Review of Environmental Factors

NSW Telco Authority

Critical Communications Enhancement Program

Proposed Telecommunications Facility at:

The Cells State Conservation Area,
Fire Tower Road, Doyles River NSW 2446

Prepared for the NSW Telco Authority

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1. Introduction

1.1 Background information

The NSW Telco Authority (the Authority) is responsible for the overall coordination of radio telecommunication services for the NSW Government. The Authority manages the existing Government Radio Network (GRN), which services 37 NSW Government agencies on its shared network.

Historically, radio communications infrastructure has been designed, built, operated and maintained by individual agencies. These have been built in addition to the GRN, resulting in a large number of networks being established with significant duplication of infrastructure, capacity, coverage and costs.

In 2015, the NSW Government released its *Operational Communications Strategy* (OCS) which set a new direction with respect to the planning, delivery and management of radio and related communications services for the government sector. As part of the OCS, the Authority will undertake its day to day management and delivery of government operational communications in addition to a Critical Communications Enhancement Program (CCEP) which includes the delivery of approximately 700 sites proposed across New South Wales.

The purpose of this Review of Environmental Factors (REF) is to describe the proposal, to examine and take into account to the fullest extent possible matters affecting or likely to affect the environment as a result of the proposal (Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), and to detail safeguards to mitigate any potential impacts.

In accordance with the *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP), the proposal does not require development consent from the local council, however notification to the local council is required for a new tower or mast. The Authority is both a public authority proponent (Part 4 of the EP&A Act) and the determining authority (Part 5.1 of the EP&A Act) for all proposals. An exception is made for proposals located on land reserved under the *National Parks and Wildlife Act 1974* (NPW Act). Despite the provisions under Part 5.4(c) of the EP&A Act, the National Parks and Wildlife Service's policy requires that it be the determining authority for these proposals.

The REF has considered the requirements of the guideline Is an EIS Required? (DUAP 1999) and the factors listed in clause 228(2) of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

1.2 Need, alternatives and justification of the proposal

The GRN will improve the delivery of frontline law enforcement, emergency, essential and community services.

The GRN will also provide greater interoperability between NSW Government agencies, and other jurisdictions, resulting in faster incident response times and improved incident management by emergency service organisations.

The site selection process aims to utilise existing Government agency infrastructure (in particular emergency services organisations) where feasible. In cases where the required infrastructure does not exist or is

unsuitable, alternative options such as co-locating assets on a privately owned or commercial tower or installing a new tower are considered.

The site alternatives are assessed using a multi-criteria analysis which includes coverage, cost, constructability, property and environmental planning constraints. Co-location is preferable in circumstances where it is technically feasible and can deliver a better solution in terms of environmental and social impacts. Installing a new tower is considered where other co-location options are not suitable and/or the GRN requires a new facility to meet the backhaul and radio frequency objectives.

The Authority assessed three potential candidates during the validation stage:

- Co-location on an existing 40m high Optus monopole at 175 Mount Seaview Road, Mount Seaview NSW 2446
- Greenfield Authority 40m high lattice tower at 10388 Oxley Highway, Mount Seaview NSW 2446
- Greenfield Authority 35m high lattice tower at The Cells State Conservation Area (SCA), Fire Tower Road, Doyles River NSW 2446

The potential co-location is located on private land and was considered at a desktop level. The candidate was not feasible as the location and available aperture on the structure would not enable the Authority to meet its radio frequency objectives and transmission requirements. There were no other feasible co-location opportunities in the surrounding area.

The Authority explored a greenfield candidate on private land to the north of The Cells SCA, at 10388 Oxley Highway, Mount Seaview. The land currently hosts a NSW Ambulance communications facility, which includes a structure that is not capable of accommodating the required GRN equipment. The elevation of the land and the topography of the surrounding area would not enable the Authority to meet its transmission requirements. Discounting the co-location candidate and the private land candidate the Authority was required to assess a suitable location on land within The Cells SCA which was at a suitable elevation to meet its objectives.

The greenfield candidate within The Cells was selected for three key reasons:

i) The land is at a suitable elevation for the Authority to meets it radio frequency and transmission requirements;

ii) The location utilises existing access routes and an existing cleared area due to its proximity to a trigonometric station, TS5670 Tobin Trig;

iii) The location is suitable to minimise environmental and social impacts associated with the proposal. Consultation with NPWS about the proposal and the draft Plan of Management has occurred to ensure that the proposal aligns with the management direction and desired outcomes for the NPWS reserved land.

Accordingly, the greenfield proposal at The Cells, Fire Tower Road, was selected as the prime candidate to progress to a detailed design solution for the Authority.

1.3 REF structure and function

The purpose of this REF is to address the Authority's obligations under section 5.5 and section 5.7 of the EP&A Act by examining and taking into account to the fullest extent possible all matters affecting or likely to affect the environment and assessing the significance of adverse environmental impacts likely to arise from the proposal to evaluate whether an EIS is required.

This REF has been prepared in accordance with the principles of environmentally sustainable development and environmental due diligence responsibilities. In preparing this assessment, consideration has been given to the EP&A Act, the EP&A Regulation and other relevant environmental legislation. This REF is based on an indicative scope of works. If the scope of works as described in this document alters following determination, further consideration must be given to the need for further environmental impact assessment.

2. Proposal details

2.1 Description of the proposal, location and surrounds

A description of the site-specific proposal details and location is provided in Table 1.

Table 1 Proposal and location description

Proposal and location description	
Site name	Tobin Trig

Proposal details	The Authority proposal is for a greenfield facility consisting of a 35m lattice tower together with an equipment shelter and solar panel arrays at ground level, all within a 300m² secure, fenced compound (20.0m x 15.0m, consisting of a 2.4m high security fence with 3.0m wide double access gates). The compound would require an asset protection zone (APZ) to be implemented being a total of 1500m² (20m to the north-west, 20m to the north-east, 20m to the south-east, and 10m to the south-west) for a total proposal area of 45m x 40m, being 1800m². The compound would include the following components of the proposed facility:
	• One 35m lattice tower on concrete slab and pier foundations to accommodate the following equipment;
	  ○ 1 x BA8080-67 dipole array at 35.0m;
	  ○ 1 x VHLP2-7 600mm parabolic antenna at 33.0m;
	  ○ 1 x VHLP3-6 900mm parabolic antenna at 33.0m;
	  ○ 1 x VHLP2-7 600mm parabolic antenna at 33.0m;
	• One generator equipment shelter (6.1m long x 2.5m wide x 2.9 high) on bored pier footings;
	• One photovoltaic array (36 panels) on a steel frame connected to the generator equipment shelter;
	• An elevated 300mm wide cable tray and ladder with support posts to house feeder cables between the proposed equipment shelter and proposed lattice tower;
	• 75mm thick layer of single-sized 20mm (nominal) clean crushed stone on geotextile weed mat to cover the area with the proposed compound;
	• An earthing ring within the proposed compound perimeter consisting of 50mm x 3mm gal strap, approximately 500mm below ground level;
	• 22 earthing electrodes approximately 3.0m below ground level located adjacent to the fence posts around the perimeter of the proposed compound;
	
	The proposal includes an upgrade of Fire Tower Road, with a section of approximately 450m in length and 3m wide requiring clearing of regrowth vegetation. An estimated one to two loads of clean gravel would be required for sections of Fire Tower Road. A gate to the standards of NPWS would be required at the NPWS-nominated location on Fire Tower Road.
	
	The proposal also includes provision of a temporary 'construction works area' to the north-west of the proposed compound. The temporary construction works area would be approximately 200m² and would provide the Authority's Delivery Contractor with sufficient space to accommodate construction vehicles, plant and storage of materials required to construct the proposed facility.

	Once constructed, the operation and maintenance of the proposed facility would require approximately two visits per year. Maintenance visits would typically require one utility vehicle; however, upgrade works on the lattice tower may require a crane to access the antennas (the proposed facility would also accommodate a tower mounted ladder for riggers to access the antennas). Refer to the design drawings in **Appendix A** for further details.
Landowner/lessee/reserve manager (land, tower and hut)	The land is reserved under the NPW Act, administered by NPWS. The Authority would own its equipment within its licensed area, including the lattice tower, equipment shelters, photovoltaic arrays and secure compound.
Property address and Lot and DP no.	The Cells State Conservation Area Fire Tower Road, Doyles River NSW 2446
Local Government Area and Zoning	Local Government Area: Port Macquarie-Hastings Council Zone: E1 National Parks and Nature Reserves
Road/vehicular access including proximity to major state roads	Access to the site is via Fire Tower Road, Stockyard Creek Road and Knodingbul Road, through The Cells SCA. The closest arterial road is the Oxley Highway approximately three kilometres to the north-east. Knodingbul Road is an unsealed road with access from the Oxley Highway, is in fair condition, though prone to fallen trees and is limited to four-wheel drive vehicles. Stockyard Creek Road is in a similar condition and accessibility also being limited to four-wheel drive vehicles, particularly in wet weather conditions. Fire Tower Road is in poor condition, is not currently maintained for vehicular access. Access to the site at Fire Tower Road requires clearing of regrowth vegetation and would need to be graded to allow construction vehicles to access the proposed facility location.
Surrounding land use and landscape (include vegetation type, waterways, topography, sensitive receivers)	The proposed facility is on NPWS-reserved land, within The Cells SCA which is in the hinterland of the NSW mid-north coast, approximately 69 kilometres west of Wauchope. The Cells SCA covers 4708 hectares south of the Oxley Highway. The Cells SCA adjoins NPWS-reserved land including Cotton-Bimbang National Park and further south and east, Doyles River State Forest. The proposed facility location is on a ridge line with significant variations in topography to the north-west and south-east. The surrounding area is characterised by native forest, consisting predominantly of New England Blackbutt. The proposed facility location is at an elevation of 996m and is partly cleared due to its proximity to TS5670 Tobin trigonometrical station and location on Fire Tower Road. The prevailing tree height at the proposed facility location is 15-20m. The closest waterway is Cells River, approximately 2.4km to the south-east. The closest sensitive receiver is a dwelling and roadhouse located approximately 2.75km to the north, which currently hosts a NSW Ambulance communications facility.

Figure 1 Proposed site location

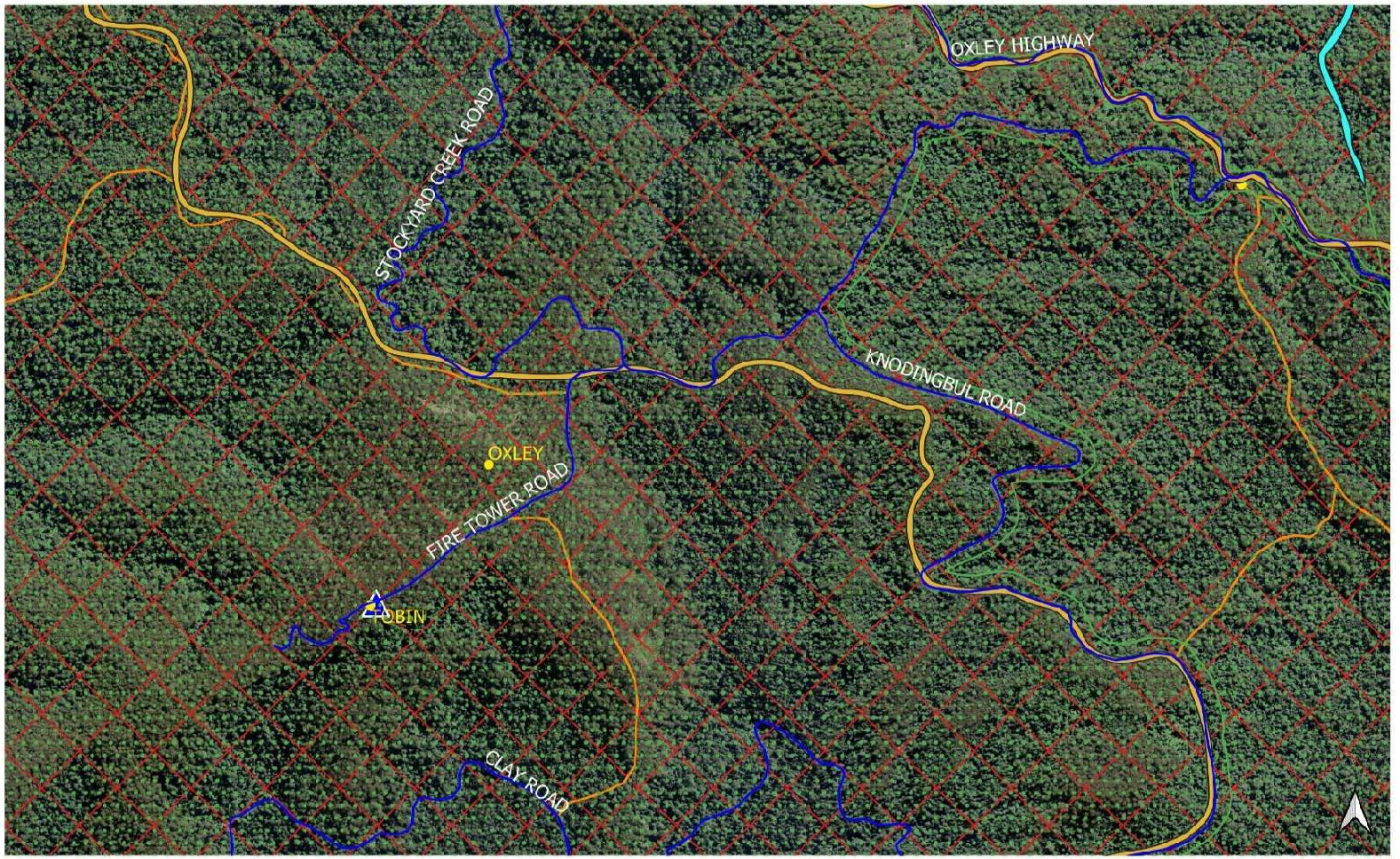


Figure 2 Proposed site layout

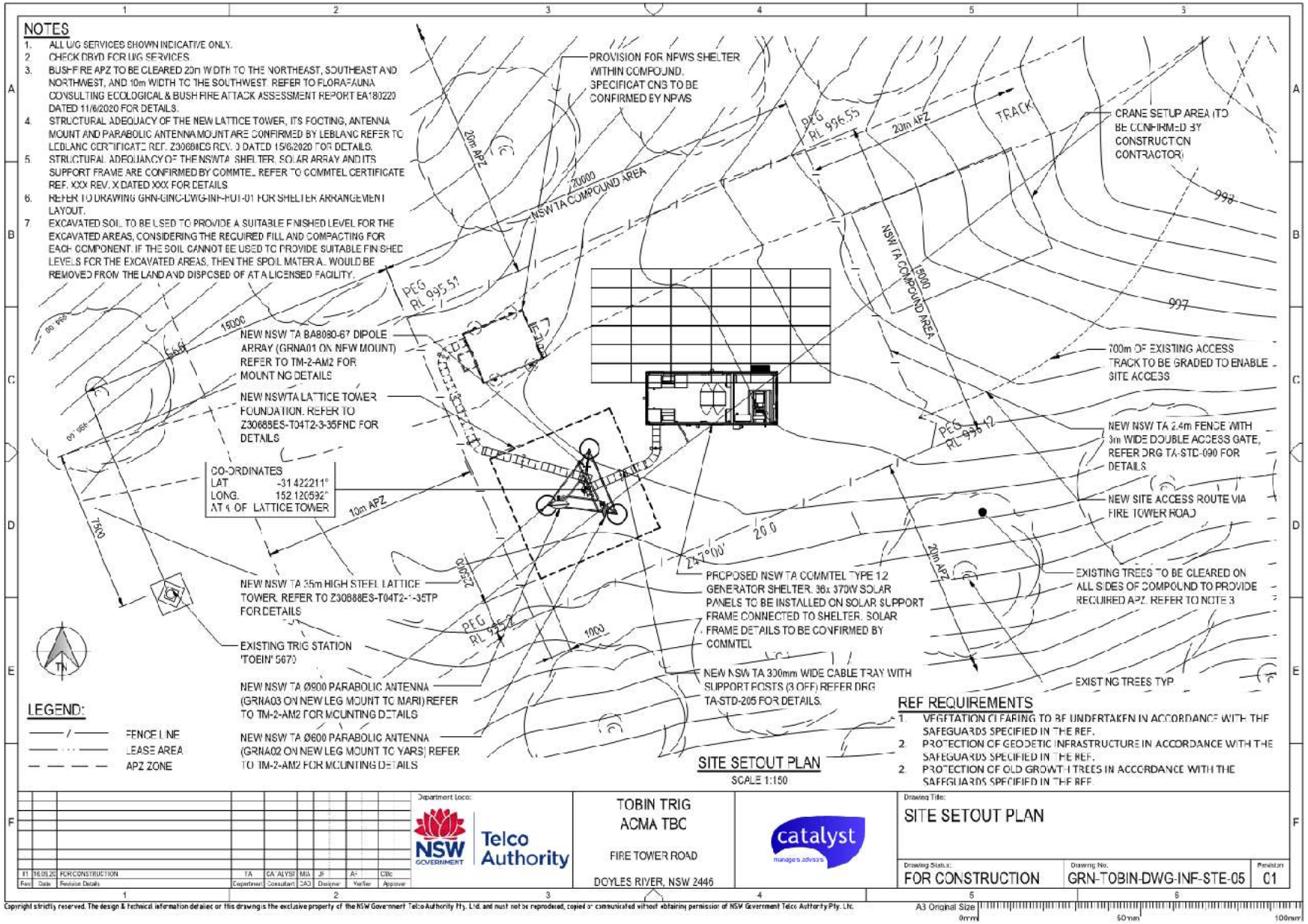


Figure 3 Photos of the site

A site visit was conducted on 5 March 2020 to identify environmental constraints and attributes at the site to be addressed or investigated further during detail design. The photographs taken during the site visit are presented in Figure 3.

Access to proposed site from Fire Tower Road
Photo: Catalyst ONE Pty Ltd

Existing access route with significant hollow-bearing tree
Photo: Catalyst ONE Pty Ltd

Existing Tobin Trig Station
Photo: Catalyst ONE Pty Ltd

Proposed facility location, view to the north-west
Photo: Catalyst ONE Pty Ltd

Aerial view of the proposed facility location
Photo: NSW Telco Authority

Aerial view to the south of the proposed facility location
Photo: NSW Telco Authority

2.2 Description of the construction and maintenance methodology

Key features of the construction methodology and required maintenance (including access routes) are described in Table 2.

Table 2 Proposal construction methodology

Proposal details	Description of construction methodology
Proposed construction method, including area and depth of proposed earthworks, scaffolding, footings etc… and details of method to install the tower (i.e. scaffolding, riggers or crane)	Construction of the proposed facility would require: • Earthworks for the lattice tower foundations for the slab and pier footings would require excavation of an area 6000mm x 6000mm to a depth of 1750mm. • Earthworks for the equipment shelter foundations for the bored pier footing (four piers) would require excavation of an area approximately 450mm in diameter to a depth of 750mm. • Earthworks for the solar panel array foundations for the strip footing would require excavation of an area approximately 450mm in width to a depth of 600mm, approximately 10m in length. • Earthworks for the compound fence post foundations for the bored pier footing (22 piers) would require excavation of an area approximately 300mm in diameter to a depth of 600mm. • Earthworks for the earthing ring would require excavation to a depth of 500mm within the perimeter of the proposed compound. • Embedment of 22 earthing electrodes approximately 3.0m below ground level located adjacent to the fence posts around the perimeter of the proposed compound. Excavated soil would be used to provide a suitable finished level for the excavated areas, considering the required fill and compacting for each component. If the soil cannot be used to provide suitable finished levels for the excavated areas, then the spoil material would be removed from the land and disposed of at a licensed facility. Works associated with the access on Fire Tower Road would create additional ground disturbance. The clearing of regrowth vegetation would occur at the early stage of construction to facilitate the access of construction vehicles. Safeguards are specified in Section 6 to protect significant vegetation immediately adjacent to the access route. A gate would also be installed at the intersection of Fire Tower Road and Stockyard Creek Road to restrict public access to the cleared access on Fire Tower Road. The lattice tower would be delivered to the proposed facility location in individual steel members. A crane would be required to lift the lattice tower members into place, with each piece being bolted together, which would require an elevated work platform.
Materials and equipment proposed to be used for the proposal	Materials to be used for the proposal would include: • Lattice tower individual steel members • Equipment shelters

	• Steel frames for solar panel arrays • Photovoltaic panels • Antennas • Radiocommunications equipment to be housed within the equipment shelter • Cabling • Cable tray, ladder and support posts • Concrete • Batteries • Earthing strap and electrodes • Fuel • Fencing and support posts • Pits and conduits • Weed matting and gravel Equipment and plant to be used for the proposal would include: • Utility vehicles • Cranes • Elevated work platforms • Delivery trucks • Concrete trucks • Excavation machinery • Tree removal machinery • Skip bins • Chipper • Chipping bins • Lifting equipment • Generators • Power tools • Air compressor • Welding machinery • Portable amenities
Receipt, storage and on-site management for materials and equipment including number of trucks and other vehicles accessing the site	All materials would be delivered to the proposed facility location and stored within the temporary construction works area. The Authority's Delivery Contractor would undertake the works in accordance with its construction methodology and in accordance with NPWS conditions. The number of vehicles accessing the site is dependent on the relevant construction stage. Excavation and foundation works would require heavy plant including concrete trucks and pumps. Erecting the lattice tower would require cranes and an elevated work platform, and installation of equipment on the lattice tower would require an elevated work platform.
Site clearing including extent of vegetation to be removed (ie. for an Asset Protection Zone)	Significant clearing of vegetation is required for the compound area and APZ, with a total cleared area of 1800m^2. Vegetation to be removed consists primarily of New England Blackbutt. Together with the clearing of regrowth vegetation on Fire Tower road, the total cleared area is 3,150m^2. Cleared vegetation would be reduced by chipping on site and transported off-site and disposed of at a licensed facility. Further details are included in the Ecological and Bush Fire

	Attack (E&BFA) Assessment Report enclosed at **Appendix F**, and relevant safeguards are specified in Section 6.
Solar power requirements/power supply	The proposed facility would require a solar power solution consisting of 36 photovoltaic panels mounted on a steel frame. Details of the solar power solution is provided in the detailed design at **Appendix A**.
Public utility adjustments	The proposed facility location is in a remote location with no existing public utilities in the vicinity. No stormwater, sewerage or waste management facilities are required.
Any adjustment or earthworks required for access roads or traffic	Access to the proposed facility location would be through the existing access tracks in The Cells SCA, via Knodingbul Road, Stockyard Creek Road and Fire Tower Road. Clearing of juvenile, regrowth vegetation along a 450m section of Fire Tower Road is required to facilitate construction and the ongoing operation of the proposed facility. Portions of Stockyard Creek Road and Knodingbul Road are prone to fallen trees and may require clearing to access the site. A 450m section of Fire Tower Road would need to be graded to provide suitable access for construction vehicles.
Storage and disposal of waste material	The temporary construction works area would be used to store waste materials. Waste would be disposed of in accordance with the safeguards specified in Section 6.
Description of ancillary activities, for example, a 'works area', signage, generators etc.	During construction, a 'works area' would be required and may require provision for: • Crane and elevated work platforms as required. • Vehicle parking. • Equipment and plant set down area. • Materials unloading and storage. The works area would require an indicative area of 200m^2 and would be located with the cleared APZ area to the north-east of the proposed compound (Figure 2).
Timeframe, duration, construction hours of operation, workforce	Construction is anticipated to take approximately 4-6 weeks to complete, commencing in the first quarter of 2021. Construction activity would occur during the following work hours: • Monday to Friday: 7am to 6pm. • Saturday: 8am to 1pm. Works may be carried out on Sundays, public holidays or outside standard working hours subject to an assessment being carried out to confirm there are no adverse impacts associated with the works. Following the assessment, the Delivery Contractor would seek authorisation from NPWS to carry out the works outside standard working hours.

Demobilisation works	Once construction of the proposed facility is complete, demobilisation would include the removal of all vehicles, plant, materials, equipment, spoil and waste from the land. The areas used to construct the proposed facility and to demobilise would be restored to a condition similar to the condition prior to commencing works.
Description of maintenance activities	Maintenance of the proposed facility would be undertaken periodically, likely two to three times per year. Maintenance activities would typically require one four-wheel drive utility vehicle and one to two persons. Maintenance of equipment on the tower may be undertaken by qualified riggers as the proposed facility would include a tower-mounted access ladder.

3. Statutory and planning framework

3.1 Summary of statutory framework

A summary of the planning pathway analysis and legislative requirements for the proposal is included in Table 3.

Table 3 Summary of the REF pathway analysis and legislative requirements

Legislative requirements / aspects	Comments
State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) designation	The ISEPP aims to facilitate the effective delivery of infrastructure across the state, including radio and telecommunications facilities. Clause 114(1) of the ISEPP permits development for the purposes of telecommunications facilities (including radio facilities) to be carried out by a public authority without consent on any land.
ISEPP consultation requirements (clause 13-16)	Refer to Table 4 for specific criteria and assessment.
ISEPP requirements (clause 114(2)) Does the proposal include a new tower or mast? If so, has the proponent taken into consideration any guidelines concerning site selection, design, construction or operating principles for telecommunications facilities that are issued by the Director-General? (Refer to *NSW Telecommunications Facilities Guideline Including Broadband, 2010*, Department of Planning).	The proposed facility would include the installation of a 35m lattice tower within a secure compound. The proposal is consistent with the site selection, design, construction and operating principles for telecommunications facilities as detailed in *Telecommunications Facilities Guideline Including Broadband, 2010* (Department of Planning, NSW). **Principle 1: A telecommunications facility is to be designed and sited to minimise visual impact.** The proposed facility would have a low level of visual impact on the amenity of the surrounding area. It is considered that the facility has been located appropriately to minimise visual impact associated with the development. The proposed facility location is in a remote conservation area that is suitable for the development and use of the land for a telecommunications facility. The proposed facility would be visible from some locations in the surrounding area. Given the advantages associated with the proposed facility, it is considered that the proposed facility would result in an acceptable level of impact which would outweigh any general loss of visual amenity. Further details are provided in Section 4.5.

	Principle 2: Telecommunications facilities should be co-located wherever practical. In this instance, there are no opportunities to co-locate the facility with existing communications infrastructure in the area that would satisfy the Authority's radio frequency objectives and transmission requirements. **Principle 3: Health standards for exposure to radio emissions will be met.** The development would produce electromagnetic emissions (EME). An Environmental EME Report prepared in accordance with the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) *Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields - 3 kHz to 300 GHz (2002)* (the ARPANSA Standard) shows the predicted levels of EME from the proposed facility comply with the safety limits imposed by the Australian Communications and Media Authority (ACMA) and the ARPANSA Standard (refer to the Environmental EME Report enclosed at **Appendix B**). **Principle 4: Minimise disturbance and risk, and maximise compliance** The proposed facility would be located within a secure compound area, comprising a security fence and access gates. The proposed facility is designed and certified by qualified engineers and the installation would be carried out in accordance with all relevant Australian Standards. During construction machinery and equipment would be required, including cranes and heavy vehicles, and all construction activities would be carried out in accordance with the safeguards in Section 6.
Land tenure	The proposed facility would be located on land reserved under the NPW Act. The Authority would seek to execute a licence with the Minister for the Environment.
Is the proposal a category identified as State significant development or State significant infrastructure under *State Environmental Planning Policy (State and Regional Development) 2011*	No. The proposal does not fall into any of the categories identified in the *State Environmental Planning Policy (State and Regional Development) 2011*. Mitigation measures would be implemented to ensure environmental impacts are minimised.
Is the work likely to have a significant impact on a Matter of National Environmental Significance as defined under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth)?	No, the proposal is not likely to have a significant impact on a Matter of National Environmental Significance (MNES). An ecological assessment was prepared to assess the likely impact of the proposal on the environment. The ecological assessment and its recommendations are enclosed at **Appendix F** and

	relevant safeguards are specified in Section 6 and further details provided in Section 4.4.
Does the work involve an action on Commonwealth land that is likely to have a significant impact on the environment, or an action outside Commonwealth land that may significantly impact the environment on Commonwealth land?	No, the work does not involve an action on Commonwealth land that is likely to have a significant impact on the environment, or an action outside Commonwealth land that may significantly impact the environment on Commonwealth land.
Is the proposal located on land subject to *Native Title Act 1993* (Cth), is there a native title claim pending or is the land subject to an Indigenous Land Use Agreement?	No, the proposal is not located on land subject to the Native Title Act and there is no native title claim pending. The land is not subject to an Indigenous Land Use Agreement.
Is there an Aboriginal land claim under the *Aboriginal Land Rights Act 1983* (NSW)? Consult with Crown Lands to establish any Aboriginal land claims.	No, the proposal is not on land subject to an Aboriginal land claim.
Does the proposal comply with the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) Radio Frequency Standard?	Yes, an Environmental EME Report prepared in accordance with ARPANSA Standard shows the predicted levels of EME from the proposed facility comply with the safety limits imposed by the ACMA and the ARPANSA Standard (refer to **Appendix B**).
Does the proposal require an approval, permit or licence under any other environmental legislation?	No, the proposal does not require an approval, permit or licence under any other environmental legislation.

3.2 ISEPP consultation requirements

The ISEPP contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development**.** Table 4 provides a checklist to determine if ISEPP consultation is required.

Table 4 ISEPP consultation checklist

Is consultation required under the ISEPP?	
Is consultation with council required under clauses 13-15 of the ISEPP?	
Are the works likely to have a substantial impact on the stormwater management services, sewerage services or water supply system which are provided by council?	☐Yes ☒No
Are the works likely to generate traffic to an extent that will strain the existing road system in a local government area?	☐Yes ☒No
Will the works involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, will this cause more than a minor or inconsequential disruption to pedestrian or vehicular flow?	☐Yes ☒No

Is consultation required under the ISEPP?	
Will the works involve more than a minor or inconsequential excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance?	☐Yes ☒No
Are the works located on flood liable land? If so, will the works change flooding patterns to more than a minor extent?	☐Yes ☒No
Is there a local heritage item (that is not also a state heritage item) or a heritage conservation area in the study area for the works? If yes, does a heritage assessment indicate that the potential impacts to the item/area are more than minor or inconsequential?	☐Yes ☒No
Is consultation with other agencies required under clause 16 of the ISEPP?	
Is the proposal adjacent to a national park, nature reserve or other area reserved under the *National Parks and Wildlife Act 1974*?	☐Yes ☒No
Is the proposal adjacent to a declared aquatic reserve under the *Fisheries Management Act 1994*?	☐Yes ☒No
Is the proposal adjacent to a declared marine park under the *Marine Parks Act 1997*?	☐Yes ☒No
Is the proposal in the Sydney Harbour Foreshore Area as defined by the *Sydney Harbour Foreshore Authority Act 1998*?	☐Yes ☒No
Does the proposal involve the installation of a fixed or floating structure in or over navigable waters?	☐Yes ☒No
Is consultation with other agencies required under clause 114(2) of the ISEPP?	
Does the proposal involve the development of a tower or mast? A copy of the ISEPP notice to Council is provided in **Appendix D**. A notice was not required to be sent to adjoining occupiers of land due to the location of the proposed facility.	☒Yes ☐No

3.3 Community consultation

Table 5 identifies whether community consultation is required.

Table 5 Community consultation

Is consultation with the local community or other stakeholders required?	
Is the proposal located within 500m of a sensitive receiver (ie. school, hospital, residence, business)? If yes, detail distance and type of sensitive receiver.	☐Yes ☒No
Is the proposal likely to impact any sensitive receivers? If yes, provide details and determine whether a Community Consultation Plan is required?	☐Yes ☒No

3.4 Consultation with NPWS

3.4.1 Permissibility

The proposal is not prohibited under the NPW Act. The Draft PoM has recently been updated in May 2020 following the 2019 bush fires and also to include additional information regarding communications infrastructure within The Cells SCA. As the proposed facility is included in the Draft PoM it is considered permissible. The Draft PoM is expected to receive Ministerial approval during 2020. A licence is required under Section 151 of the NPW Act. The proposal is not located within a wilderness area as identified under the *Wilderness Act 1987*.

3.4.2 Consultation

The Authority has consulted with NPWS during the design and planning process, and through the formal approval in-principal (AIP) process. The AIP process is established to address matters for consideration under the NPW Act and to ensure that the proposal aligns with the relevant plan of management.

Prior to the formal AIP process the Authority addressed matters raised by NPWS during October 2019, to ensure legislative compliance. The matters raised on 10 October 2019 were:

- A request for coverage plots for all greenfield options located within National Park estate
- A request for coverage plots for all greenfield options located outside National Park estate, together with a request to clarify and confirm that no existing towers for potential co-location were identified
- To provide details of any other reasons why any potential sites within or outside National Park estate were discounted (aside from not meeting coverage objectives)
- A request for a coverage plot for the existing Ambulance site at Gingers Creek Roadhouse
- Further details to justify the Tobin Trig site, including:
    - Radio frequency requirements and whether the site would provide linkage to other sites in the area or just extended coverage of the immediate area?
    - What is the benefit of Tobin Trig site to the area and the network?
    - Will the Tobin Trig site improve radio coverage for the Area and therefore improve park management/have a positive benefit for NPWS?
    - Should the Tobin Trig site not proceed, what would it mean for the network and would the Authority have a back-up plan?

The Authority responded on 24 October 2019 with a detailed Site Information Package (SIP) with the requested information. A copy of the SIP is enclosed at **Appendix E**. Following this initial consultation stage the Authority engaged Catalyst ONE as its design partner for the proposal. Catalyst ONE undertook a site design visit on 5 March 2020 which was attended by representatives from the Authority, the NPWS local area team and Catalyst's ecology and bush fire risk consultant. Following the site visit, a revised preliminary design solution was prepared for the formal AIP process.

On 16 April 2020 the formal AIP process commenced with the following information being supplied to NPWS:

- Form 1 – CCEP Site Proposal on NPWS Land
- Form 3 – Application for Licence: New CCEP Facility on NPWS Land
- Information Package regarding the proposed facility - aligning with Forms 1 & 3
- Preliminary Design Drawings
- Signed Geotechnical Investigation Consent Letter

A copy of the submission to NPWS is enclosed in **Appendix E**. NPWS considered the submission and provided AIP for the proposal on 27 May 2020, subject to the comments. The AIP was granted noting that the criteria in section 153D(4)(b), (c), (d), (e) and (h) of the NPW Act would not be assessed by NPWS until the REF is submitted, and that the REF should address the criteria. Property comments also related to the access route and to ensure that options for access to the facility be discussed with the local area to establish which route will

be used both during and after construction. Technical comments related to OEH network requirements and that OEH would need to review (and may provide input into) the detailed design when it is available.

The AIP and comments have been considered as part of the Authority's detailed design process. The REF has been prepared to address the NPW Act criteria, being:

> *(4) The Minister must not grant a lease, licence, easement or right of way under this section unless the Minister is satisfied that:*
> *…*
> *(b) the site of any proposed above ground broadcasting or telecommunications facility covers the minimum area possible, and*
> *(c) the proposed broadcasting or telecommunications facility is to be designed and constructed in such a manner as to minimise risk of damage to the facility from bushfires, and*
> *(d) the site and construction of the proposed broadcasting or telecommunications facility have been selected, as far as is practicable, to minimise the visual impact of the facility, and*
> *(e) if feasible, an existing means of access to the proposed site of the lease, licence, easement or right of way is to be used, and*
> *…*
> *(h) the site of the proposed broadcasting or telecommunications facility has been selected after taking into account the objectives set out in any plan of management relating to the land concerned, and*
> *…*

These matters are addressed in Section 3.4.3 below and Table 7. Consideration of the access route has been made with reference to local area discussions. The Authority design and structure includes provision for NPWS to utilise the infrastructure for its network and requirements.

3.4.3 Telecommunications facilities checklist

The checklist in Table 7 meets the requirements of section 153 A and 153D of the NPW Act which applies to telecommunications facilities.

Table 6 OEH Telecommunications facilities checklist

Principle	Comments
Is the facility on land that is within an area designated as a remote natural area or back country zone in a plan of management or an Aboriginal area?	No, the proposal is not located within an area designated as a remote natural area or back country zone in a plan of management or an Aboriginal area.
Are there feasible alternative sites for the facility on land that is not reserved under the *NPW Act*?	No, there are no feasible alternative sites on land not reserved under the NPW Act. Details of the alternatives and the reasons for the proposed facility at Tobin Trig were provided in the SIP and considered during the formal AIP process. Refer to **Appendix E** for relevant information and documents.
Does the site of any above ground facility cover the minimum area possible?	Yes, the development footprint of 1800m^2 is the minimum area required to support a solar power solution, the required CCEP infrastructure and the associated APZ. Refer to Section 4 for further details, in particular Section 4.3 and Section 4.4.

Principle	Comments
Is the facility to be designed and constructed to minimise risk of damage to the facility from bushfires?	Yes, a bush fire risk assessment has been completed (refer to **Appendix F**) and includes recommendations to manage the risk associated with bush fire.
Has the site and construction of the facility been selected to, as far as practicable, minimise visual impact?	Yes, the facility is appropriately sited to minimise visual impact. There are no significant views towards to proposed facility and the facility is designed to the minimum required height to achieve radio frequency and transmission objectives.
Is it feasible to use an existing means of access to the site?	Yes, existing access via Knodingbul Road, Stockyard Creek Road and Fire Tower Road is utilised.
Is the facility essential for the provision of telecommunications services for land reserved under the *NPW Act* or for surrounding areas to be served by the facility?	Yes, the facility is essential to provide ESO services throughout the NPWS-reserved land and the facility is designed to accommodate NPWS communications requirements and links into the GRN network.
Will the facility be removed and the site restored as soon as possible after the facility becomes redundant (e.g. due to changes in technology)?	Yes, the facility would be decommissioned, and the land restored should the facility and technology become redundant.
Has the site been selected after taking into account the objectives set out in any plan of management relating to the land?	Yes, the design and location of the facility has considered the Draft PoM and the facility is permissible.
If feasible, will the facility be co-located with an existing structure or located at a site that is already disturbed by an existing lease, licence, easement or right of way.	Yes, the facility is located on Fire Tower Road at a previously cleared and disturbed area which was utilised for a fire tower. The proposed facility location is also adjacent to the existing trigonometrical station TS5670 Tobin Trig.
Is the facility on land that is within a wilderness area?	No, the facility is not on land within a wilderness area.

3.5 Consultation with NSW Surveyor General

Consultation with the NSW Surveyor General was undertaken due to the proximity of the proposed facility to Trigonometrical Station TS5670 Tobin Trig, and its associated witness marks, which form part of NSW's geodetic infrastructure. The infrastructure is protected under the Surveying and *Spatial Information Act 2002*, and the Authority is required to undertake its activities without disturbing the infrastructure. Details of the proposal were provided to NSW Department of Customer Service (DCS), Spatial Services, on 20 March 2020, seeking feedback on the proposal. A written response from the NSW Surveyor General was received on 22 April 2020 which raised no objections to the proposal subject to final assessment of detailed design drawings. On 8 September 2020 detailed design drawings were provided to DCS Spatial Services, to which a response was received on 22 September 2020. In its final assessment the written response from the NSW Surveyor raised no objection to the proposal subject to conditions. Construction of the proposed facility would be undertaken in accordance with the conditions specified in the safeguards in Section 6. A copy of the correspondence is enclosed at **Appendix G**.

3.6 Summary of consultation

Table 7 summarises the stakeholders notified regarding the proposal, the issues raised in any submissions received, and the Authority's response to the stakeholders. A copy of the correspondence with the stakeholders is provided in the Appendices.

Table 7 Summary of stakeholder consultation

Stakeholder notified	Issues raised in submission by stakeholder	Response by the Authority
Port-Macquarie Hastings Council	Port Macquarie-Hastings Council (Council) was given notice of the Authority's intention to undertake the development on 30 June 2020 (letter sent by email). Council was given 21 days to comment on the proposal and no response has been received to date. Correspondence is provided in **Appendix D**.	No response required.
NPWS	NPWS raised issues primarily during the consultation phase prior to the formal AIP process. The Authority and its previous design partner also consulted with NPWS in relation to geotechnical investigations at the Tobin Trig location. The Authority has responded to the issues raised by NPWS during the formal AIP process. The process is designed to ensure that all matters are addressed, and a copy of correspondence is provided in **Appendix E**.	Preparation of the REF must address the relevant criteria in the NPW Act including section 153D(4)(b), (c), (d), (e) and (h) of the NPW Act.
NSW Spatial Services	NSW DCS Spatial Services was provided with details of the proposal on 20 March 2020. A written response was received on 22 April 2020 which raised no objections to the proposal subject to final assessment of detailed design drawings. On 8 September 2020 detailed design drawings were provided to DCS Spatial Services, to which a response was received on 22 September 2020. In its final assessment the written response from the NSW Surveyor raised no objection to the proposal subject to conditions. A copy of the correspondence is provided in **Appendix G**. Safeguards are included in Section 6 to ensure compliance with the conditions.	No response required.

4. Environmental impact assessment and safeguards

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.

4.1 Soil and landforms

Table 8 assesses the potential impacts to soils and landforms from the proposal and recommends suitable mitigation measures.

Table 8 Soil and landforms

Environmental aspect	Existing environment, potential impact and recommended safeguards
Would the proposal require any excavation or ground disturbance?	Yes, details of the excavation and ground disturbance are provided in Section 2.2 and would be carried out in accordance with the safeguards specified in Section 6
Will the proposal disturb acid sulfate soils? Check – ASS risk maps.	A search of the acid sulfate soils risk maps on eSpade shows that the proposed facility location is not subject to risks associated with acid sulfate soils.
Will the proposal disturb contaminated land, contaminated material or lead to the contamination of land? Check the NSW EPA Contaminated Lands Database	A search of the NSW EPA Contaminated Lands Database was undertaken on 2 September 2020 and the property is not included in the results of the search. Should contaminated material be encountered during construction of the proposed facility the safeguards specified in Section 6 would be put in place to manage the risks associated with the contaminated material.
Is the proposal on land with the potential for asbestos, lead-based paint or other contamination sources?	No, the proposal is not located on land with the potential for asbestos, lead-based paint or other contamination sources.

Is the proposal in or nearby highly sloping landform? Does the site have constraints for erosion and sedimentation controls such as steep gradients or narrow corridors?	The proposal is located nearby to a highly sloping landform. Erosion and sediment control measures would be required in accordance with the safeguards specified in Section 6.
Detail any other soil and erosion issues or impacts of the proposal in construction and operation and consider if specialist input is required?	The impacts associated with the proposal would be primarily associated with construction activity. The E&BFA Assessment Report included the following recommendations for sedimentation and erosion control: • Standard soil and sedimentation control measures should be installed as necessary throughout the clearing works to ensure that habitats within the site and on adjacent land are not substantially affected by erosion and sedimentation. It is considered that the safeguards specified in Section 6 would be sufficient to manage the impacts.

4.2 Waterways and water quality

Table 9 below establishes the existing environment, assesses the potential impacts to waterways and water quality from the proposal and recommends suitable mitigation measures.

Table 9 Waterways and water quality

Environmental aspect	Existing environment, potential impact and recommended safeguards
Is the proposal located within, adjacent to or near a waterway (ie. within 40 m of a waterway) Check mapping (eg. SixMaps)? If yes, is the proposal likely to impact the waterway?	No, the proposed facility location is not located within, adjacent to or near a waterway. The closest waterway to the proposal is Cells Creek, approximately 2.4km to the south-east of the proposed facility location.
Is the location known to flood or likely to change flood patterns, be affected by flooding?	No, the proposed facility location is not likely to change flood patterns nor be impacted by flooding.
Will the works require the use or storage of fuels or other chemicals?	Yes, construction of the proposed facility would require the use of fuels, including refuelling of plant and equipment. There are risks associated with the activity primarily associated with fuel spills and leaks from equipment. The activity would also require the use of a temporary generator, during both the construction of the proposed facility and once operational, in the case of an emergency or during maintenance periods to provide a temporary power supply to the proposed facility. The risks would need to be managed in accordance with the safeguards specified in Section 6.
Will the works encounter groundwater? Check – NOW bore log data, maps of groundwater dependent ecosystems. If yes, can the works be classified as 'minimal impact activity', as per the Aquifer Interference Policy?	The excavation works required for the proposed facility would be to a maximum depth of approximately 3.0m (for the lattice tower bored pier foundations). The closest bore is located approximately 2.9km to the north at an elevation of 727m and is recorded at being a depth of 36m. Given the context of the proposed facility location it is unlikely that works would encounter groundwater.
Detail any other water quality issues or impacts of the works in construction and operation and consider if specialist input is required. Identify if the proposal:	No, the proposal would not potentially impact an area administered by Water NSW and is not within, or immediately adjacent to, the area covered by *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011*.

• Would potentially impact an area administrated by Water NSW (formerly Sydney Catchment Authority (SCA))? Refer to Section 3.2.2. Check - Water NSW maps • Is located within or immediately adjacent to the area covered by *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011*? Refer to Section 3.2.2. If yes, complete a Neutral or Beneficial Effects (NorBE) Assessment and include in Appendices.	

4.3 Bushfire prone land

Table 10 assesses the bushfire risk to the proposal and recommends suitable mitigation measures.

Table 10 Bushfire risk assessment

Environmental aspect	Existing environment, potential impact and recommended safeguards
Is the proposal located within bushfire prone land and likely to increase the risk of bushfire? Is the proposed infrastructure at risk of being damaged/destroyed by bushfire? Does the proposal require vegetation clearing for an APZ?	Yes, the proposal is located on Bushfire Prone Land (Vegetation Category 1) and requires clearing of vegetation to establish an APZ. An ecological and bush fire risk (E&BFA) assessment report was prepared, taking a wholistic approach to the identified ecological values and the required APZ to manage the risks associated with bush fire. The relevant recommendations have been considered and adopted in the detailed design of the proposed facility and specified as safeguards in section 6.0. In consideration of section 6.4 of the E&BFA Assessment Report, the proposed APZ of 20m to the north-west, 20m to the north-east, 20m to the south-east, and 10m to the south-west, is considered to be a sufficient defendable space to minimise the risks associated with bush fire, in accordance with the NSW RFS guideline; Practice Note 1/11 – Telecommunications Towers in Bush Fire Prone Areas and in consideration of section 8.3.7 of Planning for Bush Fire Protection 2019. However, it is noted that the topographical context and proximity to vegetation limit the opportunities for any meaningful reduction in radiant heat levels which would require substantially more clearing than what is proposed. The 20m APZ to the north-west and north-east is the minimum area required to provide sufficient solar access to the photovoltaic panels. The E&BFA Assessment Report is enclosed in **Appendix F**.

4.4 Biodiversity

Table 11 assesses the potential impacts to biodiversity in the vicinity of the proposal and recommends suitable mitigation measures.

Table 11 Biodiversity

Environmental aspect	Existing environment, potential impact and recommended safeguards
Would the proposal require the removal of vegetation?	Yes, the proposal would require the removal of vegetation for an area of 1,800m^2 for the proposed compound and APZ, together with an area of 1,350m^2 for a section of Fire Tower Road, being 3m wide and 450m long. The clearing on Fire Tower Road is required to enable access to the proposed facility location during and after construction of the proposed facility. The vegetation for the compound and APZ area of 1800m^2 was identified as regrowth and it was noted that it had probably regenerated from previous clearing of the site. The assessment also notes that the study area and surrounding landscape was impacted by bush fire, and at the time of the field survey evidence of the fire was still clearly visible. This included evidence of charring to the trunks of trees and significant disturbance of the understorey and groundcover strata. The assessment also observed that as a result of the fire the impacted plant communities were in a post-fire (pyric) successional state. The species in the study area were identified as: • Allocasuarina torulosa (Forest Oak) • Leucopogon lanceolatus var. lanceolatus, Polyscias sambucifolia (Elderberry Panax) • Acacia binervata (Two-veined Hickory) • Acacia falciformis (Broad-leaved Hickory) • Persoonia linearis (Narrow-leaved Geebung) The assessment noted that all individuals of Forest Oak observed within the proposed development footprint were dead due to the November 2019 bush fire. Other species in the understorey were juveniles and most of the observed groundcover had regenerated vegetatively, with some recolonization by seed. The Forest Oak had not yet begun to recolonise the site. The clearing on Fire Tower Road, approximately 1,350m^2 consists of regrowth vegetation with the clearing activity being near late-mature, old growth, hollow-bearing trees. The E&BFA Assessment Report assessed the impacts of the proposal and provided recommendations for the activities forming part of the proposal. The recommendations are listed as: General Clearing Measures

Environmental aspect	Existing environment, potential impact and recommended safeguards
	• *The extent of the clearing footprint is to be clearly marked (e.g. via pegging/fencing/flagging) before clearing in order to prevent any inadvertent clearance beyond what is required and has been assessed. This fencing/marking is to remain until all clearing and other work is completed;* • *Site induction is to specify that no clearing is to occur beyond the marked area. All vehicles are only to be parked in designated areas;* • *Clearing and earthworks is to avoid damage to root zones of the retained trees (i.e. trees adjacent to the development footprint and all old growth trees along the access road);* • *The extent of the proposed works is to be confined to the assessed area (i.e. within the proposed development footprint and existing formed access road). No work is permitted outside this area without further assessment;* • *Any weeds that are present within the development footprint are to be removed and managed to prevent recolonization;* • *Damage to root zones of any retained trees, both within and adjacent to the work areas are to be minimised as much as possible during earthworks and construction works; and* • *Weeds are not to be mulched with native vegetation and should be taken to a licenced landfill facility for disposal.* Old Growth Tree Protection • *Three large trees in the late-mature growth stage were recorded within the study area (as shown in Figure 13 in the E&BFA Assessment Report.* • *To minimise harm to these trees and their roots, each tree and its associated root protection zone should be clearly marked and any disturbance to the ground therein avoided.* Protection of Fauna • *Immediately prior to commencement of any work involving machinery, the area is to be inspected for fauna by an appropriately experienced person. If fauna is detected, the animal is to be allowed to leave the site without any coercion or a NPWS Ranger is to be contacted to facilitate the safe removal of the animal from the worksite. Any bird nest considered active is to be removed in a manner that allows retrieval of eggs or nestlings and these are to be taken into care; and* • *All habitat features, such as rock fragments, fallen timber, hollow logs and leaf litter are to be thoroughly searched immediately prior to any work commencing to check for fauna;* • *Any fauna detected should be removed and relocated to suitable habitat/shelter within the adjacent forest.* Fencing

Environmental aspect	Existing environment, potential impact and recommended safeguards
	• *Temporary fencing may be required during the work. Any fencing required should be Koala friendly, permeable and not pose a barrier or risk of entanglement to fauna (e.g. post and plain wire).* The recommendations listed above are specified as safeguards in section 6.0 and would be appropriate to manage the impacts associated with the clearing of vegetation.
Will the proposal impact any threatened species/populations, ecological communities, critical habitat, or migratory species listed on: • *Biodiversity Conservation Act 2016* (BCA Act) Check – OEH Threatened Species Register, NSW Wildlife Atlas • EPBC Act Check - EPBC Act database migratory and threatened species, Protected Matters Search Tool.	The E&BFA Assessment Report has considered the impacts of the proposal on any threatened species, threatened populations, ecological communities, critical habitat, or migratory species. Section 5.7 of the E&BFA Assessment Report states: *From the habitat assessment and database/literature review, it was considered that 11 threatened species listed under the BC Act and four threatened species listed under the EPBC Act could potentially utilise the habitat within the study area. The report also concluded that the vegetation situated within the study area does meet the criteria of any threatened ecological community listed under the EPBC Act. The Significance Tests prepared in* *accordance with section 7.3 of the BC Act and Assessments of Significance prepared in accordance with the EPBC Act Matters of National Environmental Significance – Significant Impact Guidelines 1.1 are appended to this report as Appendix B.* Pertinent impacts associated with the proposal are noted in section 7 of the E&BFA Assessment Report. Of note are: • Forest Oak being significant as it is a primary food source of the threatened avian species; Calyptorhynchus lathami (Glossy Black Cockatoo), however the impact of the proposed development on the Glossy Black-cockatoo was unlikely to be significant. • The ridgeline location with shallow soil, together with rock shelves within the APZ, provide favourable habitat for reptilian species. Disturbance of these areas associated with tree clearing is likely with potential impact on the threatened reptilian species; Hoplocephalus stephensii (Stephen's Banded Snake). • Part of Fire Tower Road is old growth forest, including numerous older trees in the late-mature growth stage in the forest adjacent to Fire Tower Road. Three trees in the late-mature growth stage containing visible hollows were also recorded and the area was assessed as being of high biodiversity value and particularly sensitive to impacts from development. The hollow-bearing trees may provide habitat for some threatened species such as the Yellow-bellied Glider, Greater Glider and several Microchiropteran bats.

Environmental aspect	Existing environment, potential impact and recommended safeguards
	The safeguards specified in section 6.0 would be appropriate to manage the impacts associated with the clearing of vegetation. **Assessment of Koala Habitat under the EPBC Act** The E&BFA Assessment Report included a search of the Protected Matters Search Tool (PMST) and associated report. The E&BFA Assessment report included consideration of the EPBC Act referral guidelines where potential impacts to Koala habitat or preferred Koala food trees were likely to occur. The E&BFA Assessment Report provides the relevant context, and a summary and relevant extracts are provided below. EPBC Act Koala Referral Guidelines Assessment The Department of the Environment and Energy (DoEE) has prepared EPBC Act referral guidelines for the vulnerable Koala (Guidelines), which are designed to assist proponents in deciding whether a proposed action is likely to have a significant impact on the Koala. *If the PMST indicates that the Koala or its habitat is known to or may occur within an area, a Koala survey and habitat assessment is necessary to establish whether habitat critical to the survival of the species occurs in the area.* *Habitat critical to the survival of the Koala is habitat that is important for the long-term survival and recovery of the species. The Guidelines contain a Koala habitat assessment tool to assist in determining the sensitivity, value and quality of the impact area and whether it contains habitat critical to the survival of the species.* The E&BFA Assessment Report assessed the habitat in the study area using the Koala habitat assessment tool in the Guidelines. Critical habitat is determined if the assessment tool determines a score of 5 or more. The assessment produced a score of 8 which means the study area may contain habitat critical to the species survival for the purposes of the EPBC Act and the score triggers additional actions under the Guidelines to determine whether referral to DoEE is required. The E&BFA Assessment Report concludes: • *Koala habitat assessment tool (habitat) score of 8 – the habitat within the study area is deemed to contain habitat critical to the survival of the Koala;* • *The land to be cleared within the study area contains one species of known Koala food tree - Eucalyptus campanulata (New England Blackbutt); and* • *The amount of land to be cleared under the proposal is less than two hectares.*

Environmental aspect	Existing environment, potential impact and recommended safeguards
	The conclusion is that due to the amount of clearing being less than two hectares, referral to the DoEE is not recommended. The consideration of this recommendation acknowledges that there is an impact, however, the impact is not sufficient to warrant a referral.
Does the proposal involve Key Threatening Processes under these Acts (ie. land clearance)? Check – EPBC KTP, BCA Act KTP	Yes, the proposal is considered to be associated with two identified key threatening processes (KTPs), specified in Appendix B of the E&BFA Assessment Report. *Anthropogenic Climate Change:* *The use of machinery and power tools during the removal of vegetation from within the clearing zones will contribute to anthropogenic climate change through release of stored carbon from vegetation and greenhouse gas emissions associated with use of fossil fuels. However, the overall impact of the action is considered negligible in the context of other human activities in the region.* *Clearing of native vegetation:* *Clearing refers to the destruction of a sufficient proportion of one or more strata within native vegetation. There are numerous impacts associated with clearing native vegetation, including:* ○ *Destruction of habitat causing a loss of biological diversity, and may result in total extinction of species or loss of local genotypes;* ○ *Fragmentation of populations resulting in limited gene flow between small isolated populations, reduced potential to adapt to environmental change and loss or severe modification of the interactions between species;* ○ *Riparian zone degradation, such as bank erosion leading to sedimentation that affects aquatic communities;* ○ *Disturbed habitat which may permit the establishment and spread of exotic species which may displace native species; and* ○ *Loss of leaf litter, removing habitat for a wide variety of vertebrates and invertebrates.* *The proposed action is unlikely to contribute significantly to this KTP.*

Environmental aspect	Existing environment, potential impact and recommended safeguards
	Based on the findings in the E&BFA Assessment Report, it is unlikely that the proposal would significantly contribute to the identified KTPs. Refer to Appendix B in the E&BFA Assessment Report enclosed in **Appendix F**.
Does the proposal have the potential to endanger, displace or disturb fauna (including fauna of conservation significance) or create a barrier to their movement?	Yes, the proposal does have the potential to endanger, displace or disturb fauna (including fauna of conservation significance) or create a barrier to their movement. The significance tests are detailed in Appendix B, section 12.1.3 of the E&BFA Assessment Report and a summary is provided below. *a) In the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction:* Reptilia • Stephens' Banded Snake (Hoplocephalus stephensii) Aves • Glossy Black-Cockatoo (Calyptorhynchus lathami) • Powerful Owl (Ninox strenua) • Masked Owl (Tyto novaehollandiae) • Sooty Owl (Tyto tenebricosa) Mammalia • Spotted-tailed Quoll (Dasyurus maculatus) • Koala (Phascolarctos cinereus) • Yellow-bellied Glider (Petaurus australis) • Para Wallaby (Macropus parma) • Eastern False Pipistrelle (Falsistrellus tasmaniensis) • Large Bentwing-bat (Miniopterus orianae oceanensis) • Hastings River Mouse (Pseudomys oralis) The summary responses to the above identified species are: Stephens' Banded Snake Some disturbance of rocky habitat is likely, though the impact on potential habitat for Stephens' Banded Snake within the development footprint can be appropriately mitigated by applying the recommendations applicable to general clearing and protection of fauna, as specified in the safeguards in section 6.

Environmental aspect	Existing environment, potential impact and recommended safeguards
	Glossy Black-cockatoo Vegetation of the understorey within the development footprint is dominated by Forest Oak, which is a primary food source of the Glossy Black-cockatoo. Most of the understorey was impacted by the November 2019 the bush fire, with much of the vegetation within the development footprint being regrowth. Impacts to the species is negligible due to the conditions both prior to and after the bush fire. Koala Atlas records of Koalas in proximity to the proposed facility location indicated that there is a relatively small population occupying suitable habitats in the surrounding area. New England Blackbutt is listed as a preferred Koala food tree species in the draft Koala Habitat protection Guidelines (and Koala Habitat Protection SEPP). The species is dominant in the canopy at the proposed facility location and several trees will need to be removed to facilitate construction of the facility and provision of the APZ resulting in a loss of potential foraging habitat. The E&BFA Assessment Report does note that the habitat is not ideal as it is located on poorer soils along part of a ridgeline and is distant from any permanent water source, both of which are important considerations when assessing habitat for its potential use by Koalas. Accordingly, the impacts on Koalas was considered negligible. Other threatened fauna species including large forest owls, Spotted-tailed Quoll, Parma Wallaby, two Microchiropteran bats and the Hastings River Mouse) The E&BFA Assessment Report notes that the proposed facility location has been subject to previous clearing and disturbance, though the main impact involves the removal of potential foraging habitat for the subject threatened species from the proposed development footprint. In addition, the resources within the development footprint were found to be limited. The E&BFA Assessment Report also found that hollow-bearing trees recorded adjacent to Fire Tower Road may provide nesting or roosting opportunities for the large forest owl species, together with denning opportunities for the Yellow-bellied Glider. Mitigations measures noted above are included in Section 6 which would be suitable to minimise risks associated with impact to flora and fauna during construction and maintenance of the proposed facility. *b) In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:* *i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction;*

Environmental aspect	Existing environment, potential impact and recommended safeguards
	The E&BFA Assessment Report notes that plant communities in proximity to the study area are not listed as endangered ecological communities, and therefore, that the proposal is unlikely to have an adverse effect on the extent of an endangered ecological community such that its local occurrence is likely to be placed at risk of extinction. *ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction;* The E&BFA Assessment Report notes that no endangered ecological community occurs in proximity to the site, and therefore, that the proposal is unlikely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction. *c) In relation to the habitat of a threatened species or ecological community:* *i. The extent to which habitat is likely to be removed or modified as a result of the proposed development or activity;* The E&BFA Assessment Report notes that the works associated with the proposal would be limited to the removal of a small area of regrowth and upgrading of Fire Tower Road. *ii. Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity;* The E&BFA Assessment Report notes that no areas of habitat are likely to become fragmented or isolated from other areas of habitat because of the proposed work. *iii. The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality;* The E&BFA Assessment Report notes that no significant areas of habitat will be removed, modified, fragmented or isolated because of the proposal. *d) Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly):*

Environmental aspect	Existing environment, potential impact and recommended safeguards
	The E&BFA Assessment Report notes that no declared area of outstanding biodiversity value is likely to be impacted by the proposal (either directly or indirectly). *e) Whether the proposed development or activity is part of a key threatening process or is likely to increase the impact of a key threatening process:* This significance test is addressed above.
Would the proposal impact any other legally protected terrestrial, marine or aquatic habitats (e.g. urban bushland, riparian zones, marine parks) including; • A declared Ramsar wetland • Koala habitat (State Environmental Planning Policy (Koala Habitat Protection) 2019) • Urban bushland (SEPP 19) • Aquatic reserves protected under the FM Act? Check: OEH website, Marine Parks map • Littoral rainforests and coastal wetlands (SEPP Coastal Management 2018Interactive maps)	The proposal would not impact on: • A declared Ramsar wetland • Urban bushland (SEPP 19) • Aquatic reserves protected under the FM Act • Littoral rainforests and coastal wetlands (Coastal Management SEPP) The proposal would potentially impact on Koala habitat. The E&BFA Assessment Report sets out that *State Environmental Planning Policy (Koala Habitat Protection) 2019* (Koala Habitat Protection SEPP) does not apply to Part 5 developments or to land reserved under the NPW Act. However, the Koala Habitat Protection SEPP was considered in the assessment, and notably, the E&BFA Assessment Report highlights that since the introduction of the Koala Habitat Protection SEPP, the list of Koala food tree species has been expanded considerably from the previous guidelines and SEPP 44, which has been rescinded. Further details about the impacts on Koala habitat is provided in the section above.
Is the proposal likely to introduce noxious weeds into an area? Would clearing of noxious or environmental weeds be required? Check – DPI website	The proposal has the potential to introduce noxious weeds into the proposed facility location, the risk would be primarily associated with construction activity. The E&BFA Assessment Report includes the following recommendations which would apply to all personnel and equipment entering and leaving the site: • Ensure plant, equipment and clothing are free of soil and vegetative matter prior to being brought to the site;

Environmental aspect	Existing environment, potential impact and recommended safeguards
	• Disturbance of vegetation and soil on the site should be restricted to the areas of the proposed work and should not extend into adjacent vegetation; • Appropriate collection and disposal of all weed material removed during clearing; and • Removal of any new weed infestations that have developed during the work. The recommendations are included in the safeguards specified in Section 6 and would mitigate the risks associated with the spread of noxious weeds. Once operational, ongoing maintenance of the proposed facility would be associated with limited potential to introduce noxious weeds.
Detail any other biodiversity issues or impacts of the proposal in construction and operation and whether specialist input is required?	No other biodiversity issues or impacts of the proposal in construction and operation are expected provided that the safeguards specified in Section 6 are effectively implemented.
Is the proposal likely to impact biosecurity negatively (ie. from pests and diseases, weeds and contaminants?) on land to which the *Biosecurity Act 2015* applies? If so, detail any other biosecurity issues or impacts of the proposal in construction and operation and mitigation measures that would be required. Also, update the safeguards to include these measures.	No, the proposal is not likely to impact biosecurity negatively.

4.5 Visual and social impact

Table 12 assesses the visual and social impact to sensitive receivers in the vicinity of the proposal and recommends suitable mitigation measures.

Table 12 Visual and social impact

Environmental aspect	Existing environment, potential impact and recommended safeguards
Is the proposal likely to have a visual or social impact on sensitive receivers (ie. local residences/business/schools/hospitals)?	The proposal is not likely to have any visual impact on sensitive receivers. The closest sensitive receiver to the proposal is located approximately 2.75km north-west of the proposed facility location. There are no identified direct views towards the facility from the surrounding area that would be adversely impacted by the proposal.
Would the proposal obstruct or intrude upon the character or views of a valued landscape or urban area. For example, locally significant topography, a rural landscape or a park, a river, lake or the ocean or a historic or distinctive townscape or landmark?	No, the proposal would not obstruct or intrude upon the character of a valued landscape.
Would any new structures or features proposed to be constructed result in over shadowing to adjoining properties or areas?	No, the proposed facility would not result in any overshadowing to adjoining properties.
Is the proposal likely to impact on any items or places of social value to the community (either temporarily or permanently)?	No, the proposed facility would not impact any items or places of social value to the community.
If involving lighting, would the proposal create unwanted light spillage on residential properties at night (in construction or operation)?	Not applicable, the proposal does not include any lighting.
Detail any other socio-economic issues or impacts of the proposal in construction and operation and whether specialist input is required?	No other socio-economic issues or impacts have been identified and no further specialist input is considered necessary.

4.6 Noise and air quality

Table 13 assesses the potential impacts to noise and air quality from the proposal and recommends suitable mitigation measures.

Table 13 Noise and air quality

Environmental aspect	Existing environment, potential impact and recommended safeguards
Are there any residential properties or other noise sensitive areas near the location of the proposal that may be affected by the proposal from noise or emissions to air (i.e. church, school, hospital) during construction or operation? If yes, provide details of the potential impact.	No, the proposed facility location is well separated from residential properties and other noise sensitive receivers.
Are the works likely to exceed noise criteria in the *Industrial Noise Policy* (EPA 2000) or *Interim Construction Noise Guideline* (DECC 2009)?	No, the proposal is not likely to exceed the noise criteria specified in the *Industrial Noise Policy* (EPA 2000) or *Interim Construction Noise Guideline* (DECC 2009).
Is there likely to be emissions to air (ie. odours, emissions from diesel generators or dust) during construction and operation?	Construction activity associated with the proposed facility would generate dust and emissions from plant and machinery. The safeguards specified in Section 6 would minimise the emissions to an acceptable level based on the site context and separation to sensitive receivers.
Is there likely to be any vibration issues during construction and operation?	No, the proposal is unlikely to be associated with vibration impacts during construction and operation.
Detail any other noise issues or air quality impacts from the proposal during construction and operation and consider if specialist input is required.	No other noise issues or air quality impacts have been identified and no further specialist input is considered necessary.
Are the works within 50 metres of a heritage item and would the proposal cause vibration impacts?	No, the proposal facility location is not within 50m of a heritage item.

4.7 Traffic and access

Table 14 assesses potential impacts to traffic and access from the proposal and recommends suitable mitigation measures.

Table 14 Traffic and access

Environmental aspect	Existing environment, potential impact and recommended safeguards
Would the proposal impact traffic (vehicular, cycle and pedestrian), change roads conditions, street parking, require partial or full lane closure or require a new access track to be formed or impact existing access to private property, National Park, Crown Reserve or Crown leasehold land (including Western Lands Lease)?	The existing arterial road network is suitable for the proposal. Ingress and egress to Knodingbul Road is via the Oxley Highway, and slow-moving construction vehicles may require traffic control measures to provide safe ingress and egress. The safeguards specified in Section 6 would need to be included to ensure construction vehicles can safely access Knodingbul Road. Access to the site is provided via Knodingbul Road, Stockyard Creek Road and Fire Tower Road. Access to Knodingbul Road is directly from the Oxley Highway, which is a main point of entry to The Cells SCA. Existing vehicular access to the site is limited to Knodingbul Road and Stockyard Creek Road. Fire Tower Road requires clearing of vegetation and would need to be graded to facilitate construction and ongoing access to the proposed facility location. Clean gravel would be required for sections of Fire Tower Road, with an anticipated one to two loads being required. The access to Fire Tower Road would need to be restricted to authorised personnel after the upgrade. To restrict the access a new gate to the standards of NPWS would be installed at the NPWS-nominated location on Fire Tower Road. Clearing of vegetation on Fire Tower Road is subject to the safeguards specified in section 6.
Is the proposal likely to alter any access for properties or reserves (either temporarily or permanently)?	No, the proposal is not likely to impact access for properties and reserves. The proposal will assist to facilitate vehicular access to Fire Tower Road for NPWS which is currently limited due to the regrowth vegetation.
Is the proposal likely to affect any other transport nodes or transport infrastructure (eg. bus stops, bus routes) in the surrounding area?	No, the proposal is not likely to affect any other transport nodes or transport infrastructure.
Will the availability of street parking spaces for residents, businesses, or popular recreation areas be reduced during the work period?	No, the availability of street parking spaces will not be impacted.
Detail any other traffic and transport issues or impacts of the proposal in construction and operation and whether specialist input is required?	The proposed facility location is accessed via the existing arterial road network, and via existing access roads within The Cells SCA. Once access to Fire Tower Road is upgraded the existing access routes would be suitable for the proposed activity.

4.8 Aboriginal and non-Aboriginal heritage

Table 15 assesses potential impacts to Aboriginal and non-Aboriginal heritage from the proposal and recommends suitable mitigation measures.

Table 15 Aboriginal and non-Aboriginal heritage

Environmental aspect	Existing environment, potential impact and recommended safeguards
Would the proposal involve ground surface disturbance and is there potential for the proposal to impact on any items of Aboriginal heritage? Include all known sources of information on the likely presence of Aboriginal objects or places, including AHIMS search results (using a 200m buffer from the proposal). Show the location of the Aboriginal sites on a map and location of any ground disturbance. If Aboriginal sites are located within 200 m of a proposal site, an extensive search is required and site card (to be ordered from OEH) to adequately locate the site and nature of the Aboriginal heritage item. Check - OEH's Aboriginal Heritage Information System (AHIMS) MapInfo, Hydra	An AHIMS search undertaken on 27 April 2020 (using a 200m buffer from the proposed facility location) shows that there are no Aboriginal sites recorded in or near the above location and no Aboriginal places have been declared in or near the above location. The proposal does involve ground disturbance and there is limited potential for the proposal to impact items of Aboriginal heritage. The safeguards specified in Section 6 would be implemented should any Aboriginal objects or relics be uncovered or discovered, and work would cease immediately and the Department of Premier and Cabinet would be notified.
Is the proposal within or would affect a high-risk landscape? Areas that have high archaeological potential are: • Within 200m of waters. • In a sand dune system (particularly in Pleistocene or Holocene sand soil layers). • On a ridge top, ridge line or headland (turn on contours). • Within 200m below or above a cliff face. • Within 20m of or in a cave, rock shelter or cave mouth. Check - AHIMS*, MapInfo, Hydra; conduct site visits and/or consult maps and plans of the area to understand the physical landscape	The proposed facility location is located on a ridge line. The AHIMS search shows that there are no Aboriginal sites recorded in or near the above location and no Aboriginal places have been declared in or near the above location. Previous Due Diligence undertaken by the Authority and its design partner demonstrated that further Due Diligence is not required for the proposal.

Environmental aspect	Existing environment, potential impact and recommended safeguards
Would the proposal involve the removal of mature native trees?	The proposal does involve the removal of mature, native trees. The Authority and its previous design partner (and its cultural heritage consultant) prepared Aboriginal Cultural Heritage Advice (ACHA) which did not identify any significant vegetation within the proposed facility location or its access route (which remain largely similar). The safeguards specified in section 6 are appropriate for the proposed activity.
If Aboriginal objects or landscape features are present, can impacts be avoided?	No Aboriginal objects or landscape features have been identified.
Does the proposal require further Aboriginal due diligence assessment?	No, it is not considered that the proposal requires further Aboriginal Due Diligence Assessment.
Is the proposal within the curtilage of a World, Commonwealth, State or local heritage item or Conservation Area and would there be any impact to the heritage item or area? Check the following databases: • World, National and Commonwealth Heritage Significance • State Heritage Register • s170 Registers • Local Environmental Plans.	Searches of the relevant databases have been undertaken and show that the proposed facility location is not within the curtilage of a heritage item, or in the vicinity of a heritage item.
Detail any other potential non-Aboriginal heritage impacts and safeguards during construction and operation and whether specialist input is required?	No other non-Aboriginal heritage impacts have been identified and no further specialist input is considered necessary.

4.9 Waste

Table 16 details the waste generation from the proposal and management of any potential impact.

Table 16 Waste impact

Environmental aspect	Existing environment, potential impact and recommended safeguards
Is the proposal likely to generate waste material? Provide details of waste streams, location and nature of disposal i.e. licenced waste disposal facilities and any safeguards for waste management? Note: transportation of more than 100kg of asbestos waste or more than 10m^2 of asbestos sheeting within NSW will need to be tracked using the EPA's Waste Locate online tracking System. Check exemptions on asbestos containing soil.	The proposal would not generate significant waste material. The safeguards specified in Section 6 are appropriate to manage the generation of waste from the construction and ongoing operation of the proposed facility. Waste streams associated with the proposal include: • General solid waste (non-putrescible) such as cabling and concrete; • General solid waste (putrescible) such as excess packaging; • Vegetation waste resulting from tree clearing. Waste material would be disposed at a licensed waste management facility in accordance with the Waste Classification Guidelines (EPA, 2014).
Detail any other waste issues or impacts of the proposal during construction and operation and whether specialist input is required?	No other waste issues or impacts have been identified in relation to the construction and ongoing maintenance of the proposed facility and no further specialist input is considered necessary.

4.10 Electromagnetic energy

Table 17 confirms compliance of the proposal with the Radiation Protection Standard.

Table 17 Electromagnetic energy

Environmental aspect	Existing environment, potential impact and recommended safeguards
Does the proposal comply with the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) Radio Frequency Standard?	The proposal complies with the ARPANSA Standard. The maximum EME level calculated for the proposed facility is 0.02% out of 100% of the public exposure limit. Please refer to the Environmental EME Report enclosed in **Appendix B**.

4.11 Cumulative impact

Table 18 assesses the potential cumulative impact from the proposal and suitable mitigation measures.

Table 18 Cumulative impact

Environmental aspect	Existing environment, potential impact and recommended safeguards
Describe any potential cumulative environmental impacts from the proposal associated with other existing and likely future developments (ie. emissions, traffic, visual etc...)	The potential cumulative environmental impacts associated with the proposal are limited. No other existing or likely future developments would be adversely impacted by the proposal.

5. Consideration of State and Commonwealth environmental factors

5.1 Environmental Planning and Assessment Regulation 2000 checklist

In addition to the requirements of the guideline *Is an EIS required?,* Table 19 identifies the following factors listed under clause 228 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), which have also been considered to assess the likely impacts of the proposal on the natural and built environment. This consideration is required to comply with section 5.5 of the EP&A Act.

Table 19 Environmental Planning and Assessment Regulation 2000 checklist

Environmental Factor	
Any environmental impact on a community?	☐Yes ☒No
Any transformation of a locality?	☐Yes ☒No
Any environmental impact on the ecosystems of a locality?	☐Yes ☒No
Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?	☐Yes ☒No
Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present generations?	☐Yes ☒No
Any impact on habitat of any protected fauna (within the meaning of the *Biodiversity Conservation Act 2016)*?	☐Yes ☒No
Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?	☐Yes ☒No
Any long-term effects on the environment?	☐Yes ☒No
Any degradation of the quality of the environment?	☐Yes ☒No
Any risk to the safety of the environment?	☐Yes ☒No
Any reduction in the range of beneficial uses of the environment?	☐Yes ☒No
Any pollution of the environment?	☐Yes ☒No
Any environmental problems associated with the disposal of waste?	☐Yes ☒No
Any increased demands on resources, natural or otherwise which are, or are likely to become, in short supply?	☐Yes ☒No
Any cumulative environmental effect with other existing or likely future activities?	☐Yes ☒No
Any impact on coastal processes and coastal hazards, including those under projected climate change conditions?	☐Yes ☒No

5.2 Commonwealth Matters of National Environmental Significance (MNES)

The purpose of this section is to consider the relevant matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). The consideration of the matters identified in Table 20, are used to assist in determining whether a proposal should be referred to the Commonwealth Government Department of Energy and Environment.

Table 20 Matters of National Environmental Significance checklist

Factor	Impact
Any impact on a World Heritage property?	☐Yes ☒No
Any impact on a National Heritage place?	☐Yes ☒No
Any impact on a wetland of international importance?	☐Yes ☒No
Any impact on a listed threatened species or communities?	☐Yes ☒No
Any impacts on listed migratory species?	☐Yes ☒No
Any impact on a Commonwealth marine area?	☐Yes ☒No
The environment, where actions proposed are on, or will affect Commonwealth land and the environment.	☐Yes ☒No

6. Summary of Safeguards and Environmental Management Measures

The safeguards identified in Table 21 will be implemented to reduce potential environmental impacts throughout construction and operation.

Table 21 Summary of safeguards for the proposal

Aspect	Safeguard
General	1. All licence, approval, working hours and notification requirements identified in this REF are to be documented in the Site Management Plan (SMP). 2. The SMP will also include a site map presenting the location and extent of the safeguards and environmental management measures. The site maps for inclusion in the SMP are the following sheets in the design drawings: • Sheet GRN-TOBIN-DWG-INF-STE-04 • Sheet GRN-TOBIN-DWG-INF-STE-05 3. Prior to commencement, all project staff and contractors will be inducted in the SMP, including the environmental sensitivities of the work site and relevant safeguards. 4. The Environmental Manager (Delivery Contractor) will be notified immediately of any complaints relating to management of environmental issues including occurrence of any environmental incidents, spills and near misses. 5. In the event of any environmental incident that can harm the environment, the Delivery Contractor must notify the Environment Protection Authority (EPA) environment line on 131555 as soon as practicable, any relevant authorities as defined in section 148(8) of the *Protection of the Environment Operations Act 1997* and the Environmental Manager (Delivery Contractor). For proposals on National Parks, the Area Manager must be contacted following the Department of Planning, Industry and Environment (DPIE) environment line. 6. 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".
Site/Fencing	7. If the works are for an extension of a tower, replacement tower or new tower a temporary construction site fence must be erected around the work site before the works commence and must be kept in place until after completion of works. 8. Building materials and equipment must be stored wholly within the works area unless an approval to store them elsewhere is held.
Soil and landforms	9. All 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)*. 10. 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.
Waterways and water quality	11. A designated and bunded refuelling area with a drip tray will be maintained on site to capture any spills. 12. 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. 13. A functioning 'spill kit' will be kept on site at all times to clean-up accidental chemical/fuel spills. The 'spill kit' will be stored in an appropriate location that is

Aspect	Safeguard
	quickly and easily accessible from all areas of the work site. Any spills will be contained and material collected and disposed of at an EPA licensed facility.
Noise and vibration	14. Work must be carried out only between 7am and 6pm, Monday to Friday and between 8am and 1pm Saturday, and may only be carried out at other times in accordance with the safeguard below. *15.* Works may be carried out on Sundays, public holidays or outside standard working hours subject to an assessment being carried out to confirm there are no adverse impacts associated with the works. Following the assessment, the Delivery Contractor would seek authorisation from NPWS to carry out the works outside standard working hours. *16.* Works will be conducted in accordance with the DECC's 2009 *Interim Construction Noise Guideline.* 17. Contractors will be informed of noise mitigation measures during the general site induction and/or toolbox talks.
Air quality	18. Run-off and erosion controls must be implemented in accordance with the Blue Book (before any disturbance to soil at the site) and maintained throughout the period of the works. 19. All work areas and stockpiles will be monitored for dust generation, particularly during hot, dry or windy weather. 20. In the event of excessive dust generation, appropriate dust suppression measures will be implemented (eg. watering, covering exposed areas/stockpiles with tarpaulins or geotextile fabric). 21. In adverse weather conditions, work will be modified or ceased if needed. 22. All work vehicles/machinery will be maintained in good working order and in accordance with relevant standards.
Traffic and access	23. Access to the proposal worksite will be via the access route approved in the REF. 24. In the event of inclement weather, the access track will be assessed to ensure no damage is caused by the Construction Contractor's activities. If any damage occurs to the tracks or roads this will be repaired at the Construction Contractor's expense. 25. A Traffic Management Plan (TMP) for construction vehicles would be prepared in consultation with the relevant traffic authority(s) for ingress and egress to Knodingbul Road from the Oxley Highway. The TMP would show the location of signs to inform public road uses of changed traffic conditions and would include traffic control devices in accordance with *AS 1742.3 – 1996 "Traffic Control Devices for Works on Roads*". 26. The Delivery Contractor would comply with any council or RMS requirements regarding traffic control, and access. 27. Work vehicles will not obstruct vehicular or pedestrian traffic on roadways, or access to private driveways, public facilities or businesses, unless necessary and only if appropriate notification has been provided to potentially affected property owners, local residents and businesses.
Aboriginal and Non-Aboriginal Heritage	28. If during the activity: • any Aboriginal objects defined under the NPW Act are uncovered or discovered; and/or • any relics defined under the *Heritage Act 1977* are uncovered or discovered; the applicant must cease work immediately and notify the Department of Premier and Cabinet (DPC), unless the objects and/or relics are subject to a valid Aboriginal Heritage Impact Permit or Heritage Permit. Work must not recommence until advice to do so has been provided by the DPC.

Aspect	Safeguard
Biodiversity	29. Prior to the commencement of works, all construction personnel shall be briefed on the presence and sensitivity of surrounding native vegetation, including mapping of native vegetation (if required), threatened flora species, endangered ecological communities and safeguards to be implemented in order to minimise the risk of impact. 30. No go zones around sensitive areas and boundaries of the work area shall be installed. 31. Locations of parking, lay-down and storage areas for materials, plant and stockpiles shall be allocated/created. 32. Temporary fencing must be Koala friendly, permeable and not pose a barrier or risk of entanglement to fauna (e.g. post and plain wire). 33. Immediately prior to commencement of any work involving machinery, the area is to be inspected for fauna by an appropriately experienced person. If fauna is detected, the animal is to be allowed to leave the site without any coercion or a NPWS Ranger is to be contacted to facilitate the safe removal of the animal from the worksite. Any bird nest considered active is to be removed in a manner that allows retrieval of eggs or nestlings and these are to be taken into care; and 34. All habitat features, such as rock fragments, fallen timber, hollow logs and leaf litter are to be thoroughly searched immediately prior to any work commencing to check for fauna; 35. Any fauna detected should be removed and relocated to suitable habitat/shelter within the adjacent forest. 36. If any threatened or native species (flora or fauna) are discovered during the works, all work will stop immediately and the Environmental Manager (Delivery Contractor) will be notified. Work will only recommence once the impact on the species has been assessed and appropriate control measures have been implemented. A record of displaced, injured or deceased fauna will be kept by the Delivery Contractor. 37. To mitigate the spread of environmental, aquatic or noxious weeds or pests the relevant safeguards in the *Arrive Clean, Leave Clean (2015)* guideline (Australian Government, Department of the Environment) will be implemented. 38. All personnel and equipment entering and leaving the site must ensure plant, equipment and clothing are free of soil and vegetative matter prior to being brought to the site; 39. Disturbance of vegetation and soil on the site should be restricted to the areas of the proposed work and should not extend into adjacent vegetation; 40. Appropriate collection and disposal of all weed material removed during clearing; 41. Any weeds that are present within the development footprint are to be removed and managed to prevent recolonization; 42. Weeds are not to be mulched with native vegetation and should be taken to a licenced landfill facility for disposal. The safeguards specified above must be included in the SMP.
Vegetation clearing	43. Location and full extent of any lopping, trimming, clearing or other vegetation disturbance required for the works shall be identified and recorded. The site maps for inclusion in the SMP are the following sheets in the design drawings: • Sheet GRN-TOBIN-DWG-INF-STE-04 • Sheet GRN-TOBIN-DWG-INF-STE-05 44. The extent of the clearing footprint is to be clearly marked (e.g. via pegging/fencing/flagging) before clearing to prevent any inadvertent clearance beyond what is required and has been assessed. This fencing/marking is to remain until all clearing and other work is completed; 45. All personnel must complete a site induction which is to specify that no clearing is to occur beyond the marked area; 46. All vehicles are only to be parked in designated areas;

Aspect	Safeguard
	47. Clearing and earthworks is to avoid damage to root zones of the retained trees (i.e. trees adjacent to the development footprint and all old growth trees along the access road); 48. The extent of the works is to be confined to the identified, and marked areas (i.e. within the development footprint and existing formed access road). No work is permitted outside this area; 49. Damage to root zones of any retained trees, both within and adjacent to the work areas are to be minimised as much as possible during earthworks and construction works; and 50. Three large trees in the late-mature growth stage must be protected. To minimise harm to these trees and their roots, each tree and its associated root protection zone should be clearly marked and any disturbance to the ground therein avoided. The location of the trees is specified in Sheet GRN-TOBIN-DWG-INF-STE-04. The safeguards specified above must be included in the SMP.
Storage of Fuels and Chemicals	51. 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. 52. Re-fuelling will be carried out in accordance with the *Standard Operating Procedure for Re-fuelling of NSW Telco Authority Generators at Government Radio Network Sites*.
Waste	53. 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. 54. All hazardous or contaminated wastes on site (if identified) would be stored, removed and disposed in accordance with the state and national regulations and guidelines and best practice for the removal of these materials. Hazardous materials will only be removed by suitably qualified, licensed and experienced contractors and waste records will be maintained. 55. 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.
Visual and social	56. Contractors are to maintain the site in a tidy appearance and treat community enquiries regarding the works appropriately. 57. The Delivery Contractor Site manager will be responsible for managing on-site complaints by issuing a flashcard to the interested stakeholder and documenting the issue in iAuditor. The Delivery Contractor Site Manager will refer the matter to the Authority Stakeholder Engagement team. 58. If any accidental damage to property occurs as a result of work activities, either within or outside the boundaries of the work site, the Environment Manager (Delivery Contractor) will be notified and damage to property incurred by the works must be repaired in consultation with the affected property owner.
Additional stakeholders	59. The Delivery Contractor will notify Port Macquarie-Hastings Council of the proposed construction seven days prior to construction commencing.
NSW Surveyor General	60. Prior to commencement of construction, the Delivery Contractor must engage a surveyor to identify the geodetic infrastructure, TS5670 “Tobin” and its associated witness marks. Once identified, the geodetic infrastructure must be protected by erection of an appropriate physical barrier (fencing, bunting etc.) to prevent disturbance by construction crews and equipment. For reference, the document “TS5670 R&M Card.pdf” enclosed in Appendix G shows the location of the witness marks.

Aspect	Safeguard
	61. Prior to the commencement of construction, the Construction Contractor will take photographs of both TS5670 “Tobin” and its associated witness marks and email those photographs to: Surveyor-General-Approvals@customerservice.nsw.gov.au. 62. After construction has been completed, the Construction Contractor will take photographs of both TS5670 “Tobin” and its associated witness marks and email those photographs to: Surveyor-General-Approvals@customerservice.nsw.gov.au. 63. The construction site foreman is informed of the importance of protecting both TS5670 “Tobin” and its associated witness marks from disturbance.

7. Conclusion

The main environmental risks of the proposal are associated with protection of geodetic infrastructure, impacts to flora and fauna, primarily associated with the clearing of an area of 1800m^2 for the compound and APZ and with the clearing of an area of 1,350m^2 on Fire Tower Road. The clearing on Fire Tower Road has risks associated with the old growth, late-mature, hollow-bearing trees. A specialist ecological assessment was carried out to recommend safeguards to minimise any potential ecological impacts. The recommendations in the E&BFA Assessment Report, together with the safeguards specified in Section 6 would be included in the Site Management Plan and implemented to manage any potential environmental risks, and will ensure that the proposal does not have a significant impact on the environment or an MNES.

Based on the available information and by adopting the safeguards identified Section 6 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 Site Management Plan.

Accordingly, an Environmental Impact Statement (EIS) is not required, and the proposal may proceed.

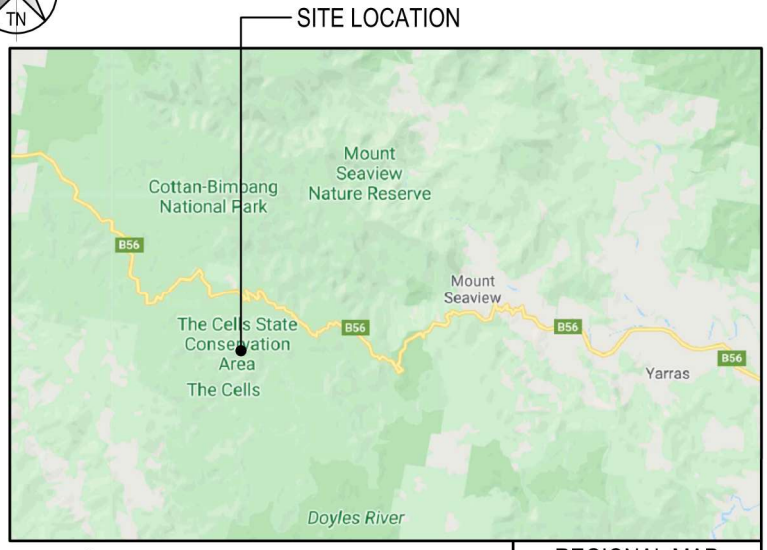
References

1. EPA (2014) *Waste Classification Guidelines*, Part 1-4, NSW Government, Sydney.
2. DECC (2009) *Interim Construction Noise Guideline*, NSW Government, Sydney.
3. DECCW (2010) *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW*, NSW Department of Environment, Climate Change and Water, Sydney.
4. DUAP (1999) *Is an EIS Required?* Department of Urban Affairs and Planning, Sydney.
5. Landcom (2004) *Managing Urban Stormwater – Soils and Construction* 4th Edition. (Blue Book) DECCW (2010), Department of Environment, Climate Change and Water, Sydney.
6. (2010) *NSW Telecommunications Facilities Guideline Including Broadband*, NSW Government, Sydney.
7. *The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) Radio Frequency Standard*.

Terms and acronyms

Term / Acronym	Definition
Authority	NSW Telco Authority
AHIMS	Australian Heritage Information Management System
BCA Act	Biodiversity Conservation Act 2016
BA Act	Biosecurity Act 2015
CCEP	Critical Communications Enhancement Program
CEMP	Construction environmental management plan
CLM Act	*Crown Land Management Act 2016*
Crown Lands	NSW Department of Planning, Industry and Environment – Crown Lands' (Crown Lands)
Cth	Commonwealth
DPC	Department of Premier and Cabinet
DPIE	Department of Planning, Industry and Environment
EIA	Environmental impact assessment
EIS	Environmental impact statement
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW). Provides the legislative framework for land use planning and development assessment in NSW
EP&A Regulation	Environmental Planning and Assessment Regulation 2000 (NSW). Provides a framework to guide the processes, plans, public consultation, impact assessment and other decisions made by planning authorities.
EPA	Environment Protection Authority
EPBC Act	*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.
Ecologically sustainable development.	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
GRN	Government Radio Network
Heritage Act	*Heritage Act 1977* (NSW)
ISEPP	*State Environmental Planning Policy (Infrastructure) 2007*
LGA	Local Government Area
MNES	Matters of national environmental significance under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.
NPW Act	*National Parks and Wildlife Act 1974 (NSW)*
NSW	New South Wales
OCS	Operational Communications Strategy
OEH	Office of Environment and Heritage
REF	Review of Environmental Factors
SEPP	State Environmental Planning Policy. A type of planning instrument made under Part 3 of the EP&A Act.
SIS	Species Impact Statement
TMP	Traffic Management Plan

Appendix A – Design drawings



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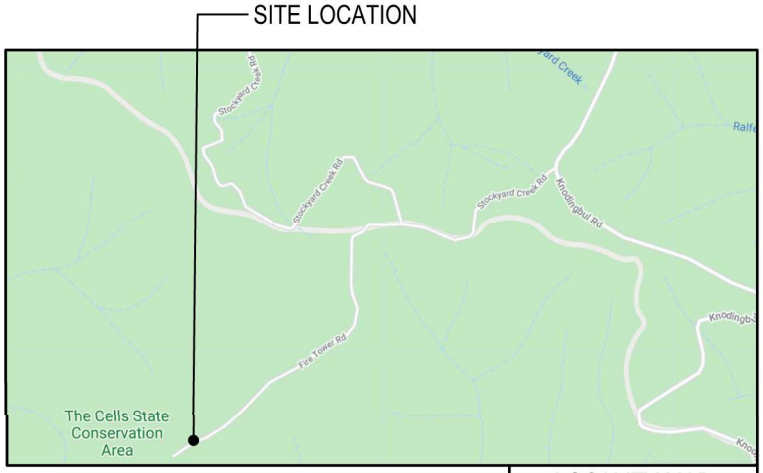
REGIONAL MAP
NOT TO SCALE



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LOCALITY MAP
NOT TO SCALE

SITE CO-ORDINATES			
DATUM:	GDA94	ZONE:	56
EASTING:	416 417	LATITUDE:	-31.422211°
NORTHING:	6 523 270	LONGITUDE:	152.120592°

SITE LOCALITY DETAILS	
REGION: N/A	LOT: 6980-666R
PARISH: N/A	DP/PLAN: ---
COUNTY: N/A	

TA DESIGN CRITERIA	
ACCESS CLASSIFICATION	SEMI RESTRICTED
TA BAL	BAL-FZ
WIND REGION	A3
REGIONAL WIND SPEED	45 m/s
TERRAIN CATEGORY	3
TOPOGRAPHICAL MULTIPLIER	1.56 (NW)
DIRECTIONAL MULTIPLIER	1.0

SITE ADDRESS

FIRE TOWER ROAD
DOYLES RIVER, NSW 2446

ACMA SITE ID # ACMA TBC
GRN SITE CODE: TOBIN
SITE P25 CODE : TBC
RFNSA SITE NUMBER: TBC

SITE ACCESS

1. FOUR WHEEL DRIVE IS REQUIRED FOR ACCESS.
2. FROM THE INTERSECTION OF KNODINGBUL ROAD AND TOBINS CAMP ROAD, HEAD WEST ON TOBINS CAMP ROAD , TURN LEFT ONTO FIRE TOWER ROAD AND FOLLOW FOR APPROXIMATELY 1.1 km TO REACH SITE LOCATION

STRUCTURE DETAILS

1. PROPOSED NSW TA 35m HIGH LATTICE TOWER. STRUCTURAL ADEQUACY OF THE NEW LATTICE TOWER, ITS FOOTING, ANTENNA MOUNT AND PARABOLIC ANTENNA MOUNT ARE CONFIRMED BY LEBLANC REFER TO LEBLANC CERTIFICATE REF. Z30688ES REV. 0 DATED 15/6/2020 FOR DETAILS.
2. ANTENNA ACCESS VIA EWP AND CLIMBING LADDER ON TOWER BY QUALIFIED PERSONNEL ONLY.

EQUIPMENT SHELTER

PROPOSED NSW TA COMMTEL TYPE 1.2 GENERATOR SHELTER. 36x SOLAR PANELS TO BE INSTALLED ON SOLAR SUPPORT FRAME CONNECTED TO SHELTER

EXISTING SITE HAZARDS

1. STEEP GROUND
2. 4WD ACCESS.
3. REMOTE WORKING CONDITIONS.
4. BUSHFIRE RISK.
5. SNAKES & SPIDERS.
6. TRAFFIC MANAGEMENT PLAN REQUIRED FOR KNODINGBUL ROAD INGRESS AND EGRESS

SITE SPECIFIC NOTES

1. PROPOSED NSW TA 35m HIGH LATTICE TOWER.
2. PROPOSED NSW TA COMMTEL TYPE 1.2 GENERATOR SHELTER. 36x SOLAR PANELS TO BE INSTALLED ON SOLAR SUPPORT FRAME CONNECTED TO SHELTER
3. PROPOSED NSW TA BA8080-67 DIPOLE ARRAY ANTENNA (1 OFF) ON PROPOSED FACE MOUNT.
4. PROPOSED NSW TA MICROWAVE PARABOLIC ANTENNA (3 OFF) ON PROPOSED LEG MOUNT.
5. PRIOR TO COMMENCEMENT OF NSWTA CONSTRUCTION, THE TRIG POINT ASSOCIATED WITNESS MARKS MUST BE LOCATED BY YOUR SITE SURVEYOR AND PROTECTED BY ERECTION OF AN APPROPRIATE PHYSICAL BARRIER (FENCING, BUNTING ETC.) TO PREVENT DISTURBANCE BY CONSTRUCTION CREWS AND EQUIPMENT.
6. THE CONSTRUCTION SITE FOREMAN IS INFORMED OF THE IMPORTANCE OF PROTECTING BOTH THE TRIG POINT AND ITS ASSOCIATED WITNESS MARKS.
7. CONSTRUCTION CREWS MUST BE MADE AWARE OF THE SURVEY INFRASTRUCTURE ABOVE DURING SITE SPECIFIC INDUCTIONS.
8. WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS AND SAFEGUARDS SPECIFIED IN THE REVIEW OF ENVIRONMENTAL FACTORS (REF), WITH REFERENCE TO THE RECOMMENDATIONS AND ADVICE IN THE ECOLOGICAL AND BUSH FIRE ATTACK ASSESSMENT REPORT PREPARED BY FLORA FAUNA CONSULTING, DATED 11 JUNE 2020. A SITE MANAGEMENT PLAN MUST BE PREPARED TO INCLUDE THE SAFEGUARDS SPECIFIED IN THE REF.

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
01	16.09.20	FOR CONSTRUCTION	TA	CATALYST	MIA	JF	AF	CMc

Department Logo: NSW GOVERNMENT Telco Authority

TOBIN TRIG
ACMA TBC

FIRE TOWER ROAD

DOYLES RIVER, NSW 2446

catalyst managers.advisors

Drawing Title:
SITE SPECIFICATION AND LOCALITY PLAN

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-TOBIN-DWG-INF-STE-03

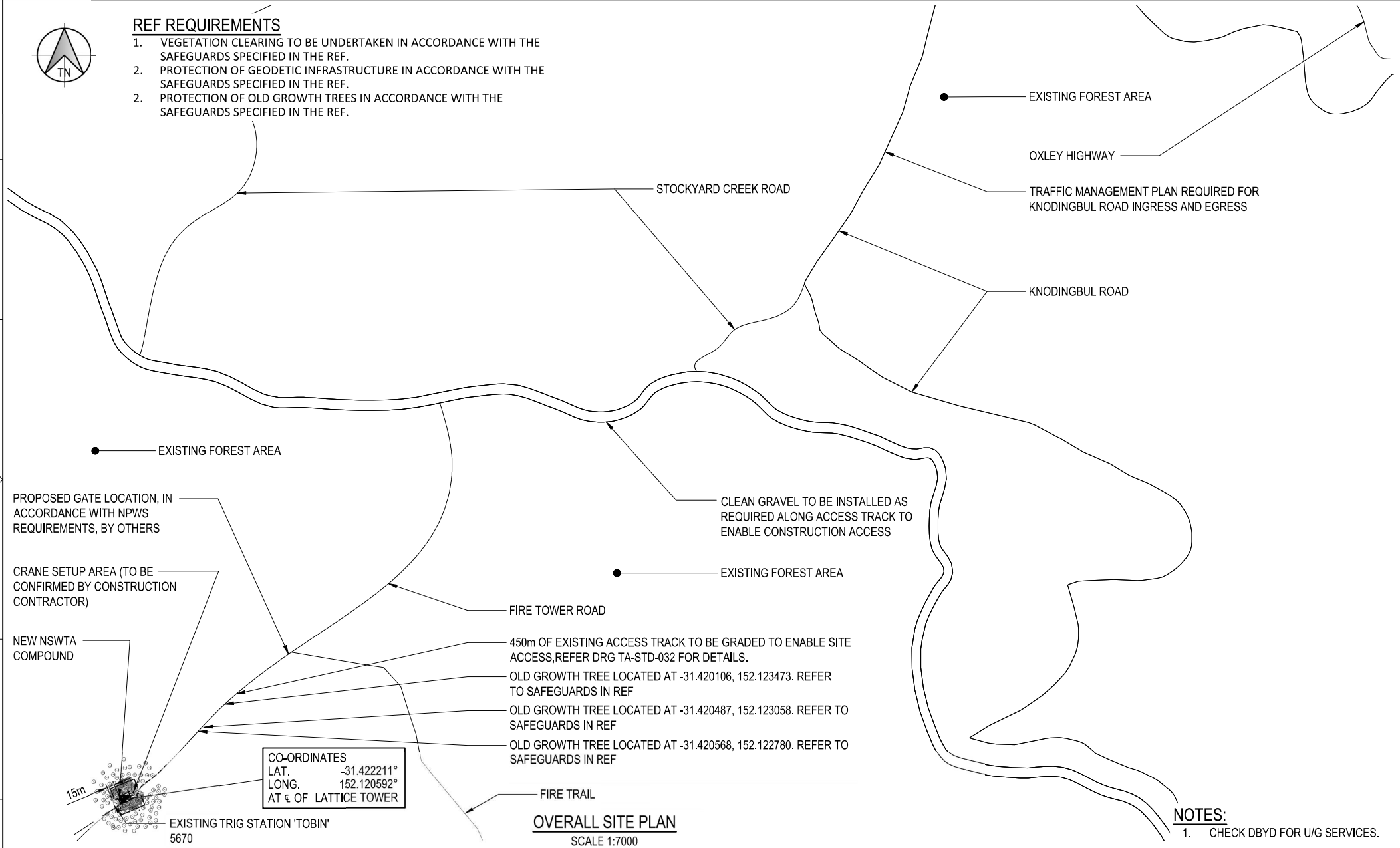
Revision 01

A3 Original Size
0mm 50mm 100mm

CAD File: P:\NSW TA\TROJAN\Tobin Trig (Previously Gingers Creek)\CAD\In Progress Drawings\NSWTA_Tobin Trig_FC Ver 1.dwg
Print By: James Follett Date: 9/16/2020 9:11 PM

REF REQUIREMENTS

1. VEGETATION CLEARING TO BE UNDERTAKEN IN ACCORDANCE WITH THE SAFEGUARDS SPECIFIED IN THE REF.
2. PROTECTION OF GEODETIC INFRASTRUCTURE IN ACCORDANCE WITH THE SAFEGUARDS SPECIFIED IN THE REF.
2. PROTECTION OF OLD GROWTH TREES IN ACCORDANCE WITH THE SAFEGUARDS SPECIFIED IN THE REF.



OVERALL SITE PLAN

SCALE 1:7000

NOTES:

1. CHECK DBYD FOR U/G SERVICES.

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
01	16.09.20	FOR CONSTRUCTION	TA	CATALYST	MJA	JF	AF	CMc

Department Logo: NSW GOVERNMENT Telco Authority

TOBIN TRIG
ACMA TBC

FIRE TOWER ROAD

DOYLES RIVER, NSW 2446

catalyst managers.advisors

Drawing Title: OVERALL SITE PLAN

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-TOBIN-DWG-INF-STE-04

Revision 01

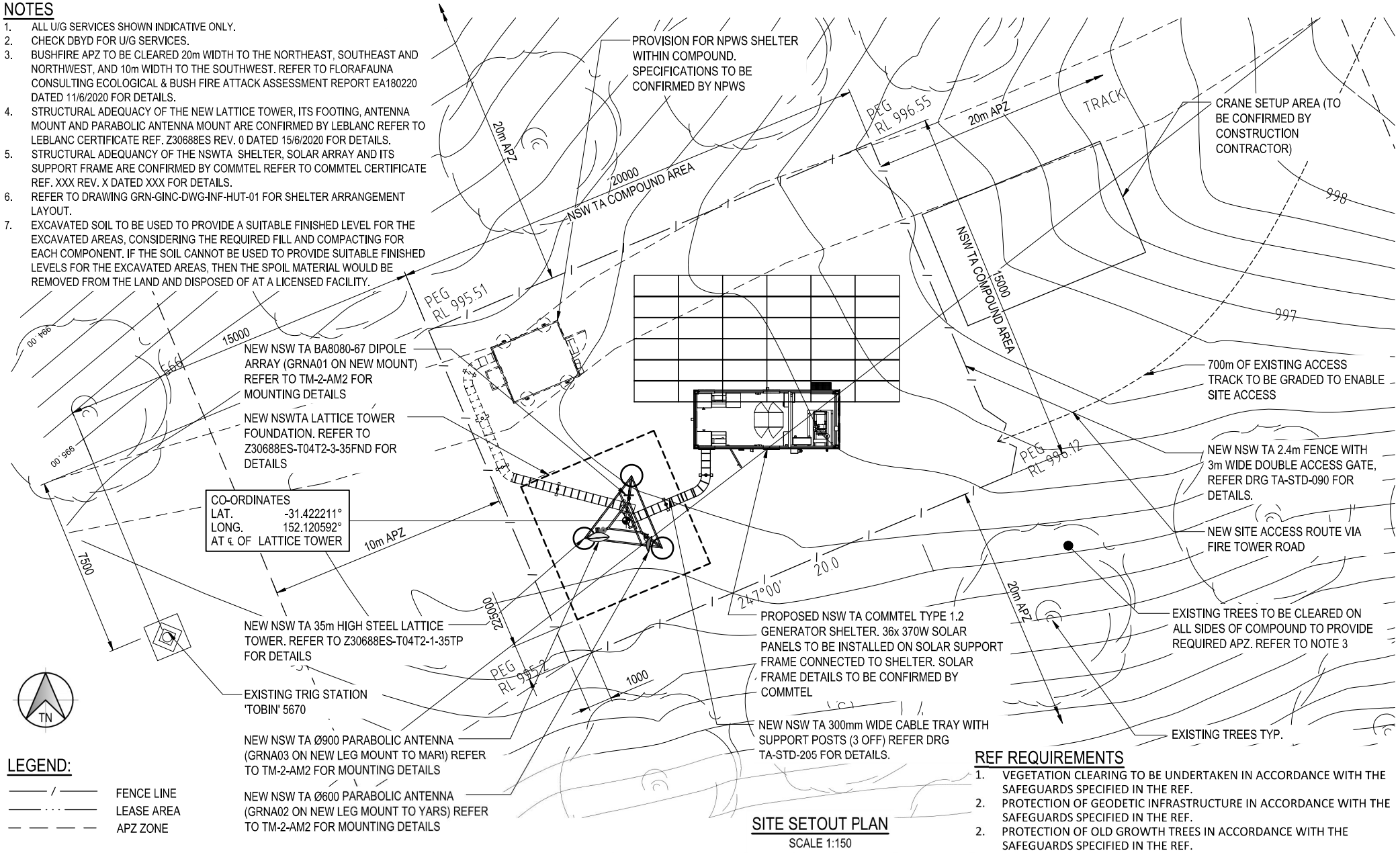
A3 Original Size

0mm 50mm 100mm

CAD File: P:\NSW TA\TROJAN\Tobin Trig (Previously Gingers Creek)\CAD\In Progress Drawings\NSWTA_Tobin Trig_FC Ver 1.dwg
Print By: James Follett Date: 9/16/2020 9:11 PM

NOTES

1. ALL U/G SERVICES SHOWN INDICATIVE ONLY.
2. CHECK DBYD FOR U/G SERVICES.
3. BUSHFIRE APZ TO BE CLEARED 20m WIDTH TO THE NORTHEAST, SOUTHEAST AND NORTHWEST, AND 10m WIDTH TO THE SOUTHWEST. REFER TO FLORAFAUNA CONSULTING ECOLOGICAL & BUSH FIRE ATTACK ASSESSMENT REPORT EA180220 DATED 11/6/2020 FOR DETAILS.
4. STRUCTURAL ADEQUACY OF THE NEW LATTICE TOWER, ITS FOOTING, ANTENNA MOUNT AND PARABOLIC ANTENNA MOUNT ARE CONFIRMED BY LEBLANC REFER TO LEBLANC CERTIFICATE REF. Z30688ES REV. 0 DATED 15/6/2020 FOR DETAILS.
5. STRUCTURAL ADEQUANCY OF THE NSWTA SHELTER, SOLAR ARRAY AND ITS SUPPORT FRAME ARE CONFIRMED BY COMMTEL REFER TO COMMTEL CERTIFICATE REF. XXX REV. X DATED XXX FOR DETAILS.
6. REFER TO DRAWING GRN-GINC-DWG-INF-HUT-01 FOR SHELTER ARRANGEMENT LAYOUT.
7. EXCAVATED SOIL TO BE USED TO PROVIDE A SUITABLE FINISHED LEVEL FOR THE EXCAVATED AREAS, CONSIDERING THE REQUIRED FILL AND COMPACTING FOR EACH COMPONENT. IF THE SOIL CANNOT BE USED TO PROVIDE SUITABLE FINISHED LEVELS FOR THE EXCAVATED AREAS, THEN THE SPOIL MATERIAL WOULD BE REMOVED FROM THE LAND AND DISPOSED OF AT A LICENSED FACILITY.



LEGEND:

- FENCE LINE
- LEASE AREA
- APZ ZONE

SITE SETOUT PLAN

SCALE 1:150

REF REQUIREMENTS

1. VEGETATION CLEARING TO BE UNDERTAKEN IN ACCORDANCE WITH THE SAFEGUARDS SPECIFIED IN THE REF.
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Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
01	16.09.20	FOR CONSTRUCTION	TA	CATALYST	MIA	JF	AF	CMc

Department Logo: NSW GOVERNMENT Telco Authority

TOBIN TRIG
ACMA TBC

FIRE TOWER ROAD

DOYLES RIVER, NSW 2446

catalyst managers.advisors

Drawing Title: SITE SETOUT PLAN

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-TOBIN-DWG-INF-STE-05

Revision 01

A3 Original Size

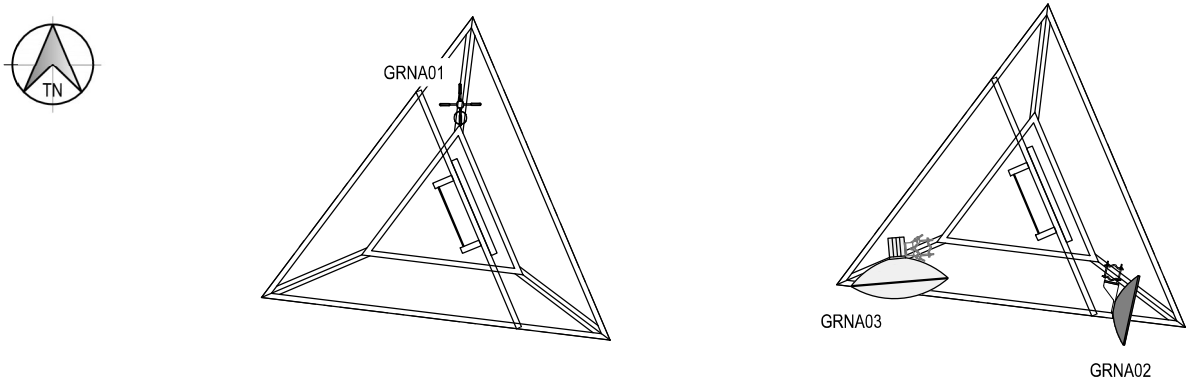
0mm 50mm 100mm

CAD File: P:\NSW TA\TROJAN\Tobin Trig (Previously Gingers Creek)\CAD\In Progress Drawings\NSWTA_Tobin Trig_FC Ver 1.dwg
Print By: James Follett Date: 9/16/2020 9:11 PM

NSWTA ANTENNA CONFIGURATION

NSWTA ANTENNA NO.	OTHER ID (AS REQUIRED)	ANTENNA TYPE	ANTENNA HEIGHT AGL (m)*	BEARING (°TN)	ANTENNA SIZE (mm) (H x W x D) or (H x Ø)	ANTENNA OWNER	ANTENNA ACTION REQUIRED	FEEDER SIZE & TYPE	FEEDER ACTION REQUIRED	FEEDER QTY	DESCRIPTION	FEEDER NUMBER	FEEDER LENGTH (m)
GRNA01	N/A	BA8080-67 DIPOLE ARRAY	35.00	0	5700 x 380	NSWTA	NEW	AVA6-50	NEW	1	UHF (UPPER RX)	GRN001	50
								AVA6-50	NEW	1	UHF (LOWER TX)	GRN002	50
GRNA02	N/A	VHLP2-7 PARABOLIC	33.0	103.07	600	NSWTA	NEW	LDF4-50	NEW	1	MAIN	GRN011	47
GRNA03	N/A	VHLP3-6 PARABOLIC	33.0	175.54	900	NSWTA	NEW	LDF4-50	NEW	1	MAIN	GRN012	47

*DIPOLE ARRAY AND COLLINEAR ANTENNA ELEVATION IS PROVIDED AT BASE OF ANTENNA.
PARABOLIC AND YAGI ANTENNA ELEVATION IS PROVIDED AT CENTRE LINE OF ANTENNA.
LTE ANTENNA ELEVATION IS PROVIDED AT BASE OF ANTENNA.



EL 35.0m

EL 33.0m

ANTENNA PLAN CONFIGURATION
SCALE 1:50

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
01	16.09.20	FOR CONSTRUCTION	TA	CATALYST	MIA	JF	AF	CMc

Department Logo: NSW GOVERNMENT Telco Authority

TOBIN TRIG
ACMA TBC

FIRE TOWER ROAD

DOYLES RIVER, NSW 2446

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Drawing Title:
ANTENNA TABLE AND
ANTENNA PLAN CONFIGURATION

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-TOBIN-DWG-INF-STE-06

Revision 01

A3 Original Size
0mm 50mm 100mm

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Print By: James Follett Date: 9/16/2020 9:11 PM

Rev	Dates	Revision Details	Department	Consultant	CAD Designer	Verifier	Approver
01	16.09.20	FOR CONSTRUCTION	TA	CATALYST	MA	JF	AF	CMc

NOTES

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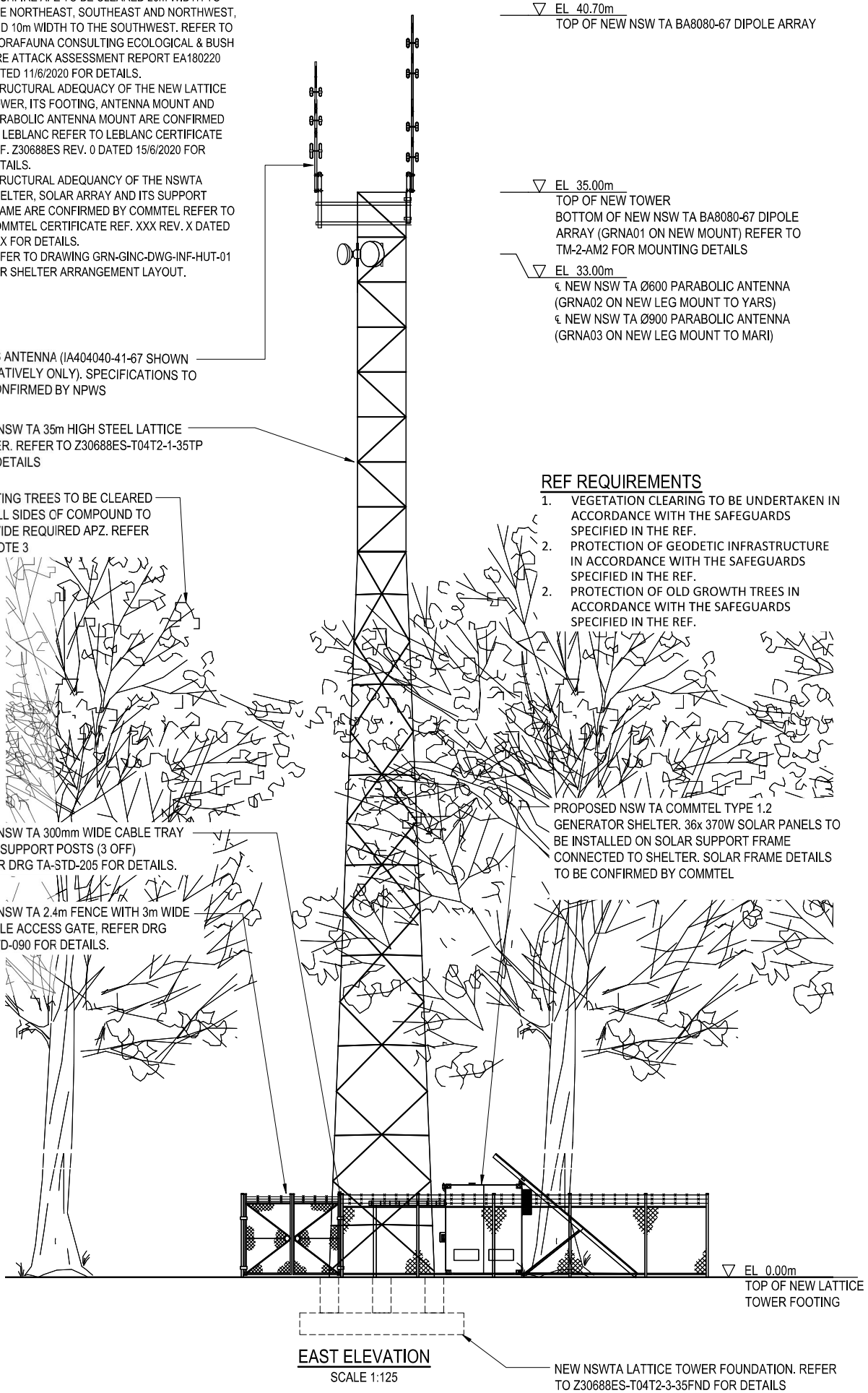
6. REFER TO DRAWING GRN-GINC-DWG-INF-HUT-01 FOR SHELTER ARRANGEMENT LAYOUT.



REF REQUIREMENTS

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2. PROTECTION OF OLD GROWTH TREES IN ACCORDANCE WITH THE SAFEGUARDS SPECIFIED IN THE REF.

EAST ELEVATION

SCALE 1:125

Department Logo:

NSW GOVERNMENT Telco Authority

TOBIN TRIG
ACMA TBC
FIRE TOWER ROAD
DOYLES RIVER, NSW 2446

Catalyst managers advisors

Drawing Title: SITE ELEVATION

Drawing Status: FOR CONSTRUCTION

Drawing No.: GRN-TOBIN-DWG-INF-TWR-01

Revision: 01

A3 Original Size
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50mm
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CAD File: P:\NSW TA\TROJAN\Tobin Trig (Previously Gingers Creek)\CAD\In Progress Drawings\NSWTA_Tobin Trig_FC Ver 1.dwg
Print By: James Follett Date: 9/16/2020 9:11 PM

Appendix B – Environmental EME report

Environmental EME Report

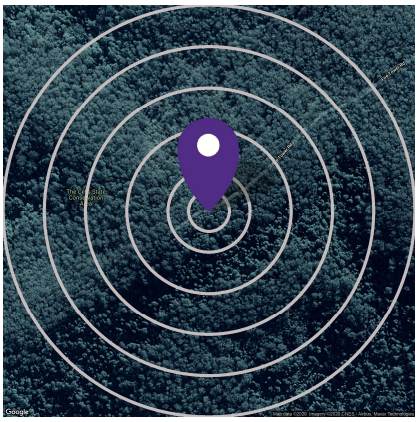
Location	Fire Tower Road, DOYLES RIVER NSW 2446		
Date	17/07/2020	**RFNSA No.**	2446020

How does this report work?

This report provides a summary of levels of radiofrequency (RF) electromagnetic energy (EME) around the wireless base station at Fire Tower Road, DOYLES RIVER NSW 2446. These levels have been calculated by Catalyst One using methodology developed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).
A document describing how to interpret this report is available at ARPANSA's website:
A Guide to the Environmental Report.

A snapshot of calculated EME levels at this site

There are currently no existing radio systems for this site.



The maximum EME level calculated for the **proposed** changes at this site is

0.02%

out of 100% of the public exposure limit, 27 m from the location.

EME levels with the proposed changes

Distance from the site	Percentage of the public exposure limit
0-50 m	0.02%
50-100 m	0.018%
100-200 m	0.015%
200-300 m	0.015%
300-400 m	0.011%
400-500 m	0.0075%

For additional information please refer to the EME ARPANSA Report annexure for this site which can be found at *http://www.rfnsa.com.au/2446020*.

Radio systems at the site

This base station currently has equipment for transmitting the services listed under the existing configuration.
The proposal would modify the base station to include all the services listed under the proposed configuration.

	Existing		Proposed	
Carrier	**Systems**	**Configuration**	**Systems**	**Configuration**
NSW				Gov. Radio Network (proposed)

An in-depth look at calculated EME levels at this site

This table provides calculations of RF EME at different distances from the base station for emissions from existing equipment alone and for emissions from existing equipment and proposed equipment combined. All EME levels are relative to 1.5 m above ground and all distances from the site are in 360° circular bands.

	Existing configuration			Proposed configuration		
Distance from the site	Electric field (V/m)	Power density (mW/m²)	Percentage of the public exposure limit	Electric field (V/m)	Power density (mW/m²)	Percentage of the public exposure limit
0-50m				0.41	0.45	0.02%
50-100m				0.39	0.41	0.018%
100-200m				0.36	0.34	0.015%
200-300m				0.36	0.34	0.015%
300-400m				0.3	0.24	0.011%
400-500m				0.26	0.17	0.0075%

Calculated EME levels at other areas of interest

This table contains calculations of the maximum EME levels at selected areas of interest, identified through consultation requirements of the Communications Alliance Ltd Deployment Code C564:2018 or other means. Calculations are performed over the indicated height range and include all existing and any proposed radio systems for this site.

Maximum cumulative EME level for the proposed configuration

Location	Height range	Electric field (V/m)	Power density (mW/m²)	Percentage of the public exposure limit
No locations identified				

Appendix C – Relevant database searches

Intentionally left blank

Further details available upon request

Appendix D – ISEPP consultation

Intentionally left blank

Further details available upon request

Appendix E – Other agency or stakeholder consultation

Intentionally left blank

Further details available upon request

Appendix F – Specialist Report

Intentionally left blank

Further details available upon request

Appendix G – NSW Surveyor General

Intentionally left blank

Further details available upon request

Catalyst ONE Pty Ltd: ABN 55 117 447 140