NSW GOVERNMENT

Transport Access Program

Rooty Hill Station Upgrade and Commuter Car Park

Addendum Review of Environmental Factors

Artist's impression of the proposed Rooty Hill Commuter Car Park, subject to detailed design.

April 2019

Rooty Hill Station Upgrade and Commuter Car Park Addendum
Review of Environmental Factors

Transport Access Program
Ref – 6223012

Contents

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Figures

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Abbreviations

Term	Meaning
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
APS	Access to Premises (Disability Standards)
ARI	Average Recurrence Interval
ASA	Asset Standards Authority (refer to Definitions)
ASS	Acid Sulfate Soils
BCA	Building Code of Australia
BC Act	*Biodiversity Conservation Act 2016* (NSW)
CBD	Central Business District
CCTV	Closed Circuit TV
CEMP	Construction Environmental Management Plan
CLM Act	*Contaminated Land Management Act 1997* (NSW)
CNVMP	Construction Noise and Vibration Management Plan
CPTED	Crime Prevention Through Environmental Design
DBH	Diameter Breast Height
DBYD	Dial Before You Dig
D&C	Design & Construct
DDA	*Disability Discrimination Act 1992* (Cwlth)
DoE	Commonwealth Department of the Environment
DP&E	NSW Department of Planning and Environment
DSAPT	*Disability Standards for Accessible Public Transport 2002*
DSI	Detailed Site Investigation (Phase II Contamination Investigation)
ECM	Environmental Controls Map
EMS	Environmental Management System
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)

Term	Meaning
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000* (NSW)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cwlth)
EPI	Environmental Planning Instrument
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development (refer to Definitions)
ETS	Electronic Ticketing System
FM Act	*Fisheries Management Act 1994* (NSW)
Heritage Act	*Heritage Act 1977* (NSW)
HV	High Voltage
ICNG	*Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2000).
Infrastructure SEPP	*State Environmental Planning Policy (Infrastructure) 2007* (NSW)
LEP	Local Environmental Plan
LGA	Local Government Area
LoS	Level of Service
LV	Low Voltage
MSCP	Multi Storey Car park
NES	National Environmental Significance
Noxious Weeds Act	*Noxious Weeds Act 1993* (NSW)
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
NSW	New South Wales
OEH	NSW Office of the Environment and Heritage
OHWS	Overhead Wire Structure
OOHW	Out of hours works
PA system	Public Address system
PDP	Public Domain Plan
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
RailCorp	(former) Rail Corporation of NSW

Term	Meaning
RAP	Remediation Action Plan
RBL	Rating Background Level
Roads Act	*Roads Act 1993* (NSW)
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
TCP	Traffic Control Plan
TfNSW	Transport for NSW
TGSI	Tactile Ground Surface Indicators 'tactiles'
TMP	Traffic Management Plan
TPZ	Tree Protection Zone
TVM	Ticket Vending Machine
UDP	Urban Design Plan
WARR Act	*Waste Avoidance and Resource Recovery Act 2001* (NSW)

Definitions

Term	Meaning
Addendum REF	This Review of Environmental Factors (REF), which supplements the environmental impact assessment as defined in Condition of Approval number 1 for the approved project
approved project (the)	The construction and operation of the Rooty Hill Station Upgrade and Commuter Car Park as described in the project REF, the project submissions report and the project determination report.
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 Standards Authority	The ASA is an independent body within TfNSW, responsible for engineering governance, assurance of design safety, and ensuring the integrity of transport and infrastructure assets. Design Authority functions formerly performed by RailCorp are now exercised by ASA.
Concept design	The concept design is the preliminary design presented in this REF, which would be refined by the Construction Contractor (should the proposed modification proceed) to a design suitable for construction (subject to TfNSW 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 Construction Contractor. The Construction 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 TfNSW 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 Construction Contractor undertakes (should the proposed modification proceed) to refine the concept design to a design suitable for construction (subject to TfNSW acceptance).
Disability Standards for Accessible Public Transport	The Commonwealth *Disability Standards for Accessible Public Transport 2002* 'Transport Standards' (as amended) are a set of legally enforceable standards, authorised under the Commonwealth *Disability Discrimination Act 1992* (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	As defined by clause 7(4) Schedule 2 of the EP&A Regulation. 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.
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.

Term	Meaning
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.
modified project (the)	Refers to the approved project as modified by the proposed modification associated with the Rooty Hill Station Upgrade and Commuter Car Park
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).
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 TfNSW.
Out of hours works	Defined as works *outside* standard construction hours (i.e. outside of 7am to 6pm Monday to Friday, 8am to 1pm Saturday and no work on Sundays/public holidays).
project determination report (the)	The *Rooty Hill Station Upgrade and Commuter Car Park Determination Report (February, 2018)*
proposed modification (the)	The proposed modifications to the approved project as detailed in Section 1.2.2 of the *Rooty Hill Station Upgrade and Commuter Car Park Addendum Review of Environmental Factors* (March, 2019).
project REF (the)	The *Rooty Hill Station Upgrade and Commuter Car Park Review of Environmental Factors* (November, 2017)
Proponent	A person or body proposing to carry out an activity under Division 5.1 of the EP&A Act - in this instance, TfNSW.
Rail possession	Possession 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.
Tactiles	Tactile tiles or Tactile Ground Surface Indicators (TGSIs) 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.

Term	Meaning
Vegetation Offset Guide	The TfNSW 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

Transport for NSW (TfNSW) is the government agency responsible for the delivery of major transport infrastructure projects in NSW and is the proponent for the Rooty Hill Station Upgrade and Commuter Car Park. A Review of Environmental Factors for the project was prepared in November 2017, and was subsequently approved by TfNSW in February 2018 (the 'approved project').

Subsequent to this approval, TfNSW is proposing to modify the approval for Rooty Hill Station Upgrade and Commuter Car Park to include platform raising and additional car parking (the 'proposed modification').

The Rooty Hill Station Upgrade and Commuter Car Park is part of the Transport Access Program which is a NSW Government initiative to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure.

This Addendum Review of Environmental Factors (REF) has been prepared to assess the environmental impacts associated with the construction and operation of the proposed modification under the provisions of Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Description of the proposed modification

The proposed modification is located in the suburb of Rooty Hill, New South Wales approximately 40 kilometres west of the Sydney Central Business District (CBD).

The key features of the proposed modification are summarised as follows:

<u>Station Upgrade</u>

- Platform raising at the boarding zone coping edge on Platform 1/2 and Platform 3/4 of approximately 80-200 millimetres (mm) (compliant with Asset Standards Authority (ASA) standards).

<u>Commuter Car Park</u>

- Provision of two additional storeys on top of the commuter car park to provide a total of approximately 748 car spaces.
- Extension of the ground floor footprint by approximately 20m x 30m to accommodate 10 dedicated electric vehicle spaces in the car park (with charging facilities) and 10 motorcycle parking spaces
- Changes to the vehicle entry/exit layout to create a separate entry/exit to the existing Council Depot entry/exit
- Installation and operation of a solar power system on the roof of the car park. This will double as a shade structure for cars on the roof level, and be used to supplement power requirements for the car park.

The construction methodology has also been updated and will require:

- Temporary closure of North Parade for approximately 4 weeks (2 closures of 2 week duration) for setup and operation of a crane.

To facilitate these modifications, two additional site compounds are also proposed.

Ancillary facilities

- Compound 1 – Temporary use of a compound at the Rooty Hill Substation approximately 200 metres west of Rooty Hill Station for materials preparation and storage, spoil storage and construction worker parking.
- Compound 2 – Temporary use of an existing private car park between Weston Lane and Station Street located adjacent to a medical facility, approximately 80 metres to the north of the railway station for construction worker parking and site sheds.

Subject to approval, construction is expected to commence in 2019 and the car park is expected to be complete in early 2020 and the station upgrade in mid-2020. A detailed description of the proposed modification is provided in Chapter 3 of this REF.

Need for the proposed modification

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

The upgrades are 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 proposed modification would also assist in responding to forecasted growth in the region and as such would support growth in commercial and residential development.

The proposed modification fulfils the Transport Access Program objectives, and is consistent with the need for the approved project.

In September 2015, the NSW Government announced a series of State Priorities as part of *NSW: Making It Happen* (NSW Government, 2015). One of the 12 priorities identified as part of *NSW: Making It Happen* relates to investment in building infrastructure. The ongoing development and investment in transport infrastructure is identified as part of the wider building infrastructure priority.

The proposed modification assists in meeting the priority by improving accessibility to public transport and encouraging greater use of public transport.

The proposed modification would also ensure that Rooty Hill Station and Commuter Car Park would meet legislative requirements under the *Disability Standards for Accessible Public Transport 2002* (DSAPT).

Design options considered

There were three design options considered for the Rooty Hill Station and Commuter Car Park Upgrade. These were discussed in the project REF Section 2.2 and Section 2.3. The preferred options for the respective Station Upgrade and Commuter Car Park components of the approved project would help to provide for future station access and parking demands with less community impact and costs.

A design analysis was not undertaken for the proposed modification.

Statutory considerations

The approved project was determined by TfNSW under Part 5 of the EP&A Act (now Division 5.1) in February 2018.

The permissibility of the project was determined by virtue of clause 79 of *State Environmental Planning Policy (Infrastructure) 2007* (the Infrastructure SEPP) which outlines that 'railway infrastructure facilities' are permissible without the need for development consent.

Clause 78 defines 'rail infrastructure facilities' as including elements such as 'railway stations, station platforms and areas in a station complex that commuters use to get access to the platforms', 'public amenities for commuters' and 'associated public transport facilities for railway stations'.

As the proposed modification is for work associated with the construction of the Rooty Hill Station Upgrade and Commuter Car Park, and is to be carried out on behalf of TfNSW, it can continue to be assessed under Division 5.1 of the EP&A Act.

This Addendum REF has been prepared to assess the construction and operational environmental impacts of the proposed modification. The REF has been prepared in accordance with clause 228 of the *Environment Planning and Assessment Regulation 2000* (the EP&A Regulation).

In accordance with section 5.5 of the EP&A Act, TfNSW, 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 proposed activity.

Chapter 6 of this REF presents the environmental impact assessment for Rooty Hill Station Upgrade and Commuter Car Park Addendum, in accordance with these requirements.

Community and stakeholder consultation

TfNSW is proposing to directly notify specific community stakeholders who may be affected by the proposed modification and other key stakeholders including Council and nearby businesses.

Extensive community consultation activities were undertaken as part of the project REF including a public display period of that REF.

Should the proposed modification proceed to construction, the community would be kept informed throughout the duration of the construction period.

Environmental impact assessment

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

The following key impacts, have been identified should the proposed modifications proceed:

- temporary amenity impacts during construction including:
  - loss of parking (3 spaces)
  - increased noise and vibration impacts to additional surrounding receivers during use of Compound 1
  - potential reduction in air quality and visual impacts
- temporary and minor traffic impacts during construction including:
  - delays on the local road network and minor increase in local traffic movements
  - changes to access arrangements (including pedestrian diversions) during construction
- minor physical heritage impacts to the Rooty Hill Station Group during construction

- a positive heritage outcome with the reinstatement of two boot scrapers following platform raising
- longer term benefits of the proposed modification include provision of additional commuter parking spaces and use of renewable energy with the installation of a solar power system on the roof of the car park.

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

Conclusion

This Addendum 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 TfNSW takes into account to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the proposed modification and cumulative impacts of the modified project.

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

In considering the overall potential impacts associated with the proposed modification and cumulative impacts of the modified project, and proposed mitigation measures outlined in this Addendum REF, the proposed modification is unlikely to significantly affect the environment including critical habitat or threatened species, populations, ecological communities or their habitats.

1 Introduction

Transport for NSW (TfNSW) was established in 2011 as the lead agency for integrated delivery of public transport services across all modes of transport in NSW. TfNSW proposes to modify the Rooty Hill Upgrade and Commuter Car Park (the proposed modification), to be delivered by the Infrastructure and Place Division.

1.1 Overview of the Approved Project

The approved project involves upgrades to the northern and southern station interchange facilities for the Rooty Hill Station Upgrade and construction of a multi-storey commuter car park on the site of the existing at-grade car park on the northern side of the station between the rail corridor and the Blacktown City Council depot on Station Street.

The key features and provisions of the approved project are summarised below.

1.1.1 Station Upgrade

- installation of new lifts at station entrances and platforms
- improvements to the accessible pathways between station entrances and platforms
- improvements to the accessible pathways between station entrances and surrounding streets / interchange facilities
- installation of a family accessible toilet and ambulant cubicles in the male and female toilets within the existing station platform buildings
- installation of new signage to improve wayfinding
- provision of 20 undercover bicycle racks across the northern and southern side of the station interchange areas
- provision of additional kiss and ride spaces for commuters at the northern and southern station entrances
- ancillary works, including services diversion and/or relocation, minor drainage works, adjustments to lighting, installation of handrails and balustrades, improvements to station communication systems with new infrastructure (including additional CCTV cameras).

1.1.2 Commuter Car Park

- provision of a multi-storey commuter car park (four levels) on the northern boundary of the rail corridor with parking for approximately 500 vehicles (an addition of approximately 300 spaces). The commuter car park would be serviced by a lift and stairs to provide access between parking levels and also include a new accessible path to the northern interchange of the station
- ancillary works, including services diversion and/or relocation, minor drainage works, installation of lighting, installation of handrails and balustrades, with new infrastructure (including CCTV cameras).
- new landscaping along Station Street.

The construction and operation of the Rooty Hill Station Upgrade and Commuter Car Park was assessed through the project REF (November, 2017) and determined by TfNSW in February, 2018.

1.2 Overview of the Proposed Modification

1.2.1 The need for the Proposed Modification

An opportunity to provide additional car parking to provide for forecasted growth in the region was identified following the determination of the Rooty Hill Station Upgrade and Commuter Car Park. Platform raising is also proposed in order to meet DSAPT requirements. This Addendum REF has been prepared to assess the environmental impacts of the proposed modification and the cumulative impacts of the modified project.

Table 1 summarises the key changes between the project REF and the proposed modification.

1.2.2 Key features of the Proposed Modification

The key features of the proposed modification are summarised as follows:

<u>Commuter Car Park</u>

- Provision of two additional storeys on top of the Commuter Car Park, adding approximately 248 car parking spaces bringing the total number of car spaces to approximately 748
- Extension of the ground floor footprint by approximately 20m x 30m to accommodate 10 dedicated electric vehicle spaces in the car park (with charging facilities and 10 motorcycle spaces
- Changes to the vehicle entry/exit layout to create a separate entry/exit to the existing Council Depot entry/exit
- Installation and operation of a solar power system on the roof of the car park, this will double as a shade structure for cars on the roof level and be used to supplement power requirements for the car park.

<u>Station Upgrade</u>

- Platform raising at the boarding zone coping edge on Platform 1/2 and Platform 3/4 of approximately 80-200 millimetres (mm) (compliant with Asset Standards Authority (ASA) standards).

The construction methodology has also been updated and will require:

- Temporary closure of North Parade for approximately 4 weeks (2 closures of 2 week duration) for setup and operation of a crane.

To facilitate these modifications two additional site compounds are also proposed.

<u>Ancillary facilities</u>

- Compound 1 – Temporary use of a compound at the Rooty Hill Substation approximately 200 metres (m) west of Rooty Hill Station for materials preparation and storage, spoil storage and construction worker parking.
- Compound 2 – Temporary use of an existing private car park between Weston Lane and Station Street located adjacent to a medical facility, approximately 80m to the north of the railway station for construction worker parking and site sheds.

Subject to planning approval, construction is expected to commence in 2019 and the car park is expected to be complete in early 2020 and station upgrade in mid-2020.

A detailed description of the proposed modification is provided in Chapter 3 of this Addendum REF.

1.3 Location of the Proposed Modification

The Project location has not changed from that described in the project REF and is located in the suburb of Rooty Hill, New South Wales approximately 40 kilometres west of the Sydney Central Business District (CBD) within the Blacktown City Council Local Government Area (LGA). The location of the proposed modification is shown in Figure 1-1. The railway station is located on the T1 Western Line and provides services to Western Sydney and the Sydney CBD.

Key features of the study area are shown in Figure 1-2. The proposed modification requires the use of additional land, and as such the study area has expanded to include:

- Compound 1 – Rooty Hill Substation compound (approximately 1,800m^2) between North Parade and Beames Avenue, this site would be used for materials preparation and storage, spoil storage, and as a worker car park. Activities here would include pre-cast concrete works.
- Compound 2 – Private car park compound (approximately 530m^2) between Weston Lane and Station Street, this site will be used as a site compound for staff facilities, including change room, lunch room, amenities and site offices.

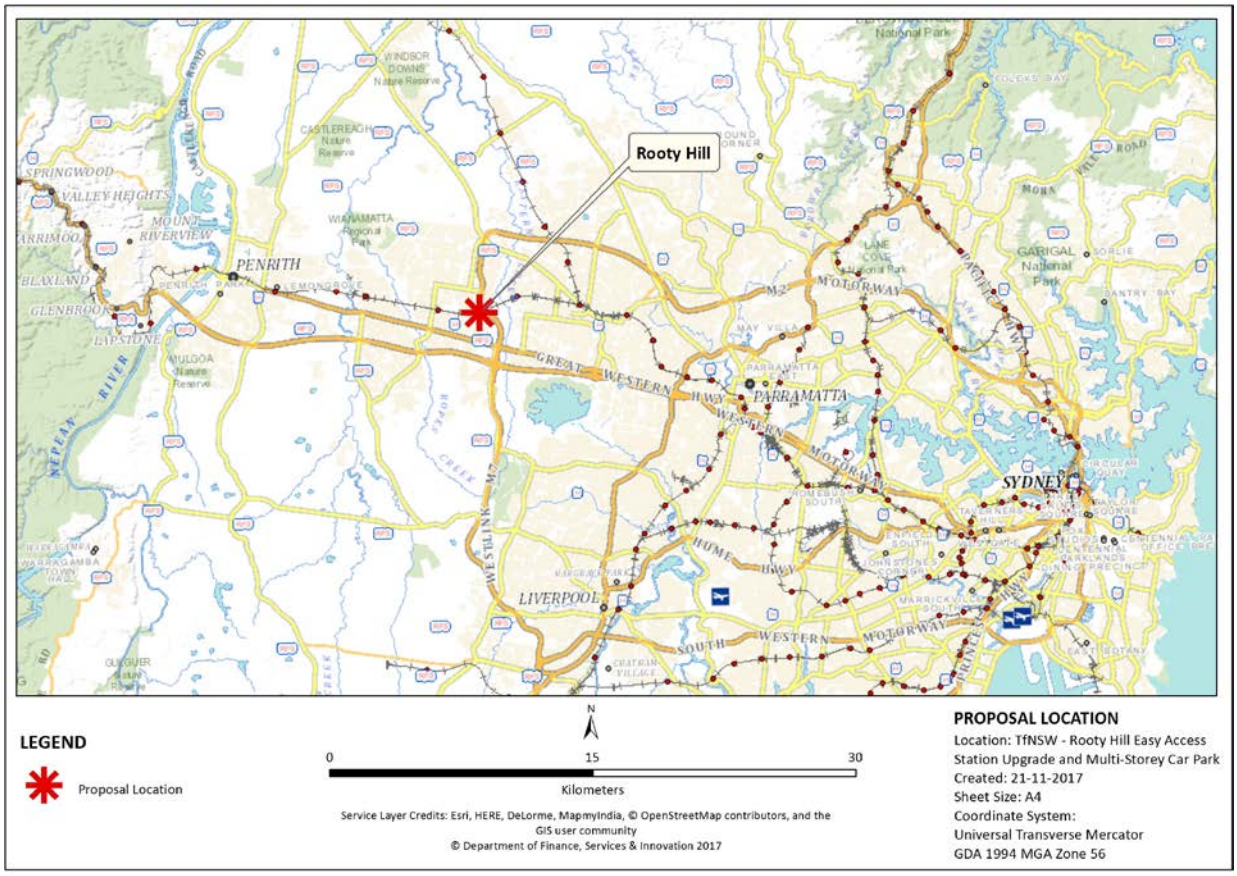


Figure 1-1 Regional Context Map

Figure 1-2 Locality map

The Station Upgrade component of the Project spans several land parcels as follows:

- The existing rail corridor (Lot 90 DP 1208183) (owned by RailCorp).
- Beames Avenue road corridor on the Southern side of the Project area as detailed in Appendix C (owned by Blacktown City Council).
- North Parade road corridor on the Northern side of the Project area as detailed in Appendix C (owned by Blacktown City Council).
- A section of the commuter car park beneath the existing pedestrian access ramp on the northern side of the Project area (Lot 34 DP 237180) (owned by Blacktown City Council).

The Commuter Car Park component of the Project is similarly located across multiple parcels, including:

- The existing Blacktown City Council commuter car park bordered by Station Street to the west, the rail corridor to the south, and the skate park and Blacktown City Council depot to the north (Lot 2 DP 1046244).
- The existing shared cycleway and pedestrian pathway between the open air vegetated stormwater drain and the existing Blacktown City Council commuter car park (owned by RailCorp).

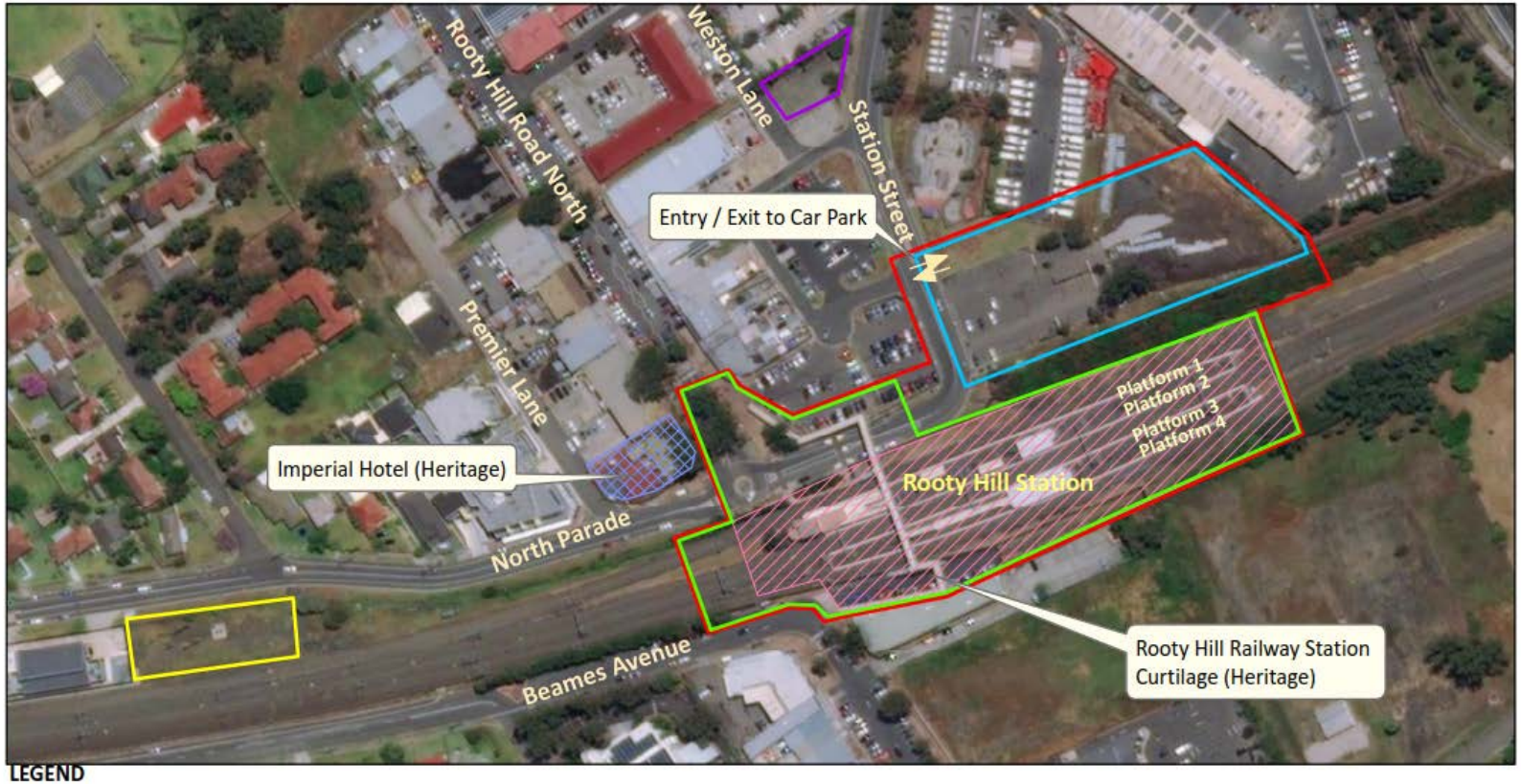
The proposed modification includes the addition of two compound sites:

- Compound 1 is located in the rail corridor (Lot 90 DP 1208183), between North Parade and Beames Avenue. This parcel of land is a vacant lot with a history of being used as a compound and has therefore been disturbed (owned by RailCorp).
- Compound 2 is located in a car park (Lot 2 DP 851609), between Weston Lane and Station Street. This parcel of land is currently used is a private fenced car park. This parcel of land has been highly disturbed.

Table 1 Summary of key changes

Aspect	Approved Project	Proposed Modification
Location of MSCP	At location of existing commuter car park	No change
Station Upgrade	As per Section 1.1.2 of the project REF	Platform raising at the boarding zone coping edge on Platform 1/2 and Platform 3/4 of approximately 80-200 millimetres (mm) (compliant with ASA standards).)
Location of Ancillary Facilities	Beames Avenue compound Car park Site adjacent to the stormwater drain	Additional ancillary facilities: • Rooty Hill substation compound (Compound 1) • Behind retail/commercial shops (Compound 2)
Construction Equipment	As per Section 3.2.2 of the project REF.	Additional equipment: • Tower crane • 350T crawler crane • Concrete agitators • Concrete vibrators • Semi-trailers (to transport the pre-cast)

Aspect	Approved Project	Proposed Modification
Construction Activities	As per Section 3.2.1 of the project REF	Precast concrete works at Compound 1.
Road closures	Partial closure of North Parade over a number of weekends to align with rail track possessions.	Temporary closure of North Parade for approximately 4 weeks (2 closures of 2-week duration) for setup and operation of a crane.
Loss of Parking	As per Section 3.2.6 of the project REF	Temporary loss of approximately three car spaces on North Parade. Compound 2 contains approximately 30 car spaces; however, this space is private property and has been fenced off and not available to the public for parking. Therefore, there is no additional loss of commuter parking spaces at this location.
Car Park Features	As per Section 3.1 of the project REF	Additional features include: • 10 spaces for electric vehicles • 10 spaces for motorcycles • Solar power system on roof of car park
Entry/exit to car park	Co-located with the Council Depot driveway from Station Street	Separate entry/exit directly from Station Street, independent of the Council Depot parking.
Height of car park	Four levels Eight to ten metres high in total	Six levels (with a flat roof) Approximately 17.3m high in total
Roof level of car park	Open air	Solar system would be installed on the roof and double as a shade structure for cars
Ground floor footprint	Same as upper levels – approximately 100.5m long x 38.55m wide	Larger ground floor by approximately 20m x 30m for the provision of motorcycle and electric vehicle parking spaces.
Upper levels footprint	Approximately 100.5m long x 33.8m wide	No change
Removal of existing vegetation	Removal of two existing tall native trees within the existing commuter car park, and possible removal of smaller native trees on the fringes of the car park	No change
Pedestrian amenity	Landscaping, lighting and pathways	No change



LEGEND

- Rooty Hill Study Area
- Site 1 Easy Access Station Upgrades
- Site 2 Multi-Storey Commuter Car Park
- Site 3 Concrete works
- Site 4 Sheds
- State Heritage
- Local Heritage

N

0 120 240

Meters

Service Layer Credits: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

PROPOSAL AREA

Location: TfNSW - Rooty Hill Easy Access Station Upgrade and Multi-Storey Car Park
Created: 21-11-2017
Sheet Size: A4
Coordinate System:
Universal Transverse Mercator
GDA 1994 MGA Zone 56

Figure 1-3 Site Locality Map

1.4 Purpose of this Addendum Review of Environmental Factors

This Addendum REF has been prepared by TfNSW to assess the potential impacts of the proposed modification of the approved project – the Rooty Hill Station Upgrade and Commuter Car Park, as well as the cumulative impacts of the construction and operation of the proposed modification and approved project (the modified project). For the purposes of these works, TfNSW 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 Addendum REF is to describe the proposed modification, to assess the likely impacts of the proposed modification and cumulative impacts of the modified project 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 proposed modification. This REF has been prepared in accordance with clause 228 of the *Environment Planning and Assessment Regulation 2000* (the 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 Addendum REF considers the potential for the proposed modification 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 Environment for any necessary approvals under the EPBC Act. Refer to Chapter 4 for more information on statutory considerations.

2 Need for the Proposed Modifications

Chapter 2 of the project REF addressed the strategic need for the project, the project objectives and the options that were considered during concept design development. The proposed modification described and assessed in this Addendum REF are consistent with the strategic need for the project.

2.1 Strategic need for the project

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 Rooty Hill Station Upgrade and Commuter Car Park, 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.

The proposed modification assists in meeting the priority by improving accessibility to public transport and encouraging greater use of public transport.

2.2 Project objectives and development criteria

Section 2.2 of the project REF identifies the objectives and development criteria that apply to the proposed modification. There are no additional objectives for the proposed modification.

2.3 Alternative options considered

No alternative options for the proposed modification were considered.

3 Description of the Proposed Modifications

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

3.1 The Proposed Modifications

The proposed modification would include the following key elements:

3.1.1 Car Park

- Provision of two additional storeys on top of the Commuter Car Park to provide a total of approximately 748 car spaces
- 10 dedicated electric vehicle spaces in the car park (with charging facilities) and 10 motorcycle spaces at ground level
- Changes to the vehicle entry/exit layout to create a separate entry/exit to the existing Council Depot entry/exit
- Installation and operation of a solar power system on the roof of the car park. This will double as a shade structure for cars on the roof level, and be used to supplement power requirements for the car park.

3.1.2 Station

- Platform raising at the boarding zone coping edge on Platform 1/2 and Platform 3/4 of approximately 80-200 millimetres (mm) (compliant with ASA standards).

The construction methodology has also been updated and will require:

- Temporary closure of North Parade for approximately 4 weeks (2 closures of 2 week duration) for setup and operation of a crane.

Figure 3-1 to Figure 3-4 shows the concept design general layout and elevation details of key elements for the proposed modification.

3.1.3 Ancillary facilities

- Compound 1 – Temporary use of a compound at the Rooty Hill Substation approximately 200m west of Rooty Hill Station for materials preparation and storage, spoil storage and construction worker parking.
- Compound 2 – Temporary use of an existing private car park between Weston Lane and Station Street located adjacent to a medical facility, approximately 80m to the north of the railway station for construction worker parking and site sheds.

Materials and finishes for the proposed modification are consistent with those presented in the project REF.

3.1.4 Engineering constraints

The proposed modification does not present any additional engineering constraints to those presented in the project REF.

3.1.5 Design standards

The proposed modification would be designed having regard to the design standards as presented in the project REF.

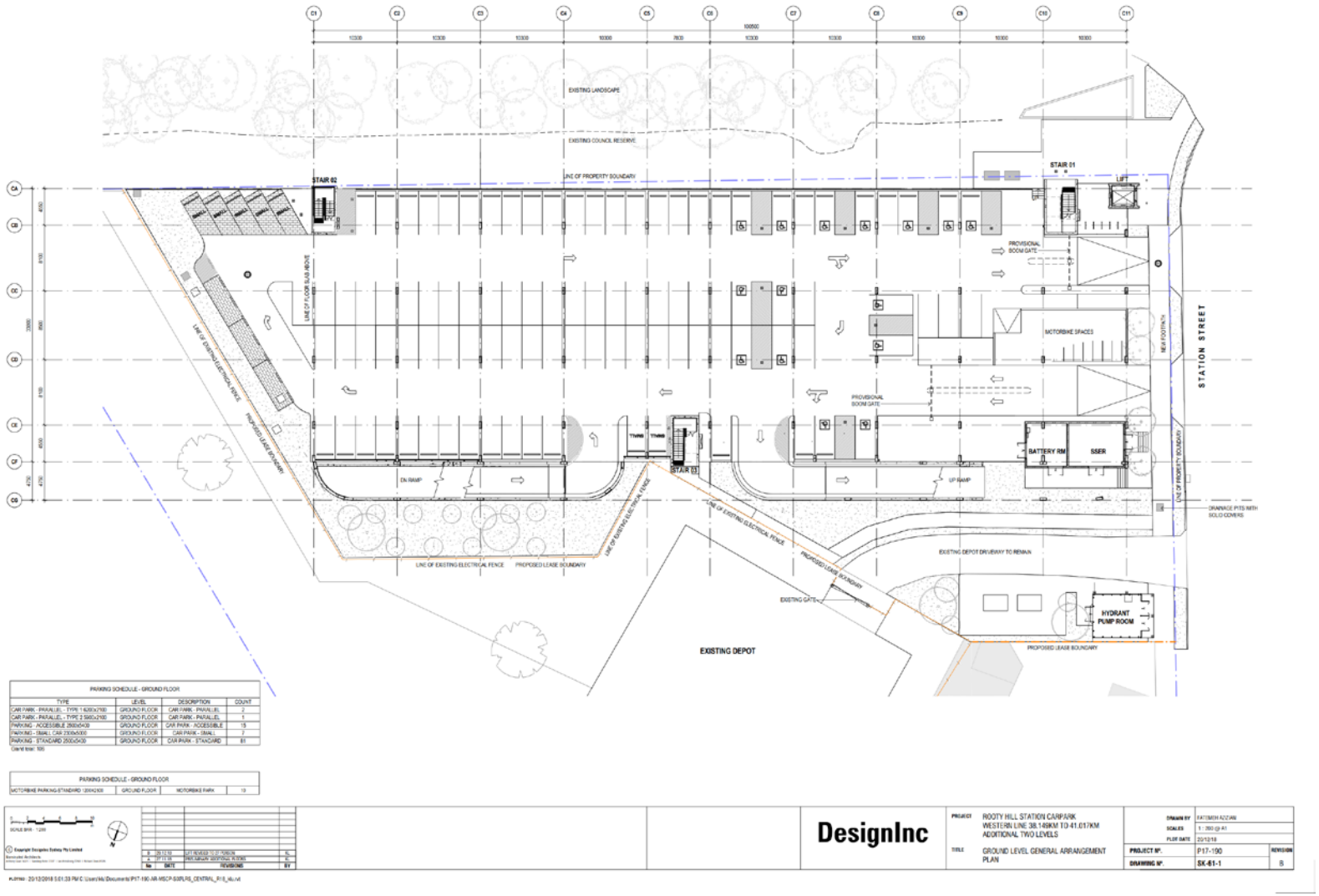


Figure 3-1 Concept Design - General layout of ground level. Indicative only, subject to detailed design.

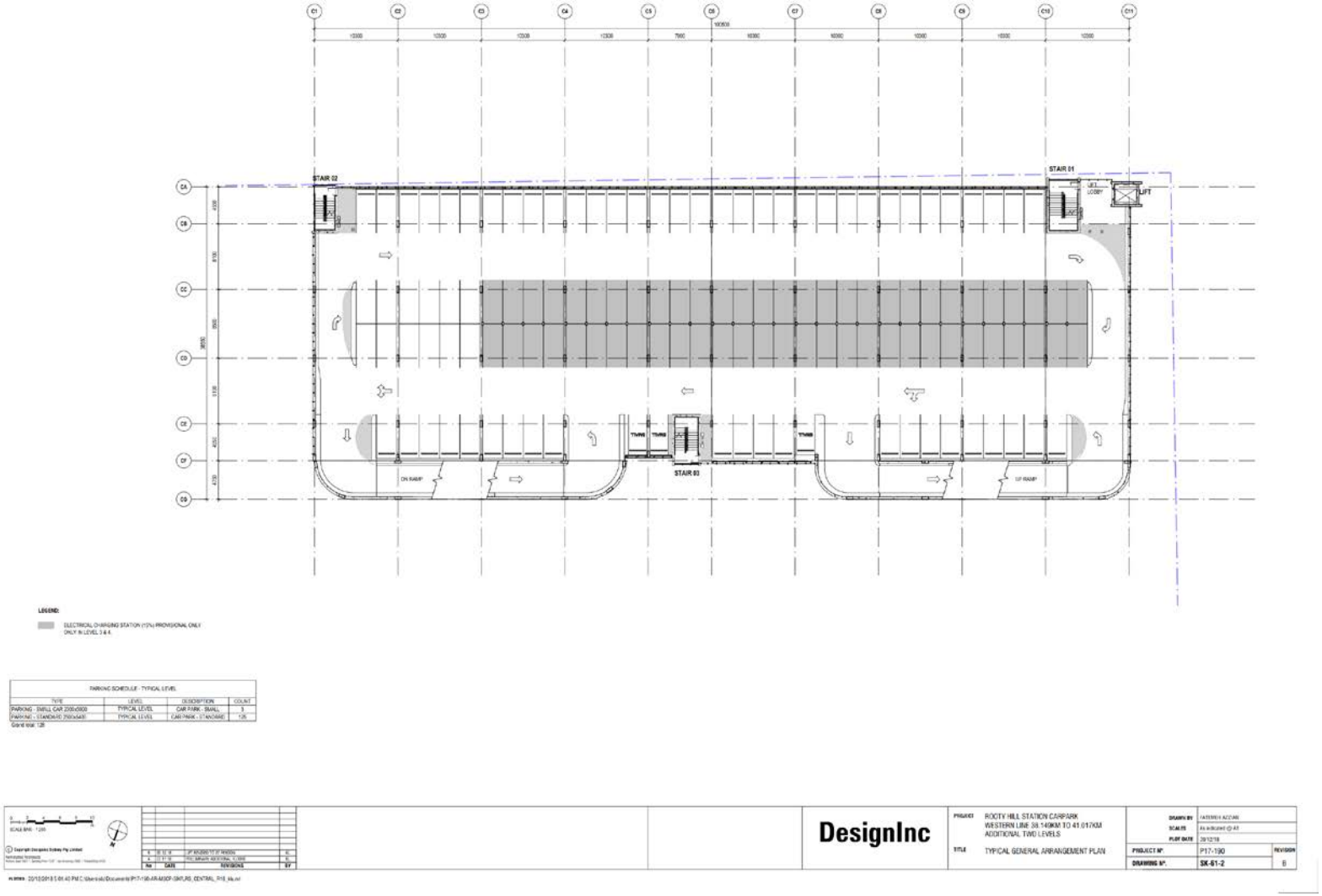


Figure 3-2 Concept Design - General layout of levels 2, 3 and 4. Indicative only, subject to detailed design.

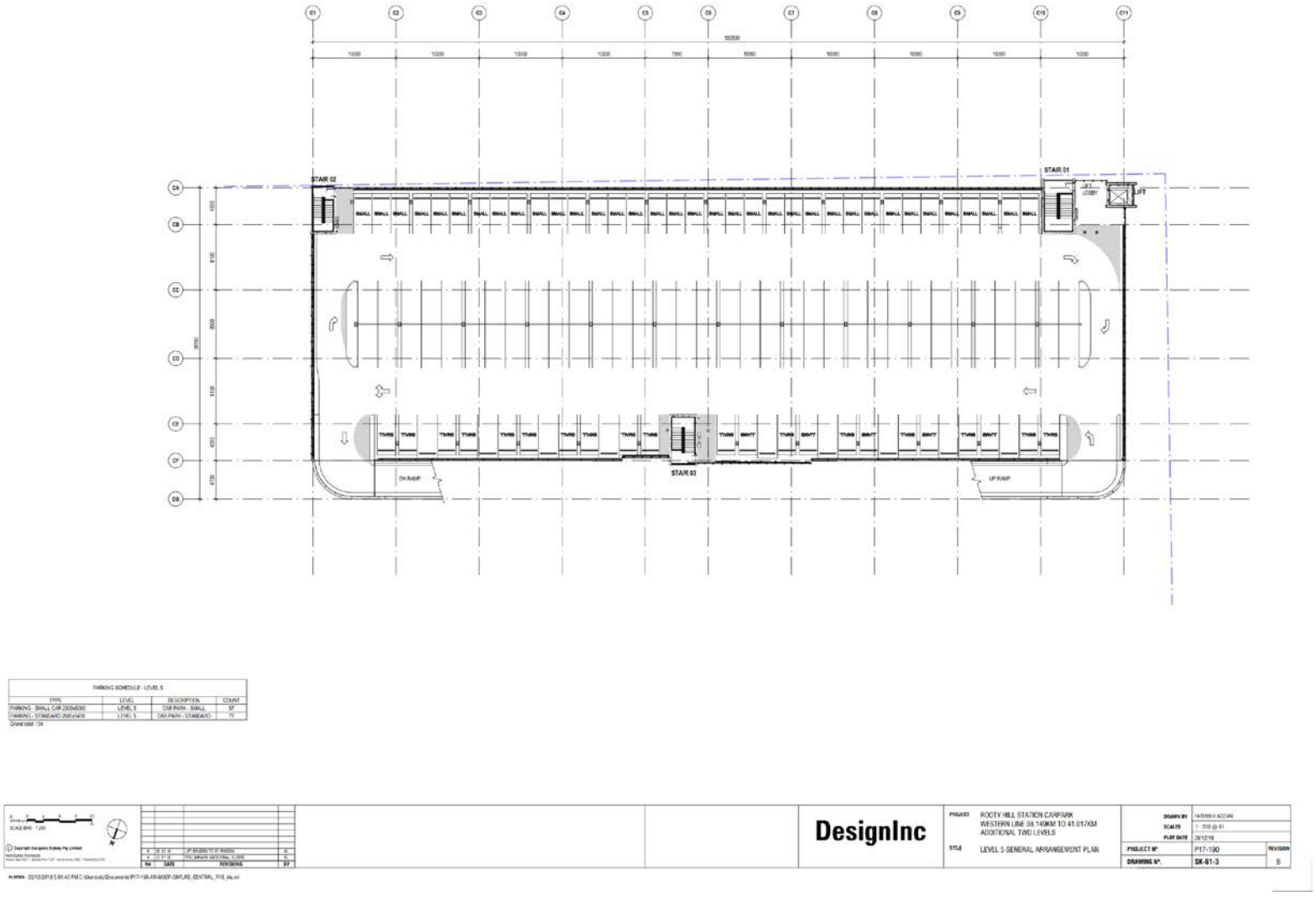


Figure 3-3 Concept Design - General layout of level 5. Indicative only, subject to detailed design.

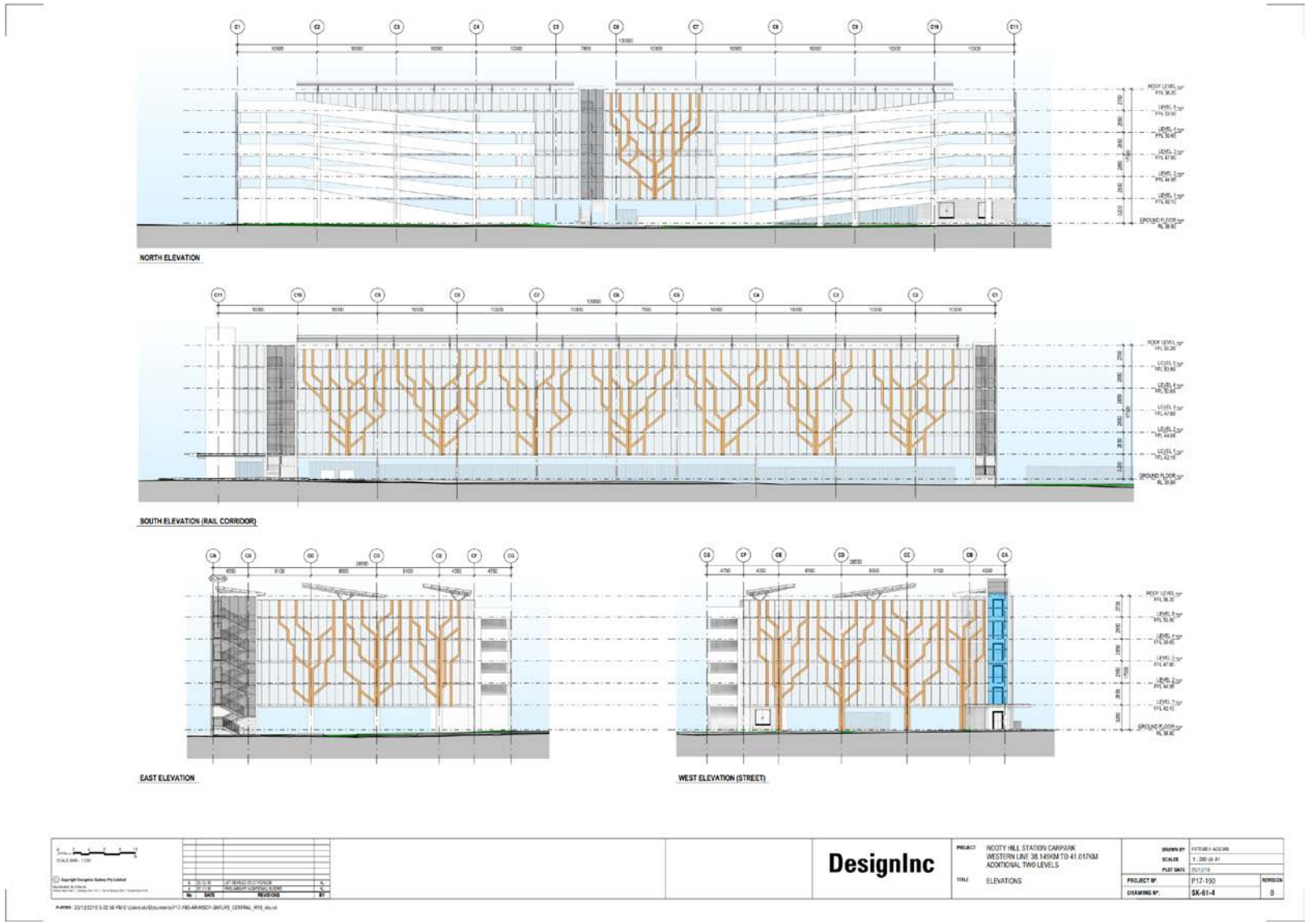


Figure 3-4 Concept Design - General layout of elevation. Indicative only, subject to detailed design.

3.1.6 Sustainability in design

The development of the concept design for the proposed modification has been undertaken in accordance with the project targets identified in TfNSW's Environmental Management System (EMS) and the *NSW Sustainable Design Guidelines - Version 4.0* (TfNSW, 2017) which are divided into seven themes:

- energy and greenhouse gases
- climate resilience
- materials and waste
- biodiversity and heritage
- water
- pollution control
- community benefit.

Within each theme, potential initiatives are prioritised into two categories of requirements:

1. Compulsory – the initiative is required to be implemented when applicable to the project as they refer to a corporate target, or are fundamental to the delivery of sustainable assets)
2. Discretionary – the initiative has benefits to be implemented, however may not be the most appropriate.

A shortlist of compulsory initiatives has been developed by TfNSW specifically for Transport Access Program projects, which includes the Rooty Hill Station Upgrade and Commuter Car Park. These compulsory initiatives have been reviewed and incorporated into the concept design.

During the detailed design process, the approved project and proposed modification is reviewed against the Infrastructure Sustainability Council of Australia (ISCA) Infrastructure Sustainability (IS) Rating Scheme (v1.2). The rating scheme provides an independent and consistent methodology for the application and evaluation of sustainability outcomes in large scale infrastructure projects. The IS Rating Scheme can be grouped into six key themes:

- management and governance
- using resources
- emissions, pollution and waste
- ecology
- people and place
- innovation.

These sustainability themes are divided into 15 performance categories, against which the approved project and the proposed modification would be independently assessed and assigned a rating level of commended, excellent or leading.

3.2 Construction activities

3.2.1 Work methodology

Construction has begun for the works assessed in the project REF.

Subject to approval, the proposed modification is expected to be constructed in conjunction with the approved project throughout 2019 and be completed in early to mid-2020. The construction methodology would be further developed during the detailed design of the proposed modification by the construction contractor in consultation with TfNSW.

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 construction contractor's preferred methodology, program and sequencing of work.

The proposed construction activities for the proposed modification are identified below:

- Compound site establishment and preparation
- North Parade road closure for approximately 4 weeks for setup and operation of a crane. The crane will be used to install the new footbridge, as per project REF, over two possessions.

3.2.2 Plant and equipment

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

- Trucks
- Generator
- Bobcat
- Hand tools
- Mulcher
- Chainsaw
- Excavator
- Demolition saw
- Jack hammer
- Grinder
- Piling rig
- Concrete truck and pump
- Concrete agitators
- Concrete vibrators
- 25 tonne franna
- 250 tonne crane
- Semi-trailer
- Electric Work Platform
- 200 tonne crane
- 350 tonne crawler crane
- Scissor lift
- Fork lift
- Small mobile crane
- Hand held soil compactor
- Balloon wheel dump trucks
- Rattle gun
- Nail gun
- Vibratory roller
- Paving machine
- Rail accessible motor vehicles
- Concrete coring machine
- Lighting towers

3.2.3 Working hours

The majority of works required for the proposed modification 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 works may need to occur outside standard hours and would include night works and works during routine rail possessions which are scheduled closures that would occur regardless of the proposed modification when part of the rail network is temporarily closed and trains are not operating.

Out of hours' works are required in some cases to minimise disruptions to customers, pedestrians, motorists and nearby sensitive receivers; and to ensure the safety of railway workers and operational assets.

Out of hours works may also be scheduled outside rail possession periods. Approval from TfNSW would be required for any out of hours work and the affected community would be notified in accordance with the project Noise and Vibration Management Plan (refer to Section 6.3 for further details).

3.2.4 Earthworks

The earthworks associated with the proposed modification are consistent with the assessment presented in the project REF Section 3.2.4.

3.2.5 Source and quantity of materials

The source and quantity of materials would be determined during the detailed design phase of the proposed modification, and would consider the requirements of the *NSW Sustainable Design Guidelines – Version 4.0* (TfNSW, 2017). Materials would be sourced from local suppliers where practicable. Reuse of existing and recycled materials would be undertaken where practicable.

As identified in the project REF materials required in large quantities would include concrete, steel and bitumen. The additional 2 levels that form part of this proposed modification would increase the previously identified values.

The project REF identified greater than 2,000 tonnes of concrete as expected to be required. The additional two storeys of the car park will also require approximately 2,000 tonnes of concrete. This brings the total estimated concrete quantity for the modified project to 4,0000 tonnes.

Footbridge bridge components would be prefabricated off-site and delivered to site for assembly whereas the car park would be constructed in-situ.

3.2.6 Traffic access and vehicle movements

Traffic and transport impacts associated with the proposed modification and additional to those assessed in the project REF are assessed in Section 6.1 of this REF. The potential traffic and access impacts expected during the construction of the proposed modification include:

Temporary closure of North Parade for approximately 4 weeks (2 closures of 2 week duration) for setup and operation of a crane

- temporary closure (approximately four weeks – 2 closures of 2-week duration) a small localised area of North Parade (section adjacent station) in May 2019 for the setup of a 350-tonne crawler crane to install the new footbridge, assessed in the project REF.
- temporary loss of approximately three car spaces on North Parade.
- Compound 2 contains approximately 30 car spaces; however, this space is private property and has been fenced off and not available to the public for parking. Therefore, there is no additional loss of commuter parking spaces at this location.

3.2.7 Ancillary facilities

Two additional construction compounds are proposed to be used as part of the proposed modification (refer to Figure 1-2). This would include:

Compound 1 – Temporary use of a compound at the Rooty Hill Substation approximately 200m west of Rooty Hill Station for materials preparation and storage, spoil storage and construction worker parking.

Compound 2 – Temporary use of an existing private car park between Weston Lane and Station Street located adjacent to a medical facility, approximately 80m to the north of the railway station for construction worker parking and site sheds.

3.2.8 Public utility adjustments

The works associated with the proposed modification are consistent with the assessment presented in the project REF.

3.3 Property acquisition

There is a lease agreement currently agreed for a one year duration (commencing 22 October 2018) for the use of Compound 2 site with the current land owner.

3.4 Operation management and maintenance

Management and maintenance of operational components associated with the proposed modification are consistent with those presented in the project REF.

4 Statutory considerations

Chapter 4 provides a summary of the statutory considerations relating to the proposed modification including a consideration of NSW Government polices/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 proposed modification is likely to significantly impact on matters of NES or Commonwealth land. These matters are considered in full in Appendix A.

The proposed modification would not impact on any matters of NES or on Commonwealth land. Therefore, a referral to the Commonwealth Minister for the Environment is not required.

4.2 NSW legislation and regulations

4.2.1 Environmental Planning and Assessment Act 1979

The EP&A Act establishes the system of environmental planning and assessment in NSW. The proposed modification 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 TfNSW, which do not require development consent under Part 4 of the Act.

In accordance with Section 5.5 of the EP&A Act, TfNSW, 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 proposed modification.

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 Part 5 of the EP&A Act has a significant impact on the environment. Chapter 6 of the REF provides an environmental impact assessment of the proposed modification in accordance with clause 228 and Appendix B specifically responds to the factors for consideration under clause 228.

4.2.2 Other NSW legislation and regulations

Table 2 provides a list of other relevant legislation applicable to the proposed modification.

Table 2 Other legislation applicable to the approved project and proposed modification

Applicable legislation	Considerations
Contaminated Land Management Act 1997 (CLM Act) (NSW)	Section 60 of the CLM Act imposes a duty on landowners to notify the Office of Environment and Heritage (OEH), and potentially investigate and remediate land if contamination is above EPA guideline levels. The site (inclusive of additional site compounds) has not been notified to the EPA as a potentially contaminated site, nor regulated under the CLM Act as being significantly contaminated (refer Section 6.8 of the project REF).
Crown Lands Act 1987 (NSW)	The proposed modification does not involve works on any Crown land.
Disability Discrimination Act 1992 (DDA Act) (Cwlth)	The proposed modification would be designed having regard to the requirements of this Act.
Heritage Act 1977 (Heritage Act) (NSW)	• Sections 57 and 60 (approval) where items listed on the State Heritage Register are to be impacted • Sections 139 and 140 (permit) where relics are likely to be exposed • Section 170 where items listed on a government agency Heritage and Conservation Register are to be impacted. The project REF study area is located within and directly adjacent to Rooty Hill Station Group, which is listed on RailCorp's Section 170 Heritage and Conservation Register and on the *Blacktown Local Environmental Plan 2015*. The proposed modification would also involve works in this area. The archaeological assessment, summarised in the project REF, concluded that there is a low risk of exposing historical archaeological relics during construction and that no archaeological approvals under the Heritage Act would be required. An assessment of potential impacts to non-Indigenous heritage for the proposed modification is summarised in Section 6.5 of the project REF.
National Parks and Wildlife Act 1974 (NPW Act) (NSW)	Sections 86, 87 and 90 of the NPW Act require consent from OEH for the destruction or damage of Indigenous objects. The proposed modification is unlikely to disturb any Indigenous objects (refer to Section 6.4). However, if unexpected archaeological items or items of Indigenous heritage significance are discovered during the construction of the approved project or proposed modification, all works would cease and appropriate advice sought.
Noxious Weeds Act 1993 (NSW)	There is one (1) noxious weed identified in the approved project and proposed modification area *Cestrum parqui* (Green Cestrum). Appropriate management methods would be implemented during construction (refer to Section 6.7 of the project REF).

Applicable legislation	Considerations
Protection of the Environment Operations Act 1997 (PoEO Act) (NSW)	The proposed modification does not involve a 'scheduled activity' under Schedule 1 of the PoEO Act. Accordingly, an Environment Protection Licence (EPL) is not required for the proposed modification. However, in accordance with Part 5.7 of the PoEO Act, TfNSW would notify the EPA of any pollution incidents that occur onsite. This would be managed in the Construction Environmental Management Plan to be prepared and implemented by the Contractor.
Roads Act 1993 (Roads Act) (NSW)	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 works on unclassified roads. The project would involve works on Beames Avenue, Station Street, North Parade and Rooty Hill Road North which are local roads under the control of Blacktown City Council. Consent under the Roads Act is not required however Road Occupancy Licence/s would be obtained from Blacktown City Council for temporary road closures. Refer to Section 6.1 of the project REF for more information. Any operational changes (such as changes to pedestrian crossings, parking/kiss and ride changes, bus zones, signage etc.) to these roads would be undertaken with approval from the appropriate road authority.
Sydney Water Act 1994 (NSW)	The proposed modification would not involve discharge of wastewater to sewer.
Biodiversity Conservation Act 2016 (BC Act) (NSW)	The site contains native vegetation that forms suitable habitat for some listed threatened fauna species or community however given the relatively low condition of the community, it's removal is unlikely to have a significant impact on any threatened species or community (refer Section 6.7 of the project REF). The new site areas, the subject of the proposed modification, would be used temporarily for the duration of construction and do not require any disturbance to or removal of vegetation.
Waste Avoidance and Resource Recovery Act 2001 (WARR Act) (NSW)	TfNSW would carry out the approved project and proposed modification having regard to the requirements of the WARR Act. A site-specific Waste Management Plan would be prepared.
Water Management Act 2000 (NSW)	The project would not involve any water use (from a natural source e.g. aquifer, river – only from the network), water management works, drainage or flood works, controlled activities or aquifer interference.

4.3 State Environmental Planning Policies

4.3.1 State Environmental Planning Policy (Infrastructure) 2007

The Infrastructure SEPP is the key environmental planning instrument which determines the permissibility of the approved project and proposed modification and which part of the EP&A Act an activity or development may be assessed.

Clause 79 of the Infrastructure SEPP allows for the development of 'rail infrastructure facilities' 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). Clause 78 defines '*rail infrastructure facilities as including*

elements such as 'railway stations, station platforms and areas in a station complex that commuters use to get access to the platforms', public amenities for commuters' and 'associated public transport facilities for railway stations'.

Consequently, development consent is not required for the proposed modification which is classified as a rail infrastructure facility, however the environmental impacts of the proposed modification and the cumulative impacts of the modified project 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 the project REF discusses the consultation undertaken under the requirements of the Infrastructure SEPP.

It is noted that the Infrastructure SEPP prevails over all other environmental planning instruments except where *State Environmental Planning Policy (Major Development) 2005* and *State Environmental Planning Policy (Coastal Management) 2018 (106)*. The proposed modification does not require consideration under these SEPPs and therefore do not require further consideration as part this REF.

4.3.2 State Environmental Planning Policy 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 approved project and proposed modification is not required, the provisions of SEPP 55 have still been considered in the preparation of this REF.

Section 6.8 of the project REF contains an assessment of the potential contamination impacts of the project. It is unlikely that any large-scale remediation (Category 1) work would be required as part of the project. The proposed modification includes additional land use. The potential for the presence of contamination at these sites is presented in Section 6.8.

The risks posed by the presence of any potential undocumented contaminants that exist within the rail corridor or adjoining lands on the site are expected to be unchanged as a result of the proposed modification.

4.4 Local environmental planning instrument and development controls

The proposed modification is located within the Blacktown LGA. The provisions of the Infrastructure SEPP mean that Local Environmental Plans (LEPs), prepared by councils for an LGA, do not apply. However, during the preparation of this Addendum REF, the provisions of the *Blacktown Local Environmental Plan 2015* were considered.

4.4.1 Blacktown Local Environmental Plan 2015

The *Blacktown Local Environmental Plan 2015* (Blacktown LEP) is the governing plan for the Blacktown LGA, including Rooty Hill. Table 3 summarises the relevant aspects of the Blacktown LEP applicable to the proposed modification. Figure 4-2 shows the relevant section of the zoning map from the Blacktown LEP, with the indicative locations associated with the proposed modification.

Table 3 Relevant provisions of the Blacktown LEP

Provision description	Relevance to the Project and Proposed Modification
Land Use Zone B2 Mixed Use, SP2 Rail Infrastructure Facility, SP2 Depot Facility	The project is located in land zoned B2 Mixed Use, SP2 Infrastructure (Rail Facility) and SP2 Infrastructure (Depot Facility). Further details on these land zones are presented in the project REF. Additional land associated with the proposed modification is located on SP2 Infrastructure (Rail Corridor) (Compound 1) and B2 Local Centre (Compound 2).
Clause 5.10 Heritage Conservation	The objectives of the Blacktown Conservation clause (clause 5.10) is: • to conserve the environmental heritage of Blacktown • to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views, • to conserve archaeological sites, • to conserve Aboriginal objects and Aboriginal places of heritage significance. Some components of the proposed modification are either within or directly adjacent to Rooty Hill Railway Station and buildings. Heritage items identified within the vicinity of the project are described in Section 6.5. This section also identifies measures to minimise impacts on these heritage items. Additional areas associated with the proposed modification are not located in proximity to any additional heritage items not already assessed under the project REF. Additional construction scope associated with the proposed modification will not impact on the conservation of environmental heritage.
Clause 7.1 Flooding Planning	The objectives of this clause are: • to minimise the flood risk to life and property associated with the use of land • to allow development on land that is compatible with the land's flood hazard, taking into account projected changes as a result of climate change • to avoid significant adverse impacts on flood behaviour and the environment. The proposed modification is not located within areas determined by Blacktown City Council to be within the 1% Annual Exceedance Probability extent.

Provision description	Relevance to the Project and Proposed Modification
Clause 7.2 Terrestrial Biodiversity	The objective of this clause is to maintain terrestrial and aquatic biodiversity by: • protecting native fauna and flora • protecting the ecological processes necessary for their continued existence • encouraging the conservation and recovery of native fauna and flora and their habitats. Details of the Ecological Assessment conducted for the approved project and proposed modification are detailed in Section 6.7. Based upon the assessment undertaken in this report, no significant impact is expected to occur to threatened species, populations or communities as a result of the project and proposed modification and hence is consistent with the intent of this clause.

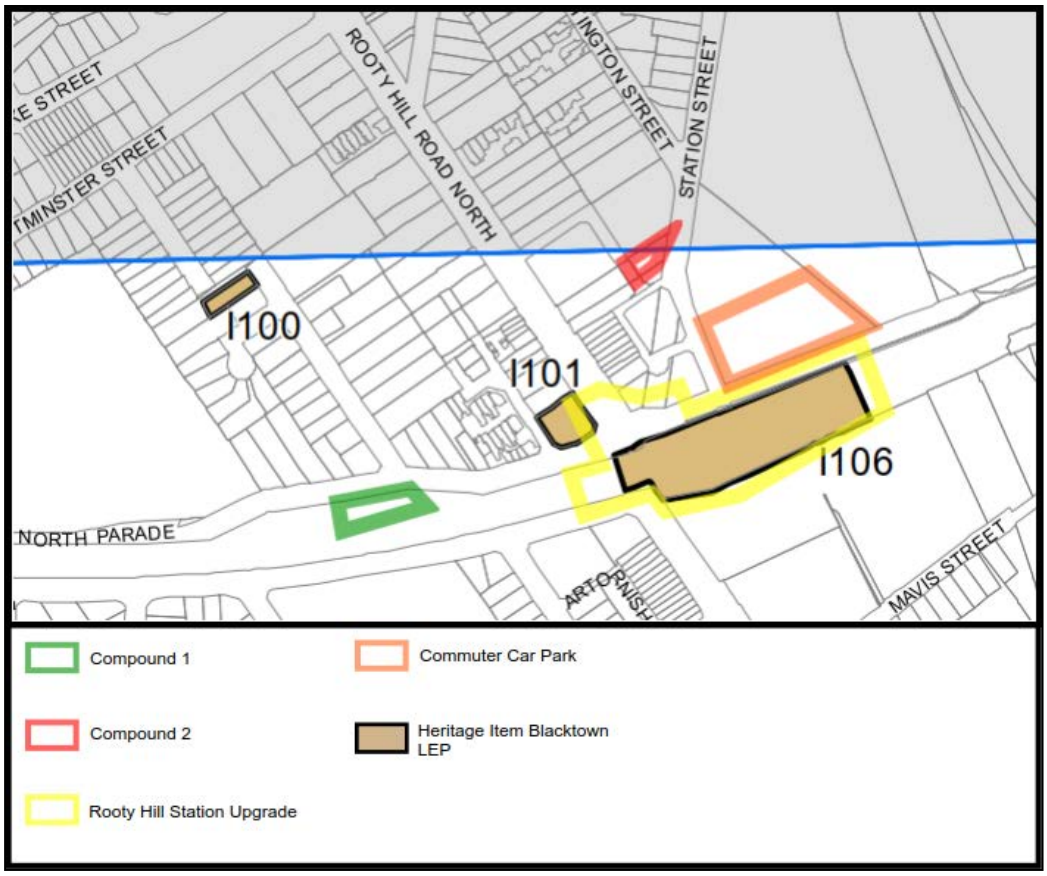


Figure 4-1 Blacktown LEP 2015 Local Heritage Listings.

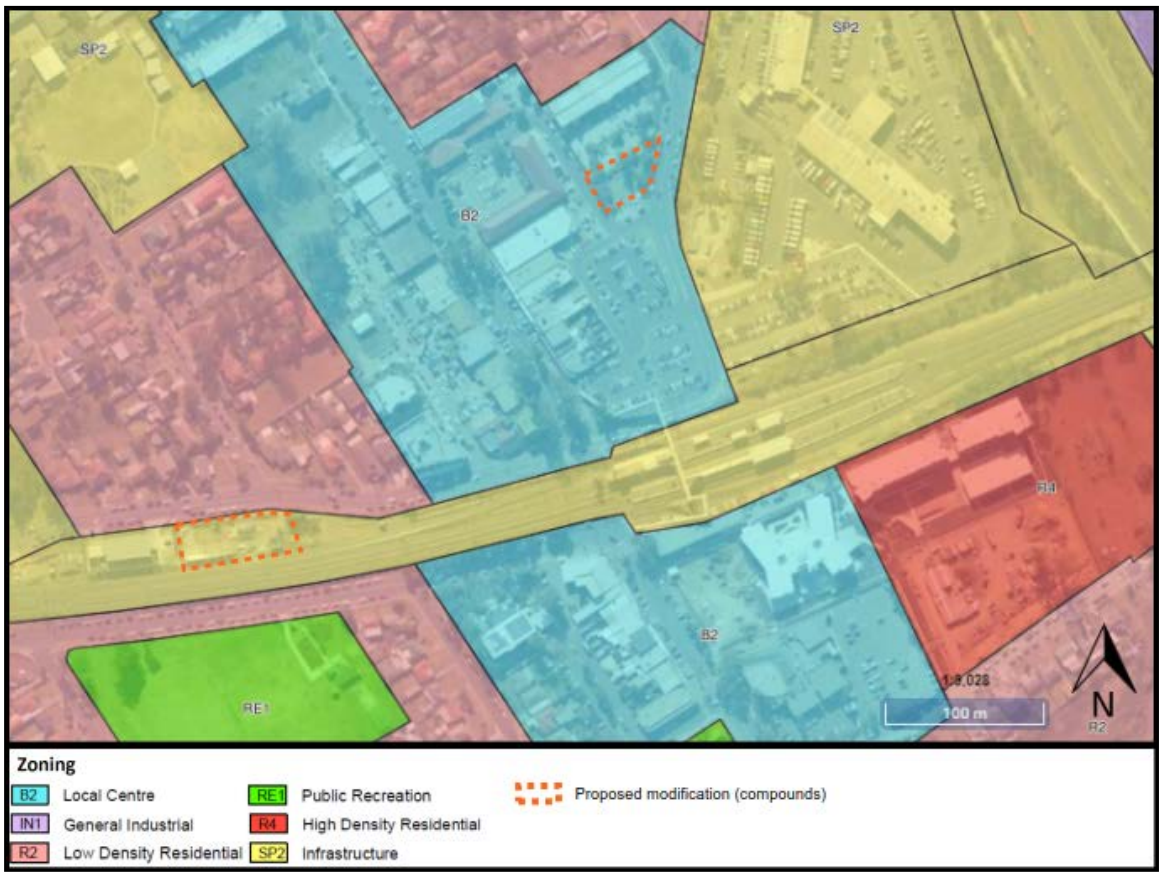


Figure 4-2 Blacktown LEP 2015 zoning map

4.5 NSW Government policies and strategies

Table 4 provides an overview of other NSW Government policies and strategies relevant to the approved project and proposed modification.

Table 4 NSW Government policies and strategies applicable to the project and proposed modification

Policy/Strategy	Commitment	Comment
Disability Action Plan 2012-2017 (TfNSW, 2012b)	The *Disability Action Plan 2012-2017* was developed by TfNSW in consultation with the Accessible Transport Advisory Committee, which is made up of representatives from peak disability and ageing organisations within NSW. The Disability Plan discusses 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.	The approved project and proposed modification have been developed with consideration of the objectives outlined in this Plan and seeks to improve and provide equitable access to public transport facilities.
Sydney's Walking Future - Connecting people and places (TfNSW, 2013b)	*Sydney's Walking Future* outlines the NSW government's efforts to: • promote walking for transport • connect people to places through safe walking networks around activity centres and public transport interchanges.	The approved project and proposed modification would facilitate walking by removing physical barriers to accessible public transport and by providing accessible cross-corridor access, hence contributing a relative reduction in local trips via private cars.
Sydney's Cycling Future - Cycling for everyday transport (TfNSW, 2013c)	*Sydney's Cycling Future* outlines the NSW government's commitment to a safe and connected network of bicycle paths as an important part of Sydney's integrated transport system. The government wants to make bike riding a convenient and enjoyable option by improving access to towns and centres, and investing in bicycle facilities at transport hubs.	The approved project and proposed modification support the government's Bike and Ride initiative that better integrates bicycle riding with other modes of transport, making it convenient to ride to transport hubs, park bicycles securely and transfer to public transport as part of longer transport journeys.
Building Momentum – State Infrastructure Strategy 2018-2038 (NSW Government, 2018)	*Rebuilding NSW* is a plan to deliver $20 billion in new productive infrastructure to sustain productivity growth in our major centres and regional communities. Rebuilding NSW will support overall population growth in Sydney and NSW. Public transport is viewed as critical to urban productivity,	The approved project and proposed modification support investment in rail infrastructure, and aligns with the reservation of $8.9 billion for urban public transport to support Sydney's population, that is expected to reach almost six million by 2031.

Policy/Strategy	Commitment	Comment
	expanding employment opportunities by connecting people to jobs, reducing congestion, and supporting delivery of urban renewal.	
A Plan for Growing Sydney (Department of Planning and Environment, 2014)	*A Plan For Growing Sydney* superseded the draft *Metropolitan Strategy for Sydney 2036*. The Plan provides information on the strategies to accommodate an additional 664,000 homes and 689,000 jobs by 2031, which in part will be helped by a more integrated transport network. The proposed modification is located in the West Central subregion and the priorities relevant for the West Central area include: • a competitive economy • accelerate housing supply, choice and affordability and build great places to live • protect the natural environment and promote its sustainability and resilience	The approved project and proposed modification would be consistent with the aims of the following directions by providing more accessibility to the Rooty Hill Station and to the suburb centre: • Direction 1.4: Transform the productivity of Western Sydney through growth and investment • Direction 1.11: Deliver infrastructure • Direction 3.1: Revitalise existing suburbs
NSW: Making It Happen (NSW Government, 2015)	In September 2015, the NSW Government announced a series of State Priorities as part of *NSW: Making It Happen* (NSW Government, 2015). The State Priorities are intended to guide the ongoing actions of the NSW Government across the State, and guide resource allocation and investment in conjunction with the NSW Budget. *NSW: Making it Happen* focuses on 12 key 'priorities' to achieve the NSW Government's commitments. These priorities range across a number of issues including infrastructure, the environment, education, health, wellbeing and safety in addition to Government services. One of the 12 priorities identified as part of *NSW: Making It Happen* relates to investment in building infrastructure. The ongoing development and	The approved project and proposed modification assist in meeting the priority by providing approximately 300 additional car parking spaces to commuters at Rooty Hill Station. The proposed modification would also make public transport more accessible and encourage the use of public transport.

Policy/Strategy	Commitment	Comment
	investment in transport infrastructure is identified as part of the wider building infrastructure priority.	
Future Transport Strategy 2056 (NSW Government, 2019)	The Future Transport Strategy is a vision for how transport can support growth and the economy of NSW over the next 40 years. This strategy is underpinned by the *Regional Services and Infrastructure Plan* and the *Greater Sydney Services and Infrastructure Plan* as well as a number of supporting plans including Road Safety and Tourism.	The approved project and proposed modification support the vision of the *Future Transport Strategy* by providing accessible services for people who find it difficult to access public transport services. Lifts and a compliant ramp would provide a physically accessible network allowing more chose for people with mobility constraints. Greater accessibility would also mean better connections to places and opportunities for employment, education, business and enjoyment.
Greater Sydney Region Plan and the ***Central City District Plan*** (Greater Sydney Commission, 2018)	The *Greater Sydney Region Plan* outlines how Greater Sydney will manage growth and change and guide infrastructure delivery. It sets the vision and strategy for Greater Sydney, to be implemented at a local level through the Central City District Plan. The Plans have been prepared in conjunction with the NSW *Government's Future Transport 2056 Strategy* and informs Infrastructure NSW's *State Infrastructure Strategy* providing full integration of land use, transport and infrastructure planning.	The approved project and proposed modification would assist in meeting the objectives of the *Greater Sydney Region Plan* and the *Central City District Plan* by providing greater accessibility to public transport. The provision of lifts and a compliant ramp would provide easy access to trains and busses. Additional bike racks would aid in making cycling to other modes of transport more convenient. The improved access and additional bike racks at Rooty Hill Station as well as additional car parking spaces would provide greater connectivity between public transport to town centres, open spaces and public places which is in line with the priority of a city supported by infrastructure.

4.6 Ecologically sustainable development

TfNSW 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 TfNSW throughout the development and assessment of the Rooty Hill Addendum REF. Sustainability in design of the project REF summarises how ESD would be incorporated in the design development of the project. Section 6.12 includes an assessment of the project REF on climate change and sustainability, and Section 7.2 of the project REF lists mitigation measures to ensure ESD principles are incorporated during the construction phase of the project and proposed modification.

5 Community and stakeholder consultation

Chapter 5 of the project REF discusses the consultation undertaken to date for the Rooty Hill Station Upgrade and Commuter Car Park and the consultation proposed for the future. This chapter discusses the consultation strategy adopted for the proposed modification.

5.1 Stakeholder consultation during concept design

Consultation was undertaken with Blacktown City Council, RailCorp and Sydney Trains during the development of design options and confirmation of the preferred option. Consultation with these stakeholders would continue through the detailed design and construction of the proposed modification.

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 provides details of consultation requirements under the Infrastructure SEPP for the Proposed modification.

Table 5 Infrastructure SEPP consultation requirements

Clause	Clause particulars	Relevance to the proposed modification
Clause 13 | Consultation with Councils – development with impacts on council related infrastructure and services	Consultation is required where the proposed modification would result in: • 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.	The proposed modification includes works that would: • disrupt pedestrian and vehicle movements • impact on road pavements under Council's care and control • impact on Council-operated footpaths. Consultation with Blacktown City Council has been undertaken and would continue throughout the detailed design and construction phases.
Clause 14 | Consultation with Councils – development with impacts on local heritage	Where railway station works: • substantially impact on local heritage item (if not also a State heritage item) • substantially impact on a heritage conservation area.	The proposed modification would include regrading of the station platform, raising the coping height by 80-150 millimetres along the platform edges. This will not substantially impact on a local heritage item or conservation area. Refer to Section 6.5.

Clause	Clause particulars	Relevance to the proposed modification
Clause 15 | Consultation with Councils – development with impacts on flood liable land	Where railway station works: • impact on land that is susceptible to flooding – reference would be made to *Floodplain Development Manual: the management of flood liable land.*	The proposed modification is located on land that is susceptible to flooding. Accordingly, consultation with Blacktown City Council is required in regard to this aspect. Refer to the project REF Section 6.9.
Clause 15AA | Consultation with State Emergency Service – development with impacts on flood liable land	Where railway station works: • impact on land that is susceptible to flooding – reference would be made to *Floodplain Development Manual: the management of flood liable land*.	The proposed modification is located on land that is susceptible to flooding. Accordingly, consultation with State Emergency Service is required in regard to this aspect. This is a new consultation requirement that was not in force at the time of when the project REF was prepared.
Clause 16 | Consultation with public authorities other than Councils	For *specified development,* which includes consultation with the OEH for development that is undertaken adjacent to land reserved under the *National Parks and Wildlife Act 1974*, and other agencies specified by the Infrastructure SEPP where relevant. Although not a specific Infrastructure SEPP requirement, other agencies TfNSW may consult with could include: • Roads and Maritime • Sydney Trains • OEH.	The proposed modification is not located adjacent to land reserved under the *National Parks and Wildlife Act 1974*. Accordingly, consultation with the OEH on this matter is not required.

5.3 Consultation strategy

A consultation strategy for the project was developed to encourage stakeholder and community involvement and foster interaction between stakeholders, the community and the project team. The commitments to consultation during construction as outlined in the project REF apply to the proposed modification.

Additional consultation has been recommended as mitigation measures associated with the use of Compound 1 as outlined in Section 6.3.

5.4 Aboriginal community involvement

An Aboriginal Heritage Information Management System (AHIMS) search was undertaken for the additional compound sites plus a 50-metre buffer, on 5 February 2019. The AHIMS searches did not identify any Aboriginal sites of places within the search perimeters for Compound 1 and Compound 2.

Further detail on the assessment of the potential impacts on aboriginal heritage are outlined in the project REF Section 6.4 including relevant mitigation measures.

5.5 Ongoing consultation

Should TfNSW determine to proceed with the proposed modification, the project team would keep the community, councils 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 proposed modification. The interaction with the community would be undertaken in accordance with a Community Liaison Plan developed for the project REF.

6 Environmental impact assessment

Chapter 6 of the Addendum REF provides a detailed description of the potential environmental impacts associated with the construction and operation of the proposed modification of the Rooty Hill Station Upgrade and Commuter Car Park project. All aspects of the environment potentially impacted upon by the proposed modification are considered.

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 Addendum REF is included at Appendix B.

6.1 Traffic and transport

A Traffic, Transport and Access Impact Assessment (TT&AIA) for the Rooty Hill Station and Commuter Car park project was undertaken by Seca Solutions (Seca) for inclusion in the project REF (see Appendix C of the project REF). Seca were again engaged to undertake a TT&AIA of the proposed modification for inclusion in the Addendum REF (see Appendix C).

6.1.1 Existing environment

The existing environment was described in Section 6.1.1 of the project REF and is relevant to the proposed modification as works would occur within the approved project footprint and nearby locations in close proximity (less than 200 metres).

6.1.2 Potential impacts

The potential impacts of the proposed modification on traffic and transport are not significant and consistent with those outlined in the project REF. Further information is outlined below and within Appendix C.

Construction Traffic

Compound 1 & 2

The use of the Compound 1 for pre-cast concrete works, material storage and staff parking would see a demand for heavy vehicles accessing this location via North Parade. However, the number of heavy vehicle movements would be consistent with those considered under the project REF, with all heavy vehicles to use the identified route to access North Parade.

The use of Compound 1 is not anticipated to result in an increase in the number of heavy vehicles, rather just a redistribution of heavy vehicles as assessed within the project REF. There is estimated to be 50 heavy vehicle movements per day during peak construction, with typically less than 15 during the balance of construction of the approved project and proposed modification. Only a percentage of these would access Compound 1.

The use of Compound 1 and temporary closure of North Parade would result in the loss of three car parking spaces. There is a cumulative impact of 163 commuter car spaces temporarily unavailable, attributed by 160 from the approved project and three from the proposed modification. This increased impact is negligible.

The use of Compound 2 for staff parking would see a relocation of traffic movements assessed under the project REF. This is a private site under lease for construction purposes and has been fenced off from the public. Its use for the approved project and proposed modification does not constitute a loss of commuter parking or an increase in traffic movement from the project REF.

The impacts of these site compounds and potential mitigation is consistent with those associated with the construction traffic and closure of the existing commuter car park during the construction phase as discussed in the project REF.

Access to Car Park

The proposed modification would result in provision of separate entry and exit driveways for the car park off Station Street. This would result in negligible additional or cumulative impact to that assessed in the project REF as they are in a similar position to the existing driveways.

The sight distance for the proposed exit driveway is more than 90 metres to the north which meets the minimum Entering Sight Distance of 45 metres for the posted speed limit of 50km/hr. The sight distance to the south is 31 metres (or 37 metres with inclusion of partial visibility through a fence). While this does not meet the minimum requirements, it is noted that the alignment includes a 90-degree bend which would mean vehicles would be travelling below the speed limit. The available sight lines are considered appropriate and would not create a significant risk to traffic safety in this location.

Queueing associated with entry/exit of the car park is estimated to be up to 11 vehicles in accordance with AS2890.1:2004. The site has no vehicle controls associated with the driveway allowing free flow and the first car spaces are located more than 30 metres from the frontage road, providing adequate space for 10 vehicles to be queued.

Note: The Australian Standard (AS2890.1:2004) estimates for queuing are based on a peak inflow of 75%. This is not consistent with the predicted use of the proposed car park as with arrivals are predicted to be spread out to meet varying travel patterns.

The exit driveway would allow two vehicles to stand side by side when exiting onto Station Street which has the potential to result in conflicting movements. Restrictions for left and right turns for each lane or reducing the width for a single lane of exit only would resolve this conflict.

Traffic Generation

The proposed modification, specifically the additional two storeys and subsequent increase in car parking spaces, would result in an increase of 124 vehicles in the morning and evening commuter peak and a total of 376 vehicles arriving or departing during these periods. An additional 150 pedestrian movements per hour are also anticipated between the car park and station.

Whilst this will result in an increase in vehicle movements along Station Street these vehicles would have currently parked elsewhere on the local road network. As such the proposed modification is not anticipated to increase the demands for commuters travelling to Rooty Hill Station but rather redistribute traffic on the local roads to access the car park via Station Street.

The surrounding roads and intersections have adequate spare capacity to cater for the additional demand for vehicles accessing the car park associated with the modified project and thus would not result in a significant impact on traffic in the local area.

Due to the relatively small changes to traffic generation the level of service is anticipated to remain consistent with that assessed in the project REF. The expected cumulative travel patterns for commuters are consistent with the traffic assessment within the project REF.

Road Closures

The project REF previously identified a number of temporary lane closures which would cause minor traffic delays and disruptions. The proposed modification extends the duration of the temporary closure of North Parade to a total of four weeks across two periods. There are no vehicle access points along the section of North Parade to be closed however cyclist and

pedestrian traffic will need to be maintained. This would not result in a significant impact due to the short term and temporary nature of the closure in a small localised area.

Targeted consultation with adjacent businesses and the Blacktown City Council will be undertaken to ensure any potential impacts to traffic flow are kept to a minimum. Signage would be provided with suitable notification to alert commuters and customers that access would be maintained to local commercial premises and trading would be as normal.

Access for emergency services would be maintained at all times.

6.1.3 Mitigation measures

Additional mitigation measures related to traffic and transport are proposed as a result of the proposed modification.

- Detailed design of the car par entry and exit will consider including restrictions for left and right turns for each lane exiting the car park or reducing the width for a single lane of exit.

Potential impacts associated with the four-week closure of North Parade would be addressed through the Traffic Management Plan (TMP) and Traffic Control Plan (TCP) which were included as a mitigation measure in the project REF.

Additional requirements of the TMP and TCP are proposed including:

- The TMP and TCP will specifically consider the closure of North Parade and ensure that:
    - All existing access points are maintained during construction and pedestrian access maintained to Rooty Hill Station at all times
    - Access to the car parks on the western side of Station Street to be unaffected
    - Detours are only in place to direct traffic around North Parade
    - Relocation of the existing set down and pick up zone on North Parade to be relocated with temporary kiss and ride zone in a suitable nearby location

6.2 Urban design, landscape and visual amenity

A landscape character and visual impact assessment (VIA) for the Rooty Hill Station Upgrade and Commuter Car park project was undertaken by Envisage Consulting (Envisage) for inclusion in the project REF (see Appendix D of the project REF). Envisage were again engaged to undertake a VIA of the proposed modification for inclusion in the Addendum REF.

6.2.1 Existing environment

The existing environment was described in Section 6.2.1 of the project REF and is relevant to the proposed modification as works would occur within the approved project footprint and nearby locations in close proximity (less than 200 metres).

The use of Compound 1 and 2 has the potential to result in visual impacts on receivers not previously identified in the project REF. Due to the short term and temporary nature of these activities on land with similar existing uses the resulting impact is considered negligible.

6.2.2 Potential impacts

The potential impacts of the proposed modification on urban design, landscape and visual amenity are consistent with those outlined in the project REF.

The most visually significant change from the approved project to the modified project is the additional two storeys to the commuter car park, raising from 8-10 metres to approximately 17.3 metres. This increase would result in the building being the tallest feature in the Rooty Hill precinct, however, this is of a similar scale to planned surrounding redevelopment.

Removal of two existing tall native trees from the existing car park was assessed in the approved project.

The proposed modification would require temporary closure (approximately four weeks) of North Parade for the use of a 350t crawler crane. The crane would be used in the construction of the new footbridge, which was assessed in the project REF. This impact would be temporary and consistent with the construction methodology already assessed in the project REF, therefore, the impact is considered negligible.

The design of the commuter car park is compliant with Blacktown City Council's *Design Excellence* provisions*,* ensuring high quality design of the structure, proposed landscaping, lighting and pathways.

The Addendum VIA has determined that the overall potential visual impacts of the proposed modification would have a comparable impact on the landscape character and visual amenity. Therefore, no additional mitigation measures have been recommended.

Figure 6-1 Viewpoint 6b Station Street / North Parade - Existing view

Figure 6-2 Viewpoint 6b Station Street / North Parade - Proposed modification car park design

6.2.3 Mitigation measures

No additional mitigation measures related to urban design, landscape and visual amenity are proposed as a result of the proposed modification.

6.3 Noise and vibration

An environmental Noise and Vibration Impact Assessment (NVIA) was undertaken by Muller Acoustic Consulting (MAC) in October 2017 for the project REF (see the project REF Appendix E). The NVIA was prepared in accordance with the TfNSW *Construction Noise Strategy,* Version 3 that has since been superseded by the *Construction Noise and Vibration Strategy,* Version 4 (TfNSW, 2018). MAC were engaged to undertake a NVIA for the proposed modification for inclusion in the Addendum REF (see Appendix E). The findings of this assessment are summarised below. The updated NVIA is consistent with the assessment method detailed in the *Construction Noise and Vibration Strategy,* Version 4 (TfNSW, 2018).

6.3.1 Existing environment

The existing environment was described in Section 6.3.1 of the project REF and is relevant to the proposed modification except for the additional land use which needed additional assessment for mapping of sensitive receivers.

Compound 1, located less than 200 metres from Rooty Hill Station (see Figure 6-3), was assessed due to the proposed pre-casting concrete works to be conducted at this location, creating an additional noise emission scenario. The assessment identified six additional receivers along Beames Avenue. This increases the total number of potentially impacted receivers to 31.

Compound 2 required no further assessment as the proposed use and resulting noise emission scenario is consistent with existing use as a car park.

Figure 6-3 Sensitive receivers and attended monitoring locations relative to the project area including the Compound 1 (MAC, 2019).

6.3.2 Potential impacts

Construction phase

Noise

A computer model was developed by Muller Acoustics to determine the noise impact from activities at Compound 1 during standard construction hours and Out of Hours Works (OOHW) periods at nearby receivers to the project.

The construction activities and scenarios considered to potentially have the greatest noise impacts on nearby receivers were summarised in the project REF, Section 6.3.2.

The proposed use of Compound 1 requires an additional scenario to be assessed, described as Scenario 4 Pre-casting sections. This scenario assesses the pre-casting of concrete sections for use in the upgrade works of the station.

It is understood that Scenario 4 has the potential to occur during standard hours, OOHW Period 1 and OOHW Period 2 and as such has been assessed against the Noise Management Levels (NMLs) for each period. They are intended to provide a means by which representative worst-case emissions can be assessed and the recommendations provided can be applied via the project Noise Management Plan.

Table 6 gives the NML and the predicted range of noise that each of the representative receivers adjacent to the Compound 1 would experience during construction.

Table 6 NMLs and predicted noise levels (LAeq, 15min dBA) during construction

Receiver	Standard Hours	OOH Period 1	OOH Period 2	Scenario 4
N01	55	50	43	43

Receiver	Standard Hours	OOH Period 1	OOH Period 2	Scenario 4
N01-1	55	50	43	46
N02	55	50	43	41
N03	55	50	43	36
N04	55	50	43	41
N05	55	50	43	42
N06	55	50	43	42
N07	55	50	43	42
NC01	70	70	70	41
NC02	70	70	70	52
NC03	70	70	70	43
NC04	70	70	70	41
NC05	70	70	70	41
NC06	70	70	70	40
N-IND1	75	75	75	43
N-IND2	75	75	75	43
NW01	70	70	70	64
NW01-1	55	50	43	64
NW02	55	50	43	69
NW03	55	50	43	69
NW04	55	50	43	69
NW05	55	50	43	70
NW06	55	50	43	63
NW07	55	50	43	63
NW08	55	50	43	62

Receiver	Standard Hours	OOH Period 1	OOH Period 2	Scenario 4
NW09	55	50	43	61
NW10	55	50	43	67
NW11	55	50	43	70
NW12	55	50	43	69
NW13	55	50	43	67
NW14	55	50	43	64
NW15	55	50	43	62
S01A	52	47	42	42
S01B	52	47	42	50
S02	52	47	42	53
S03	52	47	42	55
S04	52	47	42	56
S05	52	47	42	55
S06	52	47	42	55
S07	52	47	42	64
S08	52	47	42	66
S09	52	47	42	62
S10	52	47	42	61
S11	52	47	42	60
S12	52	47	42	59
S13	52	47	42	58
S14	52	47	42	57
S15	52	47	42	56
S16	52	47	42	55

Receiver	Standard Hours	OOH Period 1	OOH Period 2	Scenario 4
S17	52	47	42	41
S18	52	47	42	42
S19	52	47	42	42
S20	52	47	42	42
S21	52	47	42	42
S22	52	47	42	42
S23	52	47	42	42
S24 Arts	52	47	42	31
S-AR1	52	47	42	64
SC01	70	70	70	33
SC02	70	70	70	46
SC03	70	70	70	31
SC04	70	70	70	43

Std* Standard Working Hours – 7:00am – 6:00pm Monday to Friday, 8:00pm – 1:00pm Saturday

P1 – Period 1 OOHW – 6:00pm – 10:00pm Monday to Friday, 7:00am – 8:00am and 1:00pm – 10:00pm Saturday and 8:00am – 6:00pm Sunday and Public Holidays

P2 – Period 2 OOHW - 10:00pm to 7:00am Monday to Friday, 10:00pm – 8:00am Saturday and 6:00pm – 7:00am Sunday and Public Holidays

Table 7 and Table 8 provides a summary and assessment of the number of compliances and non-compliances with the relevant NMLs for Scenario 4 detailed above, for standard and out of hours' periods.

Table 7 NML Compliance Summary – Scenario 4 Unmitigated

No. of Receivers	Std	P1	P2
Comply with NML	31	31	26
Do not comply with NML	31	32	36
Highly noise affected	0	0	0

Table 8 NML Compliance Summary – Scenario 4 Mitigated

No. of Receivers	Std	P1	P2
Comply with NML	51	39	31
Do not comply with NML	11	23	31
Highly noise affected	0	0	0

Scenario 4 Pre-Cast Concrete

The activities required for Scenario 4 are most likely to be conducted during standard hours and OOH. Predicted noise levels exceed the NMLs at most receivers (approximately 50 per cent) but are generally less than 10dB above the Rating Background Levels (RBLs).

Additional mitigation measures including letter box drops and monitoring would be required during standard hours for 31 receiver locations without the application of reasonable and feasible work practices.

Works outside of standard hours would be managed in accordance with the project Noise and Vibration Management Plan (NVMP) to reduce noise impacts to the community.

Vibration

The potential construction vibration impacts of the proposed modification are consistent with those outlined in the project REF.

Operational phase

The potential operational noise and vibration impacts of the proposed modification are consistent with those outlined in the project REF.

6.3.3 Mitigation measures

Mitigation measures recommended for the proposed modification are consistent with those already being applied through the project NVMP. However, the NVMP would need to be updated to include additional sensitive receivers than those identified in the project REF.

No new mitigation measures related to noise and vibration are proposed as a result of the proposed modification, however additional mitigation measures outlined in the TfNSW *Construction Noise and Vibration Strategy*, Version 4 may be implemented where reasonable and feasible.

6.4 Indigenous heritage

6.4.1 Existing environment

The existing environment was described in Section 6.4.1 of the project REF and is still relevant to the proposed modification.

There are two additional compound sites outside of the project REF study area, however, both are located within a 250-metre radius of this area. Compound 1 site is a substation compound within the rail corridor. Compound 2 site is a permanent private car park. An AHIMS search was undertaken (February, 2019) that indicated there are no Aboriginal sites or places within a 50-metre buffer of Compound 1 and Compound 2 or sensitive landscapes (refer to Appendix F).

6.4.2 Potential impacts

The potential impacts of the proposed modification on Indigenous heritage are consistent with those outlined in the project REF.

6.4.3 Mitigation measures

No additional mitigation measures related to Indigenous heritage are proposed as a result of the proposed modification.

6.5 Non-Indigenous heritage

A Statement of Heritage Impact (SoHI) was undertaken by Artefact Consulting (Artefact) in October 2017 for the project REF (see the project REF Appendix F). Artefact were engaged to undertake a SoHI Addendum for the proposed modification for inclusion in the Addendum REF (see Appendix F). The findings of this assessment are summarised below

6.5.1 Existing environment

The existing environment was described in Section 6.5.1 of the project REF and is still relevant to the proposed modification.

The works associated with the proposed modification would require the addition of two compounds as described in Section 1.3. The two additional compound sites are outside of the project REF study area; however, both are located within a 250-metre radius of this area. Compound 1 site is a substation compound within the rail corridor. Compound 2 site is a permanent private car park. Both sites are heavily disturbed due to the current land use and therefore have no heritage value.

The additional construction works associated with the proposed modification include two additional levels on the proposed MSCP and platform raising works which would see the coping height increased by 80-200 millimetres along the platform edges. These works would occur within the curtilage and upon heritage listed items.

Listed Heritage Items

A search of all relevant heritage registers was undertaken as part of the project REF. The results are displayed in Table 9 and Table 10, and the curtilages of identified items are provided in Figure 6-4.

Rooty Hill Station is listed as a heritage item in two statutory registers, namely the RailCorp s170 Register as “Rooty Hill Railway Station Group”, (State Heritage Inventory (SHI) Item No. 4801932) and the Blacktown LEP 2015 as Rooty Hill Railway Station”, LEP (Item No. 106).

Both island platforms have concrete faces with concrete decks and asphalt finishes. Coping is concrete with cantilever profile. Modern aluminium palisade fencing, timber bench seating, lighting and signage are located on both platforms.

The Imperial Hotel (1 Rooty Hill road North) is located approximately 30m to the north of the project boundary at the closest point. The Imperial Hotel is listed on the NSW State Heritage Register (SHR) (Item No. 00114) and Blacktown LEP 2015 (Item No. I101).

Table 9 Historic register search for Rooty Hill Station

Register	Listing (and number)
Register of the National Estate (non-statutory)	No
National Heritage List	No
Commonwealth Heritage List	No
State Heritage Register	No
RailCorp s170 Heritage and Conservation Register	Yes (4801932)
Blacktown LEP 2015	Yes (I06)

Table 10 Details of other listed heritage items in proximity to the approved project and proposed modification

Suburb	Item name	Address	Property description	Significance	Item listing number
Rooty Hill	Imperial Hotel	1 Rooty Hill Road North, Rooty Hill	Lot 91, DP 865716	State	SHR (Item No. 00114) LEP 2015 (Item No. I101)

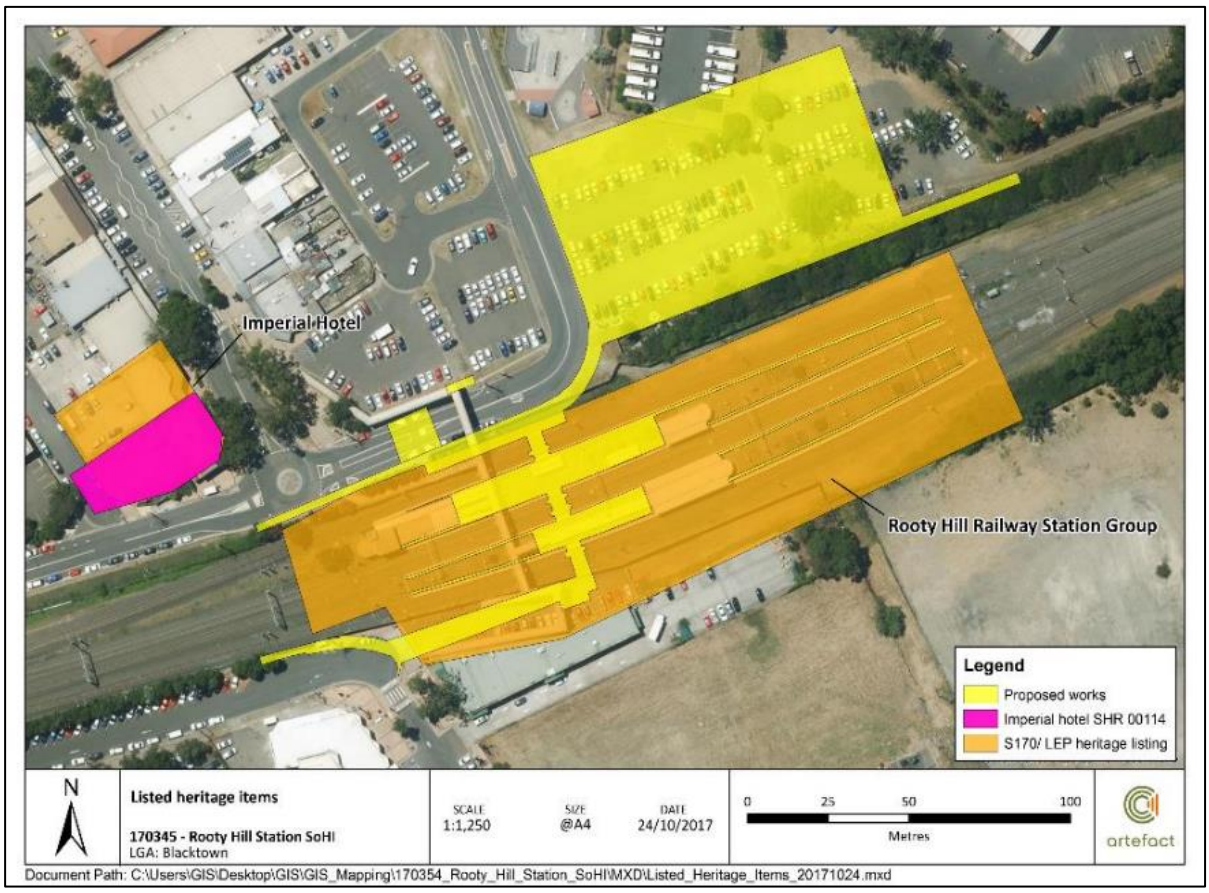


Figure 6-4 Listed heritage items adjacent and in proximity to the site

Heritage Background

The heritage background of the Rooty Hill Railway Station Group and the Imperial Hotel was described in Section 6.5.1 of the project REF and is still relevant to the proposed modification.

Heritage Significance

The heritage significance of the Rooty Hill Railway Station Group and the Imperial Hotel was described in Section 6.5.1 of the project REF and is still relevant to the proposed modification.

Archaeological Potential

The archaeological potential of the Rooty Hill Railway Station was described in Section 6.5.1 of the project REF and is still relevant to the proposed modification.

6.5.2 Potential impacts

Construction phase

Works located directly within the Rooty Hill Station Heritage Curtilage include:

- Platform raising at the boarding zone coping edge on Platform 1/2 and Platform 3/4 of approximately 80-200 millimetres (mm) (compliant with Asset Standards Authority (ASA) standards).
- Provision of two additional storeys on top of the commuter car park to provide a total of approximately 748 car spaces.

Platform Raising

Works associated with the platform raising would only remove and potentially impact upon existing modern upper concrete surfaces which are of low significance however regarding alongside the former signal box building would require temporary removal of two remnant metal boot scrapers. The boot scrapers would be reinstated in the same location on the new platform surface. The boot scrapers are of moderate significance and their retention is a positive heritage outcome.

The works would not significantly alter the visual setting of the existing platforms and the introduction of strip drains as a new feature is not considered to diminish the overall character or existing aesthetic qualities of the station complex.

As such the platform raising would result in minor physical impact and negligible visual impact to the Rooty Hill Station Group

Mitigation measures that would be implemented to manage on heritage items are outlined in Table 11.

Operational phase

The proposed footprint for the Station Upgrade component of the proposed modification is located within and immediately adjacent to the s170 curtilage for 'Rooty Hill Railway Station Group'. However, all identified heritage impacts for the proposed modification are attributable only to the construction phase. The proposed design does not present any direct risks to non-indigenous heritage during the operation of the modified project.

The proposed additional two storeys to the commuter car park are located outside the heritage curtilages of the station complex. While the modified project would change views out from the platforms for commuters and alter the surrounding context of the station, it is not anticipated this would reduce or diminish the visual heritage value of the station and is therefore not considered to result in any additional visual impact.

6.5.3 Mitigation measures

Additional mitigation measures related to heritage are proposed as a result of the proposed modification.

- When laying new asphalt or pouring new concrete pads, adjacent heritage fabric is to be masked off and protected from splash. Any asphalt or concrete splash to heritage walls and fabric is to be removed immediately and the surfaces made good.
- Existing sub-floor vents should not be impacted by regrading works. If impacts are being considered, advice from a heritage architect should be sought.
- When undertaking works to platforms, permanent removal of historic fabric or features is not permitted (e.g. cast iron stormwater grates, door threshold grilles, boot scrapers, air vents, concrete drains, stone flagging, garden beds, concrete or plumbing evidence of former bubblers).

6.6 Socio-economic impacts

6.6.1 Existing Environment

The existing environment was described in Section 6.6.1 of the project REF and is still relevant to the proposed modification.

6.6.2 Potential impacts

The potential impacts of the proposed modification on socio-economics are consistent with those outlined in the project REF.

The project REF expected construction of the car park to be completed at the end of 2019 and the station upgrade mid-2020. The additional two storeys for the car park will extend the construction of the car park to early 2020. This will not extend the overall construction timeline but will result in an extension of construction at the car park site for approximately 3 months.

A temporary closure of North Parade was considered within the project REF and the modified project now confirms this closure will be for a duration of four weeks.

As such, the proposed modification would not significantly increase the magnitude of potential impacts assessed in the project REF on commercial, residential and other uses with the vicinity of the works.

The proposed modification would result in use of additional land, extending the construction footprint however this would be short term and temporary in nature.

The proposed modification would increase the total number of new commuter parking spaces to approximately 748 car spaces, providing additional positive social and economic impacts for residents and businesses of Rooty Hill.

6.6.3 Mitigation measures

No additional mitigation measures related to socio-economics are proposed as a result of the proposed modification.

6.7 Biodiversity

6.7.1 Existing Environment

The existing environment was described in Section 6.7.1 of the project REF and is still relevant to the proposed modification.

There are two additional compound sites outside of the project REF study area, however, within a 250-metre radius of this area. Compound 1 is a substation compound within the rail corridor. Compound 2 is a permanent, private car park. Both sites are heavily disturbed due to the current land use and any existing vegetation (such as landscaping) would not be disturbed.

6.7.2 Potential impacts

The proposed modification would not result in any potential impacts on biodiversity.

6.7.3 Mitigation measures

The following biodiversity mitigation measure is to be incorporated in the CEMP for works at Compound 1 and Compound 2:

- All existing vegetation on Compound 1 and Compound 2 would be demarcated as no go zones.

6.8 Contamination, landform, geology and soils

6.8.1 Existing Environment

The existing environment was described in Section 6.8.1 of the project REF and is still relevant to the proposed modification.

There are two additional compound sites outside of the project REF study area, however, within a 250-metre radius of this area. Compound 1 site is a substation compound within the rail corridor. Compound 2 site is a permanent, private car park. Both sites are heavily disturbed due to the current land use. A search of NSW EPA Contaminated Lands database has returned no record of land contamination for either of the additional compound sites.

6.8.2 Potential impacts

The potential impacts of the proposed modification on contamination, landform, geology and soils are consistent with those outlined in the project REF.

The potential for Compound 1 to contain contamination, due to is historical and existing use is similar to that of the rail corridor as assessed in the project REF. Additionally, the use as a compound will not involve ground disturbance and as such the risk of any impacts from or to contaminated land and soils is negligible.

6.8.3 Mitigation measures

No additional mitigation measures related to contamination, landform, geology and soils are proposed as a result of the proposed modification.

6.9 Hydrology and water quality

6.9.1 Existing Environment

The existing environment was described in Section 6.9.1 of the project REF and is still relevant to the proposed modification.

6.9.2 Potential impacts

The potential impacts of the proposed modification on hydrology and water quality are consistent with those outlined in the project REF.

Compound 1 would be utilised for precast concrete works which would involve a number of concrete deliveries and works associated with concrete which has the potential to impact on local water quality. Compound 1 is not in close proximity to any waterways however stormwater infrastructure is present adjacent to the Site. As such, there is potential for pollution of waterways with concrete and other materials during these works.

6.9.3 Mitigation measures

The following water quality mitigation measures are to be considered during precast concrete works undertaken at Compound 1:

- There is to be no release of dirty water into drainage lines and/or waterways. Refer to the *Concrete Washout Guideline (TfNSW, 2015i)* and *Water Discharge and Reuse Guideline* (*TfNSW, 2015b*).

- Water quality control measures are to be used to prevent any materials (e.g. concrete, grout, sediment etc.) entering drain inlets or waterways.

6.10 Air quality

6.10.1 Existing Environment

The existing environment was described in Section 6.10.1 of the project REF and is still relevant to the proposed modification.

6.10.2 Potential impacts

While it is anticipated that there would be a minor increase in traffic movements, as a result of the proposed modification, the potential impacts are considered to be negligible in the context of the project REF and the location.

6.10.3 Mitigation measures

No additional mitigation measures related to air quality are proposed as a result of the proposed modification.

6.11 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 Department of Planning and Environment's Major Projects Register, Sydney West Joint Regional Planning Panel Development and Planning Register and the Blacktown City Council Development Application Register in February 2019 indicates there is not currently any major development applications listed in proximity to the proposed modification at this time.

A new development is currently under construction in Mavis Street to the south of the Rooty Hill Station precinct. This is a multi-purpose residential aged care facility and includes the following components.

- one four-storey mixed use building and 52 at-grade car parking spaces
- one three-storey residential care facility above one level of basement parking containing 24 car spaces
- four four-storey in-fill self-care housing with three residential levels above 120 car spaces at ground level
- one single storey communal facility building
- associated landscaping, fencing, path paving and site works.

Construction at this site is believed to be complete or nearing completion and should therefore have no cumulative impact with the Rooty Hill Station and Commuter Car park project.

During construction of the approved project and proposed modification, the works would be coordinated with any other construction activities in the area where required. Consultation and liaison would occur with Blacktown City Council, Roads and Maritime Services,

RailCorp/Sydney Trains, and any other developers identified, to minimise cumulative construction impacts such as traffic and noise.

Traffic associated with the construction work has the potential to have a minor impact on the surrounding road network, particularly during the construction of the new car park when existing car parking numbers would be reduced temporarily. The temporary lane closures occurring on Beames Avenue, Station Street, North Parade and Rooty Hill Road North would also have a minor impact on traffic in the area. This impact would only be temporary and for the duration of construction.

Operational traffic would have a minimal impact on the performance of the surrounding road network.

Noise during construction would also be managed to ensure there is no cumulative impacts. All noise generating activities on site would be subject to the CNVMP.

Based on this assessment, it is anticipated that the cumulative impacts would be negligible, provided that consultation with relevant stakeholders and mitigation measures in Chapter 7 are implemented.

The potential cumulative impacts associated with the approved project and proposed modification 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.

6.12 Climate change and sustainability

The works associated with the proposed modification are consistent with the assessment presented in the project REF. The modified project will also result in positive benefits to climate change through the operation of a solar power system on the roof of the car park which will contribute to energy requirements of the car park during operations.

7 Environmental management

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

7.1 Environmental management plans

A number of safeguards and management measures have been identified to minimise adverse environmental impacts, including noise and vibration, visual amenity and traffic impacts, which could potentially arise as a result of the proposed modification. Should the proposed modification proceed, these management measures would be addressed if required during detailed design and incorporated into the Contractors Environmental Management Plan (CEMP) and applied during the construction and operation of the proposed modification.

7.2 Mitigation measures

The project REF (November, 2017) and project determination report (February, 2018) identified a range of environmental impacts that are likely to occur as a result of the project. Table 11 below provides a summary of the environmental management measures that TfNSW has proposed to manage the potential environmental impacts associated with the construction of the project.

The safeguards and management commitments documented have been revised with consideration of the proposed modification. New or amended measures that are proposed have been denoted with **bold text**, while any environmental management measures which have been amended, proposed to be removed or have had text deleted from the measure have been shown with ~~strikethrough text~~.

Should the proposed modification be determined by TfNSW for approval, the finalised safeguards and management measures would guide subsequent phases of the project, including the works associated with the proposed modification. The nominated Construction Contractor would be required to undertake all works in accordance with these environmental management measures.

Table 11 Proposed mitigation measures

No.	Mitigation measure
	General
1.	A Construction Environmental Management Plan (CEMP) would be prepared by the construction contractor in accordance with the relevant requirements of *Guideline for Preparation of Environmental Management Plans,* Department of Infrastructure, Planning and Natural Resources, 2004) for approval by TfNSW, 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 construction contractor prior to the commencement of construction and documented as part of the CEMP.

No.	Mitigation measure
3.	An Environmental Controls Map (ECM) would be developed by the construction contractor in accordance with TfNSW *Guide to Environmental Controls Map* (TfNSW, 2015c) for approval by TfNSW, 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.
7.	Any modifications to the Proposal, if approved, would be subject to further assessment and approval by TfNSW. This assessment would need to demonstrate that any environmental impacts resulting from the modifications have been minimised.
	Traffic and site access
8.	Alternative parking options to offset the temporary loss of commuter parking during construction would be investigated and reported on during detailed design and construction planning, in consultation with the relevant authorities and the local community.
9.	Consult with relevant authorities during detailed design to determine appropriate controls for impacts to the bus, taxi and kiss and ride zones during construction and operation.
10.	Prior to the commencement of construction, a Traffic Management Plan (TMP) would be prepared as part of the CEMP and would include at a minimum: • 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, entertainment 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, 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 TMP • Consultation with the relevant roads authorities would be undertaken during preparation of the construction TMP. The performance of all project traffic arrangements must be monitored during construction.

No.	Mitigation measure
11.	**The TMP and TCP will specifically consider the closure of North Parade and ensure that:** • **All existing access points are maintained during construction and pedestrian access maintained to Rooty Hill Station at all times** • **Access to the car parks on the western side of Station Street to be unaffected** • **Detours are only in place to direct traffic around North Parade** • **Relocation of the existing set down and pick up zone on North Parade to be relocated with temporary kiss and ride zone in a suitable nearby location.**
12.	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 works.
13.	Construction traffic movements would be scheduled to avoid local traffic peaks.
14.	Road Occupancy Licences for temporary road closures would be obtained, where required.
15.	Access to all private properties and businesses adjacent to the works would be maintained during construction, unless otherwise agreed by relevant property owners.
16.	Relevant authorisation(s) from the appropriate road authority would be obtained for the proposed operational changes, such as operational changes to the bus zone, parking, pathways, and signage etc., as necessary.
17.	**Detailed design of the car park entry and exit will consider including restrictions for left and right turns for each lane exiting the car park or reducing the width for a single lane of exit.**
	Urban design, landscape and visual amenity
18.	An Urban Design Plan (UDP) would be prepared by the construction contractor, in consultation with Blacktown City Council, and submitted to TfNSW 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: o 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 o integration with surrounding local and regional open space and or landscape networks. Existing and proposed open space infrastructure/landscape elements should be shown o integration with surrounding streetscape including street wall height, active frontages, awnings, street trees, entries, vehicle cross overs etc. o 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 project site.

No.	Mitigation measure
19.	A Public Domain Plan (PDP) would be prepared by the construction contractor, in consultation with the Blacktown City Council, and submitted to TfNSW for endorsement by the Precincts and Urban Design team, prior to finalisation of the detailed design. The PDP, at a minimum, would address the following: • materials, finishes, colour schemes and maintenance procedures including graffiti control for new walls, barriers and fences • location and design of pedestrian and bicycle pathways, street furniture including relocated bus and taxi facilities, bicycle storage (where relevant), telephones and lighting equipment • landscape treatments and street tree planting to integrate with surrounding streetscape • opportunities for public art created by local artists to be incorporated, where considered appropriate, into the Proposal • total water management principles to be integrated into the design where considered appropriate • design measures included to satisfy requirements of Infrastructure Sustainability Rating Tool (v1.2) • identification of design and landscaping aspects that will be open for stakeholder input, as required.
20.	Assess consistency with the design objectives from Blacktown Development Control Plan (DCP) (Sections 1.4 and 4.4.2) in tender documents for the car park design: • Encourage high quality development that contributes to the existing or desired future character of the area, with particular emphasis on the integration of buildings with a landscaped setting • Protect and enhance the public domain • Encourage a high standard of aesthetically pleasing and functional development that sympathetically relates to adjoining and nearby developments • Ensure that development does not adversely affect the heritage significance of heritage items, heritage groups or archaeological sites as well as their settings, distinctive streetscape, landscape and architectural styles • Ensure that development in the vicinity of a heritage item is responsive and respectful in terms of height, setback, form and overall design. • New Station canopies should have a shallow pitch, typical of the roof lines of the heritage Station buildings. • The colour of the new canopies should be recessive, to reduce their visual dominance. • Use a common palette of materials to provide consistency across the precinct upgrade. • Use a common theme/style for new site elements like seating, paving, signage and lights, which is complementary to the heritage architecture of the Station • New pedestrian infrastructure (concourse, platform canopy, stairs etc.) to be designed complementary with the heritage architecture of the Station: • Design elements to reflect elegant simplicity of the 1940s Station buildings character • Design with an appropriate human scale.
21.	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.*
22.	The detailed design of the proposed modification would comply with Crime Prevention Through Environmental Design principles.

No.	Mitigation measure
23.	Worksite compounds would be screened with shade cloth (or similar material, where necessary) to minimise visual impacts from key viewing locations.
24.	Temporary hoardings, barriers, traffic management and signage would be removed when no longer required.
25.	Retaining and protecting existing trees where practicable including consultation with a qualified arborist to minimise impact on the long-term health of any nearby trees that could be or are planned to be retained.
26.	Protect existing trees to be retained prior to commencement of construction in accordance with Australian Standard Protection of trees on development sites AS4970-2009 and TfNSW's Vegetation Management (Protection and Removal) Guideline, 2015 (Vegetation Management, TfNSW, 2015).
27.	Undertake replacement planting to address proposed tree loss in accordance with *Vegetation Management,* TfNSW, 2015.
28.	Rehabilitate disturbed areas
29.	Plant tall native trees between the skate park and the proposed car park to soften and reduce the visual bulk of the car park when viewed from Station Street.
30.	Plant tall native trees (where possible in consideration of pedestrian/vehicular sightlines, safety and surveillance issues) along the Station Street interface with the car park.
31.	Installation of way-finding signage as per TfNSW guidelines.
32.	Light spill from the construction area into adjacent visually sensitive properties would be minimised by: • directing construction lighting into construction areas and ensuring the site is not over-lit • the sensitive placement and specification of lighting to minimise any potential increase in light pollution • design and installation of all lighting in accordance with the requirements of *AS4282 Control of the Obtrusive Effects of Outdoor Lighting*.
33.	During construction and operation, graffiti would be removed in accordance with TfNSW's Standard Requirements. Hoardings, site sheds, fencing, acoustic walls around the perimeter of the site and any structures built as part of the Project are to be maintained free of graffiti and advertising not authorised by the Proponent during the construction period. Graffiti and unauthorised advertising will be removed or covered within the following timeframes: • Offensive graffiti will be cleaned or covered within 24 hours • Highly visible yet non-offensive graffiti will be cleaned or covered within 1 week • Graffiti that is neither offensive nor highly visible will be cleaned or covered during normal operations within one month. Any advertising material will be removed or covered within 24 hours.
	Noise and vibration

No.	Mitigation measure
34.	Surveys of nearby sensitive buildings would be carried out in order to assess the potential for increased susceptibility to building damage from vibration. Should these buildings be considered more susceptible to vibration, reduced vibration criteria levels may be applicable and subsequently adopted during the selection process for suitable equipment to be used in the vicinity of these buildings.
35.	Prior to commencement of works, 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 Strategy* (TfNSW, 2012c) and the Noise and Vibration Impact Assessment for the approved modification (Muller Acoustic, 2017). The CNVMP would take into consideration measures for reducing the source noise levels of construction equipment by construction planning and equipment selection where practicable.
36.	The CNVMP would outline measures to reduce the noise impact from construction activities. Reasonable and feasible noise mitigation measures which would be considered, include: • 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 and equipment within 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 • avoiding deliveries at night/evenings wherever practicable • no idling of delivery trucks • keeping truck drivers informed of designated vehicle routes, parking locations and acceptable delivery hours for the site • 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.
37.	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: • 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 works at any one time and substituting large vibratory items with smaller units or alternative compaction methods where possible • 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 works • use of quieter and less vibration emitting construction methods where feasible and reasonable.

No.	Mitigation measure
38.	The CNVMP would include measures to consult with and notify potentially impacted receivers and the surrounding community with regard to: • Informing affected residents and other sensitive land use occupants the levels of impacts, the associated duration of each activity and what is being adopted at the project to minimize noise impacts to the community. This information should be provided to the community seven days before commencement • Provide information to neighbours before and during construction through media such as letterbox drops, meetings or individual contact. In some areas, the proponent will need to provide notification in languages other than English. A website could also be established for the project to provide information • Implement a site information board at the front of the site with the name of the organisation responsible for the site and their contact details, hours of operation and regular information updates. This signage should be clearly visible from the outside and include standard and after hours emergency contact details • Maintain good communication between the community and project staff • Appoint a community liaison officer where required to maintain good communications between community and staff • Provide a readily accessible contact point, for example, through a 24-hour toll-free information and complaints line and give complaints a fair hearing • Have a documented complaints process, including an escalation procedure so that if a complainant is not satisfied there is a clear path to follow • Records of all community complaints will be maintained on an up-to-date complaint register.
39.	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 TfNSW and the community is notified prior to these works commencing. An Out of Hours Work application form would need to be prepared by the construction contractor and submitted to the TfNSW Environment and Planning Manager for any works outside normal hours.
40.	A noise monitoring program would be carried out for the duration of the works in accordance the CNVMP prepared for the Proposal, and any approval and licence conditions.
41.	Where the $L_{Aeq\ (15minute)}$ construction noise levels are predicted to exceed 75 dBA and/or 30 dBA above the Rating Background Level at nearby affected sensitive receivers, respite periods would be observed, where practicable, and in accordance with the TfNSW *Construction Noise Strategy* (TfNSW, 2012c). This would include restricting the hours that very noisy activities can occur.
42.	To avoid structural impacts as a result of vibration or direct contact with structures, the proposed works would be undertaken in accordance with the safe work distances outlined in the Noise and Vibration Assessment (Muller Acoustic, 2017) and attended vibration monitoring or vibration trials would be undertaken where these distances are required to be challenged.
43.	Vibration monitoring would be undertaken at the nearest sensitive receiver for work using a hydraulic hammer or vibratory roller to ensure limits for human comfort are not exceeded.

No.	Mitigation measure
44.	Vibration resulting from construction and received at any structure outside of the project would be managed in accordance with: • for structural damage vibration - German Standard DIN 4150: Part 3 – 1999 *Structural Vibration in Buildings: Effects on Structures* and British Standard *BS 7385-2:1993 Guide to Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz)* • for human exposure to vibration the acceptable vibration - values set out in the *Environmental Noise Management Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006) which includes British Standard BS *7385-2:1993 Guide to Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz).*
45.	Property conditions surveys would be completed prior to piling, excavation of bulk fill or any vibratory works including jack hammering and compaction for all buildings/structures/roads with a plan distance of 18 metres from the works. All heritage listed buildings and other sensitive structures would need to be assessed through additional assessment to ensure they are not likely to be adversely affected by the finalised work plan.
46.	Affected schools and other identified sensitive receivers would be consulted in relation to noise mitigation measures to identify any noise sensitive periods, e.g. exam periods. Noise intensive construction works in the vicinity of affected educational buildings are to be minimised as much as reasonably possible.
47.	To effectively mitigate potential impacts of vibration on the Rooty Hill Railway Station heritage building, activities that cause vibration would be managed in accordance with German Standard DIN 4150 – Part 3 (DIN 1999) heritage specifications. Real time vibration monitoring would be conducted at commencement of relevant works to confirm compliance with the German Standard DIN 4150. If vibration levels approach the determined trigger level, then the construction activity would cease and the heritage structure would be assessed and alternative construction methodologies developed, where practicable, before construction recommences.
48.	During construction, suitable measures would be put in place to ensure the retained heritage elements are protected from damage. Measures may include hoardings, use of spotters during the movement of equipment and other measures as necessary.
49.	Following commencement of operation, noise monitoring will be undertaken to verify the predicted operational noise levels. Operational monitoring shall be determined by an independent acoustic engineer accredited by the Association of Australian Acoustic Consultants (AAAC) or environmental specialists acceptable to TfNSW. All reasonable and feasible additional noise mitigation or management measures that are necessary to reduce noise levels or minimise impacts would be undertaken.
	Indigenous heritage
50.	All construction staff would undergo an induction in the recognition of Indigenous cultural heritage material. This training would include information such as the importance of Indigenous cultural heritage material and places to the Indigenous community, as well as the legal implications of removal, disturbance and damage to any Indigenous cultural heritage material and sites.

No.	Mitigation measure
51.	If unforeseen Indigenous objects are uncovered during construction, the procedures contained in TfNSW's *Unexpected Heritage Finds Guideline* (TfNSW, 2015a) would be followed, and works within the vicinity of the find would cease immediately. The construction contractor would immediately notify the TfNSW Project Manager and TfNSW Environment and Planning Manager so they can assist in co-ordinating next steps which are likely to involve consultation with an Aboriginal heritage consultant, the OEH and the Local Aboriginal Land Council. If human remains are found, work would cease, the site secured and the NSW Police and the OEH notified. Where required, further archaeological investigations and an Aboriginal Heritage Impact Permit would be obtained prior to works recommencing at the location.
	Non-Indigenous heritage
52.	In the event that any unanticipated archaeological deposits are identified within the project site during construction, the procedures contained in TfNSW' s Unexpected Heritage Finds Guideline (TfNSW, 2015a) would be followed, and works within the vicinity of the find would cease immediately. The construction contractor would immediately notify the TfNSW Project Manager and the TfNSW Environment and Planning Manager so they can assist in co-ordinating the next steps which are likely to involve consultation with an archaeologist and OEH. Where required, further archaeological work and/or consents would be obtained for any unanticipated archaeological deposits prior to works recommencing at the location. Potential vibration impacts would be managed in accordance with the measures outlined in Section 7.
53.	The external construction and façades fittings of the Rooty Hill Station platform buildings are an element of high heritage significance. The original fabric of these buildings should be retained wherever possible and materials used during modifications should be congruent with the character of the station, including the following recommendations: • the approved project should be revised to avoid infilling the curved walkway within the former signal box building on Platform 1/2. The walkway should remain open, with consideration given to use of this architectural feature for interpretive purposes • the fitout of the proposed family accessible toilet within the passenger building on Platform 3/4 should utilise existing doorways and window openings wherever possible to avoid altering the original design of the station buildings • any new doors or windows added to the platform buildings should be designed with sympathetic materials and colour schemes, and in a form that responds to the original scale and configuration of existing openings • consideration should be given during the detail design phase for the retention and conservation of the metal grate boot scrapers located at the entry steps to the station buildings, which contribute to the integrity and intactness of the station precinct as a whole. In instances where these have been partially covered by intrusive asphalt resurfacing, the metal grate boot scrapers should be exposed and conserved.
54.	The internal structure and interior fittings of the Rooty Hill Station platform buildings are an element of moderate heritage significance, due to renovations since their original construction which has altered the integrity and overall intactness of the fabric. The original fabric of these interiors should be retained wherever possible and materials used during modifications should be congruent with the character of the station. Any modification of the internal configuration of the station building, such as repainting, installing new fixtures and service connections inside the buildings should be sympathetic to the historical and aesthetic character of the station and installation should minimise impacts to original fabric.

No.	Mitigation measure
55.	The design and materials used for the construction of new access stairs and lift shafts should be as sympathetic as possible to the existing character of the station with the aim of minimising visual impacts. The design should use unobtrusive, modern, lightweight materials, which would reduce the visual bulk of new development. Anti-throw screens should be constructed of the least obtrusive material possible to reduce visual impacts to Rooty Hill Station and preserve views from the footbridge and stairs over the station and wider Rooty Hill township.
56.	The collection of moveable heritage items within the passenger building on Platform 3/4 should be conserved and consideration given to their use for interpretive purposes as part of the proposed upgrade of the station. These items should be kept in a safe and secure location during works. Should the items not be considered for interpretation at the station, options for their transfer to Sydney Trains or the Australian Railway Historical Society could be explored.
57.	During detailed design, consideration would be given to avoiding ground disturbing impacts to areas of identified archaeological potential. Should ground disturbing works be designated in areas of archaeological potential, an archaeological research design, approvals from Heritage Division and potential archaeological excavation may be required.
58.	Prior to commencement of proposed works, a Photographic Archival Recording (PAR) would be prepared, recording areas of Rooty Hill Station to be affected by the proposal. The PAR should include photographs of the stations buildings and the overall setting of the station, including a record of views that would be modified by the proposal. The recording should be undertaken in accordance with the guidelines for *Photographic Recording of Heritage Items Using Film or Digital Capture* prepared by the NSW Office of Environment & Heritage. The PAR would be submitted to Blacktown City Council, and copies would be retained as per the standards. Consideration should be given to including a 3D scan of all structures to be removed as part of the archival recording process.
59.	A heritage conservation architect should provide ongoing heritage advice during the detailed design and construction phases of the proposal, and should ensure that the above material and design options advice is enacted.
60.	A heritage induction would be provided to workers prior to construction, informing them of the location of known heritage items and guidelines to follow if unanticipated heritage items or deposits are located during construction.
61.	Consideration should be given to the provision of interpretation as part of the proposal, which would outline the history, associations and significance of the Rooty Hill Railway Group and wider Rooty Hill area. Interpretative measures could involve interpretive signage, panels or displays at entry/exit points to the station, including the proposed stair and lift shaft locations.
62.	Preliminary archaeological assessment has identified the potential for impacts to archaeological resources of local significance. Further identification of the archaeological resource at Rooty Hill Station, and potential impacts from the proposed works, should be prepared as part of an archaeological research design (ARD). The ARD would be submitted to Heritage Division with a Section 140 permit application for archaeological investigation of, and impacts to, areas where archaeological resources of local significance may be impacted by the proposed works.
63.	As the proposal, has been assessed as potentially resulting in a moderate physical impact and moderate visual impact to the s170 and locally listed Rooty Hill Railway Station Group, consultation with Blacktown City Council would be required under the ISEPP.

No.	Mitigation measure
64.	**When laying new asphalt or pouring new concrete pads, adjacent heritage fabric is to be masked off and protected from splash. Any asphalt or concrete splash to heritage walls and fabric is to be removed immediately and the surfaces made good.**
65.	**Existing sub-floor vents should not be impacted by regrading works. If impacts are being considered, advice from a heritage architect should be sought.**
66.	**When undertaking works to platforms, permanent removal of historic fabric or features is not permitted (e.g. cast iron stormwater grates, door threshold grilles, boot scrapers, air vents, concrete drains, stone flagging, garden beds, concrete or plumbing evidence of former bubblers).**
	Socio-economic
67.	Sustainability criteria for the Proposal would be established to encourage the construction contractor to purchase goods and services locally, helping to ensure the local community benefits from the construction of the Proposal.
68.	Feedback through the submissions process would be encouraged to facilitate opportunities for the community and stakeholders to have input into the project, where practicable.
69.	A Community Liaison Plan would identify all potential stakeholders and the methods for consultation with these groups during construction and community notification requirements which can range from letter box drops, phone calls to offers of alternative accommodation depending on the level of impact. The plan would also encourage feedback through the submissions process and facilitate opportunities for the community and stakeholders to have input into the project, where possible.
70.	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.
71.	The community would be kept informed of construction progress, activities and impacts in accordance with the Community Liaison Plan to be developed prior to construction.
	Biodiversity
72.	Construction of the Proposal must be undertaken in accordance with TfNSW's *Vegetation Management (Protection and Removal) Guideline* (TfNSW, 2015d) and TfNSW's *Fauna Management Guideline* (TfNSW, 2015e).
73.	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.
74.	Disturbance of vegetation would be limited to the minimum amount necessary to construct the Proposal. Trees nominated to be removed in the Ecological Assessment (Cumberland Ecology, 2017) 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.
75.	To avoid unnecessary removal or damage to any adjoining vegetation outside of the subject site, the clearing area should be clearly demarcated and signed.

No.	Mitigation measure
76.	Pre-clearing surveys are to be undertaken prior to staged clearing, aimed at identifying key habitat features and providing opportunity for resident fauna to relocate outside the impact area prior to clearing. An ecologist should be present while clearing to rescue animals injured during the clearance operation.
77.	Tree Protection Zones (TPZs) would be established around trees to be retained, as nominated in the Ecological Assessment (Cumberland Ecology, 2017). Tree protection would be undertaken in line with *AS 4970-2009 Protection of Trees on Development Sites* and would include exclusion fencing of TPZs.
78.	In the event of any tree to be retained becoming damaged during construction, the construction contractor would immediately notify the TfNSW Project Manager and TfNSW Environment and Planning Manager to coordinate the response which may include contacting an arborist to inspect and provide advice on remedial action, where possible.
79.	Should the detailed design or onsite works determine the need to remove or trim any additional trees, which have not been identified in the REF, the construction contractor would be required to complete TfNSW's Tree Removal Application Form and submit it to TfNSW for approval.
80.	Weed control measures, consistent with TfNSW's *Weed Management and Disposal Guideline* (TfNSW, 2015f), 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 *Biosecurity Act 2016. .*
81.	For new landscaping works, mulching and watering would be undertaken until plants are established.
82.	Erosion and sediment controls should be implemented around the works area and any associated stockpiles to avoid impacts to waterways via stormwater runoff.
83.	Offsets and/or landscaping would be undertaken in accordance with TfNSW' s *Vegetation Offset Guide* (TfNSW, 2013d) and in consultation with the relevant Council, and/or the owner of the land upon which the vegetation is to be planted. Any additional tree clearing required beyond that assessed in this REF would also require additional assessment, TfNSW approval, and tree offset planting.
84.	**All existing vegetation on Compound 1 and Compound 2 would be demarcated as no go zones.**
	Soils and water
85.	Blacktown City Council would be consulted in relation to detailed drainage design.
86.	Prior to commencement of works, a site-specific Erosion and Sediment Control Plan would be prepared in accordance with the 'Blue Book' *Managing Urban Stormwater: Soils and Construction Guidelines* (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 works and maintained throughout construction.
87.	An environmental risk assessment would be undertaken prior to construction and must include a section on contamination as per the TfNSW' s Environmental Risk Assessment Procedure (3TP-PR-206/3.0).

No.	Mitigation measure
88.	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.
89.	Erosion and sediment controls should be implemented around the works area and any associated stockpiles to avoid impacts to waterways via stormwater runoff.
90.	Temporary scour protection and energy dissipation measures would be designed and implemented to protect receiving environments from erosion.
91.	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 works are complete and areas are stabilised.
92.	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.
93.	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 TfNSW's *Chemical Storage and Spill Response Guidelines* (TfNSW, 2015g).
94.	A Waste Management Plan would be developed as part of the CEMP and would at a minimum: • identify all potential waste streams associated with the works 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 • all waste would be managed in accordance with relevant legislation
95.	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 TfNSW *Chemical Storage and Spill Response Guidelines* (TfNSW, 2015g) 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.
96.	In the event of a pollution incident, works would cease in the immediate vicinity and the construction contractor would immediately notify the TfNSW Project Manager and TfNSW Environment and Planning Manager. The EPA would be notified by TfNSW if required, in accordance with Part 5.7 of the POEO Act.
97.	The existing drainage systems would remain operational throughout the construction phase.
98.	Should groundwater be encountered during excavation works, groundwater would be managed in accordance with the requirements of the *Waste Classification Guidelines* (EPA, 2014) and TfNSW's *Water Discharge and Reuse Guideline* (TfNSW, 2015b).

No.	Mitigation measure
99.	Should dewatering of the excavation be required then a Groundwater Management Plan will also be required to identify discharge consents required and manage the storage, discharge and / or disposal of groundwater.
100.	Any surface water or groundwater dewatering would be managed in accordance with the requirements of the *Waste Classification Guidelines* (EPA, 2014) and TfNSW' s *Water Discharge and Reuse Guideline* (TfNSW, 2015b).
101.	Opportunities to employ Water Sensitive Urban Design (WSUD) would be investigated and reported on, along with identification of options to reduce the runoff burden to the existing drainage system.
102.	The following flood mitigation measures are to be considered during detailed design: • further hydrological assessment would be undertaken to ensure that the Proposal would not be impacted by flooding and would not worsen local flooding patterns • adequate measures are to be provided to reduce flood risks. The potential impacts of climate change on flooding shall be considered as part of this assessment to ensure safe access to the station is maintained • flood mitigation measures and a maintenance strategy would be developed for the lift • if any flood mitigation is proposed, flood modelling would be undertaken to confirm that the Proposal and any flood mitigation would achieve a neutral flood impact on upstream and downstream properties adequate measures are to be adopted to ensure impacts from flooding on landscaping design are factored into the PDP.
103.	**There is to be no release of dirty water into drainage lines and/or waterways. Refer to the *Concrete Washout Guideline (TfNSW, 2015i)* and *Water Discharge and Reuse Guideline* (*TfNSW, 2015b*).**
104.	**Water quality control measures are to be used to prevent any materials (e.g. Concrete, grout, sediment etc.) entering drain inlets or waterways.**
	Air quality
105.	Air quality management and monitoring for the Proposal would be undertaken in accordance with TfNSW's *Air Quality Management Guideline* (TfNSW, 2015h).
106.	Methods for management of emissions would be incorporated into project inductions, training and pre-start/toolbox talks.
107.	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.
108.	Vehicle and machinery movements during construction would be restricted to designated areas and sealed/compacted surfaces where practicable.

No.	Mitigation measure
109.	To minimise the generation of dust from construction activities, the following measures would be implemented: • 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
110.	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 that would identify all potential waste streams associated with the works 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 areas free of rubbish.
111.	The CEMP (or separate Waste Management Plan, if necessary) must address waste management and would at a minimum: • identify all potential waste streams associated with the works 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.
112.	An environmental risk assessment would be undertaken prior to construction and must include a section on contamination as per the TfNSW' s Environmental Risk Assessment Procedure (3TP-PR-206/3.0).
113.	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.
114.	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.
115.	All spoil and waste must be classified in accordance with the *Waste Classification Guidelines Part 1: Classifying waste (*EPA, 2014) prior to disposal.
116.	Any concrete washout would be established and maintained in accordance with TfNSW's *Concrete Washout Guideline* (TfNSW, 2015i) with details included in the CEMP and location marked on the ECM.
	Climate change and sustainability
117.	Detailed design of the Proposal would be undertaken in accordance with the *Infrastructure Sustainability Rating Tool (v1.2).*

No.	Mitigation measure
118.	The detailed design process would involve the development of a climate change impact assessment in compliance with the Climate Change Impacts and Risk Management: A Guide for Business and Government (Department of the Environment and Heritage, 2006) and the ISCA Guidelines for Climate Change Adaptation (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.
119.	The detailed design process would include a Greenhouse Gases (project level) compliant carbon foot printing exercise in accordance with AS14064-2 and TfNSW' s Greenhouse Gas Inventory Guide for Construction Projects (TfNSW, 2013e). The carbon footprint would then be used to inform decision making in design and construction.
	Cumulative impacts
120.	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 Addendum 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 proposed modification.

The proposed modification would provide the following benefits:

- provision of approximately 250 new commuter parking spaces (approximately 748 in total) including additional disabled car parking spaces, additional kiss and ride spaces, electric vehicle charging spaces and undercover bicycle rack spaces.
- ten dedicated electric vehicle spaces in the car park (with charging facilities)
- solar system on roof of car park, this will double as a shade structure for cars on the roof and be used to power the car park.
- platform level raising, creating a level and easier access from platform to train carriage.

The key impacts of the project REF and proposed modification are as follows:

- temporary amenity impacts during construction including loss of parking, increased noise and vibration impacts to surrounding receivers during construction, reduced air quality and visual impacts
- minor delays on the adjacent road network during construction
- temporary changes to access arrangements (including pedestrian diversions) during construction
- a minor increase in local traffic movements
- longer term benefits of the project include provision of additional commuter parking spaces, improved accessibility to the station and improved interchange facilities.

This Addendum REF has considered and assessed the potential impacts of the proposed modification and the cumulative impacts of the modified project 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 Addendum REF, it is considered that the proposed modification and the resulting modified project 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.

The proposed modification would also take into account the principles of ESD (refer to the project REF Section 3.1.3 and Section 4.6). These would be considered during the detailed design, construction and operational phases of the proposed modification. This would ensure the proposed modification are delivered to maximum benefit to the community, are cost effective and minimises any adverse impacts on the environment.

References

AECOM, 2015, *Rooty Hill Station Upgrade and Commuter Car Park - Concept Design Report* Sydney

AECOM, 2015, *Report Rooty Hill Precinct- Accessibility and Commuter Car park Upgrade - Traffic, Transport and Access Impact Assessment*, Sydney

AGIC, 2011, *Guidelines for Climate Change Adaptation,* Australian Green Infrastructure Council (now Infrastructure Sustainability Council of Australia), Sydney

Department of Environment and Climate Change, 2009*, Interim Construction Noise Guideline*, Sydney

Department of Environment and Conservation, 2006, *Assessing Vibration: A Technical Guideline*, Sydney

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

Department of the Environment and Heritage, 2006, *Climate Change Impacts and Risk Management; A Guide for Business and Government,* Australian Greenhouse Office, Canberra

Department of Infrastructure, Planning and Natural Resources, 2004, *Guideline for Preparation of Environmental Management Plans*, Sydney

Department of Planning and Environment, 2014, *A Plan for Growing Sydney*, Sydney

EPA, 2000, *NSW Industrial Noise Policy,* Sydney

EPA, 2014, *Waste Classification Guidelines*, Sydney

Infrastructure Sustainability Council of Australia, 2017, *Infrastructure Sustainability Rating Scheme v1.2*

Landcom, 2004, *Managing Urban Stormwater: Soils and Construction, Volume - 4th Edition*, Sydney

Ministry of Transport, 2008, *Guidelines for the Development of Public Transport Interchange Facilities*, Sydney

NSW Government, 2014, *Rebuilding NSW - State Infrastructure Strategy 2014*, Sydney

NSW Heritage Office & Department of Urban Affairs and Planning, 1995, *NSW Heritage Manual*, Sydney

NSW Heritage Office, 1998, *How to Prepare Archival Records of Heritage Item*, Sydney

NSW Heritage Office, 2002, *Conservation Management Documents – Guidelines on Conservation Management Plans and Other Management Documents*, Sydney

NSW Heritage Office, 2005, *Interpreting Heritage Places and Items Guidelines*, Sydney

NSW Government, 2015, *State Priorities – NSW: Making It Happen*, Sydney

OEH, 2010, *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW South Wales,* Sydney

OEH, 2011, *Guidelines for Consultants Reporting on Contaminated Sites*, Sydney

TfNSW, 2012a, *NSW Long Term Transport Master Plan*, Sydney

TfNSW, 2012b, *Disability Action Plan 2012-17*, Sydney

TfNSW, 2012c, *Construction Noise Strategy*, Sydney

TfNSW, 2013b, *Sydney's Walking Future - Connecting people and places*, Sydney

TfNSW, 2013c, *Sydney's Cycling Future - Cycling for everyday transport*, Sydney

TfNSW, 2013e, *Greenhouse Gas Inventory Guide for Construction Projects*, Sydney

TfNSW, 2015a, *Unexpected Heritage Finds Guideline,* Sydney

TfNSW, 2015b, *Water Discharge and Reuse Guideline*, Sydney

TfNSW, 2015c, *Guide to Environmental Controls Map*, Sydney

TfNSW, 2015d, *Vegetation Management (Protection and Removal) Guideline*, Sydney

TfNSW, 2015e, *Fauna Management Guideline*, Sydney

TfNSW, 2015f, *Weed Management and Disposal Guide*, Sydney

TfNSW, 2015g, *Chemical Storage and Spill Response Guidelines*, Sydney

TfNSW, 2015h, *Air Quality Management Guideline,* Sydney

TfNSW, 2015i, *Concrete Washout Guideline*, Sydney

TfNSW, 2016, *Vegetation Offset Guide*, Sydney

TfNSW, 2017, *NSW Sustainable Design Guidelines - Version 4.0*, Sydney

TfNSW, 2018, *Construction Noise and Vibration Strategy - Version 4*, Sydney

Appendix A Consideration of matters of National Environmental Significance

The table below demonstrates TfNSW's consideration of the matters of NES under the EPBC Act to be considered in order to determine whether the modified project should be referred to Commonwealth Department of the Environment.

Matters of NES	Impacts
Any impact on a World Heritage property? There are no World Heritage properties within 1km of the modified project.	Nil
Any impact on a National Heritage place? There are no National Heritage places within 1km of the modified project.	Nil
Any impact on a wetland of international importance? There are no wetlands of international importance within 1km of the modified project.	Nil
Any impact on a listed threatened species or communities? It is unlikely that the development of the modified project would significantly affect listed threatened species of communities.	Nil
Any impacts on listed migratory species? It is unlikely that the development of the modified project would significantly affect any listed migratory species.	Nil
Does the Proposal involve a nuclear action (including uranium mining)? The modified project does not involve a nuclear action.	Nil
Any impact on a Commonwealth marine area? There are no Commonwealth marine areas in the vicinity of the modified project.	Nil
Does the Proposal involve development of coal seam gas and/or large coal mine that has the potential to impact on water resources? The modified project is for a rail infrastructure facility and is not related to coal seam gas or coal mining.	Nil
Additionally, any impact (direct or indirect) on Commonwealth land? The modified project would not be undertaken on or near any Commonwealth land.	Nil

Appendix B Consideration of clause 228

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

Factor	Impacts
(a) Any environmental impact on a community? There would be some temporary impacts to the community during construction, particularly in relation to noise, traffic, access and visual amenity. As identified in the project REF the temporary closure of the existing Station Street car park as well as North Parade associated with the proposed modification would be an inconvenience to commuters, local shoppers, and owners of commercial premises. Mitigation measures outlined in Table 11 would be implemented to manage and minimise adverse impacts.	Minor
(b) Any transformation of a locality? The proposed modification would include the introduction of new visible elements in the landscape through the construction of two additional levels to the Commuter Car Park proposed in the project REF. The impact is considered to be minor as the proposed height of the car park would be in scale with surrounding redevelopment and the impact to viewpoints during operation ranges from moderate to low. The proposed modification would have a positive contribution to the locality by helping to address the high demand for car parking spaces for both commuter and commercial parking within Rooty Hill. The proposed modification also provides infrastructure that supports potential growth and provides improved public transport facilities.	Minor
(c) Any environmental impact on the ecosystem of the locality? No vegetation removal would be required as a result of the proposed modification and is unlikely to impact the local ecosystem as discussed in Section 6.	Nil
(d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? There would be some temporary impacts during construction particularly in relation to noise, traffic and access and visual amenity. The potential impacts to aesthetic values are detailed in item (b) and would not result in a significant reduction of aesthetic quality or value of a locality.	Minor

Factor	Impacts
(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? The proposed modification would have a positive contribution to the locality by improving accessibility and capacity of car parking for commuters and local shoppers. The proposed modification would have minor visual impacts on a heritage item listed under the Blacktown LEP and RailCorp s170 Heritage Conservation Register. Impacts to heritage would be minimised through the implementation of the mitigation measures provided in this REF. An archaeological assessment has been undertaken which determined that there is a low-moderate risk of encountering archaeological items and that the project area is unlikely to expose historical archaeological relics.	Minor
(f) Any impact on the habitat of protected fauna (within the meaning of the *National Parks and Wildlife Act 1974*)? The proposed modification is unlikely to have any impact on the habitat of protected fauna in addition to that already assessed in the project REF. Any vegetation within Compound 1 and 2 would be demarcated as no go zones.	Nil
(g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? The proposed modification is unlikely to have any impact on any animal, plant or other form of life in addition to that already assessed in the project REF. Any vegetation within Compound 1 and 2 would be demarcated as no go zones.	Minor
(h) Any long-term effects on the environment? The proposed modification is unlikely to have any long-term effects on the environment.	Nil
(i) Any degradation of the quality of the environment? The proposed modification is unlikely to have any degradation on the quality of the environment. Any vegetation within Compound 1 and 2 would be demarcated as no go zones.	Minor
(j) Any risk to the safety of the environment? Construction of the proposed modification would be managed in accordance with the mitigation measures outlined in the project REF, this Addendum REF and a CEMP. The proposed modification is unlikely to cause risks to the safety of the environment provided the recommended mitigation measures are implemented. Specific management measures would be implemented to manage asbestos and other hazardous materials that may be encountered during construction and demolition works.	Nil
(k) Any reduction in the range of beneficial uses of the environment? The proposed modification is unlikely to have any reduction in the range of beneficial uses of the environment.	Nil

Factor	Impacts
(l) Any pollution of the environment? The proposed modification is unlikely to cause any pollution to the environment provided the recommended mitigation measures are implemented.	Nil
(m) Any environmental problems associated with the disposal of waste? The proposed modification is unlikely to cause any environmental problems associated with the disposal of waste. Hazardous waste and special waste may be generated from the proposed modification. Waste would be classified and disposed of at a licensed waste facility. All waste would be managed and disposed of in accordance with a site-specific Waste Management Plan prepared as part of the CEMP. Mitigation measures would be implemented to ensure waste is reduced, reused or recycled where practicable.	Minor
(n) Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply? The proposed modification is unlikely to increase demands on resources that are or are likely to become in short supply.	Nil
(o) Any cumulative environmental effect with other existing or likely future activities? The cumulative effects of the proposed modification are described in Section 6.12. Additionally, the cumulative effect of the modified project is described throughout Section 6 where applicable. Where feasible, environmental management measures would be co-ordinated to reduce any cumulative construction impacts. The project is unlikely to have any significant adverse long-term impacts.	Nil
(p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions? The project would not affect or be affected by any coastal processes or hazards.	Nil

Appendix C Traffic, Transport and Access Impact Assessment

Appendix D Visual Impact Assessment

Appendix E Noise and Vibration Impact Assessment

Appendix F Aboriginal Heritage Information Management System basic search results

Appendix G Statement of Heritage Impact