Prepared for
City of Sydney Council
ABN: 22 636 550 790

# Review of Environmental Factors

## Hyde Park Lighting

01-Dec-2023
Hyde Park Lighting

aecom.com

Delivering a better world

# Review of Environmental Factors

Hyde Park Lighting

Client: City of Sydney Council

ABN: 22 636 550 790

Prepared by

**AECOM Australia Pty Ltd**
Ngunnawal Country, Civic Quarter, Lvl 4, 68 Northbourne Avenue, GPO Box 1942, Canberra ACT 2601, Australia
T +61 2 6100 0551 www.aecom.com
ABN 20 093 846 925

01-Dec-2023

Job No.: 60613074

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 and ISO45001.

# Quality Information

| | |
|---|---|
| Document | Review of Environmental Factors |
| Ref | 60613074 |
| Date | 01-Dec-2023 |
| Prepared by | Raeychale Cloutman |
| Checker/s | Neil Standen |
| Verifier/s | Jamie McMahon |

**Revision History**

| Rev | Revision Date | Details | Approved | |
|---|---|---|---|---|
| | | | Name/Position | Signature |
| A | 23-Feb-2023 | Draft for client review | Giulia Vignaroli Principal Urban Designer | |
| B | 10-May-2023 | Response to client review and Non-Aboriginal Heritage Impact Assessment | Giulia Vignaroli Principal Urban Designer | |
| C | 28-Jul-2023 | Final Draft | Giulia Vignaroli Principal Urban Designer | |
| D | 01-Dec-2023 | Final | Giulia Vignaroli Principal Urban Designer | |

# Table of Contents

# Abbreviations

| Abbreviations | Meaning |
|---|---|
| **ABS** | Australian Bureau of Statistics |
| **AECOM** | AECOM Australia Pty Ltd |
| **AHD** | Australian height datum |
| **AMP** | Archaeological Management Plan |
| **AS** | Australian Standards |
| **ASS** | Acid sulfate soils |
| **ASSMP** | Acid sulfate soil management plan |
| **AZP** | Archaeological Zoning Plan |
| **BC Act** | *Biodiversity Conservation Act 2016* |
| **CBD** | Central business district |
| **CCTV** | Closed-circuit television |
| **CEMP** | Construction Environmental Management Plan |
| **CLM Act** | *Contaminated Land Management Act 1997* |
| **CNVMP** | Construction Noise Vibration Management Plan |
| **CO** | Carbon monoxide |
| **CoS** | City of Sydney |
| **Cth** | Commonwealth |
| **dB(A)** | A weighted decibels |
| **DPE** | Department of Planning and Environment |
| **EIA** | Environmental impact assessment |
| **EP&A Act** | *NSW Environmental Planning and Assessment Act 1979* |
| **EP&A Regulation** | *Environmental Planning and Assessment Regulation 2000* |
| **EPA** | Environment Protection Authority |
| **EPBC Act** | *Environment Protection Biodiversity and Conservation Act 1999* (Cth) |
| **ESCP** | Erosion and Sedimentation Control Plan |
| **ESD** | Ecologically sustainable development |
| **GHG** | Greenhouse gas |
| **Ha** | Hectare |
| **Heritage Act** | *Heritage Act 1977* |
| **HMP** | Heritage Management Plan |
| **ICNG** | Interim construction noise guideline |
| **ICOMOS** | International Council on Monuments and Sites |
| **ISC** | Infrastructure Sustainability Council |
| **Kelvin** | K |
| **Km** | Kilometres |

| Abbreviations | Meaning |
|---|---|
| **LALC** | Local Aboriginal Land Council |
| **LED** | Light emitting diode |
| **LEP** | Local Environmental Plan |
| **LGA** | Local Government Area |
| **m** | Metres |
| **MNES** | Matters of national environmental significance |
| **$NO_2$** | Nitrogen Dioxide |
| **NPI** | National Pollutant Inventory |
| **NPW Act** | *National Parks and Wildlife Act 1974* |
| **$O_3$** | Ozone |
| **OEH** | Office of Environment and Heritage |
| **Pb** | Lead |
| **PM** | Particulate matter |
| **POEO Act** | *Protection of the Environment Operations Act 1997* |
| **PoM** | Plan of Management |
| **Ra** | Colour rendering index |
| **REF** | Review of environmental factors |
| **SDS** | Safety data sheet |
| **SEPP** | State Environmental Planning Policy |
| **SHR** | State Heritage Register |
| **$SO_2$** | Sulfur dioxide |
| **SRZ** | Structural root zone |
| **Sydney LEP** | *Sydney Local Environmental Plan 2012* |
| **TPZs** | Tree protection zones |
| **TfNSW** | Transport for NSW (TfNSW) |
| **w/sqm** | Watt per square metre |
| **WMP** | Waste Management Plan |

# 1.0 Introduction

The City of Sydney (CoS) proposes to replace the existing lighting within Hyde Park in Sydney, NSW. Hyde Park is a Federal and State heritage-listed park in central Sydney, covering 16.2 hectares (ha).

This proposal would replace existing lighting with new fixtures and upgrade the power supply to the park. The proposal would also include the replacement of cables and conduits and the provision of additional closed-circuit television (CCTV) throughout the park. Work includes the installation of power bollards for events.

AECOM has prepared this Review of Environmental Factors (REF) on behalf of CoS. Its purpose is to describe the proposal, assess the potential for environmental impacts, and inform the decision to proceed. The proposal and associated environmental impacts have been described in the context of Section 171 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation), fulfilling the requirements of Section 5.5 of the EP&A Act.

The CoS is both the proponent and the determining authority for this Review of Environmental Factors (REF) under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This REF finds that the proposal would not significantly impact the environment and may be approved with relevant mitigations applied. Details of the environmental assessment are provided in the following Sections of this REF.

## 1.1 Overview of the proposal

### 1.1.1 Background

Hyde Park is Australia's oldest park and is also one of its most well-known. Hyde Park comprises 16 ha of green space in the heart of the Sydney central business district (CBD). The park includes features such as the Anzac Memorial and Pool of Reflection, Archibald Fountain and numerous other monuments and statues. Throughout 2019 (pre-COVID-19), Hyde Park attracted approximately three million local, interstate and international visitors and is the venue for many significant events.

Upgrading the lighting, security and electrical facilities at Hyde Park is critical for ensuring that the area is kept as safe and accessible as possible for the thousands of visitors that use the park. The lighting upgrades also contribute to realising the Hyde Park masterplan improvement works. The electrical conduit upgrades are required to replace outdated conduits and enable a reliable energy supply.

### 1.1.2 Key features of the proposal

Key features of the proposal include:

- Removing existing lighting and electrical fixtures
- Installing lighting poles with a foundation cage set into a concrete footing (1000mm and 1500 x 1500mm wide)
- Inground up lights
- New communications pits (c1500mm deep x 1500mm wide)
- New communications conduit pathways (4x 100mm diameter HD UPCV conduit)
- New communications conduit pathway (2 x 50mm diameter HD UPVC conduit)
- In-ground pits for ICT and security services (c1500mm deep x 1500mm wide)
- New electrical switchboards, distribution boards and bollards
- New pavements
- New soft landscaping
- Installing fibre optic cables for eight new CCTV cameras
- New event power outlet locations

- Upgrading power supply to the park and adding new metres
- Any new trenching associated with the introduction of services.

Lighting around the Memorial Precinct, adjacent to The Pool of Reflection, is excluded from the scope of works. Lighting will be installed to the boundary of the cascade water feature adjacent to the Memorial Precinct.

## 1.2 Site analysis

### 1.2.1 Proposal location and context

The proposal is within the City of Sydney Local Government Area (LGA), within the Sydney CBD. The location of the proposal in a regional context is shown in Figure 1-1.


**Figure 1-1 Regional context of the proposal and site location**

### 1.2.2 Proposal area

The proposal area includes all areas where works would be undertaken, the locations of all electrical and conduit facilities, and areas for temporary construction material laydown areas, as shown in Figure 1-2. The proposal area covers the entirety of Hyde Park, except for the lighting around the Memorial Precinct, adjacent to The Pool of Reflection. Hyde Park is divided into two sections by Park Street, forming Hyde Park North and Hyde Park South. Lighting in both Hyde Park North and Hyde Park South would be upgraded.

Fibre optic works within Hyde Park North would be connected to a pit located in Castlereagh Street outside Piccadilly Shopping Centre, whilst fibre optic works within the Hyde Park South would be connected to the nearest pit located in Liverpool Street, as shown on Figure 1-2.


**Figure 1-2 Proposal area**

Most of the park is bound by commercial uses along its northern and western sides, with a mix of commercial and residential use on its southern boundary and a combination of open space, religious and educational institutions and commercial uses bordering its eastern boundary.

Sensitive receivers (land uses that are sensitive to potential noise, air and visual impacts) around the proposal are summarised in Table 1-1.

**Table 1-1 Sensitive receivers near the proposal**

| Category | Sensitive receiver | Distances |
|---|---|---|
| Government buildings | King Street Courts | 60 m north |
| | Registrar-General's Building | 30 m east |
| | Defence Plaza Sydney | 125 m west |
| | Old Registry Office Sydney Supreme Court House | 15 m west |
| | St James Road Court | 75 m north |
| | Planning Panels Secretariat | 135 m west |
| | State Insurance Regulatory Authority | 25 m west |
| | Sydney Central Local Court | 240 m west |
| | St James Centre Court House | 46 m north |
| | Hospital Road Courthouse | 130 m north |
| | Supreme Court of NSW | 80 m north |
| | Downing Centre Local and District Court | 120 m south |
| | Fire and Rescue NSW CoS | 70 m west |
| Places of worship | St Mary's Cathedral | 30 m east |
| | The Great Synagogue | 60 m west |
| Commercial/retail/ restaurants | Various locations surrounding the park | - |
| Recreation/leisure | Sydney Living Museum | 100 m north |
| | Caroline Simpson Library and Research Collection | 95 m north |
| | Hyde Park Barracks | 40 m north |
| | Sydney Tower | 130 m west |
| | Australian Museum | 50 m east |
| Medical centres | Myhealth Sydney CBD | 90 m west |
| | Sydney CBD Medial Centre and Skin Cancer Clinic | 30 m west |
| | Hyde Park Medical Centre | 40 m south |
| Parks and recreation facilities | Hyde Park | Within proposal area |
| | The Domain | 240 m east |
| | Cook and Philip Park | 90 m east |
| | Congressional Park | 170 m north |
| Accommodation | Pullman Sydney | 30 m east |

| Category | Sensitive receiver | Distances |
|---|---|---|
| | Best Western Plus Hotel Stellar | 80 m south |
| | Hyde Park Inn | 30 m west |
| | Castlereagh Boutique | 75 m west |
| | Sheraton Grand Sydney Hyde Park | 25 m west |
| | Hilton Sydney | 190 m west |
| Educational facilities | St Mary's Cathedral College | 40 m east |
| | Sydney Grammar School | 80 m east |
| Public Transport | Museum Station (Train) | Within proposal area |
| | St James Station (Train) | Within proposal area |

### 1.2.3 Existing zoning

The applicable land use zoning for the proposal is specified by the *Sydney Local Environmental Plan 2012* (Sydney LEP). Land use zones within and adjacent to the proposal area are listed below and shown in Figure 1-3**.**

- RE1 – Public Recreation.

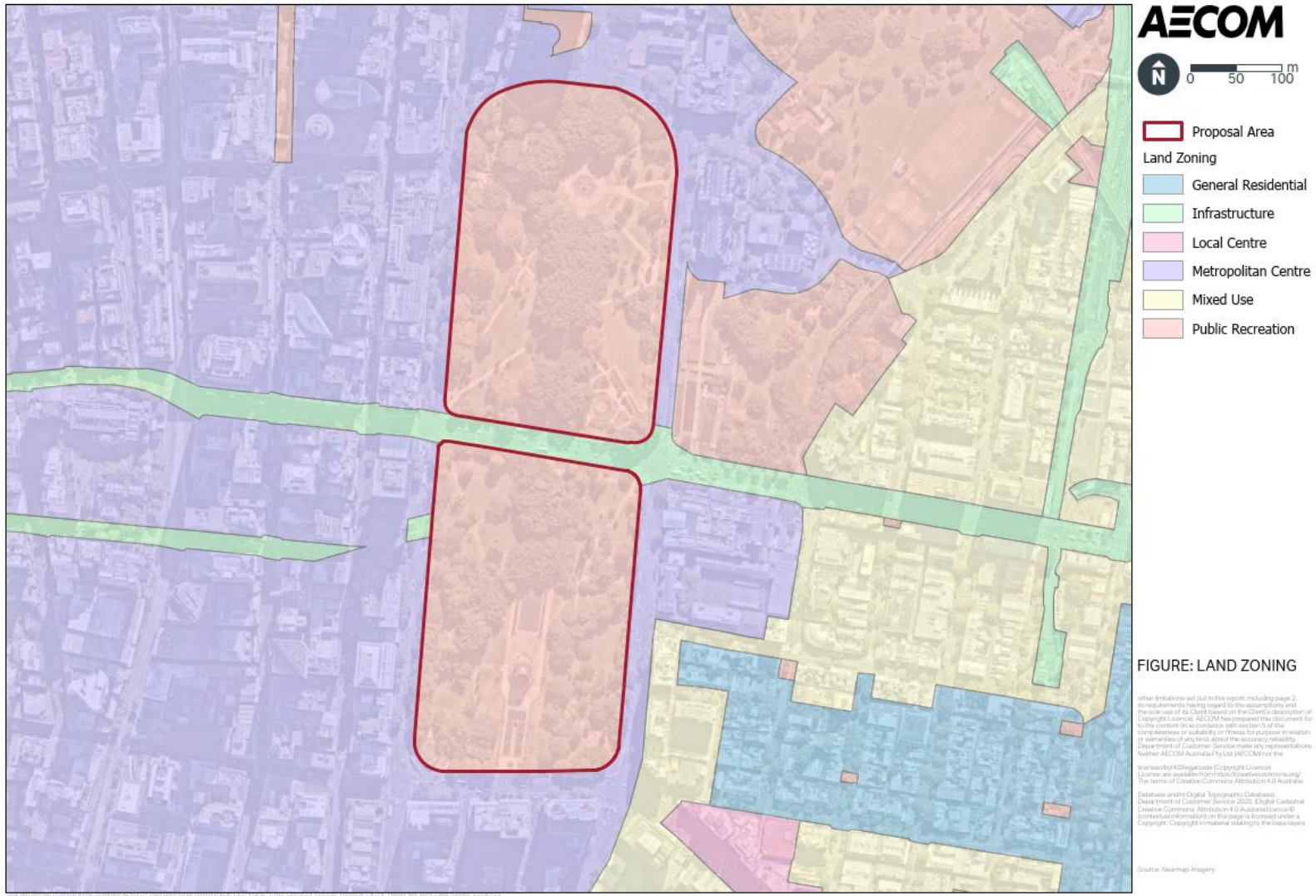



**Figure 1-3 Land use zoning**

### 1.2.4 Land information

Hyde Park is located on Crown Reserve, Miscellaneous Crown land and Miscellaneous land. Land information for Hyde Park is summarised in Table 1-2.

**Table 1-2 Summary of land information**

| Lot and DP | Description |
|---|---|
| Address | 110 and 120 Elizabeth Street, Sydney, 2000 |
| Ownership | Crown (CoS) |
| Crown Reserve No,. purpose and gazetted date | Dedication 500450, Public Recreation, 3/5/1878 |
| Crown Reserve | Lot 7303 DP 1167657 (Hyde Park North) Lot 200 DP1230973 (Hyde Park South) |
| Miscellaneous Crown land | Anzac Memorial – Lot 1915 DP 906666 Note: The Memorial and Education Facility are managed by the Anzac Memorial Trust |
| Miscellaneous land | Railcorp land: Lot 1 DP 1062685, Lot 1 DP 1062686, Lot 1 DP 1062688 and Lot 1 DP 577983 |

# 2.0 Need and options considered

This chapter discusses the need and objectives of the proposal within the context of the broader objectives of the Hyde Park Lighting program. This chapter also provides a summary of the options considered during the proposal's development and a justification for selecting the preferred option.

## 2.1 Strategic justification

### 2.1.1 Overview

Redesigning lighting in Hyde Park would enhance the following:

- The night time park experience and character
- Landmark features such as the Central Avenue, Anzac Memorial and Archibald Fountain
- Night-time use of the park
- The lighting framework and associated power access to accommodate special event lighting
- The lighting of garden spaces at Sandringham and Nagoya Gardens.

The strategic justification of the proposal is summarised in Table 2-1.

### 2.1.2 Relevant policies and strategies

**Table 2-1 Relevant policies and strategies**

| Policy or strategy | Strategic justification |
|---|---|
| *Hyde Park Plan of Management and Masterplan 2006* | The *Hyde Park Plan of Management and Masterplan 2006* is the principal document for guiding the planning and management of the park (CoS, 2006). Key actions within the plan include:<br>• "Improve park safety through … enhanced night lighting…<br>• Improve lighting in the park and review potential benefits of extending CCTV to Hyde Park North".<br>The proposal would support both of these actions. |
| *Sydney Streets Code 2021* | The *Sydney Streets Code 2021* (the Code) highlights that lighting is critical for creating a public realm that supports way-finding, orientation and safe movement at night (CoS, 2021).<br><br>The proposal would support key goals of the Code, including:<br>• Improving the lighting in the park<br>• Enhancing safety at night time<br>• Providing people with low vision with greater confidence to navigate the park<br>• Creating consistent lighting along footpaths. |
| *Sydney Lights Public Domain Design Code* | The *Sydney Lights Public Domain Design Code* (the Design Code) establishes the design codes for public lighting in Sydney (CoS, 2015). The proposal is consistent with the heritage design codes, which are summarised in Table 2-2 |

**Table 2-2 Lighting design codes**

| Category | Lighting type | Recommended lighting level | Light quality |
|---|---|---|---|
| Local heritage areas | The Rocks style column or CoS Wall Lights | Refer to individual street typology lighting level requirements for | Pedestrian lighting: 3000 Kelvin (K) minimum colour |

| Policy or strategy | Strategic justification |
|---|---|
| | <table><tr><td></td><td></td><td>specific applications.</td><td>rendering index (Ra)85</td></tr><tr><td>City Centre Park</td><td>City Standard Pedestrian Pole Top Lighting Range</td><td>Major Pathways: P1-P2 Minor Pathways: P3 Path Edges[1]: P5 Activity Area: P8</td><td>Pedestrian pathways and Activity Areas: 3000K and 4000K Min Ra85</td></tr></table> |
| *City of Sydney Exterior Lighting Strategy* | The *City of Sydney Exterior Lighting Strategy* outlines the key objectives for public and pedestrian lighting in Sydney. The proposal supports objectives within the strategy including:<br>• Providing high visibility for pedestrians<br>• Upgrading lighting structures to a standard of design excellence<br>• Providing additional lighting to the City's public sculptures and memorials. |

## 2.2 Proposal objectives

The key objectives of the proposal are to:

- Provide lighting to all lawn areas
- Improve safety and security
- Encourage night time use (evening events, exercise groups, dog walkers etc.)
- Achieve a high-efficiency lighting design (measured in Watts per square metre (W/sqm).

The replacement of lighting fixtures, CCTV, pits and electrical conduits within Hyde Park would mostly occur where there are existing light fixtures or cabling. However, some light poles would be added or moved. These are shown in Appendix D.

The proposal would require minimal additional infrastructure and would result in a series of measures that enhance the safety, functionality and amenity of Hyde Park for pedestrians, cyclists and general users.

## 2.3 Alternatives considered

#### 2.3.1.1 Option 1 – 'Do Nothing'

Option 1 would not replace the lighting, CCTV or electrical conduits at Hyde Park. This option would not provide lighting to all lawn areas, improve safety and security, encourage night time use or achieve a high-efficiency lighting design. Existing lighting along the main paths in Hyde Park North reached the end of their useful asset life, and temporary lights will have to be installed to provide lighting during the night. Therefore, the 'Do Nothing' option is not the preferred option. Option 2 – Hyde Park Lighting Upgrade

This option meets the objectives of the proposal and the relevant strategies by increasing safety and access for users of Hyde Park. It would also improve the landscape and visual aesthetic of Hyde Park, especially heritage monuments, support cultural activities and events, and reduce energy usage.

## 2.4 Proposal benefits

The *Sydney Lights Public Domain Design Code* and the *Sydney Streets Code 2021* both indicate the importance of lighting in public spaces to enhance safety for pedestrians and cyclists.

Benefits arising from improving lighting, incorporating additional CCTV and replacing electrical conduits at Hyde Park would also include the following:

- Improving lighting so that it responds to its urban design role and uses in the park
- Enhancing the park's significant monuments, gardens and built form
- Supporting a calendar of cultural activities and events
- Delivering a control system that provides flexibility (see below) and allows CoS to remotely meter, monitor, manage and control the park lighting system
- Meeting sustainability targets by improving energy efficiency with a target of 6% energy reduction from current usage
- Improving long-term maintenance for CoS asset managers.

# 3.0 Proposal description

This chapter describes the proposal and summarises key design features, construction constraints, timing and duration, site access, ancillary facilities and utility adjustments. The proposal description is based on the documented design and is subject to detailed design.

## 3.1 The proposal

As described in Section 1.1.2, the primary feature of the proposal involves replacing all existing lighting, electrical pits and conduits, new Main Switching Boards (MSB), additional power bollards to distribute power for events within Hyde Park, upgrading the power supply and providing additional CCTV.

The proposal would involve the replacement of light fixtures throughout both Hyde Park North and Hyde Park South, as shown in Figure 6-12, Figure 6-13, and Appendix D. Additional CCTV would be provided in various locations, as shown in Figure 6-12, Figure 6-13.

More into detail:

- All existing light poles are proposed to be decommissioned except for:
  - The light poles uplighting the Hyde Park Obelisk
  - The light poles including the CCTV cameras located around the Anzac Memorial (which is owned and maintained by Anzac Memorial)
- All existing garden uplights are proposed to be decommissioned except for:
  - The uplights at Frazer Fountain area.
- All existing wall lights at the Sandringham Fountain are proposed to be decommissioned and replaced with new.
- All existing awning flood lighting at the Sandringham Fountain are proposed to be retained.
- All existing electrical switchboards are to be decommissioned and replaced in the exact locations except for existing MSB-2.

### 3.1.1 Scope of construction works

Due to size of the park, location within the CBD and heavy patronage it is proposed to stage the work to ensure a business as usual access to the park where possible. Future contractors have been made aware that construction staging and coordination is an important part of this project and have been directed to allow for stage the works. CoS have advised prospective contractors to program possible staging plan based on MSB locations to develop their proposed methodology and site specific staging plans. Site specific plans will be developed and consulted and approved with the City and its stakeholders. Refer to Figure 3-1 and Figure 3-2 for indicative work zones to be used to stage the proposed works throughout the proposal area. The selected contractor would propose a staging plan to CoS, to confirm staging of the works.

The works will require coordination with multiple external stakeholders including Ausgrid, Sydney Trains, Anzac Memorial Trust, City Security and external events using the park and adjacent business.

Businesses (cafes) within Hyde Park will continue to operate during construction and will require power and access to always entries / exits.

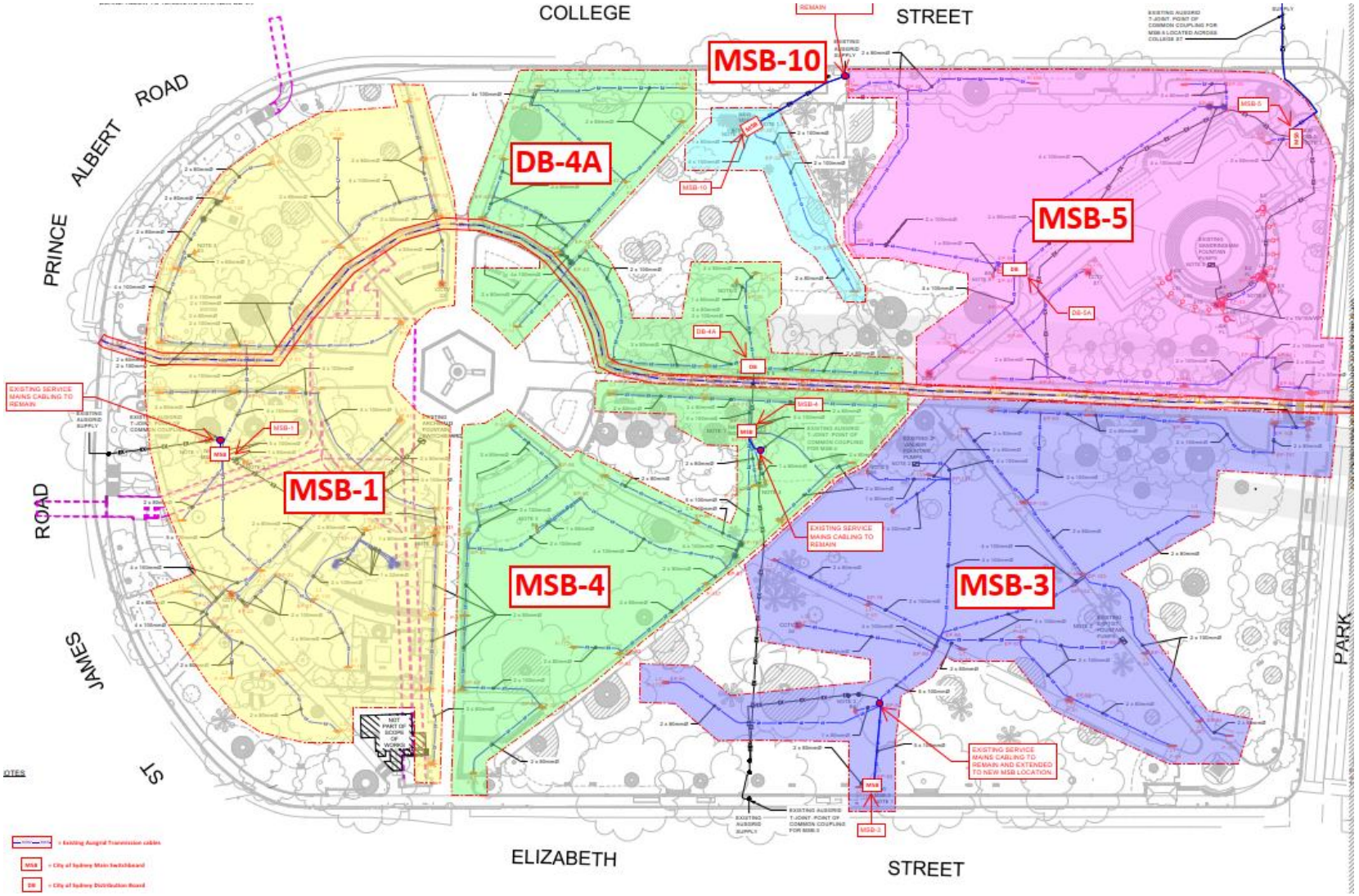



**Figure 3-1 Indicative work zones – Hyde Park North**

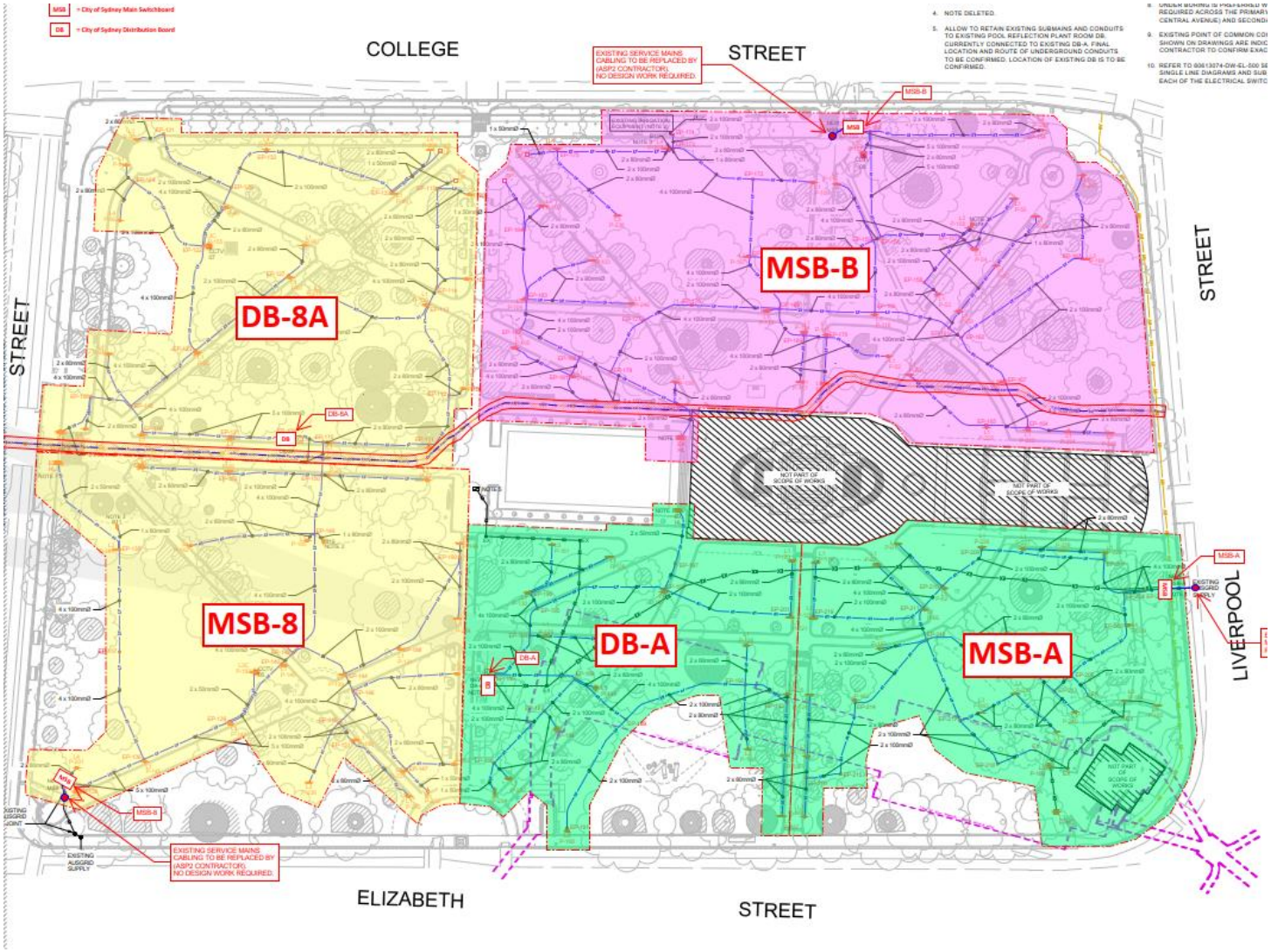



**Figure 3-2 Indicative work zones - Hyde Park South**

The final construction methodology would be confirmed by the construction contractor but would include the following indicative stages:

- Site establishment
  - Installation of temporary site fencing (ATF style) and temporary lights
- Erection of site shed and associated storage facilities
- Vegetation clearing
  - Delineation of trees to be retained, with protective fencing placed around these trees
  - Clearing of groundcovers and lawn including topsoil
- Civil works
  - Confirmation of existing services locations and new cable routes
  - Demolition, including asphalt and concrete paths where necessary
  - Under boring beneath recently complete paths in Hyde Park North
  - Earthworks and excavations for light and CCTV footings, including
    - Footing for light poles- 1500mm Wide x 1200mm deep.
    - Pile footings for light poles - 600mm diameter and 1800mm deep
    - CCTV Poles Pile footings - 600mm diameter and 1800mm deep
- Trenching
  - Fibre connections to Ausgrid pits
  - New communications pits (c1500mm deep x 1500mm wide)
  - New communications conduit pathways (4x 100mm diameter HD UPCV conduit)
  - New communications conduit pathway (2 x 50mm diameter HD UPVC conduit)
  - New in-ground pits for ICT and security services (c1500mm deep x 1500mm wide)
- Construction and installation of infrastructure
  - Erection of lighting poles with a foundation cage set into a concrete footing (1000mm and 1500 x 1500mm wide) and inground up lights
  - Erection of new CCTV and installation of conduits
- Installation of power bollards and electrical cabling
- Backfilling and reinstatement of asphalt and paved pathways
  - Landscaping and revegetation and reinstatement of disturbed areas
- Reinstatement of lawn areas, paving and garden beds
- Demobilisation from site.

### 3.1.2 Construction timing and duration

Subject to approval, construction is anticipated to commence in mid 2024 and take about 18 months to complete. This allows for construction to be progressed in different phases to accommodate access requirements, park events and the size of the proposal area and distribution board locations. This REF is based on the documented design for the proposal, and refinement of the proposed construction methodology is anticipated to take place following the appointment of the construction contractor. Any future refinements would take place in consultation with CoS.

Construction staging would depend on the construction contractor's preferred methodology, program and sequencing of work. Staging of the proposal is likely to be governed by the new MSB locations. Should the construction contractor's methodology contain substantive departures from that outlined

within the REF, a further assessment would be undertaken to consider any new or altered environmental or amenity impacts.

Most works required for the proposal would be undertaken during standard construction hours as follows:

- Monday to Friday, 7.30 am to 5.30 pm
- Saturday, 7.30 am to 3.30 pm
- Sunday and Public Holidays, no work.

Out-of-hours-work (OOHW) would be required for fibre connection works. These works would require lane closures to decrease traffic disruption and provide a safer work area for workers. Work can be permitted with prior approval from the CoS.

Generally, the scheduling of noisier activities (such as concrete cutting) would occur around higher background noise before 11 pm. Additionally, works would be short-term and temporary. They would take place progressively within the proposal area, limiting the duration that any single sensitive receiver may be exposed to construction noise. A plan would be developed for night work to determine the number of nights that work could occur and the type of works to minimise the potential noise impacts to nearby sensitive receivers.

Work would be carried out taking into consideration Section 6 Work practices of the Interim Construction Noise Guideline (ICNG). Work outside normal working hours would be considered in consultation with relevant stakeholders. Procedures would include notifying sensitive receivers before work commences.

### 3.1.3 Plant and equipment

An indicative list of plant and equipment likely to be used during the construction of the proposal includes:

- Trucks with maximum loading of eight tons per axel
- Vacuum/sucker truck with maximum loading of eight tons per axel
- Ditch witch trenching machines – various sizes
- Borers
- Bogies to import soil
- Table tops with cranes – various sizes and type i.e., franna
- Semi-trailers. maximum loading of eight tons per axel
- Concrete trucks for footings

### 3.1.4 Earthworks

Earthworks would be minor, resulting from the removal of the surface layer of the pavement, grassed and vegetated areas overlaying the proposed conduit, lighting and CCTV installation works.

Earthworks would comply with tree hygiene regimes to limit the spread of bacteria and viruses, such as cleaning all tools, shoes and truck wheels according to the Arboricultural impact assessment (Appendix N).

### 3.1.5 Source and quantity of materials

Materials would be sourced from local suppliers where practicable. Reuse of existing and recycled materials would be undertaken where practicable. The contractor would provide all data sheets for any imported materials, such as soil, mulch, pavers and turf. Certifications must be recent by no less than one year for installation and approved by the City’s project manager or Superintendent representative . Contractors are to comply with CoS waste management policies. Refer to Appendix O.

### 3.1.6 Construction traffic and access

Traffic generated by construction activities would include construction worker light vehicles (including utility vans), as well as heavy vehicles for periodic delivery and removal of materials, and construction plant and equipment.

The contractor would confirm construction traffic and access within the Construction Traffic Management Plan, which CoS and TfNSW would approve. General procedures to manage pedestrian and truck movements include:

- Contractors must use a spotter at all times, with the hazard lights turned on, and travel less than 10 km/h
- Vehicles are restricted from reversing and will only move in a forward direction.
- Vehicles are restricted from entering the exclusion zone that would be marked around the Anzac Memorial and pool of reflection area
- Key vehicular access points to access the Proposal would be from St James Road for works within Hyde Park north and a ramp located at College and Liverpool Street for works within Hyde Park south.

In addition to using construction vehicles, the proposal would involve the operation of mobile plant and equipment. During construction, the normal movement of cyclists and pedestrians would be altered. Pedestrian and cyclist diversions would be in place progressively throughout the proposal area. To minimise impacts as far as reasonably practicable, some works would be undertaken outside of peak traffic hours. In addition, considerations for pedestrian and cyclist safety and appropriately planned construction staging would seek to reduce impacts.

Other projects are approved for construction within Hyde Park and surrounding streets and would be considered by the construction contractor.

No roads would be completely or partially closed as a result of the construction or operational phases of the proposal. Single lane road closures will be required where the fibre connection works would occur, around mid-block:

- Between College and Elizabeth Street and St James Road
- Market Street to Castlereagh Street outside the Piccadilly Centre.

A Road Occupancy Licence would be required for these works.

Emergency vehicle access would be maintained at all times during construction, as would rubbish truck access (as necessary).

### 3.1.7 Ancillary facilities

Construction ancillary facilities such as construction compounds are not anticipated to be required for the proposal. Further, there is unlikely sufficient space in a location where access is practical for the works to support a full construction compound. Laydown areas would be required within each workzone. Site offices may be required by the construction contractor to allow for staff amenities and a site office only.

As an alternative, sections of the proposal area would be progressively fenced off as works would take place throughout Hyde Park, and the majority of works would take place behind the fence.

Detailed construction planning would be undertaken so that the vehicles, plant and equipment on site are those specifically required for the work that would be taking place on any given day. Where practicable to do so, materials, plant and equipment would be removed from the proposal area following the completion of the workday.

### 3.1.8 Public utility adjustment

The proposal footprint would be anticipated to include electrical transmission lines, telephone lines, water mains and other utility infrastructure.

Consultation with public utility authorities (Ausgrid and E-Plus) would be carried out as part of the development of the detailed design to identify and locate existing utilities and incorporate utility authority requirements for relocations and/or adjustments..

# 4.0 Statutory and planning framework

This chapter summarises the statutory considerations relevant to the proposal, including Commonwealth legislation, NSW legislation and policies, and LEPs.

## 4.1 Commonwealth planning policy

### *4.1.1 Environment Protection and Biodiversity Conservation Act 1999*

The Commonwealth *Environment Protection and Biodiversity Conservation Act* (EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places – defined in the EPBC Act as 'Matters of National Environmental Significance' (MNES). The EPBC Act requires the assessment of whether the proposal is likely to significantly impact MNES or Commonwealth land. These matters are considered in full in Appendix A.

The proposal would not significantly affect any MNES or Commonwealth land. Therefore, a referral to the Commonwealth Minister for the Environment is not required.

### 4.1.2 Other Commonwealth legislation

Table 4-1 provides a list of other relevant Commonwealth legislation applicable to the proposal.

**Table 4-1 Other Commonwealth legislation applicable to the proposal**

| Applicable legislation | Considerations |
|---|---|
| ***Aboriginal and Torres Strait Islander Heritage Protection Act 1984*** | There is an obligation on a person who discovers anything which he or she has reasonable grounds to suspect are Aboriginal remains to report that discovery to the Minister, giving particulars of the remains and their location. Mitigation measures have been proposed in Section 6.5 to ensure that uncovered items of Aboriginal heritage, or Aboriginal remains (should they be uncovered), are dealt with appropriately and in accordance with the applicable legislation. A Heritage Impact Assessment (Appendix F) was carried out for the proposal and confirmed that the presence of Aboriginal heritage at Hyde Park was unlikely. Despite the absence of Aboriginal items and artefacts due to the impacts of urbanisation, the Cadigal People have continued relationships and connections with the Country within and around Hyde Park. |
| ***Native Title Act 1983*** | This Act aims to provide for the recognition and protection of Native Title, how Native Title land is used and establishes a mechanism for determining claims to Native Title. There are no pending or approved Native Title claims over the proposal area. |

## 4.2 State planning policy

### *4.2.1 Environmental Planning and Assessment Act 1979*

The EP&A Act establishes the system of environmental planning and assessment in NSW. This Proposal is subject to the environmental impact assessment (EIA) and planning approval requirements of Division 5.1 of the EP&A Act. This division specifies the environment impact assessment requirements for activities undertaken by public authorities such as CoS, which are permissible without development consent.

In accordance with Section 5.5 of the EP&A Act, CoS, as the proponent and determining authority, must examine and consider to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposal. Section 171 of the EP&A Regulation defines the factors which must be considered when determining if an activity assessed under Division 5.1 of the EP&A Act has a significant impact on the environment.

Chapter 6.0 of this REF provides an EIA of the proposal in accordance with Section 171, and Appendix B specifically responds to the factors for consideration under Section 171.

### 4.2.2 Other key NSW legislation and regulations

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

**Table 4-2 Other NSW legislation applicable to the proposal**

| Applicable legislation | Considerations |
|---|---|
| ***Biodiversity Conservation Act 2016 (BC Act)*** | The BC Act establishes a framework for assessing and protecting environmental and biodiversity interests that seeks to maintain a healthy, productive and resilient environment. Section 6.9 of this REF outlines that potential impacts to biodiversity resulting from the proposal would not be significant. |
| ***Contaminated Land Management Act 1997* (CLM Act)** | Section 60 of the CLM Act imposes a duty on landowners to notify the Office of Environment and Heritage (OEH), and potentially investigate and remediate land if contamination is above Environment Protection Authority (EPA) guideline levels.<br>Chemical testing and visual characterisation in accordance with the NSW EPA *Waste Classification Guidelines* (EPA, 2014) would be undertaken to confirm the composition and nature of excavated material that is suspected of being contaminated. Where spoil is classified as unsuitable for reuse, it would be transported to an appropriately licensed offsite facility. |
| ***Heritage Act 1977* (Heritage Act)** | The proposal occurs on Hyde Park, which is a heritage item of local, state and national significance. Within Hyde Park are also several heritage items of local and state significance. This REF considers the impacts of the proposal under local, state and national legislation. |
| ***Protection of the Environment Operations Act 1997* (POEO Act)** | The proposal does not involve a 'scheduled activity' under Schedule 1 of the POEO Act. Accordingly, an Environment Protection Licence (EPL) is not required for the proposal. However, in accordance with Part 5.7 of the POEO Act, CoS would notify the EPA if any pollution incidents occur during construction. This would be managed within the CEMP to be prepared and implemented by the Contractor. |
| ***Waste Avoidance and Resource Recovery Act 2001* (WARR Act) (NSW)** | CoS would carry out the proposal having regard to the requirements of the WARR Act. A site-specific Waste Management Plan (WMP) would be prepared and implemented during construction as part of the CEMP. |
| ***Crown Lands Act 1987*** | An Act to provide for the administration and management of Crown land in the Eastern and Central Division of the State and to repeal the *Crown Lands Consolidation Act 1913*, the Closer Settlement Acts and certain other Acts. The proposal occurs on Crown Land as detailed in Table 1-2. |

### *4.2.3 State Environmental Planning Policy (Transport and Infrastructure) 2021*

The *Transport and Infrastructure State Environmental Planning Policy* (SEPP) *2021* (Transport and Infrastructure SEPP) aims to facilitate the effective delivery of infrastructure across the State.

Under division 12 of the Transport and Infrastructure SEPP, the proposal is permitted without consent to be carried out by or on behalf of a public authority.

As the proposal is for lighting, electrical and security infrastructure and is to be carried out on behalf of CoS, it can be assessed under Division 5.1 of the EP&A Act. Development consent from the council is not required.

The proposal is not located on land reserved under the *National Parks and Wildlife Act 1974* (NPW Act) and does not require development consent or approval under State Environmental Planning Policy (Planning Systems) 2021 or Precincts – Eastern Harbour City SEPP 2021

Division 1 of the Transport and Infrastructure SEPP contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of

development. Consultation, including consultation as required by the Transport and Infrastructure SEPP (where applicable), is discussed in Chapter 5 of this REF.

## 4.3 Local planning policies

### *4.3.1 Sydney Local Environmental Plan 2012*

The proposal is located in the Sydney LGA and is subject to the Sydney LEP. Table 4-3 summarises the relevant aspects of the Sydney LEP applicable to the proposal.

**Table 4-3 Relevant provisions of the Sydney LEP**

| Provision description | Relevance to the proposal |
|---|---|
| ***Clause 2.3 – Zone objectives and land use tables*** | The majority of works to be undertaken for the proposal would be carried out on land zoned as RE1 Public Recreation. The proposal is consistent with the objectives of the RE1 zoned land on which it is located. The proposal would not affect the land use objectives of the zone or surrounding land zones. |
| ***Clause 5.10 – Heritage conservation*** | Clause 5.10 of the Sydney LEP aims to:<br>• Conserve the environmental heritage of Sydney<br>• Conserve the heritage significance of heritage items and heritage<br>• Conservation areas, including associated fabric, setting and views<br>• Conserve archaeological sites<br>• Conserve Aboriginal objects and Aboriginal places of heritage significance.<br>A discussion of impacts on heritage is included in Section 6.4 and Section 6.5. |
| ***Clause 5.12 – Infrastructure development and use of existing buildings of the Crown*** | Clause 5.12 of the Sydney LEP does not restrict or prohibit the carrying out of any development by or on behalf of a public authority, which is permitted to be carried out with or without development consent.<br>The proposal would be undertaken by a public authority (CoS) and is permitted without development consent. |

### 4.3.2 Ecologically sustainable development

The CoS is committed to ensuring that its projects are implemented in a manner that is consistent with the principles of ecologically sustainable development (ESD). Defined under Clause 7(4) of Schedule 2 to the EP&A Regulation, ESD is defined as including:

- The precautionary principle – A lack of full scientific uncertainty should not be used to postpone measures against the risk of extreme environmental degradation
- Intergenerational equity – The present generation should ensure the health of the environment for the benefit of future generations
- Conservation of biological diversity and ecological integrity – Ensuring the survival of a diversity of genes, species, populations and their communities, as well as the ecosystems and habitats they belong to
- Improved valuation, pricing and incentive mechanisms – Environmental factors should be included in the valuation of assets and services.

Chapter 6.0 includes an assessment of the impact of the proposal on a range of environmental factors, including greenhouse gas (GHG) emissions and climate change. Chapter 7.0 lists mitigation measures to ensure ESD principles are incorporated during the construction phase of the proposal.

# 5.0 Consultation

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

## 5.1 Stakeholder consultation during the design phase

As part of the scoping design development for the proposal, CoS undertook engagement activities to invite community members to review and comment on the proposal (Appendix G).

## 5.2 Early community consultation

Early community consultation was undertaken from 18 October to 8 December 2021. Consultation activities included:

- Sydney Your Say webpage: which included an electronic copy of the revised concept design, survey and other key information about the consultation
- Online feedback form via Survey Monkey: members of the community were invited to provide feedback
- Consultation letter: a letter was posted to residents, inviting them to provide feedback. Over 1,000 letters were distributed
- Signage: Ten signs were placed around the park directing the community to the consultation webpage.

During this consultation, community members were provided with an opportunity to raise feedback for the proposal, which was considered in the further development of the early concept design. Key topics and subjects raised during the consultation included:

- Concerns over the heritage with regards to lantern style and lighting levels
- Increasing ground-level lighting
- The number of lights proposed.

## 5.3 Consultation requirements under the Transport and Infrastructure SEPP

Part 2.2 of the Transport and Infrastructure SEPP contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. Section 2.10 – 2.12 and 2.14 provides details of consultation requirements with councils for development impacts on council-related infrastructure, local heritage, flood-liable land and land within the coastal zone. Since CoS is the proponent, it is considered that these Sections have been adequately addressed. Sections 2.10 – 2.12 and 2.14 provide details for consultation requirements with State Emergency Services for flood-liable land, and for consultation with public authorities other than councils for land under the NPW Act. Since the proposal area does not contain any of these characteristics, these Sections do not apply.

Transport for NSW (TfNSW) and Sydney Trains engaged with CoS and requested further information to assure the proposed lighting upgrade does not impact any underground rail infrastructure of the City Circle Underground Rail Network. TfNSW and Sydney Trains expressed that they are interested in the light pole footings and require engineering assessments that assures them that work does not adversely impact train tunnels, stations or any essential rail services such as power or fire monitoring.

TfNSW and Sydney Trains may provide their conditions for approval to ensure the condition and safety of the City Circle Underground Rail Network. It is likely that a structural and geotechnical assessment is required for all light pole footings located on or near the zone of influence of any underground rail asset ie within 10 metres. At the time of preparing this REF, CoS was conducting further ground penetrating radar and pot holing to confirm that certain light poles can be installed near train assets. A report will be

issued directly to Sydney Trains for information and any issues would be resolved directly between CoS and Sydney Trains.

## 5.4 Consultation strategy

Details of the proposal are publicly available on the Proposal website. The community was able to submit feedback on the proposal until 8 December 2021. Members of the community could complete an online feedback form, email feedback and talk to the proposal Design Manager and Community Engagement Coordinator. Face-to-face meetings were not possible due to circumstances related to the COVID-19 pandemic. The objectives of the consultation strategy were to:

- Provide accurate and timely information about the proposal
- Provide opportunities for stakeholders and the community to express their views about the proposal
- Understand and access valuable local knowledge from the community and stakeholders
- Record the details and input from community engagement activities
- Build positive relations with identified community stakeholders
- Ensure a comprehensive and transparent approach.

### 5.4.1 Consultation with Anzac Trust

CoS regularly engaged with the Anzac Trust throughout the design development. CoS gave a presentation to the Anzac Trust to provide an update on the proposal on 27 October 2022 and 13 December 2023. The presentations provided updates on matters such as lighting design layout, construction program and impacts, upgrades around the Anzac Memorial and next steps. The presentations provided assurance to the ANZAC Trust that the proposal would not be touching or impacting lighting for the Anzac Memorial. The presentations also provided the Anzac Trust with information on changes that would occur adjacent to the memorial and around the park.

## 5.5 Public display

The REF display strategy adopts a range of consultation mechanisms, including:

- Public display of the REF at various locations for a period of three weeks
- Advertisement of the REF public display in local newspapers with a link to the CoS website that includes a summary of the proposal and information on how to provide feedback
- Consultation with TfNSW and other non-community stakeholders
- ‘Pop-up’ community information sessions.

Community consultation activities for the proposal would be undertaken during the public display of this REF. The display period of the REF would be advertised in the week that the public display commences. The REF would be displayed for a period of three weeks.

Following the consideration of feedback received during the public display period, CoS would determine whether to proceed with the proposal and what conditions would be imposed on the proposal should it be determined to proceed.

## 5.6 Ongoing consultation

At the conclusion of the public display period for this REF, CoS would acknowledge receipt of feedback from each respondent. CoS would consider the issues raised by the respondents before determining whether to proceed with the proposal.

Should CoS determine to proceed with the proposal, the Determination Report would be made available on the CoS website and would summarise the key impacts identified in this REF, demonstrate how CoS

considered issues raised during the public display period, and include a summary of mitigation measures proposed to minimise the impacts of the proposal.

Should CoS determine to proceed with the proposal, the proposal team would keep the community and other key stakeholders informed of the process, identify any further issues as they arise, and develop additional mitigation measures to minimise the impacts of the proposal. The interaction with the community would be undertaken per a Community Liaison Management Plan to be developed before the commencement of construction.

# 6.0 Environmental impact assessment

This chapter provides a detailed description of the likely environmental impacts associated with the construction and operation of the proposal. For each likely impact, the existing environment is characterised, and then an assessment is undertaken as to how the proposal would affect the existing environment.

This EIA has been undertaken in accordance with Section 171 of the EP&A Regulation. A checklist of Section 171 factors and how they have been specifically addressed in this REF is included in Appendix B.

## 6.1 Traffic and transport

This Section assesses and describes the impacts of the proposal on traffic, transport and pedestrian and cyclist access within and surrounding the proposal area. The assessment is based on a desktop analysis. Detailed traffic counts and modelling were not considered necessary for the proposal.

### 6.1.1 Existing environment

#### 6.1.1.1 Public transport

St James and Museum Train Stations are located within the proposal area. These stations service multiple train lines, including the Inner West and South, Bankstown and Leppington to City Circle Via Airport lines. These train lines provide connections to the CBD as well as to the south and south-west regions of Sydney. There are several bus stops located within proximity to the proposal area and are shown on Figure 6-1.


**Figure 6-1 Public transport**

### 6.1.2 Road network and traffic

The proposal is located within Sydney CBD on Elizabeth Street, Sydney, 2000. No public roads are within the proposal area.

Elizabeth Street and College Street are north-south roads on the eastern and western boundaries of the proposal area, respectively. Elizabeth Street is a three-lane road in both directions, with a 40 km/h speed limit and dedicated bus lanes at various locations along the road corridor. College Street is a three-lane road in both directions, with a 40 km/h speed limit.

St James Road/Prince Albert Road, and Liverpool Street are east-west roads on the northern and southern boundaries of the proposal area, respectively. St James Road and Prince Albert Road are three-lane roads in both directions, with a 40 km/h speed limit. Liverpool Street is a one-lane road east bound and a two-lane road west bound, with a 40 km/h speed limit. Liverpool Street has a bus-only lane providing kerbside parking outside bus hours.

Park Street is an east-west road that divides Hyde Park North and Hyde Park South. Park Street is a three-lane road in both directions, with a 40 km/h speed limit. Dedicated bus lanes on Park Street in both directions provide kerbside parking outside bus operation hours.

#### 6.1.2.1 Access

Access throughout the proposal area is provided through various footpaths, as shown in Figure 6-2.

The proposal may affect, but is not limited to affecting, the following users:

- Users (pedestrians and cyclists) of Hyde Park
- Public transport users of St James and Museum Stations and various bus stops around Hyde Park
- Event organisers that use the proposal area for hosting events
- Park services such as maintenance, security and waste collection
- Access to Ausgrid pits near the Anzac Memorial.


**Figure 6-2 Pedestrian and cyclist network within the proposal area**

### 6.1.3 Potential impacts

#### 6.1.3.1 Construction

##### 6.1.3.1.1 Road network and traffic

During construction, traffic flows on St James Road, Prince Albert Road, College Street, Liverpool Street, Park Street, and Elizabeth Street may be disrupted to allow construction vehicle access and delivery of construction materials and equipment. Construction vehicles and equipment would be located within appropriate laydown areas within Hyde Park, so road closures would not be required. Hence, delays to traffic would be due to slightly increased traffic volumes rather than partial lane closure. Therefore, impacts on traffic would be minor to negligible.Fibre optic works within Hyde Park North would be connected to a pit located in Castlereagh Street outside Piccadilly Shopping Centre, whilst fibre optic works within the Hyde Park South would be connected to the nearest pit located in Liverpool Street, as shown on Figure 1-2.

Construction vehicle access would not be permitted within the Anzac Memorial curtilage.

Where works require access to the public road network and may have an impact on traffic, the contractor will apply for a Road Occupancy Licence.

##### 6.1.3.1.2 Public Transport

Some lighting, CCTV and conduit installation would occur within proximity to St James, Museum Stations, and bus stops on Park Street and Elizabeth Street and may cause impacts to access. However, the works would not require closure or complete obstruction of access to these train or bus stations. Hence, it is not anticipated that there would be any substantial impacts on access to public transport during the construction of the proposal.

##### 6.1.3.1.3 Access

The proposal area has a network of pedestrian and cycling paths. Pedestrian and cyclist diversions would likely be required to ensure safety during construction. There are various pathways within the proposal area, so it is likely that where diversions are required, an alternative route could be provided. These disruptions would affect pedestrians, cyclists, and recreational users of Hyde Park.

Construction of the proposal would be temporary, and any disruption to footpaths would be limited to the extent of the work area required. Works would be staged throughout the proposal area, limiting diversions required.

Key construction vehicle access would be via College Street for access to works within Hyde Park north and St James Road for access to works within Hyde Park south. The contractor would adhere to path loading plans.

#### 6.1.3.2 Operation

##### 6.1.3.2.1 Public Transport

The proposal is not anticipated to have a negative impact on the public transport network. The proposal may enhance public transport use at night-time due to increased perception of safety and accessibility at Hyde Park. However, it is not anticipated that the proposal would significantly increase public transport use.

##### 6.1.3.2.2 Road network and traffic

The proposal will likely not impact the surrounding road network, given that the majority of lighting provided would be delivered to improve lighting and security within Hyde Park.

##### 6.1.3.2.3 Access

The proposal is anticipated to have a positive effect on the pedestrian and cycling network within the proposal area. Better lighting and CCTV security would improve the visibility and perception of the safety of paths and encourage more night time use. Therefore, the proposal is anticipated to have a long-term positive impact on pedestrians, cyclists and general users of Hyde Park.

### 6.1.4 Mitigation measures

The following mitigation measures are recommended for the Contractor to minimise traffic and transport impacts:

T1. During construction, park and store construction vehicles and equipment within the proposal area, at appropriate laydown areas, to keep all construction activity off roads

T2. During construction, ensure works do not inhibit access to train and bus stops

T3. During construction, establish appropriate traffic management measures such as temporary precautionary signs, illuminated warning devices and provision of temporary barriers and markers to control the proposed work areas

T4. Superintendents Representative team would ensure that no significant conflicts between construction activities and major events in the city occur

T5. During construction, demarcate new pathways to offset adverse impacts on pedestrians and cyclists

T6. Where works require access to the public road network or would likely impact on traffic, the construction contractor would apply for a Road Occupancy Licence

T7. Where works require access to the public road network or would likely impact on traffic, the construction contractor would clearly demarcate work areas as required.

## 6.2 Noise and vibration

A noise and vibration assessment was produced for the proposal area using the TfNSW noise calculator tool (Appendix C).

### 6.2.1 Existing environment

The NSW DECC (2009) has prepared an ICNG that has been developed to assist with the management of noise impacts rather than to present strict numeric noise criteria for construction activities.

Most works required for the proposal would be undertaken during standard construction hours (Table 6-1:). However, fibre connection works would need to be carried out outside of standard hours (Table 6-1:). These works would require lane closures to reduce traffic disruption and provide a safer work area for workers if conducted outside standard working hours.

**Table 6-1: Working hours**

| Measure | Monday to Friday | Saturdays | Sunday/public holidays |
|---|---|---|---|
| Standard hours (Day) | 7 am-6 pm | 8 am-1 pm | - |
| OOHW Day | - | 7 am-8 am<br>1 pm-6 pm | 8 am-6 pm |
| OOHW Evening | 6 pm-10 pm | 6 pm-10 pm | 6 pm-10 pm |
| OOHW Night | 10 pm-7 am | 10 pm-8 am | 6 pm-7 am |

The proposal in the suburb of Sydney, within the CBD. As such, the existing environment is generally of high noise level during the day. The major noise source is high traffic volumes and general noise from densely concentrated commercial areas. As a result, most nearby receivers may be accustomed to high levels of background noise but not necessarily the type of noise that the construction of the proposal would generate.

Sensitive receivers near the proposal are identified in Table 1-1. There are a variety of sensitive receivers near the proposal and generally include:

- Government buildings
- Places of worship

- Commercial buildings
- Retail
- Restaurants
- Recreation/leisure
- Medical centres
- Parks
- Accommodation
- Educational facilities.

### 6.2.2 Potential impacts

#### 6.2.2.1 Construction

##### 6.2.2.1.1 Construction noise

A distance-based (noisiest plant) assessment type was selected for this proposal to assess the construction noise impacts. The concrete saw option was used in the assessment to determine worst-case noise impacts. 'R5' background noise environment was selected based on the existing road volumes in this location and densely concentrated skyscrapers and commercial areas.

The table below provides the background noise levels (also referred to as Rating Background Level (RBL)) and noise management levels.

**Table 6-2 Noise category areas**

| Noise Area Category | | R5 (dB) |
|---|---|---|
| **RBL or LA90[1] Background level (dB(A))** | Day | 60 |
| | Evening | 55 |
| | Night | 50 |
| **LAeq(15 minute) Noise Management Level[2] (dB(A))** | Day | 70 |
| | Day (OOHW) | 65 |
| | Evening | 60 |
| | Night | 55 |

The results below show the noise management levels (NML, dB(A)) which are based on noise background levels from a R5 background noise environment. These are presented against predicted noise levels based on the distance to concrete saw noise (dB(A)). The results of the construction noise assessment also propose certain mitigation measures to adopt.

Assuming the use of a concrete saw during the day time scenario, construction noise would be moderately intrusive within a 35 m radius of the proposal, at an exceedance of about 15 dB(A) (see Table 6-3 and Figure 6-3). Receivers likely to be most impacted by the works would be park users and receivers within buildings directly adjacent to the park.

During the day time OOHW scenario, construction noise would be moderately intrusive within a 25 m radius of the proposal, at an exceedance of about 15 dB(A) (see Table 6-3 and Figure 6-4). Construction noise would be noticeable within a 60 m radius of the proposal at an exceedance of about 5 dB(A). Receivers likely to be most impacted by the works would be park users and receivers within buildings directly adjacent to the park.

During the evening scenario, construction noise would be moderately intrusive within a 35 m radius of the proposal, at an exceedance of about 15 dB(A) (see Table 6-3 and Figure 6-5). Construction noise would be noticeable within a 60 m radius of the proposal at an exceedance of about 5 dB(A). Receivers

likely to be most impacted by the works would be those staying in accommodation directly adjacent to the park.

During the night scenario, construction noise would be moderately intrusive within a 25 m radius of the proposal, at an exceedance of about 30 dB(A) (see Table 6-3 and Figure 6-6). The Hyde and 175 Liverpool Street (office building. It is assumed that night works would not disturb 175 Liverpool Street given its function as an office building and it would be unlikely for sensitivity receivers to be within the building during night works. Construction noise would be clearly audible within a 60 m radius of the proposal at an exceedance of about 10 dB(A). Construction noise would be noticeable within a 155 m radius of the proposal at an exceedance of about 5 dB(A). Receivers likely to be most impacted by the works would be those staying in The Hyde directly adjacent to the park. Noisy works such as saw cutting shall occur before midnight (12 am). Additional management and mitigation measures from the CNVG guidelines are included below. Given the number of guests within The Hyde it would not be feasible to offer alternate accommodation during construction works.

For all scenarios, the works would be staged throughout the proposal area, limiting the radius of noise impact. Furthermore, the above assessment is for a worst-case scenario, and it is not anticipated that the proposal would cause moderately intrusive noise impacts for the entirety of the construction. Construction works would also be temporary. To minimise construction noise for train station users when working near station tunnels, works would occur outside of peak travel times. As guided by the Construction Noise Estimator Tool, additional management and mitigation measures are recommended to limit noise impacts. Additional mitigation methods are defined below in **Section 6.2.3**.

**Table 6-3 Catchment distances affected by construction noise**

| Catchment distances | NML, dB(A) | Predicted noise levels, dB(A) | Recommended additional mitigation measures |
|---|---|---|---|
| **Day** | | | |
| **NCA1** (35 m) – in line of sight | 60 | 75 | Notification, phone call, respite offer |
| **Day OOHW** | | | |
| **NCA1** (25 m) In line of site | 65 | 80 | Notification, Respite period 1, Duration respite, phone call, specific notification |
| **NCA2** (60m) Behind solid barrier | 65 | 70 | Notification, respite period 1, duration respite |
| **Evening** | | | |
| **NCA1** (35m) In line of site | 55 | 75 | Notification, respite period 1, duration respite |
| **NCA2** (60m) Behind solid barrier | 55 | 65 | Notification, respite period 1, duration respite |

| Catchment distances | NML, dB(A) | Predicted noise levels, dB(A) | Recommended additional mitigation measures |
|---|---|---|---|
| **Night** | | | |
| **NCA1** (25m)<br>In line of site | 50 | 80 | Alternative accommodation, notification, phone call, specific notification, respite period 2, duration respite |
| **NCA2** (105m)<br>Behind solid barrier | 50 | 60 | Notification respite period 2, duration respite |
| **NCA3** (155m)<br>Behind solid barrier | 50 | 55 | Notification |

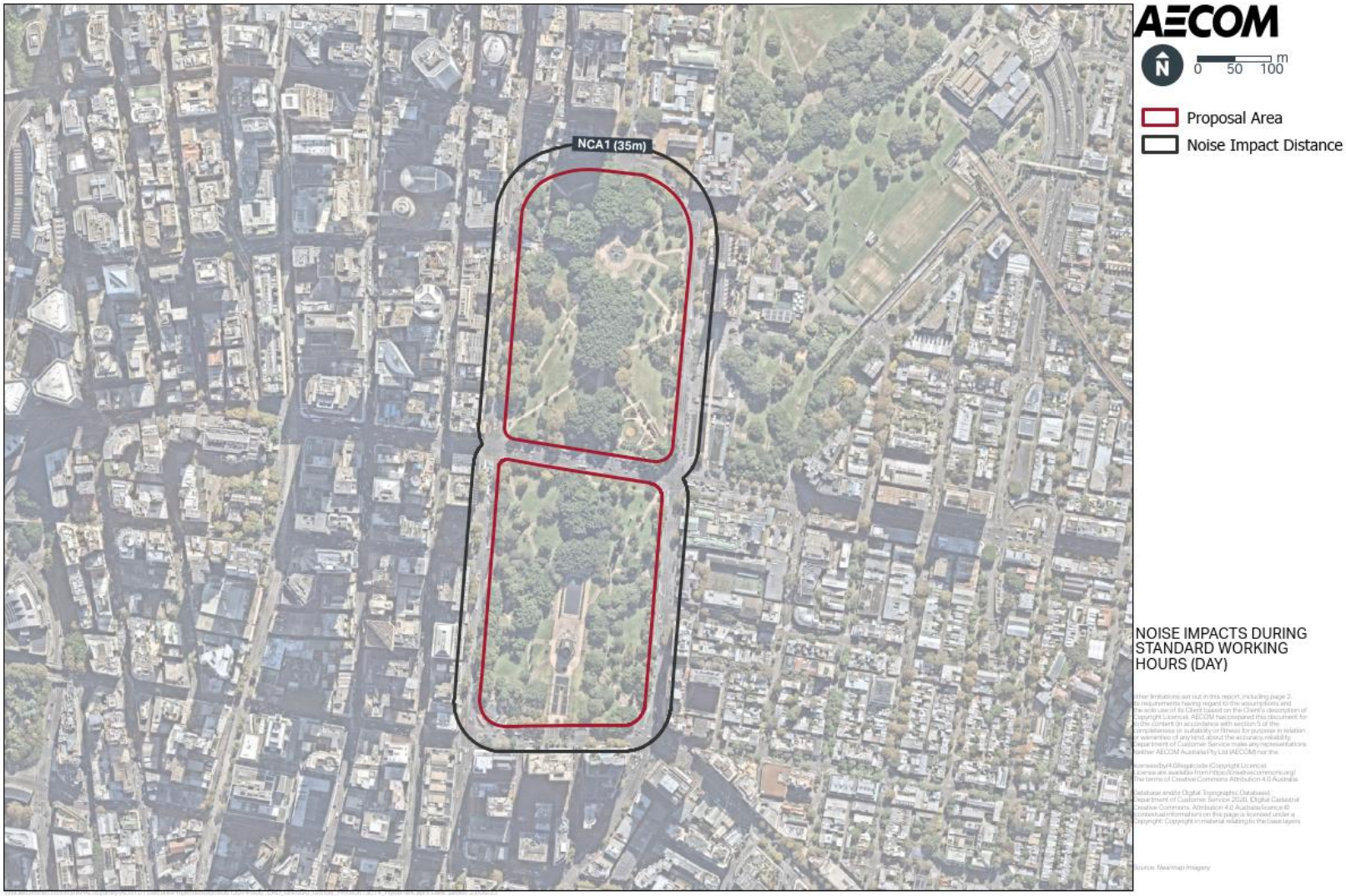



**Figure 6-3 Anticipated noise impacts during standard working hours (day)**

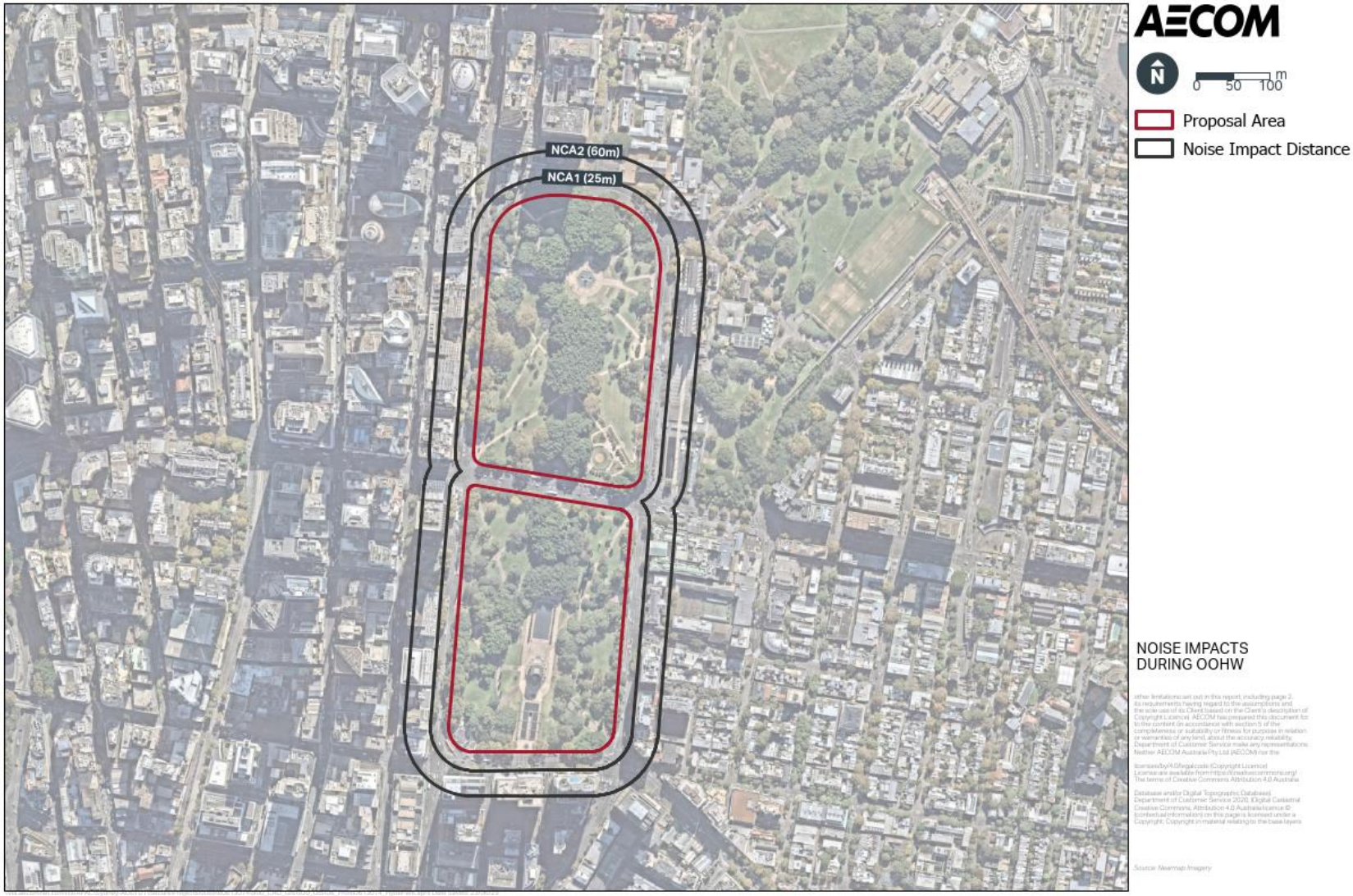



**Figure 6-4 Anticipated noise impacts during OOHW**

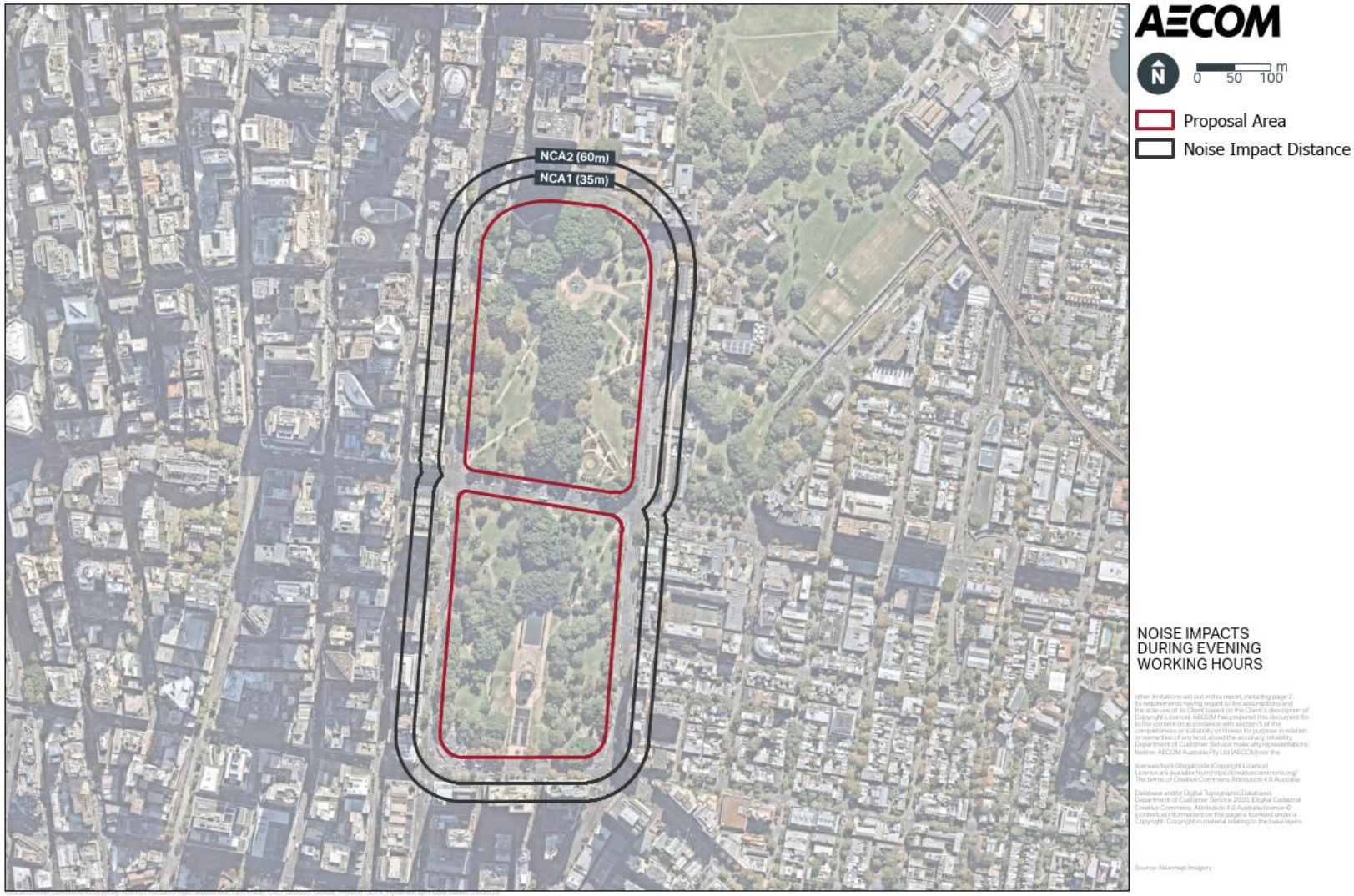



**Figure 6-5 Anticipated noise impacts during the evening**

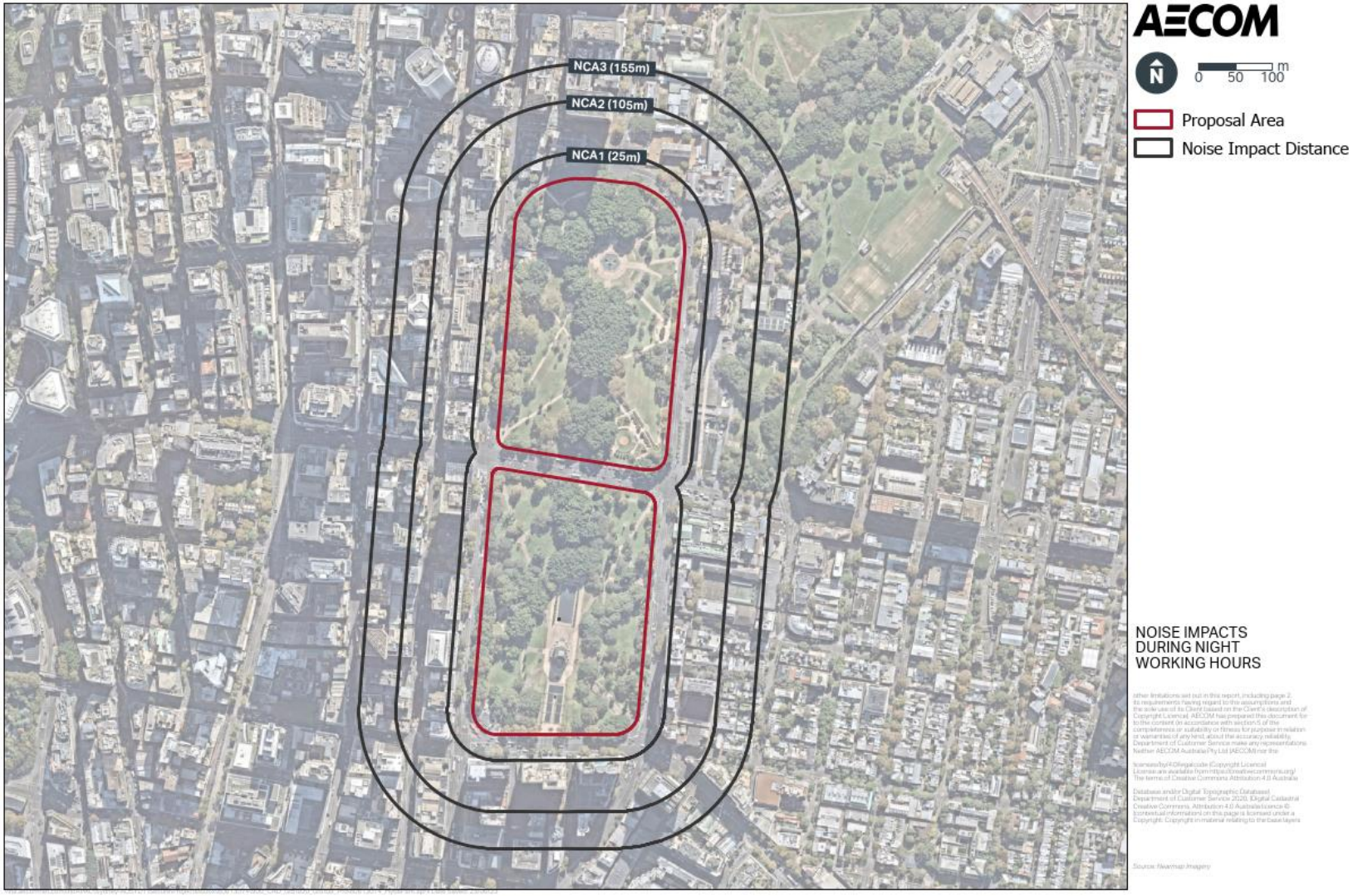



**Figure 6-6 Anticipated noise impacts during night**

#### 6.2.2.1.2 Vibration

Sources of ground vibration associated with the proposal are expected to be minor. Known vibration intensive equipment to be used would include a jackhammer. Therefore there is some potential for ground vibration during earthwork activities. However, the proposed equipment would be small in size and construction periods would be short. The TfNSW Construction Noise Strategy indicates that cometic damage occur within 1m of a jackhammer, and that human contact should be avoided.

The full extent of the plant and equipment to be used for the proposal would be confirmed by the contractor. Therefore, vibration effects would be dependent on the type of machinery used and proximity to certain types of buildings. Further vibration assessment would be ascertained in a construction noise and vibration management plan (CNVMP).

### 6.2.2.2 Operation

The proposal would not result in any noise or vibration impacts.

### 6.2.3 Mitigation measures

The following mitigation measures are recommended to minimise potential noise and vibration impacts for works undertaken during daytime and out of hours:

N1. Specific additional mitigation measurements as identified in the noise assessment:

- **Notification (N) -** Letterbox drops for receivers within a 155m radius. Notifications should detail work activities, dates and hours, impacts and mitigation measures, any operational noise benefits from the works (where applicable) and the contact telephone number. A notification would be sent a minimum of 7 calendar days prior to the start of the works
- **Respite offer (RO)** should be considered where there are high noise and vibration-generating activities near residential receivers. RO proposes that work should be carried out in continuous blocks that do not exceed 3 hours each, with a minimum respite period of one hour between each block. Such an offer aims to provide residents with respite from an ongoing impact.

N2. Respite condition 1 or duration respite would be offered during OOHW work in accordance with the Construction Noise and Vibration Guideline (Roads and Maritime Services, 2016)

N3. Noisy works such as saw cutting shall occur before midnight (12 am)

N4. Prepare a CNVMP. The CNVMP would be a sub-plan of the CEMP, and as a minimum, it would:

- Map the sensitive receiver locations, including residential properties
- Include safeguards and management measures to manage out-of-hours working
- Include an assessment to determine the potential risk for activities likely to affect receivers, including for activities undertaken during and outside of standard working hours
- Include a process for assessing the performance of the implemented safeguards and management measures

N5. Affected receivers would be notified ahead of time of the likely activities, noise impacts and duration of this work

N6. Nearby receivers would be notified of any work in advance of the start of construction

N7. A community complaints phone number would be established and advertised prior to works commencing and be available during work periods. The community complaints line would be established for any complaints or queries regarding the construction

N8. Where reasonable and feasible rubber-tracked or wheeled equipment would be used instead of standard, steel-tracked plant

N9. Plant and equipment would be turned off when not in use

N10. The proposal area would be arranged to minimise the use of movement alarms on vehicles and mobile plant

N11. Where safety concerns can be adequately managed, the use of squawker, broadband or visual reversing alarms would be considered, rather than traditional beeper styles

N12. The use of equipment or methods that generate impulsive noise. These include dropping materials from a height, loading/unloading trucks and metal-on-metal contact

N13. A noise monitoring program would be established during the early stages of construction to provide an indication of actual noise generation and transmission during each task

N14. A complaints-handling procedure would be established and implemented

N15. Implement noise containment measures and temporary noise barriers where feasible and reasonable where it is determined that the work would have an unreasonable adverse impact on the surrounding community. Use the number of received community complaints as a measure of impact and conduct noise monitoring to determine whether the generated noise is excessive

N16. Make the construction program available to the community and ensure it is routinely updated as works progress. Updates would be provided for each work zone.

## 6.3 Landscape and visual

### 6.3.1 Existing environment

The proposal area encompasses the boundaries of Hyde Park, a city centre park used by millions of visitors each year. Covering 16.3 ha, Hyde Park offers expansive manicured lawns, landscaped gardens and groupings of mature trees intersected by a network of formal paths.

The principal geometry of the park is laid out along axes running north to south and east to west, creating cruciforms focused on the alignment with Macquarie Street, key buildings at its boundaries and the major icons within the park, such as the Archibald Memorial Fountain and the ANZAC Memorial. Hyde Park is characterised by a highly structured layout defined by the pathway networks, tree plantings, garden beds, monuments, fountains and pools, grassed open spaces, formalised entrances and boundary walls to the adjoining pedestrian and road networks (Figure 6-7).

In Hyde Park North, main viewing points and paths have been designed around The Sundial. In Hyde Park South, main viewing points and paths have been designed around The Anzac Memorial and Pool of Reflection. Other heritage items and places of interest are scattered throughout Hyde Park, which is often highlighted through the particular design of pathways, lighting and landscaping.

Most paths in the network throughout Hyde Park are concrete and about 3.5 m wide. However, at points of interest such as near significant heritage items, paths are much wider (approximately 8 m), stone slab paths, sometimes with artistic design to accentuate points of interest. Paths are also lined with consistent light poles that are white in colour. Seating is provided throughout the park, concentrated along paths and near points of interest.

Overall the existing environment of the proposal area has high landscape and visual value.


**Figure 6-7 Example of cruciform layout and landscaping within Hyde Park North (Source: https://www.epnsw.com.au/wp-content/uploads/2018/01/Hyde-Park-North-Plan-1-e1515548856351.jpg)**

### 6.3.2 Potential impacts

#### 6.3.2.1 Construction

The construction of the proposal would temporarily change the appearance of the proposal area. This change would arise via the introduction of the following:

- Construction materials
- Work boundaries
- Lighting towers
- Operation of plant and equipment.

Given the green and treescape nature of the proposal area, construction activities are not a component that is considered to contribute to its character and appearance. The sight of construction works, including various barriers to restrict public access, would be obvious to visual receivers. However, construction activities would be temporary. CoS would also monitor the works to minimise impact to the park and its users. Given this, and the application of suitable mitigation measures, the impact of construction works on the visual landscape is considered to be minor.

#### 6.3.2.2 Operation

The visual appearance of the proposal area would be permanently changed as a result of the following:

- Introduction of an additional eight CCTV cameras (Figure 6-8)
- Introduction of additional or movement of current lighting poles to a different location (Figure 6-9)
- Introduction of open area poles that would be straight, hinged type, aluminium poles with a height of 7 m, in a dark grey/charcoal colour pole finish (Figure 6-9) in open lawn areas
- Introduction of secondary path poles that would be a mixture of 4.5 m heritage poles (Figure 6-9).

Primary path pole design would match the current pole design and would have an identical height (4.5 m), features and size. The colours for the Central Avenue light poles would have the same finish colours as the 1990’s installation.

Lighting design has also been chosen to be consistent with current lighting around heritage items in the park (Table 6-9). Lighting has been designed to be inconspicuous, painted in neutral colours and discrete in appearance. Lighting will have positive impacts on views of the Obelisk by increasing lighting around the item. Furthermore, lighting will provide additional safety benefits around the St James and Museum Railway Stations, by provided additional lighting. Lighting near the Anzac Memorial has been designed so as not to interfere with the Memorials lighting scheme.

Despite these changes, it is not anticipated that the addition of CCTV cameras and light poles and changing the physical appearance of some light poles would significantly impact the landscape and visual nature of the proposal area. The proposed elements would generally fit within the context of Hyde

Park and are not visually intrusive. Over time, the perceived newness of the proposal would recede and blend more consistently with unchanged streetscape elements.

The proposal would also benefit the visual environment due to improved illuminance of Hyde Park, especially around places of interest, and updated fixtures. Overall the operational Proposal would have a beneficial visual impact.

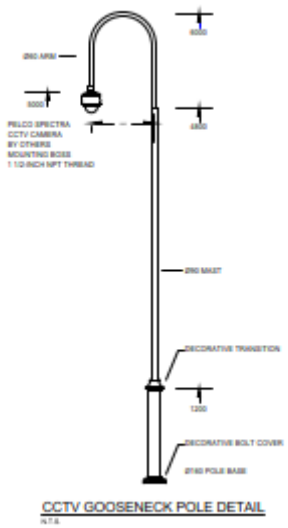



**Figure 6-8 Example of CCTV appearance**

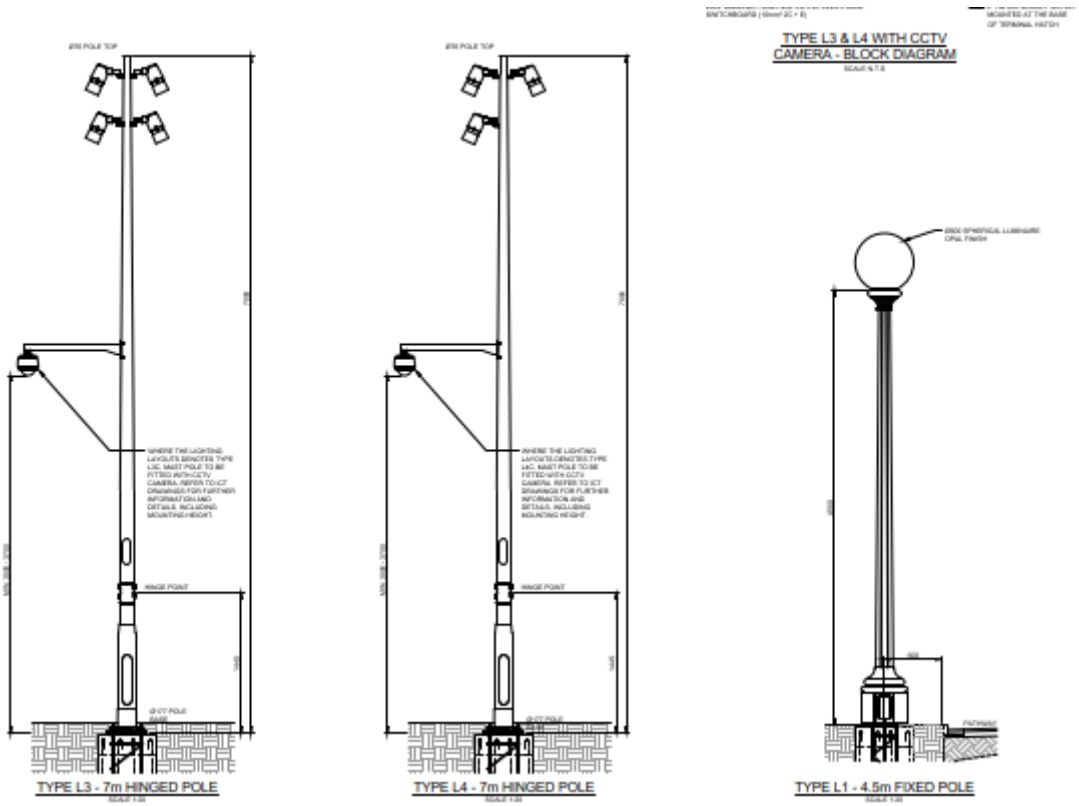



**Figure 6-9 Example of lighting appearance**

### 6.3.3 Mitigation measures

The following mitigation measures are recommended to minimise the visual impacts:

L1. Construction lighting is to be positioned such that light spill on neighbouring properties is minimised and that it is turned off when not in use and safe to do so

L2. The layout, directional positioning and types of lighting selected to minimise impacts are to be specified by the construction contractor in the CEMP

L3. A high level of housekeeping would be maintained by ensuring that the proposal area is kept in a clean and tidy condition, with appropriate areas designated for storage of waste materials

L4. Construction plant, equipment, materials and lay down areas should be stored/park on paved areas where possible to avoid unmercenary impacts to grassed/vegetated areas

L5. Groundcover disturbed during construction would be re-established as soon as practical and fenced until established

L6. Waste materials must be removed from the site regularly

L7. Lighting design and service must comply with relevant AS and heritage design standards (Appendix D).

## 6.4 Non-Indigenous heritage

This Section assesses and describes the impacts of the proposal on non-Indigenous heritage within and surrounding the proposal area. This assessment is based on a desktop analysis of the relevant heritage registers. The proposal area includes items of State heritage significance under the NSW State Heritage Register (SHR) and local heritage significance under the Sydney LEP and Section 170 Heritage and Conservation Register.

### 6.4.1 Methodology

Heritage Impact Statement

A Heritage Impact Statement for the Hyde Park Lighting Upgrade was prepared for the proposal in July 2023 (Appendix F) (GML Heritage, 2023). The Heritage Impact Statement was prepared with reference to the guideline document *Statements of Heritage Impact* (NSW Heritage Office, 2002).

Preparation of the Heritage Impact Statement involved a review of the following documents:

- Heritage Review Study for Hyde Park Plan of Management (HBO and EMTB, 2006)
- Hyde Park Plan of Management and Masterplan (Clouston Associates, 2006)
- Hyde Park Boundaries Elements and Entrances (GML, 2007)
- Hyde Park Archaeology Management Plan (GML, 2014)
- Museum Station Easy Access Upgrades Heritage Asset Management Schedules (GML, 2014)
- Proposed Café, Hyde Park South, Cnr Elizabeth and Liverpool Street, Sydney, NSW—Heritage Impact Statement (John Oultram Heritage and Design, 2016)
- Hyde Park: Lighting Design Geotechnical Investigations Geotechnical Factual and Interpretive Report (AECOM, 2021)
- The archaeological and paleoenvironmental assessment of the sediments of Hyde Park, Sydney, New South Wales (GML, 2022).

Potential impacts were rated as ‘neutral’, ‘minor adverse’, ‘major adverse’, ‘minor positive’ and ‘major positive’. The definitions for these ratings are provided in Table 6-4.

**Table 6-4 Heritage impact rating definitions**

| Rating | Definition |
|---|---|
| Major adverse | Actions which will have a severe, long-term and possibly irreversible impact on a heritage item. Actions in this category would include partial or complete demolition of a heritage item or the addition of new structures in its vicinity that destroy the visual setting of the item. These actions cannot be fully mitigated. |
| Minor adverse | Actions which will have a minor adverse impact on a heritage item. This may be the result of the action affecting only a small part of the place or a distant/small part of the setting of a heritage place. The action may also be temporary and/or reversible. |
| Neutral | Actions which will have no heritage impact. |
| Minor positive | Actions which will bring a minor benefit to a heritage item, such as an improvement in the item's visual setting. |
| Major positive | Actions which will bring a major benefit to a heritage item, such as reconstruction of significant fabric, removal of substantial intrusive elements/fabric, or the reinstatement of an item's visual setting or curtilage. |

The construction methodology was not known at the time of the preparation of the Heritage Impact Statement, and so any potential impacts arising during construction have not been assessed.

### 6.4.2 Existing environment

#### 6.4.2.1 Heritage listings

Heritage items within the proposal area are identified in Table 6-5 and Table 6-6. Heritage items within the vicinity of the proposal are identified in Table 6-7 and shown in Figure 6-10.

**Table 6-5 Non-Indigenous heritage items within the proposal area**

| Heritage Item | Item Number | Location |
|---|---|---|
| **EPBC Act 1999** | | |
| Hyde Park | 106103 | 110 and 120 Elizabeth Street, Sydney, 2000 |
| **Sydney's Significant Trees Register** | | |
| Refer to | - | Various locations within Hyde Park |
| **SHR** | | |
| Australian Museum | SHR 00805 | 1 William Street, Darlinghurst |
| Busby's Bore | SHR 00568 | Centennial Park To College Street, Surry Hills |
| Bondi Ocean Outfall | SHR01326 | Blair Street, Bond |
| Great Synagogue | SHR 01710 | 166 Castlereagh Street, Sydney 2000 |
| Hyde Park | SHR 01871 | 110 And 120 Elizabeth Street, Sydney, 2000 |
| Sewer Vent (the Obelisk) | SHR 285160 | Elizabeth Street, Sydney |
| St James Railway Station Group | SHR 01207 | 108 Elizabeth Street Sydney NSW 2000 |
| Museum Railway Station | SHR 01207 | City Circle Railway Sydney NS 2000 |

| Heritage Item | Item Number | Location |
|---|---|---|
| The Anzac Memorial | SHR 0182 | Hyde Park South, Near Liverpool Street Sydney NSW 2000 |
| **Sydney LEP 2012** | | |
| Museum Railway Station | I1743 | City Circle Railway Sydney NSW 2000 |
| Anzac Memorial | I1742 | Hyde Park South, Near Liverpool Street Sydney NSW 2000 |
| St James Railway Station | I1740 | 108 Elizabeth Street Sydney NSW 2000 |
| Hyde Park including north and south park reserves, Archibald Memorial Fountain, Anzac Memorial, Pool of Remembrance, stone perimeter walls and steps, St James Station, Museum Station, Dalley Statue, Oddfellows Memorial, Captain Cook Statue, Frazer Fountain, Fort Macquarie Cannon, Emden Gun, Thornton Obelisk, Sundial, former public toilets, Busby's Bore Fountain, Sandringham Gardens including memorial gates/pergola, Nagoya Gardens, Chess Board, F J Walker Fountain, John Baptist Fountain, Busby's Bore and archaeology | I1654 | 110 And 120 Elizabeth Street, Sydney, 2000 |
| **S170 Heritage and Conservation Registers** | | |
| Busby's Bore | - | Centennial Park to College Street, Surry Hills |
| Bondi Ocean Outfall Sewer | - | Blair Street, Bond |
| Sewer Vent (the Obelisk) | - | Elizabeth Street, Sydney |
| St James Railway Station Group | - | 108 Elizabeth Street Sydney NSW 2000 |
| Museum Station | - | City Circle Railway Sydney NSW 2000 |

**Table 6-6 List of significant trees within Hyde Park**

| Quantity | Common name | Species |
|---|---|---|
| 98 | Hills Weeping Fig | *Ficus microcarpa var. hillii* |
| 14 | Moreton Bay Fig | *Ficus macrophylla* |
| 3 | Port Jackson Fig | *Ficus rubiginosa* |
| 5 | Hoop Pine | *Araucaria cunninghamii* |
| 8 | Cook Pine | *Araucaria columnaris* |
| 1 | Queensland Kauri Pine | *Agathis robusta* |
| 1 | Indian Chir Pine | *Pinus roxburghii* |

**Table 6-7 Non-Indigenous heritage items within the vicinity of the proposal area**

| Heritage item | SHR | CoS LEP 2012 |
|---|---|---|
| Mint Building and Hyde Park Barracks | SHR 00190 | - |
| Sydney Supreme Court House | SHR 00800 | I1739 |
| Australian Museum | SHR 00805 | |
| Great Synagogue | SHR 01710 | I1750 |
| Former “Australian Consolidated Press” façade | - | I1751 |
| St Mary’s Catholic Cathedral and Chapter House | SHR 01709 | I1951 |
| Former tram shelter including interior | - | I1741 |
| Former Registrar Generals Department Building, including interior | - | I1946 |

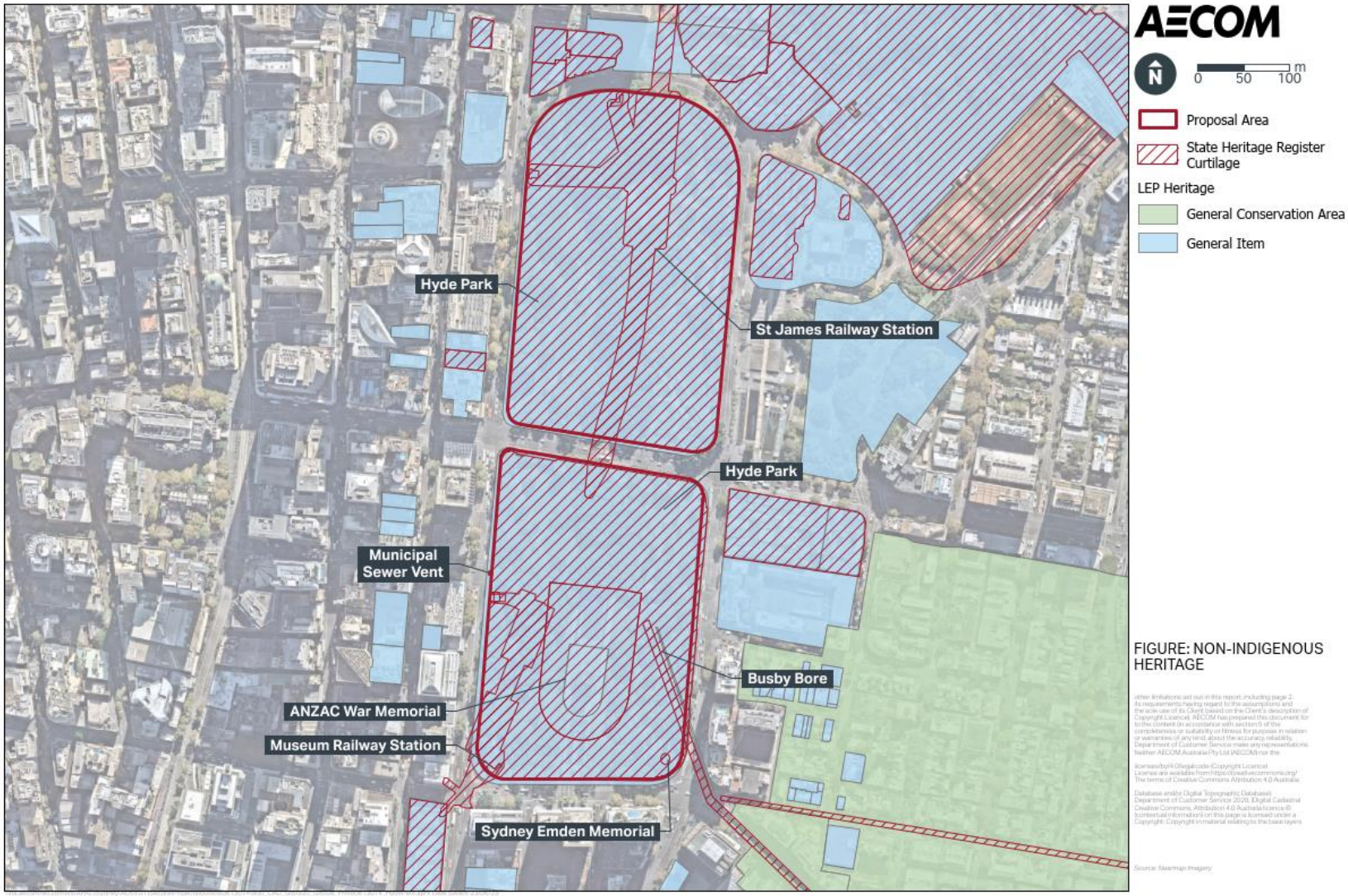



**Figure 6-10 Non-Indigenous Heritage**

#### 6.4.2.2 Historical archaeology

Hyde Park is an item of State significance that has played a significant role in the development of Sydney since the early days of its formation. The potential archaeological resource within the park includes items with direct association with the park as well as those which are not associated with the common attributes of a park. Notwithstanding this, the potential archaeological resource within the park has an ability to provide a degree of significant information which would contribute to our understanding of the development of the park since its early formation period and to our understanding the park's role as an open space used for a number of activities.

Archaeological remains relating to the early nineteenth century use of the park and earlier Aboriginal use have potential to shed light on early attitudes toward the qualities of the open space setting which provide for differing practices, ranging from public executions to sporting games and leisure. Potential remains of early execution areas, early paths and roads predating Hyde Park would be considered to have significance at the State level.

Archaeological remains associated with Busby's Bore, including structural remains or associated deposits and features are significant for their High research potential regarding the technological, historical and social development of urban Sydney. These remains would be considered to have significance at the State level.

The development of a later sewer system including the Bondi Ocean Outfall and its branches was a defining moment in the management of Sydney's waste and ocean pollution which resulted in the overall improved sanitation of the City. It is representative of the high level of scientific aptitude of late nineteenth century engineering. The North Main of the Bondi Ocean Outfall, although having been significantly truncated by the construction of the railway tunnels which resulted in the loss of fabric and subsequent replacement by concreted sections, is a significant item with research potential relating to technologies and materials used for the modernisation of the sewerage system in Sydney. The archaeological remains of the original fabric of the North Main would be considered to have significance at the State level.

Archaeological remains directly associated with the park's landscaping including original sandstone dwarf walls and boundaries, footings of the 1890s–1920s bandstand, the Temporary Pavilion or the underground historic public toilets would be considered to be significant at the State level.

Archaeological remains relating to the World War II facilities have potential to shed light on the significance of the changing functions of Hyde Park (from leisure and relaxation space to defensive position). The footings of the British Centre, is of high level of preservation and the remains of the air raid shelter would be considered to be significant at the State level.

Archaeological remains of the nineteenth and early twentieth century gardens and landscaping as well as mid twentieth century footing remains of the Former Kiosk/Council Building and the Long Day Child Care Centre would have limited research potential and are therefore considered to be of local significance.

The potential for the survival of in situ historical archaeological remains in Hyde Park has been assessed as being generally low. Where they may survive, they are likely to be highly disturbed and to have limited ability to contribute to archaeological research. The 2014 Archaeological Management Plan provided the following two summarised lists of potential archaeological remains. Areas with high to moderate archaeological potential is shown on Figure 6-11 and include:

- Kiosk/Council Building
- Historic Public Toilets
- World War II British Centre
- 1955 Long Day Care Centre
- World War II Air Raid Shelter
- Busby's Bore
- Northern Main Branch.

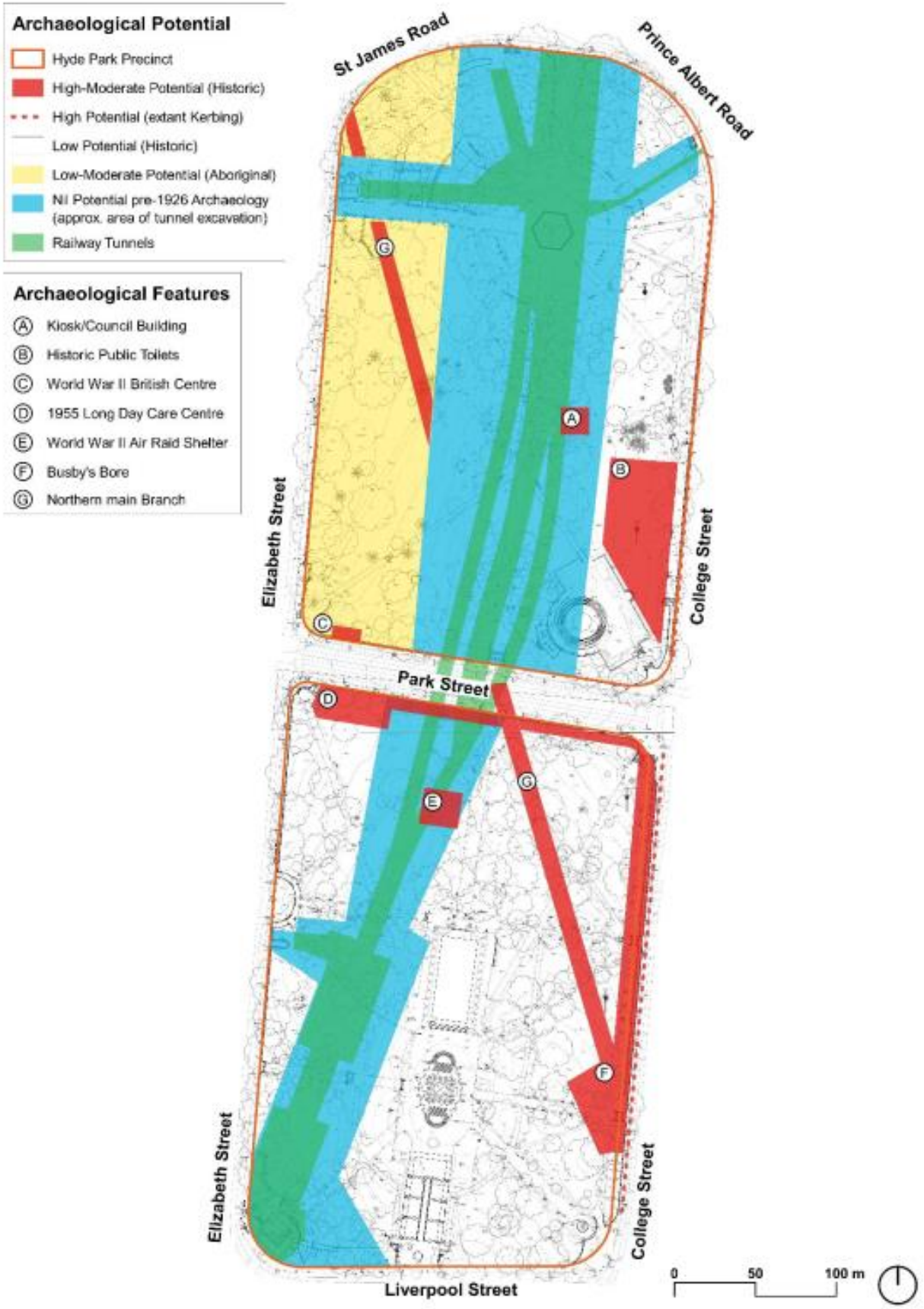



**Figure 6-11 Plan of Hyde Park showing areas of archaeological potential**

#### 6.4.2.3 History and significance

##### 6.4.2.3.1 Lighting history and significance

The style and arrangement of lighting in Hyde Park has been a key part of the park's history. The style and arrangement of lighting that is in Hyde Park today is the result of various lighting schemes implemented at different periods by the CoS since the formation of municipal government in 1842.

Today there are several different types of lighting in the park. These include the concrete lamp standards that were introduced following the construction of the underground railway in the 1930s. Historical photographic evidence indicates that this lighting type was more prevalent throughout the park, but is now primarily concentrated along the main pathways.

##### 6.4.2.3.2 Statement of significance

Hyde Park has State significance as public land that has influenced the development of Sydney's layout from as early as 1789, occupying approximately the same site since that time. Proclaimed by Governor Macquarie, it is Australia's oldest designated public parkland (1810) and has been continuously used from 1788 for public open space, recreation, remembrance, celebration and leisure. Hyde Park has contributed to the cultural development of the city as a recreational space encapsulating the principles of a Victorian parkland through the use of hierarchy of pathways and the strategic siting of monuments, statues and built items. It is of State significance as a demonstration of the international spread of the English public parks movement originating in the mid-19$^{th}$ century. It provides evidence of the influence of transport infrastructure on urbanisation by its upheaval and re-creation after construction of the city underground railway in the 1920s. It was a site of some of Australia's first sporting events, and remains the prime open space in Sydney for special events, protests and festivals as it has been since 1810. The park contains a collection of monuments and sculptures which mark key events and personalities in the history of the State including war memorials and significant artistic works.

##### 6.4.2.3.3 Governor's Domain and Civic Precinct

The Governors' Domain and Civic Precinct is located in the City of Sydney, near the place of arrival of the First Fleet in Warrane, the Indigenous name recorded in historic journals for Sydney Cove.

The Precinct is of outstanding heritage value to the nation for its capacity to connect people to the early history of Australia including interactions between Indigenous People and British colonisers. Its ability to demonstrate the historic processes which shaped Australia's civic institutions, democratic progress and the physical character of our cities, which were set in train from the early colonial period in the Sydney colony, is outstanding. In particular, the Precinct's ensemble of buildings, parks and gardens tell us about important events in the establishment of early Parliamentary forms of government, the establishment of the Supreme Court and aspects of the history of suffrage.

The archaeological material found near or associated with many of its historic places is rare and has an exceptional research value capable of informing Australians about aspects of British colonisation and the first interactions British colonists had with Indigenous People living in and around the place we now call Sydney. The Precinct is also outstanding for its collection of buildings and open spaces, which as an ensemble, demonstrates the transition of the early, isolated penal settlement into a more substantial permanent town. Early British Governors and in particular Governor Macquarie, worked to create improvements in civic amenity and fostered the establishment of civic institutions like Australia's first hospital, public parks, a mint and places of worship. Later civic, legal and government institutions continued to be developed which helped to foster greater independence from Britain.

The Precinct and its buildings are also of outstanding heritage value to the nation for their association with a number of important Australians including Governor Macquarie, Elizabeth Macquarie, Governor Phillip, Governor Bligh, Bennelong and Francis Greenway. Their significant contributions in the course of Australia's history are well demonstrated within the precinct.

### 6.4.3 Potential impacts

#### 6.4.3.1 Impacts to heritage items in the vicinity

The impact of the proposal on heritage items in the vicinity are summarised in Table 6-8.

**Table 6-8 Assessment of heritage items in the vicinity**

| Heritage items | Discussion of Heritage impacts | Heritage impact |
|---|---|---|
| Mint Building and Hyde Park Barracks | The proposed luminaires will not differ in appearance from existing lighting and will have a neutral impact on setting and views to and from the heritage item. Furthermore, given the physical separation of Prince Albert Road and Macquarie Street between Hyde Park and the vicinity items, it was determined that there will be no visual impacts. | Neutral |
| Sydney Supreme Court House | Given the significant distance and separation between Hyde Park and the Sydney Supreme Court, it is deemed that there will be no detrimental visual impacts. | Neutral |
| Australian Museum | Although the new lighting will increase overall light in the park, the lights are directed to illuminate the park and will not interfere with the lighting scheme of the Australian Museum. | Neutral |
| Great Synagogue | Given the physical separation of Elizabeth Street between Hyde Park and the Great Synagogue, it is deemed that there will be no detrimental visual impacts. The proposed lighting has been deemed to be of a neutral heritage impact on the significance of the vicinity item. | Neutral |
| Former “Australian Consolidated Press” façade | Given the physical separation of Elizabeth Street between Hyde Park and the vicinity item, it is deemed that there will be no detrimental visual impacts. The proposed lighting has been deemed to be of a neutral heritage impact on the significance of the vicinity item. | Neutral |
| St Mary’s Catholic Cathedral and Chapter House | Although the new lighting will increase overall light in the park, the lights are directed to illuminate the park and will not interfere with the lighting scheme of St Mary’s Cathedral. | Neutral |
| Former tram shelter including interior | The proposed lighting type will have no visual change and has been deemed to be of a neutral heritage impact on the significance of the vicinity item and its setting. | Neutral |
| Former Registrar Generals Department Building, including interior | Although the new lighting will increase overall light in the park, the lights are directed to illuminate the park and will not interfere with the lighting scheme of the Former Registrar Generals Department Building. | Neutral |

#### 6.4.3.2 Assessment of heritage and landscape impacts

The impact of the proposal on heritage and landscape items within the proposal area is summarised in Table 6-9.

**Table 6-9 Assessment of heritage and landscape impacts**

| Proposed works | Discussion of heritage impacts | Heritage impact |
|---|---|---|
| Construction | | |
| Busby’s Bore | Archaeological monitoring for various inground service conduit trenching, new cable pits, light pole footings, CCTV/security pits is required in proximity to Busby’s Bore. The proposed works involve limited ground disturbance associated with minor level changes. The works are likely to result in minor, localised impacts on the Busby’s Bore relic. | Minor Adverse/neutral |
| Bondi Ocean Outfall | Archaeological monitoring for inground service conduit trenching, new cable pits, light pole footings and CCTV/security pits, conduit trenching and footings. The proposed works involve limited ground | Minor Adverse/neutral |

| Proposed works | Discussion of heritage impacts | Heritage impact |
|---|---|---|
| Construction | | |
| | disturbance associated with minor level changes. The works are likely to result in minor, localised impacts on the Bondi Ocean Outfall relic. | |
| Sewer vent (the Obelisk) | Lighting is proposed in the greater vicinity of the Obelisk. The proposed lighting has been designed to match the existing 1930s municipal design, and to be neutral and discrete in appearance. The proposed lighting near the Obelisk are part of an accumulated increase in park lighting overall. However, being in close proximity to Elizabeth and Bathurst Streets which have similar tall, pole mounted lighting, there will be no adverse impact on the setting of the item. Overall, the increased lighting will bring about a minor positive impact. | Neutral/minor positive |
| St James Railway Station | The proposed lighting in the vicinity of the St James Railway Station Group will not differ in appearance from existing lighting or location and will have a neutral impact on setting and views to and from the item. The lighting in vicinity of the St James Railway Station Group has been designed to be inconspicuous, painted in neutral colours and discrete in appearance.<br>Overall, the increased lighting will bring about a minor positive impact to the item from its associated security and safety benefits. The item, being in close proximity to Elizabeth and Bathurst Streets which have similar tall, pole mounted lighting and flagpoles, there will be no adverse impact on the setting of the item. | Neutral/Minor positive |
| Museum Railway Station | The proposed lighting in the vicinity of the Museum Railway Station will not differ in appearance from existing lighting or location and will have a neutral impact on setting and views to and from the item. The lighting has been designed to be inconspicuous, painted in neutral colours and discrete in appearance.<br>Overall, the increased lighting will bring about a minor positive impact to the item from its associated security and safety benefits. The proposed lighting will have a neutral impact on the park setting and views to and from the item. | Neutral/Minor positive |
| The Anzac Memorial | Lighting proposed in the vicinity of the Anzac Memorial are setback and do not encroach on the paved area around the memorial or on the memorial itself. The proposed lighting will not impact the Anzac Memorials lighting scheme.<br>Although the new lighting will increase the overall light in the park, the lights are directed to illuminate the park and will not interfere with the lighting scheme of the Anzac Memorial. | Neutral/Minor positive |

#### 6.4.3.3 Historical archaeological impacts

The following proposed construction works have potential to impact on the historical archaeological resource where this has been identified as having potential to survive:

- New CCTV cameras
- New electrical and communications pits (c600mm deep x 600mm wide)
- New communications conduit pathways (2 or 4x 100mm diameter HD UPCV conduit)
- New communications conduit pathway (2 x 50mm diameter HD UPVC conduit)

- Lighting poles with a foundation cage set into a concrete footing likely to be pad or pile footing depending on ground conditions (1800mm and 600 x 600mm wide and 100mm and 1500 x 1500mm wide)
- Inground up lights
- 14 power bollards and electrical cabling
- In-ground pits for ICT and security services (c1500mm deep x 1500mm wide)
- Any new trenching associated with the introduction of services.

The study area has a range of low, moderate and high potential for historical archaeological 'relics' associated with the development of paths and gardens post-dating 1926. The proposed works involve limited ground disturbance associated with minor level changes. Safeguards are in place to mitigate potential impacts from ground disturbance. Furthermore, a Historical Archaeological Research Design has been prepared to inform a program of archaeological investigation during construction (Appendix F). The program of archaeological monitoring would be led by a suitably qualified archaeologist in areas of moderate or high historical archaeological potential to avoid potential impacts to significant archaeological remains. Overall, predicted impacts are considered low.

#### 6.4.3.4 Heritage impacts on Hyde Park

Overall, the proposed park-wide master plan lighting upgrade respects the historic character and aesthetic significance of Hyde Park. The layout of the park, including the important hierarchy of pathways dominated by Central Avenue, is reinforced through the retention of the 1920 concrete standards with opaque white spherical shades. The lighting technology will be changed to ensure improved environmental performance, but the quality and tone of the light emitted will be similar to the warm tones and lux levels currently within the park. There may be some changes to the light and shade on the ground plan along Central Avenue. However, the rhythm and pattern of the lighting standards will remain consistent. The proposed standard lights that will be upgraded in the quadrants within Hyde Park north and south will be higher than the existing standards. The new higher standards will be finished to be visually recessive. To ensure the new lighting keeps in line with the parks significance, the new lighting proposed will be visually recessive, and designed so as not to impact on the significant historic character or aesthetic values of Hyde Park. The heritage impact is assessed to be minor and positive.

#### 6.4.3.5 Impacts on the Governor's Domain and Civic Precinct

The proposal would be located entirely within the boundaries of the National Heritage Listed 'Governor's Domain and Civic Precinct'. Under the EPBC Act, places listed on the National Heritage List are considered Matters of National Environmental Significance (MNES) and must be assessed to determine whether proposed actions would give rise to a significant impact.

Overall, the lighting upgrade has been designed to maintain the significant values of the environment. Further, the works seek to enhance the environmental values of the place through sensitive design responses that have been subject to considerable iterative review and advice to ensure that existing historic fabric is retained. The proposal is necessary to upgrade the electrical services throughout the park and to comply with contemporary standards. The potential impacts of this proposed action have been subject to advice and review throughout the design process. This has to a significant degree mitigated the likelihood of impacts to archaeology, which are not values that are described in the national listing.

While the scale of the proposal is significant given the upgrade works are park-wide, the scale is acceptable relative to the entirety of the broader listed area. The intensity, duration and frequency of the proposal varies contingent on the range of activities planned as part of the program of works. Impacts associated with the proposal would vary dependent on the type of activity. During construction, it is likely there would be visual impacts as well as acoustic impacts associated with trenching and construction.

### 6.4.4 Mitigation measures

The following mitigation measures would apply to the proposal:

NIH1. In areas designated as having nil to low archaeological potential, no further Aboriginal archaeological potential, no further Aboriginal archaeological input is required.

NIH2. If any unexpected archaeological evidence relating to Aboriginal occupation of the site is discovered all activity should cease in the affected area and the nominated archaeologist should also be notified to advise on required action and whether Heritage NSW is to be notified and consulted for further direction. Depending on the nature of the resource and the potential impacts, further assessment and investigation may be required.

NIH3. Given the assessed state significance of potential historical archaeological relics in the vicinity of proposed works, a suitably qualified archaeologist should be on site during any ground disturbance works in areas of the park that have been identified as having historical archaeological potential to mitigate any known and potential impacts to the site's historical archaeological resource.

NIH4. A program of monitoring and recording should be undertaken during ground disturbance works to ensure that historical relics are not disturbed.

NIH5. Should any unexpected archaeological remains be identified during the works program, all activity should cease in the affected area and the nominated archaeologist notified to advise on required action and whether the Heritage NSW is to be notified and consulted for further direction. Depending on the nature of the resource and the potential impacts, further assessment and investigation may be required.

NIH6. CoS will notify the Metropolitan Local Aboriginal Land Council (MLALC) of the current design and documentation for the Hyde Park lighting upgrade works.

NIH7. In the unlikely event that archaeological evidence relating to Aboriginal occupation of the site is discovered the following Aboriginal unexpected finds protocol should be enacted:

a. all the works in the affected area must stop and Heritage NSW must be notified immediately in accordance with Section 89a of the *National Parks and Wildlife Act 1974* (NSW). Aboriginal stakeholders should also be notified at this stage. An archaeologist experienced in the identification of Aboriginal cultural material should inspect the suspected Aboriginal objects to make a positive identification.

b. If the suspected items are not Aboriginal in origin or manufacture (as defined under the NPW Act), the location and items should be recorded. Works may continue.

c. If the objects are confirmed to be Aboriginal objects, the site should be registered as soon as practicable on the Aboriginal Heritage Information Management System (AHIMS) administered by Heritage NSW.

d. If the suspected items are Aboriginal objects, then an AHIP under Section 90 of the NPW Act would be required before works can continue in the area of the identified objects. The extent of any works exclusion zone would need to be determined through discussion with Heritage NSW and Aboriginal community representatives.

e. In the unlikely event that human remains were to be discovered at any time during the works, works must cease immediately in the surrounding area. The findings would need to be reported immediately to the New South Wales Coroner's Office and/or the New South Wales Police.

NIH8. Prior to works commencing, an application under Section 60 of the Heritage Act should be prepared and submitted to the Heritage NSW (as delegate of the NSW Heritage Council) for the proposed works. The HIS should be submitted as part of that application. The application will also require preparation of an Archaeological Research Design (ARD) that includes a methodology outlining how the proposed works will be archaeologically mitigated. Works should be carried out in accordance with the conditions of the Section 63 Approval issued for the study area.

NIH9. The archaeological works should be undertaken in accordance with the archaeological methodology provided in the Archaeological Research Design (ARD) report and any Section 60 permit conditions.

NIH10. An approved program of archaeological monitoring needs to be undertaken by an appropriately qualified archaeologist. The archaeological works should be coordinated with the various proposed lighting design works program components.

NIH11. No excavation or ground disturbance of the subject site can be undertaken prior to the issuing of a Section 60 permit. Heritage NSW is required to assess the application. The statutory timeframe for processing is 40 days from the receipt of a complete application. In the event that further information is requested by the consent authority the clock stops, and the processing period is reset once the application is deemed complete.

NIH12. Prior to the site works commencing, all relevant on site personnel should attend a heritage site induction to ensure that all on site personnel are aware of both their obligations under the Heritage Act and of the role of the archaeologist(s) on site.

NIH13. Works proposed in locations where known State significant items are located (such as Busby Bore) and where potential state significant relics may survive (significant pathways, World War II structural remains etc) will require that archaeological monitoring is co-ordinated with the works program to minimise subsurface impacts and to record any exposed remains.

NIH14. If legible and significant archaeological remains of State significance survive within the site, the Heritage Council of NSW may require these to be retained in situ. Where it is agreed this is not possible, appropriate mitigation strategies would need to be implemented which may include display, signage or other forms of interpretive material.

NIH15. The results of any archaeological investigation at the site should inform interpretive initiatives, where relevant. Opportunities to use investigation results as well as the fabric and artefacts exposed or recovered during the test excavation should be pursued as part of the site presentation and interpretation.

NIH16. Once the preferred supplier for the construction of the lighting upgrade is known by the CoS, the proposed construction program and methodology should be subject to review and advice by a suitably qualified heritage professional.

## 6.5 Indigenous heritage

This Section assesses and describes the impacts of the proposal on Indigenous heritage within and surrounding the proposal area. A Heritage Impact Statement for the Hyde Park Lighting Upgrade was completed by AECOM in June 2022 (Appendix F).

### 6.5.1 Existing environment

The proposal is on Cadigal Country within the Eora Nation. It is part of the deep and continuing cultural landscape that First Nations peoples accessed, managed and used for a range of purposes contingent on its location, available resources, and cultural practices. Subsurface material remains, related to the many phases of human use and occupation by both First Nations people over millennia and subsequently by Europeans and others following British invasion, may survive in-situ within Hyde Park.

Aboriginal and historical archaeology, defined in legislation as ‘objects’; and ‘relics’ respectively, is a potentially significant aspect of a place’s material culture and is linked to the understanding and assessment of heritage values. Whether sub surface deposits are in-situ in original contexts depends to a large degree on the disturbance history of the subject site. Where primary evidence demonstrates there has been significant modification to original soil horizons, the potential for objects and relics to survive in their original contexts is reduced.

An Archaeological and Paleoenvironmental Assessment of the sediments of Hyde Park was carried out by GML and Soil specialist Dr Stephen Gale in June 2021 (Appendix I). The assessment concluded that most of the core samples undertaken possessed clear markers of human activity before European invasion. The core samples taken as part of the assessment also concluded that there was negligible Aboriginal archaeological potential up to 700 mm beneath the ground surface.

A new search of the AHIMS register was undertaken in August 2020 to obtain information on any new Aboriginal objects or places registered within the proposal area or in its immediate surrounds since last checked for the 2014 Hyde Park AMP. The search confirmed that no Aboriginal objects or places have been registered to date within Hyde Park or its immediate surrounds (Appendix F).Despite the absence of Aboriginal items and artefacts due to the impacts of European invasion and urbanisation, the Cadigal People have continued relationship and connection with the Country within and around Hyde Park.

### 6.5.2 Potential impacts

#### 6.5.2.1 Construction

Direct or indirect impacts to items of Indigenous cultural heritage are unlikely as a result of the proposal, as:

- No Aboriginal sites have been previously identified within the proposal area
- The proposal area has previously undergone moderate landscape modification and a moderate level of disturbance from urban development.

If potential Aboriginal objects are encountered during construction for the proposal, the Unexpected Finds Procedure would be implemented.

#### 6.5.2.2 Operation

Once operational, the proposal would not affect Indigenous heritage items or objects.

### 6.5.3 Mitigation measures

The following mitigation measures would apply to the proposal:

IH1. All construction staff would undergo an induction in the recognition of Indigenous cultural heritage material. This training would include information such as the importance of Indigenous cultural heritage material and places to the Indigenous community, as well as the legal implications of removal, disturbance and damage to any Indigenous cultural heritage material and sites

IH2. If unforeseen Indigenous objects are uncovered during construction, appropriate procedure would be followed and works within the vicinity of the find would cease immediately. The Construction Contractor would immediately notify the CoS Proposal Manager and CoS Environmental Officer so they can assist in co-ordinating next steps which are likely to involve consultation with an

Aboriginal heritage consultant, the Department of Planning and Environment (DPE) and the Local Aboriginal Land Council (LALC)

IH3. If human remains are found, work would cease, the site secured and the NSW Police and the DPE notified. Where required, further archaeological investigations and an Aboriginal Heritage Impact Permit would be obtained prior to works recommencing at the location.

## 6.6 Socioeconomic impacts

### 6.6.1 Existing environment

#### 6.6.1.1 Population and growth

The proposal is located within the suburb of Sydney. In 2021, the estimated resident population was 16,667. The population is relatively young, with the median age being 32 years old. According to the Australian Bureau of Statistics (ABS), approximately 58.6 per cent of residents had no registered vehicles, and 32.6 per cent had one. Around 17.7 per cent of the population walked to work, and 8.7 per cent travelled to work by car or as a passenger. The majority of people (39.3 per cent) worked from home in 2021. It is likely that the COVID-19 pandemic influenced the high percentage of people working from home. The population is highly educated, with 49.1 per cent having attended some kind of tertiary education. The population is diverse, with 92.7 per cent of the population identifying as an ethnicity other than Australia (ABS, 2021).

#### 6.6.1.2 Social infrastructure

Social infrastructure refers to community facilities, services and networks that help individuals, families, groups, and communities meet their social needs, maximise their potential for development and enhance community wellbeing.

The suburb of Sydney provides a wide range of community services and facilities catering for local residents and commercial and industrial uses. Surrounding land uses include residential neighbourhoods, retail and commercial centres, education facilities, transport facilities, parks, entertainment precincts, and other services.

Key social infrastructure located near the proposal includes (but is not limited to):

- St James and Museum Station
- Hyde Park
- Educational facilities, including St Mary’s Cathedral College and Sydney Grammar School
- Recreation and leisure facilities, including Sydney Living Museum, Sydney Tower and Australian Museum
- Accommodation including the Sheraton and the Hilton Hotel
- Government buildings, including local, state and federal courts and Fire and Rescue NSW.

### 6.6.2 Potential Impacts

#### 6.6.2.1 Construction

During construction, impacts to the community would primarily include noise, visual amenity and dust generation and impacts on access to Hyde Park for leisure, recreation and its monumental features. Impacts on visual amenity during construction include trenching during conduit installation, resulting in removal of paved and grassed surfaces, temporary fencing around protected trees, removal of lighting poles and stationing of operating machinery plant and equipment.

Impacts on air quality during construction would result in temporary impacts on the community. This impact includes minor increases in dust and emissions during trenching works and the operation of construction plant and equipment.

Construction noise will likely affect nearby residential and other sensitive receivers, as detailed in Section 6.2.

The most substantial socioeconomic impact will likely be limited access to Hyde Park and its leisure and recreational features. Hyde Park is accessed by millions of people each year for its leisure and recreational value and cultural events and activities. Hyde Park also contains several significant monuments, including the war memorial.

Where required for construction, temporary changes to pedestrian access throughout Hyde Park would result in disruption for park users, pedestrians and cyclists. The proposal would cause temporarily limited access to sections of Hyde Park as works progress throughout the park. The proposal would be constructed progressively throughout the area, so it would be unlikely to prevent cultural events from occurring.

As the proposal is located in a public park, the most sensitive receivers are pedestrians and cyclists. Surrounding receivers also include pedestrians that may access the park to reach public transport facilities or business and retail districts around Hyde Park. The extent of those impacts has been outlined within this REF, and mitigation measures detailed in Chapter 7.0 aim to reduce the effects.

It is anticipated that the proposal would pose a low socioeconomic risk. Mitigation measures are in place to manage potential socioeconomic risks.

#### 6.6.2.2 Operation

The proposal would improve the park's lighting and (real and perceived) security. It would enhance the park’s significant monuments, gardens and built form, improve safety and security, reduce energy usage by about 6%, encourage night time use and support cultural events. This would encourage more access and use of Hyde Park and enhance the park’s lighting aesthetic.

The proposal would also provide benefits for users of Hyde Park, pedestrians and cyclists with improved lighting and CCTV.

The operational Proposal is anticipated to have a beneficial socioeconomic impact.

### 6.6.3 Mitigation measures

A number of environmental safeguards would be implemented to minimise potential impacts on the community with a particular focus on keeping the community informed, including:

SE1. Mitigation measures in respect of potential impacts on amenity (e.g. noise, dust and visual) as listed in Chapter 7.0

SE2. Stage construction of the proposal throughout the proposal area to limit the construction footprint

SE3. Feedback through the submissions process to facilitate opportunities for the community and stakeholders to have input into the proposal, where practicable

SE4. Informing the community of construction progress, activities and impacts in accordance with the Community Liaison Management Plan.

## 6.7 Contamination, landform, geology and soils

### 6.7.1 Existing environment

#### 6.7.1.1 Landform, geology and soils

The elevation of the proposal areas is relatively flat with slight variations. The proposal area has an Australian Height Datum (AHD) between approximately 51 m and 33 m.

Land and soil capability mapping for NSW indicates that the proposal is located on soils with a 4.5 capability rating, meaning that there are moderate to severe limitations (NSW Government, 2022). The proposal is located on yellow podzolic soils, which are less fertile (NSW Government, 2022). The hydrologic soil group the proposal is located in is class C, meaning that the soils have slow infiltration (NSW Government, 2022).

Above the recorded soil and geological landscape, the proposal area consists of human-imported fill material, such as concrete and footpath materials, as a result of the construction of pedestrian and cyclist paths throughout the proposal.

Given the proposals location within a centralised urban site, it is expected that there may be some areas where lead levels may be elevated. Samples undertaken by CoS within Hyde Park confirm that soils within the park can be classified as general solid waste.

#### 6.7.1.2 Acid sulfate soils

Acid sulfate soil (ASS) risk maps have been obtained from the NSW ePlanning Spatial Viewer website (NSW Government, n.d.). Based on the ASS map, the proposal area is located on land mapped as containing Class 5 ASS. According to the DPE Environment Planning Instrument – ASS, 'ASS are not typically found in Class 5 areas. Areas classified as Class 5 are located within 500 m of adjacent class 1,2,3 or 4 land' (DPIE, n.d.).

#### 6.7.1.3 Contamination

A search of the NSW EPA Contaminated Land Register on 18 July 2022 identified no contaminated sites within or nearby the proposal area (Appendix J) (NSW EPA, 2022). The proposal area has not been declared as significantly contaminated and is not regulated under the CLM Act. The closest contaminated site is the Lawrence Dry Cleaners at 887-893 Bourke Street, Waterloo, approximately 2.5 km away.

Given the urbanised nature of the proposal area, there is potential for contaminants to be present within the soils of Hyde Park, especially within proximity to surrounding roads. However, samples undertaken by CoS within Hyde Park confirm that soils within the park can be classified as general solid waste and no asbestos was identified.

### 6.7.2 Potential Impacts

#### 6.7.2.1 Construction

##### 6.7.2.1.1 Soil disturbance, erosion and sedimentation

The proposal would involve trenching works and surface works, such as removing pavement for laying electrical conduits and replacing lighting and CCTV poles. These works would reach a maximum depth of up to 1800mm. If not adequately managed, these works could result in the following risks:

- Erosion of exposed soil and stockpiled materials
- Dust generation from excavation and vehicle movements over exposed soil
- Increase in sediment loads entering the stormwater system and/or local runoff.

The risk of the above impacts is increased during high wind, rainfall events and work on or adjacent to downward sloping surfaces. These risks have implications for other environmental factors, including biodiversity, water quality and air quality. Where sediment loads in local waterways are increased due to erosion of materials, it would alter the existing water quality conditions, which may negatively impact aquatic flora and fauna.

With no mitigation measures in place, and in inclement weather conditions involving rain and/or high-velocity wind, the impact of those risks is considered to be a temporary, moderate negative impact. However, through the implementation of the mitigation measures listed in Section 6.7.3, despite weather conditions, the risks associated with soil disturbance, erosion and sedimentation in the proposal area are considered to be low.

##### 6.7.2.1.2 Acid Sulfate Soils

It is unlikely that ASS would be encountered during the construction of the proposal, given that Class 5 ASS are profiled to be present in the area. However, the absence of ASS within the proposal area has not been confirmed through field testing.

Should suspected ASS be uncovered during excavation activities at the proposal area, the potential impact would be managed by guidelines identified in the *Acid Sulfate Soils Assessment Guidelines* (1998).

##### 6.7.2.1.3 Contamination

Excavation can potentially expose contaminants within the soil underlying the road surface, which, if not appropriately managed, can present a health risk concern to construction workers and the community.

Contaminant exposure could pose an environmental risk if they enter nearby waterways via stormwater infrastructure.

Potential contamination impacts may arise from using fuels, lubricants and chemicals for construction plant and equipment for the proposal. Fuels, lubricants and chemicals have the potential to be spilled during construction and transfer offsite to adjacent properties or may contaminate the stormwater system.

The risk of impacts from contamination (if any) on human health and the receiving environment from construction activities would be reduced and managed through the mitigation measures identified in Section 6.7.3. Further, the extent of potential contamination is unlikely to be significant enough to preclude the proposal from going ahead, as there would be no change to the existing land use post-development. Overall the impact resulting from contamination within the proposal area is considered to be low. A list of mitigation measures have been provided below to mitigate potential contamination risks identified.

#### 6.7.2.2 Operation

During operation, general, non-periodic maintenance is likely to be required to ensure the continued, efficient operation of lighting and CCTV. Maintenance of these services is unlikely to result in accidental fuel, oil or chemical spills. If this were to occur, impacts would be mitigated by implementing mitigation measures identified in Section 6.7.3 and following the appropriate protocols for those maintenance works. Overall, the operational Proposal poses a very low risk of contamination, landform, geology or soil impact.

### 6.7.3 Mitigation measures

The following mitigation measures would apply to the proposal:

CLGS1. Prior to the commencement of works, a site-specific Erosion and Sediment Control Plan would be prepared in accordance with the ‘Blue Book’ *Managing Urban Stormwater: Soils and Construction Guidelines* and updated throughout construction so it remains relevant to the activities. The Erosion and Sediment Control Plan measures would be implemented prior to the commencement of works and maintained throughout construction

CLGS2. Erosion and sediment control measures would be established prior to any site establishment activities and would be maintained and regularly inspected (particularly following rainfall events) to ensure their ongoing functionality. These measures would be maintained and left in place until the works are complete and areas are stabilised

CLGS3. Vehicles and machinery would be properly maintained and routinely inspected to minimise the risk of fuel/oil leaks. Construction plant, vehicles and equipment would also be refuelled offsite or in a designated refuelling area

CLGS4. All fuels, chemicals and hazardous liquids would be stored within an impervious bunded area in accordance with AS and EPA Guidelines

CLGS5. An appropriate Unexpected Finds Protocol, considering potential contaminants, would be included in the CEMP. Procedures for handling asbestos-containing materials, including licensed contractor involvement as required, record keeping, site personnel awareness and waste disposal to be undertaken in accordance with SafeWork NSW requirements

CLGS6. All spoil to be removed from site would be tested to confirm the presence of any contamination. Any contaminated spoil would be disposed of at an appropriately licensed facility

CLGS7. All spoil and waste must be classified in accordance with the *Waste Classification Guidelines Part 1: Classifying waste* (EPA, 2014) prior to disposal

CLGS8. Hydrocarbons and chemicals such as fuels, lubricants and oils would be stored on-site in dedicated facilities such as secure sheds, containers, storage tanks and proprietary hazardous substance cupboards, and in accordance with the applicable Safety Data Sheet (SDS)

CLGS9. In the event of a pollution incident, works would cease in the immediate vicinity and the Contractor would immediately notify the CoS Proposal Manager and the CoS Environmental Officer. The EPA would be notified by CoS if required, in accordance with Part 5.7 of the POEO Act

CLGS10. Spill kits appropriate to products used on site must be readily available

CLGS11. Spills of fuel, oil, chemicals or the like would be cleaned immediately, and the site environmental manager would be notified of the location of the incident, the extent of the incident and the type of material spilled

CLGS12. Should suspected ASS be uncovered during excavation activities at the proposal area, the potential impact would be managed by guidelines identified in the *Acid Sulfate Soils Assessment Guidelines* (1998).

## 6.8 Air quality

### 6.8.1 Existing environment

The air quality of Sydney is comparable with other Australian cities and is relatively good compared to other urban regions overseas. Concentrations of air pollutants, including carbon monoxide (CO), nitrogen dioxide ($NO_2$), sulfur dioxide ($SO_2$), Ozone ($O_3$), particulate matter (PM), and Pb, are low and stable and consistently meet the national air quality standards, as of 28 July 2022 (DPIE, 2022).

A search of the National Pollutant Inventory (NPI) database was undertaken on 13 July 2022 (Appendix K) (DPIE, 2022). Searches were conducted within an extent of 1 km of the proposal. The database identified no NPI facilities. Therefore it is unlikely that receivers within the vicinity of the proposal would be affected by pollution-emitting facilities.

### 6.8.2 Potential impacts

#### 6.8.2.1 Construction

Temporary air quality impacts that have the potential to occur during construction include minor increases in dust and emissions of CO, $SO_2$, PM, $NO_2$, volatile organic compounds and other substances associated with excavation and the combustion of diesel fuel and petrol from construction plant and equipment.

Anticipated sources of dust and dust-generating activities include:

- Trenching to access pits and conduits
- Loading and transfer of material from trucks
- Other general construction activities (such as cutting of concrete and or demolition of paving areas).

The air quality impact associated with the above activities would be localised and generally contained and managed within the proposal area. These impacts would be small-scale, involving small numbers of machinery, vehicles and equipment. They would also be intermittent and temporary, being restricted to construction hours. Appropriate measures would be established to manage dust emissions from construction and demolition works. On this basis, the overall significance of air quality impacts associated with the construction of the proposal is expected to be minor.

#### 6.8.2.2 Operation

The proposal is anticipated to have no impacts on air quality in the proposal area.

### 6.8.3 Mitigation measures

The following mitigation measures would apply to the proposal:

AQ1. Air quality management and monitoring for the proposal would be undertaken in accordance with relevant CoS guidelines

AQ2. Methods for the management of emissions would be incorporated into Proposal inductions, training and pre-start/toolbox talks

AQ3. Plant and machinery would be regularly checked and maintained in a proper and efficient condition. Plant and machinery would be switched off when not in use and not left idling

AQ4. Vehicle and machinery movements during construction would be restricted to designated areas and sealed/compacted surfaces where practicable

AQ5. To minimise the generation of dust from construction activities, the following measures would be implemented:

- Apply water (or alternate measures) to exposed surfaces (e.g. Unpaved roads, stockpiles, hardstand areas and other exposed surfaces)
- Cover stockpiles when not in use
- Appropriately cover loads on trucks transporting material to and from the construction site and securely fix tailgates of road transport trucks prior to loading and immediately after unloading
- Prevent mud and dirt from being tracked onto sealed road/path surfaces.

## 6.9 Biodiversity

### 6.9.1 Existing environment

#### 6.9.1.1 Landscape context

The proposal is located within Sydney's CBD. The surrounding area is heavily urbanised and dominated by roads and high-density urban development.

The proposal area is zoned for Public Recreation and is a green and treescape space. The proposal area has concrete paths throughout and other paved areas at heritage items and other points of interest. Given the isolated nature of the proposal area within a highly urbanised region and the limited diversity in flora species and structure, it is unlikely that the park would have high biodiversity value.

#### 6.9.1.2 Database searches

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

A search of the Atlas of NSW Wildlife (NSW BioNet) on 13 July 2022 found records of 70 threatened flora and fauna species listed under the BC Act within an area of 10 km x 10 km centres on the proposal area (Appendix L) (NSW Government , 2022).

A further search was undertaken using the EPBC Act Protected Matters Search Tool on 13 July 2022 (Appendix M) (DAWE, 2020). The search was undertaken for the proposal area and a 1 km buffer around the proposal area. The search identified the following:

- Eight listed threatened ecological communities
- 77 listed threatened species
- 68 listed migratory species.

#### 6.9.1.3 Flora

An Arboricultural Impact Assessment was carried out by treeIQ for the proposal (Appendix N) (TreeIQ, 2022). The park's most significant historical element is the avenue of Hill's Figs, linking the Archibald Fountain in Hyde Park North and the ANZAC War Memorial in Hyde Park South. The avenue was planted in the early 1930s. A number of individual trees located in the proposal area are also significant. There are eleven *Ficus macrophylla* (Moreton Bay Fig) that were planted prior to 1928, at which time most of the other original plantings were removed to allow for the construction of the underground railway. One of these trees is located in Hyde Park North, just north of the St James Railway Station entrance, and the other ten trees are found in Hyde Park South. One hundred and thirty trees within the proposal area are listed on the CoS Register of Significant Trees.

#### 6.9.1.4 Fauna

The proposal area is located within an area subject to ongoing human activity, including pedestrian movements and large events that attract hundreds of people at any one time throughout the day and night. As such, the potential habitat value for threatened or migratory fauna is minimal.

Despite this, fauna common to Sydney's inner-city suburbs may be present such as birds, possums, flying foxes, bats and other rodents.

### *6.9.2* Pathogens and soil borne diseases

Hyde Park is widely affected by the plant pathogens *Phytophthora* and *Armillaria* and strict hygiene protocols should be implemented to prevent movement of potentially contaminated soils and plant material around the park or wider area.

**Table 6-10 Spread of *Phytophthora* and *Armillaria***

| Pathogen | How it spreads |
|---|---|
| *Phytophthora cinnamomi* | • Spreads in soil and water, and from infected plant material<br>• Key issue is that it stays in the soil, and you can't eradicate it once infected<br>• Causes root rot (primary symptom). Evident in Dieback (secondary symptom)<br>• As below ground it's hard to detect, and can take a long time for symptoms to show<br>• Doesn't normally infect the plant material over 2m up the tree. |
| *Phytophthora on Plane trees* | • Spreads through the soil, and mostly needs a wound to enter tree<br>• Unusual, as it's not known to be a root decay issue, but impacts living tissue around the trunk<br>• Evident in canker at the base of the tree trunk, some bleeding, and/or discolouration just inside the bark. |
| *Armillaria* | • Spreads by white spores and through infected plant tissue (e.g. root to root contact)<br>• Not known to be soil borne, remains in plant material<br>• Look for mushrooms (end May to early July), mycelia, or an upside down V on trunk (up to 2m)<br>• Symptomless, dieback and defoliation, rots and lesions, fruiting structures, trunk or limb failure. |

### 6.9.3 Potential impacts

#### 6.9.3.1 Construction

The proposed lighting/CCTV layout is extensive covering all areas of the park and falls within the tree protection zone (TPZ) and structural root zone (SRZ) areas of many trees, as shown on Figure 6-12 and Figure 6-13. AS 4970 (2009) Protection of Trees on Development Sites (AS-4970) defines the TPZ as the minimum area required for the viability of the tree over the long term whilst the SRZ is defined as the minimum area required for the stability of the tree. Therefore the construction of the proposal poses risks to the viability of some trees throughout the proposal area.

A number of potential conflicts between light poles and tree canopies have been identified, which would require either pruning or relocation of light poles. Trees 104N, 117N, 179N, 212N, 43S, 118S and 352S would require minor pruning to provide clearance from new light poles (refer to Figure 6-12, Figure 6-13 and Appendix N). The majority of the works could be undertaken from ground level with a manual pole pruner/pole saw or, for larger diameter branches, from an elevated working platform. Any canopy work would be notified to the CoS for action and approval.

There would be a small degree of direct disturbance to fauna during the construction phase due to visual occupation of sites nearby trees and other habitats, as well as disturbance resulting from construction noise and other effects such as temporary lighting. The proposal may impact common fauna, including birds, possums, flying foxes, bats, and other rodents, due to noise and lighting during construction.

#### 6.9.3.2 Operation

The potential for further operational impacts on biodiversity due to the proposal would be limited and therefore considered negligible.

### 6.9.4 Mitigation measures

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

BIO1. All workers are to be provided with an environmental induction prior to commencing work onsite. This induction would include information on the protection measures to be implemented to protect vegetation, penalties for breaches and locations of areas of sensitivity

BIO2. Noise impacts are to be minimised in accordance with Roads and Maritime Construction Noise Estimator to reduce direct disturbance to fauna

BIO3. Construction lighting towers are to be placed and directed away from trees where feasible to limit direct disturbance to fauna

BIO4. Disturbance of vegetation is to be limited to the minimum amount necessary to construct the proposal. No trees are planned to be removed. Trees in the proposal area would be protected through temporary protection measures discussed below:

- It is assumed that all works associated with the proposal would be undertaken within a fenced works zone designed to exclude the public. No tree should be included within the fenced works zone. The sections of TPZ areas which fall within the fenced works zone should have ground protection installed in the form of road plates, ground mats or plywood sheeting to prevent soil compaction/surface root damage. Machinery should work from areas of ground protection or existing intact pavement at all times
- Demolition works within TPZ areas should utilise tree-sensitive methods, ensuring demolition machinery/equipment does not contact any part of a tree. Structures within an SRZ can contribute to tree stability by providing ballast to the rootplate or acting as a stop to the overturning of the rootplate. Where required by the Project Arborist, existing underground structures and sub-base materials should be left in situ and reused
- Pavement surfaces to be demolished within the TPZ areas should be carefully broken up in small sections using a hand-operated pneumatic/electric breaker, and waste material should be removed by hand/hand tools. Wheelbarrow movements for the removal of the pavement should remain on areas of existing intact pavement or ground protection only. Wheelbarrows shall not be positioned on the exposed surfaces and sub-base materials. Where pavement cutting is required within TPZ areas, the depth of the pavement surface should be established by a series of trial cuts undertaken outside of the TPZ areas. No over-cutting of the existing pavement surface is permitted
- Wherever possible, existing sub-base materials within TPZ areas shall remain in-situ. Where the existing sub-base is to be removed, these works shall be undertaken by hand/hand tools, ensuring that tree roots are retained and protected
- The removal of mulch and turf within SRZ areas should be undertaken using hand tools. For larger areas outside of the SRZ areas, mulch and turf may be carefully removed using a compact excavator. The compact excavator (<2T) should be fitted with a flat-bladed bucket should be guided by a spotter at all times (<2T). The underlying soil profile must remain undisturbed. Exposed roots greater than 25 mm in diameter should be protected from damage
- Trenching for conduit installation should be undertaken using a combination of hand and compact excavator methods. The compact excavator (<2T) should be fitted with a flat-bladed bucket should be guided by a spotter at all times. Where roots greater than 25 mm in diameter are encountered, the spotter should expose these roots by hand excavation and the conduits should be installed under or around the roots. The pruning of roots greater than 25 mm in diameter is only permissible when approved by the

proposal Arborist. Following installation of conduits/cables, excavated trenches should be backfilled with a certified 80/20 washed river sand/screened topsoil blend

- The supplied plans show conduits running through the SRZ areas of Trees 100N, 217N, 279N, 39S, 112S, 125S, 133S, 144S, 186S, 198S, 201S, 204S, 238S, 249S, 297S, 299S, 301S, 309S, 311S, 323S, 325S and 390S. To minimise the potential for damage to structural roots, conduit installation works should be undertaken using the excavation methods detailed above and should be directly supervised by the Project Arborist
- Where possible, existing footings within TPZ areas should either be retained and reused or decommissioned and left in situ to minimise disturbance of the soil profile. Where new footings are required, the footing location should be excavated (using the methods outlined above) to a maximum depth of 1,800 mm. Where roots greater than 25 mm in diameter are encountered, the spotter should expose these roots by hand excavation for assessment by the proposal Arborist. The pruning of roots greater than 25 mm in diameter is only permissible when approved by the proposal Arborist. Where significant roots are present which cannot be pruned, the footing location should be adjusted or modified accordingly.
- The installation of plants within the TPZ areas should be undertaken using hand tools, and roots greater than 25 mm in diameter should be protected.
- It should be noted that Hyde Park is widely affected by the plant pathogens *Phytophthora* and *Armillaria*, and strict hygiene protocols should be implemented to prevent the movement of potentially contaminated soils and plant material around the park or wider area. Excavated soils and plant material should be disposed of at a registered landfill site. On completion of each section of the works, all tools and machinery that have been in contact with soil should be washed down and disinfected with a 10% bleach solution to minimise the potential spread of soil-borne pathogens. Washing down should be undertaken in-situ to prevent the movement of soil and potential pathogens.
- Trees 104N, 117N, 179N, 212N, 43S, 118S and 352S will require minor pruning to provide clearance from new light poles. The majority of the works could be undertaken from ground level with a manual pole pruner/pole saw or for larger diameter branches, from an elevated working platform.
- Pruning works should be carried out by a Practicing Arborist. The Practicing Arborist should hold a minimum qualification equivalent (using the Australian Qualifications Framework) of Level 3 or above, in Arboriculture or its recognised equivalent. The Practicing Arborist should have a minimum of 3 years' experience in practical Arboriculture. Pruning work should be undertaken in accordance with *Australian Standard 4373: Pruning of Amenity Trees* (2007), *Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work* (2016) and other applicable legislation and codes.

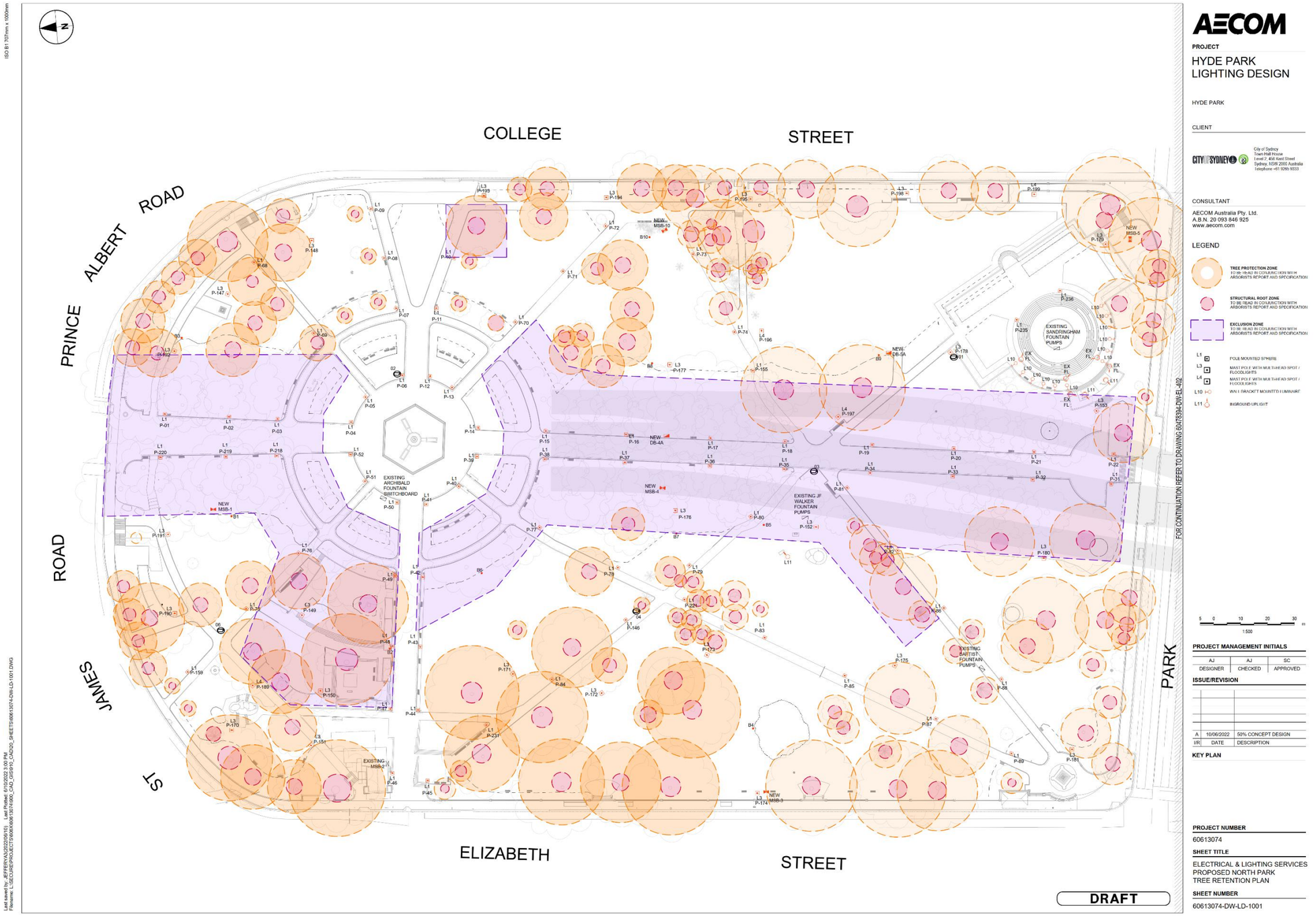
BIO5. Should the detailed design or onsite works determine the need to remove or trim any additional trees, which have not been identified in the REF, the Construction Contractor is required to complete a CoS Tree Removal Application Form and submit it to CoS for approval.

BIO6. *Phytophthora* and *Armillaria* will be managed through the following hygiene protocols.

- Excavated soils and plant material should be disposed of at a registered landfill site
- On completion of each section of the works, all tools and machinery that have been in contact with soil should be washed down and disinfected with a 10% bleach solution to minimise the potential spread of soil borne pathogens
- Washing down should be undertaken in-situ to prevent movement of soil and potential pathogens.

BIO7. Before commencement of works the following hygiene measures would be implemented when dealing with infected trees:

- Check for infected trees planned for works and schedule all infected trees together where feasible
- Review the amount of chip or soil / grindings in the trucks, and consider dumping uninfected load before chipping or loading in the infected materials
- Ensure there is enough disinfectant for the site.




AECOM

**PROJECT**

HYDE PARK
LIGHTING DESIGN

HYDE PARK

CLIENT

City of Sydney
Town Hall House
Level 2, 456 Kent Street
Sydney, NSW 2000 Australia
Telephone +61 9265 9333

CONSULTANT

AECOM Australia Pty. Ltd.
A.B.N. 20 093 846 925
www.aecom.com

LEGEND

- TREE PROTECTION ZONE — TO BE READ IN CONJUNCTION WITH ARBORISTS REPORT AND SPECIFICATION
- STRUCTURAL ROOT ZONE — TO BE READ IN CONJUNCTION WITH ARBORISTS REPORT AND SPECIFICATION
- EXCLUSION ZONE — TO BE READ IN CONJUNCTION WITH ARBORISTS REPORT AND SPECIFICATION
- L1 — POLE MOUNTED SPHERE
- L3 — MAST POLE WITH MULTI-HEAD SPOT / FLOODLIGHTS
- L4 — MAST POLE WITH MULTI-HEAD SPOT / FLOODLIGHTS
- L10 — WALL BRACKET MOUNTED LUMINAIRE
- L11 — INGROUND UPLIGHT

5 0 10 20 30 m
1:500

**PROJECT MANAGEMENT INITIALS**

| AJ | AJ | SC |
|---|---|---|
| DESIGNER | CHECKED | APPROVED |

**ISSUE/REVISION**

| I/R | DATE | DESCRIPTION |
|---|---|---|
| A | 10/06/2022 | 50% CONCEPT DESIGN |

**KEY PLAN**

**PROJECT NUMBER**

60613074

**SHEET TITLE**

ELECTRICAL & LIGHTING SERVICES
PROPOSED NORTH PARK
TREE RETENTION PLAN

**SHEET NUMBER**

60613074-DW-LD-1001

**Figure 6-12 TPZ/SRZ of trees present in Hyde Park North**


**Figure 6-13 TPZ/SRZ of trees present within Hyde Park South**

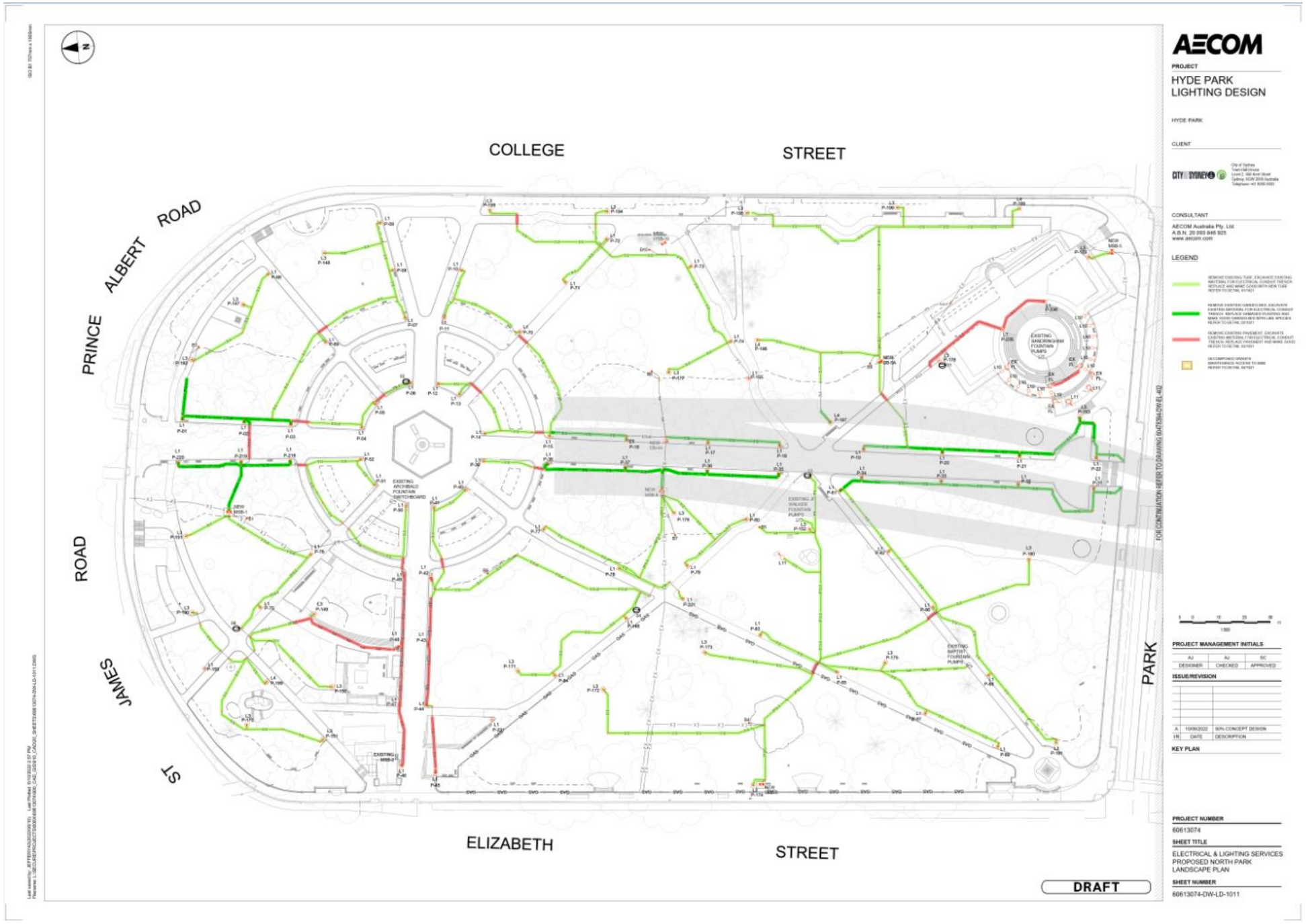



**Figure 6-14 Trenching works for electrical pit conduits in Hyde Park North**

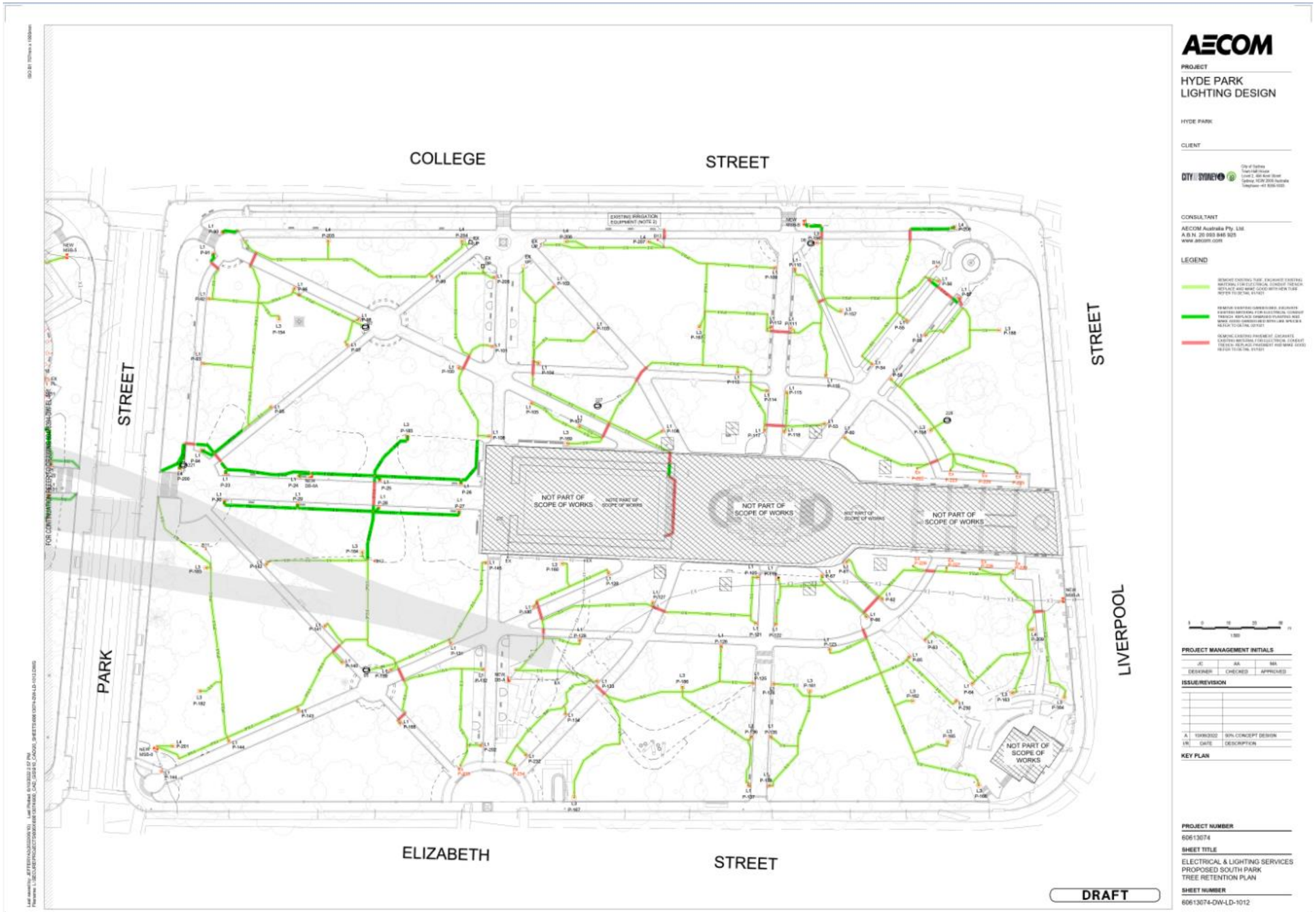



**Figure 6-15 Trenching works for electrical pit conduits in Hyde Park South**

## 6.10 Hydrology and water quality

### 6.10.1 Existing environment

The nearest watercourse to the proposal area is Sydney Harbour, located about 670 m to the northeast and flows into the Pacific Ocean.

The proposal is in an area where urban development has heavily modified soils. The catchment is highly urbanised and contains a high proportion of impervious surfaces. Sydney Harbour and its catchment are in a highly degraded condition. Stormwater that drains to Sydney Harbour is generally poor and often contributes to algal blooms. Common urban stormwater pollutants are likely to exist.

As outlined in Section 6.7.1, a review of the list of NSW Contaminated Sites notified to the EPA as of 18 July 2022 identified no contaminated sites within the proposal area. The closest contaminated site is the Lawrence Dry Cleaners at 887-893 Bourke Street, Waterloo, approximately 1 km away (Appendix J).

### 6.10.2 Potential impacts

#### 6.10.2.1 Construction

The proposal would have a minor effect on an already modified landform. Changes would be limited to electrical conduits, lighting and CCTV within the proposal area. The construction phase of the proposal has the potential to impact surface water quality should construction materials enter a local stormwater system. Impacts may include:

- Accidental spills of fuels, oils or other chemicals from construction vehicles or equipment
- Sediment from excavated and disturbed areas and stockpiles generated during rainfall events
- Release of hazardous materials due to wind or water erosion of contaminated spoil/fill materials.

Spills and leaks would be managed by maintaining equipment and conducting activities with the potential to cause a spill in a safe manner. Potential impacts on surface water quality during the construction of the proposal would be similar to those experienced for other urban construction projects and are considered manageable with the application of mitigation measures.

Flood Planning maps on the NSW DPE's ePlanning Spatial Viewer tool do not identify the proposal area to be within a flood planning zone (NSW Government, n.d.). The proposal area is not located in a flood planning area; however, construction flooding and drainage impacts could potentially arise as a result of the following:

- Drainage infrastructure may become blocked (e.g. by soil, vegetation, waste) or temporarily diverted due to construction activities. Temporary disruption to local drainage lines may result in localised flooding in parts of the proposal area
- Removal of existing pavement could divert flow away from designed drainage structures and into new receiving areas. Diverting drainage lines may also create localised areas of flooding and scour unless managed appropriately.

Utility relocation is not likely to change existing flow patterns or the flooding regime. The construction contractor would ensure that all existing drainage would remain operational until the new drainage for the proposal has been constructed.

#### 6.10.2.2 Operation

The operational Proposal would not result in any exposure of soil or increase in impervious surfaces. Replacement/additional conduits, lighting, and CCTV would not alter the existing drainage regime. Therefore, no impacts on hydrology, water quality or drainage are anticipated during the operation of the proposal.

### 6.10.3 Mitigation measures

The following mitigation measures are recommended to minimise the potential impacts on hydrology and water quality management:

HWQ1. Temporary drainage or drainage diversions would be installed, so that stormwater function is not impeded during construction. An Erosion and Sedimentation Control Plan (ESCP) would be prepared in accordance with the Blue Book prior to construction

HWQ2. Disturbed surfaces would be compacted and stabilised in anticipation of a rain event to reduce the potential for erosion

HWQ3. Any material deposited onto pavements would be swept and removed at the end of each working shift and prior to rainfall

HWQ4. Fuels, oils and other chemicals would not be stored in the vicinity of the construction site wherever possible

HWQ5. Emergency wet and dry spill kits would be kept on site at all times and all staff would be made aware of the location of the spill kit and trained in its use.

## 6.11 Waste

### 6.11.1 Existing environment

The waste regulatory framework is administered under the POEO Act and the WARR Act, as outlined in Table 4-2. The purpose of these acts is to prevent the degradation of the environment, eliminate harmful wastes, reduce the amount of waste generated and establish priorities for waste reuse, recovery and recycling. The WARR Act establishes a waste hierarchy, which comprises the following principles

- Avoidance of waste – Minimising the amount of waste generated during construction by avoiding unnecessary resource consumption (i.e. avoiding the use of inefficient plant and construction equipment and avoiding materials with excess embodied energy, waste and excessive packaging)
- Resource recovery – Reusing, reprocessing and recycling waste products generated during construction to minimise the amount of waste requiring disposal
- Disposal – Where resources cannot be recovered, they would be appropriately disposed of to minimise the potential adverse environmental impacts likely to be associated with their disposal.

By adopting the WARR Act principles, CoS encourages the most efficient use of resources and reduces cost and environmental harm in accordance with the principles of ecologically sustainable development.

The CoS is committed to recycling and reusing 80% of waste generated during construction and this remains a priority with the proposal.

### 6.11.2 Potential impacts

#### 6.11.2.1 Construction

##### 6.11.2.1.1 Waste generating activities

There is the potential for waste generation during Proposal construction, arising primarily from the following activities:

- Demolition of existing footpaths
- Relocation and/or installation of utilities and services
- Replacement of existing lighting and CCTV infrastructure.

As outlined in Section 3.1.4, earthworks would be minor and involve removing the surface layer of footpaths overlaying the proposed installation of conduits, lighting and CCTV. Therefore, the waste the proposal is anticipated to produce would have a low environmental impact.

#### 6.11.2.1.2 Waste streams

The quantities of waste generated during construction are likely to be minor, based on the nature of the works and the earthworks generating excess spoil described in Section 3.1.4. Waste material anticipated to accumulate during construction is classified as 'general solid waste (non-putrescible)'.

Waste streams likely to be generated during the construction stage include:

- Construction and demolition waste from the removal of existing footpaths and utility relocation (soil, concrete, metal)
- Excess construction materials
- Excess spoil from excavations which is unsuitable for reuse
- Lighting and CCTV materials
- Green waste from vegetation removal
- Waste water from wash-down areas
- Paper and packaging wastes from materials brought to site
- Redundant erosion and sediment controls
- General and domestic waste from the construction ancillary facility and laydown areas.

In relation to the proposal, there would be few opportunities for the reuse of materials, given the nature of the activities proposed. Spoil and topsoil generated from earthworks could potentially be re-used in some locations if it meets the appropriate soil quality and classification standards for re-use.

Materials and spoil declared unsuitable to be reused would be classified in accordance with the *Waste Classification Guidelines* (EPA 2014) and disposed of at an approved recycling or waste disposal facility, depending on whether they can be reused or not.

#### 6.11.2.1.3 Resource use

The materials required during the proposed construction works are not currently restricted resources, although materials such as metals and fuels are considered non-renewable and should be used conservatively. Where possible, materials would be reused and recycled.

Overall the proposal poses a very low risk in terms of waste management. Mitigation measures are in place to minimise potential impacts.

### 6.11.2.2 Operation

The operation of the proposal would pose a negligible risk in terms of waste generation.

### 6.11.3 Mitigation measures

The following mitigation measures are recommended to minimise the potential impacts on waste management:

W1. A WMP would be prepared and implemented as part of the CEMP. The WMP would include but not be limited to:

- Measures to avoid and minimise waste associated with the proposal
- Classification of wastes and management options (re-use, recycle, stockpile, disposal) in accordance with the *Waste Classification Guidelines* (EPA, 2014) and NSW legislative requirements
- Statutory approvals required for managing both on and off-site waste, or application of any relevant resource recovery exemptions
- Procedures for storage, transport and disposal
- Monitoring, record keeping and reporting
- The WMP would follow the WARR Act and *Waste Classification Guidelines* (EPA, 2014).

W2. A far as practicable, construction materials shall be sourced within the Sydney region so as to reduce transport costs, including fuel usage

W3. The hierarchy of waste management shall be implemented via:

- Separation of general wastes, recyclable/reusable materials, and hazardous wastes to avoid mixing with other materials/wastes
- Regular housekeeping and servicing of waste storages
- General waste and recycling receptacles would be provided onsite. Waste would be transported to an appropriately licensed waste disposal and/or recycling facility
- Wastes (including green waste) shall not be burnt
- Weed removal activities, including removal of weeds prior to tree removal works to allow non-weed infested mulched material to be reused on site
- Potential for mulching and reuse of cleared vegetation would be balanced against the presence of noxious weeds and compliance with necessary weed control measures

W4. Waste disposed of offsite shall be taken to a waste facility that is licenced under the POEO Act to receive wastes of that type

W5. Work areas would be kept free of rubbish, with appropriate receptacles provided for waste management and recycling, in accordance with the CoS *Managing waste in public places – local approvals policy*

W6. Divert as much waste as practical from landfill as practicable and where possible prioritise recycled materials in procurement where cost and quality requirements are met.

## 6.12 Climate change and greenhouse gas emissions

### 6.12.1 Climate change

The dynamic nature of our climate system indicates a need to focus attention on how to adapt to climate change and understand the limitations of adaptation.

Sydney may be affected in the future by an increase in maximum and minimum temperatures across all seasons, more days of extreme heat and heatwaves, changes in seasonal rainfall patterns and increased intensity of extreme rainfall events and increased drought conditions.

Impacts associated with extreme heat include heat stress in park users and landscaped vegetation. Measures such as providing and retaining landscaping to increase shade should be reviewed for feasibility during detailed design to help reduce impacts from extreme heat.

Climate change is also expected to lead to an increase in average rainfall, extreme rainfall, and average recurrence interval for hail events. Associated impacts include localised flooding and surface flow, damage to aboveground structures where hail and damaging winds occur with rainfall, and damage to vegetation due to overwatering and impact damage. Adequate drainage within Hyde Park would help reduce impacts from extreme rainfall.

### 6.12.2 Greenhouse gas emissions

An increase in GHG emissions, primarily $CO_2$, would be expected during the construction of the proposal from exhaust emissions from construction machinery and vehicles transporting materials and personnel.

Due to the small scale of the proposal and the temporary nature of the construction works, it is considered that GHG emissions resulting from construction would be minimal. Furthermore, GHG emissions generated during construction would be kept to a minimum through the implementation of the standard mitigation measures detailed in Chapter 7.0. It is anticipated that once operational, the proposal may result in a 6% reduction in energy usage due to the replacement of existing fluorescent lightbulbs with LED lighting. As such, there would be a minor positive impact in this regard.

## 6.13 Cumulative impacts

The delivery of the proposal has the potential to result in cumulative impacts. This would primarily occur during the construction stage of the proposal due to coinciding development projects in the area. Collectively, the proposal and nearby developments could result in increased cumulative impacts on the local community related to traffic, noise and air quality impacts during construction.

### 6.13.1 Coinciding projects

#### 6.13.1.1 PAN-133720 Replace existing public toilets with new public toilets, and associated digital advertising signage panels and green panels in Hyde Park and Taylor Square

This Proposal involves replacing existing public toilets with new public toilets, and associated digital advertising signage panels and green panels in Hyde Park North and Taylor Square (City of Sydney, n.d.). The decision for approval occurred on 24 March 2022.

#### 6.13.1.2 Phillip Street to College Street Cycleway project

The CoS is proposing to construct cycleway connections between existing cycleways on King Street and College Street. This would include a separated bi-directional cycleway on Prince Albert Road and Macquarie Street. Bike connection is also proposed through Queen's Square to provide connections through the square whilst providing pedestrian priority. A one way section of cycleway is also proposed within the southern kerbside lane of St James Road. It is anticipated that the majority of the associated construction works would be completed before construction of the proposal would commence.

#### 6.13.1.3 Sydney Cycleway project

As part of the Sydney Cyleway Project, cycleways were proposed on Liverpool Street and another between Pitt Street and Elizabeth Street. These cycleways are completed and would not have cumualitve impacts with the Proposal.

### 6.13.2 Potential impacts

#### 6.13.2.1 Construction

Potential temporary construction cumulative impacts include:

- Cumulative increases in construction vehicle presence within Hyde Park causing increased safety risks to pedestrians, cyclists and users of Hyde Park
- Cumulative noise and vibration impacts associated with multiple construction work, particularly at night
- Disruption to pedestrian amenity and capacity due to footpath restrictions during construction, including increased pedestrian journey times
- Amenity impacts resulting from closure of footpaths and limited access to leisure and monumental aspects of Hyde Park
- Cumulative changes to water quality of nearby waterways or groundwater from multiple construction sites.

To address these issues, Council would work with other developers as part of a construction liaison group. This group would coordinate construction of each project to minimise associated impacts on the local area, especially to existing businesses affected by the proposal.

It is anticipated that the proposal would have a low risk of causing cumulative environmental impacts with concurring projects in the area.

#### 6.13.2.2 Operation

The operation of the proposal and the identified projects above would not cause any negative cumulative impacts.

### 6.13.3 Mitigation measures

The following mitigation measures are recommended to minimise the potential cumulative impacts:

CU1. Consult with CoS to obtain information about project timeframes and impacts. Identify and implement appropriate safeguards and management measures to minimise cumulative impacts of construction if any of the projects are constructed at the same time as the proposal

CU2. The CEMP would be revised to consider potential cumulative impacts from surrounding development activities as they become known. This would include a process to review and update mitigation measures as new works begin or if complaints are received.

# 7.0 Environmental management

This chapter describes how the proposal would be managed through environmental management plans and specific safeguards, to reduce the potential environmental impacts throughout detailed design, construction and operation.

Mitigation measures have been developed to be consistent with the Section 171 Guidelines.

## 7.1 Construction environmental management plan

A construction environmental management plan (CEMP) would be prepared in accordance with the requirements of Council's Environmental Management System for the construction phase of the proposal. The CEMP provides a mechanism through which all potential environmental impacts relevant to the proposal would be controlled, and outlines a framework of procedures and controls for managing environmental impacts during construction.

## 7.2 Safeguards and mitigation measures

Environmental safeguards and mitigation measures proposed for the proposal are outlined in the table below. These safeguards would minimise the potential adverse engineering, environmental and planning impacts of the proposal described in **Section 6.0.**

**Table 7-1 Environmental safeguards and mitigation measures**

| No. | Impact | Environmental safeguards | Timing |
|---|---|---|---|
| Traffic and transport | | | |
| T1 | Traffic management | During construction, park and store construction vehicles and equipment within the proposal area, at appropriate lay down areas, to keep all construction activity off roads | Construction |
| T2 | Access | During construction, ensure works do not inhibit access to train and bus stops | Construction |
| T3 | Traffic management | During construction, establish appropriate traffic management measures such as temporary precautionary signs, illuminated warning devices and provision of temporary barriers and markers to control the proposed work areas | Construction |
| T4 | Traffic management | Superintendents Representative team would ensure that no significant conflicts between construction activities and major events in the city occur | Pre-Construction |
| T5 | Access | During construction, demarcate new pathways to offset negative impacts on pedestrians and cyclists | Construction |
| T6 | Licencing | Where works require access to the public road network or would likely impact on traffic, the construction contractor would apply for a Road Occupancy Licence | Construction |
| T7 | Licencing | Where works require access to the public road network or would likely impact on traffic, the construction contractor would clearly demarcate work areas as required. | Construction |

| No. | Impact | Environmental safeguards | Timing |
|---|---|---|---|
| Noise and vibration | | | |
| N1 | Notification to nearby receivers | N17. Specific additional mitigation measurements as identified in the noise assessment:<br>• **Notification (N) -** Letterbox drops for receivers within a 155m radius. Notifications should detail work activities, dates and hours, impacts and mitigation measures, any operational noise benefits from the works (where applicable) and the contact telephone number. A notification would be sent a minimum of 7 calendar days prior to the start of the works<br>• **Respite offer (RO)** should be considered where there are high noise and vibration-generating activities near residential receivers. RO proposes that work should be carried out in continuous blocks that do not exceed 3 hours each, with a minimum respite period of one hour between each block. Such an offer aims to provide residents with respite from an ongoing impact. | Pre-construction |
| N2 | Respite condition | Respite condition 1 or duration respite would be offered during OOHW work in accordance with the Construction Noise and Vibration Guideline (Roads and Maritime Services, 2016). | Construction |
| N3 | Noisy work conditions | Noisy works such as saw cutting shall occur before midnight (12 am). | Construction |
| N4 | Prepare a CNVMP | Prepare a CNVMP. The CNVMP would be a sub-plan of the CEMP, and as a minimum, it would:<br>• Map the sensitive receiver locations, including residential properties<br>• Include safeguards and management measures to manage out-of-hours working<br>• Include an assessment to determine the potential risk for activities likely to affect receivers, including for activities undertaken during and outside of standard working hours<br>• Include a process for assessing the performance of the implemented safeguards and management measures | Pre-Construction |
| N5 | Notification to affected receivers | Affected receivers would be notified ahead of time of the likely activities, noise impacts and duration of this work. | Pre-Construction |
| N6 | Notification to nearby receivers | Nearby receivers would be notified of any work in advance of the start of construction. | Pre-Construction |
| N7 | Noise complaints management | A community complaints phone number would be established and advertised before work commences and available during work periods. The community complaints line would be established for any complaints or queries regarding construction. | Construction |

| No. | Impact | Environmental safeguards | Timing |
|---|---|---|---|
| N8 | Noisy wheeled equipment | Where reasonable and feasible rubber-tracked or wheeled equipment would be used instead of standard, steel-tracked plant. | Construction |
| N9 | Noisy plant | Plant and equipment would be turned off when not in use. | Construction |
| N10 | Work site arrangements | The proposal area would be arranged to minimise the use of movement alarms on vehicles and mobile plant. | Construction |
| N11 | Reverse beepers | Where safety concerns can be adequately managed, the use of squawker, broadband or visual reversing alarms would be considered, rather than traditional beeper styles. | Construction |
| N12 | Night time noise during night time hours | The use of equipment or methods that generate impulsive noise, particularly during night time hours, would be avoided. These include dropping materials from a height, loading/unloading trucks and metal-on-metal contact. | Construction |
| N13 | Noise monitoring program | A noise monitoring program would be established during the early stages of construction to provide an indication of actual noise generation and transmission during each task. | Construction |
| N14 | Complaints handling procedure | A complaints-handling procedure would be established and implemented. | Construction |
| N15 | Temporary noise barriers | Implement noise containment measures and temporary noise barriers where feasible and reasonable where it is determined that the work would have an unreasonable adverse impact on the surrounding community. Use the number of received community complaints as a measure of impact and conduct noise monitoring to determine whether the generated noise is excessive. | Construction |
| N16 | Construction program | Make the construction program available to the community and ensure it is routinely updated as works progress. Updates would be provided for each work zone. | Pre-construction/ construction |
| Landscape and visual | | | |
| L1 | Construction lighting | Construction lighting is to be positioned such that light spill on neighbouring properties is minimised and that it is turned off when not in use and safe to do so. | Construction |
| L2 | Construction lighting | The layout, directional positioning and types of lighting selected to minimise impacts are to be specified by the construction contractor in the CEMP. | Pre-Construction |
| L3 | Work sites | A high level of housekeeping would be maintained by ensuring that the proposal area is kept in a clean and tidy condition, with appropriate areas designated for storage of waste materials. | Construction |

| No. | Impact | Environmental safeguards | Timing |
|---|---|---|---|
| L4 | Construction plant | Construction plant, equipment, materials and lay down areas should be stored/park on paved areas where possible to avoid unmercenary impacts to grassed/vegetated areas. | Construction |
| L5 | Disturbed groundcover | Groundcover disturbed during construction would be re-established as soon as practical. | Construction |
| L6 | Waste materials | Waste materials must be removed from the site regularly. | Construction |
| L7 | Design of new elements | Lighting design and service must comply with relevant AS and heritage design standards (Appendix F) | Design |
| Non-Indigenous heritage | | | |
| NIH1 | Low archaeological potential | In areas designated as having nil to low archaeological potential, no further Aboriginal archaeological potential, no further Aboriginal archaeological input is required. | Construction |
| NIH2 | Unexpected finds | If any unexpected archaeological evidence relating to Aboriginal occupation of the site is discovered all activity should cease in the affected area and the nominated archaeologist should also be notified to advise on required action and whether Heritage NSW is to be notified and consulted for further direction. Depending on the nature of the resource and the potential impacts, further assessment and investigation may be required. | Construction |
| NIH3 | Ground disturbance | Given the assessed state significance of potential historical archaeological relics in the vicinity of proposed works, a suitably qualified archaeologist should be on site during any ground disturbance works in areas of the park that have been identified as having historical archaeological potential to mitigate any known and potential impacts to the site's historical archaeological resource. | Construction |
| NIH4 | Monitoring | A program of monitoring and recording should be undertaken during ground disturbance works to ensure that historical relics are not disturbed. | Construction |
| NIH5 | Unexpected finds | Should any unexpected archaeological remains be identified during the works program, all activity should cease in the affected area and the nominated archaeologist notified to advise on required action and whether the Heritage NSW is to be notified and consulted for further direction. Depending on the nature of the resource and the potential impacts, further assessment and investigation may be required. | Construction |

| No. | Impact | Environmental safeguards | Timing |
|---|---|---|---|
| NIH6 | Aboriginal heritage | CoS will notify the Metropolitan Local Aboriginal Land Council (MLALC) of the current design and documentation for the Hyde Park lighting upgrade works. | Detailed design |
| NIH7 | Unexpected finds | In the unlikely event that archaeological evidence relating to Aboriginal occupation of the site is discovered the following Aboriginal unexpected finds protocol should be enacted:<br>a. all the works in the affected area must stop and Heritage NSW must be notified immediately in accordance with Section 89a of the *National Parks and Wildlife Act 1974* (NSW). Aboriginal stakeholders should also be notified at this stage. An archaeologist experienced in the identification of Aboriginal cultural material should inspect the suspected Aboriginal objects to make a positive identification.<br>b. If the suspected items are not Aboriginal in origin or manufacture (as defined under the NPW Act), the location and items should be recorded. Works may continue.<br>c. If the objects are confirmed to be Aboriginal objects, the site should be registered as soon as practicable on the Aboriginal Heritage Information Management System (AHIMS) administered by Heritage NSW.<br>d. If the suspected items are Aboriginal objects, then an AHIP under Section 90 of the NPW Act would be required before works can continue in the area of the identified objects. The extent of any works exclusion zone would need to be determined through discussion with Heritage NSW and Aboriginal community representatives.<br>e. In the unlikely event that human remains were to be discovered at any time during the works, works must cease immediately in the surrounding area. The findings would need to be reported immediately to the New South Wales Coroner's Office and/or the New South Wales Police. | Construction |

| No. | Impact | Environmental safeguards | Timing |
|---|---|---|---|
| NIH8 | Permitting | Prior to works commencing, an application under Section 60 of the Heritage Act should be prepared and submitted to the Heritage NSW (as delegate of the NSW Heritage Council) for the proposed works. The HIS should be submitted as part of that application. The application will also require preparation of an Archaeological Research Design (ARD) that includes a methodology outlining how the proposed works will be archaeologically mitigated. Works should be carried out in accordance with the conditions of the Section 63 Approval issued for the study area. | Pre-construction |
| NIH9 | Archaeological finds | The archaeological works should be undertaken in accordance with the archaeological methodology provided in the Archaeological Research Design (ARD) report and any Section 60 permit conditions. | Construction |
| NIH10 | Archaeological monitoring | An approved program of archaeological monitoring needs to be undertaken by an appropriately qualified archaeologist. The archaeological works should be coordinated with the various proposed lighting design works program components. | Construction |
| NIH11 | Permitting | No excavation or ground disturbance of the subject site can be undertaken prior to the issuing of a Section 60 permit. Heritage NSW is required to assess the application. The statutory timeframe for processing is 40 days from the receipt of a complete application. In the event that further information is requested by the consent authority the clock stops, and the processing period is reset once the application is deemed complete. | Pre-construction/ construction |
| NIH12 | Heritage induction | Prior to the site works commencing, all relevant on site personnel should attend a heritage site induction to ensure that all on site personnel are aware of both their obligations under the Heritage Act and of the role of the archaeologist(s) on site. | Pre-construction |
| NIH13 | Archaeological finds | Works proposed in locations where known State significant items are located (such as Busby Bore) and where potential state significant relics may survive (significant pathways, World War II structural remains etc) will require that archaeological monitoring is co-ordinated with the works program to minimise subsurface impacts and to record any exposed remains. | Construction |
| NIH14 | Archaeological finds | If legible and significant archaeological remains of State significance survive within the site, the Heritage Council of NSW may require these to be retained in situ. Where it is agreed this is not possible, appropriate mitigation strategies would need to be implemented which may include display, signage or other forms of interpretive material. | Construction/ operation |

| No. | Impact | Environmental safeguards | Timing |
|---|---|---|---|
| NIH15 | Archaeological investigation | The results of any archaeological investigation at the site should inform interpretive initiatives, where relevant. Opportunities to use investigation results as well as the fabric and artefacts exposed or recovered during the test excavation should be pursued as part of the site presentation and interpretation. | Detailed design/ construction |
| NIH16 | Construction methodology | Once the preferred supplier for the construction of the lighting upgrade is known by the CoS, the proposed construction program and methodology should be subject to review and advice by a suitably qualified heritage professional. | Pre-construction |
| Indigenous heritage | | | |
| IH1 | Heritage induction | All construction staff would undergo an induction in recognition of Indigenous cultural heritage material. This training would include information such as the importance of Indigenous cultural heritage material and places to the Indigenous community, as well as the legal implications of removal, disturbance and damage to any Indigenous cultural heritage material and sites. | Construction |
| IH2 | Unanticipated Indigenous objects | If unforeseen Indigenous objects are uncovered during construction, an unexpected finds procedure would be followed, and works within the vicinity of the find would cease immediately. The Construction Contractor would immediately notify the CoS Proposal Manager and CoS Environmental Officer so they can assist in co-ordinating next steps which are likely to involve consultation with an Aboriginal heritage consultant, the DPE and the LALC. | Construction |
| IH3 | Human remains uncovered | If human remains are found, work would cease, the site secured, and the NSW Police and the DPE notified. Where required, further archaeological investigations and an Aboriginal Heritage Impact Permit would be obtained prior to works recommencing at the location. | Construction |
| Socioeconomic impacts | | | |
| SE1 | Socio-economic | Mitigation measures in respect of potential impacts on amenity (e.g. noise, dust and visual) as listed in this Section. | Construction |
| SE2 | Construction staging | Stage construction of the proposal throughout the proposal area to limit the construction footprint. | Pre-Construction |
| SE3 | Feedback through the submissions process | Feedback through the submissions process to facilitate opportunities for the community and stakeholders to have input into the proposal, where practicable. | Pre-Construction |
| SE4 | Community Liaison Management Plan | Informing the community of construction progress, activities and impacts in accordance with the Community Liaison Management Plan. | Pre-Construction |

| No. | Impact | Environmental safeguards | Timing |
|---|---|---|---|
| Contamination, landform, geology and soils | | | |
| CLGS1 | Site-specific Erosion and Sediment Control Plan | Prior to the commencement of works, a site-specific Erosion and Sediment Control Plan would be prepared in accordance with the 'Blue Book' *Managing Urban Stormwater: Soils and Construction Guidelines* and updated throughout construction so it remains relevant to the activities. The Erosion and Sediment Control Plan measures would be implemented prior to the commencement of works and maintained throughout construction. | Pre-Construction |
| CLGS2 | Erosion and sediment control | Erosion and sediment control measures would be established prior to any site establishment activities and would be maintained and regularly inspected (particularly following rainfall events) to ensure their ongoing functionality. These measures would be maintained and left in place until the works are complete and areas are stabilised. | Pre-Construction |
| CLGS3 | Vehicles and machinery maintenance | Vehicles and machinery would be properly maintained and routinely inspected to minimise the risk of fuel/oil leaks. Construction plant, vehicles and equipment would also be refuelled offsite, or in a designated refuelling area. | Construction |
| CLGS4 | Storage of fuels, chemicals and hazardous liquids | All fuels, chemicals and hazardous liquids would be stored within an impervious bunded area in accordance with AS and EPA Guidelines. | Construction |
| CLGS5 | Unexpected Finds Protocol | An appropriate Unexpected Finds Protocol, considering potential contaminants, would be included in the CEMP. Procedures for handling asbestos-containing materials, including licensed contractor involvement as required, record keeping, site personnel awareness and waste disposal to be undertaken in accordance with SafeWork NSW requirements. | Pre-Construction and Construction |
| CLGS6 | Testing potential contaminated spoil | All spoil to be removed from site would be tested to confirm the presence of any contamination. Any contaminated spoil would be disposed of at an appropriately licensed facility. | Construction |
| CLGS7 | Classifying waste and spoil | All spoil and waste must be classified in accordance with the *Waste Classification Guidelines Part 1: Classifying waste* (EPA, 2014) prior to disposal. | Construction |
| CLGS8 | Dedicated storage facilities for hydrocarbons and chemicals | Hydrocarbons and chemicals such as fuels, lubricants and oils would be stored on-site in dedicated facilities such as secure sheds, containers, storage tanks and proprietary hazardous substance cupboards, and in accordance with the applicable Safety Data Sheet (SDS). | Construction |

| No. | Impact | Environmental safeguards | Timing |
|---|---|---|---|
| CLGS9 | Pollution incident | In the event of a pollution incident, works would cease in the immediate vicinity, and the Contractor would immediately notify the CoS Proposal Manager and the CoS Environmental Officer. The EPA would be notified by CoS if required, in accordance with Part 5.7 of the POEO Act. | Construction |
| CLGS10 | Spill kits | Spill kits appropriate to products used on site must be readily available. | Construction |
| CLGS11 | Spills of fuel, oil, chemicals | Spills of fuel, oil, chemicals or the like would be cleaned immediately, and the site environmental manager would be notified of the location of the incident, the extent of the incident and type of material spilled. | Construction |
| CLGS12 | Potential contaminated soil | Should suspected ASS be uncovered during excavation activities at the proposal area, the potential impact would be managed by guidelines identified in the *Acid Sulfate Soils Assessment Guidelines* (1998). | Construction |
| Air quality | | | |
| AQ1 | Air quality management and monitoring | Air quality management and monitoring for the proposal would be undertaken in accordance with relevant CoS guidelines. | Construction |
| AQ2 | management of emissions | Methods for the management of emissions would be incorporated into Proposal inductions, training and pre-start/toolbox talks. | Pre-Construction |
| AQ3 | Vehicles and machinery maintenance | Plant and machinery would be regularly checked and maintained in a proper and efficient condition. Plant and machinery would be switched off when not in use and not left idling. | Construction |
| AQ4 | Designated areas for vehicle and machinery movements | Vehicle and machinery movements during construction would be restricted to designated areas and sealed/compacted surfaces where practicable. | Construction |
| AQ5 | Generation of dust | To minimise the generation of dust from construction activities, the following measures would be implemented:<br>• Apply water (or alternate measures) to exposed surfaces (e.g. Unpaved roads, stockpiles, hardstand areas and other exposed surfaces)<br>• Cover stockpiles when not in use<br>• Appropriately cover loads on trucks transporting material to and from the construction site and securely fix tailgates of road transport trucks prior to loading and immediately after unloading<br>• Prevent mud and dirt from being tracked onto sealed road surfaces. | Construction |

| No. | Impact | Environmental safeguards | Timing |
|---|---|---|---|
| Biodiversity | | | |
| BIO1 | Biodiversity induction | All workers are to be provided with an environmental induction prior to commencing work onsite. This induction would include information on the protection measures to be implemented to protect vegetation, penalties for breaches and locations of areas of sensitivity. | Pre-Construction |
| BIO2 | Noise | Noise impacts are to be minimised in accordance with Roads and Maritime Construction Noise Estimator to reduce direct disturbance to fauna. | Construction |
| BIO3 | Lighting | Construction lighting towers are to be placed and directed away from trees where feasible to limit direct disturbance to fauna. | Construction |
| BIO4 | Disturbance of vegetation | Disturbance of vegetation is to be limited to the minimum amount necessary to construct the proposal. Trees would be protected through temporary protection measures discussed below:<br>• It is assumed that all works associated with the proposal would be undertaken within a fenced works zone designed to exclude the public. No tree should be included within the fenced works zone. The sections of TPZ areas which fall within the fenced works zone should have ground protection installed in the form of road plates, ground mats or plywood sheeting to prevent soil compaction/surface root damage. Machinery should work from areas of ground protection or existing intact pavement at all times<br>• Demolition works within TPZ areas should utilise tree-sensitive methods, ensuring demolition machinery/equipment does not contact any part of a tree. Structures within an SRZ can contribute to tree stability by providing ballast to the rootplate or acting as a stop to the overturning of the rootplate. Where required by the Project Arborist, existing underground structures and sub-base materials should be left in situ and reused<br>• Pavement surfaces to be demolished within the TPZ areas should be carefully broken up in small sections using a hand-operated pneumatic/electric breaker, and waste material removed by hand/hand tools. Wheelbarrow movements for the removal of the pavement should remain on areas of existing intact pavement or ground protection only. Wheelbarrows shall not be positioned on the exposed surfaces and sub-base materials. Where pavement cutting is required within TPZ areas, the depth of the pavement surface should be established by a series of trial cuts undertaken outside of the TPZ areas. No over-cutting of the existing pavement surface is permitted | Construction |

| No. | Impact | Environmental safeguards | Timing |
|---|---|---|---|
| | | • Wherever possible, existing sub-base materials within TPZ areas shall remain in-situ. Where the existing sub-base is to be removed, these works shall be undertaken by hand/hand tools, ensuring that tree roots are retained and protected<br>• The removal of mulch and turf within SRZ areas should be undertaken using hand tools. For larger areas outside of the SRZ areas, mulch and turf may be carefully removed using a compact excavator. The compact excavator (<2T) should be fitted with a flat-bladed bucket should be guided by a spotter at all times (<2T). The underlying soil profile must remain undisturbed. Exposed roots greater than 25 mm in diameter should be protected from damage<br>• Trenching for conduit installation should be undertaken using a combination of hand and compact excavator methods. The compact excavator (<2T) should be fitted with a flat-bladed bucket should be guided by a spotter at all times. Where roots greater than 25 mm in diameter are encountered, the spotter should expose these roots by hand excavation, and the conduits should be installed under or around the roots. The pruning of roots greater than 25 mm in diameter is only permissible when approved by the proposal Arborist. Following the installation of conduits/cables, excavated trenches should be backfilled with a certified 80/20 washed river sand/screened topsoil blend<br>• The supplied plans show conduits running through the SRZ areas of Trees 100N, 217N, 279N, 39S, 112S, 125S, 133S, 144S, 186S, 198S, 201S, 204S, 238S, 249S, 297S, 299S, 301S, 309S, 311S, 323S, 325S and 390S. To minimise the potential for damage to structural roots, conduit installation works should be undertaken using the excavation methods detailed above and should be directly supervised by the Project Arborist<br>• Where possible, existing footings within TPZ areas should either be retained and reused or decommissioned and left in situ to minimise disturbance of the soil profile. Where new footings are required, the footing location should be excavated (using the methods outlined above) to a maximum depth of 1,800 mm. Where roots greater than 25 mm in diameter are encountered, the spotter should expose these roots by hand excavation for assessment by the proposal Arborist. The pruning of roots greater than 25 mm in diameter is only permissible when approved by the proposal Arborist. Where significant roots are present which cannot be pruned, the footing | |

| No. | Impact | Environmental safeguards | Timing |
|---|---|---|---|
| | | location should be adjusted or modified accordingly<br>• The installation of plants within the TPZ areas should be undertaken using hand tools, and roots greater than 25 mm in diameter should be protected<br>• It should be noted that Hyde Park is widely affected by the plant pathogens *Phytophthora* and *Armillaria*, and strict hygiene protocols should be implemented to prevent the movement of potentially contaminated soils and plant material around the park or wider area. Excavated soils and plant material should be disposed of at a registered landfill site. On completion of each section of the works, all tools and machinery that have been in contact with soil should be washed down and disinfected with a 10% bleach solution to minimise the potential spread of soil-borne pathogens. Washing down should be undertaken in-situ to prevent the movement of soil and potential pathogens<br>• Trees 104N, 117N, 179N, 212N, 43S, 118S and 352S will require minor pruning to provide clearance from new light poles. The majority of the works could be undertaken from ground level with a manual pole pruner/pole saw or for larger diameter branches, from an elevated working platform<br>• Pruning works should be carried out by a Practicing Arborist. The Practicing Arborist should hold a minimum qualification equivalent (using the Australian Qualifications Framework) of Level 3 or above, in Arboriculture or its recognised equivalent. The Practicing Arborist should have a minimum of 3 years' experience in practical Arboriculture. Pruning work should be undertaken in accordance with Australian Standard 4373: Pruning of Amenity Trees (2007), Safe Work Australia Guide for Managing Risks of Tree Trimming and Removal Work (2016) and other applicable legislation and codes. | |
| BIO5 | CoS Tree Removal Application Form to remove additional trees | Should the detailed design or onsite works determine the need to remove or trim any additional trees, which have not been identified in the REF, the Construction Contractor is required to complete a CoS Tree Removal Application Form and submit it to CoS for approval. | Pre-Construction |

| No. | Impact | Environmental safeguards | Timing |
|---|---|---|---|
| BIO6 | Biohazards | *Phytophthora* and *Armillaria* will be managed through the following hygiene protocols.<br>• Excavated soils and plant material should be disposed of at a registered landfill site<br>• On completion of each section of the works, all tools and machinery that have been in contact with soil should be washed down and disinfected with a 10% bleach solution to minimise the potential spread of soil borne pathogens<br>• Washing down should be undertaken in-situ to prevent movement of soil and potential pathogens. | Construction |
| BIO7 | Biohazards | Before commencement of works the following hygiene measures would be implemented when dealing with infected trees:<br>• Check for infected trees planned for works and schedule all infected trees together where feasible<br>• Review the amount of chip or soil / grindings in the trucks, and consider dumping uninfected load before chipping or loading in the infected materials<br>• Ensure there is enough disinfectant for the site. | Construction |
| Hydrology and water quality | | | |
| HWQ1 | Erosion and Sedimentation Control Plan | Temporary drainage or drainage diversions would be installed, so that stormwater function is not impeded during construction. An Erosion and Sedimentation Control Plan (ESCP) would be prepared in accordance with the Blue Book prior to construction. | Pre-Construction |
| HWQ2 | Disturbed surfaces | Disturbed surfaces would be compacted and stabilised in anticipation of a rain event to reduce the potential for erosion. | Construction |
| HWQ3 | Removal of material deposited | Any material deposited onto pavements would be swept and removed at the end of each working shift and prior to rainfall. | Construction |
| HWQ4 | Storage of fuels, oils and other chemicals | Fuels, oils and other chemicals would not be stored in the vicinity of the construction site wherever possible. | Construction |
| HWQ5 | Emergency wet and dry spill kits | Emergency wet and dry spill kits would be kept on site at all times, and all staff would be made aware of the location of the spill kit and trained in its use. | Construction |

| No. | Impact | Environmental safeguards | Timing |
|---|---|---|---|
| Waste | | | |
| W1 | WMP | A WMP would be prepared and implemented as part of the CEMP. The WMP would include but not be limited to:<br>• Measures to avoid and minimise waste associated with the proposal<br>• Classification of wastes and management options (re-use, recycle, stockpile, disposal) in accordance with the *Waste Classification Guidelines* (EPA, 2014) and NSW legislative requirements<br>• Statutory approvals required for managing both on and off-site waste, or application of any relevant resource recovery exemptions<br>• Procedures for storage, transport and disposal<br>• Monitoring, record keeping and reporting.<br>• The WMP would follow the WARR Act and *Waste Classification Guidelines* (EPA, 2014). | Pre-Construction |
| W2 | Source of construction materials | A far as practicable, construction materials shall be sourced within the Sydney region so as to reduce transport costs, including fuel usage | Construction |
| W3 | Waste management | The hierarchy of waste management shall be implemented via the:<br>• Separation of general wastes, recyclable/reusable materials, and hazardous wastes to avoid mixing with other materials/wastes<br>• Regular housekeeping and servicing of waste storages<br>• General waste and recycling receptacles would be provided onsite. Waste would be transported to an appropriately licensed waste disposal and/or a recycling facility<br>• Wastes (including green waste) shall not be burnt<br>• Weed removal activities, including removal of weeds prior to tree removal works to allow non-weed infested mulched material to be reused on site<br>• The potential for mulching and reuse of cleared vegetation would be balanced against the presence of noxious weeds and compliance with necessary weed control measures. | Construction |
| W4 | Waste facility licenced under the POEO Act | Waste disposed of offsite shall be taken to a waste facility that is licenced under the POEO Act to receive wastes of that type. | Construction |
| W5 | Work areas | Work areas would be kept free of rubbish, with appropriate receptacles provided for waste management and recycling, in accordance with the CoS *Managing waste in public places – local approvals policy*. | Construction |

| No. | Impact | Environmental safeguards | Timing |
|---|---|---|---|
| W6 | Recycle materials | Divert as much waste as practical from landfill as practicable and where possible prioritise recycled materials in procurement where cost and quality requirements are met. | Construction |
| Cumulative | | | |
| CU1 | Cumulative impacts | Consult with CoS to obtain information about Proposal timeframes and impacts. Identify and implement appropriate safeguards and management measures to minimise cumulative impacts of construction if any of the projects are constructed at the same time as the proposal. | Pre-Construction |
| CU2 | Cumulative impacts – traffic management plan | The traffic management plan, including Road Occupancy Licenses, would be prepared in consultation with the Transport Management Centre taking into consideration the cumulative traffic impact of projects on the Sydney road network. | Pre-Construction |

## 7.3 Licensing and approvals

The licenses and approvals listed below are required for the delivery of the proposal:

- Road Occupancy Licence from CoS Council.

# 8.0 Conclusion and certification

## 8.1 Conclusion

This REF has been prepared to assess the environmental impacts of the proposed lighting, conduit and CCTV upgrade at Hyde Park. The proposal would generate benefits including:

- The provision of effective lighting that responds to its urban design role and uses in the park
- Rationalisation of existing light poles and fittings
- Reveal and enhance the park's significant monuments, gardens and built form
- Provision of lighting to all lawn areas
- Improvements to safety and security
- Encouragement of nighttime use (evening events, exercise groups, dog walkers etc.)
- Support a calendar of cultural activities and events
- Achieving a high-efficiency (energy-saving) lighting design
- Delivery of a control system that provides flexibility and allows CoS to remotely meter, monitor, manage and control the park lighting system
- Meeting sustainability targets by improving energy efficiency with a target of 6% energy reduction from current usage
- Provision of easy long-term maintenance for the CoS's asset managers.

This REF has been prepared in accordance with Part 5 of the EP&A Act and has assessed those matters listed in Section 171 of the EP&A Regulation. The format of the report and level of EIA also complies with the *CoS Part 5 Environmental Impact Assessment Procedures* manual.

The assessment has confirmed that the proposal would not result in any significant impact on any declared critical habitat, threatened species, populations or ecological communities or their habitats. A Species Impact Statement is, therefore, not required. The assessment determined that the proposal would improve safety and accessibility within Hyde Park.

The CoS would continue working with affected stakeholders to minimise impacts during construction and operation and obtain the necessary permits and approvals.

The public exhibition of this REF would provide an opportunity for the community, businesses and landowners to comment on the proposal's impacts and benefits.

This REF has assessed key environmental and planning issues, including traffic and transport, noise and vibration, non-Indigenous heritage and socio-economic impacts. Mitigation measures outlined in Chapter 7.0 would also be implemented to minimise environmental impacts during the construction stage, including preparing a CEMP.

The recommended mitigation measures would ensure that the proposal does not result in any significant adverse effect on the environment. In this regard, an EIS is not required.

## 8.2 Certification

This REF provides a true and fair review of the proposal in relation to its potential effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the proposal.

Jamie McMahon

Technical Director – Environment

AECOM

Date:

# 9.0 References

ABS. (201). *2021 Census All persons QuickStats*. Retrieved from Sydney: https://abs.gov.au/census/find-census-data/quickstats/2021/LGA17200

ABS. (2021). *2021 Census All persons QuickStats*. Retrieved from Sydney: https://abs.gov.au/census/find-census-data/quickstats/2021/SAL13730

ABS. (2021). *Sydney: 2021 Census all persons QuickStats*. Retrieved from https://www.abs.gov.au/census/find-census-data/quickstats/2016/118#:~:text=In%20the%202016%20Census%2C%20there,up%201.0%25%20of%20the%20population.&text=The%20median%20age%20of%20people,Eastern%20Suburbs%20was%2035%20years.

AECOM. (2021). • *Hyde Park: Lighting Design Geotechnical Investigations Geotechnical Factual and Interpretive Report.*

City of Sydney. (2021). *Hyde Park Draft Plan of Management.*

City of Sydney. (n.d.). *NSW ePlanning*. Retrieved from https://eplanning.cityofsydney.nsw.gov.au/Pages/XC.Track/SearchApplication.aspx?id=1551090

City of Sydney. (n.d.). *NSW ePlanning*. Retrieved from https://eplanning.cityofsydney.nsw.gov.au/Pages/XC.Track/SearchApplication.aspx?id=1551090

Clouston Associates. (2006). *Hyde Park Plan of Management and Masterplan.*

CoS. (2006). *Hyde Park Plan of Management and Masterplan 2006.*

CoS. (2015). *Sydney Lights Public Domain Design Code.* Retrieved from file:///C:/Users/CloutmanR/Downloads/Sydney%20Lights%20Public%20Domain%20Design%20Code.pdf

CoS. (2019). *Tender - Reject and Negotiate - Hyde Park Master Plan Lighting Project.*

CoS. (2021). *Sydney Streets Code 2021.*

DAWE. (2020, September 10). *Protected Matters Search Tool*. Retrieved from http://www.environment.gov.au/webgis-framework/apps/pmst/pmst.jsf

DPIE. (2022, July 28). *Air quality concentration data - updated hourly*. Retrieved from Air Quality Concentration Data: https://www.dpie.nsw.gov.au/air-quality/air-quality-concentration-data-updated-hourly

DPIE. (2022). *National Pollutant Inventory*. Retrieved from http://www.npi.gov.au/

DPIE. (n.d.). *Environmental Planning Instrument - Acid Sulfate Soils*. Retrieved from Planning Portal: https://www.planningportal.nsw.gov.au/opendata/dataset/epi-acid-sulfate-soils

EPA. (2014). *Waste Classification Guidelines.*

GML. (2007). *Hyde Park Boundaries Elements and Entrances.*

GML. (2014). *Hyde Park Archaeology Management Plan.*

GML. (2014). *Museum Station Easy Access Upgrades Heritage Asset Management Schedules.*

GML. (2022). • *The archaeological and palaeoenvironmental assessment of the sediments of Hyde Park, Sydney, New South Wales.*

GML Heritage. (2023). *Heritage Impact Statement: Hyde Park – Lighting Upgrade.*

HBO and EMTB. (2006). *Heritage Review Study for Hyde Park Plan of Management.*

John Oultram Heritage and Design. (2016). • *Proposed Café, Hyde Park South, Cnr Elizabeth and Liverpool Street, Sydney, NSW—Heritage Impact Statement.*

Landcom. (2004). *'Blue Book' Managing Urban Stormwater: Soils and Construction Guidelines .*

NSW EPA. (2022, July 28). *Contaminated land record of notices* . Retrieved from https://app.epa.nsw.gov.au/prclmapp/searchresults.aspx?&LGA=23&Suburb=&Notice=&Name=&Text=&DateFrom=&DateTo=

NSW Government . (2022). *Species sightings search*. Retrieved from NSW BioNet: https://www.environment.nsw.gov.au/atlaspublicapp/UI_Modules/ATLAS_/AtlasSearch.aspx

NSW Government. (2022). *SEED: The Central Resource for Sharing and Enabling Environmental Data in NSW*. Retrieved from https://geo.seed.nsw.gov.au/Public_Viewer/index.html?viewer=Public_Viewer&locale=en-AU

NSW Government. (n.d.). *ePlanning Spatial Viewer*. Retrieved from https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address

NSW Heritage Office. (2002). *Statements of Heritage Impact.*

TreeIQ. (2022). *Arboricultural Impact Assessment: Hyde Park Elizabeth Street, Sydney .*

# Appendix A

## Consideration of Matters of National Environmental Significance

# Appendix A Consideration of Matters of National Environmental Significance

The table below demonstrates CoS's consideration of the MNES under the EPBC Act to be considered in order to determine whether the proposal should be referred to the Commonwealth Department of the Environment and Energy.

| Matters of NES | Impacts |
|---|---|
| **Any impact on a World Heritage property?**<br><br>**The proposal would not impact any areas of World Heritage importance.** | Neutral |
| **Any impact on a National Heritage place?**<br><br>**The proposal would not impact any areas of National Heritage importance.** | Neutral |
| **Any impact on a wetland of international importance?**<br><br>**The proposal would not impact any areas of international wetland importance** | Neutral |
| **Any impact on a listed threatened species or communities?**<br><br>**77 species listed under the EPBC Act are known or are considered to have the potential to occur within the proposal area (Appendix K).**<br><br>**If these species are in the locality, construction may have some potential to disturb these species during this phase. However as there would be no removal of trees or change to other habitats, there would be no impact during the operation phase.** | Minor – short term negative |
| **Any impacts on listed migratory species?**<br><br>**68 listed migratory species known or are considered to have the potential to occur within the proposal area (Appendix K). If these species are in the locality during the construction, the works may have some potential to disturb these species during this phase. However as there would be no removal of trees or change to other habitats, there would be no impact during the operation phase.** | Minor – short term negative |
| **Does the proposal involve a nuclear action (including uranium mining)?**<br><br>**The proposal would not involve nuclear action (including uranium mining).** | Neutral |
| **Any impact on a Commonwealth marine area?**<br><br>**The proposal area is not located within or nearby a Commonwealth marine area.** | Neutral |
| **Does the proposal involve development of coal seam gas and/or large coal mine that has the potential to impact on water resources?**<br><br>**The proposal area does not involve development of coal seam gas and/or large coal mine that has the potential to impact on water resources.** | Neutral |
| **Additionally, any impact (direct or indirect) on Commonwealth land?**<br><br>**The proposal area is not located within or nearby a Commonwealth land.** | Neutral |

# Appendix B

## Consideration of Section 171

# Appendix B Consideration of Section 171

The table below demonstrates CoS's consideration of the specific factors of Section 171 of the EP&A Regulation in determining whether the proposal would have a significant impact on the environment.

| Factor | Impacts |
|---|---|
| **(a) Any environmental impact on a community?**<br><br>**The proposal is located within a highly modified urban area and would not result in any environmental impact on a community. The environmental impact of the infrastructure would create long-term positive effects due to improved lighting and security at Hyde Park.** | Minor, short-term Negative<br><br>Major, long-term Positive |
| **(b) Any transformation of a locality?**<br><br>**The proposal would change the position of some light poles and add CCTV throughout Hyde Park, however, this would not transform the nature of the locality of Hyde Park. The proposal would enhance and unify the lighting in Hyde Park, especially around monuments. The transformation is considered to be positive.** | Moderate, long term Positive |
| **(c) Any environmental impact on the ecosystem of the locality?**<br><br>**The proposal exists in a significantly modified urban area. There are limited sightings of identified threatened species. While the construction stage could disturb species temporarily, given the existing environment is already highly urbanised, it is likely that the construction would not add to any further urban impact to ecosystems.** | Negligible |
| **(d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?**<br><br>**The proposal would result in a short-term reduction of the aesthetic of Hyde Park due to the presence of construction materials and equipment. However, the works are considered to have a long-term positive effect due to improved and updated lighting and CCTV infrastructure.** | Minor, short term Negative<br><br>Major, long term Positive |
| **(e) Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?**<br><br>**The proposal was assessed to have minor impacts on heritage within the proposal area. The proposed lighting scheme is consistent with the current heritage lighting scheme within the park. Safeguards are in place to manage potential impacts to heritage.** | Minor, long term |
| **(f) Any impact on the habitat of protected fauna (within the meaning of the NPW Act)?**<br>**It is highly unlikely that protected fauna would be located within the park, given its location within a highly urbanised city centre.** | Unlikely to impact |
| **(g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?** | Negligible |

| Factor | Impacts |
|---|---|
| **It is highly unlikely that protected fauna would be located within the park, given its location within a highly urbanised city centre. Common fauna may be present such as birds, possums, flying foxes, bats and other rodents.**<br><br>**Species may be suspectable to construction noise, lighting and other unnatural occurrences. However, given the existing environment is already highly urbanised, it is likely that surrounding species would be accustomed to such urban disturbances.** | |
| **(h) Any long-term effects on the environment?**<br><br>**The proposal is proposed as a lighting solution to improve access and safety in Hyde Park. The proposal also has a target of 6% energy reduction from current usage.** | Moderate, long-term positive |
| **(i) Any degradation of the quality of the environment?**<br><br>**The proposal exists in a significantly modified urban area. Given the existing environment is already highly urbanised, the proposal (during construction or operation) would not add to any further degradation of the quality of the environment.** | Negligible |
| **(j) Any risk to the safety of the environment?**<br><br>**Construction of the proposal poses risks to the safety of the environment, where works are unmitigated. This REF has proposed a number of mitigation measures aimed at reducing any risks to the environment.** | Negligible |
| **(k) Any reduction in the range of beneficial uses of the environment?**<br><br>**The proposal would encourage access and use of Hyde Park, especially at night time, and would support cultural activities and events.**<br><br>**The proposal would ensure long term access improvements in the area.** | Moderate, long term positive |
| **(l) Any pollution of the environment?**<br><br>**The proposal would result in a minor increase in air pollution and production of waste during the construction stage but could have long-term benefit of energy reduction.** | Minor, short term Negative<br><br>Minor, long term Positive |
| **(m) Any environmental problems associated with the disposal of waste?**<br><br>**A WMP would be prepared to properly document and dispose of waste generated during the construction stage. Once operational the proposal would not generate significant waste.** | Minor, short term Negative |
| **(n) Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?**<br><br>**The proposal is unlikely to increase demand on resources (natural or otherwise) that are, or are likely to become, in short supply.** | Negligible |

| Factor | Impacts |
|---|---|
| **(o) Any cumulative environmental effect with other existing or likely future activities?**<br><br>**Construction of the proposal may coincide with the construction of other works within Hyde Park. Cumulative impacts as a result of concurrent development would be managed according to the measures outlined in Section 6.13.3.** | Minor, short term Negative |
| **(p) Any impact on coastal processes and coastal hazards, including those under Proposed climate change conditions?**<br><br>**The proposal is not located within or adjacent to the coastline and is unlikely to impact on coastal processes.** | Negligible |

# Appendix C

## Construction noise and vibration impact assessment

# Appendix D

## Electrical lighting package

# Appendix E

## Security package

# Appendix F

## Heritage Impact Statement and Historical Archaeological Research Design

# Appendix G

## Public display board

# Appendix H

## Return brief

# Appendix I

## Hyde Park Paleoenvironmental Assessment Report

# Appendix J

## NSW EPA contaminated lands search

# Appendix K

## National pollutant inventory search

# Appendix L

## BioNet search

# Appendix M

## Protected matters search tool results

# Appendix N

## Arboricultural Impact Assessment

# Appendix O

## Waste Management Protocol