ETHOS URBAN

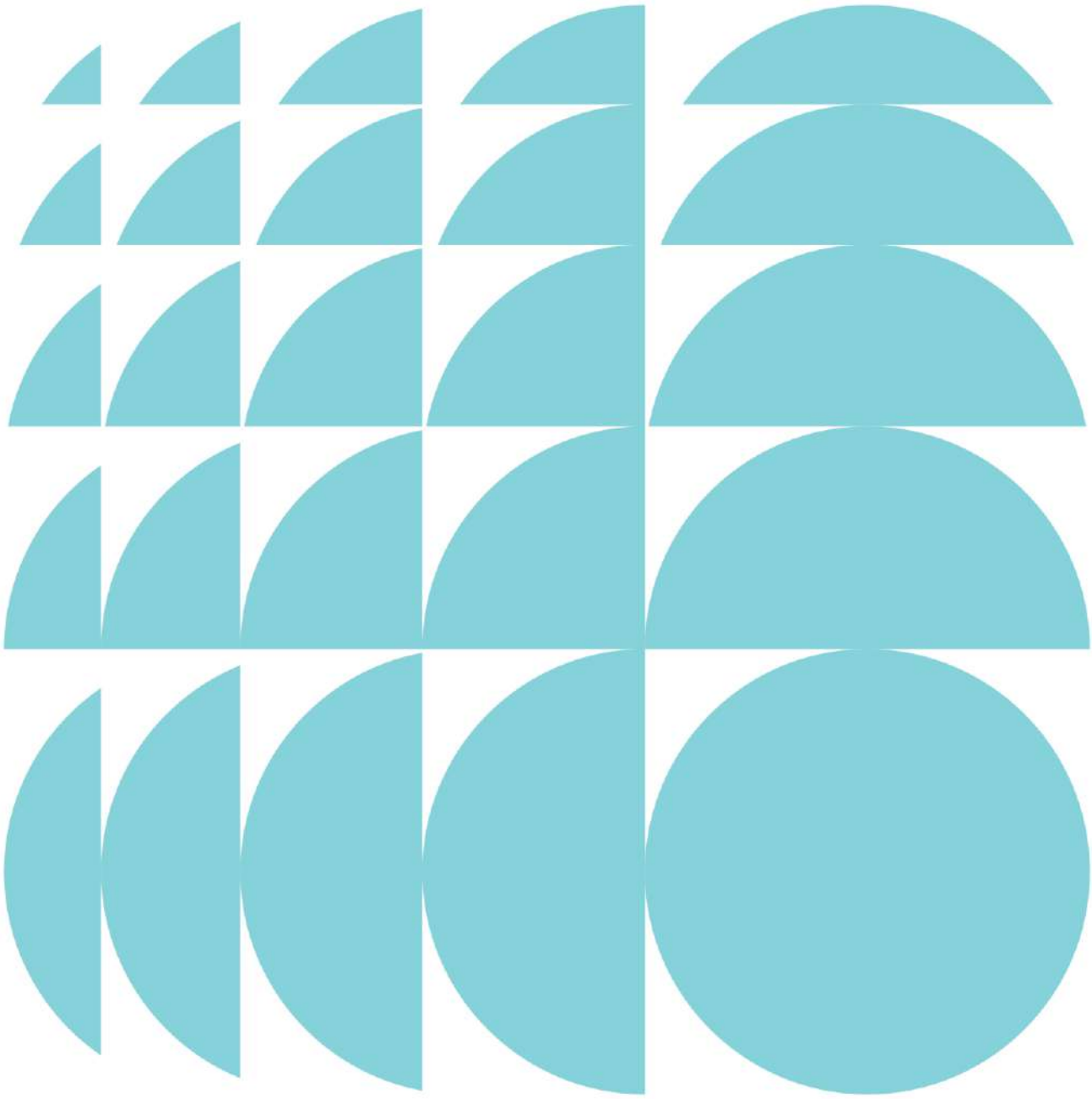
Environmental Impact Statement

Stadium Australia Renewal
15 Edwin Flack Avenue, Sydney Olympic Park

Submitted to Department of Planning, Infrastructure and Environment

On behalf of Infrastructure NSW

16 September 2019 | 2190435



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Statement of Validity

Development Application Details	
Applicant name	Infrastructure NSW
Applicant address	Lvl 15, 167 Macquarie Street, Sydney NSW 2000
Land to be developed	Stadium Australia, 15 Edwin Flack Avenue, Sydney Olympic Park. Lot 4000 in DP 1004512 and part of Lot 4001 in DP 1004512.
Proposed development	Works to refurbish the existing Stadium Australia, and temporary use of the stadium forecourt as a construction compound, as described in **Section 4** of this Environmental Impact Statement
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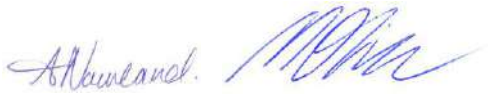
In respect of	State Significant Development - Development Application for Stadium Australia Renewal
Certification	
	I certify that I have prepared the content of this EIS and to the best of my knowledge: • it is in accordance with Schedule 2 of the Environmental Planning and Assessment Regulation 2000; • all available information that is relevant to the environmental assessment of the development to which the statement relates; and • the information contained in the statement is neither false nor misleading.
Signature	
Name	Anna Nowland & Michael Oliver
Date	13/09/2019

List of Abbreviations and Key Terms

Abbreviation / Term	Description
Council	Parramatta City Council, unless otherwise specified
Department or DPIE	Department of Planning, Infrastructure and Environment
EIS	Environmental Impact Statement
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
FIFA	Fédération Internationale de Football Association
INSW	Infrastructure NSW
LEP	Local Environmental Plan
Minister	The Minister for Planning, unless otherwise specified
NRL	National Rugby League
Secretary	Secretary of the NSW Department of Planning and Environment
SEPP	State Environmental Planning Policy
SEPP SSP	State Environmental Planning Policy (State Significant Precincts) 2005
SOPA	Sydney Olympic Park Authority
SSD	State Significant Development
DA	Development Application
RMS	NSW Road and Maritime Services
TfNSW	Transport for New South Wales

Executive Summary

Purpose of this report

This submission to the Department of Planning, Infrastructure and Environment (DPIE) comprises an Environmental Impact Statement (EIS) for a Development Application under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It relates to the refurbishment of Stadium Australia (also known as ANZ Stadium) to address deficiencies in the existing infrastructure and improve facilities in line with contemporary venue standards.

Sydney Olympic Park is identified as a State significant precinct in Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011* (SEPP SRD). Development with a capital investment value of more than $10 million within this State significant precinct is classified as State Significant Development (SSD) for the purposes of the EP&A Act. In addition, development for the purpose of a 'Recreation Facility (Major)' with a capital investment value of more than $30 million is identified as SSD in Schedule 1 of SEPP SRD. As the proposed development will have a capital investment value of more than $30 million, it is SSD.

A request for the issue of the Secretary's Environmental Assessment Requirements (SEARs) was made on 7 June 2019, and the SEARs were issued on 17 July 2019. This EIS has been prepared in accordance with the Department's guidelines for SSD applications lodged under Part 4 of the EP&A Act, and addresses the issues raised in the SEARs.

The site

Stadium Australia was opened in 1999 for the 2000 Sydney Olympic and Paralympic Games and, at the time, was the largest Olympic Stadium ever built and the second largest stadium in Australia. Stadium Australia is located at 15 Edwin Flack Avenue within the Sydney Olympic Park. It is bound by Edwin Flack Avenue to the west, Dawn Fraser Avenue to the south, Olympic Boulevard to the east and Qudos Bank Arena to the north. It is located within the City of Parramatta Local Government Area.

The site is legally described as Lot 4000 in DP 1004512 and part of Lot 4001 in DP 1004512. In 2017, the Minister for Sport assigned Venues NSW as the trustee of Stadium Australia under the *Sporting Venues Authorities Act 2008*.

In a broader context, the site forms part of Sydney Olympic Park which is a sporting and economic centre in metropolitan Sydney that covers 680 hectares. Sydney Olympic Park comprises range of sports and entertainment venues, parklands, and commercial, retail and residential developments. It benefits from convenient access to Homebush Bay Drive, Parramatta Road and the M4 Western Motorway, as well as Olympic Park railway station. The Parramatta Light Rail Stage 2 and Sydney Metro West will also significantly increase accessibility.

Background and strategic need

Fan event experience is also a crucial determining factor in the success of events and, therefore, the ongoing demand for and viability of major venues. There is increasing competition in the market for venues and events as other stadia are modernised and redeveloped, but also for other forms of entertainment and leisure for how people choose to spend their time and money. Consumers are subject to an increased number of options for entertainment and events, and are responding to the growing availability of live broadcasting for major events both nationally and internationally. This increasing competitive pressure contributes to lower attendances, placing further pressure on the delivery a positive fan experience to attract patrons to the stadium and therefore attract hirers and major events to NSW and Australia.

The current stadium is identified as having a poor stadium experience, particularly for rectangular sports, which is only expected to compound as the stadium ages. In particular, sightlines, roof coverage, technology, food and beverage offerings, members and corporate facilities, and other amenities all play a significant role in the overall fan and hirer experience and the stadiums ability to attract and retain fans and events. There is a strategic need to rectify these deficiencies and ensure the ongoing success and longevity of the stadium. It is, therefore, proposed to address the identified shortcomings and retain the Tier 1 status of the venue through refurbishment works, and without the complete redevelopment of the site.

This is in accordance with the NSW Stadia Strategy, which covers seven Government-owned or leased stadia and provides a vision for the future of stadia within NSW, prioritising investment to achieve the optimal mix of venues to meet community needs and to ensure a vibrant sports and event environment. Stadium Australia is identified as being one of only three stadia within NSW designated to operate as a Tier 1 stadia, with the others being Sydney Football Stadium (SFS) and the Sydney Cricket Ground (SCG) at Moore Park. Following the release of the NSW Stadia Strategy, in March 2018, the NSW Government announced its commitment to refurbish the existing Stadium Australia to retain its status as a premier venue within a network of stadia and events infrastructure in NSW.

Overview of the project

The Development Application (DA) seeks approval for works to refurbish the existing Stadium Australia, comprising the following:

- Reconfiguring the field of play to a permanent rectangular configuration.
- Redeveloping the lower and middle seating bowl to locate seating closer to the field and increase the pitch (steepness) of the seating bowl, which has the effect of reducing the capacity to approximately 70,000 seats (plus an additional 20,000 persons on the field during concerts).
- Providing 100% drip-line roof coverage to all permanent seats by replacing the northern and southern sections of the roof and extending the existing eastern and western sections of the roof.
- Providing a new northern and southern public stadium entrance, including a new stadium facade and double-height concourse
- Renewing the food and beverage concessions, bathrooms, team facilities including new gender neutral changerooms, members and corporate facilities, press and broadcast facilities, and back of house areas.
- Providing new signage, high-definition video replay screens, LED lighting, and other functional improvements.
- Retaining the public domain areas surrounding the stadium that deliver a range of publicly accessible, event and operational areas, with minor works for tree removal.
- Part of the existing stadium forecourt will be used as a construction compound during the construction phase and reinstated following the completion of works and prior to commencement of stadium operations.

Planning context

This EIS has been prepared in accordance with the requirements of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), and **Section 5.4** of the EIS considers all applicable legislation in detail.

Pursuant to Clause 8A of SEPP SRD, the Minister for Planning is the consent authority for a SSD DA made by or on behalf of a public authority. This application is made by Infrastructure NSW, who are a public authority.

The *State Environmental Planning Policy (State Significant Precincts) 2005* (SEPP SSP) applies to the site, with the proposed development being permissible with consent and consistent with the provisions in this instrument. The SEPP does not impose any height or FSR controls, or require undertaking a competitive architectural design competition for the alterations and additions to the stadium. Notwithstanding, the proposed refurbishment has been reviewed by the SOPA Design Review Panel and is considered to achieve design excellence in accordance with Clause 30(1) and (2) of Schedule 3 of SEPP SSP.

Environmental impacts and mitigation measures

This EIS provides an assessment of the environmental impacts of the proposed development in accordance with the SEARs and sets out the undertakings made by [Company/Client] to manage and minimise potential impacts arising from the development. The key environmental matters identified include:

- built form, and the achievement of design excellence;
- transport, traffic and access during the construction and operation of the stadium;
- construction and operational noise impacts;
- environmental amenity such as wind, shadows, reflectivity and light;

- visual and view impacts;
- sustainable design and operations;
- water quality, savings and stormwater;
- site conditions such as contamination and drainage;
- construction impacts; and
- the design of the site to manage crime and safety.

The EIS provides a detailed assessment of the environmental, social and economic impacts of the proposed development drawing upon information provided by a team of experienced technical experts across a range of disciplines. The EIS concludes that the proposed development will not result in any significant social, economic or environmental impacts which cannot be appropriately managed through the identified mitigation measures and conditions of consent.

Conclusion and justification

The EIS addresses the SEARs and provides a full assessment of the relevant environmental planning considerations in relation to the proposed refurbishment works, and confirms that the proposal is appropriate and will not result in any significant or otherwise adverse environmental impacts. It confirms that the proposed works will bring new life to the stadium and in doing so deliver significant benefits to the NSW community, including through direct and indirect economic activity and employment. The broader economic and social strategic benefits of the proposal include:

- safeguarding the legacy of Sydney Olympic Park as successful post-Olympics site that has been transformed into an active and vibrant centre;
- ensuring NSW becomes Australia's preferred location for major national and international events, with the stadium remaining capable of attracting major sporting and entertainment opportunities;
- enhancing civic and community pride and contributing to the brand of Sydney;
- improving facilities for participants and spectators and the financial outcomes for professional sport; and
- ensuring the longevity of significant existing infrastructure located in the geographic centre of Sydney that provides optimal accessibility for the majority of NSW's population to attend national and international sports and entertainment events.

The environmental assessment at **Sections 5** to **8** confirms that the proposed development fulfils the objective for this project and that the potential impacts of the development are acceptable and are able to be managed through compliance with the identified mitigation measures. Given the planning merits of the proposal, the proposed development warrants approval by the Minister for Planning.

Figure 1 Aerial photomontage of the refurbished stadium

Source: COX Architecture

Figure 2 Photomontage of the new northern facade of the stadium

Source: COX Architecture

Figure 3 Photomontage of the new stadium seating bowl

Source: COX Architecture

1.0 Introduction

This Environmental Impact Statement (EIS) is submitted to the Department of Planning, Infrastructure and Environment pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in support of an application for State Significant Development (SSD).

Development within the Sydney Olympic Park with a capital investment value of more than $10 million is identified in Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP), and development for the purpose of a 'Recreation Facility (Major)' with a capital investment value of more than $30 million is identified as SSD in Schedule 1 of SEPP SRD. The project is therefore declared to be SSD for the purposes of the EP&A Act.

The report has been prepared by Ethos Urban on behalf of Infrastructure NSW and is based on the Architectural Plans provided by COX Architecture (see **Appendix B**) and other supporting technical information appended to the report (see Table of Contents).

This EIS has been prepared in accordance with the requirements of Part 4 of the EP&A Act, Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), and the SEARs for the preparation of the EIS, which are included at **Appendix A** and detailed at **Section 1.6.** This EIS should be read in conjunction with the supporting information and plans appended to and accompanying this report.

1.1 Overview of the proposed development

This SSD DA seeks approval for the refurbishment of Stadium Australia at 15 Edwin Flack Avenue, Sydney Olympic Park, and is not staged development in the meaning of Section 4.22 of the EP&A Act. The application seeks approval for the following development:

- Reconfiguring the field of play to a permanent rectangular configuration.
- Redeveloping the lower and middle seating bowl to locate seating closer to the field and increase the pitch (steepness) of the seating bowl, which has the effect of reducing the capacity to approximately 70,000 seats (plus an additional 20,000 persons on the field during concerts).
- Providing 100% drip-line roof coverage to all permanent seats by replacing the northern and southern sections of the roof and extending the existing eastern and western sections of the roof.
- Providing a new northern and southern public stadium entrance, including a new stadium facade and double-height concourse.
- Renewing the food and beverage concessions, bathrooms, team facilities including new gender neutral changerooms, members and corporate facilities, press and broadcast facilities, and back of house areas.
- Providing new signage, high-definition video replay screens, LED lighting, and other functional improvements.

Part of the existing stadium forecourt will be used as a construction compound during the construction phase and reinstated following the completion of works and prior to commencement of stadium operations.

1.2 Background to the development

Stadium Australia opened in 1999 for the 2000 Sydney Olympic and Paralympic Games and, at the time, was the largest Olympic Stadium ever built and the second largest stadium in Australia. It was the premier venue for the Olympic and Paralympic Games, and has hosted other major events since including the Rugby World Cup, Bledisloe Cup, NRL Grand Finals, and significant concert and entertainment events.

In 2012, the NSW Government released the NSW Stadia Strategy. The strategy covered seven Government-owned or leased stadia, namely:

- Stadium Australia;
- Sydney Showground;
- Sydney Cricket Ground (SCG);

- Sydney Football Stadium;
- Western Sydney Stadium;
- Hunter Stadium; and
- Wollongong Stadium.

The NSW Stadia Strategy 2012 provides a vision for the future of stadia within NSW, prioritising investment to achieve the optimal mix of venues to meet community needs and to ensure a vibrant sports and event environment in NSW. A key action of the strategy included development of master plans for designated Tier 1 stadia and their precincts covering transport, integrated ticketing, spectator experience, facilities for players, media, corporate and restaurant and entertainment provision to ensure that each stadium meets the facility requirements to fulfil this role. Stadium Australia is one of three stadia within NSW designated to operate as a Tier 1 stadia, with the others being the Sydney Football Stadium (SFS) and the Sydney Cricket Ground (SCG) at Moore Park.

In order to qualify for Tier 1 status, a stadium is required to include:

- seating capacity greater than 40,000;
- regularly host international sporting events;
- offer extensive corporate facilities, including suites, open-air corporate boxes and other function/dining facilities; and
- be the home ground for sporting teams playing in national competitions.

Following the release of the NSW Stadia Strategy, in March 2018 the NSW Government announced its commitment to refurbish the existing Stadium Australia to retain its status as a premier venue within a network of stadia and events infrastructure in NSW. The delivery of this new stadium was founded in the following principles established by the NSW Government, Infrastructure NSW and Venues NSW to:

- ensure NSW's position as a global events and sporting destination is enhanced;
- ensure the retention of key national and international events, particularly given the competition from other States;
- provide spectators with a world-class fan experience through enhanced viewing, facilities and technology;
- be a catalyst for further development and the achievement of broader community objectives of the NSW Government, particularly with respect to the vision for the Greater Parramatta to the Olympic Peninsula (GPOP) corridor; and
- provide sufficient infrastructure to accommodate all NSW national sporting competition franchises and all national and international level events.

1.3 Strategic need for the proposal

Stadium Australia was purposely designed and constructed to host the Olympic and Paralympic Games, and was one of the largest Olympic stadiums ever constructed. The stadium was designed to allow modification after the Olympics so that the 110,000 capacity could be reduced down to 85,000 seats following the conclusion of the Games, recognising that there was little demand for venues with such a capacity outside of this unique event. The stadium was also designed so that it could host both oval and rectangular field sports, allowing the stadium to accommodate the athletic track required for the Olympics, retain flexibility to accommodate oval events, whilst improving the experience and functionality for rectangular events that form the majority of major event content hosted in Sydney outside of the Olympic Games. In practice, the stadium hosts primarily rectangular field sports and entertainment events with very infrequent use of the oval configuration. AFL and T20 Cricket is hosted at other stadia, including the Sydney Cricket Ground and Sydney Showground, recognising that the current oval pitch is unable to meet International Cricket Council standards or AFL standards for a Category 1 venue, meaning the stadium cannot capitalise on the intended 'flexibility' to offset its relatively poorer viewing and fan experience for rectangular sports.

Fan event experience is also a crucial determining factor in the success of events and, therefore, the ongoing demand for and viability of major venues. There is increasing competition in the market for venues and events as other stadia are modernised and redeveloped, but also from competition with other forms of entertainment and leisure for how people choose to spend their time and money. Consumers are subject to an increased number of options for entertainment and events, and are responding to the growing availability of live broadcasting for major events both nationally and internationally. This increasing competitive pressure contributes to lower attendances, placing further pressure on the delivery a positive fan experience to attract patrons to the stadium and therefore attract hirers and major events to NSW and Australia.

The current stadium is identified as having a poor stadium experience, particularly for rectangular sports, which is only expected to compound as the stadium ages. In particular, sightlines, roof coverage, technology, food and beverage offerings, members and corporate facilities, and other amenities all play a significant role in the overall fan and hirer experience and the stadiums ability to attract and retain fans and events.

- **Sightlines**: 'sightlines' refers to the ability of spectators to see the pitch over other spectators, and varies on the sport being played within the stadium. In this instance, the existing viewing angle, proximity to the pitch, and resulting atmosphere are issues for rectangular sporting codes that are the primary hirers of the venue. Distances from the field of play can be as far as 100m from the top tier seats in the current stadium, degrading the overall quality of sightlines and atmosphere.
- **Weather protection**: roof coverage is a significant factor in enabling events to continue in poorer weather, providing shade and additional comfort to patrons for generally higher attendance rates, and potentially benefitting acoustics and noise retention. The current stadium roof covers part of the spectators and playing surface for events, but is significantly less than other benchmark stadiums of a similar capacity including the Melbourne Rectangular Stadium (AAMI Park) and Lang Park (Suncorp Stadium). The current roof design does not provide 100% coverage to permanent seats (to the drip line).
- **Technology**: the integration of sport and technology ensures fans can access to highlights, statistics and other features through wireless technology, high definition playback screens, external LED digital displays, and other features such as enhanced ticketing infrastructure. The integration of technology with stadia design contributes both to fan experience but also to the ongoing longevity of a stadium and its ability to keep pace with modern operational requirements.
- **Food and beverage**: there are very few public food and beverage options within the stadium, or outside of the stadium for patrons to make use of as a pre-game or post-game offering. During events, food trucks have been used to supplement the limited existing offering, however, this arrangement requires patrons to exit the stadium concourse and offers no public seating within these areas.
- **Facilities and amenities**: the current facilities and amenities are non-compliant with Football Stadium Advisory Design Council recommendations and, similar to other ageing stadia, the provision of amenities for women are significantly less than modern requirements (with a current 70:30 split between men and women's facilities), a deficiency in disabled and unisex facilities, adequate changerooms for players, press and broadcast facilities, and members and corporate facilities.
- **Access:** entry to the stadium is limited to specific gates related to specific seating positions, requiring patrons to pass expanses of inactive facades externally around the stadium in order to reach the correct gates. External factors such as access to public transport and parking, and external pedestrian circulation, is excellent for the existing stadium which operates within an existing sporting and entertainment precinct and has been designed to accommodate significant crowds during major events.

There is a strategic need to rectify these deficiencies and ensure the ongoing success and longevity of the stadium. Sporting infrastructure can bring a number of significant benefits to the NSW community, including through direct and indirect economic activity and employment. There are also less tangible positive cultural and social aspects including contributing to the liveability of a city, and in turn its attractiveness to business, industries and populations. It can support community pride, contribute to social cohesion and interaction, and have a catalytic impact on precinct development. The sporting venues within Sydney Olympic Park are identified as being a key component of the master plan for this area, and remain critical for realising the vision for Olympic Park as a lifestyle destination within Sydney.

In order to be competitive within Australia's stadia network and secure major events for the people of NSW, Stadium Australia needs to be enhanced to retain hirers and attract spectators to large-scale sporting matches and events. This fits within the framework for NSW Government investment under the NSW Stadia Strategy that aims to achieve an optimal mix of major rectangular venues in Sydney (Western Sydney Stadium – 30,000 seated capacity; Sydney Football Stadium – up to 45,000 seats; Stadium Australia – approximately 70,000 seats) to meet community needs and to ensure a vibrant sports and event environment in NSW. The broader economic and social strategic benefits of the proposal include:

- safeguarding the legacy of Sydney Olympic Park as successful post-Olympics site that has been transformed into an active and vibrant centre;
- ensuring NSW becomes Australia's preferred location for major national and international events, with the stadium remaining capable of attracting major sporting and entertainment opportunities;
- enhancing civic and community pride and contributing to the brand of Sydney;
- improving facilities for participants and spectators and the financial outcomes for professional sport; and
- ensuring the longevity of significant existing infrastructure located in the geographic centre of Sydney that provides optimal accessibility for the majority of NSW's population to attend national and international sports and entertainment events.

1.4 Objectives of the development

The objectives of the development comprise the following:

- transform the stadium into a 'fan favourite' destination for experiencing and enjoying sports and entertainment events;
- maximise the direct and indirect economic, social and cultural benefits to NSW from the project, including securing major, economically beneficial events within NSW to ensure the economic sustainability of the stadium into the future;
- deliver a multi-use contemporary rectangular venue that meets the needs of patrons, hirers and other users for rugby, football, concerts and other new forms of entertainment, and positions the stadium as Australia's largest dedicated rectangular venue;
- improve the facility's sensitivity to the environmental conditions of the site by providing a fixed roof which provides drip-line coverage to 100% of seats;
- provide new and refurbished corporate areas, members areas and general admission areas to enhance the patron experience;
- promote universal accessibility, safety and security such that the stadium is welcoming, inclusive and safe for all stadium users, including persons requiring universal access;
- promote environmental sustainability and embrace a whole-of-life approach to operations and maintenance; and
- achieve a high standard of design and reinforce the stadium's status and identity within the NSW stadia network, and more broadly, nationally and internationally.

1.5 Analysis of alternatives

Three primary options have been considered by Infrastructure NSW in responding to the identified strategic need and objectives of the project. The options outlined below are generally aligned with those described in the Business Case Summary published by Infrastructure NSW in March 2018 on their website.

Option 1 – The 'do nothing' scenario

The 'do nothing' scenario would see the current stadium maintained and otherwise unchanged. The stadium would continue to operate in accordance with existing conditions, albeit in an increasingly competitive environment as other stadia are modernised and redeveloped within the local, national and international contexts, providing for better fan experiences and improved commercial opportunities for hirers. This competitive environment poses significant risks for the current event portfolio of the stadium and overall attendances at Stadium Australia.

It is expected that key sporting events would be lost as peak bodies move to more modern and suitable venues, both at a national scale such as the NRL grand final, and at an international scale through events such as the Rugby World Cup and the AFC Asian Cup. The inability to attract and retain these high-yield international events would impact on the ability of the stadium to sustain the cost of maintenance, as associated revenue streams would decrease. In this instance, Venues NSW would be expected to see significant financial losses despite contributing no upfront capital costs for works to the stadium as proposed in Options 2 and 3 below. This reducing revenue coupled with increased capital costs as the stadium ages would have a potentially adverse effect on the longevity of the stadium.

The reduced competitiveness and overall viability of the stadium would also generate broader impacts, such as a potential loss in economic benefits to NSW from attracting visitors to the State and Australia broadly through hosting major sporting and entertainment events. It would also negatively impact the social and cultural legacy of the Sydney Olympic Park Precinct, which has been internationally recognised as being a 'success story' for how Olympic sites can be revitalised and remain a centre of activity following the conclusion of the games.

For these reasons, and recognising the existing shortcomings of the stadium, the 'do nothing' scenario is not considered to be an acceptable outcome for this major public facility.

Option 2 – Complete redevelopment

This option involves the complete demolition of the existing stadium and the construction of a new stadium on the site with capacity for approximately 70,000 patrons. This option for the complete redevelopment of the stadium provides the greatest flexibility in design, allowing the stadium to fully realise contemporary standards for spectator sightlines, proximity to the pitch, and amenity. There may be some negative impacts associated with this option through the loss of association with the existing stadium as the main legacy venue of Sydney's Olympic Games. In addition, the cost of completing this full redevelopment is significant and much greater when compared to other options.

In light of this, the NSW Government announced in March 2018 that the refurbishment of the stadium in line with Option 3 would be considered over the complete redevelopment of the site, which would reduce the cost of works by approximately $500 million and enable the stadium to commence operating 2 years earlier. For these reasons, Option 2 is not considered to be the preferred option.

Option 3 – Refurbishment (the project)

This option involves refurbishment works to the existing stadium to rectify the identified shortcomings and retain the Tier 1 status of the venue without requiring the complete redevelopment of the site. This comprises increasing weather coverage by expanding the roof, reconfiguring the seating bowl to a permanent rectangular playing field, providing seating closer to the field and improving sightlines, installing new digital screens, public entries and circulation spaces, a new media centre and members' areas, new corporate facilities, and improved and expanded amenities and facilities including food and beverage offerings. The refurbishment works will significantly improve the fan experience whilst also adopting industry best-practices and future proofing the stadium.

The refurbishment of the stadium is consistent with the strategic need to address the competitiveness and longevity of the stadium, and realise the economic and social benefits of maintaining the position of Stadium Australia as the premier destination for rectangular sports and major events. The stadium will remain the largest rectangular field stadium in the country, further ensuring its competitive advantage and role in the stadia within NSW and Australia generally. It will remain able to attract significant international events as well as retaining regular seasonal content in an increasingly competitive environment. Importantly, the proposed renovation will extend the life of the stadium by a further 40 years and will ensure that Sydney retains the NRL Grand Final for the next 25 years, as well as attracting a range of other major events.

For these reasons, and for those considered in the options above, the proposed refurbishment of the stadium is considered to be the best and preferred option and is the project which forms the basis for this application. Ultimately, this option is being pursued by the NSW Government.

1.6 Secretary's requirements

In accordance with Section 4.39 of the EP&A Act, the Secretary of the Department of Planning and Environment issued the requirements for the preparation of the EIS on 17 July 2019. A copy of the Secretary's Environmental Assessment Requirements (SEARs) is included at **Appendix A**.

Table 1 provides a detailed summary of the individual matters listed in the SEARs and identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

Table 1 Secretary's requirements

Requirement	Location in Environmental Assessment	
General		
The Environmental Impact Statement (EIS) must address the *Environmental Planning and Assessment Act 1979* and meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 the Environmental Planning and Assessment Regulation 2000. Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development. Where relevant, the assessment of key issues below, and any other significant issues identified in the risk assessment, must include: • adequate baseline data • consideration of the potential cumulative impacts due to other developments in the vicinity (completed, underway or proposed) • measures to avoid, minimise and if necessary, offset predicted impacts, including detailed contingency plans for managing any significant risks to the environment • justification of impacts. The EIS must also be accompanied by: • high quality files of maps and figures of the subject site and proposal; and • a report from a qualified quantity surveyor providing: − a detailed calculation of the capital investment value (CIV) (as defined in clause 3 of the Regulation) of the proposal, including details of all assumptions and components from which the CIV calculation is derived. The report shall be prepared on company letterhead and indicate applicable GST component of the CIV; − an estimate of jobs that will be created during the construction and operational phases of the proposed development; and − certification that the information provided is accurate at the date of preparation.	Environmental Impact Statement	
Key Issues	**Report / EIS**	**Technical Study**
The EIS must address the following specific matters: **1. Statutory and Strategic Context** Address the statutory provisions contained in all relevant environmental planning instruments, including:		
• State Environmental Planning Policy (State & Regional Development) 2011	Section 5.4	QS Report
• State Environmental Planning Policy (State Significant Precincts) 2005	Section 5.4	-
• State Environmental Planning Policy (Infrastructure) 2007	Section 5.4	-
• State Environmental Planning Policy No. 55 – Remediation of Land	Section 5.4	-
• State Environmental Planning Policy No. 64 – Advertising and Signage	Section 5.4	Appendix P

Requirement	Location in Environmental Assessment	
• Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005	Section 5.4	-
• Sydney Regional Environmental Plan No.24 (Homebush Bay Area)	Section 5.4	-
• Draft State Environmental Planning Policy – Environment	Section 5.4	Section 5.4
• Draft State Environmental Planning Policy No. 55 – Remediation of Land	Section 5.4	Section 5.4
• Parramatta Local Environmental Plan 2011.	Section 5.4	-
Permissibility Detail the nature and extent of any prohibitions that apply to the development.	Section 5.4	-
Development Standards Identify compliance with the development standards applying to the site and justification for any variations proposed.	Section 5.4	-
Address the relevant provisions, goals and objectives in the following: • NSW State Priorities	Section 5.3.5	-
• The Greater Sydney Region Plan 2018 – A Metropolis of Three Cities	Section 5.3.1	-
• Central City District Plan	Section 5.3.2	-
• Future Transport Strategy 2056 and supporting plans, including the Greater Sydney Services and Infrastructure Plan	Section 5.3.5	-
• NSW State Infrastructure Strategy 2018-2038	Section 5.3.5	-
• Better Placed: An integrated design policy for the built environment of NSW	Section 5.3.5	Appendix B
• Draft Greener Places (NSW Government Architect Green Infrastructure Policy)	Section 5.3.5	-
• Sydney's Cycling; Walking; Light Rail and Rail Future Guidelines	Section 5.3.5	-
• Sydney Olympic Park Masterplan 2030 (2018 Review)	Section 5.3.4	-
• Sydney Olympic Park Access Guidelines 2017	Section 6.17	Appendix L
• Sydney Olympic Park Authority's Design Excellence Policy	Section 5.5	Appendix B
• Sydney Olympic Park Major Event Impact Assessment Guidelines 2007	Section 5.3.5	Appendix G
• Sydney Olympic Park Commercial Signage Policy 2018	Section 5.3.5	Appendix P
• Sydney Olympic Park Infrastructure Engineering and Design Manual	Section 5.3.5	Appendix E
• Sydney Olympic Park Urban Elements Design Manual	Section 5.3.5	-
• Sydney Olympic Park Environmental Guidelines 2008	Section 6.5	Appendix H
• Sydney Olympic Park Stormwater and Water Sensitive Urban Design Policy 2016	Section 6.11.3	Appendix M
• Australia's Strategy for Protecting Crowded Spaces from Terrorism	Section 6.13.2	Appendix N
• Development near Rail Corridors and Busy Roads – Interim Guideline 2008	Section 5.3.5	-
• Interim Construction Noise Guideline	Section 5.4 & 6.6.3	Appendix T
• Crime Prevention Through Environmental Design (CPTED) Principles	Section 6.13.1	Appendix W
• Managing Land Contamination: Planning Guidelines – SEPP 55 Remediation of Land	Section 5.4 & 6.12	Appendix O
• Guide to Traffic Generating Developments (Roads and Maritime Services).	Section 5.4 & 6.4	Appendix S

Requirement	Location in Environmental Assessment	
2. Built Form and Urban Design		
The EIS shall:		
• provide a design excellence strategy to ensure the external changes to the stadium are provided with a high level of design quality and are consistent with the design integrity of the existing stadium	Section 4.11 & 5.5	Appendix B
• provide detailed design and analysis of the development, including architectural design and materials	Section 4.3 & 6.1	Appendix B
• demonstrate how the development will achieve an optimal design and amenity outcome, including minimising overshadowing of the public domain	Section 6.3	Appendix B, R, BB
• outline potential design considerations aimed at mitigating any impacts identified		
• consider moral rights issues in relation to the design of the existing stadium.	Section 5.4	
3. Stadium Use		
The EIS shall include updated operational details of the stadium, including but not limited to:		
• existing and proposed capacity, including a breakdown of general, corporate and member seating/boxes	Section 2.1.1 & 4.1	Appendix G
• specific uses	Section 4.2	-
• hours of operation	Section 4.2	-
• lighting and illumination	Section 4.3.4	Appendix G & BB
• events.	Section 4.2	Appendix G
The EIS shall include an Event Management Statement.		
4. Public Domain and Landscaping		
The EIS shall:		
• address any impacts on existing trees	Section 4.6 & 6.10	Appendix U
• incorporate green infrastructure and provide any landscaping and/or public domain details, including provision for increase tree canopy surrounding the stadium.	Section 4.3.2	
5. Visual and View Impacts	Section 6.2	Appendix Q
The EIS shall:		
• include a visual impact assessment to identify the visual changes and impacts on the site and its surrounds when viewed from key vantage points (see plans and documents section).		
6. Environmental Amenity		
The EIS shall:		
• include solar access analysis/shadow diagrams outlining impacts on adjoining developments/public domain	Section 6.3.1	Appendix B
• detail the impacts of the development on view loss, wind impacts and reflectivity	Section 6.2 & 6.3.2 & 6.3.3	Appendix Q, R & B
• detail any new external lighting or illumination and consider the impacts of this lighting/illumination to surrounding properties and the public domain.	Section 6.3.4	Appendix BB
7. Transport, Traffic, Parking and Access	Section 4.4, 4.10, & 6.4	Appendix S & J
The EIS must include a Transport and Traffic Impact Assessment that provides, but is not limited to, the following:		
<u>Construction</u> Preparation of a draft Construction Pedestrian and Traffic Management Plan (CPTMP) which shall address, but not limited to the following:		

Requirement	Location in Environmental Assessment	

• assessment of cumulative impacts associated with other construction activities in the vicinity of the site
• a construction program detailing the anticipated construction duration and highlighting significant milestone, stages and events during the construction process
• an assessment of traffic and transport impacts during construction and how these impacts will be mitigated for any associated traffic, pedestrian, cyclist and public transport services (including special event buses) within the Olympic Park Precinct, including during adjacent events
• details of construction vehicle routes, peak hour and daily truck movements, ours of operation, access arrangements at all stages of construction and traffic control measures for all works
• existing CPTMPs for developments within or around the development site should be referenced in the CPTMP to coordinate work activities to minimise impacts on the transport network and other road users
• an assessment of construction impacts on road safety at key
• intersections and locations subject to heavy vehicle movements and high pedestrian/cyclist activity
• details of parking and access arrangements for construction vehicles, workers, emergency services and the provision of safe and efficient access for loading and deliveries
• details of temporary cycling and pedestrian access arrangements during construction
• details of any crane locations and road closures
• details of a consultation strategy for liaison with surrounding stakeholders.
<u>Operational</u>
• current and estimated daily and peak hour traffic generation (including point to point transport), public transport, walking and cycling movements, together with cumulative impacts of existing, proposed and approved developments within the vicinity of the proposed development and any transport/ traffic upgrade
• details of any new or upgraded infrastructure works required impacts of additional traffic generated by the development on existing and future road, light rail and bus services and pedestrian and cycle networks within the vicinity of the site and identify measures to manage/ mitigate the likely future increased demand for public transport, pedestrian and cycle infrastructure, including any required upgrades
• existing/proposed car and bicycle parking provision and pick-up and drop-off facilities for staff and visitors, including consideration of the availability of public transport and the requirements of the relevant parking codes and Australian Standards
• end-of-trip facilities for staff including lockers and showers loading and servicing arrangements and potential impacts to the traffic and transport network
• assess existing loading and servicing parking capacity in relation to accommodating additional food and beverage concessions
• preparation of a Travel Demand Management Strategy and Travel Plan, that considers the following:
  − measures to encourage workers and visitors to travel to the site by public transport, walking, cycling and car sharing
  − integrated ticketing between events and transport providers,
  − provision of adequate bicycle parking and end of trip facilities and improved connections between the stadium and public transport nodes and pedestrian and bicycle networks.		

Requirement	Location in Environmental Assessment	
8. Ecologically Sustainable Development (ESD) The EIS shall: • detail how ESD principles (as defined in clause 7(4) Schedule 2 of the Regulation) will be incorporated in the design, construction and operation of the development • outline resource, energy and water efficiency initiatives, including the use of sustainable technologies and or/renewable energy • address how the redevelopment will have regard to achieving the minimum 4-star Green Star rating as set by the Green Building Council of Australia.	Section 6.19 Section 4.5 & 6.5 Section 4.5 & 6.5	- Appendix H Appendix H
9. Major Events The EIS shall: • adequately address the impact of major events in the precinct as they relate to the proposed works within the Town Centre (SOP Major Event Impact Assessment Guidelines) • demonstrate that the proposed works and future stadium operation can provide acceptable amenity in major event mode, including any management or mitigation measure to address potential impacts, including, but not limited to: – details of major event buses which will still operate to certain events at Sydney Olympic Park during the redevelopment of Stadium Australia, including during the Royal Easter Show – major event buses will be able to operate from the Northern Bus Terminal on Olympic Boulevard opposite Qudos Bank Arena, during the redevelopment of the stadium.	Section 4.2 & 6.4	Appendix G
10. Heritage and Archaeology The EIS shall: • include a Statement of Heritage Impact (SOHI), prepared by a suitably qualified consultant in accordance with the guidelines in the NSW Heritage Manual. The SOHI is to address the impacts of the proposal on the heritage significance of the site and adjacent areas • if the SOHI identifies impact on potential historical archaeology, an Historical Archaeological Assessment should be prepared by a suitably qualified archaeologist, in accordance with the Heritage Division, Office of Environment and Heritage Guidelines 'Archaeological Assessment' 1996 and 'Assessing Significance for Historical Archaeological Sites and Relics' 2009.	Section 6.7	Appendix K
11. Social and Economic Impacts Assess the social and economic impacts of the development, including the benefits the redeveloped stadium will generate for Sydney and the local region.	Section 6.7.1	Appendix AA
12. Signage The EIS shall: • provide detail on the location, size and content of any proposed signage • consider any signage as part of the overall built form and urban design of the development • demonstrate how any proposed signage is consistent with the Sydney Olympic Park Commercial Signage Policy 2018.	Section 4.3.3 & 5.4	Appendix P
13. Biodiversity The EIS shall provide an assessment of the proposal's biodiversity impacts in accordance with the Biodiversity Conservation Act 2016 (BC Act), including the preparation of a Biodiversity Development Assessment Report (BDAR) where required under the BC Act.	Section 6.9 & 5.4	-

Requirement	Location in Environmental Assessment	
The BDAR must document the application of the avoid, minimise and offset framework, including assessing all direct, indirect and prescribed impacts in accordance with the Biodiversity Assessment Method. The BDAR must be prepared by a person accredited in accordance with the Accreditation Scheme for the Application of the Biodiversity Assessment Method Order 2017 under section 6.10 of the BC Act.		
14. Water and Drainage The EIS shall identify:		
• any water licensing requirements or other approvals required under the *Water Act 1912 or Water Management Act 2000*	Section 6.11	-
• any geotechnical issues (including contamination and acid sulfate soils) associated with the construction of the development	Section 2.1.5	Appendix D
• detail drainage associated with the proposed works, including stormwater and drainage infrastructure	Section 4.9 & 6.11	Appendix E & M
• detail measures to minimise operational water quality impacts on surface waters and groundwater	Section 6.11	Appendix M & V
• detail how drainage associated with the proposed works, including stormwater and drainage infrastructure will be managed to ensure the run-off levels for the stadium remain at existing levels and water quality either remains as existing or improves upon the existing.	Section 6.11	Appendix M & V
15. Utilities The EIS shall:		
• address the existing capacity of the site to service the development and any augmentation requirements for utilities, including arrangements for electrical network requirements, drinking water, waste water and recycled water	Section 6.14	Appendix E
• outline any sustainability initiatives that will minimise/reduce the demand for drinking water, including any alternative water supply and end uses of drinking and non-drinking water, and demonstrate water sensitive urban design principles are used and identify any proposed water conservation measures	Section 6.11.1	Appendix V
• identify the existing infrastructure on-site and any possible impacts of the construction and operation of the proposed works on this infrastructure.	Section 2.1.7 ,4.8 & 6.14	Appendix E
16. Contamination The EIS shall: • clarify whether any of the proposed works (including augmentation or modification of utilities) would disturb or influence any land, management systems or monitoring systems that are the subject of the Maintenance of Remediation Notice No.28040 • demonstrate compliance with the requirements of State Environmental Planning Policy No.55 – Remediation of Land.	Section 5.4	Appendix O
17. Noise and Vibration The EIS shall include a noise and vibration assessment prepared in accordance with the relevant EPA guidelines. This assessment must consider construction and operational noise impacts on nearby noise sensitive receivers and outline proposed noise mitigation and monitoring issues. Operational noise impacts include crowd noise, amplified sound, pyrotechnics and mechanical services.	Section 6.6	Appendix T
18. Air Quality, Odour and Waste The EIS shall identify potential air quality, odour and waste impacts during the construction of the development and include any appropriate mitigation measures.	Section 6.16	Appendix J
19. Sediment, Erosion and Dust Controls The EIS shall identify measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust and particles.	Section 6.16	Appendix J
20. Servicing and Waste	Section 4.7 & 6.15	Appendix I

Requirement	Location in Environmental Assessment	
The EIS shall: • identify, quantify and classify the likely waste streams to be generated during construction and operation of the development and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste • identify appropriate servicing arrangements (including but not limited to, waste management, loading zones and mechanical plant) for the site.		
21. Building Code of Australia (BCA) and the Disability Discrimination Act The EIS shall include a BCA report and access report demonstrating compliance with the BCA and the *Disability Discrimination Act 1992*.	Section 6.17	Appendix L & Y
Plans and Documents	**Report**	**Technical Study**
The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedules 1 and 2 of the Regulation. Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include the following:	-	
• site survey plan, showing existing levels, location and height of existing and adjacent structures/buildings and relationship to the rail corridor		Appendix B
• site analysis plan		Appendix B
• architectural drawings (to a useable scale at A3) − showing key dimensions, RLs, scale bar and north point − plans, sections and elevations of the proposal − illustrated materials schedule including physical or digital samples board.		Appendix B
• urban design report		Appendix B
• view analysis, photomontages and architectural renders		Appendix B & Q
• schedule of materials and finishes		Appendix B
• public domain and landscape plan		N/A
• construction and operational noise and vibration impact assessment		Appendix J & T
• construction air quality, odour and waste assessment		Appendix J & X
• preliminary construction managementplan, inclusive of a Construction Traffic Management Plan		Appendix J & S
• sediment and erosion control plan		Appendix J
• geotechnical and structural report		Appendix D & BB
• contamination assessment, including remedial action plan and site audit statement (if required)		Appendix O
• access impact statement		Appendix L
• reflectivity report		Appendix B
• heritage impact statement		Appendix K
• arboricultural report (if trees in the public domain are to be removed)		Appendix U
• solar analysis and shadow diagrams		Appendix B
• CPTED assessment		Appendix W
• wind assessment		Appendix R
• Biodiversity Development Assessment Report (or waiver)		-
• ESD report		Appendix H
• services and utilities impact assessment		Appendix E
• Building Code of Australia report		Appendix Y
• social and economic impact assessment		Appendix AA

Requirement	Location in Environmental Assessment	
• signage details		Appendix B
• consultation summary report		Appendix F
• traffic and transport impact assessment		Appendix S
• integrated water management plan		Appendix V
• servicing and operational waste management plan		Appendix I
• event management statement.		Appendix G
Consultation		
During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular you must consult with: • City of Parramatta Council • Sydney Olympic Park Authority • Transport for NSW (Roads and Maritime Services) • Transport for NSW • Sydney Coordination Office within Transport for NSW • Environment, Energy and Science Group of the Department of Planning, Industry and Environment (former NSW Office of Environment and Heritage) • NSW Environment Protection Authority • Heritage Division of the Department of Premier and Cabinet (former Heritage Division of the Office of Environment and Heritage) • NSW Police • Sydney Water • surrounding residents, businesses and local community groups. The EIS must describe the consultation process and the issues raised and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.	Section 3.0	Appendix F

2.0 Site analysis

Stadium Australia is located at 15 Edwin Flack Avenue within the City of Parramatta Local Government Area (LGA). It is located in the Town Centre of Sydney Olympic Park, approximately 9km east of Parramatta and 14km west of Sydney CBD in an area considered to be the geographic centre of Sydney.

In a broader context, the site forms part of the western edge of Sydney Olympic Park which is a sporting and economic centre in metropolitan Sydney that covers 680 hectares. Sydney Olympic Park comprises range of sports and entertainment venues, parklands, and commercial, retail and residential developments. This precinct was created for the Sydney 2000 Olympic and Paralympic Games, and has since undergone change and development to bring new life and investment to this precinct following the conclusion of the games. The site is located in the heart of this sports and entertainment precinct, which also includes the Qudos Bank Arena, Sydney Showground, Giants Stadium, Aquatic Centre, Athletics Centre, Warmup Arena, and the NSW Rugby League Centre of Excellence. The Carter Street Precinct is located to the west of the stadium, which is a former industrial area that is being planned and redeveloped for primarily residential uses with commercial and educational development.

Convenient access to the site is provided from Homebush Bay Drive, Parramatta Road and the M4 Western Motorway, as well as the Olympic Park Railway Station, and the site will benefit from potential future connections via Stage 2 of the Parramatta Light Rail and Sydney Metro West.

The site's locational context is shown at **Figure 4** below.

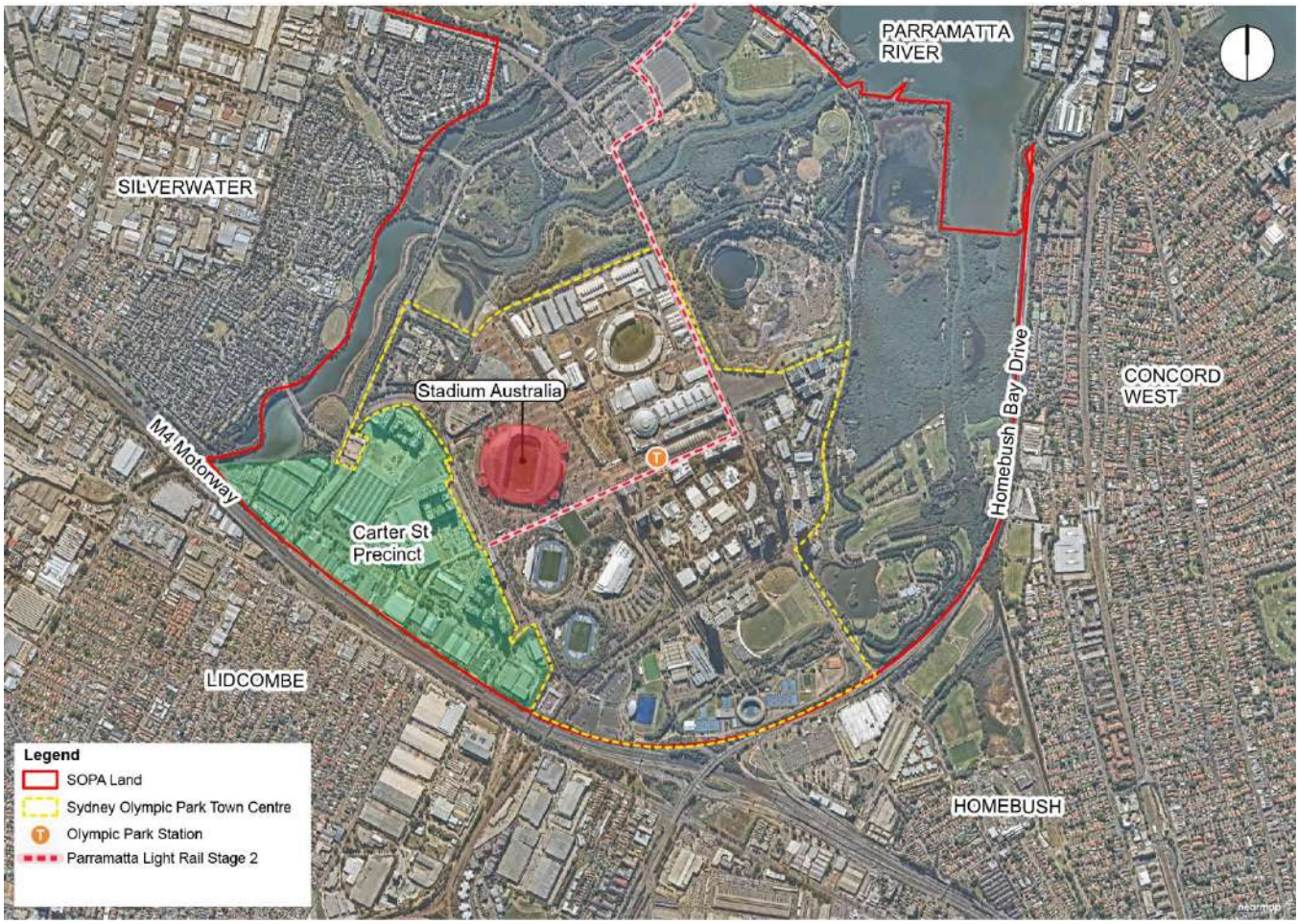


Figure 4 Context of the site

Source: Nearmap and Ethos Urban

2.1 Site description and ownership

The site is legally described as Lot 4000 in DP 1004512 and part of Lot 4001 in DP 1004512. In 2017, the Minister for Sport assigned Venues NSW as the trustee of Stadium Australia under the *Sporting Venues Authorities Act 2008*, however, ultimately the site is owned and controlled by the Sydney Olympic Park Authority.

The area to which the SSD DA relates is as follows:

- Stadium Australia, including all existing projections, additions and outbuildings.
- Certain areas surrounding the Stadium for use as a temporary construction compound, including vehicle access from Edwin Flack Avenue and Dawn Fraser Avenue.

Figure 5 illustrates the site boundary for the Development Application. A Site Survey Plan has been prepared by Rygate Surveyors and is located at **Appendix C**.

Figure 5 Aerial photo of the site and surrounds

Source: COX Architecture

2.1.1 Existing Development

Stadium Australia

Design

Stadium Australia was opened in 1999 for the 2000 Sydney Olympic and Paralympic Games. The Stadium was designed by (now) Populous. At the time of its construction, Stadium Australia was the largest Olympic Stadium ever built (with a total capacity of 110,000) and was the second largest stadium in Australia. The stadium was subsequently modified between 2001 and 2003 to shorten the north and south stands, removing the two 'wing' stands and the athletics track, and installing a retractable and moveable lower tier of seating. This was intended to reduce the overall capacity of the stadium in-line with demand and to enable the stadium to be modified to either a rectangular or oval configuration to adapt to the intended sport. Awnings over the north and south stands were also added for some weather protection for patrons in these areas, with the stadium offering an overall 88% weather coverage to the dripline.

The key features of the existing Stadium Australia are as follows:

- Total capacity for up to 83,602 seated patrons (plus 20,000 on the field of play), across three tiers of the seating bowl:
    - Lower Tier (Levels 1 and 2): 45,297, including general admission and members seating
    - Middle Tiers (Levels 3, 4 and 5): 14,310, including corporate and members seating
    - Upper Tier (Level 6 and 7 on the eastern and western stands only): 24,0139 including general and members seating
- A 'saddle' shaped roof, with a taller roof form above the eastern and western stands sweeping down to lower heights at the northern and southern stands. The roof structure, which is supported by distinctive white steel trusses, comprises translucent polycarbonate 'tiles' separated by stainless steel gutters. This roof shields approximately 88% of available seating from the 'drip line', with the 12% of seats uncovered primarily located within the lower tier of the north and south stand.
- Patron entrances are provided on the eastern and western facades of the stadium, with distinctive circular ramps at each corner of the stadium providing direct access to the upper levels from the public domain. The northern and southern facades are primarily blank, with outlets for building plant and services.
- The seating bowl is shallow and separated from the field of play owing to the stands being designed to retract into the stadium structure when configuring this area to an oval field. Pedestrian bridges connect patrons to the seating bowl, enabling the lower seating bowl stands to retract into the concourse space. Seats in the upper seating bowl are located some 100m from the field of play.
- Food and beverage kiosks are provided in the middle of the stadium concourse, and sometimes external to the stadium in the public domain to meet demand.
- The member and corporate facilities are located in the east and west stands.
- Edwin Flack Avenue provides vehicular access to the basement of the stadium via a driveway at the north-western end of the stadium. Servicing of the stadium occurs within the basement via the internal ring road, where there is a 4.5m height clearance that allows larger vehicles to circulate.
- LED screens are located at the northern and southern ends of the stadium.

The key features of Stadium Australia are reflective of the unique requirements of a venue hosting the Olympics and subsequent attempts to create a multi-configuration venue capable of attracting a variety of sporting codes. This compromise, however, has meant that the stadium no longer meets best practice standards for patron experience meaning the Stadium is unable to capitalise on the intended 'flexibility' of the current multi-configuration design.

Figure 6 Eastern face of the stadium

Figure 7 Northern face of the stadium

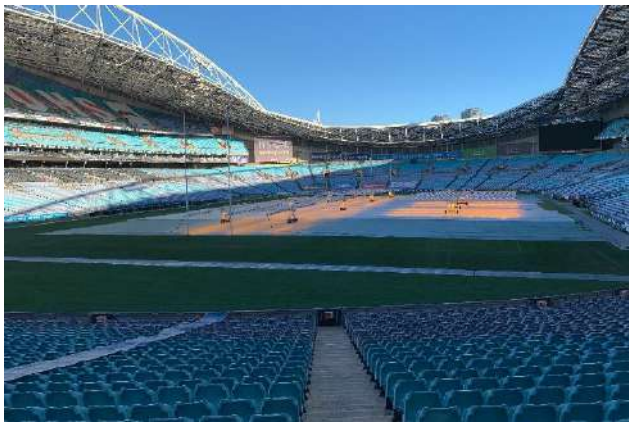


Figure 8 Lower seating bowl

Figure 9 Upper seating bowl

Source/Notes:

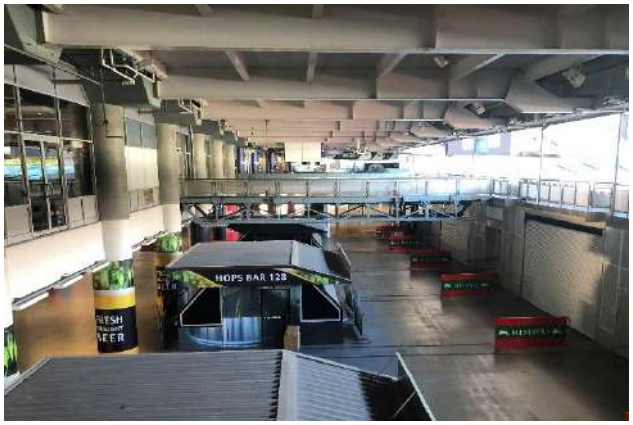


Figure 10 Food and beverage kiosks in the concourse

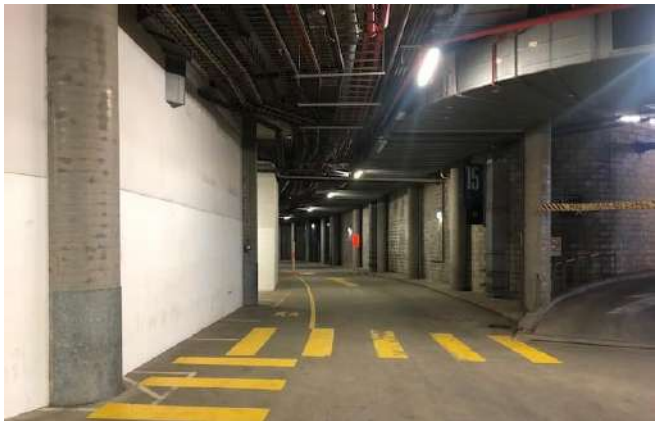


Figure 11 Basement stadium ring road

Programming

Stadium Australia currently hosts a range of Australia's international sporting teams, including the Wallabies and the Socceroos. These events include international and competitive games such as the Bledisloe Cup and the AFC Asian Cup (2015). Overall, rugby league accounts for the majority of sporting events at Stadium Australia, including finals games and Canterbury-Bankstown Bulldogs and South Sydney Rabbitohs both playing home matches at Stadium Australia.

Stadium Australia hosts international friendlies between local football teams such as Sydney FC and high-profile international football clubs. The stadium also hosts occasional live music concerts. The range of events typically hosted at Stadium Australia include:

- NRL season games and finals (including the NRL Grand Final)

- State of Origin
- Rugby union: international games
- Football: international games
- Concerts
- Other sporting events, including US College Football

Crowds at each event vary significantly depending on a range of factors including the type of event, participating teams, popularity, day of the week, time of day, weather conditions and timing of other competing entertainment events, amongst others. Total attendance between 2009-2018 was as follows:

Table 2 Events/Attendance (2009-2018)

Year	Number of Events	Total Attendance
2009	44	1,203,711
2010	45	1,601,269
2011	41	1,025,453
2012	45	1,334,158
2013	46	1,634,469
2014	50	1,522,137
2015	51	1,616,395
2016	41	1,102,090
2017	58	1,672,615
2018	54	1,366,280

Source: Stadium Australia

Staffing levels at the existing stadium also vary based upon the type of event and scale of anticipated attendance. Staff at a typical event include customer service, crowd safety, catering and on-site contractor personnel. Typical staffing levels for events held at the Stadium Australia are as follows:

- Major Events: 3,000 staff
- Regular Events 1,500-2,000 staff

2.1.2 Access

Being located in an area designed to be highly accessible during the Sydney Olympic and Paralympics Games, Stadium Australia benefits from a range of existing and planned transport options as discussed below.

Public Transport

- **Heavy rail** – the stadium and Sydney Olympic Park are primarily accessed via the Olympic Park Railway Station located approximately 350m directly east of the site. This station operates on the T7 Olympic Park Line as a shuttle-service connecting to Lidcombe during normal operations, with direct services from Central and select other stations during major events. Sydney Olympic Park is also accessible via the Concord West Railway Station and pedestrian pathways through Bicentennial Park, approximately 2km to the east of the stadium.
- **Bus** – the stadium is serviced by regular bus services along Australia Avenue (which serves as an interchange for Sydney Olympic Park Railway Station), Dawn Fraser Avenue and Edwin Flack Avenue. These stops connect the stadium to surrounding centres such as Chatswood, Burwood, Parramatta and Lidcombe. Special event buses also operate as required, providing direct bus routes for people travelling to and from the stadium from Warriewood, Glebe, Maroubra, Castle Hill, Rouse Hill, Menai, Cronulla and Dural.
- **Ferry** – the Sydney Olympic Park Ferry Wharf is located north of the site at Wentworth Point, connecting to Parramatta in the west and Milsons Point and Circular Quay in the east. A connecting bus service links the wharf and the interchange at the Sydney Olympic Park Railway Station.

- **Light rail** – whilst there is no existing connection to the site via light rail, the stadium is earmarked to benefit from Stage 2 of the Parramatta Light Rail project. Stage 1 of the light rail is currently under construction and comprises 16 stops connecting Westmead, Parramatta, Camellia, Carlingford and Sydney Olympic Park. In October 2017 the NSW Government announced commencement of the planning phase for Stage 2 of the project, which indicates that the new 9km connection will include two stops within easy walking distance of the venue as shown in **Figure 13** below.
- **Metro** – similarly, whilst there is no existing connection to the site via the Metro, the stadium is earmarked to benefit from a new station as part of the Sydney Metro West project. This new metro connection was announced in November 2016 to service key precincts within the Metropolitan Area including Greater Parramatta, Sydney Olympic Park, The Bays Precinct and the Sydney CBD. This project is currently in the planning phase, however, it has been indicated that new stations will be provided on the T1 Northern Line east of Sydney Olympic Park and within Sydney Olympic Park (see **Figure 14**). This new transport connection is expected to be operational in 2028.

Point-to-point services

Point-to-point services such as taxis and rideshare services (e.g. Uber, Ola, Lyft) are accommodated in dedicated areas within Sydney Olympic Park as shown in **Figure 15**. These areas comprise:

- taxi ranks located on Herb Elliot Avenue and Showground Road outside of the Novotel;
- a dedicated rideshare pick-up zone that operates from the P6 carpark to the east of the site, with the respective apps for ridesharing services directing patrons to this location in order to access their service;
- a dedicated drop-off zone that operates on Edwin Flack Avenue; and
- parking and drop-off areas for hire cars on Dawn Fraser Avenue and Edwin Flack Avenue.

Bicycle parking and access

The stadium benefits from an extensive local and regional bicycle network, including dedicated on-road cycle lanes along the main roads within Sydney Olympic Park and shared cycle/pedestrian pathways in the surrounding open space areas. This network connects the site to Rhodes and Meadowbank to the north, Liberty Grove to the east, Newington and Silverwater to the west, and Lidcombe and Homebush to the south (see **Figure 16**).

This bicycle network is supported by 150 bicycle parking spaces dispersed in the Sydney Olympic Park precinct for use by the general public. Dedicated bicycle parking for the staff of Stadium Australia is provided within the secure stadium basement, including end of trip facilities such as lockers, showers, and changerooms.

Figure 12 Summary of public transport connections to the site

Source: JMT Consulting

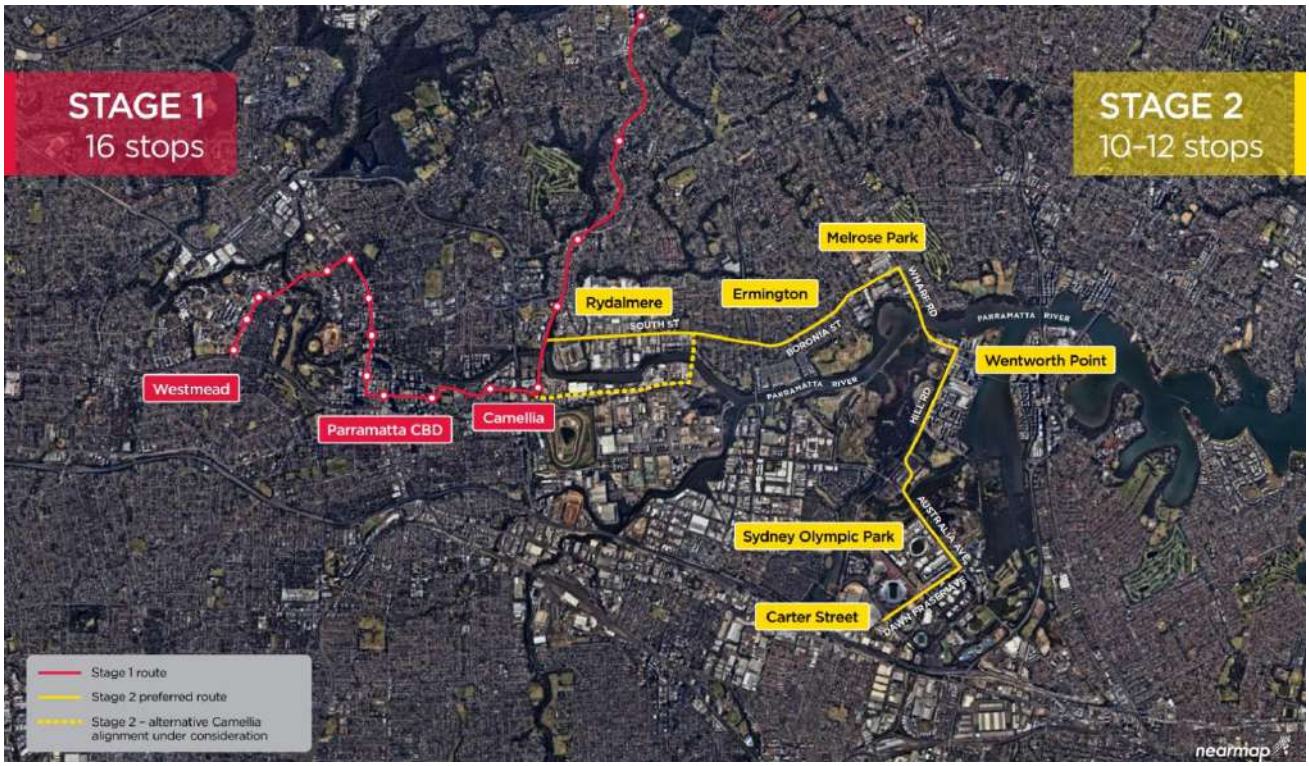


Figure 13 Parramatta Light Rail Stage 2

Source: Transport for NSW

Figure 14 Sydney Metro West alignment

Source: Sydney Metro

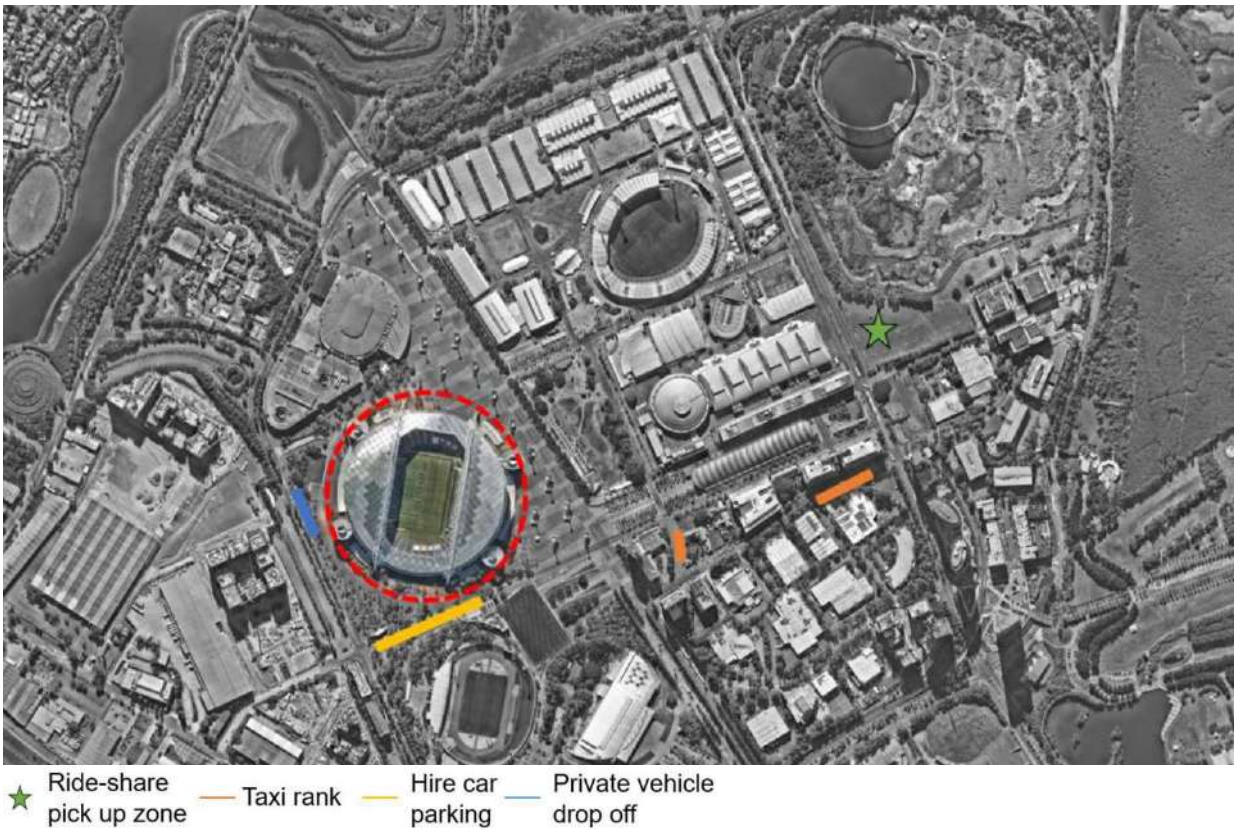


Figure 15 Point-to-point transport facilities

Source: JMT Consulting

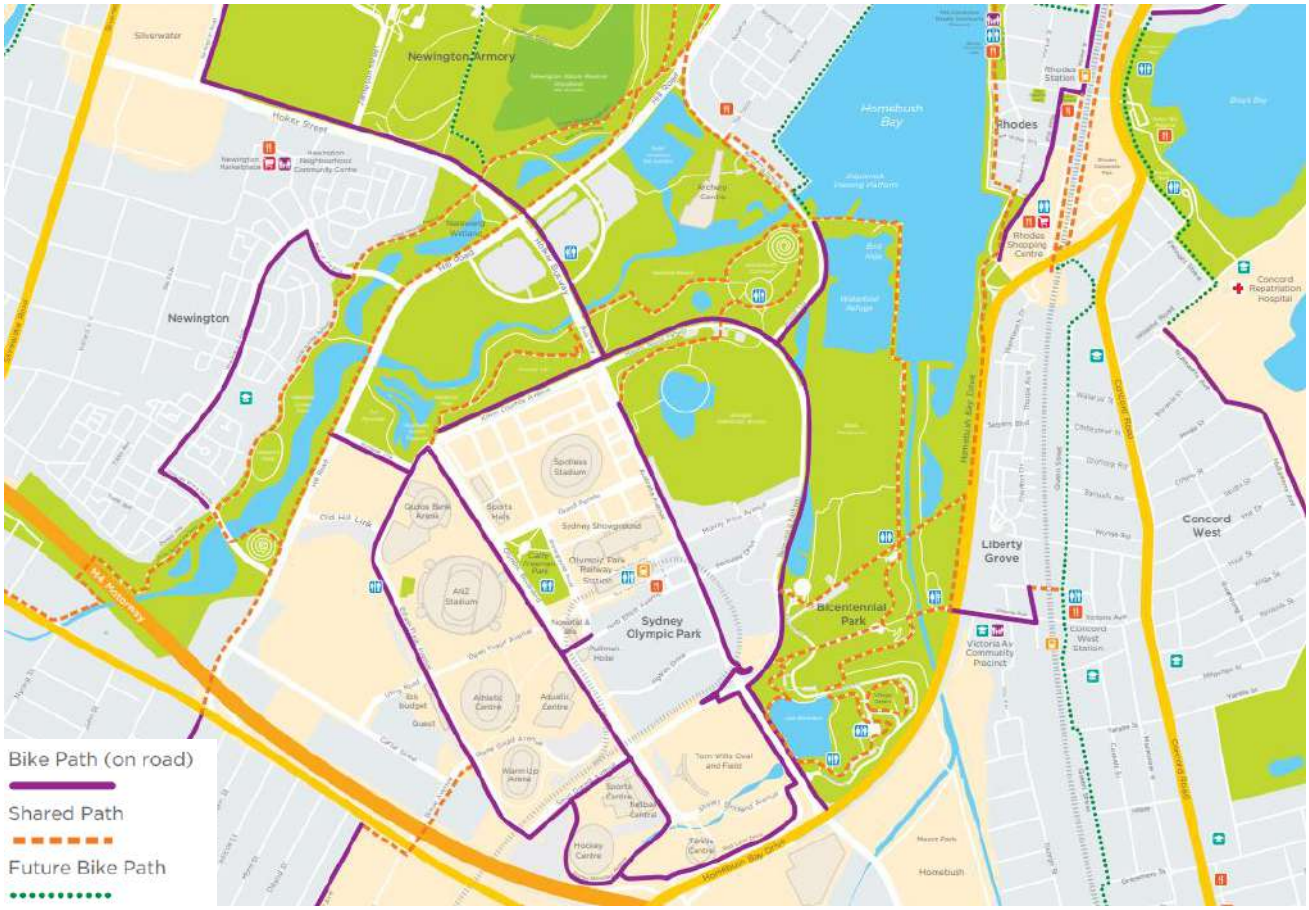


Figure 16 Bicycle network in Sydney Olympic Park and surrounds

Source: SOPA & City of Canada Bay Council

Vehicle Access and Parking

Sydney Olympic Park is located at the junction of significant state and regional roads, provide access to the local road network within Sydney Olympic Park and Stadium Australia. Parramatta Road, the M4 Motorway, and Homebush Bay Drive are classified as 'Regional' roads and define the southern and eastern edges of Sydney Olympic Park, and Hill Road is classified as a 'State' road and defines the western edge of the Park. Together, this road network provides good access to the site via the connections on Australia Avenue, Carter Street, Birnie Avenue and Old Hill Link. The M4 Motorway was also recently upgraded as part of the Westconnex project, which included widening the road from three to four lanes between Parramatta and Homebush and the opening of new tunnels.

Within the Sydney Olympic Park precinct, the stadium is surrounded by a number of local roads including Dawn Fraser Avenue (to the south), Olympic Boulevard (to the east) and Edwin Flack Avenue (to the west). A secure driveway off Edwin Flack Avenue provides vehicular access to the stadium basement which includes a 360º ring road, loading and servicing spaces, and up to 150 parking spaces (including areas for coaches) that are allocated to players, officials, VIPs and accredited staff and media personnel. The driveway is secured at the kerb via a boom gate and signage to prevent access from members of the general public.

Off-site vehicle parking is available on the surrounding Local roads outside of event periods, which provide approximately 700-800 spaces. Additional parking is provided within dedicated parking stations with capacity for up to 9,500 vehicles dispersed within Sydney Olympic Park (see **Table 3** and **Figure 17**). These parking stations are shared with other venues in Sydney Olympic Park, including Qudos Bank Arena and the Sydney Showground, and are typically available both during and outside of event periods, with the exception of P6 which is sometimes used as a rideshare pick-up location during major events. Shuttle buses transport patrons from the P3 and P4 Car Park to Edwin Flack Avenue and from the P5 Car Park to Olympic Boulevard. The P1 Car Park is located immediately to the north of the site and is the primary carpark for the stadium.

Table 3 Breakdown of carparking stations within the precinct

Parking station	Number of spaces	Access via
P1	3,200 spaces	Hill Road and Edwin Flack Avenue
P2	470 spaces	Birnie Avenue and Australia Avenue
P3	1,480 spaces	Australia Avenue
P4	980 spaces	Birnie Avenue and Australia Avenue
P5	2,515 spaces	Hill Road and Holker Street
P6	637 spaces	Australia Avenue
P8	212 spaces	Australia Avenue

Source: JMT Consulting

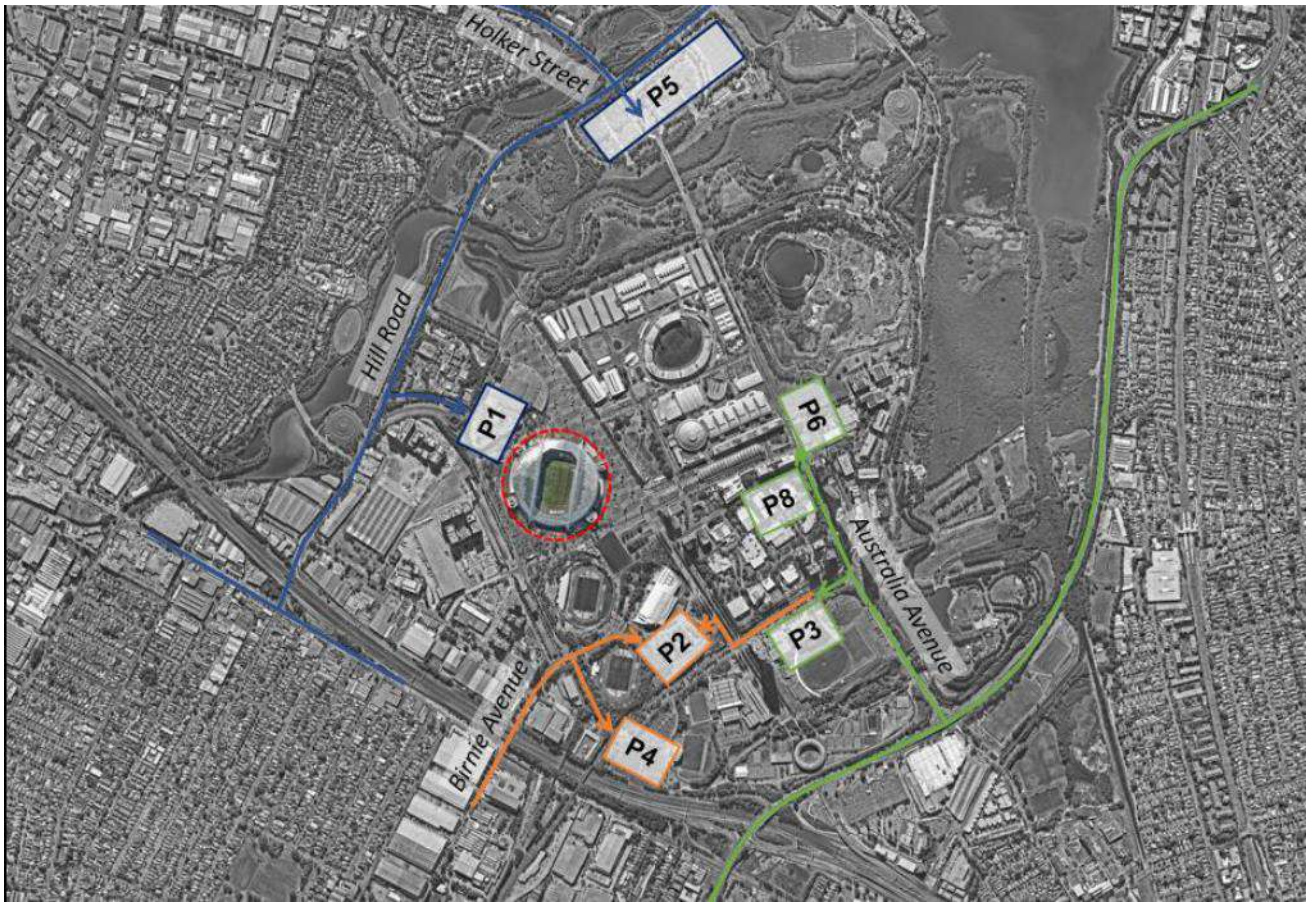


Figure 17 Location of parking stations within the precinct

Source: JMT Consulting

Vehicle access is subject to change with the temporary closure of roads during events by the Sydney Olympic Park Authority. These road closures depend on the scale of the event and include:

- **Major events** – overnight road closures of Olympic Boulevard between Herb Elliot Avenue and the northern turning circle, of Dawn Fraser Avenue between Edwin Flack Avenue and the western spiral of Showground Road, and of Showground Road between Dawn Fraser Avenue and Murray Rose Avenue. Additional road closures are also implemented on the day of the event around the back of the railway station on Murray Rose Avenue, of Dawn Fraser Avenue to Park Street, and Kevin Coombs Avenue and Shirley Strickland Avenue.
- **Regular events** – road closures are only typically implemented 2 hours prior to the start of an event and comprise Showground Road between Dawn Fraser Avenue and Murray Rose Avenue, and Olympic Boulevard between Herb Elliot Avenue and Grand Parade. Additional roads are closed for concurrent events at Stadium Australia and Sydney Showground.

Pedestrian

Sydney Olympic Park benefits from a relatively flat terrain and extensive pedestrian circulation spaces that were designed and constructed to accommodate significant pedestrian movements associated with the Olympic and Paralympic Games. Pedestrian pathways are available on both sides of all streets in Sydney Olympic Park, including Olympic Boulevard, Edwin Flack Avenue, and Dawn Fraser Avenue at the edges of the site. The Stadium itself also benefits from a wide, 360º pedestrian circulation zone surrounding the stadium.

During events, pedestrian access and circulation is prioritised through the closure of certain roads by the Sydney Olympic Park Authority to enable unimpeded and safe movements between venues and key transport nodes (as discussed above).

2.1.3 Vegetation

Mature trees are located in the public domain in circular tree pits to the north, west and south of the stadium. These trees were planted in 1999 as part of the preparation of the precinct for the Olympic and Paralympic Games and are in the early stages of maturity, with some showing signs of stress and damage attributed to the challenging growing environment. The trees include a mix of seven different locally indigenous and native species, including Spotted Gum, Lemon Scented Gum, Tallowwood, Grey Ironbark, Mugga Ironbark, Narrow Leaved Iron Bark and Turpentine.

Refer to the location plan at **Figure 18** and the images at **Figure 19**.

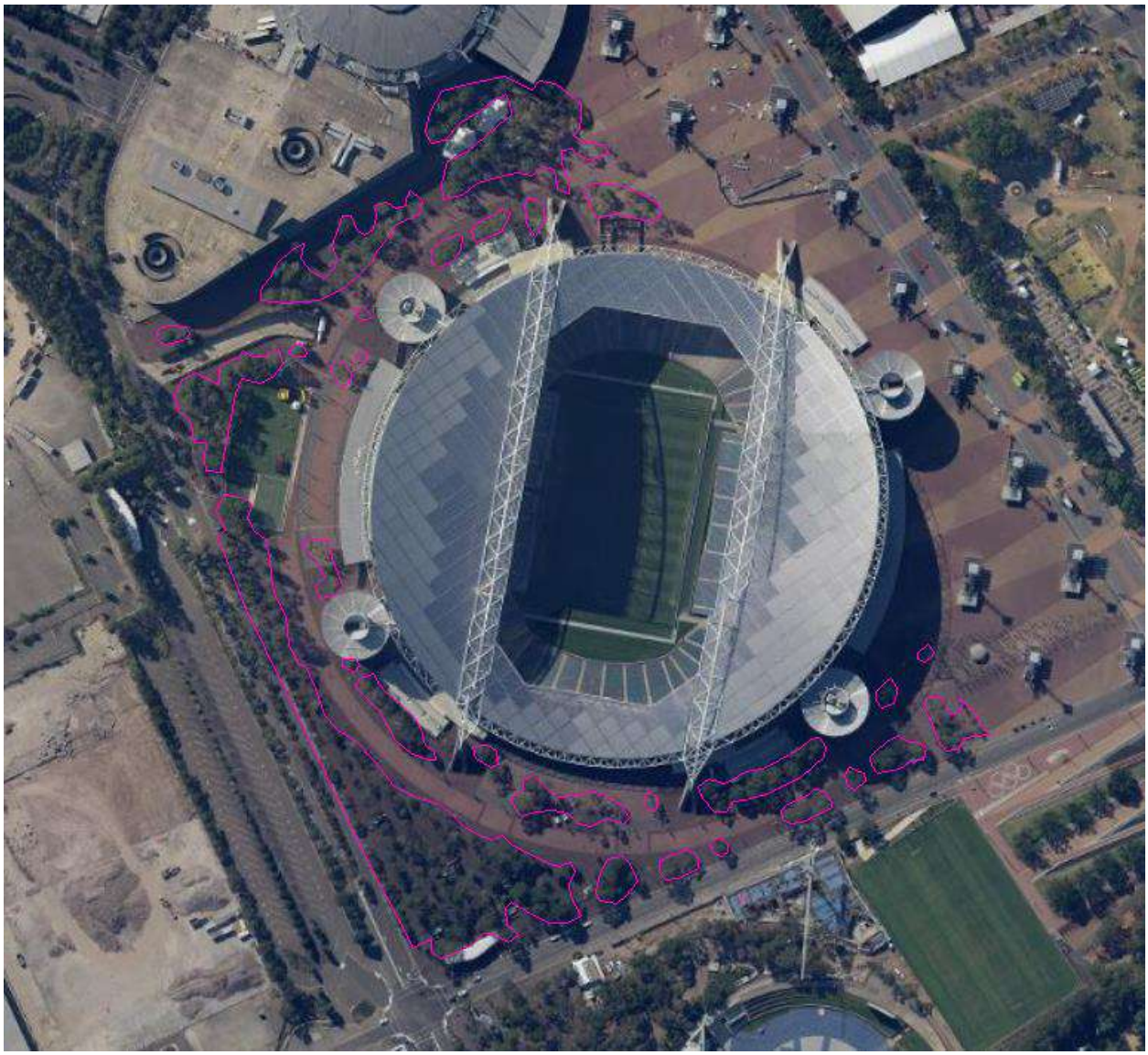


Figure 18 Location of trees surrounding Stadium Australia

Source: Jacobs

Figure 19 Example of trees incorporated into the public domain surrounding the stadium

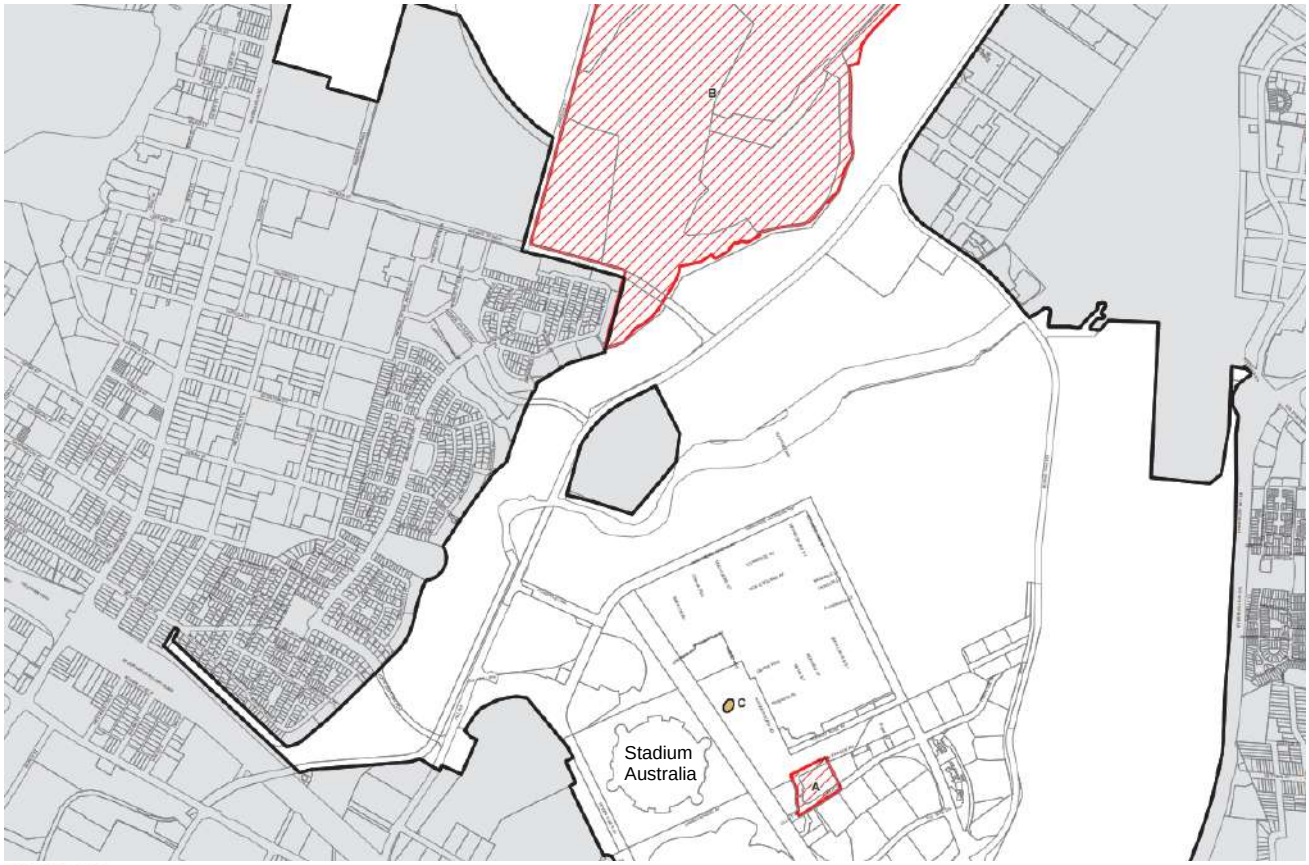
Source: Jacobs

2.1.4 Heritage

Stadium Australia is not identified as being a heritage item, and the site and surrounding public domain doesn't contain any heritage items and aren't within any heritage conservation areas. The nearest heritage items are some distance from the site and do not fall within the area of proposed works. These comprise:

- **Olympic Cauldron** – this is a State Heritage Item (No. 01839) and is located some 100m north-east of the stadium within Cathy Freeman Park. This heritage item is significant for its association with the Olympic opening ceremony. It was originally located at the northern end of Stadium Australia during the Olympics, but was relocated and reinterpreted in 2001 to operate as a fountain on top of a group of stainless steel poles. The Olympic Cauldron is a perforated, corrugated shell structure fabricated from stainless steel, with an overall diameter of 10m.
- **Newington Armament Depot and Nature Reserve Heritage Conservation Area** – this comprises a State Heritage Item (no. 01850) and heritage conservation area located 1km north-west of the stadium, to the north of Hill Road within the Millennium Parklands. This item is significant as a place containing features from all periods of its human occupation as well as regionally rare forest and wetlands. It was also a significant Navy Port within Sydney, and is a place at which explosives were handled and stored between the 1890s to 1999.
- **State Abattoirs Heritage Conservation Area** – this heritage conservation area encompasses a collection of five (5) buildings in the area bounded by Herb Elliott Avenue, Showground Road, Dawn Fraser Avenue and the Railway Garden. The area is significant for the collection of intact buildings that formed part of the Homebush State Abattoirs (1913-1988), which were the largest and most modern abattoir during this period in Australia. The remnant buildings were adaptively reused by SOPA for visitor services for the Olympics and are currently used as sporting administration offices and associated facilities managed by SOPA.

Refer to the locational plan at **Figure 20** below.



A. State Abattoirs Heritage Conservation Area
B. Newington Amateur Depot and Nature Reserve Heritage Conservation Area
C. Olympic Cauldron

Figure 20 Heritage context of the site

Source: SEPP SSP

2.1.5 Soil, geotechnical and groundwater conditions

Soil conditions

The Sydney 1:1,000,000 Geological Map, and a previous Geotechnical Investigation undertaken by Coffey on the site, indicates that the site is underlain by Ashfield Shale, belonging to the Wianamatta group of the Triassic Period. The Ashfield Shale begins between 1.5m and 6m below the surface, and varies in strength and weathering across the site laterally and in depth. A combination of clay, fill and soil are located above this. The site's geotechnical conditions are detailed further in the Geotechnical Assessment prepared by WSP (**Appendix D**).

Acidic Sulfate Soils

WSP (**Appendix D**) confirm that the site is identified as being within an area of low probability for acid sulfate soils, whilst Aurecon (**Appendix M**) confirm that the soil is slightly to moderately alkaline with a low risk of sulphate attack as confirmed through previous site investigations. SEPP SPP nominates part of the site as being 'disturbed terrain'.

Groundwater

Investigations of groundwater conditions were undertaken between 1990 and 1996 by Coffey, prior to the construction of the stadium. These investigations indicated that groundwater levels vary across the site, from RL 4.7m in the north and RL 6.8m in the north east, dropping down to RL 12.1 in the west and RL 11.5 in the south west. The investigations also indicated the presence of isolated perched groundwater within the overburdened clay and fill, particularly in the lower, wetter portions of the site.

2.1.6 Rivers, Streams, Estuaries and Wetlands

There are no rivers, streams, estuaries or important wetlands (under the meaning of SEPP Coastal Management or Ramsar Sites) within the development footprint. However, the Haslams Creek drains into Homebush Bay and is located approximately 700m to the north west of the site and the Bicentennial Park Wetlands are located 1.2km to the east of the site.

2.1.7 Infrastructure and services

A Building Services Report has been prepared by Aurecon (**Appendix E**) detailing the existing utilities and services within vicinity of the stadium. The infrastructure identified below has been found to have existing connections to the stadium:

- **Electricity** – the stadium is currently connected to four separately metered chamber substations owned by Ausgrid, with one located on each quadrant of Level 00, adjacent to the circulation towers. These substations derive a primary and secondary 11kV supply from two separate substations; Flemington Zone Substation (to the south-west) and Homebush Bay Zone Substation (to the north-east).

  The lighting pylons and light poles to peripheral roads are fed from the stadium's substations on separately metered supplies, with cable reticulation via Ausgrid's network. The pedestrian lighting, amenity lighting, feature lighting and power outlets are fed from the stadium's switchboards and are separately metered, with cable reticulation through the stadium-owned network.
- **Communications** – the stadium's communication infrastructure is a mix of multi-mode optical fibre and single mode optical fibre.
- **Gas** – the stadium is supplied by a Jemena gas system which extends from Olympic Boulevard (where the main gas control valve is located) into the gas meter room located on Level 1, Zone 1 in the south-east corner of the stadium. The gas is distributed via private infrastructure from the gas meter room to the plant rooms on the Level 7 east and west stands.
- **Potable Water** – the stadium is supplied with potable water from the water main located on Edwin Flack Avenue, in the south-west corner of the stadium. This connection extends from the entrance tunnel (where a branch connects to the fire brigade suction point) through to the pump and meter plantroom within Level 0, at the north-east corner of the stadium.
- **Recycled Water** – the stadium is supplied with recycled water from the Sydney Water main in Dawn Fraser Avenue, which extends to the pump and meter plant room within Level 0 (basement), at the south-west corner of the stadium. The recycled water is pumped to the 50,000L storage tanks located in the east and west stands (Level 7).
- **Stormwater** – the stadium currently discharges stormwater to the north-east into the stormwater drain along Olympic Boulevard, via a pumping station in the north stand.
- **Sewer** – a sewer main surrounds the majority of the stadium at a depth of approximately 1-6.4m. The stadium discharges waste via ten separate underground connections to the sewer system. Areas at Level 0, which is below the sewer invert level, are currently pumped out via six sewer pumping stations. There is private wastewater infrastructure and grease waste systems throughout the stadium.
- **Fire Services** – the stadium is currently serviced by the existing water main in Edwin Flack Avenue (owned by Sydney Water), which provides the primary water for the existing fire sprinkler booster assembly system.

2.2 Surrounding development

Stadium Australia is characterised by other significant venues in this sports and entertainment precinct, parklands, and commercial, retail and tourism uses within the remainder of Sydney Olympic Park. The site is also at the eastern edge of the developing Carter Street Precinct that will accommodate a mix of residential, commercial and educational uses. A description of this key surrounding development is provided below.

2.2.1 North

Qudos Bank Arena

Qudos Bank Arena (also known as the Sydney Super Dome) borders the stadium immediately to the north, with the main public entrance located on Olympic Boulevard and a smaller, secondary entrance located off Edwin Flack Avenue. The arena is the largest permanent indoor entertainment and sporting arena in Australia and was constructed in 1999 for the Olympics. The arena is typically used for netball and basketball, being the home venue for the Sydney Kings, Sydney Swifts and Giants Netball, as well as concerts, conferences, and other entertainment events. It has capacity for 17,500 seated patrons, and up to 21,000 patrons when operating for concerts and other entertainment events.

P1 Car Park

The multi-storey P1 carpark is located adjacent to the Qudos Bank Arena, and also forms the northern periphery of the site. This carpark is accessed off Edwin Flack Avenue and has capacity for approximately 3,200 vehicles. Given its proximity to Stadium Australia, the P1 Car Park is typically the primary carpark used during events.

Figure 21 Qudos Bank Arena
Source: Sydney Olympic Park Authority

Figure 22 P1 carpark, as viewed from Edwin Flack Avenue

2.2.2 South

Development to the south of the stadium comprises other sporting and entertainment venues and facilities including the NSW Rugby League Centre of Excellence, Sydney Olympic Park Athletic Centre and Aquatic Centre. The P2 multistorey carpark is also located further to the south, with capacity for 470 vehicles.

NSW Rugby League Centre of Excellence

The NSW Rugby League Centre of Excellence is located immediately to the south of the stadium. It is the headquarters of NSW Rugby League and accommodates both administrative services, a gymnasium, medical suites and recovery rooms, a sports science laboratory and education facilities, and a full-length playing and training field. It was delivered in partnership with the University of New England and was completed in December 2018. The Centre and training field is connected to Stadium Australia via a secure underground tunnel that is used by players during some game days (e.g. State of Origin) to move between the warm-up field and the stadium.

Athletic Centre

The Sydney Olympic Park Athletic Centre is located to the south west of the Centre of Excellence. Opened in 1994 and currently operated by SOPA, the Athletic Centre is an international standard track and field facility. The Athletic Centre has a seated capacity of 5,000 but can accommodate an additional 10,000 on the grassed banks to the north, south and east of the athletics track. The Athletic Centre hosts athletic carnivals and major national and international sporting events, and provides recreational and fitness facilities. The grassed area provides a full sized playing field capable of hosting soccer, rugby union, rugby league and America Football.

Aquatic Centre

Further to the south is the Sydney Olympic Park Aquatic Centre. The Aquatic Centre was constructed in 1994 and was the venue for the swimming, diving and water polo during the Olympics. The Aquatic Centre combines state of the art aquatic sports facilities (including a diving pool and a 50m competition pool) and a large aquatic leisure centre. It continues to host international, national, state and community competitions.

Figure 23 NSW Rugby League Centre of Excellence and training field

Source: NSW Rugby League

Figure 24 Sydney Olympic Park Athletic Centre

Source: NSW Athletics

Figure 25 Sydney Olympic Park Aquatic Centre

Source: COX Architecture

2.2.3 East

Cathy Freeman Park and the Sydney Showground

Cathy Freeman Park is located immediately to the east of the stadium at the corner of Olympic Boulevard and Grand Parade. The park comprises a playground, seating, landscaping, and public art including the Olympic Cauldron, which was relocated from Stadium Australia in 2001 and reinterpreted to operate as a fountain (refer **Section 2.2.4**).

Sydney Showground and Stadium

The Sydney Showground is located beyond Cathy Freeman Park, to the north east of the stadium. The Showground hosts major events, including the annual Sydney Royal Easter Show, which attracts close to one million people annually. It encompasses a collection of entertainment and exhibition venues, including Charles Moses Stadium and The Dome and Exhibition Complex.

The Sydney Showground Stadium (also known as Giants Stadium) was constructed to host the baseball events for the Olympics, and is now primarily used as the home ground of the GWS Giants (AFL) and the Big Bash League's Sydney Thunder (cricket). The stadium was upgraded to include two new stands post-Olympics, with a total seating capacity for 25,000 patrons, and capacity for up to 45,000 patrons during concerts and other entertainment events.

Olympic Park Town Centre

To the south east of the stadium on the eastern side of Dawn Fraser Avenue are a number of hotels and commercial office buildings that make up the Sydney Olympic Park Town Centre. This comprises a Novotel at the corner of Dawn Fraser Avenue and Olympic Boulevard and a dozen commercial office buildings occupied by a diverse range of businesses across sectors including finance and insurance, communications, government and community. Further to the south east outside of the Town Centre, across Australia Avenue, are a number of residential apartment buildings with ground floor commercial uses.

The area also encompasses the State Abattoirs Heritage Conservation Area, which comprises a collection of five buildings within a landscaped garden setting. The remnant buildings were adapted for visitor services for the Olympics and are currently used as sporting administration offices and associated facilities, managed by SOPA.

Figure 26 The Novotel as viewed from Olympic Boulevard

Figure 27 Buildings above the tree line to the east of Olympic Boulevard

2.2.4 West

The Carter Street Precinct is located to the west of Edwin Flack Avenue, and comprises 52 hectares of former industrial land that was rezoned in November 2015 to be redeveloped for up to 5,500 dwellings, a new village centre, primary school and public open space. The Precinct is bounded by Haslams Creek to the west, an existing bus parking area adjacent to Old Hill Link to the north, Edwin Flack Avenue to the north east, Birnie Avenue to the east and the M4 Motorway to the south.

Amendments to the Carter Street Precinct Master Plan were exhibited by the Department between September and October 2018 and are currently undergoing reviewed prior to the finalisation of the revised Master Plan. The amendments accommodate a new westbound off-ramp from the M4 Motorway at Hill Road, the proposed Parramatta Light Rail (Stage 2) which proposes a stop in the Carter Street Precinct, and details contained in the revised Sydney Olympic Park Master Plan 2030.

Whilst the revised Carter Street Master Plan is still being finalised, the Precinct is already in the process of being redeveloped as evidenced by construction activity and approved Development Applications for primarily residential mixed use developments within the precinct.

Figure 28 Revised Draft Master Plan for Carter Street Precinct

Source: Department of Planning, Industry and Environment

Figure 29 Ongoing construction on the western side of Edwin Flack Avenue as viewed from the public domain north of the stadium

3.0 Consultation

INSW engaged KJA to provide communication and stakeholder engagement services for the project. The consultation completed prior to the lodgement of the SSD DA is detailed in the Stakeholder Consultation Report prepared by KJA and included at **Appendix F**. It addresses all consultation activities and the key issues discussed, and feedback received.

It identifies the proactive and strategic approach to communications and stakeholder engagement undertaken for this project. In delivering this approach, the transparent and comprehensive engagement was timely, genuine and constructive, broad reaching, and engaging. Each consultation exercise was undertaken in coordination with INSW and the relevant technical experts that have contributing to developing and refining the proposed development.

The consultation program included:

- direct consultation by technical consultants with agencies identified in the SEARs;
- communication with stadium neighbours and key groups within the Sydney Olympic Park precinct;
- distributing a project flyer via a letterbox drop to more than 10,000 residents;
- notifying upcoming consultation sessions in the local print media;
- completing two (2) community drop-in events for all members of the public and stakeholders; and
- distributing information via the project website, 1800 community information line, and project email address.

A summary of the consultation undertaken to-date with stakeholders, the community and relevant agencies is provided in the Stakeholder Communications Report, and comprises the following groups:

- City of Parramatta Council;
- SOPA;
- TfNSW (including the former RMS and Sydney Coordination Office);
- Environment, Energy and Science Group (former NSW Office of Environment and Heritage);
- NSW Environment Protection Authority (EPA);
- Heritage Division of the Department of Premier and Cabinet (former Heritage Division of the Office of Environment and Heritage
- NSW Police;
- Sydney Water;
- key stadium neighbours including Qudos Bank Arena, Royal Agricultural Society of NSW, Rugby League Centre of Excellence, and operators such as TEG and AEG Ogden;
- Sydney Olympic Park Business Association;
- Quest Apartments[1];
- affected sports codes including the National Rugby League, Rugby Australia, Football Federation of Australia, and concert promoters; and
- members of the general community via two (2) drop in sessions, and ad-hoc via the project emails and phone line.

Several consultants have also undertaken additional consultation with relevant parties during the preparation of their reports.

The proposed development will be placed on public exhibition in accordance with Clause 83 of the *Environmental Planning and Assessment Regulation 2000*. During the public exhibition period Council, State agencies and the public will have an opportunity to make submissions on the project. Infrastructure NSW will continue to engage with all stakeholders and the community during the formal public exhibition period.

[1] Invitations to meet were issued to several neighbours, but only Quest Apartments elected to have a meeting prior to the lodgement of this application

4.0 Description of the development

This SSD DA seeks consent for the refurbishment and continued operation of Stadium Australia at 15 Edwin Flack Avenue, Sydney Olympic Park. The proposal is driven by the desire to provide the best possible stadium in terms of functionality and high-quality design, whilst at the same time respecting the significance of the site and the stadium's role in the history of Sydney.

The application seeks approval for the following:

- Reconfiguring the field of play to a permanent rectangular configuration.
- Redeveloping the lower and middle seating bowl to locate seating closer to the field and increase the pitch (steepness) of the seating bowl, which has the effect of reducing the capacity to approximately 70,000 seats (plus an additional 20,000 persons on the field during concerts).
- Providing 100% drip-line roof coverage to all permanent seats by replacing the northern and southern sections of the roof and extending the existing eastern and western sections of the roof.
- Demolishing portions of the northern and southern facades and providing new public stadium entrances at these ends of the stadium, including a new stadium facade and double-height concourse.
- Renewing the food and beverage concessions, bathrooms, team facilities including new gender neutral changerooms, members and corporate facilities, press and broadcast facilities, and back of house areas across the tiers of the stadium.
- Providing two (2) new naming rights signs, one each on the new northern and southern facades.
- Formalising bicycle parking for permanent staff within the basement, providing for ten (10) new parking spaces.
- Augmenting and extended utilities and services.
- Establishing a temporary construction compound, which will be removed at the conclusion of works on the site, and which includes removing four (4) existing trees to facilitate temporary construction vehicle access to the site. Replacement trees will be provided at an external location as directed by SOPA.
- Retaining all other areas of the stadium and the public domain areas surrounding the stadium which deliver a range of publicly accessible, event and operational areas.
- Ongoing use and operation of the stadium for sporting and other events.

The proposed Architectural Plans and Design Statement prepared by COX Architecture (**Appendix B**) provide greater details on the design response, which are discussed further below.

4.1 Numerical overview

The key numeric development information is summarised in **Table 4**.

Table 4 Numerical overview

Component	Proposal
Capacity	Approximately 70,000 seats (plus an additional 20,000 standing during concert-mode), comprising: • Approximately general admission seating 45,203 seats • Approximately corporate boxes and suites 8,910 seats • Approximately members seating 16,000 seats (noting there will be no change to the existing life-time members) • Approximately 67 media seats
Height	• No change to the maximum height of the stadium, which is set by the eastern and western wings. • The northern and southern wings will increase to a maximum RL 142.1m
Trees removed	4 trees removed
Vehicle parking	No change
Bicycle parking and end of trip facilities	10 parking spaces, and access to 1,500 lockers and 10-12 showers and changerooms

Component	Proposal
Loading and servicing	No change

4.2 Land use – 'Recreation Facility (Major)' and ancillary uses

This application seeks consent for the refurbishment of the existing Stadium Australia, bringing new life to this significant piece of sporting infrastructure. Both the existing stadium and renewed stadium are defined as a 'recreation facility (major)', and as such no change of use is proposed or required.

It is also noted that Stadium Australia is not restricted in terms of the nature, frequency or duration of events. The consent granted in 1996 for the construction and operation of the stadium did not nominate an event cap and confirmed that the hours of operation for the stadium would be unrestricted. The operation is to be governed by an Event Management Statement nominating measures for each category of events, including those events that continue after 10pm. This is commensurate with the historic and current significant role of this infrastructure in attracting and hosting events, and the sites location within a long-standing sporting and entertainment precinct.

In light of this, it is not proposed to constrain the ability of the stadium to continue to host events by imposing any further restrictions on its operational profile in terms of the number of events, attendance capacity, or operational hours. The revised contemporary operational framework for the stadium through the Event Management Statement will ensure the ultimate operation of the stadium does not give rise to any new or otherwise significant environmental impacts (discussed further in the sections following).

It is proposed that the type of events hosted at the new stadium would include, but would not be limited to, the following:

- Rugby League matches, including finals series, Grand Final, State of Origin and internationals
- Rugby Union international matches
- Football international matches including FIFA World Cup finals qualifications
- Major international Rugby League, Rugby Union, or football (soccer) tournaments
- Domestic sporting fixtures including final series
- Showcase international sporting fixtures such as American Football
- Concerts
- Motor Sports including Monster Jam
- Cultural events

Any and all events are capable of attracting the maximum occupancy crowd (approximately 70,000 seats and an additional 20,000 standing for concerts). Whilst most events will typically not reach the maximum capacity, as outlined above, it is essential that the refurbished stadium continues to be able to accommodate a maximum capacity crowd to realise the full potential of the site for NSW, and to enable return on investment.

Event management, protocols and procedures

Infrastructure NSW has prepared an Event Management Statement (**Appendix G**) which sets out the operational management principles involved in the operation of the stadium. The Event Management Statement addresses each of the issues raised in the SEARs and sets out an approach for key areas of operations including the types and forms of events and capacity. The Event Management Statement will inform a future detailed Event Management Plan prior to the commencement of operations on the site.

Nature of events

No change is proposed to the current typology of events hosted by the stadium which include sports events, concerts, and other entertainment events. These 'other events' are defined as those not involving sports matches or concerts as the focus of entertainment, such as motorsports and cultural events. In this instance, the parameters for this category of event are the same as other events including the noise criteria, operating hours, and security and management procedures. These 'other events' ensure the stadium is responsive to the changing nature of sports and entertainment in the Australian and international markets, contributing to the future-proofing of Stadium Australia.

Number of events and operational hours

No change is proposed to the operational parameters of the refurbished stadium in relation to hours of operation or the events that may be hosted, recognising that setting a limit on the types or numbers of events that may be hosted at the refurbished stadium would be contrary to objectives for the stadium to attract and host events ensuring its ongoing viability for the people of NSW.

The overall frequency and breakdown of events would vary on a season-to-season and year-to-year basis depending on a range of factors including scheduling of international fixtures, qualification of Sydney and NSW-based teams for finals or international tournaments, potential hosting rights of major regional or international tournaments, touring entertainment, and the growth of emerging sports. Accordingly, whilst the overall event profile of the proposed stadium would be expected to be relatively similar to the existing stadium, it is essential that the stadium remain capable of continuing to host a range of events, including those that are infrequent but contribute to the ongoing viability and legacy of Stadium Australia as a major sporting and event destination.

Non-event periods

No change is proposed to the existing public domain surrounding the site, as discussed in **Section 4.3.2** below, which includes existing event overlay spaces. Accordingly, the public domain surrounding the stadium will continue to be accessible to the general public outside of events.

4.3 Stadium design

A description of the detailed design of the stadium is discussed below, and the intended operation and use of the stadium is discussed above. The Architectural Plans provided by COX Architecture detail the proposed works and accompany the EIS at **Appendix B**. Illustrations of the refurbished stadium are included at **Figure 30** to **Figure 33**.

The proposed works will sensitively modify the existing stadium to deliver a new high-quality user and fan experience that contributes to the significance of Stadium Australia as the largest rectangular sporting field in Australia and the largest Tier 1 stadium in NSW. The stadium has seven (7) levels of facilities and 3 tiers of seating, providing capacity for approximately 70,000 patrons. Seating is to be configured closer to the new rectangular playing pitch, with new roof additions providing for 100% drip-line roof coverage to all seats, and an expanded double-height 360º pedestrian concourse connecting the new north and south stadium entrances around the field of play. A range of seating types will continue to be provided including general admission, members seating and corporate seating, and wheelchair accessible seats to ensure that the stadium meets the requirements of current and future patrons. In concert mode, an additional 20,000 patrons may stand on the playing field.

Incidental works not requiring consent

It is noted that there are a range of improvements being undertaken by as part of the renewal of the stadium for which consent is not required (such as repainting, replacement of existing fittings and fixtures etc.). Accordingly, the Design Report at **Appendix B** discusses the proposed refurbishment works as part of a larger package of works, for completeness and to provide greater context to the overall vision for the stadium. The Architectural Plans identify only those works for which consent is required and sought as part of this application, noting that any works not indicated on the plans will be pursued separately. Those works that form part of this application are described in **Table 5** below.

Figure 30 Aerial of the refurbished Stadium Australia in its context

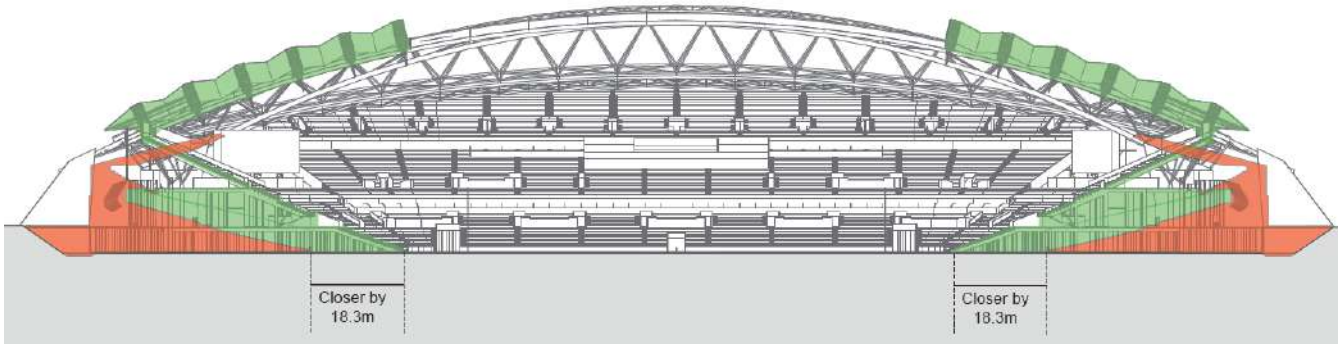
Source: COX Architecture

Figure 31 The stadium seating bowl

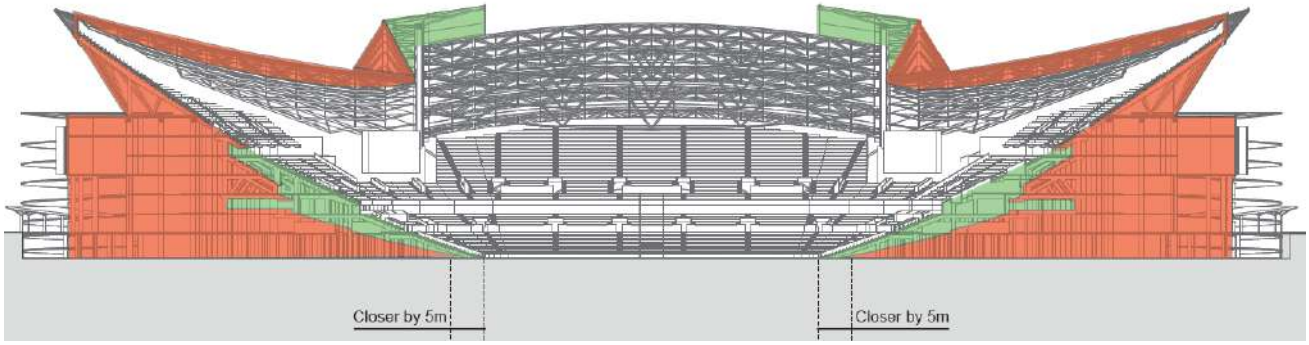
Source: COX Architecture

Figure 32 New stadium entrance

Source: COX Architecture



East/West elevation



North/South elevation

Figure 33 Sections of the stadium demarcating the extent of existing and proposed areas

Source: COX Architecture

Table 5 Design description of the proposed stadium

Playing pitch:

- No change is proposed to the location and centreline of the pitch.
- Wider changes to the stadium seating bowl discussed below will permanently reconfigure the pitch into a rectangular playing field, laid out to meet national and international standards for each of the major rectangular-pitch sporting codes to ensure that the stadium remains capable of hosting the full ambit of national, regional and international sporting events.

Figure 34 Permanent rectangular pitch
Source: COX Architecture

Basement (Level 00):

Internal changes to the basement to revitalise the back-of-house and functional spaces including:

- new players tunnel connecting the facilities for players, performers and VIP with the field of play, which may also be used for concert patrons;
- formalised bicycle parking area;
- refurbished gender-neutral players facilities;
- refurbished locker areas; and
- new storage areas and utilities.

The existing 360º basement ring road, including parking and loading facilities, and all other back-of-house areas will be retained.

Figure 35 Basement level (Level 00) of the stadium
Source: COX Architecture

Level 1:

- Demolish the lower seating bowl and reconfigure the bowl to a permanent rectangular configuration.
- Move the eastern and western stands 18.3m closer to the field of play, and the northern and southern stands 5m closer to the field of play.
- Increase the steepness of the lower seating bowl to improve sightlines.
- Extend the public concourse areas outside the northern and southern stands (within the existing stadium footprint), facilitated by the removal of the retractable lower seating tier.
- Views of the field will be possible from these new concourse areas, and new food and beverage kiosks will be provided to create an improved food court. The existing 360º circulation and double-height void space will be retained, and enhanced.
- Provide new pedestrian bridges for access between the concourse and the lower eastern and western seating stands.
- Refurbish functional spaces including bathrooms and amenities, food and beverage offerings and kitchens.

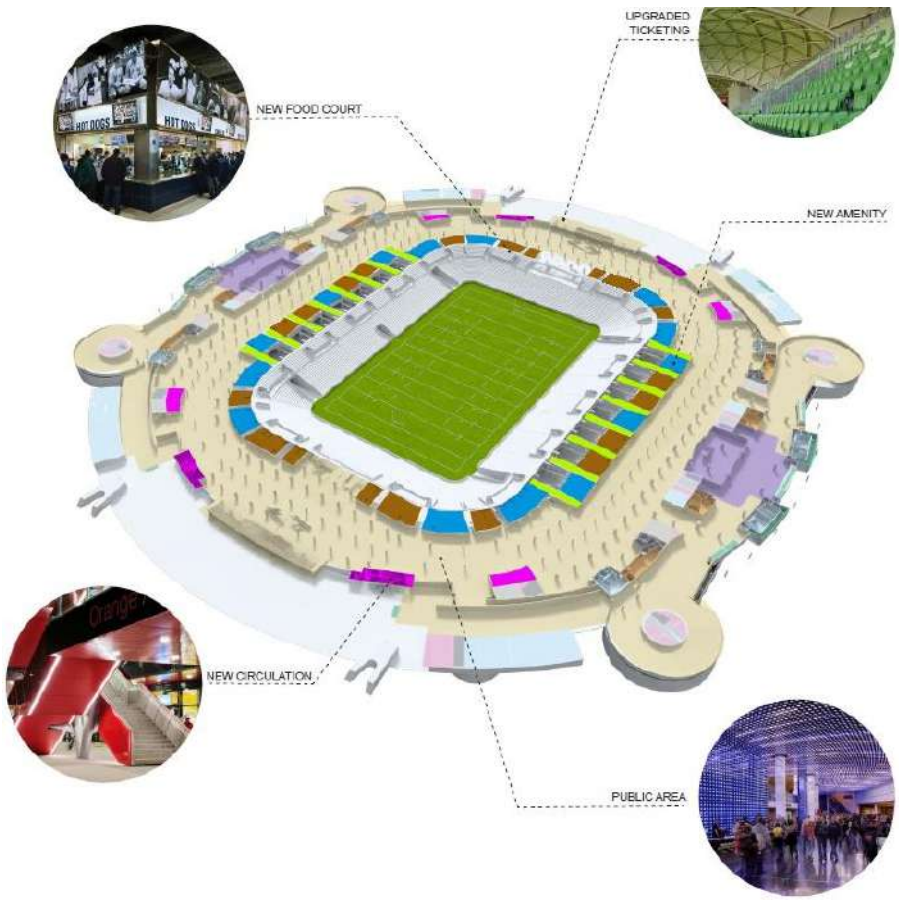


Figure 36 Level 1, concourse level of the stadium
Source: COX Architecture

Level 2:

- Provide new corporate suites in the eastern and western stands, with a veranda space for enhanced informal viewing.
- Provide new pedestrian bridges for access between the Level 2 corporate lounges to the new boxes.
- Refurbish functional spaces including new bathrooms and amenities, and kitchens.

Figure 37 Level 2, mezzanine level above the main concourse of the stadium
Source: COX Architecture

Level 3:

- Provide new open corporate reserve seating in the eastern and western stands,
- New general admission seating and concourse in the northern and southern stands.
- Refurbish functional spaces including new bathrooms and amenities, and kitchens.

Figure 38 Level 3 of the stadium
Source: COX Architecture

Level 4:

- Refurbish functional spaces including new bathrooms and amenities, and kitchens.

Figure 39 Level 4 of the stadium
Source: COX Architecture

Level 5:

- Install new general admission seating for the middle seating bowl across all stands.
- Provide new media facilities in the western stand with capacity for multiple broadcasters, including a camera platform.
- Provide new corporate suites in the eastern and western stands.
- Refurbish functional spaces including new bathrooms and amenities, and kitchens.

Figure 40 Level 5 of the stadium
Source: COX Architecture

Level 6 and Level 7

No modification is proposed Level 6 or 7 of the stadium. These levels accommodate the upper seating bowl and pedestrian concourse areas including bars and amenities. They already benefit from excellent protection from rain and wind, and seats have access to amenities and views of the pitch.

Figure 41 Level 6 of the stadium
Source: COX Architecture

Eastern and western facades:

Retain the existing eastern and western facades of the stadium, including the entrances, artwork, existing signage zones and all other features.

Figure 42 Existing western facade of the stadium
Source: COX Architecture

Northern and southern facades:

Demolish a portion of the existing northern and southern facades and provide two (2) new stadium entrances where previously there were inactive blank walls and building plant. This comprises:

- A permeable screen of aluminium fins, allowing light and views into the stadium from the public domain when approaching these new entrances.
- Planter boxes on Level 3, at the back of the seating stands, installed behind the permeable screens to contribute to the visual interest of these facades and the overall street presence of the stadium.
- New signage zones on each facade, discussed further in **Section 4.3.3** below.
- 'Media mesh' in ribbons in a panel on the facade enable the stadium to be tailored to individual events (discussed further in **Section 4.3.4** below).

Existing facade

Proposed facade

Figure 43 Changes to the eastern and western facades of the stadium
Source: COX Architecture

Roof:

- Demolish the existing northern and southern ends of the roof with the seating bowl and facade line, whilst retaining the existing eastern and western ends of the roof.
- Install a new roof with 100% coverage for permanent seating, to the drip-line. The roof is supported by a new arched truss structure and is finished with Polytetrafluoroethylene fabric (PTFE) called 'Tenara'.
- Install photovoltaic cells on top of the existing external circulation ramps at the four corners of the stadium.

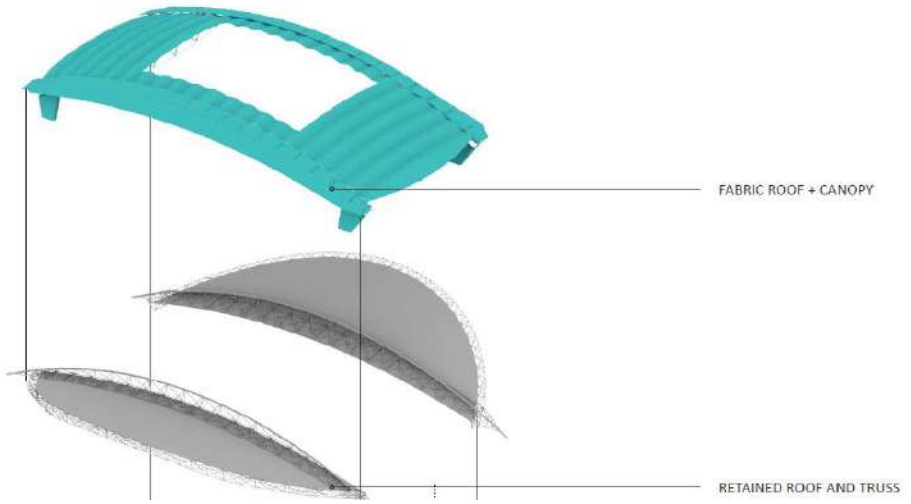


Figure 44 Changes to the roof of the stadium
Source: COX Architecture

4.3.1 Materiality and finishes

The alterations and additions have been designed to integrate with the detailing of the existing stadium, creating a seamless but contemporary response. This comprises simple and light-weight materials and finishes, with vibrancy added to the design through elements such as the proposed planter boxes and media mesh.

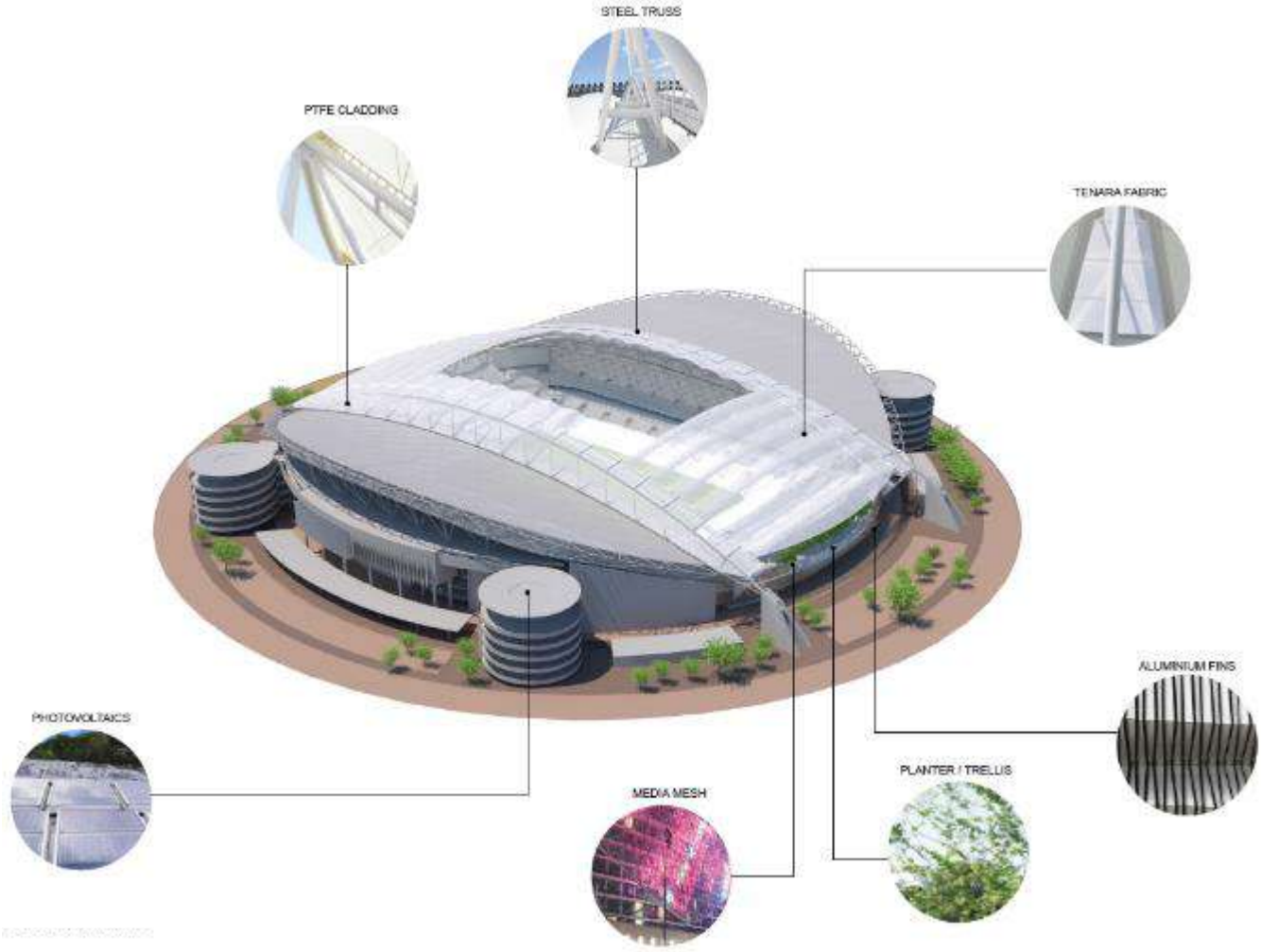


Figure 45 Materials and finishes of the stadium

Source: COX Architecture

4.3.2 Public domain

No changes are proposed to the existing public domain surrounding the stadium, which offers extensive circulation space for safe and efficient access and egress to the stadium, as well as spaces for event overlays and amenity through existing planting, seating and public art. Part of the public domain will be temporarily used for construction compound and reinstated prior to commencement of stadium operation (refer **Section 4.10**). The new entrances on the northern and southern wings of the stadium will be designed to interface with the existing levels and finishes of the public domain, or as directed by SOPA in the event of changes as part of ongoing with precinct planning.

4.3.3 Signage

The existing stadium provides two (2) signage zones on the eastern and western facades, one on each facade, incorporating the naming rights for the stadium (building identification signage). The new northern and southern facades will accommodate an additional two (2) secondary signage zones that are 12m high and 14m deep. Details of the exact content, materiality, and illumination of signs within these existing and proposed zones will be the subject of further detailed design when the naming of the stadium is known. It is proposed that the detailed signage design would be submitted to the Secretary prior to the issue of the relevant Construction Certificate, with the detail provided regarding the zones being sufficient for the planning assessment phase.

No change is proposed to existing public domain signage, including wayfinding signage, given the location and extent of the stadium remains unchanged, as does external public domain areas surrounding Stadium Australia.

Existing eastern/western signage zones

Proposed northern/southern signage zones

Figure 46 Existing and proposed signage zones for the future naming of the stadium

Source: COX Architecture

4.3.4 Lighting

The stadium will include new roof-integrated sports field lighting within the new proposed roof structure. This new lighting will meet the contemporary requirements for a stadium and television broadcasting and comprises LED spotlights mounted on the roof perimeter and under the roof fabric orientated downwards to illuminate the pitch. New feature lighting will also illuminate the roof canopy at night, and will subtly change the external colour of the PTFE fabric to match the event being hosted at the stadium (i.e. blue for State of Origin games).

Figure 47 Photomontage showing the proposed feature lighting response

Source: COX Architecture

4.4 Parking, access and movement

No significant new or upgraded infrastructure is required to operate the stadium, which benefits from access to existing public transport networks, roads and vehicle parking, significant external pedestrian circulation and event overlay spaces, and loading and servicing spaces in the basement including an internal 360° ring road. The proposed refurbishment will result in a reduction in patron capacity, meaning that the stadium will operate within the capacity of existing infrastructure conditions. Some improvements are proposed to bicycle parking and pedestrian access to enhance the overall operation of the new stadium and benefit sustainability outcomes.

Vehicle access and parking

No change is proposed to the existing on-site or precinct vehicle parking and access arrangements. As discussed in **Section 2.1.2**, the existing stadium basement accommodates 153 parking spaces for players, officials, accredited staff and VIPs that are accessed from an existing driveway off Edwin Flack Avenue. No additional parking is proposed to be provided in the secure stadium basement, and no change is required or proposed to the existing access driveway.

General patrons of the stadium will continue to utilise external parking stations within Sydney Olympic Park that provide in the order of 9,500 parking spaces and operate in addition to on-street parking, which include accessible parking spaces. These existing vehicle parking stations will continue to service the refurbished stadium. Likewise, no change is proposed to the existing arrangements for private cars picking-up and dropping-off patrons via the designated no-parking area on Edwin Flack Avenue and in the P6 carpark.

Loading and servicing

No change is proposed to the existing basement loading and servicing spaces, or the existing basement ring road and driveway that support the operation of the existing stadium. As discussed in **Section 2.1.2**, the existing stadium basement accommodates 15 dedicated parking bays for loading and servicing vehicles with a clearance height of 4.5m. These vehicles access and leave the site via the existing driveway off Edwin Flack Avenue and the internal 360° ring road in the basement that enables all vehicles to enter and exit the site in a forward direction.

Taxis, ride-share, hire cars

No change is proposed to the existing operations of taxis and ride-share services (point-to-point transport) or hire cars. As discussed in **Section 2.1.2**, there are existing taxi ranks on Herb Elliot Avenue and Showground Road outside of the Novotel to the east of the site. During major events, ride-share services (such as Uber, Ola, Lyft) as well as pre-booked taxis and hire cars are directed to a dedicated area within the P6 carpark. Hire cars may utilise on-street parking areas on Dawn Fraser Avenue.

Coaches

No change is proposed to existing coach parking and access arrangements when travelling to and from the site. Two pods of coach parking and set-down areas are provided directly opposite the stadium on Edwin Flack Avenue, with capacity to accommodate 130 coaches at any one time. Coach parking for players, officials, and VIPs is also provided within the stadium basement.

Bicycle access and parking

The site benefits from an extensive bicycle network within Sydney Olympic Park which is well-connected outside of the precinct. Bicycle parking is provided for the general public in the public domain within Sydney Olympic Park, providing 153 parking spaces for use at any time.

Bicycle parking for staff is currently informally provided in a storage area within the stadium basement. It is proposed to formalise on-site bicycle parking for use by staff through bicycle racks in the statement, with staff able to access the approximately 1,000 staff lockers and 10-12 showers and changerooms within the basement (Level 00).

Pedestrian access

The public domain area surrounding the site was designed to accommodate significant crowds and event overlays associated with the Sydney 2000 Olympic and Paralympic Games, and has since been subject to a number of upgrades including additional planting, seating and public art. No change is proposed to this external pedestrian concourse, including the protected 20m wide pedestrian circulation area surrounding the stadium and the forecourts between the stadium and Olympic Boulevard and Dawn Fraser Avenue.

Notwithstanding this, the proposed works to the northern and southern wings of the stadium offer improved pedestrian access to the stadium. The creation of new stadium entrances on these facades maximises access and egress for stadium patrons. These entrances are at-grade and designed to comply with the relevant Australian building regulations and codes and the recommendations of the Sports Ground Safety Authority's *Safety in Design of Sports Grounds* publication.

4.5 Sustainability

The proposed refurbishment works represent an opportunity to improve the environmental performance of the stadium. The refurbishment is targeted to achieve a 5 Star Green Star rating (Design & As Built v1.3), as well as ensuring general improvements where possible for energy and water consumption, transportation, and material selection and emissions as outlined in the Environmentally Sustainable Design Strategy prepared by Aurecon (**Appendix H**).

Sustainability initiatives pursed in the development include, but are not limited to, the following:

- energy efficiency opportunities such as using LED light fittings, installing intelligent electricity control and monitoring systems to control energy usage when the stadium is not being used for an event, selecting new heating, ventilation and air conditioning systems in accordance with Section J requirements, designing the new facade to maximise thermal performance and minimise air leakage;
- renewable energy opportunities through installing PVC cells on the roof of the external circulation ramps;
- water efficiency objectives such as collecting rainwater for reuse, connecting to the SOPA Water Reclamation and Reuse System, using water efficient fittings and fixtures, replacing the existing water cooling towers with more efficient cooling towers as required, installing monitoring and metering for new water systems to manage water consumption during operations;

- sustainable and active transport opportunities through implementing travel demand strategies such as those addressed in **Section 6.4.1** of this assessment; and
- future-proofing opportunities such as allowing for large battery arrays to be installed in the future to manage peak electricity demand.

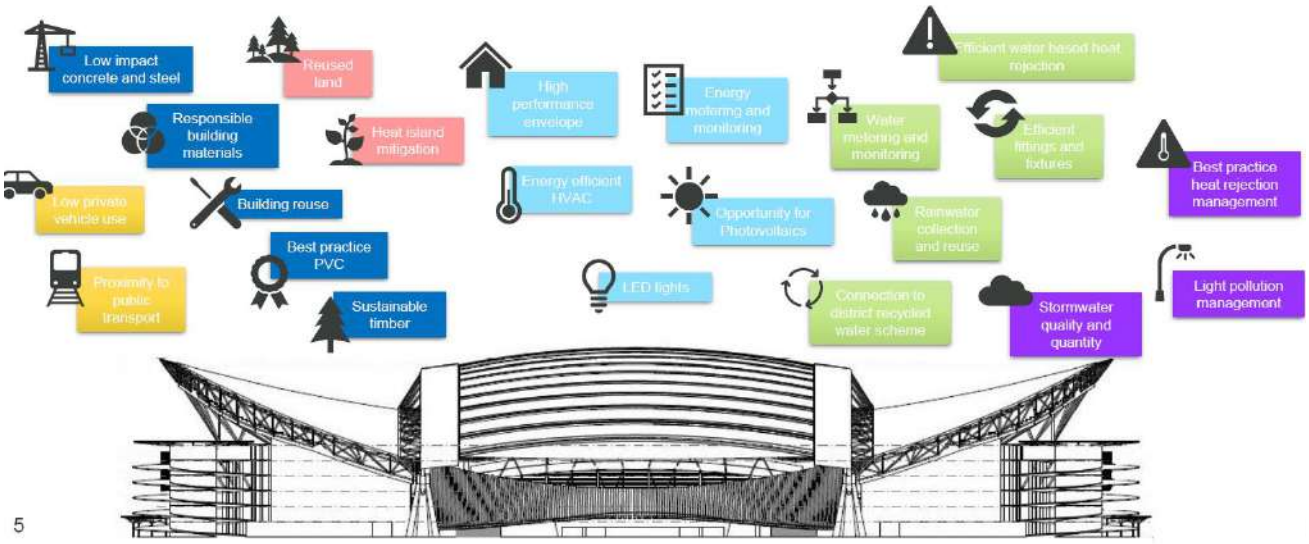


Figure 48 Sustainability initiatives

Source: Aurecon

4.6 Tree removal

The proposed development will necessitate the removal of 4 trees located within, and immediately adjacent to, the road reserve of Edwin Flack Avenue to the south west of the stadium (refer to **Figure 49**). Their removal is required to accommodate access from Edwin Flack Avenue for construction vehicles.

These trees are identified as being Eucalyptus microcorys (Tallowwood) and Corymbia maculata (Spotted Gum) and are early-mature street trees with fair health, and some signs of poor structure condition. The trees will be replaced with advanced-sized specimens off-site as determined by and in consultation with SOPA who has requested this arrangement.

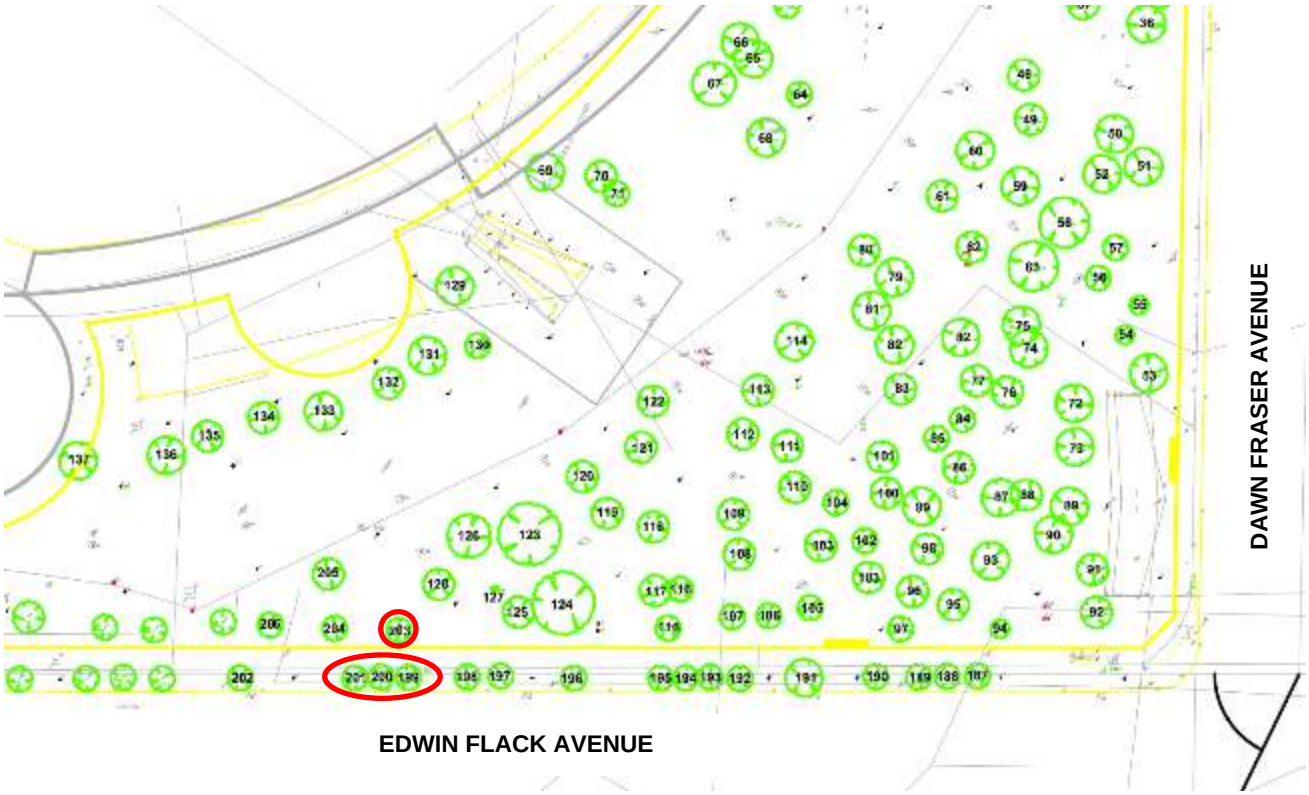


Figure 49 Trees 199-201 and Tree 203 proposed to be removed

Source: Tree IQ

4.7 Operational waste management

The existing stadium has operational waste management infrastructure including central waste storage areas, waste compactors, waste chutes, and waste receptacles. The stadium also has operational procedures in place to manage waste including a waste contractor responsible for the manual handling and collecting of waste, consolidation of waste, and the sorting and transportation of waste during both events and non-event days. No change is proposed to the existing waste management facilities, which adequately service the existing stadium, rather, the proposed development will utilise a renewed Waste Management Strategy as described at **Appendix I**.

4.8 Infrastructure and services

As part of the refurbishment of Stadium Australia, it is proposed to augment/modify existing electrical, stormwater, communications and fire services infrastructure. This will be subject to further discussions and approval from the relevant asset owners and authorities. The Building Services Report prepared by Aurecon (**Appendix E**) identifies the following works as being required at this preliminary stage:

- **Communications**: The proposal will investigate the relocation of the existing satellite uplink, radio systems and mobile base stations for the stadium. This will be subject to future discussions with the relevant authorities.
- **Electricity**: The maximum demand for the proposed redevelopment is estimated to be between 7.5MVA and 7.8MVA, which equates to a demand increase of 1.75MVA to 2.05MVA. This additional capacity can be achieved by installing a third 1.5MVA transformer in existing substations (S4800 and S4801). As each substation is already provisioned to accommodate an additional transformer, it is not expected that the works would necessitate an upgrade of the incoming 11kV feeders.

4.9 Water management

No change is proposed to the existing rainwater collection, potable and non-potable water connections, or water quality treatment measures for the stadium. Through the redevelopment of the northern and southern wings of the stadium, it is proposed to remove the drainage system under these stands and augment the inground stormwater pipework in lieu of providing dedicated on-site detention, as detailed in **Figure 50** below.

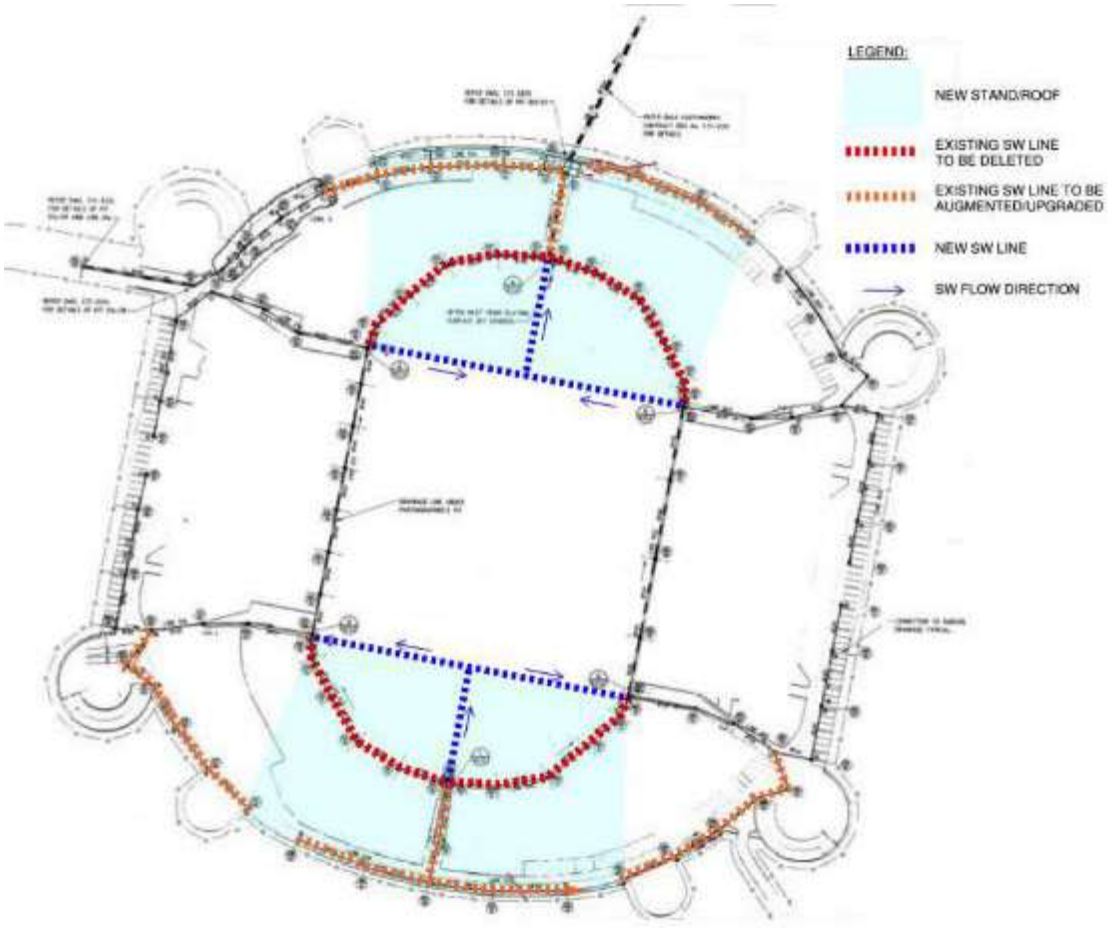


Figure 50 Proposed drainage layout

Source: Aurecon

4.10 Construction management

A preliminary Construction Management Plan has been prepared by Aver (**Appendix J**) which outlines the overarching principles and practices for the management of construction activities on the site, and will be used to inform the preparation of a detailed Construction Environmental Management Plan which would be required to be prepared by the appointed contractor prior to the commencement of works and adhered to for the duration of construction.

Hours of work

All work on site will only occur between the following hours:

- 7am and 6pm Monday to Friday
- 8am and 1pm Saturday
- No works on Sundays or public holidays
- Unless otherwise approved in writing by the NSW Department of Planning and Environment due to extenuating circumstances (e.g. erecting and dismantling tower cranes, services connections and other works that would unduly interfere with the surrounding area or road network during normal daytime hours and should therefore be completed out of hours).

Site establishment

A construction compound surrounding the stadium will be secured prior to the commencement of works on the site. This compound, as illustrated in **Figure 51** below, is contained wholly within the public domain surrounding the site and does not require closing or impacting the existing road network and footpaths, or removing significant site

features such as the public artwork 'Games Memories'. Temporary site fencing will be retained during the construction process to control access and protect pedestrians. Other site establishment works comprise:

- temporary site fencing to secure areas;
- on-site storage, compounds, site office etc. (generally located in existing stadium basement);
- connection to temporary services;
- site amenities (generally located in existing stadium basement);
- sediment and erosion control measures;
- identification and marking of trees to be retained and those to be removed;
- protection measures for those trees that are to be retained; and
- installing statutory, contact and project information signage.

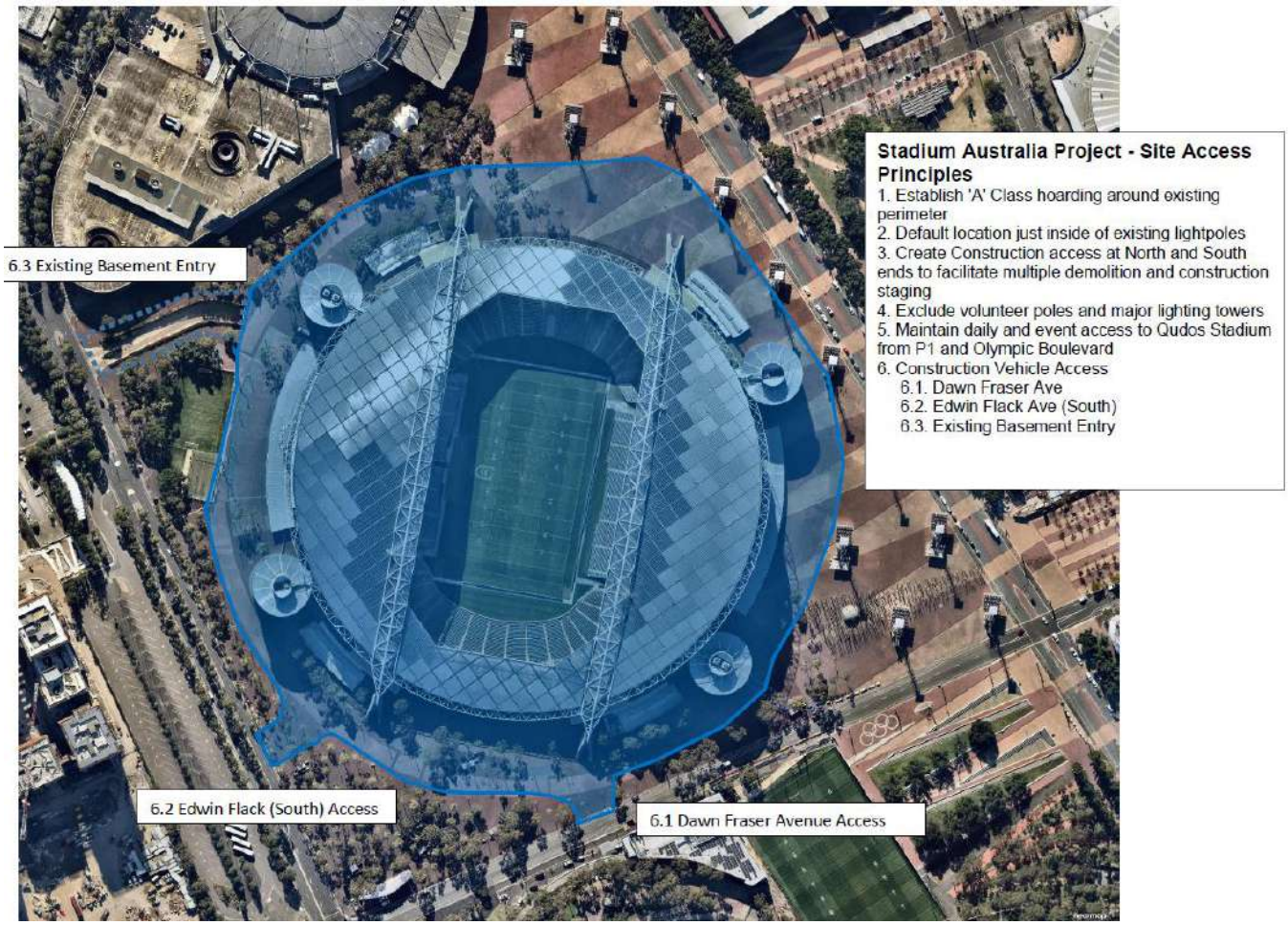


Figure 51 Proposed temporary construction compound

Source: Aver

Waste management

Waste processing activities will be undertaken within the construction compound, including separation of waste streams, storage and processing to enable re-use of materials on-site, or recycling and disposing of materials where this is not possible in the construction phase. The contractor will supply transportation dockets, disposal points and other relevant documentation which verifies the type, quantity and disposal location of all materials removed from site.

The following are the identified waste streams, quantities and disposal methods identified for the proposed development.

Table 6 Demolition and construction waste

MATERIALS ON-SITE		DESTINATION		
		Re-Use and Recycling		Disposal
Type of Materials	*Estimated Approximate Quantity*	*ON-SITE Specify proposed Re-Use or On-Site Recycling*	*OFF-SITE Specify Contractor and Recycling Outlet*	*Specify Contractor and Landfill Site*
Structural & Reinforcement Steel	5,000 tonnes (t)		Transported off site for recycling by licensed contractor.	Unlikely to be any Steel materials not recycled
Concrete	3,000 t	To be collected on site in internal tip trucks. Concrete to be crushed on site and re-used where possible.	Un-used concrete to be transported off site for sale/recycling by licensed contractor.	Minimal unrecyclable material to be sold/disposed of by licensed waste contractor.
Asphalt	20 t		Transported off site for recycling by licensed contractor.	Minimal unrecyclable material to be disposed of by licensed waste contractor.
Glass	50 t		Transported off site for recycling by licensed contractor.	Unrecyclable material to be disposed of by licensed waste contractor.
Plastics (including stadium seats)	60 t		Transported off site for recycling by licensed contractor.	Unrecyclable material to be disposed of by licensed waste contractor.
Cabling	30 t		Transported off site for recycling by licensed contractor.	Unrecyclable material to be disposed of by licensed waste contractor.
Fluorescent Light Tubes	1 t		Transported off site for recycling by licensed contractor.	Unrecyclable material to be disposed of by licensed waste contractor.
General Municipal Waste – Food waste/residual	4 t		Transported off site for recycling by licensed contractor.	Unrecyclable material to be disposed of by licensed waste contractor.
Sewerage effluent	TBC	To be connected to existing sewerage infrastructure.		
Asbestos	0	No re-use to occur on site		Disposal to occur by licensed waste contractor.
Fitout Strip Out (including plasterboard, ceilings, services and joinery)	150 t		Transported off site for recycling by licensed contractor.	Unrecyclable material to be disposed of by licensed waste contractor.
Green Waste	1 t		Transported off site for recycling by licensed contractor.	

Source: Aver

Air quality controls

Whilst odour problems are not associated with this type of work and are expected to be negligible/minimal, dust emissions are expected to occur as a result of the proposed construction works. Mitigation measures will be implemented to avoid dust generation, including both on-site practices such as enacting dust suppression measures when there are high winds (>30 km/h). Physical measures will also be employed such as erecting screens and barriers around dusty activities. No concrete crushing will occur on site.

Works zones and road closures

All construction vehicles will be unloading within the site, with no loading or unloading to occur on the street, and likewise all materials handling will occur within the proposed construction compound. As such no on-street work zones or road closures are proposed or required to facilitate the proposed construction works.

Crane locations

Mobile cranes will be located at the northern and southern extents of the construction compound. Additional tower cranes may be used depending on the demolition and construction sequencing and if it is required to carry out such works in parallel for certain areas. All cranes will be located within the boundary of the temporary construction compound.

Vehicle access and parking

Construction vehicles will access the site via three access points, comprising the existing basement carpark and loading dock entry and two temporary vehicle crossovers in the south west corner of the site from Dawn Fraser Avenue and Edwin Flack Avenue. Left in/out turns will only be permitted from the entries on Edwin Flack Avenue. Vehicular access/egress gates will be installed at the new access points off Edwin Flack Avenue and Dawn Fraser Avenue, which will be manned by qualified traffic supervisors at the times of major vehicular access and egress to the site to manage any potential conflicts.

Construction vehicles accessing the site will utilise the Station and Regional road network including the M4 Motorway, Parramatta Road, and Homebush Bay Drive, with access occurring via Hill Road and egress via Uhrig Road, Carter Street and Hill Road, or Edwin Flack Avenue, Sarah Durack Avenue and Australia Avenue if accessing Homebush Bay Drive (refer to **Figure 52** and **Figure 53** below).

Olympic Boulevard will not be used at any time, including by construction vehicles entering or exiting the site.

No on-site parking is proposed for construction staff, with workers instead directed to utilise the existing carparking stations in proximity of the site, or the extensive public transport options. The P1 carpark has capacity for 3,200 vehicles, which is considered more than sufficient for the expected workforce, and is located immediately north of the stadium within immediate walking distance of the site.

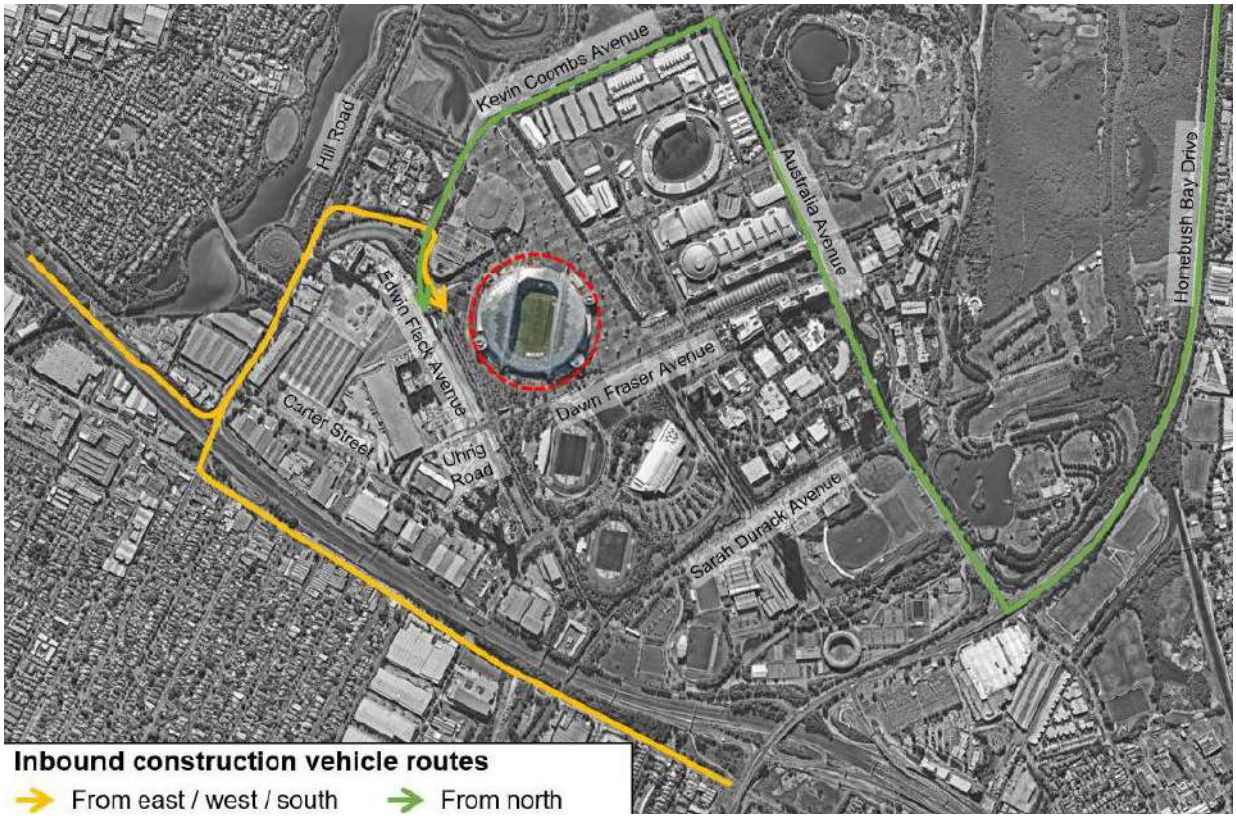


Figure 52 Inbound construction vehicle routes

Source: JMT Consulting

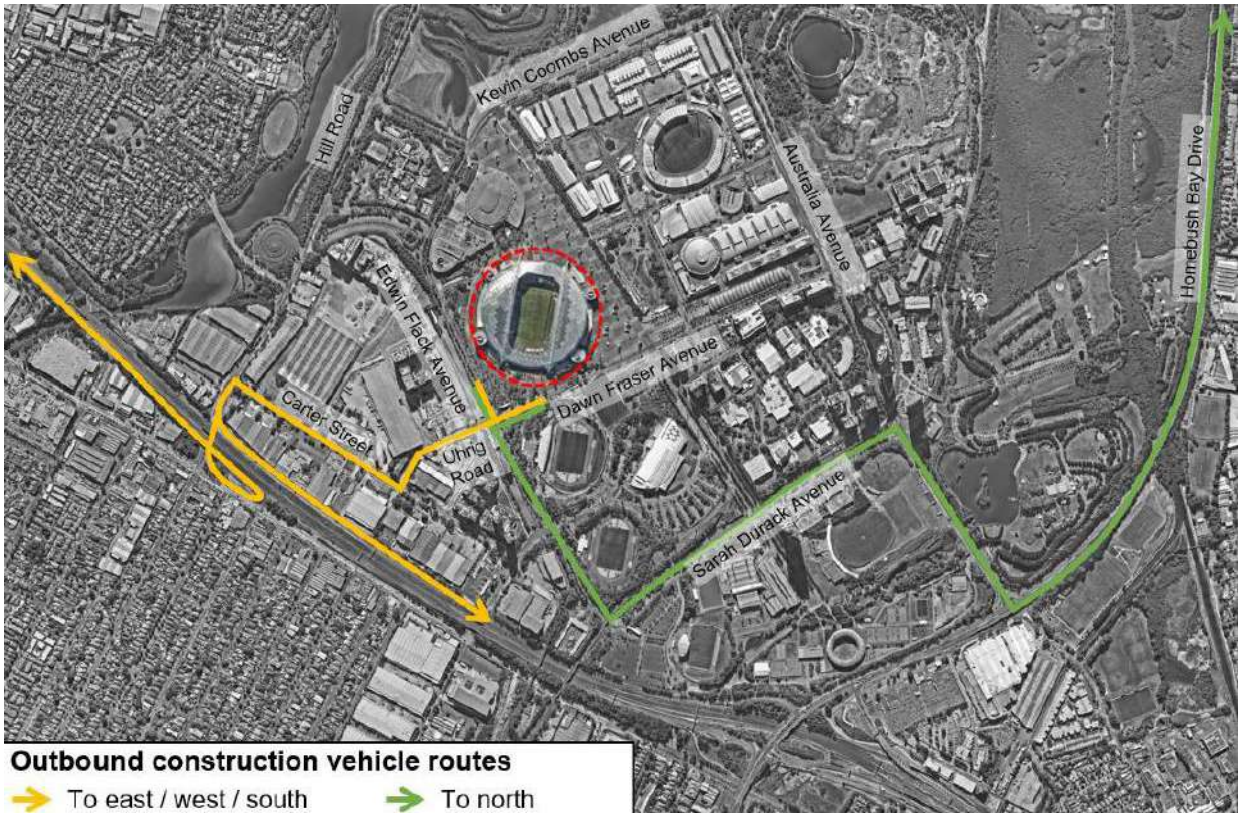


Figure 53 Outbound construction vehicle routes

Source: JMT Consulting

Stakeholder consultation

The appointed contractor will be required to establish a communication protocol for coordinating works with external stakeholders and the community as part of the detailed Construction Environmental Management Plan. As Sydney Olympic Park is an event destination, close consultation will also occur with neighbouring venues throughout the construction phase to manage ongoing events within the precinct, such as the Easter Show. This includes appointing a communications manager responsible for all external communication and consultation, including:

- managing and actioning complaints in relation to the works;
- providing regular project updates to surrounding stakeholders; and
- ensuring all workers on site are aware of their responsibilities in relation to project communications.

Constructing staging

The proposed refurbishment and renewal works are expected to commence in June 2020 and will be completed by early 2023 in time for the commencement of the NRL season.

Table 7 Construction staging and timing

Stage	Duration	Indicative timing
Procurement and Establishment	30 days	July 2020
Demolition of areas	240 days	February 2021
Refurbishment	720 days	February 2023
Commencement of operations	-	March 2023

4.11 Design excellence and integrity process

A design excellence process is nominated and has commenced for the design development of the proposed refurbishment works, to ensure the development exhibits design excellence and respects the architectural integrity of the existing stadium. This process is in accordance with the *Sydney Olympic Park Authority Design Excellence Policy*, and comprises:

- Assessing the proposed changes in relation to the scale, form, materials and detailing of the existing stadium, and against the objectives of *Better Placed: An integrated design policy for the built environment of NSW* (Better Placed).
- Engaging with the Sydney Olympic Park Authority Design Review Panel prior to the lodgement of the SSD DA to review the proposed works and provide feedback as necessary.
- Amending the design in accordance with any conditions of consent, and reassessing these design changes in accordance with Better Placed.
- Engaging with the Design Review Panel post-approval through regular and iterative meetings on how the final design has been translated into the construction phase to safeguard the integrity of the proposal. This will occur prior to the construction of the stadium.

No architectural design competition is required or proposed for the refurbishment works.

5.0 Environmental Assessment

This section of the report assesses and responds to the environmental impacts of the proposed DA. It addresses the matters for consideration set out in the SEARs (see **Section 1.6**). The Mitigation Measures at **Section 7.0** complement the findings of this section.

5.1 Secretary's Environmental Requirements

Table 1 in **Section 1.6** provides a summary of the individual matters listed in the SEARs and identifies where each of these requirements has been addressed in this EIS and the accompanying technical studies.

5.2 Environmental Planning and Assessment Act 1979 & Regulation 2000

The EP&A Act establishes a specific assessment system to consider projects classed as State Significant Development (SSD). SSD is development deemed to be of State significance, and includes for example projects of a certain value that are being completed on sites regarded as important to the NSW Government, such as Sydney Olympic Park, or for a particular purpose such as major sporting facilities. As noted, the proposed development that is the subject of this DA is categorised as SSD.

This EIS has examined and taken into account all possible matters affecting or that are likely to affect the environment by reason of the proposed development. **Table 8** provides an assessment of the proposed development against the objects of the EP&A Act.

The proposed development is consistent with Division 4.1 of the EP&A Act, particularly for the following reasons:

- the development has been declared to have state significance;
- the development is not prohibited by an environmental planning instrument; and
- the development has been evaluated and assessed against the relevant heads of consideration under Section 4.15(1).

In addition to the above, the EIS has addressed the criteria within Clause 6 and Clause 7 of Schedule 2 of the EP&A Regulation. Similarly, the EIS has addressed the principles of ecologically sustainable development through the precautionary principle (and other considerations), which assesses the threats of any serious or irreversible environmental damage (see **Section 6.19**).

Table 8 Objects of the EP&A Act

Object	Comment
Section 1.3: (a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,	The proposal has the potential to provide a range of social and economic benefits and has been carefully designed and tested, and will be monitored through the delivery and operational period, to ensure that it does not result in any adverse environmental impacts. This is detailed further in **Section 5** and the Mitigation Measures in **Section 7** of this EIS.
(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,	The principles of Ecologically Sustainable Development, as set out in Schedule 2 of the EP&A Regulation, as well as other relevant economic, environmental and social considerations have been addressed in this EIS and the accompanying information. The 'Justification of the Proposal' is outlined in **Sections 6** and **9** of this EIS demonstrates how such factors have been considered in the detailed design, delivery and operation of the stadium.
(c) to promote the orderly and economic use and development of land,	The proposed development enables the redevelopment of the site to realise the vision set under the NSW Stadia Strategy, in accordance with the established planning and design parameters, enabling the orderly and economic development of land. The alterations and additions to the stadium can be delivered in a timely manner to commence operations in early 2023, minimising disruptions to Sydney's sporting infrastructure and events.
(d) to promote the delivery and maintenance of affordable housing,	Not applicable.

Object	Comment
(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,	The proposed development takes place in a modified and disturbed environment, and does not impact on biodiversity values. The site is not considered to have habitat suitable for any threatened flora and fauna, as was confirmed in the Biodiversity Development Assessment Report waiver submitted with the SSD DA. This waiver considered the values of the site, and confirmed that no further Biodiversity Development Assessment Report is required for the proposal.
(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),	Stadium Australia is not identified as a heritage item in an environmental planning instrument or under the *Heritage Act 1977*. However, it is located in proximity of the Olympic Cauldron which is identified as a heritage item of State significance listed in the State Heritage Register (No. 01839). An assessment of the heritage context of the site has been prepared by Curio Projects (**Appendix K**). This assessment promotes the sustainable management of heritage and confirms the proposed development will not significantly impact the heritage significance of surrounding heritage items or the character of the site. Refer to **Section 6.7** for further detail.
(g) to promote good design and amenity of the built environment,	The proposal exhibits design excellence in accordance with the requirements under SEPP SSP. Whilst no competitive architectural design process was required, the proposed development has been reviewed by the SOPA Design Review Panel and demonstrates a high standard of architectural design, sustainable design principles and external appearance. An assessment of the proposed design of the stadium and its interface with the public domain and surrounding development is explored in **Section 6.1** below. This assessment demonstrates that the detailed design and operation of the stadium achieves excellence in design and does not adversely impact the surrounding environment.
(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,	The proposed works to Stadium Australia will directly support the ongoing maintenance, performance, and safety of the building. It will comply with accessibility, construction, safety and security standards and ensure that the stadium is fit for purpose into the future, safeguarding the health and safety of patrons, staff and hirers.
(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,	Consultation has been undertaken with various levels of government and government agencies during the preparation of this Development Application as outlined in **Section 4.0**, and all agencies will be afforded the opportunity for further input into the development process during the public exhibition process.
(j) to provide increased opportunity for community participation in environmental planning and assessment.	Community consultation and participation to date has informed, and will continue to assist, the development and operation of the proposed stadium. This is detailed in **Section 4.0** of the EIS. Further consultation will be carried out during exhibition of the application, through the design development process, prior to the commencement of construction, and throughout the construction period.

As required by Clause 7(1)(d)(v) of Schedule 2 of the EP&A Regulation, the following additional approvals set out in **Table 9** are either not required by virtue of the fact that the project is SSD, or because they are not required in order to permit the proposed development to occur.

Table 9 Other legislation which does and does not apply

Act	Approval Applicable/ Required?
Approvals that do not apply to State Significant Development	
Coastal Protection Act 1979	N/A
Fisheries Management Act 1994	N/A
Heritage Act 1977	N/A
National Parks and Wildlife Act 1974	N/A
Native Vegetation Act 2003	N/A
Rural Fires Act 1997	N/A
Water Management Act 2000	N/A

Act	Approval Applicable/ Required?
Legislation that must be applied consistently	
Fisheries Management Act 1994	No
Mine Subsidence Compensation Act 1961	No
Mining Act 1992	No
Petroleum (Onshore) Act 1991	No
Protection of the Environment Operations Act 1997	No
Roads Act 1993	No
Pipelines Act 1967	No

5.3 Compliance with strategic planning framework

The proposed development is generally consistent with the provisions of the relevant planning policies identified in the SEARs, as detailed in the following sections and other supporting technical information appended to the report.

5.3.1 Greater Sydney Region Plan – A Metropolis of Three Cities

The proposed development is generally consistent with the provisions of the relevant planning policies identified in the SEARs, as detailed in the following sections and other supporting technical information appended to the report. The *Greater Sydney Region Plan* is the overarching strategy for growing and shaping the Greater Sydney Area. It sets a 40-year vision (to 2056) and establishes a 20-year plan to manage growth and change for Greater Sydney in the context of social, economic and environmental matters.

The plan was adopted in March 2018 and seeks to reposition Sydney as a metropolis of three cities – the western parkland city, central river city, and the eastern harbour city. In the same vein as the former *A Plan for Growing Sydney*, the Plan provides 10 high level policy directions supported by 40 objectives that inform the District Plans, Local Plans and Planning Proposals which follow in the planning hierarchy.

Under the Plan, the site is located in the Central City within the Greater Parramatta and the Olympic Peninsula (GPOP) Economic Corridor. The Central City is expected to grow substantially as it capitalises on its location close to the geographic centre of Greater Sydney and unprecedented public and private investment in infrastructure, including the Parramatta Light Rail and Sydney Metro West. Sydney Olympic Park is identified to become a new lifestyle precinct.

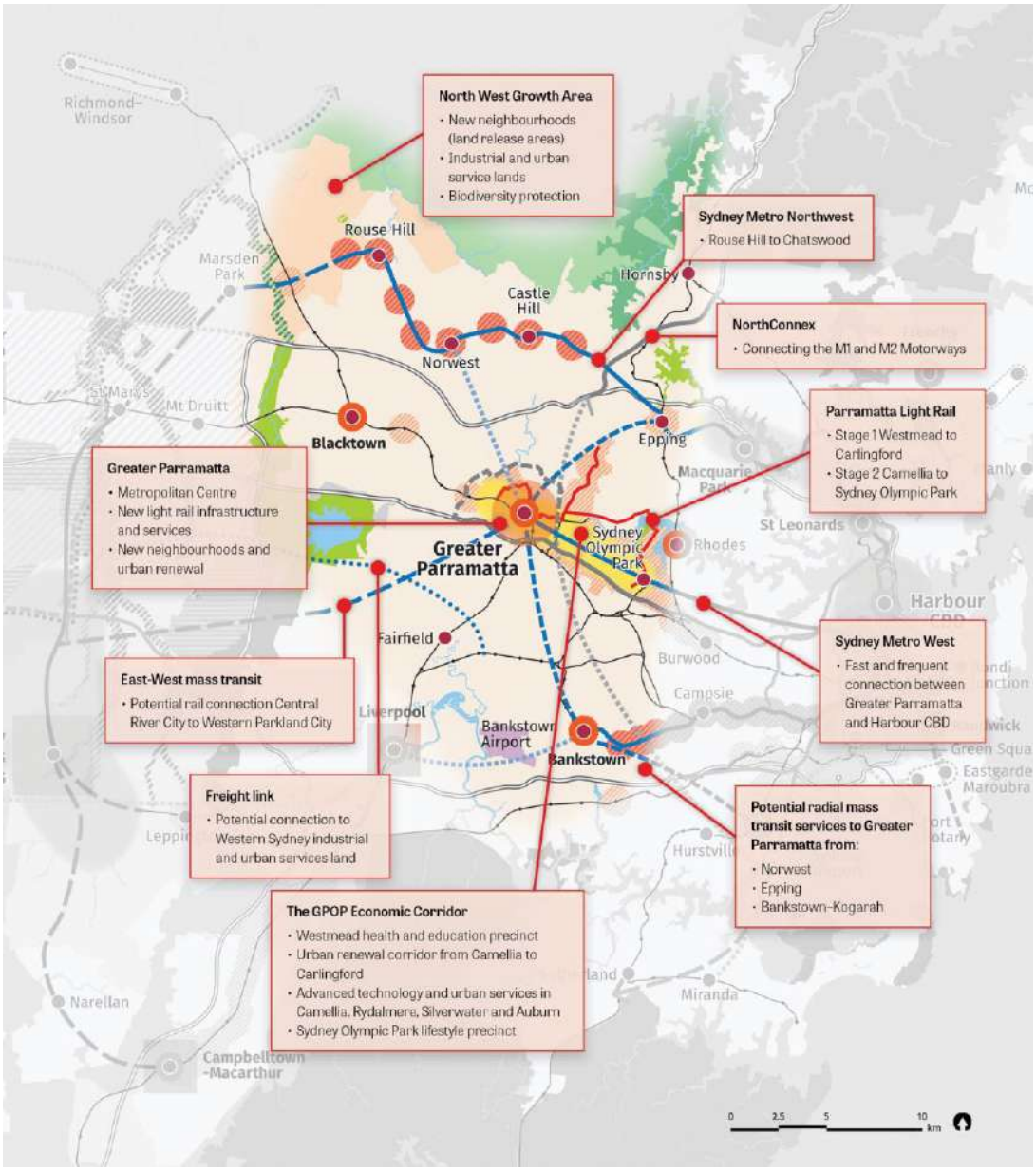


Figure 54 Features of the Central City

Source: Greater Sydney Region Plan

The proposal is consistent with the strategic directions for the growth and development of Sydney as follows.

A city supported by infrastructure

- The refurbishment of the stadium will revitalise a crucial piece of existing sporting and entertainment infrastructure to support the ongoing attraction of Sydney to domestic and international visitors and the ability to hold and attract major events.
- The stadium benefits from existing and planned public transport infrastructure, particularly the Parramatta Light Rail (Stage 2) and Sydney Metro West. This infrastructure will ensure that the stadium is supported by adequate transport capacity and with improved accessibility.
- The refurbishment of the stadium represents the most cost-effective means of ensuring that it is able to meet sporting and patron requirements into the future

A collaborative city

This direction acknowledges that managing the competing needs of the city requires all levels of government, industry and the community to work together.

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- Whilst the stadium is not identified as being within a 'collaboration area' in the Regional Plan, Sydney Olympic Park is a sporting and economic centre covering over 680 hectares and comprising a range of sports and entertainment venues, parklands, and commercial, retail and residential developments.
- The NSW Rugby League Centre of Excellence, Sydney Olympic Park Athletic Centre and Sydney Olympic Park Aquatic Centres are all major sporting facilities, which provide potential synergies with Stadium Australia.
- The stadium remains consistent with the existing and long-term strategic vision for Sydney Olympic Park as a world-class recreation, sporting, and entertainment precinct.

A city for people

- The proposal will improve existing infrastructure and services and therefore dramatically improve the usability of the stadium. This includes improving the viewing experience and weather protection, as well as facilities for a range of user groups.
- The refurbishment of the stadium has been designed to meet best-practice standards in universal design and compliance with the applicable Building Code of Australia provisions and Australian Standards.
- In creating an improved venue and atmosphere for sporting events, the new stadium will contribute to enhance community associations with sporting teams, codes and communities.
- The stadium will support a social dynamic that will build a community that is 'strong, healthy and well connected'. It has been designed as a new destination within Sydney that supports social interactions, active transport and exercise in a range of open spaces and community facilities.
- The reconfiguration of the stadium will improve the experience of people of different ages, backgrounds and socio-economic statuses, with major improvements to the general admission areas of the stadium.

Housing the city

- The proposed reconfiguration will not provide housing.
- The proposed reconfiguration seeks to continue the existing and envisaged use of the stadium as part of a broader recreation, sporting and entertainment precinct. The stadium cannot be used for residential purposes and as such it does not compete with housing supply opportunities.

A city of great places

- The stadium is located in proximity of concentrated employment opportunities, retail, education and entertainment opportunities, and offers 'more than just new homes and jobs'.
- The refurbishment will create an enhanced destination within Sydney and contribute to the activation of the surrounding area, making a positive contribution to the quality of place within the local area and enhance the value of Sydney Olympic Park as a sporting and entertainment precinct.

A well connected city

- The stadium is located in the heart of the Central City District and the GPOP Economic Corridor, with close access to surrounding jobs, schools, services and surrounding strategic centres.
- The stadium will also benefit from and leverage off existing and planned transport connections, including the Parramatta Light Rail and Sydney Metro West.

Jobs and skills for the city

- The proposal directly benefits job creation and more widely contributes to local hospitality, accommodation and entertainment industries and the global presence of Sydney.
- The improved entertainment and tourism facilities are assets that will help contribute to the visitor economy in Sydney. The refurbishment of Stadium Australia will directly contribute to the long-term strength of the visitor economy by improving the ability of the stadium to attract major events.

A city in its landscape

- The proposal provides for the retention of all but four (4) existing street trees and will not result in the removal of any significant trees.
- Replacement trees are to be planted in for every tree removed, which will maintain the existing urban canopy in the precinct.
- The proposal does not affect any protected biodiversity or remnant or significant vegetation.

An efficient city

- The proposed refurbishment will improve the sustainability performance of the stadium, contributing to its resilience and longevity.
- The refurbished stadium will achieve 5 Star Green Start Rating and undertake a number of initiatives over and above this certification.

A resilient city

- The proposal minimises exposure to natural hazards by ensuring it responds to overall climate adaption and resilience as outlined in the Environmentally Sustainable Development Strategy prepared by Aurecon (**Appendix H**).
- The environmental initiatives implemented through the development contribute to enhanced environmental outcomes and seek to mitigate impacts related to climate change.

5.3.2 Central City District Plan

The *Central City District Plan* underpins the *Greater Sydney Region Plan* and sets the 20-year vision for the District through 'Planning Priorities' that are linked to the Regional Plan. The proposal is consistent with a number of these priorities, as follows:

- **Infrastructure and collaboration:** The refurbishment of the stadium will revitalise an important piece of sporting and entertainment infrastructure, ensuring the stadium retains its status as a premier venue within the network of stadia and events infrastructure in NSW. The stadium is also well integrated with existing and planned public transport infrastructure, particularly the Parramatta Light Rail (Stage 2) and the Sydney Metro West. This infrastructure will ensure that the stadium is supported with adequate transport capacity.
- **Liveability:** The proposed refurbishment will provide a stadium that is more accessible and inclusive. The refurbishment will provide refurbished facilities, and the improved patron experience will allow for safer and more secure crowd attendance, allowing for a more family friendly experience with increased cover and protection during all weather situations. It is anticipated this will have a flow on effect of allowing a greater number of people, of different ages and characteristics, creating a more inclusive development and social dynamic that will build a community that is 'strong, healthy and well connected'.
- **Productivity:** The refurbished stadium will directly contributes to the long-term strength and productivity of the NSW visitor economy, which is supported by entertainment and tourism facilities. The refurbishment will significantly improve the fan experience experiencing, positively influencing the ability of the stadium to attract domestic and international events (and therefore tourists). In this way it will also support broader economy growth in the region, as a direct benefit of increased tourism and activity.
- **Sustainability:** The removal of existing landscaping on the site has been minimised, and each tree removed will be replaced with advanced-size specimens. The reconfiguration of the stadium will also improve the environmental performance of the stadium, which will target a 5 Star Green Star Rating. The refurbished stadium will also incorporate solar panels on top of the existing external circulation towers at the four corners of the stadium, reducing demand for fossil fuels.

Stadium Australia is identified as being in the heart of the Central City and within the Greater Parramatta and the Olympic Peninsula (GPOP) Economic Corridor (**Figure 55**) and the Sydney Olympic Park Strategic Centre. The recreational and sporting offer provided by Sydney Olympic Park is identified as a major contributor to tourism and visitation in the Central City. The role of Sydney Olympic Park as a sporting and recreational precinct will be further supported by major investment in transport infrastructure, including the Parramatta Light Rail (Stage 2) and Sydney Metro West, which will significantly improve accessibility. Whilst the proposal will not alter the existing use of the stadium, the refurbishment will enhance the amenity and competitiveness of the stadium. This will support the visitor economy and the attraction of local, national and international guests to Stadium Australia.

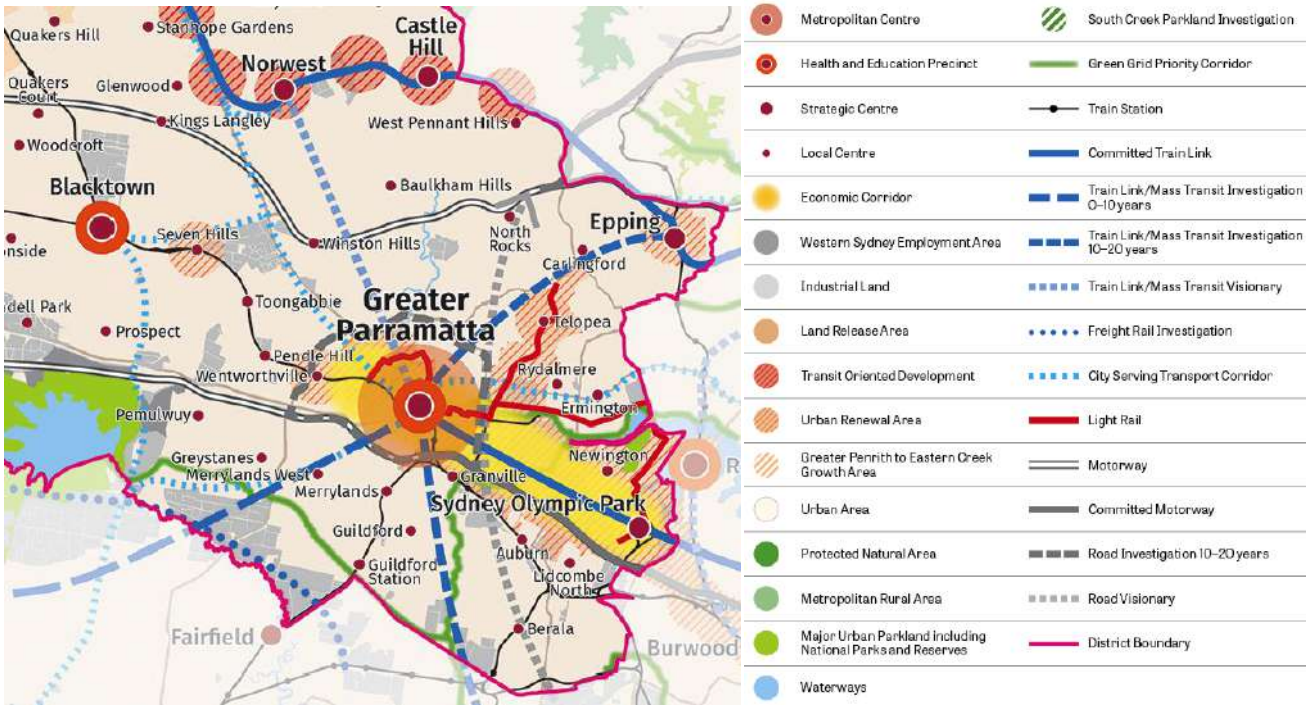

Figure 55 The Central City District

Source: Central City District Plan

5.3.3 NSW Stadia Strategy

In 2012, the NSW Government released the NSW Stadia Strategy. The strategy covered seven Government-owned or leased stadia, namely:

- Stadium Australia;
- Sydney Showground;
- Sydney Cricket Ground (SCG);
- Sydney Football Stadium;
- Western Sydney Stadium;
- Hunter Stadium; and
- Wollongong Stadium.

The NSW Stadia Strategy 2012 provides a vision for the future of stadia within NSW, prioritising investment to achieve the optimal mix of venues to meet community needs and to ensure a vibrant sports and event environment in NSW. A key action of the strategy included development of master plans for designated Tier 1 stadia and their precincts covering transport, integrated ticketing, spectator experience, facilities for players, media, corporate and restaurant and entertainment provision to ensure that each stadium meets the facility requirements to fulfil this role. Stadium Australia is one of three stadia within NSW designated to operate as a Tier 1 stadia, with the others being Sydney Football Stadium (SFS) and the Sydney Cricket Ground (SCG) at Moore Park.

In order to qualify for Tier 1 status, a stadium is required to include:

- seating capacity greater than 40,000;
- regularly host international sporting events;
- offer extensive corporate facilities, including suites, open-air corporate boxes and other function/dining facilities; and
- be the home ground for sporting teams playing in national competitions.

The proposed refurbishment of Stadium Australia has been developed to respond directly to these criteria and provide for a future stadium that meets each of these criteria and retains its status as a premier venue within a network of stadia and events infrastructure in NSW.

5.3.4 Sydney Olympic Park Master Plan 2030

The Sydney Olympic Park Master Plan (Master Plan 2030) sets the vision for the ongoing development of the Park's town centre including protecting the future of Sydney Olympic Park as a destination for cultural, entertainment, recreation and sporting events. This includes protecting the hosting and operational capacity of stadia and therefore the capacity of Sydney Olympic Park to successfully host major international, national and regional events while functioning as Australia's premier major events destination. Planning Principle 3.9 envisages upgrading major event infrastructure, venue spaces and operational features of the site that make it suitable and attractive to promoters of major events.

Stadium Australia is located within the Stadia Precinct, which also encompasses Qudos Bank Arena and Olympic Boulevard between Dawn Fraser Avenue and Kevin Coombs Avenue. The Master Plan 2030 notes that a roof over ANZ stadium is a planned future improvement for the Precinct. The proposed works to Stadium Australia remain compliant with the planning controls for the site, including use of the site for sports, events and entertainment and the surrounding public domain for a mix of commercial, events and entertainment. No additional permanent structures are proposed in the public domain surrounding the stadium that would impact the existing 360º pedestrian link (external concourse) or the height and FSR controls applying to these areas.

The proposed development is also consistent with the relevant noise, traffic, sustainability, view, and event overlay considerations under the Master Plan 2030 which have been addressed in the relevant environmental assessment sections in **Section 6** below. Design excellence is discussed in **Section 5.5** below.

5.3.5 Additional relevant strategies and plans

In addition to the above, the proposal remains consistent with the key additional planning policies, guidelines, and strategies identified in the SEARs as outlined in **Table 10** below.

Table 10 Summary of consistency with additional strategies and plans

Document	Comment
NSW State Priorities	The NSW Premier's Priorities represent 14 key policy priorities for the NSW Government, establishing the vision and objectives for the State's near-term future and are intended to guide all government action. The priorities primarily relate to education, social policy, and governance and as such are not strongly related to or give effect to the proposed development. The project will have a positive impact on jobs in NSW by ensuring that Stadium Australia can continue to attract and host major events that generate direct and indirect employment within the NSW economy.
NSW Future Transport Strategy 2056	The Strategy is the 2017 update of the NSW Long Term Transport Master Plan, and sets out six state-wide outcomes to guide investment, policy and reform and the provision of services. Whilst a number of these outcomes relate to integrating technological advancements with services and providing regional connections, the proposal is consistent with the desire to encourage active and sustainable options and provide more seamless customer experiences.
Greater Sydney Services Infrastructure Plan	This Infrastructure Plan is a 40 year plan for transport in Sydney, providing more detail and context to the overarching vision established in NSW Future Transport Strategy 2056. Sydney Olympic Park is identified as a key precinct to be serviced by Sydney Metro West, the second stage of the Parramatta Light Rail, and new priority cycleway links to Greater Parramatta, which are all identified transport commitments to be delivered in the next 10 years. These new public transport options and active transport links will assist in the accessibility and growth of Sydney Olympic Park as a booming sport, entertainment and employment hub, and will directly benefit that ability to attract and host major events.

Document	Comment
NSW State Infrastructure Strategy	The Strategy identifies the role of NSW Government investment in its stadia network, with the aim of attracting high-value international and national events to NSW. It identifies that a strong creative and cultural sector is a key contributor to Sydney's position as a world city, and that increasing participation in sport also supports innovation and economic development. Tourism is identified as delivering $38 billion in economic benefits annually to the State and employs 261,000 people. Upgrading major stadia, including Stadium Australia, is identified as a critical component of addressing the shortfall of NSW in investing in cultural, sporting and tourism infrastructure and collections behind other states and global cities.
Better Placed: An integrated design policy for the built environment of NSW	The design process for the stadium has been developed with reference to the NSW Government Architect's (GANSW) integrated design policy *Better Placed*, with the proposed development achieving the objectives of this policy. As noted in the Design Excellence Strategy (**Appendix B**), the design of the stadium has been developed and critiqued with reference to the objectives of *Better Placed*.
Draft Greener Places	This Draft Policy was developed by the GANSW and seeks to deliver a network of green spaces or semi-natural systems across Sydney's urban environment. The proposed development does not seek to permanently alter the existing public domain surrounding the stadium. The existing public domain provides excellent accessibility, circulation, and provides for public art and landscaping and as such is proposed to be protected and retained. Additional feature planting at the new stadium entrances will contribute to the landscaping.
Draft Greener Places	This Draft Policy was developed by the GANSW and seeks to deliver a network of green spaces or semi-natural systems across Sydney's urban environment. The proposed development does not seek to permanently alter the existing public domain surrounding the stadium. The existing public domain provides excellent accessibility, circulation, and provides for public art and landscaping and as such is proposed to be protected and retained.
Sydney's Walking Future	*Sydney's Walking Future 2013* is the NSW Government's strategy to promote walking for transport and connecting people and places through safe pedestrian networks. The refurbishment of the stadium will continue to promote walking to/from the stadium by improving awareness of walking routes and not increasing the number of on-site vehicle parking spaces provided.
Sydney's Cycling Future	*Sydney's Cycling Future 2013* seeks to increase the mode share of cycling in the Sydney metropolitan region for short trips between 20 to 30 minutes. Stadium Australia benefits from access to extensive local and regional bicycle networks and the proposal will aim to increase the use of bicycles when travelling to/from the stadium by formalising staff bicycle parking within the basement, improving the use of active transport options when accessing the site.
Sydney's Rail Future	*Sydney's Rail Future 2012* is the NSW Government's long-term plan to increase the capacity of rail network in Sydney through investment in new services and upgrades to existing infrastructure. *Sydney's Rail Future 2012* was released prior to the announcement of Sydney Metro West, which will include a new metro station at Sydney Olympic Park. However, the proposed refurbishment of the stadium is consistent with the underlying objective of improving access to rail infrastructure.
Sydney's Light Rail Future	*Sydney's Light Rail Future 2012* outlines the NSW Government's vision for the delivery of light rail infrastructure across Sydney and emphasises the role of light rail in reducing congestion and promoting economic development. Stadium Australia will benefit from Stage 2 of the Parramatta Light Rail, which will run along Dawn Fraser Avenue and significantly improve access to the stadium for residents travelling from Parramatta and areas north of the Parramatta River, with two light rail stops located within walking distance of the stadium. The proposed refurbishment of the stadium is consistent with the vision outlined in *Sydney's Light Rail Future 2012*, as it will capitalise on the NSW Government's investment in light rail infrastructure and promote sustainable transport solutions.
Sydney Olympic Park Access Guidelines 2017	The Access Statement prepared by Morris Goding Access Consulting (**Appendix L**) confirms that the refurbished stadium achieves a high degree of technical compliance (or capability of compliance) with the SOPA Access Guidelines. This is discussed in further detail in **Section 6.17** below.

Document	Comment
Sydney Olympic Park Authority's Design Excellence Policy	The architectural vision has been subject to an informed design review and integrity process in accordance with the principles of SOPA's Design Excellence Policy. The Design Excellence Strategy at **Appendix B** and the discussion in Section 5.5 below outline how the proposal promotes excellence in design, and how the integrity of this design will be safeguarded through the delivery stage of the development.
Sydney Olympic Park Major Event Impact Assessment Guidelines 2007	The Guidelines are utilised to assess the impact of developments within land controlled by Sydney Olympic Part Authority, with particular emphasis on the compatibility of uses. The Guidelines have been addressed in Section 7 and Appendix A of the Event Management Statement (**Appendix G**).
Sydney Olympic Park Commercial Signage Policy 2018	As detailed in Section 5 of the Architecture Report (**Appendix B**) and the separate signage assessment at **Appendix P**, the proposed signage zones and future detailed signage will be designed in accordance with the *Sydney Olympic Park Commercial Signage Policy 2018*.
Sydney Olympic Park Infrastructure Engineering and Design Manual	Aurecon's Building Services Report (**Appendix E**) has been prepared with reference to the Sydney Olympic Park Infrastructure Engineering and Design Manual.
Sydney Olympic Park Urban Elements Design Manual	The Design Manual outlines quality and performance standards for public domain upgrades associated with developments within SOPA lands. The proposed development does not include any new works within the public domain and will not change any aspects of the access to or surrounding the stadium. As such the requirements of the Urban Elements Design Manual do not apply.
Sydney Olympic Park Environmental Guidelines 2008	The Sydney Olympic Park Environmental Guidelines 2008 aim to establish a high standard of environmental performance and improve the sustainability of Sydney Olympic Park. The individual objectives of the Environmental Guidelines have been addressed in Section 3 of the Environmentally Sustainable Design Strategy prepared by Aurecon (**Appendix H**) and are discussed further in **Section 6.5** of the EIS.
Sydney Olympic Park Stormwater and Water Sensitive Urban Design Policy 2016	The Sydney Olympic Park Stormwater and Water Sensitive Urban Design Policy 2016 has been addressed in the Stormwater Management Plan prepared by Aurecon (**Appendix M**) and discussed in further in **Section 6.11** of the EIS.
Australia's Strategy for Protecting Crowded Spaces from Terrorism	The proposed development has been subject to a preliminary review by Intelligent Risks Group, which is detailed in the statement prepared by Intelligent Risks Group (**Appendix N**). This is discussed in further in **Section 6.13.2** below. The detailed design will incorporate consideration of holistic and integrated protective security approach, comprising physical, technical and procedural security measures. It will ensure the effectiveness of the venue's protective security design and operations in line with the principles and guidelines contained in *Australia's Strategy for Protecting Crowded Places from Terrorism*.
Development near Rail Corridors and Busy Roads – Interim Guideline 2008 (DNRCBR)	It is noted that Interim Guideline is not relevant to the proposed development, as the Guideline relates to the assessment of noise from rail and road traffic on residential uses, places of worship, hospitals, and educational establishments or childcare centres. These uses do not apply to the proposed development.
Guide to Traffic Generating Developments (Roads and Maritime Services)	Clause 104 of *State Environmental Planning Policy (Infrastructure) 2007*, discussed further in **Section 5.4** below, requires that the development be referred to the RMS as Traffic Generating Development. This EIS is accompanied by a Transport Impact Assessment prepared by Arup (**Appendix S**), which addresses the demand for parking and traffic generated by the proposal. This is discussed in **Section 6.4** below.

5.4 Compliance with legislation and Environmental Planning Instruments

The relevant strategies, environmental planning instruments, policies and guidelines as set out in the SEARs are addressed in the table below.

Table 11 Compliance with environmental planning instruments

Document	Comment
Copyright Amendment (Moral Rights) Act 2000	In accordance with the Moral Rights Amendment, the architect of the original Stadium Australia is to be informed that the stadium is proposed to be altered. The original stadium was designed by a joint venture between UK architects Lobb Partnership and the Australian firm of Bligh Voller. Lobb Partnership merged with HOK Sport in 1998 prior to the Stadium's completion and the company is now known as Populous. Accordingly, it is proposed to inform the original architects with written notice stating the intent to carry out the proposed works and to consult in good faith about the change. This would occur prior to any physical works commencing on site in the event that the proposed development is issued a planning approval.
Biodiversity Conservation Act 2016	In accordance with this Act, an assessment of any State Significant proposal's biodiversity impacts must be undertaken as part of the provision of any SSD DA, including the provision of a Biodiversity Development Assessment Report (BDAR) in instances where it is required. An application was submitted prior to the lodgement of this DA requesting that the Department, in consultation with OEH, waive the requirement to prepare a BDAR on the grounds of the development being unlikely to impact biodiversity values in accordance with Clause 1.5 of the *Biodiversity Conservation Act 2016* and Clause 1.4 of the *Biodiversity Conservation Regulation 2017*. The waiver was granted.
Sydney Olympic Park Authority Act 2001	The Act establishes the functions of the Sydney Olympic Park Authority and the land it controls. The proposed development directly supports the objects of the Act, including: • promoting Sydney Olympic Park as a premium destination for cultural, entertainment, recreation and sporting events; • contributing to the activity and vibrancy of the Sydney Olympic Park centre within metropolitan Sydney; and • ensuring the stadium achieves best practice sustainability and environmental standards. The proposed development will not impact the natural heritage of Millennium Parklands, located 3km north of the site.
Other Acts	Refer to **Section 5.2** in relation to the requirement for approvals under other legislation.
State Environmental Planning Policy (State & Regional Development) 2011	Development within the Sydney Olympic Park with a capital investment value of more than $10 million is identified in Schedule 2 of the SEPP as SSD. The CIV of the proposed development exceeds $10 million and as such is classified as SSD.
State Environmental Planning Policy (State Significant Precincts) 2005 7. Land use zones	The site is zoned B4 Mixed Use. Development for the purposes of Recreation Facility (Major), which includes stadia, is permitted with consent within this zone.
18. Height of buildings	No building height control applies to the stadium.
19. Floor space ratio	No floor space ratio control applies to the stadium.
24. Major Events Capability	Under this provision, consent must not be granted to development if the consent authority is satisfied that major events held within Sydney Olympic Park: • Are likely to cause the road network and connections to the regional road network to become saturated or otherwise fail – traffic modelling has been completed for the development which confirms that the works to the stadium will not result in significant changes to the existing road network or its performance (see the discussion in **Section 6.4** below). • Are likely to prevent the effective management of crowd movement and transport services – the proposal will reduce the overall capacity of the stadium, which when paired with planned improvements to the existing public transport network, will ensure development does not adversely impact crown movement or transport (see the discussion in **Section 6.4** below). • Are likely to compromise the effective function of major event infrastructure – the proposed works will directly support the functionality of the existing stadium, ensuring it can continue to operate in the future (see **Section 6.1** below for discussion). • Conflict with the emergency management plans of government agencies or the emergency evacuation plans of major event venues – the proposed works to the stadium provide for a more functional and accessible stadium, without impacting the emergency evacuation procedures of the existing stadium and greater precinct.

Document	Comment
25. Transport	The proposed development is supported by a Green Travel Plan outlining the initiatives that will be pursued to maximise the use of sustainable transport options when accessing the site. These measures demonstrate the commitment of the proponent to creating a more sustainable and resilient stadium, with improved operations that reduce the impact on the local and wider environment.
26. Master plan	The proposed refurbishment works have been considered against the vision established in the Master Plan as demonstrated in the discussion at **Section 5.3.4**. It is noted that no change is proposed to car parking in the surrounding area.
30. Design Excellence	The proposed development will refurbish an existing building and is not identified as a site requiring a design competition in the Master Plan, and as such no design competition is considered necessary or has been held in relation to this development. Notwithstanding this, the proposed development has been reviewed by the SOPA Design Review Plan and found to exhibit Design Excellence in the meaning of Cl. 30(1) and (2) of Schedule 3 of SEPP SSP as discussed in **Section 5.5**.
31. Heritage conservation	No proposed development does not comprise any additional site excavation and will not alter or otherwise physically impact any identified heritage item in the surrounding area. The proposed development, therefore, will not impact on any existing heritage item or disturb any archaeological relics. This is discussed further in **Section 6.7** below.
State Environmental Planning Policy (Infrastructure) 2007	The proposed development triggers consultation with NSW Roads and Maritime Services (RMS) under the provisions of Clause 104 of the SEPP, as the proposed stadium is expected to generate more than 200 vehicle movements. Notwithstanding this, as the proposal involves a reduction in maximum capacity it is expected that the stadium is within the capacity of the existing road network.
State Environmental Planning Policy No. 55 – Remediation of Land & Draft State Environmental Planning Policy No. 55 – Remediation of Land	The site has been the subject of a Preliminary Environmental Site Assessment by WSP at **Appendix O**. The Assessment confirms that the site has not been notified to the EPA and no notice under the *Contaminated Land Management Act 1997* currently exist. There are twelve sites surrounding the property that have been notified to the EPA, none of which impact the current proposed developments. Furthermore, the site is not listed on the *Protection of the Environment Operations Act 1997* register. WSP conclude that no conditions are encountered that would preclude the ongoing use of the site.
State Environmental Planning Policy No. 64 – Advertising and Signage	Signage for the naming rights of the stadium has been incorporated into the stadium facade, and wayfinding signage will be provided in the public domain. An assessment against the provisions of SEPP 64 and the Master Plan 2030 provisions is provided at **Appendix P**.
State Regional Environmental Plan (Sydney Harbour Catchment) 2005	The site is located within the boundaries of the Sydney Harbour Catchment SREP. The precinct is not 'zoned' under this plan nor is it located within the 'Foreshores and Waterways Area', where the majority of the SREP's provisions apply. The key matter for consideration is, therefore, the visibility of the proposed development from Sydney Harbour. The proposal will not result in any adverse impacts on views and is therefore consistent with the considerations outlined in the SREP.
Sydney Regional Environmental Plan No. 24 (Homebush Bay Area)	SREP 24 was amended in 2009 by State Environmental Planning Policy (Major Development) Amendment (Sydney Olympic Park) 2009 to exclude Sydney Olympic Park from the land to which SREP 24 applies, at the same time as planning provisions for the Sydney Olympic Park precinct were transferred to the Major Projects SEPP (now SEPP SSP). Accordingly SREP 24 does not apply to the project.
Draft State Environmental Planning Policy – Environment	The Draft SEPP Environment was released for public exhibition in October 2017 and aims to repeal and replace a number of SEPPs and SREPs that currently apply in NSW. Under the Draft SEPP, the site is identified as being within an area of 'Urban Bushland' and as such would be subject to controls relating to the protection of land that is reserved for public open space. No part of the site is zoned for this purpose at this time, and as such these provisions of the Draft SEPP do not apply. It is also noted that this Draft SEPP will also encompass the provisions of the Sydney Harbour Catchment REP. This SREP is discussed further above in the context of the proposal.
Parramatta Local Environment Plan	The Parramatta LEP does not apply to the site. The primary planning controls for the proposed development are contained in the SEPP SSP and the instruments discussed above.

5.5 Design excellence

This section of the EIS describes the process by which the stadium and surrounds have been designed to achieve 'design excellence' in accordance with Clause 30(1) and (2) of Schedule 3 of SEPP SSP.

It is recognised that Stadium Australia comprises a significant architectural feature of Sydney Olympic Park and as such a Design Excellence Strategy has been developed to reflect the architectural importance of the stadium, as discussed in **Section 4.11** above. This strategy has been partly enacted to inform the design assessed in this EIS, and will continue to be implemented post-approval to ensure the integrity of the final approved design demonstrates design excellence.

Process

The process outlined in the Strategy at **Appendix B** and **Section 4.11** above has been prepared in accordance with the NSW Government's Better Placed Policy and SOPA's Design Excellence Policy. Whilst the proposed works do not require undertaking an architectural design competition, the *Sydney Olympic Park Authority Design Excellence Policy* requires that SOPA's Design Review Panel assess the proposed works that exceed $10 million in value. The proponent met with the Design Review Panel on 4 September 2019 and has provided a response to each of the issues raised in the section below.

Assessment

A meeting was held with SOPA's Design Review Panel on 3 September 2019 to present the proposed works and receive feedback. Comments were issued by the Panel on 12 September 2019 and are included at **Appendix B**. The comments are preliminary in nature, with the Panel recommending that further consultation would be required. A response to those issues raised are detailed in the table below.

Table 12 Response to comments issued by the SOPA Design Review Panel

Comment	Response
The Panel advised that the information provided was inadequate at this stage to sufficiently understand the proposed design and therefore to evaluate design quality and the achievement of design excellence, noting in particular: • The minimal, limited and at times conflicting information provided regarding the interface of the proposed works with the public domain, specifically with regard to the new northern and southern entrances;	As discussed in **Section 4.3** above and **Section 6.1** below, no change is proposed to the public domain as a result of the proposed development. The stadium will be designed to interface with the existing levels and finishes, or with any separate changes proposed by SOPA, as is appropriate and reasonable and assuming the details of these changes are progressed. Details of how this flexibility will be achieved will be presented to the Panel at future meetings, noting that SOPA has recently released a design competition for the public domain surrounding the stadium and timing for any upgrade works to the public domain is as yet unknown.
• The lack of identification or specification of materials for external elevations;	The materials have been nominated in the Design Report included at **Appendix B**. This further detail will be presented to the Panel during the exhibition and as the design develops during detailed design.
• The lack of specification with regard to extent and materiality of signage;	Details of the exact content, materiality, and illumination of signs within the existing and proposed signage zones will be the subject of further detailed design when the naming of the stadium is known. It is proposed that the detailed signage design would be submitted to the Secretary prior to the issue of the relevant Construction Certificate, with the detail provided regarding the zones being sufficient for the planning assessment phase. The detailed design will have regard to the principles of SEPP 64 and SOPA's signage policy, recognising that this Policy does not specifically envisage or apply to stadium naming rights signage.
• Advice from the proponents that the design as presented was still subject to ongoing design, further resolution and engineering;	The proposed development will be subject to further design development and testing in response to any submissions received during the exhibition of the EIS, as required, and through the detailed construction documentation process. The nominated design excellence process envisages the continued involvement of the SOPA DRP during this process.

Comment	Response
• The likelihood of further design changes as a result of changing project architects.	Noted above.
The Panel resolved that: • They could not provide comments or endorsement of the design based on the information provided;	The nominated design excellence process envisages the continued involvement of the SOPA DRP, whereby additional advice will be sought.
• To avoid delaying critical project deadlines, the design should be presented again to the Design Review Panel during the public exhibition stage of the State Significant Development (SSD) application, to allow sufficient time for Populous to further develop details of the interface of the design with the public domain, signage and façade materiality; and	The proponent will seek the advice of the DRP prior to lodging the response to submissions.
• The Design Excellence Strategy to be submitted as part of the SSD application should identify critical design milestones for the project to be re-presented to the Panel and acknowledge the benefit of early review input into the design.	The Design Excellence Strategy included at **Appendix B** provides for regular meetings with the SOPA DRP, with sufficient flexibility to enable as many meetings and interactions as required once the project has proceeded through the development application process and a contractor has been appointed.

An assessment of the proposal against the design excellence provisions contained in Clause 30 (2) of Schedule 3 of SEPP SSP is also provided in the assessment at **Appendix B** and the table below.

Table 13 SEPP SSP Design Excellence provisions for development in Sydney Olympic Park

Provision	Response
a) whether a high standard of architectural design, materials and detailing appropriate to the building type and location will be achieved,	The refurbishment works will retain much of the distinct architectural features of the existing stadium ensuring the overall 'look and feel' will be retained. In this way, the proposal seeks to deliver the much-needed function improvements and bring new life to the stadium whilst respecting the integrity of the original architectural design and its relationship to its surrounds. The detailing and materiality of the refurbishment works provides a high-quality and contemporary finish and seamlessly integrates the new works with the existing pallet of stadium. No changes are proposed to the public domain, ensuring the setting of the stadium will be retained and the stadium will continue to be appropriate for the site.
b) whether a high standard of architectural design, materials and detailing appropriate to the building type and location will be achieved	The proposed refurbishment works will enhance the existing and long-standing stadium on the site, ensuring the new stadium will remain appropriate for its location and its role as a landmark destination within an existing sports and entertainment precinct.
c) whether the building meets sustainable design principles in terms of sunlight, natural ventilation, wind, reflectivity, visual and acoustic privacy, safety and security and resource, energy and water efficiency,	The proposed changes to Stadium Australia have been assessed with regard to their potential impacts on the amenity of the surrounding area, and for their ability to embody sustainable design principles and overall improve the sustainability of the stadium. The proposed stadium will not result in any adverse environmental impacts, rather, this refurbishment project has provided the opportunity to enhance the sustainability and overall operations of this infrastructure. These are detailed in the following **Section 6.0.**
d) if a competition is held as referred to in subclause (3) in relation to the development, the results of the competition.	No competition is required for the proposed development as the proposal does not seek consent for the erection of a new building greater than 42m in height or that is identified as requiring a competition under the Master Plan 2030.

Achievement of design excellence

Under the SEPP, development consent must not be granted for the proposed external alterations unless the consent authority has considered whether the proposed development has exhibited design excellence. As detailed above, the proposed development has been designed and assessed in accordance with the relevant legislation and policies, and has been subject to review by SOPA's Design Excellence Panel. The resultant proposal is therefore considered to demonstrate design excellence.

6.0 Environmental assessment

This chapter of the EIS contains our assessment of the environmental effects of the proposed development as described in the preceding chapters of this report.

Under Section 4.15 (1) of the EP&A Act, in determining a development application the consent authority has to take into account a range of matters relevant to the development, including the provisions of environmental planning instruments; impacts of the built and natural environment, the social and economic impacts of the development; the suitability of the site; and whether the public interest would be served by the development.

The assessment includes only those key matters under Section 4.15(1) that are relevant to the proposal. The key planning issues associated with the proposed concept proposal are listed in **Table 14** below.

Table 14 Key planning issues

Planning issue	Assessment	Technical study
Built form and urban design	Section 6.1	Appendix B
Visual and view impact	Section 6.2	Appendix B
Overshadowing	Section 6.3.1	Appendix B
Pedestrian wind environment	Section 6.3.2	Appendix R
Reflectivity	Section 6.3.3	Appendix B
Lighting	Section 6.3.4	Appendix DD
Visual privacy	Section 6.3.5	-
Transport, traffic, parking and access	Section 6.4	Appendix S
Sustainability	Section 6.5	Appendix H
Noise and vibration	Section 6.6	Appendix T
Heritage and archaeology	Section 6.7	Appendix K
Social and economic impacts	Section 6.7.1	Appendix CC
Biodiversity	Section 6.9	-
Tree removal	Section 6.10	Appendix U
Water and drainage	Section 6.11	Appendix M & V
Contamination	Section 6.12	Appendix O
Crime prevention through environmental design	Section 6.13.1	Appendix W
Security risk assessment	Section 6.13.2	Appendix N & W
Utilities and services	Section 6.14	Appendix E
Operational waste management	Section 6.15	Appendix I
Construction management	Section 6.16	Appendix J
Building Code of Australia and Disability Discrimination Act	Section 6.17	Appendix L & Y
Structural assessment	Section 6.18	Appendix Z
Ecologically sustainable development	Section 6.19	-
Site suitability	Section 6.20	-
Public interest	Section 6.21	-

6.1 Built form and urban design

The proposed refurbishment works will deliver much needed upgrades to benefit the stadium's ongoing viability and patron and hirer experiences, whilst at the same time contributing to the architectural presence and legacy of Stadium Australia. As detailed in the Design Report at **Appendix B**, and discussed in **Section 5.5** above, the proposed development represents a high-quality architectural outcome for the site with regard to the following.

Scale and form

The proposed refurbishment works respect the overall scale and form of Stadium Australia, being developed to seamlessly integrate with the architecture of the existing stadium.

- No change is proposed to the distinct architectural features of the stadium including the overall footprint of the stadium, the four (4) circulation towers that punctuate the corners of the stadium structure, the existing eastern and western facades, the steel trusses and concrete supports that define the edges of the roof, and the overall sweeping 'saddle' form of the stadium.
- Whilst the proposed refurbishment works will alter the scale and form of the northern and southern wings of the stadium, it will not impact the recognisable shape and architecture of Stadium Australia. The new northern and southern wings are reduced in scale when compared to the existing eastern and western wings to retain the sweeping 'saddle' design. This ensures that no change is made to the ultimate maximum height of the stadium and the visually prominent eastern and western wings, including the stepped and angled roof form at these frontages.
- The northern and southern entrances will serve to enhance the 'human scale' of the stadium through replacing the existing blank, sparse facades with new stadium entrances. These entrances ensure each side of the stadium is activated and designed to create a welcoming environment for pedestrians, where previously pedestrians would pass inactive facades externally around the stadium in order to reach the eastern and western gates.

Existing *Proposed*

Figure 56 Comparison of the existing and proposed stadium scale and form

Detailing and materiality

The detailing and materiality of the refurbishment works will provide a high-quality and contemporary finish whilst also seamlessly integrating with the materiality of the existing stadium. As highlighted above, the refurbishment works will retain the distinct architectural features of the existing stadium, ensuring the overall 'look and feel' will be retained:

- The proposed roof addition will be finished in semi-translucent and light-weight roof materials ensuring that the new roof floats above the seating bowl and is visually recessive when compared to the existing more solid roof structure.
- The adonised aluminium louvres at the new northern and southern entrances reference the use of louvres on the existing eastern and western facades, and will utilise a similar pallet of colours and finishes. This ties the new facades with the existing architectural detailing of the stadium and provides views and light from the stadium into the public domain to contribute to the overall vibrancy and pedestrian experience.

- The new landscaping visible behind the louvres will assist in softening the institutional design of this pieces of major infrastructure and draw the public domain landscaping and parkland setting of Sydney Olympic Park into the stadium, contributing to overall visual interest.

Functional planning and internal environment

The primary objective of the refurbishment works is to rectify the identified functional shortcomings and retain the Tier 1 status of the venue without requiring the complete redevelopment of the site. It is intended to address the existing deficiencies that contribute to a poor stadium experience to retain hirers and attract spectators to largescale sporting matches, remain competitive within the Australian and international stadia network, and safeguard the legacy of Sydney Olympic Park as successful post-Olympics site.

The refurbished stadium has responded to the identified strategic issues with the current stadium design and operations, and has sought to future-proof the stadium by responding to developing trends in the design and construction of modern stadiums. The ultimate renewal of the stadium:

- repositions stands and reconfigures the field of play to bring spectators between 5m and 18.3m closer to the game and rectify the poor viewing experience that was created in the original stadium from retrofitting an oval field for rectangular sports;
- increases the steepness of the seating bowl to enhance sightlines and improve the overall viewing experience and stadium atmosphere;
- provides coverage to all permanent seating to the drip line, for additional comfort to patrons through shade and protection from the rain, in-line with the level of coverage provided at other modern stadia;
- uses roof materials that provide weather protection whilst also enabling solar penetration for grass growth during winter and a lighter internal environment;
- future-proofs the stadium through enabling the installation of wireless technology, high definition playback screens, and enhanced ticketing infrastructure at the new stadium entrances as part of the detailing of the stadium;
- refurbishes public food and beverage options within the stadium to provide greater choice and access;
- upgrades the overall facilities and bathrooms in the stadium including future-proofing the stadium to enable the growth of emerging and women's sports through gender-neutral changerooms;
- enhances the existing 360º circulation through widening the double-height concourse at the north and south ends of the stadium providing views of the field of play at the new stadium entrances; and
- provides new media, member and corporate facilities providing an enhanced spectator experience across a range of viewers, in-line with contemporary stadium requirements and hirer expectations.

Integration with the public domain

The refurbished stadium has been designed to integrate with the existing surrounding public domain. As the existing public domain offers excellent pedestrian circulation and event overlay space and accommodates seating, mature tree planting, and notable public art pieces (such as 'Games Memories'), the proposed refurbishment works has sought to sensitively interface with and retain the successful design and operation of this external environment. The refurbished stadium does not alter the footprint of the existing structure, rather the new stadium entrances simply provide new openings that tie with the existing levels of the public domain and the internal pedestrian concourse, for seamless at-grade pedestrian circulation.

The Master Plan 2030 identifies areas surrounding the stadium as locations for medium term development. It is understood that SOPA is planning future development in the areas around Stadium Australia, including upgrades to the public domain. The detailed design of these stadium entrances and their interface with the public domain will be coordinated with any separate changes proposed by SOPA, as is appropriate and reasonable and assuming the details of these changes are progressed.

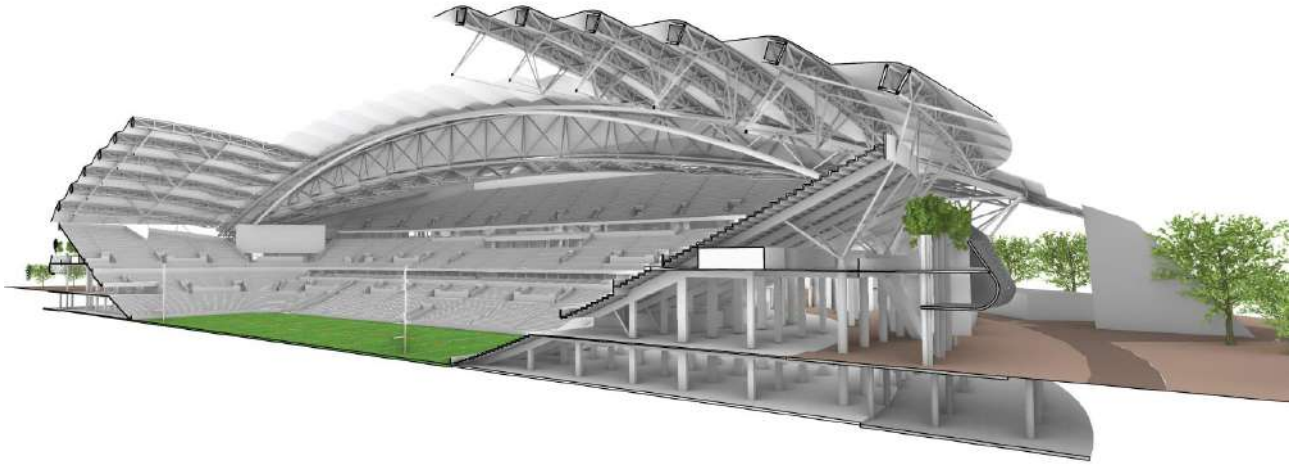

Figure 57 Section indicating how the new stadium entrances will interface with the existing internal concourse and public domain

Source: COX Architecture

Recommendation

The proposed design has been conscious of respecting the legacy and reinforcing the strength of the current design of Stadium Australia, which has played a prominent role in the history of Sydney and the development of Sydney Olympic Park. The proposed works have sensitively integrated with the overall scale, form, details and materiality of the existing stadium to protect the architectural integrity of this building whilst still achieving the desired functional improvements and an overall high-quality contemporary finish. The refurbishment will bring new life to the stadium and ensure it is capable of attracting and hosting major events and operating into the future.

Whilst no Mitigation Measures are specified by COX Architecture, the following are recommended to ensure the design development of the stadium respects the architectural integrity and moral rights of the original stadium designers (or their representatives). As discussed in **Section 5.5** above, the detailed design of the stadium will also be subject to a regular and iterative meetings with the SOPA Design Review Panel prior to and during its construction (as required).

Mitigation measure	Indicative timing
Prior to works commencing on the site the proponent is to issue the author/s or person representing the author/s of the original Stadium Australia architectural design with written notice stating the intention to alter Stadium Australia. The author/s or persons representing the author/s are to be provided with access to make a record of the works and/or consult in good faith about the change.	Prior to the commencement of physical works.
Design development and the assessment of design integrity shall occur in accordance with the process outlined in the Design Excellence Strategy within the Design Report prepared by COX Architecture (September 2019).	Prior to the commencement of physical works.
Detailed design of the new stadium entrances is to be coordinated with the levels and finishes of the existing public domain. In the event that SOPA progresses changes, the proposal is to coordinate with the levels and finishes of the new public domain as appropriate.	To be detailed in the relevant construction drawings.

6.2 View impact

A View Impact Assessment (VIA) has been prepared by Ethos Urban (**Appendix Q**) to address the detailed stadium design as compared to the existing stadium design. The assessment defines the visual catchment of the site and assesses key vantage points within the public domain that are representative of the primary visual catchment.

6.2.1 Visual catchment

Whilst the theoretical visual catchment of the site would be expected to be large, the primarily visual catchment is focussed around areas adjoining the stadium and is realistically much smaller than expected. It is defined by imposing and functional buildings set within a highly organised and functional public domain, set in largely flat topography, and patches of trees. The primary visual catchment is highly functional, with people likely to be overwhelmingly transiting as opposed to dwelling.

The matters for consideration in the visual catchment are identified as being:

- The significance of the stadium itself – the overall form of the stadium is not considered to be of high visual value, rather, the monumental scale of the stadium provides significant potential to accommodate and visually absorb changes.
- The Master Plan 2030 features – the Master Plan clearly articulates what are considered to be the important elements of the precinct and site, which are focussed on preserving the physical heritage of the Sydney 2000 Olympic and Paralympic Games including:
  - the Olympic Plaza and the Boulevard, as the main organising element of the urban core;
  - the landscape, including the tree lined streets, parks and green fingers (streets and linear parks running east to west that link the town with the parklands), and the Olympic Markers; and
  - the water features.

Key view corridors are identified in the Master Plan 2030 and replicated at **Figure 58** below.

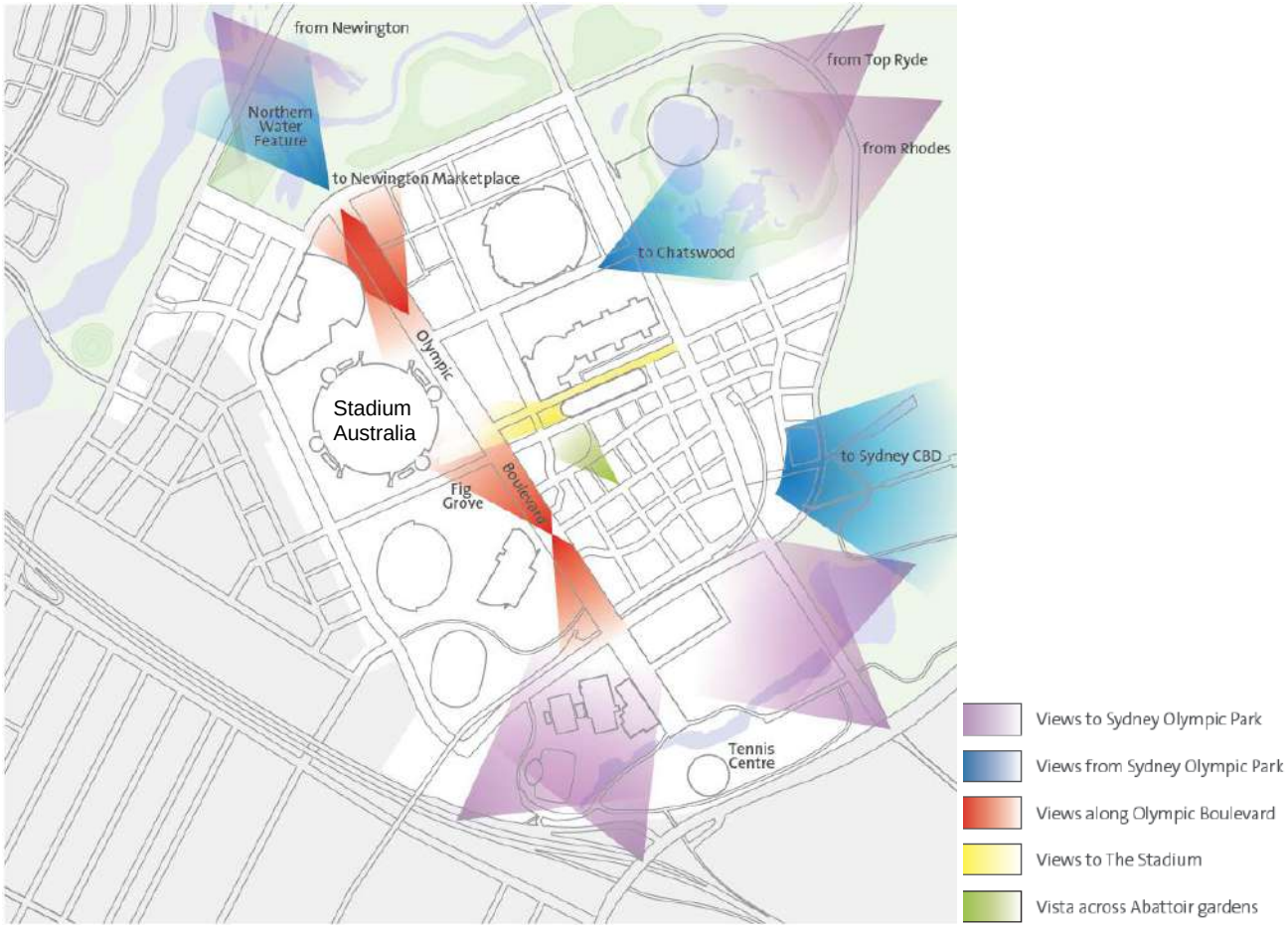

Figure 58 Views to and from the town centre nominated in the Master Plan 2030

Source: SOPA

6.2.2 Views

The viewpoints assessed were selected based on the Master Plan 2030 identification of important views and an assessment of the key viewpoints during a site inspection. It is considered that these viewpoints are representative of the current experience of the primary visual catchment, capturing:

- public domain, in particular those that are highly visited
- all distances – close, medium and long range
- all directions.

In total nine (9) key viewpoints were selected and assessed including from:

- Olympic Park Railway Station;
- Qudos Bank Arena forecourt;
- Brickpick Park;
- Olympic Boulevard just south of the Pullman;
- Newington;
- Dawn Fraser Avenue near the intersection with Edwin Flack Avenue;
- Edwin Flack Avenue near the intersection with Olympic Boulevard;
- Australia Avenue at the entrance to Sydney Olympic Park; and
- Bicentennial Park.

At a high-level, it is noted that stadia and other large, metropolitan region-serving infrastructure are often deliberately designed to be highly visible not just for functional reasons such as accommodating a large capacity, but also as a physical expression of a city's aspirations. This intent should be kept in mind when considering the appropriateness of the visual impact as discussed below.

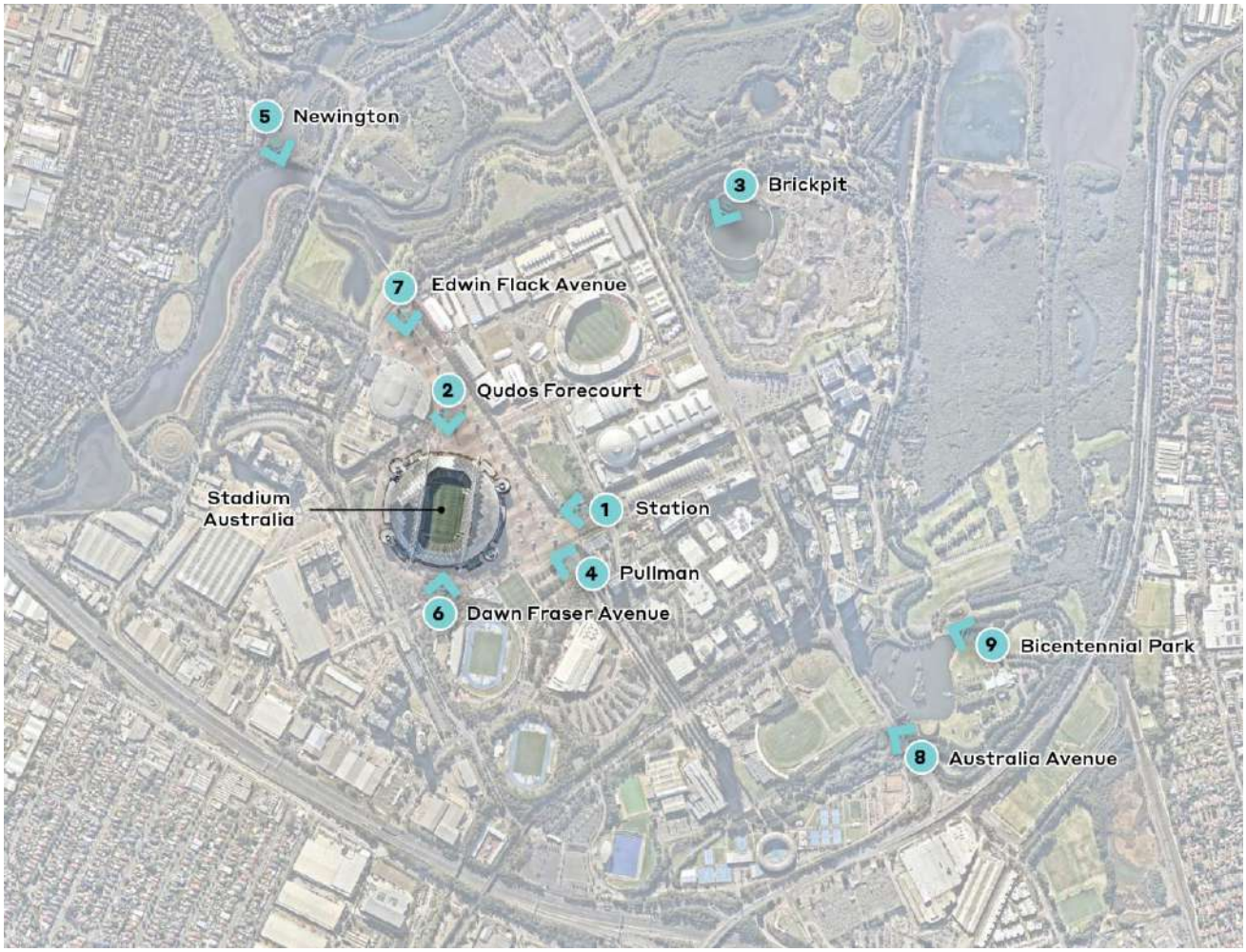

Figure 59 Location of viewpoints

An assessment of the views confirms that there is a predominantly medium to low impact on views by the proposed refurbishment works when compared to the former stadium. A summary of the assessment of each view location including the ultimate level of impact is provided in **Table 15** below.

Table 15 Summary of impacts on key viewpoints

No.	Location of the view	Sensitivity	Magnitude and discussion
1	Olympic Park Railway Station	The property is not visible from this viewpoint.	The proposal is not visible from this viewpoint and as such will result in a legible visual impact.
	 *Existing*	 *Proposed*	
2	Qudos Bank Arena forecourt	The view is signified as being of close range and level with the site that will have a large number of viewers during events, and few ordinarily. The viewing period will be short by those people transiting to and from the venue. The stadium is a focal point in this view.	The view will change the perception of the curving, sweeping nature of the roof form and as such the impact is considered to be low to moderate.
	 *Existing*	 *Proposed*	
3	Brickpick Park	The property is not visible from this viewpoint.	The proposal is not visible from this viewpoint and as such will result in a legible visual impact.
	 *Existing*	 *Proposed*	

No.	Location of the view	Sensitivity	Magnitude and discussion
4	Olympic Boulevard just south of the Pullman	The property is not visible from this viewpoint.	The proposal is not visible from this viewpoint and as such will result in a legible visual impact.
	 *Existing*	 *Proposed*	
5	Newington	The property is not visible from this viewpoint.	The proposal is not visible from this viewpoint and as such will result in a legible visual impact.
	 *Existing*	 *Proposed*	
6	Dawn Fraser Avenue near the intersection with Edwin Flack Avenue	The view is signified as being of close range and level with the site that will have a large number of viewers during events, and few ordinarily. The viewing period will be short. The stadium is visible in the background, however, the variety of other elements, including structures such a light poles and signs and in particular trees reduce its visibility and soften its appearance.	The magnitude of the proposed change is moderate compared to the existing situation. However, the visibility and perception of change and dominance of the new built form is heavily mitigated by intervening trees and the variety of other elements in the foreground and middle ground.
	 *Existing*	 *Proposed*	

No.	Location of the view	Sensitivity	Magnitude and discussion
7	Edwin Flack Avenue near Olympic Boulevard	The view is signified as being of medium range and level with the site that will have a large number of viewers during events, and few ordinarily. The viewing period will be short. The stadium is barely visible in the background, with this view being dominated by the Qudos Bank Arena in the foreground.	Due to its distance from the viewpoint and the dominance and obstructive nature of Qudos Bank arena, visual impact at this viewpoint is low.
	 *Existing*		 *Proposed*
8	Australia Avenue at the entrance to Sydney Olympic Park	The property is not visible from this viewpoint.	The proposal is not visible from this viewpoint and as such will result in a legible visual impact.
	 *Existing*		 *Proposed*
9	Bicentennial Park	The property is not visible from this viewpoint.	The proposal is not visible from this viewpoint and as such will result in a legible visual impact.
	 *Existing*		 *Proposed*

Recommendation

The VIA confirms that whilst the nature of visual change is notable from a small number of view points (2, 6 and 7), the impact of the change is low and is considered to be appropriate having regard to the provisions of relevant parts of applicable planning instruments. In particular, it will not obstruct or fundamentally alter the nature of views obtained from key vantage points as identified in the Master Plan 2030, and will not result in view loss from locations in the public domain. Accordingly, no further study or refinement is required and no specific mitigation measure has been nominated. The residual impact of the proposal is considered to be the same.

6.3 Environmental amenity

6.3.1 Overshadowing

Overshadowing plans have been prepared by COX Architecture (**Appendix B**) and replicated at **Figure 60** illustrating the shadow cast by the stadium during the winter solstice, being the time of year when there is the greatest potential for overshadowing. The plans demonstrate the difference between the existing and refurbished stadium and confirm that:

- The additions to the stadium will generate new shadows between 9am and 11am on the public domain and circulation space to the south of the stadium. These shadows do not extend onto any neighbouring site and are limited to a short period of time, meaning there is only a limited impact to pedestrian amenity internal to the site.
- No shadows extend to the Carter Street Precinct and future residential development to the west of the site at any time, ensuring the amenity of future development within this precinct will not be impacted.
- No additional shadows are cast to the east of the site, meaning there is no change to the Olympic Boulevard pedestrian thoroughfare or to Cathy Freeman Park.

Shadow diagrams have also been prepared for the summer solstice (22 December) and the equinox (22 March), demonstrating that at other times of the year the extent of change in overshadowing is minimal or nil. Accordingly, it is clear that the proposed works will not give rise to any unacceptable overshadowing impacts and will protect the amenity of residential areas and open space.

Recommendation

The assessment confirms that the proposed development does not result in any significant or adverse overshadowing, and as such no further study or refinement is required and no specific mitigation measure has been nominated in this instance.

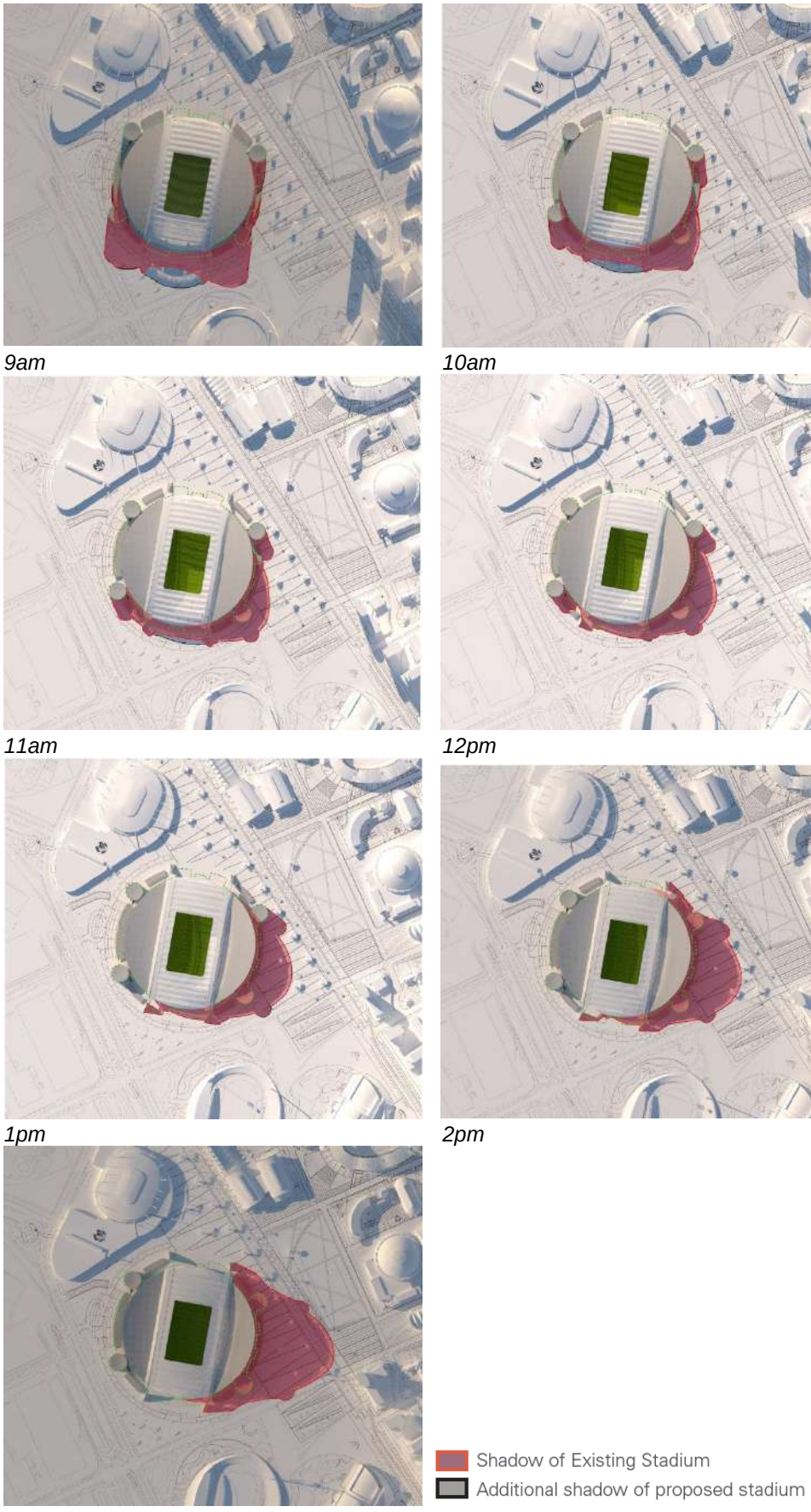

Figure 60 Shadow cast by the refurbished stadium during the winter solstice, as compared to the existing stadium

Source: COX Architecture

6.3.2 Pedestrian wind environment

Arup has completed a qualitative assessment of the wind conditions of the site to determine the potential impacts associated with the proposed refurbishment works (see **Appendix R**). The Environmental Wind Assessment applies the Lawson Criteria to determine the pedestrian comfort and safety in the public domain surrounding the stadium. This criteria is considered to be the applicable means of assessing the site as it determines the regular wind conditions of a site, rather than the maximum wind conditions without duration or probability of their occurrence as is the case in the criteria nominated in the *Parramatta Development Control Plan 2011* (Parramatta DCP). It is noted that the Master Plan 2030 does not nominate a wind criterion.

The Assessment confirms that the typical wind speed around the stadium would be around 5m/s, with some areas windier and calmer depending on the location relative to the stadium and the incidental wind conditions. The majority of locations around the site would, therefore, be classified as suitable for pedestrian standing and walking and as such are suitable for their intended uses. The Assessment confirms that the design is not expected to change the local wind conditions around the stadium significantly, and hence the comfort and safety of pedestrians would be expected to be very similar to the existing conditions. This is in view of the following:

- The new southern facade would be expected to slightly improve the wind conditions affected by winds to the south east, with the north and west sides of the stadium remaining unaffected by winds from this direction. Namely, the new articulated facade enables more wind flow to pass into the terrace, opening the flow path under the roof, and reducing the potential for downwash (see **Figure 61**).
- As the proposed works are contained within the existing stadium footprint and will not alter the existing western stand of the stadium, the proposal will have minimum impact on the wind conditions around the site from winds to the west. The winds from this direction would be pass over the buildings west of the site and travel horizontally around the stadium, encouraging downwash around the west access ramps and the north and south stands.

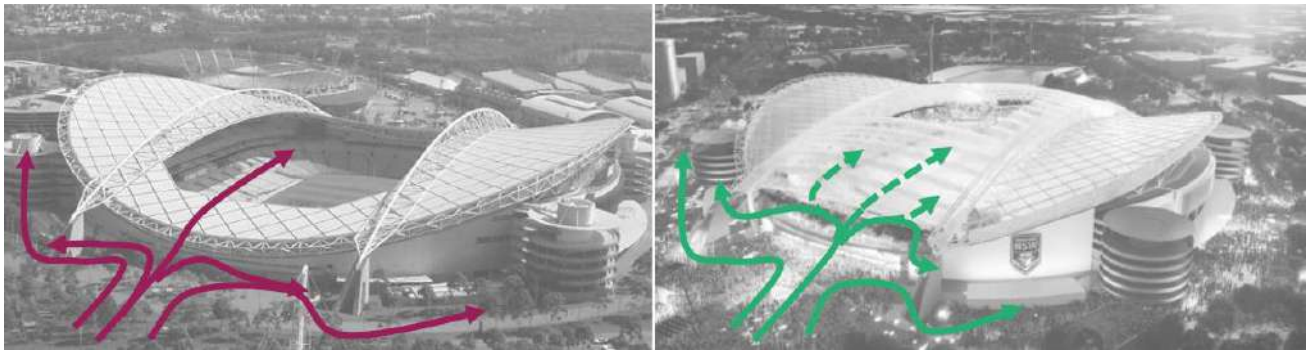

Figure 61 Flow patterns around the southern facade for winds from the south

Source: Arup

Recommendation

Whilst the Assessment confirms that the refurbishment works will not significantly or negatively impact the pedestrian environment, it recommends that amelioration strategies be explored in the form of vertical screens perpendicular to the facade if the area around the stadium is intended to be used for sitting activities such as cafes or outdoor events. In this regard, no additional external facing tenancies are proposed as part of the refurbished stadium and no change is proposed to the existing event overlay spaces. No change is proposed to the public domain areas surrounding the stadium, and as such no further study or refinement is required and no specific mitigation measure has been nominated in this instance.

6.3.3 Reflectivity

The materials selected for the external changes to the stadium, including the new roof and the northern and southern facades, were chosen to minimise reflectivity. The PTFE Tenara roof material is known as a UV blocker, whilst the adonised aluminium fins and concrete-like materials achieving a matte texture. Highly reflective materials such as glass will be limited in their application. All materials will achieve a spectral finish of less than 20%.

Recommendation

Through the selection of appropriate materials and finishes, proposed development will not result in any significant or adverse privacy impact. The following Mitigation Measure has been nominated to ensure the achievement of the reflectivity requirement.

Mitigation measure	Indicative timing
All external materials and finishes that are visible from a public road and footpath are to have a spectral reflectivity of less than 20%.	To be detailed in the construction drawings.

6.3.4 Lighting

Feature lighting has been proposed on the roof to illuminate the roof canopy at night as well as in the form of LED lighting strips at the new stadium entrances, and new lighting will be incorporated into the roof structure to illuminate the pitch. The following is noted:

- The new pitch lighting will be directed downwards from the stadium roof, ensuring no lighting is directed upwards or at neighbouring properties.
- Maximum lighting levels will only occur during night professional sporting events, with reduced levels used during night-time training sessions. The feature roof lighting would only be used during major events, and will be designed and operated to create a subtle colour and has not been proposed to illuminate the public domain or field of play.
- The public domain is to be retained, including existing public domain lighting. The existing mature trees in the landscape will contribute to limiting the obtrusive effects of lighting on the lower levels of the stadium.

All lighting will be designed to achieve the relevant Australian Standards for controlling the obtrusive effects of outdoor lighting.

Recommendation

The proposed lighting supports the ongoing operation of the stadium as well as enhancing the hirer and spectator experience, contributing to the ability to attract and host events and the ongoing viability of the stadium. The detailed design and operation of this lighting will ensure achievement of the relevant Australian Standards and that the obtrusive effects of lighting are appropriately managed. The following Mitigation Measure is recommended.

Mitigation measure	Indicative timing
All applicable outdoor lighting will be design, installed, and operated in accordance with the relevant Australian Standards; AS4282 and/or AS/NZS 1158.3.1.	To be detailed in the construction drawings, where relevant, and inform the future operation of the stadium site.

6.3.5 Visual privacy

The nearest residential receivers are within the Carter Street Precinct on the western side of Edwin Flack Avenue, and there is tourist and visitor accommodation in the Quest and Ibis apartments to the south east and a Novotel to the south west of the site. The eastern and western wings of the stadium have been retained in their current form, and the new northern stadium entrances faces into the sporting and entertainment precinct, ensuring that only the new southern stadium entrance has the potential to result in visual privacy impacts.

The southern stadium entrance and new facade are significantly separated from surrounding receivers, which (whilst not applicable) are well in excess of the building separation requirements of the NSW Government's A*partment Design Guide*. This interface is also screened by existing mature tree planted along the frontages of Edwin Flack Avenue and Dawn Fraser Drive, and the entrance is angled and offset from the Dawn Fraser Drive street frontage meaning the new opening on the southern facade will not directly align with the facade line of future residential development addressing Edwin Flack Avenue. This ensures that only oblique distant views would be possible from the southern facade, further noting that these surroundings buildings would also be expected to include screening mechanisms either on the facade or via internal shades/curtains, as is common and best-practice design. This new entrance, and the refurbished stadium generally, will therefore not impact the visual privacy of surrounding development.

Recommendation

It is considered that the proposed development does not result in any significant or adverse privacy impacts, and as such no further study or refinement is required. No specific mitigation measure has been nominated in this instance.

6.4 Transport, traffic, parking and access

6.4.1 Operation

At a high level, it is emphasised that the project involves refurbishing an existing stadium and an overall reduction in the capacity of the stadium. The existing arrangements for major event operations will therefore continue to adequately support the maximum levels of crowd attendance. Vehicular, bicycle, public transport, point-to-point, loading and servicing and pedestrian access arrangements will be maintained or improved by the new stadium. Refer to the discussion below and the Transport Assessment prepared by JMT Consulting (**Appendix S**).

Parking

Vehicle parking

As discussed in **Section 4.4** above, the provision of vehicle parking both on-site and off-site will remain the same and unaffected by the proposed development. It is not proposed to provide new dedicated parking within the site for the following reasons:

- the stadium will reduce in capacity as a result of the proposed works, which will in-turn reduce the demand for parking;
- increasing car parking is likely to induce the additional usage of private vehicles for travel to the stadium during events, resulting in increased congestion within the local traffic network and associated environmental costs;
- additional car parking would require the provision of multi-deck or below-ground car parking, which would result in significant additional costs to the delivery of the project, the potential loss of public domain space surrounding the stadium, and potential security conflicts through enabling unauthorised access to the stadium basement; and
- there is no strong need for the provision of additional parking given the stadium benefits from extensive existing facilities for coaches, taxis and other point-to-point transfers, bicycle paths and parking, and an existing public transport network that enables patrons and staff of the stadium to utilise other existing and future modes of transport (as discussed further in the section below).

This policy of no additional car parking adopted by the proposed development complements the strategy of promoting public transport, walking and cycling to access the stadium and reducing the reliance on private vehicles.

Bicycle parking

It is proposed to formalise bicycle parking for use by staff, providing facilities for at least 5% of permanent staff. This will assist in encouraging staff to travel via sustainable modes of transport, recognising that workers have a higher existing rate of using private vehicles in their journey to work.

There are 150 existing visitor bicycle parking spaces provided in the surrounding precinct, which will be publicly accessible at all times and which JMT confirms are suitable to continue to service the venue.

Travel demand and capacity

As discussed in **Sections 2.1.2** and **4.4** above, no change is proposed to the majority of existing access, parking and servicing arrangements as these are considered to be adequate to service the stadium as discussed below.

Mode share

JMT Consulting (JMT) undertook surveys to understand the existing travel patterns of people attending major events at the stadium. The survey comprised 2,200 individual responses and demonstrated that the majority of patrons attending the stadium either utilised public transport in their journey (62%) or drove (25%), with the remaining (13%) using taxi, ride-share, walking, event coaches, or other forms of transport. This demonstrates that the majority of patrons of the existing stadium rely on the available public transport options during events, which would be supported by the existing integrated ticketing model (as discussed further below). Transport for NSW's Journey to Work Data indicates that unlike patrons, workers more commonly utilise cars when travelling to and from the site, although, public transport still represents a significant one third of all journeys.

Using this as a baseline, the Transport Impact Assessment at **Appendix S** confirms the expected mode share for the proposed stadium which is included at Table 8 of the Assessment. The mode share assumes different scenarios for regular events (25,000 attendance), major events (sold-out 70,000 attendance), and concerts (sold-out 70,000 attendance plus an additional 20,000 on the field of play).

Private vehicle

The use of private vehicles when accessing the stadium is expected to reduce as a result of the reduced capacity of the stadium and the future improvements to the public transport network. JMT forecasts that the reduced capacity will translate to a 19% reduction in the number of people driving to the venue for major events, which will translate into an improvement to the operation of the surrounding road network without the need for upgrades.

It is understood that the NSW Government are also progressing with improving access to Sydney Olympic Park via the construction of a new westbound off-ramp from the M4 Motorway onto Parramatta Road. These upgrades would enhance the connectivity and capacity of the road network, which would positively impact the operation of the stadium particularly with regard to the main approaching route for the P1 carpark from Hill Road.

Public transport

Public transport is heavily utilised for the existing stadium, and is expected to continue to be utilised for the refurbished Stadium Australia. No further enhancements to the public transport network are considered necessary to support the proposed project in view of the following:

- the site is serviced by a combination of heavy rail services to Olympic Park Station, nine (9) special event bus routes, as well as commuter bus routes that provide a high level of accessibility and capacity in the public transport network;
- the stadium will benefit from two new major public transport projects, being the Sydney Metro West and Stage 2 of the Parramatta Light Rail, which will offer capacity relief to the existing heavy rail network and significantly improve access for residents living in Parramatta and areas north of the Parramatta River; and
- the reduction in the capacity of the stadium will also reduce the forecast travel demand on public transport services.

In view of the above, the proposed development is not considered to adversely impact the capacity of the existing public transport network.

Cycle, taxi, rideshare and coaches

As detailed in **Sections 2.1.2** and **4.4** above, the proposed development is adequately serviced and no change is proposed or required for the capacity of access arrangements for these other modes of transport. There are strong existing networks, parking and set-down or pick-up facilities, and management processes in place to enable the refurbished stadium to continue to operate. The reduction in the capacity of the stadium would also likewise result in a reduction in demand, further enforcing that the existing arrangements are appropriate.

Pedestrian

Stadium Australia and the surrounding public domain were design and constructed for the Olympic and Paralympic Games, at a time when the stadium had capacity for +110,000 patrons and the precinct was expected to accommodate significant numbers of spectators, volunteers, athletes and officials across multiple venues. Stadium Australia, specifically, was designed with a minimum 25m wide pedestrian circulation space surrounding the stadium and external circular ramps as well as internal stairs and lifts to enable safe and efficient access and

egress. These key design features are retained in the refurbished stadium, in addition to providing two (2) new stadium entries on the northern and southern wings and an enlarged internal pedestrian concourse to benefit pedestrian movements. When paired with the overall reduction in the capacity of the stadium, it is considered that the stadium and external public domain remain capable of accommodating pedestrian movements associated with major events without requiring upgrades, when managed appropriately in accordance with the operating procedures discussed further below.

Servicing and loading

No change is proposed to the existing loading and servicing arrangements for the site. JMT confirms that although there will be an increased in available food and beverage options and improved corporate facilities, this is to be entirely offset by the reduction in demand associated with the revised stadium capacity. The current provision of loading and servicing spaces in the basement is considered sufficient to accommodate the future needs of the venue.

Travel Demand Management Strategy

JMT has prepared a Travel Demand Management Strategy outlining practical measures and initiatives to ensure that the refurbished stadium supports and works towards the greater use of sustainable modes of transport to reduce car dependency. Whilst it is recognised that the existing stadium already operates with a high proportion of users opting for sustainable transport options, the objectives are to:

- generate a high modal share for public transport, cycling and walking journeys for both staff and spectators;
- ensure adequate facilities are provided at the site to enable users to travel by sustainable transport nodes; and
- raise awareness of sustainable transport amongst users.

The measures and initiatives are summarised in the table below.

Table 16 Summary of Travel Demand Strategy Initiatives

Section	Initiative
Infrastructure Measures	• No additional vehicle parking compared to current levels. • Providing secure bicycle parking and end of trip facilities for use by staff. • Working with TfNSW and other key agencies to deliver improvements to the public transport network such as Sydney Metro West and Stage 2 of the Parramatta Light Rail.
Educational and Promotional Measures	• Improve travel information on the stadium website around public transport and walking/cycling routes. • Work with ticket agencies to provide customers with travel information when purchasing tickets. • Making staff aware of available facilities as part of the induction process.
Integrated Ticketing	In some instances, the cost of public transport is integrated into the ticket for the event encouraging the use of public transport. Integrated ticketing arrangements are in place for all events at Stadium Australia, which has proven to be a successful method of encouraging patrons to use public transport when accessing the site. These arrangements will continue for the refurbished stadium, noting that the extent of public transport services offered is dependent on the event size.
Monitoring Mechanisms	Develop a monitoring system to assess the effectiveness of initiatives and make recommendations for improvements. Monitoring measures could include: • collecting data on employee travel patterns for journeys to work; • conduct surveys prior to the start of an event to understand changes to visitor travel patterns; • review the demand for on-site parking for different events held at Stadium Australia; • review Opal patronage data for public transport and counts at the major event bus terminals; and • assess demand for bicycle parking facilities in the precinct.

Source: JMT Consulting

These initiatives demonstrate a commitment to creating a more sustainable and resilient stadium, with improved operations that reduce the impact on the local and wider environment.

Recommendation

The Transport Impact Assessment considers the implications of the continued operation of the stadium and identifies potential opportunities to improve the use of sustainable transport options when travelling to and from the site. The assessment confirms:

- that the stadium will continue to operate comfortably within the existing transport network, and does not necessitate any upgrades or changes to the existing network;
- that the stadium will not require any changes to the existing event overlays and procedures, with none of the works impacting the existing arrangements by SOPA for road closures, taxis, rideshare vehicles, coaches and special event buses in proximity of the stadium;
- that the peak travel demands of the stadium would improve, recognising that the overall capacity of the stadium will reduce and there are significant planned improvements being completed by the NSW Government that will benefit the site with regard to public transport and road upgrades;
- that cycling access to the site for staff will be enhanced through formalising onsite bicycle parking, with no change proposed to the existing provision of general patron parking in the public domain; and
- that there is adequate vehicle parking within the stadium and in the surrounding precinct to support the ongoing operation of the stadium, and that increasing available parking in this instance is not appropriate.

No specific Mitigation Measures are nominated for the operation of the stadium in the assessment at **Appendix S**, and as such the following is recommended.

Mitigation measure	Indicative timing
A detailed Travel Demand Strategy is to be prepared outlining practical measures and initiatives to ensure that the refurbished stadium supports and works towards the greater use of sustainable modes of transport to reduce car dependency. The Strategy is to include a two-yearly review system to assess travel demand and make refinements to the initiatives.	Prior to the commencement of operations, and ongoing

6.4.2 Construction

Construction vehicles and traffic

Vehicles that access the site during the construction process will mainly be heavy vehicles such as articulated vehicles (AVs) and heavy rigid vehicles (HR). The number of these heavy vehicles accessing the site is forecast to vary between 30 to 60 vehicles a day, or 3 to 7 vehicles per hour, depending on the stage of the project (see **Table 17**). JMT confirms this traffic is minimal in the context of existing traffic movements in the precinct, and that it is not anticipated to impact road safety and the safe operation of key intersections with regard to the following:

- the construction routes identified in **Section 4.10** will ensure that access to and from the site by heavy vehicles occurs predominantly using major multi-lane roads and that heavy vehicles will not traverse through local roads until the last leg of the journey;
- vehicles entering and exiting the precinct will be controlled by traffic lights at the intersection of Dawn Fraser Avenue and Edwin Flack Drive, safely managing the movement of vehicles into and out of the area;
- Olympic Boulevard will not be utilised ensuring vehicles do not coincide with major pedestrian activity areas;
- vehicle access into and out of the site will be left-turn only, with the exception of the proposed access point on Dawn Fraser Avenue that has low traffic flows and a low likelihood of conflicts; and
- all footpaths and cycleways will remain open and unaffected during the construction period.

Table 17 Construction vehicles

Stage	Duration	Average weekly traffic generation	Maximum hour traffic generation
Procurement and establishment	30 days	30 vehicles	3 vehicles
Demolition	240 days	210 vehicles	6-7 vehicles
Refurbishment	720 days	210 vehicles	6-7 Vehicles

Source: JMT Consulting

Light vehicles accessing the site comprise workers. Typically, the deconstruction phase will require a workforce of 50 people whilst the construction phase may accommodate up to 300 people. If assuming a portion of workers will carpool, with an average occupancy of 1.5 people, the proposed works would generate 33 vehicles during the deconstruction phase and 200 vehicles during the construction phase. This vehicle generation is comparable to that from event day staff when the former stadium was operational, noting that construction workers would start and finish earlier, ensuring an equivalent or lesser impact.

Parking

No on-site parking is proposed or considered necessary to accommodate the expected construction workforce. Workers will be directed to use the existing parking stations within the precinct and the existing public transport network to access the site, which are capable of accommodating well in excess of the maximum 300 workers expected during the construction phase of the development.

Access and movement impacts outside of events

No works are identified in the surrounding road network or footpaths, or that would extend beyond the nominated construction compound. As such, the proposed construction works will not impact existing pedestrian and cycle routes or public transport services. Likewise, access to the site and surrounding buildings for emergency vehicles will be maintained. Emergency protocols on the site would include a requirement for suitably accredited site personnel to assist with emergency access from the street.

The preliminary Construction Management Plan prepared by Aver is provided at **Appendix J** and identifies public and property protection measures to reduce conflicts between construction works and the general public. These include measures such as installing signage identifying the continuance of pedestrians and cycle paths around the stadium, and managing access and egress locations with qualified traffic controllers to avoid conflicts with heavy vehicles.

Access and movements impacts during events

In addition to the above, consideration has been afforded to the management of construction traffic in relation to events occurring in the surrounding precinct. JMT confirms that events will remain unaffected in view of the following:

- the proposed temporary construction compound boundary does not impede pedestrian movements to or from surrounding venues including Qudos Bank Arena;
- no construction works or construction vehicles will access Olympic Boulevard, ensuring the main pedestrian thoroughfare is protected and event buses will continue to be able to access the existing bus terminals; and
- construction site access points will not conflict with the existing service vehicle access point into Qudos Bank Arena from Edwin Flack Avenue.

It is recommended that the appointed contractor consult with SOPA and other key agencies throughput the construction process to manage construction vehicles and works in the context of broader activities occurring within the precinct.

Cumulative construction impacts

The preliminary construction traffic management principles developed by JMT have been considered in conjunction with the ongoing construction works occurring in the adjacent Carter Street Precinct. In particular, the construction vehicle access paths and site entrances have been selected to ensure they do not overlap with construction vehicles accessing the Caster Street Precinct, thereby reducing the overall impact on the road network. The appointed contractor will be required to continue to engage with key agencies including City of Parramatta Council, Transport for NSW, and SOPA through the construction period to ensure the cumulative impacts with other construction projects are understood and managed.

Recommendation

The assessment by JMT includes a preliminary consideration of the access and operation of construction traffic associated with the proposed development with respect to safety and capacity, ensuring that the construction of the stadium will not result in any long-term, or adverse external environmental impacts. The assessment confirms that the traffic and vehicle access routes required to construction the stadium will not result in any significant or adverse impacts. Notwithstanding this, prior to the commencement of works on the site, the appointed contractor will be required to prepare a detailed Construction Pedestrian and Traffic Management Plan (CPTMP) incorporating measures for consulting with relevant stakeholders throughout the construction process to ensure cumulative construction impacts are identified and appropriately managed.
JMT confirm the following:

- The number of construction vehicles associated with the construction of the stadium does not warrant any modifications or upgrades to the road network.
- Parking stations in the surrounding precinct and existing public transport connections are capable of accommodating the peak construction workforce on the site during the construction process.
- Construction works on the site have the potential to overlap with construction works in the adjoining Cater Street Precinct and potentially other surrounding areas, and whilst the nominated construction routes do not coincide with those used by other existing development sites, ongoing management and consultation will be required.

JMT nominates Mitigation Measures to be adopted during the construction phase to mitigate impacts. These have been included in the table below, in addition to other suggested measures.

Mitigation measure	Indicative timing
A detailed Construction Pedestrian and Traffic Management Plan will be developed with the appointment contractor confirming the detailed construction methodology and specific measures for safely managing construction traffic in the surrounding area. The Plan is to include information of site compound locations, driver facility areas, vehicle turning paths within the site, and traffic control plans.	Prior to the issuance of a construction certificate
The appointed contractor will consult with TfNSW (Sydney Coordination Office), Parramatta City Council and SOPA at regular intervals where construction works overlap with other construction projects in the precinct.	During construction
No roads or footpaths are to be obstructed as part of the proposed works. If temporary road closures are required, the appropriate permission is to be obtained separately through the normal approvals process.	During construction

6.5 Sustainability

Stadium Australia has the opportunity to maintain and enhance the successes, and rectify the failures of, its own existing operations and to draw on the experiences of design and development of other successful modern stadia within Australia. The Environmentally Sustainable Development Strategy by Aurecon (**Appendix H**) details how the proposed refurbishment will enhance the overall sustainable design and operation of the stadium. The proposed works are targeted to achieve a 5 Star Green Star rating through implementing a range of sustainability measures as outlined in this Strategy and the discussion in **Section 4.5** above. The identified measures will address the high observed baseload energy consumption of the stadium outside of events, which has been attributed to facilities, lights, and equipment not automatically shutting down when not in use, and will further support the use of sustainable transport options and the efficient use and reuse of water. Aurecon confirm that the realisation of at least 60 Green Star points is very achievable for the stadium.

In addition to Green Star, the stadium has been assessed against the relevant sustainability framework including the *Sydney Olympic Park Environmental Guidelines 2008*, the *NSW Energy Efficiency Action Plan*, the *NSW Government Resource Efficiency Policy,* and the National Construction Code. This confirms that, where applicable, the proposed development is consistent with the relevant water conservation, energy conservation, material selection, and pollution control objectives and measures.

Recommendation

The Strategy at **Appendix H** outlines the minimum compliance requirements of the refurbished stadium to address energy, water and materials efficiency as well as climate resilience in accordance with the relevant sustainability framework. These enable the achievement of a 5 star Green Star rating, and ensure the stadium is overall more environmentally responsible in the consumption of resources and creates a more enjoyable and healthier experience for spectators and visitors. No Mitigation Measures are nominated by Aurecon, and as such the following is recommended.

Mitigation measure	Indicative timing
The detailed design of the stadium is to achieve a minimum 5 Star Green Star rating (Design & As Built v1.3), with consideration of the initiatives identified in the Environmentally Sustainable Development Strategy prepared by Aurecon (27 August 2019).	Once operational

6.6 Noise and vibration

Arup has completed a Noise and Vibration Impact Assessment (**Appendix T**), to identify and provide a quantitative and qualitative assessment of the noise and vibration generating sources produced during the construction and operation of the stadium. The assessment considers the surrounding land uses and the noise criteria and outlines mitigation and management strategies that have shaped the final design and operation of the stadium.

6.6.1 Noise environment

The site is located within an existing sporting and entertainment precinct influenced by surrounding venues such as Qudos Bank Arena, Sydney Olympic Sports Halls, Cathy Freeman Park and Sydney Olympic Park Aquatic and Athletic Centres as well as various other commercial, residential, hotel and industrial development concentrated outside of the core of venues. The main noise sources in the local environment are:

- intermittent road traffic along roads within the precinct, and constant traffic on the roads external to the precinct including the M4 Motorway;
- activities at surrounding venues such as sporting events and concerts, training, rehearsals and cultural events, recognising that events have been a feature of the site and surrounds since the 2000 Olympic and Paralympic Games;
- local community and pedestrian activity;
- nearby commercial operations;
- construction from the ongoing renewal of the Carter Street Precinct;
- natural surrounds; and
- aircraft.

The density of surrounding land uses and the scale of the site necessitates classifying the surrounding environment into Noise Catchment Areas (NCAs) that accommodate groups of receivers with similar Rating Background Levels, as shown in **Figure 62** below.

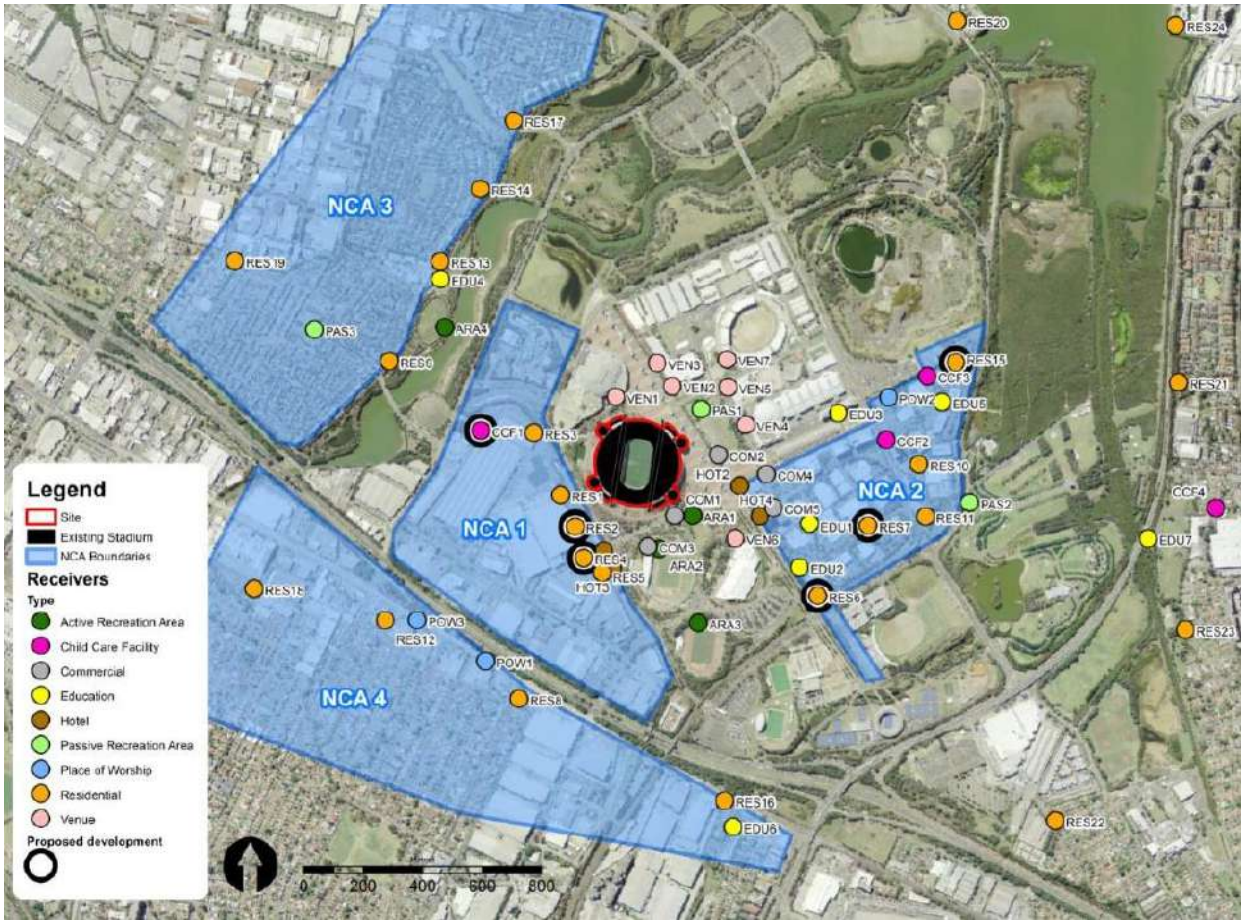

Figure 62 Noise catchment areas and receive types

Source: Arup

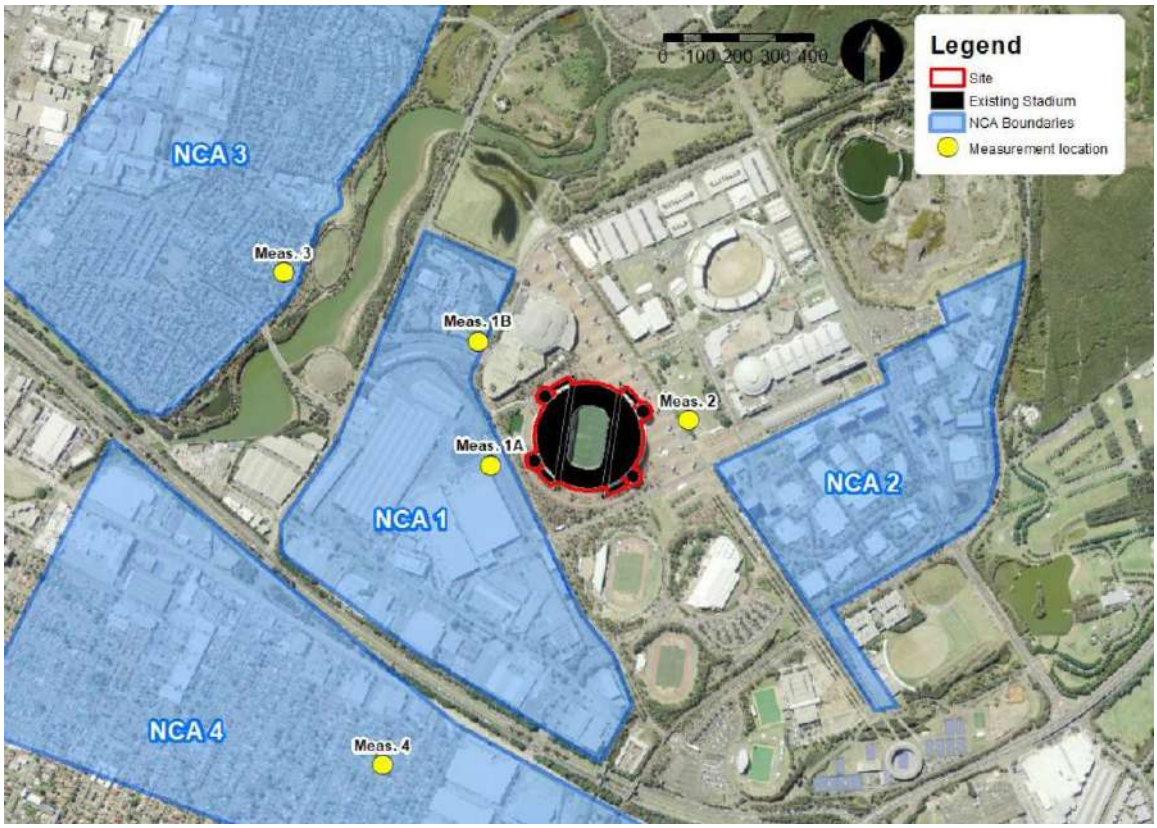

Figure 63 Measurement locations within the noise catchment areas

Source: Arup

6.6.2 Operation

No changes are proposed to the everyday operation of the stadium including external mechanical plant, vehicle access, parking and loading and servicing, and the like ensuring that no assessment of operational noise emissions other than those emitted from events in the new stadium is considered necessary. For completeness, no additional acoustic treatment for non-event operational noise is recommended as part of the redevelopment works.

Consistent with the operation of the former stadium, the most significant noise sources emanating from the refurbished stadium would be from noise and announcements from amplified sound systems and crowd noises during sporting, concert and other entertainment events. In this instance, the higher tiered seating at the northern and southern ends of the stadium will slightly increase the shielding of surrounding receivers from these noise sources. The acoustic modelling completed by Arup indicates that this shielding will result in a minor reduction of less than 1 dB for sporting events and a negligible reduction for concert events. Accordingly, the assessment determines that there will be no increased noise emissions, with minor predictions at the majority of surrounding residences, and as such no additional acoustic treatment is considered necessary to continue to host events at the refurbished stadium.

It is further noted that the Master Plan 2030 encourages the imposition of positive covenants on surrounding development, to register the likely noise levels on the title, and ensure other landowners and lessees are aware of and acknowledge the environmental and operational conditions that arise from being in proximity of sporting, events and entertainment business. This is also reflected in the Cater Street Precinct Development Control Plan which acknowledges the Precinct's proximity to significant existing sports and entertainment infrastructure. Whilst the continued operation of the stadium will not increase the existing and historic noise emissions from events hosted at the stadium, these mechanisms recognise that the continued operation of the stadium and other venues in the precinct should be protected while surrounding areas are being redeveloped for mixed uses.

Recommendation

Arup confirms that the proposed stadium is modelled as complying with the established noise limits for concerts and sporting events and will not increase noise emissions when compared to the former stadium. No additional acoustic treatment is considered necessary to continue to host events at the refurbished stadium, and as such no further refinement or mitigation measures are considered necessary.

6.6.3 Construction

Construction works

A noise emission criteria has been established by Arup with consideration of the program of works for the site, the noise monitoring results captured for the NCAs, and with consideration of the relevant noise policies and guidelines. The predicted noise emissions were then modelled based on the criteria, to determine the potential impacts of construction and demolition activities occurring on the site.

The modelling confirms that exceedances may occur at the nearest residential receivers in the Carter Street Precinct including the existing and future stages of developments at 5 Uhrig Road and 7 Carter Street, Lidcombe. In this instance is it noted that these premises may not be occupied prior to the commencement of construction or for some time into the construction program, and that no residences were identified as being 'highly affected' during any stage of works. These predicted exceedances also represent a conservative worst-case 15 minute period, and would be attributed to the use of such equipment as excavators, impact drills, angle grinders and electric saws. In practice, this equipment is used in short durations and may not be operated concurrently. The noise levels assumed during each stage are expected to be lower than that predicted.

Other minor exceedances are predicted at the NSW Rugby League Centre of Excellence, Ibis Hotel, and Cathy Freeman Park, however, it is not anticipated that the noise levels will impact the operation of these areas. Potential exceedances at Qudos Bank Arena should be managed through liaison with the venue operators to discuss the scheduling of activities and minimising impacts through the Mitigation Measures nominated below.

Construction traffic

The proposed works will increase traffic generation on the local road network including at Edwin Flack Avenue and Dawn Fraser Avenue. Arup have assessed the potential impacts of traffic noise on these two frontages, assuming the maximum worst-case scenario for heavy vehicles and light vehicles accessing the site, and confirm that the additional traffic created is predicted to increase the noise levels by 1.2 dB at 5 Uhrig Road and 1.8 dB at 7 Carter Street. This is less than the 2 dB 'minor impact' criteria, and therefore represents an insignificant effect on the ambient noise environment.

Vibration

Arup confirm that as no significant vibration intensive activities (such as excavation) are proposed as part of the construction works, and the proposed works occurring on the site are significantly separated from other receivers, the likelihood of adverse impacts due to the proposed construction activities is low. This includes either cosmetic damage or human comfort.

Arup has developed minimum working distances between construction zones and surrounding receivers when undertaking high intensity works such as rock breaking, which have been incorporated into the Mitigation Measures below.

Recommendation

The assessment by Arup confirms that there is the potential for surrounding receivers to be impacted by stages of noisy construction activities occurring on the site, and as such Arup has detailed recommendations to control construction noise during periods when exceedances are predicted above the relevant criteria. In this respect, it is recommended that the detailed Construction Environmental Management Plan for works occurring on the site be accompanied by a Construction Noise and Vibration Management Sub-Plan (CNWMSP).

Arup also confirms that there are no adverse identified impacts requiring significant monitoring and management with regard to vibration and construction traffic.

Mitigation measure	Indicative timing
A Construction Noise and Vibration Management Plan shall be prepared prior to issue of the relevant construction certificate. The Plan will reference the recommendations in Table 24 of the Noise and Vibration Impact Assessment prepared by Arup (August 2019).	Prior to the issuance of a construction certificate
High noise activities will be programmed to occur during the daytime hours wherever possible. In the event that these works are approved to occur out-of-hours, noisy activities should be scheduled early in the night to minimise the impact on adjacent residents. Limit the number of consecutive nights receivers are impacted.	During construction
The contractor will adhere to the minimum working distances in Table 23 of the Noise and Vibration Impact Assessment prepared by Arup (August 2019).	During construction

6.7 Heritage and archaeology

6.7.1 Non-indigenous heritage

Curio Projects has prepared a Heritage Impact Statement (HIS) (**Appendix K**), which examines the potential impact of the proposed development on the heritage significance of surrounding heritage items and heritage conservation areas, as identified under SEPP SSP, the *Heritage Act 1977,* and other statutory registers. The HIS also considers the potential impact of the proposed development on landscape items and settings within, and surrounding, the stadium.

Physical Impact

The main physical impacts associated with the proposed refurbishment of the stadium relate to the demolition and construction of the north and south facades and roof, and minor targeted excavation that is required to install four (4) new cores to support the new stands and roof structures. Curio Projects confirm that the proposed works do not pose any risk of physical impact to any statutory listed heritage fabric or heritage item surrounding the stadium, including the Olympic Cauldron, Newington Armament Depot and Nature Reserve, and State Abattoirs Heritage Conservation Area, which are all located some distance from the proposed construction works occurring on the site.

Visual Impact

Possible visual impacts pertain to the potential for the stadium to impact on views and vistas to and from surrounding heritage items and heritage conservation areas. The HIS makes reference to the VIA addressed in **Section 6.2** above and confirms that due to level changes and existing landscaping, neither surrounding heritage items comprising the Olympic Cauldron or the Abattoir Precinct are visible from the stadium. Views between the Olympic Cauldron and Stadium Australia are softened by the greenery surrounding the monument, with the density of trees obstructing the views of the stadium and minimising the visual impact of any revisions to the form and outline of the stadium. As the form and bulk of the stadium will not change substantially, the proposed alterations will not cause any new visual impact to views and vistas between the Olympic Cauldron and the stadium.

Archaeological Impact

The earliest known non-Aboriginal occupation in the vicinity of Stadium Australia is at Home Bush House, which was located in the vicinity of what is now the intersection of Figtree Drive and Australia Avenue some distance from the site. There was no known development within the area of the stadium until the establishment of the State Abattoir in 1907. The existing stadium is located within the former sailyards of the State Abattoir, in an area with limited built form.

The construction of the original Stadium Australia required bulk excavation in order to create the lowered seating bowl, field of play and basement level of the stadium. These excavation works would have required the removal of potential archaeological resources that might have been present on the site. On this basis, Curio Projects concluded that there was no potential for historical archaeological resources to be present within the footprint of the stadium itself, and a low to nil potential for historical archaeological resources to be present in the surrounding public domain (albeit no changes are proposed to the public domain).

6.7.2 Indigenous heritage

Sydney Olympic Park is part of the traditional lands of the Wann-gal, which stretch along the southern shore of the Parramatta River between Cockle Bay and Rose Hill, which have occupied the area for thousands of years. Notwithstanding, a search of the Aboriginal Heritage Information Management System (AHIMS) database confirms that there are no known artefacts or potential archaeological deposits identified within the site, or within close proximity of the site (see **Figure 62**). The nearest AHIMS site is identified as being 1.3km away.

However, regardless of the original environmental context and registered sites in the vicinity of the subject site, the construction of Stadium Australia included bulk excavation for the installation of the existing basement level of the stadium, which (due to the depth of excavation and the relatively shallow nature of the existing soil profile) would have removed all natural soil profiles with the potential to retain an Aboriginal archaeological signature. Accordingly, Curio Projects confirm that the site has no potential for Aboriginal archaeological deposits to be present.

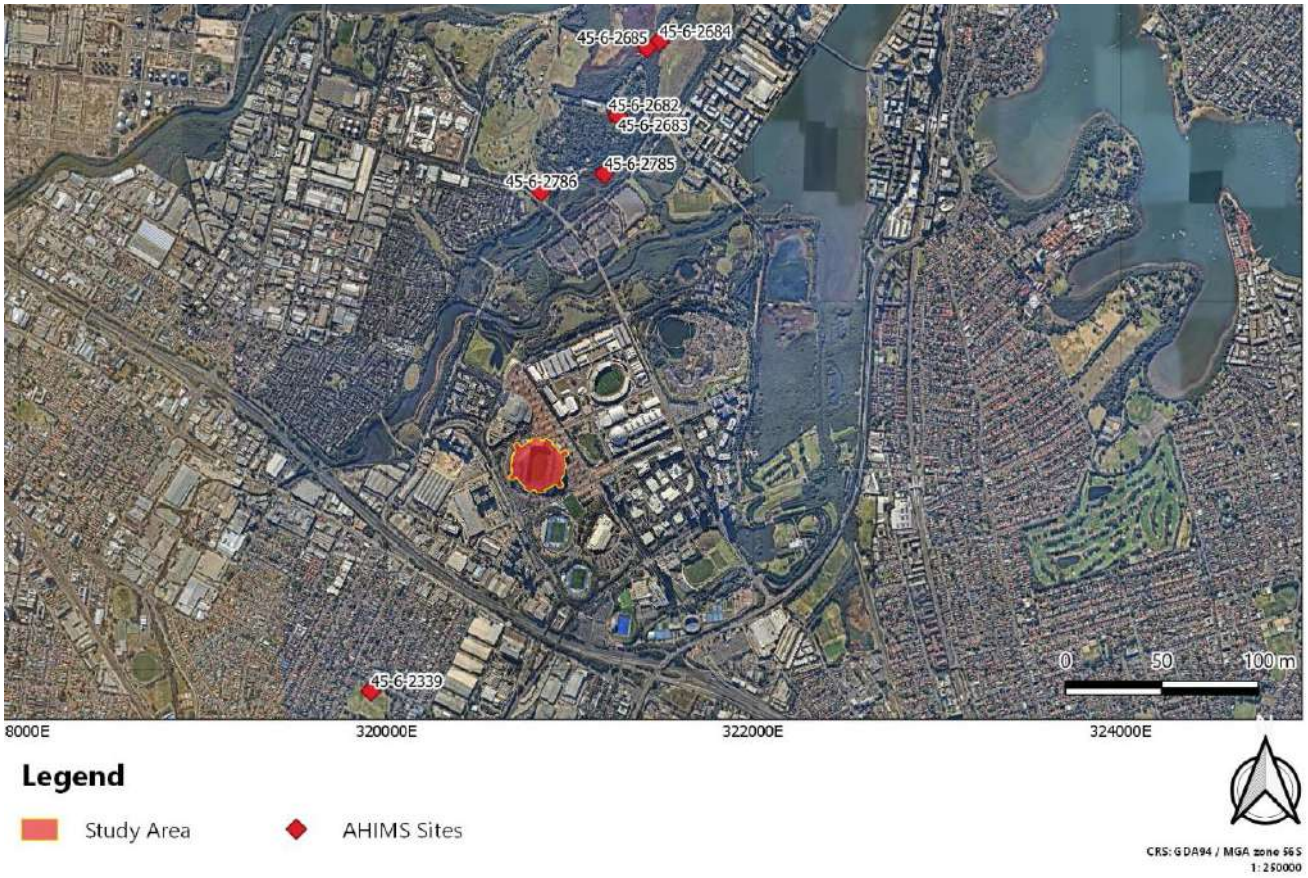

Figure 64 Registered Aboriginal sites and soil landscapes in proximity of the project site

Source: Curio Projects

Recommendation

Curio Projects conclude that the proposed reconfiguration of Stadium Australia poses no visual or physical impact to any statutory listed heritage fabric or heritage item, has no potential to impact any archaeological resource or artefact, and will retain the existing view lines through the precinct, with a neutral impact on the setting and character of the precinct and associated heritage values. The stadium will retain its historical connection to the Olympic and Paralympic Games, safeguarding the legacy of this structure and the site.

No Mitigation Measures are nominated or are considered necessary, with standard conditions for unexpected finds during excavation considered appropriate.

6.8 Social and economic impacts

Ethos Urban has prepared a Social and Economic Impact Assessment (**Appendix AA**) to assess the social and economic impacts associated with the refurbished stadium and to identify the significance of these potential impacts, both positive and negative.

6.8.1 Social impacts

Matters for consideration have included potential impacts on way of life, culture, community, political systems, the environment, health and wellbeing, personal and property rights, and fears and aspirations. In each instance, the Assessment identifies the potential impacts and assigns an overall risk that considers both the likelihood of the impact occurring and the consequences should the impact occur in accordance with the Department's social risk matrix as informed by the *Social Impact Assessment Guidelines (2017)*. The resultant social impacts are identified as follows:

- **Way of life** – the impact to way of life as a result of the proposed refurbishment works is classified as 'likely minimal' during the construction phase and 'rare minimal' during the operational phase. The impacts to local businesses as a result of the lack of major events being hosted at the stadium for a period of up to three years may impact moderately on some local small cafés and businesses. The impact to members is anticipated to be minor/moderate and is dependent on the membership arrangements that can be made during the construction phase. The potential to mitigate is high with opportunities to develop cohesive networks with construction teams and existing business owners in the Sydney Olympic Park area. It is also considered that a communication and engagement program for members is likely to benefit and reduce uncertainty as to the timing and impact on members of the Stadium.
- **Community** – the impact on community cohesion, composition, character, sense of place and how it functions is classified as 'rare minimal' during the construction phase and 'possible minimal' during the operational phase. Impacts are likely to be experienced differently by different groups and individuals. There is currently a limited residential community in the immediate vicinity, noting that the Cater Street Precinct is still in the process of being created, which reduces impacts on residents of the area. There is a high potential to enhance the positive social impacts of the proposed development through taking account of social issues in its delivery and ongoing operational management including minimising or preventing changes to wayfinding and access during the construction process, and increasing opportunities for community interactions and strengthened community cohesion through the operation of the stadium and its contribution to the character of Sydney Olympic Park.
- **Culture** – the impact on shared beliefs, customs, values and stories and connections to land, placed and buildings is classified as 'unlikely minimal' or 'unlikely minor' during the construction phase and 'unlikely minimal' during the operational phase. Given the significant value of the stadium to the cultural history of Sydney and Australia the sensitivity is high. With appropriate mitigation and enhancement measures this is considered to be of low-level severity, which include ensuring measures are employed to maintain cultural connection, values and stories to the site, place and building.
- **Health and wellbeing** – the impact on health and wellbeing is classified as being 'unlikely minimal' during the construction phase and 'rare minimal' during the operational phase. The proposal is likely to positively contribute to an increased awareness of sport and recreation for the wider community and may contribute to an enhancement in sporting participation for the greater Sydney and NSW communities. The ability to enhance these positive benefits is high through effective engagement and participation strategy that connects the operation of the Stadium to the local and broader community.
- **Surroundings** – the impacts on amenity is classified as 'possible minor' during the construction phase and 'rare minimal' during the operational phase. Impacts are predicted to be felt by users of local Sydney Olympic Park during construction phase, albeit there is a high potential to mitigate any negative social impacts and enhance positive contributions, through Construction Management Plans and the development of a Design Statement that recognises the cultural amenity significance of the Stadium and site.
- **Personal and property rights** – the impacts of the proposal on property rights is classified as 'rare minimal' and 'rare minor' during the construction phase and 'rare minimal' during the operational phase. As a state-owned facility, the extent of the social benefit is likely to be experienced by the broader NSW population. Key user groups can also be considered as capturing members, clubs and codes, management and the general public. The overall impact is low however, to ensure the public benefits are realised it will be important to ensure a community engagement plan is developed and delivered for the life of the project to ensure stakeholders personal and property rights are considered and enhanced.
- **Decision making systems** – the impacts of the proposal on decision making systems is classified as 'unlikely minimal' during both the construction and operational phases. The extent of the impact will be felt by different user groups including the Members and users of the stadium and the wider general public with interest in the decision-making system and NSW Stadia Strategy. The potential to mitigate this impact is high.
- **Access to and use of infrastructure, services and facilities** – the impacts of the proposal on the infrastructure, services and facilities is classified as possible moderate) or C4 (possible major) with the cumulative impact of Tier 1 stadia closed for construction during the construction phase, and 'rare minimal' during the operational phase. The extent of the impact will be felt by different user groups including the Members and users of the stadium and the wider general public with interest in the decision-making system and NSW Stadia Strategy. It is important to ensure regular communication and engagement with stakeholders to manage the community awareness and understanding of the Project during both the construction and operational phase.

- **Fears and aspirations** – the impact of the proposal on fears and aspirations is classified as being 'rare minimal' or 'unlikely minimal' during both the construction and operational phases. The extent of the impact is potentially experienced by local residents and occupants of the immediate vicinity and local study area, with aspirational social benefits more likely experienced by the broader Greater Sydney community. Any potential negative social impacts and social benefits can be enhanced through the development and implementation of a cultural and community development social strategy and construction management and safety management plan.

6.8.2 Economic impacts

The proposed refurbishment works provide the opportunity to safeguard the viability of the stadium and the associated economic benefits generated by this major piece of infrastructure. The Assessment quantifies these direct and indirect benefits, as well as identifying the potential negative impacts associated with the completion of construction works on the stadium. The following are summarised as being the economic impacts of the proposed development:

- **Construction employment** – The initial economic impacts generated by the project will occur during the demolition and construction phase, which is expected to span three years. The development cost of $810 million will consist of construction spending and ancillary development costs. This level of economic activity is estimated to support close to 800 full-time-equivalent jobs over the three-year period. In addition, around 1,200 time-equivalent indirect jobs are expected to be created during this time.
- **Ongoing employment** – The around 2,117 to 2,348 additional direct jobs per event are expected to be created as a result of the redevelopment of the stadium. Additional attendees at the stadium would also generate flow on benefits to the surrounding community, the region and the broader NSW economy.
- **Supporting local business** – There is expected to be short-term negative impact on local businesses during the construction process as a result of a reduction in attendees to the precinct. This will be somewhat offset by worker spending during the construction process, and the positive wider spending during the construction phase recognising that the development cost of $810 million consists of construction spending and ancillary development costs.
- **Expenditure** – The resultant refurbished stadium is expected to overall improve expenditure. The frequency and scale of events to be held at the redeveloped stadium is expected to greatly improve the levels of visitation and tourism expenditure within the local area and regional area and to, in turn, increase demand for pre and post event entertainment, food and accommodation and generate more employment for residents in the locality. Value added is estimated at $110 million per annum.

The proposed refurbishment will also have significant unquantifiable economic impacts including:

- **Overall significance** – Stadium Australia is NSW's largest venue and hosts the events that are of the highest economic value to the State. Without redevelopment, Stadium Australia is likely to become less attractive to hirers. Any loss of major events will have a material impact on the Stadium's revenue, will reduce the economic benefit that flows from visitors to the State and impact Sydney's brand as a major events destination. Investment in Stadium Australia thus helps to secure events in NSW for the future.
- **Reputational benefits** – Major infrastructure such as stadia can deliver less tangible benefits by improving the liveability of Greater Sydney and NSW and in turn, improving its ability to attract and retain businesses, industries and people. There is evidence that social infrastructure such as stadia can increase people's pride in their community and generate wider benefits such as improved social cohesion and inclusion (Final Business Case Summary). The reputational benefits are also expected to impact Sydney Olympic Park itself, with the stadium being a centre piece of the precinct. It is therefore critical that it is redeveloped to maintain its relevance, and the relevance of Sydney Olympic Park as a whole.
- **Supporting transformation** – The redevelopment of Stadium Australia is an important part of the vision for Greater Parramatta and Olympic Park (GPOP) as the new Central City within Metropolitan Sydney. The Master Plan 2030 and Greater Sydney Region Plan set the vision to double the number of residents and triple the retail space in this area as part of the overall vision for the Park to become a 'Lifestyle Super Precinct.' The renewal of significant infrastructure is likely to also support ongoing investment in this area to realise this vision.

Recommendation

The Assessment confirms that the proposed development will not result in significant or irreversible impacts to both the local and wider community. It confirms that the key challenges identified with the proposal relate to:

- The cumulative impact on the overall Tier 1 Stadia network, with temporary closure of Stadium Australia likely to align with the construction phase of the Sydney Football Stadium.
- Concerns for the impact on the local businesses within Sydney Olympic Park during construction.
- Short term, temporary changes to the local area, in particular the impact on sense of place with temporary closure of the stadium, resulting in alternations to the local amenity and increased construction workforce within the Sydney Olympic Park Area.
- Risks that the redeveloped stadium will alter the broader community connection to sense of place without the consideration of the social cultural heritage of the site. In this way, the development has been designed to integrate with and recognise the significance of the site in Australia's history as discussed throughout this EIS.

The most significant social benefits of the proposal relate to:

- Significant improvements to sporting and recreational opportunities for NSW, resulting in increased economic and social benefits to the people of Sydney and NSW.
- Improved fan experience from the reconfiguration of the ground to a rectangular field, as well as moving the majority of seats closer to the field of play and the provision of more food and beverage and associated facilities to expand the product offering, resulting in improved economic and financial performance of the Stadium.
- Long term improvements to the quality of place within the local area, aligning with the long-term objectives of the Sydney Olympic Park Master Plan and Parramatta Council strategies.
- Contribution to positive social health and wellbeing outcomes of the broader Sydney population, through the indirect effects of having an enhanced user experience at Stadium Australia.

The most significant economic benefits of the proposal relate to:

- The development cost of $810 million which will consist of construction spending and ancillary development costs. This level of economic activity is estimated to support additional jobs over the three-year construction period.
- Approximately 2,117 to 2,348 direct jobs (full-time, part-time and casual) are expected to be created per event as a result of the ongoing operation of the redeveloped stadium. A further 1,501 to 1,655 indirect jobs (full-time, part-time and casual) per event will be supported in the wider economy (local, regional, state and national) as a result of flow-on multiplier effects.
- The frequency and scale of events to be held at the redeveloped stadium is expected to greatly improve the level of visitation and tourism expenditure within the local and regional area and, in turn, will increase demand for pre and post event entertainment, food and accommodation and will generate more employment for residents in the locality. In addition, a redeveloped stadium will help to secure future events in NSW.
- Redevelopment of the stadium is expected to provide significant reputational benefits for Sydney Olympic Park, Greater Sydney and NSW. Furthermore, the redeveloped facility will assist in the transformation of the Greater Parramatta and the Sydney Olympic Park area.

Whilst the Assessment identifies and nominates responses to issues assessed above, not all responses are actionable (i.e.: can be formed into, or require, an associated Mitigation Measure), rather they also include ephemeral impacts and broad strategies that may be realised through the construction and operation of the stadium. Several identified responses regarding construction impacts and venue safety and security have also already been addressed in the Mitigation Measures nominated in other parts of **Section 6**. Accordingly, the following Mitigation Measure is recommended with consideration of those identified in the Assessment.

Mitigation measure	Indicative timing
The proponent is to provide regular construction updates on the project website, to ensure the community, members and sports codes are kept informed of the construction phases and any potential disruptions/changes to the surrounding environment.	During construction

6.9 Biodiversity

A request to waive the requirement to prepare a Biodiversity Development Assessment Report (BDAR) has been prepared by Jacobs and submitted separately to the Department and OEH prior to the lodgement of this application. A waiver was granted prior to the exhibition of the application. The waiver request provided an assessment of the biodiversity significance and context of the site and determined that the proposed works did not warrant undertaking a further detailed assessment. It confirmed that:

- the development site is highly modified from its original state;
- the existing vegetation within the site, surrounding the stadium, is not naturally occurring and as such does not meet the definition of a 'Plant Community Type';
- there will be no loss of vegetation composition, structure or function because of the project, and as such no offsets can be calculated or would be required;
- the suitability of the site as habitat for threatened species is low, and there is no identified breeding habitat for species in the development site, meaning the development will not have an appreciable impact on threatened species abundance;
- whilst the trees on the site form part of a tenuous link to Haslams Creek, they ultimately do not facilitate the movement of threatened species which are capable flyers and include Grey-headed Flying-foxes, Swift Parrots, and Little Lorikeets, and as such the project is considered unlikely to have a detrimental impact on habitat connectivity;
- the movement of migratory, nomadic or local species will continue unaltered as the proposed refurbishment works do not represent significant new obstacles in the flight path; and
- no threatened species or ecological communities have been identified on the site as being sustained by water quality, water bodies and hydrological processes.

Recommendation

In view of the above, it was determined that the proposed development is unlikely to have a significant impact on threatened species or their habitats, and as such no mitigation measures are identified as being necessary.

6.10 Tree removal

The proposed development will necessitate the removal of 4 trees, as detailed in the Arboricultural Impact Assessment prepared by TreeIQ (**Appendix U**). The removal of these trees facilitates the proposed construction access from Edwin Flack Avenue, noting that much of the frontages to Edwin Flack Avenue and Dawn Fraser Avenue are vegetated and access cannot be facilitated from Olympic Boulevard, thereby limiting the ability to retain vegetation. The trees to be removed were assessed by Tree IQ as follows:

- Trees 199-201 – identified as being early-mature Tallowwood trees, which are relatively small and could be replaced within a short timeframe by healthy, advanced size specimens.
- Tree 203 – identified as being a Spotted Gum in fair health, but with a poor structural condition. There are also multiple, irregular-shaped wounds on the upper trunk which show limited wound-wood development at the margins. Tree 203 has been recommended for removal irrespective of the proposed development works.

The trees surrounding the stadium are listed on the Significant Tree Register under the Master Plan 2030 (refer to **Figure 65**). However, Tree IQ confirm that on an individual basis it is unlikely that any of the trees would meet a standardised criteria for significance due to their young age and relatively small size. Their inclusion in the Significant Tree Register is assumed to be a based on their association with the development of the site and wider Olympic Park area as part of the 2000 Sydney Olympic and Paralympic Games, ensuring the removal of limited trees whilst protecting the broader landscaped setting will not have adverse impacts.

Following the conclusion of the refurbishment of the stadium, the removed trees will be replaced with advance-sized specimens in accordance with *Australian Standard 2303: Tree Stock for Landscape Use (2015)*. The Arboricultural Impact Assessment also outlines the tree protection measures which are to be implemented for the duration of the refurbishment of the stadium.

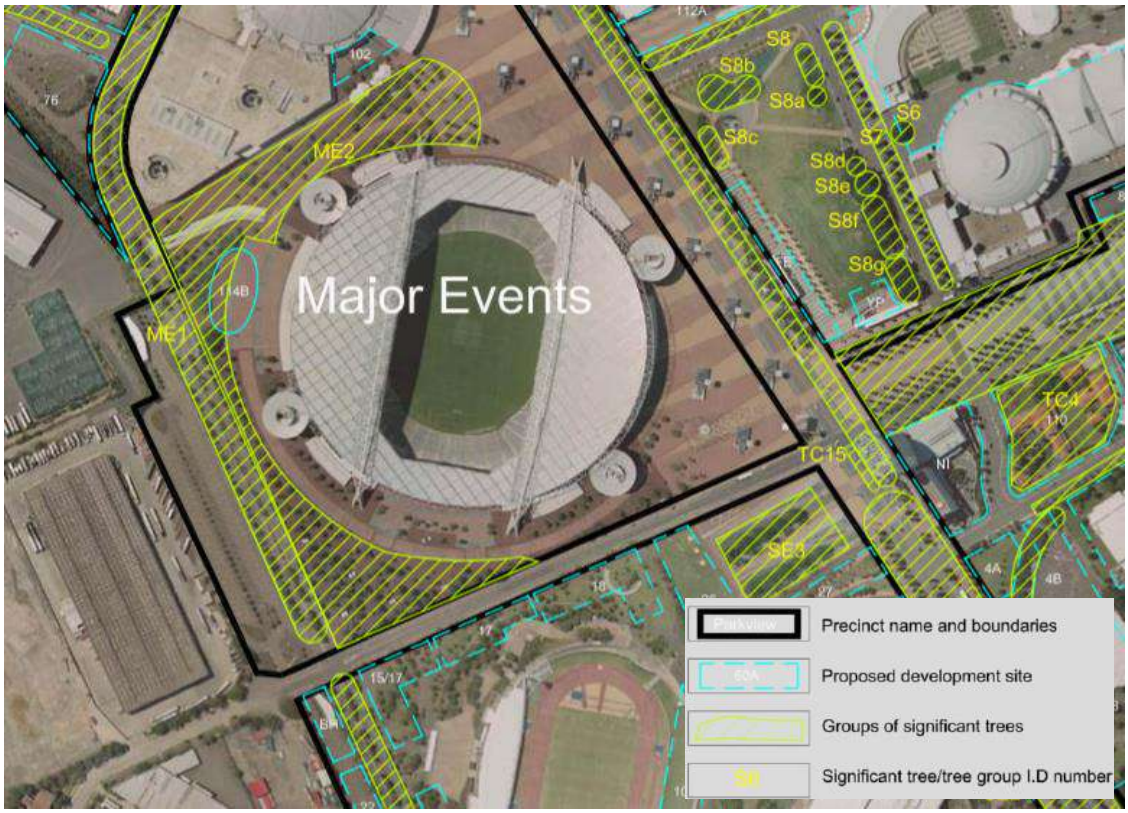

Figure 65 Extract of Significant Tree Survey

Source: SOPA Master Plan 2030

Recommendation

In total four (4) trees (Trees 199-201, 203) are to be removed as part of the proposed development, of which none are identified by Tree IQ as having a high landscape significance or being a priority for retention, despite forming part of the *Significant Tree Register (2008)*. Tree IQ has assessed the potential works occurring within the TPZs of the trees to be retained and provides tree sensitive construction methods to appropriately safeguard these trees and minimise the potential for adverse impacts.

In preliminary consultation with SOPA, it was recommended that advanced-sized replacement planting occur off-site in consultation with and at the direction of SOPA. This commitment is reflected in the recommended Mitigation Measures below, which will ensure the proposal appropriately offsets construction impacts. Notwithstanding, it is noted that the loss of four (4) trees in the greater parkland setting of the stadium and precinct will not adversely or significantly reduce the urban tree canopy.

Mitigation measure	Indicative timing
A Tree Protection Plan is to be prepared by the Project Arborist which assesses the degree of impact to any Tree Protection Zones and provides strategies and mitigation measures for how to minimise or mitigate these impacts. Consideration should be afforded to the recommendations in the Arboricultural Impact Assessment prepared by Tree IQ (21 August 2019).	Prior to and during the commencement of works on the site.
Following the conclusion of the refurbishment of the stadium, the removed trees will be replaced with advance-sized specimens in accordance with *Australian Standard 2303: Tree Stock for Landscape Use (2015),* whether on or off site in consultation with and as determined by the Sydney Olympic Park Authority.	Prior to the commencement of operations, or as otherwise advised by SOPA.

6.11 Water and drainage

6.11.1 Water demand and reuse

Aurecon has prepared an Integrated Water Management Plan (**Appendix V**) identifying strategies and actions to improve the management of water and reduce overall water consumption. It confirms that owing to the reduction in the capacity of the stadium and the proposed upgrade to higher water efficient amenities, the operational water consumption of the refurbished stadium will not exceed that of the existing stadium. The following provides an analysis of the existing and proposed water demands and, therefore, the potential water savings.

Existing scenario

Water consumed by the existing stadium is in the order of 24,193kL of potable water and 27,209kL of non-potable water, annually. The site is serviced by the Sydney Olympic Park Water Reclamation and Management System (SOPA WRAMS) which provides the stadium with non-potable water that is stored via two (2) tanks on the site and used for all toilet and urinal flushing in the stadium. The existing stadium also utilises four (4) rainwater collection tanks that are used for field irrigation.

The WRAMS system operates under an Environmental Protection License (no. 10020) with regard to the form and quality of materials discharged from this facility. The stadium itself does not require or operate in accordance with any Environmental Protection License or Water Access License.

Refurbished stadium

The refurbished stadium will retain the existing WRAMS connections and rainwater tanks, which provide non-potable water for the operation of the stadium including for pitch irrigation and toilet and urinal flushing. In addition to these exiting initiatives, it is proposed to install new high water efficiency amenities as guided by the stadium's Green Star requirements and digital water metering. This is considered to appropriately manage water consumption as follows:

- although the duration and frequency of pitch irrigation is subject to weather conditions and event schedule, the existing rainwater tanks have the capacity to store enough water for 14 cycles of irrigation which significantly reduces the demand for potable water;
- the WRAMS connections provide recycled water for use by toilets and urinal throughout the stadium, reducing demand for potable water;
- the new fittings and fixtures will apply the Green Star WELS rating system and apply to toilets, taps, showers, urinals, dishwashers and washing machines to further reduce demand for potable and reclaimed water; and
- the new digital water metering will provide data on consumption, and potential leak detection, to improve water management during the operation of the stadium.

Recommendation

The assessment confirms that the refurbished stadium will not negatively impact the ongoing management of water consumption. The reduced seating capacity will reduce the overall water usage, which will be further supported through the installation of upgraded fixtures and metering in-line with current best practice design for water efficiency. The stadium does not and will not require operate in accordance with any Water Access License.

Aurecon recommend the following Mitigation Measures.

Mitigation measure	Indicative timing
Maintain existing connection(s) to alternative water supplied to the stadium in the form of reclaimed water and rainwater collected from roof.	To be detailed in the construction drawings.
All upgraded amenities to install efficient fixtures in accordance with the WELS Green Star requirements.	To be detailed in the Green Star Certification.
Install separate metering for distinct uses for all new water supplies to ensure water consumption can be understood and managed by the Operator	To be detailed in the construction drawings.

6.11.2 Groundwater and geotechnical

Aurecon and WSP have assessed previous site testing and studies with regard to the groundwater and geotechnical conditions of the site, which is largely based on those completed by Coffey to inform the construction of the original stadium. The assessment confirms that the site would be suitable for the proposed development, but that further investigations are required with regard to the following:

- Fill and excavation may have occurred on the site since the previous studies completed by Coffey, which would change the surface RLs and subsurface conditions from those shown in the borelogs, ensuring a further review should be completed of the subsurface conditions including the existing foundation depths, loads and performance to inform the detailed design stage.
- Groundwater conditions may have changed over time due to development and should be reassessed since they could impact deep foundation (bored pier) construction.
- Further testing be completed of soil and groundwater aggressivity to address aggressivity risks to future buries structural elements.

In view of the above, it is recommended that additional site investigations and testing be completed in accordance with the following Mitigation Measure.

Mitigation measure	Indicative timing
Detailed testing of subsurface conditions is to be completed following demolition of the structures and to inform the detailed design stage including testing of foundation depths, loads, and performance, groundwater conditions, and soil and groundwater aggressivity.	Prior to the issue of the relevant construction certificate.

6.11.3 Water quantity and quality

A Stormwater Management Plan has been prepared by Aurecon and is included at **Appendix M**. It assesses the requirements of the stadium with regard to water quality and drainage considerations for the site and identifies the measures implemented.

Water quantity

The footprint of the refurbished stadium will remain the same as the existing, and as such there will be no change to the overall stadium catchment. However, the proposed changes to the roof will increase the catchment area of the roof which will impact the existing hydraulics and the ground level stormwater drainage systems. As discussed in **Section 4.9** above, it is proposed to augment the stormwater pipework to account for the change in the roof catchment area and accommodate peak flows, which may include over-sizing the pipework to allow for additional storage in lieu of on-site detention. During major storm events, water may overflow onto the field before draining out. The roof drainage system will be designed for the 100-year ARI storm event in accordance with the relevant Australian Standards.

Water quality

The current stadium does not implement Water Sensitive Urban Design or Stormwater Quality Improvement Devices other than those utilised in the existing rainwater tanks on site, and externally via the Gross Pollutant Trap in Edwin Flack Avenue used by stormwater runoff leaving the site before discharging into the wetlands. Wetlands are a natural purification system and has been shown to be very good at treating wastewater with hydrocarbons and other compounds. Accordingly, Aurecon confirm that the quality of stormwater discharged from the site using this treatment chain including the wetlands complies with the criteria in SOPA's *Stormwater Management and Water Sensitive Urban Design Policy*. No change is proposed to this water quality treatment system, and as such, the quality of water leaving the site would remain the same as existing.

There will also be no change to the quality of groundwater or surface water, as there will be no change to the exterior of the stadium superstructure, and as such no change to the degree of permeable and impermeable areas, pavement or run-off coefficients, and subsoil drainage network and discharge points.

Recommendation

Aurecon confirms that the proposed works will only have a minor impact on roof drainage and the quantity of water discharged from the site as compared to the pre-development scenario, which will be managed through augmenting the stormwater pipework as designed in accordance with SOPA Guidelines and Policies and the relevant Australian Standards. There will be no impact on overall water quality.

Aurecon recommend the following Mitigation Measures, which have been drafted in conjunction with other measures regarding construction management discussed in **Section 6.16** and geotechnical investigations discussed above.

Mitigation measure	Indicative timing
Roof drainage is to be designed for 100-year ARI in accordance with AS3500.3	To be detailed in the construction drawings.
Ensure pipe network drainage is designed for 20-year ARI in accordance with AR&S 2019 and that is capable of receiving 100-year ARI roof drainage	To be detailed in the construction drawings.

6.12 Contamination

A Preliminary Environmental Site Assessment has been completed by WSP (**Appendix O**) to assess the general conditions of the site and whether proposed works have the potential to impact any land subject to existing Maintenance of Remediation Notices.

Site conditions

The investigations by WSP confirm that there are no site conditions that would preclude the ongoing use of the site as a major sports and entertainment facility ('recreation facility major'), recognising that the proposed development does not seek to change the existing use of the site. This is in view of the following:

- The site is not notified to the EPA and there are no records of notices under the *Contaminated Land Management Act 1997* as currently applying to the site.
- The site is not site is not listed on the *Protection of the Environment Operations Act 1997* public register as holding an environment protection licence (EPL).
- There are there are no former gas works sites registered within 2 km of the site.
- The nearest waste management sites are over 1km from the site, being at Auburn and Homebush Bay.
- The site and its surrounding properties are not listed on the EPA per- and poly-fluoroalkyl substances (PFAS) Investigation Program.

Maintenance of Remediation Notices

Sydney Olympic Park has been subject to remediation works between 1992 and 2000, and SOPA has been issued with a maintenance of remediation notice by the EPA to comply with remediation strategies developed by the EPA. These included consolidating waste and containing the waste in several areas within the precinct through capping and landscaping areas to become parkland. Subsequent monitoring completed by SOPA in the form of the *Remediated Land Management Plan* was issued to the EPA who confirmed that the monitoring results suggested the waste containment areas posed no unacceptable impact on the surrounding areas. The applicable notice (no. 28040) applies to land surrounding Stadium Australia, and not the site itself (see **Figure 66**). No works are proposed, including the augmenting of utilises and services, that would disturb those areas subject to the notice.

Recommendation

WSP confirm that based on the findings of this desktop assessment, no conditions have been encountered that would preclude the ongoing use of the site as a sports and entertainment facility ('recreation facility major'), and that no works will impact the maintenance of remediation notice applying to surrounding land. Notwithstanding, it is recommended that an unexpected finds protocol be developed to inform the proposed construction works on the site for the health and safety of persons on the site with regard to contaminated soil, asbestos or soil potentially containing contamination or asbestos outside identified impacted zones. This has informed the following Mitigation Measures.

Mitigation measure	Indicative timing
An unexpected finds protocol is to be developed, and implemented throughout the construction process, with regard to contaminated soil, asbestos or soil potentially containing contamination or asbestos outside identified impacted zones.	Prior to the commencement of works on the site, and throughout the construction process.
Any waste transported off-site is waste classified in line with EPA guidelines and taken to an appropriately licensed facility.	During construction
No works are to occur in areas subject to the Maintenance of Remediation Notice no. 28040.	During construction.

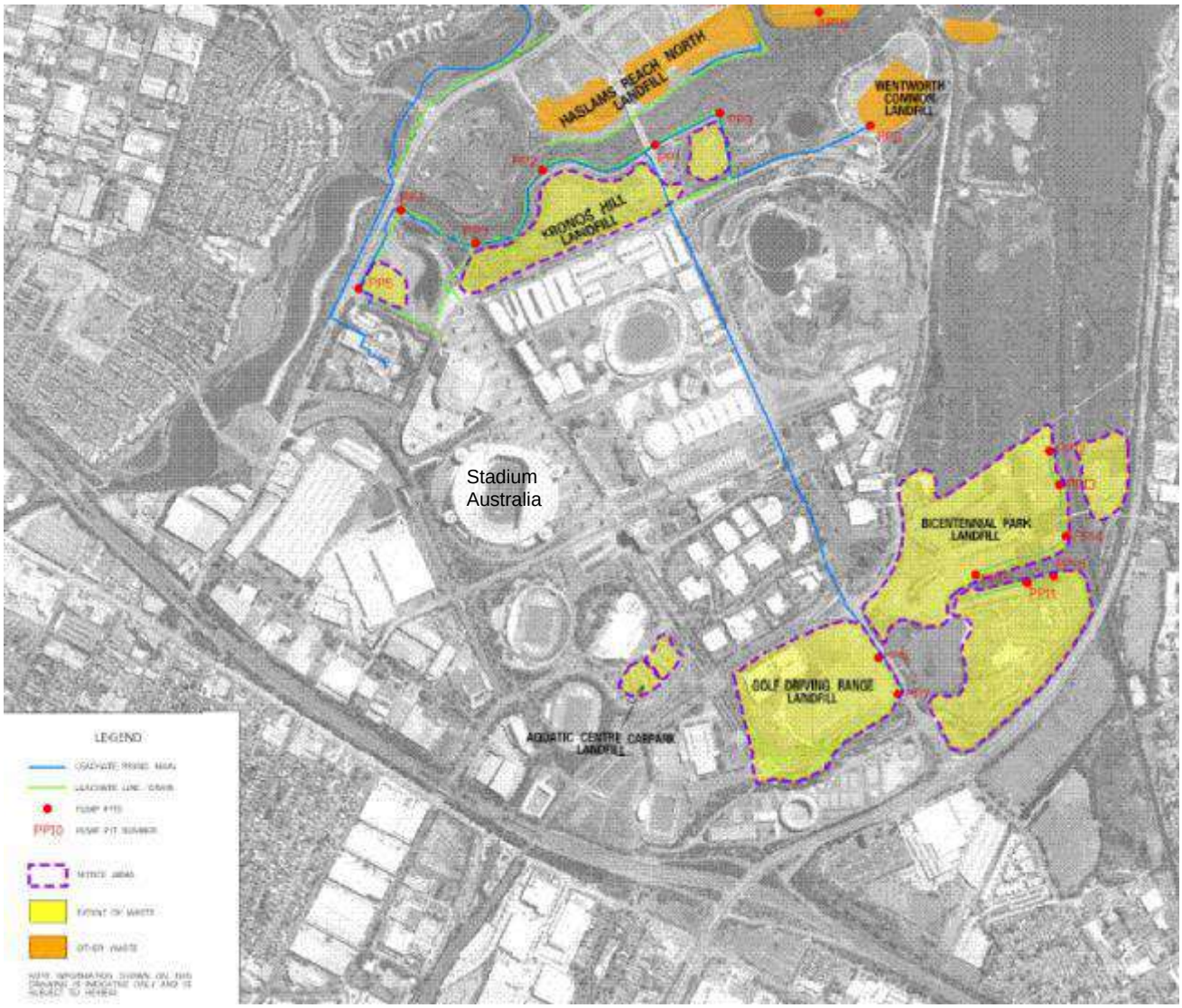

Figure 66 Maintenance of Remediation Notice no. 20840

Source: NSW EPA

6.13 Safety and security

6.13.1 Crime prevention through environmental design

A CPTED Report has been prepared by Ethos Urban (**Appendix W**) which outlines the project, policy, and crime context for the project and makes recommendations about appropriate CPTED strategies to reduce the opportunity for crime to occur. Mitigation measures have been developed to minimise the level of crime risk in these areas into the detailed design phase.

A review of crime occurring in the precinct area confirms that the atypical and high proportion of visitors to residents skews the available crime data and, therefore, using the standard crime rating statistical tool of incident rate per

100,000 population is not considered an accurate or appropriate tool to use when attempting to understand victimisation or offending rates in Sydney Olympic Park. Notwithstanding, the stadium is identified as being in hotspots for motor vehicle thefts, steal from person, and non-domestic assault. These hotspots do not reflect the actual risk of victimisation.

The assessment considers these potential crime categories and confirms that the opportunities for crime can be minimised to reasonable levels and the rating would be within the 'low' category through the implementation of Mitigation Measures.

Recommendation

The assessment confirms that the current design generally achieves the principles of CPTED and offers detailed recommendations on how to further improve safety within the site where appropriate. Further details on specific measures such as lighting layouts and surveillance camera (CCTV) layouts will be progressed at the detailed design and construction phase in accordance with the relevant standards and in coordination with security consultants and NSW Police.

The recommendations of the CPTED Report have informed the following Mitigation Measures.

Mitigation measure	Indicative timing
A CCTV network for the site is to be designed and installed with consideration of any existing networks and in consultation with a suitably qualified security consultant with a Class 2A licence under the *Security Industry Act 1997* to monitor the site. Signage is to be installed at site entries advising visitors that CCTV is in operation throughout the precinct.	To be detailed in the construction drawings where possible, and/or implemented prior to occupation.
A lighting strategy is to be designed and implemented in consultation with a suitably qualified lighting expert to ensure that the CCTV network is effective, and the building will be lit during the night.	To be detailed in the construction drawings where possible, and/or implemented prior to occupation.
The final detailed construction drawings are to have consideration of the recommendations in Section 8 of the CPTED Report prepared by Ethos Urban (September 2019) as applicable.	To be detailed in the construction drawings

6.13.2 Security risk assessment

Intelligent Risks has prepared a Security Statement (**Appendix N**) providing a strategy as to how the proposed refurbishment shall incorporate good practice security design and operations in accordance with the principles and guidelines contained in *Australia's Strategy for Protecting Crowded Places from Terrorism*. The Strategy emphasises the application of layered security controls, safeguarding the stadium site from terrorism and other security hazards through mutually supportive elements. Accordingly, the following security controls will be considered as part of the detailed design and ongoing operation of the stadium:

- Enhancing CCTV capabilities for public areas external to the venue and within the venue, which can include future-proofing the site for later deployment of additional surveillance capabilities.
- Access control, intrusion barriers, passive and active Hostile Vehicle Mitigation (HVM) options for the protection of crowded areas at ticket gates and other vulnerable points so that venue users are provided with 'islands' of protection. It is also noted that SOPA has recently tendered for a precinct-wide review of HWM options including of venue plazas and gates, transport hubs, and primary activation areas to inform the layout and specification of vehicle barriers and traffic dampening measures. As no change is proposed to the public domain surrounding the site, the proposed development remains capable of integrating with any additional HVM measures imposed in the precinct or surrounding the stadium as a result of the wider SOPA review.
- Application of CPTED strategies for the venue's public domain (visibility, elimination of voids/unobservable locations), which have been discussed above.
- Zoning and lock-down arrangements to manage access into and within the Stadium, which have been discussed.
- Pedestrian screening areas, with sufficient space and provision of services for all searching and screening activities.

Recommendation

The Security Statement outlines strategies to be explored through the detailed design and future adopted operational framework for the stadium to ensure the refurbished stadium aligns with the principles and guidelines contained in *Australia's Strategy for Protecting Crowded Places from Terrorism.* Intelligent Risks recommends the following Mitigation Measures.

Mitigation measure	Indicative timing
Complete a detailed Security Risk Assessment to identify, assess, manage and minimise the risks associated with terrorism and other security risks, which is to be used to inform the security design process. The SRA shall consider event and non-event modes.	Prior to the issue of the relevant construction certificate
Develop a security brief to establish the performance requirements of all necessary security improvements, as defined by the Security Risk Assessment	Prior to the issue of the relevant construction certificate
Participate in ongoing consultation with the Sydney Olympic Park Authority regarding the future development of the surrounding public domain and its potential to influence security responses on the site.	Throughout the redevelopment process

6.14 Utilities and services

Aurecon has prepared a Building Services Report (**Appendix E**) that identifies the existing utilities and infrastructure in vicinity of the site and notes any expected impacts or required upgrades as a result of the proposed development.

Preliminary consultation has been undertaken with the relevant service providers, noting that further consultation will be required to obtain the necessary consents prior to undertaking works on the site or in the vicinity of existing infrastructure. The assessment confirms that the existing stadium can continue to be appropriately serviced.

Recommendation

The assessment by Aurecon identifies the existing infrastructure surrounding the site and considers possible upgrades required to support the refurbished stadium. Aurecon have also developed preliminary design solutions for connecting new infrastructure to surrounding utilities and services. Issues raised by providers will be addressed and incorporated into the detailed design of the site for construction. No specific mitigation measures have been nominated in this instance.

6.15 Operational waste management

Aurecon has prepared a Waste Management Strategy (**Appendix I**) to ensure that waste generated during the operation of the stadium is managed appropriately. The Strategy identifies the likely waste streams and quantities to be generated during the operation of the stadium, which have been based on the historical attendance and waste data of the existing stadium.

Table 18 Maximum estimated waste

Waste Stream	Description	Estimated quantity (tonne per annum)
Special Waste	Including clinical or medical waste	Less than 1 tonne per annum
Hazardous Waste	Including fuels, lubricants, chemicals, waste mineral oils, lamp ballasts, lamps and HID lightbulbs, mercury containing equipment, batteries, aerosol cans, chemicals, electronics, ionizing smoke detectors.	Less than 13 tonnes per annum
General Solid Waste (Putrescible)	Including offices, amenities, maintenance workers, corporate areas and food and beverage kiosks	Approximately 300 tonnes per annum
General Solid Waste (Non-Putrescible)	Including green waste, offices, amenities, maintenance workers, advertising, corporate areas, food and beverage kiosks, deliveries and storage, grit, sediment, litter and gross pollutants, and hydrocarbon contaminated soils.	Approximately 253 tonnes per annum
Total		**567 tonnes per annum**

Source: Aurecon

The existing waste compactors, waste chutes, waste receptacles, and storage areas will continue to be utilised by the refurbished stadium. The following waste management systems and facilities are incorporated into the stadium design in order to promote the reuse, recycling and safe disposal of waste:

- Signage - all bins, equipment, and waste storage areas will be signposted with consistent messaging to differentiate the types of waste to be disposed of in these areas.
- Colour Coding - the receptacles for the various waste types will be colour coded and properly labelled to avoid co-mingling of waste and potential cross contamination.
- Atypical Waste Streams - waste associated with batteries, mercury-containing lamps, and other e-waste will be segregated and stored in specialised receptacles for collection, with appropriate labelling and containment where required.
- Central Waste Storage Areas - all bins will be brought back to the waste storage areas and disposed of in the relevant equipment/compactor prior to collection by the external waste contractor.
- Interim Bin Stores – use the interim bin stores on each level of the stadium to provide additional bin storage capacity. Staff will use the interim bin stores to dispose of waste from corporate areas and the satellite kitchen. Once full, the waste will be transferred to the central waste storage area via goods lifts for collection.
- Public Bins - bins will be provided throughout the public areas of the stadium on all levels and at regular intervals to provide convenient access to patrons to dispose of waste on event days. These will generally comprise two 240L bins in a covered bin enclosure dispersed at regular intervals, with one bin for general waste and the other for mixed recycling. Cleaners will monitor the public place bins and transfer bins to the nearest internal bin store when full, swapping for an empty bin.
- Collection - waste contractors will follow a dedicate route during waste collection, to ensure appropriate care is taken in areas containing pedestrian traffic and infrastructure.
- Handling – each waste type will be classified for transport, hazardous waste types identified, and records of necessary procedures and protocols established.
- Treatment and disposal – waste that cannot be recovered or recycled will be sent to a licensed treatment or disposal facility. The capacity of these facilities will be confirmed through consultation with the relevant operator as required. In order to monitor and manage the waste streams, a record of the types, quantities and destination of all waste materials taken off-site during the operation of the stadium will need to be retained.

Recommendation

The Waste Management Strategy prepared by Aurecon ensures there is sufficient capacity to handle the maximum waste generated during events, and that appropriate management strategies are in place. Aurecon recommend ongoing monitoring and auditing of the waste and recycling program during the operation of the stadium to ensure compliance with statutory approvals. The proposed monitoring activities for management of operational waste include:

- Volumes and types of waste being sent off site for reuse, recycling and disposal would be monitored and recorded.
- Waste materials and reusable and recyclable materials storage areas would be monitored to ensure appropriate disposal contractors are engaged and to ensure materials are removed as required to minimise potential for cross contamination of materials.
- Regular assessment of contractor treatment and disposal services to ensure compliance.
- Regular assessment of waste generation, segregation, storage and collection practices to see whether improved practices can be implemented.

Mitigation measure	Indicative timing
Incorporate operational waste management strategies into the staff training and induction process for the refurbished stadium including the following: • roles and responsibilities for all key stakeholders that will manage waste on site; • staff responsibilities including what materials are appropriate for each stream, the procedures involved in sorting, recommendations on how to minimise waste generation, and instructions on how to operate machinery safely;	Prior to operation

Mitigation measure	Indicative timing
• data collection and the recycling and performance targets; • an annual review of on-site contamination rates by on-site staff, and disposal facilities through independent audits as necessary; and • appropriate communication channels for all stakeholders.	

6.16 Construction management

Aver has prepared a preliminary Construction Management Plan (CMP) at **Appendix J** detailing the construction processes and procedures to be undertaken. The CMP considers the construction methodology, sequencing and logic for mitigating potential construction risks to the precinct and its stakeholders. The information included in the CMP will inform a further detailed Construction Environmental Management Plan (CEMP) and associated technical studies that will be completed in coordination with the appointed contractor prior to the commencement of works on the site.

This should be read in conjunction with the assessment of construction on traffic, transport and access and egress discussed in **Section 6.4.2** above, and the assessment of construction noise and vibration management discussed in **Section 6.6** above.

Events

Additional restrictions and management strategies will be imposed at times nominated by SOPA to maintain access to Qudos Bank Arena and other venues including for major events such as the Easter Show. This will be developed in consultation with SOPA as part of the detailing of the future CEMP and include the following:

- working with SOPA to maintain access to surrounding facilities and ensure all event access and egress, including emergency evacuation plans, are to be maintained;
- provisions to ensure no disruptive works occur during an event; and
- provisions to ensure there is sufficient planning and time to ensure that event access corridors are made safe and handed over to SOPA prior to the bump-in period for an event.

It is emphasised that no construction works or construction vehicles will access Olympic Boulevard, ensuring the main pedestrian thoroughfare is protected and event buses will continue to be able to access the existing bus terminals.

Air quality, odour and dust

A separate assessment has been prepared by Wilkinson Murray (**Appendix X**) assessing the proposed likely construction activities on the site to determine potential air quality and dust impacts and identify mitigation and management strategies to minimise these impacts. Wilkinson Murray does not identify any odour sources associated with the construction of the development as requiring assessment or management.

A qualitative risk assessment of the proposed construction works and site conditions confirms that:

- the potential for dust emissions is large given the size of the site and the total building volume of new structures;
- the potential for dust emissions from vehicle movements is medium given there will be a notable number of vehicles but the majority of haulage routes are paved, resulting in a lower potential dust release; and
- the areas surrounding the works are determined to have a low sensitivity to dust impacts and human health impacts in view of their distance of sensitive receivers from the proposed works.

In view of this, the overall identified dust risks associated with the proposed construction works are considered to be of a low to medium risk of impacting dust soiling and human health, and as such it is considered unlikely that the proposed works would result in unacceptable air quality impacts subject to the implementation of the nominated mitigation measures. These measures include protocols around stakeholder communication and complaints, site management and maintenance, dust monitoring, construction vehicles, operating equipment on the site, and measures specific to construction works, haulage, and earthworks. It is recommended that these measures be incorporated into a Dust Management Plan, which has been considered in the mitigation measures below.

Waste Management

The demolition of existing structures on site and the establishment of temporary facilities for demolition works staff are considered to be the greatest generators of waste on the site. A waste reuse or recycling target of 90% is proposed for the project, with the contractor to record all waste streams and volumes to monitor the waste being generated, re-used and recycled. All dockets for removal of materials will be retained for confirmation of waste recycling. Separate bins will be provided for different waste streams, assisting with the maximising the recycling of waste, and all waste will be classified prior to its removal from the site in accordance with the relevant guidelines.

All works will be planned to minimise construction waste and contamination of the site and surroundings, and construction personnel will be responsible for maintaining clean and tidy work sites. Site specific waste management controls, monitoring, reporting and performance measures will be identified in the detailed CEMP.

Sediment and erosion control

The CMP considers that there is minimal risk of on-site activities resulting in bare soil and existing fill matures exposed to the elements, given the nature of the proposed works to alter and add to an existing structure. Notwithstanding, erosion and sediment controls are to be provided during the construction phase in accordance with the best practice principles and site management techniques are described in Landcom's Managing Urban Stormwater series (commonly referred to as the Blue Book) and the preliminary plan prepared by Aurecon and provided with the Stormwater Management Plan (**Appendix M**) and replicated in the CMP (**Appendix J**).

Recommendation

The preliminary Construction Management Plan prepared by Aver considers the construction methodology, sequencing and logic for mitigating potential construction risks to the precinct and its stakeholders. It demonstrates that the impacts of construction works on the site can mitigated and managed, subject to developing a detailed CEMP and associated technical studies.

The CMP doesn't nominate specific mitigation measures, and as such the following are recommended.

Mitigation measure	Indicative timing
Prepare a detailed Construction Environmental Management Plan prior to the commencement of works on the site including all required technical management plans and with consideration of other nominated mitigation measures.	Prior to commencing works
The CEMP is to include a Dust Management Plan with consideration of the recommendations in Section 6 of the Air Quality Impact Assessment prepared by Wilkinson Murray (August 2019).	Prior to commencing works

6.17 Building Code of Australia and Disability Discrimination Act

Steve Watson & Partners and Morris Goding Access Consulting have reviewed the documentation to confirm whether the design complies or exceeds the statutory requirements and enhances benchmark requirements set by the project. These reviews (**Appendix L** and **Y**) looks to determine whether the project can meet the relevant construction codes and standards, and with respect to accessibility can embody equality, independence and functionality for all user groups with sensory impairment, mobility impairments, and dexterity impairments in the design of the stadium.

The reviews confirm that the design complies or is capable of compliance during detailed design with the Disability Discrimination Act (DDA), Building Code of Australia (BCA), the relevant Australian Standards and the SOPA Access Guidelines and SOPA Disability Inclusion Action Plan.

The design of the stadium will be continuously refined during the detailed design phase to ensure that various elements of the proposal will meet the applicable performance requirements. Moris Goding Access Consulting will provide input into the detailed design to ensure appropriate outcomes are achieved.

Recommendations

Morris Goding Access Consulting and Steve Watson & Partners confirm that the design is capable of achieving compliance with the applicable requirements including the DDA Premises Standards 2010 and the Building Code of Australia (BCA). No mitigation measures have been nominated and we note that compliance with the *Disability Discrimination Act 1992* and Building Code of Australia is a standard requirement as part of the issuance of a Construction Certificate. No specific mitigation measure is necessary in this instance.

6.18 Structural

Maffeis Engineering Pty Ltd has prepared a Structural Design Statement (**Appendix Z**) with certifies that the proposed development will be designed in accordance with the relevant provisions of the standard building codes and accepted engineering practices and principles.

Recommendations

The Structural Design Statement confirms that the structural design of the refurbished stadium will be designed in accordance with the relevant provisions, practices and principles. There are no specific mitigation measures that have been nominated by Maffeis Engineering in this instance.

6.19 Ecologically sustainable development

The EP&A Regulation lists 4 principles of ecologically sustainable development to be considered in assessing a project. They are:

- The precautionary principle;
- Intergenerational equity;
- Conservation of biological diversity and ecological integrity; and
- Improved valuation and pricing of environmental resources.

An analysis of these principles follows.

Precautionary Principle

The precautionary principle is utilised when uncertainty exists about potential environmental impacts. It provides that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The precautionary principle requires careful evaluation of potential environmental impacts in order to avoid, wherever practicable, serious or irreversible damage to the environment.

This EIS has not identified any direct serious threat of irreversible damage to the environment. Therefore, the precautionary principle is not required to be given further considerations in this instance. Notwithstanding, indirect avoidance of damage to the environment can be achieved through implementing the mitigation measures identified in this EIS, which will inform the construction and operation of the refurbished stadium.

Proactive measures to prevent environmental degradation have been included within the design, construction and operational phases of the refurbished stadium. The contractor will implement environmental management plans during the construction phase, and Venues Live will adhere to the operational procedures of the stadium and actively pursue relevant targets to meet the relevant mitigation measures and mitigate or minimise potential environmental risks.

Intergenerational Equity

Inter-generational equity is concerned with ensuring that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. The proposal has been designed to benefit both the existing and future generations as a refurbished Tier 1 stadium that:

- Implements the safeguards and management measures to protect environmental values.
- Provides a high level of sustainability and demonstrates responsibility in the consumption of resources, ensuring the efficiency of operations into the future.

- Provides an important social and cultural facility that is capable of hosting significant sporting and other events into the future.
- Facilitates job creation and more widely supports local hospitality, accommodation and entertainment industries, contributing to the long-term health of the visitor economy of Sydney.

The proposal has integrated short and long-term social, financial and environmental considerations so that any foreseeable impacts are not left to be addressed by future generations. Issues with potential long term implications such as waste disposal would be avoided and/or minimised through construction planning and the application of safeguards and management measures described in this EIS and the appended technical reports.

Conservation of biological diversity and ecological integrity

The principle of biological diversity upholds that the conservation of biological diversity and ecological integrity should be a fundamental consideration. As has been demonstrated in **Section 6.9** and throughout this EIS, the proposed refurbishment of the stadium will not result in any significant effect on the biological and ecological integrity of the study area, subject to the implementation of the Mitigation Measures set out in **Section 8** below.

Improved valuation, pricing and incentive mechanisms

The principles of improved valuation and pricing of environmental resources requires consideration of all environmental resources which may be affected by a proposal, including air, water, land and living things. The cost of infrastructure, design measures, and other sustainability initiatives associated with the refurbishment of the stadium have been incorporated into the cost of development and will be delivered in the most cost effective way via a life cycle cost approach that provides best return on investment.

Mitigation measures for avoiding, reusing, recycling and managing waste during construction and operation would be implemented to ensure resources are used responsibly in the first instance. Mitigation Measures for the sustainable operation of the stadium and for avoiding, reusing, recycling and managing waste during construction and operation would also be implemented to ensure resources are used responsible in the first instance. Additional measures will be implemented to ensure no environmental resources in the locality are adversely impacted during the construction or operational phases. Refer to the Mitigation Measures set out in **Section 8** below.

6.20 Site suitability

Having regard to the characteristics of the site and its location, the proposed development is suitable for the site as it:

- is the site of the existing Stadium Australia;
- will refurbish the existing stadium to rectify the identified shortcomings and ensure that the stadium retains its status as a globally competitive Tier 1 venue.
- contributes to the long term strategic vision for Sydney Olympic Park as a destination for cultural, entertainment, recreation and sporting events.
- has been designed to be undertaken in a manner that minimises impacts on its surrounds, and has been designed to respect the natural, historical, and environmental qualities of the site; and
- will result in only minor environmental impacts that can be appropriately managed and mitigated to an acceptable level.

The subject site is also considered to be highly suitable for the proposal in that:

- it is zoned B4 Mixed Use under which development for the purposes of Recreation Facility (Major), which includes stadia, is permitted with consent;
- it is developed land, which has been used since 1999 as a sporting stadium;
- the site has a significant historical and cultural association with the playing and viewing of major sporting events, including as a premier hosting venue of the 2000 Sydney Olympic and Paralympic Games;
- the site is located in immediate proximity to the NSW Rugby League Centre of Excellence, which is the headquarters of NSW Rugby League and accommodates administration services, as well as research and

training facilities. NSW Rugby League will be a major user of the refurbished stadium and the proximity to the stadium has the potential to provide synergies between their activities and the refurbished stadium;

- is well-serviced by existing and planned major event and day-to-day transport arrangements, including public and event buses, trains, car parking, pedestrian footpaths and cycle routes; and
- has existing utility infrastructure connections which have capacity, or which can be readily augmented to provide capacity for, the servicing requirements of the stadium.

6.21 Public interest

This Development Application will facilitate the refurbishment of Stadium Australia, revitalising the existing Tier 1 stadium and providing a new high-quality user and fan experience which includes enhanced viewing, weather protection, facilities, amenities and accessibility. The refurbished stadium will provide additional direct benefits and realise the project objectives of providing a more functional and amenable stadium. The proposed refurbishment of the stadium is considered to be in the public interest as it:

- delivers significant social, cultural and economic benefits to the local, Sydney and NSW community by providing a stadium that will provide a high-quality venue for viewing sport, with the functionality and amenity required to attract national and international events, resulting in direct and indirect benefits in terms of employment and expenditure within the economy of NSW;
- provides for increased efficiency in stadium operations by providing an upgraded facility that is fit for modern requirements, reducing energy consumption and operational costs to Government;
- achieves a high level of environmental performance by targeting a 5 Star Green Star Rating in accordance with the ESD Strategy, implementing measures that promote and support the uptake of sustainable transport options, and designing the stadium with consideration of environmental risks and climate change;
- facilitates increased visitation by non-car travel modes, including by public transport, point-to-point services, cycling and walking through the provision, through increased provision of bicycle parking and upgrades to end of trip facilities, improved coordination with new and existing infrastructure outside of the site, and the implementation of Green Travel Plan as part of the future operation of the stadium;
- provides a more family friendly experience for those attending concerts and sporting events at the stadium, with increased cover and weather protection during events allow a greater number of people, of different ages and characteristics, to attend events;
- provides a better spectator experience for events taking place in the stadium, leading to an enhanced sense of wellbeing and customer satisfaction, improved attendances, and increased opportunity for community interactions and social cohesion;
- considers and integrates with other projects occurring in the surrounding area, including Stage 2 of the Parramatta Light Rail and the Sydney Metro West, as well as the overarching vision of the Sydney Olympic Park Master Plan 2030; and
- the development will not result in any significant environmental impacts that cannot be managed through adherence to the Mitigation Measures outlined in **Section 8**, standards conditions of development consent and any further mitigation measures and conditions identified during assessment.

7.0 Environmental Risk Assessment

7.1 Environmental risk framework

The Environmental Risk Assessment (ERA) establishes a residual risk by reviewing the significance of environmental impacts and the ability to manage those impacts. The ERA for the refurbishment of Stadium Australia has been adapted from Australian Standard AS4369.1999 Risk Management and Environmental Risk Tools.

In accordance with the SEARs, the ERA addresses the following significant risk issues:

- the adequacy of baseline data;
- the potential cumulative impacts arising from other developments in the vicinity of the Site; and
- measures to avoid, minimise, offset the predicted impacts where necessary involving the preparation of detailed contingency plans for managing any significant risk to the environment.

Figure 67 indicates the significance of environmental impacts and assigns a value between 1 and 10 based on:

- the receiving environment;
- the level of understanding of the type and extent of impacts; and
- the likely community response to the environmental consequence of the project;

The manageability of environmental impact is assigned a value between 1 and 5 based on:

- the complexity of mitigation measures;
- the known level of performance of the safeguards proposed; and
- the opportunity for adaptive management.

The sum of the values assigned provides an indicative ranking of potential residual impacts after the mitigation measures are implemented.

Significance of impact	Manageability of impact				
	5 Complex	4 Substantial	3 Elementary	2 Standard	1 Simple
1 – Low	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)	2 (Low)
2 – Minor	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)
3 – Moderate	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)
4 – High	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)
5 – Extreme	10 (High)	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)

Figure 67 Risk Assessment Matrix

7.2 Environmental risk assessment

Identification and discussion				Risk Assessment		
Item	**Phase**	**Potential Environmental Impact**	**Proposed Mitigation Measures and / or Comment**	**Significance of Impact**	**Manageability of Impact**	**Residual Impact**
Transport and accessibility	C / O	• Construction traffic on local roads, including cumulative construction works • Congestion associated with stadium operations	• The Transport Impact Assessment prepared for the EIS does not identify any significant or adverse impact from the elected construction vehicle routes and the expected traffic volumes. The preparation of a detailed Construction Pedestrian and Traffic Management Plan (CPTMP) is recommended. • The proponent and/or the appointed contractor will consult with TfNSW (Sydney Coordination Office), Parramatta City Council and SOPA at regular intervals where construction works overlap with other construction projects in the precinct. • The overall capacity of the stadium will reduce and will benefit from planned improvements for the road and public transport network, ensuring that transport connections and transport infrastructure remain capable of accommodating the continued operation of the stadium.	2	2	4 Low/Medium
Heritage	C / O	• Physical and visual impacts on surrounding heritage items and conservation areas • Archaeology and artefacts	• The site will not physically impact any heritage items, which are some distance outside of the footprint of proposed works. • The Heritage Impact Assessment confirms that the site has nil to low potential for archaeology or artefacts, and there are no identified Aboriginal Heritage artefacts or deposits on or in close proximity of the site. • The proposed alterations will not cause any new visual impact to views and vistas between the Olympic Cauldron, or the Abattoir Precinct, and the stadium. • The stadium will retain its historical connection to the Olympic and Paralympic Games, safeguarding the legacy of this structure and the site.	2	2	4 Low/Medium
Noise and vibration	C / O	• Construction noise. • Operational noise	• A Noise and Vibration Assessment has been prepared by Arup which considers potential demolition noise and vibration impacts on nearby receivers and sets out mitigation measures to reduce impacts during the construction phase. • The refurbished stadium will operate in a consistent manner to the existing stadium, including the existing event hours and nature and types of events. • The Noise and Vibration Assessment confirms that there will be no increased noise emissions, with minor predicted improvements at the majority of surrounding residences.	3	2	5 Low/Medium

Identification and discussion				Risk Assessment		
Item	**Phase**	**Potential Environmental Impact**	**Proposed Mitigation Measures and / or Comment**	**Significance of Impact**	**Manageability of Impact**	**Residual Impact**
Visual and views	C / O	• Changed visual environment during the construction phase • Impact on existing views	• Site hoarding is already erected around the site and will be maintained throughout the construction phase to screen views to the site from the public domain. Any visual impacts will be temporary • A Visual Impact Assessment has been prepared by Ethos Urban identifying the nature of visual change resulting from the proposed refurbishment works. It confirms the change is only noticeable from a few viewpoints, but that this change is minor and will not obstruct or fundamentally alter the nature of views obtained from key vantage points.	2	2	4 Low/Medium
Biodiversity and trees	C / O	• Impact on flora and fauna • Tree removal and construction impacts on tree health	• A waiver to prepare a Biodiversity Development Assessment Report (BDAR) was prepared by Jacobs and submitted separately to the Department and OEH prior to the lodgement of this application. This waiver was granted prior to the exhibition of this application. The assessment confirmed that the development was unlikely to have a significant impact on threatened species or their habitats, recognising that the site is already highly modified. • Four (4) trees will be removed on the site. One of these trees is identified for removal irrespective of the proposed refurbishment works, and replacement planning will be provided either on the site or externally in consultation with SOPA. • Preliminary tree protection measures are nominated in the Arboricultural Impact Assessment prepared by Tree IQ, which will inform a Tree Protection Plan.	2	1	3 Low
Safety and security	C / O	• Potential for crime (unauthorised access, theft) during construction and construction works. • Potential security threats to future stadium and stadium users. • Potential for crime and perception of crime within future public domain areas surrounding stadium.	• The contractor will be responsible for ensuring the security of the site during working and non-working hours, including the provision of on-site security staff and/or regular patrols outside of working hours to reduce the risk of unauthorised access to the site. • A Crime Prevention through Environmental Design (CPTED) assessment has been undertaken that considers the potential for crime to occur within the public domain surrounding the stadium and outlines how this risk will be minimised through detailed design and operational mitigation measures. • A Security Statement has been prepared by Intelligent Risks identifying a strategy as to how the proposed refurbishment shall incorporate good practice security design and operations. These will be addressed as part of the detailed design and ongoing operation of the stadium.	4	4	8 High/Medium

Identification and discussion				Risk Assessment		
Item	**Phase**	**Potential Environmental Impact**	**Proposed Mitigation Measures and / or Comment**	**Significance of Impact**	**Manageability of Impact**	**Residual Impact**
Water and drainage	C / O	• Water conservation • Water quality • Water quantity	• The Integrated Water Management Plan prepared by Aurecon confirms that the refurbished stadium will not negatively impact the ongoing management of water consumption. The stadium will retain the existing WRAMS connections and rainwater tanks and be improved through upgraded fixtures and metering in-line with current best practice. • No change is proposed to this water quality treatment system, and as such, the quality of water leaving the site would remain the same as existing, which complies with the criteria in SOPA's *Stormwater Management and Water Sensitive Urban Design Policy*. • The footprint of the refurbished stadium will remain the same as the existing, and as such there will be no change to the overall stadium catchment. Augmenting the stormwater pipework will account for the change in the roof catchment area and accommodate peak flows.	2	3	5 Low/Medium
Groundwater and soils	C	• Presence of groundwater • Geotechnical conditions	• Preliminary investigations of groundwater and geotechnical conditions have been completed by WSP and Aurecon. Whilst no issues were uncovered in these investigations, additional testing of subsurface conditions is to be completed following demolition of the structures and to inform the detailed design stage including testing of foundation depths, loads, and performance, groundwater conditions, and soil and groundwater aggressivity.	3	3	6 Medium
Contamination	C / O	• Contaminated soils	• WSP confirm that based on the findings of this desktop assessment, no conditions have been encountered that would preclude the ongoing use of the site as a sports and entertainment facility ('recreation facility major'), and that no works will impact the maintenance of remediation notice applying to surrounding land. • An unexpected finds protocol will be developed for the site with regard to contaminated soil, asbestos or soil potentially containing contamination or asbestos outside identified impacted zones.	2	3	5 Low/Medium
Utilities and services	C / O	• Capacity to service stadium.	• An Infrastructure Management Plan has been prepared which confirms that the site is capable of being serviced, with only minor upgrades required.	2	2	4 Low/Medium

Identification and discussion				Risk Assessment		
Item	**Phase**	**Potential Environmental Impact**	**Proposed Mitigation Measures and / or Comment**	**Significance of Impact**	**Manageability of Impact**	**Residual Impact**
Waste management	C / O	• Construction waste • Operational waste	• The Construction Management Plan identifies and quantifies likely waste streams during construction and outlines measures for waste minimisation, recycling and reuse. • An Operational Waste Management Plan estimates potential waste generation for a peak event and outlines the waste management systems, for the stadium, recognising that the existing stadium has established waste management facilities.	2	2	4 Low/Medium
Sustainability	C / O	• Sustainable use of resources and operations	• The Environmentally Sustainable Development Strategy by Aurecon details how the proposed refurbishment will enhance the overall sustainable design and operation of the stadium. The proposed works are targeted to achieve a 5 star Green Star rating.	2	2	4 Low/medium
Pedestrian wind environment	O	• Potential wind impacts on safety and comfort	• An Environmental Wind Assessment has been undertaken which confirms the refurbishment works will not significantly or negatively impact the pedestrian environment, which is assessed being suitable for pedestrian standing and walking.	2	2	4 Low/Medium
Overshadowing	O	• Potential for overshadowing of surrounding areas, including future residential development and open space	• Overshadowing plans prepared by COX Architecture demonstrate that the no shadows extend to the Cater Street Precinct and future residential development, and no shadows extend to Cathy Freeman Park. • New shadows are restricted to the circulation space to the south of the stadium, meaning there is only a limited impact to pedestrian amenity internal to the site.	1	1	2 Low

Identification and discussion				Risk Assessment		
Item	**Phase**	**Potential Environmental Impact**	**Proposed Mitigation Measures and / or Comment**	**Significance of Impact**	**Manageability of Impact**	**Residual Impact**
Communications and Community	C / O	• Information about the application • Construction impacts and complaints • Operational information • Operational impacts and complaints	• Section 3.0 of this EIS and the Stakeholder Communications Report identify consultation activities that have been undertaken to date to inform the scope of the project and provide information to the community regarding the proposal and planning process. • This EIS will be publicly exhibited by the NSW Department of Planning and Environment. Infrastructure NSW will also undertake further public engagement during this period. • Subject to planning approval, regular communications will be provided to local residents throughout the construction phase to advise of the progress of works, likely impacts and special activities. • The Event Management Statement will address providing information to the public and receiving and appropriately handling any complaints in relation to the operation of the stadium. There are existing mechanisms in place to ensure other landowners and lessees are aware of and acknowledge the environmental and operational conditions that arise from being in proximity of sporting, events and entertainment business.	3	2	5 Low/Medium
Air quality	C	• Dust impacts during construction activities.	• An Air Quality Impact Assessment has been prepared that identifies potential dust-generating construction activities and standard mitigation measures that can be implemented to reduce and avoid adverse air quality impacts.	2	2	4 Low/Medium
Building code compliance	O	• Compliance with relevant building codes and standards, including the Disability Discrimination Act	• The Development Application documentation has been the subject of expert review against the provisions of the Building Code of Australia, which confirm that the project is capable of complying with the relevant requirements, subject to further detailed design and certification at the relevant construction and occupation stages.	4	2	6 Medium

8.0 Mitigation Measures

The collective measures required to mitigate the impacts associated with the proposed works are detailed in **Table 19** below. These measures have been derived from the previous assessment in **Section 4.11** and those detailed in appended consultants' reports.

Table 19 Mitigation Measures

Ref No.	Mitigation Measure
Design and Operation	
D/O-BF	**Built Form**
D/O-BF1	Prior to works commencing on the site the proponent is to issue the author/s or person representing the author/s of the original Stadium Australia architectural design with written notice stating the intention to alter Stadium Australia. The author/s or persons representing the author/s are to be provided with access to make a record of the works and/or consult in good faith about the change.
D/O-BF2	Design development and the assessment of design integrity shall occur in accordance with the process outlined in the Design Excellence Strategy within the Design Report prepared by COX Architecture (September 2019).
D/O-BF3	Detailed design of the new stadium entrances is to be coordinated with the levels and finishes of the existing public domain. In the event that SOPA progresses changes, the proposal is to coordinate with the levels and finishes of the new public domain as appropriate.
D/O-LR	**Lighting and Reflectivity**
D/O-LR1	All applicable outdoor lighting will be design, installed, and operated in accordance with the relevant Australian Standards; AS4282 and/or AS/NZS 1158.3.1.
D/O-LR2	All external materials and finishes that are visible from a public road and footpath are to have a spectral reflectivity of less than 20%.
D/O-TA	**Transport and Accessibility**
D/O-TA1	A detailed Travel Demand Strategy is to be prepared outlining practical measures and initiatives to ensure that the refurbished stadium supports and works towards the greater use of sustainable modes of transport to reduce car dependency. The Strategy is to include a two-yearly review system to assess travel demand and make refinements to the initiatives.
D/O-WA	**Waste**
D/O-WA1	Incorporate operational waste management strategies into the staff training and induction process for the refurbished stadium including the following: • roles and responsibilities for all key stakeholders that will manage waste on site; • staff responsibilities including what materials are appropriate for each stream, the procedures involved in sorting, recommendations on how to minimise waste generation, and instructions on how to operate machinery safely; • data collection and the recycling and performance targets; • an annual review of on-site contamination rates by on-site staff, and disposal facilities through independent audits as necessary; and • appropriate communication channels for all stakeholders.
D/O-WD	**Water and Drainage**
D/O-WD1	Maintain existing connection(s) to alternative water supplied to the stadium in the form of reclaimed water and rainwater collected from roof.
D/O-WD2	All upgraded amenities to install efficient fixtures in accordance with the WELS Green Star requirements.
D/O-WD3	Install separate metering for distinct uses for all new water supplies to ensure water consumption can be understood and managed by the Operator
D/O-WD4	Roof drainage is to be designed for 100-year ARI in accordance with AS3500
D/O-WD5	Ensure pipe network drainage is designed for 20-year ARI in accordance with AR&S 2019 that is capable of receiving 100-year ARI roof drainage

Ref No.	Mitigation Measure
D/O-ESD	**Sustainability**
D/O-ESD1	The detailed design of the stadium is to achieve a minimum 5 Star Green Star rating (Design & As Built v1.3), with consideration of the initiatives identified in the Environmentally Sustainable Development Strategy prepared by Aurecon (27 August 2019).
D/O-SEC	**Safety and Security**
D/O-SEC1	A CCTV network for the site is to be designed and installed with consideration of any existing networks and in consultation with a suitably qualified security consultant with a Class 2A licence under the *Security Industry Act 1997* to monitor the site. Signage is to be installed at site entries advising visitors that CCTV is in operation throughout the precinct.
D/O-SEC2	A lighting strategy is to be designed and implemented in consultation with a suitably qualified lighting expert to ensure that the CCTV network is effective, and the building will be lit during the night.
D/O-SEC3	The final detailed construction drawings are to have consideration of the recommendations in Section 8 of the CPTED Report prepared by Ethos Urban (September 2019) as applicable.
D/O-SEC4	Complete a detailed Security Risk Assessment to identify, assess, manage and minimise the risks associated with terrorism and other security risks, which is to be used to inform the security design process. The SRA shall consider event and non-event modes.
D/O-SEC5	Develop a security brief to establish the performance requirements of all necessary security improvements, as defined by the Security Risk Assessment
D/O-SEC6	Participate in ongoing consultation with the Sydney Olympic Park Authority regarding the future development of the surrounding public domain and its potential to influence security responses on the site.
D/O-SEC7	Prepare a detailed Event Management Plan to following the detailed design and construction of the stadium, and formalised and implemented for the operation of the stadium.
Construction Management	
CM-1	Prepare a detailed Construction Environmental Management Plan prior to the commencement of works on the site including all required technical management plans and with consideration of other nominated mitigation measures.
CM-1	The CEMP is to include a Dust Management Plan with consideration of the recommendations in Section 6 of the Air Quality Impact Assessment prepared by Wilkinson Murray (August 2019).
CM-TA	**Transport & Accessibility**
CM-TA1	A detailed Construction Pedestrian and Traffic Management Plan will be developed with the appointment contractor confirming the detailed construction methodology and specific measures for safely managing construction traffic in the surrounding area. The Plan is to include information of site compound locations, driver facility areas, vehicle turning paths within the site, and traffic control plans.
CM-TA2	The appointed contractor will consult with TfNSW (Sydney Coordination Office), Parramatta City Council and SOPA at regular intervals where construction works overlap with other construction projects in the precinct.
CM-TA3	No roads or footpaths are to be obstructed as part of the proposed works. If temporary road closures are required, the appropriate permission is to be obtained separately through the normal approvals process.
CM-NV	**Noise and Vibration**
CM-NV1	A Construction Noise and Vibration Management Plan shall be prepared prior to issue of the relevant construction certificate. The Plan will reference the recommendations in Table 24 of the Noise and Vibration Impact Assessment prepared by Arup (August 2019).
CM-NV2	High noise activities will be programmed to occur during the daytime hours wherever possible. In the event that these works are approved to occur out-of-hours, noisy activities should be scheduled early in the night to minimise the impact on adjacent residents. Limit the number of consecutive nights receivers are impacted.
CM-NV3	The contractor will adhere to the minimum working distances in Table 23 of the Noise and Vibration Impact Assessment prepared by Arup (August 2019).
CM-SE	**Social and Economic**
CM-SE1	The proponent is to provide regular construction updates on the project website, to ensure the community, members and sports codes are kept informed of the construction phases and any potential disruptions/changes to the surrounding environment.
CM-BIO	**Biodiversity and Trees**
CM-BIO1	A Tree Protection Plan is to be prepared by the Project Arborist which assesses the degree of impact to any Tree Protection Zones and provides strategies and mitigation measures for how to minimise or mitigate these impacts.

Ref No.	Mitigation Measure
	Consideration should be afforded to the recommendations in the Arboricultural Impact Assessment prepared by Tree IQ (21 August 2019).
CM-BIO2	Following the conclusion of the refurbishment of the stadium, the removed trees will be replaced with advance-sized specimens in accordance with *Australian Standard 2303: Tree Stock for Landscape Use (2015),* whether on or off site in consultation with and as determined by the Sydney Olympic Park Authority.
CM-GEO	**Groundwater and Geotechnical**
CM-GEO1	Detailed testing of subsurface conditions is to be completed following demolition of the structures and to inform the detailed design stage including testing of foundation depths, loads, and performance, groundwater conditions, and soil and groundwater aggressivity.
CM-CON	**Contamination**
CM-CON1	An unexpected finds protocol is to be developed, and implemented throughout the construction process, with regard to contaminated soil, asbestos or soil potentially containing contamination or asbestos outside identified impacted zones.
CM-CON2	Any waste transported off-site is waste classified in line with EPA guidelines and taken to an appropriately licensed facility.
CM-CON3	No works are to occur in areas subject to the Maintenance of Remediation Notice no. 28040.

9.0 Conclusion and justification

This EIS has been prepared to assess the environmental, social and economic impacts of the proposed refurbishment of Stadium Australia. The EIS has addressed the issues outlined in the SEARs (**Appendix A**) and Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* to consider the relevant environmental planning instruments, built form, social, economic and environmental impacts resulting from the proposed development. Appropriate mitigation measures have been identified to manage the impacts of the development through the construction and operational phases of the project.

The proposed refurbishment works align with the objectives of the NSW Stadia Strategy 2012 to prioritise investment to achieve the optimal mix of venues to meet community needs and to ensure a vibrant sports and event environment in NSW that delivers social, cultural and economic benefits to the state. It will ensure the continued operation and competitiveness of Stadium Australia as a Tier 1 stadium and the largest rectangular stadium in Australia.

Having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development, the carrying out of the project is justified for the following reasons:

- the refurbished stadium will facilitate a number of significant social, cultural and economic benefits that might otherwise be lost or remain unrealised, and ensure the continued operation of a world-class stadium commensurate with Sydney's role as Australia's leading destination for tourism and events;
- the proposed development is permissible with consent and meets the requirements of the relevant statutory planning controls;
- the refurbishment provides for a stadium with enhanced amenity, but reduced maximum capacity, compared to the existing stadium and the operation of the new stadium will therefore not result in any new environmental impacts;
- the design of the stadium has been subject developed with consideration of the architectural merit of the existing stadium and surrounds to deliver the much-needed function improvements and bring new life to the stadium whilst still respecting the integrity of the original Stadium Australia;
- the design has been reviewed by SOPA's Design Review Panel and is considered to have achieved design excellence in accordance with Clause 30(1) and (2) of Schedule 3 of SEPP SSP;
- the proposal includes a full description of adequate and appropriate measures proposed, developed based on detailed technical assessment carried out in accordance with the Secretary's Environmental Assessment Requirements, in order to mitigate any adverse impacts of the development on the environment;
- the land is well served by existing and future public infrastructure, particularly public transport infrastructure and parking, cycling, road and pedestrian connections, which are readily available given the stadium operates with a higher capacity currently on the site, and services can be augmented to meet the future needs of the refurbished stadium;
- the project has been informed by pre-lodgement consultation, and measures are recommended for ongoing consultation and engagement;
- the proposal is consistent with the principles of ecological sustainable development as defined by Schedule 2(7)(4) of the *Environmental Planning and Assessment Regulation 2000*, and will support a more ecologically sustainable stadium by achieving a 5 star Green Star rating; and
- the proposal will safeguard the legacy of Stadium Australia, and Sydney Olympic Park as successful post-Olympics site that has been transformed into an active and vibrant centre.

Given the planning merits described above, and the significant benefits associated with the proposed development, it is recommended that the application be approved.