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WestConnex

M4 Widening State Significant Infrastructure Approval (SSI_6148)

Modification Report
Cycleway Diversion

May 2015



WestConnex Delivery Authority

WestConnex – M4 Widening

State Significant Infrastructure Approval (SSI_6148)

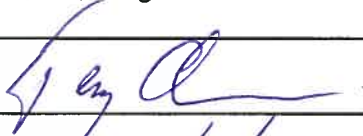
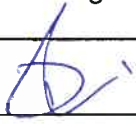
Modification Report

Cycleway Diversion

May 2015

Document controls

Title:	WestConnex M4 Widening State significant infrastructure approval (SSI_6148) Modification Report Cycleway Diversion
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Document Status	Date
Rev A Draft	16/04/2015
Rev B	21/05/2015

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Executive summary

M4 Widening project approval

The NSW Government's *Long Term Transport Master Plan* (Transport for NSW, 2012) sets out a number of projects to meet Sydney's transport challenge. WestConnex is the largest integrated transport and urban revitalisation project in Australia. When completed, it will link the M4 Motorway at Parramatta to the central business district, Sydney Airport and Port Botany precincts and the M5 Motorway in south west Sydney. The M4 Widening is the first WestConnex project and involves converting the existing M4 Motorway generally from three lanes to four lanes in each direction between Parramatta and Homebush.

The M4 Widening project is declared State Significant Infrastructure (SSI) and is therefore subject to Part 5.1 of the (NSW) *Environmental Planning and Assessment Act 1979* (EP&A Act), which establishes an assessment and approval regime for SSI developments. The M4 Widening project, as part of the WestConnex program of works, was declared Critical State Significant Infrastructure by the (NSW) Minister for Planning on 5 December 2014.

An environmental impact statement was completed in late July 2014 and exhibited between 13 August and 12 September 2014. Subsequently, a submissions report was prepared and submitted to the (NSW) Department of Planning and Environment in October 2014. Planning approval was granted by the Minister for Planning under Part 5.1 of the EP&A Act on 21 December 2014.

Planning approvals process

Pursuant to Section 115ZI of the EP&A Act, the WestConnex Delivery Authority (WDA), on behalf of (NSW) Roads and Maritime Services as the proponent of the project, is seeking approval for the modification of the Infrastructure Approval (SSI_6148).

Purpose of this report

This report has been prepared to support an application by WDA to modify the existing project approval for the M4 Widening project for the construction of a permanent off-road westbound cycleway to replace an existing section of cycleway that uses the shoulder of the M4 Motorway around Homebush Bay Drive, Homebush.

Although the area of the proposed cycleway, being within the motorway corridor, was included in the environmental impact assessment prepared for the project, construction of a cycleway in this location did not form part of the project approval. The proposed modification is therefore required to seek approval for the proposed works.

The modification application has been prepared to:

- Describe the proposed modification.
- Provide justification for modification to the Infrastructure Approval for the project.
- Assess the environmental and community impacts of the proposed modification.

The proposed modification, its justification and assessment of the potential environmental impacts of the proposal, are provided in this report.

Conclusions and next steps

This report documents the proposed modification to the approved M4 Widening project. Overall, the benefits of the proposed modification to the community and commuters including cyclists are expected to outweigh any potential minor impacts of the proposal.

The Minister for Planning will subsequently decide whether to grant approval to, or refuse, the proposed modification, under Section 115ZI of the EP&A Act. Should the proposed modification be approved, WDA would continue to consult with community members, councils and other stakeholders during the pre-construction and construction phases of works in accordance with the approved Construction Environmental Management Plan for the M4 Widening project.

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Attachments

Attachment A: Plans

Abbreviations and Glossary

Term	Meaning
Acid sulfate soils (ASS)	The acidic soils that result from the disturbance or drainage and subsequent oxidation of previously waterlogged potential acid sulfate soils.
Acute noise levels	Road traffic noise levels received at private dwellings that are predicted to be greater than 65dB(A)Leq(15hr) (day) and 60dB(A)Leq(9hr) (night), as presented in Practice Note IV, Step 3, Part (2) of the Roads and Maritime Environmental Noise Management Manual.
Asphalt or asphaltic concrete	A dense, continuously graded mixture of coarse and fine aggregates, mineral filler and bitumen usually produced hot in a mixing plant.
Background noise level	The underlying level of noise present in the ambient noise when extraneous noise is removed and excluding the noise source under consideration. This is described using the LA90 descriptor.
Batter	The side slope of embankments and cuttings which is usually expressed as a ratio of horizontal distance to vertical height value of one.
CAMWEST	Cyclists Action Movement WEST
CBD	Central business district
CEMP	Construction Environmental Management Plan
Chainage	Any point on a control line selected to provide more detailed information about the cross-section or any other feature mentioned in the drawings. Also known as a station.
Concept design	Initial functional layout of a road/road system or other infrastructure. Used to facilitate understanding of a project, establish feasibility, and provide a basis for estimating and to determine further investigations needed for detailed design.
dBA	Used as a measure of A-frequency weighted sound levels. The A-frequency weighting is an adjustment made to sound level measurement, by means of an electronic filter, in line with international standards. This approximates the response of the human ear at lower sound pressure levels.
Decibel	A scale unit used in the comparison of powers and levels of sound energy.
DECCW	NSW Department of Environment, Climate Change and Water (formerly DEC, DECC and now OEH and the EPA).
DP	Deposited plan.
DP&E	(NSW) Department of Planning and Environment
DGRs	Director-General's Requirements (now known as Secretary's Environmental Assessment Requirements). Requirements and specification for the environmental assessment prepared by the Director-General (now known as the Secretary) of the (NSW) Department of Planning and Environment under the (NSW) <i>Environmental Planning and Assessment Act 1979</i> .
EIS	Environmental impact statement
Environmental impact statement (EIS)	An environmental impact statement is a focussed analysis undertaken for the purposes of Part 5.1 of the (NSW) <i>Environmental Planning and Assessment Act 1979</i> , written generally to comply with the requirements issued by the Director-General of the (NSW) Department of Planning and Environment.

Term	Meaning
EP&A Act	(NSW) <i>Environmental Planning and Assessment Act 1979</i>
EPL	Environment Protection Licence
EWMS	Environmental Work Method Statements
FFMP	Construction Flora and Fauna Management Plan
HMP	Construction Heritage Management Plan
ICNG	Interim Construction Noise Guideline
ITS	Intelligent Transport Systems. The application of computer and communication technologies to manage transport problems. ITS infrastructure and can include the traffic monitoring cameras, variable message signs and variable speed limit signs.
LAeq	The equivalent continuous sound level. This is the energy average of the varying noise over the sample period and is equivalent to the level of constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.
Lot	A parcel of land defined by measurement as a lot in a deposited plan (DP) or as a Crown portion or allotment.
LGA	Local Government Area
LTTMP	NSW Long Term Transport Master Plan
NCA	Noise catchment area
NML	Noise Management Levels
NSW	New South Wales
NVMP	Construction Noise and Vibration Management Plan
Proponent	The person or organisation that proposes carrying out a project or activity.
Receptor/receiver	An environmental modelling term used to describe a map reference point where the impact is predicted. A sensitive receptor is a home, workplace, school or other place where people spend some time. An elevated receptor is a point above ground level.
RLJV	Rizzani de Eccher Australia Pty Ltd/Leighton Contractors Pty Ltd Joint Venture
Roads and Maritime	(NSW) Roads and Maritime Services.
SOPA	Sydney Olympic Park Authority
SSI	State Significant Infrastructure
SWMP	Construction Soil and Water Management Plan
TAMP	Construction Traffic and Access Management Plan
TEC	Threatened ecological communities
TSC Act	The (NSW) <i>Threatened Species Conservation Act 1995</i> is an Act to conserve threatened species, populations and ecological communities of animals and plants.
UDLP	Urban Design and Landscape Plan.
WDA	WestConnex Delivery Authority.

I Introduction

I.1 Purpose of this report

This report has been prepared to support an application by the WestConnex Delivery Authority (WDA), on behalf of (NSW) Roads and Maritime Services (Roads and Maritime) as the proponent of the project, to modify the existing Infrastructure Approval for the WestConnex M4 Widening project (SSI_6148). It is intended to assist the (NSW) Minister for Planning in forming a view as to the merits of the proposed modification.

The application for modification of the Infrastructure Approval has been prepared to:

- Describe the changes to the existing project approval and the proposed modification.
- Provide justification for the modification.
- Assess the potential impacts of the proposed modification and describe the measures proposed to mitigate any potential impacts.

I.2 Background

WestConnex is a key recommendation of the *State Infrastructure Strategy 2012-2032* (Infrastructure NSW, 2012) (State Infrastructure Strategy) and was the subject of a Business Case approved by the NSW Government in September 2013. WestConnex is also identified as a key element of Sydney's road future in the NSW Government's *Long Term Transport Master Plan* (Transport for NSW, 2012) (LTTMP) which sets out a number of projects to meet Sydney's transport challenge.

WestConnex is the largest integrated transport and urban revitalisation project in Australia. It will link the M4 Motorway at Parramatta with the central business district (CBD), Sydney Airport and the Port Botany precincts and the M5 Motorway in south-west Sydney via a 33 kilometre tolled motorway completely free of traffic signals. When completed, WestConnex would save 40 minutes on a typical journey between Parramatta and Sydney Airport, bypassing up to 52 sets of traffic signals.

The NSW Government will deliver WestConnex in a series of project stages, with a commitment for completion by 2023. When complete, it is expected that about 400,000 vehicles per day will use the WestConnex motorway.

WestConnex is being delivered through a series of projects in three stages over 10 years, as follows:

- Stage 1: M4 Widening (this project) – Parramatta to Homebush.
- Stage 1: M4 East – Homebush to Haberfield.
- Stage 2: New M5 – Beverly Hills to St Peters.
- Stage 2: New M5 King Georges Road Interchange Upgrade.
- Stage 3: M4-M5 Link – Haberfield to St Peters.

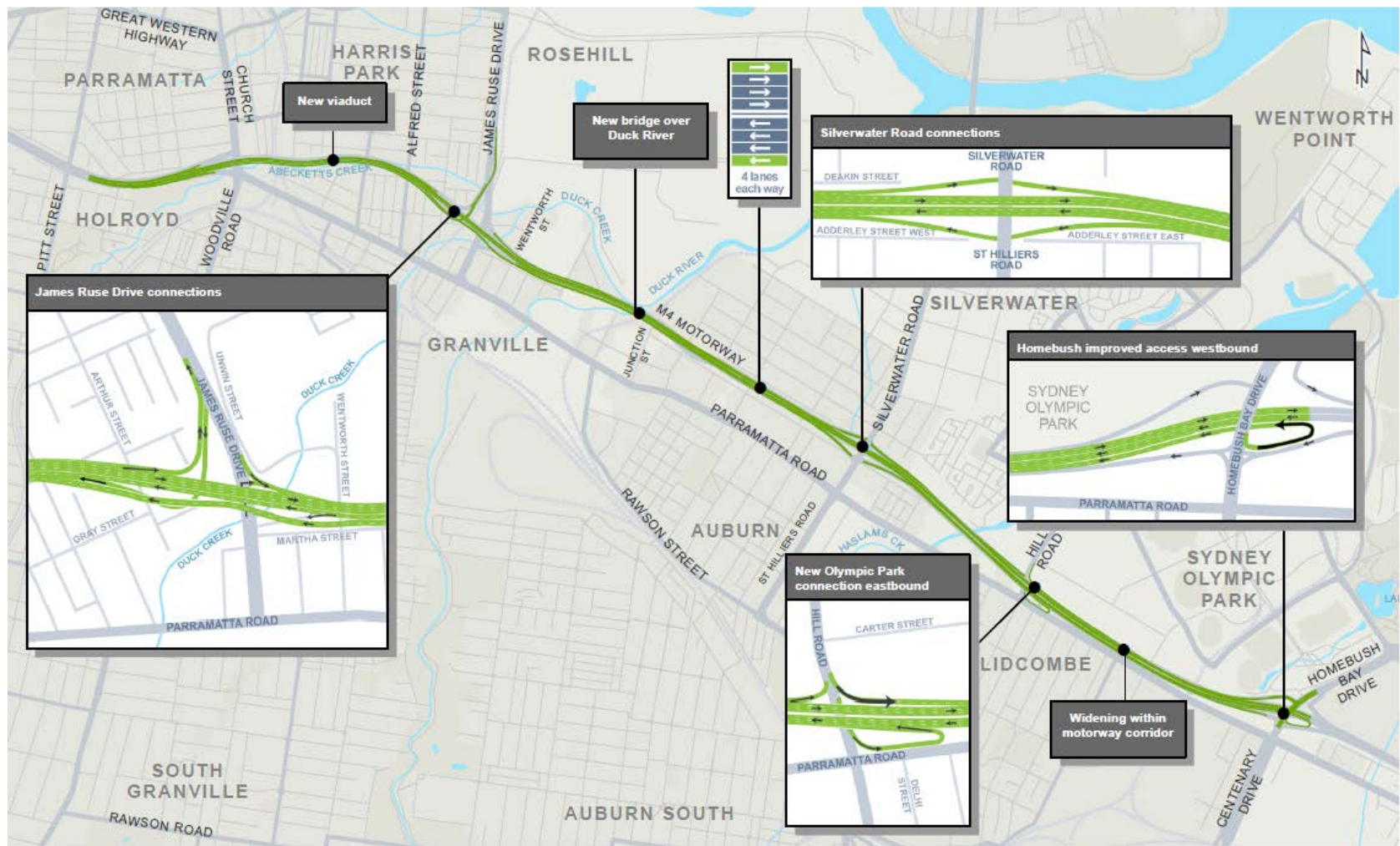
Each stage will be subject to its own environmental assessment, consultation and planning approval process.

The M4 Widening is the first WestConnex project. It involves widening and upgrading of approximately 7.5 kilometres of the existing M4 Western Motorway (M4 Motorway) generally from three lanes to four lanes in each direction between Pitt Street, Parramatta and Homebush Bay Drive, Homebush.

The M4 Widening project, as approved, includes the following key features (refer to Figure 1.1):

- Construction of a new two lane viaduct for westbound traffic, on the southern side of the existing viaduct structure between Church Street, Parramatta and Wentworth Street, Granville.
- Reconfiguration of the traffic lanes on the existing viaduct structure to four lanes eastbound and two lanes westbound (making a total of four lanes in each direction).
- Construction of a new bridge/viaduct over Duck River at Auburn.
- Widening of the existing motorway to the south of the westbound carriageway between Wentworth Street, Granville and Duck River, Auburn.
- Widening of the at-surface carriageway of the motorway predominantly within the existing motorway corridor (utilising both the existing median and verge areas), between Junction Street, Auburn and Homebush Bay Drive, Homebush to provide four traffic lanes westbound and four traffic lanes eastbound.
- Construction of a new westbound G-loop on-ramp to the M4 Motorway from Homebush Bay Drive, Homebush.
- Construction of a new eastbound on-ramp to the M4 Motorway from Hill Road, Lidcombe.
- Provision of Intelligent Transport Systems (ITS) infrastructure for motorway operations.
- Provision of road infrastructure and services to support the future implementation of smart motorway (Managed Motorway) operations.
- Widening and/or lengthening of existing ramps at Church Street, James Ruse Drive, Silverwater Road, Hill Road and Homebush Bay Drive.
- Provision of tolling infrastructure such as gantries and control systems.
- Provision of new and modified noise barriers.
- Provision of new asphalt wearing surface to the existing M4 Motorway.

This report has been prepared to modify the existing project approval for the M4 Widening project for the construction of a permanent off-road westbound cycleway to replace an existing section of cycleway that uses the shoulder of the M4 Motorway around Homebush Bay Drive, Homebush.



KEY

- New/upgraded surface road
- ➔ New ramp
- Road
- Rail line

Project location and key features



Figure 1-1: Approved project location and key features

Source: *WestConnex M4 Widening Environmental Impact Statement* (SMEC Australia, 2014a)

2 Statutory context

2.1 Infrastructure Approval

The M4 Widening project is declared State Significant Infrastructure (SSI) and is therefore subject to Part 5.1 of the (NSW) *Environmental Planning and Assessment Act 1979* (EP&A Act), which establishes an assessment and approval regime for SSI developments.

The *WestConnex M4 Widening Environmental Impact Statement* (SMEC Australia, 2014a) (EIS) was completed in late July 2014 and exhibited between 13 August and 12 September 2014. Subsequently, the *WestConnex M4 Widening Submissions Report* (SMEC Australia, 2014b) (Submissions Report) was prepared and submitted to the (NSW) Department of Planning and Environment (DP&E) in October 2014.

The M4 Widening project, as part of the WestConnex program of works, was declared Critical State Significant Infrastructure by the Minister for Planning on 5 December 2014. Planning approval for the M4 Widening project was granted by the Minister for Planning under Part 5.1 of the EP&A Act on 21 December 2014.

2.2 M4 Widening project modification

Pursuant to Section 115ZI of the EP&A Act, WDA, on behalf of Roads and Maritime as the proponent of the project, is seeking approval for the modification of the Infrastructure Approval for the M4 Widening (SSI_6148).

Section 115ZI of the EP&A Act relates to the modification of the Minister's approval and states:

(1) *In this section:*

Minister's approval means an approval to carry out State significant infrastructure under this Part, and includes an approval granted on the determination of a staged infrastructure application.

modification of an approval means changing the terms of the approval, including revoking or varying a condition of the approval or imposing an additional condition on the approval.

(2) *The proponent may request the Minister to modify the Minister's approval for State significant infrastructure. The Minister's approval for a modification is not required if the infrastructure as modified will be consistent with the existing approval under this Part.*

Note. Section 380AA of the Mining Act 1992 provides that a request for the modification of approval for State significant infrastructure for the mining of coal can only be made by or with the consent of the holder of an authority under that Act in respect of coal and the land concerned.

(3) *The request for the Minister's approval is to be lodged with the Secretary. The Secretary may notify the proponent of environmental assessment requirements with respect to the proposed modification that the proponent must comply with before the matter will be considered by the Minister.*

(4) *The Minister may modify the approval (with or without conditions) or disapprove of the modification.*

WDA is seeking approval from the Minister for Planning to modify the Infrastructure Approval for the M4 Widening project (SSI_6184). The proposed modifications are described in detail in Chapter 3 of this modification report.

The proposed modification offers significant overall benefits to the M4 Widening project in terms of increasing safety for both motorists and cyclists using the existing shoulders of the M4 Motorway around Homebush Bay Drive. The proposed modification also increases safety to commuters using the M4 Motorway by removing potential conflicts with cyclists that may occur at this interchange once the existing motorway shoulders are removed in this location. Specific benefits are also discussed in Chapter 3.

3 Description of proposed modification

3.1 Overview

As described in Chapter 2, Section 115ZI of the EP&A Act allows for the modification of SSI planning approvals granted by the Minister for Planning. The modification proposed to the Infrastructure Approval (SSI_6148) for the M4 Widening project is for the construction of a permanent off-road westbound cycleway to divert cyclists from the westbound shoulder of the M4 Motorway around the Homebush Bay Drive interchange.

The westbound off-road cycleway would diverge from the M4 Motorway shoulder via the westbound vehicle off-ramp to Homebush Bay Drive, continue under the Homebush Bay Drive bridge over Parramatta Road, and re-join the M4 Motorway shoulder on the westbound vehicle on-ramp to the M4 Motorway from Homebush Bay Drive.

3.2 Approved project

As described in section 5.3.6 of the EIS, cyclists currently use the 2.5 metre outside shoulders of the M4 Motorway to travel in both eastbound and westbound directions, except between Church Street, Parramatta and Silverwater Road, Auburn where cyclists are prohibited from the motorway and a dedicated off-road cycleway is provided. The current on-road cycleway arrangement in the shoulders of the M4 Motorway around Homebush Bay Drive is shown on Figure 3-1. The M4 Widening project as approved maintained the current arrangements and no new cyclist facilities were proposed.

As described in section 5.3.1 of the EIS, the 4.5 kilometre section the M4 Motorway between Junction Street, Auburn and Homebush Bay Drive, Homebush is at-grade and currently provides three through traffic lanes in each direction. Under the M4 Widening project, this section would be widened (utilising the existing median and verge areas) with two additional lanes added to provide a total of four traffic lanes in each direction with variable width sealed road shoulders. In the section around Homebush Bay Drive, no road shoulders would be incorporated into the design between the off- and on-ramps at the Homebush Bay Drive interchange, creating potential safety conflicts between cyclists and motorists using the motorway in this location.

Section 5.3.2 of the EIS describes the existing Homebush Bay Drive interchange as a modified full diamond configuration interchange that accommodates all traffic movements, with access between the motorway ramps and Homebush Bay Drive, regulated by traffic control signals. Currently, cyclists travelling west on the M4 Motorway use the motorway shoulders and need to cross the westbound off-ramp east to Homebush Bay Drive and then cross a long merge with vehicles entering the motorway from Homebush Bay Drive northbound to travel west.

As part of the M4 Widening project, a G-loop on-ramp would be constructed for southbound traffic on Homebush Bay Drive to access the motorway and travel west. The new on-ramp would be positioned between the existing westbound off-ramp to Homebush Bay Drive and the westbound carriageway of the motorway and connect to the existing on-ramp from Homebush Bay Drive.

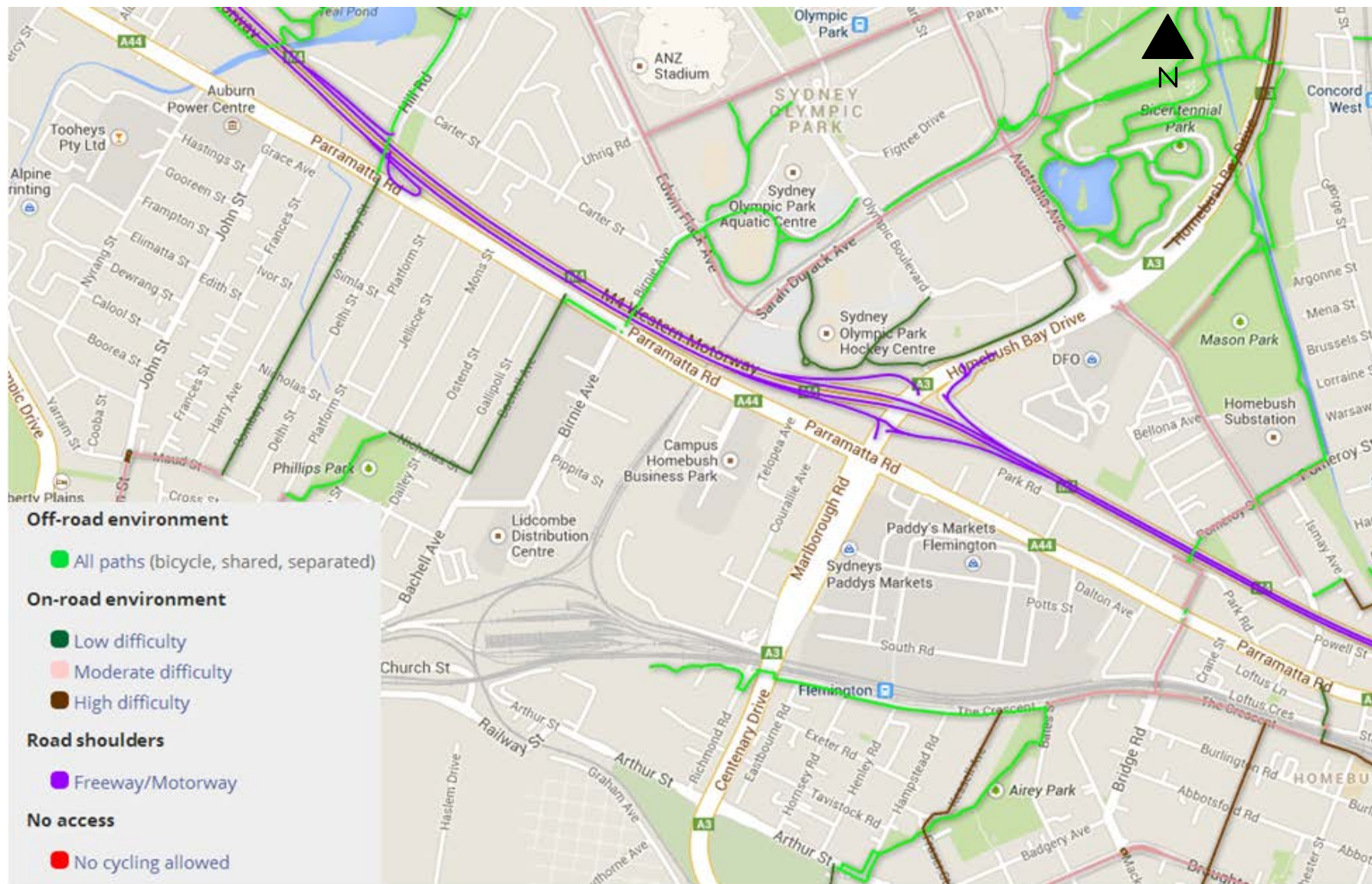


Figure 3-1: M4 Motorway corridor bicycle routes around Homebush Bay Drive

Source: NSW Government, Bicycle information for NSW Cycleway Finder v2.0, 2014 (extracted from *WestConnex M4 Widening Traffic and Transport Working Paper – Working Paper 4* (Jacobs AECOM, 2014))

3.3 Description of proposed modification

The proposed permanent off-road westbound cycleway at the Homebush Bay Drive interchange is shown in Figure 3.2 and in plans included in Attachment A. The design would be refined and finalised during the detailed design process, subject to approval of this modification.

To alleviate the potential safety conflicts identified in section 3.2 between cyclists and vehicles using the motorway around Homebush Bay Drive once the shoulder is removed as part of the M4 Widening project, it is proposed to provide a permanent off-road westbound cycleway under the Homebush Bay Drive bridge for a distance of approximately 551 metres. This proposed modification would remove potential sources of conflict between cyclists and motorists once the motorway shoulders are removed and from the on/off-ramps and merge points in this location, as described above. No other alternatives to this proposal were considered due to the constraints of the motorway corridor and adjoining land.

The proposal would provide a permanent cycleway to divert cyclists from the existing westbound shoulder of the M4 Motorway. The proposed cycleway would diverge from the motorway shoulder from the southern side of the Homebush Bay Drive off-ramp, travel under the Homebush Bay Drive bridge within the motorway corridor adjacent to Parramatta Road, and re-join the on-ramp near the merge with the motorway.

As the proposed cycleway is intended to replace a section of the existing on-road cycleway, it is not intended to be a shared path as pedestrian access is prohibited on the motorway. The proposed cycleway would be two metres in width with asphalt surfacing, however a width of up to 12 metres may be required for earthworks batters in some locations due to ground level differences.

Vertical and horizontal alignment, gradients, batters and drainage design for the cycleway would be further developed during detailed design in accordance with the relevant requirements of the *Austroads Guide to Road Design* (2010), particularly Part 6A: Pedestrian and Cyclist Paths, the *NSW Bicycle Guidelines* (RTA, 2005) and any relevant Australian Standards.

3.3.1 Land use

The proposed cycleway would be entirely constructed on land owned by Roads and Maritime, within the existing road corridor between the motorway to the north and Parramatta Road to the south.

To the east of the proposed cycleway location is land owned by the Sydney Olympic Park Authority (SOPA) and used as for parking, storage, operation and maintenance. This land has been leased from SOPA for use as a temporary compound site during construction of the M4 Widening project. Further east is a residential area comprising single storey houses. This area is identified in the *Strathfield Local Environmental Plan 2012* as the Welfare Street Conservation Area, Inter-war bungalow style group (Item C6). This area is identified as having local heritage significance.

Land on the southern side of Parramatta Road opposite the site of the proposed cycleway is dominated by commercial and retail uses interspersed with pockets of residential dwellings to the south west of the site.

3.4 Key features of the design

3.4.1 Constructability

If approved, the cycleway at the Homebush Bay Drive interchange would be constructed by the M4 Widening Design and Construct Contractor, Rizzani de Eccher Australia Pty Ltd/Leighton Contractors Pty Ltd Joint Venture (RLJV) in conjunction with the M4 Widening works.

3.4.2 Earthworks

Table 3.1 below identifies the estimated earthworks volumes required for the cycleway. The earthworks volumes shown have been provided from the concept design for the cycleway. As the design of the cycleway would be subject to refinement during detailed design, the actual earthworks quantities may differ to those shown.

Table 3.1 Concept design earthworks volumes

Earthworks	Cut volume (m³)	Fill volume (m³)
Construction of the cycleway at the Homebush Bay Drive interchange	500	2,000

3.4.3 Retaining walls

An 80 metre long retaining wall would be required on the northern side of the cycleway on the eastern side of the Homebush Bay Drive bridge, as shown on Figure 3-2 below. The wall would be a maximum of 2.5 metres in height and would comprise a rock-filled gabion wall to be refined during detailed design.

3.4.4 Fencing and access

A fence would be installed along the proposed cycleway where required for safety purposes. The existing fence and gates on the eastern side of Homebush Bay Drive would be retained however the existing fence adjacent to the utility underpass and culvert near the Homebush Bay Drive westbound on-ramp would need to be realigned during construction of the cycleway.

Once constructed, it would be possible to access the cycleway from Parramatta Road on the eastern side of the Homebush Bay Drive bridge however no formal access would be provided as part of the project. On the western side of the Homebush Bay Drive bridge, access would be restricted due to the proposed fence realignment. There is no existing footpath/cycleway on the northern side of Parramatta Road in this area so access to the cycleway from Parramatta Road would not be encouraged. A link to any future cycleway developments could be provided at this location with minimal modification.

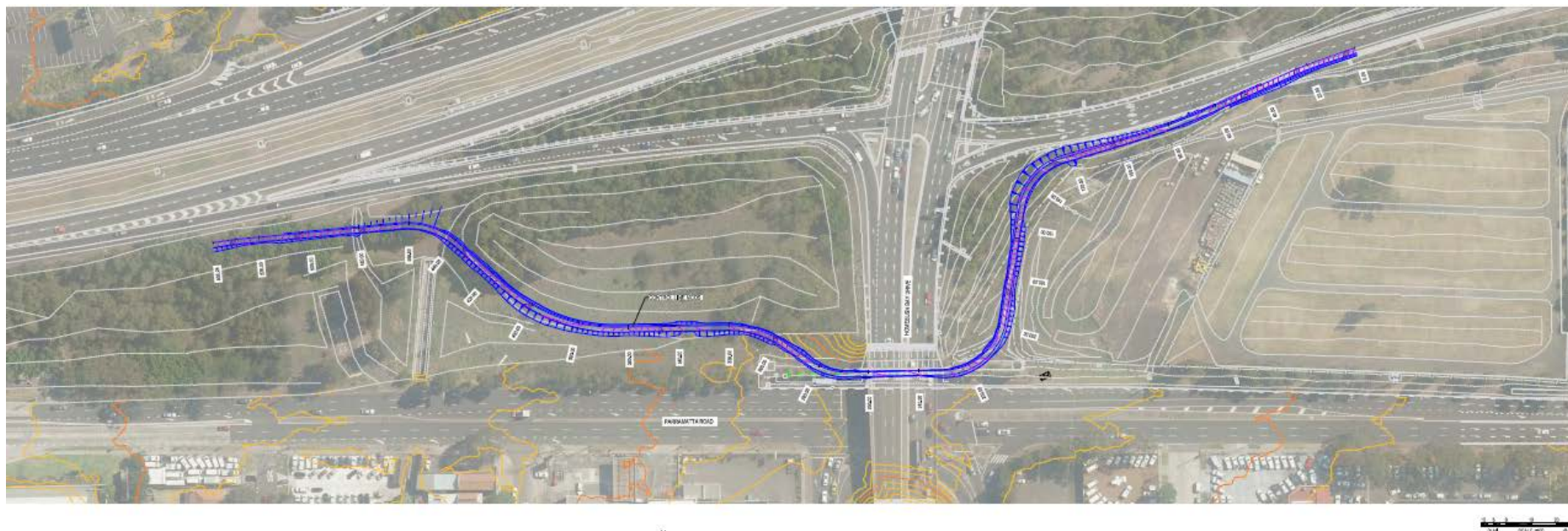


Figure 3-2 Proposed cycleway modification at Homebush Bay Drive

Note that this figure does not show the G-loop on-ramp in this location, approved under the M4 Widening project

3.4.5 Drainage

New channels would be provided along the cycleway where required based on the cycleway geometry, which would be refined during detailed design. The existing headwall on the eastern side of the Homebush Bay Drive bridge would be removed and replaced with a new pit and pipes, which would be extended beneath the cycleway. A new headwall would be installed at the end of the pipes.

3.4.6 Utility relocation

Utility investigations have been undertaken as part of the pre-construction investigations for the M4 Widening project. Based on current information, no requirements for utility relocation in the cycleway area have been identified. The alignment of the proposed cycleway has been designed to avoid any known utilities.

3.4.7 Lighting

The proposed cycleway would be lit in accordance with relevant legislation, to be refined during detailed design.

3.4.8 Landscaping

The landscaping strategy for the proposed cycleway is depicted in Figures 3-3 and 3-4 below which are extracted from the *Draft WestConnex M4 Widening Urban Design and Landscape Plan* (HBO+EMTB Urban and Landscape Design, 2015) (Draft UDLP). The landscape strategy would be refined during the finalisation of the landscape design for the M4 Widening project, through detailed design.

The Draft UDLP depicts occasional tree planting proposed along the edge of the proposed cycleway for shade and amenity. Seeding and planting along the cycleway would include endemic shrubs and tree species. This would include seeding on all batters with endemic shrub species and copse plantings of endemic trees, to increase shade for cyclists.

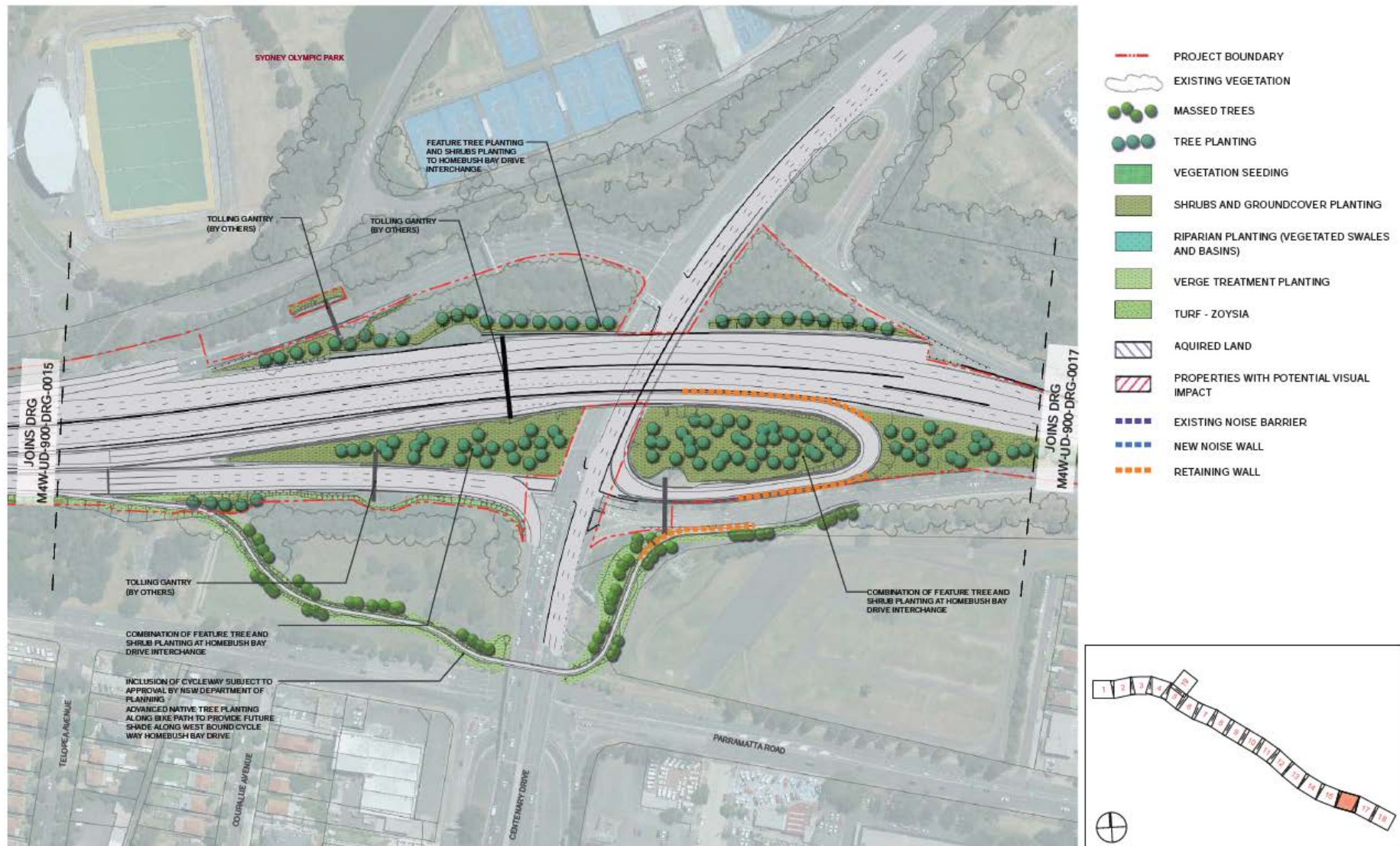


Figure (i)B.4.16 M4W-UD-900-DRG-0016 - Concept Plan 16

Figure 3-3 Concept landscaping design for the proposed cycleway

Source: Draft WestConnex M4 Widening Urban Design and Landscape Plan (HBO+EMTB Urban and Landscape Design, 2015)

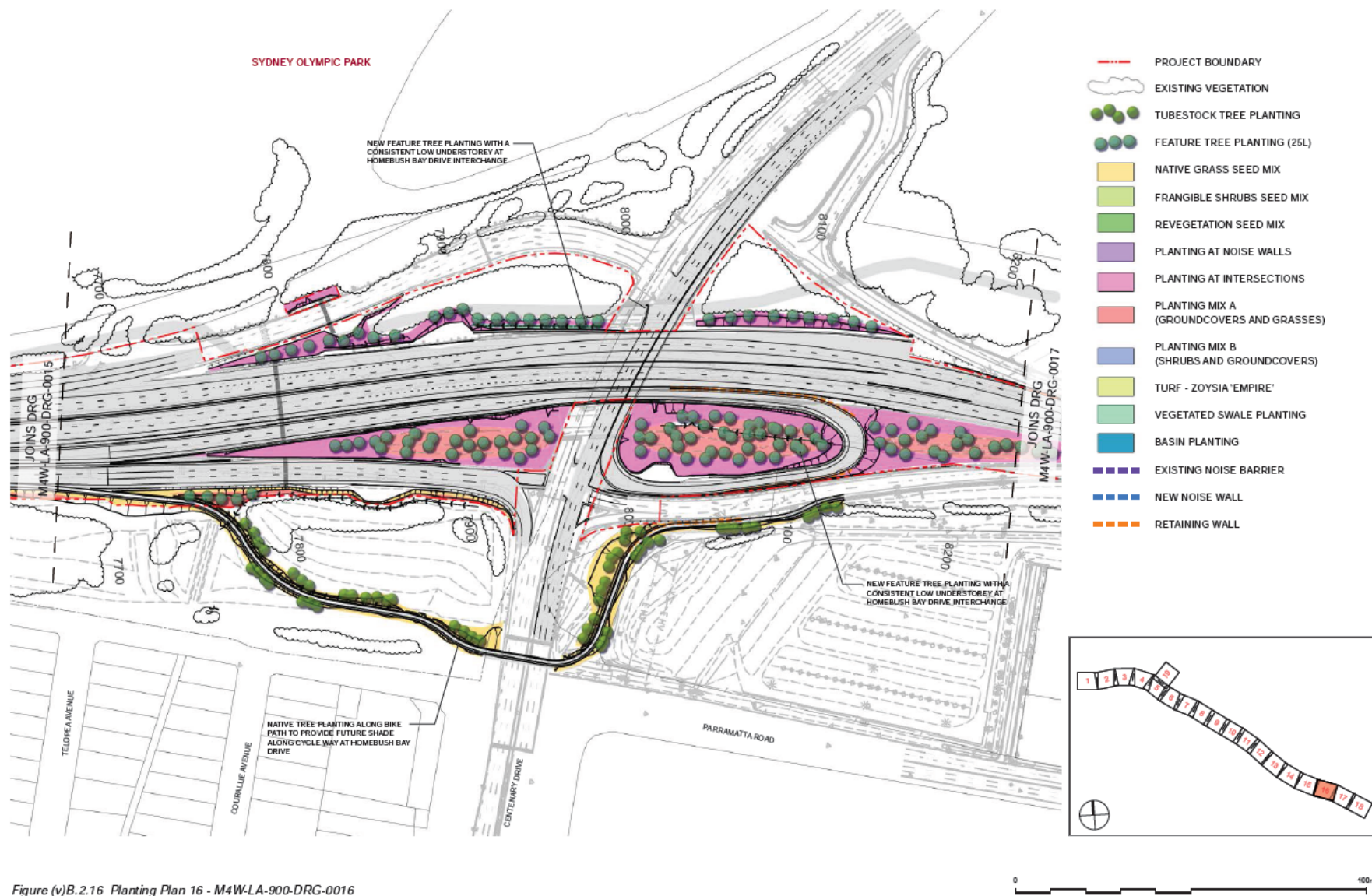


Figure (v)B.2.16 Planting Plan 16 - M4W-LA-900-DRG-0016

Figure 3-4 Concept planting plan for the proposed cycleway

Source: Draft WestConnex M4 Widening Urban Design and Landscape Plan (HBO+EMTB Urban and Landscape Design, 2015)

4 Stakeholder consultation

4.1 Overview

WDA has undertaken consultation regarding the proposed modification with local councils and key bicycle groups within the cycleway area during the preparation of this report. An email was sent to the local councils and key bicycle groups advising of the proposed modification and seeking feedback. A summary of this consultation is presented in Table 4.1 below.

A submission for the M4 Widening project was received from the Cyclists Action Movement WEST (CAMWEST), a local bicycle group operating in the area, during the EIS exhibition period. This submission is considered to be relevant to the proposed modification therefore the details are included in the table below and the comments are addressed in this report.

If approved, ongoing discussions with stakeholders, local councils and the community would continue through detailed design of the modification.

Table 4.1 Summary of consultation undertaken for the cycleway

Stakeholder	Consultation	Issues raised	Where addressed in this report
Auburn City Council	• 1/5/15: phone conversation. • 1/5/15: email sent. • Response received 6/5/15.	No issues raised with proposal.	Noted.
		The dedicated cycleway will increase safety for westbound cyclists using the M4 Motorway.	Refer to section 3.2 – Approved project and section 3.3 – Description of proposed modification.
		Despite the proposal, cyclists may still choose to merge through the lanes of the enlarged intersection, instead of using the cycleway.	Noted.
		The proposed 2m width is sufficient for a one-way dedicated cycleway.	Refer to section 3.3 – Description of proposed modification.
		The finer details of the length and gradients of the cycleway can be finalised in the final design.	To be refined during detailed design. Refer to section 3.3 – Description of proposed modification and Section 3.4 – Key features of the proposed design.
Strathfield Council	• 1/5/15: phone conversation. • 1/5/15: email sent. • Response received 7/5/15	No objection to the proposed cycling arrangement off the M4 Motorway.	Noted.
		Noted that Council does have concerns when cyclists are allowed on the shoulders of freeways, particularly without physical separation.	Noted.
Bicycle NSW	• 27/4/15: phone message left. • 27/4/15: email sent. • Response received 1/5/15	In principle support for the proposal as it removes two motorway ramp crossings.	Noted.
		Path width should be 3m, wide to cater for passing riders on the corners and grades and to build capacity for the future.	Refer to section 3.3 – Description of proposed modification.
		Concept should include ramps to/from	Refer to section 3.4.5 – Fencing and access.

		Parramatta Road north side to allow for connectivity.	
		Grade differences should be minimised. The climb over the berms next to the motorway ramps should be minimised by more cutting at these points.	To be refined during detailed design. Refer to section 3.3 – Description of proposed modification and Attachment A.
		Special care will be needed at the low point around Chainage 200 (just east of Homebush Bay Drive) as this is a depression and the path could be subject to flooding. There is a large drainage pit to avoid.	To be refined during detailed design. Refer to section 3.4.6 – Drainage.
		To the west of Homebush Bay Drive, the path descends slowly to around Chainage 400, then rises to the west to meet the M4 Motorway verge. The path should be routed at a higher level around Chainage 460 so as to minimise the grade of the ramp up to the M4 Motorway. More cutting should be done through the berm next to the motorway ramp.	To be refined during detailed design. Refer to section 3.4.6 – Drainage.
		Bicycle NSW also raised other issues not considered relevant to the proposed modification.	N/A
Bicycle Network Australia	• 27/4/15 – email sent. • 7/5/15 – follow up email.	No response received.	
Pedestrian and Bicycle Transport of Australasia	• 27/4/15 – email sent. • 7/5/15 – follow up email sent.	No response received.	
Lidcombe Auburn Cycle Group	• 24/5/15 – phone call to President of Lidcombe Auburn	No response received.	

	Cycle Group. • 27/4/15 – email sent. • 7/5/15 – follow up email.		
Cycling NSW	• 27/4/15 – email sent. • 7/5/15 – follow up email.	No response received.	
Canada Bay Bike User Group	• 27/4/15 – email sent. • 7/5/15 – follow up email. • Response received 7/5/15.	Advised that Canada Bay Bicycle User Group has seen the proposal and entirely supports the comments provided by Bicycle NSW.	Noted, comments received from Bicycle NSW are addressed above.
CAMWEST	• 24/4/15: phone conversation with Chairman of CAMWEST. • 27/4/15 – email sent. • 7/5/15 – follow up email.	No response received.	
		Submission received during the EIS exhibition period: An uninterrupted 2.5m wide pathway needs to be maintained all the way to Homebush Bay Drive. There should be no locations where cyclists have to stop, wait and give way to crossing traffic. In particular, the area where there is no motorway shoulder and cyclists are banned from the freeway, the resulting cycle path route should provide the same travel time as the shoulder would offer, and therefore not require a cyclist to stop or give way to cross traffic at any road crossings. Ideally there should be no minor road crossings or driveways and all major road crossings should have overpasses.	Refer to section 3.2 – Approved project and section 3.3 – Description of proposed modification.

5 Environmental assessment

5.1 Scope of environmental assessment

The EIS details the potential environmental impacts of the project and provides proposed environmental management measures to avoid or reduce potential environmental impacts during construction and operation of the M4 Widening. The Submissions Report includes revised environmental management measures to address issues raised in submissions to manage potential environmental impacts of the project.

Mitigation and management measures for the project are also included in the conditions of approval. Should any further management measures be identified in this modification, the conditions of approval would be amended as needed.

As this modification focuses specifically on the proposed cycleway at the Homebush Bay Drive interchange, only the potential environmental impacts associated with the cycleway are assessed.

The potential environmental issues affected by the proposed modification are as follows:

- Traffic and transport.
- Noise and vibration.
- Biodiversity.
- Heritage.
- Visual and landscape character.
- Soil and contamination.

The following sections of this report address these key environmental issues for the proposed cycleway, assessing both the construction and operational impacts. Other issues that would not result in a change to the impacts assessment in the M4 Widening project are not discussed in this report.

5.2 Traffic and transport impacts

5.2.1 Construction impact assessment

The proposed modification would not alter the general construction traffic impacts identified in the section 8.1 of the EIS and the *WestConnex M4 Widening Traffic and Transport Working Paper – Working Paper 4* (Jacobs AECOM , 2014).

The EIS identified the need for a series of traffic changes and management measures to allow the widening works to be carried out with minimum disruption to traffic flows on the M4 Motorway. The construction of the cycleway would be undertaken concurrently with the M4 Widening project construction works. The traffic changes and management measures identified would also apply to the cycleway construction. A traffic management and access plan has been prepared for the project, to be implemented during construction.

The Construction Traffic and Access Management Plan (TAMP) forms part of the Construction Environmental Management Plan (CEMP) and details how motorists,

cyclists and pedestrians would be safely managed during construction of the M4 Widening project. The CEMP was approved by DP&E prior to the commencement of construction in accordance with the conditions of approval.

Construction access to the cycleway area would be identified and managed through an amended TAMP to avoid additional disruptions to traffic. It is considered that the proposed modification would not cause any additional significant impacts to traffic and transport during construction and would not affect the ability of the project to meet the conditions of approval relevant to traffic and transport.

5.2.2 Operational impact assessment

The construction of the approved M4 Widening project would result in the removal of the existing shoulder on the westbound lane for the section around the Homebush Bay Drive interchange. As cyclists currently use the motorway shoulder in this location, the provision of a permanent off-road cycleway in this location would improve the safety of cyclists travelling westbound.

5.3 Noise and vibration impacts

Impacts to noise and vibration impacts associated with the M4 Widening project were assessed in section 8.2 of the EIS and in the *WestConnex M4 Widening Construction and Operational Road Traffic Noise and Vibration Impact Assessment* (SLR, 2014) (Noise and Vibration Report) (Volume 2, Working Paper E of the EIS). This report was amended (October 2014) and included in the Submissions Report. A Construction Noise and Vibration Management Plan (NVMP) has been approved by DP&E as part of the CEMP to manage and minimise noise and vibration impacts to the local community and built environment.

5.3.1 Construction impact assessment

Assessment of potential construction noise impacts were assessed in accordance with the *Interim Construction Noise Guideline* (DECCW, 2009) (ICNG). As described in section 8.2.4 of the EIS, to quantify noise levels from the construction activities, a noise prediction model was developed. The concept designs for the project, local terrain, receiver buildings and structures were digitised in the noise model to develop a three-dimensional representation of the construction sites and surrounding environment. Typical LAeq (15 minute) noise levels at the nearest noise sensitive receivers in each noise catchment area (NCA) were then calculated (at the worst-affected floor level) for different construction scenarios associated with the project.

Consistent with the requirements of the ICNG, the construction noise impact predictions represent a worst-case assessment and are representative of the 'noisiest' construction periods allowing for the simultaneous operation of noise intensive construction plant in proximity to adjacent receivers. For most construction activities, it is expected that the construction noise levels would frequently be lower than those that have been predicted at the most-exposed receiver.

Due to the proximity of works to receivers over the project area, the predicted noise levels indicated high worst-case exceedances of the Noise Management Levels (NMLs) of up to 48 dB (standard hours) and 59 dB (outside standard hours) for construction at the nearest residences. Commercial receivers are predicted to be subject to high NML exceedances of over 20 dB. Other sensitive receptors are predicted to be subject to high NML exceedances of over 20 dB. However, due to the proposed construction program, predicted construction noise exceedances are not expected to be consistently high for the entire duration of the activity and would vary

throughout the project corridor.

Although within the proposed study area of the M4 Widening project and also within the motorway corridor, the proposed cycleway is located outside the construction footprint identified in the EIS. The proposed cycleway would bring construction closer to two residential areas to the south of the M4 Motorway. An area of terrace houses is located in Welfare Street, Homebush West, to the east of the cycleway area. A residential area around Courallie Avenue and Telopea Avenue, Homebush West, is located on the southern side of Parramatta Road.

The NVMP identifies that Environmental Work Method Statements (EWMS) would be developed for site or activity specific areas during construction. It is considered that further assessment of the specific noise and vibration impacts associated with the construction of the proposed cycleway would be undertaken if required during the refinement of the detailed design and incorporated into a site specific EWMS for the cycleway, if approved.

Construction noise mitigation and management measures have been identified in the EIS and Submissions Report that would be implemented during construction to minimise the extent of exceedances. Additional management measures relating to noise and vibration have also been imposed in the conditions of approval on the Infrastructure Approval and the Environment Protection Licence (EPL) issued for the project. These conditions would be adopted during the construction of the cycleway, if approved.

Both residential areas identified above would be subject to existing noise impacts from the motorway and Parramatta Road. The potential noise impacts associated with the cycleway would be short term, being only during construction. It is considered that any additional noise and vibration impacts associated with the construction of the cycleway could be adequately managed through the approved NVMP, EPL and the adoption of the identified environmental management measures and conditions of approval.

5.3.2 Operational impact assessment

The proposed modification, being an off-road one-way cycleway for approximately 551 metres, would not affect the ability of the project to meet the operational noise goals identified in the EIS and Submissions Report and conditions of approval.

5.4 Biodiversity impacts

5.4.1 Construction impact assessment

Impacts to biodiversity as a result of the M4 Widening project were assessed in section 8.6 of the EIS and the *WestConnex M4 Widening Pitt Street, Parramatta to Homebush Bay Drive, Homebush Biodiversity Assessment* (Jacobs SKM, 2014) (Biodiversity Assessment) (Volume 4, Working Paper I of the EIS).

The assessment noted that planted vegetation dominates the study area and includes a wide range of species, both exotic and non-indigenous, as well as species representative of the original local vegetation. Small patches of remnant vegetation are also present, however a high level of disturbance from urban development has altered the species composition and vegetation structure of any remnant vegetation in the study area such that their current condition is highly degraded.

The area of the proposed modification forms part of the study area assessed in the Biodiversity Assessment. The construction of the proposed cycleway would affect an

additional 0.0747 hectares of planted and remnant vegetation in addition to that identified in the EIS, refer to Figure 5-1. The impacts to vegetation communities identified within the modification area are summarised in Table 5.1 below:

Table 5.1 Additional vegetation clearing amounts for the proposed modification

Map Unit	Conservation Status	Condition	Additional area affected by the modification (ha)
Map Unit 4: Freshwater Drainage Lines	Endangered under the (NSW) <i>Threatened Species Conservation Act 1995</i> (TSC Act)	Low	0.0003
Map Unit 6: Planted Monocultures (Layer 6c – Spotted Gum)	N/A	Low	0.0168
Map Unit 7: Mixed Plantings	N/A	Low	0.0388
Map Unit 8: Exotic Vegetation	N/A	Very Low	0.0188
		Total:	0.0747

The impacts to Freshwater Drainage Lines are considered to be minor, being an additional area of 0.0003 hectares required to be cleared for the proposed cycleway. This vegetation has been assessed in the EIS to be low habitat condition due to the highly modified nature of the area. Riparian vegetation is generally absent or where present, is dominated by exotic vegetation. The EIS states that the threatened ecological communities present within the study area are highly disturbed remnants within an urban landscape and have minimal ecological important in terms of floristic diversity, fauna habitat values and threatened flora habitat.

Potential impacts on the threatened ecological communities identified in the Biodiversity Assessment, including Map Unit 4, was considered against the heads of consideration set out in section 5A of the EP&A Act. The assessment concluded that the project is not likely to have a significant impact on these ecological communities.

The modification would not result in significant additional impacts to vegetation communities within the study area and can be managed through the implementation of mitigation measures identified in the EIS and Submissions Report and the Construction Flora and Fauna Management Plan (FFMP) prepared as part of the CEMP in accordance with the conditions of approval.

A Biodiversity Offset Strategy was prepared for the project and approved as part of the Submissions Report. This strategy outlined the process for offsetting threatened ecological communities (TECs) impacted by the project. As discussed above, the impacts to Freshwater Drainage Lines as a result of the cycleway are considered to be minor, being an additional area of 0.0003 hectares required to be cleared. If this modification is approved, the 0.0003 hectares of Freshwater Drainage Lines required to be cleared for the cycleway would be offset in accordance with the approved Strategy and the relevant conditions of approval.

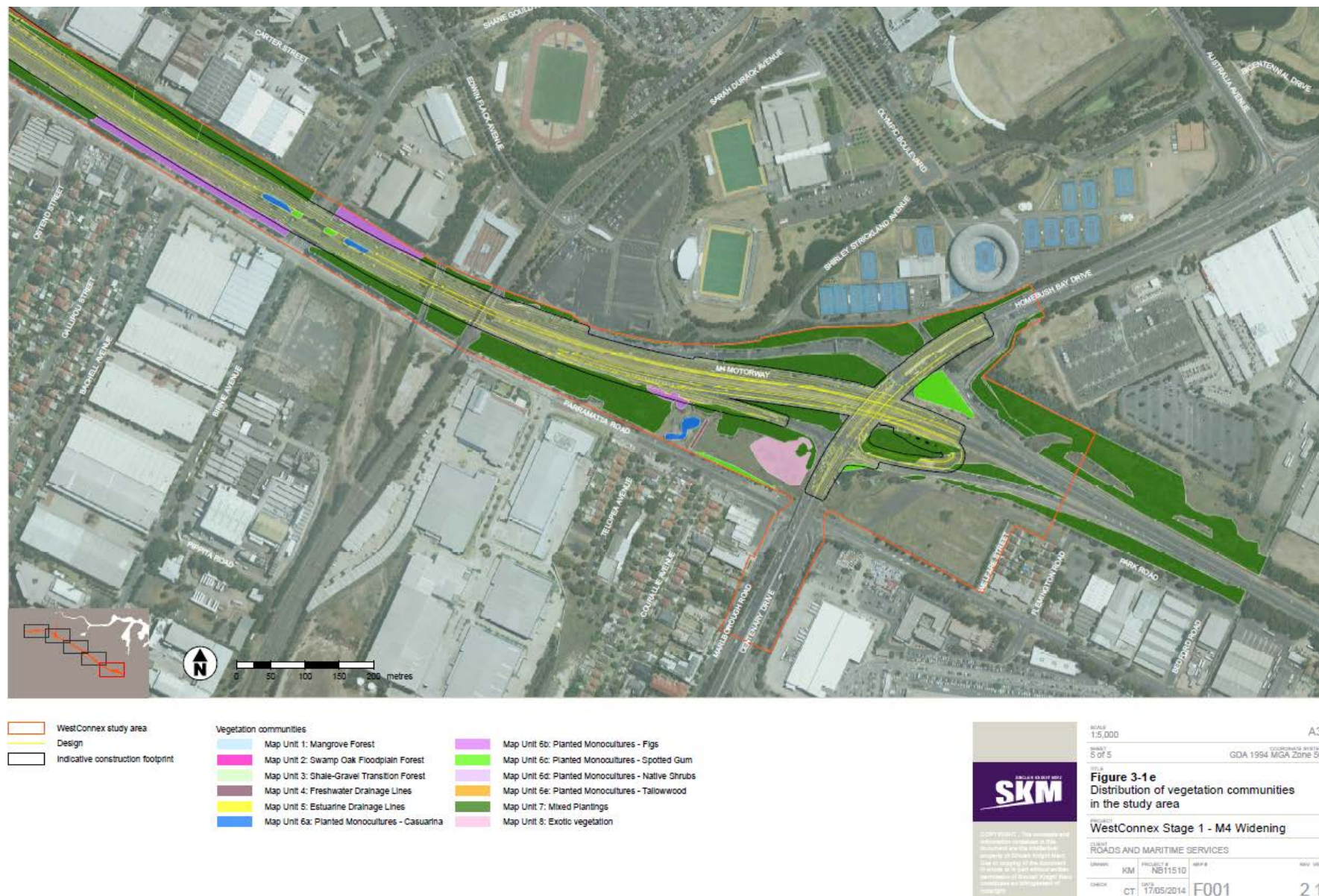


Figure 5-1 Vegetation communities in the proposed cycleway area

Source: WestConnex M4 Widening Pitt Street, Parramatta to Homebush Bay Drive, Homebush Biodiversity Assessment (Jacobs SKM, 2014)

5.5 Aboriginal heritage impacts

Aboriginal heritage impacts associated with the M4 Widening project were discussed in section 8.7 of the EIS and in the *WestConnex M4 Widening Aboriginal Archaeological Survey Report* (Kelleher Nightingale, 2014) (Aboriginal Report) (Volume 4, Working Paper J of the EIS). The Aboriginal heritage assessment included the area of the proposed cycleway around the Homebush Bay Drive interchange.

No Aboriginal archaeological objects, sites or potential archaeological deposits were identified within the study area and no impacts to Aboriginal sites or objects are expected as a result of the project. The assessment concluded that there are no Aboriginal archaeological constraints to the M4 Widening project.

No changes to Aboriginal heritage impacts are anticipated as a result of this modification. A Construction Heritage Management Plan (HMP) has been prepared and approved as part of the CEMP in accordance with the relevant conditions of approval. Unexpected heritage finds identified during construction would be managed in accordance with the HMP.

5.6 Non-Aboriginal heritage impacts

Non-Aboriginal heritage impacts associated with the M4 Widening project were discussed in section 8.8 of the EIS and in the *Non-Indigenous Assessment and Statement of Heritage Impacts* (Artefact Heritage, 2014) (Non-Indigenous Assessment) (Volume 4, Working Paper K of the EIS).

No heritage items were identified within the land subject to the proposed cycleway. Three heritage items were identified within the vicinity of the proposed cycleway, as described in Table 5.2 below and shown on Figure 5-2.

Table 5.2 Heritage listings within the vicinity of the proposed cycleway

Item	Lot/DP	Suburb	Listing	Within study area
I63 Former Ford Factory Building (brick façade)	Lot 1 DP 67209	Homebush West	<i>Strathfield Local Environmental Plan 2012</i>	No
C6 Welfare Street Precinct/ Conservation Area	Lot 11 DP 831538	Homebush West	<i>Strathfield Local Environmental Plan 2012</i>	No
I62 Wentworth Hotel	Lot 1 DP 34615	Homebush West	<i>Strathfield Local Environmental Plan 2012</i>	No

The proposed cycleway would not result in any impacts to these heritage items and is considered to be consistent with the assessment previously undertaken. Mitigation measures identified in the EIS and Submissions Report, refer to Chapter 6 of this report, as well as conditions of approval for the M4 Widening project are considered satisfactory to manage any potential impacts of construction vibration on the adjacent heritage items. The management measures identified in the approved HMP are considered satisfactory to mitigate any potential impacts to adjoining heritage items during construction of the cycleway.

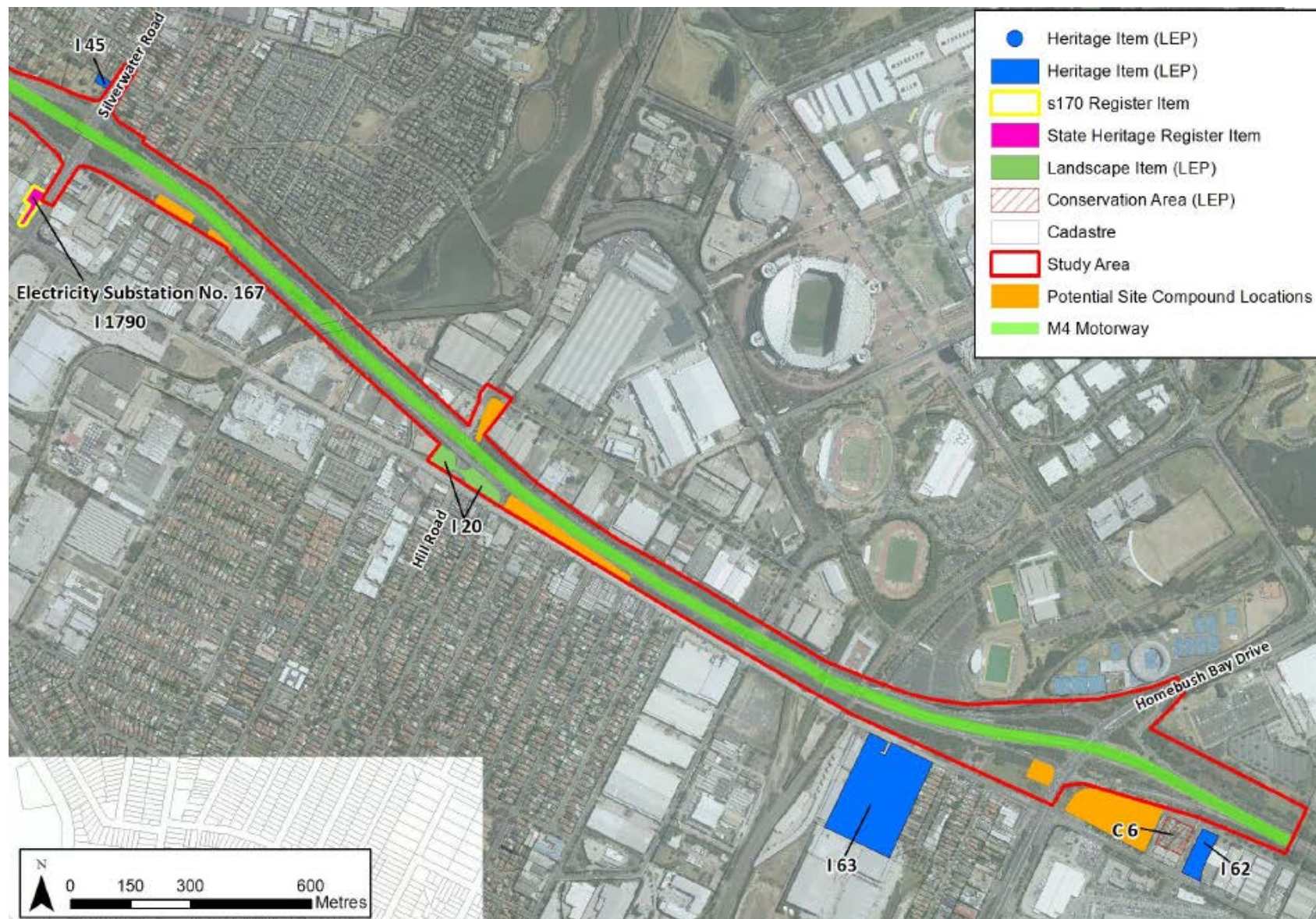


Figure 5-2 Heritage items within the vicinity of the proposed cycleway area
Source: *Non-Indigenous Assessment and Statement of Heritage Impacts* (Artefact Heritage, 2014)

5.7 Landscaping and visual impacts

Visual amenity, built form and urban design impacts associated with the M4 Widening project were discussed in section 8.3 of the EIS and in the *WestConnex M4 Widening Urban Design Concept, Landscape Character and Visual Impact Assessment Report* (KI Studio, 2014) (Volume 3, Working Paper F of the EIS) (Visual Impact Report).

Landscape character zones were identified along the motorway corridor which primarily reflected the character of the surrounding areas. Within the eastern section of the motorway corridor, the motorway is predominantly on-ground, creating a more enclosed character contributed to by an established ribbon of vegetation along the verges. The area around Homebush Bay Drive is identified in the report as being within Zone 7 - Olympic Park.

The report identifies that the southern side of this zone, which would include the area of the proposed cycleway, is of low sensitivity with land uses being commercial, markets and pockets of residential areas.

Mitigation measures identified in the EIS and Submissions Report, refer to Chapter 6 of this report, as well as conditions of approval for the M4 Widening project are considered satisfactory to manage any potential visual impacts to surrounding land uses. The built form of the proposed cycleway would be further refined during detailed design.

As described above in section 3.4.8, the landscape strategy for the cycleway would also be refined during the finalisation of the landscape design for the M4 Widening project, through detailed design. The landscape strategy outlined for the cycleway in the Draft UDLF includes occasional tree planting along the edge of the proposed cycleway to provide shade and amenity for cyclists.

5.8 Soil and water impacts

Impacts on soils, water and waste associated with the M4 Widening project were discussed in section 8.4 of the EIS and in the *WestConnex M4 Widening Soils, Water and Waste Technical Study* (SMEC, 2014c) (Soils, Water, Waste Report) (Volume 3, Working Paper G of the EIS).

In accordance with the conditions of approval, the *WestConnex Stage 1A – M4 Widening Soil Contamination Report* (Coffey, 2015) has been prepared based on the findings from the Phase I and II assessments undertaken during the preparation of the EIS. The report assessed the presence and extent of soil contamination within the project area, the suitability of the site for the intended use and any remediation or soil management strategies to be implemented during construction.

For the purpose of the Phase I and II assessments and investigations, the road corridor was geographically divided into five sections. Whilst not directly assessing the area of the proposed cycleway, the area between Silverwater Road and Homebush Bay Drive formed part of Section 5. Observations relevant to the proposed cycleway area made during the Phase I assessment indicated that fill embankments and mounded fill was observed within a strip of vegetation immediately south of the motorway alignment, between Birnie Avenue and Homebush Bay Drive.

Investigations were undertaken for the M4 Widening project including three test pits on the western side of Homebush Bay Drive in the cycleway area, although it is noted that these were not undertaken for the cycleway design. Based on the findings

of the assessments within Section 5, the Phase II assessment noted that no widespread or unacceptable soil impacts were identified. The Soil Contamination Report states that, based on these findings, no unacceptable contamination risks have been identified for this area of the project. While no specific land contamination remediation action is required for this section for the project, the Soil Contamination Report notes that the management of soils and groundwater disturbed or intercepted during construction activities is necessary.

The contamination and waste management associated with the construction activities for the project would be managed under the Construction Soil and Water Management Plan (SWMP) which has been approved by DP&E as part of the CEMP.

The Soil Contamination Report notes that additional testing is required to confirm waste classification for the management/disposal of excess embankment and piling spoil. Options for spoil management would be detailed in a site specific management plan to be developed prior to construction commencing in locations as required.

As part of the pre-construction activities occurring for the M4 Widening project, geotechnical investigations were undertaken in the area of the proposed cycleway, along the general alignment proposed in the concept design. The results of these investigations are still being processed and assessed and further management measures may need to be defined based on the outcomes of these assessments.

While the proposed cycleway did not form part of works assessed, construction of a new ramp at Homebush Bay Drive in an area immediately adjoining the location of the cycleway was assessed. It is considered that the construction of the proposed cycleway can be managed in the same way and is therefore consistent with the assessment undertaken in the Soil Contamination Report. The construction of the cycleway can be managed through the implementation of the same strategies.

6 Environmental management measures

6.1 Environmental management measures

Chapter 12 of the EIS identified a range of environmental outcomes and management measures that would be implemented to reduce the identified environmental and social impacts associated with the construction and operation of the M4 Widening project. Following consideration of issues raised in submissions received during the EIS exhibition period, the environmental management measures for the project were revised in Chapter 7 of the Submissions Report.

All of these environmental management measures would be applied to the proposed modification. Where these measures are relevant to the assessment of the impacts of the proposed modification, they have been included below in Table 6.1.

6.2 Conditions of approval

The M4 Widening project, including all approved modifications to the Infrastructure Approval (SSI_6148), would be undertaken in accordance with the relevant conditions of approval.

If approved, any additional conditions of approval would be incorporated into the construction and operation of the proposed cycleway. RLJV would be required to construct the cycleway in accordance with the specified environmental management measures and conditions of approval.

Table 6.1 Environmental management measures for the proposed modification

M4 Widening EIS ID		Environmental management measure	Relevance to proposed modification
Traffic and Transport			
TT-1		A traffic and transport liaison group will be established prior to commencement of construction. The traffic and transport liaison group will be consulted during preparation of the construction traffic management plan.	A traffic and transport liaison group has been established for the project. A construction traffic management plan would be required prior to construction of the cycleway, if approved.
TT-2		A construction traffic management plan will be developed, approved, implemented and monitored as part of the project. The construction traffic management plan would focus on maintaining general traffic flow and specifying appropriate site accesses and construction traffic routes. It would include: • Traffic Control Plans showing the access arrangements and the detail of required signs and devices • Vehicle Movement Plans showing access to work sites and direction of travel • Pedestrian and Cyclist Control Plans • Management strategy for other road users • Management strategy for access to adjacent properties • Hours of operation, including prohibitions on queuing outside sites prior to commencement of working hours • Road safety audit requirements • Any localised improvements/adjustments to existing traffic management arrangements.	As discussed in section 5.2.1, a TAMP has been prepared and approved by DP&E as part of the CEMP. This plan would be applied to the construction of the cycleway, if approved.
TT-3		Construction staging and temporary works will be developed and implemented to minimise conflicts with the existing road network and to maximise the separation between work areas and travel lanes.	As discussed in section 3.4.1, if approved, the cycleway would be constructed by RLJV in conjunction with the M4 Widening project and will be managed in accordance with the measure.
TT-4		Lane occupancies will be planned with the aim of minimising the actual work area, limiting obstructions and restrictions, maximising road capacity and avoiding peak traffic periods.	As discussed in section 3.4.1, if approved, the cycleway would be constructed by RLJV in conjunction with the M4 Widening project and will be managed in accordance with the measure.

TT-5	Existing motorway capacity will be maintained during the morning peak and evening peak periods.	As discussed in section 3.4.1, if approved, the cycleway would be constructed by RLJV in conjunction with the M4 Widening project and will be managed in accordance with the measure.
Noise and Vibration		
NV-1	Feasible and reasonable noise mitigation will be considered in accordance with the <i>NSW Road Noise Policy (EPA 2011)</i> and the <i>Environmental Noise Management Manual</i> (RTA 2001). Specifically, noise mitigation (beyond the adoption of traffic management and other road design measures) will be considered in the following circumstances: - The predicted 'build' noise level exceeds the RNP base criteria for redeveloped roads and the noise level increase due to the project (ie the noise predictions for the 'build' minus the 'no build') is greater than 2 dB. OR - The predicted 'build' noise levels are acute (≥ 65 dBA LAeq(15hour) or ≥ 60 dBA LAeq(9hour)) regardless of the incremental impact of the project.	As discussed in section 5.3.1, noise and vibration impacts during construction would be managed in accordance with the NVMP prepared and approved by DP&E as part of the CEMP. This plan would be applied to the construction of the cycleway, if approved.
NV-2	A Construction Noise and Vibration Management Plan (CNVMP) will be prepared for the project. The CNVMP will: - Assist in ensuring that the noise during construction complies where possible with the construction noise management levels set for the project. - Determine noise and vibration monitoring, reporting and response procedures. - Describe specific mitigation treatments, management methods and procedures to be implemented to control noise and vibration during construction. - Describe construction timetabling to minimise noise impacts including time and duration restrictions, respite periods and frequency. - Describe procedures for notifying residents of construction activities likely to affect their amenity through noise and vibration. - Define contingency procedure to be implemented in the event of non-compliances and/or noise complaints.	As discussed in section 5.3.1, a NVMP has been prepared and approved by DP&E as part of the CEMP. This plan would be applied to the construction of the cycleway, if approved.
Visual and Landscaping		
V-1	A detailed landscape plan will be prepared for the project. The landscape plan will	A Draft UDLP has been prepared for the project, in

	build on the findings of the Urban Design, Landscape Character and Visual Working Paper and will include detailed set out, species and planting guides.	accordance with the conditions of approval. The landscaping strategy for the proposed cycleway extracted from the Draft UDLP is depicted in Figures 3-3 and 3-4 above. The landscape strategy will be refined during the finalisation of the landscape design for the M4 Widening project, through detailed design.
V-3	Built elements, including noise walls will be further refined consistent with the urban design vision, objectives and principles for the project.	The proposed cycleway, if approved, will be refined during the finalisation of the detailed design.
V-6	Vegetation clearance will be limited to that required to construct the project. Where practicable landscaping would be progressively introduced to provide screening between adjacent residences and the motorway corridor.	Vegetation clearing required as a result of the proposed cycleway is discussed in section 5.4.
Soils and Water		
SWW-1	A Soil and Water Management Plan will be prepared for the project in accordance with: • <i>Managing Urban Stormwater–Soils and Construction, Volume 1 Managing Urban Stormwater, 4th edition ('the Blue Book')</i>. • <i>Managing Urban Stormwater–Soils and Construction, Volume 2D Main Road Construction</i>.	As discussed in section 5.8, a SWMP has been prepared and approved by DP&E as part of the CEMP. This plan would be applied to the construction of the cycleway, if approved. The contamination and waste management associated with the construction activities for the project, including the cycleway if approved, would be managed under the SWMP).
SWW-2	Measures will be implemented during construction to minimise the risk of erosion, sedimentation and pollution. These measures may include: • Avoid disturbance where practicable, otherwise minimise the area of disturbance, particularly on and adjacent to river banks. • Designate of 'no-go' zones for construction plant and equipment. • Install upstream diversion channels to direct clean runoff from upstream catchments around or through disturbed areas (maintaining separation from runoff containing sediment). • Shape disturbed land to minimise slope lengths and gradients and improve drainage. • Install/line catch drains to carry any sediment laden runoff to appropriate sediment control measures.	These measures have been incorporated into the SWMP which has been approved by DP&E as part of the CEMP and would be applied during construction of the cycleway, if approved.

	• Minimise stockpiling of material. • Remove cleared or excavated materials as soon as practicable after excavation and appropriately dispose of or stockpile off-site. • Locate stockpiles away from drainage lines and creek channels. • Seed disturbed areas for temporary soil stabilisation. • Employ appropriate measures to prevent/minimise wind-blown dust from leaving the site (eg watering). • Establish designated areas for plant and construction material storage within site compounds and other locations within the project area. • Store all chemicals and fuels associated with construction in secure roofed and bunded areas. • Retain erosion and sediment controls until disturbed areas are stabilised.	
SWW-3	Measures will be implemented during operation to minimise the risk of erosion and sedimentation. These measures may include: • Undertake post-construction monitoring to ensure successful establishment of landscaping and vegetation cover. • Undertake remedial planting in locations where vegetation cover has not established or has only partially established.	These measures have been incorporated into the SWMP which has been approved by DP&E as part of the CEMP and would be applied during construction of the cycleway, if approved.
SWW-6	An Acid Sulfate Soil (ASS) Management Plan will be prepared in accordance with the <i>Acid Sulfate Soils Manual and Guidelines for the Management of Acid Sulfate Materials: Acid Sulfate Soils, Acid Sulfate Rock and Monosulfidic Black Ooze</i> .	An ASS Management Plan has been prepared for the project and incorporated into the SWMP. The SWMP would be applied during the construction of the cycleway, if approved.
SWW-7	A Contaminated Land Management Plan will be prepared in accordance with relevant EPA guidelines.	As discussed in section 5.8, a Soil Contamination Report has been prepared for the project. Whilst not specifically discussing the proposed cycleway, soil impacts can be managed through this report and the SWMP.
SWW-8	• Excavated material that is not suitable for on-site reuse or recycling will be transported to a site that may legally accept that material for reuse or disposal. • Soils leaving the site will be waste classified so that correct resource recovery and or off-site disposal occur.	These measures have been incorporated into the SWMP which has been approved by DP&E as part of the CEMP and would be applied during construction of the cycleway, if approved.

SWW-9	- An Asbestos Management Plan will be developed for the construction of the project in accordance with the <i>National Environment Protection (Assessment of site contamination) Measure 1999</i>. - The Plan will include an unexpected finds procedure to address any previously unidentified asbestos contamination encountered during construction. - Further investigation of the area of public access beneath the M4 Motorway to the east of Alfred Street will be undertaken to assess the level and extent of asbestos in this area.	An Asbestos Management Plan has been prepared for the project and incorporated into the SWMP. The SWMP would be applied during the construction of the cycleway, if approved.
SWW-10	Where excavated material cannot be classified as virgin excavated natural material, it will be classified and disposed of to an appropriately licensed landfill in accordance with the <i>Waste Classification Guidelines–Part 1: Classifying Waste</i> and <i>Part 2: Immobilisation of Waste</i> .	These measures have been incorporated into the SWMP which has been approved by DP&E as part of the CEMP and would be applied during construction of the cycleway, if approved.
SWW-15	- All wastes, including contaminated wastes, will be identified and classified in accordance with Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes. - Disposal of any non-recyclable waste will be in accordance with the POEO Act and <i>Waste Classification Guidelines: Part 1 Classifying Waste</i>.	These measures have been incorporated into the SWMP which has been approved by DP&E and the Resource and Waste Management Plan, which forms part of the CEMP and would be applied during construction of the cycleway, if approved.
Flora and Fauna		
FF-1	Project environmental management plans will include procedures for pre-clearance surveys that are consistent with the <i>Roads and Maritime Biodiversity Guidelines</i> (RTA 2011). Pre-clearing surveys will be undertaken by an experienced ecologist to identify any nesting/roosting animals present in the project area. This will include inspections of affected existing structures for microbats that may be present in cracks, fissures, scuppers, lifting holes or similar.	This requirement has been incorporated into the FFMP prepared for the project which has been approved by DP&E as part of the CEMP and would be applied during construction of the cycleway, if approved.
FF-2	If microbats are found during pre-clearing surveys, an appropriately qualified ecologist will be engaged and provide advice on work methods and timing to minimise impacts on the bats. If exclusions are required, these will be done in accordance with a Bat Management Plan prepared by an appropriately qualified ecologist.	This requirement has been incorporated into the FFMP prepared for the project which has been approved by DP&E as part of the CEMP and would be applied during construction of the cycleway, if approved.
FF-3	An unexpected threatened species finds procedure will be developed consistent	An unexpected threatened species finds procedure has

	with the <i>Roads and Maritime Biodiversity Guidelines</i> and incorporated into project environmental management documentation.	been prepared and incorporated into the FFMP. The FFMP would be applied during the construction of the cycleway, if approved.
FF-4	Exclusion zones will be established to avoid damage to native vegetation and fauna habitats identified for retention and prevent the distribution of weeds. The location of exclusion fencing to be installed will be identified by project environmental management plans and the function and importance of the exclusion zones will be communicated to construction personnel.	This requirement has been incorporated into the FFMP prepared for the project which has been approved by DP&E as part of the CEMP and would be applied during construction of the cycleway, if approved.
FF-5	A detailed landscape plan will be prepared for the project. The landscape plan will build on the finding of the Urban Design, Landscape Character and Visual Working Paper and will include detailed set out, species and planting guides including for those areas disturbed construction. Where areas of habitat are to be re-established, this will occur consistent with <i>Guide 3 Re-establishment of Native Vegetation of the Roads and Maritime Biodiversity Guidelines</i> (RTA 2011).	A Draft UDLP has been prepared for the project, in accordance with the conditions of approval. The landscaping strategy for the proposed cycleway extracted from the Draft UDLP is depicted in Figures 3-3 and 3-4 above. The landscape strategy will be refined during the finalisation of the landscape design for the M4 Widening project, through detailed design.
FF-6	Consistent with Principle 6 of the <i>OEI Offset Principles</i> the project will consider options to offset the loss of the small areas of TECs impacted by the project. These options will be detailed in the landscape plan and could include: – Enhancing habitat – Reconstructing habitat in strategic areas to link areas of conservation value – Increasing buffer zones	A Biodiversity Offset Strategy has been prepared for the project and approved as part of the Submissions Report. This strategy outlined the process for offsetting TECs impacted by the project. Section 5.4.1 identified that the impacts to Freshwater Drainage Lines as a result of the cycleway are considered to be minor, being an additional area of 0.0003 hectares required to be cleared. If approved, this vegetation would be offset in accordance with the approved Strategy and the relevant conditions of approval.
FF-7	A weed management plan consistent with the Roads and Maritime Biodiversity Guidelines (RTA 2011) will be developed as part of the construction environmental management plan. The weed management plan will include descriptions and mapping of major weed infestations and appropriate management actions to be undertaken in relation to each infestation.	A weed management plan was prepared and incorporated into the FFMP. The FFMP would be applied during the construction of the cycleway, if approved.
Aboriginal Heritage		
AH-1	Project environmental management plans will include procedures to guide the	An unidentified finds procedure was prepared and

	management of any previously unrecorded Aboriginal sites/objects within the project area. Management response would vary depending on the nature of the find, its significance and likely impacts.	incorporated into the HMP. The HMP would be applied during the construction of the cycleway, if approved.
AH-2	Project environmental management plans will identify procedures for management of any possible human skeletal remains. In the event that the project reveals possible human skeletal remains, work would cease in the affected area and the remains would be reported to the NSW Police, the Office of Environment and Heritage and Aboriginal stakeholders.	An unexpected finds procedure was prepared and incorporated into the HMP. The HMP would be applied during the construction of the cycleway, if approved.
Non-Aboriginal Heritage		
HH-2	Potential impacts of construction vibration on adjacent heritage items will be managed in accordance with the project noise and vibration management plan.	As discussed in section 5.3.1, noise and vibration impacts during construction would be managed in accordance with the NVMP prepared and approved by DP&E as part of the CEMP. This plan would be applied to the construction of the cycleway, if approved.
HH-4	The project's construction environmental management plan will include 'unexpected finds' procedures to guide the management of any archaeological sites identified during construction. The management response will vary depending on the nature of the find, its significance and likely impacts.	An unexpected finds procedure was prepared and incorporated into the HMP. The HMP would be applied during the construction of the cycleway, if approved.

7 Conclusion

The proposed modification has been developed as a result of safety concerns identified during the refinement of the detailed design for the M4 Widening project. The proposed modification to the M4 Widening would generally result in a positive safety improvement for both motorists and cyclists using this section of the motorway. However, some minor environmental impacts would also occur as a result of the modification.

Beneficial effects of the proposed modification to the M4 Widening project would include:

- Removing sources of conflict between cyclists and motorists from the on/off-ramps and merge points around the Homebush Bay Drive interchange and due to the removal of the motorway shoulder in this area once the M4 Widening project has been constructed.
- Creating an enhanced environment for cyclists using the off-road cycleway by providing occasional tree planting along the edge of the proposed cycleway for shade and amenity.

Some minor potential negative environmental impacts have also been identified occurring as a result of the proposed modification. These include:

- Clearing of an additional area of 0.0003 hectares of Map Unit 4: Freshwater Drainage Lines, which is identified as a threatened ecological community under the TSC Act. This additional area is considered negligible and would be offset in accordance with the approved Biodiversity Offset Strategy for the project.
- A potential increase in noise impacts during construction as the cycleway would be closer, by being located on the southern side of the motorway, to a residential area than the currently approved project. Potential additional noise and vibration impacts caused by construction of the cycleway would be minor due to other construction works being undertaken in the vicinity as well as existing motorway traffic noise. Any potential additional noise and vibration impacts would be short term, during construction. It is considered that any impacts could be adequately mitigated through the approved NVMP, the approved EPL and conditions of approval for the M4 Widening project.

As the proposed cycleway would be constructed concurrently with the M4 Widening project, this modification would adopt all the management measures committed to in the M4 Widening project as well as DP&E conditions of approval.

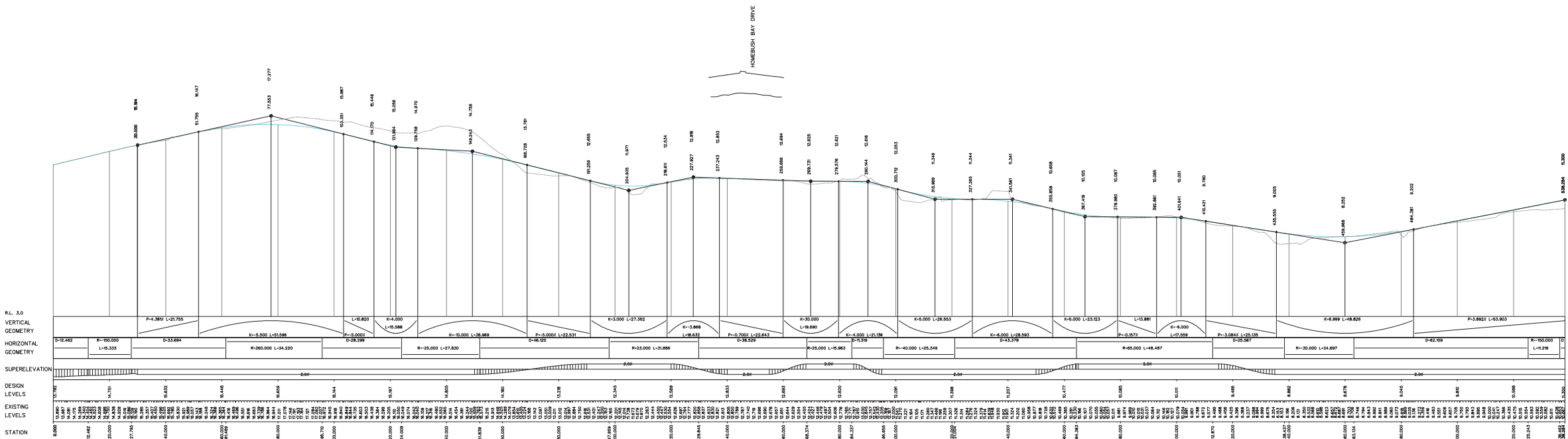
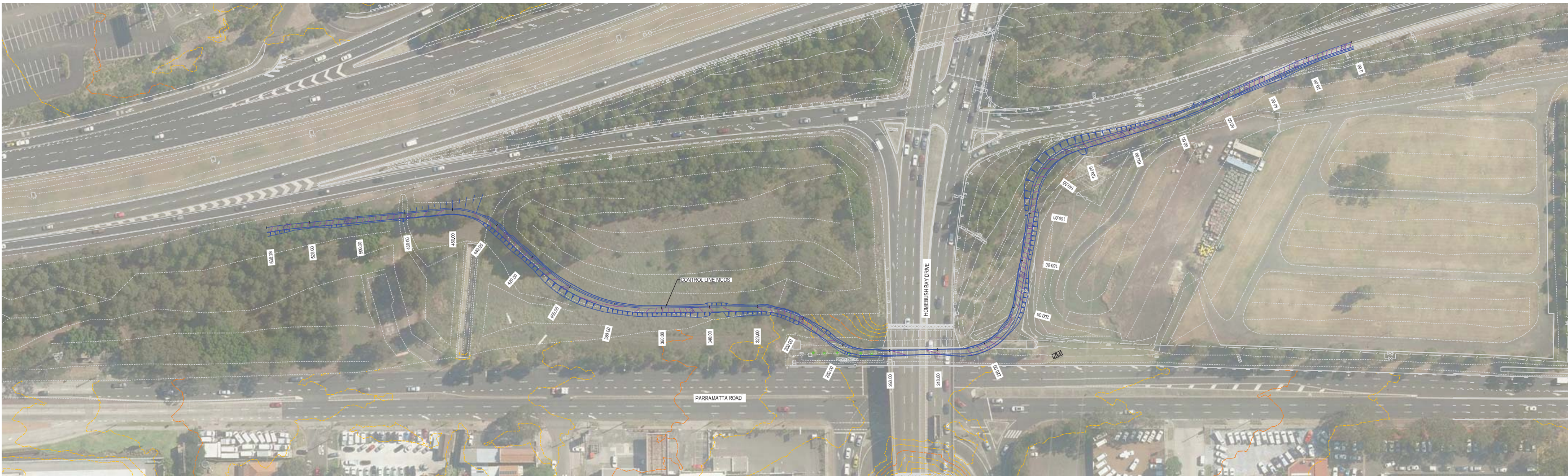
The proposed modification is considered to be justified and would represent an overall beneficial outcome for the approved project. The construction of the off-road westbound cycleway is supported by the local councils and local bicycle groups and is therefore considered to result in benefits to the local community.

8 References

- Artefact Heritage (2014) *Non-Indigenous Assessment and Statement of Heritage Impacts*
- Austrroads (2010) *Guide to Road Design*
- Coffey (2015) *WestConnex Stage 1A – M4 Widening Soil Contamination Report*
- DECCW (2009) *Interim Construction Noise Guideline*
- HBO+EMTB Urban and Landscape Design (2015) *Draft WestConnex M4 Widening Urban Design and Landscape Plan*
- Infrastructure NSW (2012) *State Infrastructure Strategy 2012-2032*
- Jacobs AECOM (2014) *WestConnex M4 Widening Traffic and Transport Working Paper – Working Paper 4*
- Jacobs SKM (2014) *WestConnex M4 Widening Pitt Street, Parramatta to Homebush Bay Drive, Homebush Biodiversity Assessment*
- Kelleher Nightingale (2014) *WestConnex M4 Widening Aboriginal Archaeological Survey Report*
- KI Studio (2014) *WestConnex M4 Widening Urban Design Concept, Landscape Character and Visual Impact Assessment Report*
- Rizzani de Eccher Australia Pty Ltd/Leighton Contractors Pty Ltd Joint Venture (2015) *WestConnex M4 Widening Construction Environmental Management Plan*
- RTA (2005) *NSW Bicycle Guidelines*
- SLR (2014) *WestConnex M4 Widening Construction and Operational Road Traffic Noise and Vibration Impact Assessment*
- SMEC Australia (2014a) *WestConnex M4 Widening Environmental Impact Statement*
- SMEC Australia (2014b) *WestConnex M4 Widening Submissions Report*
- SMEC Australia (2014c) *WestConnex M4 Widening Soils, Water and Waste Technical Study*
- Transport for NSW (2012) *Long Term Transport Master Plan*

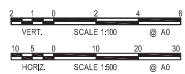
Attachment A

Plans



CONTROL LINE 1:500 - 50 V.O. DES. LONGITUDINAL SECTION
North Scale 1:500
VERT. SCALE 1:500
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LONGITUDINAL SECTION - MCOS



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Notes

Key to symbols

Reference drawings

LEGEND

EXISTING

- EXISTING CONTOURS - MAJOR
- EXISTING CONTOURS - MINOR

PROPOSED

- WESTCONNEX WESTBOUND CYCLEWAY DESIGN
- DESIGN CONTOURS - MAJOR
- DESIGN CONTOURS - MINOR

Rev	Date	Drawn	Description	JD	DP
1	20/11/14	CA	ISSUED FOR REVIEW	JD	DP



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Client:



Title:

WestConnex
WESTBOUND CYCLEWAY
AT HOMEBUSH BAY DRIVE
PLAN AND LONGSECTION

Designed:

CA

Eng check:

Drawn:

CA

Coordination:

Eng check:

JD

Approved:

JP

Scale at A0:

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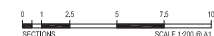
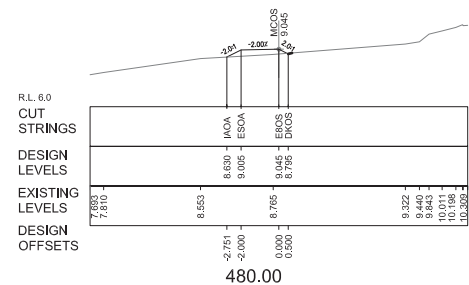
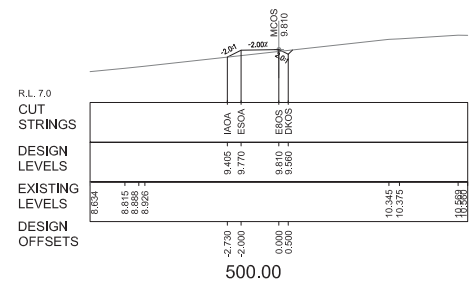
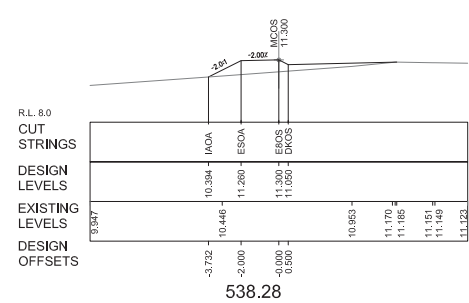
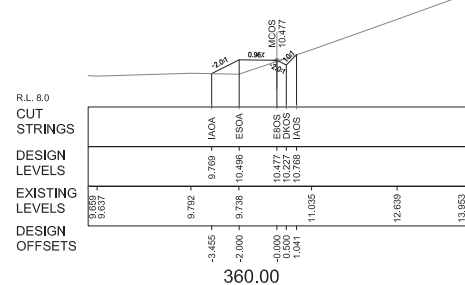
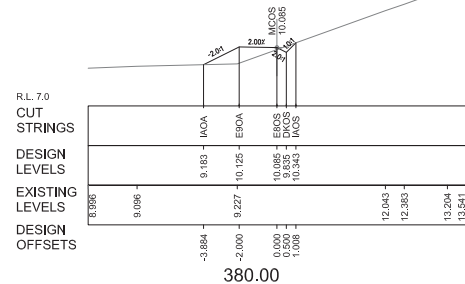
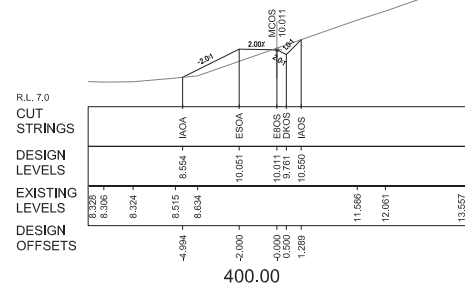
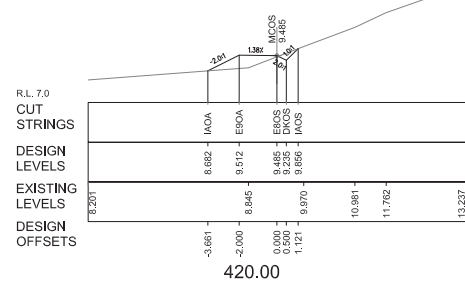
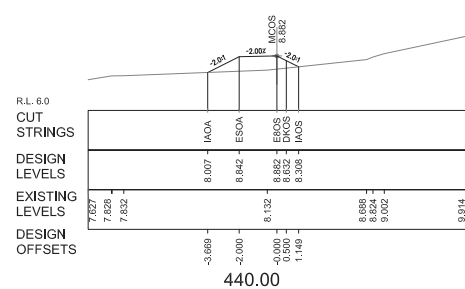
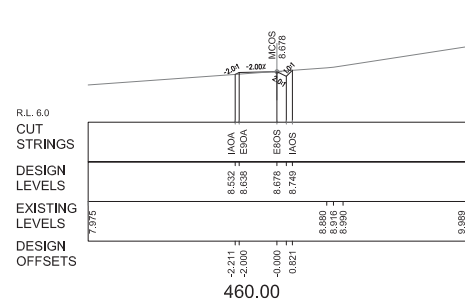
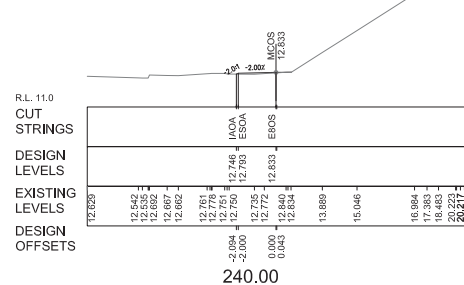
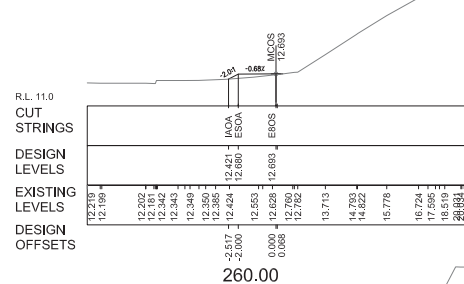
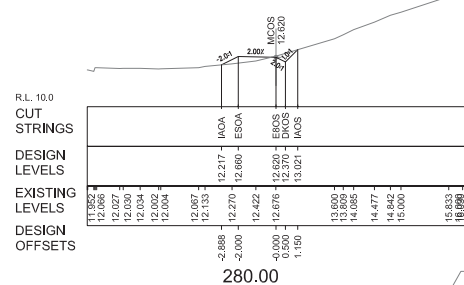
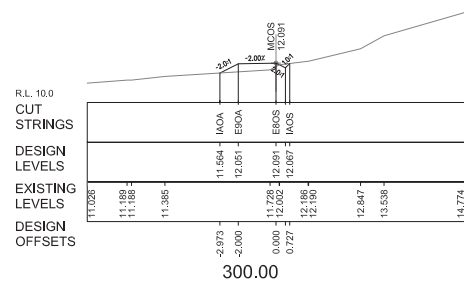
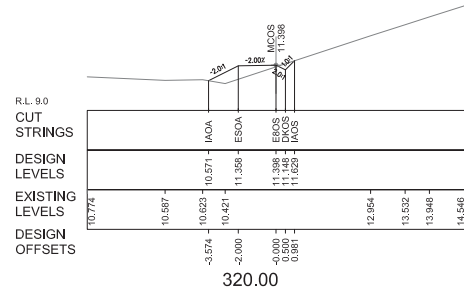
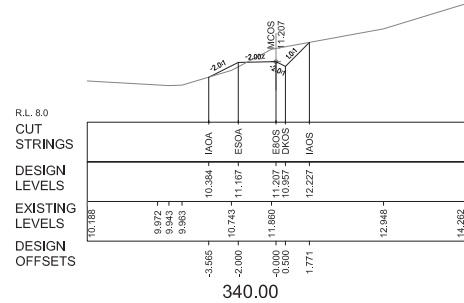
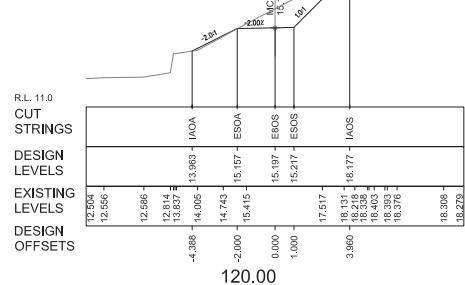
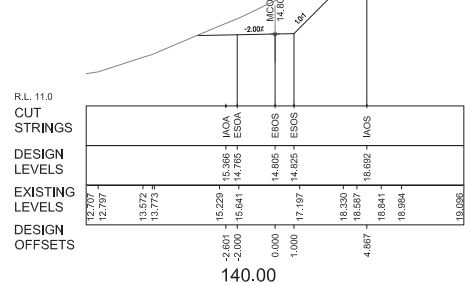
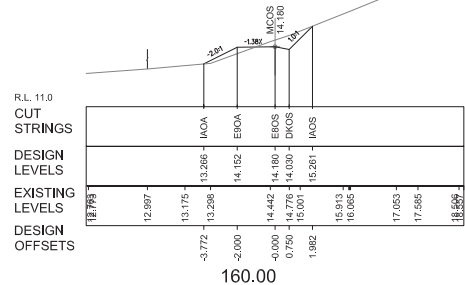
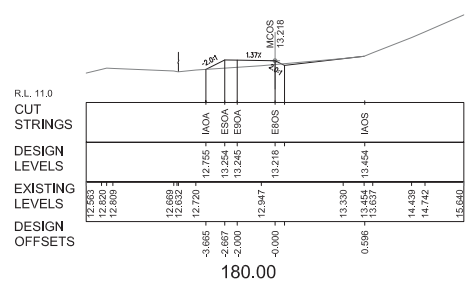
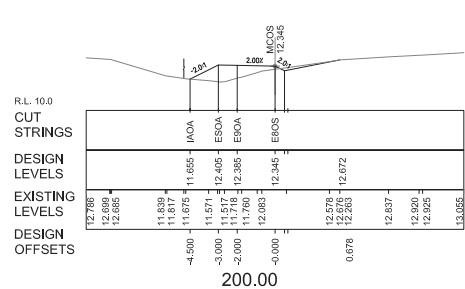
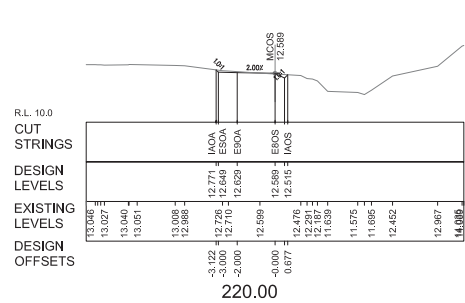
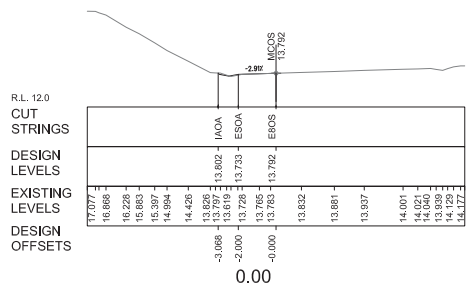
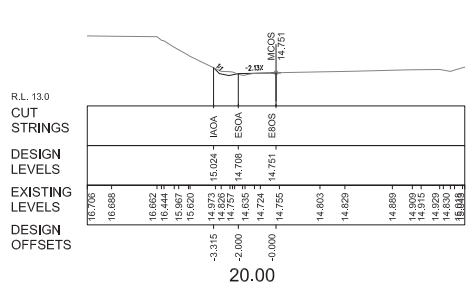
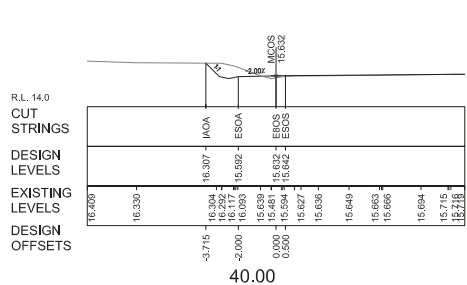
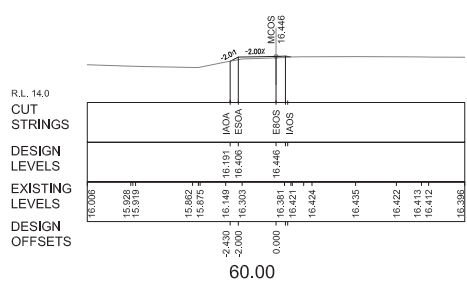
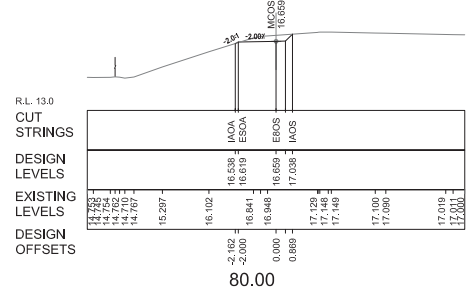
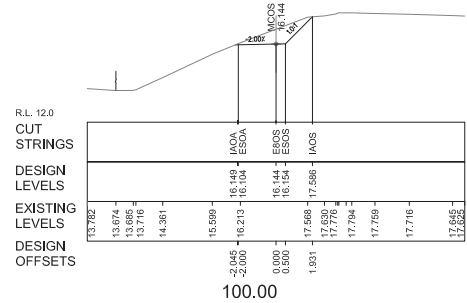
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Transport
Roads & Maritime
Services

Title	WestConnex WESTBOUND CYCLEWAY AT HOMEBUSH BAY DRIVE MCOS CROSS SECTIONS
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Designed	CA		Eng check		
Drawn	CA		Coordination		
Dwg check	JD		Approved	DP	
Scale at A1 1:200		Status		Rev	

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