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Sydney Opera House Building Renewal Safety, Accessibility and Venue Enhancement Works and Entry Foyer Refurbishment

Environmental Impact Statement State Significant Development Application SSD 7665



**Prepared for the Sydney Opera House Trust
Submitted to the Department of Planning and Environment**

September 2016

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List of Abbreviations

BCA	Building Code of Australia
CMP	Conservation Management Plan
DP&E	Department of Planning and Environment
EAP	Eminent Architects Panel
EIS	Environmental Impact Statement
EPAR	Environmental Planning and Assessment Regulation 2000
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EP&A Act	Environmental Planning and Assessment Act 1979
ESD	Ecologically Sustainable Development
JST	Joan Sutherland Theatre
OA	Opera Australia
SAVE	Safety, Accessibility and Venue Enhancement
SEPP	State Environmental Planning Policy
SLEP	Sydney Local Environmental Plan 2012
SOHT	Sydney Opera House Trust
SSD	State significant development
TAB	The Australian Ballet
TMP	Theatre Machinery Project
WHS	Workplace Health and Safety

Front Cover Image courtesy of Sydney Opera House Trust

Certification of Environmental Impact Statement

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Proposed development

Applicant	Sydney Opera House Trust
Applicant's address	Bennelong Point, Sydney NSW 2000
Land to be developed	Joan Sutherland Theatre, Sydney Opera House
Legal description	Lot 5 in DP 775888 Lot 4 in DP 787933
Project description	Safety, Accessibility and Venue Enhancement (SAVE) works and Entry Foyer refurbishment – a range of accessibility and operational upgrade works for the Joan Sutherland Theatre (JST), accommodation works and refurbishment of the Entry Foyer.

Declaration

We certify that the contents of the Environmental Impact Statement, to the best of our knowledge, has been prepared in accordance with the requirements of clauses 6 and 7 of Schedule 2 of *Environmental Planning and Assessment Regulation 2000*; contains all available information that is relevant to the assessment of the development and that to the best of our knowledge the information contained in this report is neither false nor misleading.

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Executive Summary

This Environmental Impact Statement (EIS) supports a State significant development (SSD) application for the Safety, Accessibility and Venue Enhancement (SAVE) works and Entry Foyer refurbishment, Sydney Opera House, under section 89E of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The 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* (EPAR) and the Secretary's Environmental Assessment Requirements (SEARs) issued on 23 August 2016.

The Site and Locality

The Sydney Opera House is located on the peninsular on the eastern side of Circular Quay known as Bennelong Point. The site is legally described as Lot 5 in DP 775888 and Lot 4 in DP 787933.

The Opera House building is serviced by a recently constructed underground loading dock below the forecourt, accessed via an entry ramp off Macquarie Street adjacent to the cliff face known as the Tarpeian Wall.

Immediately adjoining land uses include the Royal Botanic Gardens to the south and southeast, Government House to the south and East Circular Quay to the South East. East Circular Quay is a pedestrian boulevard that links the Opera House with Circular Quay and the CBD. To the north of the Sydney Opera House site on the opposite foreshore of Sydney Harbour is predominantly medium to high residential development in the North Sydney local government area, while to the west on the western foreshore of Circular Quay is the Overseas Passenger Terminal and mixed use development in The Rocks.

Proposed Development

The SAVE works and Entry Foyer refurbishment form part of the **Sydney Opera House Building Renewal Program** and involve a range of accessibility and operational upgrade works for the Joan Sutherland Theatre (JST), accommodation works and refurbishment of the Entry Foyer.

The principal objective of the SAVE works is to provide a range of accessibility enhancements for both patrons and performers, in accordance with the Sydney Opera House Accessibility Masterplan (AMP) 2015 and improved operations within the JST.

The proposed works respond to the AMP and identified opportunities through accessibility enhancements including wheelchair accessible seating, equitable paths of travel, accessible toilet facilities and accessibility upgrades for performers. Similarly, the Entry Foyer refurbishment works are principally aimed at providing accessibility improvements and more contemporary customer-focussed entry and ticketing facilities.

The proposed works are therefore essential to the Sydney Opera House's ability to provide world class performance spaces which meet contemporary operational, accessibility and WHS standards.

The proposal is classified as State significant development (SSD) under the provisions of the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) as clause 1 of Schedule 2 of the SEPP states that all development within the Sydney Opera House is SSD. The Minister for Planning is the consent authority for SSD.

Strategic Context

The strategic justification for the proposal is outlined in Section 4 of this EIS. The proposed works are part of the Building Renewal Program for the Opera House, which is aimed at maximising its economic and cultural contribution to NSW, improving the operational efficiency of the building and ensuring compliance with modern building, accessibility and WHS requirements.

Section 4 also outlines project alternatives and considers the proposals against key State and local strategic policies and documents and key Sydney Opera House documents.

Statutory Context

Section 5 of the EIS considers relevant Commonwealth and State legislation and State and local environmental planning instruments, including:

- *Environment Protection and Biodiversity Conservation Act 1999* – The Heritage Impact Statement (HIS) recommends that, because the proposed works affect spaces and fabric of exceptional/considerable significance, that a referral to the Commonwealth Government under the EPBC Act should be made. On this basis, the SOHT is currently preparing a referral to the Commonwealth Department of Environment for a decision on whether the proposed works will need assessment and approval under the EPBC Act.
- *Heritage Act 1977* – an application for approval for the proposed works will be made to the NSW Heritage Council under section 57(1) of this Act.
- *Environmental Planning and Assessment Act 1979 and Environmental Planning and Assessment Regulation 2000* – the proposal is SSD and the Minister for Planning is the consent authority. The proposal is consistent with the objects of the Act and has been assessed against the matters for consideration under section 79C. As required by clause 288 of the Regulation, the provisions of the Management Plan for the Sydney Opera House have been considered in the HIS.
- *State Environmental Planning Policies (SEPPs)*, including:
 - *SEPP (State Significant Precincts) 2005* – the proposed works are not considered to be exempt development under the provisions of this SEPP and therefore require development consent.
 - *SEPP (State and Regional Development) 2011* – the proposal is SSD under the provisions of this SEPP and the Minister for Planning is the consent authority.
 - *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005* – as outlined in Section 5.5.3, the proposal generally complies the relevant provisions of the Harbour SREP.
- *Sydney Local Environmental Plan 2012* (Section 5.6) – the proposed works are permissible with consent in the B8 Metropolitan Zone. A detailed consideration of the proposal against the design excellence provisions of the LEP is contained in Section 5.6.

Environmental Planning Assessment

A detailed assessment of the potential environmental impacts of the proposal is contained in Section 6, which considers the following key issues:

- **Heritage** – The EIS is supported by a detailed HIS which concludes that the impacts of the proposed works on fabric and spaces at the Opera House should not threaten or diminish the outstanding universal values that underpin its World Heritage Listing or substantially affect the Opera House's national or state heritage values.
- **Built form, urban design and visual impacts** - The proposed works are largely internal and do not result in any built form, design or visual impacts. External works include new slot windows on the eastern facade and a new lift from the Box Office Entry Foyer on Level 1 to the JST Southern Foyer on Level 2. These are relatively minor external elements which do not add to the bulk or scale of the building and which have been designed to be compatible

with the materiality and design of the building. Further, the HIS concludes that these works will have an acceptable impact on the heritage values of the building.

- **Access and circulation** – The EIS is supported by detailed access reports which conclude that the proposed works provide accessible access as nominated in the National Construction Code Performance Requirements. The reports generally demonstrate compliance with the statutory requirements of the Disability (Access to Premises – Buildings) Standard and provide a checklist of compliance for the project architects in the on-going detailed design process. The reports further conclude that if the works are constructed in accordance with this process, accessibility compliance will be achieved.
- **Construction management** – Section 6.5 outlines how the following issues will be managed during construction activity:
 - Noise and vibration
 - Traffic and access
 - Air quality
 - Water quality
 - Waste and hazardous materials

Construction works will largely occur within the Sydney Opera House and generally serviced via the underground loading dock, reducing their impact on the general public, throughout their construction. A comprehensive Construction Management Plan (CMP) has been prepared by the SOHT to outline how construction will be managed and no significant residual construction impacts are anticipated.

A detailed Noise Impact Assessment (NIA) has been undertaken which outlined predicted construction noise levels associated with the Eastern Accommodation works (anticipated to entail noisiest activities) and an extensive range of mitigation measures to reduce construction noise emissions. The NIA identifies a potential residual exceedance of relevant noise management levels at the Bennelong Apartments during these works and therefore makes a number of recommendations to minimise potential for noise nuisance. These recommendations will be implemented during the construction phase of the proposal.

- **Building Code of Australia** – The EIS is supported by a BCA Capability Statement which concludes that that compliance with the BCA for the proposed works will be able to be achieved by a combination of compliance with the deemed-to-satisfy (DTS) provisions and the Performance Requirements. An Overarching Fire Strategy has also been prepared to provide a guiding approach to fire safety and which concludes that the building's level of fire safety won't be diminished through the various renewals projects and further enhancement to safety can be achieved.
- **Ecologically sustainable development** - The EIS is supported by a Sustainable Design Report which outlines the multiple sustainability principles to be implemented through the proposed works.

The assessment in Section 6 is summarised in an Environmental Risk Assessment and overview of key mitigation measures in Section 7.

Conclusion

This EIS has been prepared in accordance with the SEARs issued by the Department of Planning and Environment (DP&E) on 23 August 2016 and complies with all relevant statutory requirements.

The EIS assesses all potential environmental impacts associated with the proposed SAVE works and Entry Foyer refurbishment works and demonstrates that the proposal is in the public interest as it will provide essential accessibility upgrades to and improvements to the operational infrastructure of the Sydney Opera House without adversely impacting on the heritage significance of the building or the surrounding environment. Accordingly, the EIS concludes that the proposal warrant approval.

1 Introduction

This Environmental Impact Statement (EIS) supports a State significant development (SSD) application for the Safety, Accessibility and Venue Enhancement (SAVE) works and Entry Foyer refurbishment, Sydney Opera House, under section 89E of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The SAVE works and Entry Foyer refurbishment form part of the **Sydney Opera House Building Renewal Program** and involve a range of accessibility and operational upgrade works for the Joan Sutherland Theatre (JST), accommodation works and refurbishment of the Entry Foyer.

The proposal is classified as SSD under the provisions of the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) as it involves development within the Sydney Opera House, which is a listed State Significant Development site under Schedule 2 of the SRD SEPP. The Minister for Planning is the consent authority for SSD.

The 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* (EPAR) and the Secretary's Environmental Assessment Requirements (SEARs) issued on 23 August 2016 (**Appendix 2**). This EIS should be read in conjunction with the supporting information and plans appended to this report.

It is noted that certain other works being undertaken as part of the SAVE, including back of house upgrades, access works, lighting and acoustic upgrades, will be carried out as *exempt development* in accordance with the provisions of *State Environmental Planning Policy (State Significant Precincts) 2005* (SSP SEPP) and, therefore, do not form part of this EIS.

This EIS provides a comprehensive environmental assessment of the proposed upgrade works. In doing so, it outlines the subject site, the proposed development, project justification and public benefits and assesses the proposal against relevant matters set out in legislation, environmental planning instruments and planning policies and strategies.

The structure of this EIS is summarised in Table 1 below:

Section Number	Section Heading	Description
	Executive summary	Concise summary of this report and its findings
1	Introduction	Overview of the EIS and the proposed development
2	Site Analysis	Description of the site and surrounding development
3	Proposed development	Description of the project and consultation undertaken with key stakeholders
4	Strategic Justification	Need for the proposal and strategic framework
5	Statutory Planning Framework	Identifies the key legislation that this EIS must address and the criteria the project must comply with.
6	Environmental Planning Assessment	Identifies key activities and assesses the potential impact on the environment.
7	Environmental Risk Assessment	Identifies and assesses the potential environmental risks associated with the project.
8	Summary of Mitigation Measures	Establishes mitigation and management measures to manage any impacts.
9	Conclusion	Concise statement of key findings.

Table 1: EIS Structure

1.1 Project Objectives

The Sydney Opera House Trust (SOHT) has developed a Building Renewal Program to guide the transformation of the building over the next decade. This program includes a range of works aimed at maximising the Opera House's economic and cultural contribution to NSW and Australia as the nation's premier tourist destination and one of the world's pre-eminent performing arts centres.

It is also aimed at improving the operational efficiency of the building and ensuring compliance with modern building, accessibility and work health and safety (WH&S) requirements. The Renewal Program works will support the evolution of the Sydney Opera House as a key element of the overall renewal process in preparation for the building's 50th birthday in 2023.

The *JST Combined Projects* are a key component of the Building Renewal Program comprising of the following works packages and development applications (DAs) (Figures 1 and 2):

Works Package/DA	Description	Status
JST Theatre Machinery Project	Upgrade of the JST theatre machinery and associated infrastructure in the JST which has reached the end of its operational life and needs to be replaced.	- DA/EIS lodged 8 June 2016 - DA/EIS publicly exhibited between 21 July to 19 August 2016 - Response to Submissions lodged 5 September 2016
SAVE and Entry Foyer Refurbishment	Works described in this EIS	Amended SEARs (SSD 7665) issued 23 August 2016
Function Centre	- Creation of new Function Centre at northern end of eastern side of the building. - Conversion of the existing rehearsal room to a new production kitchen supporting the Function Centre and other foyers and bars. - Relocation of the rehearsal room to a space currently occupied by a staff training room on the south-eastern side of the building.	- SEARS request lodged 5 August 2016. - Future DA/EIS to be lodged

Table 2: JST Combined Projects

The principal objective of the SAVE works is to provide a range of accessibility enhancements for both patrons and performers, in accordance with the Sydney Opera House Accessibility Masterplan (AMP) 2015 (section 4.4.5), and improved operations within the JST.

The AMP identified current gaps in compliance with regulatory access requirements due to the historic nature of the building's construction. As a result, opportunities were identified to provide equitable access to the core public and performer areas with the building.

The proposed works respond to the AMP and identified opportunities through accessibility enhancements including wheelchair accessible seating, equitable paths of travel, accessible toilet facilities and accessibility upgrades for performers. Similarly, the Entry Foyer refurbishment works are principally aimed at providing accessibility improvements and more contemporary customer-focussed entry and ticketing facilities.

The proposed works are essential to the Sydney Opera House's ability to provide world class performance spaces which meet contemporary operational, accessibility and WHS standards.

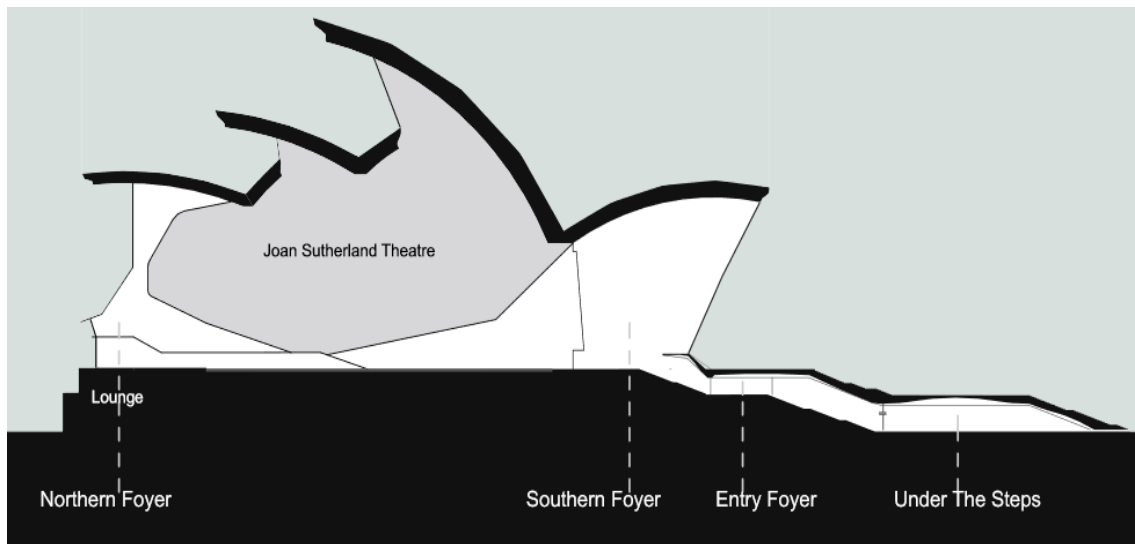


Figure 1: Sydney Opera House (Source: Sydney Opera House Trust/ TZG Architects)

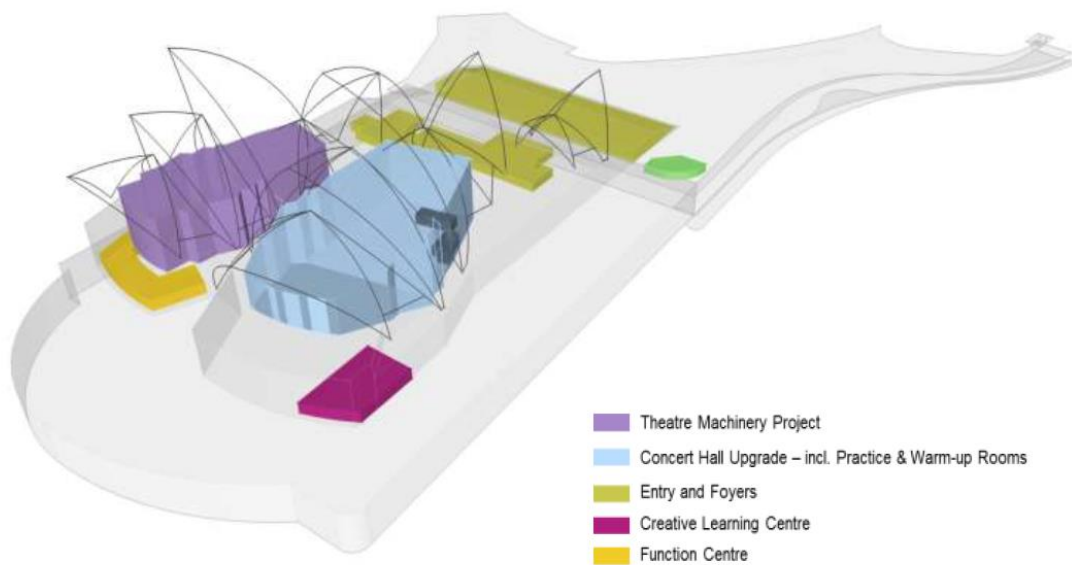


Figure 2: Sydney Opera House Building Renewal Program (Source: Sydney Opera House Trust)

1.2 Project Overview

An overview of the project is provided in Table 3:

Address	Bennelong Point, Sydney
Legal Description	Lot 5 in DP 775888; Lot 4 in DP 787933
LGA	City of Sydney
Zoning	B8 Metropolitan Centre
Permissibility	Permissible with consent
Project	Safety, Accessibility and Venue Enhancement Works and Entry Foyer Refurbishment
Capital Investment Value	\$33,171,276
Employment (estimate)	75 to 100 construction jobs

Table 3: Project Overview

1.3 SEARs

The Department of Planning and Environment (DP&E) issued SEARs (SSD 7665) for the *JST Accessibility and Additional Works and Front of House Works* on 10 June 2016.

Following the issue of these SEARs, the SOHT revised the scope and staging of works subject to the SEARs for SSD 7665 as follows:

- removal of certain elements from the proposed works which, following further consideration, had been determined to be exempt development, in accordance with *State Environmental Planning Policy (State Significant Precincts) 2005*;
- excising the proposed Function Centre works and progressing these through a separate DA; and
- excising the proposed Under the Steps works and progressing as part of a further, separate DA.

The description of the proposal was also amended to reflect these changes, with the Accessibility and Additional Works now known as the *Safety, Accessibility and Venue Enhancement (SAVE) and Entry Foyer works*.

On 5 August 2016, a written request was made to DP&E to issue amended SEARs for SSD 7665 to reflect these changes.

On 23 August 2016, DP&E issued revised SEARs (SSD 7665) for the SAVE and Entry Foyer Works (Appendix 2). These requirements and where they are addressed in this EIS are set out in Table 4:

Environmental Assessment Requirement	EIS Reference	Supporting Study
General Requirements		
Address the requirements of the EP&A Act 1979 and clauses 6 and 7 of Schedule 2 of the EP&A Regulation 2000	Throughout document including Section 1.4	N/A
Environmental risk assessment	Section 7	N/A
Quantity surveyor report on capital investment value and jobs estimate	N/A	Appendix 1
Key Issues		
Environmental Planning Instruments, policies and guidelines	Sections 4 and 5	N/A
Heritage	Section 6.2	Heritage Impact Statement - Appendix 3
Built Form, Urban Design and Visual Impacts	Section 6.3	Design Statements and Architectural Drawings – Appendices 9 and 10
Access	Section 6.4	Access Reports - Appendix 4
Construction impacts	Section 6.5	Construction Management Plan – Appendix 5 Noise Impact Assessment – Appendix 6
Ecologically Sustainable Development (ESD)	Section 6.7	Sustainable Design Report - Appendix 8
Consultation	Section 3.2	
Plans and Documents		
Plans and documents - Site survey, Locality/context plan and Architectural drawings	Sections 2 and 3	Appendices 9 and 10

Table 4: Secretary's Environmental Assessment Requirements

1.4 Environmental Planning and Assessment Regulation 2000

This EIS has been prepared in accordance with form and content requirements of Schedule 2 of the EPAR. An overview of how the individual requirements of the EPAR have been satisfied is included in Table 5:

Environmental Planning and Assessment Regulations 2000 (extract)	Area addressed in EIS
(1) <i>An environmental impact statement must also include each of the following:</i>	
(a) <i>a summary of the environmental impact statement,</i>	Executive Summary
(b) <i>a statement of the objectives of the development, activity or infrastructure,</i>	Section 1.1
(c) <i>an analysis of any feasible alternatives to the carrying out of the development, activity or infrastructure, having regard to its objectives, including the consequences of not carrying out the development, activity or infrastructure,</i>	Section 4.2
(d) <i>an analysis of the development, activity or infrastructure, including:</i> <i>(i) a full description of the development, activity or infrastructure, and</i> <i>(ii) a general description of the environment likely to be affected by the development, activity or infrastructure, together with a detailed description of those aspects of the environment that are likely to be significantly affected, and</i> <i>(iii) the likely impact on the environment of the development, activity or infrastructure, and</i>	Sections 2, 3, 6, and 7

Environmental Planning and Assessment Regulations 2000 (extract)	Area addressed in EIS
(iv) a full description of the measures proposed to mitigate any adverse effects of the development, activity or infrastructure on the environment, and	
(v) a list of any approvals that must be obtained under any other Act or law before the development, activity or infrastructure may lawfully be carried out,	
(e) a compilation (in a single section of the environmental impact statement) of the measures referred to in item (d) (iv),	Section 7
(f) the reasons justifying the carrying out of the development, activity or infrastructure in the manner proposed, having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development set out in subclause (4). Note. A cost benefit analysis may be submitted or referred to in the reasons justifying the carrying out of the development, activity or infrastructure.	Sections 4.1 and 6.7
(2) Subclause (1) is subject to the environmental assessment requirements that relate to the environmental impact statement.	Noted
(3) Subclause (1) does not apply if:	
(a) the Secretary has waived (under clause 3 (9)) the need for an application for environmental assessment requirements in relation to an environmental impact statement in respect of State significant development, and	N/A
(b) the conditions of that waiver specify that the environmental impact statement must instead comply with requirements set out or referred to in those conditions.	

Table 5: Requirements of the Environmental Planning and Assessment Regulation 2000

1.5 Project Team

An expert project team has been formed to deliver the project and includes consultants listed in Table 6:

Consultant	Role
Keylan Consulting Pty Ltd	Urban Planning
Scott Carver Tonkin Zulaikha Greer	Architecture
Design 5 Architects	Heritage Impact Assessment
Group DLA	Building Code of Australia Assessment
iAccess	Accessibility Assessment
Arup	Noise Impact Assessment Fire Safety
Cundall	Ecologically Sustainable Development Assessment
Altus Page Kirkland	Quantity Surveyor

Table 6: Project Team

2 Site analysis

2.1 Site location and context

The Sydney Opera House is located on the peninsular on the eastern side of Circular Quay known as Bennelong Point, as shown in Figure 3. The site is legally described as Lot 5 in DP 775888 and Lot 4 in DP 787933.



Figure 3: Location Map (Source: SixMaps)

The Opera House comprises three main structures (Figure 4), being:

- The Concert Hall on the western side of Bennelong Point;
- The Opera Theatre (Joan Sutherland Theatre) on the eastern side; and
- The Bennelong Restaurant, to the south of the two venues.

To the south of the above three structures are the main podium steps and the southern forecourt. The Opera House precinct adjoins the Royal Botanic Gardens to the east and East Circular Quay to the south.

The Opera House building is serviced by a recently constructed underground loading dock below the forecourt, accessed via an entry ramp off Macquarie Street adjacent to the cliff face known as the Tarpeian Wall.

The Opera House is listed on the NSW State Heritage Register and the National and World Heritage Lists (Section 5). It is the Nation's premier tourist attraction, hosting more than 8 million visitors each year, with more than 1.4 million attending about 1,900 performances and more than 350,000 people taking a guided tour of the building.

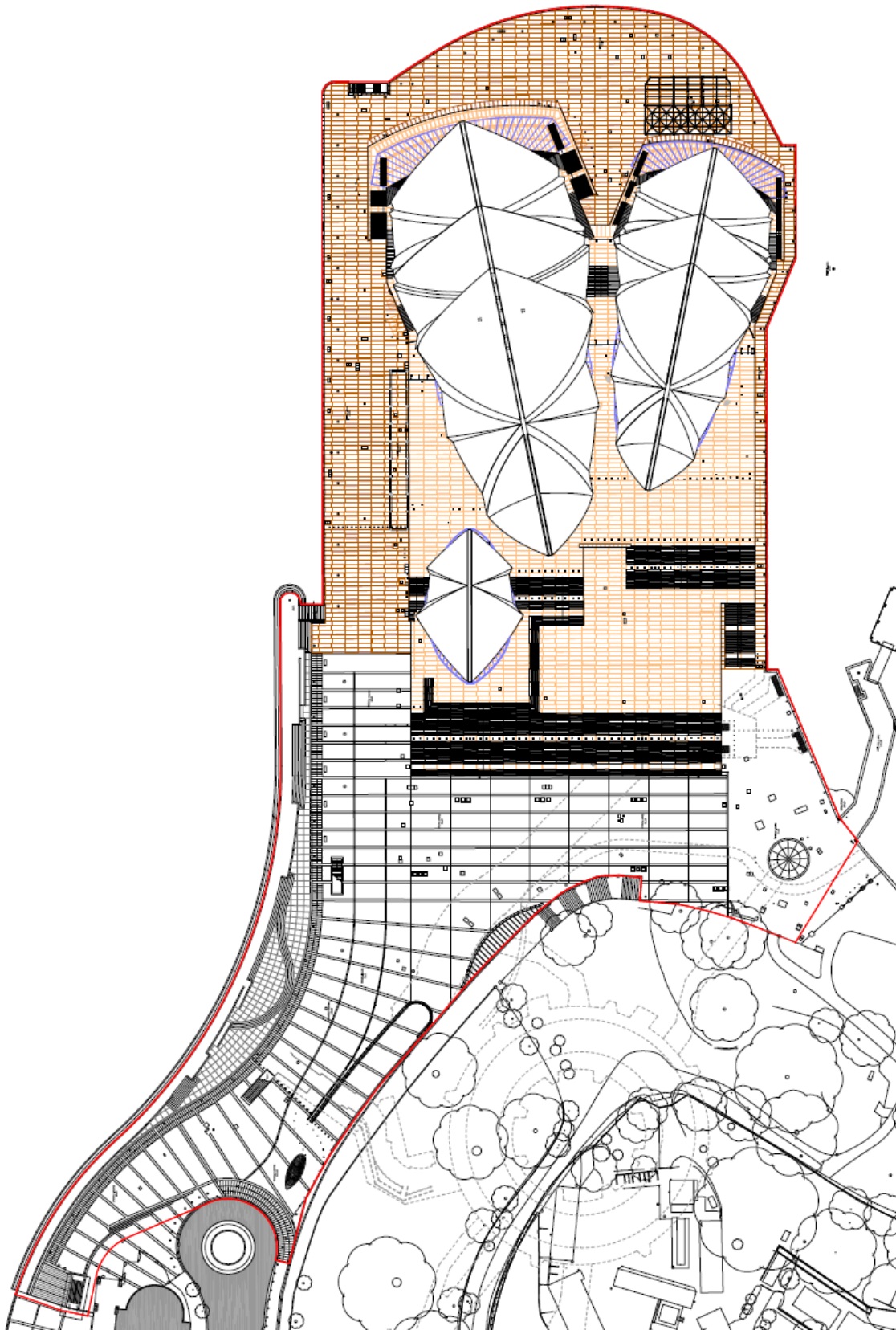


Figure 4: Sydney Opera House Site Plan (source: Sydney Opera House Trust)

2.2 Project area description

The project area is largely located on the eastern side of the Sydney Opera House in the following areas:

- The JST auditorium and backstage areas (Figure 5 and 6);
- Northern foyers (Figure 7);
- Relocated office functions to existing plant room spaces on the eastern side of the building, adjacent to the JST (Figure 8); and
- The Entry Foyer, located towards the southern end of the building (Figure 9)



Figure 5: Project Area – JST and backstage areas (Ground Level) (Source: Scott Carver)

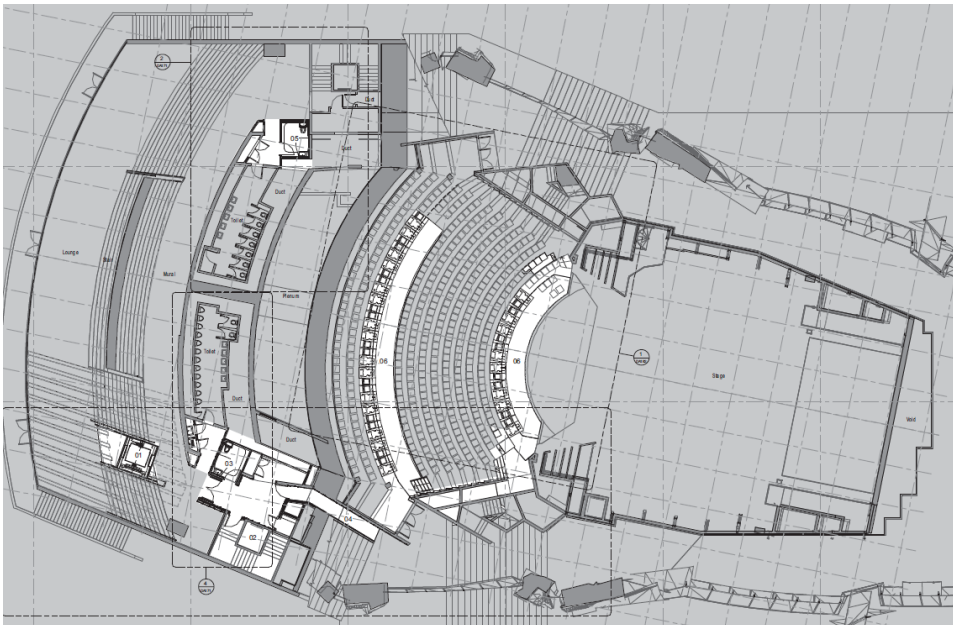


Figure 6: Project Area – JST and backstage areas (Level 3) (Source: Scott Carver)

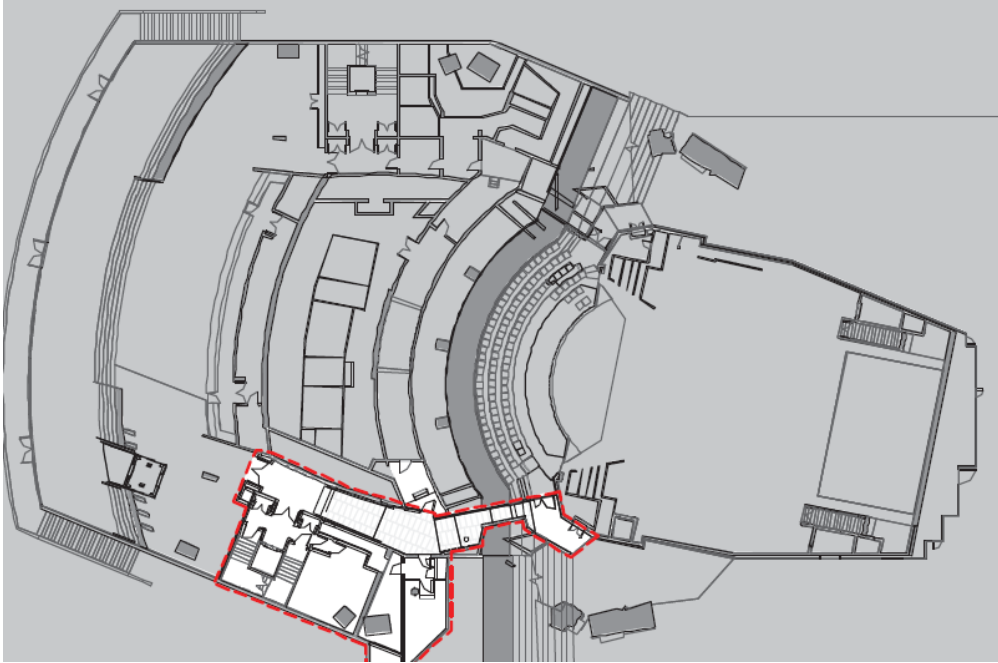


Figure 7: Project Area – Northern Foyers Access Works (Source: Scott Carver)

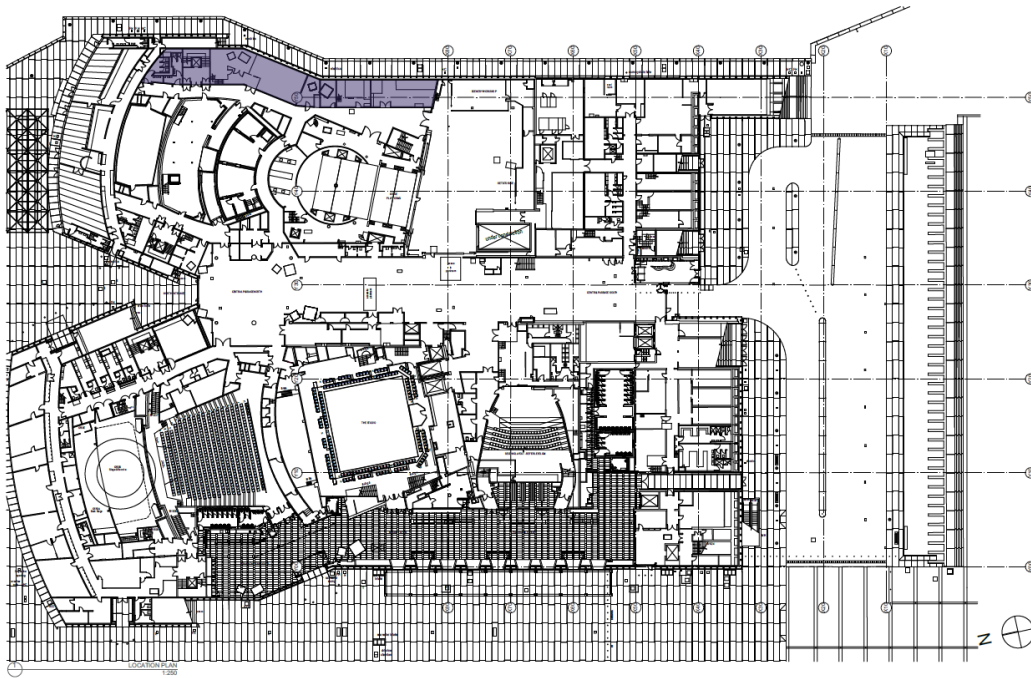


Figure 8: Project Area – Eastern Offices (Source: Tonkin Zulaikha Greer)

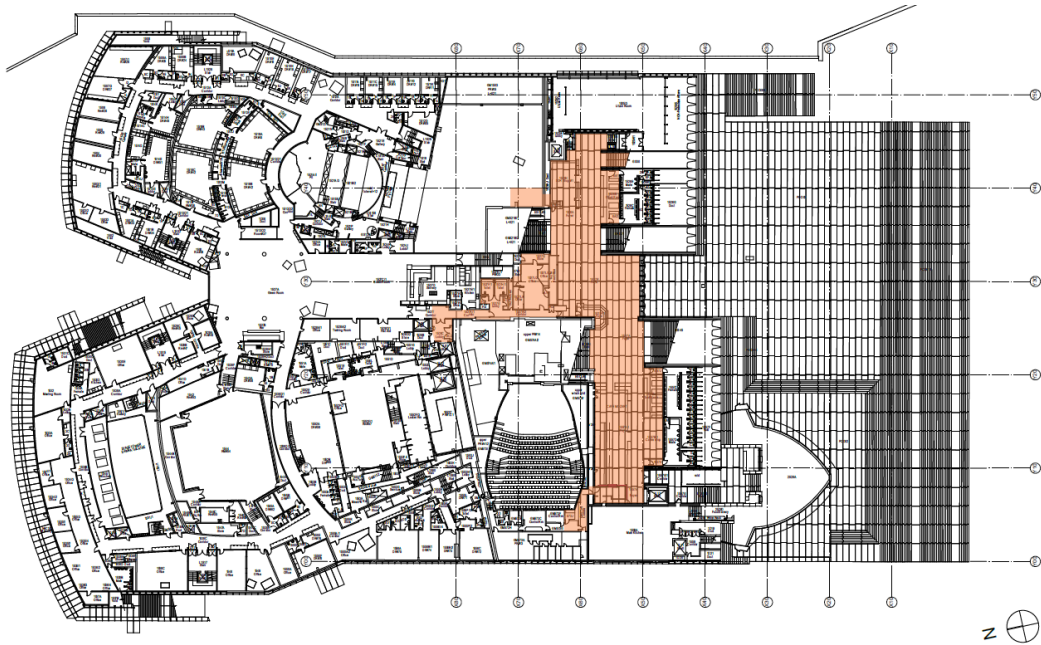


Figure 9: Project Area – Entry Foyer (Source: Tonkin Zulaikha Greer)

Site photos of the project area are contained at Figures 10 to 12.

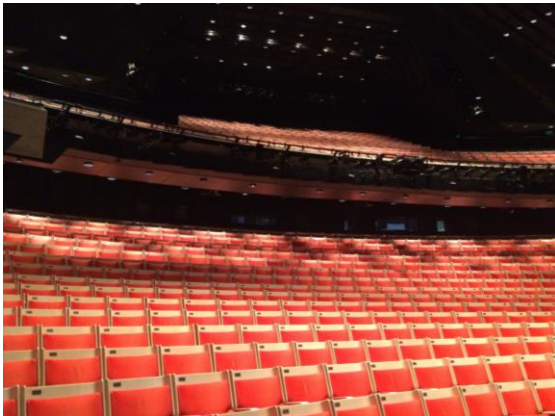


Figure 10: Joan Sutherland Theatre (left) and entry foyer looking west (right) (Source: KEYLAN)

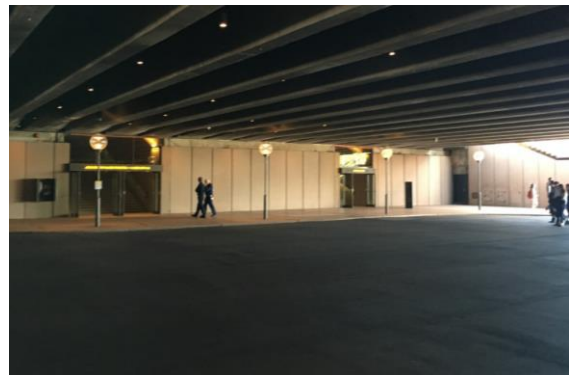


Figure 11: Entry foyer looking east (left) and view from vehicle concourse (Under the Steps) towards entry foyer stairs (right) (source: KEYLAN)



Figure 12: Existing plant room on eastern side of building (left) and view to eastern facade (right) (source: KEYLAN)

2.3 Surrounding development

Bennelong Point occupies the eastern peninsula of Circular Quay, with immediately adjoining land uses including the Royal Botanic Gardens to the south and southeast, Government House to the south and East Circular Quay to the South East. East Circular Quay is a pedestrian boulevard that links the Opera House with Circular Quay and the CBD.

Mixed use buildings mainly containing residential apartments above ground and first floor commercial premises are located to the south west of the Opera House along East Circular Quay. Many of the ground floor commercial premises include food and drink premises with outdoor seating. The nearest residential premises are the Bennelong Apartments at 1 Macquarie Street, the northern end of Macquarie Street and East Circular Quay.

A roundabout at the northern end of Macquarie Street provides vehicular access to the southern forecourt of the Opera House and to the underground Opera House carpark, which is a separately owned commercial entity. Pedestrian access to the car park is provided via an underground tunnel from the Lower Concourse. Outdoor seating areas associated with commercial uses occupy the western part of the Lower Concourse.

To the north of the Sydney Opera House site on the opposite foreshore of Sydney Harbour is predominantly medium to high residential development in the North Sydney local government area, while to the west on the western foreshore of Circular Quay is the Overseas Passenger Terminal and mixed use development in The Rocks.

3 Proposed Development

3.1 Project Description

The works subject to this EIS are described in Table 7 and shown in Figures 13 to 16. Architectural drawings of the proposed works are included at Appendices 3 and 4.

Safety, Accessibility and Venue Enhancement Works and Entry Foyer Refurbishment	
Accessibility projects (Figure 13)	A range of accessibility upgrades including: • Accessibility seating upgrades in rows A, B, & C and M, N, & P of the JST • New lift core 31 to provide access to the multiple levels in the northern foyers, not currently served by a lift. • Sanitary Facilities Upgrade (East/West) • Dressing Room Upgrade to provide two accessible dressing rooms • Orchestra accessible access upgrade - installation of a platform lift • Addition of passageways (tunnels) on the western side of the JST, requiring partial demolition of existing stairs and slabs on Levels 2 and 3, to link the southern foyers to the northern foyers on Levels 2 and 3, providing wheelchair access to northern foyer bars and accessible toilets.
New follow-spot room (Figure 14)	Construction of a new follow spot room to provide the operator with acceptable working conditions, and provide the correct angles for the spotlight to reach the back of stage. The new follow spot room is proposed at the rear of the auditorium, to provide the appropriate angle of light beam to reach the very rear of the stage.
Seat refurbishment	Refurbishment or renewal of the JST auditorium seating in order to provide improved fire rating of the seats. The works will be tendered as part of a design and construct package of works and therefore the successful tenderer will need to meet the refurbishment performance requirements. This may be achieved by the following: • Reuse of metal parts (replacing only worn and broken items), refurbishment of plywood / veneer parts, and renewal of upholstery to achieve enhanced fire rating. • Reuse of metal parts (replacing only worn and broken items), renewal of plywood / veneer parts and upholstery to achieve enhanced fire rating. • Renewal of the complete seat Seating will be removed, re-fitted and treated as required and subsequently reinstalled in the JST. In addition, the condition of the existing brushbox timber floor will be assessed, and subject to funding and necessity, a further option to re-finish the floor will be investigated.
Eastern Accommodation (Figure 15)	As part of an office accommodation rearrangement for SOH, staff will be re-located over two levels in the current JST winch power and dimmer rooms, which will become available following the implementation of the TMP works. New offices will comprise New open plan offices are proposed to house 43 work stations, 2 meeting rooms, a kitchenette and toilets. Creation of two new slot windows along the eastern façade to provide natural light and amenity for the relocated offices.
Alterations to Fire Curtain	Alterations to existing fire curtain over stage due to its age. This work includes: • replacement of the existing iron curtain with a new lightweight fabric curtain (The curtain to be equivalent to Coopers FireMaster) • removal of the existing "flap" that covers the gap between stage and auditorium.
Entry Foyer (Figure 16)	Refurbishment of the Entry Foyer (currently known as the Box Office Foyer) including: • Reconfiguring the existing amenities including cloakroom, ticketing, seating, café, and merchandise shop to create more spacious circulation zones and better disabled access to all areas. • Upgrading the traditional box office with contemporary customer-focused counter processing facilities. • Replacing existing stairs from the vehicle concourse to the entry foyer with a new double escalator • Provision of a new lift from the Box Office Entry Foyer on Level 1 to the JST Southern Foyer on Level 2.

Table 7: SAVE and Entry Foyer Refurbishment Works

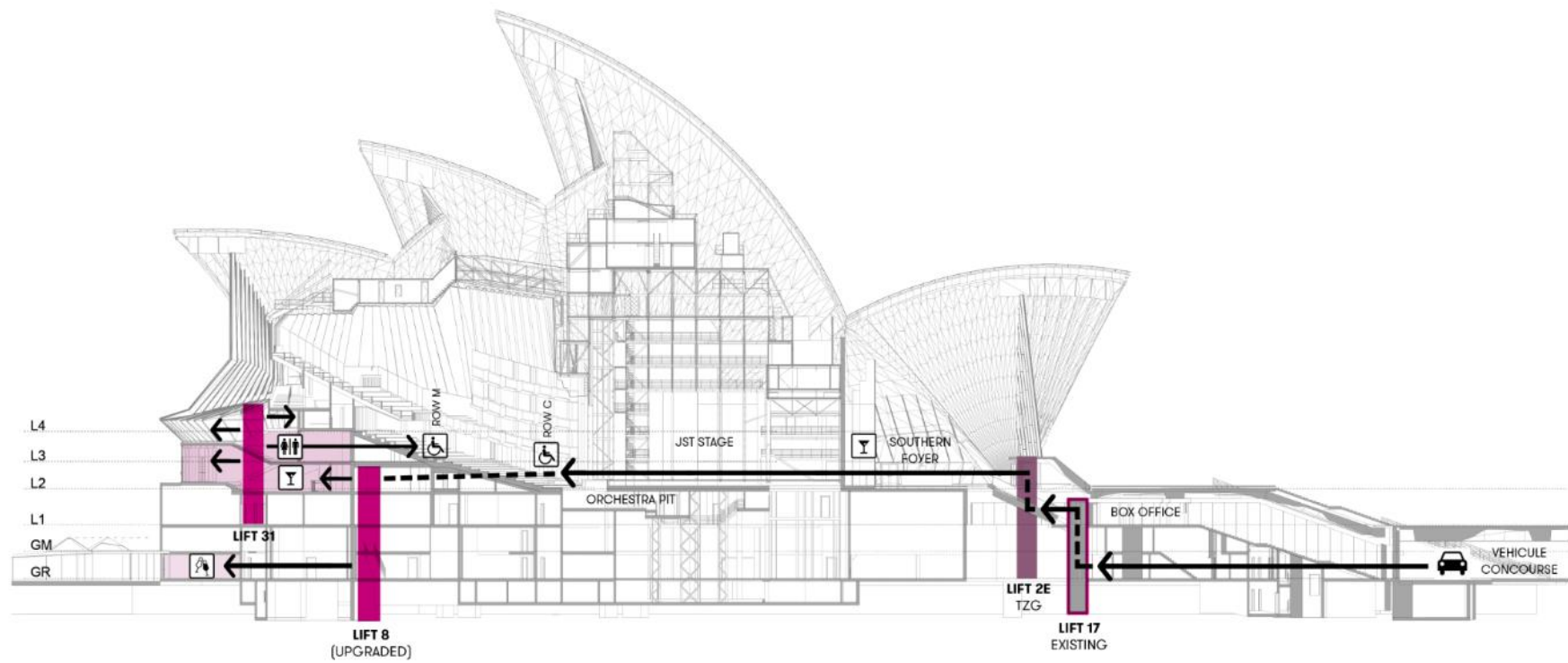


Fig 13: JST Accessibility Upgrade works (Note: Lift 17 identified in this drawing is now known as Lift 36) (Source: Scott Carver)

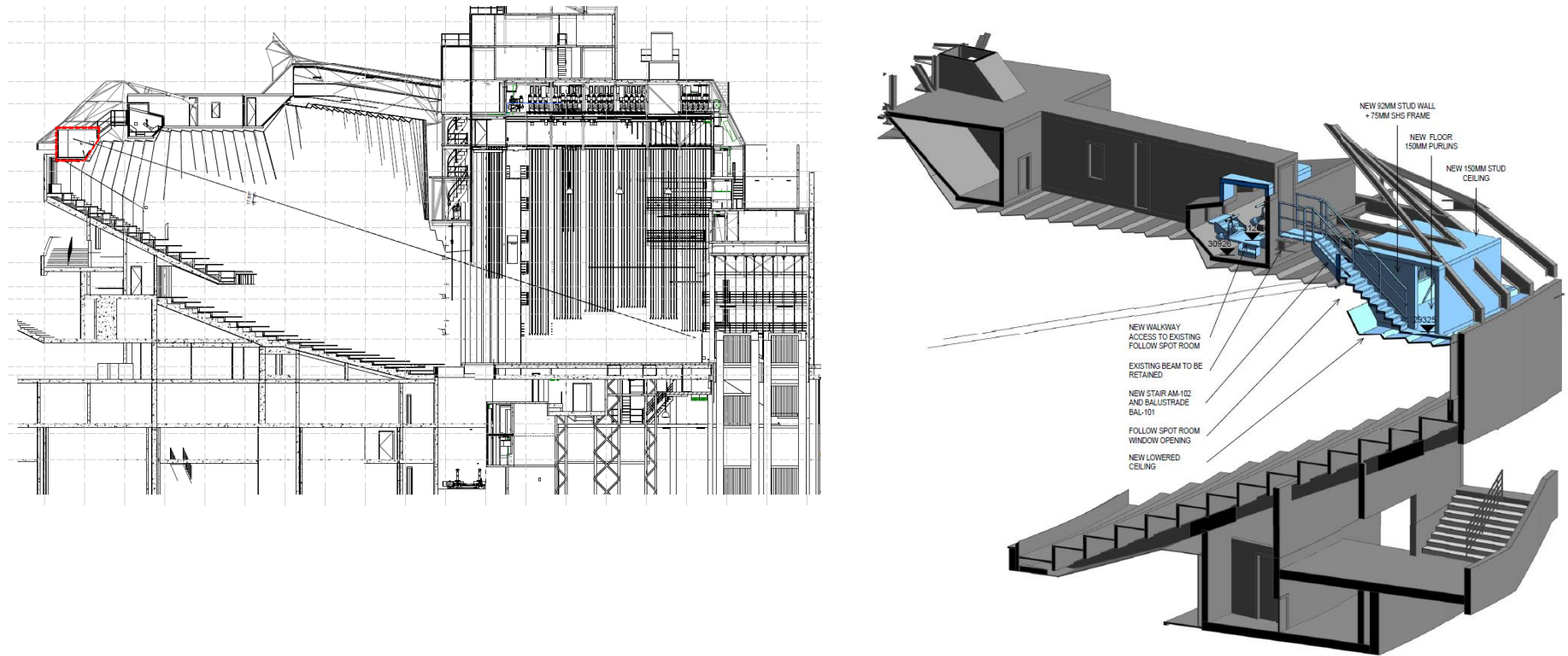


Fig 14: New Follow Spot Room (Source: Scott Carver)



Fig 15: Eastern Accommodation (Source: Tonkin Zulaikha Greer)



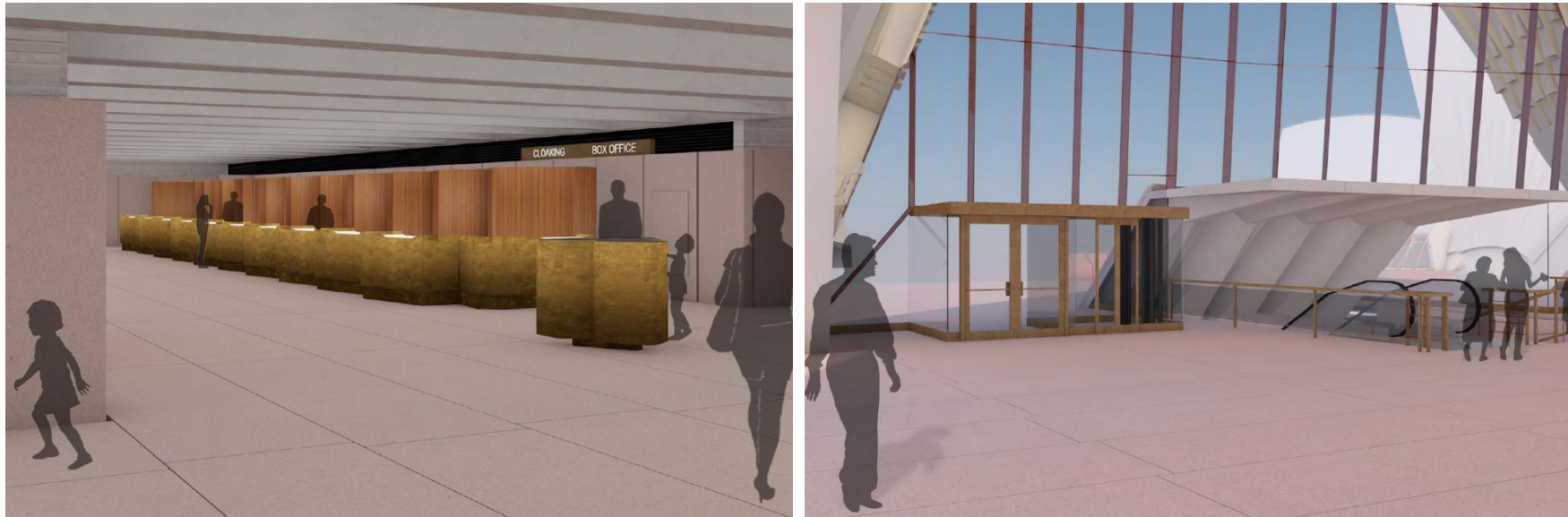


Figure 16: Entry Foyer Refurbishment Works (source: Tonkin Zulaikha Greer

3.1.1 Construction program

The proposed SAVE and Entry Foyer works are scheduled to occur during the closure of the JST for the TMP works, estimated to be from May to December 2017. Some works, such as the fit out and commissioning of new lifts 36 & 31, are programmed to continue after the 7 month closure period.

Due to the daily operations of the Sydney Opera House, noisy work shifts will be scheduled overnight, wherever possible. Those components of the project wholly contained within the JST internal spaces will generally not be audible outside of the building and therefore will be scheduled to occur outside standard construction hours. To achieve the works within the planned closure the following shift pattern will be programmed:

- 18:00-23:30 – planning and quiet activities which are compatible with live performances occurring in other venues within the site
- 23:30-10:30 – works which would otherwise be disruptive to SOH operations
- 10:30-18:00 – no major noise but general construction

The carrying out of works outside of standard construction hours is consistent with previous approvals granted for works on the site and is crucial to the delivery of the project within the closure timeframe. The delivery and collection of building materials and equipment will be managed so as not to unreasonably impact on the amenity of the patrons of Sydney Opera House and the surrounding neighbours.

3.2 Consultation

The SOHT has undertaken extensive consultation on the Building Renewal Program, including the SAVE and Entry Foyer works, which is summarised in Table 8:

Stakeholder	Consultation Summary
<i>Opera Australia and The Australian Ballet</i>	• A Joint Sydney Opera House/OA/TAB TMP Committee was established on 3 December 2014 to agree on: the timing of the project; resulting JST closure; requirements for an alternative venue; and the impact of a range of options. • A meeting was held on 24 March 2015 with OA Chairman David Mortimer AO, then TAB Chairman Jim Cousins AO and Opera House Trustee (and then A/Chair) Helen Coonan. • The Opera House's Renewal program governance structure was established in late 2015, which includes: - Monthly senior management meetings with the resident companies; and - Quarterly meetings with the CEO of the Opera House and resident company CEOs. • In collaboration with OA and TAB, the Opera House undertook acoustic testing in January 2016, including a trial of the proposed acoustic upgrades during opera and ballet performances.
<i>Eminent Architects Panel</i>	• The EAP provides advice to the Sydney Opera House Trust and management on issues of architecture or design, and in relation to the management and conservation of the building. Four to five formal meetings are held each year. The EAP has been briefed regularly on SAVE, and involved in the design process. • Current members of the EAP include: - Mr Peter Poulet, Chair (NSW Government Architect) - Mr Jan Utzon - Mr Peter Mould - Mr Ken Maher - Ms Abbie Galvin

Stakeholder	Consultation Summary
<i>Conservation Council</i>	- The Conservation Council provides advice to the Sydney Opera House Trust and management team on conservation and heritage matters. Four to five formal Conservation Council meetings are held each year. It is chaired by an Opera House Trustee, and comprises representatives from key external organisations, heritage and architectural specialists, and a number of management representatives. The Conservation Council has been regularly briefed on SAVE, and involved in the design process. - Members of the Conservation Council include: - The Hon Helen Coonan, Chair of Committee and Opera House Trustee - Mr Rajeev Maini, Acting Manager, Conservation, Heritage Division, OEH - Ms Tanya Koeneman, Aboriginal Heritage Officer, OEH - Ms Sheridan Burke, Conservation Heritage Specialist - Mr Peter Mould, Architectural Specialist - Mr Peter Poulet, Government Architect - Ms Elizabeth Kinkade, DP&E
<i>Commonwealth Department of the Environment</i>	- The SOHT has been liaising with the Department of the Environment on the Building Renewal Program, including a formal briefing and extensive tour of the JST on 21 June 2016. - It has been identified that a referral will be submitted as part of the works.
<i>NSW Heritage Council</i>	On 30 May 2016, the Heritage Council was briefed on the Building Renewal Program and undertook an extensive site tour. The SOHT will continue engagement with the Heritage Council and the Office for Environment and Heritage regarding relevant approvals under <i>the Heritage Act 1977</i> for the proposed SAVE works.
<i>City of Sydney Council</i>	The Opera House provided a high-level briefing to senior officers of the City of Sydney on Stage 1 Renewal projects on 8 February and 5 August 2016. A more detailed briefing on Stage 1 Renewal projects, including SAVE, was provided to City of Sydney planning and heritage representatives on 15 July 2016.
<i>The National Trust</i>	The Opera House provided members of the National Trust with a formal briefing on the Building Renewal program, including SAVE, and an extensive site tour on 18 August 2016.
<i>Metropolitan Local Aboriginal Land Council</i>	The SOHT is in the process of scheduling a meeting with the MLALC in relation to Stage 1 Renewal projects.
<i>Disabled community</i>	The Opera House provided a detail briefing about Stage 1 Renewal accessibility projects, including SAVE, for key stakeholders in the disability community on 15 August 2016.
<i>Neighbours</i>	The Opera House provided a briefing on the Renewal Building Program to residents of the Bennelong Apartments.
<i>Other Key Stakeholders</i>	The SOHT has also provided briefings on the Building Renewal Program to the following key stakeholders: - Department of Premier and Cabinet - Infrastructure NSW - Arts NSW - Royal Botanic Gardens Sydney - Sydney Harbour Foreshore Authority - Circular Quay Precinct Steering Committee - Government Property NSW - Art Gallery of NSW - State Library of NSW - Artspace - The Museum of Contemporary Art - Committee for Sydney Opera House - Tourism and Transport Forum

Stakeholder	Consultation Summary
<i>Resident companies and onsite commercial operators</i>	The Opera House provided a briefing on the Renewal Building Program to resident companies and onsite commercial operators on 12 August 2016.
<i>Opera House donors and corporate sponsors</i>	The Opera House provided a briefing on the Renewal Building Program to donors and corporate sponsors on 12 August 2016. A further briefing is scheduled for September 2016.
<i>Further consultation</i>	In addition to the above, the SOHT will continue stakeholder and public consultation in relation to the Building Renewal Program over the next few months. This will include the following key stakeholder groups: • Architectural and heritage community (scheduled for 13 September 2016) • Performing arts community (scheduled for 30 August 2016) • General public

Table 8: Stakeholder Consultation (Source: Sydney Opera House Trust)

4 Strategic Justification

4.1 Need for the proposal

As outlined in Section 1.1, the proposed works are part of the Building Renewal Program for the Opera House, which is aimed at maximising its economic and cultural contribution to NSW, improving the operational efficiency of the building and ensuring compliance with modern building, accessibility and WHS requirements.

As stated in the *Sydney Opera House Accessibility Master Plan (AMP) 2015* (Section 4.4.5), the Opera House was designed and built in a period when public expectations and requirements for public buildings did not involve planning access for all. Accordingly, the building has substantial limitations for access and mobility.

The proposed works primarily relate to building upgrades which will implement the accessibility initiatives outlined in the AMP aimed at achieving compliance with relevant disability access standards and legislation.

In addition to accessibility improvements in the Entry Foyer, the proposed refurbishment works are also aimed at increasing the size of the Foyer and increasing its efficiency with contemporary ticketing and cloaking systems befitting of a world class venue.

4.2 Proposal alternatives

The proposed development entails works that are essential to the Sydney Opera House complying with modern building, accessibility and WHS requirements as well as its on-going function as a world class performance venue with modern patron facilities.

The alternative to the proposed development is to not proceed with the works and retain the building's substantial access and mobility limitations and non-compliance with relevant access standards and legislation, as well as the continuation of inefficiencies and lack of functionality in the entry foyer. This alternative has been discounted on the basis that it would undermine the transformation of the Sydney Opera House over the next decade and the building's economic and cultural contribution to NSW and Australia as the nation's premier tourist destination and one of the world's pre-eminent performing arts centres.

All of the accessibility projects have been developed from a suite of preferred options in the AMP. As part of the design development processes, a range of potential solutions were explored, with the preferred options selected on the basis of minimised impact and optimal functionality.

As outlined in the Heritage Impact Statement prepared by Design 5 Architects (Appendix 3), Utzon's original design addressed accessibility issues by keeping the central passage at broad walk level as a public space. This allowed front-of-house public access to the suite of lifts to various foyer levels, and then via a level passage or tunnel at Level 3 in each side foyer to link southern and northern foyer areas. There was no passage at Level 2. When the Opera House opened in 1973, the central passage was the principal loading and servicing area and not available to the public, and due to the widened auditoria resulting from the revised program, the side passages were blocked over. This present suite of projects reinstates a side passage on Level 3 to the JST western side foyer, and introduces another at Level 2. These then allow accessible seating to be provided in a limited range of seating positions within the JST, rather than only at the front of the stalls.

With all of the projects included in this DA, there was a rigorous process of review amongst key stakeholder groups, specialist consultants, the Opera House's heritage architect, the Eminent

Architects Panel and Conservation Council at both schematic and concept design stages. The proposed works are the result of this rigorous review process.

4.3 Strategic Planning Documents

4.3.1 NSW Making it Happen

NSW Making it Happen sets out the NSW Premier's priorities to grow the economy, deliver infrastructure, and improve health, education and other services across NSW. It includes the State Priority of Increasing Cultural Participation and the specific target of increasing attendance at cultural venues and events in NSW by 15% in 2019. It notes that increasing attendance at cultural venues will have flow-on benefits for job creation, the visitor economy and education.

The proposed development is consistent with this State Priority as it will contribute to the enhancement and modernisation of facilities, including the provision of contemporary, world class theatres at the Opera House, as well as improved accessibility opportunities.

4.3.2 State Infrastructure Strategy

The *State Infrastructure Strategy* sets out the NSW Government's Rebuilding NSW Plan, which involves the investment of \$20 billion in new infrastructure across the state.

The Strategy states that as part of a new cultural infrastructure plan, the Government will focus future investments on creating an arts precinct in the Sydney CBD. This is aimed at re-affirming Sydney as a major centre for the arts. The Strategy states that priority will be given to investment in the Sydney Opera House, Walsh Bay Arts Precinct, and the Art Gallery of NSW.

The proposed works are consistent with this action of creating an arts precinct in the Sydney CBD as they will reinforce the capacity of the Sydney Opera House to continue to provide world class theatre facilities.

4.3.3 A Plan for Growing Sydney

A Plan for Growing Sydney sets out the NSW Government's vision for Sydney to be "a strong global city, a great place to live" and includes a number of supporting directions and actions. Relevant directions and actions include:

Direction 1.1: Grow a more internationally competitive Sydney CBD

Action 1.1.3: Diversify the CBD by enhancing the cultural ribbon which connects new and revitalised precincts including Barangaroo, Darling Harbour, Walsh Bay and the Bays Precinct.

This action references the creation of an arts precinct in the Sydney CBD and notes that the Opera House forms part of a broader cultural ribbon, which covers a collection of iconic buildings and attractions extending from the Australian Museum in the east, along the inner harbour foreshore, to Darling Harbour in the west.

Direction 3.4: Promote Sydney's heritage, arts and culture

Action 3.4.1 Continue to grow global Sydney's CBD as an international arts and cultural destination.

This action notes that the Government will support Sydney's world-class cultural institutions and venues by developing links between venues, adding vibrancy to arts and cultural life in Sydney's CBD.

4.3.4 Draft Sydney City Sub-Regional Strategy

The *Draft Sydney City Sub-Regional Strategy* provides a broad framework for long term development in Sydney and key directions including improving the quality of the built environment and enhancing the sub-region's prominence as a diverse global cultural centre.

The proposed works are part of the Building Renewal Program for the Opera House, which is aimed at maximising its economic and cultural contribution to NSW, improving the operational efficiency of the building and ensuring compliance with modern building, accessibility and WHS requirements.

On this basis the proposal is considered to be consistent with the intent of the strategy in enhancing and promoting part of Sydney's cultural heritage and tourism.

4.3.5 Sydney's Walking Future

Sydney's Walking Future is a NSW Government document aimed at encouraging walking in Sydney through actions to make it a more convenient, better connected and safer mode of transport. It aims to promote walking in Sydney through three pillars of activity:

- Promote the benefits of walking and provide quality information to customers
- Connect communities by delivering safe walking infrastructure and completing networks
- Engage with partners across the NSW Government, with local government, non-government organisations and the private sector to develop initiatives and policies.

Although none of the actions outlined in *Sydney's Walking Future* directly relate to the Sydney Opera House, it is noted that the Sydney Opera House is well-connected in terms of walkability to the major transport interchange of Circular Quay and to other key sites such as the Botanic Gardens. Furthermore, the proposed SAVE and Entry Foyer works will promote the overall aims of the document as they principally relate accessibility enhancements for both patrons and performers including wheelchair accessible seating, equitable paths of travel, accessible toilet facilities and accessibility upgrades for performers and will not result in any adverse impacts on pedestrian access to or circulation around the external areas of the Sydney Opera House.

4.3.6 Sustainable Sydney 2030 Community Strategic Plan 2014

Sustainable Sydney 2030 is the strategic plan for the City of Sydney Local Government Area and contains a vision and set of goals to be a Green, Global and Connected city. The proposal will contribute to the enhancement and modernisation of facilities, including the provision of contemporary, world class theatres at the Opera House, as well as improved accessibility opportunities which is consistent with the global goal which aims to ensure Sydney:

- remains a significant global city and international gateway with world-class tourism attractions and sustained investment in cultural infrastructure, icons and amenities;
- supports social, cultural and recreational facilities to nurture, attract and retain global talent;
- embraces innovation, and new generation technologies; and
- will be part of global cultural networks and an active participant in global knowledge exchange.

4.4 Sydney Opera House Plans and Policies

4.4.1 Sydney Opera House Management Plan

The *Management Plan for the Sydney Opera House* was prepared in 2005 and aims to:

- *protect and conserve the National and World Heritage values of the Sydney Opera House;*
- *minimise duplication in the environmental assessment and approval of actions that may impact on the National and World Heritage values of the Sydney Opera House;*
- *ensure there will be adequate environmental assessment of actions that may impact upon the National and World Heritage values of the Sydney Opera House; and*
- *ensure that actions that will have unacceptable or unsustainable impacts on the National and World Heritage values of the Sydney Opera House will not be approved*

The Management Plan incorporates the *Sydney Opera House Conservation Management Plan 3rd Edition*, the *Utzon Design Principles* and the *Statement of National Heritage Values of the Sydney Opera House* (these documents are discussed separately below). These more detailed companion documents must also be considered as part of any proposed SSD process. It is given legal effect through clause 288 of the EPAR, which requires consideration of the management plan in the assessment of any development at the Opera House under section 79C(1) of the EP&A Act, including consideration of the proposal with the objectives of the Management Plan.

The Management Plan describes the regulatory requirements affecting development of the Opera House and requires a Section 60 approval under the *NSW Heritage Act 1977* to be obtained for the proposed works. A Statement of Heritage Impact must accompany the application which analyses the proposal in terms of its impact on the heritage significance of the site, and against the policies outlined in the CMP, showing whether the impact of the proposal will compromise the heritage significance of the Sydney Opera House. The Statement must also include a consideration of the way in which the National and World Heritage values (if any) are likely to be affected.

In determining the application, the Minister must consider any potential impacts on the National and World Heritage values of the Opera House and take account of the precautionary principle. Activities should not be approved if they will have an unacceptable or unsustainable impacts (significant adverse impacts) on the National and World Heritage values of the Opera House.

A HIS accompanies this application (Appendix 3) which provides an assessment of the proposal's impact on National and World Heritage values. These considerations are discussed further in Section 6.2 of this report, where it is demonstrated that the proposal will not result in any significant adverse heritage impacts.

4.4.2 Sydney Opera House Conservation Management Plan 2003

This document provides an understanding of the place and its history. It also assesses the significance of the place, and provides conservation policies based on the identified heritage values of the Sydney Opera House. There are a number of conservation policies in the CMP relating to the building's setting and exterior, access issues, internal spaces including the Opera Theatre and foyers, and the removal or alteration of fabric.

The current adopted version of the CMP is the '3rd Edition', which was developed in preparation for the listing of the Sydney Opera House on the NSW State Heritage Register, on 3 December 2003. A draft CMP 4th Edition dated June 2015 has been prepared, however, as this document is still at draft stage it is not the applicable document for the purposes of this EIS.

This application has therefore been assessed against the CMP 3rd Edition. Compliance with the relevant policies of the CMP 3rd edition is demonstrated in the HIS (Appendix 3) and Section 6.2 of this report.

4.4.3 Utzon Design Principles, 2002

The *Utzon Design Principles* outline Jørn Utzon's vision for the building and its setting, his comments on the future of the building, and the fundamental principles underlying his designs. It is a permanent reference document for the conservation of the building and its setting and to clarify original design intent, manage proposals for change and influence planning controls for the precinct. Compliance with the relevant design principles is demonstrated in the HIS (Appendix 3) and Section 6.2 of this report.

4.4.4 Statement of National Heritage Values of the Sydney Opera House

This document describes the heritage significance of the Opera House and details its history. Its focus is construction of the main buildings on the design of Jørn Utzon that took place between 1957 and 1973. Compliance with the relevant provisions is demonstrated in the HIS (Appendix 3) and Section 6.2 of this report.

4.4.5 Sydney Opera House Accessibility Master Plan

The *Sydney Opera House Accessibility Master Plan* (AMP) outlines accessibility initiatives for the Sydney Opera House Building Renewal Program and provides an overall plan for accessibility upgrades that can then be progressively implemented via discrete Renewal Projects.

The AMP demonstrates the SOHT's commitment to the implementation of the *NSW Government Disability Policy Framework*, which is underpinned by the *Commonwealth Disability Discrimination Act 1992*, the *NSW Anti-Discrimination Act 1977*, the *NSW Disability Inclusion Act 2014*, *Australian Standard AS 1428 Design for Access and Mobility*, and the *Disability (Access to Premises - Buildings) Standards 2010*.

The AMP identifies a total of 73 primary projects that will deliver improved compliance, improved visitor experience, improved separation of front and back of house, and a more equitable outcome for accessibility. These projects have been prioritised in four categories as outlined below:

Item 1: Upgrade to the venues - to ensure that each and every venue or destination at SOH is accessible to all.

Item 2: Upgrade to the access ways – to provide an accessible path of travel that allows patrons, visitors and performers to access the venues from the principal pedestrian entrance to the building; and the continuous path to the venue or new work area.

Item 3: Upgrade to public amenities associated with the venue or destination, including sanitary facilities and food and beverage offers – to ensure that once patrons or visitors are at a venue, do they have equitable access to amenities, in order to provide a dignified experience.

Item 4: Upgrade to performer and back of house areas associated with the venue or destination – to ensure that once performers have reached the venues, do they have equitable access to amenities (including change rooms, practice rooms and the like) in order to provide a dignified experience.

The proposed SAVE and Function Centre Works primarily relate to upgrade works that will implement the accessibility initiatives outlined in the AMP.

5 Statutory Planning Framework

5.1 Relevant Commonwealth Legislation and Policy

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides for the protection of Matters of National Environmental Significance, including National and World Heritage listed sites. The Sydney Opera House was inscribed on the National Heritage List in 2005 and the World Heritage List in 2007.

Actions that will or are likely to have a significant impact on matters of environmental significance under the EPBC Act require the approval of the Commonwealth Minister for the Environment. The HIS (Appendix 3) and Section 6.2 of this report considers the impact of the proposed works will have on the fabric, setting, significance and cultural function of the Opera House and concludes the following:

“... it is our assessment that the negative impacts on fabric and spaces at the Opera House identified in this assessment should not threaten or diminish the outstanding universal values that underpin its World Heritage Listing.

These impacts are high on the fabric of the JST foyer spaces, but should not substantially affect the Opera House’s national or state heritage values. However, because these impacts affect spaces and fabric of exceptional / considerable significance, it is our recommendation that a referral to the Commonwealth Government under the EPBC Act should be made.

Combined with the Theatre Machinery Project (subject of a separate application) these projects will enhance the patron experience and performance and operational capability of the Sydney Opera House to continue to host and celebrate world standard performance art. In this respect this proposal will help sustain the iconic international standing of this Opera House.”

On this basis, the SOHT is currently preparing a referral to the Commonwealth Department of Environment for a decision on whether the proposed works will need assessment and approval under the EPBC Act.

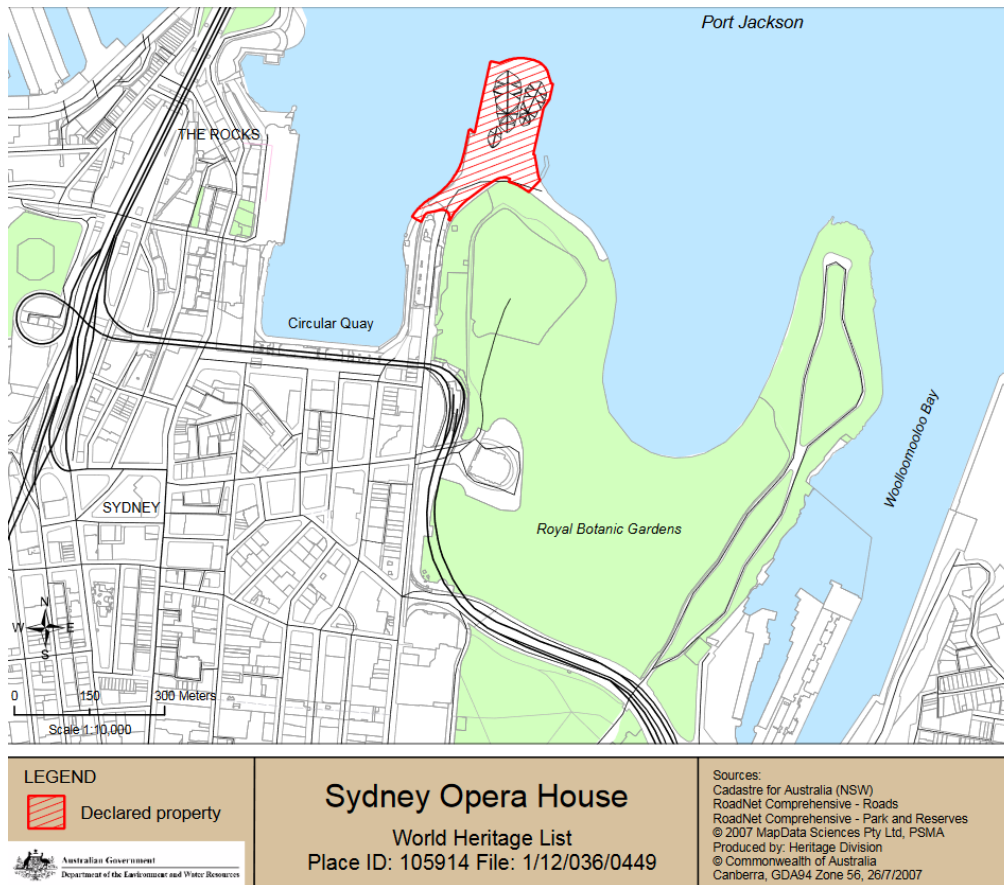


Figure 17: Sydney Opera House World Heritage Listing (Source: Commonwealth Department of the Environment)

5.2 Heritage Act 1977

The *Heritage Act 1977* makes provisions to conserve the State's environmental heritage. It provides for the identification, registration and protection of items of State heritage significance and constitutes the Heritage Council of New South Wales.

The Sydney Opera House is listed on the State Heritage Register.

Notwithstanding that the development comprises SSD, clause 90 of Schedule 6 and Clause 16A of Schedule 6A of the EP&A Act provide that approval under section 57(1) of the Heritage Act is required for development at the Opera House.

An Order under section 57(2) of the Heritage Act provides that a range of works at the Opera House are exempt from the requirement for approval under section 57(1). The proposed SAVE and Entry Foyer works subject to this EIS are considered to be beyond the scope of these exemptions and will therefore require approval under section 57(1) of the Heritage Act. This process is intended to ensure that any changes or additions on site do not detract from the heritage significance of the place.

An application for approval for the works will therefore be made to the Heritage Council under section 57(1) of the Heritage Act.

The HIS (Appendix 3) and Section 6.2 of this report demonstrate the proposed works will not detract from the heritage significance of the Opera House and will be consistent with the provisions of the Heritage Act 1977 and should be supported.

5.3 Environmental Planning and Assessment Act 1979

The EP&A Act provides the statutory framework for planning in NSW. Section 89C of the EP&A Act enables certain developments to be declared SSD by means of a State Environmental Planning Policy (SEPP) or by order of the Minister for Planning.

The project is SSD as Clause 1 of Schedule 2 of the SRD SEPP states that all development on land identified as being within the Sydney Opera House site is SSD (see Section 5.5.1). As the works described in this report do not meet the exempt development categories of the SSP SEPP, they are considered to be SSD.

The project will be assessed under Part 4 Division 4.1 of the EP&A Act. The Minister for Planning is the consent authority for SSD.

This report responds to the requirements of Section 78(8A) of the EP&A Act which requires the preparation of an EIS, Schedule 2 of the EPAR and the SEARs as outlined in Sections 1.3 and 1.4 above.

5.3.1 Objects

Development under the EP&A Act must have regard to the objects set out in Section 5 of the Act. The proposed development is considered to be consistent with the objects of the Act as follows:

5 Objects

The objects of this Act are:

(a) to encourage:

- (i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*

The proposed development will promote the social and economic welfare of the community and a better environment by providing accessibility improvements, upgrades to operational infrastructure and more contemporary customer-focussed entry and ticketing facilities at the Sydney Opera House without adversely impacting on the heritage significance of the building or the surrounding environment.

- (ii) the promotion and co-ordination of the orderly and economic use and development of land,*

The proposed development will improve accessibility to and around the Sydney Opera House and provide for more contemporary patron facilities which will support its intended purpose of providing world-class theatre facilities and will contribute to the Opera House maximising its economic and cultural contribution to NSW.

- (iii) the protection, provision and co-ordination of communication and utility services,*

The proposed development will not impact on the provision of communication and utility services to the Opera House.

(iv) the provision of land for public purposes,

During the proposed 7 month closure period of the JST, during which time the proposed works will be undertaken, the remainder of the Sydney Opera House will remain operational. Works are largely contained within the building and construction activities will be managed to minimise their interface with the public. The proposed development will also have minimal impacts on external publicly accessible land and areas. Deliveries and removal of materials will be mainly via the underground loading dock, except for any oversized items which may need to be transported across the forecourt. The Eastern Broad Walk will be temporarily closed for safety reasons during the installation of the new slot windows. However, these closures will be kept to a minimum and/or done overnight to minimise impacts on public access around the building.

(v) the provision and co-ordination of community services and facilities, and

The proposed development will contribute to improved community facility provision by improved access, operational efficiency and patron facilities and in Sydney Opera House.

(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and

As the proposed works are largely internal, there will be no impacts on the natural environment.

(vii) ecologically sustainable development, and

The proposed works will be carried out in accordance with the principles of ESD (Section 6.7).

(viii) the provision and maintenance of affordable housing, and

Not applicable.

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

The proposed development is SSD and therefore the Minister for Planning is the consent authority. However, the City of Sydney Council has been consulted by the DP&E during the preparation of the SEARs and will be consulted through the DA assessment process.

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.

The proposed development will be publicly exhibited in accordance with the requirements of the EP&A Act.

5.3.2 Section 79C Assessment

The Minister (or the Minister's delegate) is required to take into consideration the matters listed under section 79C of the EP&A Act when determining the development application.

An evaluation of the proposal against the provisions of Section 79C(1) of the Act is provided below:

1) Matters for consideration—general

In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application:

(a) the provisions of:

(i) any environmental planning instrument, and

Relevant environmental planning instruments are addressed in Sections 5.5 and 5.6.

(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and

There are no draft instruments applicable to the proposed development.

(iii) any development control plan, and

As the proposal is SSD, DCPs do not apply (clause 11 of the State and Regional Development SEPP).

(iv) any planning agreement that has been entered into under section 93F, or any draft planning agreement that a developer has offered to enter into under section 93F, and

Not applicable.

(v) the regulations (to the extent that they prescribe matters for the purposes of this paragraph), and

The requirements of the EPAR are addressed in Sections 1.4 and 5.4.

(vi) any coastal zone management plan (within the meaning of the Coastal Protection Act 1979), that apply to the land to which the development application relates,

Not applicable.

(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,

The impacts of the proposal are addressed in Section 6.

(c) the suitability of the site for the development,

As the proposed works generally relate to accessibility and operational improvements at the Sydney Opera House, the site is suitable for the proposal. Potential impacts of the proposal on the site and surrounds are considered in Section 6.

(d) *any submissions made in accordance with this Act or the regulations,*

Any submissions made on this subject development application will be duly considered and addressed by *Keylan Consulting Pty Ltd*.

In addition, DP&E will consider any public submissions relating to the proposal during its assessment.

(e) *the public interest*

The proposal is considered to be in the public interest as it will provide essential accessibility upgrades and improvements to the operational infrastructure of the Sydney Opera House without adversely impacting on the heritage significance of the building or the surrounding environment.

5.4 Environmental Planning and Assessment Regulation 2000

As outlined in Section 1.4, this EIS responds to the requirements set out in Schedule 2 of the EP&A Regulation.

Clause 288 of the EP&A Regulation requires the provisions of the Management Plan for the Sydney Opera House to be considered in the determination of this application – see Sections 4.4.1 and 6.2 of this EIS.

5.5 State Environmental Planning Policies

5.5.1 State Environmental Planning Policy (State Significant Precincts) 2005

The SSP SEPP seeks to broadly facilitate the development, redevelopment and protection of State significant precincts and to ensure the service delivery outcomes for a range of public purposes. The SSP SEPP identifies a number of State significant precincts and provides planning controls relating to the carrying out of development in these precincts.

The SPP SEPP identifies the Sydney Opera House as a State significant precinct and provides exempt development provisions for the precinct.

Due to the scope of works and their potential heritage impacts, the proposed works are not considered to fall within the exempt development provisions of the SSP SEPP and therefore require development consent.

5.5.2 State Environmental Planning Policy (State and Regional Development) 2011

The SRD SEPP declares certain types of development and infrastructure to be of State and regional significance. As clause 1 of Schedule 2 of the SRD SEPP identifies all development within the SOH as SSD, the proposal is SSD.

Clause 11 of the SRD SEPP excludes the application of development control plans to SSD, meaning the provisions of the Sydney Development Control Plan (DCP) 2012 do not apply to this application.

5.5.3 Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005

The *Sydney Regional Environmental Plan* (Sydney Harbour Catchment) 2005 (Harbour SREP) sets out objectives and planning principles for the Sydney Harbour Catchment.

The Sydney Opera House site is within the Sydney Harbour Catchment Area designated in the SREP. It is within the Foreshores and Waterways Area and City Foreshore Area designated as a Strategic Foreshore Site. It is also identified as a Heritage Item in the SREP.

An analysis of the proposal against relevant provisions of the SREP is outlined below:

Clause 13 Planning principles for the Sydney Harbour Catchment

Clause 13 sets out the planning principles which apply to land within the Sydney Harbour Catchment. These principles generally relate to the protection of the natural environmental qualities and scenic character of the harbour and its catchment. Further, the HIS concludes that these works will have an acceptable impact on the heritage values of the building.

The proposed SAVE and Entry Foyer works are largely internal works within the Sydney Opera House. External works include new slot windows on the eastern façade and new entry foyer lift. As outlined in Section 6.3, these are relatively minor external elements which do not add to the bulk or scale of the building and which will not impact on views to or from the Opera House or the scenic character of the harbour. Further, as outlined in Section 6.5.5, the construction of new Lift 36 is unlikely to result in any pollution of the harbour through water ingress to the lift pit or concrete leaching.

Clause 14 Planning principles for the Foreshores and Waterways Area

Clause 14 sets out the planning principles for the Foreshores and Waterways Area. These principles generally supplement the principles of Clause 13 and, in addition, to the protection of the natural environment and scenic qualities of the harbour, includes principles relating to public access to and along the foreshore and opportunities for maritime related uses and public boating facilities along the foreshore.

The proposed works are largely contained within the Sydney Opera House and construction activities will be managed to minimise their interface with the public. The proposed development will also have minimal impacts on external publicly accessible land and areas of the Sydney Opera House. The Eastern Broad Walk will need to be temporarily closed for safety reasons during the installation of the new slot windows on the eastern façade of the building. However, these closures will be kept to a minimum and/or done overnight to minimise impacts on public access around the building.

Clause 15 Planning principles for heritage conservation

Clause 15 sets out the principles for the protection of heritage items and places and views associated with heritage items in and around Sydney Harbour. As outlined in Section 6.2, the heritage impacts of the proposed works have been considered in detail in a HIS and have been assessed as acceptable.

Clause 21 – 27 Matters for consideration

These clauses set out the matters to be addressed prior to the grant of consent for development within the Foreshores and Waterway Area and relate to a range of matters, including:

- *Biodiversity and environmental protection (clause 21)* – the development site does not contain any threatened or vulnerable species, populations, communities or significant habitats. Construction and ongoing operations will be managed in accordance with the Mitigation Measures outlined in this EIS, ensuring no significant indirect impacts on the surrounding environment.
- *Public access to and use of the foreshores and waterways (clause 22)* - the proposed works are largely contained within the Sydney Opera House and will have minimal impacts on external publicly accessible land and areas of the Sydney Opera House. The Eastern Broad Walk will need to be temporarily closed for safety reasons during the installation of the new slot windows on the eastern façade of the building. However, these closures will be kept to a minimum and/or done overnight to minimise impacts on public access around the building.
- *Maintenance of a working harbour (clause 23)* – not relevant
- *Use of the waterways (clause 24)* – not relevant
- *Scenic quality (clause 25)* – proposed external works are relatively minor elements which do not add to the bulk or scale of the building and which will not impact on views to or from the Opera House or the scenic character of the harbour.
- *Protection of views (clause 26)* – as above.
- *Boat storage facilities (clause 27)* – not relevant.

Part 5 Heritage Provisions

This Part sets out provisions relating to the protection of the World Heritage values of the Sydney Opera House, including the establishment of a buffer zone around the site and protection of views and vistas to the Opera House.

As outlined in Section 6.2, the HIS accompanying this EIS addresses the proposed development against the World Heritage Values of the Sydney Opera House and concludes that the proposed works will not threaten or diminish the Outstanding Universal Values that enshrine the Sydney Opera House on the World Heritage List.

5.6 Sydney Local Environmental Plan 2012

The proposal is located on land zoned B8 Metropolitan Centre under the *Sydney Local Environmental Plan 2012* (SLEP 2012). The relevant provisions of the B8 zone are detailed below:

Zone B8 Metropolitan Centre

1 Objectives of zone

- *To recognise and provide for the pre-eminent role of business, office, retail, entertainment and tourist premises in Australia's participation in the global economy.*
- *To provide opportunities for an intensity of land uses commensurate with Sydney's global status.*
- *To permit a diversity of compatible land uses characteristic of Sydney's global status and that serve the workforce, visitors and wider community.*
- *To encourage the use of alternatives to private motor vehicles, such as public transport, walking or cycling.*
- *To promote uses with active street frontages on main streets and on streets in which buildings are used primarily (at street level) for the purposes of retail premises.*

2 Permitted without consent

Nil

3 Permitted with consent

Child care centres; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Information and education facilities; Passenger

transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Tourist and visitor accommodation; Any other development not specified in item 2 or 4

4 Prohibited
Nil

As the proposed works relate to development for the purposes of an “entertainment facility” they are permissible with consent in the B8 Metropolitan Zone.

Clause 6.21 of SLEP relates to design excellence and states that development consent must not be granted to development unless, in the opinion of the consent authority, the proposed development exhibits design excellence. In considering whether development to which this clause applies exhibits design excellence, the consent authority must have regard to a range of matters [clause 6.21(4)]. These are addressed in Table 9 below:

Matter	Comment
(a) <i>whether a high standard of architectural design, materials and detailing appropriate to the building type and location will be achieved,</i>	The proposed works are largely internal alterations, with the exception of the new slot windows along the eastern façade and a new lift from the Box Office Entry Foyer on Level 1 to the JST Southern Foyer on Level 2. As outlined in Section 6.3, these are relatively minor external elements which will employ a consistent design language and materials with the existing building. and, as outlined above, will not adversely impact on the built form or visual character of the Opera House.
(b) <i>whether the form and external appearance of the proposed development will improve the quality and amenity of the public domain,</i>	The proposed works will not add to the bulk or scale of the building or result in any encroachments on or loss of the public domain. Accordingly, there will be no negative impacts on the quality or amenity of the public domain.
(c) <i>whether the proposed development detrimentally impacts on view corridors,</i>	The proposed works will not add to the bulk or scale of the building and will not detrimentally impact on views to or from the Sydney Opera House.
(d) <i>how the proposed development addresses the following matters:</i> (i) <i>the suitability of the land for development,</i> (ii) <i>the existing and proposed uses and use mix,</i> (iii) <i>any heritage issues and streetscape constraints,</i> (iv) <i>the location of any tower proposed, having regard to the need to achieve an acceptable relationship with other towers (existing or proposed) on the same site or on neighbouring sites in terms of separation, setbacks, amenity and urban form,</i> (v) <i>the bulk, massing and modulation of buildings,</i> (vi) <i>street frontage heights,</i> (vii) <i>environmental impacts, such as sustainable design, overshadowing and solar access, visual and acoustic privacy, noise, wind and reflectivity,</i>	(i) As the proposed works generally relate to accessibility and operational improvements at the Sydney Opera House, the site is suitable for the proposal. Potential impacts of the proposal on the site and surrounds are considered in Section 6. (ii) The proposed works do not alter the existing uses of the Sydney Opera House. (iii) Heritage impacts are considered in detailed in the HIS at Appendix 3 and Section 6.2 of the EIS. (iv) N/A (v) The proposed works do not add to the bulk or mass of the building. The proposed new slot windows are consistent with the existing fenestration of the eastern façade, which is characterised by a variety of window openings, including slot windows located above the proposed windows, and would retain the visual solidity of the podium. The new windows would also comprise recessed, bronze frames and precast granite hoods to match existing window design. The new lift shaft will be situated in an existing void and will not project beyond the building line. Furthermore, its design and materials would be compatible with the existing building and it will not add to the bulk or scale of the building. (vi) N/A

Matter	Comment
(viii) the achievement of the principles of ecologically sustainable development, (ix) pedestrian, cycle, vehicular and service access and circulation requirements, including the permeability of any pedestrian network, (x) the impact on, and any proposed improvements to, the public domain, (xi) the impact on any special character area, (xii) achieving appropriate interfaces at ground level between the building and the public domain, (xiii) excellence and integration of landscape design.	(vii) The proposed works will not result in any adverse environmental impacts such as overshadowing, visual and acoustic privacy, noise, wind or reflectivity. Construction impacts and proposed mitigation measures are considered in detail in Section 6.5. (viii) A detailed consideration of ESD measures to be incorporated into the proposal and ESD principles is contained in Section 6.7. (ix) The proposed works will not negatively impact on pedestrian, cycle or vehicular access and movement. (x) The proposed works will not add to the bulk or scale of the building or result in any encroachments on or loss of the public domain. Accordingly, there will be no negative impacts on the quality or amenity of the public domain. (xi) The Sydney Opera House is located to the immediate north of the Circular Quay Special Character Area. The proposed works are minor and will not impact on this area. (xii) As the new lift shaft will be situated in an existing void and will not project beyond the building line it will not adversely impact the building's interface with the publicly accessible Broad Walk. (xiii) The proposal does not entail any landscaping works.

Table 9: Assessment against clause 6.21(4) of Sydney LEP 2012

Clause 6.21(5) of SLEP also states that consent cannot be granted for certain development unless a competitive design process has been held. However, under clause 6.21(6), a competitive design process is not required under subclause (5) if the consent authority is satisfied that such a process would be unreasonable or unnecessary in the circumstances or that the development meets certain criteria.

As the proposal involves only minor external alterations which have been assessed as having no significant impact on the design character or heritage values of the Sydney Opera House, it is considered that a competitive design process is unreasonable or unnecessary. In this regard, it is noted that the project architects were appointed through a competitive tender process and that the proposed works have been subject to a rigorous review process by the Opera House's heritage architect, the Eminent Architects Panel and Conservation Council at both schematic and concept design stages.

It is also noted that in terms of clause 6.21(6), the proposal:

(a) involves only alterations or additions to an existing building

The proposed works largely comprise internal works, with only minor external alterations to the Sydney Opera House.

(b) does not significantly increase the height or gross floor area of the building

The proposed works do not add to the height or gross floor area of the building

(c) does not have significant adverse impacts on adjoining buildings and the public domain

As outlined in this EIS, the proposal involves only minor external works which will not impact on any nearby buildings or areas of public domain.

(d) does not significantly alter any aspect of the building when viewed from public places

As detailed in Section 5.3, the proposed new slot windows and lift shaft not adversely impact on the built form or visual character of the Opera House

On the basis of the above, it is submitted that a competitive design process is not warranted for the proposal.

5.7 Development Control Plans

In relation to Sydney Development Control Plan (DCP) 2012, which supplements SLEP and provides more detailed guidance, clause 11 of the SRD SEPP states that DCPs do not apply to SSD. Accordingly, as the Sydney DCP does not apply to the proposal, it has not been specifically considered in this EIS.

6 Environmental Planning Assessment

6.1 Overview

In assessing the potential impacts of the development and merits of the proposal the following matters were considered:

- the Secretary's Environmental Assessment Requirements (SEARs);
- agency comments;
- relevant environmental planning instruments, policies and guidelines;
- relevant provisions of the EP&A Act, including the objects of the Act; and
- relevant documents related to the project including the technical documents forming this Environmental Impact Statement.

6.2 Heritage

The HIS prepared by *Design 5 Architects* contained in **Appendix 3** provides a detailed assessment of each of the key elements of the SAVE and Entry Foyer works and the impact of the works on the site's significant heritage values, including its World Heritage status.

The following key documents form the basis for the HIS:

- *Matters of National Environmental Significance – Significant Impact Guidelines 1.1, EPBC Act 1999, Department of the Environment 2013;*
- *Sydney Opera House Conservation Management Plan, 3rd Edition*
- *Utzon Design Principles*

Further, the HIS has been prepared in accordance with the principles and processes of the *Australia ICOMOS Burra Charter 2013* and the NSW Heritage Office guideline *Statements of Heritage Impact* (revised 2002).

6.2.1 World Heritage Values

The HIS notes that the Sydney Opera House was inscribed on UNESCO's World Heritage List (WHL) for its Outstanding Universal Value (OUV) and as a "*masterpiece of human creative genius*" under criterion (i) of the Operational guidelines for the implementation of the World Heritage Convention.

The HIS further notes that many components of the proposed works will greatly improve access to the JST side of the Opera House to a wider section of society – particularly those with reduced mobility, many of whom will never have experienced some of these spaces before.

Whilst the proposed tunnel and lift connections between the various foyer and auditorium levels will have a substantial impact on affected spaces and their fabric, the functional benefits will be substantial and the impacts will not adversely affect the OUV that underpin its World Heritage Listing.

Combined with the JST TMP (subject of a separate development application), these projects will enhance the patron experience and performance and operational capability of the Sydney Opera House to continue to host and celebrate world standard performance art. The proposal will therefore help sustain the iconic international standing of this Opera House – a key part of its OUV.

The HIS concludes that with fine and detailed resolution during the design development stage, and then excellence in execution, all in accordance with the Utzon Design Principles and the CMP, the proposed works will have significant but ultimately positive impacts and thus not threaten or diminish the OUV that enshrine it on the World Heritage List.

6.2.2 National Heritage Values

The HIS considers the proposed works against the relevant National Heritage Criteria, as summarised in Table 9 below:

NHL Criteria	Comment
NHL Criterion A Events, Processes <i>The place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history.</i> Relevant key values from National Heritage values: • <i>"The Sydney Opera House represents a masterpiece of modern architectural design, engineering and construction technology in Australia."</i> • <i>"The challenges involved in executing the design inspired innovative developments in technologies, construction engineering and building methods in Australia, creating the building's distinctive form, fabric and structural systems."</i> • <i>"a seminal role in Australia's performing arts history, enhancing the cultural vitality of the nation and continuously attracting nationally and internationally recognised performers from around the world"</i>	The suite of projects included in this application will not have any adverse impacts on these values and will potentially enhance the ability of the Sydney Opera House to attract national and internationally recognised performers with its improved functionality and accessibility.
NHL Criterion B Rarity <i>The place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history.</i> Relevant key values from National Heritage values: <i>"With its distinctive sail-like concrete shell roofs standing boldly upon a massive granite-faced platform, located prominently on the Sydney Harbour foreshore, the Sydney Opera House is the most widely recognised building in Australia, and one of the most definitive national architectural icons of the twentieth century. It is also a rare example of a national cultural centre that has gained widespread recognition and respect as a performing arts venue."</i>	The suite of projects included in this application will not have any adverse impacts on these values and will likely enhance the Opera House's recognition and respect as a performing arts centre accessible to all.
NHL Criterion E Aesthetic characteristics <i>The place has outstanding heritage value to the nation because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.</i> Relevant key values from National Heritage values: • <i>"With its distinctive sail-like concrete shell</i>	The suite of projects included in this application will have some adverse impacts on the radial cranked beams in the JST northern foyer at its western end, but only minimal adverse impact on the experience of entering and arrival at the Opera House.

NHL Criteria	Comment
<i>roofs standing boldly upon a massive granite-faced platform, located prominently on the Sydney Harbour foreshore, the Sydney Opera House is the most widely recognised building in Australia, and one of the most definitive national architectural icons of the twentieth century.”</i> • <i>“The building’s ability to emotionally move people and invoke a strong aesthetic response is enhanced by the experience of approaching, entering and moving around the building and surrounds.”</i> • <i>“...the majestic quality of the soaring internal spaces including the folded concrete beams throughout the building, and the reinforced radial cranked beams in the northern foyers. These are complemented by the vast coloured glass panels in the main foyers of the Concert Hall and Opera Theatre wings, through which the harbour and city views reinforce the building’s magnificent setting.</i> • <i>The distinctive interiors including the foyers surrounding the major auditoria, the Reception Hall (now the Utzon Room), the Box Office foyer, and the Bennelong Restaurant designed by Utzon and Peter Hall, enhance the relationship between the interior and exterior of the building.”</i>	These experiences in the ascent of the main stairs and in the Box Office foyer should be enhanced by these works and be accessible to a wider public than before, now including those with limited mobility.
NHL Criterion F Creative or technical achievement The place has outstanding heritage value to the nation because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period. Relevant key values from National Heritage values: • <i>The ‘hybrid’ interior spaces of the Sydney Opera House reflect the creative genius of both Utzon and Todd, Hall and Littlemore, who completed the building and interior finishes after Utzon’s departure. The major public spaces with outside views, for example were designed by Utzon (and completed by Peter Hall) to be finished in natural materials, textures and colours similar to those on the exterior of the building in order to bring the outside inside (Kerr 2003, 69).”</i> • <i>“the creation of sensory experiences to bring pleasure to the building’s users, particularly the experience of approaching, mounting the grand staircase to the podium, passing through the low ribbed box office, up to the foyers flanking the auditoria with their harbour views, and the climax of the performance itself. ‘Both ideas were...reinforced by Utzon’s application of counterpointing techniques using light and</i>	The suite of projects included in this application will generally retain and respect these values. While acknowledging there will be some negative impacts in regard to introduction of Lift 31 and the consequent cutting of three of the significant cranked beams in the JST northern foyer, and the diminished width of the stairs in the JST western side foyer resulting from the new passage / tunnel on Level 3, the overall impacts will be positive. Utzon’s original concepts will be strengthened and made accessible to a broader public than before, and Peter Hall’s contributions will be retained and respected in back-of-house areas.

NHL Criteria	Comment
<i>dark tones, soft and hard textures and richly treated warm and cool interior colours.”</i> • <i>“The interior spaces designed by Peter Hall, including the major auditoria known as the Concert Hall and Opera Theatre, and the minor performance spaces, performers’ and staff areas, and rehearsal rooms, known collectively as ‘Wobbly Land’ because of the distinctive ‘U’ shaped timber panelling, demonstrate the distinctive design solutions that made the Opera House a functioning performing arts centre in the 1970s, and reflect the prevailing aesthetic values, building standards, and financial constraints of the day.”</i>	
NHL Criterion G Social value <i>The place has outstanding heritage value to the nation because of the place’s strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.</i> Relevant key values from National Heritage values: <i>“building’s role as a cultural icon is also derived from the numerous performances conducted there (100,000 since 1973)”</i>	The suite of projects included in this application should strengthen the Sydney Opera House’s role as a cultural icon accessible to all, and potentially enhance its ability to attract both national and international visitors and performers.
NHL Criterion H Significant people <i>The place has outstanding heritage value to the nation because of the place’s special association with the life or works of a person, or group of persons, of importance in Australia’s natural or cultural history.</i> Relevant key values from National Heritage values: • <i>“The Sydney Opera House is directly associated with Jørn Utzon”</i> • <i>“The peninsula on which the Sydney Opera House now stands has a special association with Bennelong”</i>	The proposed suite of projects will not have any adverse impacts on these values.

Table 10: Assessment against National Heritage Values (Source: Design 5 Architects)

Based on this assessment, the HIS concludes that while there will be some negative impacts from introduction of Lift 31 and the consequent cutting of three of the significant cranked beams in the JST northern foyer, and the diminished width of the stairs in the JST western side foyer resulting from the new passage / tunnel on Level 3, the overall impact of these projects will be positive.

The improved functionality and accessibility of both public and back-of-house areas, particularly in relation to the JST, will potentially enhance the reputation and ability of the Sydney Opera House to attract national and international visitors, patrons and performers.

6.2.3 State Heritage Values

The HIS also considers the proposed works against the State Heritage Register criteria, as summarised in Table 10 below. The HIS notes that as the draft CMP 4th Edition has not yet been formally adopted, the CMP 3rd Edition is used as the basis for the assessment of the proposal against State Heritage values.

SHR Criteria	Comment
SHR criterion a) Historical significance <i>An item is important in the course, or pattern, of NSW's cultural or natural history.</i> Relevant key values from SHR values: none relevant	There are no significant historical values from the SHR listing that are impacted by this proposal.
SHR criterion b) Associative significance <i>An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history.</i> Relevant key values from SHR values: <i>"its success as a performing arts centre has been described as 'spectacular' partly because of the building's 'ability to attract great artists from all over the world'</i>	The suite of projects included in this application will potentially enhance the ability of the Sydney Opera House to attract national and internationally recognised performers with its improved functionality and accessibility.
SHR criterion c) Aesthetic significance <i>An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW.</i> Relevant key values from SHR values: • <i>"Its public spaces and promenades have a majestic quality endowed by powerful structural forms and enhanced by vistas to the harbour and the city."</i> • <i>"Its aesthetic quality is largely attributed to the 1957 prizewinning design by Jørn Utzon."</i> • <i>"Its aesthetic quality was also enhanced by the high quality completion work by Hall, Todd & Littlemore, by the technical support given throughout by the internationally renowned engineering firm of Ove Arup & partners, and finally by M.R. Hornibrook, the contractor of stages two and three (Kerr, 2003, 32)."</i> • <i>"Widely recognised as a masterpiece of twentieth century architecture, the Sydney Opera House combines an expressive freedom of form with the precise technology of the machine age."</i>	The suite of projects included in this application will generally retain and respect these values. While acknowledging there will be some negative impacts in regard to introduction of Lift 31 and the consequent cutting of three of the significant cranked beams in the JST northern foyer, and the diminished width of the stairs in the JST western side foyer resulting from the new passage / tunnel on Level 3, the overall impacts will be positive. Utzon's original design concepts will be strengthened and made accessible to a broader public than before, and Peter Hall's contributions will be retained and respected in back-of-house areas.
SHR criterion d) Social significance <i>An item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons.</i> Relevant key values from SHR values: • <i>"As a world-class performing arts centre, the Sydney Opera House has enhanced the cultural vitality of the nation."</i> • <i>"In offering this remarkable accessibility to a broad public, Sydney Opera House can be seen to be fulfilling Cahill's hope that it would be "a monument to democratic nationhood"."</i>	The suite of projects included in this application should strengthen the reputation of Sydney Opera House as a world-class performing arts centre enhancing Australia's cultural vitality. The accessibility projects in particular will make the main foyers and the JST more accessible to a broader public, and potentially strengthen its ability to fulfil Cahill's hopes.
SHR criterion e) Research potential <i>An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history.</i> Relevant key values from SHR values: none relevant	There are no significant research potential values identified from the SHR listing that are impacted by this proposal
SHR criterion f) Rarity <i>An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history.</i>	There are no significant rarity values from the SHR listing that are impacted by this proposal.
SHR criterion g) Representativeness <i>An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments.</i>	The improved functionality and accessibility of both public and back-of-house areas, particularly in relation to the JST, will potentially enhance the

SHR Criteria	Comment
Relevant key values from SHR values: • "... an internationally recognised building representative of major performance arts centres." • "It is outstanding because of its innovative design appropriate both to its entertainment functions and to its harbour-side setting, and because of the esteem in which it is held in Australia and internationally." • "Its success as a performing arts centre has been described as 'spectacular' partly because of the building's 'ability to attract great artists from all over the world'."	reputation and ability of the Sydney Opera House to attract great artists and performers from all over the world.

Table 11: Assessment against State Heritage Values (Source: Design 5 Architects)

Based on this assessment, the HIS draws a similar conclusion to its assessment against National Heritage Values, ie, while there will be some negative impacts (specifically, the introduction of Lift 31 and the consequent cutting of three of the significant cranked beams in the JST northern foyer, and the diminished width of the stairs in the JST western side foyer resulting from the new passage / tunnel on Level 3), the overall impact of these projects will be positive.

6.2.4 Conservation Management Plan

The Sydney Opera House Conservation Management Plan (CMP) 3rd Edition identifies and defines the significant values of the Sydney Opera House and then formulates policies framed to retain these values. The HIS assesses in detail the impact of the proposed SAVE and entry foyer works in terms of significant values, significant elements of the place and relevant policies.

The HIS finds that the suite of proposed works will affect a number of very significant parts of the Sydney Opera House. The impacts of the proposal are summarised in the HIS as follows:

Spaces and elements identified as having exceptional or considerable significance that will be affected by these works are:

- *External eastern wall of the podium – insertion of 2 additional hooded horizontal window openings – high but acceptable impact that should be largely unnoticed.*
- *Utzon Room Stair from the Vehicle Concourse to the Box Office – replacement of existing stair with a pair of escalators – high but acceptable impact on fabric with positive impact on accessibility and functionality.*
- *Box Office Foyer – removal of almost all existing fitout by Peter Hall and replacement with new fitout and furnishings, extension and reconfiguration of space to north to improve amenity and functionality and provide front-of-house access to lifts to southern foyers – high but positive impact.*
- *JST Southern Foyer – new fully glazed Lift 36 replacing 1 of the existing pair of podium doors in the southern glass wall and the latter's relocation to the side glass wall of this foyer – moderate and acceptable impact.*
- *JST western side foyer – insertion of tunnel at Level 2 within the timber wall zone of the auditorium – high impact, but largely concealed and acceptable.*
- *JST western side foyer – insertion of tunnel at Level 3 cutting through and reducing width of stairs – very high impact, but considered acceptable in order to provide improved accessibility.*
- *JST Northern Foyer – new Lift 31 accessing all northern foyer levels and cutting through the granite stairs at the west end, removing sections of 3 of the radial cranked beams, and modifying a section of the glass wall – very high impacts, but acceptable in order to provide improved accessibility.*

- JST auditorium seating – alteration of total of 6 rows of seating to allow efficient removal and installation of wheelchair platforms, railings and companion seating – moderate and acceptable impact on seating and positive impact on accessibility.
- JST auditorium space – construction of new follow spot room and alterations for wheelchair positions – moderate but acceptable impacts on character and quality of space.
- JST northern foyer lavatory facilities – alterations to air locks and adjacent spaces to install accessible WCs – moderate but acceptable impact.
- JST back-of-house lavatories, locker rooms and dressing rooms – alterations in limited areas to provide accessible dressing room and performer facilities – moderate but acceptable impact.

Spaces and elements identified as having some or little significance that will be affected by these works are:

- JST Auditorium – provision of wheelchair and companion seating positions in 2 locations in the stalls, construction of new follow spot room, replacement of fire curtain – moderate but positive impacts that will enhance the accessibility and functionality of the JST.
- Service areas beneath the JST – adaptation of existing service spaces for new SOH office accommodation associated with new openings in podium – moderate impact.

6.2.5 Utzon Design Principles

The HIS's assessment of the proposal against the Utzon Design Principles is summarised in Table 11 below:

Utzon Design Principle Quote	Comment
Need to adjust to changing standards <i>"So what was good back in the 60's was okay then, but as people develop and as music develops, as our perception of music and place develops, our demands become higher and this development will probably in the future change a lot of features of the Opera House simply because you need to adjust to instruments, as such."</i> (UDP page 52)	Jørn Utzon clearly did not see the technical aspects of this building as frozen in time. He foresaw that adjustments would be needed to meet audience expectations and changing standards. The suite of projects in this application, particularly those that are part of the technical upgrade of performance spaces, respond to this same principle.
Heavy and light <i>"The difference in character of the two components forming the building, the massive and imposing base, and the light and graceful shells on top of it..."</i> (UDP page 70)	The importance of the visual solidity of the podium is clearly articulated in the first quote and a warning about introducing more openings in the second quote. The scale, proportion, configuration and detail of the proposed new openings in the east wall of the podium have been guided by these principles.
Solidity of base is important <i>"If you open the sides of the base to create day-light... then suddenly the base becomes an office building, and that will reduce drastically the dramatic expression of the Opera House."</i> (UDP page 50)	
Beautiful experience oriented in the harbour <i>"...People have a beautiful experience entering and walking up the stairs and entering the auditoria, while they are all the time oriented in the beautiful harbour and have the views of the spectacular Sydney Harbour setting."</i> (UDP page 59)	These quotes describe Utzon's intended character for the foyer spaces leading to and surrounding the major auditoria.
Being in another world <i>"This feeling of moving upwards was a determining factor in the shaping of the large platform."</i>	This character in the Box Office foyer, JST southern, side and northern foyers is retained and respected in the projects proposed in these spaces. The proposed tunnel on Level 3 of the JST side foyer intrudes on the width of the stair, however the

Utzon Design Principle Quote	Comment
<i>"The patrons will receive on their way to the theatre halls an impression of restful and dignified surroundings with a generous spacious layout."</i> (UDP page 59) Feeling detached from the city <i>"During intermission you remain around the auditorium and can retain the feeling of being in another world."</i> <i>"After the performance the bars and lounges will present for the patrons a second opportunity to enjoy these views and will underline their feeling of being detached from the city in a world of its own."</i> (UDP page 60) Spans expressed by ribs and folds <i>"This resulted in a building where all spans are clearly expressed by ribs and folds."</i> (UDP page 78)	dignity of surroundings and sense of ascent is retained. It is important to note that this tunnel is very close to the location of a tunnel originally proposed by Utzon and built, but closed over due to the program changes after his departure in 1966. The Box Office foyer, with the alterations proposed, adheres to and celebrates these Utzon principles and provides a much more generous and spacious layout than the existing arrangement.
Patrons / performers meeting <i>"At the cloak room level there is access for the performers."</i> <i>"Unlike the normal theatre, where one literally goes to the back door for social intercourse, the patrons and performers can mingle together in the cloakroom area."</i> <i>"The idea was to see a spectacular building as you arrive and as you enter the foyers you see additional colours. You also get a more intimate feeling."</i> (UDP page 60)	These quotes refer to the intended function and character of the Box Office foyer which is adjacent to and at the same level as the Green Room. The proposed project to reconfigure and re-furnish this foyer will strengthen this character. The lounge areas will provide opportunity to sit, rest and enjoy a coffee or drink with others, exactly as Utzon intended, without interfering or obstructing the movement of patrons within and through the space. It will be important that Opera House management do not allow it to become fragmented and cluttered in the future by inappropriate uses and fitout. Sample elements of the proposed foyer fitout will be mocked-up for use by the public in the coming months. The intention is to test the various components and if necessary, refine or adjust them in the final fitout.
Cultural symbol <i>"The conception and the design of the Sydney Opera House is based on... the desire to create a building which will form a home for those activities essential to the cultural life of a big city."</i> (UDP page 62) Inspiration to artists <i>"When completed, the Sydney Opera House will serve as a home for the cultural activities of the city and will inspire artists and technicians to present to the public the highest quality performance for many years to come."</i> (UDP page 62)	Presentation of the performing arts is at the very heart of this building, as is the pursuit of excellence. The proposed projects in this application, particularly the accessibility projects, will allow the Opera House to pursue both these objectives and be available to a wider section of the community than it has before.
Disabled access <i>"For patrons unable to walk, there will be provided special elevators to take them direct to the auditorium level in the vicinity of the seating."</i> <i>"A total of ten lifts will service the Opera House, each lift being carefully located for a specific purpose. Lift No.1 with landings at the 12', 30' and 42' levels has a primary function of transporting disabled persons from ground floor level to the auditorium level. (Major Hall)."</i>	These Utzon quotes from 1959, describe the intended access to the auditoria for patrons with mobility issues. The change in program after his departure and the decision to close the Central Passage to the public, meant this would no longer be a front-of-house approach. The projects proposed in this application are intended to address this problem for the Box Office foyer and the JST. These projects will result in some negative impacts to significant spaces, however the location and configuration of

Utzon Design Principle Quote	Comment
<i>“Lift No.2 in the stage area (Minor Hall) has the primary function of carrying a total of 16 disabled persons from ground level to auditorium level with one intermediate stop.” (UDP) page 69)</i>	these projects have been carefully designed to minimise these impacts. Further detail resolution should minimise them even further. The JST plays a key role in the suite of venues housed at the Opera House. It is the venue for opera – the namesake of the building itself. If the ability of the building to house and present opera and other performance art is not extended to those with impaired mobility, the place will be diminished and Sydney Opera House will potentially lose its international status as a performing arts venue. By undertaking these projects, the Opera House will demonstrate excellence, responsibility and generosity to those patrons and performers that have previously been excluded because of their impaired mobility. This responsibility and generosity was originally intended and proposed by Utzon himself.
Concrete and ply <i>“The walls will show the concrete as it was constructed, contrasting with the moulded plywood panels which form the components of the furniture and fixings.”</i> <i>“The cubicles themselves for coats and toilets are made of moulded plywood panels in contrast to the impression of severity left by the structure.” (UDP page 71)</i>	These quotes refer primarily to the character of back-of-house spaces within the podium and are from Utzon’s 1959 description of his intended fitout. It is now clear that Peter Hall followed Utzon’s ideas and principles in his fitout of these spaces. The DA documentation for projects in these areas demonstrates the intention to retain and respect these ideas in altered and new work. It is important that detailed resolution and documentation of these projects are carefully coordinated and resolved to a consistent language and high quality, and comply with these Utzon Design Principles and the CMP.

Table 12: Assessment against Utzon Design Principles (Source: Design 5 Architects)

6.2.6 Conclusion and recommended mitigation measures

The HIS concludes that the negative impacts of the proposed works on fabric and spaces at the Opera House should not threaten or diminish the outstanding universal values that underpin its World Heritage Listing or substantially affect the Opera House’s national or state heritage values.

However, because these impacts affect spaces and fabric of exceptional / considerable significance, the HIS recommends that a referral to the Commonwealth Government under the EPBC Act should be made. As stated in Section, the SOHT is currently preparing a referral to the Commonwealth Department of Environment for a decision on whether the proposed works will need assessment and approval under the EPBC Act.

The HIS further concludes that, combined with the Theatre Machinery Project (subject of a separate application), the subject works will enhance the patron experience and performance and operational capability of the Sydney Opera House to continue to host and celebrate world standard performance art. In this respect this proposal will help sustain the iconic international standing of this Opera House.

The key mitigation/management measure recommended in the HIS is that all details are to be carefully coordinated, resolved and detailed as part of the design development and documentation process. This will be done with continued advice and input from the Opera House’s heritage architect and the approval of the Eminent Architects Panel and Conservation Council.

6.3 Built Form, Urban Design and Visual Impacts

The proposed works are largely internal, with the exception of:

- New slot windows along the eastern façade
- A new lift from the Box Office Entry Foyer on Level 1 to the JST Southern Foyer on Level 2

Issues regarding potential built form, urban design and visual impacts of these elements are considered below.

6.3.1 New slot windows

It is proposed to create two new slot windows along the eastern façade of the building to provide natural light and amenity for the relocated offices (Figure 18). Further detail is provided in the Design Statement and Architectural Drawings at **Appendix 10**.

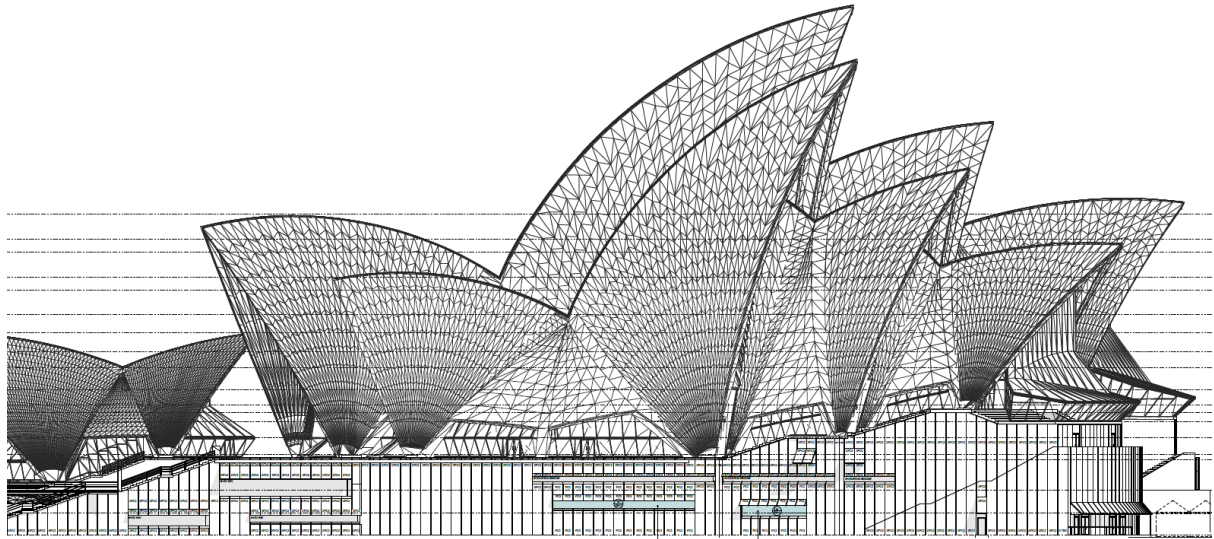


Figure 18: New slot windows on eastern façade (shaded in light blue) (Source: TZG Architects)

The southern window has dimensions of approximately 17.2 metres by 1.35 metres and a sill height (from the Broad Walk level) of 3.4 metres.

The northern window has dimensions of approximately 8.6metres by 1.55 metres and a sill height of 2.4 metres.

The proposed windows are consistent with the existing fenestration of the eastern façade, which is characterised by a variety of window openings, including slot windows located above the proposed windows. The new slot windows would comprise recessed, bronze frames and precast granite hoods to match existing window design (Figures 19 and 20).

The HIS also notes that while the windows would have a high impact in terms of the “significant elements” of the building in the CMP, their proportion and detail should retain the visual solidity of the podium. It concludes that the impact of the windows is acceptable and should be largely unnoticed.

Accordingly, the proposed new windows would comprise a minor and non-obtrusive change to the building’s façade and would not result in any adverse design or visual impacts.



Figure 19: Existing window design (left) and view from proposed new slot window (right) (Source: TZG Architects)

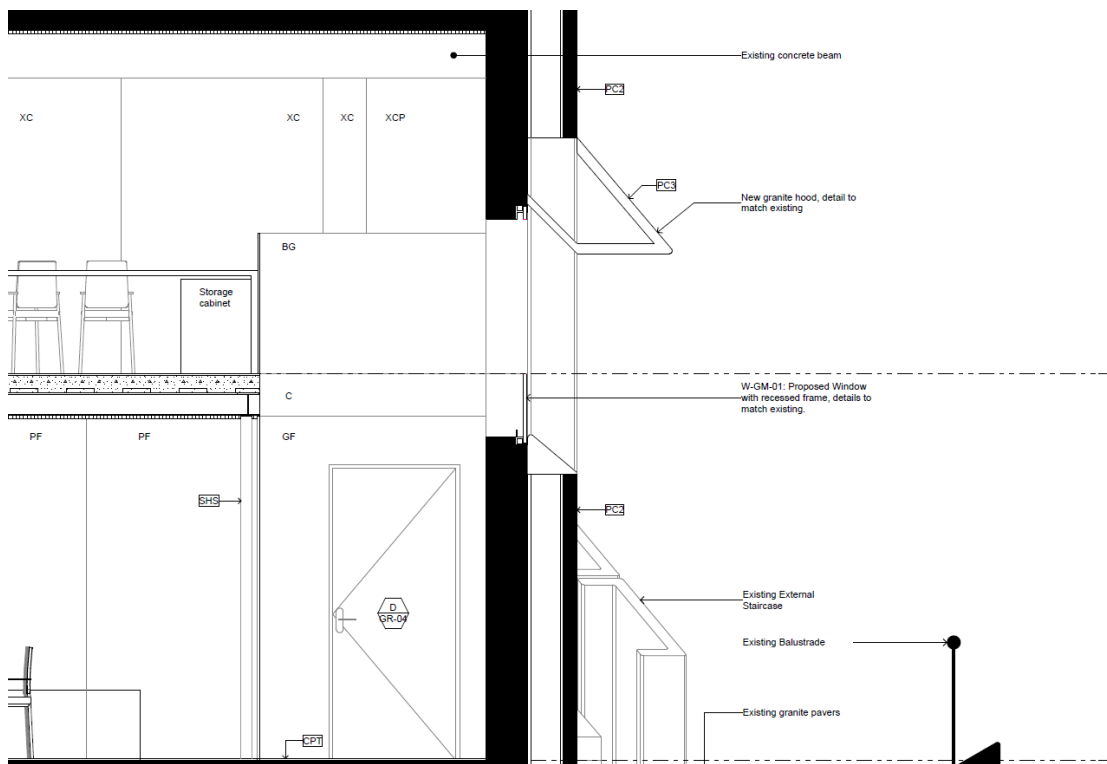


Figure 20: Section showing proposed new slot window design (Source: TZG Architects)

6.3.2 New entry foyer lift

The proposed new lift from the Box Office Entry Foyer on Level 1 to the JST Southern Foyer on Level 2 entails the construction of the lift shaft in the existing external doorway recess on the level 2 podium. The new lift shaft will occupy approximately half of the existing void and entail alterations to the glass wall of the Southern Foyer. Refer figures 21 and 22. Further detail is also provided in the Design Statement and Architectural Drawings at **Appendix 10**.

The lift shaft will not project beyond the building line and its design and materials would be compatible with the existing building and it will not add to the bulk or scale of the building. The HIS concludes that these works will have moderate and acceptable impact.

Accordingly, based on the heritage analysis and benefits of improved accessibility, it is concluded that the new entry foyer lift will not adversely impact the design or appearance of the Sydney Opera House.



Figure 21: Proposed new entry foyer lift external view (Source: TZG Architects)



Figure 22: Proposed new entry foyer lift internal view (Source: TZG Architects)

6.3.3 Conclusion and recommended mitigation measures

The proposed new slot windows and entry foyer lift are relatively minor external elements and, as outlined above, will not adversely impact on the built form or visual character of the Opera House.

The key recommended mitigation measures are:

- the use of consistent design language and materials for the new elements
- on-going advice and input from the Opera House's heritage architect and the approval of the Eminent Architects Panel and Conservation Council during the design development and documentation process.

6.4 Access and Circulation

iAccess Consultants have prepared access reports (Appendix 4) for the following works:

- JST accessibility projects
- Eastern offices relocation
- Entry foyer works

These access reports review the proposed works against relevant legislation, codes and standards, including:

- *Disability Discrimination Act 1992*
- *Disability (Access to Premises - Buildings) Standards 2010*
- *National Construction Code (NCC 2015)*
- *AS1428.1:2009 Design for access and mobility - General requirements for access - New building work*
- *AS1428.2:1992 Design for access and mobility - Enhanced and additional requirements - Buildings and facilities*
- *AS1428.4.1:2009 Design for access and mobility - Means to assist the orientation of people with vision impairment - Tactile ground surface indicators*
- *AS1428.5:2010 Design for access and mobility - Communication for people who are deaf or hearing impaired*

These reports conclude that the implementation of the proposed works provide accessible access as nominated in the NCC Performance Requirements. The reports generally demonstrate compliance with the statutory requirements of the Disability (Access to Premises – Buildings) Standard and provide a checklist of compliance for the project architects in the on-going detailed design process. The reports further conclude that if the works are constructed in accordance with this process, accessibility compliance will be achieved.

6.5 Construction Management

The SOHT has prepared a *Construction Management Plan* (Appendix 5) which addresses the key construction activities, waste management and safety aspects of the projects.

The key elements of the Construction Management Plan are summarised below:

6.5.1 Public safety and access

The Sydney Opera House will continue normal operations during the construction period. However, as the majority of the works will be confined within the JST, back of house areas and foyers, there will be minimal interface with and effect on publicly accessible areas.

The Construction Management Plan states that the successful contractor will be required to address the detailed requirements of circulation and pedestrian interfaces with the construction work faces throughout the program of works.

The proposed works will also have minimal impacts on external publicly accessible land and areas of the Sydney Opera House. Deliveries and removal of materials will be mainly via the underground loading dock, except for any oversized items which may need to be transported across the forecourt. Public areas affected by the works such as the new windows for the Eastern Office Accommodation and the Entry Foyer works will be enclosed by construction hoardings and sealed off from public access during these works.

Prior to commencing construction, the successful contractor will be required to prepare a fully detailed works staging strategy which addresses appropriate access and circulation impacts which ensures safety of public and patrons.

6.5.2 Noise and vibration

As outlined in the CMP, construction activities which are confined within the JST are not anticipated to generate noise and vibration impacts on areas external to the site.

However, the works on the eastern façade of the building, for the eastern accommodation, and to a lesser extent the entry foyer (which are also largely internal) may involve noise and vibration which could impact on areas external to the site.

Arup has undertaken a Noise Impact Assessment (NIA) of the eastern accommodation works (Appendix 6). The NIA outlines predicted construction noise levels and an extensive range of mitigation measures to reduce construction noise emissions. Even with implementation of these mitigation measures, the NIA identifies a potential residual exceedance of more than 5 dB of the relevant noise management levels at the Bennelong Apartments.

The NIA concludes that the proposed Eastern Accommodation works would not have a detrimental impact on the nearest noise sensitive receivers. However, to minimise potential for noise nuisance, the following recommendations are made:

- All mitigation measures outlined in the NIA be implemented.
- The scheduling of external demolition works during the night time period be minimised to whenever it can be considered “feasible and reasonable”.
- The successful contractor be required to prepare a Construction Noise Management Plan.
- A noise logger be installed at Bennelong Apartments throughout construction to monitor noise levels during construction.
- Nearby residents will be provided with a notice that informs them of the nature of the works, the duration and the extent of works being undertaken.
- 24hr contact details be provided nearby residents to allow complaints to be logged and addressed as soon as possible by the Opera House.

6.5.3 Traffic and access

The CMP proposes the following in relation to traffic and access:

- Vehicle movements will generally be within standard construction hours (7am-6pm).
- All deliveries and removals from site will be via the underground loading dock, accessed from Macquarie Street, with the exception of oversized items. Oversized items which will be delivered to the site will be undertaken at off peak periods (i.e. overnight) at time periods agreed with the contractor and the SOH facilities.
- There will be no standing of construction vehicles along Macquarie Street; this will be monitored by the Opera House gatehouse.
- General public access will still be maintained via the vehicle concourse, via controlled entry at the gatehouse, for the duration of the works to provide less mobile person's access to the site.
- A Construction Traffic Management Plan will be prepared by the successful contractor.

6.5.4 Air quality

Construction plant and equipment selected will be suitable for an internal construction environment to ensure no impact on air quality within the work site, or the Opera House.

Further, a dust management plan will be prepared by the contractor engaged to undertake the works prior to commencing construction.

6.5.5 Water quality

As the proposed works are largely internal with only limited works to the exterior of the Sydney Opera House, there is no expected run off or sedimentation that would impact on the water quality of Sydney Harbour.

However, the Construction Environmental Management Plan prepared by the contractor which will be required to outline construction techniques to avoid potentially affecting the water quality of the harbour and include, where relevant, mitigation measures such as sediment controls, 'wet-vacuuming' or off-site removal of the item to undertake the works.

The proposed construction of new Lift 36 is unlikely to result in any water quality impacts. As outlined in the Construction Management Plan, historical geotechnical and hydrology reports indicate that the proposed area for the Lift 36 shaft is above high sea tide level. Accordingly, there is unlikely to be large tidal inflow or influence on the lift pit or piling locations. A borehole was drilled as part of the earlier geotechnical investigations and water ingress due to tidal variation was noted as being subdued.

The rock level found in this area is about 2-3 metres below the surface and therefore the depth of the proposed piles, with a socket into the sandstone, is likely to be a maximum of 5 metres.

Based on this geotechnical advice, the following construction process is proposed for the new lift:

- Saw cut existing slab for access
- Bore pier and install lining
- Spoil removed by the contractor
- Cast new pier

The proposed lining of the lift pit will minimise potential concrete leaching and, coupled with the unlikely ingress of sea water, will reduce the risk of pollution to the harbour. The design and the contractor will be better informed through the detailed design process and the contractor will be required to specifically address this point in the Environmental Management Plan.

6.5.6 Waste and hazardous materials

Wastes that may be generated during construction include:

- Brick / concrete materials
- Steel
- Lighting, fittings and electrical equipment
- Redundant control equipment, plant and electrical boards
- Services waste such as wiring, pipe cut offs and sheet metal cut offs
- General waste from construction activities such as packaging, scraps and paper

Waste will be managed in accordance with relevant NSW legislation and the principles of the waste management hierarchy as set out in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-21*.

Waste will be recycled where possible and a fully detailed Waste Management Plan (WMP) will be prepared by the successful contractor.

The SOH maintains an Asbestos Management Procedure, which will be implemented during construction works, and maintains a Hazardous Materials Register which documents all asbestos contaminated materials (ACM), hexavalent chromium and lead paints within the building. Any hazardous materials are managed by the *Sydney Opera House Asbestos Risk Management Plan* (Hibbs & Associates Pty Ltd 2013) and the *Sydney Opera House Hazardous Materials Action Plan* (2015).

Removal and disposal of any hazardous materials will comply with all relevant laws, regulations and guidelines including, but not limited to, *Protection of the Environment Operations Act 1997*, *Protection of the Environment Operations (Waste) Regulation 2014* and *Protection of the Environment Operations (Illegal Waste Disposal) Act 2013*.

6.5.7 Conclusion and recommended mitigation measures

Construction works will largely occur within the Sydney Opera House and generally serviced via the underground loading dock, reducing their impact on the general public, throughout their construction.

A comprehensive CMP has been prepared by the SOHT to outline how construction will be managed and no significant residual construction impacts are anticipated. The key mitigation measures proposed for construction activity include:

- Public areas affected by the works such as the new windows for the Eastern Office Accommodation and the Entry Foyer works will be enclosed by construction hoardings and sealed off from public access.
- Prior to commencing construction, the successful contractor will be required to prepare a fully detailed works staging strategy which addresses appropriate access and circulation impacts which ensures safety of public and patrons.
- All mitigation measures outlined in the NIA be implemented.
- The scheduling of external demolition works during the night time period will be minimised to whenever it can be considered “feasible and reasonable”.

- The successful contractor will be required to prepare a Construction Noise Management Plan.
- A noise logger will be installed at Bennelong Apartments throughout construction to monitor noise levels during construction.
- Nearby residents will be provided with a notice that informs them of the nature of the works, the duration and the extent of works being undertaken.
- 24hr contact details will be provided nearby residents to allow complaints to be logged and addressed as soon as possible by the Opera House.
- Vehicle movements will generally be within standard construction hours (7am-6pm).
- All deliveries and removals from site will be via the underground loading dock, accessed from Macquarie Street, with the exception of oversized items. Oversized items which will be delivered to the site will be undertaken at off peak periods (i.e. overnight) at time periods agreed with the contractor and the SOH facilities.
- There will be no standing of construction vehicles along Macquarie Street; this will be monitored by the Opera House gatehouse.
- General public access will still be maintained via the vehicle concourse, via controlled entry at the gatehouse, for the duration of the works to provide less mobile person's access to the site.
- A Construction Traffic Management Plan will be prepared by the successful contractor.
- Construction plant and equipment selected will be suitable for an internal construction environment to ensure no impact on air quality within the work site, or the Opera House.
- A dust management plan will be prepared by the contractor engaged to undertake the works prior to commencing construction.
- The pit for new Lift 36 will be lined to prevent any potential concrete leaching.
- The Construction Environmental Management Plan prepared by the contractor which will be required to outline construction techniques to avoid potentially affecting the water quality of the harbour.
- Prior to the commencement of works, a Waste Management Plan will be prepared in accordance with relevant NSW legislation and the principles of the waste management hierarchy as set out in *the NSW Waste Avoidance and Resource Recovery Strategy 2014-21*.
- All works will be undertaken in accordance with Sydney Opera House's *Asbestos Risk Management Plan* and the *Sydney Opera House Hazardous Materials Action Plan*.
- Removal and disposal of any hazardous materials will comply with all relevant laws, regulations and guidelines including, but not limited to, *Protection of the Environment Operations Act 1997*, *Protection of the Environment Operations (Waste) Regulation 2014* and *Protection of the Environment Operations (Illegal Waste Disposal) Act 2013*.

6.6 Building Code of Australia

The EIS is supported by a *Building Code of Australia (BCA) Capability Statement* prepared by Group DLA (Appendix 7). The Statement notes that compliance with the BCA for the proposed works will be able to be achieved by a combination of compliance with the deemed-to-satisfy (DTS) provisions and the Performance Requirements.

While the report notes that there is potential to include further Performance Solutions with regard to specific items (relating to fire safety), it confirms that matters pertaining to compliance with the BCA will be suitably assessed by the appointed Certifying Authority prior to the issue of the Crown Building Works Certificate in accordance with Clause 98 of the EPAR and Section 109R of the EP&A Act.

An *Accessibility and Renewals Project Overarching Fire Strategy* has also been prepared by Arup (Appendix 7) to provide a guiding approach to fire safety. This Strategy concludes that the building's level of fire safety won't be diminished through the various renewals projects and further enhancement to safety can be achieved.

6.7 Ecologically Sustainable Development

The EIS is supported by a *Sustainable Design Report (SDR)* prepared by Cundall (Appendix 8). The SDR outlines that the *Sydney Opera House Environmental Sustainability Plan (ESP)* 2017-2019 sets out sustainability targets to be achieved by 2023, with the key relevant targets including:

- 20% energy saving by 2023.
- 7% reduction in carbon footprint by 2019.
- Water efficiency ratings for all fitouts equal or above NSW Government Resource Efficiency Policy.
- 80% construction waste reduction.

All stages of the Building Renewal projects demonstrate industry best practice in environmental sustainability.

The SDR outlines that in order to achieve these targets, the following key sustainability principles have been considered throughout the Building Renewal Program, including the subject works:

Sustainability Principle	Initiatives
Minimise greenhouse gas emissions and provide low carbon energy sources	• Upgrade existing or install new energy efficient LED light fittings. • Install flexible lighting control system to reduce consumption and enhance flexibility. • Select fans with variable speed drives (VSD) motors. • Install lift lighting control. • The SOH ESP includes an energy efficiency target of 20% energy saving by 2023, and Renewal Projects will aim to support this target through the renewal upgrades.
Improve indoor environment quality	• The project aims to achieve an industry best practice in IEQ in line with GBCA Performance criteria, including indoor air quality, internal noise levels, thermal and lighting comfort.
Reduce environmental impact by sourcing sustainable building materials	• The project will use CFC free polyurethane insulation and low PVC insulation for cabling and conduits. • The project team will consider the sourcing and forest certification schemes of timbers used for the Renewal Projects.
Promote environmental management	• The Contractor will be required to have an Environmental Management System (EMS) certified in accordance with the NSW Government EMS standard. • A detailed and project specific Environmental Management Plan (EMP) will be developed by the Contractor engaged to undertake the project.
Reduce demolition waste from site	• The project team will work towards a fully integrated demolition waste management strategy and target to achieve 80% diversion from landfill for all waste resulting from the project works in construction. • The project will undertake an audit of existing materials and identify which materials can be reused or recycled. The project team will work towards reuse of existing building materials or services whenever possible to reduce the volume of demolition waste. • A detailed Waste Management Plan will be developed by the Contractor engaged to undertake the project. The plan will be prepared in accordance with relevant NSW legislation and the principles of the waste management hierarchy as set out in the <i>NSW Waste Avoidance and Resource Recovery Strategy 2014-21</i>.
Responsibly manage and dispose hazardous materials.	• The project will implement the Sydney Opera House Asbestos Risk Management Plan (Hibbs & Associates Pty Ltd 2013) and

Sustainability Principle	Initiatives
	the Sydney Opera House Hazardous Materials Action Plan (2015) for management and disposal of hazardous materials. • Sydney Opera House will maintain a Hazardous Materials Register which documents all asbestos contaminated materials (ACM), hexavalent chromium and lead paints within the building. • Removal and disposal of any hazardous materials will comply with all relevant laws, regulations and guidelines including, but not limited to, <i>Protection of the Environment Operations Act 1997</i>, <i>Protection of the Environment Operations (Waste) Regulation 2014</i> and <i>Protection of the Environment Operations (Illegal Waste Disposal) Act 2013</i>.
Reduce potable water consumption	• Water efficiency ratings for all fitouts equal or above NSW Government Resource Efficiency Policy in line with the SOH ESP.
Protect culture and heritage	• All proposed design initiatives must consider the impact of all works in respect of the Utzon Design Principles and Conservation Management Plan.

Table 13: Sustainability principles and initiatives (Source: Cundall)

In addition, the proposed development is considered to be consistent with the 5 key ESD principles as shown in Table 13:

ESD Principle	Consistency
Precautionary Principle	
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 proposal is supported by technical reports which conclude that there is no risk of adverse environmental impacts, subject to appropriate management, during construction and operational stages. It is considered that through adherence to the Mitigation Measures outlined in Section 7 the proposal will not result in serious impact to the environment.
Integration Principle	
The decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.	The works have been developed to integrate the short and long term effects of economic, environmental and social considerations for the Sydney Opera House. In particular, the works will ensure the Opera House meets modern access requirements and improved operational capabilities required of the facility to hold world class events.
Intergenerational Equity	
Present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generation	The proposal has been developed to directly benefit current and future generations in that it improves accessibility arrangements and the operational efficiency of the building while ensuring the heritage significance of the building is protected and does not cause significant impact to the environment.
Biological Diversity	
The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.	The development site does not contain any threatened or vulnerable species, populations, communities or significant habitats. Construction and ongoing operations will be managed in accordance with the Mitigation Measures, ensuring no significant indirect impacts on the surrounding environment.
Valuation and Pricing of Environmental Resources	
Improved valuation, pricing and incentive mechanisms and environmental factors should be included in the valuation of assets and services.	The cost of infrastructure and measures to ensure an appropriate level of environmental performance on the site has been incorporated into the cost of the works. In addition, the level of waste will be appropriately managed during the construction stage.

Table 14: Consideration of the proposal against ESD principles

On the basis of the above assessment, the proposal is considered to be consistent with the principles of ESD.

7 Environmental Risk Assessment

This section provides an environmental risk analysis to identify potential environmental impacts associated with the proposal and proposed mitigation measures, as required by the SEARs.

Risk Type	Potential Impact/s and Risk/s	Mitigation Measures
Heritage conservation	Works impact on the heritage values of the Sydney Opera House.	- All design details are to be carefully coordinated, resolved and detailed as part of the design development and documentation process. - This should be done with continued advice and input from the Opera House's heritage architect and the approval of the Eminent Architects Panel and Conservation Council.
Built form, urban design and visual impacts	The proposed works will adversely impact on the built form and surrounds of the Opera House and negatively impact on views to the Opera House	- New external elements including the slot windows and the southern entry foyer lift will use consistent design language and materials. - On-going advice and input from the Opera House's heritage architect and the approval of the Eminent Architects Panel and Conservation Council during the design development and documentation process.
Public safety and access	Disruptions to pedestrian circulation and potential safety impacts from demolition and construction works	- Public areas affected by the works such as the new windows for the Eastern Office Accommodation and the Entry Foyer works will be enclosed by construction hoardings and sealed off from public access. - Prior to commencing construction, the successful contractor will be required to prepare a fully detailed works staging strategy which addresses appropriate access and circulation impacts which ensures safety of public and patrons. - Vehicle deliveries and movements will be via the underground loading dock to ensure no impact on public movement and circulation in areas external to the building.
Noise and vibration	Construction noise impacts on the amenity of nearby residents	- All mitigation measures outlined in the NIA be implemented. - The scheduling of external demolition works during the night time period will be minimised to whenever it can be considered "feasible and reasonable". - The successful contractor will be required to prepare a Construction Noise Management Plan. - A noise logger will be installed at Bennelong Apartments throughout construction to monitor noise levels during construction. - Nearby residents will be provided with a notice that informs them of the nature of the works, the duration and the extent of works being undertaken.

Risk Type	Potential Impact/s and Risk/s	Mitigation Measures
		24hr contact details will be provided nearby residents to allow complaints to be logged and addressed as soon as possible by the Opera House.
Traffic and Access	Impacts on network efficiency, surrounding amenity and pedestrian circulation	- Vehicle movements will generally be within standard construction hours (7am-6pm). - All deliveries and removals from site will be via the underground loading dock, accessed from Macquarie Street, with the exception of oversized items. Oversized items which will be delivered to the site will be undertaken at off peak periods (i.e. overnight) at time periods agreed with the contractor and the SOH facilities. - There will be no standing of construction vehicles along Macquarie Street; this will be monitored by the Opera House gatehouse. - General public access will still be maintained via the vehicle concourse, via controlled entry at the gatehouse, for the duration of the works to provide less mobile person's access to the site. - A Construction Traffic Management Plan will be prepared by the successful contractor.
Air Quality	Potential dust and odour generation	- Construction plant and equipment selected will be suitable for an internal construction environment to ensure no impact on air quality within the work site, or the Opera House. - Further, a dust management plan will be prepared by the contractor engaged to undertake the works prior to commencing construction.
Water quality	Works impact on the waters of Sydney Harbour	- The pit for new Lift 36 will be lined to prevent any potential concrete leaching. - A Construction Environmental Management plan will be prepared by the contractor and outline construction techniques to avoid potentially affecting the water quality of the harbour and include, where relevant, mitigation measures such as sediment controls, 'wet-vacuuming' or off-site removal of the item to undertake the works.
Noise and vibration	Works impact on the amenity of neighbouring properties	- Works will be contained wholly within the JST and therefore generally not audible outside of the building. - Works will be scheduled to minimise impacts on the on-going operations of the Opera House. - Construction vehicles will utilise the underground loading dock and movements will generally be scheduled to occur within standard construction hours.
Waste and hazardous materials	Volumes and types of waste generated by works	Waste will be managed in accordance with relevant NSW legislation and the principles

Risk Type	Potential Impact/s and Risk/s	Mitigation Measures
	generate adverse environmental and/or health impacts	of the waste management hierarchy as set out in the <i>NSW Waste Avoidance and Resource Recovery Strategy 2014-21</i>. • Waste will be recycled where possible and a fully detailed Waste Management Plan will be prepared by the successful contractor. • Any hazardous materials will be managed in accordance with the <i>Sydney Opera House Asbestos Risk Management Plan</i> (Hibbs & Associates Pty Ltd 2013) and the <i>Sydney Opera House Hazardous Materials Action Plan (2015)</i>. • Removal and disposal of any hazardous materials will comply with all relevant laws, regulations and guidelines including, but not limited to, <i>Protection of the Environment Operations Act 1997</i>, <i>Protection of the Environment Operations (Waste) Regulation 2014</i> and <i>Protection of the Environment Operations (Illegal Waste Disposal) Act 2013</i>.

Table 15: Environmental Risk Assessment

8 Conclusion

This EIS has been prepared to assess the environmental, social and economic impacts of the proposed SAVE and Entry Foyer works at the Sydney Opera House.

This EIS addresses the matters outlined in the SEARs issued by the DP&E on 23 August 2016 and has been prepared in accordance with the requirements of Schedule 2 of the EPAR. It addresses all relevant strategic and statutory documents, policies and instruments, assesses potential environmental impacts and outlines proposed mitigation measures to address these impacts.

This assessment demonstrates that the proposed works can be undertaken without any significant impact on the heritage values of the Sydney Opera House or on the amenity and environment of the locality.

The proposed works respond to the *Sydney Opera House Accessibility Masterplan (AMP) 2015* and identified opportunities through accessibility enhancements including wheelchair accessible seating, equitable paths of travel, accessible toilet facilities and accessibility upgrades for performers. Similarly, the Entry Foyer refurbishment works are principally aimed at providing accessibility improvements and more contemporary customer-focussed entry and ticketing facilities.

The proposed works are essential to the Sydney Opera House's ability to provide world class performance spaces which meet contemporary operational, accessibility and WHS standards.

It is therefore concluded that the proposal is in the public interest and warrants approval for the following key reasons:

- The proposed works are an essential component of the Sydney Opera House Building Renewal Program, which is aimed at maximising its economic and cultural contribution to NSW, improving the operational efficiency of the building and ensuring compliance with modern building, accessibility and WHS requirements.
- The proposed works are supported by a detailed HIS which concludes that they will not impact on the World, National or State Heritage values of the Sydney Opera House and will comply with the Sydney Opera House CMP and the *Utzon Design Principles*.
- The proposed works will have no significant impacts in terms of waste management, hazardous materials, pedestrian access and safety, traffic and access and air quality.
- The proposal will also incorporate several ESD measures and will comply with the BCA.