road and transport authority requirements with respect to transport network user safety.	DESIGN CONSTRUCTION OPERATION	**Design and operation** An independent Road Safety Auditor will undertake road safety audits during the design development, and post construction during the Project's operations to ensure relevant road and transport authority requirements relating to transport network user safety are met. **Construction** Independent road safety audits will be undertaken during the implementation of Worksite Traffic Management Plans for discrete Project stages or components.
TT5	**Traffic monitoring** Undertake traffic monitoring on selected roads (arterial and nonarterial) identified in consultation with the relevant transportation authorities and local council pre-construction, at six monthly intervals during construction, and up to two years after construction is complete. As part of the selection process, consideration must be given to roads that carry public transport services. Ensure any material adverse traffic impacts of the Project are mitigated by implementing local area traffic management strategies, including other works as required in consultation with the relevant road management authorities. Develop and implement traffic performance management to monitor conditions during construction. Real time traffic information must be provided to drivers.	DESIGN CONSTRUCTION OPERATION	**Design** The Project will develop and undertake a traffic monitoring program in accordance with EPR TT5. **Construction and operation** Monitoring will be undertaken in consultation with the relevant transportation authorities and local councils pre-construction, at six monthly intervals during construction, and up to two years after construction is complete. Operational phase monitoring is the responsibility of NELP.

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