

The strategy is to create a 'Connection to Country' with a distinctly unique and memorable piece of infrastructure that establishes a new gateway to Western Sydney, enhancing the varied landscape character, enriching the experience for all users, and ensuring it is resilient, sustainable and innovative in the face of a changing land use



Artist's impression: Aerial view west over Kemps Creek and associated interpretation node (landscape shown at full maturity and is indicative only).



# 3 URBAN DESIGN CONCEPT

The quality of urban design is becoming the accepted measure of a transport scheme's success in the urban and regional environment. Good design of our public domain is fundamental to quality of life. Streets, roads, expressways and motorways constitute a large portion of our public spaces and may be considered as some of our most important public places.

The project is a rare opportunity to provide a well vegetated motorway that is integrated to both the natural landscape systems and the inherent cultural and historical values of Country. It would celebrate the unique sense of place and the journey from the mountains to the city through a considered alignment, views, art and interpretation.

The overarching site wide strategy looks to embed the project principles of creating a design that is 'of place', that considers the change in land use from what is predominantly a rural and semi-rural landscape towards a 24-hour Aerotropolis, that promotes an active community and enhanced user experience, protects and re-establish natural systems, and creates a project identity.

The notion of 'Connection to Country' as a vision for the project seeks to create a distinctly unique and memorable piece of infrastructure that establishes the gateway to western Sydney. As part of this vision, the project will embed key interpretive themes into the project through the use of integrated art and approach to landscape design and plant selection, with six key cultural interpretation elements incorporated into the project.

The M12 shared path is a major feature of the project and will provide an shared path (pedestrian and cyclist) link along the corridor through provision of pedestrian bridges and an off-road shared user path, including connections to existing and future shared user path networks.

This section of the report looks at the overarching urban design principles and objectives driving the outcomes, the method that the vision of Connection to Country has been integrated across the corridor, site-wide strategies to influence the urban design outcomes, the shared path corridor and associated works, Aboriginal cultural interpretation and non-Aboriginal heritage interpretation and how these outcomes are represented across the project, followed by a description of how crime prevention through environmental design principles have been integrated across the project and the motorway elements that contribute to the overall project identity.



*Images that reinforce the overarching objectives of the project*



### 3.1 URBAN DESIGN PRINCIPLES

The aforementioned urban design objectives describe a series of strategic goals that the project must deliver. These objectives form the basis of design and evaluation through to construction. They shall be considered in addition to the economic, safety, engineering and environmental objectives for the project and contribute to the delivery of a truly unique user experience.

To help the project ensure these objectives are realised, a number of principles have been developed to help guide the decision-making process, provide a platform for engaging with stakeholders, and inform the physical designs proposed.

The urban design principles for the project have been established in the EIS and went through a process of refinement during this part of works. They are explored within this section of the report, and broadly represent five key themes of the following:

#### THE PAST

##### CREATE A UNIQUE AND DISTINCT IDENTITY INTERPRETING THE RICH SENSE OF PLACE

The urban design proposal is ‘of its place’ – specific to Western Sydney, enhancing cohesive and inclusive communities.

##### REFLECTING PLACE

The design responds to the characteristics of Western Sydney as a locale and the biodiversity of the Cumberland Plain. The project is mindful of Connection to Country and Aboriginal perspectives on the landscape.

##### SOURCING LOCALLY

The design would source seeds from the region to vegetate the project footprint and propagate local, native and suitable plant life. Native grassland and grassy woodland plants are resilient, attractive to pollinators and resilient to pests, aesthetically beautiful, and a low fire risk.

##### ABORIGINAL CULTURAL INTERPRETATION

The project has worked with Balarinji, an Aboriginal strategy and design agency. They developed this strategic high-level objective, which, through a process of consultation with Aboriginal people, has been translated into meaningful physical design interventions to interpret Aboriginal heritage.

##### EUROPEAN CULTURAL INTERPRETATION

The project has worked with Extent Heritage to develop a Non-Aboriginal Heritage Interpretation Framework, followed by a Heritage Interpretation Plan which was developed with the design team and TfNSW and proposes a series of themes, sites and interpretative devices that can be implemented and represented across the corridor.

#### THE FUTURE

##### POSITIVELY INFLUENCE THE STRUCTURE OF THE WESTERN PARKLAND CITY

The region will experience a change in land use from what is predominantly semi-rural towards a 24-hour economy centred around the future Aerotropolis, with the project forming part of an integrated network of roads and natural systems which will contribute towards this future community.

##### ENABLING FUTURE LAND USES

Adjacent to the project, the 'Western Sydney Aerotropolis Plan' identifies the re-zoning of rural lands as predominantly ‘enterprise’. The four main creek corridors are preserved as ‘environment and recreation’. The project will consider, enhance and enable future land uses.

##### CONNECTING NATURAL SYSTEMS

The project enables an east-west connection across the riparian areas and into Western Sydney Parklands by providing new pedestrian and cyclist connections alongside its corridor.

With riparian corridors/flood zones being designated for 'environment and recreation' and becoming connectors to potential future open space, the project enables opportunities to restore, re-vegetate and connect degraded Cumberland Plain Woodland areas.

##### PROVIDING A RESILIENT TRANSPORT SOLUTION

With consideration of future infrastructure projects such as OSO and Sydney Metro Greater West, the landscape and urban design approach at the Airport Interchange will be resilient and scalable so that it can be adopted easily to adjacent projects when they are realised in the future.



Figure 15. Emu footprint (Artist Cohort, Balarinji, 2021)





# THE PEOPLE

## CREATE AN ACTIVE COMMUNITY AND ENHANCED USER EXPERIENCE

The project will deliver a network link that considers and delivers to a wide range of users and speed environments.

### SHARED PATH LINK

The M12 shared path will establish connections into the Western Sydney Parkland and will provide links into the future Aerotropolis parkland corridors aligning with the creek floodplains.

In the spirit of healthy communities, rest stops and activity nodes along its length are desirable. Rest stops could be provided for users to join/exit the path and include parking facilities, cycle stands, a shade shelter, litter bins, bike pumps or water fountains. Activity nodes could include fitness equipment, viewing points, or information and artwork boards. This would further enhance the user experience and provide added value to the route.

### ENHANCE USER EXPERIENCE

A variety of user groups will experience the project at contrasting speeds and perspectives.

The design will take advantage of this change in perception: Along the shared path users can appreciate information at a smaller scale including wayfinding posts, information boards or storytelling. Structural and interpretive elements and vistas appreciated by motorists, must be designed at a scale suitable for a 100km/hr speed environment. Airline passengers will enjoy a landscape which can be perceived from air.

For an enhanced experience, where possible, shared user paths will be separated from the main carriageways, maximising amenity for users and creating a safer, more pleasant journey.



# THE LAND

## SPECIES SELECTION

Balance the Western Parkland City vision with the operational requirements of the Western Sydney International Airport (CASA safety requirements including the need to manage wildlife strike risk on and surrounding the airport), prioritising the use of Cumberland Plain Woodlands and local native species sourced from locally sourced seed (where possible).

### WATER QUALITY

The project will use riparian vegetation to help filter water captured along the project before it moves into water courses.

### RIPARIAN FINGERS

The project will treat runoff; natural creek lines will be preserved and enhanced, with new ribbons of habitat and access provided.

### GREEN GRID

Promote the creation of a network of high-quality open spaces that supports recreation, biodiversity and waterway health within the project, with the shared user path network that connects existing services, and provides for future areas.

### LANDSCAPE TYPOLOGIES

The project will pass through multiple vegetation communities that form part of the Cumberland Plain Woodlands - Open Woodlands, Native Grasslands, Riparian Forest and Stands of Trees.

At the key interchange to the airport the project will introduce a Gateway Landscape which, in pattern, forms a juxtaposition to the existing Cumberland Plain Woodland and thus stands out as a marker/ gateway landscape within the arrival experience.



# THE PROJECT

## INFRASTRUCTURE AS ART

To create infrastructure which is 'of its place' the project provides a holistic language which is unique to the study area but relative to place. It anchors moments of integrated art, abstracted landscapes, planting and structure design.

### DRAWING ON NATURAL FEATURES TO INFORM MATERIALS

Red silcrete and mudstone have been identified as being important to the Aboriginal communities and culture of this area. These materials or materials referencing their unique features and colour will be incorporated into interpretive landscape elements, with the earthy tones, wide blue skies and natural materials of the area inspiring the use of materials and textures. Hardscape, wayfinding and place making elements will relate back to 'Country' by drawing on unique features.

### CREATING GATEWAYS

In order to connect back to the land, gateway treatments will be detailed as a combination of integrated art and abstracted landscape.

### CELEBRATING NATURALISTIC LANDFORMS

Celebrate the landscape and different characters along its route. Landscape vistas engage the user and contribute to the understanding of place, and will be carefully framed and manipulated to enhance the meaningful and hide the undesirable.

Significant landscape vistas include riparian corridors, large stands of existing vegetation, rolling hills, water bodies, grasslands and plains, and Blue Mountains to the project's west.





## 3.2 URBAN DESIGN OBJECTIVES

The urban design objectives for the project have been built upon the work established in the strategic urban design concept report and the urban design objectives that provide the framework for achieving the project urban design vision. The objectives help to outline the overarching goals of the project. These objectives have helped guide the project from inception through to completion.



### CREATE A UNIQUE AND DISTINCT IDENTITY INTERPRETING THE RICH SENSE OF PLACE

- ◇ Celebrate the journey across 'Country'
- ◇ Reveal significant Aboriginal places and stories
- ◇ Maximise views to significant landscape features and historic artefacts
- ◇ Protect and build upon natural systems
- ◇ Respond to the vision of a Western Sydney 'of the future'.



### CREATE AN ACTIVE, LIVEABLE AND VIBRANT COMMUNITY

- ◇ Provide a sense of place by establishing an attractive and memorable landscape corridor
- ◇ Realise opportunities to implement the Sydney Green Grid by providing a regional open space network along creeks, streets and infrastructure corridors
- ◇ Create a diversity of experiences building on the intrinsic character of each place along the corridor
- ◇ Provide the infrastructure necessary to support healthy and active communities
- ◇ Reflect and respond to culturally diverse communities.



### CREATE AN ENJOYABLE EXPERIENCE WITH DIVERSE AND DISTINCTIVE VIEWS AND ARRIVAL

- ◇ Consider the experience to and from the motorway
- ◇ Reinforce the identity of floodplains, views and major gateways
- ◇ Celebrate and interpret 'Country'
- ◇ Provide large scale landscape gestures within motorway corridor
- ◇ Retain and maximise opportunities for views to the Blue Mountains, floodplains and riparian corridors
- ◇ Create a memorable experience for travellers arriving at the airport
- ◇ Ensure that the motorway provides a logical and intuitive route for travellers to enhance orientation and wayfinding
- ◇ Consider the day and night experience.



### ACCENTUATE NATURAL PATTERNS

- ◇ Reinforce existing patterns of vegetation along creek lines and floodplains to enhance ecological value as well as the landscape character and motorway experience
- ◇ Use vegetation to enhance the driver experience, to screen, conceal and reveal the surrounding environment
- ◇ Maximise re-vegetation in disturbed areas and link remnant stands of endemic vegetation to create biodiversity corridors
- ◇ Use indigenous species to enhance the landscape character of ecological communities
- ◇ Use abstracted landscape as a clear juxtaposition to highlight key nodes
- ◇ Maintain the cohesive and identifiable landscape character through the Western Sydney Parklands.



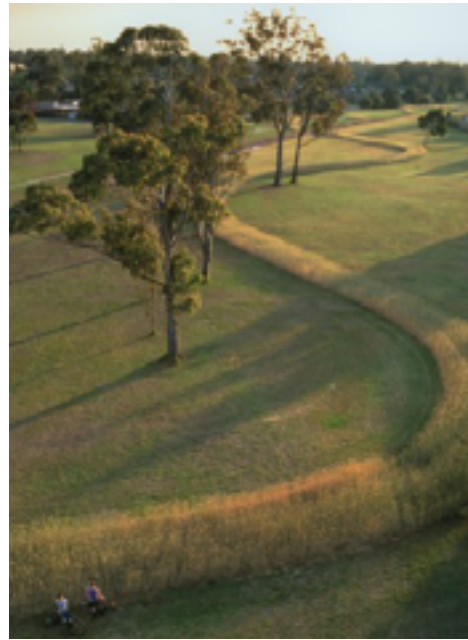
Figure 16. Emu footprints - Creation phase (Artist cohort, Balarinji, 2021)





#### PROVIDE CONNECTIVITY AND ACCESS ALONG AND ACROSS THE MOTORWAY

- ◇ Provide a comprehensive network of shared path routes across and along the motorway corridor and the riparian corridors
- ◇ Maintain and integrate into existing pedestrian and cycle links such as the Western Sydney Parklands Trail and M7 shared user path
- ◇ Integrate into existing and future public transport networks
- ◇ Facilitate connections for existing and future communities to open space networks, community facilities, centres, schools and recreation facilities.



#### DESIGN A SIMPLE AND RESILIENT MOTORWAY THAT OFFERS ACCESS TO A DIVERSE CHOICE OF TRANSPORT MODES

- ◇ Utilise materials and finishes that are 'of place', fit for purpose, robust and durable
- ◇ Provide a minimal maintenance natural landscape
- ◇ Ensure the corridor is resilient to changes in capacity, network and technology; to climate change and future urban development.



#### UTILISE STRUCTURES AND EARTHWORKS AS EXPRESSIONS OF PLACE, IDENTITY AND SUSTAINABILITY

- ◇ Create and commit to a simple and refined aesthetic that can form a suite or consistent design language along the corridor
- ◇ Integrate art as an expression 'of place'
- ◇ Utilise bridges and structures to benefit the local community, enhance amenity and connectivity
- ◇ Design a motorway that is resilient, low maintenance and respectful to heritage, landscape and existing and future land use
- ◇ Provide fauna connections in ecologically sensitive areas to enhance biodiversity corridors.



Existing image south from South Creek within Sydney University farms



3.3 CONNECTION TO COUNTRY

The notion of ‘Connection to Country’ represents the singular vision for the project which seeks to create a distinctly unique and memorable piece of infrastructure that establishes the gateway to western Sydney.

Building on the design principles to 'create a unique and distinct identity interpreting the rich sense of place' and 'create a project identity', the urban design proposal is ‘of its place’ – specific to Western Sydney, enhancing cohesive and inclusive communities.

The following are the main themes that would provide a basis for the design integrations related to a Connection to Country.



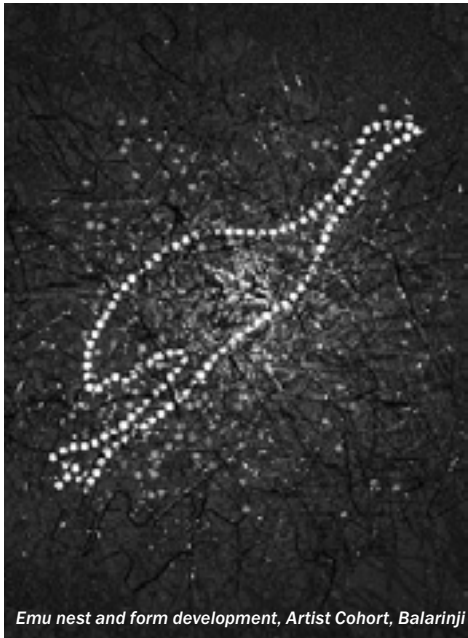
Badgerys Creek



Toolijooa locally sourced seed propagation



Balarinji led artist workshop



Emu nest and form development, Artist Cohort, Balarinji

REFLECTING PLACE

The design responds to the characteristics of Western Sydney as a locale and the biodiversity of the Cumberland Plain. The project would not be a generic insertion of infrastructure, but a living and responsive transport artery, serviced by attractive interventions and enriched by large extents of vegetation and tree planting.

The project is mindful of Connection to Country and Aboriginal perspectives on the landscape. The four major creek crossings along the project and the woodlands have inspired the design and continue to provide ideas and opportunities.

SOURCING LOCALLY

The design would bring balance to the natural environment by sourcing seed from the region to vegetate the project footprint and propagate local, native and suitable plant life. Native grassland and grassy woodland plants are resilient, attractive to pollinators and resilient to pests, aesthetically beautiful, and a low fire risk – ideal features for incorporation within the project footprint.

ABORIGINAL CULTURAL INTEGRATION OF ART AND INTERPRETATION

A strategic objective for the M12 project is to “create a unique and distinct identity interpreting the rich sense of place, Aboriginal and cultural heritage”. During the M12 Aboriginal Cultural Interpretation project which was completed in 2018 as part of the M12 Concept Design and Environmental Assessment, Balarinji worked with the local Western Sydney Aboriginal community and endorsed community artists to develop a Body of Story and Body of Art plan for the M12 corridor.

In 2019 Balarinji was re-engaged by Transport for NSW M12 Design team to further develop and specify selected concepts from the Body of Art plan to incorporate into the M12 Design as it continues to Detailed Design and procurement for construction.

Balarinji has continued to co-design an interpretation of the M12 corridor that illuminates its Aboriginal history and its contemporary Aboriginal story established in the first stage of the project, with the appointed Artist cohort and local community stakeholders.

Outcomes from this process have been developed throughout the concept design and documented in the following sections of the report. Appendix E also includes the full M12 Aboriginal Heritage Interpretation Plan.



Figure 17. Emu footprints - Waterhole (Artist Cohort, Balarinji, 2021)





Figure 18. Interconnectedness diagram (Artist Cohort, Balarinji, 2021)

## ABORIGINAL CULTURAL DESIGN - INTERCONNECTEDNESS

Celebration and interpretation of the Aboriginal Narrative of the M12 corridor acknowledges its Aboriginal history and today's Aboriginal community that connects with the area.

There are stories, songs, dances and cultural practices that are strongly embedded in the landscape and in the passage of seasons and time. This key narrative of 'Interconnectedness' is unique to Aboriginal culture and places the concepts of People, Culture and Country in an inextricable web of interrelationships.

Interconnectedness stretches across:

- ◇ Time – macro: past, present, future and micro: day, night, dawn, sunset
- ◇ Culture – passing down of tradition, caring for Country, the rules of respect in welcoming to Country
- ◇ The Natural World – that has changed and evolved over time and since colonisation

- ◇ Technology – that has served Country well, as evidenced by the archaeological findings
- ◇ Travel – the proposed corridor following traditional travel tracks and spiritual Songlines.

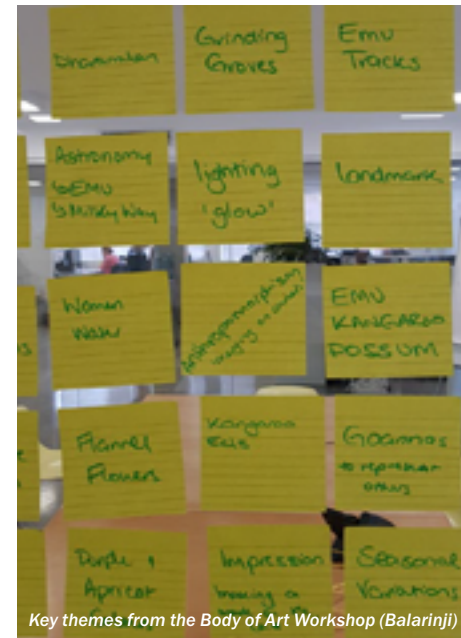
Key opportunities identified within the overarching theme are:

- ◇ Celebration and respect of Aboriginal culture
- ◇ Natural resources and reading the landscape
- ◇ Western Sydney Aboriginal Seasons
- ◇ Native flora and fauna
- ◇ Creeks and freshwater places
- ◇ Natural materials – red silcrete, mudstone, Wianamatta shale.

## ABORIGINAL CULTURAL DESIGN PRINCIPLES

Working with the outcomes of the Body of Story Workshop from the M12 Aboriginal Cultural Interpretation report in 2018, Balarinji's following Cultural Design Principles provide a high-level translation of the site's narrative and Aboriginal aspirations. They have guided the artwork development and thinking about embedding Aboriginal sensibility into the Project. They seek to encourage questions and curiosity in project designers to consider Aboriginal integration in a new way.

- ◇ Narrative integration
- ◇ Protocols and interconnectedness
- ◇ Respect for Country
- ◇ Aboriginal culture is a living culture
- ◇ Custodianship
- ◇ Place based narratives.

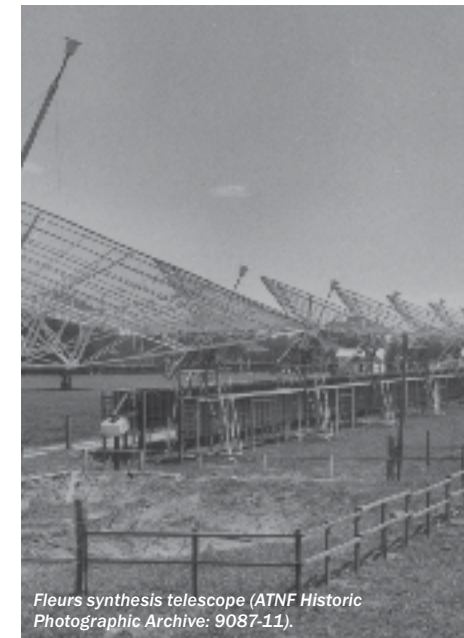


## ABORIGINAL CULTURAL DESIGN OPPORTUNITIES

The following interpretation elements have been developed by Balarinji as part of the M12 Aboriginal Heritage Interpretation Plan:

- ◇ The Great Emu in the Sky Sculpture
- ◇ Emu Footprints
- ◇ Overbridge Artworks
- ◇ Eucalypt Canopies
- ◇ Western Sydney Aboriginal Seasons Planting
- ◇ Integrated wall elements.

Details of these elements can be found further within this Chapter of the report.



## EUROPEAN HERITAGE

The following sites have interpretation elements developed by Extent as part of the M12 Heritage Interpretation Plan.

- ◇ McMaster's Field Station
- ◇ McGarvie Smith Farm
- ◇ Fleurs Radio Telescope Site
- ◇ Fleurs Aerodrome
- ◇ Upper Canal System.

Details of these elements can be found further within this Chapter of the report.



### 3.4 SITE WIDE STRATEGY

The overarching site wide strategy looks to embed the project principles of creating a design that is 'of place', that considers the change in land use from what is predominantly a rural and semi-rural landscape towards a 24-hour Aerotropolis, that promotes an active community and enhanced user experience, protects and re-establish natural systems, and creates a project identity.

Across the project, we firstly need to look at the landscape through which the highway passes and consider the various elements that make up the landscape in order to choreograph the visual experience of travelling along the road.

The key factors that effect this experience helped shape the concept design thinking.



Conceptual diagram location of landscape character zones across the corridor

#### TOPOGRAPHY

The corridor is predominantly an undulating east-west experience from The Northern Road (90m) down to a low point at Badgerys Creek (38m) and up to the highest point at Western Sydney Parklands (115m). This rolling topography creates a unique user experience as the roadway requires many cuts, fills and bridges.

#### SEQUENCE AND EXPERIENCE

The aforementioned topography presents an opportunity to create a related series of experiences for the user. The regularity of bridges and creek crossings combined with the pattern of the open and enclosed landscape (created by cuts and fills) enhances the driver experience.

#### AIRPORT CONNECTIVITY

Breaking the pattern of the east-west corridor is the intersecting airport interchange, which is additionally the future focal point of the region. This interchange will have a strong and unique landscape response, setting it apart from the endemic landscape character of the rest of the alignment. The interchange will consist of car and shared path interchanges, artworks and landscape design.

#### LANDSCAPE AND PLANTING

The surrounding landscape consists of endangered ecological communities (EECs), major parklands, agricultural land and several creeks. The creeks are a consistent landscape feature of the region and run from south to north across the corridor. Many EECs are present both within and adjacent to the corridor. While they are not immediately legible from a drivers' perspective, they provide important landscape structure to the areas adjacent the roadway.

The alignment travels through Western Sydney Parklands near Kemps Creek and Cecil Park. Western Sydney Parklands is a dominant landscape feature at the eastern end of the corridor and will be a major attraction for users of the roadway at Day one and into the future as it will be the largest corridor of recreational green space in the region.

#### CHANGE

The M12 is an connector that serves to connect the future distinct urban 'villages' surrounding the Aerotropolis. Very few projects in Australia will experience the dramatic change in surrounding usage that this project will experience, transforming from farmland to bustling Aerotropolis in the space of two decades. That is why it is important to amplify the existing landscape character of the Cumberland Plain within the corridor so it can thrive and co-exist with the development into the future.

#### SHARED PATH CONNECTIVITY

The M12 shared path is a major feature of the project and will provide an shared path (pedestrian and cyclist) link along the corridor through provision of pedestrian bridges and an off-road shared user path, including connections to existing and future shared user path networks. The shared path connectivity across the project corridor implements wayfinding strategies and signage that support the functions of the shared path as well as the incorporation of indigenous and non-indigenous heritage information, including Aboriginal cultural design elements such as interpretation nodes, artworks, sculptures and cultural planting schemes.

### SITE WIDE STRATEGIES

This section of the report looks at both a 'Day one' and 'Ultimate' project in an abstract sense based on the change in land use from what is predominantly a rural and semi-rural landscape towards a 24-hour Aerotropolis surrounding the corridor, followed by a more detailed corridor experience strategy focused on major planting structures, view corridors, and landscape character strategies along the alignment.

#### SITE WIDE STRATEGY - DAY ONE USER EXPERIENCE

Upon completion, the M12 corridor will be an experience of far reaching views from ridge tops and rolling hills over the floodplains to the Blue Mountains beyond.

The scars of construction should be disguised by endemic planting, helping the roads melt into the existing landscape character of rolling hills, floodplains and ridge tops. While the existing character should be retained, it should also be amplified in an attempt to soften the major future development changes that will occur into the future, helping the area to retain a semblance of Cumberland Plain character.

The undulating highway experience of hills and plains will be punctured and spanned in a sequential rhythm from east to west. Endemic planting will help to heighten the experience, by adding to the sense of enclosure and openness.

Bridges act as landmarks across the alignment helping to strengthen and clarify the drivers image of the environment and help to locate themselves. On day one, bridges will function like lookouts across the landscape with little to obstruct the drivers view.

Fleurs aerodrome will act as a key landmark along the route and should be referenced in the landscape on day one and into the future. This key piece of history provides an opportunity for some of the regions history to be saved and celebrated.

The experience leading into the airport should be one of enclosed views reinforced by the adjacent landscape, leading the drivers view straight ahead as the views then unfold as the airport approaches.



## SITE WIDE STRATEGY - ULTIMATE USER EXPERIENCE

The user experience will evolve as the surrounding landscape transforms from rolling hills and floodplains into a bustling aerotropolis. Through this transition, the existing landscape character will slowly recede into the background as development increases. Amplifying the landscape character adjacent to the future development will ensure that the scale of planting will sit comfortably within the scale of the new development. The corridor's width and proximity to parkland/creeks will be protected as much as possible from envisaged adjacent development through the landscape design approach. This approach will focus the user to the natural spaces by way of contrasting with development.

The highway experience should continue as a sequence of intense cuts and wide open views, however over time, these views will be reduced to only areas over floodplain, with large scale development planned for the majority of the rolling hills to the west. This will direct the drivers focus inwardly to the corridor, highlighting the importance of the planted buffers either side of the carriageway.

Bridges will continue to act as landmarks across the alignment into the future ensuring the drivers image of the environment remains consistent over time.

Far reaching views from ridge tops and rolling plains to the Blue Mountains and over the floodplains will continue to be a key user experience. As the north and south of the corridor development, views to the west and out towards the mountains will be reinforced.

The experience leading into the airport will be further enclosed by development, helping to create an arrival experience when passing through the underpass/gateway at Elizabeth Drive.

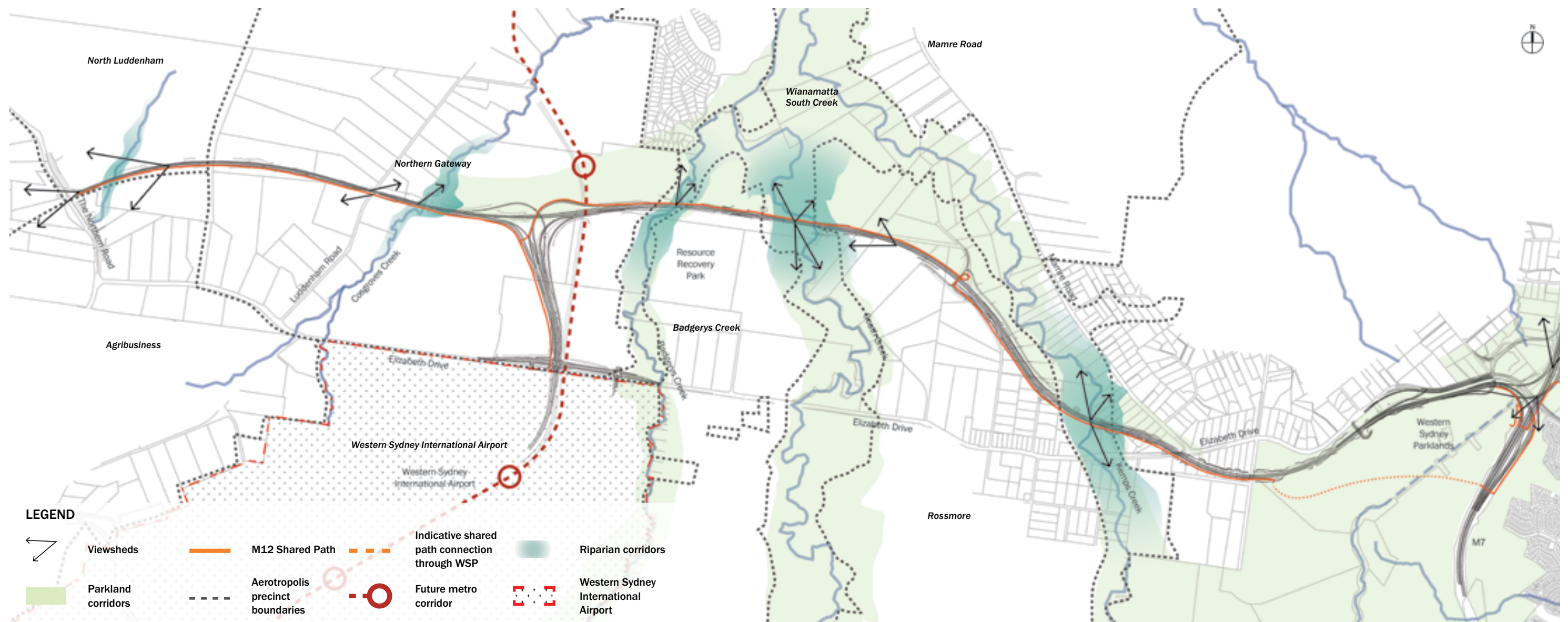


Figure 19. Landscape design themes





Artist's impression: Shared path view east along the M12 Motorway (landscape shown at full maturity and is indicative only).

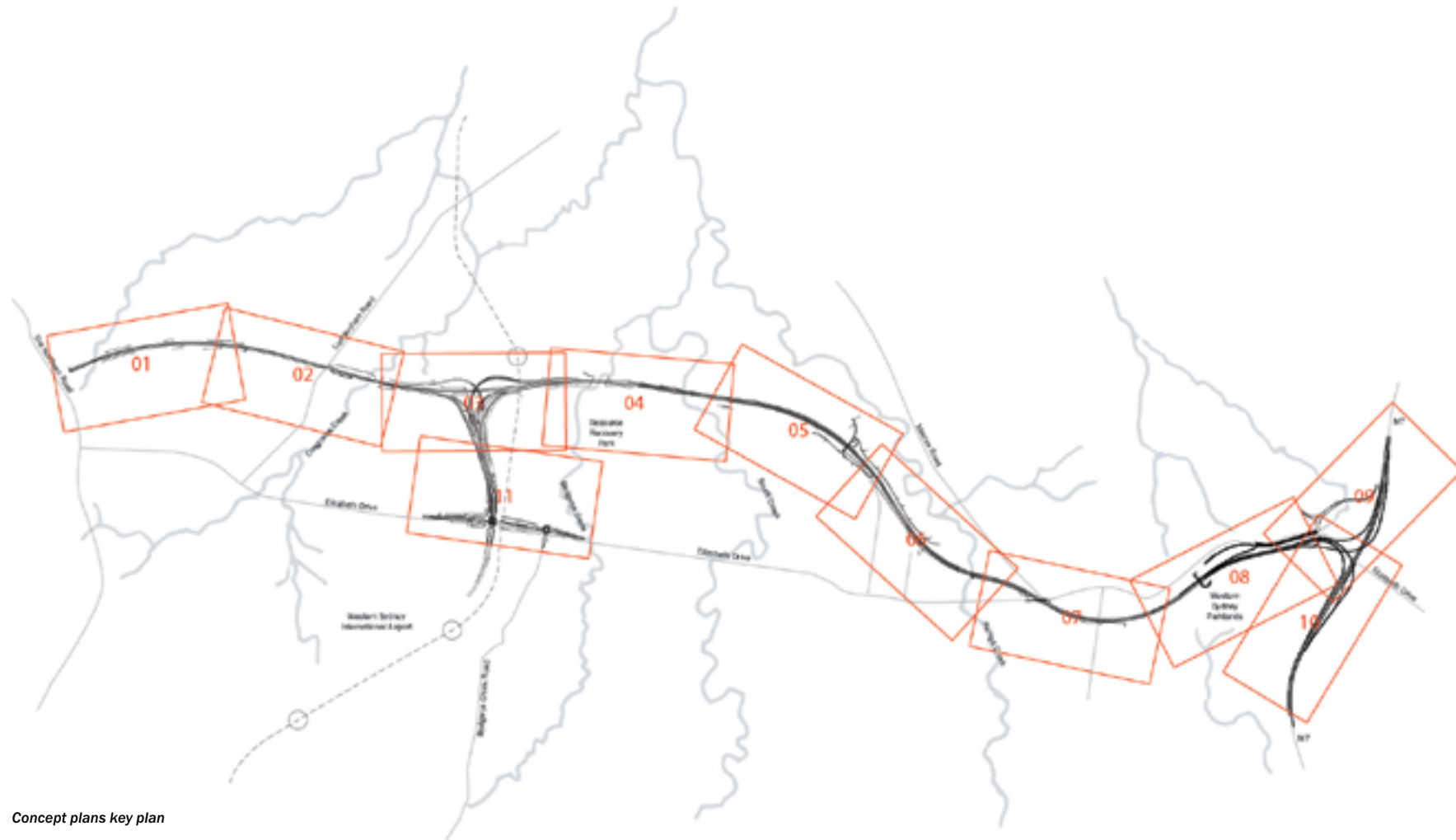


### 3.5 CONCEPT PLANS

To achieve a lasting and cohesive design for the Motorway, an overall concept plan was developed to demonstrate the finished outcome for the Project.

The following concept plans illustrate the integrated urban design, art and landscaping approach. The plans highlight the location of main features such as motorway alignments, shared paths and associated interpretation nodes, creek crossings, bridges, and urban elements. This section includes an overall master plan, a series of concept plans, typical sections and visualisations.

Further detail relating to the landscape design is provided in Section 4 and within the Landscape Design appendices.





MASTER PLAN

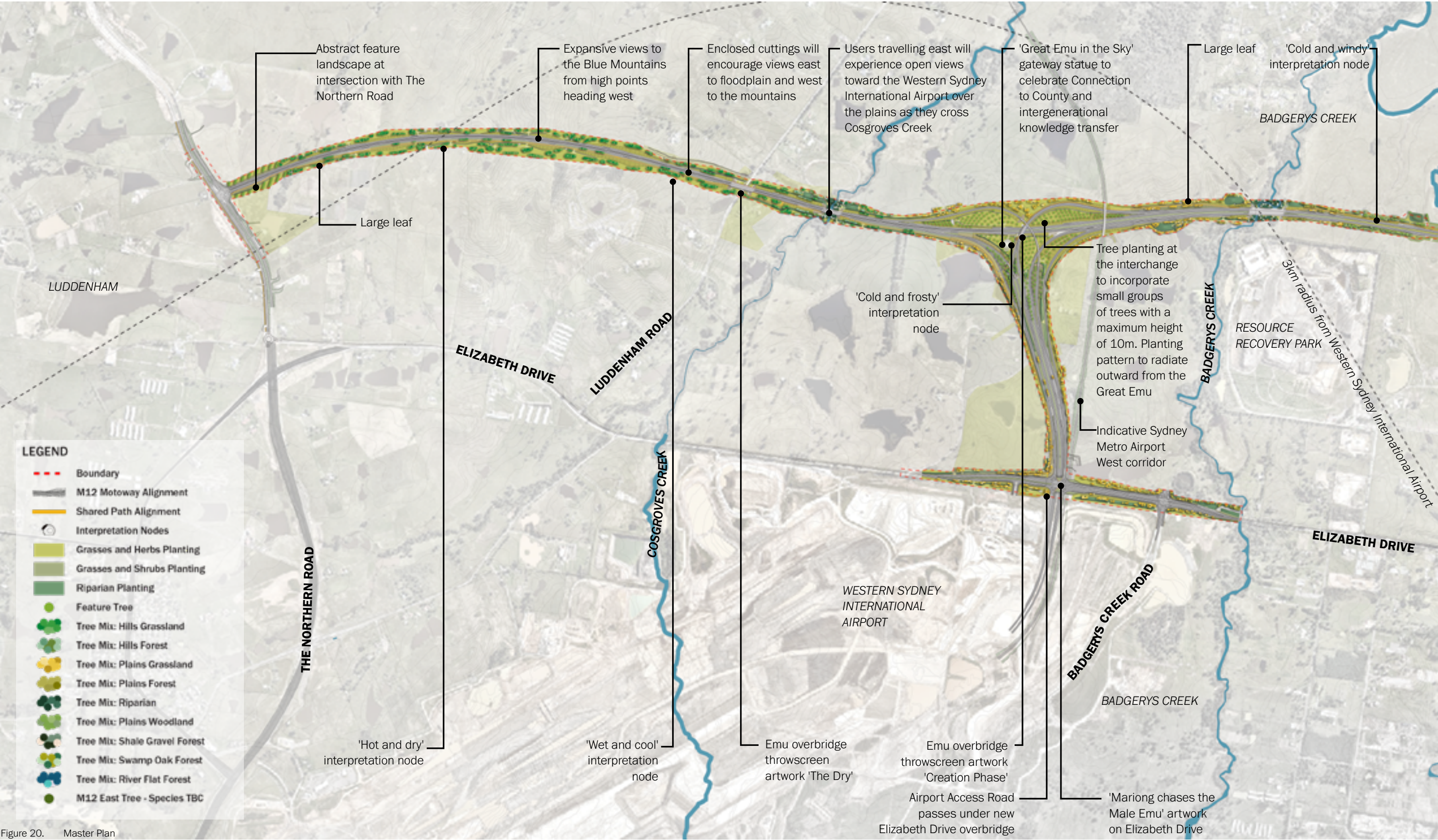
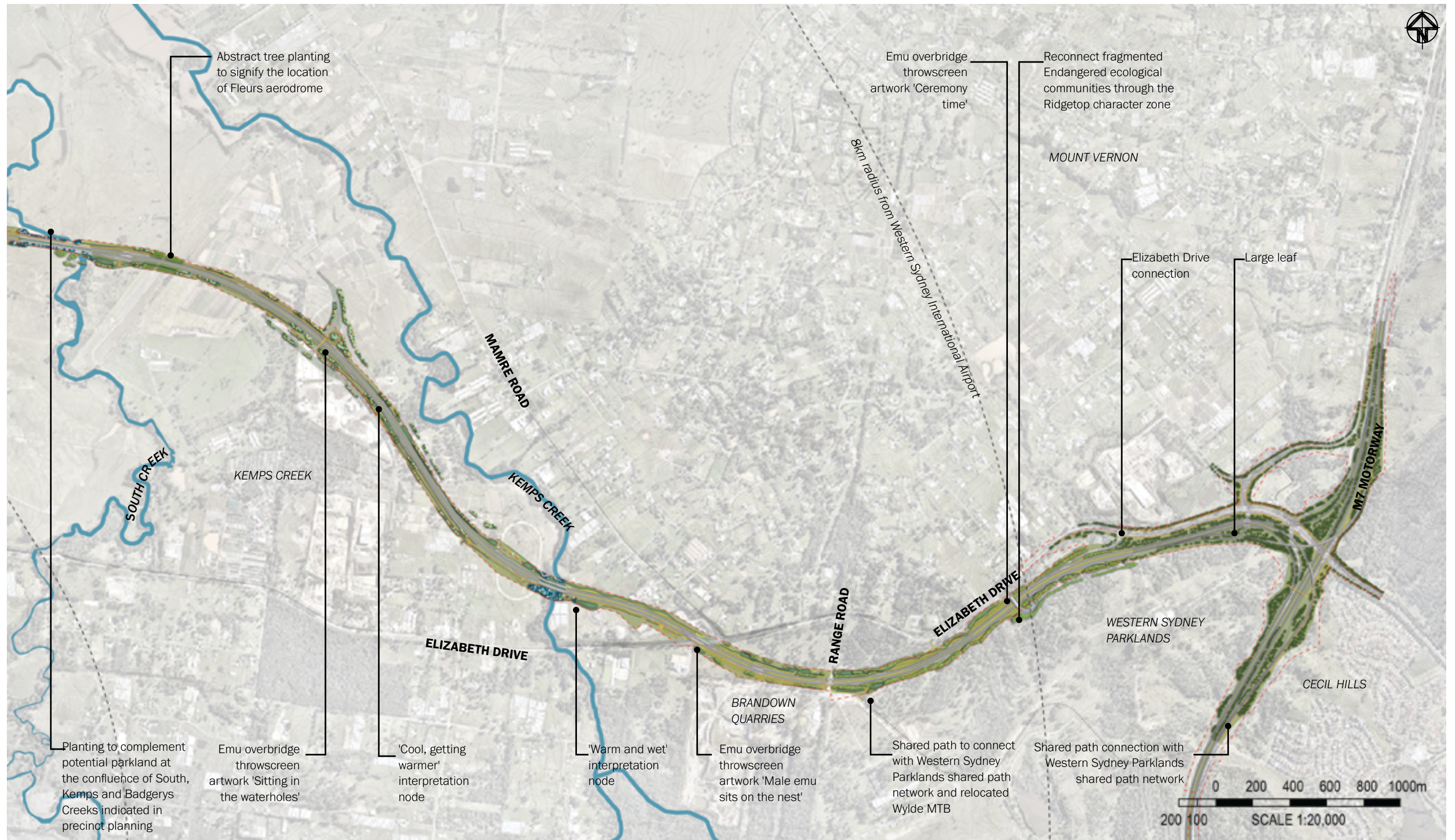


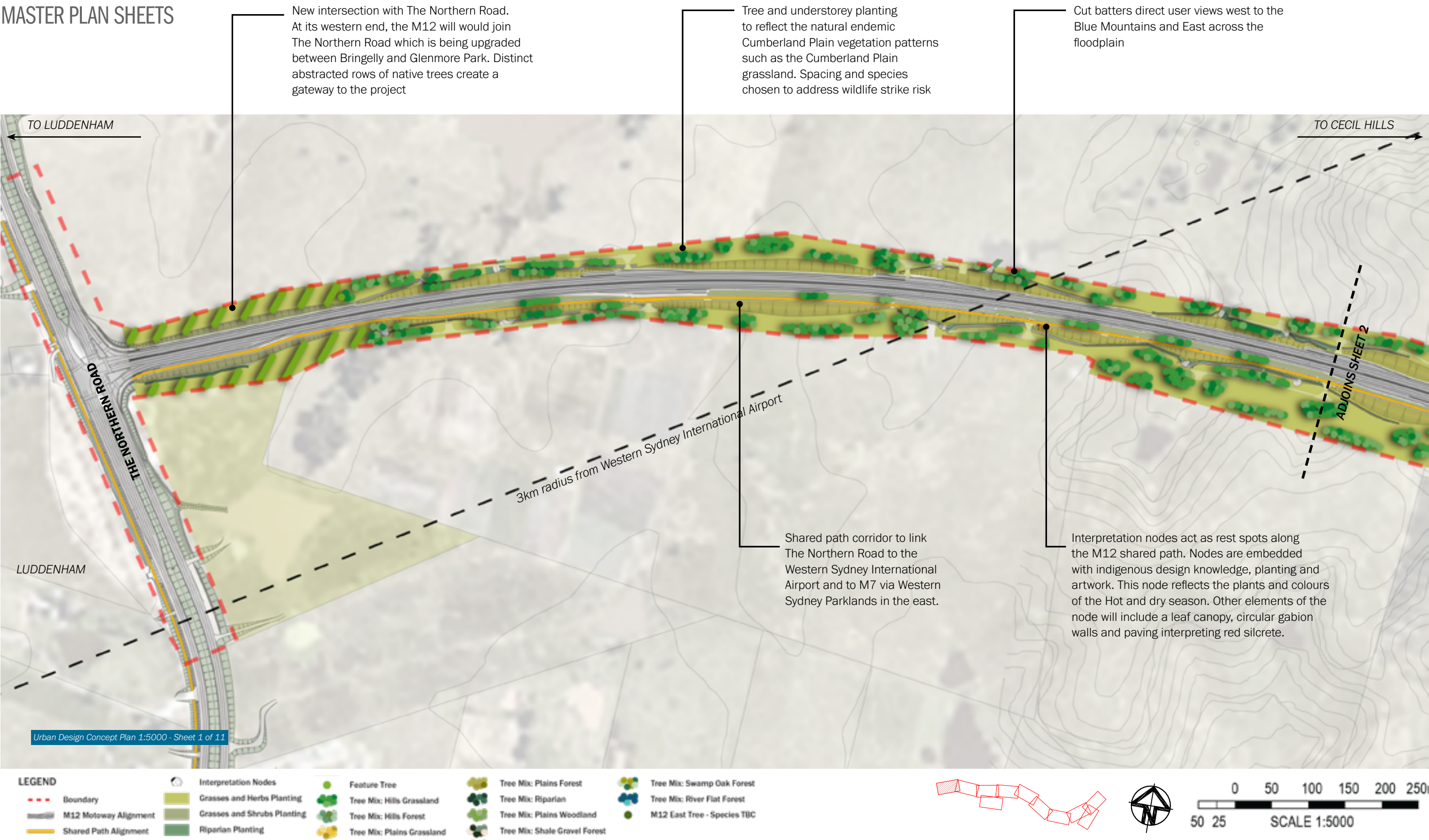
Figure 20. Master Plan



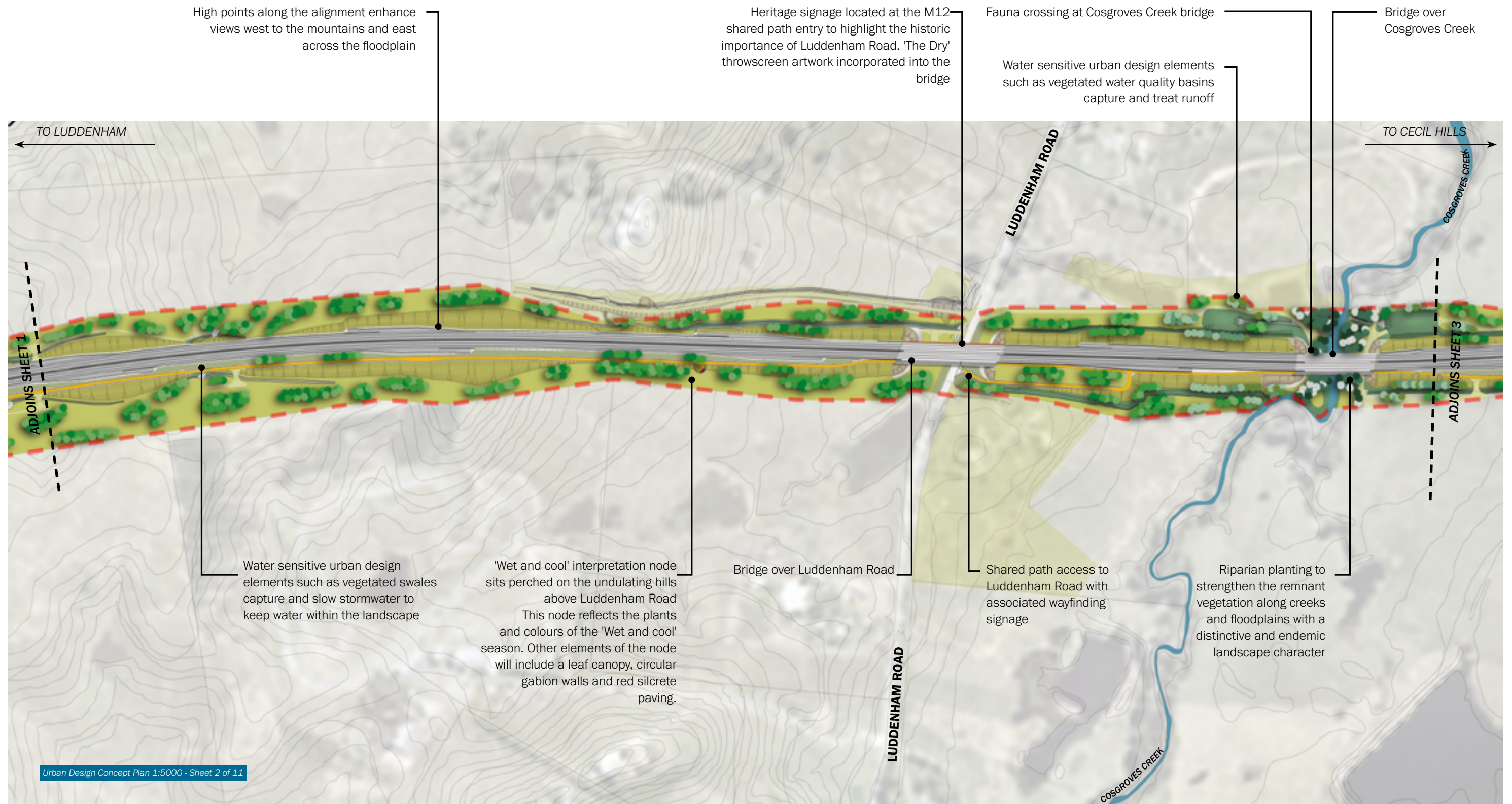




MASTER PLAN SHEETS

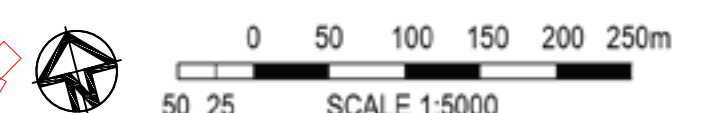
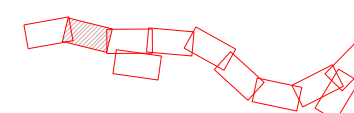




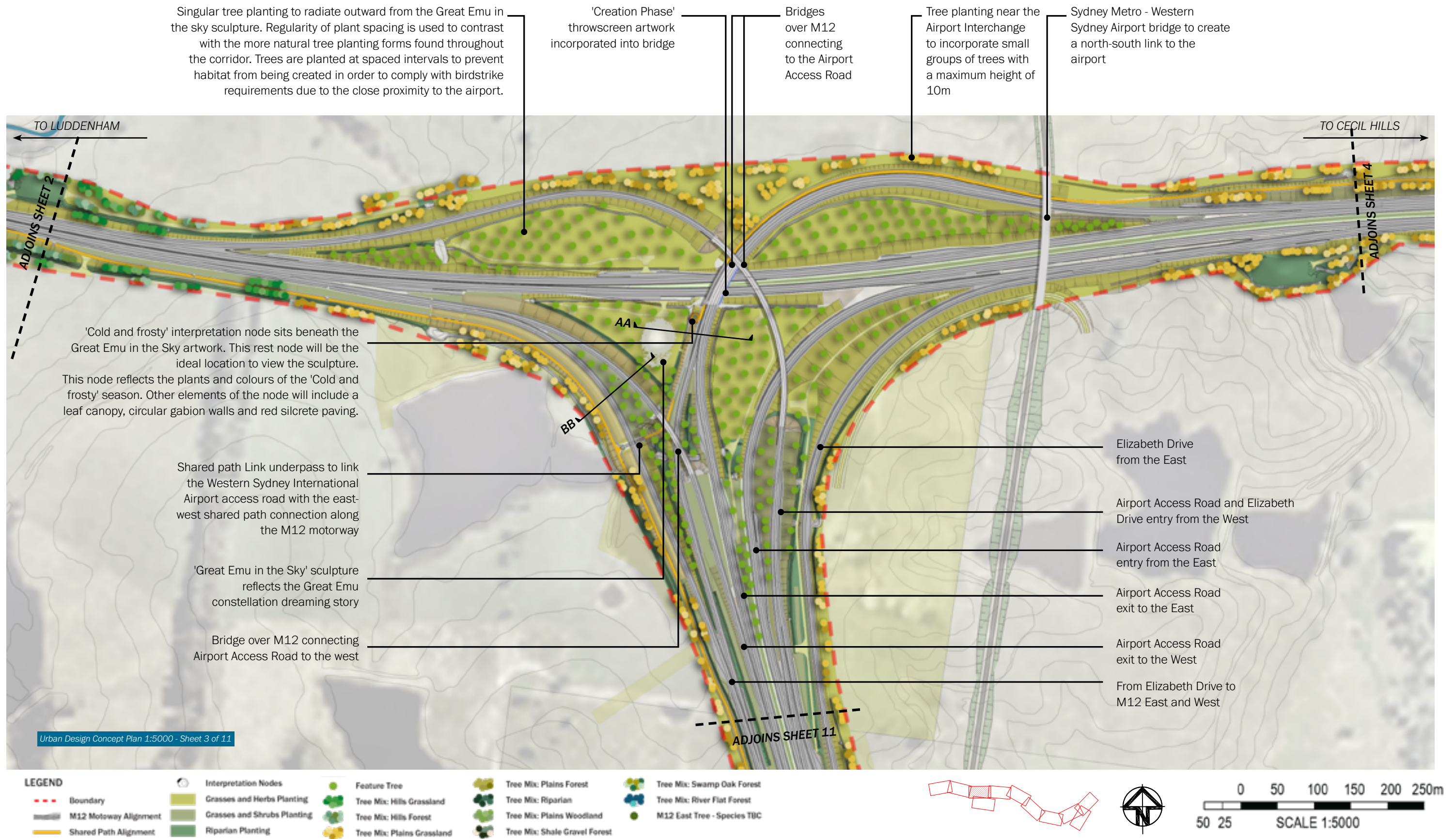


LEGEND

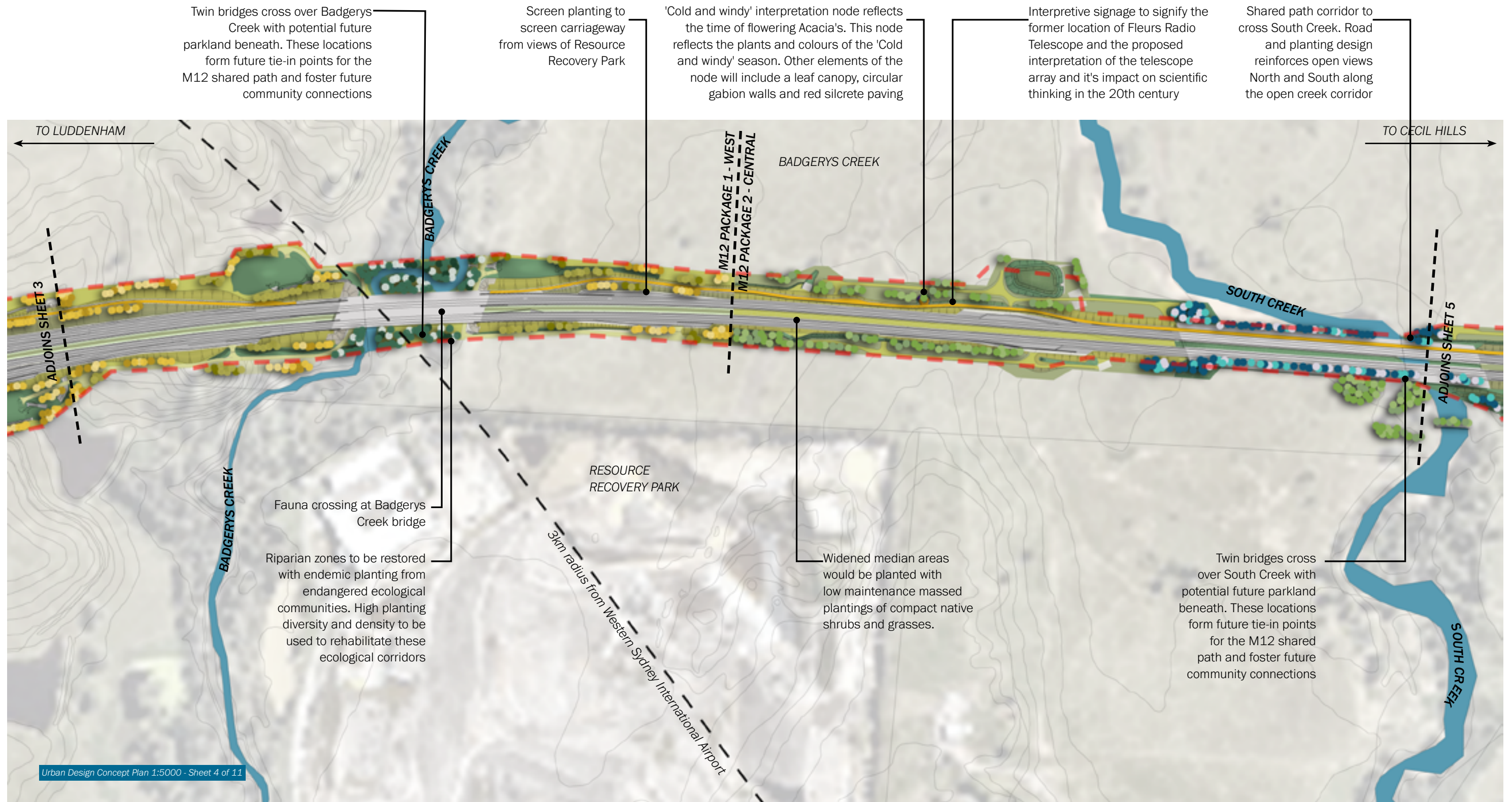
--- Boundary	● Interpretation Nodes	● Feature Tree	● Tree Mix: Plains Forest	● Tree Mix: Swamp Oak Forest
--- M12 Motoway Alignment	■ Grasses and Herbs Planting	● Tree Mix: Hills Grassland	● Tree Mix: Riparian	● Tree Mix: River Flat Forest
--- Shared Path Alignment	■ Grasses and Shrubs Planting	● Tree Mix: Hills Forest	● Tree Mix: Plains Woodland	● M12 East Tree - Species TBC
	■ Riparian Planting	● Tree Mix: Plains Grassland	● Tree Mix: Shale Gravel Forest	





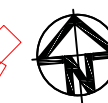
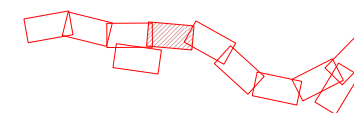






LEGEND

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|---------------------------|-------------------------------|------------------------------|---------------------------------|-------------------------------|
| --- Boundary              | ● Interpretation Nodes        | ● Feature Tree               | ● Tree Mix: Plains Forest       | ● Tree Mix: Swamp Oak Forest  |
| --- M12 Motoway Alignment | ■ Grasses and Herbs Planting  | ● Tree Mix: Hills Grassland  | ● Tree Mix: Riparian            | ● Tree Mix: River Flat Forest |
| --- Shared Path Alignment | ■ Grasses and Shrubs Planting | ● Tree Mix: Hills Forest     | ● Tree Mix: Plains Woodland     | ● M12 East Tree - Species TBC |
|                           | ■ Riparian Planting           | ● Tree Mix: Plains Grassland | ● Tree Mix: Shale Gravel Forest |                               |

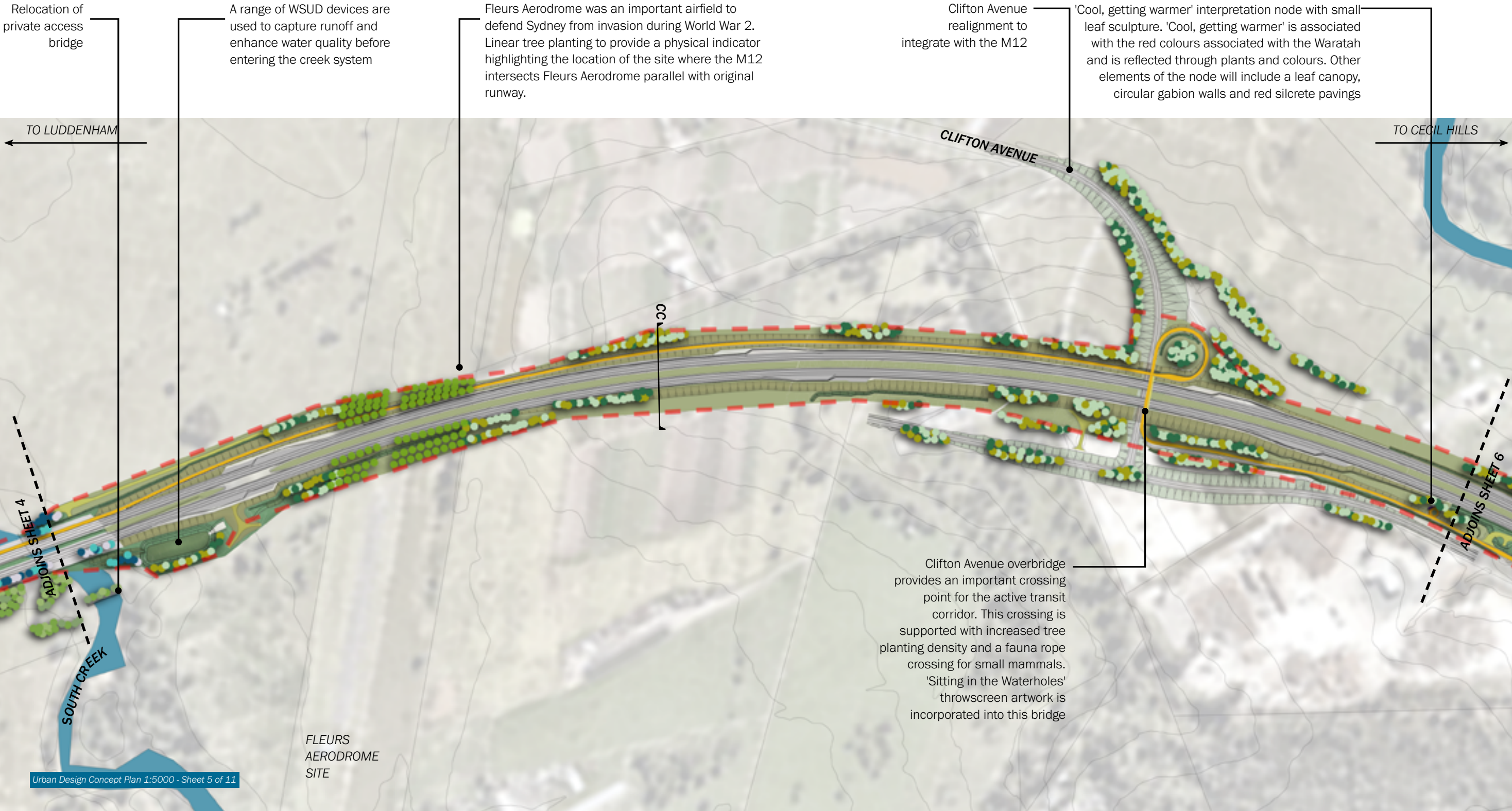


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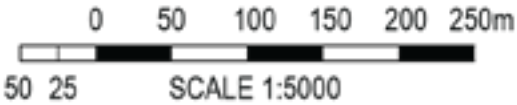
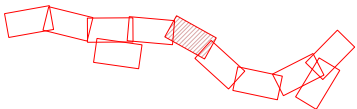
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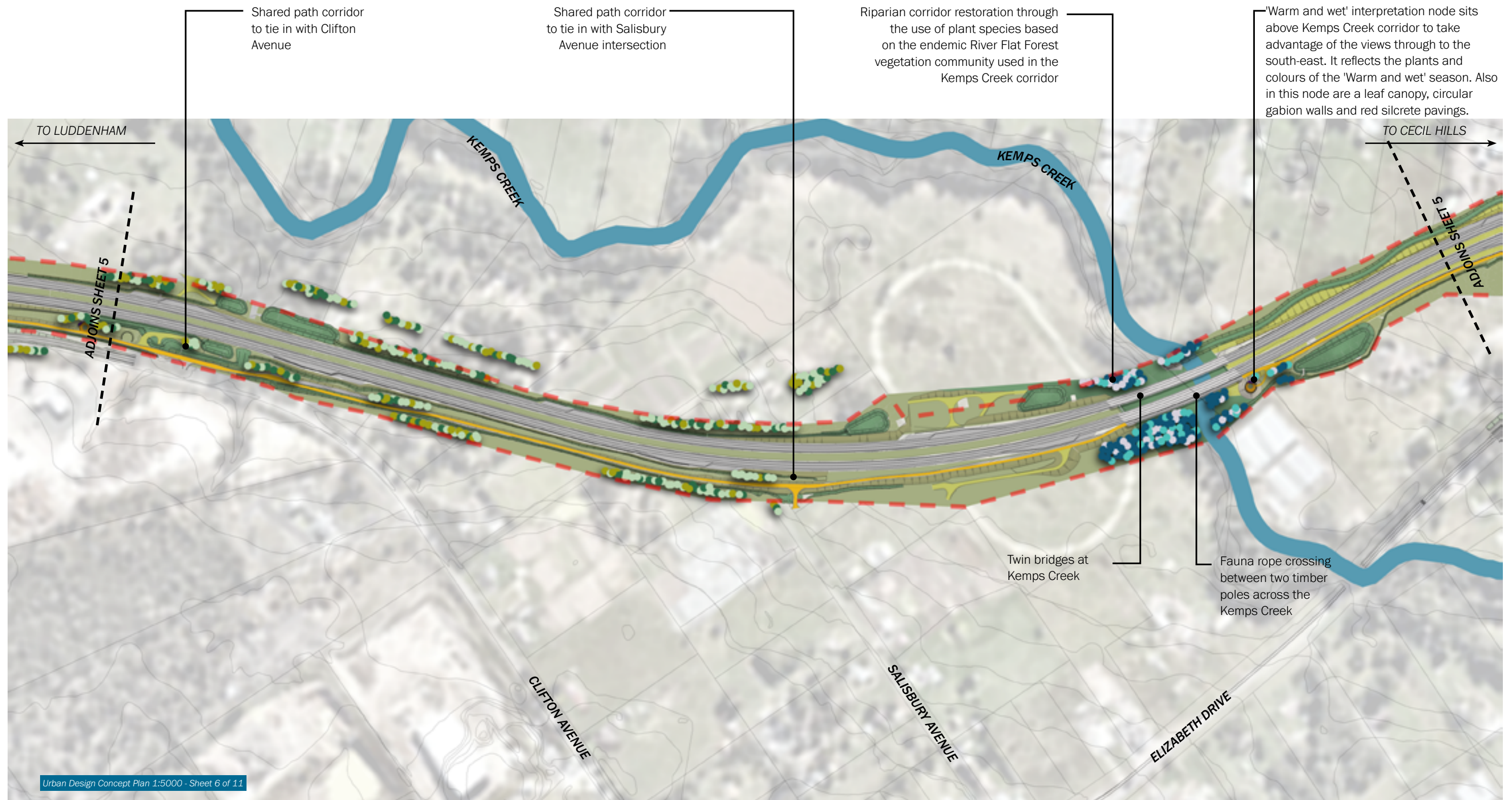




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Boundary		Interpretation Nodes		Feature Tree		Tree Mix: Plains Forest		Tree Mix: Swamp Oak Forest	
M12 Motorway Alignment		Grasses and Herbs Planting		Tree Mix: Hills Grassland		Tree Mix: Riparian		Tree Mix: River Flat Forest	
Shared Path Alignment		Grasses and Shrubs Planting		Tree Mix: Hills Forest		Tree Mix: Plains Woodland		M12 East Tree - Species TBC	
		 Riparian Planting		 Tree Mix: Plains Grassland		 Tree Mix: Shale Gravel Forest			



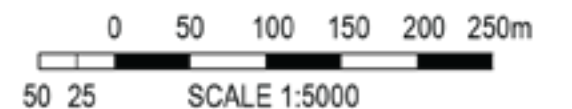
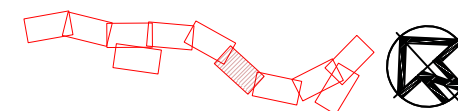




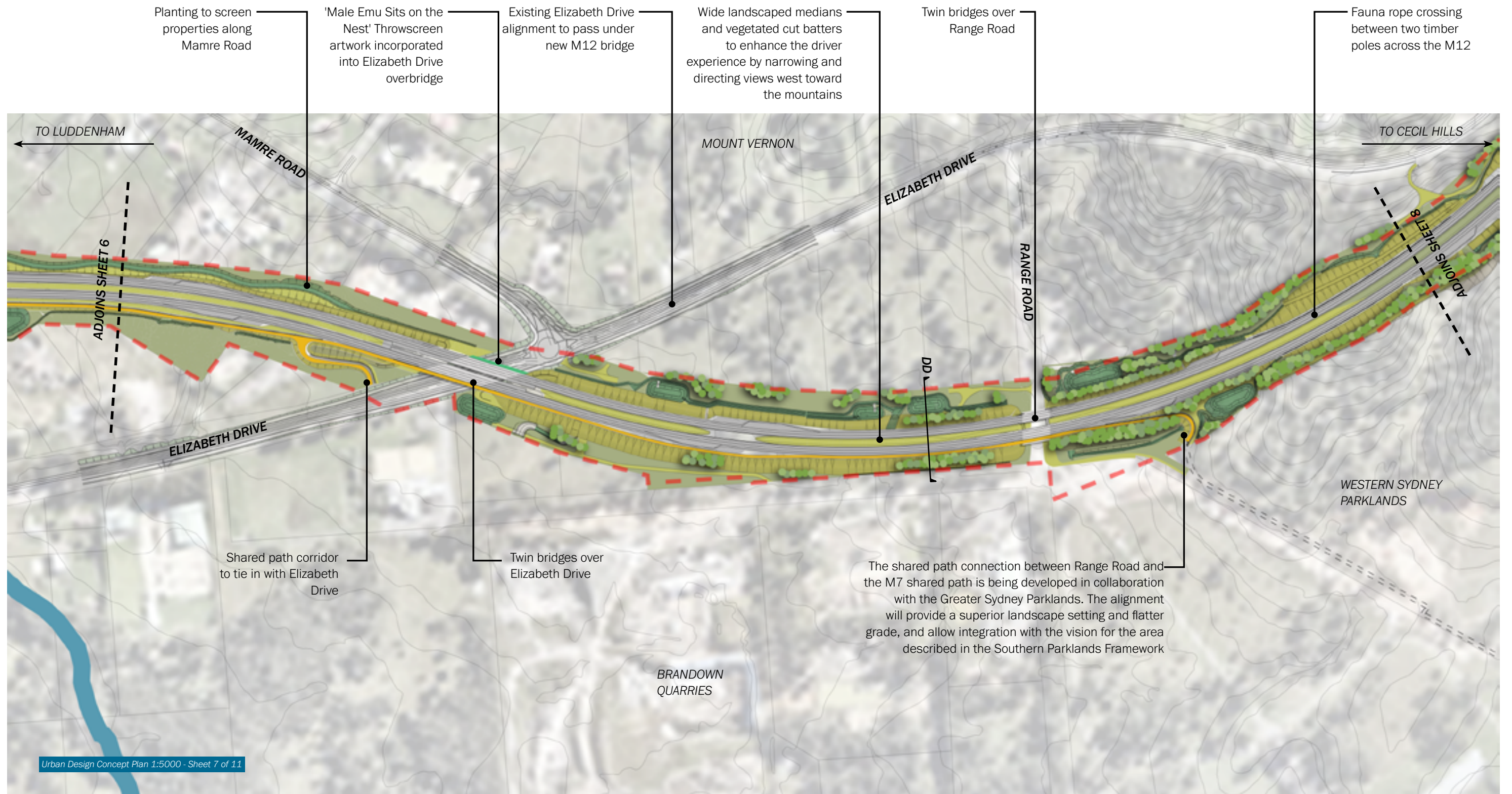
Urban Design Concept Plan 1:5000 - Sheet 6 of 11

LEGEND

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--- M12 Motorway Alignment	■ Grasses and Herbs Planting	● Tree Mix: Hills Grassland	● Tree Mix: Riparian	● Tree Mix: River Flat Forest
--- Shared Path Alignment	■ Grasses and Shrubs Planting	● Tree Mix: Hills Forest	● Tree Mix: Plains Woodland	● M12 East Tree - Species TBC
	■ Riparian Planting	● Tree Mix: Plains Grassland	● Tree Mix: Shale Gravel Forest	

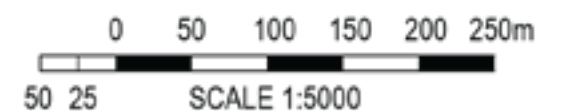
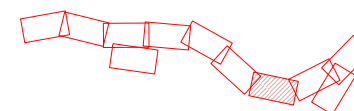




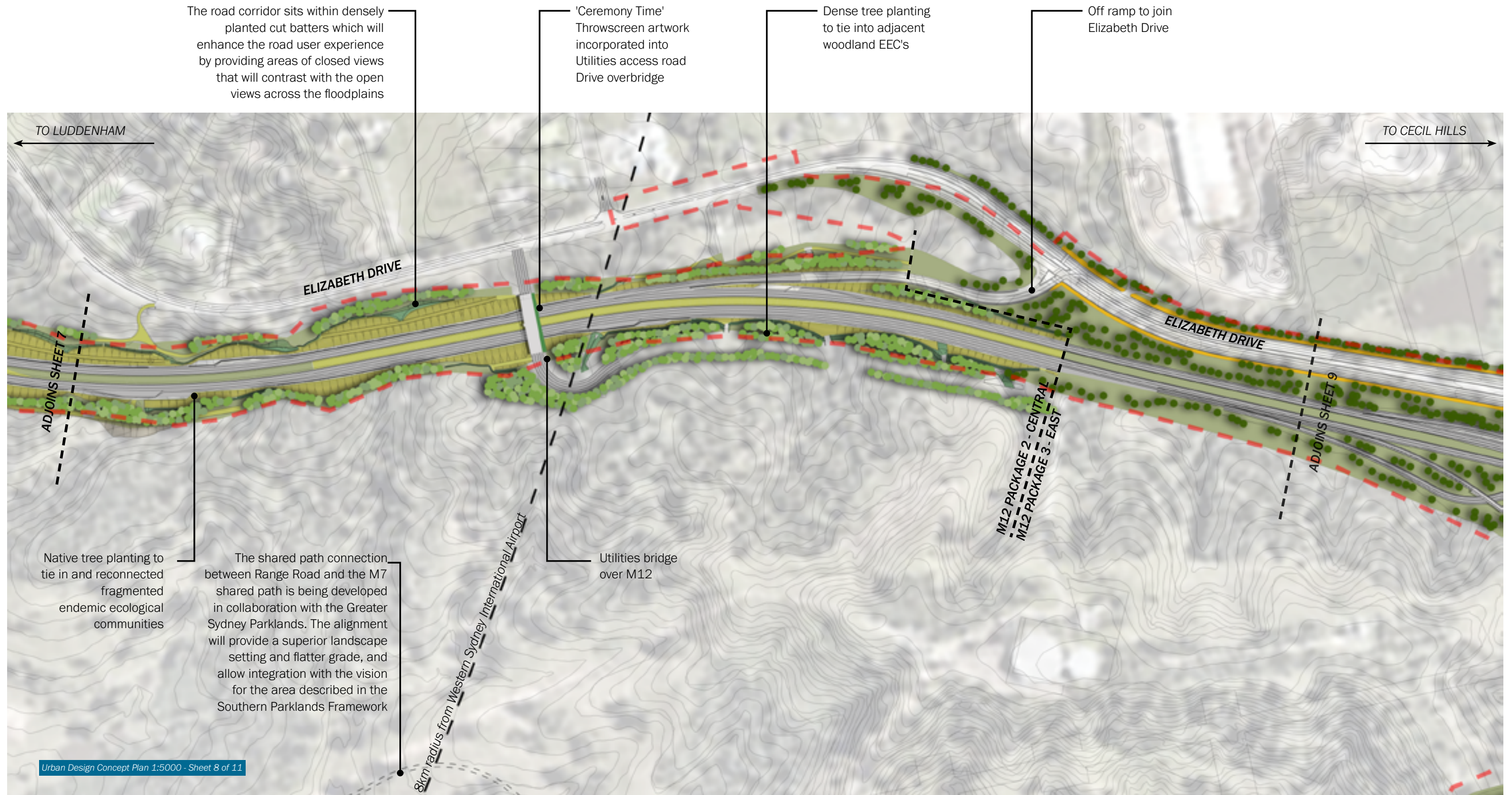


#### LEGEND

--- Boundary	● Interpretation Nodes	● Feature Tree	● Tree Mix: Plains Forest	● Tree Mix: Swamp Oak Forest
--- M12 Motorway Alignment	■ Grasses and Herbs Planting	● Tree Mix: Hills Grassland	● Tree Mix: Riparian	● Tree Mix: River Flat Forest
--- Shared Path Alignment	■ Grasses and Shrubs Planting	● Tree Mix: Hills Forest	● Tree Mix: Plains Woodland	● M12 East Tree - Species TBC
	■ Riparian Planting	● Tree Mix: Plains Grassland	● Tree Mix: Shale Gravel Forest	

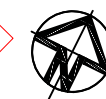
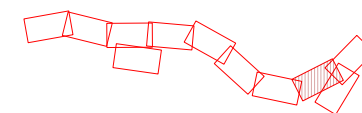






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--- M12 Motoway Alignment	■ Grasses and Herbs Planting	● Tree Mix: Hills Grassland	● Tree Mix: Riparian	● Tree Mix: River Flat Forest
--- Shared Path Alignment	■ Grasses and Shrubs Planting	● Tree Mix: Hills Forest	● Tree Mix: Plains Woodland	● M12 East Tree - Species TBC
	■ Riparian Planting	● Tree Mix: Plains Grassland	● Tree Mix: Shale Gravel Forest	



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The design of the M7 Motorway interchange bridges have been developed to belong to both the M12 Motorway family of elements whilst being consistent with the existing suite of bridges on the M7 Motorway.

Heritage interpretation signage to highlight the upper canal

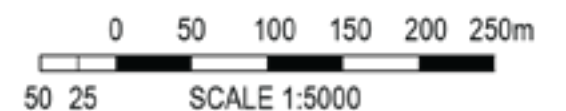
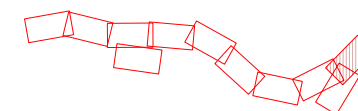
Planting through the interchange to be derived from the adjacent EEC's found adjacent to the motorway

New Wallgrove Road connection to Cecil Road and the M12

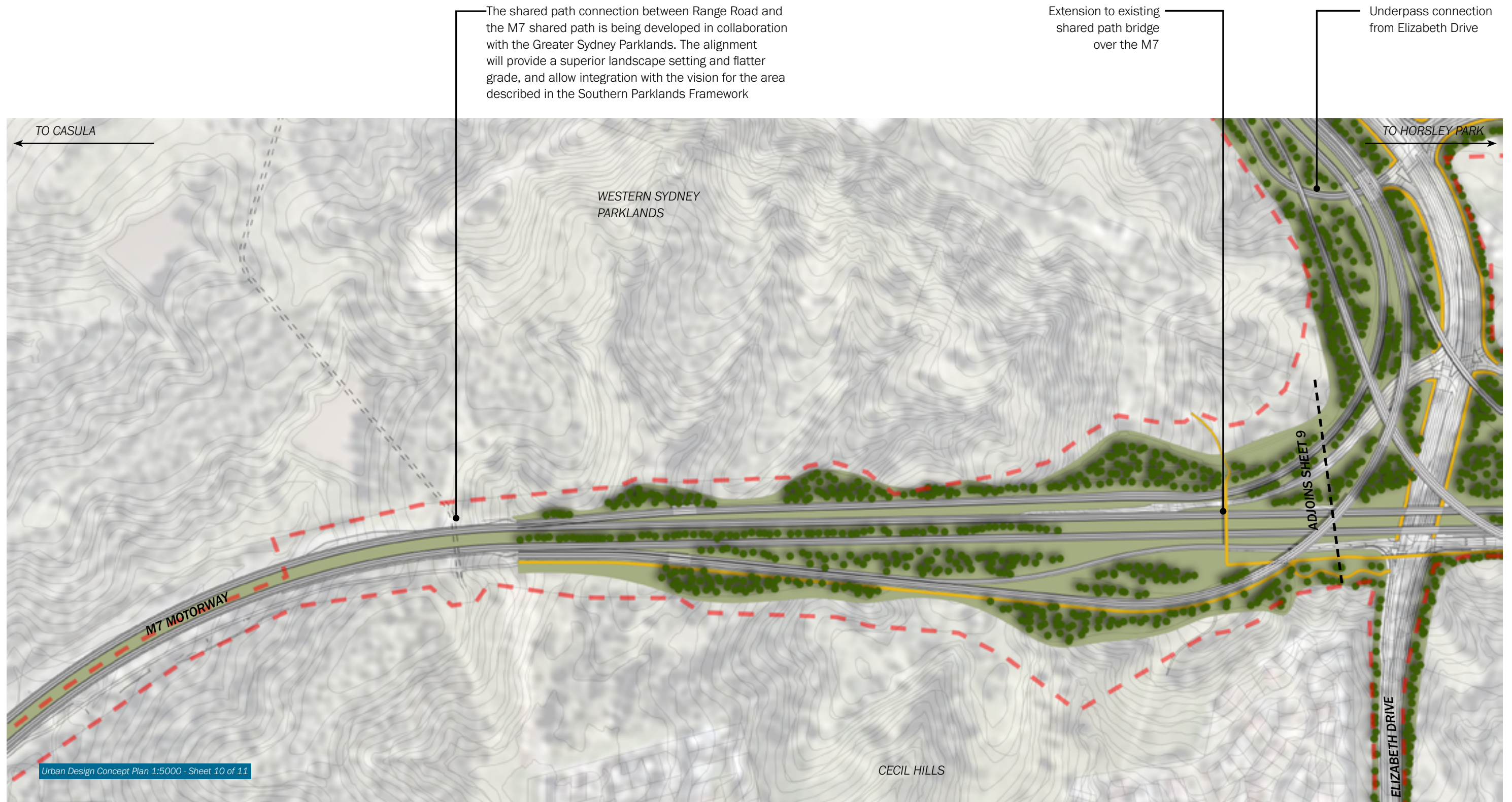


#### LEGEND

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|----------------------------|-------------------------------|------------------------------|---------------------------------|-------------------------------|
| --- Boundary               | ● Interpretation Nodes        | ● Feature Tree               | ● Tree Mix: Plains Forest       | ● Tree Mix: Swamp Oak Forest  |
| --- M12 Motorway Alignment | ■ Grasses and Herbs Planting  | ● Tree Mix: Hills Grassland  | ● Tree Mix: Riparian            | ● Tree Mix: River Flat Forest |
| --- Shared Path Alignment  | ■ Grasses and Shrubs Planting | ● Tree Mix: Hills Forest     | ● Tree Mix: Plains Woodland     | ● M12 East Tree - Species TBC |
|                            | ■ Riparian Planting           | ● Tree Mix: Plains Grassland | ● Tree Mix: Shale Gravel Forest |                               |



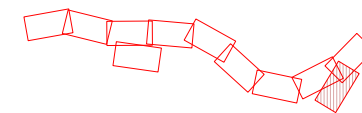




Urban Design Concept Plan 1:5000 - Sheet 10 of 11

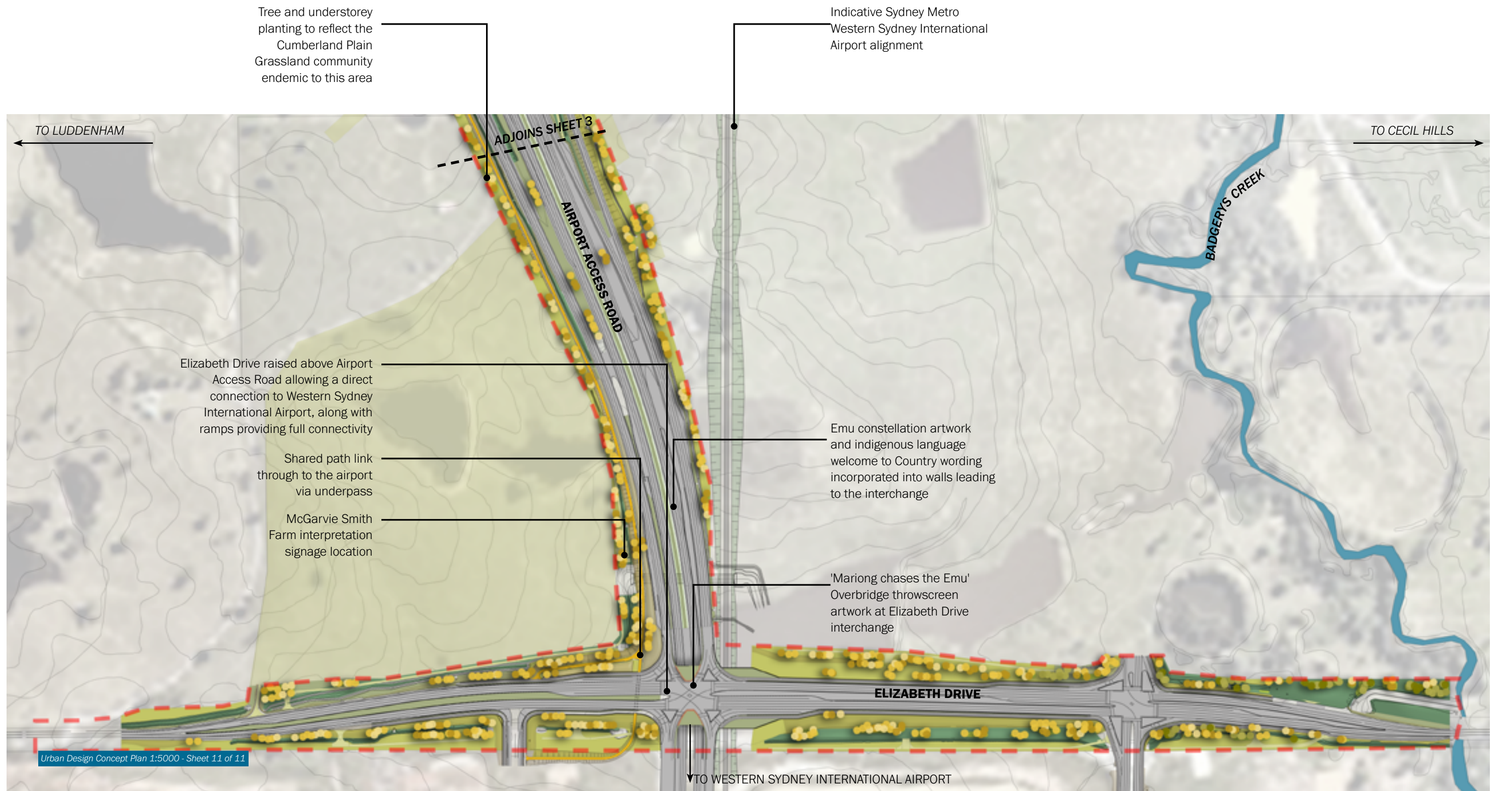
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| --- M12 Motorway Alignment | ■ Grasses and Herbs Planting  | ● Tree Mix: Hills Grassland  | ● Tree Mix: Riparian            | ● Tree Mix: River Flat Forest |
| --- Shared Path Alignment  | ■ Grasses and Shrubs Planting | ● Tree Mix: Hills Forest     | ● Tree Mix: Plains Woodland     | ● M12 East Tree - Species TBC |
|                            | ■ Riparian Planting           | ● Tree Mix: Plains Grassland | ● Tree Mix: Shale Gravel Forest |                               |



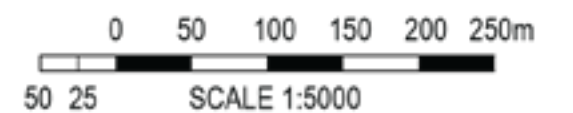
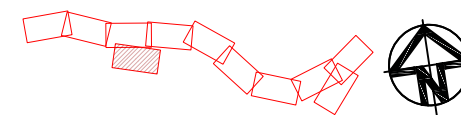
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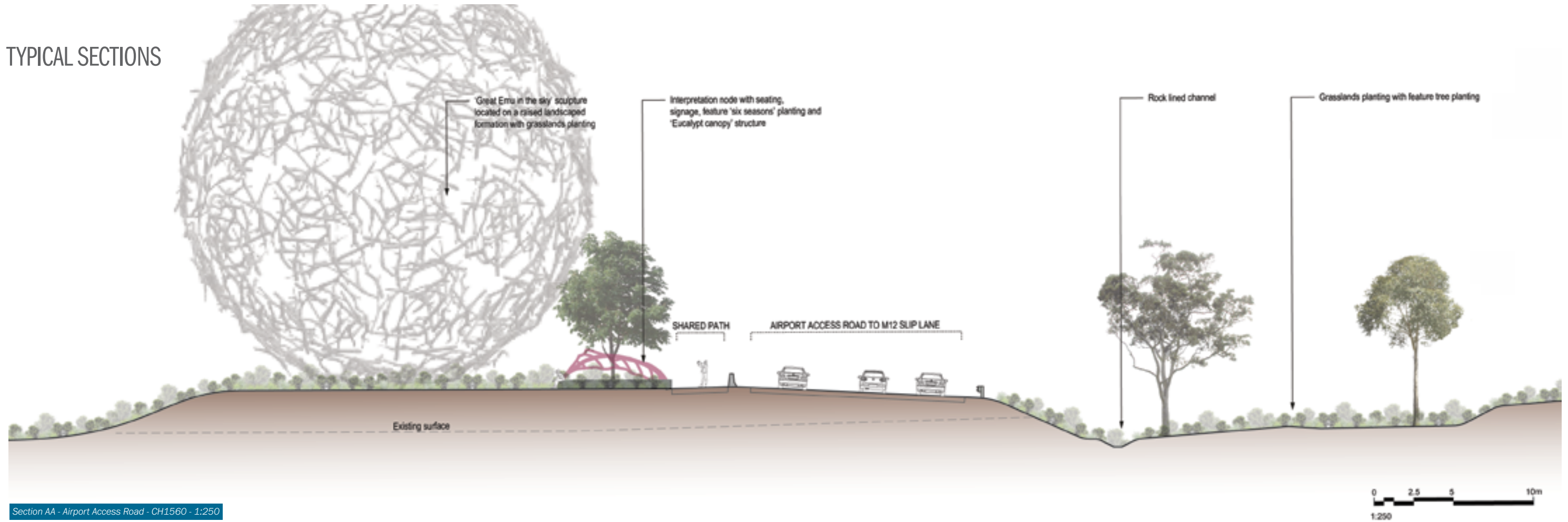
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|--------------------------|-------------------------------|------------------------------|---------------------------------|-------------------------------|
| --- Boundary             | ● Interpretation Nodes        | ● Feature Tree               | ● Tree Mix: Plains Forest       | ● Tree Mix: Swamp Oak Forest  |
| ▬ M12 Motorway Alignment | ■ Grasses and Herbs Planting  | ● Tree Mix: Hills Grassland  | ● Tree Mix: Riparian            | ● Tree Mix: River Flat Forest |
| — Shared Path Alignment  | ■ Grasses and Shrubs Planting | ● Tree Mix: Hills Forest     | ● Tree Mix: Plains Woodland     | ● M12 East Tree - Species TBC |
|                          | ■ Riparian Planting           | ● Tree Mix: Plains Grassland | ● Tree Mix: Shale Gravel Forest |                               |

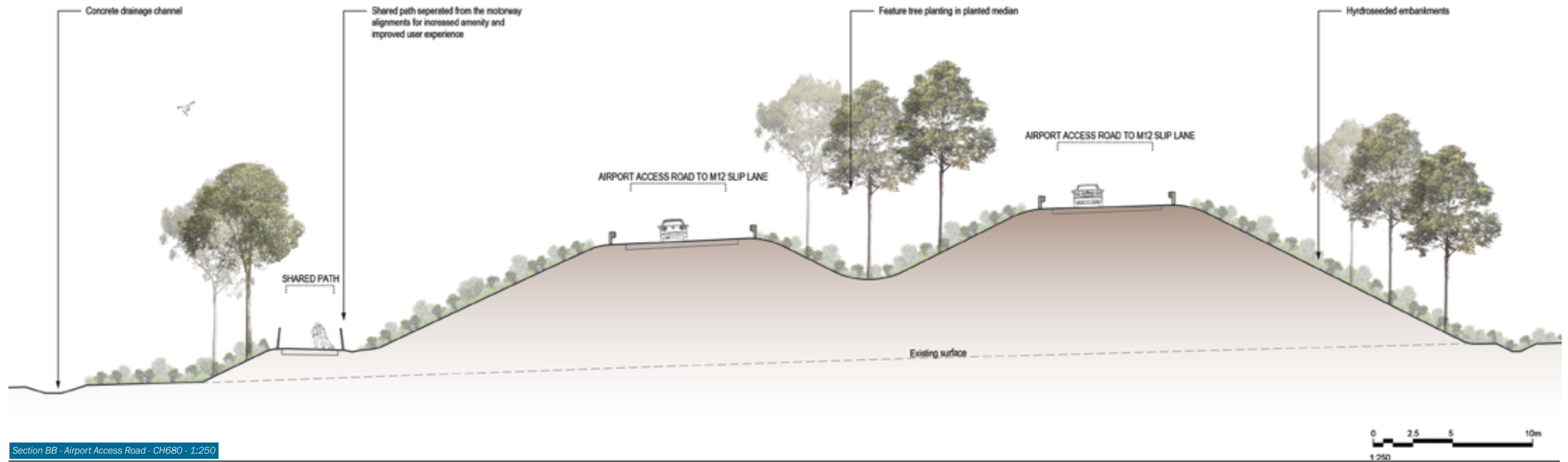




## TYPICAL SECTIONS

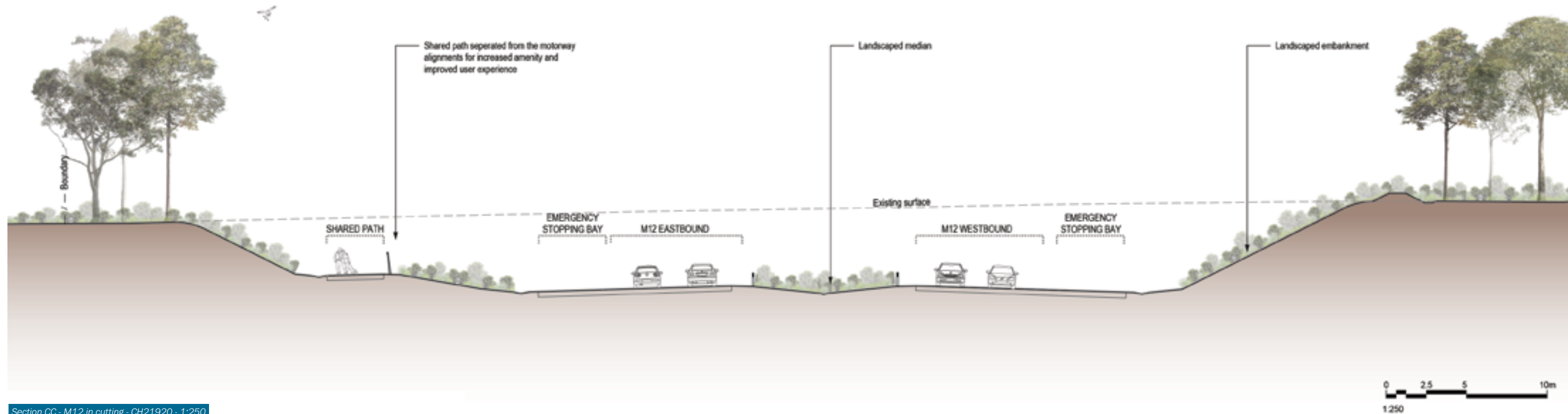


Section AA - Airport Access Road - CH1560 - 1:250

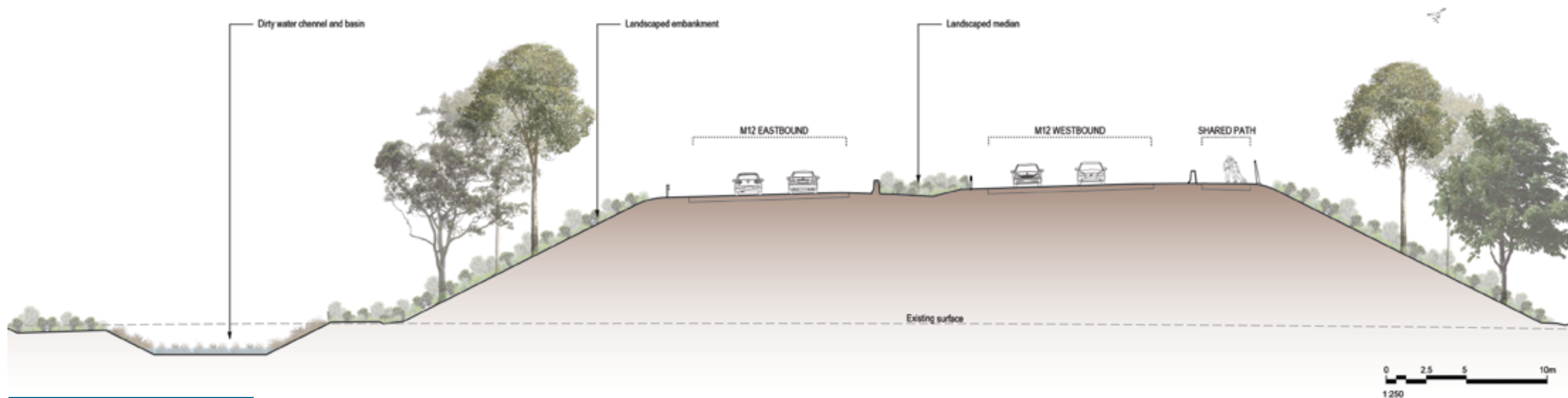


Section BB - Airport Access Road - CH680 - 1:250





Section CC - M12 in cutting - CH21920 - 1:250



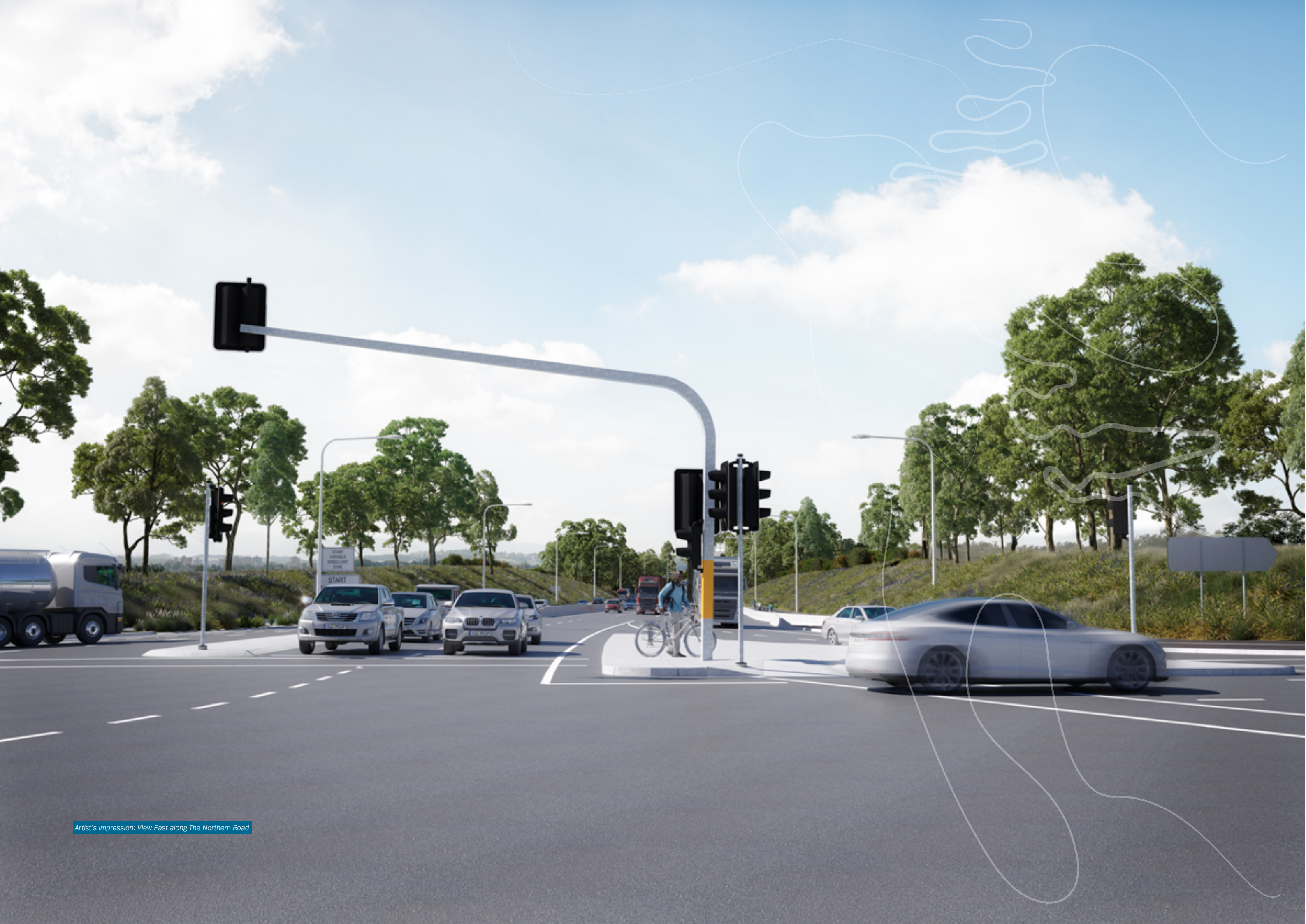
Section CC - M12 on fill embankments - CH25720 - 1:250





Artist's impression: Interpretation node with the Great Emu in the Sky in the background (landscape shown at full maturity and is indicative only).





Artist's impression: View East along The Northern Road





Artist's impression: Aerial view south over the Airport Interchange with WSIA in the background (landscape shown at full maturity and is indicative only).



### 3.6 SHARED PATH CORRIDOR

The M12 shared path corridor is a major feature of the project. It will provide an active transport (pedestrian and cyclist) link along the corridor as off-road shared user path, including connections to existing and future shared user path networks.

Main connections along the route (west to east) will be provided at The Northern Road, Luddenham Road, Elizabeth Drive (at the entry to the new Western Sydney International Airport), Clifton Avenue, Salisbury Avenue, Elizabeth Drive (near the Intersection with Mamre Road), and Range Road (at the entrance to Western Sydney Parklands). Greater Sydney Parklands and TfNSW will then provide an active transport link (Mirror Dam Cycleway) through the parklands site to join with the existing M7 shared path to provide connectivity with the M12 Shared Path and avoid the steepest portion of the motorway corridor east of Range road.

The following page highlights the key factors that have influenced the concept design. This is followed by a diagram outlining the alignment of the shared path.

Following, this section of the report details the following aspects of the shared path corridor experience:

- ◇ Interpretation nodes
- ◇ Aboriginal cultural interpretation
- ◇ Non-Aboriginal heritage interpretation
- ◇ Wayfinding and signage.



Figure 21. Emu footprint (Artist Cohort, Balarinji, 2021)

#### ACCESS TO CREEKS, OPEN SPACE AND BROADER NETWORKS

Within the Western Sydney Aerotropolis Plan, the South Creek precinct encompasses the full extent of Wianamatta South Creek and its tributaries serving as the Western Parkland City’s green spine. It will enable a connected open space network through contiguous public parklands, continuous pedestrian and cycle paths, community facilities, restaurants, cafés and rehabilitated riparian corridors.

The M12 project interfaces directly with South Creek and has considered the importance of all creek crossings during the design process. The shared path would enable connection to the future green spine, and connection and access to creeks should be prioritised where feasible within the project footprint.

Beyond the priority precincts, the overall Aerotropolis will transform over time, eventually resulting in changed edge conditions along majority of the project footprint.

#### USER EXPERIENCE

To improve the experience, safety and amenity for path users, the shared path will feature interpretation nodes at major points along the alignment, a suite of wayfinding and signage elements, materiality that reflects the character of the corridor, embedded CPTED principles across infrastructure elements, safe sight lines with alignments and planting designs, heritage interpretation and Aboriginal storytelling.

Where possible, paths have been separated from the Motorway and allowed to pass through a landscaped zone for increased amenity and views to provide improved experience for users.

Paths will have adequate lighting, entry and exit points which are accessible to all and provision for emergency services access.

#### CONNECTION TO COUNTRY - ABORIGINAL ART AND INTERPRETATION

This area on the Cumberland Plain was known as a gathering place and an area where the Darug, Dharawal and Gandangara people would visit.

This idea of gathering places is reflected in the interpretation nodes spread across the corridor, providing places for users to gather, rest and reflect. These nodes will incorporate wayfinding and educational signage, artwork and indigenous planting reflecting the six Dharawal seasons. These nodes help elevate the shared path experience and future connections of the alignment.

These nodes are located in prominent places that aim to connect visually and physically with Country.

#### WAYFINDING AND SIGNAGE

To enhance the user experience and safety across the alignment, wayfinding and signage will be integrated across the to provide route and location information and heritage interpretation that has been based on the character and materiality of the corridor it passes through.

Wayfinding and signage is explored further within this Chapter of the report.



Existing M7 Motorway shared path



Badgerys Creek



'Eucalypt canopy' and 'Footprints on Country' installation along the shared path



Precedent of wayfinding signage



# NON-ABORIGINAL HERITAGE INTERPRETATION

Following the outcomes of the Non-Aboriginal Heritage Interpretation Plan, it was concluded that the project should ensure that the traditional, historical, and contemporary non-Aboriginal values of the study area are integrated into the project in a meaningful, culturally appropriate, and practical way.

Across the Project, non-Aboriginal heritage relating to the project specific themes of water harvesting, agricultural research, and technological advancements will be represented through a variety of interpretative devices that will also add to the overall user experience.

Non-Aboriginal heritage is explored further within this Chapter of the report.

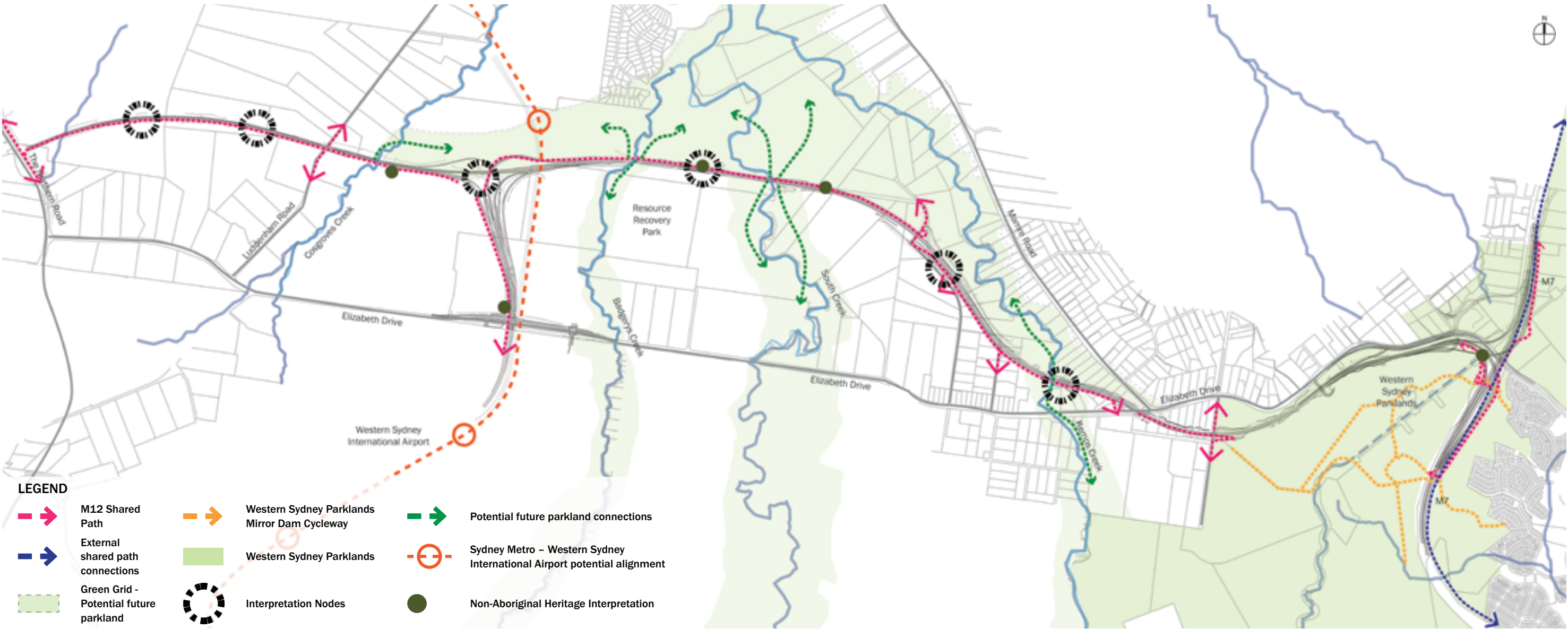


Figure 22. Shared path connectivity across the project



# INTERPRETATION NODES

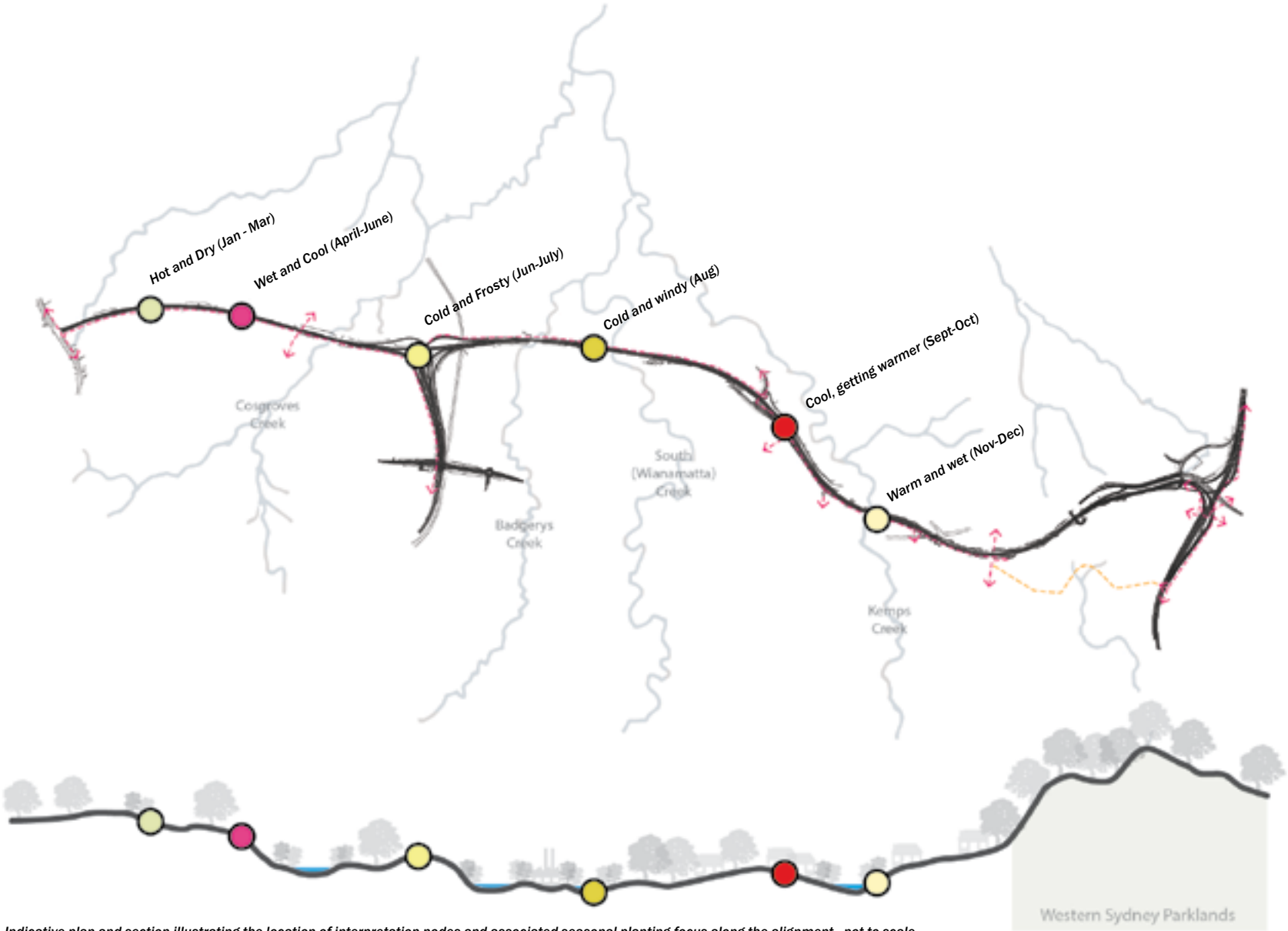
Interpretation nodes are locations of importance along the M12 , locations with key views or potential future connections with future north-south open space corridors. They are created as markers that will help create a project identity, an enhanced user experience and a response to the Aboriginal and possible non-Aboriginal heritage in each specific location.

Each node will be themed to indicate one of the Western Sydney Aboriginal Seasons and include signage, planting, leaf shelter artwork and Emu footprints that reflects the seasonal differences. These nodes will provide a small sanctuary for users to take much needed breaks from the hot, dry climate of Western Sydney.

Principles that influenced the design of nodes across the alignment are as follows:

- ◊ Nodes to be situated in locations with high vantage points and/or creeklines that will be maintained into the future as adjacent land uses change
- ◊ Seasonal feature planting related to the Western Sydney Aboriginal Seasons to be incorporated and celebrated at each node
- ◊ All rest stops will have marker signs that denote their location and interpretive signage that inform on the season that they are representing
- ◊ All rest stops will have a Eucalypt leaf shelter, designed by the Artist Cohort and Balarinji
- ◊ Consistent ground plane materials to be used
- ◊ Gabion walls to be used for retaining and seating
- ◊ Tree planting to provide shading to the node from harsh North-west afternoon sun
- ◊ All rest stops will be visible from a distance for safety of cyclists and pedestrians
- ◊ Integration of Emu footprint motif per the Artist Cohort and Balarinji designs

Refer to Appendix A and B for exact configuration and locations.



Indicative plan and section illustrating the location of interpretation nodes and associated seasonal planting focus along the alignment - not to scale



Typical Eucalypt shelter by Artist Cohort, Balarinji (CM+)



Gabion walls and integrated seating elements



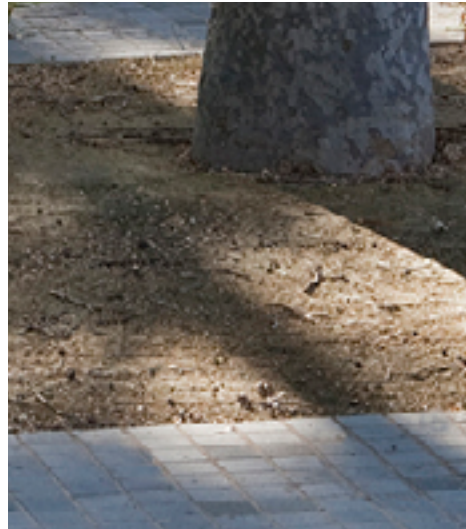
Emu footprints motif by Artist Cohort, Balarinji



Seasonal planting and endemic shade trees



Interpretive wayfinding and signage elements



Natural paving elements



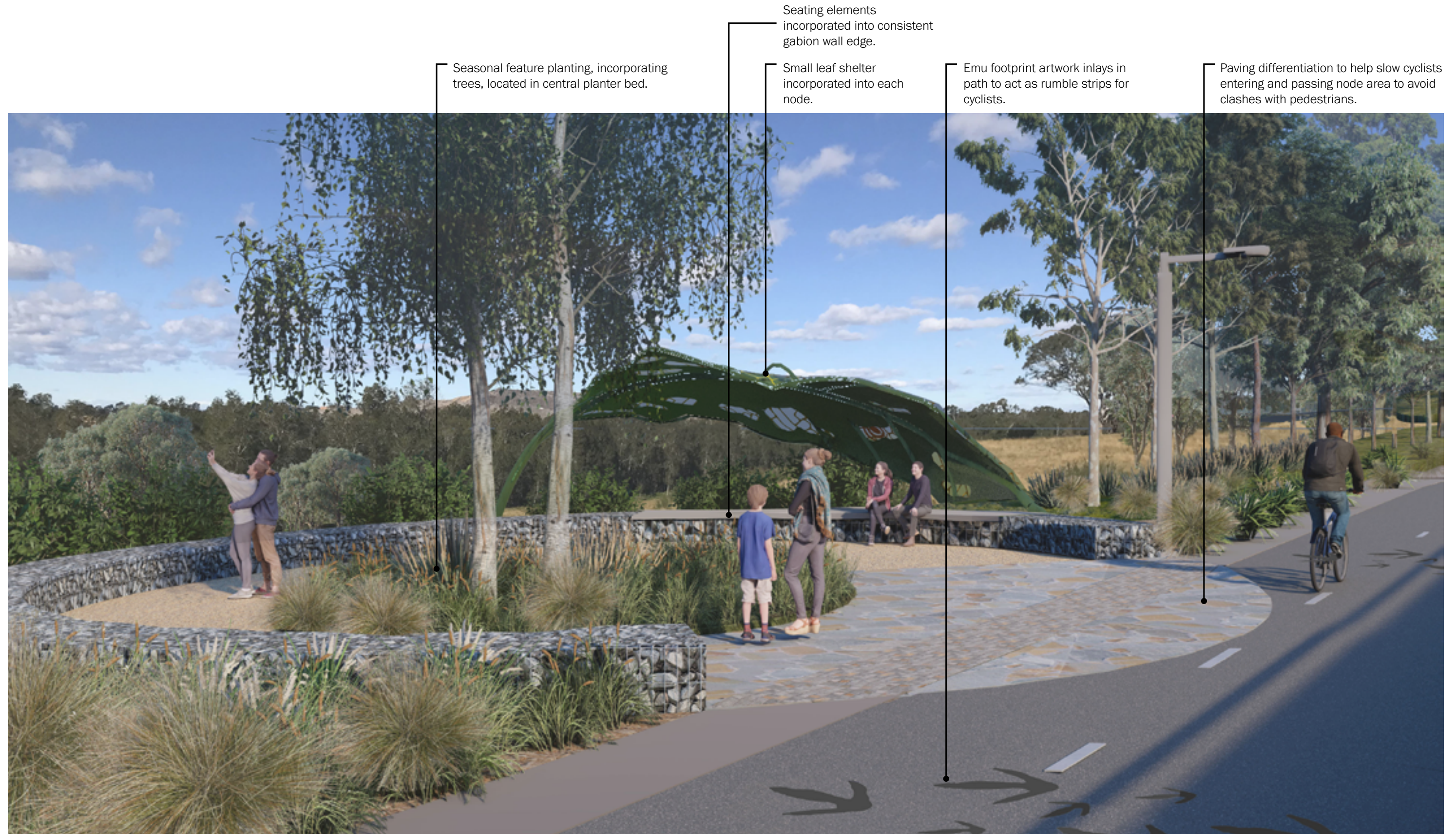


Figure 23. Artists impression of a typical interpretation node (CM+)

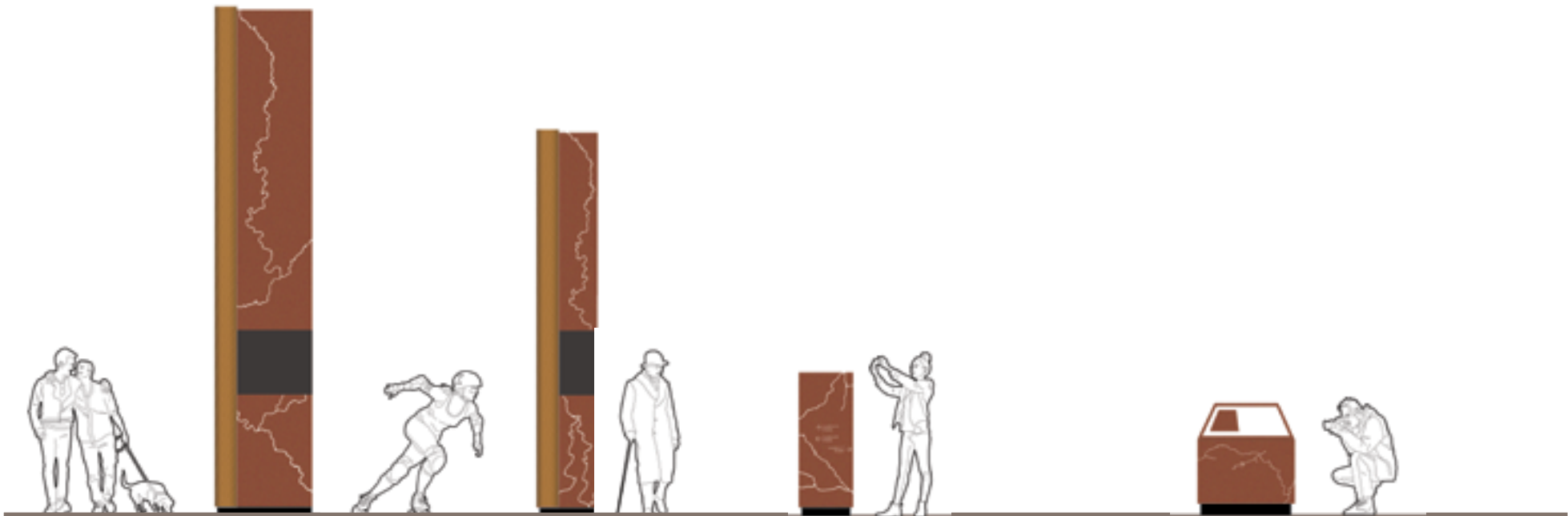


# WAYFINDING AND SIGNAGE

Wayfinding and signage is incorporated across the corridor to support the connections and interpretation of information within the M12 corridor. A suite of wayfinding signage types have been developed for the M12 shared path and associated nodes that respond to the character and materiality of the corridor. The final suite of elements has been refined to a select group of modular signs that can be easily repeated and maintained.

The sign family and site brand is firmly introduced into these important structures, giving them a sense of purpose and introduction to visitors of the look and feel of the information elements they will experience once within the site.

The signs highlighted below are able to incorporate a variety of information from wayfinding through to heritage information. The design team have specified four key signage types to elevate the user experience which are detailed following. The diagram below highlights the locations where these signs are represented within the shared path corridor.



## SITE ARRIVAL - MAJOR SIGN

Site arrival signs are large, easily recognised signs for long distance visibility by pedestrians and cyclists at the major site entry points along the shared path route.

- ◇ Map
- ◇ Distance
- ◇ Decision information.

## SITE ARRIVAL - MINOR SIGN

Secondary site arrival signs are positioned at entry points that are less frequently used.

- ◇ Map
- ◇ Distance
- ◇ Decision information.

## IDENTIFICATION SIGN

Signs to name important destinations and landmarks within a zone and reinforce the familiar sign materials and graphics in a three dimensional element.

- ◇ Identification
- ◇ Distance and
- ◇ Decision information.

## INTERPRETIVE SIGN

Interpretive signage helps people interpret the meaning of an environment, or places within it, by providing information on its history, geography, inhabitants, artefacts, and more.

Interpretive signage can vary in size to suit the quantity of information required to display.



Major wayfinding signage with map



Minor wayfinding signage with decision information



Identification signage with location identification



Interpretive signage can incorporate heritage information



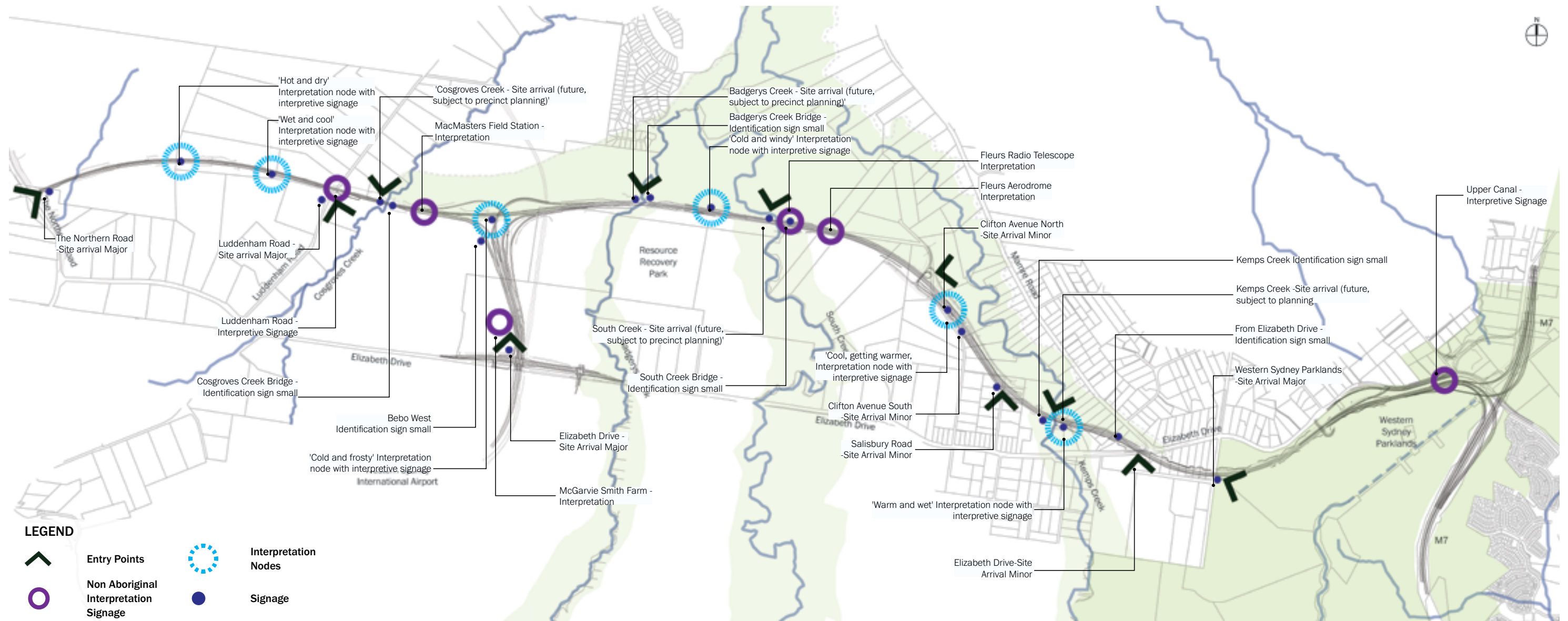


Figure 24. Wayfinding signage across the project



### 3.7 ABORIGINAL CULTURAL INTERPRETATION

The project is located on the land of the Mulgoa, Cabrogal and Cannemegal of the Darug (Dharug, Daruk) language group. It would pass through the Deerubbin Local Aboriginal Land Council (LALC) area and the northern boundary of Gandangara LALC. The project study area was traditionally the cornerstone of the three cultural groups from the area; Darug, Dharawal and Gandangara, and was a place where these groups would come together for ceremony. Aboriginal people lived a fluid, resilient existence. The study area has a 40,000-year history; it is a freshwater place; and the Country is on red silcrete foundations. The Darug Nation are custodians of the land, comprising 35 clans and five to six kin groups within each clan.

Aboriginal stories form part of this place and they live within the land and people. They are layered, nuanced and weave a tapestry of history and social information. They draw on songlines that were once intimately known by Aboriginal people in the area. Of key relevance, the area is heavily interspersed with creek systems. These creeks have emerged as a key Aboriginal theme of the area. They are freshwater places which are associated with local learning and feature in local stories. The creek systems provide a wealth of resources, ranging from food and medicine through to construction materials.

#### ABORIGINAL ART AND INTERPRETATION ELEMENTS

The project has presented the opportunity to work with local Aboriginal communities, discover the inherent associative cultural values associated and explore how these could relate to the identity of place, then potentially identify key heritage sites for interpretation and develop an integrated art strategy that is reflective of Sydney's Aboriginal heritage and identity. Balarinji, on behalf of TfNSW, has consulted with the local aboriginal community as part of the design process, identifying key interpretive themes and an art strategy to be incorporated into the shared path corridor across the project. This is described further in the Appendix E

The project vision of 'Connection to Country' would seek to embed key interpretive themes into the project through the use of integrated art and approach to landscape design and plant selection. Six key cultural interpretation elements that have been incorporated into the project are outlined on this page and further described on the following pages.

#### THE GREAT EMU IN THE SKY SCULPTURE

Located at the airport interchange, 'The Great Emu In The Sky' sculpture is proposed as a 30m high Emu's nest that celebrates the Darug Community's sacred creation story of the Great Emu constellation. The sculpture is further detailed on the following pages.



The Great Emu in the Sky

#### EUCALYPT CANOPIES

Eucalypt leaf like canopy structures highlighting the diverse seasons of Western Sydney are incorporated into the art framework of the project. These leaf structures come in two types;

- Large leaf sculptures. These are larger and used as artistic wayfinding markers within the landscape that can be enjoyed by motorists and active transport users alike.
- Small leaf sculptures. A single leaf sculpture is located at each active transport node to provide cultural interest and shade for active transport users. Each leaf structure will incorporate a different seasonal colour depending on which node location it is at.

The sculpture is further detailed on the following pages.



Interpretation node containing a small leaf structure

#### FOOTPRINTS ON COUNTRY

Emu footprints of varying scales and materiality are used in a symbolic fashion to represent experiences of people travelling along songlines and singing Country. These footprints can predominantly be found at interpretation nodes to be used as traffic calming devices and provide cultural interest. The sculpture is further detailed on the following pages.



Footprints incorporated into the shared path corridor

#### OVERBRIDGE SAFETY SCREENS

Six overbridge safety screens are embedded with elements of artwork that helps the Great Emu story as unfold as the users travels across the corridor. For more detailed information, refer to chapter 07.



Creation story artwork on throwscreen



## INTEGRATED WALL ELEMENTS

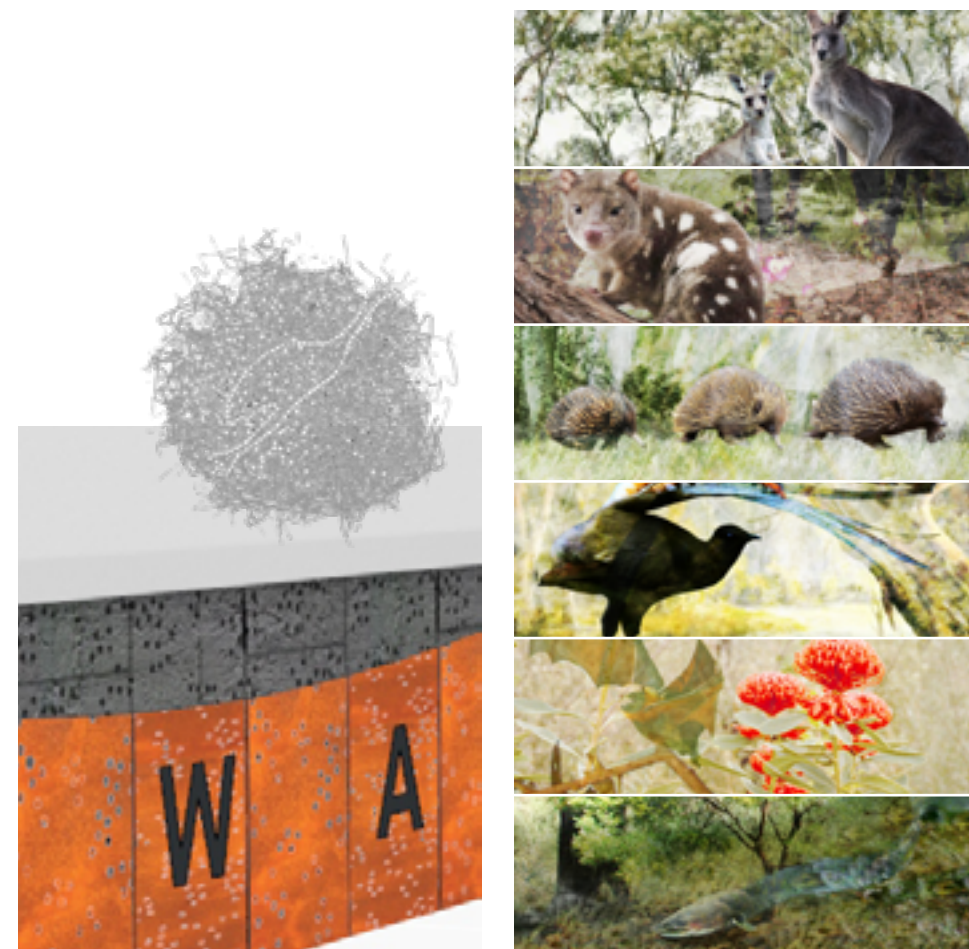
The airport interchange acts as a gateway between the airport precinct and the M12 corridor. The interchange incorporates indigenous language and subtle emu constellation pattern within the walls to act as a start and end point for the Great Emu story, but is subtle in nature as to not detract from the Great Emu in the Sky sculpture to the north.

For more detailed information, refer to chapter 07.

## WESTERN SYDNEY SEASONAL PLANTING

In addition to artwork, the project will also celebrate the seasonal flora and fauna signatures of western Sydney, by highlighting and celebrating the unique cycles that characterise Sydney's seasons.

For more detailed information, refer to chapter 06 to discover how the Western Sydney Seasonal Planting design is incorporated into the project.



Airport interchange retaining wall

Western Sydney season illustrations

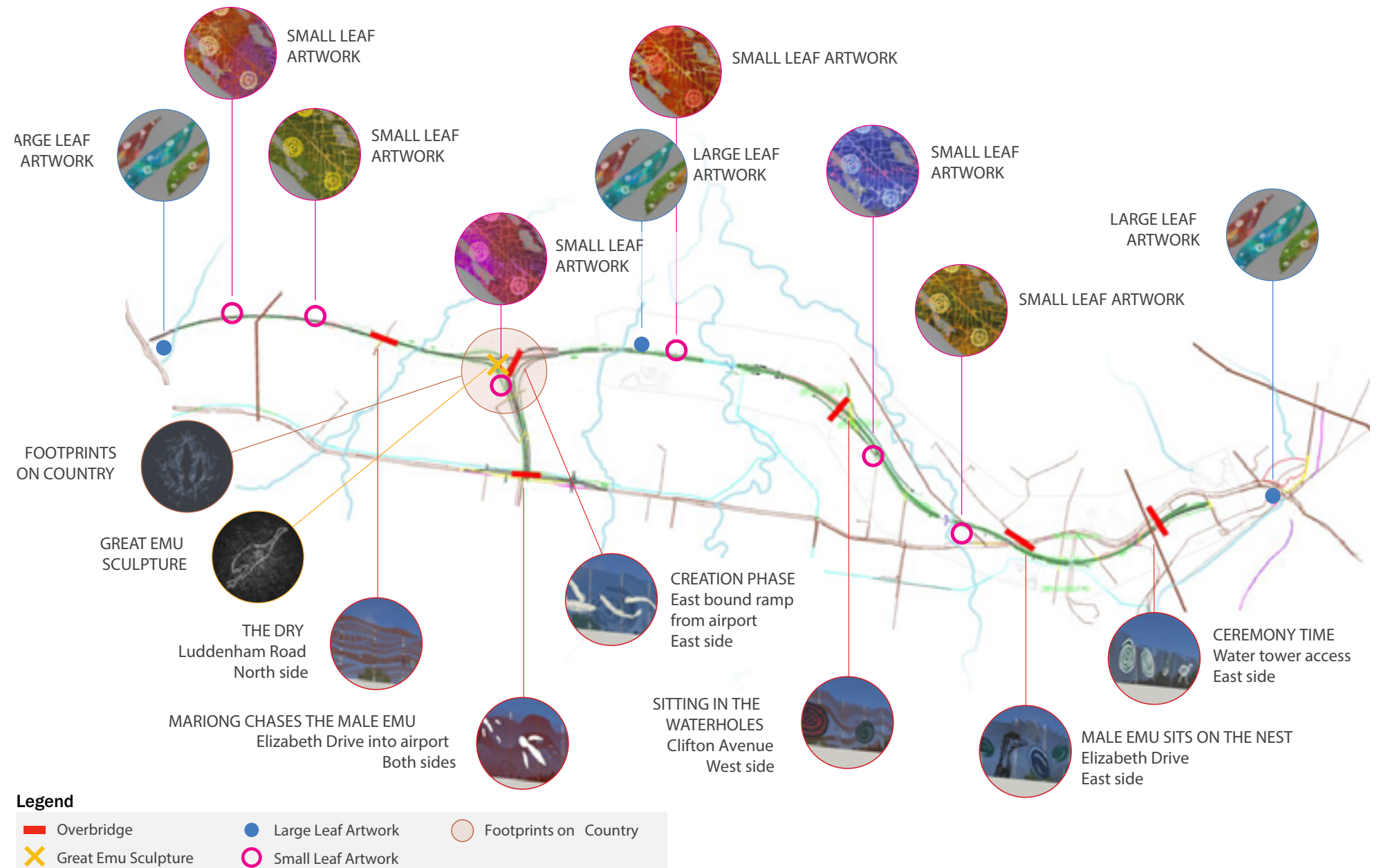


Figure 25. Proposed artwork locations (Artist Cohort, Balarinji, 2021)



# THE GREAT EMU IN THE SKY SCULPTURE

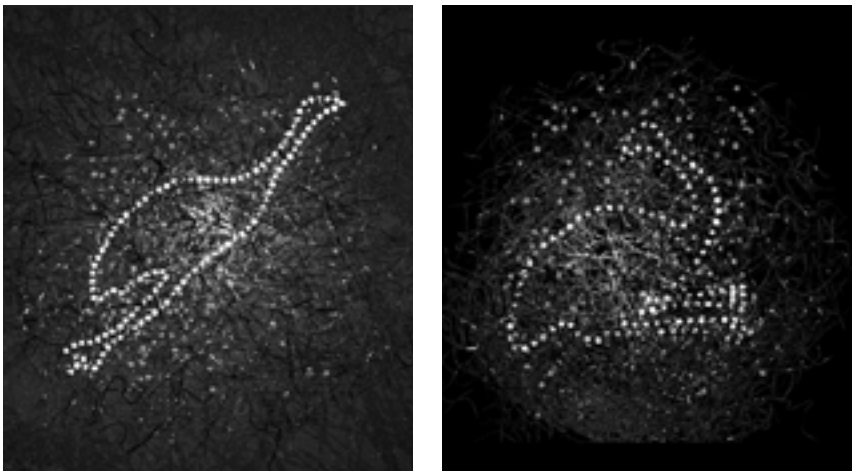
According to the M12 'Aboriginal art strategy', there is a local Darug Dreaming Story which tells the story of Mariong (the Emu and Mother) and how she became the Milky Way. Mariong is sitting in the river, she stands up, shakes the water off her feathers and creates the stars, then becomes the Milky Way. Depicting this local Darug Dreaming story acts a Welcome to Darug Country.

The Great Emu in the Sculpture is formed using a number of signature sticks to create an organic unique form with minimal repetition to create the nest, with lighting used to show the two forms of Mariong. This lighting comes together and the emu silhouette is visible at brief moments in time as users travel through the corridor, so users can catch this brief and ephemeral moment in time.

For the concept design for the Great Emu in the Sky, Balarinji explains the relationship between sharing stories, paying respect and homage to the cultural intersection of the traditional Artists, philosophers and storytellers, the Darug people:

*"This sophisticated landmark celebrates the Darug community's and Artist cohort's culturally rich stories that have been sacred for countless millennia. They have been connected with beauty, vastness and unyielding uniqueness that finds a new way to evolve and be present, just like the presence traditionally of song and dance: positivity, meaning and a deep sense of belonging is everyone's to share. The investment of our ancestors can be felt in the soul of our Country. The Western Sydney community will experience, feel, think about and share the knowledge of the Darug Country in its rediscovery. Through the incorruptible currency of story and its true connectedness, technology might be unfathomably different today but would still bring pride and hold true to the intent of our ancestors, for thousands of years in the past and thousands of years to come. Feel time, belonging and the love of our ancestors on Country, through all of your senses."* (Tim Moriaty, Balarinji)

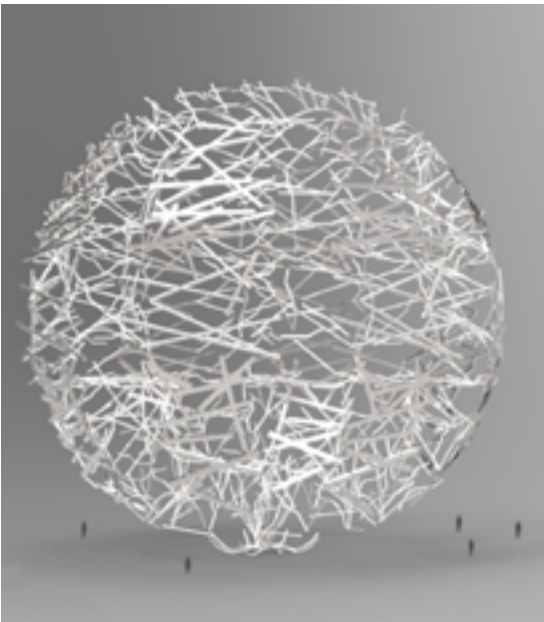
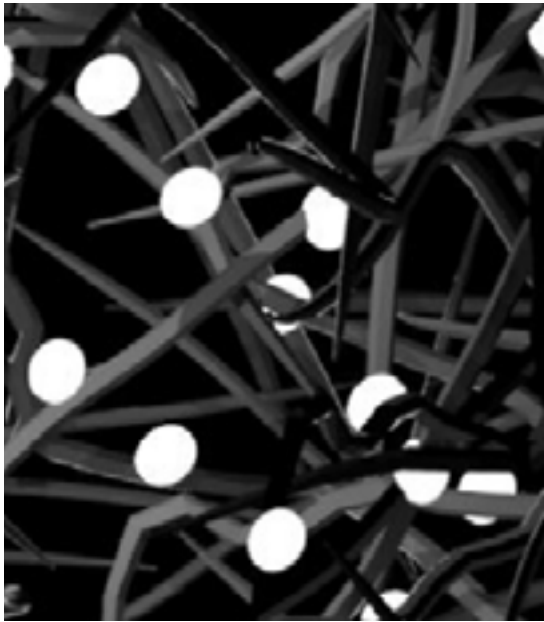
The large sculpture will be placed within the main Airport Interchange, where it can be viewed from a number of viewpoints from motorists, shared path users, Metro passengers, and possibly from approaching and departing planes from the Airport.



Emu nest and form studies of the two forms of Mariong (Artist Cohort, Balarinji, 2021)



Example of the reflective elements in the day and night



Structural form and scale exploration (Artist Cohort, Balarinji, 2021)



Artists impression of the interpretation node with the Great Emu in the Sky in the background (CM+)



## EUCALYPT CANOPIES

Resting and shade functionality were integral to communication and appreciation of the diverse and unpredictable land within Darug storytelling. Rest areas became points in place and time where beautiful stories and reflection of Country could be shared. Along the shared path, leaf canopy sculptures have been incorporated as markers and provide shade to path users along the corridor.

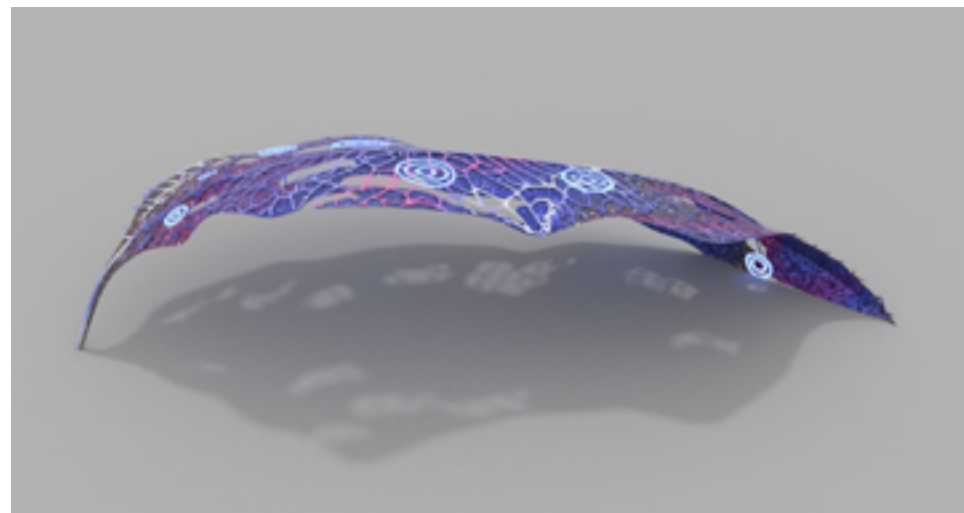
Balarinji and the Artist cohort have designed two options in terms of scale and location, with Darug narratives carefully narrated specifically to this area and its seasons, with each canopy representing a colour and detailing specific to each of the seasons:

### LARGE LEAF CANOPY

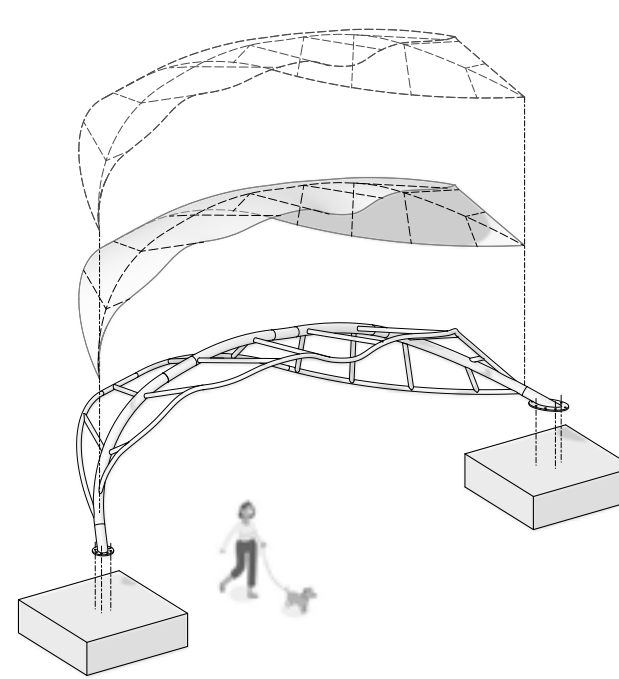
It is proposed to have three large leaf canopies situated adjacent to the shared path, one at the East and West entry points as a welcome landmark, with a third canopy placed near the creek lines, to acknowledge the importance of the creeks and water systems to the Aboriginal community.

### SMALL LEAF CANOPY

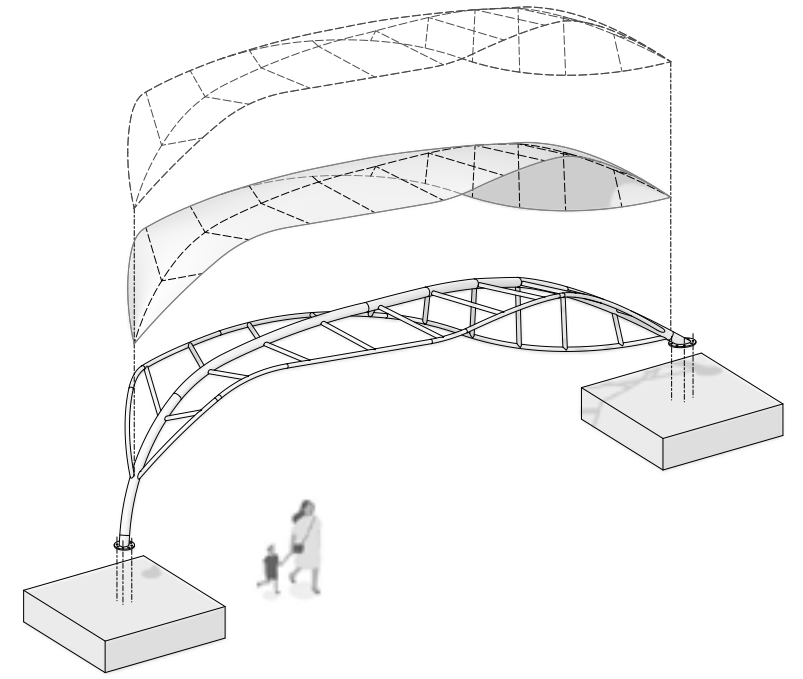
It is proposed that the smaller leaf canopy is situated at the each of the six shared path interpretation nodes. The smaller canopy offers a functional shade structure and provides a portal for the user to experience the land and its seasons with a sensitivity in an Aboriginal world that is normally hidden in plain sight.



Leaf design, highlighting the shade patterns created by the structure (Artist Cohort, Balarinji, 2021)



Small leaf sculpture - leaf design layers (Artist Cohort, Balarinji, 2021)



Large leaf sculpture - leaf design layers (Artist Cohort, Balarinji, 2021)



Large leaf sculpture within the shared path corridor, coupled with Emu footprints inlaid within the path (Artist Cohort, Balarinji and CM+, 2021)



# FOOTPRINTS ON COUNTRY

The 'Footprints on Country' concept examines the terraforming behaviour of the Emu in particular the way in which they construct their nests. It also explores the Interconnectedness of time and Country and the varying states in which you would naturally come across these nest forms.

This concept is a place-based narrative and invites the traveller to participate in the narrative that is woven throughout the M12 corridor. It places the traveller as the conduit of the Emu story and invites them to seek out the next emu footprint intervention. This story has informed the location of the emu footprints at the key interpretation nodes along the shared path.

The Emu footprints could be used across all wayfinding and signage, and should always be placed facing forward as Emus can not move backwards with a minimum of two footprints together.



Emu footprints (Artist Cohort, Balarinji, 2021)





Artist's impression: Aerial view west over Kemps Creek and associated interpretation node (landscape shown at full maturity and is indicative only).



3.8 NON-ABORIGINAL HERITAGE INTERPRETATION

A Non-Aboriginal Heritage Interpretation Plan was undertaken by Extent Heritage on behalf of TfNSW to provide a report that could outline the following non-indigenous historical themes and stories relevant to the project corridor. They include;

- ◇ The stories have been selected relating to the study area;
- ◇ The specific devices which have been selected across the scheme;
- ◇ The locations that have been selected for specific interpretive devices within the study area
- ◇ The agreed text and graphic design content for the interpretation elements.

The themes found across the project corridor include the following.

WATER HARVESTING

The climate of Australia is harsh and in order to build and expand cities we must have access to potable water. Systems of capturing, The Upper Canal System and Hudson Brothers temporary scheme are notable examples of some of the innovations developed to provide Sydney with water. These were developed to overcome the worst drought in Sydney's history, ensuring the continued growth of the city. Turkey Nest dams were developed at the McGarvie Smith Farm to dam water on flat tracts of land. These dams served a dual purpose of storing water and then distributing it to livestock for them to drink. Relevant Sites:

- ◇ The Upper Canal System
- ◇ The McGarvie Smith Farm

THE UPPER CANAL SYSTEM

The Upper Canal System was built in the 1880s to bring water from Sydney's south-west to the city to ensure a stable water supply for the growing city.



The Upper Canal (Water NSW)

THE MCGARVIE SMITH FARM

The McGarvie Smith Farm researched practices for better conservation of water in agriculture to provide farmers more reliable water supplies, such as the turkey nest dam.



Indian farmers studying at the farm in 1955 (<https://trove.nla.gov.au/work/231050974>)

AGRICULTURAL RESEARCH

Western Sydney has been central to the development of agriculture and agricultural research for not only Sydney but Australia. Both the McGarvie Smith Farm and the McMaster's Field Station are examples of agricultural research centres. The study of disease and conditions affecting livestock that was undertaken at the McMaster's Field Station, whilst the McGarvie Smith Institute was used to develop and manufacture a single shot anthrax vaccine that helped develop Australia's live export industry. It then became Australia's first veterinary school, and was used as a research station by the University of Sydney. Relevant Sites:

- ◇ The McGarvie Smith Farm
- ◇ The McMaster's Field Station

THE MCGARVIE SMITH FARM

The McGarvie Smith Farm was Sydney's first veterinary and animal husbandry school in Sydney and worked in the production and distribution of a single shot anthrax vaccine for livestock.



John McGarvie Smith (<https://trove.nla.gov.au/work/235951934>)

THE MCMASTER'S FIELD STATION

The McMaster's Field Station was a research facility that sought to bring greater scientific understanding to Australian agriculture.



Australian milking zebu at McMaster's Field Station (<https://trove.nla.gov.au/>)

TECHNOLOGICAL ADVANCEMENTS

In the mid twentieth century, there were two sites of significance built on the land of the former Fleurs Estate. The first was the Fleurs Aerodrome, built during the Second World War as part of a series of strategic airfields build by the RAAF. In the 1950's the Fleurs Radio Telescope Site was established, a home for the new Mills Cross Radio Telescope Array. The array was a new, more powerful way to design a radio telescope array. The site was home to two more milestones in radio astronomy, the Shain Cross and the Chris Cross. Relevant Sites:

- ◇ Fleurs Aerodrome
- ◇ Fleurs Radio Telescope Site

The following outlines the heritage interpretation narratives, use of interpretation devices and proposed key locations for interpretation across the corridor.

FLEURS AERODROME

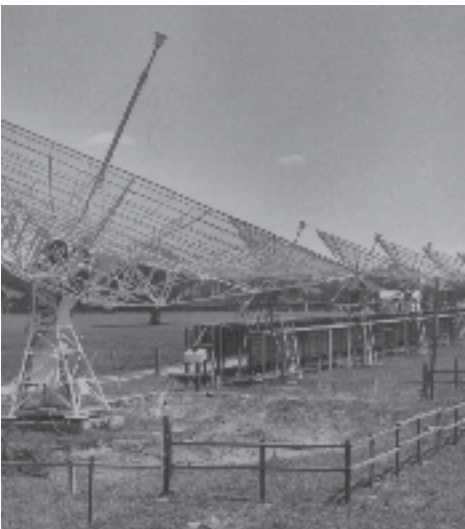
Fleurs Aerodrome was built during World War II as part of the RAAF's strategy of building dispersal airfields and has seen the development of aerial technology in the years since.



P-39 Aircobra station at Fleurs in 1942(ATNF Historic Photographic Archive: 9087-11).

THE FLEURS RADIO TELESCOPE SITE

The Fleurs Radio Telescope Site was a CSIRO research station in the 1950s and 60s which pioneered several new forms of radio telescope arrays.



Fleurs synthesis telescope (ATNF Historic Photographic Archive: 9087-11).



INTERPRETIVE DEVICES

There are four interpretive device types proposed for the project, described below.

SIGNAGE

A series of signs located along the shared pathway. These signs contain various primary sources as well as a short account of the history and significance of the site.

FOOTPATH INLAYS

A series of inlays set into the shared pathway which are designed to draw attention to the sign as well as alluding to the content of each sign.

FLEURS AERODROME LANDSCAPE WORKS

An interpretive landscape device located on both sides of the carriageway indicating where the motorway intersects with what was once Fleurs Aerodrome.

FLEURS RADIO TELESCOPE SITE SCULPTURAL INSTALLATION

An art installation located along the shared pathway create an artistic representation to the large cross array installations that were present at the Fleurs Radio Telescope Site.



Shared path interpretive signs



Footpath inlays



Interpretive landscape device



Art installation



Figure 26. Non-aboriginal heritage interpretation elements locations



3.9 MATERIALITY

MATERIALITY ACROSS THE PROJECT

The materiality of the project should reflect the country and character of Western Sydney, providing a robust, cohesive and visually appealing corridor that gives a sense of identity and ownership which can be reflected in the relationship between the choice of materials and the heritage, geology and flora of the site. This section of the report examines the principles driving the materiality of the project, and the materiality chosen for implementation across the corridor.

ELEMENTS THAT HUMANISE THE BUILT ENVIRONMENT

All elements of the outdoor landscape must fit in with the character in regards to materiality, colour and compatibility with plantings. There is potential for contrast to enliven an environment. This will aid in creating a unique identity and establish a sense of place, as the material selection should respond to the characteristics of Western Sydney as a locale and the biodiversity of the Cumberland Plain.

MATERIALS THAT ARE 'OF PLACE'

Use natural characteristics in the corridor's landscape design. Roads should be designed according to their role and the character of the areas through which they pass. Material should be reused and sourced locally where possible.

COHESIVE MATERIALITY

Create a simple, coordinated and neat composition of road elements along a corridor and simplicity: minimising the number of design solutions to a given problem. The corridor should also have a secondary material used throughout the whole corridor, so that a consistent look is achieved and the site ties together.

ROBUST AND LOW MAINTENANCE

Be robust within the harsh places subject to damage from vehicles, transported freight, the weather, bushfires and vandalism. A deterrent to vandalism through clever design with sustainable materials considering present and future needs and costs.

Low maintenance, with an easy mass maintenance strategy that can be applied across the whole of the corridor, with focused, higher quality maintenance in specific nodal points if required.

Within or near the M12 corridor, the following geological materials or materials valued by the Aboriginal community can be found:

- ◇ Bringelly Shale: Dark green and black shale with abundant plant fragments and iron oxide nodules'. Thin graywacke-type sandstone lenses and bands common.
- ◇ Ashfield Shale: Black mudstones and silty shales with frequent sideritic mudstone (clay-ironstone) bands
- ◇ Silcrete: Found in stone tool artefacts within Western Sydney, highlighting the value of the material used for manufacturing or trading between Aboriginal communities
- ◇ Mudstone: Banded material that is commonly associated with the Bringelly Shale has local significance to the Aboriginal community, commonly found in and around sandy rivers in the Penrith and Windsor areas.

The materiality approach across the project will create a recognisable visual identity, with simple, refined and hard wearing materials that provide cost effectiveness through practicality and minimal ongoing maintenance, that allows for site specific designs that respond to place, landscape and cultural/regional heritage along the shared path, and future connectivity. The following outlines the basic material palette for the project.

WEATHERING STEEL AND DECOMPOSED GRANITE

*It was felt that Red Silcrete as a material was strongly associated with the Western Sydney region and that the colours of the finds would provide a potential colour palette for future artistic interpretation.*

*It was noted that silcrete from the Badgerys Creek area is known for its shimmery or glittery appearance.*

*The materials used could be stained, uncoated metal, so overtime it rusts and changes colour, much the same as the Country; as well as being dry and hot metaphorically.* (Balarinji, 'Body of Story'. 2019)

As per the Balarinji 'Body of Story' developed for the M12 Project, red silcrete has been identified as being important to the Aboriginal communities and culture of the area.

Red silcrete was found in stone tool assemblages along the NSW coast and is noted for having a shimmery, or glitter appearance when found in Badgerys Creek.

Red silcrete (heated and flaked) will be referenced in the landscape through it's earthy tones, taking the form of weathering steel.

Red silcrete (unheated) will be referenced in the landscape through pathways and the use of decomposed granite.

Project applications:

- ◇ Signage and Wayfinding
- ◇ Feature wall materials
- ◇ Heritage Interpretation
- ◇ Artworks
- ◇ Secondary pathways, dwell points.



Silcrete. © Whincop Archaeology Pty Ltd



Silcrete unheated



Silcrete heated and flaked



Weathering steel



Decomposed granite



SHALE AND SANDSTONE

The natural geology of the M12 corridor includes Bringelly Shale, which is commonly associated with mudstone, a material that was communicated through Balarinji to have local significance.

Mudstone is commonly found in and around sandy rivers in the Penrith and Windsor Systems, and typically has a banded appearance, the aspect of the material that is typically linked to the local Bringelly Shale.

Project applications:

- ◇ Walls
- ◇ Abutments
- ◇ Scour protection
- ◇ Seating.



Bringelly Shale    Ashfield Shale    Sandstone lenses



Gabion filled basket with stratum layout

TIMBER

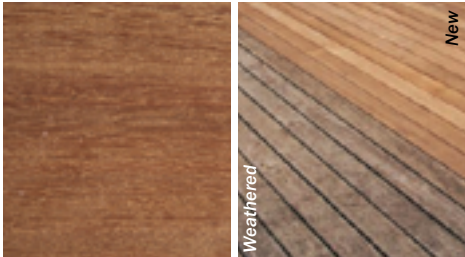
Flora has always played an important part in Aboriginal culture, with their Connection to Country consisting of (but not limited to) the gathering of edible grasses, medicinal plants and the cultivating of the landscape through controlled burning.

Spotted gums are commonly found within the Western Sydney region (as well as the wider region of Greater Sydney), and has variations in colour that can provide subtle patterns when used in structures.

Spotted gum as a hardwood timber is bushfire resistant, has low shrinking, durable and suitable for external use, and is grown in plantations across Australia.

Project applications:

- ◇ Signage and Wayfinding
- ◇ Heritage Interpretation
- ◇ Bollards.



Spotted gum timber



Timber seating integrated with a gabion wall

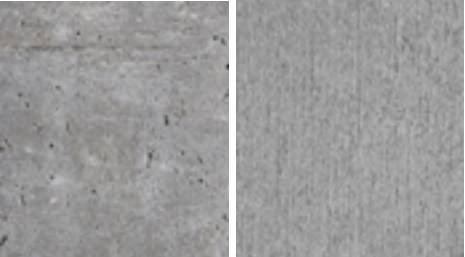
ROAD FURNITURE

Road furniture will typically consist of materials that are not necessarily of place, but are simple and maintainable. They will act as a secondary material, allowing the contrast with the rest of the materiality of the site to create a more elegant and refined feel and sense of identity.

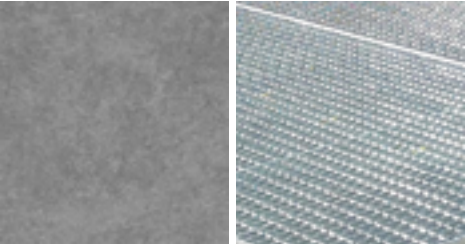
The use of concrete, asphalt and galvanised steel will create a cohesive link across the other 'feature' materials, allowing the project to be tied together across the corridor while still acknowledging country.

Project applications:

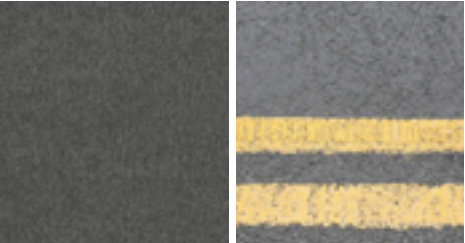
- ◇ Lighting
- ◇ Paths
- ◇ Walls
- ◇ Fencing.
- ◇ Seating



Concrete    Concrete - brushed



Galvanised steel



Asphalt



M7 shared path

MATERIALITY FROM ADJACENT SITES - WESTERN SYDNEY PARKLANDS

The materiality of the project will consider adjacent projects. The Western Sydney Parklands is a good example of a regional park, with materiality that sits well within its context across vast areas of Western Sydney and Cumberland Plain Woodlands.

The Western Sydney Parklands Design Manual outlines the general approach to planning and implementation of park infrastructure within the Western Sydney Parklands, with the following material finishes across various park elements.

The following materials and finishes currently used within Western Sydney Parklands will be used to inform the design of public realm elements along the M12 shared path.



WSP galvanised element



WSP road and path



WSP gabions walls



WSP amenity structures



### 3.10 ROAD FURNITURE

Various types of motorway elements and road furniture will be required along throughout the project corridor. This includes signs, vehicular barriers, fencing and lighting.

These elements are an accepted part of the driving experience. But they also need to be designed well to be apparent, but not obvious or be “features” in the landscape. This is particularly so in this area of high scenic quality.

Road furniture has be designed as a suite of architectural elements, with a coordinated approach to the location of the various elements in the context of the overall road experience. All services, roadside furniture, signposting, plant and equipment within the corridor, including gantries, variable message signs, variable speed limit signs, access ladders and antennae, will be incorporated into and integrated with the overall urban and landscape design.

This section of the report details the aesthetic considerations implemented across the Project in regards to road furniture elements across the project, including:

- ◇ Shared path lighting
- ◇ Gantries and ITS Infrastructure
- ◇ Security fencing
- ◇ Fauna fencing.

#### SHARED PATH LIGHTING

Security lighting will be provided to enhance the pedestrian experience along the M12 shared path, and to achieve compliance with the lighting standards and to meet project sustainability requirements by being programmable to allow dimming, or a 'follow me' pattern of use.

The shared path along the motorway will be illuminated to achieve compliance with required lighting levels, with the spacing and location of the shared path lighting layout along the Motorway at approximately 35 metre centres.

The design of shared path lighting poles and luminaries will be similar to the existing M7 Motorway shared path lighting to ensure an integrated aesthetic across both motorways.

#### GANTRIES, SIGNAGE AND INTELLIGENT TRANSPORTATION SYSTEM INFRASTRUCTURE

Roadside gantries, variable message signs (VMS), intelligent transport systems (ITS) and regulatory motorway signage has been designed and integrated across the project to reduce motorist confusion and to reduce visual clutter along the corridor as best as possible.

Where gantries and signage is required, the design of these elements will best match with existing Sydney Motorway designs, namely the M7 Motorway and M4 Smart Motorways.

The number of signs will be minimised to those required for information and driving requirements only. Signs will be grouped on a single pole to avoid clutter where possible. Where functional requirements permit, the signs will be located in the least visually sensitive sites (i.e. below skyline/against a tree background).

TfNSW standard poles without embellishment (galvanised steel finish only) will be used throughout. No roadside advertising will be used along the route.

#### SECURITY FENCING

Across the project, galvanised mesh/ barbed wire security fencing must not be used in visible areas, or in view of residences adjacent to the corridor.

A standard pedestrian fence type has been adopted to maintain the consistency of appearance. The fence includes different designs depending on the slope of the nearby batters, whether they are on a bridge structure or if they are adjacent to a roadside barrier.



M7 shared path security fencing

#### FAUNA FENCING

As well as the two fauna crossing structures proposed for the M12 corridor (refer Section 6.7 for details), there is a requirement for fauna fencing along and across the alignment at various locations.

Fencing will be used to minimise mortality of fauna as a result of vehicle strike (and to prevent fauna-related vehicle accidents), and to funnel fauna to dry passage under the four main creek crossings of Badgerys, Cosgroves, Kemps and South Creek bridges.

Fauna fencing will be a standard chain-link style design, with galvanised post and wires, with steel non-climbable sections .

The fencing will be designed and located in locations to reduce visual impacts wherever possible.



Typical M7 shared path lighting element



Typical VMS signage adjacent a motorway



Existing M7 Motorway shared path fencing



Typical roadside fauna fence



### 3.11 CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN

Crime Prevention through Environmental Design (CPTED) is a crime prevention strategy that focuses on the planning, design and structure of cities and neighbourhoods. It reduces opportunities for crime by using design and place management principles that reduce the opportunities for the crime to occur.

CPTED is an imperative element to all public areas, and the urban design solutions have sought to minimise or prevent opportunities (and fear of) crimes by implementing CPTED principles throughout the project.

The key CPTED principles as outlined in the Infrastructure Sustainability Council of Australia (ISCA) approved document Designing Out Crime Planning Guidelines, June 2006, Chapter 4 - Step 1 include:

#### SURVEILLANCE

People feel safe in areas when they can see and interact with others, and criminals are deterred from places that are well supervised or have visual permeability. Surveillance can be in the form of natural, technical and formal.

#### ACCESS CONTROL

Access control involves the control, channelling or encouragement of people and vehicles entering and existing the area by wayfinding, formal/informal routes and desire lines. Effective access control can be achieved through the use of physical/symbolic barriers which increases the time and effort criminals need to commit crime.

#### TERRITORIAL REINFORCEMENT

Places that are well cared for, well-used and have a sense of community ownership sends positive signals to the community, and people that have ownership of areas are more likely to intervene in crime and provide effective supervision.

#### TARGET HARDENING (SECURITY MEASURES)

The physical security of buildings or premises against access by offenders, through measures such as security fencing, enhanced locks; CCTV can all contribute to the reducing opportunities for criminal behaviour.

#### MANAGEMENT AND MAINTENANCE

Space management involves the formal supervision, control and care of the place. The effective use spaces help to maintain and maximise safety, as places that are infrequently used have a higher chance of vandalism and abuse.

#### IMPLEMENTATION ACROSS THE PROJECT

As the Project is primarily a motorway project with designated pedestrian shared paths, the implementation and integration of CPTED principles across the project focused on design elements such as:

- ◇ Lighting
- ◇ Blind corner visibility
- ◇ Signage
- ◇ Surveillance
- ◇ Diversions; and
- ◇ Graffiti and vandalism.

The following CPTED principles have been incorporated in the design to cater for these future changes as well as reducing the occurrence of crime.

#### SHARED PATH

- ◇ Provision of appropriate lighting of the shared user path, roadway areas and underpasses
- ◇ Clear and effective wayfinding and avoiding access to low surveillance areas
- ◇ Provision of appropriate materials and built elements such as fencing that are visually permeable, but prevent unauthorised access. In addition material use to deter vandalism.
- ◇ Regular connections to surrounding roads to facilitate a means of escape if required

#### SURVEILLANCE

- ◇ Surveillance and Installation of CCTV cameras at strategic locations.

#### PLANTING DESIGN

- ◇ Using landscape to prevent crime by maintaining clear visibility.

#### ACTIVATED SPACES

- ◇ Creating activated spaces by improving user experience, maximising use to provide passive surveillance.



M7 shared path with lighting, fencing and good sight lines



CCTV pole mounted camera



Shared path planting with good sight lines



Incidental play elements within Western Sydney Parklands





Artist's impression: Motorist's view north-west along M12 Motorway (landscape shown at full maturity and is indicative only).





Artist's impression: Aerial perspective view south-east across Range Road and Western Sydney Parklands (landscape shown at full maturity and is indicative only).