sydney METRO | city & southwest

CHATSWOOD TO SYDENHAM

MARTIN PLACE STATION MODIFICATION REPORT

NSW GOVERNMENT Transport for NSW

NSW MAKING IT HAPPEN

EXECUTIVE SUMMARY

Executive summary

Introduction

Sydney Metro City & Southwest has been developed within the framework of the transport and planning strategies identified in State government policies. This includes the 12 NSW Premier priorities (established to grow the economy, deliver infrastructure, and improve health, education and other services across NSW), Sydney's Rail Future: Modernising Sydney's Trains, Draft Metropolitan Strategy for Sydney 2031 and the NSW Long Term Transport Master Plan. The project responds to these challenges delivering a step-change in the capacity of Sydney's rail network by providing a fully automated rail system across Sydney, supporting high demand with a high capacity, turn-up-and-go service.

Sydney Metro City & Southwest was declared by Ministerial Order on 10 December 2015 to be State significant infrastructure and critical State significant infrastructure. The assessment and approval process for a critical State significant infrastructure project is established under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

An Environmental Impact Statement for the Chatswood to Sydenham component of Sydney Metro City & Southwest was prepared and exhibited for 48 days from 11 May to 27 June 2016. A subsequent Submissions and Preferred Infrastructure Report was prepared and submitted to the Department of Planning and Environment in October 2016. Planning approval was granted by the Minister for Planning under Part 5.1 of the EP&A Act on 9 January 2017.

The approved project includes the construction and operation of a 15.5 kilometre metro line from Chatswood, under Sydney Harbour and through Sydney's CBD onto Sydenham. It also includes seven new metro stations at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street and Waterloo, as well as new underground metro platforms at Central Station.

The NSW Government has received an unsolicited proposal from Macquarie Group Limited (Macquarie) for a single fully integrated station and over station development solution relating to the approved metro station at Martin Place. The proposal would provide a larger, more connected station and precinct to serve Martin Place and provide a better opportunity to provide a whole of precinct urban design response. On 16 March 2017, the NSW Government approved the unsolicited proposal by Macquarie to proceed through to a Stage 3 assessment process by the NSW Cabinet.

Macquarie has prepared a separate State Significant Development application for the over station development component. A modification to the approved Sydney Metro City & Southwest Chatswood to Sydenham project is also required to address changes to the infrastructure works associated with the approved metro station at Martin Place that result from Macquarie's integrated station and over station development solution.

Pursuant to section 115ZI of the EP&A Act, Transport for NSW is therefore seeking to modify the State significant infrastructure approval to address these changes to the approved project at Martin Place. This modification report includes:

- A description of the proposed modification to the approved project
- A justification for the proposed modification
- An assessment of the environmental and community impacts and benefits of the proposed modification.

In the event that the State Significant Development application is refused or the NSW Government does not accept the final offer by Macquarie, this modification (if approved) would be surrendered and the original approved project would proceed.

Overview of the proposed modification

The proposed modification would involve the following changes to the approved project:

- A larger, reconfigured station layout, including the addition of land at 9-19 Elizabeth Street and the alterations to the street level layout of the station entries
- The provision of a new unpaid concourse link (a link available to the general public without needing to pass through ticket gates) between the northern and southern station entries, extending beneath 50 Martin Place
- Retention of the existing MLC pedestrian link and works to connect the link to the Sydney Metro Martin Place Station.

Need and justification

The need and justification for the proposed modification is the opportunity to deliver a single, fully integrated station and over station development solution for the Martin Place Station precinct, specifically designed to include additional privately owned land and adapted for a privately financed development. In particular, the proposed modification would provide the following unique public benefits:

- Improved access: the modified metro station design would provide improved access and connectivity from the public domain
- Enhanced wayfinding: centralised metro station entrances would contribute to intuitive and legible wayfinding
- Integrated development: the proposed modification would allow for a fully integrated station and over station development solution as part of an integrated transport development at Martin Place, including the unique public through site link under 50 Martin Place. With the future link to O'Connell Street as part of the approved project, this would create one of the most significant underground pedestrian links in the Sydney CBD
- Prioritised public precinct: the incorporation of larger public spaces would provide an enhanced customer experience, including a generous additional unpaid public concourse
- Rationalised design: the greater site area for the northern station entry would provide for the reorganisation of the metro entry and consolidation of station plant, allowing for the activation of Martin Place, Elizabeth and Castlereagh streets.

Community consultation

Engagement with the community and stakeholders on issues relating to Sydney Metro City & Southwest began in June 2014 and have continued throughout the planning approval phase for the approved project.

Broad consultation has been undertaken in relation to the proposed modification. This has included consultation with key government agencies and with the wider community. The consultation undertaken was focussed around Macquarie's plans for the Sydney Metro Martin Place precinct, the proposed over station development and the changes to the Sydney Metro Martin Place Station necessary to support Macquarie's vision. The feedback received during the consultation activities has been considered during the preparation of this modification report. The Environmental Impact Statement for the State significant development application commenced public exhibition on 1 June 2017 as part of the planning process for that project.

Consultation would continue during construction consistent with the approach for the approved project.

Environmental assessment

The proposed modification would result in some changes and additional environmental impacts as assessed for the approved project, particularly during construction. These impacts need to be considered in the context of the benefits of the proposed modification.

The minor additional environmental impacts of the proposed modification include:

- Some slight increases in noise and vibration levels for a few receivers in close proximity to the proposed modification works
- The inclusion of one additional property at 9-19 Elizabeth Street
- Potential additional direct and indirect impacts to the State heritage listed Commonwealth Bank of Australia building associated with the demolition of the adjacent building and additional excavation beneath the building
- Potential improvements to landscape character impacts during operation due to the expansion of the northern site and rationalisation of the station services would increase public plaza space and result in greater permeability and activation of street frontages, particularly along Castlereagh and Elizabeth streets.

The proposed modification would be constructed in accordance with the Sydney Metro Construction Environmental Management Framework provided as part of the Submissions and Preferred Infrastructure Report for the approved project.

While the project-specific mitigation measures identified for the approved project are generally sufficient to address the potential impacts of the proposed modification, one additional measure has been identified to manage specific potential heritage impacts to the Commonwealth Bank of Australia building associated with the proposed modification. The relevant conditions of approval for the approved project would continue to apply to the proposed modification.

Conclusion

The proposed modification responds to an opportunity to provide a fully integrated station and over station development solution for the Martin Place Station precinct, including the provision of unique public benefits. The proposed modification would result in a number of minor changes and additional impacts – all of which are considered to be of a minor nature having regard to the impacts of the approved project. These additional impacts would also be outweighed by the additional long-term benefits to customers and to the public.

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INTRODUCTION

CHAPTER ONE

1 Introduction

This chapter provides an overview of the proposed modification, its strategic context and key features, and the structure of this modification report.

1.1 Overview

Planning approval for Sydney Metro City & Southwest Chatswood to Sydenham (the approved project) was granted by the Minister for Planning under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) on 9 January 2017.

The approved project involves the construction and operation of a 15.5 kilometre metro line from Chatswood, under Sydney Harbour and through Sydney's CBD onto Sydenham. The approved project will also deliver seven new metro stations at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street and Waterloo, as well as new underground metro platforms at Central Station.

As part of the approved project, works at Martin Place will involve:

- A northern entry via a pedestrian plaza opening to Castlereagh, Hunter and Elizabeth streets
- A future northern entry via an underground pedestrian connection below Hunter Street to O'Connell Street and / or Bligh Street (subject to future development of the site)
- A southern entry via a pedestrian plaza opening to Martin Place and Castlereagh Street
- New underground pedestrian link between the existing suburban Martin Place Station platforms and the metro station platforms
- Transport integration elements including new bike parking on Castlereagh Street at both station entries and retention of existing bus stops and taxi ranks close the station on Elizabeth and Castlereagh streets
- Closure of existing access and egress points, including the underground connections, to the west of Elizabeth Street from Martin Place to the underground concourse connection to the existing Martin Place Station.

The NSW Government has received an unsolicited proposal from Macquarie Group Limited (Macquarie) for a single fully integrated station and over station development solution for the approved metro station at Martin Place. The proposal would provide a larger, more connected station and precinct to serve Martin Place and provide a better opportunity to provide a whole of precinct urban design response.

The proposal is currently being assessed by the NSW Government in accordance with the three stages specified in *The Guide for Submission and Assessment of Unsolicited Proposals* (NSW Government, 2012). The process generally involves:

- Stage 1: Initial Submission and Strategic Assessment – a comprehensive initial assessment of the proposal to identify the potential benefit to Government of further consideration and development with the proponent. The outcome is advice to the Proponent of progression to Stage 2, or that the Government does not wish to proceed
- Stage 2: Detailed Proposal – requires the proponent and Government to work cooperatively in the development and assessment of a Detailed Proposal. The outcome is advice to the proponent of progression to Stage 3, or that the Government does not wish to proceed
- Stage 3: Negotiation of Final Binding Offer – involves the finalisation of all outstanding issues with a view to entering into a binding agreement, should the Government accept the final offer.

On 16 March 2017, the NSW Government approved the unsolicited proposal by Macquarie to proceed through to a Stage 3 assessment process by the NSW Cabinet.

Macquarie has prepared a separate State Significant Development application for the over station development. A modification to the approved project is also required to address changes to infrastructure works at the approved metro station at Martin Place that result from Macquarie's integrated station and over station development solution.

In the event that the State Significant Development application is refused or the NSW Government does not accept the final offer by Macquarie, this modification (if approved) would be surrendered and the original approved project would proceed.

This is one of several modification applications that are likely to occur as the detailed design is developed across the project.

1.2 Overview of the proposed modification

The proposed modification would involve the following changes to the approved project:

- A larger, reconfigured station layout, including the addition of land at 9-19 Elizabeth Street and the alterations to the street level layout of the station entries
- The provision of a new unpaid concourse link (a link available to the general public without needing to pass through ticket gates) between the northern and southern station entries, extending beneath 50 Martin Place
- Retention of the existing MLC pedestrian link and works to connect the link to the Sydney Metro Martin Place Station.

The proposed modification is described further in Chapter 6 (Modification description – operation) and Chapter 7 (Modification description – construction).

1.3 Purpose of this report

This report provides an assessment of the proposed modification in accordance with section 115ZI of the EP&A Act. This modification report includes:

- A description of the proposed modification to the approved project
- A justification for the modification
- An assessment of the environmental and community impacts and benefits of the proposed modifications
- Revised environmental mitigation measures.

1.4 Structure of this report

The structure and content of this report is outlined in Table 1-1.

Table 1-1 Structure and content of this report

Chapter	Description
Chapter 1	**Introduction (this chapter)** Provides an overview of the proposed modification. Outlines the structure and content of this report.
Chapter 2	**Strategic need and justification** Provides the strategic context and explains the need for the proposed modification.
Chapter 3	**Modification development and alternatives**
	Describes how the proposed modification was developed and reviews the options that were considered.
Chapter 4	**Planning and assessment process** Provides information on the legislation and environmental planning instruments that would apply to the proposed modification. Outlines the steps involved in the modification assessment and approval process.
Chapter 5	**Stakeholder and community engagement** Provides an overview of the community consultation and stakeholder engagement processes that have been carried out for the proposed modification to date. Identifies issues raised during consultation and how these have been addressed.
Chapter 6	**Modification description – operation** Identifies the physical infrastructure and built form of the proposed modification, including specific design guidelines. Describes the functionality and operation of the proposed modification and its relationship to the approved project.
Chapter 7	**Modification description – construction** Outlines how the proposed modification is likely to be constructed and identifies any changes in construction methodologies to the approved project.
Chapter 8	**Environmental screening assessment** Considers the potential for change to the impacts described in the Sydney Metro City & Southwest Chatswood to Sydenham planning approval documentation and whether further assessment is required.
Chapter 9	**Traffic and transport** Identifies and assesses the potential changes to construction and operational impacts of the proposed modification on the existing road, public transport, pedestrian and cyclist network.
Chapter 10	**Noise and vibration** Assesses the potential changes to construction noise and vibration impacts of the proposed modification, including surface construction and underground construction.
Chapter 11	**Land use and property** Assesses the potential changes to impacts of the proposed modification on existing properties and land use including property acquisition and changes to land use.
Chapter 12	**Non-Aboriginal heritage** Assesses the potential changes to impacts on non-Aboriginal heritage during construction and operation of the proposed modification.

Chapter	Description
Chapter 13	**Landscape character and visual amenity** Assesses the potential changes to landscape character from the changes to infrastructure and urban design elements associated with the proposed modification, and the potential changes to visual impacts during operation of the proposed modification.
Chapter 14	**Consolidated revised environmental mitigation measures** Provides a consolidated list of the revised mitigation measures identified in Chapters 9 to 13.
Chapter 15	**Justification and conclusion** Confirms the justification for the proposed modification.
APPENDICES	
Appendix A	**Secretary's environmental assessment requirements** Provides a checklist of the proposed modification against the Secretary's environmental assessment requirements issues for the approved Sydney Metro City & Southwest Chatswood to Sydenham.

STRATEGIC JUSTIFICATION AND NEED

CHAPTER TWO

2 Strategic justification and need

This chapter outlines the strategic justification and need for the proposed modification and identifies the benefits of the proposed modification.

2.1 Need for Sydney Metro Chatswood to Sydenham (approved project)

The approved project was developed within the framework of the transport and planning strategies identified in State government policies. In particular this includes the *12 NSW Premier priorities* (established to grow the economy, deliver infrastructure, and improve health, education and other services across NSW), *Sydney's Rail Future: Modernising Sydney's Trains, Draft Metropolitan Strategy for Sydney 2031* and the *NSW Long Term Transport Master Plan*.

These polices indicate a strategic need to:

- Significantly increase transport capacity in key parts of the network, especially to the Sydney CBD and the Global Economic Corridor
- Drive productivity through integrated transport and land use planning to realise the productivity benefits of having businesses close together enabling increased interaction, knowledge sharing and collaboration
- Effectively develop infrastructure to cement Sydney's position among the world's most liveable cities and Australia's only global city.

The approved project will deliver a step-change in the capacity of Sydney's rail network by providing a fully automated rail system across Sydney, supporting high demand with a high capacity, turn-up-and-go service. It will increase the capacity of the rail network through the Sydney CBD from about 120 per hour during peak periods today, to up to 200 services per hour beyond 2024, including capacity for up to 60 metro trains per hour during peak periods (or 30 trains per hour in each direction). This would equate to an increase of up to 60 per cent capacity across the network. This means that the railway network across greater Sydney would have room for an extra 100,000 train customers per hour in the peak. The fully automated, Sydney Metro network would have the ultimate capacity to operate a train every two minutes through the Sydney CBD in each direction. The proposed new stations would alleviate congestion at Wynyard, Town Hall, Central, Redfern and Green Square stations.

It will also deliver a new tier for Sydney's rail network, supporting high demand with a high-capacity, turn-up-and-go service. It is being developed with an emphasis on supporting the needs of customers for 'door to door' journeys from origin to destination.

Other key benefits of the approved project include:

- Doubling the number of train paths available from the north
- Strengthening connections and access across Sydney, particularly within the Global Economic Corridor
- Providing new connections to the rail network – including connections to the T4 Eastern Suburbs Line, and direct connections between the Sydney CBD with the north west
- Improving the capacity, reliability and efficiency of the existing transport system, by relieving the pressure on existing rail lines, Sydney CBD train stations, Sydney CBD, North Sydney and Sydney South bus routes, and the Sydney CBD road network
- Providing a catalyst for urban development opportunities particularly around the new stations at Crows Nest, Victoria Cross, Barangaroo and Waterloo

- Providing a catalyst for the progressive renewal of the ageing Waterloo social housing estate including a mix of private, affordable and social housing
- Improving network resilience through the Sydney CBD and across Sydney Harbour by providing an additional route during planned and unplanned events affecting other Sydney CBD and harbour links.
- Health benefits with the creation of safer and more appealing conditions for pedestrians, cyclists and other transit users in the areas around the stations.

It will also provide important urban renewal and development opportunities through the application of transit oriented development principles that support government objectives to achieve a more sustainable and efficient use of land to meet Sydney's growth.

2.1.1 Need and benefits of the approved Martin Place Station

The key benefits envisaged at Martin Place as a result of the approved project include:

- Increase accessibility and trip diversity – Martin Place Station would serve the high-end commercial and financial precinct within the Sydney CBD
- Providing an opportunity to respond to City of Sydney Council's Martin Place Urban Design Study
- Providing customers with a new connection to civic spaces including the State Library, Sydney Hospital, Domain and a short walk to the Royal Botanic Gardens. Customers would be able to easily access events held in or near Martin Place.

2.2 Need and justification for the proposed modification

The need and justification for the proposed modification is the opportunity to deliver a single, fully integrated station and over station development solution for the Martin Place Station precinct, specifically designed to include additional privately owned land and adapted for a privately financed development. In particular, the proposed modification would provide the following unique public benefits:

- Improved access: the modified metro station design would provide improved access and connectivity from the public domain
- Enhanced wayfinding: centralised metro station entrances would contribute to intuitive and legible wayfinding
- Integrated development: the proposed modification would allow for a fully integrated station and over station development solution as part of an integrated transport development at Martin Place, including the unique public through site link under 50 Martin Place. With the future link to O'Connell Street as part of the approved project, this would create one of the most significant underground pedestrian links in the Sydney CBD
- Prioritised public precinct: the incorporation of larger public spaces would provide an enhanced customer experience, including a generous additional unpaid public concourse
- Rationalised design: the greater site area for the northern station entry would provide for the reorganisation of the metro entry and consolidation of station plant, allowing for the activation of Martin Place, Elizabeth and Castlereagh streets.

MODIFICATION DEVELOPMENT AND ALTERNATIVES

CHAPTER THREE

3 Modification development and alternatives

This chapter describes the options evaluation process for Martin Place Station and how the design of the proposed modification has been developed.

3.1 Sydney Metro station location options evaluation

The station options evaluation process, including the decision to include a metro station at Martin Place, was described in the Environmental Impact Statement. In summary, a metro station at Martin Place performed strongly against the majority of the project objectives, particularly those associated with improving the quality of the public transport experience, satisfying long term demand, supporting the productivity of the Global Economic Corridor and improving the resilience of the transport network. As a result, a metro station at Martin Place was adopted during the second phase of the station options evaluation process.

3.2 Martin Place Station design development

3.2.1 Location of Martin Place Station

The drivers leading to the location of the metro station at Martin Place were described in the Environmental Impact Statement. In summary, the overall objective of the metro station was to serve Sydney's financial district and the civic spaces and uses along Martin Place and Macquarie Street. A key locational driver was the provision of convenient interchange between the proposed metro station and the existing Martin Place Station. Designing for Martin Place as a 'one station solution' that provides station-to-station interchange within the paid concourse areas of both stations placed a geographic constraint on the station's location.

The specific location of the metro station at Martin Place was also influenced by a number of constraints, which resulted in the separation of the northbound and southbound alignments under Castlereagh and Pitt streets, and two station footprints to increase the offset distance to 50 Martin Place. These constraints are:

- Underground constraints such as basements and other services and infrastructure that influence the tunnel alignment and depth and therefore the location and orientation of the station itself
- Minimising impacts to heritage buildings and places, including direct and indirect impacts to the Commonwealth Bank building and the existing Martin Place Station, which are heritage items listed on the State Heritage Register
- Minimising impacts to, and optimising integration of the station with the public domain of Martin Place, a major civic spine that is a focus of the City of Sydney's Martin Place Urban Design Study.

3.2.2 Design and layout of Martin Place Station

The design and layout of the metro station at Martin Place was influenced by the following constraints and challenges:

- Accommodating large pedestrian volumes and the need for convenient and safe connections into the broader precinct
- The provision of adequate pedestrian circulation spaces to accommodate increased pedestrian volumes
- The provision of adequate space for construction of the project
- Not precluding over station development at station sites.

The design response during development of the approved project considered over 10 options for the design and layout for Martin Place Station located in the area bound by Bligh, King, Castlereagh and Pitt streets. These options differed in the following general ways:

- Single or multiple station entrances with corresponding street level footprints
- Station layouts to optimise station entry locations and street level footprint size, including within the public domain of Martin Place, at various locations along Castlereagh Street and Elizabeth Street, Hunter Street and Bligh Street
- The number of station entrances and their specific location and orientation within the various station footprint configurations.

The discounted options did not perform as well as the approved Martin Place Station layout. Generally the discounted options resulted in unacceptable customer outcomes, reduced pedestrian levels of service, reduced station functionality or did not meet the 'one station solution' objective with regard to interchange functionality with the existing Martin Place Station.

3.2.3 Design development of the proposed modification

The proposed modification represents a solution in terms of the ongoing design development of the metro station at Martin Place, particularly the facilitation of an integrated station and over station development. The evolution of the design includes precinct connectivity and a whole-of-block urban design concept, which would be achievable with the addition of 9-19 Elizabeth Street and the underground space beneath 50 Martin Place.

The ongoing design development presented as part of the proposed modification advances the station design and has considered the opportunities and constraints on which the approved station was established. This design solution would provide key benefits associated with improved customer access, enhanced wayfinding and a prioritised public precinct (as described in Chapter 2 of this report).

PLANNING AND ASSESSMENT PROCESS

CHAPTER FOUR

4 Planning and assessment process

This chapter describes the statutory planning process for the Martin Place modification.

4.1 NSW environmental planning approvals

Sydney Metro City & Southwest was declared by Ministerial Order on 10 December 2015 to be State significant infrastructure and critical State significant infrastructure. The assessment and approval process for a critical State significant infrastructure project is established under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). An Environmental Impact Statement for the Chatswood to Sydenham component of Sydney Metro City & Southwest was prepared and exhibited for 48 days from 11 May to 27 June 2016. A subsequent Submissions and Preferred Infrastructure Report was prepared and submitted to the Department of Planning and Environment in October 2016. Planning approval was granted by the Minister for Planning under Part 5.1 of the EP&A Act on 9 January 2017.

Macquarie has prepared a separate State Significant Development application for the over station development. To enable this development to proceed, Transport for NSW is seeking, in accordance with section 115ZI of the EP&A Act, to modify the State significant infrastructure approval with respect to changes to the infrastructure works that result from Macquarie's integrated station and over station development solution.

In the event that the State Significant Development application is refused or the NSW Government does not accept the offer by Macquarie, this modification (if approved) would be surrendered and the original approved project would proceed.

Appendix A provides consideration of the Secretary's environmental assessment requirements issued for the Environmental Impact Statement for Sydney Metro City & Southwest Chatswood to Sydenham, including the relevance of each assessment requirement to the proposed modification and, for the relevant requirements, where they have been addressed in this report.

4.2 NSW legislation that may still be applicable

The assessment for the approved project considered other NSW legislation that may be applicable to the project. Table 4-1 provides further consideration of this legislation in relation to the proposed modification.

Table 4-1 Environmental related legislation of potential relevance to the proposed modification

Legislation	Requirement
Aboriginal Land Rights Act 1983	The NSW *Aboriginal Land Rights Act 1983* applies to Crown lands that are not lawfully needed for an essential public purpose; referred to as claimable Crown land. No claimable Crown lands would be affected by the proposed modification.
Contaminated Land Management Act 1997	This Act outlines the circumstances in which notification of the Environment Protection Authority (EPA) is required in relation to the contamination of land. This may become relevant during construction and / or operation of the proposed modification.
Crown Lands Act 1989	Ministerial approval is required to grant a 'relevant interest' (ie a lease, licence, permit, easement or right of way) over a Crown Reserve if required. The proposed modification would not be carried out on Crown land.

Legislation	Requirement
Greater Sydney Commission Act 2015	This Act establishes the Greater Sydney Commission which has a principal objective of leading metropolitan planning for the Greater Sydney Region. The core functions of the Greater Sydney Commission are to provide advice to Government and assist local Councils plans or proposals relating to development in the Greater Sydney Region. The Greater Sydney Commission would not have a formal statutory role for the proposed modification but would be consulted with respect to its core functions.
Heritage Act 1977 (Section 146)	The Heritage Council must be notified of a relic that is uncovered during construction and if it is reasonable to believe that the Heritage Council is unaware of the location of the relic.
Land Acquisition (Just Terms Compensation) Act 1991	This Act would apply to the acquisition of land required for the proposed modification. However, provisions of the *Transport Administration Act 1988* have the effect that for underground stratum acquisition compensation is not payable except in certain circumstances. Additional land at 9-19 Elizabeth Street would be required for inclusion as part of the proposed modification.
Native Title (New South Wales) Act 1994	This Act provides for native title in relation to land or waters. The proposed modification would not affect land subject to native title or to which an Indigenous Land Use Agreement applies.
Water Management Act 2000	The *NSW Aquifer Interference Policy* (Department of Primary Industries, 2012) documents the NSW Government's intention to implement the requirement for approval of 'aquifer interference activities' under the *Water Management Act 2000*. The requirement for aquifer interference approvals has not yet commenced.

4.3 Commonwealth legislation

4.3.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) prescribes the Commonwealth's role in environmental assessment, biodiversity conservation and the management of protected areas.

The assessment for the approved project did not identify any impacts to matters of national environmental significance. As such, the approved project was not referred to the Commonwealth Department of the Environment and Energy.

With respect to matters of national environmental significance, the assessment carried out for the proposed modification did not identify any changes to the impacts as assessed for the approved project. That is, the assessment for the proposed modification did not identify any potential impacts to matters of national environmental significance. Similarly, the proposed modification would not involve any actions on Commonwealth land. As such, a referral to the Commonwealth Department of the Environment for the proposed modification is not required.

4.3.2 Native Title Act

The main objective of the Commonwealth *Native Title Act 1993* is to recognise and protect native title. Section 8 states that the Native Title Act is not intended to affect the operation of any law of a State or a Territory that is capable of operating concurrently with the Act. Searches of the register maintained by the National Native Title Tribunal indicate there are no native title claims registered with respect to land within the area of the proposed modification. The proposed modification would not directly affect any Crown land that is currently the subject of a native title claim.

4.3.3 Disability Discrimination Act 1992

The *Disability Discrimination Act 1992* aims to eliminate as far as possible discrimination against persons on the ground of disability in areas including access to premises and the provision of facilities, services and land. The station at Martin Place would continue to be designed to be independently accessible and in compliance with the objectives and requirements of the *Disability Discrimination Act 1992*.

4.3.4 Disability Standards for Accessible Public Transport 2002

Section 33.1 of the *Disability Standards for Accessible Public Transport 2002* requires all new public transport premises, infrastructure and conveyances to be compliant with the requirements of the standard and referenced to the Australian Standards and Design Rules therein, unless unjustifiable hardship is incurred by implementation. The station at Martin Place would continue to be designed to be compliant with the requirements of the *Disability Standards for Accessible Public Transport 2002*.

4.3.5 Copyright Act 1968

Section 195AT of the *Copyright Act 1968* deems certain treatment of copyright works not to constitute an infringement of the author's (ie the architect's) right of integrity. With respect to the demolition of a building, an architect's right of integrity will not be infringed if, when wishing to demolish a building, the architect is provided with a written notice of such intentions and is provided access to make a record of the artistic work and consult in good faith. Notification would be provided in accordance with these legislative requirements where necessary. In this regard, one additional building would need to be demolished at Martin Place for the proposed modification.

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STAKEHOLDER AND COMMUNITY ENGAGEMENT

CHAPTER FIVE

5 Stakeholder and community engagement

This chapter provides an outline of the consultation carried out for the proposed modification. It identifies who has been consulted, how the consultation was carried out, the issues raised and how those issues have been addressed.

5.1 Overview

Engagement with the community and stakeholders about Sydney Metro City & Southwest began in June 2014 and continued through the preparation of the Chatswood to Sydenham Environmental Impact Statement. Prior to, and on a continuing basis outside of the Environment Impact Statement process, Sydney Metro continues to proactively engage with the community and stakeholders.

Key stakeholders relevant to the Martin Place Station area include (but are not necessarily limited to):

- State agencies
- City of Sydney Council
- Public utilities, business and industry groups near the project
- Existing rail customers
- Directly impacted stakeholders
- Directly impacted communities and businesses
- The broader community.

This chapter provides an overview of the consultation activities carried out to date, specific to the proposed modification. Consultation activities during construction would be consistent with approach for the approved project.

5.2 Consultation to date

Broad consultation has been undertaken in relation to the proposed modification. This has included consultation with key government agencies and with the wider community. The consultation undertaken was focussed around Macquarie's plans for the Sydney Metro Martin Place precinct, the proposed over station development and the changes to the Sydney Metro Martin Place Station necessary to support Macquarie's vision. The Environmental Impact Statement for the State significant development application commenced public exhibition on 1 June 2017 as part of the planning process for that project.

5.2.1 Government agencies

Key government agencies have been consulted on the design proposal subject of the proposed modification, including:

- Department of Planning and Environment
- Office of the Government Architect
- City of Sydney Council
- Office of Environment and Heritage
- Environment Protection Authority
- Transport Coordination
- Sydney Trains
- Ausgrid
- Sydney Water
- Roads and Maritime Services
- NSW Emergency Services.

5.2.2 Local business and other stakeholders

Macquarie undertook consultation with nearby businesses, property owners, stakeholder organisations and the general public in March and April 2017. This consultation was primarily related to the proposed over station development and informed the request for the Secretary's environmental assessment requirements for the over station development in March 2017 and the Stage 1 over station development Environmental Impact Statement lodged in May 2017.

Direct meetings were also organised with:

- Network 7
- Commonwealth Bank of Australia
- Dexus
- MLC Centre (GPT)
- Charter Hall.

A private briefing was also held for neighbouring properties and businesses on 8 May. This briefing was attended by members of the Macquarie Martin Place Metro project team and community engagement representatives from the Sydney Metro project team.

An invitation letter was hand delivered to all properties and businesses in the immediate vicinity of the site and also emailed to managing agents, building managers and neighbouring tenant businesses in the same area on 1 May. A total of 18 people attended this session.

5.2.3 Community

Various engagement methods and tools were used to consult with the community prior to lodgement of the modification to provide accessible information on the proposal, create opportunities for feedback and amend the design to address concerns where possible.

Consultation methods with the community included:

- A project website was established by Macquarie for its unsolicited proposal on 16 March 2017 (www.metromartinplace.com). This website provides an overview of the proposal (including changes to the Sydney Metro Martin Place Station being proposed under this modification), artists' impressions and answers to Frequently Asked Questions
- A toll-free number (1800 898 307) and email address (enquiries@martinplacemetro.com) were established in March 2017 to allow the public to speak directly with the Macquarie project team, ask questions about the proposal and provide feedback
- Three public information sessions (held on 9 and 10 May) to provide the community an opportunity to view the plans, discuss concerns with the project team and provide feedback. Community engagement representatives from Sydney Metro project team attended to answer questions related to the station, trains and rail alignment. The public were invited to the sessions via:
  - The distribution of 4,000 invitation letters to all properties and businesses within 500 metres of the site
  - A public notice published in the Central Sydney, Sydney Morning Herald and Daily Telegraph newspapers on 26 April 201.

  A total of 36 people attended the three community information sessions. Attendees were invited to register their contact details to subscribe to the project mailing list, ask questions of the team and provide comments directly to team members or by completing the feedback forms provided.

5.3 Feedback

The feedback received during the consultation activities has been considered during the preparation of this modification report.

Overall, feedback received by the community and stakeholders indicated a receptiveness to the ideas and opportunities presented by the proposed modification and were supportive of the additional benefits, including improved integration between the station and over station elements.

Concerns raised during the consultation have generally related to detailed design aspects and the management of disruption during construction of the project and the over station development.

5.4 Public exhibition of this report

The Department of Planning and Environment will place this report on public exhibition. During the exhibition period, government agencies, stakeholders and the community will be able to review this report and will have an opportunity to make a written submission to the Department of Planning and Environment for consideration in its assessment of the proposed modification.

Advertisements will be placed in newspapers to advise of the public exhibition period, where this report can be viewed, and to invite the public to community information sessions where they can meet representatives from the project team.

Consultation activities during the public exhibition of this report will include:

- Contact points (ie Community Information Line and email address)
- Media releases
- Community information sessions
- Newsletter letterbox drops
- Doorknocks with neighbouring properties
- Project website
- Local business engagement
- Government stakeholder engagement
- Newspaper advertising
- Displays at local councils
- Stakeholder briefings.

5.4.1 Submissions report

At the completion of the public exhibition period for the modification, the Department of Planning and Environment will collate and provide Transport for NSW with a copy of all submissions received. After reviewing the submissions, Transport for NSW will prepare a submissions report that responds to the relevant issues raised. The submissions report will be made publicly available on the Department of Planning and Environment website. Anyone making a public submission will receive a letter notifying them of the publication of the submissions report on the Department of Planning and Environment website.

5.5 Future consultation and engagement

Should the proposed modification be approved, the project team would continue to consult with the community and key stakeholders during the planning and construction of the project. In general, this consultation would involve:

- Ongoing consultation with key stakeholders, local council and other government agencies
- Provision of regular updates to commuters and the nearby community
- Development and implementation of a Community Communications Strategy.

Further details regarding stakeholder and community involvement requirements during project delivery are outlined in the Construction Environmental Management Framework (provided as part of the Submissions and Preferred Infrastructure Report for the approved project).

MODIFICATION DESCRIPTION – OPERATION

CHAPTER SIX

6 Modification description – operation

This chapter identifies the physical infrastructure and built form of the proposed modification and describes the functionality and operation of the proposed modification and its relationship to the approved project.

6.1 Approved Sydney Metro works at Martin Place Station

The Sydney Metro City & Southwest Chatswood to Sydenham project was approved by the Minister for Planning on 9 January 2017. At Martin Place Station, the approved works associated with Sydney Metro include:

- A northern entry via a pedestrian plaza opening to Castlereagh, Hunter and Elizabeth streets
- A future northern entry via an underground pedestrian connection below Hunter Street to O'Connell Street and / or Bligh Street (subject to future development of the site)
- A southern entry via a pedestrian plaza opening to Martin Place and Castlereagh Street
- New underground pedestrian link between the existing suburban Martin Place Station platforms and the metro station platforms
- Transport integration elements including new bike parking on Castlereagh Street at both station entries and retention of existing bus stops and taxi ranks close the station on Elizabeth and Castlereagh streets
- Closure of existing access and egress points, including the underground connections, to the west of Elizabeth Street from Martin Place to the underground concourse connection to the existing Martin Place Station.

6.2 Proposed modification

The proposed modification would involve the following changes to the approved project:

- A larger, reconfigured station layout, including the addition of land at 9-19 Elizabeth Street and the alterations to the street level layout of the station entries
- The provision of a new unpaid concourse link between the northern and southern station entries, extending beneath 50 Martin Place
- Retention of the existing MLC pedestrian link and works to connect the link to the Sydney Metro Martin Place Station. This link would provide pedestrian access to and from the station concourse directly to the existing MLC Centre.

6.3 Larger, reconfigured station layout

The proposed modification includes a reconfigured layout for the station entries at street level. This would involve:

- The inclusion of additional land in the northern station entry site, being the existing commercial property at 9-19 Elizabeth Street
- Increase public plaza space at both entries
- Rationalisation of the station services infrastructure allowing for the activation of the station frontages along Martin Place, Elizabeth and Castlereagh streets.

Figure 6-1 shows the approved project layout of the Martin Place Station entries. Figure 6-2 demonstrates the modified station footprint and indicative layout for the northern and southern entrances of Sydney Metro Martin Place Station.

Figure 6-3 shows the cross-sections of the northern and southern station entries for the approved project, including the interface with the over station development. Figure 6-4 shows cross-sections of the proposed modified Martin Place Station for the northern and southern entrances.

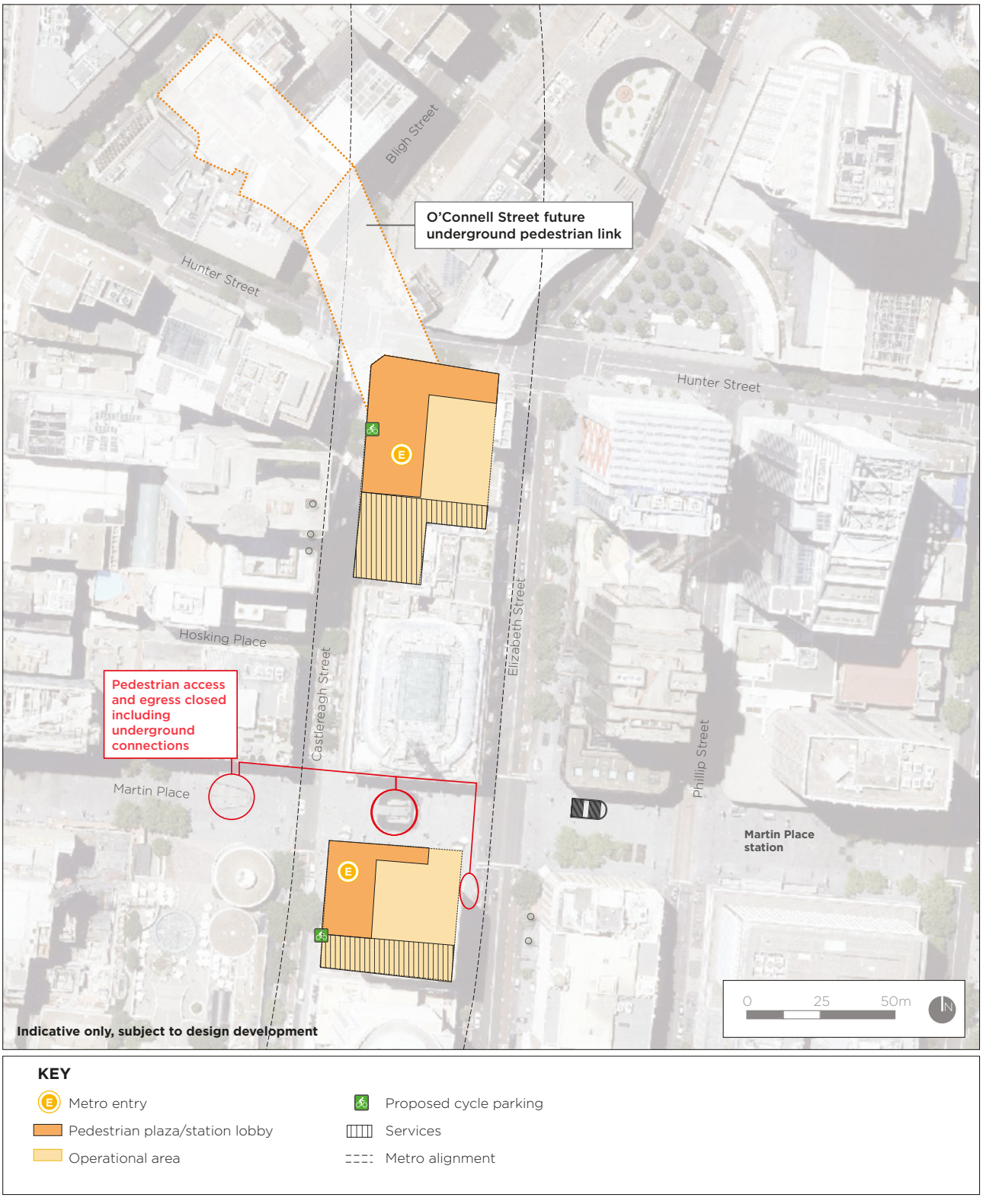


Figure 6-1 Martin Place Station – approved project layout

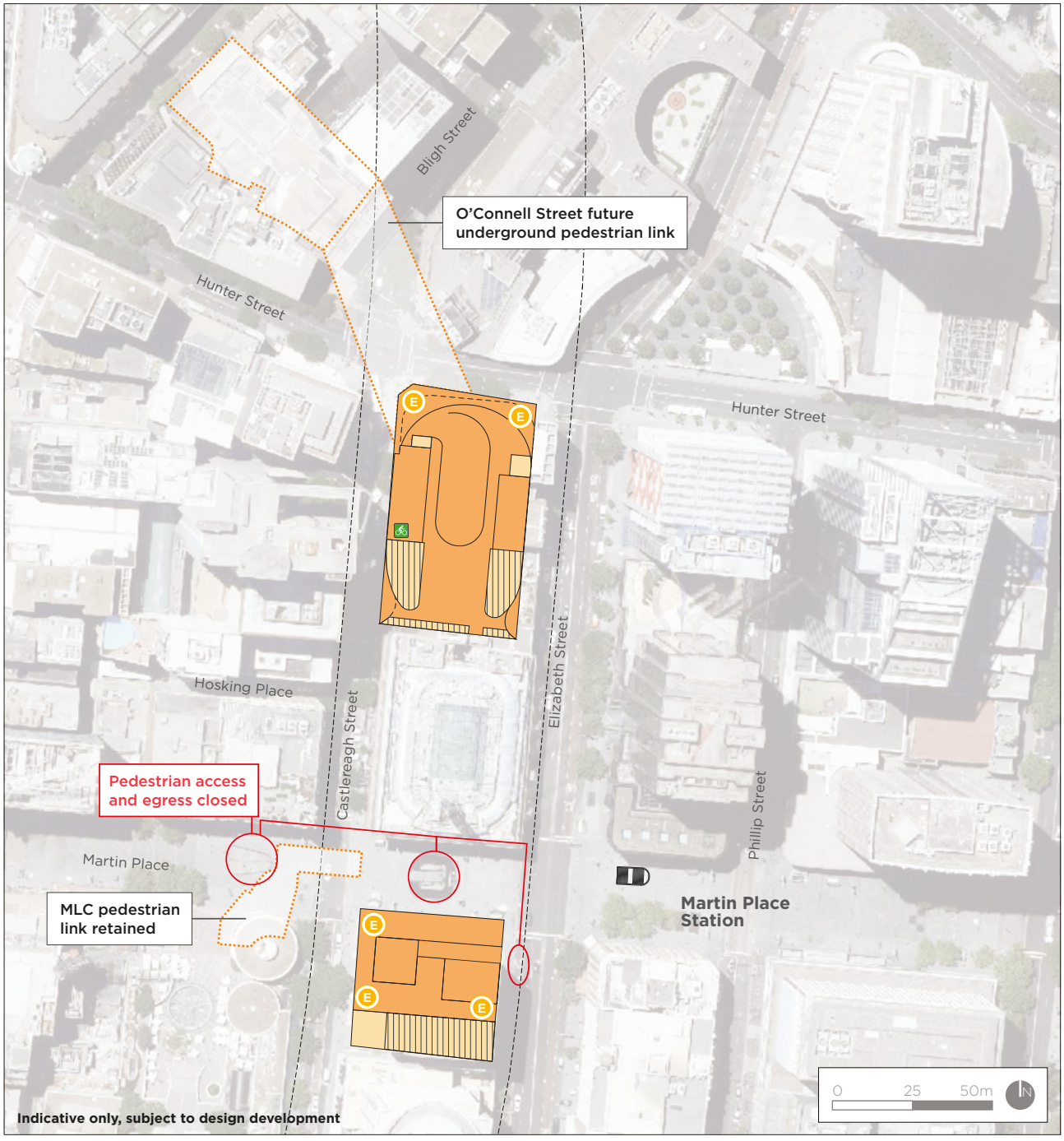


Figure 6-2 Martin Place Station – proposed modification layout

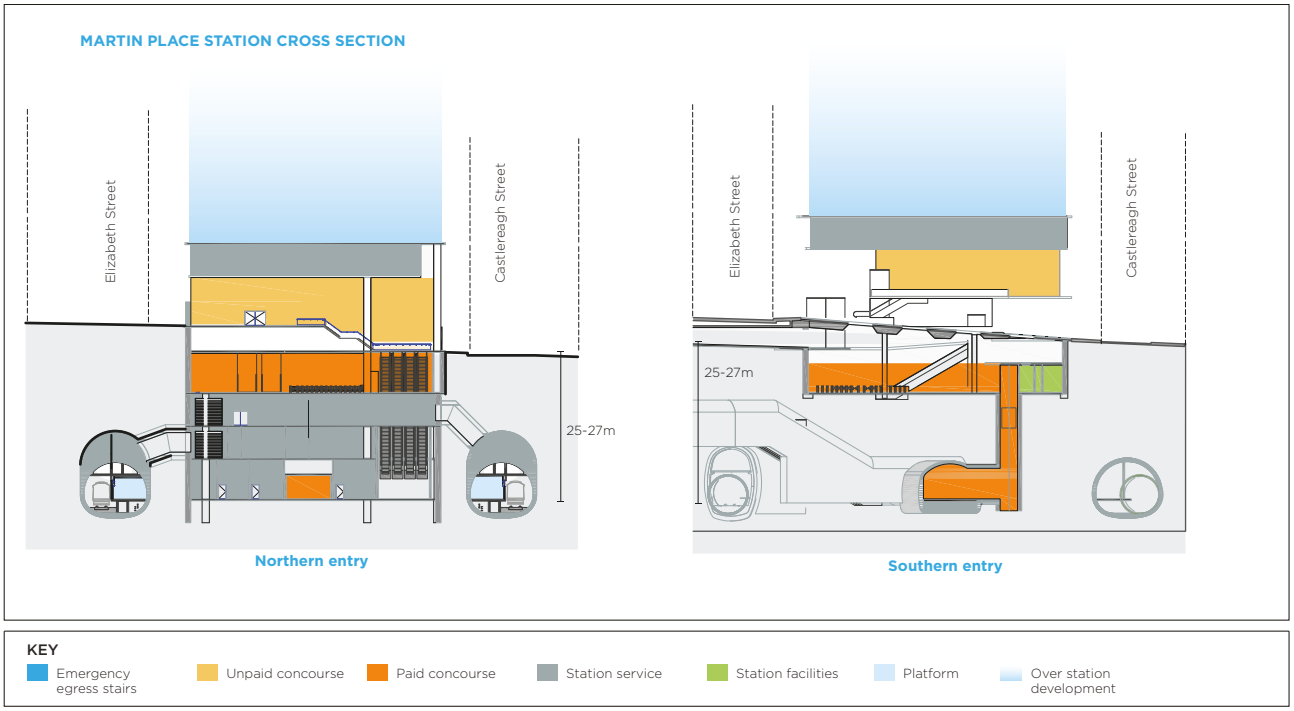


Figure 6-3 Approved project cross-sections

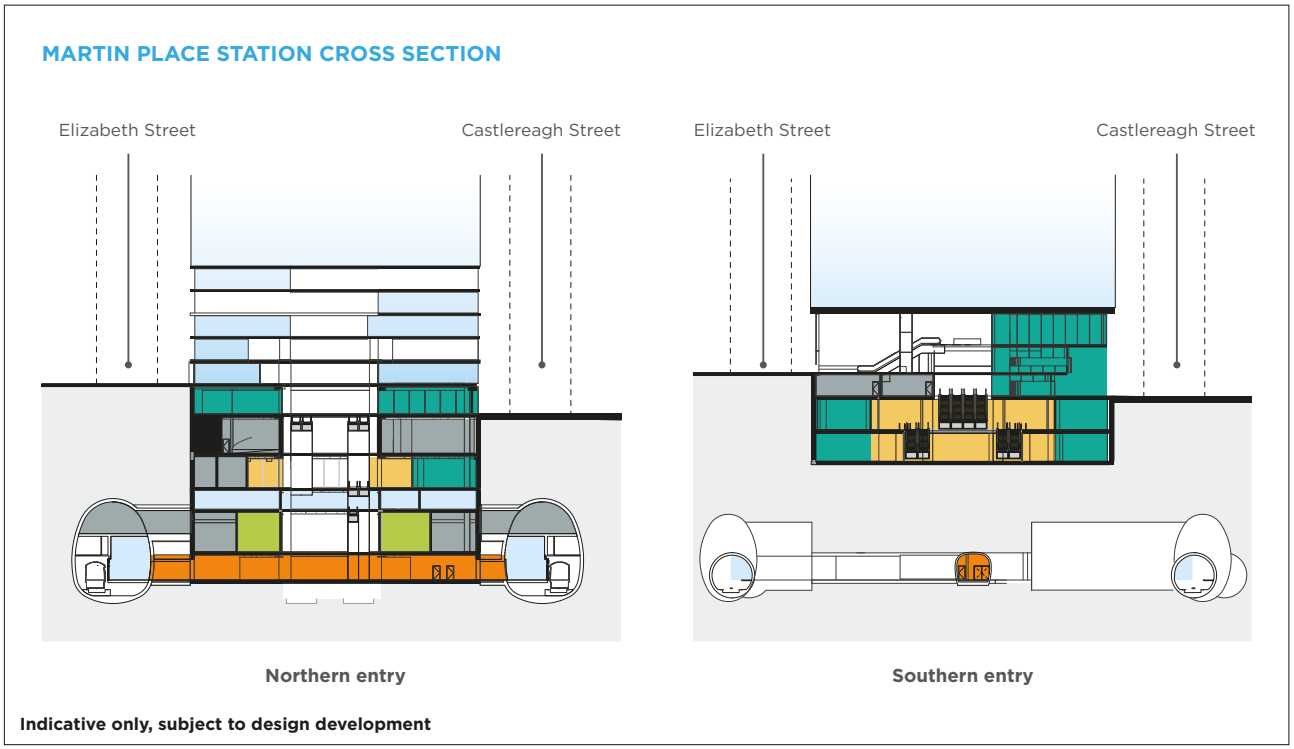
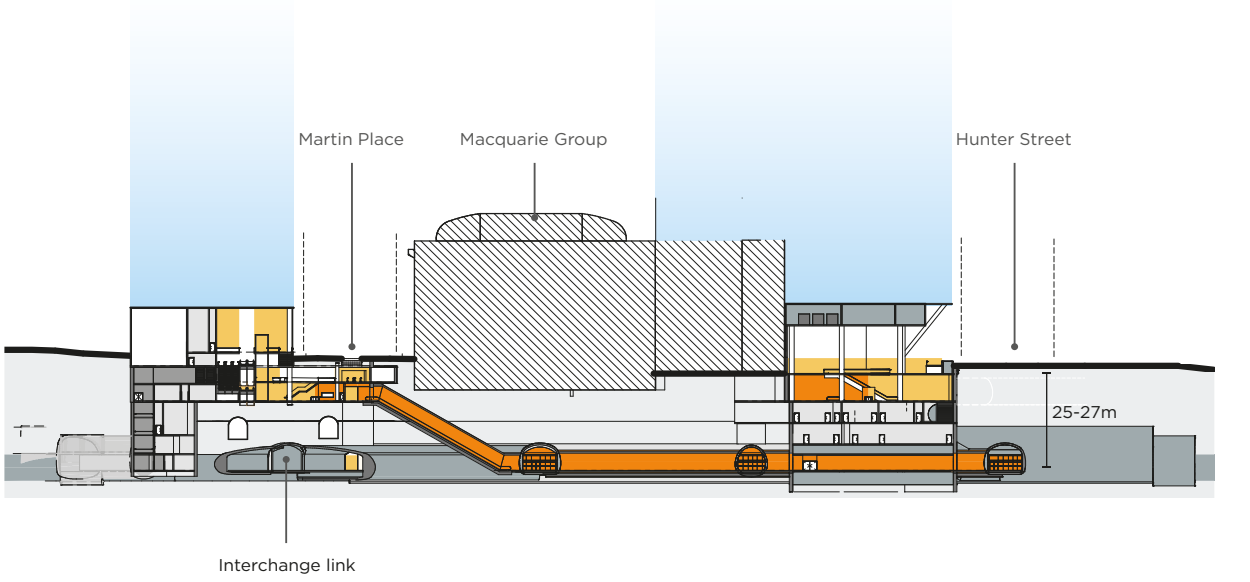


Figure 6-4 Proposed modification cross-sections

6.4 New unpaid concourse link

A new unpaid concourse link is proposed beneath 50 Martin Place providing an underground connection between both station entries and the existing Sydney Trains Martin Place Station. Figure 6-5 shows a long section of the approved project. Figure 6-6 shows a long section of the proposed modification including the new concourse link between the northern and southern entries. An artist's impression of the new concourse link is provided as Plate 6-1.



KEY

Unpaid concourse | Paid concourse | Station service | Station facilities | Platform

Over station development (subject to separate approvals process)

Figure 6-5 Approved project long section

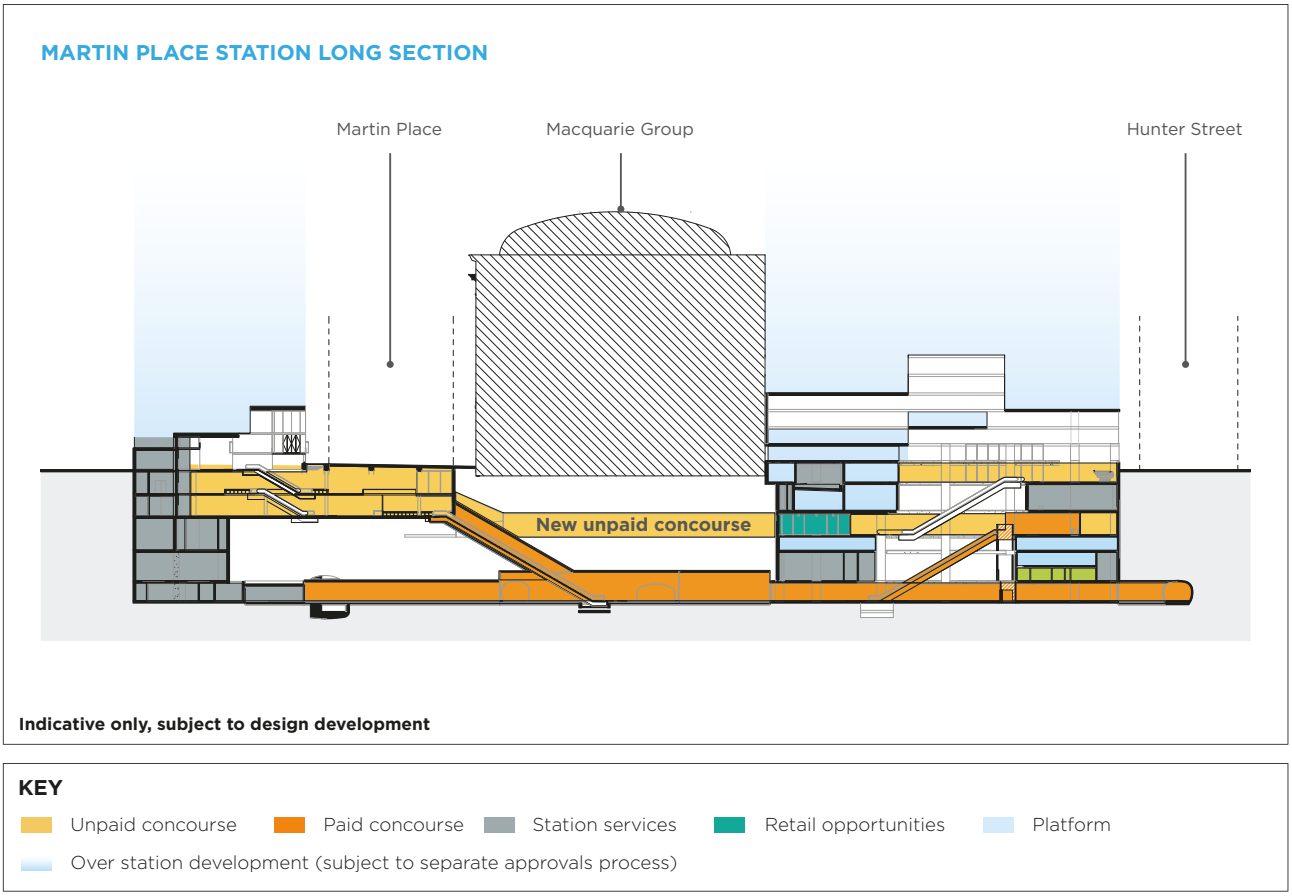


Figure 6-6 Proposed modification long-section showing unpaid concourse link

Plate 6-1 Artist's impressions of proposed unpaid concourse link

6.5 Retention of the existing MLC pedestrian link

The proposed modification also proposes to retain the existing MLC pedestrian link and to connect this link to the station concourse. This would provide access from the station concourse directly to the existing MLC Centre. Consistent with the approved project, the existing access stairs from Martin Place to the west of Castlereagh Street would be closed.

MODIFICATION DESCRIPTION – CONSTRUCTION

CHAPTER SEVEN

7 Modification description – construction

This chapter describes the likely key construction activities for the proposed modification and any changes to construction methodologies from the approved project. A description of the proposed modification once operational is provided in Chapter 6 (Modification description – operation).

7.1 Approved Sydney Metro works at Martin Place Station

The key construction activities as part of the approved project at Martin Place Station are:

- Establishment of three construction sites – the O'Connell Street site, the northern site and the southern site – to support construction of the station
- Demolition of existing buildings on the northern and southern sites
- Cut-and-cover works in Martin Place between Elizabeth and Castlereagh streets
- Excavation of shafts at the three sites followed by mined excavation of the station cavern
- Construction and fit-out of the station and northern and southern entries.

7.2 Proposed modification

7.2.1 Overview

The construction activities for the proposed modification, in addition to those required for the approved metro works at Martin Place Station are described in this chapter. These activities would involve:

- Additional demolition works
- Additional shaft excavation works
- Mined excavation for the new unpaid concourse link beneath Martin Place and 50 Martin Place
- Works to connect the existing MLC pedestrian link to the station concourse.

With the exception of inclusion of the additional land at 9-19 Elizabeth Street, there would be no changes to the approved construction sites at street level at Martin Place.

7.2.2 Additional demolition works

The approved project includes the demolition of four commercial buildings and one residential building at Martin Place.

The proposed modification would involve the demolition of one additional building at 9-19 Elizabeth Street to allow for a larger, reconfigured station entry. Existing connections from 9-19 Elizabeth Street to 50 Martin Place would be required to be closed.

The additional demolition would be carried out using the same methods to those described for the approved project.

7.2.3 Additional shaft excavation works

The approved project includes excavation of shafts at all three construction sites. For the northern construction site, this shaft would be on the northern extent of the site.

The proposed modification would extend the footprint of this shaft excavation to the south. The revised shaft excavation area would cover the entire northern construction site, including the additional land at 9-19 Elizabeth Street.

7.2.4 Excavation of the new unpaid concourse link

In addition to the underground excavation required for the approved project, the proposed modification would involve the mined excavation of the new unpaid concourse link between the northern and southern sites (beneath 50 Martin Place). This would involve mined excavation, likely using roadheaders.

7.2.5 MLC pedestrian link connection

The MLC pedestrian link would be connected to the station concourse. If further upgrade works to the link are required, the final details of these would be developed as part of the Interchange Access Plan for Martin Place Station (required under Condition of Approval E92).

7.3 Other construction elements

Other construction elements associated with the proposed modification would be generally consistent with the approved project. However, the proposed modification would change the total volume of spoil generated.

The construction sites to support the excavation and construction of the station as proposed to be modified would be consistent with those described for the approved project, with the exception of the incorporation of the land at 9-19 Elizabeth Street into the northern construction site.

7.3.1 Spoil volume

The spoil generation associated with the approved project at Martin Place Station is around 229,000 cubic metres.

The proposed modification would generate around 60,000 cubic metres of additional spoil as a result of the reconfigured station, the revised northern shaft excavation and the new unpaid concourse link.

ENVIRONMENTAL SCREENING ASSESSMENT

CHAPTER EIGHT

8 Environmental screening assessment

This chapter provides a consideration of the potential for change to the impacts as assessed for the approved project and whether further assessment of each issue is required.

Consideration of each environmental issue as assessed for the approved project was carried out to determine the potential for change to the impacts and, therefore, whether further assessment of the potential impacts of the proposed modification is required. A screening assessment of the potential change in impacts is provided in Table 8-1.

Table 8-1 Environmental screening assessment

Issue	Potential change in impact?	Description
Construction traffic and transport	Yes	The proposed modification would introduce additional construction vehicles. An assessment of potential changes to construction traffic and transport impacts associated with the proposed modification is provided in Chapter 9.
Operational traffic and transport	Yes	The proposed modification would change the layout and functionality of the station at street level, provide new underground pedestrian links and retain the existing MLC pedestrian link. An assessment of potential changes to operational traffic and transport impacts associated with the proposed modification is provided in Chapter 9.
Construction noise and vibration	Yes	The proposed modification would require additional construction activities which may introduce new or increased noise and vibration impacts to receivers. An assessment of potential changes to construction noise and vibration impacts associated with the proposed modification is provided in Chapter 10.
Operational noise and vibration	No	The proposed modification would not introduce new sources of operational noise. The applicable noise criteria for Martin Place identified for the approved project would continue to be applied to the design of Martin Place Station. An assessment of potential changes to operational noise and vibration impacts associated with the proposed modification is not considered necessary.
Land use and property	Yes	The proposed modification would require additional property acquisition. An assessment of potential changes to land use and property impacts associated with the proposed modification is provided in Chapter 11.
Business impacts	No	Although the proposed modification would require the acquisition of an additional commercial property and the associated removal of occupying businesses, the proposed modification would not introduce any new direct or indirect impact types to businesses around Martin Place Station. The impacts to these additional businesses would be managed in accordance with the mitigation measures identified for the approved project. The retention of the MLC pedestrian link may result in benefits to some businesses in the MLC Centre (compared to those identified for the approved project) in relation to passing trade. An additional assessment of potential changes to business impacts associated with the proposed modification is not considered necessary.
Non-Aboriginal heritage	Yes	The proposed modification would introduce new potential impacts to the State heritage listed 50 Martin Place. An assessment of potential changes to non-Aboriginal heritage impacts associated with the proposed modification is provided in Chapter 11.

Issue	Potential change in impact?	Description
Aboriginal heritage	No	Although the proposed modification would include an additional property at 9-19 Elizabeth Street, this building contains a basement across its full extent. As such, the potential for Aboriginal archaeology is highly unlikely due to this previous disturbance. Further, the additional excavation proposed underground would be wholly within rock. The mitigation measures identified for the approved project would be applied to the proposed modification. An additional assessment of potential changes to Aboriginal heritage impacts associated with the proposed modification is not considered necessary.
Landscape character and visual amenity	Yes	The proposed modification would involve the demolition of an additional property and the expansion of the northern Martin Place construction site. In the context of the overall site, the additional visual and landscape impacts during construction are considered to be negligible. An additional assessment of potential changes to landscape character and visual amenity during construction of the proposed modification is not considered necessary. The proposed modification would change the layout and functionality of the station at street level, provide new underground pedestrian links and retain the existing MLC pedestrian link. An assessment of potential changes to landscape character and visual amenity impacts during operation of the proposed modification is provided in Chapter 13.
Groundwater and geology	No	The proposed modification would involve some additional underground excavation, mainly associated with the new unpaid pedestrian link, however this would result in negligible changes to groundwater inflow rates and the target changes to groundwater levels identified for the approved project would still be applicable. An additional assessment of potential changes to groundwater and geology impacts associated with the proposed modification is not considered necessary.
Soils, contamination and water quality	No	As the construction activities for the proposed modification are generally consistent with the types of construction activities for the approved project, there would not be any additional soil, contamination or water quality risks. The mitigation measures identified for the approved project would be applied to the proposed modification. An additional assessment of potential changes to soil, contamination and water quality impact associated with the proposed modification is not considered necessary.
Social impacts and community infrastructure	No	The Environmental Impact Statement for the approved project identified potential social impacts associated with property acquisition, changes to community values, community health and safety, and changes to access and connectivity. Potential impacts to community infrastructure from the approved project include direct loss of infrastructure, changes to amenity and access. The proposed modification would not introduce any new potential social impacts, or directly impact any additional community infrastructure. The mitigation measures identified for the approved project would be applied to the proposed modification and are considered sufficient to manage these risks. Potential changed impacts associated with property acquisition, amenity and access are considered as part of the relevant issue-specific assessment chapter. An additional assessment of potential changes to social and community infrastructure impacts associated with the proposed modification is not considered necessary.

Issue	Potential change in impact?	Description
Biodiversity	No	The proposed modification would not involve the clearing of any vegetation, or impacts to any potential fauna habitat. An assessment of potential changes to biodiversity impacts associated with the proposed modification is not considered necessary.
Flooding and hydrology	No	The assessment of the approved project did not identify any substantial flooding and hydrology risks at Martin Place. The modified design of Martin Place Station would continue to meet the relevant flooding related design criteria for station entries. An assessment of potential changes to flooding and hydrology impacts associated with the proposed modification is not considered necessary.
Air quality	No	The assessment of the approved project identified potential air quality impacts associated with the generation of dust and exhaust emissions during construction. The proposed modification would not introduce any new air quality impacts and the mitigation measures identified for the approved project would be applied to the proposed modification. An assessment of potential changes to air quality impacts associated with the proposed modification is not considered necessary.
Hazard and risk	No	The assessment of the approved project identified potential hazard and risk impacts associated with the storage, use and transport of dangerous goods and hazardous substances, the rupture or interference of underground utilities, and damage to adjacent buildings due to ground movement. The proposed modification would not introduce any new hazard and risk impacts and the mitigation measures identified in for the approved project would be applied to the proposed modification. An assessment of potential changes to hazard and risk impacts associated with the proposed modification is not considered necessary.
Waste management	No	The assessment of the approved project identified potential waste management impacts associated with the handling and disposal of waste (including spoil) generated during construction and operation. The proposed modification would not introduce any new waste streams, although it would result in some minor additions to the volume of waste (including spoil) generated. The mitigation measures identified for the approved project would be applied to the proposed modification and would be sufficient to manage the minor increase in waste volumes. An assessment of potential changes to waste management impacts associated with the proposed modification is not considered necessary.
Sustainability	No	The assessment of the approved project identified potential sustainability impacts associated with climate change adaptation, construction resource use and greenhouse gas emissions. The proposed modification would not introduce any new sustainability impacts, although there would be some minor increases in the volumes of materials used and the greenhouse gas emissions emitted. These increases are not considered to make a material change to the assessment. The mitigation measures identified for the approved project would be applied to the proposed modification and would be sufficient to manage these minor increases In addition, the assessment of the approved project provided the sustainability strategy, objectives and initiatives for Sydney Metro City & Southwest. These would also apply to the proposed modification. An assessment of potential changes to sustainability impacts associated with the proposed modification is not considered necessary.

Issue	Potential change in impact?	Description
Cumulative impacts	No	The assessment of the approved project identified potential cumulative impacts at Martin Place Station associated with the potentially concurrent construction of over station development, CBD and South East Light Rail and 60 Martin Place. The proposed modification would not introduce a new interface with these or other known nearby developments. The mitigation measures identified for the approved project would also apply to the proposed modification. An assessment of potential changes to cumulative impacts associated with the proposed modification is not considered necessary.

TRAFFIC AND TRANSPORT

CHAPTER NINE

9 Traffic and transport

This chapter assesses the potential change in traffic and transport impacts during the construction and operation of the proposed modification. Any changes to mitigation measures to address the potential impacts are also identified.

9.1 Assessment methodology and assumptions

9.1.1 Construction traffic and transport assessment

Traffic assessment

The methodology for the construction traffic impact assessment of the proposed modification is consistent with the method used for the assessment of the approved project. This is based on the analysis of existing traffic movements on the road network near each construction site to determine the current operational performance. Construction traffic is then added to the existing network and analysed to identify potential impacts. The approach to traffic modelling carried out for this assessment aligns with the Traffic Modelling Guidelines (Roads and Maritime, 2013). The main performance indicators considered in the assessment are:

- Degree of Saturation – the ratio between traffic volumes and capacity (v/c) of the intersection, used to measure how close to capacity an intersection is operating. The Degree of Saturation is a direct measure of the congestion level at the intersection. As Degree of Saturation approaches 1.0, both queue length and delays increase rapidly. Satisfactory operations usually occur with a Degree of Saturation range between 0.8-0.9 or below
- Average Delay – duration, in seconds, of the average vehicle waiting time at an intersection
- Level of Service – a measure of the overall performance of the intersection. For this purpose, average delay from Roads and Maritime Services level of service calculations has been used. Criteria for level of service are provided in Table 9-1.

Table 9-1 Level of Service criteria

Level of service	Average delay (seconds per vehicle)	Traffic signals and roundabout operations
A	Less than 14	Good operation
B	15 to 28	Good with acceptable delays and spare capacity
C	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At capacity; at signals incidents will cause excessive delays
F	Greater than 70	Exceeds capacity; roundabouts require other control mode

Transport assessment

Consistent with the approach for the approved project, a qualitative assessment has been carried out on the potential impacts to transport services during construction. This includes consideration of the active transport network (pedestrian and cyclist facilities) and public transport services (suburban rail, buses and ferries) as relevant to the proposed modification.

9.1.2 Operational traffic and transport assessment

A qualitative assessment of the operation of the approved project was carried out, including a description of the transport integration of each station and assessment of the potential traffic and transport impacts. The same approach has been used for the operational traffic and transport assessment for the proposed modification.

9.2 Existing environment

The regional transport environment and road network in relation to the approved project and the local traffic and transport environment around Martin Place Station was described in the assessment for the approved project. This section provides further details relevant to the proposed Martin Place Station modification.

9.2.1 Active transport network

Martin Place is a key pedestrian-only facility in the Sydney CBD running between George Street and Macquarie Street. In the vicinity of the Martin Place Station southern site, signalised crossing facilities are provided at both Castlereagh and Elizabeth streets.

In the vicinity of the Martin Place Station northern site, the Castlereagh Street / Hunter Street and the Elizabeth Street / Hunter Street intersections provide signalised pedestrian crossing facilities on all legs.

There are currently no on-road separated or shared bicycle paths in the vicinity of the Martin Place Station.

9.2.2 Public transport network

The Martin Place precinct experiences high volumes of bus traffic during peak and off-peak periods, particularly along Elizabeth and Castlereagh streets.

The existing Martin Place Station on the T4 Eastern Suburbs and Illawarra Line and South Coast Line provides a key Sydney CBD access point.

9.2.3 Traffic volumes and patterns

The existing traffic volumes on the surrounding road network are provided in Table 9-2. Elizabeth Street northbound experiences heavy traffic volumes during both peak periods. There is a strong movement from Macquarie Street (southbound) in the east to Castlereagh Street (southbound) via Hunter Street, which contributes to relatively heavy westbound traffic on Hunter Street.

Currently, the Macquarie Street / Bent Street / Eastern Distributor ramps intersection is extremely congested during the AM and PM peaks with the intersection performing above its theoretical capacity at level of service F. Long delays are caused by conflict between high volumes of traffic on the Eastern Distributor ramps (westbound) and Macquarie Street (southbound).

All other intersections near the Martin Place Station construction sites currently operate at level of service B or better. However, at the Elizabeth Street / Phillip Street / Hunter Street intersection, signal coordination along Elizabeth Street causes delays for conflicting right turn movements and vehicles on side-streets.

Table 9-2 Existing traffic volumes

Road	Direction	AM peak hour (vehicles per hour)	PM peak hour (vehicles per hour)
Castlereagh Street Between King Street and Hunter Street	Southbound	380	510
Elizabeth Street Between King Street and Hunter Street	Southbound	1,130	1,110
	Northbound	410	590
Hunter Street Between Castlereagh Street and Elizabeth Street	Eastbound	190	190
	Westbound	790	630

9.3 Potential impacts – construction

9.3.1 Vehicle movement forecasts and routes

Due to the additional demolition, excavation and fitout works required for the proposed modification, there would be an increase in overall heavy vehicle movements (of around 30 to 50 per cent) at Martin Place compared to the approved project. However, this would extend the overall duration of construction activities at Martin Place and would not result in an increase in peak hourly heavy vehicle movements for any construction activity.

The haul routes are consistent with those identified for the approved project.

9.3.2 Active transport network

No additional impacts are expected as a result of the proposed modifications to the active transport network.

9.3.3 Public transport services

No additional impacts are expected as a result of the proposed modifications to public transport services.

9.3.4 Road network performance

The assessment of the approved project identified that the majority of intersections around Martin Place would maintain their base level of service during the construction period. There would, however, be some minor deterioration in performance at the Castlereagh Street / Hunter Street / Bligh Street intersection in the AM peak from level of service A to level of service B. However, the average delay and degree of saturation would not change and the impact of the approved project on this intersection was considered to be negligible.

As identified above, the additional demolition, excavation and fit out required for the proposed modification would not increase the peak hourly vehicle movements for any construction activity. As such, there would be no additional impact to the performance of the surrounding road network from those assessed for the approved project. These impacts would, however, be experienced over a longer duration due to the proposed modification.

9.4 Potential impacts – operation

The proposed modification would not change the transport integration of Martin Place Station in relation to cyclists, public transport and the road network.

The proposed modification would, however, alter the pedestrian integration of the new station entries with the surrounding area.

The approved project provided a station design which provided easy and safe interchange for pedestrians. With the approved project, footpaths around the site would operate at a level of service B or better with the exception of the Hunter Street / Castlereagh Street / Bligh Street intersection (although this would be partially addressed in the future through O'Connell Street pedestrian link), Hunter Street west of Castlereagh Street, and the Martin Place mid-block crossing of Castlereagh Street. The approved project includes the following pedestrian interchange features:

- Open plaza entrances to the station with ample footpath space within the site to accommodate the anticipated pedestrian demand
- A new underground pedestrian link between the suburban Martin Place Station platforms and the metro platforms
- A future underground connection to O'Connell Street and / or Bligh Street (subject to future development of the site).

The approved project also involves the closure of existing access and egress points to the west of Elizabeth Street from Martin Place to the underground concourse.

The proposed modification represents a solution to the ongoing design development of the Sydney Metro Martin Place Station. This design development particularly relates to the opportunity to deliver a single, fully integrated station and over station development. This has resulted in a number of additional or changed features which provide further pedestrian integration benefits. This includes:

- Larger public plaza space at street level at both station entries providing improved access and connectivity to the public domain
- Retention of the existing MLC pedestrian link and connection to the station concourse. This would provide pedestrian access to and from the station concourse directly to the MLC Centre, potentially taking pressure off the Martin Place / Castlereagh Street pedestrian crossing
- A new unpaid concourse link providing underground connectivity between the southern and northern station entries
- Centralised organisation of the station entries contributing the intuitive and legible wayfinding.

The proposed modification would not change the pedestrian level of service identified for the approved project. Footpaths around the site would continue to operate at level of service B or better with the potential exception of a few locations identified above in the assessment of the approved project. Options to mitigate the potential issues at these intersections would continue to be developed by Transport for NSW in consultation with the Transport Coordination, City of Sydney Council and Roads and Maritime Services.

9.5 Mitigation measures

The Sydney Metro Construction Environmental Management Framework (provided as part of the Submissions and Preferred Infrastructure Report) sets out the environmental management approach and strategy for the project, and includes commitments regarding the development and implementation of a construction environmental management plan and associated sub-plans.

The relevant project-specific mitigation measures identified in the approval documentation would continue to apply to the project as proposed to be modified. These mitigation measures would adequately address the potential changes to traffic and transport impacts. No additional or revised traffic and transport measures are considered necessary.

In addition, the conditions of approval issued for the approved project would also apply to the proposed modification. Of relevance this includes:

- Condition E80 – minimising truck movements during peak periods
- Condition E81 – development of a Construction Traffic Management Framework which sets out the approach to manage traffic and transport issues for the project

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CONSTRUCTION NOISE AND VIBRATION

CHAPTER TEN

10 Construction noise and vibration

This chapter assesses the potential changes to noise and vibration impact during the construction as a result of the proposed modification. Any changes to mitigation measures to address the potential impacts are also identified.

10.1 Assessment methodology

The assessment of potential changes to construction noise and vibration impacts followed the same approach as was carried out for the approved project and involved:

- Identifying and classifying sensitive receivers
- Characterising the existing noise environment based on attended and unattended noise measurements at nearby receiver locations
- Determining noise and vibration management levels in accordance with relevant guidelines
- Modelling to quantify the potential construction noise and vibration impacts from the construction activities for the proposed modification
- Identifying the potential changes to the impacts from the approved project and assessing the significance of potential impacts identified
- Preparing and documenting any changes to the mitigation measures identified for the approved project that would be implemented during construction.

10.2 Existing environment

The existing noise and vibration environment around Martin Place was described as part of the Environmental Impact Statement. This section provides details of the existing noise and vibration environment specifically relating to the proposed modification.

To characterise the existing ambient noise environment and to establish ambient noise levels on which to base the construction noise management levels (NMLs), noise monitoring was carried out to inform the assessment of the approved project. The relevant results are provided in Table 10-1.

Table 10-1 Results of unattended noise monitoring

Location ID	Noise Level (dBA)[1]					
	Daytime 7 am to 6 pm		Evening 6 pm to 10 pm		Night-time 10 pm to 7 am	
	RBL	L_{Aeq}	RBL	L_{Aeq}	RBL	L_{Aeq}
B.11	61	66	56	62	52	63

1 The RBL and L_{Aeq} noise levels have been obtained using the calculation procedures documented in the INP.

10.3 Noise and vibration criteria

10.3.1 Airborne noise

Construction noise management levels for airborne noise were determined using the same approach as for the approved project. This involved:

- For residential receivers deriving noise management levels based on the background noise level and the guidance provided in the *Interim Construction Noise Guideline* (ICNG) (Department of Environment and Climate Change, 2009)
- For non-residential receivers, applying the applicable noise management level from the ICNG
- For hotels, cafes, bars, restaurants and libraries applying the 'maximum' internal levels presented in *AS 2107 2000 Recommended Design Sound Levels and Reverberation Times for Building Interiors*
- For child care centres applying the criteria from *Technical Guideline Child Care Centre Noise Assessment* (Association of Australian Acoustical Consultants, 2008).

Table 10-2 provides a summary of the NMLs relevant for each receiver type.

Table 10-2 Summary of noise management levels

Receiver type	Standard construction hours[1]	Out of hours[2]			Sleep disturbance screening (RBL + 15)
	Daytime	Daytime	Evening	Night-time	
Residential	71	66	61	57	67
Commercial	70	70	N/A	N/A	N/A
Industrial	75	75	N/A	N/A	N/A
Other (Childcare)	50	50	N/A	N/A	N/A
Other (Educational)[3]	55	N/A	N/A	N/A	N/A
Other (Medical)[3]	55	55	55	N/A	N/A
Other (Place of Worship)[3]	55	55	N/A	N/A	N/A
Other (Theatre)[4]	30	30	30	N/A	N/A
Other (Outdoor active)	65	65	65	N/A	N/A
Outdoor (Passive)	60	60	60	N/A	N/A

1 *Standard construction hours are: 7am-6pm Monday to Friday, 8am-1pm Saturdays*

2 *Out of hours periods are: Daytime: 1pm-6pm Saturdays and 8am-6pm Sunday; Evening 6pm-10pm; Night time hours 10pm-7am Sunday to Saturday and 10pm Saturday to 8am Sunday.*

3 *External levels, based on the internal levels specified in the ICNG / applicable standards or guidelines, plus 10 dB (assuming open windows)*

4 *Internal noise level. For the purposes of this assessment a conservative outside-to-inside attenuation of 20 dB has been assumed.*

10.3.2 Ground-borne noise

Consistent with the approach for the assessment of the approved project, ground-borne noise management levels were applied from the ICNG. Construction noise management levels for airborne noise were determined using the same approach as for the approved project. Ground-borne NMLs for residential receivers, based on levels provided in the ICNG, are presented in Table111-4.

Table 10-3 Ground-borne noise management levels for residential receivers

Time of day	Ground-borne NMLs $L_{Aeq(15\ minute)}$
Daytime 7 am to 6 pm	45 dBA – internal
Evening 6 pm to 10 pm	40 dBA – internal
Night-time 10 pm to 7 am	35 dBA – internal

For commercial receivers, the ICNG does not provide guidance in relation to acceptable ground-borne noise levels. However, the assessment of the approved project adopted an internal NML of $L_{Aeq(15minute)}$ 50 dBA based on the ICNG external airborne noise NML of 70 dBA and that when commercial premises have windows closed this would provide typically 20 dB of noise reduction from outside to inside. This level has also been applied to this assessment.

For other sensitive receivers, such as education institutions, hospital wards and operating theatres, and place of worship, the ICNG does not provide guidance in relation to acceptable ground-borne noise levels. However, the internal airborne noise NMLs provided in the ICNG and AS 2107 for these receivers have been adopted in order to assist in identifying potential impacts.

10.3.3 Construction ground-borne vibration

The assessment of potential changes to construction vibration used the same screening criteria as the assessment of the approved project. These were derived from guidance provided in British Standard BS 7385 for cosmetic damage levels and are:

- Reinforced or framed structures: 25.0 mm/s
- Unreinforced or light framed structures: 7.5 mm/s
- Heritage items: 7.5 mm/s.

10.3.4 Construction traffic noise

The assessment of road traffic noise adopted the same approach as was applied for the assessment of the approved project by using guidance in the *NSW Road Noise Policy* (RNP) (Department of Environment, Climate Change and Water, 2011a).

One of the objectives of the RNP is to protect against excessive reduction in amenity as the result of a project by comparing traffic noise levels to the following relevant road traffic noise criteria:

- Existing freeway / arterial / sub-arterial roads:
  - $L_{Aeq(15hour)}$ 60 dBA day
  - $L_{Aeq(9hour)}$ 55 dBA night
- Existing local roads:
  - $L_{Aeq(1hour)}$ 55 dBA day
  - $L_{Aeq(1hour)}$ 50 dBA night.

Where traffic noise levels from the existing traffic plus the additional traffic generated by the project exceeds the above criteria, any increase in the total traffic noise level should be limited to 2 dB above that of the corresponding 'no project option'.

In considering feasible and reasonable mitigation measures where the relevant noise increase is greater than 2 dB, consideration is also given to the actual noise levels associated with construction traffic.

10.3.5 Sleep disturbance

Consistent with the approach for the assessment of the approved project a sleep disturbance NML of 55 dBA (internal) has been adopted, which equates to an external noise level of 65 dBA (assuming open windows).

10.4 Potential impacts

10.4.1 Airborne noise

Potential changes to airborne noise impacts from the approved impact would occur due to the additional demolition of 9-19 Elizabeth Street, the revised footprint of shaft excavation and construction of above ground station buildings at 9-19 Elizabeth Street.

The demolition of 9-19 Elizabeth would occur after the demolition of other buildings on the northern site has been completed. As such, sensitive receivers are not anticipated to experience concurrent noise impacts associated with demolition from the approved project and the proposed modification. The revised shaft excavation and construction of above ground station buildings at 9-19 Elizabeth Street would occur concurrently with the approved project works. As such, the revised combined impact of the proposed modification and the approved project has been modelled.

For the vast majority of receivers and construction scenarios, the revised modelling shows alignment with the predictions for the approved project. However, in some instances, the revised modelling carried out for the proposed modification shows overall reductions in noise from the approved project, or changes in noise levels in locations where the approved project works are closer than the proposed modification works. Whilst every effort has been made to align the parameters between the noise models, slight variations in predictions are not unexpected. To provide a conservative assessment, the higher noise level from either the approved project assessment or this assessment is to be adopted.

The predicted noise levels associated with the proposed modification are provided in Table 10-4. As they relate to changes in noise levels due to the proposed modification, the results show:

- For enabling works, the proposed demolition of 9-19 Elizabeth Street would result in the impacts of demolition being experienced by sensitive receivers for a longer period of time. However for the majority of these receivers, the impacts during demolition of 9-19 Elizabeth Street would be less than that experienced for the approved project works
- For earthworks, there would be slight increases in impacts at residential receivers to the west in NCA-B and commercial receivers between the two sites in NCA-E due to the increased footprint of earthworks at 9-19 Elizabeth Street
- For acoustic shed construction, there would be slight increases in impacts at residential receivers to the west in NCA-B, commercial receivers to the east in NCA-D, commercial receivers between the two sites in NCA-E due to the increased footprint of the acoustic shed.

These additional impacts (compared to the approved project) would only occur when works are being carried out at the closest location to the particular receivers, and usually when works are occurring at the additional land at 9-19 Elizabeth Street. At other times during construction, potential noise impacts are likely to be consistent with those identified in the assessment of the approved project.

Table 10-4 Airborne noise impacts

Receiver area	Enabling works[2]	Earthworks	Acoustic shed construction	Excavation with shed					Construction
	Day	Day	Day	Day	DOOH[3]	Evening	Night	Sleep	Day
A Commercial Travellers Association (Hotel) west of Castlereagh Street	●	●	●	●	●	●	●	●	● (●)
A Commercial receivers to the west, west of Castlereagh Street and south of Martin Place	●	●	●	●	●	●	●	●	●
A Theatre Royal to the west, west of Castlereagh Street and south of Martin Place	●	●	●	●	●	●	●	●	●
B Residential receivers to the west, west of Castlereagh Street and north of Martin Place	●	● (●)	● (●)	●	●	●	●	●	●
B Commercial receivers to the west, west of Castlereagh Street and north of Martin Place	●	●	●	●	●	●	●	●	●
C Residential receivers to the north, north of Hunter Street	●	●	●	●	●	●	●	●	●
C Commercial receivers to the north, north of Hunter Street	●	●	● (●)	● (●)	●	●	●	●	● (●)
C Educational ELS Universal English College to the north, north of O'Connell Street	●	●	●	●	●	●	●	●	● (●)
D Channel 7 Studio	●	●	●	●	●	●	●	●	● (●)
D Commercial receivers to the east, between Hunter Street and Martin Place	●	●	● (●)	●	●	●	●	●	●
D Residential receivers to the east, between Hunter Street and Martin Place	●	●	●	●	●	●	●	●	●
E Commercial receivers between the two construction sites	●	● (●)	● (●)	●	●	●	●	●	●
F Residential receivers to the south on Elizabeth Street	●	●	●	●	●	●	●	●	●
F Commercial receivers to the east, between King Street and Martin Place	●	●	●	●	●	●	●	●	●
F Educational to the east, between King Street and Martin Place	●	●	●	●	●	●	●	●	●
G Educational receivers to the south, between Castlereagh Street and Elizabeth Street	●	●	● (●)	● (●)	●	●	●	●	●
G Commercial receivers to the south, between Castlereagh Street and Elizabeth Street	●	●	●	●	●	●	●	●	●

Legend

● NML Compliance

● NML exceedance of less than 10 dB

● NML exceedance of more than 10 dB

● NML exceedance of more than 20 dB

1 *The noise impacts for the approved project are shown in (brackets) where they differ from the revised impacts of the proposed modification*

2 *Comparison to approved project impacts not provided for enabling works as the demolition of 9-19 Elizabeth would occur after the demolition of other buildings on the northern site has been completed*

3 *DOOH = Daytime out of hours (ie Saturdays 1pm to 6pm and Sundays 7am to 6pm)*

10.4.2 Ground-borne noise

Potential changes to ground-borne noise impacts from the approved impact would occur due to the revised footprint of shaft excavation at the northern construction site and the additional underground excavation of the new unpaid concourse link.

Table 10-5 shows the revised ground-borne noise impact at receivers around the northern construction site compared to the approved project. This shows potential increased ground-borne noise impacts at 50 Martin Place and at the Channel 7 Studio.

Similar to the additional airborne noise impacts, these additional ground-borne noise impacts (compared to the approved project) would only occur when works are being carried out at the closest location to the particular receivers, and usually when works are occurring at the additional land at 9-19 Elizabeth Street. At other times during construction, potential noise impacts are likely to be consistent with those identified in the assessment of the approved project.

Table 10-5 Revised ground-borne noise impacts

Receiver	NML exceedance (proposed modification)	NML exceedance (approved project)
50 Martin Place	10-25 dB	Nil
Channel 7 Studio	10-25 dB	10-15 dB1
Commercial receivers to the east and west	Up to 10 dB	Up to 10 dB
Commercial Travellers Association (Hotel)	10-20 dB	Up to 20 dB
Residential receiver to west	Up to 10 dB	Up to 10 dB

1 *The Noise and Vibration Technical Appendix to the Submissions and Preferred Infrastructure Report identified the ground-borne noise exceedance of the approved project to the Channel 7 Studio as being 20-25 dB above the noise management level. The revised impact of the approved project would not be above this level*

10.4.3 Ground-borne vibration

The proposed modification would result in increased vibration levels to 50 Martin Place. The assessment of the approved project predicted that vibrations levels at this receiver would remain below the applicable screening criterion of 7.5 mm/s for heritage structures.

Due to the revised footprint of the shaft excavation and the underground excavation of the new unpaid concourse link vibration levels at this receiver are now predicted to be above the applicable 7.5 mm/s screening criterion. However, 50 Martin Place may be more typical of a reinforced or framed structure with a higher cosmetic damage screening criterion (of 25 mm/s). Potential vibration levels from the proposed modification would remain below 25 mm/s.

Notwithstanding, and consistent with mitigation measure NV3, a more detailed assessment of the structure and attended vibration monitoring would be carried out to ensure vibration levels remain below appropriate limits for that structure. For 50 Martin Place, this would specifically consider the heritage values of the structure.

10.4.4 Construction traffic noise

As identified for the construction traffic assessment, the proposed modification would not increase the peak hourly vehicle movements for any construction activity. As such, there would be no additional construction traffic noise impacts. These impacts would, however, be experienced over a longer duration due to the proposed modification.

10.5 Mitigation measures

The Sydney Metro Construction Environmental Management Framework (provided as part of the Submissions and Preferred Infrastructure Report) sets out the environmental management approach and strategy for the project, and includes commitments regarding the development and implementation of a construction environmental management plan and associated sub-plans.

The relevant project-specific mitigation measures identified in the approval documentation would continue to apply to the project as proposed to be modified. These mitigation measures would adequately address the potential changes to noise and vibration impacts. In particular, the Sydney Metro Construction Noise and Vibration Strategy would apply, including the offer of additional mitigation measures for adjacent receivers for certain categories of noise management level exceedances. No additional or revised noise and vibration measures are considered necessary.

In addition, the conditions of approval issued for the approved project would also apply to the proposed modification. Of relevance this includes:

- Conditions E28 to E31 – requirements in relation to vibration levels, consultation and monitoring (including of adjacent heritage items)
- Conditions E37 and E38 – respite periods for ground-borne noise impacts
- Condition E41 – trigger levels for additional mitigation measures for residential receivers in non-residential zones.

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LAND USE AND PROPERTY

CHAPTER ELEVEN

11 Land use and property

This chapter provides an assessment of the potential changes to land use and property impacts as a result of the construction and operation of the proposed modification and identifies any changes to mitigation measures to minimise these impacts.

11.1 Existing environment

The existing land use and property environment in and around Martin Place Station was described in the assessment for the approved project. This section provides further details specific to the proposed modification.

11.1.1 Land use

The area around the Martin Place Station is influenced by two of Central Sydney's most prominent urban plazas, Chifley Square and Martin Place. The area is traversed by several important civic streets, including Elizabeth, Castlereagh and Hunter streets, which are fronted by office towers with intermittent mature trees creating important streetscape vistas.

To the north of Martin Place Station is the northern Sydney CBD and Circular Quay precinct. To the east are the important civic functions of Sydney Hospital, the State Library of NSW, the Royal Botanic Gardens and The Domain. It is a major cultural, social and leisure destination throughout the working week, on weekends and for major cultural events throughout the year.

To the south of the station, the midtown retail precinct (anchored on Pitt Street Mall and the Queen Victoria Building) is a major destination for shopping in the Sydney CBD and has a high amount of pedestrian activity. To the west is a mixed commercial precinct offering a different built form and character to the financial core.

11.1.2 Planning controls

The *Sydney Local Environmental Plan 2012* (Sydney LEP 2012) defines the land use zoning in proximity to Martin Place Station as a mix of B8 Metropolitan Centre, RE1 Public Recreation and SP2 Infrastructure. The majority of the station footprint is zoned B8 Metropolitan Centre. The aims of this zone are to provide an opportunity for the dominant role of business, office, retail, entertainment and tourist premises, commensurate with Sydney's global status.

11.2 Integration with local planning strategies

The approved project provided information relating to the integration of Martin Place Station with key local planning strategies including the *City North Public Domain Plan* (City of Sydney, 2015) and *Sustainable Sydney 2030 Strategic Plan* (City of Sydney, 2008).

The proposed modification would further support these local planning strategies. In particular, the proposed modification would support the *City North Public Domain Plan*. This would be achieved primarily through:

- The larger public plaza space and the opening up of the ground floor frontage at the southern station entry to a public function supporting the Martin Place Urban Design plan
- The activation of street frontages along Elizabeth, Castlereagh and Hunter streets and Martin Place.

11.3 Potential impacts

11.3.1 Property

One additional property would be included for the proposed modification. The revised property requirements at Martin Place Station are summarised in Table 11-1.

Table 11-1 Property requirements

Land use type	Approved project at Martin Place		Proposed modification		Total with proposed modification	
	Area (m^2)	Number of properties	Area (m^2)	Number of properties	Area (m^2)	Number properties
Mixed use	3541	4	–	–	3541	4
Commercial / retail	702	3	475	1	1177	4
Residential	241	1	–	–	241	1

The additional property would be 9-19 Elizabeth Street. This property is used for commercial use and has a land area of around 475 square metres.

11.3.2 Land use

The approved project includes a change in the use of the land from metropolitan centre to transport infrastructure. The proposed modification would result in one additional property being changed from its current commercial use under the metropolitan centre zone to a transport infrastructure use. However, the impact of this change would remain minor considering the opportunity being progressed for an integrated over station development, which would be permissible within the metropolitan centre land use zone.

11.4 Mitigation measures

The Sydney Metro Construction Environmental Management Framework (provided as part of the Submissions and Preferred Infrastructure Report) sets out the environmental management approach and strategy for the project, and includes commitments regarding the development and implementation of a construction environmental management plan and associated sub-plans.

The relevant project-specific mitigation measures identified in the approval documentation would continue to apply to the project as proposed to be modified. These mitigation measures would adequately address the potential changes to land use and property impacts. No additional or revised land use and property measures are considered necessary. In addition, the conditions of approval issued for the approved project would also apply to the proposed modification.

NON-ABORIGINAL HERITAGE

CHAPTER TWELVE

12 Non-Aboriginal heritage

This chapter provides an assessment of the potential changes to impacts on non-Aboriginal heritage items and archaeological remains as a result of the proposed modification, and identifies any changes to mitigation measures.

12.1 Assessment methodology

The assessment of non-Aboriginal heritage in relation to the proposed modification is the same as the methodology used in the assessment for the approved project as summarised below. The study area is consistent with that identified for the approved project works at Martin Place.

12.1.1 Identification, significance and assessment of heritage items

Identification of heritage items

This chapter considers potential changes to impacts of the proposed modification on:

- Heritage listed items – buildings or other structures, places, items, areas or cultural landscapes that are located aboveground
- Archaeological heritage – significant physical remains of the past, including relics and artefacts that are located underground.

Heritage listed items within the study area have been identified through a search of various heritage registers. These listed heritage items have been previously assessed against the NSW Heritage Office guideline *Assessing Heritage Significance* (2001). Statements of heritage significance identified in this chapter are consistent with those included in relevant heritage inventory sheets and are based on the 2001 guideline.

Historic archaeological potential is defined as the potential of a site to contain historical archaeological relics, as classified under the *NSW Heritage Act 1977*. Preliminary assessment of the archaeological potential was considered based on a review of several historical archaeological investigations within or close to the study area. This provides evidence that helps to evaluate the potential historical archaeological resource of the study area.

Significance of heritage items

Determining the significance of heritage items or a potential archaeological resource generally follows the evaluation criteria set out in the NSW Heritage Office guideline *Assessing Heritage Significance* (2001). The level of heritage significance in relation to a place, building, work, relic, moveable object or precinct, can be considered to be at a local or State level of significance – that is, important in a local context or in a NSW State context – if it meets one or more of the following criteria:

- Criterion (a): Historic significance
- Criterion (b): Associative significance
- Criterion (c): Aesthetic significance
- Criterion (d): Social significance
- Criterion (e): Research potential
- Criterion (f): Rarity
- Criterion (g): Representativeness.

Assessment of heritage impact

Impacts on heritage are identified as either:

- Direct impacts, resulting in the demolition or alteration of fabric of heritage significance
- Indirect impacts, resulting in changes to the setting or curtilage of heritage items or places, historic streetscapes or views
- Potential direct impact, resulting in impacts from vibration and demolition of adjoining structures.

The vibration modelling referenced in this heritage assessment considers a reasonable 'worst case' construction vibration scenario, being excavation by rock breakers at surface level. Vibration levels have been calculated at the closest façade of buildings or structures adjacent to this construction activity. Vibration impacts have also been considered with respect to demolition of structures adjacent to heritage items.

Specific terminology and corresponding definitions are used in this assessment to consistently identify the magnitude of the project's direct, indirect or potentially direct impacts on heritage items or archaeological remains. The terminology and definitions are based on those contained in guidelines produced by the International Council on Monuments and Sites (ICOMOS) and are shown in Table 12-1.

Table 12-1 Terminology for assessing the magnitude of heritage impact

Magnitude	Definition
Major	Actions that would have a long term and substantial impact on the significance of a heritage item. Actions that would remove key historic building elements, key historic landscape features, or significant archaeological materials, thereby resulting in a change of historic character, or altering of a historical resource. These actions cannot be fully mitigated.
Moderate	Actions involving the modification of a heritage, including altering the setting of a heritage item or landscape, partially removing archaeological remains, or the alteration of significant elements of fabric from historic structures. The impacts arising from such actions may be able to be partially mitigated.
Minor	Actions that would result in the slight alteration of heritage buildings, archaeological remains, or the setting of an historical item. The impacts arising from such actions can usually be mitigated.
Negligible	Actions that would result in very minor changes to heritage items.
Neutral	Actions that would have no heritage impact.

Vibration screening levels

A conservative vibration damage screening level of 7.5 millimetres per second peak particle velocity has been adopted for all heritage items for the approved project, and would be applicable to the proposed modification sites. This screening level has been established with reference to the minor cosmetic damage criteria for unreinforced or light framed structures in *British Standard BS 7385:2 – 1993*. The vibration levels specified in this standard are designed to minimise the risk of threshold or cosmetic surface cracks, and are set well below the levels that have potential to cause damage to the main structure.

12.2 Assessment of heritage significance and impact

The potential impacts to the majority of the heritage items within the study area would remain unchanged from the approved project. The exception is the Commonwealth Bank of Australia, including interior. This item is listed on the State Heritage Register and the Sydney LEP and is of State significance. This item may experience additional impacts due to the additional demolition of the adjacent 9-19 Elizabeth Street and the additional excavation of the unpaid concourse link extending beneath this building.

Table 12-2 provides a comparison of the approved project impacts and the potential impacts of the proposed modification on this heritage item.

Table 12-2 Revised impacts to Commonwealth Bank of Australia, including interior

Approved project impact	Proposed modification impact	Change in impact
Direct impact: Nil The approved project would not directly impact on the Commonwealth Bank of Australia building.	**Direct impact: Minor (closure of physical connections to 9-19 Elizabeth Street)** The existing connections from 9-19 Elizabeth Street to 50 Martin Place would be closed and the areas would be patched. This would allow for missing finishes internally and externally to be sympathetically replaced / reconstructed at the infilled openings, resulting in a potential positive heritage impact.	Additional minor impact. Potentially additional positive impact.
Potential direct impact: Minor (vibration) The closest façade of this item would not experience vibration above the 7.5 mm/s screening level for cosmetic damage as a result of mined construction of underground pedestrian connections, however demolition of existing adjacent and adjoining structures may result in vibration impacts above the screening level for cosmetic damage.	**Potential direct impact: Moderate (vibration)** The closest façade of this item would experience vibration above the 7.5 mm/s screening level for cosmetic damage as a result of the mined construction of underground pedestrian connections, however due to its construction type a 25 mm/s screening level may be more applicable to this building. Vibration levels would remain below 25 mm/s. Demolition of existing adjacent and adjoining structures (including 9-19 Elizabeth Street) may result in vibration impacts above the screening level for cosmetic damage.	Increased potential vibration impacts (moderate)
Potential direct impact: Minor (demolition of adjacent and adjoining structure) Demolition of existing adjacent and adjoining structures may result in vibration impacts above the screening level for cosmetic damage.	**Potential direct impact: Minor (demolition of adjacent and adjoining structure)** Demolition of an additional existing adjacent and adjoining structure (9-19 Elizabeth Street) may result in vibration impacts above the screening level for cosmetic damage.	Nil

Approved project impact	Proposed modification impact	Change in impact
Indirect impact: Moderate (views and vistas) The aesthetic significance of the item is primarily in relation to its design and materials. These elements of aesthetic value would not be impacted by the approved project. The buildings to be demolished to the north and south of the item do not contribute to the heritage significance or setting of the item. The demolition of buildings to the north and south of the item and the introduction of the southern station entry would have a moderate impact on setting of the heritage item. The social significance of the item would not be impacted as it would retain its use as a banking institution and public association with that industry. The rarity of the item would not be impacted by the approved project as the fabric of the item would not be impacted.	**Indirect impact: Moderate (views and vistas)** The elements of aesthetic value would not be impacted by the proposed modification. The additional building to be demolished at 9-19 Elizabeth Street to the north does not contribute to the heritage significance or setting of the item. As with the approved project, the demolition of buildings to the north would have a moderate impact on the setting of the heritage item. However, a building of little architectural distinction, its demolition has the potential to enhance the adjoining heritage item through the potential to enhance views to the heritage item and for a sympathetic new development on its site.	Nil

12.2.1 Archaeology

Although the proposed modification would include an additional property at 9-19 Elizabeth Street, this building contains a basement across its full extent. The additional excavation proposed as part of the modification would be wholly contained within rock. As such, the potential for archaeology is considered to be highly unlikely.

12.3 Mitigation measures

The Sydney Metro Construction Environmental Management Framework (provided as part of the Submissions and Preferred Infrastructure Report) sets out the environmental management approach and strategy for the project, and includes commitments regarding the development and implementation of a construction environmental management plan and associated sub-plans.

The relevant project-specific mitigation measures identified in the approval documentation would continue to apply to the project as proposed to be modified.

The non-Aboriginal heritage assessment for the proposed modification identified that an additional mitigation measure is required in relation to the closure of the links between 9-19 Elizabeth Street and the Commonwealth Bank of Australia building. This additional mitigation measure is listed in Table 12-3.

In addition, the conditions of approval issued for the approved project would also apply to the proposed modification. Of relevance this includes:

- Condition E14 – external photography of all buildings and structures to be demolished. This would apply to the additional demolition of 9-19 Elizabeth Street
- Condition E21 – preparation of a Heritage Interpretation Plan
- Conditions E30 and E31 – in relation to managing potential vibration impacts to nearby heritage items.

Table 12-3 Mitigation measures – Non-Aboriginal heritage

ID	Mitigation measure	Applicable location(s)[1]
NAH21	The internal and external finishes of the infilled openings between 9-19 Elizabeth Street and the Commonwealth Bank of Australia building would be developed in consultation with a heritage architect.	MP

1 *STW: Surface track works; CDS: Chatswood dive site; AS: Artarmon substation; CN: Crows Nest Station; VC: Victoria Cross Station; BP: Blues Point temporary site; GI: Ground improvement works; BN: Barangaroo Station; MP: Martin Place Station; PS: Pitt Street Station; CS: Central Station; WS: Waterloo Station; MDS: Marrickville dive site (including Sydney Metro Trains Facility South); SS: Sydenham Station; STWS: Surface track works south Metro rail tunnels: Metro rail tunnels not related to other sites (eg TBM works); PSR: Power supply routes.*

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LANDSCAPE CHARACTER AND VISUAL AMENITY

CHAPTER THIRTEEN

13 Landscape character and visual amenity

This chapter provides an assessment of the potential changes to impact of the proposed modification on landscape character and visual amenity, and identifies any changes to mitigation measures.

13.1 Assessment methodology

The potential changes to landscape character and visual amenity impacts were assessed during construction and operation of the proposed modification. The assessment methodology is consistent with the approach used for the approved project and includes:

- A description of the existing environment
- Identification of potential landscape and visual receivers and the sensitivity of those receivers
- Identification of potential landscape character and visual amenity impacts
- A general assessment of the potential improvement or reduction in landscape character and visual values
- Identification of any changes to mitigation measures.

13.1.1 Landscape impact assessment

Landscape in the urban context refers to the overall character and function of a place. It includes all elements within the public realm and the interrelationship between these elements and the people who use them.

To identify these impacts, the assessment identified the sensitivity of the element to change and the magnitude of change expected as a result of the proposed modification at Martin Place, and then made an overall assessment of the level of impact expected.

The degree of sensitivity of each landscape element to change was identified as either neighbourhood, local, regional, State or National. Definitions are provided in the Environmental Impact Statement.

The magnitude of modification to landscape quality of each landscape element was identified as either a considerable reduction, noticeable reduction, no perceived change, noticeable improvement, or considerable improvement. Definitions are provided in the Environmental Impact Statement.

The assessed sensitivity and landscape modification change was then combined for each element to identify a level of landscape impact based on the matrix in Table 13-1.

Table 13-1 Landscape impact matrix

Landscape change	Landscape sensitivity				
	National	State	Regional	Local	Neighbourhood
Considerable reduction	Very high adverse	Very high adverse	High adverse	Moderate adverse	Minor adverse
Noticeable reduction	Very high adverse	High adverse	Moderate adverse	Minor adverse	Negligible
No perceived change	Negligible	Negligible	Negligible	Negligible	Negligible
Noticeable improvement	Very high beneficial	High beneficial	Moderate beneficial	Minor beneficial	Negligible
Considerable improvement	Very high beneficial	Very high beneficial	High beneficial	Moderate beneficial	Minor beneficial

13.1.2 Visual impact assessment

Daytime

The daytime visual impact assessment, as described in the Environmental Impact Statement, considered visual amenity as experienced by the people (including rail customers, residents, workers, tourists, etc) using the site surrounds. It aimed to identify the range of views to the site that may be impacted, including views from public spaces, residential areas, offices and streets. The assessment of these impacts involved identifying the existing visual conditions, views that are representative of these conditions, the sensitivity of the views (based on the definitions in the Environmental Impact Statement), and the magnitude of change expected as a result of the proposed modification at Martin Place (based on the definitions in the Environmental Impact Statement). An overall assessment was then made of the level of impact expected (based on the matrix in Table 13-2).

The sensitivity levels incorporate a consideration of heritage values within a viewpoint, however the visual impact assessment is based on the potential change in views only. Assessment of potential impacts to views and vistas associated with individual heritage items and elements is provided in Chapter 12 (Non-Aboriginal heritage).

Table 13-2 Daytime visual impact matrix

Visual change	Daytime visual sensitivity				
	National	State	Regional	Local	Neighbourhood
Considerable reduction	Very high adverse	Very high adverse	High adverse	Moderate adverse	Minor adverse
Noticeable reduction	Very high adverse	High adverse	Moderate adverse	Minor adverse	Negligible
No perceived change	Negligible	Negligible	Negligible	Negligible	Negligible
Noticeable improvement	Very high beneficial	High beneficial	Moderate beneficial	Minor beneficial	Negligible
Considerable improvement	Very high beneficial	Very high beneficial	High beneficial	Moderate beneficial	Minor beneficial

Night-time

The assessment of night-time impacts was carried out with a similar methodology to the daytime assessment as described in the Environmental Impact Statement.

The resulting impact levels are shown in Table 13-3.

Table 13-3 Night-time visual impact matrix

Visual change	Night-time visual sensitivity			
	E1: Intrinsically dark landscapes	E2: Low district brightness	E3: Medium district brightness	E4: High district brightness
Considerable reduction	Very high adverse	Very high adverse	High adverse	Moderate adverse
Noticeable reduction	Very high adverse	High adverse	Moderate adverse	Minor adverse
No perceived change	Negligible	Negligible	Negligible	Negligible
Noticeable improvement	Very high beneficial	High beneficial	Moderate beneficial	Minor beneficial
Considerable improvement	Very high beneficial	Very high beneficial	High beneficial	Moderate beneficial

13.2 Existing environment

The existing landscape character and visual environment in and around Martin Place Station was described in the Environmental Impact Statement. This section provides further details specific to the landscape character and visual environment associated with the proposed modification.

The area around Martin Place Station precinct is influenced by two of central Sydney's most prominent urban plazas – Chifley Square and Martin Place. The precinct is traversed by several important civic streets, including Elizabeth, Castlereagh and Hunter streets, which are lined by office towers, with intermittent mature trees, creating important streetscape vistas.

The setting of the proposed northern station building is characterised by the unique and historic semi-circular urban form of nearby Chifley Square, including Qantas House and Chifley Tower, which follow the curved alignment of Chifley Square. These buildings create a distinct sense of enclosure for Chifley Square and this part of the Sydney CBD.

The proposed southern station building located on the southern side of Martin Place, between Castlereagh and Elizabeth streets, is opposite the historic Commonwealth Bank building. The character of this site is influenced by the verticality of buildings flanking the southern edge of Martin Place. The built form of Martin Place is marked by iconic and identifiable buildings that both attract attention and channel views along surrounding streets.

13.3 Potential impacts

13.3.1 Landscape character impacts

Six landscape character areas were assessed for the approved project. Of these, the proposed modification may result in changes to impacts at the following three areas:

- Castlereagh, Hunter and Elizabeth streets
- Martin Place
- Castlereagh and Elizabeth streets at Martin Place.

There would be no change in impacts from the approved project at the remaining three landscape character areas.

The potential change in landscape impacts anticipated during construction and operation are summarised in Table 13-4 and Table 13-5.

Table 13-4 Landscape character impacts – construction

Location	Sensitivity rating	Approved project		Proposed modification	
		Landscape change	Landscape impact	Landscape change	Landscape impact
Castlereagh, Hunter and Elizabeth streets	Local	Noticeable reduction	Minor adverse	Noticeable reduction	Minor adverse
Martin Place	State	Considerable reduction	Very high adverse	Considerable reduction	Very high adverse
Castlereagh and Elizabeth streets at Martin Place	Local	Noticeable reduction	Minor adverse	Noticeable reduction	Minor adverse

Table 13-5 Landscape character impacts – operation

Location	Sensitivity rating	Approved project		Proposed modification	
		Landscape change	Landscape impact	Landscape change	Landscape impact
Castlereagh, Hunter and Elizabeth streets	Local	Noticeable improvement	Minor beneficial	Considerable improvement	Moderate beneficial
Martin Place	State	Noticeable improvement	High beneficial	Noticeable improvement	High beneficial
Castlereagh and Elizabeth streets at Martin Place	Local	Noticeable improvement	Minor beneficial	Considerable improvement	Moderate beneficial

Overall, there would be no change in potential landscape character impacts during construction compared to the approved project. The northern construction site would be larger (due to the addition of 9-19 Elizabeth Street) and there may be additional impacts to the footpath along Elizabeth Street, however, this was already impacted by construction of the approved project and there would be no change in the overall impacts to connectivity when compared to the approved project.

During operation, the expansion of the northern site and rationalisation of the station services would increase public plaza space and result in greater permeability and activation of street frontages, particularly along Castlereagh and Elizabeth streets. This would provide an overall improvement when compared to the approved project.

13.3.2 Visual impacts

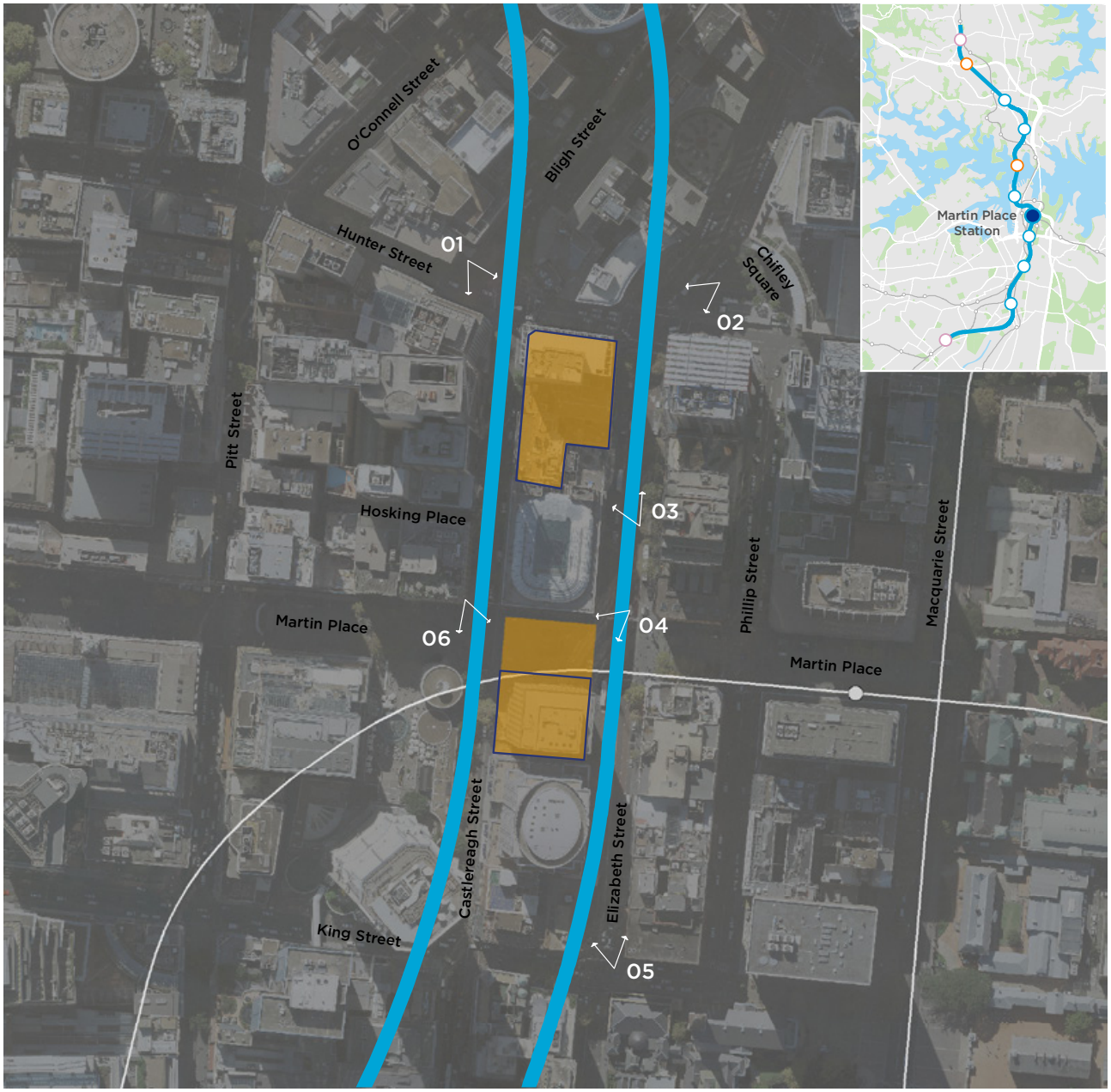
Daytime visual impacts

In total, 11 representative viewpoints were assessed for the approved project for the daytime visual impact assessment. Of these, six are considered relevant to the proposed modification and have been re-assessed. These six viewpoints (shown on Figure 13-1) are:

- Viewpoint 1: View southeast from Richard Johnson Square
- Viewpoint 2: View southwest from Chifley Square
- Viewpoint 3: View northwest along Elizabeth Street
- Viewpoint 4: View southwest toward Martin Place from Elizabeth street
- Viewpoint 5: View northwest from corner of Elizabeth and King streets
- Viewpoint 6: View south from Martin Place at Castlereagh Street.

The remaining viewpoints assessed for the approved project would not have views to the proposed modification and there would be no change to the approved project impacts.

The anticipated daytime visual impacts and the relative change in impact compared to the approved project on representative viewpoints during construction and operation are summarised in Table 13-6 and Table 13-7 respectively.



KEY

Chatswood to Sydenham

Proposed operational area at surface

Proposed construction site area

Existing suburban rail

03 Viewpoint location

Indicative only, subject to design development

0 100 m

N

Figure 13-1 Martin Place – representative viewpoints

Table 13-6 Daytime visual impacts – construction

Location	Sensitivity rating	Approved project		Proposed modification	
		Visual change	Visual impact	Visual change	Visual impact
Viewpoint 1 View southeast from Richard Johnson Square	Local	Noticeable reduction	Minor adverse	Noticeable reduction	Minor adverse
Viewpoint 2 View southwest from Chifley Square	Regional	Noticeable reduction	Moderate adverse	Noticeable reduction	Moderate adverse
Viewpoint 3 View northwest along Elizabeth Street	Local	Noticeable reduction	Minor adverse	Noticeable reduction	Minor adverse
Viewpoint 4 View southwest toward Martin Place from Elizabeth street	State	Considerable reduction	Very high adverse	Considerable reduction	Very high adverse
Viewpoint 5 View northwest from corner of Elizabeth and King streets	Local	Noticeable reduction	Minor adverse	Noticeable reduction	Minor adverse
Viewpoint 6 View south from Martin Place at Castlereagh Street	State	Considerable reduction	Very high adverse	Considerable reduction	Very high adverse

Table 13-7 Daytime visual impacts – operation

Location	Sensitivity rating	Approved project		Proposed modification	
		Visual change	Visual impact	Visual change	Visual impact
Viewpoint 1 View southeast from Richard Johnson Square	Local	No perceived change	Negligible	No perceived change	Negligible
Viewpoint 2 View southwest from Chifley Square	Regional	No perceived change	Negligible	No perceived change	Negligible
Viewpoint 3 View northwest along Elizabeth Street	Local	No perceived change	Negligible	No perceived change	Negligible
Viewpoint 4 View southwest toward Martin Place from Elizabeth street	State	Noticeable improvement	High beneficial	Noticeable improvement	High beneficial
Viewpoint 5 View northwest from corner of Elizabeth and King streets	Local	No perceived change	Negligible	No perceived change	Negligible
Viewpoint 6 View south from Martin Place at Castlereagh Street	State	Noticeable improvement	High beneficial	Noticeable improvement	High beneficial

In general, the proposed modification would not result in changes to impacts on the viewpoints assessed for the approved project. During construction, the addition of 9-19 Elizabeth Street would be relatively minor when considered against the overall construction site and activity at Martin Place.

During operation, the proposed modification would result in some minor improvements for views along Elizabeth Street near the northern entry due to the change from service infrastructure to station entry and active frontages, however overall there would continue to be no perceived change in the amenity of these views.

Night-time visual impacts

Three locations were assessed for the approved project for the night-time visual impact assessment. Of these, two locations, being the northern site and the southern site, are considered relevant to the proposed modification and have been re-assessed. The other location, the O'Connell Street site, would not be impacted by the proposed modification and there would be no change to the approved project impacts.

A summary of the potential night-time visual impacts, and the potential change in night-time visual impacts from the approved project, is provided for construction and operation in Table 13-8 and Table 13-9 respectively.

Table 13-8 Night-time visual impacts – construction

Location	Sensitivity rating	Approved project		Proposed modification	
		Visual change	Visual impact	Visual change	Visual impact
Northern site	E4: High district brightness	Noticeable reduction	Negligible	Noticeable reduction	Negligible
Southern site	E4: High district brightness	Noticeable reduction	Negligible	Noticeable reduction	Negligible

Table 13-9 Night-time visual impacts – operation

Location	Sensitivity rating	Approved project		Proposed modification	
		Visual change	Visual impact	Visual change	Visual impact
Northern site	E4: High district brightness	No perceived change	Negligible	No perceived change	Negligible
Southern site	E4: High district brightness	No perceived change	Negligible	No perceived change	Negligible

Overall, there would be no change in night-time visual impacts compared to the approved project. Lighting associated with the additional street frontage at 9-19 Elizabeth Street and from the re-arranged station entries during both construction and operation would be largely absorbed into the existing high district brightness environment.

13.4 Mitigation measures

The Sydney Metro Construction Environmental Management Framework (provided as part of the Submissions and Preferred Infrastructure Report) sets out the environmental management approach and strategy for the project, and includes commitments regarding the development and implementation of a construction environmental management plan and associated sub-plans.

The relevant project-specific mitigation measures and the Chatswood to Sydenham Design Guidelines identified in the approval documentation would continue to apply to the project as proposed to be modified. These mitigation measures and design guidelines would adequately address the potential changes to landscape character and visual amenity impacts. No additional or revised landscape character and visual amenity measures or guidelines are considered necessary.

In addition, the conditions of approval issued for the approved project would also apply to the proposed modification. Of relevance this includes:

- Condition E101 – development of Station Design and Precinct Plans to present an integrated urban and place making outcome
- Condition E102 – requirement to achieve a minimum visual impact of 'minor benefit' for all design elements of the project.

CONSOLIDATED REVISED ENVIRONMENTAL MITIGATION MEASURES

CHAPTER FOURTEEN

14 Consolidated revised environmental mitigation measures

14.1 Approach to environmental mitigation and management

The project approach to environmental mitigation and management was described in the Environmental Impact Statement and the Submissions and Preferred Infrastructure Report for the approved project. The approach is illustrated in Figure 14-1 and includes:

- Project design – measures which are inherent in the design of the project to avoid and minimise impacts
- Mitigation measures – additional to the project design which are identified through the environment impact assessment in Chapters 9 to 13. These measures are consolidated in Table 14-1
- Construction environmental management framework – details the management processes and documentation for the project. Further details are provided in the Preferred Infrastructure Report
- Construction noise and vibration strategy – identifies how Sydney Metro proposes to manage construction noise and vibration. Further details are provided in the Preferred Infrastructure Report
- Design guidelines – provides an assurance of end-state design quality. Further details are provided in the Preferred Infrastructure Report
- Environmental performance outcomes – which establish the intended outcomes which would be achieved by the project. The performance outcomes are identified in the Preferred Infrastructure Report.

This approach would also be applied to the proposed Martin Place modification.

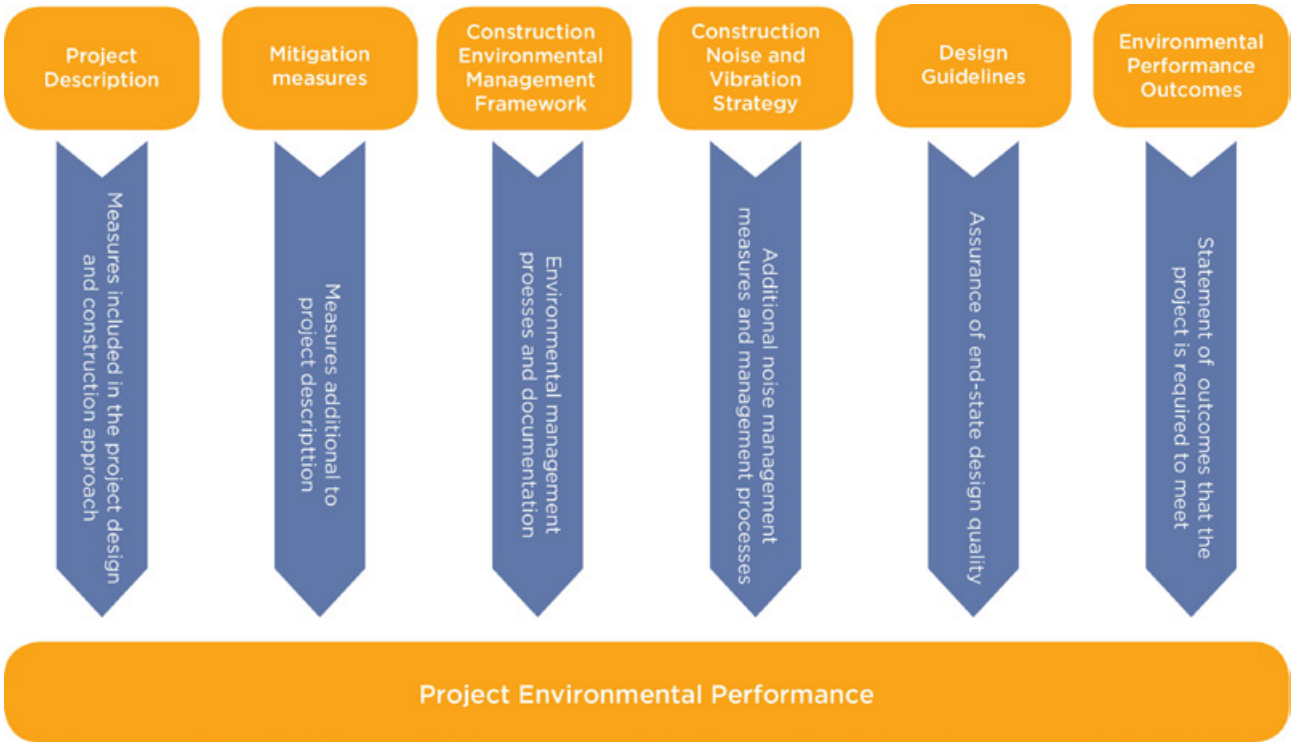


Figure 14-1 Project approach to environmental mitigation and management

14.2 Revised environmental mitigation measures

The list of mitigation measures presented in the Submissions and Preferred Infrastructure Report, the Victoria Cross Station and Artarmon Substation modification, the Central Walk modification and the Sydenham Station and Sydney Metro Trains Facility South modification has been revised based on the assessment carried out for the Martin Place Station modification.

Table 14-1 provides the revised consolidated environmental mitigation measures. This table supersedes the mitigation measures presented in the Submissions and Preferred Infrastructure Report, the Victoria Cross Station and Artarmon Substation modification, the Central Walk modification and the Sydenham Station and Sydney Metro Trains Facility South modification. New mitigation measures or additions to existing mitigation measures are shown in bold text, with deletions shown with a strikethrough. This table assumes that the Victoria Cross Station and Artarmon Substation modification, the Central Walk modification and the Sydenham Station and Sydney Metro Trains Facility South modification are approved without changes.

As per the approach for the approved project, the location(s) applicable to each mitigation measure are identified by using a unique identifier as follows:

- STW – Surface track works
- CDS – Chatswood dive site
- AS – Artarmon substation
- CN – Crows Nest Station
- VC – Victoria Cross Station
- BP – Blues Point temporary site
- GI – Ground improvement works
- BN – Barangaroo Station
- MP – Martin Place Station
- PS – Pitt Street Station
- CS – Central Station
- WS – Waterloo Station
- MDS – Marrickville dive site (this area also includes the necessary mitigation measures for the Sydney Metro Trains Facility South)
- SS – Sydenham Station
- STWS – Surface track works south
- Metro rail tunnels – Metro rail tunnels not related to other sites (eg TBM works)
- PSR – Power supply routes.

Table 14-1 Revised environmental mitigation measures

ID	Mitigation measure	Applicable location(s)[1]
Construction traffic and transport		
T1	Ongoing consultation would be carried out with (as relevant to the location) the CBD Coordination Office, Roads and Maritime Services, Sydney Trains, NSW Trains, the Port Authority of NSW, Barangaroo Delivery Authority, local councils, emergency services and bus operators in order to minimise traffic and transport impacts during construction.	All except metro rail tunnels
T2	Road Safety Audits would be carried out at each construction site. Audits would address vehicular access and egress, and pedestrian, cyclist and public transport safety.	All except metro rail tunnels
T3	Directional signage and line marking would be used to direct and guide drivers and pedestrians past construction sites and on the surrounding network. This would be supplemented by Variable Message Signs to advise drivers of potential delays, traffic diversions, speed restrictions, or alternate routes.	All except metro rail tunnels
T4	In the event of a traffic related incident, co-ordination would be carried out with the CBD Coordination Office and / or the Transport Management Centre's Operations Manager.	All except metro rail tunnels
T5	The community would be notified in advance of proposed road and pedestrian network changes through media channels and other appropriate forms of community liaison.	All except metro rail tunnels
T6	Vehicle access to and from construction sites would be managed to ensure pedestrian, cyclist and motorist safety. Depending on the location, this may require manual supervision, physical barriers, temporary traffic signals and modifications to existing signals or, on occasions, police presence.	All except metro rail tunnels
T7	Additional enhancements for pedestrian, cyclist and motorist safety in the vicinity of the construction sites would be implemented during construction. This would include measures such as: • Use of speed awareness signs in conjunction with variable message signs near construction sites to provide alerts to drivers • Community educational events that allow pedestrians, cyclists or motorists to sit in trucks and understand the visibility restrictions of truck drivers, and for truck drivers to understand the visibility from a bicycle; and a campaign to engage with local schools to educate children about road safety and to encourage visual contact with drivers to ensure they are aware of the presence of children • Specific construction driver training to understand route constraints, expectations, safety issues, human error and its relationship with fitness for work and chain of responsibility duties, and to limit the use of compression braking • Use of In Vehicle Monitoring Systems (telematics) to monitor vehicle location and driver behavior • Safety devices on construction vehicles that warn drivers of the presence of a vulnerable road user located in the vehicles' blind spots and warn the vulnerable road user that a vehicle is about to turn.	All except metro rail tunnels
T8	Access to existing properties and buildings would be maintained in consultation with property owners.	All except metro rail tunnels
T9	All trucks would enter and exit construction sites in a forward gear, where feasible and reasonable.	All except metro rail tunnels

ID	Mitigation measure	Applicable location(s)[1]
T10	Any relocation of bus stops would be carried out by Transport for NSW in consultation with Roads and Maritime Services, the CBD Coordination Office (for relevant locations), the relevant local council and bus operators. Wayfinding and customer information would be provided to notify customers of relocated bus stops.	All except metro rail tunnels
T11	For special events that require specific traffic measures, those measures would be developed in consultation the CBD Coordination Office (for relevant locations), Roads and Maritime Services, Barangaroo Delivery Authority (for relevant locations) and the organisers of the event.	BN, MP, PS, CS
T12	Construction sites would be managed to minimise construction staff parking on surrounding streets. The following measures would be implemented: • Encouraging staff to use public or active transport • Encouraging ride sharing • Provision of alternative parking locations and shuttle bus transfers where feasible and reasonable. Transport for NSW would work with local councils to minimise adverse impacts of construction on parking and other kerbside use in local streets, such as loading zones, bus zones, taxi zones and coach zones.	All except metro rail tunnels
T13	Construction site traffic would be managed to minimise movements in the AM and PM peak periods.	All except metro rail tunnels
T14	Construction site traffic immediately around construction sites would be managed to minimise movements through school zones during pick up and drop off times.	All except metro rail tunnels
T15	Pedestrian and cyclist access would be maintained at Crows Nest during the temporary closure of Hume Street, and at Martin Place during the temporary partial closure of Martin Place. Wayfinding and customer information would be provided to guide pedestrians and cyclists to alternative routes.	CN, MP
T16	Timing for the temporary closure of the Devonshire Street tunnel would avoid periods of peak pedestrian demand. Wayfinding and customer information would be provided to guide pedestrians to alternative routes.	CS
T17	Consultation would occur with the Harbour Master, Roads and Maritime Services and Sydney Ferries' to ensure shipping channels are maintained during the Sydney Harbour ground improvement works.	GI
T18	During the closure of existing entrances to Martin Place Station, marshalls would be provided during the AM and PM peak periods to direct customers to available access and egress points.	MP
T19	Where existing parking is removed to facilitate construction activities, alternative parking facilities would be provided where feasible and reasonable.	All except metro rail tunnels
T20	Alternative pedestrian routes and property access would be provided where these are affected during the construction of the power supply routes.	PSR
T21	The potential combined impact of trucks from multiple construction sites would be further considered during the development of Construction Traffic Management Plans.	All except metro rail tunnels

ID	Mitigation measure	Applicable location(s)[1]
T22	Where existing footpath routes used by pedestrians and / or cyclists are affected by construction, a condition survey would be carried out to confirm they are suitable for use (eg suitably paved and lit), with any necessary modifications to be carried out in consultation with the relevant local council.	All except metro rail tunnels
T23	Specific station management measures would be implemented during pedestrian movement Phase 2. This would include strategies such as encouraging passengers to exit platforms at the closest stair case or escalator, signage and marshalling of passengers waiting to board to minimise those waiting adjacent to hoarding and to direct passengers so that that there is even distribution along the platform.	CS
T24	The temporary closures of footpaths on Chalmers Street would not occur at the same time as the temporary closure of the Devonshire Street Tunnel.	CS
T25	During the closure of Randle Lane, traffic control would be provided at either end. Reversing movements out of Randle Lane onto Elizabeth Street and Randle Street would not be carried out during the peak periods of 7 am to 10 am and 3 pm to 7 pm.	CS
T26	During the closure of Randle Lane, access to basement car parking would be maintained where feasible and reasonable. If access cannot be maintained, alternative parking would be arranged.	CS
TT27	Detailed construction planning would be coordinated with the Sydenham to Bankstown project and the Temporary Transport Strategy arrangements to minimise impacts on the traffic and transport network.	SS
Operational traffic and transport		
OpT1	Enhancement of pedestrian infrastructure in the vicinity of Victoria Cross and Martin Place stations would be investigated further in consultation with (as relevant to the location) the CBD Coordination Office, Roads and Maritime Services and the relevant local council.	VC, MP
OpT2	Access would be maintained to neighbouring properties.	All except metro rail tunnels
OpT3	The design of the interface between the Frank Channon Walk extension and the signalised intersection at Mowbray Road / Hampden Road (including any shared zone proposal) would be developed in consultation with Roads and Maritime Services and Willoughby Council.	CDS
OpT4	Transport for NSW would work with local councils to minimise adverse impacts of operation on parking and other kerbside use in local streets, such as loading zones, bus zones, taxi zones and coach zones.	All except metro rail tunnels
OpT5	During detailed design, Transport for NSW would consult with Inner West Council, Roads and Maritime Services and other stakeholder on strategies to reduce the number of staged pedestrian marked foot crossings at the Edinburgh Road / Edgeware Road intersection.	MDS
OpT6	Transport for NSW would work with the Inner West Council to facilitate staged completion of relevant sections of the proposed active transport corridor between Sydenham and Bankstown subject to funding.	SS
OpT7	Transport for NSW would work with the Inner West Council to complete a parking study to manage the long term impacts of parking loss around Sydenham Station.	SS

ID	Mitigation measure	Applicable location(s)[1]
Construction noise and vibration		
NV1	The Construction Noise and Vibration Strategy would be implemented with the aim of achieving the noise management levels where feasible and reasonable. This would include the following example standard mitigation measures where feasible and reasonable: • Provision of noise barriers around each construction site • Provision of acoustic sheds at Chatswood dive site, Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street, Waterloo and Marrickville dive site • The coincidence of noisy plant working simultaneously close together would be avoided • Offset distances between noisy plant and sensitive receivers would be increased • Residential grade mufflers would be fitted to all mobile plant • Dampened rock hammers would be used • Non-tonal reversing alarms would be fitted to all permanent mobile plant • High noise generating activities would be scheduled for less sensitive period considering the nearby receivers • The layout of construction sites would consider opportunities to shield receivers from noise. This would also include carrying out the requirements in relation to construction noise and vibration monitoring.	All
NV2	Unless compliance with the relevant traffic noise criteria can be achieved, night time heavy vehicle movements at the Chatswood dive site, Crows Nest Station, Victoria Cross Station and Waterloo Station sites would be restricted to: • The Pacific Highway and Mowbray Road at the Chatswood dive site • The Pacific Highway, Hume Street and Oxley Street at the Crows Nest Station construction site • McLaren Street, Miller Street and Berry Street at the Victoria Cross station construction site • Botany Road and Raglan Streets at the Waterloo Station construction site.	CDS, CN, VC, WS
NV3	Where vibration levels are predicted to exceed the screening criteria, a more detailed assessment of the structure and attended vibration monitoring would be carried out to ensure vibration levels remain below appropriate limits for that structure. For heritage items, the more detailed assessment would specifically consider the heritage values of the structure in consultation with a heritage specialist to ensure sensitive heritage fabric is adequately monitored and managed.	All except metro rail tunnels
NV4	Feasible and reasonable measures would be implemented to minimise ground borne noise where exceedences are predicted.	All
NV5	Feasible and reasonable mitigation measures would be implemented where power supply works would result in elevated noise levels at receivers. This would include: • Carrying out works during the daytime period when in the vicinity of residential receivers • Where out of hours works are required, scheduling the noisiest activities to occur in the evening period (up to 10 pm) • Use of portable noise barriers around particularly noisy equipment such as concrete saws.	PSR

ID	Mitigation measure	Applicable location(s)[1]
NV6	Transport for NSW would engage an Independent Acoustic Advisor to act independently of the design and construction teams and provide oversight of construction methods, construction noise and vibration planning, management and mitigation, and construction noise and vibration monitoring and reporting. The key responsibilities of the Independent Acoustic Advisor would include : • Assurance of contractor noise and vibration planning, modelling, management and monitoring practices • Verification of compliance with relevant guidelines and approval requirements • Audit noise and vibration management practices.	All
NV7	Alternative demolition techniques that minimise noise and vibration levels would be investigated and implemented where feasible and reasonable. This would include consideration of: • The use of hydraulic concrete shears in lieu of hammers/rock breakers • Sequencing works to shield noise sensitive receivers by retaining building wall elements • Locating demolition load out areas away from the nearby noise sensitive receivers • Providing respite periods for noise intensive works • Methods to minimise structural-borne noise to adjacent buildings including separating the structural connection prior to demolition through saw-cutting and propping, using hand held splitters and pulverisers or hand demolition • Installing sound barrier screening to scaffolding facing noise sensitive neighbours • Modifying demolition works sequencing / hours to minimise impacts during peak pedestrian times and / or adjoining neighbour outdoor activity periods.	All except metro rail tunnels
NV8	Opportunities to minimise heavy vehicles movements on Randle Lane at night would be further investigated during detailed construction planning.	CS
NV9	Measures would be implemented to reduce work health and safety noise exposure for station workers, retail staff and members of the public within Central Station. These would include: • The use of hoarding and / or temporary noise barriers around construction sites • Providing hearing protection to station staff employees where appropriate • Providing specific work health and safety noise training to commercial receiver employers including guidance on managing their employees during highly noisy periods • The use of signage around construction sites to inform the general public of high noise exposure areas.	CS
Operational noise and vibration		
OpNV1	The height and extent of noise barriers adjacent to the northern **and southern** surface track works would be confirmed during detailed design with the aim of not exceeding trigger levels from the *Rail Infrastructure Noise Guidelines (Environment Protection* Authority, 2013). At property treatments would be offered where there are residual exceedances of the trigger levels.	STW, STWS
OpNV2	Track form would be confirmed during the detailed design process in order to meet the relevant ground-borne noise and vibration criteria from the *Rail Infrastructure Noise Guidelines* (EPA, 2013) and the *Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects* (DECC, 2007a).	Metro rail tunnels

ID	Mitigation measure	Applicable location(s)[1]
OpNV3	Stations and ancillary facilities including train breakout noise from draught relief shafts would be designed to meet the applicable noise criteria derived from the *Industrial Noise Policy* (EPA, 2000).	All except metro rail tunnels
OpNV4	Procedural mitigation measures would be implemented to minimise noise emissions from the Sydney Metro Trains Facility South with the aim of meeting the relevant criteria derived from the *Industrial Noise Policy* (Environment Protection Authority, 2000). This would consider measures such as: • Minimising the number of trains being cleaned simultaneously • Cleaning trains without air conditions systems in use • Limit cleaning and start-up operations during the night-time and early morning periods to the trains stabled furthest from the most affected residences. In the event that procedural measures are not sufficient to achieve compliance with the criteria derived from the *Industrial Noise Policy*, at-property treatments would be offered to affected receivers.	MDS
OpNV5	Further detailed investigations would be undertaken of the phased operations once the detail of these changes are determined. This investigation would include determination of the likely change in noise levels at receivers and consideration of the need for any feasible and reasonable mitigation measures taking into consideration the likely duration of the phased operations.	STWS
Land use and property		
LP1	Opportunities to integrate the eastern entry with local strategic planning initiatives would be investigated in consultation with City of Sydney Council	CS
Business impacts		
BI1	Specific consultation would be carried out with businesses potentially impacted during construction. Consultation would aim to identify and develop measures to manage the specific construction impacts for individual businesses.	All
BI2	A business impact risk register would be developed to identify, rate and manage the specific construction impacts for individual businesses.	All
BI3	Appropriate signage would be provided around construction sites to provide visibility to retained businesses.	All except metro rail tunnels

ID	Mitigation measure	Applicable location(s)[1]
Non-Aboriginal heritage		
NAH1	Archival recording and reporting of the following heritage items would be carried out in accordance with the NSW Heritage Office's *How to Prepare Archival Records of Heritage Items* (1998a), and *Photographic Recording of Heritage Items Using Film or Digital Capture* (2006): • The internal heritage fabric and any non-original elements removed from within the curtilage of Mowbray House, Chatswood • The interior, exterior and setting of the shop at 187 Miller Street, North Sydney • The fabric and setting of the North Sydney bus shelters requiring removal and temporary relocation at Victoria Cross Station and Blues Point temporary site • Any component of the Blues Point Waterfront Group and the McMahons Point South heritage conservation area to be directly affected or altered, including vegetation and significant landscape features • Hickson Road wall in the vicinity of proposed ventilation risers and skylights for Barangaroo Station • The interior, exterior and setting of the 'Flat Building' at 7 Elizabeth Street, Sydney • Martin Place, between Elizabeth and Castlereagh streets, Sydney • The heritage fabric of areas of the existing Martin Place Station affected by the project • The Rolling Stock Officers Garden, Rolling Stock Officers Building and Cleaners Amenities Building in Sydney Yard and any other component of the Sydney Terminal and Central Railway Stations group to be removed or altered • The Bounce Hostel building (former MGM building) • Directly impacted parts of the Congregational Church at Waterloo • Sydenham Pit and Drainage Pumping Station 1 • Sydenham Railway Station Group: Platform 6 building and Platform 1 Parcels Office.	CDS, VC, BP, MP, CS, WS, MDS, SS
NAH2	The archaeological research design would be implemented. Significant archaeological findings would be considered for inclusion in heritage interpretation (as per NAH8) for the project and be developed in consultation with the relevant local council.	CDS, CN, VC, BP, BN, MP, PS, CS, WS, PSR
NAH3	An Exhumation Policy and Guideline would be prepared and implemented. It would be developed in accordance with the *Guidelines for Management of Human Skeletal Remains* (NSW Heritage Office, 1998b) and NSW Health Policy Directive – Exhumation of human remains (December, 2013). It would be prepared in consultation with NSW Heritage Office and NSW Health.	All except metro rail tunnels
NAH4	The method for the demolition of existing buildings and / or structures at Chatswood dive site, Victoria Cross Station, Martin Place Station, Pitt Street Station, Central Station and Waterloo Station would be developed to minimise direct and indirect impacts to adjacent and / or adjoining heritage items.	CDS, VC, MP, PS, CS, WS
NAH5	Prior to total or partial demolition of heritage items at Victoria Cross and Martin Place stations, and the Bounce Hostel building (former MGM building at Central Station), heritage fabric for salvage would be identified and reuse opportunities for salvaged fabric considered. This would include salvage and reuse of heritage tiles to be impacted at Martin Place Station.	VC, MP, CS
NAH6	An appropriately qualified and experienced heritage architect would form part of the Sydney Metro Design Review Panel and would provide independent review periodically throughout detailed design.	All

ID	Mitigation measure	Applicable location(s)[1]
NAH7	The project design would be sympathetic to heritage items and, where reasonable and feasible, minimise impacts to the setting of heritage items. The detailed design for Martin Place Station, Central Station, Sydenham Station and the aqueduct over the Sydenham Pit and Drainage Pumping Station would be developed with input from a heritage architect.	STW, CDS, CN, VC, BN, MP, PS, CS, WS, MDS, SS
NAH8	Appropriate heritage interpretation would be incorporated into the design for the project in accordance with the NSW Heritage Manual, the NSW Heritage Office's *Interpreting Heritage Places and Items: Guidelines* (August 2005), and the NSW Heritage Council's *Heritage Interpretation Policy*.	CDS, CN, VC, BP, BN, MP, PS, WS
NAH9	A Central Station heritage interpretation plan would be developed and implemented. It would be consistent with the *Central Station Conservation Management Plan* (Rappoport and Government Architects Office, 2013) and in accordance with the guidelines identified in NAH8.	CS
NAH10	The detailed design of the Sydney Yard Access Bridge would be carried out in accordance with the relevant specific element principles in the Design Guidelines.	CS
NAH11	Except for heritage significant elements affected by the project, direct impact on other heritage significant elements forming part of the following items would be avoided: • The Blues Point Waterfront Group (including the former tram turning circle, stone retaining wall, bollards and steps) • The Millers Point and Dawes Point Village Precinct • The existing Martin Place Station • Sydney Terminal and Central Railway Stations group • Sydney Yard (including the Shunters Hut and Prince Alfred Sewer) • The existing Sydenham Station • Brick retaining walls near Sydenham Station.	BP, BN, MP, CS, SS, STWS
NAH12	Power supply works would be designed and constructed to avoid impacts to the Tank Stream and Bennelong Stormwater Channel.	PSR
NAH13	The design and detailed construction planning of work at Central Station would consider the requirements of the *Central Station Conservation Management Plan* (Rappoport and Government Architects Office, 2013) and include consideration of opportunities for the retention, conservation and / or reuse of original and significant heritage fabric and movable heritage items. Consultation would be carried out with Sydney Trains and the Heritage Council of NSW during design development.	CS
NAH14	The final design and location of the new connection and opening at Martin Place Railway Station would minimise removal of the significant red ceramic tiling where feasible and reasonable.	MP
NAH15	Opportunities for the reuse of any tiles at Martin Place Railway Station that are removed would be investigated.	MP
NAH16	Opportunities for the reuse of the circular seating within Martin Place Station would be investigated.	MP
NAH17	Opportunities for the salvage and reuse of the bus shelters temporarily removed at Victoria Cross and Blues Point would be investigated in consultation with North Sydney Council.	VC, BP
NAH18	Works at Central Station would be carried out with the oversight of heritage specialists.	CS

ID	Mitigation measure	Applicable location(s)[1]
NAH19	Subject to outcomes of consultation with the church, temporary and permanent works at the Congregational Church would: • Minimise impacts to heritage fabric • Be sympathetic to the heritage values and architectural form of the building.	WS
NAH20	The design and detailed construction planning of works directly impacting the Sydenham Pit and Drainage Pumping Station would consider the requirements of the *Sydenham Pit & Drainage Pumping Station 1 Conservation Management Plan* (Sydney Water, 2004).	MDS
NAH21	**The internal and external finishes of the infilled openings between 9-19 Elizabeth Street and the Commonwealth Bank of Australia building would be developed in consultation with a heritage architect.**	**MP**
Aboriginal heritage		
AH1	Aboriginal stakeholder consultation would be carried out in accordance with the NSW Office of Environment and Heritage's Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010.	All
AH2	The cultural heritage assessment report would be implemented.	All
AH3	Archaeological test excavation (and salvage when required) would be carried out where intact natural soil profiles with the potential to contain significant archaeological deposits are encountered at the Blues Point temporary site, Barangaroo Station, Martin Place Station, Pitt Street Station, Central Station, Waterloo Station and Marrickville dive site. Excavations would be conducted in accordance with the methodology outlined in the Aboriginal cultural heritage assessment report	BP, BN, MP, PS, CS, WS, MDS
AH4	Appropriate Aboriginal heritage interpretation would be incorporated into the design for the project in consultation with Aboriginal stakeholders.	All
AH5	Feasible and reasonable mitigation at the ground improvement locations would be identified in consultation with the Office of Environment and Heritage.	GI
AH6	The Aboriginal cultural heritage assessment report would address areas of archaeological potential associated with the power supply routes.	PSR
AH7	The cultural heritage assessment report would be updated to include the scope of the proposed Central Walk modification.	CS
Landscape character and visual amenity		
Construction		
LV1	Where feasible and reasonable, the elements within construction sites would be located to minimise visual impacts, for example materials and machinery would be stored behind fencing.	All except metro rail tunnels
LV2	Existing trees to be retained would be protected prior to the commencement of construction in accordance with *Australian Standard AS4970 the Australian Standard for Protection of Trees on Development Sites and Adjoining Properties*.	All except metro rail tunnels
LV3	Lighting of construction sites would be oriented to minimise glare and light spill impact on adjacent receivers.	All except metro rail tunnels
LV4	Visual mitigation would be implemented as soon as feasible and reasonable after the commencement of construction, and remain for the duration of the construction period.	All except metro rail tunnels

ID	Mitigation measure	Applicable location(s)[1]
LV5	Opportunities for the retention and protection of existing trees would be identified during detailed construction planning.	All except metro rail tunnels
LV6	The design and maintenance of construction site hoardings would aim to minimise visual amenity and landscape character impacts, including the prompt removal of graffiti. Public art opportunities would be considered.	All except metro rail tunnels
LV7	The selection of materials and colours for acoustic sheds would aim to minimise their visual prominence.	CDS, CN, VC, BN, MP, PS, WS, MDS
LV8	Tunnel boring machine retrieval works at the Blues Point temporary site would be timed to avoid key harbour viewing events.	BP
LV9	Benching would be used where feasible and reasonable at Blues Point temporary site to minimise visual amenity impacts.	BP
LV10	Temporary impacts to public open space would be rehabilitated in consultation with the relevant local council and / or landowner.	All except metro rail tunnels
Operation		
LV11	Cut off and direct light fittings (or similar technologies) would be used to minimise glare and light spill onto private property.	CDS, AS, CS, MDS
LV12	Where feasible and reasonable, vegetation would be provided to screen and visually integrate sites with the surrounding area.	STW, CDS, AS, MDS
LV13	Identify and implement appropriate landscape treatments for Frank Channon Walk.	STW, CDS
LV14	The architectural treatment of Artarmon substation would minimise visual amenity and landscape character impacts.	AS
LV15	The Harbour cycles sculpture at North Sydney would be reinstated at a location determined in consultation with North Sydney Council.	VC
LV16	The P&O Fountain, the mid-20th century bas relief sculpture and the Douglas Annand glass screen at 55 Hunter Street would be reinstated at a location determined in consultation with City of Sydney Council.	MP
LV17	Opportunities would be investigated to provide a permanent wall for street art at Marrickville dive site in consultation with Marrickville Council.	MDS
LV18	Noise barriers would be transparent where they are augmenting existing transparent noise barriers.	STW
LV19	Notification processes in relation to moral rights for public art and architecture under *Commonwealth Copyright Act 1968* would be carried out.	All except metro rail tunnels

ID	Mitigation measure	Applicable location(s)[1]
Groundwater and geology		
GWG1	A detailed geotechnical model for the project would be developed and progressively updated during design and construction. The detailed geotechnical model would include: • Assessment of the potential for damage to structures, services, basements and other sub-surface elements through settlement or strain • Predicted changes to groundwater levels, including at nearby water supply works. Where building damage risk is rated as moderate or higher (as per the CIRIA 1996 risk-based criteria), a structural assessment of the affected buildings / structures would be carried out and specific measures implemented to address the risk of damage. With each progressive update of the geotechnical model the potential for exceedance of the following target changes to groundwater levels would be reviewed: • Less than 2.0 metres – general target • Less than 4.0 metres – where deep building foundations present • Less than 1.0 metre – residual soils • Less than 0.5 metre – residual soils (Blues Point) (fill / Aeolian sand). Where a significant exceedance of target changes to groundwater levels are predicted at surrounding land uses and nearby water supply works, an appropriate groundwater monitoring program would be developed and implemented. The program would aim to confirm no adverse impacts on groundwater levels or to appropriately manage any impacts. Monitoring at any specific location would be subject to the status of the water supply work and agreement with the landowner. The geotechnical model and groundwater monitoring program would be developed in consultation with the Department of Primary Industries (Water).	All
GWG2	Condition surveys of buildings and structures in the vicinity of the tunnel and excavations would be carried out prior to the commencement of excavation at each site.	All
Soils, contamination and water quality		
Construction		
SCW1	Updated desktop contamination assessments would be carried out for Chatswood dive site, Victoria Cross Station, Artarmon substation, Blues Point temporary site, Barangaroo Station, Central Station, Waterloo Station and the Sydenham Maintenance Centre site within surface track works south. If sufficient information is not available to determine the remediation requirements and the impact on potential receivers, then detailed contamination assessments, including collection and analysis of soil and groundwater samples would be carried out. Detailed contamination assessment would also be carried out for the Barangaroo power supply route within Hickson Road and the Marrickville power supply route adjacent to Sydney Park and Camdenville Oval. In the event a Remediation Action Plan is required, these would be developed in accordance with *Managing Land Contamination: Planning Guidelines SEPP 55 – Remediation of Land* (Department of Urban Affairs and Planning and Environment Protection Authority, 1998) and a site auditor would be engaged.	CDS, AS, VC, BP, BN, CS, WS, STWS, PSR
SCW2	Prior to ground disturbance in high probability acid sulfate areas at Barangaroo Station, Waterloo Station, Marrickville dive site Sydenham Station and the surface track works south, testing would be carried out to determine the presence of acid sulfate soils. If acid sulfate soils are encountered, they would be managed in accordance with the *Acid Sulfate Soil Manual* (Acid Sulfate Soil Management Advisory Committee, 1998).	BN, WS, MDS, SS, STWS

ID	Mitigation measure	Applicable location(s)[1]
SCW3	Erosion and sediment control measures would be implemented in accordance with *Managing Urban Stormwater: Soils and Construction Volume 1* (Landcom, 2004) and *Managing Urban Stormwater: Soils and Construction Volume 2* (Department of Environment and Climate Change, 2008a). Measures would be designed as a minimum for the 80th percentile; 5-day rainfall event.	All except metro rail tunnels
SCW4	Discharges from the construction water treatment plants would be monitored to ensure compliance with the discharge criteria in an environment protection licence issued to the project.	All except metro rail tunnels
SCW5	A silt curtain would be used around the Sydney Harbour ground improvement work barges.	GI
SCW6	A water quality monitoring program would be implemented to monitor water quality within Sydney Harbour during ground improvement work. The water quality monitoring program would be carried out to detect any potential impacts on the water quality of Sydney Harbour from the ground improvement work and inform management responses in the event any impacts are identified. Specific monitoring locations and frequencies would be determined during the development of the program in consultation with the Environment Protection Authority.	GI
Operation		
SCW7	Discharges from the tunnel water treatment plant would be monitored to ensure compliance with the discharge criteria determined in consultation with the NSW Environment Protection Authority.	MDS
Social impacts and community infrastructure		
SO1	Direct impacts to public open space at the Blues Point temporary site would be minimised.	BP
SO2	Specific consultation would be carried out with sensitive community facilities (including aged care, child care centres, educational institutions and places of worship) potentially impacted during construction. Consultation would aim to identify and develop measures to manage the specific construction impacts for individual sensitive community facilities.	All except metro rail tunnels
Biodiversity		
B1	An ecologist would be present during the removal of any hollow-bearing trees.	CDS
B2	Potential bat roosting locations at Central Station, Waterloo Station and Marrickville dive site, Sydenham Station and the surface track works south would be checked by a qualified ecologist or wildlife handler prior to demolition. Any bats found would be relocated, unless in torpor, in which case the relocation would be delayed until the end of the torpor period.	CS, WS, MDS, SS, STWS
B3	The local WIRES group and / or veterinarian would be contacted if any fauna are injured on site or require capture and / or relocation.	All except metro rail tunnels
B4	Procedures would be developed and implemented, in accordance with the National System for the Prevention and Management of Marine Pest Incursions, during Sydney Harbour ground improvement works to avoid transportation of marine pests from other locations, particularly the marine alga Caulerpa taxifoli.	GI

ID	Mitigation measure	Applicable location(s)[1]
Flooding and hydrology		
Construction		
FH1	Detailed construction planning would consider flood risk at Barangaroo Station, Martin Place Station and the Waterloo Station construction sites. This would include identification of measures to, where feasible and reasonable, not worsen existing flooding characteristics up to and including the 100 year annual recurrence interval event in the vicinity of the project. Not worsen is defined as: • A maximum increase flood levels of 50mm in a 100 year Average Recurrence Interval flood event • A maximum increase in time of inundation of one hour in a 100 year Average Recurrence Interval flood event • No increase in the potential for soil erosion and scouring from any increase in flow velocity in a 100 year Average Recurrence Interval flood event.	BN, MP, WS
FH2	The site layout and staging of construction activities at Marrickville dive site would avoid or minimise obstruction of overland flow paths and limit the extent of flow diversion required.	MDS
FH3	Overland flow diversions during construction at the Marrickville dive site would meet the following criteria, where feasible and reasonable: • Not worsen existing flooding characteristics up to and including the 100 year annual recurrence interval event in the vicinity of the project • Dedicated evacuation routes would not be adversely impacted in flood events up to and including the probable maximum flood. This may include the requirement for changes to existing arrangements for flood warning systems and signage. Construction planning for the Marrickville dive site would be carried out in consultation with the State Emergency Services and Inner West Council. Not worsen is defined as: • A maximum increase flood levels of 50mm in a 100 year Average Recurrence Interval flood event • A maximum increase in time of inundation of one hour in a 100 year Average Recurrence Interval flood event • No increase in the potential for soil erosion and scouring from any increase in flow velocity in a 100 year Average Recurrence Interval flood event.	MDS
Operation		
FH4	Where feasible and reasonable, detailed design would result in no net increase in stormwater runoff rates in all storm events unless it can be demonstrated that increased runoff rates as a result of the project would not increase downstream flood risk.	STW, AS, MDS, SS, STWS
FH5	Where space permits, on-site detention of stormwater would be introduced where stormwater runoff rates are increased. Where there is insufficient space for the provision of on-site detention, the upgrade of downstream infrastructure would be implemented where feasible and reasonable.	STW, AS, MDS, SS, STWS
FH6	Detailed design would occur in consultation with Inner West Council to ensure future drainage improvement works around the Marrickville dive site, Sydenham Station and the surface track works south would not be precluded.	MDS, SS, STWS

ID	Mitigation measure	Applicable location(s)[1]
FH7	Consultation would be carried out with Inner West Council to ensure flood-related outcomes of the project are consistent with any future floodplain risk management study and / or plan developed for the Marrickville Valley Catchment.	MDS, SS, STWS
FH8	The frequency of Sydney Trains rail service disruptions due to flooding would not be increased in the vicinity of the Marrickville dive structure, Sydenham Station and the surface track works south.	MDS, SS, STWS
FH9	Design of the project would be reviewed to, where feasible and reasonable, not worsen existing flooding characteristics up to and including the 100 year annual recurrence interval event in the vicinity of the project. Detailed flood modelling would consider: • Potential changes to flood prone land and flood levels • Potential changes to overland flow paths • Redistribution of surface runoff as a result of project infrastructure • Behaviour of existing stormwater runoff • Potential changes required to flood evacuation routes, flood warning systems and signage. Flood modelling to support detailed design would be carried out in accordance with the following guidelines: • *Floodplain Development Manual* (NSW Government, 2005b) • *Floodplain Risk Management Guideline: Practical Consideration of Climate Change* (DECC, 2007b) • *Floodplain Risk Management Guide: Incorporating Sea Level Rise Benchmarks in Flood Risk Assessments* (DECCW, 2010c) • *New guideline and changes to section 117 direction and EP&A Regulation on flood prone land, Planning Circular PS 07-003* (NSW Department of Planning, 2007). Flood modelling and consideration of mitigation measures would be carried out in consultation with the relevant local councils, the Office of Environment and Heritage and the State Emergency Services. Not worsen is defined as: • A maximum increase flood levels of 50mm in a 100 year Average Recurrence Interval flood event • A maximum increase in time of inundation of one hour in a 100 year Average Recurrence Interval flood event • No increase in the potential for soil erosion and scouring from any increase in flow velocity in a 100 year Average Recurrence Interval flood event.	All except metro rail tunnels
FH10	During detailed design, project infrastructure would be designed to meet the following criteria, where feasible and reasonable: • Locate station and service entrances to underground stations above the greater of the 100 year annual recurrence interval flood level plus 500mm or the probable maximum flood level • Provide site surface grading and drainage collection systems at the Chatswood and Marrickville dive structures to manage the risk of local catchment and overland flooding for events up to and including the probable maximum flood event • Locate aboveground rail system facilities (such as traction power supply sub stations) at least above the 100 year annual recurrence interval flood level plus 500mm • Protect facilities that are identified as being critical to emergency response operations from the probable maximum flood level.	All except metro rail tunnels

ID	Mitigation measure	Applicable location(s)[1]
Air quality		
AQ1	The engines of all on-site vehicles and plant would be switched off when not in use for an extended period.	All
AQ2	Plant would be well maintained and serviced to minimise emissions. Emissions from plant would be considered as part of pre-acceptance checks.	All
AQ3	Construction site layout and placement of plant would consider air quality impacts to nearby receivers.	All except metro rail tunnels
AQ4	Hard surfaces would be installed on long term haul routes and regularly cleaned.	All except metro rail tunnels
AQ5	Unsurfaced haul routes and work area would be regularly damped down in dry and windy conditions.	All except metro rail tunnels
AQ6	All vehicles carrying loose or potentially dusty material to or from the site would be fully covered.	All except metro rail tunnels
AQ7	Stockpiles would be managed to minimise dust generation.	All except metro rail tunnels
AQ8	Demolition would be managed to minimise dust generation.	All except metro rail tunnels
AQ9	Ventilation from acoustic sheds would be filtered.	CDS, CN, VC, BN, MP, PS, WS, MDS
Hazard and risk		
Construction		
HR1	All hazardous substances that may be required for construction would be stored and managed in accordance with the *Storage and Handling of Dangerous Goods Code of Practice* (WorkCover NSW, 2005) and *Hazardous and Offensive Development Application Guidelines: Applying SEPP 33* (Department of Planning, 2011).	All
HR2	Dial before you dig searches and non-destructive digging would be carried out to identify the presence of underground utilities.	All
HR3	A hazardous material survey would be completed for those buildings and structures suspected of containing hazardous materials (particularly asbestos) prior to their demolition. If asbestos is encountered, it would be handled and managed in accordance with relevant legislation, codes of practice and Australian standards.	CDS, CN, VC, MP, PS, CS, WS, MDS, **SS**
HR4	The method for delivery of explosives would developed prior to the commencement of blasting in consultation with the Department of Planning and Environment and be timed to avoid the need for on-site storage.	CN, VC, BN, MP, PS, WS

ID	Mitigation measure	Applicable location(s)[1]
Operation		
HR5	All hazardous substances that may be required for operation would be stored and managed in accordance with the *Storage and Handling of Dangerous Goods Code of Practice* (WorkCover NSW, 2005) and *Hazardous and Offensive Development Application Guidelines: Applying SEPP 33* (Department of Planning, 2011).	All
Waste management		
Construction		
WM1	All waste would be assessed, classified, managed and disposed of in accordance with the *NSW Waste Classification Guidelines*.	All
WM2	100 per cent of spoil that can be reused would be beneficially reused in accordance with the project spoil reuse hierarchy.	All
WM3	A recycling target of at least 90 per cent would be adopted for the project.	All
WM4	Construction waste would be minimised by accurately calculating materials brought to the site and limiting materials packaging.	All
Operation		
WM5	Generation of operation phase waste would be minimised.	All
Sustainability		
Construction		
SUS1	Sustainability initiatives would be incorporated into the detailed design and construction of the project to support the achievement of the project sustainability objectives.	All
SUS2	A best practice level of performance would be achieved using market leading sustainability rating tools during design and construction.	All
SUS3	A workforce development and industry participation strategy would be developed and implemented during construction.	All
SUS4	Climate change risk treatments would be incorporated into the detailed design of the project including: • Ensuring that adequate flood modelling is carried out and integrated with design • Testing the sensitivity of air-conditioning systems to increased temperatures, and identify potential additional capacity of air-conditioning systems that may be required within the life of the project, with a view to safeguarding space if required • Testing the sensitivity of ventilation systems to increased temperatures and provide adequate capacity.	All
SUS5	An iterative process of greenhouse gas assessments and design refinements would be carried out during detailed design and construction to identify opportunities to minimise greenhouse gas emissions. Performance would be measured in terms of a percentage reduction in greenhouse gas emissions from a defined reference footprint.	All
SUS6	25 per cent of the greenhouse gas emissions associated with consumption of electricity during construction would be offset.	All

ID	Mitigation measure	Applicable location(s)[1]
Operation		
SUS7	Sustainability initiatives would be incorporated into the operation of the project to support the achievement of the project sustainability objectives.	All
SUS8	Periodic review of climate change risks would be carried out to ensure ongoing resilience to the impacts of climate change.	All
SUS9	A workforce development and industry participation strategy would be developed and implemented during operation.	All
SUS10	100 per cent of the greenhouse gas emissions associated with consumption of electricity during operation would be offset.	All
Cumulative impacts		

CU1	Transport for NSW would manage and co-ordinate the interface with projects under construction at the same time. Co-ordination and consultation with the following stakeholders would occur, where required:
	• CBD Coordination Office
	• Department of Planning and Environment
	• Roads and Maritime Services
	• Sydney Trains
	• NSW Trains
	• Sydney Buses
	• Sydney Water
	• Port Authority of NSW
	• Willoughby Council
	• North Sydney Council
	• City of Sydney Council
	• Marrickville Council
	• Sydney Motorways Corporation
	• Barangaroo Delivery Authority
	• Emergency service providers
	• Utility providers
	• Construction contractors.
	Co-ordination and consultation with these stakeholders would include:
	• Provision of regular updates to the detailed construction program, construction sites and haul routes
	• Identification of key potential conflict points with other construction projects
	• Developing mitigation strategies in order to manage conflicts. Depending on the nature of the conflict, this could involve:
	  ◆ Adjustments to the Sydney Metro construction program, work activities or haul routes; or adjustments to the program, activities or haul routes of other construction projects
	  ◆ Co-ordination of traffic management arrangements between projects.
		All

1 *STW: Surface track works; CDS: Chatswood dive site; AS: Artarmon substation; CN: Crows Nest Station; VC: Victoria Cross Station; BP: Blues Point temporary site; GI: Ground improvement works; BN: Barangaroo Station; MP: Martin Place Station; PS: Pitt Street Station; CS: Central Station; WS: Waterloo Station; MDS: Marrickville dive site (including Sydney Metro Trains Facility South); SS: Sydenham Station; STWS: Surface track works south Metro rail tunnels: Metro rail tunnels not related to other sites (eg TBM works); PSR: Power supply routes.*

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JUSTIFICATION AND CONCLUSION

CHAPTER FIFTEEN

15 Justification and conclusion

The NSW Government has received an unsolicited proposal from Macquarie Group Limited (Macquarie) for a single fully integrated station and over station development solution at the approved metro station at Martin Place Station. The proposal would provide a larger, more connected metro station and precinct to serve Martin Place and provide a better opportunity to provide a whole of precinct urban design response because of the larger station footprint.

Macquarie has prepared a separate State Significant Development application for the over station development. A modification to the approved Sydney Metro City & Southwest Chatswood to Sydenham project is also required to address changes to infrastructure works at the approved metro station at Martin Place Station that result from Macquarie's integrated station and over station development solution.

The need and justification for the proposed modification is the opportunity to deliver a single, fully integrated station and over station development solution for the Martin Place precinct, specifically designed to include additional privately owned land and adapted for a privately financed development. In particular, the proposed modification would provide the following unique public benefits:

- Improved access: the modified metro station design would provide improved access and connectivity from the public domain
- Enhanced wayfinding: centralised metro station entrances would contribute to intuitive and legible wayfinding
- Integrated development: the proposed modification would allow for a fully integrated station and over station development solution as part of an integrated transport development at Martin Place, including the unique public through site link under 50 Martin Place. With the future link to O'Connell Street as part of the approved project, this would create one of the most significant underground pedestrian links in the Sydney CBD
- Prioritised public precinct: the incorporation of larger public spaces would provide an enhanced customer experience, including a generous additional unpaid public concourse
- Rationalised design: the greater site area for the northern station entry would provide for the reorganisation of the metro entry and consolidation of station plant, allowing for the activation of Martin Place, Elizabeth and Castlereagh streets.

The proposed modification responds to an opportunity provided by the Macquarie proposal for the Martin Place Station precinct, including the provision of unique public benefits. The modification would result in a number of changes and additional impacts – all of which are considered to be of a minor nature in consideration of the impacts of the approved project. These additional impacts would also be outweighed by the additional long-term benefits to customers and to the public.

While the project-specific mitigation measures identified for the approved project are generally sufficient to address the potential impacts of the proposed modification, one additional measure has been identified to manage specific potential heritage impacts to the Commonwealth Bank of Australia building associated with the proposed modification. The relevant conditions of approval for the approved project would continue to apply to the proposed modification.

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REFERENCES

References

Association of Australian Acoustical Consultants, 2008, *Technical Guideline Child Care Centre Noise Assessment*

Australian Standard 2107:2000, 2000, *Acoustics – Recommended design sound levels and reverberation times for building interiors*

British Standard BS 7385-2: 1993, 1993, *Evaluation and measurement for vibration in buildings part 2*

City of Sydney, 2015a, *City North Public Domain Plan*

City of Sydney, 2015b, *Martin Place Urban Design Study*

City of Sydney, 2008, *Sustainable Sydney 2030 Strategic Plan*

Department of Climate Change, 2009, *Interim Construction Noise Guideline*

Department of Environment, Climate Change and Water, 2011a, *NSW Road Noise Policy*

Department of Planning and Environment, 2013, *The Draft Metropolitan Strategy for Sydney to 2031*

NSW Government, 2015, *State Priorities – NSW Making it Happen,* https://www.nsw.gov.au/making-it-happen

NSW Government, 2012, *Guide of submission and assessment of unsolicited proposals*

NSW Heritage Office, 2001, *Assessing Heritage Significance. Update to the NSW Heritage Manual*

Roads and Maritime, 2013, *Traffic Modelling Guidelines*

Transport for NSW, 2017, *Sydney Metro City & Southwest Chatswood to Sydenham Environmental Impact Statement*

Transport for NSW, 2012a, *Sydney's Rail Future – Modernising Sydney Trains*

Transport for NSW, 2012b, *NSW Transport Master Plan*

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GLOSSARY

Glossary

Acronym	Definition
dB	Decibels
dBA	A-weighted decibels
DDA	*Disability Discrimination Act 1992*
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ICNG	Interim Construction Noise Guideline
ICOMOS	International Council on Monuments and Sites
Macquarie	Macquarie Group Limited
MLC	Mutual Life & Citizens Assurance Company Limited
NMLs	Noise management levels
RBL	Rating background level
RNP	Road Noise Policy
v/c	Ratio between traffic volumes and capacity

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APPENDIX A

Secretary's environmental assessment requirements

Desired Performance Outcome	Requirement	Where addressed
1. Environmental Impact Assessment Process **The process for assessment of the proposal is transparent, balanced, well focussed and legal.**	**1.** The Environmental Impact Statement must be prepared in accordance with Part 3 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (the Regulation).	Not applicable
	2. It is the Proponent's responsibility to determine whether the project needs to be referred to the Commonwealth Department of the Environment for an approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Proponent must contact the Commonwealth Department of the Environment immediately if it is determined that an approval is required under the EPBC Act, as supplementary environmental assessment requirements may need to be issued to ensure a streamlined assessment under the Bilateral agreement can be achieved. **3.** Where the project requires approval under the EPBC Act and is being assessed under the Bilateral Agreement the EIS should address: **a.** Consideration of any Protected Matters that may be impacted by the development where the Commonwealth Minister has determined that the proposal is a Controlled Action. **b.** Identification and assessment of those Protected Matters that are likely to be significantly impacted. **c.** Details of how significant impacts to Protected Matters have been avoided, mitigated and, if necessary, offset. **d.** Consideration of, and reference to, any relevant conservation advices, recovery plans and threat abatement plans. **4.** The onus is on the Proponent to ensure legislative requirements relevant to the project are met.	Chapter 4

Desired Performance Outcome	Requirement	Where addressed
2. Environmental Impact Statement **The project is described in sufficient detail to enable clear understanding that the project has been developed through an iterative process of impact identification and assessment and project refinement to avoid, minimise or offset impacts so that the project, on balance, has the least adverse environmental, social and economic impact, including its cumulative impacts.**	**1.** The EIS must include, but not necessarily be limited to, the following: **a.** executive summary; **b.** a description of the project, including all components and activities (including ancillary components and activities) required to construct and operate it; **c.** a statement of the objective(s) of the project; **d.** a summary of the strategic need for the project with regard to its critical State significance and relevant State Government policy; **e.** an analysis of any feasible alternatives to the project; **f.** a description of feasible options within the project; **g.** a description of how alternatives to and options within the project were analysed to inform the selection of the preferred alternative / option. The description must contain sufficient detail to enable an understanding of why the preferred alternative to and options(s) within the project were selected; **h.** potential opportunities for further network expansion and consideration of relationship to other Government public transport initiatives; a concise description of the general biophysical and socioeconomic environment that is likely to be impacted by the project (including offsite impacts). Elements of the environment that are not likely to be affected by the project do not need to be described; **i.** a demonstration of how the project design has been developed to avoid or minimise likely adverse impacts; **j.** the identification and assessment of key issues as provided in the 'Assessment of Key Issues' performance outcome; **k.** a statement of the outcome(s) the proponent will achieve for each key issue; **l.** measures to avoid, minimise or offset impacts must be linked to the impact(s) they treat, so it is clear which measures will be applied to each impact; **m.** an assessment of the cumulative impacts of the project taking into account other projects that have been approved but where construction has not commenced, projects that have commenced construction, and projects that have recently been completed (for example WestConnex, Barangaroo, any approved construction in the relevant precincts);	Not applicable, however the following is noted: - Description of the modification is provided in Chapters 6 and 7 - Need and justification for the modification is provided in Chapter 2 - Options analysis for the elements of the modification is provided in Chapter 3

Desired Performance Outcome	Requirement	Where addressed
	n. statutory context of the project as a whole, including: – how the project meets the provisions of the EP&A Act and EP&A Regulation; – a list of any approvals that must be obtained under any other Act or law before the project may lawfully be carried out; **o.** a chapter that synthesises the environmental impact assessment and provides: – a succinct but full description of the project for which approval is sought; – a description of any uncertainties that still exist around design, construction methodologies and/or operational methodologies and how these will be resolved in the next stages of the project; – a compilation of the impacts of the project that have not been avoided; – a compilation of the proposed measures associated with each impact to avoid or minimise (through design refinements or ongoing management during construction and operation) or offset these impacts; – a compilation of the outcome(s) the proponent will achieve; and – the reasons justifying carrying out the project as proposed, having regard to the biophysical, economic and social considerations, including ecologically sustainable development and cumulative impacts. **p.** relevant project plans, drawings, diagrams in an electronic format that enables integration with mapping and other technical software. **2.** The EIS must only include data and analysis that is reasonably needed to make a decision on the proposal. Relevant information must be succinctly summarised in the EIS and included in full in appendices. Irrelevant, conflicting or duplicated information must be avoided.	

Desired Performance Outcome	Requirement	Where addressed
3. Assessment of Key Issues* **Key issue impacts are assessed objectively and thoroughly to provide confidence that the project will be constructed and operated within acceptable levels of impact.** *** Key issues are nominated by the Proponent in the CSSI project application and by the Department in the SEARs. Key issues need to be reviewed throughout the preparation of the EIS to ensure any new key issues that emerge are captured. The key issues identified in this document are not exhaustive but are key issues common to most CSSI projects.**	**1.** The level of assessment of likely impacts must be proportionate to the significance of, or degree of impact on, the issue, within the context of the proposal location and the surrounding environment. The level of assessment must be commensurate to the degree of impact and sufficient to ensure that the Department and other government agencies are able to understand and assess impacts.	Chapters 9 to 13
	2. For each key issue the Proponent must: **a.** describe the biophysical and socio-economic environment, as far as it is relevant to that issue; **b.** describe the legislative and policy context, as far as it is relevant to the issue; **c.** identify, describe and quantify (if possible) the impacts associated with the issue, including the likelihood and consequence (including worst case scenario) of the impact (comprehensive risk assessment), and the cumulative impacts; **d.** demonstrate how potential impacts have been avoided (through design, or construction or operation methodologies); **e.** detail how likely impacts that have not been avoided through design will be minimised, and the predicted effectiveness of these measures (against performance criteria where relevant).	Chapters 9 to 13
	3. Where multiple reasonable and feasible options to avoid or minimise impacts are available, they must be identified and considered and the proposed measure justified taking into account the public interest.	Chapter 3
4. Consultation **The project is developed with meaningful and effective engagement during project design and delivery.**	**1.** The project must be informed by consultation, including with relevant government agencies, infrastructure and service providers, special interest groups, affected landowners, businesses and the community. The consultation process must be undertaken in accordance with the current guidelines. **2.** The Proponent must document the consultation process, and demonstrate how the project has responded to the inputs received. **3.** The Proponent must describe the timing and type of community consultation proposed during the design and delivery of the project, the mechanisms for community feedback, the mechanisms for keeping the community informed, and procedures for complaints handling and resolution.	Chapter 5

Desired Performance Outcome	Requirement	Where addressed
5. Biodiversity **The project design considers all feasible measures to avoid and minimise impacts on terrestrial and aquatic biodiversity.** **Offsets and/or supplementary measures are assured which are equivalent to any remaining impacts of project construction and operation.**	**1.** The Proponent must assess biodiversity impacts in accordance with the current guidelines including the Framework for Biodiversity Assessment (FBA). **2.** The Proponent must assess any impacts on biodiversity values not covered by the FBA as specified in s2.3. **3.** The Proponent must assess impacts on the following [EECs, threatened species and/or populations] and provide the information specified in s9.2 of the FBA. **4.** The Proponent must identify whether the project as a whole, or any component of the project, would be classified as a Key Threatening Process (KTP) in accordance with the listings in the *Threatened Species Conservation Act 1997* (TSC Act), *Fisheries Management Act 1994* (FM Act) and *Environmental Protection and Biodiversity Conservation Act 2000* (EPBC Act).	Not applicable
6. Flooding **The project minimises adverse impacts on existing flooding characteristics.** **Construction and operation of the project avoids or minimises the risk of, and adverse impacts from, infrastructure flooding, flooding hazards, or dam failure.**	**1.** .The Proponent must assess and model (where required), taking into account any relevant Council-adopted flood model or latest flood data available from Councils, the impacts on flood behaviour during construction and operation for a full range of flood events up to the probable maximum flood (taking into account sea level rise and storm intensity due to climate change) including: **a.** any detrimental increases in the potential flood affectation of other properties, assets and infrastructure; **b.** consistency (or inconsistency) with applicable Council floodplain risk management plans; **c.** compatibility with the flood hazard of the land; **d.** compatibility with the hydraulic functions of flow conveyance in flood ways and storage areas of the land; **e.** downstream velocity and scour potential; **f.** impacts the development may have upon existing community emergency management arrangements for flooding. These matters must be discussed with the State Emergency Services and Council; and **g.** any impacts the development may have on the social and economic costs to the community as consequence of flooding.	Not applicable

Desired Performance Outcome	Requirement	Where addressed
7.Heritage **The design, construction and operation of the project facilitates, to the greatest extent possible, the long term protection, conservation and management of the heritage significance of items of environmental heritage and Aboriginal objects and places.** **The design, construction and operation of the project avoids or minimises impacts, to the greatest extent possible, on the heritage significance of environmental heritage and Aboriginal objects and places.**	**1.** The Proponent must identify and assess any direct and/or indirect impacts (including cumulative impacts) to the heritage significance of:	
	a. Aboriginal places and objects, as defined under the *National Parks and Wildlife Act 1974* and in accordance with the principles and methods of assessment identified in the current guidelines;	Not applicable
	b. Aboriginal places of heritage significance, as defined in the Standard Instrument – Principal Local Environmental Plan;	Not applicable
	c. environmental heritage, as defined under the *Heritage Act 1977*; and **d.** items listed on the National and World Heritage lists. **2.** Where impacts to State or locally significant heritage items are identified, the assessment must: **a.** include a statement of heritage impact for all heritage items (including significance assessment); **b.** consider impacts to the item of significance caused by, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, visual amenity, landscape and vistas, curtilage, subsidence and architectural noise treatment (as relevant);	Chapter 12
	c. outline measures to avoid and minimise those impacts in accordance with the current guidelines; and	Chapter 12
	d. (d) be undertaken by a suitably qualified heritage consultant(s) (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria).	Chapter 12
	3. Where archaeological investigations of Aboriginal objects are proposed these must be conducted by a suitably qualified archaeologist, in accordance with section 1.6 of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010).	Not applicable
	4. Where impacts to Aboriginal objects and/or places are proposed, consultation must be undertaken with Aboriginal people in accordance with the current guidelines.	Not applicable

Desired Performance Outcome	Requirement	Where addressed
8. Noise and Vibration – Amenity **Construction noise and vibration (including airborne noise, ground-borne noise and blasting) are effectively managed to minimise adverse impacts on acoustic amenity.** **Increases in noise emissions and vibration affecting nearby properties and other sensitive receivers during operation of the project are effectively managed to protect the amenity and well-being of the community.**	**1.** The Proponent must assess construction and operational noise and vibration impacts in accordance with relevant NSW noise and vibration guidelines. The assessment must include consideration of impacts to sensitive receivers including commercial premises, and include consideration of sleep disturbance and, as relevant, the characteristics of noise and vibration (for example, low frequency noise).	Chapter 10
	2. If blasting is required, the relevant requirements of *Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration* (ANZEC 1990) are to be assessed.	Chapter 10
9. Noise and Vibration – Structural **Construction noise and vibration (including airborne noise, ground-borne noise and blasting) are effectively managed to minimise adverse impacts on the structural integrity of buildings and items including Aboriginal places and environmental heritage.** **Increases in noise emissions and vibration affecting environmental heritage as defined in the *Heritage Act 1977* during operation of the project are effectively managed.**	**1.** The Proponent must assess construction and operation noise and vibration impacts in accordance with relevant NSW noise and vibration guidelines. The assessment must include consideration of impacts to the structural integrity and heritage significance of items (including Aboriginal places and items of environmental heritage).	Chapter 10 Chapter 12
	2. The Proponent must demonstrate that blast impacts are capable of complying with the current guidelines, if blasting is required.	Chapter 10
10. Socio-economic, Land Use and Property **The project minimises adverse social and economic impacts and capitalises on opportunities potentially available to affected communities.** **The project minimises impacts to property and business and achieves appropriate integration with adjoining land uses, including maintenance of appropriate access to properties and community facilities, and minimisation of displacement of existing land use activities, dwellings and infrastructure.**		
	1. The Proponent must assess social and economic impacts in accordance with the current guidelines.	Not applicable
	2. The Proponent must assess impacts from construction and operation on potentially affected properties, approved development applications, businesses, public open space, recreational users and land and water users (for example, recreational and commercial fishers, oyster farmers), including property acquisitions/adjustments, access, amenity and relevant statutory rights.	
	3. Assess the likely risks of the project to public safety, paying particular attention to subsidence risks, bushfire risks and the handling and use of dangerous goods.	

Desired Performance Outcome	Requirement	Where addressed
11. Soils **The environmental values of land, including soils, subsoils and landforms, are protected.** **Risks arising from the disturbance and excavation of land and disposal of soil are minimised, including disturbance to acid sulfate soils and site contamination.**	**1.** The Proponent must verify the risk of acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Risk Map) within, and in the area likely to be impacted by, the project. **2.** The Proponent must assess the impact of the project on acid sulfate soils (including impacts of acidic runoff offsite) in accordance with the current guidelines. **3.** The Proponent must assess whether the land is likely to be contaminated and identify if remediation of the land is required, having regard to the ecological and human health risks posed by the contamination in the context of past, existing and future land uses. Where assessment and/or remediation is required, the Proponent must document how the assessment and/or remediation would be undertaken in accordance with current guidelines. **4.** The Proponent must assess whether salinity is likely to be an issue and if so, determine the presence, extent and severity of soil salinity within the project area. **5.** The Proponent must assess the impacts of the project on soil salinity and how it may affect groundwater resources and hydrology. **6.** The Proponent must assess the impacts on soil and land resources (including erosion risk or hazard). Particular attention must be given to soil erosion and sediment transport consistent with the practices and principles in the current guidelines.	Not applicable
12. Sustainability **The project reduces the NSW Government's operating costs and ensures the effective and efficient use of resources.** **Conservation of natural resources is maximised.**	**1.** The Proponent must assess the project against the current guidelines including targets and strategies to improve Government efficiency in use of water, energy and transport.	Not applicable

Desired Performance Outcome	Requirement	Where addressed
13. Transport and Traffic **Network connectivity, safety and efficiency of the transport system in the vicinity of the project are managed to minimise impacts.** **The safety of transport system customers is maintained.** **Impacts on network capacity and the level of service are effectively managed.** **Works are compatible with existing infrastructure and future transport corridors.**	**1.** The Proponent must assess construction transport and traffic (vehicle, pedestrian and cyclists) impacts, including, but not necessarily limited to:	
	a. a considered approach to route identification and scheduling of transport movements;	Chapter 9
	b. the number, frequency and size of construction related vehicles (passenger, commercial and heavy vehicles, including spoil management movements);	Chapter 9
	c. the capacity of or need to upgrade roads proposed as construction vehicle routes including Bedwin Road;	Chapter 9
	d. changes to existing local and regional road networks including access to and around the proposed Chatswood tunnelling site;	Chapter 9
	e. construction worker parking;	Chapter 9
	f. the nature of existing traffic (types and number of movements) on construction access routes (including consideration of peak traffic times and sensitive road users and parking arrangements), including access to the Overseas Passenger Terminal for deliveries and passenger coaches;	Chapter 9
	g. details of how construction and scheduling of works are to be coordinated in regard to public events; cumulative traffic impacts resulting from concurrent work on Westconnex, Barangaroo, Sydney Light Rail and other key construction projects in the Sydney CBD;	Chapter 9
	h. alternatives to road transport of construction spoil;	Chapter 9
	i. access constraints and impacts on public transport, pedestrian access and cyclists;	Chapter 9
	j. the need to close, divert or otherwise reconfigure elements of the road and cycle network associated with construction of the project;	Chapter 9
	k. assess the likely risks of the project to public safety, paying particular attention to pedestrian safety and users of Sydney Harbour; and	Chapter 9
	l. impacts to water based traffic and shipping channels on users of Sydney Harbour with particular reference to the channel between Blues Point and Millers Point for passage to and from White Bay, Glebe Island and Gore Cove.	Not applicable

Desired Performance Outcome	Requirement	Where addressed
	2. The Proponent must assess the operational transport impacts of the project, including: **a.** forecast travel demand and traffic volumes for the project and the surrounding road, cycle and public transport network; **b.** travel time analysis; **c.** performance of interchanges and intersections by undertaking a coordinated level of service analysis at locations affected by stations; **d.** wider transport interactions (local and regional roads, permanent loss of parking, the need for kiss and ride facilities, cycling, public and freight transport); **e.** induced traffic and operational implications for public transport (particularly with respect to strategic bus corridors and bus routes) and consideration of opportunities to improve public transport; **f.** impacts to pedestrian access in and around stations and connecting streets, capacity of streets at peak pedestrian times, including phasing of traffic lights, intersection crossing times and connectivity between stations **g.** assess the benefits to each station and the general vicinity of walking and cycling catchments and the provision of infrastructure to support sustainable transport options. **h.** impacts on cyclists and pedestrian access and safety; and **i.** opportunities to integrate cycling and pedestrian elements with surrounding networks and in the project.	Not applicable
14.Urban design **The project design complements the visual amenity, character and quality of the surrounding environment.** **The project contributes to the accessibility and connectivity of communities.**	**1.** The Proponent must: **a.** identify the urban design and landscaping aspects of the project and its components; **b.** include consideration of urban design principles adopted by each council or within each station precinct; **c.** assess the impact of the project on the urban, rural and natural fabric; **d.** explore the use of Crime Prevention Through Environmental Design (CPTED) principles during the design development process, including natural surveillance, lighting, walkways, signage and landscape; and **e.** identify urban design strategies and opportunities to enhance healthy, cohesive and inclusive communities.	Chapter 6 Chapter 13

Desired Performance Outcome	Requirement	Where addressed
15. Visual Amenity **The project minimises adverse impacts on the visual amenity of the built and natural environment (including public open space) and capitalises on opportunities to improve visual amenity.**	**1.** The Proponent must assess the visual impact of the project and any ancillary infrastructure on: **a.** views and vistas; **b.** streetscapes, key sites and buildings; **c.** the local community. **2.** The Proponent must provide artist impressions and perspective drawings of the project to illustrate how the project has responded to the visual impact through urban design and landscaping.	Chapter 13
16. Waste **All wastes generated during the construction and operation of the project are effectively stored, handled, treated, reused, recycled and/or disposed of lawfully and in a manner that protects environmental values.**	**1.** The Proponent must assess predicted waste generated from the project during construction and operation, including: **a.** classification of the waste in accordance with the current guidelines; **b.** estimates / details of the quantity of bulk earthworks and spoil balance to be generated during construction of the project; **c.** handling of waste including measures to facilitate segregation and prevent cross contamination; **d.** management of waste including indicative location and volume of stockpiles; **e.** waste minimisation and reuse; **f.** lawful disposal or recycling locations for each type of waste using a hierarchy which prioritises higher value end use; and **g.** contingencies for the above, including managing unexpected waste volumes. **2.** The Proponent must assess potential environmental impacts from the excavation, handling, storage on site and transport of the waste particularly with relation to sediment/leachate control, noise and dust.	Not applicable

Desired Performance Outcome	Requirement	Where addressed
17. Water – Hydrology **Long term impacts on surface water and groundwater hydrology (including drawdown, flow rates and volumes) are minimised.** **The environmental values of nearby, connected and affected water sources, groundwater and dependent ecological systems including estuarine and marine water (if applicable) are maintained (where values are achieved) or improved and maintained (where values are not achieved).** **Sustainable use of water resources.**	**1.** The Proponent must describe (and map) the existing hydrological regime for any surface and groundwater resource (including reliance by users and for ecological purposes) likely to be impacted by the project, including stream orders, as per the FBA.	Not applicable
	2. The Proponent must assess (and model if appropriate) the impact of the construction and operation of the project and any ancillary facilities (both built elements and discharges) on surface and groundwater hydrology in accordance with the current guidelines, including: **a.** natural processes within rivers, wetlands, estuaries, marine waters and floodplains that affect the health of the fluvial, riparian, estuarine or marine system and landscape health (such as modified discharge volumes, durations and velocities), aquatic connectivity and access to habitat for spawning and refuge; **b.** impacts from any permanent and temporary interruption of groundwater flow, including the extent of drawdown, barriers to flows, implications for groundwater dependent surface flows, ecosystems and species, groundwater users and the potential for settlement; **c.** changes to environmental water availability and flows, both regulated/licensed and unregulated/rules-based sources; **d.** direct or indirect increases in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses; **e.** minimising the effects of proposed stormwater and wastewater management during construction and operation on natural hydrological attributes (such as volumes, flow rates, management methods and re-use options) and on the conveyance capacity of existing stormwater systems where discharges are proposed through such systems; and **f.** water take (direct or passive) from all surface and groundwater sources with estimates of annual volumes during construction and operation.	Not applicable
	3. The Proponent must identify any requirements for baseline monitoring of hydrological attributes.	Not applicable

Desired Performance Outcome	Requirement	Where addressed
18. Water – Quality **The project is designed, constructed and operated to protect the NSW Water Quality Objectives where they are currently being achieved, and contribute towards achievement of the Water Quality Objectives over time where they are currently not being achieved, including downstream of the project to the extent of the project impact including estuarine and marine waters (if applicable).**	**1.** The Proponent must: **a.** state the ambient NSW Water Quality Objectives (NSW WQO) and environmental values for the receiving waters relevant to the project, including the indicators and associated trigger values or criteria for the identified environmental values; **b.** identify all pollutants that may be introduced into the water cycle and describe the nature and degree of impact that any discharge(s) may have on the receiving environment, including consideration of all pollutants that pose a risk of non-trivial harm to human health and the environment; **c.** identify the rainfall event that the water quality protection measures will be designed to cope with; **d.** assess the significance of any identified impacts including consideration of the relevant ambient water quality outcomes; **e.** demonstrate how construction and operation of the project will, to the extent that the project can influence, ensure that: – where the NSW WQOs for receiving waters are currently being met they will continue to be protected; and – where the NSW WQOs are not currently being met, activities will work toward their achievement over time; **f.** justify, if required, why the WQOs cannot be maintained or achieved over time; **g.** demonstrate that all practical measures to avoid or minimise water pollution and protect human health and the environment from harm are investigated and implemented; **h.** identify sensitive receiving environments (which may include estuarine and marine waters downstream) and develop a strategy to avoid or minimise impacts on these environments; and **i.** identify proposed monitoring locations, monitoring frequency and indicators of surface and groundwater quality.	Not applicable
19. Utilities **The project is designed, construction and operated to minimise impacts to utilities and provision of such to the public.**	**1.** The Proponent must consider: **a.** the impact of the project on the integrity of trunk assets and the need to augment or relocate; **b.** opportunities to support initiatives adopted by Councils and utilities providers; and **c.** how access to assets will be maintained during construction.	Chapter 7

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CHATSWOOD TO SYDENHAM

MARTIN PLACE STATION MODIFICATION REPORT