



Artist's impression: Pedestrian view of Rockdale Motorway Operations Complex (MOC3) from Bicentennial Park (trees and landscaping shown at maturity).



# 1.0 INTRODUCTION

**THE M6 STAGE 1 (THE PROJECT) IS A TRANSFORMATIONAL 'CITY SHAPING' PROJECT FOR SYDNEY AND MUST BE DELIVERED TO THE HIGHEST QUALITY AND TO MAXIMUM COMMUNITY BENEFIT.**

**THE URBAN DESIGN VISION FOR THE PROJECT IS TO DELIVER INFRASTRUCTURE WITH PEOPLE AS THE FOCUS, LEAVING AN ENDURING LEGACY FOR SYDNEY, THE LOCAL COMMUNITY WHO LIVE IN IT AND FOR FUTURE GENERATIONS.**

## 1.1 Purpose of the Urban Design and Landscape Plan

The M6 Stage 1 Project is being designed and constructed by the CPB, Ghella and UGL Joint Venture (CGU) on behalf of Transport for NSW (TfNSW).

This Urban Design and Landscape Plan (UDLP) provides a comprehensive outline of the urban design and landscape strategies for the Project. The purpose is to demonstrate compliance with the various Approval documents including:

- Ministers Conditions of Approval (MCoA SSI8931)
- Updated Environmental Mitigation Measures (UEMM) as outlined in the Response to Submissions Report.

This UDLP has been developed with consideration of the urban design principles and objectives outlined in Appendix C Place Making and Urban Design of the Project EIS.

The urban and landscape design is guided by - and compliant to - the obligations stated in the SWTC (Scope of Works and Technical Criteria) contained in the Project Deed between CGU and TfNSW.

Project elements are developed through an integrated urban design approach. This approach includes collaboration with the wider project design team including engineering, environment and road design; client and subject matter experts; key external stakeholders including Council. It encourages a continuous evolution and refinement of elements throughout the detailed design period.

The elements will, of necessity, receive further development during the remaining detailed design stage, arising from detailed engineering assessment, and construction optimisations.

## 1.2 Project description

This Project is stage 1 of the new M6 Motorway and comprises a new multi-lane motorway between the M8 Motorway at Arncliffe and President Avenue at Kogarah with an underground connection from the M8 Motorway tunnel and to a new surface level intersection at President Avenue, Kogarah.

Key components of the Project as identified in the EIS include:

- An underground connection to the existing stub tunnels at the M8 Motorway at Arncliffe
- Twin motorway tunnels (around four kilometres in length) between the M8 Motorway at Arncliffe and President Avenue, Kogarah
- An intersection at President Avenue, including:
  - Entry and exit ramps, including sections of tunnel to provide connections to the mainline tunnel
  - A tunnel portal at Brighton-Le-Sands within Rockdale Bicentennial Park East, to provide connections to President Avenue
- A widened President Avenue at the location of the intersection, including slip lanes to provide a connection to the Project
- Intersection improvements at President Avenue / Princes Highway
- Mainline tunnel stubs to allow for connections to future stages of the M6
- Shared pedestrian and cyclist pathways connecting Bestic Street, Rockdale to Civic Avenue and O'Connell Street, Kogarah via Rockdale Bicentennial Park
- Rockdale Motorway Operations Complex (MOC3) located off West Botany Street, Rockdale
- Ancillary infrastructure and operational facilities for signage (including electronic signage), ventilation structures and systems at Rockdale, fire and safety systems, and emergency evacuation and smoke extraction infrastructure
- Temporary construction ancillary facilities and temporary works to facilitate the construction of the Project
- New service utilities, and modifications and connections to existing service utilities
- A permanent power supply connection from the Ausgrid Canterbury sub-transmission substation
- Reinstated parkland with upgraded facilities at Rockdale Bicentennial Park
- New parkland areas near the Kogarah Golf Course along Marsh Street in Arncliffe.

## 1.3 Project location

This Project will generally be located within the Bayside Local Government Area (LGA). It commences approximately eight kilometres south west of the Sydney Central Business District (CBD). The proposed President Avenue intersection will be located about 11 kilometres south east of the Sydney CBD.

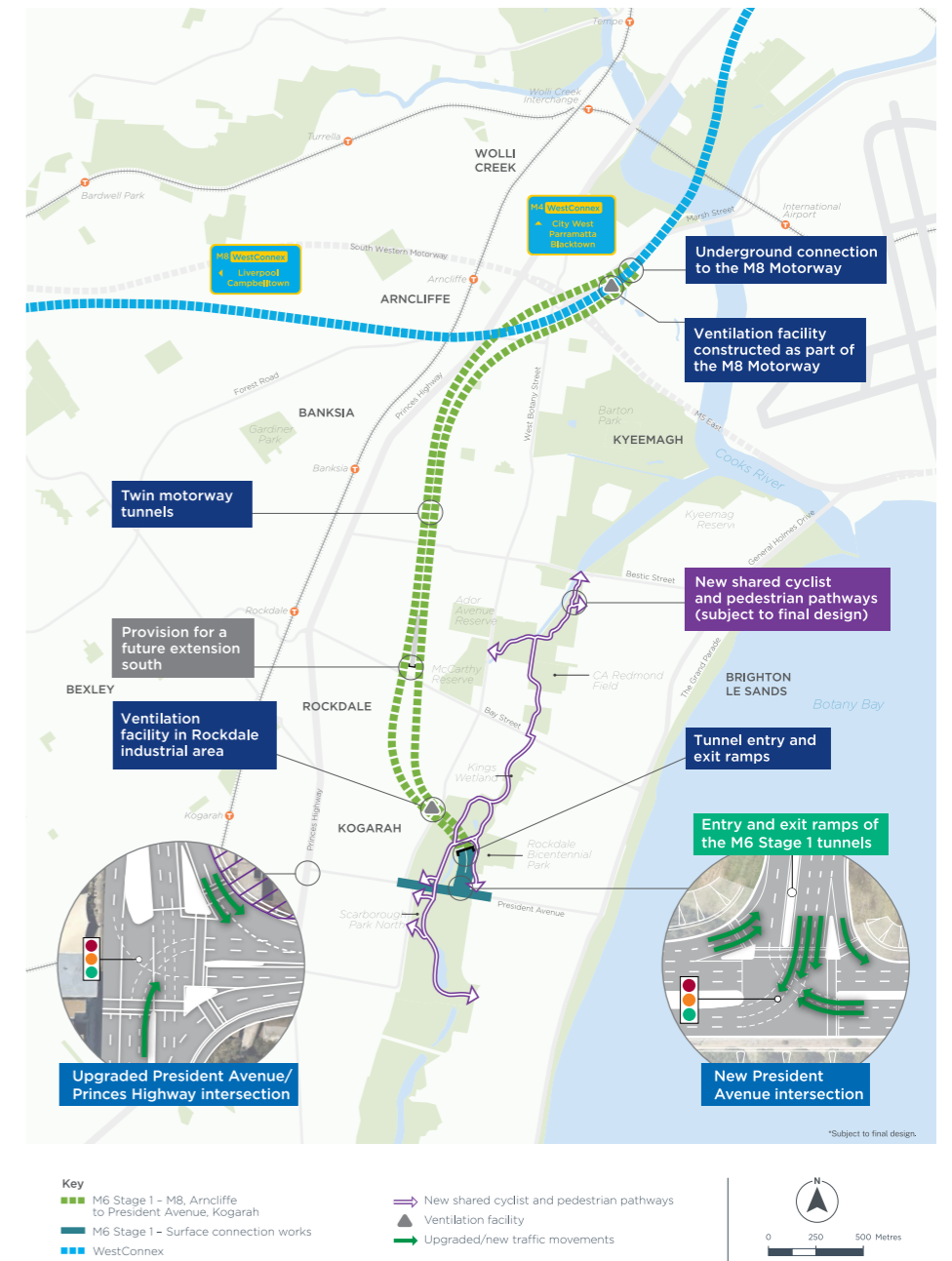


Figure 1-1: Overview of the project (image by TfNSW)

## 1.4 M6 Stage 1 Environmental Impact Statement and Ministers Conditions of Approval

The Project EIS was prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued by the Planning Secretary on 23 January 2018 and the relevant provisions of Part 3 of Schedule 2 of the Environmental Planning and Assessment Regulation 2000 (NSW).

The EIS was released between 7 November to 14 December 2018 for public exhibition and comment. A Preferred Infrastructure Report (PIR) was prepared following receipt of submissions, which was then placed back on public exhibition due to the extent of updates. A second round of submissions was received which then formed the Submissions Report.

The EIS and Submissions Report were considered by the Department of Planning and Environment (DPE) and informed the Minister for Planning's assessment of the Project's approval.

On 18 December 2019, planning approval for the Project was received from the Minister for Planning.

This UDLP addresses the MCoA, including E154 - E159 which are specific to urban and landscape design and the Updated Environmental Management Measures (UEMM) provided as part of the PIR. Refer to *Section 2.1* for a complete list of all relevant Conditions.

### EIS urban design vision and objectives

An urban design vision was established in Appendix C of the EIS to guide and inform the urban and landscape design for the Project as follows:

*'To produce a high quality tunnel and surface road outcome that fits into the area, provides a visual experience in movement, and through its form, alignment and influence contributes positively to the urban quality of the streets and centres, the green infrastructure asset and the active transport connections for the local and wider community.'*

To support this vision, urban design objectives were developed based on the 'WestConnex Urban Design Framework' (TfNSW, 2016) and 'Beyond the Pavement – Urban design policy, procedures and design principles' (TfNSW, 2020).

The EIS identified six urban design objectives for the Project which include the following:

#### Leading-edge environmental responsiveness

*Ensure environmental responsiveness based on a natural systems approach and leading-edge sustainability practices for the project.*

#### Connectivity, accessibility and legibility

*The project shall promote connectivity and place making beyond the boundaries of the motorway corridor.*

#### Place Making

*Places, streets, structures and landscapes shall draw their form, character and materiality from local context.*

#### Urban renewal and liveability

*Create opportunities that promote improved urban amenity*

#### Memorable identity and a safe, enjoyable experience

*Provide a safe, memorable journey experience for road users*

#### A new quality benchmark

*Establish a benchmark for integrated infrastructure design and sustainability*

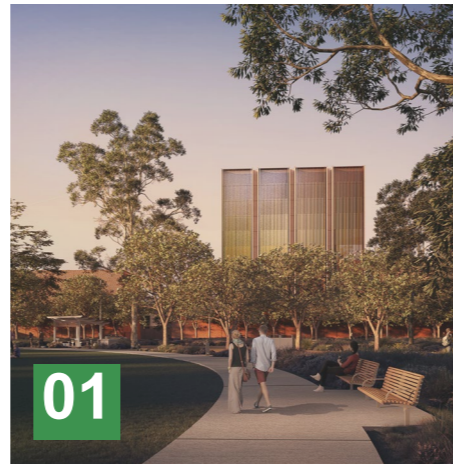
An enhanced urban design vision and objectives have been developed in the preparation of this UDLP derived from the EIS, to guide the Project outcomes during detailed design. Further information is provided in *Section 4.1.1* of this UDLP.

### 1.4.0.1 Structure of the report

This report articulates the detailed design process undertaken and presents specific urban design responses, which are presented in the proceeding sections and appendices.

The drawings demonstrate the design quality, technical understanding and commitment to delivering these outcomes on-site, supplemented by a suite of visualisations to illustrate the intended Project outcomes and distinct settings.

These images seek to inspire and illustrate the transformations proposed by the bold Project vision. Quantities, dimensions, or other construction details, given or implied in this report, are indicative only.



#### 01 Introduction

This section provides a brief overview of the Project.



#### 02 Planning approval framework and consultation

This section outlines the strategic EIS objectives and compliance with the MCoAs and UEMMs that have informed the Project's urban and landscape design solution.



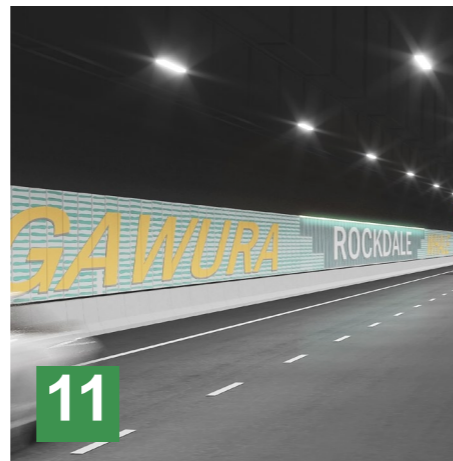
#### 03 Urban design context

Outlines the contextual site analysis for the Project including a review of all relevant strategic guidelines, standards and policy documents.



#### 04 Urban design concept

This section outlines the urban design vision, objectives and outcomes for the Project and provides a summary of all key Project elements.



#### 11 In-tunnel experience

This section outlines the in-tunnel experience, which will create a new identity for the Project by providing an integrated, 'whole of Project' design solution that will clearly brand the new M6 motorway.



#### 12 Motorway Operational Complexes

This section outlines the architectural design of the Motorway operational complexes to be constructed at Rockdale (MOC3) and Arncliffe (MOC1).



#### 13 Retaining walls

This section defines the Project-wide approach to retaining wall treatments.



#### 14 Lighting and security

This section describes the approach to road and parkland lighting including the measures taken to maximise safety and minimise light spill pollution.



05

### Heritage and culture

This section establishes the Aboriginal and non-Aboriginal heritage and cultural values that have underpinned the Project's design response with a commitment to embedding Connection with Country design principles.



06

### Cultural interpretation

This section outlines the design approach and integration of various interpretive elements across the Project based on the themes established in Section 05.



07

### Parkland design

This section outlines the parkland design vision principles and strategies adopted for the Rockdale Bicentennial Park, the Active Transport Corridor (ATC), and the reinstatement site at Arncliffe.

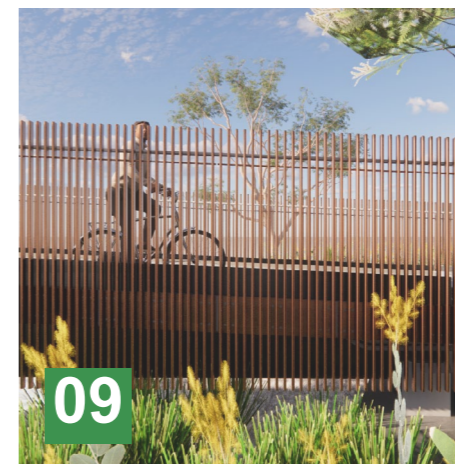


08

### Landscape design

The landscape design strategy for the Project and its surrounding green space is one of regeneration, rehabilitation and revitalisation. Regeneration of a run-down ecosystem, rehabilitation of an ecologically sensitive green space, and the revitalisation of a local community and its connected local open space.

This section outlines the overall landscape design intent. Building upon the broader urban design objectives, principles and strategies, the Project has developed a landscape concept that responds to site based on sound ecological principles.



09

### Pedestrian and cyclist bridges and boardwalks

Across the Project, bridges and boardwalks represent the reconnection of communities with open spaces, ecology, and water's edge as sculptural markers within the landscape that enhance views, create high legibility and heighten the user experience.

This section outlines the design of all pedestrian and cyclists bridges and boardwalks throughout the parklands and along the ATC.



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### Tunnel portals and approaches

As a key visual marker for the Project, this section outlines the design of the President Avenue tunnel portal.

The tunnel portal has been designed to integrate with adjacent landscape and parkland character, drawing the surrounding landscape around and down into the portal experience, creating a visual landmark for the motorway and park users and defined by the Project-wide architectural language.



15

### Implementation and monitoring

This section provides a description of the staged completion of Project works



16

### Conclusion

Provides a summary of the outcomes achieved by the Project.

17

### List of figures and tables

## Appendix A

### Recreational facilities replacement plan (RFRP)

## Appendix B

### Pedestrian and cyclist implementation plan (PCIP)

## 1.5 The Project team

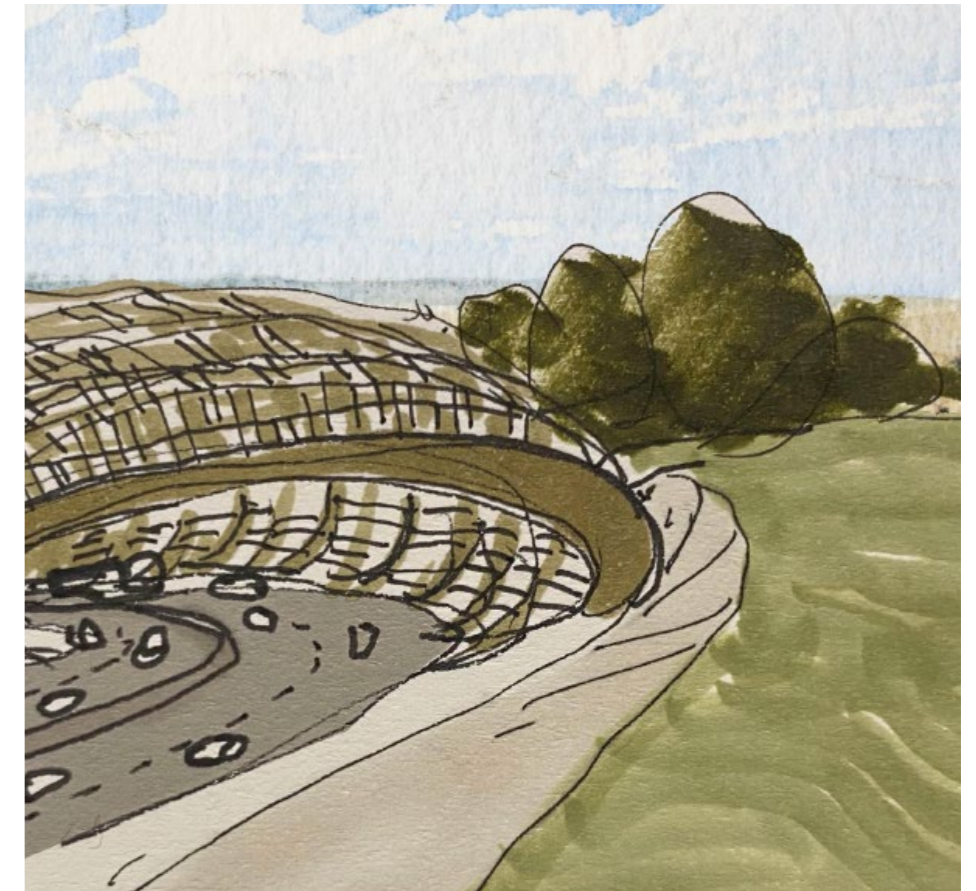
The Project will be an important landmark and connection network within the broader context of Sydney. It will give a lasting legacy for Sydney and will play an important role in the development of future stages of the M6 Motorway.

The team has sought to maximise the opportunities for large-scale urban renewal across the Project corridor and establish a new benchmark in urban design principles and placemaking.

Critical to success is the use of art, appropriate cultural interpretation and lighting to activate the corridor to reveal the subtle histories of the area. These are the histories of local storytelling, flora and fauna, connections; past, present and emerging, ecologies and industry that have been lost over time and now have a chance to be retold.

Understanding this challenge to seamlessly integrate new infrastructure within an existing urban environment and the need to innovate through design, the team comprises a collaboration of specialists and experts to deliver the project outcomes.

The members of CGU's urban design collective for the Project who have contributed directly in the preparation of this UDLP are as follows:



### CGU-JV

#### CPB Contractors Ghella UGL Joint Venture

CPB Contractors and UGL, in a joint venture with Ghella, have been selected by the NSW Government to deliver Stage 1 of the M6 Motorway.

Having successfully delivered several WestConnex projects, CGU-JV is well placed to bringing proven expertise to the Project, and provide a high quality and safe outcome for our clients, our people and our communities.

## Hassell

### Landscape architecture, urban design and architecture

#### Hassell

Across their global studios, Hassell connects insight with creativity to design places people love. Hassell embraces the challenge of integrating infrastructure with the public realm by designing spaces that the community embraces, as corridors are transformed from being simple roads to connected natural and open space areas.

Hassell is providing landscape architecture, urban design, architecture and in-tunnel wayfinding inputs across all Project elements.

Hassell recently designed and delivered the WestConnex M4 East, M8 and Rozelle Interchange projects.



### Indigenous storytelling, Connection to Country and Place

#### Michael Hromek

Michael Hromek (Aboriginal designer; Badawang, Yuin) from WSP is providing Indigenous architectural, landscape and spatial design input across the Project to integrate the outcomes of the Aboriginal engagement and co-design with local knowledge holders.

Michael is a descendent of the Budawang tribe of the Yuin nation, who is currently working at WSP, simultaneously completing his PhD and lecturing at the University of Technology Sydney in the Bachelor of Design in Architecture.

Michael designs from an Aboriginal, architectural and placemaking perspective to establish cultural context and build cultural awareness, and as the Aboriginal facilitator on this Project has from early on, an Aboriginal perspective and an approach that utilises the co-design methodology with which the core principles are Indigenous-led, involve the community and ensure the appropriate use of Indigenous design.

His specialist knowledge and guidance throughout the consultation and co-design process with local Knowledge Holders, and the outcomes of this cultural storytelling have informed the urban and landscape design outcomes.



**culturalcapita**

**Public art**

**Cultural Capital**

Cultural Capital is working collaboratively with the project team to lead the procurement of public art elements across the project, to ensure that art's humanising qualities and powers of attraction are imbued throughout the whole of the built environment; its infrastructure, its landscapes, its built form, its ground planes, its street furniture, its urban setting and its programming.



**Feature lighting**

**Lighting, Art + Science**

Lighting, Art + Science is providing feature lighting expertise for wayfinding, integrated art and infrastructure across the Project.

Lighting, Art + Science and Hassell have recently collaborated on the WestConnex M4 East, M8 and Rozelle Interchange projects.



**Ecology and water**

**E2DesignLab**

E2DesignLab is providing specialist advice in the development of a water sensitive urban design strategy, design of localized reinstatement and renewal of the existing Bicentennial Park Wetlands and creation of the Green and Golden Bell Frog habitat.



**Wayfinding, signage**

**Anne Gordon Design**

Anne Gordon Design is providing specialist wayfinding advice to enable the project to implement signs which help people intuitively navigate where they are within Bicentennial Park.

Anne Gordon Design and Hassell have recently collaborated on the WestConnex M4 East, M8 and Rozelle Interchange projects.



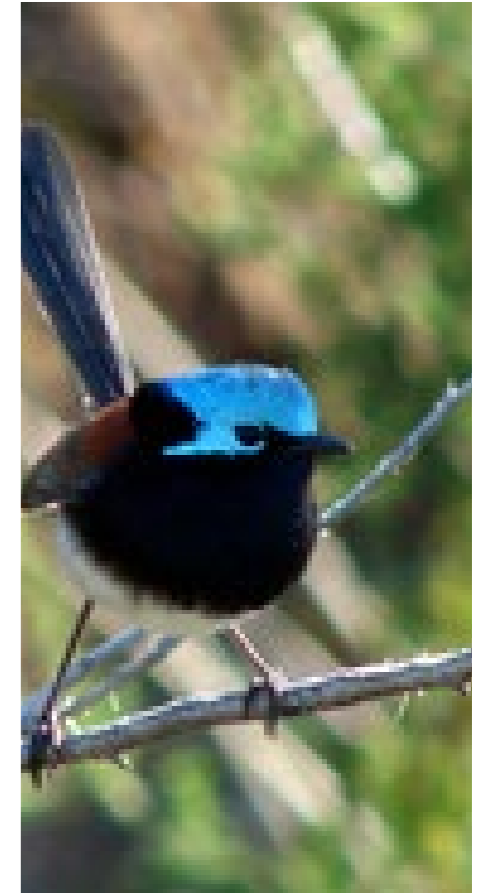
**Indigenous planting and bush tucker**

**Jiwah**

Jiwah is an Indigenous company specialising in cultural landscape, horticulture, permaculture, plant thematics and landscape design.

It has existing professional relationships with a number of organisations in the Sydney region and ongoing community relationships across NSW.

Jiwah is providing cultural insights into the design of bush tucker gardens and 'bush sites' along our cultural trail.



**Non-indigenous heritage**

**AMBS**

AMBS Ecology & Heritage is a specialist consultancy providing expert advice and services in Aboriginal and historic heritage and archaeology, and flora and fauna ecology.

## 1.6 Glossary of terms and abbreviations

The table below provide the list of abbreviations and definitions used throughout this plan

Table 1-1: Glossary of terms and definitions

Abbreviation	Description	Abbreviation	Description	Abbreviation	Description
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	CBD	Central Business District	Floodplain	Area of land which is subject to inundation by floods up to and including the probable maximum flood event (i.e. flood prone land)
ACHA	Aboriginal Cultural Heritage Act	CEMP	Construction Environmental Management Plan	Footpath	The paved area in a footway generally allocated for pedestrian use only
AHIMS	Aboriginal Heritage Information Management System	CGU	CPB Contractors Ghella UGL Engineering Joint Venture	FRP	Fibre Reinforced Plastic mesh used on shared pedestrian and cyclist bridges
Alignment	The geometric layout (e.g. of a road) in plan (horizontal) and elevation (vertical)	CHL	Commonwealth Heritage List	GANSW	Government Architect NSW
Arncliffe Reinstatement Works Site	This is the location of the existing construction compound, previously utilised for the adjacent M8 Westconnex Project. After tunnel construction is complete, rehabilitation of this area will form a new public park, referred to as "Marsh Street Park", at the request of Bayside Council	CHS	Circular hollow section	GGBF	Green and Golden Bell Frog
AS	Australian Standards	Council	Bayside City Council	ISCA	Infrastructure Sustainability Council of Australia
Active Transport	Active transport encompasses non-motorised forms of transport that require physical activity, such as walking or cycling, and can be for recreational or commuter purposes.	CPTED	Crime Prevention Through Environmental Design	LED	Light emitting diode
ATC	Active Transport Corridor – a facility that enables convenient and safe active transport trips and incorporates shared and separated pedestrian and cycle paths that enable safe travel and recreation and connection to local places.	CSSI	Critical State Significant Infrastructure	LEP	Local Environmental Plan
Bado Berong Creek	Referred to as "Bicentennial Park Ponds" which are the existing Rockdale Wetlands North and South, at the request of Bayside Council	Cut-and-cover	A method of tunnel construction whereby the structure is built in an open excavation and subsequently covered	LGA	Local Government Area
BCA	Building Code of Australia	D&C	Design and construct	LRV	Light Reflectance Value
Bridge over Muddy Creek	Refers to the shared pedestrian and cycle bridge over Muddy Creek	D&C Contractor	CPB Contractors, Ghella & UGL Engineering joint venture	M4-M5 Link	WestConnex M4-M5 Link Tunnels
Bridge over Bicentennial Park Ponds	Refers to the shared pedestrian and cycle bridge over Bicentennial Park Ponds	DCP	Development control plan	M5 East	M5 East Motorway
Bridge over President Avenue	Refers to the shared pedestrian and cycle bridge over President Avenue	DDA	Disability Discrimination Act 1992	M6 Motorway	M6 Motorway Stage 1
Bridge over Scarborough Ponds	Refers to the shared pedestrian and cycle bridge over Scarborough Ponds and Patmore Swamp	DPE	Department of Planning and Environment	M8 Motorway	WestConnex M8 (formerly WestConnex New M5)
Carriageway	The portion of a roadway used by vehicles including shoulders and ancillary lanes	DRS	Disaster Recovery Site	Marsh Street Park	Refers to the new parkland being provided in the Arncliffe Reinstatement Works Site as identified in the EIS
CASA	Civil Aviation Safety Authority	EEC	Endangered Ecological Community	MCoA	Minister's Conditions of Approval
		EES	NSW Department of Environment, Energy and Science	Midblock	Location along road that is some distance from an intersection
		EIS	Environmental Impact Statement	MLALC	Metropolitan Local Aboriginal Land Council
		Embankment	An earthen structure where the road (or other infrastructure) is located above the natural surface	MOC	Motorway Operations Complex / Centre
		EPBC Act	Environment Protection and Biodiversity Conservation Act 1999	MOC1	Arncliffe Motorway Operations Complex
		Exit ramp	A ramp by which one exits a limited-access highway/tunnel	MOC3	Rockdale Motorway Operations Complex
		F6 Extension (previously referred to as SouthLink)	"A proposed motorway link between the New M5 at Arncliffe and the existing M1 Princes Highway at Loftus, generally along the alignment known as the F6 corridor"	MUSIC	Model for Urban Stormwater Improvement Conceptualisation
		Flood immunity	Relates to the level at which a particular structure would be clear of a certain flood event	NHL	National Heritage List

Abbreviation	Description
Node	A centralised hub where there's activity and the infrastructure to support it, such as residential, commercial and retail buildings, usually alongside public transport options
NSW	New South Wales
OMCS	Operations Management and Control System
O&M	Operations and Maintenance
Patmore Swamp	Also known as Scarborough Park North. The name Patmore Swamp is the name of the heritage listing for part of this area under the Rockdale Local Environmental Plan 2011 (item no. 202)
PCIP	Pedestrian and Cycle Implementation Plan
Pedestrian bridge	Refers to the shared pedestrian and cycle bridges that forms part of the Active Transport Corridor connectivity
Pedestrian boardwalk	Refers to the shared pedestrian and cycle boardwalks that forms part of the Active Transport Corridor connectivity
Place making	Placemaking 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
PIR	Preferred Infrastructure Report
PVC	Polyvinyl chloride
RFRP	Recreation Facilities Replacement Plan
RGBW	Red, Green, Blue, and White
RL	Reduced Level
RNA	Recreation Needs Analysis
Rockdale Wetlands	Referred to as "Bicentennial Park Ponds" which are the existing Rockdale Wetlands North and South, at the request of Bayside Council
RSA	Road Safety Audit
RTA	NSW Roads & Traffic Authority (now TfNSW)
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

Abbreviation	Description
Roads and Maritime	NSW Roads and Maritime Services (RMS), now referred to as TfNSW
SCCN	Strategic Cycleway Corridors Network
Separated Path	Bi-directional cycle and pedestrian paths, separated by a vegetated median or painted markings
Shared path	Bi-directional paths provided for the use of both cyclists and pedestrians (including riders of wheeled recreational devices and wheeled toys).
Shared pedestrian and cyclist pathways	Refers to a network of bi-directional pedestrian and cyclist path ways that comprise separated paths, shared paths and footpath. Most commonly referred to in this document as the ATC.
SiD	Safety-in-Design
SRW	Smoke reticulation wall
State	State of New South Wales
Street tree	Trees located on public streets verges and medians
Stub tunnel	Driven tunnels constructed to connect to potential future motorway links
Swale	A shallow, grass-lined drainage channel
TfNSW	Transport for New South Wales
Traffic calming	A deliberate slowing of traffic in residential areas, by installation of speed humps or other impediments to high-speed traffic
The Project	M6 Motorway Stage 1
Tunnel portal	The entry and/or exit to a tunnel
UDLP	Urban Design and Landscape Plan
UEMM	Updated Environmental Management Measures
Ventilation facility	Facility for the mechanical removal of air from the mainline tunnels, or mechanical introduction of air into the tunnels. May comprise one or more ventilation outlets
Ventilation outlet	The location and structure from which air within a tunnel is expelled
WHL	World Heritage List
WHS	Work Health and Safety
WSUD	Water sensitive urban design
WTP	Water treatment plant