



ARTWORK UNDER DEVELOPMENT

Richmond Road Upgrade - between M7 Motorway and Townson Road, Marsden Park
Urban Design and Landscape Plan

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Acknowledgement of Country

The Project is located on Country on which members and Elders of the local Indigenous community and their forebears have been custodians for many millennia and on which Aboriginal people have performed age-old ceremonies of celebration, initiation and renewal.

This document acknowledges the Elders, past, present and emerging of the Dharug People as the traditional custodians of the of the lands, waters and sky on which the Richmond Road Upgrade will be constructed.



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Terms and abbreviations

Abbreviation	Description
AAC	Autoclaved Aerated Concrete
Aboriginal cultural heritage	The tangible (objects) and intangible (dreaming stories, song lines and places) cultural practices and traditions associated with past and present day Aboriginal communities
AHO	Aboriginal Heritage Office
Alignment	The geometric layout (e.g. of a road) in plan (horizontal) and elevation (vertical)
AREF	Addendum Review of Environmental Factors
AS	Australian Standards
AT	Active Transport
ATL	Active Transport Link
BCA	Building Code of Australia
BNI	Blacktown Native Institution
Carriageway	The portion of a roadway used by vehicles including shoulders and ancillary lanes
CBD	Central Business District
CEMP	Construction Environmental Management Plan
CPTED	Crime Prevention Through Environmental Design
DCD	Developed Concept Design
DSMG	Dharug Strategic Management Group
DUAP	Department of Urban Affairs and Planning
EEC	Endangered Ecological Community
EES	NSW Department of Environment, Energy and Science
Embankment	An earthen structure where the road (or other infrastructure) is located above the natural surface

Abbreviation	Description
Entry/exit ramp	A ramp by which one enters/exits a limited-access highway
FDD	Final Design Documentation
FFMP	Flora and Fauna Management Plan
Flood immunity	Relates to the level at which a particular structure would be clear of a certain flood event
Footpath	The paved area in a footway
GANSW	Government Architect NSW
ISC	Infrastructure Sustainability Council
LED	Light emitting diode
LGA	Local Government Area
LMP	Landscape Management Plan
MAO	Medium performance level standard traffic barrier
UDLP	Urban Design and Landscape Plan
Place making	Place making is a people-centred approach to developing public and non-public spaces. It is about discovering the needs and aspirations of those who live, work and play in a particular place and creating a common vision for it
REF	Review of Environmental factors
RFT	Request For Tender
RL	Reduced Level
Road furniture	A general term covering all signs, street lights, protective devices for the control, guidance and safety of traffic and convenience of road users
Roads and Maritime	NSW Roads and Maritime Services (now TfNSW)
RSW	Reinforced Soil Wall

Abbreviation	Description
SDD	Substantial Detailed Design
Shared path	Paths provided for the use of both cyclists and pedestrians (including riders of wheeled recreational devices and wheeled toys).
Street tree	Trees located on public streets verges and medians
Swale	A shallow, grass-lined drainage channel
SWTC	Scope of Works and Technical Criteria
TfNSW	Transport for New South Wales
The Project	Richmond Road Upgrade
WSUD	Water sensitive urban design

Structure of the report



01. Introduction

This section provides a brief overview of the Project and relevant strategic documents.



02. Contextual Analysis

This section includes a summary project setting and features, drawn from the contextual analysis



03.
Urban Design
Approach

This section includes the urban design vision, objectives and principles including Connecting with Country considerations, and a strategy plan that shows the landscape and urban design elements



04.
Connecting with
Country

This section includes a summary of the approach to consultation with community, details of all engagement carried out to date, and their outcomes.



05.
Design Elements

This section includes all design elements and how each principle has been addressed. Details of various elements like soil retaining walls, bridges, and piers are introduced alongside the landscape design methodology, active transport, and planting schedule.



06.
Appendix -
Artist Brief

This section appends the Artist Brief document that was circulated to shortlisted Artists. This included a detailed schedule of the Connecting with Country Aboriginal Artist co-design process and details on each of the canvases identified.

1.0

Introduction

1.0 Introduction

1.1 Project background

Richmond Road is a state arterial road, 28.9km in length, located in Western Sydney, an area which is home to Australia’s third largest economy. The road extends between Blacktown and Richmond, and sits within the North West growth Area (NWGA). The NWGA is a planned development encompassing approximately 10,000 hectares and projected to house 250,000 people across 90,000 homes. The NSW Government is strategically planning for this growth by developing transport corridors to accommodate increased traffic and freight demands.

The NSW Government, recognising the need for enhanced connectivity and improved traffic flow has completed previous stages of the Richmond Road Upgrade and is now prioritising the Richmond Road Upgrade (M7 to Townson Road) (RRM7 or the Project).

The Project is a critical infrastructure initiative designed to achieve several key objectives:

- Easing congestion and improving travel times
- Enhancing traffic flow through key intersections
- Bolstering safety for all road users
- Improving connectivity between residential, commercial, and employment hubs
- Supporting pedestrian and cyclist safety through new shared paths.

These improvements will contribute to greater freight efficiency and support economic growth in the region.

1.2 Project overview

Each day over 89,000 vehicles travel through the Richmond Road and Rooty Hill Road North intersection. Road users currently experience heavy congestion, slow travel times and delays when travelling through the Richmond Road.

To ease congestion and improve traffic flow, the key upgrades include modifications to the M7 Motorway ramp, additional lanes on Richmond Road, and intersection upgrades at various locations, including Rooty Hill Road North.

The Project is divided into two separable portions:

Portion 1 (Northern Section)

This section extends from just North of the Townson Road junction to south of the intersection with Alderton and Langford Drives. It includes widening Richmond Road from four to six lanes. Construction will commence in October 2025 and will be complete by December 2026.

Portion 2 (Southern Section)

This section will focus on the construction of a flyover exit ramp from the M7 which crosses over Rooty Hill Road North, the construction of a new road/pedestrian and bikeway bridge over Bells Creek and the widening of Richmond Road from four to six lanes. It will incorporate additional turning lanes at the Rooty Hill Road junction and will join the southern point of Portion 1. Construction is expected to begin mid- 2026 and will be complete before the end of 2028.

In February 2025 TfNSW released a RFT for the Design and Construction of the Project. Gamuda Engineering Australia DT Infrastructure Joint Venture (GEA DTI JV) were the successful parties, and TfNSW executed the contract with GEA DTI JV on 23 October 2025.

1.3 Project Team

The development of the Project elements has been undertaken through an integrated urban design approach, including close collaboration with a multi-disciplinary team.

The project team is outlined below:

- Gamuda Engineering Australia and DT Infrastructure Joint Venture (GEA DTI JV) - Main contractor
- Aurecon - Civil and engineering design
- DesignInc - Urban design and landscape
- Nguluway DesignInc - Design from Country as a sub-consultant to DesignInc
- SESL - Soil science consultant as a sub-consultant to DesignInc.

1.4 Purpose of this report

GEA DTI JV is responsible for the design and construction of the Richmond Road Upgrade. DesignInc has prepared this Urban Design and Landscape Plan (UDLP) on behalf of GEA DTI JV for the detailed design of Portion 2 (Southern Portion).

The UDLP’s purpose is as a guiding document showcasing the overarching design philosophy and approach to inform the final technical design documentation (FDD), and to demonstrate that the design meets the measures outlined in the Richmond Road Upgrade REF Approval.

This UDLP is intended for use by the Contractor, TfNSW, and internal stakeholder engagement. This report will be updated at major project design milestones as the Detailed Design stage progresses.

This issue (Issue 3) has been prepared and delivered at a project milestone where design elements are still being finalised. The illustrations therefore continue to show work in progress, rather than a representation of the final detailed design and will be further developed as the project reaches Final Detailed Design stage.

Visualisations have been developed to showcase the proposed urban design solution. The artwork shown indicatively on the works are for visualisation purposes only and the actual artwork is currently under development. Likewise, landscaping is shown indicatively to represent the landscape over the life of the project and is not representative of the landscaping that would be present at the project completion.

1.5 Strategic Planning Setting

1.5.1 Strategies and Guidelines

The proposal is guided by the overarching best practice urban design principles and project-specific documents, project-specific principles and guideline documents:

Beyond the Pavement, TfNSW (2023).

This document includes nine key urban design principles that govern the planning and design of road infrastructure:

- Contributing to urban structure, urban quality and the economy
- Fitting with built fabric
- Connecting modes and communities and promoting active transport
- Fitting with the landform
- Contributing to green infrastructure and responding to natural systems- Connecting to Country and incorporating heritage and cultural contexts
- Designing an experience in movement
- Designing self-explaining roads that respond to their role and context
- Achieving integrated and minimal maintenance design.

TfNSW Urban Design Guidelines, including:

- Biodiversity guidelines: Protecting and managing biodiversity, September 2011
- Bridge aesthetics: Design guidelines to improve the appearance of bridges in NSW, February 2019
- Designing to minimise vandalism, November 2008
- Guideline for batter surface stabilisation using vegetation, April 2015
- Landscape design guideline: Design guideline to improve the quality, safety and cost effectiveness of road corridor planting and seeding, February 2017
- Water sensitive urban design guideline, March 2016
- TfNSW Tree and Hollow Replacement Guidelines 2023
- Safer Cities Survey Report, TfNSW, July 2023
- Urban Tree Canopy Guide, Government Architect NSW, 2017
- Connecting with Country Framework - Government Architect New South Wales, 2023
- Better Placed, Government Architect NSW, 2017
- Greener Places, Government Architect NSW, 2017

Project specific guidelines and planning approval documents:

- Vision for Country - Blacktown Native Insitute, COLA Studio, 2024
- Richmond Road Upgrade between M7 Motorway and Townson Road, Marsden Park Review of Environmental Factors November 2024
- Richmond Road Upgrade between M7 Motorway and Townson Road, Marsden Park REF Determination Report June 2025



2.0

Contextual analysis

2.0 Contextual analysis

2.1 Introduction

The following contextual analysis will be used to inform the urban design vision, approach and design strategy for the proposal. The analysis includes desktop studies, review of relevant planning frameworks, and site investigation. The chapter describes the site conditions and context relevant to the proposal scope.

2.2 Regional context

The proposal lies on the unceded Traditional lands of the Dharug people.

The proposal is located approximately 35 kilometres north-west of Sydney CBD/Eora (Figure 1), within the Blacktown Local Government area (LGA). The proposal traverses multiple suburbs including Deans Park, Oakhurst and Hassle Grove south of the Westlink M7 Motorway (M7), and Colebee and Marsden Park north of the M7. The M7 provides a principal connection between metropolitan Sydney and into the south-west suburbs.

The proposal is approximately 7km (13 minute drive or a 20 minute bus commute) from Blacktown Railway Station, which serves the T1 North Shore and Western Line and the T5 Cumberland Line, and a 7km (13 minute drive or a 40 minute bus commute) from Schofields Station, also on the T1 and T5 railway lines.

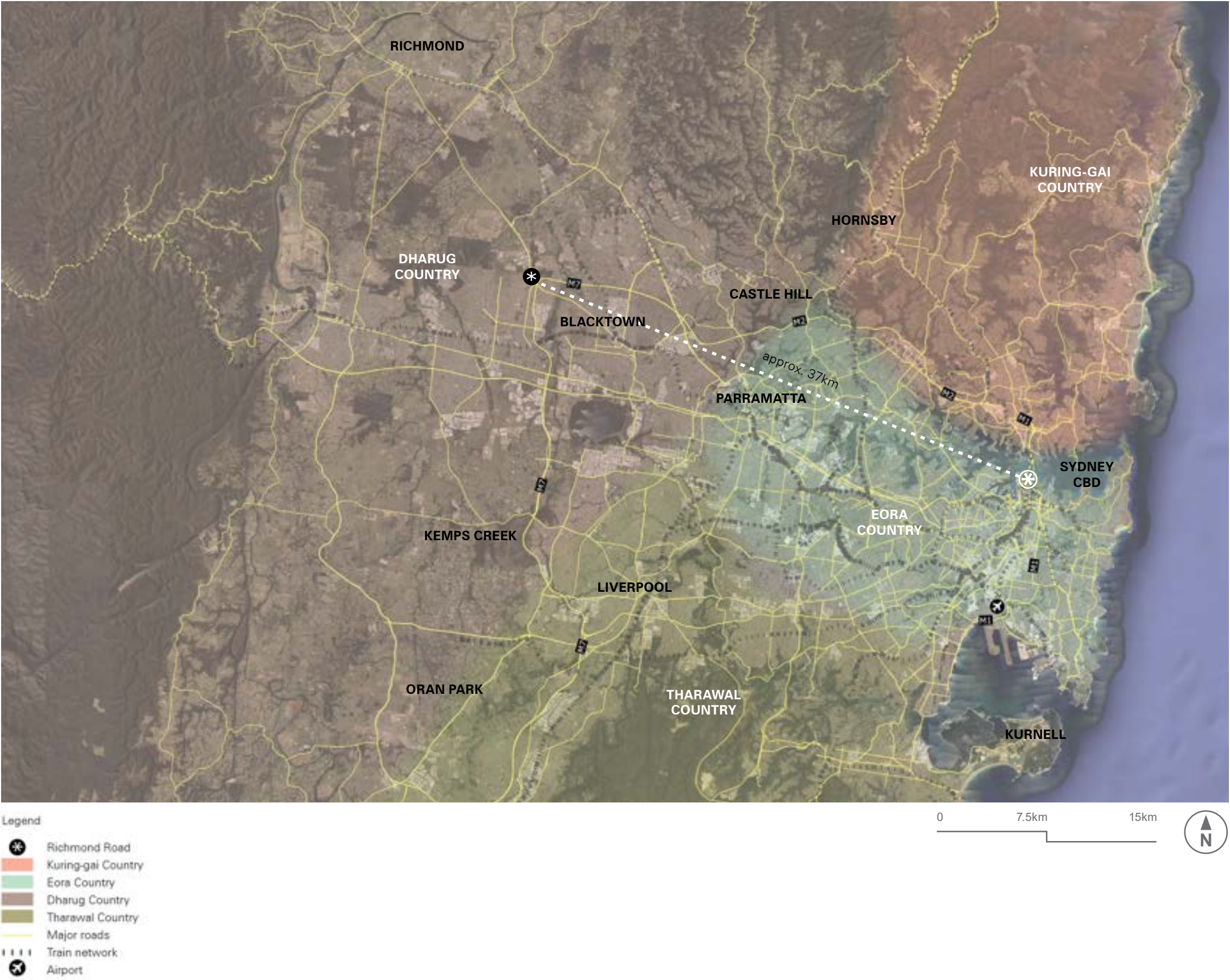


Figure 1: Richmond Road Upgrade regional context and representation of language, social and nation groups of Aboriginal Australia

2.3 Local context

The proposal shares boundaries with multiple townships including: Deans Park, Oakhurst and Hassle Grove south of the M7 Motorway; and Colebee and Marsden Park to the north.

Around the proposal area is a variety of land uses including: medium to low density residential in the south and north; terrestrial and scenic biodiversity north of the Westlink M7 Motorway (M7); and light industrial around the home-maker centre (Figure 2). There are also significant open spaces and green corridors including: the Blacktown Native Institution (BNI), Langford Park, Colebee Neighbourhood Park, and Stonecutters Ridge Golf Club.

Areas of cultural significance include the Blacktown Native Institution (BNI), the Colebee and Nurragingy Land Grant, Plumpton Ridge and the BAIT-UL-HUD Mosque.

Lands north of Langford Drive and Alderton Drive sit within the North West Growth Area (NWGA) and are undergoing rapid land development.

To the east of the proposal exists a fragmented riparian corridor with Bells Creek key waterway of the Richmond Road bridge crossing.

Considerations and opportunities:

- Respond to existing land uses through planting and material design and selection
- Enhance/ establish connections between fragmented open space and vegetation
- Ensure access to properties are maintained
- Provide/ enhance active transport connections between established and future communities

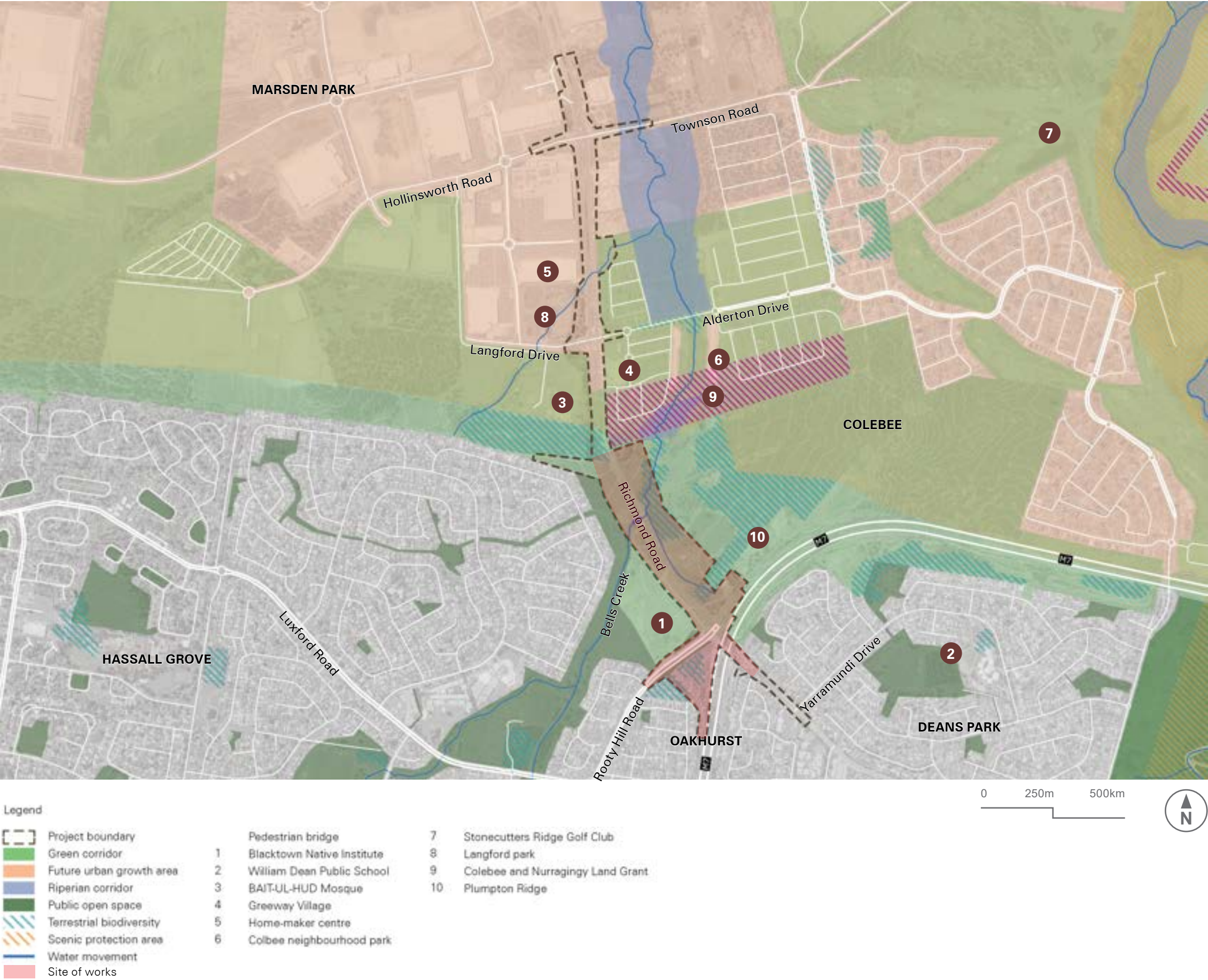


Figure 2: Local context



View from Westlink M7 Motorway (M7) exit onto Rooty Hill Road



View from Richmond Road adjacent to existing pedestrian bridge



View from Richmond Road before Greenway Village



View from Richmond Road adjacent to the home-maker centre



View from Richmond Road before Townson Road intersection



Views from Richmond Road looking to the Blacktown Native Institution

2.4 Cultural heritage

The proposal lies on the traditional lands of the Dharug people. There are sites of significance that the Project touches, and that are important considerations for the design.

Colebee/Nurragingy land grant

The Colebee/Nurragingy land grant is a site of state heritage significance because of its combination of historical, social and cultural values. It marks the first land grant ever given to Aboriginal people in Australia and is linked to two pivotal Aboriginal figures of the early colonial era, Nurragingy and Colebee, who received the joint grant in 1816. The location of the land grant is important as it was selected by Aboriginal preference, situated on land that belonged to Nurragingy’s clan. Settlement on and around the land grant flourished and by the 1820s it had become known as the “Black Town”. Both the contemporary Aboriginal community and the wider Australian population hold this land grant in high regard as a landmark in the history of cross-cultural engagement within Australia. The land is no longer in Aboriginal ownership, nevertheless it symbolises the resilience and enduring connections to the land of Aboriginal people.

Blacktown Native Institution

At the intersection of Rooty Hill Road and Richmond Road is the state heritage listed Blacktown Native Institution (BNI), a former residential school for Aboriginal and Maori children that was operational between 1823 and 1829. The Statement of Significance notes that:

“The Blacktown Native Institution played a key role in the history of colonial assimilation policies and race relations. The site is notable for the range of associations it possesses with prominent colonial figures including: Governor Macquarie, Governor Brisbane, Samuel Marsden, William Walker and Sydney Burdekin....For Aboriginal people in particular, it represents a key historical site symbolising dispossession and child removal. The site is also important to the Sydney Maori community as an early tangible link with colonial history of trans-Tasman cultural relations and with the history of children removed by missionaries.”

The site is currently a largely vacant lot of land. Surface remains are visible only in the area of the main Native Institution building. However, the site does have the potential to contain further archaeological relics and deposits. The Native Institution site remained in Aboriginal hands until the early twentieth century, passing to private, Council and State Government before returning to Aboriginal ownership in 2018. There have been various arts projects involving collaboration with Aboriginal artists and communities, including the installation of ‘Flannel Flowers’ by Sharyn Egan which today marks the site for passers-by, motorists and residents around the study area.

Plumpton Ridge

To the east of the project is Plumpton Ridge. While no longer a strong visible feature in the landscape, this area is notable for the numerous archaeological artefacts found there, including stone tools used by First Nations people for many thousands of years.

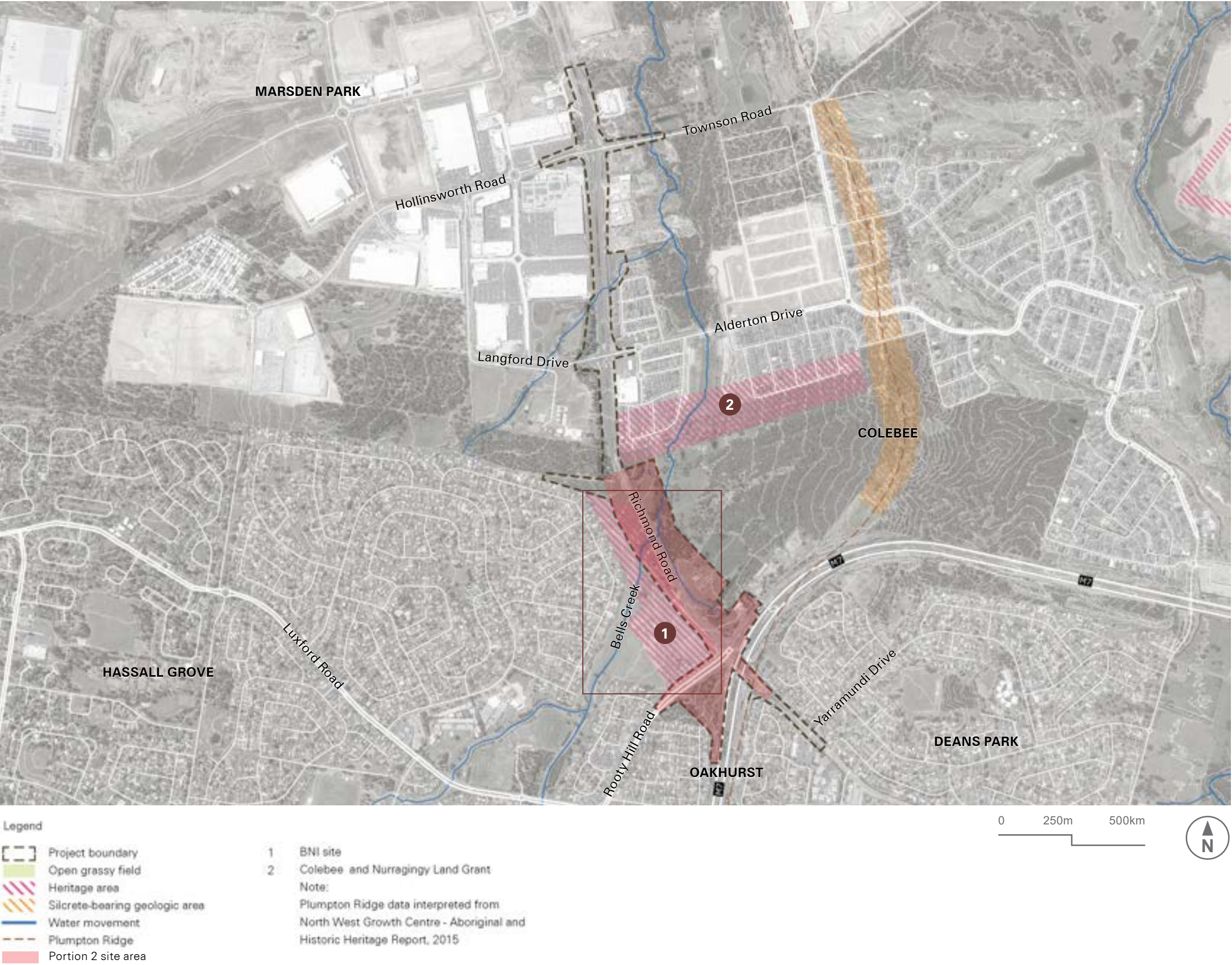


Figure 3: Cultural heritage - Blacktown Native Institution (BNI)

Considerations and opportunities

Considerations and opportunities include process as well as outcomes, noting that the Connecting with Country work being undertaken in parallel is informing the developing design of this project. Refer to Section 4.0 for a description of the consultation and creative outcomes that are being developed.

- Work collaboratively with First Nations stakeholders, responding to community aspirations for culturally significant sites
- Draw on Connecting with Country engagement for themes, narratives and potential locations for cultural interpretation, both in the landscape and for new structures (notably the bridge).
- Create or highlight visual and physical connections between culturally significant sites (and to the wider landscape), to acknowledge the continuing presence and resilience of Aboriginal culture.
- Albeit the Colebee/Nurragingy site is fragmented and overlaid with different land use zoning, optimise retention of native / riparian vegetation that remains, together with habitat for native fauna
- Acknowledging Dharug aspirations for the BNI site
- Relocate access to the BNI site, protecting the most significant area/s for ongoing visits and ceremony
- Explore the potential, and any associated planning pathways, for mounding to the south-east corner, to mitigate the impact of road widening
- Select plants, materials, and colours reflecting the local topography and vegetation communities including Dharug woodlands. Seek input from Aboriginal stakeholders to confirm or refine the palette, for example referencing bush tucker plants.



Figure 6: NIRIN Gathering Performance documentation, Jannawi Dance Clan at the BNI Handover Ceremony, 2018. Photo: Joseph Mayers. Image courtesy: MCA Australia.



Figure 5: Colebee/Nurruagingy Land Grant, State Heritage Inventory, 2010



Figure 4: Sharyn Egan, Flannel Flowers - now removed from the site Image courtesy: MCA Australia.

2.5 Vegetation communities and local fauna

Vegetation within the project consists of remnant vegetation communities and introduced vegetation (both native and exotic) associated with rural and residential land uses.

The remnant native vegetation consists of two Endangered Ecological Communities (refer Figure 8):

Cumberland Shale Plains Woodland (Critically Endangered Ecological Community - CEEC) PCT 3320

This community is characterised by a tall open forest. It generally occurs in small disturbed patches within a rural or urban matrix. The dominant tree canopy includes: Grey Box (Eucalyptus moluccana) and Forest Red Gum (Eucalyptus tereticornis), with Narrow-leaved Ironbark (Eucalyptus crebra) and red Ironbark (Eucalyptus fibrosa). The shrub layer varies throughout the study area but is generally sparse. The Ground story is generally mid-dense with grasses and forbs.

Cumberland Red Gum River-flat Forest (Endangered Ecological Community - EEC) - PCT 4025

This community is a tall open forest and is focussed around smaller streams and typically exists as small disturbed patches threatened by weed invasion which is intensified by flooding events. The most widespread and abundant dominant trees include Forest Red Gum (Eucalyptus tereticornis), Cabbage Gum (Eucalyptus amplifolia), with the occasional Rough-barked apple (Angophora floribunda) and Broad-leaved Apple (Angophora subvelutina).

Introduced native/exotic species are found along the east and west fringes of Richmond Road at the front of residential properties, the Home-maker centre, the Village Green shopping mall and along median strips.

Local Fauna within and around the project area predominately consists of kangaroos, particularly Eastern Grey Kangaroos and wallabies. They have been frequently sighted around the BNI site and crossing Richmond Road.

Considerations and opportunities:

- Retain and strengthen native vegetation where possible
- Restore critically and endangered ecological communities and assist with biodiversity protection and recovery
- Planting to consider bushfire resilience strategies (species selection, location and density)
- Caring for Country, highlighted through Connecting with Country engagement, includes a focus on enhancing the biodiversity of the site and the surrounds
- DGSM consultation for planting species to edge the BNI site
- Establishing a Fauna passage at Bells Creek bridge to allow kangaroos and other animals to transverse under Richmond Road

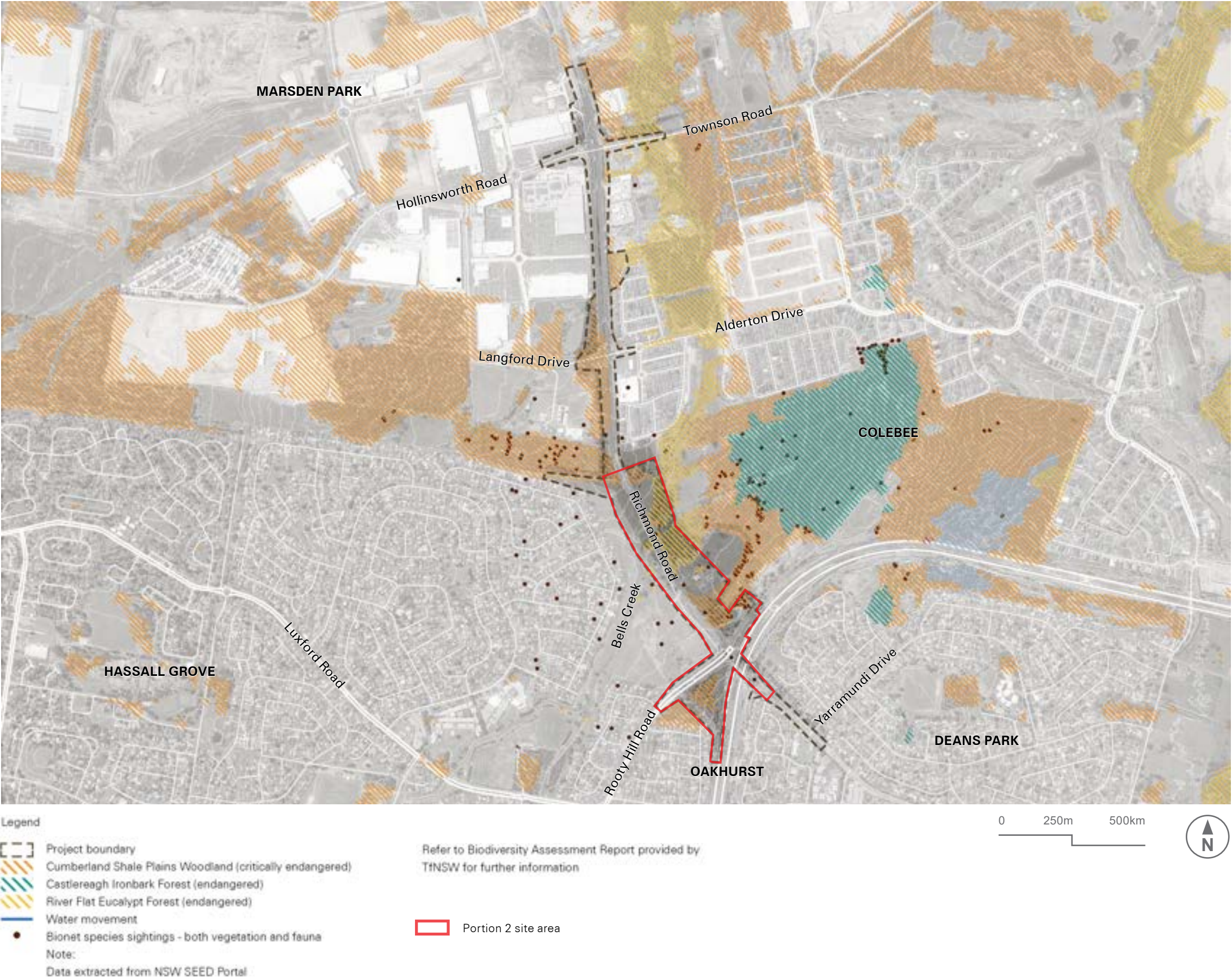


Figure 7: Vegetation communities and local fauna

CUMBERLAND SHALE PLAINS WOODLAND



CASTLEREAGH IRONBARK FOREST



RIVER FLAT EUCALYPTUS FOREST



2.6 Land form, hydrology and views

The topography of the proposal scope is relatively flat with water running north away from the Westlink M7 Motorway (M7). The landforms from Rooty Hill Road to Bells Creek undulates on a downward slope and slopes back up towards the industrial area, creating the creek line that intersects beneath Richmond Road.

The proposal is within the Bells Creek catchment, with the main arm crossing Richmond Road about 450 metres north of the Richmond Road and Rooty Hill intersection.

While Richmond Road has generally been constructed at grade, where it runs between the M7 Motorway overpass and Alderton Drive it is on a 1-2m high earth embankment in the immediate vicinity of its crossing of Bells Creek. The crossing of Bells Creek comprises an 18 m long two-span reinforced concrete bridge.

Richmond Road also is a designated as a regional flood evacuation route in the Hawkesbury Nepean Flood Plan 2015.

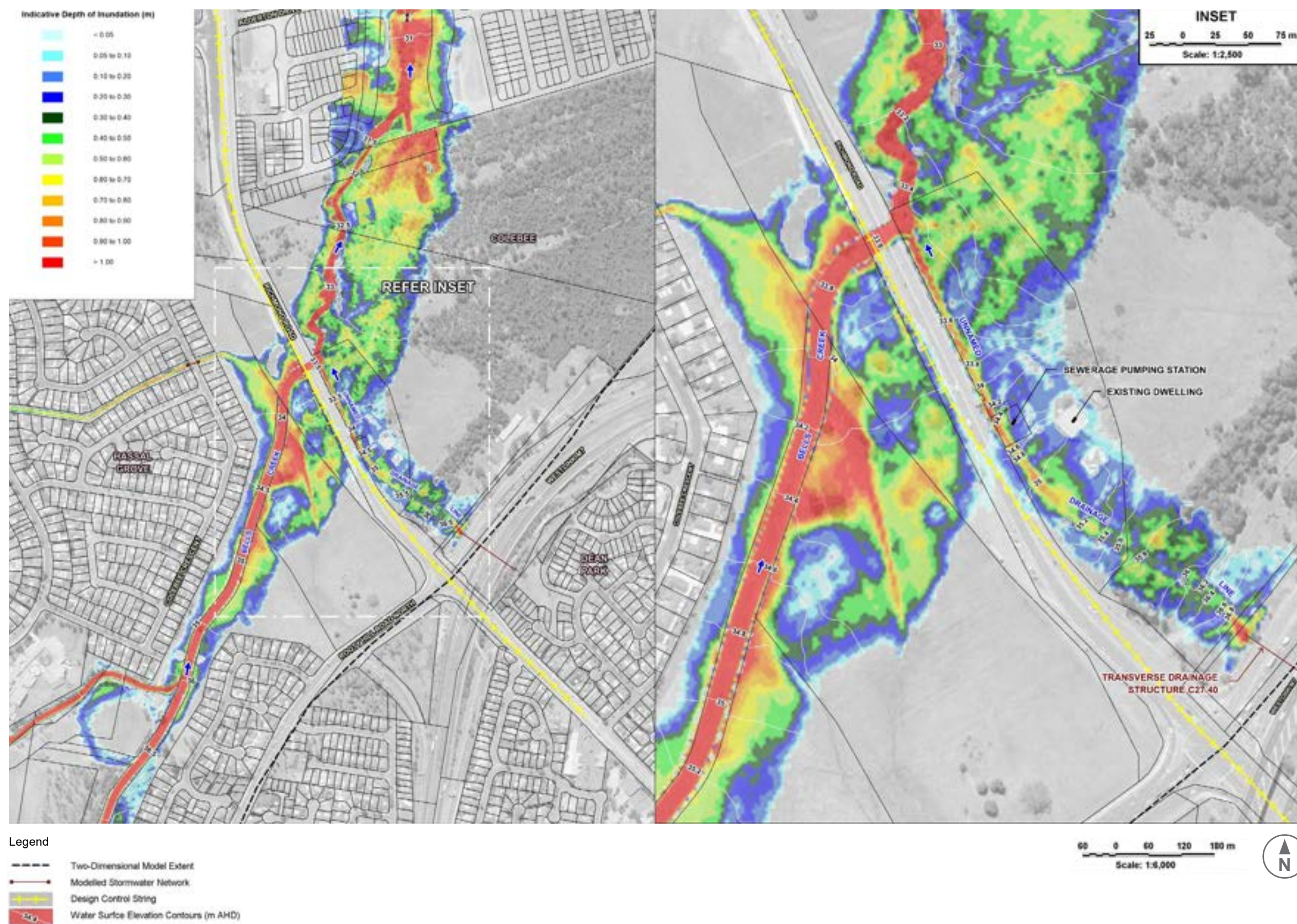
The low-lying landforms enables wide, opens views across the floodplain surrounding Bells Creek, taking in the rural grasslands with scattered trees.

Considerations and opportunities:

- Planting of appropriate species to assist in erosion prevention and mitigate potential flooding from Bells Creek
- The design of swales and drainage structures should respond to strategies around passive irrigation techniques and WSUD principles
- Earthworks/ batters graded to fit into natural landforms as much as possible
- Maintain/ enhance scenic views across Bells Creek floodplain
- Caring for Country, highlighted through Connecting with Country engagement, includes a focus on re-vegetation particularly around Bells Creek to mitigate erosion



Figure 8: Landforms and Views



2.7 Land zoning

The land adjacent to the proposal is zoned for low density residential, medium density residential, transport infrastructure and light industrial. These areas, and the road corridor itself, sever what would have been large extents of native vegetation, including riparian vegetation associated with the waterway systems.

North of the M7 there is a parcel of land with heritage significance (nominated as environmental management in Blacktown Local Environmental Plan 2015), which is the site of the Blacktown Native Institution (BNI).

Land north-west of the Townson Road intersection is zoned for light industrial/commercial land (home-maker centre) with IKEA, Costco Wholesale and Supercheap Auto Marsden Park.

Opposite the home-maker centre is the Greenway Village shopping mall, which includes Choice Pharmacy Colebee, Woolworths, and Colebee Family Medical Centre.

Considerations and opportunities:

- Consider visual and character impact of nearby land uses
- Consider future land uses/ zoning
- Acknowledge the historical and cultural importance of areas of remnant vegetation and retain / strengthen these, including seeking to reconnect green and blue networks

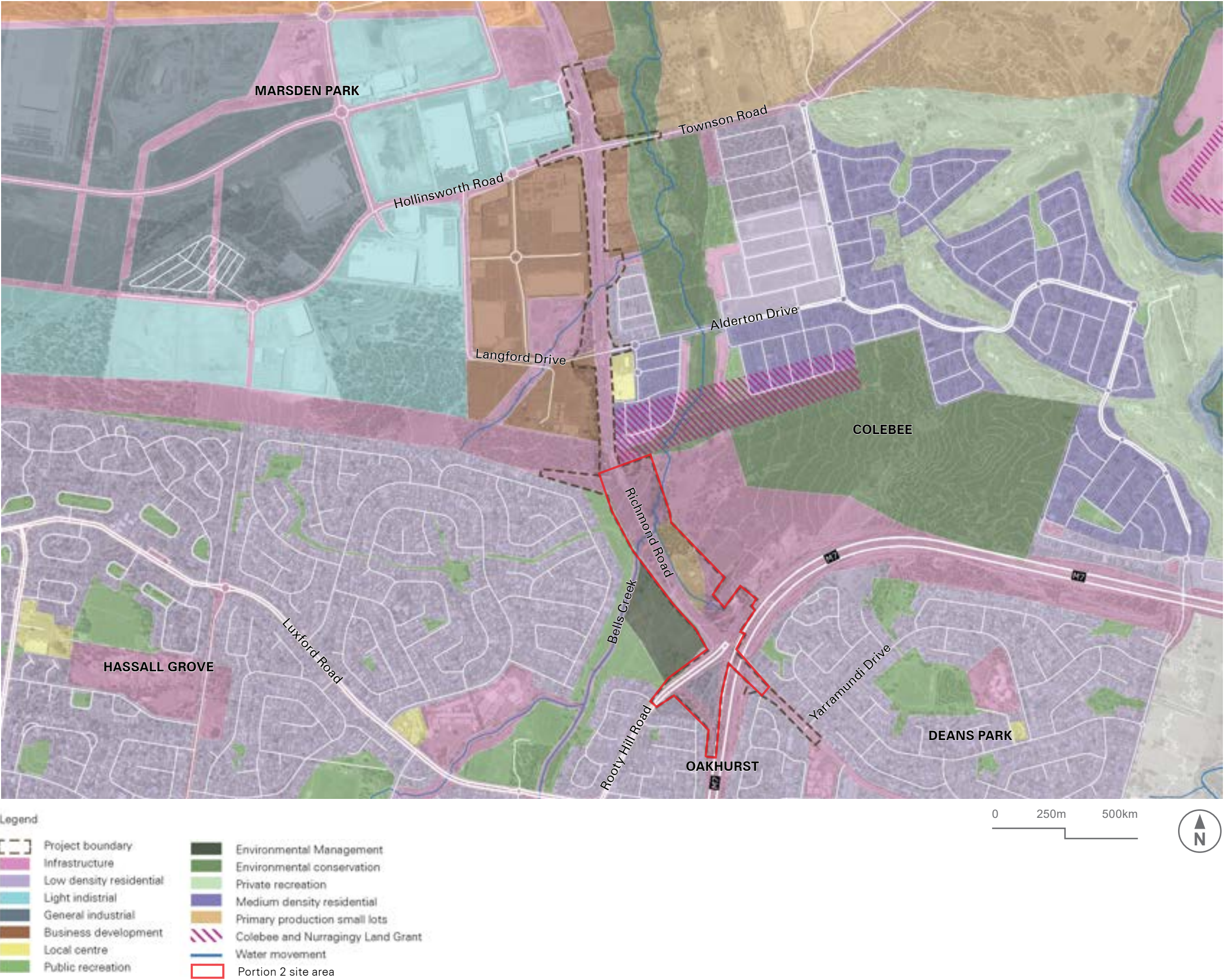


Figure 10: Land zoning

2.8 Transport access and movement

Vehicles

The M7 is a significant highway connecting metropolitan Sydney with the north-west and south-west priority growth areas, experiencing large volumes of traffic, particularly during peak hours. Richmond Road is a primary access route to the north-western suburbs in Sydney and experiences large amounts of congestion where it meets the Rooty Hill Road intersection.

Bus Services

Public bus services 751 and 747 operate along Richmond Road, connecting the local community to Blacktown and the Hills area. There are seven bus stops located within the project scope; two at the intersection of Yarramundi Drive, two within close proximity of the Greenway Village, two at the intersection of Townson Road, and one on Hollinsworth Road. All bus stops are signposted with a bus lane running along the length of the project.

Active Transport

There is some existing cycleway infrastructure running along the western fringe of Richmond Road, nominated as a shared path for pedestrians and cyclists. There is also an existing cycleway and pedestrian connection on the The Westlink M7 Motorway (M7) shoulder that links active commuters to Western Sydney Parklands and Sydney's east.

Southbound from Greenway Village there are no formalised pedestrian paths, with the majority of pedestrian movement on the opposite side of Richmond Road.

Considerations and opportunities:

- Improve pedestrian and cycling connections across and ensure connections to existing routes
- Maintain safe and direct pedestrian access to bus stops and destinations
- Maintain access to and within the BNI site, protecting the most significant area/s for ongoing visits and ceremony
- Locate a new car park entry off Rooty Hill Road towards the south-west corner



Figure 11: Transport access and movement



Bus stop on eastern side of Richmond Rd, near Greenway Village



Bus stop eastern side of Richmond Rd, adjacent Hollinsworth Rd



Bus stop western side of Richmond Rd, adjacent Langford Drive



Bus stop on western side Rooty Hill Rd N, adjacent BNI site



Bus stop on eastern side Rooty Hill Rd North, adjacent fenced vegetated area



Bus stops along eastern & western side of Richmond Rd, adjacent Yarramundi Drive



3.0 Urban design approach

ARTWORK UNDER DEVELOPMENT

3.0 Urban design approach

3.1 Introduction

The project objectives, as identified by TfNSW, are:

- Reduce transport cost by improving travel times and reducing congestion.
- Support economic growth and productivity by providing road capacity for projected freight and general traffic volumes.
- Improve road safety
- Improve quality of service, sustainability and liveability.
- Minimise impacts on the environment.

The role of urban design on transport projects is to support the overall project objectives while leveraging the project to the benefit of its context. Here the starting point has been to consider connectivity and amenity for all road users, cyclists and pedestrians; and at the same time to optimise landscape regeneration of the natural environment along the Bells Creek catchment, and respectful integration with nearby sites of cultural and heritage significance.

3.2 Urban design scope

The urban design scope for Portion 2 includes:

- Widening of Richmond Road to six lanes (three lanes in each direction)
- Building a new flyover bridge from the M7 Motorway Rooty Hill Road North off-ramp to Richmond Road northbound to allow road users to bypass two sets of traffic lights, reducing congestion and queuing onto the motorway allowing uninterrupted flow of traffic
- Upgrades to the intersection of Richmond Road, Rooty Hill Road North and the M7 Motorway ramps including:
 - » Two dedicated lanes on Richmond Road heading onto the M7 Motorway (southbound entry ramp)
 - » Two dedicated southbound through lanes on Richmond Road (towards Blacktown)
 - » Additional right turn lane from Richmond Road southbound onto Rooty Hill Road North (providing two dedicated right turn lanes onto Rooty Hill Road North)
 - » Relocation of the existing pedestrian crossing on Richmond Road approximately 160 metres south. This would be a new staged pedestrian crossing across Richmond Road, with a pedestrian refuge in the median at the intersection of Richmond Road and the M7 Motorway southbound entry ramp.
 - » Continuing to improve public transport by maintaining the dedicated bus lanes at the intersections.
- Building a new concrete bridge structure over Bells Creek for the northbound carriageway. This would include:
 - Three northbound travel lanes
 - A shared pedestrian and bike path on the western side, which replaces the existing boardwalk bridge next to the northbound Richmond Road carriageway
 - Upgrade works on the existing Bells Creek Bridge which becomes the southbound carriageway of Richmond Road
 - Shifting the existing pedestrian and bike path on the western side of Richmond Road to be further west
 - Drainage and water quality structures including:
 - » New water quality basin on the east side of Richmond Road
 - » Open flooding channel on the eastern side of Richmond Road roughly between the M7 Motorway northbound on-ramp and Bells Creek for flood mitigation purposes.
- Roadside furniture including safety barriers, signage, line marking, lighting and fencing.
- Earthwork cutting, embankments and retaining walls to accommodate the widened road alignment, flyover bridge and open flooding channel.
- Rehabilitation of disturbed areas and landscaping.



Figure 12: Richmond Road crossing Bells Creek, 1960

3.3 Urban design objectives and principles

The urban design objectives and principles were developed at Concept Design stage to help the project respond to the visual, physical, cultural and operational context within which it sits. At detailed design, they continue to guide the design and are a tool to evaluate the design outcomes.

3.3.1 Objective 1

Achieve a project that fits sensitively within the existing site qualities and characteristics

- Principles:**
- Reduce the impacts of the proposal to the existing vegetation and natural landforms as much as possible
 - Enhance and reinstate existing vegetation communities to integrate the project with the existing setting
 - Maintain and enhance landscape views for road users by retaining open vistas along the Bells Creek flood plain
 - Mitigate the visual impact of large new infrastructure from outside the project corridor, through landscape design, clean and elegant lines to structures and architectural treatments that together complement their setting
 - Design earthworks to reflect the existing natural topography of the setting as much as possible.

3.3.3 Objective 3

Respect and integrate local Aboriginal narratives and themes through Designing with Country design principles

- Principles:**
- Creating a strong sense of place drawing on the narratives of local Aboriginal people and integrating them into the design response
 - Ensure minimal impact on areas of heritage significance and the Blacktown Native Institution Project sites
 - Integrate knowledge on the ‘Connection to Country’ stories, with emphasis on the landscape Bells Creek and Blacktown Native Institution Project relationship
 - Ensure that views from the project and the experience it brings to the drivers, pedestrians and cyclists reinforces the interpretation of any heritage items
 - Use significant plant species, identified by local Aboriginal groups, in the design
 - Identify potential opportunities for art integration to express connection to Country, whether integrated within the project structures or as an interaction with the Blacktown Native Institution Project and/or through cultural plantings, to be in consultation with the appropriate stakeholders
 - Identify key landmarks and cultural views to ensure their protection or enhancement.

3.3.2 Objective 2

Protect and enhance existing ecological systems

- Principles:**
- Contribute to the biodiversity and habitat of the area through planting design and selection
 - Revitalise and re-vegetate the planted banks of Bells Creek to maintain its natural ecosystem
 - Create a low maintenance landscape using predominantly endemic plant species suited to their specific conditions
 - Minimise the construction footprint by reducing the amount of cut and fill, with limited impact to existing land forms, water flow and vegetation
 - Retained vegetation as much as possible by reducing the construction footprint.

3.3.4 Objective 4

Achieve a high-quality design outcome that improves the experience for motorists, cyclists, pedestrians and the local community

Principles:

- Design the form of structures that sit above grade in the view plane from surrounding properties or circulation areas to relate to and enhance the surrounding context
- Design structures (walls, columns, beams, screens, abutments) to be designed in a unified design approach utilising common elements between all structures across the alignment
- Apply the use of oxides and textures to structures/bridges to help recede the built form into the surrounding landscape.
- Design the edges and undersides of structures visible at close range to be visually interesting and integrated with the overall expression of structure.

3.3.5 Objective 5

To provide safe and convenient pedestrian and cyclist connectivity along and across the road corridor

Principles:

- Retain and enhance the accessibility and connectivity of surrounding communities for all users including pedestrians, cyclists, public transport users
- Provide connectivity along the Bells Creek flood plain with adjoining existing and future residential and commercial developments.

3.3.6 Objective 6

Achieve a high level of sustainability for the project within all aspects of design

Principles:

- Incorporate strategies like Water Sensitive Urban Design (WSUD) including passive irrigation
- Reduce impacts of the urban heat island effect such as increasing planting/ reducing hard surfaces where possible
- Adopt a native plant palette which responds to the local climate and environmental conditions
- Help protect natural environments by minimising the construction footprint and carefully locating structures
- Use low carbon and durable materials

3.4 Urban design strategy

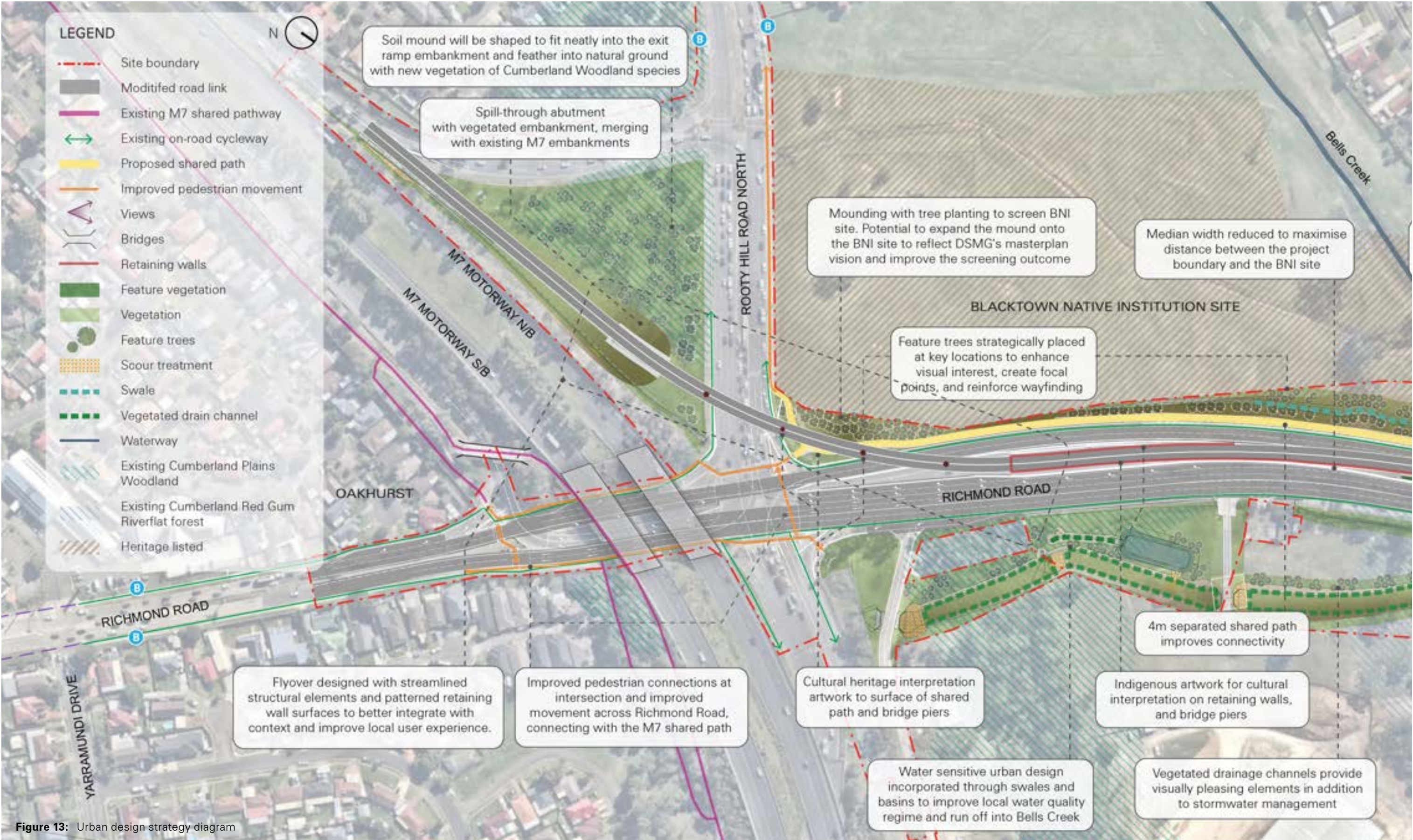
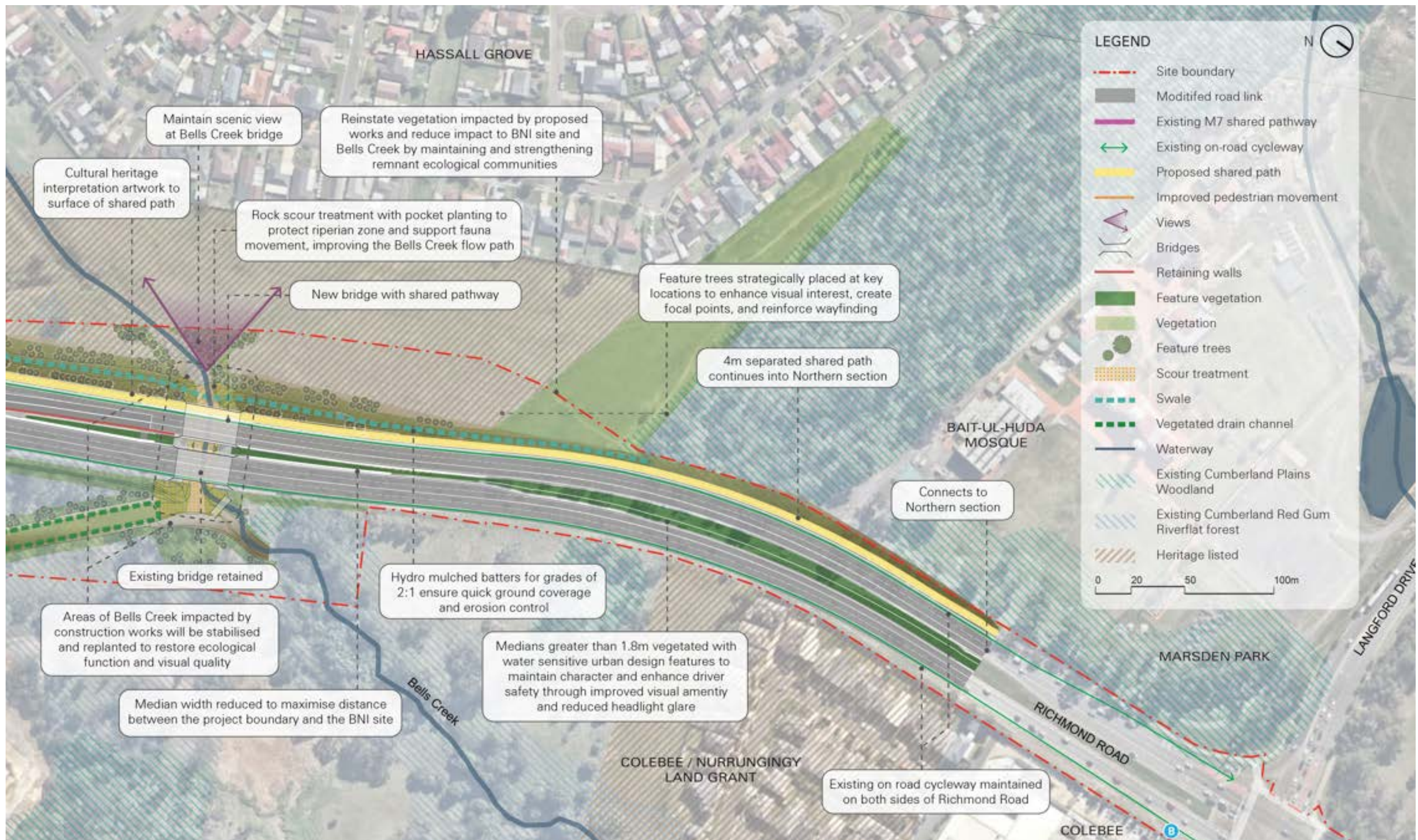
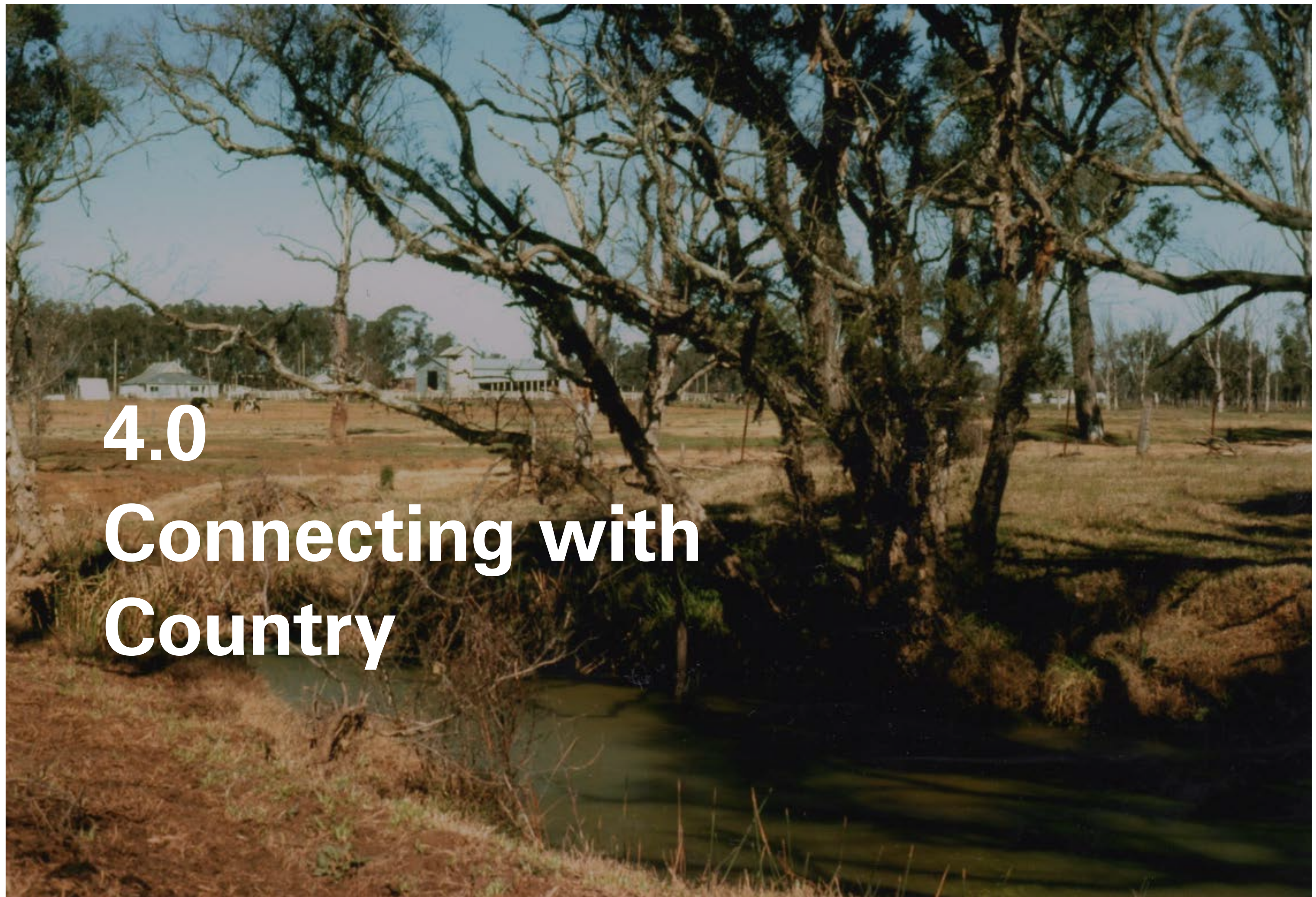


Figure 13: Urban design strategy diagram





4.0 Connecting with Country

4.0 Connecting with Country

4.1 Previous engagement

The state heritage listed Blacktown Native Institution (BNI) site was returned to Aboriginal ownership in 2018 and is now managed by the Dharug Strategic Management Group (DSMG). The project provides an opportunity for the inclusion of culturally sensitive design and interpretation to minimise the impacts upon the BNI site. These opportunities are to align with relevant Heritage Council guidelines and the Conservation Management Plan for the site (GML, 2023).

The RRM7 Connecting with Country Overview prepared by Nguluway DesignInc, dated January 2025, builds on the previous engagement work undertaken by COLA Studio Vision for Country that sets forth the DSMG’s wish and vision for the site to:

“....build a durable, connected and welcoming community that will offer Dharug people opportunities to celebrate, express and share Culture and recognise the sites environments relations by building a sense of place, truth-telling, truth-hearing and recognition”.

Four themes were developed in the report by Nguluway DesignInc, 2025, and endorsed through engagement with community. These were:



Performance documentation, Jannawi Dance Clan at the Blacktown Native Institution Hand-over Ceremony, 2018. Photo: Joseph Mayers. Image courtesy: MCA Australia.



Artist Tony Albert leading a weaving workshop. Gubangala Gumadangyiningi (Let’s honour his/her spirit), 2018. Photograph: Anna Kučera. Image courtesy: MCA Australia.



Karla Dickens, Never Forgotten. Cloth on fence, Blacktown Native Institution Corroboree, Oakhurst, NSW. Image courtesy: MCA Australia.



Bells Creek, Blacktown Native Institution site, Oakhurst 1970-80 Blacktown Memories Reconnect



Figure 14: Historical photograph of “Lloydhurst” homestead and the Blacktown Native Institution site

4.1.1 Ongoing engagement in consultation with the DSMG

The Connecting with Country process during Detailed Design is exploring opportunities to meaningfully engage with community to show respect for and integration of Aboriginal narratives and themes through the design, mitigating impact on the BNI site curtilage. The intent is to leave a positive legacy.

To achieve that, the team is continuing the initial engagement by engaging with the DSMG Working Group formed by TfNSW. To be effective the Working Group includes Traditional Knowledge Holders that are permitted to speak on behalf of the local Dharug community.

The careful management process will demonstrate sincerity and good intent to the Dharug community, and the consultation process will include the following:

- Regular check in with the DSMG to advise project progression in conjunction with the Principal’s Representative
- Provide a designated point of site contact (prime plus a reserve) to provide unimpeded access
- Flexibility in our design to accommodate the desired integrated outcomes
- Engagement in a co-design process with an Aboriginal artist to develop artwork opportunities in the project that draw from the identified themes of Country.

A Place of Cultural Connection

- Acknowledging Dharug Country, keeping language and Culture alive by telling stories through local materials, colours, and plant species
- Maintaining and enhancing accessible entry and gathering spaces to and within the BNI site, in support of ongoing Cultural practices and ceremony
- Include a range of yarning spaces of different sizes, including rest spaces along shared and pedestrian paths, at the water, and within the BNI site

A Place for Children

- Create safe pathways for children, young people, and adults to move through the area
- Design for moments of play and learning, including about the native plants, animals and landscape
- Acknowledge the generational trauma and the sense of hope for future generations associated with the history of the place
- Use artwork to celebrate and create a joyful response to the spirit of childhood

A Place of Healing

- Educate and inform the public about Dharug history, including sites of trauma
- Nurture nature: protect or reconnect fauna corridors through green belts and creeks
- Identify possible sites for education, training, and healing programs for Dharug to share with the wider community
- Design education spaces to be accessible and inclusive of all community needs, so that all can share in gathering and healing activities

A Place of Water

- Identify opportunities for Cultural practices and ceremony that honour the role of water
- Use water-sensitive urban design for a sustainable landscape
- Restore the waters: naturalise ‘hard’ edges to waterways where possible
- Create regeneration opportunities

4.1.2 Connecting with Country opportunities

Previous work undertaken included the identification and inclusion of several Connecting with Country initiatives. During DCD a variety of ideas have been presented to the DSMG Working Group and the community, and the following initiatives are now being pursued through the design:

Opportunity 1:

Integrated interpretive artwork by a local Indigenous artist on the retaining walls and piers of the flyover bridge incorporating an endorsed narrative or theme. The bridge parapet will also be considered by the artist as this was a suggestion that came through the community consultation. Various methods will be assessed to achieve patterns and textures on the concrete surfaces including water blasting, casting, painting, and other treatments.

Opportunity 2:

A landscaped low mound at the south-western corner of the BNI site to protect and screen the site. This is presently positioned outside the BNI site boundary in a small surplus area, however, Opportunity 4 considers a larger mound which would extend into the BNI site.

Opportunity 3:

The shared path along the northern edge will form a clear demarcation to the BNI site. Interpretive artwork by a local Indigenous artist will be applied to the surface of the path, in one or two locations. The artwork will consist of inlays, patterning or the addition of coloured oxide to the surface, painting, or sand blasting to enhance the user experience and create a visual connection to reflect an Aboriginal narrative or theme. In combination with the other artworks, this will enhance the sense of place.

Opportunity 4:

Enhancement of the access & amenity of the BNI site are being considered in a variation request from TfNSW, currently under consideration. These are currently under development with BCC and DSMG, and include:

- alternative access to the BNI site provided off Colebee Crescent,
- a new carpark and toilet amenities on Council owned land adjacent to the BNI site,
- a larger vegetated mound within the BNI site (as illustrated in Figure 16).

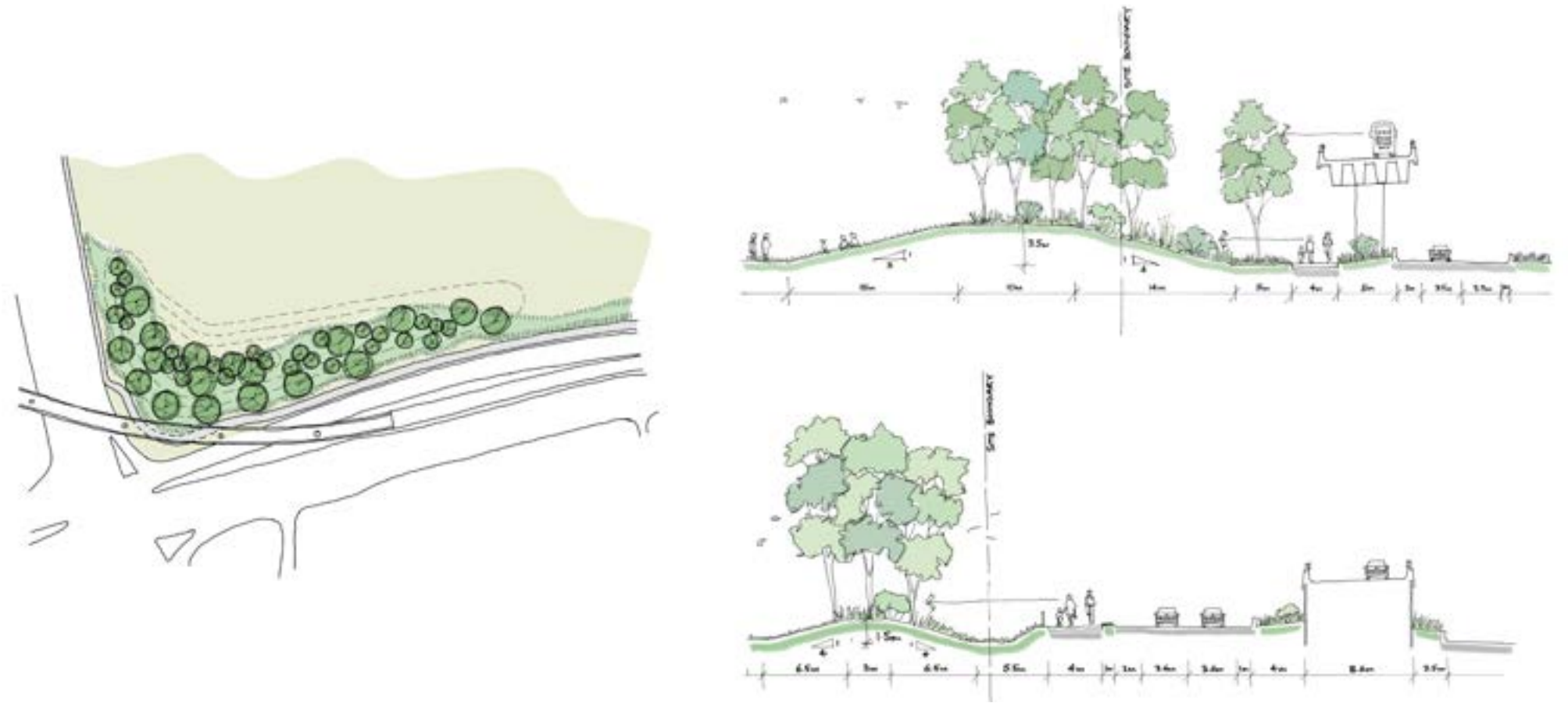


Figure 15: Illustrations of the vegetated mound within the BNI site as part of Opportunity 4



Figure 16: Illustrations of Opportunity 3

4.2 Connecting with Country process

Methodology for the design, development and endorsement of the integrated interpretive artwork during the design phase is summarised below which will be supported by Nguluway DesignInc. Some of these steps were undertaken during previous engagement.

- Hold a meet and greet consultation with the Working Group at the earliest to confirm initial understanding and build a relationship for the consultation and design process. This includes:
 - » A walk on Country with Traditional Knowledge Holders to seek permission to work on Country
 - » Learn about key stories, identify specific areas of site for telling/incorporation of stories into design (as appropriate), identify endemic species of flora and fauna that hold strong symbolism and association of significance, identify key natural environment elements, identify key people or events associated with the area, identify functions, resources or artefacts that may be referenced in design, and identify words or phrases in language that may be suitable for use on-site
 - » Obtain information on local Custodial stories and Country, using these stories to inform design thinking through a co-design process with DesignInc and artists (selected through a separate process)
- Support the design team during the early design stage to develop and refine design strategies and concepts relating to the information obtained through meetings and consultation. This was undertaken during Workshop 1:
 - » To facilitate acknowledgment and incorporation of the Working Group voices into the making of space
 - » Present design strategies and proposed applications holding a round table discussion on themes and narratives to inform the design, asking in depth questions to further explore and understand the narrative
 - » Validate the approach and seek permission to develop the design
 - » Confirm artwork canvas opportunities as identified during the Tender Design and obtain required endorsement from stakeholders
 - » Write an artist’s brief for an EOI to local artists, then co-design with the selected artist
- During later Detailed Design stages hold Workshops 2 and 3 with the Working Group, artist(s), and design team to understand aspirations, appropriate application, and potential implementation. Workshop 2 would be use to validate the approach and seek permission to develop the design:
 - » Present the identified Design from Country opportunity, artwork and material application and facilitate acknowledgment and incorporation of Traditional Knowledge Holders’ voices into the making of space.
 - » Host a round table discussion on the selected theme and narrative identified to inform the artwork, asking in depth questions to further explore and understand the narrative, and obtain feedback and further information on stories and cultural interpretation content.
- Hold Workshop 3 with traditional knowledge holders, artist(s), and the design team to:
 - » Present the developed artwork and application/integration with the project scope
 - » Obtain feedback and host a round table discussion of the design as required.
 - » Validate the outcomes and seek endorsement

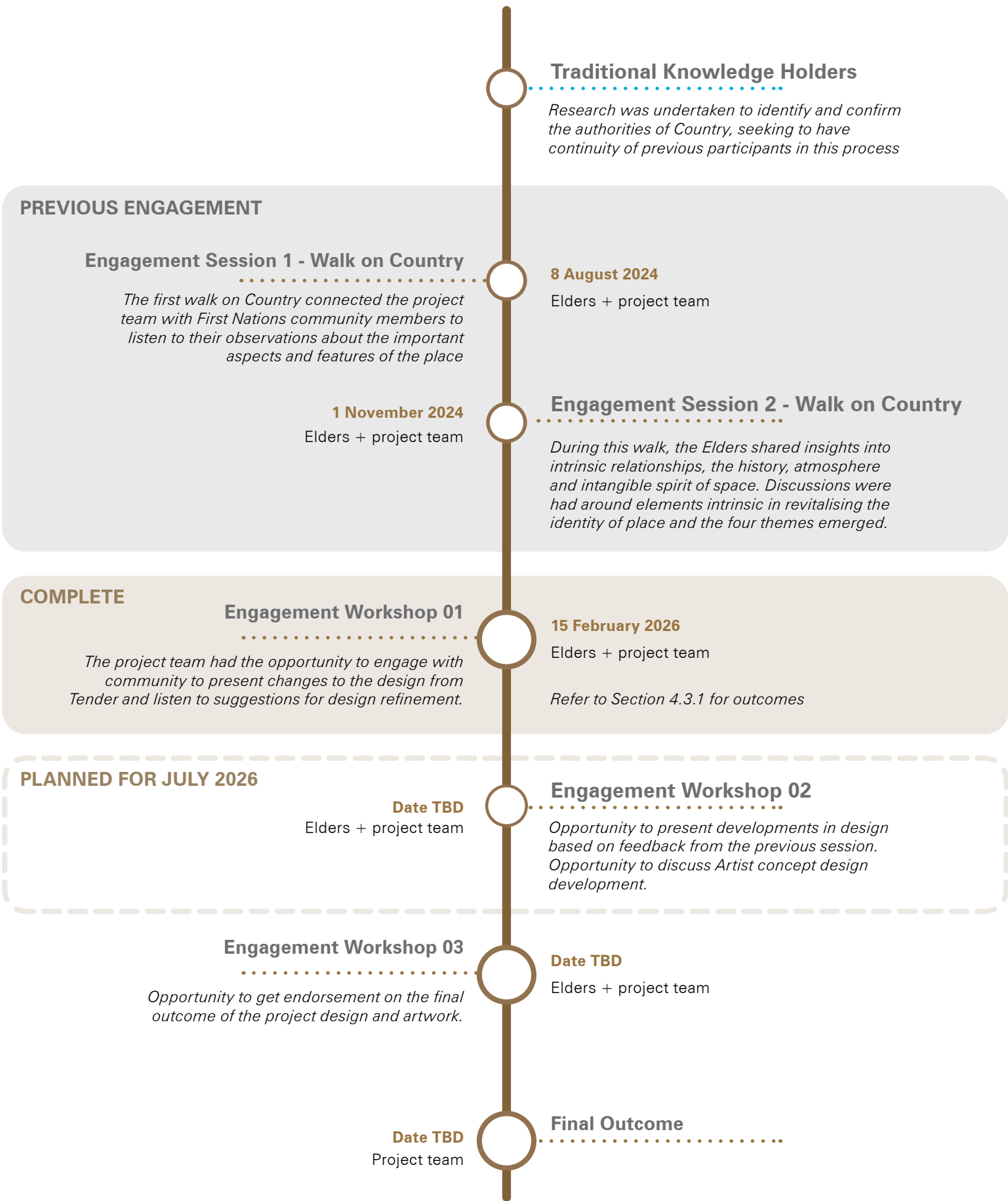


Figure 17: Engagement timeline

4.3 Community Engagement

4.3.1 Engagement Workshop 01

Date: 15 February 2026

Place: Muru Mittigar, Rouse Hill

The workshop was divided into two sessions. The first session included the DSMG Working Group and invited Elders while the second session was made open to the community. The content shared with community during the two sessions remained the same.

Attendees

There were attendees from:

- DSMG Working Group
- Dharug community Elders by invitation
- Transport for NSW
- TIKA EQ
- Nguluway DesignInc
- DesignInc

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Emerging themes

During the community engagement session the following topics were discussed:

- Changes to the design from the REF to Tender Design stage which included a reduced physical impact, improved fauna connectivity, variations in landscape design, and opportunities for artwork embedded in the design
- Previous Connecting with Country themes from the Nguluway DesignInc report
- Development of the BNI site with DSMG and Blacktown City Council

Guidance was sought on the potential landscaped mound within the BNI site, the development of artwork or graphics and incorporation into the design, and preferred plant types for the landscape planting palette. Responses from community are listed below.

- Water stories
 - » Focus on regenerative measures to improve the health of waterways and local environment, particularly the revitalisation of Bells Creek
 - » An opportunity to address boggy areas present on site, ensuring flow of water in the creek so that the condition does not worsen
- Flora and fauna
 - » Need to check on heritage approvals and allowances for planting or modifications to ground work
 - » General commentary on displayed plant species, selection of plant species that filter pollutants, avoid use of Banksia ‘Birthday Candles’, maximise tree planting, ensure Lomandra are uprooted not slashed during clearing work
 - » Avoiding fauna food plants near the road as a safety measure for animals
- BNI Site
 - » Endorsement of the landscaped mound within the site - potential to explore a boomerang shape and create a look-out towards the site
 - » Avoid fencing around the site as a sensitive response to historic accounts of incarceration, instead explore the use of planting as a screen for privacy where required
 - » Opportunity to create an alternate access to the site with a carpark and amenities
- Public domain
 - » Potential for seating along the shared user path, particularly at the corner of the BNI site
 - » Concerns over the use of trail bikes in the area and on site
 - » Request for improved aesthetics of the flyover parapet
- Artwork
 - » Could tell a story either specific to the site or a broader Dharug story
 - » Considerations around local artisans

Opportunities

Several opportunities identified during this engagement are being folded into design and the preparation of the Artist Brief, these are:

- Regenerative measures like WSUD, riparian planting, and scour treatments to improve the interface with Bells Creek and other water movement paths
- Inclusion of a fauna passage
- Specific edits to the planting palette based on community feedback
- Potential engagement of improvements in the BNI site through a variation, run in parallel to the project scope
- Refinement of artwork canvas opportunities and engagement with an Aboriginal Artist

Ongoing tasks

Early in the design process, the DSMG were provided with an indicative planting list and palette for review. Key DSMG members assessed the proposed species and supplied consolidated feedback to the design team. This feedback was then carefully considered by the designers and TfNSW, and a formal review and response was provided back to the DSMG.

The responses addressed the following matters:

- **Inclusion of Indigenous Species:**
Additional indigenous species were incorporated into the landscape mound to ensure the planting at this location reflects local ecological character.
- **Removal of Fauna-Attracting Species:**
Species known to attract fauna were removed from the general alignment planting, with the exception of areas adjacent to the fauna passage where such species are appropriate and intentional.
- **Bush-Tucker Species Request:**
While bush-tucker species were requested, TfNSW advised against their inclusion due to the risk that these plants may not be safe for consumption within an open-space context.

A further review of the SDD Landscape Planting Schedule and associated landscape plans will be undertaken to assist the DSMG in understanding the intended planting groupings and their distribution across the site.

4.3.2 Selection of Aboriginal Artist

The delivery process will be one of co-design; that is, the artist will work with the project design team to develop the artwork and integrated graphics. Endorsement from Transport, DSMG, and the Dharug community will be sought before the design is finalised.

The recommended process is outlined in the diagram below and will include workshops with the design team. The design team have undertaken the following tasks since Engagement Session 01:

- Finalised the Aboriginal Artist Brief for the identified canvas areas. Attached as “Appendix A - Aboriginal Artist Brief”
- Undertaken an Expression of Interest process to prepare a long list of suitable Dharug artists
- Shortlisted 3 x Artists for a Concept Design Submission. The artists were asked to consider the identified cultural values and the application of the artwork on the infrastructure.
- Assessed the Concept Designs against a set of criteria and selected a final Aboriginal Artist to develop their work further in collaboration with the project design team.
- Undertaken the first co-design working session with the selected Aboriginal Artist, Jessica Tobin for her concept artwork ‘Badu’. A developed concept design is underway.

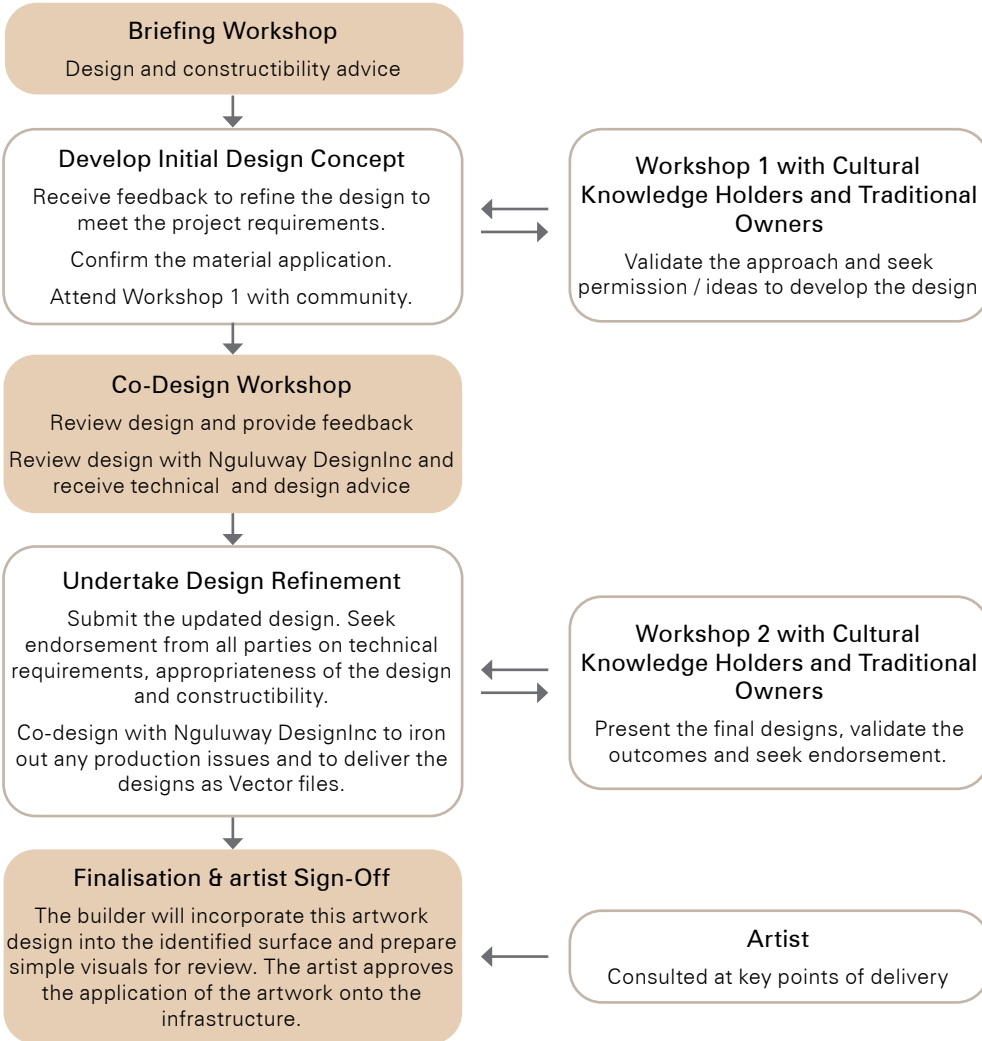


Figure 18: Co-design process timeline

4.3.3 Aboriginal Artwork Narrative

“Badu” by Jessica Tobin

Badu (water) is a landscape and public art journey along the M7 that acknowledges the history of the Blacktown Native Institution and water as a way of healing, connection, memory and cultural continuity.

The concept uses *Lines of Badu* (water) and spirals as its primary design language, representing eternal connection to Country, ancestors, community and future generations.

The waterways hold the memories of this land and the rivers have never stopped flowing.

The spiral is both a physical and symbolic journey moving inward toward reflection and healing, then outward toward renewal, learning and cultural strength.

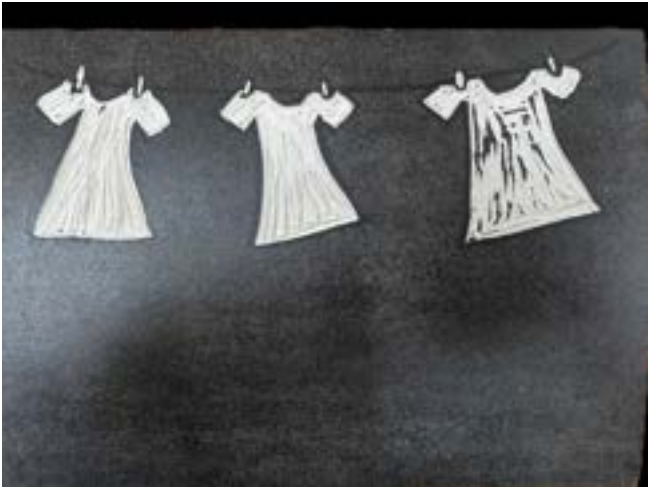
The inclusion of colonial shift dresses references the children of the Native Institution and the imposed colonial systems that sought to disconnect Aboriginal children from family, language and Country. The dresses represent the girls spirit and their journey being smoked on by the Darug community that have been given back the land to heal it.

The lines in and circular shapes show the fences that were built across the country to divide the land and each other; they also look like stitches in skin to represent healing.

The water runs all the way through the work to show that our rivers never stopped flowing and they hold the memories of the land now and before contact was ever part of the picture.



Figure 19: WIP Artist concept sketch - “Badu” by Jessica Tobin, June 2026



The Girls

This image was created to represent the girls of the Black Town Native Institute

- White dresses show innocence of children and their spirit
- Smoke drifting through the dresses represent a sense of cleansing the spirits of the girls and a remembrance



Weaving back together

This image is about the Dilly bags which represent the weaving of Darug knowledge and families coming back together to share and strengthen ties and stories.

- There are 3 to represent the past, present and future.
- A stream of blue running through the bags, this was a cultural practice to cleanse plants of their toxins.
- Dilly bags would be placed in the streams and the poison would be removed; this symbolises the cleansing of the land. The Dilly bags are also represent the families that hold First Nations people as they make their way back to each other



Always was always will be

This design is like a map of what has happened on this land. The design features three concentric circles,

- One of flowing water which represents time before the interruption of colonisation
- The second concentric circle is made from colonial fences and represents how knowledge was banned and lands were fenced, disrupting families, culture and access to land and each other
- The last circles a spiral which is inspired by the work of Leanne Tobin’s spiral installation “It starts here now” 2015, which symbolises healing and a return to each other.

This land holds much more than its painful colonial history; it holds First Nations kinship, stories, songs, and lore. The line that connects past and present was never broken. Aboriginal people live and remain on Country.

An architectural rendering of a proposed road design. In the foreground, a concrete median with a blue-painted edge runs diagonally. A large, white, cylindrical pillar with a dark floral pattern stands prominently. In the background, a multi-lane road with traffic lights and several cars is visible under a clear sky. The scene is set during the day with soft lighting.

5.0 Design elements

ARTWORK UNDER DEVELOPMENT

5.0 Design elements

This section of the report gives an overview of the proposed urban and landscape design. It first summarises the key moves of the project, showing how they relate to relevant objectives and principles outlined in Section 3 of the report, then it identifies the REF environmental safeguards and mitigation measures and their compliance status, moving on to describe the individual physical elements of the design.



Figure 20: Visualisation of the Flyover and off-ramp at the corner of the BNI site (trees and landscape indicatively shown at 5 years maturity, concept artwork is under development with the artist)



Figure 1 Landscape Plan - Sheet 1



Figure 2 Landscape Plan - Sheet 2

5.1.7 Typical Sections

The following three typical cross sections have been prepared to demonstrate how the interfaces change throughout the alignment and how the shared path and embankments tie into the surrounding landscape.

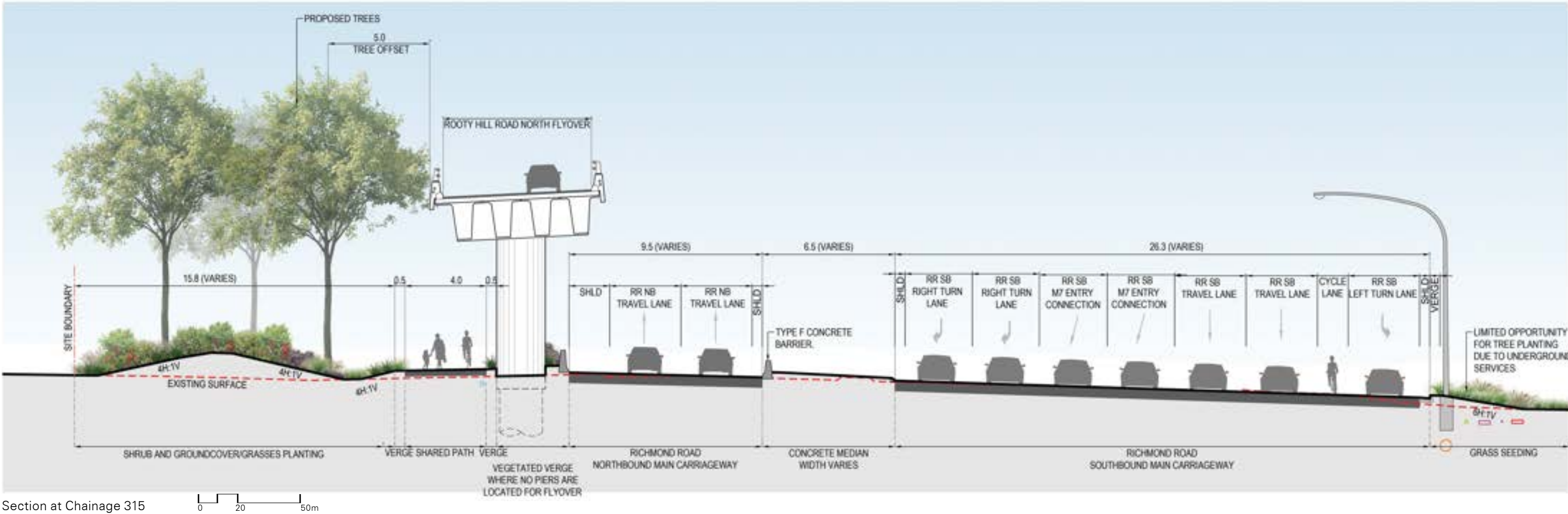
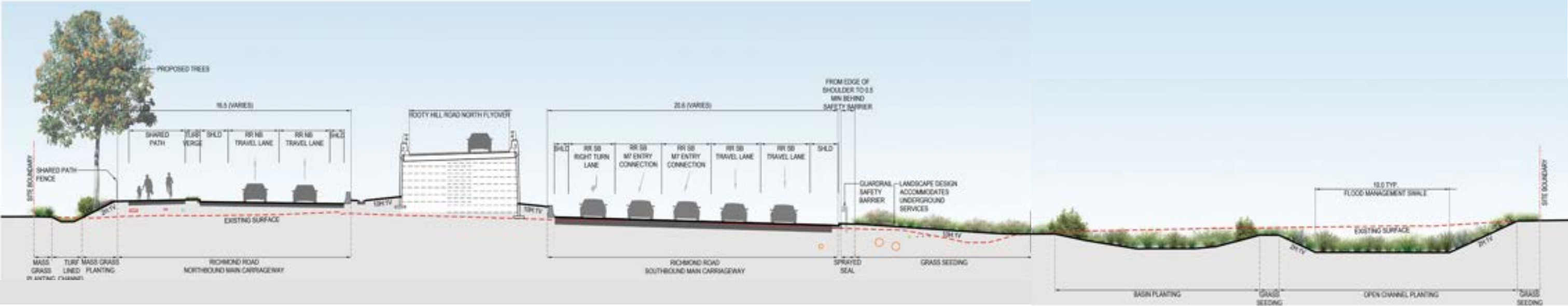
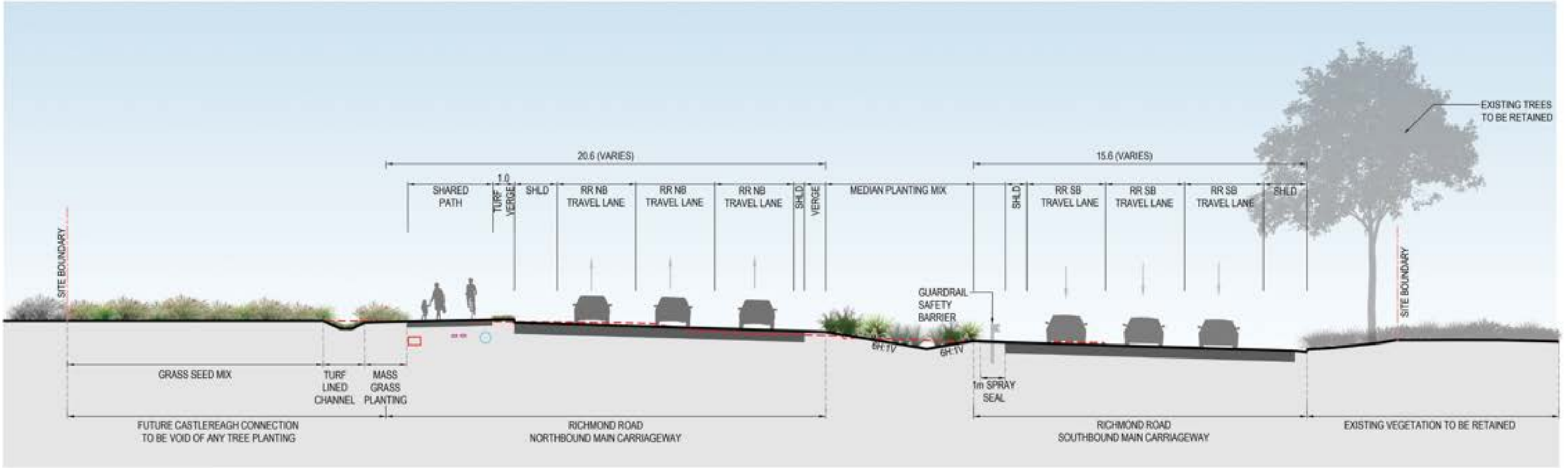
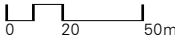


Figure 21: Landscape design typical sections - Sheet 1



Section at Chainage 460



Section at Chainage 940

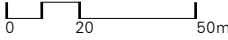


Figure 22: Landscape design typical sections - Sheet 2

5.1 Design response to objectives and principles

5.1.1 Landform, views and vistas

Objective: Achieve a project that fits sensitively within the existing site qualities and characteristics	
Principle	Design response
Reduce the impacts of the proposal to the existing vegetation and natural landforms as much as possible	The project has sought to minimise changes to the landform and to ‘sit’ within the topography. For example the new bridges for north-bound traffic and the shared path on Richmond Road are set at the same horizontal alignment as the surrounding carriageway rather than ramping up to cross Bells Creek.
Enhance and reinstate existing vegetation communities to integrate the project with the existing setting	Vegetation along the eastern side of the alignment is retained, and where it has been lost on the western side it has been supplemented with additional planting, particularly for riparian communities around Bells Creek including threatened ecological species.
Maintain and enhance landscape views for road users by retaining open vistas along the Bells Creek flood plain	The landscape concept alternates open views across the rural area and flood plain with new planting that partially screens the project and frames those views for road users.
Mitigate the visual impact of large new infrastructure from outside the project corridor, through landscape design, clean and elegant lines to structures and architectural treatments that together complement their setting	The large spans and single circular monolithic piers on the flyover bridge limit the impact on the ground plane and aid in visibility beneath and through the structure. Landscape planting is also used to soften its appearance.
Design earthworks to reflect the existing natural topography of the setting as much as possible.	The new flyover lands on embankment at the southern end. This reduces the need for built structure (abutments) and has been designed to tie into the already sloping topography.

5.1.2 Landscape

Objective: Protect and enhance existing ecological systems	
Principle	Design response
Contribute to the biodiversity and habitat of the area through planting design and selection	The planting palette includes native and endemic species, including ecologically threatened species, that will contribute to biodiversity and habitat. Vegetated swales below embankments and in the median apply Water Sensitive Urban Design (WSUD) strategies
Revitalise and re-vegetate the planted banks of Bells Creek to maintain its natural ecosystem	The road alignment has been adjusted to reduce impacts on the existing natural landforms around the banks of Bells Creek. The riparian zone will be protected using rock scour treatment with pocket planting to enable and encourage fauna passage. The design also includes riparian planting to the large swale that runs parallel to and on the eastern side of Richmond Road
Create a low maintenance landscape using predominantly endemic plant species suited to their specific conditions	The planting palette comprises mainly low maintenance plants that are suited to the local conditions. It has been prepared drawing on Council’s preferred species and consultation with local Aboriginal stakeholders is underway for their input.

5.1.3 Heritage and Country

Objective: Respect and integrate local Aboriginal narratives and themes through Designing with Country design principles	
Principle	Design response
Create a strong sense of place drawing on the narratives of local Aboriginal people and integrating them into the design response	Consultation will take place to build on the previous Connecting with Country themes and narratives and interpret these in design. The identified themes were: – A place of Cultural connection – A place for children – A place for healing – A place of water It is important to note that Aboriginal stakeholders emphasised the importance of ceremony and healing Country.
Integrate ‘Connecting with Country’ stories, with emphasis on the landscape of Bells Creek, Colebee Nurragingy and Blacktown Native Institution sites	The project is adjacent to, and will have visual and noise impacts on the Blacktown Native Institution site, a site of cultural and heritage significance on the NSW heritage register. While the design has sought to minimise these impacts, first through the alignment and footprint, and then proposing landscape screening where possible, the space within the project boundary is constrained. Further consultation with Aboriginal stakeholders to explore opportunities within the site, beyond this project, is underway and will be explored through a parallel design process.
Ensure minimal impact on areas of heritage significance	The proposed flyover will provide new elevated views for road users, across the wider landscape and also the significant Blacktown Native Institution site, assisting with wayfinding while creating awareness, and sparking curiosity. At grade, on the shared path, pedestrians and cyclists also have views into the site with signage to tell the story of the Aboriginal artwork.
Ensure that views from the project, and the experience this brings to drivers, pedestrians and cyclists, reinforce heritage interpretation	The planting palette includes a wide range of native and endemic plant species from which to choose, including some proposed by Aboriginal stakeholders. The final species selection would be based on further consultation with local Aboriginal people.
Use significant plant species identified by local Aboriginal groups in the design	Canvas opportunities have been identified for integration of artworks into the retailing walls, bridge parapet and piers, and the shared path. The team is co-designing with an Aboriginal artist to develop the design.
Identify potential opportunities for art integration to express connection to Country, whether integrated within the project structures and landscape or through cultural plantings, to be in consultation with the appropriate Aboriginal stake-holders	The consultation to date has identified the importance of the landscape and cultural plantings, particularly as part of a holistic ecosystem of reciprocal care for Country. The landscape design accordingly includes and locates plant species to support this.
Identify key landmarks and cultural views to ensure their protection or enhancement.	The previously undertaken LCVIA included views towards and over cultural sites, and discussed impacts and mitigation to protect them. The landscape strategy also frames views outward from the Richmond Road corridor.



ARTWORK UNDER DEVELOPMENT

Figure 23: Visualisation of the M7 off ramp and flyover (trees and landscape indicatively shown at 5 years maturity, concept artwork is under development with the artist)

5.1.4 Structures

Objective: Achieve a high-quality design outcome that improves the experience for motorists, cyclists, pedestrians and the local community	
Principle	Design response
Design the form of structures that sit above grade in the view plane from surrounding properties or circulation areas to relate to and enhance the surrounding context	The new flyover will be visible on approach along main roads, the shared path, from within the Blacktown Native Institution site and across public reserves, as well as from the rear of more distant residential properties. The selection of a super-T girder structure for the flyover bridge has significantly lowered the overall height, mitigating the visual impact. It is simple and elegant, matching the structure of the existing adjacent M7 bridges creating a visually compatible and coherent interchange.
Apply the use of oxides and textures to structures/bridges to help recess the built form into the surrounding landscape.	This principle was introduced at the beginning of the project with the emphasis on reducing the visual impact of the bridge. Currently the bridge design is for a simple streamlined appearance with retaining wall & pier artwork to enhance the urban experience at all speeds and modes of travel.
Design the edges and undersides of structures visible at close range to be visually interesting and integrated with the overall expression of structure.	The bridge piers are a simple cylindrical form with the headstocks integrated into the depth of the girders to streamline the appearance of the bridge soffit. Interpretation of cultural and heritage values is displayed through the use of art on the bridge retaining walls and the circular piers.

5.1.5 Active transport

Objective: To provide safe and convenient pedestrian and cyclist connectivity along and across the road corridor	
Principle	Design response
Retain and enhance the accessibility and connectivity of surrounding communities for all users including pedestrians, cyclists, public transport users	The project provides additional local connections with the upgraded shared path, and the flyover improving existing levels of traffic congestion.
	Tree planting alongside the shared path will provide shade for users. An artwork in the shared path surface can be enjoyed as part of the larger artwork narrative.
	Travel alongside the retaining wall artwork and beneath the new flyover will be an interesting and uplifting visual experience.
Provide connectivity along the Bells Creek flood plain with adjoining existing and future residential and commercial developments.	A dedicated 4m wide shared path provides safe and easy mobility for cyclists and pedestrians. It leads to and from existing active transport connections.

5.1.6 Sustainability

Objective: Achieve a high level of sustainability for the project within all aspects of design	
Principle	Design response
Incorporate Water Sensitive Urban Design (WSUD) including passive irrigation	The design includes species with low water needs, new shade trees and a large planted open channel and basin to assist with natural filtration. Turfed line channels below embankments and in the median apply WSUD strategies.
Reduce impacts of the urban heat island effect such as increasing planting/ reducing hard surfaces where possible	The design features extensive areas of additional canopy / shade trees and under-storey planting. The proposed tree planting will provide shade to the shared path, improving amenity for pedestrians and cyclists. As the road has been widened, open green space has been naturally removed. However, the adjacent landscape has been densely planted with a embankment plant mix to increase the planted edge corridor. Planting has also been increased around Bells Creek and the fauna passage to help fauna navigate to the passage.
Adopt a native plant palette which responds to the local climate and environmental conditions	The planting palette includes native and endemic species, including ecologically threatened species, that will contribute to biodiversity and habitat. They are typically low maintenance and have low water needs once established.
Help protect natural environments by minimising the construction foot-print and carefully locating structures	The flyover has been carefully designed through an optioneering process to minimise its footprint. It lands an abutment to the north, within the Richmond Road corridor, atop vertical walls. This means that the road section including travel lanes and shared path has been kept as tight as possible. Vegetation clearing has been kept to a minimum, only clearing was is deemed necessary. There are trees nominated in the landscape design that are to be retained/ removed subject to construction works and will be retained if works can proceed .

5.2 Compliance to REF mitigation measures

The REF identified a range of environmental safeguards and mitigation measures that are required to avoid or reduce the environmental impacts of the project. The table below identifies the items that relevant to the urban and landscape design documented in this report and indicates their compliance status at the current DCD stage of the design.

ID	IMPACT	ENVIRONMENTAL SAFEGUARDS	COMPLIANCE
H6	Water resources	Detailed design of the open flooding channel is to consider the following: – A vegetation management plan to both stabilise banks and manage the groundwater table. – Geotechnical investigations to collect geotechnical information including soil type and groundwater levels along the proposed realignment. Low flow channel requirements, a naturalised channel design, and scour protection.	Complies: the proposed open channel and basin are planted with riparian species selected for their ability to tolerate periodic inundation and fluctuating moisture conditions. These species have also been chosen for their pollutant cleansing properties, contributing to improved water quality through processes such as filtration, sediment capture and phytoremediation.
AH8	Blacktown Native Institution property access	The location and design of a permanent access to the DSMG owned portion of the Blacktown Native Institution site would be subject to further assessment and is to be developed in consultation with the DSMG and Blacktown City Council with reference to their future plans for this site.	The site access is under consideration with DSMG & BCC, and subject to a current variation request from TfNSW.
AH9	Aboriginal culture	Consultation would continue with DSMG throughout detailed design and construction. DSMG input would be sought on: – The location and design of the interim and potential permanent driveway relocation – The opportunity to include cultural interpretations or design into the proposed road infrastructure (i.e. the flyover bridge or abutments) – The opportunity for culturally sensitive and locally indigenous plantings within the road corridor – The opportunity for the proposal to support the proposed development of the Blacktown Native Institution site in accordance with the Vision for Country (COLA, 2024) – The ongoing development of the Connecting with Country assessment	Complies: – See above for site access. – An Aboriginal artwork is being integrated with the flyover bridge parapet, columns, and abutment retaining walls. – Planting is being selected in consultation with the DSMG working group – Regular consultation is being undertaken with the DSMG working group and the local Dharug community.

ID	IMPACT	ENVIRONMENTAL SAFEGUARDS	COMPLIANCE
NAH4	Aboriginal Heritage	Consultation would continue with DSMG throughout detailed design and construction, under the Working Group agreement. DSMG input would be sought on: – The location and design of the interim and potential permanent driveway relocation – The opportunity to mitigate visual impacts of the proposal from the Blacktown Native Institution site, including cultural interpretations or design into the proposed road infrastructure (i.e. the flyover bridge or abutments) – The opportunity for culturally sensitive and locally indigenous plantings within the road corridor – The opportunity for the proposal to support the proposed development of the Blacktown Native Institution site in accordance with the Vision for Country (COLA, 2024) – The ongoing development of the Connecting with Country assessment – Impacts to culturally significant vegetation within the Blacktown Native Institution heritage curtilage and opportunities for replanting (including species and locations) and/or reuse of removed vegetation – Management of wildlife within the site during construction and potential future wildlife connectivity for operation of the road corridor and the DSMG site. – Design impacts and management of Bells Creek within the Blacktown Native Institution site during construction and plans for regeneration of the creekline as part of the works. – Management of noise impacts from the proposal both during construction and operation, and opportunities to enable future use of the Blacktown Native Institution site for cultural use. – Management of potential overshadowing and privacy impacts from the proposal both during construction and operation, and opportunities to enable future use of the Blacktown Native Institution site for cultural use.	Complies – these items are being managed and developed in consultation with DSMG, the Dharug community BCC, and Heritage NSW.
NAH6	Aboriginal Heritage	An opportunity for inclusion of culturally sensitive design and interpretation would be considered throughout detailed design to minimise the visual impacts from the Blacktown Native Institution site in consultation with the DSMG. These opportunities would align with relevant Heritage Council guidelines and the CMP for the site (GML, 2023).	Complies – consultation with DSMG and Heritage NSW are underway by TfNSW.
NAH9	Aboriginal Heritage	Detailed design would take into consideration the findings and recommendations of the Conservation Management Plan (CMP, 2024), Connecting with Country (Nguluway, 2025) and Urban Design Concept (DesignInc, 2024) reports.	Complies – these documents are informing the continued design development and community consultation.

Table 1 Compliance with the REF safeguards and mitigation measures.

ID	IMPACT	ENVIRONMENTAL SAFEGUARDS	COMPLIANCE
B1	General	A Flora and Fauna Management Plan (FFMP) would be prepared in accordance with Transport for NSW's Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024d) and implemented as part of the CEMP. The FFMP would include, but not be limited to: - Plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features and revegetation areas - Responsibility Timing Contractor Detailed design/Pre-construction requirements set out in the Landscape Guideline (TfNSW, 2023k) - Pre-clearing survey requirements, including specific pre-clearance measures for Cumberland Plain Land Snail and Southern Myotis (i.e. roost searches of culverts and bridges prior to any impacts) - Procedures for the management of resident Kangaroo populations during construction - Procedures for unexpected threatened species finds and fauna handling - Procedures addressing relevant matters specified in the DPI Policy and guidelines for fish habitat conservation and management (DPI, 2013) - Protocols to manage weeds and pathogens.	Complies
B2	Removal of native vegetation	Native vegetation removal would be minimised through detailed design and during construction.	Complies - vegetation removal is being minimised
B3	Removal of native vegetation	Pre-clearing surveys would be undertaken in accordance with Guide 1: Pre-clearing process of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024d).	Complies - vegetation removal is being minimised
B4	Removal of native vegetation	Vegetation removal would be undertaken in accordance with Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024d).	Complies - GEA DTI JV are managing this item
B5	Removal of native vegetation	Native vegetation would be re-established in accordance with Guide 3: Re-establishment of native vegetation of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024d).	Complies- biodiversity tree offset guidelines are to be met and all planting consists of native species as per the plant schedules.
B12	Removal of threatened fauna habitat	Habitat would be replaced or re-instated in accordance with Guide 5: Re-use of woody debris and bushrock and Guide 8: Artificial hollows of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024d).	Complies
B26	Edge effects on adjacent native vegetation and habitat	Exclusion zones would be set up at the limit of clearing in accordance with Guide 2: Exclusion zones of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024d).	Complies- tree protection details in LA01 Package and Section 5.10.3 of this report.
B32	Wildlife connectivity	Consider wildlife connectivity options for the management of resident kangaroo populations adjacent to the Blacktown Native Institution site and the corresponding area on the eastern side of Richmond Road.	Complies- panting palette limits the use of species loved by fauna beyond the fauna passage to prevent Kangaroos from grazing elsewhere.

ID	IMPACT	ENVIRONMENTAL SAFEGUARDS	COMPLIANCE
LC1	Urban Design Plan	The Urban Design Concept Plan (Design Inc (2024), Appendix I) would form the basis of future landscape and detailed design development, providing an integrated urban design for the proposal, providing practical detail on the application of design principles and objectives identified in the environmental assessment. The Plan would include design treatments for: - Location and identification of existing vegetation and proposed landscaped areas, including species to be used - Built elements including retaining walls, bridges and noise walls pedestrian and cyclist elements including footpath location, paving types and pedestrian crossings - Fixtures such as seating, lighting, fencing and signs details of the staging of landscape works taking account of related environmental controls such as erosion and sedimentation controls and drainage - Procedures for monitoring and maintaining landscaped or rehabilitated areas.	Complies - this UDLP is the mentioned document ad it addresses all of the items.
LC2	Urban Design	The urban design objectives and principles outlined in section 2.3.2 of this REF would be considered during subsequent design stages.	Complies - refer to Section 5.1 of this report.
LC3	Visual impact of construction work	Work sites, including construction areas and supporting ancillary facilities would be managed to minimise visual impacts, including appropriate fencing or screening (e.g. use of shade cloth), storage of equipment, parking, stockpile screening and arrangements for the storage and removal of rubbish and waste materials.	Complies - GEA DTI JV are managing this item
LC7	Vegetation removal	Clearly define clearance limits and exclusion zones to protect existing vegetation cover.	Complies - refer to DM01 package
LC8	Vegetation removal	Undertake landscape planting on the basis of the Urban Design Concept Plan (Design Inc (2024), Appendix I of the REF) including: Screening planting with local plant species that match the community and landscape character to minimise the impacts. Median planting with native grasses to reduce the apparent extent of hard paving and mitigate visual impact of the widening.	Complies- refer to Section 5.10 of this report and the LA01 Landscape package (drawing and detailed design report)
LC9	Visual impact of flyover bridge	Design of the curvature of the bridge would include small enough segments to achieve a smooth curved profile rather than a faceted profile, to achieve the elegant form envisioned for the structure.	Complies - the leading edge of the bridge parapet is curved to achieve a smooth profile.
LC10	Visual impact of flyover bridge	High quality design and finish to the bridge abutment walls, particularly where they face the Blacktown Native Institution site, and ongoing engagement with Aboriginal stakeholders around the potential for cultural interpretation.	Complies - design and artwork integration are underway. Refer to Section 5.9 of this report.
LC11	Visual impact of flyover bridge	Opportunities for artwork and/or design on the flyover bridge and retaining walls would be developed in consultation with local knowledge holders.	Complies - design and artwork integration are underway. Refer to Section 4.3.2 of this report.
LC12	Visual impact of flyover bridge	Opportunities for landscape treatment in the south-east corner of the Blacktown Native Institution site would be developed in consultation with local knowledge holders.	Complies - design is underway. Refer to Section 5.10.4 of this report.
S1	Sustainability	Integrate sustainability requirements/ initiatives/ opportunities identified in the Sustainability Plan (Stantec, 2024) into future design.	Complies - where possible, the landscape design includes WSUD. Further sustainability requirements are being managed by GEA DTI JV

5.3 BR01 Off-ramp bridge over Rooty Hill Road North

The flyover bridge structure taking northbound traffic from the M7 to Richmond Road, passing over Rooty Hill Road North, is 204m long with a superstructure of continuous concrete Super-T girders. There are five spans set at a 320m radius. The span lengths vary with the three largest being 47m each.

Bridge structure

The Super-T girders are supported by a single 2600mm diameter circular pier column and integrated headstock. The edge parapet will consist of a concrete MAO barrier with double steel railings. Due to the curved alignment of the bridge, the width of the outer girder flanges will be varied however, the downturn of the concrete parapet barrier will conceal this to an acceptable degree. There are no drainage pipes, other exposed service conduits, or light poles required along the length of the bridge.

The urban design benefits of this structural proposal are that the depth of the structure is as slender as possible, reducing the overall height of the flyover by approximately 1.0m compared to the Concept Design. It is also consistent with the bridge structures nearby on the M7 Motorway, presenting a consistent visual outcome which helps to mitigate the visual impact and to ensure the flyover integrates more effectively with its landscape setting.

The flyover offers the opportunity to respond to insights from the Connecting with Country engagement, as described above to strengthen the presence of the BNI site.

Abutments

The southern abutment (A) is a landscaped spill-through which merges with those of the existing M7 embankment which creates a well-vegetated landscape setting for the flyover bridge. The undercroft area directly beneath the bridge is paved with square, dark charcoal coloured paving set within a concrete edging strip. This paving extends to 1m beyond the bridge parapet alignment above to prevent scour from water drips.

The northern abutment (B) lands between the Richmond Road traffic lanes and is supported on retaining walls consisting of pre-cast concrete reinforced soil wall (RSW) panels which wrap around the abutment. Aboriginal art is integrated into the surface of the RSW panels. Refer to Section 5.9 for the retaining wall description.

Changes since 15% DCD:

- The bridge parapet skirt no longer overhangs the face of the RSW. They are flush with a shadow gap between the two elements. This saves considerable concrete mass and is an acceptable urban design outcome.
- The RSW panels step down around the concrete sill beam for constructibility reasons. The artwork will be continuous around the abutment wall faces.



Figure 24: Visualisation of the Flyover and off-ramp retaining wall (all artwork shown is indicative only, concept artwork is under development with the artist)

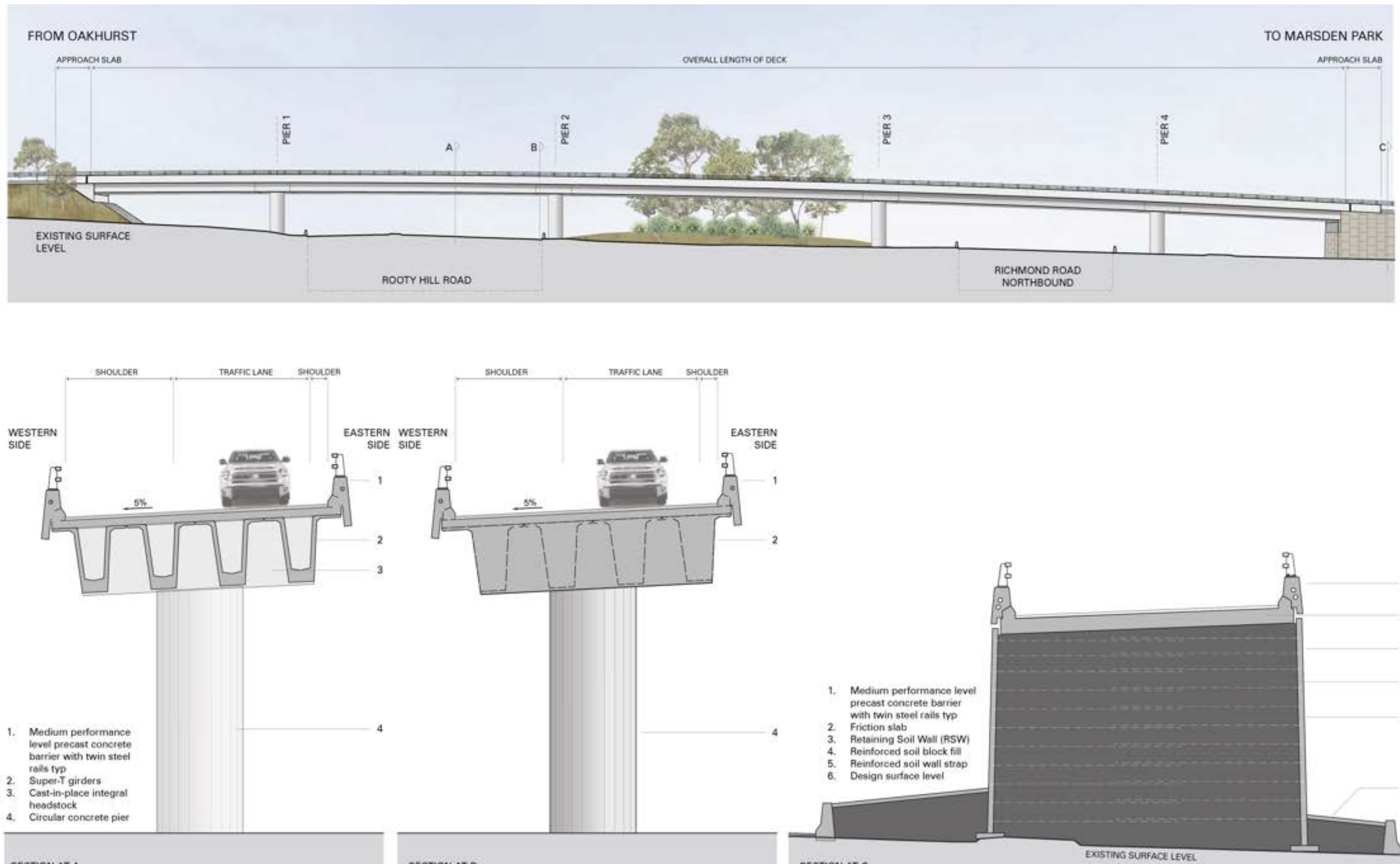


Figure 25: VBR-01 Flyover Illustrations

5.4 BR02 Bells Creek bridge

The bridge over Bells Creek will sit adjacent to and slightly higher than the existing road bridge, replacing the existing shared user path bridge. It will carry all northbound Richmond Road traffic and the shared path users over the creek. The superstructure consists of single span concrete integral spaced planks to provide a crossing over Bells Creek. There is a clear span of 20.5m between abutment walls.

The proposed bridge is approximately 300mm higher in RL than the Concept Design due to flooding constraints however this difference is considered inconsequential to the overall urban design strategy in this area which is to maintain the appearance of the flat topography and the scenic views across the rural grassland to and from Bells Creek.

The edge parapet will consist of a concrete MAO barrier with double steel railings. There are no light poles required on the bridge.

The spill through abutments and bridge undercroft area will have rock scour protection with pocket planting for protection and ecological continuity. Tree planting is planned along the western edge of the alignment, both north and south of the new bridge, combined with hydroseeded embankments.

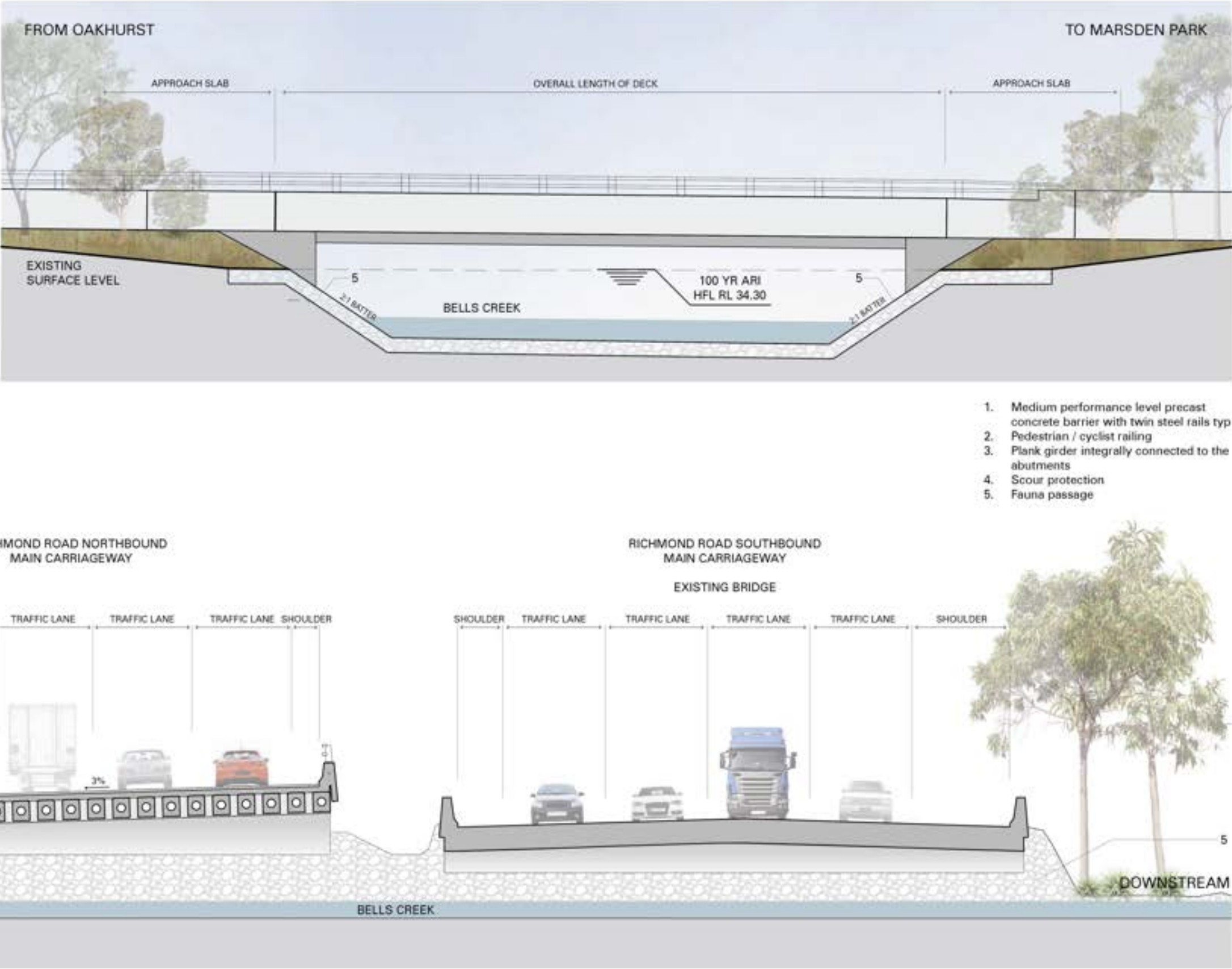


Figure 26: BR-02 Bells Creek Bridge Illustrations

5.5 Retaining walls

Retaining walls on the project are limited to those that are required to bring the the northern abutment (B) of bridge BR01 flyover traffic back down to ground level. The abutment lands between the Richmond Road traffic lanes and is supported on retaining walls consisting of pre-cast concrete reinforced soil wall (RSW) panels which wrap around the abutment.

The close adjacency of the traffic lanes and inadequate space for planting to soften the base of the walls means a high-quality wall surface design is essential. Implementation of cultural and heritage interpretation through artwork on the RSW walls is being developed. In a parallel co-design process with an Aboriginal artist with feedback from the community, the design will utilise pattern, texture and / or colour to create the artwork.

The artwork RSW walls will be visible to all road users and from the BNI site and will contribute to the visual outcomes of the large structure within the overall interchange while creating a connection to place and Country.



Figure 27: Typical RSW detail - artwork under development

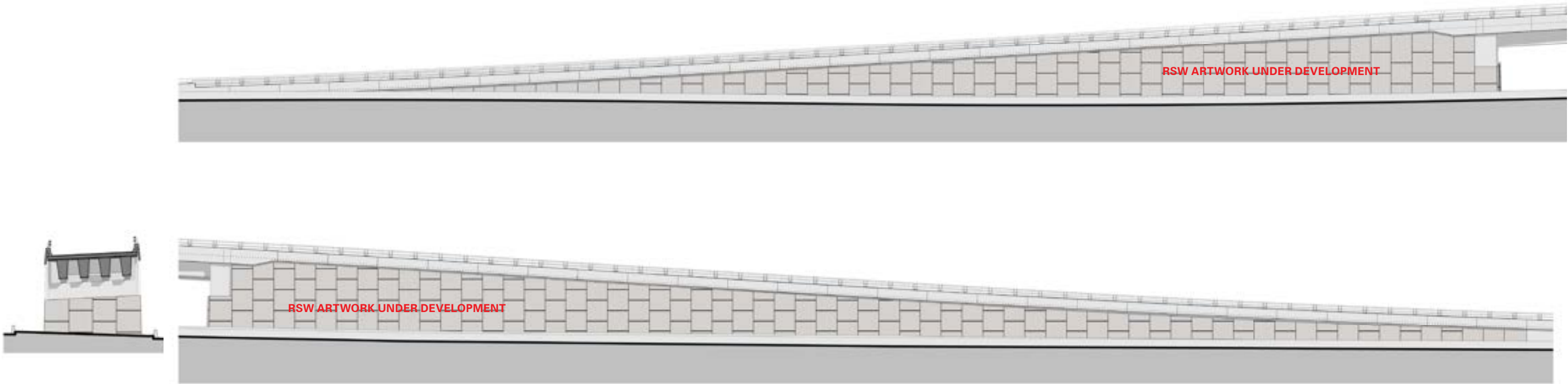


Figure 28: Elevation of retaining wall surfaces - artwork under development

5.6 Active Transport / Shared User Path

Along the alignment there are two main shared paths that have been incorporated into the design to support and encourage active transport options for the community..

- 2.5m shared path south of the Richmond Road / Rooty Hill Road North Intersection has been developed, continuing all the way to the Limit of works.
- A 4m shared path north of Richmond Road/ Rooty Hill Road North Intersection, along the Western side of the alignment, connecting back in to the local shared path network. It has a centre line marking to assist in delineating pedestrian and cyclist movements.

Additional to the shared paths, an on-road cycle lane has been provided along the southbound carriageway. The existing shoulder width on Rooty Hill Road North left-turn-lane (into Richmond Road northbound) has been retained for on road cyclists to join the shared path.

Planting

A narrow verge is provided between the carriageway and the shared path to create separation and improve user safety. This verge is planted with Zoysia ‘Empire’ turf. All planting adjacent to the shared path or footpath is set back to ensure vegetation does not overhang the pavement, avoiding safety and maintenance issues.

Fence

A standard TfNSW pedestrian fence (pipe handrail) is installed along the entire length of the shared path. Refer to the TfNSW standard shared path drawing R0800-29, shown in Figure 30.

At the Bells Creek crossing, the fence transitions to a shared path railing with a DDA compliant handrail, consistent with the detail shown in Figure 31.

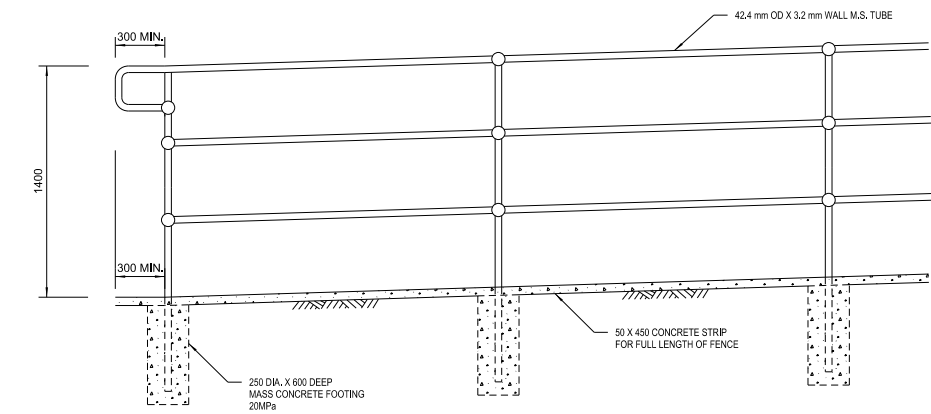


Figure 29: TfNSW pedestrian fence handrail detail

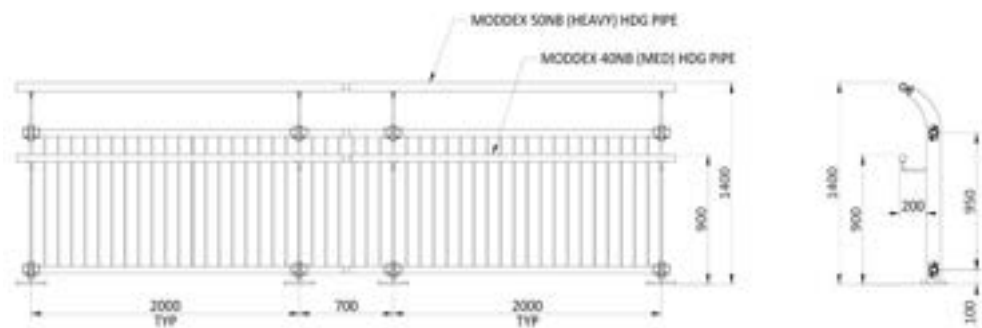


Figure 30: Shared path railing with DDA compliant handrail

5.7 CPTED

During detailed design, the four core pillars of Crime Prevention Through Environmental Design (CPTED) were considered throughout the detailed design to enhance public safety, improve perceived security and support intuitive movement along the corridor.

The key pillars:

- Passive Surveillance
- Lighting and Technical Security
- Territorial Reinforcement and Activation
- Access Control

Rather than relying on active security, CPTED uses preventative design strategies embedded within the physical environment. To achieve this, the alignment of the shared path, the selection of plant types, the configuration of landscape mounding and the lighting layout have been carefully developed to determine appropriate heights and forms that maintain visibility and reduce concealment opportunities. All four pillars have been actively applied across the site, with particular emphasis on the intersection at Rooty Hill Road North.

Passive Surveillance & Sightlines

Footpaths and dshared paths are placed in close adjacency to the road they are traveling along. The number of vehicles passing using road day and night provides a strong and constant passive surveillance mechanism.

Planting selections have been reviewed to ensure clear sightlines are maintained. This allows users of the shared path to see oncoming pedestrians and cyclists clearly, while also maintaining visibility between road users and the shared path. Maximising these sightlines is a critical factor in improving public perceptions of safety along the corridor.

Lighting & Technical Security

The lighting design has been developed in accordance with CPTED principles and SWTC Appendix B.17 requirements to enhance public safety and perceived security within the project works. Lighting supports natural surveillance by providing appropriate illumination at footpaths, intersections, merge/diverge lanes and other conflict points to improve visibility and recognition. Lighting layouts have been coordinated to minimise areas of shadowing and visual obstruction, particularly adjacent to the flyover bridge and shared paths. Luminaire selection, mounting height and optical distribution achieve AS/NZS 1158 lighting category performance while avoiding excessive glare and uncontrolled light spill.

Activation, Territorial Reinforcement & Access Control

Activation is being achieved by providing the shared path adjacent to the roadway and by integrating Aboriginal artwork relevant to the context. The artwork will add visual interest and achieve high quality placemaking outcomes.

A small landscape mound sits adjacent to the shared path near the Rooty Hill Road North intersection; key nodal point where three pathways intersect. Incorporating seating at this node may foster community activation, encouraging people to use the space for longer periods and increasing “eyes on the street.” Seating may be incorporated as part of the broader artwork review.

Simultaneously, the landscape mound serves as a natural tool for access control and territorial reinforcement. It provides visual screening to the adjacent BNI site through strategic planting density that maintains passive surveillance while discouraging climbing or unauthorised access. The vegetation reinforces the boundary between public and private land. A larger, longer mound extending into the BNI site, should this be approved to proceed, would achieve much stronger outcomes on this front.

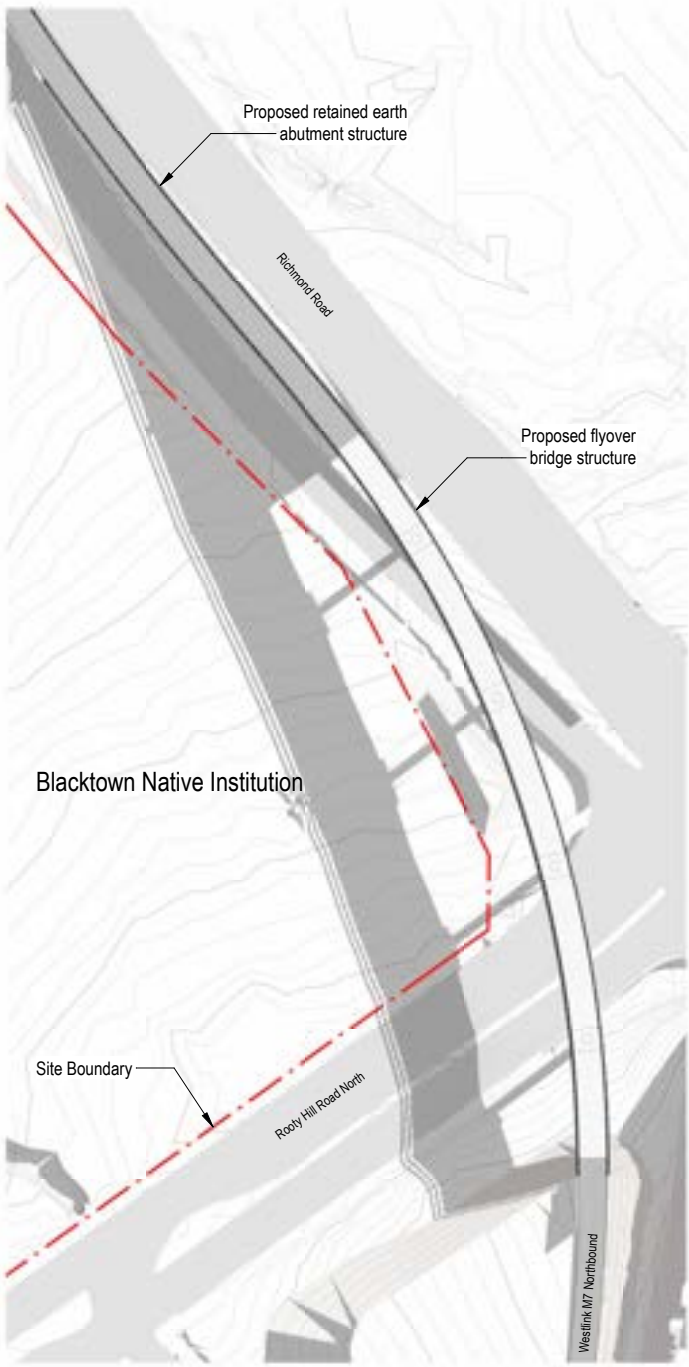
5.8 Shadow study assessment

Shadow studies have been undertaken of the new flyover bridge structure to inform the extent of impact on the heritage-listed BNI site.

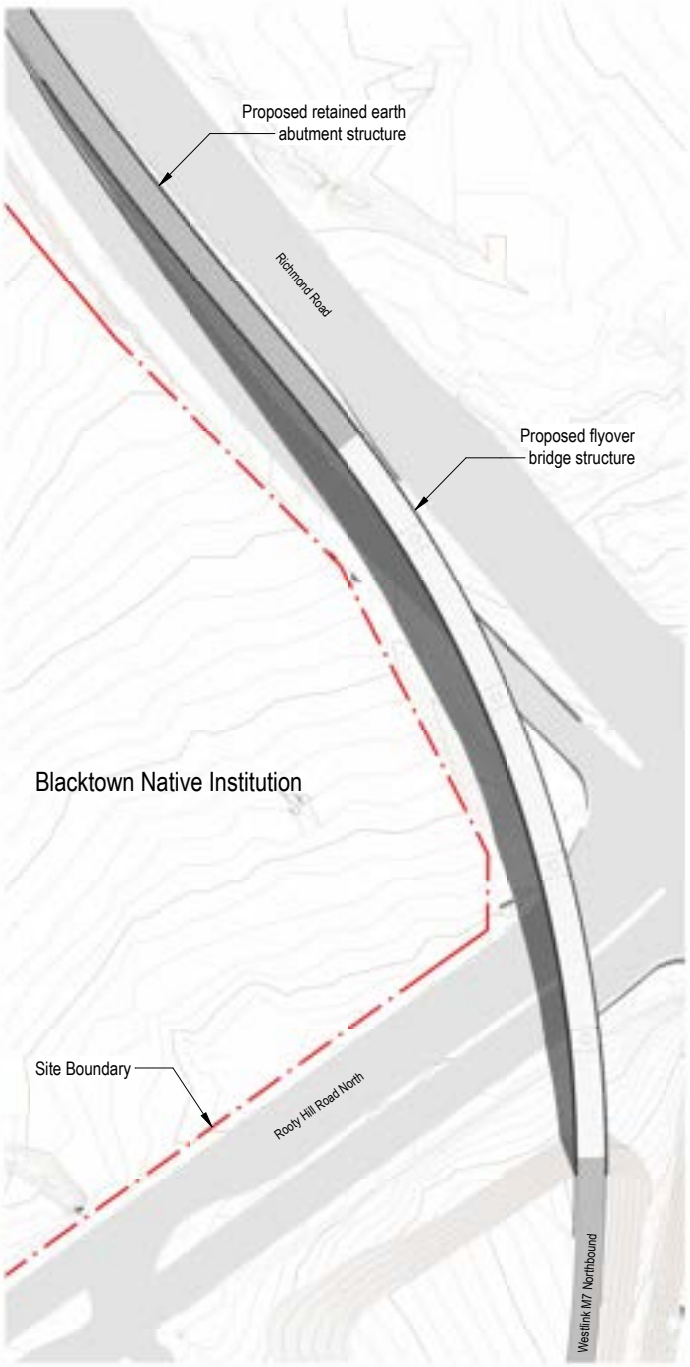
Winter Solstice Condition

The winter solstice diagrams indicate:

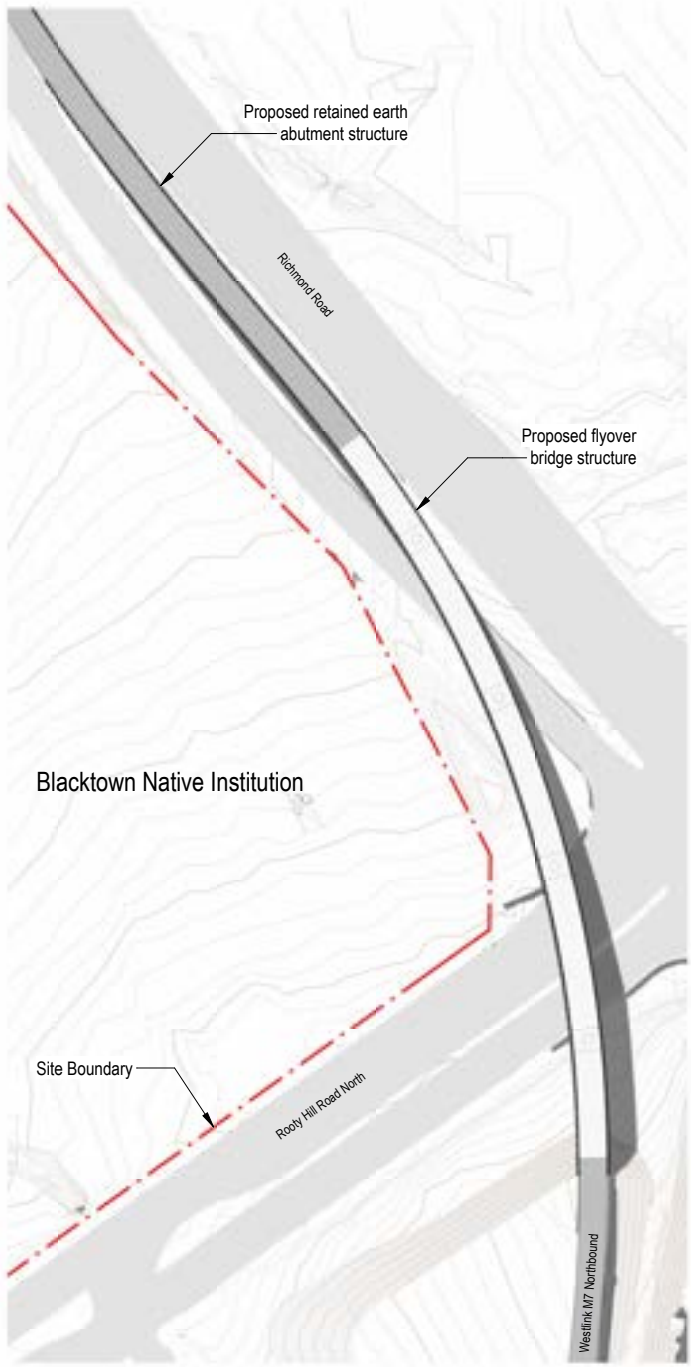
- The flyover bridge casts its longest shadows and generates some overshadowing during the morning (9:00am) and afternoon (3:00pm) periods, when the sun angle is lowest, producing the longest shadows. At these times, some shadowing extends across the adjoining BNI land identified by the red property boundary.
- Any overshadowing associated with the flyover is concentrated in the shoulder periods of the day rather than throughout the full daylight period.
- Midday solar access to the BNI property is largely retained.



WINTER SOLSTICE - 21 JUNE - 9AM



WINTER SOLSTICE - 21 JUNE - 12PM



WINTER SOLSTICE - 21 JUNE - 3PM

Figure 31: Winter solstice shadow study diagrams

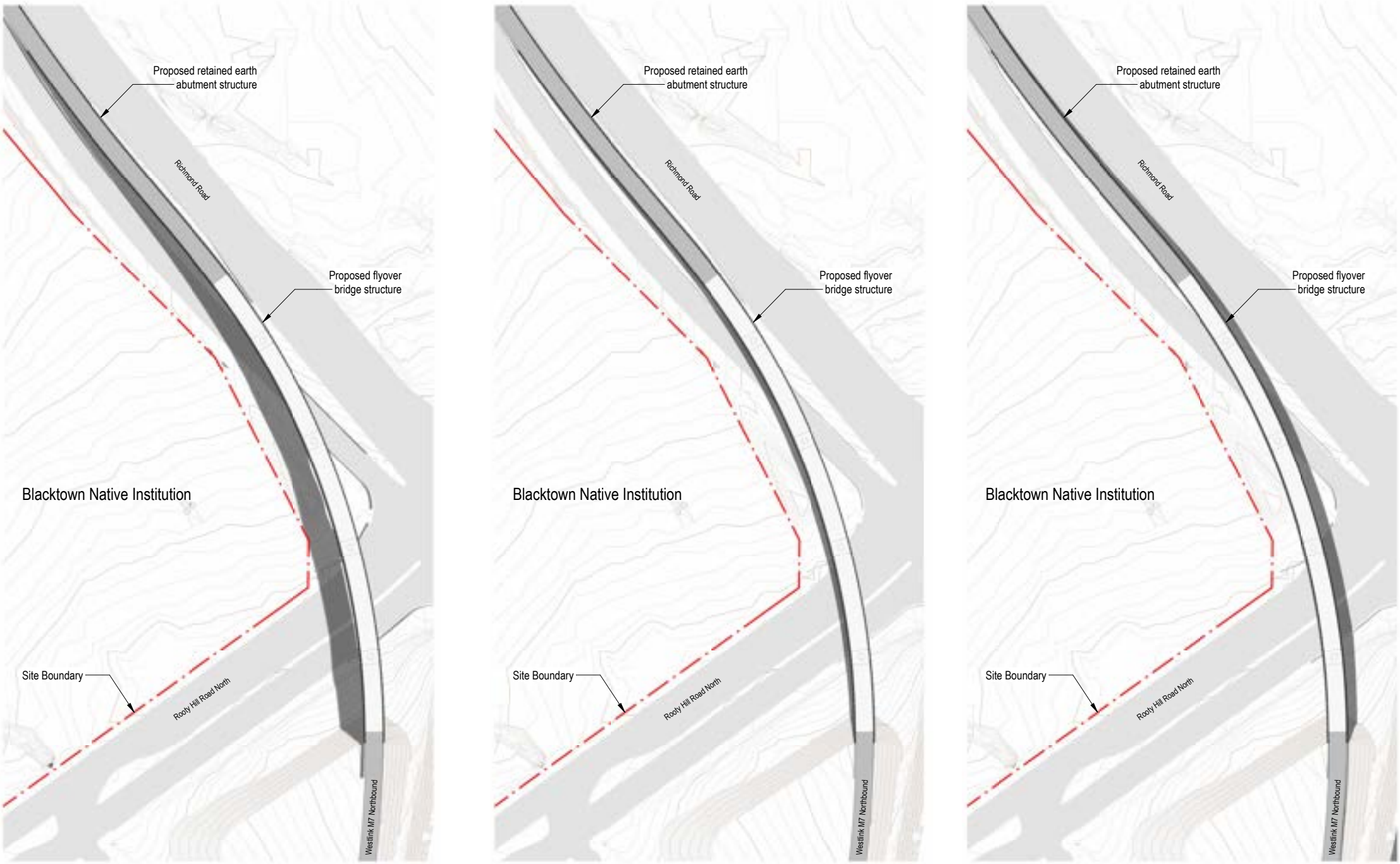


Summer Solstice Condition

- The summer solstice diagrams indicate:
- With morning and afternoon shadows being noticeably shorter than in winter, and generally confined closer to the structure itself, the BNI property experiences no impact during summer.

Assessment Summary

The diagrams indicate that while the eastern corner of the BNI property will experience temporary morning and afternoon shadowing, substantial solar access remains available during the central portion of the day. Overall, the flyover’s shadow impacts are seasonal and time-specific rather than continuous, with the most pronounced effects occurring during winter shoulder periods. Summer impacts are minor, with the bridge shadow generally remaining shorter and not crossing the property boundary.



SUMMER SOLSTICE - 21 DECEMBER - 9AM

SUMMER SOLSTICE - 21 DECEMBER - 12PM

SUMMER SOLSTICE - 21 DECEMBER - 3PM

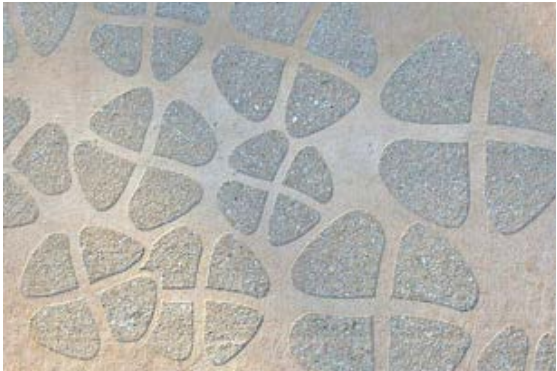
Figure 32: Summer solstice shadow study diagrams



5.9 Finishes schedule

The project alignment creates opportunities to incorporate artistic outcomes to tell the story of Country and the BNI site. Different methods for treatment of these surfaces are being explored through the artwork co-design process and these have been listed below and described through precedent imagery.

Through the artwork development, a final finishes palette and surface treatment will be selected based on the desired artistic outcomes, the technical production constraints, durability, maintenance, and safe work methods.

Item No.	Location	Urban Design Material / Finishes Description	Reference Images		
1	Flyover Northern abutment - precast concrete RSW retaining wall panels	Pre-cast concrete panels - interlocking 2 x 2m. The co-designed Aboriginal artwork will integrate pattern, texture and colour into the pre-cast panels using exposed aggregates and/ or cast-in rebated shapes to create relief or paint treatment to the surface. Locally sourced basalt aggregates will create a dark grey colouring and are appropriate to tell the stories of Country.			
2	Flyover bridge piers	The circular piers will be incorporated with the wider creative narrative applied to the RSW walls. This includes pattern, texture and colour, to match the materials and artwork narrative of the adjacent RSW abutment retaining walls. The method would require wrapping around the circular face of the bridge pier — motif painting, exposed aggregate, motif relief, and other surface treatments would be explored during the artwork development process. A single design can be applied to all four piers, rotated to achieve visual differences.			
3	Shared path	Broom finish concrete with inlays, patterning or added coloured oxides, castings or sand blasting would be co-designed with an Aboriginal artist to reflect a selected Aboriginal narrative or theme. This will enhance the user experience and create an intimate-scale connection to Country.			
4	Landscaped mound at south-western corner of BNI site.	A landscaped low mound will protect and screen the BNI site. This is presently positioned outside the BNI site boundary, adjacent to the shared path, however, there is an opportunity for a more significant intervention of a larger vegetated mound that would continue within the BNI site. This appears to be in line with the DSMG's masterplan vision and would need be considered in consultation with them.			

5.10 Landscape design

The landscape design has been developed to reflect and respond to the unique environmental, visual, and cultural context of the project area of Richmond Road upgrade. Situated within multiple landscape character zones including natural bushland, semi open grassland, open rural grassland, urban infrastructure, and residential communities, the design seeks to mediate these conditions through a cohesive, resilient, and context-sensitive approach.

The planting strategy draws inspiration from the surrounding native ecosystems, particularly the Cumberland Shale Plains Woodland and the Cumberland Red Gum River Flat Forest communities, and riparian vegetation associated with Bells Creek. By selecting locally occurring native species, the design reinforces the existing landscape character, enhances ecological connectivity, and reduces maintenance requirements over time.

5.10.1 Objectives

The Landscape Design package has been developed based on the following design objectives:

- To fit sensitively with the character of the area, in terms of vegetation, topography, local cultural and natural heritage, views, public space and built form.
- To ensure connectivity and permeability for communities is maintained and enhanced particularly with regard to active transport
- To design self-explaining road environments and good user experience
- To connect with Country, interpret, and contribute to adjacent places through landscape, integrated art, and lighting, and
- To achieve an integrated coordinated design that is respectful of the recognised M7 architectural and landscape design qualities and generates an outcome that is durable, sustainable, safe, and requires minimal maintenance.

The following design consideration have been identified that the landscape should respond to:

- matches the context and character of the landscape through which it passes.
- responds to views available to all users on the new alignment.
- considers vegetation safety clearances and other performance and safety requirements.
- provides a cost-effective method of establishing such a large tract of vegetation.
- augments the existing vegetation patterns by connecting patches of remnant vegetation on either side of Richmond Road and ensuring that the newly installed landscape is not always lining the roadside, creating a linear edge.
- takes a holistic approach which extends to the initial topsoil stripping to best achieve the biodiversity and protection outcomes for the project.

The majority of the alignment is to be planted due to the projects urban nature. Planting will be used on all embankments, and seeding will only be utilised where large areas are requiring a vegetative response and are located away from the alignment.

Advanced planting is to be confined to the intersection between Rooty Hill Road and Richmond Road to highlight the intersection and establish a sense of place within a fast timeline.

The majority of the alignment is proposed to be planted due to the project’s urban context. Planting will be used across all embankments, with seeding reserved for larger areas that require broad vegetative coverage and are located away from the main alignment.

Advanced planting is concentrated at the intersection of Rooty Hill Road and Richmond Road to emphasise this key node and establish a sense of place within a shorter establishment timeframe.

5.10.2 Earthworks, Landform and slope stabilisation

In general, the earthworks have been designed to integrate with the adjoining existing landforms, taking into account topography, corridor width and engineering requirements.

The earthworks design is generally consistent with the requirements of SWTC Appendix B11: Urban Design. Focus has been placed on ensuring a positive experience for drivers and viewers by ensuring vertical and horizontal alignment of works flow and respond to the existing landform as far as possible. This has been achieved through the treatment of batters. The tops and bottoms will be rounded and feathered into the adjacent landform whilst the ends of cuttings will be rounded off and progressively flattened to blend into the surrounding landform, avoiding an artificial looking embankment.

Where slopes are steeper than 2:1 the batter will be stabilised with Organic Fibre Matter (OFM) pinned to the surface for erosion control.

A landscape mound has been introduced adjacent to the start of the BR01 Flyover. This will comprise of excess spoil and its batters will be treated as described above. If the embankment slope is large or steep, additional site won rocks boulders, felled tree logs, or staggered coir logs will be integrated to a create niche landscape and break up the uniform grade. Over the course of design development, the landscape mound will be further developed to contain excess surplus topsoil, as means to redirect and reuse material.

The exact dimensions and shape of landscape mounds and its treatments will be further developed in the next submission of the LA01 package with consultation and guidance from the engineering team, once a more defined amount of surplus soil has been determined and modelling has taken place.

The landscape mound, created following the removal of EEC vegetation for the Ancillary Site, will be re-vegetated with tubestock trees from the Cumberland Plain Woodland to reinstate the lost vegetation community. As the project progresses and the final spoil volumes are confirmed, the form of the mound may be further refined. Regardless of any adjustments to its shape, the landscape treatment and planting rationale will be retained, provided the embankment slopes remain suitable for the intended planting design.

5.10.3 Retention of existing vegetation

Protecting and retaining as much of the existing vegetation along the corridor is key to keeping Threatened Ecological communities intact.

The vegetation clearing will be carried out in accordance with TfNSW D&C Specifications.

A suitably qualified Project Ecologist will be engaged by the CJV to undertake:

- Pre-clearing surveys.
- Identify and mark any habitat trees.
- Prepare a report regarding weeds in the clearing limits, prior to clearing works
- Keep records and report on fauna captured and /or relocated and report any death or injury of threatened species to TfNSW.
- Provide advice on the reuse of woody debris and bushrock.
- Engage other specialists as required.

During clearing, an experienced licensed wildlife carer or ecologist will be present to supervise the works. They will be required to capture, and subsequently relocate, fauna in accordance with the Fauna Rescue and Release Procedure.

Remnant areas of existing native vegetation including any threatened species will be fenced off during construction to prevent unauthorised access or accidental damage.

The construction footprint has been minimised in order to maximise the retention of existing vegetation. In general, except where required for specific construction purposes (e.g. sediment basins, stockpile areas, ancillary facilities etc.) the construction footprint beyond the toe of batters or top of cuts will be restricted to three metres.

Where significant stands of vegetation are to be retained, temporary exclusion fencing will be erected before the commencement of construction. Storage of materials, mixing of materials, vehicle parking or stockpiling of materials will not be carried out within the drip line of trees that are being retained. No bulk materials and / or harmful materials will be placed under or near trees. Spoil, chemicals or construction waste from excavations will not be placed against tree trunks, even for short periods. All measures will be undertaken to prevent windblown materials from harming trees and plants. Topsoil will not be added to or removed from within the drip line of retained trees without approval.

No encroachments into adjacent nominated bushland or vegetation will be permitted for access of machinery, for traffic control or for the stockpiling of material required for construction.



Figure 33: Existing vegetation along Richmond Road alignment



Figure 34: Existing vegetation east of Richmond Road

5.10.4 Re-vegetation Strategy

Re-vegetation across the project will be largely achieved through planting of containerised plant stock into prepared planting areas with selected native species. As the alignment is mostly an urban Corridor the use of seeding may be provided where areas are away from the road corridor or embankments are too steep to plant.

All other planting establishment works will be undertaken in accordance with TfNSW D&C Specifications R178 Vegetation and R179 Landscape Planting

In locations where slopes are 2:1 or more shallow, re-vegetation will be undertaken using planting, particularly in prominent locations. Endemic native species are used throughout the project. On 2:1 embankments, erosion control measures will be applied with the use of coir logs and organic fibre mat.

Planting and seeding schedules have been devised based upon the plant communities identified in the biodiversity report and also through ground-truthing investigation by the design team.

Just like the natural PCT’s that the project travels though, these PCT’s are predominantly tree canopy and grasses/groundcovers as such the re-vegetation planting strategy intent is to replant in a similar vain. Trees are planted with a complimentary grasses/ groundcover planting mix.

At the BNI corner of the alignment a more generalised mix of planting will be provided, this planting mix includes shrubs as well as the grasses/groundcovers and tree planting and are mainly indigenous species to highlight the connection to the adjacent BNI site beyond the landscape mound.

Seed Collection and Seeding

The seed mix chosen contain seeds of plants known to establish well from seed and occurs within the Cumberland Plain Woodland vegetation community. The Seeding species chosen are well known and have been tried and tested to germinate profusely.

Seeding is only provided away from the alignment where large portion of landscape has been disturbed, this occurs on the eastern edge of the alignment surrounding the open drainage channel and basin.

The seed mix that has been developed includes:

- native grass
- shrub seed mix
- cover crop seed mix

Where seeding occurs, it will be applied by hydromulching.

The species selected for seeding mixes are those occurring along the proposed footprint and are known to be hardy, drought tolerant and to establish quickly from seed.

As per SWTC Appendix B11 9.4 (i) all seed mixes are to have a minimum rate of 8kg/Ha and cover crop seed mix rate of 20kg/ha.

Seeding methods must comply with the Florabank Guidelines and SERA National standards for the practice of ecological restoration in Australia Principle 5.

Planting

The planting on embankments will consist of native grasses and groundcovers. All embankments and disturbed areas will be planted. Planting is used along the alignment in various mixes to provide an enriched landscape. The tree planting has been carefully co-ordinated to ensure all setback requirement, safe stopping sight distances, utility clearances are achieved.

Tree Planting

Tree planting is proposed throughout the alignment to ensure shade is provided along the shared path and to reinforce the landscape character of the corridor. Tree species have been selected to suit the existing site conditions and microclimates adjacent to their planting locations.

There are three different types of tree planting sizes.

- 100L planting stock : Used for all feature trees plantings at the intersection of Rooty Hill Road North and Richmond Road. The larger stock size provides immediate visual presence, assists in defining the intersection, and contributes to early canopy establishment.
- 75L Planting Stock: Used at key locations along the shared path, including the approaches to the Rooty Hill Road North and Richmond Road intersection. These trees accentuate important nodes and provide the necessary shade and visual structure while maintaining consistency with the broader landscape palette.
- Tubestock Trees: On the eastern side of the alignment, where larger clusters of trees are proposed away from the road corridor, tubestock tree planting is used to mimic the structure of the adjacent natural vegetation. This approach strengthens ecological connectivity between existing forested areas, Bells Creek and surrounding bushland, contributing to long-term revegetation outcomes.

Along the shared path, 75 Litre trees are positioned at the top of the embankment at 15 metre centres to provide shade while avoiding conflict with the underground electrical alignment. Tubestocks are planted between these trees to maintain a rhythmic planting pattern without compromising embankment stability, as smaller planting holes reduce the risk of undermining the fill batters.

Tubestock trees are proposed around the open drainage channel, which is treated as a revegetation zone and is set back from the carriageway. These trees are typically Eucalyptus species, which establish well from tubestock and achieve rapid early growth under suitable site conditions.

Planting adjacent to BNI Site

A small landscape mound is located outside of the boundary of the BNI Site at the corner of Rooty Hill Road North and Richmond Road. The planting chosen for this mound has been through a consultation process with DSMG, with the DSMG providing inputs into preferred planting or those plants preferred not to be used.

The plantings on the mound will include planting with colour and texture whilst also having an indigenous overlay. Trees are also included in this planting mix. The mound is low and allows the BNI site to be protected from the corner without a feeling of being fenced in.

Planting occurring towards the shared path will be lower grass species that do not encroach onto the shared path.

Landscape mound

A Landscape Mound is required adjacent to the start of the BR01 Flyover. The landscape mound should look natural within the landscape and not out of the place. The mound will also help to mitigate the height of BR01.

The landscape mound, created following the removal of EEC vegetation for the Ancillary Site, will be re-vegetated with tubestock trees from the Cumberland Plain Woodland to reinstate the lost vegetation community. As the project progresses and the final spoil volumes are confirmed, the form of the mound may be further refined. Regardless of any adjustments to its shape, the landscape treatment and planting rationale will be retained, provided the embankment slopes remain suitable for the intended planting design.

Planting at medians

Where planting within medians occur the median is generally a depressed swale. The planting contains various heights of native grasses and groundcovers, with Dianella, Hardenbergia and Poa located on the batters, Lomandra, Goodenia located at the lowest point of the median as these can tolerate wetter soils.

Sightlines are always carefully considered within the road corridor when planting is proposed in medians and is to take precedence. Low maintenance vegetation that can handle the harsh roadside conditions have been selected.

Turf lined channel

The vegetated channels along the alignment are all turf lined channels, to reduce the overall long term maintenance of the channels.

Turf species is “Zoysia Empire”

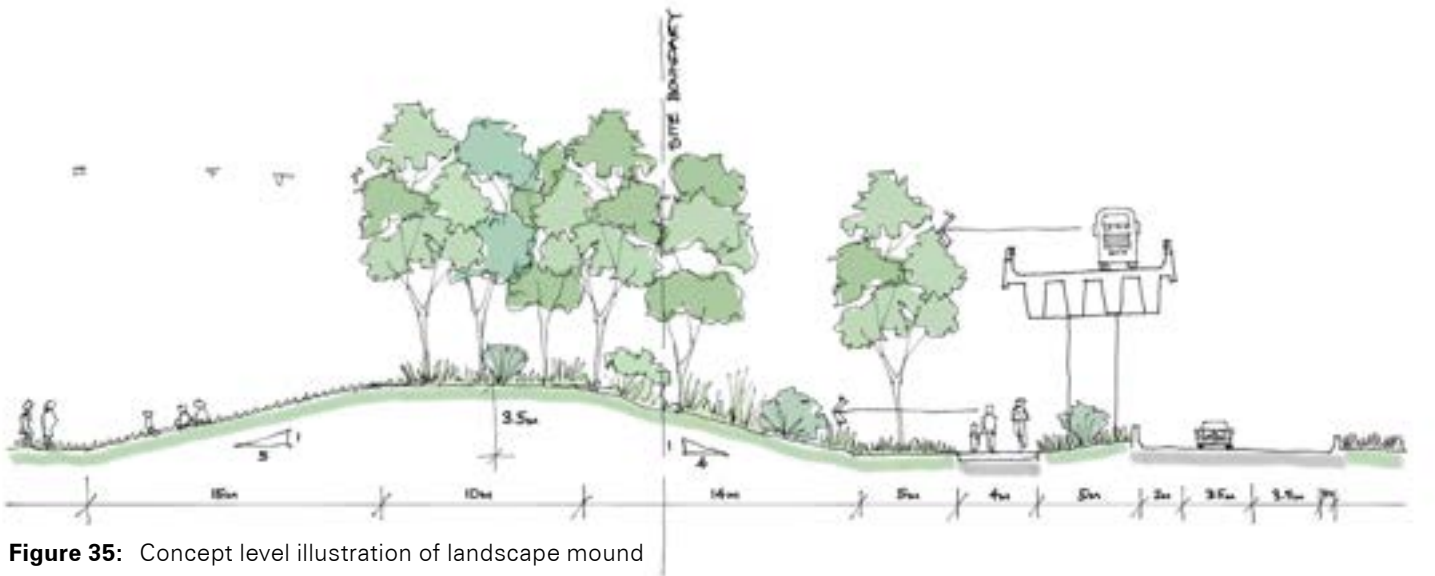


Figure 35: Concept level illustration of landscape mound

Mulch

Site-won woodchip mulch and leaf litter supplemented with imported mulch will be used on all new planting areas on the project. Mulch will be spread to a depth of 100mm to assist in weed suppression and erosion control and to prevent the soil drying out.

As required by TfNSW D&C Specification R179 coarse hardwood chipped mulch derived from site clearing works or from certified renewable sources should be used in all landscape planting –mulch should be derived from trees, shrubs and any other vegetative material that is acceptable for use as mulch removed during clearing and grubbing site works.

The mulch must not contain any seed bank or propagules from species that may cause a maintenance burden from uncontrolled and rapid germination.

If the mulch produced in this way is insufficient, the shortfall can be made up by using imported organic mulch that complies with AS 4454. All organic mulch is required to be tested for conformity of R179, 2.2 requirements and a sample provided prior to use.



Figure 36: Visualisation of the flyover bridge from the BNI site (all artwork is indicative only, concept artwork is under development with the artist)

5.10.5 Water Quality Basins and Open Drainage Channel

A single biofiltration water quality basin is required on the eastern side of the alignment. This water quality basin will take water from the unnamed Creek passing from the M7 to Bells Creek.

The basin will be planted out with mass planting of tubestock planting to both the basin floors and embankments using riparian plant species that at know to remove pollutants, the water will then seep through the floor of the basin as it passes through filter media and removes additional pollutants. This Basin will treat the runoff from the new roadworks.

The basin is set back from the road corridor and screened by additional tubestock tree planting. The basin has a minimal 300mm depth of standing water at any time and it is due to this low level of water that no fence is required to surround the basin.

The inner slopes of basins will be re-vegetated by planting with selected native sedge (macrophyte) species that occur in the along Bells Creek. Planting will be located above and below the predicted average water level of the basin and from there it is anticipated that wetland plants will migrate into the water to their preferred depth. There is a range of planting zones, these planting zones will comprise of various species, each zone and species will be dependent of the amount inundation for that zone.

The outer slopes of the basin will be supplemented with direct planting of containerised trees and seeded with groundcovers to selected locations.

The Open Channel (Eastern Drain Swale) will be realigned and will be planted out with Tubestock plants at a rate of 8/m². The species will contain endemic sedge. These species can tolerate a mix of wet and dry soils, however where the zone is more likely to be consistently inundated with water these planting will be chosen to ensure they can tolerate that condition.

Where long steep batters occur leading into the basin inner batter, Organic Fibre Mesh will help to control erosion on the 2H:1V sides.

Further detail will be provided for SDD

Vegetated Channel

The vegetated Channel will be turf lined with Zoysia ‘Empire’.

5.10.6 Water Sensitive Urban Design (WSUD)

WSUD principles have been incorporated throughout the road corridor to improve stormwater quality, enhance ecological function and integrate water-sensitive landscape treatments into the urban environment. The design includes a biofiltration basin to treat runoff from the carriageway, turf-lined channels that slow and filter overland flow, and a realigned drainage channel planted with riparian species capable of tolerating periodic inundation and providing pollutant-cleansing benefits. A vegetated depressed median further contributes to distributed stormwater treatment, offering additional filtration, sediment capture and landscape integration within the road reserve

5.10.7 Planting and Seeding

Trees, shrubs and groundcovers are required for early landscape and visual effects particularly at connections, intersections, ramps and other locations to create specific landscape outcomes. Landscape plays a role in visually screening the retaining walls from users along the corridor and the shared path and this helps to provide a well-vegetated corridor as well.

All plant species have been selected from plants known to grow well within the Project area. Plant selection has sought to use species based on their suitability to the climatic and site conditions, their contribution to biodiversity, and their appropriateness when considering sightline and clear-zones.

Planting and seeding schedules have been devised based upon the plant communities identified in the biodiversity report.

Planting

The planting mixes have been developed for the project based upon their intended use and purpose, the species in those mixes have been developed to enhance the existing vegetation community that is crosses by the alignment as well as for their known hardiness in a roadside condition and that are appropriate to disturbed, developed soil conditions.

All embankments and disturbed areas will be planted. Where strands of existing trees are being retained the approach is to just provide a large tree protection zone for that strand and retain the under-storey. As the area will not be disturbed there will be no additional treatment proposed so not to disturb the levels and soil to these existing trees.

Planting is used along the alignment in various mixes to provide an enriched landscape.

The following planting mixes have been devised for the project, each one broken down to reflect their particular usage – planting may consist of the same species just in different spacing ratio’s or sizes.

- Tree Planting
- Planting within Medians/depressed channel
- Planting in drainage channels
- Planting in basins
- Planting to landscape mound in front of the BNI Site
- Planting of mass grasses and groundcovers
- Scour treatment planting / pocket planting
- Fauna underpass planting

Botanical Name	Common Name
Tree Planting Mix	
Feature trees	
Melaleuca decora	Paper Bark
Tree planting	
Eucalyptus amplifolia	Cabbage Gum
Eucalyptus crebra	Narrow-leaved Red Ironbark
Eucalyptus eugenioides	Stringbark
Eucalyptus moluccana	Gum-topped Box
Eucalyptus tereticornis	Forest Red Gum
Tristaniopsis laurina	Water Gum
Waterhousea floribunda	Weeping Lilly Pilly
Tubestock tree planting	
Angophora floribunda	Rough-barked Apple
Corymbia maculata	Spotted Gum
Eucalyptus crebra	Narrow-leaved Red Ironbark
Eucalyptus eugenioides	Stringbark
Eucalyptus moluccana	Gum-topped Box
Eucalyptus tereticornis	Forest Red Gum
Waterhousea floribunda	Weeping lilli pilli
Tubestock tree planting (near drainage channel or Bells Creek)	
Angophora floribunda	Rough-barked Apple
Eucalyptus amplifolia	Cabbage Gum
Melaleuca decora	Paper Bark
Melaleuca linariifolia	Snow in Summer
Melaleuca styphelioides	Prickly-leaved Tea Tree
Tristaniopsis laurina	Water Gum

Botanical Name	Common Name
Shrub and Groundcover Planting Mix	
Under bridge flyover - sightlines to shared pathway	
<i>Billardiera scandens</i>	Apple Berry
<i>Dianella caerulea</i>	Blue Flax-Lily
<i>Hardenbergia violacea</i>	False Sarsaparilla
<i>Lomandra multiflora</i>	Mat Rush
<i>Lomandra 'Nyalla'</i>	Nyalla Mat Rush
<i>Microlaena stipoides</i>	Weeping Grass
Under bridge flyover - NO sightlines to shared pathway	
<i>Billardiera scandens</i>	Apple Berry
<i>Dianella caerulea</i>	Blue Flax-Lily
<i>Hardenbergia violacea</i>	False Sarsaparilla
<i>Lomandra multiflora</i>	Mat Rush
<i>Lomandra 'Nyalla'</i>	Nyalla Mat Rush
<i>Microlaena stipoides</i>	Weeping Grass
Under bridge flyover - behind F type barrier	
<i>Dillwynia sieberi</i>	Sieber's Parrot-pea
<i>Indigofera australis</i>	Australian Indigo
<i>Pultenaea parviflora</i>	Sydney Bush pea
Under bridge flyover - mid zone	
<i>Ajuga australis</i>	<i>Broadleafed hopbush</i>
<i>Dianella caerulea</i>	<i>Blue Flax-Lily</i>
<i>Lomandra longifolia</i>	<i>Spiny headed Mat Rush</i>
<i>Lomandra multiflora</i>	<i>Mat Rush</i>
<i>Microlaena stipoides</i>	<i>Weeping Grass</i>
<i>Poa labillardieri</i>	<i>Juniper</i>



Cumberland Shale Plains Woodland Community



Silky hakea

Botanical Name	Common Name
Open Drainage Channel Planting	
Inundation zone	
<i>Baumea articulata</i>	Jointed Twig Rush
<i>Carex appressa</i>	Tall Sedge
<i>Eleocharis acuta</i>	Spikerush
<i>Eleocharis sphacelata</i>	Tall Spikerush
<i>Juncus usitatus</i>	Common Rush
<i>Schoenoplectus validus/mucronatus</i>	River Club Rush
Slopes and embankments	
<i>Baumea articulata</i>	Jointed Twig Rush
<i>Daviesia ulicifolia</i>	Gorse Bitter-pea
<i>Eleocharis acuta</i>	Spikerush
<i>Ficinia nodosa</i>	Knobby Club Rush
<i>Gahnia fiul</i>	Chaffy Saw-Sedge
<i>Lomandra filiformis</i>	Wattle Mat Rush
<i>Lomandra longifolia</i>	Spiny Headed Mat Rush
<i>Microlaena stipoides</i>	Weeping Grass
<i>Pennisetum alopecuriodes</i>	Pink Honey Myrtle shrub
<i>Poa labillardieri</i>	Common Tussock Grass

Botanical Name	Common Name
Basin Planting Mix	
Inundation zone	
<i>Carex appressa</i>	Tall Sedge
<i>Eleocharis acuta</i>	Spikerush
<i>Ficinia nodosa</i>	Knobby Club Rush
<i>Gahnia filum</i>	Chaffy Saw-Sedge
<i>Juncus kraussii</i>	Sea Rush
<i>Juncus usitatus</i>	Common Rush
<i>Melaleuca erubescens</i>	Rosy Honey-myrtle
<i>Pennisetum alopecuriodes</i>	Swamp Foxtail Grass
<i>Schoenoplectus validus/mucronatus</i>	River Club Rush
Slopes and embankments	
<i>Baumea articulata</i>	Jointed Twig Rush
<i>Ficinia nodosa</i>	Knobby Club Rush
<i>Juncus usitatus</i>	Common Rush
<i>Pennisetum alopecuriodes</i>	Swamp Foxtail Grass
Upper slopes and landscape buffer	
<i>Baumea articulata</i>	Jointed Twig Rush
<i>Dianella longifolia</i>	Pale Flax-Lily
<i>Dodonaea viscosa</i>	Sticky Hopbush
<i>Goodenia ovata</i>	Hop Goodenia
<i>Lomandra filiformis</i>	Wattle Mat Rush
<i>Lomandra longifolia</i>	Spiny Headed Mat Rush
<i>Microlaena stipoides</i>	Weeping Grass
<i>Poa labillardieri</i>	Juniper



Botanical Name	Common Name
Pocket planting	
<i>Carex appressa</i>	Tall Sedge
<i>Ficinia nodosa</i>	Knobby Club Rush
<i>Juncus usitatus</i>	Common Rush
<i>Lomandra hystrix</i>	Creek Mat Rush
<i>Melaleuca erubescens</i>	Rosy Honey-myrtle
<i>Microlaena stipoides</i>	Weeping Grass
<i>Pennisetum alopecuroides</i>	Swamp Foxtail Grass
<i>Poa labillardieri</i>	Juniper
Median Planting Mix	
<i>Carex appressa</i>	Tall Sedge
<i>Dianella caerulea</i>	Blue Flax-Lily
<i>Dodonaea viscosa</i> 'Little Greenie'	Hopbush
<i>Goodenia ovata</i> (Prostrate)	Hop Goodenia
<i>Hardenbergia violacea</i>	False Sarsaparilla
<i>Lomandra 'Tanika'</i>	Mat Rush
Mass Grass Planting Mix	
<i>Dianella caerulea</i>	Blue Flax-Lily
<i>Hardenbergia violacea</i>	Purple Coral Pea
<i>Indigofera australis</i>	Australian Indigo
<i>Lomandra longifolia</i>	Spiny headed Mat Rush
<i>Lomandra multiflora</i>	Mat Rush
<i>Microlaena stipoides</i>	Weeping Grass
<i>Scaevola albida</i>	Pale Fan Flower
<i>Chloris truncata</i>	Windmill Grass
<i>Rytidosperma sp.</i>	Wallaby Grass
<i>Scaevola albida</i>	Pale Fan Flower
<i>Themeda triandra</i>	Kangaroo Grass

Botanical Name	Common Name
BNI Planting Mix	
<i>Actinotus helianthi</i>	Flannel Flower
<i>Ajuga australis</i>	Austral Bugle
<i>Billardiera scandens</i>	Apple-berry
<i>Brachyscome multifida</i>	Cut-leaf Daisy
<i>Carpobrotus glaucescens</i>	Pigface
<i>Dianella caerulea</i>	Blue Flax-Lily
<i>Dodonaea viscosa</i> subsp <i>cuneata</i>	Wedge-leaf Hop-bush
<i>Grevillea juniperina</i>	Juniper-leaf Grevillea
<i>Hardenbergia violacea</i>	Purple Coral Pea
<i>Indigofera australis</i>	Australian Indigo
<i>Kennedia prostrata</i>	Scarlet Coral Pea
<i>Kunzea ambigua</i>	Tick bush
<i>Lissanthe strigosa</i>	Peach Heath
<i>Lomandra longifolia</i>	Spiny headed Mat Rush
<i>Lomandra multiflora</i>	Mat Rush
<i>Lomandra Nyalla</i>	Nyalla Mat Rush
<i>Microlaena stipoides</i>	Weeping Grass
<i>Viola hederacea</i>	Native Violet



Juniper-leaf Grevillea



Austral bugle

Seeding

The seed mix chosen contain seeds of plants known to establish well from seed and occurs within the Cumberland Plain Woodland vegetation community. The Seeding species chosen are well known and have been tried and tested to germinate profusely. Seeding is only provided away from the alignment where large portion of landscape has been disturbed, this occurs on the eastern edge of the alignment surrounding the open drainage channel and basin. The seed list is subject to change as the design moves forward and the list is provided to local seed suppliers to ensure that seed stock is available.

Botanical Name	Common Name
Seeding Schedule	
Grass Seed Mix	
<i>Acacia longifolia</i>	Sydney Golden Wattle
<i>Acacia parramattensis</i>	Parramatta Wattle
<i>Bothriochloa macra</i>	Red-Leg Grass
<i>Bursaria spinosa</i>	Blackthorn
<i>Chloris truncata</i>	Windmill Grass
<i>Chloris ventricosa</i>	Plump Windmill Grass
<i>Cymbopogon refractus</i>	Barbed wire grass
<i>Dichanthium sericeum</i>	Silky Blue Grass
<i>Dichelachne micrantha</i>	Shorthair Plumegrass
<i>Indigofera australis</i>	<i>Australian indigo</i>
<i>Microlaena stipoides</i>	<i>Weeping Grass</i>
<i>Rytidosperma racemosum</i> Syn. <i>Austrodanthonia racemosa</i>	<i>Clustered Wallaby Grass</i>
<i>Sorghum leiocladum</i>	<i>Wild Sorghum</i>
<i>Themeda triandra</i>	<i>Kangaroo Grass</i>
Cover Crop	
" <i>Secale cereale</i> (Apr-Aug) or <i>Echinochloa utilis</i> (Sep-Mar)"	" <i>Rye Corn</i> or <i>Japanese Millet</i> "



Windmill Grass



Clustered Wallaby Grass

Botanical Name	Common Name
Fauna Planting at BR02	
Wet tolerant species	
Carex appressa	Tall Sedge
Ficinia nodosa	Knobby Club Rush
Lomandra hystrix	Creek Mat Rush
Melaleuca erubescens	Rosy Honey-myrtle
Microlaena stipoides	Weeping Grass
Pennisetum alopecuroides	Swamp Foxtail Grass
Native grass mix 1	
Carex appressa	Tall Sedge
Lomandra hystrix	Creek Mat Rush
Microlaena stipoides	Weeping Grass
Rytidosperma sp.	Wallably Grass
Themeda triandra	Kangaroo Grass
Native grass mix 2	
Chloris truncata	Windmill Grass
Themeda triandra	Kangaroo Grass
Wahlenbergia stricta	Australian Bluebell
Native shrubs	
Eremophila sp.	Emu Bush
Grevillea sp.	Spider Flower
Leptospermum sp.	Tea Tree
Wahlenbergia stricta	Australian Bluebell

5.10.8 Fauna Passage and Fauna Fence

The bridge at Bells Creek creates an incidental fauna passage. To the mouth of this crossing on both the East and West specific planting has been incorporated. This planting will help to encourage animals to use the fauna passage, species are chosen to not hide predators and are plants that animals want to eat or to encourage them to use the crossing.

The planting at Bells Creek and the fauna passage are all plants that like the open channel have been distributed into selected areas where inundation occurs. The planting schedules break down the planting types based on how much water the roots can handle. The Shrub and grass planting mixes contain Grey Wallaby loving species to encourage them to use the passage and not head towards the road.

The main user of the Fauna Passage will be the Grey Kanagaroo’s, their plant preferences are Callistemon and Grevillea species therefore these have been included in the planting mix for the fauna passage.

The planting extends from the mouth of the passage our towards the adjacent landscape to draw the animals in. Planting is not provided on the embankment adjacent to the carriageway as to not encourage them towards the road.

5.11 Landscape management

A Landscape Management Plan (LMP) is required to be prepared as part of the design documentation which details all landscape maintenance actions for the upgrade. The landscape maintenance works will be monitored and maintained by a suitably qualified landscape specialist for the landscaping maintenance period.

The Plan addresses the maintenance requirements of the landscaped and vegetated areas and the organisation and maintenance methodologies to ensure compliance with the requirements of the deed and TfNSW D&C specifications R178 and R179. Any required remediation measure(s) will be implemented to maintain landscaping works as required by Gamuda.

The landscape maintenance period commences from the date of construction completion and is for a period of 24 months as required. Landscaping maintenance excludes the routine mowing of verges and rubbish removal.

The landscaping will be cost effective; minimise ongoing maintenance requirements and utilise native species. It will contain dense planting, bold simple planting designs and rapid planting establishment.

The Landscape Management Plan (LMP) appears as appendix F in the Landscape Design report as part of the LA01 Documentation set.

Weed Management

There are several priority weeds listed under the NSW Biosecurity Act 2015 for the Blacktown LGA.

The Hawkesbury River County Council is the controlling authority for priority weeds in Blacktown City. They are a single-purpose council that administers the Biosecurity Act 2015 throughout the local government areas of Blacktown, Hawkesbury, Penrith and the Hills Shire.

Weed invasion threatens bushland by out-competing native plants for space, light and nutrients. As weeds grow, they replace native vegetation altering the ecosystem and reducing biodiversity.

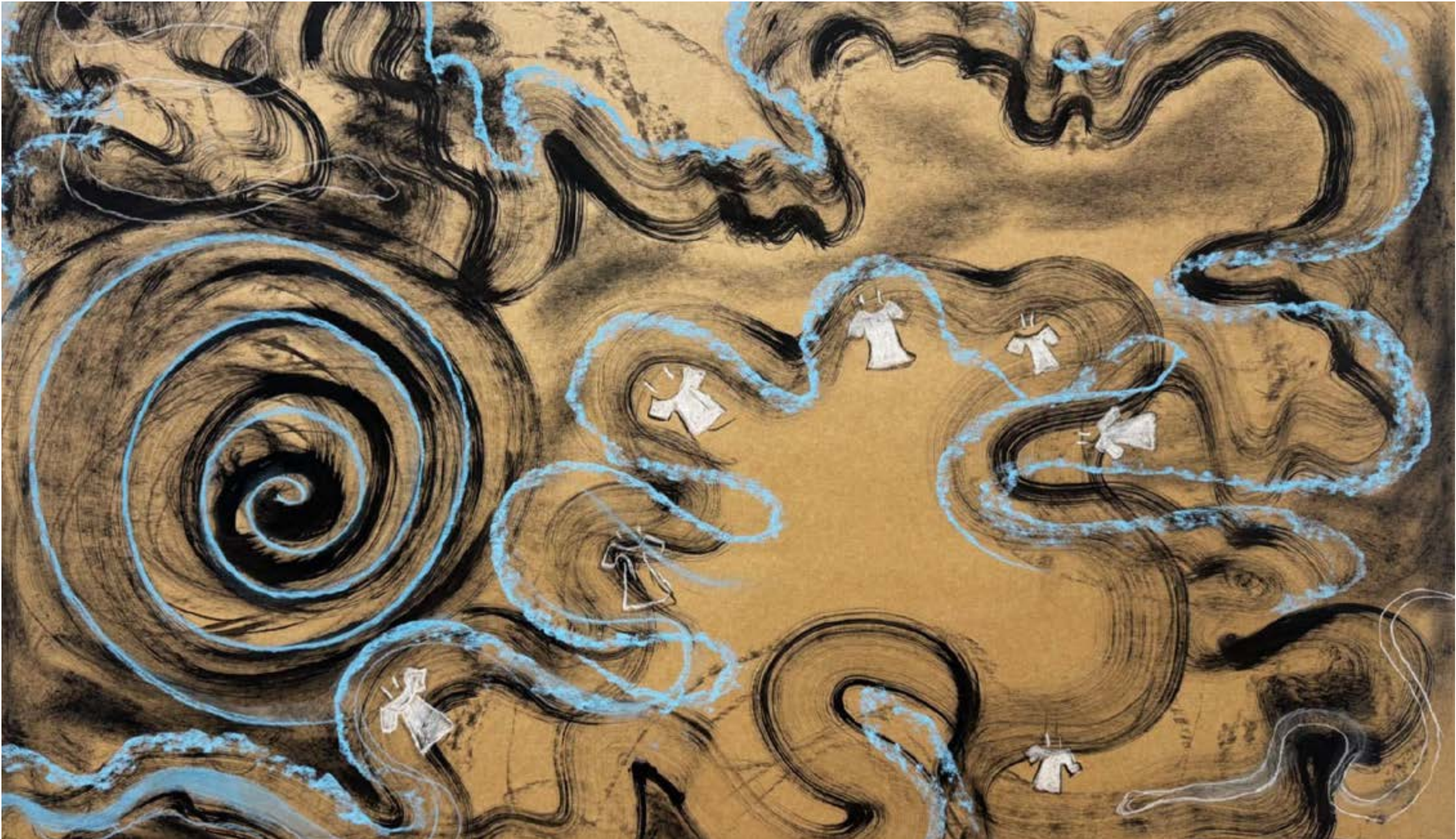
The Cumberland Plain Woodland faces significant biosecurity risks from diseases like myrtle rust and invasive species like African olives, foxes, and rabbits, all of which disrupt the natural balance of the ecosystem.

Weed Control

Good mulch thickness and regular spraying of herbicides, using non-pesticide treatments, will prevent weeds growing. A weed management plan will be prepared which covers issues such as management of weed outbreaks during both construction and maintenance phases of the project.

Weed species would be managed in accordance with Guide 6: Weed Management of the Biodiversity Management Guidelines: Protecting and managing biodiversity on Transport for NSW projects (TfNSW, 2024d).

Appendix A - Aboriginal Artist Brief



NGULUWAY Design Inc

Architecture
Urban Design
Interiors
Landscape

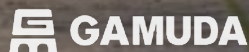
nguluway.designinc.com.au

Richmond Road Upgrade between M7 to Townson Road, Marsden Park

Aboriginal Artwork Brief



Transport
for NSW



NSWICC
ASSURED



FACCI
AFFILIATE



We are Supply Nation-certified.
We are NSWICC-assured.

1 July 2026



We acknowledge and pay respect to the past, present and future Traditional Custodians and Elders of this nation and the continuation of cultural, spiritual and educational practices of Aboriginal and Torres Strait Islander peoples.

NAIDOC Week event on Cockatoo Island

Richmond Road Upgrade

Project Background

Richmond Road is an arterial road which provides a vital link for commuters and freight between Blacktown and Windsor. It forms part of the wider network from the M7 Motorway to new housing and employment precincts in the North West Growth Area, resulting in significantly more traffic in the area.

Each day over 89,000 vehicles travel through the Richmond Road and Rooty Hill Road North intersection. Road users currently experience heavy congestion, slow travel times and delays when traveling through the Richmond Road.

Transport’s aim is to ease congestion and improve traffic flow by widening Richmond Road and upgrading intersections.

The Richmond Road upgrade between M7 Motorway and Townson Road, Marsden Park will support future development and improve connectivity for the community, making it easier to move in and around the area.

The Design & Construction contract was awarded to the Contractor, Gamuda DT Infrastructure Joint Venture (GDTIJV) in October 2025, and the detailed design phase is currently progressing for the major construction package.

The key scope elements of the project include:

- widening Richmond Road between the M7 Motorway and Townson Road, adding an additional lane in each direction
- building a new flyover bridge from the M7 Motorway Rooty Hill Road North off-ramp to Richmond Road northbound to allow road users to bypass two sets of traffic lights, reducing congestion and queuing onto the motorway, and allowing uninterrupted flow of traffic
- moving the pedestrian and bike path on the western side of Richmond Road

Now that a Contractor has been engaged, Transport aims to celebrate the local community by introducing artwork at specified locations on the flyover structure and shared user paths.

The artworks would showcase and tell the Story of Country and interpret stories of importance to the local community to residents and visitors who use this gateway to the North West, in vehicles, walking, or by bike.

Transport wishes to engage a local Dharug Aboriginal artist with connection to Country to develop artwork that reflects the Aboriginal heritage and stories of the site and broader landscape.

The artist would be engaged directly to and managed by DesignInc who are the Urban and Landscape Designers on the project, working under GDTIJV, and who have subcontracted Nguluway DesignInc to inform the design outcomes from an Indigenous lens.



Figure 1 Artist’s impression of project scope. Source: DesignInc 2026.

Key Themes

The heritage listed Blacktown Native Institute (BNI) site is directly adjacent to this upgrade project. This land is managed by the Dharug Strategic Management Group (DSMG).

A previous piece of engagement with DSMG and the local Dharug community was carried out in 2025 by Nguluway DesignInc. This consultation resulted in the identification of four key themes that can be used to guide the design and artwork involving the BNI site and the project scope.



Performance documentation, Jannawi Dance Clan at the Blacktown Native Institution Handover Ceremony, 2018. Photo: Joseph Mayers. Image courtesy: MCA Australia.



Artist Tony Albert leading a weaving workshop. Gubangala Gumadangyiningi (Let’s honour his/her spirit), 2018. Photograph: Anna Kučera. Image courtesy: MCA Australia.

A Place of Cultural Connection

- Acknowledging Dharug Country, keeping language and Culture alive by telling stories through local materials, colours, and plant species

A Place for Children

- Celebrate and create a joyful response to the spirit of childhood



Karla Dickens, Never Forgotten. Cloth on fence, Blacktown Native Institution Corroboree, Oakhurst, NSW. Image courtesy: MCA Australia.

A Place of Healing

- Ideas around Dharug history, educating and informing the public and setting up spaces and programs of healing



Bells Creek, Blacktown Native Institution site, Oakhurst 1970-80 Blacktown Memories Recollect

A Place of Water

- Expressing natural edges, native planting, and Cultural practices or ceremonies that honour the role of water

The artist is encouraged to explore other relevant ideas and narratives of their choosing that reflect the Aboriginal heritage and stories of the site and broader landscape. We note that any story portrayed should be validated and endorsed by community.

Artwork Guidelines

The GDTIJV project team is seeking a 2D vectorised (digital) artwork that responds to the key themes of Country and will be translated for use on select built items.

The artist will be required to consult with local knowledge holders and undertake appropriate research in the development of their design supported by artwork story. The designs should respond to the context of the site and in particular to the themes and principles coming from the Connecting with Country process. The concept and final designs for the artwork will be reviewed by the team at Transport for NSW and Blacktown Council.

Artwork Location

The artworks will be located in three distinct locations indicated in the plan below:

- 01 Vertical retaining wall of the flyover bridge structure ("wall"), and/or partially or entirely on the bridge parapet,
- 02 Vertical surface of the circular concrete supporting piers of the flyover bridge structure ("piers"),
- 03 Horizontal concrete pavement surface of the shared user path on Richmond Rd ("path").

As part of the delivery process, the artist will consult with the Nguluway DesignInc design team on how the artwork is integrated into the three locations outlined in this document, collaborating on application, technical requirements, and cost management.



Figure 2 Artist's illustration of the northbound exit lane bridge from the M7 to Richmond Road

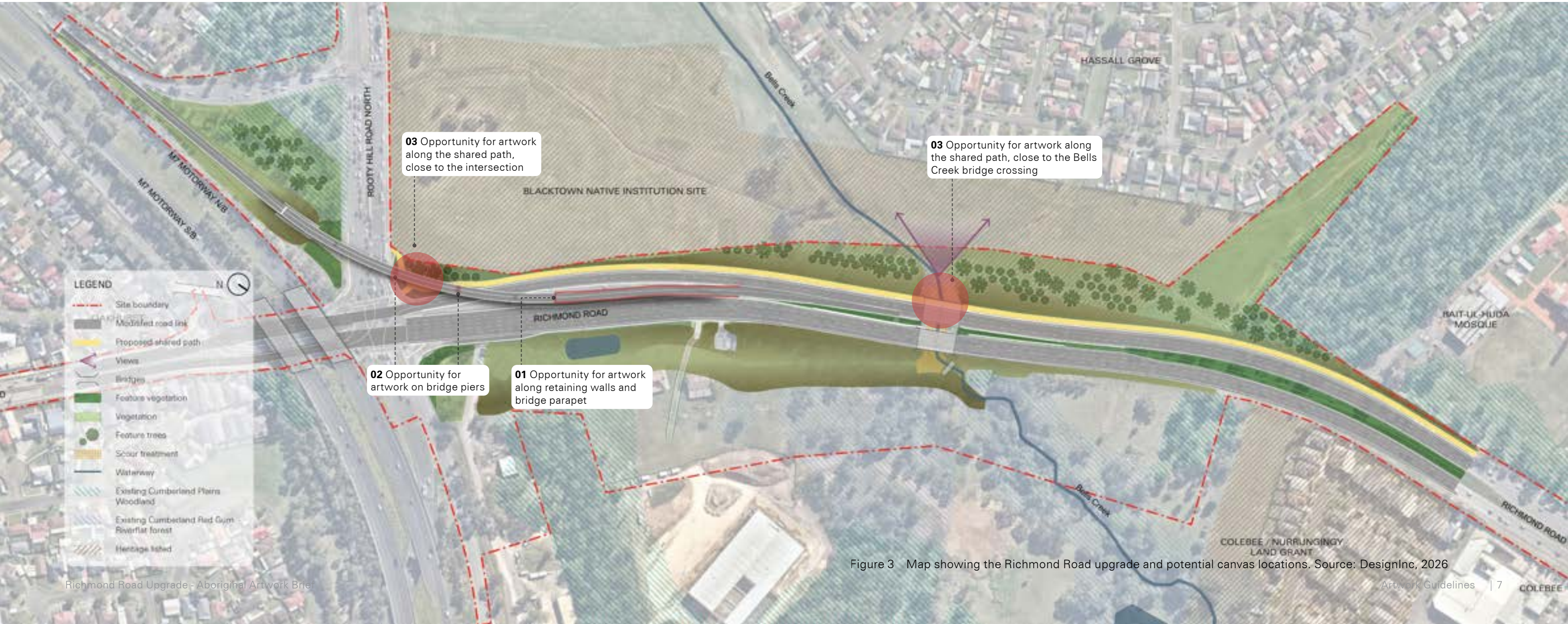


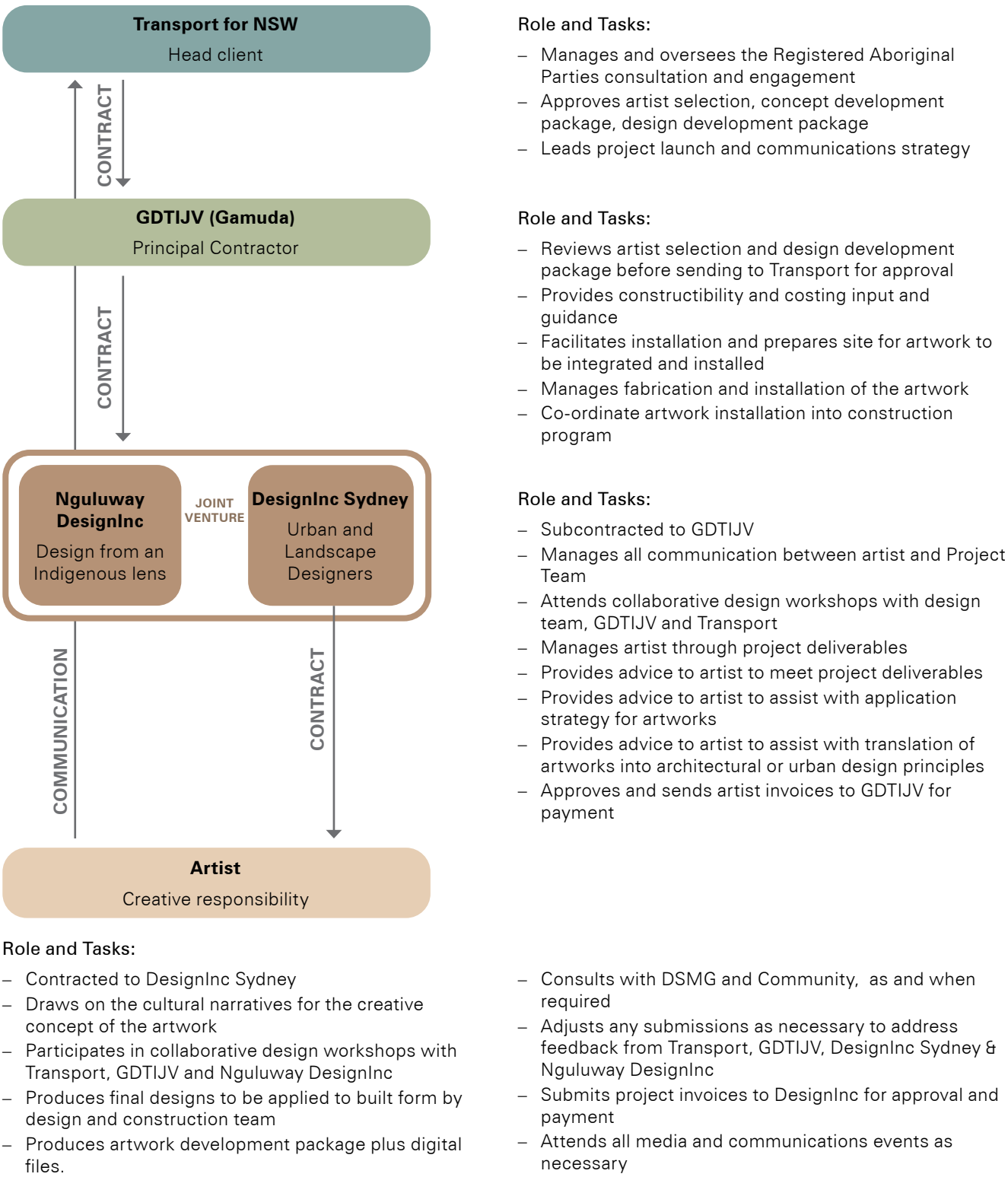
Figure 3 Map showing the Richmond Road upgrade and potential canvas locations. Source: DesignInc, 2026

Collaborative Design Process

This opportunity is an integrated artwork, which means that the successful artist will collaborate closely with the Contractor and the Urban and Landscape Designers to deliver their artwork.

The selected artist is required to develop their initial design concepts in response to design parameters and community consultation. The artwork must consider the identified cultural values and the application of the artwork on the infrastructure.

Aside from the Community and DSMG as stakeholders, there are five main contracting parties in this process; Transport for NSW, GDTIJV, Nguluway DesignInc Sydney, and the artist. Their roles are depicted below:

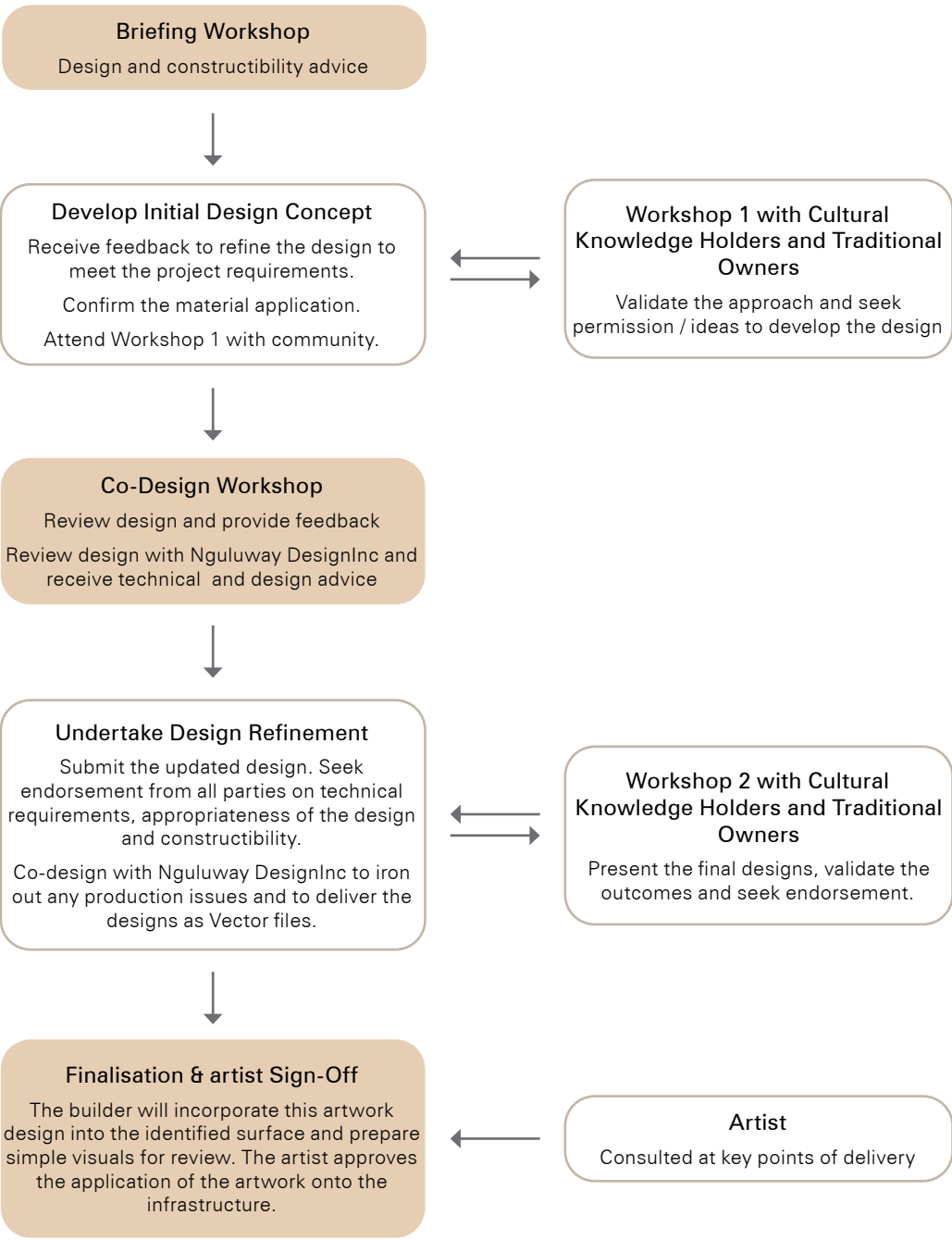


Design Development Process

The delivery process will be one of co-design; that is, the artist will work with the DesignInc Sydney and Nguluway DesignInc design team to develop the artwork/integrated graphics. The concepts must consider the identified cultural values and the application of the artwork on the infrastructure. The design will be developed with feedback from community consultation.

The recommended process is outlined in the diagram below and will include 3 workshops with the design team.

Endorsement from Transport, DSMG, and the Dharug community will be sought before the design is finalised.



During this process artist deliverables will include:

- Concept artwork and statements which may include:
 - » Conduct any research for themes and concepts relevant to the site and indigenous history and context of the area
 - » Consult with relevant community stakeholders and registered aboriginal parties
 - » Generate concepts and ideas and designs for each of the artworks
 - » Collaborate with urban designer and provide creative input into other elements of roadway and public domain infrastructure as and if required
- Finalised Artwork as a high-resolution digital file to scale in a vector format (e.g.. dwg, svg, ai) that can be incorporated into the construction drawings (by Nguluway DesignInc team).
- Written artist statements explaining the work, that can be used on signage accompany the work and Transport for NSW website.
- Attend all relevant meetings and workshops for correspondence with the design team. Artist/s will work in own studio between workshops
- Make adequate allowance for correspondence with Design team
- Attend all media and communication events as necessary
- Review and approval of final integrated artwork and site inspection.

Note that the concept drawings for discussions may be produced in any medium preferred by the artist, including hand-drawn or painted formats. However, final artwork must be delivered in a high-quality digital format vector file for the purpose of fabrication.

Program Dates

Task	Date / Time period
EOI opens	9 April 2026
EOI closes	6 May 2026
Notification of successful and unsuccessful shortlist artists	11 May 2026
Concept Design Period	3 weeks, 12 May to 2 June 2026
Notification of successful artist	5 June 2026
Design Development Period Briefing workshop, initial artwork/graphic development, presentation to project team and Community.	June 2026
Final Design Period Attend workshops and meetings as required to continuously incorporate feedback, present to project team and Community for endorsement, develop final design and digital files for handover.	July 2026
Pre-fabrication coordination period Collaborate with project team on translating design to fabrication elements based on final digital files.	August 2026 to October 2026
Off-site fabrication period	October 2026 to February 2027
On-site installation period Collaborate with project team on installation and handover documents such as artist statements etc. Advise on cultural protocols for opening.	February 2027 to June 2028

Expression of Interest (EOI) Process

Eligibility

Artist must be Indigenous Chamber of Commerce and/or Supply Nation, and BuyNSW registered. The project team is committed to creating opportunities for artists. Support is available, should you need it, to register with any of these organisations. Please mention any requests for support in your submission.

Concept Design Submission Requirements

A fee of \$1500.00 + GST will be paid to three shortlisted artists to produce a concept design for the three locations. Please describe the concept, the narrative, cultural significance and symbolism behind your artwork, and the material intentions.

Applicants need to submit their design in PDF format via email to nwhiteforrest@nguluway.designinc.com.au

Selection Criteria

The design team, along with Transport, will select one artist to be engaged for the project. The submissions will be assessed using the following criteria:

Cultural Relevance	- The degree to which the proposed artwork ideas authentically represent Dharug culture and the connection to the local community - Demonstration of connection to Country and culture in previous work
Visual Impact	- The ability of the artwork to make a visual statement that is engaging and complements the environment and history of the site
Collaboration	- A demonstrated ability to work collaboratively with multidisciplinary project teams to achieve a quality outcome
Capacity	- Proven ability to meet program deadlines and work with in identified budget envelopes - Availability to attend and participate in regular scheduled design workshops
Experience	- Evidence of artistic merit and excellence of conceptual ideas in previous work - Examples of previous work that demonstrate an ability to work at scale
Availability	- The artist must be available and easily contactable during the indicated program dates for the Concept Design Development and Final Design periods

Transport for NSW reserves the right to adjust the selection process and artist selection due to unforeseen circumstances and/or changing program requirements.

Selection Panel

An internal working group will review and assess the submitted concept designs and their suitability for the project against the selection criteria. The working group representatives include:

- 1x Aboriginal Outcomes Officer (TfNSW)
- 1x Project Manager (TfNSW)
- 1x Urban Designer (TfNSW)
- 1x Urban Designer (DesignInc Sydney)
- 1x Connecting with Country Consultant (Nguluway DesignInc)
- 1x Contractor (GDTIJV)

Selected Artist

A fee of \$20,000.00+ GST will be paid to the engaged artist for the final design of the artwork to be paid in three instalments as milestones in the process are met. The fee includes all site visits, meetings, liaison with design team, research, workshops with Knowledge Holders, and all media events and communications, and final site inspection upon completion.

Upon engagement, a briefing workshop will be organised with the selected artist to kick start the collaboration with both the project team and local Dharug community. The briefing will cover design and constructibility feedback on the submitted concept.

Artwork Canvases

01 Retaining walls

For the retaining walls, the artwork will be incorporated onto all faces of the pre-cast concrete panels, and/or partially or entirely on the bridge parapet. The artwork would be incorporated on the following wall faces with approximate dimensions:

- South-western face - 106m length, varying from 2m on the shorter end to 6.9m height
- South-eastern face - 8m length, height varies between 5.2m to 5.7m
- North-eastern face - 128m length, varying from 2m on the shorter end to 7.6m height

Format and materiality

This would involve using concrete as a medium and creating a pattern that can be executed using either exposed aggregates, cast-in rebated shapes, paint, or other surface treatment. If following a mould development process, it is desirable for the artwork to be significant in size and impact while remaining easy to execute without too many intricacies that would complicate the process. DesignInc Sydney will work with you to make sure the artwork can be built.

The artwork format would need to consider potential receptors and audience:

- Viewing at speed by motorists
- Viewing at distance from BNI site
- View at a slower pace by pedestrians and cyclists along the shared pathway

Examples where artwork has been incorporated into other Transport projects are included on the next page. They are included to show how artwork has been applied to similar materials and/or locations as for this project.



Figure 5 Artist's impression of Richmond Road facing south, the retaining walls are visible to the left and the shared user path to the right



Figure 4 Artist's impression of the M7 to Richmond Road exit from the BNI site. Source: DesignInc Sydney



Figure 6 Photograph of the Sydney Gateway Project featuring artwork by Dennis Golding on the walls. Source: Cultural Capital, photograph by Aran Anderson



Figure 7 Examples of pre-cast concrete textures and finishes. Source: Google

Technical Drawings

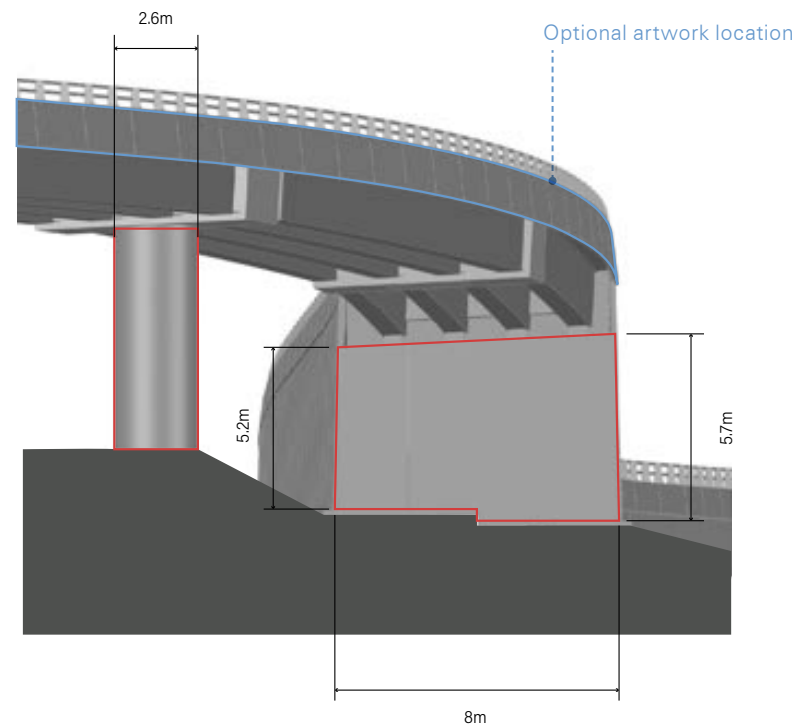


Figure 10 South-east retaining wall elevation

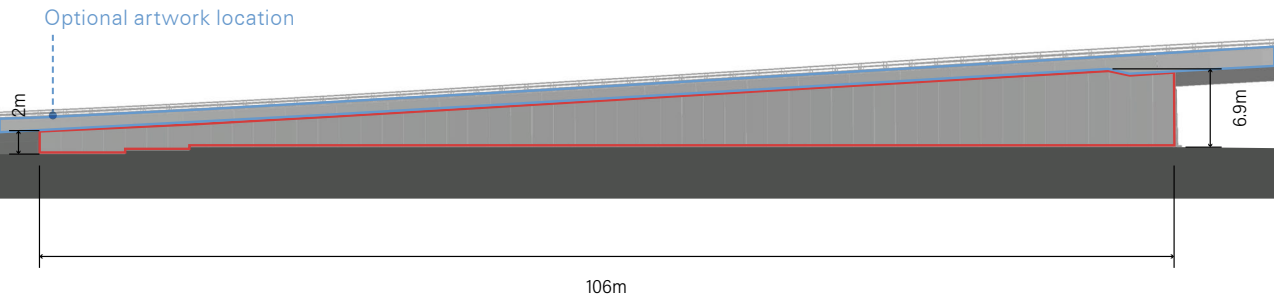


Figure 8 South-west retaining wall elevation

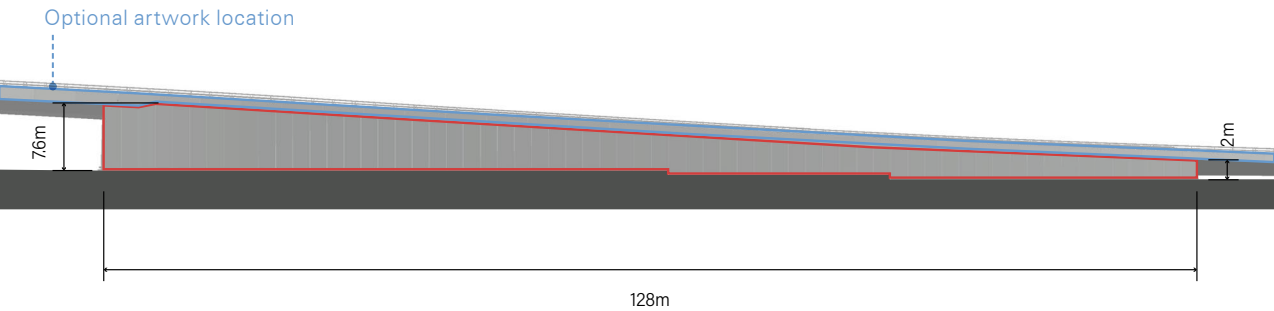


Figure 9 North-east retaining wall elevation

02 Bridge piers

The artwork on the piers would be required to wrap around the complete circular face of the bridge columns, to the underside of the bridge structure. There are four piers in total, with approximate dimensions 2.6m diameter and varying heights between 6.9 to 7.2m.

Format and materiality

This artwork concept can take any form provided it is able to be applied to a rounded vertical concrete surface. For example, painting, motif painting, exposed aggregate, motif relief in concrete or some other surface treatment. The artist can explore whether the artwork speaks to the art on the retaining wall to form a cohesive story.



Figure 11 Examples of painted artwork on piers by Saretta Art and Design



Figure 12 'Djilba' by Melissa Riley, Noongar Artist, on the Wilman Wadandi Highway, Western Australia



Figure 13 Ovingham, Adelaide by Aspect Studios. Photographed by Douglas Maeda

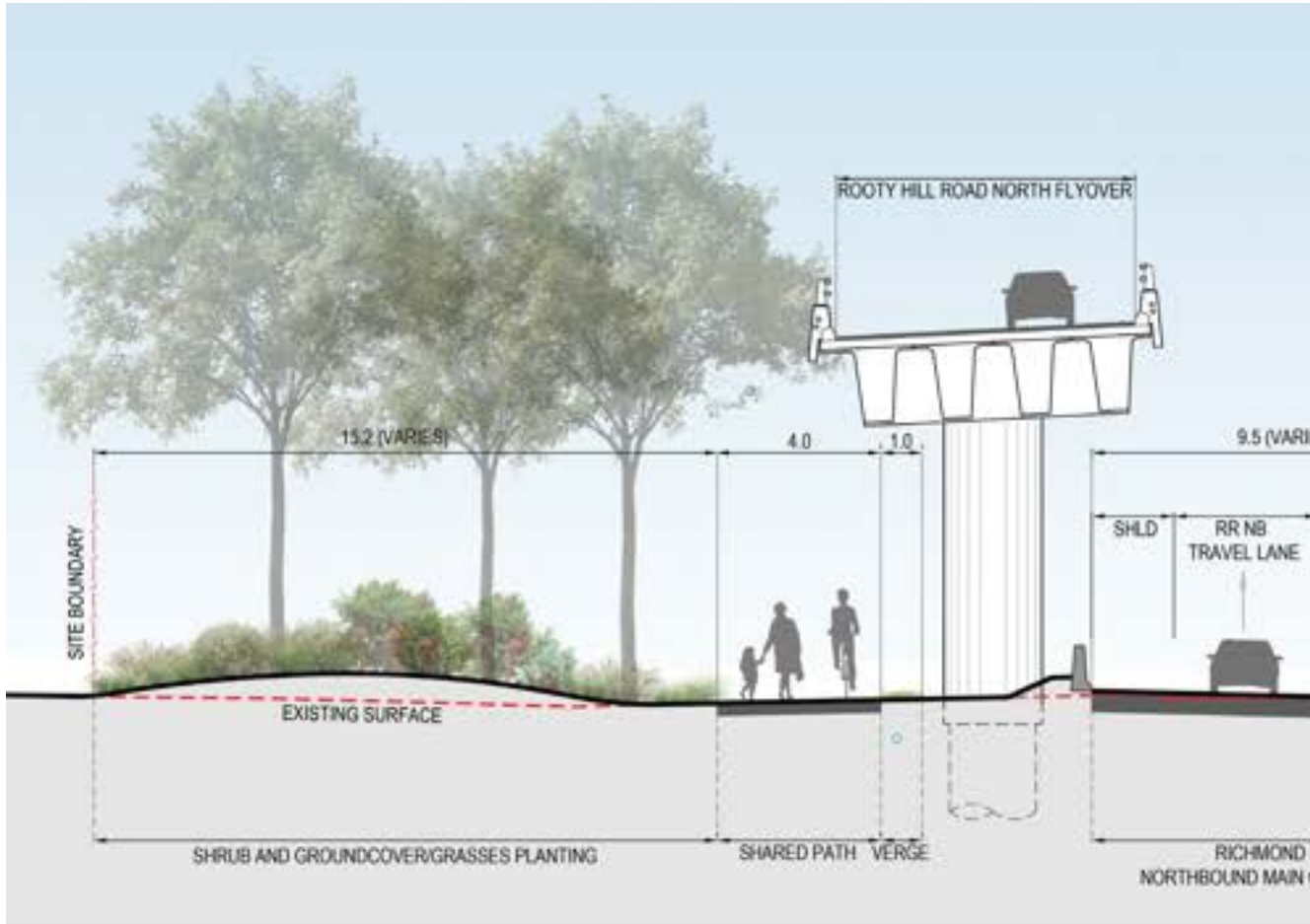


Figure 14 Section through bridge showing the bridge column scale and relationship to the shared path



Figure 15 Flyover bridge elevation

03 Shared User Path

The shared user path runs alongside the BNI site, featuring a view toward the landscape at the bridge crossing over Bells Creek. The artwork on the pavement would be experienced by pedestrians and cyclists along the shared path. The shared path will be 4.0m in width, with an approximate length of 1km. Several considerations and opportunities could be explored during the design process:

- whether the artwork is concentrated at specific pause points and moments along the pathway and
- whether the artwork speaks to the art incorporated on the retaining wall and columns to form a cohesive story and
- to explore the use of colour and material in the artwork

Format and materiality

The artwork on the shared user paths would be required to be able to be applied to the concrete surface using treatments applied during construction or after concrete has been placed, e.g. imprinting freshly placed concrete or sandblasting cured concrete.

The final artwork for the shared user path along Richmond Road could include:

- inlays into the surface of the pavement or
- patterning or adding coloured oxides to the surface of the concrete
- castings, painting or sand blasting

Alternate materials or colouring techniques could be considered in consultation with the design team; subject to project costs and technical requirements.



Figure 16 Artist's impression of the shared user path along Richmond Road

Examples where artwork has been incorporated into other Transport projects are included here to show how artwork has been applied to similar materials and/or locations as for this project.



Figure 17 Imprints in concrete along the Woolloowara shared path, Sutherland Shire Council

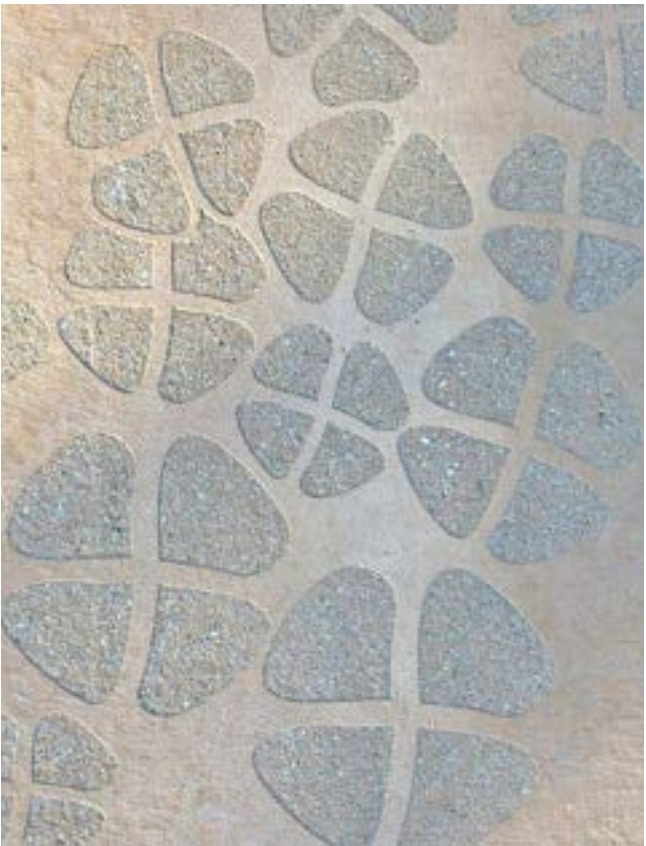


Figure 19 Sandblasted concrete



Figure 18 Unanderra Station plaza by DesignInc



Figure 20 Sandblasted and painted concrete along the Medlow Bath Pedestrian Bridge

Confidentiality

All information supplied during or created under the course of both the design and subsequent creation of the artwork is to be treated by the artist as confidential. The artist must not issue any information to the media without the consent of Transport as client. This clause will continue to bind the artist after the completion of the Brief or termination of the commission.

Intellectual property

The artist retains all copyright in any material submitted or presented to Transport under, or in relation to, this brief, including but not limited to the Concept Design, the Design and the final Artwork.

The artist warrants that the submitted artwork/design:

- is the artist’s original work;
- does not, to the best of the artist’s knowledge, infringe the copyright or moral rights of any third party; and
- is unique work of the artist developed exclusively for the commission under this agreement.

The design will remain the property of the artist, who will be acknowledged in all uses of the designs, with their name, title, artist’s statement, and the date of design. This information will be displayed next to the artwork, together with an Acknowledgement of Country statement.

Additional Information

For additional questions regarding the brief or submission please contact:

Niwili WhiteForrest: nwhiteforrest@nguluway.designinc.com.au

The fees paid to the artists include granting the Contractor and Transport for NSW a perpetual, royalty-free, irrevocable, non-transferable, worldwide non-exclusive licence to use, reproduce, publish, and communicate to the public the artwork materiel, and adapt the Material as set out in this document.

A license agreement / contract will be signed with the engaged artist

Maranbangbilang Nguluway
[It’s truly magnificent to walk together]

Nguluway DesignInc

Our studio is on Gadigal land.

Please contact Craig Kerslake
Managing Director, Nguluway DesignInc at

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 DesignInc Sydney

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