

Application for Planning Permit

Parcel 1019
P2 SLO1 BMO

If you need help to complete this form, read [how to complete the Application for Planning Permit form](#)

Any material submitted with this application, including plans and personal information, will be made available for public viewing, including electronically, and copies may be made for interested parties for the purpose of enabling consideration and review as part of a planning process under the Planning and Environment Act 1987. If you have any concerns, please contact Council's planning department.

Questions marked with an asterisk (*) are mandatory and must be completed.

If the space provided on the form is insufficient, attach a separate sheet.

Alpine Shire
Planning Enquiries
Phone: 03 5755 0555
Web: www.alpine.vic.gov.au

Clear Form

The Land

1 Address of the land. Complete the Street Address and one of the Formal Land Descriptions.

Street Address *

Unit No.:	St. No.: 9	St. Name: Cuthbert Street
Suburb/Locality: Tawonga		Postcode: 3697

Formal Land Description *
Complete either A or B.

This information can be found on the certificate of title.

A ☐ Lot No.: 1 ☐ Lodged Plan ☒ Title Plan ☐ Plan of Subdivision No.: 551739

OR

B Crown Allotment No.: Section No.:
Parish/Township Name:

If this application relates to more than one address, please click this button and enter relevant details.

Add Address

The Proposal

You must give full details of your proposal and attach the information required to assess the application. Insufficient or unclear information will delay your application.

2 For what use, development or other matter do you require a permit? *

If you need help about the proposal, read [How to Complete the Application for Planning Permit Form](#)

Select the focus of this application and describe below:

Other

Telecommunications (NBN Fixed Wireless) Facility

Provide additional information on the proposal, including: plans and elevations; any information required by the planning scheme, requested by Council or outlined in a Council planning permit checklist; and if required, a description of the likely effect of the proposal.

Cost \$240,000

You may be required to verify this estimate.

Insert '0' if no development is proposed (eg. change of use, subdivision, removal of covenant, liquor licence)

3 Estimated cost of development for which the permit is required *

4 Describe how the land is used and developed now *

eg. vacant, three dwellings, medical centre with two practitioners, licensed restaurant with 50 seats, grading.

Rural

 Provide a plan of the existing conditions. Photos are also helpful.

Title Information 1

5 Encumbrances on title *

If you need help about the title, read:

[How to Complete the Application for Planning Permit Form](#)

Does the proposal breach, in any way, an encumbrance on title such as a restrictive covenant, section 173 agreement or other obligation such as an easement or building envelope?

- ☐ Yes. (if 'yes' contact Council for advice on how to proceed before continuing with this application.)
- ☒ No
- ☐ Not applicable (no such encumbrance applies).

 Provide a full, current copy of the title for each individual parcel of land forming the subject site. (The title includes: the covering register search statement, the title diagram and the associated title documents, known as Instruments, eg. restrictive covenants.)

Applicant and Owner Details 1

6 Provide details of the applicant and the owner of the land.

Applicant *

The person who wants the permit.

Where the preferred contact person for the application is different from the applicant, provide the details of that person.

Please provide at least one contact phone number *

Name:

Title: Mr

First Name

Surname

Organisation (if applicable): Ericsson Australia

Postal Address:

Unit No.:

St. No.:

If it is a P.O. Box, enter the details here:

St. Name:

Suburb/Locality:

State:

Postcode:

Contact person's details *

Same as applicant (if so, go to 'contact information') ☐

Name:

Title: Mr

First Name: Joel

Surname: Rodski

Organisation (if applicable): Visionstream

Postal Address:

Unit No.:

St. No.:

If it is a P.O. Box, enter the details here:

St. Name: Locked Bag 3

Suburb/Locality: Bentleigh East

State: VIC

Postcode: 3165

Contact information

Business Phone: 03 9575 4117

Email: joel.rodski@visionstream.com.au

Mobile Phone: 0409246722

Fax: 03 9563 7481

The person or organisation who owns the land

Where the owner is different from the applicant, provide the details of that person or organisation

Name		Name of applicant	
Title: Mr	First Name: Graeme	Surname: Meakin	
Organisation (if applicable)			
Postal Address		If it is a P.O. Box, enter the details here	
Unit No.:	St. No.: 9	St. Name: Culbert Street	
Suburb/Locality: Tawonga		State: VIC	Postcode: 3697
Owner's Signature (Optional)			Date
			day / month / year

Declaration

7 This form must be signed by the applicant *

- ⚠** Remember it is against the law to provide false or misleading information, which could result in a heavy fine and cancellation of the permit.

I declare that I am the applicant, and that all the information in this application is true and correct, and the owner (if not myself) has been notified of the permit application.

Signature



Date

2/6/15
day / month / year

pl-

Need help with the Application?

If you need help to complete this form, read [How to complete the Application for Planning Permit Form](#).
General information about the planning process is available at www.alps.vic.gov.au/planning

Contact Council's planning department to discuss the specific requirements for this application and obtain a planning permit checklist. Insufficient or unclear information may delay your application.

- 8 Has there been a pre-application meeting with a Council planning officer?

☐ No

☐ Yes

If 'yes', with whom?

Date

day / month / year

Checklist

- 9 Have you:

☒ Filled in the form completely?

☒ Paid or included the application fee?



Most applications require a fee to be paid. Contact Council to determine the appropriate fee.

☒ Provided all necessary supporting information and documents?

☒ Completed the relevant Council planning permit checklist?

☒ Signed the declaration (section 7)?

Lodgement

Lodge the completed and signed form, the fee payment and all documents with:

Alpine Shire Council
PO Box 120
Great Alpine Road
Bright VIC 3741

Contact information:

Telephone: 03 5755 0555
Email: info@alpinehire.vic.gov.au

Deliver application in person, by fax, or by post:

Print Form

Make sure you deliver any required supporting information and necessary payment when you deliver this form to the above mentioned address. This is usually your local council but can sometimes be the Minister for Planning or another body.

Save Form:

Save Form To You

You can save this application form to your computer to complete or review later or email it to others to complete relevant sections.

Planning Report Proposed Fixed Wireless Facility

9 Cuthbert Street
Tawonga, VIC, 3697

NBN Site Reference
3MBE-51-16-TAWO

The contents of this document reflect NBN Co's current position on the subject matter of this document. It is provided solely to explain information relevant to NBN Co's planning proposal. The contents of this document should not be relied upon as representing NBN Co's final position on the subject matter, except where stated otherwise. Any dates provided are indicative only, are subject to change and are dependent upon a number of factors.

Prepared on behalf of NBN Co Limited
By Visionstream
May 2015

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Executive Summary

Proposal	NDN Co propose to install a new fixed wireless facility at 9 Cuthbert Street, Tawonga, VIC, 3697 comprised of the following: • 30m monopole structure; • 1 x parabolic dish antenna; • 3 x panel antennas; and • Ancillary equipment associated with operation of the facility, including cable trays, cabling, safe access methods, bird proofing, earthing, electrical works and air-conditioning equipment.	
Purpose	The proposed facility is necessary to provide NDN fixed wireless coverage to the Tawonga area.	
Property Details	Lot & Plan No: Lot 1, TP551709 Street Address: 9 Cuthbert Street, Tawonga, VIC, 3697 Overall Site Area: 40ha approx. Property Owner: Graeme Makin	
Town Planning Scheme	Council: Alpine Shire Council Zones: Farming Zone Overlays: Bushfire Management Overlay Significant Landscape Overlay Use Definition: Telecommunications facility	
Applicable Planning Policies	Relevant State & Local Planning Policies	Complies
	SPV – Clause 19.03-4 Telecommunications	Yes
	MSS – Clause 21 Municipal Strategic Statement	Yes
	MSS – Clause 22 Local Policies	Yes
Application	Use and development of the land for the purposes of construction & operation of a Telecommunications Facility (Fixed Wireless facility)	
Applicant	NDN Co Limited (NDN Co) c/- Visionstream Locked Bag 3 Bendleigh East, VIC 3165 Contact: jeff.bushki 03 9575 4117 Our Ref: 3NBD-53-16-TAWO	

1 INTRODUCTION

NBN Co has engaged Ericsson as the equipment vendor and project manager to establish the infrastructure required to facilitate the fixed wireless component of the National Broadband Network (NBN). Ericsson has in turn engaged Visionstream to act on its behalf in relation to the establishment of the required fixed wireless network infrastructure.

The NBN is an upgrade to Australia's existing telecommunications network. It is designed to provide Australians with access to fast, affordable and reliable internet and landline phone services.

NBN Co plans to upgrade the existing telecommunications network in the most cost-efficient way using best-fit technology and taking into consideration existing infrastructure.

To support the Fixed Wireless component of this network, NBN Co requires a fixed wireless transmission site to provide fixed wireless internet coverage to Tawonga.

An in-depth site selection process was undertaken in the area prior to confirming the site as the preferred location. This process matched potential candidates against four key factors, namely:

- Town planning considerations (such as zoning, surrounding land uses, environmental significance and visual impact);
- The ability of the site to provide acceptable coverage levels to the area;
- Construction feasibility; and
- The ability for NBN Co to secure a lease agreement with the landowner.

This application seeks planning consent for:

- a 30m monopole structure;
- radio transmission equipment; and
- ancillary equipment.

The site is located at 9 Cathbert Street, Tawonga, VIC, 3697; formally known as lot 1, TP551709.

This submission will provide assessment in respect of the relevant planning guidelines, and demonstrates site selection on the basis of:

- The site is designed so as to be appropriately located & sited so as to minimise visual impact on the immediate & surrounding area;
- The proposal is designed to comply with the Alpine Planning Scheme;
- The site is designed to achieve the required coverage objectives for the area;
- The proposal is designed to operate within the regulatory framework of Commonwealth, State and Local Government; and
- The facility is designed to operate within all current and relevant standards and is regulated by the Australian Communications and Media Authority.

2 BACKGROUND

2.1 NBN Co and the National Broadband Network

NBN Co is the organisation responsible for overseeing the upgrade of Australia's existing telecommunications network and for providing wholesale services to retail service providers. The NBN is designed to provide Australians with access to fast, affordable and reliable internet and landline phone services.

NBN Co plans to upgrade the existing telecommunications network in the most cost-efficient way using best-fit technology and taking into consideration existing infrastructure.

The NBN's fixed wireless network will use cellular technology to transmit signals to and from a small antenna fixed on the outside of a home or business, which is pointed directly towards the fixed wireless facility.

NBN Co's fixed wireless network is designed to offer service providers with wholesale access speeds of up to 25Mbps for downloads and 5Mbps for uploads¹.

2.2 What is Fixed Wireless and how is it different to Mobile Broadband?

The NBN's fixed wireless network, which uses advanced technology commonly referred to as LTE or 4G, is engineered to deliver services to a fixed number of premises within each coverage area. This means that the bandwidth per household is designed to be more consistent than mobile wireless, even in peak times of use.

Unlike a mobile wireless service where speeds can be affected by the number of people moving into and out of the area, the speed available in a fixed wireless network is designed to remain relatively steady.

2.3 The Fixed Wireless Network – Interdependencies

Although fixed wireless facilities are submitted to Council as standalone developments from a planning perspective, they are highly interdependent. Each fixed wireless facility is connected to another to form a chain of facilities that link back to the fibre network. This is called the 'Transmission network'.

The transmission network requires line of sight from facility to facility until it reaches the fibre network. The fixed wireless network will remain unconnected without the transmission network and a break in this chain can have flow on effects to multiple communities.

A typical fixed wireless facility will include three antennas mounted above the surrounding area. Each antenna is designed to cover a set area to maximise signal strength.

¹ NBN Co is designing the NBN to provide these speeds to our wholesale customers, telephone and internet service providers. End user experience including the speeds actually achieved over the NBN depends on some factors outside NBN Co's control like equipment quality, software, broadband plan and how the end user's service provider configures its network.

These network antennas communicate to a small antenna installed on the roof of each customer's home or business.

The proposed Fixed Wireless facility at Tawonga is a transmission end site. It has been designed not only to provide fixed wireless internet services to surrounding premises, but is also designed so as to link back into the network through the adjacent wireless hub site at Mt Beauty.

The character of the Fixed Wireless network is visually demonstrated through Figure 1 below.

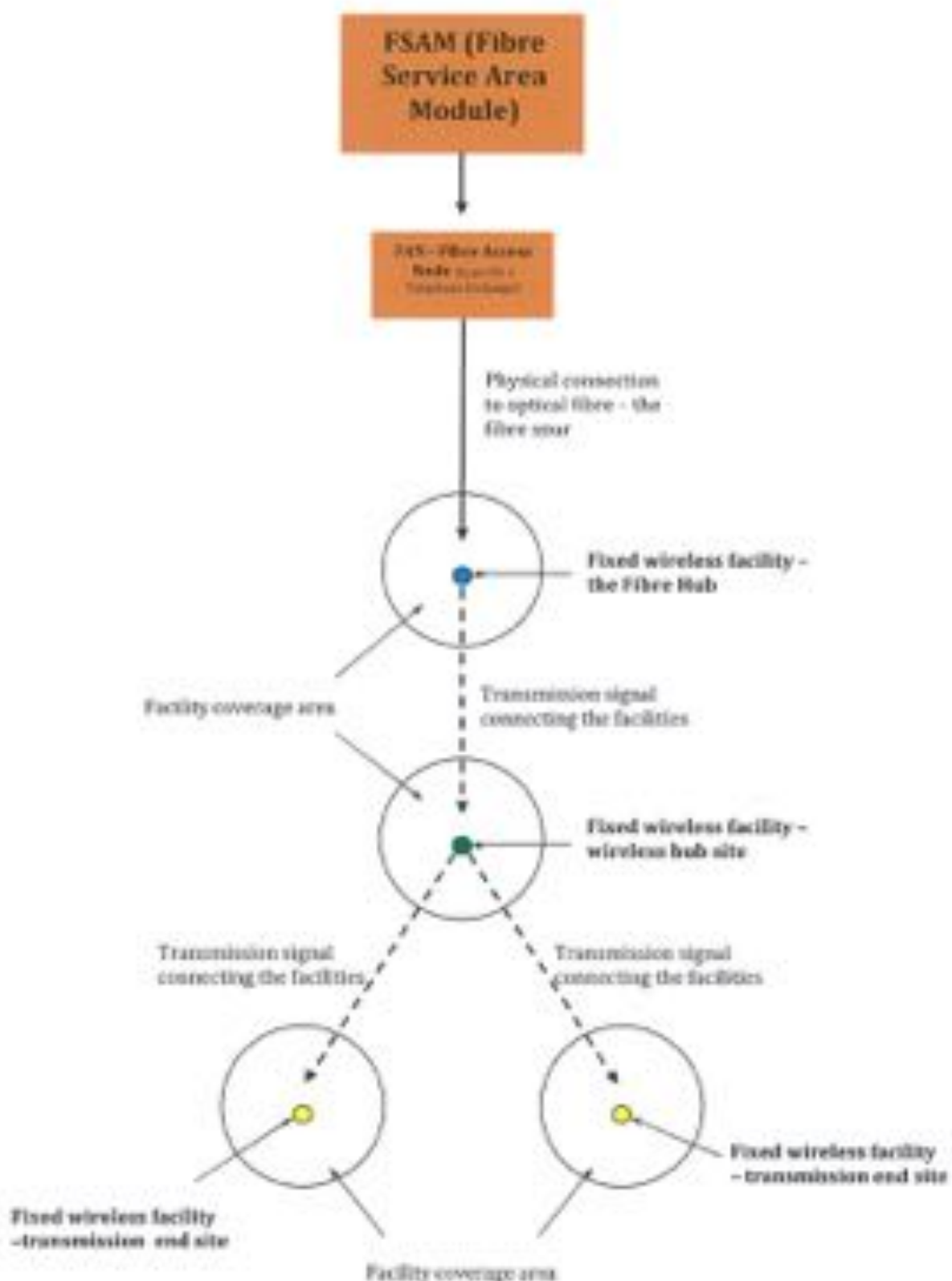


Figure 1: The fixed wireless network

3 SITE SELECTION

Planning for a new Fixed wireless broadband facility is a complex process. NBN Co conducts a rigorous multi-stage scoping process, as outlined below.

3.1 Identification of areas requiring Fixed Wireless coverage

NBN Co's Fixed Wireless locations are determined by a number of factors including the availability of both the NBN Co fibre transit network and the availability of Point of Interconnect (POI) facilities to allow for the installation of NBN Co fibre equipment. NBN Co uses a number of methods to identify those parts of Australia that require Fixed Wireless coverage. When an area is identified as requiring Fixed Wireless coverage, investigations are undertaken to determine the measures required to provide this coverage.

NBN Co has identified a requirement to provide a Fixed Wireless facility in Tawonga. The facility is designed to provide Fixed Wireless internet services to dwellings in the Tawonga area.

3.2 Site Selection Parameters

NBN Co generally identifies an area where the requirement for a Fixed Wireless facility would be highest, a 'search area.' A preliminary investigation of the area is then generally undertaken, in conjunction with planning and property consultants, radiofrequency engineers and designers in order to identify possible locations to establish a facility.

Generally speaking, new sites must be located within, or immediately adjacent to, the identified search area in order to be technically feasible. However, while the operational and geographical aspects of deploying new facilities are primary factors, there are also many other issues that influence network design, which have to be resolved in parallel.

Some of the issues that may be considered include visual amenity, potential co-location opportunities, the availability and suitability of land as well as a willing site provider, occupational health and safety, construction issues (including structural and loading feasibility and access for maintenance purposes), topographical constraints affecting network line of site, legislative policy constraints, environmental impacts, and cost implications.

The number, type and height of facilities required to complete the Fixed Wireless network are largely determined by the above operational, geographical and other factors discussed that influence final network design. These compounding factors often severely restrict the available search area within which a facility can be established to provide Fixed Wireless internet services to a local community.

3.3 Candidate Sites

A number of candidate sites were examined within the search area, with regard to each site's ability to meet the coverage objectives and site considerations listed in Section 3.2 of this report. It should be noted that NBN Co has attempted to utilise where possible as a first preference, any existing infrastructure or co-location opportunities. Each candidate was assessed based on the ability to meet the coverage objectives and site considerations detailed above. A total of 3 candidates were selected for in-depth investigation, as per Figure 2 below.

Option 1 – Co-location on SP Ausnet HV Tower

The option of co-locating NBN antennas on the SP Ausnet lattice high-voltage transmission line tower was investigated as an option for provision of fixed wireless coverage to Tawonga. However, the high construction costs and access restrictions associated with working in the vicinity of high-voltage power and the ongoing requirement for SP Ausnet high voltage riggers which prevents 24 hour access led to this option being discounted.

Option 2 – Greenfield Site at Cuthbert Street, Tawonga

This option is for a greenfield facility on the same property as the SP Ausnet HV tower at 9 Cuthbert Street, Tawonga. As viewed from the western boundary of Tawonga township, the site is behind the HV powerline tower at the rear of the property. The site is located within the Farming zone and is within the Significant Landscape Overlay that covers the valley surrounding Tawonga. The site can provide an excellent level of wireless coverage to Tawonga and the visual impacts are mitigated by the existing electricity infrastructure, and for these reasons, was selected as the preferred candidate.

Option 3 – Greenfield Site at Kiewa Valley Highway, Tawonga

This option is for a greenfield facility on a property to the south-west of Tawonga within the farming zone. The site is affected by the Significant Landscape Overlay and is considered to have higher visual impacts being on the town-side of the high voltage powerlines and having less screening. For these reasons, this option was not selected.



Figure 2 – NBN Co Candidate Sites (from Google Earth)

4 SUBJECT SITE & SURROUNDS

The telecommunications facility is proposed to be located 9 Cuthbert Street, Tawonga, which is a large rural property adjacent to south-western township boundary of Tawonga.

The proposed site is situated within an irregular shaped farming property that covers an area of approximately 40ha surrounding the Tawonga township to the west and south. As shown in Figure 3 below, the proposed facility has been sited adjacent to the western boundary of the property.



Figure 3 – Aerial Photo of subject site and subject property

The subject site is zoned Farming Zone. The adjacent land to the north and south is also under the Farming Zone while the adjacent land to the west is zoned Public Conservation and Resource Zone, and land to the east Township Zone. The adjacent area to the north and south is also affected by the Significant Landscape Overlay.

The nearest house is located almost 425m away to the east, which is at the boundary of the Tawonga township.

The property is located on the western side of the Kiowa Valley and generally rises from east to west. The property is generally devoid of trees have been cleared for farming and is crossed by high voltage powerlines. The land to the west of the property is heavily vegetated and continues to rise significantly to form the hills between Tawonga and Bright. As viewed from Tawonga, the proposed 30m monopole will not be visible above the horizon of the hills behind it.

5 THE PROPOSAL

5.1 Facility and Equipment Details

5.1.1 Equipment to be Installed

Approval is sought for the development of a telecommunications facility, comprising a 30 metre high monopole structure and ancillary components enclosed within a secure compound which measures approximately 80m² in area.

The proposed structure will feature will accommodate three (3) x panel antennas measuring approximately 3077mm x 100mm x 115mm. One (1) parabolic dish antenna will also be installed at a height of approximately 27m with a diameter of 900mm.

Please refer to **Appendix 3 – Proposed Plans** for further details.

5.1.2 Access and Parking Details

The proposed NBN compound will be accessed via a new access track that extends from the existing site entrance at the end of Cuthbert Street. Approximately 450m of the track will installed.

The facility and all ancillary components are proposed to be constructed over the one title. A copy of title is provided as **Appendix 2**. Plans indicating the details of the proposal form part of the documentation of this application. Additional photos of the site and proposed development plans are provided as **Appendices 2 & 3** respectively.

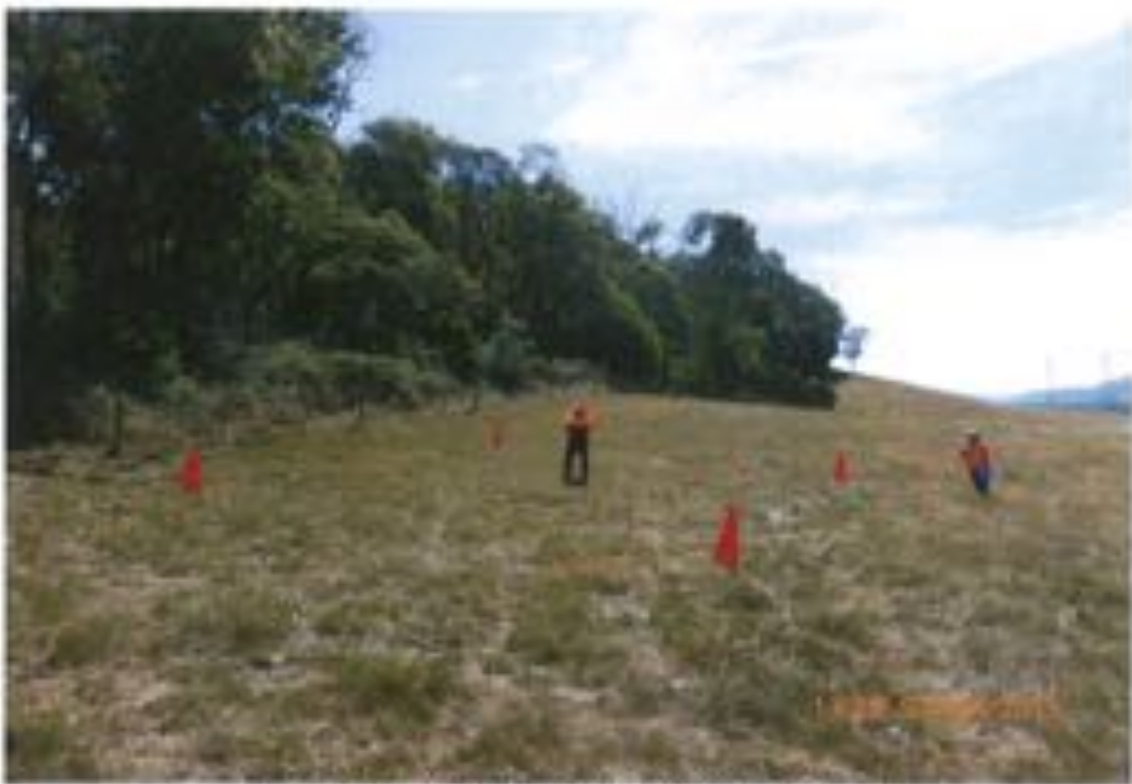


Figure 5 – Proposed location of the NBN Wireless Facility

NBN Co considers the site access to be appropriate given the NBN Co facility will not be a significant generator of traffic. Once operational, the facility should require one annual maintenance visit, but would remain unattended at all other times. As the facility is expected to generate minimal trips per year, it is anticipated that traffic interference will be negligible.

During the construction phase, it is planned that a truck will be used to deliver the equipment and sections of the monopole structure. Any traffic impacts associated with construction are expected to be of a short-term duration and are not anticipated to adversely impact on the surrounding road network. In the unlikely event that road closure will be required, NBN Co will apply to the relevant authorities for permission.

A total construction period of approximately ten weeks (including Civil works and network integration and equipment commissioning) is anticipated. Construction activities will involve four basic stages:

- Stage 1 (Week 1) – Site preparation works, including field testing, excavation and construction of foundations;
- Stage 2 (Weeks 2, 3 and 4) – Construction of the mast;
- Stage 3 (Weeks 5 and 6) – Construction of the equipment shelter and fences;
- Stage 4 (Weeks 7 – 10) – Installation of antennas and radio equipment, as well as equipment testing.

Once operational, the facility is designed to function on a continuously unstaffed basis and will typically only require maintenance works once a year, for approximately one day per year.

5.1.3 Utility Service Details

It is proposed that the facility will be powered by an underground power cable from the existing power pole adjacent to the site entrance at the end of Cuthbert Street, a power run of 450m.

5.1.4 Construction and Noise

Noise and vibration emissions associated with the proposed facility are expected to be limited to the construction phase outlined above. Noise generated during the construction phase is anticipated to be of short duration and accord with the standards outlined in the relevant EPA guidelines. Construction works are planned only to occur between the hours of 7.00am and 6.00pm.

There is expected to be some low level noise from the ongoing operation of air conditioning equipment associated with the equipment shelter, once installed. Noise emanating from the air conditioning equipment is expected to be at a comparable level to a domestic air conditioning installation, and should generally accord with the background noise levels prescribed by relevant guidelines.

5.2 Site Selection

The reasons for selecting this site are summarised as follows:

- The proposed site has been selected to be behind the HV power lines when viewed from Tawonga and minimise visual impacts within the Significant Landscape Overlay;

- The proposed site has been selected to not be visible above the horizon when viewed from Tawonga, and will not interrupt views towards Mt Bogong;
- The proposed facility is located in a rural area, adjacent to significant electricity infrastructure;
- The site provides sufficient spatial separation from sensitive land uses with the nearest dwellings located almost 425 metres from the proposed site.

6 CURRENT PLANNING CONTROLS

6.1 Commonwealth Legislation – The Telecommunications Act

Schedule 3 of the Telecommunications Act 1997 (Cth) empowers carriers to install low-impact facilities without participating in the planning approval process. The Telecommunications (Low Impact Facilities) Determination 1997 (Cth) defines which facilities are low-impact facilities.

As the proposed tower is not a low-impact facility, the Commonwealth power does not apply. As such, unless a State or Territory exemption applies, a planning permit is required.

6.2 State Legislation – Code of Practice for Telecommunications Facilities in Victoria

A Code of Practice for Telecommunications Facilities in Victoria (July 2004) (Code) is an incorporated document in all Planning Schemes in Victoria pursuant to Clause 81 of the Victorian Planning Provisions. The purpose of the Code is to:

- Set out the circumstances and requirements under which land may be developed for a telecommunications facility without the need for a planning permit.
- Set out principles for the design, siting, construction and operation of a telecommunications facility which a responsible authority must consider when deciding on an application for a planning permit.

It aims to:

- Ensure that telecommunications infrastructure and services are provided in an efficient and cost effective manner to meet community needs.
- Ensure the application of consistent provisions for telecommunications facilities.
- Encourage an effective statewide telecommunications network in a manner consistent with the economic, environmental and social objectives of planning in Victoria as set out in Section 4 of the Planning and Environment Act 1987 (Vic).
- Encourage the provision of telecommunications facilities with minimal impact on the amenity of the area.

6.3 State Planning Policy Framework

The State Planning Policy Framework (SPPF) must be considered when determining a permit application.

Clause 19.03-4 of the SPPF is specific to 'Telecommunications' and states the objective, strategies and policy guidelines in relation to such developments. The specific objective for telecommunications is to *facilitate the orderly development, extension and maintenance of telecommunication infrastructure.*

Clause 19.03-4 lists a number of strategies on how this objective can be implemented. In particular it is stated that a Planning Scheme *should not prohibit the use of land for a telecommunications facility in any zone.*

Generally the clause seeks to recognise that telecommunications is an essential aspect of all modern life, to ensure no adverse impacts upon the environment relating from telecommunications facilities and to reflect the implications of the Commonwealth and State legislation specific to telecommunications facilities.

6.4 The Municipal Strategic Statement

The Alpine Planning Scheme includes Council's Municipal Strategic Statement (MSS) to guide future development within the municipality, which is a relevant consideration in determining any permit application.

Clause 21.03 of the Alpine Planning Scheme contains planning strategies for the entire municipality as well as specifically for the village of Tawonga. Clause 21.02-2-6 contains specific strategies for Tawonga, of which the following are relevant to the proposed development:

- Retain and protect scenic landscape of valley

This is implemented by applying the Significant Landscape Overlay to the rural areas surrounding the township, which includes the location of the proposed NBN facility.

Clause 21.03 infrastructure identifies an issue as minimising the visual impact of infrastructure.

6.5 Local Policies

There are a range of local policies within the Alpine Planning Scheme, however, none are relevant to this application.

6.6 Zoning

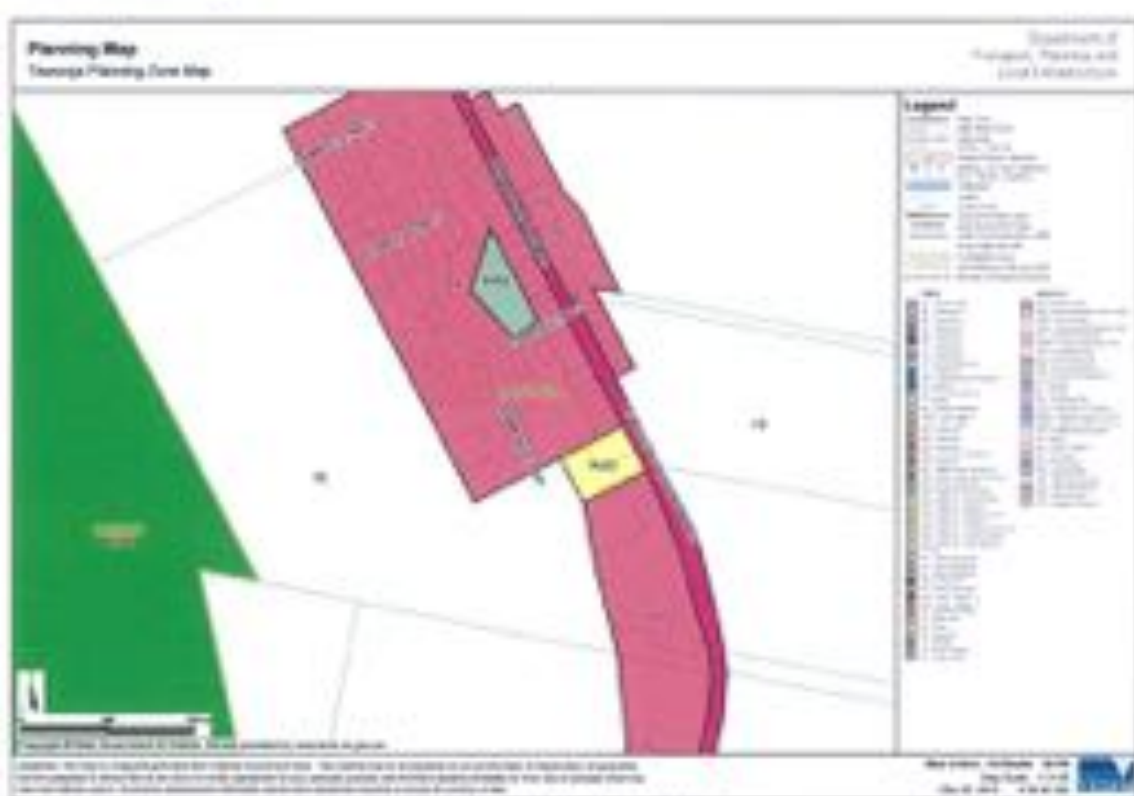


Figure 4 – Zoning Map

The site is located within the Farming Zone (FZ), pursuant to Clause 35.07 of the Alpine Planning Scheme. As far as relevant to this application the purpose of this zone is:

- To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- To provide for the use of land for agriculture.
- To encourage the retention of productive agricultural land.
- To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture.
- To encourage the retention of employment and population to support rural communities.
- To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.

Pursuant to Clause 35.07-1 a Telecommunications facility is a "Section 1" use (permit not required) and is specified as 'any use under Clause 62.01' on the condition that buildings & works meet the requirements of Clause 52.19 (refer to section 5.8 below).

In this instance a planning permit is required for the buildings and works associated with the erection of a telecommunications facility pursuant to Clause 62.01 and 52.19 respectively.

6.7 Overlays

The following overlays apply to the subject site under the provisions of the Alpine Planning Scheme.

6.7.1 Bushfire Management Overlay

A planning permit is required under this overlay to construct a building or construct or carry out works associated with the following land uses:

- Accommodation.
- Child Care Centre.
- Education Centre.
- Hospital.
- Industry.
- Leisure and Recreation.
- Office.
- Place of Assembly.
- Retail premises.
- Timber production.

A telecommunications facility is not a land use that is listed as requiring a permit under the Bushfire Management Overlay, and therefore approval is not required for this application.

6.7.2 Significant Landscape Overlay

A planning permit is required to construct a building or construct or carry out works under Clause 42.03 of the Alpine Planning Scheme. The site is affected by Schedule 1 to the Significant Landscape Overlay, which applies to the Upper Kiewa Valley Significant Landscape Area.

The landscape statement is:

"The landscape of the Upper Kiewa Valley has a distinct character with significant contrasts between the cleared flat to undulating valley floor and the steep treed mountains. The valley narrows in the upper reaches and the contrast is emphasised. The visual boundaries are definite in this landscape not only between natural features but also the townships which are generally well contained with little urban sprawl. A key element of this landscape is the majestic views across the cleared valley to Mount Bogong."

The facility has been sited on the western edge of the area affected the Significant Landscape Overlay, at a location that will not impact on views to Mt Bogong. The site is located on the western valley and will not be visible above the horizon of the hills beyond. Additionally, the facility will be screened by the existing HV Lattice tower and powerlines that cross the site.

Refer to Section 7.1 and 8.1 for additional information of visual impacts.

6.8 Particular Provisions

Clause 52.19 of the Alpine Planning Scheme provides for development and use of all land for the purpose of 'telecommunications facilities'. This land use is defined as:

Land used to accommodate any part of the infrastructure of a Telecommunications network. It includes any telecommunications line, equipment, apparatus, telecommunications tower, mast, antenna, tunnel, duct, hole, pit, pole, or other structure or thing used, or for use in or in connection with a Telecommunications network.

Clause 52.19-5 of the Planning Scheme lists the information to be submitted with any application. The required information includes a site analysis and design response explaining how the proposed facility addresses the principles of design, siting, construction and operation of telecommunications facility, as contained in the Code of Practice.

The purpose of Clause 52.19 is generally to ensure infrastructure and services are provided in an efficient and cost effective manner, encourage an effective statewide telecommunications network, and encourage the provision of telecommunications facility with minimal impact on the amenity of the area.

Before deciding on a permit application under clause 52.19, Council must consider:

- *The decision guidelines under clause 65 of the Planning Scheme.*
- *The principles for the design, siting, construction and operation of a Telecommunications facility set out in A Code of Practice for Telecommunications Facilities in Victoria.*
- *The effect of the proposal on adjacent land.*
- *If the Telecommunications facility is located in an Environmental Significance Overlay, a Vegetation Protection Overlay, a Significant Landscape Overlay, a Heritage Overlay, a Design and Development Overlay or an Erosion Management Overlay, the decision guidelines in those overlays and the schedules to those overlays.*

Information to be submitted with the application under Clause 52.19-5 of the Planning Scheme has been addressed in this submission or attached to this application.

6.9 General Provisions (Referrals)

Clause 66 of the Planning Scheme requires the Responsible Authority to refer specific applications to nominated referral authorities in accordance with Section 55 of the Planning and Environment Act 1987.

Clause 66.02-5 identifies no relevant referral authority for this application.

7 PLANNING CONSIDERATIONS

7.1 Design Response

The principles contained within the Code specifically relate to the issues of design, siting, construction and operation of telecommunications facilities. These principles are the basis for the content of any design response, as required by Clause 52.19-5 of the Planning Scheme.

Principle 1

A Telecommunications Facility should be sited to minimise visual impact.

The proposal involves the erection of a new facility incorporating a 30 metre high monopole and associated equipment shelter at ground level.

Indicative photo montages showing the appearance of the proposed facility have been included in Section 8.1.

One of the many factors that are considered by NBN Co is determining their preferred sites for NBN wireless facilities is the amenity of the surrounding area. The proposed tower has been setback to edge of the heavily vegetated steep valley wall and when viewed from Tawonga will be behind the existing high voltage powerlines that cross the property.

Furthermore it has to be appreciated that facilities of this nature are necessarily visible as they need to be tall enough (and consequently visible) to serve their purpose of providing coverage into the local area.

As such, NBN Co considers that the proposed new facility will have minimal visual impact on the existing landscape setting as seen by local residents and people passing through the area.

In summary:

- The facility has been sited to be located some distance from residential developments and community sensitive land uses;
- The facility has been sited adjacent to the western boundary of the subject property which provides for visual screening from the existing HV powerlines when viewed from Tawonga;
- The facility has been sited to utilise to the maximum extent achievable, the vegetation to the west of the facility and will not penetrate the horizon when viewed from Tawonga;
- The facility is designed so as not to compromise any significant views or places of significance or local landmarks; and
- The height and design of the proposed tower is considered to be the minimum required to achieve reasonable Radio Frequency (RF) objectives.

Refer to Section 8.1 for further information on visual impacts.

Principle 2

A Telecommunications Facility should be colocated wherever possible.

NBN Co aims to investigate all possible colocation opportunities when selecting a site.

As discussed under part 3.3 of this report there are no existing structures within the search area. As such, a new structure is required to be constructed to provide coverage for the NBN fixed wireless service within the Tawonga area. The location of the proposed facility should effectively meet the coverage requirements for the NBN Co to deliver wireless broadband services to the Tawonga area.

Principle 3

Health standards for exposure to radio emissions will be met.

The proposal will be designed and is intended to be installed to satisfy the requirements contained within *Radiation Protection Standard – Maximum Exposure Levels to Radiofrequency Fields – 3MHz to 300 GHz*, ARPANSA, May 2002 (Standard).

An EME report has been produced for the Telecommunications Facility and is attached as **Appendix 4**. As explained in section 8.7.1 below, the report shows that the proposed facility complies with the Standard, with the maximum predicted EME equating to 0.19% of the maximum exposure limit. This is substantially less than 1% of the maximum allowable exposure limit (where 100% of the limit is still considered to be safe).

Principle 4

Disturbance and risk relating to siting and construction should be minimised. Construction activity and site location should comply with State environment protection policies and best practice environmental management guidelines.

The site has been designed to minimise environmental impacts by utilising a cleared area that will not require the clearance of any trees. Any further disturbance to the existing property is expected to be minimal and limited to the compound area and access track extension following completion of the construction activities.

The construction area and overall compound area of the facility is designed to have minimal disturbance to the environmental characteristics of the site. The installation of the proposed facility can be undertaken at any time and is not anticipated to affect the use of the site or the surrounding area due to the accessibility of the site.

Construction of the facility is designed to be carried out in accordance with relevant Occupational Health and Safety Guidelines. NBN Co intends to reinstate any damage to the existing property to the standard that existed prior to the facility being installed.

NBN Co considers that construction of the facility is unlikely to cause any disruption to adjoining properties or public access areas. Due care will be taken to ensure construction is undertaken at times least likely to cause disturbance.

7.2 Zoning

As the proposed NBN Co facility is not classified as a 'low impact facility' under the *Telecommunications (Low Impact) Facilities Determination 2007*, a permit is required for the use of the proposed facility under the Farming Zone.

Pursuant to the Decision Guidelines of the Farming Zone, the responsible authority must consider if the proposed use or development is compatible with adjoining and nearby land uses.

As previously mentioned, the proposed NBN Co facility is considered visually compatible with the landscape qualities of the site and surrounds. The proposal is also consistent with the environmental qualities of the site, as it minimises vegetation removal and will not impede the continued use of the land for agriculture.

Furthermore, the proposed 80m² NBN compound will cover only a minor proportion of the overall site. As such the proposal will not impact the predominant use of the site, or affect the future use of the property.

It is for these reasons that the proposal to use the site for a telecommunications facility is considered compliant with the Farming Zone.

7.3 Overlays

The Significant Landscape Overlay – Schedule 1 applies to area of the Upper Kiewa Valley. The proposed telecommunications facility requires a planning permit under the provisions of this overlay. The following table lists the landscape character objectives to be achieved and an assessment of the proposed telecommunications facility against each.

<i>Landscape character to be achieved</i>	<i>Response</i>
Contain urban development, specifically housing, to existing townships with definite visual boundaries.	n/a – the application does not involve urban development.
Encourage appropriately sited development to reduce ribbon development along the Kiewa Valley Highway.	The proposed facility is setback at the western extreme of private land in the Kiewa Valley and is appropriately sited to minimise visual impacts.
Encourage rural development of a human scale and form.	The facility has been setback to minimise the visual impact of the 30m monopole.
Maintain existing vegetation on the steeper slopes of the valley to maintain its integrity.	The proposed facility will not require the removal of any vegetation on the steeper slopes of the Kiewa Valley.
Maintain the contrasts in landform and land use between the valley floor and the steep vegetated valley walls.	The proposed facility is sited on the boundary between the valley floor and the steep vegetated valley walls and uses the contrast in landform and landuse as visual screening.
Maintain the existing rural landscape.	The proposed facility will not adversely affect the existing rural landscape.

7.4 The SPPF

The proposed facility is consistent with the SPPF as it is an essential part of the rollout of the NBN which will enable modern telecommunications facilities to be widely accessible to business, industry and the community. In addition, as explained above, the facility has been sited so as to minimize its impact on the surrounding environs. It is therefore considered compliant with the SPPF.

7.5 The Municipal Strategic Statement

The public infrastructure provided through the NBN Co facility is required to facilitate high speed fixed wireless broadband coverage for the Tawonga area and surrounds. An important telecommunications facility will be established, benefiting the community as a whole, as competitive services within the area will be improved. An investment of this type in the local community will provide enormous benefits for the wider community and enable improvements in service delivery and productivity a number of areas such as health, education and financial services to name a few.

The availability of high speed broadband will facilitate services such as the transfer of medical images, the holding of remote consultations by doctors and the provision of distance training for medical professionals. Broadband services also have the potential to allow people to stay in their homes longer by providing improved access to medical professionals, or medical monitoring services.

The introduction of the NBN within the community will allow for access to information and services to providing a richer and more diverse experience for the end user.

The proposal is therefore consistent with the objectives of the Alpine Planning Scheme for the provision of services and infrastructure in a way that retains and protects the scenic landscape of the Kiewa valley.

7.6 Particular Provisions

The decision guidelines set out in Clause 52.19-6 of the Planning Scheme establish the list of considerations for the Responsible Authority, in addition to the principles for the design, siting and construction of a telecommunication facility, addressed in Section 6.1 above, the effect of the proposal on adjacent land is to be considered.

In this regard the proposed facility is located in a rural area and set away from sensitive land uses. As a result the visual impact of the proposed telecommunications facility is considered to be minimal.

Information to be submitted with the application under Clause 52.19-5 of the Planning Scheme has been addressed in this submission or attached to this application.

8 OTHER ENVIRONMENTAL CONSTRAINTS AND OPPORTUNITIES

8.1 Visual Amenity

This proposal is for the installation of a 30 metre monopole tower west of Tawonga. NBN Co considers that the proposal is appropriate for the locality, given the predominant use of the site and visual mitigation provided by the existing electricity infrastructure.

The proposal is not located within the vicinity of major residential areas or sensitive land uses.

The telecommunication facility is located on rural land to the west of Tawonga and as such is subject to the Significant Landscape Overlay that surrounds the National Trust listed landscape of Upper Kiewa Valley. The Upper Kiewa Valley is a significant natural landscape feature with contrasts between the cleared flat to undulating valley floor and treed mountains, with a key element being views to Mt Bogong.

The proposed telecommunications facility is located over 400 metres from the western boundary of the Tawonga township boundary and is on the western side of the Kiewa valley, to the west of the high voltage powerlines that cross the property from south-east to north-west, as demonstrated in the indicative photo montage below.



As demonstrated in the indicative photo-montage, the topography and height of trees to the west of the proposed facility, as well the high voltage powerlines, will effectively screen the facility as the 30m monopole will not protrude the horizon when viewed from Tawonga.

Note that the proposed 30 metre monopole is considered to be the smallest structure capable of meeting coverage and operational objectives. The site is considered appropriate from a visual amenity and setting perspective.

In summary:

- The subject site is located on the western side of the Kiewa valley, to the west of Tawonga;
- Views to the site from Tawonga are screened by the existing high voltage powerlines that cross the property between the proposed site and Tawonga;
- The proposed 30m monopole will not be visible above the horizon/tree line on the ridge to the west of Tawonga;
- The proposed telecommunications facility is sited to minimise the impact on significant viewlines from Tawonga to Mt Bogong;
- The subject site is located away from residential developments and community sensitive land uses; and
- The height of the proposed monopole tower is considered to be the minimum required to achieve reasonable Radio Frequency (RF) objectives at this location.

8.2 Heritage

In order to determine any possible natural or cultural values of state or national significance associated with the site, a search was conducted through the relevant Heritage Registers. There are no known items of cultural, historical or environmental heritage significance located in the vicinity of the proposal site.

As the proposal is not a 'high impact activity' under the *Aboriginal Heritage Regulations 2007* (Vic), a Cultural Heritage Management Plan (CHMP) is not required.

8.3 Electrical Interference and Grounding of the Facility

The NBN fixed wireless network is licensed by the Australian Communications and Media Authority (ACMA) for the exclusive use of the OFDMA2300 frequency band. As NBN Co is the exclusive licensee of this sub-band, emissions from NBN Co equipment within the frequency band should not cause interference.

Filters will also help to ensure that each facility meets the ACMA specifications for emission of spurious signals outside the NBN Co frequency allocations. NBN Co intends to promptly investigate any interference issues that are reported.

The facility is also designed to be grounded to the relevant Australian Standards – that is, the facility will be 'earthed'.

8.4 Erosion, Sedimentation Control and Waste Management

All erosion and sediment control mitigation measures will be detailed in construction plans and will be designed to comply with the Building Code of Australia and local Council standards. In addition, NBN Co's contractors will be informed that they must comply with the 'NBN Construction Specification' that requires contractors to undertake the necessary erosion and sediment control measures in order to protect the surrounding environment. On completion of the installation, NBN Co intends to restore and reinstatement the site to an appropriate standard. No waste which requires collection or disposal should be generated by the operation of the facility.

8.5 Flora and Fauna Study

In order to determine any possible natural Flora and Fauna significance associated with the site, a search was conducted through the relevant environmental searches. NBN Co was not able to identify any known items of Flora and Fauna significance located in the vicinity of the proposal site.

8.6 Endangered Species

In order to determine any possible Endangered Species associated with the site, a search was conducted through the relevant environmental searches. NBN Co was not able to identify known Endangered Species located in the vicinity of the proposal site.

8.7 Social and Economic Impacts

Access to fast internet is an essential service in modern society. Initially, small to medium business customers accounted for a significant part of the demand for broadband technology, but internet services have now been embraced by the general public. Usage of internet services continues to widen as new technologies become progressively more affordable and accessible for the wider community.

The proposed development should provide significantly enhanced fixed wireless internet coverage to Tawonga. This is expected to be of particular benefit for residential dwellings in the locality.

The new NBN is designed to provide the community with access to fast and reliable internet services. A reliable internet service is important to help promote the economic growth of communities, and the facility is anticipated to have significant social and economic benefits for the local community.

8.8 Public Safety

8.8.1 Radiofrequency Emissions

In relation to public safety and specifically Electromagnetic Emissions (EME) and public health, NBN Co operates within the operational standards set by the Australian Communication and Media Authority (ACMA) and Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). ARPANSA is a Federal Government agency incorporated under the Health and Ageing portfolio and is charged with the responsibility for protecting the health and safety of both people and the environment from the harmful effects of radiation (ionising and non-ionising).

All NBN Co installations are designed and certified by qualified professionals in accordance with all relevant Australian Standards. This helps to ensure that the NBN Co facility does not result in any increase in the level of risk to the public.

This facility is to be operated in compliance with the mandatory standard for human exposure to EME – currently the Radio communications (Electromagnetic Radiation Human Exposure) Standard 2003. The EME Report associated with this site is attached in Appendix 4. The report shows that the maximum predicted EME will equate to 0.19% of the maximum exposure limit. This is substantially less than 1% of the maximum allowable exposure limit (where 100% of the limit is still considered to be safe).

Moreover, all NBN Co equipment has the following features, all of which help to minimise the amounts of energy used and emitted:

- Dynamic/Adaptive Power Control is a network feature that automatically adjusts the power and hence minimises EME from the facility.
- Varying the facility's transmit power to the minimal required level, minimising EME from the network, and
- Discontinuous transmission, a feature that reduces EME emissions by automatically switching the transmitter off when no data is being sent.

8.8.2 Access

The proposed facility will have restrictions aimed at preventing public access, including a secured compound fence with a locked gate and warning signs placed around the facility.

8.9 The Public Interest and the Benefits of Telecommunications

The proposed NBN Co facility is expected to have significant benefit for residents in the Tawonga area. NBN Co believes that the public interest would be served by approval of the proposal, given benefits for enhanced internet coverage in the area. The facility is expected to have benefits for local residents and businesses within the district.

8.9.1 Other Benefits of Reliable Broadband Services

There are numerous other benefits of telecommunications connectivity, as follows¹:

- There are many potential educational benefits justifying the implementation of the NBN. Curriculum and data sharing, increased availability and accessibility of research materials, and virtual classroom environments are good examples. Such elements are particularly beneficial within a tertiary education context.
- Businesses can, through internet usage, increase efficiency through time, resource and monetary savings. Improved internet services effectively remove physical distance and travel time as a barrier to business.
- Improvements to internet services may also be of benefit for local employees, by enabling telecommuting and home business. The telecommuting trend is heavily reliant on access to fast internet services, and is anticipated to continually increase in popularity.

¹ End user experience including the speeds actually achieved over the NBN depends on some factors outside NBN Co's control like the end user's equipment quality, software, broadband plan and how the end user's service providers design its network.

The public benefits of access to fast internet have been widely acknowledged for many years. Reliable internet access is now more than ever an integral component of daily life, so much so that its absence is considered a social disadvantage.

9 CONCLUSION

NBN Co considers that the proposed facility, comprising a 30 metre high monopole structure with attached antennas and equipment shelter has been sited in the most appropriate location whilst ensuring adequate coverage is achieved.

The facility has been strategically sited and designed to minimise visibility within the surrounding environment as much as practicable. In this regard NBN Co considers that the proposal satisfies the requirements of the Code, whilst also addressing coverage deficiencies within the local area.

NBN Co considers that the proposal is also consistent with the stated objectives of the Alpine Planning Scheme and, in particular, Clause 52.19 relating to telecommunications facilities. It is considered that the proposal will provide an important community benefit to Tawonga by providing coordinated and open access shared communication infrastructure, and therefore greatly improved fixed wireless internet coverage within the local area.

10 APPENDIX

Appendix 1 – Copy of Title

**REGISTER SEARCH STATEMENT (Title Search) Transfer of
Land Act 1958**

Page 1 of 1

Produced 29/01/2015 03:50 pm

Lot 1 on Title Plan 101709N (formerly known as part of Lot 1 on Plan of
Subdivision 136423),
PARROT TITLE Volume 00149 Folio 788
Created by Instrument LP136423 09/09/1991

REGISTERED PROPRIETOR

Estate Fee Simple

Sole Proprietor

GRADUS SYDNEY HEALING OF CUTHBERT ST TAWONGA 3657

80506670 25/09/2000

ENCUMBRANCES, CAVEATS AND NOTICES

Any encumbrances created by Section 94 Transfer of Land Act 1958 or Section
24 Subdivision Act 1988 and any other encumbrances shown or entered on the
plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE TP101709N FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

-----END OF REGISTER SEARCH STATEMENT-----

Additional information: (not part of the Register Search Statement)

Street Address: 9 CUTHBERT STREET TAWONGA VIC 3657

DOCUMENT END

The document following this cover sheet is an imaged document
Land Victoria.

	plan
Document Identification	TP654709N
Number of Pages (excluding this cover sheet)	1
Document Assembly	2016/2016 15:00

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The document is invalid if this cover sheet is removed or altered.

Location of Land

Parcel: MULLINDOUNGONG

Township:

Section:

Cross Roadway:

Cross Point:

Last Plan Reference LP136413

Derived From: VOL 5433 FOL 439

Depth Limitation: NIL

Notations

ANY REFERENCE TO MAP IN THE TEXT MEANS THE DIAGRAM SHOWN ON THIS TITLE PLAN

Description of Land / Easement Information

**A DRAINAGE EASEMENT APPURTENANT TO THE
WITH LAND WAS BEEN RESERVED BY TRANSFER NO. F2362175****ENCUMBRANCES REFERRED TO**

As to any part of the land marked E-2 or E-3 respectively on the map that lies within the above-mentioned Lot -

THE EASEMENTS to State Electricity Commission of Victoria created by Instruments Nos. A600059 and B522395 respectively -

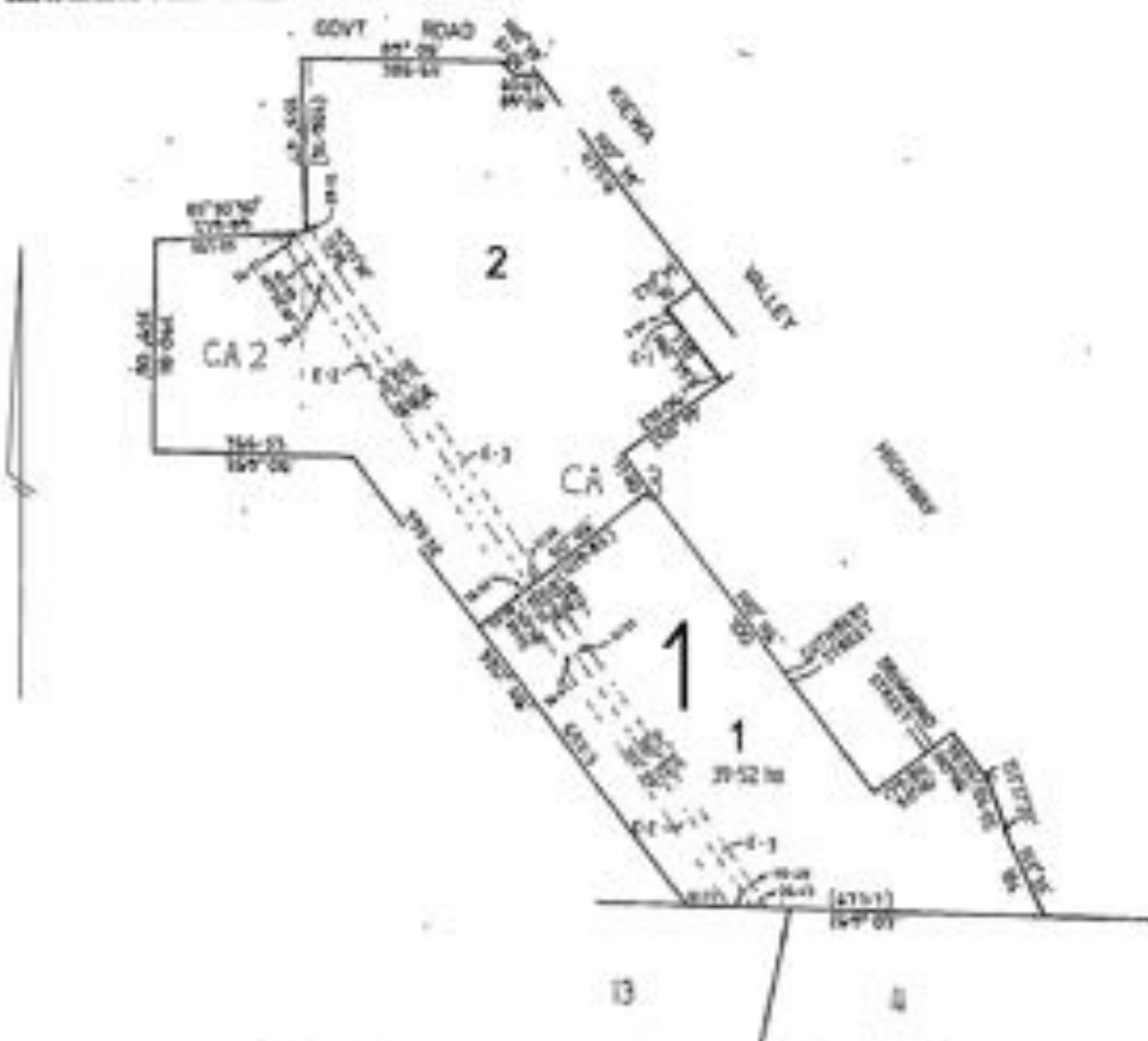
THIS PLAN HAS BEEN PREPARED
FOR THE LAND REGISTRY, LAND
VICTORIA, FOR TITLE DIAGRAM
PURPOSES AS PART OF THE LAND
TITLES AUTOMATION PROJECT
COMPILED: 04/07/2000
VERIFIED: A.D.

TABLE OF PARCEL IDENTIFIERS

WARNING: Where multiple parcels are referred to or shown on this Title Plan this does not imply separately disposable parcels under Section 84 of the Sale of Land Act 1962

Parcel 1 = LOT 10PT1 ON LP136413

Appendix 2 – Site Photographs



Appendix 3 – Proposed Plans

RF SITE NO.

3MBE-51-16-TAWO

GENERAL

REL. 2.0.0.0 (M01) 1.000.000

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ELECTRICAL

RF AND TX CONFIGURATIONS AND EME EXCLUSION ZONES

REL. 2.0.0.0 (M01) 1.000.000

STRUCTURAL

CIVIL

MONOPOLE DESIGN

LEASE

DISTRIBUTION

REL. 2.0.0.0 (M01) 1.000.000

REL. 2.0.0.0 (M01) 1.000.000

SITE No. 3MBE-51-16-TAWO
TAWONGA

9 CUTHBERT STREET
TAWONGA
VIC 3697

RFNSA SITE No: 3697002



Australia's
broadband
network

PROJECT SUMMARY

NEW MONOPOLE
NEW 20m MONOPOLE WITH 20m CABLE HEADSPACE
NEW 10m CABLE HEADSPACE 10m CABLE HEADSPACE



NATIONAL BROADBAND
NETWORK
SITE No. 3MBE-51-16-TAWO
TAWONGA
SOUTHERN STREET
TAWONGA
VIC 3697

RF SITE NO.

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Appendix 4 – ARPANSA EME Report

Environmental EME Report Tawonga 9 Cuthbert St, TAWONGA VIC 3697

This report provides a summary of Calculated RF EME Levels around the wireless base station

Date 23/4/2015

RFNSA Site No. 3697002

Introduction

The purpose of this report is to provide calculations of EME levels from the existing facilities at the site and any proposed additional facilities.

This report provides a summary of levels of radiofrequency (RF) electromagnetic energy (EME) around the wireless base station at Tawonga 9 Cuthbert St TAWONGA VIC 3697. These levels have been calculated by Ericsson using methodology developed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).

The maximum EME level calculated for the proposed systems at this site is 0.19% of the public exposure limit.

The ARPANSA Standard

ARPANSA, an Australian Government agency in the Health and Ageing portfolio, has established a Radiation Protection Standard specifying limits for general public exposure to RF transmissions at frequencies used by wireless base stations. The Australian Communications and Media Authority (ACMA) mandates the exposure limits of the ARPANSA Standard.

How the EME is calculated in this report

The procedure used for these calculations is documented in the ARPANSA Technical Report "Radio Frequency EME Exposure Levels - Prediction Methodologies" which is available at <http://www.arpansa.gov.au>.

RF EME values are calculated at 1.5m above ground at various distances from the base station, assuming level ground.

The estimate is based on worst-case scenario, including:

- wireless base station transmitters for mobile and broadband data operating at maximum power
- simultaneous telephone calls and data transmission
- an unobstructed line of sight view to the antennas.

In practice, exposures are usually lower because:

- the presence of buildings, trees and other features of the environment reduces signal strength
- the base station automatically adjusts transmit power to the minimum required.

Maximum EME levels are estimated in 300° circular bands out to 500m from the base station.

These levels are cumulative and take into account emissions from all mobile phone antennas at this site. The EME levels are presented in three different units:

- volts per metre (V/m) – the electric field component of the RF wave
- milliwatts per square metre (mW/m²) – the power density (or rate of flow of RF energy per unit area)
- percentage (%) of the ARPANSA Standard public exposure limit (the public exposure limit = 100%).

Results

The maximum EME level calculated for the proposed systems at this site is 2.69 V/m, equivalent to 19.15 mW/m² or 0.19% of the public exposure limit.

Radio Systems at the Site

There are currently no existing radio systems for this site.

It is proposed that this base station will have equipment for transmitting the following services:

Carrier	Radio Systems
NBN Co	LTE2300 (proposed)

Calculated EME Levels

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.

Distance from the antennas at Tawonga 9 Culbert St in 360° circular bands	Maximum Cumulative EME Level – All carriers at this site					
	Existing Equipment			Proposed Equipment		
	Electric Field V/m	Power Density mW/m ²	% ARPANSA exposure limits	Electric Field V/m	Power Density mW/m ²	% ARPANSA exposure limits
0m to 50m				1.03	2.82	0.028%
50m to 100m				0.74	1.44	0.014%
100m to 200m				2.69	19.15	0.19%
200m to 300m				2.68	19.02	0.19%
300m to 400m				1.97	10.27	0.1%
400m to 500m				1.48	5.8	0.058%
Maximum EME level				2.69	19.15	0.19
	182.74 m from the antennas at Tawonga 9 Culbert St					

Calculated EME levels at other areas of interest

This table contains calculations of the maximum EME levels at selected areas of interest that have been identified through the consultation requirements of the Communications Alliance Ltd Deployment Code C564-2011 or via any other means. The calculations are performed over the indicated height range and include all existing and any proposed radio systems for this site.

Additional Locations	Height / Scan relative to location ground level	Maximum Cumulative EME Level All Carriers at this site Existing and Proposed Equipment		
		Electric Field V/m	Power Density mW/m ²	% of ARPANSA exposure limits
No locations identified				

RF EME Exposure Standard

The calculated EME levels in this report have been expressed as percentages of the ARPANSA RF Standard and this table shows the actual RF EME limits used for the frequency bands available. At frequencies below 2000 MHz the limits vary across the band and the limit has been determined at the Assessment Frequency indicated. The four exposure limit figures quoted are equivalent values expressed in different units – volts per metre (V/m), watts per square metre (W/m²), microwatts per square centimetre (µW/cm²) and milliwatts per square metre (mW/m²). Note: 1 W/m² = 100 µW/cm² = 1000 mW/m².

Radio Systems	Frequency Band	Assessment Frequency	ARPANSA Exposure Limit (100% of Standard)
LTE 700	758 – 800 MHz	700 MHz	37.6 V/m = 3.75 W/m ² = 375 µW/cm ² = 3750 mW/m ²
WCDMA850	870 – 890 MHz	900 MHz	41.1 V/m = 4.50 W/m ² = 450 µW/cm ² = 4500 mW/m ²
GSM900, LTE900, WCDMA900	925 – 960 MHz	900 MHz	41.1 V/m = 4.50 W/m ² = 450 µW/cm ² = 4500 mW/m ²
GSM1800, LTE1800	1805 – 1850 MHz	1800 MHz	58.1 V/m = 9.00 W/m ² = 900 µW/cm ² = 9000 mW/m ²
LTE2100, WCDMA2100	2110 – 2170 MHz	2100 MHz	61.4 V/m = 10.00 W/m ² = 1000 µW/cm ² = 10000 mW/m ²
LTE2300	2302 – 2400 MHz	2300 MHz	61.4 V/m = 10.00 W/m ² = 1000 µW/cm ² = 10000 mW/m ²
LTE2600	2620 – 2690 MHz	2600 MHz	61.4 V/m = 10.00 W/m ² = 1000 µW/cm ² = 10000 mW/m ²
LTE3500	3425 – 3575 MHz	3500 MHz	61.4 V/m = 10.00 W/m ² = 1000 µW/cm ² = 10000 mW/m ²

Further Information

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is a Federal Government agency incorporated under the Health and Ageing portfolio. ARPANSA is charged with responsibility for protecting the health and safety of people and the environment, from the harmful effects of radiation (ionising and non-ionising).

Information about RF EME can be accessed at the ARPANSA website, <http://www.arpansa.gov.au>, including:

- Further explanation of this report in the document 'Understanding the ARPANSA Environmental EME Report'
- The procedure used for the calculations in this report is documented in the ARPANSA Technical Report, 'Radio Frequency EME Exposure Levels - Prediction Methodologies'
- the current RF EME exposure standard
Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), 2002, 'Radiation Protection Standard, Maximum Exposure Levels to Radiofrequency Fields – 3 kHz to 300 GHz', Radiation Protection Series Publication No. 3, ARPANSA, Yarrabee, Australia.
[Printed version: ISBN 0-642-79400-6 (ISSN 1445-9760)] [Web version: ISBN 0-642-79402-2 (ISSN 1445-9760)]

The Australian Communications and Media Authority (ACMA) is responsible for the regulation of broadcasting, radiocommunications, telecommunications and online content. Information on EME is available at <http://acma.gov.au>

The Communications Alliance Ltd Industry Code C584 2011 'Mobile Phone Base Station Deployment' is available from the Communications Alliance Ltd website, <http://commsalliance.com.au>.

Contact details for the Carriers (mobile phone companies) present at this site and the most recent version of this document are available online at the Radio Frequency National Site Archive, <http://www.rfna.com.au>

Scout Sheet - Scouting



File Name	
Cardinals	
File Type	

Cardinals	
File Type	

Cardinals	
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Cardinals	
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Scout Sheet - Scouting



File Name	
Cardinals	
File Type	

Cardinals	
File Type	

Cardinals	
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Cardinals	
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STEP HIGHER ONE COUNT



10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Abstract

Source: *Journal of the American Statistical Association*, 93(463), 1039-1052.

Part 1: Preliminary Phase	
Part 2: Main Phase	
Part 3: Summary Phase	

Journal of Management Education 33(1)

Week 20: Individual Project 4	
Week 21: Individual Project 5	
Week 22: Individual Project 6	
Week 23: Individual Project 7	

TEPHONE NOTES	PT	BT
RFNSA SITE PLAN	PT	BT
TELECOM PLAN	PT	BT
TELECOM PLAN	PT	BT

TAWONGA

9 CUTHBERT STREET
TAWONGA
VIC 3697

DURATIONS AND EME EXCLUSION ZONES

IN EXISTENCE CONFIGURATION B. SCHEDULE PLAN

	PT	BT



RFNSA SITE No: 3697002



Australia's
broadband
network

PROJECT SUMMARY



Alpine Shire is a proud member of the Alpine Shire Council, a partnership of local governments and industry.



Scale: 1:1000 to 1:5000
 (Scale: 1:1000 to 1:5000)

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Alpine Shire is a proud member of the Alpine Shire Council, a partnership of local governments and industry. The Alpine Shire Council is a partnership of local governments and industry, working together to improve the quality of life in the Alpine Shire. The Alpine Shire Council is a partnership of local governments and industry, working together to improve the quality of life in the Alpine Shire.

9 Cuthbert Street
 Tawonga