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West

Sydney International Speedway Submissions Report

November 2020

Cover: Aerial view of the Sydney International Speedway project.

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Executive summary

The NSW Government has committed to relocating speedway racing to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, creating a true motorplex for the NSW motorsport racing community. The new Sydney International Speedway (the project) would provide the community and racing supporters a unique sporting facility that would cater for local, regional, national, and international racing events while continuing to support the growth of speedway racing in NSW. The new Sydney International speedway would be located within Western Sydney Parkland's Precinct 5: Eastern Creek Motor Sports, which sits within the Blacktown Local Government Area, about 32 kilometres west of the Sydney Central Business District. It would be located alongside the existing Sydney Dragway to the north and east and the Sydney Motorsports Park (operated by the Australian Racing Drivers' Club) to the north.

Western Sydney Parklands Trust, in conjunction with the NSW Office of Sport, is leading a masterplanning process for Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, with opportunities to share infrastructure and coordinate events across the three venues.

The current speedway site, located on Government-owned land at Clyde, is required for a future stabling and maintenance facility for the Sydney Metro West project. Sydney International Speedway is planned to be constructed and operational prior to the start of the speedway racing season in 2021.

The Sydney International Speedway was declared as State significant infrastructure under Section 5.12(4) of the *Environmental Planning and Assessment Act 1979* on October 14 2020. Schedule 4 of the *State Environmental Planning Policy (State and Regional Development) 2011* has been amended to include Sydney International Speedway as State significant infrastructure as a result of this declaration. Sydney Metro is proposing to build the project on behalf of and pursuant to arrangements with Western Sydney Parklands Trust.

Sydney International Speedway

Once complete, the project would include world class racing infrastructure in the form of clay-based racetracks benchmarked to national and international best practice for both speedway vehicles and motorcycles.
The following ancillary racing infrastructure would be constructed to support the use of speedway racetracks:

- New vehicle access to the raceway area via an existing intersection off Ferrers Road
- A racing competitor's pit area in Carpark B, comprising around 150 parking bays for race vehicles and their tenders, including 20 bays for heavy vehicles transporting racing vehicles to and from the speedway and viewing platforms for pit crews
- Workshops/garages and track-side operational support areas to be used by pit crews.

High quality event support infrastructure provided to maximise the spectator experience at speedway events would comprise:

- A grandstand with the capacity to seat around 3750 spectators
- Ticketing and entryway structures
- Spectator facilities, including terraced seating for up to a total of around 7000 spectators, public amenities, corporate boxes, provision for food and beverage operators together with merchandise outlets
- Dedicated parking provided for spectators, visitors and users of the Sydney International Speedway in Carpark A, available for use by other motorsport operators by agreement
- Dedicated parking for Sydney Dragway to replace the existing spectator parking areas which would form part of the Sydney International Speedway project site. The new Dragway Parking in Carparks C and D would be available for use by other motorsport operators by agreement.

Operational support infrastructure would be provided to enable the operation of the Sydney International Speedway. Such infrastructure would include:

- Public safety including fencing and fire safety systems
- Communications including a fibre optic network (to suit internet broadcasting bandwidth and PA/AV provisions), signage and large broadcasting screens
- Services including the provision of stormwater, drainage and flooding, utilities and lighting.

Construction of the project is expected to take around 13 months to complete. Operation of the new Sydney International Speedway is anticipated to commence in September 2021 with some finishing works occurring concurrently with the commencement of operations.

The following construction activities would be carried out:

- Clearing, earthworks and levelling
- Landforming works
- Establishment of carparks
- Construction of racing and event support infrastructure
- Utilities connections, landscaping and finishing works.

The project's operational site layout as exhibited in the Environmental Impact Statement is shown in Figure E-1. Operation would also include maintenance activities required to support the project.

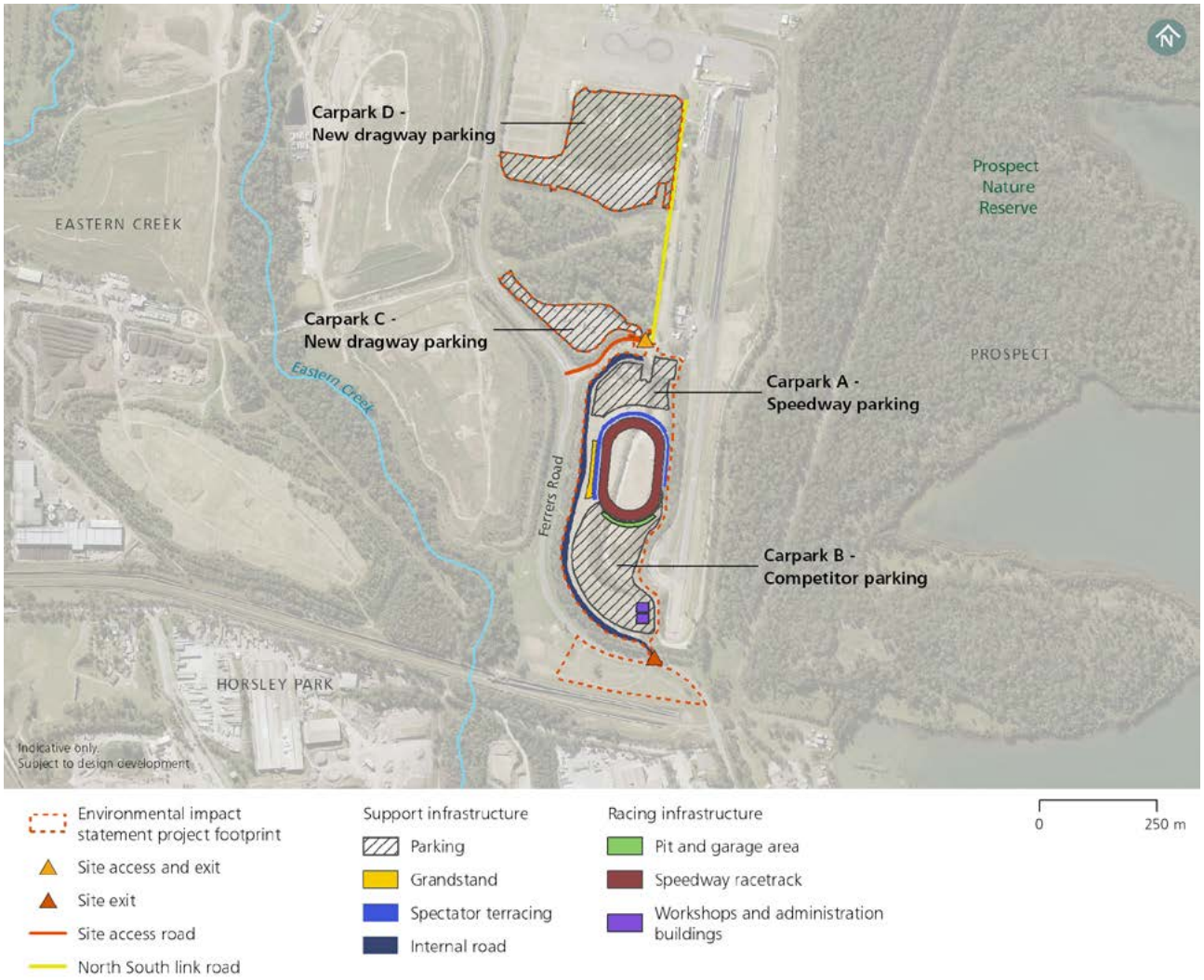

Figure E-1: Overview of the project as exhibited in the Environmental Impact Statement

Sydney International Speedway need and justification

The new Sydney International Speedway would provide the community and racing supporters a unique sporting facility that would cater for local, regional, national, and international racing events and would continue to support the growth of Speedway racing in NSW. The project would be consistent with and support the desired future character and land use of Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports.

The project would support the objectives of the *Greater Sydney Region Plan – A Metropolis of Three Cities* (Greater Sydney Commission, 2018) to provide access to sporting facilities in response to population growth and in recognition of the role of sporting facilities to enhance and promote social connections and networks within the community.

Construction of the project is expected to generate up to 150 full time employment opportunities for residents and constructions workers across the wider Sydney region. A number of indirect jobs are also likely to be generated. The project would potentially provide additional benefits for local businesses servicing the construction industry.

Consultation on the Environmental Impact Statement

The Sydney International Speedway Environmental Impact Statement was placed on public exhibition by the Department of Planning, Industry and Environment for four weeks from 19 August 2020 to 16 September 2020. Submissions were invited from the community and stakeholders during this exhibition period. The receipt of submissions was coordinated and managed by the Department of Planning, Industry and Environment.

The implementation of restrictions from March 2020 in response to the COVID-19 pandemic required new and innovative ways to engage with the community and stakeholders. This included a dedicated virtual information room which featured a project map, 360 degree views of the proposed speedway, entrance, carparks and pit areas as well as the site layout, a video from a project expert and the Environmental Impact Statement documents.

Other consultation activities included stakeholder briefings, phone conversations, emails. a broadsheet newsletter, updates to the Sydney Metro website, and a print and delivery service of planning and project information documents as required.

Key stakeholders (including local government, NSW Government agencies, peak bodies and industry associations) were briefed via emails, phone calls, virtual meetings and presentations throughout the exhibition period to ensure they received the relevant information to make a submission.

Further information on consultation is provided in Chapter 4 (Stakeholder and community engagement) of this Submissions Report.

Purpose of this report

This Submissions Report presents responses to submissions received during the exhibition of the Environmental Impact Statement. In addition, Chapter 2 (Environmental Impact Statement clarifications) of this Submissions Report presents clarifications on some of the information presented in the Environmental Impact Statement, the potential environmental impacts of those clarifications, and additional information on some features not previously described in the Environmental Impact Statement.

A separate Amendment Report has also been prepared for the Environmental Impact Statement. The *Sydney International Speedway Amendment Report* (Sydney Metro, 2020) outlines the proposed amendments since the exhibition of the Environmental Impact Statement and the associated environmental assessment. Where relevant, clarifications to the Environmental Impact Statement and responses to submissions have reflected those proposed amendments.

Overview of submissions

A total of 37 submissions were received by the Department of Planning, Industry and Environment in response to the Environmental Impact Statement. Of these submissions, 13 were from NSW Government departments/ agencies, local councils, and other key stakeholders. Key issues raised by government agencies and key stakeholders included:

- Project description, including matters relating to landscaping and track design
- Biodiversity assessment matters relating to the assessment of Serious and Irreversible Impacts, and offset credits for the Southern Myotis (*Myotis Macropus*)
- The design of construction and operational surface water controls, and associated mitigation measures
- Mitigation and management measures, particularly associated with the avoidance, minimisation and mitigation of dust, noise and parking impacts
- Noise and vibration impacts associated with events being held which finish later than 10pm
- Flooding and hydrology, including overland flooding and cumulative impacts to the South Creek catchment
- Traffic, transport and parking, relating to car parking capacity and the potential impacts of concurrent major events occurring at the project site and Sydney Dragway
- Contamination risks at the project site, and the approach to managing these risks and preventing offsite contamination during construction and operation of the project.

A total of 24 submissions were received from community members, residents and a business. These submissions have been grouped together as community submissions. Key issues of most concern to the community related to:

- Project description, including matters relating to track design, spectator facilities, operational activities and venue facilities
- Air quality, specifically the management of dust generated from the speedway track
- Support for or objection to the project.

Further analysis of submissions received is provided in Chapter 5 (Analysis of submissions) of this Submissions Report. Chapter 6 (Community submissions) and Chapter 7 (Government and key stakeholder submissions) of this Submissions Report present the issues raised in submissions and corresponding responses.

Next steps

The Department of Planning, Industry and Environment will review the Environmental Impact Statement, submissions received, this Submissions Report, and the Amendment Report on behalf of the Minister for Planning and Public Spaces.

Once the Department of Planning, Industry and Environment has completed its assessment, an environmental assessment report would be prepared for the Secretary of the Department of Planning, Industry and Environment, which may include recommended conditions of approval. The Environmental Assessment Report would then be provided to the Minister for Planning and Public Spaces.

The Minister for Planning and Public Spaces (or their delegate) would then decide whether or not to approve the project and identify any conditions of approval that would apply. The Minister's determination, including any conditions of approval and the Environmental Assessment Report, would then be published on the Department of Planning, Industry and Environment Major Projects website. Sydney Metro would continue to consult with community members, government agencies and other stakeholders during construction to minimise potential impacts.

1 Introduction

This chapter provides an overview of Sydney International Speedway, provides the statutory context and approval process and sets out the purpose and content of this Submissions Report.

1.1 Overview

The NSW Government has committed to relocating speedway racing to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, creating a true motorplex for the NSW motorsport racing community. The new Sydney International Speedway (the project) would provide the community and racing supporters a unique sporting facility that would cater for local, regional, national, and international racing events while continuing to support the growth of speedway racing in NSW.

The location of the new speedway is shown on Figure 1-1. The project would be located alongside the existing Sydney Dragway to the north and east and the Sydney Motorsports Park (operated by the Australian Racing Drivers' Club) to the north.

Western Sydney Parklands Trust in conjunction with the NSW Office of Sport, is leading a masterplanning process for Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, with opportunities to share infrastructure and coordinate events across the three venues.

The current speedway site, located on Government-owned land at Clyde, is required for a future stabling and maintenance facility for the Sydney Metro West project. The project is planned to be constructed and operational prior to the start of the speedway racing season in 2021.

The Sydney International Speedway was declared as State significant infrastructure under Section 5.12(4) of the *Environmental Planning and Assessment Act 1979* on October 14 2020. Schedule 4 of the *State Environmental Planning Policy (State and Regional Development) 2011* has been amended to include Sydney International Speedway as State significant infrastructure as a result of this declaration. Sydney Metro is proposing to build the project on behalf of and pursuant to arrangements with Western Sydney Parklands Trust.

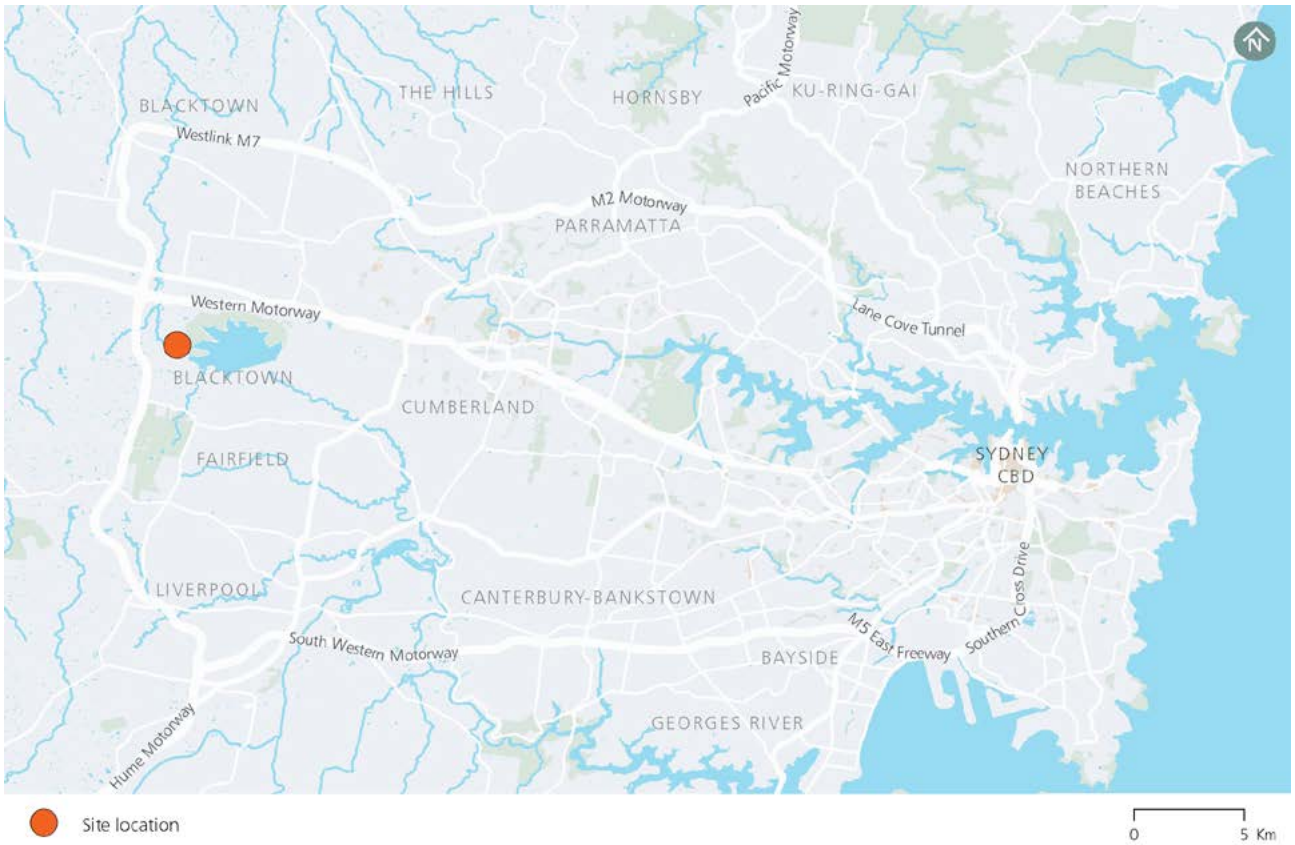

Figure 1-1: Location of the project

1.2 Sydney International Speedway

Once complete, the project would include world class racing infrastructure in the form of clay-based racetracks benchmarked to national and international best practice for both speedway vehicles and motorcycles. The following ancillary racing infrastructure would be constructed to support the use of the speedway racetracks:

- New vehicle access to the raceway area via an existing intersection off Ferrers Road
- A racing competitor's pit area in Carpark B, comprising around 150 parking bays for race vehicles and their tenders, including 20 bays for heavy vehicles transporting racing vehicles to and from the speedway and viewing platforms for pit crews
- Workshops/garages and track-side operational support areas to be used by pit crews.

High quality event support infrastructure provided to maximise the spectator experience at speedway events would comprise:

- A grandstand with the capacity to seat around 3750 spectators
- Ticketing and entryway structures
- Spectator facilities, including terraced seating for up to a total of around 7000 spectators, public amenities, corporate boxes, provision for food and beverage operators together with merchandise outlets
- Dedicated parking provided for spectators, visitors and users of the Sydney International Speedway in Carpark A, available for use by other motorsport operators by agreement
- Dedicated parking for Sydney Dragway to replace the existing spectator parking areas which would form part of the Sydney International Speedway project site. The new Dragway Parking in Carparks C and D would be available for use by other motorsport operators by agreement.

Operational support infrastructure would be provided to enable the operation of the Sydney International Speedway. Such infrastructure would include:

- Public safety including fencing and fire safety systems
- Communications including a fibre optic network (to suit internet broadcasting bandwidth and PA/AV provisions), signage and large broadcasting screens
- Services including the provision of stormwater, drainage and flooding, utilities and lighting.

The operational site layout as exhibited in the Environmental Impact Statement is shown on Figure 1-2.

Following exhibition of the Environmental Impact Statement, a number of amendments to the design or construction of the Sydney International Speedway project have been proposed to provide more optimised solutions and minimise environmental impacts wherever possible. A number of the proposed amendments have resulted in changes to the project footprint. The amended project footprint is shown in Figure 1-3. Operation would also include maintenance activities required to support the project.

A separate Amendment Report has also been prepared (*Sydney International Speedway Amendment Report* (Sydney Metro, 2020)) which outlines the proposed amendments to the project as described in the Environmental Impact Statement and potential environmental impacts of the proposed changes.

Construction of the project is expected to take around 13 months to complete. Operation of the new Sydney International Speedway is anticipated to commence in September 2021 with some finishing woks occurring concurrently with the commencement of operations.

The following construction activities would be carried out:

- Clearing, earthworks and levelling
- Landforming works
- Establishment of carparks
- Construction of racing and event support infrastructure
- Utilities connections, landscaping and finishing works.

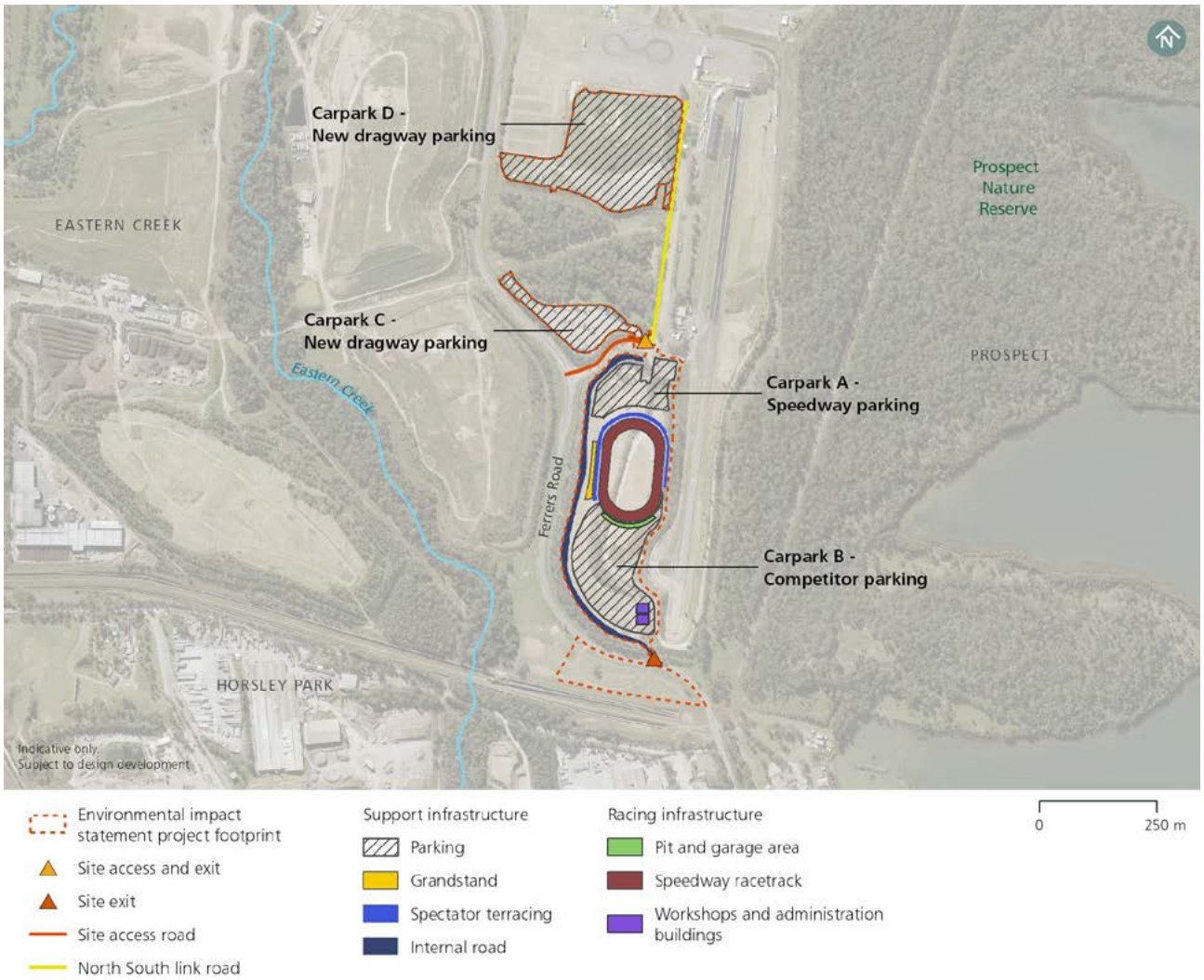

Figure 1-2: Sydney International Speedway site layout as exhibited in the Environmental Impact Statement

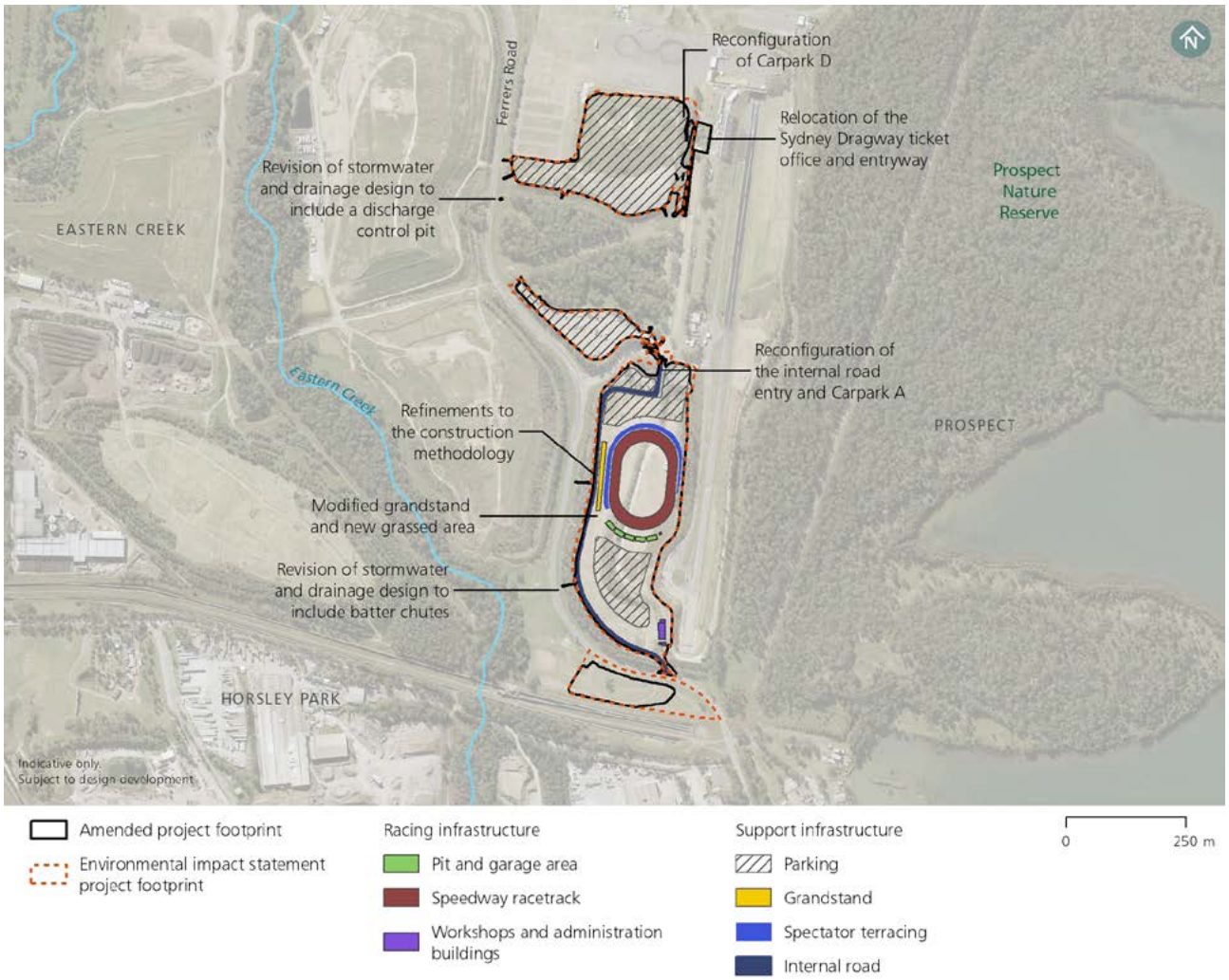

Figure 1-3: The amended project

1.3 Statutory context and approval process

Section 5.12(4) of the *Environmental Planning and Assessment Act* (EP&A Act) provides for the declaration of specified development on specified land as State significant infrastructure. A declaration has been made for the Sydney International Speedway as State significant infrastructure under Section 5.12(4) of the EP&A Act. Schedule 4 of the *State Environmental Planning Policy (State and Regional Development) 2011* has been amended to include Sydney International Speedway as State significant infrastructure

An Environmental Impact Statement was prepared to support Sydney Metro's application for approval of the project as State significant infrastructure to the Minister for Planning and Public Spaces under section 5.15 of the EP&A Act. The Environmental Impact Statement was placed on public exhibition by the Department of Planning, Industry and Environmental for four weeks from 19 August 2020 to 16 September 2020.

Section 4.2 of this Submissions Report outlines stakeholder and community engagement carried out during the exhibition period.

An overview of the assessment and approval process for the Sydney International Speedway is shown on Figure 1-4.

Figure 1-4: The planning approval process for State significant infrastructure

1.4 Purpose and structure of this Submissions Report

The Environmental Impact Statement for the project was placed on public exhibition for review and comment for 28 days from 19 August 2020 to 16 September 2020. During exhibition, 36 submissions were received by the Department of Planning, Industry and Environment and one additional late submission was accepted. The Secretary of Department of Planning, Industry and Environment requested on 28 September 2020 that Sydney Metro prepare and provide a Response to Submissions Report that addressed the issues identified in the submissions from members of the public, interest groups, government agencies and key stakeholders.

In accordance with Clause 82 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), this Submissions Report has been prepared to:

- Respond to the submissions received during the exhibition of the Environmental Impact Statement for the project
- Provide clarifications to information presented in the Environmental Impact Statement, where required.

The structure and content of this Submissions Report are outlined in Table 1-1.

Table 1-1: Structure and content of this Submissions Report

Chapter	Description
Chapter 1 Introduction (this chapter)	Outlines the key features of the Sydney International Speedway, the statutory context and approval process for the project and outlines the purpose and content of this report.
Chapter 2 Environmental Impact Statement clarifications	Provides clarifications on information presented in the Environmental Impact Statement.
Chapter 3 Related Development	Identifies projects that are related to the project but subject to separate planning approvals, and provides a summary of those projects and their associated environmental impacts.
Chapter 4 Stakeholder and community engagement	Outlines stakeholder and community engagement carried out during the preparation of the Environmental Impact Statement, during exhibition of the Environmental Impact Statement and future engagement activities proposed.
Chapter 5 Analysis of submissions	Provides a summary of the submissions received during public exhibition of the Environmental Impact Statement, including the number of submissions, types of submitters and issues raised.
Chapter 6 Community submissions	Identifies issues raised by the community, and provides responses to those submissions.
Chapter 7 Government and key stakeholder submissions	Identifies issues raised by government agencies, local councils and key stakeholders and provides responses to those submissions.
Chapter 8 Revised environmental mitigation measures	Provides the complete set of revised environmental mitigation measures indicating changes required as a result of the response to submissions, or as a result of the *Sydney International Speedway Amendment Report* (Sydney Metro, 2020).
Chapter 9 Conclusion and next steps	Provides a conclusion to the Submissions Report and outlines the next steps in the approval process following the submissions process.

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2 Environmental Impact Statement Clarifications

This chapter provides a description for each clarification to the project compared to the exhibited Environmental Impact Statement, and provides any additional environmental impact assessment.

2.1 Overview

Since the preparation of the Environmental Impact Statement, a number of clarifications relating to the description of the project (as included in Chapter 5 of the exhibited Environmental Impact Statement) have been identified.

This chapter provides:

- Clarifications to some of the information presented in the Environmental Impact Statement
- Additional information on some features not detailed in the Environmental Impact Statement.

The following clarifications have been identified and are described and assessed in more detail in Section 2.2 and Section 2.3:

- A reduction in earthworks volumes across the project site
- Additional contamination site investigations.

Minor clarifications are also provided in Section 2.4.

2.2 Reduction in site earthworks volumes

The reduction in site earthworks volumes would result in the following benefits:

- Reduced scope of construction activity required
- Reduction in the number of construction vehicles required to transport excess material to construction area seven, and an associated reduction in potential construction traffic impacts
- Reduction in the potential visual impacts associated with the permanent landscape mound in construction area seven.

This clarification is relevant to the following submissions that were received from key stakeholders during exhibition of the Environmental Impact Statement:

- Austral Bricks requested clarification on stockpiling activities including the potential visual impacts to views from Austral Bricks offices and entrance way
- Motorsport Australia requested a reduction in the earthworks at the area behind the machinery shed in order to maintain a level access to the Sydney Dragway for potential use during non-speedway car racing events across the Western Sydney Parklands Precinct 5: Eastern Creek Motor Sports.

2.2.1 Clarification description

Chapter 5 (Project description) of the Environmental Impact Statement included an overview of the earthworks and site levelling activities required as part of construction of the project. The Environmental Impact Statement noted that earthworks within construction areas one to six would result in the generation of about 100,000 cubic metres of excess cut material. This material is proposed to be transported to construction area seven where it would be temporary stockpiled, and formed into a permanent landscaped mound at the completion of construction.

Earthworks and site levelling

It was identified in the Environmental Impact Statement that opportunities to optimise the project design to minimise the amount of excess cut material were being investigated as part of design development. Since the exhibition of the Environmental Impact Statement, earthworks volumes have been refined and reduced, as described in Table 2-1.

Table 2-1: Cut and fill volumes for earthworks and site levelling activities during construction

Construction area(s)	Environmental Impact Statement		Revised earthworks cut and fill volumes	
	Cut (m^3)	Fill (m^3)	Cut (m^3)	Fill (m^3)
1	95,400	21,600	73,447	29,928
2 and 4	2000	20,400	21,603	66,086
3	100	16,300	2867	497
5 and 6	211,100	150,000	137,164	122,310
7	–	100,300		2388 (topsoil) 13,872 (fill material)
Total	**308,600**	**308,600**	**235,081**	**235,081**

Construction vehicle movements

The Environmental Impact Statement also noted that the transport of excavated material between areas of the project site would involve up to 592 vehicle movements per day. The revised earthworks volumes and reduction in material transport to construction area seven would reduce the daily heavy vehicle movements between areas of the project site to around 95 vehicle movements per day, compared to the Environmental Impact Statement, which predicted 592 vehicle movements per day.

2.2.2 Additional assessment

Based on the information provided in Section 2.2.1, additional environmental assessment has been carried out to assess the potential changes to identified environmental impacts of the project associated with construction traffic, transport and parking.

The changes to site earthworks volumes would not result in any potential change to other issues as described and assessed in the Environmental Impact Statement.

The reduction in earthworks volumes would mean that the height of the grandstand would be one metre above what was included in the assessment of landscape character and visual amenity and the size and height of the permanent mound in the area to the south of Ferrers Road would be reduced. The impacts to landscape character and visual amenity associated with the change in site levels during daytime and night-time operation would be consistent with the impact assessment presented in Section 12.8 and Technical Paper 7 (Landscape character and visual amenity) of the Environmental Impact Statement and no further assessment has been undertaken as part of this Submissions Report.

Traffic, transport and parking

Existing environment

The existing environment as it relates to traffic, transport and parking is described in Section 6.4 of the Environmental Impact Statement.

Methodology

To assess the potential changes in impacts to construction traffic, transport and parking associated with the revised site earthworks volumes, the following has been completed:

- Identification of changes to the potential construction traffic impacts identified in the Environmental Impact Statement as a result of this clarification
- Review of the construction traffic, transport and parking management and mitigation measures included in the Environmental Impact Statement to ensure they reflect the revised construction traffic, transport and parking assessment included in this section.

The reduction in site earthworks volumes only requires consideration of revised impacts to intersection performance during construction. All other identified construction and operational traffic, transport and parking impacts of the project as identified in the Environmental Impact Statement would not change and as such, have not been considered further as part of this assessment.

Assessment of potential construction impacts

Intersection performance

Heavy vehicles transporting excavated material between areas of the project site would use the same construction traffic routes identified in Chapter 6 (Traffic, transport and parking) of the exhibited Environmental Impact Statement, where vehicles would travel out of the main site access and egress (at the northern end of the speedway site) south along Ferrers Road before turning right into the area south of Ferrers Road. As the proposed construction traffic route does not traverse the intersections assessed in the Environmental Impact Statement, the reduction in heavy vehicle movements would not change the modelled intersection performance detailed in the Environmental Impact Statement.

Section 6.6.3 of the Environmental Impact Statement noted that the project would result in minor impacts on road network performance given the number of temporary heavy vehicle movements is relatively low (an average of 24 movements per hour when construction is being undertaken 24 hours per day, seven days a week) and would occur mostly outside of peak traffic periods. Further, vehicle movements would occur on a short length of Ferrers Road (about 500 metres), meaning interactions with existing traffic would be minimal.

The number of daily heavy vehicle movements transporting excavated material between areas of the project site would reduce by 84 per cent as a result of the reduced earthworks volumes, from around 592 one way heavy vehicle movements per day to around 95 one way heavy vehicle movements per day. The revised daily heavy vehicle movements required for the transport of excavated material between areas of the project site would reduce to about four movements per hour when construction is being undertaken 24 hours per day, seven days a week. Potential construction traffic impacts associated with the revised heavy vehicle construction traffic movements transporting excavated material between areas of the project site would be minimal.

As such, the construction traffic, transport and parking management and mitigation measures included in the Environmental Impact Statement would remain relevant and accurate.

2.2.3 Changes to or additional mitigation measures

The revised site earthworks volumes would not require any revisions to the environmental mitigation measures provided in the Environmental Impact Statement.

2.3 Additional contamination site investigations

2.3.1 Clarification description

Chapter 14 of the Environmental Impact Statement included preliminary contamination site investigation for the project, supported by Technical Paper 9 (Contamination). The contamination assessment included as part of the Environmental Impact Statement was based on a site investigation and desktop review of available information sources and observations to understand the existing environment and potential for contamination within the study area. The assessment also included:

- A high level prioritisation exercise including identification of areas of environmental interest with respect to contamination and assessment of potential impacts to environmental and human receptors (with no mitigation measures) as a result of proposed construction activities
- Identification of appropriate management and mitigation responses for contamination, or where further investigation or remediation may be required.

The potential contamination risks within the project site during construction were provided in Table 14-6 of the Environmental Impact Statement, which identified that the project had a moderate to high potential contamination risk across some or all areas of the project site from a number of sources, including:

- Subsurface fill material and perched groundwater
- Waste materials (steel beams, cement bags, intermediate bulk containers, fencing)
- Waste materials (tyres, oil drums, and construction/ demolition waste waste)
- Stockpiled soils and construction/ demolition waste
- Contaminated subsoils, groundwater and ground gas
- Ground gas impacted by adjacent waste management facilities (landfills).

The submission from the Environment Protection Authority in response to the exhibited Environmental Impact Statement recommended that a detailed site investigation be conducted in accordance with the relevant guidelines, to determine the extent of contamination across the project site.

Since the preparation of the Environmental Impact Statement, additional site investigations have been completed across the project site, to further inform the construction methodology for the project. Based on the results of these additional investigations, the potential contamination across the project site, and the level of risk associated with these sources of contamination has been revised.

2.3.2 Additional assessment

Contamination

Existing environment

The existing environment of the project site as it relates to contamination was included in Section 14.4 of the Environmental Impact Statement.

The revised existing contamination environment based on the additional site investigations are summarised in Table 2-2.

Table 2-2: Overview of additional site investigations for the Sydney International Speedway project

Additional site investigation	Scope of investigation	Summary of results as they relate to existing contamination at the project site
Contamination Assessment Report – Sydney Motorsport Park **(Golder, 2020)**	A desktop review of available information and a site inspection to identify areas of the project site which have the potential to impact on the project (with respect to contamination).	The Golder (2020) assessment identified the following potential contamination issues: • Historical agricultural land use at the site – on site • Potential presence of an underground storage tank (UST) of unknown condition or contents – on site • Placement of uncontrolled fill across the site – on site • Potential vehicle storage/maintenance – on site • Demolition of former buildings/dwellings potentially containing hazardous building materials – on site • Commercial landfill facilities adjoining the western site boundary – off site.
Factual Contamination and Geotechnical Data Report – Sydney Dragway Investigation, Eastern Creek **(Golder/Douglas Partners (5 June 2020a))**	• Drilling of five boreholes • Excavation of 37 test pits • Drilling and installation of three soil gas wells • Collection of samples (soil and gas) and analysis for a range of common contaminant compounds and hazardous ground gases. The sampling locations were spread across the project site to provide general spatial coverage.	The observations made during the investigation generally indicated fill materials (up to 12 metres in depth) overlying silty and gravelly clays (at isolated locations) and siltstone/sandstone bedrock. Shallow fill materials were encountered in the southern portion of the project site (low lying areas adjacent to the Sydney Water pipeline). The results of the laboratory analysis of soil samples indicated the following: • Asbestos containing material was identified on the site surface at two locations. The presence of asbestos (any forms) exceeds the adopted human health investigation levels • Zinc was detected at concentrations exceeding the adopted ecological investigation levels at seven locations • Copper was detected at concentrations exceeding the adopted ecological investigation levels at one location • All other soil samples reported concentrations of contaminant compounds below the adopted investigation levels • One round of soil gas monitoring indicated low to negative flows with carbon dioxide concentrations exceeding the adopted investigation levels at all locations. Methane was not detected at concentrations above the adopted investigation levels.

Additional site investigation	Scope of investigation	Summary of results as they relate to existing contamination at the project site
Addendum Contamination Report – Sydney Dragway Investigation, Eastern Creek (Golder/Douglas Partners (4 September 2020) GDP, 2020b).	• Inspection of ground surfaces in the vicinity of where asbestos containing materials (ACM) and potential ACM were identified during the GDP (2020a) investigation and collection of five bulk soil samples for gravimetric asbestos identification • Periodic ground gas monitoring at three soil gas wells and continuous ground gas monitoring at one well location for a period of 24 hours. The soil gas wells subjected to monitoring were those wells monitored as part of the GDP (2020a) investigation.	No asbestos (any form) was identified in the soil samples collected for laboratory identification. The soil gas monitoring indicated low to negative flows with carbon dioxide concentrations exceeding the adopted investigation levels at all locations. Methane was not detected at concentrations above the adopted investigation levels. Based on the conceptual site model (sub-surface gas) provided in the GDP (2020b) investigation report, it was considered unlikely that the gas concentrations measured in the wells monitored originate from the landfill to the west of the site.

Additional site investigation indicated a significant depth of fill. The fill observed was generally consistent across the site and gross or widespread contamination was not identified visually or in analytical results.

Surficial asbestos was identified on the site surface at two of the 37 test pit locations (GDP 2020a) however, asbestos was not observed in the bulk fill and a second stage of investigation targeting these locations did not identify any asbestos within the fill matrix (GDP 2020b).

Minor exceedances of the ecological investigation levels for zinc (seven test pits) and copper (one test pit) were identified in areas of fill.

Based on the additional site investigations that have been undertaken, the existing sources of potential contamination and existing contamination risk of the project site have been revised.

Contaminants of potential concern

The following potential contaminants sources were identified:

- Localised soil contamination from waste storage on-site: No specific sampling has been undertaken in localised areas containing miscellaneous wastes (as observed within Areas 1 and 2). Whilst no evidence of contamination was observed, potential contaminants associated with the localised waste storage could include heavy metals, total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCPs), organophosphate pesticides (OPPs), volatile organic compounds (VOCs)/ semi volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and asbestos
- Soil contamination from unknown fill material: Widespread, significant contamination was not identified during the GDP (2020a) investigation and based on available data is not expected to be encountered. The identification of asbestos on the site surface (within Areas 1 and 4) and the presence of extensive fill containing some construction wastes could indicate the potential for asbestos to be present in other areas not sampled and/or investigated including stockpiled material present within Area 6. Potential contamination (if present) associated with the unknown fill material is likely to be mainly asbestos
- An underground storage tank (UST) is potentially located within the northern portion of Area 4: The location, contents and condition of the UST is not known. Localised soils and groundwater surrounding and underlying the UST (if present) could be impacted by heavy metals, total recoverable hydrocarbons (TRH), monocyclic aromatic hydrocarbons (BTEX) and polycyclic aromatic hydrocarbons (PAH)

- Groundwater contamination from unknown fill material: No groundwater sampling and analysis was undertaken as part of the GDP (2020a and 2020b) investigations. Although significant contamination was not identified in the soil samples analysed, there is the potential for groundwater to be impacted by the fill present on the project site. Contamination of groundwater due to leaching from soils is not expected to be widespread however if present could include dissolved heavy metals, total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), volatile organic compounds (VOCs), semi volatile organic compounds (SVOCs) and per and polyfluoroalkyl substances (PFAS)
- Groundwater impacted by adjacent waste management facilities: No groundwater sampling and analysis was undertaken as part of the GDP (2020a and 2020b) investigations. The direction of groundwater flow has not been detailed in the reports reviewed. Groundwater can also be influenced by formation pressure within landfills and as such, groundwater can move in directions against gravity (along other paths of least resistance including structures within the underlying geology). Potential contaminants associated with the adjacent waste facility could include VOCs, SVOCs, organic contaminants, hydrocarbons, dissolved heavy metals and PFAS
- Ground gas impacted by adjacent waste management facilities: With the exception of carbon dioxide, other ground gas concentration were below the adopted investigation levels. Additionally, negative formation pressures were generally detected within the soil gas wells. Although significant ground gas levels were not recorded, ground gas can be affected by many environmental (e.g. meteorological conditions, temperature) and source site conditions (e.g. operation of extraction systems, capping and compaction) and extensive monitoring programs are generally needed to understand the flux in ground gas (if present) as a result of changing environmental conditions. Potential contaminants associated with the adjacent waste facility could include methane, carbon dioxide, carbon monoxide and hydrogen sulfate.

Potential exposure pathways are direct contact, ingestion, and inhalation for human health (except for potential ground gas contamination and asbestos where inhalation is the only exposure pathway). The exposure pathway for sensitive receiving ecological environments is biological uptake.

Vapours have the potential to accumulate within excavations and enclosed structures at the project site at concentrations which could represent an asphyxiation, explosion or acute/chronic health risk.

Landfill ground gas can also cause potential temporary odour issues that may impact nearby stakeholders. This may be particularly prevalent during construction, during which time mass soil disturbance could liberate ground gas contained within subsurface voids.

Existing contamination risk

The existing contamination risks within the project site during construction has been revised based on the information available from the detailed site investigations, and described in Table 2-3. Any text in Table 2-3 that is in is no longer relevant to the contamination assessment. Any text denoted in **bold**, is revised information based on the detailed site investigations, and supersedes the information provided in the Environmental Impact Statement.

Table 2-3: Contamination risks across the project site

Area and construction activity	Potential contamination source	Contamination severity and extent assessment	
		Media and COPCs	Contamination status
~~Areas 1 to 6: cut and fill~~	~~Subsurface fill material and perched groundwater~~	~~Soil, groundwater, ground gas: Heavy metals, TRH, PAH, OCPs, OPPs, VOCs/SVOCs, PCBs, asbestos~~	~~Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and potentially widespread.~~
Areas 1 to 6: cut and fill	**Subsurface fill material**	**Soil: Asbestos**	**Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and limited in extent.**
Areas 1 to 6: cut and fill	**Perched groundwater**	**Groundwater: Heavy metals, TRH, PAH, VOCs/SVOCs, PFAS**	**Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and potentially widespread.**
Area 1: Cut and fill	Waste materials (steel beams, cement bags, Intermediate Bulk Containers, fencing)	Soil: Heavy metals, TRH, PAH, OCPs, OPPs, VOCs/SVOCs, PCBs, asbestos	Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and limited in extent.
Area 2: Cut and fill	Waste materials (tyres, oil drums, and construction/ demolition waste waste)	Soil: Heavy metals, TRH, PAH, OCPs, OPPs, VOCs/SVOCs, PCBs, asbestos	Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and limited in extent.
Area 4: Cut and fill	**Underground storage tank**	**Soil and groundwater: Heavy metals, TRH, BTEX, PAH**	**Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and limited in extent.**
Area 6: Cut and fill	Stockpiled soils and construction/ demolition waste	Soil: ~~Heavy metals, TRH, TPH, PAH, OCPs, OPPs, VOCs/SVOCs, PCBs,~~ Asbestos	Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and limited in extent.
~~Area 7: stockpiling area~~	~~Contaminated subsoils, groundwater and ground gas~~	~~Soil, groundwater and/or ground gas: Heavy metals, TRH, TPH, PAH, OCPs, OPPs, VOCs/ SVOCs, PCBs, asbestos~~	~~Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and limited in extent.~~
~~Site wide~~ Western site boundary cut and fill activities	Ground gas impacted by adjacent waste management facilities (landfills)	Ground gas: Methane, carbon dioxide, carbon monoxide, hydrogen sulfate	Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and ~~potentially widespread~~ **limited in extent.**
Western site boundary cut and fill activities	Groundwater impacted by adjacent waste management facilities (landfills)	Groundwater: VOCs, SVOCs, organic contaminants, hydrocarbons, dissolved heavy metals and PFAS	Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and limited in extent.

1 Construction workers and site users could be exposed to contamination via contact (dermal, ingestion, inhalation) with contaminated soils and dust.

2 Adjacent site users could be exposed to contamination via dust emissions (inhalation), namely asbestos.

3 Construction workers and site users could be exposed to contamination via vapour emissions.

4 Adjacent site users could be exposed to contamination via vapour emissions (inhalation).

5 ~~Ecosystems of Eastern Creek, on-site native woodland, and associated tributaries could be exposed to contamination via uncontrolled releases (sediment and water) during construction~~

	Pathways and receptors Assessment of relationship to construction and operational footprint and scope			Potential contamination risk without mitigation
Rating	Potential for contamination to be intersected	Exposure pathways	Rating	
~~SE3~~	~~Contamination (if present) could be exposed during excavation.~~	~~Potential exposure pathways include direct contact, ingestion, and inhalation for human health, and uptake for ecology.~~[1,2,3,4,5]	~~PR3~~	~~High~~
SE2	**Contamination (if present) could be exposed during excavation.**	**Potential exposure pathways are inhalation only for human health.**[1, 2]	**PR2**	**Moderate**
SE3	**Contamination (if present) unlikely to be exposed during excavation at significant volumes.**	**Significant contamination unlikely to be exposed during construction and therefore unlikely to impact upon human and ecological receptors.**	**PR1**	**Low**
SE2	Contamination (if present) would be exposed during excavation.	Potential exposure pathways include direct contact, ingestion, and inhalation for human health.[1]	PR3	Moderate
SE2	Contamination (if present) would be exposed during excavation.	Potential exposure pathways include direct contact, ingestion, and inhalation for human health.[1]	PR3	Moderate
SE2	**Contamination (if present) could be exposed during excavation.**	**Potential exposure pathways include direct contact, ingestion, and inhalation for human health.**[1]	**PR2**	**Moderate**
SE2	Contamination (if present) could be exposed during excavation.	Potential exposure pathways ~~include direct contact, ingestion, and~~ **are inhalation only for human health**.[1, 2]	PR~~3~~2	Moderate
~~SE2~~	~~Contamination (if present) could be exposed during excavation.~~	~~Potential exposure pathways include direct contact, ingestion, and inhalation for human health.~~[1,3]	~~PR2~~	~~Moderate~~
SE~~3~~2	Contamination (if present) could be exposed during excavation.	Potential exposure pathways include inhalation for human health.[3,4]	PR2	Moderate
SE2	Contamination (if present) unlikely to be exposed during excavation at significant volumes.	Significant contamination unlikely to be exposed during construction and therefore unlikely to impact upon human and ecological receptors.	PR1	Low

Assessment of potential construction impacts

Potential construction impacts as they relate to contamination would be consistent with those presented in Section 14.5 of the Environmental Impact Statement. No further assessment is considered necessary as part of this Submissions Report.

Highly complex, significant and/or widespread contamination has not been identified on the project site. Any contamination encountered is likely to be able to be managed in accordance with an unexpected find protocol using standard remediation/construction techniques

Assessment of potential operational impacts

Potential operational impacts as they relate to contamination would be consistent with those presented in Section 14.6 of the Environmental Impact Statement. No further assessment is considered necessary as part of this Submissions Report.

2.3.3 Changes to or additional mitigation measures

The contamination mitigation measures for the project have been revisited to reflect the information available from the additional site investigations and subsequent revised existing contamination risk within the project site. Any text in Table 2-4 that is no longer relevant to the contamination assessment. Any text denoted in **bold**, is revised information based on the detailed site investigations, and supersedes the information provided in the Environmental Impact Statement.

Table 2-4: Contamination mitigation measures

Reference	Impact/issue	Mitigation measure	Applicable location
Construction			
C1	Management of low risk contamination	~~For areas that have been identified as having moderate, or high contamination impact potential, a further review of data would be performed, including review of any additional preliminary contamination site investigations conducted following desktop assessment to refine impact assessment.~~ ~~Where the additional data review confirm~~**ed** ~~that contamination is likely.~~ **Areas identified** to have a very low or low impact potential **contamination** risk~~, the areas~~ would ~~then~~ be managed in accordance with the Soil and Water Management Plan. This would typically occur where there is minor, isolated contamination that can be readily remediated through standard construction practices such as excavation and off-site disposal.	~~All~~ **Areas identified to have a very low or low impact potential contamination risk**
~~C2~~	~~Detailed Site Investigation~~	~~Where data from the additional data review (mitigation measure C1) is~~ **was** ~~insufficient to understand the impact of contamination, a Detailed Site Investigation would be was carried out in~~ **general** ~~accordance with the NEPM (2013) and other guidelines made or endorsed by the NSW EPA.~~ ~~Construction areas requiring Detailed Site Investigation would be confirmed following the additional data review (mitigation measure C1), however based on the findings of this Preliminary Site Investigation, it is anticipated that Detailed Site Investigations would likely be required was undertaken throughout the project site (within all areas).~~	~~All Areas~~

Reference	Impact/issue	Mitigation measure	Applicable location
C3	Remediation	~~Where data from additional data review (mitigation measure C1) or the Detailed Site Investigation (mitigation measure C2) confirms that contamination would have a moderate to high risk, a Remedial Action Plan (RAP) would be developed for the relevant construction area.~~ ~~To manage these potential moderate contamination risks, an unexpected finds protocol (UFP) would be prepared.~~ **Areas identified to have a moderate potential contamination risk would be managed in accordance with an unexpected finds protocol.** **The unexpected finds protocol would detail management works required to mitigate impacts from contamination (if encountered) throughout and following completion of construction. The unexpected finds protocol would be prepared in accordance with relevant NSW EPA guidelines and where applicable, detail management methodologies in accordance with Australian Standards and other relevant Australian and NSW government guidelines and codes of practice. The unexpected finds protocol would detail generic management measures associated with unexpected finds and more specific measures around the following:** Asbestos finds during excavation works Localised contamination (if present) underlying areas of waste materials in Areas 1 and 2 Removal requirements should the underground storage tank potentially located within Area 4 be uncovered during excavation works Monitoring requirements within excavations (LEL monitoring) to assess the risk (if any) associated with ground gas in the vicinity of the western boundary. **Any management of contamination encountered in accordance with the unexpected finds protocol, would be performed as an integrated component of construction and to a standard commensurate with the proposed end use of the land.** ~~The RAP would detail remediation works required to mitigate impacts from contamination throughout and following completion of construction. The RAP would be prepared in accordance with relevant NSW EPA guidelines and where applicable, detail remediation methodologies in accordance with Australian Standards and other relevant Australian and NSW government guidelines and codes of practice.~~ ~~Remediation would be performed as an integrated component of construction and to a standard commensurate with the proposed end use of the land.~~ ~~Construction areas requiring a RAP would be confirmed following the additional data review (mitigation measure C1) and Detailed Site Investigation (mitigation measure C2), however on the basis of this Preliminary Site Investigation, it is anticipated that a RAP and remediation could be required to manage widespread contaminated fill materials at the project site.~~	~~Dependant on the outcomes of mitigation measures C1 and C2, locations may include areas one to seven~~ **Construction areas one to six**

Reference	Impact/issue	Mitigation measure	Applicable location
~~C4~~	~~Site Audit Statement~~	~~Where contamination is highly complex, such as groundwater contamination; contamination associated with vapour; contamination that requires specialised remediation techniques; or contamination that requires ongoing active management during and beyond construction, an accredited Site Auditor would review and approve the RAP and would develop a Site Audit Statement and Site Audit Report upon completion of remediation.~~ ~~The requirement for auditor involvement would be confirmed following the completion of the Detailed Site Investigation (mitigation measure C2) and prior to the preparation of the RAP (mitigation measure C3).~~	~~Dependent on outcomes of the C1, C2 and C3, locations may include areas one to seven~~
C5	Residual contamination following construction	Ongoing management and monitoring measures would be documented in an appropriate form and implemented for any areas where minor, residual contamination remains following construction.	As applicable
Operation			
C6	Accidental leaks or spills during operation	The Operational Environmental Management Plan would include an Emergency Response Plan which would specify the procedure to be followed in the event of a spill, including the notification requirements and use of absorbent material to contain the spill.	All areas

2.4 Minor clarifications

2.4.1 Traffic, transport and parking

Figure 6-2 of the Environmental Impact Statement identified the cycle network local to the project site which included the Austral Bricks road as an 'off road – low difficulty' cycleway. The submission from Austral Bricks identified that the Austral Bricks road is not appropriate for cyclists. As a result, the figure has been updated to remove the identification of this road as an 'off road – low difficulty' cycleway. The removal of this cycleway would not change the outcome of the assessment of potential impacts on cyclists' access, amenity, safety and movement as presented in Chapter 6 (Traffic, transport and parking) of the Environmental Impact Statement. Therefore, no further assessment is required.

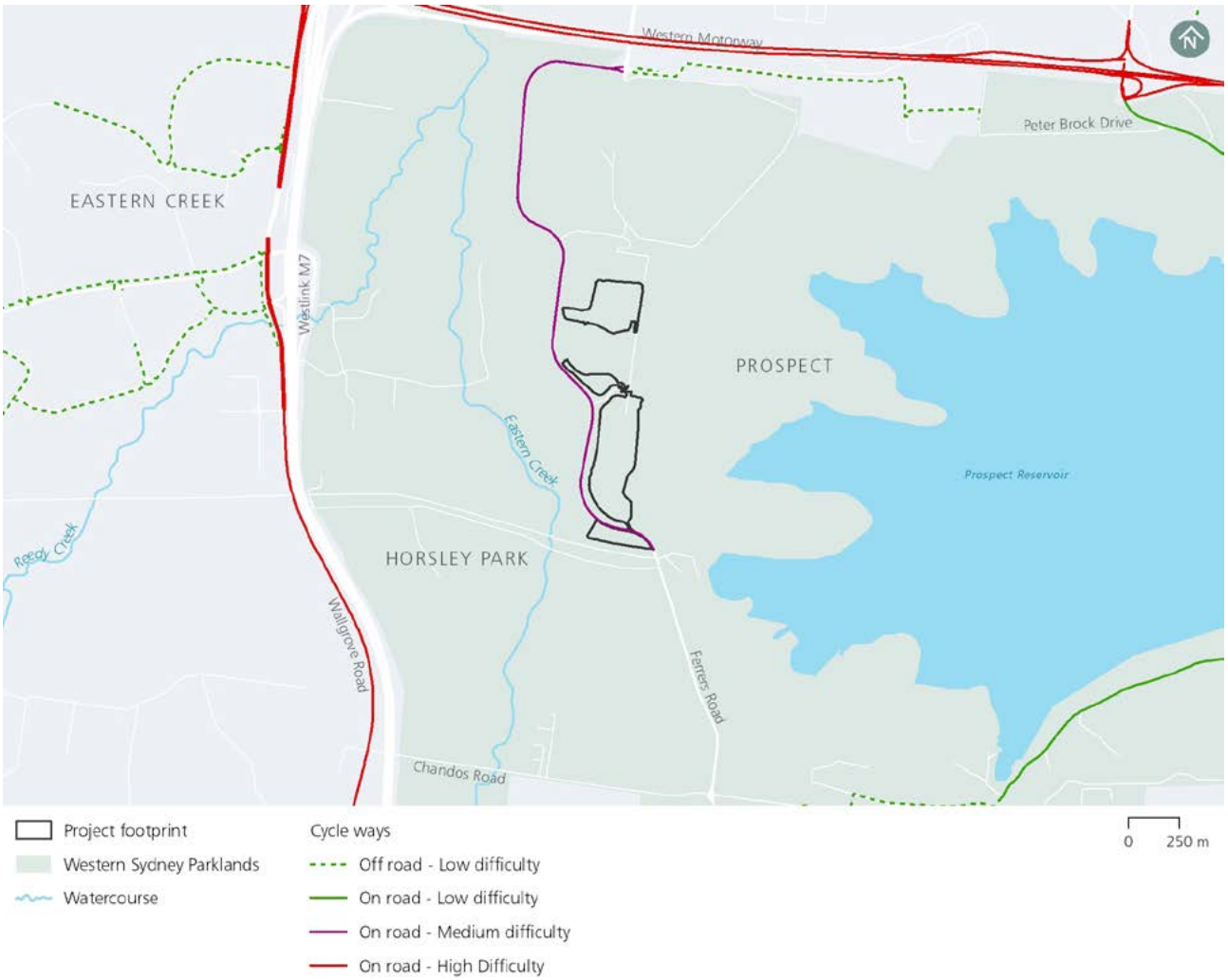

Figure 2-1: Existing cycling network near the project site

2.4.2 Noise and vibration

Operating hours

Whilst the Environmental Impact Statement described that racing at the Sydney International Speedway would typically take place between 6pm and 10pm, it is recognised that during events some incidents or track maintenance activities may result in racing extending beyond 10pm.

The potential night-time noise impacts have been qualitatively assessed with consideration of the following:

- The level of noise
- How often high noise events would occur
- The time of day (normally between 10 pm and 7 am)
- Whether there are times of day when there is a clear change in the noise environment (such as during early morning shoulder periods).

Noise levels generated during a race after 10pm would be the same as noise levels for earlier races, as presented in Technical paper 2 (Noise and vibration) and Chapter 7 (Noise and vibration) of the Environmental Impact Statement. The measured background noise levels at the nearest sensitive receivers (to the south of the project site) were found to be consistent in the evening and early night-time period. This shows that existing ambient noise sources remain relatively steady during the potential extended period and means that potential impacts to residential receivers during the night-time would likely be comparable to the potential impacts from events before 10pm. These potential short-term impacts would also be effectively managed by the at-property treatment proposed in the Environmental Impact Statement.

Sydney International Speedway would not typically operate beyond 10pm under normal operations. Operations running past 10pm are anticipated to occur infrequently, would be for a relatively short duration and would not carry on through to the late night-time period, where receivers are generally considered to be most sensitive to noise. The *NSW Road Noise Policy* (NSW Environment Protection Authority, 2011) contains advice relating to potential sleep disturbance impacts. From the research to date, the NSW Road Noise Policy concludes that:

- Maximum internal noise levels below 50 dBA to 55 dBA are unlikely to awaken people from sleep
- One or two events per night, with maximum internal noise levels of 65 dBA to 70 dBA, are not likely to affect health and wellbeing significantly.

It is generally accepted that internal noise levels in a residential receiver with the windows open are 10 dB lower than external noise levels. Based on a worst-case minimum attenuation with windows open, the first dot point above suggests that short term external noise events of 60 dBA to 65 dBA are unlikely to cause awakening reactions. The second dot point suggests that one or two noise events per night with maximum external noise levels of 75 dBA to 80 dBA are not likely to affect health and wellbeing significantly.

Based on the significant distance between the track and the nearest receivers, it is considered unlikely that maximum noise levels would be at a level to cause sleep disturbance impacts inside people's homes. All the worst case predicted motorsport noise levels from the Sydney International Speedway presented within the Environmental Impact Statement were below 65 dBA at residential receivers. The likely infrequent nature of events extending into the night-time also results in the risk of adverse impact being considered low.

Construction Noise and Vibration Standard

An updated Construction Noise and Vibration Standard has been prepared to replace Appendix C of the Environmental Impact Statement. The Construction Noise and Vibration Standard was updated to include the following and is presented in Appendix A:

- Changes to the additional mitigation measures matrix to relate to noise management levels for the project rather than rating background noise levels
- Clarification of different levels of noise and vibration impact statements (based on the scope of construction works) and clarification of other noise and vibration-related documents
- Removal of limitations on the use of plant and equipment if their use is justified
- Change to the assessment approach to sleep disturbance to reflect the most recent guidance documents
- Minor text changes and factual corrections.

2.4.3 Aboriginal heritage

An updated Aboriginal Cultural Heritage Assessment Report has been prepared to replace Technical Paper 5 (Aboriginal Cultural Heritage Assessment Report) of the Environmental Impact Statement. This report is provided as Appendix B to this Submissions Report and has been updated to:

- Include outcomes of consultation with Registered Aboriginal Parties that was undertaken concurrently with the exhibition of the Environmental Impact Statement
- Include an addendum Aboriginal Cultural Heritage Assessment Report, to assess the potential for any additional impacts of the project on Aboriginal heritage as a result of the proposed amendments to the project that have been described and assessed in the *Sydney International Speedway* Amendment Report (Sydney Metro, 2020).

2.4.4 Surface water

Further investigation and design development of the construction methodology and operational requirements of the project has identified an alternative approach for surface water monitoring.

The downstream monitoring of Eastern Creek (as proposed in the Environmental Impact Statement) is unlikely to identify any potential contribution to water quality impacts from the project., due to the distance of the project from Eastern Creek, and the wide variety of other potential sources of surface water discharge into Eastern Creek between the project site and downstream monitoring locations (including from nearby industrial development and landfill activities).

Instead, an on-site water quality monitoring system at discharge points is proposed, to monitor the quality of runoff before leaving the project site. The onsite water quality monitoring would provide a more direct and at-source method of identifying and managing any potential offsite impacts to water quality as a result of the project.

Changes to or additional mitigation measures

The soils and surface water quality mitigation measures have been revised to consider the revised surface water quality monitoring approach. Any text in Table 2-5 that is proposed to be deleted. Any text in **bold**, is additional or revised text as part of the mitigation measures. A complete list of revised mitigation measures is included in Chapter 8 of this Submissions Report.

Table 2-5: Revised surface water quality monitoring mitigation measures

Reference	Impact / issue	Mitigation measure	Applicable location
Construction			
SSW5	Water quality monitoring	A**n onsite** surface water monitoring program would be implemented to observe any changes in ~~surface water~~ **the** quality **of runoff from the project site prior to discharge** ~~that may be attributable to the project and inform appropriate management responses~~. The program would be developed in consultation with the EPA and **Blacktown City Council, where required** ~~relevant Councils~~. Monitoring would occur **at all points of discharge within the project site** ~~prior to and during construction at all waterways with the potential to be impacted, including the unnamed drainage line between Carpark C and Carpark D, Eastern Creek and Prospect Reservoir.~~ ~~Monitoring sites could be located upstream and downstream of the potential discharges~~ and would include sampling for key indicators of concern.	All
Operation			
SSW7	Water quality monitoring	An **onsite** operational surface water monitoring program would be implemented **at all points of discharge within the project site** to observe **the** quality **of runoff from the project site prior to discharge offsite** ~~that may be attributable to the project and inform appropriate management responses~~. The monitoring program would be developed and implemented to align with the ~~pre-construction~~ and construction monitoring described in SSW5 **and would include sampling for key indicators of concern.**	All

2.4.5 Socioeconomics

A masterplanning process led by the Western Sydney Parklands Trust in collaboration with the NSW Office of Sport is underway with key stakeholders of Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports to develop a Motorsport Precinct Vision, to be adopted by the Western Sydney Parklands Trust. A preliminary Vision is expected to be finalised in 2021. This masterplanning process is outside of the scope of the project and the Environmental Impact Statement; however, development of the Vision will consider submissions received on the Environmental Impact Statement (as summarised in this report).

On the basis that the masterplanning process is outside of the scope of the Environmental Impact Statement, the mitigation measures relating to socioeconomics have been reviewed for clarification on the management of potential impacts on clubs that use land impacted by the project. Any text in Table 2-6 that is ~~in strikethrough~~ is proposed to be deleted. Any text in **bold**, is additional or revised text as part of the mitigation measures. A complete list of revised mitigation measures is included in Chapter 8 of this Submissions Report.

Table 2-6: Revised socioeconomics mitigation measures

Reference	Impact / issue	Mitigation measure	Applicable location
Construction			
SE2	Impacts on clubs that use land impacted by the project	Consultation as part of the **masterplanning process for the** motorsport precinct ~~Masterplan~~ would aim to provide an appropriate venue for all existing motorsport users in the precinct. **The masterplan process is outside the scope of the Environmental Impact Statement.**	All

3 Related Development

This chapter identifies related developments that are subject to separate planning approvals but related to the Sydney International Speedway project. This chapter provides a summary of those projects and assesses the potential environmental impact associated with carrying out those projects.

3.1 Overview

The following projects are related to the Sydney International Speedway project and subject to separate planning approvals:

- Sydney Metro West Concept and Stage 1
- Sydney Metro West Eastern Creek Precast Facilities.

3.2 Sydney Metro West Concept and Stage 1

The Sydney Metro West Concept includes the construction and operation of a new 24-kilometre metro line between Westmead and the Sydney CBD. Stage 1 of the works includes all major civil construction works between Westmead and The Bays, including station excavation and tunnelling. A detailed description of the Concept and Stage 1 is provided in the Sydney Metro West Westmead to The Bays and Sydney CBD – Environmental Impact Statement (Sydney Metro, 2020a).

The Sydney Metro West, Westmead to The Bays and Sydney CBD – Environmental Impact Statement (Sydney Metro, 2020a) was placed on public exhibition for community feedback from 30 April 2020 to 26 June 2020. Future stage(s) would be subject to subsequent Environmental Impact Statement(s).

A total of 188 submissions were received by the Department of Planning, Industry and Environment in response to the Environmental Impact Statement during the exhibition period. Sydney Metro have reviewed all the submissions have prepared a Submissions Report (Sydney Metro, 2020b) to respond to any issues raised.

A separate Amendment Report (Sydney Metro, 2020c) has also been prepared. The Amendment Report outlines the proposed amendments since the exhibition of the Environmental Impact Statement and the associated environmental assessment.

The location of the Concept and Stage 1 of the works is shown on Figure 3-1.

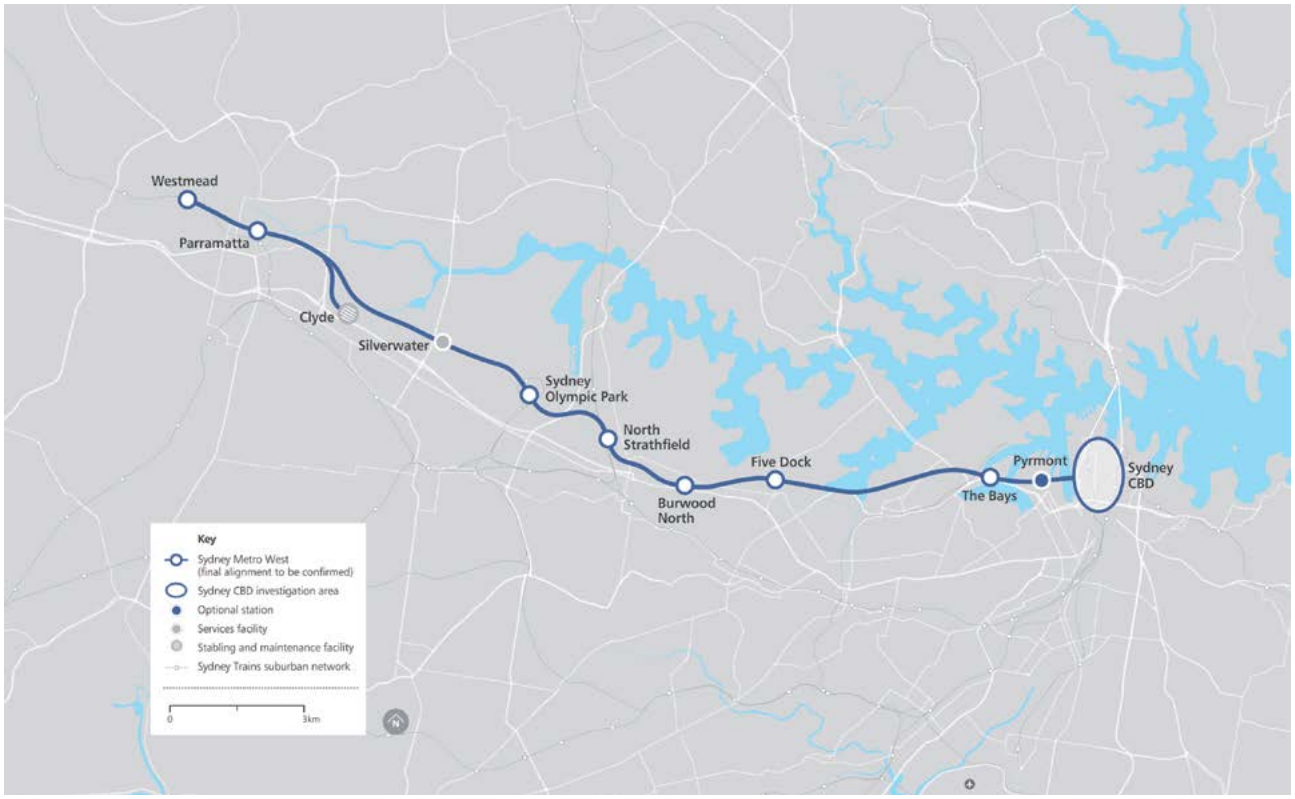

Figure 3-1: Sydney Metro West

3.2.1 Summary of potential impacts

An assessment of the potential environmental impacts and approach to environmental management for the project is provided in the Sydney Metro West, Westmead to The Bays and Sydney CBD – Environmental Impact Statement (Sydney Metro, 2020a). A summary of potential impacts is provided in Table 3-1.

Where possible, Sydney Metro has avoided and minimised impacts as part of project development and design. Consultation has been carried out with affected stakeholders during the assessment process so that key potential impacts of the Concept and Stage 1 of the works have been identified at an early stage, and where possible, avoided or appropriate mitigation measures developed. Potential impacts associated with Stage 1 of the works would be adequately managed through the implementation of construction environmental management documentation and the specific performance outcomes and mitigation measures identified in the Environmental Impact Statement.

Table 3-1: Summary of potential impacts – Sydney Metro West Stage 1

Issue	Potential impact
Traffic and transport	• Temporary increase in construction traffic on the local and regional road network, resulting in potentially temporary increased congestion and delays. Construction site traffic would be managed to minimise movements during peak periods and avoid school zones during pick up and drop off times • Potential temporary local traffic disruptions and short-term access restrictions and detours for road users. Directional signage and line marking would be used to direct and guide drivers and pedestrians past construction sites and on the surrounding network. This would be supplemented by variable message signs to advise drivers of potential delays, traffic diversions, speed restrictions, or alternate routes • Potential temporary access restrictions for pedestrians and cyclists within and surrounding the construction sites. Access to existing properties and buildings would be maintained in consultation with property owners • Potential temporary impacts to the public transport network, particularly in Westmead, North Strathfield and Burwood North, associated with the temporary relocation of bus stops and changes to bus routes resulting in minor impacts to commuters • Potential temporary pedestrian and cyclists safety impacts near construction site access and egress points. Vehicle access to and from construction sites would be managed to maintain pedestrian, cyclist and motorist safety. Depending on the location, this may require manual supervision, physical barriers, temporary traffic signals and modifications to existing signals or, on occasion, police presence • Several on and off-street parking spaces would be temporarily unavailable to the general public for the duration of construction, with the main potential impacts at Westmead and Parramatta.
Noise and vibration	• Given the nature and duration of works and the close proximity of receivers, airborne noise during construction is expected to temporarily exceed noise management levels at all sites – and at some sites by possibly more than 20 dBA. Noise intensive works within the construction sites at night would generally only be completed inside acoustic sheds (or once other acoustic measures have been established). Regardless, 'moderate' worst-case temporary impacts are expected at some receivers • Potentially temporary highly noise affected receivers (subject to noise levels of 75 dBA or greater) at Westmead metro station, Clyde stabling and maintenance facility, North Strathfield metro station, Burwood North Station and Five Dock Station construction sites • Potentially temporary high sleep disturbance impacts at Westmead metro station and Five Dock Station construction sites. Moderate sleep disturbance impacts at Sydney Olympic Park metro station and Burwood North Station construction sites • Potential temporary ground-borne noise impacts at nearby receivers associated with tunnelling and excavation works at construction sites. Less ground-borne noise and vibration intensive alternative construction methodologies may be adopted where deemed feasible and reasonable • Potential temporary exceedances of vibration criteria including cosmetic damage screening criteria, and human comfort criteria at several buildings closest to construction sites. Where vibration levels are predicted to exceed the screening criteria, a more detailed assessment of the structure and attended vibration monitoring would be carried out to ensure vibration levels remain below appropriate limits for that structure • Potential minor construction and operational traffic noise impacts to receivers near Westmead metro station construction site particularly along Grand Avenue and Alexandra Avenue. Further assessment of construction traffic would be completed during detailed design and measures would be implemented to minimise temporary traffic noise impacts.

Issue	Potential impact
Non-Aboriginal heritage	• Potential minor direct impact on one item considered to be of State heritage significance (State Abattoirs at Sydney Olympic Park). Sydney Metro has amended the design to minimise impacts to this item • Potential moderate indirect visual impacts on two items listed on the State Heritage Register (Roxy Theatre at Parramatta and White Bay Power Station at The Bays) and one item considered to be of State heritage significance (State Abattoirs at Sydney Olympic Park). The policies of the White Bay Power Station Conservation Management Plan would be considered in regard to visual impacts of the Stage 1 works • Potential moderate indirect visual impacts on four items of local heritage significance. Archival recording would be carried out prior to the commencement of construction works • Potential direct impact on potential archaeological resources at Parramatta and The Bays. An archaeological research design(s) would be implemented that identifies the need for archaeological testing or monitoring. Mitigation measures would be recommended in accordance with Heritage Council guidelines.
Aboriginal heritage	• Potential disturbance of a potential Aboriginal archaeological deposit of moderate to high significance and moderate to high potential for intact archaeological deposits, located within the Parramatta metro station construction site. This includes a site recorded on the AHIMS register as 45-6-3582. Archaeological test excavation (and salvage when required) would be carried out where intact natural profiles with the potential to contain significant archaeological deposits are encountered • Potential disturbance of Aboriginal archaeological deposit of moderate significance and low to moderate potential for intact archaeological deposits, located within the Parramatta metro station, Clyde Stabling and maintenance facility and The Bays Station construction sites • As outlined in Section 8.5 (Aboriginal heritage), this proposal for precast facilities at Eastern Creek would result in the partial to total loss of value of ten Aboriginal sites. One of these Aboriginal sites, AIF-06 (AHIMS ID 45-5-4599), is located within the boundary of both the proposal site and the Archbold Road upgrade and extension boundary. It is assumed the Aboriginal site would be directly impacted by the planned Archbold Road upgrade and extension. The overall archaeological significance of these sites has been assessed as low for seven of the sites, with one site (AHIMS ID 45-5-5355) having moderate overall significance and two sites (AHIMS ID 45-5-3159 and AHIMS ID 45-5-0559) having high overall significance. Combined, Stage 1 of the works for Sydney Metro West and the precast facilities would result in a potential increased loss of Aboriginal heritage value. Test excavation and further assessment would be undertaken for both projects to understand potential Aboriginal heritage impacts and to identify appropriate management approaches including salvage of identified items.
Property and land use	• Acquisition of private land and publicly owned land for construction sites. The construction sites are located where permanent operational infrastructure would also be required, to minimise property impacts and residual land holdings at the completion of construction. All acquisitions would be carried out in consultation with landowners and in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991*. Sydney Metro has appointed Personal Managers to offer residents and small businesses assistance and support throughout the acquisition process • During construction, the use of land within the Stage 1 footprint would change from its existing use to use as a construction site. Except where required for subsequent construction activities associated with future stages of the Concept, temporary use areas for construction purposes would be stabilised and appropriately rehabilitated.

Issue	Potential impact
Landscape character and visual amenity	• Potential temporary visual impacts as a result of the introduction of new elements including acoustic sheds or other acoustic measures, machinery and equipment, site hoardings, partially complete structures, and other construction works. All structures (including acoustic sheds or other acoustic measures, site offices and workshop sheds) would be finished in a colour which aims to minimise their visual impact, if visible from areas external to the construction site • Loss of mature street trees and vegetation providing screening and amenity and opening up views towards the construction sites such as at the Clyde stabling and maintenance facility construction site. Opportunities for the retention and protection of existing street trees and trees within the site would be identified during detailed construction planning.
Business impacts	• Broad economic benefits by way of job generation • Benefits to businesses from increased demand from construction workers requiring food and beverage services and other goods • Potential temporary impacts to businesses including reductions in passing trade for vehicular and pedestrian traffic due to detours and road and footpath closures, and impacts on servicing and delivery/access.
Social impacts	• Potential and actual loss of and temporary disruption to existing social infrastructure, including open space, with associated impacts on community interactions and connectedness • The community's enjoyment of certain community facilities may potentially be temporarily reduced where they are located close to construction sites • Potential temporary changes to community character, such as changes to streetscape, access, businesses, increased numbers of workers and visitors in the area due to construction activity, resulting in changes to connections to the surrounding area • Potential temporary changes to sense of place due to impacts of construction, such as impacts to heritage items, loss of established businesses, changes to streetscape and urban fabric, resulting in potential loss of community connections to the surrounding area.
Groundwater and ground movement	• Potential minor impacts associated with localised ground movement and/or settlement due to excavation or groundwater drawdown causing damage to infrastructure. Condition surveys of buildings and structures in the vicinity of the tunnel and excavations would be carried out prior to the commencement of excavation at each site • Minor potential impacts on two registered groundwater users, one near Westmead metro station construction site and one near Burwood North Station construction site. Further investigations would be carried out and make good provision implemented as required • Potential migration of contaminated groundwater towards, and into, station excavations, posing a potential exposure risk to site users/workers, and potentially reducing the beneficial use of the aquifer. Monitoring would occur of groundwater levels and quality of the site area before, during and after construction for potential contaminants of concern. Water level data would be regularly reviewed by a qualified hydrogeologist • Groundwater collected within site excavations and within the tunnels during construction would be discharged to the local stormwater system at each construction site. Temporary water treatment plants would treat collected groundwater so that the discharged water quality meets the requirements of any relevant environment protection licence for Stage 1 or the requirements of the *Protection of the Environment Operations Act 1997*.

Issue	Potential impact
Hydrology and flooding	Potential for inundation of construction areas during flood events particularly in areas where flooding currently occurs (such as high flood risk areas in Parramatta metro station, Clyde stabling and maintenance facility and The Bays Station construction sites). Detailed construction planning would consider flood risk at construction sites Minor potential flooding impacts associated with the interruption of overland flow paths by installation of temporary construction site infrastructure (i.e. noise barriers, acoustic sheds (or other acoustic measures), retaining walls) and/or modifications to landforms (i.e. placement of fill materials, stockpiles). Key areas of potential flooding risk include the Parramatta metro station, Clyde stabling and maintenance facility, Silverwater services facility and The Bays Station construction sites Minor potential increases in peak flooding levels, increases in the extent of floods and an increase in flood hazard during flooding events at Clyde stabling and maintenance facility. These potential increases are within acceptable limits. Potential increases in flow velocity and scour potential may result where Stage 1 construction works alter flood flow patterns and significantly divert or concentrate flood flows. Further design refinement at the Clyde stabling and maintenance facility construction site would occur during detailed design to mitigate the identified potential impacts.
Biodiversity	Direct removal of 0.18 hectares of native vegetation including 0.15 ha of Mangrove forest at Clyde and 0.03 hectares of Grey Box-Forest Red Gum grassy woodland at the Westmead metro station construction site. Biodiversity impacts, primarily at Clyde, would be offset in accordance with the requirements of the Biodiversity Conservation Act 2016 and relevant guidelines Potential impacts to the habitat of seven threatened fauna species however these impacts are unlikely to detrimentally effect these species on a whole Impacts to the vegetation riparian zones of Duck Creek and A'Becketts Creek that may limit the movement of threatened fauna species in that area As outlined in Section 8.11 (Biodiversity), this proposal for precast facilities at Eastern Creek would require clearing of about 1.92 ha of native vegetation, a subset of which includes 1.74 ha of Cumberland Plain Woodland in the Sydney Basin Bioregion (BC Act: listed as critically endangered). Combined, Stage 1 of the works for Sydney Metro West and the precast facilities would result in the direct impact to around 1.77 ha of BC Act listed Cumberland Plain Woodland. This combined impact from these projects are anticipated to be limited and adequately managed through the implementation of mitigation measures. The overall contribution to biodiversity impacts in the Cumberland Plain region is relatively low.
Air quality	Some unavoidable risks of temporary nuisance impacts from dust are expected at some locations. Best-practice dust management measures would be implemented during all construction works and additional measures would be implemented if required subject to outcomes of monitoring.
Spoil and waste management	Moderate potential residual impacts would include generation of unusable spoil during tunnelling due to contamination or acid sulfate soils. All waste would be assessed, classified, managed, transported and disposed of in accordance with the Waste Classification Guidelines and the Protection of the Environment Operations (Waste) Regulation 2014.

Issue	Potential impact
Hazards	Potential temporary impacts associated with the storage, use and transport of dangerous goods and hazardous substances. The method for delivery of explosives would be developed prior to the commencement of blasting (if proposed) in consultation with the Department of Planning, Industry and Environment and be timed to avoid the need for on-site storage Potential risk of impacts to utilities (both above ground and underground) including high voltage power lines, gas distribution lines, and high pressure gas mains near the Clyde stabling and maintenance facility construction site. Ongoing consultation would be carried out with utility providers for high pressure gas or petroleum pipelines to identify appropriate construction methodologies to be implemented.
Cumulative impacts	Given the potential overlap of construction with a number of large infrastructure projects, potential temporary cumulative impacts have been identified at the following locations at Westmead, Parramatta, Sydney Olympic Park and The Bays Key potential construction stage cumulative issues are generally expected to be relatively minor and would include temporary local traffic impacts and accessibility, temporary noise and vibration (particularly night time works), temporary visual impact and amenity effects and spoil disposal and disposal routes. Sydney Metro would work closely with the proponents of other nearby projects and stakeholders such as Transport Coordination to manage and coordinate the interface with other major projects under construction at the same time.

3.3 Sydney Metro West Eastern Creek Precast Facilities

3.3.1 Background

Sydney Metro has assessed the proposed construction and operation of two adjacent precast facilities to be located at Eastern Creek to support the construction of the proposed Sydney Metro West. Each facility would manufacture precast concrete segments for the purpose of lining the Sydney Metro West tunnels and would be able to be operated independently of each other by separate tunnelling contractors.

It has been identified through detailed construction planning that additional precast facilities would be required to enable the efficient delivery of Sydney Metro West (including the section from The Bays to the Sydney CBD). Due to the scale of Sydney Metro West, the tunnelling and station excavation works have been separated into geographically specific contract packages between Westmead and the Sydney CBD. Based on the delivery strategy for Sydney Metro West, multiple tunnelling packages would be in delivery at the same time and separate precast facilities would be required for each tunnelling contractor.

The precast facility at the Clyde stabling and maintenance facility construction site proposed as part of Stage 1 of the works for Sydney Metro West would not provide sufficient space or be able to meet the productivity requirements to support the Sydney Metro West delivery strategy. Furthermore, while tunnelling works are still underway, the precast facility at Clyde would need to be decommissioned for the land to support future construction activities, including fit out of the tunnels.

Additional precast capacity would provide the ability to align the production of precast segments with the delivery strategy, while supporting multiple tunnelling contractors concurrently. Precast facilities separate from the Clyde site would also be able to be used over the entire duration of Sydney Metro West tunnelling works, as they would not be required to be decommissioned to allow future construction activities to commence.

The potential environmental impacts are assessed in the Sydney Metro West Eastern Creek Precast Facilities Review of Environmental Factors (Sydney Metro, 2020e) which has been placed on public exhibition by Sydney Metro from 16 November 2020 to 4 December 2020. The Review of Environmental Factors is available online at sydneymetro.info and submissions have been invited. Following the completion of the public exhibition period Sydney Metro will consider submissions before making a decision in relation to the proposal.

The proposal is shown in Figure 3-2 and would comprise the following key features and activities:

- Site establishment at the proposal site at Eastern Creek including vegetation clearing, remediation, and earthworks
- The establishment of two separate adjacent precast facilities, the northern and southern precast facilities, on the proposal site. Each precast facility would include:
  - A precast yard including a shed for construction of precast concrete segments and storage laydown areas
  - Boiler, aggregate bins and consumables
  - Office facilities
  - On-site parking for up to 60 light vehicles
- Internal roads with entrances to each facility from the Western Access Road located between the northern and southern precast facilities (external roads would be subject to separate approvals by other parts of Transport for NSW)
- Ancillary supporting infrastructure, including utilities installation (power, water, sewerage, gas and communications), lighting, signage and landscaping.

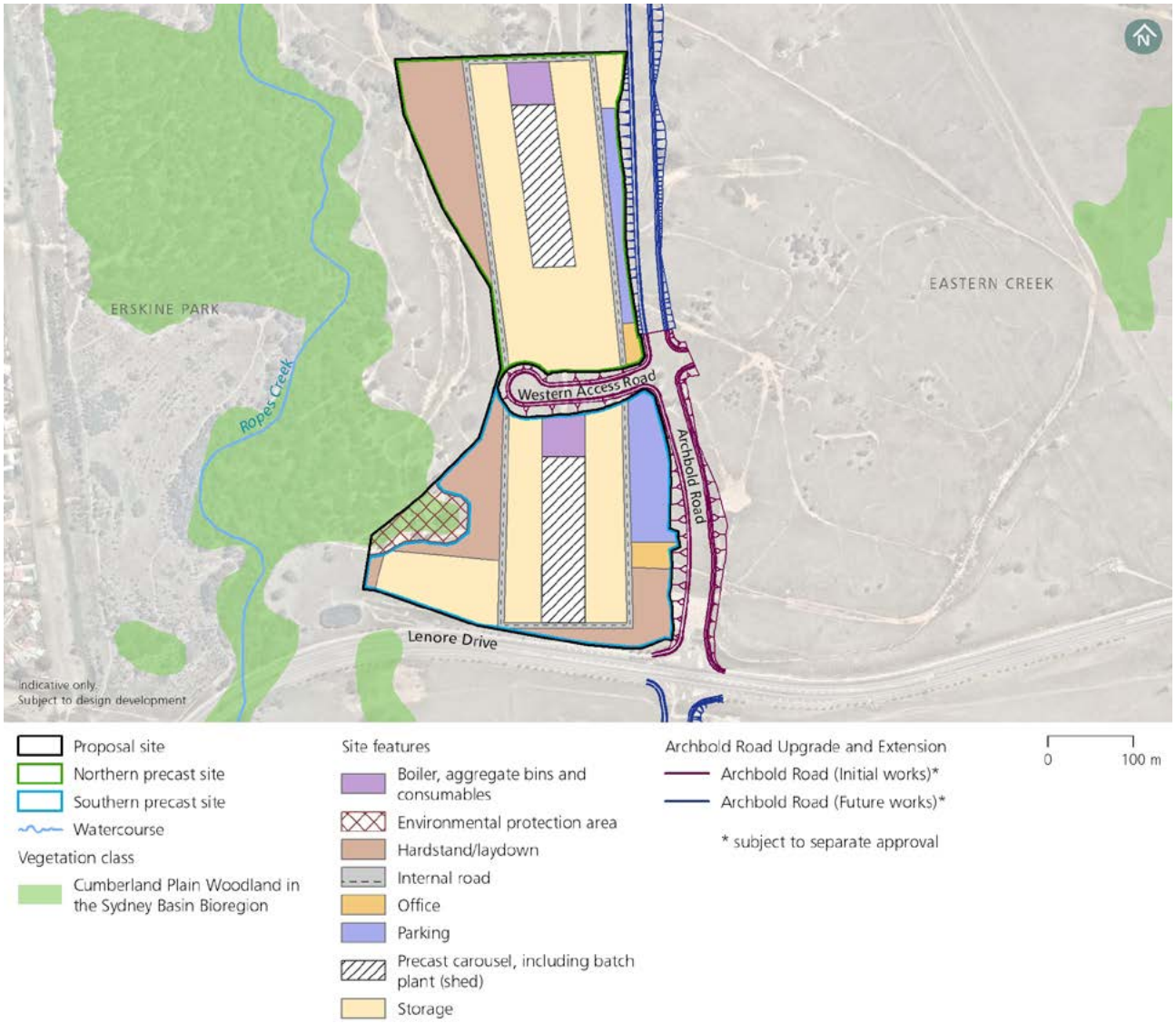

Figure 3-2: Indicative layout of precast facilities

The precast facilities would operate concurrently, 24 hours a day, 7 days a week for the majority of the lifespan of the project.

The proposal site would be subdivided to create two separate lots, one for each precast facility.

The proposal would be temporary, operating for an approximate timeframe of four to five years, subject to the delivery strategy and construction program for Sydney Metro West.

3.3.2 Summary of potential impacts

Table 3-2 provides a summary of the potential environmental impacts associated with the Sydney Metro West Eastern Creek Precast Facilities. A detailed description of the potential environmental impacts is provided in the Sydney Metro West Eastern Creek Precast Facilities Review of Environmental Factors.

Management and mitigation measures have been developed as part of the assessment of potential environmental impacts associated with the proposal, and included in Chapter 7 (Environmental management) of the Review of Environmental Factors. The Sydney Metro Construction Environmental Management Framework (Appendix C of this Submissions Report) would also be used to manage the construction of the proposal.

Table 3-2: Summary of potential environmental impacts – Sydney Metro West Eastern Creek Precast Facilities

Environmental issue	Summary of potential impacts
Noise and vibration	Potential temporary construction noise impacts associated with the proposal are predicted to generally comply with noise management levels. Temporary minor exceedances are predicted for a short duration during 'site establishment' works. These works would affect a small number of residential receivers (those closest to the site) for a short period of time during daytime when earthworks are occurring at the proposal site boundary. Potential operation noise impacts associated with the proposal are predicted to comply with relevant criteria during neutral and adverse weather conditions.
Traffic transport and access	Construction traffic is anticipated to have a negligible impact on the operation of the surrounding road network, with no predicted changes to the intersection level of service at intersections within the vicinity of the proposal site. There would be no impacts on parking or property access during construction. During operation, most intersections would continue to perform at the same level of service. The Old Wallgrove Road / Lenore Drive / Telopea Place intersection would experience a decrease in level of service in the morning peak hour from C to D, however this is associated with only a two second increase in average delay, which is considered negligible. There would be no impacts on parking or private property access during operation.
Non-Aboriginal heritage	There are no listed non-Aboriginal heritage items or potential heritage items within the proposal site and immediate surrounds. There would also be no non-Aboriginal archaeological impacts as a result of the proposal.
Aboriginal heritage	Earthworks undertaken during construction activities would result in partial to total removal of Aboriginal sites identified within the proposal site. One of these Aboriginal sites, AIF-06 (AHIMS ID 45-5-4599), is located within the boundary of both the proposal site and the Archbold Road upgrade and extension boundary. It is assumed the Aboriginal site would be directly impacted by the planned Archbold Road upgrade and extension. The overall archaeological significance of these sites has been assessed as low for most of the sites, with one site (AHIMS ID 45-5-5355) having moderate overall significance and two sites (AHIMS ID 45-5-3159 and AHIMS ID 45-5-0559) having high overall significance. The preparation of an Aboriginal Cultural Heritage Assessment Report, supported by test excavation and comprehensive Aboriginal stakeholder consultation, would be completed to manage potential impacts. An Aboriginal Heritage Impact Permit is required for the proposal.

Environmental issue	Summary of potential impacts
Flooding	Modelling has predicted there would be negligible impacts in the Probable Maximum Flood (PMF) due to the minor encroachment in the south-western corner of the proposal site obstructing the shallow flow depths (up to 0.1 metres). There would be no flooding impacts in other portions of the proposal site as these are above the PMF level and any filled embankments would be outside of the flood extent. Similarly, no flood impacts in the one per cent Annual Exceedance Probability (AEP) event have been predicted as the entire site is above the one per cent AEP flood level. The proposal may impact on peak flows rates and volumes into Ropes Creek as a result of increased impervious areas on the proposal site from its currently undeveloped state. The increase would be minimal compared to existing flow rates, however the potential cumulative impacts of the proposal combined with other external developments (without mitigation) may increase downstream flooding. This would be addressed through design, coordination and the proposed mitigation measures.
Soils and surface water	With the implementation of erosion and sediment control and other mitigation measures, the risks to degradation of surface water quality during construction would be low. Excavation and earthworks during construction of the proposal could cause potential salinity impacts where there is disturbance of saline soils. Mitigation measure SW1 (in the Sydney Metro West Eastern Creek Precast Facilities Review of Environmental Factors) has been proposed to address this issue, including managing excavated soils in accordance with Book 4 Dryland Salinity: Productive Use of Saline Land and Water (NSW Department of Environment and Climate Change, 2008). Erosion controls would also be implemented in accordance mitigation measures SW1 and SW2, and the Blue Book (Landcom, 2004). During operation, surface water would be captured on-site and managed so that any runoff leaving the site would not pollute nearby land or waterways and nominated water quality objectives would be met. With the implementation of mitigation measures, the risks to degradation of surface water quality during operation of the proposal would be low.
Groundwater	The proposal is unlikely to intercept the water table or result in any changes to groundwater levels. While there could be some change to groundwater recharge as a result of hardstand and filled areas during construction and operation, the potential impact would be negligible considering the relative size of the proposal site. Potential groundwater quality impacts could include migration to groundwater of any accidental leaks or spills of fuels, oils and other hazardous materials used or stored at the proposal site. These risks are considered low and would be addressed through the Sydney Metro Construction Environmental Management Framework and appropriate measures during site operation.
Contamination	Although there is a moderate potential contamination risk in certain areas across the proposal site during construction, through further investigation and appropriate management of these potential contamination risks, the overall risk is considered low.

Environmental issue	Summary of potential impacts
Biodiversity	The proposal would retain an area of Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest for the purposes of an environmental protection area. Construction of the proposal would require clearing of up to about 1.92 hectares of native vegetation, a subset of which includes: • 1.74 hectares of Cumberland Plain Woodland in the Sydney Basin Bioregion (Biodiversity Conservation Act (BC Act): listed as critically endangered) • 0.07 hectares of River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (BC Act: listed as endangered) • <0.001 hectares of Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest (Environment Protection and Biodiversity Conservation Act (EPBC Act): listed as critically endangered); a subset of the 1.74 ha of the associated BC Act listed Cumberland Plain Woodland community • About 0.06 hectares of potential habitat for the Juniper-leaved Grevillea (*Grevillea juniperina subsp. Juniperina*), however no individual plants of this species would be directly impacted by the proposal (BC Act: listed as endangered). There is also potential for direct impacts to the habitat or potential habitat of a range of Commonwealth and NSW listed threatened fauna species. Impact on threatened species and ecological communities were assessed in accordance with EPBC Act and BC Act requirements and were found not to be significant. No separate approval is required under the EPBC Act.
Landscape and visual character	Potential landscape and visual amenity impacts would be managed in accordance with Sydney Metro's Construction Environmental Management Framework and the proposed mitigation measures in the Review of Environmental Factors. The proposal would have a negligible landscape character impact during construction and operation being consistent with the industrial landscape character of the surrounding area. Temporary construction visual impacts associated with the proposal are predicted to be negligible at three viewpoints and minor adverse at three viewpoints during the daytime. At night-time, the construction of the proposal would result in negligible visual impact. The operation of the proposal is predicted to have a negligible impact at three viewpoints during daytime. A minor adverse visual impact is predicted at two viewpoints during daytime and during the night-time (due to site lighting).
Land use, property and socio-economic	The proposal would have positive socio-economic effects by stimulating the local economy through the creation of employment. Potential social and economic impacts to surrounding social infrastructure are not expected due to substantial offset distances. The proposal would be consistent with the objectives of the general industrial land use zoning that applies to the proposal site.

Environmental issue	Summary of potential impacts
Air quality	Mitigation measures have been proposed in the Review of Environmental Factors to address potential air quality impacts during both construction and operation. Average daily air quality index values for the two monitored stations near the proposal site between 2016 and 2020 were "fair", indicating that air quality around these stations is generally of an acceptable quality. Given the background air quality and relatively low occurrence of winds blowing in the direction of the nearest receivers at Erskine Park, potential temporary dust-related impacts during construction would be unlikely. Should they occur, the potential magnitude of potential temporary dust emissions would be 'moderate' without mitigation. With mitigation measures, the risk rating of impacts would be low. Potential impacts associated with airborne hazardous materials from the excavation of contaminated and/or hazardous materials during construction would be very unlikely due to the distance of the nearest receivers and the prevailing meteorological conditions. Should they occur, the magnitude these potential temporary impacts would be 'major' as they could result in medium-term impacts to receivers if not adequately managed. With mitigation measures, the risk rating of impacts would be low. Exhaust emissions generated during construction would be temporary and would not significantly contribute to emissions in the local area. During operation, key dust generating processes such as concrete batching would be fully enclosed within the facility, while internal roads and most of the proposal site would be sealed. Dust may still be generated from bulk materials stored on hardstand areas and tracked materials along sealed areas. The risk rating of potential dust-related impacts or exhaust-related pollutants during operation would be low.
Resource use and waste management	The type and quantities of resources and materials needed to construct the proposal are relatively minor and readily available within the Greater Sydney region. The waste management hierarchy principles established under the *Waste Avoidance and Resource Recovery Act 2001* of avoid, reduce, reuse, recycle and dispose would be applied during construction. Wastes that contain hazardous, special or otherwise contaminated materials would be managed consistently with relevant guidelines. During operation of the proposal aggregate, sand, cement, water and other production materials would be needed. The amount of input materials required would vary based on demand and resultant concrete production rates. The volumes of waste generated during operation, maintenance and repairs are anticipated to be minimal and would be readily managed through the implementation of standard mitigation measures.
Bushfire	The north-western portion of the proposal site (about 1,157 square metres) is located within the 100 metre Category 1 vegetation buffer identified as bushfire prone land by Blacktown City Council and Penrith City Council. To manage the bushfire risk of the proposal site, minimum asset protection zones (fuel-reduced, physical separation between buildings and bushfire hazards) would be established to prevent the spread of a fire towards the proposal site.

Environmental issue	Summary of potential impacts
Sustainability, climate change and greenhouse gases	The proposal would be carried out to be consistent with the targets and initiatives in the Sydney Metro West Sustainability Plan. The volume of greenhouse gas emissions generated during construction of the proposal would be relatively minor and would include emissions associated with the operation of plant, emissions from producing construction materials, upstream and downstream lifecycle emissions (e.g. fuel extraction, processing, production, transport, disposal) and emissions from decomposition of cleared vegetation. Operational greenhouse gas emissions would include those from vehicular movements, electrical consumption to power equipment and machinery, and embodied energy in materials. The types of potential climate change risks during construction and operation of the proposal would be associated with severe weather events, such as the increased frequency and severity of rainfall events placing increased pressure on erosion and sediment control measures and/or resulting in the flooding of the proposal site and surrounds. Potential climate change risks would be appropriately managed through the implementation of mitigation measures.
Cumulative impacts	There could be potential for cumulative environmental impacts between the proposal and various other projects, particularly in relation to traffic, noise and biodiversity impacts. The planned Archbold Road upgrade and extension would be under construction at the same time as the proposal, which could lead to cumulative noise and traffic impacts. The likelihood of worst-case noise levels being generated by two different projects at the same time is, however, considered low and rather than increasing construction noise levels, the expected impact of concurrent works in this area would generally be an increase in the duration and potential annoyance of noise impacts at the nearest receivers. Potential construction traffic impacts on the surrounding road network for both the proposal and the planned Archbold Road upgrade and extension are anticipated to be minimal. As such, cumulative construction traffic impacts are expected to be minor. Mitigation measures, which include consultation and coordination with developers and other stakeholders (mitigation measure Cl1 in the Precast Facilities Review of Environmental Factors), have been proposed to manage potential cumulative impacts.

3.4 Potential combined impacts with the Sydney International Speedway

Stage 1 of the works for Sydney Metro West and the Eastern Creek Precast Facilities may have potential combined impacts with the Sydney International Speedway associated biodiversity, when considering bioregion or regional geographic scales.

3.4.1 Biodiversity

The potential biodiversity impacts associated with the Sydney International Speedway has been minimised as far as possible, and has been reduced from the impact described in the Environmental Impact Statement (refer to Section 4.3 of the *Sydney International Speedway Amendment Report* (Sydney Metro, 2020). As a result, biodiversity impacts have been limited to the direct removal of 0.379 hectares of native vegetation, as summarised in Table 3-3.

Table 3-3: Native vegetation clearance required for the Sydney International Speedway Project

Plant community type	Equivalent threatened ecological community	Conservation status	Amended project clearance amount
Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion (PCT 849)	Cumberland Plain Woodland in the Sydney Basin Bioregion	Critically endangered (BC Act)	0.079
Grey Box – Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion (PCT 850)	Cumberland Plain Woodland in the Sydney Basin Bioregion	Critically endangered (BC Act)	0.305
Phragmites australis and *Typha orientalis* coastal freshwater wetlands of the Sydney Basin Bioregion (PCT1071)	Plant community type does not meet the definition of a threatened ecological community	-	0.001
Total			**0.379***

* *The vegetation zone areas in the Development site and Study area have been rounded to three decimal places. As a result, the total vegetation zone area (ha) for the Development site and Study area do not equal the sum of each individual vegetation zone.*

When these impacts are considered with Stage 1 of the works for Sydney Metro West and the Eastern Creek Precast Facilities this would result in a direct impact to around 2.1 hectares of BC Act listed Cumberland Plain Woodland. This combined impact from the Sydney International Speedway with Stage 1 of the works for Sydney Metro West and the precast facilities is anticipated to be limited and adequately managed through the implementation of mitigation measures. The overall contribution to biodiversity impacts in the Cumberland Plain region is relatively low.

The Sydney International Speedway and Stage 1 of the works for Sydney Metro West would both have potential impacts on the Southern Myotis (listed as vulnerable under the BC Act) with Stage 1 of the works for Sydney Metro West requiring one species credit, and the Sydney International Speedway project requiring one species credit. Foraging habitat is present for both projects, but no potential roosting or breeding habitat is present. On this basis, combined impacts to the Southern Myotis would be minor.

4 Stakeholder and community engagement

This chapter outlines the stakeholder and community engagement carried out during the exhibition period of the Environmental Impact Statement, as well as future consultation for the project.

4.1 Consultation overview

Stakeholder and community engagement has formed an integral part of the development of the Sydney International Speedway. Engagement has been ongoing since planning for the Sydney International Speedway began in November 2019, when the NSW Government announced a whole of government approach to ensure that a new home for speedway racing would be built in Western Sydney.

A Precinct Working Committee comprising Office of Sport, Sydney Metro, Western Sydney Parklands Trust, Sydney Dragway and Speedway Australia was established to coordinate the integration of the new Sydney International Speedway within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports. Following the lodgement of the Scoping Report in March 2020, Sydney Metro provided information to the community and stakeholders through the existing Sydney Metro website, distribution of a community newsletter and ongoing briefings with key stakeholders.

Sydney Metro's approach to consultation and engagement and activities carried out to inform project development are discussed in Chapter 4 of the Environmental Impact Statement.

The Sydney International Speedway Environmental Impact Statement was placed on public exhibition by the Department of Planning, Industry and Environment for four weeks from 19 August 2020 to 16 September 2020. During the exhibition period face-to-face engagement was restricted as a result of the COVID-19 pandemic, Sydney Metro adapted to the changing circumstances by modifying its engagement approach so the community could learn about the project, have their questions answered and understand how to have their say while the Environmental Impact Statement was on exhibition.

The modified engagement approach included a dedicated virtual information room hosted which featured a project map, 360 degree views of the proposed speedway, entrance, carparks and pit areas as well as the site layout, a video from a project expert and the Environmental Impact Statement documents.

A program of proactive stakeholder outreach was also carried out with the community, key stakeholders and local business. Section 4.2 (Consultation during exhibition) further outlines the engagement approach and details how the challenges posed were addressed through the innovative use of technology.

4.2 Consultation during exhibition

4.2.1 Public exhibition of the Environmental Impact Statement

The Sydney International Speedway Environmental Impact Statement was placed on public exhibition by the Department of Planning, Industry and Environment for four weeks from 19 August 2020 to 16 September 2020.

The Environmental Impact Statement and accompanying technical papers were made available on the Department of Planning, Industry and Environment's Major Projects website (https://www.planningportal.nsw.gov.au/major-projects/project/30111) and the Sydney International Speedway virtual information room at http://www.sydneymetro.info/speedwayvirtual.

Hard copies of the Environmental Impact Statement were available on demand.

4.2.2 Consultation activities

The following consultation activities were carried out to support exhibition of the Environmental Impact Statement:

- Stakeholder briefings
- Virtual community engagement via a virtual information room
- Broadsheet newsletter distributed to the community
- Community outreach activities.

Further information on these activities is provided below.

4.2.3 Community contact and information points

The community were able to contact Sydney Metro through a range of platforms during exhibition of the Environmental Impact Statement, including:

- Community information line (toll free) – 1800 612 173
- Community email address – sydneymetrowest@transport.nsw.gov.au
- Sydney Metro website – http://www.sydneymetro.info
- Postal address – Sydney Metro West, PO Box K659, Haymarket NSW 1240.

4.2.4 Virtual information room

The implementation of restrictions from March 2020 in response to the COVID-19 pandemic required Sydney Metro to develop new and innovative ways to engage with the community and stakeholders. As a result, Sydney Metro developed a virtual information room, which featured a project map, 360 degree views of the proposed speedway, entrance, carparks and pit areas as well as the site layout, a video from a project expert and the Environmental Impact Statement documents. This provided the community with the opportunity to 'walk around' just as they would at a traditional community information session. The virtual information room hosted almost 4000 visitors and had over 15,000 views in just four weeks. An image of the virtual information room is provided in Figure 4-1.

Figure 4-1: Virtual information room

4.2.5 Stakeholder briefings

Key stakeholders (including local government, NSW Government agencies, peak bodies and industry associations), were briefed via emails, phone calls, virtual meetings and presentations throughout the exhibition period. The briefings were designed to ensure stakeholders were informed about the Environmental Impact Statement, and received the relevant information to make a submission. Table 4-1 lists the key stakeholders who were contacted and/or briefed about the exhibition of the Environmental Impact Statement.

Table 4-1: Stakeholders briefed/contacted during the exhibition period

Agency group/type	Stakeholders briefed/contacted
NSW Government	Western Sydney Parklands Trust Office of Sport WaterNSW Transport for NSW NSW National Parks and Wildlife Service
Local government	Blacktown City Council
Local stakeholders	Speedway Australia Sydney Dragway Motorsport Park Valvoline Raceway Motorsport Australia Motorcycling NSW Eastern Creek Carts (now Sydney Premier Karting Park) North Shore Sporting Car Club

4.2.6 Phone calls and emails

Throughout the exhibition period, Sydney Metro made a total of 14 phone calls and sent 84 emails to residents, businesses, councils and other key stakeholders. Key issues raised by the stakeholders and community members included potential noise and dust impacts, the size of the new speedway and associated facilities, public transport and access to the new speedway, speedway and dragway parking and operational hours of the speedway.

4.3 Ongoing consultation and engagement

4.3.1 Submissions Report

Sydney Metro will submit this Submissions Report to the Department of Planning, Industry and Environment, who will make it available to the public on their Major Projects website. Government agencies, project stakeholders and the community will be able to review this report online. The Department of Planning, Industry and Environment will review the Submissions Report as part of their assessment of the Sydney International Speedway Environmental Impact Statement.

Sydney Metro have developed a suite of engagement materials to help communicate the Submissions Report and notify the community and key stakeholders via the following communication channels:

- Direct emails and/or newsletters distributed to the community and stakeholders
- Sydney Metro website
- Stakeholder outreach by place managers.

4.3.2 Project approval

If project approval is provided by the Minister for Planning and Public Spaces (or their delegate), the conditions of approval would be placed on the Department of Planning, Industry and Environment's website.

Communication tools used to assist the community in their understanding of the approval may include:

- Media releases and/or social media updates
- Direct emails and/or newsletters distributed to the community and stakeholders
- Sydney Metro website and updates to the virtual information room
- Stakeholder outreach by place manager.

4.3.3 Ongoing consultation and engagement activities

Sydney Metro would continue to work with stakeholders and the community to ensure they are informed and have opportunities to provide feedback to the Sydney International Speedway team during each stage of the project.

Sydney Metro recognises the diverse engagement and information needs of the community and stakeholders and is committed to robust and transparent engagement processes that are inclusive in nature.

Table 4-2 outlines the planned engagement before and during construction of the Sydney International Speedway.

Table 4-2: Ongoing and future engagement

Activity	Timing
Community information sessions (in person (pending public health order restrictions) and virtually)	As required
Community Communications Strategy	Prior to construction
Construction Complaints Management System	Prior to construction
Construction notifications	Seven days prior to construction starting
Door knocking	As required
Email updates/e-newsletters	Relevant milestones
Enquiries and complaints hotline	Ongoing
Fact sheets	As required
Engagement with stakeholders including government, key stakeholders and the community	As required; relevant milestones
Media releases	Relevant milestones
Newsletter	Relevant milestones
Newspaper advertising	Relevant milestones and/or as required
Online webinars, meetings and forums	As required
Project briefings and presentations (in person (pending public health order restrictions) and virtually)	Relevant milestones and as required
Site signage	Prior to construction
Social media updates	As required; relevant milestones
Virtual information room	Relevant milestones
Website and online forums	Ongoing

The Sydney Metro Overarching Community Communication Strategy (Appendix C) sets the requirements for stakeholder engagement to be undertaken by delivery partners. A Community Communication Strategy would be developed by the appointed project delivery team to address contract and site specific needs of the community, stakeholders and businesses and reflect the requirements of Sydney Metro's Overarching Community Communication Strategy. This contract specific Community Communication Strategy would also adhere to any consultation requirements identified in any relevant conditions of the planning approval.

The appointed contractor would be required to adhere to a Construction Complaints Management System which would outline the framework for managing complaints, enquiries and escalation processes throughout the project lifecycle.

Engagement during operation of the project would be the responsibility of the operator of the Sydney International Speedway (once appointed).

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5 Analysis of submissions

This chapter provides a summary of the submissions received, including a breakdown of the types of submitters, the number of submissions received and the key issues raised in submissions.

5.1 Submissions received

During the Environmental Impact Statement exhibition period, submissions were invited from the community and stakeholders. The receipt of submissions was coordinated and managed by the Department of Planning, Industry and Environment.

A total of 36 submissions were received by the Department in response to the Environmental Impact Statement during the exhibition period and one additional late submission was accepted. The submissions are available to view on the Department of Planning, Industry and Environment website (https://www.planningportal.nsw.gov.au/major-projects/project/30111). A breakdown of submissions by submitter type is provided in Table 5-1.

Each submission was allocated a unique identification number. Appendix D includes a table which lists each submission by this identification number and provides a cross-reference to the section of this report where the issues that were raised are addressed.

Table 5-1: Breakdown of submissions received by category of submitter

Category	Number of submissions	
Community		
Community members	23	
Businesses	1	
	Subtotal	**24**
Government agencies and key stakeholders		
NSW Government departments/agencies	8	
Councils	1	
Other key stakeholders	4	
	Subtotal	**13**
Total submissions	**37**	

5.1.1 Community submissions

A total of 24 submissions were received from members of the community. As shown in Table 5-1, community submissions included those from individual community members/residents and businesses.

For community submissions, a breakdown of the submitters' locations (where provided) is summarised in Table 5-2.

Table 5-2: Submitters' locations for community submissions

Location	State	Number of submissions
Greater Sydney	NSW	18
Central Coast region	NSW	2
Newcastle	NSW	1
Beachmere	Queensland	1
Happy Valley	South Australia	1
Robertstown	South Australia	1
Total submissions		**24**

5.1.2 Government agencies and key stakeholder submissions

A total of 13 submissions were received from government agencies (including local councils) and other key stakeholders during exhibition of the Environmental Impact Statement. Submissions raised a range of issues relevant to their respective area of interest and responsibility. Submissions were received from the following:

- NSW Government departments/agencies
  - Department of Planning, Industry and Environment (Energy, Environment and Sciences)
  - Environment Protection Authority
  - Fire and Rescue NSW
  - Heritage NSW, Aboriginal cultural heritage
  - Heritage NSW, as delegate of the Heritage Council of NSW
  - Sydney Water
  - Water NSW
  - Western Sydney Parklands Trust
- Blacktown City Council
- Other key stakeholders:
  - Austral Bricks
  - NSW Formula 500 Association Inc.
  - Australian Lightning Sprints Association
  - Motorsport Australia.

5.2 Analysis of submissions

5.2.1 Issue categorisation

The analysis of submissions included reviewing the content in each submission to identify the issues raised and code each issue into key issue categories (e.g. traffic, transport and parking) and sub-issues (e.g. assessment methodology). The key issue categories and sub-issues were based on the information and environmental aspects included in the Environmental Impact Statement. This provided an understanding of the frequency of issues that were raised and the key areas of interest. Several submissions also raised issues that aligned with more than one category.

5.2.2 Review of community submissions

Following the categorisation of each community submission, the issues raised were summarised and grouped according to key issue and sub-issue categories. Each issue identified in Chapter 6 (Community submissions) of this report is presented as a summary of the issues raised by individual submissions with careful consideration given to the intent of each submission.

Responses to the summarised issues are provided in Chapter 6 (Community submissions) of this Submissions Report according to these categories Where relevant, input was sought from the technical specialists who assisted with preparation of the Environmental Impact Statement.

5.2.3 Review of Government agency and key stakeholder submissions

Following categorisation of each submission received from Government agencies and key stakeholders, the issues within each submission were summarised. These issues and responses to the issues are provided in Chapter 7 (Government and key stakeholder submissions) of this report. Where relevant, input was sought from the technical specialists who assisted with preparation of the Environmental Impact Statement.

5.2.4 Support/objection to the project

Submitters were asked to indicate their position on the project via the Department of Planning, Industry and Environment website, as part of the submission registration process. The breakdown of support/objections received are:

- 14 submissions supported Sydney International Speedway
- 4 submissions objected to Sydney International Speedway
- 19 submissions did not offer a position and were categorised as providing comments.

5.3 Summary of issues raised

5.3.1 Key issues raised in community submissions

A breakdown of the key issues raised in unique community submissions is provided in Table 5-3 by key issue category. Given most submissions raised more than one issue or raised the same issue more than once, the number of issues identified is greater than the total number of submissions received. Key issues were raised a total of 62 times in the unique community submissions.

Table 5-3: Key issues raised in community submissions

Key issue category	Number of times key issue was raised	Percentage (%) of total key issues
Project description	31	48
Air quality	7	10
Support/objection	6	10
Strategic need, justification and project alternatives	5	10
Traffic, transport and parking	3	6
Stakeholder and community engagement	3	5
Socioeconomic	3	2
Noise	1	5
Project procurement	1	2
Planning and assessment process	1	2
Environmental management	1	2
Total	**62**	**100**

The top three most frequently raised key issues relating to the project in the community submissions were:

- Project description
- Air quality
- Support/objection to the project.

All seven issues that were categorised as relating to air quality were regarding dust management. A breakdown of the sub-issues within the project description and support/objection key issues are shown in Figure 5-1 and Figure 5-2 respectively.

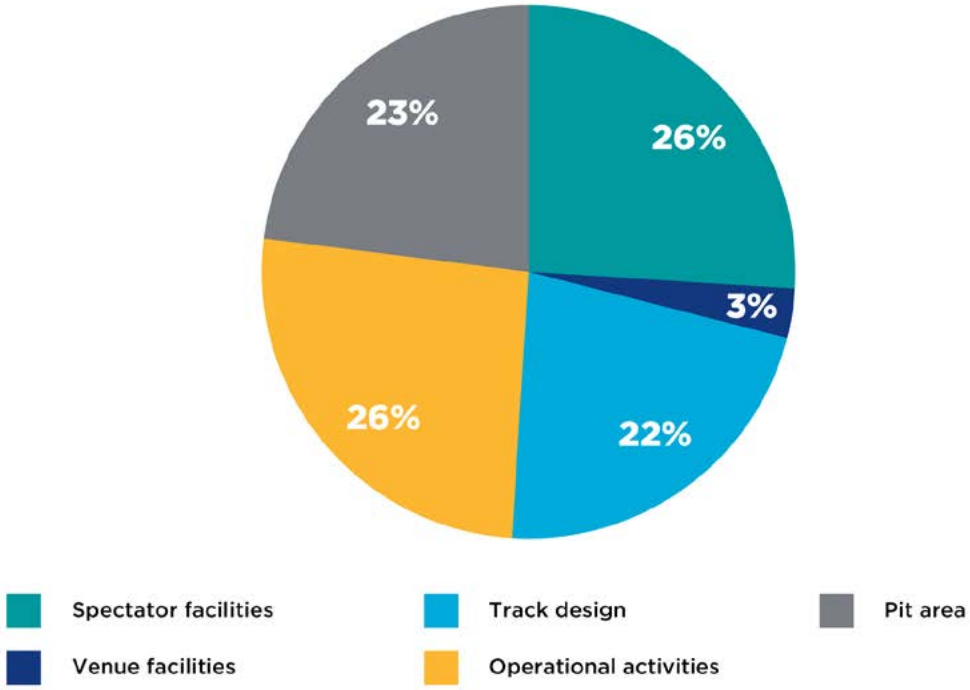
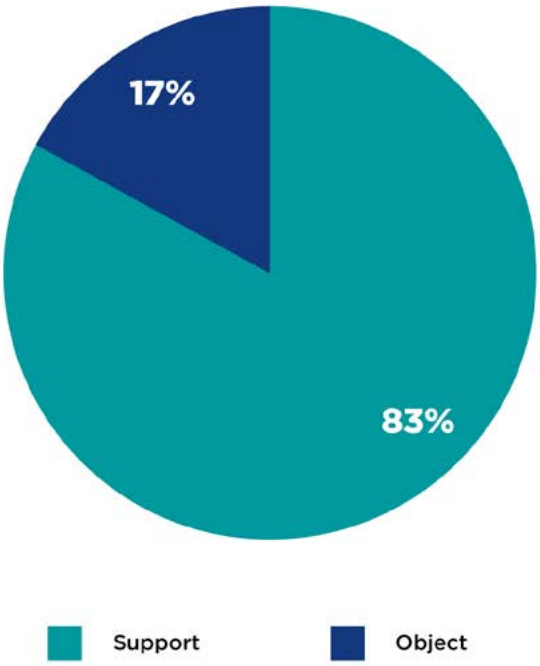


Figure 5-1: Breakdown of sub-issues relating to the project description key issue



5.3.2 Key issues raised in Government agency and key stakeholder submissions

Key issues raised by Government agencies and other key stakeholders included:

- Project description, including matters relating to landscaping and track design
- Biodiversity assessment matters relating to the assessment of Serious and Irreversible Impacts, and offset credits for the Southern Myotis (*Myotis Macropus*)
- The design of construction and operational surface water controls, and associated mitigation measures
- Mitigation and management measures, particularly associated with the avoidance, minimisation and mitigation of dust, noise and parking impacts
- Noise and vibration impacts associated with events being held which finish later than 10pm
- Flooding and hydrology, including overland flooding and cumulative impacts to the South Creek catchment
- Traffic, transport and parking, relating to car parking capacity and the potential impacts of concurrent major events occurring at the project site and Sydney Dragway
- Contamination risks at the project site, and the approach to managing these risks and preventing offsite contamination during construction and operation of the project.

6 Community submissions

This chapter provides responses to issues raised in submissions from the community, including community members, local businesses, and community interest groups.

6.1 Support for/objection to the project

6.1.1 Support for the project

Stakeholder identification numbers

S-8941623, S-9079811, S-9127241, S-9300589, S-9334134

Issue raised

Submitters expressed their support for the project.

Response

Sydney Metro notes the support expressed for the project.

6.1.2 Objection to the project

Stakeholder identification numbers

S-9339757

Issue raised

The submitter expressed their objection to the project.

Response

Sydney Metro notes the objection expressed for the project.

6.2 Sydney International Speedway development and alternatives

6.2.1 Project location

Stakeholder identification numbers

S-8993577, S-9272352, S-9339757

Issue raised

Submitters raised the following concern and comments about the project location:

- Objection to the project location due to the potential impact on Sydney Dragway safety and impact on the uninterrupted use of Sydney Dragway. Given the proximity of the proposed speedway to the existing Sydney Dragway, potential for disagreement and conflict between competing interests is considered likely, particularly relating to topics such as dust and parking
- Comment that the project location is constrained by Ferrers Road and therefore undersized in terms of venue capacity, spectator seating and viewing options
- Concern regarding the toll routes required to access the facility
- Comment that the Environmental Impact Statement lacks consideration of alternative project locations outside of Western Sydney.

Response

A key objective of the project is to deliver a world class speedway within Greater Metropolitan Sydney that would cater for local, regional, national and international racing events while continuing the growth of speedway racing in NSW.

Strategic alternatives and site alternatives were considered as part of the development of the project, and outlined in Section 2.5 and Section 2.6 of the Environmental Impact Statement, respectively, including a detailed options evaluation of potential project locations. The consideration of site alternatives focussed on the Eastern Creek area within or in close proximity to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, as the most appropriate location in Sydney, given previous major capital and management effort invested by the NSW Government for the creation, development and operation of a motor sports precinct.

The Western Sydney Parklands Plan of Management 2030 identifies motorsport in the desired future character and land use for this area within Precinct 5: Eastern Creek Motor Sports. Locating the Sydney International Speedway in close proximity to other motor sports facilities in Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports allows opportunities for synergies and coordinated development planning. The location of the project within this precinct avoids the constraints of other locations including potential environmental impacts on sensitive neighbouring development and residential areas. The project site provides sufficient space for the development of a world-class speedway benchmarked to national and international best practice with capacity for the anticipated spectator numbers.

A masterplanning process led by Western Sydney Parkland Trust in collaboration with the NSW Office of Sport is underway with key stakeholders of Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports to develop a Motorsport Precinct Vision, to be adopted by the Western Sydney Parklands Trust. A preliminary Vision is expected to be finalised in 2021. This masterplanning process is outside of the scope of the project and the Environmental Impact Statement; however, development of the Vision will consider submissions received on the Environmental Impact Statement (as summarised in this report).

The approach to the development of the project's design and operational requirements, including consideration of parking requirements and the management of potential dust during construction and operation has included regular consultation with Sydney Dragway. Sydney Dragway have endorsed, and agreed to the proposed measures to be implemented to manage potential impacts relating to parking and dust.

Dust control and mitigation measures have been developed as part of the project design as outlined in Section 5.3.5 of the Environmental Impact Statement and response to submissions about potential impacts of dust from the Speedway on the adjacent Dragway is also provided in Section 6.8 of this report.

Parking provisions have been considered and assessed in Chapter 6 of the Environmental Impact Statement and response to submissions about parking provisions is also provided in Section 6.6.1 of this report.

Response to submissions about the venue capacity is provided in Section 6.5.1 of this report.

The use of toll roads and toll charges incurred to access the proposed Sydney International Speedway, are expected to be similar to that experienced by patrons attending the existing Sydney Speedway. Access to the Sydney International Speedway project would also be possible without using toll roads.

6.3 Planning and assessment process

6.3.1 NSW environmental planning

Stakeholder identification numbers

S-9339757

Issue raised

The submission raised concern that the Environmental Impact Statement focuses on construction impacts rather than operational requirements and therefore doesn't give enough attention to the requirements of a Speedway that is efficient, safe, viable in the long-term and adaptable to change.

Response

Chapter 5 (Project description) of the Environmental Impact Statement describes the key features of the Sydney International Speedway, including the operational site layout and an overview of the key operational activities at the project site. As detailed in Chapter 5, the project would have a clay-based racetrack benchmarked to national and international best practice and compliant to the following standards:

- Speedway Australia 5 Star Track Standards (highest rating)
- FIM (Fédération Internationale de Motocyclisme).

Racetrack design specifications have been applied to the design of the project as identified from the abovementioned standards and through consultation with Speedway Australia.

The assessment chapters of the Environmental Impact Statement (Chapters 6 to 23) provide an assessment of both the potential construction and operational impacts of the Sydney International Speedway.

Chapter 4 (Stakeholder and community engagement) of the Environmental Impact Statement outlines consultation undertaken to date and how this engagement has influenced the scope of the project and the environmental assessment. Throughout project development and the preparation and exhibition of the Environmental Impact Statement meetings and briefings with stakeholders have been held on a regular basis. The motor sports organisations invited and represented during engagement activities were:

- Sydney Motorsport Park (operated by the Australian Racing Drivers' Club)
- Sydney Dragway
- Eastern Creek Karts (now Sydney Premier Karting Park)
- Motorcycle NSW
- The current operator of Sydney Speedway (at Clyde)
- Speedway Australia
- Confederation of Australian Motor Sport (CAMS) (now Motorsport Australia).

Speedway Australia, as the peak speedway racing body in Australia, is a member of the Sydney International Speedway Precinct Working Committee. Additional feedback from Speedway Australia has been sought in developing the detailed design through detailed design briefings, meetings, emails and phone calls. Feedback from Speedway Australia has been instrumental to shaping the design of the new Speedway. Representatives of Speedway Australia have advised on and provided feedback on matters such as operational requirements, safety and design. This includes ensuring the racetrack is compliant with their 5 Star Safety Standards. Feedback has also been sought from other operating Speedways in Australia and New Zealand including Bay Park Speedway (NZ) and Perth Motorplex.

Engagement with Motorsport Australia will continue to occur through the development of the masterplanning process and the development of a Motorsport Precinct Vision which will look at operations and scope for growth across the entire precinct. This masterplanning process is outside of the scope of the project and the Environmental Impact Statement.

The long-term success of the Speedway and future-proofing design elements are also discussed in Section 6.5.5 of this Submissions Report.

6.4 Stakeholder and community engagement

6.4.1 Stakeholder and community engagement

Stakeholder identification numbers

S-9127241, S-9301450, S-9339757

Issue raised

It was noted that while the Environmental Impact Statement suggests that there has been consultation with stakeholder bodies, there is no reference to the output of those meetings or how the views and requirements of spectators were assessed and incorporated into the proposed development. The involvement of other motorsport associations during consultation carried out to date (in addition to Speedway Australia) was questioned.

Clear and regular communication is requested to ensure the correct information is being provided.

Response

Chapter 3 (Stakeholder and community engagement) of the Environmental Impact Statement outlines the engagement carried out to date, how this engagement has influenced the scope of the project and the environmental assessment, and proposed engagement during future stages of the project.

A summary of issues raised during stakeholder engagement and where they are addressed in the Environmental Impact Statement is presented in Table 4-4 of the Environmental Impact Statement.

Twenty six meetings and briefings with stakeholders have been held to date through a Precinct Working Committee and a stakeholder forum.

This Precinct Working Committee includes representation from Speedway Australia, the peak speedway racing body in Australia. Speedway Australia's board comprises representatives of speedway operators and speedway competitors.

Representatives of Speedway Australia have advised on and provided feedback on matters such as operational requirements, safety and design. Additionally, Speedway Australia has provided guidance to ensure the racetrack is compliant with their 5 Star Safety Standards. This input and feedback from Speedway Australia has been instrumental in shaping the design of the new Speedway. Feedback has also been sought from other operating Speedways across Australia.

Engagement with other motor sports organisations will continue to occur through the development of the Motorsport Precinct Vision, which will look at operations and scope for growth across the entire motorsport precinct. The Vision is outside of the scope of the project and the Environmental Impact Statement.

As outlined in Section 4.4.3 of the Environmental Impact Statement, community and stakeholder engagement has been carried out during the planning approvals and project development process, including following the lodgement of the Scoping Report in March 2020.

Should the project be approved, engagement would continue with the community and key stakeholders during construction as outlined in Section 4.6.2 of the Environmental Impact Statement. This engagement would involve:

- Ongoing engagement with key stakeholders, local councils and other government agencies
- Ongoing meetings and regular briefings of the Precinct Working Committee
- Provision of regular updates to the nearby communities
- Development and implementation of a community complaints and response management system.

6.5 Project description

6.5.1 Spectator facilities

Stakeholder identification numbers

S-8941374, S-9272352, S-9300589, S-9301450, S-9328190, S-9334134, S-9339757

Issues raised

Comments raised concern that the venue is observed to be too small and constrained, with insufficient capacity for expected spectator numbers and inhibiting future growth of spectator numbers. Submitters considered a total capacity of 7,000 inadequate for a world class motorsports facility, noting that the existing Sydney Speedway has a greater capacity. A minimum of 10,000 to 25,000 capacity is suggested more suitable to adequately provide for major international speedway events and any other one-off special events.

Submitters noted that the curfew, limited parking and other site restrictions have historically limited attendance numbers at the existing Sydney Speedway. A new purpose-built venue must address these impediments and therefore be capable of handling a greater number of spectators and competitors.

In addition, submitters raised concerns that the design in the Environmental Impact Statement and graphics package does not respect the demand characteristics of spectators. The following comments related to the design of the spectator seating:

- An open, grassed hill spectator area for families with children is requested and described as integral to the family orientated Speedway experience, especially given the long duration of speedway events. This informal seating would provide flexibility for spectators to go for a walk, visit other vantage points, use the toilets, talk with friends, purchase food and other items and inspect displays, which are all part of the experience
- The proposed seating is noted as being too close to the track, as the race cars cast dirt from the track
- Comment that the seating access and stowage in the grandstand seating must avoid trip hazards for those moving to and from their seats and allow for the considerable items spectators bring to support their attendance such as extra clothing, large jackets, blankets, cushions, carry bags and eskies, as well as hot food and drinks taken back to the seats
- The track should have spectator facilities on all sides to maximise attendance options
- Shading for spectators is also requested noting Speedway racing is a summer sport
- Spectators like to enjoy the crowd and the speedway family. To this end, a trackside walkway is of significant importance. The proposed design has a major walkway behind seating areas, which will greatly detract from spectator enjoyment. The grandstand should also have access from the top and bottom
- A lack of viewing area for the competitors is questioned
- Submitters raised comments regarding the provision for less mobile or older spectators, noting many spectators fit into this demographic. Comments included:
    - Negotiating stairs and cramming into tight seating and walking long distances can be very challenging. A lack of handrails in the grandstand laneways is questioned
    - Whilst the lifts are appreciated, their adequate capacity at peak times is questioned, especially at the conclusion of a race event
    - The diagrams in the Environmental Impact Statement do not seem show adequate facilities for disabled attendees and their support families/carers. Less able people must be able to be with their family, friends and carers to enjoy the Speedway experience
- Long term COVID style social distancing design requirements applying to spectator seating arrangements, service areas, amenities and walkways is questioned.

Response

The capacity and permanent seating at the Sydney International Speedway has been designed to accommodate typical spectator numbers for speedway racing events and has been informed by attendance figures at the existing Sydney Speedway.

Viewing areas would be provided along all sides of the speedway track in the form of four types of spectator seating:

- Grandstand seating comprising formed seats and corporate boxes, located along the front straight
- Open terraced seating along the northern and eastern perimeter of the racetrack, including turn four through turn three and along the back straight
- An open area without seating in the competitors' pit area at turns one and two, which provides viewing opportunities for competitors in the pit area and competitor parking section of the main operational site
- A grassed area adjacent to the playground at the southern end of the grandstand. This has been incorporated into the project design in response to submissions received during exhibition. Further information is provided in Chapter 3 (Proposed amendments) of the *Sydney International Speedway Amendment Report* (Sydney Metro, 2020).

The grandstand and seating have been designed to be compliant with the requirements of the *Disability Discrimination Act 1992*. Walkways have been sized appropriately and handrails would be provided to assist spectators accessing their seats in accordance with the relevant standards and guidelines. The top of the grandstand seating would be at entry level to the Sydney International Speedway, reducing the demand on lifts, which would only provide access to the corporate hospitality area and would not be used by the majority of spectators for access to general admission seating. The grandstand has also been positioned to account for the setting sun, and would provide shade for spectators from the late afternoon.

Considerations of safety, comfort and spectator engagement was given when detailing the position of seating in relation to the track and consideration of a trackside walkway. The seating setback from the racetrack has been designed with consideration of a required "no go" zone which spectators would be prohibited to occupy during a race to minimise the risk of being hit with dirt flying from the track. In addition to the walkway behind the seating areas, it is possible, at the operator's discretion, to allow spectators to circulate the racetrack using the safety zone when there are no races operating. When races are operating, the safety zone must be free of personnel and it is desirable to have spectators circulating behind seated and viewing spectators.

In addition, dust would be managed through track preparation and curation in accordance with the dust management measures identified in Chapter 9 (Air quality) of the Environmental Impact Statement. The layout of seating within the grandstand, including access and stowage has been designed in accordance with the relevant Australian standards and guidelines.

Additionally, the layout of the pit area, grandstand and tiered seating areas have been designed such that additional temporary or permanent seating could be installed if required in the future to meet additional demand.

Should social distancing restrictions still be in place at the time of operation of the Sydney International Speedway, preparation of, and compliance with a COVID-19 Safety Plan would be the responsibility of the operator of the Sydney International Speedway (once appointed).

6.5.2 Track design

Stakeholder identification numbers

S-8943786, S-8961161, S-8981637, S-8981761, S-9100159, S-9127241, S-9272352

Issue raised

Submitters provided the following comments with regards to the track design of the Sydney International Speedway:

- Submitters commented on the size of the racetrack and requested that it be at least the same dimensions (width and length) as the existing Sydney Speedway facility to allow racing of a wide category of race vehicles. One respondent noted that reduced corner diameters (compared to the existing Sydney Speedway) would result in heavier braking
- The perimeter wall is generally supported as an improved spectator experience
- A speedway bike track is supported by several respondents and it was noted that a bike track was not depicted on the plans shown online
- The inclusion of a smaller track on the inside of the main track is requested to allow the running of a variety of other Speedway vehicles (including youth vehicles). However, the interaction between any additional tracks and the main Speedway track should be considered carefully in terms of track dimensions, layout and surfacing as conflicts can arise. One respondent shared experiences of adverse operational impacts at the Perth Motorplex, particularly the impacts that the motorbike track had on the Speedway track.

Response

The track design has been informed by a comprehensive review of speedway venues across Australia and internationally as well as through collaboration with Speedway Australia, speedway competitors and operators and other racing experts. Although there are no set standards for the dimensions of a speedway track, the proposed dimensions for the Sydney International Speedway racetrack have considered the needs of all classes of speedway racing. Furthermore, the aim of the design was to take elements from various venues and create a track that would be exciting for the fans to watch and challenging for drivers to race on. It would also incorporate the latest and most effective safety equipment and spectator facilities. The clay-based racetrack has been benchmarked to national and international best practice and compliant to the following standards:

- Speedway Australia 5 Star Track Standards (highest rating)
- FIM (Fédération Internationale de Motocyclisme).

In plan view, the track at Sydney International Speedway would largely replicate the dimensions at the existing Sydney Speedway (which is 460 metres in length). The new Sydney International Speedway track's pole line measures 460 metres. This would be bigger than Murray Bridge speedway (355 metres) or Toowoomba speedway (360 metres), but is slightly smaller than Perth Motorplex speedway (500 metres).

Another critical dimension for competitive and entertaining racing is the track banking. The slope of the banking on the track influences how quickly cars can circulate (more banking results in a higher speed). The Sydney International Speedway would have around 10 degree banking in the straights that progresses to around 12 degree banking in the corners. The design would allow an operator to vary this banking from around eight degrees to around 14 degrees to suit faster or better handling cars, whilst meeting all safety fence height requirements.

The bike track on the inside of the outer speedway car track has been designed in accordance with FIM requirements such that the track would be around 12 metres wide in the straights and around 16 metres in the corners, with a pole line of 345 metres. The banking would be around 10 percent in the straights and around 12 percent in the corners, which could also suit smaller speedway cars including ¼ midgets and speedway kart races.

Comments highlighting lessons learned from other motorsport venues are noted. The design of the Sydney International Speedway does not include the provision of a smaller track on the inside of the main track. However, the design does not preclude this from being incorporated into the facility in the future by the operator of the Sydney International Speedway (once appointed).

In order to run bike events at the Sydney International Speedway, an appropriate racetrack material and the requisite bike-racing fences would need to be installed (in the future by the operator). These fences could also act as barriers for bike surface material being thrown onto the speedway car track.

6.5.3 Pit area

Stakeholder identification numbers

S-9043584, S-9272352, S-9287268, S-9300589, S-9301450, S-9334134, S-9339757

Issue raised

Submitters questioned the suitability and capacity of the pit area, based on observation from other major Speedway events, also noting that some competitors may use B double transporters not just single car trailers. Submitters were concerned that considering there is little or no parking outside of the pits for transporters, drivers, pit crews and pit facility personnel, the pit area needs to be capable of holding all of those vehicles, all the drivers and all the pit crews. Added to the minimum car space equivalent must be an allowance for people movements, vehicle preparation and repairs, manoeuvrability, the dummy grid and travel to and from the track.

A number of suggestions were made in relation to design of the pit area and facilities and other racing infrastructure elements, including:

- The provision of power outlets throughout the pits to avoid use of individual generators
- Pit garages are not required as competitors use self-contained trailers
- Requirement for a scrutineering shed, administration building, toilet block and medical centre
- An underground tunnel from the pit area to the race track infield would improve safety for racing support staff and avoid race stoppages. Such a tunnel would provide safe and uninterrupted access to and from the infield for staff and officials, ambulance, tow trucks and water trucks. The tunnel could also be used for utilities (plumbing and electrical).

Response

The pit area would be about 27,340 square metres, consisting of a mix of sealed driveways and grasscrete. The sizing and capacity of the pit area has been based on the assumption that an event may have up to 150 competitors, with the expectation that 30 to 40 of the competitors (about 20 to 25 per cent) would use semi-trailers for the transport of racing vehicles. The space allocated for the pit area would be able to accommodate semi-trailers, pantech trucks, and truck/race-car trailer vehicles. Articulated (19.0m semi-trailer) access is provided from Ferrers Road, around the roundabout, through Carpark A, and into the Competitor's Carpark. Other carparks would not allow for articulated vehicles.

The pit garages would each have a power supply for use by competitors, provided by solar panels on the garage roofs. Should additional power be required by competitors in the competitor Carpark B, this would be provided by the competitors using generators. This is considered common practice and consistent with other speedway racing venues.

Although each competitor would have their own self-contained trailers and may not necessarily require garages, the garages could also be used for operations including scrutineering, race control and pit marshals. In addition, they could also be hired by vendors (for example tyres, vehicle components, merchandising etc) or other promotional uses and clubs during race meetings. Buildings within the competitors' area would include a medical centre, amenities block, and site maintenance workshop for operator's heavy equipment and maintenance activities. There is also an open-faced shed adjoining the competitor amenities block for use for driver's briefings and/or post event barbecues. A separate building houses a competitor (pit entry) office, for competitor administration (credentials and documentation) that would also double as controlling access by spectators to the pit area.

The design of the access between the pit areas and infield would allow for safe and uninterrupted access. During the design process, various forms of infield access were considered including a tunnel. However, the elevation differences between infield and pit area could create potential issues between drainage and vehicle use. The proposed design provides secure gates for each entry to and exit from the track, and would allow safe clockwise and counter clockwise racing. Safety barriers would protect infield-based race marshals and equipment. The ambulance would be positioned adjacent to the track entry point for rapid deployment.

6.5.4 Venue facilities

Stakeholder identification numbers

S-8953225

Issue raised

Submitter requested the inclusion of a secured media room (with power and internet access) within the grandstand design.

Response

A media/communications room with power and telecommunications infrastructure has been incorporated into the grandstand design. The Sydney International Speedway design also includes a commentary box that would also be used for driver and team interviews at Turn 3/track entry that would be linked to the main communications room.

6.5.5 Operational activities

Stakeholder identification numbers

S-8952711, S-8981637, S-9004935, S-9339757

Issue raised

Submitters raised the following comments about operation of the Sydney International Speedway:

- Confirmation of the Sydney International Speedway operational hours was requested and submissions identified a 10pm operational curfew as limiting to the success of events
- The importance of the facility's long-term viability suggests other activities besides speedway events would be essential to the continuance of the speedway's viability. Confirmation of the types of activities that would be hosted at the Speedway was requested
- Suggestions for a multiuse facility included design amendments that might allow the Speedway carpark areas to be used for other racing and events such as drifting
- Suggestion for overnight stay provisions for caravans, which could raise revenue for the project
- Future-proof design features of the Speedway was also questioned, with COVID-19 and autonomous vehicles provided as examples of potential disrupters
- Insurance is identified as a very important aspect of the project that is impacted by the ability of the Environmental Impact Statement to address health, safety, other risks and unattended damage to the facility.

Response

Whilst the Environmental Impact Statement described that racing at the Sydney International Speedway would typically take place between 6pm and 10pm, it is recognised that during events some incidents or track maintenance activities may result in racing extending beyond 10pm.

Noise levels generated during a race after 10pm would be the same as noise levels for earlier races, as presented in the Technical Paper 3 (Noise and Vibration) of the Environmental Impact Statement, and the measured background noise levels at the nearest receivers to the south during the night-time were consistent with the evening period. This means that impacts during the night-time would be comparable to events before 10pm as summarised in Technical Paper 3 (Noise and Vibration) of the Environmental Impact Statement. These potential short term impacts would also be effectively managed by the at-property treatment proposed in the Environmental Impact Statement.

Sydney International Speedway would not typically operate beyond 10pm under normal operations. Operations running past 10pm are anticipated to occur infrequently, would be for a relatively short duration and would not carry on through to the late night-time period, where receivers are generally considered to be most sensitive to noise.

The measured background noise levels at the nearest sensitive receivers (to the south of the project site) were found to be consistent in the evening and early night-time period. This shows that existing ambient noise sources remain relatively steady during the potential extended period.

It is generally accepted that internal noise levels in a dwelling with the windows open are 10 dB lower than external noise levels. Based on a worst-case minimum attenuation with windows open, short term external noise events of 60 dBA to 65 dBA are unlikely to cause awakening reactions. One or two noise events per night with maximum external noise levels of 75 dBA to 80 dBA are not likely to affect health and wellbeing significantly.

Based on the significant distance between the track and the nearest receivers, it is considered unlikely that maximum noise levels would be at a level to cause sleep disturbance impacts inside residential receivers. The likely infrequent nature of events extending into the night-time also results in the risk of adverse impact being considered low.

The Environmental Impact Statement focussed on the potential impacts associated with racing events, but the design of the Sydney International Speedway would provide for a variety of potential activities to be held at the venue, outside of speedway events (subject to appropriate planning approval).

Carparks C and D have been designed as large open spaces so that they may be used for some car racing events, such as drifting, and for other large open-air and trade related activities and events.

Future uses would be at the discretion of the Sydney International Speedway operator (once appointed). The design provides opportunity for a range of future uses.

Overnight parking arrangements would be at the discretion of the operator of the Sydney International Speedway (once appointed). With regards to the provision of overnight stay provisions for caravans, in March 2020 Western Sydney Parklands Trust invited Expressions of Interest for the development and long-term lease of a new tourism opportunity in Western Sydney Parklands at Pikes Lane, Eastern Creek. This 25 hectare site, with access to the Greater Highway, when developed will provide short-term holiday accommodation for a number of major tourism attractions within the Parklands including the Sydney International Speedway, Sydney Motorsports Park, Sydney Dragway, Sydney Zoo, Raging Waters Sydney, Bungarribee Park and Blacktown International Sportspark. Matters relating to insurance are outside of the scope of the Environmental Impact Statement.

The design of the Speedway has made provision for adaptation for future uses and activities in response to changing preferences of the motorsports community or external disrupters. This is achieved by providing a range of flexible large outdoor spaces and multi-purpose buildings. The exact uses of these spaces and buildings would be determined by the operator of the Sydney International Speedway (once appointed).

Should social distancing restrictions still be in place at the time of operation of the Sydney International Speedway, preparation of, and compliance with a COVID-19 Safety Plan would be the responsibility of the operator of the Sydney International Speedway (once appointed).

6.6 Transport, traffic and parking

6.6.1 Parking impacts during operation

Stakeholder identification numbers

S-9301450, S-9339757, S-9272352

Issue raised

Submitters raised concern regarding insufficient parking, particularly during concurrent events when the overflow parking area would not be available for Speedway patrons. Given that both the Speedway and Dragway are summer night time events, concurrent events are considered likely.

Response

As outlined in Chapter 5 (Project description) of the Environmental Impact Statement, dedicated and shared car parking arrangements have been agreed with Sydney Dragway. The operational car parking design has been developed in consultation with Sydney Dragway to provide adequate parking for visitors to Sydney Dragway (refer to Chapter 4 (Stakeholder and community engagement) for more information about consultation completed to date).

During Sydney Dragway exclusive events (when the Sydney International Speedway would not operate), Sydney Dragway would also have exclusive use to the 600 dedicated Sydney International Speedway parking spaces, providing a total of about 2820 car parking spaces. Additional spaces may also be made available in the Sydney International Speedway competitor pit area. This represents an increase in vehicle spaces available to Sydney Dragway during large events compared to the current operations.

Likewise, during the Sydney International Speedway exclusive events (when Sydney Dragway would not operate) Sydney International Speedway would have exclusive use of Carpark C (around 460 spaces). This would provide a total of about 1060 car parking spaces with additional spaces potentially available in the speedway pit area.

Based on the forecast vehicle generation and arrival and departure profiles, the peak parking demand would be 1125 vehicles during a Sydney International Speedway 'major' event on a Saturday. This parking demand would exceed the capacity of Carpark A, which is intended for use by Sydney International Speedway spectators only. However, the use of Areas C and D as overflow parking for use by Sydney International Speedway spectators would allow for a combined capacity of 2820 parking spaces. Therefore, parking demand for a Sydney International Speedway 'major' event on a Saturday would be adequately serviced with a parking occupancy of 40 per cent. This scenario is expected to occur around three times per year.

Based on the forecast vehicle generation and arrival and departure profiles the peak parking demand during a concurrent minor event at Sydney International Speedway and Sydney Dragway would be 955 vehicles. Parking demand for a Sydney International Speedway 'minor' event and Sydney Dragway 'minor' event occurring concurrently on a Friday (other weekday) would be adequately serviced with a parking occupancy of 34 per cent.

Concurrent major events at the Sydney International Speedway and Sydney Dragway may only occur by agreement of the respective operators. These would be infrequent and the respective operators would be required, in accordance with a Major Events Operation Plan, to agree additional operational measures to manage the events such as traffic management and car park sharing. An event specific Traffic Management Plan would also be required to be developed for major events in consultation with relevant part of Transport for NSW including NSW Transport Management Centre, NSW Police and other relevant stakeholders.

6.6.2 Public transport during operation

Stakeholder identification numbers

S-9001890, S-9339757

Issue raised

Submitter noted the lack of existing public transport to the project site and suggested bus services from nearby train stations during events.

Response

Technical paper 1 (Traffic, transport and parking) and Chapter 6 (Traffic, transport and parking) of the Environmental Impact Statement included mitigation and management measures to address potential traffic and transport impacts of the project, including the investigation of opportunities to enhance public transport accessibility to the project such as the provision of bus services and bus stop infrastructure to service major events.

As part of the Major Events Operations Plan, event specific Traffic Management Plans would be prepared for any major concurrent events. These event specific Traffic Management Plans would be prepared in consultation with NSW Transport Management Centre, NSW Police and other relevant stakeholders. Public transport provision and other options such as temporary point to point transport and shuttle buses would be considered as part of the event specific Traffic Management Plans.

Public transport to the project site would also be considered as part of the broader masterplanning process being undertaken for the Western Sydney Parklands Precinct 5: Eastern Creek Motor Sports (outside the scope of the Environmental Impact Statement).

6.6.3 Traffic management

Stakeholder identification numbers

S-9334134

Issue raised

The car parking design could be improved in terms of line marking to contribute to provide more efficient vehicle movements after an event.

Response

The line marking within the car parking areas has been designed in accordance with the appropriate Austroads standards and guidelines and informed by traffic modelling to simulate vehicles leaving the project site.

As identified in Chapter 6 (Traffic, transport and parking) of the Environmental Impact Statement, an Operational Environmental Management Plan would be prepared by the operator of the Sydney International Speedway (once appointed). The Operational Environmental Management Plan would include a Traffic Management Plan which would include measures to minimise traffic impacts to road network performance during peak event times. This Traffic Management Plan would consider measures to be implemented to manage the arrival and exit of vehicles to the project site, including traffic marshalling and the use of temporary traffic signals when events are scheduled at the same time as Sydney Dragway.

6.7 Noise and vibration

6.7.1 Operational noise

Stakeholder identification numbers

S-9001890

Issue raised

Residents from surrounding areas have raised concern about operational noise impacts and requested that noise levels be managed to an acceptable level, especially at night time. Time of operation needs to consider the noise exposure of nearby residential properties.

Response

Potential operational noise and vibration impacts are assessed in Technical paper 2 (Noise and vibration) and Section 7.7 of the Environmental Impact Statement.

While the Environmental Impact Statement described that racing at the Sydney International Speedway would take place between 6pm and 10pm, it is recognised that during events some incidents or track maintenance activities may result in racing extending beyond 10pm.

Noise levels generated during a race extending after 10pm would be the same as noise levels for earlier races, as presented in the Technical Paper 2 (Noise and Vibration) of the Environmental Impact Statement, and the measured background noise levels at the nearest receivers to the south during the night-time were consistent with the evening period. This means that impacts during the night-time would be comparable to events before 10pm as summarised in Technical Paper 2 (Noise and Vibration) of the Environmental Impact Statement. These potential short-term impacts would also be effectively managed by the at-property treatment proposed in the Environmental Impact Statement.

Sydney International Speedway would not typically operate beyond 10pm under normal operations. Operations running past 10pm are anticipated to occur infrequently, would be for a relatively short duration and would not carry on through to the late night-time period, where receivers are generally considered to be most sensitive to noise.

The measured background noise levels at the nearest sensitive receivers (to the south of the project site) were found to be consistent in the evening and early night-time period. This shows that existing ambient noise sources remain relatively steady during the potential extended period.

It is generally accepted that internal noise levels in a dwelling with the windows open are 10 dB lower than external noise levels. Based on a worst-case minimum attenuation with windows open, short term external noise events of 60 dBA to 65 dBA are unlikely to cause awakening reactions and one or two noise events per night with maximum external noise levels of 75 dBA to 80 dBA are not likely to affect health and wellbeing significantly.

Based on the significant distance between the track and the nearest receivers, it is considered unlikely that maximum noise levels would be at a level to cause sleep disturbance impacts inside residential receivers. The likely infrequent nature of events extending into the night-time also results in the risk of adverse impact being considered low. The design development of the project has aimed to avoid or minimise potential noise and vibration impacts of the project. This has been achieved primarily by establishing the project within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, where motorsport noise has been part of the local environment for around 30 years and residential receivers are located about 800 metres away.

A three-dimensional noise model of the study area was developed to predict operational motorsport noise levels to the surrounding receivers during the daytime. Details of the assumptions used in the development of the noise model, including details of the proposed events at Sydney International Speedway, noise source levels of vehicles and meteorological conditions are provided in Technical Paper 2 (Noise and vibration) of the Environmental Impact Statement.

Predicted worst-case noise levels from motorsport events at the project site for neutral and adverse weather conditions are below existing background levels for most receiver locations, in the absence of mitigation measures. Where noise levels at receivers are predicted to exceed background noise levels (RBL) by more than 5 dB as a result of operation of the Sydney International Speedway, Sydney Metro would provide at-property treatment at each affected property to mitigate the impact, consistent with the *Noise Guide for Local Government* (Environment Protection Authority, 2013).

Fifteen residential receivers (thirteen in noise catchment area NCA01 and two in noise catchment area NCA02) have been identified with predicted average noise levels of more than 5 dBA above the background level. The locations of these receivers are provided in Technical Paper 2 (Noise and vibration) of the Environmental Impact Statement.

Operational noise would be managed in accordance with an Operational Environmental Management Plan (OEMP) to be prepared by the operator of the Sydney International Speedway (once appointed). The OEMP would include the following measures to manage and mitigate noise:

- Establishing vehicle noise control limits for events and monitoring to verify compliance with these limits
- Managing the use of the public address system to minimise noise
- Coordination with other motorsports operators to minimise noise from concurrent events
- Establishment of a complaints handling and response procedure.

6.8 Air quality

6.8.1 Dust management

Stakeholder identification numbers

S-8993577, S-9004935, S-9043584, S-9242856, S-9272352, S-9334134

Issue raised

Dust generated by the Speedway is identified by submitters as a serious potential impact. Submissions received included objections regarding the location of the Speedway due to potential impacts on the adjacent Dragway. Safety risks for Dragway drivers and the potential interruptions to use of the Dragway are noted, including potential commercial impacts if Dragway events are suspended. Dust monitors are noted to be a lag indicator rather than a preventative measure.

Submitters also suggest a track watering system is part of the Speedway permanent design, as a more effective and efficient alternative to water carts wetting the track.

Raising the existing mound between the proposed Speedway and Dragway was another suggestion to provide a larger spectator terrace area and act as a dust barrier.

Response

As outlined in Section 5.3.5 and Section 9.6 of the Environmental Impact Statement, dust mitigation and control measures have been developed in consultation with and agreed with Sydney Dragway. In addition to the continuous dust monitoring requirements (including the development of trigger levels), a range of measures have been included in the design and operational procedures to manage the generation of dust. This includes:

- A large dust screen to the north-east (from Turn 2 through to the end of Turn 3) as well as additional planting of trees and vegetation between the Sydney International Speedway and Sydney Dragway
- Adoption of approved track curation and preparation procedures and use and maintenance of approved track materials.

An Operations Air Quality Management Plan would be developed for the Sydney International Speedway before the commencement of project operations and would be agreed with Sydney Dragway. The Operations Air Quality Management Plan would incorporate the maintenance procedures and operational conditions that need to be in place to minimise the generation of dust by the project and deposition onto Sydney Dragway, as described in Chapter 9 (Air quality) of the Environmental Impact Statement. At times, additional controls may also be required and may involve measures such as applying additional water or other dust suppression agents to the track, adjusting race times or ceasing races in extreme circumstances or during periods of high winds.

Prior to selection and approval of the clay material for the track sampling and testing of clay types would be undertaken. Guidance from Speedway Australia and Speedway operators would be sought as part of this process. Consideration would also be given to the use of binding agents mixed into the track material to assist in reducing dust levels.

6.9 Socioeconomic

6.9.1 Local procurement

Stakeholder identification numbers

S-9301450

Issue raised

The use of local labour and suppliers during construction of the project is requested.

Response

Construction of the project is expected to generate up to 150 full time employment opportunities for residents and construction workers including creating employment opportunities for residents of the Blacktown Local Government Area and the wider Western Sydney region. A number of indirect jobs are also likely to be generated. The project would potentially provide additional benefits for local businesses servicing the construction industry.

Sydney Metro has developed a Workforce Development and Industry Participation Plan which includes objectives to support local employment and business opportunities, provide skills development and increase workplace diversity.

6.9.2 Operational benefits

Stakeholder identification numbers

S-9001890, S-9236760

Issue raised

The benefits of the project providing more entertainment opportunities for locals and visitors to the area is noted. The social benefits which a Speedway provides are highlighted including family entertainment, a sense of community and friendships, a safe environment for racing off of public roads, and driver education opportunities. The Speedway would also benefit businesses which support Speedway racing.

The long history of Speedway racing in Sydney is highlighted, noting that competitors and spectators span many generations.

Response

A key objective of the project is to deliver a world class speedway within Greater Metropolitan Sydney that would cater for local, regional, national and international racing events while continuing the growth of speedway racing in NSW. Sydney Metro recognises the significant benefits that the Sydney International Speedway would provide for the NSW motorsport racing community and in supporting the growth of speedway racing in NSW. The potential benefits to local business during construction and operation of the Speedway is also recognised by Chapter 17 (Socio-economic) of the Environmental Impact Statement.

Sydney International Speedway would provide long-term economic and social benefits such as community participation, particularly for Western Sydney, by enabling the continued growth of Speedway racing in this location. As speedway racing, along with other motorsport codes, is a key contributor to the NSW economy, this would have beneficial implications for local businesses in the area associated with visitors attracted from across the state, country and internationally.

6.9.3 Socio-economic assessment

Stakeholder identification numbers

S-9339757

Issue raised

The submission states that the Environmental Impact Statement contains inadequate information to explain the demographics of those that are likely to attend the Speedway, in order to allow suitable design and function of the facility. The submission notes there is no assessment of where spectators and competitors travel from to visit the Speedway and their requirements for accommodation and travel. The submission suggests assessment of the distance travelled and routes taken to the project site should have been included.

Response

A key objective of the project is to deliver a world class speedway within Greater Metropolitan Sydney that would cater for local, regional, national and international racing events while continuing the growth of speedway racing in NSW. Potential benefits to local business during operation of the Speedway is recognised and has been discussed in Chapter 17 (Socio-economic) of the Environmental Impact Statement, including accommodation and hospitality businesses.

It is expected that major events would attract between 4000 and 6000 attendees per event, with smaller events attracting around 500 to 1000 spectators. Given the project's location within Greater Metropolitan Sydney, adequate accommodation options are expected to be available for Speedway visitors near the project. There are a number of accommodation providers within the locality that currently cater for large motorsport events at Sydney Dragway and Sydney Motorsport Park.

The Sydney International Speedway site is accessible from across the Sydney region with major roads near the project site provide suitable access including the M4 Western Motorway, Westlink M7 Motorway and Great Western Highway. Local roads connect Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports to these major roads and the surrounding suburbs, and include Ferrers Road, The Horsley Drive and Brabham Drive. A traffic, transport and parking study is included in Technical paper1 (Traffic, transport and parking) and Chapter 6 (Traffic, transport and parking) of the Environmental Impact Statement.

6.10 Greenhouse gases and energy

6.10.1 Renewable energy sources

Stakeholder identification numbers

S-9339757

Issue raised

The submitter suggested that the venue must be designed and built to be minimise operating costs. While the submitter was pleased about the inclusion of solar power, smart lighting and similar, the absence of wind generators and reference to storage batteries was noted.

Response

The submitter's comments regarding the energy sources at the project site are noted. The design development process has focused on the provision of solar, rather than wind as the most appropriate renewable energy source for the project in consideration of cost, and location/space within the project site to accommodate the renewable power source. Since exhibition of the Environmental Impact Statement, a solar feasibility study was carried out that included the consideration of battery storage. The study recommended the installation of up to 400kW of additional solar capacity on the pit garages roofs, which has since been incorporated into the design. Associated battery storage was not considered feasible at this time.

6.11 Environmental management framework

6.11.1 Environmental management

Stakeholder identification numbers

S-9001890

Issue raised

It was noted that ongoing environmental management and monitoring needs to be undertaken regularly including litter control, noise and odour monitoring, and additional trees planted.

Response

The Environmental Impact Statement identifies a range of environmental mitigation measures for both the construction and operational phases of the project. A compilation of the revised environmental mitigation measures is provided in Chapter 8 of this Submissions Report.

A Construction Environmental Management Framework (Appendix C of the Environmental Impact Statement) has been developed that details environmental management systems and processes for construction of the Sydney International Speedway. It details the requirements in relation to the content of the construction environmental management plan, subplans and other supporting documentation for each specific environmental aspect. The specified documentation would be required to be prepared by the appointed contractor prior to the commencement of construction and adhered to for the duration of construction, and would include the implementation of measures to minimise waste, meet the requirements of Sydney Metro's Construction Noise and Vibration Standard and a construction air quality management plan.

As outlined in Section 5.4.4 of the Environmental Impact Statement, an Operational Environmental Management Plan would be prepared and implemented by the operator of the Sydney International Speedway (once appointed). The Operational Environmental Management Plan would provide the overarching framework for the management of all potential environmental impacts resulting from the operation of the project.

Landscaping and finishing works are outlined in Section 5.6.2 of the Environmental Impact Statement. The project has been designed to retain vegetation along the perimeter of the project site and between Carparks C and D. The landscape design also includes the planting of about 1000 trees, substantially more than the 148 canopy trees to be removed as part of the project.

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7 Government and key stakeholder submissions

7.1 Overview of issues raised

Nine submissions were received during public exhibition of the Environmental Impact Statement from the following government agencies and local councils:

- Blacktown City Council
- Department of Planning, Industry and Environment (Energy, Environment and Sciences Group)
- Environment Protection Authority
- Fire and Rescue New South Wales
- Heritage NSW, Aboriginal cultural heritage
- Heritage NSW, as delegate of the Heritage Council of NSW
- Sydney Water
- WaterNSW
- Western Sydney Parklands Trust.

A total of four submissions were received from the following key stakeholders:

- Austral Bricks
- NSW Formula 500 Association Inc.
- Australian Lightning Sprints Association
- Motorsport Australia.

The approach to processing and responding to submissions (including government and key stakeholder submissions) is described in Chapter 5 (Submissions analysis) of this Submissions Report. The issues raised in the submissions from government and key stakeholders are categorised according to the key issue categories (as described in Section 4.2 of this report) and responses are provided in the following sections.

The issues listed in each section are a summary of the key issues raised in submissions. Full details of the issues raised are provided in the complete submissions, available on the Department of Planning, Industry and Environment's major projects website.

7.2 Blacktown City Council

7.2.1 Project description

Landscape strategy

Issue raised

Council noted that no plans or details have been provided to:

- Ensure a minimum landscape setback of 7.5 metres is provided to Ferrers Road
- Indicate whether a landscape buffer is provided between the Sydney International Speedway and Sydney Dragway
- Ensure a minimum of 50 per cent shading will be provided for the pavement of the carparks to reduce urban heat effects.

The submission also noted that the landscape plan is required to include the details of the trees proposed to be removed and the streetscape interface along Ferrers Road.

Response

The relevant boundaries of the project footprint which are adjacent to Ferrers Road are setback more than 7.5 metres from the roadway, with the exception of the new left-only exit at the south of the main operational site. The majority of the existing vegetation along the batter adjacent to eastern side of Ferrers Road would be maintained. Additional landscape planting is also proposed along in this area between the main operational site and Ferrers Road.

Technical Paper 7 (Landscape Character and Visual Amenity) of the Environmental Impact Statement identifies that the design of the project avoids impacts to the existing regrowth Cumberland forest between Carpark C and D. Areas of landscape planting have been provided as part of the project along the project boundaries, which include the planting of about 1000 new trees and areas of mass planting using plant species selected from the Western Sydney Parklands Trust endemic species list. Areas of new planting would aim to integrate the project with existing vegetation to be retained in areas within and surrounding the project footprint. This includes vegetation along the eastern boundary of the main operational site, between the Sydney International Speedway and the Sydney Dragway, which would act as a landscape buffer.

Where possible the design of the competitor carparking in the south of the main operational site has incorporated turf and permeable surfaces to reduce areas of asphalt and hardstand, minimising potential urban heat effects in this area of the project site.

However, Carpark C and D may be used for some car racing events, such as drifting, and for other large open-air and trade related events. The operational requirements of such events require areas of large open space consisting primarily of hardstand, which means that landscape planting or other shading structures would not be suitable to be located within these carparks. Where operational requirements permit within Carpark C and D, such as along the boundaries and walkways landscape planting has been included as part of the project design to provide some shading and to integrate with surrounding vegetation to be retained.

Intersection upgrade works

Issue raised

Council noted that no draft civil engineering design drawings or concept plans have been provided for the upgrade of the intersection or entry of the proposed site in order to enable Council to provide comment.

Response

The project does not propose to upgrade the existing intersection of the site access road with Ferrers Road which would act as the main entry and exit point for vehicles accessing the Sydney International Speedway and associated carparking areas. Based on the results of the Traffic, transport and parking assessment included in Chapter 6 (Traffic, transport and parking) and Technical Paper 1 (Traffic, transport and parking) of the Environmental Impact Statement, the project would not result in adverse impacts to road network performance at this location during construction or operation that would warrant an intersection upgrade.

The new left-only exit in the south of the main operational area would require tie-in works only to Ferrers Road. Sydney Metro will continue to consult with Council in relation to this connection to Ferrers Road.

Chapter 1 of the Environmental Impact Statement identifies that the Western Sydney Parklands Trust in conjunction with the NSW Office of Sport, is leading a masterplanning process for Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, with opportunities to share infrastructure and coordinate events across the three venues (being Sydney International Speedway, Sydney Dragway and Sydney Motorsports Park (operated by the Australian Race Drivers' Club)). Should the future masterplanning process identify the need for any intersection upgrade works as part of Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, Blacktown City Council would be consulted as required, with regards to these works and any other relevant matters. Future masterplanning is outside the scope of the Environmental Impact Statement and would be subject to a separate planning, assessment and approval process to this project.

Section 7.11 contributions

Issue raised

The project site and the alternative sites are not subject to any Blacktown City Council contributions plan or Voluntary Planning Agreement. As such, Council notes that Sydney Metro will be required to ensure water management is dealt with on-site and off-site traffic management impacts are addressed by upgrading roads and traffic control measures, if modelling shows that the additional traffic in the locality is going to be created by this development.

Response

Sydney Metro confirm that there are no Voluntary Planning Agreements for the project and a Blacktown City Council contributions plan for the project is not required.

The project design includes infrastructure for the on-site management of potable and non-potable water, wastewater and stormwater. The wastewater management system includes a rising sewer main that would connect to the existing sewer at the Sydney Dragway site, which then discharges into the main at Brabham Drive.

The stormwater management and drainage design for the project has been revised since the exhibition of the Environmental Impact Statement and is described in Chapter 3 (Description of proposed amendments) of the *Sydney International Speedway Amendment Report* (Sydney Metro, 2020). The revised stormwater management and drainage design has been designed such that runoff from the site meets Blacktown City Council's permissible site discharge requirements.

Based on the results of the Traffic, transport and parking assessment included in Chapter 6 (Traffic, transport and parking) and Technical Paper 1 (Traffic, transport and parking) of the Environmental Impact Statement, the project would not result in adverse impacts to road network performance that would warrant any intersection upgrades.

Chapter 6 (Traffic, transport and parking) of the Environmental Impact Statement notes that traffic, transport and parking-related mitigation and management measures would be put in place by the operator of the Sydney International Speedway (once appointed) to manage traffic as required. Chapter 6 (Traffic, transport and parking) of the Environmental Impact Statement also noted that an Operational Environmental Management Plan (OEMP) would be prepared and implemented as part of the project. The Operational Environmental Management Plan would include a Traffic Management Plan which would include measures to minimise traffic impacts to road network performance during peak event times. The operational Traffic Management Plan would consider measures to be implemented to manage the arrival and exit of vehicles to the project site, including traffic marshalling and the use of temporary traffic signals when events are scheduled at the same time as Sydney Dragway.

As part of the Major Events Operations Plan, event specific Traffic Management Plans would be prepared for any major concurrent events. These event specific Traffic Management Plans would be prepared in consultation with NSW Transport Management Centre, NSW Police and other relevant stakeholders as appropriate.

Water management

Issue raised

The submission noted that permanent onsite detention and water quality treatment is required for the project site and referred to the appropriate requirements and guidelines to be considered for the design of the water management systems. Council requested that Sydney Metro provide an onsite detention catchment plan, and a MUSIC catchment plan that comprises a land use plan and water quality device plan.

Council noted that water conservation is required as part of the project site and suggested a minimum of 80% of non-potable water demand for the development should be met through the reuse of rainwater. The submission referred to the relevant guidelines and assumptions to be used in the design of the rainwater reuse system for the project site. Council requested all calculations/catchments/graphs to be provided.

Response

Since the exhibition of the Environmental Impact Statement, the stormwater management system for the project site has been revised, including a reduction in the number of on site detention tanks and the introduction of a number of batter chutes to direct stormwater to existing waterways and drainage infrastructure using the existing natural topography of surrounding land. The revised design is described in Section 3.5 of the *Sydney International Speedway Amendment Report* (Sydney Metro, 2020).

The site stormwater and drainage design satisfies the Blacktown City Council permissible site discharge requirements of within 147 litres per second. An indicative onsite detention catchment plan for the project is shown on Figure 7-1.

The land use of the project site has not changed and as such, a land use plan has not been prepared to support the environmental assessment of the project.

The Environmental Impact Statement identified that permanent water quality controls including on-site detention tanks would be provided which would aim to capture stormwater runoff from the project site during operations and treat water to an appropriate standard prior to discharge to receiving waterways so that there is no impact to downstream water quality.

On-site detention tanks are still proposed for the main operational site and the competitor pit area to the south and these areas would be managed as outlined in the Environmental Impact Statement.

The proposed amendment would remove the proposed on-site detention tanks associated with Carparks A, C and D. The water quality measures for these car parks would be developed during detailed design taking into consideration the criteria taken from *Part J: Water Sensitive Urban Design and Integrated Water Cycle Management of the Blacktown Development Control Plan 2015*. These measures could include one or a combination of vegetated swales, bioretention systems, gross pollutant traps and water quality basins or tanks.

The project includes a 1200 cubic metre (m^3) dual purpose rainwater collection tank and detention basin, located at the centre of the speedway race track. The outlet of the on site detention tank is located higher than the base of the tank so that 200,000 litres of stormwater can be retained to provide water for dust suppression and track maintenance before and during events at the Sydney International Speedway. Non-potable water would be used across the site for dust suppression only. Water demand for the remainder of the project site including washdown, amenities, irrigation and taps in car parking areas would be met via mains water supply, in consultation with Sydney Water.

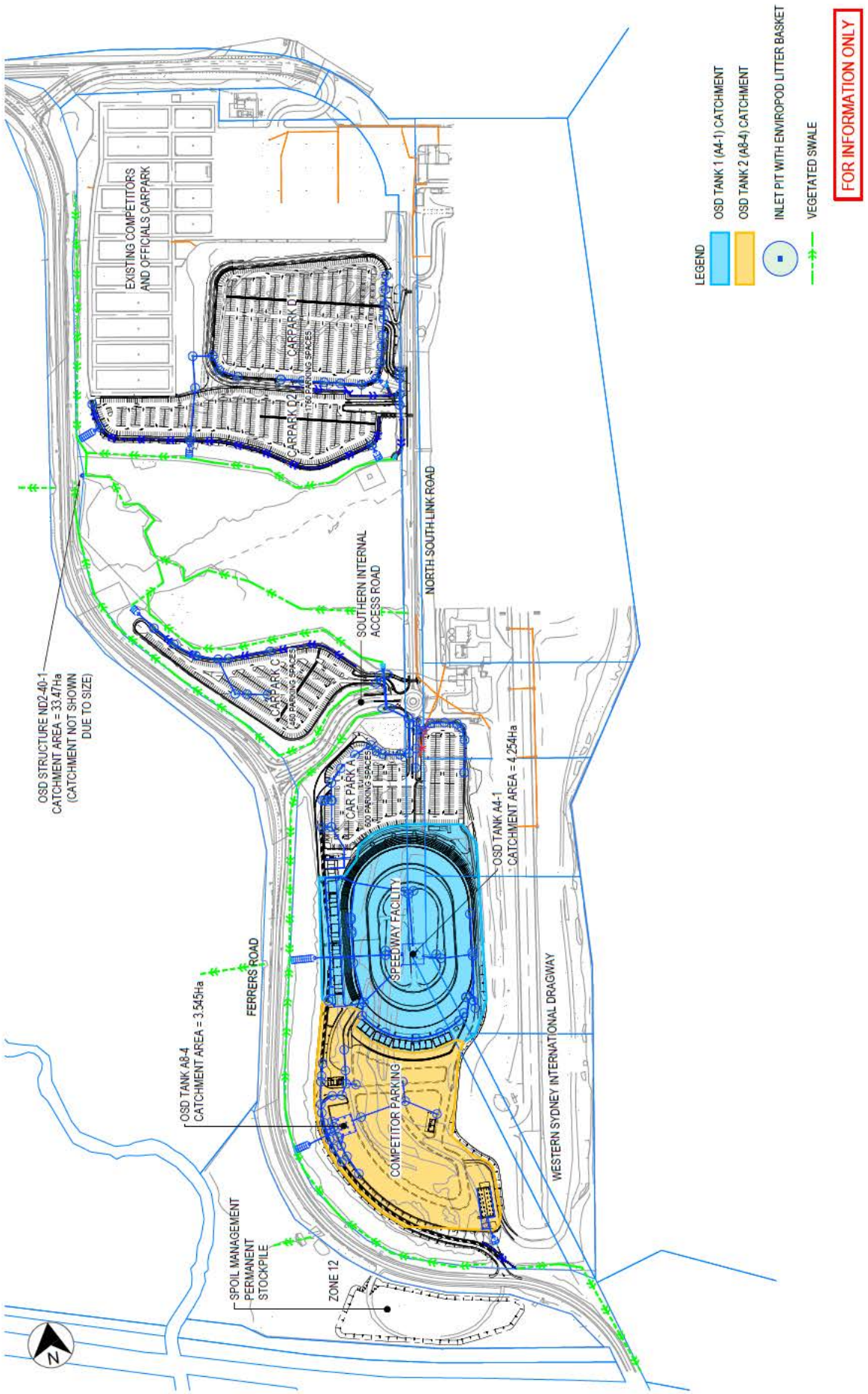

Figure 7-1: Sydney International Speedway onsite detention catchment plan

Submission of engineering plans and reports

Issue raised

Council requested that Sydney Metro provide engineering concept plans and electronic modelling/reports carried out, with the plans including summary notes regarding Council's engineering requirements and design summaries where appropriate.

Response

The Environmental Impact Statement met the requirements of the Secretary's Environmental Assessment Requirements issued to the project and relevant requirements outlined in Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

Although Council's engineering requirements and design summaries do not apply to the project as State significant infrastructure, these have been used where appropriate to guide the design.

Sydney Metro will continue to consult with key stakeholders, including Blacktown City Council, throughout construction of the project.

7.2.2 Traffic, transport and parking

Carparking

Issue raised

Council considers the amount of available carparking during operation to be adequate for patrons of the Sydney International Speedway based on the information provided in Technical paper 1 (Traffic, transport and parking) of the Environmental Impact Statement, provided no concurrent events are taking place at other motor sports venues within Western Sydney Parklands Precinct 5: Eastern Creek Motorsports. Council requires clarification that this arrangement is acceptable to other users and operators at Sydney Motorsports Park.

Response

The carparking arrangements for the project have been developed and agreed in consultation with the members of the Precinct Working Group, which includes representatives from Sydney Dragway, and with Sydney Motorsports Park (operated by the Australian Race Drivers' Club). A summary of the consultation that has been undertaken during project development and during the preparation of the Environmental Impact Statement is provided in Chapter 4 (Stakeholder and community engagement) of the Environmental Impact Statement. Although concurrent major events may occur by agreement, these would be infrequent and the operators would be required to agree and implement additional traffic measures to appropriately manage potential offsite impacts to the surrounding road network. Parking and access arrangements for minor events have been assessed as sufficient so that these events can take place concurrently.

Traffic assessment methodology

Issue raised

The submission sought clarification on the source of predicted traffic numbers used as a basis for the traffic modelling for the 2032 (ten year post opening) scenario. Additionally, the Council note that Ferrers Road is a highly trafficable road and suggest that the traffic and transport assessment address any planned future upgrade of Ferrers Road.

Council also reiterated a key concern regarding safety at the existing and proposed new access points.

Response

The predicted 2032 traffic model scenario was based on the predicted traffic network volumes within the Transport for NSW Strategic Traffic Forecast Model, which includes planned future road network upgrades to the road network surrounding the project. Therefore, the predicted road network performance impacts were based on the road network in 2032, inclusive of any future road network upgrades plus predicted traffic volumes for 2032 from the Strategic Traffic Forecast Model. The assessment showed that the project would not result in adverse impacts to road network performance that would warrant any intersection or road upgrades, including to Ferrers Road.

Safety has been considered through the design of the proposed access and exit points, which have been designed in accordance with the relevant AustRoads Guides and Australian Standards. Appropriate pedestrian infrastructure has been provided to connect Carparks C and D to the main operational site and Sydney Dragway, including lighting and ramps designed in accordance with the requirements of the *Disability Discrimination Act 1992* and crossing infrastructure.

Mitigation and management measures

Issue raised

Council reiterated its key concern that Sydney Metro should consider upgrading Ferrers Road by increasing the number of traffic lanes to ease congestion, particularly during major events.

Response

The modelling completed to support the traffic, transport and parking assessment included as part of the Chapter 6 (Traffic, transport and parking) of the Environmental Impact Statement indicated that impacts to the local road network from operation of the project at the year of opening (2022) and 10 years after opening (2032) would be minor. As outlined in Chapter 6, during a major Sydney International Speedway event on a Saturday evening, all intersections would operate at the same level of service as they would under the without project scenario, except for the Ferrers Road/The Horsley Drive intersection which would be temporarily impacted for short periods during pre-event and post-event peak periods with a minor increase in average delay of around five to ten seconds. This would not change the level of service compared to the without project scenario.

During concurrent minor events at the Sydney International Speedway and Sydney Dragway on a Friday evening (representative of an event on any weekday evening), the majority of modelled intersections would perform at the same Level of Service compared to the without project scenario. Some intersections would experience a minor temporary reduction in performance for short periods prior to events however, all intersections would continue to have spare capacity and the level of service would continue to be acceptable.

Given the minor nature of these traffic impacts, no upgrades to Ferrers Road have been proposed or are required to be completed as part of the Sydney International Speedway project.

7.2.3 Air quality

Mitigation and management measures

Issue raised

The submission noted that no draft dust management plan or operational management plan had been included in the exhibition of the Environmental Impact Statement and requested that the Council are able to review the draft management plan to provide input to the final operational management plan.

Response

Chapter 9 (Air quality) of the Environmental Impact Statement identifies that operation of the project would be managed to achieve dust deposition levels which avoid impacting on the safety of Sydney Dragway race operations. The dust management strategy and proposed mitigation measures presented in the Environmental Impact Statement were determined in close consultation with Sydney Dragway and are based on additional monitoring and dispersion modelling.

An Operations Air Quality Management Plan would be developed for the Sydney International Speedway by the operator of the Speedway International Speedway (once appointed) before the commencement of project operations and would be agreed with Sydney Dragway. The Operations Air Quality Management Plan would incorporate the maintenance procedures and operational conditions that need to be in place to minimise the generation of dust by the project and deposition onto Sydney Dragway, as described in Chapter 9 (Air quality) of the Environmental Impact Statement. This would include adoption of approved track curation and preparation procedures and use and maintenance of approved track materials, among others. At times, additional controls may also be required and may involve measures such as applying additional water or other dust suppression agents to the track, adjusting race times or ceasing races in extreme circumstances or during periods of high winds.

7.2.4 Noise and vibration

Assessment methodology

Issue raised

Council noted that the noise and vibration impact assessment presented in the Environmental Impact Statement did not consider sleep disturbance as it assumed operating hours of the Sydney International Speedway to be until 10pm, and provided no consideration in the instance that an event runs late. The submission sought confirmation of the hours of operation of the project.

Response

Whilst the Environmental Impact Statement described that racing at the Sydney International Speedway would typically take place between 6pm and 10pm, it is recognised that during events some incidents or track maintenance activities may result in racing extending beyond 10pm.

The potential night-time noise impacts have been qualitatively assessed with consideration of the following:

- The level of noise
- How often high noise events would occur
- The time of day (normally between 10 pm and 7 am)
- Whether there are times of day when there is a clear change in the noise environment (such as during early morning shoulder periods).

Noise levels generated during a race after 10pm would be the same as noise levels for earlier races, as presented in Technical paper 2 (Noise and vibration) and Chapter 7 (Noise and vibration) of the Environmental Impact Statement. The measured background noise levels at the nearest sensitive receivers (to the south of the project site) were found to be consistent in the evening and early night-time period. This shows that existing ambient noise sources remain relatively steady during the potential extended period and means that potential impacts to residential receivers during the night-time would be comparable to the potential impacts from events before 10pm. These potential short term impacts would also be effectively managed by the at-property treatment proposed in the Environmental Impact Statement.

Sydney International Speedway would not typically operate beyond 10pm under normal operations. Operations running past 10pm are anticipated to occur infrequently, would be for a relatively short duration and would not carry on through to the late night-time period, where receivers are generally considered to be most sensitive to noise.

The *NSW Road Noise Policy* (NSW Environment Protection Authority, 2011) contains advice relating to potential sleep disturbance impacts. From the research to date, the NSW Road Noise Policy concludes that:

- Maximum internal noise levels below 50 dBA to 55 dBA are unlikely to awaken people from sleep
- One or two events per night, with maximum internal noise levels of 65 dBA to 70 dBA, are not likely to affect health and wellbeing significantly.

It is generally accepted that internal noise levels in a residential receiver with the windows open are 10 dB lower than external noise levels. Based on a worst-case minimum attenuation with windows open, the first dot point above suggests that short term external noise events of 60 dBA to 65 dBA are unlikely to cause awakening reactions. The second dot point suggests that one or two noise events per night with maximum external noise levels of 75 dBA to 80 dBA are not likely to affect health and wellbeing significantly.

Based on the significant distance between the track and the nearest receivers, it is considered unlikely that maximum noise levels would be at a level to cause sleep disturbance impacts inside people's homes. All the worst case predicted motorsport noise levels from the Sydney International Speedway presented within the Environmental Impact Statement were below 65 dBA at residential receivers. The likely infrequent nature of events extending into the night-time also results in the risk of adverse impact being considered low.

Mitigation and management measures

Issue raised

In their submission, Blacktown City Council requested to be able to review the draft operational noise management plan.

Response

Measures to manage and mitigation operational noise from the venue would be included within an Operational Environmental Management Plan to be developed by the operator of the Sydney International Speedway (once appointed).

The future operator may consult with relevant key stakeholders, including Blacktown City Council, during the development of operational management plans.

7.2.5 Biodiversity

Assessment methodology

Issue raised

The submission notes that Technical Paper 3 (Biodiversity Development Assessment Report) of the Environmental Impact Statement does not provide additional impact assessment provisions for the potential Serious and Irreversible Impacts (SAII) entity 'Cumberland Plain Woodland' as required in accordance with Section 10.2.2 of the Biodiversity Assessment Methodology.

Response

A revised Biodiversity Development Assessment Report has been prepared to take into account the potential impacts to biodiversity associated with the proposed amendments to the project which are described and assessed in the *Sydney International Speedway Amendment Report* (Sydney Metro, 2020). The revised Biodiversity Development Assessment Report (provided as Appendix B of the Amendment Report) has been updated to include an additional impact assessment for the potential Serious and Irreversible Impact (SAII) entity 'Cumberland Plain Woodland' in accordance with Section 10.2.2 of the Biodiversity Assessment Methodology.

Mitigation and management measures

Issue raised

Blacktown City Council sought clarification on how retained native vegetation would be managed across the project site, particularly during operation of the project. The submission noted that the retained areas of native vegetation on the site, specifically the central area of *Environmental Protection and Biodiversity Conservation Act 1999* listed Cumberland Plains Woodland and the drainage channel of River-flat Eucalyptus Forest needs to be conserved in-perpetuity, with initial works to mitigate the proposals impacts for the first five years. Council suggested these works are required to be addressed in a site specific Vegetation Management Plan, which would also include habitat enhancements and monitoring of Cumberland Plain Land Snail (*Meridolum corneovirens*) and Southern Myotis (*Myotic macropus*) during this period.

Response

Chapter 8 (Biodiversity) of the Environmental Impact Statement identified that the project would have no direct impacts to areas of Commonwealth listed protected vegetation between Carpark C and D, which is located outside of the project boundary. On this basis, the project is not required to conserve this vegetation in perpetuity as part of an offset/biobanking scheme. The ongoing management of vegetation outside of the Speedway site is the responsibility of Western Sydney Parklands Trust.

Chapter 8 (Biodiversity) of the Environmental Impact Statement also identified the following:

- Potential habitat for the Cumberland Plain Land Snail (*Meridolum corneovirens*) is not located within the project site, therefore this species would not be directly impacted by the project.

Surveys targeting the Southern Myotis were completed around the project site from 17 February to 20 February using harp traps and call detectors. No bats were captured in the harp traps. Six calls were thought to be very likely from Southern Myotis; however, the call quality and duration was insufficient to be certain of their identities. Notwithstanding, the Southern Myotis, is assumed to be directly impacted by the project through removal of foraging habitat. No suitable roosting or breeding habitat has been identified or will be impacted.

Potential foraging habitat for the Southern Myotis within the project footprint that would be directly impacted by the project was identified in the BDAR as including:

- 175 square metres of Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion (849) – Poor condition
- 51 square metres of Grey Box – Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion (PCT 850) – revegetation.

One species credit offset would be required for direct impacts to potential Southern Myotis habitat, as calculated by the BAM-C, associated with the clearance of the 51 square metres of Grey Box – Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion (PCT 850) - revegetation.

The poor condition Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion was assessed as having a Vegetation Integrity score of 11.3. The threshold Vegetation Integrity score for requiring an offset for native vegetation in greater than 15, and for threatened species it is greater than 17. On this basis, this area of direct impact to potential Southern Myotis habitat would not require offsetting in accordance with the Biodiversity Assessment Methodology. A site-specific Vegetation Management Plan for the project is not required. An Operational Environmental Management Plan would be prepared and implemented by the operator of the Sydney International Speedway (once appointed). The Operational Environmental Management Plan would contain ongoing maintenance activities and management measures, including ongoing management of the landscaped areas of the project site to ensure long term viability of planting. It would also provide the overarching framework for the management of all potential environmental impacts resulting from the operation of the project.

7.3 Department of Planning, Industry and Environment (Energy, Environment and Sciences)

7.3.1 Biodiversity

Assessment methodology

Issue raised

The Environment, Energy and Sciences (EES) Group review of the Biodiversity Development Assessment Report (BDAR) noted some inconsistencies within the BDAR and between the species noted as excluded in the BDAR and those excluded from the Biodiversity Assessment Method Calculator (BAM-C), specifically:

- Table 5-1 lists a number of species that it says have been excluded from the assessment, but they are not excluded in the BAM-C: Speckled Warbler Spotted Harrier, Brown Treecreeper, Painted Honeyeater, White-bellied Sea Eagle, Hooded Robin, Black-chinned Honeyeater, Turquoise Parrot, Yellow-bellied Glider, Scarlet Robin, Flame Robin, Koala, Diamond Firetail, *Dillwynia tenuifolia* population at Kemps Creek
- Table 5-3 states that Dural Land Snail was included, but it's been excluded in BAM-C
- The description of the vegetation zones in Section 4.1.1 is not consistent with the descriptions in Table 4-1.
- Additionally, the submission noted some omissions within the BDAR:
- The BDAR states there are no Serious and Irreversible Impact entities, however Cumberland Plain Woodland is a Serious and Irreversible Impact entity and identification of impacts on Cumberland Plain Woodland in accordance with Section 10.2.2 of the Biodiversity Assessment Methodology should be provided
- The BDAR does not contain a discussion of previous vegetation mapping of the site
- There is no map provided of plot locations relative to PCTs, and also, it is preferable that plot locations are shown as rectangles not circles
- The BDAR contains no evidence that important area maps for Swift Parrot were consulted
- The BDAR states that spatial data was supplied but it has not been received by EES.

Response

A revised Biodiversity Development Assessment Report has been prepared to take into account the potential impacts to biodiversity associated with the proposed amendments to the project which are described and assessed in the *Sydney International Speedway Amendment Report* (Sydney Metro, 2020). The revised Biodiversity Development Assessment Report (provided as Appendix B of the Amendment Report) has been updated. As part of the revised BDAR, the following adjustments have been made for consistency:

- Discrepancies between species listed in the BAM-C and the BDAR have been resolved so that the BAM-C reflects the species included/excluded from the assessment as detailed in Table 5-1 and Table 5-3 of the BDAR
- Section 4.1.1 and Table 4-1 of the BDAR have been reviewed and updated where relevant to ensure the description of vegetation zones is consistent.

Other amendments to the BDAR have been made to address comments raised in the submission, including:

- An additional impact assessment for the potential Serious and Irreversible Impact (SAII) entity 'Cumberland Plain Woodland' has been provided as Section 5.3.3 of the BDAR, prepared in accordance with Section 10.2.2 of the Biodiversity Assessment Methodology
- Vegetation integrity plots are now shown as rectangles instead of circles in both Figure 2-1 and Figure 4-1 of the BDAR
- The preparation of the revised BDAR included a review of the Swift Parrot and Regent Honeyeater Important Areas maps. Text regarding the review of the important area maps for the Swift Parrot and the Regent Honeyeater has been added to Table 5-3 (Summary of candidate species credit species with geographic or habitat constraints) of the revised BDAR. The justification for excluding the Swift Parrot and Regent Honeyeater as candidate species has been updated to state that the development site does not contain mapped breeding habitat or Important Areas for both species.

The EES submission noted the BDAR does not contain a discussion of previous vegetation mapping of the site. Section 2.2 (Background research and data sources) summarises the regional vegetation mapping, geology and soil mapping that were reviewed as part of the assessment. As described in Section 2.2 of the BDAR, regional vegetation mapping sources that were reviewed included:

- *The Native Vegetation of the Sydney Metropolitan Area – Version 3.1* (VIS_ID 4489) (State Government of NSW and Office of Environment and Heritage, 2016)
- *Remnant Vegetation of the western Cumberland subregion, 2013 Update* (VIS_ID 4207) (State Government of NSW and Office of Environment and Heritage, 2015).
- *Southeast NSW Native Vegetation Classification and Mapping – SCIVI* (State Government of NSW and Office of Environment and Heritage (OEH), 2010)

Spatial data used in the preparation of the BDAR was provided to the Department of Planning, Industry and Environment (Energy, Environment and Sciences) by Sydney Metro on 14 September 2020. Following submission of the revised BDAR and BAM-C, the updated spatial data used in the preparation of the revised BDAR will also be provided.

Biodiversity offset credits

Issue raised

The submission noted that a finalised credit report was not included in the BDAR and that there is no table provided of credit classes and matching credit profiles. Additionally, although the BAM-C has incorrectly calculated that zero credits are required for the Southern Myotis, the BDAR should have recognised that one credit would be required, in accordance with the guidance in the Biodiversity Assessment Method Operational Manual (Department of Planning, Industry and Environment, 2019).

Response

A revised BDAR has been prepared since the exhibition of the Environmental Impact Statement to account for proposed amendments in the project design, including changes to areas of vegetation clearance. A finalised credit report has been produced as part of this updated BDAR.

The Southern Myotis, is assumed to be directly impacted by the project through removal of foraging habitat. No suitable roosting or breeding habitat has been identified or will be impacted. Potential foraging habitat for the Southern Myotis within the project footprint that would be directly impacted by the project was identified in the BDAR as including:

- 175 square metres of Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion (849) – Poor condition
- 51 square metres of Grey Box – Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion (PCT 850) – revegetation.

One species credit offset would be required for direct impacts to potential Southern Myotis habitat, as calculated by the BAM-C, associated with the clearance of the 51 square metres of Grey Box – Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion (PCT 850) - revegetation.

The poor condition Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion was assessed as having a Vegetation Integrity score of 11.3. The threshold Vegetation Integrity score for requiring an offset for native vegetation in greater than 15, and for threatened species it is greater than 17. On this basis, this area of direct impact to potential Southern Myotis habitat would not require offsetting in accordance with the Biodiversity Assessment Methodology.

The updated BDAR (including the finalised credit report containing the table of credit classes and matching credit profiles) is provided as Appendix B of the *Sydney International Speedway Amendment Report* (Sydney Metro, 2020).

7.3.2 Flooding and hydrology

Assessment methodology

Issue raised

The submission notes that the site is impacted by overland flooding and raised the following regarding the assessment methodology for flooding and hydrology:

- More information was sought on the details of the modelling parameters, inputs and outcomes of the DRAINS hydrology modelling that was carried out as part of the assessment
- It is recommended that the report addresses the details of the local overland flood impact and risk assessment for existing condition, construction and operational phases for the full range of events including the probable maximum flood
- Although on-site stormwater detention basins are proposed to attenuate the one per cent annual exceedance probability, it would also be prudent to assess rarer events from an emergency response perspective and to address impacts on downstream areas in these rarer events
- It should also be noted that the principles in the Floodplain Development Manual apply to all overland flow associated with major drainage. Therefore, as the site is merely impacted by local overland flooding, consistency with Council's flood policies should be addressed from a local flooding perspective based on the above flood assessment for the full range of flood events.

Response

A DRAINS model using the RAFTS hydrologic module was developed to estimate existing flows in the overland flow paths on and around the project site. The model also defined the runoff characteristics from the project site itself, which then allows the estimation of impacts.

The area in and around the project site was subdivided into sub-catchments to define the patterns of drainage based on a review of LiDAR ground elevation terrain model. Paved areas were delineated based on 2018 aerial photography.

The design rainfall adopted for the hydrologic modelling was extracted from the Bureau of Meteorology website and rainfall losses were adopted from the *Eastern Creek Hydraulic Assessment* (Catchment Simulation Solutions 2014). Rainfall losses, along with the adopted catchment roughness and parameter values are provided in Table 7-1.

Table 7-1: Rainfall losses and catchment roughness values used in the Environmental Impact Statement DRAINS model

Parameter	Pervious areas	Impervious areas
Rainfall burst initial losses	• 1% and 5% AEP event: 10 mm. • Probable maximum flood event: 0 mm	• 1% and 5% AEP event: 1 mm. • Probable maximum flood event: 0 mm
Continuing losses	1.5 mm/hour	0 mm/hour
PERN (catchment roughness)	• 0.05 for undeveloped catchment. • 0.025 for pervious areas in developed catchments.	0.015

The flooding assessment completed as part of the Environmental Impact Statement included an analysis of the five per cent, one per cent and probable maximum flood events. The project is located within the Hawkesbury-Nepean Catchment Area. The *Hawkesbury-Nepean Valley Regional Flood Study* (Infrastructure NSW, 2019) defines the regional flooding conditions, which, for the main tributaries of the Hawkesbury-Nepean River system, would be caused by backwater flooding from the main river itself. The study indicated the project site would not be impacted by flooding during the one per cent AEP flood event or the probable maximum flood. The Hawkesbury-Nepean probable maximum flood at Windsor is 26.72 metres Australian Height Datum (AHD), while the minimum ground level at the project site is 55 metres AHD. As the project is deemed to only be impacted by local overland flooding, consideration has been given to Council's relevant policies on stormwater management, which covers minor overland flows. The Environmental Impact Statement noted that the stormwater management, including drainage design (in relation to flooding) and onsite stormwater detention, is proposed to mitigate potential impacts to runoff and flood flows in accordance with *Blacktown City Council Engineering Guideline for Development 2005*. Stormwater management and drainage design will be finalised during further design development, including consideration of the full range of storm events as required.

7.4 Environment Protection Authority

7.4.1 Noise and Vibration

Construction working hours

Issue raised

The EPA noted that the project proposes construction works to be completed 24 hours a day, seven days a week. The submission noted that strong justification for outside of standard hours construction work has been provided in the Environmental Impact Statement. The EPA is satisfied that the residential receivers are well-distanced from the site, and there are predicted to be minimal construction noise impacts during the evening and night periods.

Response

The EPAs comments regarding the construction working hours for the project are noted.

Construction noise and vibration management

Issue raised

The EPA agrees with the implementation of a Construction Noise Management Plan to manage 24 hour construction activities as included in Appendix D of the Environmental Impact Statement (the Construction Environmental Management Framework and the Sydney Metro Construction Noise and Vibration Standard in Section 8.1 of the NVTP). The EPA noted that it does not provide comment or approval or otherwise of the management plan contained within the Environmental Impact Statement, only the recommendation that one is implemented to manage construction noise impacts.

Response

The EPAs comments regarding the approach to the management of construction noise and vibration are noted. Potential noise impacts during the construction of the project would be managed in accordance with the Construction Noise and Vibration Standard (Sydney Metro, 2020) (provided in Appendix C of the Environmental Impact Statement) which required the preparation of a Noise and Vibration Impact Statement. As identified in the Construction Environmental Management Framework, (provided as Appendix C of the Environmental Impact Statement) the requirements of this document would be tailored to the nature and potential impacts of each individual project. Due to the minor nature of the potential construction noise impacts, a Construction Noise Management Plan is not proposed and the impacts can be appropriately managed through a Noise and Vibration Impact Statement.

Management of operational noise impacts during events at the Sydney International Speedway

Issue raised

The EPA notes that the noise from the speedway events has been assessed using guidance in the *Noise Guide for Local Government* (EPA, 2013) (NGLG). The guidance in the NGLG is a case study and not necessarily applicable to all motorsport events. While the character of the noise from the speedway will be different to road traffic and industrial activity in the area, the noise level from speedway will be comparable to other nearby industrial premises. The EPA concurs with the approach in Section 8.2 of the Noise and Vibration Technical Paper to mitigate the noise impact for the isolated residences to the south of the speedway (likely in the form of architectural treatment such as mechanical ventilation). The EPA also agrees with the implementation of an Operational Environmental Management Plan (Section 8.2.4 of the Noise and Vibration Technical Paper).

Response

The EPAs comments regarding the approach to the assessment and management of operational motorsports noise impacts at noise sensitive receivers are noted.

Recommended condition of approval – noise and vibration

Issue raised

The sensitive receivers to the south of the project (potentially worst-affected receivers) are already exposed to motorsport noise. The Noise and Vibration Technical Paper includes a comparison to existing Sydney Dragway events, measured as approximately 10 dBA higher than the predicted Speedway levels at nearest sensitive receivers to the south.

The EPA notes that there is proposed to be around 36 events at the Speedway each year. In order to minimise the impact on sensitive receivers, the EPA recommends that the conditions of approval include a limit on the number of events per year.

Response

The submission received noted that the EPA agree with the following:

- The approach in Section 8.2 of the Noise and Vibration Technical Paper to mitigate the noise impact for the isolated residences to the south of the speedway (likely in the form of architectural treatment such as mechanical ventilation)
- The implementation of an Operational Environmental Management Plan (Section 8.2.4 of the Noise and Vibration Technical Paper).

As operational noise impacts would be effectively mitigated based on the above approach, the need to limit the number of events per year is not considered necessary, and such a limit would adversely impact on the operational viability of the proposed Speedway.

7.4.2 Air quality

Assessment of Total Suspended Particles

Issue raised

The EPA noted as part of their review of Technical Paper 4 (Air quality) that modelling predicted no additional exceedances for any of the assessed pollutants at any of the selected sensitive receivers.

Considering the inherent level of uncertainty related to the approach used to characterise the operation of the speedway (e.g. using emission rates based on monitoring data), using quantitative modelling prediction should be treated with a degree of caution. The EPA considers that given the nature of the proposed activities, amenity-based impacts on neighbouring land uses could potentially occur regardless of quantitative assessment predictions.

Response

The EPA's comments regarding the uncertainty within the assessment are acknowledged, noting that the assessment was undertaken in accordance with the EPA's Approved Methods (2016). The air quality assessment in the Environmental Impact Statement identifies that amenity-based impacts on neighbouring land uses could occur, particularly to the Sydney Dragway, and proposed an approach to appropriately manage and mitigate these potential impacts.

Operational air quality management

Issue raised

The submission noted that Technical Paper 4 (Air quality) identifies some of the mitigation measures proposed to minimise dust generation and manage potential amenity impacts during operations, including:

- Vegetation along the boundary between the Sydney International Speedway racetrack and Sydney Dragway
- Installation of dust screens to reduce windspeed and migration of dust
- Curation of the track including water suppression during race events and potentially combining the clay used in the track with additives, which would minimise the mobilisation of dust during the use of the racetrack.

Section 2.7 of the EIS main document also states that, "*Dust mitigation and controls protocols have been agreed and would be incorporated in both the Dragway lease and the Speedway lease.*"

To reduce risks and alleviate potential amenity impacts, the proponent should continuously engage and keep effective communication channels with surrounding land use occupiers to ensure appropriate responses and solutions can be provided if required.

Response

The operator of the Sydney International Speedway (once appointed) would be responsible for the ongoing consultation with adjacent landowners, including communication relating to the management of potential dust impacts.

Communication protocols between the operator of the Sydney International Speedway (once appointed) and adjacent landowners, including Sydney Dragway would form part of the lease agreements Western Sydney Parklands Trust has with the future Speedway operator and Sydney Dragway.

Recommended condition of approval – dust management

Issue raised

The EPA recommends that all dust mitigation measures identified in Section 7 of the AQIA be included in the proposed Air Quality Management Plan. The EPA also recommends the following conditions be included in an approval:

1. All operations and activities occurring at the premises must be carried out in a manner that prevents and minimises the emission of air pollutants from the premises.
2. The premises must be maintained in a manner that prevents and minimises the emission of air pollutants.
3. The EPA recommends that a Community Communications Strategy be developed to facilitate communication between the proponent and community (including relevant councils, adjoining affected landowners and business, and others directly impacted by the SSI) during design and construction and for a minimum of 12 months following completion of the project.

Response

Technical paper 4 (Air quality) and Chapter 9 (Air quality) of the Environmental Impact Statement describe the project's approach to dust management. This approach has been developed and agreed with Sydney Dragway and the Western Sydney Parklands Trust through ongoing consultation as part of the design development process for the project and includes:

- The Construction Environmental Management Framework, which includes the requirement for a construction Air Quality Management Plan to define how predicted impacts would be mitigated and managed. This would include standard air quality management measures such as dampening down exposed materials and haulage routes as well as project specific measures as identified within the air quality assessment
- An Operations Air Quality Management Plan that would be developed and implemented by the operator of the Sydney International Speedway (once appointed). The plan would incorporate the maintenance procedures and operational conditions that need to be in place to minimise the generation of dust by the project and deposition on to Sydney Dragway, as described in Section 9.6 of the Environmental Impact Statement
- A Community Communications Strategy would be developed and implemented in line with Sydney Metro Overarching Community Communications Strategy to facilitate communication with the community and stakeholders, including adjoining landowners and businesses during construction of the project. The communication strategy for the project from the commencement of operations would be the responsibility of the operator of the Sydney International Speedway (once appointed).

7.4.3 Contamination

Detailed site investigation

Issue raised

Although recommended by the PSI, a Detailed Site Investigation (DSI) has not yet been conducted to determine the extent of contamination and the requirements for the preparation of a Remediation Action Plan (RAP). A DSI must be undertaken to determine the nature and extent of contamination within the project footprint and to inform the RAP.

The EPA recommends that the DSI be provided as part of the Response to Submissions. The DSI – and subsequent recommended reports – must be prepared (or reviewed and approved) by consultants certified under either the Environment Institute of Australia and New Zealand's 'Certified Environmental Practitioner (Site Contamination) (CEnvP(SC)) scheme' or the Soil Science Australia 'Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme'. The DSI and subsequent reports must be prepared in accordance with the relevant guidelines made or approved by the EPA under section 105 of the *Contaminated Land Management Act 1997*.

Response

Additional site investigation has been completed since the preparation of the Environmental Impact Statement. The investigation included undertaking geotechnical and contamination investigations across the project site, and on nearby land outside of the project footprint. Additional information relating to the site investigation are included in Section 2.3 of this Submissions Report (Environmental Impact Statement clarifications).

Additional site investigations have included:

- *Contamination Assessment Report – Sydney Motorsport Park* (Golder, 2020), consisting of a desktop review of available information and a site inspection to identify areas of the project site which have the potential to impact on the project (with respect to contamination)
- *Factual Contamination and Geotechnical Data Report – Sydney Dragway Investigation, Eastern Creek* (Golder/Douglas Partners (5 June 2020a)), including carrying out the following onsite sampling and investigations:
    - Drilling of five boreholes
    - Excavation of 37 test pits
    - Drilling and installation of three soil gas wells
    - Collection of samples (soil and gas) and analysis for a range of common contaminant compounds and hazardous ground gases.
- *Addendum Contamination Report – Sydney Dragway Investigation, Eastern Creek* (Golder/Douglas Partners (4 September 2020) GDP, 2020b), which included:
    - Inspection of ground surfaces in the vicinity of where asbestos containing materials (ACM) and potential ACM were identified during the GDP (2020a) investigation and collection of five bulk soil samples for gravimetric asbestos identification
    - Periodic ground gas monitoring at three soil gas wells and continuous ground gas monitoring at one well location for a period of 24 hours. The soil gas wells subjected to monitoring were those wells monitored as part of the GDP (2020a) investigation.

The additional investigations did not identify widespread and/or significant contamination within the project site. As a result of these additional investigations, a revised assessment of the existing potential contamination risk has been completed, and is included in Chapter 2 of this Submissions Report.

The Environmental Impact Statement assessed the project site as having a moderate to high risk of contamination across the project site. The revised assessment has revised this risk to being low to moderate.

Based on the revised assessment, the mitigation measures included in the Environmental Impact Statement as they relate to contamination have also been adjusted to reflect the revised potential existing contamination risk. A Remedial Action Plan is no longer proposed, and a Site Audit Statement would not be required, given that highly complex, significant and/or widespread contamination has not been identified on the project site. Any contamination encountered is likely to be able to be managed in accordance with the Unexpected Finds Protocol, using standard remediation/construction techniques.

A complete list of revised environmental mitigation measures is included in Chapter 8 of this Submissions Report.

Engagement of a site auditor

Issue raised

The EPA strongly recommends the proponent engage an NSW EPA-accredited site auditor early in the process, and throughout the duration of the works, to ensure that any work required in relation to soil or groundwater contamination is appropriately managed.

As part of the Response to Submissions, it is recommended the proponent submit interim audit advice from the site auditor commenting on the nature and extent of the contamination, and what further works are required.

Response

Additional site investigations have been completed since the preparation of the Environmental Impact Statement which did not identify contamination that would warrant remediation in consideration of the proposed land use. Based on the revised assessment, the mitigation measures included in the Environmental Impact Statement as they relate to contamination have also been adjusted to reflect the revised potential existing contamination risk. Given the absence of contamination requiring remediation, the engagement of an NSW EPA-accredited site auditor is considered not to be required.

The mitigation measures proposed to manage potential contamination during construction and operation of the project have been revised, and a complete list of revised environmental mitigation measures is included in Chapter 8 of this Submissions Report.

7.4.4 Surface water quality

Project design

Issue raised

The EPA advises that the Speedway should be designed to ensure that contamination is suitably contained on site and there is sufficient water infrastructure to ensure no pollution of waters during operation.

Response

Additional site investigations have been completed since the preparation of the Environmental Impact Statement which did not identify contamination that would warrant remediation in consideration of the proposed land use. Based on the revised assessment, the mitigation measures included in the Environmental Impact Statement as they relate to contamination have also been adjusted to reflect the revised potential existing contamination risk.

The revised contamination assessment identified that existing contamination risk across the site was low to moderate, and that widespread and/or significant contamination was not present on the project site. Based on this revised contamination assessment, potential impacts to water quality associated with existing contamination are not anticipated to occur.

The Environmental Impact Statement identified that permanent water quality controls including on-site detention tanks would be provided which would aim to capture stormwater runoff from the project site during operations and treat water to an appropriate standard prior to discharge to receiving waterways so that there is no impact to downstream water quality.

On-site detention tanks are still proposed for the main operational site and the competitor pit area to the south and these areas would be managed as outlined in the Environmental Impact Statement.

For Carparks A, C and D the drainage design has been amended to remove the proposed on-site detention tanks. The water quality measures for these car parks would be developed during detailed design taking into consideration the criteria taken from *Part J: Water Sensitive Urban Design and Integrated Water Cycle Management of the Blacktown Development Control Plan 2015*. These measures could include one or a combination of vegetated swales, bioretention systems, gross pollutant traps and water quality basins or tanks.

The mitigation measures proposed to manage potential contamination during construction and operation of the project have been revised, and a complete list of revised environmental mitigation measures is included in Chapter 8 of this Submissions Report.

Management of contaminated runoff during construction

Issue raised

The preliminary site investigation identified high potential for widespread on-site contamination (soil, groundwater and ground gas) and the potential for the migration of leachate-affected groundwater and landfill gas from the adjoining landfilling operations. Therefore, potential pollutants in site water discharges may include heavy metals, hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, volatile and semi-volatile organic compounds, polychlorinated biphenyls and hydrogen sulfide.

Preliminary investigations would indicate that standard erosion and sediment controls based on *Managing Urban Stormwater Soils and Construction Volume 1* (the Blue Book) would not be adequate for managing the potential water pollution impacts associated with contaminated areas. The Blue Book only provides erosion and sediment practices and principles relevant to the management of uncontaminated sediment for short-term land disturbance.

Response

Additional site investigations have been completed since the preparation of the Environmental Impact Statement. These additional investigations are described in Chapter 2 of this Submissions Report and have been used to prepare a revised assessment of the potential contamination risk present at the project site. The additional investigations did not identify widespread and/or significant contamination within the project site.

The Environmental Impact Statement assessed the project site as having a moderate to high risk of contamination across the project site. The revised assessment has revised this risk to being low to moderate.

The overall risk to construction and operation from contamination at the site is likely to be low. Moderate contamination risks are likely to be associated with localised potential contamination issues (if present) which would be managed in accordance with an Unexpected Finds Protocol (Refer to Chapter 2 for more information). Further to this, a significant groundwater and surface water interaction is not anticipated at this site therefore potential seepage of leachate-effected groundwater to surface water is not expected.

As such, the risk of potential pollutants including heavy metals, hydrocarbons, polycyclic aromatic hydrocarbons, pesticides, volatile and semi-volatile organic compounds, polychlorinated biphenyls and hydrogen sulphide are not expected to be mobilised in elevated concentrations to construction sediment basins and therefore do not require additional mitigation measures. In addition, an on-site surface water monitoring program would be implemented at all points of discharge within the project site (prior to discharge) to observe any changes in the quality of runoff and inform appropriate management responses should poor water quality be identified.

Contaminated water treatment in sediment basins

Issue raised

Indicative sediment basin volumes are stated to be based on the Blue Book (noting that the assessment does not appear to have considered the potential for contamination entering stormwater). A water balance for construction of the project is provided in Table 22-4 in the Environmental Impact Statement main report, based on water demand and stormwater discharges. However, this water balance only compares total inputs to total outputs in a table, but does not provide:

- A suitable assessment of basin sizing that identifies the volume and frequency of overflows from areas of different levels of contamination
- The model assumptions and outputs including the rainfall period of records used, or time periods before storage capacity for basins is restored through reuse or discharge to enable subsequent rainfall events to be captured; or
- Any consideration of any limitations on the reuse or treatment of stormwater due to contamination such as re-contaminating areas during reuse or occupational health and safety aspect of reuse.

Response

Sedimentation basin sizing

The location and sizing of sediment basins would be developed by the construction contractors as part of progressive erosion and sediment control plans (as required by mitigation measure SSW3).

The three key elements that were used in the assessment of the preliminary locating and sizing of each sediment basin included:

- Catchment areas contributing to the sediment basins (disturbed and undisturbed areas). The required volume of each sediment basin was determined according to an estimate of the maximum disturbed catchment area that drains to the basin during various stages of the construction
- The percentage of the total contributing sub-catchment area that is either "cut" or "fill". These are batters/embankment areas that will generally be in the order of less than 25% for this project. These sub-catchments generate significantly greater soil losses
- Whether the basin is located upstream of a "sensitive" receiving environment, thus requiring larger basins.

Other input parameters include soil type, rainfall erosivity (which is a function of local rainfall intensity), soil hydrologic group, volumetric runoff coefficients and soil erodibility.

The key site-specific design parameters that were used to size the sediment basins are listed in Table 7-2. The sediment basin volumes were derived from these key elements and the Blue Book design methodology.

Table 7-2: Site specific parameters for sizing the temporary sediment basins (construction phase)

Parameter	Value	Comment
Rainfall Parameters		
Rainfall depth duration (days)	5 day	5 day is a standard duration used.
Rainfall percentile	80th and 85th	85th has been used for sensitive receivers.
Rainfall depth (millimetres) – 5 day	80th – 24.6 millimetres 85th – 32.2 millimetres	For Blacktown as derived from the Blue Book.
Volumetric Runoff Coefficient, cv	Varies (0.51 to 0.64)	0.64 has been adopted for Group D hydrologic Soils of high runoff potential, in the range of 31millimetres to 40millimetres rainfall depth.
Rainfall intensity for 2 year ARI, 6 hour duration	9.5 millimetres per hour	Adopted from Rainfall Intensity IFD tables Also refer to derived rainfall erosivity in this table.

Parameter	Value	Comment
RUSLE parameters		
Soil/Sediment Type	C, D, or F	Varies along the alignment. Mainly type F, type D and small localised pockets of type C. Type D has been adopted for deeper subsoils.
Erodibility, k	Varies k=0.02 to k=0.06	K = 0.05 has been adopted as a reasonable value for the typical soils found in this area, however this selection can be further improved at detailed design stage through site specific soil testing.
Rainfall erosivity, R	2023	R= 2023 has been adopted based on the Bureau of Meteorology rainfall intensities for the site using 2016 rainfall data, which is confirmed in Blue Book App B.
Hydrologic Soil Group	D	For high runoff potential, Reference: Appendix F of the Blue Book
Soil Cover, C	1	Corresponding to expected type of activities on site
Soil Conservation Practices P	1.3	Corresponding to expected type of activities on site
Length Slope Factors, LS	Variable	Determined separately for Main roadway; and Steeper embankment areas (cut and fill)
Sediment Yield Time Period (months)	2 to 6 months	4 months has been adopted as a reasonable period that accounts for the likely maintenance frequency during construction for the removal of captured sediments.

Site water balance

The water balance for construction of the project was based on the following assumptions:

- Eighty per cent of water demand would be supplied by hydrant (Sydney Water), with the remaining 20 per cent sourced from temporary sumps that collect surface water runoff
- The temporary sedimentation basins would be emptied within five days of a storm event. The basins would overflow during a weather event that exceeds a cumulative rainfall amount of 35 millimetres over a five-day period. Based on the 133 years of rainfall data from the Bureau of Meteorology's Prospect Reservoir Station (Station Number #67019), a rainfall event of this kind occurs 34 times per year on average. Assuming this average, the available water in the temporary sedimentation basins over the construction period would be in excess of the construction water demands, and 20 per cent of construction water demand can therefore be readily accessed from this water source
- Water for dust suppression, earthworks, and other works (e.g., building, landscaping, asphalting) would be required until all areas are sealed, which is for a period of about six months (refer to Chapter 5 of the Environmental Impact Statement for more information about the construction program)
- Water demand for landscaping would be required for about five months (two months for the works and three months for maintenance)
- Water would not be recycled during construction
- Waste water from site compounds (showers, toilets, kitchens) would not be recycled (i.e., not used as grey water for construction activities such as dust suppression). This water would be discharged to stormwater sewer
- Water used for dust suppression, earthworks compaction, landscaping, wheel washing and concreting would be fully consumed (i.e., none would be discharged)
- Water discharged from the site is associated with rainfall runoff that has not been used for site construction activities.

Potential contamination risk from contaminated surface water

Additional site investigations have been completed since the preparation of the Environmental Impact Statement. These additional investigations are described in Chapter 2 of this Submissions Report and have been used to prepare a revised assessment of the potential contamination risk present at the project site. The additional investigations did not identify widespread and/or significant contamination within the project site.

The Environmental Impact Statement assessed the project site as having a moderate to high risk of contamination across the project site. The revised assessment has revised this risk to being low to moderate. Moderate contamination risks are likely to be associated with localised potential contamination issues (if present) which would be managed in accordance with an Unexpected Finds Protocols.

As such, no further assessment is required to size sediment basins in areas of different levels of contamination. Accordingly, water reuse is not expected to present a risk to re-contamination or occupational health and safety.

Sediment basin sizing

Issue raised

The Environmental Impact Statement main reports states that "*Site specific design parameters were used to size the sediment basins including rainfall intensity for two-year Average Recurrence Interval (ARI) rainfall event*." It is unclear what this statement is referring to in relation to basin sizing in accordance with the Blue Book or contamination guidelines, e.g. what is the duration of the two-year ARI and how does it relate to the Blue Book sediment basin sizing based on 5-day rainfall depths. Such measures are recommended to be addressed in a Construction Soil and Water Management Plan.

Response

The construction contractor would be responsible for the final sizing of the sediment basins, which, as per mitigation measure SSW4 (refer to Chapter 8 of this report), would be designed in accordance with Managing Urban Stormwater: Soils and Construction and Managing Urban Stormwater, Volume 2D: Main Road Construction (DECC, 2008) (The Blue Book).

For the purposes of the surface water quality assessment in the Environmental Impact Statement, indicative sediment basin volumes were derived from the Blue Book design methodology with input parameters including the following key elements:

- Five day rainfall depth duration
- Rainfall depth for Blacktown as derived from the Blue Book
- Rainfall intensity for a two year ARI rainfall event of six hours duration.

The site specific design parameters used to size the sedimentation basins are provided in full in Table 7-2 above.

Discharge of contaminated surface water

Issue raised

The EPA has identified the potential for discharges from sediment basins to contain pollutants at levels with the potential to cause non-trivial harm to receiving waters. As a result, the proponent needs to undertake an assessment to demonstrate water impacts, in particular whether a non-scheduled activity licence to permit water discharge, to avoid potential prosecution under section 120 of the POEO Act, is required during the construction phase of the proposal.

Response

Additional site investigations have been completed since the preparation of the Environmental Impact Statement. These additional investigations are described in Chapter 2 of this Submissions Report and have been used to prepare a revised assessment of the potential contamination risk present at the project site. The additional investigations did not identify widespread and/or significant contamination within the project site.

The Environmental Impact Statement assessed the project site as having a moderate to high risk of contamination across the project site. The revised assessment has revised this risk to being low to moderate. Moderate contamination risks are likely to be associated with localised potential contamination issues (if present) which would be managed in accordance with an Unexpected Finds Protocols.

An on-site surface water monitoring program would be implemented at all points of discharge within the project site to observe any changes in the quality of runoff prior to discharge. The program would be developed in consultation with the EPA and Blacktown City Council, where required. Monitoring would occur at all points of discharge within the project site and would include sampling for key indicators of concern.

Based on the revised contamination assessment, potential impacts to water quality associated with existing contamination are not anticipated to occur and discharges from sediment basins are not expected to pollute downstream receiving environments. Therefore a 'non-scheduled activity' Environmental Protection Licence is not considered to be warranted. The implementation of the construction environmental management measures included in Chapter 8 of this Submissions Report, would adequately manage the potential risks associated with the discharge of surface water offsite during construction of the project.

Preparation of surface water pollution impact assessment

Issue raised

The EPA is recommending that the requirement to undertake the Surface Water Pollution Impact Assessment be included in the conditions of consent. In particular, the EPA recommends:

- The Licensee must engage a suitably qualified and experienced person(s) to prepare a construction stage Surface Water Pollution Impact Assessment (SWPIA) for medium and high-risk areas of contamination (note, for areas that are subject to a RAP, the SWPIA can be incorporated into the RAP). The SWPIA must be submitted to the EPA for review and comment.
- The SWPIA must include, at a minimum:
  a. identification of all the potential pollutants of concern which may be present in a discharge from the Premises. The list of pollutants must be developed in consultation with the EPA.
  b. for each area of contamination risk, a prediction of surface water pollutant discharge concentrations (desktop assessment or based on surface and groundwater sampling) for all identified potential pollutants of concern in the sediment basins and contaminated water systems. This should include, but is not limited to:
     i. heavy metals
     ii. hydrocarbons
     iii. polycyclic aromatic hydrocarbons
     iv. pesticides
     v. volatile and semi-volatile organic compounds
     vi. polychlorinated biphenyls
     vii. hydrogen sulphide
     viii. total suspended solids/turbidity
     ix. pH.
  c. an assessment of the potential impact of discharges on receiving waters based on the surface water discharge characterisation and with reference to the ANZG (2018) assessment criteria for slightly to moderately disturbed ecosystems and the NSW Water Quality Objectives
  d. specify the analytical limits of reporting used for any data that is being assessed and:
     i. compare the analytical limits of reporting to the relevant ANZG (2018) assessment criteria for slightly to moderately disturbed ecosystems
     ii. where the limit of reporting does not provide a suitable basis for assessing risk of water pollution, propose alternative options to characterise the risk, including more sensitive laboratory testing or risk mitigation options
  e. where pollutants have the potential to cause non-trivial harm in discharges, an investigation of practical measures that could be taken to avoid or minimise pollution. Consideration should include but not be limited to establishing a nil-discharge site for contaminated areas, at-source controls on site, reducing wastewater run-off volumes (covering stockpiles, bunding, flow diversions), wastewater treatment and wastewater storage sizing based on contamination risk.

f. consider the need for an environment protection licence application, including discharge criteria for any pollutants that could cause non-trivial harm to human health or the environment after all practical measures are implemented

g. consider re-contamination and human health risks associated with the surface wastewater reuse process at the site

h. establish an ongoing surface water monitoring program of discharge quality for the construction stage

- The level of reporting for concentrations of pollutants should be sensitive enough to detect pollutants at levels related to their environmental risk and ANZG (2018) toxicant guideline value (where available) while having regard to the best available analytical practical quantification limits using available technology
- The basis for the EPA's response to an application to licence a non-scheduled activity for water pollution will be to evaluate the characteristics of the activity and take an approach that is based on the environmental risk and the availability and application of best management practices or guidelines. The SWPIA would be required to inform this consideration by the proponent, including appropriately characterising the risks associated with discharges and identifying management and mitigation measures.

Response

Additional site investigations have been completed since the preparation of the Environmental Impact Statement. These additional investigations are described in Chapter 2 of this Submissions Report and have been used to prepare a revised assessment of the potential contamination risk present at the project site. The additional investigations did not identify widespread and/or significant contamination within the project site.

The Environmental Impact Statement assessed the project site as having a moderate to high risk of contamination across the project site. The revised assessment has revised this risk to being low to moderate. Moderate contamination risks are likely to be associated with localised potential contamination issues (if present) which would be managed in accordance with an Unexpected Finds Protocols.

Based on the revised assessment, the mitigation measures included in the Environmental Impact Statement as they relate to contamination have also been adjusted to reflect the revised potential existing contamination risk. A Remedial Action Plan is no longer proposed, and a Site Audit Statement would not be required, given that highly complex, significant and/or widespread contamination has not been identified on the project site. Any contamination encountered is likely to be able to be managed in accordance with the Unexpected Finds Protocol, using standard remediation/construction techniques.

A complete list of revised environmental mitigation measures is included in Chapter 8 of this Submissions Report.

On this basis, the need to prepare a Surface Water Pollution Impact Assessment is not considered necessary, and is not being proposed as part of the management and ongoing monitoring for the project as part of construction and/or operation.

Recommended condition of approval – Surface water quality

Issue raised

The EPA also recommends that the following conditions of approval include be included:

The SSI must comply with section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided in an EPL.

Prior to the commencement of construction, the Applicant must design, install and operate a surface water management system for the construction stage in consultation with the EPA. The system must:

1. be designed and constructed by a suitably qualified and experienced person(s)
2. design sediment basin sizing and pollution mitigation measures based on a detailed site investigation of contamination risk, including:
    - in low contamination risk areas measures to minimise discharges such as increased basin sizing, reuse where appropriate, and enhanced sediment and erosion controls e.g. use of "water sensitive" stormwater treatment measures
    - in moderate to high contamination risk areas, options to avoid or minimise stormwater discharges and enhanced erosion and sediment control measures. Basin sizing should be commensurate with the risks to human health and the environment and based on, at a minimum:
        - a detailed site investigation and RAP process
        - sufficient capacity to appropriately treat pollutants to achieve the necessary ambient water quality outcomes
        - managed overflows only occurring in response to a large defined rainfall event.
3. develop a Trigger Action Response Protocol (TARP) for sediment and contaminant monitoring of surface water discharges, including a contingency plan for any contaminant levels that exceed specified maximum levels in the TARP
4. provide a water balance that details the frequency and volume of controlled discharges and managed overflows for each stormwater management area (low, medium and high impact of contamination), and reuse of wastewater onsite
5. be designed so that any controlled discharges can achieve the relevant ambient water quality outcomes. This should be based on an assessment against the ANZG (2018) guidelines and NSW Water Quality Objectives.

Response

Additional site investigations have been completed since the preparation of the Environmental Impact Statement. These additional investigations are described in Chapter 2 of this Submissions Report and have been used to prepare a revised assessment of the potential contamination risk present at the project site. The additional investigations did not identify widespread and/or significant contamination within the project site.

The Environmental Impact Statement assessed the project site as having a moderate to high risk of contamination across the project site. The revised assessment has revised this risk to being low to moderate. Moderate contamination risks are likely to be associated with localised potential contamination issues (if present) which would be managed in accordance with an Unexpected Finds Protocols.

The preliminary sizing of sedimentation basins has been undertaken in accordance with the requirements of the Blue Book. The site specific design parameters used to appropriately size the sedimentation basins is provided in Table 7-2. Based on the revised contamination risks across the project site, no further assessment is required to size sediment basins in areas of different levels of contamination and no additional erosion and sediment controls have been proposed as they are considered adequate for protecting water quality from low risk contamination areas. In addition, a Trigger Action Response Plan for contamination-related risks is not considered necessary.

Based on the revised assessment, the mitigation measures included in the Environmental Impact Statement as they relate to contamination have also been adjusted to reflect the revised potential existing contamination risk. A Remedial Action Plan is no longer proposed, and a Site Audit Statement would not be required, given that highly complex, significant and/or widespread contamination has not been identified on the project site. Any contamination encountered is likely to be able to be managed in accordance with the Unexpected Finds Protocol, using standard remediation/construction techniques.

A complete list of revised environmental mitigation measures is included in Chapter 8 of this Submissions Report.

A Construction Soil and Water Management Plan would be prepared prior to construction which would detail the design and operation of the surface water management system for construction. The CSWMP would additionally detail the frequency and volume of controlled discharges, management of overflows from large rainfall events and water reuse onsite.

7.4.5 Groundwater

Groundwater contamination

Issue raised

The EPA main report states that groundwater levels across the project site range between 1 metre below ground level and over 30 metres below ground level based on historic assessments of 17 bores across the site. The EIS main document states "excavation works are not expected to intercept 'substantial' groundwater", without defining what is meant by 'substantial' – particularly where *Table 4-1 Summary of Contamination Risk* in the PSI identifies groundwater as a potential source of contamination.

The EPA is concerned about the absence of assessment into the impact of groundwater to demonstrate whether, or how, groundwater will be impacted from the proposed construction activities. As such it is recommended that the proponent prepare a Groundwater Impact Assessment as part of the Response to Submissions.

Response

The aquifers at the project site are considered to fall into the "less productive porous and fractured rock" category as defined in the Aquifer Interference Policy, since groundwater bore supply yields are below the five litres per second threshold for highly productive porous and fractured rock aquifers. Based on the depth of excavation, the project is not likely to intercept groundwater within the bedrock.

Where groundwater is present in the soils, this would likely be localised and intermittent. It is expected that any groundwater taken from the soils (if at all) would be minor in volume, as the permeability of the soils at the project site are likely to be relatively low. The project is therefore not likely to intercept or take sufficient groundwater volumes to warrant the preparation of a Groundwater Impact Assessment. Accordingly, the assessment of potential impacts on groundwater presented in Chapter 15 (Groundwater and geology) of the Environmental Impact Statement is of a qualitative nature.

7.5 Fire and Rescue New South Wales

7.5.1 Stakeholder and community engagement

Future consultation and engagement

Issue raised

Fire and Rescue NSW are satisfied with the documentation that was provided in support of the development, and requests to be consulted during the design phase of the fire and life safety systems for the project.

Response

Throughout the development of the project design, consultation has been undertaken with Fire and Rescue NSW. This consultation has included the issue of the following documentation to Fire and Rescue NSW in June 2020:

- A fire engineering brief, providing a fire engineering assessment of the project buildings, and outlining the fire engineering requirements used as the basis of the analysis for agreement with stakeholders including Fire and Rescue NSW
- Completion and submittal of the Fire and Rescue NSW Fire Engineering Brief Questionnaire
- Building Code of Australia (BCA) assessment report.

Fire and Rescue NSW provided a response to the above documentation in August, which was used to inform further design development of the project and future operational requirements. As Sydney Metro will not be the operator of the project, the operational requirements of the project as they relate to fire safety and engineering will be handed over to the Western Sydney Parklands Trust and the Sydney International Speedway operator (once appointed).

7.6 Heritage NSW, Aboriginal cultural heritage

7.6.1 Aboriginal heritage

Assessment methodology

Issue raised

The Aboriginal Cultural Heritage division of Heritage NSW agree with the recommendations of the Aboriginal cultural heritage component of the Environmental Impact Statement and consider that, from an Aboriginal cultural heritage perspective, approval can be given to proceed in accordance with the recommendations for further management and consultation.

Response

The Aboriginal Cultural Heritage division of Heritage NSW's agreement is noted. Information regarding further consultation with the Aboriginal stakeholders is presented in Section 2.4 of this Submissions Report.

The final Aboriginal Cultural Heritage Assessment Report, incorporating feedback received from registered Aboriginal parties on the draft Aboriginal Cultural Heritage Assessment Report has been provided as Appendix B of this Submissions Report.

7.7 Heritage NSW, as delegate of the Heritage Council of NSW

7.7.1 Non-Aboriginal heritage

Assessment methodology

Issue raised

Heritage NSW is satisfied that the Non-Aboriginal Heritage Impact Assessment submitted as part of the Environmental Impact Statement adequately assesses the potential impacts from the Sydney International Speedway to Prospect Reservoir. Further, Heritage NSW also considers that the proposed mitigation measures to ensure there are no impacts to the Heritage values or significance of Prospect Reservoir are appropriate. Heritage NSW recommends that the mitigation measures outlined in Section 10.1 of the Environmental Impact Statement form part of any final approval conditions which may be granted for this project.

Response

Heritage NSW's satisfaction with the non-Aboriginal heritage assessment and the proposed mitigation measures presented in the Environmental Impact Statement is noted.

7.8 Sydney Water

7.8.1 Stakeholder and community engagement

Future consultation and engagement

Issue raised

Sydney Water recommends that close consultation between the Sydney Metro and Sydney Water occur during all stages of the proposed development. Engagement during the preliminary stage of the project will enable both parties to identify additional risks and other factors that may affect the delivery of the proposed development.

In addition, Sydney Water supports any coordination with Sydney Metro to manage the interface of other concurrent projects as stipulated in the Environmental Impact Statement.

Response

Consultation has been ongoing with Sydney Water throughout the design process, including through the lodgement of a pressure and flow enquiry and a Section 73 feasibility application to Sydney Water. The applications process cannot be completed until an additional application is made to physically connect to the Sydney Water system during the commissioning stage of construction. Sydney Water will be consulted, as required, throughout development of the final design of the project to identify additional risks and other factors that may affect the delivery of the project.

Chapter 1 of the Environmental Impact Statement identifies that that Western Sydney Parklands Trust in conjunction with the NSW Office of Sport, is leading a masterplanning process for Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, with opportunities to share infrastructure and coordinate events across the three venues (being Sydney International Speedway, Sydney Dragway and Sydney Motorsports Park (operated by the Australian Race Drivers' Club)). Sydney Water would be consulted as required, throughout future masterplanning phases where required, about future additional Sydney Water infrastructure and/or connections. The masterplanning process is outside the scope of the Environmental Impact Statement.

7.8.2 Flooding and hydrology

Cumulative flood impacts in the South Creek catchment

Issue raised

Sydney Water notes that the Department of Planning, Industry and Environment has not to date issued a South Creek catchment scale assessment of the cumulative impact of increased flood event runoff volumes from incremental and combining urban development areas throughout the catchment. Consequently, the EIS does not at present have a broader context to assess the cumulative impact of increased flood event runoff volumes from the proposed Sydney International Speedway site and other urban development areas in the catchment.

Sydney Water recommends that the NSW Department of Planning, as a matter of urgency, undertake an assessment of cumulative impacts of urbanisation in the South Creek catchment flood behaviour to better establish an assessment context for precincts and large individual sites such as the Sydney International Speedway.

Response

As there is no catchment scale assessment of South Creek available, a cumulative assessment of project flooding impacts on South Creek has not been provided as part of the Environmental Impact Statement. Further, the project has been designed to ensure that the any potential flooding impacts from the project would be 'no worse than existing' conditions, as per Blacktown City Council requirements.

7.8.3 Project description

Service requirements of water-related infrastructure

Issue raised

Sydney Water recommend that Sydney Metro considers the service demands for water-related infrastructure requirements within the proposed Sydney International Speedway. Following this, the proponent should demonstrate that satisfactory arrangements have been made to prevent any unwarranted damage to Sydney Water's drinking water, wastewater and recycling water networks.

Response

The water management infrastructure has been designed and sized based on a fixture analysis of the site so that water-related demand across the project site can be met. The Probable Simultaneous Demand (PSD) for the proposed cold water services Infrastructure has not been calculated based on the fixture unit loading method within Table 48 of The Institute of Plumbing Australia book 'The Selection and Sizing of Copper Tubes for Water Piping Systems" due to Tables 3.2 and 3.3 within AS 3500.1 "Plumbing and Drainage Set" only being suitable for multiple and single dwellings. A performance solution was completed per the prescribed verification method, A2.2(2)(b)(ii) of the 2019 National Construction Code of Australia to achieve compliance with the performance requirements stated in Part B1 of the Plumbing Code of Australia:

- Pipe work has been sized to achieve flows with a maximum velocity of 1.5 metres per second to minimise noise and water hammer.

The proposed cold water services infrastructure is expected to serve an approximate probable simultaneous demand of three litres per second. This number does not account for the workshop garage, the competitor pits and/or the food and beverage (fitouts).The analysis indicates that the existing 150 millimetre sewer main in Brabham Drive would have sufficient available capacity to serve the project's additional sewer demand and the existing 150 millimetre water main local to the site would have sufficient available capacity to serve the project's additional potable cold water demand. Sydney Metro has submitted a Section 73 feasibility application to provide high-level advice on the available capacity of the relevant Sydney Water assets. The Section 73 Notice of Requirements will provide final confirmation on the available capacity (and any amplification requirements) of the existing Sydney Water sewer main. The applications process cannot be completed until an additional application is made to physically connect to the Sydney Water system during the commissioning stage of construction.

There are no Sydney Water assets (drinking water, wastewater and recycling water networks) within the site boundary for the Sydney International Speedway. The project has been designed to avoid offsite impacts to any Sydney Water assets.

The Environmental Impact Statement also included an assessment to identify any potential impacts to the bulk water supply infrastructure in the vicinity of the project, given its role in Sydney's water supply. The Environmental Impact Statement concluded that:

- There would be no potential vibration impact on the Warragamba Pipelines corridor from construction or operation of the project
- There would be a neutral impact to the Warragamba Pipelines in terms of water quality
- There would be a beneficial impact to Prospect Reservoir in terms of water quality, associated with the project changing water catchments so that no surface water would runoff towards (and eventually into) the Prospect Reservoir.

Waste water management

Issue raised

Sydney Water would seek a Trade Waste Agreement to be executed between the Sydney Metro and Sydney Water to assure waste water management is designed and actioned in accordance with Sydney Water's trade waste policy requirements.

Response

Sydney Metro would not be the operator of the Sydney International Speedway, and any trade waste agreement would need to be sought with the Western Sydney Parklands Trust and the operator of the Sydney International Speedway (once appointed).

The waste water management system for the project has been designed in accordance with AS3500.2:2018 Plumbing and drainage Part 2: Sanitary plumbing and drainage and Sydney Water's trade waste policy requirements. Further information regarding the proposed design of the waste water management system is provided in Chapter 2 (Environmental Impact Statement clarifications) of this Submissions Report.

Stormwater management

Issue raised

The submission raised that the proposed stormwater drainage system does not account for:

- the cumulative creek stability and waterway health impacts of increased runoff volumes from impervious surfaces area on receiving creek systems
- the cumulative impact of increased flood event runoff volumes from this site and other urban development areas in the catchment on downstream areas.

Sydney Water believes that the proposed stormwater strategy should be revised comprehensively with a greater emphasis on meeting environmental runoff flow metrics using enhanced stormwater retention facilities. Please refer to the Sydney Water document 'Development and Application of the Urban Streamflow Impact Assessment (USIA) – April 2018' for additional guidance.

Response

A revised site stormwater and drainage design for the project has been included and assessed as part of the *Sydney International Speedway Amendment Report* (Sydney Metro, 2020). The revised site stormwater and drainage design includes reducing the number of onsite detention tanks and replacing them with a number of batter chutes along the boundaries of the project site. The batter chutes would take advantage of the existing terrain such that:

- Batter chutes proposed along the boundaries of Carparks C and D would drain into the area of native vegetation located between Carparks C and D
- The proposed batter chutes located along the western boundary of the main operational site would discharge into the existing culverts underneath Ferrers Road.

A discharge control pit and flow bypass pipe would be installed on the upstream side of the existing culvert that flows under Ferrers Road between Carparks C and D. The discharge control pit and flow bypass pipe has been designed to meet the Permissible Site Discharge limit of 147 litres per second per hectare for 'all other Hawkesbury River sub-catchments' as stipulated in the *Engineering Guide for Development* (Blacktown City Council, 2005). The existing 1500 millimetre diameter pipe that carries water from the waterway into the culvert under Ferrers Road between Carpark C and D would be replaced with a 900 millimetre diameter pipe. This would control the speed and volume of runoff entering Eastern Creek so that water would not overtop Ferrers Road at this location during a one per cent AEP rainfall event.

Based on the above, combined with there being no catchment scale assessment information available for Eastern Creek (refer to Section 6.7.2 for more information), the assessment or consideration of cumulative stability and health impacts to Eastern Creek is not required, and is not possible as part of the project's soils and surface water and flooding and hydrology assessments.

7.8.4 Sydney Water Heritage Infrastructure

Prospect reservoir

Issue raised

The submission noted Prospect Reservoir's status as a heritage listed asset (Sydney Water s170 Listing No. 4575804) and acknowledged that the heritage assessment presented in the Environmental Impact Statement concluded that the project would result in neutral direct impacts to the site and would not alter any element of significant fabric. Visual impacts are noted to be negligible indirect.

Sydney Water recommends that future works do not adversely impact the visual amenity of the heritage listed Prospect Reservoir and that it considers the findings stipulated in Technical Paper 7 – Landscape and Visual.

Response

The comments regarding Prospect Reservoir are noted. Any future works (beyond the Sydney International Speedway) within the Western Sydney Parklands Precinct 5: Eastern Creek Motor Sports as part of the masterplanning process would consider potential direct and indirect impacts to the heritage listed Prospect Reservoir.

7.9 Water NSW

7.9.1 Potential impacts on Bulk Water Supply Infrastructure

Overland flows entering the Warragamba Pipelines Corridor

Issue raised

WaterNSW is specifically concerned with the potential for overland flows from Lot 1 DP 1077822 at the proposed permanent stockpile location to enter the Pipelines corridor. Such flows could impact WaterNSW's ability to access and maintain the pipelines corridor. As such, a swale or catch drain is requested to be installed to capture and direct flows away from the pipelines corridor.

Response

Appropriate drainage would be provided in the southern area of the project site, immediately north of the Warragamba Pipelines corridor so that safe access to the Warragamba Pipelines corridor for WaterNSW is maintained.

Dust management and Prospect Reservoir

Issue raised

WaterNSW support the development and implementation of air quality management plans for the construction and operation of the project. This plan should consider the potential impacts to the open waters of the Prospect Reservoir, where dust and other particulates have the potential to settle on the surface of the water body.

Response

The racetrack design, layout and operational procedures include dust control and mitigation measures to minimise dust generation and offsite settlement, including:

- Planting vegetation along the boundary of the main operational site between the Sydney International Speedway racetrack and Sydney Dragway
- Installation of dust screens to reduce windspeed and migration of dust offsite to the north and east of the project towards Sydney Dragway
- Curation of the track including water suppression during race events and potentially combining the clay used in the track with additives, which would minimise the mobilisation of dust during the use of the racetrack.

The inclusion of the abovementioned design features would minimise the potential for offsite dust impacts from the project. These measures, combined with the distance between the racetrack and open waters of the Prospect Reservoir (about 500 metres east at the closest point) means that the settlement of dust and other particulates on the surface of the water body is not expected.

Erosion and sediment control

Issue raised

The submission notes the potential for the temporary movement of soils by wind and/or stormwater into receiving waterways and the Pipelines corridor. WaterNSW request that effective erosion and sediment controls to be installed prior to any earthworks. The controls should be regularly maintained throughout construction and retained until works have been completed and the ground surface has been stabilised or ground cover re-established. This includes the designing of the landscaped mound to provide adequate stabilisation.

Response

Erosion and sediment control would be implemented during construction in accordance with the principles and requirements in the 'Blue Book' (Landcom, 2004 and Department of Environment, Climate Change and Water, 2008) (as outlined in mitigation measure SSW3 – refer to Chapter 8 of this report).

The Construction Environmental Management Framework also requires the preparation of a Soil and Water Management Plan and progressive erosion and sediment control plans that would be updated as needed to reflect site conditions. The erosion and sediment controls implemented as part of this Soil and Water Management Plan would be regularly maintained so that their effectiveness is maintained.

Access

Issue raised

All development related activities must be designed, constructed and operated in such a way that does not restrict WaterNSW from operating and maintaining the Pipelines corridor.

Response

The project is located on land managed by the Western Sydney Parklands Trust and outside of the Warragamba Pipelines corridor. Access would be maintained to all properties during construction and operational of the project (as identified in Section 6.8 of the Environmental Impact Statement), including to the Warragamba Pipelines corridor for WaterNSW. Additionally, appropriate drainage would be provided in the southern area of the project site, immediately north of the Warragamba Pipelines corridor so that safe access to the Warragamba Pipelines corridor for WaterNSW is maintained.

Notification of incidents

Issue raised

WaterNSW requires notification of any incident such as a vehicle accident, discovery of any heritage items, spill or fire that affects or could affect the WaterNSW Pipelines corridor. Any such incident should be reported to WaterNSW as a matter of urgency.

Response

Both the Construction Environmental Management Plan and the Operational Environmental Management Plan would contain procedures to be followed in the event of an incident on site, including notification to relevant agencies such as WaterNSW.

7.10 Western Sydney Parklands Trust

7.10.1 Strategic need, justification and project alternatives

Project context

Issue raised

Western Sydney Parklands Trust's submission provided a project overview, including a summary of the project's context and the leasing arrangements for the project site. The submission notes that the project approval will need to precede final masterplan and that, as a consequence, the project approval should not be conditional on finalisation of the masterplanning.

Response

Western Sydney Parklands Trust's comments regarding the project context and leasing arrangements are noted. Chapter 18 (Property and land use) of the Environmental Impact Statement notes that parts of the project site are currently leased to Sydney Dragway for use as overflow parking areas during events. Impacts to the land use of areas of the Western Sydney Parklands currently leased to Sydney Dragway during construction and operation are discussed in Section 18.7 and Section 18.8 of the Environmental Impact Statement.

Sydney Dragway and Western Sydney Parklands Trust have negotiated a partial surrender of the project site to permit the construction and subsequent operation of the Sydney International Speedway. Regular consultation has been carried out with Sydney Dragway to understand potential impacts to their operation and develop appropriate mitigation measures during construction and operation of the Sydney International Speedway. Further information is provided in Chapter 4 (Stakeholder and community engagement) of the Environmental Impact Statement.

With regards to timing, the project is planned to be constructed and operational prior to the start of new speedway racing season in 2021 to minimise disruption and continue to support the growth of speedway racing in NSW. The masterplanning process for Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports currently being led by Western Sydney Parklands Trust in conjunction with the NSW Office of Sport sets the context for the planning of the new Sydney International Speedway and it is noted that the masterplanning process would not be finalised prior to approval of the Sydney International Speedway. The masterplanning process is outside the scope of the Environmental Impact Statement.

Consistency with the Western Sydney Parklands Plan of Management 2030

Issue raised

The Western Sydney Parklands Trust review of the Environmental Impact Statement concluded that it appears to demonstrate consistency with:

- *State Environmental Planning Policy (Western Sydney Parklands) 2009*
- The Western Sydney Parklands, Plan of Management 2030 (February 2019), and the desired future objectives and management priorities for Precinct 5 "Eastern Creek Motor Sports Precinct"
- The Western Sydney Parklands' Trust's vision for the future Eastern Creek Motor Sports Precinct.

Response

Western Sydney Parklands Trust's comments are noted.

7.10.2 Project support

Support

Issue raised

The submission noted Western Sydney Parklands' Trust's involvement with both Sydney Metro and the Office of Sport in the planning and design phase of the project and that the Western Sydney Parklands' Trust is most supportive of the project. Western Sydney Parklands Trust considers that the new speedway circuit, as proposed, will progress the Trust's long term plans for growth and expansion of the Eastern Creek Motor Sports Precinct.

Response

The Western Sydney Parklands Trust's support for the project is noted.

7.10.3 Mitigation, management and monitoring

Issue raised

Western Sydney Parklands Trust reiterated the importance of ongoing monitoring and management to ensure acceptable conditions are maintained for adjoining operators, spectators and the general public throughout construction and operation of the Sydney International Speedway, particularly in relation to the following key areas:

- Traffic and transport
- Car parking
- Noise and vibration
- Dust levels (noting that dust mitigation and control measures have been agreed with Sydney Dragway)
- Cumulative impacts from traffic, car parking, noise and dust.

Response

The Environmental Impact Statement included the following environmental assessment chapters containing technical assessments relevant to the key areas as noted in the Western Sydney Parklands Trust submission:

- Chapter 6 (Traffic, transport and parking)
- Chapter 7 (Noise and vibration)
- Chapter 9 (Air quality)
- Chapter 23 (Cumulative impacts).

The assessments within the Environmental Impact Statement identified the potential impacts as a result of the construction and operation of the Sydney International Speedway, as well as any mitigation or management measures that would avoid or minimise potential impacts. The approach to environmental management for the project includes measures incorporated in the design and construction planning to avoid and minimise impacts as well as those identified as an outcome of the environmental impact assessment detailed in Chapters 6 to 23 and consolidated in Table 24-3 of the Environmental Impact Statement. Revised environmental mitigation measures are provided in Chapter 8 of this report.

The following documents would facilitate the ongoing monitoring and management of conditions at the project site:

- Construction Environmental Management Framework which provided the overarching approach to environmental management and monitoring duration construction
- Construction Noise and Vibration Standard which outlines the approach to management of construction noise and vibration
- Operational Environmental Management Plan which would provide the overarching framework for the management of potential environmental impacts during operation. This would be prepared and implemented by the operator of the Sydney International Speedway (once appointed).

Trial period

Issue raised

The submission suggests a trial period of 12 months from commencement of speedway operations, where there is a prohibition and/or restriction on the scheduling of 'major' and 'main' concurrent operational events within the Eastern Creek Motor Sports Precinct, so as to avoid or at least mitigate the traffic, car parking, noise and dust impacts.

Response

A Precinct Working Committee (PWC) comprising the Office of Sport, Sydney Metro, Western Sydney Parklands Trust, Sydney Dragway and Speedway Australia was established to coordinate the integration of the new Sydney International Speedway within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports. The group meets regularly and includes discussion and consultation on project planning and design, construction and operation of the new Speedway and the precinct masterplan. Event coordination is a key issue that has been discussed at the PWC meetings and event coordination measures have been included in the Environmental Impact Statement. Trial periods at the commencement of operation of the Speedway are appropriately managed by Western Sydney Parkland Trust in the relevant lease agreements.

In order to avoid or mitigate potential impacts of the project during construction and operation including traffic, dust and noise, and to ensure adequate car parking, these key issues were also discussed by the PWC. Agreements have been reached with Sydney Dragway regarding parking arrangements, event coordination and a Major Event Operations Plan has been proposed for adoption by Motorsport Precinct operators. A collated list of the revised environmental mitigation measures identified through these discussions and the assessments within the Environmental Impact Statement are provided in Chapter 8 of this Submissions Report.

7.10.4 Speedway scope of works standard

Design and construction standards

Issue raised

The submission supports the ambition for creating a Speedway track which meets a high standard and specification. Sydney Metro has referenced the Perth Motorplex and a Speedway Australia 5 star track rating as appropriate standards. The construction and operation of the Speedway must be monitored to ensure adherence to these standards.

Response

The design of the Sydney International Speedway has been developed in consultation with Speedway Australia as the governing body of speedway racing in Australia in order to achieve the requirements of a Speedway Australia 5 star track rating. The features of a facility that the Speedway Australia Star Rating system takes into consideration when determining a track rating include the track safety fence, construction material, catch fence (posts and cables) dimensions and crowd control fence. There is also a list of permitted classes and event types that can be run on tracks rated from '1 Star' through to '5 Star'.

Sydney Metro will continue to work with Speedway Australia throughout the construction planning and detailed design processes so that the 5 star track rating is achieved. Speedway Australia carry out regular inspections of speedway facilities to ensure ongoing adherence to their standards. This would include the Sydney International Speedway once operational.

7.10.5 Stakeholder and community engagement

Future consultation

Issue raised

The Western Sydney Parklands Trust requests ongoing consultation following the determination of the Environmental Impact Statement.

Response

Sydney Metro would continue to work with stakeholders including the Western Sydney Parklands Trust throughout future stages of the project.

7.11 Austral Bricks

7.11.1 Traffic, transport and parking

Existing environment

Issue raised

The submission notes that the Austral Bricks private road was identified as a cycle route in the Environmental Impact Statement and confirms that this private road is not appropriate or designed for the use and safety of cyclists.

Response

The advice of Austral Bricks regarding the status of the Austral Bricks road as inappropriate for cyclists is noted. The figure has been reproduced accordingly without this road identified as an 'off road – low difficulty' cycleway. The updated figure has been included within a clarification provided in Chapter 2 (Environmental Impact Statement clarifications) of this Submissions Report. The removal of this cycleway would not change the outcome of the assessment of potential impacts on cyclists' access, amenity, safety and movement as presented in Chapter 6 (Traffic, transport and parking) of the Environmental Impact Statement.

7.11.2 Stockpiling activities

Timing of stockpiling during construction

Issue raised

The submission noted the stockpiling activity to be carried out in construction area 7 and requested further information regarding the timing of the stockpiling.

Response

The area of the project site to the south of Ferrers Road has been identified as construction area 7 within Chapter 5 (Project description) of the Environmental Impact Statement. Key activities that would occur within this construction area include:

- Site establishment works, involving the establishment of site compounds, accesses, perimeter fencing, environmental exclusion zones and erosion and sediment controls
- Site clearance, involving the removal of existing vegetation and topsoil stripping as well as transport to and temporary storage of topsoil from other areas of the project site
- Transport to and storage of cut material excavated as part of earthworks across other areas of the project site
- Creation of a landscaped mound formed from the remaining cut material excavated during earthworks across the project site.

As described in Chapter 5 (Project description) of the Environmental Impact Statement construction of the project is expected to occur over a period of 13 months, commencing in late 2020, subject to planning approval. Construction would be staged across the project site, to allow for work to be carried out concurrently in different areas of the project site while retaining sufficient parking for the Sydney Dragway at all times.

Temporary stockpiling on construction area 7 would begin as part of site establishment works in the first month of construction. It is anticipated there would be temporary stockpiling and associated construction activities within construction area 7 throughout the majority of the construction period through to month 12 of construction, when the permanent landscaped mound would be formed.

Dust management

Issue raised

Further information was requested regarding the management of potential dust generated during stockpiling activities in construction area seven.

Response

An air quality impact assessment was carried out to identify and assess potential air quality (including dust generation) impacts of the project during construction and identify appropriate measures to avoid, minimise and/or mitigate any potential impacts. The air quality impact assessment included the temporary stockpiles located within construction area 7 as potential sources of dust emissions. Further information regarding the assessment methodology is presented within Technical paper 4 (Air quality) and summarised in Chapter 9 (Air quality) of the Environmental Impact Statement.

The air quality impact assessment concluded that potential dust emissions during construction of the Sydney International Speedway would be temporary in nature and adequately managed through best practice management measures during construction. The Construction Environmental Management Framework, as provided in Appendix C and described in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement) of the Environmental Impact Statement, requires the preparation of an Air Quality Management Plan to define how potential temporary impacts would be mitigated and managed. This would include standard air quality management measures such as dampening down exposed materials (including the temporary stockpiles) and haulage routes. Additional, project-specific measures identified included:

- Apply water sprays during loading and unloading of materials
- Regularly wet-down exposed and disturbed areas including stockpiles and haulage routes, especially during dry weather
- Adjust the intensity of activities based on measured and observed dust levels and weather forecasts
- Minimise the amount of materials stockpiled and position stockpiles away from surrounding receivers
- Regularly inspect dust emissions and apply additional controls as required.

Erosion and sediment controls would also be applied to the temporary stockpiles, in accordance with the measures outlined in Chapter 13 (Soils and surface water quality) of the Environmental Impact Statement. The Construction Environmental Management Framework specifically requires the preparation of a Soil and Water Management Plan and progressive erosion and sediment control plans that would be updated as needed to reflect site conditions.

The compiled list of revised mitigation and management measures are presented in Chapter 8 (Revised mitigation measures) of this Submissions Report.

Visual impacts

Issue raised

The Environmental Impact Statement identified potential cumulative impacts from other projects in the area, including construction noise, vibration and visual amenity impacts. Austral Bricks requested a visual image to understand the visual impact of the stockpiling area from their facility entrance and office areas.

Response

Technical paper 7 (Landscape and visual impact assessment) and Chapter 12 (Landscape character and visual amenity) of the Environmental Impact Statement presented the landscape character and visual impact assessment that was carried out to identify and assess potential changes in views to the project site, including stockpiling activities.

The Environmental Impact Statement identified that opportunities to optimise the project design to minimise the amount of excess cut material were being investigated as part of design development. Earthworks volumes have since been refined and reduced as described in Section 2.2 of this Submissions Report. As a result, the temporary stockpiles would be smaller in terms of footprint area and height than those which were previously assessed in the landscape character and visual amenity impact assessment. Therefore, the conclusions of the Environmental Impact Statement are considered to be conservative and consistent with the potential impacts of the revised stockpiling activities.

Six viewpoints were selected to represent the range of views to the project site. These views are from the public domain (available to the public) and from a range of locations and viewing situations. Particular attention was paid to views from places where viewers are expected to congregate such as sporting facilities and lookouts. The various guidelines for landscape and visual assessment prioritises publicly accessible views for the assessment of impact, including the preparation of photomontages. They also indicate that the scoping of a visual impact assessment should be proportionate to the scale of the potential visual impact.

Viewpoint 5 (from Ferrers Road looking northwest) within the Landscape and visual impact assessment would be the most representative of views from the Austral Bricks facility entrance and office area. The assessment concluded that the project would have a negligible impact on views from this location during both construction and operation. A photomontage of the end-state stockpile is provided as Figure 12-9 in the Environmental Impact Statement.

Potential visual impacts from the Austral Bricks facility entrance and office area are likely to be lower than viewpoint 5 due to existing vegetation screening between the Austral Bricks facility and the stockpile site. The scale of the proposed stockpile is not likely to rise above this intervening vegetation or be visually prominent from these locations. The proposed stockpile would be also compatible with the existing landscape character of the locality. Based on the anticipated level of impact, a photomontage from this location is not considered necessary.

7.12 NSW Formula 500 Association Inc.

7.12.1 Project description

Track design

Issue raised

Members believe this is going to be great for the Sport of Speedway but would like to see the length of the track extended. The submission suggested slightly banking the infield motorcycle/bike track so that it could be used for other smaller speedway cars such as Micro Sprints, Speedway Karts, GP Midgets or Formula 500s.

Response

The support for the project from NSW Formula 500 Association Inc is noted.

Although there are no set standards for the dimensions of a speedway track, the proposed dimensions considered the needs of all classes of speedway racing. The speedway track's design has been informed by a comprehensive review of speedway venues across Australia and internationally as well as collaboration with Speedway Australia, speedway competitors and operators and other racing experts. Further, the aim of the new speedway design was to take elements from various venues and create a track that would be exciting for the fans to watch and the challenging for drivers to race on, plus incorporate the latest and most effective safety equipment and spectator facilities.

In plan view, the new Speedway largely replicates the dimensions at the existing Sydney Speedway (which is 460 metres in length). The Sydney International Speedway track's pole line measures 460 metres. This is bigger than Murray Bridge speedway (355 metres) or Toowoomba speedway (360 metres), but is slightly smaller than the Perth Motorplex speedway (500 metres).

Another critical dimension for competitive and entertaining racing is the track banking with the slope of the banking influencing how quickly cars can circulate (more banking results in a higher speed). The current design of the Sydney International Speedway has around 10 degree banking in the straights that progresses to around 12 degree banking in the corners. The design would allow an operator to vary this banking from around eight degrees to around 14 degrees to suit faster or better handling cars while meeting all safety fence height requirements.

The speedway bike track on the inside of the main speedway car track has been designed in accordance with FIM (Fédération Internationale de Motocyclisme) requirements such that the track is 12 metres wide in the straights and 16 metres wide in the corners, with a pole line of 345 metres. The banking is around ten per cent in the straights and around 12 per cent in the corners, which could suit the smaller speedway cars suggested by the NSW Formula 500 Association Inc.

7.13 Australian Lightning Sprints Association

7.13.1 Project support

Support

Issue raised

The Australian Lightning Sprints Association stated its support for the project, in recognition of the critical role that a home track in Sydney holds for competition in NSW and for the survival and growth of speedway sport in Australia. Information was provided as to the context of the sport including where the local and travelling registered teams are based and the types of local businesses that the existing speedway competition supports.

Response

The Australian Lightning Sprints Association's support for the project is noted. Comments regarding the location of speedway competitors in NSW and businesses frequented by speedway competitors support the statements in Chapter 2 (Strategic need, justification and project alternatives) of the Environmental Impact Statement regarding the strategic need and justification for the project, as well as the project's location at Eastern Creek.

7.13.2 Stakeholder and community engagement

Engagement throughout the design development process

Issue raised

The Australian Lightning Sprints Association raised concerns regarding the lack of engagement carried out to date with the speedway community including the Australian Lightning Sprints Association, its current track promoter or the fans. However, the involvement of Speedway Australia in development of the project is noted. The Australian Lightning Sprints Association commented that no information on how to engage with the design development process was available until the exhibition of the Environmental Impact Statement and queried whether feedback provided in its submission can still be taken on board to improve on the design, given the short timescale until construction.

Response

Chapter 4 (Stakeholder and community engagement) of the Environmental Impact Statement identifies that the design of the Sydney International Speedway has been developed in consultation with Speedway Australia, as the governing body of speedway racing in Australia and representative of the speedway community. In order to achieve the requirements of a Speedway Australia '5 star' track rating. Sydney Metro will continue to work with Speedway Australia throughout the construction planning and detailed design processes so that the '5 star' track rating is achieved.

In addition, Speedway Australia has been part of the Precinct Working Committee that was established to coordinate the integration of the new Sydney International Speedway within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports. The group meets regularly and includes discussion and consultation on project planning and design, construction and operation of the new Speedway and the future precinct masterplanning.

7.13.3 Project design

Spectator viewing opportunities

Issue raised

The Australian Lightning Sprints Association welcome the 'colosseum feel' of the venue with opportunities for amenities, food venues and corporate boxes and were very positive about bringing the crowd closer to the action and about the amenities and forecourt leading into the venue, stating that the design and visual elements all add promotional potential and atmosphere to a new venue.

However, the submission commented on the lack of open spectator viewing areas located at the first turn as a missed opportunity given this part of the track's popularity with spectators. The Australian Lightning Sprints Association suggest extending the spectator grandstand area further around by going over the race track return chute and on top of the first three working sheds in the competitors pit to provide seating capacity in that prime viewing area.

Additionally, clarification was sought regarding the provision of a multimedia big screen to provide action replays or race positions on and variable message sign next to the race track out chute for real time lap time or laps remaining data.

Response

The Australian Lightning Sprints Association's comments regarding the design of the Sydney International Speedway are noted.

There are four types of areas for spectators:

- Grandstand seating (formed seats) along the front straight
- Tiered seating (open rows) from Turn 4 through Turn 3 and along the back straight
- An open grassed informal seating area adjacent to playground at the southern end of the grandstand
- An open area (mound) in the competitors' pit area (Turns 1 and 2).

Additionally, the layout of the pit area, and the grandstand and tiered seating areas would not preclude additional temporary or permanent seating being installed by the speedway operator should it be required in the future (subject to appropriate planning approvals).

Provision for a LED screen is coordinated to be suspended from two panels of the dust screen opposite the grandstand. The screen would be in use during events and would be able to be used for streaming the events and replays. The installation of the multimedia screen would be subject to consultation with the operator of the Sydney International Speedway (once appointed). There are to be no permanent installations on the in-field if motorbike racing events are held, although the operator would be able to mount a screen to a truck to park on the in-field. There is communications and power available on the in-field for this purpose.

Dust management measures and track design

Issue raised

The Australian Lightning Sprints Association questions the practicality of and objects to the need for real time dust monitoring, dust walls and the implementation of strict operator conditions if dust limits are exceeded, commenting that all of these measures combine to further restrict the speedway venue viability due to limits placed on size, seated capacity and operational conditions.

Firstly, the submission highlights the importance of choosing the most appropriate clay for the track and provides anecdotal information that the use of local clay to regenerate the surface at the existing speedway resulted in increased dust levels and crowd complaints. The Australian Lightning Sprints Association strongly object to the use of any kind of dust suppression additive on the speedway racing surface due to the potential impact on tyre wear. The submission suggests identification of a suitable surface clay material through partnership between geotechnical engineers, Speedway Australia and the track promoters of existing racing facilities.

Secondly, the Australian Lightning Sprints Association suggest the removal of the operator conditions requiring real time dust monitoring triggers for the first 3 years of operation and instead conduct a review following 3 years of data collection, to determine the need to retain dust monitors or implement more appropriate operating conditions.

Finally, the submission identifies a back straight grandstand with overhead awning located between the speedway track and Sydney Dragway as a long term permanent means to contain airborne dust travel to the east, improve spectator capacity and open up further venue viewing areas.

Response

Clay is a critical element of speedway racing – for competitors it has an impact on tyre wear, consistency during a race meeting and overall track roughness. It is also an important element for the spectator's experience. The speedway construction contractor would be required to source appropriately dark, loamy clay, conduct certain tests (such as emersion and dispersion), and provide the test results and clay samples for approval. The samples and test results would be assessed by relevant experts, including Speedway Australia and geotechnical professionals, before approval is given to import and lay the clay race track surface.

The approach to dust management, mitigation and monitoring (include appropriate responses in the event of exceedances) has been developed in consultation with the Precinct Working Group which includes Sydney Dragway and Speedway Australia (the governing body of speedway racing in Australia and representative of the speedway community).

The racetrack design, layout and operational procedures include dust control and mitigation measures to minimise dust generation and offsite settlement, including:

- Vegetation along the boundary between the speedway racetrack and Sydney Dragway
- Installation of dust screens to reduce windspeed and migration of dust.

The construction of a grandstand and awning along the eastern side of the racetrack has not been proposed as part of the project's design. The grandstand has been located on the western side of the facility to avoid spectators in the grandstand looking into the setting sun.

Capacity

Issue raised

The submission raises concern regarding the overall capacity of the venue for both carparking and spectator seating.

Comments state that Carparks A and C would generally be sufficient for the regular lower attended weekly events run at the new venue but would fall short during peak season, and major events would likely need to use Carpark D to full capacity, limiting crowd capacity.

In accordance with the project objectives to build a 'world class speedway', the new venue being built to accommodate world FIM Speedway Grand Prix racing implies a bigger facility, and the submission quotes attendance figures at previous Speedway Grand Prix to suggest forward planning and increased seating and parking capacity is required to accommodate such events, which may attract over 20,000 spectators.

The Australian Lightning Sprints Association suggest expanding the grandstand seated capacity to provide for 7,000 seated spectators by extending it over the track return chute and in front of the competitor pit area to the south. Combined with the terraced areas for another 3,000 people this would provide 10,000 capacity for opening day.

Response

The capacity and permanent seating at the Sydney International Speedway has been designed to accommodate typical spectator numbers for speedway racing events and has been informed by attendance figures at the existing Sydney Speedway. The addition of temporary grandstand seating is possible (subject to planning approval), with available footprints at the south end of the grandstand, around the northern end of the speedway, and possibly over the garages in the pit area. However, this would be at the discretion of the operator of the Sydney International Speedway (once appointed), and/or assessed should the operator decide to run Speedway (bike) Grand Prix events which might require more seating.

As identified in Chapter 6 (Traffic, transport and parking) of the Environmental Impact Statement, concurrent major events at the Sydney International Speedway and Sydney Dragway may only occur with agreement. These would be infrequent and the operators would be required, in accordance with a Major Events Operation Plan, to agree additional operational measures to manage the events such as traffic management and car park sharing. An event specific Traffic Management Plan would also be required to be developed for major events in consultation with relevant part of Transport for NSW including NSW Transport Management Centre, NSW Police and other relevant stakeholders.

Based on the forecast vehicle generation and arrival and departure profiles, the peak parking demand would be 1125 vehicles during a Sydney International Speedway 'major' event on a Saturday. This parking demand would exceed the capacity of Carpark A, which is intended for use by Sydney International Speedway spectators only. However, the use of Areas C and D as overflow parking for use by Sydney International Speedway spectators would allow for a combined capacity of about 2820 parking spaces. Therefore, parking demand for a Sydney International Speedway 'major' event on a Saturday would be adequately serviced with a parking occupancy of 40 per cent. This scenario is expected to occur around three times per year.

Based on the forecast vehicle generation and arrival and departure profiles the peak parking demand during a concurrent minor event at Sydney International Speedway and Sydney Dragway would be 955 vehicles. Parking demand for a Sydney International Speedway 'minor' event and Sydney Dragway 'minor' event occurring concurrently on a Friday (or other weekday) would be adequately serviced with a parking occupancy of 34 per cent.

Design of Carparks C and D

Issue raised

Additionally, since Carparks C and D are dedicated Sydney Dragway spaces, the Australian Lightning Sprints Association suggest limiting the construction works required for Carparks C and D to the formation of grass paddocks supported by sealed service laneways to reduce burden on the project budget and reduce urban heat of the area.

Response

The areas of the project site that would become Carparks C and D are currently used for other motorsport activities and other large open-air and trade related events. The design of Carparks C and D has been developed to retain the capability for such events and for some car racing events, such as drifting. The operational requirements of such events require areas of large open space consisting primarily of hardstand, which means grassed areas would not be appropriate.

Where operational requirements permit within Carpark C and D, such as along the boundaries and walkways landscape planting has been included as part of the project design to provide some shading and reduce the urban heat effect.

Heavy vehicle access through Carpark A

Issue raised

Based on the visualisations of the project layout presented as part of the exhibition of the Environmental Impact Statement, the Australian Lightning Sprint Association suggested there may be an issue with two 90 degree dog leg turns within the access road through Carpark A, that would restrict B doubles (heavy goods vehicles) when negotiating the route to the Carpark B and the competitor pit area. To ensure access by heavy vehicles, avoid spectator parking blockages and safety issues between spectator traffic and competitor haulers, the route to the competitor pits should be located around the main carpark running along the boundary line.

Response

Articulated (19.0m semi-trailer) access is provided from Ferrers Road, around the roundabout, through Carpark A, along the competitor access road and into the Competitor's Carpark. Other carparks do not allow for articulated vehicles. B-Double access has not been provided.

Operation hours

Issue raised

The operation of a speedway venue including capacity for running late in the event of light rain, serious crashes or other delays, means speedways need to be able to operate to 11pm on any given night. The impact of racing at night during summer also means racing does not normally get into full swing until 7pm onwards, simply due to the delayed sunset.

The Australian Lightning Sprints Association suggest that competition would likely conclude between 10pm and 11pm and the assessment in the Environmental Impact Statement should reflect this. For example, the traffic study would better reflect likely traffic impact by assuming a 10pm to 11pm window for peak traffic, rather than 9pm to 10pm.

Response

Whilst the Environmental Impact Statement described that racing at the Sydney International Speedway would take place between 6pm and 10pm, it is recognised that during events some incidents or track maintenance activities may result in racing extending beyond 10pm.

The traffic assessment of potential operational impacts of the project presented in Technical paper 1 (Traffic, transport and parking) and Chapter 6 (Traffic, transport and parking) of the Environmental Impact Statement was based on peak post-event traffic being between 9pm and 10pm. Existing data for intersection counts was used to inform background traffic volumes in the assessment. A review of this data indicates that background traffic levels between 10pm and 11pm are lower than between 9pm and 10pm. Therefore, the assessment carried out for the Environmental Impact Statement is considered to be conservative, and any potential impacts on the road network after 10pm would be consistent with, or less than the minor impacts identified in the Environmental Impact Statement.

Sydney International Speedway would not typically operate beyond 10pm under normal operations. Operations running past 10pm are anticipated to occur infrequently, would be for a relatively short duration and would not carry on through to the late night-time period, where receivers are generally considered to be most sensitive to noise. The potential for noise impacts from occasional events extending beyond 10pm are assessment in Section 6.4.2 of this report.

7.14 Motorsport Australia

7.14.1 North Shore Sporting Car Club

Loss of the Pipeline Park venue

Issue raised

The submission highlights the location of the Pipeline Park venue within the southern area of the project site (also referred to in the Environmental Impact Statement as construction area seven). Motorsport Australia provides a summary of the North Shore Sporting Car Club's aims and current use of Sydney Dragway and Pipeline Park, including an estimation of 820 total participants that take part in their annual events. It is noted that the North Shore Sporting Car Club also supports community organisations e.g. fundraising through Blacktown Ponds Lions Club.

The relocation of the Sydney International Speedway into the Eastern Creek Motor Sports Precinct is removing one form of defined motorsport activities, in order to replace them with a different form of defined motorsport. By doing so, the range and diversity of the motorsport activities within the Precinct is not increasing or improving. The events held at Sydney Dragway are described as the lifeblood of the North Shore Sporting Car Club and the loss of these events will have a significant financial impact that would affect the viability of the North Shore Sporting Car Club, and the submission states the loss of the ability to stage these events will have a detrimental impact not only on its members but the motorsport community in Sydney and New South Wales.

Should the Club's current Motorsport Australia-sanctioned motorsport activities not be able to be accommodated elsewhere within the Precinct, a key avenue of grassroots junior development and driver education within the Greater Sydney region will be lost.

Motorsport Australia are concerned that the Environmental Impact Statement states that the Western Sydney Parklands Trust "would aim to provide an appropriate venue for all existing motorsport users in this Precinct", however, there is no detailed how this will be addressed for the North Shore Sporting Car Club and its investment in construction area 7. Therefore, the North Shore Sporting Car Club request that the Sydney Metro team carefully considers the needs of a venue / venues that will enable the continuance of the same frequency and range of motorsport events that it currently does. A suggested location for the potential relocation of Pipeline Park was provided.

Response

The potential impact of the project on existing users of the site (including the North Shore Sporting Car Club) was considered in Technical paper 9 (Socio-economic assessment) and Chapter 17 (Socio-economics) of the Environmental Impact Statement. This assessment identifies that a potential impact of the project would be that the southern area of the project site would no longer be available for use by motorsport car clubs. Mitigation measure SE2 aims to mitigate the impact on clubs that use land impacted by the project through consultation as part of the masterplanning process for the motorsport precinct that would aim to provide an appropriate venue for all existing motorsport users in the precinct. This consultation would be led by Western Sydney Parklands Trust. The masterplanning process is outside the scope of the Environmental Impact Statement.

Timing of impact

Issue raised

At the date of its submission, the North Shore Sporting Car Club had been advised that it would be unable to access construction area seven from November 2020 onwards. The North Shore Sporting Car Club seeks to be allowed access to construction area seven until the development application for early works on this area has been approved and construction works commence, in order to stage Motorsport Australia-sanctioned events. It is accepted that the north section remain as is, given the Aboriginal Heritage matters in that area.

Response

Construction area 7 (also referred to in the Environmental Impact Statement as the southern area of the project site) is currently leased to Sydney Dragway. Sydney Dragway and Western Sydney Parklands Trust have negotiated a partial surrender of the project site to permit the construction and subsequent operation of the Sydney International Speedway. Regular consultation has been carried out with Sydney Dragway including through the Precinct Working Committee. The timing of the surrender of the project site would be subject to further consultation with Sydney Dragway and Western Sydney Parklands Trust.

Capability for events within the southern area of project site during operation of the Sydney International Speedway

Issue raised

Motorsport Australia note that over the last two and a half years the North Shore Sporting Car Club and the Christian Autosports Club of Australia carried out work to make Pipeline Park suitable for Motorsport Australia sanctioned events including:

- Clearing and remediation activities
- Improvements to access points from Ferrers Road
- Erosion control
- Purchase of equipment including storage containers in agreement with Sydney Dragway.

Motorsport Australia request that the whole of construction area seven is made level and grassed over with suitable design for the future use of the grass as a venue for Motorsport Australia sanctioned motorsport activities. In addition, the submission requests the access is made safe and secure and any infrastructure that may be usable would be left in place (for example boundary fencing, internal roads and any dust mitigation equipment).

Response

Discussions regarding previous investment in Pipeline Park would be between the North Shore Sporting Car Club and the Christian Autosports Club of Australia and Sydney Dragway, who are the current leaseholders of this area.

As described in Chapter 5 (Project description) of the Environmental Impact Statement, earthworks within construction areas one to six would result in the generation of excess cut material, with opportunities to optimise the project design to minimise the amount of such material being investigated as part of design development. Whilst earthworks volumes have since been refined and reduced, as described in Section 2.2 of this Submissions Report, and Sydney Metro is also exploring the potential for spoil to be re-used for nearby construction projects if feasible, there would still be an excess of cut material generated across the project site during construction.

The project design has included a permanent, landformed mound on construction area seven as the most appropriate way to manage this excess cut material as it would avoid the need for disposal of excess material and the associated additional vehicle movements.

Mitigation measure SE2 aims to mitigate the impact on clubs that use land impacted by the project through consultation as part of the masterplanning process for the motorsport precinct that would aim to provide an appropriate venue for all existing motorsport users in the precinct. This consultation would be led by Western Sydney Parklands Trust. The masterplanning process is outside the scope of the Environmental Impact Statement.

Events held at Sydney Dragway

Issue raised

Motorsport Australia provided information on the other Motorsport Australia-sanctioned motorsport events that are currently staged at Sydney Dragway by the North Shore Sporting Car Club. These events, including a well-established tarmac rallysprint, do not take place on the Sydney Dragway's tarmac drag strips and utilise other gravel and tarmac surface access roads within the Sydney Dragway's boundaries.

Through the staging of these events, the North Shore Sporting Car Club has been able to foster greater community ties with the local motorsport and automotive industries, generating sponsorship and additional revenue streams for the club. It has also become an event that provides participation opportunities for motorsport beginners and also has the challenge that is attractive for high level rally competitors, including Australian Rally Champions.

Comments include concern that based on the implementation of the Sydney International Speedway, the future conduct of such events will be in jeopardy, without relevant considerations being taken into account with respect to the Sydney International Speedway's setup and configuration. Therefore, the following suggestions have been made to the project design to retain capability for other Motorsport Australia-sanctioned motorsport events across the project site and Sydney Dragway:

- Relocation of the light towers, curbing, guttering and storm drains from the centre of the carparks out to the carparks' boundaries to allow more flexibility in the use of the areas, including hire out for motorsport activities
- Amendment of the earthworks at the back of the Sydney International Speedway machinery shed to facilitate a gated connection to the existing gravel road that is on the perimeter of the South and Eastern side of the Sydney Dragway venue
- Inclusion of an additional internal gated access road from the lower to upper level within Carpark D
- Retention of gated access between Carpark D and the pit area of Sydney Dragway to align with existing asphalt roads
- Maximise the width of the internal access road between Carparks A and B, including by designing the road without central kerbing
- Installation of gated access to the eastern intersection of the north south link road at the Sydney Dragway
- Creation of an additional access to Carpark C from the site access road, located to the west of the roundabout to allow the area to be used as a closed course venue to stage certain Motorsport Australia-sanctioned motorsport activities without requiring access on and off the north south link road, reducing congestion at the roundabout
- Installation of sprinkler system in Carpark A to be collected for reuse by the proposed rainwater harvesting infrastructure
- Pave the existing access to Carpark C that is currently gravel
- Creation of an additional entrance to Carpark A from the main access junction with Ferrers Road to reduce congestion at the roundabout and allow for the carpark to be combined with other areas.

Response

The potential impact of the project on existing motorsport activities was considered in Technical paper 9 (Socio-economic assessment) and Chapter 17 (Socio-economics) of the Environmental Impact Statement. This assessment identified that a potential impact of the project would be that areas of the project site would no longer be available for use by motorsport car clubs. Mitigation measure SE2 aims to mitigate the impact on clubs that use land impacted by the project through consultation as part of the masterplanning process for the motorsport precinct that would aim to provide an appropriate venue for all existing motorsport users in the precinct. This consultation would be led by Western Sydney Parklands Trust. The masterplanning process is outside the scope of the Environmental Impact Statement.

In terms of the specific design suggestions raised, the following is noted:

- Carparks C and D have been designed as large open spaces so that they may be used for some car racing events, such as drifting, and for other large open-air and trade related events
- The access road to the end of the dragstrip has been retained, and its vertical alignment allows a smooth transition into the speedway competitor carpark at the northern end of the maintenance shed through a wide gate. Use of the competitor carpark for driver training events by the operator of the Sydney International Speedway (once appointed) would be subject to Western Sydney Parklands Trust approval
- A linking road between the two levels of Carpark D was considered, however the height differences and the size of the ramp raised safety issues and impacted the number of parking spaces
- Gates allowing access to and from the Sydney Dragway competitor area and Carpark D have been included in the design. The carpark level and the Dragway pit are levels would be the same
- The internal competitor access road has been designed to maximise width within the space available and does not include central kerbing
- Provision of gated access to Sydney Dragway from the north south link road would be the decision and responsibility of Sydney Dragway
- Various access to and from Carpark C were considered, including directly onto the north south link road. However, safety considerations and the need to limit impacts to the Cumberland Plain woodlands required a single entrance on the entry road to the west of the roundabout
- The access to Carpark C would be paved
- The internal layout of Carpark A has been reconfigured since exhibition of the Environmental Impact Statement. Consideration was given to various alternatives for Carpark A access, however, controlling vehicle flows for safety and operational reasons resulted in the controlled access though the main gate. An additional exit point would not be possible due to the height from Ferrers Road to the new carpark.

7.14.2 Stakeholder and community engagement

Future engagement

Issue raised

Motorsport Australia requested ongoing engagement and consultation with government entities and representatives during the planning and design processes, to enable and ensure optimum value and utility from the Sydney International Speedway.

Response

Sydney Metro would continue to work with stakeholders including Motorsport Australia throughout the construction of the project.

8 Revised mitigation measures

This chapter provides a complete set of amended environmental mitigation and management measures for the project, highlighting how they have changed compared with the measures listed in the Environmental Impact Statement.

8.1 Revised environmental mitigation and management measures

The list of mitigation and management measures presented in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement) of the Environmental Impact Statement has been updated with consideration given to:

- Clarifications to the Environmental Impact Statement as outlined in Chapter 2 (Environmental impact statement clarifications)
- Submissions received as addressed in Chapter 5 (Community submissions) and 6 (Government agency and key stakeholder submissions)
- The proposed amendments as described in Chapter 3 (Description of proposed amendments) of the Amendment Report
- Additional environmental assessment work carried out in this Submissions Report and the Amendment Report to address clarifications and/or proposed amendments.

Some new measures have been added, and the wording of existing measures has been adjusted.

Table 8-1 provides the full set of amended measures to avoid, mitigate and/or manage the potential impacts of Sydney International Speedway. This table supersedes the measures presented in the Environmental Impact Statement.

New management measures or additions to existing management measures are shown in **bold text**, with deletions shown with a ~~strikethrough~~. Measures that have changed as a result of the proposed amendments are presented in yellow. Measures that have changed as a result of responding to community, Governmental agencies and/or stakeholder submissions or through clarifications of the Environmental Impact Statement are presented in green.

Table 8-1: Revised mitigation and management measures

Reference	Impact/issue	Mitigation measure	Applicable location
Traffic and transport			
Construction			
TTP1	Traffic related incidents	In the event of a traffic related incident, coordination would be carried out with Transport Coordination and/or the Transport Management Centre's Operations Manager.	All
TTP2	Property access for emergency vehicles	Access to other properties within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports would be provided at all times, including for emergency vehicles.	All
TTP3	Construction site access and egress	All trucks would enter and exit construction sites in a forward direction, where feasible and reasonable.	All
TTP4	Road network performance	Construction site traffic would be managed to minimise movements along Ferrers Road and the surrounding road network during peak periods.	All

Reference	Impact/issue	Mitigation measure	Applicable location
TTP5	Parking availability for construction personnel	Parking for construction personnel would be provided on-site and not on surrounding local streets.	All
TTP6	Construction traffic during major events	During major events at Sydney Dragway, impacts to the transport and traffic network would be reduced by (as necessary): • Avoiding the use of the spectator access road by construction traffic during Sydney Dragway major events • Minimising the level and nature of construction activity pre, during and post events • Maintaining appropriate access to all areas within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports • Scheduling deliveries to the project site outside of event periods, when possible.	All
TT7	Parking for events at Sydney Dragway during construction	Temporary offset parking for Sydney Dragway would be established prior to commencement of construction. This would include a total of around 2400 dedicated parking spaces for Sydney Dragway comprising of: • Retention of about 800 existing spaces in the existing P2 Dragway car park outside of the project footprint • A minimum of 1600 spaces within the project site for use by visitors to Sydney Dragway during events. For larger events at Sydney Dragway, additional parking spaces within the Sydney Motorsport Park (operated by the Australian Racing Drivers Club) would also be made available. During these events, a shuttle bus service would be provided between this parking and the Sydney Dragway.	All
Operation			
TTP8	Public transport accessibility during major events	Opportunities to enhance public transport accessibility to the project would be investigated, including the provision of bus services and bus stop infrastructure to service major events.	All
TTP9	Property access for emergency vehicles	Access to other properties within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports would be maintained at all times, including for emergency vehicles.	All
TTP10	Impacts to road network performance during events at the project site (including concurrent operations)	A traffic management plan would be developed by the operator of the Sydney International Speedway and would include traffic measures to minimise impacts to road network performance during peak event times. The traffic management plan would consider measures to be implemented to manage the arrival and exit of vehicles to the project site, including traffic marshalling and the use of temporary traffic signals when major events are scheduled at the same time as Sydney Dragway.	All

Reference	Impact/issue	Mitigation measure	Applicable location
Noise and vibration			
Construction			
NV1	Night time impacts	Feasible and reasonable options to reduce night time noise impacts associated with the wood chipper would be investigated including positioning or shielding of equipment, restricting the use of the wood chipper to daytime construction hours, or through the early implementation of at-property treatments required to reduce operational noise.	Carparks A, C and D
Operation			
NV2	Operational motorsport noise	At-property treatment would be provided to noise sensitive receivers where the predicted average event noise level $L_{Aeq(15minute)}$ is more than 5 dB above the background noise level.	All relevant receivers
NV3	Fireworks displays	An evaluation of the potential noise impacts from occasional firework displays during some events would be carried out when more information is available regarding the proposed displays associated with the project.	Main operational site
NV4	Operational Environmental Management Plan	An Operational Environmental Management Plan (OEMP) (to be prepared by the operator, once appointed) would include the following measures to manage and mitigate noise: • Establishing vehicle noise control limits for events and monitoring to verify compliance with these limits • Managing the use of the public address system to minimise noise • Coordination with other motorsports operators to minimise noise from concurrent events • Establishment of a complaints handling and response procedure.	Main operational site
Biodiversity			
Design			
B1	Vegetation clearance	Opportunities to minimise the amount of vegetation clearance within the project site would be considered as part of further design development where feasible and reasonable.	All
Construction			
B2	Impacts to threatened ecological communities and threatened species	Biodiversity offsets (ecosystem credits) would be acquired in accordance with the Biodiversity Assessment Method due to impacts on native vegetation.	All

Reference	Impact/issue	Mitigation measure	Applicable location
Air quality			
Construction			
AQ1	Dust generation during construction	The following best practice dust management measures would be implemented during all construction works: Apply water sprays during loading and unloading of materials • Regularly wet down exposed and disturbed areas including stockpiles and haulage routes, especially during dry weather • Adjust the intensity of activities based on measured and observed dust levels and weather forecasts • Minimise the amount of materials stockpiled and position stockpiles away from surrounding receivers • Regularly inspect dust emissions and apply additional controls as required.	All
AQ2	Exhaust emissions from the combustion of fossil fuels during construction	Plant and equipment would be maintained in a proper and efficient manner.	All
AQ3	Dust generation during construction and operation	Four permanent dust monitoring stations would be installed across the project site and at Sydney Dragway. These stations would acquire and measure baseline dust levels in real time to inform thresholds for safe operational dust levels at the Sydney Dragway and to monitor dust levels during construction and operation of the project.	Main operational site and Sydney Dragway
AQ4	Dust generation during construction and operation	An on-site meteorological station would be installed, sited in accordance with the relevant standards and guidelines, to inform the dust monitoring programme.	Main operational site
Aboriginal heritage			
Construction			
AH1	Aboriginal site protection	Prior to the commencement of construction works, exclusion areas would be established around the following identified Aboriginal sites, to prevent inadvertent impacts during works: • SIS PAD 01 (AHIMS ID pending) • SIS PAD 02 (AHIMS ID pending).	SIS PAD 01 (adjacent to the southern area) SIS PAD 02 (between Carparks C and D)
AH2	Unexpected finds	Should unexpected Aboriginal artefacts be identified during excavation and construction works, the Sydney Metro Unexpected Finds Protocol would be implemented.	All
AH3	Unexpected finds	In the event that a potential burial site or potential human skeletal material is exposed during construction, the Sydney Metro Exhumation Management Plan would be implemented.	All

Reference	Impact/issue	Mitigation measure	Applicable location
Non-Aboriginal heritage			
There are no additional mitigation measures required that are specific to non-Aboriginal heritage. Potential impacts have been avoided through design and would be managed through the Construction Environmental Management Framework and an unexpected finds procedure.			
Landscape character and visual amenity			
Design			
LV1	Removal of trees	Opportunities to minimise the area of vegetation clearance and for the retention and protection of existing street trees and trees within the project site would be identified during detailed construction planning.	All
LV2	Urban heat island effects	Opportunities for the incorporation of trees and low heat absorbing ground surface finishes in carparking areas would be identified and implemented where feasible and reasonable.	All
Construction			
LV3	Visual impacts	Where feasible and reasonable, the elements within the construction site would be located to minimise visual impacts (for example storing materials and machinery behind fencing).	All
LV4	Lighting impacts	Lighting of the construction site would be orientated to minimise glare and light spill impacts on adjacent receivers.	All
LV5	Trees	Existing trees to be retained would be protected prior to the commencement of construction in accordance with Australian Standard AS4970 the Australian Standard for Protection of Trees on Development Sites and Adjoining Properties.	All
Soils and surface water quality			
Construction			
SSW1	Acid sulfate soils	Prior to ground disturbance in areas of potential acid sulfate soil occurrence, testing would be carried out to determine the presence of actual and/or potential acid sulfate soils. If acid sulfate soils are encountered, they would be managed in accordance with the *Acid Sulfate Soil Manual* (ASSMAC, 1998).	All
SSW2	Soil salinity	Prior to ground disturbance in high probability salinity areas, testing would be carried out to determine the presence of saline soils. If salinity is encountered, excavated soils would be managed in accordance with *Book 4 Dryland Salinity: Productive Use of Saline Land and Water* (NSW DECC 2008) and would not be reused in other areas of the project site. Erosion controls would be implemented in accordance with *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom, 2004) and *Volume 2D* (NSW Department of Environment, Climate Change and Water 2008), commonly referred to as the 'Blue Book'.	All

Reference	Impact/issue	Mitigation measure	Applicable location
SSW3	Erosion and sedimentation	Erosion and sedimentation measures would be implemented in accordance with the principles and requirements in the '*Blue Book*' (Landcom, 2004 and Department of Environment, Climate Change and Water, 2008).	All
SSW4	Management of surface water runoff	Any water collected on the project site during construction would be appropriately treated and discharged to avoid any potential contamination or local stormwater impacts. Temporary sediment basins would be designed in accordance with *Managing Urban Stormwater: Soils and Construction and Managing Urban Stormwater, Volume 2D: Main Road Construction* (DECC, 2008).	All
SSW5	Water quality monitoring	A**n onsite** surface water monitoring program would be implemented to observe any changes in ~~*surface water*~~ **the** quality **of runoff from the project site prior to discharge** ~~that may be attributable to the project and inform appropriate management responses~~. The program would be developed in consultation with the EPA and **Blacktown City Council, where required** ~~relevant Councils~~. Monitoring would occur **at all points of discharge within the project site** ~~prior to and during construction at all waterways with the potential to be impacted, including the unnamed drainage line between Carpark C and Carpark D, Eastern Creek and Prospect Reservoir.~~ ~~Monitoring sites could be located upstream and downstream of the potential discharges~~ and would include sampling for key indicators of concern.	All
SSW8	**Concrete waste**	**To avoid potential ingress of concrete waste material into downstream waterways, the Construction Soils and Water Management Plan would include procedures to capture, contain and appropriately dispose of any concrete waste from concrete works.**	**Concrete works at batter chutes and downstream scour protection locations, and at the discharge control pit and bypass flow pipe.**
Operation			
SSW6	**Surface** ~~*Waste*~~ water discharge	Water treatment infrastructure would be designed **to include appropriate water quality measures** so that surface water runoff is treated **taking into consideration the pollutant reduction target criteria taken from Table 2 of *Part J: Water Sensitive Urban Design and Integrated Water Cycle Management of the Blacktown Development Control Plan 2015.*** ~~to a level that is compliant with the ANZECC/ARMCANZ (2000) and ANZG (2018) default guidelines for 95 per cent species protection.~~	All

Reference	Impact/issue	Mitigation measure	Applicable location
SSW7	Water quality monitoring	An **onsite** operational surface water monitoring program would be implemented **at all points of discharge within the project site** to observe **the** quality **of runoff from the project site prior to discharge offsite** ~~that may be attributable to the project and inform appropriate management responses~~. The monitoring program would be developed and implemented to align with the ~~pre-construction~~ construction monitoring described in SSW5 **and would include sampling for key indicators of concern**.	All
Contamination			
Construction			
C1	Management of low risk contamination	~~For areas that have been identified as having moderate, or high contamination impact potential, a further review of data would be performed, including review of any additional/preliminary contamination site investigations conducted following desktop assessment to refine impact assessment.~~ ~~Where the additional data review confirm that contamination is likely~~ **Areas identified as having** ~~to have~~ a very low or low ~~impact~~ potential **contamination risk**~~,~~ ~~the areas~~ would ~~then~~ be managed in accordance with the Soil and Water Management Plan. This would typically occur where there is minor, isolated contamination that can be readily remediated through standard construction practices such as excavation and off-site disposal.	~~All~~ **Areas identified as having a very low or low potential contamination risk**
~~C2~~	~~Detailed Site Investigation~~	~~Where data from the additional data review (mitigation measure C1) is insufficient to understand the impact of contamination, a Detailed Site Investigation would be carried out in accordance with the National Environmental Protection (Assessment of Site Contamination) Measure (2013) and other guidelines made or endorsed by the NSW Environment Protection Authority.~~ ~~Construction areas requiring Detailed Site Investigation would be confirmed following the additional data review (mitigation measure C1), however based on the preliminary findings of this Preliminary Site Investigation, it is anticipated that Detailed Site Investigations would likely be required throughout the project site (within all areas 1-7).~~	~~Dependant on the outcomes of mitigation measure C1, locations may include some or all of areas one to seven~~

Reference	Impact/issue	Mitigation measure	Applicable location
C3	Remediation	~~Where data from additional data review (mitigation measure C1) or the Detailed Site Investigation (mitigation measure C2) confirms that contamination would have a moderate to high risk, a Remedial Action Plan (RAP) would be developed for the relevant construction area.~~ ~~The RAP would detail the remediation works required to mitigate impacts from contamination throughout and following completion of construction. The RAP would be prepared in accordance with relevant NSW Environment Protection Authority guidelines and where applicable, detail remediation methodologies in accordance with Australian Standards and other relevant government guidelines and codes of practice.~~ ~~Remediation would be performed as an integrated component of construction and to a standard commensurate with the proposed end use of the land.~~ ~~Construction areas requiring a RAP would be confirmed following the additional data review (mitigation measure C1) and Detailed Site Investigation (mitigation measure C2), however on the basis of this Preliminary Site Investigation, it is anticipated that a Remedial Action Plan and remediation could be required to manage contaminated fill materials at the project site.~~ **Areas identified to have a moderate potential contamination risk would be managed in accordance with an unexpected finds protocol.** **The unexpected finds protocol would detail management works required to mitigate impacts from contamination (if encountered) throughout and following completion of construction. The unexpected finds protocol would be prepared in accordance with relevant NSW EPA guidelines and where applicable, detail management methodologies in accordance with Australian Standards and other relevant Australian and NSW government guidelines and codes of practice. The unexpected finds protocol would detail generic management measures associated with unexpected finds and more specific measures around the following:** • Asbestos finds during excavation works • Localised contamination (if present) underlying areas of waste materials in Areas 1 and 2 • Removal requirements should the underground storage tank potentially located within Area 4 be uncovered during excavation works • Monitoring requirements within excavations (LEL monitoring) to assess the risk (if any) associated with ground gas in the vicinity of the western boundary. **Any management of contamination encountered in accordance with the unexpected finds protocol, would be performed as an integrated component of construction and to a standard commensurate with the proposed end use of the land.**	~~Dependant on the outcomes of mitigation measures C1 and C2, locations may include areas one to seven~~ **Construction areas 1 to 6**

Reference	Impact/issue	Mitigation measure	Applicable location
~~C4~~	~~Site Audit Statement~~	~~Where contamination is highly complex, such as where there is significant groundwater contamination; contamination associated with vapour; contamination that requires specialised remediation techniques; or contamination that requires ongoing active management during and beyond construction, an accredited Site Auditor would review and approve the RAP and remediation activities and would develop a Site Audit Statement (SAS) and Site Audit Report (SAR) upon completion of remediation.~~ ~~The requirement for auditor involvement would be confirmed following the completion of the Detailed Site Investigation (mitigation measure C2) and prior to the preparation of the RAP (mitigation measure C3).~~	~~Dependent on outcomes of the C1, C2and C3,locations may include areas one to seven~~
C5	Residual contamination following construction	Ongoing management and monitoring measures would be documented in an appropriate form and implemented for any areas where minor, residual contamination remains following construction.	As applicable
Operation			
C6	Accidental leaks or spills during operation	The Operational Environmental Management Plan would include an Emergency Response Plan which would specify the procedure to be followed in the event of a spill, including the notification requirements and use of absorbent material to contain the spill.	All areas
Groundwater and geology			
Construction			
GW1	Contamination of groundwater during construction	Any stormwater, seepage or intercepted groundwater from earthworks, stockpiling and other construction areas would be collected and tested prior to re use, off-site discharge or disposal as appropriate. Water quality testing would include pH (acidity), salinity and potential contamination parameters.	All
Operation			
GW2	Contamination of groundwater during operation	A geotechnical assessment, contamination assessment and earthworks design would ensure that long term leaching of excavated materials (such as acid rock drainage from Bringelly Shale and saline soil and rock) does not pose a risk to groundwater.	All
GW3	Contamination of groundwater during operation	The Operational Environmental Management Plan would be implemented including appropriate procedures for storage of hazardous materials, refuelling, spill prevention and spill response.	All

Reference	Impact/issue	Mitigation measure	Applicable location
Flooding and hydrogeology			
Operation			
FH1	Flood behaviour	On-site stormwater detention would be provided for the project site to manage rainfall runoff rates and volumes due to increased imperviousness of the project site and changes to sub catchment boundaries.	All
Socio-economic			
Construction			
SE1	Impacts on business and social infrastructure	Consultation would be carried out with managers of potentially impacted businesses and social infrastructure about the timing and duration of construction works and management of potential impacts, with the aim of minimising potential disruption to the use of businesses and social infrastructure from construction activities. This includes, but is not limited to: • Sydney Dragway • Sydney Motorsport Park (operated by the Australian Racing Drivers Club) • Businesses within and surrounding land leased by Sydney Dragway • Motorsports facilities within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports • Western Sydney Parklands Trust.	All
SE2	Impacts on clubs that use land impacted by the project	Consultation as part of the **masterplanning process for the** motorsport precinct ~~Masterplan~~ would aim to provide an appropriate venue for all existing motorsport users in the precinct. **The masterplan process is outside the scope of the Environmental Impact Statement.**	All
Property and land use			
There are no mitigation measures specific to property and land use. Potential impacts would be appropriately mitigated through the implementation of measures specific to air quality, noise and visual amenity.			
Hazards			
Construction			
H1	Impacts on underground utilities	Dial before you dig searches and non-destructive digging would be carried out to identify the presence of underground utilities.	All

Reference	Impact/issue	Mitigation measure	Applicable location
Operation			
H2	Proper handling of dangerous goods	Handling of dangerous goods would be carried out in accordance with the *Storage and Handling of Dangerous Goods Code of Practice* (WorkCover NSW, 2005).	All
H3	Storage of flammable liquids	Storage of flammable/combustible liquids within the project site would be carried out in accordance with *Australian Standard AS 1940: The Storage and Handling of Flammable and Combustible Liquids*. Secondary containment measures would be implemented in a location away from waterways and drainage paths/infrastructure.	All
H4	Management of operational hazards and risks	An Operational Hazard and Risk Management Plan would be developed for the project site and implemented as part of the OEMP for the project. This plan would be reviewed regularly and updated should goods entering the project site change. As a minimum, the plan would adopt the requirements of the *Code of Practice for Storage and Handling of Dangerous Goods* (WorkCover NSW, 2005).	All
Greenhouse gases and energy			
Design			
GHG1	Energy efficiency	Energy efficiency would be considered further during detailed design development, with energy efficient systems installed where feasible and reasonable. This would include consideration to the use of motion sensor activated and/or independent solar powered CCTV systems and LED lighting technology.	All
GHG2	Emissions of greenhouse gases during operation	Opportunities to optimise the project design to minimise greenhouse gas emissions during operation would be considered as part of further design development, including considerations relating to: • Track design to minimise ongoing plant maintenance • Waste management strategy and design to minimise waste to landfill during operation.	All
Climate change adaptation			
Design			
CC1	Climate change risks	Climate change risk treatments would be confirmed and incorporated into the detailed design.	

Reference	Impact/issue	Mitigation measure	Applicable location
Waste management and resource use			
Construction			
WM1	Compliance with legislative and policy requirements	All waste would be assessed, classified, managed, transported and disposed of in accordance with the *Waste Classification Guidelines (Environment Protection Authority, 2014).*	All
WM2	Waste minimisation	Construction waste would be minimised by accurately calculating materials brought to the project site and limiting materials packaging.	All
WM3	Reuse and recycling	Waste streams would be segregated to avoid cross contamination of materials and maximise reuse and recycling opportunities.	All
WM4	Waste tracking	A materials tracking system would be implemented for material transferred to offsite locations such as licensed waste management facilities.	All
Cumulative impacts			
C1	Potential cumulative construction traffic impacts	Coordination and consultation with the proponents of other relevant projects and other parts of Transport for NSW, including Transport Coordination, would occur where required to manage the interface of projects under construction at the same time. Coordination and consultation with these stakeholders would include: • Provision of regular updates to the detailed construction program, construction sites and haul routes • Identification of key potential conflict points with other construction projects • Developing mitigation strategies in order to manage conflicts including coordination of traffic management arrangements between projects.	All

9 Conclusion and next steps

This chapter provides a conclusion to this Submissions Report and outlines the next steps in the planning approval process for the Sydney International Speedway.

Sydney International Speedway has been assessed as State significant infrastructure in accordance with the provisions under Division 5.2 of Part 5 of the EP&A Act. An Environmental Impact Statement that addresses the requirements of the Secretary of the Department of Planning, Industry and Environment was prepared and placed on exhibition from 19 August 2020 to 16 September 2020. Submissions were invited from the community, Government agencies and other key stakeholders.

The receipt of submissions was coordinated and managed by the Department of Planning, Industry and Environment.

A total of 37 submissions were received by the Department in response to the Environmental Impact Statement during the exhibition period, consisting of 24 community submissions and 13 government agency (including local councils) and other key stakeholders.

This Submissions Report presents responses to issues raised in submissions received during the exhibition of the Environmental Impact Statement.

An Amendment Report has also been prepared. The *Sydney International Speedway Amendment Report* (Sydney Metro, 2020) outlines the proposed amendments since the exhibition of the Environmental Impact Statement and the associated additional environmental assessment. Where relevant, clarifications to the Environmental Impact Statement and responses to submissions have reflected those proposed amendments.

The Department of Planning, Industry and Environment will consider the Environmental Impact Statement and submissions received, this Submissions Report and the Amendment Report during its assessment of the Sydney International Speedway.

The Secretary of the Department of Planning, Industry and Environment will prepare an environmental assessment report in accordance with Section 5.18 of the EP&A Act. The NSW Minister for Planning and Public Spaces (or their delegate) will then decide whether or not to approve Sydney International Speedway and identify any conditions of approval that would apply. The Minister's (or their delegate's) determination (including any conditions of approval and the Environmental Assessment Report) would be published on the Department of Planning, Industry and Environment Major Projects website. Sydney Metro would continue to consult with community members, government agencies and stakeholders during the detailed design and construction phases of the project to minimise potential impacts on the local environment and community.

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10 References

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Appendix A – Construction Noise and Vibration Standard

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Integrated Management System

Sydney Metro Construction Noise and Vibration Standard

SM-20-00098866

Sydney Metro Integrated Management System (IMS)

Applicable to:	Sydney Metro West
Author:	Sydney Metro
System owner:	Sydney Metro
Status:	Final
Version:	4.2
Date of issue:	08/09/2020
Security classification:	Open Access

Table of Contents

1. PURPOSE AND SCOPE

This Standard applies to all Sydney Metro projects and covers all elements of the project lifecycle with the exception of operational activities. Additionally, this standard only applies to design activities insofar as design decisions affect construction-related noise and vibration impacts (such as route selection, at-grade or underground rail systems and tunnel depth).

1.1. Distribution and Use

This document may be used in the development of, or referred to in:

- Environmental Impact Assessment documents;
- Design and construction environmental management documents;
- Contract documents; or
- Approvals and licences (subject to the agreement of the relevant regulatory authority).

1.2. Strategic Objectives

Sydney Metro recognise that sources of Noise and Vibration originating from our activities have a significant impact to local communities. We have adopted several strategic objectives to understand and manage these impacts:

- Applying a risk-based approach and implementing an appropriate hierarchy of controls at each stage of the project lifecycle to minimise impacts.
- Building an approach to reducing Noise and Vibration risks within each stage of the project lifecycle through active collaboration with internal and external stakeholders.
- Developing a clear understanding of our Construction Noise and Vibration Impacts and applying best practice management techniques.
- Valuing genuine community engagement that is sensitive to the needs and expectations of local communities and businesses.
- Committing to the continual improvement of Noise and Vibration management.

1.3. Construction Noise and Vibration Terminology

Decibel (dB): Decibel, often expressed as an 'A – weighted' sound pressure level, which has been found to correlate well with human subjective reactions to moderate noise levels. For steady, broadband noise, an increase or decrease of approximately 10 dB corresponds to a subjective doubling or halving of the loudness and a change of 2 to 3 dB is subjectively barely perceptible.

Sound Pressure Level (SPL or Lp): Expressed in dB, it is the level of noise measured by a standard sound level meter. It must be accompanied by a description of the measurement distance from the source, if used in any noise predictions or calculations. In a free field (eg outside on flat ground), each doubling of distance results in approximately 6dB reduction in airborne sound pressure level due to distance attenuation.

Sound Power Level (SWL or Lw): Expressed in dB, it is the total acoustic energy radiated by a plant or equipment to the environment. Sound power level is independent of distance from the source of the noise.

Rating Background Level (RBL): Rating background level is the overall single-figure background level representing each assessment period (day/evening/night) over a measurement period. As defined in the EPA "Noise Policy for Industry" dated October 2017.

Vibration: Vibration may be expressed in terms of displacement, velocity and acceleration. Velocity (mm/s), acceleration (m/s^2) and Vibration Dose Value (VDV, $m/s^{1.75}$) are most commonly used when assessing human comfort issues respectively. Peak Particle Velocity (PPV, mm/s) is typically used to assess impacts on structures.

Ground borne noise and Structure-borne noise: The transmission of noise energy as vibration travelling through the ground and / or structures and re-radiated as audible noise.

The three primary noise metrics used to describe construction noise emissions in the modelling and assessments are:

$L_{A1(1minute)}$ The typical 'maximum noise level for an event', used in the assessment of potential sleep disturbance during night-time periods. Alternatively, assessment may be conducted using the L_{Amax} or maximum noise level

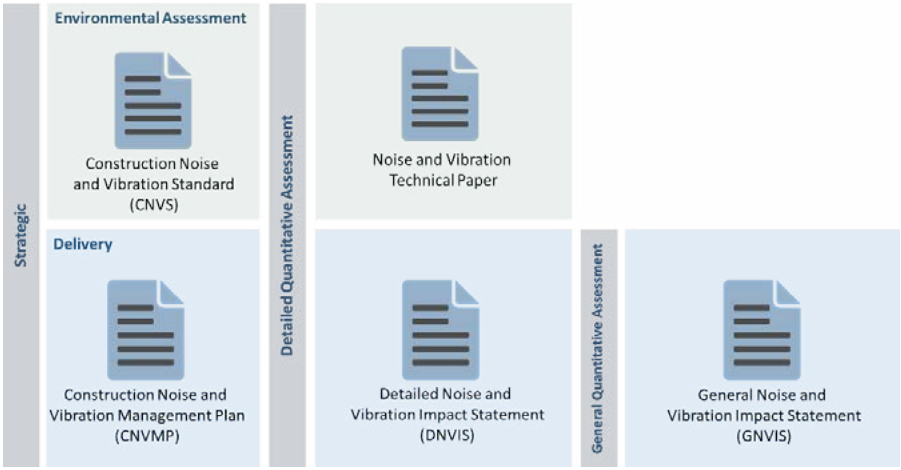
$L_{Aeq(15minute)}$ The 'energy average noise level' evaluated over a 15-minute period. This parameter is used to assess the potential construction noise impacts.

L_{A90} The 'background noise level' in the absence of construction activities. This parameter represents the average minimum noise level during the daytime, evening and night-time periods respectively. The LAeq(15minute) construction noise management levels are based on the LA90 background noise levels.

1.4. Documentation Framework

There are five main documents (**Figure 1**) which comprise the noise and vibration documentation framework. Together they provide a comprehensive approach to the assessment and delivery of works which generate noise and vibration while mitigating the impacts.

Figure 1 - Noise and Vibration Documentation Framework



1.4.1. Construction Noise and Vibration Standard (CNVS)

The CNVS (this document) establishes a consistent strategy for the assessment, mitigation and monitoring of noise and vibration generated by construction activities. It defines a minimum standard for managing noise and vibration impacts that considers currently best practice guidelines and other regulatory requirements. It is included in all Sydney Metro Environmental Assessments.

1.4.2. Construction Noise and Vibration Management Plan (CNVMP)

Where works will cause significant noise and vibration impacts upon sensitive receivers Principal Contractors will be required to prepare and implement CNVMP's. These documents form part of the CEMP suite of documentation.

The function of the CNVMP is to provide a strategic overview of how the requirements of the CNVS will be applied to activities or locations under the control of the Principal Contractor. This overview includes an outline of how quantitative noise and vibration assessments will be undertaken across worksites and/or activities, and an indicative construction schedule.

The CNVMP also links to Community and Stakeholder consultation processes and explains how commercial and residential receivers will be consulted throughout the construction phase with regard to mitigating impacts upon them.

Further detail on the requirements for CNVMP's can be found in the Sydney Metro Construction Environmental Management Framework.

1.4.3. Noise and Vibration Technical Paper

The Noise and Vibration Technical Paper is produced as part of the Environmental Assessment carried out in the planning phase of Sydney Metro projects. This document is a Quantitative Noise Assessment based upon the information known at the time the assessment is undertaken and makes recommendations for mitigation.

Typically it will include a range of assumptions on equipment lists and construction methodologies on the basis of which the impact upon sensitive receivers will be determined. As such, these Quantitative Assessments are generally conservative and may over predict actual impacts during construction.

1.4.4. Detailed Noise and Vibration Impact Statements (DNVIS)

While quantitative noise assessments are documented in environmental assessments, Principal Contractors will have a better understanding of the exact equipment list and construction methodology to be used in carrying out their works. As a result, certain assumptions made in the Noise and Vibration Technical Paper can be clarified in a secondary quantitative assessment undertaken by the Principal Contractor. These documents are called Detailed Noise and Vibration Impact Statements.

They are typically written with a focus on specific activities or locations and consider works carried out inside and outside of standard working hours.

Where 24/7 works are approved under an SSI approval, a separate DNVIS should be carried out specifically for these activities.

Work described in a DNVIS's cannot proceed until the DNVIS is approved by an Acoustic Advisor appointed under an SSI approval or other delegate approved by Sydney Metro. Should the scope of work or the timing of works change, the Principal contractor must update the DNVIS and seek subsequent approval for the new version. See **Section 3.1** for more detail on DNVIS's.

1.4.5. General Noise and Vibration Impact Statements (GNVIS)

General Noise and Vibration Impact Statements are also secondary assessments and have the same purpose as DNVIS's except that the assessment process is simplified. A GNVIS may be undertaken for works not being carried out under an SSI Approval.

Work described in a GNVIS's cannot proceed until the GNVIS is approved by Sydney Metro. Should the scope of work or the timing of works change, the Principal contractor must update the GNVIS and seek subsequent approval for the new version. See **Section 3.2** for more detail on GNVIS's.

2. NOISE AND VIBRATION GUIDELINES

2.1. Construction Hours

Where possible, works will be completed during the standard day time construction hours of Monday to Friday 7.00 am to 6.00 pm and Saturdays 8.00 am to 1.00 pm. However, the nature of infrastructure projects means evening and night works are likely to be required throughout construction due to various considerations including avoiding sensitive periods for sensitive receivers, delivery of oversized plant or structures, emergency works, or other activities that require the temporary closure of roads. In some cases these standard working hours may be varied by the project planning approval in recognition that works will need to be consistently undertaken during certain times such as morning shoulders or Saturday afternoons. For other situations the impacts of works outside standard construction hours will be approved via updates to the relevant activities DNVIS or GNVIS.

In other cases there may be a need to assess activities that require 24 hour working for a significant portion of the construction period. Examples of construction scenarios that will require 24/7 works include:

- Excavation of station shafts;
- Truck movements to manage spoil;
- Excavation of the station caverns;
- Operation of tunnel boring machines; or
- Spoil removal and transport from site.

Works requiring 24/7 activity are usually proposed in the environmental assessment and will be subsequently assessed in a secondary quantitative assessment during delivery. Where the need for 24 hours works arises post approval, a consistency assessment would be undertaken to determine if a modification to the planning approval is required.

2.2. Construction Noise Management Levels (NML)

Construction Noise Management Levels (NML) for all Sydney Metro projects are determined in accordance with the EPA's *Interim Construction Noise Guideline* dated July 2009 (ICNG) unless the planning approval recommends an alternate approach, or sets different NMLs. The following sections supplement this guideline with respect to Sydney Metro projects.

2.2.1. Residences and Other Sensitive Land Uses

Noise Management Levels and how they are applied is set out in **Table 1.** This approach is intended to provide respite for residents exposed to excessive construction noise whilst allowing construction to occur without undue constraints.

The Rating Background Level (RBL) is used when determining the management level and is the overall single-figure background noise level measured in each relevant assessment period (as defined in the EPA's *Noise Policy for Industry* dated October 2017).

Table 1: Noise Management Levels for different times of day and considerations on their application

Time of Day	Noise Management Level L_{Aeq} (15minute)[1]	Management Considerations
Recommended standard hours: Monday to Friday 7.00 am to 6.00 pm Saturday 8.00 am to 1.00 pm	Noise affected RBL + 10 dB	The noise affected level represents the point above which there may be some community reaction to noise. Where the predicted or measured L_{Aeq} (15minute) is greater than the noise affected level, the proponent would apply all feasible and reasonable work practices to minimise noise. The proponent would also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75 dB	The highly noise affected level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the proponent would consider very carefully if there is any other feasible and reasonable way to reduce noise to below this level. If no quieter work method is feasible and reasonable, and the works proceed, the proponent would communicate with the impacted residents by clearly explaining the duration and noise level of the works, and by describing any respite periods that will be provided.
Outside recommended standard hours	Noise affected RBL + 5 dB	A strong justification would typically be required for works outside the recommended standard hours. The proponent would apply all feasible and reasonable work practices to meet the noise affected level. Where all feasible and reasonable practices have been applied and noise is more than 5 dBA above the noise affected level, the proponent would negotiate with the community. For guidance on negotiating agreements see Section 7.2.2 of the ICNG.

Note 1: Noise levels apply at the property boundary that is most exposed to construction noise. If the property boundary is more than 30 m from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 m of the residence.

Non mandatory management levels for noise near properties which are sensitive to Noise Impacts are presented in **Table 2.** These values are set and based on the principle that the characteristic activities for each would not be unduly disturbed. The noise management levels apply only when the property is being used, for example, classrooms during school hours. Internal noise levels are to be assessed at the centre of the occupied room. External noise levels are to be assessed at the most-affected point within 50 m of the area boundary.

Table 2: Noise Management Levels for certain sensitive receivers

Land Use	Management Level, L_{Aeq} (15minute) (Applies When Land Use is being Utilised)
Classrooms at schools and other educational institutions	Internal noise level 45 dB
Hospital wards and operating theatres	Internal noise level 45 dB
Places of worship	Internal noise level 45 dB
Active recreation areas (such as parks and sports grounds or playgrounds)	External noise level 65 dB
Passive recreation areas (such as outdoor grounds used for teaching, outdoor cafes or restaurants)	External noise level 60 dB

Other noise-sensitive businesses require separate specific noise goals and it is suggested in the ICNG that the internal construction noise levels at these premises are to be referenced to the 'maximum' internal levels presented in AS 2107. Recommended 'maximum' internal noise levels from AS 2107 are reproduced in **Table 3** for other sensitive receiver types.

However, the ICNG and AS 2107 do not provide specific criteria for childcare centres. Childcare centres generally have internal play areas and sleep areas. For these facilities, where feasible and reasonable the objective should be to achieve levels for sleeping of 45 dB(A) (consistent with hospital wards/places of worship) and for play areas of 65 dB(A) (consistent with playgrounds).

Table 3 AS 2107 Recommended Maximum Internal Noise Levels

Land Use	Time Period	AS 2107 Classification	Recommended "Maximum" Internal LAeq (dBA)
Hotel	Daytime & Evening	Bars and Lounges	50 dB
	Night-time	Sleeping Areas: - Hotels near major roads	40 dB
Café	When in use	Coffee bar	50 dB
Bar/Restaurant	When in use	Bars and Lounges / Restaurant	50 dB
Library	When in use	Reading Areas	45 dB
Recording Studio	When in use	Music Recording Studios	25 dB
Theatre / Auditorium	When in use	Drama Theatres	30 dB

2.2.2. Commercial and Industrial Premises

Due to the broad range of sensitivities that commercial or industrial land can have to noise from construction, the process of defining Noise Management Levels is separated into three categories. The external noise levels would be assessed at the most-affected occupied point of the premises:

- Industrial premises (external): 75 dB $L_{Aeq(15minute)}$
- Offices, retail outlets (external): 70 dB $L_{Aeq(15minute)}$
- Other businesses that may be very sensitive to noise, where the noise level is project specific as discussed below.

Examples of other noise-sensitive businesses are theatres, studios and child care centres. The proponent would undertake a special investigation to determine suitable noise levels on a project-by-project basis; the recommended internal noise levels presented in Table 1 of AS 2107 "Acoustics - Recommended design sound levels and reverberation times for building interiors" (Standards Australia 2000) may assist in determining relevant noise levels; however, an acoustic consultant would be engaged in order to determine corresponding external noise levels based on the published internal noise levels. The proponent would assess construction noise levels for the project, and consult with occupants of commercial and industrial premises prior to lodging an application where required. During construction, the proponent would regularly update the occupants of the commercial and industrial premises regarding noise levels and hours of work.

2.3. Ground-Borne Vibration

The effects of vibration in buildings can be divided into three main categories; those in which the occupants or users of the building are inconvenienced or possibly disturbed, those where the building contents may be affected and those in which the integrity of the building or the structure itself may be prejudiced.

2.3.1. Human Comfort Vibration

The DECCW's "Assessing Vibration: a technical guideline" dated February 2006 (DEC, 2006) recommends the use of BS 6472-1992 for the purpose of assessing vibration in relation to human comfort.

British Standard 6472-1992 "*Guide to evaluation of human exposure to vibration in building*" nominates guideline values for various categories of disturbance, the most stringent of which are the levels of building vibration associated with a "low probability of adverse comment" from occupants.

BS 6472-1992 provides guideline values for continuous, transient and intermittent events that are based on a Vibration Dose Value (VDV), rather than a continuous vibration level. The vibration dose value is dependent upon the level and duration of the short term vibration event, as well as the number of events occurring during the daytime or night-time period.

The vibration dose values recommended in BS 6472-1992 for which various levels of adverse comment from occupants may be expected are presented in **Table 4**.

Table 4: Vibration Dose Value Ranges above which various degrees of Adverse Comment may be expected in Residential Buildings

Place and Time	Low Probability of Adverse Comment ($m/s^{1.75}$)	Adverse Comment Possible ($m/s^{1.75}$)	Adverse Comment Probable ($m/s^{1.75}$)
Residential buildings 16 hr day	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Residential buildings 8 hr night	0.13	0.26	0.51

2.3.2. Structural Damage Vibration

Most commonly specified 'safe' structural vibration limits are designed to minimise the risk of threshold or cosmetic surface cracks, and are set well below the levels that have potential to cause damage to the main structure.

In terms of the most recent relevant vibration damage goals, Australian Standard AS 2187: Part 2-2006 'Explosives - Storage and Use - Part 2: Use of Explosives' recommends the frequency dependent guideline values and assessment methods given in BS 7385 Part 2-1993 'Evaluation and measurement for vibration in buildings Part 2' as they "are applicable to Australian conditions".

The Standard sets guide values for building vibration based on the lowest vibration levels above which damage has been credibly demonstrated. These levels are judged to give a minimum risk of vibration induced damage, where minimal risk for a named effect is usually taken as a 95% probability of no effect.

Sources of vibration that are considered in the standard include demolition, blasting (carried out during mineral extraction or construction excavation), piling, ground treatments (e.g. compaction), construction equipment, tunnelling, road and rail traffic and industrial machinery.

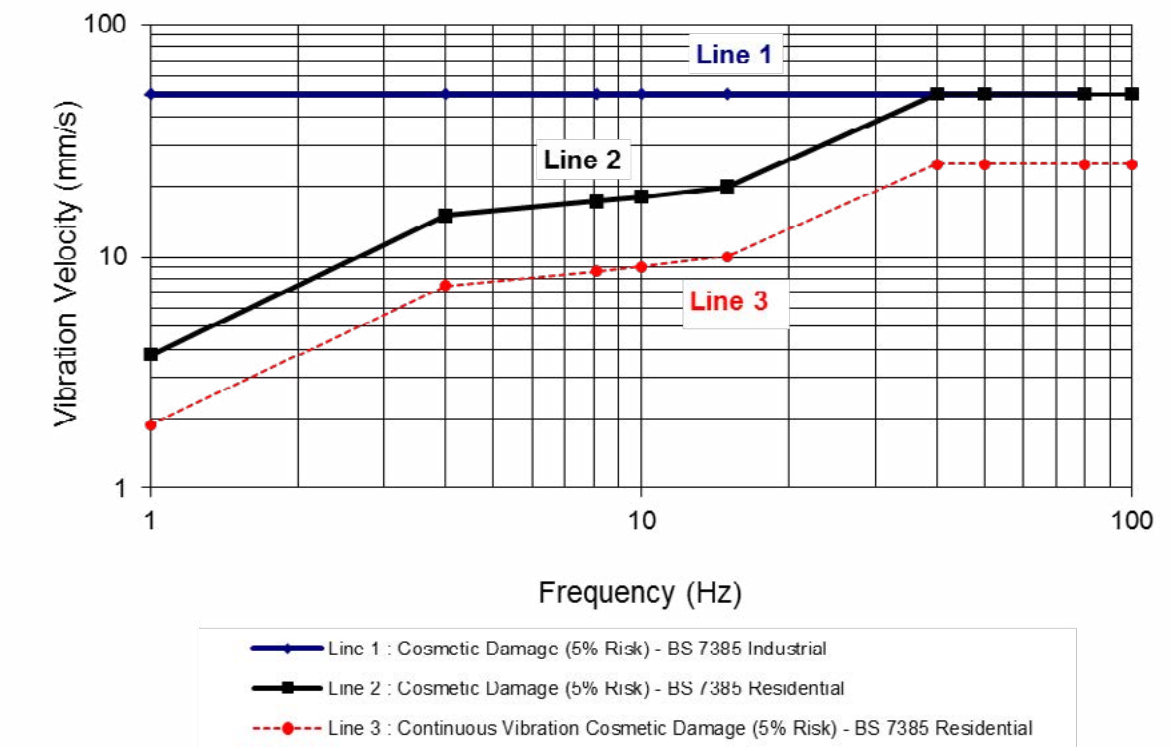
2.3.3. Cosmetic Damage Vibration

The recommended limits (guide values) for transient vibration to ensure minimal risk of cosmetic damage to residential and industrial buildings are presented numerically in **Table 5** and graphically in **Figure 2**.

Table 5: Transient Vibration Guide Values - Minimal Risk of Cosmetic Damage

Line	Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
		4 Hz to 15 Hz	15 Hz and Above
1	Reinforced or framed structures Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
2	Unreinforced or light framed structures Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Figure 2: Graph of Transient Vibration Guide Values for Cosmetic Damage



The Standard goes on to state that minor damage is possible at vibration magnitudes which are greater than twice those given in **Table 5**, and major damage to a building structure may occur at values greater than four times the tabulated values.

Fatigue considerations are also addressed in the Standard and it is concluded that unless calculation indicates that the magnitude and number of load reversals is significant (in respect of the fatigue life of building materials) then the guide values in **Table 5** would not be reduced for fatigue considerations.

In order to assess the likelihood of cosmetic damage due to vibration, AS2187 specifies that vibration measured would be undertaken at the base of the building and the highest of the orthogonal vibration components (transverse, longitudinal and vertical directions) would be compared with the guidance curves presented in **Figure 2**.

It is noteworthy that extra to the guide values nominated in **Table 5**, the standard states that:

> *"Some data suggests that the probability of damage tends towards zero at 12.5 mm/s peak component particle velocity. This is not inconsistent with an extensive review of the case history information available in the UK."*

Also that:

> *"A building of historical value should not (unless it is structurally unsound) be assumed to be more sensitive."*

2.4. General Vibration Screening Criterion

The Standard states that the guide values in **Table 5** relate predominantly to transient vibration which does not give rise to resonant responses in structures and low-rise buildings.

Where the dynamic loading caused by continuous vibration may give rise to dynamic magnification due to resonance, especially at the lower frequencies where lower guide values apply, then the guide values in **Table 5** may need to be reduced by up to 50%.

Note: rock breaking/hammering and sheet piling activities are considered to have the potential to cause dynamic loading in some structures (e.g. residences) and it may therefore be appropriate to reduce the transient values by 50%.

Therefore for most construction activities involving intermittent vibration sources such as rock breakers, piling rigs, vibratory rollers, excavators and the like, the predominant vibration energy occurs at frequencies greater than 4 Hz (and usually in the 10 Hz to 100 Hz range). On this basis, a conservative vibration damage screening level per receiver type is given below:

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

At locations where the predicted and/or measured vibration levels are greater than shown above (peak component particle velocity), a more detailed analysis of the building structure, vibration source, dominant frequencies and dynamic characteristics of the structure would be required to determine the applicable safe vibration level.

2.5. Guidelines for Vibration Sensitive and Special Structures

2.5.1. Heritage

Heritage buildings and structures would be assessed as per the screening criteria in **Section 2.4** as they should not be assumed to be more sensitive to vibration unless they are found to be structurally unsound. If a heritage building or structure is found to be structurally unsound (following inspection) a more conservative cosmetic damage criteria of 2.5 mm/s peak component particle velocity (from DIN 4150) would be considered.

2.5.2. Sensitive Scientific and Medical Equipment

Some scientific equipment (e.g. electron microscopes and microelectronics manufacturing equipment) can require more stringent objectives than those applicable to human comfort.

Where it has been identified that vibration sensitive scientific and/or medical instruments are likely to be in use inside the premises of an identified vibration sensitive receiver, objectives for the satisfactory operation of the instrument would be sourced from manufacturer's data. Where manufacturer's data is not available, generic vibration criterion (VC) curves as published by the Society of Photo-Optical Instrumentation Engineers (Colin G. Gordon - 28 September 1999) may be adopted as vibration goals. These generic VC curves are presented below in **Table 6** and **Figure 3**.

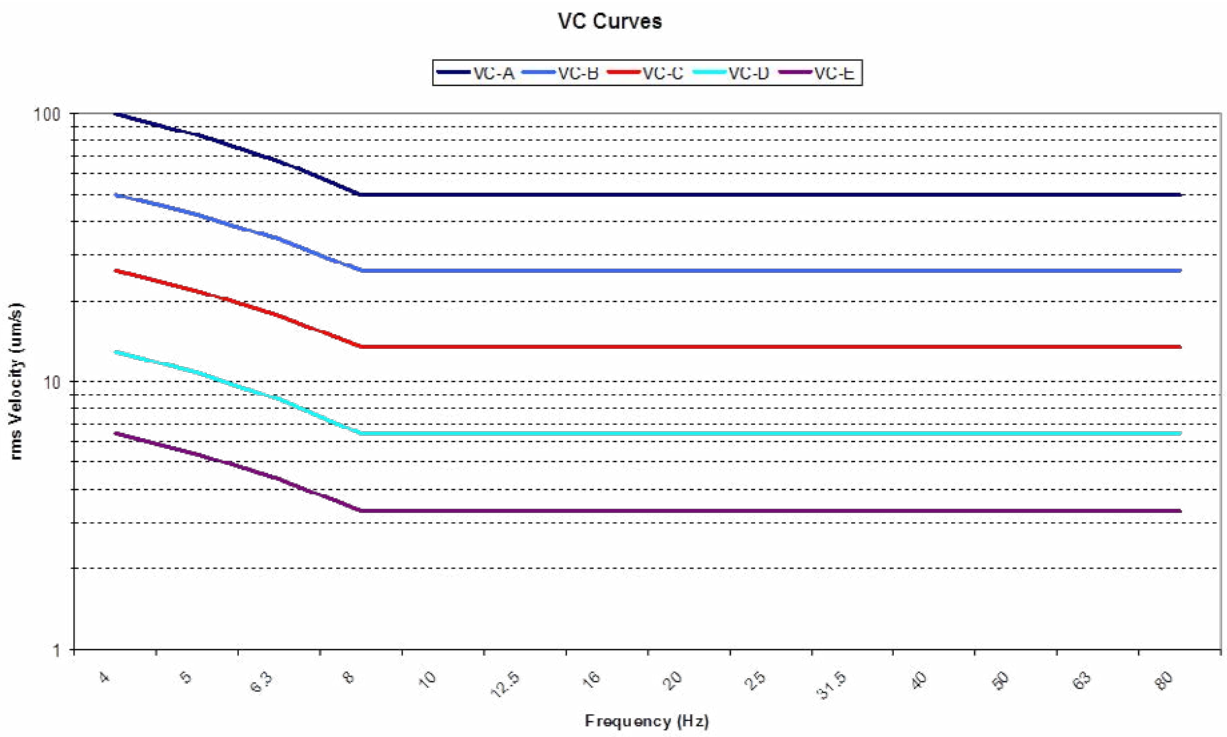
Table 6: Application and Interpretation of the Generic Vibration Criterion (VC) Curves (as shown in Figure 3)

Criterion Curve	Max Level (µm/sec, rms)[1]	Detail Size (microns)[2]	Description of Use
VC-A	50	8	Adequate in most instances for optical microscopes to 400X, microbalances, optical balances, proximity and projection aligners, etc.
VC-B	25	3	An appropriate standard for optical microscopes to 1000X, inspection and lithography equipment (including steppers) to 3 micron line widths.
VC-C	12.5	1	A good standard for most lithography and inspection equipment to 1 micron detail size.
VC-D	6	0.3	Suitable in most instances for the most demanding equipment including electron microscopes (TEMs and SEMs) and E-Beam systems, operating to the limits of their capability.
VC-E	3	0.1	A difficult criterion to achieve in most instances. Assumed to be adequate for the most demanding of sensitive systems including long path, laser-based, small target systems and other systems requiring extraordinary dynamic stability.

Note 1: As measured in one-third octave bands of frequency over the frequency range 8 to 100 Hz.

Note 2: The detail size refers to the line widths for microelectronics fabrication, the particle (cell) size for medical and pharmaceutical research, etc. The values given take into account the observation requirements of many items depend upon the detail size of the process.

Figure 3: Vibration Criterion (VC) Curves



2.5.3. Other Vibration Sensitive Structures and Utilities

Where structures and utilities are encountered which may be considered to be particularly sensitive to vibration, a vibration goal which is more stringent than structural damage goals presented in **Section 2.4** may need to be adopted. Examples of such structures and utilities include:

- Tunnels
- Gas pipelines
- Fibre optic cables

Specific vibration goals would be determined on a case-by-case basis. An acoustic consultant would be engaged by the construction contractor and would liaise with the structure or utility's owner in order to determine acceptable vibration levels.

2.6. Vibration and Overpressure from Blasting

The DECC's ICNG recommends that vibration and overpressure from blasting be assessed against the levels presented in the Australian and New Zealand Environment Council's (ANZEC) Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration (ANZEC, 1990).

The criteria set by this standard were based on practices undertaken more than 30 years ago and were targeted at operations that occur for long periods of time such as those at mining sites and hence are targeted at protecting human comfort vibration levels. As a result the vibration levels are conservative and can introduce unnecessary constraints when applied to construction projects which typically occur for much shorter time periods. Recent NSW infrastructure project approvals have recognised the restrictive nature of these blasting criteria when applied to construction projects and have therefore allowed the following vibration and overpressure limits:

- Vibration (PPV): 25 mm/s
- Overpressure: 125 dBL

These upper limits are deemed acceptable where the proponent has a written agreement with the relevant landowner to exceed the criteria and the Secretary has approved the terms of the written agreement. These upper limits to vibration and overpressure are intended to target the protection of building structures from cosmetic damage rather than human comfort criteria as construction works are considered short-term.

2.7. Ground-Borne (Regenerated) Noise

Ground-borne (regenerated) noise is noise generated by vibration transmitted through the ground into a structure. Ground-borne noise caused, for example by underground works such as tunnelling, can be more noticeable than airborne noise. The following ground-borne noise levels for residences are nominated in the ICNG and indicate when management actions would be implemented. These levels recognise the temporary nature of construction and are only applicable when ground-borne noise levels are higher than airborne noise levels. Any levels exceeding objectives should be considered in the context of any existing exposure to ground-borne noise.

The ground-borne noise management levels are given below:

- Evening (6.00 pm to 10.00 pm)
  Internal Residential: 40 dB $L_{Aeq(15minute)}$
- Night-time (10.00 pm to 7.00 am)
  Internal Residential: 35 dB $L_{Aeq(15minute)}$

The evening and night-time criteria are only applicable to residential receivers.

The internal noise levels are to be assessed at the centre of the most-affected habitable room. For a limited number of discrete, ongoing ground-borne noise events, such as drilling or rock-hammering, The L_{Amax} noise descriptor using a slow response on the sound level meter may be better than the L_{Aeq} noise descriptor (15 min) in describing the noise impacts. The level of mitigation of ground-borne noise would depend on the extent of impacts and also on the scale and duration of works. Any restriction on the days when construction work is allowed would take into account whether the community:

- Has identified times of day when they are more sensitive to noise (for example Sundays or public holidays).
- Is prepared to accept a longer construction duration in exchange for days of respite.

2.8. Traffic Noise Assessment Goals

When trucks and other vehicles are operating within the boundaries of the various construction sites, road vehicle noise contributions are included in the overall predicted $L_{Aeq(15minute)}$ construction site noise emissions. When construction related traffic moves onto the public road network a different noise assessment methodology is appropriate, as vehicle movements would be regarded as 'additional road traffic' rather than as part of the construction site.

The ICNG does not provide specific guidance in relation to acceptable noise levels associated with construction traffic. For assessment purposes, guidance is taken from the RNP.

One of the objectives of the RNP is to apply relevant permissible noise increase criteria to protect sensitive receivers against excessive decreases in amenity as the result of a proposal. In assessing feasible and reasonable mitigation measures, an increase of up to 2 dB represents a minor impact that is considered barely perceptible to the average person.

On this basis, construction traffic NMLs set at 2 dB above the existing road traffic noise levels during the daytime and night-time periods are considered appropriate to identify the onset of potential noise impacts. Where the road traffic noise levels are predicted to increase by more than 2 dB as a result of construction traffic, consideration would be given to applying feasible and reasonable noise mitigation measures to reduce the potential noise impacts and preserve acoustic amenity.

In considering feasible and reasonable mitigation measures where the relevant noise increase is greater than 2 dB, consideration would also be given to the actual noise levels associated with construction traffic and whether or not these levels comply with the following road traffic noise criteria in the RNP:

- 60 dB $L_{Aeq(15hour)}$ day and 55 dB $L_{Aeq(9hour)}$ night for existing freeway/ arterial/ sub-arterial roads.
- 55 dB $L_{Aeq(1hour)}$ day and 50 dB $L_{Aeq(1hour)}$ night for existing local roads.

2.9. Sleep Disturbance and Maximum Noise Events

Maximum noise level events from construction activities during the night-time period can trigger both awakenings and disturbance to sleep stages. The approach to managing events that cause sleep disturbance shall be consistent with the Noise Policy for Industry (EPA, 2017). Where night-time noise levels at a residential location exceed the:

- LAeq,15min 40 dB(A) or the prevailing RBL plus 5 dB, whichever is the greater, or the
- LAFmax 52 dB(A) or the prevailing RBL plus 15 dB, whichever is the greater,

a detailed maximum noise level event assessment is to be undertaken.

The detailed assessment will cover the maximum noise level, the extent to which the maximum noise level exceeds the RBL, and the number of times this happens during the night-time period.

Maximum noise level event assessments should be based on the LAFmax descriptor on an event basis under 'fast' time response. The detailed assessment will consider all feasible and reasonable noise mitigation measures with a goal of achieving the above trigger levels for night-time activities.

3. CONSTRUCTION NOISE & VIBRATION ASSESSMENT METHODOLOGY

There are planning processes at all levels of government that may apply to works carried out by Sydney Metro, some of these processes (particularly State and Federal planning processes) require a detailed Environmental Assessment of the construction phases for the proposal. As construction contractors are not typically appointed until later in a project's timeline, the exact construction methodology they will use for a particular project may not be known when the environmental assessment is being carried out (see Table 7).

With respect to the assessment of noise and vibration impacts in environmental assessments they are to include a detailed quantitative assessment that adopts conservative assumptions to account for uncertainty in the precise delivery methodology. In most circumstances the noise and vibration impacts predicted by an environmental assessment will overestimate real impacts during delivery. As a result, this strategy requires secondary quantitative assessments to be undertaken during delivery by the Principal Contractor to verify impacts and better inform how to mitigate impacts.

For construction works approved under Division 5.2 of the EP&A Act, further quantitative noise and vibration assessments will be undertaken for activities and/or locations where work will occur. These are called Detailed Noise and Vibration Impact Statements (DNVIS), and works subject to these assessments will not proceed until the DNVIS has been approved by an Acoustic Advisor appointed under an SSI approval, or where there is no SSI approval, approved by Sydney Metro. **Section 3.1** of this Standard provides information on the requirements for a DNVIS.

For construction works approved under any other planning approval pathway, the secondary quantitative noise assessment may take a less detailed approach and is referred to as a General Noise and Vibration Impact Assessment (GNVIS). **Section 3.2** of this Standard provides information on the requirements for a GNVIS.

In order to develop a comprehensive secondary assessment framework specific details of the construction methodology (including the size and type of equipment) is required. Detailed design, construction and engineering solutions are progressively developed and applied throughout the life-span of the project and consequently secondary assessments are to be updated to reflect changing design and/or construction methodologies. Secondary assessments may take one of two forms and each are updated when a change occurs:

- General Construction Activity for construction scenarios that are consistently the same and progressively move along the project alignment e.g. tunnelling, retaining walls.
- Location Specific for construction scenarios that are specific to a location.

How these statements are distributed across the scope of work is to be articulated in the Noise and Vibration Management Plan, or where one is not required, the CEMP.

In all cases the overriding objective of noise and vibration assessments is to firstly identify impact reduction techniques to reduce noise and vibration impacts below the NML using Standard Mitigation Measures (refer to **Section 4**) so that the reliance upon impact offset measures is removed or minimised (refer to **Section 5)**.

Table 7: Summary of Assessment Detail Required During the Various Stages of the Project

Assessment Input	Environmental Impact Statement / Environmental Assessment	In Delivery
Construction Scenarios / Equipment List	Construction scenarios defined by project team, based on potential construction methodologies known at the time.	Construction scenarios defined by construction team. These are expected to include finalised equipment lists, itemising the realistic worst-case plant proposed to be used at any one time, and in any one location.
Modelled works location	Works location by scenario (or group of scenarios) i.e. different locations for different works.	Works location by works scenario i.e. specific locations for each works.
Background noise monitoring	Background noise monitoring required to determine RBL and other noise metrics at locations representative of worst-affected receiver areas adjacent to the works areas.	Supplementary noise monitoring may be required to determine in more detail the RBL or other noise metrics required by the planning approval at locations representative of worst-affected receiver areas adjacent to the works areas where noise survey data is not current (i.e. more than 5 years old).
Study Area	The study area must, as a minimum, include receivers subjected to predicted $L_{Aeq(15minute)} \geq$ RBL+5dB for the applicable time period. Vibration level predictions up to 100m.	Predict noise and vibration levels to the sensitive receivers within the area surrounding the works, to include all receivers where the $L_{Aeq(15minute)} \geq$ RBL +5dB and the vibration screening criteria are exceeded during the applicable time periods.
Assessment of mitigation	Demonstration that assessment of this stage includes reasonable and feasible mitigation measures if required.	Based on these predictions the Construction Noise and Vibration Management Plan (CNVMP) shall identify all feasible and reasonable mitigation measures to minimise noise and vibration from construction. Sections 4 and 5 identify the standard and additional mitigation measures to be included where applicable in the CNVMP. Eg. Detailed vibration assessments to include dilapidation surveys, continuous vibration monitoring and accurate vibration transfer measurements (site law measurements) for all buildings with the potential to exceed the screening criteria for vibration.
Documentation	Environmental Assessment and associated documentation	Activity or location specific Construction Noise Impact Statements Construction Noise and Vibration Management Plans OOHW Applications

3.1. Detailed Noise and Vibration Impact Statements

For all DNVIS reports the noise impacts are to be assessed based on construction scenarios. A construction scenario relating to noise impact is essentially a construction activity which is made up of the required plant and equipment. A number of construction scenarios will make up any one DNVIS report. In undertaking an assessment of the noise impact from a construction scenario(s) the following steps are to be taken:

- Identify all Noise and Vibration Sensitive Receivers (NSRs) which may be affected by the project.
- Conduct background noise monitoring at representative NSRs to determine the rating background noise levels (RBLs) in accordance with the procedures presented in the EPA's Noise Policy for Industry, where RBLs have not been established in previous project stages.
- Determine the appropriate noise and vibration management levels of each NSR.
- Determine the source noise levels (Sound Power Levels) of each noise generating plant and equipment item required to undertake the construction scenario. Note: Sound Power Levels for each plant and equipment would be less than the maximum allowable levels found in Table 13 and Table 14.
- Clearly indicate which mitigation measures identified in Section 4 have been/are to be incorporated into the noise assessment. Noise mitigation measures to be implemented will vary for reasons such as safety and space constraints, these are to be identified and the calculations adjusted accordingly.
- For location specific construction scenarios and where applicable for generic scenarios, include the effects of noise shielding provided by site offices, residential fences, noise barriers or natural topographic features.
- Where applicable include the effects of noise reflections and ground attenuation.
- Calculate the L_{Aeq} noise or range of levels from construction scenarios at sensitive receiver groups, with the use of noise contour maps where appropriate and/or at 10 m, 25 m, 50 m, 75 m,100 m and 200 m for more general construction activities.
- Compare these against the goals identified for each NSR and identify predicted exceedances.
- For night-time activities, calculate exceedances over the:
  - LAeq,15min 40 dB(A) or the prevailing RBL plus 5 dB, whichever is the greater, and
  - LAFmax 52 dB(A) or the prevailing RBL plus 15 dB, whichever is the greater.

  Where exceedances are predicted to occur, undertake a detailed maximum noise level event assessment in accordance with the Noise Policy for Industry (EPA, 2017).
- On completion of all DNVIS reports for the subjective classification of the noise impact is to be evaluated and documented as:
  - Low Impact
  - Moderate Impact
  - High Impact

The classifications are to be determined on a case-by-case basis with consideration of the following points:

- The location of the works in relation to NSRs with consideration of noise attenuation features such as noise barriers including topographical features (earth-mounds), buildings, dividing fences etc (distance of works from sensitive receiver(s)).
- The type and sensitivity of the NSRs:
  - Low Impact: e.g. Commercial buildings/ Scattered Residential (low density)

  - Moderate Impact: e.g. Standard residential (typical density)
  - High Impact: e.g. Residential home for the elderly/high density unit blocks/persistent complainers/residents deemed to have "construction noise fatigue".
- Land use zoning and planning amenity objectives for the area.
- Construction and architectural design of impacted building, particularly the presence of any existing noise mitigation including that provided under a Noise Abatement Program or required by the ISEPP, Council DCP or other planning instrument.
- Existing ambient levels.
- The extent of noise exceedance above Noise Management Level.
- The likelihood for potential sleep disturbance RBL + 15 dB.
- The type of and intensity of noise emitted from works (i.e. tonal or impulsive):
  - Lower Impact: No high noise and/or vibration intensive activities
  - Moderate Impact: Short/intermittent high noise and/or vibration intensive activities
  - High Impact: Prolonged high noise and/or vibration intensive activities.
- The duration of any OOHW required.
- The time frames for any OOHW:
  - Lower Impact: 6.00 pm till 10.00 pm weekdays 1.00 pm till 10.00pm Saturdays 8.00 am till 6.00 pm Sundays or Public Holidays.
  - Moderate Impact: 10.00 pm to 7.00 am Weekday Nights 10.00 pm to 8.00 am Saturdays.
  - High Impact: 6.00 pm to 7.00 am Sundays and Public Holidays.
- As a result of noise classification and/or the noise level exceedances at sensitive receivers provided by the DNVIS reports, appropriate reasonable and feasible noise mitigation is to be adopted and implemented. For sites where works are predicted to significantly exceed noise goals and impact on receivers for a significant period of time, additional reasonable and feasible noise mitigation measures such as those outlined in Section 5 would be considered if practical to reduce the noise levels and impact on sensitive receivers.

3.2. General Noise and Vibration Impact Assessments

For works other than those carried out under an SSI Approval a more generalised approach is adopted to assess impacts, this is called a GNVIS. These assessments rely upon indicative Sound Power Level's from typical plant and equipment (Table 8), auditing of plant and equipment during delivery, and typical variables that modify the transmission of noise and vibration to determine a predicted impact at the most affected NSR.

Where a change occurs in relation to works described in a GNVIS, it will be updated and resubmitted to Sydney Metro for approval. For example, works during standard working hours being rescheduled outside standard working hours.

The first step in the GNVIS is to determine the relevant period of time during which the works will occur. This is either during standard working hours, or outside standard working hours

during daytime, evening or night. Depending on the timeframe there will be differing Noise Management Levels for the activity. Section 2.2 outlines how Noise Management levels (NML) are calculated.

Secondly, Table 8 is used to determine the Sound Power Level (SWL) of the Noisiest piece of Plant or Equipment. Each piece of plant or equipment is required by this standard to be audited regularly and the SWL confirmed to fall within the range indicated in Table 13 or Table 14.

Table 8 - Indicative SWL's for GNVIS Assessments

Plant/Equipment Noise Level at 10m		dBA
Including non-continuous use reduction (-5dBA) and annoying activity penalty (+5dBA) for as per ICNG (refer to ICNG Appendix B for predicted noise level data).	Impact sheet piling rig	100
	Hand-held tamper, excavator with hammer, rock-breaker, driven/vibratory piling, concrete saw, diamond saw, air track drill, large dozer, hand-held rail grinder	95
	Jackhammer, rock crusher, angle grinder, pneumatic hammer, medium dozer, tracked loader, impact wrench	90
	Mainline tamper, ballast regulator, dynamic track stabiliser, vibratory roller, mainline rail grinder, ballast train (pour/fill ballast), chainsaw, tub grinder/large mulcher, scraper, grader, super-sucker/vacuum truck, large backhoe/wheeled front-end loader, bored piling, pavement profiler, fixed crane, tracked excavator	85
	Small bulldozer, small excavator, tower crane, truck-mounted crane, forklift, bobcat, skid-steer front-end loader, road truck/truck and dog, dump truck, concrete truck/pump/mixer, compressor, non-vibratory/large pad foot roller, whacker packer/compactor, water cart, pavement laying machine, asphalt truck and sprayer, line marking truck, standard penetration testing, welder, pin puller	80
	Concrete vibrator, cherry-picker scissor lift/elevated work platform/Franna crane, small backhoe, front end loader, fence post driver, electric drill rig, hand held rattle gun, generator (diesel/petrol), spreader	75
	Lighting tower, medium-rigid truck/semi-trailer, welding equipment, small front end loader	70
	Light vehicle, hand-tools (no impact), small cement mixer, attenuated generator (inside housing)	65

Thirdly, the nearest residential and non-residential sensitive receivers are identified that are closest to the point at which the noisiest piece of plant or equipment will be operated.

Lastly, a series of factors are considered which have either exacerbating or mitigating effects (Table 10) on the transmission of noise and vibration to arrive at a predicted noise level at both the residential and non-residential receiver. The predicted level is then compared against the NML and an exceedance is calculated. The receiver with the highest exceedance determines the level of Additional Mitigation Measures which must be considered (see Section 5).

All this information is collated into a table similar to Table 9 below.

Table 9 - GNVIS Calculations

Period	Noisiest Plant/Equipment SWL	Receiver Type	Enter the most applicable values from **Table 8**, then add to determine the Predicted Noise Level				**Predicted Noise Level** (1 + 2 + 3 + 4)	**NML**	**Exceedance** (Predicted Noise Level minus NML)
			1. Plant/Equipment Noise Level	2. Multiple Plant/Equipment	3. Local Screening	4. Distance Attenuation			
Standard Hours		Residential							
		Non-Residential							

Daytime OOH *		Residential							
		Non-Residential							
Evening OOH *		Residential							
		Non-Residential							
Night Time OOH *		Residential							
		Non-Residential							

Table 10 - Exacerbating and Mitigating Factors

Exacerbating and Mitigating Factors		dBA
Multiple Plant	More than one of the noisiest plant being used simultaneously at roughly the same location	+5
Local Screening	Existing screening between site and receiver (buildings, cuttings, canopies, etc.)	- 5
	Temporary screening to be implemented near work site	- 10
	Acoustic shed or enclosure	- 25
Distance Attenuation	< 10 metres	0
	10 to 20 metres	- 5
	20 to 35 metres	- 10
	35 to 60 metres	- 15
	60 to 100 metres	- 20
	100 to 180 metres	- 25
	180 to 350 metres	- 30
	350 to 1,000 metres	- 40

3.3. Noise and Vibration Sensitive Receivers

The sensitivity of occupants to noise and vibration varies according to the nature of the occupancy and the activities performed within the affected premises. For example, recording studios are more sensitive to vibration and ground borne noise than residential premises, which in turn are more sensitive than typical commercial premises.

Specific noise and vibration sensitive receivers (NSRs) relevant to individual construction sites would be identified and addressed in the Environmental Assessment of each Sydney Metro project. Each receiver would be identified as falling into one of the following categories:

- Commercial
- Educational
- Industrial
- Mixed residential/commercial
- Residential
- Residential occupied by shift workers
- Place of Worship
- Medical facilities
- Other sensitive receivers

3.4. Ground-Borne (Regenerated) Noise

Ground-borne noise as a result of construction activities is usually associated with tunnelling projects where equipment such as tunnel boring machines, road headers, rock hammers and drilling rigs are operated underground. It is therefore anticipated that ground-borne noise may be an issue during the construction of Sydney Metro projects.

If NSR's may be affected by ground-borne noise as a result of construction activities, a DNVIS or GNVIS report specifically in relation to the assessment of ground-borne construction noise would be undertaken.

In undertaking a DNVIS or GNVIS report for ground-borne construction noise the following steps are to be taken:

- Identify and quantify if necessary, any significant extraneous sources of ground-borne noise.
- Determine the location of each plant and equipment item in relation to each receiver.
- On the basis of ground-borne noise versus distance prediction algorithms for each plant item, determine the level of ground-borne noise at each building location. For highly sensitive building occupancies, such as recording studios, the assessment may need to incorporate the acoustic properties of the building space and the structural response of the building. This is to be determined by a qualified acoustic consultant, should ground-borne noise be a potential issue.
- Include the effect of all relevant standard mitigation measures as part of the construction scenario.
- Calculate the $L_{Aeq(15minute)}$ noise levels from the proposed construction actives at each receiver and compare these to the ground-borne noise management levels.

3.5. Ground-Borne Vibration

Vibration as a result of construction activities is usually associated with tunnelling projects where equipment such as tunnel boring machines, road headers, rock hammers and drilling rigs are operated underground. It is therefore anticipated that ground-borne vibration may be an issue during the construction of Sydney Metro projects.

If vibration impacts are anticipated as a result of construction activities, a DNVIS or GNVIS report specifically in relation to the assessment of construction vibration would be undertaken.

In undertaking a DNVIS or GNVIS report for ground-borne construction vibration the following steps are to be taken:

- Determine the location of each plant and equipment item in relation to each receiver.
- On the basis of ground-borne vibration versus distance prediction algorithms for each plant item, determine the level of ground-borne vibration at each building location. For highly sensitive building occupancies, such as recording studios, the assessment may need to incorporate the vibration properties of the building space and the structural response of the building. This is to be determined by a qualified acoustic consultant, should ground-borne vibration be a potential issue.

- Include the effect of all relevant standard mitigation measures as part of the construction scenario.

Calculate the vibration levels from the proposed construction actives at each receiver and compare these to the ground-borne vibration criteria.

3.6. Vibration and Overpressure from Blasting

Vibration and overpressure as a result of construction activities is usually associated with tunnelling projects where blasting is required. If this construction is implemented then vibration and overpressure may be an issue during the construction of Sydney Metro projects.

If vibration and overpressure impacts are anticipated as a result of construction blasting, a DNVIS report, specifically in relation to the assessment of construction blasting would be undertaken regardless of the projects planning approval pathway.

In undertaking a DNVIS report for blasting vibration and overpressure the following steps are to be taken:

- Determine the location of blast charge in relation to each receiver.
- On the basis of vibration / overpressure versus distance prediction algorithms for blasting determine the level of vibration / overpressure at each receiver (building) location.
- Include the effect of all relevant standard mitigation measures as part of the construction scenario.

Calculate the vibration and overpressure levels from the proposed blasting actives at each receiver and compare these to the blasting criteria.

4. STANDARD NOISE AND VIBRATION MITIGATION MEASURES

4.1. Minimum Requirements

This section sets out the standard construction noise and vibration mitigation measures to be implemented on all Sydney Metro projects and delivered via relevant procedures, systems, environmental assessment, construction environmental management and all relevant contract documentation.

For all Sydney Metro construction projects, the standard mitigation measures in **Table 11** shall be applied by default where feasible and reasonable in order to minimise the potential noise and vibration impacts at the surrounding Noise Sensitive Receivers. The effect of applying standard mitigation measures may be considered in noise and vibration assessments to achieve NML's.

4.1.1. Management Strategies during Construction

- Construction hours would be in accordance with the ICNG, project approvals and the EPL if required, except where otherwise specified in an approved noise management plan.
- When working adjacent to schools, medical facilities and childcare centres, particularly noisy activities would be scheduled outside normal working hours, where feasible and reasonable.
- When working adjacent to churches and places of worship particularly noisy activities would be scheduled outside services, where feasible and reasonable.
- Avoiding the coincidence of noisy plant working simultaneously close together and adjacent to sensitive receivers will result in reduced noise emissions.
- Where feasible and reasonable, the offset distance between noisy plant items and nearby noise sensitive receivers would be as great as possible.
- Regular compliance checks on the noise emissions of all plant and machinery used for the project would indicate whether noise emissions from plant items were higher than predicted. This also identifies defective silencing equipment on the items of plant.
- Ongoing noise monitoring during construction at sensitive receivers during critical periods (i.e. times when noise emissions are expected to be at their highest - e.g. piling and hammering) to identify and assist in managing high risk noise events.
- Where feasible and reasonable heavy vehicle movements would be limited to daytime hours.
- The implementation of procedures to maximise the night-time onsite spoil storage capacity where spoil is produced between the hours of 10.00 pm and 7.00 am.
- Where feasible and reasonable, there will be coordination with any required ancillary works (utility relocations etc.) to minimise overall noise impacts and to avoid scheduling such activities during planned respite periods.

4.1.2. Site Induction for all Employees, Contractors and Subcontractors

The site induction would include the following as a minimum:

- All relevant project specific and standard noise and vibration mitigation measures
- Relevant licence and approval conditions
- Permissible hours of work
- Any limitations on high noise generating activities
- Location of nearest sensitive receivers
- Construction employee parking areas
- Designated loading/unloading areas and procedures
- Site opening/closing times (including deliveries)
- Identification of activities likely to cause complaint
- Environmental incident reporting and management procedures

4.1.3. Source Noise Control Strategies

- Engines and exhausts are typically the dominant noise sources on mobile plant such as cranes, graders, excavators, heavy vehicles, etc. In order to minimise noise emissions, residential grade mufflers would be fitted on all mobile plant utilised on Sydney Metro construction projects.
- The use of damped hammers is recommended such as the 'City' model Rammer hammers. These reduce the 'ringing' of the rock pick, cylinder and excavator arm that is commonly associated with rock breaking works. Approximately 10 dB attenuation can be achieved compared to undamped hammers of the same size.
- Regular maintenance of all plant and machinery used for the project will assist in minimising noise emissions, including the reporting of the results.
- Acoustic enclosure of plant items, if required, as identified during compliance monitoring.
- Use of engine exhaust brakes should be avoided where possible. Air brake silencers would be correctly installed and fully operational for any heavy vehicle that approaches and uses any Sydney Metro construction site.
- Non-tonal reversing alarms would be used for all permanent mobile plant operating on Sydney Metro construction projects. Whilst the use of non-tonal reversing alarms is suggested to ensure noise impacts are minimised, it is noted that OH&S requirements must also be fully satisfied.

4.1.4. Noise Barrier Control Strategies

Temporary noise barriers are recommended between the noise sources and nearby potentially affected noise sensitive receivers, wherever feasible. Typically, 5 dB to 15 dB attenuation can be achieved with a well designed and constructed barrier.

4.1.5. Acoustic Enclosures

Where significant noise impacts are predicted and/or long periods of construction works are planned, acoustic enclosures can be used as an effective mitigation method. Acoustic enclosures act to contain the sources of noise, whilst also providing the benefit of screening the construction site from view. An enclosure with no openings would be expected to provide attenuation the order of 20 dB.

4.1.6. Vibration Control Strategies

Attended vibration measurements are required at the commencement of vibration generating activities to confirm that vibration levels satisfy the criteria for that vibration generating activity. Where there is potential for exceedances of the criteria further vibration site law investigations would be undertaken to determine the site-specific safe working distances for that vibration generating activity. Continuous vibration monitoring with audible and visible alarms would be conducted at the nearest sensitive receivers whenever vibration generating activities need to take place inside the calculated safe-working distances.

4.1.7. Community Consultation

Active community consultation and the maintenance of positive, cooperative relationships with schools, local residents and building owners and occupiers assists in managing impacts from noisier operations and in alleviating concerns and thereby minimising disturbance and complaint. This includes, for example:

- Periodic notification or work activities and progress (e.g. regular letterbox drops, e-consult)
- Specific notification (letter-box drop) prior to especially noisy activities
- Comprehensive website information
- Project information and construction response telephone line
- Email distribution list

4.2. Summary of the Standard Mitigation Measures

The actions set out in **Table 11** must be implemented on all Sydney Metro construction projects.

Table 11: Standard Mitigation Measures to Reduce Construction Noise and Vibration

Action required	Applies to	Details
Management Measures		
Implementation of any project specific mitigation measures required	Airborne noise Ground-borne noise and vibration	In addition to the measures set out in this table, any *project specific* mitigation measures identified in the environmental assessment documentation (e.g. EA, REF, submissions or representations report) or approval or licence conditions must be implemented.

Action required	Applies to	Details
Implement community consultation measures	Airborne noise Ground-borne noise and vibration	Periodic Notification (monthly letterbox drop)[1] Website Project information and construction response telephone line Email distribution list Place Managers
Register of Noise Sensitive Receivers	Airborne noise Ground-borne noise and vibration	A register of all noise and vibration sensitive receivers (NSRs) would be kept on site. The register would include the following details for each NSR: • Address of receiver • Category of receiver (e.g. Residential, Commercial etc.) • Contact name and phone number
Site inductions	Airborne noise Ground-borne noise and vibration	All employees, contractors and subcontractors are to receive an environmental induction. The induction must at least include: • All relevant project specific and standard noise and vibration mitigation measures • Relevant licence and approval conditions • Permissible hours of work • Any limitations on high noise generating activities • Location of nearest sensitive receivers • Construction employee parking areas • Designated loading/unloading areas and procedures • Site opening/closing times (including deliveries) • Environmental incident procedures
Behavioural practices	Airborne noise	No swearing or unnecessary shouting or loud stereos/radios; on site. No dropping of materials from height; throwing of metal items; and slamming of doors. No excessive revving of plant and vehicle engines Controlled release of compressed air.
Monitoring	Airborne noise Ground-borne noise and vibration	A noise monitoring program is to be carried out for the duration of the works in accordance with the Construction Noise and Vibration Management Plan and any approval and licence conditions.

[1] Detailing all upcoming construction activities at least 14 days prior to commencement of relevant works

Action required	Applies to	Details
Attended vibration measurements	Ground-borne vibration	Attended vibration measurements are required at the commencement of vibration generating activities to confirm that vibration levels satisfy the criteria for that vibration generating activity. Where there is potential for exceedances of the criteria further vibration site law investigations would be undertaken to determine the site-specific safe working distances for that vibration generating activity. Continuous vibration monitoring with audible and visible alarms would be conducted at the nearest sensitive receivers whenever vibration generating activities need to take place inside the applicable safe-working distances.
Source Controls		
Construction hours and scheduling	Airborne noise Ground-borne noise and vibration	Where feasible and reasonable, construction would be carried out during the standard daytime working hours. Work generating high noise and/or vibration levels would be scheduled during less sensitive time periods.
Construction respite period	Ground-borne noise and vibration Airborne noise	High noise and vibration generating activities[2] may only be carried out in continuous blocks, not exceeding 3 hours each, with a minimum respite period of one hour between each block[3].
Equipment selection	Airborne noise Ground-borne noise and vibration	Use quieter and less vibration emitting construction methods where feasible and reasonable. For example, when piling is required, bored piles rather than impact-driven piles will minimise noise and vibration impacts. Similarly, diaphragm wall construction techniques, in lieu of sheet piling, will have significant noise and vibration benefits.
Maximum noise levels	Airborne-noise	The noise levels of plant and equipment must have operating Sound Power Levels compliant with the criteria in **Table 13**.
Rental plant and equipment	Airborne-noise	The noise levels of plant and equipment items are to be considered in rental decisions and in any case cannot be used on site unless compliant with the criteria in **Table 13**.
Plan worksites and activities to minimise noise and vibration	Airborne noise Ground-borne vibration	Plan traffic flow, parking and loading/unloading areas to minimise reversing movements within the site.
Non-tonal reversing alarms	Airborne noise	Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work.

[2] Includes jack and rock hammering, sheet and pile driving, rock breaking and vibratory rolling.

[3] "Continuous" includes any period during which there is less than a 60 minutes respite between ceasing and recommencing any of the work.

Action required	Applies to	Details
Minimise disturbance arising from delivery of goods to construction sites	Airborne noise	Loading and unloading of materials/deliveries is to occur as far as possible from NSRs Select site access points and roads as far as possible away from NSRs Dedicated loading/unloading areas to be shielded if close to NSRs Delivery vehicles to be fitted with straps rather than chains for unloading, wherever feasible and reasonable
Path Controls		
Shield stationary noise sources such as pumps, compressors, fans etc	Airborne noise	Stationary noise sources would be enclosed or shielded whilst ensuring that the occupational health and safety of workers is maintained. Appendix F of AS 2436: 1981 lists materials suitable for shielding.
Shield sensitive receivers from noisy activities	Airborne noise	Use structures to shield residential receivers from noise such as site shed placement; earth bunds; fencing; erection of operational stage noise barriers (where practicable) and consideration of site topography when situating plant.

Table 12: Minimum Requirements for Construction Methods

Method	Minimum Requirements
Excavator	Ensure that the Sound Power Levels given in **Table 13** have been met.
Truck	Ensure that the Sound Power Levels given in **Table 13** have been met.
Rock breakers and jackhammers	Ensure that the Sound Power Levels given in Error! Reference source not found. have been met. Noise and vibration monitoring would be conducted at the nearest identified NSR where exceedances of the criteria have been predicted.
PCF	Where it has been predicted that vibration / regenerated noise is likely to be in excess of the nominated goals, specific notification would be given to all NSRs a minimum of 2 weeks prior to a shot being fired. Vibration and overpressure monitoring would be conducted at the nearest identified NSR.
Blasting	Where it has been predicted that vibration / overpressure is likely to be in excess of the nominated goals, specific notification would be given to all NSRs a minimum of 2 weeks prior to a shot being fired. Vibration and overpressure monitoring would be conducted at the nearest identified NSR.
TBM	Noise and vibration monitoring would be conducted at the nearest identified NSR where levels are expected to exceed the relevant noise and vibration goals.
Road headers	Noise and vibration monitoring would be conducted at the nearest identified NSR where levels are expected to exceed the relevant noise and vibration goals.

4.3. Maximum Allowable Plant Sound Power Levels

Plant or equipment operating on Sydney Metro project construction sites shall have an operating sound power level (SWL) which is no higher than the corresponding SWL presented in **Table 13** unless justified. The SWLs presented in **Table 13** have been compiled from a selection of field measurements conducted between 2004 and 2008 of plant and equipment operating on large construction projects throughout NSW and are therefore considered to representative of plant and equipment SWLs which are readily achieved by current plant and equipment normally used in the construction industry.

Table 13: Maximum Allowable Sound Power Levels for Construction Equipment

Equipment	Maximum Allowable Sound Power Level (dB) LAmax	Maximum Allowable Sound Pressure Level (dB) LAmax at 7 m
Excavator Hammer	118	93
Excavator (approx. 3 tonne)	90	65
Excavator (approx. 6 tonne)	95	70
Excavator (approx. 10 tonne)	100	75
Excavator (approx. 20 tonne)	105	80
Excavator (approx. 30 tonne)	110	85
Excavator (approx. 40 tonne)	115	90
Skidsteer Loaders (approx. 1/2 tonne)	107	82
Skidsteer Loaders (approx. 1 tonne)	110	85
Dozer (tracking) - equiv. CAT D8	118	93
Dozer (tracking) - equiv. CAT D9	120	95
Dozer (tracking) - equiv. CAT D10	121	96
Backhoe/FE Loader	111	86
Dump Truck (approx. 15 tonne)	108	83
Concrete Truck	112	87
Concrete Pump	109	84
Concrete Vibrator	105	80
Bored Piling Rig	110	85
Scraper	110	85
Grader	110	85
Vibratory Roller (approx. 10 tonne)	114	89
Vibratory Pile Driver	121	96
Impact Piling Rig	134	109
Compressor (approx. 600 CFM)	100	75
Compressor (approx. 1500 CFM)	105	80
Concrete Saw	118	93
Jackhammer	113	88
Generator	104	79
Lighting Tower	80	55
Flood Lights	90	65

Equipment	Maximum Allowable Sound Power Level (dB) LAmax	Maximum Allowable Sound Pressure Level (dB) LAmax at 7 m
Cherry Picker	102	77
Mobile Crane	110	85

Where an item of construction equipment is not listed in **Table 13**, generic sound power levels presented in **Table 14** may be adopted.

Table 14: Generic Equipment or System Sound Power Level Limit[1]

Equipment	Maximum Allowable Sound Power Level (dB) LAmax	Maximum Allowable Sound Pressure Level (dB) LAmax at 7 m
Motorised (<25kW)	90	65
Motorised (<50kW)	95	70
Motorised (<100kW)	100	75
Motorised (<200kW)	105	80
Motorised (>200kW)	110	85
All other Auxiliary Equipment or Systems	90	65

Note 1: Sound Power Levels in dBA relative to 10 pW.

4.4. Auditing and Monitoring

All significant noise generating items of plant would have noise audits conducted upon arrival at a Sydney Metro construction site and at 6 month intervals thereafter. The purpose of these audits is to validate that individual items of plant and equipment fall within the Sound Power Level ranges identified in **Table 13**.

Where it has been identified within this strategy that noise and/or vibration monitoring is required at the nearest sensitive receiver; however, the nearest sensitive receiver has refused monitoring at their property, monitoring would be undertaken at the near point to that receiver within the site boundary or at another suitable location determined by an acoustic consultant.

5. ADDITIONAL NOISE AND VIBRATION MITIGATION MEASURES

The implementation of the standard management measures, compliance with maximum sound power levels for plant and equipment, construction hour management and standard community consultation measures in this Strategy should significantly reduce the noise and vibration impacts on nearby sensitive receivers.

Nevertheless, due to the highly variable nature of construction activities and the likelihood of work outside the standard construction hours on Sydney Metro projects, some exceedances of the construction noise and vibration management levels are likely to be unavoidable.

Where there is a potential exceedance of the construction noise and vibration management levels, a number of additional measures to mitigate such exceedances – primarily aimed at pro-active engagement with affected sensitive receivers – would be explored and have been included in this Strategy. The additional mitigation measures to be applied are outlined in **Table 15**.

Table 15: Additional Management Measures

Measure	Description	Abbreviation
Alternative accommodation	Alternative accommodation options may be provided for residents living in close proximity to construction works that are likely to incur unreasonably high impacts over an extended period of time. Alternative accommodation will be determined on a case-by-case basis.	AA
Monitoring	Where it has been identified that specific construction activities are likely to exceed the relevant noise or vibration goals, noise or vibration monitoring may be conducted at the affected receiver(s) or a nominated representative location (typically the nearest receiver where more than one receiver have been identified). Monitoring can be in the form of either unattended logging or operator attended surveys. The purpose of monitoring is to inform the relevant personnel when the noise or vibration goal has been exceeded so that additional management measures may be implemented.	M
Individual briefings	Individual briefings are used to inform stakeholders about the impacts of high noise activities and mitigation measures that will be implemented. Communications representatives from the contractor would visit identified stakeholders at least 48 hours ahead of potentially disturbing construction activities. Individual briefings provide affected stakeholders with personalised contact and tailored advice, with the opportunity to comment on the project.	IB
Letter box drops	For each Sydney Metro project, a newsletter is produced and distributed to the local community via letterbox drop and the project mailing list. These newsletters provide an overview of current and upcoming works across the project and other topics of interest. The objective is to engage and inform and provide project-specific messages. Advanced warning of potential disruptions (e.g. traffic changes or noisy works) can assist in reducing the impact on the community. Content and newsletter length is determined on a project-by-project basis. Most projects distribute notifications on a monthly basis. Each newsletter is graphically designed within a branded template.	LB
Project specific respite offer	The purpose of a project specific respite offer is to provide residents subjected to lengthy periods of noise or vibration respite from an ongoing impact.	RO

Measure	Description	Abbreviation
Phone calls and emails	Phone calls and/or emails detailing relevant information would be made to identified/affected stakeholders within 7 days of proposed work. Phone calls and/or emails provide affected stakeholders with personalised contact and tailored advice, with the opportunity to provide comments on the proposed work and specific needs etc.	PC
Specific notifications	Specific notifications would be letterbox dropped or hand distributed to identified stakeholders no later than 7 days ahead of construction activities that are likely to exceed the noise objectives. This form of communication is used to support periodic notifications, or to advertise unscheduled works.	SN

5.1. Applying Additional Mitigation Measures

In circumstances where following application of the standard mitigation measures, the $L_{Aeq(15minute)}$ construction noise and vibration levels are still predicted to exceed the Noise Management Level, the relevant Additional Mitigation Measures (AMM) are considered to determine any offset strategies for these impacts (**Table 16**).

The following steps need to be carried out to determine the Additional Mitigation Measures to be implemented:

- Determine the duration (time period) when the work is to be undertaken.
- Determine the level of exceedance above the NML.
- From the AMM table, identify the additional mitigation measures to be implemented (abbreviation codes are explained in **Table 15**).

Table 16: Additional Mitigation Measures – Ground Bourne and Airborne Construction Noise

Time Period		Mitigation Measures			
		Predicted L_{Aeq} (15minute) noise level Above NML			
		0 to 10 dB	10 to 20 dB	20 to 30 dB	> 30 dB
Standard	Mon-Fri (7.00 am - 6.00 pm)	LB	LB, M	LB, M, SN	LB, M, SN
	Sat (8.00 am - 1.00 pm)				
	Sun/Pub Hol (Nil)				
OOHW (Evening)	Mon-Fri (6.00 pm - 10.00 pm)	LB, M	LB, M, SN	LB, M, SN, RO	LB, M, SN, IB, PC, RO, SN
	Sat (1.00 pm - 10.00 pm)				
	Sun/Pub Hol (8.00 am - 6.00 pm)				
OOHW (Night)	Mon-Fri (10.00 pm - 7.00 am)	LB, M	LB, M, SN, RO	LB, M, SN, IB, PC, RO, AA	LB, M, SN, IB, PC, RO, SN, AA
	Sat (10.00 pm - 8.00 am)				
	Sun/Pub Hol (6.00 pm - 7.00 am)				

Table 17: Additional Mitigation Measures - Ground-borne Vibration

Time Period		Mitigation Measures
		Predicted Vibration Levels Exceed Maximum Levels
Standard	Mon-Fri (7.00 am - 6.00 pm)	LB, M, RO
	Sat (8.00 am - 1.00 pm)	
	Sun/Pub Hol (Nil)	
OOHW (Evening)	Mon-Fri (6.00 pm - 10.00 pm)	LB, M, IB, PC, RO, SN
	Sat (1.00 pm - 10.00 pm)	
	Sun/Pub Hol (8.00 am - 6.00 pm)	
OOHW (Night)	Mon-Fri (10.00 pm - 7.00 am)	LB, M, IB, PC, RO, SN, AA
	Sat (10.00 pm - 8.00 am)	
	Sun/Pub Hol (6.00 pm - 7.00 am)	

6. MONITORING, AUDITING AND REPORTING

6.1. Plant Noise Auditing, Compliance Evaluation and Reporting

In order to compare the noise levels of plant and equipment with the values in **Section 4.3**, the following guidelines are recommended:

- Measurements of Sound Pressure Level (SPL) at 7 m (with plant or equipment stationary) shall be undertaken using procedures that are consistent with the requirements of Australian Standard AS2012–1990 Acoustics – Measurement of Airborne Noise Emitted by Earthmoving Machinery and Agricultural Tractors – Stationary Test Condition Part 1: Determination of Compliance with Limits for Exterior Noise.
- Measurements of Sound Power Level (SWL) shall be determined using procedures that are consistent with the requirements of International Standard ISO 9614-2 1996 Acoustics – Determination of sound power levels of noise sources using sound intensity - Part 2: Measurement by scanning.
- If measuring the SPL at 7 m of moving plant, compliance measurements would be guided by the requirements of Australian Standard AS2012–1977 Method for Measurement of Airborne Noise from Agricultural Tractors and Earthmoving Machinery.

For all measurements, the plant or equipment under test would be measured while operating under typical operating conditions. If this is not practical, it may be appropriate to conduct a stationary test at high idle.

In the case of an exceedance in Sound Power Levels the item of plant would either be replaced, or the advice of an acoustic consultant would be sought to provide suitable mitigation measures, which may include:

- ensuring all bolts are tightened and no parts are loose
- cleaning and/or lubricating moving parts
- replacing old or worn parts
- implementing additional or upgrading existing muffling devices
- building enclosures around items of stationary plant (e.g. pumps or generators).

A register of measured sound power levels for each item of plant would be kept for reference where future noise audits are conducted. The register would be reviewed annually in conjunction with this strategy and corresponding revisions made to the Sound Power Levels presented in **Section 4.3** to represent contemporary plant noise emission levels.

6.2. Noise Monitoring

Where a DNVIS or GNVIS has been prepared for a Sydney Metro construction site and it has been predicted that noise levels may be in excess of the nominated construction noise goals at a noise sensitive receiver, noise monitoring would be conducted at:

- the affected receiver; or
- if more than one affected receiver has been identified, at the nearest affected receiver; or

- where the nearest affected receiver refuses noise monitoring on their property, at the near point to that receiver within the site boundary.
- If it can be demonstrated that direct measurement of noise from the construction site is impractical, alternative means of determining construction noise levels may be adopted in accordance with Chapter 7 of the Noise Policy for Industry.

All noise monitoring results would be assessed against the nominated noise goals and compiled into a report to be forwarded to the construction contractor and project manager. Reporting would be submitted to the construction contractor and project manager within one week of being undertaken or at weekly intervals for continuous monitoring. All noise monitoring reports would also be made available to the public through a publically accessible website.

6.3. Vibration Monitoring

Where it is anticipated that an item of plant will exceed the cosmetic damage criteria given in **Section 2.3.3**, vibration monitoring would be required at the nearest affected receiver. Where it is anticipated that an item of plant will exceed the human response / ground borne noise criteria and concerns have been raised regarding vibration, vibration monitoring would also be required at the receiver(s) under question.

All vibration monitoring results would be assessed against the nominated vibration goals and compiled into a report to be forwarded to the construction contractor and project manager. Reporting would be submitted to the construction contractor and project manager within one week of being undertaken or at weekly intervals for continuous monitoring. All vibration monitoring reports would also be made available to the public through the publically accessible website.

6.4. Blast Monitoring

As specified in the minimum requirements presented in **Section 3.6**, vibration and overpressure monitoring would be conducted for all PCF and blasting activities which take place on Sydney Metro construction sites.

Monitoring would be conducted as a minimum at the sensitive receiver(s) likely to receive the maximum vibration and/or overpressure emissions from the blast as identified by an acoustic consultant.

All blast monitoring results would be assessed against the nominated goals and compiled into a report to be forwarded to the construction contractor and project manager. All blast monitoring reports would also be made available to the public through the Sydney Metro website.

As the effect of vibration and overpressure from blasting have the potential to cause structural damage to buildings and services, accurate records of all blasts are required to be maintained. Such records would describe the location of the blast and all the blast holes, the design of the blast in terms of type of explosives, mass of explosives, initiating system used, ground vibration and overpressure measurement data.

Records of every blast would be kept for a minimum of seven years. A longer period of retention of the records may be warranted if a construction project is blasted over an extended or disrupted period.

For any section of tunnel construction where blasting is proposed, a series of initial trials at reduced scale shall be conducted prior to production blasting to determine site-specific blast response characteristics and to define allowable blast sizes to meet the airblast overpressure and ground vibration limits.

6.5. Dilapidation Surveys

If construction activities have the potential to cause damage through vibration to nearby public utilities, structures, buildings and their contents, an Existing Condition Inspection of these items is required to be undertaken in accordance with AS 4349.1 "*Inspection of Buildings*" except where a planning approval specifies an alternate process.

Prior to conducting the Existing Condition Inspections, the property owners will be advised of the inspection scope and methodology and the process for making a property damage claim. At the same time, maintain a register of all properties inspected and of any properties where owners refused the inspection offer.

The findings of all dilapidation surveys conducted for each Sydney Metro construction site would be complied into a report to be forwarded to the construction contractor and project manager. Follow-up Condition Inspections would be required at the completion of certain major works (e.g. completion of shaft bulk excavation works).

7. COMPLAINT HANDLING

All complaints handling would be in accordance with the Sydney Metro Construction Complaints Management System.

8. COMMUNITY CONSULTATION AND LIAISON

All community consultation would be in accordance with relevant project communications plans.

9. DOCUMENTATION REQUIREMENTS

Any acoustic assessment, CNVIS or CNVMP undertaken for the Sydney Metro project must document the following as a minimum (where applicable):

- Acoustic Terminology / Glossary
- Overview of the Project / Works
- Secretary's Environmental Assessment Requirements
- EPL conditions (if applicable)
- Site Plan and Sensitive Receivers
- Ambient Noise Monitoring: methodology, locations, analysis and results
- Construction Noise and Vibration Criteria
    - Construction Airborne Noise Criteria
    - Construction Tunnelling Ground-borne Noise Criteria (if applicable)
    - Construction Ground-borne Noise Criteria
    - Construction Vibration Criteria
- Construction Noise and Vibration Assessment
    - Construction Airborne Noise Methodology / Predictions
    - Construction Tunnelling Ground-borne Noise Methodology / Predictions (if applicable)
    - Construction Ground-borne Noise Methodology / Predictions
    - Construction Vibration Methodology / Predictions
- Summary of Noise and Vibration Impacts
- Summary of all Standard and Additional Mitigation Measures
- References

All noise and vibration predictions are to be presented (as a minimum) as facade noise maps for a distance of at least 300 m in all directions from each work site / project area under assessment.

10. REFERENCES

Related Documents and References
• ANZEC, 1990, Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration. Australian and New Zealand Environment Council.
• APTA, 1981, Guidelines for Design of Rapid Transit Systems. American Public Transit Association.
• AS 2107, 2000, Acoustics - Recommended design sound levels and reverberation times for building interiors. Standards Australia.
• AS 2012 Part 1, 1990, Acoustics - Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors - Stationary test condition - Determination of compliance with limits for exterior noise. Standards Australia.
• AS 2187, Part 2, 2006, Explosives - Storage and Use - Part 2: Use of Explosives. Standards Australia.
• AS 2436, 1981, Guide to Noise Control on Construction, Maintenance and Demolition Sites. Standards Australia.
• AS 4349, 2007, Inspection of buildings - General requirements. Standards Australia.
• BS 6472, 2008, Evaluation of Human Exposure Vibration in Buildings. The British Standards Institution.
• BS 7385 Part 2, 1993, Evaluation and Measurement for Vibration in Buildings Part 2. The British Standards Institution.
• Colin G. Gordon, 1999, Generic Vibration Criteria for Vibration-Sensitive Equipment. International Society for Optical Engineering.
• The Association of Australian Acoustical Consultants (AAAC) Technical Guideline on Child Care Centre Noise Assessments
• DECC, 1999, Environmental Criteria for Road Traffic Noise. NSW Department of Environment and Climate Change.
• DECC, 2009, Interim Construction Noise Guideline. NSW Department of Environment and Climate Change NSW.
• EN ISO 9641, Part 2, 1996, Acoustics - Determination of sound power levels of noise sources using sound intensity – Part 2: Measurement by scanning. International Organization for Standardization.
• EPA, 2000, NSW industrial noise policy. NSW Environment Protection Authority.
• RTA, 2001, Environmental noise management manual, NSW Roads and Traffic Authority.
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Appendix B – Final Aboriginal Cultural Heritage Assessment Report

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Sydney International Speedway

Technical Paper 5: Aboriginal Cultural Heritage Assessment Report

Blacktown Local Government Area

Report to Sydney Metro

November 2020

artefact

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Author:	Duncan Jones
Project manager:	Duncan Jones
Project number:	20005
Name of organisation:	Artefact Heritage
Document version:	Final

EXECUTIVE SUMMARY

Sydney International Speedway

In December 2019, the New South Wales Government announced the relocation of speedway racing to the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, creating a true motorplex for the NSW motorsport racing community (the project). The new Sydney International Speedway would provide the community and racing supporters a unique sporting facility that would cater for local, regional, national and international racing events while continuing to support growth of speedway racing in NSW.

Speedway racing alongside other motorsport codes is a key contributor to the NSW economy and the new speedway would support tourism in NSW. The Sydney International Speedway (the project) is a NSW Government commitment that ensures the longevity of this popular sport by providing it a new home within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports. The project site is located on land owned and managed by Western Sydney Parklands Trust.

Section 5.12(4) of the *Environmental Planning and Assessment Act* (EP&A Act) provides for the declaration of specified development on specified land as State significant infrastructure. A declaration has been made for the Sydney International Speedway as State significant infrastructure under Section 5.12(4) of the EP&A Act. Schedule 4 of the *State Environmental Planning Policy (State and Regional Development) 2011* has been amended to include Sydney International Speedway as State significant infrastructure.

Purpose and scope of this report

This technical paper, Technical Paper 5: Aboriginal Cultural Heritage Assessment is one of a number of technical documents that form part of the Environmental Impact Statement. The purpose of this technical paper is to identify and assess the Aboriginal heritage impacts of the Sydney International Speedway project and includes:

- Assessment of the Aboriginal cultural heritage values of the project site and identification of any specific areas of cultural significance
- Assessment of archaeological potential for the project site
- Aboriginal stakeholder consultation
- Preparation of a methodology for the management of Aboriginal heritage sites.

This technical paper has been carried out in accordance with the following guidelines:

- Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales 2010[1]
- Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW[2]
- Aboriginal cultural heritage consultation requirements for proponents 2010[3]
- The Burra Charter 2013.[4]

[1] Department of Environment Climate Change & Water 2010a
[2] Office of Environment & Heritage 2011
[3] Department of Environment Climate Change & Water 2010b
[4] Australia ICOMOS 2013.

Overview of findings

This Aboriginal heritage assessment identified the following Aboriginal sites at the proposed Sydney International Speedway site:

- One registered Aboriginal site was identified within the project site, designated “IF2” (AHIMS# 45-5-2602). This site was destroyed during earthworks for the construction of the adjacent Sydney Dragway project
- Two registered Aboriginal sites were identified within Cumberland Plain remnant woodland between the carpark C and carpark D. These Aboriginal sites were removed during works for the Sydney Dragway project. These sites are:
    - Site “EC6”, listed on the AHIMS register with as AHIMS# 45-5-2580 and 45-5-2596
    - Site “EC7”, listed on the AHIMS register with as AHIMS# 45-5-2581 and 45-5-2597
- One new area of Potential Archaeological Deposit (PAD) was identified near the project site, associated with an intact gentle slope adjacent to Eastern Creek
- One new area of PAD was identified near the project site, within the remnant Cumberland Plain woodland between the northern and central portions of the project site.

Construction works for the project would involve bulk excavation in the location of the former AHIMS site IF2 (AHIMS# 45-5-2602), however as this site has been previously destroyed (during the construction of the Sydney Dragway), no adverse impacts to any Aboriginal sites would occur.

Mitigation measures

The measures detailed in the mitigation measures table of this report are proposed to address potential impacts on Aboriginal heritage sites and areas of archaeological potential during construction. They were developed following consideration of:

- The requirements of the National Parks and Wildlife Regulation 2019
- Results of background research, site survey and assessment
- Comments received from registered stakeholder on the draft report.

Ref	Mitigation measure
AH1	Aboriginal stakeholder consultation would be carried out in accordance with the NSW Office of Environment and Heritage's *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*.
AH2	Prior to the commencement of project construction works, exclusion areas would be established around the following identified Aboriginal sites, to prevent inadvertent impacts during construction: • SIS PAD 01 (AHIMS ID 45-5-5351). • SIS PAD 02 (AHIMS ID 45-5-5352).
AH3	A heritage induction should be carried out for all contractors. This heritage induction should include an explanation of the Sydney Metro Unexpected Finds Protocol. Should unexpected Aboriginal artefacts be identified during excavation and construction works, the Sydney Metro Unexpected Finds Protocol would be implemented.
AH4	In the event that a potential burial site or potential human skeletal material is exposed during construction, the Sydney Metro Exhumation Management Plan would be implemented.

CONTENTS

FIGURES

TABLES

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1.0 INTRODUCTION

1.1 Project background

The NSW Government has committed to relocating speedway racing to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, creating a true motorplex for the NSW motorsport racing community. The new speedway would provide the community and racing supporters a unique sporting facility that would cater for local, regional, national, and international racing events while continuing to support the growth of speedway racing in NSW.

The Western Sydney Parklands Trust, in association with the NSW Office of Sport, is leading a masterplanning process for Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, with opportunities to share infrastructure and coordinate events across the three venues. This masterplan sets the context for the planning of the new Sydney International Speedway, which is the subject of this Technical Paper.

As part of delivering Sydney Metro West - the city's next big underground railway, the existing government land currently used for speedway racing is required for a future stabling and maintenance facility. The project is planned to be constructed and operational prior to the closure of the current speedway.

The project site is located on land owned and managed by Western Sydney Parklands Trust. Sydney Metro is proposing to build the project on behalf of and pursuant to arrangements with Western Sydney Parklands Trust.

Section 5.12(4) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) provides for the declaration of specified development on specified land as State significant infrastructure. A declaration has been made for the Sydney International Speedway as State significant infrastructure under Section 5.12(4) of the EP&A Act. Schedule 4 of the *State Environmental Planning Policy (State and Regional Development) 2011* has been amended to include Sydney International Speedway as State significant infrastructure

1.2 Project location

The project would be located within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports which sits within the Blacktown Local Government Area (LGA) in the Central River City subregion of Greater Sydney, about six kilometres southwest of the Blacktown City Centre, and 32 kilometres west of the Sydney Central Business District. The location of the project is shown on Figure 1.

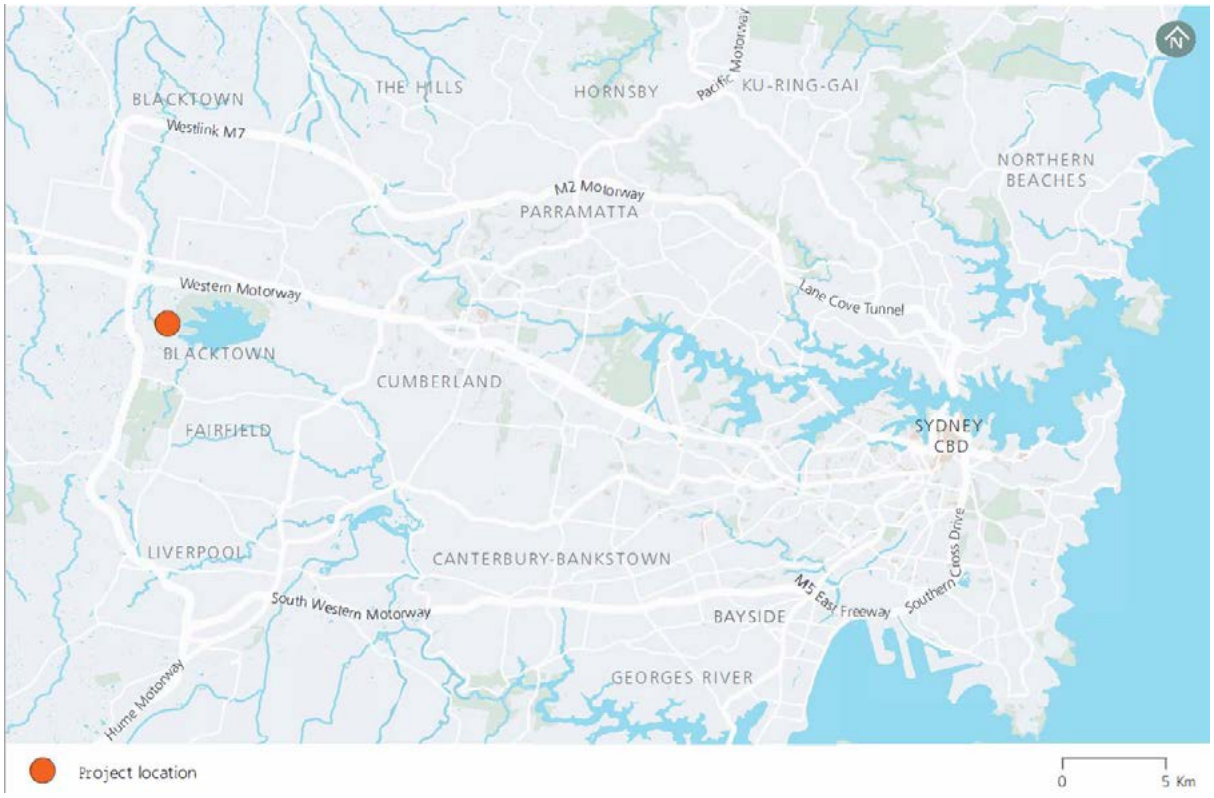

Figure 1 Location of the project

1.2.1 Local context of the project

The footprint of the project site is about 21 hectares. The Western Motorway (M4 Motorway) is about 1.4 kilometres north, and the Westlink M7 is about 1.2 kilometres west of the project. Industrial and commercial developments are located to the north and west of these major roads. The Prospect Nature Reserve, which contains the Prospect Reservoir, is about 150 metres east of the project. The local context of the project is shown on Figure 2.

Sixteen precincts have been identified within the Western Sydney Parklands, each with its own character and land uses, infrastructure, issues and opportunities. The project would be situated within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports. The project is bounded by Ferrers Road to the northwest, Ferrers Road and vegetation as part of Western Sydney Parklands in the west, the Warragamba Pipeline to the south and the Austral Bricks Horsley Park Brickworks located further south. Other motorsport operators within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports include the Sydney Dragway immediately to the north and east and Sydney Motorsports Park (operated by the Australian Racing Drivers' Club) to the north. A full list of stakeholders is provided in Chapter 4 (Stakeholder and community engagement).

Other businesses in the vicinity include:

- The SUEZ Eastern Creek Resource Recovery Park, about 1.1 kilometres west of the project
- Global Renewables waste processing facility, about 650 metres west of the project.

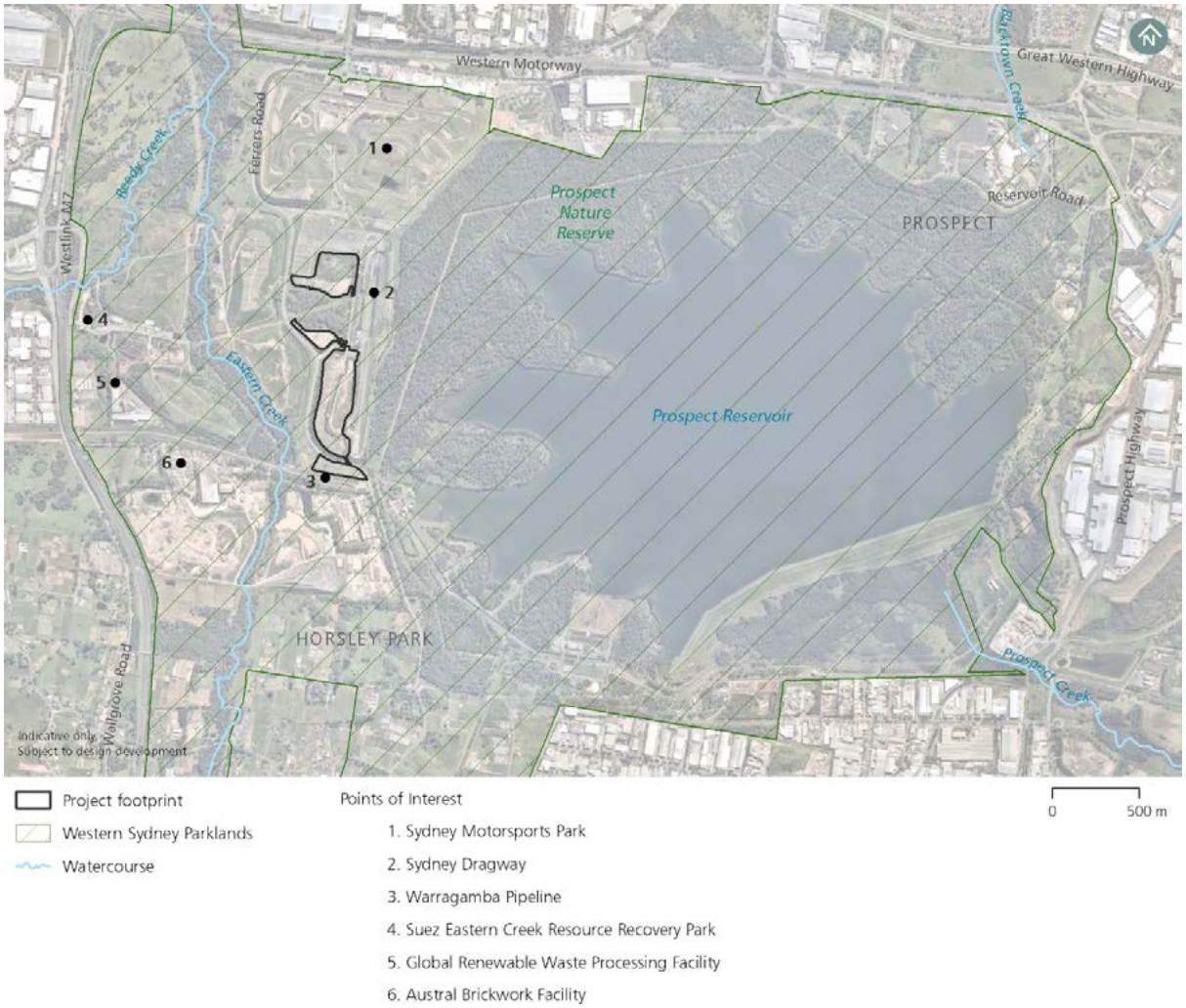

Figure 2 Local context of the project

1.3 Overview of the project

The key features of the project are provided in Chapter 4.0. Project stages would include:

- Construction, including enabling and temporary works, earthworks and land forming activities, construction of project infrastructure, environmental management measures, utilities connections, landscaping and finishing works
- Operation of the Sydney International Speedway. This would include racing infrastructure, event support infrastructure and operational support infrastructure, and ongoing maintenance activities.

The operational site layout is shown on Figure 3.

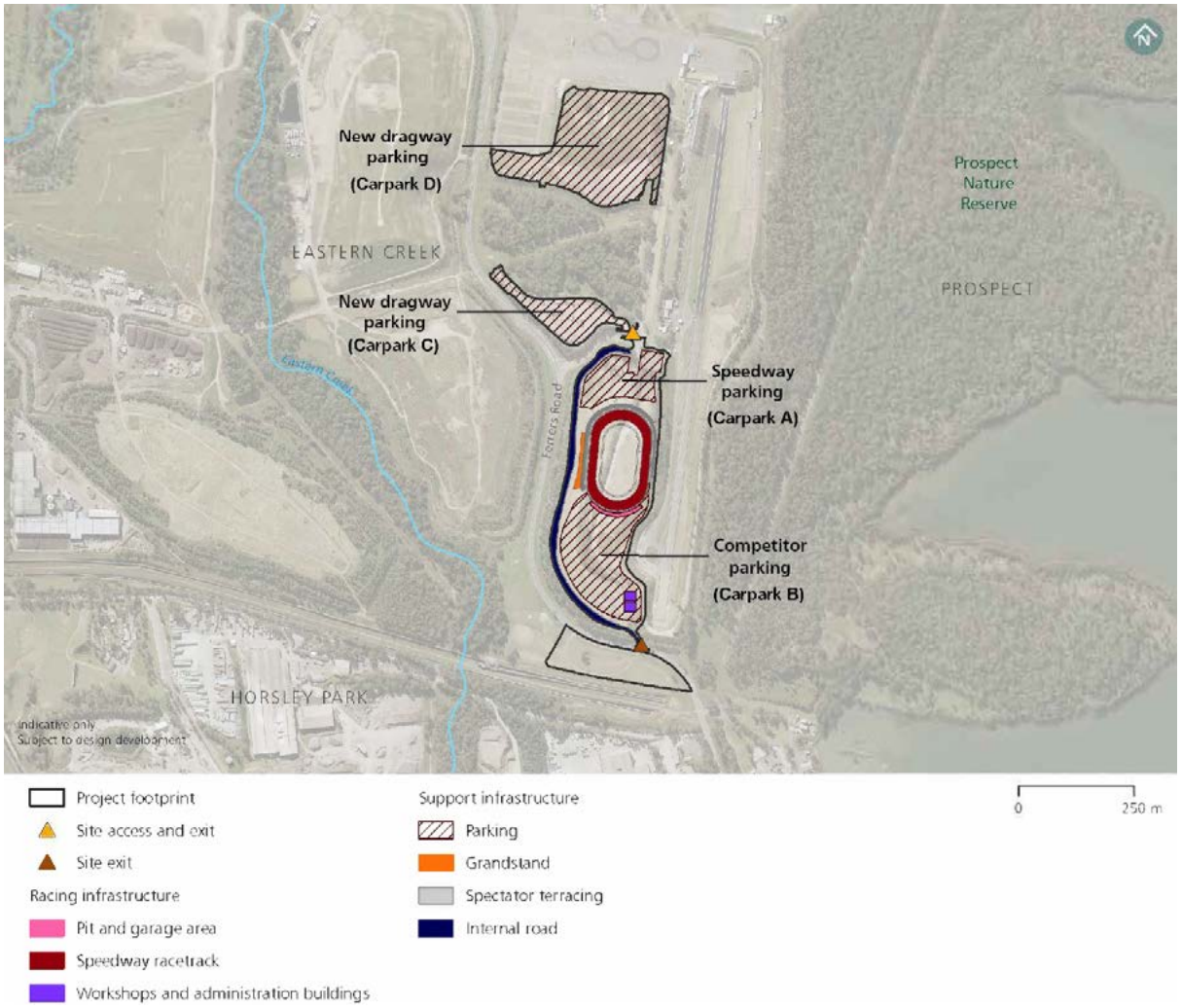

Figure 3 Project overview

1.4 Purpose and scope of the report

Artefact Heritage has been engaged to prepare an Aboriginal heritage assessment for inclusion in the Environmental Impact Statement. This technical paper considers the construction impacts on Aboriginal cultural heritage and potential archaeological resources within the project site and includes:

- Assessment of the Aboriginal cultural heritage values of the project site and identification of any specific areas of cultural significance
- Assessment of archaeological potential for the project site.
- Aboriginal stakeholder consultation
- Preparation of a methodology for archaeological management including test excavation and salvage where required.

1.5 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements were issued for the project on 19 May 2020. The following requirements were issued for Aboriginal heritage investigation for the project:

Table 1 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	Where addressed
5.1 The Proponent must identify and assess any direct and/or indirect impacts (including cumulative impacts) to the heritage significance of: (a) Aboriginal places, objects and cultural heritage values, as defined under the National Parks and Wildlife Act 1974 and in accordance with the principles and methods of assessment identified in the current guidelines; (b) Aboriginal places of heritage significance, as defined in the Standard Instrument – Principal Local Environmental Plan;	Chapter 7.0 Chapter 8.0 Chapter 9.0 Chapter 10.0 Chapter 11.0
5.3 Where archaeological investigations of Aboriginal objects are proposed these must be conducted by a suitably qualified archaeologist, in accordance with section 1.6 of the Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2010).	Chapter 3.0 Chapter 12.0
5.4 Where impacts to Aboriginal objects and/or places are proposed, consultation must be undertaken with Aboriginal people in accordance with the current guidelines.	Chapter 5.0

1.6 Authorship

This report was prepared by Alyce Haast (Senior Heritage Consultant) and Duncan Jones (Principal). Management input and review was provided by Josh Symons (Technical Director) and Sandra Wallace (Director).

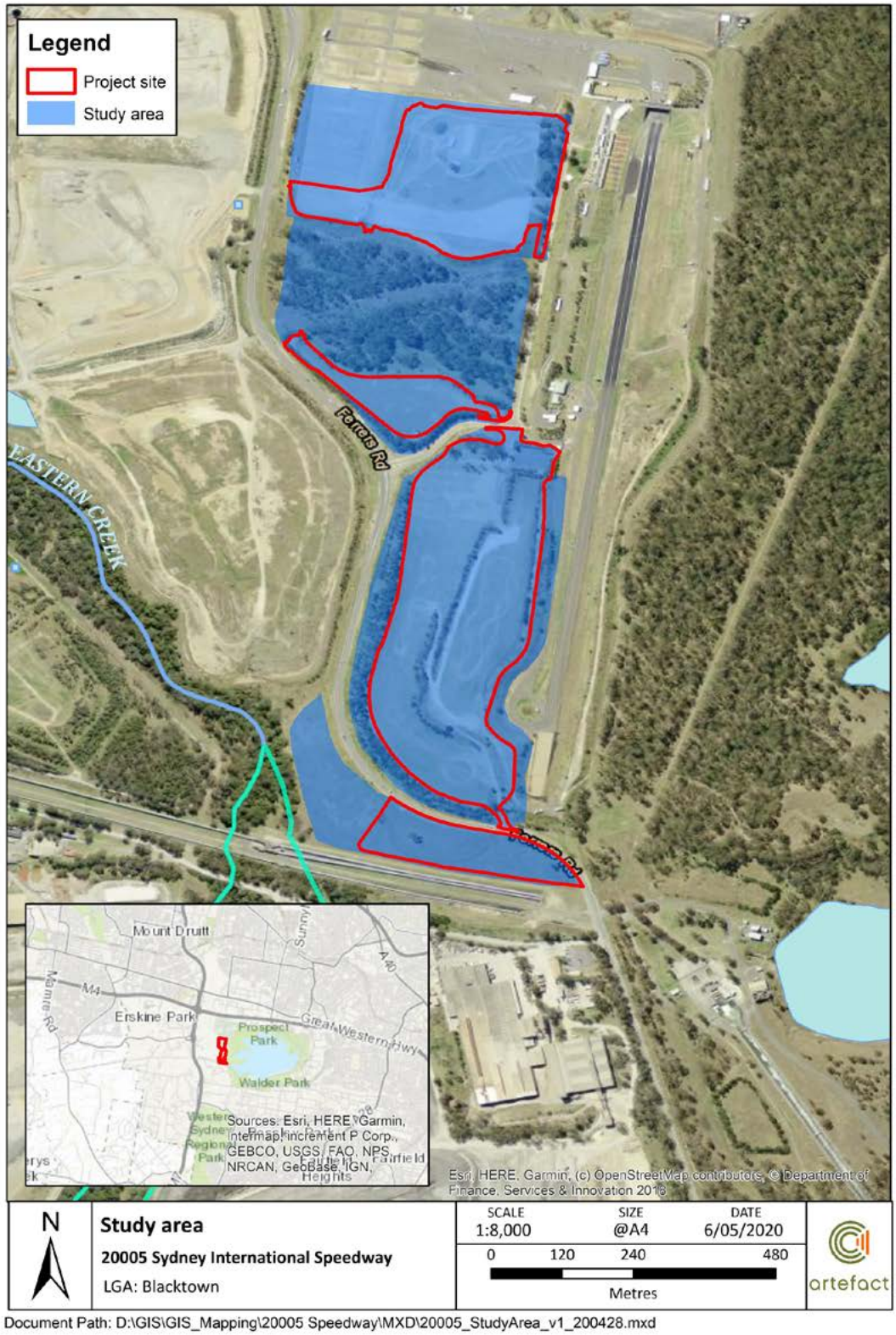

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Figure 4 Location of project site

2.0 LEGISLATIVE CONTEXT

2.1 Introduction

There are several pieces of legislation that are relevant to the assessment of Aboriginal cultural heritage for the project. This chapter provides a summary of these Acts and the potential implications for the project.

2.2 NSW *National Parks and Wildlife Act 1974*

The *National Parks and Wildlife Act 1974* (NPW Act) provides statutory protection to all Aboriginal places and objects. An Aboriginal Place is declared by the Minister, under Section 84 of the NPW Act in recognition of its special significance with respect to Aboriginal culture. Under Section 86 of the NPW Act Aboriginal objects and Aboriginal places are protected. An Aboriginal object is defined as:

> *any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction and includes Aboriginal remains.*

The protection provided to Aboriginal objects applies irrespective of the level of their significance or issues of land tenure. However, areas are only gazetted as Aboriginal places if the Minister is satisfied that sufficient evidence exists to demonstrate that the location was and/or is of special significance to Aboriginal culture.

There are no gazetted Aboriginal places in the project site. All Aboriginal objects, whether recorded or not are protected under the NPW Act.

As the project is subject to assessment under Part 5, Division 5.2 of the EP&A Act, permits issued under the NPW Act are not required.

2.2.1 National Parks and Wildlife Regulation 2019

Under the authority of the NPW Act, the National Parks and Wildlife Regulation 2019 provides regulations for Aboriginal heritage assessment and consultation with registered Aboriginal parties.

Part 5 (Division 2) of the National Parks and Wildlife Regulation 2019 sets out the requirements of a due diligence assessment process and provides requirements for more detailed assessment and consultation with registered Aboriginal parties for activities that may result in harm to Aboriginal objects. This includes:

- Clause 60 – consultation process to be carried out before application for Aboriginal heritage impact permit
- Clause 61 – application for Aboriginal heritage impact permit to be accompanied by cultural heritage assessment report.

In order to comply with Clause 60 and 61 of the National Parks and Wildlife Regulation 2019, preparation of an Aboriginal Cultural Heritage Assessment Report (ACHAR) and consultation with registered Aboriginal parties must be in accordance with the following guidelines:

- Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales[5] (Code of Practice)
- Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW[6] (ACHAR guidelines)
- Aboriginal cultural heritage consultation requirements for proponents 2010[7] (Consultation Guidelines).

Assessment and consultation carried out in accordance with Part 5 of the National Parks and Wildlife Regulation 2019 and associated guidelines would result in adequate supporting documentation to support an application(s) for approval for works that may result in harm to Aboriginal objects. The current assessment has been carried out in accordance with the above guidelines in order to meet the Secretary's Environmental Assessment Requirements for the project.

2.3 NSW *Environmental Planning and Assessment Act 1979*

The EP&A Act provides planning controls and requirements for environmental assessment in the development approval process. The EP&A Act consists of three main parts of direct relevance to Aboriginal cultural heritage; Part 3 which governs the preparation of planning instruments, Part 4 which relates to development requiring consent, and Part 5 which relates to activity that does not require consent.

The project is subject to assessment and approval by the NSW Minister for Planning and Public Spaces under Part 5, Division 5.2 of the EP&A Act, which establishes an assessment and approval regime for State Significant infrastructure.

An Environmental Impact Statement supported by the current assessment has been prepared to assess the impacts of the project, in accordance with Secretary's Environmental Assessment Requirements.

Section 5.22 of the EP&A Act provides that environmental planning instruments (such as local environmental plans and SEPPs) do not, with some exceptions, apply to State significant infrastructure projects. Notwithstanding, the environmental planning instruments that are relevant to the project have been considered for consistency, as described below.

[5] Department of Environment Climate Change & Water 2010a, *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*
[6] Office of Environment & Heritage 2011, *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW*
[7] DECCW 2010b, *Aboriginal cultural heritage consultation requirements for proponents 2010*

2.3.1 Blacktown Local Environment Plan 2015

Local Environmental Plans (LEPs) are prepared by councils in accordance with the EP&A Act to guide planning decisions for Local Government Areas (LGAs).

The aim of LEPs in relation to heritage is to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings, views and archaeological sites.

Schedule 5 of each LEP lists items of heritage significance within each LGA. If agreement is reached with the Aboriginal community, items or Aboriginal places of heritage significance are also listed within this schedule.

The project site falls within the boundaries of the City of Blacktown Local Government Area (LGA). No Aboriginal places of heritage significance were identified on the *Blacktown Local Environmental Plan 2015* (Blacktown LEP 2015) within the project site.

The project site is located on land subject to *State Environment Planning Policy (Western Sydney Parklands) 2009* (Western Sydney Parklands SEPP) (refer to Section 2.3.2). This excludes the application of the Blacktown LEP 2015 to this project.

2.3.2 State Environmental Planning Policy (Western Sydney Parklands) 2009

The project is located within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, and as such the provisions of the Western Sydney Parklands SEPP have been considered for consistency (although they do not apply to this project). The Western Sydney Parklands SEPP aims to put in place planning controls that will enable the Western Sydney Parklands Trust to develop the Western Parklands into a multi use urban parkland for the region of western Sydney, including protecting and enhancing the cultural and historical heritage of the Western Parklands.

No Aboriginal places of heritage significance were identified on the Western Sydney Parklands SEPP within the study area.

2.4 NSW *Aboriginal Land Rights Act 1983*

The *Aboriginal Land Rights Act 1983* is administered by the NSW Department of Human Services - Aboriginal Affairs. This Act established Aboriginal Land Councils (at State and local levels). These bodies have a statutory obligation under the Act to:

- Take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law
- Promote awareness in the community of the culture and heritage of Aboriginal persons in the council's area.

The project site is located within the Deerubbin LALC boundaries.

2.5 NSW *Native Title Act 1994*

The *Native Title Act 1994* was introduced to work in conjunction with the Commonwealth Native Title Act. Native Title claims, registers and Indigenous Land Use Agreements are administered under the Act.

No Native Title Claims within the project site were identified on the National Native Title Tribunal *Native Title Vision* mapping service.[8]

2.6 Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

The *Environment and Heritage Legislation Amendment Act (No.1) 2003* amends the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to include 'national heritage' as a matter of national environmental significance and protects listed places to the fullest extent under the Constitution. It also establishes the National Heritage List and the Commonwealth Heritage List.

The *Australian Heritage Council Act 2003* establishes a new heritage advisory body – the Australian Heritage Council - to the Minister for the Environment and Energy and retains the Register of the National Estate.

The *Australian Heritage Council (Consequential and Transitional Provisions) Act 2003* repeals the *Australian Heritage Commission Act 1975*, amends various Acts as a consequence of this repeal and allows the transition to the current heritage system.

Together the above three Acts provide protection for Australia's natural, Indigenous and non-Indigenous heritage. The new framework includes:

- A new National Heritage List of places of national heritage significance
- A new Commonwealth Heritage List of heritage places owned or managed by the Commonwealth
- The creation of the Australian Heritage Council, an independent expert body to advise the Minster on the listing and protection of heritage places
- Continued management of the non-statutory Register of the National Estate.

2.6.1 National Heritage List

The National Heritage List is a list of places with outstanding heritage value to our nation, including places overseas. So important are the heritage values of these places that they are protected under the EPBC Act. This means that a person cannot take an action that has, will have, or is likely to have, a significant impact on the national heritage values of a national heritage place without the approval of the Australian Government Minister for the Environment.

There are no items listed on the National Heritage List located within the project site for this assessment.

[8] Accessed on 20 March 2020 http://www.ntv.nntt.gov.au/IntraMaps80/default.htm?project=NTV_NSW

2.6.2 Commonwealth Heritage List

The Commonwealth Heritage List is a list of places managed or owned by the Australian Government.

There are no items listed on the Commonwealth Heritage List located within the project site for this assessment.

3.0 ASSESSMENT METHODOLOGY

3.1 Archaeological survey

3.1.1 Aboriginal site definition

An Aboriginal site is generally defined as an Aboriginal object or place. An Aboriginal object refers to any deposit, object or material evidence (not being a handicraft) relating to Aboriginal habitation of the area that comprises New South Wales[9]. Aboriginal objects may include stone tools, scarred trees or rock art. Some sites, or Aboriginal places can also be intangible and although they might not be visible, these places have cultural significance to Aboriginal people.

The Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales [10] states in regard to the definition of a site and its boundary that one or more of the following criteria must be used when recording material traces of Aboriginal land use:

- The spatial extent of the visible objects, or direct evidence of their location
- Obvious physical boundaries where present, for example mound site and middens (if visibility is good), a ceremonial ground
- Identification by the Aboriginal community on the basis of cultural information.

For the purposes of this study an Aboriginal site, or potential Aboriginal site, was defined by recording the spatial extent of visible traces or the direct evidence of their location within the project site.

3.1.2 Archaeological survey methodology

3.1.2.1 Site inspection

Two site inspections were carried out for this assessment. The first site inspection was conducted by Duncan Jones and Jessica Horton (Artefact) on 17 February 2020. The second site inspection was carried out by Jessica Horton and Steve Randall (Deerubbin LALC) on 7 April 2020.

An additional site inspection was undertaken during preparation of the Addendum ACHAR to assess amendments to the proposed design of the project which have been identified following the exhibition of the Environmental Impact Statement for the Sydney International Speedway. The addendum site inspection was carried out by Alyce Haast (Senior Heritage Consultant, Artefact Heritage) and Steve Randall (Deerubbin LALC) on 7 September 2020. The results of this site inspection are detailed in the Addendum ACHAR provided in Appendix B: Addendum ACHAR of this report.

3.1.2.2 Aims of archaeological survey

The aims of the archaeological survey were to:

- Cover a representative sample of the project site that would potentially be impacted by the project works
- Reinspect any previously registered Aboriginal sites, including sites which are located adjacent to the project site, to confirm their presence and spatial extent and potential impact of the project

[9] DECCW 2010a: 37
[10] OEH 2011

- Record any new Aboriginal sites observed during the survey
- Identify areas of PAD that may be present in areas that have had no or minimal disturbance
- Engage with Deerubbin LALC regarding the proposed works and the archaeological potential of the project site
- Collect information to ascertain whether further archaeological investigation is required.

3.1.2.3 Survey coverage methodology

The study area consists of largely artificially modified landforms with small areas of unmodified ground in the south and west of the site. The study area was separated into survey units based on these different landforms. All survey units were walked on foot with a representative sample covered across the project site. Most of the study area was covered in grass or hardstand, although a number of significant areas of open ground exposure were present.

Several AHIMS registered sites are located in close proximity to the project site. All AHIMS site locations immediately adjacent to the project site which were accessible were visited during the site inspection in order to assess the current condition of these sites and whether they extended into the project site.

An area of preserved Cumberland Plain woodland is located within the study area but outside of the project site, between carpark C and carpark D (refer to Section 4.0 for additional information about the project). This area was also included in the site inspection, due to the presence of AHIMS sites within this area being close to the boundary of the project site and to ensure that potential impacts nearby would not affect these registered AHIMS sites.

The survey units across the project site for the Aboriginal heritage assessment are shown on Figure 5. A discussion of the survey units and the results of the survey are provided in Section 8.0.

3.1.2.4 Recorded Aboriginal sites and areas of archaeological potential

Information on any recorded Aboriginal sites, including type and location, is included in the discussion of the survey units, as well as an assessment of archaeological potential.

The assessment of archaeological potential incorporates available information on existing and past structures that are likely to have removed archaeological deposits.

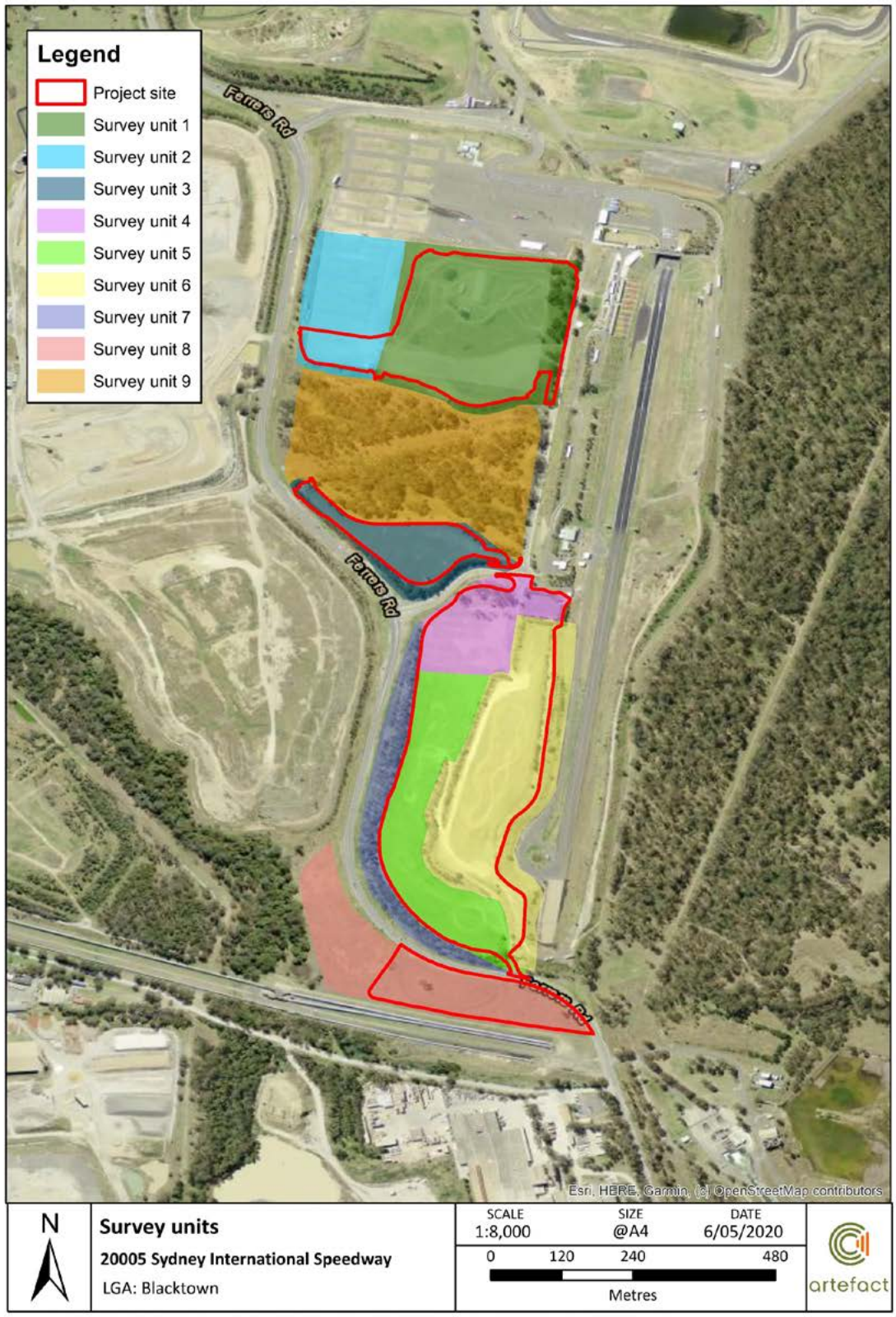

Figure 5 Site inspection survey units

3.2 Significance assessment methodology

An assessment of the cultural heritage significance of an item or place is required in order to form the basis of its management. *The Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW*[11] provides guidelines for heritage assessment with reference to the *Burra Charter*[12]. The assessment is made in relation to four values or criteria (Table 2). In relation to each of the criteria, the significance of the subject area should be ranked as high, moderate or low.

Cultural heritage consists of places or objects, that are of significance to Aboriginal people. Cultural heritage values are the attributes of these places or objects that allow the assessment of levels of cultural significance.

Assessing the cultural significance of a place or object means defining why a place or object is culturally important. It is only when these reasons are defined that measures can be taken to appropriately manage possible impacts on this significance. Assessing cultural significance involves two main steps, identifying the range of values present across the project site and assessing why they are important.

Social/cultural heritage significance should be addressed by the Aboriginal people who have a connection to, or interest in, the site. As part of the consultation process the Aboriginal stakeholders were asked to provide information on the cultural significance of the project site. Information on consultation with Aboriginal stakeholders for the project is provided in Section 5.0.

Table 2 Burra Charter Heritage significance criteria

Criterion	Description
Social	The spiritual, traditional, historical or contemporary associations and attachments the place or area has for Aboriginal people. Social or cultural value is how people express their connection with a place and the meaning that place has for them. Does the subject area have strong or special association with the Aboriginal community for social, cultural or spiritual reasons?
Historic	Historic value refers to the associations of a place with a historically important person, event, phase or activity in an Aboriginal community. Is the subject area important to the cultural or natural history of the local area and/or region and/or state?
Scientific	This refers to the importance of a landscape, area, place or object because of its rarity, representativeness and the extent to which it may contribute to further understanding and information. Information about scientific values will be gathered through any archaeological investigation carried out. Does the subject area have potential to yield information that will contribute to an understanding of the cultural or natural history of the local area and/or region and/or state?

[11] Office of Environment and Heritage 2011
[12] Australia ICOMOS 2013

Criterion	Description
Aesthetic	This refers to the sensory, scenic, architectural and creative aspects of the place. It is often linked with the social values. It may consider form, scale, colour, texture and material of the fabric or landscape, and the smell and sounds associated with the place and its use. Is the subject area important in demonstrating aesthetic characteristics in the local area and/or region and/or state?

In addition to the four criteria, Heritage NSW requires consideration of the following[13]:

- Research potential: does the evidence suggest any potential to contribute to an understanding of the area and/or region and/or state's natural and cultural history?
- Representativeness: how much variability (outside and/or inside the subject area) exists, what is already conserved, how much connectivity is there?
- Rarity: is the subject area important in demonstrating a distinctive way of life, custom, process, land use, function or design no longer practised? Is it in danger of being lost or of exceptional interest?
- Education potential: does the subject area contain teaching sites or sites that might have teaching potential?

3.3 Impact assessment

The definition of harm to an object or place under the NPW Act includes any act or omission that 'destroys, defaces or damages the object or place or in relation to an object – moves the object from land on which it had been situated.' (s5 NPW Act).

Direct harm may occur as a result of activities which disturb the ground surface including site preparation activities, earthworks and ground excavation, and the installation of services and infrastructure. The direct impact associated with the project is discussed in Section 10.0.

Indirect harm for Aboriginal heritage refers to impacts that may affect sites or features located immediately beyond or within the area of the proposed works. Indirect harm may include impacts from vibration, increased visitation or increased erosion, including ancillary project activities (construction and/or operation) that are not located within the project site.

Registered Aboriginal sites which are within the vicinity of the project site are comprised of artefact sites or areas of potential archaeological deposit. Any buried Aboriginal objects would not be subject to impacts as a result of vibration. There are no Aboriginal places in the vicinity of the construction sites which may be subject to indirect impacts.

[13] Office of Environment and Heritage 2011: 10

4.0 PROJECT DESCRIPTION

4.1 Overview of the project

Once complete, the project would include world class racing infrastructure in the form of a clay based racetrack benchmarked to national and international best practice for both speedway vehicles and motorcycles. To facilitate the use of the speedway racetrack, the following ancillary racing infrastructure would be constructed:

- New vehicle access to the raceway area, including a gated access via an intersection off Ferrers Road
- A racing competitor's pit area in Carpark B, comprising around 150 parking bays for race vehicles and their tenders, including 20 bays for heavy vehicles transporting racing vehicles to and from the speedway and viewing platforms for pit crews
- Workshops/garages and track-side operational support areas to be used by pit crews.

High quality event support infrastructure provided to maximise the spectator experience at speedway events would comprise:

- A grandstand with the capacity to seat around 3750 spectators
- Ticketing and entryway structures
- Spectator facilities, including terraced seating for up to around 7000 spectators, public amenities, corporate boxes, provision for food and beverage operators together with merchandise outlets
- Dedicated parking provided for spectators, visitors and users of the Sydney International Speedway in Carpark A, available for use by other motorsport operators by agreement
- Dedicated parking for Sydney Dragway to replace some of the existing spectator parking areas which would form part of the Sydney International Speedway project site. The New Dragway Parking in Carparks C and D would be available for use by other motorsport operators by agreement

Operational support infrastructure would be provided to enable the operation of the Sydney International Speedway. Such infrastructure would include:

- Public safety including fencing and fire safety systems
- Communications including a fibre optic network (to suit internet broadcasting bandwidth and PA/AV provisions), signage and large broadcasting screens
- Services including the provision of stormwater, drainage and flooding, utilities and lighting.

The operational site layout is shown on Figure 3. Operation would also include maintenance activities required to support the project.

Construction of the project is expected to take around 13 months to complete. The following construction activities would be carried out:

- Clearing, earthworks and levelling
- Landforming works
- Establishment of carparks

- Construction of racing and event support infrastructure
- Utilities connections, landscaping and finishing works.

Further detail on the project is provided in Chapter 5 (Project description) of the Sydney International Speedway Environmental Impact Statement.

4.2 Overview of construction activities

Construction of the project is expected to take around 13 months to complete. Key construction activities to be carried out as part of the project include site establishment, site clearance, earthworks and site levelling, construction of racing and support infrastructure, utilities connections, landscaping and finishing works.

4.2.1 Bulk earthworks

Construction would involve earthworks for levelling and landforming activities across most of the project site. Currently, the project site consists of artificial terraced hills with a maximum elevation of 90 metres Above Sea Level (ASL) in the north and 77 metres ASL in the south. Project works would result in modifications to the majority of the artificial land forms within the project site and final elevation levels would be determined during detailed design. Indicative cut and fill diagrams are shown in Figure 6, Figure 7, Figure 8 and Figure 9.

Carpark D would require the most earthworks and site levelling activities. This car park is currently located on a rocky outcrop, which would need to be reduced to allow for the establishment of car parking facilities. In addition, earthworks activities would be required to establish the racetrack profile to meet the national and international racing standards. Earthworks within the carpark areas and the main operational site would generate excess cut material which would be temporarily stored as stockpiles across the project site, including the area south of Ferrers Road. Any excess material remaining at the end of construction would then be formed into a permanent landscaped mound in the area south of Ferrers Road, with the implementation of appropriate drainage, erosion and sedimentation controls to ensure no impact to areas adjacent to the landscaped mound. The landscaped mound would fill the majority of the southern area.

The project site would be cleared of vegetation and topsoil would be stripped before earthworks are carried out. Topsoil would be stored in temporary stockpiles up to four metres high across the project site before being transported to its final location.

4.2.2 Speedway track, buildings and infrastructure

The concept design for the racetrack and associated buildings and infrastructure are provided in Figure 10 and Figure 11. The racetrack would be located centrally within the main operational site and would be formed using about 8200 cubic metres of Sydney clay, which would be imported to the project site. This material would be imported to construct the racetrack so that it is similar in composition to the existing Sydney Speedway (location on NSW Government owned land), and to meet the national and international racing standards.

The grandstand would be constructed on a fill embankment overlooking the racetrack. The racing and event support infrastructure are anticipated to be reinforced pre-cast concrete structures with steel elements and modular prefabrications. The prefabricated elements would be constructed offsite, delivered via heavy vehicle and installed using cranes and other lifting equipment. The terraced seating would be comprised of concrete and turf.

Construction of these structures on site would likely include the following activities:

- Piling
- Earthworks (excavation of foundations and creation of embankments)
- Concrete pouring
- Brickwork/masonry
- Installation of modular prefabricated elements
- Internal fit out
- Landscaping.

Utilities connections (including a new electrical substation, new potable water connection, waste water and communications) would be required as part of the construction of the project.

4.2.3 Amendments to the project after Environmental Impact Statement exhibition

Following public exhibition of the Environmental Impact Statement and draft Aboriginal Cultural Heritage Assessment Report, a number of amendments to the project have been proposed. These amendments as they relate to the impacts of the project on Aboriginal cultural heritage, are discussed and assessed in the Addendum Aboriginal Cultural Heritage Assessment Report for the project, which is included in Appendix B of this report.

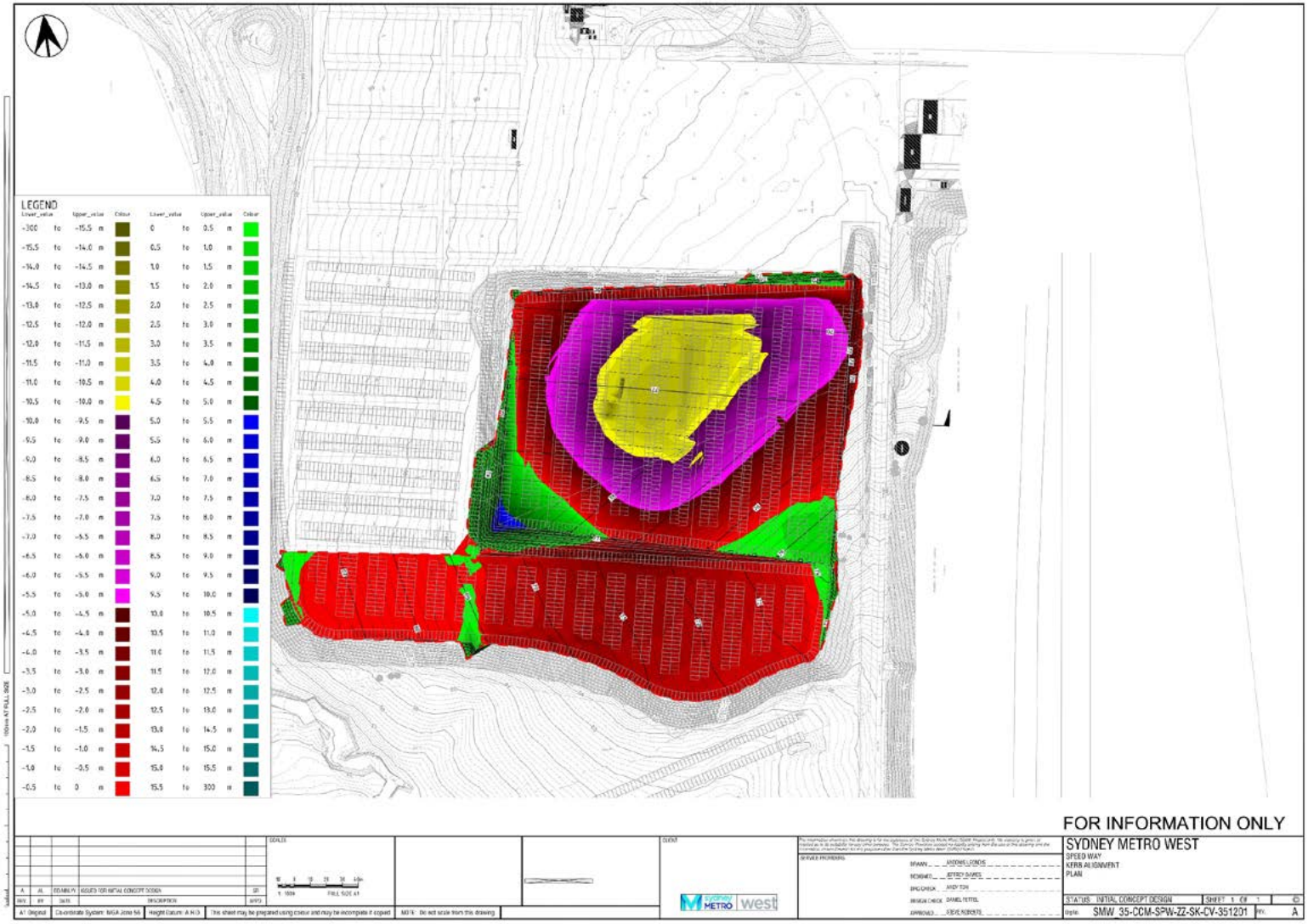

Figure 6 Indicative cut and fill diagram for northern carpark area for Speedway (15 April 2020 concept design)

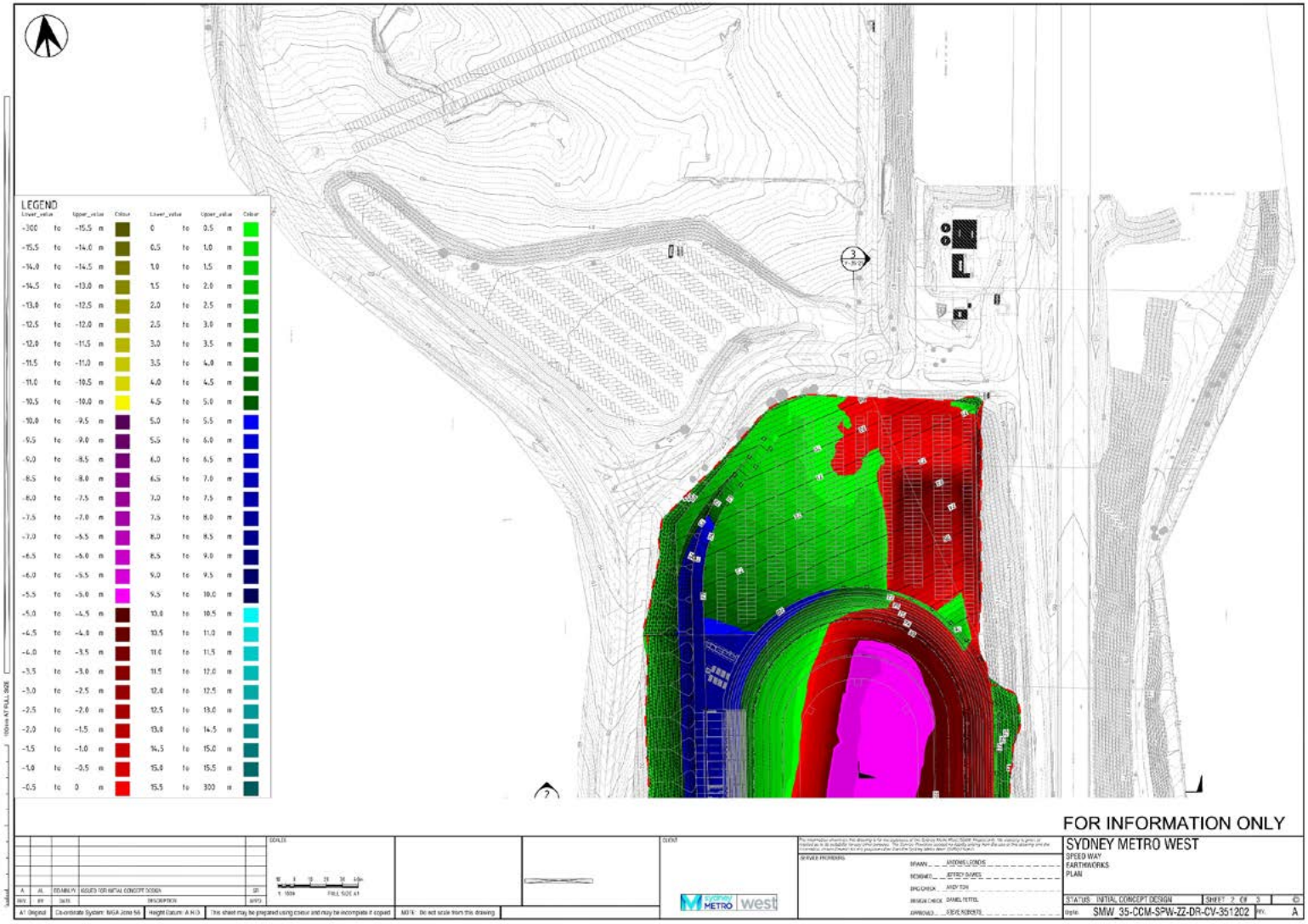

Figure 7 Indicative cut and fill diagram for Speedway complex (north) (15 April 2020 concept design)

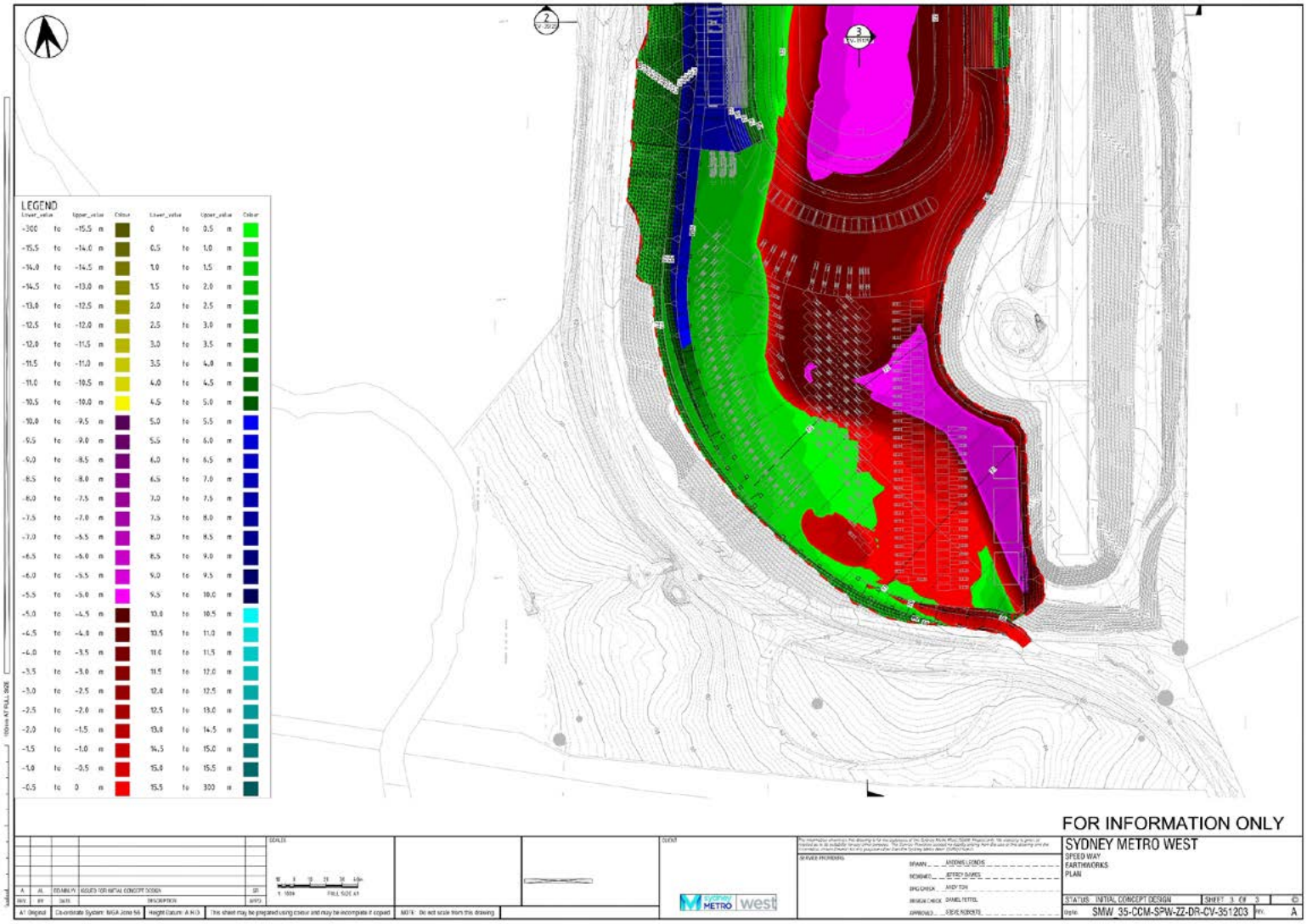

Figure 8 Indicative cut and fill diagram for Speedway complex (south) (15 April 2020 concept design)

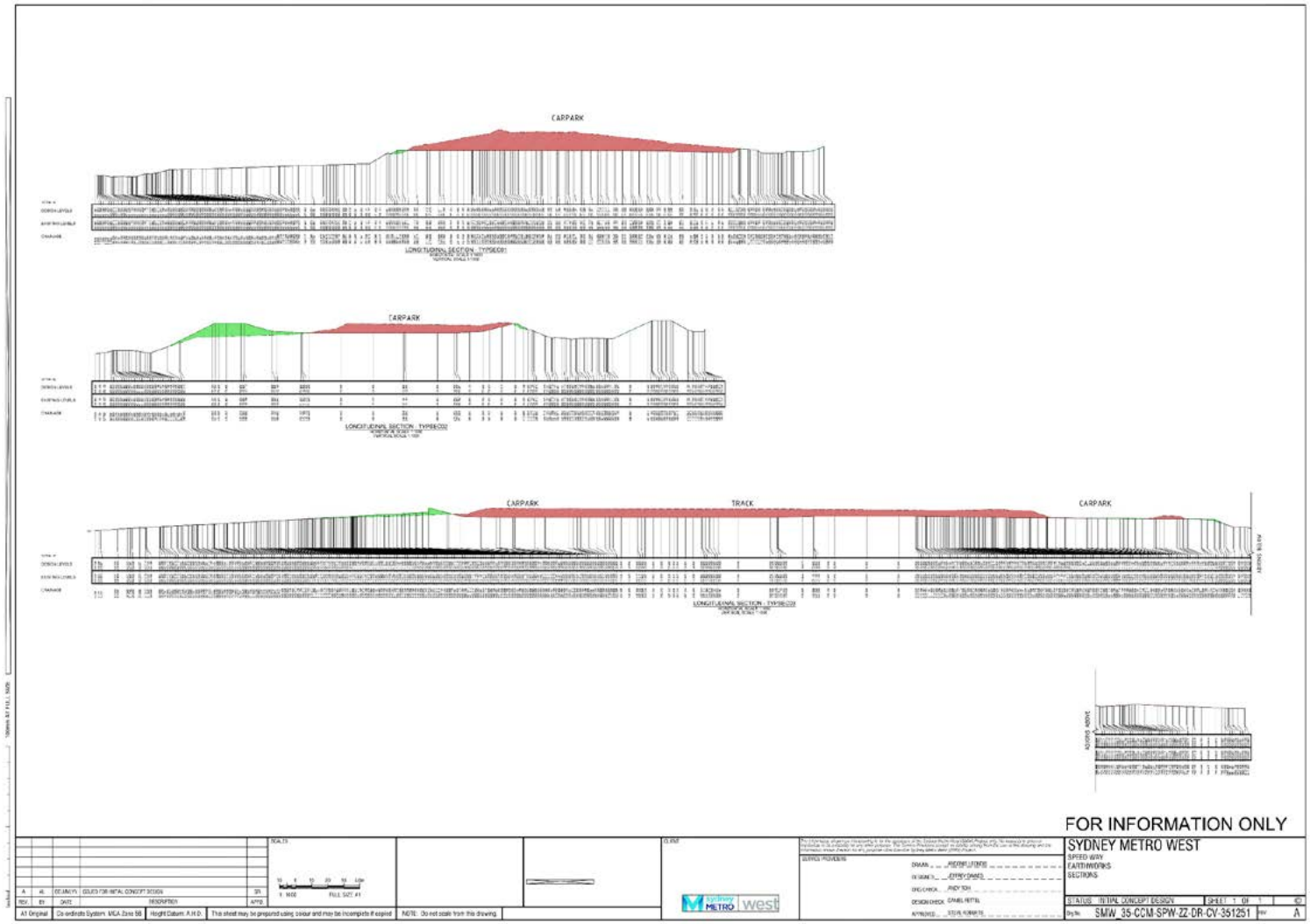

Figure 9 Indicative elevation diagram of cut and fill for project (land reduced indicated in red, land raised indicated in green) (15 April 2020 concept design)

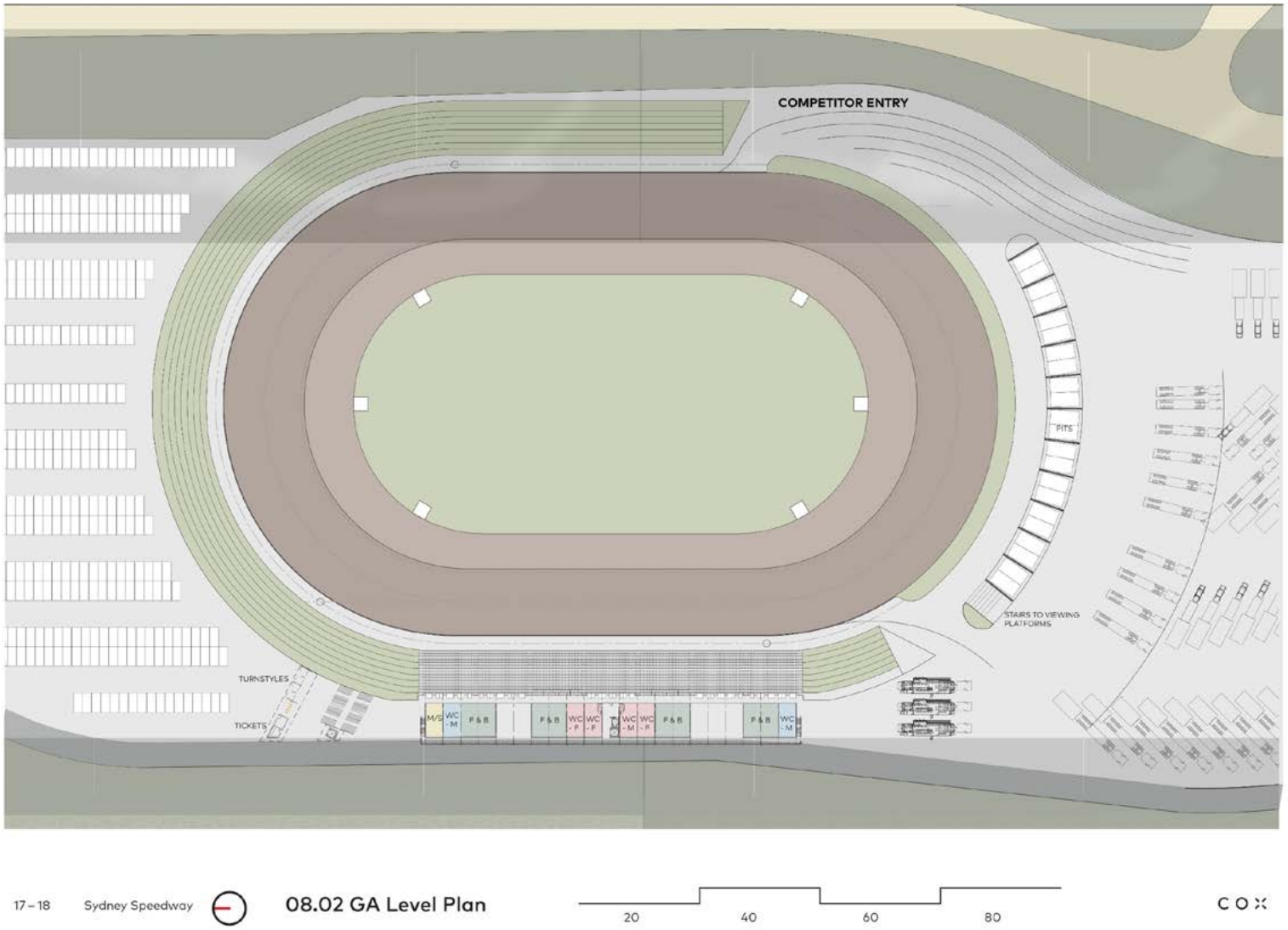

Figure 10 Indicative plan of ground level of track, grandstand and offices (Source: Cox Architects) (15 April 2020 concept design)

Figure 11 Visual render of Speedway facility, north-west aspect. (Source: Cox Architects) (15 April 2020 concept design)

5.0 ABORIGINAL COMMUNITY PARTICIPATION

5.1 Aboriginal consultation

Aboriginal community consultation has been conducted in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents.*[14]

A consultation log has been maintained which details all correspondence with the registered Aboriginal parties for the project (Appendix A).

5.2 Identification of stakeholders and registrations of interest

In accordance with Stage 4.1.2 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents*[15], correspondence was sent to the following organisations on 6 March 2020 requesting details of Aboriginal people who may hold cultural knowledge relevant to determining the Aboriginal significance of Aboriginal objects and/or places within the project site.

- The Department of Planning, Industry and the Environment (formerly the Office of Environment and Heritage [OEH] now Heritage NSW)
- The Registrar, *Aboriginal Land Rights Act 1983*
- Deerubbin Local Aboriginal Land Council
- NTSCORP
- National Native Title Tribunal
- Blacktown City Council
- Greater Sydney Local Land Services.

In accordance with Stage 4.1.3 of the Aboriginal cultural heritage consultation requirements for proponents 2010, Artefact placed an advertisement in the *Koori Mail* and the *Blacktown Advocate* on 11 March 2020 and 18 March 2020 respectively. The advertisement invited all Aboriginal persons and organisations who hold cultural knowledge relevant to determining the significance of Aboriginal objects and places in the study area to register their interest.

Also, in accordance with Stage 4.1.3, letters and/or emails were sent on 1 April 2020 to all Aboriginal persons and organisations identified through responses from the agencies contacted during Stage 4.1.2. The letters provided details on the location and nature of the project, as well as an invitation to register as an Aboriginal stakeholder. Fourteen days were allowed for registrations.

Following the completion of Stages 4.1.2 and 4.1.3, a total of 17 stakeholder groups had registered their interest in the consultation process. These groups include:

- A1 Indigenous Incorporation
- Aragung Aboriginal Cultural Heritage Site Assessments
- Barraby Cultural Services
- Butucarbin Heritage

[14] Department of Environment Climate Change and Water 2010b
[15] Department of Environment Climate Change and Water 2010b

- Clive Freeman
- Darug Aboriginal Land Care
- Darug Custodian Aboriginal Corporation
- Deerubbin Local Aboriginal Land Council
- Goobah Developments
- Goodradigbee Cultural & Heritage Aboriginal Corporation
- Kamilaroi-Yankuntjatjara Working Group
- Muragadi
- Murra Bidgee Mullangari Aboriginal Corporation
- Paul Gale
- Widescope Indigenous Group
- Wurrumay Consultancy
- Yurrandaali Pty Ltd

5.3 Site inspection

As discussed in Section 3.1.2.1, a site inspection of the study area was carried out by Steve Randall (Deerubbin LALC), accompanied by Jessica Horton on 7 April 2020. A summary of comments provided by Deerubbin LALC after the completion of the site inspection have been provided in Table 3.

Table 3 Summary of Deerubbin LALC site inspection report

Person/RAP group	Comment	Artefact response
Steven Randall/ Deerubbin LALC	• Noted the level of "destruction from levelling and landscaping" in areas within the Speedway site, and that no Aboriginal cultural material was identified. • Two areas of PAD were identified in those areas which had not been subject to widespread landscaping work (refer to Section 9.2 for more information). • Further test excavation was recommended for the two areas of PAD identified during the site inspection.	• The assessment has noted substantial former disturbance across the project site which has reduced the potential for Aboriginal cultural material to be identified within the project site. • The identification of the two areas of PAD has been supported in this assessment • Two areas of PAD were identified within the study area for the project; however, following the site inspection with Deerubbin LALC, the footprint of the project was revised to avoid impacts to PAD 01. PAD 02 is located outside the project footprint. As a result, the two PAD sites identified as part of the site inspection would not be impacted by the project. As the project would not disturb areas of natural ground which have been determined to be areas of PAD, no test excavation has been proposed.

An additional site inspection was undertaken during preparation of the Addendum ACHAR. The addendum site inspection was carried out by Alyce Haast (Senior Heritage Consultant, Artefact Heritage) and Steve Randall (Deerubbin LALC) on 7 September 2020. The results of this site inspection are detailed in the Addendum ACHAR provided in Appendix B: Addendum ACHAR of this report.

5.4 Review of assessment methodology

A copy of the proposed ACHAR methodology was distributed to Aboriginal stakeholders on 24 April 2020, with a 28-day period for review and comment. The document included project details and a summary of the proposed ACHAR assessment methodology.

Comments received from stakeholder groups are provided in Table 4 below. Comments were received from six Aboriginal stakeholder groups. All comments supported the assessment methodology for the project.

Table 4 Summary of Aboriginal stakeholder methodology review comments

Person/RAP group	Comment	Artefact response
Philip Khan/Kamilaroi-Yankuntjatjara Working Group	• Noted that the Eastern Creek area is considered highly spiritual and significant to Aboriginal people. The multiple creek lines in the Eastern Creek area would have provided good food resources as well as the possibility of burial grounds being present. • Recommended that test excavation investigation is conducted.	• Comments regarding the spiritual significance of Eastern Creek would be incorporated into the ACHAR • Two areas of PAD were identified within the study area for the project; however, these would not be impacted by the project and are outside of the project footprint. The remainder of the study area has been heavily modified with widespread landscaping and the construction of artificial terraces for the Sydney Dragway. As the project would not disturb areas of natural ground which have been determined to be areas of PAD, no test excavation has been proposed.

5.5 Review of draft Aboriginal Heritage Assessment report

The draft ACHAR was distributed to registered Aboriginal stakeholders on 21 August 2020, with a 28-day period for review and comment. Comments were received from three stakeholder groups who were generally supportive of the report. A summary of comments received from three registered stakeholders and the response from Artefact Heritage (where required) is shown in Table 5 below.

Table 5 Summary of Aboriginal stakeholder review of draft ACHAR

Person/ RAP group	Comment	Artefact response
Steven Hickey/ Widescope	• Supports the recommendations outlined in the draft ACHAR	• None required
Darleen Johnson/ Murra Bidgee Mullangari Aboriginal Corporation	• Supports the recommendations outlined in the draft ACHAR	• None required

Person/ RAP group	Comment	Artefact response
Philip Khan/ Kamilaroi-Yankuntjatjara Working Group	• Noted that the area is significant to Aboriginal people of the past and present and that the study area may have been a ceremonial men's site based on its proximity to Prospect Hill • Identified that Prospect Reservoir would have previously been a large waterhole which would have been a focus of Aboriginal occupation. • Identified that the assessment of low scientific significance was hurtful as the sites are of high significance to Aboriginal people. • Recommends that excavation be undertaken across the project site as it may include hearths and burials.	• Comments regarding the spiritual significance of Eastern Creek have been incorporated into the social significance assessment within the ACHAR. It is noted that the project site is located about five kilometres west of Prospect Hill. It is also noted that Prospect Reservoir was constructed in the 1880s as an artificial dam of Prospect Creek. • It is acknowledged that the sites are of high cultural significance to Aboriginal people. The assessment of scientific significance considers a limited range of elements including a sites research potential, the potential of the site to provide education outcomes as well as consideration of how representative and rare a site is. The assessment of these elements are not influenced by the cultural significance of each site to the Aboriginal community. • Two areas of PAD were identified within the study area for the project; however, these would not be impacted by the project and are outside of the project footprint. Subsequently these areas will be conserved. • The remainder of the study area has been assessed as heavily modified with previous widespread landscaping and the construction of artificial terraces for the existing Sydney Dragway being undertaken. Based on the previous substantial modification of the project site, it is considered unlikely that archaeological excavation would result in the identification of any Aboriginal objects. The majority of these artificial landforms are also being retained intact, with new facilities constructed on top of them. Test excavation as part of the project is therefore not proposed.

Person/ RAP group	Comment	Artefact response
Justine Coplin / Darug Custodian Aboriginal Corporation	• The Eastern Creek area is considered highly significant to Darug people due to the connection sites and the long Aboriginal occupation of the area • The Darug people have told stories about Aboriginal burials which are located at the Eastern Creek raceway, and that Darug people protested the construction of the raceway to prevent these burials being disturbed. • The presence of burials at Eastern Creek needs to be investigated before the start of any ground disturbing works for the project	• Further discussion was conducted with Justine Coplin and Leanne Watson of the Darug Custodian Aboriginal Corporation. Both stakeholders discussed their understanding of the presence of burials in the Eastern Creek area were derived from oral histories. Neither stakeholder knew the precise location of specific burials. • Protests had been conducted against the development of the Sydney Motorsport Park to prevent the disturbance of possible burials in this location. Sydney Motorsport Park is located 300 metres to the north of the project site • Leanne Watson confirmed that if burials had been present when the Sydney Motorsport Park was developed, they would have likely been heavily impacted by those development works. • The AHIMS database does not provide any information on burial sites within or near the project footprint and no restricted sites were flagged during AHIMS searches for the project • As the works for the Sydney International Speedway is almost entirely restricted to the artificial landform created when the Sydney Dragway was constructed, and that the burials were indicated to have been located outside of the project footprint (within the boundaries of the present Sydney Motorsport Park), it is considered unlikely that burials would be located within the current project footprint that would be disturbed or impacted by the proposed works. As a result, any investigation into the presence of burials within the project site is not proposed.

6.0 ENVIRONMENTAL CONTEXT

6.1 Geology and soils

The project site is located within the central portion of the Cumberland Plain, a large low lying and gently undulating landform in the Sydney Basin. The formation of the basin began between 300 to 250 million years ago when river deltas gradually replaced the ocean that had extended as far west as Lithgow. The oldest, Permian layers of the Sydney Basin consist of marine, alluvial and deltaic deposits that include shales and mudstone overlain by Coal Measures.

The geology of the area is characterised by the Triassic Wianamatta group which consists of black to dark grey shale and laminate on top of medium to coarse grained quartz sandstone, with very minor shale and laminate. The underlying geology is Hawkesbury Sandstone that was laid down as river sediments and is described as medium to course grained quartz sandstone, which is then overlain by the finer sedimentary material caps of Wianamatta shale.[16]

A salient feature of the regional geological landscape includes a significant source of silcrete at Plumpton Ridge, about six kilometres northwest of the project site. Silcrete, a raw material used by Aboriginal people across Sydney Basin, was extracted from underlying Tertiary period geology called the St Marys formation. The silcrete raw material source at Plumpton Ridge was an important and extensively used quarry where extraction and tool manufacture activities took place.[17]

Most of the northern and eastern portions of the project site consist of artificially constructed terrain, associated with excavation and landscaping works that resulted from the construction of the Sydney Dragway. Several high artificially introduced hills and terraces rise to about 71 metres ASL, compared to the natural local elevation of the project site near Eastern Creek at about 58 metres ASL. Exposed soils on these artificial mounds and terraces show predominantly redeposited local clays and soils, with some localised areas where white and yellow non-local sands have been introduced.

The southern portion of the project site has not been heavily modified and consists of the local Blacktown residual soil landscape. This soil context has shallow to moderately deep hard setting clayey soils, with red and brown podzolic soils on crests grading to yellow podzolic soils on lower slopes and in drainage lines. These nutrient poor soils are highly erodible and hence are extremely susceptible to disturbance.

The far southwestern portion of the project site is adjacent to South Creek soil landscape where it borders on Eastern Creek. South creek soils are characterised as deep layered sediments over bedrock or relict soils. Plastic clays or structured loams occur in and immediately adjacent to drainage lines. Red and yellow podzolic soils are most common on terraces with small areas of structured grey clays, leached clay and yellow solodic soils. This area is also susceptible to flooding from Eastern Creek.

[16] Clark, N.R., and Jones, D.C., 1991. *Penrith 1:100,000 Geological Sheet 9030, 1st Edition*. Geological Survey of New South Wales, Sydney
[17] Jo McDonald CHM Pty Ltd. 2006. Archaeological Salvage Excavation of the Colebee Release Area, Schofields, NSW, Volume 1. Report prepared for Medallist Golf Holdings Pty Ltd.

6.2 Hydrology and vegetation

The project site is located on a gently sloping landform which borders the upper portion of Eastern Creek. Eastern Creek is a major creek which rises in Horsley Park about 4.5 kilometres to the south of the project site and joins into South Creek about 20 kilometres north of the project site before flowing into the Hawkesbury River. Eastern Creek is known to have localised flooding. Prospect Creek is located 2.3 kilometres to the southeast, which has been artificially dammed to form Prospect Reservoir. The nearest waters of the artificial Prospect Reservoir are located about450 metres east of the project site.

Prior to the construction of the Prospect Reservoir in the 1880s, Eastern Creek was the largest body of water in the Prospect area. Due to the heavily modified topography of much of the project site, no other permanent water courses are located within this area and ephemeral drainage lines that exist today are largely artificial. Eastern Creek near the project site is in poor health, with heavily eroded creek banks and evidence of industrial and septic runoff.

The vegetation in and near the project site has been mostly impacted by agricultural clearing in the nineteenth century and industrial development in the twentieth century. The project site would have once been covered by open Cumberland Plain Woodland, which is typical of the Wianamatta Group shale geology. Tree species would have included Forest Red Gum (Eucalyptus tereticornis), Sydney Blue Gum (E. saligna) and Grey Box (E. moluccana). The understory would likely have consisted of grass species, including spear grass, and shrub species such as blackthorn. While much of the project site has been cleared of vegetation, one small area near the project site (associated with survey unit 9) has regrowth remnant Cumberland Plain Woodland, which demonstrates the original vegetation in the Eastern Creek area.

6.3 European history and land use

The historical period in New South Wales began with European land settlement in 1788 when Arthur Philip claimed possession of the land now known as Australia, on behalf of the British Government. European exploration within Prospect began within the first year of settlement. On 26 April 1788, Governor Arthur Phillip led an expedition party west from Sydney Cove, climbing what would later be known as Prospect Hill (about four kilometres east of the project site).[18]

Early land grants within and near the project site were allotted to European settlers in the early 1800s. Notable grants included 300 acres made to emancipist John Jaques on 17 August 1812.[19] Additional grants within the project site included 50 acres to Joseph Kearns, George Smith, Pearce Collets, Thomas Howard and John Watts; and 60 acres to Richard Partridge. By 1820, much of the land within the area had been cleared, and a number of further land grants made bordering the fertile land near Eastern Creek.

Following the decline of the cereal grain industry during the 1870s, farming in the wider Prospect area shifted from crop growing to livestock rearing. Many of the earliest structures made by the first European settlers in the region had been demolished by this point and land at Prospect continued to be used for pasturage up until the construction of the Prospect Reservoir. Prospect Reservoir was constructed from 1880 to 1888 and involved the damming of Prospect Creek, to form a storage facility for inflowing waters from the Upper Canal which brought water from the Upper Nepean dams to

[18] OEH, 2001. 'Prospect Hill'. Access online 27 February 2020, https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5051526
[19] Early Hawkesbury Records, June 1897, p. 11.

metropolitan Sydney.[20] The Warragamba Pipeline, directly to the south of the project site, was constructed in the 1960s to draw additional water into the reservoir to supply Sydney's water needs.

The region around the project site continued in use for grazing and agriculture until the 1960s when motorsport facilities were constructed to the north (now called Sydney Motorsports Park (operated by the Australian Racing Drivers' Club)). The development of motorsport raceways in the area resulted in widespread alterations to the land. The Sydney Dragway was constructed in the eastern portion of the project site in 2004 and involved extensive landscaping and terrace mounding for much of the northern and eastern portions of the project site.[21] The former road alignment of Ferrers Road was altered to its current location at this time, with the construction and upgrading of stormwater culverts near and underneath the road.

A small portion of land located between the northern and central parts of the project site was preserved as Cumberland Plain endangered woodland. While a high voltage transmission line was constructed through this area, the remainder of the landform in this location is largely original and intact. The southern portion of the project site directly adjacent to Eastern Creek has also not been heavily modified, however racing events have been conducted in this property by private motorsport clubs and this has resulted in localised areas of earth mounding and levelling.

[20] OEH, 2001. 'Prospect Reservoir and surrounding area'. Accessed online 27 February 2020, https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5045336
[21] Sydney Dragway, 2013. 'About Our Venue'. Accessed online 2 March 2020, http://www.sydneydragway.com.au/about-our-venue/

7.0 ARCHAEOLOGICAL CONTEXT

7.1 Aboriginal histories of the locality

Aboriginal people have lived in the Sydney area for more than 20,000 years. The oldest securely dated site in the greater Sydney region is 17,800 years Before Present (yBP), which was recorded in a rock shelter at Shaw's Creek.[22] Evidence of Aboriginal occupation has been found dated to 50-60,000 yBP at Lake Mungo in NSW, so it is likely that Aboriginal people have lived in the Sydney region for even longer than indicated by the oldest recorded dates we have at present. The archaeological material record provides evidence of this long occupation, but also provides evidence of a dynamic culture that has changed through time.

The existing archaeological record is limited to certain materials and objects that were able to withstand degradation and decay. As a result, the most common type of Aboriginal objects remaining in the archaeological record are stone artefacts. Archaeological analyses of these artefacts in their contexts have provided the basis for the interpretation of change in material culture over time. Technologies used for making tools changed, along with preference of raw material. Different types of tools appeared at certain times, for example ground stone hatchets are first observed in the archaeological record around 4,000 yBP in the Sydney region.[23]. It is argued that these changes in material culture were an indication of changes in social organisation and behaviour.

After 8,500 yBP silcrete was more dominant as a raw material, and bifacial flaking became the most common technique for tool manufacture. From about 4,000 yBP to 1,000 yBP backed artefacts appear more frequently. Tool manufacture techniques become more varied and bipolar flaking increases.[24] It has been argued that from 1,400 to 1,000 years before contact there is evidence of a decline in tool manufacture. This reduction may be the result of decreased tool making, an increase in the use of organic materials, changes in the way tools were made, or changes in what types of tools were preferred.[25] The reduction in evidence coincides with the reduction in frequency of backed blades as a percentage of the assemblage.

Prior to the appropriation of their land by Europeans, Aboriginal people lived in small bands and were part of clan groups that were associated with particular territories or places. It seems that territorial boundaries were fairly fluid, although details are not known. The language group spoken on the Cumberland Plain is known as Darug (Dharruk – alternative spelling). This term was used for the first time in 1900[26] as before the late 1800s language groups or dialects were not discussed in literature.[27] The Darug language group is thought to have extended from Appin in the south to the Hawkesbury River, west of the Georges River, Parramatta, the Lane Cove River and to Berowra Creek.[28] This area was home to a number of different clan groups throughout the Cumberland Plain. It is possible that the project site is within the country of the Warrawarry clan of the Darug people.

British colonisation had a profound and devastating effect on the Aboriginal population of the Sydney region, including Darug speakers. In the early days of the colony, Aboriginal people were disenfranchised from their land as the British claimed areas for settlement and agriculture. The colonists, often at the expense of the local Aboriginal groups, also claimed resources such as

[22] Nanson, G.C., Young, R.W., & Stockton, E.D. 1987. Chronology and palaeoenvironment of the Cranebrook Terrace (near Sydney) containing artefacts more than 40,000 years old. *Archaeology in Oceania*, 22 (2): 72-78.
[23] Attenbrow, V. 2010. *Sydney's Aboriginal Past: Investigating the Archaeological and Historical Records* University of New South Wales Press Ltd, Sydney. p.102.
[24] Jo McDonald CHM Pty Ltd. 2006
[25] *Op cit*. p. 102.
[26] Matthews R.H. and Everitt M.M. 1900. The organisation, language and initiation ceremonies of the Aborigines of the south-east coast of N.S. Wales. *Journal and Proceedings of the Royal Society of NSW. 34:262-81.*
[27] *Op cit*. p. 31
[28] *Ibid.* p. 34.

pasture, timber, fishing grounds and water sources. Overall, the devastation of the Aboriginal culture did not come about through war with the British, but instead through disease and forced removal from traditional lands. It is thought that during the 1789 smallpox epidemic over half of the Aboriginal people of the Sydney region died. The disease spread west to the Darug of the Cumberland Plain and north to the Hawkesbury. It may have in fact spread much further afield, over the Blue Mountains.[29] This loss of life meant that some of the Aboriginal groups who lived away from the coastal settlement of Sydney may have disappeared entirely before Europeans could observe them or record their clan names.[30]

The British initially thought that Aboriginal people did not live inland but were confined to the coast taking advantage of the abundant marine resources available. The first major expeditions into the interior did not witness any Aboriginal people, but evidence of their existence was noted. In April 1788 Governor Philip led an expedition west to Prospect Hill. It was noted,[31]

> …that these parts are frequented by the natives was undeniably proved by the temporary huts which were seen in several places. Near one of these huts, the bones of kangaroo were found, and several trees where seen on fire.

In 1789, Captain Watkin Tench led an expedition to the Nepean River. He noted that:[32]

> *Traces of the natives appeared at every step, sometimes in their hunting huts which consist of nothing more than a large piece of bark bent in the middle and opened at both ends, exactly resembling two cards set up to form an acute angle; sometimes in marks on trees which they had climbed; or in squirrel-traps… We also met with two old damaged canoes hauled up on the beach.*

It was not until rural settlement began in the western Cumberland Plain, around 1791 that the colonists and Aboriginal people came face to face. Relations quickly disintegrated, and tensions over land and resources spilled over. Governor King sanctioned the shooting of Aboriginal peoples in a General Order made in 1801.[33] Intermittent killings on both sides continued for over 15 years, including the Appin massacre and attacks at South Creek in 1816.[34]

Although tensions existed between Aboriginal people and colonialists on the Cumberland Plain, a number of Aboriginal families continued to live semi-traditional lives in the area. The project site is located in close proximity to a number of sites of importance in the early history of Aboriginal and colonial interaction. In 1805, a meeting was held near Prospect Hill, to the north-east of the project site, to discuss an end to the conflict in the local area. The meeting was arranged by Reverend Samuel Marsden, on the suggestion of local Aboriginal groups, and was mediated by a group of Aboriginal women and John Kennedy, a free settler.

[29] Butlin, N. 1983. *Our original aggression: Aboriginal populations in southeastern Australia 1810-150*, Melbourne, Cambridge University Press..
[30] Karskens, G. 2010. *The Colony: A History of Early Sydney*. Allen and Unwin, Sydney. p. 452.
[31] Stockdale, J. (compiler) 1789. *The voyage of Governor Phillip to Botany Bay, with an Account of the Establishment of the colonies of Port Jackson and Norfolk Island compiled from Authentic Papers.* John Stockdale, Piccadilly, London.
[32] Tench, W. 1789. *Sydney's first four years: being a reprint of A narrative of the expedition to Botany Bay and A complete account of the settlement at Port Jackson*. Reprinted in 1961. (Angus and Robertson in association with RAHS).
[33] Kohen, J.L., 1986. *An Archaeological Study of Aboriginal Sites within the City of Blacktown*. Report prepared for Blacktown City Council. p. 24.
[34] Karskens, G. 2010. p. 225.

The government policy of removal of Aboriginal children from their parents in order to assimilate them into white society began fairly early on in the colony's history and was epitomized by the development of the Native Institution at Parramatta in 1814. This facility was moved to the Black Town settlement in 1823 about nine kilometres to the north of the current project site. It was closed in 1829 and the land subsequently used for farming. [35]

Descendants of Darug language speakers continue to live in Western Sydney along with Aboriginal people from other areas of NSW. The Aboriginal groups in their comments on this study will address the contemporary cultural, social and spiritual meanings of the locality.

7.2 Registered Aboriginal sites

The locations and details of Aboriginal sites are considered culturally sensitive information. Culturally sensitive information will be removed prior to this report being made public.

An extensive search of the Aboriginal Heritage Information System (AHIMS) database was conducted on 10 February 2020 with the aim of identifying Aboriginal sites registered within, or in the vicinity of, the project site. The search was carried out using the following parameters:

GDA 1994 MGA 56	[redacted]
Buffer	1000 m
Number of sites	53

The AHIMS extensive search area, with the distribution of recorded sites is shown on Figure 12.

A total of 53 registered Aboriginal sites were identified in the extensive AHIMS search area. Of these, two have been listed as destroyed, deleted or not a site.

The frequency of recorded site features from the AHIMS search is summarised in Table 6. A registered Aboriginal site is made up of one or more features and these features should not be confused with registered Aboriginal site. Heritage NSW lists 20 standard site features that can be used to describe a site registered with AHIMS. For the 53 sites in the region around the project site, almost all (n=52) were artefact sites. The one remaining site was a PAD site.

Table 6 Frequency and percentage of site features in extensive AHIMS search

Site Feature	Frequency	Percentage
Artefact	52	98.1%
Potential Archaeological Deposit (PAD)	1	1.9%
Total	**53**	**100**

One artefact site is located within the project site, while three artefact sites were located within 50 metres of the project site. These AHIMS registered sites are discussed in Section 9.1.

[35] Karskens, G. 2010. Norman, H. 2015. "Parramatta and Black Town Native Institutions", Dictionary of Sydney. Accessed online 20 March 2020: https://dictionaryofsydney.org/entry/parramatta_and_black_town_native_institutions

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Figure 12 Distribution of AHIMS registered sites

7.3 Previous archaeological investigations

7.3.1 Introduction

Archaeological surveys have taken place in the Eastern Creek and Prospect areas which have identified a number of surface artefact sites and areas of archaeological potential. Several of these sites have been archaeologically investigated. This section discusses the results of relevant archaeological investigations in the vicinity of the project site.

7.3.2 Sydney International Grand Prix Circuit, Eastern Creek, archaeological survey

David Crew[36] undertook an archaeological survey of the proposed Grand Prix Circuit (now the Sydney Motorsports Park (operated by the Australian Racing Drivers' Club)) in Eastern Creek in 1989, located directly to the north of the project site. Prior to the construction of the Sydney Motorsports Park (operated by the Australian Racing Drivers' Club), the area consisted of cleared agricultural ground on moderate relief Cumberland Plain hills.

Nine surface stone artefact scatters and ten isolated stone artefact sites were identified during the archaeological survey. Artefacts consisted of silcrete, chert and quartz flakes, cores and backed artefacts. Some identified artefact scatters were indicative of stone tool reduction activities in those locations.

Artefact sites were identified in areas with good ground visibility, and areas with potential for sub-surface artefacts were identified close to permanent water courses, in particular Eastern Creek. A program of archaeological testing, archaeological salvage and the surface collection of artefacts was proposed. No data on the completion of these activities is available. Aboriginal sites identified during the survey program have now been impacted by the construction of the Sydney Motorsports Park (operated by the Australian Racing Drivers' Club), however their AHIMS data has not been updated to indicate that they have been destroyed.

7.3.3 Eastern Creek Dragway archaeological investigation

Navin Officer Heritage Consultants (2002) undertook Aboriginal archaeological investigation of the Sydney Dragway site prior to the construction of the facility by 2004.[37] At the time the Dragway site consisted of low rolling hills with gentle gradients and which had been previously cleared for grazing and agriculture, with a pig and poultry farm present in the footprint of the proposed development.

One area of PAD was identified (PAD DW1) within the Sydney Dragway site, located about 200 metres east of the Sydney International Speedway project site. This site was excavated using machine excavation to conduct 'grader scrapes', whereby a machine excavator bucket removes small amounts of topsoil in successive vertical 'scrapes' to expose subsurface material. Ten Aboriginal stone artefacts were identified, consisting of silcrete and mudstone flake fragments and cores, including some small retouched blades and backed blades.

Navin Officer concluded that based on the size of the area investigated compared to the number of artefacts identified, the artefact deposit indicated a 'background scatter' of Aboriginal tools. A 'background scatter' was defined as the low level deposition of artefacts across a landscape which; while deposited by Aboriginal people, are too few in number and spatial density to indicate a specific

[36] Crew, D. 1989. *Archaeological Survey of Proposed Sydney International Grand Prix Circuit, Eastern Creek, Near Blacktown NSW.* Report prepared for NSW Department of Sport, Recreation and Racing.
[37] Navin Officer Heritage Consultants, 2002. *Eastern Creek Dragway: Further Archaeological Investigations*. Report prepared for NSW Department of Public Works and Services.

occupational or stone working event on the landscape. This site was determined to be of low scientific significance.

This site was registered as "ECD1" (AHIMS # 45-5-2818) and was removed under widespread earthworks for the construction of the Sydney Dragway. The site is listed on AHIMS and has not been updated to reflect the fact that the site has been destroyed.

7.3.4 Bungarribee Precinct Archaeological Salvage excavation

Archaeological survey and excavation were conducted by Artefact[38] in Bungarribee Park in 2014, to the north of the Great Western Highway and about three kilometres north of the current project site. The Bungarribee Parkland is located on the eastern bank of Eastern Creek in a similar landform context to the southern portion of the project site. Two salvage excavation areas were dug at Bungarribee Park as a mitigation measure for impacts to 11 identified Aboriginal sites in the park.

The Bungarribee North salvage area was situated within the South Creek soil landscape within an undulating floodplain landform near Eastern Creek. A total of 287 stone artefacts, weighing a maximum total of 148.35 grams, were recovered from 18 excavation units. The salvage excavations carried out at Bungarribee North uncovered a moderate density stone artefact assemblage which exhibits some distinctive types of stone reduction activities. The stone artefact analysis demonstrated that knapping events were carried out in this location. The formal tool types are associated with the Australian Small Tool Tradition and are typical of a Bondaian assemblage (likely dating anywhere from 8,000 BP up until the contact period). Preference of raw material use for the production of formal tools is indicated as all of the tools were composed of mudstone. No silcrete tools were identified.

The Bungarribee South salvage area was situated within the Blacktown soil landscape on raised terrain associated with a first order watercourse flowing into the Bungarribee and Eastern Creek floodplains. A total of 37 units were excavated within this area. A total of 346 stone artefacts, weighing a maximum total of 935.76 grams, were recovered from the Bungarribee South area as a result of the salvage excavations.

The salvage excavations carried out at Bungarribee South uncovered a low density stone artefact assemblage of small to medium size flakes, angular fragments and cores. One artefact was identified as having some scalar retouch with evidence of use-wear and defined as a utilised flake. The raw materials utilised at the site are common in the region. No evidence of intensive occupation of the site or the manufacture of stone tools was identified. The assemblage was interpreted as opportunistic general stone reduction and discard rather than intensive occupation or site use reflective of transient campsites related to the movement of Aboriginal people across the landscape.

The salvage excavations found that the landform contexts are associated with two different types of archaeological sites which exhibit different types of stone artefact reduction techniques or behaviours.

7.3.5 Archaeological survey for Aboriginal sites at the former CSIRO Animal Research Laboratory, Prospect, NSW

Jo MacDonald Cultural Heritage Management[39] completed an Aboriginal archaeological survey at the CSIRO lands located immediately to the east of Prospect Reservoir and about 4.5 kilometres east of the project site. Fieldwork consisted of a pedestrian survey focusing on land previously unsurveyed on the western side of tributary creek to target any area of ground surface exposure. They identified large areas of disturbance and vegetation clearance resulting from extensive pastoral use, quarrying

[38] Artefact Heritage 2015. *Bungarribee Precinct Masterplan Stages 1, 2 and 3. Archaeological Salvage excavation report*. Report to Western Sydney Parklands Trust.
[39] Jo MacDonald CHM 2002.

cultivation and building activities. An area of about 59 hectares was surveyed with no new Aboriginal sites identified, however three new areas of potential archaeological deposits were identified. PAD 2 was assessed as having moderate archaeological potential as a representative sample of ridge crest/mid hillslope landform on the north eastern slopes of Prospect Hill. PAD 3 was assessed as having moderate archaeological potential with relatively undisturbed vegetation and potential for intact deposits or burials. PAD 4 was assessed as having low archaeological potential due to severe disturbance of the area.

7.4 Predictive model

Based on the results of the AHIMS extensive search, historical research on the European land use of the project site, and an understanding of previous archaeological investigations near the project site, the following predictive statements for identifying Aboriginal sites have been developed:

- Ground disturbing activities caused by European settlers, particularly large scale earthworks during the twentieth century, greatly reduce the likelihood of identifying Aboriginal sites within localised areas of disturbance.
- AHIMS data indicates that a number of former surface and subsurface artefact sites are located near the project site, however these sites have all been destroyed by the construction of motorsport facilities in the surrounding area.
- The project site has previously been heavily modified by large scale earthworks to create the Sydney Dragway to the east of the project site. In particular, tall terraces in the north, centre and east of the project site are entirely artificial landforms. Aboriginal sites are not anticipated in these areas.
- Surface artefact sites are identifiable in areas where ground exposures are present, and that grass and vegetation cover largely prevent identifying surface artefacts.
- Subsurface artefact sites are expected to be located in areas where modern ground disturbance is limited and where soil deposits are of reasonable depth to preserve them. These criteria are only met within the study area in the southern portion of the project site and in the preserved Cumberland Plain woodland located between the Carpark C and carpark D of the project site.
- Archaeological excavation in Western Sydney has often identified higher densities of subsurface artefacts in areas which are near primary water courses. In particular, Eastern Creek has been identified as a water body near which Aboriginal people occupied for a variety of activities, inferred by localised high densities of sub-surface artefacts in proximity to this water course.
- Further away from water courses, Aboriginal sites are still likely to be present, however these sites are more likely to be present on spur crests or terraces overlooking water courses.
- Isolated sub-surface artefacts can also be expected across the whole of Western Sydney in areas with limited ground disturbance, however excavation of these sites often indicates that their artefact deposition represents isolated events and not evidence of site occupation activities.

8.0 ARCHAEOLOGICAL SURVEY RESULTS

8.1 Archaeological survey coverage

During the site inspection, the study area was divided into discrete survey units, based on landform in each location, in accordance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales. One survey unit (survey unit 9) was also included in the study area for the area of the Cumberland Plain woodland located between carpark C and carpark D of the project site, as AHIMS registered sites were identified in this location.

Overall, artificial landforms in the project site had good visibility due to the use of vehicle and parking in these areas. Survey units of original landforms tended to be heavily grassed, with poor surface visibility.

A summary of the survey coverage of all survey units, according to the methodology outlined in the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, is provided in Table 7 and Table 8. The locations of the survey units are illustrated in Figure 5.

Additional survey undertaken as part of the addendum ACHAR is discussed in Appendix B

Table 7 Effective survey coverage

Survey unit	Landform	Survey unit area (sq. m)	Visibility (%)	Exposure (%)	Effective coverage area (sq. m)	Effective coverage (%)
Survey Unit 1	Artificial terrace	928	50%	30%	139.2	15.00%
Survey Unit 2	Artificial terrace	685	30%	20%	41.10	6.00%
Survey Unit 3	Artificial terrace	818	80%	20%	130.88	16.00%
Survey Unit 4	Gentle slope	647	60%	20%	77.64	12.00%
Survey Unit 5	Artificial terrace	1,333	50%	10%	66.65	5.00%
Survey Unit 6	Artificial terrace	1,449	50%	10%	72.45	5.00%
Survey Unit 7	Modified slope	1,459	20%	20%	58.36	4.00%
Survey Unit 8	Gentle slope	1,149	5%	5%	2.87	0.25%
Survey Unit 9	Plain	1,195	5%	5%	2.99	0.25%

Table 8 Landform survey coverage

Landform	Landform Area (sq. m)	Area effectively surveyed (sq. m)	% of landform effectively surveyed	Number of sites identified
Artificial Terrace	5,213	450.28	8.64%	0
Modified Slope	1,459	58.36	4.00%	0

Landform	Landform Area (sq. m)	Area effectively surveyed (sq. m)	% of landform effectively surveyed	Number of sites identified
Gentle Slope	1,796	80.51	4.48%	0
Plain	1,195	2.995	0.25%	0

8.2 Description of survey units

8.2.1 Survey unit 1

Survey unit 1 is located in the northeast of the study area. This survey unit consists of a level terrace in the south and an artificial hill in the north of the unit. The southern terrace is currently used for carparking for motorsport events (Figure 13) and the imported gravels, sand and road base is clearly visible (Figure 14). The southern terrace is about six metres higher in elevation than the natural ground to the south and east (Figure 15).

The northern portion of the survey unit consists of a high artificial hill (Figure 16), with four-wheel drive tracks cut into the hillside. This area is covered in thick grass with areas of exposed ground caused by vehicle transit. A demountable is present on the top of the hill (Figure 17), with stockpile areas and infilled sand present where vehicle tracks have become destabilised (Figure 18). Artificial mounds and tracks have been cut into the top of the hill. Vehicle access roads have rutted (Figure 19) and caused heavily eroded areas on the side of the slope (Figure 20).

The entirety of survey unit 1 was classified as disturbed ground as it shows evidence of being artificially created for motorsport activities.

Figure 13 View south of open carpark in southern portion of survey unit

Figure 14 View west of ground surface in carpark, showing imported gravels, ironstone and bitumen.

Figure 15 View west of edge of carpark showing artificial edge to terrace with lower unmodified plain (survey unit 9) on right

Figure 16 View north of carpark with artificial hill summit in background

Figure 17 View southwest of demountable structure on summit of hill in north of survey unit.

Figure 18 View south of imported sand to stabilise driving tracks on summit of northern part of survey unit.

Figure 19 View north of vehicle ruts on edge of the artificial hillside.

Figure 20 View east of heavily eroded vehicle track rising to summit of northern portion of survey unit.

8.2.2 Survey unit 2

Survey unit 2 is located in the northwest of the study area. This survey unit consists of a formalised overflow parking area used for the Sydney Motorsports Park (operated by the Australian Racing Drivers' Club) and Sydney Dragway. The survey unit is located on an artificial level terrace and is covered in hardstand for roadways and parking (Figure 21), as well as open ground with a low grass cover (Figure 22). Lighting structures are present within the carpark (Figure 23), and demountable and storage areas are located in the south of the survey unit. Thin regrowth eucalypt trees are located on the western edge of the survey unit, on the edge of the artificial terraced embankment (Figure 24).

Figure 21 View northeast of bitumen access roads in carpark.

Figure 22 View east of low grass cover with ponding rainwater.

Figure 23 View south of lighting structures in carpark.

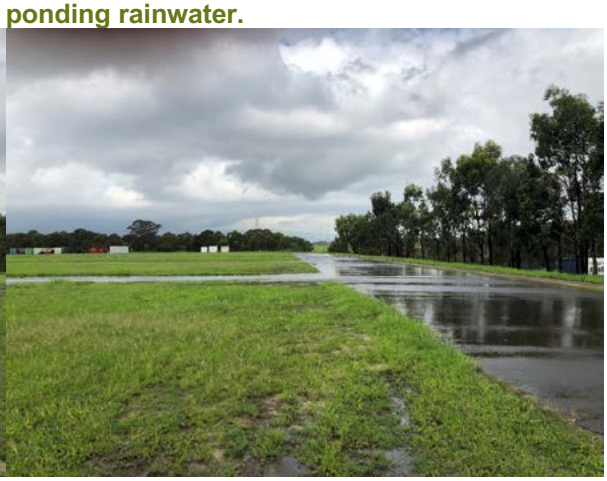

Figure 24 View south of edge of carpark with regrowth eucalypts in right of image.

8.2.3 Survey unit 3

Survey unit 3 is located in the centre of the study area, immediately to the south of the preserved Cumberland Plain woodland and accessed from a roundabout from Ferrers Road to the west. This survey unit consists of overflow parking for the Sydney Motorsports Park (operated by the Australian Racing Drivers' Club). The carpark is located on an artificial terrace (Figure 25) which rises up to four metres in elevation above the surrounding natural landscape. A storage demountable is present in the carpark (Figure 26). The ground surface has very high visibility and is largely covered with imported gravels and road base (Figure 27). Where gravel is not present, the artificial terrace shows signs of ponding and erosion (Figure 28).

Figure 25 View west of artificial level terrace used for overflow carparking.

Figure 26 View northwest of demountable storage unit and regrowth eucalypts on the edge of survey unit.

Figure 27 View west of detail of imported gravels and road base in survey unit 3 carpark.

Figure 28 View southwest of eroded surfaces with rain ponding and regrowth eucalypt on edge of survey unit 3.

8.2.4 Survey unit 4

Survey unit 4 is located in the centre of the study area, to the south of survey unit 3. The survey unit consists of a gentle sloped landform, with the elevation decreasing to the northwest. This area is used for overflow parking and for accessing informal racing tracks in the southern part of the study area. Wide areas of ground surface are visible in this survey unit, with skeletal clay subsoils often exposed (Figure 29). Road base and gravel has also been introduced to stabilise the surface in places (Figure 30). Regrowth eucalypt is present in small portions of the survey unit (Figure 31). The western portion of the survey unit contains a small hardstand carpark (Figure 32).

This survey unit is likely a partial remnant original landform and while evidence of earthworks in this area is present, minor cutting and levelling of the existing landform seems more likely than infilling or deep excavation.

Figure 29 View east of exposed eroded soils on gentle slope.

Figure 30 View northwest of imported gravels in overflow parking area with Ferrers Road in background.

Figure 31 View northeast of regrowth eucalypt in survey unit 4.

Figure 32 View southeast of hardstand carpark in survey unit 4.

8.2.5 Survey unit 5

Survey unit 5 is located in the southern portion of the study area, on an artificially terraced hill, with a second, taller artificially terraced hill located to the west (Figure 33) (survey unit 6). Survey unit 5 is used for overflow parking and is about 500 metres in length north to south. The survey unit is mostly covered in low grass (Figure 34), with exposed areas of ground present where vehicles have driven or parked (Figure 35). Rubbish has been dumped and artificial earthen mounds have been created (Figure 36) in the southern portion of the survey unit.

Figure 33 View northwest of southern portion of survey unit 5, showing cleared ground and embankment on eastern side.

Figure 34 View north of low grass within survey unit 5.

Figure 35 View north of cleared roadway for informal driving events.

Figure 36 View northwest of southern portion of survey unit 5, showing level ground and rubbish dumping.

8.2.6 Survey unit 6

Survey unit 6 is located on an artificial terrace of high elevation in the southern portion of the study area. The survey unit is located directly to the west of the Sydney Dragway and is about six metres higher in elevation than the adjacent racetrack (Figure 37). Exposures on the eastern embankment of the survey unit show that the slope has been stabilised using ample modern rubbish fill materials (rubber tyres, metal slag, broken sandstone, refer to Figure 38). This survey unit is used for unsealed road vehicle racing, as well as overflow parking for motorsport events, with imported sand, gravel and stone used to stabilise the surface for racing (Figure 39 and Figure 40). A construction compound site is also located in the north of the survey unit (Figure 41 and Figure 42).

One AHIMS listed site is located within this survey unit, however it was not able to be located during the site inspections. Due to the degree of ground disturbance in this area since the site was identified it was considered that the site had been destroyed by construction works for the Sydney Dragway. A discussion of this site is provided in Section 9.1.1.

Figure 37 View southeast of edge of artificial terrace in survey unit 6 with Sydney Dragway in background.

Figure 38 View south of modern rubbish in artificial embankment edge of survey unit 6

Figure 39 View west of imported gravels and sands in survey unit 6.

Figure 40 View south of unsealed racing track in survey unit 6.

Figure 41 View north of exposed ground near laydown area in norther portion of survey unit 6.

Figure 42 View north of working and storage compound in northern portion of survey unit 6.

8.2.7 Survey unit 7

Survey unit 7 consists of an outer embankment and the toe of the embankment on the western side of the study area. This survey unit includes the supporting embankment for the artificial terrace in survey unit 5. The embankment is covered in sparse regrowth eucalypt forest on the moderately steep slope (Figure 43). Subsurface bulk packing fill materials are exposed within the artificial terrace as a result of severe erosion, including large stone, gravels, large timbers and sandy non-local soils (Figure 44).

A vehicle access track is present at the toe of the embankment. While the embankment is comprised entirely of imported and modified ground, the toe of the embankment likely represents the natural ground level. Runoff channels have heavily eroded the ground in this location, and the natural Blacktown clay subsoil is exposed in several locations (Figure 45). In other places runoff has infilled exposed areas of ground with gravel colluvium that has eroded out of the artificial terrace (Figure 46).

Figure 43 View southwest of regrowth eucalypt vegetation on edge of moderately sloped artificial embankment.

Figure 44 View east of erosional slip on edge of artificial embankment, showing internal fill materials

Figure 45 View south of natural clay subsoil exposure on access track at base of embankment, Ferrers Road on right.

Figure 46 View north of accrued colluvium on access track at base of embankment.

8.2.8 Survey unit 8

Survey unit 8 is located at the southern end of the study area, situated between Ferrers Road and the easement for the Warragamba Pipeline (Figure 49). Eastern Creek directly borders the survey unit to the west. The survey unit consists of an open field about 380 metres in size east to west and 260 metres north to south (Figure 47 and Figure 48). This open field is used as an off road vehicle racing area by informal car racing clubs. A demarcated area in the eastern portion of the survey unit has been established for racing on stable ground, with gravels imported to stabilise the surface (Figure 50).

A drainage channel has been excavated through the centre of the survey unit, running east to west from a culvert underneath Ferrers Road (Figure 51) through the open field to Eastern Creek. Eastern Creek, to the west of the survey unit, is in poor condition, and there is significant erosion along the edges of the creek, with weedy vegetation throughout the area (Figure 52 and Figure 53).

The western portion of the survey unit, located outside of the project site and within the study area, is relatively flat and waterlogged and may be associated with former ephemeral tributaries or braids of Eastern Creek that have since disappeared. The western and northern portion of the survey unit consists of gently sloped ground with low relief finger spurs extending towards the creek (Figure 54). While the eastern portion of this survey unit shows generalised shallow ground disturbance and evidence of ground stabilisation for raceway tracks, the western portion of the survey unit shows a greater degree of intact ground, despite some localised areas of disturbance. Due to the relative degree of intactness and the proximity to Eastern Creek, an area of PAD (SIS PAD 01) has been identified in this survey unit near to the creek, which is described in more detail in Section 9.2.1.

Figure 47 View east of eastern portion of survey unit 8, showing Ferrers Road in background.

Figure 48 View north of uneven ground in eastern portion of survey unit 8 near fence line adjacent to Ferrers Road.

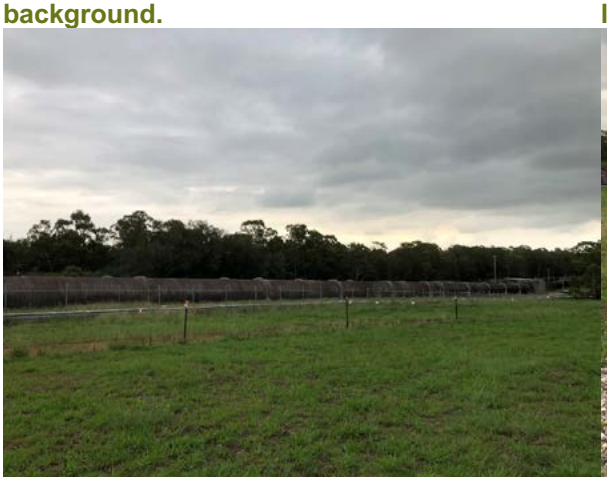

Figure 49 View southwest of Warragamba Pipeline to south of survey unit 8.

Figure 50 View west of demarcated racing area with infilled stabilising gravels in eastern portion of survey unit.

Figure 51 View north of artificial stormwater culvert discharging runoff from below Ferrers Road into survey unit 8.

Figure 52 View south of edge of Eastern Creek vegetation showing gentle slope towards creek line.

Figure 53 View northwest of eucalypt and casuarina species in heavily polluted Eastern Creek, adjacent to the study area

Figure 54 View southwest of gentle sloped ground adjacent to Eastern Creek, in northern portion of survey unit 8.

8.2.9 Survey unit 9

Survey unit 9 is situated outside of the project site, between carpark C and carpark D, and is about seven metres lower in elevation than the nearby survey units 1 and 3 to the north and south respectively (Figure 55). This survey unit contains a transmission line easement (Figure 56), as well as Commonwealth and State protected Cumberland Plain woodland vegetation, with sparse regrowth eucalypt species present (Figure 57). Trees have been cleared directly underneath the transmission line. The ground surface in this location is largely unmodified compared to the surrounding artificial hills. However, thick grass is present over much of this survey unit, and ground exposures are rare (Figure 58).

The extensive search identified two AHIMS registered sites within this survey unit (refer to section 7.2 and Figure 12), however they were not able to be located during the two site inspections, as they had likely been removed under an approved AHIP. These AHIMS sites are discussed in Section 9.1.2 and 9.1.3.

The majority of the ground in the survey unit was determined to be undisturbed, and due to the level ground and relative proximity of Eastern Creek, an area of PAD (SIS PAD 02) was identified within this survey unit. This area of PAD is discussed in more detail in Section 9.1.

Figure 55 View southwest of transmission line easement and cleared ground

Figure 56 View southwest of transmission line easement through survey unit 9.

Figure 57 View north of Cumberland Plain remnant woodland in survey unit 9.

Figure 58 View northeast of area of minor ground exposure in survey unit 9.

9.0 SURVEY RESULTS

9.1 Inspection of previously registered AHIMS sites

9.1.1 AHIMS site 'IF2' (AHIMS# 45-5-2602)

Site Location [redacted]
Survey Unit 6

Site Description: This site was listed as an artefact site located immediately to the west of the Sydney Dragway racetrack on the artificially constructed terrace within survey unit 6. No site card was available. The site area was reinspected, however despite reasonable ground visibility in the area of the site, no Aboriginal artefacts were identified.

The site location consisted of a level artificial terrace with a cleared access road. The access road was unsealed but was covered with significant quantities of road base and gravels to stabilise the track (Figure 59 and Figure 60). AHIMS information for this site indicated that a permit to harm Aboriginal objects was associated with the site. As the landform where this site was recorded as located was artificially constructed in 2004, it is considered that this artefact site has been destroyed during the construction of the Sydney Dragway.

Figure 59 View east of site IF2 ground surface.

Figure 60 View south of site IF2 ground surface.

9.1.2 AHIMS site 'EC6' (AHIMS# 45-5-2580/45-5-2596)

Site Location: [redacted]
Survey Unit 9

Site Description: This site is located in the remnant Cumberland Plain woodland outside of the project site between carpark C and D, about 22 metres to the south of an artificially constructed hill where overflow parking for the Sydney Motorsports Park (operated by the Australian Racing Drivers' Club) and Sydney Dragway is located. The available AHIMS information indicated that this was an artefact site. Site card information for this site was not available and archaeological reports associated for this site on the AHIMS database had been indexed in error and were for a different series of site. The site area was reinspected, however there was poor ground visibility and no Aboriginal artefacts were identified in this area.

The location of this AHIMS site consisted of level ground with thick grass and sparse eucalypt tree cover in the vicinity (Figure 61). The site is located immediately south of a steep (about seven metres high) embankment (Figure 62). This embankment was constructed in 2004 when parking facilities were expanded for the Sydney Motorsports Park (operated by the Australian Racing Drivers' Club) and the Sydney Dragway. AHIMS information for this site indicated that an AHIP to harm Aboriginal objects was associated with the site. Due to the proximity of this site to the edge of the artificial embankment, it is considered likely that this site was surface collected or destroyed during construction works on the nearby carpark.

Figure 61 View north of the grass ground at the EC6 site location

Figure 62 View north of artificial embankment directly to the north of the EC6 site location.

9.1.3 AHIMS site 'EC7' (AHIMS# 45-5-2581/45-5-2597)

Site Location: [redacted]
Survey Unit 9

Site Description: This site is located in the remnant Cumberland Plain woodland outside of the project site between carpark C and D, about 60 metres south of the transmission line easement and 90 metres to the west of an internal motorsport park access road. AHIMS information indicated that this was an artefact site. Site card information for this site was not available and archaeological reports associated with this site on the AHIMS database had been indexed in error and were for a different series of sites. The site area was reinspected, however even though there was good ground visibility no Aboriginal artefacts were identified.

The site location consisted of level ground with light grass and soil exposures (Figure 63) within a small clearing within the woodland used for additional Motorsport Park visitor parking (Figure 64). AHIMS information for this site indicated that a permit to harm Aboriginal objects was associated with the site. Due to the proximity of this site to parking areas it is considered possible that this site was surface collected during Motorsport Park expansion works.

Figure 63 View of ground exposure at site location. South aspect.

Figure 64 View of open ground at site location, showing nearby fencing and sparse woodland. South-east aspect.

9.2 Areas of archaeological potential

9.2.1 Sydney International Speedway PAD 01 (SIS PAD 01) AHIMS ID 45-5-5351

Survey unit 8
Centroid: [redacted]
Site length: 250 metres (north to south)
Site width: 110 metres (east to west)

SIS PAD 01 is located within the western side of survey unit 8 and is associated with a gently undulating series of small spur lines and gentle slopes that overlook Eastern Creek about 20 metres to the west (Figure 65 and Figure 66). The southern portion of the PAD is lower in elevation and slightly more level ground. This area of PAD is located outside of the boundaries of the project site.

Surface visibility across SIS PAD 01 was poor due to dense grass cover. There was evidence of localised areas of ground disturbance. While portions of SIS PAD 01 have been used for off-road vehicle racing, soil deposits near to Eastern Creek are expected to be comparatively deep. The degree of relatively shallow surface ground disturbance was assessed as likely to locally displace Aboriginal objects within the site but would not be likely to remove all archaeological remains.

Steven Randall (Deerubbin LALC), also confirmed during the site inspection that the proximity to Eastern Creek and the relative intactness of the ground in this area indicated that this area was likely a PAD.

The location of this area of SIS PAD 01 is illustrated in Figure 67.

Figure 65 View northwest of ground near Eastern Creek showing intact creek terrace.

Figure 66 View north of gently sloping landform adjacent to Eastern Creek.

Removed for public display

Figure 67 Location of SIS PAD 01

9.2.2 Sydney International Speedway PAD 02 (SIS PAD 02) AHIMS ID 45-5-5352

Survey Unit 9
Centroid: [redacted]
Site length: 200 metres (north to south)
Site width: 345 metres (east to west)

SIS PAD 02 is located within survey unit 9, which is located outside of the project site, between carpark C and D. Survey unit 9 encompasses the majority of this survey unit. This area consists of Cumberland Plain remnant woodland which has been preserved while extensive earthwork and construction activities have taken place around it. The ground is largely level, with a gentle slope on the southern side of the PAD. An ephemeral drainage channel runs southeast to northwest through the central portion of the PAD. Regrowth eucalypt is present throughout the PAD (Figure 68 and Figure 69).

A transmission line easement is located through the centre of the PAD. Ground disturbance caused by tree clearing is considered to be relatively minor and has been assessed as not significantly impacting the soil profile. Aboriginal artefacts would not have been removed from these activities.

Steven Randall (Deerubbin LALC), also confirmed during the site inspection that the proximity to a former well drained water course and the good intactness of the ground in this area indicated that this area was likely a PAD.

An additional site inspection of portions of SIS PAD 02 was undertaken during preparation of the Addendum ACHAR. The results of this inspection are detailed in the Addendum ACHAR, provided in Appendix B of this report.

The location of this area of PAD is illustrated in Figure 70.

Figure 68 View of south of cleared ground and regrowth eucalypt in SIS PAD 02.

Figure 69 View north of cleared ground and regrowth eucalypt in SIS PAD 02.

Removed for public display

Figure 70 Location of SIS PAD 02

10.0 SIGNIFICANCE ASSESSMENT

This section presents a significance assessment for all identified Aboriginal sites within the project site. Many of the significance values of any identified area of PAD would not be known with certainty until after archaeological excavation is completed and the significance of archaeological deposits can be assessed. The significance assessment criteria are outlined in Section 3.2.

10.1 Social significance

10.1.1 Cultural landscape

The World Heritage Convention of United Nations Educational, Scientific and Cultural Organisation (UNESCO) defines a cultural landscape as one which has 'powerful religious, artistic or cultural associations of the natural element rather than material cultural evidence, which may be insignificant or even absent.'[40] The relationship between Aboriginal Australians and the land is conceived in spiritual terms rather than primarily in material terms[41]. Aboriginal cultural knowledge has been defined as:

> *Accumulated knowledge which encompasses spiritual relationships, relationships with the natural environment and the sustainable use of natural resources, and relationships between people, which are reflected in language, narratives, social organisation, values, beliefs and cultural laws and custom (Andrews et al 2006).*

Aboriginal cultural knowledge was traditionally bequeathed through oral traditions from generation to generation. Within all Aboriginal communities there was a time of dislocation and upheaval associated with the arrival of colonial settlers. This widespread disruption resulted in much of the detailed knowledge and understanding of many of the elements of the cultural landscape being lost from the Aboriginal community, nonetheless many Aboriginal people maintain a strong connection to the land of their ancestors and collectively possess a wealth of knowledge passed down through the generations.

10.1.2 Identified Aboriginal cultural heritage values

Aboriginal stakeholders have identified that the Eastern Creek area was considered a highly spiritually significant place, and that the confluence of creek line would have ensured that food resources would have been abundant in the area for Aboriginal people. Consultation has identified that the study area may have been a men's ceremonial area due to the proximity of the project site to Prospect Hill, located about five kilometres to the east of the project site.

While the Eastern Creek area is considered culturally significant, the high degree of disturbance to the local landform which characterises the majority of the project site limits the connection and contribution of land within the project site to this broader cultural significance. Areas of less ground disturbance within the study area still demonstrate this cultural significance, although these are relatively small compared with the overall study area. Overall, the study area demonstrates moderate cultural significance.

[40] UNESCO 1991
[41] Andrews et al 2006

10.2 Historic significance

Background research and consultation completed for the ACHAR did not identify a connection between the project site and any historic people or events. Subsequently the project site is considered to demonstrate low historic significance.

10.3 Scientific significance

Archaeological values refer to the archaeological or scientific attributes of a landscape or area. These are characterised using archaeological criteria such as archaeological potential, rarity or the archaeological resource and disturbance.

10.3.1 Scientific significance of AHIMS sites in the study area

The extensive AHIMS search identified one AHIMS site within the project site, with another two AHIMS sites located between carpark C and carpark D of the project site, within the study area. These sites were not able to be located during the site inspection and the AHIMS register indicates that permits to approve harm to Aboriginal objects are associated with all three sites. It has been concluded that these sites are no longer present.

As such, the AHIMS listed artefact sites below are considered to have nil scientific significance as they have been removed.

- IF2 (AHIMS# 45-5-2602)
- EC6 (AHIMS# 45-5-2580/45-5-2596)
- EC7 (AHIMS# 45-5-2581/45-5-2597)

10.3.2 Scientific significance of SIS PAD 01

SIS PAD 01 (AHIMS ID 45-5-5351) was identified based on the relatively intact landform in close proximity to Eastern Creek. Low relief spur crests were present in this area which are adjacent to Eastern Creek, which previous archaeological investigations indicate are often artefact bearing. Sites near water courses can also provide information on occupation and tool making activities. While the landform is intact in this area, the ground surface shows evidence of shallow and/or localised disturbance from four-wheel drive racing activities.

While subsurface artefacts are predicted to be present in this area, localised and shallow ground disturbance has likely impacted the spatial distribution of deposited artefactual remains, which would impact the scientific integrity of the site. Overall, this area of PAD has been assessed as having moderate research potential.

As the area of PAD has not been excavated, other components of the scientific significance of this area of PAD cannot be ascertained.

10.3.3 Scientific significance of SIS PAD 02

This area of PAD was identified with the intact landform within the preserved Cumberland Plain woodland, which is located outside of the project site, between carpark C and carpark D. This area of PAD was determined based on the high degree of ground intactness in the area, and the nearby presence of former AHIMS sites (which were formerly located within the boundaries of this area of PAD). However, the absence of landforms of high sensitivity for Aboriginal sites (ridgelines or crests, or near permanent water bodies) indicates that while it is predicted that subsurface Aboriginal artefacts would be present in this area, it is likely these would be relatively dispersed across the landform. Overall, this area of PAD has been assessed as having moderate research potential.

As the area of PAD has not been excavated, other components of the scientific significance of this area of PAD cannot be ascertained.

10.3.4 Summary of scientific significance

A summary of the predicted scientific significance of Aboriginal sites and areas of PAD identified in the study area is provided in Table 9.

Table 9 Summary of predicted scientific significance of identified Aboriginal sites

Aboriginal site	Research potential	Scientific value	Representative value	Rarity value	Overall indicative significance assessment
IF2 (AHIMS ID 45-5-2602)	Nil	Nil	Nil	Nil	Nil
EC6 (AHIMS ID 45-5-2580/45-5-2596)	Nil	Nil	Nil	Nil	Nil
EC7 (AHIMS ID 45-5-2581/45-5-2597)	Nil	Nil	Nil	Nil	Nil
SIS PAD 01 (AHIMS ID 45-5-5351)	Moderate	Unknown (not yet excavated)	Unknown (not yet excavated)	Unknown (not yet excavated)	Unknown (not yet excavated)
SIS PAD 02 (AHIMS ID 45-5-5352)	Moderate	Unknown (not yet excavated)	Unknown (not yet excavated)	Unknown (not yet excavated)	Unknown (not yet excavated)

10.4 Aesthetic significance

Aesthetic value refers to the 'sensory' value of a place, and can include aspects such as form, texture and colour, and can also include the smell and sound elements associated with use or experience of a site.[42] Aesthetic significance can be closely linked to the social value of a site.

The project site has been identified as heavily modified, however small portions of intact Cumberland Plain woodland have been identified as part of the wider study area and outside of the project site. These intact areas of Cumberland Plain woodland are considered to demonstrate moderate aesthetic significance as a representation of the pre-contact landscape. The project site is considered to demonstrate low aesthetic significance.

10.5 Statement of significance

The project site has been identified as containing moderate social value as part of a wider cultural landscape associated with Eastern Creek. The social significance of the project site is demonstrated in the close proximity of the project site to water resources and Prospect Hill which is noted to be a men's ceremonial site about five kilometres to the east of the project site. The project site has not been associated with any specific person or event and subsequently is considered to demonstrate low historic significance. The project site is comprised of a heavily modified landscape which is not considered to maintain a connection to the pre-contact landscape, consequently the project site has been assessed as demonstrating low aesthetic values. Previous construction across the project site has resulted in the destruction of three previously registered Aboriginal sites reducing the scientific significance of these sites to nil. The wider study area is considered to maintain a moderate level of scientific significance associated with the research potential of the two areas of PAD identified within the wider study area.

[42] Australian ICOMOS 2000)

11.0 AVOIDING AND MINIMISING HARM

11.1 Impact assessment

Construction of the project would involve widespread earthworks with excavation and infilling across most of the project site. However, most of the project site consists of heavily modified artificial landforms and no new Aboriginal sites were identified in these areas.

One previously identified Aboriginal site, listed on the AHIMS database is located within the project site – IF2 (AHIMS ID 45-5-2602). This AHIMS site was removed as part of the development of the Sydney Dragway. As such, no impacts to this site would occur as a result of this project.

Remaining Aboriginal sites identified in this assessment within the study area are located outside of the project site boundaries and would not be impacted by the construction or operation of the project.

While consultation has identified that the broader Eastern Creek region contains cultural and spiritual significance, the contribution of the project site to this significance has been assessed as little based on the heavily modified nature of the project site compared to the wider Eastern Creek region. Impacts to the project site are considered to result in minimal overall impact to the cultural values of Eastern Creek.

A summary of impacts to Aboriginal sites in the study area for the project are provided in Table 10 below.

Table 10 Summary of Impacts to identified Aboriginal sites in the study area

Site name (AHIMS ID)	Survey Unit Location	Type of harm	Degree of harm	Consequence of harm
IF 1 (AHIMS ID 45-5-2602)	6	Direct	Total	Not a site – no loss of value
EC6 (AHIMS ID 45-5-2580/45-5-2596)	9	None	None	No loss of value
EC7 (AHIMS ID 45-5-2581/45-5-2597)	9	None	None	No loss of value
SIS PAD 01 (AHIMS ID 45-5-5351)	8	None	None	No loss of value
SIS PAD 02 (AHIMS ID 45-5-5352)	9	None	None	No loss of value

11.2 Consideration of alternatives and justification for impacts

Prior to confirmation of the location of SIS PAD 01, earlier phases of design development included the construction of overflow carparking facilities and construction laydown areas within this area. Following confirmation of its location, these facilities were reduced in size to ensure that SIS PAD 01 would not be impacted by the project and would be conserved.

11.3 Ecologically Sustainable Development principles

In accordance with the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales*[43], the principles of ecologically sustainable development have been considered in preparation of this Aboriginal heritage assessment, including options to avoid impacts to Aboriginal cultural heritage, assessment of unavoidable impacts, identification of mitigation and management measures, and taking account of Aboriginal community views. The principles of ecologically sustainable development are detailed in the NSW *Protection of the Environment Administration Act 1991*. Principles of ecologically sustainable development relevant to the assessment of the project as it relates to Aboriginal cultural heritage are considered below.

11.3.1 The integration principle

Decision making processes should effectively integrate both long term and short term economic, environmental, social and equitable considerations (the 'integration principle'). The preparation of this Aboriginal Cultural Heritage Assessment Report demonstrates regard for the integration principle by considering Aboriginal heritage values and impacts to these from the project during the planning phase of the project.

11.3.2 The precautionary principle

If there are threats of serious or irreversible environmental damage, lack of full scientific confidence should not be used as a reason for postponing measures to prevent environmental degradation (the 'precautionary principle').

During the development of the project, design has changed to ensure that identified Aboriginal sites, in particular SIS PAD 01, would not be impacted by the project construction works.

11.3.3 The principle of intergenerational equity

The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations (the 'principle of intergenerational equity').

While the wider Eastern Creek region has been identified as containing moderate cultural and spiritual values, the current project site has been assessed as having minimal contribution to the broader cultural values associated with Eastern Creek. Subsequently impacts to the project site are considered to result in minimal impacts to the overall cultural values of Eastern Creek. Further, the project would not impact identified Aboriginal sites which would be conserved for future generations.

[43] Office of Environment and Heritage 2011

12.0 MANAGEMENT AND MITIGATION MEASURES

12.1 Guiding principles

The overall guiding principle for cultural heritage management is that Aboriginal heritage should be conserved. If conservation is not practical, measures should be taken to mitigate against negative impacts to Aboriginal sites. The nature of the mitigation measures recommended in this instance is primarily based on an assessment of archaeological potential and significance.

Mitigation measures vary depending on the assessment of archaeological significance of a particular Aboriginal site and are based on its research potential, rarity, representatives and educational value. In general, the significance of a site would influence the choice of preferred conservation outcomes and appropriate mitigation measures, usually on the following basis:

- **Low archaeological significance**- Conservation where possible, but usually no mitigation required if impacts are unavoidable.
- **Moderate archaeological significance**- Conservation where possible. If conservation is not practicable, excavations or similar mechanisms determined in consultation with the Aboriginal community may be necessary.
- **High archaeological significance**- Conservation as a priority. Only if all practicable alternatives have been exhausted would impacts be considered justified. Comprehensive excavations may be necessary.

12.2 Ongoing consultation with registered Aboriginal parties

Consultation with the registered Aboriginal parties would continue throughout the life of the project, as necessary. Ongoing consultation with registered Aboriginal parties will take place throughout all facets of the project, including during any archaeological excavation investigation program and in the event of any unexpected Aboriginal objects being identified during works.

12.3 Protecting Aboriginal sites

Identified Aboriginal sites and newly identified PADs which would not be impacted by the proposed works would be marked on construction plans as exclusion zones and protected with barrier fencing. These exclusions zones would be maintained during works to ensure that machine plant or personnel would not inadvertently impact these sites during works. The following sites would be protected during construction:

- SIS PAD 01 (AHIMS ID 45-5-5351)
- SIS PAD 02 (AHIMS ID 45-5-5352)

The construction of a temporary stockpile would occur within 100 metres of the location of SIS PAD 01. Carpark construction works would occur within 50 metres of SIS PAD 02. Potential construction related soils and surface water runoff impacts would be managed in accordance with the Construction Environmental Management Framework.

The Construction Environmental Management Framework specifically requires the preparation of a Soil and Water Management Plan and progressive erosion and sediment control plans that would be updated as needed to reflect site conditions. These plans would include controls for ensuring that runoff and sediment control works would not impact either SIS PAD 01 or SIS PAD 02. Further information regarding the Construction Environmental Management Framework is provided in Appendix C of the Sydney International Speedway Environmental Impact Statement.

12.4 Unexpected finds

The Construction Environmental Management Framework would also include an unexpected find procedure would be prepared as part of a heritage management plan for construction works. The unexpected finds procedure would provide a method to manage potential heritage constraints and unexpected finds during construction works. Unexpected finds would include any Aboriginal objects which may be identified during excavation and construction works for the project.

This document would include information on any requirements during construction for:

- Protecting any identified Aboriginal heritage sites in the immediate area during construction activities
- A procedure to manage reporting and investigation when unexpected finds are encountered. This includes consideration of the archaeological excavation methodology, as identification of certain unexpected finds may trigger archaeological excavation

The unexpected finds procedure would also incorporate measures and controls to be applied during construction, including but not limited to contractor training in general Aboriginal cultural heritage awareness, and any ongoing opportunities for Aboriginal community engagement.

12.4.1 Discovery of human remains

If suspected human skeletal remains are uncovered at any time during the proposed works, procedures outlined in the heritage management plan unexpected finds procedure would be implemented.

12.5 Summary of mitigation measures

A summary of mitigation measures discussed above is provided in Table 11 below.

Table 11 Summary of Aboriginal heritage mitigation measures

Ref	Mitigation measure
AH1	Aboriginal stakeholder consultation would be carried out in accordance with the NSW Office of Environment and Heritage's *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*.
AH2	Prior to the commencement of project construction works, exclusion areas would be established around the following identified Aboriginal sites, to prevent inadvertent impacts during construction: • SIS PAD 01 (AHIMS ID 45-5-5351) • SIS PAD 02 (AHIMS ID 45-5-5352)
AH3	A heritage induction should be carried out for all contractors. This heritage induction should include an explanation of the Sydney Metro Unexpected Finds Protocol. Should unexpected Aboriginal artefacts be identified during excavation and construction works, the Sydney Metro Unexpected Finds Protocol would be implemented.
AH4	In the event that a potential burial site or potential human skeletal material is exposed during construction, the Sydney Metro Exhumation Management Plan would be implemented.

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14.0 APPENDICES

Appendix A: Consultation Log

Removed for public display

Appendix B: Addendum ACHAR

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Sydney International Speedway

Addendum Aboriginal Cultural Heritage Assessment

Blacktown Local Government Area

Report to Sydney Metro

November 2020

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Project manager:	Duncan Jones
Project number:	20005
Name of organisation:	Artefact Heritage
Document version:	Final

CONTENTS

FIGURES

TABLES

1.0 INTRODUCTION

1.1 Project overview

The NSW Government has committed to relocating speedway racing to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, creating a true motorplex for the NSW motorsport racing community. The new speedway would provide the community and racing supporters a unique sporting facility that would cater for local, regional, national, and international racing events while continuing to support the growth of speedway racing in NSW.

The Western Sydney Parklands Trust, in association with the NSW Office of Sport, is leading a masterplanning process for Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, with opportunities to share infrastructure and coordinate events across the three venues. This masterplan sets the context for the planning of the new Sydney International Speedway.

As part of delivering Sydney Metro West - the city's next big underground railway, the existing government land currently used for speedway racing is required for a future stabling and maintenance facility. The project is planned to be constructed and operational prior to the closure of the current speedway.

The project site is located on land owned and managed by Western Sydney Parklands Trust. Sydney Metro is proposing to build the project on behalf of and pursuant to arrangements with Western Sydney Parklands Trust.

Section 5.12(4) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) provides for the declaration of specified development on specified land as State significant infrastructure. A declaration has been made for the Sydney International Speedway as State significant infrastructure under Section 5.12(4) of the EP&A Act. Schedule 4 of the *State Environmental Planning Policy (State and Regional Development) 2011* has been amended to include Sydney International Speedway as State significant infrastructure. Artefact Heritage prepared a draft Aboriginal Cultural Heritage Assessment Report to support the Environmental Impact Statement for Sydney International Speedway. This addendum Aboriginal Cultural Heritage Assessment Report assesses amendments to the proposed design of the project which have been identified following the exhibition of the Environmental Impact Statement for the Sydney International Speedway.

This addendum report, in conjunction with the results of the Aboriginal Cultural Heritage Assessment for the project meets the requirements of the Secretary's Environmental Assessment Requirement for the project as detailed in Table 1:

Table 1: Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	Where addressed
The Proponent must identify and assess any direct and/or indirect impacts (including cumulative impacts) to the heritage significance of: a) Aboriginal places, objects and cultural heritage values, as defined under the National Parks and Wildlife Act 1974 and in accordance with the principles and methods of assessment identified in the current guidelines; b) Aboriginal places of heritage significance, as defined in the Standard Instrument – Principal Local Environmental Plan; c) environmental heritage, as defined under the Heritage Act 1977; and d) items listed on the State, National and World Heritage lists; e) heritage items and conservation areas identified in environmental planning instruments application to the project area	Technical Paper 5: Aboriginal Cultural Heritage Assessment
Where archaeological investigations of Aboriginal objects are proposed these must be conducted by a suitably qualified archaeologist, in accordance with section 1.6 of the Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2010).	Section 1.5
Where impacts to Aboriginal objects and/or places are proposed, consultation must be undertaken with Aboriginal people in accordance with the current guidelines.	Section 1.6

1.2 Environmental Impact Statement exhibition

The Environmental Impact Statement for the Sydney International Speedway project was placed on public exhibition for review and comment for 28 days from 19 August 2020 to 16 September 2020. The draft Aboriginal Cultural Heritage Assessment Report was included in the Environmental Impact Statement as Technical Paper 5. Review and comment on the draft Aboriginal Cultural Heritage Assessment Report from registered Aboriginal parties was sought concurrently with public exhibition of the Environmental Impact Statement for 28 days between 21 August 2020 to 18 September 2020.

The *Sydney International Speedway Submissions Report* [1] has been prepared to respond to the issues raised by public authorities, key stakeholders and the community during exhibition of the Environmental Impact Statement. The Submissions Report identifies the issues raised during public exhibition and provides responses to these issues. The final Aboriginal Cultural Heritage Assessment Report, incorporating feedback received from registered Aboriginal parties, and this addendum Aboriginal Cultural Heritage Assessment has been provided as Appendix B of the Submissions Report.

[1] Sydney Metro 2020

1.3 Overview of the proposed amendments

As a result of continued design development and refinement, a number of proposed amendments to the project as exhibited in the Environmental Impact Statement have been identified:

- Relocation of Sydney Dragway ticket office and entryway to improve accessibility from the new Dragway parking areas (Carpark C and D)
- Refinements to the construction methodology, resulting in the need to import structural fill material to the main operational site
- Reconfiguration of the internal road and entry to Carpark A to minimise clearance of native, protected vegetation
- Reconfiguration of Carpark D to accommodate a revised vehicle and pedestrian entry and exit design, which minimises the amount of clearance of native, protected vegetation
- Revision of the site stormwater and drainage design to reduce the number of onsite detention tanks required. The revised design includes the installation of a discharge control pit and flow bypass pipe at the existing culvert under Ferrers Road between Carpark C and Carpark D, and a number of batter chutes that take advantage of existing terrain and minimises excavation requirements during construction
- Modified grandstand facility and inclusion of informal grassed area

An overview of the proposed amendments is shown on Figure 1.

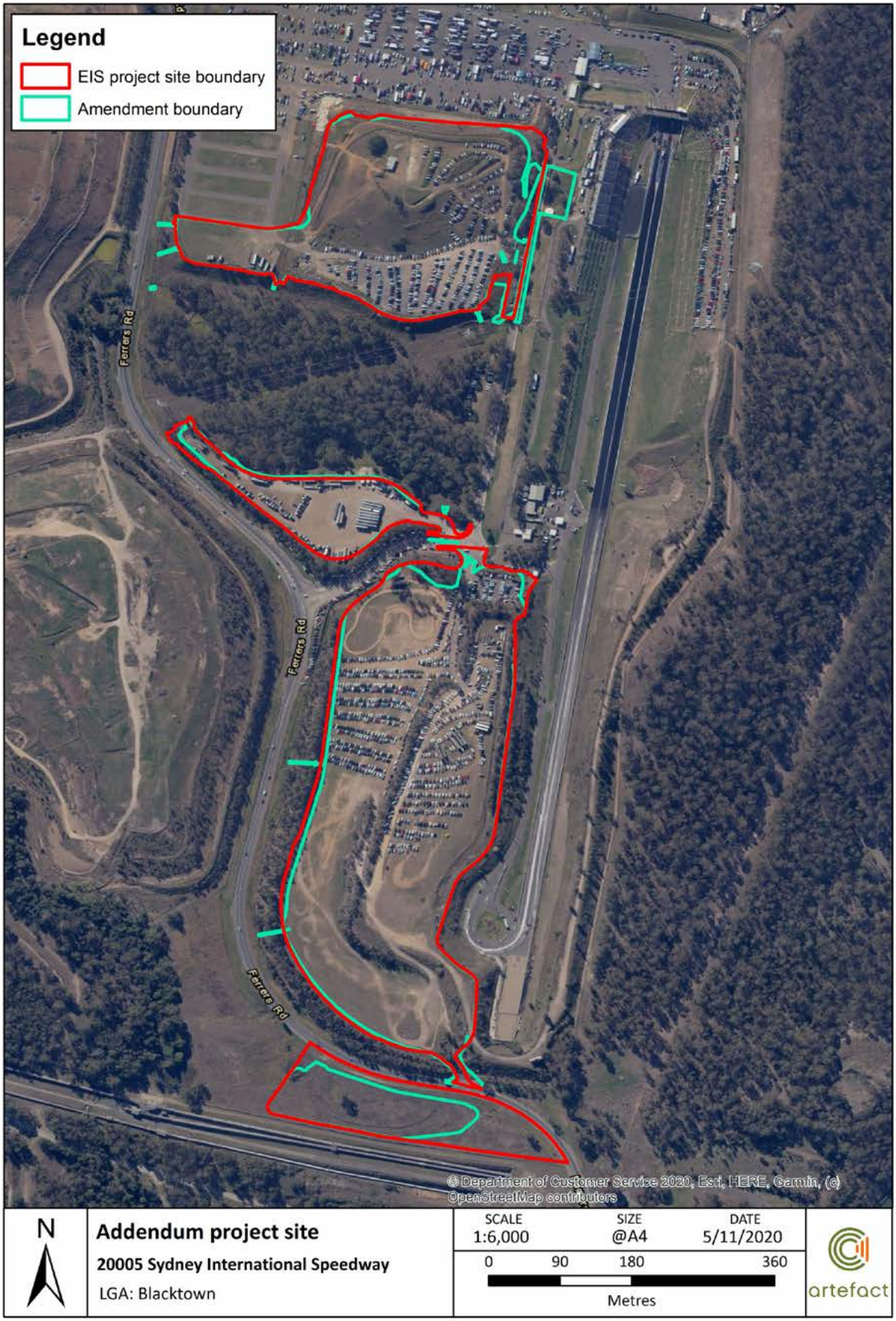

Figure 1: Overview of the proposed amendments to the Sydney International Speedway

1.4 Purpose and scope of this addendum

Artefact Heritage has been engaged to prepare an addendum Aboriginal Cultural Heritage Assessment Report for inclusion in the Sydney International Speedway Amendment Report. This addendum considers the impacts of the proposed amendments on Aboriginal cultural heritage and potential archaeological resources within the project site and includes:

- Assessment methodology
- Summary of proposed amendments
- Summary of additional Aboriginal community consultation
- Archaeological survey results for the addendum survey area
- Addendum impact assessment
- Conclusions and recommendations.

Background information including legislation, environmental background and archaeological background is not repeated within the addendum report, as this information is consistent with that provided in the exhibited draft Aboriginal Cultural Heritage Assessment Report.

1.5 Authorship

This report was prepared by Alyce Haast (Senior Heritage Consultant). Management input and review was provided by Duncan Jones (Principal) and by Sandra Wallace (Managing Director).

1.6 Consultation

Aboriginal stakeholder consultation for the proposal has been conducted in accordance with the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010[2]. Information regarding consultation for the project is described in Section 5 (Aboriginal Community Participation) of the exhibited Technical Paper 5 (draft Aboriginal Cultural Heritage Assessment Report).

As described below, the proposed amendments will not result in additional impacts on Aboriginal sites or areas of archaeological potential. As such, while registered Aboriginal parties have been provided the addendum Aboriginal Cultural Heritage Assessment Report for their information, it was not subject to a statutory review period.

[2] Department of Environment, Climate Change and Water 2010b

2.0 ASSESSMENT METHODOLOGY

2.1 Archaeological survey

2.1.1 Aboriginal site definition

An Aboriginal site is generally defined as an Aboriginal object or place. An Aboriginal object refers to any deposit, object or material evidence (not being a handicraft) relating to Aboriginal habitation of the area that comprises New South Wales[3]. Aboriginal objects may include stone tools, scarred trees or rock art. Some sites, or Aboriginal places can also be intangible and although they might not be visible, these places have cultural significance to Aboriginal people.

The Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales [4] states in regard to the definition of a site and its boundary that one or more of the following criteria must be used when recording material traces of Aboriginal land use:

- The spatial extent of the visible objects, or direct evidence of their location
- Obvious physical boundaries where present, for example mound site and middens (if visibility is good), or a ceremonial ground
- Identification by the Aboriginal community on the basis of cultural information.

For the purposes of this addendum assessment, an Aboriginal site, or potential Aboriginal site, was defined by recording the spatial extent of visible traces or the direct evidence of their location within the amended project site.

2.1.2 Archaeological survey methodology

2.1.2.1 Site survey

A site inspection of areas of the amended project site which did not form part of the project site as included in the exhibited Environmental Impact Statement, was carried out by Alyce Haast and Steve Randall (Deerubbin LALC) on 7 September 2020.

The survey units for the addendum survey are shown in Figure 2. A discussion of survey units and the results of the survey are provided in Section 4.2 and Section 5.0 respectively.

2.1.2.2 Aims of archaeological survey

The aims of the archaeological survey were to:

- Cover a representative sample of areas of the amended project site which were not previously included within the exhibited project site
- Reinspect any previously registered Aboriginal sites which may be impacted by the amended project
- Record any new Aboriginal sites observed during the survey of the amended project site
- Identify areas of Potential Archaeological Deposit (PAD) within the amended project site that may be present in areas that have had no or minimal disturbance

[3] Department of Environment, Climate Change and Water 2010a: 37
[4] Office of Environment and Heritage 2011

- Engage with Deerubbin LALC regarding the proposed works and the archaeological potential of the addendum project site.

2.1.2.3 Recorded Aboriginal sites and areas of archaeological potential

As no new Aboriginal sites were identified during the addendum survey, the summary of identified sites is limited to comment on portions of previously identified sites which extend into the addendum survey area.

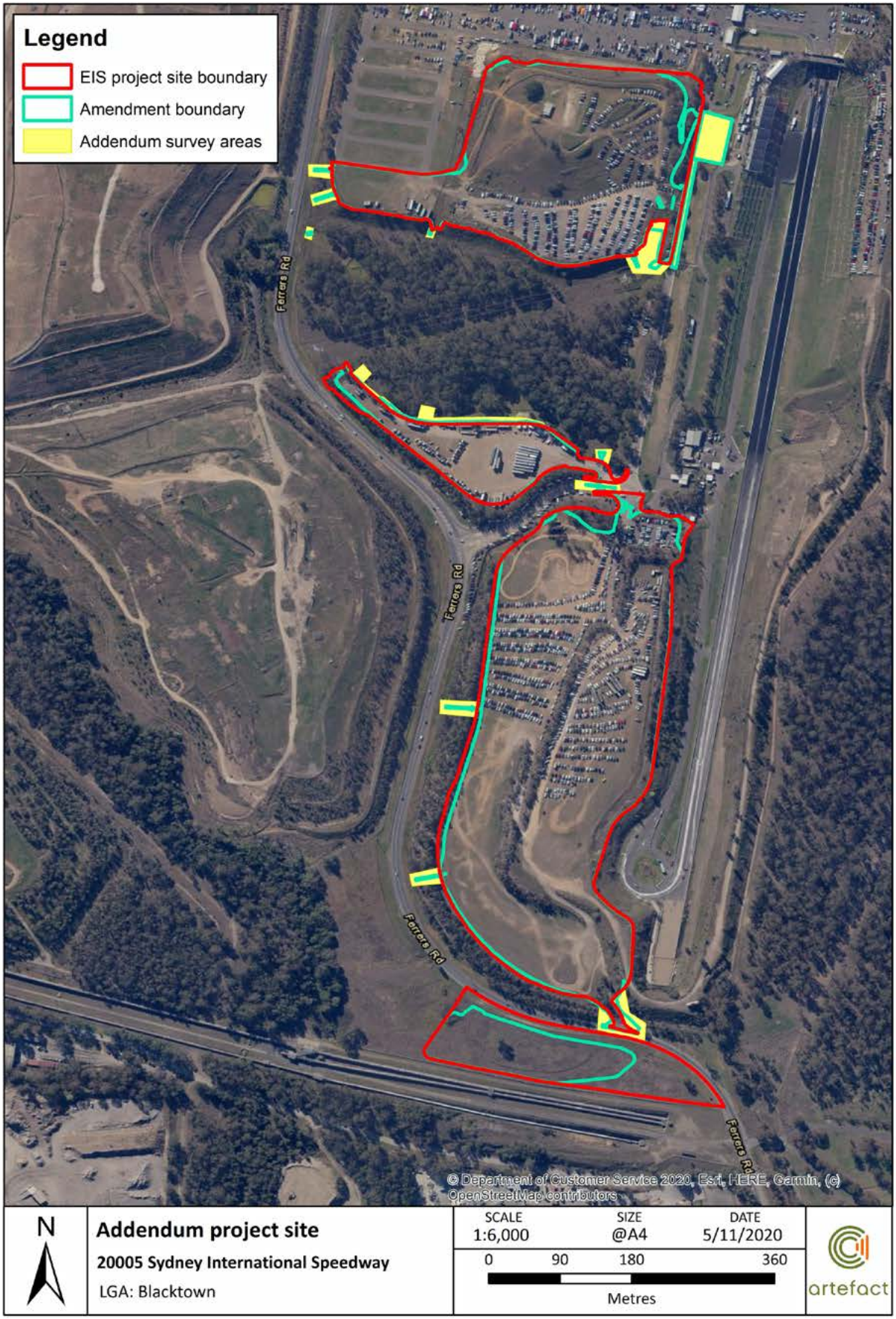

Figure 2: **Addendum survey units**

2.2 Significance assessment methodology

As no new Aboriginal objects or areas of archaeological potential were identified during the addendum survey, no site specific significance assessment was completed as part of this addendum.

Significance assessments completed for previously recorded sites are identified within the exhibited draft Aboriginal Cultural Heritage Assessment Report.

2.3 Impact assessment methodology

The definition of harm to an object or place under the National Parks and Wildlife Act includes any act or omission that 'destroys, defaces or damages the object or place or in relation to an object – moves the object from land on which it had been situated.' (s5 National Parks and Wildlife Act).

Direct harm may occur as a result of activities which disturb the ground surface including site preparation activities, earthworks and ground excavation, and the installation of services and infrastructure.

Indirect harm for Aboriginal heritage refers to impacts that may affect sites or features located immediately beyond or within the area of the proposed works. Indirect harm may include impacts from vibration, increased visitation or increased erosion, including ancillary project activities (construction and/or operation) that are not located within the project site.

Registered Aboriginal sites which are within the vicinity of the project site are comprised of artefact sites or areas of PAD. Any buried Aboriginal objects would not be subject to impacts as a result of vibration. There are no Aboriginal places in the vicinity of the project site which may be subject to indirect impacts.

The addendum assessment considered the potential impact of the proposed amendment on previously identified sites and areas of PAD. This is further discussed in Section 6.0

3.0 PROPOSED AMENDMENTS

3.1 Overview of amendments

The proposed amendments to the design of the Sydney International Speedway project relevant to this addendum Aboriginal Cultural Heritage Assessment Report include:

- Relocation of Sydney Dragway ticket office and entryway to improve accessibility from the new Dragway parking areas (Carpark C and D)
- Reconfiguration of Carpark D to accommodate a revised vehicle and pedestrian entry and exit design, which minimises the amount of clearance of native, protected vegetation
- Revision of the site stormwater and drainage design to reduce the number of onsite detention tanks required. The revised design includes the installation of a discharge control pit and flow bypass pipe at the existing culvert under Ferrers Road between Carpark C and Carpark D, and a number of batter chutes that take advantage of existing terrain and minimises excavation requirements during construction

The abovementioned amendments to the project would result in additional areas of ground disturbance which were not considered as part of the draft Aboriginal Cultural Heritage Assessment Report included as part of the Environmental Impact Statement.

3.1.1 Relocation of the Sydney Dragway ticket office and entryway

The new layout and configuration of the Sydney Dragway parking means that the existing ticket office and entry, located at the southern end of the dragstrip and towards the Sydney International Speedway main operational site is in a location which is not easily accessible from the parking areas. As a result, the Sydney Dragway ticket office and entryway structure is proposed to be relocated to the east of Carpark D and the north-south link road. The proposed amendment consists of:

- A new pedestrian access from Carpark C, footpaths and concrete ramps
- A new ticket office and turnstiles
- A new formal entryway into the Sydney Dragway site
- Supporting infrastructure, including landscaping, signage and pedestrian infrastructure.

Construction of the relocated ticket office and entry would include:

- Excavation work for the pedestrian footpath, ticket office and turnstiles as required
- Footing and slab installation for the ticket office and turnstiles
- Construction of ticket office building
- Installation of pedestrian walkways and entryway
- Utilities connections to ticket office
- Landscaping and finishing works.

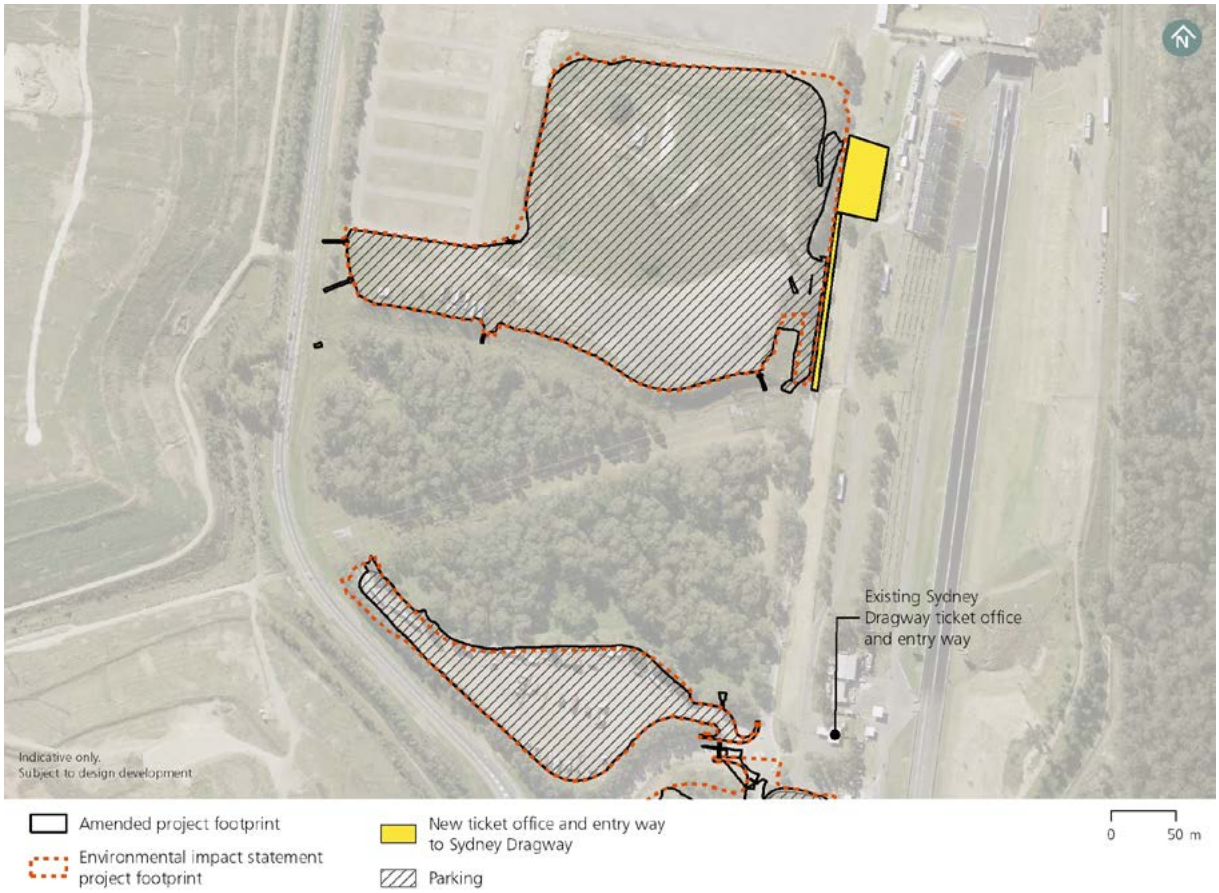

Figure 3 Overview of the existing and proposed Sydney Dragway ticket office and entry

3.1.2 Reconfiguration of Carpark D

The project as included in the exhibited Environmental Impact Statement includes the establishment of Carpark D, forming a new area of dedicated Sydney Dragway parking to replace existing parking areas that would form part of the Sydney International Speedway project site. Carpark D is described in Section 5.3.1 and shown on Figure 5-2 of the Environmental Impact Statement.

As part of this proposed amendment, the layout of Carpark D has been amended to accommodate a revised vehicle and pedestrian entry and exit design along the eastern boundary of the carpark. The revised design would result in a reduction in the project footprint at this location when compared to the footprint described and assessed in the exhibited Environmental Impact Statement.

Carpark D would still provide around 1760 carparking spaces, as included in the Environmental Impact Statement.

A comparison of the footprint of Carpark D as assessed in the Environmental Impact Statement and the amended design is shown on Figure 4.

The construction methodology for this proposed amendment would be generally consistent with that proposed for Carpark D in the Environmental Impact Statement, within the amended project footprint.

Figure 4 Revised configuration of Carpark D (New Dragway Parking) compared to the footprint as assessed in the Environmental Impact Statement

3.1.3 Revision of the site stormwater and drainage design

The project includes the construction and operation of stormwater and drainage infrastructure to support the operation of the Sydney International Speedway.

The exhibited Environmental Impact Statement described the stormwater management as a pit and pipe system that would be installed across the project site to collect and transport stormwater runoff into stormwater drains. Water would then flow to on-site detention tanks located across the project site before being treated (as required). Stormwater runoff would ultimately be discharged from the project site into existing culverts which flow underneath Ferrers Road, and discharge into local waterways.

Some of the onsite detention tanks on the main operational site would also function as rainwater harvesting tanks, to collect and store runoff from the grandstand roof for non potable uses within the project site.

As part of this proposed amendment, the stormwater management and drainage design has been revised to reduce the number of onsite detention tanks within the project site. Instead, the pit and pipe drainage system would direct runoff through a series of drains and to a number of batter chutes along the boundaries of the project site.

Runoff from Carparks A, C and D would be captured within the project site in drainage channels and discharged offsite through batter chutes located along the northern boundary of Carpark C and the southern boundary of Carpark D. Water discharged offsite would flow into existing offsite vegetated swales and natural drainage channels to a 2.5 metre high discharge control pit, fitted with a low flow

bypass pipe which would be installed upstream of the existing headwall of the culvert which flows under Ferrers Road between Carpark C and D. The discharge control pit and flow bypass pipe has been designed to prevent stormwater flows from being discharged into local waterways at flows greater than existing and to comply with Blacktown City Council's Permissible Site Discharge requirements.

Runoff captured within the racetrack, grandstand facility and competitor car parking areas would be directed to onsite detention tanks, consistent with the design included in the Environmental Impact Statement. The 1200 cubic metre onsite detention tank located in the racetrack would function as a rainwater harvesting tank, and has been sized to be able to hold stormwater in this area from a one per cent AEP event (100 year ARI storm). Batter chutes have been included as part of the revised site stormwater and drainage design in this area of the project site to discharge runoff if the on site detention tanks reach capacity.

All runoff discharged offsite would comply with the Permissible Site Discharge requirements provided in Blacktown City Council's *Engineering Guide for Development* (2005) of no more than 147 litres per second per hectare for 'All other Hawkesbury River Sub-catchments'.

The revised drainage design has been prepared using the required pollutant reduction targets requirements of Blacktown *Development Control Plan 2015* as a guide

The indicative locations of the batter chutes and the discharge control pit and flow bypass pipe are shown Figure 5.

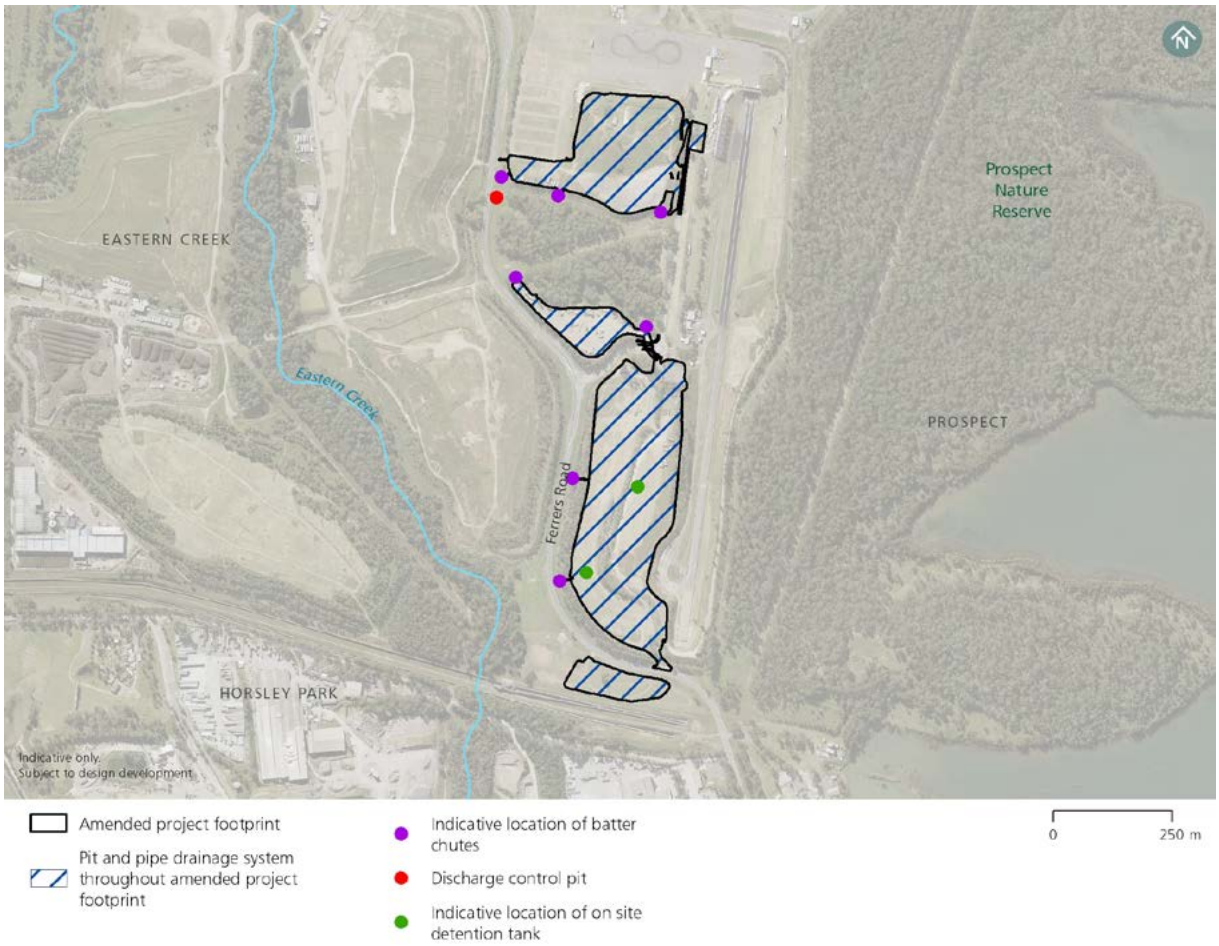

Figure 5 Indicative layout of the revised stormwater and drainage infrastructure

4.0 ARCHAEOLOGICAL SURVEY

4.1 Archaeological survey coverage

During the addendum site survey, the addendum project site was divided into discrete survey units, based on landform in each location, in accordance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales.

The majority of the addendum survey units were located within heavily vegetated artificial earth batters surrounding existing carparks and facilities within the addendum project site. As a result, visibility across the majority of each survey unit was poor.

A summary of the survey coverage of all survey units, according to the methodology outlined in the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, is provided in Table 2 and Table 3. The locations of the survey units are illustrated in Figure 2.

Table 2: Effective survey coverage

Survey unit	Landform	Survey unit area (sq. m)	Visibility (%)	Exposure (%)	Effective coverage area (sq. m)	Effective coverage (%)
Survey Unit 1	Modified slope, Modified flat	3071	10	10	30.7	1
Survey Unit 2	Modified slope, Flat	6337	10	10	63.3	1
Survey Unit 3	Modified slope, Flat	2981	10	10	29.8	1

Table 3: Landform survey coverage

Landform	Landform Area (sq. m)	Area effectively surveyed (sq. m)	% of landform effectively surveyed	Number of sites identified
Modified slope	10023	100.23	1	0
Modified flat	1121	11.21	1	0
Flat	1245	12.45	1	0

4.2 Description of survey units

4.2.1 Survey unit 1

Survey unit 1 was located in the north east of the addendum survey area. The survey unit consisted of a bitumen access road with artificial embankments. Visibility across the survey unit was generally low with dense grasses obscuring the ground surface across the majority of the survey unit. A small area of exposure of underlying sandy fill base associated with recent earthworks was noted in the eastern portion of the survey unit. The survey unit was assessed to have been subject to high levels of disturbance during former earthworks.

No Aboriginal objects or areas of archaeological potential were identified within Survey unit 1.

Figure 6: View of the modified slope landform to the east of bitumen access road

Figure 7: Existing bitumen access road and artificial slope landform in the north west of the survey unit

Figure 8: Low visibility across the existing modified slope landform

Figure 9: View of the modified slope landform to the east of the bitumen access road showing the area of exposure associated with recent construction

4.2.2 Survey unit 2

The majority of survey unit 2 was comprised of several discrete areas of artificial embankment surrounding an intact area of Cumberland Plain woodland located between Carpark C and Carpark D. The embankment was identified as a heavily modified landform. Small portions of the survey unit extended into the area of intact woodland. Localised areas of disturbance to the intact woodland were noted in the northern and western portion of the survey unit including the presence of existing drainage infrastructure in the western portion of the survey unit.

Small portions in the south of the survey unit extended into the portion of intact woodland identified as SIS PAD 02 (AHIMS ID 45-5-5352) in the exhibited draft Aboriginal Cultural Heritage Assessment Report. This portion of the survey unit was located within a flat landform which was assessed to be intact during the addendum site survey.

Visibility across the entire survey unit was low with dense grasses obscuring the ground surface across the majority of the survey unit.

No new Aboriginal objects or areas of potential were identified within the survey unit. Portions of SIS PAD 02 (AHIMS ID 45-5-5352) were located within the survey unit.

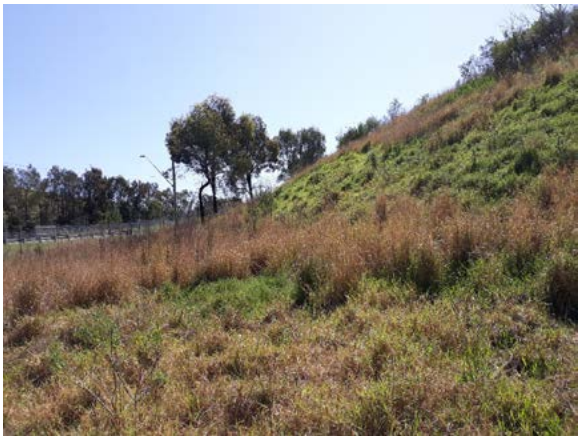

Figure 10: Modified slope within the north western portion of survey unit 2

Figure 11: Modified portions of drainage line in the western portion of the survey unit

Figure 12: Transition between artificial slope and intact flat landform associated with SIS PAD 02

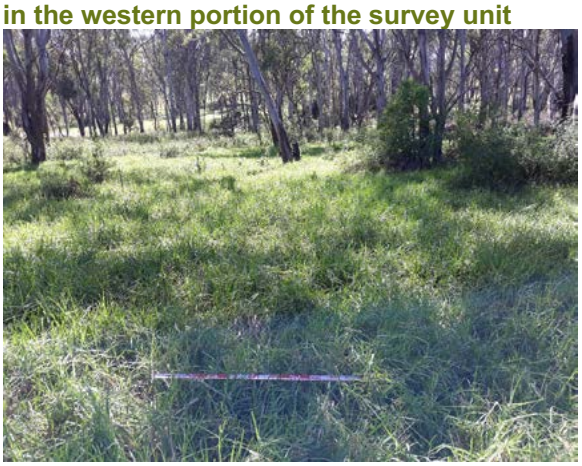

Figure 13: Intact portion of SIS PAD 02 located within the southern portion of survey unit 2

4.2.3 Survey unit 3

Survey unit 3 consisted of three discrete areas within an artificial embankment supporting an artificial raised terrace. The embankment appeared to be a completely artificial landform with ground exposures showing evidence of sand and gravel fill inclusions. The embankment was covered in sparse regrowth eucalypt forest and dense grasses obscuring ground visibility across the majority of the survey unit.

No Aboriginal objects or areas of archaeological potential were identified within Survey unit 3.

Figure 14:Edge of the artificial slope landform transitioning to grassed overflow carpark

Figure 15: Steeply sloped artificial landform within survey unit 3

Figure 16:Steeply sloped artificial landforms surrounding the existing bitumen access tracks

5.0 SURVEY RESULTS

5.1 Newly identified sites

No new Aboriginal sites or areas of archaeological potential were identified during the addendum survey.

5.2 Previously identified sites within the addendum survey area

5.2.1 Sydney International Speedway PAD 02 (SIS PAD 02) AHIMS ID 45-5-5352

Centroid: [Removed for public display]
Site length: 200 metres (north to south)
Site width: 345 metres (east to west)

SIS PAD 02 was identified during preparation of the exhibited draft Aboriginal Cultural Heritage Assessment Report as an area of PAD. The PAD was identified as being located within an area of Cumberland Plain woodland which has been preserved while extensive earthwork and construction activities have taken place around it. The PAD was located across a largely level landform with a gentle slope in the southern portion of the PAD. An ephemeral drainage channel was identified as being located southeast to northwest through the central portion of the PAD. Regrowth eucalypt were identified across the PAD extent.

The addendum survey including inspection of small areas within the southern extent of the PAD These areas of PAD were comprised of a gently sloped landform located immediately north of the artificial embankment associated with Carpark C. Survey of these areas confirmed that these portions of the survey unit were comprised of an intact landform in close proximity to the previously identified ephemeral drainage channel.

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Figure 17: Portion of survey area overlapping SIS PAD 02

6.0 AVOIDING AND MINIMISING HARM

6.1 Impact assessment

The proposed amendments are located within heavily modified landforms which do not contain Aboriginal sites or areas of archaeological potential. There would be no harm to known Aboriginal objects or areas of archaeological potential as a result of the amended project site.

The initial amendment design included the placement of two batter chutes along the northern boundary of Carpark C. Survey completed for the addendum confirmed that the location of these two batter chutes would result in impact to SIS PAD 02. Following confirmation of potential impact, the proposed design was modified to include a drainage path along the edge of the carpark in a previously modified landform. This modified design has ensured that SIS PAD 02 was not impacted as part of the amended design.

A summary of sites located within the addendum study area and the assessed impact to the site is provided in Table 4.

Table 4: Summary of impacts associated with project amendments.

Site	Site type	Significance	Type of harm	Degree of harm	Consequence of harm	Consistent impact? (yes/ no)
SIS PAD 02 (AHIMS ID 45-5-5352)	PAD	Unknown	None	None	No loss of value	Yes

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Figure 18: Redesign illustrating avoidance of impact to SIS PAD 02

6.2 Ecologically Sustainable Development principles

In accordance with the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales*[5], the principles of ecologically sustainable development have been considered in preparation of this addendum Aboriginal Cultural Heritage Assessment Report, including options to avoid impacts to Aboriginal cultural heritage, assessment of unavoidable impacts, identification of mitigation and management measures, and taking account of Aboriginal community views. The principles of ecologically sustainable development are detailed in the NSW *Protection of the Environment Administration Act 1991*. Principles of ecologically sustainable development relevant to the assessment of the project as it relates to Aboriginal cultural heritage are considered below.

The below discussion has been provided to expand the discussion of ecologically sustainable development principles discussed in the project ACHAR[6] for the revised scope of works outlined in this addendum Aboriginal Cultural Heritage Assessment Report.

6.2.1 The integration principle

Decision making processes should effectively integrate both long term and short term economic, environmental, social and equitable considerations (the 'integration principle'). The preparation of this Addendum Aboriginal Cultural Heritage Assessment Report demonstrates regard for the integration principle by considering Aboriginal heritage values and impacts from the amended project. This in combination with the Aboriginal Cultural Heritage Assessment Report [7] completed to support the Environmental Impact Statement demonstrate a continued considered of Aboriginal heritage values throughout the detailed design phase.

6.2.2 The precautionary principle

If there are threats of serious or irreversible environmental damage, lack of full scientific confidence should not be used as a reason for postponing measures to prevent environmental degradation (the 'precautionary principle').

During the development of the amended project, the design of the proposed amendments, in particular the revised site stormwater and drainage design has changed to ensure that identified Aboriginal sites, in particular SIS PAD 02, would not be impacted by the proposed amendments.

6.2.3 The principle of intergenerational equity

The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations (the 'principle of intergenerational equity').

While the wider Eastern Creek region has been identified as containing moderate cultural and spiritual values, the areas of amended project footprint considered in this Addendum Aboriginal Cultural Heritage Assessment Report have been assessed as having minimal contribution to the broader cultural values associated with Eastern Creek. Subsequently impacts to the project site are considered to result in minimal impacts to the overall cultural values of Eastern Creek. Further, the proposed amendments would not impact identified Aboriginal sites which would be conserved for future generations.

[5] Office of Environment and Heritage 2011
[6] Artefact Heritage, 2020. p. 63.
[7] Artefact 2020

7.0 CONCLUSIONS AND RECOMMENDATIONS

This addendum assessment has identified that impacts to identified Aboriginal sites within the project site are consistent with the exhibited draft Aboriginal Cultural Heritage Assessment Report[8] and Environmental Impact Statement. As such, no additional management and mitigation measures are required over and above those recommended in the exhibited draft Aboriginal Cultural Heritage Assessment Report.

As impacts to Aboriginal sites within the project site are consistent with the draft Aboriginal Cultural Heritage Assessment Report, review of the draft Addendum Aboriginal Cultural Heritage Assessment Report by the registered Aboriginal Parties is not required.

Any changes to the project site or design may require additional archaeological investigation and consultation with Aboriginal parties in accordance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales and Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010.

[8] Artefact 2020

8.0 REFERENCES

Artefact 2020, Sydney International Speedway: Technical paper 5: Aboriginal Cultural Heritage Assessment Report

Department of Environment Climate Change & Water 2010a, Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales

Department of Environment Climate Change & Water 2010b, Aboriginal cultural heritage consultation requirements for proponents

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Appendix C – Sydney Metro Overarching Community Communication Strategy

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Overarching Community Communications Strategy (OCCS)

A framework for communication and engagement during construction

Project:	Sydney Metro	**Date:**	28 October 2020
Group:	Project Communication	**Status:**	FINAL
Author:	Michelle Delaat	**Revision:**	2.1
Company:	Sydney Metro	**File number:**	
File name:	Overarching Community Communication Strategy (OCCS)		

Unclassified

Revision	Revision date	Status	Brief reason for update	Name/ position/ company	Author/ Reviewer/ Approver	Signature
1	17/7/20			A/Deputy Executive Director Communications & Engagement	Anita Brown	Anita Brown
2	05/08/20		Updated roles and responsibilities for independent advisors	A/Deputy Executive Director Communications & Engagement	Anita Brown	Anita Brown
2.1	28/10/20		Remove reference to Transport for NSW Good Neighbour Policy	A/Deputy Executive Director Communications & Engagement	Anita Brown	Anita Brown

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1 Introduction

1.1. Sydney Metro

Sydney's new world-scale metro system is the biggest program of public transport infrastructure currently under construction in Australia and the largest urban rail infrastructure investment in the nation's history.

A key part of delivering the NSW Government's Future Transport 2056 priorities, this customer-focused fully-accessible metro service will help grow the state's economy and help create vibrant places and communities. Sydney Metro has responsibility for delivering great places around metro stations so that precincts are designed, developed, activated and managed in line with the metro system to ensure the best outcomes for customers and communities.

Sydney Metro works collaboratively and in partnership with the Australian Government to deliver Sydney Metro – Western Sydney Airport which is a jointly-funded project.

1.2. Transforming Sydney

Sydney Metro is transforming Sydney, cutting travel times, reducing congestion and making it easier and faster to get around Australia's biggest city.

This new world-class mass transit system will evolve with the city it will serve for generations to come. Metro rail will catalyse development in Greater Western Sydney and serve as the transport spine for new communities.

Global Sydney's population will pass 6 million by 2036; an extra 1.7 million people will progressively move into to Australia's biggest city, which will support an extra 840,000 jobs and 680,000 homes.

Sydney Metro will help boost economic productivity by bringing new jobs and new educational opportunities closer to home.

Designed with customers at its centre, stations will be quick and easy to get in and out of, trains will be fast, safe and reliable, and technology will keep customers connected at every step of the journey.

Sydney Metro will integrate with new communities and transform existing urban centres.

1.3. Future Transport

In October 2017, the NSW Government announced Future Transport 2056 – Transport for NSW's 40-year blueprint for the future of the NSW transport system.

To support the Greater Sydney Commission's Greater Sydney Region Plan, the new transport strategy aims to improve public transport so that – by 2056 – 70 per cent of people will live within 30 minutes of work, study and entertainment.

Future Transport 2056 is a comprehensive strategy to ensure travel is more personal, integrated, accessible, safe, reliable and sustainable.

There are three parts to the strategy: programs that are committed to or funded by the NSW Government over the next 10 years; those that are under investigation; and visionary projects

in the 20 year-plus timeframe that are being identified now for future consideration as the population grows.

More information about Future Transport 2056 is available at:
https://future.transport.nsw.gov.au/

1.4. Sydney Metro values

At Sydney Metro our vision and values guide us in our interactions with each other, our stakeholders and our partners.

Our Vision is "Transforming Sydney with a world class metro", and our Mission is to deliver Sydney a connected metro service: providing more choice to customers and opportunities for our communities now and in the future.

Culture is a critical enabler of an organisation's success. To help develop a strong organisational culture, Sydney Metro has established a set of values that guides its approach to the procurement and delivery of Sydney Metro. These values are:

Figure 1: Sydney Metro Core Values

Sydney Metro has an expectation that contractors will adhere and uphold these values in their dealings with Sydney Metro, other contractors and stakeholders. Our values support us working together to achieve agreed outcomes supporting the delivery of our projects across our many diverse communities.

Sydney Metro has a number of programs and initiatives in place to embed these values and recognise individuals and teams for consistently demonstrating them.

1.5. Sydney Metro community and stakeholder engagement

We meet communities where they are based so we can build strong relationships and create opportunities for meaningful engagement.

Sydney Metro creates successful engagement outcomes by working closely and cooperatively with the community, Federal, State and local government, contractors, advisors, other service providers and key stakeholders.

Sydney Metro has been working with stakeholders and communities every step of the way since 2011, adapting to community needs and refining our approach to delivering community and stakeholder engagement to achieve better outcomes.

Key to the ongoing success of our engagement program has been a commitment to building personal relationships through face-to-face and digital engagement, supported by effective action and collaboration within multidisciplinary project teams.

Sydney Metro understands that the community and stakeholders want to communicate and access information in ways that are convenient and accessible. Our communication approach

continues to evolve to ensure our diverse communities have access to a variety of platforms that ensure a personalised approach to community engagement. Sydney Metro will continue to monitor the communication landscape to provide best practice solutions to engagement.

1.6. Our neighbours

New metro stations are a catalyst for development, regeneration and renewal of neighbourhoods, bringing to life placemaking opportunities. It can be exciting to watch the metro station and local precinct come to life but we also know that communities located immediately near construction sites will be more likely to notice construction works and associated impacts, and may potentially find the cumulative changes happening in their local area difficult to comprehend.

Sydney Metro's communication and engagement approach places particular emphasis on these communities whether they are residents, businesses, schools and childcare centres, or places of worship.

Sydney Metro has extensive experience working with a range of businesses located near our construction sites, and we ensure that tailored communication solutions are provided. Our approach ensures businesses are provided with engagement solutions for their type of business, operational hours of work and size of the organisation.

1.7. A new project delivery landscape

Sydney is growing and the NSW Government is delivering projects to reduce traffic congestion and improve public transport.

Sydney Metro is committed to working closely with other nearby projects, local councils, Federal and State Government agencies, and our stakeholders to manage and coordinate construction activities and traffic to help minimise impacts on the community.

Sydney Metro works with other nearby projects to enable close coordination of communication, sharing of information to streamline engagement, and assist the community to understand projects more holistically in their area.

1.8. Fostering strong relationships throughout the project lifecycle

Sydney Metro works with the community and its stakeholders throughout project development, planning, and project delivery. At all stages of this project lifecycle, Sydney Metro ensures engagement is open and transparent ensuring goodwill is established and strong relationships formed.

Sydney Metro will work with its delivery partners to ensure project commitments and community and stakeholder needs established during the planning phases are continued and considered during the delivery phase.

1.9. Statutory planning context

The delivery of the Sydney Metro network are predominately considered State significant infrastructure (SSI) projects under Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) requiring preparation and public exhibition of an Environmental Impact Statement and approval from the NSW Minister for Planning and Public

Spaces. The Minister for Planning and Public Spaces may approve the projects subject to conditions of approval.

In addition to approval under the EP&A Act, some Sydney Metro projects may also require assessment and approval under Commonwealth legislation, such as the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). Specifically, Sydney Metro Western Sydney Airport also requires approval under the Commonwealth *Airports Act 1996* (Airports Act) for all works located within the footprint of Western Sydney International (Nancy Bird-Walton) Airport.

Sydney Metro projects associated with the delivery of integrated stations and precinct developments are generally subject to assessment and approval as State significant development (SSD) in accordance with Division 4.7 of the EP&A Act.

This Overarching Community Communication Strategy (OCCS) and the commitments provided within this strategy are intended to form part of any relevant planning approval for Sydney Metro projects. Following the approval of projects, contractor-specific community communication strategies will be prepared in accordance with this overarching strategy and any relevant project-specific conditions of approval.

1.10. Integrated stations and precinct developments

New metro stations create opportunities to provide for community needs in consideration of the future vision, relevant planning controls and local character of each area.

An integrated station and precinct development is made up of the metro station and building(s) above and/or around the station. Once built, these developments could deliver a range of uses like community facilities, new homes and green spaces, shops, restaurants and commercial office spaces.

All future integrated station and precinct developments would be subject to separate planning approval processes that would include community and stakeholder engagement in line with this OCCS and any statutory requirements of a State Significant Development.

Where required, early engagement would be undertaken with key project stakeholders to support the development of a two-way dialogue in relation to integrated station and precinct developments ahead of relevant planning approval processes.

2. About this plan

The Overarching Community Communication Strategy (OCCS) has been prepared to guide Sydney Metro's approach to stakeholder and community liaison including engagement with communities, stakeholders and businesses. This plan is intended to be used as a framework for community engagement across all Sydney Metro projects and contracts.

The OCCS considers all work activities and packages for Sydney Metro and its projects for the duration of work, and 12 months following the completion of construction.

Sydney Metro is responsible for the development and implementation of the OCCS to ensure there is a coordinated approach to stakeholder, business and community liaison across the entire program of work for Sydney Metro.

Contract specific Community Communication Strategies (CCS) will be developed by appointed project delivery communication teams (PDCT) to address contract and site specific needs of the community, stakeholders and businesses. These strategies will reflect the requirements of the OCCS (this plan) and they will adhere to the requirements outlined in the relevant contract specification – Stakeholder and Community Engagement, along with requirements identified in any relevant planning approval.

The OCCS and CCS' are supported by a Construction Complaints Management System (CCMS) which outlines the framework for managing complaints, enquiries and escalation processes throughout the project lifecycle. The CCMS also outlines the process for reporting complaints.

The Small Business Owners Engagement Plan (SBOEP) is a stand-alone plan which supports these strategies.

Figure 2: Communication strategy hierarchy

The communication strategy hierarchy is supported by the procedures and processes outlined in Section 8 and the Sydney Metro Integrated Management System's Communication and Engagement Management Plan, which outlines Sydney Metro's approach to stakeholder management, public affairs, public communication and strategic partnerships.

2.1. Accountabilities

The Deputy Executive Director Communication and Engagement, or delegate is accountable for this document. Accountability includes authorising the document, monitoring its effectiveness, and performing a formal document review.

Members of the team including Sydney Metro staff, contractors, subcontractors and consultants are accountable for ensuring the requirements of this plan are implemented within their area of responsibility. This document will be reviewed and reissued annually.

2.2. Purpose

This OCCS will guide Sydney Metro's interactions with stakeholders and the community and will outline the:

- Approach, objectives, principals, and tools to be used
- Team structure, roles and responsibilities
- Communication protocols and procedures to be followed
- Key stakeholders
- Approach to low impact works or preparatory activities
- Approach to reporting and evaluation.
- The commitments provided in this plan are intended to form part of, and satisfy the obligations of, any relevant planning approval for Sydney Metro projects.

2.3. Communication and engagement approach

Sydney Metro is committed to establishing genuine relationships with stakeholders and the community. This is underpinned by the belief that effective communication is a crucial element in the successful delivery of all our projects.

Sydney Metro recognises the diverse engagement and information needs of the community and stakeholders and commits to robust and transparent engagement processes that are inclusive in nature.

The International Association for Public Participation (IAP2) is used to guide engagement during different project phases with an emphasis on inform, consult and active participation levels as appropriate. The levels of consultation outlined in the spectrum are provided as a guide only, and the Project team will ensure an individual approach is taken when engaging with each stakeholder.

The spectrum may be considered in engagement with members of the community, stakeholders including Government agencies, members of parliament and public sector stakeholders.

Figure 3: The IAP2 public participation spectrum

2.4. Place managers

Sydney Metro ensures a personal approach is undertaken when undertaking community engagement by having dedicated community relations specialists called place managers. Their role is to act as a single, direct contact between members of the community and the project team.

Sydney Metro also has personal managers to provide support throughout any property acquisition process. Their role is to work closely with property owners or tenants and to make sure the process is as easy as possible.

2.5. Objectives

Sydney Metro's corporate strategic objectives are:

- Manage customer and community expectations
- Integration of 'place'
- Record infrastructure investment
- Technological change
- Drive towards long-term financial sustainability

The Sydney Metro project communication and engagement objectives are to:

- Minimise project impacts on stakeholders and the community where possible
- Minimise project impacts on local businesses recognising specific needs and requirements

- Provide adequate, timely and coordinated stakeholder and community communication and engagement
- Assist stakeholders and the community in their understanding of project construction including activities to be undertaken by project delivery partners and their objectives, benefits, potential impacts and expected outcomes
- Appropriately address stakeholder and community issues
- Provide consistency across our external communication activities and interfaces with stakeholders during delivery of all Sydney Metro projects
- Coordinate approach to manage project enquiries and complaints with interface projects where appropriate
- Act as a conduit and advocate between the project team and the broader community.

2.6. Roles and responsibilities

Figure 4 below demonstrates that throughout the project lifecycle Sydney Metro will begin engaging with the community and stakeholders in the early strategic planning stages of the project and will continue this relationship through to commissioning, and operation of metro services after which point some of these stakeholders and community members will become customers of metro.

The project lifecycle can involve several project phases occurring concurrently. Understanding this assists Sydney Metro and the PDCT(s) to work together to ensure communication is clear and consistent across the different facets of the project.

Figure 4: Potential stakeholder and community engagement touchpoints through the project lifecycle

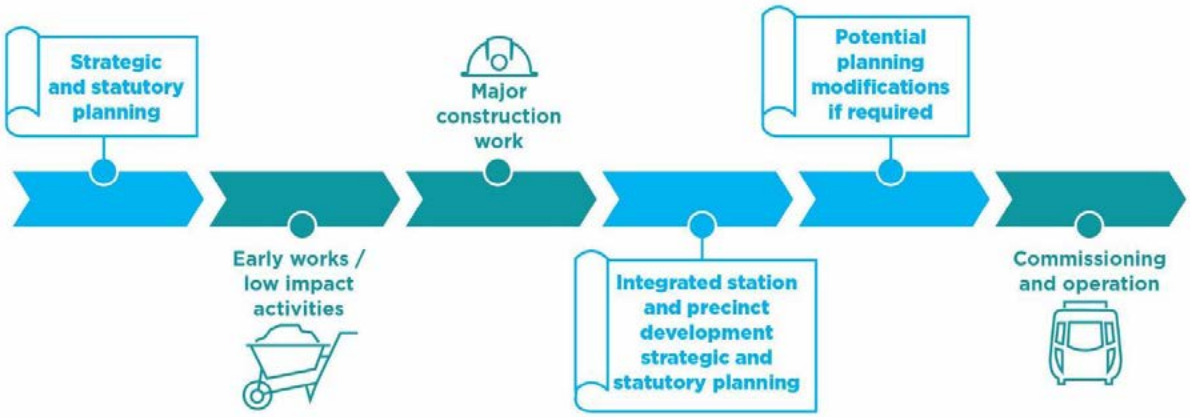


Figure 5 below outlines key responsibilities of Sydney Metro projects, and project delivery communications teams during project planning and delivery. Figure 5 is intended as a guide noting there would be times when responsibilities would overlap particularly in the pre-construction phase and in the transition between statutory planning and construction communication. The full suite of delivery partner responsibilities for the PDCT would be outlined in the contract general specification – stakeholder and community engagement.

Figure 5: Responsibilities during planning and construction

KEY RESPONSIBILITIES

Responsibilities for all teams throughout every project phase:

Complying with all Sydney Metro procedures, processes, protocols and plans including:

- the current version of the Transport for NSW Editorial Style Guide;
- the current version of the Sydney Metro Project Brand Guidelines; and
- the current accessibility requirements for Web Content Accessibility endorsed by the Australian Government, for all documents required by any relevant planning approval or contract requirements.

Complying with any relevant planning approval(s) and/or legislative requirements in all work practices

Collaborating with Sydney Metro communication and engagement team for consistent communication approach

Senior stakeholder and strategic partner engagement

Documenting project progress through photography and videography

Strategic and statutory planning

Communication strategies and implementation plans including development of written and creative collateral

Undertaking community consultation activities in relations to the requirements of the statutory planning process

Managing day-to-day relationships with directly affected communities and stakeholders including complaint and enquiry management.

Early work to major construction

All construction communication as required (refer to delivery partner requirements for early works and construction)

Developing site or package specific Community Communication Strategy (CCS) including undertaken a 6 monthly review

Working with construction teams to address site specific issues Inducting all contractors and subcontractors in community relations issues and expectations.

Managing day-to-day relationships with directly affected communities and stakeholders including complaint and enquiry management and entering relevant information into Consultation Manager

Preparing public materials such as construction notifications, general notifications, site signage, App alerts, traffic alerts as specified.

Attending appropriate cross-agency and community engagement forums as determined by Sydney Metro

Providing content to Sydney Metro for public materials, media and government responses

Planning modification communications will be agreed with Sydney Metro in reference to the contract general specific - stakeholder and community engagement

Producing reports inline with the requirements of the Construction Complaints Management System (CCMS), and any planning approval or condition(s), including complaints, key themes and issues, mitigation measures implemented and lessons learned.

Table 1: roles and responsibilities in the planning and delivery phases of the project.

Role	Responsibility
Environmental Representative	A suitably qualified and experienced Environmental Representative is independent of the design and construction personnel and responsible for advising the Department of Planning, Industry and Environment on the environmental performance of projects. The Environmental Representative is engaged by the Sydney Metro for the duration of construction of the project and approved by the Secretary of the Department of Planning, Industry and Environment. The Environmental Representative may provide advice to the Sydney Metro Communication and Engagement teams in relation to environmental performance and mitigation measures. Provide an independent review to help resolve complaints about construction issues where a resolution has been unable to be reached by the contractor and the Sydney Metro project team
Acoustic Advisor, if required according to planning approval	A suitably qualified and experienced Acoustic Advisor is independent of the design and construction personnel and responsible for advising the Department of Planning, Industry and Environment specifically on noise and vibration performance of the project. The Acoustic Advisor is engaged by Sydney Metro for the duration of construction of the project and approved by the Secretary of the Department of Planning, Industry and Environment. The Acoustic Advisor may provide advice to the Sydney Metro Communication and Engagement teams in relations to acoustic performance and mitigation measures.
Independent property impact assessment panel, if required according to planning approval	An independent panel may provide assistance in the resolution of property damage concerns following investigation by Sydney Metro and technical specialists in consultation with the affected property owner.
Western Sydney Airport or Airport Environment Officer, if required according to planning approval	Western Sydney Airport is the lessee of Western Sydney International (Nancy Bird-Walton) Airport and have responsibility for the site. An Airport Environment Officer is responsible for the day to day regulatory oversight of compliance with the Commonwealth *Airport (Environment Protection) Regulations 1997* (AEPRs) at Western Sydney International (Nancy Bird-Walton) Airport and will have a role in relation to works for Sydney Metro – Western Sydney Airport on this site.
Other project technical specialists	Provide subject matter technical expertise for the duration of construction, or as otherwise agreed by the Secretary of the Department of Industry, Planning and Environment. This scope will include but not limited to: construction, noise, vibration, tunnelling and general project related issues
Independent mediation	Upon the recommendation of the Director, Project Communication or the Environmental Representative, provide independent mediation to

service(s) (engaged as required)	help resolve complaints about construction issues where a resolution has been unable to be reached by the contractor and the Sydney Metro project team. Any mediator engaged by Sydney Metro, to assist in resolving a complaint, would be required to hold suitable qualifications and have experience mediating similar matters.
Deputy Executive Director Communication & Engagement	Overall responsibility for defining, developing and implementing the strategic direction of Sydney Metro in respect of all communication and engagement activities.
Director Project Communications	Responsible and accountable for authorising all communication and engagement documents, monitoring their effectiveness and performing formal document review.
Sydney Metro Communication and Engagement Team	This team's key accountabilities and responsibilities include: • Communication and engagement • Stakeholder management • Public affairs • Public communication • Strategic partnerships • Project communications
Project Communication teams (Sydney Metro and PDCT)	• Develop and/or implement this Overarching Community Communications Strategy • Provide Place Managers to engage with the local community during the design, planning approval and early work / low impact/major construction activity stages • Develop and implement project communication plans • Develop external facing project communication collateral • Proactively identify potential issues and work cooperatively to develop agreed management strategies

2.7. Roles and responsibilities for complaint management during construction

The CCMS will outline the framework for managing complaints, enquiries and escalation processes throughout the project lifecycle.

Complaints are first managed by the PDCT and any unresolved complaints may then be escalated to Sydney Metro.

The Director, Project Communications is the designated complaints handling management representative for the escalation of complaints for independent review. Complaints would only be escalated for independent review following a full and thorough investigation by the PDCT and Sydney Metro. The Director, Project Communication may also refer a complaint to independent mediation at any stage in the complaint management process.

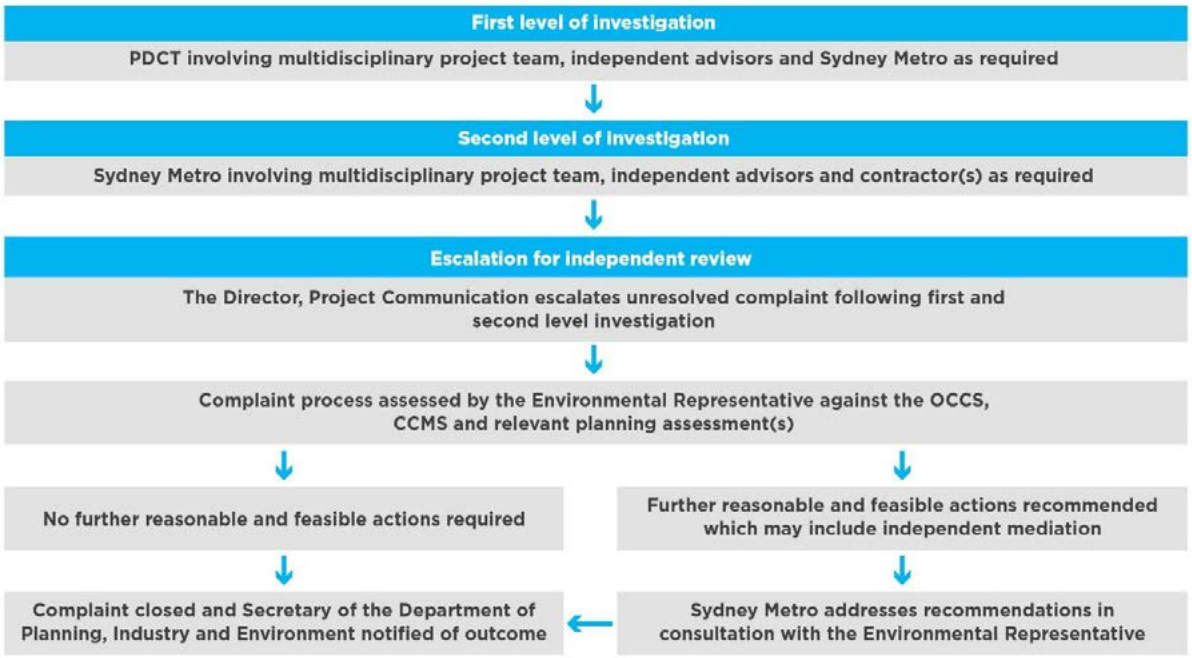
Following any escalation for independent review, the Environmental Representative would make an assessment on the adequacy of Sydney Metro's response to the complaint in accordance with this plan, the CCMS and the project's planning and assessment process, in consideration of what is fair and reasonable.

Following this review the Environmental Representative would either make a recommendation to close the complaint and notify the Secretary or provide recommendations for consideration by Sydney Metro on any additional actions that could be undertaken to assist in resolving the complaint.

The Environmental Representative may also refer any reasonable and unresolved complaint for independent mediation, at which time a qualified mediator would be engaged by the project. This process is outlined in figure 6.

This process does not apply to complaints specifically relating to the Western Sydney Airport site which would be managed and escalated to Western Sydney Airport in accordance with the CCMS.

Figure 6: complaint escalation process for Sydney Metro West



3. Our stakeholders

3.1. Our relationships

Effective relationships and consistent and accountable communication practices are crucial to the successful delivery of Sydney Metro. Sydney Metro is committed to providing proactive and positive interactions with all our stakeholders during the delivery of our projects. Our stakeholders include:

- Our colleagues across Transport for NSW
- Local, State and Federal government departments and agencies
- Media
- Industry partners
- Precinct partners and city deal partners
- Broader network users and customers
- The community across Sydney, including businesses.

Table 2: Sydney Metro stakeholders (as relevant to each Sydney Metro project)

Sector	Stakeholders
Community	Neighbours Residents and residents groups Businesses and business groups Property owners and tenants Business owners and tenants Land owners Interest groups Education and religious facilities Transport users Owners and managers of local social infrastructure and community facilities
	Peak community groups
	Multicultural support groups
Government	Federal Minister for Infrastructure, Transport and Regional Development Federal Minister for Population, Cities and Urban Infrastructure
	NSW Minister for Transport and Roads NSW Minister for Jobs, Investment, Tourism and Western Sydney

Sector	Stakeholders
	State elected members and their electoral offices Local elected members Local Council General Managers/CEOs
	Department of Infrastructure, Transport, Regional Development and Communications Department of Energy and Environment Western Sydney Airport
	Department of Planning, Industry and Environment Sydney Coordination Office Transport for NSW (Motorways) Sydney Trains Infrastructure NSW Department of Premier and Cabine NSW Treasury Port Authority of NSW NSW Health Department of Family and Community Services Department of Education Schools Infrastructure NSW Western City Aerotropolis Authority Planning Partnership Office Western Sydney City Deal Delivery Office
	Council officers Emergency services – Police – Ambulance – NSW Fire and Rescue – Rural Fire Services – State Emergency Services
Neighbouring projects	Parramatta Light Rail Western Harbour Tunnel and Beaches Link WestConnex Rozelle Interchange Westmead redevelopment Glebe Island Multi-User facility Revitalisation of Blackwattle Bay and the new Fish Market Western Sydney International Airport M12 Motorway

Sector	Stakeholders
Service providers	Sydney Water Water NSW Power utilities Telecommunication providers Local Councils
Industry	Academic institutions Contractors Peak bodies Transport associations Transport experts Unions
Precinct partners, City Deal partners	Local Councils State Government agencies Federal Government agencies Government-owned corporations
Media	All media

4. Our communities

Sydney Metro recognises that our projects are undertaken across a range of diverse communities and our information needs to be accessible for all people. The project will continue to monitor, adapt and review communication streams, key messages and audiences to continue to connect with people in ways that are meaningful to them.

4.1. Community demographics

Sydney Metro uses area demographics and census data to better understand the communities in which we operate. The information we gather ensures we provide accessible information to people from all backgrounds including:

- People with languages other than English (LOTE)
- Culturally and linguistically diverse communities (CALD)
- Vulnerable communities
- Aboriginal and Torres Strait Islander Communities (ATSI)
- Diverse communities

The PDCT CCS must demonstrate how their communication approach will use tools and strategies that meet the needs of their diverse communities. Specific tools outlined below should be considered as appropriate.

4.2. Working with culturally and linguistically diver (CALD) and languages other than English (LOTE) communities

The following processes and communication tools can be used to improve accessibility and outreach with people who come from CALD and LOTE backgrounds:

- Providing project information on the Sydney Metro website which can be translated into 58 different languages.
- Working closely with local councils and community groups to utilise existing CALD relationships.
- Continued outreach with targeted CALD community groups, and face-to-face meetings and briefings with CALD communities as required.
- Advertising project milestones in foreign language newspapers.
- Translating project milestone factsheets and newsletters into targeted languages.
- Ensuring that foreign language submissions can be received.
- Providing translators for meetings and engagements as required.

4.3. Working with vulnerable communities

Sydney Metro recognises that a range of community members may be vulnerable in relation to disabilities and health, age, employment and housing status, among other issues.

The following processes, communication tools and approaches would be used to improve accessibility and outreach with vulnerable communities:

- Engage with relevant support organisations to keep vulnerable communities informed of work occurring.
- Training construction personal that all interactions with vulnerable people should be respectful and courteous.
- Where required provide regular updates to rough sleepers about construction timing and impacts.
- Businesses impacted by people sleeping rough who may have been displaced by construction should also be kept informed and engaged.

Sydney Metro endorses the NSW Government approach to homelessness by incorporating the Sydney Metro Protocol for Homelessness within all community communication strategies.

4.4. Working with Aboriginal and Torres Strait Islander (ATSI) communities

The following key focus areas have been developed by the Transport for NSW Reconciliation Action Plan (RAP), and will be reflected and incorporated in all engagement objectives and activities undertaken by Sydney Metro:

- Build and strengthen relationships.
- Respect and celebrate culture.

The following processes and communication tools can be used to improve accessibility and outreach with ATSI communities:

- Working collaboratively and respectfully with our Aboriginal and Torres Strait Islander staff, Aboriginal Peak Bodies, and with the communities in which we operate.
- Continue working with our key stakeholders to further build upon existing relationships, and seek to invest in new partnerships to support our progress in delivering meaningful outcomes for Aboriginal and Torres Strait Islander peoples whist delivering on our core business.

4.5. Working with diverse communities

Sydney Metro will continue to review its communication tools to ensure inclusive community engagement and the varied information requirements of our communities and stakeholders is prioritised.

The following processes and communication tools can be used to improve accessibility and outreach with diverse communities:

- Web and digital based engagement tools allowing people to engage with the project at a time that is convenient to them.
- Using multiple communication platforms to enhance communication reach, for example printed notifications, face-to-face doorknocks and email.
- Ensuring communities are providing with convenient options to access the project team such as providing multiple times for community information sessions and a 1800 number 24 hour a day, seven days a week.
- Harnessing a place management approach to understand the specific needs of communities and tailor communication accordingly.

All Sydney Metro communication materials will adhere to Web Content Accessibility Guidelines (WCAG 2.0).

5. Businesses

Sydney Metro would work with local businesses within project catchments to ensure communication and engagement is tailored to their specific needs.

Sydney Metro's overarching approach to business engagement is to:

- Identify and document potentially impacted businesses prior to project commencement
- Provide early advice to businesses of upcoming projects
- Provide businesses with information about the project and its long terms benefits.
- Provide businesses with information about construction progress.
- Ensure businesses understand the scope of the works and mitigation measures contractors can provide.
- Ensure businesses understand the proposed timing of the works.
- Consult with businesses and take steps to minimise potential impacts.
- Ensure the project team understands the operational requirements and sensitivities of businesses around each site.

The contractor CCS must include at a minimum the identification and details of specific businesses located within 50 metres of each relevant construction site.

Contractors must identify the specific needs of each business, any potential impacts associated with construction works, and proposed mitigation measures. These measures must also address if there is a need for translation or cultural and other specialists.

The CCS must also outline the approach and timing of holding regular business forums at each construction site.

Evaluation and monitoring of business engagement is outlined in section 11.

5.1. Small Business Owners Engagement Plan

The Sydney Metro PDCT will provide assistance if required to small business owners located within 50 metres of a Sydney Metro construction site, where they may be potentially impacted by construction activities. For the purposes of this program, a 'small business' is defined as a business that employs fewer than 20 people.

Sydney Metro activities to support to eligible businesses may include:

- Small business education and mentoring
- Activation events
- Business engagement events
- Marketing and promotion.

6. Communication tools

Sydney Metro uses a range of communication and engagement tools to ensure project information reaches a wide variety of people likely to be impacted by the project. Using a variety of tools provides our communities with options to engage with the project in ways that suit their needs and lifestyle.

When planning communication strategies the PDCT must consider the requirements of the General Specification – Stakeholder and Community Engagement along with the specific needs of their community as identified in their CCS. The CCS should then outline the specific tools used to reach their identified stakeholders.

The following communication tools matrix is provided as a guide only and other communication tools may be used with prior approval from the Director, Project Communication. CALD communication tools are also included in the table below.

Sydney Metro will provide a suite of project specific templates to the PDCT to assist in the development of communication collateral.

Table 3: Sydney Metro communication and engagement tools

Tool	Explanation and purpose	Responsibility
Community contact tools		
Community information line	Operational 24 hours a day and included on all public communication materials Translation services are available for those with English as a second language.	SM
Community email address	This allows stakeholders and the community to have access to the project teams and to provide feedback and ask questions. All communication materials and the website will include the community email address. During construction, emails will be redirected to relevant contractors as required.	SM
Community post box	All stakeholders can use the postal address: PO Box K659, Haymarket NSW 1240 for all Sydney Metro enquires.	SM
CALD Translation services	All communication will promote our translation services for those with English as a second language.	SM
Information tools		
Newsletters	Printed and web accessible online site-specific newsletters will include information on: • construction progress	SM/PDCT

Tool	Explanation and purpose	Responsibility
	• upcoming construction stages and milestones • environmental management achievements • community involvement achievements • three month look-ahead • community contact information. Newsletters will be distributed to local communities, stakeholders and businesses and made available of the Sydney Metro website.	
Sydney Metro direct mail email updates	The community, stakeholders and businesses will be offered the opportunity to register to receive Sydney Metro milestone updates.	SM
Construction email updates	The community, stakeholders and businesses will be offered the opportunity to register to receive construction updates.	PDCT
Fact sheets	Printed and/or web accessible fact sheets will be used as required to explain key aspects of Sydney Metro to the community and our stakeholders.	PDCT
Photography and videography	Photos and videos will be used to record the construction process and assist with explaining aspects of Sydney Metro to stakeholders and the community. Images and footage will be used in notifications, newsletters, on the Sydney Metro website, presentations and reports as required.	SM/PDCT
Information videos	Information videos can be used to highlight key project milestones, construction information or elements of the statutory planning process	SM/PDCT
Site signage and hoarding banners	Site signage and hoarding banners will identify Sydney Metro and provide contact information.	SM/PDCT
CALD Newsletters and fact sheets	Translating project milestone factsheets and newsletters into targeted languages where required.	SM/PDCT
Online tools		
Sydney Metro website	Information about the project will be uploaded to the Sydney Metro website. The website will be referenced in all communication materials as a source of information and will be updated on a regular basis. Information will include:	SM

Tool	Explanation and purpose	Responsibility
	• Description of the Sydney Metro • Project information including: – description, current status and timing – newsletters – notifications – up-to-date project information – graphics and images on the project background and progress – copies of relevant reports – photos, images and maps – links to documents as required under the relevant projects Conditions of Approval – a link to Sydney Metro contractor webpages. • Contact information • Email subscription service • The Sydney Metro website is translatable into 58 different languages using the Google translate function at the bottom of the home page.	
Project interactive portal	Sydney Metro may establish and maintain an online portal for the project displaying key project information including: • statutory planning information • project map(s) • graphics and images of the project • newsletters and other project information • specific project information displays • contact information.	SM
Contractor webpage	Each contractor will establish and maintain a web site to upload and maintain information to be published. Including copies of community, environmental, sustainability, transport, traffic and noise and vibration reports and plans. A link will be provided to the Sydney Metro website.	PDCT
Social media	Facebook, Twitter and Instagram may be used to provide updates to stakeholders. Stakeholders should be offered the opportunity to join social media feeds via public materials produced for Sydney Metro.	SM
CALD	Updating the Sydney Metro website with project information, which can be translated into 58 different languages.	SM/PDCT

Tool	Explanation and purpose	Responsibility
Sydney Metro and Contractor website	Ensuring that foreign language submissions can be received.	
Face-to-face and interactive tools		
Mobile information displays	Mobile information displays can be used at locations like community events, shopping centres and local public spaces to provide information about Sydney Metro, statutory planning processes or construction.	SM/PDCT
Virtual information rooms	Virtual information displays can be used to highlight project milestones, provide information about construction or statutory planning processes.	SM/PDCT
Door knock meetings	Individual door knock meetings will be used as required to discuss potential impacts of Sydney Metro with highly impacted stakeholders, especially residents, businesses directly neighbouring construction sites and owners or managers of nearby social infrastructure or community facilities.	SM/PDCT
In person and/or virtual meetings with individuals or groups	Stakeholder meetings will be used as required to discuss Sydney Metro activities including work in progress and upcoming work or any issues in connection with the activities.	SM/PDCT
Site visits	Site visits will be used where appropriate to inform select stakeholders about the progress of Sydney Metro and any key milestones or activities taking place.	SM/PDCT
In person and/or virtual presentations and forums	Presentations and forums will be used where appropriate to inform stakeholders about the progress of Sydney Metro and any key milestones or activities taking place.	SM/PDCT
In person and/or community and business based forums	Forums will be used to focus on key environmental management issues relating to construction activities with impacted community and business stakeholders.	SM/PDCT
CALD In persons and/or virtual tools	Providing translators for virtual and/or in person meetings and engagements as required. Working closely with local councils and community groups to utilise existing CALD relationships.	SM/PDCT

Tool	Explanation and purpose	Responsibility
	Continued outreach with targeted CALD community groups, and virtual and/or face-to-face meetings and briefings with CALD communities as required.	
CALD Presentations	Presentations will also be offered to local CALD community groups in multiple languages by bi-lingual team members or external translators.	SM/PDCT
Notifications		
Emergency works – notification letter	An emergency works* – notification letter will be used to advise properties immediately adjacent to or impacted by emergency works, within two hours of door knock commencing work. Notifications must be delivered by the PDCT, issued on Sydney Metro letterhead and include the following: • scope of work • location of work • hours of work • duration of activity • type of equipment to be used • likely impacts including noise, vibration, traffic, access and dust • mitigation measures • contact information. **Work required to repair damaged utilities and/or make an area safe after an incident outside standard construction hours.*	PDCT
7 day notification - Community Signage	Signage will be erected at least 7 days prior to any activity with the potential to impact stakeholders or the community. This includes: • work in public areas such as a park • making changes to pedestrian routes • impacting on cycle ways • changing traffic conditions • disrupting access to bus stops. Signage could include A-frames, mobile Variable Message Sign (VMS), hoarding or similar and be placed at either end of the corridor of work.	PDCT
7 day - Traffic alert email	Traffic alert email will be sent at least 7 days prior to any works requiring changes to traffic. Recipients should include:	PDCT

Tool	Explanation and purpose	Responsibility
	• relevant authorities • transport operators (including bus, coach and taxi operators). The notification audience and content will be guided by the Traffic and Transport Liaison Group and Traffic Management Plans.	
7 day – utility notification	A notification will be sent to relevant utility service authorities at least 7 days before utility service work, to provide detailed information for their relevant call centre messaging.	PDCT
Notification letter	Notification letters will be used to advise the community and stakeholders of any activity with the potential to cause impacts. The notification should be sent at least 7 days prior to the activity occurring to an area of 100 metres around the construction site for day works and 200 metres around the site for night works. Wherever possible works notifications should be combined for the month to include all proposed site activities. Following up communication should be implemented for night works including the use of email, door knock or MetroConnect App reminders. Notifications are required for: • start of construction • significant milestones • changes to scope of work • night works • changes to traffic conditions • modifications to pedestrian routes, cycle ways and bus stops • out of hours work • changes to residential or business access • changes or disruptions to utility services • investigation activities. Notifications will be issued on Sydney Metro letterhead and include the following: • scope of work • location of work • hours of work • duration of activity • type of equipment to be used	PDCT

Tool	Explanation and purpose	Responsibility
	• likely impacts including noise, vibration, traffic, access and dust • mitigation measures • contact information.	
Advertisements	Display advertisements will be used to notify the community prior to the start of construction, update on construction activity, notify of exhibitions and events and announce Sydney Metro and milestones. Advertisements will be used as required, to fulfil the requirements of any planning approval, or licences and that required by law. Advertisements in local newspapers, if possible (that cover the geographical areas of the contractor's activities) will be used to notify of significant traffic management changes, detours, traffic disruptions and work outside any working hours contained in the environmental documents at least **7 days before** any detour, disruption or change occurs.	SM
Notification email	Email notifications via Consultation Manager distribution lists are utilised once on the ground notification distribution has been completed.	SM/PDCT
MetroConnect App	A native digital application may be utilised to provide brief construction information updates to the community. Stakeholders will be offered the opportunity to sign up for 'App' updates. MetroConnect is expected to be available from late 2020.	SM
CALD Advertisements	Advertising project milestones in foreign language newspapers.	SM
Briefings and media		
MP, local elected members and Ministerial briefings	MP, Local elected members and Ministerial briefings will be used to update these stakeholders on major Sydney Metro milestones.	SM
Media briefings and releases	Media releases, briefings and events will be used to update the community on major Sydney Metro milestones.	SM
Schools		
School education program	A school education program developed by Sydney Metro will be used to engage with primary and high school students.	SM

Tool	Explanation and purpose	Responsibility
Other requirements		
Site inductions	Site inductions will include communication and engagement requirements to ensure all members of the Sydney Metro and contractor teams are aware and respectful of our residential and business neighbours.	PDCT
Stakeholder database	A web-based program used for the collection and recording of details regarding stakeholder and community contact and correspondence.	PDCT
Communication Interface Coordination Group	Members would include communications representatives from interfacing projects with project sites shared or adjacent to Sydney Metro. The role of the Communications Interface Coordination Group is to: • Establish relationships between communications teams from interfacing projects to facilitate effective handling of enquiries and complaints where relevant. • Provide an update on current and upcoming milestones, construction program and stakeholder and community issues. • Provide a forum to exchange information and coordinate communication and consultation activities to ensure a consistent approach to stakeholders, the community and others is delivered.	SM/PDCT

7. Site establishment communication

Establishing relationships with stakeholders and the community, including determining suitable forums for engagement is a key priority prior to site establishment for construction. During this stage of engagement the PDCT should prioritise face-to face communication as much as possible. Sydney Metro will provide support for these activities as outlined in Table 4.

Table 4: Pre-construction engagement priorities

Activity	Responsibility
Pre-construction communication planning	
Prepare Community Communication Strategy (CCS) DRAFT for Sydney Metro	Project Delivery Communication Team
Set up site specific community email and 1800 phone number to receive correspondence	Project Delivery Communication Team
Set up project delivery webpage	Project Delivery Communication Team
Set up communication management system (Consultation Manager)	Project Delivery Communication Team
Prepare start of construction advertisement	Sydney Metro
Establish Community Complaints Mediator (CCM)	Sydney Metro
Establish area coordination groups	Sydney Metro
Early site engagement/post planning approval	
Ministerial, stakeholder and government agency briefings	Sydney Metro
Council briefings	Sydney Metro / Project Delivery Communication Team
Prepare and seek approval from Sydney Metro for introductory communication material for community engagement	Project Delivery Communication Team
Initial doorknock and introductory material delivered and follow up meetings established for consultation	Project Delivery Communication Team
Conduct initial consultation with neighbouring properties, businesses and stakeholders to establish specific needs	Project Delivery Communication Team
Refine CCS and submit to Sydney Metro	Project Delivery Communication Team
Establish forums for business and community engagement based on needs assessment	Project Delivery Communication Team
Publish start of construction advertisement	Sydney Metro
Host coordination meeting with relevant projects	Sydney Metro / Project Delivery Communication Team
Pre-construction engagement	
Prepare and distribute introductory newsletter and email noting early engagement outcomes, project update, and forums available to attend prior to construction starting	Project Delivery Communication Team
Prepare and seek approval for forum collateral including project A0 boards, factsheets and presentations	Project Delivery Communication Team
Hold first forums (prior to construction starting) inviting relevant local project representatives at each site	Project Delivery Communication Team
Erect temporary site signage and shadecloth (prior to hoarding being erected)	Project Delivery Communication Team

KEY

Sydney Metro

Project Delivery Communication Team

8. Managing issues

8.1. Issue identification

It would be expected that the PDCT would work collaboratively with SM during pre-construction communication planning to understand the key themes arising from the environmental assessment process. This includes gaining knowledge of the relevant environmental impact statement(s) or other planning approvals documentation, key mitigation measures, potential cumulative impacts, community or stakeholder issues raised during the statutory planning process.

Sydney Metro expects the PDCT would appoint dedicated place managers and use the following methods during early site engagement, pre-construction engagement and delivery to identify potential issues for their communities:

- Gather information about community, stakeholder and business needs and requirements to guide delivery communication approaches.
- Build relationships with local communities, stakeholders and businesses, particularly those in close proximity to the site with a priority on personal and face-to-face communication to encourage open communication about concerns.
- Communicate early and often providing accurate information about upcoming project works and potential impacts.
- Share information with other projects in the area (see cumulative impacts).

The PDCT would be expected to work collaboratively with their environmental and construction counterparts, the Sydney Metro project implementation group, the project Environmental Representative and/or Airport Environment Officer to understand potential issues and agree on appropriate management approaches prior to escalating any issues as per the Sydney Metro Construction Complaints Management System.

The CCS must identify strategies for proactively identifying issues and appropriate mitigation measures.

8.2. Tools to manage issues

There are a number of tools available to assist projects in managing issues relating to construction and environmental impacts. These can be found in the following plans:

- Construction Environmental Management Framework
- Construction Traffic Management Framework
- Construction Noise and Vibration Standard
- Applicable contract specific management plans.

8.3. Key issues and mitigation measures

The following communication and mitigation measures are considered a guide to managing potential issues. The PDCT must identify the unique issues related to individuals and outline tailored mitigation measures which would also incorporate mitigation measures from the project's relevant planning approvals documentation.

Table 5: Key issues and mitigation measures

Issue	Communication and mitigation measures
Information about construction	
• Lack of information • Coordination with other Transport Agencies • Temporary station closures at locations along the alignment where train possessions occur • Train replacement services	• Regular notifications and newsletters (including contributing to other project notifications including Sydney Trains notifications for work during possessions) • One on one meetings on request • Doorknocks as required - both prior to works and as stakeholder checks after works • Attend stakeholder meetings to communicate Project information to their client base • Community contact facilities • Coordinate with projects and existing transport operations in close proximity to Sydney Metro works, regarding replacement services and temporary transport plans
• Coordination of information for tenants and property owners (including business owners)	• Strata/building managers and owners notified of scheduled and emergency work in the area when necessary • Meetings arranged with strata/building managers and owners • Strata/building managers and owners informed of works before they commence • Coordinate communications through communication interface groups • Implement the Small Business Owners Engagement Program as required

Issue	Communication and mitigation measures
Utility relocation and continuity of supply	
• Utility works affecting footpath or road access	• Detailed briefings for businesses potentially affected • Timing works, particularly service cutovers, to minimise potential impacts • Provide alternative service where necessary to maintain essential supply
Visual amenity and visibility	
• Impacts to visual amenity (overlooking or directly next door to sites) • Vandalism of site hoarding • Visibility of retail signage and shopfronts	• Retain vegetation where possible or for as long as practical • Protection of trees to be retained • Hoarding designed in line with Sydney Metro Brand Style Guidelines • Prompt graffiti removal from hoarding, buildings, plant and surroundings kept well maintained and clean • Hoarding designed to maximise visibility of retail signage and shopfronts. • Explore opportunities for signage and wayfinding to maintain business visibility • Implement Small Business Owners Program to promote local businesses
Cumulative impacts	
• Multiple works in the one location • Adjacent projects	• Coordinate communications through the communication interface group
Transport interruptions	
• Temporary station closures	• Rail replacement services • Advertisements, notifications and station attendants redirecting passengers to alternative services

Issue	Communication and mitigation measures
Noise and vibration	
• **Effects on sensitive receivers** • **Effects on sensitive equipment** • **Effects on quiet enjoyment (particularly for food and beverage businesses)** • **Construction traffic noise (deliveries and spoil movements)** • **Vibration generated by construction activities**	• Early engagement with neighbouring stakeholders on likely noise and vibration impacts • Implementation of mitigation measures in the Construction Noise and Vibration Management Plan, Minor Works Approval, Out of Hours Approval and other documents and plans where relevant • Noise minimised through use of appropriate plant, tools and techniques and adaptive programming, where possible. Information on specific noise and vibration reduction outcomes for each site can be found in the relevant Construction Noise and Vibration Impact Statement. Noise reduction strategies to be implemented with consideration given hours of operation and sensitive periods. • High impact noise works staged with respite periods as required by any applicable Environment Protection Licence or planning approval • Temporary noise screens used around equipment, where appropriate • Staff induction and toolbox meetings prior to noisy activities to highlight acceptable work force behaviour • Noise and or vibration monitoring offered in response to complaints • Vibration monitoring undertaken on any adjoining heritage structures if outlined in the relevant Construction Noise and Vibration Impact Statement • Referral to Small Business Owners Engagement Program for advice on small business complaints where appropriate
Dust	
• **Dust generated by construction activities** • **Concern about health impacts of dust**	• Dust minimised by using water carts, water sprayers, street sweepers, chemical and organic ground cover, hard stands and limiting activities on windy days where necessary

Issue	Communication and mitigation measures
Access	
• Access for deliveries and customers • Traffic changes on local roads • Impacts to local street parking • Traffic modifications including changes to footpaths • Utility works affecting footpath or road access	• Coordination of works with deliveries and business priorities, where possible • Installation of suitable signage to direct pedestrians, delivery drivers and customers where appropriate
Construction traffic	
• Heavy vehicle movements on local roads	• Implement site specific Traffic Management Plans • Coordinate traffic management with the Sydney Coordination Office • Construction traffic movements minimised in peak times, where possible • Heavy vehicle specific access and egress locations and routes to minimise local congestion • Truck driver toolbox meetings on localised conditions • Out of hours deliveries to minimise impacts of oversized vehicles on local roads • Traffic Control Group
Property acquisition	
• Concerns about property acquisition	• Personal Manager involvement and support • Detailed meetings with supporting Centre for Property Acquisition information and Sydney Metro newsletters and fact sheets
Property impacts	
• Concerns about potential property damage • Potential effects of vibration and settlement	• Property Condition Surveys offered where eligible in line with relevant CNVIS for each site • Vibration modelling information • Distribute fact sheets • Protection of heritage items using hoarding

9. Cumulative impacts

Sydney Metro will ensure coordination with interfacing projects to manage community and stakeholder issues. Specifically, on the Sydney Metro – Western Sydney Airport project, coordination with Western Sydney Airport is essential for issues raised about work on sites within shared project areas.

Sydney Metro recognises that communities and stakeholders may be experiencing or have experienced impacts relating to other projects in their local area. This section outlines approaches to ensure cumulative impacts are considered in communication and engagement.

9.1. Coordination for effective communication

Sydney Metro will host Communications Interface Coordination Groups for areas where projects interface. The purpose of these groups will be to provide a forum for exchange of information, understand any emerging concerns across the projects and to coordinate communication and engagement activities as appropriate.

Coordination and consultation with other projects will generally include:

- Provision of regular updates about the detailed construction program, construction sites and haul routes.
- Coordination of traffic notifications between projects.
- Coordination of engagement activities such as community information sessions, newsletters and notifications and complaint resolution.

This approach will support a range of other coordination forums to address coordinating works with traffic and noise impacts and identifying potential conflicts in construction programs.

All enquiries and complaints made by the community and stakeholders will be managed in accordance with the Sydney Metro Construction Complaints Management System. It would be expected that the place manager on call would have general knowledge of other projects in the area to provide a personal approach and knowledge of who the complainant should contact for further information.

All phone calls to the Sydney Metro's call centre, will be managed in accordance with the Sydney Metro call handling procedure. Community enquires that do not relate to Sydney Metro projects, will be forwarded to the relevant project.

Figure 7 illustrates the process for complaint and enquiry management across projects in similar areas.

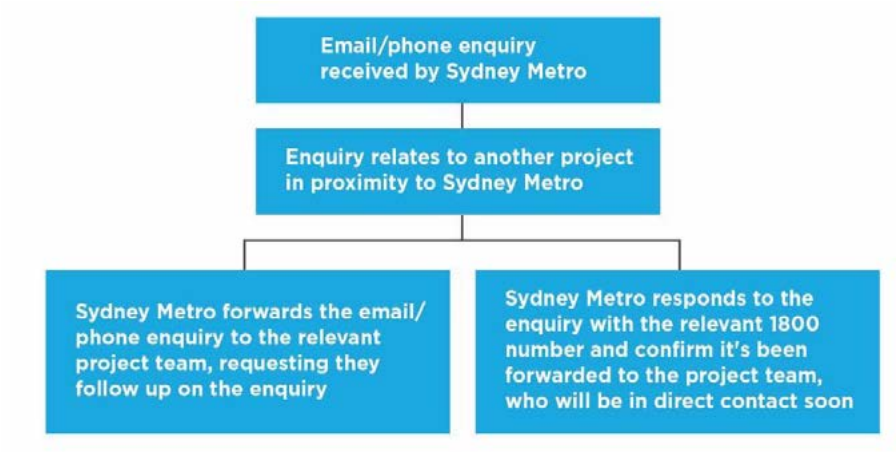


Figure 7: Project related email / phone coordination

9.2. Occurrence of cumulative impacts

The Contractor CCS must identify projects that Sydney Metro may interface within their project area including further opportunities for coordinated communication.

This may include:

- Other parts of Transport for NSW
- Local Councils
- State Government agencies
- Federal Government agencies
- Western Sydney Airport
- Sydney Coordination Office
- Department of Planning, Industry and Environment
- Sydney Trains
- NSW Trains
- Sydney Buses
- Sydney Water
- Water NSW
- Port Authority of NSW
- Sydney Motorways Corporation
- Emergency service providers
- Utility providers
- Construction contractors.

10. Crisis and incident communication processes

In the unlikely event that a crisis or incident occurs, the Sydney Metro Crisis Communications Management System will be in place. Any communication management system prepared by the PDCT as part of the Emergency Management Plan should align with Sydney Metro's Crisis Communications Plan.

Contract teams are required to invite the Director, Communications and the Deputy Executive Director, Communication and Engagement to attend and participate in formal incident and crisis communication exercises when they are conducted.

The CCS must reflect Sydney Metro's Crisis Communications Management Plan and Incident notification process.

The PDCT has the following responsibilities in relation to crisis communication:

- Immediately notify the Director, Communications within 10 minutes of any incident or issue that may have an impact on the community, environment, personnel, subcontractors or other stakeholders or may attract the attention of the media, the Minister for Transport, a local MP, council or the broader community. For any other incidents notify the Director, Communications within one hour of the incident occurring.
- Obtain approval from the Director, Communications before contacting or providing information to any person, other than that which is required to directly manage the incident or to comply with Law, including stakeholders, the media or the public.
- Make available suitably qualified and experienced personnel to support the Director, Communications in responding to the community, the media and other stakeholders.
- Provide all necessary communications materials that may need to be disseminated as a result of such incidents.

11. Monitoring, evaluation and reporting

The PDCT is responsible for monitoring the effectiveness of strategies to inform and to minimise impacts of construction on the community, including businesses. The PDCT is required to provide detailed information to Sydney Metro each month on performance criteria outlined in this plan and the site specific CCS including:

- Enquiry and complaint trends and how lessons learned are being applied across the project to avoid issues recurring, highlighting sensitive receivers and small businesses.
- The status of complaints and details of any escalation required.
- Communication tools used to engage with stakeholders and the community including doorknocks, meetings, presentations, notifications and newsletters.

11.1 Audit and review – site specific CCS'

Evaluation of the performance and effectiveness of the site specific CCS' will be undertaken every six months or as required. Key elements of the evaluation will include examining the adequacy of the CCS and its implementation in achieving the intent of the consultation as evidenced by the items in table 6.

Table 6: Six monthly CCS audit requirements

Performance Parameters	Measures	Reporting
Identifying all potential local community, businesses and stakeholders that may be impacted by or have an interest in the project (based on the stakeholder categories provided in this plan)	Inclusion in the CCS of: • A thorough stakeholder scan of local community, businesses and stakeholders including maps.	Accurate and up-to-date listings of local businesses noting changes of leases and ownership at least every six months.
Appropriateness of communication and engagement tools	Inclusion in the CCS of: • A communication tool matrix and/or table detailing communication tools to be used for which stakeholders and why.	Communication matrix and/or table to be updated at least every six months to adjust approach to community needs and lessons learned.
Identifying appropriate mitigation measures to address issues	Inclusion in the CCS of: • Mitigation measures that would be used in response to identified issues • A detailed complaint investigation process to ensure mitigation measures are considered before	Appropriateness of mitigation measures to accommodate community needs and lessons learned to be reviewed at least every six months and the

	escalating complaints to the next level (as per the CCMS).	CCS to be updated accordingly.
Cumulative impacts process	Inclusion of: • Identified nearby projects and tools/forums to engage with projects • Processes for coordination of communication, including project collateral and face-to-face events.	Nearby project information to be reviewed regularly and updated as part of the CCS review, included any new processes, at least every six months.

11.1. Audit and review - businesses

The PDCT is required to compile monitoring data on a bi-annual basis and include lessons learned based on the items in table 7.

Table 7: Six monthly monitoring program and performance measures for businesses

Performance Parameters	Measures	Monitoring	Reporting
Awareness of construction activity and likely impacts.	• Notifications issued within required timeframes on 100% of occasions, unless otherwise agreed with Sydney Metro. • Number of business briefings, building-based information sessions and face-to-face meetings prior to works. • The objective is to make contact via these measures with 100% of businesses within 50 metres prior to works that have the potential to impact the owners.	• Records in Consultation Manager database on number and timing of notifications. • Records in Consultation Manager database on number of (and attendance at) briefings, information sessions and completed doorknocks/face-to-face meetings. • Feedback from meetings, presentations and briefings (documented in Consultation Manager). • Records in Consultation Manager database on complaints received from businesses	• Number of notifications issued. • Percentage of notifications issued on time. • Number of briefings, information sessions and completed doorknocks. • Percentage of businesses within 50 metres contacted prior to works. • Number of complaints received from businesses relating to lack of information about construction activities and impacts. • Lessons learned.

		relating to lack of information about construction activities and impacts.	
Measures implemented to maintain business vehicle and pedestrian access, parking, visibility and amenity during construction activity.	• Potential issues identified in advance and mitigation measures implemented in consultation with affected businesses to address access, parking, visibility and/or amenity issues. • The objective is 100% implementation of agreed mitigation measures relating to access, parking, visibility and other amenity aspects.	• Consultation with businesses on potential impacts and mitigation measures (documented in Consultation Manager). • Feedback on effectiveness of mitigation measures (documented in Consultation Manager). • Records in Consultation Manager database on complaints received from businesses relating to vehicle and pedestrian access, parking, visibility and amenity, including details of any repeat complaints about the same issue.	• Number of businesses with mitigation measures agreed in advance to address access, parking, visibility or amenity issues. • Percentage of businesses where mitigation measures were implemented as agreed. • Details of mitigation measures implemented. • Business feedback on effectiveness of mitigation measures. • Number of repeat complaints received from businesses relating to vehicle and pedestrian access, parking, visibility and amenity. • Lessons learned.
Agreed measures to minimise noise and vibration impacts on noise and vibration sensitive businesses.	• Agreed mitigations implemented, including agreed respite, work methods, proactive engagement and ongoing communication. • Businesses identified as potentially affected by high noise for extended periods, and requests for at property treatment or relocation, referred to Sydney Metro if all negotiated solutions offered under the scope of the contract fail to provide	• Consultation with businesses on noise and vibration impacts and mitigation measures documented in Consultation Manager. • Documentation of affected businesses impacts and mitigation measures in site specific CNVIS reports. • Feedback on effectiveness of mitigation measures (documented in	• Number of businesses with agreed mitigation measures to address noise and vibration impacts. • Summary of non-standard mitigation measures implemented. • Number of referrals to Sydney Metro. • Number of repeat complaints from noise sensitive receivers relating to noise and vibration impacts. • Lessons learned.

	an acceptable solution to the impacted businesses. • The objective is for zero referrals to Sydney Metro over a six-month timeframe during standard construction.	Consultation Manager). • Records of businesses referred to Sydney Metro for additional assessment / treatment. • Records in Consultation Manager database on noise and vibration complaints from businesses.	

12 Low impact or preparatory activities process

12.1 Purpose

This implementation process describes the approach Sydney Metro will use to manage engagement and ongoing consultation with stakeholders, and the community and businesses with an interest in, or potentially affected by Sydney Metro low impact or preparatory activities.

Low impact work is generally defined within State significant infrastructure conditions of approval for Sydney Metro projects as work that is not considered main construction works but will support main construction activities. Preparatory activities is a term defined within the Western Sydney Airport Plan and may apply to the variation to the Airport Plan for on-airport works for Sydney Metro – Western Sydney Airport. Each of these terms are described in more detail in table 8 below.

This low impact or preparatory activities plan must be implemented in conjunction with the overarching requirements outlined in this strategy.

12.2 Relationship to plans

The intention of this low impact or preparatory activities implementation process is to cover low impact or preparatory activities prior to the main construction works starting. Low impact activities may be conducted by Sydney Metro or its Contractors.

At the commencement of Construction, Contractor activities will be covered by the Contract Specific Community Communication Strategy.

12.3 Low impact and preparatory activities

For the purposes of this process, low impact activities are defined as:

- Survey, survey facilitation and investigations works (including geotechnical investigations, road and building dilapidation survey works, drilling and excavation).
- Treatment of contaminated sites.
- Establishment of ancillary facilities including construction of ancillary facility access roads and providing facility utilities.
- Operation of ancillary facilities that have minimal impact on the environment and community.
- Clearing and relocation of vegetation (including native).
- Installation of mitigation measures, including erosion and sediment controls, temporary exclusion fencing for sensitive areas and acoustic treatments.
- Property acquisition adjustment works, including installation of property fencing and utility relocation and adjustments to properties.
- Utility relocation and connections.
- Maintenance of existing buildings and structures.

- Archaeological testing under the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010) or archaeological salvage and clearance undertaken in association with other Minor Works to ensure there is no impact on heritage items.
- Any other activities that have minimal environmental impact.

Preparatory activities are generally defined in the Western Sydney Airport Plan as the following:

- day to day site and property management activities
- site investigations, surveys (including dilapidation surveys), monitoring and related works (e.g. geotechnical or other investigative drilling, excavation, or salvage)
- establishing construction work sites, site offices, plant and equipment, and related site mobilisation activities (including access points, access tracks and other minor access works, and safety and security measures such as fencing but excluding bulk earthworks)
- enabling preparatory activities such as demolition or relocation of existing structures (including buildings, services, utilities and roads) and the disinterment of human remains
- any other activities which are determined Preparatory Activities.

Prior to low impact or preparatory activities taking place, a pre-construction work form will be completed for approval by the PDCT.

12.4 Monitoring and reporting

Due to the short-term and intermittent nature of low impact activities to businesses, business monitoring as outlined in Section 8 of this OCCS will not be undertaken for work covered by section 12.

Feedback received during proactive doorknocks and incoming correspondence (emails and phone calls) will be informally monitored and any dissatisfaction from businesses recorded and managed in accordance with the Construction Complaints Management System in the first instance. Complaints are reported on daily through the Daily Complaints Report and quarterly in the Construction Compliance Report.

Table 8: Communication tools for low impact or preparatory activities

Activity	Communication tools	Stakeholder	Timing
Survey and site investigations, including geotechnical investigations	Notification letter[1]	Delivered to properties within 50m or work in standard construction hours, 100m for out of hours work[2]	7 days prior to work starting

[1] *Where work is undertaken wholly within the rail corridor, during a possession, the notification will be distributed by Sydney Trains. See explanation for 'Work during rail possessions'.*

[2] *This 200m area will expand if the noise assessment shows a wider impact radius.*

Activity	Communication tools	Stakeholder	Timing
	Metro app connect	Sent to stakeholder distribution email lists for	
	Doorknock (if intrusive or loud)	Immediate neighbours	
Site establishment (including vegetation clearing, fencing, controls etc.)	Newsletter	Local council Local member Senior stakeholders Local groups Delivered to properties within 500m	At site establishment As required
	Notification letter	Delivered to properties within 200m for night work and 100m for day work[3] Local groups	7 days prior to work starting
	Site signage Hoarding banners Directional signage	People passing by the site	As required
	Doorknock	Properties within 50m Educational and religious institutions	7 days prior to work starting
Out of hours work	Notification letter[2]	Delivered to properties within 200m[3] Local groups	7 days prior to work starting
	Doorknock	Properties within 50m	7 days prior to work starting
Planned service disruptions	Included in notification letter	Delivered to properties within 200m[3]	7 days prior to disruption
Emergency work	Notification letter Doorknock	Affected properties	Within 2 hours
Work during rail possessions	Sydney Trains notification	Sydney Trains delivery area (250m on either side of the rail corridor)	Delivered prior to possession period by Sydney Trains
Construction milestones	Included in notification letter	Delivered to properties within 100m or work in	7 days prior to new milestone

Activity	Communication tools	Stakeholder	Timing
		standard construction hours, 200m for out of hours work[3]	
	Doorknock	Properties within 50m Educational and religious institutions	7 days prior to new milestone
	Briefings	Local council Local member Senior stakeholders Local groups Government agencies Specific businesses as required	As required or requested
Traffic changes, including any public transport changes	Included in notification letter	Delivered to properties within 100m or work in standard construction hours, 200m for out of hours work[3]	7 days prior to work starting 7 days prior to new milestone
	VMS Traffic alert Bus stop notices	Road users	7 days prior to work starting 7 days prior to new milestone
Emergency work	Notification letter Doorknock	Affected properties	Within 2 hours
Transport infrastructure disruptions	Notification letter Bus stop notices Directional signage	Transport users Local council Transport agencies	As required

Appendix D – Where to find responses to issues raised in community submissions

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Appendix D: Where to find responses to issues raised in community submissions

Guide to tables

An assessment of each submission was undertaken, identifying all issues raised and coding the issues. A total of 11 key issues and 20 sub-issues were identified and coded throughout the submission review process. The list of issues, together with where they are addressed in this report, is provided in Table 1.

Table 1: Issue code and where addressed in this report

Issue code	Issue	Where addressed in this report
A. Support for the project		
A1	Support for the project	Section 5.1.1
A2	Objection to the project	Section 5.1.2
B. Sydney International Speedway development and alternatives		
B1	Project location	Section 5.2.1
C. Planning and assessment process		
C1	NSW environmental planning	Section 5.3.1
D. Stakeholder and community engagement		
D1	Stakeholder and community engagement	Section 5.4.1
E. Project description		
E1	Spectator facilities	Section 5.5.1
E2	Track design	Section 5.5.2
E3	Pit area	Section 5.5.3
E4	Venue facilities	Section 5.5.4
E5	Operational activities	Section 5.5.5
F. Traffic, transport and parking		
F1	Parking impacts during operation	Section 5.6.1
F2	Public transport during operation	Section 5.6.2
F3	Traffic management	Section 5.6.3
G. Noise		
G1	Operational noise	Section 5.7.1

Issue code	Issue	Where addressed in this report
H. Air quality		
H1	Dust management	Section 5.8.1
I. Socioeconomics		
I1	Local procurement	Section 5.9.1
I2	Operational benefits	Section 5.9.2
I3	Socio-economic assessment	Section 5.9.3
J. Greenhouse gases and energy		
J1	Renewable energy sources	Section 5.10.1
K. Environmental management framework		
K1	Environmental management	Section 5.11.1

Table 2 identifies the issues raised in each submission (provided as the issue code). The first and second columns of the table show the submitter number and submission number, respectively, as assigned by the Department of Planning and Environment. The third column shows the issues raised by the submission, as coded for entry into the database. The issue covered by each issue code, and where it is addressed in this report, is detailed in Table 1.

Table 2: Issues raised by each submission

Submitter number	Submission number	Issues raised
S-8941374	SE-8941375	E1
S-8941623	SE-8941624	A1
S-8943786	SE-8943787	E2
S-8952711	SE-8952712	E5
S-8953225	SE-8953226	E4
S-8961161	SE-8961162	E2
S-8981637	SE-8981638	E2, E5
S-8981761	SE-8981762	E2
S-8993577	SE-8993578	B1, H1
S-9001890	SE-9001891	F2, G1, I2, K1
S-9004935	SE-9004936	E5, H1
S-9043584	SE-9043585	E3, H1
S-9079811	SE-9079812	A1
S-9100159	SE-9100160	E2

Appendix D – Where to find responses to issues raised in community submissions

Submitter number	Submission number	Issues raised
S-9127241	SE-9127242	A1, D1, E2
S-9236760	SE-9236761	I2
S-9242856	SE-9242857	H1,
S-9272352	SE-9272353	B1, E1, E2, E3, F1, H1,
S-9287268	SE-9287269	E3
S-9300589	SE-9300590	A1, E1, E3,
S-9301450	SE-9301451	D1, E1, E3, F1, I1
S-9328190	SE-9328191	E1
S-9334134	SE-9334135	A1, E1, E3, H1, F3
S-9339757	SE-9339758	A2, B1, C1, D1, E1, E3, E5, F1, F2, I3, J1