NSW Telco Authority

Review of Environmental Factors

Site Name: Green Cape	**ACMA ID: 10022334**

Template approval

	Date	Name	Role	Signature
Reviewed	3 June 2017	Emily Manchee	Senior Environmental Consultant	
Endorsed	3 June 2017	Joshua Sculthorpe	Property and Planning Manager	
Approved	6 June 2017	Jourdan Di Leo	Infrastructure Manager	

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NSW Telco Authority approval

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Please note significant template changes with a version increment of 1.0. Minor administrative changes, where the meaning or intention of the template is not altered should increase by an increment of 0.1.

Version	Date	Description	Author	Reviewed by	Approved by
1.0	16 February 2024	Review of Environmental Factors	James McIver	Jodie Leeds	Chris McCambridge
1.1	21 February 2024	Review of Environmental Factors – Minor Updates	James McIver	Jodie Leeds	Chris McCambridge
1.2	11 April 2024	Review of Environmental Factors – Final Version	James McIver	Kathy McGeoch	Chris McCambridge

Summary and Decision Statement

The Proposal

The purpose of this Review of Environmental Factors (REF) is to examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment as a result of proposed installation of a NSW Telco Authority (NSWTA) radiocommunications facility comprising a 40m monopole, together with an equipment shelter and generator, photovoltaic (PV) array within a fenced compound, and the implementation of an asset protection zone (APZ) (the proposal). The proposal is in Beowa National Park, within the Bega Valley Shire Council (Council) Local Government Area (LGA).

Legislative Framework

NSWTA has both legal and due diligence requirements to assess the impacts of its proposed activities. *State Environmental Planning Policy (Transport and Infrastructure) 2021* (NSW) provides that the proposal may be carried out without development consent. Accordingly, the environmental assessment and determination of the proposal has been undertaken in accordance with Part 5 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) and in accordance with clause 171 of the *Environmental Planning and Assessment Regulation 2021* (NSW). Under Part 5 of the EP&A Act, NSWTA is both the proponent and the determining authority for most proposals. As the proposal is located on land reserved under the *National Parks and Wildlife Act 1974* (NPW Act), National Parks and Wildlife Service (NPWS) will be the determining authority.

Conclusion

The main environmental risks of the proposal are associated with clearing of vegetation and associated ecological impacts to flora and fauna. A specialist ecological assessment was carried out to identify potential impacts to flora and fauna associated with the proposal and documented in an Ecological and Bushfire Risk Assessment (E&BFRA) report. The findings of the E&BFRA report, including the potential ecological impacts, were considered, and informed the design of the proposal to minimise potential ecological impacts. The E&BFRA report also included recommendations to protect flora and fauna during construction and ongoing operation of the proposal.

Visual impact associated with the proposal was assessed in a Visual Impact Assessment (VIA) report which suggested that the overall impact to both landscape character and views would be low to moderate. Beowa National Park is a valued landscape, with the proposal location being previously disturbed and reasonably separated from places of value. The proposal would reduce scenic quality when viewed from close proximity though would not significantly reduce the scenic quality of the broader Green Cape headland.

In addition, Aboriginal heritage was assessed under the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (Due Diligence Code of Practice) and documented in an Aboriginal Heritage Due Diligence Assessment (AHDDA) report, to determine whether the proposal would impact any Aboriginal objects or places. With the implementation of measures in the AHDDA the proposal is unlikely to impact Aboriginal heritage and an unexpected finds procedure would be followed should any objects be discovered during construction of the proposal.

Safeguards identified in Section 6 of this REF would be included in the Site Environmental Plan and implemented to manage any potential environmental risks associated with the proposal.

Decision Statement

The REF concludes that:

i. The proposal is not likely to have a significant impact on the environment and accordingly, an Environmental Impact Statement (EIS) is not required.

ii. The proposal will not be carried out in an area of outstanding biodiversity value and is not likely to significantly affect threatened species, populations or ecological communities or their habitats or impact biodiversity and a Species Impact Statement is not required.

iii. The proposal is not likely to significantly impact on a matter of national environmental significance or the environment of Commonwealth land and a referral to the Australian Government Department of Agriculture, Water and Environment is therefore not required under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

iv. Provided the mitigation measures identified in Section 6 of this REF are included in the Site Environmental Plan the proposed activity may proceed.

Certification

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

Prepared by	**Endorsed by**	**Determined by**
Name: James McIver Title: Senior Planner Company: Catalyst ONE Pty Ltd Date: 11 April 2024 Signature: 	Name: Rachel Hannan Title: Environmental and Sustainability Governance Lead Company: NSW Telco Authority Date: 11 April 2024 Signature: 	For National Parks and Wildlife Service refer to Determination Notice on following page.

NPWS Determination Notice

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1. Introduction

1.1 Background information

NSW Telco Authority (NSWTA) is responsible for the overall coordination of radio communication services for the NSW Government. NSWTA manages the existing Public Safety Network (PSN), which provides radiocommunications for Emergency Services Organisations (ESOs) and other government agencies.

Historically, radiocommunications infrastructure has been designed, built, operated and maintained by individual agencies. These have been built in addition to the PSN, resulting in a large number of networks being established with 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, NSWTA 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 pursuant to 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 (Transport and Infrastructure) 2021* (TISEPP), the proposal does not require development consent. NSWTA is both a public authority proponent 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 (NPWS) policy requests that NPWS be the determining authority for these proposals. The REF has considered the requirements of the *Guidelines for Division 5.1 Assessments* (DPE 2022) and the factors listed in clause 171 of the *Environmental Planning and Assessment Regulation 2021*.

1.2 Need, alternatives and justification of the proposal

The PSN will improve the delivery of frontline law enforcement, emergency, essential and community services. The PSN 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 ESOs) 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 PSN requires a new facility to meet the backhaul and radio frequency objectives.

During the feasibility stage of the proposal, NSWTA considered co-location of the proposed PSN site with the following existing facilities:

- Off Park:
    - The existing Indara 50m lattice tower located approximately 11.9km north-west of the proposal location, at Round Hill off Edrom Road, East Boyd NSW 2551. The candidate would not provide sufficient radiofrequency coverage to the target coverage area, with degradation in comparison to the existing NSWPF facility located at Green Cape Lighthouse. Accordingly, the candidate was discounted.

- On Park:
    - Existing infrastructure located adjacent to Green Cape Lighthouse. A brownfield solution (i.e. removal of existing infrastructure and installation of new infrastructure) would require the replacement of the existing timber pole with a larger concrete pole, and would be within the curtilage of Green Cape Maritime Precinct, State Heritage Register, Listing No: 01897 (Gazette Date: 02/01/2013). An options assessment focusing on visual impact found that the potential impacts associated with a brownfield solution adjacent to Green Cape Lighthouse would be significant.

In consideration of the coverage degradation associated with the off-park co-location and the impacts associated with an on-park brownfield solution, NSWTA selected a greenfield solution within Beowa National Park as the preferred solution to progress to a detailed design. The NSWTA solution was selected for the following reasons:

- The land is at a suitable elevation for NSWTA to meet its radio frequency and transmission requirements.
- The location has existing access routes and a portion of land is already cleared and disturbed.
- The location is suitable to minimise environmental and social impacts associated with the proposal.
- The technical solution and proposed equipment arrangement is an appropriate response to the site constraints.

Accordingly, the proposal at Green Cape, Beowa National Park, was selected as the prime candidate to progress to a detailed design solution for NSWTA.

1.3 REF structure and function

The purpose of this REF is to address NSWTA'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.

This REF has been prepared in accordance with the principles of ecologically sustainable development (ESD) 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.

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	Green Cape (ACMA ID 10022334)

Proposal details	The proposal is a greenfield solution consisting of a 40m monopole to accommodate antennas together with an equipment shelter and PV array. The equipment shelter would include a steel frame mounted over it to accommodate the PV array. Full details about the proposal are provided in this Table (Table 1) below. Additional information about the proposal, including details about earthworks and construction methodology, are provided in Table 2.
	
	The proposal includes:
	• One 40m monopole to accommodate:
	  ○ One dipole antenna array (5.7m vertical length) mounted at a base elevation of 40.0m (providing an overall height of 45.7m).
	  ○ One parabolic antenna (0.9m diameter), mounted at a centreline height of 39.0m.
	• One equipment shelter (6.0m x 2.5m) including a generator and 1000 litre bunded fuel tank.
	• One 36-panel PV array, to be installed on a steel frame above the equipment shelter.
	• A 2.7m high chain link security fence establishing a 15.5m x 17.0m compound with 3.0m wide double access gates.
	• A 75mm thick layer of single-sized 20mm (nominal) clean crushed stone on weed mat over the area inside the compound fence.
	• Clearing of vegetation associated with an APZ around the NSWTA infrastructure, a maximum of 10.0m in all directions.
	• Provision of a temporary works area (10.0m and 15.0m) to the south-east of the proposed compound.
	
	Construction activities would include:
	• A temporary generator to provide a temporary power supply.
	• Heavy vehicle traffic on the existing access roads.
	
	Once constructed, the operation and maintenance of the proposal would require approximately two visits per year. Maintenance visits would typically require one utility vehicle; however, upgrade works on the monopole may require a crane or elevated work platform (EWP) to access the antennas (the proposal would also accommodate a tower mounted ladder with fall-arrest system for riggers to access the antennas).

	Maintenance of the existing access roads (including Green Cape Lighthouse Road) may be required for ongoing operations. The maintenance may include activities such as grading, levelling, and installing geofabric and additional clean gravel, trimming or clearing vegetation overhanging the access road, repairing culverts, and reinstating existing drainage lines. A more detailed scope of works for any access roads works would be provided to NPWS for endorsement prior to works commencing. The proposal may include use of a remotely piloted aircraft (drones) to assist inspections of infrastructure at the site including capture of imagery. Infrastructure to be inspected with assistance of drones may include the tower, antennas, equipment shelter, PV array, access track, compound, APZ and general site condition before, during and at completion of works. Additional consent from NPWS is required for drones prior to use. Refer to the design drawings enclosed in **Appendix A** for further details.
Land owner/lessee/reserve manager (land, tower and hut)	The land is administered under the NPW Act, gazetted as Beowa National Park. NSWTA would enter into a licence agreement with NPWS for its proposed equipment. NSWTA would undertake the development and would own the monopole, its equipment on the monopole, and the equipment shelter and PV array.
Property address and Lot and DP no.	Address: Green Cape Lighthouse Road, Beowa National Park, Green Cape NSW 2551 Lot and DP: Beowa National Park
Name of National Park	Beowa National Park (formerly Ben Boyd National Park) Ben Boyd National Park and Bell Bird Creek Nature Reserve Plan of Management (PoM)
Local Government Area and Zoning	LGA: Bega Valley Shire Council Zone: C1 National Parks and Nature Reserves
Road/vehicular access including proximity to major state roads	The proposal would be accessed by the existing road network through East Boyd State Forest and then through Beowa National Park, via Green Cape Lighthouse Road, with the Princes Highway approximately 17km to the north-west. Sections of the access through Beowa National Park are unsealed and in fair condition.
Surrounding land use and landscape (include vegetation type, waterways, topography, sensitive receivers)	The proposal is on NPWS-reserved land, within Beowa National Park, in southern NSW approximately 23km south of Eden and 33km north-east of the Victorian border. The surrounding area comprises Beowa National Park, with Wonboyn River mouth 4.5k to the west at Wonboyn Beach. The proposal location is substantially cleared associated with existing NPWS use of the location as a storage area. The proposal location is in proximity to Green Cape headland, a prominent landscape feature with significant heritage value associated with Green Cape Lighthouse (approximately 3.3km to the south-east). There are no dwellings in proximity to the proposal location.

Figure 1 Proposed site location

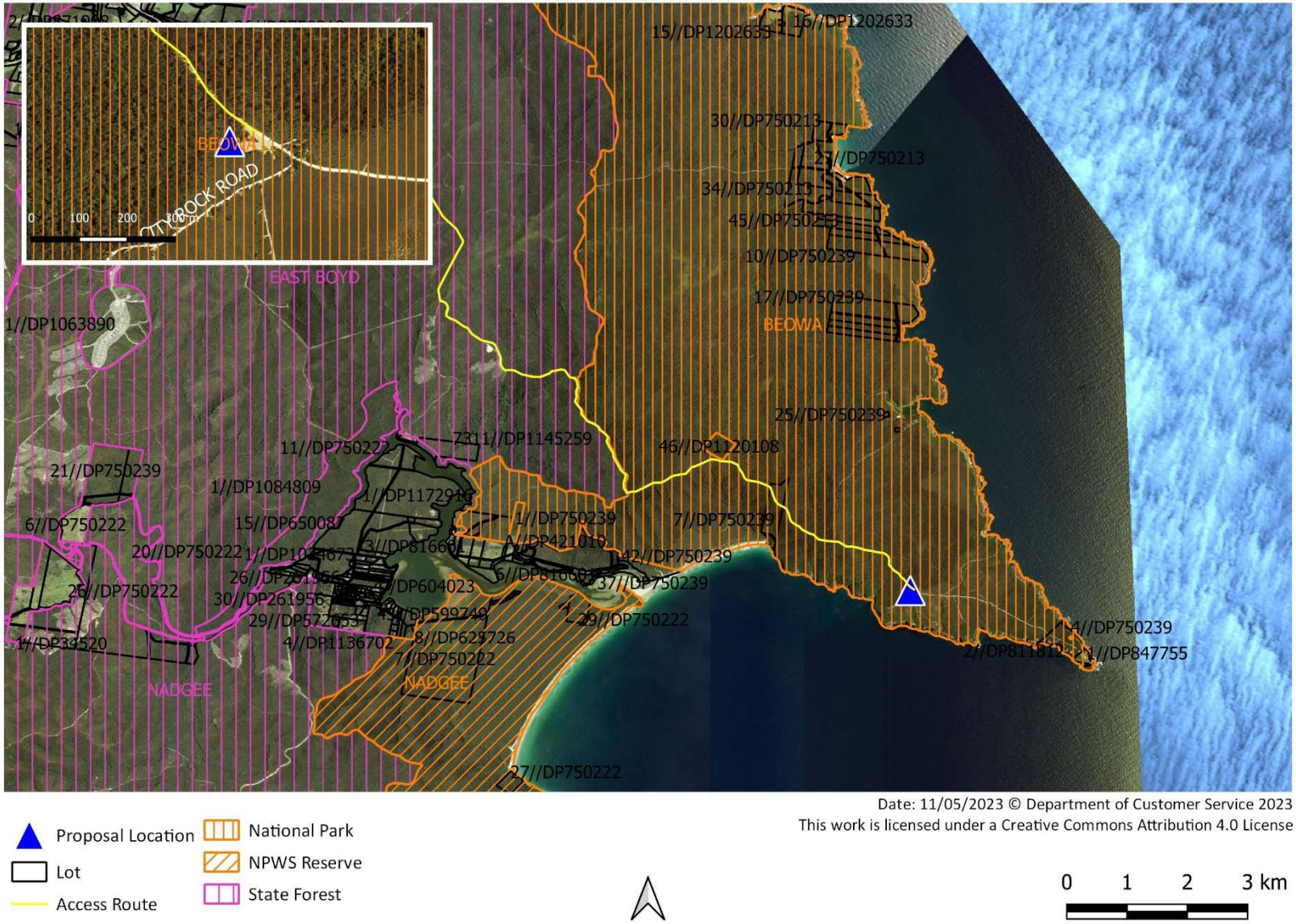
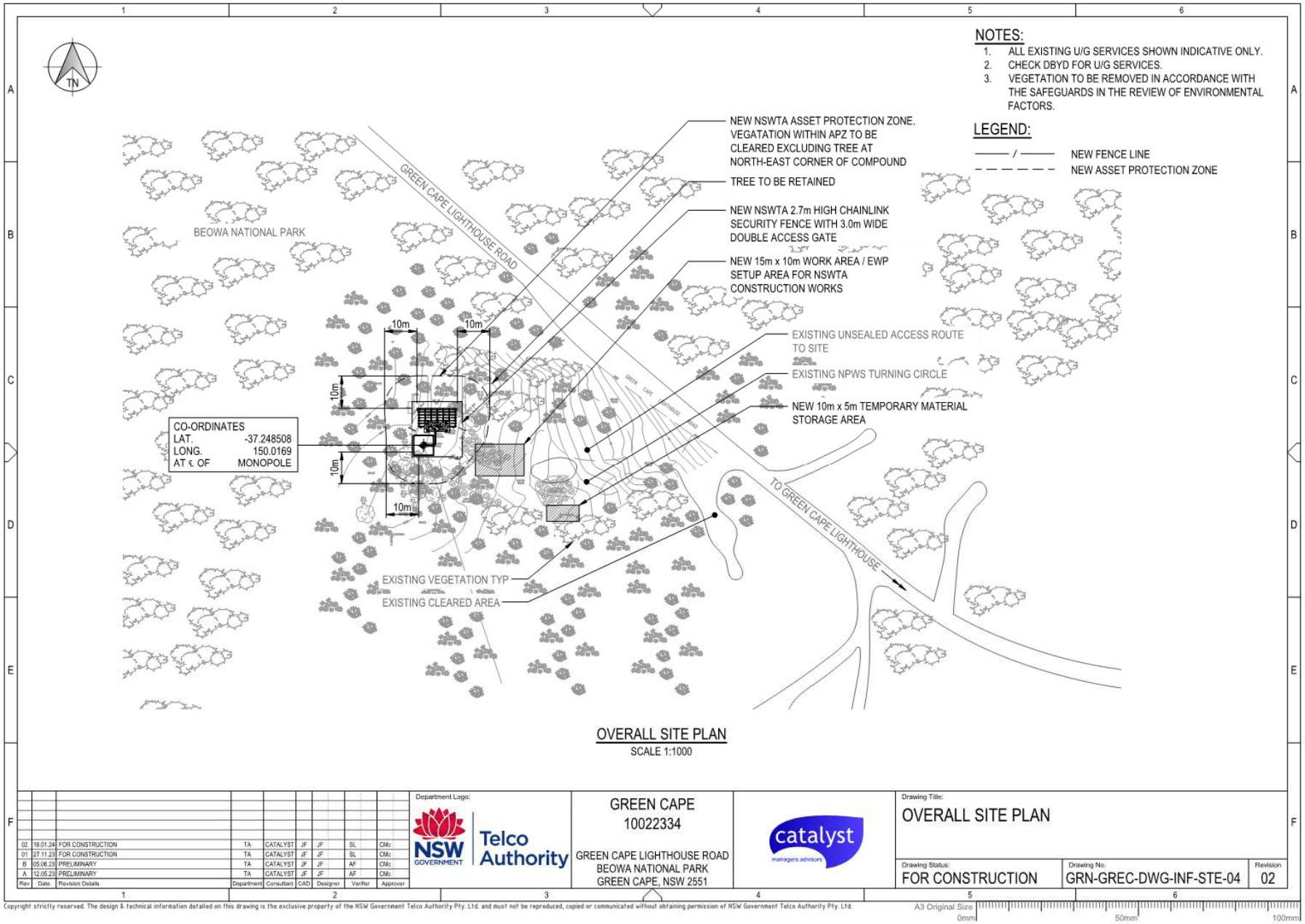


Figure 3 Proposed site layout



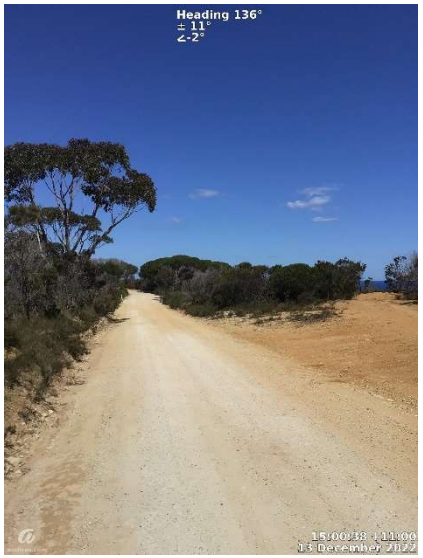
A site visit was conducted on 13 December 2022 and 20 December 2023 to identify environmental constraints and attributes at the site to be addressed or investigated further during detail design. The photographs taken during the site visit are presented in Figure 3.

Figure 2 Photos of the site

View to south showing proposed compound and APZ

View to north showing portion of proposed compound and APZ

View to west showing proposed compound and APZ



View to south-east, access point off Green Cape Lighthouse Road

View to west showing access to proposal location

View to north showing tree to be retained (background)

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) and work required for the access track	The construction would be undertaken in five main stages, in accordance with the Construction Contractor's methodology. Stage 1: Preparation • Implementation of ecological safeguards. • Implementation of erosion and sediment control measures. • Implementation of a temporary generator power supply. • Delivery of materials to temporary works area. Stage 2: Earthworks • Earthworks for the monopole foundation would require excavation of an area 6.1m x 6.1m to a depth of 1.5m (approximately 56 cubic metres). • Earthworks for the two equipment shelter foundations for the pad footings (four) would require excavation of an area 3.5m x 1.5m to a depth of 0.8m (approximately four cubic metres) for each footing. • Earthworks for the photovoltaic array foundations for the pad footing would require excavation of an area 12.5m x 0.75m to a depth of 0.8m (approximately 7.5 cubic metres). • Earthworks (cut and fill) to provide finished levels as shown on Sheet GRN-GREC-DWG-INF-STE-07 consisting of a cut at the west portion of the compound and APZ to provide a finished level approximately 90.2m (cut level to 0.5m at a maximum ratio of 1(v):6(H)). • Earthworks for the cable tray posts (four posts) would require excavation of an area approximately 0.3m in diameter to a depth of 0.9m for two posts and 0.3m x 0.3m to a depth of 0.2m for two posts. • Earthworks for the fence posts (approximately 30 posts) would require excavation of an area approximately 0.25m in diameter to a maximum depth of 0.75m. • Embedment of seven earthing electrodes approximately 3.0m below ground level located adjacent to the fence 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. Excess soil may be retained at a stockpile onsite; NSWTA would consult with NPWS at the time of construction to determine the stockpile location. If the soil cannot be used to provide suitable finished levels, or if NPWS do not have a requirement to retain excess soil, then it would be removed from the land and disposed of at a licensed facility (refer to safeguards specified in Section 6).

	Stage 3: Foundations • Laying of steel reinforcement and make ready works. • Pouring of concrete for the foundations noted above. • Concrete trucks would be used in this stage. Safeguards specified in Section 6 require that concrete would not be mixed on Park. Stage 4: Installation • The monopole would be delivered in prefabricated sections. A crane would be required to lift the section into place, with each piece bolted together. • Installation of equipment on the monopole. • Installation of cable tray on support posts. • The equipment shelter would be installed on the foundations. • The PV array steel frames would be installed on the foundations and solar panels installed on the frames. • Cranes and elevated work platforms would be used in this stage. Stage 5: Demobilisation • The areas used to construct the proposal and to demobilise would be restored to a condition similar to the condition prior to commencing works. • Carrying out of any make good works to the access track if required. • Removal of all vehicles, plant, materials, equipment, spoil and waste from the land.
Materials and equipment proposed to be used for the proposal	Materials to be used for the proposal would include: • Monopole • Equipment shelter • Steel frame for PV array • Solar panels • Antennas • Radiocommunications equipment • Cabling • Cable tray, ladder and support posts • Concrete • Batteries • Fuel • Crushed rock Equipment and plant to be used for the proposal would include: • Utility vehicles • Cranes • Elevated work platforms • Delivery trucks • Concrete trucks • Excavation machinery • Skip bins

	• Lifting equipment • Generators • Power tools • Air compressor • Welding machinery • Portable amenities • Drones to assist visual inspections and to capture imagery to inform construction planning.
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 proposal location and stored within the temporary construction works area in accordance with the safeguards specified in Section 6. NSWTA's Construction Contractor would undertake the works in accordance with its construction methodology and in accordance with NPWS determination 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. Installing equipment would require an elevated work platform.
Site clearing including extent of vegetation to be removed (i.e., for an Asset Protection Zone)	Clearing of vegetation to provide a maximum 10m APZ around the infrastructure. Further details are provided in Section 4 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 solar panels mounted on steel frames attached to the equipment shelters. Details of the solar power supply are shown in the drawings enclosed in **Appendix A**.
Public utility adjustments	The proposal location is in Beowa National Park, 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	No upgrade is required for construction of the proposal. Ongoing maintenance of the existing access roads (including Green Cape Lighthouse Road) may be required for ongoing operations. The maintenance may include activities such as grading, levelling, and installing geofabric and additional clean gravel, trimming or clearing vegetation overhanging the access road, repairing culverts, and reinstating existing drainage lines. A more detailed scope of works for any access roads works would be provided to NPWS for endorsement prior to works commencing. NSWTA would be required to access the site in accordance with the NPWS licence conditions and the safeguards specified in Section 6.
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 temporary construction works area would be required and would include provision for: • Vehicle parking. • Equipment and plant set down area. • Materials unloading and storage.

	The works area would be located on a flat, cleared area to the south-east of the compound as shown in the site layout (Figure 2).
Timeframe, duration, construction hours of operation, workforce	Construction is anticipated to take approximately 16 weeks to complete, commencing in the second half of 2024. 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 Construction Contractor will seek authorisation from NPWS to carry out the work outside standard working hours. The Construction Contractor would also need to ensure that the working hours are in accordance with the relevant access protocols for NPWS.
Demobilisation works	Once construction of the proposal is complete, demobilisation would include the removal of all vehicles, plant, materials, equipment, and where required, 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 two to three times a year. Maintenance activities would typically require one utility vehicle and one to two persons. Maintenance of equipment on the monopole would utilise the tower mounted access ladder, or with an elevated work platform. Drones may be used during site visits to assist visual inspections, undertake condition assessments, and support audit processes. This may include inspection and imagery capture of the monopole (including location of all co-located antennas), equipment shelter, PV array, APZ, ground maintenance and access tracks and general condition of the assets and surrounding areas. Additional consent from NPWS is required for drones prior to use.

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 (Transport and Infrastructure) 2021 (TISEPP).	TISEPP aims to facilitate the effective delivery of infrastructure across the state, including radio and telecommunications facilities. Clause 2.141(1) of TISEPP permits development for the purposes of telecommunications facilities (including radio facilities) to be carried out by a public authority without consent on any land.
TISEPP consultation requirements (clause 2.10, 2.11, 2.12, 2.14 and 2.15)	Refer to Table 4 for specific criteria and assessment.
TISEPP requirements (clause 2.141(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, October 2022*, Department of Planning and Environment).	The proposal is a greenfield solution and would include the installation of a radiocommunications facility comprising a 40m monopole and antennas, together with an equipment shelter, PV array, and the implementation of an APZ. This is consistent with the site selection, design, construction and operating principles for telecommunications facilities as detailed in *NSW Telecommunications Facilities Guideline Including Broadband, October 2022* (Department of Planning and Environment, NSW). **Principle 1: A telecommunications facility is to be designed and sited to minimise visual impact.** The proposal would have some visual impacts on the surrounding area. The proposed radiocommunications site consists of a slender monopole with slim line antenna which would be painted pale eucalypt, a muted colour, to match the surrounding vegetation. A Visual Impact Assessment (VIA) Report has been prepared for the proposal. The results of the assessment demonstrate that the proposal is sited and designed to minimise visual impact. A copy of the VIA Report is enclosed in **Appendix F**. Further details are provided in Section 4.5. **Principle 2: Telecommunications facilities should be co-located wherever practical.** The site selection process aims to utilise existing Government agency infrastructure (in particular ESOs) where feasible. In cases where the required infrastructure does not exist or is unsuitable, alternative options such as co-locating equipment on existing privately owned or commercial radiocommunications infrastructure are considered. Where there are no feasible options to re-use existing radiocommunications infrastructure, the installation of a new radiocommunications structure is considered.

	The site alternatives are assessed using a multi-criteria analysis which includes radio 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 radiocommunications structure is considered where other co-location options are not suitable and/or the PSN requires a new site to meet the radio coverage objectives. In this instance, no alternative co-location opportunities and existing Government agency infrastructure are considered suitable to meet the required coverage objectives. NSWTA considered co-location of the proposed PSN site with the existing infrastructure located at Round Hill off Edrom Road, East Boyd State Forest, and with the existing infrastructure adjacent to Green Cape Lighthouse. A co-location solution with the existing infrastructure within East Boyd State Forest would result in significant coverage degradation in comparison to the existing NSWPF coverage provided by the existing NSWPF facility located at Green Cape Lighthouse. The brownfield solution, within Beowa National Park, would require the replacement of the existing timber pole with a larger concrete pole. The heritage and visual impacts to Green Cape headland and the lighthouse were considered greater than the proposed greenfield solution. Further details are provided in Section 1.2 and Section 3.4. **Principle 3: Health standards for exposure to radio emissions will be met.** The proposal would produce electromagnetic energy (EME) emissions in compliance with the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) *Standard for Limiting Exposure to Radiofrequency Fields – 100 kHz to 300 GHz (2021), RPS S-1* (the ARPANSA Standard). An Environmental EME Report has been prepared and shows the predicted EME levels from the proposal comply with the Australian safety standards imposed by the Australian Communications and Media Authority (ACMA) and the ARPANSA Standard. Refer to the Environmental EME Report enclosed in **Appendix B**. **Principle 4: Minimise disturbance and risk, and maximise compliance** The proposal 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. **Principle 5: Undertake an alternative site assessment for new mobile phone base stations** NSWTA is not a mobile phone carrier and alternative site assessments are not required. However, justification for the proposal is provided in Section 1.2.

Land tenure	The proposed facility would be located on land gazetted as Beowa National Park, administered by NPWS. NSWTA would seek a Telecommunications Facilities Licence from NPWS for its equipment.
Is the proposal a category identified as State significant development or State significant infrastructure under *State Environmental Planning Policy (Planning Systems) 2021?*	No. The proposal does not fall into any of the categories identified in the *State Environmental Planning Policy (Planning Systems) 2021*. 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). Potential impacts to migratory birds or birds of prey are provided in Section 4.4 and relevant safeguards are specified in Section 6.
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 on land subject to a Native Title claim, determination, or an Indigenous Land Use Agreement?	No, the proposal is not located on land subject to a Native Title Claim, determination, or 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?	The proposal would comply with the ARPANSA Standard. An Environmental EME Report has been prepared and shows the predicted EME levels from the proposal would comply with the ARPANSA Standard. Refer to the Environmental EME Report enclosed in **Appendix B**.
Does the proposal require an approval, permit or licence under any other environmental legislation?	The proposal requires a licence from NPWS, the land is administered under the NPW Act by NPWS. Any use of drones must comply with CASA regulations and would require approval in accordance with NPWS policy.

3.2 TISEPP consultation requirements

TISEPP 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 TISEPP consultation is required.

Table 4 TISEPP consultation checklist

Is consultation with council required under clauses 2.10, 2.11, 2.12, 2.14 of the ISEPP?		
Are the works likely to have a substantial impact on the stormwater management services 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
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 the proposal on land that is within a coastal vulnerability area and is inconsistent with a certified coastal management program?	☐Yes	☒No
Is consultation with other agencies required under clause 2.15 of the TISEPP?		
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 located within the dark sky region (within 200 kilometres of the Siding Spring Observatory) and would the proposal increase the amount of artificial light in the night sky?	☐Yes	☒No
Is the proposal located within the Lockhart Shire Council, Narrandera Shire Council or Urana Shire Council and within defence communications facility buffer land?	☐Yes	☒No
Is consultation with council and occupiers of any adjoining land required under clause 2.141(2) of the TISEPP?		
Does the proposal involve the development of a tower or mast? A copy of the TISEPP notice to Council is enclosed in **Appendix C**, and a summary of the consultation is provided below in Table 6. NSWTA gave notice of its intention to undertake the development in accordance with Clause 2.141(2) of TISEPP. NSWTA will take into consideration any response to the TISEPP notice that is received within 21 days after the notice was given.	☒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 (i.e., school, hospital, residence, business)?	☐Yes ☒No
Is consultation with the local community required? Consultation with the community is not required under TISEPP. NSWTA has prepared this REF for submission to NPWS as the determining authority. NPWS policies and procedures require that the REF will be placed on public exhibition as part of the assessment process.	☐Yes ☒No

3.4 Consultation with NPWS

3.4.1 Permissibility

The proposal is not prohibited under the NPW Act and a licence is required under Section 153D. The proposal is not located within a wilderness area as identified under the *Wilderness Act 1987*. The PoM includes management issues and strategies which are relevant to the assessment of the proposal. Section 4.2 of the PoM identifies the importance of coastal heath vegetation within Beowa National Park:

> *The heathlands of the park are highly significant because of the restricted occurrence of coastal heaths and their importance for many plant and animal species including a number of threatened species.*
>
> *…*
>
> *Special attention will be given to protection of the heathlands through closure of unauthorised vehicle tracks, rehabilitation of redundant walking routes and the exclusion of new facilities from intact heathland unless no practical alternatives are available.*
>
> *…*
>
> *In circumstances where no practical alternatives are available to impacting on heath, mitigation and offset measures will be implemented.*

The importance of the heath vegetation at the proposal location is noted, and the proposal has been sited and designed to utilise existing disturbed areas and to minimise encroachment into adjacent heath vegetation. An Ecological and Bushfire Risk Assessment (E&BRFA) report was prepared, and the findings used to inform the design solution and the resulting APZ. Heath vegetation adjacent to the proposal footprint is in a regenerative state and the proposal would limit expansion into the regenerating areas. The proposal is in accordance with the PoM including the desired outcomes and management response.

3.4.2 Consultation

NSWTA 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 PoM.

A preliminary teleconference with NPWS was held during the feasibility stage of the proposal to understand the site context and constraints. In addition, NSWTA presented an options assessment focusing on visual impact to NPWS to understand the potential impacts associated with two brownfield solutions adjacent to Green Cape Lighthouse and the greenfield solution the subject of this REF. NPWS and NSWTA review of the options assessment found that the visual, historic and social impacts associated with a brownfield solution at Green Cape headland would be significant and less preferred than the greenfield solution the subject of this REF. NPWS confirmed its preference for the greenfield solution on 9 May 2023 for a 30m monopole. Subsequently, on 5 June 2023 NSWTA confirmed with NPWS its requirement for a 40m monopole due to technical requirements associated with transmission for the PSN site and a further teleconference with NPWS was held on 7 June 2023.

The formal NPWS AIP process commenced on 20 June 2023, and a teleconference with the NPWS licensing team and the NPWS Area team was held on 16 June 2023 for a 40m monopole. Following the formal request for AIP on 20 June 2023 NPWS provided AIP for the proposal on 11 July 2023. A copy of the correspondence is enclosed in **Appendix D**.

Telecommunications facilities checklist

The checklist in Table 6 addresses the requirements of section 153A 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 within the Beowa National Park were considered during the formal AIP process. Refer to Section 1.2 and **Appendix D** for relevant information and correspondence.
Does the site of any above ground facility cover the minimum area possible?	Yes, the proposal footprint is the minimum area required to support the required CCEP infrastructure. The proposal would utilise the existing cleared area as much as possible to minimise vegetation clearing.
Is the facility to be designed and constructed to minimise risk of damage to the facility from bushfires?	The proposal location is identified as bush fire prone land, vegetation category 1. A maximum 10m APZ around the infrastructure is proposed to manage risks associated with bushfire. The proposal is not expected to increase the risk of bushfire. Further details are provided in Section 4.3.
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. The facility is designed to the minimum required height to achieve radio frequency and transmission objectives, further details are provided in Section 4.5. During the preliminary assessment stage of the proposal NSWTA presented an options assessment focusing on visual impact to NPWS to understand the potential impacts associated with two brownfield solutions adjacent to Green Cape Lighthouse and the greenfield solution the subject of this REF. NPWS and NSWTA review of the options assessment found that the visual, historic and social impacts associated with a brownfield solution at Green Cape headland would be significant and less preferred than the greenfield solution the subject of this REF.
Is it feasible to use an existing means of access to the site?	Yes, existing access is utilised. Further details are provided in Section 4.7.
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.
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.

Principle	Comments
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 PoM and the facility is permissible as detailed above.
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 at a previously cleared and disturbed area used by NPWS as a storage area.
Is the facility on land that is within a wilderness area?	No, the facility is not on land within a wilderness area, though it is acknowledged that there are potential impacts to the Nadgee wilderness area from Wonboyn and from ocean views. An assessment of visual impact is provided in Section 4.5, including the consideration of views to the proposal from the surrounding area.

3.5 Summary of consultation

Table 7 summarises the stakeholders notified regarding the proposal, the issues raised in any submissions received, and NSWTA'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 NSWTA
Bega Valley Council	Council was given notice of NSWTA's intention to undertake the development on 30 November 2023 (letter sent by email). Council was given 21 days to comment on the proposal, with a submission received from Council on 8 January 2024. Council provided comments in relation to visual impact and the heritage significance of Green Cape Lighthouse. Subsequently, a response was sent to Council on 19 January 2024 noting that a VIA was being prepared to accompany the REF, including consideration of Green Cape Lighthouse to the east. The response also noted that as part of NPWS' assessment of the proposal the REF will go through a public exhibition process, with an offer to provide NPWS with Council to be informed of the REF during the exhibition period. Correspondence is enclosed in **Appendix C**.	NSWTA to provide Council details to NPWS for the public exhibition of the REF.
NPWS	As detailed in Section 3.4, NPWS provided comments as part of the formal AIP process. NSWTA has noted the comments and included relevant items in the design and as part of the preparation of the REF.	The REF addresses NPWS requirements, including: • Section 153D(4)(b), (c), (d), (e) and (h) of the NPWS Act (Table 6)

	The process is designed to ensure that all matters are addressed, and a copy of correspondence is enclosed in **Appendix D**.	• Bushfire risk: Section 4.3 and Appendix D. • Vegetation clearing: Section 4.4 and Appendix D.

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 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.
Is there likely to be excess rock or spoil from the excavation? (ie. soil or rock that cannot be re-used to level the ground surface of the new compound or incorporated as part of the proposal).	Excavated soil would be used to provide a suitable finished level for the excavated areas, considering the required fill and compacting for each component. Excess soil may be retained at a stockpile onsite; NSWTA would consult with NPWS at the time of construction to determine the stockpile location. If the soil cannot be used to create the finished levels, then it would be removed from the land in accordance with the safeguards in Section 6.
Will the proposal disturb acid sulfate soils?	A search of the acid sulfate soils risk maps on SEED Map 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, and the location is not included in the results of the search. Should contaminated material be encountered during construction of the proposal 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?	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 location is on slightly sloping land. The proposal would require minimal cutting and filling of the ground surface (up to 0.5m across the footprint of the proposal) to level the ground surface. 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 erosion and sedimentation would primarily be during construction activities. The safeguards specified in Section 6 would be undertaken to mitigate potential impacts and are considered to be sufficient to manage the impacts. Additional specialist input would not be required.

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?	The proposal would not be located within 40m of a waterway. The nearest waterway is Disaster Bay approximately 1.0km to the south. Otherwise, there are ephemeral drainage lines at the headland with the closest being approximately 300m to the south-west of the proposal location. Nearby waterways include Bittangabee Creek approximately 4.1 km to the north-west and the Wonboyn River approximately 4.5 km to the south-west. Given the scope of works and the distance to waterways the proposal is not likely to impact on any waterways.
Is the location known to flood or likely to change flood patterns, be affected by flooding? Check relevant Council LEP flood mapping, or available flood study mapping.	No, the proposal 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 proposal would require the use of fuels, including refuelling of plant and equipment. The risks associated with the activity primarily relate to fuel spills and leaks from equipment. During operation the proposed equipment shelter would require the use of a generator. The generator would be regularly checked, and re-fuelling would be carried out in accordance with NSWTA's refuelling procedures approximately one to three times per year if required. The site would automatically switch to the generator when solar input is low and battery power also becomes unavailable. As a measure to mitigate potential chemical spillage, the proposed generator would include a dual wall bunded fuel tank, where the top of tank acts as a catchment area for all potential liquid spills and it would include a secondary containment with capacity for 110% of liquids.

	Once constructed, the proposed facility would include provision for the use of a temporary dual bunded generator in the case of an emergency or during maintenance periods to provide a temporary power supply to the proposed facility. The risks would be managed in accordance with the safeguards specified in Section 6.
Will the works encounter groundwater? If yes, can the works be classified as 'minimal impact activity', as per the NSW Aquifer Interference Policy?	Excavation works required for the proposal would be to a maximum depth of approximately 3.0m. The works would be highly unlikely to 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: • Would potentially impact an area administrated by Water NSW? • Is located within or immediately adjacent to the area covered by Chapter 6 in the *State Environmental Planning Policy (Biodiversity and Conservation) 2021*?	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 (Biodiversity and Conservation) 2021*.

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?	The proposal location is mapped as Bushfire Prone Land – Vegetation Category 1. A maximum 10m APZ around the infrastructure is proposed, to be managed by NSWTA. An Ecological and Bushfire Risk Assessment (E&BFRA) report was prepared, taking a wholistic approach to the identified ecological values and the existing site conditions and APZ to manage the risks associated with bush fire. The E&BFRA recommended: "*The bush fire risk assessment has determined that the bushfire attack level that the development is likely to be exposed to … is BAL-40 in the northern and eastern directions and BAL-FZ in the southern and western directions. The characteristics of BAL-40 are that radiant heat flux and potential flame contact could threaten building integrity.*" The recommendations have been considered and adopted in the detailed design of the proposed facility, including recommendations adopted as safeguards in Section 6. The proposal would comply with the NSW Rural Fire Service (RFS) Practice Note '*Telecommunication Towers in Bush Fire Prone Areas*' 1/11, February 2012 (the RFS Practice Note). The E&BFRA report is enclosed in **Appendix E**.

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?	The E&BFRA report was prepared to inform the design solution and to confirm the compound positioning to maximise the use of existing cleared areas and minimise the extent of clearing of the adjoining vegetation. The compound footprint would be undertaken within an area of land that has been largely cleared (approximately 50% of the footprint) and currently used by NPWS for storage of materials associated with park management. The APZ would require clearing of vegetation beyond the existing cleared areas, identified in the E&BFRA report as a heathland community. The E&BFRA report identified three trees within the proposal footprint as *Eucalyptus sieberi* (Silvertop Ash). Two of the trees at the margins of the compound could be removed due to their ecological value, though one tree within the north-east corner of the APZ was found to be more significant and could be retained without impacting the effectiveness of the APZ: "*Three emergent trees are located within the proposed works footprint, all of which were identified as the species; Eucalyptus sieberi (Silvertop Ash). Two of the trees (Tree 1 and Tree 3) are located at the margin of the proposed NSWTA compound. Both of these trees are mature trees but are not considered to be important in terms of their ecological value and could be removed without any significant impact. The third tree (Tree 2) is located at the northeast corner of the proposed APZ. This tree is larger and due to its size and growth stage, is deemed to be a recruitment tree and is therefore considered to be significant. Tree 2 can and should be retained. Its relative position, near the margin of the APZ would allow its retention without compromising the effectiveness of the APZ, which would remain compliant.*"
Will the proposal impact any threatened species/populations, ecological communities, critical habitat, or migratory species listed on: • *Biodiversity Conservation Act 2016* (BC Act)? • *Environment Protection and Biodiversity Conservation Act 1999* (EPBC	The E&BFRA report has considered the impacts of the proposal on any threatened species, threatened populations, ecological communities, critical habitat, or migratory species. In relation to the type of vegetation to be removed the E&BFRA report found that the vegetation was not associated with a threatened ecological community (TEC):

Environmental aspect	Existing environment, potential impact and recommended safeguards
Act)?	"*The findings of the flora survey were more or less consistent with the vegetation mapping. The structure of the plant community and the majority of the species assemblage therein generally confirmed the vegetation mapping, which indicates the study area is occupied by PCT 3816: Far Southeast Coastal Lowland Heath. However, the species assemblage is possibly being influenced by an adjacent dry sclerophyll forest community identified as PCT 3646: Far South Coastal Ranges Silvertop Ash Forest, as several species, including the emergent eucalypt species, are associated with it. This suggests that the study area may lie within the ecotone between the two plant communities. It is also noted that both plant communities share a number of diagnostic species. Neither of the plant communities, i.e. PCT 3816 and PCT 3646 are associated with any TEC.*" The E&BFRA report included a habitat assessment to identify whether any threatened species may be impacted by the proposal, together with the preparation of significance tests under the BC Act and EPBC Act. Habitat features of the heathland vegetation in the study area included areas of dense groundcover, as well as fallen trees, shrubs and other woody debris. Habitat use by vertebrates was identified in the study area, being the native macropod; *Wallabia bicolor* (Swamp Wallaby) and the invasive pest species; *Oryctolagus cuniculus* (European Rabbit). The E&BFRA report stated: "*From the habitat assessment and database/literature review, it was considered that six threatened species listed under the BC Act and five threatened species listed under the EPBC Act could potentially utilise the habitat within the study area.*" Pertinent impacts associated with the proposal are noted in section 7 of the E&BFRA report. The assessment found that the adjacent heathland habitat contains dense, regenerating vegetation, important for various species of fauna, including some that are listed as threatened. Accordingly, the assessment recommended that works should be limited to the proposal footprint to ensure adjacent habitat is not impacted.

Environmental aspect	Existing environment, potential impact and recommended safeguards
	The EBFRA Report stated: "*The findings of the flora survey indicate that the plant communities occurring at the site are not listed as a TEC. The targeted search for threatened flora determined that no threatened species of flora were likely to be present within the proposed works footprint. Apart from the cleared footprint associated with the existing NPWS works site and site access, the adjacent vegetation and habitat have not been modified significantly by human activities. The impacts of the 2019-2020 bush fire are evident, and the surrounding vegetation is currently in a regenerative state.*" The recommendations in the E&BFRA report have been included in the safeguards specified in Section 6 and would ensure that the proposal would not impact any threatened species, populations, ecological communities, critical habitat, or migratory species listed in the BC Act or EPBC Act. Refer to Appendix C in the E&BFRA report enclosed in **Appendix E**.
Does the proposal involve Key Threatening Processes (KTP) under these Acts (ie. land clearance)? Check – EPBC KTP list, BC Act KTP list.	Yes, the proposal is associated with key threatening processes (KTPs), specified in Appendix C of the E&BFRA 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.*" The proposal is unlikely to contribute significantly to this KTP. ***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 because of clearing native vegetation, including:*

Environmental aspect	Existing environment, potential impact and recommended safeguards
	• *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 proposal is unlikely to contribute significantly to this KTP: "*Given the proposed development is likely to involve removal of a relatively small amount of native vegetation for implementation of the APZ, the proposed development will make a minor contribution to this KTP.*" Based on the findings in the E&BFRA report, the proposal would not significantly contribute to the identified KTPs. Refer to Appendix C in the E&BFRA report enclosed in **Appendix E**.
Does the proposal have the potential to endanger, displace or disturb fauna (including fauna of conservation significance) or create a barrier to their movement?	The proposal would have some potential impacts to the Eastern Ground Parrot, Southern Brown Bandicoot, Eastern Pygmy Possum, Striated Fieldwren and Long Nose Potoroo through habitat disturbance, and unlikely impacts to the Gang-gang Cockatoo and South-eastern Glossy Black-Cockatoo. Tests of significance under the BC Act and the APBC Act were prepared for the proposal, refer to Appendix C in the E&BFRA report, Table 9 and Table 10 for the BC Act and Table 11 for the EPBC Act. The vegetation was assessed as containing "*… an array of associated terrestrial habitat features, including areas of dense groundcover, fallen trees or shrubs and other woody debris such as branches and leaf litter.*"

Environmental aspect	Existing environment, potential impact and recommended safeguards
	The E&BFRA report concluded that the work is unlikely to have a significant impact on any threatened species of fauna. Under the BC Act, possible impacts to the Eastern Ground Parrot, Southern Brown Bandicoot, and Eastern Pygmy Possum were identified and detailed in Appendix C, Section 13.1.3. The E&BFRA report noted: "*In relation to the threatened fauna species under consideration, including Pezoporus wallicus wallicus (Eastern Ground Parrot), Isoodon obesulus obesulus (Southern Brown Bandicoot), Cercartetus nanus (Eastern Pygmy-possum) and Potorous tridactylus (Long-nosed Potoroo), the heathland is identified as being important habitat.*" It was also noted that habitat resources at the study were reduced as a result of the 2019-2020 bush fire. As the habitat regenerates its suitability for fauna would also change, particularly for the Eastern Ground Parrot. The E&BFRA report stated: "*The main impacts to the threatened species under consideration are likely to be noise and the presence of people and machinery during the initial works and a reduction of heathland habitat that may be utilised for foraging. However, the amount of heathland proposed to be removed is relatively small in the context of the site's position in the landscape. Furthermore, the low heath that will be formed by provision of the APZ will remain available to these species for foraging as it will not be completely removed but instead, managed to keep it to a low height. The habitat that will be removed (i.e. vegetation that will be cleared entirely) is relatively small (approximately 134 m2) and is located at the margin of the existing cleared works site. Therefore, provided that the mitigation measures detailed in section 8 of this report are implemented and strictly adhered to, it is considered unlikely that the proposed development will have an adverse effect on the life cycle of these threatened species such that a viable local population of the species is likely to be placed at risk of extinction.*" Under the EPBC Act, possible impacts to the Southern Brown Bandicoot, Long-nosed Potoroo, Smokey Mouse, New Holland Mouse and Grey-headed Flying-fox were identified and detailed in Appendix C, Section 13.2.3. The E&BFRA report noted:

Environmental aspect	Existing environment, potential impact and recommended safeguards
	Signs of use by other small mammals such as the Southern Brown Bandicoot and the Smoky Mouse were not observed. However, the habitat within the study area is suitable for both these species and it is likely that it could be utilised by them for foraging, particularly with respect to the Southern Brown Bandicoot, given the significant population of the species locally and the large numbers of records of it in the surrounding landscape. The EPBC Act test of significance also found that: "*The main impact involves the removal of a relatively small quantity of vegetation associated with the surrounding heathland community from the proposed facility footprint and management of the vegetation to maintain it at a low height for provision of the APZ. With respect to the Long-nosed Potoroo and the New Holland Mouse, both species could utilise this low heathland habitat that will be formed by provision of the APZ. Once the works to install the new NSWTA facility are completed there will be no ongoing human presence associated with the facility apart from infrequent visits to undertake maintenance activities. Therefore, the action is unlikely to reduce the area of occupancy of a population.*" The E&BFRA report concluded that the proposal is unlikely to have a significant impact on a threatened fauna species listed under the EPBC Act, provided the mitigation measures are adopted. The safeguards specified in Section 6 would be implemented to manage the potential impacts identified in the E&BFRA report.
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 (Biodiversity and Conservation) 2021)*. • Urban bushland (SEPP 19) • Littoral rainforests and coastal wetlands (*State Environmental Planning Policy (Resilience and Hazards) 2021).*	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 under Chapter 2 of *State Environmental Planning Policy (Resilience and Hazards) 2021.* • Koala habitat under Chapter 4 of *State Environmental Planning Policy (Biodiversity and Conservation) 2021*.

Environmental aspect	Existing environment, potential impact and recommended safeguards
	In relation to koala habitat, the E&BFRA report noted: *"…given the unsuitability of the habitat within the development footprint and the adjacent heathland, the impacts on the koala associated with the proposal are considered to be negligible. Therefore, referral to DCCEEW is considered to be unnecessary in this instance* Accordingly, the proposal would not have a significant impact and referral to DCCEEW would not be required.
Is the proposal on land to which a Biosecurity Management Plan (in accordance with the *Biosecurity Act 2015*) applies? If so, detail any biosecurity measures that will apply to construction and operation, and identify appropriate mitigation measures that would be required. Also, update the safeguards to include these measures.	The proposal is not on land to which a Biosecurity Management Plan applies.
Is the proposal likely to introduce noxious weeds into an area? Would clearing of noxious or environmental weeds be required for construction and/or on-going maintenance of the site?	The proposal has the potential to introduce noxious weeds into the proposed facility location, the risk would be primarily associated with construction activity. The safeguards specified in Section 6 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. No further specialist input is considered necessary.

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 expected to have some visual and social impacts. Construction activities have potential to temporarily reduce amenity, though would be undertaken for a short duration. Construction works would be undertaken off Green Cape Lighthouse Road, with no impact to traffic or the local road network anticipated. The safeguards provided in Section 6 would be implemented prior to and during construction, particularly those relating to noise and emissions to further mitigate potential construction impacts. With the safeguard in place, it is expected that impacts to amenity would be manageable and temporary. The proposal is expected to have some visual impact on to users of Green Cape Lighthouse Road, with negligible impact on viewpoints in the surrounding area. A specialist VIA report has been prepared to inform this REF, with the stated aims to: • *identify the likely visual effects of the [proposal]* • *analyse the likely magnitude of change of those visual effects* • *assess the nature and significance (i.e. impact) of these visual effects, and* • *identify measures to avoid, reduce or compensate for those visual effects if considered necessary.* The impacts were summarised in the VIA as: *"From most publicly accessible areas, views of the Project would be screened by landform or vegetation. Views would not be possible from the following main visitor locations:* ▪ *Green Cape Lighthouse lookout* ▪ *Green Cape Maritime Precinct*

Environmental aspect	Existing environment, potential impact and recommended safeguards
	▪ *Pulpit Rock picnic area* ▪ *Bittangabee campground* ▪ *Bittangabee Bay to Green Cape Walking Track (part of the Light-to-Light walk)* ▪ *Disaster Bay lookout.*" And further: "*The Project would be visible, intermittently, from sections of Green Cape Lighthouse Road, only while travelling west (away from Green Cape Lighthouse). Views of the Project while travelling east (toward Green Cape Lighthouse), would be screened by road-side vegetation.*" It is noted that there would be some intermittent visual disturbance to people traveling north from Green Cape, with distance to the proposal location and the topography limiting the disturbance. The VIA also included mitigation measures to reduce visual impact, including those for material finishes being non-reflective. The VIA also identified mitigation measures such as screen planting that were discounted due to the location within heathland vegetation, that would not be in keeping with the predominant low-heathland vegetation. Key findings in the VIA were that the scenic coastline or other landscape features that Beowa National Park is known for would not be visible in the assessed viewpoints. The proposal would not be visible when travelling east towards the Green Cape Lighthouse and viewpoints when traveling west were assessed in the VIA as VP1 and VP2. The VIA concluded: "*Beowa National Park is a visually distinct, and highly valued landscape; however, the Project site is relatively discrete (being located away from tourist facilities/destinations) and is already disturbed. The Project would reduce scenic quality when viewed from close proximity on Green Cape Lighthouse Road (the view would be brief, while travelling west through the City Rock Road / Green Cape Lighthouse Road intersection).*" A copy of the report, including photomontages and detailed assessment, is enclosed in **Appendix F**.

Environmental aspect	Existing environment, potential impact and recommended safeguards
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?	An assessment of two viewpoints on Green Cape Lighthouse Road was undertaken in the VIA, VP1 at Green Cape Lighthouse Road approximately two kilometres east of the proposal location, and VP2 at the Green Cape Lighthouse Road and City Rock Road intersection, around 100m east of the proposal location. The assessment of visual sensitivity for both locations was moderate, and the assessed magnitude of change was low for VP1 and moderate for VP2. The VIA also concluded that the proposal would not be visible from high-value viewpoints, such as Green Cape Lighthouse. A copy of the report, including photomontages from these VPs and detailed assessment, is enclosed in **Appendix F**.
Would any new structures or features proposed to be constructed result in over shadowing to adjoining properties or areas?	No, the proposal 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)?	Beowa National Park is of social value to the community, with Green Cape Lighthouse being located approximately three kilometres to the east of the proposal location. Green Cape headland includes recreation and tourism opportunities, such as scenic walks, to explore the unique landscape features and coastal environment. Nearby attractions and places of value include Bittangabee Bay to Green Cape Walking Track (part of the Light to Light walk), Pulpit Rock picnic area, Disaster Bay lookout, Green Cape Lighthouse, and Bittangabee campground. The proposal is sited and designed to minimise direct impacts to places of social value, particularly with consideration of limiting impacts to the scenic values of Beowa National Park, including views towards and from Green Cape Lighthouse. The proposal would also have some potential impacts associated with views from Nadgee wilderness area, from Wonboyn and from ocean views. Distance of views to the proposal location from these areas is greater than the viewpoints assessed in the VIA, and it is noted that Nadgee wilderness area and ocean views are likely to be less intermittent.
If involving lighting, would the proposal create unwanted light spillage on residential properties at night (in construction or operation)?	No, the proposal does not include the installation of 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 proposal location is well separated from residential properties and other noise sensitive receivers.
Are the works likely to exceed noise criteria in the *Noise Policy for Industry* (EPA 2017) 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 2017) or Interim Construction Noise Guideline (DECC 2009).
Is there likely to be emissions to air (ie. odours, emissions from diesel generators or dust from the proposal or access to site) during construction and operation?	Yes, construction 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. During operation there would be some emissions associated with the generator for short periods. The generator use would be limited to periods of low solar power and to ensure the battery system is suitably charged.
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. There would be vibrations generated during construction associated with excavation, however, the proposal location is well separated from sensitive receivers.
Detail any other noise issues or air quality impacts from the proposal during construction and operation and consider if specialist input is required.	Use of drones would create minor noise impacts. Use would be limited to the areas directly associated with assets, infrequent and of short duration there would be minimal impact. 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 is not within 50m of a heritage item that would be subject to vibration impacts.

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 road 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, and no traffic impacts on the arterial road network are expected during construction and operation of the proposed facility. Access to the site is directly off Green Cape Lighthouse Road, an unsealed road through Beowa National Park. NSWTA would obtain a licence from NPWS for the proposal, including its access through Beowa National Park and would need to comply with the licence conditions.
Is the proposal likely to alter any access for properties or reserves (either temporarily or permanently)?	The proposal would use the existing route through Beowa National Park, being Green Cape Lighthouse Road. During the construction stage there is likely to be two to five construction vehicle movements per day, with no impacts to traffic. The disruption would be limited and the safeguards in Section 6 would be implemented in the event of any damage to the surfaces.
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.
Is an upgrade to the existing access track required?	No, the proposal does not require an upgrade to the existing access track.
Detail any other traffic and access issues or impacts from the proposal in construction and operation and whether specialist input is required?	The proposal would utilise the existing road network and access tracks and no specialist input is considered necessary.

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?	An assessment under the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (Due Diligence Code of Practice) has been undertaken. NSWTA prepared an Aboriginal Heritage Due Diligence Assessment (AHDDA) in accordance with the Due Diligence Code of Practice. THE AHDDA was prepared by a specialist archaeological consultant and included a visual inspection of the proposal local with a representative from Eden Local Aboriginal Land Council. A copy of the AHDDA is enclosed in **Appendix G**. Step 1: Will the activity disturb the ground surface or any culturally modified tree? The proposal would involve ground disturbance which was considered in the AHDDA. The proposal would involve the removal of two trees (Silvertop Ash) not identified to be culturally modified. *Step 2: Are there any:* *a) Relevant confirmed site records or other associated landscape feature information on AHIMS?* Database searches were completed as part of the AHDDA. Refer to Section 2.3.2 in the AHDDA. *b) Any other sources of information of which a person is already aware?* The AHDAA reviewed previous studies undertaken in the area, including the access track. Refer to Section 2.3.3 in the AHDDA.
Is the proposal within or would affect a high-risk landscape? Areas that have high archaeological potential are:	*Step 2 c)Landscape features that are likely to indicate presence of Aboriginal objects.*

Environmental aspect	Existing environment, potential impact and recommended safeguards
• 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 AHDDA did not indicate that the proposal location was in a high-risk landscape. Refer to Section 2.3.4 in the AHDDA.
Would the proposal involve the removal of mature native trees?	The proposal would involve the removal of two mature native tree (Silvertop Ash) not identified to be culturally modified. Section 2.3.6 in the AHDDA noted that no "… *suitable mature native vegetation for cultural modification was present.*"
If Aboriginal objects or landscape features are present, can impacts be avoided?	No Aboriginal objects have been identified, with details provided in Section 2.3.6 of the AHDDA. The proposal location was assessed to be modified: "*The visual inspection identified that the study area is largely located within a disturbed landform as it is largely within a NPWS laydown area where materials have been, and are currently, stored … The study area has been previously cleared with a large exposure present within the laydown area. High ground surface exposure (GSE) is present with the exposure showing a large quantity of imported stone. At the periphery of the laydown area are now-vegetated windrows of soil indicating that the laydown area was mechanically levelled when it was formed.* *Regrowth vegetation and grasses are present adjacent to the boundary of the study area at the location of the proposed APZ with lower GSE in these vegetated areas … No suitable mature native vegetation for cultural modification was present. No Aboriginal sites or objects were identified, and the study area is considered to have a low archaeological potential.*"
Does the proposal require further Aboriginal due diligence assessment?	No, further Aboriginal due diligence assessment is not required. The recommendations in the AHDDA report have been adopted as safeguards and specified in Section 6.

Environmental aspect	Existing environment, potential impact and recommended safeguards
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 proposal location is not within the curtilage of a World, Commonwealth, State or local heritage item or heritage conservation area.
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 storage and disposal i.e. licenced waste disposal facilities and any safeguards for waste management?	Waste would be managed in accordance with the *Protection of the Environment (Waste) Regulation 2014*. The waste generated from the proposal would be minimal and would include: • General solid waste (non-putrescible) such as excess cabling • General solid waste (putrescible) such as excess packaging The waste material that cannot be reused on other CCEP proposals would be disposed of appropriately to a licensed waste management facility in accordance with the requirements of 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?	During construction there would be portable amenities utilised at the proposal location, and all toilet waste would be removed from site.

4.10 Electromagnetic energy

Table 17 confirms compliance of the proposal with the Radiation Frequency 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 proposal is 0.03% out of 100% of the public exposure limit, 33m from the proposal location. Please refer to the Environmental EME Report enclosed in **Appendix B**.

4.11 Aerodromes and aviation

Table 18 Aerodromes and aviation confirms impacts to aerodromes from the proposal and recommends suitable mitigation measures.

Table 18 Aerodromes and aviation

Environmental aspect	Existing environment, potential impact and recommended safeguards
Would the proposal (including construction – cranes etc.) exceed 100m or more above ground level and/or affect the obstacle limitation surface (OLS) of an aerodrome as defined in Part 139 of *Civil Aviation Safety Regulations 1998* (CASR)?	The proposal would not exceed 100m or more above ground level and would not protrude the OLS of an aerodrome defined in Part 139 of CASR.
Would the proposal result in a permanent structure of 40m or more above ground level?	Yes, the proposal would result in a permanent structure of 40m or more above ground level, with an overall height of 45.7m (monopole height of 40.0m and a 5.7m dipole array antenna mounted at a base elevation of 40.0m). Notification forms would be issued in accordance with the safeguards in Section 6 (refer to **Appendix I**), including to Airservices Australia in accordance with Section 2.2.3 of the Civil Aviation and Safety Authority (CASA) Advisory Circular AC 139.E-01 v1.0 Reporting of Tall Structures, December 2021, after the proposal is constructed.

4.12 Cumulative impact

Table 19 assesses the potential cumulative impact from the proposal and suitable mitigation measures.

Table 19 Cumulative impact

Environmental aspect	Existing environment, potential impact and recommended safeguards
Are there any major developments (for example wind farms) which are anticipated to impact the proposal? (Refer to major developments registered with DPE)	There are no major developments which are anticipated to impact the proposal.
Describe any potential cumulative environmental impacts from the proposal associated with other existing and likely future developments (ie. emissions, traffic, access, 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 2021 checklist

In accordance with the requirements of the *Guidelines for Division 5.1 Assessments* (DPE 2022) Table 20 summarises the factors listed under clause 171 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation).These factors have been assessed in this REF; the assessment outcome for each factor is summarised in Table 20.

Table 20 Environmental Planning and Assessment Regulation 2021 checklist

Environmental Factor
Any environmental impact on a community? Nil to minor.
Any transformation of a locality? Nil to minor.
Any environmental impact on the ecosystems of a locality? Nil to minor.
Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? Reduction of the aesthetic values associated with the proposal are detailed in Section 4.5 and the VIA. The reduction is limited to Green Cape Lighthouse Road and would not extend to the broader Beowa National Park.
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? Beowa National Park, with its scenic landscape value and historic headland, have aesthetic, anthropological, archaeological, cultural, historical, scientific, and social significance for present and future generations. The proposal and its impacts are detailed in Section 4. The effect of the proposal on the significance of the identified places of value is limited to the impacts identified in the VIA and this REF.
Any impact on habitat of any protected fauna (within the meaning of the *Biodiversity Conservation Act 2016)*? The impacts of the proposal on any threatened species, threatened populations, ecological communities, critical habitat, or migratory species are detailed in Section 4. Significance tests under the BC Act are provided in Appendix C in the E&BFRA report enclosed in **Appendix E**.
Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? Nil to minor.
Any long-term effects on the environment? Nil to minor.
Any degradation of the quality of the environment?

Environmental Factor
Nil to minor.
Any risk to the safety of the environment? Nil to minor with the implementation of Section 6 safeguards.
Any reduction in the range of beneficial uses of the environment? Nil to minor.
Any pollution of the environment? Nil to minor.
Any environmental problems associated with the disposal of waste? Nil to minor.
Any increased demands on resources, natural or otherwise which are, or are likely to become, in short supply? Nil to minor.
Any cumulative environmental effect with other existing or likely future activities? Nil to minor.
Any impact on coastal processes and coastal hazards, including those under projected climate change conditions? Nil to minor.
Applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1? (Note: The CCEP is a NSW State Government *Operational Communications Strategy* (OCS). Not applicable.

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 21, are used to assist in determining whether a proposal should be referred to the Commonwealth Government Department of Energy and Environment.

Table 21 Matters of National Environmental Significance checklist

Factor	Impact
a) Any impact on a World Heritage property?	Not applicable
b) Any impact on a National Heritage place?	Nil to minor
c) Any impact on a Ramsar wetland of international importance?	Not applicable
d) Any impact on a listed threatened species and ecological communities?	Nil to minor
e) Any impacts on listed migratory species protected under international agreements?	Nil to minor
f) Any impact on a Commonwealth marine area?	Not applicable
g) Any impact on the Great Barrier Reef Marine Park?	Not applicable
h) Any impact on the environment due to a nuclear action?	Not applicable
i) Any impact on a water resource, in relation to coal seam gas development and large coal mining development	Not applicable

6. Summary of Safeguards and Environmental Management Measures

The safeguards identified in Table 22 will be implemented to reduce potential environmental impacts throughout construction and operation.

Table 22 Summary of safeguards for the proposal

Aspect	Safeguard
General	1. The Construction Contractor will attend a pre-start meeting with National Parks and Wildlife Service (NPWS) at least seven days prior to construction commencing. 2. All licence, approval, working hours and notification requirements identified in this REF, including considerations from the NPWS pre-start meeting, are to be documented in the Site Environmental Plan (SEP) and submitted to NSW Telco Authority (NSWTA) for endorsement. 3. Prior to commencement, all staff and contractors will be briefed on the environmental management requirements of the site as part of the site induction. The site induction is to specify that no work is to occur beyond the marked area. 4. NSWTA Project Manager will be notified immediately of any complaints relating to management of environmental issues, including occurrence of any environmental incidents, spills and near misses. All environmental incidents will be recorded in SafetyCulture. 5. In the event of any environmental incident that can cause material harm to the environment, the Construction Contractor must also notify the Environment Protection Authority (EPA) environment line on 131 555 immediately. The incident will be recorded in SafetyCulture as soon as practicable. NSWTA will contact NPWS and may require further information about the incident and/or provide instructions to the Construction Contractor from NPWS. 6. Serious and catastrophic incidents will be reported to the NSWTA Project Manager immediately. 7. Building materials and equipment must be stored wholly within the designated temporary works area unless an approval to store them elsewhere is held. 8. When a temporary generator is brought to site, the generator will be located within a temporary fenced area. The generator will include a dual wall bunded fuel tank. 9. A pre-start inspection of the generator will be conducted each day when in use. If a generator requires servicing, a drip tray or suitable bunding should be used to contain potential spills. Spills will be cleaned up using a spill kit. 10. A compliant spill kit and dry chemical fire extinguisher will be present during operation. The spill kit will be stored in an appropriate location that is quickly and easily accessible from all areas of the work site. Any spills will be contained, and material collected and disposed of at a licensed facility by a licensed contractor when necessary. Disposal records will be kept by the Construction Contractor and provided to NSWTA.
Pre-construction	11. At the NPWS pre-start meeting (at least seven days prior to construction commencing) the Construction Contractor will discuss with NPWS: • Whether any excess soil can be relocated on the land (relocated and/or distributed and spread evenly over an agreed part of the land). If the soil cannot be relocated on the land it must be removed to a licensed facility. Disposal records will be kept by the Construction Contractor.

Aspect	Safeguard
	• Clearing of the vegetation within the asset protection zone (APZ) and the placement of the vegetation at a suitable location outside the APZ. Vegetation to be removed includes two 8m mature trees, regrowth vegetation and ground cover. If the vegetation cannot be relocated on the land it must be removed to a licensed facility. Disposal records will be kept by the Construction Contractor.
Soil and landforms	12. All excavation works will be carried out in accordance with *Managing Urban Stormwater: Soils and Construction, Volume 1* (Landcom 2006) (the Blue Book) and Managing Urban Stormwater: Soils and Construction (Volume 2C). 13. All stockpiles will be managed in accordance with the Blue Book (Diagram SD 4-1): • If topsoil is being stockpiled for re-use, it is to be no more than 2m in height. • Stockpiles will be placed more than 2m from vegetation. • Sediment controls will be established 1m-2m downslope of each stockpile. • Where stockpiles are to be in situ for more than 10 days or in anticipation of inclement weather (i.e., strong winds and/or rain), they will be stabilised or covered (e.g., tarpaulin, geofabric or builders' plastic). 14. Sediment fencing will be positioned parallel to the contours of the area of ground disturbance. A 150mm deep trench along the upslope line of the sediment fence will be cut for the installation of the geotextile fabric. The trench will be backfilled over the base of the fabric and compacted. Star pickets will be installed at 2.5m intervals at the downslope of the geotextile fabric to stabilise the sediment fence. Refer to the Blue Book (Diagram SD 6-8) for further details. 15. No concrete washouts will be discharged directly onsite. The aim of the concrete washout area is to securely capture concrete wastewater and solids. This can be achieved via a number of methods including collecting and retaining material in leak proof containers, concrete washout bags, a portable tray, berm trap, chute system or impervious plastic sheeting in a bunded area. The captured material will be disposed at a licensed facility.
Storage of Fuels and Chemicals	16. 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. 17. 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*.
Waterways and water quality	18. A designated and bunded refuelling area with a drip tray will be maintained on site to capture any spills. 19. A pre-work checks of all machinery (for oil leaks or worn/damaged hydraulic hoses etc) will be carried out to determine any worn or damaged parts on machinery. Drip trays should be placed under heavy vehicles when stationery. All damaged and worn parts are to be replaced before machinery is operational on site. No vehicles, equipment or plant are to be washed on site.
Noise and vibration	20. Work must be carried out between during the following work hours: • Monday to Friday: 7am to 6pm. • Saturday: 8am to 1pm. 21. 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 Construction Contractor would seek authorisation from NPWS to carry out the works outside standard working hours.

Aspect	Safeguard
Air quality	22. All work areas (including access roads and tracks) and stockpiles will be monitored for dust generation, particularly during hot, dry or windy weather. 23. The Construction Contractor will check the Bureau of Meteorology (BOM) forecast for wind speed and direction and update the work method for the day. 24. In the event of excessive dust generation, appropriate dust suppression measures will be implemented (e.g., watering, covering exposed areas/stockpiles with tarpaulins or geotextile fabric). During extremes of wind speed and temperature, work practices will be modified or ceased to reduce excessive dust. This will apply to vehicle and/or plant, and/or equipment operations. 25. All work vehicles/machinery will be maintained in good working order and in accordance with relevant standards.
Traffic and access	26. Access to the work sites will be via existing access routes only and in accordance with the Site Access Protocol. 27. Access through Beowa National Park must be undertaken in accordance with the conditions in NSWTA's licence with NPWS. 28. The Construction Contractor will conduct a pre-start condition assessment of the access track, inclusive of photos and description for each photo, to capture sections of existing damage, fallen objects, crossings, intersections, water flow lines, stormwater pipes, creeks, structures, and locations of risk. The Construction Contractor will retain a copy of this assessment. 29. In the event of inclement weather, the access track will be re-assessed to ensure no damage is caused by the Construction Contractors activities. It is recommended the Construction Contractor discuss the condition of the access track with the NPWS Area Manager prior to accessing the site following wet weather. If any damage occurs to the tracks or roads this will be repaired at the Construction Contractors expense.
Aboriginal and Non-Aboriginal Heritage	30. If, during the activity: o any Aboriginal objects or Aboriginal remains defined under the NPW Act are uncovered or discovered; and/or o any relics defined under the *Heritage Act 1977* are uncovered or discovered, the Construction Contractor must: o Cease work immediately. o Protect and not further harm these objects or remains. o Secure the area and restrict access to avoid further harm to the objects or remains. o Notify NSWTA immediately via phone, NPWS Environment Line (131 555), NPWS Merimbula office (02 6495 5000) and NPWS Ranger [redacted], (and the local police only if the findings are human remains) as soon as practicable and at that time provide any available details about the nature and location of the objects or remains. If the project is under the jurisdiction of National Parks, then they should also be notified. o Recommence the activity only after receiving confirmation in writing from Heritage NSW (and the local police if the findings are human remains) that it is appropriate to do so, in consultation with NSWTA.
Biodiversity	The following safeguards will be included in the Construction Contractor's SEP: Protection of Flora 31. The extent of the works footprint is to be clearly marked (e.g., via pegging/fencing/flagging) before commencement of work in order to prevent any inadvertent harm to the adjacent vegetation and habitat. This fencing/marking is to remain until all work is completed.

Aspect	Safeguard
	32. The extent of the proposed works is to be confined to the defined works footprint as indicated in the overall site plan and site setout plan (Sheet No. GRN-GREC-DWG-INF-STE-04/05). No work is permitted outside this area without further assessment, and no vegetation or habitat located outside the defined works footprint shall be disturbed or removed. Only trees and vegetation identified in GRN-GREC-DWG-INF-STE-04/05 may be removed. 33. The Construction Contractor's site induction is to specify that no work is to occur beyond the marked area. All materials and equipment shall be placed in designated areas. 34. Maintenance shall be undertaken regularly to ensure fuel loads are kept low and to help minimise recolonisation of the site by weeds and other undesirable plant species. 35. If any threatened flora species are discovered during the works, all work will stop immediately, and the Construction Contractor will inform the NSWTA Environmental Manager. The Construction Contractor will notify NSWTA, protect the flora as appropriate (e.g., warning tape) and an assessment of appropriate measures will be carried out. Protection of Fauna 36. The Construction Contractor must arrange for the NPWS ranger to be present for a pre-clearing survey. Contact NPWS Merimbula office (02 6495 5000) or NPWS Ranger [redacted]. 37. In the event of any fauna injury, the Construction Contractor must Contact NPWS Merimbula office (02 6495 5000) or NPWS Ranger [redacted] and WIRES (1300 094 737). 38. Immediately prior to commencement of any work involving machinery, the area is to be inspected for fauna. If fauna is detected, the animal is to be allowed to leave the site without any coercion or a suitably qualified/experienced person is to be contacted to facilitate the safe removal of the animal from the worksite. 39. The Eastern Ground Parrot has been surveyed to have potential for nests to be in surrounding vegetation and the pre-clearing inspection must consider the potential occurrence of the species in the work area. 40. A record of displaced, injured or deceased fauna will be kept by the Construction Contractor. Fencing 41. Temporary fencing may be required during the work. Any fencing required should be fauna friendly, permeable and not pose a barrier or risk of entanglement to fauna (e.g., post and plain wire). Weeds 42. All clothing, hats, footwear, tools, equipment, machinery and vehicles will be checked to remove weed seeds, mud, soil and organic matter before entering and exiting the site. 43. Vehicles will be thoroughly cleaned inside and out between site visits. No vehicles will be washed on site. 44. Disturbance of vegetation and soil on the site should be restricted to the immediate areas of the proposed work and should not extend into adjacent native vegetation. 45. Any new weed infestations that have developed during the work are to be removed. 46. Weed management shall be undertaken during routine maintenance of the APZ to ensure recolonisation of the site by weeds and other undesirable plant species is controlled appropriately.

Aspect	Safeguard
Waste	47. All wastes are required to be classified in accordance with the *Waste Classification Guidelines* (EPA, 2014) and transported to a licensed facility. Waste records will be maintained, and copies provided to NSWTA. 48. If identified on site, all hazardous or contaminated wastes will be stored, removed, and disposed of in accordance with the statutory requirements, 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, and copies provided to NSWTA. 49. The work site will be left clear of waste and debris at the completion of works and restored, as far as possible, to the original condition.
Bushfire	50. The Construction Contractor will review bush fire area conditions each day prior to accessing the site via the Bush Fire Information Line - 1800 NSW RFS (1800 679 737) and the NSW RFS Fires Near Me website (https://www.rfs.nsw.gov.au/fire-information/fires-near-me). If the fire danger rating in the area is severe or above, further advice will be sought from RFS and/or NPWS prior to any works being undertaken. 51. Hot works where plant, equipment and/or machinery may cause sparking or ignition, a risk assessment will be completed, controls and management strategies will be implemented. Proposed work methods will be updated or changed to ensure controls and ignition risk mitigation is implemented. During periods where one or more of the following occur; accelerated wind conditions, high temperatures, low humidity and/or during total fire bans, plant, equipment, or machinery are not operated. APZ implementation and management by NSWTA 52. At the commencement of construction works, the land around the proposed infrastructure (as shown in Sheet GRN-GREC-DWG-INF-STE-04) shall be managed as an APZ as outlined in Appendix 4 of the document *Planning for Bushfire Protection 2019* with the following variations: • As a minimum, annually maintain vegetation to as low as reasonably practical in height at the start of the fire season (e.g., September). • Minimise accumulation of leaves and other debris annually. 53. The APZ with a width of 10 metres (measured from the applicable infrastructure in each direction) shall be provided around the proposed NSWTA facility as indicated in Sheet GRN-GREC-DWG-INF-STE-04.
Visual and social	54. If a member of the public or media has any enquiries the Construction Contractor will: • Issue a Flashcard. • Log the enquiry into SafetyCulture. • Notify the NSWTA Delivery Project Management Team. 55. The Construction Contractor will not discuss the specific construction works or CCEP with the public or media. 56. If any accidental damage to property occurs as a result of work activities, either within or outside the boundaries of the work site, the Construction Contractor will notify NSWTA Project Manager immediately. 57. Any damage to property incurred by the works must be repaired at the Construction Contractor's expense and in consultation with NPWS and NSWTA Project Manager. 58. Construction Contractors will maintain the site in a tidy appearance and no rubbish will be left on-site.
Additional stakeholders	59. The Construction Contractor will notify Bega Valley Shire Council of the proposed construction seven days prior to construction commencing.

Aspect	Safeguard
Vertical Obstacle Data Form	60. Following construction of the tower, NSWTA will issue a Vertical Obstacle Data Form to Airservices Australia. A copy of the form is enclosed in **Appendix H**.

7. Conclusion

The main environmental risks of the proposal are associated with clearing of vegetation and associated ecological impacts to flora and fauna. A specialist ecological assessment was carried out to identify potential impacts to flora and fauna associated with the proposal and documented in an Ecological and Bushfire Risk Assessment (E&BFRA) report. The findings of the E&BFRA report, including the potential ecological impacts, were considered, and informed the design of the proposal to minimise potential ecological impacts. The E&BFRA report also included recommendations to protect flora and fauna during construction and ongoing operation of the proposal.

Visual impact associated with the proposal was assessed in a Visual Impact Assessment (VIA) report which suggested that the overall impact to both landscape character and views would be low to moderate. Beowa National Park is a valued landscape, with the proposal location being previously disturbed and reasonably separated from places of value. The proposal would reduce scenic quality when viewed from close proximity though would not significantly reduce the scenic quality of the broader Green Cape headland.

In addition, Aboriginal heritage was assessed under the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (Due Diligence Code of Practice) and documented in an Aboriginal Heritage Due Diligence Assessment (AHDDA) report, to determine whether the proposal would impact any Aboriginal objects or places. With the implementation of measures in the AHDDA the proposal is unlikely to impact Aboriginal heritage and an unexpected finds procedure would be followed should any objects be discovered during construction of the proposal.

Safeguards identified in Section 6 of this REF would be included in the Site Environmental Plan and implemented to manage any potential environmental risks associated with the proposal.

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 SEP.

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. Department of Planning and Environment (DPE)*, Guidelines for Division 5.1 Assessments* (February 2022)
5. Landcom (2004) *Managing Urban Stormwater – Soils and Construction* 4th Edition. (Blue Book) DECCW (2010), Department of Environment, Climate Change and Water, Sydney.
6. (2022) *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
AHIMS	Australian Heritage Information Management System
BC Act	*Biodiversity Conservation Act 2016*
BA Act	*Biosecurity Act 2015*
CCEP	Critical Communications Enhancement Program
CLM Act	*Crown Land Management Act 2016*
Crown Lands	NSW Department of Planning and Environment – Crown Lands' (Crown Lands)
Cth	Commonwealth
DPIE	Department of Planning 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 2021 (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
PSN	Public Safety Network (formerly referred to as Government Radio Network (GRN))
Heritage Act	*Heritage Act 1977* (NSW)
TISEPP	*State Environmental Planning Policy (Transport and Infrastructure) 2021*
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
NSWTA	NSW Telco Authority
OCS	Operational Communications Strategy
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 – Proposal Drawings

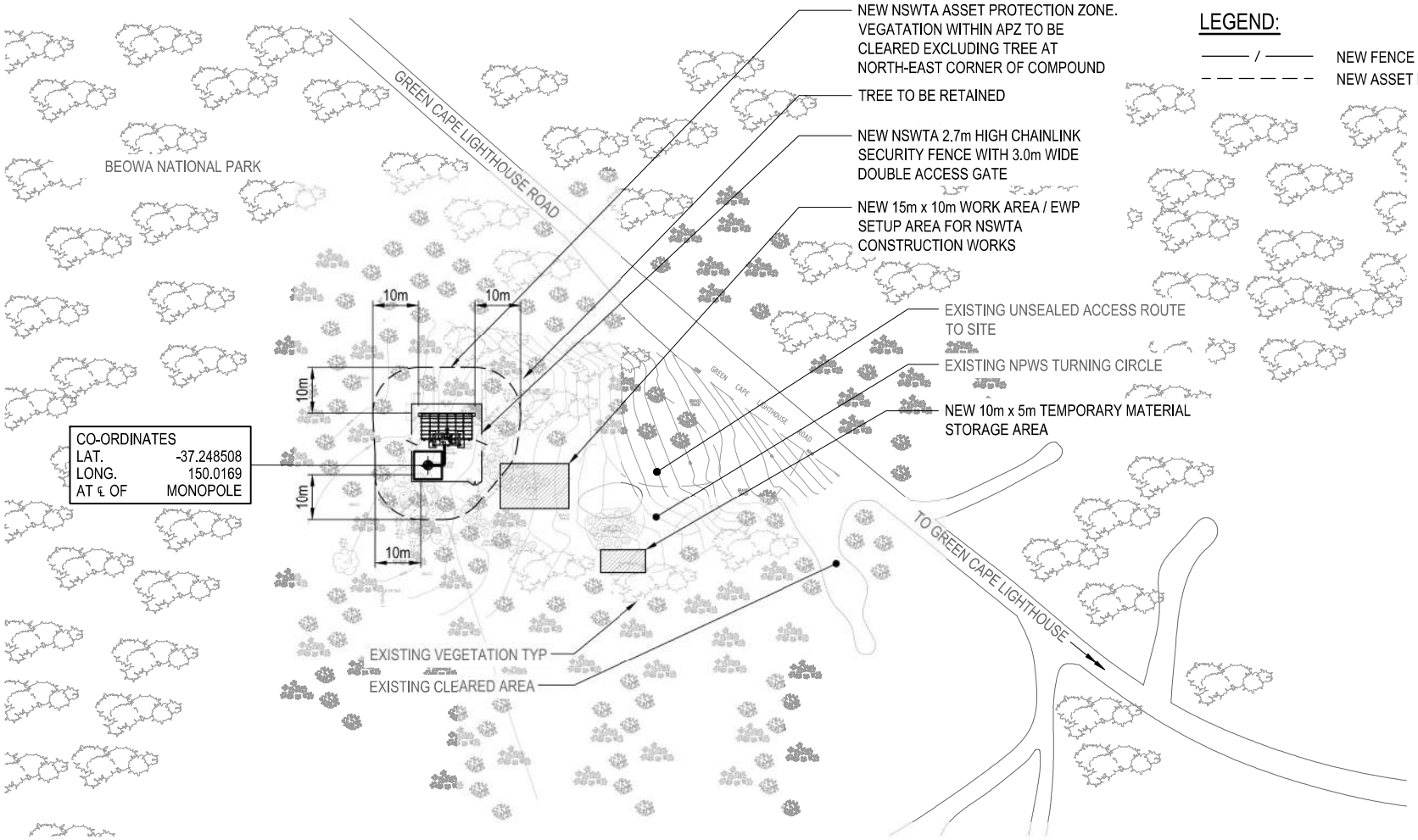
NOTES:

1. ALL EXISTING U/G SERVICES SHOWN INDICATIVE ONLY.
2. CHECK DBYD FOR U/G SERVICES.
3. VEGETATION TO BE REMOVED IN ACCORDANCE WITH THE SAFEGUARDS IN THE REVIEW OF ENVIRONMENTAL FACTORS.

LEGEND:

——— / ——— NEW FENCE LINE

– – – – – – NEW ASSET PROTECTION ZONE



OVERALL SITE PLAN

SCALE 1:1000

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
02	18.01.24	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
01	27.11.23	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
B	05.06.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc
A	12.05.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc

Department Logo: NSW GOVERNMENT Telco Authority

GREEN CAPE
10022334

GREEN CAPE LIGHTHOUSE ROAD
BEOWA NATIONAL PARK
GREEN CAPE, NSW 2551

catalyst managers.advisors

Drawing Title: OVERALL SITE PLAN

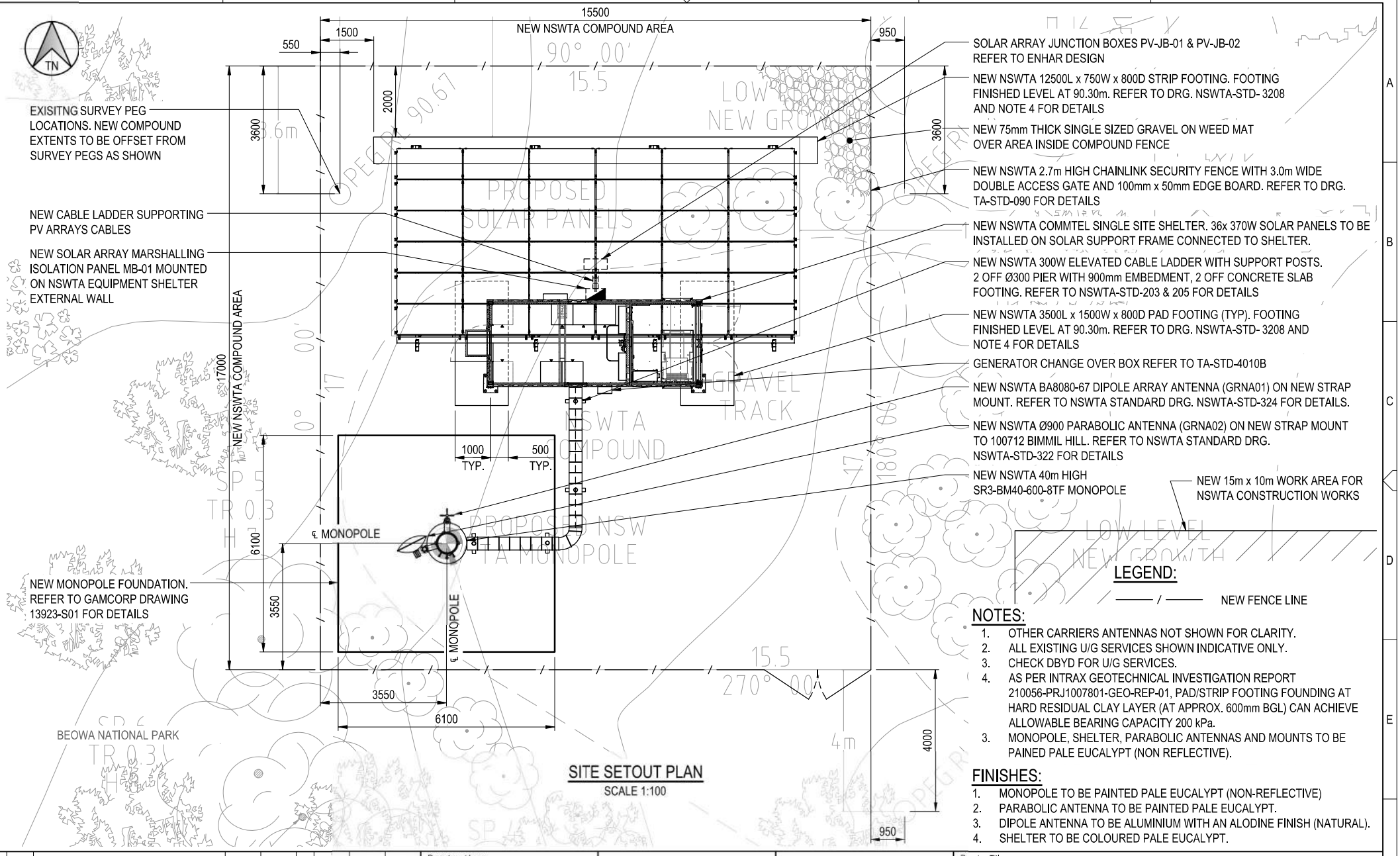
Drawing Status: FOR CONSTRUCTION

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

Revision 02

A3 Original Size

0mm 50mm 100mm



SITE SETOUT PLAN

SCALE 1:100

LEGEND:

——— / ——— NEW FENCE LINE

NOTES:

1. OTHER CARRIERS ANTENNAS NOT SHOWN FOR CLARITY.
2. ALL EXISTING U/G SERVICES SHOWN INDICATIVE ONLY.
3. CHECK DBYD FOR U/G SERVICES.
4. AS PER INTRAX GEOTECHNICAL INVESTIGATION REPORT 210056-PRJ1007801-GEO-REP-01, PAD/STRIP FOOTING FOUNDING AT HARD RESIDUAL CLAY LAYER (AT APPROX. 600mm BGL) CAN ACHIEVE ALLOWABLE BEARING CAPACITY 200 kPa.
3. MONOPOLE, SHELTER, PARABOLIC ANTENNAS AND MOUNTS TO BE PAINED PALE EUCALYPT (NON REFLECTIVE).

FINISHES:

1. MONOPOLE TO BE PAINTED PALE EUCALYPT (NON-REFLECTIVE)
2. PARABOLIC ANTENNA TO BE PAINTED PALE EUCALYPT.
3. DIPOLE ANTENNA TO BE ALUMINIUM WITH AN ALODINE FINISH (NATURAL).
4. SHELTER TO BE COLOURED PALE EUCALYPT.

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
02	18.01.24	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
01	27.11.23	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
B	05.06.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc
A	12.05.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc

Department Logo: NSW GOVERNMENT Telco Authority

GREEN CAPE
10022334

GREEN CAPE LIGHTHOUSE ROAD
BEOWA NATIONAL PARK
GREEN CAPE, NSW 2551

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Drawing Title: SITE SETOUT PLAN

Drawing Status: FOR CONSTRUCTION

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

Revision 02

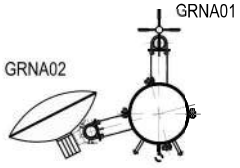
A3 Original Size

0mm 50mm 100mm

NSWTA ANTENNA CONFIGURATION

NSWTA ANTENNA NO.	OTHER ID (AS REQUIRED)	ANTENNA TYPE	ANTENNA HEIGHT AGL (m)	BEARING TRUE (°TN)	ANTENNA SIZE (mm) (H x W x D) OR (H x Ø)	ANTENNA TILT (°)	ANTENNA OWNER	ANTENNA ACTION REQUIRED	FEEDER SIZE & TYPE	FEEDER ACTION REQUIRED	FEEDER QTY	DESCRIPTION	NSWTA FEEDER NUMBER	FEEDER LENGTH (m)
GRNA01	-	BA8080-67 DIPOLE ARRAY	40.0	0	5700 x 380	0	NSWTA	NEW	AVA6-50	NEW	1	UHF (UPPER RX)	GRN001	55
									AVA6-50	NEW	1	UHF (LOWER TX)	GRN002	55
GRNA02	-	VHLP3-6 PARABOLIC	39	332.99	900	0	NSWTA	NEW	LDF4-50	NEW	1	MAIN	GRN011	55
									LDF4-50	NEW	1	BACKUP	GRN013	55

DIPOLE ARRAY AND COLLINEAR ANTENNA ELEVATION IS PROVIDED AT BASE OF ANTENNA
PARABOLIC AND YAGI ANTENNA ELEVATION IS PROVIDED AT CENTRELINE OF ANTENNA
LTE ANTENNA ELEVATION IS PROVIDED AT BASE OF ANTENNA



EL 39.0 - 40.0m

ANTENNA PLAN CONFIGURATION
SCALE 1:50

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
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01	27.11.23	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
B	05.06.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc
A	12.05.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc

Department Logo: NSW GOVERNMENT Telco Authority

GREEN CAPE
10022334

GREEN CAPE LIGHTHOUSE ROAD
BEOWA NATIONAL PARK
GREEN CAPE, NSW 2551

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Drawing Title:
ANTENNA TABLE AND
ANTENNA PLAN CONFIGURATION

Drawing Status: FOR CONSTRUCTION

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

Revision 02

A3 Original Size
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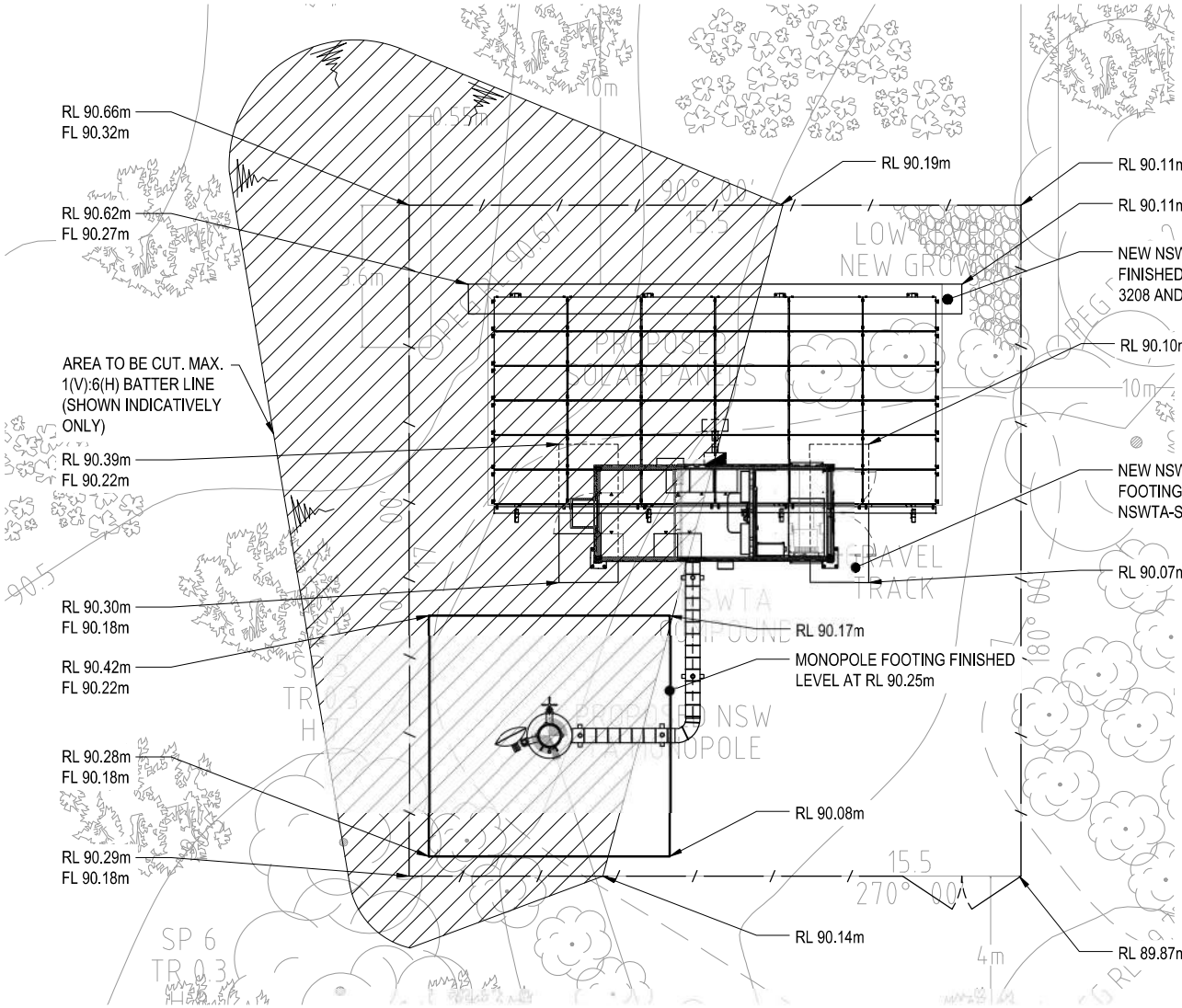

SITE SETOUT PLAN

SCALE 1:125

LEGEND:

FL XXXX.XX	NEW FINISHED GROUND LEVEL
RL XXXX.XX	EXISTING GROUND LEVEL
H ~ L	BATTER DIRECTION
	CUT AREA

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
02	18.01.24	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
01	27.11.23	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc

Department Logo: NSW GOVERNMENT Telco Authority

GREEN CAPE
10022334

GREEN CAPE LIGHTHOUSE ROAD
BEOWA NATIONAL PARK
GREEN CAPE, NSW 2551

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Drawing Title: CUT AND FILL PLAN

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-GREC-DWG-INF-STE-07

Revision 02

A3 Original Size

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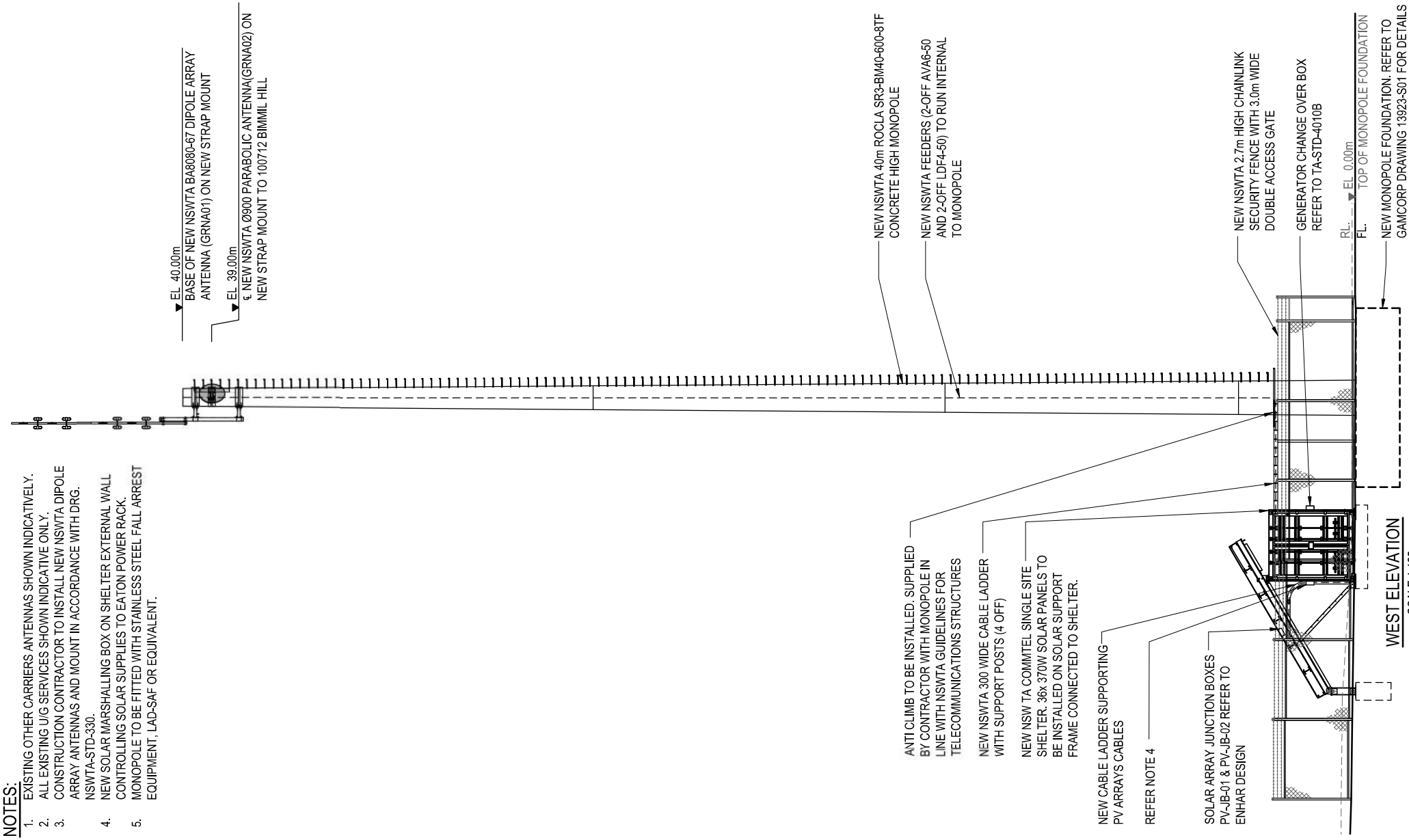


WEST ELEVATION
SCALE 1:125

NOTES:

1. EXISTING OTHER CARRIERS ANTENNAS SHOWN INDICATIVELY.
2. ALL EXISTING U/G SERVICES SHOWN INDICATIVE ONLY.
3. CONSTRUCTION CONTRACTOR TO INSTALL NEW NSWTA DIPOLE ARRAY ANTENNAS AND MOUNT IN ACCORDANCE WITH DRG. NSWTA-STD-330.
4. NEW SOLAR MARSHALLING BOX ON SHELTER EXTERNAL WALL CONTROLLING SOLAR SUPPLIES TO EATON POWER RACK.
5. MONOPOLE TO BE FITTED WITH STAINLESS STEEL FALL ARREST EQUIPMENT, LAD-SAF OR EQUIVALENT.

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
02	18.01.24	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
01	27.11.23	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
B	05.06.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc
A	12.05.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc

Department Logo: NSW GOVERNMENT Telco Authority

GREEN CAPE
10022334

GREEN CAPE LIGHTHOUSE ROAD
BEOWA NATIONAL PARK
GREEN CAPE, NSW 2551

catalyst managers.advisors

Drawing Title:
SITE ELEVATION

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-GREC-DWG-INF-TWR-01

Revision 02

A3 Original Size
0mm 50mm 100mm

Appendix B – Environmental EME Report

Environmental EME Report

Location	GREEN CAPE LIGHTHOUSE ROAD, BEOWA NATIONAL PARK, Green Cape NSW 2551		
Date	05/12/2023	**RFNSA No.**	2551013

How does this report work?

This report provides a summary of levels of radiofrequency (RF) electromagnetic energy (EME) around the wireless base station at GREEN CAPE LIGHTHOUSE ROAD, BEOWA NATIONAL PARK, Green Cape NSW 2551. 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.

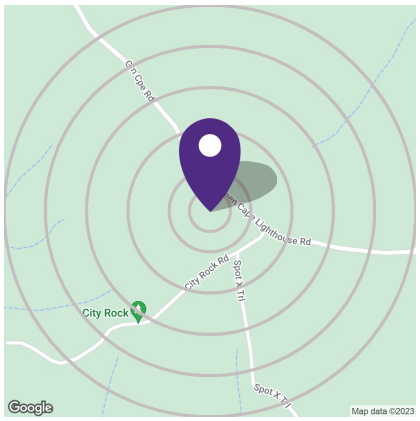
A snapshot of calculated EME levels at this site

There are currently no existing radio systems for this site.

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

0.03%

out of 100% of the public exposure limit, 33 m from the location.



EME levels with the proposed changes

Distance from the site	Percentage of the public exposure limit
0-50 m	0.03%
50-100 m	0.03%
100-200 m	0.02%
200-300 m	0.02%
300-400 m	0.02%
400-500 m	0.01%

For additional information please refer to the EME ARPANSA Report annexure for this site which can be found at *http://www.rfnsa.com.au/2551013*.

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 Government - Telco Authority				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 360º circular bands.

	Existing configuration			Proposed configuration		
Distance from the site	Electric field (V/m)	Power density (mW/m^2)	Percentage of the public exposure limit	Electric field (V/m)	Power density (mW/m^2)	Percentage of the public exposure limit
0-50m				0.51	0.68	0.03%
50-100m				0.49	0.65	0.03%
100-200m				0.40	0.43	0.02%
200-300m				0.44	0.52	0.02%
300-400m				0.40	0.42	0.02%
400-500m				0.34	0.31	0.01%

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 C564:2020 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/m^2)	Percentage of the public exposure limit
No locations identified				

Appendix C – TISEPP Council

Our Ref: Green Cape

30 November 2023

Mr Anthony McMahon
Chief Executive Officer
Bega Valley Shire Council
By Email: council@begavalley.nsw.gov.au

Dear Mr McMahon,

***State Environmental Planning Policy (Transport and Infrastructure) 2021* Notification**

NSW Telco Authority (NSWTA) proposed radio communications site at Green Cape Lighthouse Road, Beowa National Park, Green Cape NSW 2551

NSWTA is proposing to establish a new radio communications site at Green Cape Lighthouse Road, Beowa National Park, Green Cape (the proposal). Key features of the proposal include:

- Installation of a 40.0m monopole, to accommodate:
    - One dipole antenna array (5.7m vertical length) mounted at a height of 40.0m (providing an overall height of 45.7m).
    - One parabolic antenna (0.9m diameter), mounted at a height of 39.0m.
- Installation of an equipment shelter (6.0m x 2.5m), inclusive of a 2000 litre bunded fuel tank.
- Installation of a 36-panel photovoltaic array, on a steel frame above the equipment shelter.
- Installation of a 2.7m high chain link security fence establishing a 15.5m x 17.0m compound with 3m wide double access gates.
- Clearing of vegetation associated with an asset protection zone around the infrastructure, a minimum of 10m in all directions.
- Construction activities would include:
    - A temporary generator to provide a temporary power supply.
    - Heavy vehicle traffic on the existing access tracks.

An aerial image showing the proposal location is provided in **Attachment A**, and a set of drawings of the proposal which includes the site location, proposed site layout and details of the tower and its ancillary facilities, including access off Green Cape Lighthouse Road, is provided in **Attachment B**.

The purpose of this letter is to formally notify Council of the proposal in accordance with Division 21 Clause 2.141(2) of *State Environmental Planning Policy (Transport and Infrastructure) 2021* (TISEPP).

The proposal is development permitted without consent in accordance with Division 21, Clause 2.141(1) of TISEPP which states "*Development for the purposes of telecommunications facilities (including radio facilities) may be carried out by a public authority without consent on any land*".

An assessment of the proposal is being carried out in accordance with Part 5 of the *Environmental Planning and Assessment Act 1979* and will examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment.

In accordance with TISEPP, NSWTA will take into consideration any response to this notice that is received within 21 days after the notice is given. If Bega Valley Shire Council would like to comment on this proposal, please make a submission in writing by **15 January 2024** to the following:

James McIver
[redacted]

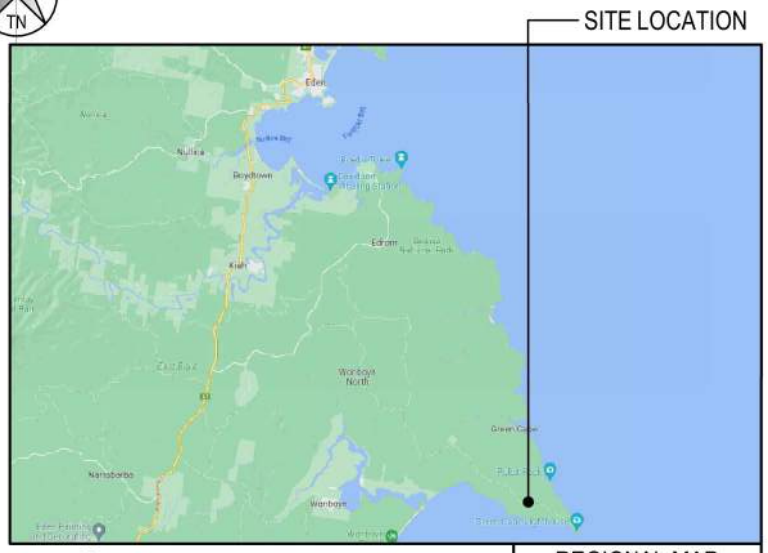
Should you require more information or wish to discuss the matter further, please do not hesitate to contact me on

Yours sincerely,

James McIver
Senior Planner
Catalyst ONE Pty Ltd, on behalf of NSW Telco Authority

Attachment A: Aerial image of the proposal location

Attachment B: Proposal drawings



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REGIONAL MAP
NOT TO SCALE

Copyright © Google Maps

LOCALITY MAP
NOT TO SCALE

SITE CO-ORDINATES			
DATUM:	GDA94	ZONE:	56
EASTING:	235 413	LATITUDE:	-37.248554
NORTHING:	5 873 383	LONGITUDE:	150.016939
SITE LOCALITY DETAILS			
REGION:	BEGA VALLEY	LOT:	BEOWA NATIONAL PARK
PARISH:	WONBOYN	DP/PLAN:	N/A
COUNTY:	AUCKLAND		

TA DESIGN CRITERIA	
ACCESS CLASSIFICATION	SEMI RESTRICTED
TA BAL	BAL-29
WIND REGION	A2
REGIONAL WIND SPEED	46 m/s
TERRAIN CATEGORY	1.0
TOPOGRAPHICAL MULTIPLIER	1.15
DIRECTIONAL MULTIPLIER	1.00

SITE ADDRESS

GREEN CAPE LIGHTHOUSE ROAD
BEOWA NATIONAL PARK
GREEN CAPE, NSW 2551

ACMA SITE ID # 10022334
GRN SITE CODE: GREC
RFNSA SITE NUMBER: TBC

SITE ACCESS

1. FROM EDEN, HEAD SOUTH VIA PRINCES HWY, TRAVEL APPROX 18km THEN TURN LEFT ONTO EDROM RD. TRAVEL 5.6km THEN TURN RIGHT ONTO GREEN CAPE RD, FOLLOW GREEN CAPE LIGHTHOUSE RD FOR 17.7km. TURN RIGHT TO SITE LOCATION BEFORE CITY ROCK RD TURN-OFF.
2. SITE ACCESS TO BE REQUESTED AND APPROVED BY NPWS. SEND FORMAL ACCESS REQUEST 2 WEEKS IN ADVANCE TO E: npws.ccepradio@environment.nsw.gov.au.
3. ROAD TO SITE IS MOSTLY UNSEALED BUT 2WD TRAFFICABLE. ROAD IS SUBJECT TO POTHOLES/RUTTING. RECOMMEND 4WD FOR ACCESS.

STRUCTURE DETAILS

1. NEW NSW TA 40m HIGH ROCLA SR3-BM40-600-8TF CONCRETE MONOPOLE. REFER TO ROCLA MONOPOLE CERTIFICATE 72786-85_1, DATED 13/11/2023.
2. STRUCTURAL ADEQUACY OF NEW STRAP MOUNTS HAS BEEN CONFIRMED BY CATALYST ONE IN ACCORDANCE WITH NSW TA STANDARD DRAWINGS NSWTA-STD-324 AND NSWTA-STD-322.
3. STATED DESIGN PARAMETERS HAVE BEEN VERIFIED BY CATALYST ONE AS SUITABLE TO THE NSWTA STRUCTURAL COMPLIANCE REQUIREMENTS.
4. ANTENNA MAINTENANCE ACCESS VIA CLIMBING LADDER OR EWP BY QUALIFIED WORKING AT HEIGHTS PERSONNEL ONLY.

EQUIPMENT SHELTER

NEW NSW TA COMMTEL SINGLE SITE SHELTER. 36 x SOLAR PANELS TO BE INSTALLED ON SOLAR SUPPORT FRAME CONNECTED TO SHELTER

EXISTING SITE HAZARDS

1. BUSHFIRE RISK
2. WILDLIFE, SNAKES & INSECTS
3. WORKING AT HEIGHTS

ELECTRICAL INSTALLATION

1. HYBRID SUPPLIES FROM PV SOLAR SYSTEM AND GENERATOR WILL BE DEPLOYED TO POWER UP NSWTA EQUIPMENT.
2. NEW SOLAR SYSTEM MADE OF 36 SOLAR PANELS ON NEW STEEL FRAME. PERMANENT GENERATOR AND TA EQUIPMENT ARE TO BE IN COMMTEL 6m SINGLE SITE SOLAR SHELTER. REFER TO ENHAR DESIGN NUMBER P1850-P02-10022334 FOR DESIGN DETAILS.

SITE SPECIFIC NOTES

1. NEW NSWTA 40m HIGH SR3-BM40-600-8TF MONOPOLE.
2. NEW NSW TA COMMTEL SINGLE SITE SHELTER. 36x 370W SOLAR PANELS TO BE INSTALLED ON SOLAR SUPPORT FRAME CONNECTED TO SHELTER.
3. NEW NSWTA 300 WIDE CABLE LADDER WITH SUPPORT POSTS (4 OFF).
4. NEW NSWTA BA8080-67 DIPOLE ARRAY ANTENNA (GRNA01) ON NEW STRAP MOUNT.
5. NEW NSWTA Ø900 PARABOLIC ANTENNA (GRNA02) ON NEW STRAP MOUNT TO 100712 BIMMIL HILL.
6. VEGETATION TO BE REMOVED IN ACCORDANCE WITH THE SAFEGUARDS IN THE REVIEW OF ENVIRONMENTAL FACTORS.

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
01	27.11.23	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
B	05.06.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc
A	12.05.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc

Department Logo: NSW GOVERNMENT Telco Authority

GREEN CAPE
10022334

GREEN CAPE LIGHTHOUSE ROAD
BEOWA NATIONAL PARK
GREEN CAPE, NSW 2551

catalyst managers.advisors

Drawing Title:
SITE SPECIFICATION AND LOCALITY PLAN

Drawing Status:	Drawing No.	Revision
FOR CONSTRUCTION	GRN-GREC-DWG-INF-STE-03	01

A3 Original Size
0mm 50mm 100mm

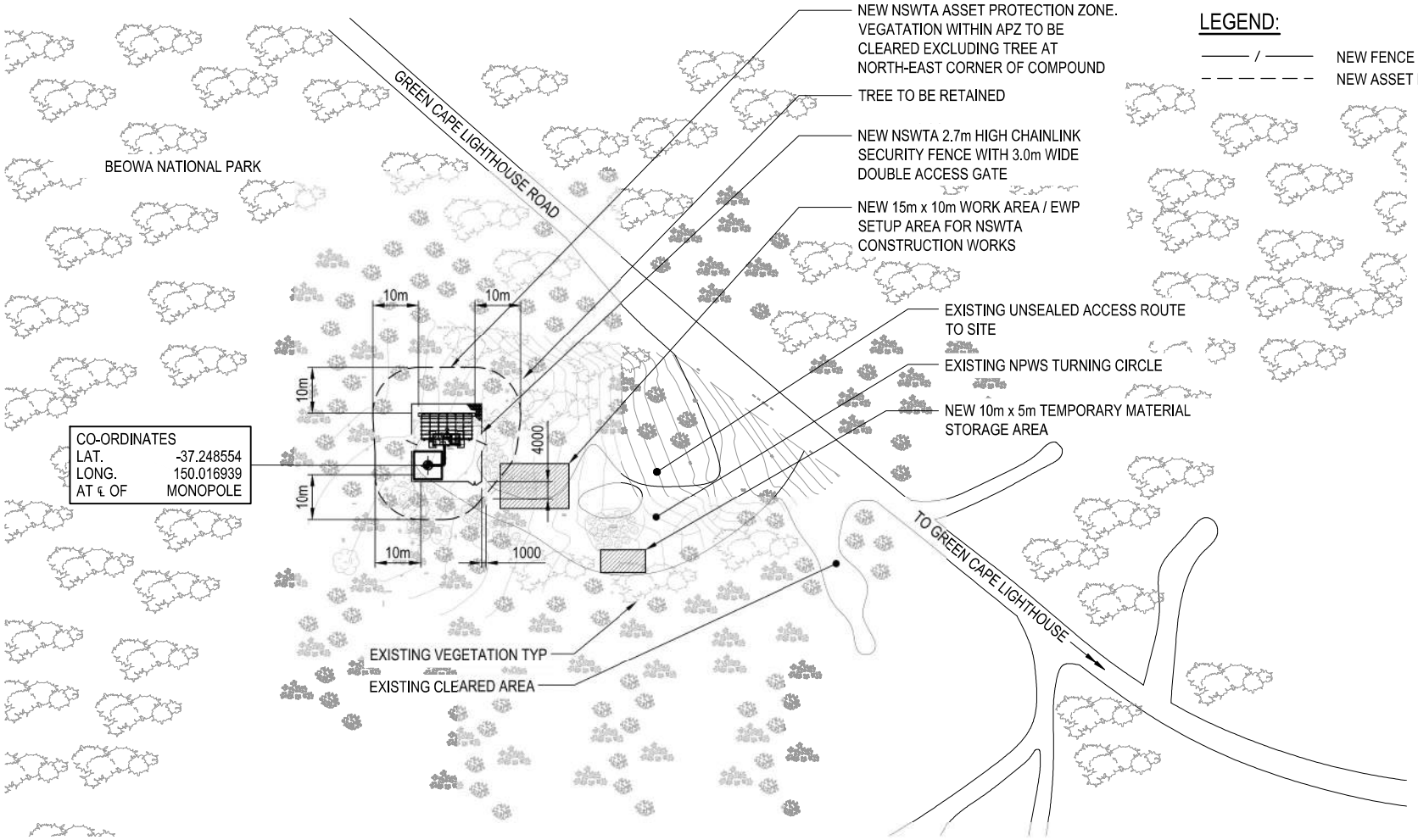
NOTES:

1. ALL EXISTING U/G SERVICES SHOWN INDICATIVE ONLY.
2. CHECK DBYD FOR U/G SERVICES.
3. VEGETATION TO BE REMOVED IN ACCORDANCE WITH THE SAFEGUARDS IN THE REVIEW OF ENVIRONMENTAL FACTORS.

LEGEND:

——— / ——— NEW FENCE LINE

– – – – – – NEW ASSET PROTECTION ZONE



OVERALL SITE PLAN

SCALE 1:1000

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
01	27.11.23	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
B	05.06.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc
A	12.05.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc

Department Logo: NSW GOVERNMENT Telco Authority

GREEN CAPE
10022334

GREEN CAPE LIGHTHOUSE ROAD
BEOWA NATIONAL PARK
GREEN CAPE, NSW 2551

catalyst managers.advisors

Drawing Title: OVERALL SITE PLAN

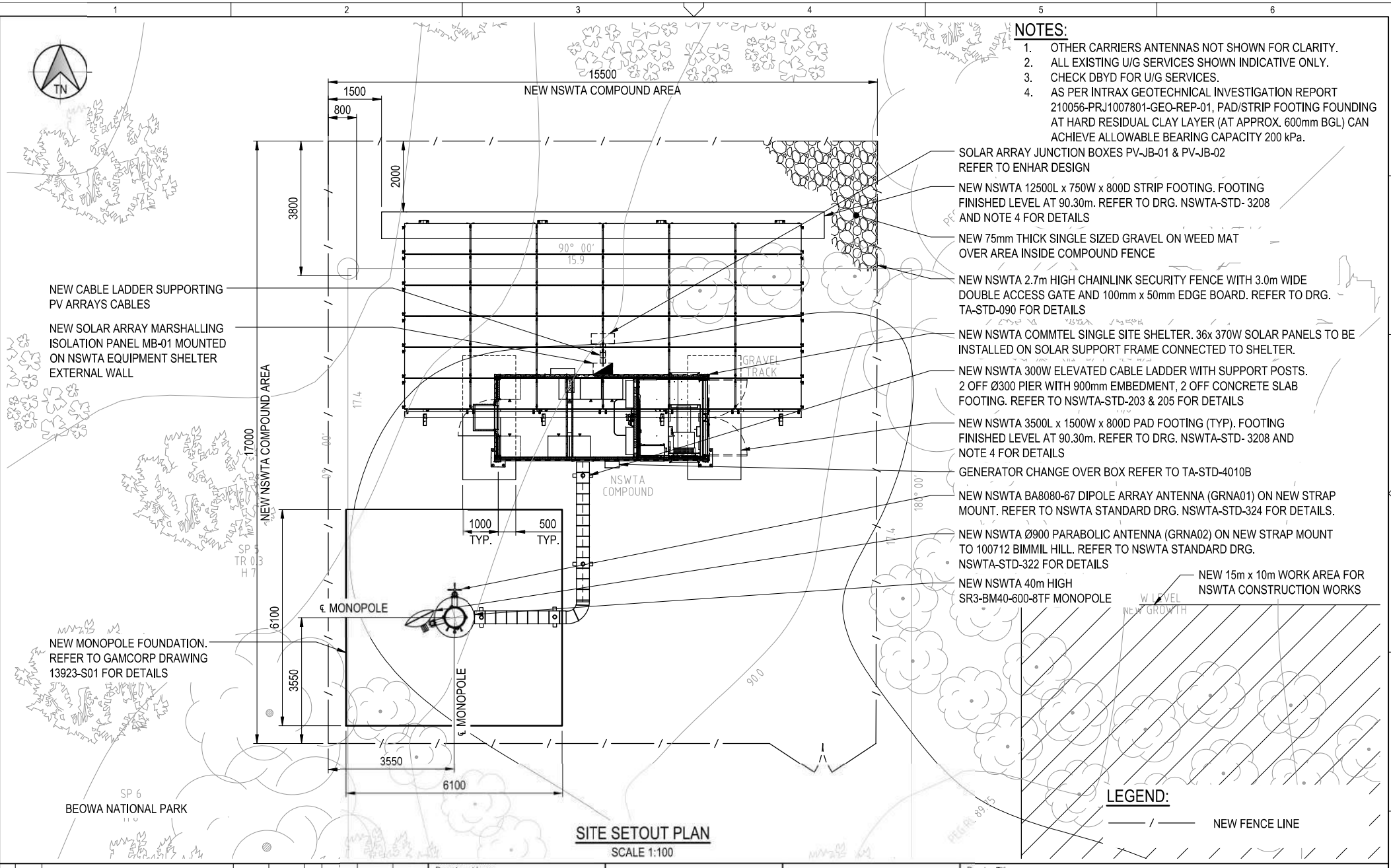
Drawing Status: FOR CONSTRUCTION

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

Revision 01

A3 Original Size

0mm 50mm 100mm



NOTES:

1. OTHER CARRIERS ANTENNAS NOT SHOWN FOR CLARITY.
2. ALL EXISTING U/G SERVICES SHOWN INDICATIVE ONLY.
3. CHECK DBYD FOR U/G SERVICES.
4. AS PER INTRAX GEOTECHNICAL INVESTIGATION REPORT 210056-PRJ1007801-GEO-REP-01, PAD/STRIP FOOTING FOUNDING AT HARD RESIDUAL CLAY LAYER (AT APPROX. 600mm BGL) CAN ACHIEVE ALLOWABLE BEARING CAPACITY 200 kPa.

LEGEND:

——— / ——— NEW FENCE LINE

SITE SETOUT PLAN

SCALE 1:100

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
01	27.11.23	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
B	05.06.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc
A	12.05.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc

Department Logo: NSW GOVERNMENT Telco Authority

GREEN CAPE
10022334

GREEN CAPE LIGHTHOUSE ROAD
BEOWA NATIONAL PARK
GREEN CAPE, NSW 2551

catalyst managers.advisors

Drawing Title: SITE SETOUT PLAN

Drawing Status: FOR CONSTRUCTION

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

Revision 01

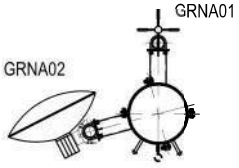
A3 Original Size

0mm 50mm 100mm

NSWTA ANTENNA CONFIGURATION

NSWTA ANTENNA NO.	OTHER ID (AS REQUIRED)	ANTENNA TYPE	ANTENNA HEIGHT AGL (m)	BEARING TRUE (°TN)	ANTENNA SIZE (mm) (H x W x D) OR (H x Ø)	ANTENNA TILT (°)	ANTENNA OWNER	ANTENNA ACTION REQUIRED	FEEDER SIZE & TYPE	FEEDER ACTION REQUIRED	FEEDER QTY	DESCRIPTION	NSWTA FEEDER NUMBER	FEEDER LENGTH (m)
GRNA01	-	BA8080-67 DIPOLE ARRAY	40.0	0	5700 x 380	0	NSWTA	NEW	AVA6-50	NEW	1	UHF (UPPER RX)	GRN001	55
									AVA6-50	NEW	1	UHF (LOWER TX)	GRN002	55
GRNA02	-	VHLP3-6 PARABOLIC	39	332.99	900	0	NSWTA	NEW	LDF4-50	NEW	1	MAIN	GRN011	55
									LDF4-50	NEW	1	BACKUP	GRN013	55

DIPOLE ARRAY AND COLLINEAR ANTENNA ELEVATION IS PROVIDED AT BASE OF ANTENNA
PARABOLIC AND YAGI ANTENNA ELEVATION IS PROVIDED AT CENTRELINE OF ANTENNA
LTE ANTENNA ELEVATION IS PROVIDED AT BASE OF ANTENNA



EL 39.0 - 40.0m

ANTENNA PLAN CONFIGURATION
SCALE 1:50

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
01	27.11.23	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
B	05.06.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc
A	12.05.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc

Department Logo: NSW GOVERNMENT Telco Authority

GREEN CAPE
10022334

GREEN CAPE LIGHTHOUSE ROAD
BEOWA NATIONAL PARK
GREEN CAPE, NSW 2551

catalyst managers.advisors

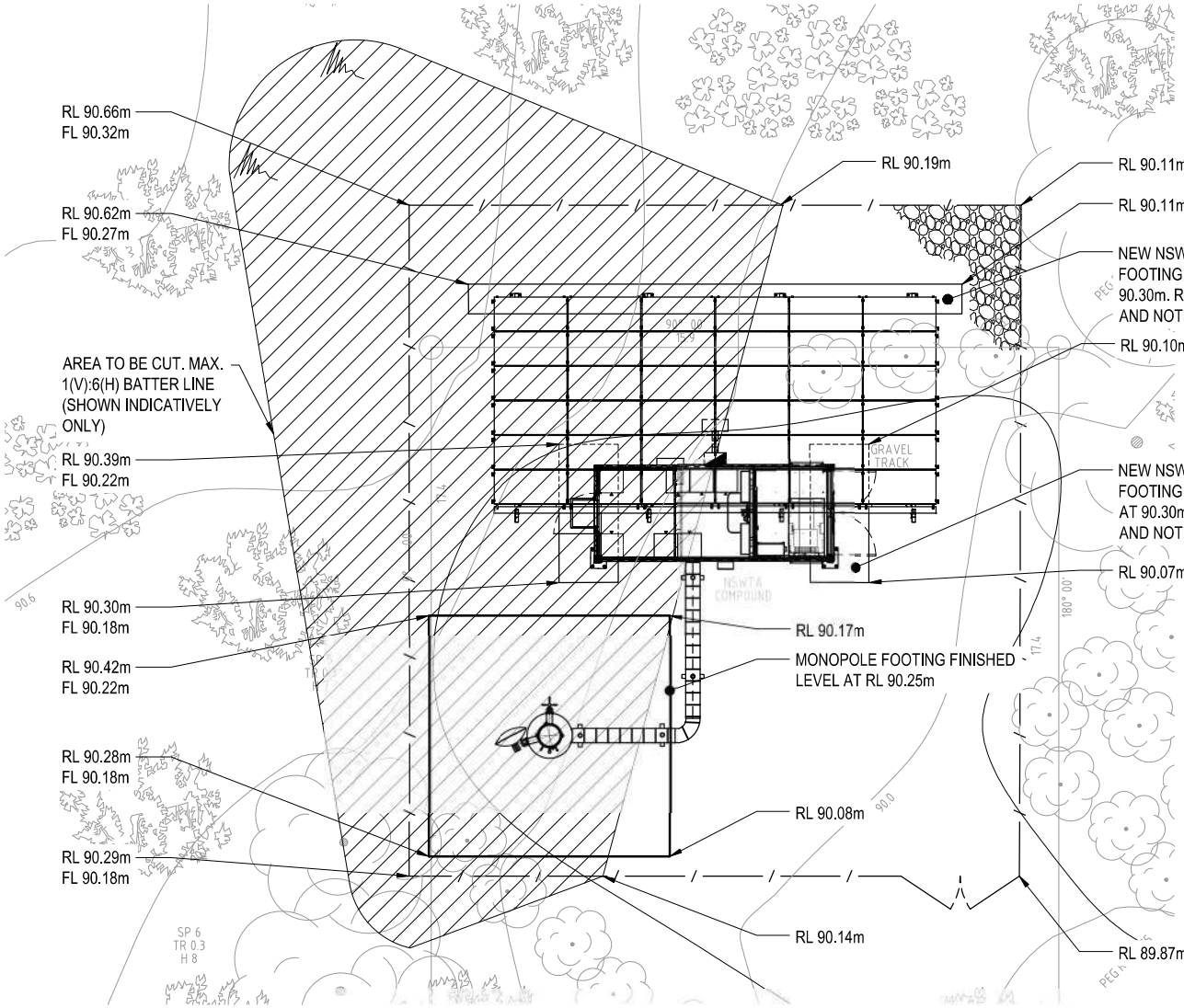
Drawing Title:
ANTENNA TABLE AND
ANTENNA PLAN CONFIGURATION

Drawing Status: FOR CONSTRUCTION

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

Revision 01

A3 Original Size
0mm 50mm 100mm



SITE SETOUT PLAN

SCALE 1:125

LEGEND:

FL XXXX.XX	NEW FINISHED GROUND LEVEL
RL XXXX.XX	EXISTING GROUND LEVEL
H ~ L	BUTTER DIRECTION
	CUT AREA

Rev	Date	Revision Details						
01	27.11.23	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
			Department	Consultant	CAD	Designer	Verifier	Approver

Department Logo: NSW GOVERNMENT Telco Authority

GREEN CAPE
10022334

GREEN CAPE LIGHTHOUSE ROAD
BEOWA NATIONAL PARK
GREEN CAPE, NSW 2551

catalyst managers.advisors

Drawing Title:
CUT AND FILL PLAN

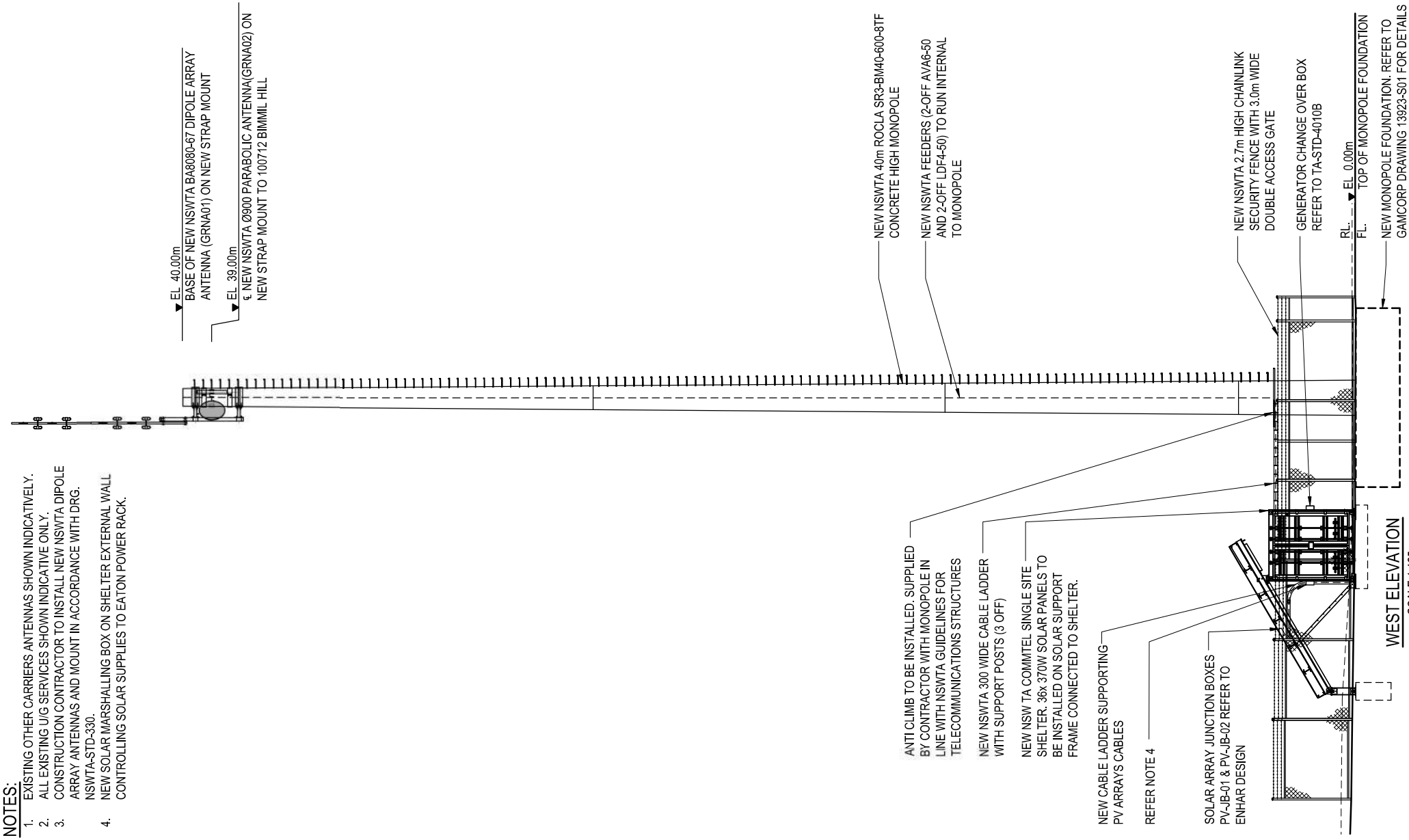
Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-GREC-DWG-INF-STE-07

Revision 01

A3 Original Size

0mm 50mm 100mm



WEST ELEVATION
SCALE 1:125

NOTES:

1. EXISTING OTHER CARRIERS ANTENNAS SHOWN INDICATIVELY.
2. ALL EXISTING U/G SERVICES SHOWN INDICATIVE ONLY.
3. CONSTRUCTION CONTRACTOR TO INSTALL NEW NSWTA DIPOLE ARRAY ANTENNAS AND MOUNT IN ACCORDANCE WITH DRG. NSWTA-STD-330.
4. NEW SOLAR MARSHALLING BOX ON SHELTER EXTERNAL WALL CONTROLLING SOLAR SUPPLIES TO EATON POWER RACK.

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
01	27.11.23	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
B	05.06.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc
A	12.05.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc

Department Logo: NSW GOVERNMENT Telco Authority

GREEN CAPE
10022334

GREEN CAPE LIGHTHOUSE ROAD
BEOWA NATIONAL PARK
GREEN CAPE, NSW 2551

catalyst managers.advisors

Drawing Title:
SITE ELEVATION

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-GREC-DWG-INF-TWR-01

Revision 01

A3 Original Size
0mm 50mm 100mm

From: James McIver
Sent: Friday, 19 January 2024 9:02 AM
To: Fowler, Mark
Cc: CCEP Info
Subject: RE: NSW Telco Authority: Proposed radio communications site at Green Cape Lighthouse Road, Beowa National Park, Green Cape NSW 2551

Hi Mark,

Thank you for your email with comments on the NSW Telco Authority (NSWTA) proposal at Beowa National Park, Green Cape.

I confirm that a Visual Impact Assessment (VIA) is being prepared to accompany the Review of Environmental Factors (REF), including consideration of Green Cape Lighthouse to the east.

Under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), NSWTA is the proponent and the determining authority for most of its proposals. However, as the proposal is located on land reserved under the *National Parks and Wildlife Act 1974* (NPW Act), National Parks and Wildlife Service (NPWS) will be the determining authority for this proposal.

As part of NPWS' assessment of the proposal the REF will go through a public exhibition process, which at this stage is likely to be during March 2024.

We would be pleased to provide NPWS with your details so that you are informed of the REF during the exhibition period.

Thank you for your attention with this proposal, please call me on 0423 187 012 should you wish to discuss the proposal.

Regards,

James McIver
Senior Environmental Planner
Catalyst ONE Pty Ltd (a BSA Limited company)
[redacted]
www.bsa.com.au | LinkedIn

From: Fowler, Mark [redacted]
Sent: Monday, January 8, 2024 4:00 PM
To: James McIver [redacted]
Subject: RE: NSW Telco Authority: Proposed radio communications site at Green Cape Lighthouse Road, Beowa National Park, Green Cape NSW 2551

Hi James,

Thankyou for your email notifying Council of the proposed radio communications project at Green Cape Lighthouse Road, Beowa National Park, Green Cape. I have reviewed the information and provide limited comment on the proposal except that all relevant considerations under Part 5 of the EP&A Act 1979 are undertaken. The only comment I can provide in regards to the assessment of Environmental Factors are visual considerations of the project when viewed from various vantage points in the surrounding area. Consideration of visual impacts should be considered when viewed from National Park and public vantage points to the south of the site be considered given the unique landscape of the area which is characterised by Green Cape Lighthouse to the east of the site that is Heritage Listed under Bega Valley LEP 2013.

If you require any further information, please contact me below.

Regards

Mark Fowler
Planning Services Coordinator

PO Box 492, Bega, NSW 2550
[redacted]
www.begavalley.nsw.gov.au

bega valley shire council

We wish to acknowledge and pay our respects to the traditional custodians of the land, waterways and airspace of the shire

---

From: James McIver [redacted]
Sent: Thursday, 30 November 2023 5:03 PM
To: RecordsMailbox [redacted]
Cc: CCEP Info [redacted]
Subject: NSW Telco Authority: Proposed radio communications site at Green Cape Lighthouse Road, Beowa National Park, Green Cape NSW 2551

Attention:
Mr Anthony McMahon
Chief Executive Officer
Bega Valley Shire Council

Please find attached correspondence:
NSW Telco Authority (NSWTA) proposed radio communications site at Green Cape Lighthouse Road, Beowa National Park, Green Cape NSW 2551.

Please contact me on [redacted] should you have any queries.

Regards,

James McIver
Senior Environmental Planner
Catalyst ONE Pty Ltd (a BSA Limited company)

[redacted]

www.bsa.com.au |
LinkedIn

Appendix D – NPWS Correspondence

From: Carolyn Bennett [redacted] on behalf of NPWS CCEP EGRN Radio Mailbox [redacted]
Sent: Tuesday, 11 July 2023 10:02 AM
To: Chris McCamridge; NPWS CCEP EGRN Radio Mailbox
Cc: Bec Owen; James Follett SMS; James McIver C1; Kathryn McGeoch C1; Garreth Etherington; James Duncan; Scott Chapman; Emily Manchee; Dylan Mead
Subject: NPWS AIP: NSWTA Proposal - GREC Green Cape
Attachments: Green Cape - Tenure review and Property AIP checklist.pdf

Hi Chris,

confirming NPWS Approval in Principle (AIP) for the Green Cape proposal.

Please see attachment and comments below:

Property
- AIP checklist attached.

Technical
- Not required.

Environment
- Information provided reflects discussions.

Thanks, Carolyn

Carolyn Bennett
CCEP Liaison Officer
Asset & Infrastructure Branch
NSW National Parks and Wildlife Service
Darkinjung Country
[redacted]
W nationalparks.nsw.gov.au

From: Chris McCambridge [redacted]
Sent: Tuesday, 20 June 2023 1:47 PM
To: NPWS CCEP EGRN Radio Mailbox [redacted]
Cc: Bec Owen [redacted]; James Follett [redacted]; James McIver [redacted]; Kathy McGeoch [redacted]; Garreth Etherington [redacted]; James Duncan [redacted]; Scott Chapman [redacted]
Subject: HPE CM: RE: NSWTA Proposal - GREC Green Cape - Request for AIP

Good afternoon NPWS Team,

Thanks again for arranging and attending the Green Cape Approval in Principle (AIP) meeting on the 16th June. To formalise the AIP request for the Green Cape proposal, please find attached the following documents:

- NPWS Form 1 (CCEP Site Proposal)
- NPWS Form 3 (Application for a New Communications Facility)
- Meeting Minutes from the AIP teleconference on the 16th
- Preliminary Drawings (ver02)
- Slide Package from the AIP teleconference

In addition to this documentation, we have reviewed the outcome of the preliminary solar-hybrid assessment for the proposal, which is an analysis we perform via a specialist consultant to assess the solar performance of the site. The solar assessment produces a number of key outputs to ensure operational compliance, and we can provide some key findings in response to queries raised in the AIP meeting:

- The generator is anticipated to operate at a usage rate of approximately 425 hours per year. This is roughly 8 hours a week.
- The generator is anticipated to have a diesel usage rate of 1226 litres per year. This usage would require two refuelling visits per year.

On this basis, we kindly seek NPWS AIP for the proposal as presented.

Kind regards,

catalyst
Chris McCambridge | SAED Manager
m [redacted]
Catalyst ONE Pty Limited | www.catalystone.com.au | [redacted]

From: Bec Owen [redacted]
Sent: Wednesday, June 7, 2023 3:30 PM
To: Garreth Etherington [redacted]
Subject: RE: Green Cape - proposed structure height

Hi Garreth,

Thank you for the meeting today and for sending a copy of the presentation to NPWS.

NPWS have discussed this matter internally and support for the proposed increase in pole height to 40m. The reasoning is sound and thank you for also presenting the other options considered.

We are happy to proceed to the AIP meeting when TA are ready.

Kind regards
Bec

Bec Owen
Project Officer, Utilities
Visitor Engagement and Revenue Branch
NSW National Parks and Wildlife Service
Ngarigo Country

[redacted]
W nationalparks.nsw.gov.au

From: Garreth Etherington [redacted]
Sent: Wednesday, 7 June 2023 3:05 PM
To: Carolyn Bennett [redacted]; Chris McCambridge [redacted]; Dylan Mead [redacted] Emily Manchee [redacted]; NPWS CCEP EGRN Radio Mailbox [redacted]; Andrew Wall [redacted]; Jol Briggs [redacted]; Mathew Sharwood < [redacted]; Ken Jones [redacted]; Bec Owen [redacted] Frances Wiig [redacted]; Rodney Conroy [redacted] Brett Hanly [redacted] Scott Chapman [redacted]; Emi Yasuda [redacted]; James McIver [redacted] James Follett [redacted]
Subject: RE: Green Cape - proposed structure height

Hi All,

Thank you again for taking the time to attend today's session.

Attached is a copy of the slide pack for reference, along with a revised set of Prelim Drawings that reflect the structure height at 40m.

We will have the Photomontages revised to reflect the 40m structure comparison and should have these across in the next week or so.

Please let me know if you have any questions or require any further info.

Kind regards

Garreth Etherington
Regional SAED Manager, NSW Telco Authority

ICT and Digital Government Division | Department of Customer Service
[redacted]

-----Original Appointment-----
From: Carolyn Bennett [redacted]
Sent: Tuesday, 23 May 2023 3:41 PM

To: Carolyn Bennett; Chris McCambridge; Dylan Mead; Emily Manchee; NPWS CCEP EGRN Radio Mailbox; Andrew Wall; Jol Briggs; Mathew Sharwood; Kenneth Jones; Rebecca Owen; Frances Wiig; Rodney Conroy; Brett Hanly
Cc: Emi Yasuda; James McIver; James Follett; Garreth Etherington
Subject: Green Cape - proposed structure height
When: Wednesday, 7 June 2023 2:30 PM-3:15 PM (UTC+10:00) Canberra, Melbourne, Sydney.
Where: Microsoft Teams Meeting

Hi all,

meeting will now focus on proposed change in structure height, rather than AIP (see email attached).

Thanks, Carolyn

Microsoft Teams meeting

Join on your computer, mobile app or room device
Click here to join the meeting

[redacted]

Join with a video conferencing device

[redacted]

Or call in (audio only)

[redacted]

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If you are not the intended recipient, please notify the sender and then delete it immediately.
Any views expressed in this email are those of the individual sender except where the sender expressly and with authority states them to be the views of the NSW Office of Environment, Energy and Science.

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Appendix E – Ecological and Bushfire Risk Assessment

Mobile: [redacted]
www.florafauna.com.au

Ecological & Bush Fire Risk Assessment

Proposed Radiocommunications Facility
Green Cape – Beowa National Park

Prepared for NSW Telco Authority

Project No. EA220823

Title	Ecological and Bush Fire Attack Assessment
Project	Radiocommunications Site – Green Cape (Beowa National Park)
Client	NSW Telco Authority
Report No.	EA220823
Draft/Final	Final – 9 February 2024

The preparation of this report has been undertaken in accordance with the project brief provided by the client and has relied upon the information, data and results provided or collected from the sources and under the conditions outlined in the report.

All information contained within this report are prepared for the exclusive use of the client and with respect to the land described herein and are not to be used for any other purpose or by any other person or entity. No reliance should be placed on the information contained in this report for any purposes other than those stated herein.

Prepared by:	Steve Britt *BSc. (Botany)* *GradDip. Design for Bushfire Prone Areas (BPAD9334 – Level 3)* *M. Wildlife Management. (Habitat)*
Signed:	
Date:	9 February 2023

Cover photo: *Grevillea lanigera* (Woolly Grevillea)

Table of Contents

1. Executive Summary

NSW Telco Authority (NSWTA) has requested an ecological and bush fire risk assessment in relation to a proposed NSWTA radiocommunications facility at an existing NSW National Parks and Wildlife Service (NPWS) facility site situated at Green Cape within Beowa National Park. The proposed development involves the installation of a 40 metre monopole, equipment shelter (2.5 x 6.1 metres), with a 36-panel photovoltaic array on a steel frame mounted over the equipment shelter, a secure, fenced compound area (15.5 metres x 17.0 metres) and associated electrical installation. The proposal also includes provision of a ten metres wide APZ around the NSWTA infrastructure.

The ecological assessment was undertaken in accordance with Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). In this regard, the proponent is to consider the environmental factors listed in clause 171 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation). In addition, under the provisions of section 7.2 of the *Biodiversity Conservation Act 2016* (BC Act), proponents of Part 5 activities must apply the Test of Significance as per section 7.3 to determine whether the proposed activity is likely to significantly affect threatened species or ecological communities, or their habitats. If the activity is likely to have a significant impact or will be carried out in a declared area of outstanding biodiversity value, the proponent must either prepare a Species Impact Statement (SIS) or a Biodiversity Development Assessment Report (BDAR).

The geology mapping indicates that the study area and surrounding land occurs on the Ben Boyd Formation from the Late Devonian Period with the base forming 382.70 Ma and the top forming 358.90 Ma. The Ben Boyd Formation is described as being fluvial to marine sandstone, conglomerate, siltstone, quartzite and shale. The dominant lithology is siliciclastic sedimentary rock, and the depositional system is indicated as fluvial (terrestrial). Above the Ben Boyd Formation geology, more recent alluvial sediments from the Pleistocene Epoch occur, which were laid down from the Paleogene Period at the base (66.00Ma) to the Pleistocene Period at the top (0.01Ma). These overlying sedimentary deposits are described as being alluvial deposits, dominantly sand and gravel, that are friable to unconsolidated, or cemented to sandstone or conglomerate. The dominant lithology is clastic sediment. The Australian Soil Classification (ASC) soil type map of NSW indicates the study area is situated on a Kurosols (Natric) soil landscape, with the adjacent land to the north and west being situated on a Kurosol soil landscape. These soils are characterised by their strong texture contrast between A horizons and strongly acid B horizons. Natric soils are characterised by the major part of the upper 0.2 metres of the B2 horizon being sodic, i.e. the soil has a high proportion of sodium ions relative to other cations.

The findings of the flora survey more or less confirmed the State Vegetation Type Map (SVTM). The structure of the plant community and the majority of the species assemblage therein generally confirmed the vegetation mapping, which indicates the study area is occupied by PCT 3816: Far Southeast Coastal Lowland Heath. However, the species assemblage is possibly being influenced by an adjacent dry sclerophyll forest community identified as PCT 3646: Far South Coastal Ranges Silvertop Ash Forest, as several species, including the emergent eucalypt species, are associated with it. This suggests that the study

area may lie within the ecotone between the two plant communities. It is also noted that both plant communities share a number of diagnostic species. Neither of the plant communities, i.e. PCT 3816 and PCT 3646 are associated with any threatened ecological community (TEC).

The habitat assessment determined that the study area is located on sedimentary geology and contains a tall heathland community that is in a regenerative state following a bush fire event that occurred approximately four years ago. The habitat associated with the heathland community contains an array of associated terrestrial habitat features, including areas of dense groundcover, fallen trees or shrubs and other woody debris such as branches and leaf litter. At the time of the site assessment, the visible signs of the 2019 bush fire were evident within the study area and more widely in the surrounding habitats. Within the heathland, numerous standing dead trees and shrubs were present, and the living vegetation was comprised of resprouts and immature plants that have regenerated from the seed bank. Because regeneration of the fire impacted plant community had progressed by approximately four years, during which time consistent rain associated with a La Nina weather pattern was received, the low shrub layer and groundcover were well-developed. There was evidence of habitat use by two vertebrates within the study area, which were determined as being the native macropod, *Wallabia bicolor* (Swamp Wallaby) and the invasive pest species; *Oryctolagus cuniculus* (European Rabbit).

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters Search Report indicated that no Matters of National Environmental Significance (MNES) are applicable to the NSWTA development site, except for potential occurrences of some nationally listed threatened species, which have been considered under the Assessment of Significance. The EPBC Act koala referral assessment determined that the habitat within the development footprint and the adjacent heathland is generally unsuitable and that the impacts on the koala associated with the proposal are deemed to be negligible. Therefore, referral to DCCEEW is considered to be unnecessary in this instance.

The bush fire risk assessment was undertaken in consideration of *Planning for Bush Fire Protection 2019* (PBP) and *Practice Note 1/11 – Telecommunication Towers in Bushfire Prone Areas* (RFS Practice Note), which has been prepared by the NSW Rural Fire Service to provide direction on the provision of bush fire protection measures that must be applied. Bush fire protection measures, including design, asset protection zones, design for recovery/emergency planning and site reinstatement process as per *The Critical Communications Enhancement Program – Bush Fire Risk Management Framework* (CCEP) prepared by NSWTA will be initiated as required. The bush fire risk assessment has determined that the bushfire attack level that the development is likely to be exposed to as per Table A1.12.5 of PBP is BAL-40 in the northern and eastern directions and BAL-FZ in the southern and western directions. The characteristics of BAL-40 are that radiant heat flux and potential flame contact could threaten building integrity. The characteristics of BAL-FZ are that significant radiant heat and significantly higher likelihood of flame contact from the fire front will threaten the integrity of infrastructure. The FLAMESOL calculator was based a vegetation classification of closed scrub (tall heath), which was the closest fit for the vegetation at the site provided in Table 2.3 of AS3959. The highest potential radiant level of 42.73 kW/m^2 was indicated for the southern direction, which is a BAL-FZ bush fire attack level but only slightly higher than a BAL-40 bush fire attack level. In the western direction a potential radiant level of 41.34 kW/m^2 was

indicated, which is deemed a BAL-FZ bush fire attack level also, though it too is only marginally above a BAL-40 bush fire attack level. The FLAMESOL calculations demonstrate that by provision of a 10 metre wide APZ, the potential radiant heat that the proposed NSWTA facility is likely to be exposed to can be reduced to around 40-43 kW/m^2, i.e. a lower end flame zone exposure. Further vegetation clearing beyond the required 10 metres is not recommended given the ecological constraints at the site.

The flora survey was undertaken to catalogue as many flora species as possible. While it is likely that the survey almost certainly failed to detect some species, it is considered unlikely that any threatened species of flora were present within the study area. Based on the findings of the ecological assessment, it was determined that six threatened species listed under the BC Act and five threatened species listed under the EPBC Act could potentially utilise the habitat within the study area. 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 concluded that subject to the recommendations of this report, the proposed work is unlikely to have a significant impact on any threatened species, threatened ecological community or areas of outstanding biodiversity value.

2. Glossary

ABRS: Australian Biological Resources Study

Abundance: Means a quantification of the population of the species or community

AFD: Australian Faunal Directory

Affected Species: Means subject species likely to be affected by the proposal

AHD: Australian height datum

APZ: Asset Protection Zone (for bushfire protection purposes)

AOBV: Area of outstanding biodiversity value

Area of Outstanding Biodiversity Value: Areas that contain irreplaceable biodiversity values that are important to the whole of NSW, Australia or globally. AOBVs replace the previous concept of 'critical habitat'

ASC: Australian Soil Classification

ASL: Above sea level

BAL: Bush Fire Attack Level

BAM: Biodiversity Assessment Method

BC Act: *Biodiversity Conservation Act 2016*

BCAR: Biodiversity Certification Assessment Report

BDAR: Biodiversity Development Assessment Report

BSAR: Biodiversity Stewardship site Assessment Report

BCT: Biodiversity Conservation Trust

Biodiversity and Conservation SEPP: State Environmental Planning Policy (Biodiversity and Conservation) 2021

BSA: Biodiversity Stewardship site Agreement

BOS: Biodiversity Offset Scheme

CCEP: Critical Communications Enhancement program

Conservation Status: Is an indicator of how likely a species is to remain alive at present or in the future

DBH: Diameter at breast height

Development: The erection of a building on that land, the carrying out of work in, on, over or under that land, the use of that land or of a building or work on that land, and the subdivision of that land

Diameter at Breast Height: The measurement of a tree's trunk at 1.3 metres above ground level

EP&A Act: *Environmental Planning and Assessment Act, 1979*

EP&A Regulation: *Environmental Planning and Assessment Regulation 2000*

EPBC Act: *Environment Protection and Biodiversity Conservation Act 1999*

FFDI: Forest Fire Danger Index

Field survey: Means on the ground flora, fauna and habitat assessment

GRN: Government Radio Network

Habitat: An area or areas occupied, or periodically or occasionally occupied by a species, population or ecological community and includes any abiotic component

HBT: Hollow-bearing tree

IBRA: Interim Biogeographic Regionalisation for Australia

Key Threatening Process: Is a threatening process listed under the *Biodiversity Conservation Act 2016*

KFT: Koala food tree

LEP: Local Environmental Plan

Locality: The general area surrounding the study area described by its main characteristics and features

Ma: 'Mega annum' i.e. one-million years

MNES: EPBC Act Matters of National Environmental Significance

OEH: NSW Office of Environment and Heritage

PBP: *Planning for Bushfire Protection 2019*

PCT: NSW Plant Community Type classification

PKFT: Preferred koala food tree

PMST: Protected matters search tool

Recovery and Threat Abatement Plan: A plan to promote the recovery of threatened species, population or an ecological community with the aim of returning the species, population, or ecological community to a position of viability in nature

RFS: NSW Rural Fire Service

ROTAP: Rare or threatened Australian plant

SEPP: State Environmental and Planning Policy

Serious and Irreversible Impacts: A concept aimed at protecting species and ecological communities that are most at risk of extinction from potential development

SAII: Serious and Irreversible Impacts

SIS: Species Impact Statement

Study Area: The geographic extent of the ecological assessment (may be the subject site or a part of it)

Subject Site: The identified land, e.g. Lot(s) and DP(s)

SVTM: State Vegetation Type Map

Threatened Ecological Community: An ecological community specified under Schedule 2 of the *Biodiversity Conservation Act 2016* (may be listed as critically endangered, endangered or vulnerable)

Threatened Population: A population specified under Schedule 1 of the *Biodiversity Conservation Act 2016* (may be listed as critically endangered, endangered or vulnerable)

Threatened Species: A species listed in Schedule 1 of the *Biodiversity Conservation Act 2016* (may be listed as critically endangered, endangered or vulnerable)

Threatening Process: Means a threatening process that threatens, or could potentially threaten, the survival or evolutionary development of a species, population or ecological community

Tree: A perennial plant having a trunk diameter at breast height (DBH) of not less than 100 mm where DBH is the measurement of the trunk at 1.3 metres above ground level

VIS: NSW Vegetation Information System (classification database)

VMP: Vegetation Management Plan

3. Introduction

3.1 Background

NSWTA is responsible for the coordination of radiocommunications for the NSW Government and is currently undertaking the CCEP to integrate the individual operational radiocommunication networks used by the various emergency services and Government agency personnel into a single shared network. This includes acquisition of new radiocommunications sites and upgrading, replacing or co-locating Public Safety Network (PSN) infrastructure with existing radiocommunications facilities. Under clause 2.41 of *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport and Infrastructure SEPP), radiocommunications facilities are identified as development permissible without consent. As such, CCEP proposals typically require assessment under Part 5 of the EP&A Act.

3.2 Proposed Development

The proposed NSWTA radiocommunications facility will be located at a greenfield site at Green Cape within Beowa National Park. The proposed development involves the installation of a 40 metre monopole, equipment shelter (2.5 x 6.1 metres), with a 36-panel photovoltaic array on a steel frame mounted over the equipment shelter, a secure, fenced compound area (15.5 metres x 17.0 metres) and associated electrical installation. The proposal also includes provision of a ten metres wide APZ around the NSWTA infrastructure. The general layout of the facility is indicated on the site setout plan prepared by Catalyst (ref: GRN-GREC-DWG-INF-STE-05), which is appended to this report as Appendix A.

The proposal is development permitted without consent in accordance with Division 21, Clause 2.141(1) of the Transport and Infrastructure SEPP which states "*Development for the purposes of telecommunications facilities (including radio facilities) may be carried out by a public authority without consent on any land.*" An assessment of the proposal is being carried out in accordance with Part 5 of the EP&A Act and will examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment. The assessment of the proposal will be documented by NSWTA in a Review of Environmental Factors (REF).

3.3 Purpose of Report

Radiocommunications (otherwise known as telecommunications) sites are considered to be essential infrastructure and therefore should be designed to minimise the impact of bush fire and ensure that communications capabilities are not compromised. As the site is situated on bush fire prone land there is a potential risk of the site being impacted by bush fire. In consideration of bush fire protection of the proposed radiocommunications facility, a bush fire attack assessment guided by the RFS Practice Note and PBP (the current development standard for designing and building on bush fire prone land in NSW) will inform the report. The purpose of the ecological assessment is to determine if any ecological constraints exist that would impede the ability to remove vegetation and any associated habitat for the proposed new infrastructure.

3.4 Legislative Context

3.4.1 Environmental Legislation

i. State Legislation

This assessment has been undertaken in accordance with Part 5 of the EP&A Act. Section 5.5(1) of the Act states; *For the purpose of attaining the objects of this Act relating to the protection and enhancement of the environment, a determining authority in its consideration of an activity shall, notwithstanding any other provisions of this Act or the provisions of any other Act or of any instrument made under this or any other Act, examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity*. In this regard, the proponent is to consider the environmental factors listed in clause 171(2) of the EP&A Regulation, which include:

a. any environmental impact on a community;
b. any transformation of a locality;
c. any environmental impact on the ecosystems of the locality;
d. any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality;
e. any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations;
f. any impact on the habitat of protected animals (within the meaning of the *Biodiversity Conservation Act 2016*);
g. any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air;
h. any long-term effects on the environment;
i. any degradation of the quality of the environment;
j. any risk to the safety of the environment;
k. any reduction in the range of beneficial uses of the environment;
l. any pollution of the environment;
m. any environmental problems associated with the disposal of waste;
n. any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply;
o. any cumulative environmental effect with other existing or likely future activities;
p. any impact on coastal processes and coastal hazards, including those under projected climate change conditions;
q. applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1; and
r. other relevant environmental factors.

Under the provisions of section 7.2 of the BC Act, proponents of Part 5 activities must apply the Test of Significance as per section 7.3 to determine whether the proposed activity is likely to significantly affect threatened species or ecological communities, or their habitats. If the activity is likely to have a significant impact or will be carried out in a declared area of outstanding biodiversity value, the proponent must prepare a SIS or a BDAR.

ii. Matters of National Environmental Significance

Under the EPBC Act, actions that have, or are likely to have, a significant impact on a matter of national environmental significance require approval from the Australian Government Minister for the Environment (the Minister). The Minister will decide whether assessment and approval are required under the EPBC Act. The nine matters of National Environmental Significance protected under the EPBC Act are:

- World Heritage Properties;
- National Heritage Places;
- Wetlands of International Importance (listed under the Ramsar Convention);
- Great Barrier Reef Marine Park;
- Commonwealth Marine Area;
- Listed Threatened Ecological Communities;
- Listed Threatened Species;
- Listed Migratory Species.

Other matters protected by the EPBC Act that may require approval for an activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land also require consideration. These matters include:

- Commonwealth Lands;
- Commonwealth Heritage Places;
- Listed Marine Species;
- Whales and other Cetaceans;
- Critical Habitats;
- Commonwealth Reserves Terrestrial;
- Australian Marine Parks;
- Habitat Critical to the Survival of Marine Turtles.

3.4.2 Bush Fire Legislation

PBP is the current legislated document for specifying the requirements for building on bush fire prone land (BFPL) in NSW. PBP contains provisions specific to 'telecommunications towers' (radiocommunications facilities), which states they should be designed in such a way as to minimise the impact of bush fire. In addition, the NSW Rural Fire Service (RFS) has produced the RFS Practice Note, which provides direction on the provision of bush fire protection measures that should be applied.

3.5 Locality

The locality is situated on the NSW Far South Coast, within the Bega Valley Shire LGA. The coastal town of Eden is the major centre of the locality. The locality is a popular tourist destination that receives large numbers of holiday-makers in the warmer months of the year, especially over Christmas and Easter.

The subject site is located within Beowa National Park, formerly Ben Boyd National Park, which spans 47 kilometres of rocky coastline and sheltered inlets. The national park is comprised of three sections, including a large southern section located south of Eden, a large central area located north of Eden, and a smaller northern area located north of the Pambula

River. Currently the park has an area of 10,485 hectares. Other reserved land within the locality is situated in Nadgee Nature Reserve and Mount Imlay National Park, and several State Forest reserves, including Nullica State Forest, East Boyd State Forest and Nadgee State Forests. These reserves are contiguous with other reserves further the west.

The locality is strongly influenced by its coastal environment. The landscape within the locality contains a diverse array of coastal habitats including rainforest, wet and dry sclerophyll forest, woodland, heathland, sandy and rocky coastline and extensive estuaries such as the Towamba River, the Wonboyn River and associated Wonboyn Lake. Twofold Bay, Disaster Bay, Worang Point and Green Cape are significant coastal features of the locality.

The traditional owners of the lands within the locality are the Thaua (or Thawa) people. Following colonisation by Europeans, the area, particularly Eden, became a major centre for the whaling industry. Since the cessation of whaling and the subsequent recovery of the east coast Humpback Whale population, Eden has become a major destination for whale watching in conjunction with other coastal tourism activities such as swimming, surfing, sailing and fishing. In addition to tourism generally, other important industries of the locality include commercial fishing, timber harvesting and agriculture. The relative position of the proposed radiocommunications facility at Green Cape within the landscape is shown on the locality map at Figure 1 on the following page.

Figure 1: Locality plan (site location circled)

3.6 Site Location

The proposed NSWTA radiocommunications facility will be installed at Green Cape within Beowa National Park where an existing NPWS works site is currently sited. The radiocommunications facility site is situated towards the southern end of Green Cape Lighthouse Road, which is accessed from the Princess Highway via Edrom Road. The corner of Edrom Road and the Princess Highway is approximately 18 kilometres south from Eden. It is a further 23 kilometres from the corner of Edrom Road and the Princess Highway to the proposed facility site. The approximate centre point of the proposed facility footprint is located at latitude -37.248493, longitude 150.016945.

3.7 Development Footprint and Study Area

The footprint of the proposed radiocommunications facility is indicated in the overall site plan and site setout plan prepared by Catalyst (reference no. GRN-GREC-DWG-INF-STE-04/05), which are appended to this report as Appendix A. The study area had an area of approximately 4,650 m^2 and comprised the development footprint and adjacent land. The adjacent land more widely around the study area was also investigated to inform the ecological and the bush fire risk assessments. The extent of the study area is shown in Figure 2 on the following page.

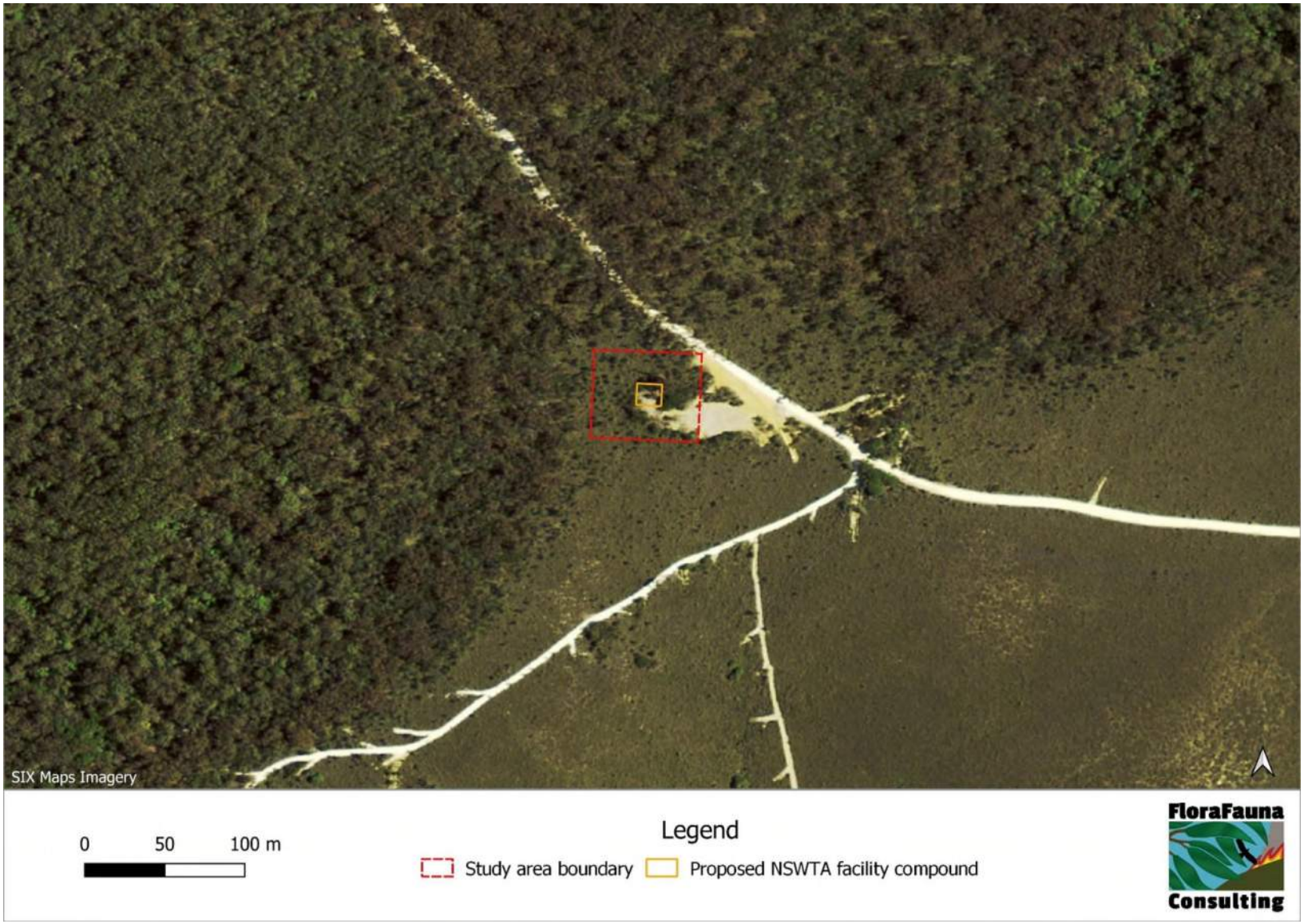

Figure 2: Study area

4. Methodology

4.1 Nomenclature

The names of plants used in this document follow the Flora of New South Wales (Harden, 2000) with updates from the PlantNet website (Royal Botanic Gardens Sydney, 2019).

The description of plant communities used in this document follow the NSW Plant Community Type (PCT) classification, which is maintained in the BioNet Vegetation Classification application (Environment, Energy and Science Group – NSW Department of Planning, Industry and Environment).

Tree growth stage descriptions used in this document are adapted from Jacobs, M.R. (1955) Growth Habits of the Eucalypts, Woodgate et al, 1994, A Study of Old-growth Forests of East Gippsland, and the Joint Old Growth Forest Project (JOGFP), 1996. Table 1 sets out the growth stages adopted for this document:

Table 1: Tree growth stages used in this document

Jacobs (1955) Growth Stages	Woodgate et al (1994) Growth Stages	Amalgamated Major Growth Stages
Juvenile		Regrowth
Sapling	Sapling	
Pole	Pole	
Mature	Early-mature	Mature
	Mature	
	Late-mature	Senescing
Overmature	Overmature	

The systematic arrangement and species nomenclature of vertebrate animals used in this document broadly follow that of Strahan (1995) and the Australian Faunal Directory (FDS) database maintained by the Australian Government, Department of Climate Change, Energy, the Environment and Water (DCCEEW).

4.2 Licencing

All work in relation to this fauna survey was undertaken with appropriate licences and authorisations including:

- A Scientific Licence to conduct field surveys of flora and fauna for environmental assessment purposes issued subject to the provisions of Part 2 of the BC Act; and
- An Animal Research Authority issued by the Department of Industries and Investment (formerly the Department of Primary Industries) Director-General's Animal Care and Ethics Committee to conduct biodiversity survey and habitat assessment at various locations throughout New South Wales.

4.3 Survey Timing and Weather Conditions

The field survey was conducted on Friday, 29 September 2023. Weather conditions at the time were warm with no rain falling in the days prior to the work being conducted.

4.4 Desktop Assessment

The desktop assessment involving database searches and reviews of relevant mapping as summarised in Table 2 were undertaken prior to conducting the field survey.

Table 2: Database searches and mapping reviews

Database	Source
NSW Seamless Geology dataset	Geoscience NSW (Department of Regional NSW)
Australian Soil Classification mapping dataset	NSW Department of Planning and Environment
State Vegetation Type Map (SVTM)	NSW Department of Planning and Environment
BioNet Atlas (0.1° by 0.1°, i.e. 10 km x 10 km search area)	NSW Department of Planning, Industry and Environment
Biodiversity Values Map	NSW Department of Planning, Industry & Environment
PlantNet: Plant name, ROTAP/Threatened Species, Spatial Search (10 km radius)	National Herbarium of New South Wales
EPBC Act Protected Matters Search Tool (10 km buffer)	Department of Climate Change, Energy, the Environment and Water

The following data was interrogated for the ecological assessment.

4.4.1 Geology

The NSW Seamless Geology dataset was compiled by Geoscience NSW (Department of Regional NSW) from the best available mapping for the whole of NSW. The mapping was reviewed in QGIS to investigate the geology of the study area and surrounding land.

4.4.2 Soil and Land Information

The *Australian Soil Classification Soil Type map of NSW*, Version 4, prepared by the Department of Planning, Industry and Environment, which provides soil types across NSW using the Australian Soils Classification (ASC) at Order level was reviewed to inform the soil landscapes that occur in proximity to the study area.

4.4.3 Vegetation Mapping

The State Vegetation Type Map (SVTM) is a regional-scale map of NSW Plant Community Types (PCTs). This map represents the current extent of each PCT, Vegetation Class and Vegetation Formation across all tenures in NSW. The map is updated periodically as part of the Integrated BioNet Vegetation Data program to improve quality and alignment to the NSW vegetation classification hierarchy. The current release represents the first state-wide vegetation coverage using the NSW vegetation classification hierarchy, including the revised eastern NSW PCT classification C1.1. This mapping data may be used as a guide to the occurrence and distribution of PCTs, Vegetation Classes, and Vegetation Formations, before

and after clearing. It should be noted that the mapping has several issues that will be addressed in future SVTM versions, including:

- PCT attribution errors – corrected as better information becomes available;
- Spatial errors or omissions (gaps and slithers or mapping linework inaccuracies);
- Eastern NSW PCT classification topologies differ from central and western NSW classification topologies;
- Some PCTs mapped as part of earlier regional coverages have since been discontinued;
- Some PCTs approved in BioNet have not been mapped due to technical issues;
- Spatial and data gaps and discontinuities may occur at the edges of former regional coverages; and
- Pre-clearing coverage for central NSW is not currently available.

4.4.4 BioNet Atlas and Vegetation Classification

The BioNet Atlas database was searched to inform of threatened species records within a 0.1° by 0.1° (approximately 10 km x 10 km) default search area around the study area. This information was used to inform:

- The threatened species recorded locally; and
- The proximity of any threatened species records to the study area.

The Bionet Vegetation Classification application was used to identify and assign Plant Community Type (PCT) designation to the plant communities occurring in proximity to the study area. Flora assemblage data collected during the field survey was used to determine the PCT(s) occurring within the study area.

4.4.5 Biodiversity Values Map

The Biodiversity Offsets Scheme does not apply to Part 5 developments. However, in order to exercise due diligence, the Biodiversity Values Map was reviewed to determine if any land mapped as being of high biodiversity value occurred in proximity to the study area.

4.4.7 PlantNet Database

The PlantNet database, which provides botanical information derived from the *Flora of New South Wales* was utilised for identification of flora species.

4.4.8 EPBC Act Matters of National Environmental Significance

The Protected Matters Search Tool (PMST) was utilised to generate a report that provides general guidance on Matters of National Environmental Significance (MNES) and other matters protected by the EPBC Act around the study area employing a ten kilometre buffer. This included consideration of the *EPBC Act referral guidelines for the vulnerable koala* where potential impacts to koala habitat or preferred koala food trees are likely to occur.

4.4.9 EPBC Act Koala Impact Referral Assessment

Koala (*Phascolarctos cinereus*) populations in Queensland (QLD), New South Wales (NSW) and the Australian Capital Territory (ACT) have been listed as endangered under the EPBC Act. The Department of Climate Change, Energy, the Environment and Water (DCCEEW) has prepared guides to assist proponents in deciding whether a proposed action is likely to have

a significant impact on the koala. In assessing the potential negative impacts of an action on the koala, the following points must be considered:

- the scale of the action and its impacts;
- the intensity of the action and its impacts;
- the duration and frequency of the action and its impacts;
- the environmental context, for example, the sensitivity, value, quality and size of the environment, the site's connectivity to other habitats in the broader landscape and its importance in the conservation of the environment;
- the nature of the potential impacts that are likely to result from your actions; and
- whether mitigation measures will avoid or reduce these impacts.

Referral Guidance:
These considerations should be analysed in the context of the endangered species criteria outlined in the *Significant Impact Guidelines 1.1*. In undertaking an assessment, a proponent must document their analysis and retain any records. Impacts to the environment must be avoided wherever possible. If environmental impacts resulting from a project are unavoidable, proposed mitigation measures and offset strategies need to be described as part of the assessment process. The *National Recovery Plan for the Koala* provides information on direct threats and ecologically threatening processes for the koala.

Following avoidance and mitigation of impacts, any unavoidable significant residual impacts must be compensated for through environmental offsets in accordance with the EPBC Environmental Offsets Policy. Offsets are typically designed to improve habitat values, create new areas of habitat and/or improve the connectivity of habitat in the landscape.

Significant Impact on the Listed Koala:
The *Significant Impact Guidelines 1.1* provide overarching guidance on determining whether an action is likely to have a significant impact on a matter protected under the EPBC Act. To determine if an action is likely to have a significant impact on an endangered species, a proponent must consider if there is a real chance or possibility that it will:

- lead to a long-term decrease in the size of a population;
- reduce the area of occupancy of the species;
- fragment an existing population into two or more populations;
- adversely affect habitat critical to the survival of a species;
- disrupt the breeding cycle of a population;
- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;
- result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat;
- introduce disease that may cause the species to decline; or
- interfere with the recovery of the species.

Projects Not Requiring Referral:
Types of actions that involve clearing of koala habitat, but which do not generally need to be referred include:

- an action that has been granted an EPBC Act exemption on the grounds that the action is being undertaken to preserve human life or property or prevent those risks;
- clearing land for fire emergencies;
- clearing works to reduce the risk of bushfire outside of emergency situations, where the impact is not likely to have a significant impact on a matter of national environmental significance;
- clearing of individual or small groups (less than 10) of paddock trees, provided that these are not the only dispersal link between patches of habitat;
- certain agricultural activities;
- other minister issued exemptions.

Koala Habitat Identification:
For the purposes of the EPBC Act koala listing, locally important koala tree species can be used as a starting point to determine whether an area is likely to contain koala habitat. The *Review of Koala Habitat Assessment Criteria and Methods* guide includes information on feed trees in different regions, as well as survey methods to assess habitat. As koalas typically travel between trees via the ground, it too forms an essential component of koala habitat, as without the ground, movement between trees would be hindered or impossible.

Depending on the site and the extent of the proposed impact, surveys for koala by suitably qualified specialists may be necessary to identify sensitive areas and may help planning and engineering design teams to avoid or mitigate potential impacts. The survey methods and level of survey effort required will depend on the size and nature of the action and the availability and quality of information already available.

4.5 Ecological (Field) Survey

An investigation of the study area was undertaken Friday, 29 September 2023 to assess the flora and habitat within the study area as detailed below.

4.5.1 Flora Survey

The survey effort was focussed on the parts of the study area containing native vegetation, including those that were disturbed or comprised regrowth. Where native vegetation occurred within the study area, the following tasks (where applicable) were undertaken:

- Identification of the plant communities;
- Identification of species and populations;
- Targeted survey of threatened species where suitable habitat existed;
- Spatial distribution of the vegetation in the survey area;
- Assessment of the vegetation's condition; and
- Determination of the vegetation's conservation significance.

For the purposes of this ecological assessment a tree is defined as a perennial plant having a trunk diameter at breast height (DBH) of not less than 100 mm where DBH is the measurement of the trunk at 1.3 metres above ground level.

4.5.2 Habitat Assessment

The habitat assessment focused on the potential for species to occur within the survey area based on the type, suitability and condition of the habitat, and the habitat features present. Although recording threatened species during field survey can confirm their presence in an area, the lack of threatened species records does not necessarily indicate that threatened species are absent. Threatened species tend to be rare and in many cases, are cryptic by nature, consequently they are often difficult to detect. Therefore, suitable habitat is a useful indicator and an important matter for consideration when determining the potential for the presence of threatened species. During the field survey, the following information was collected:

- Habitat type;
- Habitat features;
- Threatened species and populations likely to be present based on the type of habitat and the habitat features present; and
- Habitat connectivity and conservation significance (in relation to individuals, species, populations and communities where applicable).

4.6 Bush Fire Attack Assessment

The bush fire attack assessment was undertaken in accordance with the methodology prescribed under Appendix 1 of PBP. The following steps to determine the applicable bush fire attack level were undertaken:

- The vegetation formation was determined in all directions around the development site to a distance of 140 metres as per Keith (2004),
- The effective slope of the land around the development site over a distance of 100 metres was determined. Slopes were determined on site utilising a Suunto Tandem 360PC/360R DG clinometer. Slopes were verified by analysis of the topographic data from SIX Maps (NSW Spatial Services). Where the slopes exceeded the acceptable solutions (i.e. >20^{o}) or where greater detail was deemed necessary in relation to potential radiant heat levels, a performance approach was taken utilising the FLAMESOL calculator (as per Method 2 in AS 3959) to determine the radiant heat exposure;
- The relevant FFDI for the council area in which the development is to be undertaken was determined (as per A1.6 of PBP); and
- The applicable FFDI, vegetation formation and effective slope were matched to determine the BAL using the relevant tables in Appendix A of PBP (A1.12.5, A1.12.6 and A1.12.7).

4.7 Survey Limitations

4.7.1 Ecological Assessment

Significance tests were carried out for threatened species, populations and ecological communities listed under the BC Act and Assessments of Significance prepared under the EPBC Act. In relation to the BC Act, the Test of Significance was undertaken in accordance with the *Threatened Species Test of Significance Guidelines* (NSW Office of Environment and Heritage, 2018). In relation to the EPBC Act, the significance assessments were undertaken in accordance with the *Significant Impact Guidelines 1.1 – Matters of National Environmental* (Department of the Environment, Water, Heritage and the Arts, 2013).

The conclusions drawn in this report are based upon information obtained from the review of literature and database searches in conjunction with the findings of the ecological assessment undertaken of the study area at the time of the field investigation. These results are not exhaustive but rather are indicative of the environmental conditions, including the presence or otherwise of threatened species, populations and ecological communities. It should also be recognised that environmental conditions are dynamic and will change over the course of time. Habitat assessments were completed for all threatened species and populations identified in the database searches to determine whether suitable habitat exists within the study area. This is a precautionary approach that is likely to include cryptic species as well those that are otherwise difficult to detect.

4.7.2 Bush Fire Attack Assessment

The bush fire assessment has been based on bush fire protection guidelines as outlined in the documents; PBP and the RFS Practice Note. As noted by PBP and notwithstanding the precautions recommended, it should always be borne in mind that bush fires burn under a range of conditions and an element of risk always remains.

4.8 Significance Tests and Assessments

Significance tests were carried out for threatened species, populations and ecological communities listed under the BC Act and Assessments of Significance prepared under the EPBC Act. In relation to the BC Act, the Test of Significance was undertaken in accordance with the *Threatened Species Test of Significance Guidelines* (NSW Office of Environment and Heritage, 2018). In relation to the EPBC Act, the significance assessments were undertaken in accordance with the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (Department of the Environment, Water, Heritage and the Arts, 2013).

5. Ecological Assessment Results

5.1 Desktop Analysis

5.1.1 Basement Geology

The geology mapping indicates that the study area and surrounding land occurs on the Ben Boyd Formation from the Late Devonian Period with the base forming 382.70 Ma and the top forming 358.90 Ma. The Ben Boyd Formation is described as being fluvial to marine sandstone, conglomerate, siltstone, quartzite and shale. The dominant lithology is siliciclastic sedimentary rock, and the depositional system is indicated as fluvial (terrestrial).

The geology mapping also indicates that above the Ben Boyd Formation geology, more recent alluvial sediments from the Pleistocene Epoch occur. These sedimentary deposits were laid down from the Paleogene Period at the base (66.00Ma) to the Pleistocene Period at the top (0.01Ma). The overlying sedimentary deposits are described as being alluvial deposits, dominantly sand and gravel, that are friable to unconsolidated, or cemented to sandstone or conglomerate. They are massive to bedded, ranging from thin to very thick, horizontal to cross bedded, and includes some lacustrine deposits and sub-basaltic sediments. The dominant lithology is clastic sediment, i.e. comprised of pieces (clasts) of pre-existing rocks. An extract of the NSW Seamless Geology mapping in proximity to the study area is provided in Figure 3.

5.1.2 Soil Landscape Mapping

The Australian Soil Classification (ASC) soil type map of NSW indicates that the study area is situated on a Kurosols (Natric) soil landscape, with the adjacent land to the north and west being situated on a Kurosol soil landscape. Kurosols are defined under the ASC as soils other than Hydrosols with a clear or abrupt textural B horizon and in which the major part of the upper 0.2 metres of the B2 horizon (or the major part of the entire B2 horizon if it is less than 0.2 metres thick) is strongly acid. These soils are characterised by their strong texture contrast between A horizons and strongly acid B horizons. Many of these soils have some unusual subsoil chemical features, such as high magnesium, sodium and aluminium. Kurosols commonly have low water-holding capacity and are often sodic. Kurosols are divided into suborders based on the dominant colour class in the major part of the upper 0.2 metres of the B2 horizon. The soils are further defined under Great Groups, with one of these being Natric soils in which the major part of the upper 0.2 metres of the B2 horizon is sodic, i.e. the soil has a high proportion of sodium ions relative to other cations. Sodic soils have extremely poor physical characteristics, which in agricultural soils can lead to problems managing water and air regimes in the soil. An extract of the Australian Soil Classification Soil Type map of NSW for the land in proximity to the study area is shown in Figure 4.

5.1.3 State Vegetation Type Map

The SVTM indicates that most of the land the study area is occupied by a Heathland Formation designated as PCT 3816: Far Southeast Coastal Lowland Heath. Under the Bionet Vegetation Classification, PCT 3816 is described as a mid-high to tall heathland or open heathland, rarely with low eucalypt emergents, and a dense ground layer of sedges, restricted to gentle slopes on coastal deposits of Tertiary alluvium and recent sands, south from

Pambula, far south coast. A diverse mid-dense shrub layer is characteristic and very frequently includes a high cover of *Allocasuarina paludosa* (Swamp She-oak) together with a low cover of *Leptospermum continentale* (Prickly Tea-tree), *Acacia suaveolens* (Sweet Wattle) and *Epacris impressa* (Common Heath). Other common shrubs include *Banksia paludosa* (Swamp Banksia) and *Banksia serrata* (Old-man Banksia), the latter with a higher cover. The ground layer is a mid-dense to dense cover of sedges together with small ferns, graminoids and grasses. A high cover of *Schoenus brevifolius* (Zig-zag Bog-rush) is common, while *Cassytha glabella* (Devil's Twine) and *Patersonia glabrata* (Leafy Purple-flag) are almost always present, very frequently with *Lindsaea linearis* (Screw Fern), *Lomandra glauca* (Pale Mat-rush) and *Burchardia umbellata* (Milkmaids). This PCT occurs in a narrow coastal band, commonly less than several hundred metres from the coastline at elevations of 10-80 metres asl with a mean annual rainfall of 840-930 mm. It has only a weak floristic overlap with other PCTs in NSW, although a similar assemblage is likely to extend across the Victorian border onto the East Gippsland coastal plain. Recent fire may produce sharp boundaries with adjoining dry eucalypt forest PCTs 3182, 3664 and 3646. The Bionet Vegetation Classification application indicates that no TEC is associated with this PCT.

The SVTM indicates that three other PCTs occur in proximity to the study area, which may influence the species assemblage within the study area, including another Heathland Formation that occurs on the immediately adjacent land to the west of the study area. This plant community is designated as PCT 3792: Far Southeast Headland Scrub. Under the Bionet Vegetation Classification, PCT 3792 is described as a tall open shrubland or a low to mid-high open forest dominated by *Melaleuca armillaris* (Bracelet Honey-myrtle) with a sparse mid-stratum and a grass and small forb ground layer found on coastal headlands and sea cliffs south of Bega, on the far South Coast. The upper stratum varies in height depending on exposure to prevailing sea breezes, however, almost always includes a high though sometimes patchy cover of *Melaleuca armillaris*. Protected sites may include a sparse cover of eucalypts including *Eucalyptus longifolia* (Woollybutt), or rarely *Allocasuarina littoralis* (Black She-oak) or *Banksia integrifolia* (Coast Banksia). The mid-stratum is sometimes absent, however where present, is sparse, and very frequently includes *Pittosporum undulatum* (Sweet Pittosporum) with other low sclerophyll shrubs. The sparse to mid-dense ground layer is characterised by grasses and small forbs and twiners, almost always including *Dichondra repens* (Kidney Weed) and very frequently *Grona varians* (Slender Tick-trefoil), *Microlaena stipoides* (Weeping Grass), *Oplismenus imbecillis* (Creeping Beard Grass) and *Glycine clandestina* (Twining Glycine). This PCT occurs on sandstones, high-quartz sediments, and occasionally aeolian sand mantles at elevations of below 60 metres asl. It occurs in many coastal reserves including Ben Boyd and Mimosa Rocks national parks and is likely to extend south into Victoria along the coastline of East Gippsland. This community is only weakly related other PCTs in NSW. It is replaced by headland scrub PCT 3815 in the Eurobodalla region. The Bionet Vegetation Classification application indicates that no TEC is associated with this PCT.

The SVTM indicates a Dry Sclerophyll Forests Formation occurs on adjacent land to the north of the study area. This plant community is designated as PCT 3649: Far South Lowland Depressions Shrub Forest. Under the Bionet Vegetation Classification, PCT 3784 is described as a mid-high to tall dry shrubby sclerophyll open forest found on poorly drained sandy soils associated with gentle gradient lowland depressions south of Eden, far south coast. The tree canopy, which often retains a sparse foliage cover, may include a mix of eucalypts,

Allocasuarina littoralis (Black She-oak) and *Banksia serrata* (Old Man Banksia). While eucalypts are not always dominant, *Eucalyptus consideniana* (Yertchuk) is the most frequent species, recorded at just under half of the plots, and may be accompanied by *Angophora floribunda* (Rough-barked Apple), one of two stringybark species, such as *Eucalyptus globoidea* (White Stringybark) or *Eucalyptus baxteri* (Brown Stringybark) or rarely with *Eucalyptus conspicua* (Gippsland Swamp-box), a species that reaches its northern limit in the Eden region. *Allocasuarina littoralis* may be locally abundant at some sites, possibly following disturbance such as logging or fire. A mid-dense cover of shrubs very frequently includes *Epacris impressa* (Common Heath) and commonly *Leptospermum continentale* (Prickly Tea-tree), *Dillwynia glaberrima* and *Aotus ericoides*. The ground layer is comprised of a mid to high cover of sedges and small forbs that reflect the damp soils, including *Gahnia radula*, *Selaginella uliginosa* (Swamp Selaginella) and *Burchardia umbellata* (Milkmaids). This PCT occurs north of the Victorian Border near Timbillica to the Towamba River area in Ben Boyd National Park. It spans low coastal and hinterland elevations of 30-140 metres asl in a narrow band of 890-1000 mm mean annual rainfall. On more freely-draining alluvial soils, this community grades into taller eucalypt open forest PCT 3184, and on very impeded sites to treeless swamp heath PCT 3903. The Bionet Vegetation Classification application indicates that no TEC is associated with this PCT.

The SVTM indicates another Dry Sclerophyll Forests Formation occurs on adjacent land to the west of the study area. This plant community is designated as PCT 3646: Far South Coastal Ranges Silvertop Ash Forest. Under the Bionet Vegetation Classification, PCT 3784 is described as a tall to very tall dry shrubby sclerophyll open forest or woodland with a ground layer of grasses, forbs and ferns on shallow sandy soils associated with exposed slopes and crests of the coastal ranges of the Eden region, far South Coast. The tree canopy very frequently includes a high cover of *Eucalyptus sieberi* (Silvertop Ash) commonly with a lower cover of stringybark species, the most frequent of which are *Eucalyptus agglomerata* (Blue-leaved Stringybark) or *Eucalyptus globoidea* (White Stringybark). *Angophora floribunda* (Rough-barked Apple) may also occasionally be present amongst the canopy or as a small tree in the mid-stratum and *Corymbia gummifera* (Red Bloodwood) may also occur in very localised stands. The mid-stratum is layered and characterised by a very frequent sparse to mid-dense cover of smaller trees dominated by *Allocasuarina littoralis* (Black She-oak) and occasionally *Banksia serrata* (Old Man Banksia). The lower layer of dry shrubs, which includes elements of heath flora, very frequently includes *Epacris impressa* (Common Heath), *Gaudium trinervium* (Flaky-barked Tea-tree) and *Persoonia linearis* (Narrow-leaved Geebung). Other common shrubs include *Monotoca scoparia*, *Persoonia levis* (Broad-leaved Geebung) and *Lomatia ilicifolia* (Holly Lomatia). The ground layer is variable in cover however almost always includes *Xanthosia Pilosa* (Woolly Xanthosia) very frequently with *Pteridium esculentum* (Common Bracken), *Gonocarpus* (Raspwort), *Caustis flexuosa* (Curly Wig), *Amperea xiphoclada* (Broom Spurge) and *Entolasia stricta* (Wiry Panic). This PCT occurs on a range of high quartz substrates including granites, sandstones and felsic volcanics. This community overlaps floristically with dry shrub forest PCT 3648, however that PCT lacks the heathy elements in the mid-stratum and occurs at higher elevations of the Eden hinterland. North of the Bega valley it is replaced by dry shrub forest PCT 3659 north of the Bega Valley, and grades into dense shrubby forest PCT 3649 on low-lying gentle depressions. This PCT is common in Ben Boyd and Nadgee national parks and adjoining state forests including Nullica, Timbillica and

East Boyd. The State Vegetation Type Mapping in proximity to the study area is shown in Figure 5.

5.1.4 Biodiversity Values Map

The Biodiversity Values Map indicates that the proposed development footprint (incorporating the proposed radiocommunications facility and associated APZ) and the surrounding land is not mapped as being of high biodiversity value. The mapping indicates that no land in proximity to the study area is classified as being of high biodiversity value. An extract of the Biodiversity Values Map showing the proposed development footprint and surrounding land is shown in Figure 6.

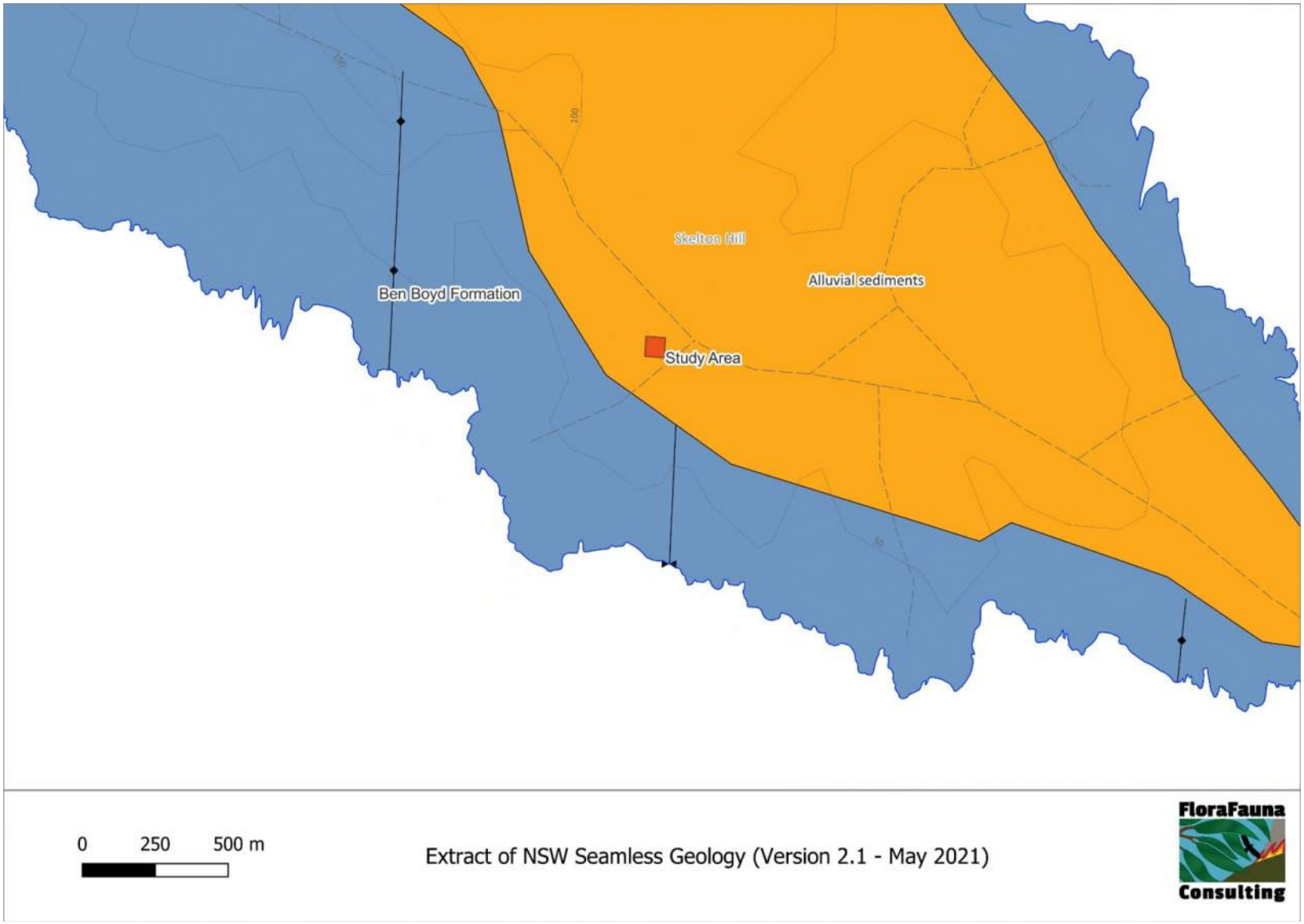

Figure 3: Extract of the NSW Seamless Geology mapping showing the geology occurring in proximity to the study area

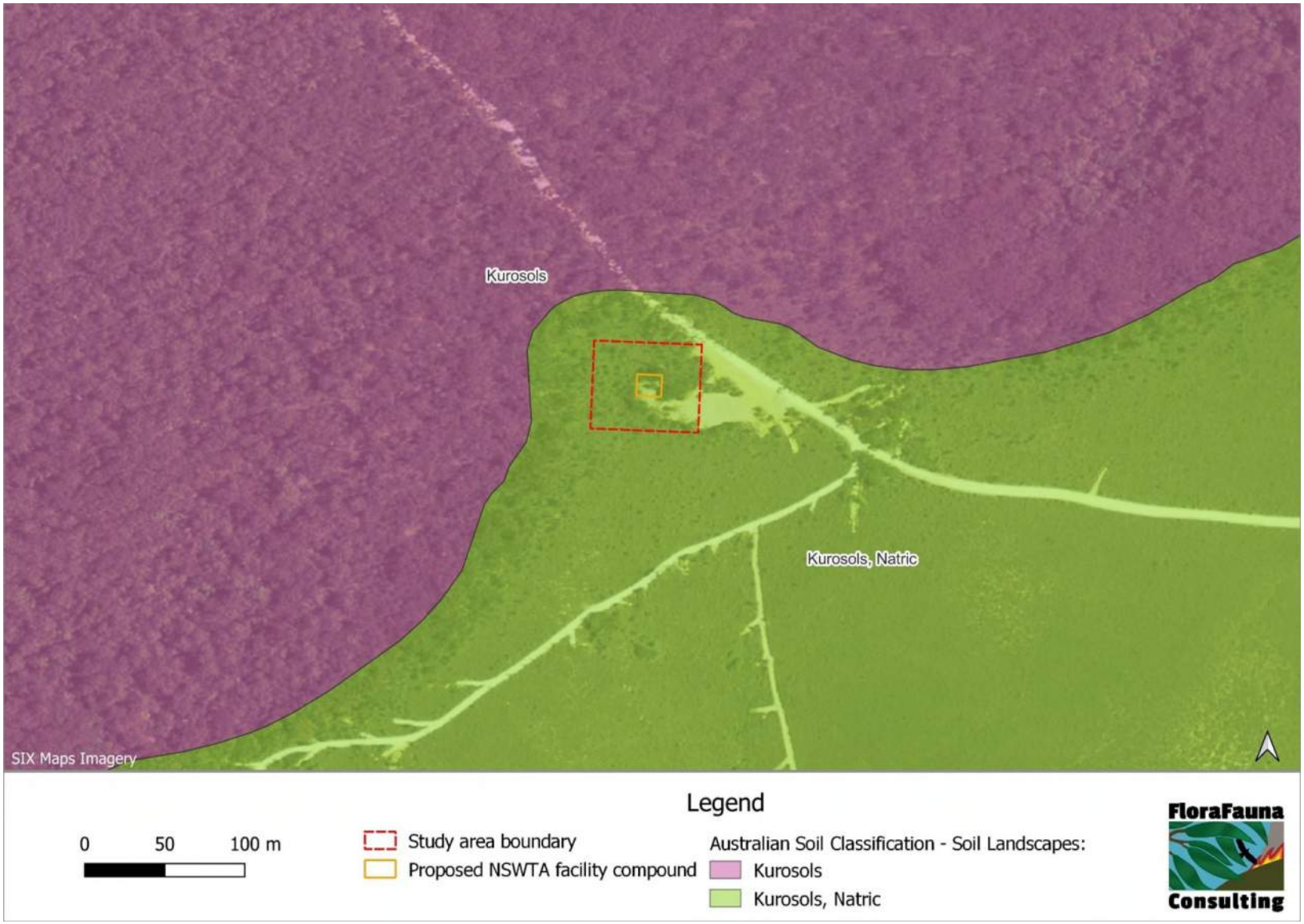

Figure 4: Australian Soil Classification soil landscapes in proximity to the study area

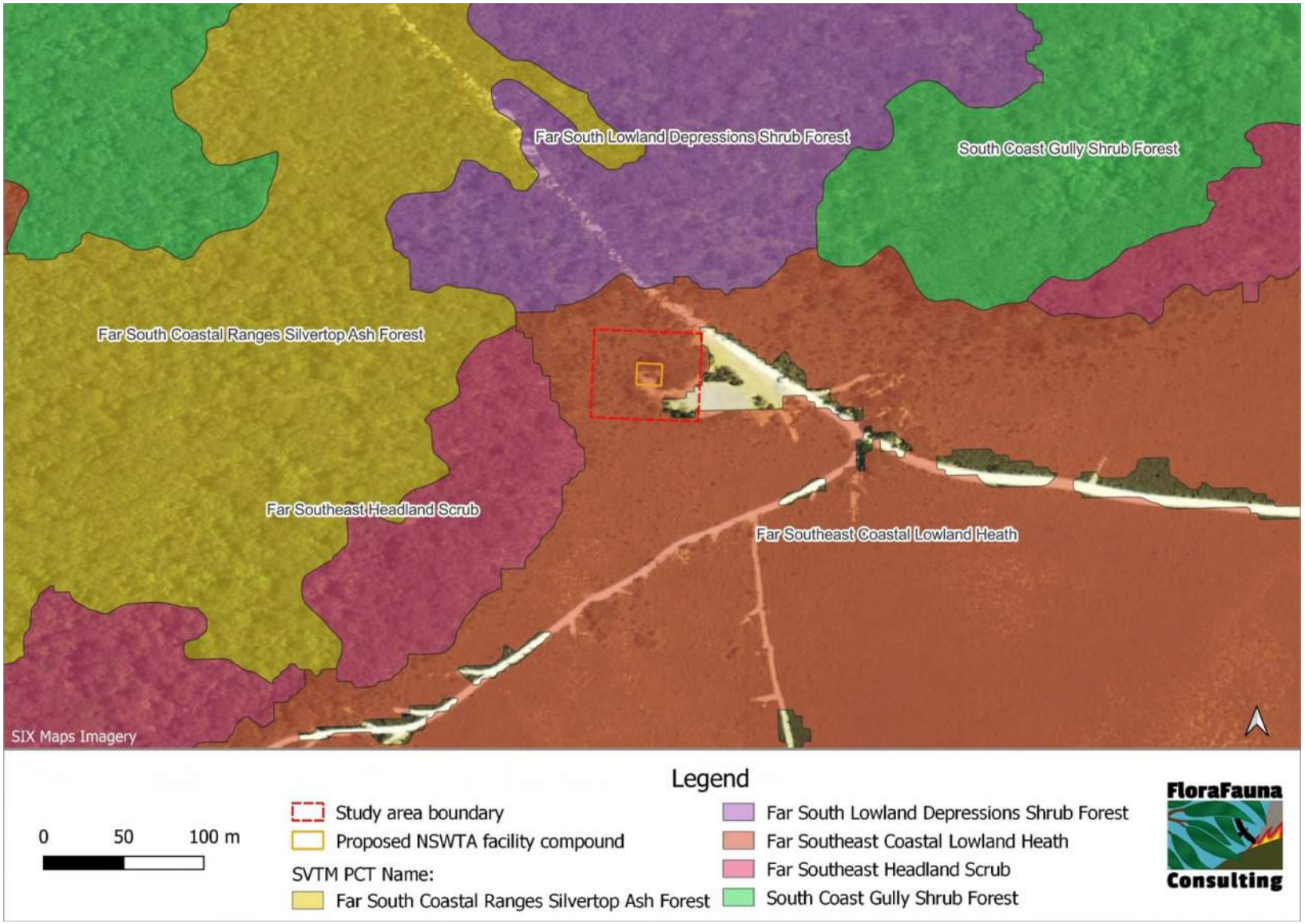

Figure 5: Extract of the State Vegetation Type Map showing the Plant Community Types in proximity to the study area

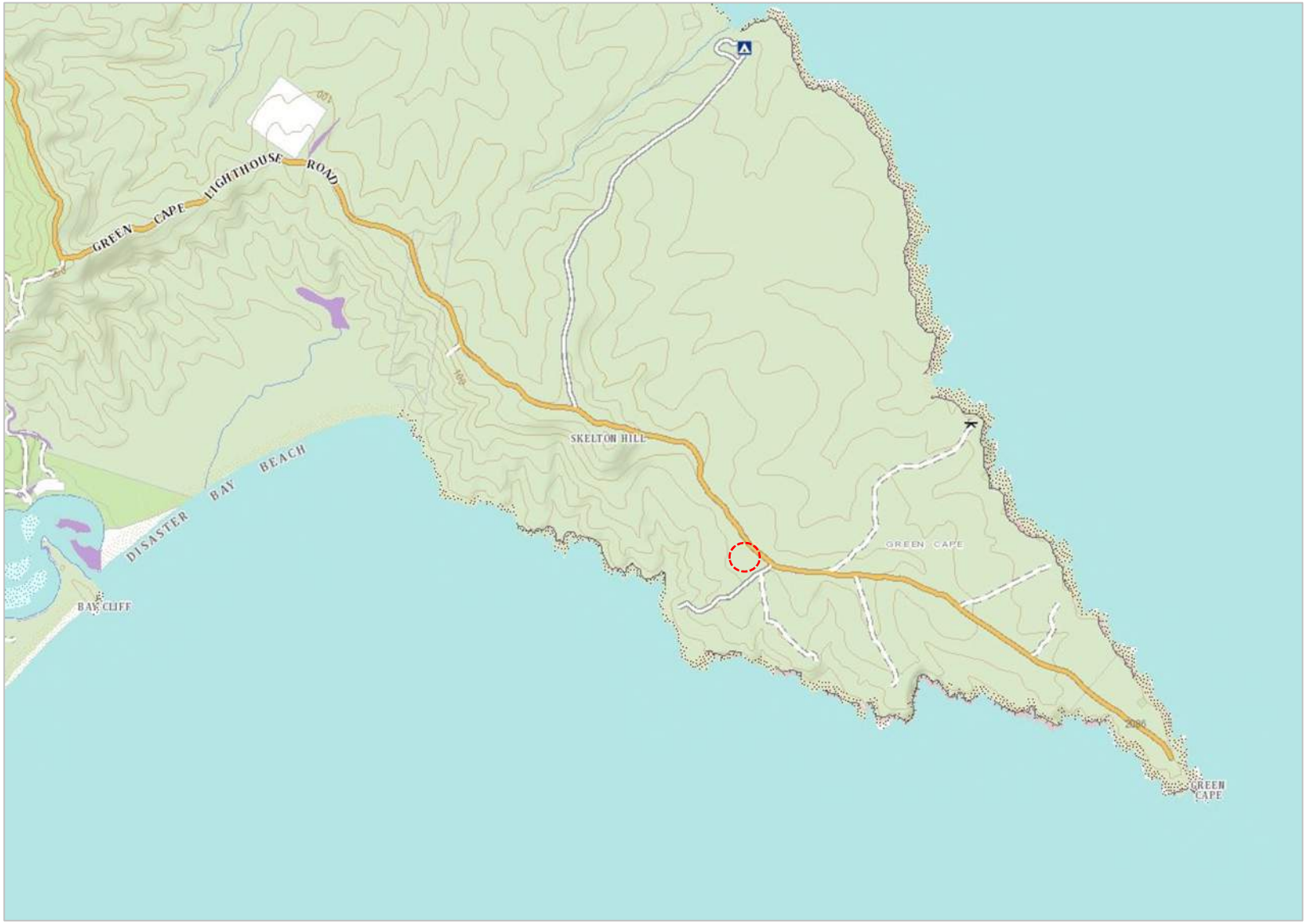

Figure 6: Extract of Biodiversity Values Map (areas of high biodiversity shown purple and study area circled)

5.2 Field Survey

5.2.1 Geology

No exposed rock outcropping was present within the study area; therefore the underlying geology was not verified onsite. Exposed ground within the study area, however, did confirm the occurrence of overlying sedimentary deposits as per the geology mapping. An image of exposed ground within the study area is shown at Figure 7.

5.2.2 Soil Landscape

Exposed soil observed within the study area had a highly siliceous composition, which was consistent with a Kurosol (Natric) soil type as indicated by the soil landscape mapping. An image of exposed soil within the study area is shown at Figure 7.

Figure 7: Exposed soil within the study area was consistent with a Kurosol soil type

5.2.3 Flora Survey

The study area is situated at Green Cape, approximately midway between the most eastern headland of the Cape and Disaster Bay Beach to the west. The proposed development site comprises part of an existing managed footprint that has been cleared previously in association with an existing NPWS works site and an area of adjacent heathland. The effects of the 2019-2020 bush fires, which impacted much the NSW coast and hinterland were clearly evident throughout the study area and surrounding heathland. During the flora survey it was noted that the vegetation in all strata was in a post-fire regenerative state. Numerous individual plants were resprouts and dead trees and shrubs were common throughout the study area and the surrounding plant communities. In addition, much of the species assemblage associated with the upper strata comprised juvenile plants recorded in the lower

strata. Similarly, species associated with the mid-level shrub stratum were frequently recorded as juveniles in the groundcover. Eucalypt seedlings and saplings were abundant across the study area and adjacent heathland.

The upper stratum was composed of various species of small trees or tall shrubs with occasional eucalypt emergents. Within the study area, all emergent eucalypts were identified as the species; *Eucalyptus sieberi* (Silvertop Ash). The principal species recorded in the upper stratum included *Banksia serrata* (Old-man Banksia), *Allocasuarina paludosa* (Swamp She-oak), *Hakea decurrens* subsp. *physocarpa*, *Persoonia levis* (Broad-leaved Geebung), *Leucopogon esquamatus* and *Monotoca elliptica* (Tree Broom-heath). Other less abundant tall shrubs that were recorded in the upper stratum included *Banksia paludosa* (Swamp Banksia), *Monotoca scoparia*, *Daviesia corymbosa*, *Acacia longifolia* subsp. *longifolia* (Sydney Golden wattle) and *Acacia suaveolens* (Sweet Wattle).

The groundcover comprised a diverse assemblage of sedges, perennial forbs and to a lesser extent, grasses. The principal species recorded in the groundcover included *Lepidosperma neesii*, *Schoenus brevifolius* (Zig-zag Bog-rush), *Xanthosia tridentata* (Rock Xanthosia), *Argentipallium obtusifolium*, *Burchardia umbellata* (Milkmaids), *Brachyloma daphnoides* (Daphne Heath), *Bossiaea ensata* (Sword Bossiaea), *Dillwynia sericea* subsp. *rudis*, *Dampiera stricta*, *Patersonia sericea* var. *sericea* (Silky Purple-Flag), *Lomandra glauca* (Pale Mat-rush), *Rytidosperma pallidum* (Silvertop Wallaby Grass) and *Hybanthus vernonii subsp. scaber*. Other, less abundant species recorded in the groundcover included *Lepidosperma sieberi*, *Hibbertia empetrifolia* subsp. *empetrifolia*, *Epacris impressa* (Common Heath), *Goodenia ovata*, *Entolasia stricta* (Wiry Panic), *Comesperma ericinum* (Pyramid Flower), *Muehlenbeckia adpressa* (Climbing Lignum), *Grevillea lanigera* (Woolly Grevillea) and *Cryptandra ericoides* (Heathy Cryptandra). The complete list of flora species recorded within the study area during the flora survey are appended to this report as Appendix B.

5.2.4 Plant Community

The findings of the flora survey were more or less consistent with the vegetation mapping. The structure of the plant community and the majority of the species assemblage therein generally confirmed the vegetation mapping, which indicates the study area is occupied by PCT 3816: Far Southeast Coastal Lowland Heath. However, the species assemblage is possibly being influenced by an adjacent dry sclerophyll forest community identified as PCT 3646: Far South Coastal Ranges Silvertop Ash Forest, as several species, including the emergent eucalypt species, are associated with it. This suggests that the study area may lie within the ecotone between the two plant communities. It is also noted that both plant communities share a number of diagnostic species. Neither of the plant communities, i.e. PCT 3816 and PCT 3646 are associated with any TEC. The following images show the vegetation occurring within and surrounding the study area.

Figure 8: Equipment and material storage within part of the proposed facility footprint

Figure 9: View of the proposed NSWTA facility footprint from the existing site access

Figure 10: View of the regenerating heathland in the northern part of the study area

Figure 11: View of the regenerating heathland in the eastern part of the study area

Figure 12: View of the regenerating heathland in the eastern part of the study area

Figure 13: Existing site access in the southern part of the study area

Figure 14: Emergent eucalypt, resprouting shrubs, dead shrubs and new regrowth shrubs (from seed)

Figure 15: Large emergent eucalypt adjacent to the footprint of the proposed NSWTA facility

5.3 Habitat Assessment

5.3.1 Habitat Features

The study area is located on sedimentary geology and contains a tall heathland community that is in a regenerative state following a bush fire event that occurred approximately four years ago. The habitat associated with the heathland community contains an array of associated terrestrial habitat features, including areas of dense groundcover, fallen trees or shrubs and other woody debris such as branches and leaf litter.

At the time of the site assessment, the visible signs of the 2019 bush fire were evident within the study area and more widely in the surrounding habitats. Within the heathland, numerous standing dead trees and shrubs were present, and the living vegetation was comprised of resprouts and immature plants that have regenerated from the seed bank. Because regeneration of the fire impacted plant community had progressed by approximately four years, during which time consistent rain associated with a La Nina weather pattern was received, the low shrub layer and groundcover were well-developed.

5.3.2 Habitat Use

There was evidence of habitat use by two vertebrates within the study area, including numerous scats and other signs. These scats and other signs were assessed using the *Tracks Scats and Other Signs – A Field Guide to Australian Mammals* (Triggs, 1996). Based on the scat assessment and in consideration of the site's location within the landscape, the species associated with the larger scats was identified as being the native macropod, *Wallabia bicolor* (Swamp Wallaby). Smaller scats, which were concentrated at several low mounds (buck hills) were identified as being associated with the invasive pest species; *Oryctolagus cuniculus* (European Rabbit). Given the concentration and age range of the scats, i.e. from dry old scats to fresh new scats, the site appears to be a regularly used 'camp' that has been occupied for a considerable period.

Other signs included flattened vegetation at the bases of several trees and large shrubs that are likely to be shelter sites used by Swamp Wallabies. The numerous scats in proximity to these shelter sites assisted in identifying the species. Several Swamp Wallabies were observed in the area while travelling along Green Cape Lighthouse Road to the site. There were also a number of scrapes, which were rounded at the base and consistent with those formed by rabbits observed within the study area.

5.3.3 Biodiversity Values Map

The Biodiversity Values Map (see Figure 5) indicates that no land in proximity to the study area is classified as being of high biodiversity value. The following images show the general conditions of the habitat within the study area and adjacent forest communities.

Figure 16: Swamp Wallaby scats observed within the study area (European Rabbit scats are also visible)

Figure 17: Swamp Wallaby shelter site within the study area

Figure 18: European Rabbit scats and scrapings were common and widespread across the study area

Figure 19: European Rabbit 'buck hill' within the study area

5.4 Threatened Flora

5.4.1 Potential Occurrence

The BioNet Atlas indicated 31 records of three threatened flora species listed under the BC Act within the 0.1° by 0.1° (10 km x 10 km) default search area around the study area. The Protected Matters Search Tool report indicated 11 threatened species listed under the EPBC Act or their habitat may occur within a 10 kilometre buffer around the study area. The details of the threatened species of flora returned in the database searches and their potential occurrence within the study area are summarised in Table 3.

Table 3: Threatened flora returned in database searches

Species and Listing	Distribution and Habitat	Potential Occurrence
Asteraceae		
Xerochrysum palustre (Swamp Everlasting) EPBC Act	Perennial rhizomatous herb 45-100 cm high, stems usually simple, slender, densely cottony towards the apex, otherwise glabrous, leaves all cauline and well-spaced, narrow-oblong, florets yellow; Found in Kosciuszko NP and the eastern escarpment south of Badja; Also occurs in eastern Victoria; Confined to wet situations such as permanent swamps, which are often dominated by heath communities and at the margins of bogs on peaty soils	Unlikely
Fabaceae (Faboideae)		
Pultenaea pedunculata (Matted Bush-pea) BC Act	Prostrate shrub; stems appressed-pubescent, leaves alternate narrow-elliptic apex acute and recurved margins recurved upper surface darker than lower, inflorescences subterminal, pea shaped flowers with 5 petals yellow to orange; Widespread in Vic, Tas, and south-eastern SA; In NSW just three disjunct populations, in the Cumberland Plains in Sydney, the coast between Tathra and Bermagui and the Windellama area south of Goulburn; NSW populations are generally in woodland	Possible
Fabaceae (Mimosoideae)		
Acacia constablei (Narrabarba Wattle) BC Act & EPBC Act	Erect to straggly, often slender or whipstick-like shrub 1-3m high, bark smooth mottled light to medium grey, branchlets angled to terete with knobbly ridges, bipinnate leaves with 6-15 pairs of pinnae each with 9-30 pairs of pinnules, inflorescences in axillary or terminal racemes, flowers pale yellow; Endemic to the Narrabarba and Green Cape area south of Eden; Confined to Rhyolite and Aplite rock outcrops	Unlikely
Acacia lanigera var. *gracilipes* EPBC Act	Shrub to 1-2m high, branchlets densely hairy, phyllodes elliptical with basal gland, peduncles smooth, flower heads spherical and golden; Distributed along the Genoa and Wallagaraugh Rivers, and near Mountain Creek, south of Mt Deddick; Grows among granite in open forest or shrubland	Unlikely
Lamiaceae		
Westringia davidii EPBC Act	Shrub 0.5-2m high, leaves in whorls of 3 ovate to obovate margins entire and recurved, white or mauve flowers in clusters of up to 12; Endemic to rocky outcrops above 250m in the coastal ranges to the west of Eden and Pambula; Restricted to shallow organic loam soils fringing rocky outcrops in an ecotone between *Eucalyptus sieberi* dominated forest and the rocky outcrops with shrubland	Unlikely

Orchidaceae		
Caladenia tessellata (Thick Lip Spider Orchid) EPBC Act	Terrestrial herb with leaf linear to lanceolate and cream-coloured petals with reddish stripes; Known from the Sydney area (old records), Wyong, Ulladulla and Braidwood in NSW; Populations in Kiama and Queanbeyan are presumed extinct; Occurs on the coast in Victoria from east of Melbourne to almost the NSW border; Generally found in grassy sclerophyll woodland on clay loam or sandy soils	Unlikely
Calochilus pulchellus (Pretty Beard Orchid) EPBC Act	Glabrous terrestrial herb with single upright sublinear leaf sheathing the flowering stem briefly at the base, 1-5 flowers pale green or greenish yellow with darker reddish longitudinal striations; Known only from three sites all located in the Shoalhaven LGA; Cryptic species with a single leaf present above ground for only a few months and flowering stem present for just a few days; Found in dense low wet heath in wet sand over sandstone	Unlikely
Cryptostylis hunteriana (Leafless Tongue Orchid) EPBC Act	Saprophytic terrestrial orchid, leaves absent, inflorescences erect 15-45 cm long 5-10-flowered, sepals small green, labellum hairy maroon and black with green base; Recorded from Gibraltar Range NP south to Orbost in Vic; Habitat preferences not clearly defined; Known from a range of communities; Larger populations typically occur in woodland dominated by *Eucalyptus sclerophylla*, *Eucalyptus sieberi*, *Corymbia gummifera* and *Allocasuarina littoralis*	Unlikely
Poaceae		
Amphibromus fluitans (River Swamp Wallaby-grass) EPBC Act	Stoloniferous or sometimes rhizomatous perennial to 0.8m high, culms decumbent 0.5-1.5 mm wide glabrous to scabrous 3-5-noded, leaves with sheath slightly scabrous to scabrous, panicle erect, spikelets usually with 6-10 florets; Found in Albury region of NSW, Vic, SA, Tas and New Zealand; Inhabits both natural and man-made water-bodies	Unlikely
Polygonaceae		
Persicaria elatior (Tall Knotweed) EPBC Act	Erect herb to 90 cm high, stalked glandular hairs on most parts with occasional sessile glands, leaves narrow-ovate, 3-11 cm long, 10-30 mm wide, spikes elongate-cylindrical, dense and pink; Scattered occurrences along coastal NSW and in southeast Qld; Grows in damp places, especially beside watercourses; Occasionally in swamp forest	Unlikely
Rhamnaceae		
Pomaderris parrisiae EPBC Act	Shrub or small tree to 9m high; new growth densely covered with appressed silvery simple hairs, older stems glabrescent, leaves elliptic to lanceolate or oblong upper surface glabrous lower surface silvery to whitish hairy, flowers creamy to pale yellow; Distributed chiefly on the escarpment ranges in Egan Peaks NR, Wadbilliga NP and South East Forests NP; Found on skeletal soils in rocky shrubland or tall open forest	Unlikely
Santalaceae		
Thesium australe (Austral Toadflax) EPBC Act	Erect perennial herb to 40 cm high, pale green to yellow-green glabrous, stems 1 to several little-branched wiry striate, leaves linear, flowers solitary axillary green-yellow; Found in small populations scattered across eastern NSW, along the coast and from the Northern to Southern Tablelands; Also found in Tas, Qld and in eastern Asia; Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast; Widespread but rare	Unlikely

Violaceae		
Viola cleistogamoides (Hidden Violet) BC Act	Herb with short stems, glabrous to weakly pubescent, leaves ovate to rhombic mostly 5-10 mm long, 3-6 mm wide, base cuneate and tapering into petiole, flowers cream often with a purplish tinge; Locally common in parts of coastal Vic, Tas and SA; In NSW it is known from several sites in the Wonboyn area; Occurs in a variety of habitats, often in wet sandy coastal heathland; Disturbed sites such as tracks, firebreaks and even lawns have also been colonised	Possible

Based on the findings of the habitat assessment and the habitat requirements of the threatened flora listed above in Table 3, it was determined that potential habitat is present within the study area containing rainforest for the following species:

- *Pultenaea pedunculata* (Matted Bush-pea); and
- *Viola cleistogamoides* (Hidden Violet).

Brief descriptions of these species are provided below.

***Pultenaea pedunculata* (Matted Bush-pea)**
Pultenaea pedunculata is a prostrate shrub forming mats one metre or more in diameter, or to 0.6 metres tall. Roots from the nodes. Leaves with sharp tips. Stems sparsely to moderately hairy. Leaves alternating along the stems, 0.4-1.3 cm long, 0.6-5.2 mm wide, tips pointed and curved down with a needle-shaped point, margins curved down, upper surface hairy on young growth, finally hairless, slightly warty, darker than the lower surface, lower surface with sparse appressed hairs. Flowers 4-9 mm long, pea shaped, with five petals, two joined together to form the keel, standard petal yellow to orange, sometimes with red markings, wings yellow to orange, keel red to purple. Bracteoles linear, inserted at the base of the calyx tube. Flowers on stalks to 20 mm long, in leafy clusters. Flowers most of the year. Pods densely to sparsely hairy, smooth (Harden et al 2006, PlantNET 2023, Lucid 2023). The species can be readily identified at any time by morphological characteristics.

***Viola cleistogamoides* (Hidden Violet)**
Viola cleistogamoides is a small herb with short stems that are glabrous to weakly pubescent. Leaves with lamina ovate to rhombic, mostly 5-10 mm long, 3-6 mm wide, base cuneate and tapering into petiole; petiole 0.5-2 cm long. Flower scapes 5-25 mm long with bracteoles mostly above the middle. The corolla is cream, often with a purplish tinge, 2-3 mm long, scarcely exceeding sepals with lateral petals bearded inside. Flowering occurs in summer (Harden et al 2006, PlantNET 2023). *Viola cleistogamoides* can be readily identified at any time by morphological characteristics.

5.4.2 Targeted Search Results

During the flora survey, a precautionary approach was taken and a targeted search that focused on the proposed works footprint and adjacent habitat was undertaken for the above threatened species, as well as for any of the other listed threatened flora species. At the completion of the search it was concluded that no threatened species of flora were likely to be present within the proposed works footprint.

5.5 Matters of National Environmental Significance

Under the provisions of the EPBC Act, approval is required for any action that may have a significant impact on MNES or on Commonwealth land. A search of the DCCEEW website employing the PMST with a ten kilometre buffer was undertaken to identify the matters of NES that may occur in or may relate to the site. The EPBC Act Protected Matters Report is appended to this report as Appendix E.

5.5.1 Matters of National Environmental Significance

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance:	None
Great Barrier Marine Parks	None
Commonwealth Marine Areas:	1
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	86
Listed Migratory Species:	51

i. Threatened Ecological Communities

The threatened ecological communities returned in the PMST included:

- Brogo Vine Forest of the South east Corner Bioregion;
- Littoral Rainforest and Coastal Vine Thickets of Eastern Australia;
- Lowland Grassy Woodland in the South East Corner Bioregion;
- River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria; and
- Subtropical and Temperate Coastal Saltmarsh.

The landscape position and species assemblage data collected during the flora survey indicate that the plant communities recorded within the study area and on the adjacent land are not associated with any of the threatened ecological communities listed above.

ii. Threatened Species

The threatened species returned in the Protected Matters Search Tool have been considered in the Assessment of Significance (see Appendix C).

iii. Migratory Species

The Protected Matters Search Tool report includes four migratory terrestrial avian species, which are detailed in Table 4 and accompanying notes.

Table 4: PMST report terrestrial migratory species

Species	Common Name	BioNet Records	Potential Occurrence
Hirundapus caudacutus	White-throated Needletail	1	Unlikely
Monarcha melanopsis	Black-faced Monarch	0	Unlikely
Myiagra cyanoleuca	Satin Flycatcher	0	Unlikely
Rhipidura rufifrons	Rufous Fantail	3	Unlikely

Hirundapus caudacutus (White-throated Needletail)

The White-throated Needletail is almost exclusively aerial, flying from less than one metre to more than 1000 metres. The species breeds in Central Asia and southern Siberia and migrates south to the Indian Subcontinent, Southeast Asia and Australia during winter. For a time it was commonly believed that the species did not land while in Australia. However, it has now been observed that birds will roost in trees. The BioNet Atlas database search indicated one record of the species within a 0.1° by 0.1° default search area around the study area. Although the species occurs over most types of habitat, it is probably recorded most often above wooded areas. It is unlikely that the proposed works would impact significantly on the life cycle of the White-throated Needletail.

Monarcha melanopsis (Black-faced Monarch)

The Black-faced Monarch is widespread in eastern Australia. It exhibits migratory behaviour, spending spring, summer and autumn in eastern Australia, and wintering in southern and eastern Papua New Guinea from March to August. In NSW, the species occurs around the eastern slopes and tablelands of the Great Dividing Range. The Black-faced Monarch mainly occurs in rainforest ecosystems but is also sometimes found in open eucalypt forest (mainly wet sclerophyll forest), especially in gullies with a dense, shrubby understorey as well as in dry sclerophyll forest and woodland. The BioNet Atlas database search indicated no records of the species within a 0.1° by 0.1° default search area around the study area. Potential habitat for the Black-faced Monarch may occur in the surrounding area, however the proposed works site is not considered to be suitable habitat for the species. Therefore, the proposed works are unlikely to have a significant impact on the life cycle of the species.

Myiagra cyanoleuca (Satin Flycatcher)

The Satin Flycatcher is migratory, moving north in autumn to spend winter in northern Australia and New Guinea then returning south in spring to spend summer in south-eastern Australia. The Satin Flycatcher inhabits heavily vegetated gullies in eucalypt-dominated forest and taller woodland, and on migration, occur in coastal forest, woodland, mangroves and drier woodland and open forest communities. The BioNet Atlas database search indicated no records of the species within a 0.1° by 0.1° default search area around the study area. Potential habitat for the Satin Flycatcher may be available in the wet sclerophyll forest communities that occur in the surrounding landscape; however, the proposed works site is considered to be suitable habitat for the species. Therefore, the proposed works are unlikely to have a significant impact on the life cycle of the species.

Rhipidura rufifrons (Rufous Fantail)

The Rufous Fantail is migratory, being virtually absent from south-east Australia in winter. In south-east Australia, departure from the breeding areas is usually March to early April. A few birds remain in all months, but most spend the winter in coastal lowlands and offshore islands in south-east Queensland, north to Cape York Peninsula, Torres Strait Island. Some birds also migrate as far north as south Papua New Guinea. In east and southeast Australia, the Rufous Fantail mainly inhabits wet sclerophyll forest, often in gullies. The species also occurs in subtropical and temperate rainforest. The BioNet Atlas database search indicated three records of the Rufous Fantail within a 0.1° by 0.1° default search area around the study

area. Potential habitat for the Rufous Fantail may be available in the wet sclerophyll forest communities that occur in the surrounding landscape; however, the proposed works site is considered to be suitable habitat for the species. Therefore, the proposed works are unlikely to have a significant impact on the life cycle of the species.

5.5.2 Other Matters Protected by the EPBC Act

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	82
Whales and other Cetaceans:	14
Critical Habitats:	None
Commonwealth Reserves (Terrestrial):	None
Australian Marine Parks:	None
Habitat Critical to the Survival of marine Turtles:	None

5.5.3 Extra Information

State and Territory Reserves:	2
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	3
Key Ecological Features (Marine):	1
Biologically Important Areas:	18
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

None of the above matters are applicable to the proposed works site.

5.6 EPBC Act Koala Referral Assessment

The BioNet Atlas database search indicated no records of the koala within a 0.1^{o} by 0.1^{o} search area around the proposed NSWTA radiocommunications facility site at Green Cape. The absence of any records suggests the koala is absent from the area or that a local population of the species is perhaps very small and widely dispersed.

The *National Recovery Plan for the Koala* defines koala habitat by the availability and nutritional quality of food trees, presence of suitable resting trees and microclimates, age structure of vegetation, history, and impediments to dispersal. These factors differ regionally because they are strongly influenced by local climatic and landform attributes. While precise requirements vary regionally and locally, koala habitat can be considered in terms of the following multi-scale resource requirements in space and time:

- the selection by koalas of individual trees for food and shelter and other resources within their home range;
- patch size, form, and context of home ranges within the landscape, including patches of forest, riparian, linear and roadside vegetation associations, open ground, corridors, and scattered paddock trees used for breeding or dispersal;
- at larger scales, the regional landscape in which a metapopulation exists; and

- the geographic range of the koala.

Locally important koala trees and ancillary habitat trees are listed in the document; *A Review of Koala Habitat Assessment Criteria and Methods* and the proposed development site lies within the NSW South Coast Koala Management Biogeographic Region under that document. The flora survey indicated that the development site and surrounding land is occupied by PCT 3816: Far Southeast Coastal Lowland Heath with some recorded species being associated with an adjacent dry sclerophyll forest community, identified as PCT 3646 Far South Coastal Ranges Silvertop Ash Forest. One eucalypt species was recorded within the study area, where it occurred as emergent individuals above the heath. The species was identified as *Eucalyptus* sieberi (Silvertop Ash), which is listed as an ancillary use tree.

The proposed development footprint is mostly situated on previously cleared land associated with an existing NPWS works site and will use an existing site access directly from nearby Green Cape Lighthouse Road. Three trees are situated within the proposed works footprint or are located such that they may be disturbed by the proposed works. However, given the unsuitability of the habitat within the development footprint and the adjacent heathland, the impacts on the koala associated with the proposal are considered to be negligible. Therefore, referral to DCCEEW is considered to be unnecessary in this instance.

5.7 Significance Tests

From the habitat assessment and database/literature review, it was considered that six threatened species listed under the BC Act and five threatened species listed under the EPBC Act could potentially utilise the habitat within the study area. 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 C. All threatened species listed under the BC Act returned in the Bionet database search is appended to this report as Appendix D. The MNES report detailing the potential nationally listed threatened species is appended to this report as Appendix E.

6. Bush Fire Risk Assessment

The bush fire risk assessment has been undertaken for the proposed NSWTA radiocommunications facility as detailed on the overall site plan and site setout plan prepared by Catalyst, reference No. GRN-GREC-DWG-INF-STE-04/05.

6.1 Vegetation Assessment

Based on the Keith vegetation formation descriptions provided under A1.2 of PBP, the vegetation formation within 140 metres around the development footprint incorporating the proposed NSWTA radiocommunications facility site and existing infrastructure at Green Cape was determined as being a Tall Heath formation in all directions. The vegetation occurring within the development footprint and on the adjacent land is detailed in the flora survey results under section 5.2 of this report.

6.2 Effective Slope

The site is characterised by generally negligible to slight slopes. The effective slope is the slope of the land under the classified vegetation as this is the slope that directly influences bush fire behaviour including the rate of spread, the severity of the fire and the level of radiant heat. The effective slope was determined during the site assessment using a Suunto Tandem 360PC/360R clinometer and validated by Six Map topographic data produced by Spatial Services (NSW Government). The effective slopes in each direction as determined onsite are summarised below in Table 5.

Table 5: Effective slope applicable to the proposed development

Direction	Vegetation Classification	Measured Slope (degrees)	Effective Slope Class (degrees)
North	Tall heath	0	Upslope/flat
East	Tall heath	0	Upslope/flat
South	Tall heath	3	>0 to 5
West	Tall heath	2	>0 to 5

The slopes were readily discernible onsite then verified by the topographic data. Six Maps imagery showing the ten metre contours around the proposed development footprint is shown in Figure 20 on page the following page.

Figure 20: Aerial image with contours showing slopes in proximity to the development footprint

6.3 Forest Fire Danger Index (FFDI)

The FDI for the Far South Coast Fire Weather District, including the areas in and around Green Cape and the Bega Valley LGA is FFDI 100.

6.4 Separation

It is proposed to provide 10 metres of separation between the proposed NSWTA facility and the adjacent unmanaged vegetation for bush fire protection, in accordance with the requirements of the RFS Practice Note. The 10 metres of separation shall be measured from the structures (i.e. either the new NSWTA facility or existing infrastructure to be utilised by the NSWTA facility) rather than the compound perimeter fencing. It is noted that the existing site access and NPWS works site in conjunction with the adjacent Green Cape Lighthouse Road corridor provide an increased separation in the south-eastern and to a much lesser extent, the southern direction. However, as the site is far more likely to come under attack by a fire from the north-northwest direction, this increased separation would have little effect on reducing the impact to the proposed infrastructure but may assist with defensive actions. The extent of the APZ and relative position of the proposed NSWTA infrastructure is shown in Figure 21.

6.5 Bush Fire Attack Level (BAL) Determination

The bush fire risk assessment has determined that the bushfire attack level that the development is likely to be exposed to as per Table A1.12.5 of PBP is BAL-40 in the northern and eastern directions and BAL-FZ in the southern and western directions. The characteristics of BAL-40 are that radiant heat flux and potential flame contact could threaten building integrity. The characteristics of BAL-FZ are that significant radiant heat and significantly higher likelihood of flame contact from the fire front will threaten the integrity of infrastructure. The calculated radiant heat exposure (Flamesol) and BAL as per Table A1.12.6 of PBP applicable to the proposed NSWTA radiocommunications facility with provision of a 10 metre wide APZ is summarised in Table 6 below.

Table 6: Summary of radiant heat exposure and BAL applicable to the proposed NSWTA infrastructure with 10 APZ

Direction	Classified Vegetation (PBP Figure A1.2)	Slope (degrees)	Radiant Heat (kW/m^2)	BAL
North	Tall heath	0	38.72	BAL-40
East	Tall heath	0	38.72	BAL-40
South	Tall heath	3	42.73	BAL-FZ
West	Tall heath	2	41.34	BAL-FZ

The FLAMESOL calculator was based a vegetation classification of closed scrub (tall heath), which was the closest fit for the vegetation at the site provided in Table 2.3 of AS3959. The highest potential radiant level of 42.73 kW/m^2 was indicated for the southern direction, which is a BAL-FZ bush fire attack level but only slightly higher than a BAL-40 bush fire attack level. In the western direction a potential radiant level of 41.34 kW/m^2 was indicated, which is deemed a BAL-FZ bush fire attack level also, though it too is only marginally above a BAL-40 bush fire attack level. The FLAMESOL calculations demonstrate that by provision of a 10 metre wide APZ, the potential radiant heat that the proposed NSWTA facility is likely to be

exposed to can be reduced to around 40-43 kW/m^2, i.e. a lower end flame zone exposure, as indicated in Table 6. The FLAMESOL calculator reports are appended to this report as Appendix F.

Figure 21: Relative position of the proposed NSWTA infrastructure and extent of the APZ

7. Impact Assessment

The proposed development will occupy an area of approximately 1,085 m² and the proposed works will involve removal of approximately 134 m² of vegetation for the construction of the proposed NSWTA compound and infrastructure therein and management of approximately 695 m² of adjacent vegetation for provision of an APZ around the proposed NSWTA facility. It is noted that approximately 256 m² of land within the proposed development footprint has been cleared previously in association with the existing site access and NPWS works site. The vegetation that will be impacted is associated with the adjacent heathland community, identified under the NSW Vegetation Classification as PCT 3816: Far Southeast Coastal Lowland Heath. To be compliant with the RFS Practice Note, management of vegetation is required in all directions to form a 10 metres wide APZ, measured from the infrastructure components rather than the compound perimeter fence.

Three emergent trees are located within the proposed works footprint, all of which were identified as the species; *Eucalyptus sieberi* (Silvertop Ash). Two of the trees (Tree 1 and Tree 3) are located at the margin of the proposed NSWTA compound. Both of these trees are mature trees but are not considered to be important in terms of their ecological value and could be removed without any significant impact. The third tree (Tree 2) is located at the northeast corner of the proposed APZ. This tree is larger and due to its size and growth stage, is deemed to be a recruitment tree and is therefore considered to be significant. Tree 2 can and should be retained. Its relative position, near the margin of the APZ would allow its retention without compromising the effectiveness of the APZ, which would remain compliant. The relative position of the proposed NSWTA infrastructure, the boundary of the proposed APZ, the extent of the necessary vegetation removal or management and relative position of the impacted trees are shown in Figure 22. The details of these trees are summarised in Table 7.

Table 7: Summary of trees impacted by the proposed NSWTA facility

Tree ID	Species	Common Name	DBH (cm)	Height (metres)	Growth Stage
1			33	8	Mature
2			70	12	Mature
3			28	8	Mature

NOTE: Trees were not tagged but can be readily located and identified onsite.

Figure 22: Relative position of the proposed NSWTA compound and APZ, and extent of associated vegetation clearing and management

The findings of the flora survey indicate that the plant communities occurring at the site are not listed as a TEC. The targeted search for threatened flora determined that no threatened species of flora were likely to be present within the proposed works footprint. Apart from the cleared footprint associated with the existing NPWS works site and site access, the adjacent vegetation and habitat have not been modified significantly by human activities. The impacts of the 2019-2020 bush fire are evident, and the surrounding vegetation is currently in a regenerative state. Habitat features such as woody debris, fallen trees and branches, and dense regenerating vegetation are present in the adjacent habitat and are important for various species of fauna, including some that are listed as threatened. Therefore, all works should be confined to within the development footprint, with all movements through the site being restricted to those necessary to undertake the works.

8. Recommendations

The following mitigation measures are recommended for inclusion in the Review of Environmental Factors. The conclusions of this assessment assume that the measures are implemented and effective in mitigating impacts.

8.1 Vegetation/Habitat Protection Measures

The following measures are recommended to manage clearing:

- The extent of the works footprint is to be clearly marked (e.g., via pegging/fencing/flagging) before commencement of work in order to prevent any inadvertent harm to the adjacent vegetation and habitat. This fencing/marking is to remain until all work is completed;
- Site induction is to specify that no work is to occur beyond the marked area. All materials and equipment shall be placed in designated areas;
- Works are to avoid damage to root zones of the adjacent trees;
- The extent of the proposed works is to be confined to the defined works footprint as indicated in the overall site plan and site setout plan prepared by Catalyst, reference No. GRN-GREC-DWG-INF-STE-04/05 and Figure 22 of this report. No work is permitted outside this area without further assessment;
- No vegetation or habitat located outside the defined works footprint shall be disturbed or removed;
- Implementation and ongoing maintenance of the infrastructure shall be confined to the footprint of the facility as detailed in the overall site plan prepared by Catalyst, reference No. GRN-GREC-DWG-INF-STE-04 and Figure 22 of this report; and
- Maintenance should be undertaken regularly to ensure that fuel loads are kept low and to help minimise recolonisation of the site by weeds and other undesirable plant species.

8.2 Bush Fire Protection Measures

The following measures are recommended for bush fire protection of the proposed radiocommunications facility and existing infrastructure:

- At the commencement of construction works the land situated around the NSWTA facility as indicated in Figure 21 of this report shall be managed as an APZ as outlined in in Appendix 4 of PBP, with the following variations:
  - As a minimum, annually maintain vegetation to as low as reasonably practical in height at the start of the fire season (e.g. September); and
  - Minimise accumulation of leaves and other debris annually;
- The APZ with a width of 10 metres (measured from the applicable infrastructure in each direction) shall be provided around the proposed NSWTA facility as indicated in Figure 21; and
- Bush fire protection measures, including design, asset protection zones, design for recovery/emergency planning and site reinstatement process shall be as per CCEP prepared by the NSW Telco Authority.

8.3 Protection of Fauna

Immediately prior to commencement of any work involving machinery, the area is to be inspected for fauna. If fauna is detected, the animal is to be allowed to leave the site without any coercion or a suitably qualified/experienced person is to be contacted to facilitate the safe removal of the animal from the worksite.

8.4 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.

8.5 Weed Control

No exotic or weeds were recorded within the development footprint, however, disturbance of the soil and earthworks associated with construction of the proposed facility and visits to the site to undertake maintenance activities has potential to encourage weed invasion. Therefore, it is recommended that:

- Any weeds that are present initially or during maintenance activities of the proposed facility are to be removed and managed to prevent recolonisation;
- Weeds are not to be mulched with native vegetation and should be taken to a licenced landfill facility for disposal;
- Disturbance of vegetation and soil on the site should be restricted to the immediate areas of the proposed work and should not extend into adjacent native vegetation;
- Any new weed infestations that have developed during the work are to be removed;
- Weed management shall be undertaken during routine maintenance of the APZ to ensure recolonisation of the site by weeds and other undesirable plant species is controlled appropriately.

8.6 Fencing

Temporary fencing may be required during the work. Any fencing required should be fauna friendly, permeable and not pose a barrier or risk of entanglement to fauna (e.g. post and plain wire).

9. Conclusion

This report describes the methods and results of an ecological and bush fire risk assessment in relation to a proposed NSWTA radiocommunications facility situated at Green Cape within Beowa National Park. The proposed development involves the installation of a 40 metre monopole, equipment shelter (2.5 x 6.1 metres), with a 36-panel photovoltaic array on a steel frame mounted over the equipment shelter, a secure, fenced compound area (15.5 metres x 17.0 metres) and associated electrical installation. The proposal also includes provision of a ten metres wide APZ around the NSWTA infrastructure.

The ecological assessment was undertaken in accordance with Part 5 of the EP&A Act. In this regard, the proponent is to consider the environmental factors listed in clause 171(2) of the EP&A Regulation. In addition, under the provisions of section 7.2 of the BC Act, proponents of Part 5 activities must apply the Test of Significance as per section 7.3 to determine whether the proposed activity is likely to significantly affect threatened species or ecological communities, or their habitats. If the activity is likely to have a significant impact or will be carried out in a declared area of outstanding biodiversity value, the proponent must either prepare a SIS or BDAR.

The geology mapping indicates that the study area and surrounding land occurs on the Ben Boyd Formation from the Late Devonian Period with the base forming 382.70 Ma and the top forming 358.90 Ma. The Ben Boyd Formation is described as being fluvial to marine sandstone, conglomerate, siltstone, quartzite and shale. The dominant lithology is siliciclastic sedimentary rock, and the depositional system is indicated as fluvial (terrestrial). Above the Ben Boyd Formation geology, more recent alluvial sediments from the Pleistocene Epoch occur, which were laid down from the Paleogene Period at the base (66.00Ma) to the Pleistocene Period at the top (0.01Ma). These overlying sedimentary deposits are described as being alluvial deposits, dominantly sand and gravel, that are friable to unconsolidated, or cemented to sandstone or conglomerate. The dominant lithology is clastic sediment. The ASC soil type map of NSW indicates the study area is situated on a Kurosols (Natric) soil landscape, with the adjacent land to the north and west being situated on a Kurosol soil landscape. These soils are characterised by their strong texture contrast between A horizons and strongly acid B horizons. Natric soils are characterised by the major part of the upper 0.2 metres of the B2 horizon being sodic, i.e. the soil has a high proportion of sodium ions relative to other cations.

The findings of the flora survey more or less confirmed the SVTM. The structure of the plant community and the majority of the species assemblage therein generally confirmed the vegetation mapping, which indicates the study area is occupied by PCT 3816: Far Southeast Coastal Lowland Heath. However, the species assemblage is possibly being influenced by an adjacent dry sclerophyll forest community identified as PCT 3646: Far South Coastal Ranges Silvertop Ash Forest, as several species, including the emergent eucalypt species, are associated with it. This suggests that the study area may lie within the ecotone between the two plant communities. It is also noted that both plant communities share a number of diagnostic species. Neither of the plant communities, i.e. PCT 3816 and PCT 3646 are associated with any TEC.

The habitat assessment determined that the study area is located on sedimentary geology and contains a tall heathland community that is in a regenerative state following a bush fire event that occurred approximately four years ago. The habitat associated with the heathland community contains an array of associated terrestrial habitat features, including areas of dense groundcover, fallen trees or shrubs and other woody debris such as branches and leaf litter. At the time of the site assessment, the visible signs of the 2019 bush fire were evident within the study area and more widely in the surrounding habitats. Within the heathland, numerous standing dead trees and shrubs were present, and the living vegetation was comprised of resprouts and immature plants that have regenerated from the seed bank. Because regeneration of the fire impacted plant community had progressed by approximately four years, during which time consistent rain associated with a La Nina weather pattern was received, the low shrub layer and groundcover were well-developed. There was evidence of habitat use by two vertebrates within the study area, which were determined as being the native macropod, *Wallabia bicolor* (Swamp Wallaby) and the invasive pest species; *Oryctolagus cuniculus* (European Rabbit).

The EPBC Act Protected Matters Search Report indicated that no MNES are applicable to the NSWTA development site, except for potential occurrences of some nationally listed threatened species, which have been considered under the Assessment of Significance. The EPBC Act koala referral assessment determined that the habitat within the development footprint and the adjacent heathland is generally unsuitable and that the impacts on the koala associated with the proposal are deemed to be negligible. Therefore, referral to DCCEEW is considered to be unnecessary in this instance.

The bush fire risk assessment was undertaken in consideration of PBP and the RFS Practice Note, which has been prepared by the NSW Rural Fire Service to provide direction on the provision of bush fire protection measures that must be applied. Bush fire protection measures, including design, asset protection zones, design for recovery/emergency planning and site reinstatement process as per the CCEP prepared by NSWTA will be initiated as required. The bush fire risk assessment has determined that the bushfire attack level that the development is likely to be exposed to as per Table A1.12.5 of PBP is BAL-40 in the northern and eastern directions and BAL-FZ in the southern and western directions. The characteristics of BAL-40 are that radiant heat flux and potential flame contact could threaten building integrity. The characteristics of BAL-FZ are that significant radiant heat and significantly higher likelihood of flame contact from the fire front will threaten the integrity of infrastructure. The FLAMESOL calculator was based a vegetation classification of closed scrub (tall heath), which was the closest fit for the vegetation at the site provided in Table 2.3 of AS3959. The highest potential radiant level of 42.73 kW/m^2 was indicated for the southern direction, which is a BAL-FZ bush fire attack level but only slightly higher than a BAL-40 bush fire attack level. In the western direction a potential radiant level of 41.34 kW/m^2 was indicated, which is deemed a BAL-FZ bush fire attack level also, though it too is only marginally above a BAL-40 bush fire attack level. The FLAMESOL calculations demonstrate that by provision of a 10 metre wide APZ, the potential radiant heat that the proposed NSWTA facility is likely to be exposed to can be reduced to around 40-43 kW/m^2, i.e. a lower end flame zone exposure. Further clearing beyond the required 10 metres is not recommended given the ecological constraints at the site.

The flora survey was undertaken to catalogue as many flora species as possible. While it is likely that the survey almost certainly failed to detect some species, it is considered unlikely that any threatened species of flora were present within the study area. Based on the findings of the ecological assessment, it was determined that six threatened species listed under the BC Act and five threatened species listed under the EPBC Act could potentially utilise the habitat within the study area. 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 concluded that subject to the recommendations of this report, the proposed work is unlikely to have a significant impact on any threatened species, threatened ecological community or areas of outstanding biodiversity value.

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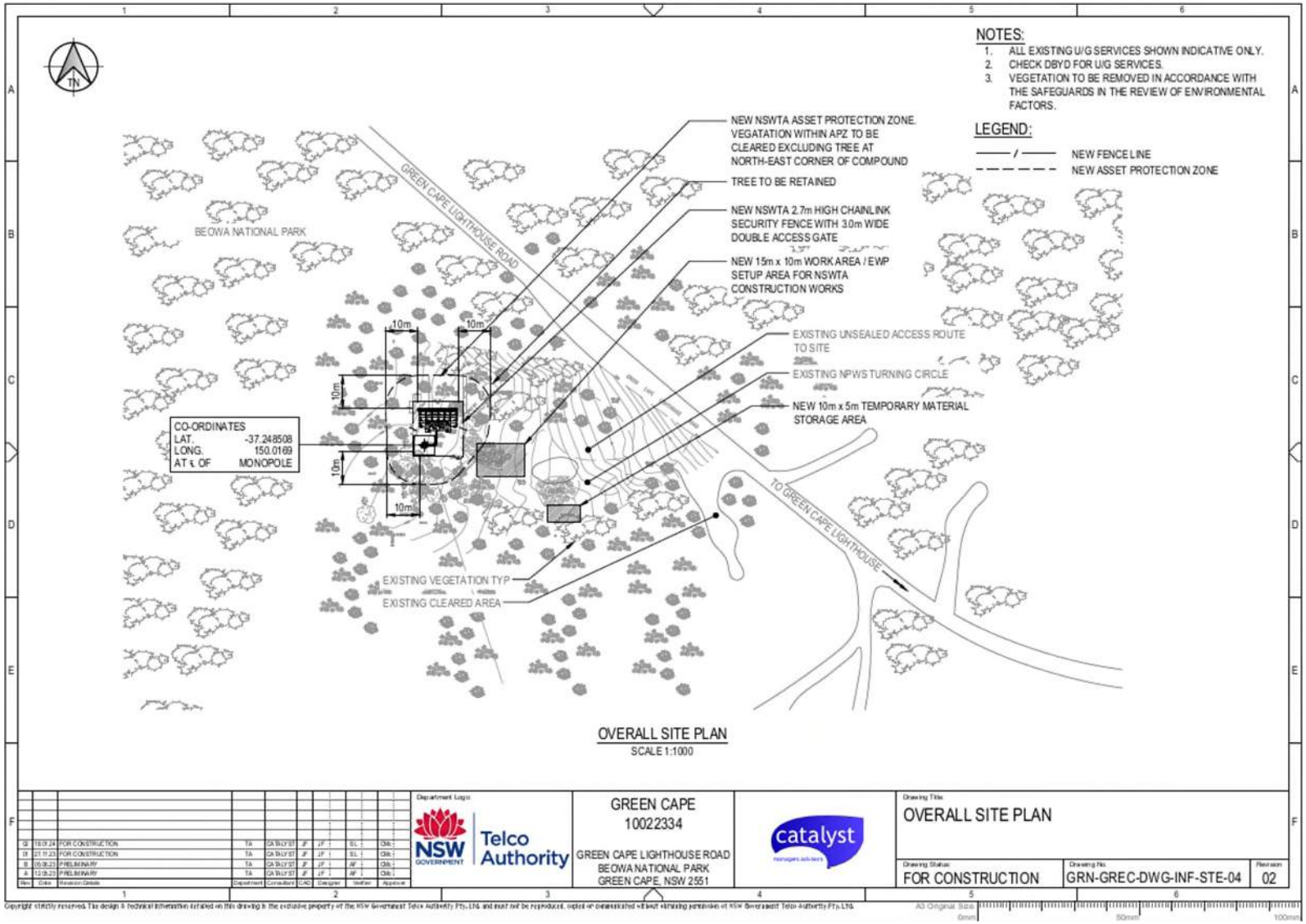
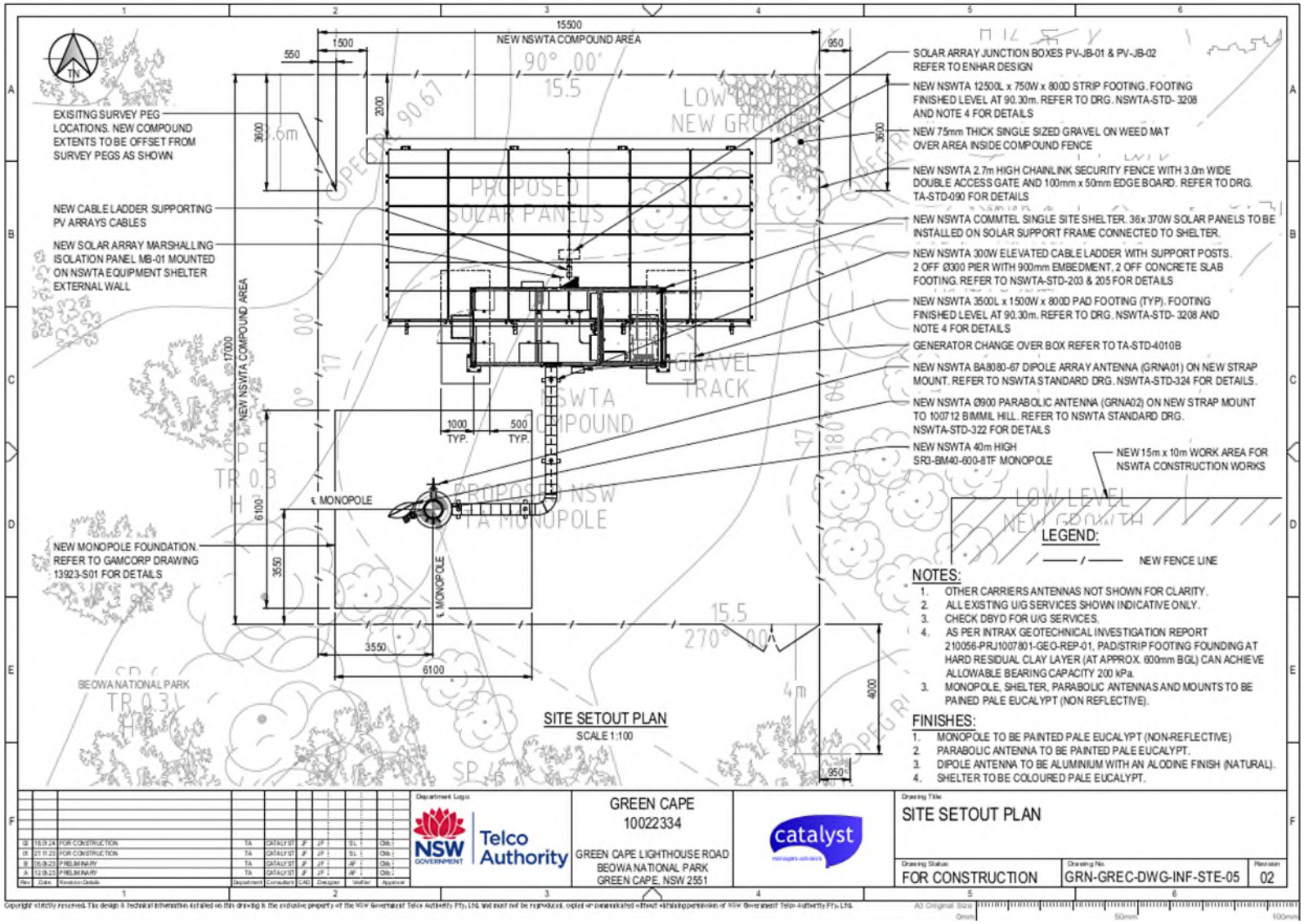
11. Appendix A: Site Plans




15500
NEW NSWTA COMPOUND AREA
550
1500
950
2000
3600
17000
EXISITING SURVEY PEG LOCATIONS. NEW COMPOUND EXTENTS TO BE OFFSET FROM SURVEY PEGS AS SHOWN
NEW CABLE LADDER SUPPORTING PV ARRAYS CABLES
NEW SOLAR ARRAY MARSHALLING ISOLATION PANEL MB-01 MOUNTED ON NSWTA EQUIPMENT SHELTER EXTERNAL WALL
NEW NSWTA COMPOUND AREA
PROPOSED SOLAR PANELS
GRAVEL TRACK
NSWTA COMPOUND
1000 TYP.
500 TYP.
℄ MONOPOLE
6100
3550
NEW MONOPOLE FOUNDATION. REFER TO GAMCORP DRAWING 13923-S01 FOR DETAILS
BEOWA NATIONAL PARK
4000
SOLAR ARRAY JUNCTION BOXES PV-JB-01 & PV-JB-02 REFER TO ENHAR DESIGN
NEW NSWTA 12500L x 750W x 800D STRIP FOOTING. FOOTING FINISHED LEVEL AT 90.30m. REFER TO DRG. NSWTA-STD- 3208 AND NOTE 4 FOR DETAILS
NEW 75mm THICK SINGLE SIZED GRAVEL ON WEED MAT OVER AREA INSIDE COMPOUND FENCE
NEW NSWTA 2.7m HIGH CHAINLINK SECURITY FENCE WITH 3.0m WIDE DOUBLE ACCESS GATE AND 100mm x 50mm EDGE BOARD. REFER TO DRG. TA-STD-090 FOR DETAILS
NEW NSWTA COMMTEL SINGLE SITE SHELTER. 36x 370W SOLAR PANELS TO BE INSTALLED ON SOLAR SUPPORT FRAME CONNECTED TO SHELTER.
NEW NSWTA 300W ELEVATED CABLE LADDER WITH SUPPORT POSTS. 2 OFF Ø300 PIER WITH 900mm EMBEDMENT, 2 OFF CONCRETE SLAB FOOTING. REFER TO NSWTA-STD-203 & 205 FOR DETAILS
NEW NSWTA 3500L x 1500W x 800D PAD FOOTING (TYP). FOOTING FINISHED LEVEL AT 90.30m. REFER TO DRG. NSWTA-STD- 3208 AND NOTE 4 FOR DETAILS
GENERATOR CHANGE OVER BOX REFER TO TA-STD-4010B
NEW NSWTA BA8080-67 DIPOLE ARRAY ANTENNA (GRNA01) ON NEW STRAP MOUNT. REFER TO NSWTA STANDARD DRG. NSWTA-STD-324 FOR DETAILS.
NEW NSWTA Ø900 PARABOLIC ANTENNA (GRNA02) ON NEW STRAP MOUNT TO 100712 BIMMIL HILL. REFER TO NSWTA STANDARD DRG. NSWTA-STD-322 FOR DETAILS
NEW NSWTA 40m HIGH SR3-BM40-600-8TF MONOPOLE
NEW 15m x 10m WORK AREA FOR NSWTA CONSTRUCTION WORKS
LEGEND:
NEW FENCE LINE
NOTES:
1. OTHER CARRIERS ANTENNAS NOT SHOWN FOR CLARITY.
2. ALL EXISTING U/G SERVICES SHOWN INDICATIVE ONLY.
3. CHECK DBYD FOR U/G SERVICES.
4. AS PER INTRAX GEOTECHNICAL INVESTIGATION REPORT 210056-PRJ1007801-GEO-REP-01, PAD/STRIP FOOTING FOUNDING AT HARD RESIDUAL CLAY LAYER (AT APPROX. 600mm BGL) CAN ACHIEVE ALLOWABLE BEARING CAPACITY 200 kPa.
3. MONOPOLE, SHELTER, PARABOLIC ANTENNAS AND MOUNTS TO BE PAINED PALE EUCALYPT (NON REFLECTIVE).
FINISHES:
1. MONOPOLE TO BE PAINTED PALE EUCALYPT (NON-REFLECTIVE)
2. PARABOLIC ANTENNA TO BE PAINTED PALE EUCALYPT.
3. DIPOLE ANTENNA TO BE ALUMINIUM WITH AN ALODINE FINISH (NATURAL).
4. SHELTER TO BE COLOURED PALE EUCALYPT.
SITE SETOUT PLAN
SCALE 1:100
NSW GOVERNMENT Telco Authority
GREEN CAPE
10022334
GREEN CAPE LIGHTHOUSE ROAD
BEOWA NATIONAL PARK
GREEN CAPE, NSW 2551
catalyst
SITE SETOUT PLAN
FOR CONSTRUCTION
GRN-GREC-DWG-INF-STE-05
02

12. Appendix B: Flora Species List

Table 8: Species of Flora recorded in the study area

Family	Species	Common Name
Aizoaceae	*Carpobrotus glaucescens*	Pigface
Apiaceae	*Xanthosia tridentata*	Rock Xanthosia
Asparagaceae	*Lomandra glauca*	Pale Mat-rush
Asphodelaceae	*Dianella caerulea*	Blue Flax-lily
Asteraceae	*Argentipallium obtusifolium*	
Casuarinaceae	*Allocasuarina paludosa*	Swamp She-oak
Colchicaceae	*Burchardia umbellata*	Milkmaids
Cyperaceae	*Lepidosperma neesii*	
	Lepidosperma sieberi	Rough Saw-sedge
	Schoenus brevifolius	
Dilleniaceae	*Hibbertia empetrifolia* subsp. *empetrifolia*	
Ericaceae	*Brachyloma daphnoides*	Daphne Heath
	Epacris impressa	Common Heath
	Leucopogon esquamatus	
	Monotoca elliptica	Tree Broom-heath
	Monotoca scoparia	
Fabaceae (Faboideae)	*Bossiaea ensata*	Sword Bossiaea
	Daviesia corymbosa	
	Dillwynia sericea subsp. *rudis*	
Fabaceae (Mimosoideae)	*Acacia longifolia* subsp. *longifolia*	Sydney Golden Wattle
	Acacia suaveolens	Sweet Wattle
Goodeniaceae	*Dampiera stricta*	
	Goodenia ovata	Hop Goodenia
Iridaceae	*Patersonia sericea* var. *sericea*	Silky Purple Flag
Myrtaceae	*Eucalyptus sieberi*	Silvertop Ash

	Gaudium laevigatum	Coast Teatree
Poaceae	*Entolasia stricta*	Wiry Panic
	Rytidosperma pallidum	Silvertop Wallaby Grass
Polygonaceae	*Muehlenbeckia adpressa*	Climbing Lignum
Proteaceae	*Banksia paludosa*	Swamp Banksia
	Banksia serrata	Old-man Banksia
	Grevillea lanigera	Woolly Grevillea
	Hakea decurrens subsp. *physocarpa*	
	Persoonia levis	Broad-leaved Geebung
Rhamnaceae	*Cryptandra ericoides*	Heathy Cryptandra
Violaceae	*Hybanthus vernonii* subsp. *scaber*	

13. Appendix C: Significance Tests

13.1 Test of Significance – BC Act

The threatened species test of significance is used to determine if a development or activity is likely to significantly affect threatened species or ecological communities, or their habitats. The threatened species listed under the BC Act, which have been recorded within the Bionet Atlas default 0.1° by 0.1° (10 km x 10 km) search area around the proposed NSWTA facility site at Green Cape have been considered for potential occurrence within the study area and assessed under section 7.3 of the BC Act. See Appendix D for the Bionet Atlas search results.

13.1.1 Recorded Threatened Species (BC Act)

The applicable Bionet Atlas records for consideration are summarised in Table 8 on the following page. Note, the list excludes all recorded species that occur exclusively in marine or estuarine habitats.

Table 9: Recorded threatened species listed under the BC Act for consideration

Species	Habitat and Distribution	BC Act Status	Potential Occurrence	Risk of Impact
Plantae				
Pultenaea pedunculata (Matted Bush-pea)	Prostrate shrub; stems appressed-pubescent, leaves alternate narrow-elliptic apex acute and recurved margins recurved upper surface darker than lower, inflorescences subterminal, pea shaped flowers with 5 petals yellow to orange; Widespread in Vic, Tas, and south-eastern SA; In NSW just three disjunct populations, in the Cumberland Plains in Sydney, the coast between Tathra and Bermagui and the Windellama area south of Goulburn; NSW populations are generally in woodland	Endangered	Possible	Possible
Acacia constablei (Narrabarba Wattle)	Erect to straggly, often slender or whipstick-like shrub 1-3m high, bark smooth mottled light to medium grey, branchlets angled to terete with knobbly ridges, bipinnate leaves with 6-15 pairs of pinnae each with 9-30 pairs of pinnules, inflorescences in axillary or terminal racemes, flowers pale yellow; Endemic to the Narrabarba and Green Cape area south of Eden; Confined to Rhyolite and Aplite rock outcrops	Vulnerable	Unlikely	Unlikely
Viola cleistogamoides (Hidden Violet)	Herb with short stems, glabrous to weakly pubescent, leaves ovate to rhombic mostly 5-10 mm long, 3-6 mm wide, base cuneate and tapering into petiole, flowers cream often with a purplish tinge; Locally common in parts of coastal Vic, Tas and SA; In NSW it is known from several sites in the Wonboyn area; Occurs in a variety of habitats, often in wet sandy coastal heathland; Disturbed sites such as tracks, firebreaks and even lawns have also been colonised	Endangered	Possible	Possible
Aves				
Haliaeetus leucogaster (White-bellied Sea-Eagle)	Large eagle with long broad wings and a short tail; Distributed around the Australian coastline, including Tasmania, and well inland along rivers and wetlands of the Murray Darling Basin; Foraging habitat includes coastal seas, rivers, fresh and saline lakes, lagoons, reservoirs and terrestrial habitats such as grassland; Breeding habitat consists of large trees within mature open forest	Vulnerable	Unlikely	Unlikely

Hieraaetus morphnoides (Little Eagle)	Medium-sized raptor, two colour forms: either pale brown with an obscure underwing pattern, or dark brown on the upper parts and pale underneath, with both forms having a black-streaked head with a slight crest; Distributed throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. It occurs as a single population throughout NSW; Occupies open eucalypt forest, woodland or open woodland; Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter	Vulnerable	Unlikely	Unlikely
Lophoictinia isura (Square-tailed Kite)	Medium-sized, long-winged raptor with a white face and thick black streaks on the crown and finer streaks elsewhere, upperparts are mostly blackish with grey-brown barring, underparts are mostly grey-brown with black tips, a square-tipped tail and wing edges; Distributed along coastal and subcoastal areas from south-western to northern Australia, Qld, NSW and Victoria; Regular resident in the north, northeast and along the major west-flowing river systems of NSW; Found in a variety of timbered habitats including dry woodland and open forest	Vulnerable	Possible	Unlikely
Callocephalon fimbriatum (Gang-gang Cockatoo)	Cockatoo, slate-grey, males with a scarlet head and wispy crest, females have a grey head and crest and feathers edged with salmon pink on the underbelly; Distributed from southern VIC through southern and central-eastern NSW; Found in tall mountain forest and woodland during spring and summer; In autumn and winter it often moves to lower altitudes in drier open forest and woodland	Vulnerable	Unlikely	Unlikely
Calyptorhynchus lathami (Glossy Black-cockatoo)	Small brown-black cockatoo; Uncommon but widespread throughout suitable forest and woodland habitats, from the central Qld coast to East Gippsland in Victoria; Inhabits open forest and woodland of the coast and the Great Dividing Range; In NSW *Allocasuarina littoralis* and *Allocasuarina torulosa* are the principal food sources; *Allocasuarina paludosa* is not considered to be an important food source	Vulnerable	Unlikely	Unlikely

Pezoporus wallicus wallicus (Eastern Ground Parrot)	Bright grass-green, long-tailed, ground-dwelling parrot; Inhabits south-eastern Australia from southern Qld through NSW to western Vic; Large populations on the NSW south coast with small numbers recorded in Ben Boyd NP; Occurs in high rainfall coastal and near coastal low heathlands and sedgelands, generally below one metre in height and very dense	Vulnerable	Possible	Possible
Tyto tenebricosa (Sooty Owl)	Medium-sized dark sooty-grey coloured owl with dark eyes set in a prominent flat, heart-shaped facial disc; Distributed on the coast, coastal escarpment and eastern tablelands of NSW; Occurs in rainforest and wet sclerophyll forest; Roosts by day in the hollow of a tall forest tree or in heavy vegetation; Hunts by night for small terrestrial and arboreal mammals; Nests in very large tree-hollows	Vulnerable	Unlikely	Unlikely
Climacteris picumnus victoriae (Brown Treecreeper eastern subspecies)	Grey-brown bird with black streaking on the lower breast and belly and black bars on the undertail; Endemic to eastern Australia where it occurs in the western slopes and plains; The western boundary of the eastern subspecies range runs through Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell where it intergrades with the arid zone subspecies; Inhabits woodland with an open grassy understorey; Also found in mallee and River Red Gum Forest; Fallen timber is an important habitat component	Vulnerable	Unlikely	Unlikely
Daphoenositta chrysoptera (Varied Sittella)	Small passerine with a sharp, slightly upturned bill and short tail; Distributed across most of mainland Australia except the treeless arid and open grassland areas; Inhabits eucalypt forest and woodland, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and *Acacia* woodland	Vulnerable	Unlikely	Unlikely
Pachycephala olivacea (Olive Whistler)	Small, stocky bird with a large head and strong sharp bill; Disjunct distribution in NSW; Chiefly occupies the beech forest around Barrington Tops and the MacPherson Ranges (Qld) in the north and wet forest from Illawarra south to Victoria; Mostly above about 500m; May move to lower altitudes during the winter months	Vulnerable	Unlikely	Unlikely

Artamus cyanopterus cyanopterus (Dusky Woodswallow)	Medium-sized, mostly dark grey-brown bird with a longish tail; Widespread in eastern, southern and south western Australia; Inhabits dry, open eucalypt forest and woodland with an open or sparse understorey and groundcover of grasses or sedges and fallen woody debris; Also recorded in shrubland, heathland and very occasionally in moist forest or rainforest	Vulnerable	Unlikely	Unlikely
Petroica boodang (Scarlet Robin)	Small robin, male with black head and upperparts, a conspicuous white forehead patch, white wing stripes, white tail-edges and a bright scarlet-red chest and a white belly, female is pale brown, darker above, and has a dull reddish breast and whitish throat; Distributed from southeast Qld to southeast SA, also found in Tasmania and southwest WA; In NSW, it occurs from the coast to the inland slopes; Occupies dry eucalypt forest and woodland usually with an open and grassy understorey	Vulnerable	Unlikely	Unlikely
Mammalia				
Dasyurus maculatus (Spotted-tailed Quoll)	Carnivorous marsupial, rich-rust to dark-brown fur with irregular white spots above, black tail and pale belly; Distribution has contracted to the eastern parts of NSW, Vic and Qld; Recorded across a range of habitats, including rainforest, open forest, woodland, coastal heath and inland riparian forest; Mostly nocturnal; Spend most of the time on the ground but is an excellent climber; Individuals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites	Vulnerable	Unlikely	Unlikely
Isoodon obesulus obesulus (Southern Brown Bandicoot - eastern)	Medium-sized, ground-dwelling grey-brown marsupial with a long tapering snout, naked nose, compact body and short tail; Patchy distribution in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River, southern coastal Vic and the Grampian Ranges, south-eastern SA, southwest WA and the northern tip of Qld; Found in heath or open forest with a heathy understorey on sandy or friable soils	Endangered	Possible	Possible

Cercartetus nanus (Eastern Pygmy-possum)	Small, active possum with an almost bare, prehensile tail, and big, forward-pointing ears, light-brown above and white below; Found in south-eastern Australia, from southern Qld to eastern SA and in TAS; In NSW it extends from the coast inland to the western slopes; Occupies a broad range of habitats from rainforest to sclerophyll forest and woodland to heath; In most areas woodland and heath appear to be preferred	Vulnerable	Possible	Possible
Potorous tridactylus (Long-nosed Potoroo)	Small 'rat-kangaroo' the size of a rabbit with an elongated muzzle, greyish-brown above and light grey below, the tail is often white tipped; Distributed on the south-eastern coast of Australia, from Qld to eastern Victoria and Tasmania, including some of the Bass Strait islands; Inhabits coastal heath and dry and wet sclerophyll forest; Dense understorey with occasional open areas is an essential part of the habitat	Vulnerable	Unlikely	Unlikely

13.1.2 Threatened Species for Consideration (BC Act)

The study area incorporated the development footprint (impact area comprising the facility site and associated APZ) and adjacent shrubland habitat and the existing site access that traverses through a rainforest habitat. Several threatened species were identified as being potential occurrences within these habitats, particularly the rainforest. However, as no works are intended on the site access, it is unlikely that the rainforest habitat would be directly impacted by the proposed development. Therefore, only a relatively small number of threatened species that might utilise the shrubland habitat in proximity to the development footprint are considered to be potentially impacted by the proposed works. The following Significance Tests rely on the ecological assessment provided in this report. Based on the flora survey and habitat assessment, it is considered that the land within the impact area constitutes potential habitat for the following six threatened species (Table 9) listed under the BC Act.

Table 10: Subject threatened species for significance test

Family	Scientific Name	Common Name
Plantae		
Fabaceae (Faboideae)	*Pultenaea pedunculata*	Matted Bush-pea
Violaceae	*Viola cleistogamoides*	Hidden Violet
Aves		
Psittacidae	*Pezoporus wallicus wallicus*	Eastern Ground Parrot
Mammalia		
Peramelidae	*Isoodon obesulus obesulus*	Southern Brown Bandicoot (eastern)
Burramyidae	*Cercartetus nanus*	Eastern Pygmy-possum
Potoroidae	*Potorous tridactylus*	Long-nosed Potoroo

13.1.3 Significance Tests

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:

Plantae

***Pultenaea pedunculata* (Matted Bush-pea)**

Pultenaea pedunculata is a prostrate shrub forming mats to one metre or more in diameter, or to 0.6 metres tall. It roots from the nodes. Stems are sparsely to moderately hairy. Leaves are alternate along the stems, 0.4-1.3 cm long, 0.6-5.2 mm wide, tips pointed and curved down with a needle-shaped point, margins curved down, upper surface hairy on young growth, finally hairless, slightly warty, darker than the lower surface and lower surface with sparse appressed hairs. Flowers are 4-9 mm long, pea shaped, with five petals, with two joined together to form the keel, the standard petal is yellow to orange, sometimes with red markings, wings are yellow to orange and the keel is red to purple. Bracteoles are linear and inserted at the base of the calyx tube. Flowers are on stalks to 20 mm long, in leafy clusters. Flowering occurs throughout most of the year. Pods are densely to sparsely hairy and smooth (Harden et al 2006, PlantNET 2023, Lucid 2023). The species can be readily identified at any time by morphological characteristics.

Pultenaea pedunculata is distributed in Victoria, Tasmania, and south-eastern South Australia, where it is widespread, and in NSW where it occurs in just three disjunct populations, including the Cumberland Plains in Sydney, the coast south from Bermagui and the Windellama area south of Goulburn (where it is locally abundant). The Cumberland Plains population has been reduced significantly due to development. The Matted Bush-pea occurs in a range of habitats. NSW populations are generally in woodland, but plants have also been found on road batters and coastal cliffs. It is largely confined to loamy soils in dry gullies in populations in the Windellama area. South Coast populations have been recorded in shrubland adjacent to an ocean beach, heathland on a headland, rocky outcrops beside the sea and woodland dominated by *Eucalyptus botryoides*, *Eucalyptus agglomerata* and *Allocasuarina littoralis*. The prostrate nature of the species makes it sensitive to overshadowing by taller plants and tussock grasses. There is uncertainty about whether the species is capable of resprouting from the base following disturbance. *Pultenaea pedunculata* is listed as endangered in NSW under the BC Act. The BioNet Atlas database search indicated seven records of the species within a 0.1° by 0.1° search area around the study area.

***Viola cleistogamoides* (Hidden Violet)**

Viola cleistogamoides (Hidden Violet) is a small herb with short stems that are glabrous to weakly pubescent. Leaves with lamina ovate to rhombic, mostly 5-10 mm long, 3-6 mm wide, with base cuneate and tapering into petiole, which is 0.5-2 cm long. Flower scapes 5-25 mm long with bracteoles mostly above the middle. The corolla is cream, often with a purplish tinge, 2-3 mm long, scarcely exceeding sepals with lateral petals bearded inside. Flowering occurs in summer (Harden et al 2006, PlantNET 2023). *Viola cleistogamoides* can be readily identified at any time by morphological characteristics.

Viola cleistogamoides is locally common in parts of coastal Victoria, Tasmania and South Australia. In NSW, it is known from several sites in the Wonboyn area, including Nadgee Nature Reserve where it occurs in heath. Elsewhere it occupies a variety of situations, often in wet sandy coastal heath, such as those occurring within Beowa National Park. The species has also been found inland in heathland, woodland with a heathy understorey and grassy forest. Disturbed sites such as tracks, firebreaks and even lawns have also been colonised. *Viola cleistogamoides* is listed as endangered in NSW under the BC Act. The BioNet Atlas database search indicated 22 records of the species within a 0.1° by 0.1° search area around the study area.

Aves

***Pezoporus wallicus wallicus* (Eastern Ground Parrot)**

The Eastern Ground Parrot is a distinctive, bright grass-green, long-tailed, ground-dwelling parrot of coastal and sub-coastal heathland, reaching 30 cm long. The green upperparts are heavily mottled with yellow and black, and the greenish-yellow underparts are barred brown. Both sexes are alike. The forehead of individuals older than three or four months is orange-red. It has a distinctive call, given at dawn and dusk, that consists of a series of piercing, resonating whistles, rising in steps, with each note flowing on almost unbroken, but abruptly higher than the preceding note. The species is rarely seen unless flushed, although birds can be seen fluttering low over heath at dusk.

The Eastern Ground Parrot occurs in high rainfall coastal and near coastal low heathland and sedgeland, generally below one metre in height and very dense (up to 90% projected foliage cover). These habitats provide a high abundance and diversity of food, adequate cover and suitable roosting and nesting opportunities for the species, which spends most of its time on or near the ground. When flushed, birds fly strongly and rapidly for up to several hundred metres, at a metre or less above the ground. The coastal and subcoastal heathland and sedgeland habitats of the Eastern Ground Parrot are particularly fire-prone. The species can re-colonise burnt habitat after 1-2 years and reach maximum densities after 15-20 years without fire. Home ranges of adult birds is typically 10 ha and overlapping with other birds, while juveniles have a significantly larger home range. There is no evidence of regular long-distance dispersal or migration events. The Eastern Ground Parrot feeds mostly on seeds from a large range of plant species, which varies seasonally. An individual bird may consume up to 8000 seeds per day from as many as 60 plant species. Other plant material and invertebrates may also be ingested. Breeding occurs from September to December and is thought to be triggered by increasing seed availability in spring. Between two and seven eggs are laid in a shallow bowl of fine sticks and grass that is well hidden under overhanging tall, coarse grass, sedge or low, heathy shrubs. The nest is usually screened from above and sides, often with a tunnel in the surrounding dense plants. The Eastern Ground Parrot is listed as vulnerable in NSW under the BC Act. The BioNet Atlas database search indicated 22 records of the species within a 0.1° by 0.1° search area around the study area.

Mammalia

***Isoodon obesulus obesulus* (Southern Brown Bandicoot – Eastern)**

The Southern Brown Bandicoot (eastern) is a medium-sized, ground-dwelling marsupial with a head and body length of approximately 30 cm. Like other members of the family, the southern brown bandicoot has a long tapering snout, a naked nose, a compact body and a short tail generally 110-120 mm long. The head has small, rounded ears and small, black eyes. The dorsal surface of the body bears black spiny bristle-hairs and softer, dark grey underfur that appears brown at a distance. The softer underbelly is creamy-white. While the forelegs are short with curved claws on the digits, the hind limbs are much longer, resembling those of macropods. Males are heavier (mean weight 890 g) than females (mean weight 620 g).

The distribution of the Southern Brown Bandicoot (eastern) extends from the southern side of the Hawkesbury River in NSW to Kangaroo Island in South Australia. Within this range it occurs mostly in coastal areas. In NSW there are two population strongholds; Ku-ring-gai Chase and Garigal National Parks just north of Sydney and the far southeast corner (including Ben Boyd National Park, East Boyd State Forest, Nadgee Nature Reserve, Nadgee State Forest, South East Forest National Park and Yambulla State Forest). The Southern Brown Bandicoot inhabits areas of dense vegetation, including heath or open forest with a heathy understorey on sandy or friable soils. Like other species of the genus, the Southern Brown Bandicoot is secretive and rarely ventures far from cover, most likely to avoid predation. The species is omnivorous and forages for food mainly by digging in the leaf litter and soil to find insects, fungi, plant root nodules and bulbs. It also eats fruit, seeds and other plant material found above ground. Nests are constructed beneath plants on the ground and the burrows of other species are occasionally used. The Southern Brown Bandicoot (eastern) is listed as endangered in NSW under the BC Act and as endangered nationally under the EPBC Act.

The Bionet Atlas database search indicated 225 records of the species around the study area including some in the immediate vicinity of the site.

***Cercartetus nanus* (Eastern Pygmy-possum)**
The Eastern Pygmy-possum is a small (15 to 43 grams) possum, with an almost bare, prehensile tail and large, and forward-pointing almost hairless ears. It is light-brown above and white below. Adults have a head and body length of between 70 - 110 mm and a tail length of between 75 - 105 mm. The head is rounded, the eyes are very large, and it has long whiskers. The Eastern Pygmy Possum is an active climber and is a largely solitary animal. During winter it spends time in torpor.

The Bionet species profile indicates that the Eastern Pygmy-possum is found in south-eastern Australia, from southern Queensland to eastern South Australia and in Tasmania. In NSW it extends from the coast inland as far as the Pilliga, Dubbo, Parkes and Wagga Wagga on the western slopes. The species occupies a broad range of habitats, including rainforest, sclerophyll forest, woodland and heath, but in most areas woodland and heath appear to be preferred, except in north-eastern NSW where they are most frequently encountered in rainforest. Although the species prefers habitat with a rich shrub understory, it is known to occur in grassy woodland and the presence of Eucalypts alone is sufficient to support populations in low densities. It feeds largely on nectar and pollen of *Banksia*, *Eucalyptus* and *Callistemon* species with its brush-tipped tongue and on soft fruits when flowers are unavailable as well as on insects throughout the year. Tree hollows, old stumps, holes in the ground, abandoned bird-nests, *Pseudocheirus peregrinus* (Ringtail Possum) dreys or thickets of vegetation are used for shelter. The Eastern Pygmy-possum is listed as vulnerable in NSW under the BC Act. The BioNet Atlas database search indicated ten records of the species within a 0.1^{o} by 0.1^{o} search area around the study area.

***Potorous tridactylus* (Long-nosed Potoroo)**
The Long-nosed Potoroo is a compact, medium-sized marsupial with a maximum body and head length of 31-34 cm, a tail length of 23 cm and a weight range of 660-1640 grams. The species name 'tridactylus' translates to three-toed, although the Long-nosed Potoroo technically has five toes as the second and third digits are conjoined. The hind limbs of the Long-nosed Potoroo are 85-88 cm long and well developed, enabling it to hop at great speeds. The forearms are shorter and muscular with short, strong claws that are well adapted to digging. The species has small, rounded ears, large eyes and a long muzzle with a bare tip. The body has two fur layers, comprising a soft, short dark grey fur on its back with coarser hair protruding that can range in colour from yellow-white to brown with a black tip. The underside is covered in coarse white fur with a grey base layer. Females have a well-developed pouch that opens anteriorly and contains four mammae. The preferred habitat includes coastal heaths and dry and wet sclerophyll forests that contain a dense understorey with occasional open areas. A sandy loam soil is also a common feature of the habitat. The fruit-bodies of hypogeous (underground-fruiting) fungi are a major component of the diet of the Long-nosed Potoroo. Roots, tubers, insects and their larvae and other soft-bodied animals in the soil are also consumed. The species often digs small holes in the ground in a similar way to bandicoots. It is mainly nocturnal, solitary, non-territorial with a typical home range of between 2-5 hectares. The Long-nosed Potoroo is listed as vulnerable in NSW under the BC Act and as vulnerable nationally under the EPBC Act. The Bionet Atlas database search

indicated 186 records of the species around the study area including some in the immediate vicinity of the site.

Response:
The study area is located within Beowa National Park, on sedimentary geology and contains a tall heathland community that is in a regenerative state following a bush fire event that occurred approximately four years ago. The habitat associated with the heathland community contains an array of associated terrestrial habitat features, including areas of dense groundcover, fallen trees or shrubs and other woody debris such as branches and leaf litter. The proposed NSWTA development comprises a new radiocommunications facility adjacent to an existing NPWS works site and provision of a 10 metres wide APZ, which will require clearing or ongoing management of heathland with an area of approximately 830 m^2. There is no work required to the existing site access, which is associated with the existing NPWS works site.

In relation to the threatened flora under consideration; *Pultenaea pedunculata* and *Viola cleistogamoides*, a search targeting threatened species of flora was conducted across the development footprint during the flora survey. Neither species was recorded during this search, and they are therefore considered to be unlikely occurrences at the site. In relation to the threatened fauna species under consideration, including *Pezoporus wallicus wallicus* (Eastern Ground Parrot), *Isoodon obesulus obesulus* (Southern Brown Bandicoot), *Cercartetus nanus* (Eastern Pygmy-possum) and *Potorous tridactylus* (Long-nosed Potoroo), the heathland is identified as being important habitat.

During the ecological assessment, a habitat search was conducted, which determined that two species of fauna occupy the habitat within the study area, including the native macropod; *Wallabia bicolor* (Swamp Wallaby) and the invasive pest species; *Oryctolagus cuniculus* (European Rabbit). The presence of *Wallabia bicolor* at the site was unremarkable, given the species is common in the area and the suitability of the habitat. The numerous signs of *Oryctolagus cuniculus* occurring within the study area was unexpected however, as the species is a grazing animal that requires open areas of green grass and herbs and is not usually associated with habitats containing a dense woody groundcover, such as heathland. Its occurrence is attributed to the period following the 2019-2020 bush fires, during which the groundcover was significantly reduced, and an abundance of new growth provided plenty of grazing opportunities. It is envisaged that as the heathland continues to regenerate and the groundcover and taller shrub layer returns to normal, the local rabbit population will decline considerably. Signs of use by other small mammals such as the Southern Brown Bandicoot and the Long-nosed Potoroo were not observed. However, the habitat within the study area is suitable for both these species and it is likely that it would be utilised by them for foraging given the significant population of the species locally and the large numbers of records of both species in the surrounding landscape.

The 2019-2020 bush fire has reduced the availability of resources within the study area and the surrounding heathland for species such as the Eastern Ground Parrot and the Eastern Pygmy Possum. However, as the heathland continues to regenerate more resources would become available for both species over time. It is noted that the Eastern Ground Parrot's preferred habitat is low heath (less than one metre high), therefore the habitat within the study

area will not be entirely suitable once the tall heath regenerates. The habitat currently provides very little shelter for the Eastern Pygmy Possum as most of the upper shrub layer was impacted significantly by the fire with obligate seeders such as *Allocasuarina paludosa*, *Acacia suaveolens* and *Hakea decurrens* subsp. *physocarpa* now being absent in the upper stratum across most of the study area. These species currently occur as juveniles in the lower stratum. Resprouters, such as *Banksia serrata* and *Persoonia levis* while present in the upper stratum, are currently regenerating and are significantly reduced in size and numbers.

Much of the proposed NPWTA facility footprint comprises land that was previously cleared and otherwise variously disturbed by past human activities in association with the existing NPWS works site and its existing access off Green Cape Lighthouse Road. The main impacts to the threatened species under consideration are likely to be noise and the presence of people and machinery during the initial works and a reduction of heathland habitat that may be utilised for foraging. However, the amount of heathland proposed to be removed is relatively small in the context of the site's position in the landscape. Furthermore, the low heath that will be formed by provision of the APZ will remain available to these species for foraging as it will not be completely removed but instead, managed to keep it to a low height. The habitat that will be removed (i.e. vegetation that will be cleared entirely) is relatively small (approximately 134 m^2) and is located at the margin of the existing cleared works site. Therefore, provided that the mitigation measures detailed in section 8 of this report are implemented and strictly adhered to, it is considered unlikely that the proposed development will have an adverse effect on the life cycle of these threatened species such that a viable local population of the species is likely to be placed at risk of extinction.

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;***

The flora survey determined that the plant communities in proximity to the study area are not listed as endangered ecological communities. Therefore, the proposed work 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;***

As no endangered ecological community occurs in proximity to the proposed works site, the proposed work 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 proposed works will be confined to either previously disturbed areas (existing vehicle access and the NPWS works site) or parts of a post- fire regenerating heathland community.

The proposed development will occupy an area of approximately 1,085 m^2 and the proposed works will involve removal of approximately 134 m^2 of vegetation for the construction of the proposed NSWTA compound and infrastructure therein and management of approximately 695 m^2 of adjacent vegetation for provision of an APZ around the proposed NSWTA facility. Approximately 256 m^2 of land within the proposed development footprint has been cleared previously in association with the existing site access and NPWS works site. Therefore, the habitat that will be removed or modified as a result of the proposed development has an area of approximately 830 m^2. No areas of habitat situated beyond the extent of the proposed development footprint will be removed or modified.

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;***

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 amount of habitat that will be removed or modified because of the proposed works is approximately 830 m^2 of tall heathland, of which 134 m^2 will be removed entirely and 695 m^2 will be effectively transformed from a tall heathland into a low heathland. The plant community is not listed as a TEC and no threatened flora are likely to be present within the impact area. The threatened fauna that may be impacted by these changes to the habitat are all known to use both tall and low heathland habitats. In the context of the site's landscape position, the modification to the habitat is unlikely to be significant both in terms of the amount of vegetation being modified and the proportion of the heathland community being removed to form grassland.

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):

No declared area of outstanding biodiversity value is likely to be impacted by the proposed development (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:

Key threatening processes (KTPs) are listed in Schedule 4 of the BC Act. Those considered to be applicable to the proposed development includes:

Anthropogenic Climate Change:
The use of machinery and power tools during the proposed works 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 because of 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.

Given the proposed development is likely to involve removal of a relatively small amount of native vegetation for the implementation of the APZ, the proposed development will make a minor contribution to this KTP.

13.2 Assessment of Significance – EPBC Act

The species or the species habitat and threatened ecological communities (TECs) that are known to occur in proximity to the study area as indicated in the EPBC Act Protected Matters Report (applying a 10 kilometre buffer) have been considered for potential impacts in accordance with the EPBC Act MNES – Significant Impact Guidelines 1.1. The EPBC Act Protected Matters Report is appended to this report as Appendix E. The significant impact criteria set out on the following pages have been applied for determining whether the proposed NSWTA facility development is likely to significantly impact any of the listed threatened species and TECs.

11.2.1 Listed Threatened Species (EPBC Act)

The list of threatened species returned in the EPBC Act Protected Matters report where the species or the species habitat is known to occur within a ten kilometre buffer around the study area is provided below in Table 10. Note, the list excludes all species that occur exclusively in marine or estuarine habitats.

Table 11: Threatened species returned in the Protected Matters Search Tool report

Species	Habitat and Distribution	EPBC Act Status	Potential Occurrence	Risk of Impact
Plantae				
Xerochrysum palustre (Swamp Everlasting)	Perennial rhizomatous herb 45-100 cm high, stems usually simple, slender, densely cottony towards the apex, otherwise glabrous, leaves all cauline and well-spaced, narrow-oblong, florets yellow; Found in Kosciuszko NP and the eastern escarpment south of Badja; Also occurs in eastern Victoria; Confined to wet situations such as permanent swamps, which are often dominated by heath communities and at the margins of bogs on peaty soils	Vulnerable	Unlikely	Unlikely
Acacia constablei (Narrabarba Wattle)	Erect to straggly, often slender or whipstick-like shrub 1-3m high, bark smooth mottled light to medium grey, branchlets angled to terete with knobbly ridges, bipinnate leaves with 6-15 pairs of pinnae each with 9-30 pairs of pinnules, inflorescences in axillary or terminal racemes, flowers pale yellow; Endemic to the Narrabarba and Green Cape area south of Eden; Confined to Rhyolite and Aplite rock outcrops	Critically Endangered	Unlikely	Unlikely
Acacia lanigera var. *gracilipes*	Shrub to 1-2m high, branchlets densely hairy, phyllodes elliptical with basal gland, peduncles smooth, flower heads spherical and golden; Distributed along the Genoa and Wallagaraugh Rivers, and near Mountain Creek, south of Mt Deddick; Grows among granite in open forest or shrubland	Endangered	Unlikely	Unlikely
Westringia davidii	Shrub 0.5-2m high, leaves in whorls of 3 ovate to obovate margins entire and recurved, white or mauve flowers in clusters of up to 12; Endemic to rocky outcrops above 250m in the coastal ranges to the west of Eden and Pambula; Restricted to shallow organic loam soils fringing rocky outcrops in an ecotone between *Eucalyptus sieberi* dominated forest and the rocky outcrops with shrubland	Vulnerable	Unlikely	Unlikely

Caladenia tessellata (Thick Lip Spider Orchid)	Terrestrial herb with leaf linear to lanceolate and cream-coloured petals with reddish stripes; Known from the Sydney area (old records), Wyong, Ulladulla and Braidwood in NSW; Populations in Kiama and Queanbeyan are presumed extinct; Occurs on the coast in Victoria from east of Melbourne to almost the NSW border; Generally found in grassy sclerophyll woodland on clay loam or sandy soils	Vulnerable	Unlikely	Unlikely
Calochilus pulchellus (Pretty Beard Orchid) EPBC Act	Glabrous terrestrial herb with single upright sublinear leaf sheathing the flowering stem briefly at the base, 1-5 flowers pale green or greenish yellow with darker reddish longitudinal striations; Known only from three sites located in the Shoalhaven LGA; Cryptic species with a single leaf present above ground for only a few months and flowering stem present for just a few days; Found in dense low wet heath in wet sand over sandstone	Endangered	Unlikely	Unlikely
Cryptostylis hunteriana (Leafless Tongue Orchid)	Saprophytic terrestrial orchid, leaves absent, inflorescences erect 15-45 cm long 5-10-flowered, sepals small green, labellum hairy maroon and black with green base; Recorded from Gibraltar Range NP south to Orbost in Vic; Habitat preferences not clearly defined; Known from a range of communities; Larger populations typically occur in woodland communities dominated by *Eucalyptus sclerophylla*, *Eucalyptus sieberi*, *Corymbia gummifera* and *Allocasuarina littoralis*	Vulnerable	Unlikely	Unlikely
Amphibromus fluitans (River Swamp Wallaby-grass)	Stoloniferous or sometimes rhizomatous perennial to 0.8m high, culms decumbent 0.5-1.5 mm wide glabrous to scabrous 3-5-noded, leaves with sheath slightly scabrous to scabrous, panicle erect, spikelets usually with 6-10 florets; Found in Albury region of NSW, Vic, SA, Tas and New Zealand; Inhabits both natural and man-made water-bodies	Vulnerable	Unlikely	Unlikely
Persicaria elatior (Tall Knotweed)	Erect herb to 90 cm high, stalked glandular hairs on most parts with occasional sessile glands, leaves narrow-ovate, 3-11 cm long, 10-30 mm wide, spikes elongate-cylindrical, dense and pink; Scattered occurrences along coastal NSW and in southeast Qld; Grows in damp places, especially beside watercourses; Occasionally in swamp forest	Vulnerable	Possible	Unlikely

Pomaderris parrisiae EPBC Act	Shrub or small tree to 9m high; new growth densely covered with appressed silvery simple hairs, older stems glabrescent, leaves elliptic to lanceolate or oblong upper surface glabrous lower surface silvery to whitish hairy, flowers creamy to pale yellow; Distributed chiefly on the escarpment ranges in Egan Peaks NR, Wadbilliga NP and South East Forests NP; Found on skeletal soils in rocky shrubland or tall open forest	Vulnerable	Unlikely	Unlikely
Thesium australe (Austral Toadflax)	Erect perennial herb to 40 cm high, pale green to yellow-green glabrous, stems 1 to several little-branched wiry striate, leaves linear, flowers solitary axillary green-yellow; Found in small populations scattered across eastern NSW, along the coast and from the Northern to Southern Tablelands; Also found in Tas, Qld and in eastern Asia; Occurs in grassland on coastal headlands or grassland and woodland away from the coast, often in damp sites; Semi-parasitic on roots of a range of grass species most notably *Themeda triandra*	Vulnerable	Unlikely	Unlikely
Amphibia				
Heleioporus australiacus (Giant Burrowing Frog)	Large frog with a dark brown, grey or black back, sides are spotted with bright yellow, white belly and greyish throat; Distributed in south eastern NSW and Victoria; Appears to have two distinct populations: a northern population confined to the sandstone geology of the Sydney Basin extending south to Ulladulla, and a southern population occurring from north of Narooma to Walhalla in Victoria	Vulnerable	Unlikely	Unlikely
Litoria aurea (Green & Golden Bell Frog)	Large frog with a bright green back and gold patches; Approximately 50 recorded locations in NSW, mostly small, coastal populations; Optimum habitat includes marshes, dams and streams, particularly those containing bullrushes or spikerushes that are free of Plague Minnow, with grassy areas and diurnal sheltering sites	Vulnerable	Unlikely	Unlikely
Litoria raniformis (Growling Grass Frog)	Large frog, typically olive to bright emerald green, with irregular gold, brown, black or bronze spotting; Currently known from isolated populations in the Coleambally Irrigation Area, the Lowbidgee floodplain and around Lake Victoria; Found in permanent or ephemeral swamps	Vulnerable	Unlikely	Unlikely

Litoria watsonsi (Watson's Tree Frog)	Formerly the southern population of *Litoria littlejohni*; Large frog with a grey or brown back and the lower legs bright red or orange; Range extends from Budderoo NP and Barren Grounds NR in the Shoalhaven River catchment south to the eastern side of the Snowy River NP in East Gippsland, VIC; Occurs in a variety of forest, woodland, and heathland; Prefers moister sites in tall moist forest; The most important habitat factor is the presence of pools	Endangered	Unlikely	Unlikely
Mixophyes balbus (Stuttering Frog)	Large frog with a brown back, a darker stripe or series of patches along the middle, a black stripe from the nostril to past the eye and a black triangular patch on the snout; Typically found in association with permanent streams through temperate and sub-tropical rainforest and wet sclerophyll forest, rarely in dry open tableland riparian vegetation, and in moist gullies in dry forest	Vulnerable	Unlikely	Unlikely
Aves				
Falco hypoleucos (Grey Falcon)	Medium-sized, compact, pale grey falcon, blackish on the primary wings, tail with narrow blackish bars, white chin throat and cheeks; Sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range; Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions	Vulnerable	Unlikely	Unlikely
Calyptorhynchus lathami (Glossy Black-cockatoo)	Small brown-black cockatoo; Uncommon but widespread throughout suitable forest and woodland habitats, from the central Qld coast to East Gippsland in Victoria; Inhabits open forest and woodland of the coast and the Great Dividing Range where *Allocasuarina littoralis* and *Allocasuarina torulosa* are important food sources	Vulnerable	Unlikely	Unlikely
Callocephalon fimbriatum (Gang-gang Cockatoo)	Cockatoo, slate-grey, males with a scarlet head and wispy crest, females have a grey head and crest and feathers edged with salmon pink on the underbelly; Distributed from southern Vic through southern and central-eastern NSW; Found in tall mountain forest and woodland during spring and summer; In autumn and winter it often moves to lower altitudes where it inhabits drier open forest and woodland	Endangered	Unlikely	Unlikely

Lathamus discolor (Swift Parrot)	Small green parrot, red around the bill, throat and forehead, the red on the throat is edged with yellow, the crown is blue-purple, bright red patches under the wings, with long tail; Endemic to south-eastern Australia, breeds only in Tasmania and migrates to mainland Australia in autumn; Key habitats on the coast and coastal plains of NSW include Spotted Gum, Swamp Mahogany, Red Bloodwood and Forest Red Gum forest	Critically Endangered	Unlikely	Unlikely
Neophema chrysogaster (Orange-bellied Parrot)	Small grass parrot with bright green upper body parts and a light green to bright yellow under body; Migrates yearly from its breeding sites in south-western Tasmania to the Australian mainland; Current mainland distribution is from the mouth of the Murray River in SA, along the coast, to the east of Jack Smith Lake in South Gippsland, Vic; Historical NSW records where it is now extremely rare	Critically Endangered	Unlikely	Unlikely
Neophema chrysostoma (Blue-winged Parrot)	Slender parrot with an olive-green head and upper body, grading to light green on the fore-neck, upper tail is green-blue with yellow sides, underparts are yellow; Main populations in Tasmania and Victoria, sparser populations in western NSW and eastern SA, extending to south-west Qld; Favours grasslands and grassy woodlands, often near wetlands	Vulnerable	Unlikely	Unlikely
Dasyornis brachypterus (Eastern Bristlebird)	Medium-sized, long-tailed, brown and rufous bird; Distribution has contracted to three disjunct areas of south-eastern Australia, including northern - southern Qld/northern NSW, Central - Barren Ground NR, Budderoo NR, Woronora Plateau, Jervis Bay NP, Booderee NP and Beecroft Peninsula and Southern - Nadgee NR and Croajingalong NP in the vicinity of the NSW/Victorian border; Central and southern populations typically occupy low vegetation including heath and open woodland with a heathy understorey	Endangered	Unlikely	Unlikely
Climacteris picumnus victoriae (Brown Treecreeper eastern subspecies)	Grey-brown bird with black streaking on the lower breast and belly and black bars on the undertail; Endemic to eastern Australia; Occurs in open forest and woodland of the western slopes and plains; The western boundary of the subspecies range runs through Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell where it intergrades with the arid zone subspecies; Inhabits woodland with an open grassy understorey; Also found in mallee and River Red Gum Forest; Fallen timber is an important habitat component	Vulnerable	Unlikely	Unlikely

Pycnoptilus floccosus (Pilot Bird)	Plump, large headed ground dwelling bird with dark brown on the upper body and head, forehead rufous brown and a paler eye ring and amber eye, chin and breast buff-brown and finely scalloped in cinnamon; Endemic to south-east Australia; Upland Pilotbirds occur above 600m in the Brindabella Ranges in the ACT, and in the Snowy Mtns of NSW and north-east Victoria; Strictly terrestrial, living on the ground in forest with dense understorey and groundcover	Vulnerable	Unlikely	Unlikely
Aphelocephala leucopsis (Southern Whiteface)	Small bird with stubby bill, upperparts greyish brown, underparts whitish, with a reddish-brown tone in flanks, white upperparts extend above the bill, hence the name; Distributed across most of mainland Australia south of the tropics, from the north- eastern edge of the WA wheatbelt, east to the Great Dividing Range; Inhabits open woodland and shrubland communities with an understorey of grasses, shrubs or both	Vulnerable	Unlikely	Unlikely
Anthochaera phrygia (Regent Honeyeater)	Distinctive medium-sized, black and yellow honeyeater; In NSW, it has an area of occupancy of less than 200 km^2 and is now largely absent from many areas where it was formerly recorded; Mostly occur in dry Box-Ironbark eucalypt woodland and dry sclerophyll forest associations in areas of low to moderate relief, wherein they prefer moister, more fertile sites available	Critically Endangered	Unlikely	Unlikely
Grantiella picta (Painted Honeyeater)	Small honeyeater with a black head and back, white underparts, dark streaks on the flanks, wings and tail are black with bright yellow edgings; Nomadic and occurs at low densities throughout its range with greatest concentrations and almost all breeding occurring on the inland slopes of the Great Dividing Range in NSW, Vic and southern Qld; Inhabits woodland and Box-Ironbark forest	Vulnerable	Unlikely	Unlikely
Melanodryas cucullata cucullata (Hooded Robin: south-eastern form)	Large Australian robin, male is strikingly marked in black and white, females and immatures are duller; Distributed widely across Australia, except for the driest arid area and wetter coastal areas; Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas	Endangered	Unlikely	Unlikely

Stagonopleura guttata (Diamond Firetail)	Large, striking finch with a bright red bill, and red eyes and rump; Endemic to south-eastern Australia, extending from central Qld to the Eyre Peninsula in SA; It is widely distributed in NSW; Found in grassy eucalypt woodland, including Box-Gum woodland and Snow Gum (*Eucalyptus pauciflora*) woodland; Also occurs in open forest, mallee, temperate grassland, and derived grassland	Vulnerable	Unlikely	Unlikely
Hirundapus caudacutus (White-throated Needletail)	Large swift with short, square tail, predominantly dark, with white throat, forehead and undertail coverts; Migratory and seen in eastern Australia from October to April; Usually seen in flight ahead of storms; Roost at night in trees of forests	Vulnerable	Unlikely	Unlikely
Mammalia				
Dasyurus maculatus (Spotted-tailed Quoll)	Carnivorous marsupial, rich-rust to dark-brown fur with irregular white spots above, black tail and pale belly; Distribution has contracted to the eastern parts of NSW, Vic and Qld; Recorded across a range of habitats, including rainforest, open forest, woodland, coastal heath and inland riparian forest; Mostly nocturnal; Spend most of the time on the ground but is an excellent climber; Individuals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites	Endangered	Unlikely	Unlikely
Phascolarctos cinereus (Koala) Combined populations of NSW, Qld & ACT	Arboreal marsupial with fur ranging from grey to brown above and white below; Fragmented distribution throughout eastern Australia from northeast Qld to the Eyre Peninsula in South Australia; Inhabits eucalypt woodland and forest; Feeds on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species	Endangered	Unlikely	Unlikely
Isoodon obesulus obesulus (Southern Brown Bandicoot - eastern)	Medium-sized, ground-dwelling grey-brown marsupial with a long tapering snout, naked nose, compact body and short tail; Patchy distribution in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River, southern coastal Vic and the Grampian Ranges, south-eastern SA, southwest WA and the northern tip of Qld; Found in heath or open forest with a heathy understorey on sandy or friable soils	Endangered	Possible	Possible

Potorous tridactylus (Long-nosed Potoroo)	Small 'rat-kangaroo' the size of a rabbit with an elongated muzzle, greyish-brown above and light grey below, the tail is often white tipped; Distributed on the south-eastern coast of Australia, from Qld to eastern Victoria and Tasmania, including some of the Bass Strait islands; Inhabits coastal heath and dry and wet sclerophyll forest; Dense understorey with occasional open areas is an essential part of the habitat	Vulnerable	Possible	Possible
Petauroides volans Greater Glider	Largest gliding possum with large ears, thick fur that is white or cream below and varies from dark grey, dusky brown through to light mottled grey and cream above; Distributed on the ranges and coastal plains from Mosman in northeast Qld to Daylesford Vic; Locally common in wet sclerophyll forest; Preferred habitat based on several factors, the dominant factor being the presence of specific species of eucalypt; Requires large tree hollows for shelter	Endangered	Unlikely	Unlikely
Petaurus australis (Yellow-bellied Glider)	Large, active, sociable and vocal glider, grey to brown above with a cream to yellow belly and large bushy tail; Found along the eastern coast to the western slopes of the Great Dividing Range, from southern Qld to Victoria; Occurs in tall mature forest in areas with high rainfall and nutrient rich soils; Feeds primarily on plant and insect exudates, including nectar, sap, honeydew and manna with pollen and insects providing protein; Den, often in family groups, in hollows of large trees	Vulnerable	Unlikely	Unlikely
Pseudomys fumeus (Smoky Mouse)	Similar in size to a small rat, fur is fine soft pale-grey to bluish-grey above and grey to white below; Currently limited to a small number of sites in western, southern and eastern Vic, southeast NSW and the ACT; Occurs in a variety of vegetation communities, ranging from coastal heath to dry ridgeline forest, sub-alpine heath and, occasionally, wetter gullies; Consistent features of habitats are the diversity of heath and bush-pea species present, and potential shelter sites such as woody debris or rocks	Endangered	Possible	Possible

Pseudomys novaehollandiae (New Holland Mouse)	Small native rodent with dark grey body, long dusky-brown tail and white feet; Patchy distribution in coastal eastern Australia from Evan Head in NSW to Anglesea in Vic; Also inland in northeast NSW and southeast Qld as well as Flinders Island and Tasmania; Found in dry coastal heath or heathy sclerophyll forest where the understorey is less than 10 years old (coastal) and dry sclerophyll forest or woodland often with sparse groundcover (inland)	Vulnerable	Possible	Possible
Pteropus poliocephalus (Grey-headed Flying-fox)	Endemic large megabat with dark grey fur on the body, lighter grey fur on the head and a russet collar encircling the neck; Generally, found within 200 km of the eastern coast of Australia from Rockhampton in Qld to Adelaide in SA; Occurs in subtropical and temperate rainforest, tall sclerophyll forest and woodland, heath and swamp as well as urban gardens and cultivated fruit crops	Vulnerable	Possible	Possible

13.2.2 Threatened Species for Consideration (EPBC Act)

The study area incorporated the development footprint (impact area comprising the facility site and associated APZ) and adjacent heathland habitat and the existing site access. The following Significance Tests rely on the ecological assessment provided in this report. Based on the flora survey and habitat assessment, it is considered that the land within the study area and adjacent heathland habitat constitutes potential habitat for the five nationally listed threatened species detailed below in Table 12.

Table 12: Subject species for assessment of significance

Family	Scientific Name	Common Name	Status
Mammalia			
Peramelidae	*Isoodon obesulus obesulus*	Southern Brown Bandicoot (eastern)	Endangered
Potoroidae	*Potorous tridactylus*	Long-nosed Potoroo	Vulnerable
Muridae	*Pseudomys fumeus*	Smoky Mouse	Endangered
Muridae	*Pseudomys novaehollandiae*	New Holland Mouse	Vulnerable
Pteropodidae	*Pteropus poliocephalus*	Grey-headed Flying-fox	Vulnerable

13.2.3 Endangered and Critically Endangered Species Assessment

***Isoodon obesulus obesulus* (Southern Brown Bandicoot – Eastern)**

The Southern Brown Bandicoot (eastern) is a medium-sized, ground-dwelling marsupial with a head and body length of approximately 30 cm. Like other members of the family, the southern brown bandicoot has a long tapering snout, a naked nose, a compact body and a short tail generally 110-120 mm long. The head has small, rounded ears and small, black eyes. The dorsal surface of the body bears black spiny bristle-hairs and softer, dark grey underfur that appears brown at a distance. The softer underbelly is creamy-white. While the forelegs are short with curved claws on the digits, the hind limbs are much longer, resembling those of macropods. Males are heavier (mean weight 890 g) than females (mean weight 620 g).

The distribution of the Southern Brown Bandicoot (eastern) extends from the southern side of the Hawkesbury River in NSW to Kangaroo Island in South Australia. Within this range it occurs mostly in coastal areas. In NSW there are two population strongholds; Ku-ring-gai Chase and Garigal National Parks just north of Sydney and the far southeast corner (including Ben Boyd National Park, East Boyd State Forest, Nadgee Nature Reserve, Nadgee State Forest, South East Forest National Park and Yambulla State Forest). The Southern Brown Bandicoot inhabits areas of dense vegetation, including heath or open forest with a heathy understorey on sandy or friable soils. Like other species of the genus, the Southern Brown Bandicoot is secretive and rarely ventures far from cover, most likely to avoid predation. The species is omnivorous and forages for food mainly by digging in the leaf litter and soil to find insects, fungi, plant root nodules and bulbs. It also eats fruit, seeds and other plant material found above ground. Nests are constructed beneath plants on the ground and the burrows of other species are occasionally used. The Southern Brown Bandicoot (eastern) is listed as endangered in NSW under the BC Act and as endangered nationally under the EPBC Act. The Bionet Atlas database search indicated 225 records of the species around the study area including some in the immediate vicinity of the site.

***Pseudomys fumeus* (Smoky Mouse)**
The Smoky Mouse is a native mouse, similar in size to a small rat. It is pale grey to blue-grey to black above, with a grey to white belly and a ring of dark hairs around each of its large, bulging eyes. The feet are pink with white fur. The species is distinguished by its bi-coloured tail, which is blue-grey dorsally, white ventrally and lightly furred. The species has a head and body length of 85–100 mm (average 90 mm), a tail length of 110–145 mm (average 140 mm) and weighs 45–86 gram.

The Smoky Mouse formerly had a wide distribution but is currently limited to a small number of sites in western, southern and eastern Victoria, southeast NSW and the ACT. Most of the populations are in Victoria. In NSW there are three records from Kosciuszko National Park and 2 records adjacent to the park in Bondo and Ingbyra State Forests. The remainder are centred around Mount Poole, Nullica State Forest and the adjoining South East Forests National Park. The Smoky Mouse inhabits a range of vegetation communities including coastal and subalpine heath, *Eucalyptus pauciflora* (Snow Gum) woodland in the subalpine regions and dry forest dominated by eucalypts such as *Eucalyptus dives* (Broad-leaved Peppermint), *Eucalyptus. mannifera* (Brittle Gum), *Eucalyptus dalrympleana* (Mountain Gum) or *Eucalyptus delegatensis* (Alpine Ash). The presence of a floristically diverse heathy understorey is a characteristic of Smoky Mouse habitat (with the exception of wet gullies), with members of the plant families Ericaceae, Fabaceae and Mimosaceae being well represented. Adequate ground cover (low heath, grass tussocks, logs, rocks or leaf-litter) and soil conditions conducive to the growth of hypogeal fungi (a major component of the diet) are also likely to be critical habitat elements. The Smoky Mouse is listed as endangered in NSW under the BC Act and as endangered nationally under the EPBC Act. The BioNet Atlas database search indicated no records of the species within a 0.1^{o} by 0.1^{o} search area around the study area.

Factors to be Considered for Endangered and Critically Endangered Species

As per the guidelines to assessment of significance, an action is likely to have a significant impact on an endangered and critically endangered species, if it will:

- fragment an existing population into two or more populations;
- adversely affect habitat critical to the survival of a species;
- disrupt the breeding cycle of a population;
- modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;
- result in invasive species, that are harmful to a critically endangered or endangered species, becoming established in the critically endangered or endangered species' habitat;
- introduce a disease that may cause a species to decline; or
- interferes substantially with the recovery of the species.

Endangered and Critically Endangered Species – Assessments of Significance

This section addresses each of the aforementioned factors for endangered and critically endangered species; *Isoodon obesulus obesulus* (Southern Brown Bandicoot) and *Pseudomys fumeus* (Smoky Mouse).

a) Lead to a long-term decrease in the size of a population

The study area is located within Beowa National Park, on sedimentary geology and contains a tall heathland community that is in a regenerative state following a bush fire event that occurred approximately four years ago. The habitat associated with the heathland community contains an array of associated terrestrial habitat features, including areas of dense groundcover, fallen trees or shrubs and other woody debris such as branches and leaf litter. The proposed NSWTA development comprises a new radiocommunications facility adjacent to an existing NPWS works site and provision of a 10 metres wide APZ, which will require clearing or ongoing management of heathland with an area of approximately 830 m^2. There is no work required to the existing site access, which is associated with the existing NPWS works site.

During the ecological assessment, a habitat search was conducted, which determined that two species of fauna occupy the habitat within the study area, including the native macropod; *Wallabia bicolor* (Swamp Wallaby) and the invasive pest species; *Oryctolagus cuniculus* (European Rabbit). The presence of *Wallabia bicolor* at the site was unremarkable, given the species is common in the area and the suitability of the habitat. The numerous signs of *Oryctolagus cuniculus* occurring within the study area was unexpected however, as the species is a grazing animal that requires open areas of green grass and herbs and is not usually associated with habitats containing a dense woody groundcover, such as heathland. Its occurrence is attributed to the period following the 2019-2020 bush fires, during which the groundcover was significantly reduced, and an abundance of new growth provided plenty of grazing opportunities. It is envisaged that as the heathland continues to regenerate and the groundcover and taller shrub layer returns to normal, the local rabbit population will decline considerably. Signs of use by other small mammals such as the Southern Brown Bandicoot and the Smoky Mouse were not observed. However, the habitat within the study area is suitable for both these species and it is likely that it could be utilised by them for foraging, particularly with respect to the Southern Brown Bandicoot, given the significant population of the species locally and the large numbers of records of it in the surrounding landscape.

Much of the proposed NPWTA facility footprint comprises land that was previously cleared and otherwise variously disturbed by past human activities in association with the existing NPWS works site and its existing access off Green Cape Lighthouse Road. The main impacts to the threatened species under consideration are likely to be noise and the presence of people and machinery during the initial works and a reduction of heathland habitat. However, the amount of heathland proposed to be removed is relatively small in the context of the site's position in the landscape. Furthermore, the low heath that will be formed by provision of the APZ will remain available to these species as it will not be completely removed but instead, managed to keep it to a low height. The habitat that will be removed (i.e. vegetation that will be cleared entirely) is relatively small (approximately 134 m^2) and is located at the margin of the existing cleared works site. Therefore, provided that the mitigation measures detailed in section 8 of this report are implemented and strictly adhered to, it is considered unlikely that the proposed action will lead to a long-term decrease in the size of the species population.

b) Reduce the area of occupancy of a population:

The footprint required for the proposed development is relatively small, particularly in the context of the site's position in the landscape and will be located adjacent to a disturbed area that was previously cleared in association with an existing NPWS works site. The main impact involves the removal of a relatively small quantity of vegetation associated with the surrounding heathland community from the proposed facility footprint and management of the vegetation to maintain it at a low height for provision of the APZ. The Southern Brown Bandicoot and Smoky Mouse could utilise this low heathland habitat that will be formed by provision of the APZ. Once the works to install the new NSWTA facility are completed there will be no ongoing human presence associated with the facility apart from infrequent visits to undertake maintenance activities. Therefore, the action is unlikely to reduce the area of occupancy of a population.

c) Fragment an existing population into two or more populations:

The proposed works will be confined to a relatively small footprint situated immediately adjacent to an existing NPWS works site and utilises an existing site access. No works will extend beyond the defined works footprint. Therefore, the proposed development is unlikely to result in fragmentation of an existing population of the subject endangered and critically endangered species under consideration.

d) Adversely affect habitat critical to the survival of a species:

"Critical habitat" refers to areas critical to the survival of a species or ecological community may include areas that are necessary for/to:

- activities such as foraging, breeding, roosting or dispersal;
- succession;
- maintain genetic diversity and long term evolutionary development; or
- reintroduction of populations or recovery of the species/community.

The habitat within the proposed development footprint is not considered critical habitat for the subject endangered or critically endangered species due to its relatively small size and relative location, adjacent to the existing NPWS works site.

e) Disrupt the breeding cycle of a population:

There will be a relatively small reduction with respect to the availability of potential habitat of a local population of the subject species. Otherwise, there are unlikely to be any direct impacts on the species associated with the proposed development. Linkages will continue to be available and other potential detrimental impacts such as a human presence in the area will not be exacerbated significantly by the proposed development. Therefore, it is unlikely that the proposed development will disrupt the breeding cycle of an important population of the subject species.

f) Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline:

There will be a relatively small reduction in available quality habitat associated with the proposed development, that is unlikely to lead to a decline in the species under consideration.

g) Result in invasive species, that are harmful to a critically endangered or endangered species, becoming established in the critically endangered or endangered species' habitat:

No new species that affects the subject endangered and critically endangered species is likely to be introduced as a direct result of the proposal.

h) Introduce a disease that may cause a species to decline:

No disease that poses a potential risk to the subject endangered and critically endangered species is likely to be introduced to the site provided the recommendations in section 8 of this report are adopted.

i) Interferes substantially with the recovery of the species:

The proposal is unlikely to significantly impact the subject endangered species such that it will interfere substantially with the recovery of the species.

13.2.4 Vulnerable Species Assessment

***Potorous tridactylus* (Long-nosed Potoroo)**

The Long-nosed Potoroo is a compact, medium-sized marsupial with a maximum body and head length of 31-34 cm, a tail length of 23 cm and a weight range of 660-1640 grams. The species name 'tridactylus' translates to three-toed, although the Long-nosed Potoroo technically has five toes as the second and third digits are conjoined. The hind limbs of the Long-nosed Potoroo are 85-88 cm long and well developed, enabling it to hop at great speeds. The forearms are shorter and muscular with short, strong claws that are well adapted to digging. The species has small, rounded ears, large eyes and a long muzzle with a bare tip. The body has two fur layers, comprising a soft, short dark grey fur on its back with coarser hair protruding that can range in colour from yellow-white to brown with a black tip. The underside is covered in coarse white fur with a grey base layer. Females have a well-developed pouch that opens anteriorly and contains four mammae. The preferred habitat includes coastal heaths and dry and wet sclerophyll forests that contain a dense understorey with occasional open areas. A sandy loam soil is also a common feature of the habitat. The fruit-bodies of hypogeous (underground-fruiting) fungi are a major component of the diet of the Long-nosed Potoroo. Roots, tubers, insects and their larvae and other soft-bodied animals in the soil are also consumed. The species often digs small holes in the ground in a similar way to bandicoots. It is mainly nocturnal, solitary, non-territorial with a typical home range of between 2-5 hectares. The Long-nosed Potoroo is listed as vulnerable in NSW under the BC Act and as vulnerable nationally under the EPBC Act. The Bionet Atlas database search indicated 186 records of the species around the study area including some in the immediate vicinity of the site.

***Pseudomys novaehollandiae* (New Holland Mouse)**

The New Holland Mouse is s a small, burrowing native rodent. It is similar in size and appearance to the introduced *Mus musculus* (House Mouse), although it can be distinguished by its slightly larger ears and eyes, the absence of a notch on the upper incisors and the absence of a distinctive 'mousy' odour. The species is grey-brown in colour and its dusky-brown tail is darker on the dorsal side. The species has a head-body length of approximately 65-90 mm, a tail length of approximately 80-105 mm and a hind foot length of approximately 20-22 mm.

The New Holland Mouse has a fragmented distribution across Tasmania, Victoria, NSW and Queensland. Genetic evidence indicates that the New Holland Mouse once formed a single continuous population on mainland Australia and the distribution of recent subfossils further suggest that the species has undergone a large range contraction since European settlement. Total population size of mature individuals is now estimated to be less than 10,000 although, given the number of sites from which the species is known to have disappeared from between 1999 and 2009, it is likely that the species' distribution is actually smaller than current estimates. The New Holland Mouse is known to inhabit open heathland, woodland and forest with a heathy understorey and vegetated sand dunes. It is a social animal, living predominantly in burrows shared with other individuals. Distribution of the species is patchy in time and space, with peaks in abundance during early to mid-stages of vegetation succession typically induced by fire. The New Holland Mouse is listed vulnerable nationally under the EPBC Act. The BioNet Atlas database search indicated no records of the species within a 0.1° by 0.1° search area around the study area.

***Pteropus poliocephalus* (Grey-headed Flying-fox)**
The Grey-headed Flying-fox is the largest Australian bat species with a head and body length of 23 - 29 cm and a wingspan of up to 1 metre. It is found within 200 km of the eastern coast of Australia from Bundaberg in Queensland to Melbourne, Victoria. It has dark grey fur on the body, lighter grey fur on the head, a russet collar encircling the neck and black wing membranes. It can be distinguished from other flying-foxes by the leg fur, which extends to the ankle.

The species occurs in subtropical and temperate rainforest, tall sclerophyll forest and woodland and individuals travel up to 50 kilometres to feed on the nectar and pollen of native trees, particularly eucalypts, *Melaleuca spp.* and *Banksia spp*. and the fruits of rainforest trees and vines. The Grey-headed Flying-fox congregates in large numbers at roosting sites (camps) that may be found in rainforest patches, *Melaleuca* stands, mangroves, riparian woodland or modified vegetation in urban areas. The Grey-headed Flying-fox is listed as vulnerable in NSW under the BC Act and as vulnerable nationally under the EPBC Act. The BioNet Atlas database search indicated no records of the species within a 0.1° by 0.1° search area around the study area.

Factors to Be Considered for Vulnerable Species

As per the guidelines to assessment of significance, an action is likely to have a significant impact on a vulnerable species, if it will:

- lead to a long-term decrease in the size of an important population of a species;
- reduce the area of occupancy of an important population;
- fragment an existing important population into two or more populations;
- adversely affect habitat critical to the survival of a species;
- disrupt the breeding cycle of an important population;
- modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;
- result in invasive species, that are harmful (by competition, modification of habitat, or predation) to a vulnerable species, becoming established in the vulnerable species' habitat;

- introduce a disease that may cause a species to decline; or
- interferes substantially with the recovery of the species.

Vulnerable Species – Assessments of Significance

This section addresses each of the aforementioned factors for vulnerable listed species; *Potorous tridactylus* (Long-nosed Potoroo), *Pseudomys novaehollandiae* (New Holland Mouse) and *Pteropus poliocephalus* (Grey-headed Flying-fox).

a) Lead to a long-term decrease in the size of an important population of a species:

The study area is located within Beowa National Park, on sedimentary geology and contains a tall heathland community that is in a regenerative state following a bush fire event that occurred approximately four years ago. The habitat associated with the heathland community contains an array of associated terrestrial habitat features, including areas of dense groundcover, fallen trees or shrubs and other woody debris such as branches and leaf litter. The proposed NSWTA development comprises a new radiocommunications facility adjacent to an existing NPWS works site and provision of a 10 metres wide APZ, which will require clearing or ongoing management of heathland with an area of approximately 830 m^2. There is no work required to the existing site access, which is associated with the existing NPWS works site.

During the ecological assessment, a habitat search was conducted, which determined that two species of fauna occupy the habitat within the study area, including the native macropod; *Wallabia bicolor* (Swamp Wallaby) and the invasive pest species; *Oryctolagus cuniculus* (European Rabbit). The presence of *Wallabia bicolor* at the site was unremarkable, given the species is common in the area and the suitability of the habitat. The numerous signs of *Oryctolagus cuniculus* occurring within the study area was unexpected however, as the species is a grazing animal that requires open areas of green grass and herbs and is not usually associated with habitats containing a dense woody groundcover, such as heathland. Its occurrence is attributed to the period following the 2019-2020 bush fires, during which the groundcover was significantly reduced, and an abundance of new growth provided plenty of grazing opportunities. It is envisaged that as the heathland continues to regenerate and the groundcover and taller shrub layer returns to normal, the local rabbit population will decline considerably. Signs of use by other small mammals such as the Southern Brown Bandicoot and the Smoky Mouse were not observed. However, the habitat within the study area is suitable for both these species and it is likely that it could be utilised by them for foraging, particularly with respect to the Long-nosed Potoroo, given the significant population of the species locally and the large numbers of records of it in the surrounding landscape.

Much of the proposed NPWTA facility footprint comprises land that was previously cleared and otherwise variously disturbed by past human activities in association with the existing NPWS works site and its existing access off Green Cape Lighthouse Road. The main impacts to the threatened species under consideration are likely to be noise and the presence of people and machinery during the initial works and a reduction of heathland habitat. However, the amount of heathland proposed to be removed is relatively small in the context of the site's position in the landscape. Furthermore, the low heath that will be formed by provision of the APZ will remain available to these species as it will not be completely removed but instead,

managed to keep it to a low height. The habitat that will be removed (i.e. vegetation that will be cleared entirely) is relatively small (approximately 134 m^2) and is located at the margin of the existing cleared works site. Therefore, provided that the mitigation measures detailed in section 8 of this report are implemented and strictly adhered to, it is considered unlikely that the proposed action will lead to a long-term decrease in the size of an important population of the species.

b) Reduce the area of occupancy of an important population:

The footprint required for the proposed development is relatively small, particularly in the context of the site's position in the landscape and will be located adjacent to a disturbed area that was previously cleared in association with an existing NPWS works site. The main impact involves the removal of a relatively small quantity of vegetation associated with the surrounding heathland community from the proposed facility footprint and management of the vegetation to maintain it at a low height for provision of the APZ. With respect to the Long-nosed Potoroo and the New Holland Mouse, both species could utilise this low heathland habitat that will be formed by provision of the APZ. Once the works to install the new NSWTA facility are completed there will be no ongoing human presence associated with the facility apart from infrequent visits to undertake maintenance activities. Therefore, the action is unlikely to reduce the area of occupancy of a population.

c) Fragment an existing important population into two or more populations:

The proposed works will be confined to a relatively small footprint situated immediately adjacent to an existing NPWS works site and utilises an existing site access. No works will extend beyond the defined works footprint. Therefore, the proposed development is unlikely to result in fragmentation of an existing important population of the subject species under consideration.

d) Adversely affect habitat critical to the survival of a species:

"Critical habitat" refers to areas critical to the survival of a species or ecological community may include areas that are necessary for/to:

- activities such as foraging, breeding, roosting or dispersal;
- succession;
- maintain genetic diversity and long term evolutionary development; or
- reintroduction of populations or recovery of the species/community.

The habitat within the proposed development footprint is not considered critical habitat for the subject vulnerable species due to its relatively small size and its position adjacent to an existing NPWS works site.

e) Disrupt the breeding cycle of an important population:

There will be a relatively small reduction with respect to the availability of potential habitat of a local population of the subject species. Otherwise, there are unlikely to be any direct impacts on the species associated with the proposed development. Linkages will continue to be available and other potential detrimental impacts such as a human presence in the area will not be exacerbated significantly by the proposed development. Therefore, it is unlikely that

the proposed development will disrupt the breeding cycle of an important population of the subject species.

f) Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline:

There will be a relatively small reduction in available quality habitat associated with the proposed development, that is unlikely to lead to a decline in the species under consideration.

g) Result in invasive species, that are harmful (by competition, modification of habitat, or predation) to a Vulnerable species, becoming established in the vulnerable species' habitat:

No new species that affects the subject species is likely to be introduced as a direct result of the proposal provided the recommendations detailed in section 8 of this report are adopted.

h) Introduce a disease that may cause a species to decline:

No disease that poses a potential risk to these species is likely to be introduced to the site.

i) Interferes substantially with the recovery of the species:

The proposal is unlikely to significantly impact the subject vulnerable species such that it will interfere substantially with the recovery of the species.

13.2.5 Threatened Ecological Community Assessment

The flora survey determined that the vegetation within the study area does not meet the criteria for a TEC listed under the EPBC Act. Therefore, the proposed works are unlikely to have an adverse effect on the extent of a threatened ecological community.

13.2.6 Conclusion

The proposal is unlikely to have a significant impact on the assessed threatened species or threatened ecological community, therefore a referral to the Department of Climate Change, Energy, the Environment and Water is considered unnecessary.

14. Appendix D: Bionet Database Search

Table 13: Bionet records retrieved from report generated on 19/01/2022

Family	Scientific Name	Common Name	NSW Status	Records
Plantae				
Fabaceae (Faboideae)	*Pultenaea pedunculata*	Matted Bush-pea	E1	7
Fabaceae (Mimosoideae)	*Acacia constablei*	Narrabarba Wattle	V	2
Violaceae	*Viola cleistogamoides*	Hidden Violet	E1,3	22
Aves				
Diomedeidae	*Diomedea exulans*	Wandering Albatross	E1,P	1
Diomedeidae	*Thalassarche cauta*	Shy Albatross	E1,P	2
Diomedeidae	*Thalassarche melanophris*	Black-browed Albatross	V,P	4
Procellariidae	*Ardenna carneipes*	Flesh-footed Shearwater	V,P	1
Procellariidae	*Macronectes halli*	Northern Giant-Petrel	V,P	1
Accipitridae	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	V,P	16
Accipitridae	*Hieraaetus morphnoides*	Little Eagle	V,P	1
Accipitridae	*Lophoictinia isura*	Square-tailed Kite	V,P,3	2
Accipitridae	*Pandion cristatus*	Eastern Osprey	V,P,3	1
Haematopodidae	*Haematopus fuliginosus*	Sooty Oystercatcher	V,P	3
Charadriidae	*Thinornis cucullatus cucullatus*	Eastern Hooded Dotterel	E4A	2
Cacatuidae	*Callocephalon fimbriatum*	Gang-gang Cockatoo	V,P,3	1
Cacatuidae	*Calyptorhynchus lathami*	South-eastern Glossy Black-Cockatoo	V,P,2	5
Psittacidae	*Pezoporus wallicus wallicus*	Eastern Ground Parrot	V,P,3	22
Tytonidae	*Tyto tenebricosa*	Sooty Owl	V,P,3	2
Climacteridae	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	V,P	1
Acanthizidae	*Calamanthus fuliginosus*	Striated Fieldwren	E1,P	14
Neosittidae	*Daphoenositta chrysoptera*	Varied Sittella	V,P	1
Pachycephalidae	*Pachycephala olivacea*	Olive Whistler	V,P	1
Artamidae	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V,P	4

Petroicidae	*Petroica boodang*	Scarlet Robin	V,P	2
Mammalia				
Dasyuridae	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	2
Peramelidae	*Isoodon obesulus obesulus*	Southern Brown Bandicoot (eastern)	E1,P	225
Burramyidae	*Cercartetus nanus*	Eastern Pygmy-possum	V,P	10
Potoroidae	*Potorous tridactylus*	Long-nosed Potoroo	V,P	186
Otariidae	*Arctocephalus pusillus doriferus*	Australian Fur-seal	V,P	1
Balaenidae	*Eubalaena australis*	Southern Right Whale	E1,P	1

Key to NSW Status:

1	Sensitivity Class 1 (Sensitive Species Data Policy)
2	Sensitivity Class 2 (Sensitive Species Data Policy)
3	Sensitivity Class 3 (Sensitive Species Data Policy)
CC	Collapsed Ecological Community (BC Act)
CH	Critical Habitat (BC Act)
E1	Endangered (BC Act)
E2	Endangered Population (BC Act)
E3	Endangered Ecological Community (BC Act)
E4	Extinct (BC Act)
E4A	Critically Endangered (BC Act)
E4B	Critically Endangered Ecological Community (BC Act)
EW	Extinct in the Wild (BC Act)
FCE	Critically Endangered Fish (FM Act)
FE	Endangered Fish (FM Act)
FEC	Endangered Ecological Community of Fish (FM Act)
FEP	Endangered Population of Fish (FM Act)
FKTP	Key Threatening Process of Fish (FM Act)
FP	Protected Fish (FM Act)
FV	Vulnerable Fish (FM Act)
FX	Extinct Fish (FM Act)
KTP	Key Threatening Process (BC Act)
P	Protected (NP&W Act)
V	Vulnerable (BC Act)
V2	Vulnerable Ecological Community (BC Act)

15. Appendix E: MNES Database Search

Australian Government
Department of Climate Change, Energy, the Environment and Water

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 25-Sep-2023

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	1
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	86
Listed Migratory Species:	51

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	82
Whales and Other Cetaceans:	14
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	2
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	3
Key Ecological Features (Marine):	1
Biologically Important Areas:	18
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Commonwealth Marine Area [Resource Information]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name	Buffer Status
Commonwealth Marine Areas (EPBC Act)	In buffer area only

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Brogo Vine Forest of the South East Corner Bioregion	Endangered	Community likely to occur within area	In feature area
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Critically Endangered	Community likely to occur within area	In buffer area only
Lowland Grassy Woodland in the South East Corner Bioregion	Critically Endangered	Community likely to occur within area	In feature area
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community likely to occur within area	In feature area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In buffer area only

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Aphelocephala leucopsis Southern Whiteface [529]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat known to occur within area	In feature area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat known to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
Fregetta grallaria grallaria White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat may occur within area	In feature area
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pterodroma leucoptera leucoptera Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area	In buffer area only
Pycnoptilus floccosus Pilotbird [525]	Vulnerable	Species or species habitat known to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Breeding likely to occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thinornis cucullatus cucullatus Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat known to occur within area	In feature area
FISH			
Epinephelus daemelii Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Prototroctes maraena Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Seriolella brama Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In buffer area only
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
FROG			
Heleioporus australiacus Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat known to occur within area	In feature area
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Litoria raniformis Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Litoria watsoni Watson's Tree Frog [91509]	Endangered	Species or species habitat likely to occur within area	In feature area
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat may occur within area	In buffer area only
MAMMAL			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In buffer area only
Isoodon obesulus obesulus Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050]	Endangered	Species or species habitat known to occur within area	In feature area
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat known to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Potorous tridactylus trisulcatus Long-nosed Potoroo (southern mainland) [86367]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pseudomys fumeus Smoky Mouse, Konoom [88]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
PLANT			
Acacia constablei Narrabarba Wattle [10798]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Acacia lanigera var. gracilipes [31652]	Endangered	Species or species habitat may occur within area	In feature area
Amphibromus fluitans River Swamp Wallaby-grass, Floating Swamp Wallaby-grass [19215]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calochilus pulchellus Pretty Beard Orchid, Pretty Beard-orchid [84677]	Endangered	Species or species habitat may occur within area	In feature area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat may occur within area	In feature area
Pomaderris parrisiae Parris' Pomaderris [22119]	Vulnerable	Species or species habitat known to occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Westringia davidii [19079]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat may occur within area	In buffer area only
REPTILE			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
SHARK			
Carcharias taurus (east coast population) Grey Nurse Shark (east coast population) [68751]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Galeorhinus galeus School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Migratory Marine Species			
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Caperea marginata Pygmy Right Whale [39]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In buffer area only
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Orcinus orca Killer Whale, Orca [46]		Species or species habitat likely to occur within area	In buffer area only
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Migratory Terrestrial Species			
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Breeding known to occur within area	In feature area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Stercorarius antarcticus as Catharacta skua Brown Skua [85039]		Species or species habitat may occur within area	In buffer area only
Sterna striata White-fronted Tern [799]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Sternula albifrons as Sterna albifrons Little Tern [82849]		Species or species habitat may occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche bulleri platei as Thalassarche sp. nov. Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat known to occur within area overfly marine area	In feature area
Thinornis cucullatus cucullatus as Thinornis rubricollis rubricollis Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Fish			
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In buffer area only
Hippocampus abdominalis Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233]		Species or species habitat may occur within area	In buffer area only
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area	In buffer area only
Hippocampus minotaur Bullneck Seahorse [66705]		Species or species habitat may occur within area	In buffer area only
Histiogamphelus briggsii Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242]		Species or species habitat may occur within area	In buffer area only
Histiogamphelus cristatus Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area	In buffer area only
Hypselognathus rostratus Knifesnout Pipefish, Knife-snouted Pipefish [66245]		Species or species habitat may occur within area	In buffer area only
Kaupus costatus Deepbody Pipefish, Deep-bodied Pipefish [66246]		Species or species habitat may occur within area	In buffer area only
Kimblaeus bassensis Trawl Pipefish, Bass Strait Pipefish [66247]		Species or species habitat may occur within area	In buffer area only
Leptoichthys fistularius Brushtail Pipefish [66248]		Species or species habitat may occur within area	In buffer area only
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only
Mitotichthys semistriatus Halfbanded Pipefish [66261]		Species or species habitat may occur within area	In buffer area only
Mitotichthys tuckeri Tucker's Pipefish [66262]		Species or species habitat may occur within area	In buffer area only
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area	In buffer area only
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In buffer area only
Solegnathus robustus Robust Pipehorse, Robust Spiny Pipehorse [66274]		Species or species habitat may occur within area	In buffer area only
Solegnathus spinosissimus Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area	In buffer area only
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In buffer area only
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only
Stipecampus cristatus Ringback Pipefish, Ring-backed Pipefish [66278]		Species or species habitat may occur within area	In buffer area only
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area	In buffer area only
Vanacampus poecilolaemus Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area	In buffer area only
Mammal			
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In buffer area only
Arctocephalus pusillus Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area	In buffer area only
Reptile			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Whales and Other Cetaceans			[Resource Information]
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			

Current Scientific Name	Status	Type of Presence	Buffer Status
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area	In buffer area only
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Caperea marginata Pygmy Right Whale [39]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In buffer area only
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In buffer area only
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
Megaptera novaeangliae			
Humpback Whale [38]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Orcinus orca			
Killer Whale, Orca [46]		Species or species habitat likely to occur within area	In buffer area only
Tursiops aduncus			
Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
Tursiops truncatus s. str.			
Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State	Buffer Status
Ben Boyd	National Park	NSW	In feature area
Nadgee	Nature Reserve	NSW	In buffer area only

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

RFA Name	State	Buffer Status
Eden RFA	New South Wales	In feature area

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				

Key Ecological Features [Resource Information]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region	Buffer Status
Upwelling East of Eden	South-east	In buffer area only

Biologically Important Areas

Scientific Name	Behaviour	Presence	Buffer Status
Dolphins			
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Likely to occur	In buffer area only
Seabirds			
Ardenna grisea Sooty Shearwater [82651]	Foraging	Likely to occur	In buffer area only
Ardenna pacifica Wedge-tailed Shearwater [84292]	Foraging	Likely to occur	In buffer area only
Ardenna tenuirostris Short-tailed Shearwater [82652]	Foraging	Likely to occur	In buffer area only
Diomedea exulans (sensu lato) Wandering Albatross [1073]	Foraging	Known to occur	In buffer area only
Diomedea exulans antipodensis Antipodean Albatross [82269]	Foraging	Known to occur	In buffer area only
Pelagodroma marina White-faced Storm-petrel [1016]	Foraging	Known to occur	In buffer area only
Thalassarche cauta cauta Shy Albatross [82345]	Foraging likely	Likely to occur	In buffer area only
Thalassarche chlororhynchos bassi Indian Yellow-nosed Albatross [85249]	Foraging	Known to occur	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Foraging	Known to occur	In buffer area only
Thalassarche melanophris impavida Campbell Albatross [82449]	Foraging	Known to occur	In buffer area only
Sharks			

Scientific Name	Behaviour	Presence	Buffer Status
Carcharias taurus Grey Nurse Shark [64469]	Foraging	Known to occur	In buffer area only
Carcharodon carcharias White Shark [64470]	Distribution	Known to occur	In buffer area only
Carcharodon carcharias White Shark [64470]	Distribution (low density)	Likely to occur	In buffer area only
Carcharodon carcharias White Shark [64470]	Known distribution	Known to occur	In buffer area only
Whales			
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Distribution	Known to occur	In buffer area only
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Foraging	Likely to be present	In buffer area only
Megaptera novaeangliae Humpback Whale [38]	Foraging	Known to occur	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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16. Appendix F: Flamesol Reports

FLAMESOL
FPA AUSTRALIA

Calculated October 10, 2023, 3:42 pm (BALc v.4.9)

Green Cape - North & East

Bushfire Attack Level calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	100	Rate of spread	4.16 km/h
Vegetation classification	Scrub	Flame length	11.62 m
Understorey fuel load	25 t/ha	Flame angle	54 °
Total fuel load	25 t/ha	Panel height	9.4 m
Vegetation height	3 m	Elevation of receiver	4.7 m
Effective slope	0 °	Fire intensity	53,815 kW/m
Site slope	0 °	Transmissivity	0.876
Distance to vegetation	10 m	Viewfactor	0.5807
Flame width	100 m	Radiant heat flux	38.72 kW/m²
Windspeed	45 km/h	Bushfire Attack Level	BAL-40
Heat of combustion	18,600 kJ/kg		
Flame temperature	1,090 K		

Rate of Spread - Catchpole et al. 1998

Flame length - Byram, 1959

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

FLAMESOL
FPA AUSTRALIA

Calculated October 10, 2023, 3:54 pm (BALc v.4.9)

Green Cape - South

Bushfire Attack Level calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	100	Rate of spread	5.12 km/h
Vegetation classification	Scrub	Flame length	12.79 m
Understorey fuel load	25 t/ha	Flame angle	50 °
Total fuel load	25 t/ha	Panel height	9.789999999999999 m
Vegetation height	3 m	Elevation of receiver	4.89 m
Effective slope	3 °	Fire intensity	66,192 kW/m
Site slope	0 °	Transmissivity	0.879
Distance to vegetation	10 m	Viewfactor	0.6389
Flame width	100 m	Radiant heat flux	42.73 kW/m²
Windspeed	45 km/h	Bushfire Attack Level	BAL-FZ
Heat of combustion	18,600 kJ/kg		
Flame temperature	1,090 K		

Rate of Spread - Catchpole et al. 1998

Flame length - Byram, 1959

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

FLAMESOL
FPA AUSTRALIA

Calculated October 10, 2023, 3:58 pm (BALc v.4.9)

Green Cape - West

Bushfire Attack Level calculator - AS3959-2018 (Method 2)			
Inputs		Outputs	
Fire Danger Index	100	Rate of spread	4.78 km/h
Vegetation classification	Scrub	Flame length	12.39 m
Understorey fuel load	25 t/ha	Flame angle	52 °
Total fuel load	25 t/ha	Panel height	9.76 m
Vegetation height	3 m	Elevation of receiver	4.88 m
Effective slope	2 °	Fire intensity	61,779 kW/m
Site slope	0 °	Transmissivity	0.878
Distance to vegetation	10 m	Viewfactor	0.6188
Flame width	100 m	Radiant heat flux	41.34 kW/m²
Windspeed	45 km/h	Bushfire Attack Level	BAL-FZ
Heat of combustion	18,600 kJ/kg		
Flame temperature	1,090 K		

Rate of Spread - Catchpole et al. 1998

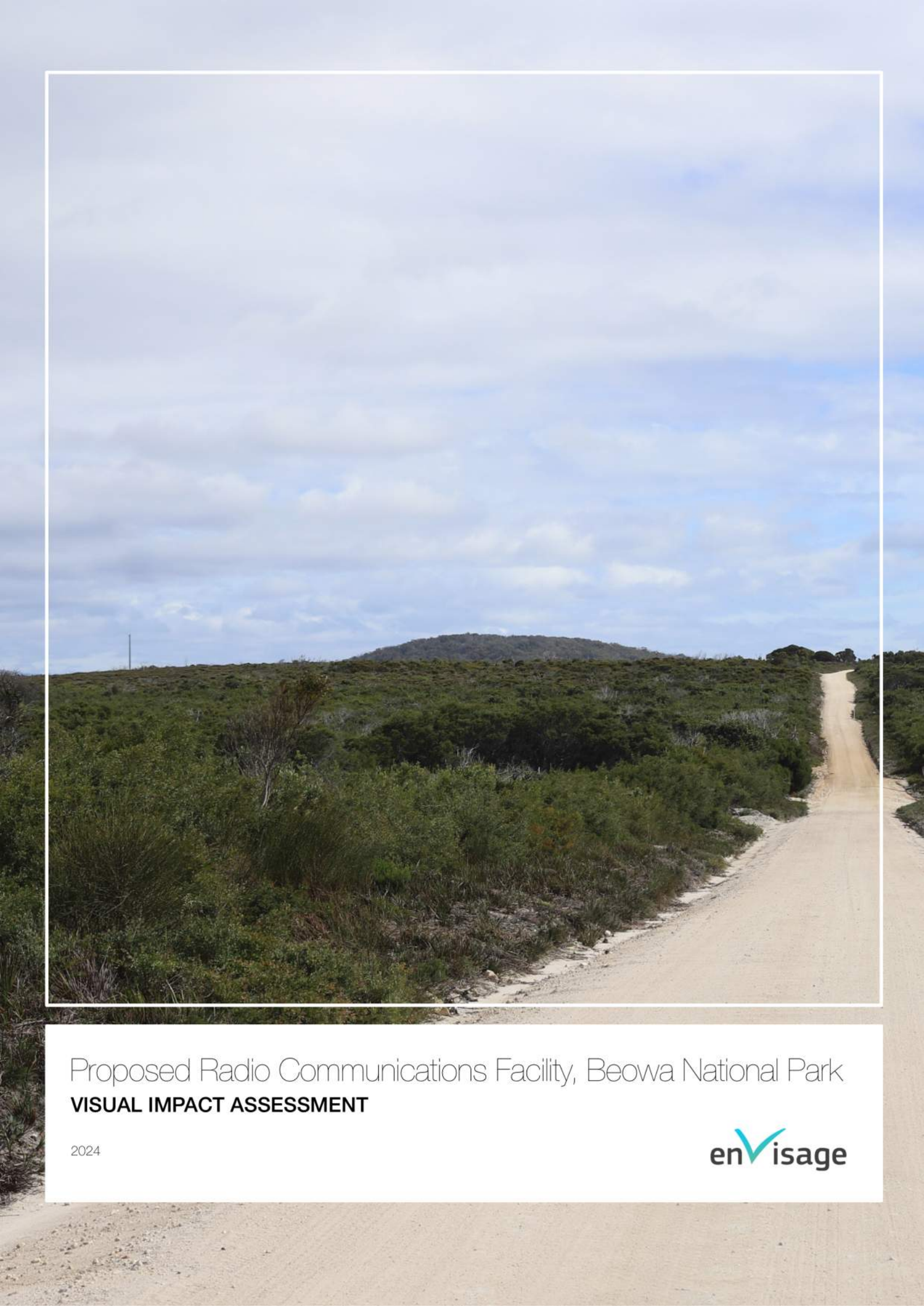
Flame length - Byram, 1959

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

Appendix F – Visual Impact Assessment



Proposed Radio Communications Facility, Beowa National Park

VISUAL IMPACT ASSESSMENT

2024

enVisage

Proposed Radio Communications Facility
Green Cape, Beowa National Park

VISUAL IMPACT ASSESSMENT

Prepared for: Catalyst ONE Pty Ltd on behalf of NSW Telco Authority
Prepared by: Alison Dodds, *PGCert Public Policy, BPlan, BLArch, PIA Registered Planner*
& Stacey Brodbeck, *MEnvPlan, BLArch, AILA Registered Landscape Architect and PIA Registered Planner*

ENVISAGE CONSULTING PTY LTD
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Hunter/Central Coast + Mid-North Coast + Sydney (assoc)

Envisage Consulting, specialists in visual impact assessment for over 15 years

We wish to acknowledge the Traditional Owners of country throughout Australia
and recognise their continuing connection to land, waters and community.
We pay our respects to them and their cultures; and to elders both past and present.

Cover image: View of proposed monopole from Green Cape Lighthouse Road, 2 km east of the Project site.

DOCUMENT CONTROL: Document no. 18621

Revision	Date of Issue	Prepared by	Reviewed by
1: DRAFT	30 November 2023	Alison Dodds	Stacey Brodbeck
2: FINAL	24 January 2024	Alison Dodds	Stacey Brodbeck

Contents

Tables

Figures

Abbreviations

APZ	Asset protection zone
CCEP	NSW Government's Communications Enhancement Program
DPE	NSW Department of Planning and Environment
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
GPS	Global positioning system (provides users with positioning, navigation, and timing services)
km	kilometre
m	metre
mm	millimetre
NPWS	NSW National Parks and Wildlife Service
NSWTA	NSW Telco Authority
Project	Proposed radiocommunications facility at Beowa National Park
REF	Review of Environmental Factors
VIA	Visual impact assessment
VP(s)	Viewpoint(s)

1 Introduction

1.1 Purpose of this report and scope

This visual impact assessment (VIA) assesses the potential visual impact of a proposed radio communications facility, within Beowa National Park, around 25 kilometres (km) south-east of Eden, NSW (the Project). The Project is part of the NSW Government's Critical Communications Enhancement Program (CCEP) and would be operated by NSW Telco Authority (NSWTA).

This specialist assessment informs the Review of Environmental Factors (REF) prepared by Catalyst ONE Pty Ltd (Catalyst) on behalf of NSWTA, to assess the environmental impacts of the Project, in the considerations for approval under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). NSWTA is both a public authority proponent and the determining authority under Part 5 of the EP&A Act.

The VIA aims to:

- identify the likely visual effects of the Project
- analyse the likely magnitude of change of those visual effects
- assess the nature and significance (that is, the impact) of those visual effects, and
- identify measures to avoid, reduce or compensate for those visual effects if considered necessary.

1.2 Location

The Project site is around 3.2 kilometres (km) from Green Cape Lighthouse, on Green Cape Lighthouse Road within Beowa National Park, shown in Figure 1-1.

Figure 1-1: Project location

2 Assessment methodology

2.1 Guidelines

The assessment methodology has been tailored to the Project and based on principles presented in well-regarded visual assessment guidelines used by government authorities and professional organisations in Australia and internationally, including:

- '*Guideline for Landscape Character and Visual Impact Assessment - Environmental Impact Assessment Guidance Note EIA–N04'* Transport for NSW, 2020
- '*Guidance Note for Landscape and Visual Assessment'*, Australian Institute of Landscape Architects, 2018
- '*Guidelines for Landscape and Visual Impact Assessment,*', the United Kingdom's Landscape Institute and Institute of Environmental Management and Assessment, 2013.

2.2 Visual impact assessment methodology

The assessment comprises two main components:

- A landscape character assessment - which assesses the overall impact of the Project on the area's character and sense of place.
- A view impact assessment - which assesses the effect of the Project on people's views and visual values.

The method to assess these impacts is based on combining the *sensitivity* of the existing landscape character or view to change, and the *magnitude of change* the Project would have on that landscape character or view. In Transport for NSW's *Guideline for landscape character and visual impact assessment*, these terms are defined as:

- *sensitivity*: the qualities of an area, the number and type of receivers and how sensitive the existing character of the setting, or view, is to the proposed nature of change.
- *magnitude*: the physical scale of a project, how distant it is and the contrast it presents to the existing condition.

The level of *sensitivity* and predicted *magnitude of change* for this assessment ranges from 'High' to 'Negligible'. Commentary is provided in the report (Section 4 and Section 5) to describe the factors (and chain of reasoning) leading to the assigned ratings.

The combination of *sensitivity* and *magnitude of change* results in the predicted level of impact (shown in Table 2-1). As a guide, Table 2-2 describes the broad significance of the impact categories applied in this assessment.

Table 2-1: Landscape character and visual impact rating matrix[1]

		Magnitude (of change)			
		High	Moderate	Low	Negligible
Sensitivity (to change)	High	High (Severe)	High-moderate (Major)	Moderate	Negligible
	Moderate	High-moderate (Major)	Moderate	Low-moderate	Negligible
	Low	Moderate	Low-moderate	Low (Minor)	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

[1] Source: Adapted from Figure 7, *Guideline for Landscape Character and Visual Impact Assessment - Environmental Impact Assessment Guidance Note EIA–N04'* Transport for NSW, 2020.

Table 2-2: Description of significance of the impact[2]

Significance	Description of significance	
	Landscape character impact	Impact on views (visual impact)
High (Severe)	The Project would result in effects that: ▪ are at complete variance with the landform, scale and pattern of the landscape ▪ would permanently degrade, diminish or destroy the integrity of valued landscape features, elements and/or their setting ▪ would cause a very high-quality landscape to be permanently changed and its quality diminished.	The Project would cause a very significant deterioration in the existing view.
High-moderate (Major)	The Project would result in effects that: ▪ cannot be fully mitigated and may cumulatively amount to a severe adverse effect ▪ are at a considerable variance to the landscape degrading the integrity of the landscape ▪ would be substantially damaging to a high-quality landscape.	The Project would cause a significant deterioration in the existing view.
Moderate	The Project would: ▪ be out of scale with the landscape or at odds with the local pattern and landform ▪ leave an adverse impact on a landscape of recognised quality.	The Project would cause a noticeable deterioration in the existing view.
Low-moderate	The Project would: ▪ be slightly out of scale within the landscape ▪ affect an area of recognised landscape character.	The Project would cause a slight deterioration in the existing view.
Low (Minor)	The Project would: ▪ not quite fit into the landform and scale of the landscape ▪ have little, if any, effect on recognised landscape character.	The Project would cause a barely perceptible deterioration in the existing view.
Negligible	The Project would: ▪ be generally compatible with the scale, landform, and pattern of the landscape; maintain existing landscape quality.	No discernible deterioration or improvement in the existing view.

2.3 Field investigations

A field investigation was undertaken 1 April 2023. The weather was dry, however, very windy, with periods of overcast and cloudy skies. The best attempt was made to photograph the site in good visibility conditions. The inspection covered the Project site, Green Cape Road, Green Cape Lighthouse, as well as the wider vicinity and potential surrounding sensitive viewpoints.

2.4 Images in this report

Report photographs have been taken using a full-frame sensor digital camera with a fixed 50 mm lens and GPS positioning. That focal length is considered the benchmark for technical landscape photography and regarded as being the closest to human eyesight, although it does not include our wider (unfocussed) peripheral vision. Unless otherwise noted, all photographs within this report were taken by Envisage Consulting.

During the field investigations, viewpoints were selected for photomontages to illustrate the predicted view. The photomontages in this report have been independently prepared by Cambium Group, specialists in simulated image production, and are presented in Section 5.2.

[2] Adapted from Table 4.5 and Table 4.9, *The Renewable Energy Landscape, Preserving scenic values in our sustainable future*, Apostle, Palmer, Pasqualetti, Smardon and Sullivan, 2017. (Routledge, 2017).

3 Project description

3.1 Site plan

The Project site is a National Parks and Wildlife Service (NPWS) storage location – being a cleared area around 50 m from Green Cape Lighthouse Road, surrounded by taller trees to the west, and lower, heathland vegetation to the east.

An aerial view of the location is shown in Figure 3-1. The overall site plan is shown in Figure 3-2.

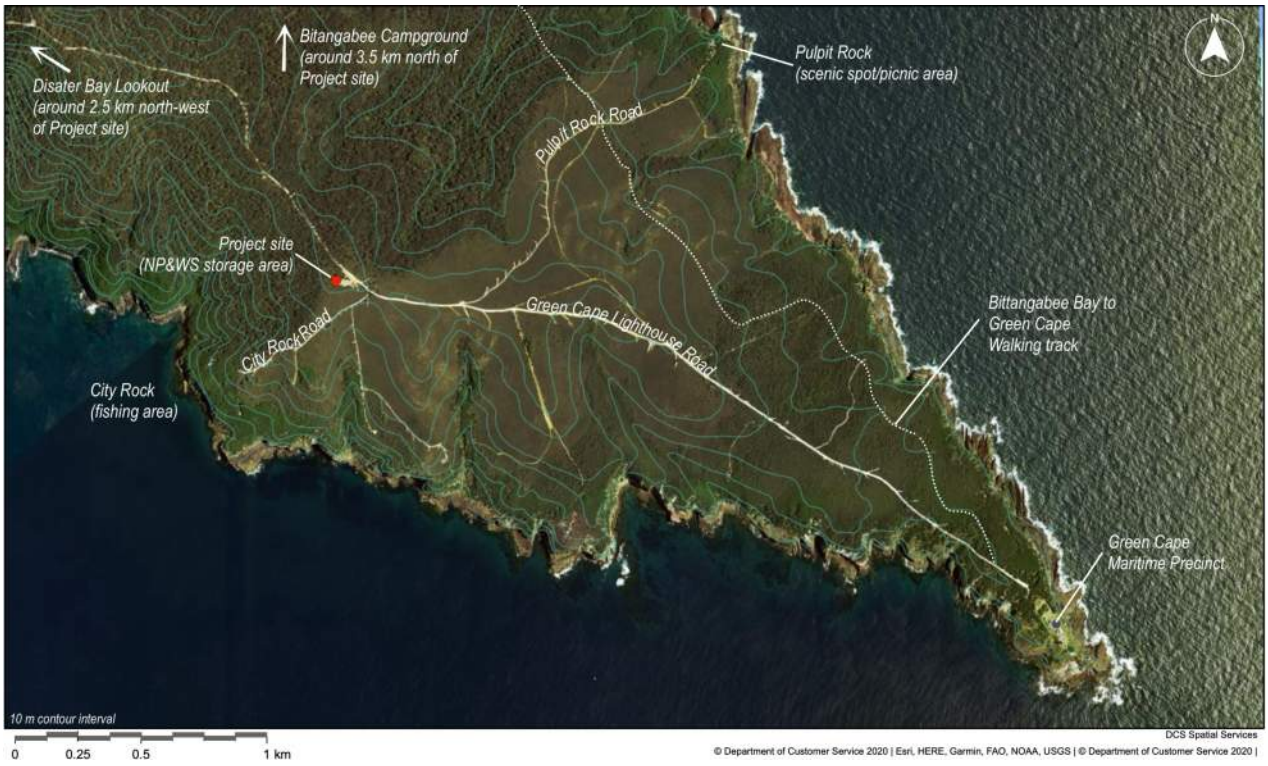


Figure 3-1: Aerial view of site and context

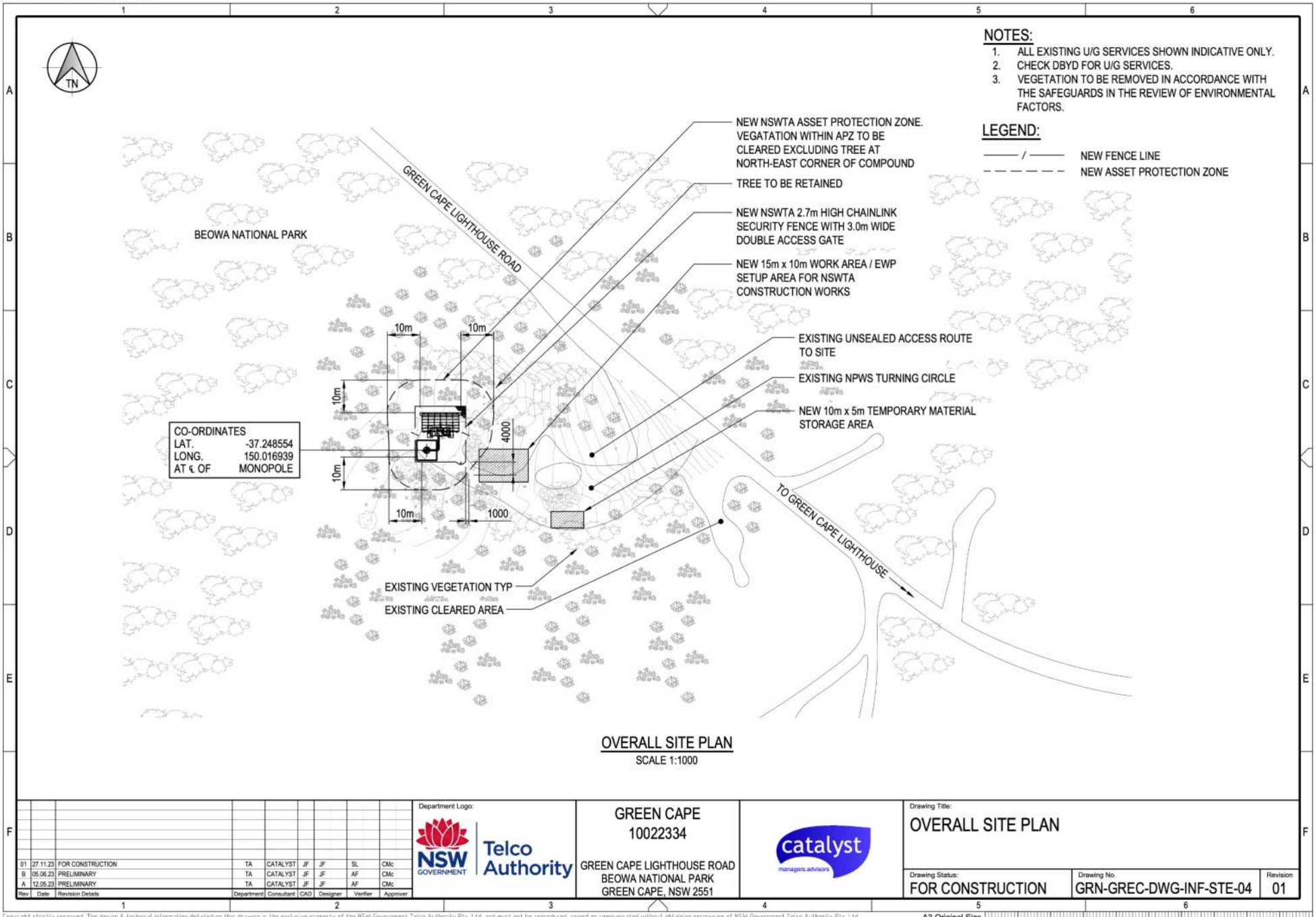
3.2 Project features

The Project to install a radiocommunications facility comprises:

- One 40 m concrete monopole to accommodate:
  - One dipole antenna array (5.7 m vertical length) strap mounted on the monopole at 40 m (providing an overall height of 45.7 m)
  - One parabolic antenna (0.9 m diameter) strap mounted on the monopole at 39 m.
- One equipment shelter (6.1 m x 2.5 m), inclusive of a generator and 1000 litre bunded fuel tank.
- One 36-panel photovoltaic array, on a steel frame mounted over the equipment shelter.
- A 2.7 m high chain link security fence establishing a 15.5 m x 17.5 m secure compound with 3 m wide double access gates.
- Clearing/management of heathland vegetation associated with an asset protection zone (APZ, required for bushfire management/protection measures) around the infrastructure, a minimum of 10.0 m in all directions.
- Removal of two existing mature trees within the APZ.

Figure 3-2
Overall Site Plan

PROPOSED RADIO COMMUNICATIONS FACILITY, BEOWA NATIONAL PARK
VISUAL IMPACT ASSESSMENT



Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
01	27.11.23	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
B	05.06.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc
A	12.05.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc

Department Logo: NSW GOVERNMENT Telco Authority

GREEN CAPE
10022334

GREEN CAPE LIGHTHOUSE ROAD
BEOWA NATIONAL PARK
GREEN CAPE, NSW 2551

catalyst managers.advisors

Drawing Title: OVERALL SITE PLAN

Drawing Status: FOR CONSTRUCTION

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

Revision 01

A3 Original Size
0mm 50mm 100mm

The heights of the various infrastructure components are summarised in Table 3.1. The Project site setout plan is shown in Figure 3-3 and an elevation is shown in Figure 3-4.

Table 3-1: Height of main infrastructure associated with the Project

Infrastructure	Indicative height
Monopole with antenna	40 m above ground level (45.7 m full height with antenna)
Shelter	Around 2.5 m above ground level x 6.1 m wide
Photovoltaic (solar) array	Around 1 m above shelter shed at its highest point (around 3.5 m above ground level).
Security fence	2.7 m above ground level (with double gates in the fence 3 m above ground level)

3.3 Tree removal

Around 134 m^2 of vegetation would be removed to construct the proposed facility, and around 695 m^2 of vegetation would be managed to provide for the 10 m wide APZ.

Vegetation impacted by the Project has been identified in the *Ecological and Bush Fire Attack Assessment* (FloraFauna Consulting, October 2023), which determined there are three mature trees within the development footprint (all identified as *Eucalyptus sieberi* (Silvertop Ash)). Two trees (8 m high) are not considered ecologically important and would be removed. One tree (12 m high), located near the margin of the APZ, is considered ecologically significant and would be retained. Figure 3-5 identifies the three trees.

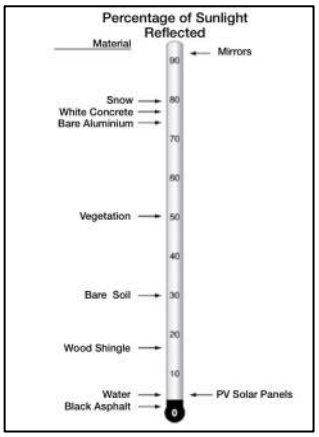
The remaining impacted vegetation is heathland. The vegetation is in a post-fire regenerative state (following the 2019-2020 bushfires). Except for the three mature trees, most individual plants are resprouts, dead trees, eucalypt seedlings and saplings are common.

3.4 Earthworks

Proposed earthworks are minor, including limited excavation for footings. Cutting (up to around 0.3 m deep) would be required to level the western half of the development footprint.

3.5 Finishes

- The monopole would be cast concrete and painted pale eucalypt (non-reflective), installed on a concrete pad.
- The parabolic antenna would be coloured pale eucalypt. The dipole antenna would be aluminium with an Alodine finish.
- The solar panels would be dark coloured, constructed of light-absorbing materials, have an anti-reflective coating, a glass cover and aluminium frame. Solar panels reflect a very low percentage of sunlight (as shown in Box 1) and therefore unlikely to produce glare.
- The shelter would be steel, coloured pale eucalypt.
- The grounds inside of the compound fence would be finished with 75 mm think single sized gravel on weed mat.
- Green Cape Lighthouse Road would remain unsealed.



Box 1: Comparison of material reflectivity

Source: Sandia National Laboratories adapted from ACRP Synthesis 28 Investigating safety Impacts of energy technologies on airports and aviation

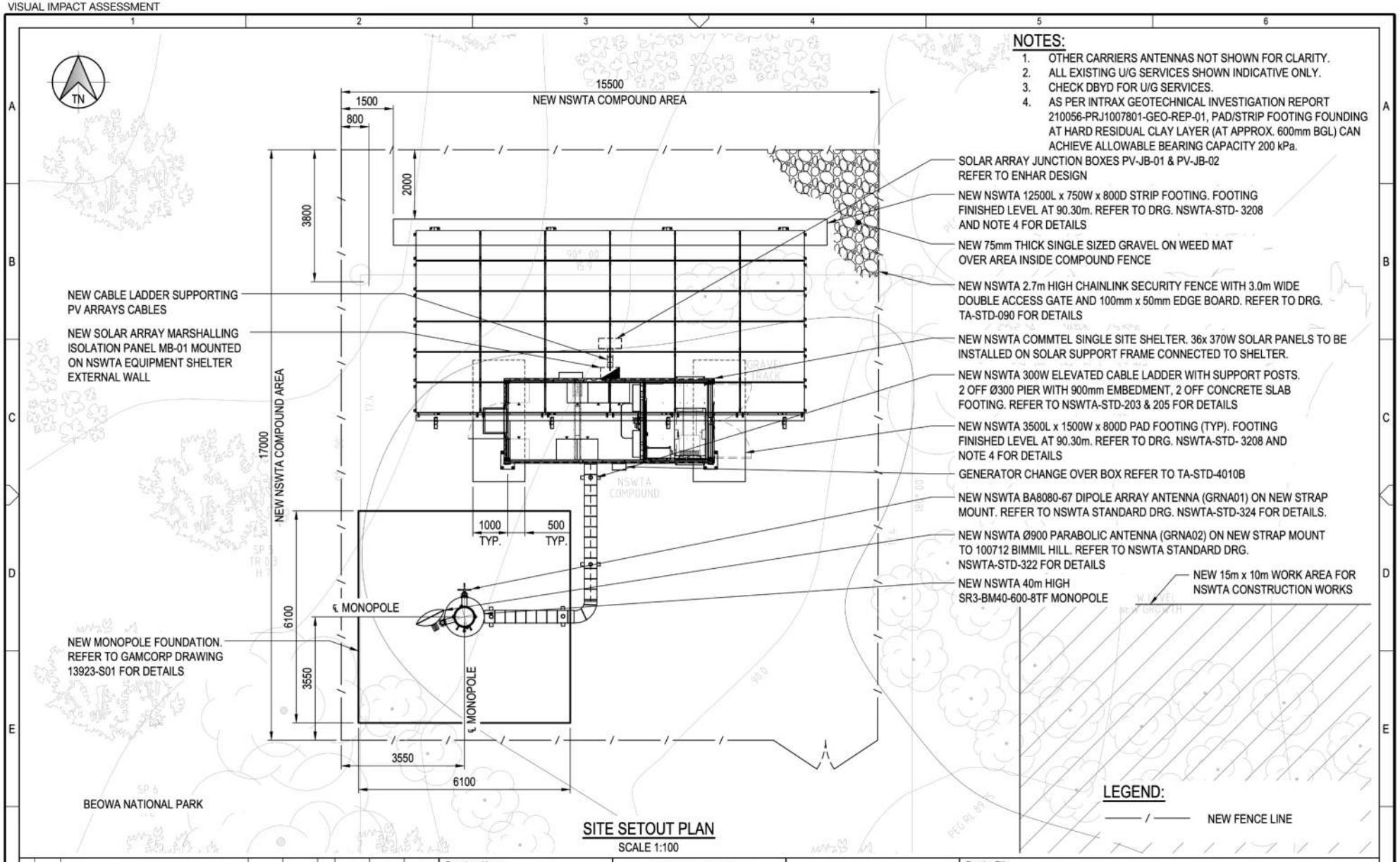
3.6 Main visible changes

Construction would take around 20 weeks. During this time, the main visible changes would be construction traffic using Green Cape Lighthouse Road; a temporary construction facility, storage of equipment and materials, construction/installation activities, and removal of two mature trees at the Project location.

Following construction, the main visible change would be a new 40 m high concrete monopole, solar panels and shelter shed within a fenced-off radiocommunications site. The facility would be occasionally accessed by maintenance personnel. The impact of these changes on landscape character is assessed in Section 4, and the impact on views is assessed in Section 5.

Figure 3-3
Site Setout Plan

PROPOSED RADIO COMMUNICATIONS FACILITY, BEOWA NATIONAL PARK
VISUAL IMPACT ASSESSMENT



SITE SETOUT PLAN
SCALE 1:100

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
01	27.11.23	FOR CONSTRUCTION	TA	CATALYST	JF	JF	SL	CMc
B	05.06.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc
A	12.05.23	PRELIMINARY	TA	CATALYST	JF	JF	AF	CMc

Department Logo: NSW GOVERNMENT Telco Authority

GREEN CAPE
10022334

GREEN CAPE LIGHTHOUSE ROAD
BEOWA NATIONAL PARK
GREEN CAPE, NSW 2551

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Drawing Title: SITE SETOUT PLAN

Drawing Status: FOR CONSTRUCTION

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

Revision 01

A3 Original Size
0mm 50mm 100mm

Figure 3-4
East Elevation

PROPOSED RADIO COMMUNICATIONS FACILITY, BEOWA NATIONAL PARK
VISUAL IMPACT ASSESSMENT

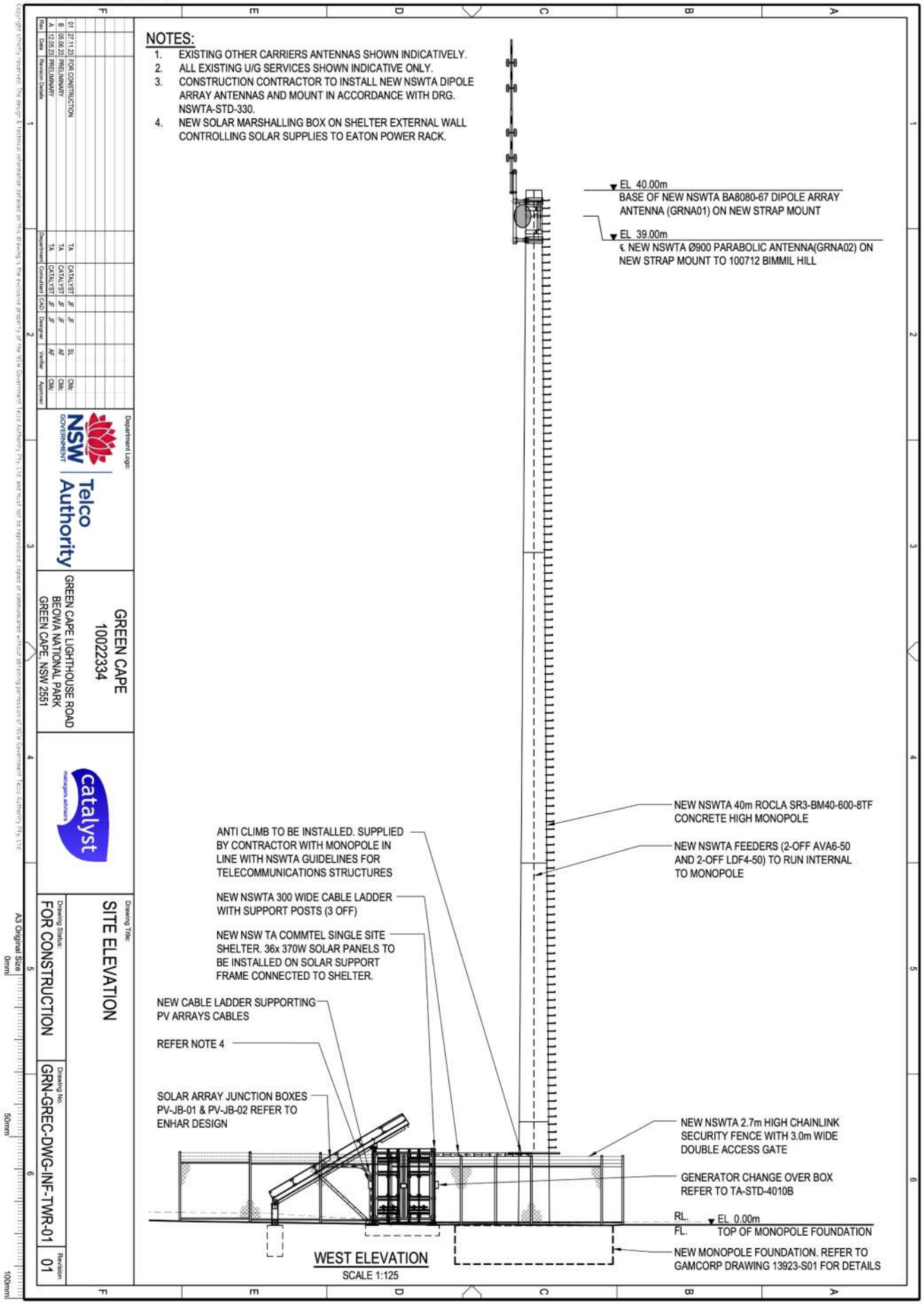

Figure 3-5

Relative position of the Project and APZ, and extent of associated vegetation clearing and management

(Figure 22 from the Ecological and Bush Fire Risk Attack Assessment)

4 Impact on landscape character

4.1 Landscape characteristics

The primary characteristics of the landscape in the Project site vicinity are:

- Native trees and heathland vegetation (varying in height from around 2 - 12 m)
- Light ochre-coloured soils.
- Green Cape Lighthouse Road - an unsealed vehicular track providing access to Green Cape Lighthouse.
- A cleared area, adjacent to, and south of, Green Cape Lighthouse Road, used for storage of materials (gravel).

Figure 4-1 illustrates the predominant landscape characteristics of the vicinity. The Project site is enclosed by native vegetation. Views from Green Cape Lighthouse Road are generally restricted to the road corridor, except at high points (over a kilometre to the east) where vegetation is lower and there are distant views to the lighthouse and ocean.

Figure 4-1: Selection of photographs of the site and vicinity which collectively illustrate local landscape character

4.2 Landscape significance

Scenic significance

Beowa National Park (formerly known as Ben Boyd National Park) is operated by NPWS under the *National Parks and Wildlife Act 1974*. Ben Boyd National Park has been listed on the Register of the National Estate for its superb coastal scenery and coastal plant communities including areas of heathland[3].

Culture and heritage

The Disaster Bay to Green Cape area of Beowa National Park is particularly significant for its large number of Aboriginal sites, and its historic, spiritual, and contemporary values to local Aboriginal people[4]. An assessment was undertaken by OzArk and Eden Local Aboriginal Land Council (19 December 2023). No items of significance were identified at the Project site.

The Green Cape Lighthouse precinct is on the state heritage register (*Green Cape Maritime Precinct, listing No:01897)* and listed in Bega Valley Local Environmental Plan (2013) as a heritage item of local significance (item number I053). The Project site is over 3 km Green Cape Lighthouse, and not visible from the precinct.

Recreation

The park provides a variety of recreational and tourism opportunities, including scenery, walking along the coastline to Green Cape Lighthouse, camping, and educational visits by schools and tertiary institutions. The Project site is:

- Over 1 km from the Bittangabee Bay to Green Cape Walking Track (at its closest). The track is part of the longer Light to Light walk.
- Around 2 km from Pulpit Rock picnic area.
- Around 2.5 km from Disaster Bay lookout.
- Over 3 km from tourist accommodation and lookout at Green Cape Lighthouse.
- Over 3.5 km from Bittangabee campground.

Ecological

The *Ecological and Bush Fire Risk Attack Assessment* suggests that the study area may lie within the ecotone between the two plant communities: heathland (PCT 3816: *Far Southeast Coastal Lowland Health*), and dry sclerophyll forest (PCT 3646: *Far South Coastal Ranges Silvertop Ash Forest*). Neither is threatened or endangered.

Vegetation is in a post-fire regenerative state (following the 2019-2020 bushfires). Most individual plants are resprouts, dead trees and shrubs are common, and eucalypt seedlings and saplings are common.

Plan of management

No operations may be undertaken within the National Park, except in accordance with the NPWS's *Ben Boyd National Park and Bell Bird Creek Nature Reserve Plan of Management* (2021). The Plan of Management requires that:

- Facilities/provisions in the park (such as access roads, day use facilities, walking tracks and accommodation) are designed to maintain the low key, scenic, natural settings that are the special feature of the park[5].
- Monitoring and research structures (such as for forest management) are placed in locations which will minimise their visual impact and be removed upon completion of the research[6].

[3] P4. Statement of significance, *Ben Boyd National Park and Bell Bird Creek Nature Reserve Plan of Management*, 2021.
[4] P5. Statement of significance, *Ben Boyd National Park and Bell Bird Creek Nature Reserve Plan of Management,* 2021.
[5] P26, Recreation and Tourism Opportunities, *Ben Boyd National Park and Bell Bird Creek Nature Reserve Plan of Management*, 2021.
[6] P38, Monitoring and Research, *Ben Boyd National Park and Bell Bird Creek Nature Reserve Plan of Management*, 2021.

4.3 Landscape character impact

The assessed impact to landscape character is presented in Table 4-1. The table lists criteria considered to assess sensitivity (designations, quality, and cultural values) and magnitude (scale, contrast, and duration), and a description of the unique factors contributing to the assigned rating.

In summary:

- The assessed *sensitivity* of the existing landscape character is **low** for the reasons described in column 1.
- The assessed *magnitude of change* the Project would have on the landscape is **moderate** for the reasons described in column 2.
- The combination of high (sensitivity) and low (magnitude of change) results in an overall **low- moderate** impact to landscape character as shown in column 3.

Table 4-1: Assessment of landscape character impact

Column 1	Column 2	Column 3
Assessed sensitivity of the landscape (in the vicinity of the Project)	Assessed magnitude of change to the landscape	Assessed impact to landscape character
Low *Landscape designations* ▪ The landscape of Beowa National Park is recognised for its scenic, ecological and heritage landscape values. ▪ However, the Project site is an existing cleared NPWS 'works area' within the park, actively used for storage of materials. *Landscape quality/characteristics* ▪ Native vegetation is regenerating after impacts of the 2019-20 bushfires. ▪ Mostly heathland around 2 m high. *Cultural heritage* ▪ There are no items of cultural heritage significance identified within the Project site. ▪ The Project site is over 3 km from the Green Cape Maritime Precinct. *Recreation/tourism* ▪ The Project site is not within the visual catchment of existing tourism/recreation facilities (such as walks, lookouts or accommodation).	**Moderate** *Physical scale* ▪ The Project footprint would be small and affect areas substantially disturbed and cleared of vegetation. ▪ It would directly affect some vegetation, involving the removal of regrowth heathland vegetation and two 8 m high trees. *Contrast / introduction of new elements* ▪ The monopole (at 40 m) would be significantly taller than the highest trees in the vicinity (12 m). ▪ The monopole would be uncharacteristic of the existing landscape, contrasting the surrounding heathland vegetation community. However, it would be narrow and relatively inconspicuous against taller trees in the background, except within its immediate vicinity. *Plan of management* ▪ Although new infrastructure would be added to the park, the location has low visual exposure, reducing potential impact on scenic quality to the area immediately around the pole, and not impacting the important scenic, natural settings that are the special feature of the park. *Duration* ▪ The Project would be permanent. ▪ Maintenance of vegetation within the APZ would be ongoing.	**Low-moderate**

5 Impact on views

5.1 Assessed viewpoints

Field investigation and desktop assessment determined that the Project would be visible from very few locations . From most publicly accessible areas, views of the Project would be screened by landform or vegetation. Views would not be possible from the following main visitor locations[7]:

- Green Cape Lighthouse lookout
- Green Cape Maritime Precinct
- Pulpit Rock picnic area
- Bittangabee campground
- Bittangabee Bay to Green Cape Walking Track (part of the Light-to-Light walk)
- Disaster Bay lookout.

The only location identified with views of the Project was Green Cape Lighthouse Road. The Project would be visible, intermittently, from sections of Green Cape Lighthouse Road, only while travelling west (away from Green Cape Lighthouse). Views of the Project while travelling east (toward Green Cape Lighthouse), would be screened by road-side vegetation.

Two viewpoints (VPs) on Green Cape Lighthouse Road (shown in Figure 5-1) have been selected as representative to illustrate the potential visual impact:

VP1 Green Cape Lighthouse Road, around 2 km east of the Project site, and
VP2 Cape Lighthouse Road and City Rock Road intersection, around 100 m east of the Project site.

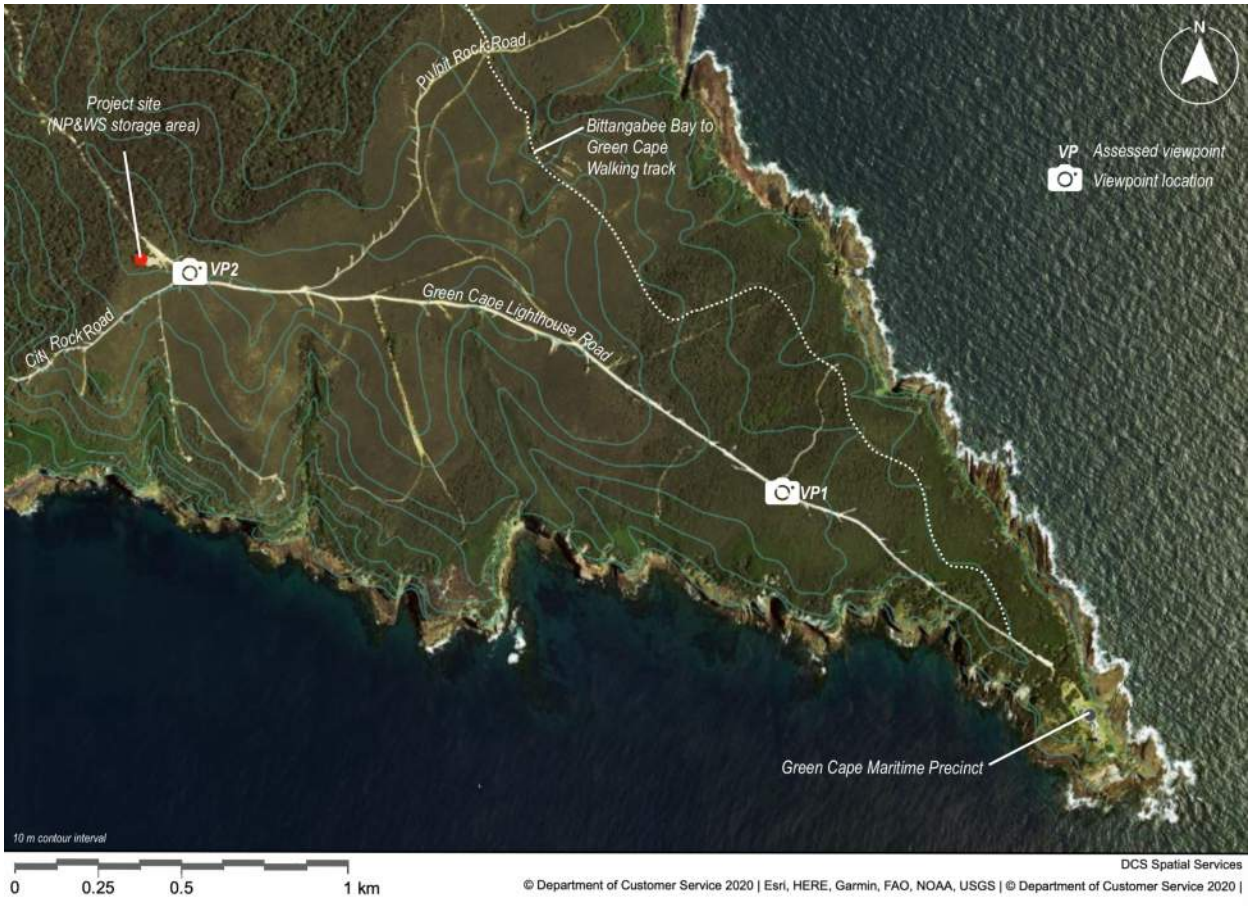

Figure 5-1: Assessed viewpoints

[7] As far as could be reasonably ascertained during the site inspection, and desktop assessment with modelling and mapping

5.2 Assessment

VP1 and VP2 have been assessed to determine the likely level of visual impact. The results of the assessment are presented in Table 5-1. The table includes a description of the factors of sensitivity and magnitude which have led to the assigned rating. In summary:

- The assessed *sensitivity* of the view from VP1 and VP2 is **low** for the reasons described in Column 1.
- The assessed *magnitude of change* on the view from VP1 is **low** and from VP2 is **moderate** for the reasons described in Column 2.
- The combination of sensitivity and magnitude of change results in an overall **low** visual impact to VP1 and **low-moderate** visual impact to VP2 (as shown in Column 3).

Photomontages are provided to illustrate the predicted view of the Project from each viewpoint. The photomontages were independently prepared by Cambium Group (December 2023), and include three images:

- The existing view toward the Project.
- A wire frame (analytical) view showing the location of the Project within the existing view. Pink is used to highlight the extent of the Project to make it easier to see.
- The photomontage showing the likely view following construction of the Project.

To view the photomontages correctly, each should be printed on an A3 sheet, and held at a comfortable arm's length away, or enlarged on screen to A3 size, and viewed from a comfortable arm's distance.

Table 5-1: Assessment of visual impacts to viewpoints

Viewpoint (VP)	Column 1 Assessed visual sensitivity	Column 2 Assessed magnitude of change	Column 3 Assessed visual impact
VP1 Green Cape Road, around 2 km east of the Project site. Photomontages of the existing and predicted view are provided in Figure 5-2 to Figure 5-4.	**Moderate** ▪ The road is the primary access to Green Cape Lighthouse and caters to large numbers of tourists. ▪ The view toward the Project site (while travelling west) is generally of heathland and undulating terrain. ▪ The view does not include the scenic coastline or outstanding landscape features the park is noted for. ▪ Apart from Green Cape Lighthouse Road, which is unsealed, there is no other infrastructure in view. ▪ Visitors may have an expectation to only see natural/heritage features while within the National Park. ▪ The viewing distance is around 2 km from the Project site.	**Low** ▪ The Project would occupy a minor part of the view. ▪ The lower portion of the monopole, shelter shed, and solar panels would be screened by vegetation and landform. ▪ Although the monopole would be uncharacteristic of expected views within the park, it would be narrow, relatively inconspicuous, and likely not seen by casual observers. ▪ Views of the monopole would be intermittent and temporary, only available for brief periods, while travelling.	**Low-moderate**
VP2 Green Cape Lighthouse Road / City Rock Road intersection, around 100 m east of the Project site. Photomontages of the existing and predicted view are provided in Figure 5-5 to Figure 5-7.	**Moderate** ▪ Green Cape Lighthouse Road caters to large numbers of tourists. Some park visitors would take City Rock Road to City Rock, a popular land-based fishing spot (around 750 m from the Project site). ▪ The view toward the Project site is of heathland with taller trees in the background. More unsealed surfaces are seen, including the entrance to the NPWS 'works area', but the cleared storage area is screened by vegetation. ▪ The view does not include the scenic coastline or outstanding landscape features the park is noted for, however, visitor expectation, ▪ Visitors may have an expectation to only see natural/heritage features while within the National Park. ▪ The viewing distance is relatively close, around 100 m from the Project site.	**Moderate** ▪ The Project would result in a noticeable change to the view. ▪ The monopole would be distinct, and clearly visible against the sky background. ▪ It would create a new focus within the view (drawing attention), and at 40 m would be significantly taller than trees in the vicinity (12 m). ▪ The lower portion of the monopole, shelter shed, and solar panels would be screened by surrounding heathland vegetation. ▪ Views of the monopole would be intermittent and temporary, only available for brief periods, while travelling.	**Moderate**

Figure 5-2 VP1 - Existing view

Commentary
This photograph was captured using a full frame Digital single-lens reflex camera (DSLR) using a single frame with a 50mm focal length representing a 39.6^0 horizontal field of view (HFoV) and a 27^0 vertical field fo view (VFoV).

This specification is regarded as providing a depth of field that is closest to human eyesight, albeit that we typically have wider peripheral vision.

Accurate representation of this image is achieved when printed at A3 size or by viewing at 100% zoom on a 20 inch monitor at arms length.

(Source: Landscape Institute Technical Guidance Note) 06/19)

Date	01/04/2023
Time	11:56
Camera	Canon EOS 6D Mark II (full frame DLSR)
Camera coordinates	E237382.23m, N5872758.76m
Camera level	48.5 mAHD
Monopole bearing	288^0
Distance to monopole	2.06km
Vertical field of view	27^0
Horizontal field of view	39.6^0
Geodetic datum	GDA2020
Projection	MGA
Zone	56
Photography	Envisage Consulting

CAMBIUM GROUP
Visual communication science

Source: Esri Maxar (2023), Elvis Elevation and Depth - Foundation Spatial Data (2023), NSW Government Telco Authority (2023), Catalyst (2023), Envisage Consulting (2023), Cambium Group (2023).

Figure 5-3 VP1 - Analytical view

Analytical view
This analytical view demonstrates data from which the photomontage has been constructed and provides evidence of calibration between the physical and virtual camera. Survey point cloud data corresponds to features within the existing photograph and the proposed built form has been highlighted to illustrate the extent of change within the field of view.

Commentary
This photograph was captured using a full frame Digital single-lens reflex camera (DSLR) using a single frame with a 50mm focal length representing a 39.6^0 horizontal field of view (HFoV) and a 27^0 vertical field fo view (VFoV).

This specification is regarded as providing a depth of field that is closest to human eyesight, albeit that we typically have wider peripheral vision.

Accurate representation of this image is achieved when printed at A3 size or by viewing at 100% zoom on a 20 inch monitor at arms length.

(Source: Landscape Institute Technical Guidance Note) 06/19)

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Geodetic datum	GDA2020
Projection	MGA
Zone	56
Photography	Envisage Consulting

CAMBIUM GROUP
Visual communication science

Source: Esri Maxar (2023), Elvis Elevation and Depth - Foundation Spatial Data (2023), NSW Government Telco Authority (2023), Catalyst (2023), Envisage Consulting (2023), Cambium Group (2023).

Figure 5-4 VP2 - Photomontage

Commentary
This photograph was captured using a full frame Digital single-lens reflex camera (DSLR) using a single frame with a 50mm focal length representing a 39.6^0 horizontal field of view (HFoV) and a 27^0 vertical field fo view (VFoV).

This specification is regarded as providing a depth of field that is closest to human eyesight, albeit that we typically have wider peripheral vision.

Accurate representation of this image is achieved when printed at A3 size or by viewing at 100% zoom on a 20 inch monitor at arms length.

(Source: Landscape Institute Technical Guidance Note) 06/19)

Date	01/04/2023
Time	11:56
Camera	Canon EOS 6D Mark II (full frame DLSR)
Camera coordinates	E237382.23m, N5872758.76m
Camera level	48.5 mAHD
Monopole bearing	288^0
Distance to monopole	2.06km
Vertical field of view	27^0
Horizontal field of view	39.6^0
Geodetic datum	GDA2020
Projection	MGA
Zone	56
Photography	Envisage Consulting

CAMBIUM GROUP
Visual communication science

Source: Esri Maxar (2023), Elvis Elevation and Depth - Foundation Spatial Data (2023), NSW Government Telco Authority (2023), Catalyst (2023), Envisage Consulting (2023), Cambium Group (2023).

Figure 5-5 VP2 - Existing view

Commentary
This photograph was captured using a full frame Digital single-lens reflex camera (DSLR) using a single frame with a 50mm focal length representing a 39.6^0 horizontal field of view (HFoV) and a 27^0 vertical field fo view (VFoV).

This specification is regarded as providing a depth of field that is closest to human eyesight, albeit that we typically have wider peripheral vision.

Accurate representation of this image is achieved when printed at A3 size or by viewing at 100% zoom on a 20 inch monitor at arms length.

(Source: Landscape Institute Technical Guidance Note) 06/19)

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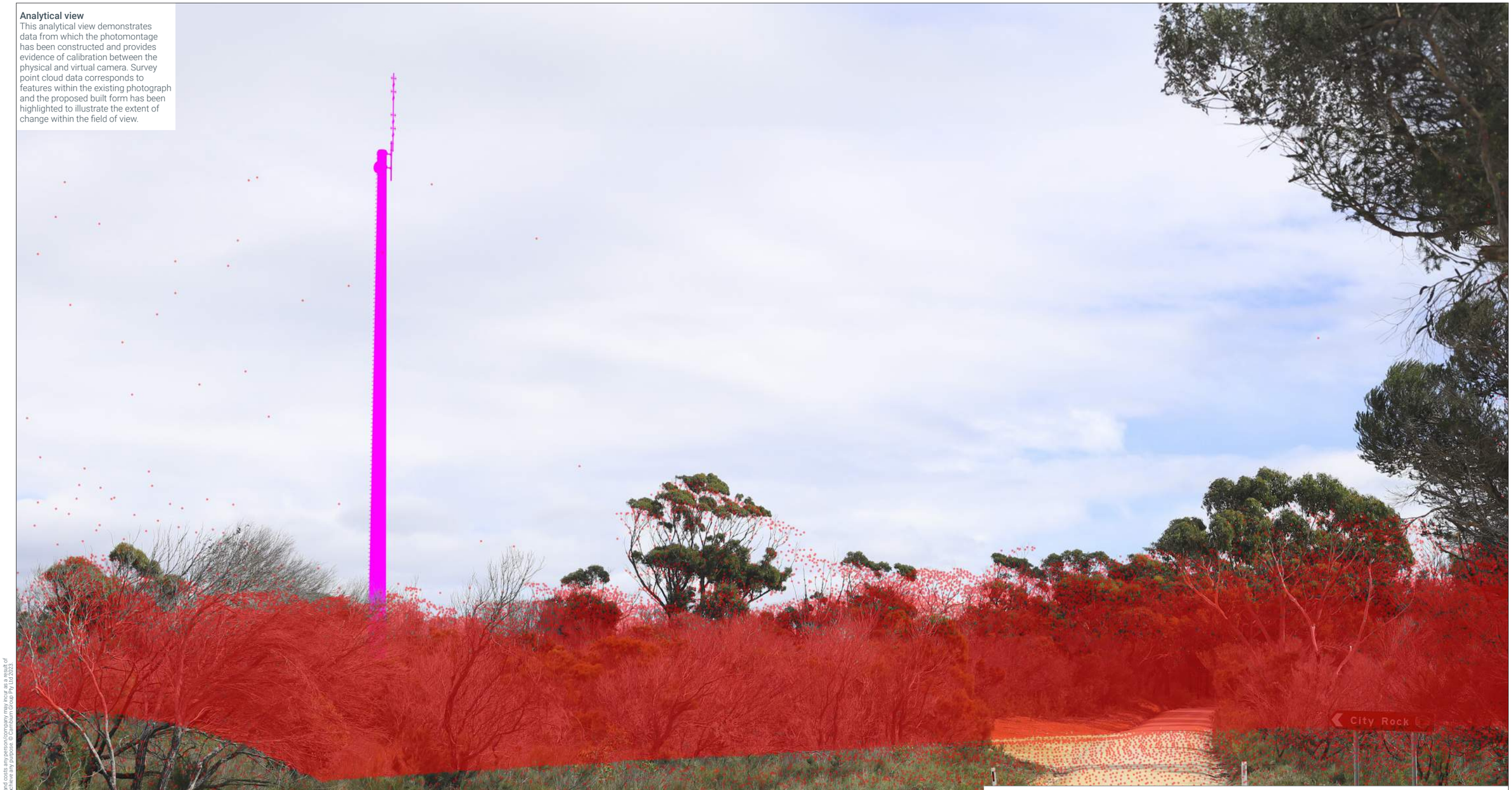
Time	12:03
Camera	Canon EOS 6D Mark II (full frame DLSR)
Camera coordinates	E235570.63m, N5873356.95m
Camera level	86.5mAHD
Monopole bearing	279^0
Distance to monopole	159m
Vertical field of view	27^0
Horizontal field of view	39.6^0
Geodetic datum	GDA2020
Projection	MGA
Zone	56
Photography	Envisage Consulting

CAMBIUM GROUP
Visual communication science

Source: Esri Maxar (2023), Elvis Elevation and Depth - Foundation Spatial Data (2023), NSW Government Telco Authority (2023), Catalyst (2023), Envisage Consulting (2023), Cambium Group (2023).

Figure 5-6 VP2 - Analytical view

Analytical view
This analytical view demonstrates data from which the photomontage has been constructed and provides evidence of calibration between the physical and virtual camera. Survey point cloud data corresponds to features within the existing photograph and the proposed built form has been highlighted to illustrate the extent of change within the field of view.



Commentary
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Vertical field of view	27^0
Horizontal field of view	39.6^0
Geodetic datum	GDA2020
Projection	MGA
Zone	56
Photography	Envisage Consulting

CAMBIUM GROUP
Visual communication science

Source: Esri Maxar (2023), Elvis Elevation and Depth - Foundation Spatial Data (2023), NSW Government Telco Authority (2023), Catalyst (2023), Envisage Consulting (2023), Cambium Group (2023).

Figure 5-7 VP2 - Photomontage

Commentary
This photograph was captured using a full frame Digital single-lens reflex camera (DSLR) using a single frame with a 50mm focal length representing a 39.6^0 horizontal field of view (HFoV) and a 27^0 vertical field fo view (VFoV).

This specification is regarded as providing a depth of field that is closest to human eyesight, albeit that we typically have wider peripheral vision.

Accurate representation of this image is achieved when printed at A3 size or by viewing at 100% zoom on a 20 inch monitor at arms length.

(Source: Landscape Institute Technical Guidance Note) 06/19)

Date	01/04/2023
Time	12:03
Camera	Canon EOS 6D Mark II (full frame DLSR)
Camera coordinates	E235570.63m, N5873356.95m
Camera level	86.5mAHD
Monopole bearing	279^0
Distance to monopole	159m
Vertical field of view	27^0
Horizontal field of view	39.6^0
Geodetic datum	GDA2020
Projection	MGA
Zone	56
Photography	Envisage Consulting

CAMBIUM GROUP
Visual communication science

Source: Esri Maxar (2023), Elvis Elevation and Depth - Foundation Spatial Data (2023), NSW Government Telco Authority (2023), Catalyst (2023), Envisage Consulting (2023), Cambium Group (2023).

6 Mitigation measures

The primary visual impact would be to close proximity views, at the intersection Green Cape Lighthouse Road and City Rock Road. Screen planting (trees planted along the southern side of Green Cape Lighthouse Road) would reduce views of the monopole from the intersection. However, in the context of the National Park, with its predominant low-heathland vegetation at the intersection, screen planting would introduce visual elements inconsistent with the surrounding landscape, and impact the ecosystem. Therefore, screen planting has not been included as a mitigation measure.

Recommended mitigation measures are listed in Table 6-1.

Table 6-1: Mitigation measures

Timing	Mitigation measure
Prior to commencement of construction	▪ Protect trees and vegetation to be retained in accordance with recommendations provided in *Ecological and Bush Fire Risk Attack Assessment*. ▪ Ensure implementation of effective soil and erosion controls. ▪ Minimise the disturbance footprint.
During construction	▪ Ensure there are no reflective finishes. Metal finishes are to be dull or painted to reduce reflectivity. ▪ The surrounding security fence should be black and have a dulled finish to reduce contrast. ▪ Use water trucks to reduce visible dust if required. ▪ Manage and remove native vegetation within the APZ in accordance with the *Ecological and Bush Fire Risk Attack Assessment*. ▪ Progressively stabilise/rehabilitate exposed/disturbed surfaces. ▪ If night-work is required during construction, design and install lighting to follow best practice principles [8]: 1 Only install lights if needed (there must be a clear justification). 2 Eliminate upward spill light. 3 Direct light downwards (not upwards). 4 Use shielded fittings. 5 Avoid excess lighting. 6 Switch lights off when not needed. 7 Use energy efficient bulbs. 8 Use asymmetric beams. 9 Direct lights away from reflective surfaces. 10 Use warm white colours.
Following construction	▪ Monitor for erosion. If erosion occurs, install controls to reduce impacts and stabilise soils. Controls may include re-profiling, drainage and erosion control, and revegetation (as applicable). ▪ Maintain site so it is clean and tidy. ▪ Manage and remove native vegetation within the APZ in accordance with the *Ecological and Bush Fire Risk Attack Assessment* ▪ Remove any weed growth or graffiti as soon as possible. ▪ Ensure painted components of the Project, such as the monopole, shelter shed and fence, are well maintained. If external finishes deteriorate, replace or repair as soon as possible. ▪ Keep non-reflective finishes and colour-treated coatings in good repair. Reapply if the surface is subject to fading or flaking.

[8] Adapted from Australian Government, Department of the Environment and Energy, *National Light Pollution Guidelines for Wildlife*, January 2023 and New South Wales Department of Planning & Environment, *The Dark Sky Planning Guideline*, June 2023.

7 Key findings

The Project would result in a new 40 m monopole with antennas (providing an overall height of 45.7 m), together with associated shelter shed and photovoltaic array, installed within Beowa National Park, around 50 m from Green Cape Lighthouse Road. Installation would require removal of two trees (8 m high) and heathland vegetation to implement an APZ.

Impact on landscape character

Beowa National Park has been listed on the Register of the National Estate for its superb coastal scenery and coastal plant communities, including areas of heathland. The landscape is of cultural significance to local Aboriginal people, and the Green Cape Maritime Precinct is on the state heritage register.

The assessed impact to landscape character is **low-moderate.** No items of Aboriginal cultural heritage significance have been identified at the Project site, and the location is not close to tourist/visitor sites (e.g. it is over a kilometre from the closest walking track, over 3 km from Green Cape Lighthouse, and over 3.5 km from Bittangabee campground). The Project footprint is small, is in a substantially disturbed/cleared NPWS 'works area', and construction/maintenance would directly affect relatively little (post-fire regenerative) vegetation. The Project would have localised, minimal impact on the natural setting, reducing scenic quality in the area immediately around the monopole.

Impact to viewpoints

The field investigation determined that views of the Project would be limited to Green Cape Lighthouse Road. Two viewpoints on Green Cape Lighthouse Road were selected for assessment and represent the views of road users travelling west (away from Green Cape Lighthouse). Views of the Project while travelling east, toward Green Cape Lighthouse, were screened by road-side vegetation. The assessment of impact to views is summarised in Table 7-1.

Table 7-1: Summary of visual impact to viewpoints

Viewpoint		Sensitivity	Magnitude	Assessed visual impact
VP1	Green Cape Road, around 2 km east of the Project site.	Moderate	Low	Low-moderate
VP2	Green Cape Lighthouse Road / City Rock Road intersection, around 100 m east of the Project site.	Moderate	Moderate	Moderate

The existing view from both viewpoints does not include the scenic coastline or outstanding landscape features the park is noted for; however, visitors may expect to only see natural/heritage features while within the National Park, and therefore may be more sensitive to changes in the view that include infrastructure (such as the Project).

Following installation, the Project would be relatively inconspicuous when viewed from VP1. However, when viewed from VP2, the Project would be relatively close, (around 100 m away), and clearly visible against the sky background. From both viewpoints, only the lower portion of the monopole would be visible (the shelter shed, and solar panels would be screened by existing vegetation and landform), and views of the monopole would be intermittent and temporary (available for brief periods, while travelling).

Conclusion

Beowa National Park is a visually distinct, and highly valued landscape; however, the Project site is relatively discrete (being located away from tourist facilities/destinations) and is already disturbed. The Project would reduce scenic quality when viewed from close proximity on Green Cape Lighthouse Road (the view would be brief, while travelling west through the City Rock Road / Green Cape Lighthouse Road intersection).

8 References

Australian Government, Department of the Environment and Energy (2023) *National Light Pollution Guidelines for Wildlife.*

Australian Institute of Landscape Architects (2018) *Guidance Note for Landscape and Visual Assessment.*

FloraFauna Consulting (October 2023) *Ecological and Bush Fire Attack Assessment, Radiocommunications Stie – Green Cape (Beowa National Park).*

Landscape Institute and Institute of Environmental Management and Assessment (2013) *Guidelines for Landscape and Visual Impact Assessment.*

National Parks & Wildlife Services, 2021, *Ben Boyd National Park and Bell Bird Creek Nature Reserve Plan of Management.*

New South Wales Department of Planning and Environment (2023) *The Dark Sky Planning Guideline.*

Transport for NSW (2020) *Guideline for Landscape Character and Visual Impact Assessment, Environmental Impact Assessment Practice Note EIA-N04.*

Appendix G – Aboriginal Heritage Due Diligence Assessment

This report has been removed from Public Exhibition as it contains sensitive information

Appendix H – Vertical Obstacle Data Form

Vertical Obstruction Data (VOD) Form

Airservices Australia collects, holds, and publishes data/information on vertical obstructions in the interest of aviation safety. Please complete all sections of this form and return to vod@airservicesaustralia.com

For new proposed obstacles or proposed changes to existing obstacles, contact airport.developments@airservicesaustralia.com for aeronautical impact assessment.

◯ **New (as built data)**	◯ **Change to reported obstacle**	◯ **Dismantled**
Effective Date		

VERTICAL OBSTRUCTION DATA

◯ **Single Obstacle**	◯ **Multiple Obstacles** Multiple Vertical Obstruction Data Form to be completed and attached on Page 2 of this form

Structure ID				
Site Name				
State / Territory				
Nearest Town / Prominent Landmark				
Type				
Description				
Location *Latitude and Longitude must be provided in degrees, minutes, seconds and 100th of a second or greater resolution if available*	**Latitude** ***DD MM SS.ss***	.	**S**	
	Longitude ***DDD MM SS.ss***	.	**E**	
Collected Data *Location data – WSG-84* *Height data – AHD*	◯ **Surveyed** *Completed by a qualified surveyor with a survey report*			
	◯ **Declared** *Using i.e., Handheld or On-board GPS*			
	◯ **Calculated** *Mathematical calculations from the known survey points*			
Ground Elevation		◯ **FT**	◯ **M**	
Height of Structure *(Above Ground Level – AGL)*		◯ **FT**	◯ **M**	
Elevation of Structure at its Highest point *(Above Mean Sea Level – AMSL)*		◯ **FT**	◯ **M**	
Horizontal Accuracy		◯ **FT**	◯ **M**	
Vertical Accuracy		◯ **FT**	◯ **M**	
Lighting Status	◯ **Lit**	◯ **Unlit**		
Marking	◯ **Yes**	◯ **No**		
Remarks				

AIP RESPONSIBLE PERSON	
Full Name	
Organisation	
Address	
State / Territory	
Postcode	
Phone	
Email	

AIP RESPONSIBLE PERSON NOMINEE **NOTE:** Only the AIP responsible person can submit changes to nominated individuals acting on their behalf			
Name		**Email**	
Phone			

☐ DPS ACKNOWLEDGEMENT

By returning this form, the aeronautical data originator (ADO) acknowledges that the details are correct and that the nominated person has the knowledge and competencies to carry out their responsibilities.

ATTACH MULTIPLE VERTICAL OBSTRUCTION DATA FORM

If Multiple Obstacles selected, please attach the Multiple Vertical Obstruction Data Form.

1. **Select the ATTACHMENT icon shown in this form.**
2. **The Multiple Vertical Obstruction Data Form will be shown on the Attachments panel on the left-hand side.**
3. **To remove an attachment file, simply select the file from the left-hand side panel and press Delete.**

NSW Telco Authority

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TTY: 1300 301 181