



Transport Access Program

Stanmore Station Upgrade

Review of Environmental Factors



Artist's impression of the proposed Stanmore Station Upgrade, subject to detailed design



Transport
for NSW

Stanmore Station Upgrade Review of Environmental Factors

Transport Access Program
Ref-6645483

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Abbreviations

| Term | Meaning |
|-----------------|--|
| AHD | Australian Height Datum |
| AHIMS | Aboriginal Heritage Information Management System |
| AMB | Asset Management Branch (refer to Definitions) |
| APS | Access to Premises (Disability Standards) |
| ARI | Average Recurrence Interval |
| ASS | Acid Sulfate Soils |
| BCA | Building Code of Australia |
| BC Act | <i>Biodiversity Conservation Act 2016</i> (NSW) |
| CBD | Central Business District |
| CCTV | Closed Circuit TV |
| CEMP | Construction Environmental Management Plan |
| CLM Act | <i>Contaminated Land Management Act 1997</i> (NSW) |
| CNVMP | Construction Noise and Vibration Management Plan |
| CPTED | Crime Prevention Through Environmental Design |
| CTMP | Construction Traffic Management Plan |
| DAWE | Department of Agriculture, Water and the Environment (Cwlth) |
| DBH | Diameter Breast Height |
| DBYD | Dial Before You Dig |
| D&C | Design & Construct |
| DDA | <i>Disability Discrimination Act 1992</i> (Cwlth) |
| DoE | Commonwealth Department of the Environment |
| DP&E | NSW Department of Planning and Environment |
| DPIE | NSW Department of Planning, Industry and Environment |
| DSAPT | <i>Disability Standards for Accessible Public Transport (2002)</i> |
| DSI | Detailed Site Investigation (Phase II Contamination Investigation) |
| ECM | Environmental Controls Map |
| EES | NSW Environment, Energy and Science (Division of Department of Planning Industry and Environment) (formerly OEH) |

| Term | Meaning |
|----------------------------|---|
| EMS | Environmental Management System |
| EPA | Environment Protection Authority |
| EP&A Act | <i>Environmental Planning and Assessment Act 1979</i> (NSW) |
| EP&A Regulation | <i>Environmental Planning and Assessment Regulation 2000</i> (NSW) |
| EPBC Act | <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cwlth) |
| EPI | Environmental Planning Instrument |
| EPL | Environment Protection Licence |
| ESD | Ecologically Sustainable Development (refer to Definitions) |
| ETS | Electronic Ticketing System |
| FM Act | <i>Fisheries Management Act 1994</i> (NSW) |
| Heritage Act | <i>Heritage Act 1977</i> (NSW) |
| HV | High Voltage |
| ICNG | <i>Interim Construction Noise Guideline</i> (Department of Environment and Climate Change, 2000). |
| Infrastructure SEPP | <i>State Environmental Planning Policy (Infrastructure) 2007</i> (NSW) |
| IS rating | Infrastructure Sustainability Rating Scheme under ISC rating tool (v 1.2) |
| ISC | Infrastructure Sustainability Council |
| LEP | Local Environmental Plan |
| LGA | Local Government Area |
| LoS | Level of Service |
| LV | Low Voltage |
| NES | National Environmental Significance |
| NPW Act | <i>National Parks and Wildlife Act 1974</i> (NSW) |
| NSW | New South Wales |
| OEH | Formerly NSW Office of the Environment and Heritage |
| OHWS | Overhead Wire Structure |
| OOHW | Out of hours work |
| PA system | Public Address system |
| PAR | Photographic Archival Recording |

| Term | Meaning |
|---------------------------|--|
| PDP | Public Domain Plan |
| POEO Act | <i>Protection of the Environment Operations Act 1997 (NSW)</i> |
| RailCorp | (former) Rail Corporation of NSW |
| RAP | Remediation Action Plan |
| RBL | Rating Background Level |
| REF | Review of Environmental Factors (this document) |
| Roads Act | <i>Roads Act 1993 (NSW)</i> |
| Roads and Maritime | NSW Roads and Maritime Services (formerly Roads and Traffic Authority) |
| SEPP | State Environmental Planning Policy |
| SHR | State Heritage Register |
| SoHI | Statement of Heritage Impact |
| TAHE | Transport Asset Holding Entity of New South Wales (refer to definitions) |
| TCP | Traffic Control Plan |
| TfNSW | Transport for NSW |
| TPZ | Tree Protection Zone |
| TVM | Ticket Vending Machine |
| UDP | Urban Design Plan |
| WARR Act | <i>Waste Avoidance and Resource Recovery Act 2001 (NSW)</i> |
| WM Act | <i>Water Management Act 2000 (NSW)</i> |

Definitions

| Term | Meaning |
|---|--|
| Average Recurrence Interval | The likelihood of occurrence, expressed in terms of the long-term average number of years, between flood events as large as or larger than the design flood event. For example, floods with a discharge as large as or larger than the 100-year ARI flood will occur on average once every 100-years. |
| Asset Management Branch | <p>The Asset Management Branch (formerly Asset Standards Authority – ASA) is a part of Transport for NSW, and responsible for engineering governance, assurance of design safety, and ensuring the integrity of transport and infrastructure assets.</p> <p>Within the rail environment, Design Authority functions formerly performed by ASA are now exercised by the Asset Management Branch.</p> |
| Concept design | The concept design is the preliminary design presented in this REF, which would be refined by the Contractor (should the Proposal proceed) to a design suitable for construction (subject to Transport for NSW acceptance). |
| Design and Construct Contract | A method to deliver a project in which the design and construction services are contracted by a single entity known as the Contractor. The Contractor completes the project by refining the concept design presented in the REF and completing the detailed design so that it is suitable for construction (subject to Transport for NSW acceptance). The Contractor is therefore responsible for all work on the project, both design and construction. |
| Detailed design | Detailed design broadly refers to the process that the Contractor undertakes (should the Proposal proceed) to refine the concept design to a design suitable for construction (subject to Transport for NSW acceptance). |
| Disability Standards for Accessible Public Transport | The Commonwealth <i>Disability Standards for Accessible Public Transport 2002</i> (“Transport Standards”) (as amended) are a set of legally enforceable standards, authorised under the Commonwealth <i>Disability Discrimination Act 1992</i> (DDA) for the purpose of removing discrimination ‘as far as possible’ against people with disabilities. The Transport Standards cover premises, infrastructure and conveyances, and apply to public transport operators and premises providers. |
| Ecologically Sustainable Development | <p>As defined by clause 7(4) Schedule 2 of the EP&A Regulation.</p> <p>Development that uses, conserves and enhances the resources of the community so that ecological processes on which life depends are maintained, and the total quality of life, now and in the future, can be increased.</p> |
| Feasible | A work practice or abatement measure is feasible if it is capable of being put into practice or of being engineered and is practical to build given project constraints such as safety and maintenance requirements. |
| Interchange | Transport interchange refers to the area/s where passengers transit between vehicles or between transport modes. It includes the pedestrian pathways and cycle facilities in and around an interchange. |
| Noise sensitive receiver | In addition to residential dwellings, noise sensitive receivers include, but are not limited to, hotels, entertainment venues, pre-schools and day care facilities, educational institutions (e.g. schools, TAFE colleges), health care facilities (e.g. nursing homes, hospitals), recording studios and places of worship/religious facilities (e.g. churches). |

| Term | Meaning |
|-----------------------------------|---|
| NSW Trains | From 1 July 2013, NSW Trains became the new rail provider of services for regional rail customers. |
| Opal card | The integrated ticketing smartcard introduced by Transport for NSW. |
| Out of hours work | Defined as work <i>outside</i> standard construction hours (i.e. outside of 7am to 6pm Monday to Friday, 8am to 1pm Saturday and no work on Sundays/public holidays). |
| Proponent | A person or body proposing to carry out an activity under Division 5.1 of the EP&A Act – in this instance, Transport for NSW. |
| Rail possession / shutdown | Shutdown is the term used by railway building/maintenance contractors to indicate that they have taken possession of the track (usually a block of track) for a specified period, so that no trains operate for a specified time. This is necessary to ensure the safety of workers and rail users. |
| Reasonable | Selecting reasonable measures from those that are feasible involves making a judgment to determine whether the overall benefits outweigh the overall adverse social, economic and environmental effects, including the cost of the measure. |
| Sensitive receivers | Land uses which are sensitive to potential noise, air and visual impacts, such as residential dwellings, schools and hospitals. |
| Sydney Trains | From 1 July 2013, Sydney Trains replaced CityRail as the provider of metropolitan train services for Sydney. |
| TAHE | The Transport Asset Holding Company is a statutory State Owned Corporation that holds rail property assets, rolling stock and rail infrastructure in the Sydney metropolitan area and limited country locations in the State of NSW. |
| Tactiles | Tactile tiles or Tactile Ground Surface Indicators are textured ground surface indicators to assist pedestrians who are blind or visually impaired. They are found on many footpaths, stairs and train station platforms. |
| The Proposal | The construction and operation of the Stanmore Station Upgrade. |
| Vegetation Offset Guide | The Transport for NSW guide that applies where there is vegetation clearing proposed, and where the impact of the proposed clearing is not deemed 'significant' for the purposes of section 5.5 of the EP&A Act. The Guide provides for planting of a minimum of eight trees for each large tree with a diameter at breast height (DBH) of more than 60 cm, four trees where the DBH is 15–60 cm, or two trees where DBH is less than 15 cm. |

Executive summary

Overview

The NSW Government is improving accessibility at Stanmore Station. This project is being delivered as part of the Transport Access Program, a NSW Government Initiative to provide a better experience for public transport customers by delivering accessible, modern secure and integrated transport infrastructure.

As part of this program, the Stanmore Station Upgrade (the Proposal) would aim to provide a station precinct that is accessible to people with a disability, limited mobility, parents/carers with prams, and customers with luggage.

The Proposal would provide the following key features:

- two new lifts to provide access between the existing station underpass and the platforms
- reconfiguration of the existing bathrooms on Platform 1/2 to accommodate:
 - a new family accessible toilet
 - male and female ambulant toilets
 - a cleaners room
- provision of new canopy on Platform 1/2 to connect to the existing platform building awning and provide continuous canopy coverage between the new lift, boarding assistance zone and family accessible toilet
- provision of a new canopy on Platform 3 around the new lift to cover the lift opening and boarding assistance zone
- upgrade of the existing stairs to include new handrails, tactile ground surface indicators (tactiles) and nosings
- reinstate glazed panels to the eastern screen of the existing staircase on Platform 1/2 which faces the new lift opening
- regrading and resurfacing of the existing platform and underpass surfaces as required to provide accessible paths of travel from the new lifts to the station amenities, including the family accessible toilet and waiting rooms
- provision of a new ramp into the waiting room on Platform 2
- provision of a new ramp and stairs, and regrading of the Trafalgar Street entry to Platform 3
- removal of one large Lilly Pilly tree and five small Orange jessamine shrubs (hedges) to accommodate the new lift on Platform 3 and removal of two small red flowering gum street trees to accommodate the DDA parking space and kiss and ride bay
- station interchange upgrades including:
 - a new DDA car parking space and a new kiss and ride bay on Douglas Street
 - upgrade of the existing footpaths and underpass of the Douglas Street entry forecourt to provide an accessible path of travel from a new kerbside DDA car parking space and a new kiss and ride bay

- minor upgrade works including four new bicycle hoops at the Douglas Street entrance to replace existing bicycle racks, modification of underpass walls and ceilings, upgrade of station landscaping, adjustments to station lighting, relocation of electronic ticketing (Opal readers), relocation or replacement of existing customer facilities (vending machine, waste and recycling bins and seating), public domain improvements, improvement to station communications systems (including CCTV cameras), hearing loops, wayfinding signage and installation of yellow lines and tactiles on all platforms.

Transport for NSW is the government agency responsible for the delivery of major transport infrastructure projects in NSW and is the proponent for the Proposal.

This Review of Environmental Factors (REF) has been prepared to assess all matters affecting or likely to affect the environment by reason of the construction and operation of the Proposal under the provisions of Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Subject to approval, construction is expected to commence in mid-2022 and take around 18 months to complete. A detailed description of the Proposal is provided in Chapter 3 of this REF. An overview of the Proposal is shown in Figure ES-1 below.



(Indicative only, subject to detailed design)

Figure ES-1 Key features of the Proposal

Need for the Proposal

The Proposal would ensure that Stanmore Station would meet legislative requirements under the *Disability Discrimination Act 1992* (DDA) and the *Disability Standards for Accessible Public Transport 2002* (DSAPT).

The Proposal is designed to drive a stronger customer experience outcome, to deliver improved travel to and between modes, encourage greater public transport use and better integrate interchanges with the role and function of town centres. The Proposal would also assist in responding to forecasted growth in the region and as such would support growth in commercial and residential development for the Stanmore area.

Chapter 2 of this REF further describes the need for the Proposal and outlines the options considered in developing the design.

Community and stakeholder consultation

Further community consultation activities for the Proposal would be undertaken during the public display period of this REF with the public invited to submit feedback to help Transport for NSW understand what is important to customers and the community. The REF would be displayed for a period of two weeks.

Further information about these specific consultation activities is included in Section 5.4 of this REF.

During the display period a Project Infoline (1800 684 490) and email address (projects@transport.nsw.gov.au) would also be available for members of the public to make enquiries.

In accordance with the requirements of the *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP), consultation is required with local councils and/or public authorities in certain circumstances, including where Council managed infrastructure is affected. Consultation has been undertaken with Sydney Trains, Transport for NSW and the Inner West Council during the development of design options and the preferred option. Consultation with these stakeholders would continue through the detailed design and construction of the Proposal.

During the display period feedback from the community would be invited and can be submitted in the following ways:

- Telephone: 1800 684 490
- Email: projects@transport.nsw.gov.au
- Transport for NSW Stanmore Station Upgrade website: <https://www.transport.nsw.gov.au/projects/current-projects/stanmore-station-upgrade>
- Mail: Director Environment and Sustainability (Rail Development and Delivery) – PO Box K659 Haymarket NSW 1240.

Transport for NSW would review and assess all feedback received during the public display period, prior to determining whether or not to proceed with the Proposal.

Should the Proposal proceed to construction, the community would be kept informed throughout the duration of the construction period. Figure ES-2 shows the planning approval and consultation process for the Proposal.

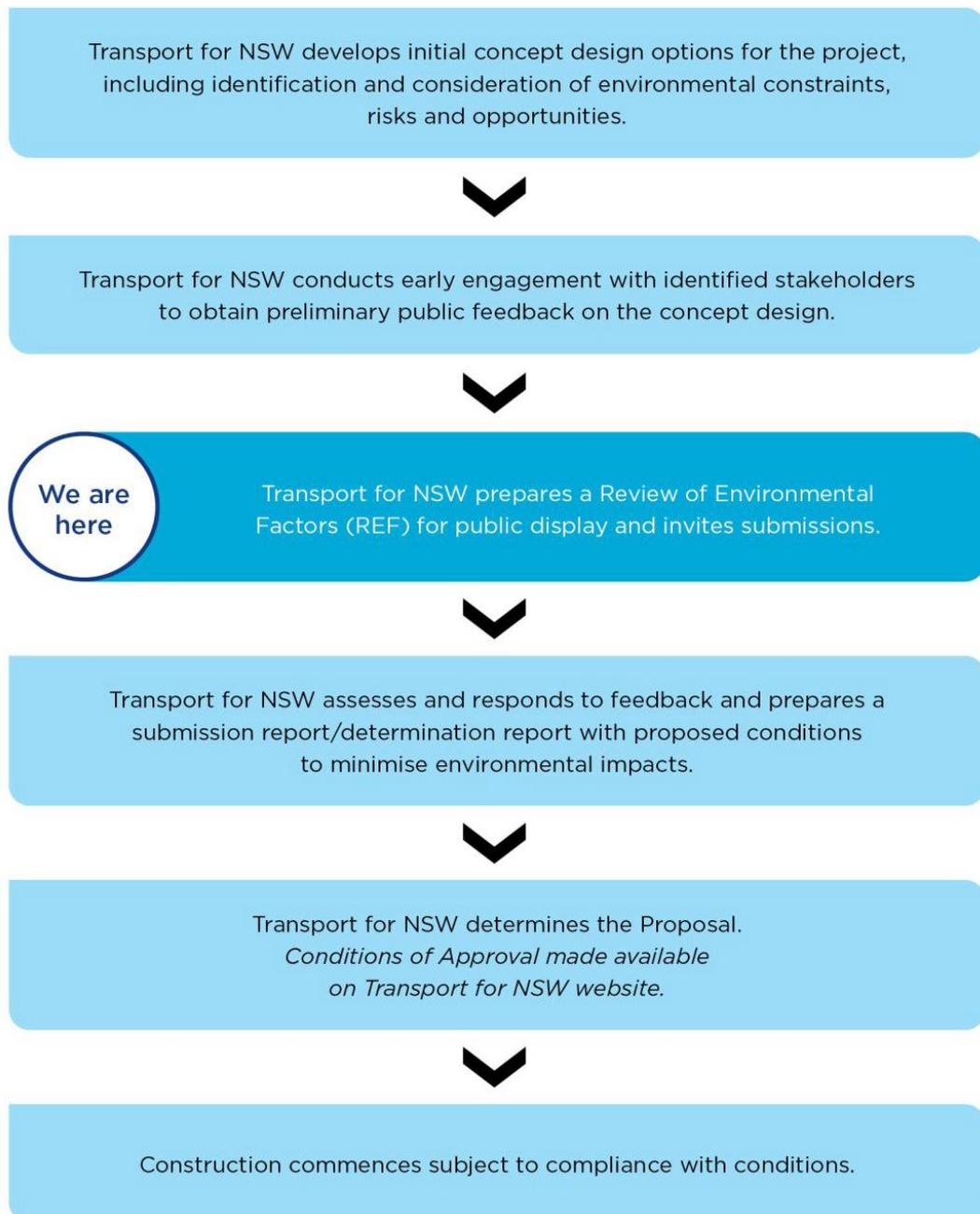


Figure ES-2 Planning approval and consultation process for the Proposal

Environmental impact assessment

This REF identifies the potential environmental benefits and impacts of the Proposal and outlines the mitigation measures to reduce the identified impacts.

The Proposal would provide the following benefits:

- a station that provides improved accessibility to people with a disability, limited mobility, parents/carers with prams and customers with luggage
- modernisation of the existing station building and interchange facilities to meet the needs of a growing population
- improved interchange and access facilities for all customers utilising Stanmore Station.

The following key impacts have been identified should the Proposal proceed:

- temporary adverse impacts to the visual amenity of the local environment due to the construction works associated with the Proposal
- temporary disruptions to station facilities and amenities during construction, including potential weekend closures of Stanmore Station during scheduled Sydney Trains rail shutdowns
- temporary impacts on local traffic flow associated with construction traffic along Douglas Street and Trafalgar Street
- temporary changes to vehicular, bus, bicycle and pedestrian access around the station during construction
- temporary noise impacts to adjacent residential areas during construction, including periods of weekend works, resulting in temporary amenity impacts
- potential for sediment mobilisation, dust generation and erosion risk during construction
- impacts to heritage fabric as a result of the Proposal including changes to the pedestrian underpass and station platform buildings
- minor changes to the overall built form of the station during operation which would have a negligible to moderate impact on views
- minor impacts to the existing station building and visual environment from the introduction of new elements, such as the new lifts
- removal of one large Lilly Pilly tree and five small Orange jessamine shrubs (hedges) to accommodate lift shaft on Platform 3 and replacement offset planting
- removal of two small red flowering gum street trees to accommodate the new DDA parking space and kiss and ride bay on Douglas Street and replacement offset planting
- replacement of two timed two-hour car parking spaces on Douglas Street to provide the new DDA parking space and kiss and ride bay.

Further information regarding these impacts is provided in Chapter 6 of the REF.

Conclusion

This REF has been prepared having regard to sections 5.5 and 5.7 of the EP&A Act, and clause 228 of the EP&A Regulation, to ensure that Transport for NSW takes into account to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the Proposal.

The detailed design of the Proposal would also be designed in accordance with the Infrastructure Sustainable Council (ISC) Infrastructure Sustainable (IS) Rating Tool (v 1.2) taking into account the principles of ecologically sustainable development (ESD).

Should the Proposal proceed, any potential associated adverse impacts would be appropriately managed in accordance with the mitigation measures outlined in this REF, and the Conditions of Approval imposed in the Determination Report. This would ensure the Proposal is delivered to maximise benefit to the community and minimise any adverse impacts on the environment.

In considering the overall potential impacts and proposed mitigation measures outlined in this REF, the Proposal is unlikely to significantly affect the environment including critical habitat or threatened species, populations, ecological communities or their habitats.



Figure ES-3 Photomontage of the Proposal showing Trafalgar Street entrance from Holt Street



(Indicative only, subject to detailed design)

Figure ES-4 Photomontage of the Proposal showing view south-west from Platform 1/2

1 Introduction

Transport for NSW is responsible for strategy, planning, policy, procurement, regulation, funding allocation and other non-service delivery functions for all modes of transport in NSW including road, rail, ferry, light rail, point to point, cycling and walking. Transport for NSW is the proponent for the Stanmore Station Upgrade (the 'Proposal').

1.1 Overview of the Proposal

1.1.1 The need for the Proposal

The NSW Government is committed to facilitating and encouraging use of public transport, such as trains, by upgrading stations to make them more accessible, and improving interchanges around stations with other modes of transport such as buses, bicycles and cars. The Transport Access Program is an initiative targeted at achieving compliance with the Disability Standards for Accessible Public Transport (DSAPT) Regulations across the Network.

Stanmore Station has been identified for an accessibility upgrade as it does not currently accommodate mobility impaired access to rail services or meet key requirements of the DSAPT or the Commonwealth *Disability Discrimination Act 1992* (DDA).

The following accessibility issues have been identified at Stanmore Station and have been addressed in the concept design of the upgrade:

- access to the station building and platforms is currently via stairs only and does not provide accessibility for wheelchairs onto the platforms
- the existing toilets within the station building do not include provision of a family accessible toilet or ambulant toilet
- the existing handrails, tactile ground surface indicators (tactiles) and nosing on the stairs are non-compliant with DDA standards
- areas of the existing platform grade, including the access into the toilets and waiting room, are non-compliant with existing DDA standards
- the existing platform edge safety zone line markings and tactiles are non-compliant with existing DDA standards
- no DDA parking space, kiss and ride bay or accessible path to boarding assistance zones is available.

1.1.2 Key features of the Proposal

The key features of the Proposal are summarised as follows:

- two new lifts to provide access between the existing station underpass and the platforms
- reconfiguration of the existing bathrooms on Platform 1/2 to accommodate:
 - a new family accessible toilet
 - male and female ambulant toilets
 - a cleaners room
- provision of new canopy on Platform 1/2 to connect to the existing platform building awning and provide continuous canopy coverage between the new lift, boarding assistance zone and family accessible toilet

- provision of a new canopy on Platform 3 around the new lift to cover the lift opening and boarding assistance zone
- upgrade of the existing stairs to include new handrails, tactile ground surface indicators (tactiles) and nosings
- reinstate glazed panels to the eastern screen of the existing staircase on Platform 1/2 which faces the new lift opening
- regrading and resurfacing of the existing platform and underpass surfaces as required to provide accessible paths of travel from the new lifts to the station amenities, including the family accessible toilet and waiting rooms
- provision of a new ramp into the waiting room on Platform 2
- provision of a new ramp and stairs, and regrading of the Trafalgar Street entry to Platform 3
- removal of one large Lilly Pilly tree and five small Orange jessamine shrubs (hedges) to accommodate the new lift on Platform 3 and removal of two small red flowering gum street trees to accommodate the DDA parking space and kiss and ride bay
- station interchange upgrades including:
 - a new DDA car parking space and a new kiss and ride bay on Douglas Street
 - upgrade of the existing footpaths and underpass of the Douglas Street entry forecourt to provide an accessible path of travel from a new kerbside DDA car parking space and a new kiss and ride bay
 - minor upgrade works including four new bicycle hoops at the Douglas Street entrance to replace existing bicycle racks, modification of underpass walls and ceilings, upgrade of station landscaping, adjustments to station lighting, relocation of electronic ticketing (Opal readers), relocation or replacement of existing customer facilities (vending machine, waste and recycling bins and seating), public domain improvements, improvement to station communications systems (including CCTV cameras), hearing loops, wayfinding signage and installation of yellow lines and tactiles on all platforms.

Subject to planning approval, construction is expected to commence in mid-2022 and take around 18 months to complete.

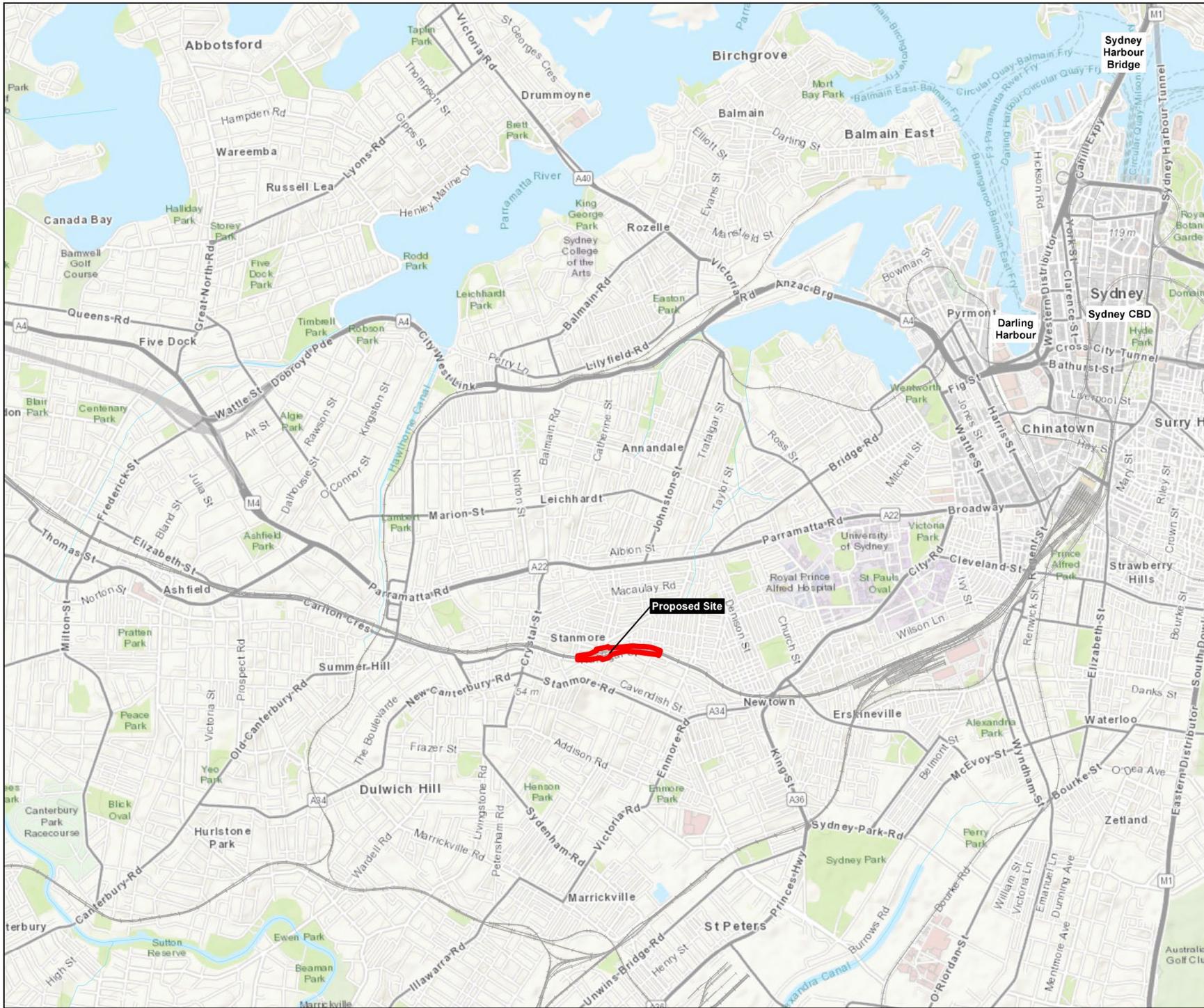
A detailed description of the Proposal is provided in Chapter 3 of this Review of Environmental Factors (REF).

1.2 Location of the Proposal

The Proposal would involve work to Stanmore Station, which is located in the suburb of Stanmore in the Inner West Council local government area (LGA). The location of the station and its regional context is shown in Figure 1-1.

Stanmore Station is located on the Inner West & Leppington line (T2 Service), around 4.6 kilometres by rail from the City (Central Station). The Proposal area generally bounded by Douglas Street to the north and Trafalgar Street to the south.

The Proposal is located in an area that can be generally described as urban residential. The proposed works would be predominately located in an area zoned as SP2 Infrastructure (Rail Infrastructure Facilities) under the *Marrickville Local Environmental Plan 2011* (Marrickville LEP 2011). The area surrounding the station includes access points within an area zoned R2 Low Density Residential on Trafalgar Street and B1 Neighbourhood Centre on Douglas Street.



Legend

- Railway
- Watercourses
- Proposal Site



0 0.4 0.8 Km

Coordinate system: GDA2020 MGA Zone 56



Scale ratio correct when printed at A3

1:30,000 Date: 11/26/2021

Data Sources: Imagery © Metromap 2020

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The northern side of Stanmore Station contains mixed low density commercial and residential areas with an educational establishment, St Michael's Catholic Primary School and the church of St Michael the Archangel located further north. The southern side on Trafalgar Street contains a smaller neighbourhood centre surrounded by low and medium density residential and two educational establishments, Newington College and Stanmore Public School.

The area to the north, north-east and south of the Proposal area is listed as a Heritage Conservation Area in Marrickville LEP 2011 and includes a number of locally listed heritage items.

The Proposal includes upgrades to Stanmore Station on land owned by the Transport Asset Holding Entity of New South Wales (TAHE), and managed by Sydney Trains within the station precinct, with some work also proposed at the station entrances, adjoining footpaths and Douglas Street which are managed by the Inner West Council.

1.3 Existing infrastructure and land uses

1.3.1 Station access and facilities

Stanmore Station consists of a single island platform and an additional side platform (Trafalgar Street side) which are joined via a single pedestrian tunnel. The pedestrian tunnel provides cross-rail corridor connectivity between Douglas Street and Trafalgar Street with access to the platforms being via the pedestrian tunnel and existing stairs to each of the respective platforms. The pedestrian infrastructure surrounding the station includes footpaths along all adjacent street surrounding the station precinct.

Platform 1/2 consists of a central island platform accessible via staircases from the pedestrian tunnel only. There are currently no scheduled services from Platform 1 (currently a through platform for express trains) with Platform 2 providing access from Stanmore to the City (Central). Platform 3 is accessible from the pedestrian tunnel via the existing staircase and a ramp from Trafalgar Street. Platform 3 provides access from Stanmore to Parramatta via Strathfield.

The station can be entered from both Douglas Street and Trafalgar Street with a dual stairway leading to the platforms. At the Douglas Street entrance, there is the former parcel and booking office building, which is currently vacant. At the Trafalgar Street entrance, customers directly access the platform and platform building.

The station building located between Platforms 1/2 provides customer facilities including a ticket booking office, opal car machine, male and female toilet, weather protection canopies, waiting room, staff amenities, vending machine and bins.

Platform 3 contains a small station building providing a waiting room, seating, bins and canopy weather protection for rail customers. Additional customer seating and real time passenger information displays are located along the extents of each platform.

Stanmore Railway Station Group is listed on the TAHE Section 170 Heritage and Conservation Register (s170 register) and State Heritage Register (SHR). Stanmore Station has significance at a state level as a group of largely intact, original structures dating from the 1880s establishment of the station through to the 1891 quadruplication and the 1927 sextuplication of the line, which demonstrate the growth and expansion of the railways in the late 19th and early twentieth century.

Stanmore Railway Station Group is also listed as a heritage item of local significance under Schedule 5 of the Marrickville LEP 2011.

1.3.2 Interchange facilities

Existing street parking is available in the streets surrounding Stanmore Station, with separate entry and exit access available through the pedestrian tunnel connecting Douglas Street and Trafalgar Street. No DDA parking provisions are currently provided for the train station.

Bike storage for eight bicycles are provided at the Douglas Street entry. No kiss and ride bays are currently provided in proximity to the station.

The nearest bus stop which services the station is located on Douglas Street to the north of Stanmore Station, about 50 metres north of the Stanmore Station pedestrian tunnel. The stop provides services between Campsie and City (Martin Place) via Earlwood and Dulwich Hill (bus route 412), Liverpool and City (Town Hall) night service (bus route N50), Strathfield and Central (bus route 47T2) and Lewisham and Central via Petersham and Stanmore (bus route 50T2). To the south, the nearest bus stops are located in Petersham and Enmore, both around one kilometre from Stanmore Station. Close to Newington College and Stanmore Public School, school bus routes are also located within the local area.

1.3.3 Land uses

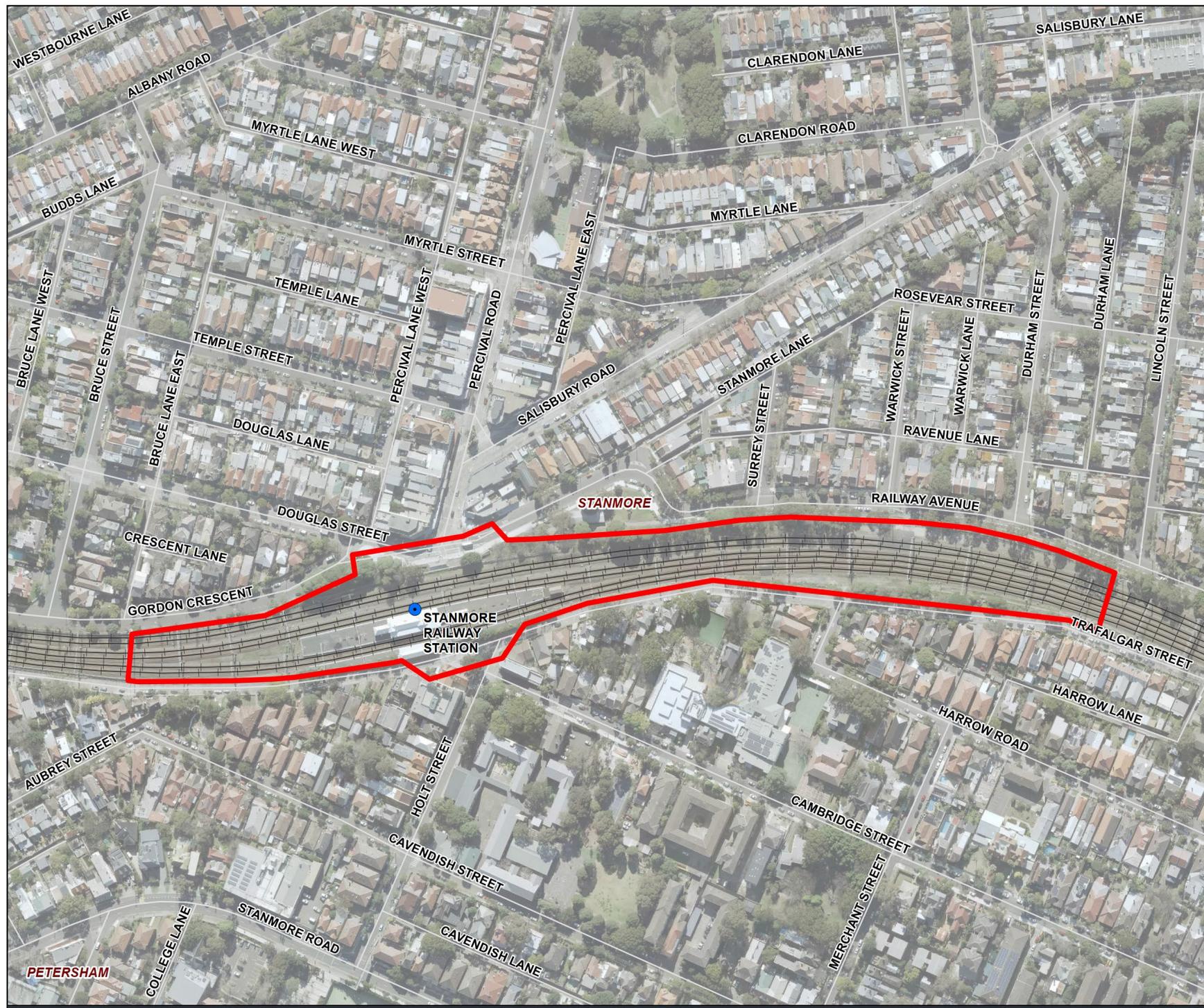
The suburb of Stanmore comprises single dwellings, small residential flat buildings, local parks and open space, aged-care facilities, restaurants, a pub, local services and businesses.

The local area to the north of the station primarily consists of commercial premises, detached residential dwellings and the Stanmore library.

The local area to the south of the station comprises of detached residential houses, small residential flat buildings, small neighbourhood commercial precinct and two schools.

There are a variety of land uses within an 800 metre radius of the station including five churches (Stanmore Baptist Church, Stanmore Seventh-day Adventist Church, St Michael the Archangel Catholic Church, Stanmore Uniting Church and St Luke's Anglican Church), low to high density residential areas comprising houses and residential flat buildings, neighbourhood commercial precincts, an aged care facility (Stanmore Place Care Community), three schools (Newington College, Stanmore Public School and St Michael's Catholic Primary School), local parks and recreational facilities.

The location of the Proposal, including construction compound areas, and surrounding key features are shown in Figure 1-2. Photos of the existing station infrastructure are shown in Figure 1-3 to Figure 1-10.



Legend

- Railway Station
- Roads
- Railway
- Proposal Site



0 30 60 m

Coordinate system: GDA2020 MGA Zone 56

Scale ratio correct when printed at A3

1:2,500 Date: 11/26/2021

Data Sources: Imagery © Metromap 2020

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Figure 1-6 View towards the Platform 3 all-weather seating area and entrance

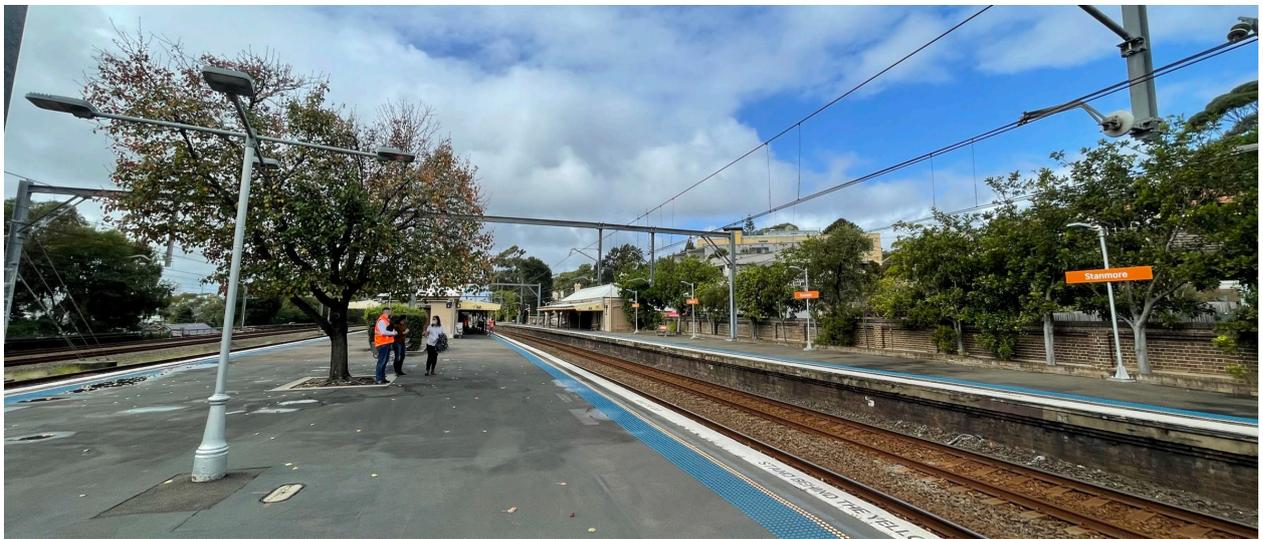




Figure 1-9 View towards the Platform 3 staircase to the underpass



1.4 Purpose of this Review of Environmental Factors

This REF has been prepared by WSP Australia Pty Limited on behalf of Transport for NSW to assess the potential impacts of the Stanmore Station Upgrade. For the purposes of these works, Transport for NSW is the proponent and the determining authority under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The purpose of this REF is to describe the Proposal, to assess the likely impacts of the Proposal having regard to the provisions of Section 5.5 of the EP&A Act, and to identify mitigation measures to reduce the likely impacts of the Proposal. This REF has been prepared in accordance with clause 228 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

This assessment has also considered the relevant provisions of other relevant environmental legislation, including the *Biodiversity Conservation Act 2016* (BC Act), *Fisheries Management Act 1994* (FM Act) and the *Roads Act 1993* (Roads Act).

Having regard to the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), this REF considers the potential for the Proposal to have a significant impact on matters of National Environmental Significance (NES) or Commonwealth land, and the need to make a referral to the Commonwealth Department of Agriculture, Water and the Environment for any necessary approvals under the EPBC Act. Refer to Chapter 3 for more information on statutory considerations.

2 Need for the Proposal

Chapter 2 discusses the need and objectives of the Proposal, having regard to the objectives of the Transport Access Program and the specific objectives of the Proposal. This chapter also provides a summary of the options that have been considered during development of the Proposal and why the preferred option has been chosen.

2.1 Strategic justification

Improving transport customer experience is the focus of the NSW Government's transport initiatives. Transport interchanges and train stations are the important gateways to the transport system and as such play a critical role in shaping the customer's experience and perception of public transport.

The Stanmore Station Upgrade, the subject of this REF, forms part of the Transport Access Program. This program is designed to drive a stronger customer experience outcome to deliver seamless travel to and between modes, encourage greater public transport use and better integrate station interchanges with the role and function of town centres within the metropolitan area and developing urban centres in regional areas of NSW.

Table 2-1 provides an overview of NSW Government policies and strategies relevant to the Proposal.

Table 2-1 Key NSW Government policies and strategies applicable to the Proposal

| Policy / Strategy | Overview | How the Proposal aligns |
|---|---|--|
| <p><i>Future Transport Strategy 2056</i> (TfNSW, 2018)</p> | <p><i>Future Transport 2056</i> is an update of NSW's <i>Long Term Transport Master Plan</i>. It is a suite of strategies and plans for transport to provide an integrated vision for the state.</p> <ul style="list-style-type: none"> <i>Future Transport 2056</i> identifies 12 customer outcomes to guide transport investment in Greater Sydney. These outcomes include transport providing convenient access, supporting attractive places and providing 30-minute access for customers to their nearest centre by public transport. | <p>The Proposal would deliver on the customer focus, accessible services and sustainability outcomes of the <i>Future Transport Strategy 2056</i>.</p> <p>The Proposal would deliver on the customer focus and support accessible services (outcome 5) by improving accessibility to public transport and creating travel options for more customers.</p> <p>The Proposal would also support the sustainability objective (outcome 6) by encouraging the use of public transport and helping to reduce the number of cars on the roads, resulting in (net) less emissions.</p> |
| <p><i>A Metropolis of Three Cities - Greater Sydney Region Plan</i> (Greater Sydney Commission, 2018a)</p> | <p>The <i>Greater Sydney Region Plan</i> is the NSW Government's 40-year land use plan for Sydney. It establishes a vision for a metropolis of three cities – the Eastern Harbour City, Central River City and Western Parkland City. The site is at the centre of the Eastern City District which is part of the Eastern Harbour City.</p> | <p>The Proposal would particularly support Objective 6 of the Plan, which is to ensure services and infrastructure meet communities' changing needs.</p> <p>The Proposal would be consistent with this objective by providing additional infrastructure to support future growth to transport services for commuters and improved connectivity to Stanmore Station and public transport opportunities for surrounding suburbs.</p> |

| Policy / Strategy | Overview | How the Proposal aligns |
|--|--|--|
| <p>Disability Inclusion Action Plan (2018-2022) (TfNSW, 2017)</p> | <p>The <i>Disability Inclusion Action Plan 2018-2022</i> was developed by Transport for NSW in consultation with the Accessible Transport Advisory Committee, which consists of representatives from peak disability and ageing organisations within NSW. The Disability Plan identifies the challenges, the achievements to date, the considerable undertaking that is required to finish the job and provides a solid and practical foundation for future progress over the next five years.</p> | <p>The Proposal has been developed with consideration of the objectives outlined in the <i>Disability Inclusion Action Plan</i> and seeks to improve and provide equitable access to public transport facilities.</p> <p>The Proposal would include new lift access to the station platforms, a family and accessible toilet, ambulant toilets, improved pedestrian access and a DDA car parking space.</p> |
| <p>Eastern City District Plan (Greater Sydney Commission, 2018b)</p> | <p>The Proposal is located within the Eastern City District Plan which, among other eastern local government areas (LGA), applies to the Inner West LGA. The plan describes the planning priorities and actions to improve liveability and achieve a productive and sustainable future for the district.</p> | <p>The Proposal would support both Planning Priority E1 (Planning for a city supported by infrastructure) and Planning Priority E3 (Providing services and social infrastructure to meet people's changing needs).</p> <p>The Proposal would assist in meeting the challenges of changing demographics for the Stanmore precinct by investing in infrastructure which supports public transport access for people of all ages and abilities.</p> |
| <p>Building Momentum – State Infrastructure Strategy 2018-2038 (Infrastructure NSW, 2018)</p> | <p>The <i>State Infrastructure Strategy 2018-2038</i> makes recommendations for each of NSW's key infrastructure sectors including transport.</p> | <p>The Proposal would support ongoing investment in rail infrastructure and would align with the need to continue to provide public transport to support Sydney's increasing population.</p> |
| <p>NSW: Premier Priorities (NSW Government, 2019) https://www.nsw.gov.au/improving-nsw/premiers-priorities/</p> | <p>In June 2019, 14 new Premier's Priorities were announced that would allow the Government to measure and deliver in areas where NSW can do better. The key policy priorities, include the following:</p> <ul style="list-style-type: none"> • a strong economy • highest quality education • well-connected communities with quality local environments • putting the customer at the centre • breaking the cycle of disadvantage | <p>The Proposal would assist in meeting the key priority to develop well connected communities with quality local environments by investing in transport infrastructure and improving accessibility to public transport and encouraging greater use of public transport.</p> |

| Policy / Strategy | Overview | How the Proposal aligns |
|--|---|---|
| <p><i>Inclusion Action Plan for People with a Disability 2017-2021 (IAP)</i> (Inner West Council, 2017)</p> | <p>The Inner West Council <i>Inclusion Action Plan (for People with a Disability)</i> aims to respect the rights and improve the opportunities for people with a disability of all ages and types to ensure they are able to fully participate in the community. It outlines the Inner West Council's commitment to provide an inclusive and accessible LGA to all of its residents.</p> | <p>The Proposal would assist the Inner West Council to meet the overall objectives of this Plan.</p> <p>In particular, Action Area 4: Inclusive Planning (Infrastructure and Environment) for: “<i>Accessible footpaths and facilities, pathways and transport are key to people with a disability being able to participate in their local community. Accessible public transport is an essential element to a liveable community.</i>”</p> <p>The scope of works proposed as part of the Proposal would assist in achieving this at Stanmore Station.</p> |
| <p><i>Our Inner West 2036, A community strategic plan for the Inner West Community (CSP)</i> (Inner West Council, 2018)</p> | <p>The Inner West CSP identifies the community's vision for the future, long-term goals, strategies to get there and how to measure progress towards that vision.</p> <ul style="list-style-type: none"> • A2.1 – development is designed for sustainability and makes life better • A2.2 – the unique character and heritage of neighbourhoods is retained and enhanced • A2.5 – public transport is reliable, accessible, connected and enjoyable • A2.6 – people are walking, cycling and moving around the Inner West with ease | <p>The Proposal would assist in promoting sustainable transport infrastructure while protecting and enhancing the unique character and heritage of Stanmore Station.</p> <p>The Proposal would support an accessible public transport network through accessibility improvements to Stanmore Station. By increasing the accessibility of the station and providing other station upgrades, the Proposal acknowledges and responds to the increasing use of train travel in the area and the diversity of those requiring use of the public transport system.</p> <p>In addition, by supporting upgrades to cycling and walking infrastructure at and surrounding the station, the Proposal continues to support active transport modes.</p> |

| Policy / Strategy | Overview | How the Proposal aligns |
|---|---|--|
| <p><i>Our Place Inner West, Local Strategic Planning Statement (LSPS)</i> (Inner West Council, 2020)</p> | <p>The Inner West LSPS provides a 16-year vision for land use within the Inner West and outlines how this change would be achieved.</p> <p>The key priorities in the Inner West LSPS relevant to the Proposal include:</p> <ul style="list-style-type: none"> • PP6 – plan for high quality, accessible and sustainable housing growth integrated with infrastructure provision • PP7 – provide for rich diversity of functional, safe and enjoyable urban spaces • PP8 – provide improved and accessible sustainable transport infrastructure • PP11 – provide accessible facilities and spaces that support active, healthy communities. <p>The Inner West LSPS, includes an action to support and advocate to State Government to make “<i>all railway stations, ferry wharves, light rail stops, bus services and bus stops in Inner West compliant with the Disability Discrimination Act and the Disability Standards for Accessible Public Transport.</i>”</p> | <p>The Proposal is aligned with the Inner West LSPS as it responds to key priorities and implementation actions by:</p> <ul style="list-style-type: none"> • PP6 – providing high quality and accessible infrastructure that can be integrated into sustainable housing growth • PP7 – delivering accessible rail infrastructure to Stanmore Station, which Inner West Council has advocated for in the LSPS • PP8 – delivering accessible rail infrastructure to Stanmore Station, which Inner West Council has advocated for in the LSPS • PP11 – delivering accessible rail infrastructure to Stanmore Station, which Inner West Council has advocated for in the LSPS. |

2.2 Objectives of the Transport Access Program

The Transport Access Program is a NSW Government initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure where it is needed most. The program aims to provide:

- stations that are accessible to people with disabilities, the ageing and parents/carers with prams and customers with luggage
- modern buildings and facilities for all modes that meet the needs of a growing population
- modern interchanges that support an integrated network and allow seamless transfers between all modes for all customers
- safety improvements including extra lighting, lift alarm, fences and security measures for car parks and interchanges, including stations, bus stops and wharves
- signage improvements so customers can more easily use public transport and transfer between modes at interchanges
- other improvements and maintenance such as painting, new fencing and roof replacements.

2.3 Objectives of the Proposal

The specific objectives of the Stanmore Station Upgrade are to:

- provide a station that is accessible to people with a disability, the ageing and parents/ carers with prams and customers with luggage
- improve overall customer experience by improving accessibility for people with mobility issues (including increased access to station facilities such as the toilets, waiting rooms and parking spaces) while protecting the State heritage value of the existing station buildings
- improve integration with surrounding precinct
- improve customer safety
- respond to the heritage values of the site
- improve customer amenity
- maintain/create accessible cross corridor access/pedestrian links between Trafalgar Street and Douglas Street.

2.4 Design development

In 2019, Aurecon was engaged to prepare a *Concept Design Report* (Aurecon, 2019).

The report identified the following key access constraints and issues at Stanmore Station:

- access to Stanmore Station is via stairs only and does not provide accessibility for wheelchairs or people with less mobility
- no dedicated commuter car park including accessible parking spaces are currently provided for Stanmore Station. Parking is available on Douglas Street and Gordon Crescent to the north and Trafalgar Street to the south
- pathways from public spaces to the station are non-compliant
- no kiss and ride bays are provided for the existing Stanmore station
- the existing pedestrian tunnel is not suitable for use as a shared path
- the existing hand railing and nosing on the platform stairs is non-compliant
- no family accessible toilet is provided
- existing waiting areas are not accessible due to changes in existing floor height with the platform surface
- tactile indicators on existing stairs and platform edge do not comply with current design standards
- the Trafalgar Street signalised pedestrian crossing is non-compliant.

2.5 Alternative options considered

2.5.1 Identified options

Two initial concept design options were developed for Stanmore Station. The options were initially derived from a desktop assessment of physical site constraints and a review of preliminary options developed by previous consultants.

The options identified were generally similar in nature with both options including the following elements:

- various alterations to the existing platform buildings to accommodate revised toilet configurations
- new lift to Platform 1/2 from the existing underpass
- revised DDA compliant parking spaces on Douglas Street.

The key difference between the two options comprised the different access arrangements for the proposed lift to Platform 3. The key difference in the options considered was:

- Option 1 – the lift to Platform 3 would provide an access point between the underpass and Platform 3 directly (refer to Figure 2-1)
- Option 2 – the lift to Platform 3 would provide an access point between the underpass and a footpath entry along Trafalgar Street (refer to Figure 2-2).

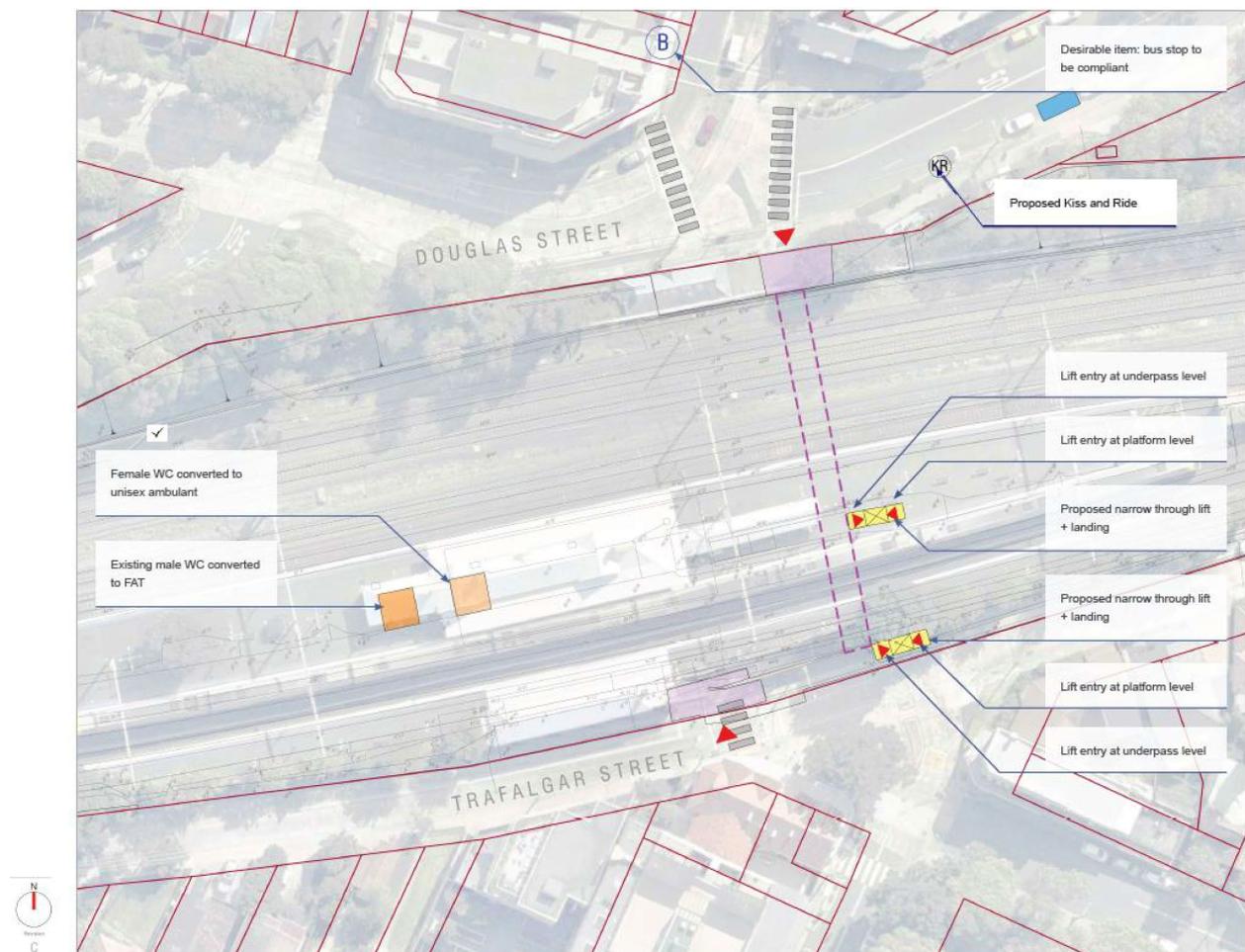


Figure 2-1 Overview of Option 1

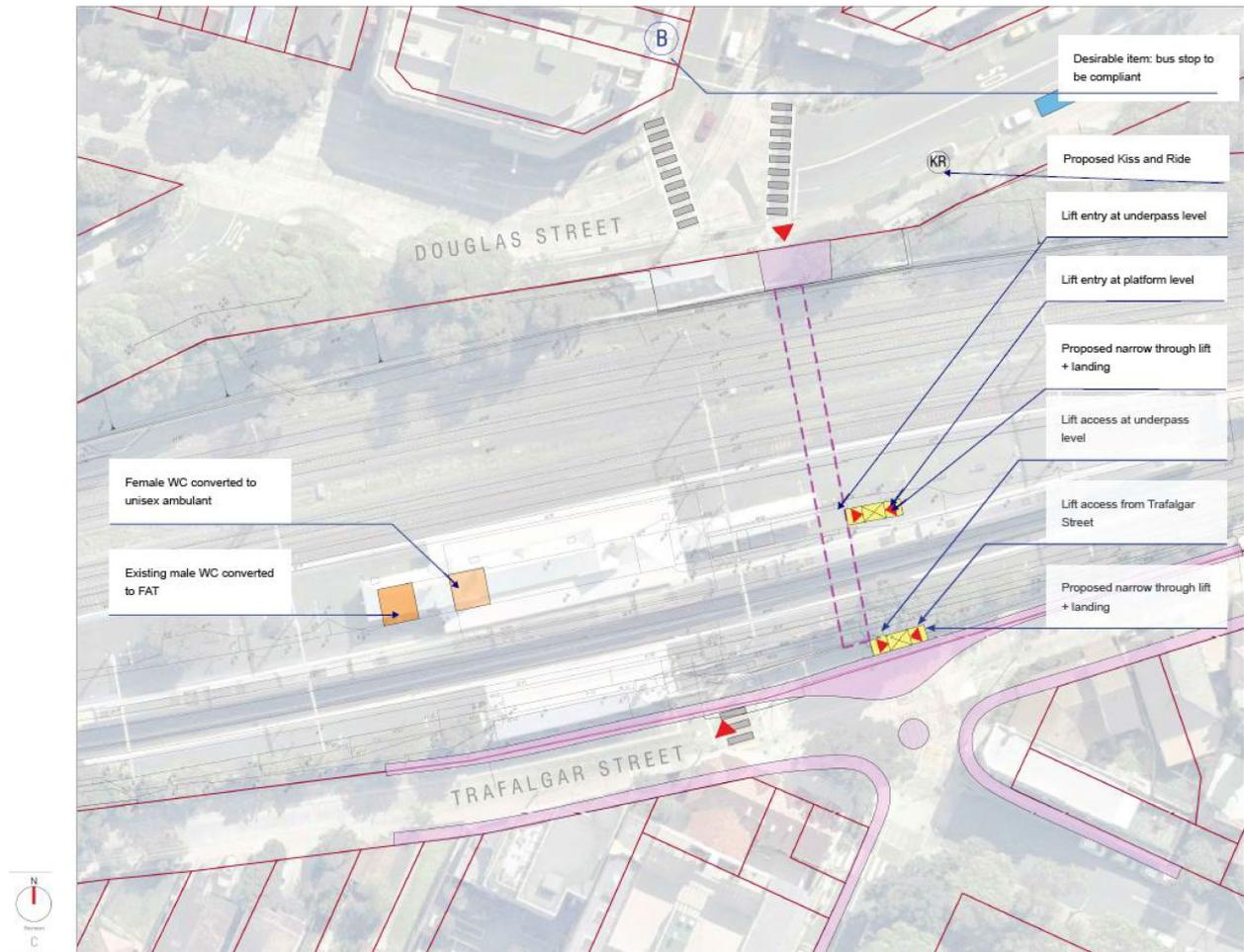


Figure 2-2 Overview of Option 2

2.5.2 Assessment of identified options

Both options were quantitatively and qualitatively assessed using Transport for NSW's multicriteria analysis (MCA) framework by Transport for NSW and its stakeholders at an options assessment workshop. The options were assessed quantitatively by comparing the Whole-of-Life costs for each option. Each option was then assessed against multiple pre-determined non-cost criteria provided by Transport for NSW. These included:

- accessibility
- infrastructure
- facilities operation and maintenance
- deliverability
- customer experience
- transport integration
- urban design and precinct planning
- environment, sustainability and heritage.

It was determined that under the Transport for NSW MCA framework, the two options proposed at Stanmore were considered generally equal under the following criteria as they both present similar challenges and opportunities:

- accessibility
- infrastructure
- customer experience
- transport integration.

Of the options considered, the following elements were noted for each of the options:

- Option 2 would require extensive re-design of the Trafalgar Street entry to the station, which would have consequential impacts to utilities in the streets and on kerb layouts as well as a substantial negative impact for through-traffic along Trafalgar Street. Therefore from a deliverability perspective, this option was considered to be the least preferred of the two options and Option 1 was considered to be the preferred option.
- From a customer experience perspective, the redesign of the Trafalgar Street entrance, with the addition of a footpath and entry to the lift on Trafalgar Street (Option 2), was identified as being valuable in creating a sense of space for customers. Under the urban design and precinct planning criteria, Option 2 was therefore considered to be the preferred option as it would provide the opportunity to establish a better cross-corridor connection with the entry to Trafalgar Street. However, pedestrian flow would be negatively impacted with pedestrians unable to cross at the roundabout.
- Due to the larger impact to the heritage fabric within the underpass for Option 2, from an environment, sustainability and heritage perspective, Option 1 was considered to be the preferred option.
- The concentrated entry to the lift through the existing Trafalgar Street entry provided by Option 1 was considered to be preferred from a facility operations and maintenance perspective.

2.5.3 The 'do-nothing' option

Under a 'do-nothing' option, existing access to Stanmore Station would remain the same and there would be no changes to the way the station currently operates.

The NSW Government has identified the need for improving the accessibility of transport interchanges, train stations and commuter car parks across NSW as a priority under the Transport Access Program.

The 'do nothing' option was not considered a feasible alternative as it is inconsistent with NSW Government objectives and would not help encourage the use of public transport and would not meet the needs of the Stanmore community.

2.6 Justification for the preferred option

Given the existing layout and site constraints of Stanmore Station, while the options were considered to be similar in nature, Option 1 (Platform 3 entry to lift via the underpass access) was the preferred option to progress.

Further refinement of Option 1 has occurred in the lead up to preparation of this REF. Refinement of the original Option 1 scope has included:

- the location of lifts has been refined in size and shape, as well as detailing of the lift lobby
- the path of travel between platforms and underpass was refined, with lift doors adjusted for best circulation and passive surveillance
- the access to the bathroom, waiting rooms and cleaners rooms have been simplified in order to reduce heritage impacts to this fabric.

The delivery of the Proposal would provide a stronger customer experience outcome, to deliver improved travel to and between modes, encourage greater public transport use and better integrate interchanges with the role and function of the town centre of Stanmore. The Proposal would also assist in responding to forecasted growth in the region and as such would support growth in commercial and residential development.

3 Proposal description

Chapter 3 describes the Proposal and summarises key design parameters, construction method, and associated infrastructure and activities. The description of the Proposal is based on the concept design and is subject to detailed design.

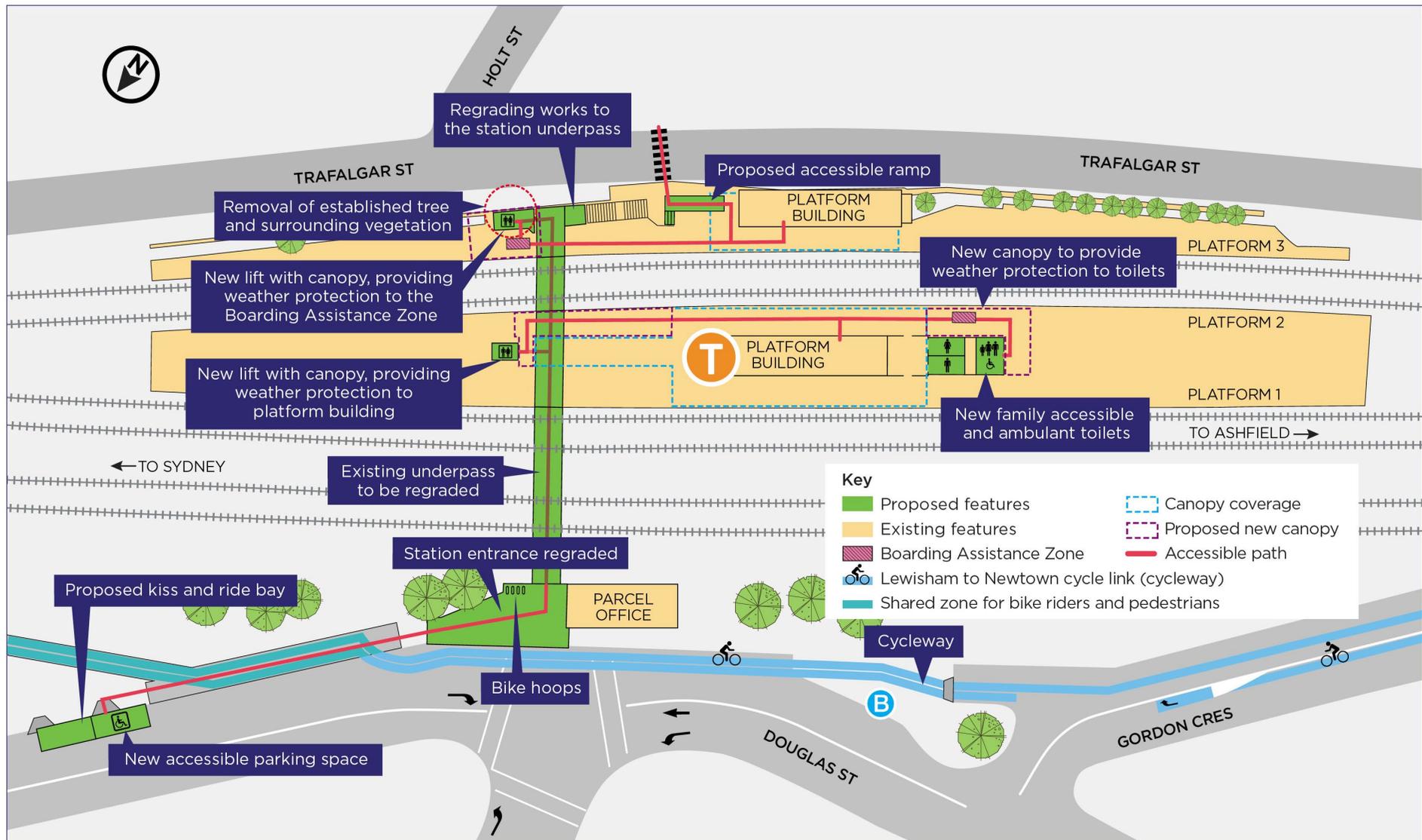
3.1 The Proposal

As described in Section 1.1, the Proposal involves an upgrade of Stanmore Station as part of the TAP which would improve accessibility and amenities for customers. The Proposal would include the following key elements:

- two new lifts to provide access between the existing station underpass and the platforms
- reconfiguration of the existing bathrooms on Platform 1/2 to accommodate:
 - a new family accessible toilet
 - male and female ambulant toilets
 - a cleaners room
- provision of new canopy on Platform 1/2 to connect to the existing platform building awning and provide continuous canopy coverage between the new lift, boarding assistance zone and family accessible toilet
- provision of a new canopy on Platform 3 around the new lift to cover the lift opening and boarding assistance zone
- upgrade of the existing stairs to include new handrails, tactile ground surface indicators (tactiles) and nosings
- reinstate glazed panels to the eastern screen of the existing staircase on Platform 1/2 which faces the new lift opening
- regrading and resurfacing of the existing platform and underpass surfaces as required to provide accessible paths of travel from the new lifts to the station amenities, including the family accessible toilet and waiting rooms
- provision of a new ramp into the waiting room on Platform 2
- provision of a new ramp and stairs, and regrading of the Trafalgar Street entry to Platform 3
- removal of one large Lilly Pilly tree and five small Orange jessamine shrubs (hedges) to accommodate the new lift on Platform 3 and removal of two small red flowering gum street trees to accommodate the DDA parking space and kiss and ride bay
- station interchange upgrades including:
 - a new DDA car parking space and a new kiss and ride bay on Douglas Street
 - upgrade of the existing footpaths and underpass of the Douglas Street entry forecourt to provide an accessible path of travel from a new kerbside DDA car parking space and a new kiss and ride bay

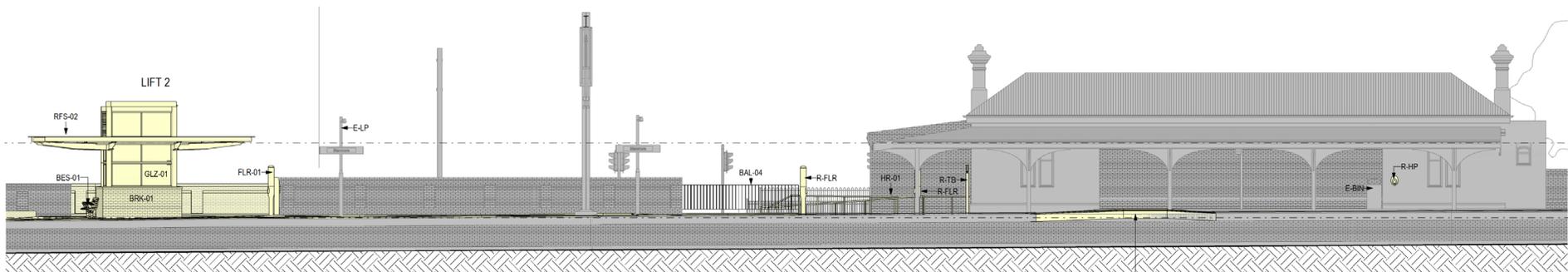
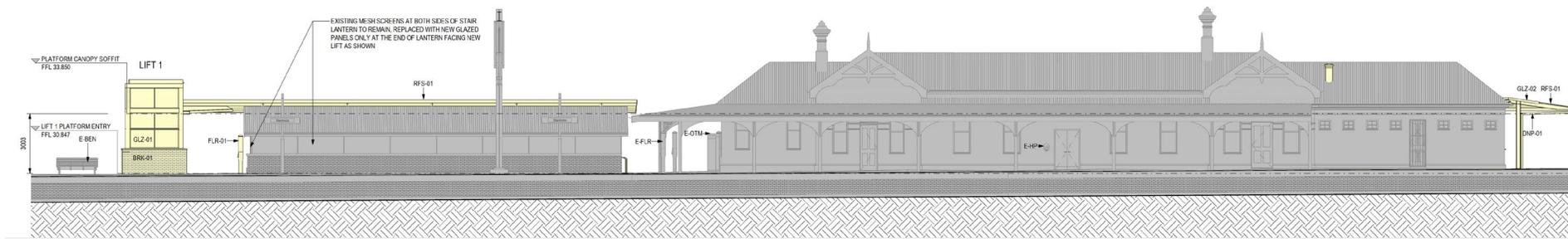
- minor upgrade works including four new bicycle hoops at the Douglas Street entrance to replace existing bicycle racks, modification of underpass walls and ceilings, upgrade of station landscaping, adjustments to station lighting, relocation of electronic ticketing (Opal readers), relocation or replacement of existing customer facilities (vending machine, waste and recycling bins and seating), public domain improvements, improvement to station communications systems (including CCTV cameras), hearing loops, wayfinding signage and installation of yellow lines and tactiles on all platforms.

Figure 3-1 shows the general layout of key elements for the Proposal. Figure 3-2 to Figure 3-5 provide indicative elevations of the Proposal.



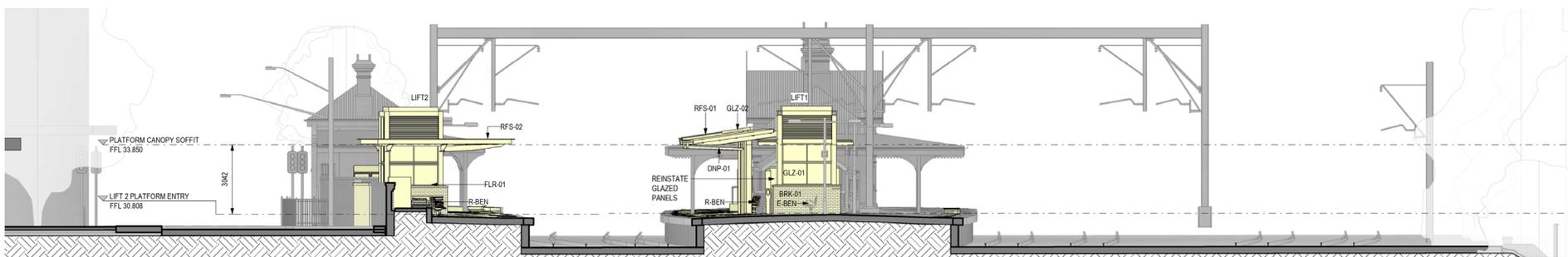
(Indicative only, subject to detailed design)

Figure 3-1 Overview of proposed upgrades



(Indicative only, subject to detailed design)

Figure 3-2 Indicative elevation of the Proposal looking north



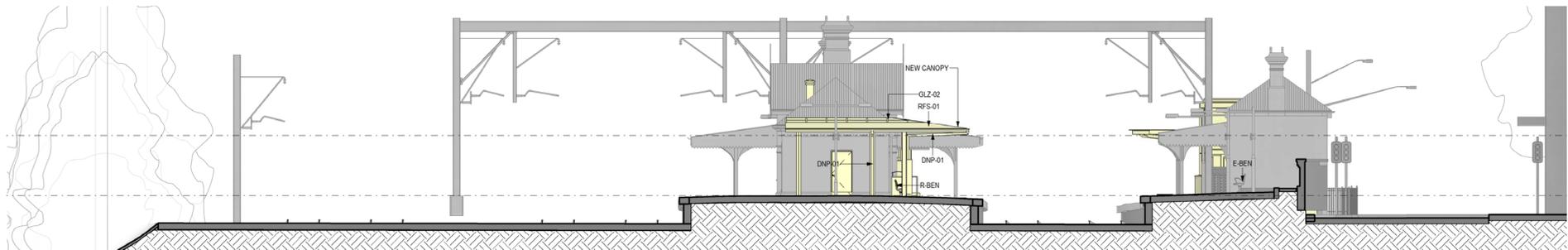
(Indicative only, subject to detailed design)

Figure 3-3 Indicative elevation of the Proposal looking east



(Indicative only, subject to detailed design)

Figure 3-4 Indicative elevation of the Proposal looking south



(Indicative only, subject to detailed design)

Figure 3-5 Indicative elevation of the Proposal looking west

3.2 Scope of work

3.2.1 Station upgrade

Details of the proposed work to take place at the station to improve accessibility and customer experience are provided below:

- construction of two new lifts connecting the existing pedestrian underpass which links Douglas Street and Trafalgar Street to Platform 1/2 and Platform 3 (refer to artist impression in Figure 3-6 and Figure 3-7)
- construction of a new canopy at the boarding assistance zone on Platform 3, attached to the new lift
- construction of new canopies to connect to the existing platform building awning on Platform 1/2 in order to provide continuous coverage between the new lifts, family accessible toilet and boarding assistance zone (refer to artist impression in Figure 3-8 and Figure 3-9), including:
 - a solid section at the western side of the new lift to cover the lift entry
 - a glazed portion at the western end of the station building to allow partial sunlight penetration onto the building facade
- installation of cladding to the underpass lift lobby walls and ceilings
- upgrade of the existing platform and underpass surfaces as required to provide accessible paths of travel from the new lifts to the station amenities by:
 - regrading on Platform 1/2 between the lift and the western end of the platform building to provide compliant access into the bathrooms and to the boarding assistance zone
 - installation of a ramp on Platform 1/2 to provide access from the platform into the platform building waiting room
 - regrading on Platform 3 between the lift and the eastern end of the waiting room, including construction of a platform wide ramp to provide compliant access into the platform building
 - regrading the underpass from Douglas Street to Trafalgar Street
- upgrade of the Douglas Street entry forecourt by regrading the existing footpaths and to provide an accessible path of travel from the DDA car parking space and a new kiss and ride bay
- upgrade of the Trafalgar Street entry by installing a new ramp and stairs to provide an accessible path to Platform 3
- upgrade of the existing stairs to include new compliant handrails, new stair nosings (where required) and replacement of any existing non-compliant tactiles
- reinstatement of a glass panel to the eastern screen around existing staircase on Platform 1/2, facing the lift opening.

3.2.2 Station building modifications

Details of the proposed work to take place to modify the existing station building are provided below:

- Internal station building works to the existing building on Platform 1/2 including:
 - conversion of the existing male ambulant toilet (located on the western side of the building) to create a family accessible toilet including lowering the existing floor to be level with the regraded platform level
 - creation of a new cleaners storeroom which would be accessed via a door within the new family accessible toilet
 - removal of the existing door between the existing female bathroom and the cleaners storeroom and replacement with a partition wall
 - conversion of existing cleaners storeroom to create a new male bathroom, including one ambulant toilet cubicle and one regular cubicle and creation of a new door opening to access this bathroom via the bathroom lobby
 - installation of a two hour fire rated main switchboard cupboard in the staff storeroom in the Platform 1/2 station building
- internal station building works to the existing building on Platform 3 including:
 - removal of a sink within the storeroom
- upgrade of existing door hardware to comply with accessibility standards.

3.2.3 Parking, kiss and ride bay and pedestrian work

Details of the proposed work to existing street parking and access are provided below:

- conversion of two existing on-street parking spaces on Douglas Street to provide one DDA car parking space and a new kiss and ride bay including:
 - construction of new kerb ramps
 - associated kerb realignment work to meet DDA car parking space and kiss and ride bay compliance on Douglas Street
- locating spaces to ensure the newly constructed cycleway located adjacent to Douglas Street is not obstructed
- construction of new concrete and timber seats next to the garden bed at the Douglas Street entrance
- removal of the existing bicycle parking rack on Douglas Street (containing space for eight bicycles) and replacement with four new bicycle parking hoops (providing space for eight bicycles).

3.2.4 Ancillary work

Details of the proposed ancillary work to support the Proposal are provided below:

- relocation and/or adjustments of existing services impacted by the proposed lift (where identified), including communications and low voltage cables
- new high voltage and low voltage electrical supply to support the installation of the new lifts, and earthing and bonding for new components
- demolition of part of the wall between Platform 3 and Trafalgar Street and reconstruction of the wall to allow for lift construction

- removal of an existing garden bed on the eastern side of the Platform 3 stairs, including removal of one tree and surrounding vegetation (one Magenta Lilly Pilly and five Orange jessamine shrubs (hedges)) and brick retaining wall to accommodate the new lift
- replanting of groundcover within the existing garden beds on the platforms and at the Douglas Street
- installation of two new planters on Platform 1/2 at either end of the platform
- removal of two small red flowering gums on Douglas Street to accommodate the new DDA car parking space and a new kiss and ride bay
- replacement of existing seating on the platforms and at the Douglas Street entry with DDA compliant seating, as required
- public domain improvements which may include heritage interpretation work or new Aboriginal artwork
- new/upgraded wayfinding signage and provision of statutory/regulatory signage.



Source: DesignInc, 2021

Figure 3-6 Artist impression showing the two proposed lift shafts looking west from Platform 1/2



Source: DesignInc, 2021

Figure 3-7 Artist impression showing the two proposed lift shafts looking west from Platform 3



Source: DesignInc, 2021

Figure 3-8 Artist impression showing the proposed canopy above the boarding assistance zone on Platform 1/2, providing coverage between the new family accessible toilet and the boarding assistance zone



Source: DesignInc, 2021

Figure 3-9 Artist impression showing the proposed canopy between the lift and existing awning on Platform 1/2 as seen from Platform 3

Materials and finishes for the Proposal have been selected in accordance with heritage requirements, to minimise visual impacts, urban design outcomes and to satisfy durability/maintenance requirements and cost effectiveness. Life cycle impacts have also been taken into account in the selection process through the consideration of environmental impacts of materials from the point of extraction, transportation, operations and end of life.

Availability and constructability are also important criteria to ensure that materials can be readily sourced and that the structure can be built with ease and efficiently. Materials would also be selected based on their suitability for meeting design requirements. Materials selection would also consider sustainability aspects, including consideration of supply chain and sourcing materials locally where possible, prioritising the use of reused and recycled materials where practicable, and investigating use of materials that have environmental labels.

Each of the upgraded or new facilities would be constructed from a range of different materials, with a different palette for each architectural element.

Based on the concept design, the Proposal would include the following materials and finishes for the key elements:

- lift – solid brick base to the lift shafts with painted steel and glass infill panels
- lift car – stainless steel and glass doors
- new canopies – painted steel frames, metal cladding (likely Colorbond ‘Basalt’) and glass inserts on the western canopy on Platform 1/2
- upgraded stairs – replace non-compliant handrails, nosing and tactiles on existing stairs with new finishes as required with colours to match existing
- regraded platform surface – surface finish to achieve compliance
- footpath – concrete.

Subsequent design iterations would be submitted to Transport for NSW Design Review Panel for endorsement at various stages, before being accepted by Transport for NSW. An Urban Design Plan (UDP) would also be prepared by the Construction Contractor, prior to finalisation of detailed design for endorsement by Transport for NSW.

3.3 Design development

3.3.1 Engineering constraints

There are a number of constraints which have influenced the design development of the Proposal:

Existing structures: the placement and integrity of existing structures needed to be considered during the development of the design – these structures included the platforms, station buildings, stairs and existing heritage significant elements of the station.

Sydney Trains’ requirements: modifications for existing structures and new structures within the rail corridor must be designed and constructed with consideration of train impact loads, structural clearances to the track, and safe working provisions.

Heritage: Stanmore Railway Station Group, including station buildings, platforms and pedestrian underpass, are identified as having heritage values of State significance. This is due to Stanmore Station’s group of largely intact, original structures dating from the 1880s establishment of the station through to the 1891 quadruplication and the 1927 sextuplication of the line, which are able to demonstrate the growth and expansion of the railways in the late 19th and early twentieth century.

The Proposal would result in an overall moderate direct and indirect impact on the heritage items of the Stanmore Railway Station Group. Efforts to minimise potential heritage impacts have been considered during the design development for the Proposal. Refer to Section 6.5 for further details.

Vegetation: Stanmore Station is located within an urban environment with streetscapes adjacent to the station characterised by a diversity of native and exotic plant species. A total of 61 vegetation items were assessed in the study area for their retention value, including 32 trees and 29 shrubs. Eight of these are proposed to be removed including, one Magenta Lilly Pilly (*Syzygium paniculatum*), two small red flowering gums (*Corymbia ficifolia*), five Orange jessamine shrubs (hedges) (*Murraya paniculata*). Further information on how biodiversity has been considered as part of the design development is included in Section 6.7.

Utilities: A Dial Before You Dig (DBYD) search has identified a number of utilities in the vicinity of the proposed work including:

- electrical services (aboveground)
- telecommunication services (underground)
- stormwater and water
- rail utilities, including signalling cabling and overhead wiring
- gas services.

Construction access: construction access would require traffic control in the adjacent streets and use of a large mobile crane would be required to lift construction materials and equipment to the Station from these roadways.

Public access: maintaining pedestrian access to the station and through the underpass which provides cross corridor access during normal hours of operation.

Future patronage: the Proposal has been designed to accommodate the forecast Sydney Trains patronage growth (an increase of 15 per cent to 2036) and changing travel patterns.

3.3.2 Design standards

The Proposal would be designed having regard to the following:

- *Disability Standards for Accessible Public Transport 2002* (issued under the Commonwealth *Disability Discrimination Act 1992*)
- Building Code of Australia
- relevant Australian Standards
- Asset Management Branch standards
- Sydney Trains standards
- Infrastructure Sustainability Council (ISC) Infrastructure Sustainability Rating Scheme (V1.2)
- *Guidelines for the Development of Public Transport Interchange Facilities* (Ministry of Transport, 2008)
- Crime Prevention Through Environmental Design (CPTED) principles
- other Transport for NSW policies and guidelines
- Council standards where relevant.

3.3.3 Sustainability in design

Transport for NSW is committed to minimising the impact on the natural environment and supports the Infrastructure Sustainability Council (ISC) and the Infrastructure Sustainability (IS) rating tool. The IS rating tool was developed and is administered by ISC. It is an independently verified and nationally recognised rating system for evaluating sustainability across design, construction and operation of infrastructure.

The Stanmore Station Upgrade is one of a number of projects within the Transport Access Program that is using version 1.2 of the IS rating tool and targeting an ‘Excellent’ rating. The rating scheme provides an independent and consistent methodology for the application and evaluation of sustainability outcomes in infrastructure projects.

The development of the concept design for the Proposal has been undertaken in accordance with the project targets identified in the program wide TAP 3 Sustainability Strategy.

The Sustainability Strategy sets targets across the following key issues:

- climate change adaptation and resilience
- renewable energy
- waste
- materials
- supply chain management
- community connection
- social procurement and workforce.

Key design elements and strategies developed during concept design would be used to further develop the design and construction.

3.4 Construction activities

3.4.1 Work methodology

Subject to approval, construction is expected to commence in mid-2022 and take up to around 18 months to complete. The construction methodology would be further developed during the detailed design of the Proposal by the nominated Contractor in consultation with Transport for NSW. All construction activities will adhere to COVID safe practices and comply with current NSW Health COVID-19 Public Health Orders and restrictions.

The proposed construction activities for the Proposal are identified in Table 3-1. This staging is indicative and is based on the current concept design and may change once the detailed design methodology is finalised. The staging is also dependent on the Contractor’s preferred methodology, program and sequencing of work.

Table 3-1 Indicative construction staging for key activities

| Stage | Activities | Timing |
|--------------------------------------|--|---|
| Site establishment and enabling work | <ul style="list-style-type: none"> • establish site compounds (i.e. fencing, tree protection zones, site offices, amenities and plant/material storage areas) • establish temporary facilities as required (e.g. temporary toilets, temporary construction lights etc.) • erect site hoarding as required • service location and relocation as required. | Typically standard hours with some potential out-of-hours/ rail shutdown periods work (around 2 months) |

| Stage | Activities | Timing |
|--|--|---|
| Lift installation | <ul style="list-style-type: none"> excavation of lift pits (including temporary shoring if required) piling/excavation work for lifts waterproof, install reinforcement, formwork and concrete to form the lift pits erect lift structures install and commission lifts, including fit-out construct lift landings in the underpass and on the platform. | Standard hours or rail shutdown periods (around 9 months) |
| Street parking, kiss and ride bay and pedestrian works | <ul style="list-style-type: none"> reconfigure the existing roadway (kerb ramps, kerb alignment) to accommodate the proposed DDA car parking space and a new kiss and ride bay line marking and surface finishing/regrading for DDA compliant parking space and kiss and ride space upgrade of the existing footpath to create a ramp from Trafalgar Street removal of the existing bicycle parking rack on Douglas Street and replacement with four new bicycle parking hoops upgrade existing Douglas Street forecourt. | Typically standard hours with some potential out-of-hours/ rail shutdown periods work (around 6 months) |
| Station building work | <ul style="list-style-type: none"> reconfigure the existing bathrooms to accommodate the revised bathrooms and storeroom installation of new main switchboard in the staff storeroom in the Platform 1/2 station building. | Typically standard hours with some potential out-of-hours/ rail shutdown periods work (around 9 months) |
| Platform modification work | <ul style="list-style-type: none"> regrade platform surface install new yellow line and tactiles along platforms install new platform canopies modify stairs including installation of new nosings, hand railing and tactiles install/relocate new Opal card readers as required landscaping and garden planting works Install ramps to waiting rooms. | Standard hours or rail shutdown periods (around 6 months) |
| Demobilisation | <ul style="list-style-type: none"> install other ancillary features remove hoardings clear site testing electrical, communications and signalling components. | Typically standard hours with some potential out-of-hours/ rail shutdown periods work (around 2 months) |

3.4.2 Plant and equipment

The plant and equipment likely to be used during construction includes:

- trucks
- jack hammer
- chainsaw
- piling rig
- franna/mobile cranes
- bobcat
- excavator
- demolition saw
- concrete pump and truck
- lighting tower
- coring machine
- water cart
- suction trucks
- rail mounted elevated
- forklift
- hi-rail plant (EWP/flatbed/hiab)
- vibrating roller/compaction plate
- road rail excavator
- hand tools
- skip trucks
- hammer drills
- torque wrenches
- impact wrenches
- grinders and bar
- benders
- elevated work platform (EWP).

3.4.3 Working hours

The majority of work required for the Proposal would be undertaken during standard (NSW) Environment Protection Authority (EPA) construction hours, which are as follows:

- 7.00 am to 6.00 pm Monday to Friday
- 8.00 am to 1.00 pm Saturdays
- no work on Sundays or public holidays.

Certain work may need to occur outside standard hours and would include night work and works during routine rail shutdowns which are scheduled closures that would occur regardless of the Proposal when part of the rail network is temporarily closed and trains are not operating.

Out of hours work is required in some cases to minimise disruptions to customers, pedestrians, motorists and nearby sensitive receivers; and to maintain the safety of railway workers and operational assets. It is estimated that up to a maximum of six rail shutdowns would be required to facilitate the following:

- detailed site survey, services investigations and/or geotechnical investigations within and around the rail corridor
- excavation of lift pits, piling and installation of lift shafts
- installation of platform canopies
- construction of services routes & platform resurfacing
- service relocations.

Out of hours work may also be scheduled outside rail shutdown periods. Approval from Transport for NSW would be required for any out of hours work and the affected community would be notified as outlined in Transport for NSW's *Construction Noise and Vibration Strategy* (Transport for NSW, 2019a) (refer to Section 6.3 for further details).

3.4.4 Earthworks

Excavations and earthworks would generally be required for the following:

- the foundations and pits for the new lift shafts, which would require excavation through the platform into the existing soil/fill at each proposed lift location
- the construction of regraded footpaths and new ramps (e.g. pavement resurfacing) and station entrances
- other minor civil work including platform repaving, footings and foundations for structures and trenching activities for service adjustments and relocations
- minor garden and landscaping works within the station platforms and surrounding precinct on Douglas Street.

Excavated material would be reused onsite where possible or disposed of in accordance with relevant legislative requirements. Subject to detailed design, it is estimated that around 200 cubic metres would be excavated to accommodate the lift pits and foundation, and other ancillary work. Specific locations for spoil placement would be agreed with Transport for NSW and the Contractor during the delivery phase.

3.4.5 Source and quantity of materials

The source and quantity of materials would be determined during the detailed design phase of the Proposal and would consider the requirements of the ISC Infrastructure Sustainability Rating Scheme (v1.2). Materials would be sourced from local suppliers where practicable. Reuse of existing materials and sourcing recycled materials would be undertaken where practicable. The principles of circular economy would be integrated into the design and construction processes.

3.4.6 Traffic access and vehicle movements

Traffic and transport impacts associated with the Proposal are assessed in Section 6.1 of this REF. The potential traffic and access impacts expected during the construction of the Proposal include:

- potential temporary traffic impacts along Douglas Street and Trafalgar Street including temporary lane closure during certain construction activities such as lift installation
- temporary changes in parking arrangements to allow for a DDA car parking space and a new kiss and ride bay on Douglas Street
- replacement of two on-street car parking spaces on Douglas Street north of the station for a DDA car parking space and a new kiss and ride bay
- temporary increase in walking distance for rail customers on the station platform during construction work due to placement of construction hoarding and work sites
- higher road safety risk levels associated with construction vehicle and pedestrian interactions
- minor disruptions to pedestrian/cyclist movements in and around the station
- a minor increase in traffic on the local road network
- temporary reduction in available parking spaces on the surrounding street network for residents and visitors from construction vehicle parking, including construction worker vehicles.

A detailed construction methodology and associated management plans (such as a Construction Environmental Management Plan (CEMP)) would be developed during the next design phase of the Proposal to manage potential traffic and access impacts.

3.4.7 Ancillary facilities

Temporary construction compounds would be required to accommodate construction activities associated with the Proposal including a site office, amenities, laydown and storage area for materials, construction plant and equipment. The following areas have been identified for proposed construction sites as shown in Figure 3-10:

- the open space within the existing rail corridor accessed from Railway Avenue around to the 250 metres east of Stanmore Station. This would be used as the primary compound and site sheds (including site office)
- the open space within the existing rail corridor accessed from Trafalgar Street around to the 250 metres east of Stanmore Station. This would be used as a material laydown area.

Temporary work areas (where required) may also be required during construction to maintain pedestrian access to the station.

Impacts associated with utilising these areas have been considered as part of this environmental impact assessment.

The area nominated for the compounds and temporary work areas are within land owned by TAHE (rail corridor areas) and accessed via Inner West Council land (Trafalgar Street).

3.4.8 Public utility adjustments

The Proposal would be designed to avoid relocation of services where feasible, however further investigation may be required. It is likely some services may require relocation, including existing electrical, water and sewer services where they are located within the vicinity of proposed works for the upgrades to the existing toilet facilities. In addition, the provision of new electrical connections between the new lifts and an existing electrical connection (transformer located on the north-eastern side of Stanmore Station) would be required.

Utility relocations are unlikely to occur outside of the footprint of the proposal assessed in this REF. In the event that work would be required outside of this footprint, further assessment would be undertaken. The appropriate utility providers would be consulted during the detailed design phase.

Relocation or other work that may affect services would be undertaken in consultation with the respective utility authorities.

3.5 Property acquisition

Transport for NSW does not propose to acquire any property as part of the Proposal.

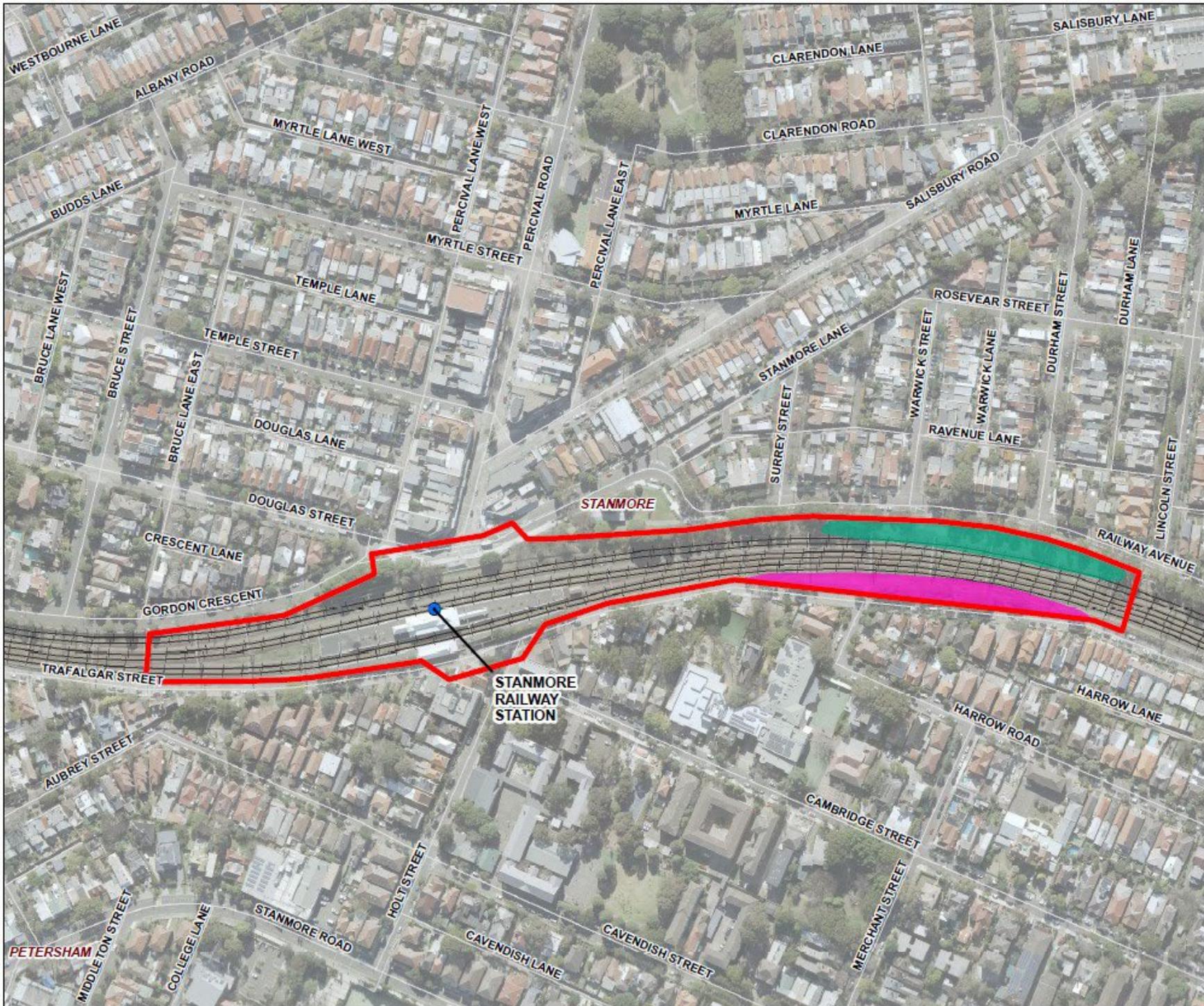
Any temporary access to Council land during construction would be subject to agreement with the Inner West Council and Transport for NSW would obtain the relevant temporary licenses and permits.

3.6 Operation and maintenance

Ongoing operation of the existing station would remain unchanged with Sydney Trains operating and maintaining the station. Structures constructed under this Proposal within the Station would be maintained by Sydney Trains while works constructed on Douglas Street would be maintained by Council.

Legend

- Railway Station
- Roads
- Railway
- Proposal Site
- Spoil Stockpile and Material Laydown
- Primary Site Compund / Site Sheds



Coordinate system: GDA2020 MGA Zone 56

Scale ratio correct when printed at A3

1:2,500 Date: 12/9/2021

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4 Statutory considerations

Chapter 4 provides a summary of the statutory considerations relating to the Proposal including a consideration of NSW Government policies/strategies, NSW legislation (particularly the EP&A Act), environmental planning instruments, and Commonwealth legislation.

4.1 Commonwealth legislation

4.1.1 Environment Protection and Biodiversity Conservation Act 1999

The (Commonwealth) EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places - defined in the EPBC Act as 'matters of National Environmental Significance (NES)'. The EPBC Act requires the assessment of whether the Proposal is likely to significantly impact on matters of NES or Commonwealth land. These matters are considered in full in Appendix A.

As the Proposal would not or is not likely to have a significant impact on any matters of NES or on Commonwealth land, a referral to the Commonwealth Minister for the Environment is not required.

4.1.2 Other Commonwealth legislation

Other Commonwealth legislation applicable to the Proposal is discussed in Table 4-1.

Table 4-1 Other Commonwealth legislation applicable to the Proposal

| Applicable legislation | Considerations |
|---|--|
| <i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i> | <p>There is an obligation on a person who discovers anything which he or she has reasonable grounds to suspect are Aboriginal remains to report that discovery to the Minister, giving particulars of the remains and their location.</p> <p>The Proposal does not include any previously identified Aboriginal sites and/or places (refer Section 6.4); however, considerations for unexpected finds further detailed in mitigation measures and applies to this Act.</p> |
| <i>Disability Discrimination Act 1992 (DDA)</i> | <p>This Act 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.</p> <p>The Proposal would be designed having regard to the requirements of this Act. The key objective of the Proposal is to improve the accessibility of Stanmore Station which is consistent with the objectives of this Act.</p> |
| <i>Native Title Act 1983</i> | <p>This Act aims to provide for the recognition and protection of Native Title, how Native Title land is used and establishes a mechanism for determining claims to Native Title.</p> <p>There are no pending or approved Native Title claims over the Proposal land.</p> |

4.2 NSW legislation and regulations

4.2.1 Transport Administration Act 1988

The *Transport Administration Act 1988* establishes Transport for NSW as a public authority who is to exercise its functions in a manner that promotes certain common objectives, including to promote the delivery of transport services in an environmentally sustainable manner.

This REF has been prepared having regard to, among other things, the specific objectives of Transport for NSW under the *Transport Administration Act 1988*, including:

2A Objects of Act

- a) *to provide an efficient and accountable framework for the governance of the delivery of transport services,*
- b) *to promote the integration of the transport system,*
- c) *to enable effective planning and delivery of transport infrastructure and services,*
- d) *to facilitate the mobilisation and prioritisation of key resources across the transport sector,*
- e) *to co-ordinate the activities of those engaged in the delivery of transport services,*
- f) *to maintain independent regulatory arrangements for securing the safety of transport services.*

2B Common objectives and service delivery priorities of public transport agencies

- (a) **Environmental sustainability**
To promote the delivery of transport services in an environmentally sustainable manner.
- (b) **Social benefits**
To contribute to the delivery of social benefits for customers, including greater inclusiveness, accessibility and quality of life.

4.2.2 Environmental Planning and Assessment Act 1979

The EP&A Act establishes the system of environmental planning and assessment in NSW. This Proposal is subject to the environmental impact assessment and planning approval requirements of Division 5.1 of the EP&A Act. Division 5.1 of the EP&A Act specifies the environmental impact assessment requirements for activities undertaken by public authorities, such as Transport for NSW, which do not require development consent under Part 4 of the Act.

In accordance with section 5.5 of the EP&A Act, Transport for NSW, as the proponent and determining authority, must examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the Proposal.

Clause 228 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) defines the factors which must be considered when determining if an activity assessed under Division 5.1 of the EP&A Act has or is likely to have a significant impact on the environment. Chapter 6 of the REF provides an environmental impact assessment of the Proposal in accordance with clause 228 and Appendix B specifically responds to the factors for consideration under clause 228.

4.2.3 Other NSW legislation and regulations

Table 4-2 provides a list of other relevant legislation applicable to the Proposal.

Table 4-2 Other legislation applicable to the Proposal

| Applicable legislation | Considerations |
|--|---|
| <i>Biodiversity Conservation Act 2016</i> (BC Act) (NSW) | The majority of the Proposal site consists of existing hardstand or previously developed land. The site does not contain suitable habitat for any listed threatened species or community and is unlikely to have a significant impact on any threatened species or community (refer Section 6.7). |
| <i>Biosecurity Act 2015</i> (NSW) | Clause 22 requires any person who deals with a biosecurity matter has a duty to ensure that in so far as is reasonably practicable, the potential biosecurity risk is prevented, eliminated or minimised. Appropriate management methods would be implemented during construction if declared noxious weeds in the Inner West LGA are identified (refer to Section 6.7). |
| <i>Contaminated Land Management Act 1997</i> (CLM Act) (NSW) | Section 60 of the CLM Act imposes a duty on landowners to notify the Department of Planning, Industry and Environment (DPIE), and potentially investigate and remediate land if contamination is above EPA guideline levels. The site has not been declared under the CLM Act as being significantly contaminated (refer Section 6.8). |
| <i>Crown Lands Act 1987</i> (NSW) | The Proposal does not involve work on any Crown land. |
| <i>Disability Discrimination Act 1992</i> (DDA Act) (Cwlth) | The Proposal would be designed having regard to the requirements of this Act. The key objective of the Proposal is to improve the accessibility of Stanmore Station which is consistent with the objectives of this Act. |
| <i>Heritage Act 1977</i> (Heritage Act) (NSW) | <p>Stanmore Station is listed as a State significant heritage item on the NSW SHR (SHR # 01251), the s170 TAHE register (SHI # 4801097) and the Marrickville LEP 2011 (LEP # 1248). The statement of heritage significance for Stanmore Station states:</p> <p><i>Stanmore Railway Station has State significance for its group of largely intact, original structures dating from the 1880s establishment of the station through to the 1891 quadruplication and the 1927 sextuplication of the line, which are able to demonstrate the growth and expansion of the railways in the late 19th and early 20th century. It is significant for its collection of railway structures namely the 1880s platform buildings, the 1910s former parcels & booking office and the 1920s subway which have remained largely intact and form a cohesive group which is able to effectively represent suburban railway stations of the late 19th century. The extant 1880s platform buildings are excellent examples of 'second class station' buildings which have a high level of integrity. The group remains relatively intact and is a significant landmark in the local area.</i></p> <p>A heritage impact assessment has been undertaken for the Proposal and is summarised in Section 6.5.</p> <p>The Station is also located in the vicinity of a number of Heritage Conservation Areas (HCAs) and heritage items listed on the Marrickville LEP 2011.</p> |

| Applicable legislation | Considerations |
|---|---|
| <i>National Parks and Wildlife Act 1974 (NPW Act) (NSW)</i> | <p>Overall, the proposed upgrades would result in a moderate direct and indirect impact to the significance of Stanmore Station. This is principally due to the addition of the two new lifts shafts and the alterations to the highly significant platform, platform buildings and pedestrian underpass. However, the works would improve the accessibility, usability and safety of the station, resulting in a positive outcome for all users of the station. The works would be unlikely to impact any significant archaeological remains, 'relics' features or structures. The works would also result in an overall negligible visual impact to the adjacent HCAs and neutral to negligible visual impacts to the nearby heritage items listed on the Marrickville LEP 2011.</p> |
| <i>Protection of the Environment Operations Act 1997 (PoEO Act) (NSW)</i> | <p>Sections 86, 87 and 90 of the NPW Act require consent from DPIE for the destruction or damage of Aboriginal objects. The Proposal is unlikely to disturb any Aboriginal objects (refer Section 6.4).</p> <p>However, if unexpected archaeological items or items of Aboriginal heritage significance are discovered during the construction of the Proposal, all work would cease, and appropriate advice sought. Additionally, as identified in Table 4-3 below, the Proposal would not involve impacts to land reserved, or adjacent to, land reserved under the NPW Act.</p> |
| <i>Roads Act 1993 (Roads Act) (NSW)</i> | <p>The Proposal does not involve a 'scheduled activity' under Schedule 1 of the PoEO Act. Accordingly, an Environment Protection Licence (EPL) is not required for the Proposal. However, in accordance with Part 5.7 of the PoEO Act, Transport for NSW would notify the EPA of any pollution incidents that occur onsite. This would be managed in the CEMP to be prepared and implemented by the Contractor.</p> <p>Section 138 of the Roads Act requires consent from the relevant road authority for the carrying out of work in, on or over a public road. However, clause 5(1) in Schedule 2 of the Roads Act states that public authorities do not require consent for work on unclassified roads.</p> <p>The roads surrounding the Proposal site are local roads, managed and maintained by the Inner West Council (refer to Section 6.1).</p> <p>The Proposal would involve work to the kerb areas of Douglas Street and Trafalgar Street which are not classified roads. No approvals under the Roads Act are therefore expected to be required based on the current concept design of the Proposal.</p> <p>The work would be undertaken in consultation with the Inner West Council including obtaining Road Occupancy Licence(s) for temporary road closures to facilitate work (where required), such as installation of the lifts.</p> |
| <i>Sydney Water Act 1994 (NSW)</i> | <p>The Proposal would not involve discharge of wastewater to the sewer.</p> |
| <i>Waste Avoidance and Resource Recovery Act 2001 (WARR Act) (NSW)</i> | <p>Transport for NSW would carry out the Proposal having regard to the requirements of the WARR Act. A site-specific Waste Management Plan would be prepared.</p> |
| <i>Water Management Act 2000 (NSW)</i> | <p>The Proposal would not involve any water use (from a natural source e.g. aquifer, river – only from the network), water management work, drainage or flood work, controlled activities or aquifer interference.</p> |

4.2.4 State Environmental Planning Policies

State Environmental Planning Policy (Infrastructure) 2007

The Infrastructure SEPP is the key environmental planning instrument which determines the permissibility of a proposal and under which part of the EP&A Act an activity or development may be assessed.

Division 15, Clause 79 of the Infrastructure SEPP allows for certain types of development to be carried out by or on behalf of a public authority without consent on any land (i.e. assessable under Division 5.1 of the EP&A Act). Specifically, Clause 79(1) of the Infrastructure SEPP states that:

‘Development for the purpose of a railway or rail infrastructure facilities may be carried out by or on behalf of a public authority without consent on any land.’

Clause 78 defines ‘rail infrastructure facilities’ as including elements such as:

- (a) *‘railway tracks, associated track structures, cuttings, drainage systems, fences, tunnels, ventilation shafts, emergency accessways, bridges, embankments, level crossings and roads, pedestrian and cycleway facilities.’*
- (d) *‘railway stations, station platforms and areas in a station complex that commuters use to get access to the platforms’*
- (e) *public amenities for commuters*
- (f) *associated public transport facilities for railway stations...’*

Consequently, development consent is not required for the Proposal, which is classified as a rail infrastructure facility, however the environmental impacts of the Proposal have been assessed under the provisions of Division 5.1 of the EP&A Act.

Part 2 of the Infrastructure SEPP contains provisions for public authorities to consult with local Councils and other agencies prior to the commencement of certain types of development. Section 5.2 of this REF discusses the consultation undertaken under the requirements of the Infrastructure SEPP.

The Infrastructure SEPP prevails over all other environmental planning instruments except where there is an inconsistency with *State Environmental Planning Policy (State Significant Precincts) 2005* or certain provisions of *State Environmental Planning Policy (Coastal Management) 2018*. The Proposal does not require consideration under these SEPPs and therefore do not require further consideration as part of this REF.

State Environmental Planning Policy 55 – Remediation of Land

State Environmental Planning Policy No.55 — Remediation of Land (SEPP 55) provides a State-wide approach to the remediation of contaminated land for the purpose of minimising the risk of harm to the health of humans and the environment. While consent for the Proposal is not required, the provisions of SEPP 55 have still been considered in the preparation of this REF.

Section 6.8 of this REF contains an assessment of the potential contamination impacts of the Proposal. It is not expected that any large-scale remediation (Category 1) work would be required as part of the Proposal. The proposed land use would not differ to the existing use and therefore, would unlikely be affected by any potential contaminants that exist within the rail corridor.

Impacts of contaminated lands and potential remediation are in Section 6.8.

4.2.5 Marrickville LEP 2011 and Draft Inner West LEP 2020

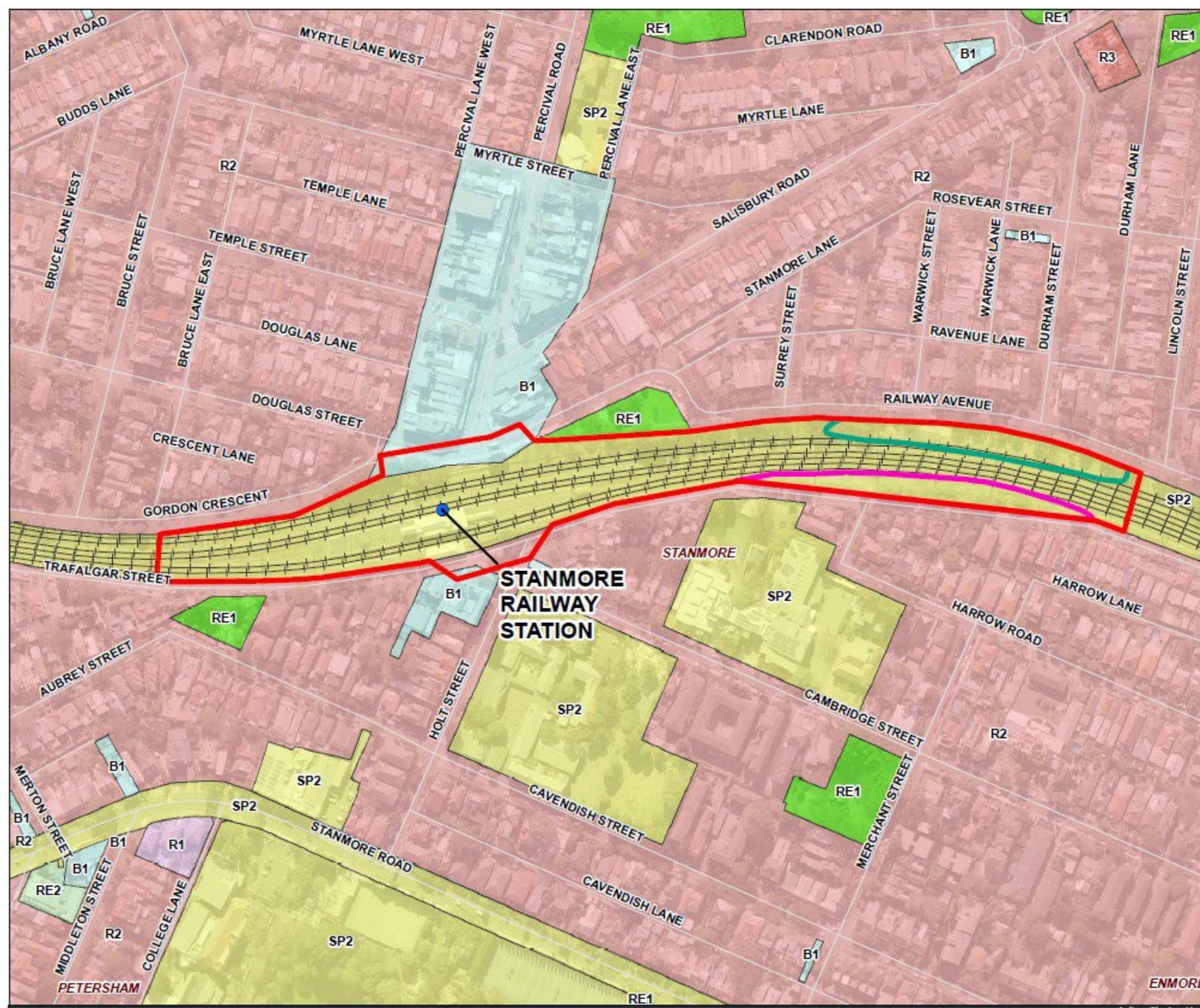
The Proposal is located within the Inner West LGA which is a recently amalgamated local government area. The Infrastructure SEPP prevails over all other environmental planning instruments (such as LEPs) except where there is an inconsistency with *State Environmental Planning Policy (State Significant Precincts) 2005* or certain provisions of *State Environmental Planning Policy (Coastal Management) 2018*.

During the preparation of this REF, the provisions of *Marrickville Local Environmental Plan 2011* (Marrickville LEP 2011) were considered (refer Table 4-3).

The Inner West Council is facilitating a new Inner West Local Environmental Plan (LEP) to consolidate the provisions of the three former Council LEPs into a single new LEP that operates across the Inner West Local Government Area. The provisions of the draft Inner West LEP 2020 are consistent with the Marrickville LEP.

Figure 4-1 shows the relevant section of the zoning map from the Marrickville LEP 2011, with the indicative location of the Proposal.

Figure 4-1
Local Environmental Plan Zoning Map



- Legend**
- Railway Station
 - Roads
 - Railway
 - Proposal Site
 - Spill Stockpile and Material Laydown
 - Primary Site Compound / Site Sheds
 - Land Zoning**
 - B1 Neighbourhood Centre
 - R1 General Residential
 - R2 Low Density Residential
 - R3 Medium Density Residential
 - RE1 Public Recreation
 - RE2 Private Recreation
 - SP2 Infrastructure



Coordinate system: GDA2020 MGA Zone 56
 Scale ratio correct when printed at A3
 1:2,500 Date: 12/8/2021

Data Source: Imagery © Mapbox 2020
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Table 4-3 Relevant provisions of the Marrickville LEP 2011

| Provision description | Relevance to the Proposal |
|--|--|
| <p>Clause 2.3 – Zone objectives and Land Use Table</p> | <p>Applicable land zones Under the Marrickville LEP 2014, the Proposal is located in areas zoned as:</p> <ul style="list-style-type: none"> • SP2 Infrastructure (Railway) for the proposed work associated with the station and construction laydown areas • B1 Neighbourhood Centre for the proposed DDA car parking space and a new kiss and ride bay. <p>Zone objectives The objectives of the applicable land zones are summarised as follows:</p> <ul style="list-style-type: none"> • SP2 Infrastructure (Railway) – to provide for infrastructure and related uses, to prevent development that is not compatible with or that may detract from the provision of infrastructure and to protect and provide for land used for a community purpose • B1 Neighbourhood Centre – to provide a range of small-scale retail, business and community uses that serve the needs of people who live or work in the surrounding neighbourhood and to provide for spaces, at street level, which are of a size and configuration suitable for land uses which generate active street-fronts. <p>Permissible development within land zones Development for the purposes of a rail infrastructure facility is permissible with consent under the provisions of the SP2 Infrastructure zone, and road development is permissible with consent and B1 Neighbourhood Centre zones. Notwithstanding the objectives and permissibility of the proposed works within each of the identified zones, the provisions of the Infrastructure SEPP prevail over the Marrickville LEP 2011. Development consent from the Inner West Council is not required.</p> |
| <p>Clause 5.10 – Heritage Conservation</p> | <p>Clause 5.10 of the Marrickville LEP 2011 provides for the protection of items, places and archaeological sites which have been identified in the Marrickville LEP 2011 as having heritage significance for which development consent is required. Stanmore Station is identified as having State Heritage values. A Statement of Heritage Impact (SoHI) (Artefact, 2021) has been prepared and found that the Proposal would have a moderate direct and indirect impact on the heritage significance and appreciation of the historic railway station. The works would improve the accessibility, usability and safety of the station, resulting in a positive outcome for all users of the station. The Proposal would have negligible visual impact to the adjacent heritage conservation areas and neutral to negligible visual impacts to the nearby heritage items listed in the Marrickville LEP 2011. The sensitive design of the proposal would ensure all impacts of the proposed improvements to accessibility would be minimal with smallest footprint possible. A discussion of potential impacts to heritage and the requirement for consent is provided in Section 6.5.</p> |
| <p>Clause 5.21 – Flood planning</p> | <p>Clause 5.21 of the Marrickville LEP 2011 aims to flood risk to life and property associated with the use of land and allow development on land that is compatible with the land's flood hazard. The Proposal is not located on land that is mapped as having a flood hazard risk.</p> |
| <p>Clause 6.1 – Acid Sulfate Soils</p> | <p>The Proposal Site is not on land mapped as containing Acid Sulfate Soils.</p> |
| <p>Clause 6.2 – Earthworks</p> | <p>Clause 6.2 of the Marrickville LEP 2011 aims to ensure that earthworks for which development consent is required would not have a detrimental impact on the environment of the surrounding land. By virtue of clause 5(3) and 79 of the Infrastructure SEPP, the Proposal is permissible without development consent. Consideration of the potential impacts and mitigation measures for earthworks for the Proposal is outlined in Section 6.8.</p> |

4.3 Ecologically sustainable development

Transport for NSW is committed to ensuring that its projects are implemented in a manner that is consistent with the principles of ecologically sustainable development (ESD). The principles of ESD are generally defined under the provisions of clause 7(4) of Schedule 2 to the EP&A Regulation as:

- the precautionary principle – if there are threats of serious or irreversible damage, a lack of full scientific uncertainty should not be used as a reason for postponing measures to prevent environmental degradation
- intergenerational equity – the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations
- conservation of biological diversity and ecological integrity – the diversity of genes, species, populations and their communities, as well as the ecosystems and habitats they belong to, should be maintained or improved to ensure their survival
- improved valuation, pricing and incentive mechanisms – environmental factors should be included in the valuation of assets and services.

The principles of ESD have been adopted by Transport for NSW throughout the development and assessment of the Stanmore Station Upgrade. Section 3.3.3 summarises how ESD would be incorporated in the design development of the Proposal. 6.12 includes an assessment of the Proposal on climate change and sustainability, and Section 7.2 lists mitigation measures to ensure ESD principles are incorporated during the construction phase of the Proposal.

5 Community and stakeholder consultation

Chapter 5 discusses the consultation undertaken to date for the Proposal and the consultation proposed for the future. This chapter discusses the consultation strategy adopted for the Proposal and the results of consultation with the community, relevant government agencies and stakeholders.

5.1 Stakeholder consultation during concept design

Key stakeholders for Stanmore Station, including Inner West Council, Sydney Trains and Transport for NSW, were engaged during the initial development of the Proposal to provide insights into the scope of work for the Proposal, and to also participate in the development and assessment of the station improvement options. Transport for NSW carried out Have Your Say public consultation on the early concept design from Monday 4 to Monday 18 October 2021. Consultation during design development included:

- community notifications, including over 2,500 four-page notifications delivered to the nearest addresses
- social media notifications, reaching over 14,500 users with almost 1,000 clicks through to the dedicated project information webpage transport.nsw.gov.au/Stanmore
- six large signs placed within and outside the station
- email communications to key stakeholders, including relevant transport, and disability organisations and other stakeholders within the Inner West such as local schools
- meetings with Inner West Council in October and November 2021.

Over 80 submissions were received by feedback form and email. Feedback received from this consultation and the response from Transport for NSW is summarised in Table 5-1.

Table 5-1 Early community and stakeholder consultation and Transport for NSW response

| Matter raised on the early concept design | Transport for NSW response |
|--|--|
| <p>Community supported access improvements, and in particular indicated they would like to see safety, the cycleway and car parking maintained and improved.</p> | <ul style="list-style-type: none"> • A wide range of access improvements are being included as part of the Proposal, including lifts, hearing loops, tactiles and upgraded wayfinding. • The Proposal would modify and add fixed location readers, which could reduce crowding and help customers to socially distance by spreading along the platform. In addition, new canopy coverage would also assist in encouraging passengers to spread along the platform. • Both lifts are designed to carry up to 17 people, as per station operational requirements. • If approved, the upgrade would be undertaken in conjunction with a Construction Traffic Management Plan, to ensure careful consideration of pedestrian and vehicular safety. • The cycleway, which was funded by Transport for NSW, would be maintained. Transport for NSW has no intention of locating the kiss and ride bay in the cycleway. • One of Transport for NSW's priorities it to provide the accessible parking space and kiss and ride bay as close to the station entrance as possible without disturbing the newly constructed cycleway. These spaces were previously located in the cycleway but have now been moved further west in order to maintain the cycleway. |

| Matter raised on the early concept design | Transport for NSW response |
|--|--|
| Design, heritage protection and new artwork | <ul style="list-style-type: none"> Transport for NSW would work closely with Heritage NSW through detailed design to ensure the new elements are architecturally sympathetic. An in-depth Statement of Heritage Impact has been prepared as part of this REF and Section 60 heritage approval from Heritage for NSW is required prior to construction. Transport for NSW is currently assessing potential locations for heritage interpretation improvements and aboriginal artwork and this would be subject to further consultation. |
| Construction impacts, including car parking | <ul style="list-style-type: none"> A Construction Traffic Management Plan would be prepared as a sub-plan of the Construction and Environmental Management Plan by Transport for NSW's contractor. The former would control risks associated with traffic, moving plant, pedestrians and mobile powered plant within, around and through the worksite. |
| Tree removal, including of an established tree on Trafalgar Street | <ul style="list-style-type: none"> The removal of an established tree on Trafalgar Street is unavoidable to enable installation of one of the new lifts. Any loss of vegetation would be offset using the Transport for NSW Vegetation Offset Guide and it would also be part of ongoing conversations with Inner West Council. |
| Future use of the former parcel office | <ul style="list-style-type: none"> The old parcel office is currently under lease and is not part of the Proposal scope, but its future use and relationship with the station would be part of ongoing discussions with Inner West Council and Sydney Trains. |

5.2 Consultation requirements under the Infrastructure SEPP

Part 2, Division 1 of the Infrastructure SEPP contains provisions for public authorities to consult with local Councils and other public authorities prior to the commencement of certain types of development. Clauses 13, 14, 15 and 16 of the Infrastructure SEPP require that public authorities undertake consultation with Councils and other agencies, when proposing to carry out development without consent.

Table 5-2 provides details of consultation requirements under the Infrastructure SEPP for the Proposal.

Table 5-2 Infrastructure SEPP consultation requirements

| Clause | Clause particulars | Relevance to the Proposal |
|--|---|---|
| Clause 13 Consultation with Councils – development with impacts on council related infrastructure and services | <p>Consultation is required where the Proposal would result in:</p> <ul style="list-style-type: none"> substantial impact on stormwater management services generating traffic that would place a local road system under strain involve connection to or impact on a Council owned sewerage system involve connection to and substantial use of Council owned water supply significantly disrupt pedestrian or vehicle movement involve significant excavation to a road surface or footpath for which Council has responsibility. | <p>The Proposal includes work that would have the potential to:</p> <ul style="list-style-type: none"> disrupt pedestrian and vehicle movements impact on road pavements under Council's care and control impact on Council-operated footpaths. <p>Consultation with the Inner West Council has been undertaken throughout the initial development of the Proposal and would be undertaken throughout the public display, detailed design and construction phases of the Proposal.</p> |

| Clause | Clause particulars | Relevance to the Proposal |
|--|---|--|
| Clause 14 Consultation with Councils – development with impacts on local heritage | Where railway station work: <ul style="list-style-type: none"> substantially impact on local heritage item (if not also a State heritage item) substantially impact on a heritage conservation area. | Stanmore Railway Station Group is identified as a State heritage item. A number of heritage items have been identified in the Marrickville LEP 2011 within the vicinity of the Proposal including individual sites and heritage conservation areas (refer to Table 6.9). A SoHI has been undertaken for the Proposal and is summarised in Section 6.5, however it is not expected that the Proposal would result in any direct impacts to items of heritage or the heritage conservation areas identified in the Marrickville LEP 2011. Consultation with Inner West Council is therefore not required in regard to this aspect. |
| Clause 15 Consultation with Councils – development with impacts on flood liable land | Where railway station work: <ul style="list-style-type: none"> impact on land that is susceptible to flooding – reference would be made to <i>Floodplain Development Manual: the management of flood liable land</i>. | The Proposal is not located on land that is susceptible to flooding. Accordingly, consultation with Council is not required in regard to this aspect. Refer to Section 6.9. |
| Clause 15A Consultation with Councils – development with impacts on certain land within the coastal zone | Where railway station work: <ul style="list-style-type: none"> impact on land within a coastal vulnerability area and is inconsistent with certified coastal management program that applies to that land | The Proposal is not located within a coastal vulnerability area as per the <i>Coastal Management Act 2016</i> . Consultation with the Inner West Council is not required in regard to this aspect. |
| Clause 15AA Consultation with State Emergency Service – development with impacts on flood liable land | Where railway station work: <ul style="list-style-type: none"> impact on flood liable land -written notice must be given (together with a scope of work) to the State Emergency Services and taken into consideration any response to the notice received from the State Emergency Service within 21 days after the notice is given. | The Proposal is not located on land that is susceptible to flooding. Consultation with State Emergency Service is not required in regard to this aspect. Refer to Section 6.9. |

| Clause | Clause particulars | Relevance to the Proposal |
|--|---|--|
| Clause 16 Consultation with public authorities other than Councils | <p>For <i>specified development</i> which includes consultation with the DPIE for development that is undertaken adjacent to land reserved under the <i>National Parks and Wildlife Act 1974</i>, and other agencies specified by the Infrastructure SEPP where relevant.</p> <p>Although not a specific Infrastructure SEPP requirement, other agencies Transport for NSW may consult with could include:</p> <ul style="list-style-type: none"> • Sydney Trains • DPIE. | <p>The Proposal is not located adjacent to land reserved under the <i>National Parks and Wildlife Act 1974</i>. Accordingly, consultation with the DPIE on this matter is not required.</p> <p>Consultation with other public authorities as specified in this clause is not required.</p> <p>However, consultation with Sydney Trains would be ongoing through the next stage(s) of the Proposal.</p> |

5.3 Consultation strategy

The consultation strategy for the Proposal was developed to encourage stakeholder and community involvement and foster interaction between stakeholders, the community and the project team. The consultation strategy that was developed, having regard to the requirements of the planning process ensures that stakeholders, customers and the community are informed of the Proposal and have the opportunity to provide input.

The objectives of the consultation strategy are to:

- provide accurate and timely information about the Proposal and REF process to relevant stakeholders
- raise awareness of the various components of the Proposal and the specialist environmental investigations
- ensure that the directly impacted community is aware of the REF and consulted where appropriate
- provide opportunities for stakeholders and the community to express their view about the Proposal
- understand and access valuable local knowledge from the community and stakeholders
- record the details and input from community engagement activities
- build positive relations with identified community stakeholders
- ensure a comprehensive and transparent approach.

5.4 Public display

Community consultation activities for the Proposal would be undertaken during the public display of this REF. The display period of the REF would be advertised in the week that the public display commences. The REF would be displayed for a period of two weeks. At the time of public display of the REF, consideration would be given to include face-to-face engagement, including a community information session, based on the latest COVID-19 health advice.

The REF display strategy adopts a range of consultation mechanisms, which would be consistent with the steps taken to publicise the concept design consultation in October 2021, including:

- public display of the REF on the project webpage, with feedback from the community and other stakeholders invited between 1 February 2022 and 15 February 2022
- distribution of a project update to local community and rail customers, outlining the Proposal and inviting feedback on the REF
- advertisement of the REF public display in local newspapers and on the Transport for NSW Facebook page with a link to the Transport for NSW website that includes a summary of the Proposal and information on how to provide feedback
- a geo-targeted social media campaign during the public display period (Facebook)
- emails to members of the community who have registered to the project contact list
- information signage at the station with QR codes taking customers to the project webpage
- consultation with Inner West Council, Sydney Trains, and other non-community stakeholders.

Further information on the Proposal may be requested by contacting the Project Infoline on 1800 684 490 or by email at projects@transport.nsw.gov.au and via transport.nsw.gov.au/stanmore.

During the display period feedback from the community is invited and can be submitted in the following ways:

- email: projects@transport.nsw.gov.au
- Transport for NSW website:
- Mail: Transport Access Program – Stanmore Station Upgrade, Director Environment and Sustainability (Rail Development and Delivery) – PO Box K659 Haymarket NSW 1240.

Following consideration of feedback received during the public display period, Transport for NSW would determine whether to proceed with the Proposal and what conditions would be imposed on the project should it be determined to proceed.

5.5 Aboriginal community involvement

An Aboriginal Heritage Information Management System (AHIMS) search was undertaken for the area covered by the Proposal (the area around Stanmore Station) plus a 50 metre radius, on 26 November 2021. No Aboriginal sites were recorded in this area and therefore would not be impacted by the Proposal.

The extensive landscape modification that has occurred across the Proposal area suggests that intact evidence of Aboriginal land use is unlikely to occur within the boundaries of the Proposal area. Similarly, the high level of disturbance would suggest that the archaeological potential of the area is low. Therefore, it was not considered necessary to undertake specific Aboriginal consultation.

5.6 Ongoing consultation

At the conclusion of the public display period for this REF, Transport for NSW would acknowledge receipt of feedback from each respondent. The issues raised by the respondents would be considered by Transport for NSW before determining whether to proceed with the Proposal (refer to Figure ES-2).

Should Transport for NSW determine to proceed with the Proposal, the Determination Report would be made available on the Transport for NSW website and would summarise the key impacts identified in this REF, demonstrate how Transport for NSW considered issues raised during the public display period, and include a summary of mitigation measures proposed to minimise the impacts of the Proposal.

Should Transport for NSW determine to proceed with the Proposal, the project team would keep the community, Council and other key stakeholders informed of the process, identify any further issues as they arise, and develop additional mitigation measures to minimise the impacts of the Proposal. The interaction with the community would be undertaken in accordance with a Community Liaison Management Plan to be developed prior to the commencement of construction.

6 Environmental impact assessment

Chapter 6 of the REF provides a detailed description of the likely environmental impacts associated with the construction and operation of the Proposal. For each likely impact, the existing environment is characterised and then an assessment is undertaken as to how the Proposal would impact on the existing environment.

This environmental impact assessment has been undertaken in accordance with clause 228 of the EP&A Regulation. A checklist of clause 228 factors and how they have been specifically addressed in this REF is included at Appendix B.

6.1 Traffic and transport

6.1.1 Existing environment

Stanmore Station

Stanmore Station is serviced by the Inner West & Leppington line (T2 Service), around 4.6 kilometres by rail from the City (Central Station). The adjacent stations to Stanmore Station are Petersham (to the west) and Newtown (to the east).

The station is located between Douglas Street (to the north) and Trafalgar Street (to the south) and is accessed by an underpass between these two streets. The station has one island platform (Platform 1/2) which is accessible from the underpass and existing staircase, and one side platform (Platform 3) which is accessible by ramp from Trafalgar Street. There are currently no scheduled services from Platform 1 (currently a through platform for express trains) with Platform 2 providing services from Stanmore to the City (Central). Platform 3 provides services from Stanmore to Parramatta via Strathfield.

During weekdays, both Platforms 2 and 3 have services up to every 5 to 10 minutes during peak periods (7:30am to 8:30am and 6pm to 7pm) and every 15 minutes outside the peak period.

Station barrier counts obtained from the Bureau of Transport Statistics indicate that in 2019, Stanmore Station was the 72nd busiest station on the Sydney Trains network, with approximately 4,110 trips recorded during an average weekday, resulting in it being a moderately utilised station on the Sydney Trains Network.

Accessibility to the station is currently limited for people with mobility issues. Stairs from the pedestrian underpass provide the only access to the island platform (Platform 1/2). Customers accessing the pedestrian underpass from the Trafalgar Street entrance are also required to descend stairs to the underpass. Likewise, customers traversing the rail corridor from the Douglas Street entrance to access Trafalgar Street or Platform 3, need to use the stair case to Platform 3.

Pedestrian facilities

Footpaths are present on both sides of Douglas Street (north) and Trafalgar Street (south). It is around 35 metres to Platform 1/2 from the Douglas Street and Trafalgar Street station entrances and around 70 metres to Platform 3 from Douglas Street (Platform 3 is directly accessible from Trafalgar Street via a short ramp).

Signalised pedestrian crossings are located at both the station entrance on Douglas Street and Trafalgar Street. The pedestrian underpass allows pedestrians to cross the rail corridor between Douglas Street and Trafalgar Street. The next closest pedestrian crossing over the rail line is located 650 metres to the west.

Bicycle network and facilities

The Inner West Council is upgrading bicycle infrastructure, including Regional Route 7, which is comprised of 3.8 kilometres of bi-directional cycleway, off road shared path and on road mixed traffic lanes. Section 2 of Regional Route 7 connects Lewisham to Newtown and passes Stanmore Station on Douglas Street and the site office/compound area located off Railway Avenue. Section 2 was completed in May 2021 and is currently operational. Bike racks are provided at the Douglas Street entry, containing parking for eight bicycles.

Public transport

The nearest bus stop which services the train station is located on Douglas Street to the north of Stanmore Station, about 50 metres north of the Stanmore Station pedestrian tunnel. The stop provides services between Campsie and City (Martin Place) via Earlwood and Dulwich Hill (bus route 412), Liverpool and City (Town Hall) night service (bus route N50), Strathfield and Central (bus route 47T2) and Lewisham and Central via Petersham and Stanmore (bus route 50T2). To the south, the nearest bus stops are located in Petersham and Enmore, both around one kilometre from Stanmore Station. School bus stops are also located close to Newington College and Stanmore Public School to the south.

There are also likely to be other community bus services around the station such as those offered for residents of the retirement villages located nearby.

Road network

The key existing roads in the vicinity of the Proposal include Douglas Street (north of Stanmore Station) and Trafalgar Street (south of Stanmore Station) as shown in Figure 1-2. The nearest major arterial road is the Great Western Highway/Parramatta Road, which runs east-west and is located 660 metres north of the rail line.

Douglas Street is a two-way, dual lane local road which generally runs east-west alongside the rail line and turns into Railway Avenue to the east of the station precinct. Parking is provided on either side of Douglas Street. Several local north-south roads provide a connection between Douglas Street and the Great Western Highway/Parramatta Road, including Percival Road, Crystal Street and Salisbury Road/Bridge Road. Douglas Street primarily provides access to the station, local commercial precinct, and residential properties.

Trafalgar Street is a two-way, dual lane local road which generally runs east-west alongside the rail line, with parking provided on the southern side of the street and speed humps located along the length. Trafalgar Street primarily provides access to the station, local businesses and nearby residential properties.

Within the vicinity of Stanmore Station, both Douglas Street and Trafalgar Street have a posted speed limit of 50 km/h.

Parking

Street parking is currently provided on local streets on both sides of Stanmore Station. There are currently no DDA car parking provisions or kiss and ride bay provided for Stanmore Station.

Parking is not permitted within the immediate vicinity of the station entrance on both Douglas Street and Trafalgar Street.

On the northern side of the station, timed kerbside parking is available on either side of Railway Avenue (which connects to Douglas Street), with two-hour parking on the southern side and one hour parking on the northern side. Untimed kerbside parking is available on both sides of Gordon Crescent (which connects to Douglas Street). An existing access driveway would provide entry to the rail corridor which would be used to access the primary compound and site sheds (including site office).

On the southern side of the station, untimed kerbside parking is available on the southern side of Trafalgar Street. There is no parking permitted on the northern side of Trafalgar Street where access to the construction laydown compound would be provided.

There is no formal location for taxis, however taxis are expected to occasionally pick-up and drop-off passengers.

6.1.2 Potential impacts

Construction phase

Pedestrians

During construction, pedestrian access to the station would typically be maintained and pedestrian diversions would be minimised. Cross-corridor access across the station would also be maintained for pedestrians where possible, however there would be up to two full closures of the pedestrian underpass due to the proposed lift installation works. However, these closures would be temporary and would only occur during out-of-hours works periods during the proposed possession periods. This would reduce the overall impact on pedestrians during this period. During these full closure periods, pedestrians would be able to cross the rail corridor at the next nearest crossing point which would be around 650 metres to the west of the station underpass.

During construction there would also be partial closures of the pedestrian underpass at other times outside the potential full closures. Partial closures would result in reduced pedestrian capacity with the pedestrian underpass width being halved during these periods. However, pedestrian access would be maintained to allow pedestrian access to station platforms as well as retention of the use of the pedestrian underpass as a rail corridor crossing. This would result in minimal impact on access during these construction periods.

Temporary pedestrian diversions or disruptions around the construction work areas on the platform, in the underpass and at the entrances have the potential to increase risk to pedestrian safety and inconvenience, due to potential interactions with construction plant and vehicles.

The presence of construction vehicles and plant could present a potential safety risk to pedestrians if they are not managed appropriately.

The presence of construction work on the platform would reduce the amount of space available on the platform and temporarily impact pedestrian movements. There potentially would be a higher level of platform congestion arising from restricted access to certain areas of the platform such as near the lift construction (due to construction work or storage areas) and work at the station entrances and footpaths.

There may potentially also be some minor pedestrian impacts along Douglas Street during the period of works where activities are undertaken on the entrance forecourt, DDA car parking space, new kiss and ride bay and kerb and regrading works. Works for the new ramp on Trafalgar Street could also result in minor pedestrian impacts to pedestrians accessing the station precinct. However, the pedestrian area is confined to the crossing and station precinct only and hence there will be no disruption to pedestrians walking east-west on Trafalgar Street.

Cyclists

The existing bicycle rack (containing space for eight bicycles) would be temporarily unavailable during the Douglas Street forecourt upgrade works while being replaced.

It is not expected that cyclists would be significantly affected, as impacts would be temporary.

The newly upgraded cycleway, identified in Section 6.1.1, located adjacent to Douglas Street would not be obstructed by the proposed works, apart from when regrading is to occur (as required) between the new DDA parking space and kiss and ride bay, and the station entry, and when trucks are entering and exiting the site compound.

The primary construction compound would be accessed off Railway Avenue. Cyclists on Regional Route 7 could encounter temporary delays from traffic controls to permit construction vehicles to enter and exit the site. Cyclists could also encounter more traffic during the construction period with haulage routes to access the primary compound being located adjacent to the cycleway on Gordon Crescent and Railway Avenue.

Public transport

Stanmore Station would remain operational during the normal day to day construction periods. Train services would be affected during planned rail shutdown periods, although these are not specific to the proposed upgrade and would occur regardless of the Proposal. Buses would replace trains during rail shutdown periods.

No impacts are anticipated to the operation of existing public bus services during construction. Overall, impacts to public transport services during the construction of the Proposal would be limited.

There could be potential impacts to school bus services which operate in the local area. These impacts would be managed in consultation with the relevant bus operator(s).

Road network

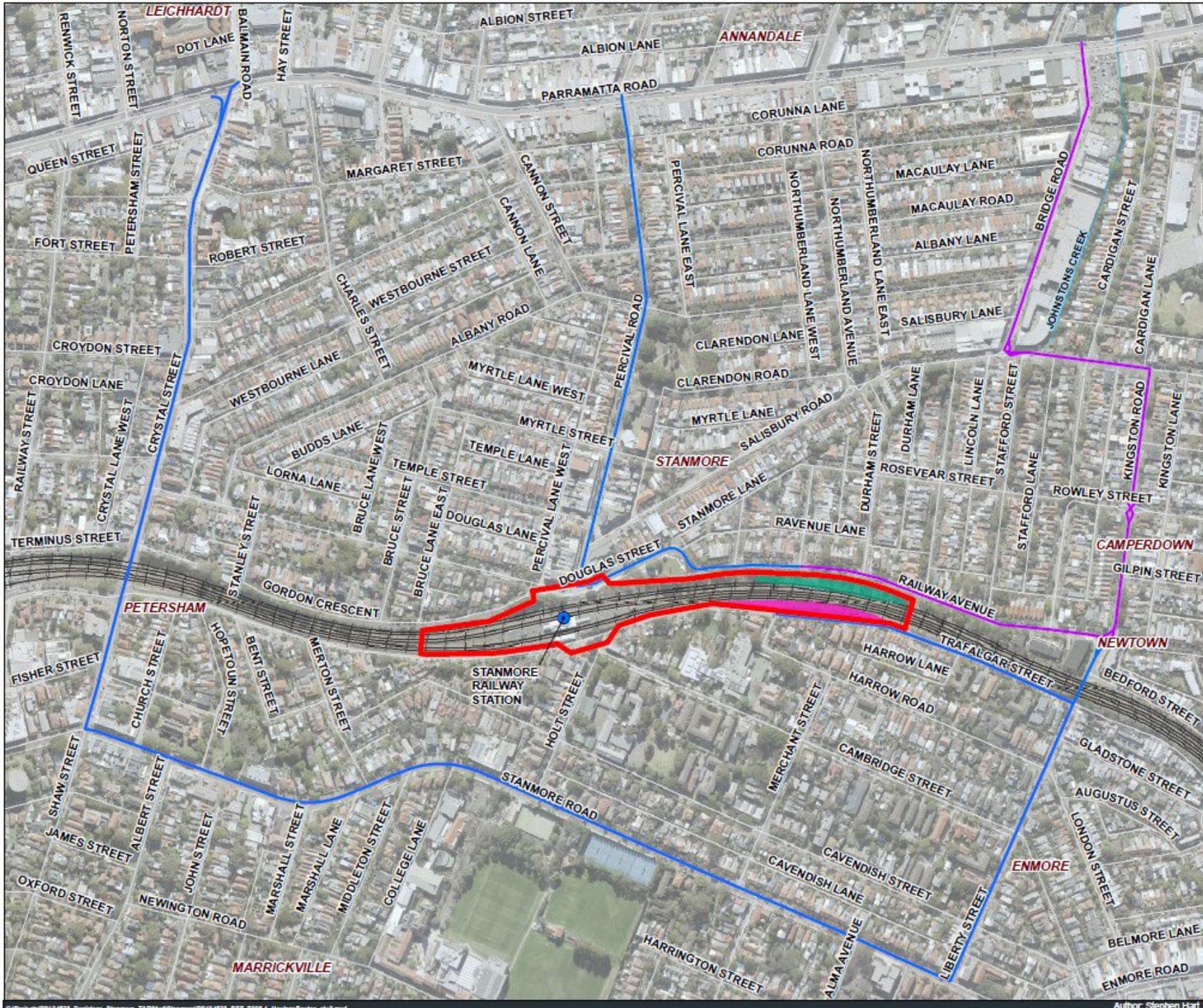
While the final construction methodology has yet to be developed, it is expected given the location of the site, construction vehicles would typically travel along Parramatta Road, and then via Percival Road, to access Railway Avenue and the northern side of Stanmore Station. To access the southern side of the station construction vehicles would travel along Stanmore Road and then left on Liberty Street to the roundabout to then turn right onto Trafalgar Street. Potential haulage routes for the Proposal are included in Figure 6-1. The Construction Traffic Management Plan (CTMP) for the Proposal would confirm these routes.

For work undertaken during a rail shutdown period, up to 10 heavy vehicles and 30 light vehicles per shift are expected to travel to and from the Proposal area, while during a normal weekday up to three heavy vehicles and 20 light vehicles are expected.

It is anticipated that this level of traffic would not have a significant impact on existing traffic conditions. Traffic control (e.g. signage) would be in place around work areas to inform motorists of construction works and where more substantial road closures or higher volumes of traffic are expected manned traffic controlling would be implemented.

Localised traffic control during construction would be essential to maintaining functionality of the road network. A work zone to construct the DDA car parking space and kiss and ride bay may require temporary or partial lane closures and/or traffic diversions. Consultation with Inner West Council would be undertaken if this is required. Road work would be undertaken progressively and in the minimum area and timeframe required to undertake this particular phase of work.

Access for emergency vehicles would be maintained at the station in accordance with emergency vehicle requirements. Emergency services would be advised of all planned changes to traffic arrangements prior to applying the changes.



Stanmore TAP - REF
Figure 6-1
Potential Haulage Routes for the Proposal

- Legend**
- Railway Station
 - Roads
 - Railway
 - Watercourses
 - Proposal Site
 - Spoil Stockpile and Material Laydown
 - Primary Site Compound / Site Sheds
 - Haulage Route 1
 - Haulage Route 2



0 50 100
 Coordinate system: GDA2020 MGA Zone 56
 Scale ratio correct when printed at A3
 1:5,000 Date: 12/9/2021
 Data Sources: Imagery © Mapmap 2020

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Parking

The proposed construction work, including construction site and access points, would be designed to minimise impacts on parking.

Parking spaces would not be provided for construction staff vehicles within or adjacent to the construction site (other than within the identified compounds sites where space permits). Construction workers would be required to park around the Proposal area and would be encouraged to car-pool or use public transport services. However, it is expected that at least some workers would travel via private vehicles which may marginally increase the demand for parking surrounding the station during the construction period.

The temporary loss of parking during construction is expected to have a minor impact on the overall availability of parking around Stanmore Station and is expected to be able to be generally accommodated within the surrounding streets.

Property access

It is expected that all existing property access would be maintained during construction. However, there may be short term disruptions to the entry of the former parcel and booking office during the regrading works (currently vacant, however potentially to be leased in the future).

Prior to construction, the construction contractor would obtain any licences / approvals required for operating a crane within private airspace (where required). Proposed work within private airspace (if required) would be undertaken in accordance with the requirement of any relevant licences / approvals and in consultation with affected property owners and the contractor would adhere to all relevant requirements to ensure the safe operation of the crane.

Should the detailed design and construction staging of the Proposal identify impacts to residents or businesses, affected occupants and tenants would be consulted and notified in advance of the scheduled works.

Operational phase

Pedestrians

The Proposal would improve pedestrian movements within and to/from Stanmore Station due to the installation of lifts to the platforms, regrading of the platform surface, footpath upgrade and new kerb ramps.

The Proposal would include the provision of regraded pedestrian footpaths on sections of Douglas Street and Trafalgar Street. The installation of two new lifts would enable access to the station platform from either side of the existing pedestrian underpass. These features would improve pedestrian access to the station and would also allow for accessible cross corridor access for all members of the public. Customer connectivity would also be improved by the provision of the DDA car parking space and kiss and ride bay (on Douglas Street).

As a priority, the Proposal would aim to maintain existing paths of travel used by customers, minimising impacts and changes to pedestrian routes. The Proposal would improve user experience in the vicinity of the station with the potential to encourage more customers to walk to the station.

Cyclists

The Proposal would include the provision of replacement bike hoops at the Douglas Street entrance (containing space for eight bicycles).

Public transport

The Proposal would not include changes to existing rail or bus services and would not impact on the operation (service operation or timetabling) of public transport in the vicinity of Stanmore Station. The Proposal would include improved facilities and therefore access to Stanmore Station for those with a range of accessibility issues, which may increase rail patronage. The Proposal is not anticipated to have any impacts on existing bus stops surrounding the station.

Road network

The Proposal would assist in making public transport infrastructure more accessible to rail customers and in providing an improved transition between transport modes, which may increase patronage. It is anticipated that the improved customer experience and upgraded facilities may have a marginal increase in traffic (from people accessing the station by car), however this would have a negligible impact on the surrounding road network.

Parking

The Proposal includes the provision of a DDA car parking space and kiss and ride bay on Douglas Street. No formal taxi zone has been proposed as part of the Proposal. The Proposal would improve the accessibility at Stanmore Station by reconfiguring the existing parking arrangements to provide a DDA compliant path of travel from the DDA car parking space and kiss and ride bay to the station platforms. This would result in the loss of up to two car parking spaces in the two-hour timed parking on Douglas Street.

Overall, given the existing number of car parking spaces available off Gordon Crescent, Trafalgar Street and Railway Avenue, it is not expected that the loss of two timed car parking spaces would have a major impact on car parking demand at the station.

Property access

No changes to private property access would be required as part of the operation of the Proposal.

6.1.3 Mitigation measures

A CTMP would be prepared by the Contractor in consultation with Transport for NSW and provided to Inner West Council. The CTMP would be the primary tool to manage potential traffic and pedestrian impacts associated with each phase of construction. The CTMP, at a minimum, would include:

- the final construction methodology should consider the need for full closure of the existing underpass. Should it be determined that full close is required, the construction contractor should develop a plan to minimise potential impacts to pedestrians. This plan should include elements such as advanced community notification and consideration of a temporary shuttle services for the period(s) of closure. Where possible, any full closure of the underpass should be limited to overnight periods (i.e. 10pm – 6am).
- procedures for preparing and implementing Traffic Control Plans (TCPs) which would provide details for signage and timing of any detours and traffic controls to manage temporary road disruptions such as the provision of DDA car parking space and kiss and ride bay on Douglas Street and the delivery of large plant and materials
- identification of final construction traffic access routes, ancillary facilities, contractor parking and loading zones
- scheduling of work / deliveries to avoid peak times and limiting of work in the road carriageway as much as practicable to limit traffic and parking impacts and maintain customer access to the station

- nomination of access routes to and from the local road network and contractor parking
- further opportunities for additional bike storage would be investigated in the detailed design phase subject to consultation with Sydney Trains and Council
- measures to:
 - limit temporary parking losses
 - maintain pedestrian underpass cross corridor access and customer access to the station through traffic and pedestrian diversions
 - maintain private property access unless otherwise agreed
 - identify changed traffic/pedestrian conditions including details of construction signage including signposts and variable message signs, traffic controllers and other community notifications.

Refer to Table 7-1 for a full list of proposed mitigation measures.

6.2 Urban design, landscape and visual amenity

This section provides a summary of the *Landscape Character and Visual Impact Assessment* (LCVIA) that was undertaken for the Proposal by Iris Visual Planning + Design (Iris, 2021). The assessment included a desktop analysis and site inspection to identify the potential visual impacts of the Proposal on views to the station from surrounding publicly accessible areas. The assessment also included the preparation of a series of photomontages which provide an indication of what the Proposal may look like within the existing station setting.

The LCVIA assesses the Proposal at operation and also provides a brief high-level commentary around visual impacts arising from construction. The method distinguishes between the 'impact' (defined as the action being taken), and the 'effect' (defined as the change resulting from that action).

An impact grading matrix for sensitivity and magnitude was used to assess both landscape and visual impacts. Sensitivity relates to the ability of the landscape to accept a change (such as the introduction of lifts) without adverse impact on its character. Magnitude relates to the degree of change affecting a landscape.

The matrix is used to combine the ratings for sensitivity and magnitude to provide an overall impact rating. This matrix is presented in Table 6-1. A qualitative assessment further assigns a rating of 'adverse', 'neutral' or 'positive' to the change in the views seen by receivers.

The detailed methodology used to undertake this assessment is provided in Section 4 of the LCVIA.

Table 6-1 Visual impact levels

| Magnitude of change | Sensitivity | | | | | |
|--------------------------|-------------|----------------------|-------------------|----------------------|-------------------|---------------------------|
| | | National sensitivity | State Sensitivity | Regional sensitivity | Local sensitivity | Neighbourhood sensitivity |
| Considerable reduction | | Very high adverse | Very high adverse | High adverse | Moderate adverse | Minor adverse |
| Minor reduction | | Very high adverse | High adverse | Moderate adverse | Minor adverse | Negligible |
| Neutral | | Negligible | Negligible | Negligible | Negligible | Negligible |
| Minor improvement | | Very high benefit | High benefit | Moderate benefit | Minor benefit | Negligible |
| Considerable improvement | | Very high benefit | Very high benefit | High benefit | Moderate benefit | Minor benefit |

6.2.1 Existing environment

A study area comprising the station and areas surrounding the station from which the Proposal may be seen was selected for this assessment. This area is largely defined by the surrounding urban setting of Stanmore.

As outlined in Section 1.2, Stanmore Station is located around 4.6 kilometres west of the Sydney CBD. The topography within the Proposal area gently descends to the north so that the northern side of the station is elevated above Douglas Street. At this location, the station is accessed via a pedestrian underpass that is level with Douglas Street. To the south of the station, the station is generally level with Trafalgar Street, with direct access to Platform 3 via a ramp from the street and stairs connecting to the pedestrian underpass. There are no creeks or rivers within the study area.

The area surrounding Stanmore Station is predominantly a mix of low to high density residential development to the north and south of the rail corridor, with small pockets of other land uses including public recreation spaces and Stanmore Library.

The station precinct has a built-up character, including narrow streets with varying setbacks from the street kerb. Large, established trees along the rail corridor, within the Stanmore Reserve (to the north-east) and on surrounding streets, provide some visual relief within the otherwise urban setting of the station.

The station is located between two local heritage conservation areas, the Annandale Farm heritage conservation area (to the north) and Kingston South heritage conservation area (to the south). Each heritage conservation area contains a high concentration of 19th and early 20th century terrace buildings, cottages and houses (detached and semi-detached), and provides a strong heritage character to the setting of the station.

The landscape and visual features of the study area are shown in Figure 6-2.

Night time conditions

Stanmore Station and the surrounding area are considered to be of **medium district brightness (A3)**. This is due to the relatively high light levels provided at the station and moderate light levels along nearby streets and within the local centre of Stanmore. The brightly lit environment of the station is somewhat contained by the surrounding built form and vegetation. There would be lower light levels in the residential areas surrounding the station and commercial streets.



Figure 6-2 Landscape and visual features of the site and surrounds

Visual receivers

Visual receivers are individuals and/or groups of people whose views may be affected by the Proposal. Key visual receivers include:

- rail commuters accessing or passing through the station
- commuters and passers-by on nearby roads (pedestrians, cyclists, motorists)
- workers or visitors to the nearby business enterprises, schools and community facilities
- residents in adjacent streets to the station to the north and south.

Five representative viewpoints have been chosen to represent the change in views from publicly accessible areas due to the Proposal as described in Table 6-2 and their locations are shown in Figure 6-3. The existing view from each viewpoint is shown in Figure 6-4 to Figure 6-8.

Table 6-2 Viewpoints chosen to assess visual impacts due to the Proposal

| Viewpoint and location | Viewpoint description | Sensitivity |
|--|--|--------------------|
| Viewpoint 1: view to northern station entrance from the corner of Percival Road (Figure 6-4) | This view is from the neighbourhood centre (located in the Annandale Farm conservation area) north of Stanmore Station. The station buildings and pedestrian underpass form part of the State Heritage Register group and are significant landmarks in the local area. This view is a main approach to the station would be experienced by local residents and visitors. | Local |
| Viewpoint 2: view south-east from Platform 1/2 (Figure 6-5) | This view would be experienced by large numbers of commuters using Stanmore Station. The station is on the State Heritage Register and is of significant aesthetic value to the local area. The station is a main arrival and departure point for the centre of Stanmore. | Regional |
| Viewpoint 3: view south-west from Platform 1/2 (Figure 6-6) | This view would be experienced by large numbers of commuters using Stanmore Station. The station is on the State Heritage Register and is of significant aesthetic value to the local area. The station is a main arrival and departure point for the centre of Stanmore. | Regional |
| Viewpoint 4: view east along Trafalgar Street to southern station entrance (Figure 6-7) | This view would be seen by pedestrians and residents in the adjacent properties. This view includes an incidental view to the State heritage listed station Platform 3 building. | Neighbourhood |
| Viewpoint 5: view to southern station entrance from Holt Street (Figure 6-8) | This view is from the neighbourhood centre south of Stanmore Station (on the boundary of Kingston South conservation area). The station buildings form part of the State Heritage Register group and are significant landmarks in the local area. This view is a main approach to the station would be experienced by local residents and visitors. | Local |



Figure 6-3 Viewpoint location plan



Figure 6-4 Viewpoint 1: view to northern station entrance from Percival Road



Figure 6-5 Viewpoint 2: view south-east from Platform 1/2



Figure 6-6 Viewpoint 3: view south-west from Platform 1/2



Figure 6-7 Viewpoint 4: view east along Trafalgar Street to southern station entrance



Figure 6-8 Viewpoint 5: view to southern station entrance from Holt Street

6.2.2 Potential impacts

Construction phase

Daytime visual impacts

During construction, there would be temporary **high adverse visual impacts** experienced in views from the station platforms. This is due to the regional sensitivity of this location and the scale and extent of the works that would be seen in close proximity to the State heritage listed buildings and customers.

There would be temporary **minor adverse visual impacts** to the Douglas Street entrance and a **moderate adverse visual impact** to the Trafalgar Street entrance during construction, which are of local sensitivity. In these views the station would be partly screened by existing mature trees and intervening built form. This includes parts of Trafalgar Street where the station building and brick wall screen views to the station, and to the north-east and north-west of the station, where the trees within Stanmore Reserve and along the rail corridor screen views to the station. However, the tree and shrubs (hedges) removed on Platform 3 would be viewed from Trafalgar Street as well as the temporary addition of large equipment including cranes and excavation equipment to the view.

Similarly, there may be temporary **minor adverse visual impacts** experienced from residential properties which overlook the station and construction site and where the construction work rises above or would be seen through gaps in vegetation and built form, such as the multi storey apartment building along Trafalgar Street, south-east of the station, and residences overlooking the construction compound along Trafalgar Street and Railway Avenue.

Table 6-3 Assessment of visual impacts during construction

| Viewpoint and location | Assessment of visual impact | Impact |
|--|---|------------------|
| Viewpoint 1: view to northern station entrance from Percival Road | Construction activities would extend across the middle ground of view, in close proximity to the cycleway, nearby neighbourhood centre and customers using the station. There would be a minor reduction in the amenity of this view. | Minor adverse |
| Viewpoint 2: view south-east from Platform 1/2 | Construction activities would be visible in several locations across this view but would be predominately concentrated in the background of the view. Construction works would contrast with the heritage character of the station and be located in close proximity to customers using the station. Due to the scale and location of this work there would be a minor reduction in the amenity of this view. | Moderate adverse |
| Viewpoint 3: view south-west from Platform 1/2 | Construction activities would be prominent due to the extent of works that would occur in close proximity to customers using the station. The works would obstruct and clutter views to the heritage buildings. This would result in a considerable reduction in the amenity of this view. | High adverse |
| Viewpoint 4: view east along Trafalgar Street to southern station entrance | Construction activities would be seen within a small part of this view. The character the works would reduce the amenity of this small area of the view. This would result in a minor reduction in the amenity of this view. | Negligible |
| Viewpoint 5: view to southern station entrance from Holt Street | Construction activities would contrast with the heritage character and reduce the leafy character of this view by removing a large tree. However, the works would be partially screened by the intervening brick wall and building on Platform 3. There would be a considerable reduction in the amenity of this view. | Moderate adverse |

Night time visual impacts

Work areas and the construction compounds would be lit at night for security. It is unlikely that these areas would be used on an ongoing basis for construction activity during evening hours. However, there may be specific activities and / or where works are undertaken during possession periods (if required). This may require additional lighting for short periods including additional bright lighting around the construction site and compound areas and additional vehicle movements around the site. This additional lighting would be located within the station and may extend to areas directly adjacent to the site.

Generally, the character of the construction works at the station entries, platforms and construction compound area at night would be absorbed into the surrounding brightly lit environment of the station. Any additional lighting would also be partially screened by existing vegetation, particularly on the northern side of the rail corridor.

Overall, the works would result in a minor reduction in the amenity of views at night and a **minor adverse visual impact** during construction.

Urban design and landscape character

During construction, there would be a main compound area, located between the rail corridor and Railway Avenue about 200 metres east of the station, in rail corridor land. There would also be a laydown area to the south of the corridor, also within the rail corridor. These areas would be accessed via existing driveways and access gates. There would be no vegetation removal, and local pedestrian, cyclist and vehicular routes in this location would be maintained.

There would be one tree and five shrubs (hedges) removed at Platform 3 and a further small tree removed near Douglas Street. The removal of this vegetation would reduce the leafy character in this location somewhat. There may also be some trimming of trees which overhang the construction site, which would be undertaken if required.

Works would involve modifications to the station entrances, including partial closures to the pedestrian underpass, which would create visual clutter at the entrances, reducing the permeability of this area.

Overall, there would be a temporary, considerable reduction in the landscape and urban design functionality and landscape character of the station precinct during construction. This precinct is of local sensitivity and there would be a **moderate adverse landscape impact**.

Operational phase

Daytime visual impact

During operation there be a **moderate adverse visual impact** experienced in views from the station platforms. This impact is due to the regional sensitivity of these views and the introduction of new built form. Generally, the design responds to the heritage setting with the lift structures being set back from the heritage platform buildings and the brick walls being retained and reflected in the new structures.

The visual character of the platforms would be improved by new pavements, furniture, lighting, signage and planting, including a new planter with trees. Although the new platform canopies and lifts would add further built form to the station, they would be set back from the heritage platform buildings and the use of some transparent materials, including clear glazing and roofing, would reduce the visual mass of these structures. The new lift structures would remain below the height of the platform buildings and the base of the lift shafts would also be clad with brick, complementing the character of the existing platform buildings.

There would be a **neutral visual impact** experienced in views from the north, where the new structures would be out of view and there would be minor improvements to the entry finishes and gardens.

There would be a **minor adverse visual impact** experienced in views from the south, where the proposed canopy and lift structure would add further built form to this view. These new structures would not obstruct the views to the heritage platform buildings and heritage walls and would be of a scale and finish that would not dominate the view.

Table 6-4 Operational visual impact assessment

| Viewpoint and location | Assessment of visual impact | Impact |
|---|--|---------------|
| Viewpoint 1: view to northern station entrance from Percival Road | Built elements that may be glimpsed from this viewpoint would not detract from the prominence of the station and heritage character of this view. While there would be some minor improvements to the station entrance and streetscape, there would be a neutral change to the amenity of this view. | Negligible |

| Viewpoint and location | Assessment of visual impact | Impact |
|--|--|------------------|
| Viewpoint 2: view south-east from Platform 1/2 | The scale and form of the Proposal would not dominate the view from this viewpoint. While the design has responded to the heritage setting, the introduction of new structures within close proximity to the heritage buildings would alter the character of this view so that there would be a minor reduction in the amenity of this view. | Moderate adverse |
| Viewpoint 3: view south-west from Platform 1/2 | The design of the Proposal has responded to the heritage setting, with the location, scale and form of the proposed new structures. The heritage buildings would maintain their prominence and there would be some minor benefits with the platform upgrades, new trees and landscaping, and alternations to the stair structure. There would be a minor reduction in the amenity of this view | Moderate adverse |
| Viewpoint 4: view east along Trafalgar Street to southern station entrance | The lift and canopy structure would be of a scale and form that would not be prominent and somewhat recede into the background of this view. There would be a minor reduction in the amenity of this view. | Negligible |
| Viewpoint 5: view to southern station entrance from Holt Street | The new structures would not obstruct the views to the heritage platform buildings and heritage walls and would be of a scale and finish so that they are clearly differentiated from the heritage buildings and would not dominate the view. On balance, there would be a minor reduction in the amenity of this view. | Minor adverse |



Figure 6-9 Viewpoint 1: existing view to northern station entrance (top), photomontage (bottom) with location of lift structure highlighted in green



Figure 6-10 Viewpoint 3: existing view south-west from Platform 1/2 (top), photomontage (bottom)



Figure 6-11 Viewpoint 5: existing view southern station entrance from Holt Street (top), photomontage (bottom)

Night time visual impacts

During operation, the station would continue to be brightly lit for security and safe use at night, as is currently experienced. The upgraded station platforms, including two new lift structures, would be located further to the east, and the glazing would allow views into the structures. However, this additional lighting would be seen in the context of the existing station and set back from adjacent residential areas. The upgraded station entrances would also be seen in the context of existing streetlights and nearby illuminated retail and commercial properties. The final design of lighting for the station would ensure that it is consistent with the requirements of the Australian Standards for the control of obtrusive lighting effects.

The character of the Proposal at night would be absorbed into the surrounding brightly lit environment. There is not expected to be any additional direct light spill (trespass) onto private properties. This would result in no perceived change in the amenity of views at night, resulting in a **negligible visual impact** at night during operation.

Urban design and landscape character

During operation, there would be considerable improvements to accessibility of the station precinct with the introduction of lifts at the station, upgrades to the footpaths and station entrances, provision of an accessible car parking space and kiss and ride bay, and improvements to the platform surface and facilities within the platform buildings, including covered access between the lift and platform building on Platform 1/2.

The Proposal would improve legibility within the station precinct through the increased visual prominence and appearance of the station entry on Douglas Street. This improved entry would include a new paving, planting, furniture, signage and lighting. The southern upgraded station entry at Trafalgar Street, with new paving, ramp, stairs and signage, would also enhance the appearance and accessibility of the station from the south.

While one tree and five shrubs (hedges) would have been removed at Platform 3 to install the lift, new understorey planting would be provided to garden areas within the station and there would be new trees provided in planters at each end of platform 1/2. These new trees would enhance the appearance of the station platforms and provide shade and comfort to customers at the station. Elsewhere, the vegetation surrounding the station would be retained, maintaining the level of leafy character of the station and adjacent streets. Overall, there would be a minor improvement to the urban design functionality and landscape character of the station precinct. The station is of local sensitivity, and this would result in a **minor beneficial landscape impact** during operation.

6.2.3 Mitigation measures

Mitigation measures would be reviewed where appropriate during detailed design development and construction planning to minimise the level of visual impact of the construction and operation phases of the Proposal.

An Urban and Landscape Design Plan (ULDP) would be prepared by the Contractor, in consultation with Inner West Council, and submitted to Transport for NSW for endorsement by the Precincts and Urban Design team, prior to finalisation of the detailed design. The UDP, at a minimum, would address the following:

- the appropriateness of the proposed design with respect to the existing surrounding landscape, built form, behaviours and use-patterns (including consideration of Crime Prevention Through Environmental Design principles). This is to include but not be limited to:
 - site analysis
 - vision and objectives for the infrastructure

- strategies that apply to ISC approved guidelines in accordance with Urb-1 (IS Rating Tool V 1.2)
- connectivity with surrounding local and regional movement networks including street networks, other transport modes and active transport networks. Existing and proposed paths of travel for pedestrians and bicycles should be shown
- integration with surrounding local and regional open space and or landscape networks. Existing and proposed open space infrastructure/landscape elements should be shown
- integration with surrounding streetscape including street trees, entries, vehicle cross overs etc
- integration with surrounding built form (existing or desired future) including building height, scale, bulk, massing and land-use
- design detail that is sensitive to the amenity and character of heritage items located within or adjacent to the Proposal.

The detailed design of the Proposal is to be undertaken with reference to the recommendations included in the LVIA (Iris, 2021). Key project specific mitigation measures include:

- all permanent lighting would be designed and installed in accordance with the requirements of standards relevant to *AS 1158 Road Lighting* and *AS 4282 Controlling the Obtrusive Effects of Outdoor Lighting*
- the detailed design of the Proposal would comply with Crime Prevention Through Environmental Design principles
- worksite compounds would be screened with shade cloth (or similar material, where necessary) to minimise visual impacts from key viewing locations
- temporary hoardings, barriers, traffic management and signage would be removed when no longer required
- graffiti would be removed in accordance with Transport for NSW's Standard Requirements during construction
- temporary access arrangements should be well signed and provide a visually legible route for pedestrians
- consolidate construction equipment and activity to maximise the area of useable public realm where possible.

Refer to Table 7-1 for a full list of proposed mitigation measures.

6.3 Noise and vibration

This section provides a summary of the *Noise and Vibration Impact Assessment* prepared by WSP (2021). The methodology used to undertake this assessment is provided in Section 3 and Section 4 of the *Noise and Vibration Impact Assessment*.

6.3.1 Existing environment

Stanmore Station is located within a residential suburban environment. Receivers within a 500 metre radius of the station are predominantly comprised of residential properties (detached dwelling houses).

The closest residential receivers are located on either side of Stanmore Station along Douglas Street to the north (around 20 metres) and Trafalgar Street to the south (around 10 metres). Recreation facilities and public parks are located within the vicinity of the station.

To provide a comprehensive assessment, 11 representative residential receivers surrounding the Proposal (including the station and proposed compound areas) have been selected to represent the potential noise impacts associated with the Proposal. These receivers are listed in Table 6-5.

Table 6-5 Representative residential receivers

| Receiver ID | Noise Catchment Area (NCA) | Receiver Address | Building Type | Distance from the Proposal (metres) ¹ |
|-------------|----------------------------|--------------------------------|---------------------------|--|
| R1 | 1 | 203 Trafalgar Street, Stanmore | Detached | 10 metres south |
| R2 | 1 | 175 Trafalgar Street, Stanmore | Residential Flat Building | 11 metres south |
| R3 | 1 | 167 Trafalgar Street, Stanmore | Attached | 12 metres south |
| R4 | 1 | 91 Harrow Road, Stanmore | Detached | 11 metres south |
| R5 | 1 | 117 Trafalgar Street, Stanmore | Detached | 12 metres south |
| R6 | 2 | 57 Durham Street, Stanmore | Detached | 22 metres north |
| R7 | 2 | 70 Railway Avenue, Stanmore | Detached | 27 metres north |
| R8 | 2 | 106 Railway Avenue, Stanmore | Detached | 29 metres north |
| R9 | 2 | 14 Douglas street, Stanmore | Detached | 35 metres north |
| R10 | 2 | 1 Douglas Street, Stanmore | Detached | 23 metres north |
| R11 | 2 | 57 Bruce Street, Stanmore | Detached | 20 metres north-west |

(1) Minimum distance of the sensitive receiver buildings to the limits of the construction footprint.

Impacts were also assessed at four representative non-residential receivers as listed in Table 6-6.

Table 6-6 Representative non-residential receivers

| Receiver ID | Noise Catchment Area (NCA) | Receiver Address | Building Type | Distance from the Proposal (metres) ¹ |
|-------------|----------------------------|--|---------------|--|
| C1 | 1 | 110 Cambridge Street, Stanmore | Commercial | 7 metres south |
| C2 | 2 | 140 Percival Road, Stanmore | Commercial | 8 metres north |
| E1 | 1 | 100 Cambridge Street, Stanmore (Stanmore Public School) | Educational | 55 metres south |
| E2 | 1 | 115 Cambridge Street, Stanmore (Newington Stanmore Preparatory School) | Educational | 37 metres south |

(1) Minimum distance of the sensitive receiver buildings to the limits of the construction footprint.

To assist in determining noise criteria for the receivers surrounding the Proposal, two noise catchment areas (NCAs) were identified. The noise environment at each of the residential receivers within each NCA is considered to be similar.

The representative receivers and NCAs and receiver types are shown in Figure 6-12. The applicable NCA for the representative residential receivers are identified in Table 6-5. NCA 1 includes receivers from 10 metres south of the station on Trafalgar Street and generally has a background noise level associated with a suburban hum including, birds chirping, railway and aviation noise and the distant hum of vehicles travelling along Stanmore Road. NCA 2 includes receivers from 20 metres north-west of the station, which generally have a similar noise sources as NCA 1

Background noise levels

Long term unattended and short term attended measurements were undertaken to establish the existing ambient and background noise environment at potentially affected receivers.

Unattended noise monitoring

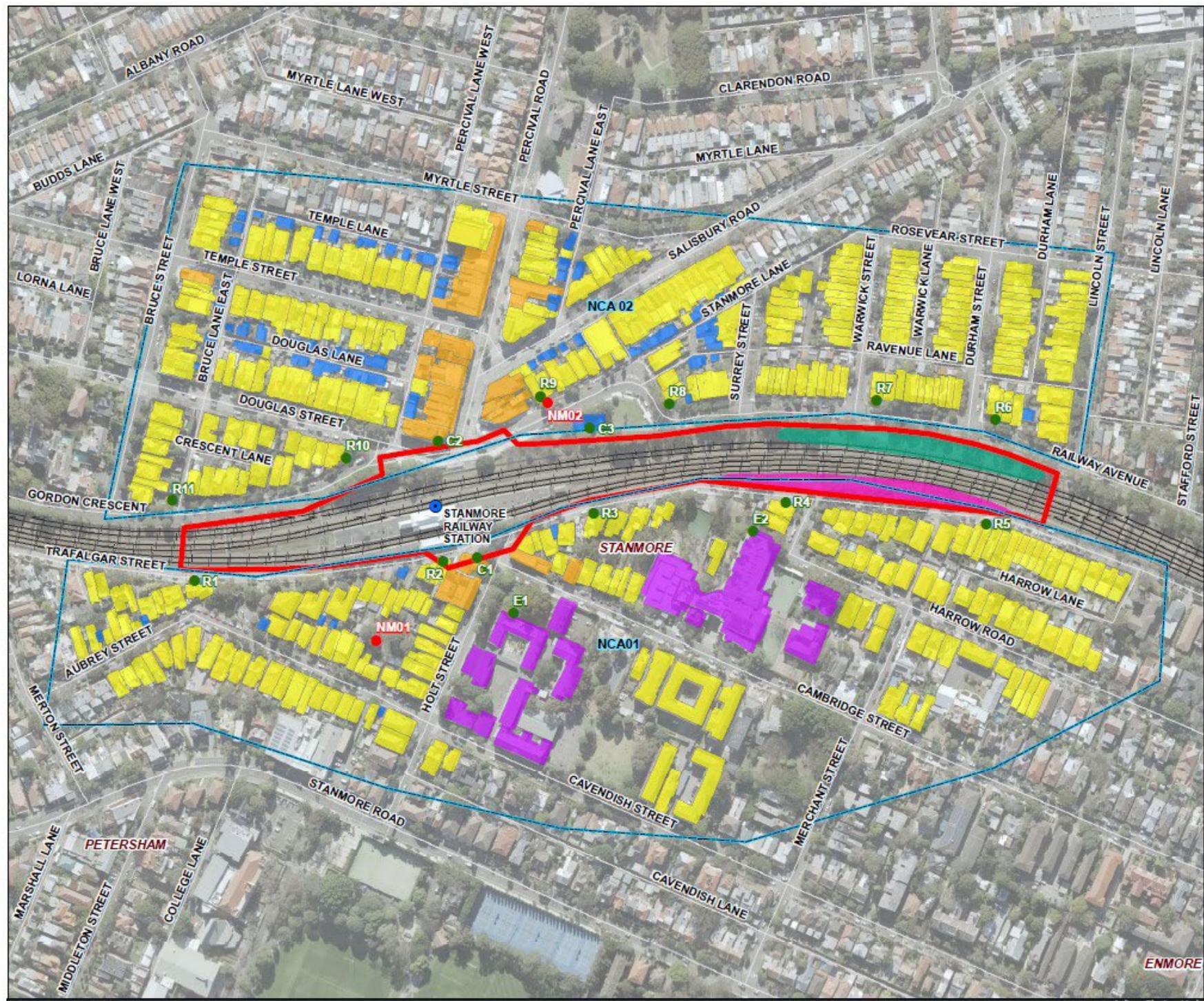
Long term unattended noise monitoring was conducted between 17 and 26 May 2021 at 139 Cavendish Street, Stanmore (NM01), and 14 Douglas Street, Stanmore (NM02). The locations of the two noise loggers are shown in Figure 6-12. Table 6-7 presents the existing overall representative L_{Aeq} ambient noise level and the background L_{A90} noise levels for the day, evening and night periods. The L_{A90} noise levels are the levels exceeded for 90 per cent of the measurement period, while the L_{Aeq} level is the equivalent continuous sound level.

Table 6-7 Existing background and ambient noise levels

| Location | Rating background level (RBL) dBA ¹ | | | Ambient noise levels, L _{eq} dBA ² | | |
|----------|---|----------------------|--------------------|--|----------------------|--------------------|
| | Day ³ | Evening ³ | Night ³ | Day ³ | Evening ³ | Night ³ |
| NM01 | 38 | 38 | 34 | 62 | 59 | 50 |
| NM02 | 46 | 40 | 34 | 63 | 60 | 57 |

- (1) *Rating Background Level (RBL), the 10th percentile min L_{A90} noise level recorded over all day, evening and night time monitoring periods.*
- (2) *Ambient noise levels: the overall noise level over each assessment period (daytime/evening/night-time) as defined in the NPfl and ICNG.*
- (3) *Time periods defined as – Day: 7.00 am to 6.00 pm Monday to Saturday, 8am to 6pm Sunday; Evening: 6.00 pm to 10.00 pm; Night: 10.00 pm to 7.00 am Monday to Saturday, 10.00 pm to 8.00 am Sunday.*

Figure 6-11
Sensitive Receivers and
Noise Monitoring Locations



- Legend**
- Monitoring Locations
 - Receiver Locations
 - Railway Station
 - Roads
 - Railway
 - Proposal Site
 - Spoil Stockpile and Material Laydown
 - Primary Site Compound / Site Sheds
 - NCA Boundary
 - Residential (RES)
 - Garage/shed (GAR)
 - Educational Institutions (EDU)
 - Commercial (COM)



Coordinate system: GDA2020 MGA Zone 56
Scale ratio correct when printed at A3
1:2,800 Date: 12/8/2021

Data sources: Imagery © Mapbox 2020

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Attended noise monitoring

Attended noise measurements were conducted at noise monitoring locations NM01 and NM02 in May 2021. The measurements were conducted over a 15-minute period for each location. Weather conditions were fine on the day of monitoring, with light wind. The results of the attended noise monitoring are presented in Table 6-8.

Table 6-8 Attended noise monitoring

| Logger | Time | dBA L _{Aeq} (15 min) | dBA L _{A90} (15min) | Observations |
|--------|-----------------|----------------------------------|---------------------------------|--|
| NM01 | 5:30pm – 5:45pm | 64 | 40 | <p>Ambient: Aircraft flyover 74 to 82 dBA, train pass-bys typically between 47 to 52 dBA, birds and distant traffic audible at 47-50 dBA</p> <p>Background: Suburban hum</p> |
| NM02 | 5:00pm – 5:15pm | 67 | 52 | <p>Ambient: Aircraft flyover up to 80 dBA, car pass-bys up to 65 dBA, birds chirping up to 51 dBA, train pass-bys 70 dBA.</p> <p>Background: Urban hum</p> |

The acoustic environment is dominated by an urban hum on Douglas Street and a suburban hum on the Trafalgar Street side of the station. Rail, aviation and bird calls are common at both logger locations. It is noted that during the noise monitoring period, the number of aircraft flyovers were significantly lower than usual due to the COVID-19 pandemic. Therefore, it is expected that once air travel returns to its typical operation (prior to COVID-19) the ambient noise levels within the area would be higher than the measured ambient noise levels in Table 6-7 and Table 6-8. These characteristics are typical of a suburban environment.

6.3.2 Noise assessment criteria

Construction noise criteria

The EPA's *Interim Construction Noise Guideline (ICNG)* (Department of Environment and Climate Change, 2009) is the principal guideline for the assessment and management of construction noise in NSW. The ICNG recommends standard hours of construction as:

- Monday to Friday: 7:00am to 6:00pm
- Saturday: 8:00am to 1:00pm
- Sundays and public holidays: no work.

The ICNG also states that during recommended standard hours where construction noise levels reach 75 dBA at residences, residential receivers can be considered as 'highly noise affected' and the proponent may be required to consider restricting hours of very noisy work to provide respite periods.

Further, NMLs were developed for the Proposal. Where NMLs are predicted to be exceeded, the ICNG recommends certain measures to be implemented to minimise adverse impacts. NMLs for the Proposal during standard construction hours is the applicable rating background level (RBL) + 10 dBA, while the NML outside of recommended standard hours is the applicable RBL + 5 dBA.

The construction NMLs for the residential and non-residential receivers are detailed in Table 6-9 and Table 6-10.

Table 6-9 Construction noise management levels - residential receivers

| NCA | NML | RBL dBA | | | NML dBA $L_{eq(15min)}^1$ | | | |
|-------|------|---------|---------|-------|---------------------------|--------|--------|------------------|
| | | Day | Evening | Night | SH | OOHW 1 | OOHW 2 | HNA ² |
| NCA01 | NM01 | 38 | 38 | 34 | 48 | 43 | 39 | 75 |
| NCA02 | NM02 | 46 | 40 | 34 | 56 | 45 | 39 | 75 |

(1) Time periods as defined in Section 6.3.2.

(2) HNA - Highly Noise Affected

Table 6-10 Construction noise management levels – non-residential receivers

| Land use | Noise management levels, $L_{Aeq, 15min}$ (applies when properties are in use) |
|-------------|--|
| Commercial | External noise level – 70 |
| Educational | External noise level – 55 ¹ |

(1) External noise level determined by applying a 10 dB correction to the internal noise level criteria as stipulated in the ICNG

Sleep disturbance criteria

Some of the proposed construction work may be required to take place during the night-time periods (10.00 pm to 7.00 am), which has the potential to lower sleep quality of the residents adjacent to the work due to maximum noise level events. Potential impacts include sleep disturbance and sleep awakening reactions. Typically, these periods would occur in conjunction with the six scheduled rail shutdown periods.

Sleep disturbance noise goals have also been established for residential receivers which are based on the *NSW Road Noise Policy* (RNP) (EPA, 2017). Based on the measured background noise levels during the night, the sleep disturbance criteria for the nearest noise sensitive residential receivers are presented in Table 6-11.

Table 6-11 Sleep disturbance NMLs at residential receivers

| NCA | NML | Sleep disturbance criteria, $L_{A1(1\text{ minute})}$, dB(A) (external) | |
|-------|------|--|--------------------|
| | | Screening level | Awakening reaction |
| NCA01 | NM01 | 49 | 65 |
| NCA02 | NM02 | 49 | 65 |

Construction traffic noise criteria

To assess noise impacts from construction traffic an initial screening test is required, by evaluating whether existing road traffic noise levels would increase by more than 2 dBA, in line with the *Road Noise Policy*. Where the predicted noise increase is 2 dBA or less, then no further assessment is required. However, where the predicted noise level increase is greater than 2 dBA, and the predicted road traffic noise level exceeds the road category specific criterion then noise mitigation would be considered for those receivers affected.

Construction vibration criteria

When assessing vibration there are two categories of vibration criteria: one related to the impact of vibration to human comfort (tactile vibration) and one relating to structural damage.

Human comfort

The assessment of intermittent vibration outlined in the *Assessing Vibration: A Technical Guideline* is based on Vibration Dose Values (VDVs). The VDV accumulates the vibration energy received over the daytime and night-time periods.

The VDV criteria are based on the likelihood that a person would be annoyed by the level of vibration over the entire assessment period.

Structural damage to buildings

At present, no Australian Standards exist for the assessment of building damage caused by vibration.

The German standard (DIN 4150) provides recommended maximum levels of vibration that reduce the likelihood of building damage caused by vibration. DIN 4150 states that buildings exposed to higher levels of vibration than recommended limits would not necessarily result in damage.

Operational noise criteria

The NSW *Noise Policy for Industry* (NPfI) (NSW EPA, 2017) provides guidance in relation to acceptable noise limits for industrial noise emissions, which includes, but is not limited to, noise emissions from mechanical plant (NSW EPA, 2017). The assessment procedure in the NPfI has two components:

- controlling intrusive noise impacts in the short term for residences
- maintaining noise level amenity for residences and other land uses.

The first relates to the intrusiveness of a noise source and allows for the noise under assessment to be a margin above the background, whilst the other procedure relates to the acceptability of the resulting noise, in relation to maintaining the amenity of the surrounding area.

A noise source would be deemed to be non-intrusive if the monitored $L_{Aeq (period)}$ noise level of the development does not exceed the RBL by more than 5 dBA at residential receivers. The specific intrusiveness noise levels established for the operation of the Proposal are summarised in Table 6-12. The criteria applies to the environmental noise emissions from the two new lifts, equipment for the operations/equipment room and new family accessible and ambulant toilet facilities installed as part of the Proposal.

The amenity noise level within an area from industrial noise sources should not normally exceed the recommended amenity noise levels prescribed in the NPfI. The recommended amenity noise levels represent the objective for total industrial noise at a receiver location, whereas the Proposal amenity noise level represents the objective for noise from a single industrial development at a receiver location, defined as the recommended noise levels listed in Table 6-13 minus 5 dB.

Table 6-12 Proposal intrusive noise level

| Location | Monitoring Location | Time of day | RBL dBA | Proposal intrusiveness noise level (RBL + 5dB) dBA $L_{eq(15min)}$ |
|----------|---------------------|-------------|---------|--|
| NCA 1 | NM01 | Day | 38 | 43 |
| | | Evening | 38 | 43 |
| | | Night | 34 | 39 |
| NCA 2 | NM02 | Day | 46 | 51 |
| | | Evening | 40 | 45 |
| | | Night | 34 | 39 |

(1) Intrusive criteria apply to residential receivers only.

Table 6-13 Proposal amenity noise levels

| Type of receiver | Recommended amenity noise level (ANL) dBA $L_{eq, period}$ | Proposal amenity noise level (ANL - 5dB) dBA $L_{eq, period}$ | Proposal adjusted ANL ² dBA $L_{eq, period}$ | | |
|-------------------------------------|--|---|---|---------|-------|
| | | | Day | Evening | Night |
| Residential (suburban) (NM01, MN02) | Day: 55 Evening: 45 Night: 40 | Day: 50 Evening: 40 Night: 35 | 50 | 40 | 35 |
| Commercial ¹ | 65 | 60 | 60 | 60 | 60 |
| School classroom – internal | 35 | 30 | 30 | 30 | 30 |

(1) Amenity levels for non-residential receivers apply when the premises are in use.

(2) Day: the period from 7:00am to 6:00pm Monday to Saturday, or 8:00am to 6:00pm on Sundays and public holidays; evening: the period from 6:00pm to 10:00pm; night: the remaining periods.

6.3.3 Potential impacts

Construction phase

Noise

Six distinct scenarios, each consisting of a number of construction activities, were assessed for the Proposal. The scenarios would occur in line with the following scheduling as outlined in Table 3-1:

1. Site establishment and enabling work
2. Lift installation
3. Street parking, kiss and ride bay and pedestrian works
4. Station building work
5. Platform modification work
6. Demobilisation, testing and commission.

Construction compounds would be established within the construction boundary to contain construction amenities and materials laydown. Figure 6-12 presents the indicative location for the construction compound.

The predicted noise levels for each scenario are presented in Table 6-14 outlining the noise level within each NCA for each representative receiver type. The predicted noise levels are presented as a range, which represents the calculated noise levels based on the noise sources being located at the closest distance to the receiver (first number) and when the noise source is located the furthest distance to the receiver (second number). Due to the large project area this measurement allows distinction between when the works would be close or far from the receiver. The highest noise levels were then compared with the relevant NMLs to quantify the noise impacts and assist with mitigation and management measures.

As plant with special audible characteristics, such as the concrete saws, are not expected to operate for the majority of the construction works, values have been presented as a worst case scenario (includes noise generated by plant items with special audible characteristics such as chainsaws which would be used for short, discreet periods of time only) and a typical scenario (does not include noise generated by plant items with special audible characteristics).

Where a predicted noise level exceeds a less stringent management level (SH), it follows that the more stringent (OOHW) management levels are also exceeded.

Standard hours

The majority of construction activities are proposed to be completed within Standard Hours (Scenarios SC01 to SC06). The assessment of construction noise impacts at the nearest sensitive receivers indicates that noise levels are predicted to exceed relevant NMLs at the nearest sensitive receivers in both NCA01 and NCA02 during all activities, with SC02 (lift works) to SC05 (platform modification works) presenting the greatest impact to sensitive receivers.

Within NCA01, the worst case construction noise levels are predicted to exceed the NML for standard hours by up to 42 to 49 dBA when works are closest to each receiver (these predictions include noise generated by plant with special audible characteristics).

Within NCA02, the worst case construction noise levels are predicted to exceed the NML for standard hours by up to 21 to 38 dBA when works are closest to each receiver (these predictions include noise generated by plant with special audible characteristics, as indicated in the table above).

For commercial receivers (C1 to C3), the worst case construction noise levels are predicted to exceed the NML for standard hours by up to 36 dBA when works are closest to each receiver.

For educational receivers (E1 and E2), the worst case construction noise levels are predicted to exceed the NML for standard hours by up to 29 dBA when works are closest to each receiver.

Table 6-14 Maximum predicated construction noise levels and indicative exceedances per scenario

| NCA | Receiver ID ⁶ | Receiver type | NML, dBA L _{eq(15min)} ¹ | | | | Predicted noise level per scenario, dBA L _{eq(15min)} ^{2,3} | | | | | | | | | | |
|-----|--------------------------|---------------|--|---------|---------|-----|---|-------------------------|----------------------|-------------------------|----------------------|-------------------------|----------------------|-------------------------|----------------------|---------|------|
| | | | SH | OOH W 1 | OOH W 2 | HNA | SC01 | | SC02 | | SC03 | | SC04 | | SC05 | | SC06 |
| | | | | | | | TYPICAL ⁵ | WORST CASE ⁴ | TYPICAL ⁵ | WORST CASE ⁴ | TYPICAL ⁵ | WORST CASE ⁴ | TYPICAL ⁵ | WORST CASE ⁴ | TYPICAL ⁵ | TYPICAL | |
| 1 | C1 | Commercial | 70 | 70 | 70 | n/a | 90-34 | 93-68 | 85-60 | 95-53 | 87-45 | 96-54 | 90-48 | 95-53 | 84-42 | 91-35 | |
| 2 | C2 | Commercial | 70 | 70 | 70 | n/a | 87-47 | 83-73 | 75-65 | 95-67 | 87-59 | 96-68 | 90-62 | 95-67 | 84-56 | 88-48 | |
| 2 | C3 | Library | 55 | 55 | n/a | n/a | 87-49 | 73-69 | 65-61 | 90-64 | 82-56 | 91-65 | 85-59 | 90-64 | 79-53 | 88-50 | |
| 1 | E1 | Educational | 55 | n/a | n/a | n/a | 72-37 | 77-58 | 69-50 | 83-52 | 75-44 | 84-53 | 78-47 | 83-52 | 72-41 | 73-38 | |
| 1 | E2 | Educational | 55 | n/a | n/a | n/a | 73-39 | 63-51 | 55-43 | 71-52 | 63-44 | 72-53 | 66-47 | 71-52 | 60-41 | 74-40 | |
| 1 | R1 | Residential | 48 | 43 | 39 | 75 | 86-27 | 69-63 | 61-55 | 72-49 | 64-41 | 73-50 | 67-44 | 72-49 | 61-38 | 87-28 | |
| 1 | R2 | Residential | 48 | 43 | 39 | 75 | 90-27 | 97-82 | 89-74 | 95-68 | 87-60 | 96-69 | 90-63 | 95-68 | 84-57 | 91-28 | |
| 1 | R3 | Residential | 48 | 43 | 39 | 75 | 84-34 | 73-67 | 65-59 | 89-62 | 81-54 | 90-63 | 84-57 | 89-62 | 78-51 | 85-35 | |
| 1 | R4 | Residential | 48 | 43 | 39 | 75 | 85-28 | 48-44 | 40-36 | 66-40 | 58-32 | 67-41 | 61-35 | 66-40 | 55-29 | 86-29 | |
| 1 | R5 | Residential | 48 | 43 | 39 | 75 | 82-30 | 54-42 | 46-34 | 60-41 | 52-33 | 61-42 | 55-36 | 60-41 | 49-30 | 83-31 | |
| 2 | R6 | Residential | 56 | 45 | 39 | 75 | 76-34 | 61-56 | 53-48 | 61-52 | 53-44 | 62-53 | 56-47 | 61-52 | 50-41 | 77-35 | |
| 2 | R7 | Residential | 56 | 45 | 39 | 75 | 76-43 | 65-59 | 57-51 | 65-52 | 57-44 | 66-53 | 60-47 | 65-52 | 54-41 | 77-44 | |
| 2 | R8 | Residential | 56 | 45 | 39 | 75 | 77-46 | 66-63 | 58-55 | 74-58 | 66-50 | 75-59 | 69-53 | 74-58 | 63-47 | 78-47 | |
| 2 | R9 | Residential | 56 | 45 | 39 | 75 | 75-40 | 73-68 | 65-60 | 93-60 | 85-52 | 94-61 | 88-55 | 93-60 | 82-49 | 76-41 | |

| NCA | Receiver ID ⁶ | Receiver type | NML, dBA L _{eq(15min)} ¹ | | | | Predicted noise level per scenario, dBA L _{eq(15min)} ^{2,3} | | | | | | | | | | |
|-----|--------------------------|---------------|--|---------|---------|-----|---|-------------------------|----------------------|-------------------------|----------------------|-------------------------|----------------------|-------------------------|----------------------|---------|------|
| | | | SH | OOH W 1 | OOH W 2 | HNA | SC01 | | SC02 | | SC03 | | SC04 | | SC05 | | SC06 |
| | | | | | | | TYPICAL ⁵ | WORST CASE ⁴ | TYPICAL ⁵ | WORST CASE ⁴ | TYPICAL ⁵ | WORST CASE ⁴ | TYPICAL ⁵ | WORST CASE ⁴ | TYPICAL ⁵ | TYPICAL | |
| 2 | R10 | Residential | 56 | 45 | 39 | 75 | 77-44 | 80-74 | 72-66 | 87-63 | 79-55 | 88-64 | 82-58 | 87-63 | 76-52 | 78-45 | |
| 2 | R11 | Residential | 56 | 45 | 39 | 75 | 77-41 | 71-66 | 63-58 | 72-52 | 64-44 | 73-53 | 67-47 | 72-52 | 61-41 | 78-42 | |

(1) Time periods as defined in Section 6.3.2.

(2) Predicted noise levels are represented by a single point for each receiver type and noise catchment area for this preliminary assessment. Cells with red text show exceedances of highly noise affected NMLs

(3) Where a predicted noise level exceeds a less stringent management level (SH), it follows that the more stringent (OOHW) management levels are also exceeded. OOHW activities are SC02 (lift works), SC04 (station building works) and SC05 (platform modification works) only.

(4) Predicted noise levels include the operation of plant items with special audible characteristics (concrete saw, chainsaw).

(5) Values indicate a more typical predicted noise level where plant items with special audible characteristics are not used.

(6) Receiver locations as shown in Figure 6-12.

The formatting of the construction noise assessment results (Table 4.4 of the Noise and Vibration Impact Assessment) indicates the following:

- The orange shaded cells show exceedances of the standard-hours day period.
- The green shaded cells show exceedances of the OOHW 1 period.
- The blue shaded cells show exceedances of the OOHW 2 period.
- The cells with red text show exceedances of highly noise affected NMLs.

Outside standard hours

Out of hours works are proposed during Scenarios SC02 (lift works), SC04 (station building works) and SC05 (platform modification works), generally limited to six 48-hour rail shutdowns. The assessment of OOHW construction noise impacts at residential receivers indicates that noise levels are predicted to exceed relevant NMLs at the nearest sensitive receivers in NCA01 and NCA02 during all OOHW activities.

Concrete saws and chainsaws are expected to be used infrequently and over short periods over the construction period. However, it is not likely that these items of equipment would be used during OOHW periods.

During OOHW period 1, noise levels are predicted to result in exceedances of the OOHW criteria by up to 54 dBA at receivers in NCA01 and 49 dBA in NCA02.

During OOHW period 2, noise levels are predicted to result in exceedances of the OOHW criteria by up to 58 dBA at receivers in NCA01 and 55 dBA in NCA02.

Sleep disturbance

Out of Hours Works have the potential to generate sleep disturbance impacts. These activities are proposed during Scenarios SC02 (lift works), SC04 (station building works) and SC05 (platform modification works) and would generally be limited to six 48-hour rail shutdowns.

The potential for sleep disturbance impacts would be largely constrained to the six shutdown periods, therefore the potential for sleep disturbance impacts would be of short duration, as any works undertaken during the night period would occur over two consecutive nights over the construction period.

Noise levels are predicted to result in exceedances of both the RNP screening criteria and the awakening goals. The potential for work to generate maximum noise level events should be considered as part of the construction noise management plan for the works. Mitigation measures are discussed further in Section 7.

Table 6-15 Predicted sleep disturbance noise impacts (residences only)

| NCA | Receiver ID ¹ | NML, DBA L _{EQ(15MIN)} ¹ | | Modelled maximum noise level per scenario, DBA L _{EQ(15MIN)} ² | | | |
|-----|--------------------------|--|--------------------|--|------------------|------------------|------------------|
| | | RNP screening criterion | RNP awakening goal | SC02 | SC03 | SC04 | SC05 |
| 1 | R2 | 49 | 65 | 97-82 (89-74) | 95-68 (87-60) | 96-69 (90-63) | 95-68 (84-57) |
| 2 | R9 | 49 | 65 | 73-68 (65-60) | 93-60 (85-52) | 94-61 (88-55) | 93-60 (82-49) |

(1) Sleep disturbance criteria applicable to residential receivers only.

(2) Predicted noise levels are represented by a single point for each receiver type and noise catchment area for this preliminary assessment.

The formatting within the maximum noise level results indicates the following:

- The grey shaded cells show exceedances of the L_{eq(15min)} criteria.
- The blue shaded cells show exceedances L_{max} and L_{eq(15min)} criteria.

Construction activities would be undertaken during the daytime where feasible.

Construction traffic

The Proposal would generate up to 30 light vehicles and 10 heavy vehicles per day during peak construction periods. Vehicles would access the site primarily via Trafalgar Street or Railway Avenue.

Traffic noise levels during construction would not increase by more than 2 dB on Trafalgar Street, which complies with the RNP criteria.

Construction vibration

Vibration intensive work may include the use of the following items of equipment:

- jackhammer
- bored piling rig
- vibratory roller.

The minimum working distances of these items of equipment from off-site receivers are shown in Table 6-16, which is based on the recommendations of the CNVS.

No activities are proposed within the cosmetic damage minimum working distances for residential receivers, therefore structural impacts are not anticipated as a result of the construction works. However, there may be instances where the vibratory roller is used within the human response minimum working distance and therefore may affect the amenity for nearby sensitive receivers (within 40 metres of the construction works). Given that there is potential for receivers to be affected by vibration intensive plant, vibration mitigation measures have been provided in Section 7.2. If minimum working distances are complied with, no adverse impacts are expected for cosmetic damage or human response on nearby sensitive receivers.

Stanmore Station and the Victorian style dwelling at 153 Trafalgar Street are classified as having heritage significance. Vibration management and mitigation measures are required where vibration generating works are within the nominated safe working distances of the station structure itself.

No other heritage items or buildings with the potential for structural damage were identified within the safe working distances of the footprint, therefore vibration impacts to heritage structures were not considered further in this assessment.

If vibration intensive work is required within these minimum working distances, mitigation measures to control excessive vibration would be implemented as outlined in Section 7.2.

Table 6-16 Minimum working distances of vibration intensive equipment to be used during the Proposal

| Plant | Rating/ description | Cosmetic damage | Human response | Heritage |
|------------------|------------------------------|-----------------------|------------------------------|-----------|
| Jackhammer | Hand held | 5 metres | Avoid contact with structure | 3 metres |
| Bored piling | ≤ 800mm | 2 metres (nominal) | N/a | 5 metres |
| Vibratory roller | < 200 kN (typically 4-6t) | 12 metres | 40 metres | 15 metres |

Operational phase

Additional operational equipment at the station would include two new lifts, equipment for the operations/equipment room and new family accessible and ambulant toilet facilities which would not produce significant noise emissions.

Given that road traffic regularly travels along Douglas Street, the noise associated with the operation of the DDA car parking space and the kiss and ride bay are considered negligible. Any mechanical plant, equipment or other operational noise source proposed is to be designed to meet the NPfl noise triggers identified in this report. Operational noise would not be noticeably different to what is currently experienced at the station.

6.3.4 Mitigation measures

Prior to commencement of work, a Construction Noise and Vibration Management Plan (CNVMP) would be prepared and implemented in accordance with the requirements of the Interim Construction Noise Guideline (Department of Environment and Climate Change, 2009), Construction Noise and Vibration Strategy (Transport for NSW, 2019a) and the Environmental Noise and Vibration Assessment for the Proposal (WSP, 2021). The CNVMP would take into consideration measures for reducing the source noise levels of construction equipment by construction planning and equipment selection where practicable.

Refer to Table 7-1 for a full list of proposed mitigation measures.

6.4 Aboriginal heritage

6.4.1 Existing environment

The Proposal is located on the traditional lands of the Gadigal and Wangal people who occupied and thrived in the Inner West area prior to European occupation.

An AHIMS search was undertaken for the area covered by the Proposal plus a 50-metre radius on 26 November 2021. The search result indicated no Aboriginal sites or items within the search area.

Certain landscape features, such as waterways, sand dune systems, ridge tops, ridge lines, headlands, cliff faces and rock caves/shelters, can indicate the likely presence of Aboriginal sites. None of these features are present immediately surrounding the station, which is located within a disturbed and developed area (i.e. a rail corridor surrounded by predominantly residential and commercial development).

The Proposal is not considered to be located within a high-risk landscape for Aboriginal heritage potential. The extensive landscape modification and high level of disturbance that has occurred due to development of the rail corridor across the Proposal area suggests that the presence of culturally sensitive buried items is unlikely within the boundaries of the Proposal.

6.4.2 Potential impacts

Construction phase

Construction of the Proposal would involve some minor excavation and other ground disturbance work, including:

- the foundations and pits for the new lift shafts and lifts, which would require excavation at each proposed lift location
- the construction of regraded footpaths (e.g. pavement resurfacing) and station entrances as well as new DDA car parking space and kiss and ride bay
- other minor civil work including platform regrading, footings and foundations and power/drainage/stormwater work.

Ground disturbing activities have the potential to impact Aboriginal sites if present. As no known Aboriginal heritage items are located in the vicinity of the Proposal and no high-risk landscaping features are located at or near the Proposal, the potential for unknown items to be present is considered to be low. As such, the Proposal is unlikely to affect Aboriginal heritage during construction.

Operational phase

There would be no risks to Aboriginal heritage from the operation of the Proposal.

6.4.3 Mitigation measures

If previously unidentified Aboriginal sites or objects are uncovered during construction, work would cease in the vicinity of the find in accordance with Transport for NSW's *Unexpected Heritage Finds Guideline* (Transport for NSW, 2019d). The Transport for NSW Project Manager and Transport for NSW Senior Environment and Sustainability Officer or Manager would be notified immediately to assist in coordinating the next steps, which are likely to involve consultation with an archaeologist, Heritage NSW and the Local Aboriginal Land Council/s. If human remains are found, work would cease, the site would be secured and the NSW Police and Heritage NSW would be notified.

Refer to Table 7-1 for a full list of proposed mitigation measures.

6.5 Non-Aboriginal heritage

This section provides a summary of the *Statement of Heritage Impact* (SoHI) prepared by Artefact Heritage (2021). The methodology used to undertake this assessment is provided in Section 1.4 of the *Statement of Heritage Impact*.

6.5.1 Existing environment

A desktop search of non-Aboriginal heritage registers was undertaken to assess the extent of known historical heritage items in proximity to the Proposal. This included a search of the:

- World Heritage List
- Commonwealth Heritage List
- Register of the National Estate (non-statutory archive)
- NSW State Heritage Register (SHR)
- TAHE Section 170 Heritage and Conservation Register
- Marrickville LEP 2011.

Heritage items

The Stanmore Railway Station Group has been identified on the SHR (SHR # 01251), TAHE Section 170 Heritage and Conservation Register under the State Heritage Inventory (SHI) database (SHI # 4801097) and is also listed under the Marrickville LEP (I248).

The Proposal area is located adjacent to the Annandale Farm heritage conservation area (to the north) and Kingston South heritage conservation area (to the south). The Proposal is also located 10 metres from Kingston West heritage conservation area (to the south) and 180 metres from Petersham South (Norwood Estate) heritage conservation area (to the west).

These areas and other heritage listed items within the vicinity of the Proposal are shown in Figure 6-13 and listed in Table 6-17.

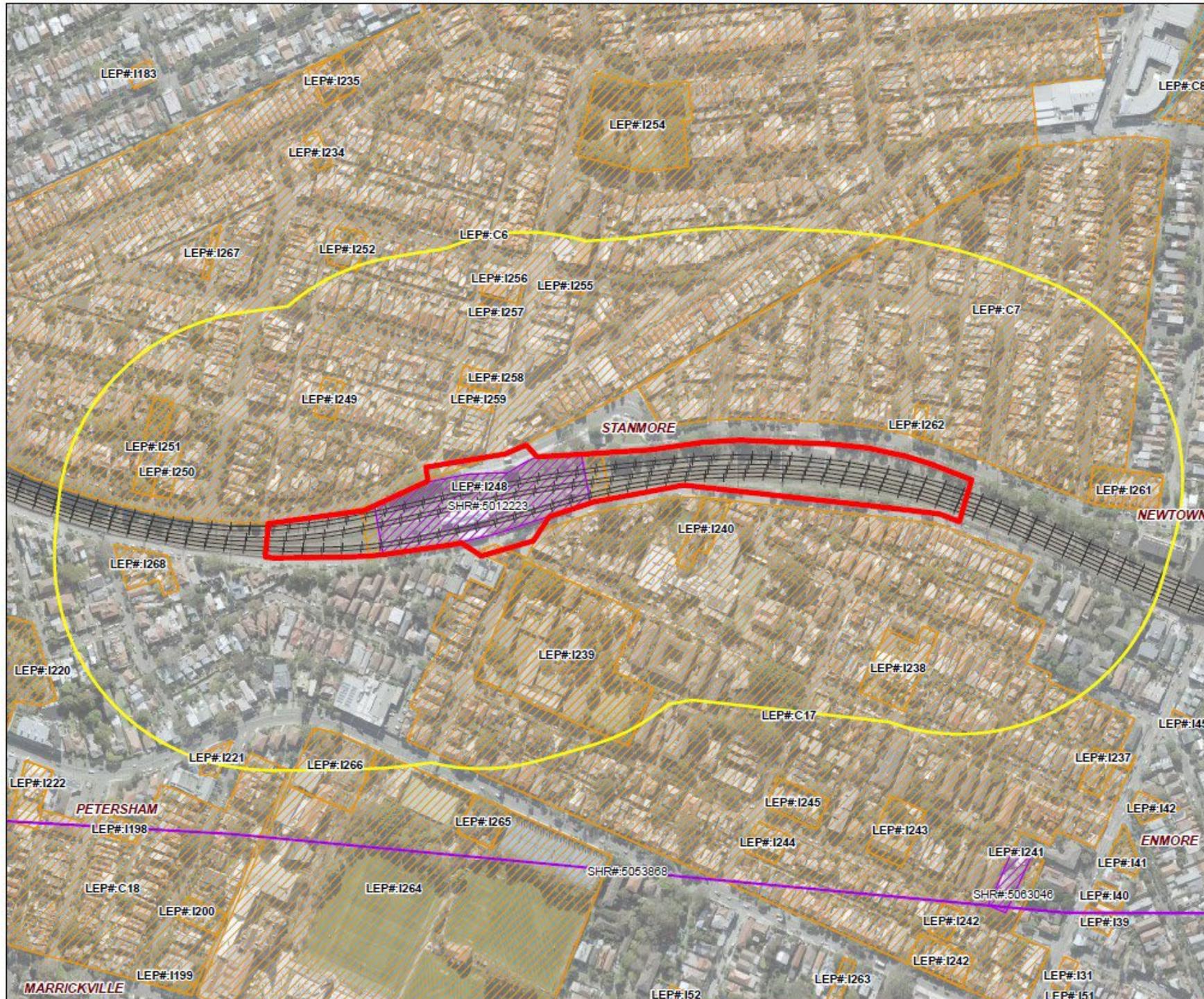
No heritage items were found from the World Heritage List, the National Heritage List, the Commonwealth Heritage List, the Register of the National Estate.

Table 6-17 Summary of listed heritage items within and adjacent to the Proposal area

| Item | Address | Significance | Listing | Place ID (Item No.) | Distance from Proposal site |
|--|--|--------------|-----------------------|---------------------|-----------------------------|
| Stanmore Station | | | | | |
| Stanmore Railway Station Group | Great Southern and Western Railway, Stanmore, NSW 2048 | State | SHR | SHR # 01251 | Within |
| Stanmore Railway Station group, including interiors | Douglas Street, Stanmore | State | Marrickville LEP 2011 | LEP # I248 | Within |
| Stanmore Railway Station Group | Trafalgar Street, Stanmore | State | TAHE s.170 | 4801097 | Within |
| Heritage Conservation Areas | | | | | |
| Annandale Farm | Stanmore | Local | Marrickville LEP 2011 | LEP # C6 | Adjacent |
| Kingston West | Stanmore | Local | Marrickville LEP 2011 | LEP # C7 | 10m |
| Kingston South | Stanmore | Local | Marrickville LEP 2011 | LEP # C17 | Adjacent |
| Trafalgar Street/Cambridge Street | | | | | |
| Stanmore Public School, including interiors | 96 Cambridge Street, Stanmore | Local | Marrickville LEP 2011 | LEP # I239 | 15m |
| Stanmore Public School | 96 Cambridge Street, Stanmore | Local | Education s170 | SHI # 5066038 | 15m |
| Stanmore Public School - Buildings B00B and B00C | 96 Cambridge Street, Stanmore | Local | Education s170 | SHI # 5065588 | 15m |
| Victorian villa - "Horaceville", including interiors | 129–133 Cambridge Street, Stanmore | Local | Marrickville LEP 2011 | LEP # I240 | Adjacent |
| Group of 4 Victorian villas, including interiors | 223–229 Trafalgar Street, Stanmore | Local | Marrickville LEP 2011 | LEP # I268 | 95m |

| Item | Address | Significance | Listing | Place ID (Item No.) | Distance from Proposal site |
|---|--|--------------|-----------------------|---------------------|-----------------------------|
| Gordon Crescent/Railway Avenue | | | | | |
| Victorian villa— "Essington", including interiors | 34 Gordon Crescent, Stanmore | Local | Marrickville LEP 2011 | LEP # I250 | 100m |
| Victorian villa— "Dundoos", including interiors | 50 Railway Avenue, Stanmore | Local | Marrickville LEP 2011 | LEP # I262 | 10m |
| Percival Road | | | | | |
| Former bakery and ovens and shop facades, including interiors | 118–124 Percival Road (part), Stanmore | Local | Marrickville LEP 2011 | LEP # I259 | 45m |
| Salisbury Hotel, including interiors | 118–120 Percival Road (corner Temple Street), Stanmore | Local | Marrickville LEP 2011 | LEP # I258 | 60m |
| Two Victorian villas, including interiors | 56 and 58 Douglas Street, Stanmore | Local | Marrickville LEP 2011 | LEP # I249 | 85m |

Figure 6-13
Location of Nearby Heritage Items
and Heritage Conservation Areas



Legend

- +— Railway
- Watercourses
- Proposal Site
- Study Area
- Local (LEP)
- State (SHR)



Coordinate system: GDA2020 MGA Zone 56
 Scale ratio correct when printed at A3
 1:3,500 Date: 12/9/2021
 Data Source: Imagery © Mapbox 2020

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Historical context

Stanmore Station

Stanmore Station was constructed in 1878 and opened in 1879. The first configuration of the station is thought to have only included two wayside platforms and a ticket office, with no provision for safe pedestrian access to the platforms.

Stanmore Station has been subject to a number of modifications since its opening in 1887. The original fabric and known upgrades include:

- 1881 – signal box
- 1885 – platform buildings
- 1886 – pedestrian underpass
- 1891 – quadruplication of the station (involving extension of the platforms to 156 metres)
- 1891 – addition of the island platform (Platform 1/2) with extension to the pedestrian underpass and addition of awning to north-western side of the island platform.
- 1897 – new barriers and booking office at the eastern end of Platform 1/2 (booking office removed late twentieth century)
- 1900 – ladies toilet incorporated into the Platform 3 building
- 1905 – extension to platforms
- 1913 – signal box closed and platform extended with realignment of the pedestrian underpass
- 1913 – construction of Federation-style parcels and booking office constructed at the Douglas Street entrance
- 1915 to 1921 – addition of privacy screen to western end of Platform 1/2 (demolished late twentieth century)
- 1926 – sextuplication of the tracks (six track configuration)
- 1926 – demolition of the Up Suburban platform
- c.1926 – construction of a new subway with new staircases and a lantern on the staircase to Platform 1/2. Elements from the 1886 pedestrian underpass incorporated into the design, including the southern original brick staircase wall on Platform 3
- 1955 – main lines electrified to Homebush
- 1960 – booking office relocated to Platform 1/2 (adapted as a parcels office)
- 1997 – north-eastern room of Platform 1/2 building altered to incorporate aluminium security ticket wind and desks
- c.2017 – station refurbishment, including repainting, new finishes to the toilets, new lings and pant to the pedestrian underpass, new tactiles and stair nosing.

Annandale Farm heritage conservation area

The first land grant in the Stanmore area was granted to Lieutenant George Johnston in May 1772. The land comprised 100 acres to the south of Parramatta Road. Johnston was granted two additional smaller land grants in 1794, located adjacent to the original grant, and in 1798 was granted a larger 290-acre grant to north of Parramatta Road extending to Sydney Harbour. George Johnston named his land Annandale Farm after the strath in Scotland where he was born. Annandale House was constructed c.1799 and was demolished in 1905.

The Johnston family were involved in public works in the Stanmore area. In 1886, Fanny Johnston donated £3,000 to pay for the new platform buildings at Stanmore Station in order to entice buyers to the South Annandale subdivisions. The area is of historical significance as a distinctive area developed 1884 to 1910 during the last subdivisions of the Farm. The conservation area is representative of late Victorian and Federation period housing, corner shops and retailing. Streetscapes are highly cohesive and are distinguished from surrounding areas by its later development and predominance of late Victorian and Federation period housing, wide streets, and by its most substantial housing being Railway Villas located at a low point purposely to attract affluent potential purchasers to the subdivision.

Kingston heritage conservation area

The land to the south-east of Annandale Farm was granted to Lieutenant Thomas Rowley, an officer in the NSW Corps, in 1793. Rowley resigned from the NSW Corps in 1802 in order to work his land, known as Kingston Farm. The land passed hands several times after Thomas Rowley's death in 1806. In the 1830s, a saddler named John Jones bought 20 acres of land in the area, naming the estate, Stanmore. From 1873, there were a large number of subdivisions in the Stanmore area, Kingston Estate became North Kingston and South Kingston, with the latter being split into South and West Kingston before both becoming parts of Stanmore.

The Kingston West heritage conservation area represents the development of the 1887 and 1893 subdivisions of the West Kingston Estate. Development is consistent with the typologies of the Federation period.

The Kingston South heritage conservation area was part of the December 1863 "Holt, Smart and Mort's Subdivision of South Kingston". The area was developed in the late 1860s and 1870s as a highly desirable residential precinct for entrepreneurs and the middle class. The area is aesthetically significant for its examples of late 19th century to mid twentieth century development. Kingston South HCA represents the rich variety of built forms, collectively representative of the cultural needs and aspirations of the community that built and occupied them between 1854-1940.

Significance assessment criteria

Stanmore Railway Station Group has been assessed against the NSW heritage assessment criteria as provided in the SHI listing to determine the level of significance and related statutory protection as outlined in Table 6-18.

Table 6-18 Significance assessment – Stanmore Railway Station Group

| Significance criteria | Application of criteria |
|---|---|
| Historical significance SHR criteria (a) | Stanmore Railway Station has State significance as the station group contains largely intact, original structures dating from the 1880s establishment of the station through to the 1891 quadruplication and the 1927 sextuplication of the line, is able to demonstrate the growth and expansion of the railways in the late 19 th and early twentieth century. The 1880s platform buildings, the 1910s former parcels & bookings office and the 1920s subway collectively represent key historic phases of suburban railway development. |

| Significance criteria | Application of criteria |
|---|---|
| Historical association significance SHR criteria (b) | Stanmore Railway Station is significant for its association with Engineer-in-Chief George Cowdery who was influential in guiding the changes made to the station as part of the 1891 quadruplication of the line namely the conversion of the existing island Platform 1/2 and the construction of the former parcels and booking office along Douglas Street. |
| Aesthetic significance SHR criteria (c) | Collectively the complex of station structures at Stanmore Railway Station have local aesthetic significance. The 1880s 'second class station buildings' displays large central brick buildings flanked by attached wing structures, hipped roofs with a transverse gable and awnings supported by original cast iron columns with decorative brackets. The former parcels & booking office is an example of the Federation style architecture prevalent in late 19 th and early twentieth century suburban railway stations. Together the platform buildings along Trafalgar Street and the subway and former parcels & booking office along Douglas Street form significant landmarks in the local area. |
| Social significance SHR criteria (d) | The place has the potential to contribute to the local community's sense of place and can provide a connection to the local community's history. |
| Technical/research significance SHR criteria (e) | Based on the surviving documentation and the evidence on site it is unlikely there would be any potential archaeological remains at Stanmore Railway Station. |
| Rarity SHR criteria (f) | The integrity of Stanmore Railway Station as a whole is considered to be high based on the fact that platform buildings, the subway, and the parcels office are rarely seen so intact on the one site. |
| Representativeness SHR criteria (g) | The platform buildings at Stanmore Railway Station are largely intact externally and retain a large amount of original fabric externally and internally and are therefore amongst the best examples of this type of platform building. The subway has been changed but it retains characteristic features of a subway namely connecting the street to the platforms and has some original fabric and is therefore a good representation. |

The existing Statement of Significance reads as follows:

Stanmore Railway Station has State significance for its group of largely intact, original structures dating from the 1880s establishment of the station through to the 1891 quadruplication and the 1927 sextuplication of the line, which are able to demonstrate the growth and expansion of the railways in the late 19th and early twentieth century. It is significant for its collection of railway structures namely the 1880s platform buildings, the 1910s former parcels & bookings office and the 1920s subway which have remained largely intact and form a cohesive group which is able to effectively represent suburban railway stations of the late 19th century.

The extant 1880s platform buildings are excellent examples of 'second class station' buildings which have a higher level of integrity. The group remains relatively intact and is a significant landmark in the local area.

Grading of significant elements to Stanmore Railway Station

Different features of Stanmore Railway Station group have different contributions to its overall heritage significance. As part of the heritage assessment undertaken for the Proposal, features were graded in accordance with the NSW Heritage Office grading criteria, in the following descending order from greatest to lowest (detracting) contribution to the item's heritage significance:

- exceptional
- high
- moderate
- little
- intrusive.

Features within the Stanmore Railway Station group have been graded as outlined in Table 6-19.

Table 6-19 Stanmore Station grading of fabric (Heritage NSW, 2012)

| Component | Assessment | Grading |
|---|--|--|
| Platform Building, Platform 1/2 (Type 3) (1886) | The Platform 1/2 building is a highly intact Type 3 'second class' station building with Italianate detailing. Despite minor alterations dating to the twentieth and twenty-first centuries, the building has retained its late nineteenth century form and fabric, such as the hipped roof with transverse gables, timber-framed awnings with decorative cast iron columns and brackets, timber sashed windows, timber-framed doors and original interiors. The building has aesthetic, historical and associative significance at the State level for its highly intact form and fabric, its association with Engineer-in-Chief George Cowdery and for its representation of a key period of railway development in NSW. | <p>Overall: High</p> <p><u>Exterior</u></p> <p><i>Exceptional:</i> Cast iron posts and filigree brackets.</p> <p><i>High:</i> Brick walls, decorative string courses, timber valances, original timber-framed windows, dentilled stringcourse, moulded entablature beneath the eaves, decorative timber fascias on the gables, brick chimneys, original and early moulded timber doors, rounded brick sills, timber roof framing.</p> <p><i>Moderate:</i> timber awning structure and plain timber fascia, textured window glazing (fixed), plinths.</p> <p><i>Little:</i> paint finishes, ventilation, mid-late twentieth century timber-framed windows, textured window glazing (louvred).</p> <p><i>Neutral:</i> corrugated metal roofing, gutters, downpipes, flashing, brick window infill, late twentieth century plain timber doors.</p> <p><i>Intrusive:</i> signage, lighting, services, anti-bird spikes, bars, aluminium ticket windows, Opal card machines and readers.</p> <p><u>Interior</u></p> <p><i>Exceptional:</i> pressed metal ceilings.</p> <p><i>High:</i> timber flooring, timber benches, brick walling, brick chimney breast, moulded/hardwood panelled timber doors, timber French/double-leaf doors, timber skirting, timber architraves, timber-framed windows, timber panelled ceiling, timber panelled partition, timber architraves, timber-framed transom windows, ceiling roses, stone fireplace thresholds, timber dados, internal plaster vents, decorative plaster cornice, remnant c.1886 white marbled subway tiles in the cistern room, safe and desk/shelving unit in Station Master's Office, timber roof framing.</p> |

| Component | Assessment | Grading |
|--|---|--|
| | | <p><i>Moderate:</i> internal timber architraves on the partition, internal timber door, concrete threshold, plastered wall finishes, plaster ceilings.</p> <p><i>Little:</i> plain timber doors, timber boards in storage room, perforated timber ceiling, concrete floors, painted finish on the brickwork.</p> <p><i>Neutral:</i> c.2017 bathroom fit-outs including floor tiles, late twentieth-century cornices, contemporary copper pipes, twenty-first-century brick walls.</p> <p><i>Intrusive:</i> lighting, cameras, services, fireplace infill, security grilles, steel pipes, staff amenities, service holes in ceilings.</p> |
| <p>Platform Building, Platform 3 (Type 3) (1886)</p> | <p>The Platform 1/2 building is a highly intact Type 3 'second class' station building with Italianate detailing. Despite minor alterations dating to the twentieth and twenty-first centuries, the building has retained its late nineteenth century form and fabric, such as the timber-framed awnings with decorative cast iron columns and brackets, timber sashed windows, timber-framed doors and original interiors. The building has aesthetic, historical and associative significance at the State level for its highly intact form and fabric, its association with Engineer-in-Chief George Cowdery and for its representation of a key period of railway development in NSW.</p> | <p>Overall: High</p> <p><u>Exterior</u></p> <p><i>Exceptional:</i> cast iron posts and filigree brackets.</p> <p><i>High:</i> brick walls, decorative string courses, timber valances, original timber-framed windows, dentilled stringcourse, moulded entablature beneath the eaves, decorative timber fascias on the gables, lintels, brick chimneys, original and early moulded timber doors, rounded brick sills, timber roof framing, original timber architraves.</p> <p><i>Moderate:</i> timber awning structure and plain timber fascia, textured window glazing (fixed), plinths, timber roof framing.</p> <p><i>Little:</i> paint finishes, ventilation, mid-late twentieth century timber-framed windows, textured window glazing (louvred).</p> <p><i>Neutral:</i> corrugated metal roofing, gutters, downpipes, flashing, brick window infill, late twentieth-century plain timber doors, furniture, computer equipment.</p> <p><i>Intrusive:</i> signage, lighting, services, anti-bird spikes, bars/door grilles, aluminium ticket windows, Opal card machines and readers.</p> <p><u>Interior</u></p> <p><i>Exceptional:</i> N/A.</p> <p><i>High:</i> timber benches, brick walling, brick chimney breast, moulded timber doors, timber skirting, timber architraves, timber-framed windows, timber panelled ceiling with beaded cornices and scotia moulding, ceiling roses, dado rails, skirting, sill boards, plaster ceilings, timber roof framing.</p> <p><i>Moderate:</i> timber flooring, internal timber architraves on the partition, internal timber door, concrete threshold, timber panelled cupboard.</p> <p><i>Little:</i> furniture.</p> <p><i>Neutral:</i> staff amenities.</p> <p><i>Intrusive:</i> lighting, cameras, services, fireplace infill, bins, service holes in ceilings, air conditioners.</p> |

| Component | Assessment | Grading |
|--|--|---|
| Former Parcels & Booking Office, (1913) | <p>The Parcels Office at Stanmore Railway Station has historical, associative and aesthetic significance, as well as rarity, at a State Level. The building has historical and aesthetic significance for its representation of one of the key historical phases of suburban railway development as a Federation Style building, a style used widely in early twentieth century railway stations in Sydney. The Queen Anne influenced features and are rare in rail station buildings. The building has associative significance for its association with the Engineer-in-Chief George Cowdery. The Parcels Office has retained a high level of integrity externally and internally, retaining the majority of original features, form and fabric.</p> | <p>Overall: High</p> <p><u>Exterior</u></p> <p><i>Exceptional:</i> original coloured window panes in upper sashes of sash windows and transoms.</p> <p><i>High:</i> Flemish-bonded brick walling, brick segmental arches, timber architraves, timber-framed sashed windows, timber-framed transoms windows, timber-panelled doors, diamond-patterned fibre-cement slate coloured roof tiles, terracotta ridges tiles, timber roof framing, clear window glass, gables fascia, half-timbering and stucco gable.</p> <p><i>Moderate:</i> fascia under the gutters, timber-louvres, metal corrugated roofing.</p> <p><i>Little:</i> sub-floor vents.</p> <p><i>Neutral:</i> gutters, downpipes.</p> <p><i>Intrusive:</i> security grilles, signage.</p> <p><u>Interior</u></p> <p><i>Exceptional:</i> original coloured window panes in upper sashes of sash windows and transoms.</p> <p><i>High:</i> brick walling, timber-framed sashed windows, timber-framed transoms windows, timber-panelled doors, clear window glass, timber architraves, dado rail, skirting, wall vents, timber roof framing.</p> <p><i>Moderate:</i> timber glazed partition wall, mini-corrugated sheeting ceiling.</p> <p><i>Little:</i> N/A.</p> <p><i>Neutral:</i> N/A.</p> <p><i>Intrusive:</i> contemporary lighting, services and conduits.</p> |
| Platform 1/2 (c.1880s, 1891) | <p>Platform 1/2 at Stanmore Railway Station has historical, associative and aesthetic significance, as well as representativeness at a State Level. The platform has historical significance for its representation of key historical phases of the expansion of the suburban railway. The main section of the platform comprises a highly intact late nineteenth-century and early twentieth-century convex vertical corbelled brick island platform, which is representative of such platforms across the network and is rare for its level of integrity. The platform has associative significance for its association with the Engineer-in-Chief George Cowdery.</p> | <p>Overall: High</p> <p><u>Elements</u></p> <p><i>Exceptional:</i> N/A.</p> <p><i>High:</i> c.1891 brick retaining walls, 1905 brick-faced extension, brick corbelling.</p> <p><i>Moderate:</i> N/A.</p> <p><i>Little:</i> asphalt surface, concrete coping, concrete extension, soil infill, replica lighting.</p> <p><i>Neutral:</i> furniture, tactiles, green powder-coated metal fencing.</p> <p><i>Intrusive:</i> bins, signage, services, loop-top fencing.</p> |

| Component | Assessment | Grading |
|------------------------------------|---|---|
| Platform 3 (c.1880s) | <p>Platform 1/2 at Stanmore Railway Station has historical, associative and aesthetic significance, as well as representativeness at a State Level. The platform has historical significance for its representation of key historical phases of the expansion of the suburban railway.</p> <p>The main section of the platform comprises a highly intact late nineteenth-century and early twentieth-century concave vertical corbelled brick wayside platform, which is representative of such platforms across the network and is rare for its level of integrity. The platform has associative significance for its association with the Engineer-in-Chief George Cowdery.</p> | <p>Overall: High</p> <p><u>Elements</u></p> <p><i>Exceptional:</i> N/A.</p> <p><i>High:</i> brick platform retaining walls, perimeter walls and entrance walls, brick-faced extension and brick corbelling.</p> <p><i>Moderate:</i> plantings along the southern side.</p> <p><i>Little:</i> asphalt surface, concrete coping, concrete extension, soil infill, replica lighting, low-height garden walls along the southern side of the platform.</p> <p><i>Neutral:</i> furniture, tactiles, green powder-coated metal fencing.</p> <p><i>Intrusive:</i> bins, signage, services, loop-top fencing.</p> |
| Pedestrian Subway (c.1886-1926) | <p>The pedestrian subway has historical, associative and aesthetic significance, as well as representativeness and rarity, at a State Level. The subway has historical significance for its representation of key historical phases of the expansion of the suburban railway as an originally c.1886 subway altered in 1913 and 1926. The existing early fabric predominantly comprises English-bonded brickwork, the concrete ceiling and the framing of the 1926 lantern on Platform 1/2. Despite later alterations the subway is a highly intact early railway subway. The subway is representative of subways across the network and is rare for its level of integrity.</p> | <p>Overall: High</p> <p><u>Elements</u></p> <p><i>High:</i> English-bonded brick walling and balustrades, stretcher and English bonded brick retaining walls along the northern side of the station, concrete ceiling, roofing, stop-chamfered posts to rafters, timber structure, remnant steel posts.</p> <p><i>Moderate:</i> mid-twentieth century handrails.</p> <p><i>Little:</i> replacement brickwork, render to walls and ceiling, stair tiles, treads, late twenty-first/early twenty-first century steel handrails, corrugated steel roofing, concrete stairs.</p> <p><i>Intrusive:</i> signage, services, lighting, conduits, security grilles, pool-top fencing, perforated walling on lantern, bins.</p> |

| Component | Assessment | Grading |
|-------------------------|---|---|
| Moveable Heritage Items | The moveable heritage items including the safe and the desk/shelving unit in Station Manager's Office and bench seating in the waiting rooms are highly intact early items associated with the use of the railway in the nineteenth and twentieth centuries. These items have historical, associative and aesthetic significance at the State level. | <i>High: All.</i> |
| Other elements | The brick retaining walls related to the station have State historical and aesthetic significance. The sandstone kerbs, mid-twentieth century concrete kerbs, pavement and road surfaces have local historical and aesthetic significance. The brick signal shed does not meet the criteria for local or State heritage significance, and nor do other elements outside the station. | <i>High: Sandstone kerbs outside the station, brick retaining walls.</i> <i>Moderate: trees.</i> <i>Little: brick signal shed, groundcover in gardens, mid-twentieth century concrete kerbs, pavement and road surface.</i> <i>Neutral: paving tiles on pedestrian crossing, road surfaces and kerbs, advertising boards, low-height timber walling, bicycle paths, bicycle hoops, grassed areas.</i> <i>Intrusive: loop-top fencing, security fencing.</i> |

Archaeological potential

The potential for the presence of archaeological relics in particular places is significantly affected by activities which may have caused ground disturbance. These processes include the physical development of the site and the activities that occurred there. The likelihood for the presence of these relics (i.e. their archaeological potential) is distinct from the archaeological/heritage significance of these remains, should any exist. For example, there may be 'low potential' for certain relics to survive, but if they do, they may be assessed as being of 'high significance'.

The archaeological potential at Stanmore Station has been assessed in four phases, being:

- Phase 1 (c.1788 – 1855): Non-Aboriginal settlement and estates
- Phase 2 (1855 – c.1880): The railway line and subdivision
- Phase 3 (c.1880 – 1926): Early development of Stanmore Station
- Phase 4 (1926 – present): Modern Stanmore Station.

The potential for identifying archaeological remains related to Phase 1 (c.1788 – 1855) is considered **nil**.

The potential for identifying archaeological remains related to Phase 2: (1855 – c.1880) is considered **nil to low**.

The potential for identifying archaeological remains related to Phase 3 (c.1880 1926) is generally considered to be **nil to high**, dependant on the location within the Proposal site.

The potential for recovering archaeological remains relating to Phase 4 (1926 – present) is considered **low**.

6.5.2 Potential impacts

A summary of the potential impacts of the Proposal during the construction phase is provided below. Further discussion of the potential impacts is provided in Chapter 8 of the *Statement of Heritage Impact* (Artefact, 2021).

Construction phase

Potential impacts to the heritage significance of Stanmore Station as a result of the Proposal are summarised in Table 6-20. Direct impacts involve a physical change to a heritage item, such as (and not limited to) demolition or resurfacing of a heritage structure. Indirect impacts are visual impacts, where the view to or of the heritage item has changed.

Table 6-20 Potential construction impacts to heritage associated with the Proposal

| Component | Impact | Assessment |
|-----------------------------|--|---|
| Installation of lifts | The proposed works would involve the removal of sections of the platform surface, excavation of the platforms, the removal of brickwork in the eastern walls of the c.1926 pedestrian underpass, demolition of a section of the brick perimeter wall along the southern side of Platform 3, construction of the lifts and the construction of a concrete retaining wall with brick cladding. | <p>The removal of platform surface and excavation would have a direct impact to elements of little heritage significance and a negligible impact on the significance of Stanmore Station.</p> <p>The removal of the c.1926 brickwork in the pedestrian underpass would result in a moderate direct and indirect impact to the significance of the pedestrian underpass and on the significance of Stanmore Station.</p> <p>The removal and reconstruction of 8.5 metres of the brick perimeter wall comprised of 1886, 1891 and 1926 fabric, would result in a moderate direct and indirect impact to the highly significant wall and a moderate impact on the significance of Stanmore Station.</p> <p>Overall, the works related to the installation of the lifts on platforms 1/2 and 3 would result in a moderate direct and indirect impact on the heritage significance of Stanmore Station.</p> |
| Platform 1/2 building works | The proposed works to the Platform 1/2 building involve the reconfiguration of the existing bathrooms to accommodate a new family accessible toilet, ambulant toilets and a cleaners room. The fabric to be removed has been generally identified as fabric of neutral significance. However, the widening of the western door would result in the removal of a small amount of original brickwork, identified as fabric of high significance. | The works to the Platform building 1/2 would result in a minor direct and indirect impact to the platform building and the overall significance of Stanmore Station. |

| Component | Impact | Assessment |
|------------------------------|---|--|
| New canopies on Platform 1/2 | The proposed new canopies on Platform 1/2 would provide continuous canopy coverage between the new lift, boarding assistance zone and family accessible toilet. This would include a solid awning to the west of the new lift to cover the area between the lift entry and the platform building awning and a partly glazed, partly solid awning along the western wing of the building to allow partial sunlight onto the building façade and platform. | The works associated with construction of new canopies on Platform 1/2 would result in direct impacts to fabric of little significance and would result in a negligible direct impact . Although the addition of new canopies will have a negligible direct impact on the heritage significance of Stanmore Station, the addition would be a substantial change to the views of Stanmore Station and would result in a moderate indirect impact on the heritage significance of Stanmore Station. |
| Staircase upgrades | The proposed alterations would include removal of the existing handrails, the installation of new compliant handrails, new stair nosings and the replacement of any existing non-compliant tactiles. The works would largely involve the replacement of and impact to fabric of little significance. However, the replacement of the handrails would involve the removal of mid-twentieth-century handrails of moderate significance. The existing security grilles on the eastern side of the staircase lantern on Platform 1/2 would be removed and replaced with new glazed panels. | The works would have the potential to result in direct impacts to the highly significant brickwork of the staircases, resulting in cumulative minor direct and indirect impact to the staircases. These works would result in a negligible direct and indirect impact to the heritage significance of Stanmore Station. However, as the existing security grilles are intrusive fabric, their removal and replacement with clear glazing on the eastern side would result in a positive moderate direct and indirect impact to the staircase and a positive minor direct and indirect impact to the heritage significance of Stanmore Station. |
| Regrading and resurfacing | The platforms would be regraded and resurfaced between the new lifts near the eastern end of the station to the western ends of the platform buildings on both Platforms 1/2 and 3 in order to provide accessible paths of travel from the new lifts to the station amenities, including the bathrooms, waiting rooms and boarding assistance zones. This would include regrading of the platforms around the base of the brick retaining walls of the subway staircases and the walls and decorative cast iron columns of the platform buildings. In addition, a ramp would be installed into the platform building waiting rooms on Platform 1/2 and Platform 3 | The works would result in minor direct impacts to fabric of little significance, despite the platforms being of high significance. The addition of tactiles would result in a negligible visual impact to the platform. As the works would only impact fabric of little significance, the direct impact would be negligible. These works would result in a negligible direct and indirect impact to the heritage significance of Stanmore Station. Regrading and resurfacing of the pedestrian underpass would directly impact the existing asphalt surface and would result in a neutral direct impact on the pedestrian underpass and on the heritage significance of Stanmore Station. |

| Component | Impact | Assessment |
|-------------------------|--|--|
| | | <p>The addition of ramps to Platform 1/2 and Platform 3 waiting rooms would directly impact fabric of little significance, but may result in partial obscuring of the base of the columns and brick walls of high significance, resulting in minor direct and indirect impacts to these highly significant structures.</p> <p>The new ramp and stair to Platform 3 would result in a localised major direct impact to the early brick entrance retaining walls and would result in an overall minor direct and indirect impact to the heritage significance of Stanmore Station.</p> <p>Overall, the regrading and resurfacing would result in minor direct and indirect impacts to the significance of the station.</p> |
| Gardens and landscaping | The gardening and landscaping works would involve the removal of an existing garden bed and vegetation on the eastern side of the Platform 3 stairs and the removal of a tree on Douglas Street to accommodate the new DDA car parking space and a new kiss and ride bay, the installation of two new planters on Platform 1/2 and replanting groundcover within the existing garden beds. | These works would result in a negligible direct and indirect impact to the heritage significance of Stanmore Station. |
| Interchange upgrades | The station upgrades would include a new DDA car parking space and a new kiss and ride bay on Douglas Street, upgrades to the existing footpaths of the Douglas Street entry forecourt and four new bicycle hoops at the Douglas Street entrance to replace the existing bicycle racks. | The works would be restricted to the removal of fabric of neutral to little significance. These works would result in an overall negligible direct and indirect impacts to the station |
| Services and amenities | Works for services and amenities would be required, including adjustments to station lighting, relocation of Opal readers, relocation or replacement of existing customer facilities, improvement to station communications systems (including CCTV cameras), hearing loops, wayfinding and relocation of communications and low voltage and high voltage cables. | The works would result in an overall negligible direct and indirect impact to Stanmore Station. |

| Component | Impact | Assessment |
|---------------------|---|---|
| Seating and signage | New and relocated seating, wayfinding signage and statutory/regulatory accessibility signage would be proposed as part of the works. | Wayfinding would likely result in localised direct impacts to the rendered brickwork of the pedestrian underpass due to the installation of bolts for fixing the displays to the wall and would partially block views of the rendered walls. The works would result in a negligible direct and visual impact . The proposed works to install seating and signage would result in negligible direct and indirect impact to the heritage significance of Stanmore Station. |
| Laydown areas | The proposed laydown areas would be located along the railway line on Trafalgar Street and Railway Avenue to the east of Stanmore Station. The laydown area along Railway Avenue would be used as a site compound with site sheds, material storage and laydown located within the area, while the laydown area along Trafalgar Street would be used for stockpiling soil and material laydown for works associated with the subway tunnel. | The laydown areas would not have a direct impact on the fabric or significance of Stanmore Station. The site sheds would have minor visual impact on the vistas to the station, however as these impacts would be temporary, its overall direct and indirect impact would be neutral . |

Summary of heritage impacts

Overall, the Proposal would result in an overall **moderate** direct (physical) and indirect (visual) impact to the significance of Stanmore Station. This is principally due to the addition of the two new lifts shafts and the alterations to the highly significant station platform buildings, pedestrian underpass and perimeter wall.

A summary of the overall impacts to the key elements of the station is provided in Table 6-21.

Table 6-21 Overview of direct (physical) and visual (indirect) impacts to key elements of Stanmore Station

| Component | Overall Significance | Direct impact to element | Indirect impact to element | Direct impact to Stanmore Station | Indirect impact to Stanmore Station |
|-----------------------------------|----------------------|--------------------------|----------------------------|-----------------------------------|-------------------------------------|
| Platform building (Platform 1/2) | High | Minor | Minor | Minor | Minor |
| Platform building (Platform 3) | High | Minor | Negligible | Negligible | Negligible |
| Former Parcels and Booking Office | High | No impact | No impact | No impact | No impact |
| Platform 1/2 | High | Negligible | Negligible | Negligible | Negligible |
| Platform 3 | High | Negligible | Negligible | Negligible | Negligible |

| Component | Overall Significance | Direct impact to element | Indirect impact to element | Direct impact to Stanmore Station | Indirect impact to Stanmore Station |
|-------------------------|----------------------|--------------------------|----------------------------|-----------------------------------|-------------------------------------|
| Pedestrian underpass | High | Moderate | Moderate | Moderate | Moderate |
| Staircases | High | Minor | Minor | Minor (positive) | Minor (positive) |
| Moveable Heritage Items | High | Negligible | Negligible | Negligible | Negligible |
| Perimeter wall | High | Major | Moderate | Moderate | Moderate |
| Trees | Moderate | Negligible | Negligible | Negligible | Negligible |
| Brick signal shed | Little | No impact | No impact | No impact | No impact |

Potential archaeological impacts

The proposed works would be, for the most part, outside of the areas of non-Aboriginal archaeological potential and significance. Therefore, impact to significant archaeological deposits would be generally avoided.

The only identified areas of impact to specific potential archaeological deposits is restricted to the staircases and the area immediately to the west of the Platform 1/2 building, in the location of the c.1915-1921 privacy screen (see Section 6.5.1). These areas have been identified as having low potential for remains that would comprise ‘works’ and would not reach the threshold for local or State significance. Remains of the earlier staircases and privacy screen would therefore be impacted by the works, but the potential for their presence is low and they would not meet the threshold for significance.

Therefore, the archaeological impact of the works would be **neutral**.

Heritage impacts to nearby heritage items

There are several heritage items located within the vicinity of Stanmore Station. These items would not incur any physical heritage impacts from the proposed works. Heritage items within the 200 metre buffer zone of the Proposal site would have negligible visual impacts from the proposed development. The station overall would retain its visual prominence and significant vistas.

Local item I240 (Victorian villa – ‘Horaceville’) would have temporary minor visual impacts due to the proposed laydown area to be sited directly north of the property on Trafalgar Street, which is proposed to be used as a site compound with material storage. Neighbouring items within the HCA C17 ‘Kingston South’ along Trafalgar Street would also have temporary minor visual impacts due to the proposed laydown area.

Local item I262 (Victorian villa – ‘Dundoos’) and HCA C7 ‘Kingston West’ are located in the vicinity of the compound area proposed on Railway Avenue. The impacts from the proposed site shed and soil and material storage would be temporary and negligible.

Statement of heritage impact

A statement of heritage impact has been prepared according to NSW Heritage Office guidelines (NSW Heritage Office, 2002b) in Table 6-22.

Table 6-22 Statement of heritage impact

| Statement | Response |
|---|--|
| The following aspects of the Proposal respect or enhance the heritage significance of the item or conservation area for the following reasons | <p>The Proposal would result in providing a positive outcome for the equitable access of the station, ensuring the accessibility, usability and safety of the station for all users. The works would ensure the continued use of the station into the future. The works aim to minimise impact to significant fabric whilst providing accessibility to the station.</p> <p>The works would not impact any significant archaeological remains, 'relics' features or structures.</p> <p>Similarly, the works would result in only neutral to negligible visual impacts to the setting and significant views of the heritage items and HCAs within the 200 metre buffer of the Proposal site.</p> |
| The following aspects of the Proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts. | <p>The Proposal been assessed as resulting in an overall moderate direct and visual impact to the significance of Stanmore Station. This is principally due to the addition of the two new lifts shafts and the alterations to the highly significant station platform buildings, subway and platforms. The TAP upgrade is required in order to improve the accessibility, usability and safety of the station for all users, which would result in a positive outcome for all users.</p> |
| The following sympathetic solutions have been considered and discounted for the following reasons | <p>The Proposal has been prepared in consultation with the nominated Heritage Consultant and the Heritage Advisors at Transport for NSW. As such, the proposed design has been chosen to minimise impacts to the significant fabric and to minimise visual impact to significant structures, whilst ensuring the delivery of the proposed upgrades.</p> <p>The canopy designs on the platforms have been designed to provide continued visual appreciation of the Platform 1/2 stairway lantern from on the platform, as well as continued understanding of the architectural details and form of the platform building.</p> <p>Further minimisation of the resulting impacts should be undertaken through careful sympathetic detailed designs in consultation with the nominated Heritage Consultant and Heritage Advisors at Transport for NSW.</p> |

Operational phase

The Proposal would not substantially impact non-Aboriginal or archaeological heritage. While there would be minor permanent visual impacts on the heritage setting of the station, this would be offset by the long-term benefits by improving accessibility at Stanmore Station.

6.5.3 Mitigation measures

A number of site-specific mitigation measures are proposed to minimise the potential heritage impact of the Proposal on the Stanmore Railway Station Group. These measures are outlined in greater detail in Section 8.3 of the *Statement of Heritage Impact* and would include:

- Transport for NSW must obtain the required statutory heritage and planning approvals prior to commencement of work. Works must be carried out in accordance with any conditions placed on these approvals and provide a report certifying compliance on completion of the works

- all staff, including design professionals and tradespeople, involved in the proposed works must receive a heritage induction prior to the commencement of works. The heritage induction should cover the heritage significance of Stanmore Station, identification of significant fabric and the recommendations and mitigation methods included in this report
- protective hoarding or splash protection should be installed around significant features, such as the platform buildings, the cast iron columns, the brick-lined staircases, the subway walls, the subway ceiling and brick perimeter walls, prior to works in the vicinity of these features in order to protect them from physical damage and particles such as asphalt, paint, dirt, dust or mud
- a Photographic Archival Recording (PAR) of Stanmore Station, its setting, context and significant views, must be prepared prior to the commencement of works and following completion of works
- the Heritage Interpretation Strategy should be prepared for Stanmore Station in order to communicate the history and significance of the station to users, utilising a range of interpretative media. The strategy should consider a range of options of interpretation including but not limited to the retention of significant fabric in situ, reuse of salvaged materials, signage panels and graphic media
- ongoing detailed design of the platform canopies should aim to further refine the canopy detailing to respond to the existing and minimise visual clutter
- inspections should be undertaken prior to, during and following completion of works
- should unexpected archaeological remains be found during excavation works, the Transport for NSW *Unexpected Finds Guideline* (Transport for NSW, 2019) should be followed. This may involve localised work stoppages, on-site assessment and further approvals from Heritage NSW prior to works recommencing.

Refer to Table 7-1 for a full list of proposed mitigation measures.

6.6 Socio-economic impacts

6.6.1 Existing environment

Stanmore is a secondary local centre within the Inner West LGA. Surrounding land uses include high density and low density residential development, with some shops in the nearby neighbourhood centres, Stanmore Library, local parks and open spaces. The Stanmore neighbourhood centre typically includes retail shops and cafés. Other facilities within the residential zone to the west of the station include churches, schools and an aged care facility.

Land use surrounding the station is predominately residential comprising a mixture of low and high density residential developments.

Demographics

A review of the Australian Bureau of Statistics 2016 census data provides a brief demographic overview. The suburb of Stanmore has:

- a population of around 7,940 people with a median age of 35
- around 64 per cent of the population born in Australia
- around 66.9 per cent of people (who are over the age of 15) in full time employment
- around 58.9 per cent of all households are family households, while 27.7 per cent of all households are single person households and 13.4 per cent are group households

- around 11.1 per cent of the population are aged over 65
- over a quarter of the employed population (28.2 percent) using the train as their primary method of travel to work.

Travel behaviours

Stanmore Station is a busy station servicing the inner west suburbs, including parts of Annandale, Enmore, Leichhardt and Marrickville and provides services to and from the Sydney CBD. Station barrier counts obtained from the Bureau of Transport Statistics indicate that in 2019, the average daily AM peak hour (6.00am to 10.00am) peak hour patronage at Stanmore Station was around 2,480 and is forecast to increase to around 3,865 by 2036 (Aurecom, 2018).

Over a quarter (28.2 per cent) of the suburb's employed population or 1,307 people travel to work by train (noting residents in surrounding suburbs which do not have rail access also use Stanmore Station). This is compared with the Greater Sydney area average of 10.9 percent (ABS, 2016). The train therefore accounts for a relatively large proportion of travel choices for commuters. In 2006, 724 or just under 18 percent of Stanmore residents travelled to work by train (ABS, 2006). The combined effect of population growth as well as proportional rise in those choosing to travel by train show local growth in the area and change of travel behaviours. Stanmore Station also is a primary mode of transport for high school students from other parts of Sydney to attend schools in Stanmore such as Newington College.

Strategic outlook

The Inner West Council's *Our Inner West 2036* community strategic plan (Inner West Council, 2018) identified that in 2019 there were over 192,000 people in the LGA, and 4.3 per cent were people living with disability.

Some of the challenges facing the Inner West LGA into the future include:

- a growing population and increasing pressure on housing supply and affordability
- demographic changes with gentrification prevalent in the growing population
- ecological sustainability and climate change with an increase in the number and intensity of hot days and nights
- managing traffic congestion with an increase in population.

6.6.2 Potential impacts

Construction phase

Construction of the Proposal has the potential to temporarily impact customers, pedestrians, residents, motorists, local businesses and other receivers because of:

- temporary disruptions to the existing pedestrian facilities surrounding the station, particularly for pedestrians and cyclists accessing the station, when construction work for the lifts within the pedestrian underpass, and footpaths, is being undertaken
- temporary disruptions to local traffic movements near the station
- temporary reduction in available parking spaces on the surrounding street network for residents and visitors from construction worker parking
- increased truck and vehicle movements due to the delivery of materials and equipment, and the transportation of waste
- construction noise and vibration impacts
- air quality, dust and visual amenity impacts.

Station access would be maintained at all times, except when construction work occurs during a scheduled rail shutdowns. Rail shutdowns are standard practice, for work in the rail corridor that cannot be undertaken while there are regular train movements. Disruptions from rail shutdowns (e.g. requirement for replacement buses) would be as per normal Sydney Trains practice and would occur regardless of the Proposal.

Temporary pedestrian diversions would be placed around the construction areas on the eastern and western sides of the station and on the station platform. Impacts would mainly result from construction for the lift installation where sections of each platform would be fenced off to accommodate construction work areas. Other impacts would result from partial footpath upgrades including addition of DDA car parking space and a kiss and ride bay on Douglas Street. There may also be temporary minor disruptions to nearby on-street parking as a result of construction workers parking around the Proposal area.

Pending the final construction methodology, there would be up to two full closures of the pedestrian underpass due to the proposed lift installation works. However, these closures would be temporary and would only occur during out-of-hours works periods during the proposed possession periods. This would reduce the overall impact on pedestrians during this period. During these full closure periods, pedestrians would be able to cross the rail corridor at the next nearest crossing point which would be around 650 metres to the west of the station underpass.

During construction there would also be partial closures of the pedestrian underpass at other times outside the potential full closures. Partial closures would result in reduced pedestrian capacity with the pedestrian underpass width being halved during these periods. However, pedestrian access would be maintained to allow pedestrian access to station platforms as well as retention of the use of the pedestrian underpass as a rail corridor crossing. This would result in minimal impact on access during these construction periods.

Additionally, an area on Douglas Street would be temporarily unavailable during the construction of the new DDA car parking space and kiss and ride bay. This impact would temporarily reduce the availability of parking on the northern side of the station (at Douglas Street) and has the potential to increase demand on surrounding streets. This impact would be temporary and is considered to be negligible given only around two spaces would be impacted during construction. However prior notice would be provided to customers if a temporary loss to existing car parking is required during construction.

In general, the small number of businesses in the area, including the café and retail premises near Douglas Street and off Trafalgar Street, are unlikely to be adversely affected by the proposed work. There is potential for a minor temporary increase in food, retail and other purchases from construction workers during the construction period.

Operational phase

Operation of the Proposal would likely result in socio-economic benefits to the Stanmore community and the wider Inner West LGA including:

- improved accessibility to Stanmore Station by providing two new lifts, wheelchair seating spaces, weather canopies, accessible waiting room entry and boarding assistance zones
- improving pedestrian and wheelchair access safety through regraded pedestrian footpaths at the Douglas Street forecourt and station platforms

- supporting access to the station by other modes of access including:
 - providing a DDA car parking space and a kiss and ride bay
 - cycling: replacing bike hoops at the Douglas Street entrance to support those that cycle to the station
 - accessible path of travel between Douglas Street and Trafalgar Street through regraded pedestrian underpass
- improved toilet facilities including the reconfiguration of the existing toilets to provide a family accessible toilet and a male and female ambulant toilet
- potential economic improvements to surrounding businesses because of increased patronage to the station as a result of improved access.

Strategic outlook

The Proposal would provide the current and future local Stanmore community with a range of socio-economic benefits by aligning with key strategic priorities for the area.

The strategic plans outlined in Section 2.1 provide a plan of action to achieve attractive places for the Stanmore community to live and are focussed around history, heritage and addressing future needs such as population growth and other demographic changes. The proposed new infrastructure would assist in addressing the strategic objectives of these plans in order to respond to present and future socio-economic needs.

An assessment of how the Proposal meets the objectives of the relevant strategic plans including the Inner West LSPS, the Inner West CSP and Inner West IAP is provided previously in Table 2-1.

6.6.3 Mitigation measures

A number of mitigation measures are recommended to minimise potential impacts on the community with a particular focus on keeping the community informed, including:

- mitigation measures in respect of potential impacts to amenity (e.g. noise, dust and visual) as assessed in the relevant sections of this report and listed in Section 7.2 of this report
- development of a Community Liaison Management Plan (prior to construction), which would identify potential stakeholders and methods for consultation with these groups during construction. The plan would also encourage feedback and facilitate opportunities for the community and stakeholders to have input where possible
- informing the community of construction progress, activities and impacts in accordance with the Community Liaison Management Plan
- providing contact details for a Project Infoline (24-hour construction response line) and email address to enable ongoing stakeholder contact throughout the construction phase.

Refer to Table 7-1 for a full list of proposed mitigation measures.

6.7 Biodiversity

This section provides a summary of the potential biodiversity impacts. This section has been informed by an *Arboricultural Impact Assessment* prepared by Tree Survey (2021).

6.7.1 Existing environment

Landscape context

Stanmore Station is located within a highly modified and urbanised environment. The area is generally characterised by the rail line, the station itself, local streets and street parking, landscaping, pedestrian thoroughfares and operational railway areas.

The local area has been subject to progressive urbanisation since the late 19th century, with the vast majority of original vegetation being removed during the intervening period and replaced with exotic and native landscaping species. The landform within which the station sits is generally flat with a slight incline to the west along Douglas Street. There are no natural waterways in the vicinity of the station.

Database assessment

Database searches do not provide the exact species that are located within or around the Proposal area. They provide an indication of the species that may, are likely, or are known to occur in the area based on species' sightings, favoured habitats and behaviours.

A search of the Atlas of NSW Wildlife (NSW Bionet) in November 2021 found records of 45 threatened species listed under the BC Act within a 10 square kilometre area around the Proposal area. This includes Grey-headed Flying Fox (nearest records around 125 metres north-east and 250 metres south-east), Superb Fruit-Dove (nearest record around 140 metres to the west), Large Bent-winged Bat (nearest record around 800 metres to the south), and the Green and Golden Bell Frog (nearest record around one kilometre south-west).

A further search of the EPBC Act Protected Matters Search Tool in November 2021 indicated the potential presence of up to 91 threatened species and eight threatened ecological communities within a five kilometre radius of the Proposal area. Of these, 38 species or species habitat may occur within the Proposal site.

Vegetation mapping was also reviewed for the Proposal area with no Plant Community Types (PCTs) mapped within the vicinity of the Proposal.

Site inspection

A site inspection was conducted by Tree Survey to assess a total of 61 items of vegetation (trees and shrubs). It was observed that the Proposal area had very little remnant native vegetation cover, though had landscape plantings and naturally propagated environmental weeds. The rail corridor immediately around the rail line and station itself appeared to be regularly maintained.

The overall habitat value of the Proposal area (for both flora and fauna) is considered to be low. This is based on the relatively low density of mature native vegetation and the absence of complex habitat features such as coarse woody debris, leaf litter or fallen logs. However, despite the site's urban context, it is likely to be used by both urban-adapted common native and exotic fauna.

Flora

Of the 61 items assessed for their retention value only eight items are proposed for removal, including three trees and five shrubs. Of these, one tree was assessed as having high retention value, two trees were assessed as having medium retention value and five shrubs were assessed as having low retention value. The locations of the vegetation items assessed are shown in Chapter 4 of the *Arboricultural Impact Assessment* (Tree Survey, 2021).

The species within the Proposal site includes:

- 3 Magenta Lilly Pilly (*Syzygium paniculatum*) – high retention value (tree)
- 19 Orange jessamine (*Murraya paniculata*) – low retention value (shrub)
- 20 Tukeroo (*Cupaniopsis anacardioides*) – medium retention value (tree)
- 9 Laurestinus (*Viburnum tinus*) – low retention value (shrub)
- 2 European nettle tree (*Celtis australis*) – medium retention value (shrub)
- 3 Weeping bottlebrush (*Callistemon viminalis*) – medium retention value (tree)
- 1 Umbrella tree (*Schefflera actinophylla*) – low retention value (tree)
- 1 South African wild plum (*Harpephyllum caffrum*) – medium retention value (tree)
- 1 Callery pear (*Pyrus calleryana*) – low retention value (tree)
- 2 Red flowering gum (*Corrymbia ficifolia*) – medium retention value (tree).

Fauna

Targeted surveys for threatened or migratory fauna were not conducted during the site inspection based upon the lack of any previous records of threatened species within close proximity of the Proposal area. The Proposal area is highly disturbed and is subject to ongoing human activity including train and pedestrian movements throughout the day and night. As such the potential habitat value for threatened or migratory fauna is likely to be low.

There was no immediate evidence of extensive use of the site by native mammals. Some vegetation would provide occasional roosting and foraging resources for birds. The surrounding area would provide a minor degree of reptile habitat, particularly for snakes and lizards.



Magenta Lilly Pilly along Platform 3 (proposed to be removed)



Orange Jessamine along Platform 3 (proposed to be removed)



Tukeroo and bottlebrush species along Platform 3 (proposed to be retained)



Tukeroo and bottlebrush species along Platform 3 (proposed to be retained)



Tukeroo along Platform 3 (proposed to be retained)



Magenta Lilly Pilly along Douglas Street (proposed to be retained)



Red flowering gum (*Corymbia ficifolia*) street trees (to be removed (for DDA car parking space and new kiss and ride bay) and replanted as part of initial stages of the Proposal)

Figure 6-14 Sampling of tree species within the Proposal site

6.7.2 Potential impacts

Construction phase

The Proposal would require the trimming and removal of native and exotic shrubs, ground covers and trees. Most of this clearing would be on both the northern and southern entrances to the station with modifications and replanting to gardens proposed as well as the new lift shaft on Platform 3. A total of three trees and five shrubs would be required to be removed as part of the Proposal as depicted in Figure 6-15.

On the northern side of the station (Douglas Street), two small red flowering gums are proposed to be removed to accommodate the DDA car parking space and kiss and ride bay with accessible pathway.

On the southern side of the station (Trafalgar Street), affected vegetation would include a total of one tree and five shrubs (hedges) which are subject to major encroachment and would require removal. Outside of the major encroachment area, there is one shrub (hedge) that is subject to minor encroachment, one shrub (hedge) and two trees that would be subject to no encroachment from the proposed excavation for and installation of new lift on Platform 3. Of the vegetation to be removed, one is a Magenta Lilly Pilly (*Syzygium paniculatum*) and five are Orange jessamine (*Murraya paniculata*) shrubs (hedges).

The loss of vegetation over both the northern and southern sides of the station is expected to have a minimal impact, due to the replanting of ground cover, and the addition of two new trees on Platform 1/2. The loss of vegetation would not represent a significant impact in the context of the broader vegetation present in the local area and is likely to be readily replaced through landscaping efforts associated with the Proposal. Any vegetation to be removed as part of the Proposal would be managed in accordance with Transport for NSW's *Vegetation Management (Protection and Removal) Guideline* (2019e) and offsets would apply as outlined in Section 6.7.3 and Table 7-1.

Two small red flowering gums of medium retention value are proposed to be removed to allow the addition of the new DDA car parking space and kiss and ride bay with an accessible path to the station entrance. The proposed resurfacing of the Douglas Street entrance forecourt and accessible footpath to connect the proposed DDA car parking space and new kiss and ride bay has the potential to impact the roots of adjacent trees within the recreation area.

Construction compounds and material laydown areas will be established within the rail corridor 350 metres to the east of Stanmore Station as shown in Figure 3-10. These areas are cleared and should not require additional tree removal or pruning for site establishment and will have no impact on existing vegetation.

Despite the Proposal area's urban context, it is likely to be used by both native and exotic fauna. The degree of usage is likely to be low given the highly urbanised surrounding environment. Overall, the Proposal is considered unlikely to result in a significant impact on individual fauna species or the habitat of threatened or migratory fauna.

Construction of the Proposal has the potential to aid the spread of weeds into and out of the site during construction (both within the rail corridor and adjacent areas). The degree of this impact would be readily managed via the application of suitable protocols outlined in Section 7.2 and as such is considered to be minor.



Figure 6-15 Trees to be removed and retained at the Trafalgar Street entrance

Operational phase

The operation of the Proposal would not result in any ongoing impacts to vegetation within or around the station. Lighting at the station is proposed to be upgraded as part of the Proposal. Provided that lighting is sympathetically designed to avoid spill into surrounding areas, this is not expected to result in any substantial change in impacts to native fauna.

The operation of the Proposal is intended to facilitate additional use of the station by a range of customers. While this may result in a minor increase in the level of human activity, this is not expected to affect native fauna in the area.

6.7.3 Mitigation measures

A number of mitigation measures are proposed to minimise the biodiversity impact of the Proposal including:

- the existing two flowering gum trees located along Douglas Street would be removed and replanted as part of the initial stages of the Proposal. Should they not survive the replanting they should be replaced in accordance with the Transport for NSW *Vegetation Offset Guide* (Transport for NSW 2019)
- trees nominated for removal would be offset as per the requirements of Transport for NSW *Vegetation Offset Guide* DMS-SD-087 (Transport for NSW, 2019)
- minor vegetation trimming may be required to accommodate site access and construction clearances, pruning specifications for these areas are outlined in Section 5.3 of the *Arboricultural Impact Assessment* (Tree survey, 2021)
- disturbance of vegetation would be limited to the minimum amount necessary to construct the Proposal. Trees nominated to be removed in the *Arboricultural Assessment* (Tree Survey, 2021) would be clearly demarcated onsite prior to construction. Trees to be retained would be protected through temporary protection measures, such as tree protection fencing
- Tree Protection Zones (TPZs) would be established around trees to be retained, as nominated in the *Arboricultural Impact Assessment* (Tree survey, 2021). Tree protection would be undertaken in line with AS 4970-2009 Protection of Trees on Development Sites and would include exclusion fencing of TPZs
- platform resurfacing would not encroach into the area of the existing planter boxes associated with trees 49 and 50 (as reference in the *Arboricultural Impact Assessment* report by Tree Survey, 2021)
- the project arborist must supervise and certify that all excavations and root pruning are in accordance with AS4373-2007 and AS4970-2009
- lighting would be designed to minimise spill into surrounding areas as far as practical to avoid impacts upon native fauna.

Refer to Table 7-1 for a full list of proposed mitigation measures.

6.8 Contamination, landform, geology and soils

6.8.1 Existing environment

Geology and soils

The *1:100,000 Geological Map of Sydney* indicates that Stanmore Station is underlain by Ashfield Shale of the Wianamatta group which is comprised of black to dark-grey shale and laminate. Soils within and surrounding the station comprises shallow to moderately deep (less than 100 centimetres) red and brown podzolic soils on crests, upper slopes and well-drained areas, and deep (150 to 300 centimetres) yellow Podzolic Soils and Soloths on lower slopes and in areas of poor drainage.

The 1:100,000 Soil Landscape Series Sheet viewed through the NSW (eSPADE) portal reveals that Stanmore Station is underlain by the Blacktown Soil Landscape. The Blacktown landscape is described as cleared eucalypt woodland and tall open-forest (wet sclerophyll forests) on gently undulating rises of the Wianamatta Group shales and Hawkesbury shale.

A search of relevant datasets within the eSPADE portal was performed on 15 November 2021 to establish the existing soil salinity level for the Proposal area. No salinity results were mapped within or near the Proposal area. However, the existence of Wianamatta shale on the site implies moderate salinity potential.

A review of the Atlas of Australian Acid Sulfate Soils indicated that there is an extremely low probability of occurrence of ASS within one kilometre of the Proposal area. ASS contain iron sulfides which when disturbed or exposed to air can release sulfuric acid. These soils are common along the coast of NSW and are also found inland around waterways, wetlands and drainage channels. The NSW Government Acid Sulfate Soils Risk Maps indicate that the area surrounding Stanmore Station is classified as having no known occurrence of ASS.

The topography within the Proposal area gently descends to the north so that the northern side of the station is elevated above Douglas Street. The platforms are elevated relative to the rail track bed and land surrounding the rail corridor.

Contamination

Given the historical use of the station as a rail corridor, there is potential for contaminants to be present within the soils underlying the station. Historic activities associated with rail corridors that have the potential to result in contamination include the introduction of fill materials including ash, fuel or oil spills and accidental leaks or spills from maintenance and operational activities. Given the age of the station building, there is also potential for asbestos materials and lead paint to be encountered.

A search of the public register of notices issued by the NSW EPA under *Contaminated Land Management Act 1997* was conducted in November 2021 and found that there are no sites with notices within 500 metres of the Proposal. Therefore, this indicates that there are no sites in the vicinity of Stanmore Station that are identified as contaminated to an extent that warrants regulation.

6.8.2 Potential impacts

Construction phase

The Proposal would require excavation work for the installation of foundations and footings for new lift shafts and lifts, platform modifications and resurfacing. Other earthworks may be required for footpath work, relocation of services, drainage connection work and ground levelling work.

Soil disturbance, erosion and sedimentation

Excavation and other earthworks, if not adequately managed, could result in the following impacts:

- erosion of exposed soil
- dust generation from excavation and vehicle movements over exposed soil
- increase in sediment loads entering the stormwater systems and/or local runoff.

Such impacts can potentially lead to adverse environmental impacts on biodiversity, for example through the introduction of sediment into waterways. These impacts would be minor given the scale of the work, distance to nearest waterways, limited amount of ground disturbance required, and the relatively flat surrounding topography and stability of the Proposal area. Notwithstanding, appropriate erosion and sediment control measures would be implemented to manage potential impacts (refer to Table 7-1 for further detail).

As there is a low probability of ASS occurring in the Proposal area, there are not expected to be any impacts associated with ASS.

Contamination

Excavation and other earthworks have the potential to expose contaminants, which, if not appropriately managed, can present a health risk to construction workers and the community. Contaminants can also pose an environmental risk if they are released to soils or nearby waterways.

As there is potential for existing soil contamination onsite, chemical testing and visual characterisation in accordance with the *Waste Classification Guideline* (EPA, 2014) would be undertaken to confirm the composition and nature of excavated material. Potential contamination at the Proposal area is unlikely to be at a level that would preclude the proposed work, especially as there is no change to the existing land use. Where spoil is classified as unsuitable for reuse, it would be transported to an appropriately licensed offsite facility.

Construction work to the station building also has the potential to disturb asbestos containing material and other hazardous substances (such as lead paint), posing a potential health risk to both construction workers and passengers. Potential contamination impacts may also arise from accidental spills of fuels, lubricants and chemicals used for construction plant and equipment. Accidental spills have potential to contaminate soils and waterways. The risk of impacts from contamination from construction activities is considered to be low if the mitigation measures identified in Table 7-1 are implemented.

Operational phase

There would be no lasting risks to geology, soils or contamination as a result of the operational phase of the Proposal.

6.8.3 Mitigation measures

As part of the CEMP, a site-specific Erosion and Sediment Control Plan/s would be prepared and implemented in accordance with the '*Blue Book*' – *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004). The Erosion and Sediment Control Plan would be established prior to the commencement of construction and be updated and managed throughout according to the activities occurring during construction.

An environmental risk assessment would be undertaken prior to construction and would include a section on contamination as per the Transport for NSW Standard Requirements. Measures to mitigate potential impacts from contaminated soil/materials would include an unexpected contamination finds procedure and Waste Management Plan, as part of the CEMP. All waste would be managed in accordance with relevant legislation.

Appropriate mitigation measures would be implemented to manage hazardous substances during demolition work. This would include the removal of hazardous materials from the structure by appropriately licensed asbestos/hazardous waste removalists and in accordance with relevant legislation and guidelines (refer to Section 7.2 for further detail of waste-related impacts).

Refer to Table 7-1 for a full list of proposed mitigation measures.

6.9 Hydrology and water quality

6.9.1 Existing environment

Surface water

The site is mostly impervious, with the rail corridor and station area runoff generally discharging through local Council-maintained infrastructure. A review of maps of the area indicated that there are no surface water bodies in the vicinity of the Station. The nearest water body is Johnstons Creek, around 700 metres to the north-east. Other waterbodies include Cooks River to the south-west, Alexandra Canal to the south-east and Rozelle Baye and Blackwattle Bay of Sydney Harbour to the north. At their nearest point these surface water bodies are around 3.2 kilometres, three kilometres and 2.6 kilometres from Stanmore Station respectively, as shown in Figure 1-1.

Flooding

The Proposal area is located within the Marrickville Valley catchment. A review of the Marrickville LEP 2011 (and Draft Inner West LEP 2020) indicated that the Proposal site is not located within a flood planning area.

Flood studies have been undertaken by the Inner West Council for the Marrickville Valley catchment. These flood studies were completed in 2017 and involved community consultation for the development of the *Marrickville Valley Floodplain Risk Management Study and Plan* (Cardno, 2017).

Groundwater

The Australian Government Bureau of Meteorology Groundwater Explorer mapping system was used to identify all bores in the vicinity of the Proposal area. Within a one kilometre radius three bores were identified approximately 800 metres north-west of the Proposal site. Geotechnical works with boreholes to the depth of the lift shaft excavations did not encounter any groundwater. Given the distance of the Proposal from the bores and depth of excavation proposed, it is unlikely that any contamination associated with the station would impact the bores.

Given the nature of the surrounding locality as a highly developed urban area approximately 4.6 kilometres from the Sydney CBD, it is considered unlikely that the groundwater in the area would be used for any sensitive purposes such as a source for drinking water. There is a reticulated drinking supply in this area.

According to the DPIE geological maps, soils at and surrounding Stanmore Station are Ashfield Shale which has low permeability, high salinity and acts as an aquitard restricting the flow of groundwater between aquifers.

6.9.2 Potential impacts

Construction phase

The construction phase of the Proposal has the potential to impact on hydrology and water quality.

Excavation activities during construction have the potential to impact on local waterways due to increased erosion and sedimentation from exposed soil and stockpiles. This would be somewhat naturally mitigated by the substantial separation between the Proposal area and nearby waterways identified in Section 6.9.1. Despite this, it is recommended that suitable sediment control measures are implemented and maintained during construction. Should these be implemented, it is expected that the overall impact upon local waterways and their water quality would be negligible to minor.

Excavation activities during construction have the potential to impact on local waterways due to increased erosion and sedimentation from exposed soil and stockpiles. However, due to the minor extent of excavation proposed during construction as well as distance from waterways, these impacts are expected to be negligible to minor.

Geotechnical works did not encounter any groundwater (boreholes were to the depth of the lift shaft excavations). Hence there is not expected to be any groundwater impacts during construction as no deep excavations that may encounter the groundwater table are proposed.

Direct impacts to the underground stormwater network may occur from construction activities. Appropriate controls would be detailed in the CEMP to ensure the drainage points are adequately protected during construction activities.

Operational phase

The Proposal would not change the elevation of the area in a way that would modify the current storage capacity of the local area and as such, it is unlikely that the Proposal would pose any risk to changing existing flood patterns. Slight elevation changes would be limited to regrading a section of the existing pedestrian footpath along Douglas Street to provide an accessible path of travel from the DDA car parking space and kiss and ride bay to the station platforms.

The platforms would also be regraded and resurfaced between the new lifts near the eastern end of the station to the western ends of the platform buildings on both Platform 1/2 and Platform 3 in order to provide accessible paths of travel from the new lifts to the station amenities, including the bathrooms, waiting rooms and boarding assistance zones. These activities would likely improve any localised flooding issues associated with these areas.

New drainage outlets installed near the new lift areas would connect to existing stormwater pits. Runoff from the reconfigured pathways would continue to drain to the existing street stormwater system.

6.9.3 Mitigation measures

An Erosion and Sediment Control Plan would be prepared and implemented for the Proposal in accordance with the requirements of the Blue Book (Landcom, 2004) to manage risks to water quality. This would include specific controls to protect the stormwater network around Stanmore Station.

Refer to Table 7-1 for a full list of proposed mitigation measures.

6.10 Air quality

6.10.1 Existing environment

The existing air quality of the surrounding environment is considered to be characteristic of a suburban environment. Sensitive receivers in the vicinity of the Proposal include staff and customers at Stanmore Station, residential properties along Douglas Street and Trafalgar Street, staff and students at Stanmore Public School and the users of the Stanmore neighbourhood shops on Douglas Street, Percival Road, Trafalgar Street and Holt Street.

A search of the National Pollutant Inventory undertaken on 9 November 2021 for the 2019/2020 reporting period identified no polluting sources within three kilometres of the Proposal.

Other contributors to air quality within the local area would include emissions from motor vehicles on the surrounding road network, particularly from heavy vehicles along Parramatta Road.

6.10.2 Potential impacts

Construction phase

Temporary air quality impacts that have the potential to occur during construction include minor increases in dust and emissions of carbon monoxide, sulfur dioxide, particulate matter, nitrous oxides, volatile organic compounds and other substances associated with excavation and the combustion of diesel fuel and petrol from construction plant and equipment.

Anticipated sources of dust and dust-generating activities include:

- excavation for the lift shafts
- demolition work within the station building for the proposed toilet modifications
- movements in the construction compound areas
- trenching and excavation for the footpath work and relocation of services
- loading and transfer of material from trucks
- other general construction activities.

The Proposal would have a minimal impact on air quality as it would not involve extensive excavation or other land disturbance with the potential to generate significant quantities of dust. Standard management measures would be established to manage dust emissions from construction work.

The operation of plant, machinery and trucks would also contribute to exhaust emissions in the local area. However, these impacts would be short-term and minor due to the limited number of plant, machinery and vehicles required.

Operational phase

Overall impacts on air quality during operation would be negligible as the Proposal would not result in a change in land use or introduce activities that impact upon air quality. As the Proposal would increase access to public transport, the use of public transport would be expected to lead to a small reduction in private vehicle emissions in the long-term, which may contribute to an improvement in local air quality.

6.10.3 Mitigation measures

Mitigation measures to manage air quality include measures regarding maintenance and efficient operation of plant and equipment and for dust suppression including watering, covering loads and appropriate management of any tracked dirt/mud on vehicles.

Refer to Table 7-1 for a full list of proposed mitigation measures.

6.11 Waste

During construction of the Proposal, the following waste materials would be generated:

- excavated spoil
- asphalt and concrete
- surplus building materials and building waste (metal, timber, plastics, etc.)
- electrical wiring and conduit waste
- hazardous waste (chemicals and potentially asbestos)
- green waste
- general waste, including food scraps generated by construction workers.

Waste management would be undertaken in accordance with the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act). A Waste Management Plan would be prepared to identify all potential waste streams associated with the work and outline methods of disposal of waste that cannot be reused or recycled at appropriately licensed facilities along with other onsite management practices such as keeping the area tidy and free of rubbish.

The handling, storage, transport and disposal of asbestos and hazardous waste (including any lead waste) would be in accordance with the requirements of relevant EPA and Safe Work NSW guidelines (as required). Waste management targets in consideration of the ISC IS Rating Tool V1.2 (ISCA, 2018) would be developed for the Proposal and would include reuse and recycling.

6.12 Sustainability

The design of the Proposal would be based on the principles of sustainability, including aiming for an excellent rating as a program under the ISC Infrastructure Sustainability Rating Tool Version 1.2 and the Transport for NSW Environmental Management System (EMS). These guidelines require a number of mandatory and discretionary initiatives to be applied. Refer to Section 3.3.3 for more information regarding the application of these guidelines.

Further positive impacts in relation to climate change and sustainability associated with the Proposal include encouraging a reduction in private vehicle use and increase the accessibility of public transport services

6.13 Climate change

The dynamic nature of our climate system indicates a need to focus attention on how to adapt to the changes in climate and understand the limitation of adaptation. The effects of climate on the Sydney region can be assessed in terms of weather changes, storm intensity, flooding and increased risk of fire.

Climate change could lead to an increase in the intensity of rainfall events, whereby the rainfall expected to occur in a 100-year average recurrence interval flood event would occur more frequently. The Proposal would be designed to withstand the effects of flooding and rainfall, for example through adequate drainage.

Climate change could lead to an increase in frequency and severity in bushfires. The Proposal is not situated on land mapped as bush fire prone but would be designed with appropriate fire protection measures.

The climate projections for Metropolitan Sydney in 2030 include an increase in mean temperature of 0.7°C which is expected to rise 1.9°C by 2070. Projections also include an increase in the number of hot days with a maximum temperature of over 35°C and increased annual rainfall.

Climate change risks to the Proposal is based on projected weather conditions, the Proposal's scope items, and feedback on similar proposals. It is based on the following considerations:

- the Proposal is not situated on land mapped as bushfire prone land
- the Proposal is not situated on flood prone land
- lifts and other station infrastructure could be subject to an increased frequency of extreme heat days which:
 - may pose a threat to human health on power outages due to extreme heat
 - may make it uncomfortable for passengers waiting to alight the train.

The detailed design would consider the impacts of climate change on the Proposal through:

- selection of materials for durability in extreme conditions and that minimise heat retention
- incorporate fire resistant/retarding materials wherever practicable
- incorporate engineering and design features to ensure structures are constructed to minimise direct impacts from severe storms and strong winds.

6.14 Greenhouse gas emissions

An increase in greenhouse gas emissions, primarily carbon dioxide, would be expected during construction of the Proposal due to exhaust emissions from construction machinery and vehicles transporting materials and personnel to and from site.

The detailed design process would undertake a compliant carbon footprinting exercise in accordance with Transport for NSW's *Carbon Estimate and Reporting Tool Manual* (Transport for NSW, 2019b) or other approved modelling tools. The carbon footprint would be used to inform decision making in design and construction. Greenhouse gas emissions would also be assessed in accordance with ISC IS Rating Tool V1.2.

Due to the small scale of the Proposal and the short term temporary nature of the individual construction work, it is considered that greenhouse gas emissions resulting from the construction of the Proposal would be minimal. Furthermore, greenhouse gas emissions generated during construction would be kept to a minimum through the implementation of the standard mitigation measures detailed in Table 7-1.

It is anticipated that, once operational, the Proposal may result in an increase in use of public transport and a relative decrease in use of private motor vehicles by commuters to travel to and from Stanmore. A modal shift in transport usage may reduce the amount of fuel consumed by private motor vehicles with a corresponding relative reduction in associated greenhouse gas emissions in the local area.

6.15 Cumulative impacts

Cumulative impacts occur when two or more projects are carried out concurrently and in close proximity to one another. The impacts may be caused by both construction and operational activities and can result in a greater impact to the surrounding area than would be expected if each project was undertaken in isolation. Multiple projects undertaken at a similar time/similar location may also lead to construction fatigue, particularly around noise, traffic and air quality impacts, if not appropriately managed.

A search of the DPIE Major Projects Register, Transport for NSW's Projects Register and Inner West Council Development Application Register was carried out on 9 November 2021 within a one kilometre radius from Stanmore Station. A summary of developments relative to the Proposal are provided in Table 6-23. Most developments are of relatively minor scale and therefore unlikely to result in cumulative impacts.

Table 6-23 Proposed developments within one kilometre of the Proposal

| Development proposals | Address | Status | Distance from the Proposal |
|---|--------------------------------|-------------------------------------|----------------------------|
| SSD-9828 Proposed Inner Sydney Montessori School Camperdown Campus | 1-7 Probert Street, Camperdown | EIS under preparation | One kilometre north-east |
| PDA/2021/0444 New pair of semi-detached dwelling and Torrens-title subdivision of one lot into two | 32 Harrow Road, Stanmore | Development Application (DA) Lodged | 430 metres east |
| DA/2021/1091 Change of use – a cosmetic clinic | 202 Parramatta Road, Stanmore | DA in progress | 700 metres north |
| DA/2021/1076 Alterations and additions to existing dwelling | 41 Durham Street, Stanmore | DA in progress | 370 metres north-east |
| DA/2021/1066 External alterations and additions | 59 Stafford Street, Stanmore | DA in progress | 500 metres east |
| DA/2021/1059 Alterations and additions to existing dwelling | 64 Railway Avenue, Stanmore | DA in progress | 300 metres east |
| DA/2021/1052 Demolition of existing garage and addition of new garage and extension of living area | 78 Stanmore Road, Stanmore | DA in progress | 570 metres south-east |
| DA/2021/1025 Addition of swimming pool | 125 Stanmore Road, Stanmore | DA accepted for lodgement | 420 metres south-east |
| DA/2021/1022 Alterations and additions to existing dwelling | 130 Cavendish Street, Stanmore | DA accepted for lodgement | 200 metres south |
| DA/2021/1013 Partial demolition and alterations and additions to existing dwelling | 161 Stanmore Road, Stanmore | DA in progress | 300 metres south-east |

| Development proposals | Address | Status | Distance from the Proposal |
|---|--------------------------------|------------------------------------|----------------------------|
| DA/2021/1002 Partial demolition and alterations and additions to existing dwelling | 93 Clarendon Road, Stanmore | DA accepted for lodgement | 290 metres north |
| DA/2021/0992 Partial demolition and alterations and additions to existing dwelling | 86 Albany Road, Stanmore | DA accepted for lodgement | 420 metres north-east |
| DA/2021/0975 Alterations and additions to existing dwelling | 63 Albany Road, Stanmore | DA accepted for lodgement | 390 metres north-east |
| DA/2021/0898 Alterations and additions to existing dwelling | 15 Albany Road, Stanmore | DA accepted for lodgement | 600 metres north-east |
| DA/2021/0886 Alterations and additions to existing dwelling house | 95 Percival Road, Stanmore | DA accepted for lodgement | 140 metres north |
| DA/2021/0875 Alterations and additions to existing dwelling | 21 Cardigan Street, Stanmore | DA accepted for lodgement | 900 metres north-east |
| DA/2021/0851 Demolition of existing structure. Alterations and additions to existing dwelling. | 219 Albany Road, Stanmore | DA in progress | 380 metres north-west |
| DA/2021/0821 Alterations and additions to existing dwelling | 9 Percival Road, Stanmore | DA in progress | 590 metres north |
| DA/2021/0810 Alterations and additions to existing dwelling | 4 Durham Street, Stanmore | DA further information requested | 400 metres north-east |
| DA/2021/0787 Alterations and additions to dual occupancy | 96 Douglas Street, Stanmore | DA accepted for lodgement | 350 metres north-west |
| DA/2021/0683 Alterations and additions to existing dwelling | 102 Macaulay Road, Stanmore | DA information received | 500 metres north |
| DA/2021/0562 Partial demolition and alterations and additions to existing dwelling | 119 Trafalgar Street, Stanmore | DA additional information required | 330 metres east |
| DA/2021/0489 Partial demolition and alterations and additions to existing dwelling | 4 Stanley Street, Stanmore | DA community consultation | 380 metres west |

| Development proposals | Address | Status | Distance from the Proposal |
|--|-------------------------------|-------------------------|----------------------------|
| DA/2021/0475 Alterations and addition to existing dwelling, including swimming pool | 144 Cardigan Street, Stanmore | DA information received | 500 metres east |
| DA/2021/0308 Demolition of existing dwelling and construction of new dwelling | 39 Durham Street, Stanmore | DA information received | 350 metres north-east |

During construction, the work would be coordinated with any other construction activities in the area where an overlap of the projects may result in increased impacts. Consultation and liaison would occur with Inner West Council, Sydney Trains, and any other developers identified, to minimise cumulative construction impacts such as traffic and noise.

Traffic associated with the construction work is not anticipated to have a significant impact on the surrounding road network. Operational traffic and transport impacts would have a minimal impact on the performance of the surrounding road network.

Based on this assessment, it is anticipated that the cumulative impacts would be minor, provided that consultation with relevant stakeholders and mitigation measures are followed. Refer to Table 7-1 for a full list of proposed mitigation measures.

The potential cumulative impacts associated with the Proposal would be further considered as the design develops and as further information regarding the location and timing of potential developments is released. Environmental management measures would be developed and implemented as appropriate.

The Proposal forms part of the Transport Access Program which is designed to drive a stronger customer experience outcome to deliver seamless travel to and between modes, encourage greater public transport use and better integrate station interchanges with the role and function of town centres within the metropolitan area and developing urban centres in regional areas of NSW. The cumulative impact of accessible station upgrades in Sydney is more equitable access to infrastructure for people with disability or limited mobility, parents/carers with prams and customers with luggage. The station upgrades also provide a greater incentive for those requiring this access to use public transport.

7 Environmental management

This chapter of the REF identifies how the environmental impacts of the Proposal would be managed through environmental management plans and mitigation measures. Section 7.2 lists the proposed mitigation measures for the Proposal to minimise the impacts of the Proposal identified in Chapter 6.

7.1 Environmental management plans

A CEMP for the construction phase of the Proposal would be prepared in accordance with the requirements of Transport for NSW's EMS. The CEMP would provide a centralised mechanism through which all potential environmental impacts relevant to the Proposal would be managed, and outline a framework of procedures and controls for managing environmental impacts during construction.

The CEMP would incorporate as a minimum all environmental mitigation measures identified below in Section 7.2, any conditions from licences or approvals required by legislation, and a process for demonstrating compliance with such mitigation measures and conditions.

7.2 Mitigation measures

Mitigation measures for the Proposal are listed below in Table 7-1. These proposed measures would minimise the potential adverse impacts of the Proposal identified in Chapter 6 should the Proposal proceed.

Table 7-1 Proposed mitigation measures

| No. | Mitigation measure |
|----------------|--|
| General | |
| 1. | A Construction Environmental Management Plan (CEMP) would be prepared by the Contractor in accordance with the relevant requirements of <i>Environmental Management Plan Guideline – Guideline for Infrastructure Projects</i> , (NSW Department of Planning, Industry and Environment, 2020) for approval by Transport for NSW, prior to the commencement of construction and following any revisions made throughout construction. |
| 2. | A project risk assessment including environmental aspects and impacts would be undertaken by the Contractor prior to the commencement of construction and documented as part of the CEMP. |
| 3. | An Environmental Controls Map (ECM) would be developed by the Contractor in accordance with Transport for NSW's <i>Guide to Environmental Controls Map</i> (Transport for NSW, 2019c) for approval by Transport for NSW, prior to the commencement of construction and following any revisions made throughout construction. |
| 4. | Prior to the commencement of construction, all contractors would be inducted on the key project environmental risks, procedures, mitigation measures and conditions of approval. |
| 5. | Site inspections to monitor environmental compliance and performance would be undertaken during construction at appropriate intervals. |
| 6. | Service relocation would be undertaken in consultation with the relevant authority. Contractors would mark existing services on the ECM to avoid direct impacts during construction. |

| No. | Mitigation measure |
|--------------------------------|---|
| 7. | Any modifications to the Proposal, if approved, would be subject to further assessment and approval by Transport for NSW. This assessment would need to demonstrate that any environmental impacts resulting from the modifications have been minimised. |
| Traffic and site access | |
| 8. | <p>Prior to the commencement of construction, a Construction Traffic Management Plan (CTMP) would be prepared as part of the CEMP and would include at a minimum:</p> <ul style="list-style-type: none"> • ensuring adequate road signage at construction work sites to inform motorists and pedestrians of the work site ahead to ensure that the risk of road accidents and disruption to surrounding land uses is minimised • maximising safety and accessibility for pedestrians and cyclists • ensuring adequate sight lines to allow for safe entry and exit from the site • ensuring access to railway stations, businesses, community premises and residential properties (unless affected property owners have been consulted and appropriate alternative arrangements made) • managing impacts and changes to on and off street parking and requirements for any temporary replacement provision • parking locations for construction workers away from stations and busy residential areas and details of how this will be monitored for compliance • routes to be used by heavy construction-related vehicles to minimise impacts on sensitive land uses and businesses • details for relocating kiss and ride bay, taxi ranks and rail replacement bus stops if required, including appropriate signage to direct patrons, in consultation with the relevant bus/taxi operators. Particular provisions would also be considered for the accessibility impaired • measures to manage traffic flows around the area affected by the Proposal, including as required regulatory and direction signposting, line marking and variable message signs and all other traffic control devices necessary for the implementation of the CTMP. <p>Consultation with the relevant roads authorities would be undertaken during preparation of the construction CTMP. The performance of all project traffic arrangements must be monitored during construction.</p> |
| 9. | Communication would be provided to the community and local residents to inform them of changes to parking, pedestrian access and/or traffic conditions including vehicle movements and anticipated effects on the local road network relating to site work. |
| 10. | Road Occupancy Licences for temporary road closures would be obtained, where required. |
| 11. | Scheduling of work and deliveries should be undertaken to avoid peak times and limit work in the road as much as practicable |
| 12. | Suitable vehicle and pedestrian provisions would be maintained throughout construction to ensure that pedestrian connectivity is not impacted as a part of the work and that suitable and safe paths are provided. |
| 13. | Qualified traffic controllers would be used during construction work to ensure safe and efficient movement of vehicle and pedestrian traffic on the surrounding roads as well as in and out of the construction site. |
| 14. | Fencing and barriers would be installed between the construction site and outside the construction zone to ensure safe and easy navigation of pedestrians and cyclists. |

| No. | Mitigation measure |
|---|---|
| 15. | All work with the potential to impact pedestrian movements such as lift installation would be carried out during scheduled rail shutdown periods. |
| 16. | <p>The final construction methodology should consider the need for full closure of the existing underpass. Should it be determined that full close is required, the construction contractor should develop a plan to minimise potential impacts to pedestrians. This plan should include elements such as advanced community notification and consideration of a temporary shuttle services for the period(s) of closure.</p> <p>Where possible, any full closure of the underpass should limited to overnight periods (i.e. 10pm – 6am).</p> |
| 17. | Further opportunities for additional bike storage would be investigated in the detailed design phase subject to consultation with Sydney Trains and Council |
| Urban design, landscape and visual amenity | |
| 18. | <p>An Urban and Landscape Design Plan (ULDP) would be prepared by the Contractor, in consultation with Inner West Council, and submitted to Transport for NSW for endorsement by the Precincts and Urban Design team, prior to finalisation of the detailed design. The UDP, at a minimum, would address the following:</p> <ul style="list-style-type: none"> • the appropriateness of the proposed design with respect to the existing surrounding landscape, built form, behaviours and use-patterns (including consideration of Crime Prevention Through Environmental Design principles). This is to include but not be limited to: <ul style="list-style-type: none"> ○ site analysis ○ vision and objectives for the infrastructure ○ strategies that apply to ISC approved guidelines in accordance with Urb-1 (IS Rating Tool V 1.2) • connectivity with surrounding local and regional movement networks including street networks, other transport modes and active transport networks. Existing and proposed paths of travel for pedestrians and bicycles should be shown • integration with surrounding local and regional open space and or landscape networks. Existing and proposed open space infrastructure/landscape elements should be shown • integration with surrounding streetscape including street trees, entries, vehicle cross overs etc • integration with surrounding built form (existing or desired future) including building height, scale, bulk, massing and land-use • design detail that is sensitive to the amenity and character of heritage items located within or adjacent to the Proposal. |
| 19. | All permanent lighting would be designed and installed in accordance with the requirements of standards relevant to <i>AS 1158 Road Lighting</i> and <i>AS 4282 Controlling the Obtrusive Effects of Outdoor Lighting</i> . |
| 20. | The detailed design of the Proposal would comply with Crime Prevention Through Environmental Design principles. |
| 21. | Worksite compounds would be screened with shade cloth (or similar material, where necessary) to minimise visual impacts from key viewing locations. |
| 22. | Temporary hoardings, barriers, traffic management and signage would be removed when no longer required. |

| No. | Mitigation measure |
|----------------------------|--|
| 23. | During construction, graffiti would be removed in accordance with Transport for NSW's Standard Requirements. |
| 24. | Temporary access arrangements should be well signed and provide a visually legible route for pedestrians |
| 25. | Consolidate construction equipment and activity to maximise the area of useable public realm where possible. |
| Noise and vibration | |
| 26. | Prior to commencement of work, a Construction Noise and Vibration Management Plan (CNVMP) would be prepared and implemented in accordance with the requirements of the <i>Interim Construction Noise Guideline</i> (Department of Environment and Climate Change, 2009), <i>Construction Noise and Vibration Strategy</i> (Transport for NSW, 2019m) and the Noise and Vibration Impact Assessment for the Proposal (WSP, 2021). The CNVMP would take into consideration measures for reducing the source noise levels of construction equipment by construction planning and equipment selection where practicable. |
| 27. | <p>The CNVMP would outline measures to reduce the noise impact from construction activities. Reasonable and feasible noise mitigation measures which would be considered include:</p> <ul style="list-style-type: none"> • regularly training workers and contractors (such as at the site induction and toolbox talks) on the importance of minimising noise emissions and how to use equipment in ways to minimise noise • avoiding any unnecessary noise when carrying out manual operations and when operating plant. • ensuring spoil is placed and not dropped into awaiting trucks. • avoiding/limiting simultaneous operation of noisy plant in discernible range of a sensitive receiver where practicable. • switching off any equipment not in use for extended periods e.g. heavy vehicles engines would be switched off whilst being unloaded. • restriction of heavy vehicle movements to and from the site to standard (daytime) hours where feasible and avoiding deliveries at night/evenings wherever practicable. • no idling of delivery trucks. • keeping truck drivers informed of designated routes, parking locations and acceptable delivery hours for the site. • compounds, refuelling areas and work areas designed to promote one-way traffic so that vehicle reversing movements are minimised. • minimising talking loudly; no swearing or unnecessary shouting, or loud stereos/radios onsite; no dropping of materials from height where practicable, no throwing of metal items and slamming of doors. |

| No. | Mitigation measure |
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| 28. | <p>The CNVMP would include measures to reduce the construction noise and vibration impacts from mechanical activities. Reasonable and feasible noise mitigation options which would be considered, include:</p> <ul style="list-style-type: none">• maximising the offset distance between noisy plant and adjacent sensitive receivers and determining safe working distances• using the most suitable equipment necessary for the construction work at any one time• directing noise-emitting plant away from sensitive receivers• regularly inspecting and maintaining plant to avoid increased noise levels from rattling hatches, loose fittings etc• using non-tonal reversing/movement alarms such as broadband (non-tonal) alarms or ambient noise-sensing alarms for all plant used regularly onsite (greater than one day), and for any out of hours work• use of quieter and less vibration emitting construction methods where feasible and reasonable. |
| 29. | <p>Works would generally be carried out during standard construction hours (i.e. 7.00 am to 6.00 pm Monday to Friday; 8.00 am to 1.00 pm Saturdays). Any works outside these hours may be undertaken if approved by Transport for NSW and the community is notified prior to these works commencing. An Out of Hours Work application form would need to be prepared by the Contractor and submitted to the Transport for NSW Senior Environment and Sustainability Officer or Manager for approval prior to any works outside normal hours.</p> |
| 30. | <p>Where the $L_{Aeq(15min)}$ construction noise levels are predicted to exceed 75 dBA and/or 30 dB above the Rating Background Level at nearby affected sensitive receivers, respite periods would be observed, where practicable, and in accordance with the CNVS. This would include restricting the hours that very noisy activities can occur.</p> |
| 31. | <p>As per the <i>Construction Noise and Vibration Strategy</i> (Transport for NSW, 2019m), construction activities with special audible characteristics (high noise impact, intensive vibration, impulsive or tonal noise emissions) would be limited to standard hours, starting no earlier than 8am; and to continuous blocks not exceeding three hours each with a minimum respite from those activities and work of not less than one hour between each block, unless otherwise approved by Transport for NSW.</p> |
| 32. | <p>Blasting, where required, would be limited to between 9am and 5pm Monday to Friday and 9am and 1pm Saturday. There would be no blasting on Sundays or public holidays.</p> |
| 33. | <p>Work would be conducted behind temporary hoardings/screens wherever practicable. The installation of construction hoarding would take into consideration the location of residential receivers to ensure that 'line of sight' is broken, where feasible. This has the potential to reduce noise levels between 5 and 10 dB.</p> |
| 34. | <p>To avoid structural impacts as a result of vibration or direct contact with structures, the proposed work would be undertaken in accordance with the safe work distances outlined in the <i>Environmental Noise and Vibration Assessment</i> (WSP, 2021) and attended vibration monitoring or vibration trials would be undertaken where these distances are required to be challenged.</p> |

| No. | Mitigation measure |
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| 35. | <p>Vibration (other than from blasting) resulting from construction and received at any structure. (including heritage structures that are potentially at risk of threshold or cosmetic damage) outside of the Proposal would be identified by the contractor prior to the commencement of construction works and confirmed as part of a CNVMP. These structures would be managed in accordance with:</p> <ul style="list-style-type: none"> • for structural damage vibration –British Standard <i>BS 7385-2:1993 Evaluation and measurement for vibration in buildings Part 2</i> and German Standard <i>DIN 4150:Part 3 – 1999: Structural Vibration in Buildings: Effects on Structures</i> • for human exposure to vibration the acceptable vibration - values set out in the <i>Environmental Noise Management Assessing Vibration: A Technical Guideline</i> (Department of Environment and Conservation, 2006) which includes British Standard <i>BS 6472-2:1992 Guide to Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz)</i>. |
| 36. | <p>Property conditions surveys would be completed prior to piling, excavation of bulk fill or any vibratory work including jack hammering and compaction for all buildings/structures/roads with a plan distance of 50 metres from the work and all heritage listed buildings and other sensitive structures within 150 metres of the work (unless otherwise determined following additional assessment they are not likely to be adversely affected).</p> |
| 37. | <p>During site establishment, lift, stairs and station building and platform work, use of the concrete saw is the main contributor to construction noise. The use of concrete saws would be limited where possible, and this work would be undertaken during standard hours where feasible. Where work is required outside of standard hours, the use of this equipment is to avoid sensitive periods such as after midnight and before 7am.</p> |
| 38. | <p>Where the $L_{Aeq(15min)}$ construction noise levels are predicted to exceed 75 dBA and/or 30 dB above the Rating Background Level at nearby affected sensitive receivers, respite periods would be observed, where practicable, and in accordance with the CNVS. This would include restricting the hours that very noisy activities can occur.</p> |
| 39. | <p>It is proposed that community consultation should be undertaken for any residents located within the human comfort minimum working distance. The community consultation may include the following:</p> <ul style="list-style-type: none"> • undertaking a letterbox drop outlining construction methods, duration and timing of events – as a guide, any potentially affected receivers located within the human comfort minimum working distance should be notified. Notification to be provided a minimum 7 days prior to commencement of works. • a contact number should be provided to the public through both the letterbox drop and via a sign erected on the site boundary, so that information can be received, or complaints made in relation to vibration (or noise). A log of complaints would be maintained and actioned. |
| 40. | <p>To avoid structural impacts as a result of vibration or direct contact with structures, the Proposal would be undertaken in accordance with the safe work distances and attended vibration monitoring or vibration trials would be undertaken where these distances are required to be challenged.</p> |
| 41. | <p>Property conditions surveys would be completed prior to any vibration intensive work being carried out at or within the minimum distances set out in the CNVS. Minimum working distances should be confirmed prior to carrying out any vibration intensive work on site.</p> |

| No. | Mitigation measure |
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| 42. | During works including the lift installation, street parking, kiss and ride bay and pedestrian works, station building works and platform modification works, the concrete saw is the main contributor to construction noise. Without the concrete saw, the total activity noise level is reduced by 5-11 dB. It is recommended that the use of these plant items is limited where possible, and works are undertaken during Standard Hours and avoid sensitive time periods. Where work is required outside of standard hours, the use of this equipment is to avoid sensitive periods such as after midnight and before 7 am. |
| 43. | Due to the high exceedances of NMLs during SC02 (lift works) to SC05 (platform modification works), when a concrete saw is to be used near sensitive receivers it is recommended that a temporary screen or enclosure (10-15 dB reduction) is placed around the works in conjunction with temporary barriers. |
| 44. | Activities at the nearest residential receivers are likely to fluctuate over the course of the day, therefore, it is recommended that consultation be undertaken with operators to determine feasible construction staging to manage impacts, effectively communicate likely impacts, potential periods of high intensity works, and to develop a schedule of consultation to program intensive works outside the most active periods. Respite periods should be negotiated and a community consultation strategy developed to ensure a complaints hotline and feedback pathway is established. |
| Aboriginal heritage | |
| 45. | All construction staff would undergo an induction in the recognition of Aboriginal cultural heritage material. This training would include information such as the importance of Aboriginal cultural heritage material and places to the Aboriginal community, as well as the legal implications of removal, disturbance and damage to any Aboriginal cultural heritage material and sites. |
| 46. | If unforeseen Aboriginal objects are uncovered during construction, the procedures contained in Transport for NSW's <i>Unexpected Heritage Finds Guideline</i> (Transport for NSW, 2019d) would be followed, and work within the vicinity of the find would cease immediately. The Contractor would immediately notify the Transport for NSW Project Manager and Transport for NSW Senior Environment and Sustainability Officer or Manager so they can assist in co-ordinating next steps which are likely to involve consultation with an Aboriginal heritage consultant, Heritage NSW and the Local Aboriginal Land Council. If human remains are found, work would cease, the site secured and the NSW Police and Heritage NSW notified. Where required, further archaeological investigations and an Aboriginal Heritage Impact Permit would be obtained prior to work recommencing at the location. |
| 47. | The project would investigate opportunities for recognising and celebrating Aboriginal Culture during design and construction. Specific design responses and initiatives would be developed in consultation with key stakeholders. This approach is outlined in the TAP 3 Aboriginal Inclusion Plan. |
| Non-Aboriginal heritage | |
| 48. | All staff, including design professionals and tradespeople, involved in the proposed works must receive a heritage induction prior to the commencement of works. The heritage induction would cover the heritage significance of Stanmore Station, identification of significant fabric and the recommendations and mitigation methods included in this report. |

| No. | Mitigation measure |
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| 49. | In the event that any unanticipated archaeological deposits are identified within the project site during construction, the procedures contained in Transport for NSW's <i>Unexpected Heritage Finds Guideline</i> (Transport for NSW, 2019d) would be followed, and work within the vicinity of the find would cease immediately. The Contractor would immediately notify the Transport for NSW Project Manager and the Transport for NSW Senior Environment and Sustainability Officer or Manager so they can assist in co-ordinating the next steps which are likely to involve consultation with an archaeologist and Heritage NSW. Where required, further archaeological work and/or consents would be obtained for any unanticipated archaeological deposits prior to work recommencing at the location. |
| 50. | Transport for NSW must obtain the required statutory heritage approvals (Section 60 approval) prior to commencement of work. Works must be carried out in accordance with any conditions placed on this approval and provide a report certifying compliance on completion of the works. |
| 51. | A suitably qualified heritage architect must be engaged during detailed design to provide heritage advice and input into developing design phases, and to oversee heritage sensitive works at Stanmore Station. |
| 52. | Should new works not detailed in the concept design be proposed during detailed design, these new works should be assessed by a suitably qualified heritage architect. New or increased adverse heritage impacts may require further approval from Transport for NSW, Heritage NSW and consultation with Sydney Trains as required. |
| 53. | Protective hoarding or splash protection should be installed around significant features, such as the platform buildings, the cast iron columns, the brick-lined staircases, the subway walls, the subway ceiling and brick perimeter walls, prior to works in the vicinity of these features in order to protect them from physical damage and particles such as asphalt, paint, dirt, dust or mud. |
| 54. | A Photographic Archival Recording (PAR) of Stanmore Station, its setting, context and significant views, must be prepared prior to the commencement of works and following completion of works. This recording must be in accordance with the NSW Heritage Division publication <i>Photographic Recording of Heritage Items using Film or Digital Capture</i> (2006). The digital copy of the archival record should be provided to Heritage NSW and Transport for NSW. It is recommended that the PAR includes copies of the existing structural designs, a fabric analysis and existing uses of the rooms/buildings. Where possible, a laser scan, photogrammetric model and/or orthophotographs of the elements to be altered, such as the brick perimeter walls, should be considered for inclusion in the PAR. In the case of the brick perimeter walls, the photographs for the PAR and/or photogrammetric model should be taken prior to and after the removal of the existing paint finish on the walls in order to record their stratigraphy prior to demolition of a section of the wall. |
| 55. | The Heritage Interpretation Strategy, currently being prepared by Artefact, should be finalised and implemented prior to the commencement of construction work at Stanmore Station in order to communicate the history and significance of the station to users, utilising a range of interpretative media. The strategy should consider a range of options of interpretation including but not limited to the retention of significant fabric in situ, reuse of salvaged materials, signage panels and graphic media. |
| 56. | All works should be undertaken by contractors with demonstrated specialist heritage skills and an understanding of heritage conservation principles. The work should be monitored by a suitably experienced heritage specialist. |
| 57. | All works are to be undertaken in accordance with the principles and objectives of the <i>Burra Charter: the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance</i> (the <i>Burra Charter</i>), and where possible, works should be reversible. |

| No. | Mitigation measure |
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| 58. | The design of the new lifts and canopies should be further developed in order to be as recessive, minimalist, visually permeable and sympathetic to the existing heritage character of Stanmore Station as possible, whilst being identifiable as new work. The materials, form and details of the lifts should not imitate the design and details of the significant elements. As proposed, the structures should be finished in a recessive colour. |
| 59. | The works to the station should aim at ensuring the retention and enhancement of the cultural significance of the significant heritage elements, including the booking office, platforms, platform buildings, subway, retaining walls and perimeter walls. |
| 60. | The canopy height and pitch on Platform 1/2 and Platform 3 should seek to match those of the original awnings in order to ensure visual cohesion and minimise visual clutter. |
| 61. | It is recommended that the mid-twentieth-century handrails along the staircases be retained beneath the new compliant handrails, rather than removed, as in situ evidence of mid-century changes to the station. |
| 62. | The extent of demolition of the Platform 3 brick perimeter wall should be minimised. Rather than constructing a new concrete wall with brick cladding, where possible the brick wall should be reconstructed to match the existing bonding pattern (English bonded), with a similar soldier coursed capping detail. However, on close inspection, this reconstructed wall should be identifiable as new work. |
| 63. | The extent of demolition of the subway walls should be minimised in order to minimise direct impact to the existing significant fabric. |
| 64. | <p>The following options should be considered for the new section of low-height retaining wall and balustrading at the Douglas Street entrance:</p> <ul style="list-style-type: none"> • the new low-height retaining wall should be finished in brick and the balustrade above should utilise a simple, permeable and recessive design. The retaining wall should reference the existing low-height retaining walls but should not replicate heritage detail • reuse the existing brickwork of the low-height walls at the entrance. Install a simple timber picket fence or steel fence that references the original design, but does not replicated heritage detail. |
| 65. | <p>The placement and design of new lighting and signage should aim to limit impact on fabric of heritage significance, views and the setting of the station, while still meeting the appropriate and statutory lighting and signage standards. The following principles should be followed:</p> <ul style="list-style-type: none"> • new light poles should be installed symmetrically, in line with the existing light poles, and should be placed in areas where they do not obscure significant fabric • new lights/lamps should not be fixed to or otherwise require the need for penetration of existing significant building fabric • new signage should reuse existing poles and fixing points, wherever possible. |
| 66. | New or replacement surface mounted conduits should be painted to match the underlying fabric in order to minimise visual impacts. Where possible, conduit locations should be located to minimise impact to significant existing building fabric. |
| 67. | Consideration should be made to removing the painted finish along the brick perimeter wall along the southern side of Platform 3. The process of removal should be guided by the nominated heritage consultant. If a protective finish is required, the colour and finish should be guided by the nominated heritage consultant, but a transparent, matte finish is preferred. |

| No. | Mitigation measure |
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| 68. | <p>The placement of benches, bins, machines and other elements along the platforms and footbridge should avoid obstructing views of architectural elements and should avoid installing fixing points to significant fabric. The following principles should be followed:</p> <ul style="list-style-type: none"> only install new or replacement elements in front of a solid portion of wall or in an open space locate new or reinstated elements at the central point between two dominant historical elements (such as windows, doors and columns), rather than to one side or in front of these elements ensure that new elements are not fixed to significant fabric and are of a low height to avoid obscuring fabric. |
| 69. | <p>All conduit and services installation should aim to use existing penetrations and entry points to structures, where possible. Conduits, services and casings should not cover significant fabric or areas of detailing or introduce large structures or items in areas that obstruct significance fabric or significant view lines. The principles provided in <i>Heritage Technical Note, Installation of New Electrical and Data Services at Heritage Sites</i> (Sydney Trains, 2017) should be followed during detailed design in order to prevent cumulative impacts to fabric. The design solutions should be developed in consultation with Transport for NSW heritage advisors or appointed heritage advisory subcontractors. New services associated with access requirements should ideally be installed in areas where original services have already been upgraded or replaced.</p> |
| 70. | <p>Ongoing detailed design of the platform canopies should aim to further refine the canopy detailing to respond to the existing and minimise visual clutter.</p> |
| 71. | <p>Where possible, new works should utilise existing fixing holes. For example, the new compliant handrails along the staircases should reuse the fixing holes from the existing twenty-first century handrails.</p> |
| 72. | <p>Works resulting in the removal of existing fixings into significant fabric, such as the removal of the handrails along the brick walls of the staircases, should include patch repairs using suitable materials. For the brickwork, patch repairs should be undertaken with non-cementitious lime mortar coloured to match the brickwork.</p> |
| 73. | <p>Should the installation of the new handrail be unable to reuse the existing fixing hole, the new handrails where possible should not be fixed to the brickwork. Fixings should occur in the mortar joints where it can be easily repaired and reversed in future.</p> |
| 74. | <p>Demolition of the Platform 3 brick perimeter wall and subway walls should be undertaken carefully using hand using hand tools (and not machine tools) in order to allow for salvage of the removed bricks. The bricks should be carefully recorded, catalogued and stored in a weather-proof, secure facility on site to allow for future reinstatement following completion of the lift shaft works. Only use a suitable hand saw for cutting the brick wall where it is required to be cut in a vertical line at the ends of the removed portion. The cut surface should be protected with a waterproof material during the excavation for and construction of the lift shaft.</p> |
| 75. | <p>The removed portion of the Platform 3 brick perimeter wall should be reconstructed to match the existing bonding pattern (English bonded), with a similar soldier coursed capping detail and utilising a non-cementitious lime based mortar for the joints.</p> |
| 76. | <p>The brickwork of the low-height retaining walls at the entrance to Douglas Street should be carefully removed by hand and salvaged. The bricks should be carefully recorded, catalogued and stored in a weather-proof, secure facility on site to allow for future reinstatement or reuse.</p> |

| No. | Mitigation measure |
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| 77. | A geotextile fabric, or similar, should be laid around the bases of the cast iron columns prior to the regrading where the asphalt will be higher than existing in order to protect the original significant fabric. |
| 78. | As part of the Proposal, condition inspections should be undertaken prior to, during and following completion of works. All repairs are to be undertaken in consultation with the nominated heritage consultant and the heritage advisors at Transport for NSW. |
| Socio-economic | |
| 79. | Sustainability criteria for the Proposal would be established to encourage the Contractor to purchase goods and services locally, helping to ensure the local community benefits from the construction of the Proposal. |
| 80. | Feedback through the submissions process would be encouraged to facilitate opportunities for the community and stakeholders to have input into the project, where practicable. |
| 81. | A Community Liaison Management Plan would be prepared prior to construction to identify all potential stakeholders and best practice methods for consultation with these groups during construction. The plan would also encourage feedback and facilitate opportunities for the community and stakeholders to have input into the project, where practicable. |
| 82. | Contact details for a 24-hour construction response line, Project Infoline and email address would be provided for ongoing stakeholder contact throughout the construction phase. |
| 83. | The community would be kept informed of construction progress, activities and impacts in accordance with the Community Liaison Management Plan to be developed prior to construction. |
| Biodiversity | |
| 84. | Construction of the Proposal must be undertaken in accordance with Transport for NSW's <i>Vegetation Management (Protection and Removal) Guideline</i> (Transport for NSW, 2019e) and Transport for NSW's <i>Fauna Management Guideline</i> (Transport for NSW, 2019f). |
| 85. | All workers would be provided with an environmental induction prior to commencing work onsite. This induction would include information on the protection measures to be implemented to protect vegetation, penalties for breaches and locations of areas of sensitivity. |
| 86. | Disturbance of vegetation would be limited to the minimum amount necessary to construct the Proposal. Trees nominated to be removed in the <i>Arboricultural Impact Assessment</i> (Tree Survey, 2021) would be clearly demarcated onsite prior to construction, to avoid unnecessary vegetation removal. Trees to be retained would be protected through temporary protection measures discussed below. |
| 87. | Tree Protection Zones (TPZs) would be established around trees to be retained, as nominated in the <i>Arboricultural Impact Assessment</i> (Tree Survey, 2021). Tree protection would be undertaken in line with <i>AS 4970-2009 Protection of Trees on Development Sites</i> and would include exclusion fencing of TPZs. |
| 88. | In the event of any tree to be retained becoming damaged during construction, the Contractor would immediately notify the Transport for NSW Project Manager and Transport for NSW Senior Environment and Sustainability Officer or Manager to coordinate the response which may include contacting an arborist to inspect and provide advice on remedial action, where possible. |

| No. | Mitigation measure |
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| 89. | Should the detailed design or onsite work determine the need to remove or trim any additional trees, which have not been identified in the REF, the Contractor would be required to complete Transport for NSW's Tree Removal Application Form and submit it to Transport for NSW for approval. |
| 90. | For new landscaping work, mulching and watering would be undertaken until plants are established. |
| 91. | Weed control measures, consistent with Transport for NSW's <i>Weed Management and Disposal Guideline</i> (Transport for NSW, 2019g), would be developed and implemented as part of the CEMP to manage the potential dispersal and establishment of weeds during the construction phase of the project. This would include the management and disposal of weeds in accordance with the <i>Biosecurity Act 2015</i> . |
| 92. | <p>A total of 8 vegetation items would require offsetting in accordance with the Transport for NSW <i>Vegetation Offset Guide</i> (Transport for NSW 2019I). A summary of the single tree offsets required for this site is outlined below:</p> <ul style="list-style-type: none"> • Small (DBH <150mm): A total of five shrubs (hedges) and two small trees to be removed (14 trees for offset) • Medium (DBH 150-600mm): No medium trees to be removed • Large (DBH >600mm): A total of one large tree to be removed (8 trees for offset) • Total trees: A total of 24 replacement trees are required to be planted. <p>All tree removal work is to be carried out by an arborist with a minimum AQF Level 3 qualification in Arboriculture, in accordance with Australian Standard AS 4373-2007, <i>Pruning of Amenity Trees</i>, the <i>Work Health and Safety Act 2011</i>, and <i>Work Health and Safety Regulations 2017</i>.</p> |
| 93. | <p>Minor vegetation trimming may be required to accommodate site access and construction clearances. Pruning specifications for these areas are outlined below:</p> <ul style="list-style-type: none"> • pruning must not exceed 10% of the overall canopy volume • no limbs greater than 150mm in diameter are to be removed • the final pruning cut should be at the branch collar in accordance with AS4373-2007 • all tree pruning work is to be carried out by an arborist with a minimum AQF Level 3 qualification in Arboriculture, in accordance with Australian Standard AS 4373-2007, <i>Pruning of Amenity Trees</i>, and the <i>NSW WorkCover Code of Practice for the Amenity Tree Industry</i> (1998). <p>If proposed vegetation trimming does not meet the specifications outlined above, the project arborist must undertake an assessment of impacts on a case-by-case basis.</p> |

| No. | Mitigation measure |
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| 94. | <p>Tree protection fencing must be established at the locations shown in the tree protection plan provided in the <i>Arboricultural Impact Assessment</i> (Tree Survey, 2021). Existing fencing, site hoarding, or structures (such as a wall or building) may be used as tree protection fencing, providing the TPZ remains isolated from the construction footprint. Tree protection fencing must be installed prior to site establishment and remain intact until the completion of works. Once erected, protective fencing must not be removed or altered without the approval of the project arborist. Specifications for the tree protection fencing are as follows:</p> <ul style="list-style-type: none"> • temporary mesh panel fencing (minimum height of 1.8 metres) • installed prior to site establishment and remain intact until the completion of works • protective fencing must not be removed or altered without the approval of the project arborist • prominently signposted with 300 millimetres by 450 millimetres boards stating, "NO ACCESS – TREE PROTECTION ZONE." • certified and inspected by the project arborist. <p>Where approved works are required within the TPZ, fencing may be setback to provide construction access. Trunk, branch, and ground protection should be installed and must comply with <u>Australian Standard AS 4970-2009 Protection of Trees on Development Sites</u>. Any additional construction activities within the TPZ of the subject trees must be assessed and approved by the project arborist.</p> |
| 95. | <p>The area within the TPZ should be mulched with good quality composted wood chip/leaf mulch that complies with Australian Standard <i>AS 4454-2012 Composts, soil conditioners, and mulches</i>, and should be maintained at a depth of 150 millimetres to 200 millimetres.</p> |
| 96. | <p>The demolition of all existing structures inside or directly adjacent to the TPZ of trees to be retained must be undertaken in consultation with the project arborist. Any machinery is to work from inside the footprint of the existing structures or outside the TPZ, to minimise soil disturbance and compaction. If it is not feasible to locate demolition machinery outside the TPZ of trees to be retained, ground protection would be required. The demolition should be undertaken inwards into the footprint of the existing structures, sometimes referred to as the 'top-down, pull back' method.</p> |
| 97. | <p>The project arborist must supervise and certify that all excavations and root pruning are in accordance with AS4373-2007 and AS4970-2009. All excavations (including root investigations) within the TPZ must be carried out using tree-sensitive methods under the supervision of the project arborist. These methods may include:</p> <ul style="list-style-type: none"> • manual excavation: Use of hand tools such as spades, trowels, brushes • air spade: Use of a pressurised air device that blows the soil away and leaves roots intact • hydro-vacuum excavation: Use of pressurised water to remove soil from around roots. <p>No over-excavation, battering, or benching should be undertaken beyond the footprint of any structure unless approved by the project arborist.</p> |
| 98. | <p>Where possible, underground services should be routed outside of the TPZ. If underground services need to be installed within the TPZ, they must be installed using tree-sensitive excavation methods under the supervision of the project arborist. Alternatively, boring methods such as horizontal directional drilling (HDD) may be used for underground service installation, providing the installation is at a minimum depth of 800 millimetres below grade. Excavations for entry/exit pits must be located outside the TPZ.</p> |
| 99. | <p>Any conflicting roots (<50 millimetres in diameter) identified during the supervised excavations should be pruned using clean, sharp secateurs or a pruning saw to ensure a clean cut, free from tears. All root pruning must be documented and carried out by the project arborist.</p> |

| No. | Mitigation measure |
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| 100. | <p>In accordance with Australia Standard AS 4970-2009, <i>Protection of Trees on Development Sites</i>, inspections must be conducted by the project arborist at the following key project stages:</p> <ul style="list-style-type: none"> • prior to any work commencing on-site (including demolition, earthworks, or site clearing) and following the installation of tree protection • during any excavations, building works, and any other activities carried out within the TPZ of any tree to be retained & protected • a minimum of once per 8 weeks (every 2 months) during the construction phase for trees with a major encroachment within the TPZ • after all major construction has ceased, following the removal of tree protection. <p>It should be the responsibility of the project manager to notify the project arborist prior to any works within the TPZ of any protected tree at a minimum of 48 hours' notice.</p> |
| 101. | <p>Lighting would be designed to minimise spill into surrounding areas as far as practical to avoid impacts upon native fauna.</p> |
| 102. | <p>The existing two flowering gum trees located along Douglas Street would be removed and replanted as part of the initial stages of the Proposal. Should they not survive the replanting they should be replaced in accordance with the Transport for NSW <i>Vegetation Offset Guide</i> (Transport for NSW 2019I).</p> |
| Soils and water | |
| 103. | <p>Prior to commencement of work, a site-specific Erosion and Sediment Control Plan would be prepared in accordance with the 'Blue Book' <i>Managing Urban Stormwater: Soils and Construction Guidelines</i> (Landcom, 2004) and updated throughout construction so it remains relevant to the activities. The Erosion and Sediment Control Plan measures would be implemented prior to commencement of work and maintained throughout construction.</p> |
| 104. | <p>Erosion and sediment control measures would be established prior to any clearing, grubbing and site establishment activities and would be maintained and regularly inspected (particularly following rainfall events) to ensure their ongoing functionality. Erosion and sediment control measures would be maintained and left in place until the work is complete and areas are stabilised.</p> |
| 105. | <p>Vehicles and machinery would be properly maintained and routinely inspected to minimise the risk of fuel/oil leaks. Construction plant, vehicles and equipment would also be refuelled offsite, or in a designated refuelling area.</p> |
| 106. | <p>All fuels, chemicals and hazardous liquids would be stored away from drainage lines, within an impervious bunded area in accordance with Australian Standards, EPA Guidelines and Transport for NSW's <i>Chemical Storage and Spill Response Guidelines</i> (Transport for NSW, 2019h).</p> |
| 107. | <p>Adequate water quality and hazardous materials procedures (including spill management procedures, use of spill kits and procedures for refuelling and maintaining construction vehicles/equipment) would be implemented in accordance with relevant EPA guidelines and the Transport for NSW <i>Chemical Storage and Spill Response Guidelines</i> (Transport for NSW, 2019h) during the construction phase. All staff would be made aware of the location of the spill kits and be trained in how to use the kits in the case of a spill.</p> |
| 108. | <p>In the event of a pollution incident, work would cease in the immediate vicinity and the Contractor would immediately notify the Transport for NSW Project Manager and Transport for NSW Senior Environment and Sustainability Officer or Manager. The EPA would be notified by Transport for NSW if required, in accordance with Part 5.7 of the POEO Act.</p> |

| No. | Mitigation measure |
|--------------------------------|--|
| 109. | The existing drainage systems would remain operational throughout the construction phase. |
| 110. | Should groundwater be encountered during excavation work, groundwater would be managed in accordance with the requirements of the <i>Waste Classification Guidelines</i> (EPA, 2014) and Transport for NSW's <i>Water Discharge and Reuse Guideline</i> (Transport for NSW, 2019i). |
| Air quality | |
| 111. | Air quality management and monitoring for the Proposal would be undertaken in accordance with Transport for NSW's <i>Air Quality Management Guideline</i> (Transport for NSW, 2019j). |
| 112. | Methods for management of emissions would be incorporated into project inductions, training and pre-start/toolbox talks. |
| 113. | Plant and machinery would be regularly checked and maintained in a proper and efficient condition. Plant and machinery would be switched off when not in use, and not left idling. |
| 114. | Vehicle and machinery movements during construction would be restricted to designated areas and sealed/compacted surfaces where practicable. |
| 115. | <p>To minimise the generation of dust from construction activities, the following measures would be implemented:</p> <ul style="list-style-type: none"> • apply water (or alternate measures) to exposed surfaces (e.g. unpaved roads, stockpiles, hardstand areas and other exposed surfaces) • cover stockpiles when not in use • appropriately cover loads on trucks transporting material to and from the construction site and securely fix tailgates of road transport trucks prior to loading and immediately after unloading • prevent mud and dirt being tracked onto sealed road surfaces. |
| Waste and contamination | |
| 116. | <p>The CEMP (or separate Waste Management Plan, if necessary) must address waste management and would at a minimum:</p> <ul style="list-style-type: none"> • identify all potential waste streams associated with the work and outline methods of disposal of waste that cannot be reused or recycled at appropriately licensed facilities • detail other onsite management practices such as keeping areas free of rubbish • specify controls and containment procedures for hazardous waste and asbestos waste • outline the reporting regime for collating construction waste data. |
| 117. | An appropriate Unexpected Finds Protocol, considering asbestos containing materials and other potential contaminants, would be included in the CEMP. Procedures for handling asbestos containing materials, including licensed contractor involvement as required, record keeping, site personnel awareness and waste disposal to be undertaken in accordance with WorkCover requirements. |
| 118. | All excavated spoil suitable for reuse would be reused on site and distributed as agreed with Transport for NSW and the Contractor. The reuse of excavated material would be further reviewed and confirmed during construction. |
| 119. | All spoil to be removed from site would be tested to confirm the presence of any contamination. Any contaminated spoil would be disposed of at an appropriately licensed facility. |

| No. | Mitigation measure |
|--|---|
| 120. | All spoil and waste must be classified in accordance with the <i>Waste Classification Guidelines Part 1: Classifying waste</i> (EPA, 2014) prior to disposal. |
| 121. | Any concrete washout would be established and maintained in accordance with Transport for NSW's <i>Concrete Washout Guideline – draft</i> (Transport for NSW, 2019k) with details included in the CEMP and location marked on the ECM. |
| Sustainability, climate change and greenhouse gases | |
| 122. | Detailed design and construction of the Proposal is to be undertaken in accordance with the ISC Infrastructure Sustainability Rating Scheme (v1.2). |
| 123. | The detailed design process would undertake a compliant carbon footprinting exercise in accordance with Transport for NSW's <i>Carbon Estimate and Reporting Tool Manual</i> (Transport for NSW, 2019b) or other approved modelling tools. The carbon footprint would be used to inform decision making in design and construction. |
| 124. | The detailed design process would undertake a climate change impact assessment with reference to the <i>Transport Climate Change Risk Assessment Guidelines</i> (Department of the Environment and Heritage, 2006) and the <i>IS Council Guidelines for Climate Change Adaptation</i> (AGIC, 2011) to determine the hazards/risks associated with future climatic conditions. Issues including protecting customers and electrical equipment from wind and rain during storm events, size of guttering, cross flow ventilation, reflective surfaces etc. would be considered in the design. |
| Cumulative impacts | |
| 125. | The potential cumulative impacts associated with the Proposal would be further considered as the design develops and as further information regarding the location and timing of potential developments is released. Environmental management measures would be developed in the CEMP, and implemented as appropriate. |

8 Conclusion

This REF has been prepared in accordance with the provisions of Section 5.5 of the EP&A Act, taking into account to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the Proposal.

The Proposal would provide the following benefits:

- a station that provides improved accessibility to people with a disability, limited mobility, parents/carers with prams and customers with luggage
- modernisation of the existing station building and interchange facilities to meet the needs of a growing population
- improved interchange and access facilities for all customers utilising Stanmore Station.

The likely key impacts of the Proposal are as follows:

- temporary adverse impacts to the visual amenity of the local environment due to the construction works associated with the Proposal
- temporary disruptions to station facilities and amenities during construction, including potential weekend closures of Stanmore Station during scheduled Sydney Trains rail shutdowns
- temporary impacts on local traffic flow associated with construction traffic along Douglas Street and Trafalgar Street
- temporary changes to vehicular, bus, bicycle and pedestrian access around the station during construction
- temporary noise impacts to adjacent residential areas during construction, including periods of weekend works, resulting in temporary amenity impacts
- potential for sediment mobilisation, dust generation and erosion risk during construction
- impacts to heritage fabric as a result of the Proposal including changes to the pedestrian underpass and station platform buildings
- minor changes to the overall built form of the station during operation which would have a negligible to moderate impact on views
- minor impacts to the existing station building and visual environment from the introduction of new elements, such as the new lifts
- removal of one large Lilly Pilly tree and five small Orange jessamine shrubs (hedges) to accommodate lift shaft on Platform 3 and replacement planting to offset
- removal of two small red flowering gum street trees to accommodate the new DDA parking space and kiss and ride bay on Douglas Street and replacement planting to offset
- replacement of two timed two-hour car parking spaces on Douglas Street to provide the new DDA parking space and kiss and ride bay.

This REF has considered and assessed these impacts in accordance with clause 228 of the EP&A Regulation and the requirements of the EPBC Act (refer to Chapter 6, Appendix A and Appendix B). Based on the assessment contained in this REF, it is considered that the Proposal is not likely to have a significant impact upon the environment or any threatened species, populations or communities. Accordingly an EIS is not required, nor is the approval of the Minister for Planning and Public Spaces.

The Proposal would also take into account the principles of ESD and sustainability (refer to Section 3.3.3 and Section 4.3). These would be considered during the detailed design, construction and operational phases of the Proposal. This would ensure the Proposal is delivered to maximum benefit to the community, is cost effective and minimises any adverse impacts on the environment.

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Appendix A Consideration of matters of National Environmental Significance

The table below demonstrates Transport for NSW's consideration of the matters of NES under the EPBC Act to be considered in order to determine whether the Proposal should be referred to Commonwealth Department of the Environment.

| Matters of NES | Impacts |
|--|---------|
| <p>Any impact on a World Heritage property? No World Heritage properties occur within a one-kilometre radius of the site.</p> | Nil |
| <p>Any impact on a National Heritage place? No National Heritage places occur within a one-kilometre radius of the site.</p> | Nil |
| <p>Any impact on a wetland of international importance? No wetlands of international importance are located within a one-kilometre radius of the site.</p> | Nil |
| <p>Any impact on a listed threatened species or communities? Based on available habitat and the potential impacts of the Proposal, it is unlikely that any threatened species or community would be impacted.</p> | Nil |
| <p>Any impacts on listed migratory species? No listed migratory species are likely to utilise the habitat within the study area.</p> | Nil |
| <p>Does the Proposal involve a nuclear action (including uranium mining)? The Proposal does not involve a nuclear action.</p> | Nil |
| <p>Any impact on a Commonwealth marine area? The Proposal would not impact on a Commonwealth marine area.</p> | Nil |
| <p>Does the Proposal involve development of coal seam gas and/or large coal mine that has the potential to impact on water resources? The Proposal is not related to coal seam gas or mining.</p> | Nil |
| <p>Additionally, any impact (direct or indirect) on Commonwealth land? The Proposal would not impact on Commonwealth land.</p> | Nil |

Appendix B Consideration of clause 228

The table below demonstrates Transport for NSW's consideration of the specific factors of clause 228 of the EP&A Regulation in determining whether the Proposal would have a significant impact on the environment.

| Factor | Impacts |
|--|----------|
| <p>(a) Any environmental impact on a community?</p> <p>There would be some temporary impacts to the community during construction, particularly in relation to noise, traffic and access and visual amenity.</p> <p>Mitigation measures outlined in Table 7-1 would be implemented to manage and minimise adverse impacts.</p> | Minor |
| <p>(b) Any transformation of a locality?</p> <p>The Proposal would involve the introduction of new visible elements in the landscape (new lifts, canopies, and minor adjustments to existing station buildings and platform surfaces). The appearance of the new elements would be consistent with the existing station elements and are considered to be common features in urban areas.</p> <p>The Proposal would have a positive contribution to the locality by creating accessible entrances to the station and station platforms.</p> | Minor |
| <p>(c) Any environmental impact on the ecosystem of the locality?</p> <p>Three trees and five shrubs (hedges) would be removed to accommodate the new lift shaft on Platform 3 and the DDA car parking space. The loss of vegetation would not represent a significant impact in the context of the broader vegetation present in the local area and is likely to be readily replaced through landscaping efforts associated with the Proposal.</p> <p>Mitigation measures outlined in Table 7-1 would be implemented to manage and minimise adverse impacts.</p> | Minor |
| <p>(d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?</p> <p>There would be some temporary impacts during construction particularly in relation to noise, traffic and access and visual amenity.</p> <p>The Proposal would not result in any substantial reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality.</p> | Minor |
| <p>(e) Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?</p> <p>The Proposal would have the following direct and visual impacts on the following components of the Stanmore Station Group:</p> <ul style="list-style-type: none"> • Pedestrian underpass – moderate direct and indirect impact • Perimeter wall – moderate direct and indirect impact • Platform 1/2 building – minor direct and indirect impact • Staircases – minor positive direct and indirect impact • Platform 3 building – negligible direct and indirect impact • Platform 1/2 – negligible direct and indirect impact • Platform 3 – negligible direct and indirect impact • Moveable heritage items – negligible direct and indirect impact • Trees – negligible direct and indirect impact • Former Parcels and booking office – no impact • Brick signal shed – no impact. | Moderate |

| Factor | Impacts |
|--|---------|
| <p>Stanmore Railway Station Group is listed on the State Heritage Register and the TAHE Section 170 Heritage and Conservation Register. The Proposal would retain the overall heritage values of the existing station and would have an overall moderate impact.</p> <p>Further information is available in the <i>Statement of Heritage Impact</i> prepared by Artefact Heritage (2021).</p> | |
| <p>(f) Any impact on the habitat of protected fauna (within the meaning of the <i>National Parks and Wildlife Act 1974</i>)?</p> <p>The Proposal is unlikely to have any impact on the habitat of protected fauna.</p> | Nil |
| <p>(g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?</p> <p>The Proposal is unlikely endanger any species of animal, plant or other form of life, whether living on land, in water or in the air.</p> | Nil |
| <p>(h) Any long-term effects on the environment?</p> <p>The Proposal is unlikely to have any long-term effects on the environment.</p> | Nil |
| <p>(i) Any degradation of the quality of the environment?</p> <p>The Proposal is unlikely to have any degradation on the quality of the environment. During construction there would be minor impacts to the environment, primarily from noise and dust emissions and reduction in visual amenity.</p> | Nil |
| <p>(j) Any risk to the safety of the environment?</p> <p>The Proposal is unlikely to cause any pollution or safety risks to the environment provided the recommended mitigation measures are implemented.</p> | Nil |
| <p>(k) Any reduction in the range of beneficial uses of the environment?</p> <p>The Proposal is unlikely to have any reduction in the range of beneficial uses of the environment.</p> | Nil |
| <p>(l) Any pollution of the environment?</p> <p>Construction of the Proposal could result in pollution of the environment (e.g. noise and dust emissions), however provided the recommended management and mitigation measures are implemented, this risk is expected to be minor.</p> | Minor |
| <p>(m) Any environmental problems associated with the disposal of waste?</p> <p>The Proposal is unlikely to cause any environmental problems associated with the disposal of waste.</p> <p>Given the historical use of the station as a rail corridor, there is potential for contaminants to be present within the soils underlying the station. Historic activities associated with rail corridors that have the potential to result in contamination include the introduction of fill materials including ash, fuel or oil spills and accidental leaks or spills from maintenance and operational activities. Given the age of the station building, there is also potential for asbestos materials and lead paint to be encountered.</p> <p>Hazardous waste (including asbestos, if found) may be generated by the Proposal. Contamination identification would occur prior to construction to confirm the presence of hazardous materials. All waste would be managed and disposed of with a site-specific Waste Management Plan. Mitigation measures would be implemented to ensure waste is reduced, reused or recycled where practicable.</p> | Nil |
| <p>(n) Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?</p> <p>The Proposal is to unlikely increase demands on resources that are, or are likely to become, in short supply.</p> | Nil |

| Factor | Impacts |
|--|--------------|
| <p>(o) Any cumulative environmental effect with other existing or likely future activities?</p> <p>Cumulative effects of the Proposal are described in Section 6.16. Where feasible, environmental management measures would be co-ordinated to reduce any cumulative construction impacts. The Proposal is unlikely to have any significant adverse long-term impacts.</p> | <p>Minor</p> |
| <p>(p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions?</p> <p>The Proposal would not affect or be affected by any coastal processes or hazards.</p> | <p>Nil</p> |