

**REVIEW OF ENVIRONMENTAL FACTORS**



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**Establishment of a 60m Communications Tower, Prospect Reservoir**

## EXECUTIVE SUMMARY

Endeavour Energy (EE) is an electricity distributor servicing over 2.5 million people living and working across Sydney's Greater West, the Blue Mountains, the Southern Highlands, Illawarra and the South Coast of New South Wales (NSW).

In May 2023 the main EE office in Sydney will move from its current location at Huntingwood to new premises in Parramatta. EE have a communications tower within the Huntingwood site and it is a critical component of EE's wide area network (WAN). The tower provides connectivity and redundancy for several depots, including both EE's Information Technology and Operational Technology data centres as well as for Supervisory Control and Data Acquisition (SCADA) sites which are vital to keep EE's power grid active and managed. As a result of this move, the existing EE communications tower will no longer be accessible and there is a need for a new communications tower to be located adjacent to the Sydney Water Reservoir at Prospect (Prospect Reservoir). Key features of this proposal include installation of:

- A 60m free-standing heavy duty lattice tower with self-supporting concrete footings;
- An external ladder, approximately 57m in height;
- A new equipment shelter (6m by 3m) on concrete footing foundations;
- A new 600mm cable tray support system from the tower to the equipment hut and support posts;
- A compound area 15m by 15m around the tower and associated infrastructure, including a 2.8m high security fence with 4.8m wide double access gate;
- A new pole with substation and overhead lines;
- Power supply works and underground cabling;
- Upgrading of an existing access track; and
- Vegetation management as per the Vegetation Management Plan.

The proposal would also involve minor vegetation trimming and clearing for access and creation of an Asset Protection Zone. No trees are required to be removed as part of this proposal.

The works are characterised as development for the purpose of 'electricity transmission or distribution network'. Section 2.43 of the State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP) defines this term and notes that it includes telecommunication facilities that are related to the functioning of the network.

Section 2.44(2)(e) of the TISEPP provides that the proposal may be carried out without development consent. Accordingly, the environmental assessment and determination of the proposal has been undertaken in accordance with Part 5 of the NSW *Environmental Planning and Assessment Act 1979* ('the EP&A Act') and in accordance with section 171 of the Environmental Planning and Assessment Regulation 2021 ('the EP&A Regulation'). Under Part 5 of the EP&A Act, EE is both the proponent and the determining authority for the proposal. The works are subject to the provisions of The Code of Practice (The Code) for Authorised Network Operators (ANO),

The purpose of this Review of Environmental Factors (REF) is to examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment as a result of this proposal. This REF identifies mitigating measures to be incorporated into the design, construction and operation of the communications tower and ancillary infrastructure to minimise environmental impacts.

The main environmental risks of the proposal are associated with heritage and visual amenity.

Mitigation measures identified in Sections 8 and 9 of this REF would be included in the Environmental Management Plan (EMP) and implemented to manage any potential environmental risks associated with the proposal.



**Determination - Decision Statement**

The REF concludes that:

- The proposal is not likely to have a significant impact on the environment and accordingly, an Environmental Impact Statement (EIS) is not required;
- The proposal will not be carried out in an area of outstanding biodiversity value and is not likely to significantly affect threatened species, populations or ecological communities or their habitats or impact biodiversity and a Species Impact Statement is not required;
- The proposal is not likely to significantly impact on a matter of national environmental significance or the environment of Commonwealth land and a referral to the Australian Government Department of Agriculture, Water and Environment is therefore not required under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act); and
- Provided the mitigation measures identified in Sections 8 and 9 of this REF are included in the EMP, the proposed activity is unlikely to significantly affect the environment.

**Certification**

I certify that I have reviewed and endorsed the contents of this REF document and, to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the *Guidelines for Division 5.1 Assessments* approved under clause 170 of the EP&A Regulation, and the information it contains is neither false or misleading. This is a determination that the proposal as assessed in this REF meets the requirements under Part 5 of the EP&A Act.

Prepared by	Endorsed by	Determined by
Name: David Kelly Title: Associate Director Company: EMM Consulting Date: 28 February 2023 Signature: 	Name: Roweena D'Souza Title: Environmental Specialist Company: Endeavour Energy Date: 1 March 2023 Signature: 	Name: Ali Youssef Title: Environmental Specialist (Authorised Delegate of Endeavour Energy) Date: 1 March 2023 Signature: 

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LIST OF ABBREVIATIONS AND GLOSSARY OF TERMS

Term	Meaning
<b>A</b>	amp: the unit of measure for current (or load) which is the amount
<b>AHIMS</b>	Aboriginal Heritage Information Management System
<b>ANO</b>	Authorised Network Operator under the Electricity Networks Assets (Authorised Transactions) Act 2015
<b>ASP</b>	Accredited Service Provider
<b>CEMP</b>	Construction Environmental Management Plan
<b>DCCEEW</b>	Department of Climate Change, Energy, the Environment and Water
<b>Determining Authority</b>	Minister or public authority by or on whose behalf the activity is or is to be carried out or any Minister or public authority whose approval is required in order to enable the activity to be carried out.
<b>DBYD</b>	Dial Before You Dig
<b>DC</b>	Direct Current
<b>DPE</b>	Department of Planning and Environment
<b>EE</b>	Endeavour Energy
<b>EMP</b>	Environmental Management Plan
<b>EP&amp;A Act</b>	Environmental Planning and Assessment Act 1979 (NSW). Provides the legislative framework for land use planning and development assessment in NSW.
<b>EP&amp;A Regulations</b>	Environmental Planning and Assessment Regulation 2021
<b>EPA</b>	Environment Protection Authority
<b>EPBC Act</b>	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth). Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process.
<b>ES Act</b>	Electricity Supply Act 1995
<b>ESCP</b>	Erosion and Sediment Control Plan
<b>ESD</b>	Ecologically sustainable development: is development which uses, conserves and enhances the resources of the community so that ecological processes on which life depends, are maintained and the total quality of life, now and in the future, can be increased.
<b>EWP</b>	Elevation Work Platform
<b>Feeder</b>	A set of electric conductors that distribute electricity
<b>HV</b>	High Voltage

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Term	Meaning
<b>Hz</b>	Hertz
<b>Joint bay</b>	Concrete bay constructed in various locations along a feeder route which is used for jointing lengths of cable together
<b>km</b>	Kilometre
<b>kV</b>	Kilovolts
<b>LEP</b>	Local Environmental Plan: a type of EPI made under Part 3 of the EP&A Act.
<b>LGA</b>	Local Government Area
<b>m</b>	metre
<b>MNES</b>	Matter of National Environmental Significance
<b>NP</b>	National Park
<b>NPW Act</b>	National Parks and Wildlife Act 1974
<b>NPWS</b>	National Parks and Wildlife Service (OEH)
<b>OH</b>	Overhead
<b>POEO Act</b>	Protection of the Environment Operations Act 1997
<b>REF</b>	Review of Environmental Factors
<b>Road</b>	Includes the airspace above the surface of the road, the soil beneath the surface of the road and any bridge, tunnel, causeway, road-ferry, ford or other work or structure forming part of the road. The road reserve is inclusive of the carriageway and the footpath.
<b>SCADA</b>	Supervisory Control and Data Acquisition
<b>SEPP</b>	State Environmental Planning Policy: a type of EIP made under Part 3 of the EP&A Act
<b>SER</b>	Summary Environmental Report
<b>SIS</b>	Species Impact Statement
<b>The Code</b>	The Code of Practice for Authorised Network Operators (ANO) designed to regulate the ANOs decision making process as to the appropriate level of environmental assessment required relative to the impacts of a proposed project.
<b>TMP</b>	Traffic Management Plan
<b>UGOH</b>	Underground to overhead construction- a structure which facilitates the transition of underground cabling to aerial (overhead) construction
<b>V</b>	volt: the unit of measure for voltage which is the pressure that electricity is pushed through the wire
<b>ZS</b>	Zone Substation



## Document Control

Revision	Prepared by and Company Name	Date	Reviewed by and Company Name	Comments
V1	Nadia Eisenlohr and Verity Blair, EMM Consulting Pty Ltd	14 October 2022	Roweena Dsouza Endeavour Energy	See comments as track changes
V2	Nadia Eisenlohr and Verity Blair, EMM Consulting Pty Ltd	10 November 2022	Roweena Dsouza Endeavour Energy	See comments as track changes
V3	Allan Young, EMM Consulting Pty Ltd	6 February 2023	Roweena Dsouza Endeavour Energy	Final comments as track changes
V4	Dave Kelly, EMM Consulting Pty Ltd	28 February 2023	Roweena Dsouza Endeavour Energy	Approved for determination

# 1 Introduction

## 1.1 Background

Endeavour Energy (EE) is an electricity distribution system operator servicing over 2.5 million people living and working across Sydney's Greater West, the Blue Mountains, the Southern Highlands, Illawarra and the South Coast of New South Wales (NSW).

In May 2023 the main EE office in Sydney will move from its current location at Huntingwood to new premises in Parramatta. EE have a communications tower within the Huntingwood site and it is a critical component of EE's wide area network (WAN). The tower provides connectivity and redundancy for several depots, including both EE's Information Technology and Operational Technology data centres as well as for Supervisory Control and Data Acquisition (SCADA) sites which are vital to keep EE's power grid active and managed. As a result of this move, the existing EE communications tower will no longer be accessible and there is a need for a new communications tower.

The site adjacent to the Sydney Water reservoir at Prospect was deemed as a suitable location for this purpose in terms of microwave links, line of sight and coverage, which can provide connectivity to 98 SCADA field assets and one substation that are currently directly connected to the Huntingwood site. The proposal includes installation of a 60m lattice tower, a hut and ancillary equipment within a 15m by 15m fenced compound at Prospect Reservoir, Sydney. It also includes the upgrade of an existing access track, creation of a 10m Asset Protection Zone, minor trimming of vegetation and implementation of the Vegetation Management Plan.

EMM Consulting Pty Ltd (EMM) has been engaged by EE to prepare a Review of Environmental Factors (REF) for the proposal. The proposal is subject to the provisions of NSW Code of Practice (the Code) for Authorised Network Operators (ANO), *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport and Infrastructure SEPP), and requires assessment and approval under Division 5.1, section 5.5 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

EE is the determining authority under section 5.5 of the EP&A Act for the proposal. In accordance with requirements under section 5.5 of the EP&A Act, EE is also responsible for assessing all matters affecting or likely to affect the environment as a result of the proposal.

The REF has been developed in accordance with section 171 of the NSW Environmental Planning and Assessment Regulation 2021 (EP&A Regulation) with consideration of measures that will be implemented to avoid or minimise the potential for environmental impacts as a result of construction and operation of the proposal. This REF is based on a desktop review of potential environmental sensitivities at the site, site visits undertaken by EMM's project director, ecological and heritage specialists, technical assessment reports and other relevant proposal documentation provided by EE.

## 1.2 Location of the study area

The proposal site is located at William Lawson Drive, Prospect within the curtilage of Prospect Reservoir (refer Figure 1-1 and Figure 1-2). The proposal site is located on Prospect Hill in close proximity to an existing water tank to the northeast, within Lot 304 Deposited Plan (DP) 1122291 which sits within the wider Prospect Reservoir site. Prospect Reservoir and surrounds is located across Cumberland, Fairfield and Blacktown Local Government Areas (LGAs), while the proposal site is located solely within Blacktown LGA.

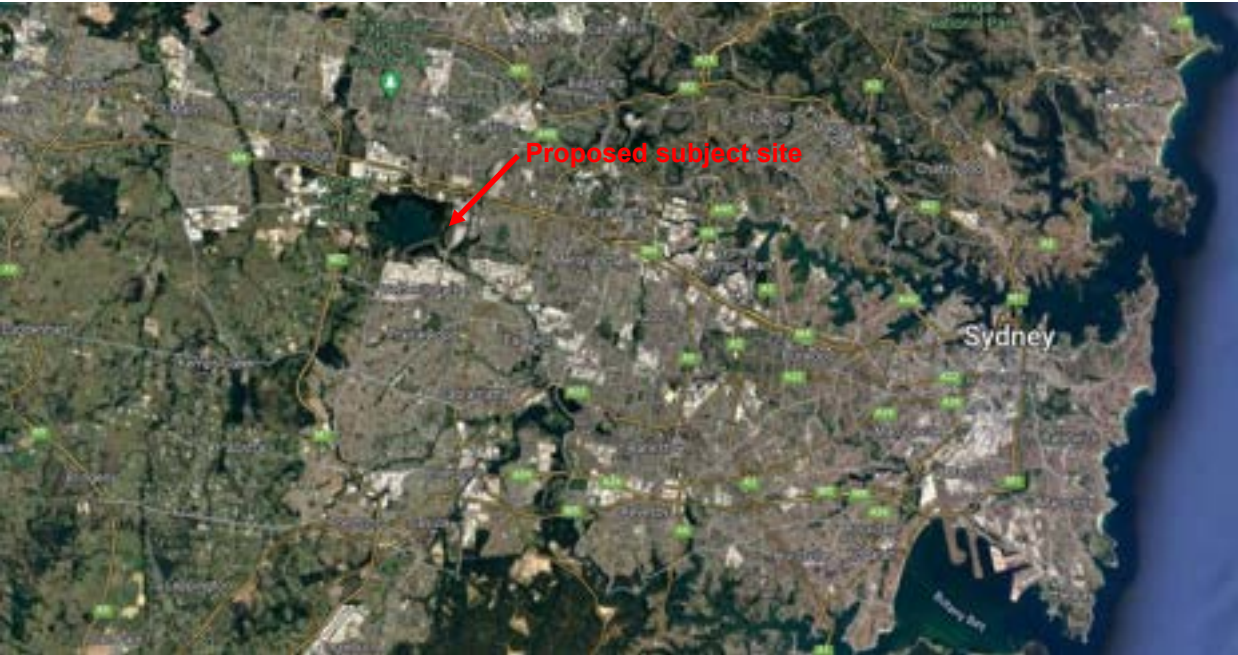


Figure 1-1 Contextual location of subject site



Figure 1-2 Location of proposed communications tower

### 1.3 Proponent

EE is a regulated stand-alone power system pursuant to the *National Electricity (NSW) Law*, section 6B. EE is also constituted as a State-owned corporation under the *Energy Services Corporation Act 1995*. EE operates under national electricity laws, statutory instruments and policies which government networks in the National Electricity Market.

EE is the proponent of the proposal. Their network spans approximately 24,800 square kilometres and services over 2.6 million people across Sydney's Greater West, the Blue Mountains, the Southern Highlands, Illawarra and the South Coast of NSW.

Proponent details are provided in the table below.

**Table 1-1 Proponent details**

Specification	Details
Proponent	Endeavour Energy
Address	51 Huntingwood Dr, Huntingwood NSW 2148
Website	<a href="https://www.endeavourenergy.com.au/">https://www.endeavourenergy.com.au/</a>

### 1.4 Purpose of this REF

The purpose of this REF is to assess potential impacts that may result from the construction and operation of the proposal described in greater detail in Chapter 7 of this report.

The structure of this REF has been prepared in accordance with the table of contents presented on page 21 of EE's Environmental Management Standard: Environmental impact assessment and environmental management plans (EMS 0001) Amendment no. 5 (EE 2014) and in accordance with requirements set out in the Code, with the exception of a small number of additional sections added for greater clarity.

## 2 Project justification

### 2.1 Overview

The proposal is located within the Greater Western Sydney suburb of Prospect, which falls within a strategic growth area referred to as the 'Western Sydney Growth Area' and the 'Western Sydney Parkland'. The proposal is located within the curtilage of Prospect Reservoir, one of Sydney's major sources of drinking water.

The proposal will play a key role within EE's existing broader transmission supply network to connect and provide electricity to Sydney, and to service the many new households, businesses and projects within new growth areas in Sydney.

This chapter serves to describe the strategic context of the proposal, as well as the need, objectives and benefits of the proposal.

### 2.2 Strategic context

#### 2.2.1 Greater Sydney Region Plan 'A Metropolis of Three Cities' – Western Sydney Parkland

Based on the NSW Government predictions, Sydney's population will continue to grow to nearly eight million people over the next 40 years (NSW Government 2021). For over a decade, the NSW Government has been preparing for the projected increase in population, by formalising strategies and investment that will secure jobs, infrastructure, education, health facilities and services within the different growth centres of Sydney.

One of the key growth areas has been the Western Parkland City, the location of which is shown in Figure 2-1. Government plans for Western Sydney have evolved in the last few decades, and especially with the release of the Greater Sydney Region Plan 'A Metropolis of Three Cities' (the Greater Sydney Region Plan) in 2018 which projects the following growth for the Western Parkland City (GCC 2018a):

- Population increase from 740,000 in 2016 to 1,120,000 in 2036, which would include a 28% population increase in the 0–19-year-old bracket and 17% increase in +65-year-old bracket.
- Approximately 210,000 additional dwellings between 2016-2036.
- Approximately 237,000 additional jobs between 2016-2036.

These projects have impacted the land use vision of Western Sydney; in particular, with the creation of the 'three cities' concept. Since the release of the Greater Sydney Region Plan, work on infrastructure and housing provision in Sydney's greater west has accelerated with significant investment in precincts, infrastructure and development; particularly with large scale projects such as the Western Sydney Airport, the Sydney Metro, Sydney Science Park, the Bringelly Road, Elizabeth Drive and the Northern Road upgrades, and others (GCC 2022). The provision of utilities is a critical component of this growth.

Furthermore, the proposal aligns with Greater Sydney Commission's (GCC) 'Our Greater Sydney 2056 Western City District Plan – connecting communities'(WSD Plan) (GCC 2018b) Planning Priority W1 Planning for a city supported by infrastructure, the objectives of which are to:

- Foster infrastructure that supports the three cities;
- Align infrastructure with forecast growth;
- Adapt infrastructure to meet future needs; and
- Optimise infrastructure use.

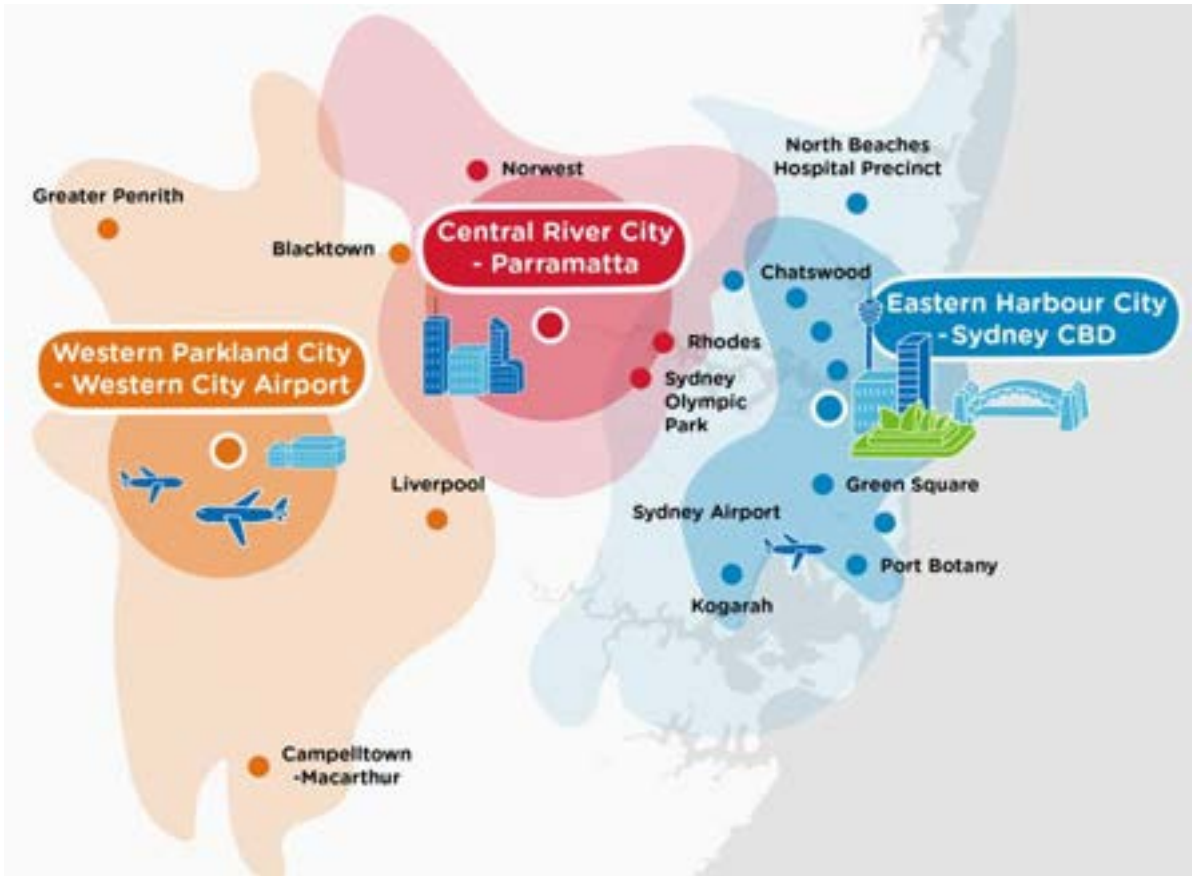


Figure 2-1 Three Cities Strategic Plan

### 2.3 Project need

EE have a communications tower within the Huntingwood site and it is a critical component of EE's wide area network (WAN). The tower provides connectivity and redundancy for several depots, including both EE's Information Technology and Operational Technology data centres as well as for SCADA sites which are vital to keep EE's power grid active and managed. As EE are moving out of Huntingwood, the existing EE communications tower will no longer be accessible and there is a need for a new communications tower to carry out the functions of the existing tower and meet increasing electricity demand from SSP, SSI and SSD associated with growth throughout Sydney, particularly the Western Sydney Growth Area including the Aerotropolis and the Sydney Metro.

The proposal is crucial to maintain the existing network and to cater to future network needs such as Sydney Metro and Western Sydney Airport.

### 2.4 Project objective and benefit

The key objective of the proposal is to provide and maintain a reliable electricity supply and electrical network in Sydney and provide for future demands on the electricity network.

Residents, commercial and industrial business operators and their customers will all benefit from safe, efficient and cost-effective and continuous electrical supply within this growth region, while assisting the NSW Government achieve its goals of transforming the Western Sydney Growth Area into the purposeful precincts that have been intended and planned out in the Aerotropolis Plan and the Western Parkland City SEPP.

### 3 Legislative framework

#### 3.1 Overview

This chapter describes the legislative framework that applies to the proposal, including the approval pathway under the EP&A Act. An overview of the potential approval requirements under relevant Commonwealth and NSW legislation and environmental planning instruments (EPIs) is also provided.

#### 3.2 Approval pathway

The NSW *Environmental Planning and Assessment Act 1979* (the EP&A Act) and the NSW Environmental Planning and Assessment Regulation 2021 (the EP&A Regulation) provide the framework for assessing environmental impacts and determining environmental approvals for 'development' and 'activities' in NSW.

The EP&A Act also provides for State environmental planning policies (SEPPs) and local environmental plans (LEP) to regulate development.

Relevant provisions from statutory instruments are examined below.

##### 3.2.1 NSW Environmental Planning and Assessment Act 1979

###### Development

The EP&A Act includes a definition of 'development' (at section 1.5) being:

1. For the purposes of this Act, **development** is any of the following:
  - a. the use of land;
  - b. the subdivision of land;
  - c. the erection of a building;
  - d. the carrying out of a work;
  - e. the demolition of a building or work;
  - f. any other act, matter or thing that may be controlled by an environmental planning instrument.
2. However, development does not include any act, matter or thing excluded by the regulations (either generally for the purposes of this Act or only for the purposes of specified provisions of this Act).

The proposed works are therefore considered to be development and the EP&A Act and its supporting instruments apply.

Section 3.18 further states that an environmental planning instrument may provide for specified development to be carried out without development consent, or with development consent.

Further, section 4.2 of the EP&A Act provides that an environmental planning instrument (such as a local environmental plan or State environmental planning policy) may provide for development to be carried out with consent.

The TISEPP (considered further below) provides at section 2.44(1) that development for the purpose of an electricity transmission or distribution network may be carried out by or on behalf of an electricity

supply authority or public authority without consent on any land (unless the land is reserved under the *National Parks and Wildlife Act 1974*).

Hence the proposed development is permitted without consent.

The provisions under Part 4 of the EP&A Act therefore do not apply to this proposed development. Instead, the provisions of Part 5 of the EP&A Act are triggered as Division 5.1 of Part 5 defines 'activities' to include (amongst other things) the use of land, erection of a building and the carrying out of a work, provided that the activity is not exempt development, prohibited development or development which requires consent under Part 4.

#### Determining authority

Under section 5.1 of the EP&A Act, the term 'determining authority' is defined as a Minister or public authority and, in relation to any activity, means the Minister or public authority by or on whose behalf the activity is or is to be carried out or any Minister or public authority whose approval is required in order to enable the activity to be carried out.

In this case, EE is the public authority by or on whose behalf the activity is to be carried out and is therefore a determining authority.

#### Environmental assessment

The EP&A Act also provides, at section 5.5, that a determining authority in its consideration of an activity shall, notwithstanding any other provisions of this Act or the provisions of any other Act or of any instrument made under this or any other Act, examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity.

If the activity is found to be likely to significantly affect the environment, then section 5.7(1) requires an environmental impact statement (EIS) to be prepared.

### **3.2.2 Environmental Planning and Assessment Regulation 2021**

Section 171 of the EP&A Regulation stipulates that the determining authority must take into account certain prescribed environmental factors (section 171(2)).

It is also stated (section 171(3)) that a determining authority must prepare a review of the environmental factors that demonstrates how the environmental factors were taken into account.

Those factors are considered within the Review of Environmental Factors (REF). Table 3-2 includes an itemised list of these factors for the project.

Finally, section 171(4) requires the REF to be published if the activity has a capital investment value of more than \$5 million, it requires a permit under certain other legislation (eg *Heritage Act 1977*) or if considered in the public interest to do so. This proposal's capital investment value is approximately \$2.2 million and not above that threshold and s57 of the Heritage Act 1977 wasn't triggered. The REF would still be published on EE website as part of EEs protocol.

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

The aim of the TISEPP is to facilitate the effective delivery of transport and infrastructure across NSW.

Section 2.7 of the TISEPP provides that this SEPP prevails over all other environmental planning instruments including LEPs and SEPPs except in the case where section 2.7 (2) provides that the following SEPPs override all the requirements of the TISEPP to the extent of any inconsistency:

- Clauses 10, 11 and 19 of the State Environmental Planning Policy (Coastal Management) 2018 (Coastal Management SEPP); and



- All of the provisions of State Environmental Planning Policy (State Significant Precincts) 2005 (State Significant Precincts SEPP).

It should be noted that the Coastal Management SEPP has been repealed and the relevant provision are now found in Chapter 2 of the State Environmental Planning Policy (Resilience and Hazards) 2021. Nevertheless, the subject site is not within the coastal zone and the former Coastal Management SEPP provisions do not apply.

The State Significant Precincts SEPP has also been repealed and the relevant provision are now found in the State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021, however the application area does not extend to the subject site, and therefore is not applicable in this case.

Subdivision 1 of Division 5 deals with Electricity Transmission or Distribution Networks and provides at development for the purposes of ‘electricity transmission or distribution network’ are permitted without consent. Section 2.44(1) states:

- 1) Development for the purpose of an electricity transmission or distribution network may be carried out by or on behalf of an electricity supply authority or public authority without consent on any land, excluding land reserved under the National Parks and Wildlife Act.

The TISEPP’s definition of an “electricity transmission or distribution network”, as per section 2.43 of the SEPP, includes the following components:

- a) above or below ground electricity transmission or distribution lines (and related bridges, cables, conductors, conduits, poles, towers, trenches, tunnels, access structures, access tracks and ventilation structures) and telecommunication facilities that are related to the functioning of the network,
- b) above or below ground electricity kiosks or electricity substations, feeder pillars or transformer housing, substation yards or substation buildings,
- c) systems for electricity storage associated with component specified in paragraphs (a) and (b).

Given that the proposal can be classified as an ‘activity’ under Part 5 of the EP&A Act, EE will not be required to submit a development application to the NSW Department of Planning and Environment (DPE) or Blacktown City Council (BCC). However, BCC will be notified of the intention to carry out the proposed works and EE will consider any response received from the Council.

### **3.2.4 State Environmental Planning Policy (Precincts – Western Parkland City) 2021**

The State Environmental Planning Policy (Precincts – Western Parkland City) 2021 is also a relevant instrument for this proposed development due to the provision of land use and development controls. Refer to Section 3.4.

### **3.2.5 NSW Code of Practice for Authorised Network Operators (ANO)**

#### **3.2.5.1 Determining authority**

The Code is the approved Code under section 201 of the EP&A Regulation. The NSW Government has leased part of NSW’s transmission and distribution network to privately managed network businesses, which are referred to as ANOs by the *Electricity Network Assets (Authorised Transactions) Act 2015* (Authorised Transactions Act). ANOs include TransGrid, Ausgrid and EE.

The NSW Government has identified the ANOs as prescribed determining authorities for the purposes of section 5.6 of the EP&A Act and the definition of ‘public authority’ under section 1.4 of the EP&A Act. This allows an ANO to be a Part 5 determining authority for development for the purposes of an electricity transmission or distribution network.

Therefore, as an ANO, EE can assess and self-determine activities that are not likely to significantly affect the environment and are conducted by or on behalf of EE for the purpose of electricity transmission or distribution.

The Code is deemed to be in force until it is revoked or varied in accordance with the EP&A Regulations.

### 3.2.5.2 Assessment class

The Code requires an ANO to classify its proposal into one of six possible assessment classes. The Code applies to Class 3, 4, 5 and 6 proposals only. The construction impacts of the proposal will be, for the most part, confined to the area shown in Section 7 and Appendix A. No trees are required to be removed for the proposal with only minor trimming required. As such impacts to local flora communities are expected to be minor and negligible. Given the height of the tower and its location within a State listed heritage item, there will be some visual impacts (refer section 8.4) but these are not considered to be significant.

Overall, the proposed work is not likely to significantly affect the environment, including heritage items, critical habitat, threatened species populations or ecological communities or their habitats, and therefore an EIS is not required and the proposal is being assessed as a Class 4 proposal under the Code. Class 4 proposals requires the preparation of an REF.

### 3.2.5.3 Assessment requirements

Section 2.4.3 of the Code specifies the requirements that must be included and addressed in an REF for a Class 4 proposal. The table below specifies the outlined assessment requirements and where they have been addressed in this REF.

**Table 3-1 REF requirements specified in the NSW Code for Authorised Network Operators**

Requirement	Summarised description	Addressed
The proposed activity	Clear description of the activity that is proposed, including the nature, the purpose and the sites where it will take place.	Chapter 7 Proposed works
	Sufficient detail about the proposed activity to demonstrate potential impact on the environment.	Chapter 7 Proposed works Chapter 8 Environmental assessment and mitigation
	Discuss viable alternatives and any mitigation measures to be implemented.	Chapter 5 Consideration of alternatives
Certification	Statement signed and dated by the person with principal responsibility for preparing the REF (being an employee or agent of the ANO), as per the requirement specified on page 22 of the Code.	Front page of this REF
The proponent, determining authorities and any required approvals	Identify the proponent and all determining authorities and required approvals for the activity.	Section 1.3 Proponent Section 3.2.5 NSW Code of Practice for Authorised Network Operators, Determining authority
The environment of the activity	A description of the environment of the site and the surrounding area, with a focus on the aspects of the environment that are of particularly high value, sensitive to impacts of the type the activity will have, or of importance to the community.	Section 3.3 Commonwealth Environment Protection and Biodiversity Conservation Act 1999 Chapter 6 Existing environment Section 8.2 Heritage Section 8.4 Visual amenity

**Table 3-1 REF requirements specified in the NSW Code for Authorised Network Operators**

Requirement	Summarised description	Addressed
	The REF must identify and describe Threatened Species Populations and Ecological Communities that are likely to occur in the area affected by the activity.	Section 8.4 Biodiversity
The impacts of the activity	The likely environmental impacts for all phases of the activity and describe their extent, size, scope, intensity and duration.	Chapter 8 Environmental assessment and mitigation
	As a minimum, the REF should document consideration of each of the factors listed in clause 171(2) of the EP&A Regulation and the document consideration of each of the factors listed in section 5A of the EP&A Act in relation to Threatened Species, Populations and Ecological Communities (including fish and marine vegetation), and their Habitats.	Section 8.18 Summary of impacts
	List the sources and data the ANO relied on when preparing the REF.	References Appendices
Mitigating measures that will apply to the activity	An ANO may conclude that the activity should be modified or adapted so that certain measures designed to mitigate the environmental impacts of the activity are observed. These mitigating measures should be documented.	Chapter 8 Impact assessment and mitigation Chapter 9 Environmental Management
Summary of impacts	Include a section that summarises the individual impacts of the activity and provides an overarching view of the impacts of the activity on the environment.	Chapter 10 Conclusion
Consultation	Record the consultation undertaken for the purposes of preparing the REF in accordance with Section 2.3.7 of the Code.	Chapter 4 Consultation
Conclusions regarding an EIS and/or a SIS	The REF should describe: <ul style="list-style-type: none"> <li>Whether the activity is likely to significantly affect the environment, in which case an EIS is required; and</li> <li>Whether the activity is likely to significantly affect Threatened Species, Populations, Ecological Communities or their Habitats, in which case a SIS is required.</li> <li>Describe the reasons for these conclusions, referencing the more detailed assessments in the body of the REF for support.</li> </ul>	Section 3.2.3 Transport and Infrastructure State Environmental Planning Policy 2021 Section 8.2 <b>Error! Reference source not found.</b> Heritage Section 8.5 Biodiversity Section 8.4 Visual amenity Chapter 10 Conclusion
	In instances where the REF has been prepared by a third party it is important to note that irrespective of the conclusion of the REF, an ANO is ultimately responsible for deciding whether a proposed activity is likely to significantly affect the environment.	Chapter 10 Conclusion

### 3.3 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

#### 3.3.1 EPBC Act requirements

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) outlines the Commonwealth Government's role in regard to environmental assessment, biodiversity conservation, the management of protected species, populations and communities and heritage items. The EPBC Act lists nine MNES which must be considered when assessing the impacts of a proposal, including:

- World heritage properties;
- National heritage places;
- Ramsar wetlands of international importance;
- Nationally threatened species and ecological communities;
- Migratory species;
- Commonwealth marine areas;
- The Great Barrier Reef Marine Park;
- Nuclear actions (including uranium mining); and
- A water resource, in relation to coal seam gas development and large coal mining development.

If an action will or is likely to have a significant impact on any of the matters of MNES, it is deemed to be a controlled action and requires approval from the Minister for the Environment and Energy or the Minister's delegate.

#### 3.3.2 Assessment against the EPBC Act

A search of the Commonwealth Protected Matters Search Tool (PMST) was undertaken on 12 of August 2022. The search results indicate that there are no world heritage properties or national heritage places within the vicinity of the site. This finding is supported by the PMST search undertaken by the heritage consultant for the proposal, who has also concluded that there are no items within or in the immediate vicinity of the proposal listed on the World Heritage List (WHL), National Heritage List (NHL) or Commonwealth Heritage List (CHL).

The closest MNES identified are:

- Prospect Nature Reserve (Protected Area ID NSW\_N0938), a Terrestrial Protected Area located approximately a kilometre north-west of the proposal;
- Australian Convict Sites - Old Government House and Domain and Buffer Zone (Place ID 106209), a World Heritage Property and Buffer Zone located approximately 7km east of the proposal;
- Villawood Immigration Centre (Place ID 105543), a Historic Commonwealth Heritage Place, located approximately 9 km south-east of the proposal; and
- Kemps Creek Nature Reserve (Protected Area ID NSW\_N0863), a Terrestrial Protected Area located approximately 12 km south-west of the proposal.

None of the EPBC Act threatened fauna species are likely to be affected by the proposal.

Thus, it has been concluded that the proposal will not have a significant impact on any matters of MNES. Accordingly, approval from the Commonwealth is not required under the EPBC Act.

### 3.4 Land use and permissibility

Under the Blacktown LEP 2015 the proposal site is zoned as SEPP (Western Sydney Parklands) 2009. (Figure 3-1 and Figure 3-2).

The SEPP (Western Sydney Parklands) 2009 been consolidated under the SEPP (Precincts – Western Parkland City) 2021 and has Prospect Reservoir is within Western Sydney Parklands and is listed as Bulk Water Supply Infrastructure with the proposal site located to the east (Figure 3-3).



Figure 3-1 Zoning under Blacktown LEP 2015

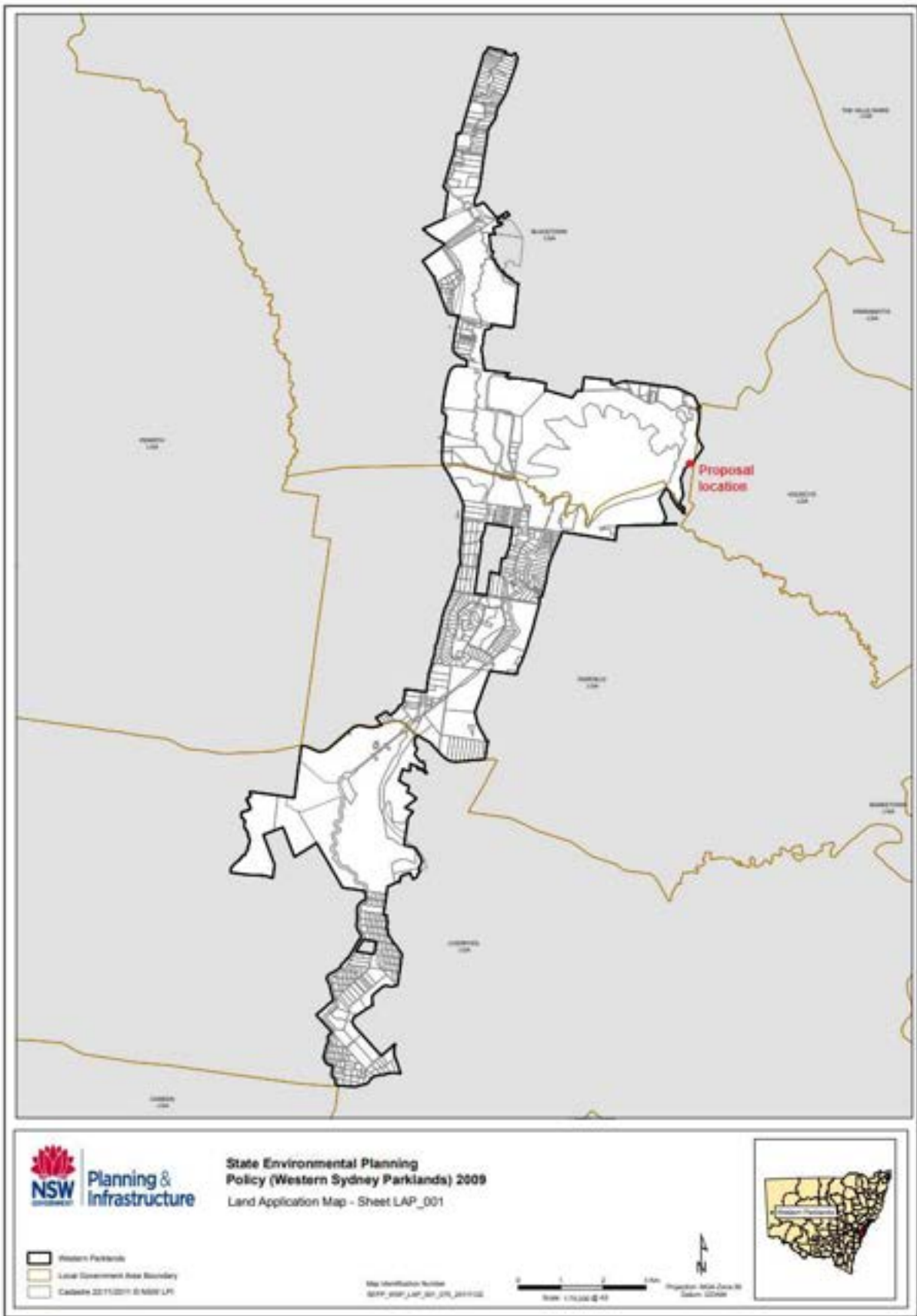


Figure 3-2 Land Application of the SEPP (Western Sydney Parklands) 2009



**Figure 3-3 Western Sydney Parklands SEPP Bulk Water Supply Map**

Requirements related to bulk water supply infrastructure in the Western Sydney Parklands are listed in Section 7.11 of the SEPP (Precincts – Western Parkland City) 2021:

*Development consent must not be granted to any development on land in the Western Parklands unless the consent authority is satisfied that:*

- a) *The development will have a neutral or beneficial impact on the quality of the water in the bulk water supply infrastructure shown on the Bulk Water Supply Infrastructure Map, and*
- b) *the development will not impact on the integrity or security of the bulk water supply infrastructure, and*
- c) *the development will not increase the risk of illegal access to the bulk water supply or security of the bulk water supply infrastructure, and*
- d) *access to bulk water supply infrastructure for maintenance and operation activities by Water NSW and Sydney Water Corporation will not be impeded by the development.*

The nature and location of the proposal is such so as to have a neutral impact on the bulk water supply infrastructure of Prospect reservoir.

### **3.5 Aerotropolis**

The State Environmental Planning Policy (Precincts – Western Parkland City) 2021 includes provisions and mapping for the Aerotropolis including Western Sydney Airport. An important consideration when erecting a communications tower is the Obstacle Limitation Surface (OLS). The OLS requirements are identified at Map AER\_OLS\_001 under the State Environmental Planning Policy (Precincts – Western Parkland City) 2021. The OLS reaches part of Prospect Reservoir but does not include the subject site.

The minimum height for obstacles over Prospect Reservoir is 222.2 m. The proposed tower is outside this zone and not subject to OLS limitation. Refer to Figure 3-4.



Figure 3-4 Obstacle limitation surface (Aerotropolis)

### 3.6 Cumberland Plain Conservation Plan

The Cumberland Plain Conservation Plan (CPCP) has been prepared to meet strategic biodiversity certification under the *Biodiversity Conservation Act 2016* and strategic assessment under the EPBC Act.

The subject site is close to but outside the lands subject to the CPCP. Refer to Figure 3-5.





**Figure 3-5 Cumberland Plain Conservation Plan**

### **3.7 Other legislative requirements**

#### **3.7.1 Heritage Act 1977**

The subject site is located on land which forms part of two items listed on the NSW State Heritage Register – Prospect Reservoir and surrounding area ((Item 01370) and Prospect Reservoir Valve House (Item 01371).

Section 60 of the *Heritage Act 1977* (Heritage Act) requires the NSW Heritage Council to assess the potential of non-exempt works on the heritage significance of the items.

A Statement of Heritage Impact (SOHI) has been prepared by Heritage 21 (final SOHI submitted on 31 January 2023) which provides an independent assessment of the proposed works. A copy of the SOHI is provided as Appendix B to this REF.

#### **3.7.2 NSW Electricity Supply Act 1995**

The NSW *Electricity Supply Act 1995* (ES Act) defines EE's licencing requirements and provides a framework for the development and maintenance of electrical infrastructure. In summary, it allows EE to trim and remove trees, carry out works on public roads and acquire land. The ES Act also requires that works (other than routine repairs or maintenance works) must not be undertaken unless a minimum of 40 days' notice is supplied to the relevant local council. Any submission received must be considered by EE.

Notifications were sent to Blacktown City Council (BCC), Cumberland City Council (CCC) and Fairfield City Council (FCC) on the 12 of October 2022. The notification period concluded on the 21 of November 2022 and no responses have been received from the BCC, CCC or FCC.

### 3.7.3 NSW Protection of the Environment Operations Act 1997

The NSW *Protection of the Environment Operations Act 1997* (POEO Act) provides a framework for the licensing of certain activities and is administered by the DPE (formerly Office of the Environment and Heritage (OEH)). Under the POEO Act, the construction and operation of the proposal must be conducted in such a manner so as:

- not to pollute the environment;
- any waste generated must be classified, handled, transported and disposed appropriately; and
- environmental incidents involving actual or potential harm to human health or the environment must be reported to OEH.

### 3.7.4 Environment Operations (Waste) Regulation 2014

The Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation) is a key piece of legislation for the regulatory framework in NSW and includes strict thresholds for Environmental Protection Licences (EPLs). Under the Waste Regulation, a Resource Recovery Exemption and a Resource Recovery Order allow for the reuse of virgin excavated natural materials (VENM) or excavated natural materials (ENM) for the purpose of application to land as engineering fill or for use in earthworks. Resource recovery orders and exemptions have been developed by the NSW Environment Protection Authority (EPA) to ensure that “the use of waste must be genuine, fit-for-purpose and cause no harm to the environment or human health” (2015).

According to the EPA, all soil stockpiles for the purpose of re-use as fill must be classified as either VENM or ENM in order to be transported and used as fill. Excavated natural material is defined as “...*natural material that:*

- has been excavated or quarried from areas not contaminated with manufactured chemicals or process residues, as a result of industrial, commercial, mining or agricultural activities; and
- does not contain sulphidic ores or soils, and includes natural material that meets such criteria for virgin excavated natural material...”

In addition to a range of criteria for chemical and other attributes, the material must comply with to be classified as VENM. Given the relatively undisturbed nature of the area and its use, it is not considered likely that there will be contaminants of concern.

### 3.7.5 NSW Biodiversity Conservation Act 2016

In accordance with the NSW *Biodiversity Conservation Act 2016* (BC Act), a number of factors need to be taken into account when making a determination as to whether an action, development or activity is likely to significantly affect threatened species, populations or ecological communities or their habitats. The proposal will require clearing of grasses and small shrubs with minor trimming of branches of the adjacent trees. Further consideration of this is provided in Section 8.4.

### 3.7.6 Summary of legislative requirements

**Table 3-2 Other legislative requirements**

Legislation	Authority	Responsibility	Requirement	Comment
NSW Contaminated Land Management Act 1997 (CLM Act)	DPE	Project manager/ Project supervisor	Notification – under s60 by a person whose activities have contaminated land or a landowner whose land has been contaminated is required to notify DPE when they	If contamination is discovered the duty to report would be determined.

**Table 3-2 Other legislative requirements**

Legislation	Authority	Responsibility	Requirement	Comment
			become aware of the contamination.	
NSW Electricity Supply Act 1995 (ES Act)	Local Council	EE	Notification – under s45, a 40 days' notice is required for proposed electricity works.	BCC will be notified as part of REF notification process.
NSW <i>Heritage Act</i> 1977 (Heritage Act)	DPE / Heritage Council	EE/ Project manager	Consideration – under s139 as to whether a permit to excavate or disturb land is required.	No items of non-Aboriginal heritage have been identified within the proposal area. Refer to Sections 8.2 on heritage.
Transport and Infrastructure SEPP 2021	Local Council	EE	Notification – under s13 – 15, 21 days' notice of substantial impact on Council related infrastructure and local heritage works in flood liable land that will change flood patterns other than to a minor extent.	Not triggered as proposed activity is not sited on flood liable land.
National Greenhouse and Energy Reporting Act 2007	Clean Energy Regulator	EE	Reporting – under s19, a registered corporation is required to report information on energy production, energy consumption, and the amount of greenhouse gas emissions for the facilities under their operational control on an annual basis by 31 October following the financial year for which they are reporting.	EE's company-wide reporting will be undertaken each year in accordance with legislative requirements.
NSW National Parks and Wildlife Act 1979	DPE	Project manager/ Project supervisor	Consideration/ Approval – under s90 to harm or desecrate Aboriginal objects or places. Determining authority for works on NPWS land.	There are no Aboriginal artefacts that have been identified within the proposal site.
NSW Protection of the Environment Operations Act 1997 (POEO Act)	DPE	Project manager/ Project supervisor	General – under s120 no "dirty water" discharge into stormwater drains.	Refer Section 8.6
POEO Waste Regulation	DPE	Project manager/ Project supervisor	General – under section 24 transportation of certain waste must be tracked.	Refer Section 8.7
NSW Roads Act 1993	PCC	Project manager / Project supervisor	Approval – under s138 for work on a classified road.	No works are required on a classified road
NSW Rural Fires Act 1997	NSW Rural Fire Service	Project manager/ Project supervisor	Consideration – under s63 public authorities must take all reasonable steps to prevent the occurrence and minimise the spread of bushfires on or	Refer Section 8.13

**Table 3-2 Other legislative requirements**

Legislation	Authority	Responsibility	Requirement	Comment
			from lands vested in or under its control/management.	
NSW Biodiversity Conservation Act 2016 (BC Act)	DPE	EE	Consideration – carry out a test of significance to determine whether the proposal is likely to have a significant impact or not, which requires a species impact statement.	Refer Section 8.4
NSW Water Act 1912	Water NSW	Project manager/ Project supervisor	Consideration/ permit – under s113 to extract groundwater via any type of bore, well or excavation	The extraction of groundwater is not part of this proposal. It is not expected that a permit would be required for these works.

## 4 Consultation

### 4.1 Overview

Endeavour Energy have a Stakeholder Engagement Framework that is based on the spectrum of participation developed by IAP2 (the International Association of Public Participation). The principles on which Endeavour Energy's framework is built are, that consultation must be:

- Purposeful
- Timely
- Transparent
- Inclusive
- Responsive
- Best practice
- Collaborative
- Measurable

This is combined into Endeavour Energy's overall framework which is summarised in the figure below.



Figure 4-1 Endeavour Energy Stakeholder Engagement Framework

## 4.2 Project specific consultation

EE consulted extensively with Sydney Water, as the landowner, during the site selection process and to obtain approval from Sydney Water. Three options were discussed with Sydney Water within the Prospect Reservoir site and the proposal site location was agreed as the most suitable option. A grant of easement from Sydney Water was received in February 2023.

In accordance with the *Electricity Supply Act 1995* and the TISEPP, EE notified a range of stakeholders (see Appendix D for notification letters and responses) in relation to the environmental assessment including:

- Blacktown City Council – letter sent 12 October 2022. No response has been received.
- Cumberland City Council – letter sent 12 October 2022. No response has been received.
- Fairfield City Council – letter sent 12 October 2022. No response has been received.
- Heritage Council of NSW – S60 application sent 12 October 2022.
  - Feedback was received from Heritage NSW on 2 November 2022. An updated S60 application, including an options analysis, was submitted to Heritage NSW on 23<sup>rd</sup> December 2022 in response to consultation with Heritage NSW. A third and final updated version of the application (including an SoHI and accompanying VIA) was submitted to Heritage NSW on 31 January 2023. Pursuant to section 63 of the Heritage Act 1977, approval was granted by Heritage NSW subject to conditions. The approval and conditions of approval are presented in Appendix B.
  - Westmead and Blacktown hospitals were consulted from an air-space perspective, as was the RAAF base in Richmond. No response has been received.
  - Although the project sits outside the ‘Airport Safeguarding’ area, the Civil Aviation Safety Authority (CASA) was consulted. CASA advised that they do not object to the proposed tower. CASA also liaised with Bankstown Aerodrome who advised that though it is not a controlled activity, they would recommend an obstacle light.
  - EE have provided notification to landowners adjacent to the proposal on 13 November 2022, primarily in the adjacent industrial park in the former quarry. This included businesses operating on Basalt Road, Dolerite Way and Prospect Highway in addition to the office of the West Region Delivery Team (also located adjacent to the works on Prospect Reservoir). No response has been received.

In addition, if any member of the public has questions or concerns, EE have a connection point via EE “Your Say” at <https://yoursay.endeavourenergy.com.au/>,

## 5 Consideration of alternatives

Site investigations were undertaken by EE to identify suitable candidate sites for the new tower location. This section provides an overview of the options analysed for siting a suitable location for the proposed communications tower.

The existing Huntingwood tower is located at 51 Huntingwood Drive, Huntingwood NSW 2148 and is approx. 67m in height. The ground level at the Huntingwood tower is approximately 86m AHD and the tower height above sea level is 153m as indicated in the image below.

From a technical standpoint there are two main drivers for the selection of the site.

1. The federal governments (ACMA) frequency allocation requirement for these types of telemetry systems restricts Endeavour Energy (EE) to a 30km service area. As such the Huntingwood site is in the centre of this service area, any deviation from this location will result in field devices that would potentially be outside this 30km radius (as the centre point has moved), thus precluding them from being able to connect to the base station. EE tried to get the base station as geographically as close to Huntingwood as possible.
2. The 100 odd field devices all have directional antenna's, these are pointed at the Huntingwood site. EE attempted to find a site geographically as close as possible to Huntingwood and provide similar coverage to Huntingwood to minimise the disruption time that would be required to re-build the 100 odd field devices to connect to different base site.

EE looked at various site location that would meet the above 2 technical requirements. The star in the elevation map below, Figure 5-1, indicates current tower at Huntingwood. The red shaded area are locations that satisfy the elevation requirements, being similar in elevation to the Huntingwood site and allows for minimum disruption to the network users (such as residents, industries etc.). Sites that were in sensitive areas such as Prospect Nature Reserve, residential, etc, were then ruled out. Figure 5-2 and Table 5-1 shows the sites that were then considered suitable and met the technical requirements.

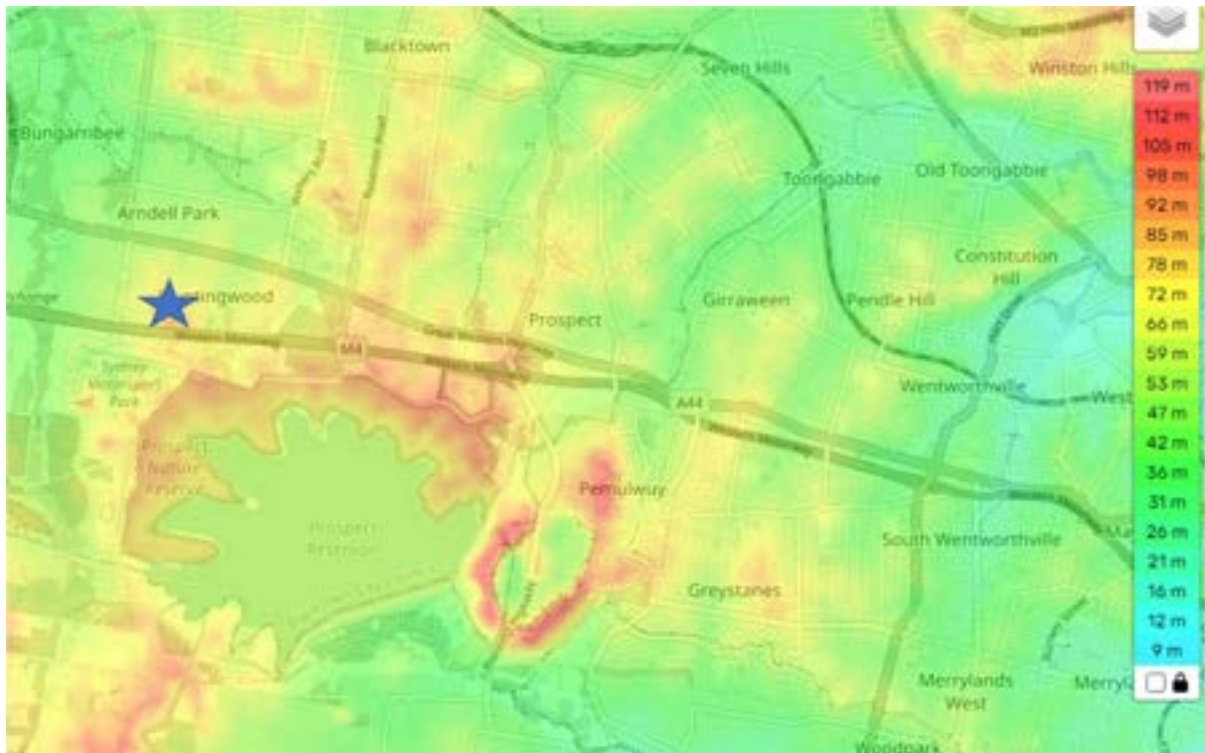


Figure 5-1 Elevation map (Sydney topographic map, elevation, terrain (topographic-map.com))

Establishment of a 60m Communications Tower, Prospect Reservoir






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Figure 5-2 Sites considered as an alternate option to Huntingwood Tower



Table 5-1 Options Analysis

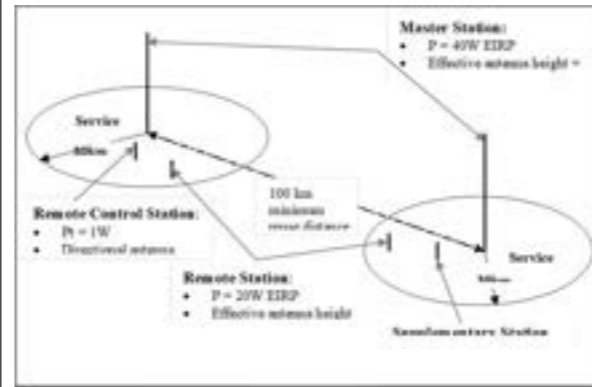
Options	Property description
<p><b>Site 4 Pemulwuy</b></p> 	<p>Prospect Hill at Pemulwuy is of significant cultural importance, especially to the people of the Darug nation. This site is listed on the State Heritage Register and is subject to a Cumberland Council Plan of Management, under which telecommunication facilities are restricted and prohibited. Given the significance of Prospect Hill at Pemulwuy to the Aboriginal community, Cumberland Council's Aboriginal and Torres Strait Islander Consultative Committee (known as the ATSIC Committee) has expressed a strong desire for Prospect Hill to be declared an Aboriginal Place of Significance. No technical assessment was undertaken given the environmental constraints in place.</p> 
<p><b>Site 5 Tower 1929</b></p> 	<p>There is insufficient land available to construct a suitable tower at this location. A proposal around this site would only provide a temporary solution to provide coverage for the UHF SCADA services only. It would not allow for the accommodation of the various microwave links that must be included in the relocation of infrastructure from the current tower at Huntingwood.</p> <p>Access to the site is poor and there is limited land available to build a suitable sized equipment shelter.</p> <p>Access to LV power could be quite challenging and construction could interfere with the M4, Prospect Hwy interchange.</p> <p>Furthermore the 132,000V transmission lines create radio frequency noise affecting the sensitivity of the base station radio receiver. Construction and maintenance access would be difficult for site 5. Although there would be a cumulative impact from locating another tower in proximity to an existing electricity tower, this would not be a significant issue given the location of the site next to a roundabout, industrial area and motorway.</p>

Options	Property description
---------	----------------------

**Site 6** Ferrers Road, Horsley Park





The ACMA licence requirement for this type of radio licence (RALI FX16) requires all remote stations be located within a 30KM service area. The Ferrers Rd site is located too far to the south to effectively provide the similar coverage to the Huntingwood site we are attempting to replace. Furthermore the 132,000V transmission lines create radio frequency noise affecting the sensitivity of the base station radio receiver.



**Engagement with Sydney Water**

EE commenced engagement with Sydney Water in July 2021 to investigate the 3 site options on the Sydney Water land near their reservoirs. that would suit the requirements for the tower. Sydney Water undertook internal review and consultation with their operational, planning and Environmental stakeholders to determine existing and future operational and Environmental/ Heritage requirements of the Sydney Water land at the 3 sites. An inspection occurred in September 2021 with EE and Sydney Water representatives to assess the suitability of the 3 sites which resulted in site 2 being nominated as the preferred site.



Options	Property description
<p><b>Site 1</b> Prospect Reservoir, north</p> 	<p>Site 1 is located in close proximity to the remains of the State heritage listed Veteran Hall and construction would be difficult in regard to mitigating impacts on the heritage item. An 11kV Electricity supply will need to be extended from the existing overhead powerlines to the site, running adjacent to the access road. There are major Sydney Water watermains running under and around this location and site wasn't suitable for construction.</p> <p>This location is highly visible from William Lawson Drive, as the surrounding vegetation comprises shrubs, grass and small trees that would not screen the tower.</p> <p>Site 1 has a ground surface RL of 98m AHD meaning it is at a lower elevation than Site 2 and would most likely result in a requirement for the overall height of the tower to be increased.</p>
<p><b>Site 2</b> Prospect Reservoir, near water towers (preferred)</p> 	<p>Site 2 is the preferred location is about 100m south of the southern reservoir next to the access road that runs to around the east side of the reservoirs. The ground surface RL is 110m AHD and is geographically close to the Huntingwood site. The location is adjacent to an overhead power electricity feeder and a short extension from this feeder will be required. Also, the existing fibre will suit project requirements and reduce construction impacts if other sites were progressed.</p> <p>This location is within the Sydney Water fenced site which would provide the necessary physical security.</p> <p>This option would have the least visual impact on the Heritage value than the other options.</p>

**Options**

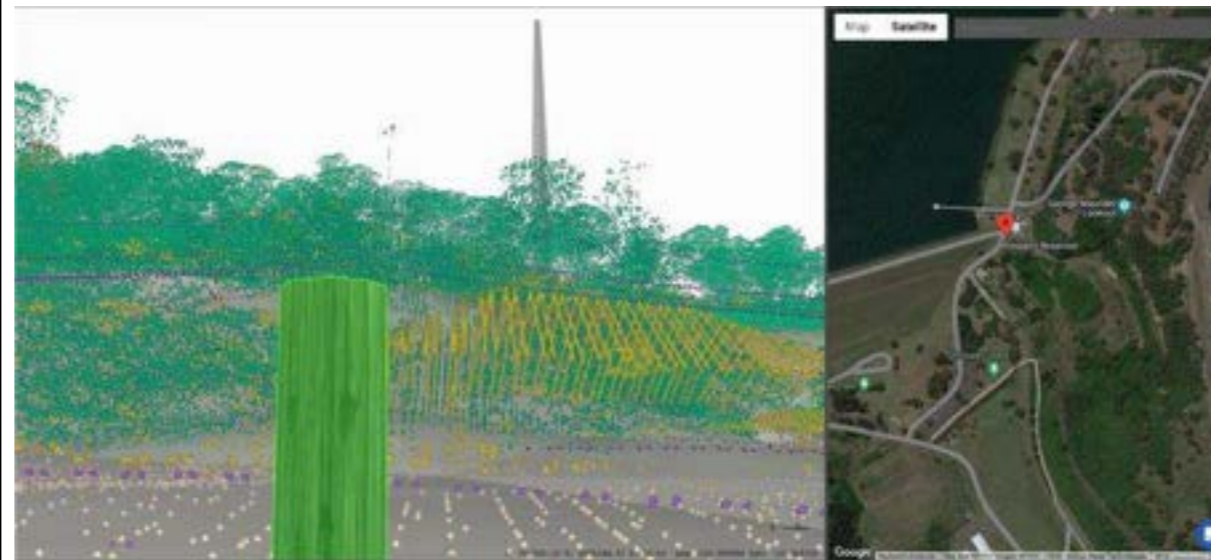
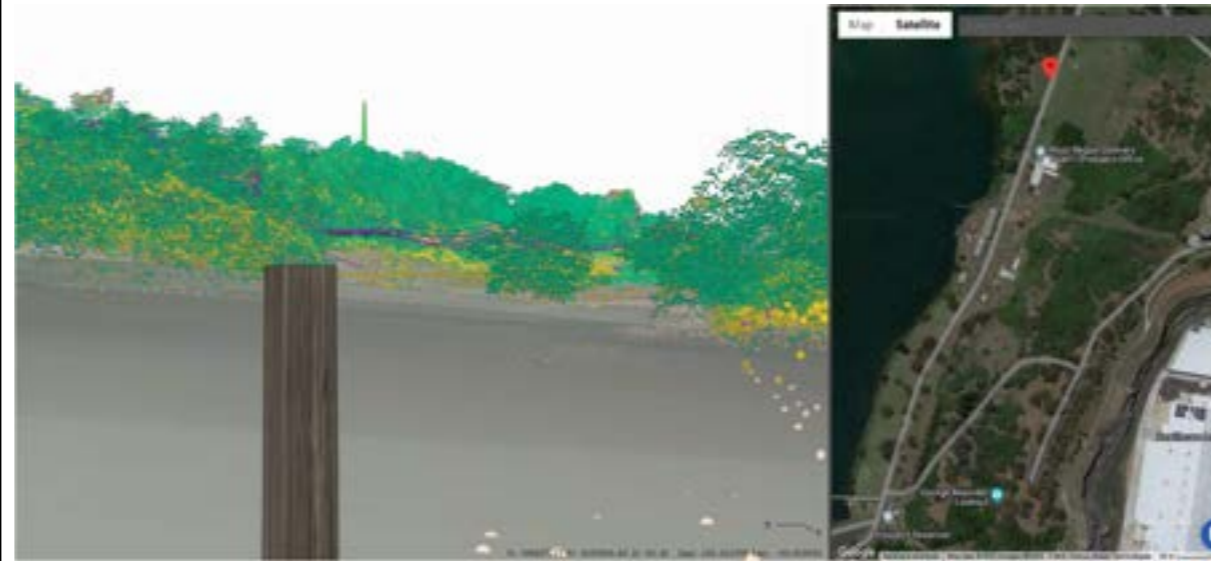
**Site 3** Prospect Reservoir, picnic area near George Maunder lookout

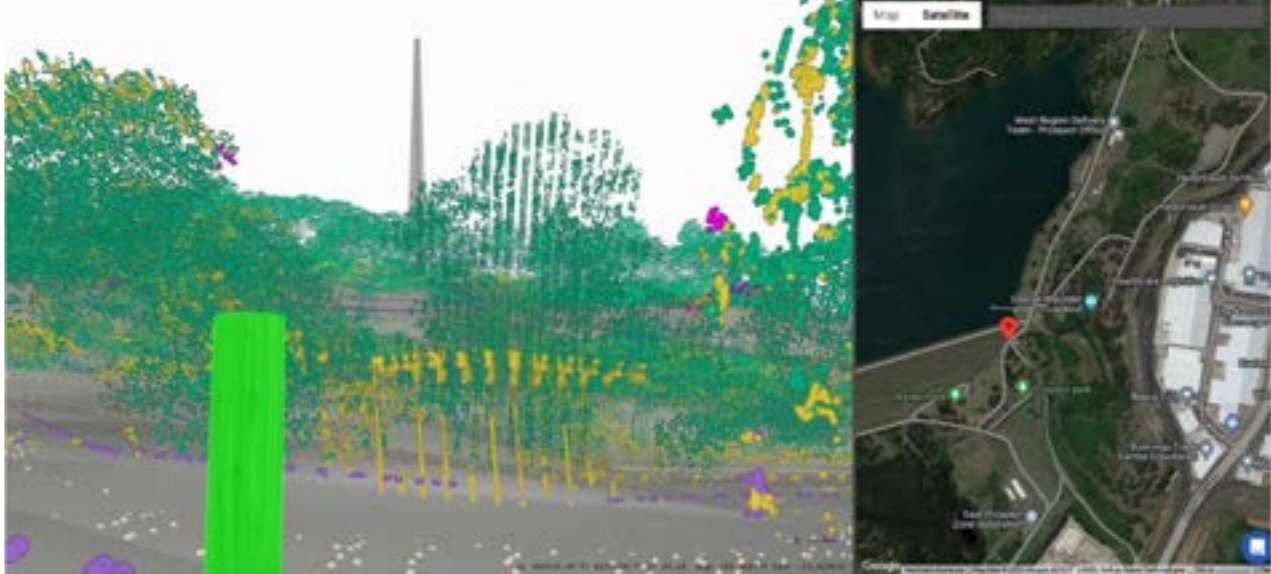


**Property description**

Site 3 is further south of site 2, near the southern end of the George Maunder picnic area. It has a ground surface RL of 108.3m AHD. It is located behind a chainwire fence and next to an existing electricity pole. It does provide reasonable coverage for most of the required area; however modelling shows some shadowing to the north into the Prospect / Seven Hills area would occur because of the water towers. A number of electrical assets of interest exist in this area. The tower height would need to be around 70m at this location to overcome these shadowing effects.

Site 3 is in direct line of path of stormwater discharge. Allowing the stormwater discharge to pass through the property or diverting around the property will incur massive civil engineering works. Locating the tower at Site 3 would have a significant impact on the amenity of the users of the adjacent picnic grounds and George Maunders lookout. The flat summit is characterized by grassed open areas and mature trees. The existing vegetation would partially obscure the tower from view points at key heritage items but it would be more prominent than Site 2. Visual impacts from surrounding picnic sites would be significant as demonstrated in the images below using LiDAR data and Neara.



Options	Property description
	 The image shows a 3D architectural rendering of a 60m communications tower, represented by a green cylinder, situated on a site with various trees and a road. To the right of the 3D model is a satellite map showing the location of the site relative to the Prospect Reservoir and surrounding infrastructure.

## 6 Existing environment

### 6.1 General context

The site is located at the top of Prospect Hill, which is located within the curtilage of the Prospect Reservoir. Prospect Reservoir is Sydney's largest reservoir and stores water conveyed from Warragamba Dam, the Upper Nepean Dams (Cataract, Cordeaux, Avon and Nepean) and if necessary, from the Shoalhaven Scheme, for supplying the larger component of the water distribution system of the Sydney metropolis. The reservoir is a zoned earth embankment dam, 26m high and approximately 2.2 km long, with a storage capacity of 50,200 megalitres and an open capacity of 8,870 megalitres.

It is noted that the larger Prospect Hill site takes in a larger area, including the former quarry and second summit to the east. For the purposes of this report, the site location is referred to as Prospect Hill and is defined as the western summit of the wider Prospect Hill site. Prospect Reservoir and surrounds is located across Cumberland, Fairfield and Blacktown Local Government Areas (LGAs), while the proposal site is located solely within Blacktown LGA. The proposal site is located at the top of Prospect Hill, on the second highest summit known as Water Tower Hill, which is located within the curtilage of the Prospect Reservoir. Prospect Hill is not accessible to the public and access to the tower would be via an existing gated access track.



Photo 6-1 View to tower location (flagged area) with water tower in background.



Photo 6-2 View to tower location (flagged area) looking north east over industrial area



Photo 6-3 View to tower location (flagged area) with access track to the right and industrial area



Photo 6-4 View up access track to site from picnic area

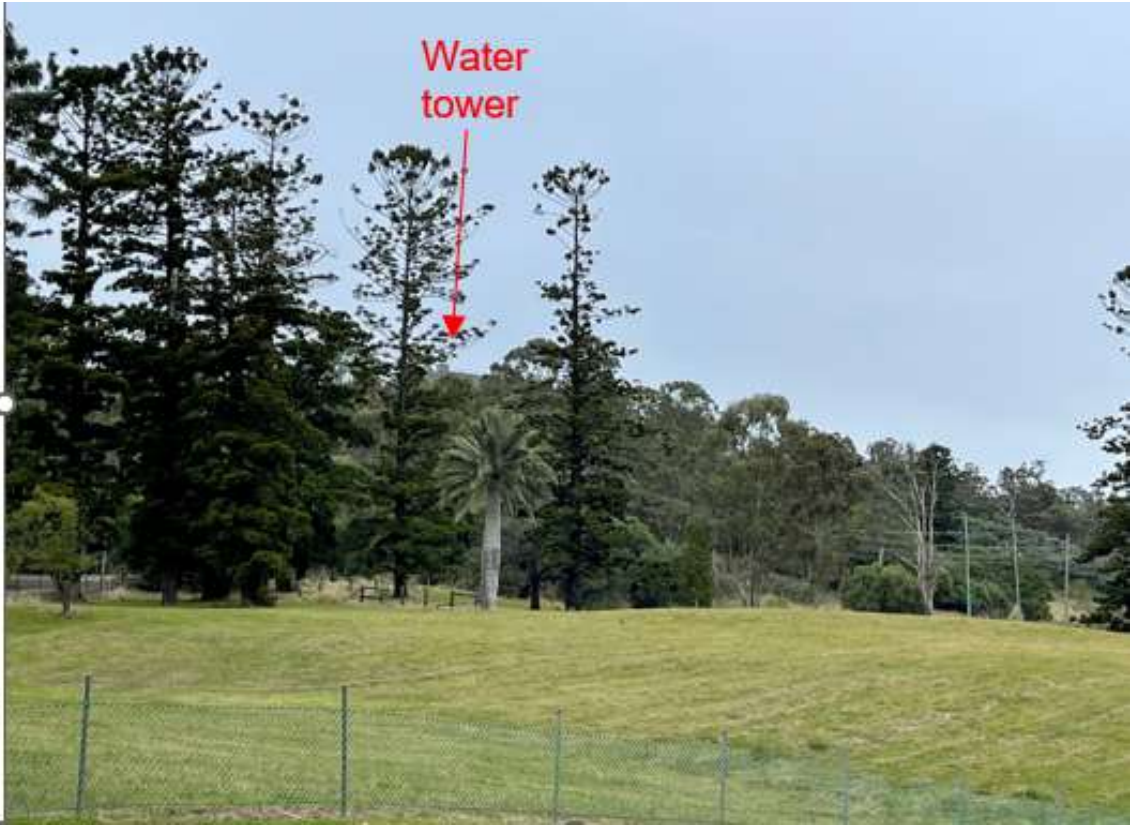


Photo 6-5 View across parkland to water tower at top of Prospect Hill



## 6.2 Physical context

The site for the proposed tower is a gently sloping grassed area surrounded by mature vegetation. Comprised of predominantly eucalypts, this vegetation screens views to the site when viewed from the base of the hill.

The bushland surrounding Prospect Reservoir is classified as Cumberland Plain Woodland (CPW). Less than 13% of CPW remains and a high proportion of this is heavily degraded through weed invasion, rubbish dumping, illegal vehicle use and overgrazing. The northern section of the Prospect Reservoir site is a protected nature reserve. In this area, these degrading influences are largely absent and this is reflected in the excellent bushland condition. Bushland condition is best in the northern section and decreases in the southern areas (Heritage 21, 2022).

There is a steep cliff which falls to the northeast, which is the wall of a quarry. This large quarry area is developed as an industrial area.

The 1:100,000 series geological map of Penrith (Geological Survey of NSW, Geological Series Sheet 9030) indicated that the site is underlain by Jurassic Age bedrock belonging to the Prospect Picrite formation. Bedrock within this formation comprises picrite, dolerite and minor basalt. The deposit is a basin-shaped intrusion into the surrounding shale bedrock (Green Geotechnics, 2022).

## 6.3 Cultural setting

Prospect Reservoir was completed in 1888 as part of the Upper Nepean Scheme to supply Sydney with water collected from the weirs on the Illawarra Plateau south of the city (WaterNSW, 2022). The reservoir and its surrounds, along with the Prospect Reservoir Valve House, is listed on the State Heritage Register (refer Heritage Impact Assessment in Appendix B).

Within the Prospect Reservoir curtilage, the land comprises of a protected nature reserve to the north and parkland open to the public to the southeast. Picnic spots are scattered throughout this park area. To the north and west of the proposal site is infrastructure belonging to Sydney Water related to the operation of the Reservoir.

Land adjoining to the east is developed with an industrial estate. Other surrounding land uses include Eastern Creek raceway and Raging Waters theme park.

The nearest residential development is over 1 km to the east in the suburb of Pemulwuy.

## 7 Proposed works

### 7.1 Description of work

#### 7.1.1 Site layout components

Key components that will need to be constructed and installed are shown in Figure 7-1 and Figure 7-2 (see Appendix A for design drawings) and listed below:

- A 60m free-standing heavy duty lattice tower with self-supporting concrete footings (constructed in matt galvanised steel to reduce reflectivity);
- An external ladder, approximately 57m in height;
- A new equipment shelter (6m by 3m) on concrete footing foundations;
- A new 600mm cable tray support system from the tower to the equipment hut and support posts;
- A compound area 15m by 15m around the tower and associated infrastructure, including a 2.8m high security fence with 4.8m wide double access gate;
- A new pole with substation and overhead lines;
- Power supply works and underground cabling;
- Upgrading of an existing access track; and
- Vegetation management as per the Vegetation Management Plan

The proposal would also involve minor vegetation trimming and clearing for access and creation of a 10m Asset Protection Zone (see Appendix A APZ Plan). No trees are required to be removed as part of this proposal.

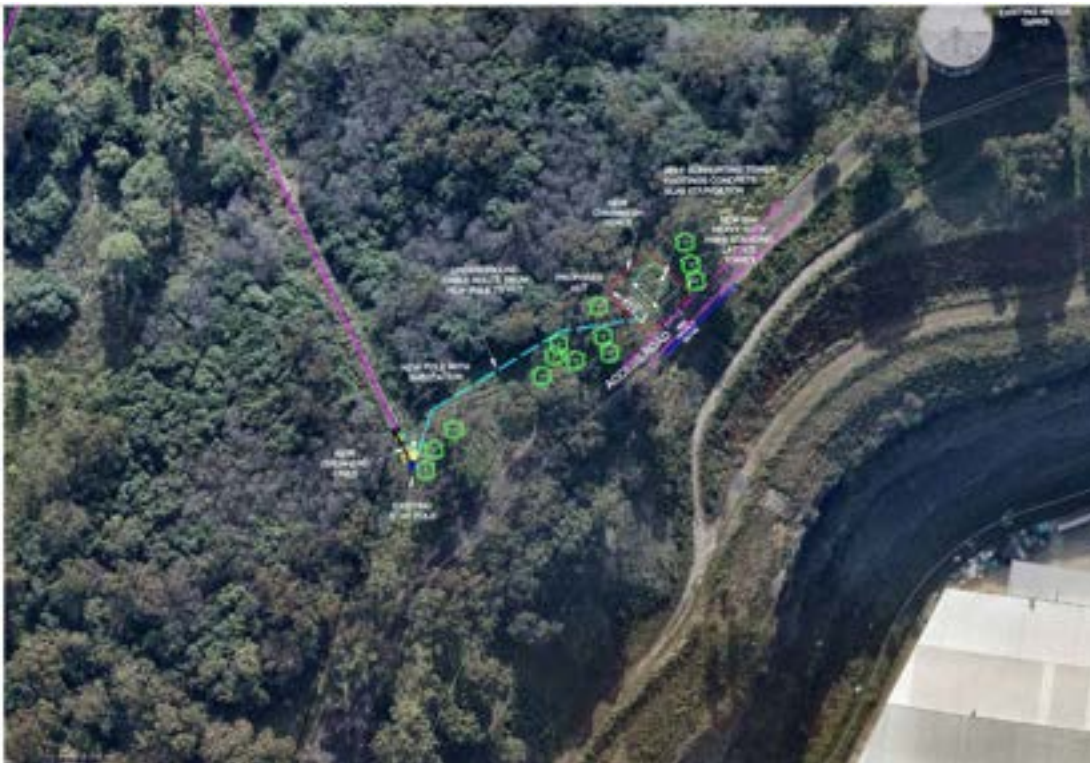
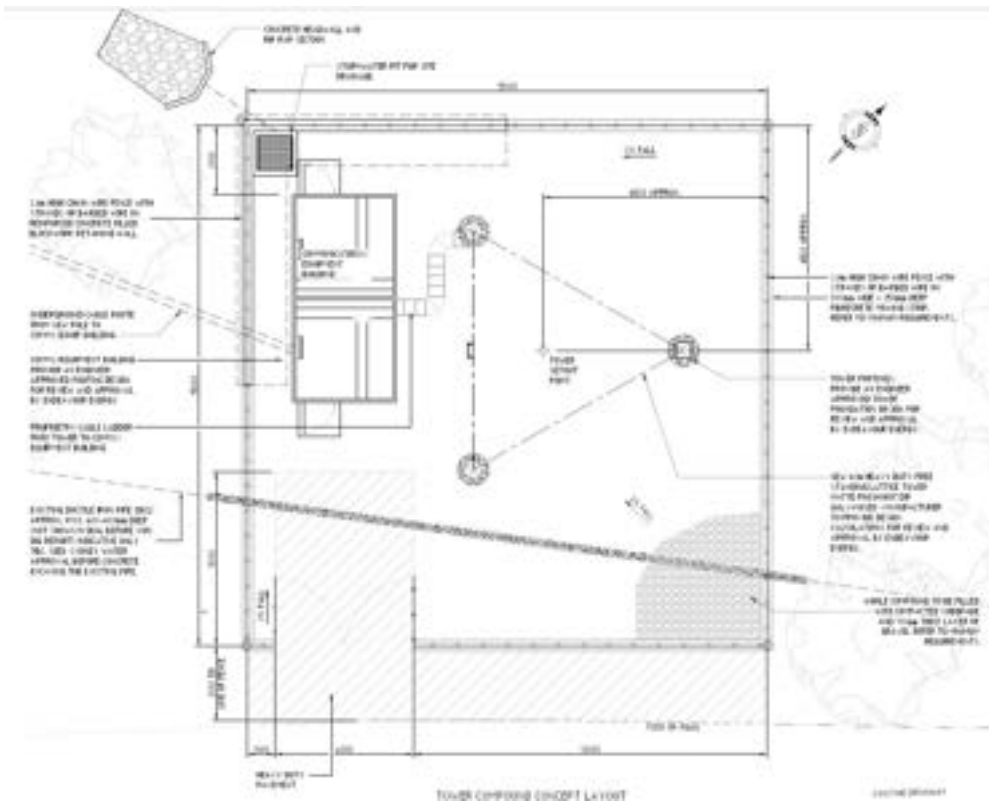


Figure 7-1 Prospect Reservoir Tower - indicative site layout



**Figure 7-2 Indicative compound layout**

**7.2 Construction details**

**7.2.1 Timing, duration, hours of work**

Construction works will be undertaken during standard working hours:

- 7am to 6pm Monday to Friday
- 8am to 1pm on Saturdays
- No works on Sundays or public holidays.

Should out of hours works be required, the process for undertaking out of hours works as described in EE's Environmental Handbook will be followed. Appropriate internal and external approvals shall be obtained where required prior to any out-of-hours- works being carried out.

Should any longer than two nights of out of hours work be required, the construction manager would apply to EE to progress approval for those works.

**7.2.2 Equipment, materials and access**

The general plant and equipment required for the works include:

- 14 tonne excavator
- 7 Tonne compactor
- 100t crane
- Concrete truck
- Concrete boom pump
- Material transport trucks/semi trailers

It is expected that the works will take around two to three months to complete. The proposal will require approximately 10 construction personnel.

Two areas (approximately 10mx4m), as shown in Figure 7-3, will be used as set up areas for material and equipment. There will be a set up area uphill from the bottom gate that will be used for 2 sheds and materials.

The tower sections will be transported via a semi-trailer and placed near the water tanks within a temporary fenced area. The tower will be assembled here and then lifted to the permanent location via a 100t crane.

Access to the two set up areas would be via the secured access gates, one on the northern end (near the existing water tanks) and other near the southern set up area through the George Maunder Lookout upper car park area.



Figure 7-3 Proposed site set up areas (source Sixmaps)

### 7.2.3 Trenching

Trenching will occur between the existing stay pole, to connect the underground cable from the pole to the equipment building. The trenching will avoid any trees and significant root zones.

### 7.2.4 Platform preparation and earthworks

EE proposes to level the proposal site, an area of around 15m<sup>2</sup>, to construct a level concrete pad that will support the tower and ancillary infrastructure.

#### Earthworks

- Earthworks will be carried out in a controlled manner in order to avoid surface ground subsidence, with consideration of the following techniques:
  - Stripping and removal of all topsoil and organic material.
  - All uncontrolled fill (if encountered) should be excavated to expose natural clay.
  - Proof rolling of the exposed surface with a minimum 10 tonne (t) vibrating roller to identify soft and heaving areas.

#### Retaining walls

- Rigid or 'propped' retaining walls may be required to retain cut or fill.

#### Batter slopes

- All fill not retained to be appropriately battered to ensure stability.

#### Footings

- It is recommended that all footings for the proposed structures be supported on pier footings with piers taken through the proposed fill, natural clay and founded on the shale/siltstone bedrock.

#### Internal Pavement and Access Driveway

- Pavement upgrade for the proposed driveway and road should be prepared as follows:
  - Boxing down of the pavement subgrade to design level.
  - Pavement structure, composition and thickness should reflect the recommendations in GeoEnviro's geotechnical investigation report.
  - Adequate surface and sub-surface drainage should be provided for the pavement and adjacent areas. Stormwater for the compound will be disposed through a headwall and riprap armour bed for stormwater absorption and energy dissipation and to avoid causing any erosion at existing site.
  - Existing access track to the pole would be upgraded with crushed sandstone or road base.

#### **7.2.5 Stockpiling of materials**

VENM may be used as general fill and/or as backfill. Stockpiles will be located in designated areas, away from tree trunks, buildings, and fences. Stockpiles will be placed away from free-flowing surface waters such as away from gutters and drainage lines.

All VENM and any other excess material that is excess to backfilling requirements will be disposed off-site to a suitable licensed waste facility.

### **7.3 Vegetation Management**

EE have had a Vegetation Management Plan (VMP) (see Appendix H) prepared in consultation with Sydney Water and Gingra Ecological Surveys to assess and make recommendations to enhance the growth of native vegetation and reduce the visual impact of the proposed tower. Areas proposed as 'revegetation areas' [Figure 7-4](#) (taken from the VMP) indicates locations proposed for infill planting and bush regeneration. This will extend the remnant bushland vegetation further around the reservoir and in doing so, create a visual screen that is consistent with the existing landscape character. EE, in consultation with Sydney Water, will undertake revegetation works to support the aesthetics of the visual landscape ensuring access and maintenance requirements are met.

A second recommendation indicated on the landscape plan (refer Figure 7-4), is the continuation of the street tree planting along William Lawson Drive. This extends the roadside tree planting and will screen views of the tower as vehicles travel south on William Lawson Drive.



Figure 7-4 Proposed revegetation management plan

#### 7.4 Operation and maintenance

After the completion of construction for this project, future light and heavy vehicle access would be required for maintenance works. This work may include but is not limited to the following.

- Basic operation of the pole sub
- Test and earth as required
- Changing if ageing pole (possibly in the next five years)
- Transformer maintenance or replacement
- Changing of lightning arrestor on both pole sub pole
- Maintaining the pole or sub pole
- Repair of hot joints

The VMP also recommends vegetation management for upto 5 years till the plants have established themselves. Other maintenance activities include maintenance of the asset protection zone and maintaining the vegetation clearance around the assets as per EEs MMI013.

## 8 Environmental assessment and mitigation

### 8.1 Overview

This section aims to identify potential impacts of the proposal (including access, construction and ongoing maintenance works) to the existing environment and recommend safeguards to mitigate any environmental risks. Environmental factors for the proposal that are required to be considered under Clause 171 of the EP&A Regulation and the Code are addressed in this section and comprise water, biodiversity, utilities and services, roads, traffic and access, visual, socio-economic impacts, waste management, noise, air quality and dust suppression, safety and hazards, bushfire, and cumulative impacts. The following environmental factors were assessed in detail to determine the environmental impacts associated with the proposal:

- Historic heritage;
- Aboriginal cultural heritage;
- Visual amenity; and
- Geotechnical features at the subject site.

The assessment reports are provided in Appendices to this REF and are summarised in the following sections.

### 8.2 Historic heritage

#### 8.2.1 Overview

The subject site is within the curtilage of two items listed on the NSW State Heritage Register, including Prospect Reservoir and surrounding area and Prospect Reservoir Valve House (refer Figure 8-1). Section 60 (s60) of the *Heritage Act 1977* (NSW) requires the NSW Heritage Council, as the approval body, to assess the potential impact of non-exempt works on the heritage significance of the item. A Statement of Heritage Impact (SoHI) was prepared by Heritage 21 for the proposal, to accompany an application made under Section 60 of the NSW Heritage Act 1977 (Heritage 21, 2023) (see Appendix B).

#### 8.2.2 Existing environment

##### i Non-statutory heritage items

The Former Register of the National Estate (RNE) was searched for any non-statutory heritage items and identified that there is one non-statutory heritage item within the study area or within 50 m of the study area that are listed on the RNE. It is listed in Table 8-1.

##### ii Listed heritage items

The subject site is within the curtilage of two items listed on the NSW State Heritage Register, including Prospect Reservoir and surrounding area and Prospect Reservoir Valve House (refer Figure 8-1). The subject site is also situated within the general vicinity of Veteran Hall – House remains, also listed in the NSW State Heritage Register, however the subject site is not within the curtilage of this item. Prospect Reservoir is also listed in the Sydney Water s.170 Register, under Schedule 5 of the Holroyd Local Environmental Plan 2013 and in the National Trust Register (NSW). These listings are shown in Table 8-1.

**Table 8-1 Historic heritage items within the study area**

Register	Listing	Significance
State Heritage Register	Prospect reservoir and surrounding area (item no. 01370)	State
State Heritage Register	Prospect Reservoir Valve House (item no. 01371)	State

**Table 8-1 Historic heritage items within the study area**

Register	Listing	Significance
Sydney Water S.170 Register	Prospect Hill Reservoir (Elevated) (item no. 4575776)	s.170
Holroyd Local Environmental Plan 2013	Prospect Reservoir and surrounding area (item no. I01370)	State
National Trust Register – National Trust NSW	Sydney water supply Prospect Reservoir	N/A
State Heritage Register	Veteran Hall – House remains (item no. 01351)	State



**Figure 8-1 Aerial map indicating the approximate locations of historic heritage items listed on the SHR (source: Heritage 21 2023)**

**8.2.3 Site inspection**

A site inspection was undertaken by Heritage 21 on 5 September 2022.

**8.2.4 Impact assessment**

The SoHI includes an assessment of the proposal against the framework of the Prospect Reservoir Conservation Management Plan 2005, NSW Office of Environment and Heritage Guidelines and the State Environmental Planning Policy (Transport and Infrastructure) 2021.



A s60 application was submitted to Heritage NSW on 12 October 2022. Based on the feedback received from Heritage NSW on 2<sup>nd</sup> November 2022 and following a meeting with Heritage NSW on 5<sup>th</sup> December 2022, an updated s60 application including an options analysis was submitted to Heritage NSW on 23 December 2022. This included a Visual Impact Assessment (VIA) as the heritage significance of the Prospect Reservoir site is tied to its aesthetic qualities as a picturesque, landscaped area and to its natural heritage values. The VIA included the preparation of 7 photomontages at viewpoints in and surrounding the curtilage of the historic heritage items. Although the proposed tower will be visible from viewpoints 1, 5 and 7, Heritage 21 notes that this impact is acceptable due to numerous factors. The remainder of the viewpoints show generally an obscured view of the proposed tower, and therefore considered to be a negligible impact.

A meeting was held on 19th January 2023 between Heritage NSW and EE whereby EE demonstrated real time simulation of the proposal in a 3D model Nearsa that used LiDAR. During this meeting EE also proposed a Vegetation Management Plan that would further reduce the visual impact and rehabilitate the degenerating vegetation in the area that would benefit the heritage value at this site. Heritage NSW were supportive of this vegetation proposal and in addition to the visual model that was demonstrated, concluded that the site selected would not materially affect the aesthetic values of the heritage item.

Following the meeting, Heritage 21 note that the proposed tower will have a visual impact on the Prospect Reservoir site, however, this impact has been minimised through design of the tower and the proposed siting as chosen in collaboration with Sydney Water following completion of an options analysis (see Table 5-1). The overall visual impact of the proposal will not detract from the aesthetic qualities of the broader Prospect Reservoir site, as the tower will be generally obscured in addition to being consistent with numerous telecommunication system towers within the vicinity. The proposal will have a minimal yet acceptable impact to the heritage significance of the broader Prospect Reservoir site and complies with the pertinent heritage controls. A third and final updated version of the application (including an SoHI and accompanying Visual Impact Assessment and Vegetation Management Plan) was submitted to Heritage NSW on 31 January 2023.

In summary, the final SOHI submitted to Heritage NSW on 31<sup>st</sup> January 2023 finds that the proposal complies with the relevant heritage controls and would engender a minimal impact on the heritage significance of the subject site and heritage items in the vicinity of the site. Pursuant to section 63 of the Heritage Act 1977, approval was granted by Heritage NSW subject to conditions. The approval and conditions of approval are presented Appendix D and captured in the management plan in Chapter 9.

#### **8.2.4.1 Archaeological potential**

Archaeological potential was not assessed by Heritage 21 in the SoHI, however as the proposal will be constructed in a previously disturbed area, the impact to archaeological potential is considered low. An Unexpected Finds Procedure will be implemented for the construction of the proposal.

#### **8.2.5 Management and mitigation measures**

The following management and mitigation measures are recommended:

- To ensure maximum conservation of significance of the proposal site and heritage items in the vicinity, a muted colour scheme that readily blends into the natural environment should be employed for the proposed tower and equipment hut;
- Unexpected finds procedure: All relevant construction staff, contractors and subcontractors must be made aware of their statutory obligations for heritage to ensure no archaeological remains or heritage fabric are impacted during the proposed works without appropriate mitigation measures in place. Should any Aboriginal objects be uncovered by the work which is not covered by a valid Aboriginal Heritage Impact Permit, excavation or disturbance of the area is to stop immediately and Heritage NSW is to be informed in accordance with the National Parks and Wildlife Act 1974. Works affecting Aboriginal objects on the site must not continue until appropriate approvals are in place;
- If substantial intact archaeological deposits and/or State significant relics are discovered, work must cease in the affected area(s) and the Heritage Council of NSW must be notified. Additional assessment

and approval may be required prior to works continuing in the affected area(s) based on the nature of the discovery;

- Significant built and landscape elements are to be protected from potential damage during site preparation and during construction. Protection systems must ensure significant fabric, including landscape elements, is not damaged or removed. Individual tree protection requirements shall be determined through consultation between the Project Manager and the Project Arborist prior to installation;
- VMP Implementation - The implementation of the recommendations at Section 5 of the VMP are to be implemented to the satisfaction of the Lead Heritage Adviser at Sydney Water; and
- If requested, the applicant and any nominated heritage consultant may be required to participate in audits of Heritage Council of NSW approvals to confirm compliance with conditions of consent.

### **8.3 Aboriginal cultural heritage**

The area of Prospect Reservoir is an area of known historical Aboriginal occupation, with favourable camping locations along the Eastern Creek and Prospect Creek catchments, and in elevated landscapes to the south.

The Aboriginal Heritage Information System (AHIMS) was searched in October 2022 for an area of approximately 500 m (east-west) by 500 m (north-south) from the study area. The AHIMS search identified no sites within the study area. The AHIMS search is attached in Appendix E.

As there are no AHIMS listings recorded within the subject site in addition to the disturbed nature of the landscape, impacts to Aboriginal heritage are considered unlikely. Therefore, an Aboriginal Heritage Due Diligence Assessment has not been completed for the proposal.

#### **8.3.1 Management and mitigation measures**

The following management and mitigation measures are recommended:

- An unidentified finds procedure should be implemented during construction of the proposal. If any such objects, or potential objects, are uncovered in the course of the proposed works, work in the vicinity must cease and Heritage NSW and a qualified archaeologist must be contacted for advice. Further assessment and permits may be required before works can recommence. If human remains are found, work must cease, the site must be secured, and the NSW Police and Heritage NSW, DPE must be notified. The unidentified finds protocol will be detailed in the CEMP.

### **8.4 Visual amenity**

#### **8.4.1 Overview**

As the proposed 60m tower is located on a high point within the landscape to maximise line of site, there is a potential for a visual impact on the surrounding area. A Visual Impact Assessment (VIA) was prepared by EMM to provide an assessment of the visual impact of the proposed tower on key heritage-listed items and surrounding residences, recreational areas and road users.

This section of the REF considers the visual impacts relative to the surrounding land uses and receptors. The specific consideration of visual impacts on historic heritage values is provided within the SOHI.

#### **8.4.2 Methodology**

A site inspection was completed by an environmental specialist from EMM on 12 August 2022, 13 November 2022 and 23 January 2023. The purpose of this inspection was to identify the

- identify visual receiver locations;

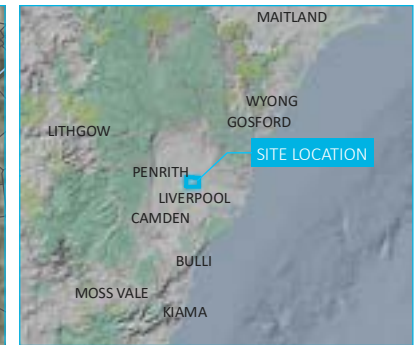
- inspect the site and appreciate views to/from sensitive heritage items and nearby residential areas that may have views towards the tower;
- inspect publicly accessible locations identified during the desktop analysis as likely to provide views of the proposal, including roads, footpaths, infrastructure, etc; and
- take photographs for preparation of photomontages.

From the results of the site inspection, the existing visual environment was defined, including an assessment of the existing visual conditions like key views, topography, vegetation and other visual features. Viewpoints (in total eight as shown on Figure 8-2) were considered in terms of the representative views they likely would have of the proposal, and chosen to demonstrate visual impacts up on heritage, residential and recreational land uses in addition to road users. Photos from these viewpoints are provided in Attachment B of the VIA (refer Appendix E). This includes a number of viewpoints within the curtilage of the SHR items (VP1 to VP6), in addition to viewpoints within the suburb of Pemulwuy (VP7 and VP8), road users on Reservoir Road (VP6) and recreational users within Prospect Reservoir, including Walder Park, Prospect Park and George Maunder Lookout (VP4 and VP7) and other land adjacent to Prospect Reservoir.

The evaluation of potential impacts on the visual environment is based on the sensitivity of the viewpoint (and the visual receiver it represents) to change, and the magnitude of change that is likely to occur. The sensitivity of each viewpoint is considered to be dependent on:

- the importance of the view, its existing scenic qualities and the presence of other existing man-made elements in the view; and
- the type of visual receiver and their likely interest in the view.

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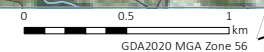
- KEY**
- Proposed Tower Location
  - ⊕ Viewpoint
  - Prospect Reservoir and surrounding area as listed on the SHR (no. 01370)
  - Prospect Reservoir Valve House as listed on the SHR (no. 01371)
  - Veteran Hall – House Remains as listed on the SHR (no. 01351)
  - Major road
  - Minor road
  - Named watercourse
  - Named waterbody
- INSET**
- NPWS Reserve

Viewpoint locations

Endeavour Energy  
Prospect Tower  
Figure 8.2



Source: EMM (2023); ABS (2021); DFSI (2017, 2020); GA (2011); Metromap (2023)



### 8.4.3 Impact assessment

Photomontages of each viewpoint were prepared, and later validated by the Neara software. The results (in detail) are provided in Table 1 to Table 8 of the VIA (refer Chapter 5 of Appendix E).

As a result of the photomontages completed for each viewpoint, the following outcomes were identified:

- Viewpoint 1 – Given the location of viewpoint 1 outside the heritage curtilage and the interruption of the natural landscape by existing man-made infrastructure, it is not considered that this viewpoint is particularly sensitive to change.
- Viewpoint 2 - The significance of change in this location, resulting from the proposed tower, is considered to be negligible, as views of the tower are screened by the vegetation and topography.
- Viewpoint 3 - The significance of change in this location, resulting from the proposed tower, is considered negligible, as views of the tower are screened by the vegetation and topography.
- Viewpoint 4 – The significance of change in this location, resulting from the proposed tower, is considered to be negligible, as views of the tower are screened by the vegetation and topography.
- Viewpoint 5 – The significance of the change to views from this location is low due to the existing tree canopy, and the main direction of views is away from the tower.
- Viewpoint 6 – The significance of the change to views from this location is negligible due to the existing tree canopy and short duration of views.
- Viewpoint 7 – the significance of the change to views from this location is low due to the existing trees screening views and the industrial nature of the view toward the tower.
- Viewpoint 8 – the significance of the change to views from this location is low due to the existing industrial nature of the view toward the tower.

The VIA notes that predominant views of the tower will be from the adjoining industrial site to the northeast, with limited vegetation between the tower and the cliff edge above the industrial estate. Notwithstanding, the character of the industrial area, with large scale warehouses, means that the visual impacts from this viewpoint will not be significant or out of character.

Overall, it is considered that the visual impact on Prospect Reservoir, and key heritage items, road users and nearby industrial and residential land uses will be low to negligible.

### 8.4.4 Mitigation measures

A range of visual impact mitigation methods are available to reduce the impact of a development. As a general rule, mitigation should aim first at reducing the visible changes to the landscape. Secondly, mitigation should screen new infrastructure introduced by the project to present a landscape that is as similar to the existing landscape as possible.

In order to reduce any visual impacts, it is proposed that the tower will be constructed using matt steel, to decrease reflectivity.

EE, in consultation with Sydney Water, have considered the option to undertake revegetation works to support the aesthetics of the visual landscape ensuring access and maintenance requirements are met. EE have had a Vegetation Management Plan (VMP) prepared to assess and make recommendations for areas proposed as 'revegetation areas'. Figure 8 of the VIA (taken from the VMP) indicates locations proposed for infill planting and bush regeneration. This will extend the remnant bushland vegetation further around the reservoir and in doing so, create a visual screen that is consistent with the existing landscape character.

A second recommendation indicated on the landscape plan, is the continuation of the street tree planting along William Lawson Drive. This extends the roadside tree planting and will screen views of the tower as vehicles travel south on William Lawson Drive.

## 8.5 Biodiversity

### 8.5.1 Overview

The northern part of Prospect Reservoir contains the Prospect Nature Reserve. The nature reserve is largely Cumberland Plain Woodland, which is listed at state and federal levels as an endangered ecological community. The proposal site is south-east of the nature reserve, where the vegetation is much more degraded.

A site visit carried out on 12 August 2022 by EMM and followed by a visit on 24<sup>th</sup> January and 8<sup>th</sup> February by an ecologist found that the proposal area is made up of scattered eucalypts with an understory made up of urban grasses, weeds and shrubs. The existing site vegetation, including urban grasses, weeds and shrubs can be seen in the ecological assessment is presented in Appendix K.

### 8.5.2 Desktop searches

The following desktop searches were carried out for the proposal area on 9 November 2022:

- Bionet Atlas of NSW Wildlife;
- Protected Matters Search Tool (PMST); and
- SEED database for State Vegetation Type Mapping (SVTM).

Results of database searches are attached in Appendix G.

### 8.5.3 Analysis

The subject area may support the Cumberland Plain Woodland Critically Endangered Ecological Community (CEEC), although it has been mapped as Disturbed Vegetation in Sydney Water's Property Environmental Management Plan (2021). The field survey revealed the presence of a number of native trees, with three main species present, Coastal Grey Box (*Eucalyptus moluccana*), Forest Red Gum (*E. tereticornis*) and Narrow-leaved Ironbark (*Eucalyptus crebra*). There are scattered shrubs, including exotic and native species. Exotic species recorded included Lantana (*Lantana camara*), Large-leaved Privet (*Ligustrum lucidum*), African Olive (*Olea europaea* subsp. *cuspidata*) and Narrow-leaf Cotton Bush (*Gomphocarpus fruticosus*). The native shrub, Austral Indigo (*Indigofera australis*) was also present close to the existing electricity pole.

The ground layer also had a mix of exotic and native plants, with some parts of the area supporting a ground layer dominated by native grasses and forbs, including Weeping Meadow Grass (*Microlaena stipoides*), Windmill Grass (*Chloris truncata*), *Eragrostis leptostachya* and *Carex inversa*. Exotic ground layer plants included Panic Veldt Grass (*Ehrharta erecta*), African Lovegrass (*Eragrostis curvula*), Purple-top (*Verbena bonariensis*) and Blue Heliotrope (*Heliotropium amplexicaule*). A total of 40 plant species were detected during the field survey, including 22 locally native species and 18 exotic species. The high proportion of exotic species reflects the disturbed nature of the site.

The fauna habitats in the study area include woodland and grassland, with the dense thickets of exotic shrubs on the western slopes providing shelter for small woodland birds. The woodland habitat is predominantly regrowth with few trees older than about 40 years. There is a dead tree with hollows capable of providing shelter and nesting for fauna species along the eastern boundary track between the pole location and the tower site (Figure 8- 3). No other trees mature enough to support hollows were observed in the area subject to the proposed works.

#### Figure 8-3 Hollow bearing dead tree (left) along boundary track

### 8.5.4 Predicted impacts

The proposal site is adjacent to previously disturbed land containing water towers, access tracks and transmission line easements. The proposal will require clearing of grasses and small shrubs with minor trimming of branches of the adjacent trees.

- Approximately 290m<sup>2</sup> of grass/weeds will be cleared for the tower foundation and chainmesh fence. This includes a 1m buffer around the fence area for construction:
- Approximately 70m of trenching is required to connect the proposed tower to the existing power line, that will require clearing of approximately 140m<sup>2</sup> of urban grasses, weeds and small shrubs. Trenching is expected to be 750mm wide with approximately 2m of clearance required for construction:
- A new pole will be installed at the existing power line that will require some minor trimming of the surrounding vegetation. The total area of modified Cumberland Plain Woodland likely to be impacted by upgrading of the existing access track is less than 160 m<sup>2</sup>. Modified vegetation, which according to the precautionary principle could be considered to be a component of the Cumberland Plain Woodland CEEC, will be further modified to provide access for heavy vehicles: and
- The bushfire management report is recommending the creation of a 10 m radius Asset Protection Zone (APZ) around the edge of the fenced tower footprint. Achievement of this APZ is possible through selective removal of exotic shrubs. Lopping of branches of native trees may also be necessary to achieve crown separation. A small dead eucalypt tree to the south-west of the tower is recommended for removal. The tree should be laid on the ground across not down the slope to provide habitat.

Clearing will not include any mature trees which are a component of the community, although some branches may be lopped. The trees will continue to flower and set seed.

Occurrences of modified Cumberland Plain Woodland in the vicinity, but outside of the direct impact will not be affected. A much larger area of Cumberland Plain Woodland will remain unaffected in the local area with about 100 ha of Cumberland Plain Woodland being present within the nearby Prospect Nature Reserve. The community is also present along Eastern Creek at Doonside. The existing habitat is modified by historic clearing and uncontrolled weed invasion. The proposed action will involve further modification of up to about 160 m<sup>2</sup> of Cumberland Plain Woodland.

There will be no new isolation or fragmentation of habitat for Cumberland Plain Woodland.

The disturbed nature of the habitat means it has no particular value in the context of protection of the Cumberland Plain Woodland CEEC. The CEEC will continue to exist within a large area of Prospect Nature Reserve.

The local occurrence of the community is not at risk of extinction due to the proposed activity.

An Assessment of Significance under the BC Act has been completed in relation to Cumberland Plain Woodland and concluded that:

- It is highly unlikely that the development will significantly affect the regional or local population status of Cumberland Plain Woodland, and
- There is no need to provide a Species Impact Statement or Biodiversity Development Assessment Report (BDAR).

The assessment recommends prohibition of movement of large vehicles between the tower and the pole to ensure the retention of the dead tree shown on the left of Figure 8-3.

The works are minor in nature and not of a scale, nor within a location, likely to have a significant effect on threatened fauna. It is considered that there is no need to undertake detailed assessment in relation to threatened fauna species.

#### **8.5.5 Management and mitigation measures**

The following management and mitigation measures are recommended in relation to biodiversity:

- The minimal feasible amount of vegetation clearing should be undertaken for construction purposes;
- Where feasible, dead wood, fallen branches and logs should be retained as habitat. Where removal of dead logs or wood is required, these should be relocated (not removed from the site) into adjacent areas that will not be disturbed by construction workers;
- Weed control measures (eg herbicide spraying) should be undertaken prior to construction commencing in areas where high densities or infestations of weeds occur. This will help to reduce the risk of weeds being spread as a result of the proposed proposal;
- To reduce the likelihood of spreading weeds, tyres and undercarriages of vehicles are to be washed and cleaned out/ or sprayed after working with weed infested areas, and prior to entering;
- An Unexpected Finds Procedure for Flora and Fauna should be developed as part of the CEMP and implemented for construction works;
- A suitably qualified Project Arborist (AQF - Level 5) must be nominated for this project. The Project Arborist must provide input into tree protection measures, provide a detailed schedule of pruning, provide heritage information to be imparted to all arborists and tradespeople during site inductions, and oversee the works to minimise impacts to heritage values. During the site establishment stage the Project Arborist must provide a detailed assessment of the pruning requirements for work to significant trees;
- All work to, or affecting, trees belonging to the significant Cumberland Woodland Community shall be carried out by suitably qualified tradespersons with practical experience in conservation and restoration of similar heritage structures, materials and construction methods; and
- It is envisaged that all access to the pole location will be from the Maunder Lookout carpark (south) and that it won't be necessary for heavy vehicles to move between the tower site and the pole site. Prohibition of movement of large vehicles through this section should ensure the retention of the dead tree shown on the left of Figure 8-3.

## 8.6 Soil and Water

### 8.6.1 Overview

The proposal is located within the Sydney Basin which traverses a number of geographic formations. A geotechnical investigation was undertaken to inform the Geotechnical Investigation Report prepared by Green Geotechnics Pty Ltd (Green Geotechnics 2022). Fieldwork was carried out on 16 August 2022 and comprised a detailed site walkover together with the drilling of two (2) boreholes. The fieldwork along with desktop investigation has identified the following features:

- Based on the 1:100,000 Soil Landscape Map of Penrith, the subject site is underlain by Jurassic Age bedrock belonging to the Prospect Picrite formation. Bedrock within this formation comprises picrite, dolerite and minor basalt. The deposit is a basin-shaped intrusion into the surrounding shale bedrock.
- Topsoil materials are comprised of a medium plasticity silty clay with some organics.
- Natural firm becoming firm to stiff silty clays were encountered below the topsoil to depths of 0.8 to 0.9 metres. The natural clays were assessed to be medium to high plasticity and moist.
- Natural stiff becoming very stiff residual clays were encountered below the Unit 2 clays to depths of 1.8 to 2.0 metres. The natural clays were assessed to be low plasticity and moist.
- Weathered basalt bedrock was encountered at depths of 1.8 to 2.0 metres, and was unable to be penetrated below depths of 4.5 to 6.2 metres. The bedrock was assessed to be extremely low to very low strength, increasing in strength with depth.



- Groundwater seepage was not observed during auger drilling of the boreholes.
- Based on the Department of Infrastructure, Planning and Natural Resources ‘Salinity Potential in Western Sydney 2022’ Map the subject site is situated in an area of “moderate to high” salinity potential.
- A review of the Acid Sulfate Soil (ASS) Risk Maps was carried out for the site and though there were no available maps for the subject site, the surrounding maps indicate sites with similar landscapes, topography and geology to have “no known occurrence of acid sulfate soils”.

### 8.6.2 Bulk Water Supply Infrastructure

As the proposal is located adjacent to the Prospect Reservoir, which is subject to Section 7.11 of the SEPP (Precincts – Western Parkland City) 2021, the requirements related to bulk water supply infrastructure have been considered.

**Table 8-2 Section 7.11 SEPP (Precincts – Western Parkland City) 2021: Bulk Water Supply Infrastructure**

Section	Response
Development consent must not be granted to any development on land in the Western Parklands unless the consent authority is satisfied that:	-
a) The development will have a neutral or beneficial impact on the quality of the water in the bulk water supply infrastructure shown on the Bulk Water Supply Infrastructure Map,	The proposal will have a neutral impact on the quality of water within Prospect Reservoir.
b) the development will not impact on the integrity or security of the bulk water supply infrastructure,	The proposal will not impact the integrity or security of the bulk water supply infrastructure
c) the development will not increase the risk of illegal access to the bulk water supply or security of the bulk water supply infrastructure,	The proposal will not increase the risk of illegal access to the bulk water supply or security of the bulk water supply infrastructure as the proposal is within a gated site with no public access.
d) access to bulk water supply infrastructure for maintenance and operation activities by Water NSW and Sydney Water Corporation will not be impeded by the development.	Access for Water NSW and Sydney Water Corporation will not be impacted by the proposal.

### 8.6.3 Management and mitigation measures

The key objective of any water management and mitigation measures should be prevention of pollution and erosion, and installation of robust sediment control. The practices that will be implemented during construction, and in particular during any excavation and boring activities, are described below.

#### 8.6.3.1 Pollution control measures and erosion and sediment control

The objective of erosion and sediment control practices will be to take all reasonable and practicable measures to minimise short- and long-term soil erosion, while minimising sediment transport. This will be achieved by applying the principles of erosion and sediment control detailed in Landcom *Soils and Construction Manual* (2004) to the identified site constraints and erosion hazards.

The following management and mitigation measures will be applied during construction:

- An Erosion and Sediment Control Plan would need to be prepared as part of the CEMP in accordance with EE's standards and Environmental Guidelines Handbook. Where necessary, additional erosion and sediment controls will be installed during periods of highest rainfall risk (April to October);
- Any soil tracked on the roadways will be swept up on a regular basis;
- Flagging tape or bunting will be used during construction to minimise the potential or any disturbance outside of the designated work areas;
- The sequencing of construction and drainage, erosion and sediment control works will allow for the installation of the temporary drainage system, and preferably the permanent stormwater drainage system as soon as practicable;
- Disturbance will be restricted to those areas of the proposal required for the active stage of works;
- Geotechnical supervision and testing should be undertaken during bulk earthworks;
- Inspection of footing excavations should be undertaken to ascertain that the recommended foundation has been reached and to check initial assumptions regarding foundation conditions and possible variations that may occur;
- No fuels, oils or other chemicals are to be stored at worksites unless small amounts are required for that specific days' work;
- Spill kits will be available at the construction site, and all persons undertaking construction works will be made aware of EE's incident response procedures;
- Refuelling and maintenance of vehicles, plant and equipment will not be carried out on the subject site. All vehicles, plant and equipment are to be refuelled prior to arriving on-site; and
- Upon decommissioning any stage of works, erosion and sediment control measures, all materials used to form the control measures will be removed and/or disposed of appropriately.

#### **8.6.3.2 Fill and excess material measures:**

- Where it is necessary to store spoil or other loose materials on site, sediment fences are to be constructed on the down slope side of the stockpile.
- Spoil and fill material management and dewatering of worksites will be managed in accordance with the following EE Standards and the Environmental Guidelines Handbook which are all violable on the EE standards and Accredited Service Provider (ASP) website:
  - EMS 0007 – Waste Management;
  - EMS 0008 – Environmental Incidence Response and Management;
  - EMS 0013 – Spoil management; and
  - EMS 0014 – Dewatering worksites.
- Off-site disposal of surplus fill material or VENM should be undertaken in accordance with controls and measures summarised in this section.

#### **8.6.3.3 Contamination of soil measures**

- An unexpected finds protocol will be prepared and implemented to manage any contamination which may be encountered during construction works, and included in the CEMP.;
- Should contamination be identified, an assessment of deeper soils, leachability and/or groundwater may be necessary to assess potential impacts to the unnamed tributary located within the north-west corner of the site; and

- In the event that acid sulphate soils (ASS) are exposed during excavation works, these soils will be managed in accordance with EE's Generic Acid Sulphate Soil Management Plan – Annexure C of EMS0013 Spoil Management.

#### **8.6.3.4 Earthworks management**

Earthworks should be carried out in a controlled manner as specified in the Geotechnical Report, to minimise effects of impacts. Other mitigation measures include:

- Sediment and erosion controls are required during earthworks;
- Should groundwater be encountered during earthworks, the Site Supervisor would notify the Environmental Advisor and Project Manager who will co-ordinate any further actions, in line with the recommendations provided in the Geotechnical Report; and
- A functioning 'spill kit' will be kept near the construction site at all times for immediate clean-up of accidental chemical/fuel spills. Any contaminated spill rags are to be disposed of at an approved waste facility, and the incidents should be reported.

#### **8.6.3.5 Inspection and maintenance**

- The construction, inspection and maintenance requirements for all drainage, erosion and sediment control measures will be specified in the CEMP;
- Inspections will be undertaken 24 hours prior to predicted rainfall events: and
- All clean and dirty water, debris and sediment removal from drainage, erosion and sediment control measures will be disposed of in a manner that will not create erosion, sedimentation or a pollution hazard.

### **8.7 Waste**

This section assesses the waste impacts anticipated from the construction and operation of the proposal.

#### **8.7.1 Construction**

##### **8.7.1.1 General construction waste**

Activities associated with the construction of the proposal have the potential to generate waste, including surplus construction materials, old conductors and cables, general waste, excess fill material and VENM, as well as green waste due to the removal of vegetation. As previously noted in Chapter 7, there will be fill material that will be removed from the subject site.

Other wastes might include:

- Drilling fluids;
- Construction worker generated general waste;
- Unused raw materials; and
- Wastewater.

All waste generated during construction will be reused if appropriate, or removed, transported and disposed from site in accordance with the NSW Environment Protection Authority's *Waste Classification Guidelines* (EPA 2014) and the POEO Act.

### **8.7.1.2 In-situ material**

Material on site was assessed to be a combination of firm, stiff and very stiff clays. Uncontaminated material may be re-used on site or send off-site to an appropriately licenced facility for reuse or recycling.

### **8.7.1.3 Fill material**

Fill material will also be brought to site. Fill material will be stockpiled in dedicated areas and managed in accordance with the EE Standards and the Environmental Guidelines Handbook and EMS 0013 – Spoil management.

### **8.7.1.4 Vegetation**

Vegetation such as garden and wood waste is classified as general solid waste (non-putrescible) as per the Waste Classification Guidelines. No trees will be removed however, minor trimming will be required, which would be done by licensed arborists in accordance with the management and mitigation measures specified by the arborist.

## **8.7.2 Operation**

Once constructed, the proposal will generate minimal waste, with the exception of any maintenance works that may be required throughout its operational life.

## **8.7.3 Management and mitigation measures**

Measures to prevent adverse impacts in relation to generated waste will include:

- Waste mitigation and management strategies will be documented in the CEMP and in accordance with EE's Environmental Management Standard EMS 0007 Waste Management;
- Stockpiles and excess fill material will be managed in accordance with managed in accordance with the EE Standards and the Environmental Guidelines Handbook and EMS 0013 – Spoil management;
- Waste material generated on site will not be left on site once the works have been completed;
- Earthworks should be closely monitored by a geotechnical consultant and must include field density testing at an appropriate frequency and level of supervision as detailed in AS 3798-2007;
- Any excess waste or spoil including, fill material and VENIM, will be disposed of at a licensed waste or recycling facility as appropriate:
- All excavated spoil will be classified prior to disposal and/or re-use. Waste disposal dockets will be obtained from the licensed waste disposal facility and copies retained for audit purposes:
- Where excavated spoil is suspected to be contaminated, works will immediately cease and the Project Manager and the relevant Environmental Specialist notified. Spoil suspected of being contaminated will be tested to provide a waste classification for disposal;
- All other waste materials will be removed from the work site at the end of each working day. Where items are able to be recycled, the materials will be sorted and stored at an appropriate site (eg the nearest Field Service Centre) for collection and recycling: and
- Once works are completed in any given location, all disturbed ground surfaces will be reinstated as soon as possible.

## **8.8 Utilities and services**

A detailed Dial Before You Dig (DBYD) search will be conducted for all services in the vicinity of the subject site as part of the final design and prior to construction commencing. Where necessary, relevant authorities and customers will be contacted regarding potential impacts on their services.

### **8.8.1 Management and mitigation measures**

The following management and mitigation measures will be undertaken:

- The Project Manager will conduct DBYD searches prior to works commencing on-site; and
- The Project Manager will notify impacted residents and businesses regarding any potential interruptions to electricity supply prior to these outages occurring in accordance with National Energy Customer Framework (NECF) requirements.

## **8.9 Roads, traffic and access**

### **8.9.1 Overview**

The following section describes the traffic and access impacts resulting from the construction and operation of the proposal.

### **8.9.2 Impact assessment**

#### **8.9.2.1 Construction**

The construction works will occur completely within the proposal site. Therefore, the only impacts on traffic will be from construction vehicles accessing the site via William Lawson Drive and the gated access road. There is an existing parking area beside the large water tank at the top of Prospect Hill for construction vehicles.

The access road to the proposal site is a hardstand/gravel road approximately 3.5m wide. There is 6.5 m of clearance between the proposal site and the existing fencing. The access road is expected to be suitable for most construction vehicles, however individual risk assessments should be carried out prior to access for larger plant such as mobile cranes and piling/drilling rigs.

Delivery, construction and workers vehicles will be parked safely within or close to the proposal site in a safe and appropriate manner at all times.

#### **8.9.2.2 Operation**

Following completion of construction works, the proposal site will only be accessed periodically for inspection and maintenance purposes. This will also involve access by EE and its contractors to the tower for maintenance purposes.

### **8.9.3 Management and mitigation measures**

The following management and mitigation measures will be implemented to minimise traffic and access impacts:

- Transportation and equipment deliveries will be in accordance with TfNSW and council requirements;
- All other appropriate permits will be obtained from the relevant road authorities prior to construction commencing, and works will be conducted with these permits;
- Vehicles will not carry mud onto adjacent paved streets or other areas;
- Electronic signage may be used if considered appropriate in advance of construction commencing to advise park users and road users of the upcoming works;
- Should there be any open points and trenches, they will be covered and/or fenced when workers are not in attendance at these sites;
- Worksites and any other assets, including lawns and grass verges along the proposal route will be restored to the condition that they were in prior to construction commencing; and

- Works including vehicular movements will not be permitted during or immediately following heavy rain or inclement weather where disturbance of the subsoil is likely to occur within impervious or unsealed surface areas. However, construction works may be able to continue during or following inclement weather where those works are restricted to only along the road reserve section of the route or other impervious surfaces.

## **8.10 Noise**

### **8.10.1 Construction noise**

Construction works associated with the proposal will result in some noise generation. Typical noise generation for the construction of the proposal will include earthworks and excavation machinery, trench digging equipment, EWPs and mobile cranes. It will also include other small items of plant, and light and heavy vehicles used by the construction contractors and traffic controllers.

Construction will generally be restricted to standard construction hours:

- Mondays to Fridays: 7:00 am to 6:00pm;
- Saturdays: 8:00 am to 1:00 pm; and
- Sundays and Public Holidays: no work.

Should construction works need to be conducted outside the times specified above, specific management measures will be implemented to notify nearby residents and other receivers of the works to be undertaken.

Construction related noise is unlikely to impact residential properties, as the closest residential property is located approximately 1 km east of the site on Daruga Ave in Pemulwuy. Existing industrial properties is located in between residential properties on Daruga Ave, in addition to the Prospect Highway. Other existing noise-generating facilities in close proximity to the proposal include Eastern Creek Raceway, Raging Waters, a rifle range and a recycling facility. Therefore, construction related noise from the proposal is unlikely to impact the amenity of the closest residential properties.

Construction-related noise may impact the users of Sydney Water's West Regional Development Team office on William Lawson Drive, industrial businesses located on Dolerite Way and Basalt Road, in addition to recreational users of land surrounding Prospect Reservoir. Any noise from construction works will be temporary for a period of two to three months and will comply with standard construction hours.

Feasible and reasonable noise mitigation and management measures will be implemented for the duration of construction works.

### **8.10.2 Operational noise**

Once commissioned, the proposal will operate continuously, 24 hours a day, 7 days a week, with minimal noise generation. There should be no alteration to the existing background noise levels.

### **8.10.3 Management and mitigation measures**

The following management and mitigation measures are recommended for the duration of construction works:

- Appropriate approvals, such as road occupancy licences/permits, are to be obtained from the council as required prior to commencing construction;
- All potentially affected receivers (industrial businesses adjacent to the site on Dolerite Way and Basalt Road) should be notified prior to the commencement of construction works. Details are to include the likely duration of the works and 24-hour contract details for the Project Manager and Construction Contractor;

- Construction works must be carried out within normal working hours unless otherwise approved. Any out-of-hours-works will be carried out in accordance with the requirements of EE's Environmental Guidelines Handbook; and
- Should power generators be required to supply private properties during any stage of the construction works, the Project Manager must liaise with the S&E team.

## **8.11 Air quality and dust suppression**

### **8.11.1 Construction**

The proposal has the potential to generate dust and other air emissions as a result of the construction works, excavation and earthworks, stockpiling, vehicle emissions and vehicle driving over any loose construction material or unsealed surfaces.

Areas disturbed by construction works will be progressively rehabilitated as works are completed.

Dust and exhaust emissions, such as exhaust emissions generated from construction plant and vehicles, would be temporary and therefore the impact of the proposal on the air quality in the surrounding environment will be temporary and minor.

### **8.11.2 Operation**

During operation, the proposal is expected not to have any impact on air quality of the surrounding environment. Minor emissions are expected to be generated by maintenance vehicles, which will be comparable to that of other vehicles on the roads of the local road network.

### **8.11.3 Management and mitigation measures**

The management and mitigation measures listed below will be implemented to ensure the amount of dust and emissions generated by the construction works are minimal.

- Visually monitor dust levels during construction works. If excessive dust generation is occurring on site, causing a safety issue or complaints are received, immediately follow appropriate mitigation options;
- Any disturbed areas will be rehabilitated as soon as possible after works have been completed in that area;
- Traffic movement and speed will be restricted over disturbed areas of ground and unsealed access tracks;
- Ensure any soil/spoil tracked onto roadways is swept up on a regular basis;
- Excavated materials are to be either spread out on site or removed off site immediately;
- Stockpiled materials are to be stored with appropriate sediment controls;
- Vehicles and machinery are not to be left idling when not in use so as to reduce exhaust emissions;
- Dust suppression techniques, including wetting down surfaces will be used as necessary; and
- Reference EE's Environmental Guideline Handbook for dust mitigation and management techniques.

## **8.12 Safety and hazards**

### **8.12.1 Construction**

All components of the proposal will be designed and constructed in such a manner so as to meet all statutory safety requirements in accordance with the EE's design and construction standards, and the relevant Australian Standards.

Safety precautions will be implemented throughout the construction works for the protection of the surrounding community, the workforce, road users, pedestrians and local residents. Hazards which may arise during the construction works, such as open pits, open trenching, machinery and vehicle movements and changes to road and traffic conditions will be managed appropriately.

### **8.12.2 Operation**

Once in operation, proposal components will be inspected and maintained in accordance with EE's maintenance standards and electricity industry requirements.

### **8.12.3 Management and mitigation measures**

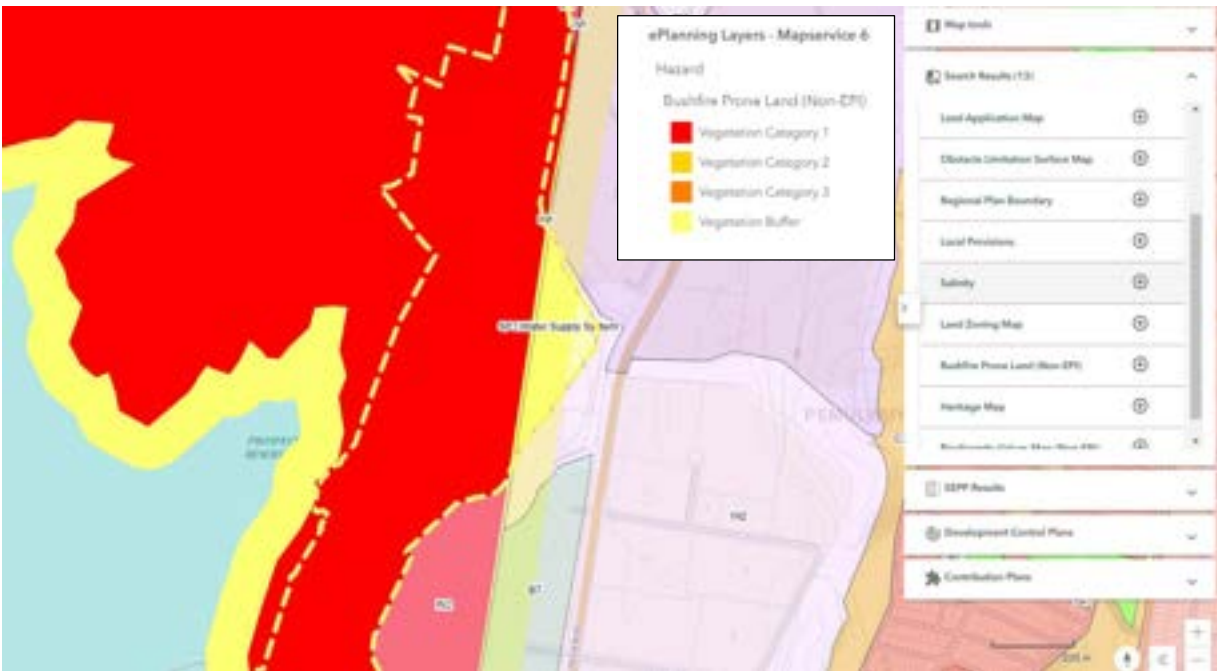
The following mitigation measures will be implemented to ensure management of safety and hazards:

- Any worksite areas will be cordoned off with security fencing to direct pedestrians away from any excavations or open manholes;
- Safety signage, barriers, fencing, etc will be placed around construction areas, as required. These will be checked on a regular basis to ensure they are in adequate working condition;
- The works will not occur on days that have extreme or catastrophic fire rating;
- Any open holes that are left unattended at any time will be covered and fenced as necessary to prevent access; and
- All works will be undertaken in accordance with Safework NSW requirements, EE standards and procedures and any other applicable requirements.

## **8.13 Bushfire**

Bushfire prone land is mapped within a local Government area, which becomes the trigger for planning for bushfire protection. The results of the NSW Rural Fire Service search for 'bush fire prone land' conducted on 12 October 2022 shows the proposal falls within bushfire prone land of Vegetation Categories 1 and 2.





**Figure 8-4 NSW Rural Fire Service search results for 'bush fire prone land' (Source: ePlanning Spatial Viewer search results)**

A bushfire risk assessment was prepared for the proposal (see Appendix I). The proposed development allows for the provision of the minimum required APZ without significant impacts to adjacent vegetation, including nearby trees, which can be retained without reducing the APZ effectiveness. The bushfire assessment demonstrates that bushfire protection with respect to the proposed development within the subject site can generally satisfy the requirements of PBP and the RFS Practice Note. Moreover, subject to the recommendations of this report, there are no significant impediments to the proposed development at the site from a bushfire risk perspective.

### 8.13.1 Management and mitigation measures

The following measures are recommended for bush fire protection of the proposed tower facility:

- At the commencement of construction works the land within the proposed development footprint and extending for a distance of 10 metres (measured from the equipment) shall be managed as an Inner Protection Area (IPA) of an APZ as outlined in the Appendix 4 of Planning for Bushfire Protection;
- The APZ shall be provided around the entirety of the proposed infrastructure, noting that adequate protection in the southeast direction is afforded by the existing site access road and the development of the adjacent land further to the southeast;
- As per the Asset Protection Zone Standards detailed under Appendix 4 of PBP, the tree canopy cover within an IPA should be less than 15% at maturity. As such, the canopy cover in proximity to the proposed development footprint has been significantly reduced in the past and therefore, it is unlikely that any tree removal will be necessary to achieve the required maximum allowable canopy cover. The dense understorey (comprising woody weeds) on the adjacent northwest slope should be removed entirely; and
- In relation to the provision of an APZ on the northwest slope, this is considered to be the only area of significance with respect to bush fire risk at the site. If possible, with approval from Sydney Water, it would be preferable to extend the APZ as far as practicable in the northwest direction to improve bush fire protection of the proposed development.

The CEMP prepared for the proposal will make provision for the following bushfire protection measures:

- Approximately 10 metres (measured from the equipment) shall be managed as an Inner Protection Area (IPA) of an APZ;
- A site induction for contractors working on the proposal will include general bushfire protection measures and requirements;
- Electrical equipment, plant and equipment to be used for construction works will be maintained in operational order to prevent any potential sparks;
- All legislative requirements regarding safe work procedures will be adhered to, including chemical handling and storage;
- An emergency management plan will be developed, which is to include protocols in how to respond to bushfire incidents, including evacuation during construction;
- The Construction Contractor will review bush fire area conditions each day prior to accessing the site via the Bush Fire Information Line - 1800 NSW RFS (1800 679 737) and the NSW RFS Fires Near Me website (<https://www.rfs.nsw.gov.au/fire-information/fires-near-me>). If the fire danger rating in the area is severe or above, further advice will be sought from RFS prior to any works being undertaken;
- During periods where one or more of the following occur; accelerated wind conditions, high temperatures, low humidity and/or during total fire bans, plant, equipment, or machinery are not operated;
- Construction waste will be removed from the site in a timely manner so as not to cause a fire risk or obstruct emergency vehicle access; and
- The proposal will be constructed and maintained in accordance with EE Company Procedure GAM 0011.

#### **8.14 Electromagnetic Fields (EMF)**

The proposal would produce electromagnetic emissions and a compliance report prepared in accordance with the ARPANSA Radiation Protection Standard shows the predicted levels of electromagnetic energy surrounding the development comply with the safety limits imposed by the Australian Commonwealth and Media Authority and the Electromagnetic Radiation Standard (refer Appendix J).

#### **8.15 Aircraft safety**

The proposed tower will be located approximately 17 km north-east of the Western Sydney Airport and is approximately 12 km north-west of Bankstown Aerodrome. Sydney (Kingsford-Smith) Airport is approximately 26 km to the south-east of the subject site.

The subject site outside the control zones for Sydney (Kingsford-Smith) Airport and Bankstown Aerodrome. The site is also outside the Obstacle Limitation Surface for the Western Sydney Airport.

As this proposed communications tower is in excess of 30 m AGL, AirServices Australia has requested that the proponent completes the Vertical Obstacle Notification Form for tall structures and submit it to [VOD@airservicesaustralia.com](mailto:VOD@airservicesaustralia.com) as soon as the development reaches the maximum height.

CASA has raised no objection to the proposed tower. CASA has also noted that the tower is not a controlled activity as it is outside controlled airspace for Bankstown Aerodrome but recommends that a medium intensity steady red obstacle light be installed at the top of the structure because the location is close to the inbound lane of entry for aircraft at the aerodrome.



**Figure 8-5 Airports in the region**

Source: Western Sydney AIRPORT Environmental Impact Statement

### 8.16 Socio-economic impacts

The construction phase for the proposal may temporarily affect the local community as a result of minor increases in dust and air quality emissions, noise, traffic and access. These impacts have been considered in the REF and mitigation measures proposed in order to manage and/or mitigate these impacts, which will be minor and temporary in nature. The only residual effect on surrounding communities will be the presence of the tower as a feature in some viewsheds.

Proposal needs and benefits are addressed in Section 2.3 and Section 2.4.

The CEMP for the proposal will include consultation measures. This will include engagement prior to and during construction. It will also include:

- The type of consultation to be undertaken and by what medium;
- The frequency of consultation;
- The information to be provided;
- The mechanisms by which affected stakeholders can communicate with EE; and
- A complaints and grievance handling process.

### 8.17 Cumulative impacts

Although the proposed tower is located in close proximity to an existing water tower, the surrounding landscape means that views of the water tower are all but obscured and cumulative visual impacts will be limited to the access track between the water tower and communications tower, which is not accessible by the public.

Nearby projects registered on the NSW State Significant Projects webpage (accessed 19 January 2023) include:

- Americold Prospect Expansion. SSD 9577613. A proposal to expand a temperature-controlled warehouse at 554-562 Reservoir Road, Prospect. Currently at Response to submissions stage. Located approximately 1.5 km north of the subject site; and
- Prospect Logistics Estate. SSD 10399. Construction and modifications to warehouses. Determined. Located approximately 2 km north-east of the subject site.

The proposed project is considered not likely to create adverse cumulative impacts due to the distance separating the developments.

It is not considered that there are any other significant cumulative impacts resulting from the proposal.

### 8.18 Summary of impacts

Assessment of environmental impacts has been undertaken in context of section 171 of the Environmental Planning and Assessment Regulation 2021 and has been summarised in Table 8-3 below.

**Table 8-3 Section 171(2) Review of environmental factors – the Act, s 5.10(a)**

Section	Response
(a) the environmental impact on the community	<p>The construction of the proposal will have temporary impacts on the surrounding receivers.</p> <p>These impacts will be limited to construction noise, which will not be significant, particularly when viewed in locational context of an adjacent industrial estate, other existing noise generating facilities in proximity to the site and open parkland/water asset.</p> <p>There will be a visual impact, given the height of the tower (60m) but this will be limited to views from the adjacent industrial estate, short term park users within Prospect Reservoir grounds and distant views from outside the reservoir and associated grounds.</p> <p>Should there be any planned electricity outages, relevant residents, commercial and industrial premises will be notified.</p> <p>Construction will occur completely within the site, isolated from residential or other sensitive receivers, and be managed in accordance with the recommendations contained in this REF to minimise impacts on affected residents as much as possible.</p>
(b) the transformation of the locality	<p>There will be a visual impact associated with the proposal, given the height of the tower (60m) but this will be limited to views from the adjacent industrial estate, short term park users within Prospect Reservoir grounds and distant views from outside the reservoir and associated grounds.</p> <p>Further information is provided in Section 8.4</p>
(c) the environmental impact on the ecosystems of the locality,	<p>Local ecosystems are not expected to experience any significant impacts. The proposal does not require the removal of any trees and is not considered to have any significant impacts on biodiversity (Section 8.4).</p>
(d) reduction of the aesthetic, recreational, scientific or other environmental quality or value of the locality,	<p>The proposal will be constructed in such a way that it will not reduce the future environmental quality or value for the area. There will be a visual impact but this will be limited to views from the adjacent industrial estate, short term park users within Prospect Reservoir grounds and distant views from outside the reservoir and associated grounds (refer Section 8.4).</p> <p>Moreover, it will provide a reliable electricity supply and meet the future electricity requirements of the surrounding area.</p>
(e) the effects on any locality, place or building that has—	<p>Potential impacts to Aboriginal and historic heritage are addressed in Sections 8.2 and 8.3 and in the Statement of Heritage Impact (Appendix B). No major impacts are expected.</p>

**Table 8-3 Section 171(2) Review of environmental factors – the Act, s 5.10(a)**

Section	Response
(i) aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance, or (ii) other special value for present or future generations,	
(f) the impact on the habitat of protected animals, within the meaning of the Biodiversity Conservation Act 2016,	Potential impacts to biodiversity are addressed in Section 8.4 Biodiversity. Impacts are not expected.
(g) the endangering of a species of animal, plant or other form of life, whether living on land, in water or in the air,	Refer to (f).
(h) long-term effects on the environment,	No long-term negative effects on the environment are expected as a result of proposal construction.
(i) degradation of the quality of the environment,	Refer to (h).
(j) risk to the safety of the environment,	Proposal components will be designed and constructed such that it will comply with all relevant Australian and EE Standards and in accordance with legislative and regulatory requirements. Any potential risks to the environment from construction of the proposal will be managed and mitigated in accordance with the mitigation measures outlined in this REF, as well as any approval(s) issued for the proposal.
(k) reduction in the range of beneficial uses of the environment,	The proposal will not have any long-term impacts that will reduce the beneficial uses of the surrounding environment.
(l) pollution of the environment,	Appropriate pollution controls including erosion and sediment pollution control measures will be in place to prevent pollution occurring during the construction of the proposal. Any potential risks of pollution from construction works or operation of the proposal will be mitigated by the works being implemented in accordance with the various requirements of this REF and EE Environmental Management standards.
(m) environmental problems associated with the disposal of waste,	All wastes associated with the proposal construction and operation will be disposed of at an approved facility and in accordance with EE Environmental Management Standard EMS 0007 Waste Management.
(n) increased demands on natural or other resources that are, or are likely to become, in short supply,	There will be no demand on resources that are in short supply. All of the materials required for the construction of the proposal are readily available and considered to be generally in supply.
(o) the cumulative environmental effect with other existing or likely future activities,	The proposal is contained to one tower and is not likely to require any additional construction/infrastructure in the future. The tower is located in close proximity to a large water-tank, however this is accessed infrequently for maintenance and give surround vegetation is not readily visible. Therefore, it is not considered that the proposal will have a significant cumulative impact.
(p) the impact on coastal processes and coastal hazards, including those under projected climate change conditions,	The proposal is not located in a coastal environment.
(q) applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1,	Refer to Chapter 2 Strategic context and Chapter 3 Legislative framework.

**Table 8-3 Section 171(2) Review of environmental factors – the Act, s 5.10(a)**

<b>Section</b>	<b>Response</b>
(r) other relevant environmental factors.	Refer to Chapters 8 and 9 Environmental assessment and mitigation.

## 9 Environmental management

### 9.1 Environmental management standards

To ensure that appropriate steps are taken to manage environmental aspects of infrastructure projects, EE has developed a number of Environmental Management Standards.

EE Environmental Management Standard *EMS0001 Environmental Impact Assessment and Environmental Management Plans* (EMS 0001) has the stated purpose of ensuring 'that all works on EE's Network is undertaken in such a manner as to manage any actual or potential environmental impacts'.

### 9.2 Environmental management plan

This REF has identified a number of mitigation and management measures to minimise adverse environmental impacts that could potentially arise from the proposal. These mitigation and management measures would mostly be implemented during the construction phase of the proposal.

A site-specific CEMP will be prepared for the proposed construction works, which will provide a clear framework for how these measures will be implemented and who will be responsible for their implementation. The CEMP will be prepared prior to commencement of any construction works, and will be reviewed and approved by EEs Environmental Specialist, prior to the commencement of any on-site works. EE will ensure that any construction works are undertaken with consideration of other planned construction works surrounding the subject site, and to minimise any cumulative impacts that may result from the same.

The CEMP will be a working document and will be subject to ongoing updates as required to respond to specific requirements. The CEMP will be developed in accordance with the specifications set out in the EMS 0001.

Aspect	Safeguard
General	<ol style="list-style-type: none"> <li>1. All licence, approval, working hours and notification requirements identified in this REF are to be documented in the Construction Environmental Management Plan.</li> <li>2. All construction shall be carried out for this project in accordance with Endeavour Energy's Environmental Management Standards "EMS 0001 Environmental Impact Assessment and Environmental Management Plans" and EMS 0007 Waste Management and any other pertinent Endeavour Energy EMS, and the site specific CEMP developed in accordance with Endeavour Energys Environmental Guidelines Handbook that shall be developed by the principal construction contractor for this project.</li> <li>3. All aspects of the construction works shall also comply with any relevant Endeavour Energy Standards and/or the relevant Australian Standard so as to achieve and maintain acceptable standards of structural efficiency, safety (including fire safety), and health and amenity for the ongoing benefit of the community.</li> <li>4. The works must be constructed substantially in accordance with the approved plans and included as attachment in Appendix A of the REF.</li> <li>5. The Environmental Specialist at Endeavour Energy must be notified where any variation or modification from the approved design is proposed during either the detail design or construction stages. Any such variations or modifications may require reassessment and re-notification, and an amendment of the Review of Environmental Factors and mitigation/management measures. The CEMP will include a site map presenting the location and extent of the safeguards and environmental management measures (if relevant).</li> <li>5. Prior to commencement, all project staff and contractors will be inducted in the CEMP, including the environmental sensitivities of the work site and relevant safeguards.</li> </ol>

Aspect	Safeguard
	<ol style="list-style-type: none"> <li>6. Building materials and equipment must be stored wholly within the temporary works/set up area.</li> <li>7. All services in the vicinity of the works will be located in the field and pegged-out and noted in the work plans prior to excavation works - "Dial 1100 Before You Dig".</li> <li>8. Any worksite areas will be cordoned off with security fencing to direct pedestrians away from any excavations or open manholes.</li> <li>9. Safety signage, barriers, fencing, etc will be placed around construction areas, as required. These will be checked on a regular basis to ensure they are in adequate working condition.</li> <li>10. The works will not occur on days that have extreme or catastrophic fire rating.</li> <li>11. All works will be undertaken in accordance with Safework NSW requirements, EE standards and procedures and any other applicable requirements.</li> <li>12. The Project Manager will notify impacted residents and businesses regarding any potential interruptions to electricity supply prior to these outages occurring in accordance with National Energy Customer Framework (NECF) requirements.</li> <li>13. All relevant approved plans, specifications, a copy of this Notice of Determination and attached REF, the approved site specific CEMP and any other certificates/permits to be relied upon to carry out these works shall be available on site at all times during the entire period of the construction works.</li> </ol>
Soil and landforms	<ol style="list-style-type: none"> <li>14. All excavation works will be carried out in accordance with Managing Urban Stormwater: Soils and Construction, Volume 1 (Landcom 2006) (the Blue Book) and Managing Urban Stormwater: Soils and Construction (Volumes 2A, 2C and 2D).</li> <li>15. Stockpiles will be placed more than 2m from vegetation, concentrated water flow and roads, and no more than 2m in height. Sediment fencing will be established 1m-2m downslope of each stockpile. Where stockpiles are to be in situ for more than 14 days, they will be stabilised or covered (builder's plastic, geotextile fabric etc). Refer to the Blue Book (Diagram SD 4-1) for further details. Stockpiles should not be placed in the direction of stormwater flow. Where this is unavoidable, please consider further management measures and/or a site-specific erosion and sediment control plan.</li> <li>16. Topsoil should be conserved at all times, and, wherever possible, stored separately. Topsoil stockpiles should be stabilised or covered (builder's plastic, geotextile fabric etc). Topsoil preservation in greenfield areas should be given preference.</li> <li>17. Sediment fencing will be positioned parallel to the contours of the area of ground disturbance. A 150mm deep trench along the upslope line of the sediment fence will be cut for the installation of the geotextile fabric. The trench will be backfilled over the base of the fabric and compacted. Star pickets will be installed at 2.5m intervals at the downslope of the geotextile fabric to stabilise the sediment fence. Refer to the Blue Book (Diagram SD 6-8) for further details.</li> <li>18. No concrete washouts will be discharged directly onsite. All concrete washouts will be collected and retained in leak proof containers and disposed at a suitable licensed facility.</li> <li>19. The Construction Contractor responsible for construction works will be required to develop a site-specific Erosion and Sediment Control Plan as part of the CEMP. The construction, inspection and maintenance requirements for all drainage, erosion and sediment control measures will be specified in the CEMP.</li> <li>20. Disturbance will be restricted to those areas of the proposal required for the active stage of works.</li> <li>21. Geotechnical supervision and testing should be undertaken during bulk earthworks.</li> </ol>



Aspect	Safeguard
	<p>22. Inspection of footing excavations should be undertaken to ascertain that the recommended foundation has been reached and to check initial assumptions regarding foundation conditions and possible variations that may occur.</p> <p>23. Any soil tracked on the roadways will be swept up on a regular basis.</p> <p>24. No fuels, oils or other chemicals are to be stored at worksites unless small amounts are required for that specific days' work.</p> <p>25. Refuelling and maintenance of vehicles, plant and equipment will not be carried out on the subject site. All vehicles, plant and equipment are to be refuelled prior to arriving on-site.</p> <p>26. The sequencing of construction and drainage, erosion and sediment control works will allow for the installation of the temporary drainage system, and preferably the permanent stormwater drainage system as soon as practicable.</p> <p>27. Where necessary, additional erosion and sediment controls will be installed during periods of highest rainfall risk (April to October).</p> <p>28. All drainage, erosion and sediment control measures will be maintained in proper working order until their function is no longer required.</p> <p>29. Flagging tape or bunting will be used during construction to minimise the potential or any disturbance outside of the designated work areas.</p> <p>30. Upon decommissioning any stage of works, erosion and sediment control measures, all materials used to form the control measures will be removed and/or disposed of appropriately.</p> <p>31. Spoil and fill material management and dewatering of worksites will be managed in accordance with the following EE Standards and the Environmental Guidelines Handbook which are all violable on the EE standards and Accredited Service Provider (ASP) website:</p> <ul style="list-style-type: none"> <li>○ EMS 0007 – Waste Management;</li> <li>○ EMS 0008 – Environmental Incidence Response and Management;</li> <li>○ EMS 0013 – Spoil management;</li> <li>○ Annexure C of EMS0013 Spoil Management - Generic Acid Sulphate Soil Management Plan; and</li> <li>○ EMS 0014 – Dewatering worksites.</li> </ul> <p>32. Should contamination be identified, an assessment of deeper soils, leachability and/or groundwater may be necessary to assess potential impacts to the unnamed tributary located within the north-west corner of the site.</p> <p>33. Should groundwater be encountered during earthworks, the Contractor would notify the Environmental Specialist and Project Manager who will co-ordinate any further actions, in line with the recommendations provided in the Geotechnical Report.</p> <p>34. Inspections will be undertaken 24 hours prior to predicted rainfall events</p> <p>35. All clean and dirty water, debris and sediment removal from drainage, erosion and sediment control measures will be disposed of in a manner that will not create erosion, sedimentation or a pollution hazard.</p>
Waterways and water quality	<p>36. A designated and bunded refuelling area with a drip tray will be maintained on site to capture any spills.</p> <p>37. A pre-work checks of all machinery (for oil leaks or worn/damaged hydraulic hoses etc) will be carried out to determine any worn or damaged parts on machinery. Drip trays should be placed under heavy vehicles when stationary. All damaged and worn parts are to be replaced before machinery is operational on site. No vehicles, equipment or plant are to be washed on site.</p>
Noise and vibration	<p>38. Work must be carried out only between 7am and 6pm, Monday to Friday and between 8am and 1pm Saturday,</p>

Aspect	Safeguard
	<p>39. Work can be carried out on a Sunday or public holiday if the impacts of the activity are assessed as minor or inconsequential and approval is obtained by the Construction Contractor from the EE.</p> <p>40. Works will be conducted in accordance with the DECC's 2009 <i>Interim Construction Noise Guideline</i>.</p> <p>41. Appropriate approvals, such as road occupancy licences/permits, are to be obtained from the council as required prior to commencing construction.</p> <p>42. All potentially affected receivers (industrial businesses adjacent to the site on Dolerite Way and Basalt Road) should be notified prior to the commencement of construction works. Details are to include the likely duration of the works and 24-hour contract details for the Project Manager and Construction Contractor.</p> <p>43. Construction works must be carried out within normal working hours unless otherwise approved. Any out-of-hours-works will be carried out in accordance with the requirements of EE's Environmental Guidelines Handbook.</p> <p>44. Should power generators be required to supply private properties during any stage of the construction works, the Project Manager must liaise with the S&amp;E team.</p>
Air quality	<p>45. Visually monitor dust levels during construction works. If excessive dust generation is occurring on site, causing a safety issue or complaints are received, immediately follow appropriate mitigation options;</p> <p>46. Any disturbed areas will be rehabilitated as soon as possible after works have been completed in that area;</p> <p>47. Traffic movement and speed will be restricted over disturbed areas of ground and unsealed access tracks;</p> <p>48. Ensure any soil/spoil tracked onto roadways is swept up on a regular basis;</p> <p>49. Excavated materials are to be either spread out on site or removed off site immediately;</p> <p>50. Stockpiled materials are to be stored with appropriate sediment controls;</p> <p>51. Vehicles and machinery are not to be left idling when not in use so as to reduce exhaust emissions;</p> <p>52. Dust suppression techniques, including wetting down surfaces will be used as necessary; and</p> <p>53. Reference EE's Environmental Guideline Handbook for dust mitigation and management techniques</p>

Aspect	Safeguard
Traffic and access	<p>54. Access to the work sites will be via existing access routes only i.e William Lawson Drive on the northern end and via the George Maunder car par at the Southern end. Heavy construction vehicles should avoid travel between the tower and the pole.</p> <p>55. A pre-construction dilapidation assessment and report relating to the condition of any assets in the vicinity of the site that may be potentially affected by the works must be obtained by the principle contractor/s prior to any project works commencing.</p> <p>56. In the event of inclement weather, the access track will be re-assessed to ensure no damage is caused by the Construction Contractors activities. It is recommended the Construction Contractor discuss the condition of the access track with the landowner and EE prior to accessing the site following wet weather. If any damage occurs to the tracks or roads this will be repaired at the Construction Contractors expense.</p> <p>57. The Construction Contractor will comply with any council or TfNSW requirements regarding traffic control and access. Work vehicles will not obstruct vehicular or pedestrian traffic on roadways, or access to public facilities or businesses, unless necessary and only if appropriate notification has been provided to potentially affected property owners, local residents and businesses.</p> <p>58. All other appropriate permits will be obtained from the relevant road authorities prior to construction commencing, and works will be conducted with these permits.</p> <p>59. Vehicles will not carry mud onto adjacent paved streets or other areas.</p> <p>60. Electronic signage may be used if considered appropriate in advance of construction commencing to advise park users and road users of the upcoming works.</p>
Aboriginal and Non-Aboriginal Heritage	<p>61. Unexpected finds procedure: An unexpected finds procedure should be implemented for all construction works. All relevant construction staff, contractors and subcontractors must be made aware of their statutory obligations for heritage to ensure no archaeological remains or heritage fabric are impacted during the proposed works without appropriate mitigation measures in place.</p> <p>62. If, during the activity:</p> <ul style="list-style-type: none"> <li>a. any Aboriginal objects or Aboriginal remains defined under the NPW Act are uncovered or discovered; and/or</li> <li>b. any relics defined under the Heritage Act 1977 are uncovered or discovered,</li> </ul> <p>the Construction Contractor must:</p> <ul style="list-style-type: none"> <li>a. Cease work immediately.</li> <li>b. Protect and not further harm these objects or remains.</li> <li>c. Secure the area and restrict access to avoid further harm to the objects or remains.</li> <li>d. Notify EE Environmental Specialist immediately via phone, NPWS Environment Line (131 555) (and the local police only if the findings are human remains) and a qualified archaeologist must be contacted for advice as soon as practicable and at that time provide any available details about the nature and location of the objects or remains.</li> </ul>

Aspect	Safeguard
	<p>e. Recommence the activity only after receiving confirmation in writing from Heritage NSW (and the local police if the findings are human remains) that it is appropriate to do so, in consultation with EE.</p> <p>63. To ensure maximum conservation of significance of the proposal site and heritage items in the vicinity, a muted colour scheme that readily blends into the natural environment should be employed for the proposed tower and equipment hut.</p> <p>64. Unexpected finds procedure: Should any Aboriginal objects be uncovered by the work which is not covered by a valid Aboriginal Heritage Impact Permit, excavation or disturbance of the area is to stop immediately and Heritage NSW is to be informed in accordance with the National Parks and Wildlife Act 1974. Works affecting Aboriginal objects on the site must not continue until Heritage NSW has been informed and the appropriate approvals are in place. Aboriginal objects must be managed in accordance with the National Parks and Wildlife Act 1974. An unexpected finds procedure should be implemented for all construction works. All relevant construction staff, contractors and subcontractors must be made aware of their statutory obligations for heritage to ensure no archaeological remains or heritage fabric are impacted during the proposed works without appropriate mitigation measures in place.</p> <p>65. Significant built and landscape elements are to be protected from potential damage during site preparation and during construction. Protection systems must ensure significant fabric, including landscape elements, is not damaged or removed. Individual tree protection requirements shall be determined through consultation between the Project Manager and the Project Arborist prior to installation.</p> <p>66. If requested, the applicant and any nominated heritage consultant may be required to participate in audits of Heritage Council of NSW approvals to confirm compliance with conditions of consent.</p>
Biodiversity	<p>67. Locations of parking, lay-down and storage areas for materials, plant and stockpiles shall be allocated/created and illustrated in the CEMP.</p> <p>68. Where required, no go zones around sensitive areas and the works area boundary shall be identified on site (in concurrence with the CEMP), and temporary bunting or fencing shall be installed to demarcate these areas.</p> <p>69. Where required, the location and full extent of any lopping, trimming, clearing or other vegetation disturbance required for the works shall be identified on site and photographs of the vegetation works recorded.</p> <p>70. Where required, the Construction Contractor will process (ie mulch) and re-locate any removed/disturbed vegetation to a location on the subject property agreed by the landowner or remove the vegetation from the property and dispose of it as a licenced facility. Records of waste disposal will be kept by the Construction Contractor.</p> <p>71. If any threatened or native species (flora or fauna) are discovered during the works, all work will stop immediately, and the Environmental Manager (Construction Contractor) will be notified. The Construction Contractor will inform the EE Environmental Specialist.</p> <p>72. Threatened fauna will be allowed to leave the site without any coercion or a suitably qualified/experienced person is to be contacted to facilitate the safe removal of the animal from the worksite. A record of any fauna displaced, injured or deceased at the site should be recorded.</p> <p>73. If threatened flora is suspected, the Construction Contractor will notify EE, protect the flora as appropriate (e.g., warning tape) and an assessment of appropriate measures will be carried out.</p>

Aspect	Safeguard
	<p>74. All clothing, hats, footwear, tools, equipment, machinery and vehicles will be checked to remove weed seeds, mud, soil and organic matter before entering and exiting the site.</p> <p>75. Where feasible, dead wood, fallen branches and logs should be retained as habitat. Where removal of dead logs or wood is required, these should be relocated (not removed from the site) into adjacent areas that will not be disturbed by construction workers.</p> <p>76. Weed control measures (eg herbicide spraying) should be undertaken prior to construction commencing in areas where high densities or infestations of weeds occur. This will help to reduce the risk of weeds being spread as a result of the proposed proposal.</p> <p>77. To reduce the likelihood of spreading weeds, tyres and undercarriages of vehicles are to be washed and cleaned out/ or sprayed after working with weed infested areas, and prior to entering.</p> <p>78. An Unexpected Finds Procedure for Flora and Fauna should be developed as part of the CEMP and implemented for construction works.</p> <p>79. It is envisaged that all access to the pole location will be from the Maunder Lookout carpark (south) and that it won't be necessary for heavy vehicles to move between the tower site and the pole site. Prohibition of movement of large vehicles through this section should ensure the retention of the dead tree shown on the left in figure below.</p> <p>80. VMP Implementation - The implementation of the recommendations at Section 5 of the Vegetation Management Plan are to be implemented to the satisfaction of the Lead Heritage Adviser at Sydney Water.</p> <p>81. A suitably qualified Project Arborist (AQF - Level 5) must be nominated for this project. The Project Arborist must provide input into tree protection measures, provide a detailed schedule of pruning, provide heritage information to be imparted to all arborists and tradespeople during site inductions, and oversee the works to minimise impacts to heritage values. During the site establishment stage the Project Arborist must provide a detailed assessment of the pruning requirements for work to significant trees.</p> <p>82. All work to, or affecting, trees belonging to the significant Cumberland Woodland Community shall be carried out by suitably qualified tradespersons with practical experience in conservation and restoration of similar heritage structures, materials and construction methods.</p>
Storage of Fuels and Chemicals	<p>83. All fuels and chemicals stored and handled on site would be done so in accordance with AS 1940:2004 The Storage and Handling of Flammable and Combustible Liquids and the Storage and Handling Liquids, Environmental Protection, Participants Manual (DECC, 2007). Material Safety Data Sheets for all the chemicals will be maintained onsite.</p> <p>84. A pre-start inspection of the generator will be conducted each day when in use. If a generator requires servicing, a drip tray or suitable bunding should be used to contain potential spills. Spills will be cleaned up using a spill kit.</p> <p>85. When a temporary generator is brought to site, the generator will be located within the existing compound or within a temporary fenced area. The generator will include a dual wall bunded fuel tank.</p> <p>86. A compliant spill kit and dry chemical fire extinguisher will be present during operation. The spill kit will be stored in an appropriate location that is quickly and easily accessible from all areas of the work site. Any spills will be contained, and material collected and disposed of at a licensed facility by a licensed contractor</p>

Aspect	Safeguard
	when necessary. Disposal records will be kept by the Construction Contractor and provided to EE.
Waste	<p>87. All wastes are required to be classified in accordance to the Waste Classification Guidelines (EPA, 2014) and transported to a licensed facility and waste records will be maintained.</p> <p>88. Waste mitigation and management strategies will be documented in the CEMP and in accordance with EE's Environmental Management Standard EMS 0007 Waste Management.</p> <p>89. Stockpiles and excess fill material will be managed in accordance with managed in accordance with the EE Standards and the Environmental Guidelines Handbook and EMS 0013 – Spoil management.</p> <p>90. Earthworks should be closely monitored by a geotechnical consultant and must include field density testing at an appropriate frequency and level of supervision as detailed in AS 3798-2007.</p> <p>91. All excavated spoil will be classified prior to disposal and/or re-use. Waste disposal dockets will be obtained from the licensed waste disposal facility and copies retained for audit purposes.</p> <p>92. Where excavated spoil is suspected to be contaminated, works will immediately cease and the Project Manager and the relevant Environmental Specialist notified. Spoil suspected of being contaminated will be tested to provide a waste classification for disposal.</p> <p>93. All other waste materials will be removed from the work site at the end of each working day. Where items are able to be recycled, the materials will be sorted and stored at an appropriate site (eg the nearest Field Service Centre) for collection and recycling.</p> <p>94. The work site must be left clear of waste and debris at the completion of works and restored, as far as possible, to the original condition.</p>
Asbestos	<p>95. If there is no Asbestos management plan, the presence of asbestos/asbestos containing materials should be confirmed by a suitably qualified person. All asbestos containing materials should be removed where necessary by appropriately qualified persons. All toxic wastes should be disposed of in accordance with statutory and regulatory requirements, and waste records maintained and copies provided to EE.</p>
Bushfire	<p>96. Approximately 10 metres (measured from the equipment) shall be created and managed as an Inner Protection Area (IPA) of an APZ</p> <p>97. A site induction for contractors working on the proposal will include general bushfire protection measures and requirements.</p> <p>98. Electrical equipment, plant and equipment to be used for construction works will be maintained in operational order to prevent any potential sparks.</p> <p>99. All legislative requirements regarding safe work procedures will be adhered to, including chemical handling and storage.</p> <p>100. An emergency management plan will be developed, which is to include protocols in how to respond to bushfire incidents, including evacuation during construction.</p> <p>101. During periods where one or more of the following occur; accelerated wind conditions, high temperatures, low humidity and/or during total fire bans, plant, equipment, or machinery are not operated.</p> <p>102. Construction waste will be removed from the site in a timely manner so as not to cause a fire risk or obstruct emergency vehicle access.</p> <p>103. The proposal will be constructed and maintained in accordance with EE Company Procedure GAM 0011.</p>

Aspect	Safeguard
	<p>104. The Construction Contractor will review bush fire area conditions each day prior to accessing the site via the Bush Fire Information Line - 1800 NSW RFS (1800 679 737) and the NSW RFS Fires Near Me website (<a href="https://www.rfs.nsw.gov.au/fire-information/fires-near-me">https://www.rfs.nsw.gov.au/fire-information/fires-near-me</a>). If the fire danger rating in the area is severe or above, further advice will be sought from RFS prior to any works being undertaken.</p> <p>105. Hot works where plant, equipment and/or machinery may cause sparking or ignition, a risk assessment will be completed, controls and management strategies will be implemented. Proposed work methods will be updated or changed to ensure controls and ignition risk mitigation is implemented. During periods where one or more of the following occur; accelerated wind conditions, high temperatures, low humidity and/or during total fire bans, plant, equipment, or machinery are not operated.</p>
Visual and social	<p>106. Construction Contractors will maintain the site in a tidy appearance and no rubbish will be left on-site.</p> <p>107. The Construction Contractor will be responsible for managing on-site complaints. Contractors will document the feedback and pass on the details to the Project Manager at EE.</p> <p>108. If any accidental damage to property occurs as a result of work activities, either within or outside the boundaries of the work site, the Construction Contractor will be notified and damage to property incurred by the works must be repaired in consultation with the affected property owner.</p>
Additional stakeholders	<p>109. The Council and all occupiers of land adjacent to the proposal site shall be notified in writing by the principle contractor of the intention to commence the construction.</p> <p>110. The Notification shall include information on when the construction works are to commence and the twenty four hour contact details of the project manager or other appropriate contact person in the event of any complaints.</p> <p>111. This construction notification shall be delivered at least 7 days prior to works commencing.</p> <p>112. The Contractor will notify the council of the proposed construction seven days prior to construction commencing and any other sensitive receiver potentially impacted and identified in the REF.</p>
Aircraft Safety	<p>113. EE completes the Vertical Obstacle Notification Form for tall structures and submit it to <a href="mailto:VOD@airservicesaustralia.com">VOD@airservicesaustralia.com</a> as soon as the development reaches the maximum height.</p> <p>114. CASA recommends that a medium intensity steady red obstacle light be installed at the top of the structure.</p>

### 9.3 Monitoring of impacts

Environmental monitoring will be undertaken in accordance with environmental mitigation and management measures proposed for each of the environmental aspects assessed as part of this REF.

In addition, in accordance with EMS 0001, environmental inspections for 'Class 4 activities' will be conducted by EE's S&E team at the commencement, completion (close out inspection) and periodically during works for activities team to ensure that the works are carried out in an environmentally satisfactory manner. The frequency of these periodic inspections will be determined at the commencement of the construction phase of the works by the Project Manager or the Environmental Services Manager or the technical specialists that have full knowledge of the environmental impact assessments for this REF.

Environmental monitoring and inspections will be undertaken in accordance with EMS 0001 where any potential non-conformance identified from the inspection will be discussed, recorded and addressed.

## **10 Conclusion**

On the basis of the available information and by adopting the safeguards identified Section 9 of this REF, it is concluded that the proposed works are unlikely to significantly affect the environment. Any potential impacts and/or additional site-specific safeguards will be integrated into the Construction Environmental Management Plan and need to be implemented during construction and operation.

Accordingly, an Environmental Impact Statement (EIS) and Species Impact Statement is not required under Part 5 of the EP&A Act and the proposal may proceed.