PLANNING ASSESSMENT REPORT

Planning Permit Application for a Telecommunications Facility

15 King Street, Lancelin WA 6044

(Lot 451 on Deposited Plan 173799)

Prepared by Ventia Pty Ltd

On behalf of Amplitel

Project No: WA09732.01

August 2022

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1.0 EXECUTIVE SUMMARY

1.1 Site and Proposal Details

Address of Site	15 King Street, Lancelin WA 6044.
Legal Property Description	Lot 451 on Deposited Plan 173799
Coordinates	-31.020850, 115.336900
Site Area	258.999m²
Registered Owner	Telstra Corporation Limited
Local Authority	Shire of Gingin
Proposal	40m high monopole tower, six (6) panel antennas on a circular headframe, one (1) equipment shelter not more than 3m high with a base area of not more than 7.5m² at the base of the tower and ancillary equipment. This is to be installed within the existing fenced compound 16.1m x 15.7m in length.
Planning Instrument	Shire of Gingin Local Planning Scheme No. 9
Zone	Mixed Business
Overlays	None
Application seeking	Development permit for a Telecommunications Facility
Use definition	Telecommunications Facility

1.2 Applicant Details

Applicant	Amplitel C/- Ventia Australia Pty Ltd
Contact Person	Marc Bays (02) 6124 4423 Marc.bays@ventia.com
Our Reference	WA09732.01 Lancelin Exchange

2.0 INTRODUCTION

This report has been prepared by Ventia on behalf of Amplitel as supporting information to a Planning Permit Application for the works and use of a Telecommunications Facility at 15 King Street, Lancelin WA 6044. The property is formally described as Lot 451 on Deposited Plan 173799.

Amplitel, a new company part of the Telstra Group is currently undertaking work across Australia to support and expand the new mobile phone infrastructure and coverage for Telstra and other Carrier to improve customer experience through faster and more reliable voice and data services.

Due to an industry-specific network requirement, Amplitel have identified the need to install a telecommunications facility on the site to improve both voice and data services within the surrounding area. Furthermore, the facility will provide 4G and 5G services to the surrounding Lancelin area.

All mobile phone network operators are bound by the operational provisions of the federal *Telecommunications Act 1997 ("The Act")* and the *Telecommunications Code of Practice 2018*. The proposed telecommunications facility installation is not defined as a low-impact facility and is therefore subject to relevant State and local planning provisions.

An extensive site selection process has been completed prior to selecting the subject site as the nominated candidate for a new Telecommunications Facility. This site selection process included considering a variety of factors including planning scheme considerations technical and coverage objectives, cost considerations, land tenure, visual impact and engineering/design criteria. The site was selected as the most appropriate location based on the above considerations, which are outline in **Section 2** of the report.

The proposal is subject to the provisions of the WA Planning and Development Act 2005 and the provisions of the *Shire of Gingin Local Planning Scheme No. 9*.

3.0 PROPOSED SCOPE OF WORKS

The proposal is inclusive of the following scope of works:

- Decommissioning and removal of one (1) existing 26.9m high lattice tower;
- Installation of one (1) temporary 23.5m mast structure during construction phase;
- Installation of one (1) new 40m high monopole;
- Installation of one (1) new circular headframe;
- Installation of six (6) new panel antennas (no greater than 2.8m in length);
- Installation of one (1) Telstra Equipment Shelter that is not more than 3m high with a base area of not more than 7.5m² at the base of the aforementioned tower; and
- Installation of associated ancillary cabling and equipment.

Refer to Plans attached in **Appendix A** for further details and **Appendix B** for Land Titles.

All mobile phone network operators are bound by the operational provisions of the Federal Telecommunications Act 1997 (the "Act") and the Telecommunications Code of Practice 1997. The proposed telecommunications facility installation **is not defined as a low-impact facility** and is therefore subject to relevant State and local planning provisions.

Pursuant to the *Planning and Development Act 2005* (**PDA**), the proposal constitutes a change of use and requires a development application to be made to the Shire of Gingin Council (**Council**) for approval.

The proposal is subject to the *Shire of Gingin Local Planning Scheme No. 9* (the **local planning scheme**). The proposal has addressed the applicable provisions of the planning scheme in **Section 11** of this report.

Under the planning scheme, the proposed scope of works meets the definition for 'telecommunications infrastructure' and the site is within a 'mixed business' zone and subject to no overlay features. As such, the use will not be permitted unless Council has exercised its discretion by granting development approval.

This Planning Assessment Report demonstrates compliance of the proposal against the local planning scheme and the applicable overlay provisions.

Based on the above, the proposed application to install a Telecommunications Facility at 15 King Street, Lancelin is considered appropriate for the site and warrants favourable consideration by Council.

4.0 PURPOSE OF THE PROPOSAL

To cater for the growing demand for mobile services, Telstra has embarked on a nationwide rollout to deliver an improved, reliable telecommunications network to the Australian public. The rollout will provide improved mobile coverage and enhanced services in metropolitan, regional and rural areas throughout Australia. This rollout consists of the upgrade of existing telecommunications facilities and where required the installation of new mobile base stations to expand the coverage footprint and offer seamless mobile services.

Additional base stations are required where surrounding facilities cannot provide sufficient coverage to a target area. New facilities are also required when existing base stations are fully utilised and cannot serve additional users in the area. Amplitel and Telstra have undertaken analysis of the Telstra mobile network in Lancelin and has identified areas where coverage and network quality needs to be improved. These includes existing commercial and residential areas, as well as the future residential areas to the west. If this investment is not made, the following main issues will arise:

1. Users may have difficulty connecting to the mobile network or the call may drop out. This impacts businesses, residents, visitors to the area and the ability of the user to contact emergency services.
2. Users may experience reduced data speeds, longer download times and poor network performance at busy times of the day with data intensive and time sensitive applications (e.g. newscasts, social media, mobile banking, weather forecasts, sports highlights etc).

As noted above, the lackof Telecommunications Facilities in Lancelin does not only deprive existing users of signal, but also puts at risk the availability of 21st century services to facilitate residential expansion.

Once a need for improved network performance has been identified, the optimisation of existing facilities throughout the region is explored and undertaken where required. In some cases this option resolves network deficiencies in an area. However, in this situation the optimisation of

surrounding facilities has not been able to achieve a satisfactory outcome for the network in Lancelin. Further investigations into the use of other Carrier and broadcast facilities within the area has also been completed. This is discussed in the Site Selection Process of this report.

5.0 THE NEED FOR THE PROPOSAL

Access to wireless services is a critical requirement in the modern era. While Australia has among the fastest mobile networks speeds across the globe, there is an identified coverage disparity between urban and rural areas. This disparity is due to the population concentration in urban areas, with existing wireless services covering 99% of the population but only 33% of the total landmass. As a result, major transport routes and large landholdings miss out on the critical wireless services available in urban areas.

While satellite services for mobile phone and data are available in some rural areas, the steep cost for landholders, unreliability and low data caps are all significant impediments to their daily use.

The 2018 Regional Telecommunications Review (the **Edwards Review**) brought these issues into clear focus, with important findings relating to:

- economic benefits; and
- social benefits

The Edwards Review found that economic benefits in regional areas are increasingly linked to wireless services, with regional businesses in a weak position to take advantage of new digital applications and economic opportunities. The Australian Government Response to the review strengthened this argument, stating that "*digital agriculture could increase the gross value of Australian agricultural production by $20.3 billion, a 25% increase over 2014-15 levels. The greatest gains are expected to come from remote monitoring, automation, better tailoring of inputs such as fertiliser and seed, and environmental benefits such as efficiencies in water and pest management*".

Tourism is often touted as a key asset to Australia as a whole, with the emerging areas of agri-tourism and eco-tourism combining with the rich and unique history and experiences available in outback areas to provide new economic opportunities for regional areas. Connectivity is a driver of such economic opportunities, even in rural areas. Data from Tourism Australia shows that 289 million visitor nights were spent in regional Australia in 2017, up from 234 million in 2012. The Edwards Report includes first-hand examples from regional tourism operators on the challenges they have faced and how technologies have or could improve their businesses.

The education opportunities in regional areas of Australia have lagged behind those in urban areas for several decades (Karmel. 1973 and Lamb et al. 2014). The need to send children and young adults to cities to obtain the education available in urban areas was long seen as a necessity. The advent of digital education services has proven a boon in ensuring that families in regional areas can stay together while still receiving a high-quality education. Irrespective of students being educated via distance or at local schools, education is increasingly digital. With video being a key component of lessons, access to wireless services is essential.

Social cohesion and connectivity is another important aspect of the digital age. Expanded wireless services allow for regional and rural communities more options to communicate with each other and with relatives and/or friends in other cities and countries. Additionally, rural and remote communities are less likely to have access to a range of health care services (Rural Health

Standing Committee, 2016: National Strategic Framework for Rural and Remote Health). Given the natural hazards such as drought, bushfires and floods that are a frequent and ongoing occurrence in Australia, access to mental health services can be of critical importance. Wireless services allow for more communications opportunities in regional areas and opens additional avenues for mental health services (National Mental Health Commission, 2018).

Wireless services are also important for safety reasons, particularly in relation to the aforementioned natural hazards present in Australia. The 2017-2018 ACMA Communications Report showed that in 2017-2018 there were nine (9) millions calls made to emergency services numbers, and increase of 4.8 per cent from 2016-2017, with the majority made from mobile phones. This increase in emergency numbers calls from mobile phones is a continuing trend, with the share increase by approximately 2-3% on average every year from 2012-2014. In regional and remote communities, where potentially dangerous tasks are undertaken on a daily basis, but where neighbours or family-members are oftentimes out of earshot, the ability to call for assistance from a mobile phone can be critical.

The proposal is an important aspect of bridging the digital disparity between denser urban area and regional communities, and in doing so better supporting their communities in a range of areas, including economic, education, social and safety.

6.0 MOBILE TELECOMMUNICATIONS NETWORKS

A mobile telecommunications network is made up of multiple base stations covering a geographic area. They work by sending and receiving radio signals from their antennas to mobile phones and other mobile devices such as tablet computers, wireless dongles etc. Base stations are designed to provide service to the area immediately surrounding the base station which can be up to several kilometers in distance. Depending on the technical objectives of a base station, the physical characteristics of each telecommunications facility; such as its height, number and size of antennas, equipment, cabling etc. will vary.

As a general rule, the higher the antennas of a base station the greater the range of coverage and the ability to relieve capacity issues. If this height is compromised then additional facilities, and thus more infrastructure, will be required for any given locality. The further a facility is located away from its technically optimum position the greater the compromise of the service. This may result in coverage gaps and require additional or taller base stations to provide adequate service.

Each base station transmits and receives signals to and from mobile devices in the area. As the mobile device users move around their devices will communicate with the nearest base station facility to them at all times. If the users cannot pick up a signal, or the nearest base station is congested because it is already handling the maximum number of phone calls or maximum level of data usage, then the users may not be able to place a call, they may experience call "drop outs" or they might experience a slow data rate while attempting to download content.

There are three main factors that can cause the above:

- You may be too far away from a facility to receive a signal, or there may be objects blocking the signal from the nearest facility; such as hills and large trees. To ensure optimum service the radio signals transmitted between the facility's antennas and mobile devices need to be unimpeded, maintaining a "line-of-sight" between them.

- The facility may be transmitting as much data and calls as it can handle. This can result in call drop-outs and slower data rates when too many users are connected to a facility at once.
- The depth of coverage, which affects the ability to make calls inside buildings, may be insufficient in some local areas.

The current proposal will form part of Telstra's 4G and 5G network solution to the Lancelin locality and will deliver essential mobile services (voice calling, SMS), as well as live video calling, video-based content including; news, finance and sports highlights, and high-speed wireless internet – wireless broadband. With a coverage footprint of more than 2.1 million square kilometers and covering more than 99% of the Australian population. Telstra's 4GX is Australia's largest and fastest national mobile broadband network and as such requires more network facilities, located closer together to ensure a high-quality signal strength to achieve reliable service and the fastest possible data transfer rates.

7.0 SITE SELECTION PROCESS

Amplitel commences the site selection process with a search of potential sites that meet the network's technical requirements, with a view to also having the least possible impact on the amenity of the surrounding locality. Amplitel applies and evaluates a range of criteria as part of this site selection process.

Telstra and Amplitel assess the technical viability of potential sites through the use of computer modelling tools that produce predictions of the coverage that may be expected from these sites as well as from the experience and knowledge of the radio engineers.

There are also a number of other important criteria that Telstra uses to assess options and select sites that may be suitable for a proposed new facility. These take into account factors other than the technical performance of the site, and include:

- The potential to co-locate on an existing telecommunications facility.
- The potential to locate on an existing building or structure.
- Visual impact and the potential to obtain relevant town planning approvals.
- Proximity to community sensitive locations and areas of environmental heritage.
- The potential to obtain tenure at the site.
- The cost of developing the site and the provision of utilities (power, access to the facility and transmission links).

In making the proposal for this site at Lancelin, Amplitel has carefully weighed all of the aforementioned criteria. This analysis is detailed in the next section.

8.0 CANDIDATE SITES

Amplitel carefully examined a range of possible deployment options in the area before concluding that a new mobile base station at 15 King Street, Lancelin would be the most appropriate solution to provide necessary mobile phone coverage to the Lancelin locality.

Accordingly, this section of the report will demonstrate the following:

- Colocation opportunities and existing telecommunications infrastructure within proximity to the proposed installation; and

- An analysis of the locations considered when determining an appropriate location for a new telecommunications installation within the required coverage area.

8.1 Colocation opportunities

The Communications Alliance Ltd. (formerly Australian Communications Industry Forum Ltd. - ACIF) Industry Code C564:2020 – Mobile Phone Base Station Deployment promotes the use of existing sites in order to mitigate the effects of facilities on the landscape. It should also be noted that as a first preference, Amplitel attempts to utilise, where possible, any existing infrastructure or co-location opportunities. Co-location is the beneficial reuse of an existing tall structure to negate a need for a new tower in the area, with antennas and equipment being placed on the existing tall structure and the immediate ground area. Co-locations will commonly include an existing Telecommunications Facility, but can include tall residential buildings, radio towers, or government assets such as water tanks.

Figure 1 shows all existing tall infrastructure and existing and proposed telecommunications facilities surrounding within the surrounding area.

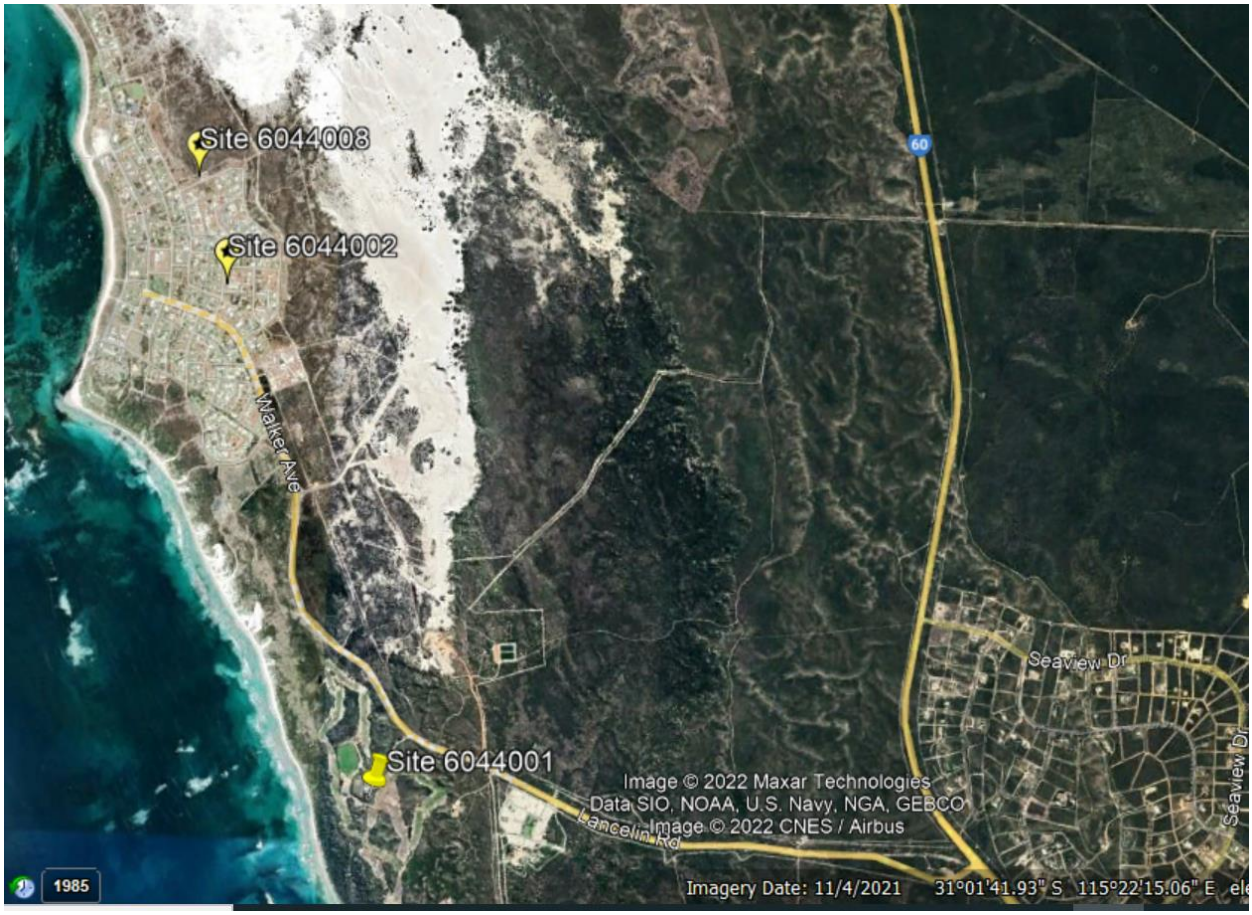


Figure 1: Location of candidates for co-location *Source: www.rfnsa.com.au and Google Earth*

The characteristics of the co-location candidates identified in **Figure 1** are provided below in **Table 1**.

Table 1: Summary of co-location opportunities within the Lancelin area

RFNSA Site No.	Site Address	Structure type	Is site constructed?	Suitable for co-location?	Comments
6044008	Lot 503 on Deposited Plan 52281 Collins Way, Lancelin WA 6044	40m monopole tower	Yes	No	ATN Tower has existing Optus antennas, though no Telstra antennas on it and is not able to provide coverage to targeted area south.
6044002	15 King Street, Lancelin WA 6044	26.9m lattice tower	Yes	No	Telstra tower has existing Telstra antennas, though insufficient height and present structural integrity to meet enhanced Telstra coverage objectives.
6044001	Lancelin Community Recreation Centre, Lancelin Road, Lancelin WA 6044	60.5m Steel Guyed Mast	Yes	No	Amplitel Tower has existing Telstra antennas on it and is not able to provide coverage to targeted area centred 3km to the north.

As indicated in **Figure 1**, the closest existing telecommunications facility is located at Collins Way, Lancelin WA 6044 (RFNSA 6044008) which is 700m from the approximate centre of the targeted coverage area. As this facility is unable to provide coverage to the targeted coverage area it was not considered a feasible co-location option.

The remaining tall structure in the area, a tall guyed mast operated by Amplitel, is not considered a feasible co-location candidate as it is too far, at 3km from the centre of the targeted coverage area.

8.2 Candidates considered

The site selected is deemed to be the most optimal location to achieve the required coverage for the targeted coverage area and requires the installation of a new mobile base station. Alternative candidates were considered, though the residential areas in between the candidates were excluded due to issues with amenity, land size and existing use conflicts. The target coverage area was identified as largely compromising several single dwelling residential unit lots, one park reserve and just a few premises with tourism, town centre and special use zoning.

Figure 2 provides a map of the non-colocation candidates considered for the proposed facility. Details on these alternative candidates are further outlined in **Table 2** along with the balance of alternative candidates considered as part of the site selection process.

Figure 2: Location of non-colocation candidates (north) *Source: Google Earth*

Table 2: Summary of non-colocation candidates considered

Candidate	Location	Proposal	Zoning	Reason for exclusion/comments
Candidate A	15 King Street, Lancelin WA 6044 Lat: -31.020850° Long: 115.336900°	Colocation on to existing 26.9m lattice tower	Mixed Business	This candidate sites existing 26.9m lattice tower is old and not considered to be in sufficient condition to host new facilities and future carrier co-located facilties.

Candidate B	15 King Street, Lancelin WA 6044 Lat: -31.020850° Long: 115.336900°	Greenfield 40.0m monopole (decommission existing 26.9m lattice tower)	Mixed Business	This is the preferred candidate and the subject of this application. The subject site is an existing exchange site with a lattice tower, already disturbed/cleared site with available utilities, space and easy access for a new monopole, with favorable zoning and no development constraint overlays.
Candidate C	35 Walker Ave, Lancelin WA 6044 Lat: -31.024607° Long: 115.339110°	Greenfield 30.0-40.0m monopole	Special Use Zone	This candidate site is zoned 'special use' with specific uses that are permissible, telecommunications not being one of them. The site is also within a bushfire prone area and is outside the coverage search ring.
Candidate D	5 Kendall Road, Lancelin WA 6044 Lat: -31.024349° Long: 115.339407°	Greenfield 30.0-40.0m monopole	Special Use Zone	This candidate site is zoned 'special use' with specific uses that are permissible, telecommunications not being one of them. The site is also within a bushfire prone area and is outside the coverage search ring. Challenges obtaining landowner support.
Candidate E	25 Walker Ave, Lancelin WA 6044 Lat: -31.02263 Long: 115.337918°	Greenfield 30.0-40.0m monopole	Special Use Zone	This candidate site is zoned 'special use' with specific uses that are permissible, telecommunications not being one of them. The landowner has expressed interest in the development, however access is considered tight for machinery to maneuver.
Candidate F	23 Walker Ave, Lancelin WA 6044 Lat: -31.022831° Long: 115.337163°	Greenfield 30.0-40.0m monopole	Special Use Zone	This candidate site is zoned 'special use' with specific uses that are permissible, telecommunications not being one of them. Challenges obtaining landowner support.
Candidate G	23 King Street, Lancelin WA 6044 Lat: -31.021891° Long: 115.336757°	Greenfield 30.0-40.0m monopole	Special Use Zone	This candidate site is zoned 'special use' with specific uses that are permissible, telecommunications not being one of them. Challenges obtaining landowner support.

Candidate H	21 King Street, Lancelin WA 6044 Lat: -31.021518° Long: 115.336964°	Greenfield 30.0-40.0m monopole	Mixed Business	This candidate site is zoned 'mixed business'. Challenges obtaining landowner support.
Candidate I	10 Mullins Way, Lancelin WA 6044 Lat: -31.020212° Long: 115.338023°	Greenfield 30.0-40.0m monopole	Mixed Business	This candidate site is zoned 'mixed business'. Challenges obtaining landowner support.

8.3 Nominated Candidate

A preferred nominated candidate was selected for the proposed facility based on the radiofrequency objectives, property tenure, planning and environmental issues, potential community sensitive uses and engineering criteria as noted above. For this project, co-location on an existing telecommunications facility is not considered feasible and a new macro tower is considered suitable given:

- the site is technically feasible and can achieve Amplitel's coverage and capacity objectives by installing the new mobile base station;
- the site will provide improved coverage to the Lancelin area,
- the proposed monopole will maintain the same separation from sensitive land uses that the present lattice tower does, which will be decomissioned;
- the facility will not alter the land use and will support future carrier co-located facilities;
- the site is not located within a culturally significant area;
- the site is appropriately serviced and has access to the electricity supply network and existing transport network;
- the site will not require the clearing of any vegetation;
- the costs associated with delivering the site and constructing the facility are considered by Amplitel to be reasonable.

As stated above, the site selection process carefully considered environmental and visual constraints, existing and future land use characteristics, the orderly planning of the area and the design of the facility. On balance, it is considered that the location and height of the facility ensure optimal service provision to the area whilst minimising any perceived impacts. The proposed Amplitel site has been sited and designed to minimise any adverse impact on the amenity of the surrounding locality. The site is located at an existing exchange away from sensitive sites such as schools and child care centres and is not within an identified heritage area.

As a result of the aforementioned points it is considered that the siting and design effectively responds to the landscape setting in the area.

8.4 Site context

The proposed facility is located near the centre of Lancelin township, inside the local planning scheme map '09' for Lancelin townsite south.

The subject property is Lancelin exchange at 15 King Street, Lancelin. The entrance to the property is taken directly off King street. Within the fenced subject lot (16.1m x 15.7m) is a existing 26.9m high lattice tower, equipment shelter (3.86m x 8.6m), toilet block (2.4m x 2.4m), a soak well and fibre pits/manhole. Adjacent to and East of the site is light industrial/commercial premises while west across from the site can be characterized by low density residential premises. The nearest residence across to the existing lattice tower proposed to be replaced with a monopole is approximately 30m away, therefore residences can be considered to be in the immediate vicinity. There are no community sensitive places of interest such as childcare centres and schools identified as being close or within 500m from the proposal.

Figure 3: Aerial view of subject site and surrounds *Source: Ventia, 2022*

The subject site at 15 King Street, Lancelin is surrounded by low density residential, commercial and light industrial premises with specific cardinal borders provide in **Table 3**

Table 3: Summary of adjoining land uses

North	Mixed Business.
East	Residential.
South	Mixed Business adjoining a Special Use Zone further south.
West	Mixed Business.

The surrounding area can be described as being built-up with low lying premises with a moderate separation from each other, with a sparse distribution of shrubbery, mostly small to mid-size mature trees. The below figures show the surrounding areas from the proposed tower's location

8.5 Site details

Site Details	
Site address	15 King Street, Lancelin WA 6044
Real property description	Lot 451 on Deposited Plan 173799
Coordinates	-31.020850, 115.336900
Site area	258.999m²
Registered owner	Shire of Gingin Council
Existing land use	Mixed Business
Vegetation	The subject site is clear of vegetation
Topography	The proposal area is relatively flat
Services	Site has access to power and an existing access.

Figure 4: Subject site before Amplitel proposal – 15 King Street, Lancelin *Source: Ventia, 2022*

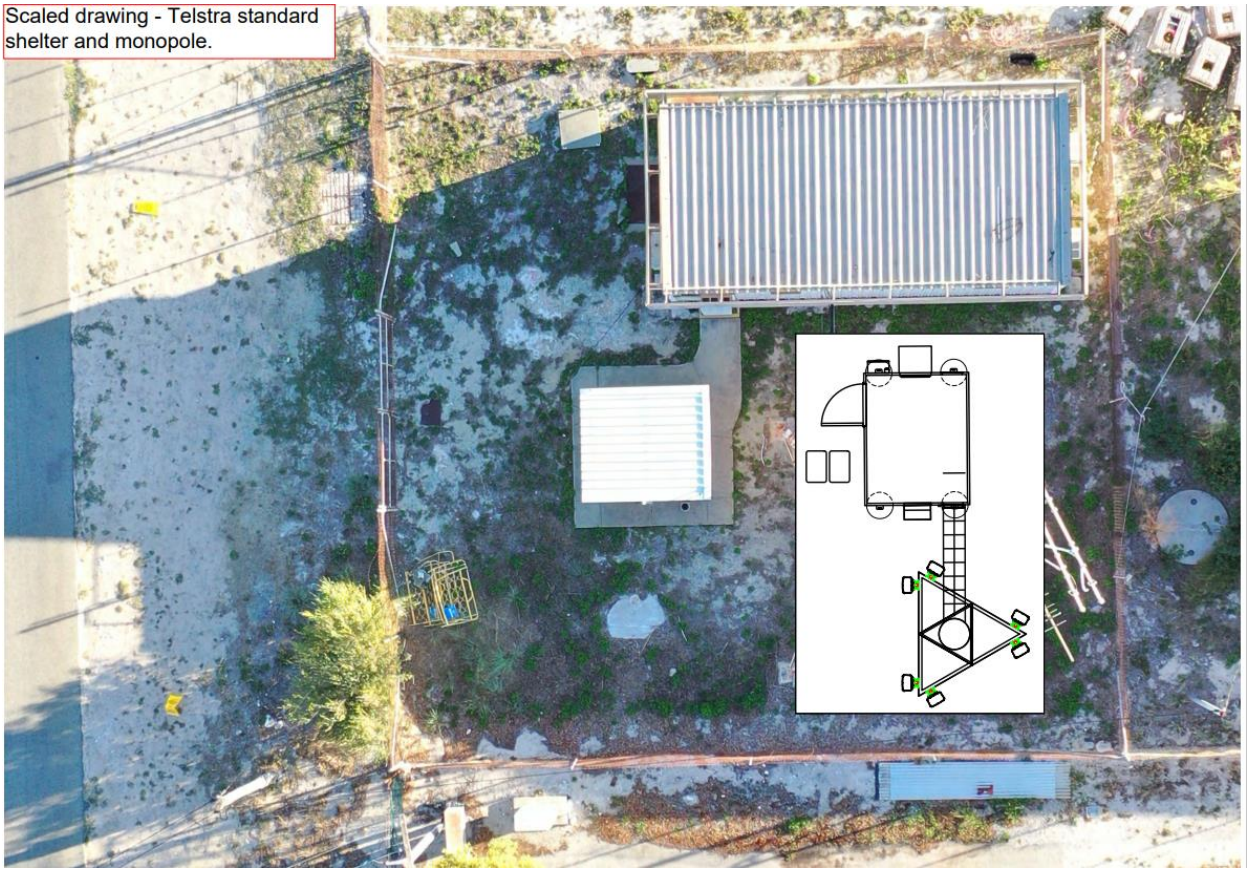


Figure 5: Subject site after Amplitel proposal – 15 King Street, Lancelin *Source: Ventia, 2022*

Figure 6: Subject site for Amplitel proposal – 15 King Street, Lancelin *Source: Google Earth*

Figure to **Figure 10** show the area to be light industrial in nature with residences in the immediate vicinity to the west.

Figure 7 View north of site access gate Source: Ventia 2021

Figure 8 View east of proposed facility Source: Ventia 2021

Figure 9 View south of site access gate Source: Ventia 2021

Figure 3 View west of proposed facility Source: Ventia 2021

9.0 PROPOSAL DETAILS

The proposal is necessary to provide improved 4G and 5G telecommunications services within the Lancelin area. The proposal is part of Telstra's network coverage expansion program but through Amplitel will support additional Carriers to co-locate on the proposed structure.

9.1 Facility and Equipment Overview

The proposed telecommunication installation requires the following works:

- Decommissioning and removal of one (1) existing 26.9m high lattice tower;
- Installation of one (1) temporary 23.5m mast structure during construction phase;
- Installation of one (1) new 40m high monopole;
- Installation of one (1) circular headframe;
- Installation of six (6) new panel antennas (no greater than 2.8m in length);
- Installation of one (1) Telstra Equipment Shelter that is not more than 3m high with a base area of not more than 7.5m² at the base of the aforementioned tower;
- Installation of associated ancillary cabling and equipment; and

The proposed installation will be an unpainted/untreated galvanized grey in colour. This is considered appropriate given the moderate level of visual impact from the proposed facility. While green-coloured facilities can be a better option in some circumstances, the proposed facility will not have a vegetated backdrop to blend into and so a green pole will be more noticeable against the sky. The proposed galvanized grey facility will blend better into a variety of sky backdrop. Galvanised facilities also tend to weather over time, creating a low reflective facility that matches the tin and timber style of rural Australia.

The proposal is demonstrated through the proposal plans, attached in **Appendix A**.

9.2 Access, traffic and parking

The subject site has one (1) access off King Street, one from the west of its boundary. (**Figure 4**).

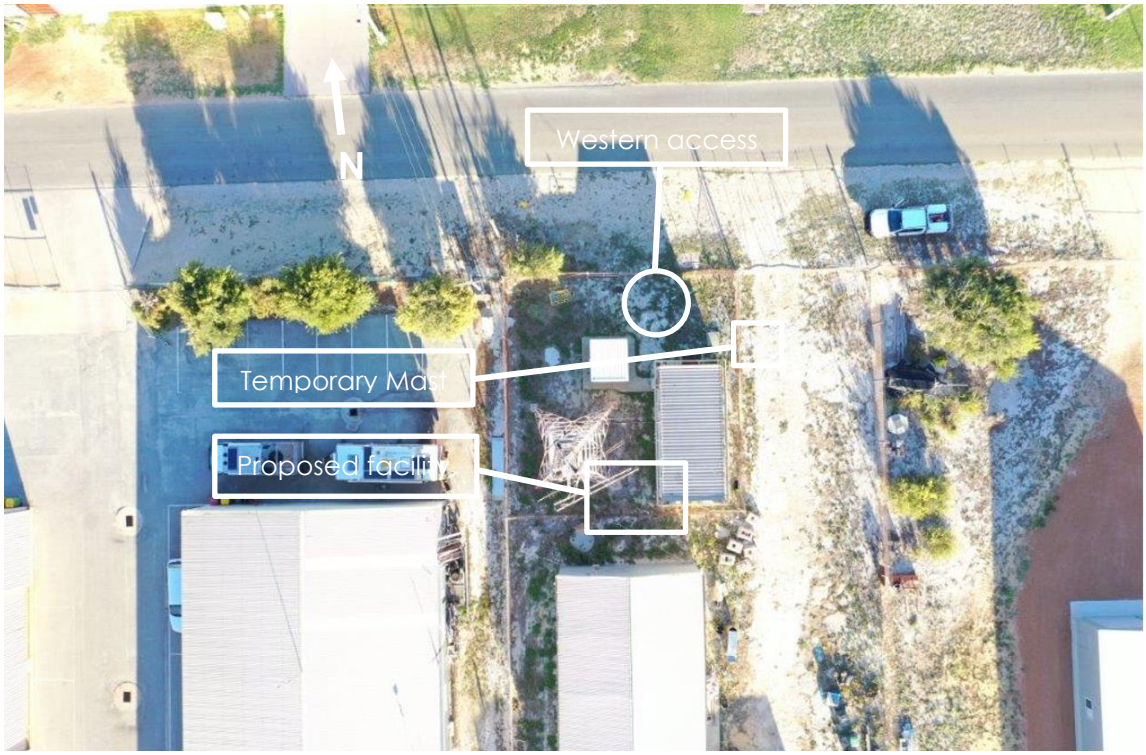


Figure 4 Existing access to subject site *Source: Ventia 2022*

Access to the facility will be via the western access gate, with the nature strip before it being unpaved hardstand earth. (**Figure 4**).

Figure 5 Existing access to subject site *Source: Ventia 2021*

Mobile phone base stations require only infrequent maintenance visits (i.e. only two (2) to four (4) times per year). Furthermore, the site will operate on a continually unmanned basis. As such, the proposal will not be a significant generator of vehicular and/or pedestrian traffic.

The existing access will provide appropriate access to the site for the infrequent maintenance inspections. Furthermore, dedicated parking spaces are not considered necessary for the site given the very low traffic generation of the site and the unmanned nature of the site.

During the construction phase various vehicles will be used to deliver equipment and construct the proposed development. Any traffic impacts associated with construction and establishment will be of a short-term in duration (i.e. approximately five weeks over non-consecutive periods) and will be temporary in nature and will not affect existing traffic flows of the surrounding area.

9.3 Utilities

The proposal will connect to the existing power supply on the subject property.

The unmanned nature of the proposed mobile base station removes the need for connection to water or sewer services.

Furthermore, the proposal incorporates very minimal hard surfaces and therefore will generate insignificant stormwater runoff from the site. As such, the proposal does not require connection to the stormwater network.

9.4 Construction schedule

The construction of the mobile base station will take approximately five to six weeks over non-consecutive periods, subject to weather.

The construction of the proposed mobile phone base station primarily consists of the following processes:

- Site preparation and foundation earthworks – Including site clearing and access track preparation
- Tower foundation installation – Concreting of foundations and installation of underground conduits.
- Tower assembly including head frame and equipment shelter – Crane on site for duration of tower assembly
- Installation of new equipment using an EWP and laying of cabling – reflective of the scope of works outlined within this Development Application; and
- Network Integration – Ensuring that the mobile phone base station can connect with both end users and other sites within the Telstra network.

No road closures will be required for the erection and installation of equipment, as all construction equipment can be set-up on the subject property.

9.5 Acoustic

Noise and vibration emissions associated with the proposed facility would be limited to the construction/demolition phase outlined above. The works are to be concluded in a timely manner with construction occurring over a period of 4 weeks, so that residents in the surrounding area should not be inconvenienced in the long term.

During normal operation the noise emanating from the air- conditioning equipment would be similar to those used in domestic situations and will comply with the background noise levels given in *Australian Standard AS 1055*.

10.0 RELEVANT FEDERAL LEGISLATION

The following information provides a summary of the Federal legislation relevant to telecommunications deployment.

While Amplitel is not a Carrier itself, it is part of the Telstra Group and the proposed facility will serve Telstra initially. As a licensed telecommunications carrier, Telstra must operate under the provisions of the *Telecommunications Act 1997* and the following legislation and industry codes:

- The *Telecommunications Code of Practice 2018*;
- The *Telecommunications (Low-impact Facilities) Determination 2018* (as amended);
- Mobile Phone Base Station Deployment Code; and
- The *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*

10.1 Telecommunications Act 1997

The *Telecommunications Act 1997* (the Act) came into operation on 1 July 1997. The Act provides a system for regulating telecommunications and the activities of carriers and service providers. The aim of the *Telecommunications Act 1997* is to provide a regulatory framework that promotes:

- The long-term interests of end users of carriage services or of services provided by means of carriage services; and
- The efficiency and international competitiveness of the Australian Telecommunications Industry.

Under the *Act*, telecommunications carriers are no longer exempt from State and Territory planning laws except in three limited instances:

1. There are exemptions for the inspection of land, maintenance of facilities, installation of "low impact facilities", subscriber connections and temporary defense facilities. These exemptions are detailed in the Telecommunications (Low-impact Facilities) Determination 2018 and these exemptions are subject to the Telecommunications Code of Practice 2018;
2. A limited case-by-case appeals process exists to cover the installation of facilities in situations of national significance; and
3. There are some specific powers and immunities from the previous Telecommunications Act 1991.

10.2 Telecommunications Code of Practice 2018

The Telecommunications Code of Practice 2018 (The Code) authorizes a carrier to enter land, inspect land and install and maintain a facility. The Code emphasizes "best practice' for the installation of facilities, compliance with industry standards and minimization of adverse impacts, particularly in terms of degradation of the environment and visual impact. The proposal is considered to comply with "best practice" given the proposal will:

- provide improved telecommunications and wireless internet coverage in the Lancelin area;
- be located on a non-residential site within the local area, which maximizes separation to residential and other sensitive uses; and
- Comprises the smallest configuration possible for the site to reduce the visual impact of the proposal, while providing appropriate coverage to the surrounding area.

10.3 Telecommunications (Low-impact Facilities) Determination 2018

The Telecommunications (Low-impact Facilities) Determination 2018 came into effect in March 2018.

The *Determination* contains a list of Telecommunications Facilities that the Commonwealth will continue to regulate. These are facilities that are essential to maintaining telecommunications networks and are unlikely to cause significant community disruption during their installation or operation. These facilities are therefore considered to be 'Low-impact' and do not require planning approval under State or Territory laws.

The proposed facility at Lancelin does not fall under the *Determination* and, therefore, requires approval under State planning legislation.

10.4 Communications Alliance Ltd. Industry Code C564: 2020 – Mobile Phone Base Station Deployment

The Communications Alliance Limited – *Mobile Phone Base Station Deployment C564:2020* (the Deployment Code) is an industry code of practice registered by the Australian Communications and Media Authority. All licensed telecommunications carriers must abide by the Deployment Code provisions.

The code does not change any regulations at a local, State or Federal level, but supplements these regulations applying to telecommunications carriers, including Telstra. The code sets guidelines for site selection, community consultation, design, installation and operation of telecommunication facilities.

The subject proposal, not being designated a 'Low-impact' Facility', is not subject to the notification or consultation requirements associated with the Deployment Code. These processes are handled within the relevant State and Local consent procedures.

Though the Code does not apply to the proposed development, the intent of the *Code* is to ensure Carriers follow a 'precautionary approach' to the siting of infrastructure away from sensitive land uses and this approach has been followed in the selection of this site, as demonstrated in the *Deployment Code* section 4.1 and 4.2 Precautionary Approach Checklists. The checklists will be uploaded to the RFNSA website, reference number 6044002.

Included in these section's Checklist is a statement of how the public's exposure to EME from the site has been minimised. All emissions from the site will be well within the requirements of the relevant Australian Standard. Details of this standard are contained in the following section.

This site has been selected and designed to comply with the requirements of the *Deployment Code* in so much as the precautionary approach has been adhered to and, as a result, the best design solution has been achieved.

10.5 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection Biodiversity Conservation Act 1999* (the EPBC Act) controls matters of national environmental significance. The key objectives of the EPBC Act include:

a. "To provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance; and
b. To promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and
c. To promote the conservation of biodiversity; and
d. To provide for the protection and conservation of heritage…"

Amongst other aspects, the EPBC Act relates to matters of national environmental significance, including world heritage areas, natural heritage places (including declared RAMSAR wetland areas), listed threatened species in communities, listed migratory species, protection of environment on nuclear actions, and environment matters.

The proposal is **not** identified as having a significant impact on any of the above matters of national environmental significance. Therefore, the proposal will not require referral to the Government Minister for the Environment for assessment.

10.6 Native Title Act 1993

The *Native Title Act 1993* (the **Native Title Act**) was given effect on 1 January 1994 and recognises the rights and interests of Aboriginal and Torres Strait Islander people in land and waters according to their traditional laws and customs. The Native Title Act also sets out processes through which development as a Future Act can proceed with regards to the rights and interests of Traditional Owners.

The subject site is identified on a site that is the subject of a single Native Title claim (WCD2021/010) that has been determined, with the determination providing that Native Title exists does not exist over the claim area (**Figure 6**).

Under section 23B of the Native Title Act, native title can be extinguished by previous exclusive possession, where that previous exclusive possession includes a grant or vesting that was granted or created on or before 23 December 1996. The current land title shows the land has been freehold since at least 21 September 2021. Accordingly, Native Title is not considered to be extinguished based on previous exclusive possession under the existing Title.

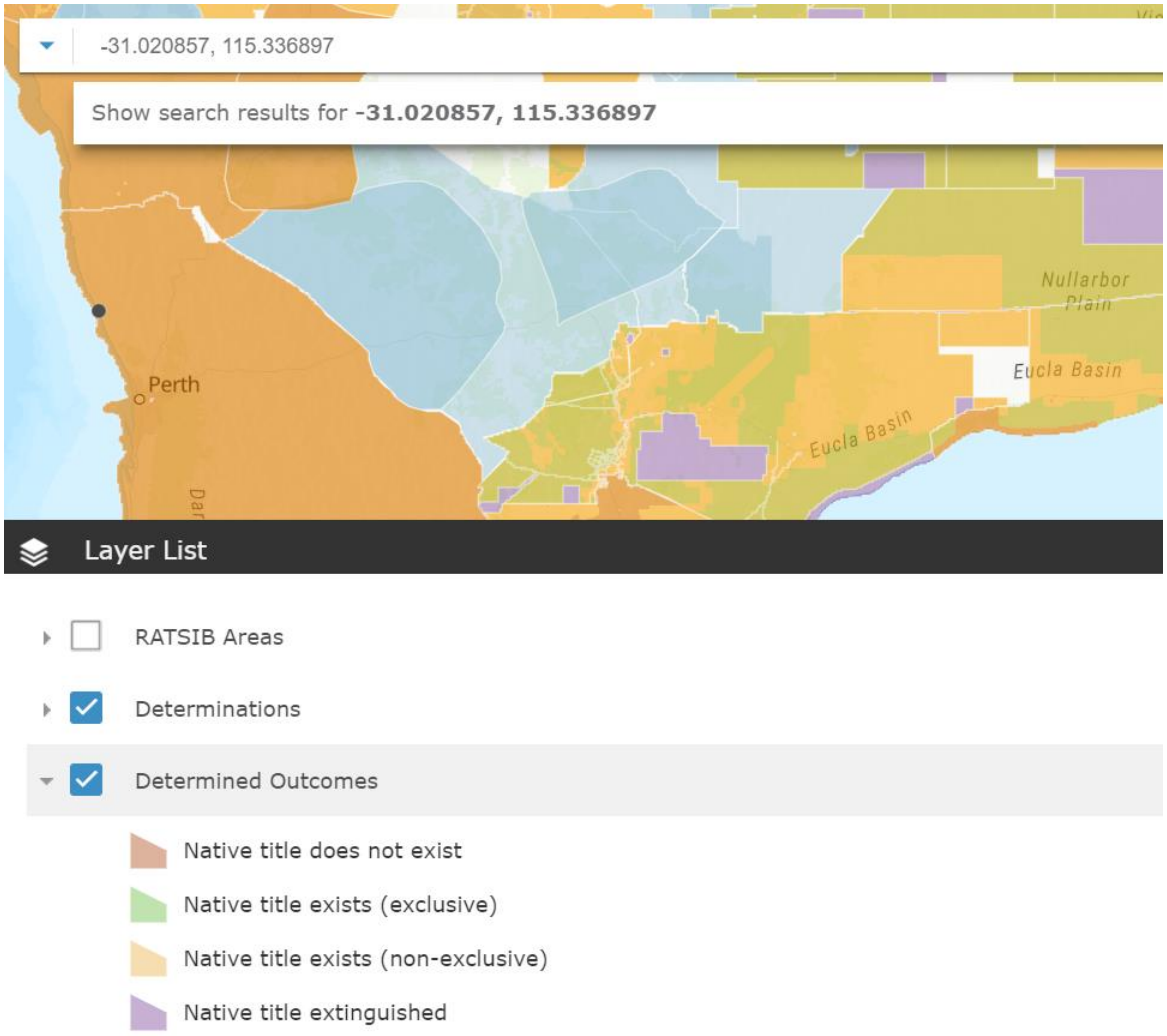


Figure 6: Excerpt of Native Title Tribunal Vision showing relevant Native Title determination in area surrounding subject site *Source: Native Title Tribunal Vision, 2022*

11.0 STATE REGULATORY FRAMEWORK

The following information provides a summary of the State legislation/guidelines relevant to telecommunications development proposals.

11.1 Aboriginal Heritage Act 1972

The Aboriginal Heritage Act 1972 (the **Aboriginal Heritage Act**) is the main piece of legislation within Western Australia with regards to Aboriginal cultural heritage. The Aboriginal Heritage Act sets out the requirements for ensuring that Aboriginal heritage is appropriately identified and protected.

Under the Aboriginal Heritage Act the Western Australian must maintain an Aboriginal Sites Register where specific places of importance and significance to Aboriginal people are recorded and protected by Law.

Section 5 of the Aboriginal Heritage Act defines an Aboriginal site as;

a) Any place of importance or significance where people of Aboriginal descent have, or appear to have, left any object, natural or artificial, used for, or made or adapted for use for, any purpose connected with the traditional cultural life of Aboriginal people, past or present;

b) Any sacred, ritual or ceremonial site, which is of importance and special significance to people of Aboriginal descent;

c) Any place which, in the opinion of the committee, is or was associated with Aboriginal people and which is of historical, anthropological, archaeological or ethnographical interest and should be preserved because of its importance and significance to the cultural heritage of the State; and

d) Any place where objects to which this Act applies are traditionally stored, or to which, under the provisions of the Act, such objects have been taken or removed.

As a result of this definition a breach of Section 17 of the Aboriginal Heritage Act occurs when a person excavates, destroys, damages, conceals or in any way alters any Aboriginal site; or who deals with in a manner not sanctioned by relevant custom, or assumes the possession, custody or control of, any object on or under an Aboriginal site, commits an offence unless he is acting with the authorization of the Registrar under Section 16 or the consent of the Minister under Section 18.

Regulation 10 Consent can be granted by authorization by the Registrar or Minister under the AHA, usually granted for non-deleterious, site-preservation land uses (rehabilitation) or in emergencies. Aboriginal sites broadly fall into two categories, archaeological and anthropological or ethnographic sites. Archaeological sites are generally where material evidence of Aboriginal people's traditional cultural life is found. Sites of this type consist of artefact scatters, stone structures, marked trees, fish traps, middens, cave or rock paintings/engravings, arranged stones and burial sites. Most archaeological sites are prehistoric, but some are also more contemporary in nature and are where Aboriginal cultural material objects from the post settlement period are found.

Ventia has conducted an assessment of the area against the Aboriginal Heritage Due Diligence guidelines (the **Guidelines)**, as published originally by the Department of Aboriginal Affairs & Department of the Premier and Cabinet. This assessment considered that the Aboriginal Heritage Inquiry System did not show any aboriginal heritage matters in the area, the previous disturbance of the land, the current use of the land, the proximity of potential risk factors including freshwater, elevated lookouts, exposed stone or rock and other relevant factors.

The assessment considered the area where works (including ground disturbance) are proposed (the **works area**) is a 253^2 (15.7m x 16.1m), area of land located at 15 King Street Lancelin. Given the characteristics of the immediate area it is likely that ground disturbance of the works area has occurred in the past.

This assessment has determined the area is not of high or medium risk for aboriginal heritage and so the works may proceed without further approval.

11.2 Planning and Development Act 2005

The Minister of Planning and Infrastructure has ultimate authority for town planning in Western Australia. Development within Western Australia is controlled by the *Planning and Development Act 2005* through the application of environmental planning instruments. Under the *Planning and Development Act 2005*, the Western Australian Planning Commission (**WAPC**) is the responsible

authority for land use planning and development matters and this report seeks to demonstrate compliance with the WAPC and other items of relevant legislation which pertain to the subject application.

11.3 State Planning Policy No. 5.2 – Telecommunications Infrastructure (WAPC)

State Planning Policy 5.2: Telecommunications Infrastructure Policy aims to aims to balance the need for effective telecommunications services and effective roll-out of networks, with the community interest in protecting the visual character of local areas. The SPP applies for above and below telecommunications infrastructure, other than those exempted under the Commonwealth Telecommunications Act 1997.

Under section 5.1.1 of the State Planning Policy 5.2: Telecommunications Infrastructure Policy the West Australian Planning Commission provides a set of measures in assessing the visual impact of a proposed telecommunications facility.

An assessment of these guidelines below has found that the proposed Telstra Mobile Phone Base Station is compliant with the intent and requirements of the State Planning Policy 5.2: Telecommunication Infrastructure Policy.

Table 4: Assessment against State Planning Policy 5.2, Policy Measure 5.1.1

Measures	Comments	Complies
Be located where it will not be prominently visible from significant viewing locations such as scenic routes, lookouts and recreation sites;	The proposed 40m monopole has been sited to maintain the primary use of the land whilst considering the impact to the surrounding locality. The site carefully considered environmental and visual constraints, existing and future land use characteristics, the orderly planning of the area and the design of the facility. On balance, it is considered that the location and height of the facility ensure optimal service provision to the area whilst minimising any perceived impacts. Furthermore, the proposed 40m facility will have the height to allow numerous other Carriers to co-locate in the future which helps to reduce the need for more structures to be built in the area which in turn helps to reduce impacts upon the amenity of the area.	✓
Be located to avoid detracting from a significant view of a heritage item or place, a landmark, a streetscape, vista or a panorama, whether viewed from public or private land;	Amplitel has selected a site and location that seeks to minimise perceived negative impacts on the visual amenity of the area. In doing that, it has settled on Lancelin exchange as the prime candidate site, which in its present form is already visually associated with being a telecommunications site. As a result, impact to the streetscape has been minimised.	✓
Not be located on sites where environmental, cultural heritage, social and visual landscape values may be compromised;	There are no known items of environmental, cultural or social significance located on the proposed site. Any visual impact has been mitigated through a variety of design elements.	✓

Display design features, including scale, materials, external colours and finishes that are sympathetic to the surrounding landscape;	The proposed 40m concrete monopole will remain unpainted (dull grey in colour) which blends in with the sky. This structure will be slimmer than the existing 26.9m lattice tower it will replace. It will also use a circular headframe for the new antennas as opposed to a more robust triangular one in order to minimise visual impact within the vicinity. Both the new 40m concrete monopole and equipment shelter will be partially concealed by existing built features within the subject site, including the toilet block and exchange building, which will provide a buffer against views from the nearest residences.	✓
Be located where it will facilitate continuous network coverage and/or improved telecommunications services to the community;	The proposed location at 15 King Street in Lancelin has existing telecommunications facilities and will provide improved and continuous coverage to the locality, also providing other Carriers with the opportunity to co-locate their infrastructure in the future.	✓
Telecommunications infrastructure should be co-located and whenever possible: Cables and lines should be located within an existing underground conduit or duct; and Overhead lines and towers should be co-located with existing infrastructure and/or within an existing infrastructure corridor and/or mounted on existing or proposed buildings.	As per Section 7 of this report, no suitable opportunities for co-location were identified in the area and it has been identified that the proposed Telstra site location is seen as the preferred site location. Colocation was investigated; however, the locations are too far from the subject area to meet the coverage objectives of the project or lack the structural capacity to support a new headframe, panel antennas and other facilities. Therefore, it has been identified that the Lancelin Exchange is seen as the preferred site location. As mentioned previously, the proposed Telstra monopole will also provide other Carriers with the opportunity to co-locate their infrastructure in the future. Overhead lines are not applicable to this application.	✓

Overall the proposed development application is consistent with the intent and requirements of the SPP 5.2.

11.4 Statement of Planning Policy No. 5.2 – Telecommunications Infrastructures (WAPC)

With the gazettal of State Planning Policy 5.2, the WAPC *Statement of Planning Policy No. 5.2 – Telecommunications Infrastructure* (Statement 5.2) has been repealed. However, it is recognised that the Statement 5.2 provides a more holistic set of criteria than SPP 5.2 which largely focuses on visual impacts. Given this, an assessment of the guiding principles of Statement 5.2 is provided in **Table 5**.

Table 5 Assessment against Statement 5.2 Guiding Principles

Principles	Comments	Complies
There should be a co-ordinated approach to the planning and development of telecommunications infrastructure, although changes in the location and demand for services require a flexible approach.	Telstra undertakes a carefully co-ordinated and planned approach to the development of their network.	✓
Telecommunications infrastructure should be strategically planned and co-ordinated, similar to planning for other essential infrastructure such as networks and energy supply.	The proposed facility is strategically planned and co-ordinated to ensure that the facility will provide high level coverage to the Lancelin area. The proposed facility will allow for future co-location by other telecommunication providers, ensuring no other similar scale facilities are required in the future to provide essential telecommunication services.	✓
Telecommunications facilities should be located and designed to meet the communication needs of the community.	The proposed facility is strategically planned and co-ordinated to ensure that the facility will provide high level coverage to the Lancelin area.	✓
Telecommunications facilities should be designed and sited to minimise any potential adverse visual impact on the character and amenity of the local environment, in particular, impacts on prominent landscape features, general views in the locality and individual significant views.	The proposed 40m monopole has been sited to maintain the primary use of the land whilst considering the impact to the surrounding locality. The site carefully considered environmental and visual constraints, existing and future land use characteristics, the orderly planning of the area and the design of the facility. On balance, it is considered that the location and height of the facility ensure optimal service provision to the area whilst minimising any perceived impacts. Furthermore, the proposed 40m facility will have the height to allow numerous other Carriers to co-locate in the future which helps to reduce the need for more structures to be built in the area which in turn helps to reduce impacts upon the amenity of the area.	✓
Telecommunications facilities should be designed and sited to minimise impacts on areas of natural conservation value and places of heritage significance or where declared rare flora are located.	The proposed telecommunications facility will not require the removal of any trees and is not located within an identified built heritage or cultural heritage area. As a result, the proposed facility will not have any impact on areas of natural conservation values, places of heritage significance or rare fora.	✓

Telecommunications facilities should be designed and sited with specific consideration of water catchment protection requirements and the need to minimise land degradation.	Prior to the commencement of work Telstra will undertake such measures as deemed necessary by Council to effectively protect water catchments within the immediate area, though none are identified in available planning documents.	✓
Telecommunications facilities should be designed and sited to minimise adverse impacts on the visual character and amenity of residential area.	The proposed 40m concrete monopole will remain unpainted (dull grey in colour) which blends in with the sky. This structure will be slimmer than the existing 26.9m lattice tower it will replace. It will also use a circular headframe for the new antennas as opposed to a more robust triangular one in order to minimise visual impact within the vicinity. Both the new 40m concrete monopole and equipment shelter will be partially concealed by existing built features within the subject site, including the toilet block and exchange building, which will provide a buffer against views from the nearest residences. Based on the above measures and the site being an existing exchange with telecommunication facilities, no other site close to residences could allow for an acceptable impact with a new tower and equipment shelter proposal.	✓
Telecommunications cables should be placed underground, unless it is impractical to do so and there would be no significant effect on visual amenity or, in the case of regional areas, it can be demonstrated that there are long-term benefits to the community that outweigh the visual impact.	Overhead cabling is not proposed for this site.	N/A
Telecommunications cables that are installed overhead with other infrastructure such as electricity cables should be removed and placed underground when it can be demonstrated and agreed by the carrier that it is technically feasible and practical to do so.	This principle does not apply to the subject of this application.	N/A
Unless it is impractical to do so telecommunications towers should be located within commercial, business, industrial and rural areas and	The proposed site is zoned 'Mixed Business' as identified by the *Shire of Gingin Local Planning Scheme No. 9*. Despite the contrast between the residential nature of premises west of King street and the light industrial	✓

areas outside identified conservation areas.	nature of premises east of King Street, the subject proposal being within 50m across from the nearest residence is believed to be acceptable since the existing site functions as a telecommunications exchange and has housed an existing tower structure for a great length of time.	
The design and siting of telecommunications towers and ancillary facilities should be integrated with existing buildings and structures, unless it is impractical to do so, in which case they should be sited and designed so as to minimise any adverse impact on the amenity of the surrounding area.	As per Section 7 of this report, no suitable opportunities for co-location were identified in the area and it has been identified that the proposed Telstra site location is seen as the preferred site location. Colocation was investigated; however, the locations are too far from the subject area to meet the coverage objectives of the project and the existing 26.9m lattice tower proposed to be decommissioned and removed lacks the structural integrity to host new facilities, let alone other future carrier co-located facilities.	✓
Co-location of telecommunications facilities should generally be sought, unless such an arrangement would detract from local amenities or where operation of the facilities would be significantly compromised as a result.	As per Section 7 of this report, no suitable opportunities for co-location were identified in the area and it has been identified that the proposed Telstra site location is seen as the preferred site location. Colocation was investigated; however, the locations are too far from the subject area to meet the coverage objectives of the project and the existing 26.9m lattice tower proposed to be decommissioned and removed lacks the structural integrity to host new facilities, let alone other future carrier co-located facilities.	✓
Measures such as surface mounting, concealment, colour co-ordination, camouflage and landscaping to screen at least the base of towers and ancillary structures, and to draw attention away from the tower, should be used, where appropriate, to minimise the visual impact of telecommunications facilities.	Telstra has selected a site and location that seeks to minimise any perceived negative impacts on the visual amenity of the area. The proposed 40m concrete monopole will remain unpainted (dull grey in colour) which blends in with the sky. This structure will be slimmer than the existing 26.9m lattice tower it will replace. It will also use a circular headframe for the new antennas as opposed to a more robust triangular one in order to minimise visual impact within the vicinity. Both the new 40m concrete monopole and equipment shelter will be partially concealed by existing built features within the subject site, including the toilet block, sites fencing and exchange building, which will provide a buffer against some views from the nearest residences. Trees line along the fences of King Street west of the 'mixed business' zoned premises boundary will also have a small concealing affect on views towards the monopole looking on from the north and south.	✓

	Landscaping is something that has occurred only sporadically within the surrounding area but is not precluded by the proposed development.	
Design and operation of a telecommunications facility should accord with the licensing requirements of the Australian Communications Authority, with physical isolation and control of public access to emission hazard zones and use of minimum power levels consistent with quality services.	Telecommunications facilities include radio transmitters that radiate electromagnetic energy (EME) into the surrounding area. The levels of these electromagnetic fields must comply with safety limits imposed by the Australian Communications and Media Authority (ACMA, previously ACA). All Telstra installations are designed to operate within these limits.	✓
Construction of a telecommunications facility (including access to a facility) should be undertaken so as to minimise adverse effects on the natural environment and the amenity of users or occupiers of adjacent property and to ensure compliance with relevant health and safety standards.	During construction Telstra contractors will endeavour to minimise the impact of their works on the amenity of nearby residents and on the surrounding environment. As the proposed site is located in a mixed business area, adverse effects on nearby properties will be minimal. For the duration of construction works with the decommissioning and removal of the 26.9m lattice tower and installation of a new 40 m monopole tower, a temporary 23.5m mast tower will be erected to host temporarily the relocated yagi antennas from the lattice tower, in order not to disrupt services to the community. Following construction, maintenance (excluding emergency repair work) activities should not interfere with the amenity of users. All Health and Safety standards will be adhered to.	✓

Overall, the proposed development application is consistent with the intent and requirements of the Statement 5.2

12.0 LOCAL REGULATORY FRAMEWORK

The following information provides a summary of the local provisions relevant to telecommunications development proposal.

12.1 Shire of Gingin Local Planning Scheme No. 9

The *Shire of Gingin Local Planning Scheme No. 9* provides the basis for planning in the Shire of Gingin local government area.

The proposed site is within the Mixed Business Area (**Figure 7)** further outlined in **section 8.5** of this report.

For the purposes of this proposal the Principal Designated Use of the property is 'Mixed Business'.

As telecommunications infrastructure is listed as an activity in the Shire of Gingin's Local Planning Scheme text, an activity involving 'telecommunications infrastructure' is identified as "D" within a mixed business zone, where the use is not permitted unless the local government has exercised its discretion by granting development approval. 'Telecommunications infrastructure' as defined by the scheme relates with the structure and facilities proposed. Nonetheless, the proposal complies with the objectives and general requirements of the Mixed Business Zone, supporting existing and future mixed business uses with high-quality coverage.

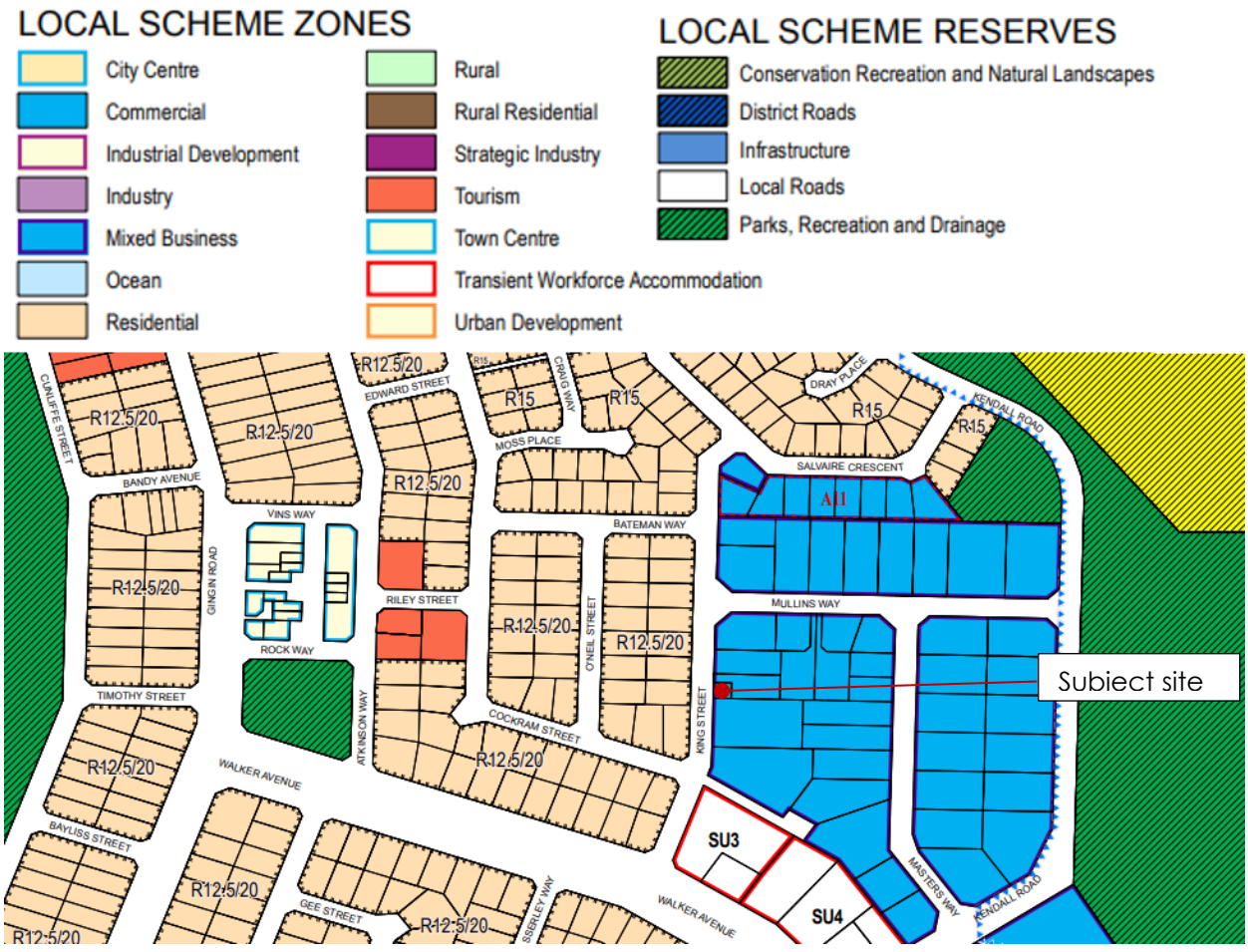


Figure 7: Zoning Map No.09 Lancelin Townsite South *Source: Shire of Gingin Local Planning Scheme No. 9)*

12.2 Mixed Business Zone Objectives

Development within the Mixed Business Zone is required to demonstrate compliance with the objectives and site requirements of the zone within the local planning scheme.

As such, this proposal can therefore be assessed against the Mixed Business Zone objectives set out in section 3.2.3 of the *Shire of Gingin Local Planning Scheme No. 9* in **Table 6** below.

Objectives	Comments	Complies
Accommodate commercial activities which, because of the nature of the business, require good vehicular access and/or large sites.	Enhanced telecommunications coverage will help facilitate commercial activities in the surrounding area. Following construction, the site will not impede pedestrian and vehicular access in the area.	✓
Provide for a wide range of light and service industries, wholesale sales, showrooms, trade and services which, by reason of their scale, character, operational or land requirements, are not generally appropriate in, or cannot conveniently or economically be accommodated in, the central area, shops and offices or industrial zones.	The development of this site will not impede any future development relating to light and service industries in the area within the surrounding mixed business zone. Improved reception in the Lancelin area for SMS/calls and mobile data download speeds will also foster their growth and operation away from the town centre area also.	✓
Allow for commercial and light industrial uses that are compatible with nearby uses.	The existing site is the Lancelin exchange and hosts a lattice tower, therefore the proposal is considered to be compatible with the sites existing function and visual association in the vicinity.	✓
Provide for the efficient and safe movement and parking of vehicles.	The proposal will not be a significant generator of vehicular and pedestrian traffic, as it will operate on an unmanned basis and require maintenance visits just 2-4 times annually. As such, dedicated parking spaces are not considered necessary. A traffic management plan will be implemented over the short-term duration of the construction phase.	✓
Encourage new development that will enable future adaptation and re-use, and will enhance the visual amenity of the area.	The proposed tower and equipment shelter will enable Telstra and other carriers to co-locate their facilities in future reducing the need to erect more visible structures within Lancelin.	✓
Ensure that where any development adjoins zoned or developed residential properties,	Despite the contrast between the residential nature of premises west of King street and the light industrial nature of premises east of King Street, the subject proposal being within 50m across from the nearest residence is believed to be acceptable since the existing	✓

such development is suitably set back, screened or otherwise treated so as not to detract from the residential amenity.	site functions as a telecommunications exchange and has housed an existing tower structure for a great length of time. In order to mitigate the visual impact towards the nearest residences, the following measures have been applied. The proposed 40m concrete monopole will remain unpainted (dull grey in colour) which blends in with the sky. This structure will be slimmer than the existing 26.9m lattice tower it will replace. It will also use a circular headframe for the new antennas as opposed to a more robust triangular one in order to minimise visual impact within the vicinity. Both the new 40m concrete monopole and equipment shelter will be positioned so that they are partially concealed by existing built features within the subject site, including the toilet block, sites fencing and exchange building, which will provide a buffer against some views from the nearest residences.	

Overall, the proposed development application is consistent with the intent and requirements of the *Western Australian Planning Commission SPP 5.2* and the *Shire of Gingin Local Planning Scheme No. 9*.

13.0 GENERAL PROVISIONS

This proposal is for a new Telstra Mobile Base Station Facility in the Lancelin area.

Amplitel considers that the proposal is appropriate for the locality given the light industrial and mixed business nature of the proposed site and the nature of existing and anticipated uses of the surrounding land.

Environmental considerations such as visual impact, heritage, flora and fauna, traffic, flooding, bushfire, social and economic aspects, health and safety have been discussed within the below sub sections.

13.1 Visual Impacts

The King Street site has been identified as being on the edge of a 'Mixed Business' zone, abutting a Residential zone on the Western side of King Street. The subject lot however in its present state comprises a 26.9m lattice tower, an exchange building and a toilet block in terms of its above ground features. As a result, Amplitel consider the existing telecommunications site as already relatively disturbed land, harbouring some level of visual impact to the community. It is therefore Amplitels intention that this site can be re-used for telecommunication facilities without unacceptably further impacting the nearest residences and community.

As there is the onus on Amplitel to ensure that their structures can adequately support the future co-location of facilities by other carriers and enable them to provide a sufficient level of

coverage, Amplitel cannot replace the existing 26.9m lattice tower with a like-for-like structure standing at the same height. Given that the proposed 40m concrete monopole tower will be approximately 13m taller in height than the decommissioned and removed 26.9m lattice tower, the towers comparatively slimmer build and incorporation of a narrower circular headframe, as opposed to a robust triangular headframe, are seen to be elements compensating for the sites increased tower height.

In order to retain the telecommunications site as being sympathetic to its surrounds with as little disturbance possible, there are other design measures which have been applied. As an example, the proposed ICS equipment shelter will not be more than 3m high or have a base area exceeding 7.5m². It will be coloured surf mist and positioned between the lots eastern fence, the existing toilet block and exchange building. As a result, the new equipment shelters roof will not protrude significantly above the two existing buildings and blend in with them as they conceal a large proportion of it. The proposed 40m concrete monopole will also remain unpainted (dull grey in colour) so that it blends in with the sky and will be positioned approximately where the existing 26.9m lattice tower is, allowing the existing toilet block and building exchange to continue partially concealing the towers lower facade from views looking on from King Street and the nearest residences.

As Lancelin has a relatively flat terrain and sparse distribution of shrubbery, with predominantly low rise and low density premises, the replacement of the 26.9m lattice tower with the 40m concrete monopole is not anticipated to disturb any new residences or community sensitive places of interest in the area, other than residences already presently disturbed. **Figure 15** and **Figure 16** illustrates the present 26.9m lattice towers visibility from the two nearest intersections. The proposed 40m concrete monopole is believed to blend in greater with electricity powerpoles when looking from a distance when compared with the existing 26.9m lattice tower. It's overall design is also considered to be more modern, symmetrical and aesthetic than the existing lattice tower which was last reported to show significant corrosion across its components.

On the whole, Amplitel accepts there is a moderate visual impact to the nearby community, though considers it to be at an acceptable level in light of the above assessment and the alternative of developing a new greenfield tower elsewhere at a site which has not previously disturbed the community.

Figure 8: View northwards from the King Street and Cockram Street intersection *Source: Google Earth*

Figure 9: View southwards from the King Street and Mullins Way intersection *Source: Google Earth*

13.2 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.

No Aboriginal or other heritage sites of significance have been identified within the subject land holding or within close proximity (see **section12.1**).

13.3 Flora and Fauna

In order to determine any possible natural Flora and Fauna significance associated with the site, a search was conducted during a visit to the subject site and an online search conducted through the relevant environmental registers.

The subject site is a previously developed telecommunications site. The only flora on the subject site are native grasses and some low shrubbery, neither of which are considered valuable or protected. Further, there is no apparent fauna on the site given the lack of habitat for animals beyond rats or mice.

The Protected Matters Search Tool from the Department of the Environment and Energy which shows matters of national environmental significance or other matters protected by the *Environment Protection and Biodiversity Conservation Act 1999*. A search using this tool found that no significant environmental matter was identified on the subject site. Please see **Appendix C** for more detail.

13.4 Bushfire

The specific site location is not identified as being within a Bush Fire Prone Area by the Fire and Emergency Services Commissioner (**Figure**).

The subject site is on a flat terrain, predominately cleared and not adjoining large, vegetated areas which could cause high bushfire risk. Additionally, the proposed facility will operate on an unmanned basis acquiring only 2-4 maintenance visits per year. As a result, the proposed works do not increase the extent of bushfire risk currently affecting the land.

Figure 17: Bushfire Prone Areas Mapping *Source: https://maps.slip.wa.gov.au/landgate/bushfireprone/?center=13022786.8429561,-3828291.59547117,102100&scale=10000*

13.5 Health and Safety

Telstra acknowledges some people are genuinely concerned about the possible health effects of electromagnetic energy (EME) from mobile phone base stations and is committed to addressing these concerns responsibly.

Telstra, along with the other mobile phone carriers, must strictly adhere to Commonwealth Legislation and regulations regarding mobile phone facilities and equipment administered by the Australian Communications and Media Authority (ACMA).

In 2003 the ACMA adopted a technical standard for continuous exposure of the general public to RF EME from mobile base stations. The standard, known as the *Radiocommunications (Electromagnetic Radiation – Human Exposure) Standard 2003*, was prepared by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) and is the same as that recommended by ICNIRP (International Commission for Non- Ionising Radiation Protection), an agency associated with the World Health Organisation (WHO). Mobile carriers must comply with the Australian Standard on exposure to EME set by the ACMA.

The Standard operates by placing a limit on the strength of the signal (or RF EME) that any Carrier can transmit to and from any network base station. The general public health standard is not based on distance limitations or the creation of "buffer zones". The environmental standard restricts the signal strength to a level low enough to protect everyone at all times. It has a significant safety margin, or precautionary approach, built into it.

In order to demonstrate compliance with the standard, the ARPANSA created a prediction report using a standard methodology to analyse the maximum potential impact of any new telecommunications facility. Carriers are obliged to undertake this analysis for each new facility and make it publicly available.

Importantly, the ARPANSA-created compliance report demonstrates the maximum signal strength of a proposed facility, assuming that it is handling the maximum number of users 24-hours a day.

In this way, the ARPANSA requires network carriers to demonstrate the greatest possible impact that a new telecommunications facility could have on the environment to give the community greater peace of mind. In reality base stations are designed to operate at the lowest possible power level to accommodate only the number of customers using the facility at any one time. This design function is called "adaptive power control" and ensures that the base station operates at minimum, not maximum, power levels at all times.

Using the ARPANSA standard methodology, Telstra is required to complete and make available an EME report which predicts the maximum environmental EME level the facility will emit. Telstra has completed this EME report and it shows that the maximum level of EME emitted by the proposed facility is 0.50% (1/200) (**Appendix D**). To better understand the information within this EME report, an ARPANSA published *A Guide to the Environmental EME Report* (**Appendix E**).

Amplitel and Telstra rely on the expert advice of national and international health authorities such as the ARPANSA and the WHO for overall assessments of health and safety impacts.

The WHO advises that all expert reviews on the health effects of exposure to radiofrequency fields have concluded that no adverse health effects have been established from exposure to

radiofrequency fields at levels below the international safety guidelines that have been adopted in Australia.

Telstra has strict procedures in place to ensure its mobile phones and base stations comply with these guidelines. Compliance with all applicable EME standards is part of Telstra's responsible approach to EME and mobile phone technology.

13.6 Social and Economic Impact

Reliable mobile phone coverage is important to ensure the economic growth of communities. It is not expected to have any adverse social or economic impacts as a result of the development. Indeed, it is anticipated that there would be positive impacts because of the mobile telephone coverage, and the proposed facility could also be utilised in the event of an emergency with reference to mobile phone and internet use.

The proposed development is essential to enable Carriers to remain competitive and increase the choice of mobile telephone services to consumers. Additional competition in the market will have economic benefits for individual consumers and the community as a whole. The development is consistent, with the objectives of the *Telecommunications Act 1997*, namely:

- To promote "the efficiency and international competitiveness of the Australian telecommunications industry" (s.3 (1)); and
- To ensure that telecommunications services "*are supplied as efficiently and economically as practicable*" (s.3 (2) (a) (ii).

14.0 CONCLUSION

This application is a direct result of the community's requests for reliable telecommunications to be provided to the Lancelin area. There is strong State policy support for telecommunications facilities if, when balancing improved telecommunications services with environmental impacts; including for example, visual impact and flood or fire hazard, a particular proposal provides a net community benefit.

The proposed works provide the community with reliable 4G and 5G access, which in turn supports a variety of commercial, residential and industrial uses within the Lancelin area. It is further noted that the proposed telecommunications facility forms part of a wider plan to ensure reliable as well as accessible coverage during times of emergency and natural disaster events.

Ventia on behalf of Telstra and Amplitel has undertaken an assessment of the relevant matters as required by the *Telecommunications Act 1997*, State Legislation and the *Shire of Gingin Local Planning Scheme No.* 9. The proposal is considered appropriate in light of the relevant legislative, environmental, technical, radio coverage and public safety requirements.

The proposed development is considered appropriate for the subject site for the following reasons:

- The proposed works will provide reliable mobile phone service to Lancelin. The improved coverage is increasing access to new technologies for key regional sectors and communities, which rely on a fast, reliable and affordable mobile network.
- The proposal is for a re-use of an existing site which already houses a telecommunications facility, therefore no new immediate streetscapes or residences will be impacted which aren't already.

- The proposal does not require the addition of a new structure in Lancelin, with the replacement of an inadequate tower allowing for future facilities by other carriers to co-locate onto the structurally sound new structure.
- The proposal achieves reasonable separation from schools, childcare centres and areas of environmental and heritage significance as featured and defined in the Industry Code and *Telecommunications (Low-impact Facilities) Determination 2018*.
- The proposal will mitigate visual impacts through various design measures employed, relating to the material and colours used, along with the size and positioning of facilities without compromising the proposals structure and coverage objectives.
- The proposal is consistent with the relevant provisions of the *Shire of Gingin Local Planning Scheme No. 9* or presents only minor conflicts with them.
- The proposal will improve Telstra 4G and 5G communications services to the area, including voice calls, video calling and Wireless Broadband, and allow or other Carriers to provide similar services.
- The proposal does not require any vegetation clearing.
- The proposal will not affect the existing residential and mixed business uses or their potential to develop or redevelop.
- Emissions from the proposed facility will be significantly below the Australian Radiation Protection and Nuclear Safety Agency standards adopted by the Australian Communications and Media Authority.

The assessment of the proposal demonstrates that the proposal represents sound and proper town planning and it is respectively requested that consent is granted for this development application.

Should Council have any further queries regarding the subject application, please do not hesitate to contact the nominated representative outlined within this document.

APPENDIX A – PLANS OF THE PROPOSAL

TN

EXISTING FANCE
EXISTING TREES
PROPOSED TELSTRA FIBRE ROUTE (INDICATIVE ONLY)
EXISTING PIT/MH
PROPOSED AMPLITEL U/G POWER ROUTE. (INDICATIVE ONLY)
PROPOSED AMPLITEL SITE. REFER TO SHEET S1-1 FOR SITE LAYOUT DETAILS.
EXISTING POWER POLES
EXISTING O/H POWER LINE
EXISTING BUILDINGS
EXISTING CAR PARKING AREA
KING ST
KING ST

LOCALITY PLAN
NOT TO SCALE

SERVICES LEGEND

—T———T———T———	OPTICAL FIBRE ABOVE GROUND
—T– – – –T– – – –T– – – –	OPTICAL FIBRE BELOW GROUND
——— E ——— E ———	ABOVE GROUND ELECTRICAL SUPPLY
— — — E — — — E —	BELOW GROUND ELECTRICAL SUPPLY
——— FE ——— FE ———	ABOVE GROUND FEEDER CABLES
— — — FE — — — FE —	BELOW GROUND FEEDER CABLES
— — — W — — — W —	WATER SUPPLY BELOW GROUND

SITE ACCESS
SCALE 1:500

5m 0 5m 10m 15m 20m 25m SCALE 1:500

1 PRELIMINARY

TO BE READ IN CONJUNCTION WITH SHEETS S1-1, S1-2, S3 & S3-1.

PROPERTY DESCRIPTION
LOT 451 DP 173799
VOL 341 FOLIO 64A
SHIRE OF GINGIN

SITE STRUCTURE CO-ORDINATES (GDA94) GPS READING ACCURACY: ± 10m CENTRE OF POLE	
LATITUDE	-31.02085° (GDA94)
LONGITUDE	115.33690° (GDA94)

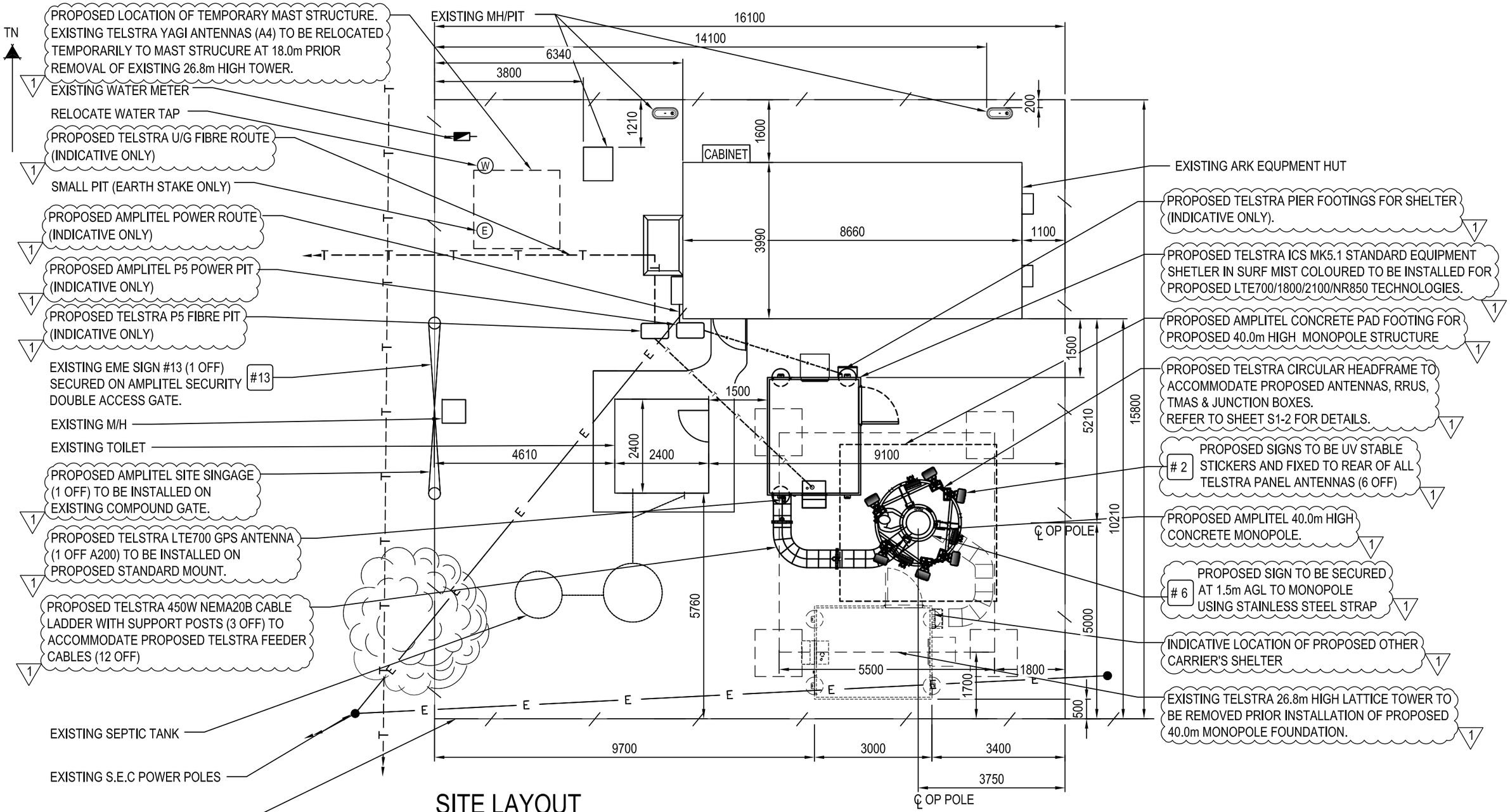
ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
WA09732.01	SI	AH	PRELIMINARY - 30095329WO021VENTIA - LTE700/1800/2100/INR850	JH	RW	04.08.22	1

AMPLITEL
Part of the Telstra Group

TOWER AMS SITE WA001981
LANCELIN EXCHANGE
SITE ACCESS AND LOCALITY PLAN
NEAR 15 KING ST, LANCELIN, WA 6044

DWG NO. W101482 SHT NO. S1

Cad file: W101482_PD.dwg A3



SITE LAYOUT

SCALE 1:100

1m 0 1m 2m 3m 4m 5m SCALE 1:100

NOTES :

1. ALL FEEDER ACCESS POINTS ON THE STRUCTURE MUST BE BIRD PROOFED AS PER EXTERNAL PLANT POLICY 003615.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.
3. THIS DRAWING SET IS A PRELIMINARY DRAWING ONLY AND IS ISSUED FOR COMMENT, IT IS NOT A DETAILED SURVEY/ STRUCTURAL DRAWING AND THEREFORE COULD BE SUBJECT TO CHANGE.
4. FOR EME SIGNS NOTED THUS #X REFER TO 005486 FOR DETAILS.

1 PRELIMINARY

TO BE READ IN CONJUNCTION WITH SHEETS S1, S1-2, S3 & S3-1.

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
WA09732.01	SI	AH	PRELIMINARY - 30095329WO021VENTIA - LTE700/1800/2100/NR850	JH	RW	04.08.22	1

AMPLITEL Part of the Telstra Group

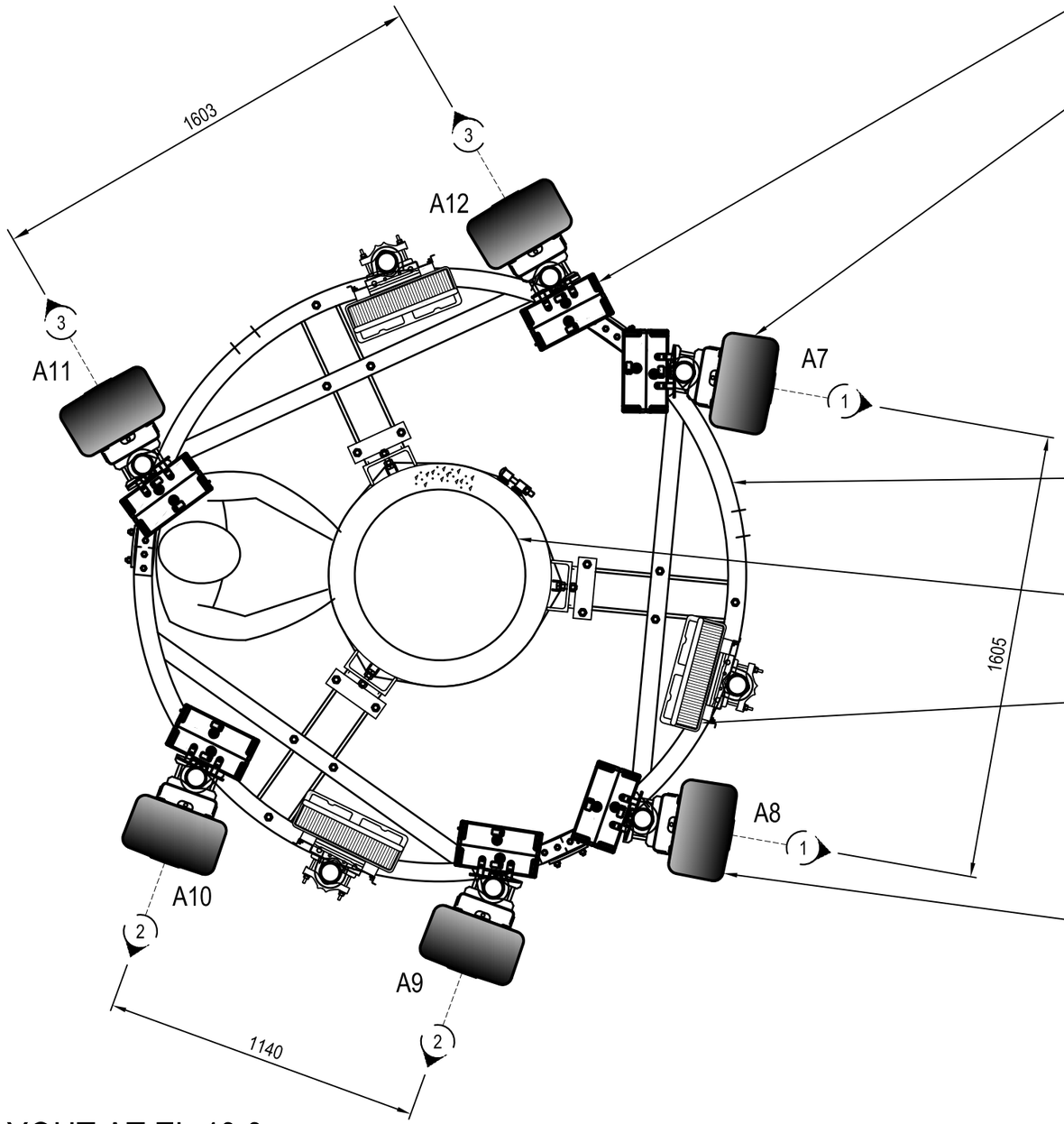
TOWER AMS SITE WA001981
LANCELIN EXCHANGE
SITE LAYOUT
NEAR 15 KING ST, LANCELIN, WA 6044

DWG NO. W101482 | SHT NO. S1-1

Cad file: W101482_PD.dwg | A3

TN

HEADFRAME
ORIENTATION 95° TN



PROPOSED TELSTRA LTE700 / NR850 TMA'S (6 OFF) TO BE INSTALLED ON PROPOSED MOUNTS BEHIND PANEL ANTENNAS (A7, A8, A9, A10, A11 & A12).

PROPOSED TELSTRA LTE700 / NR850 / LTE1800 / LTE2100 PANEL ANTENNAS (3 OFF, A7, A9 & A11) TO BE INSTALLED ON PROPOSED MOUNTS ON PROPOSED HEADFRAME.

PROPOSED TELSTRA CIRCULAR HEADFRAME TO ACCOMMODATE PROPOSED TELSTRA PANEL ANTENNAS, TMA'S & RRU'S.

PROPOSED AMPLITEL 40.0m HIGH CONCRETE MONOPOLE.

PROPOSED TELSTRA LTE1800 / LTE2100 RADIO 4480 (B3/B1) (3 OFF) & RRU INTERFACE JUNCTION BOXES (3 OFF) BELOW TO BE INSTALLED ON PROPOSED MOUNTS ON PROPOSED HEADFRAME.

PROPOSED TELSTRA LTE700 / NR850 PANEL ANTENNAS (3 OFF, A8, A10 & A12) TO BE INSTALLED ON PROPOSED MOUNTS ON PROPOSED HEADFRAME.

ANTENNA LAYOUT AT EL 40.0m
RRU LAYOUT AT EL 40.5m

SCALE 1:20

200 0 1000 SCALE 1:20

PRELIMINARY

TO BE READ IN CONJUNCTION WITH SHEETS S1, S1-1, S3 & S3-1.

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
WA09732.01	SI	AH	PRELIMINARY - 30095329WO021VENTIA - LTE700/1800/2100/NR850	JH	RW	04.08.22	1

Telstra

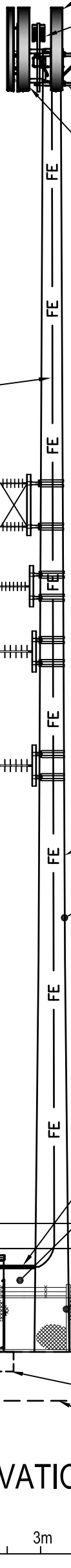
MOBILE NETWORK SITE 12801
LANCELIN EXCHANGE
ANTENNA LAYOUT
NEAR 15 KING ST, LANCELIN, WA 6044

DWG NO. W101482

SHT NO. S1-2

Cad file: W101482_PD.dwg

A3



▽ E.L. 41.26m (±100mm) RL 48.26m A.H.D.
OVERALL HEIGHT

▽ E.L. 40.5m (±100mm) RL 47.5m A.H.D.
C/L PROPOSED TELSTRA LTE1800 / LTE2100 RADIO 4480 (B3/B1) (3 OFF)

▽ E.L. 40.0m (±100mm) RL 47.0m A.H.D.
TOP OF PROPOSED MONOPOLE
C/L PROPOSED TELSTRA LTE700 / NR850 / LTE1800 / LTE2100 PANEL ANTENNAS (3 OFF, A7, A9 & A11)
C/L PROPOSED TELSTRA LTE700 / NR850 PANEL ANTENNAS (3 OFF, A8, A10 & A12)

▽ E.L. 39.6m (±100mm) RL 46.6m A.H.D.
C/L PROPOSED RRU JUNCTION BOXES (3 OFF)
C/L PROPOSED LTE700 / NR850 TMA'S (6 OFF) BEHIND ANTENNAS (A7 TO A12)

PROPOSED LCF78-50JA FEEDERS (12 OFF) AND 7/8" HYBRID CABLES (3 OFF) TO RUN INTERNALLY TO POLE.

▽ E.L. 26.0m (±100mm) RL 33.0m A.H.D.
C/L PROPOSED RELOCATE TELSTRA CAN RFS YAGI ARRAY ANTENNA (1 OFF A3)

▽ E.L. 23.5m (±100mm) RL 30.5m A.H.D.
C/L PROPOSED RELOCATE TELSTRA CAN RFS YAGI ANTENNA (1 OFF A4)

▽ E.L. 21.5m (±100mm) RL 28.5m A.H.D.
C/L PROPOSED RELOCATE TELSTRA CAN RFS YAGI ANTENNA (1 OFF A1)

▽ E.L. 18.0m (±100mm) RL 25.0m A.H.D.
C/L PROPOSED RELOCATE TELSTRA CAN RFS YAGI ANTENNA (1 OFF A2)

PROPOSED TELSTRA LTE700 / NR850 / LTE1800 / LTE2100 PANEL ANTENNAS (3 OFF, A7, A9 & A11) TO BE INSTALLED ON PROPOSED MOUNTS ON PROPOSED HEADFRAME.

PROPOSED TELSTRA LTE1800 / LTE2100 RADIO 4480 (B3/B1) (3 OFF) & RRU INTERFACE JUNCTION BOXES (3 OFF) BELOW TO BE INSTALLED ON PROPOSED MOUNTS ON PROPOSED HEADFRAME.

PROPOSED TELSTRA LTE700 / NR850 TMA'S (6 OFF) TO BE NSTALLED ON PROPOSED MOUNTS BEHIND PANEL ANTENNAS (A7, A8, A9, A10, A11 & A12).

PROPOSED TELSTRA LTE700 / NR850 PANEL ANTENNAS (3 OFF, A8, A10 & A12) TO BE INSTALLED ON PROPOSED MOUNTS ON PROPOSED HEADFRAME.

PROPOSED TELSTRA CIRCULAR HEADFRAME TO ACCOMMODATE PROPOSED TELSTRA PANEL ANTENNAS, TMA'S & RRU'S.

2 PROPOSED SIGNS TO BE UV STABLE STICKERS AND FIXED TO REAR OF ALL TELSTRA PANEL ANTENNAS (6 OFF)

NOTES :

1. ALL FEEDER ACCESS POINTS ON THE STRUCTURE MUST BE BIRD PROOFED AS PER EXTERNAL PLANT POLICY 003615.
2. FOR EME SIGNS NOTED AS #X REFER TO 005486 DOCUMENTS FOR DETAILS.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
4. DRAWING TO BE READ IN CONJUNCTION WITH RFSR DRAWING AND AUDIT REPORT.

SERVICES LEGEND

—T———T———T——— OPTICAL FIBRE BELOW GROUND
——— E ——— E ——— ABOVE GROUND ELECTRICAL SUPPLY
— — — E — — — E — BELOW GROUND ELECTRICAL SUPPLY
——— FE ——— FE ——— ABOVE GROUND FEEDER CABLES

PROPOSED AMPLITEL 40.0m HIGH CONCRETE MONOPOLE.

PROPOSED EXTERNAL 300mm WIDE NEMA 20B VERTICL CABLE TRAY BEHIND FOR OTHER CARRIER

PROPOSED AMPLITEL 450mm WIDE CABLE LADDER WITH SUPPORT POSTS TO ACCOMODATE PROPOSED RFS LCF 78-50JA FEEDERS (12 OFF) AND 7/8" HYBRID CABLES (3 OFF)

INDICATIVE LOCATION OF PROPOSED OTHER CARRIER'S SHELTER (NOT SHOWN FOR CLARITY)

PROPOSED MK5.1 ICS SHELTER, COLOURED SURF MIST (1 OFF) TO BE INSTALLED ON PROPOSED CONCTERE PIER FOOTING.

PROPOSED LTE700 GPS ANTENNA (1 OFF A200) TO BE INSTALLED ON PROPOSED ICS SHELTER USING STANDARD MOUNTING BRACKET.

EXISTING ARK EQUPMENT HUT

EXISTING TOILET BLOCK

EXISTING EME SIGN #13 (1 OFF) AND PROPOSED AMPLITEL PROPERTY SIGNAGE (1 OFF) TO BE SECURED TO EXISTING TELSTRA EXCHANGE COMPOUND DOUBLE ACCESS GATES #13

6 PROPOSED SIGN SECURED AT 1.5m AGL TO MONOPOLE

▽ E.L. 00.0m (±100mm) RL 7.0m A.H.D.
PROPOSED GPS ANTENNA (1 OFF A200)

EXISTING FENCE

EXISTING MH/PIT

▽ E.L. 00.0m (±100mm) RL 7.0m A.H.D.
GROUND LEVEL

PROPOSED TELSTRA U/G FIBRE ROUTE (INDICATIVE ONLY)

PROPOSED AMPLITEL POWER ROUTE (INDICATIVE ONLY)

PROPOSED TELSTRA P5 FIBRE PIT (INDICATIVE ONLY)

PROPOSED AMPLITEL P5 POWER PIT (INDICATIVE ONLY)

PROPOSED TELSTRA PIER FOOTINGS FOR SHELTER (INDICATIVE ONLY).

PROPOSED AMPLITEL CONCRETE PAD FOOTING FOR PROPOSED 40.0m HIGH MONOPOLE STRUCTURE

SOUTH ELEVATION

SCALE 1:150

3m 0 3m 6m SCALE 1:150

PRELIMINARY

TO BE READ IN CONJUNCTION WITH SHEETS S1, S1-1, S1-2, & S3-1.

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
WA09732.01	SI	AH	PRELIMINARY - 30095329WO021VENTIA - LTE700/1800/2100/NR850	JH	RW	04.08.22	1

AMPLITEL
Part of the Telstra Group

TOWER AMS SITE WA001981
LANCELIN EXCHANGE
SOUTH ELEVATION
NEAR 15 KING ST, LANCELIN, WA 6044

DWG NO. W101482 SHT NO. S3

Cad file: W101482_PD.dwg A3V

TELSTRA ANTENNA CONFIGURATION TABLE

ANTENNA No	ANTENNA TYPE & SIZE H x W x D	ANTENNA ACTION REQUIRED	ANTENNA HEIGHT C/L A.G.L.	ANTENNA BEARING (x°T)	SECTOR NO. & TECHNOLOGY
A7	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	40.0m	100°	S1: LTE700 / NR850 S1: LTE700 / NR850
					S1: LTE1800 / LTE2100 S1: LTE1800 / LTE2100
					S1: LTE1800 / LTE2100 S1: LTE1800 / LTE2100
A8	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	40.0m	100°	S1: LTE700 / NR850 S1: LTE700 / NR850
					S1: SPARE S1: SPARE
					S1: SPARE S1: SPARE
A9	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	40.0m	200°	S2: LTE700 / NR850 S2: LTE700 / NR850
					S2: LTE1800 / LTE2100 S2: LTE1800 / LTE2100
					S2: LTE1800 / LTE2100 S2: LTE1800 / LTE2100
A10	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	40.0m	200°	S2: LTE700 / NR850 S2: LTE700 / NR850
					S2: SPARE S2: SPARE
					S2: SPARE S2: SPARE
A11	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	40.0m	330°	S3: LTE700 / NR850 S3: LTE700 / NR850
					S3: LTE1800 / LTE2100 S3: LTE1800 / LTE2100
					S3: LTE1800 / LTE2100 S3: LTE1800 / LTE2100
A12	ARGUS RVVPX310.11B-T2H PANEL 2533 x 350 x 208mm	INSTALL	40.0m	330°	S3: LTE700 / NR850 S3: LTE700 / NR850
					S3: SPARE S3: SPARE
					S3: SPARE S3: SPARE
A200	GPS ANTENNA KRE 101 2082/1 Ø68 x 96	INSTALL	BASE OF GPS 3.3m	0°	-

PRELIMINARY

TO BE READ IN CONJUNCTION WITH SHEETS S1, S1-1, S1-2, & S3.

ORDER	DRAWN	CHKD	AMENDMENT	EXAM	APPD	DATE	ISS
WA09732.01	SI	AH	PRELIMINARY - 30095329WO021VENTIA - LTE700/1800/2100/NR850	JH	RW	04.08.22	1

Telstra

MOBILE NETWORK SITE 363603
LANCELIN EXCHANGE
ANTENNA CONFIGURATION TABLE
NEAR 15 KING ST, LANCELIN, WA 6044

DWG NO. W101482 | SHT NO. S3-1

Cad file: W101482_PD.dwg | A3V

APPENDIX B – CERTIFICATES OF TITLE

WESTERN AUSTRALIA

REGISTER NUMBER	
451/DP173799	
DUPLICATE EDITION **N/A**	DATE DUPLICATE ISSUED **N/A**

VOLUME **341** FOLIO **64A**

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 451 ON DEPOSITED PLAN 173799

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

TELSTRA CORPORATION LIMITED OF 242 EXHIBITION STREET MELBOURNE VIC 3000
(A O880322) REGISTERED 21/9/2021

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 341-64A (451/DP173799)
PREVIOUS TITLE: 341-64A
PROPERTY STREET ADDRESS: 15 KING ST, LANCELIN.
LOCAL GOVERNMENT AUTHORITY: SHIRE OF GINGIN

NOTE 1: A000001A LAND PARCEL IDENTIFIER OF LANCELIN TOWN LOT/LOT 451 (OR THE PART THEREOF) ON SUPERSEDED PAPER CERTIFICATE OF TITLE CHANGED TO LOT 451 ON DEPOSITED PLAN 173799 ON 08-JUN-02 TO ENABLE ISSUE OF A DIGITAL CERTIFICATE OF TITLE.

NOTE 2: THE ABOVE NOTE MAY NOT BE SHOWN ON THE SUPERSEDED PAPER CERTIFICATE OF TITLE OR ON THE CURRENT EDITION OF DUPLICATE CERTIFICATE OF TITLE.

APPENDIX C – ENVIRONMENTAL ANALYSIS REPORT (EPBC)

Australian Government

Department of Agriculture, Water and the Environment

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.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 25/08/22 11:52:25

No Image Available

This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2015

Coordinates
Buffer: 1.0Km

No Image Available

Summary

Matters of National Environmental 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:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	34
Listed Migratory Species:	41

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 http://www.environment.gov.au/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 Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	63
Whales and Other Cetaceans:	11
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	15
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

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.

Name	Status	Type of Presence
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community may occur within area
Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat may occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Critically Endangered	Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Mammals		
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area
Neophoca cinerea Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat likely to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Ctenotus lancelini Lancelin Island Skink [1482]	Vulnerable	Species or species habitat may occur within

Name	Status	Type of Presence
		area
Dermochelys coriacea		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Natator depressus		
Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
Sharks		
Carcharias taurus (west coast population)		
Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat known to occur within area
Carcharodon carcharias		
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis		
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Anous stolidus		
Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardenna carneipes		
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area
Diomedea amsterdamensis		
Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
Diomedea epomophora		
Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans		
Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Hydroprogne caspia		
Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area
Macronectes giganteus		
Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli		
Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Sterna dougallii		
Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area

Name	Threatened	Type of Presence
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
Balaena glacialis australis Southern Right Whale [75529]	Endangered*	Species or species habitat likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
Manta alfredi Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat may occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Natator depressus		
Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
Orcinus orca		
Killer Whale, Orca [46]		Species or species habitat may occur within area
Pristis pristis		
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Migratory Terrestrial Species		
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Limosa lapponica		
Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus		
Osprey [952]		Breeding known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land -

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		

Name	Threatened	Type of Presence
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Larus pacificus Pacific Gull [811]		Foraging, feeding or related behaviour known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Puffinus assimilis Little Shearwater [59363]		Foraging, feeding or related behaviour known to occur within area
Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Foraging, feeding or related behaviour likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Sterna albifrons Little Tern [813]		Species or species habitat may occur within area
Sterna caspia Caspian Tern [59467]		Foraging, feeding or related behaviour known to occur within area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat may occur within area
Fish		
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area
Campichthys galei Gale's Pipefish [66191]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area
Hippocampus subelongatus West Australian Seahorse [66722]		Species or species habitat may occur within area
Lissocampus fatiloquus Prophet's Pipefish [66250]		Species or species habitat may occur within area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area
Mitotichthys meraculus Western Crested Pipefish [66259]		Species or species habitat may occur within area
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area
Mammals		

Name	Threatened	Type of Presence
[Arctocephalus forsteri](#) Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area
[Neophoca cinerea](#) Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat likely to occur within area
Reptiles		
[Aipysurus pooleorum](#) Shark Bay Seasnake [66061]		Species or species habitat may occur within area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
[Disteira kingii](#) Spectacled Seasnake [1123]		Species or species habitat may occur within area
[Natator depressus](#) Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
[Pelamis platurus](#) Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area

Whales and other Cetaceans		[Resource Information]
Name	Status	Type of Presence
Mammals		
[Balaenoptera acutorostrata](#) Minke Whale [33]		Species or species habitat may occur within area
[Balaenoptera edeni](#) Bryde's Whale [35]		Species or species habitat may occur within area
[Balaenoptera musculus](#) Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
[Delphinus delphis](#) Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
[Eubalaena australis](#) Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
[Grampus griseus](#) Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
[Megaptera novaeangliae](#) Humpback Whale [38]		Species or species habitat known to occur within area
[Orcinus orca](#) Killer Whale, Orca [46]		Species or species habitat may occur within area

Name	Status	Type of Presence
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Anas platyrhynchos Mallard, Northern Mallard [974]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Mammals		
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Brachiaria mutica Para Grass [5879]		Species or species habitat may occur within area

Name	Status	Type of Presence
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Olea europaea Olive, Common Olive [9160]		Species or species habitat may occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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.

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

Where very little information is available for 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 reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

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

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

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

Coordinates

-31.020869 115.336911

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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APPENDIX D – EME REPORT

Environmental EME Report

Location	15 King St, LANCELIN WA 6044		
Date	09/08/2022	**RFNSA No.**	6044002

How does this report work?

This report provides a summary of levels of radiofrequency (RF) electromagnetic energy (EME) around the wireless base station at 15 King St, LANCELIN WA 6044. These levels have been calculated by Visionstream 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.

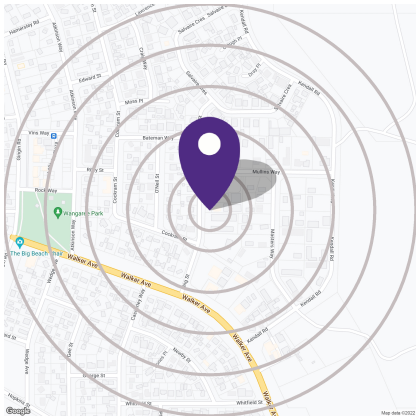
A snapshot of calculated EME levels at this site

There are currently no existing radio systems for this site.

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

0.50%

out of 100% of the public exposure limit, 242 m from the location.



EME levels with the proposed changes

Distance from the site	Percentage of the public exposure limit
0-50 m	0.21%
50-100 m	0.10%
100-200 m	0.42%
200-300 m	0.50%
300-400 m	0.43%
400-500 m	0.26%

For additional information please refer to the EME ARPANSA Report annexure for this site which can be found at *http://www.rfnsa.com.au/6044002*.

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**
Telstra			4G, 5G	LTE700 (proposed), NR850 (proposed), LTE1800 (proposed), LTE2100 (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/m²)	Percentage of the public exposure limit	Electric field (V/m)	Power density (mW/m²)	Percentage of the public exposure limit
0-50m				2.65	18.64	0.21%
50-100m				1.75	8.11	0.10%
100-200m				2.82	21.09	0.42%
200-300m				3.20	27.17	0.50%
300-400m				3.03	24.34	0.43%
400-500m				2.37	14.95	0.26%

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/m²)	Percentage of the public exposure limit
No locations identified				

APPENDIX E – GUIDE TO EME REPORT

Australian Government
Australian Radiation Protection and Nuclear Safety Agency

arpansa

A Guide to the Environmental EME Report

What is an Environmental EME Report?

The Environmental EME Report provides calculations of the maximum levels of radiofrequency (RF) electromagnetic energy (EME) around an existing and/or proposed wireless base station that may include mobile telephony, broadband and data services. The report is generally produced by a network operator (such as a mobile phone company) or consultants working on their behalf.

All deployment of public mobile telecommunications service infrastructure in Australia, which includes wireless base stations, small cells and antennas, must be carried out according to the Industry Code C564:2020 Mobile Phone Base Station Deployment (the Code)[1]. The Code requires the supply of certain information as part of the consultative process with the local community and local government authority. The environmental EME report is part of this process and is produced according to a methodology developed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)[2]. It provides objective estimates of the maximum levels of EME from a wireless base station or small cell for both existing and proposed upgrades to telecommunications systems at the site. There are two types of environmental EME report, each representing either a wireless base station or a small cell.

Why is there an EME Report?

Wireless base stations and small cells work by sending out RF EME in the form of waves carrying information. When the RF EME reaches objects, including people and animals, some of the energy carried by the waves is deposited in the object[3]. This can lead to heating of the object and, if levels are too high, can cause harmful effects. The ARPANSA RF Standard[4] provides limits of exposure which must be complied with by all radio installations, including wireless base stations and small cells. The limits for EME exposure given in the ARPANSA Standard are intended to provide protection for people of all ages and medical conditions when exposed 24 hours per day, 7 days per week. The EME Report shows the maximum

[1] The Communications Alliance Ltd Industry Code C564:2011 'Mobile Phone Base Station Deployment' is available from the Communications Alliance Ltd website, http://commsalliance.com.au.

[2] The ARPANSA methodology produces overconservative calculations for multiple-input and multiple-output (MIMO) systems

[3] Information on RF EME and its effects is available from ARPANSA http://www.arpansa.gov.au/RadiationProtection/basics/rf.cfm

[4] The ARPANSA RF Standard is available from http://www.arpansa.gov.au/Publications/Codes/rps3.cfm

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calculated levels for a specific installation and compares them against the exposure limits in the ARPANSA Standard.

What information is on the report?

The report gives the address of the installation, together with a list of the companies using the site and the types of mobile network currently installed and being proposed. It also includes details of calculated levels of RF EME. If the site already has antennas in place, the report includes separate information on the existing and the combined existing and proposed installations. The report estimates RF EME from all of the identified wireless transmitters at this site; it does not estimate RF EME from all surrounding sites. The calculated levels do not include RF EME from other types of radio transmitters (that are not subject to the industry Code) which may be installed on the same structure, e.g. AM and FM radio, TV etc.

EME Levels

The tables of calculated EME levels on the report provide maximum levels of EME found at various distances from the base of the tower or supporting structure for wireless base stations. Within each range of distances, the highest value is given regardless of direction. For small cells mounted on light and power poles or other structures, the report shows the maximum EME level and the distance where this occurs. This provides more relevant exposure information to account for the lower overall power and the much shorter range of the transmitted radio signals from small cells.

For wireless base stations the values of EME are presented in 3 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)[5]
- percentage (%) of the ARPANSA Standard

In reports for small cells the EME levels are only presented as a percentage of the ARPANSA Standard.

When expressed as a percentage, a value of 100% corresponds to the general public exposure limit. For example, a typical highest value of 1% means that the total EME level from all wireless network transmitters on the site, all operating at their maximum power, will be no more than one hundredth (1/100) of the limit set by the ARPANSA Standard for members of the public.

The table below shows the actual EME limits in the ARPANSA RF Standard used for the frequency bands representing different types of mobile network. At frequencies below 2000 megahertz (MHz) the limits vary across the band and the limit values shown in the table have been determined at the Assessment Frequency indicated. The table shows the three equivalent exposure limit figures in V/m, mW/m^2 and % ARPANSA Standard.

[5] Power density is often expressed in units other than mW/m², other common units are watts per square metre (W/m²) and microwatts per square centimetre (μW/cm²). Where conversion is required: 1 watt per square metre (W/m²) = 100 microwatts per square centimetre (μW/cm²) = 1000 milliwatts per square metre (mW/m²).

Radio Systems	Frequency Band	Assessment Frequency	ARPANSA Standard public exposure limits at the Assessment Frequency		
			Electric Field V/m	Power Density mW/m²	% of ARPANSA exposure limits
LTE700	758 – 803 MHz	750 MHz	37.5 V/m	3750 mW/m²	100%
WCDMA850	870 – 890 MHz	900 MHz	41.1 V/m	4500 mW/m²	100%
GSM900, LTE900, WCDMA900	935 – 960 MHz	900 MHz	41.1 V/m	4500 mW/m²	100%
GSM1800, LTE1800	1805 – 1880 MHz	1800 MHz	58.1 V/m	9000 mW/m²	100%
LTE2100, WCDMA2100	2110 – 2170 MHz	2100 MHz	61.4 V/m	10000 mW/m²	100%
LTE2300	2302 – 2400 MHz	2300 MHz	61.4 V/m	10000 mW/m²	100%
LTE2600	2620 – 2690 MHz	2600 MHz	61.4 V/m	10000 mW/m²	100%
LTE3500	3425 – 3575 MHz	3500 MHz	61.4 V/m	10000 mW/m²	100%

Effect of Landscape (topography)

The tables of calculated EME levels provide values at 1.5 m above a flat landscape. Commonly, wireless base stations and small cells are located on a high point and the assumption of flat ground provides a worst-case estimate for these situations. Sometimes, however, the ground may slope upwards away from the installation and this can cause concern that levels may be higher than calculated. In these cases the 'Calculated EME levels at other areas of interest' table should include the levels of EME at a selection of heights where maximum levels are expected.

Generally, locations very close to the base of the antenna will experience very low levels of EME compared to the surrounding areas. This may not be true if a location is both close, say within 100 m, and elevated above the height of the base of the antenna structure. This may occur because a building is located nearby or the ground rises sharply. In either of these circumstances, EME levels may actually be higher than found at the height of flat ground or a community member may have reasonable concerns that this is so. If such locations exist, carefully calculated estimates in a representative sample of such situations should be provided in the 'Calculated EME levels at other areas of interest' table. It is important to note that in many cases the location may not be in the direction of significant radiated EME and the EME levels may be very low.

Other Areas of Interest

The Code requires the mobile network companies to take account of Community Sensitive Locations. The Code defines Community Sensitive Location to include land uses such as residential areas, childcare centres, schools, aged care centres, hospitals and regional icons which may be considered as sensitive uses in some communities. It is acknowledged that each location should be evaluated on a site by site basis to determine community sensitive locations.

The table 'Calculated EME levels at other areas of interest' on the report provides additional estimates of EME levels at a small number of such locations. These locations may be identified as being of particular concern to the community during the consultation process required by the Code. Typically, levels may be given for the closest point of a children's facility, or for a small number of other locations. It is expected that for an average report, there may be 3 to 5 additional areas of interest calculations. These should be chosen to be representative of both community concern and locations where higher levels of EME may actually be expected on technical grounds. Community Sensitive Locations would be expected to include a small number of floors of a multistorey building if it is close to the antennas and in the direction of significant radiated EME. For some sites there may be no indication for other areas of interest, such as where there is flat ground, no elevated buildings and no locations identified as being of particular community concern. In these cases, after checking:

- the Code's community consultation plan
- topography or buildings near the antennas
- other locations, such as those identified as being of significant previous community concern

no other areas of interest will have been identified. In this case, the EME Report should include the statement 'No locations identified' in the 'Calculated EME levels at other areas of interest' table.

Can I expect to have an EME calculation done for my house?

Whilst the Environmental EME report is a basic report, members of the public are free to request (in writing) a Carrier to provide additional information under section 3.3 of the Code

The Carrier will choose how best to service that request, but it will not be considered as part of the ARPANSA EME report.

Why do the EME levels vary with distance?

The calculations of the maximum EME levels are based on well understood principles of physics that deal with how electromagnetic waves travel and spread out. The total amount of energy emitted from the antenna is limited by the power of the amplifier used to drive the antenna. As the energy leaves the antenna, it spreads out to cover bigger and bigger areas and so gets less intense the further away it gets, this is illustrated in Figure 1 which shows a basic 2-dimensional view of what happens to the EME around a real base station.

The antenna is usually designed to direct most of the energy out towards the horizon, or a few degrees below, so that most of the energy goes where it is needed to communicate with the mobile phone handsets or other user equipment. As one moves away from a base station at ground level, the levels first increase before reaching a maximum and then get less as you move still further away. Typically, the maximum EME level at ground level will occur between 75 m and 200 m from the base of the antenna.

The mobile network companies sometimes need to adjust the angle of the antennas to obtain the best coverage and this can alter slightly the distance at which the maximum occurs and exactly what EME level is found there. Often, the ARPANSA EME Report will take likely alterations into account and include the

highest levels that might occur if the antenna is moved in the future. Some antennas use self-tilt and pan to dynamically change direction; in these situations the orientation that produces the highest maximum EME level is used for the calculation.

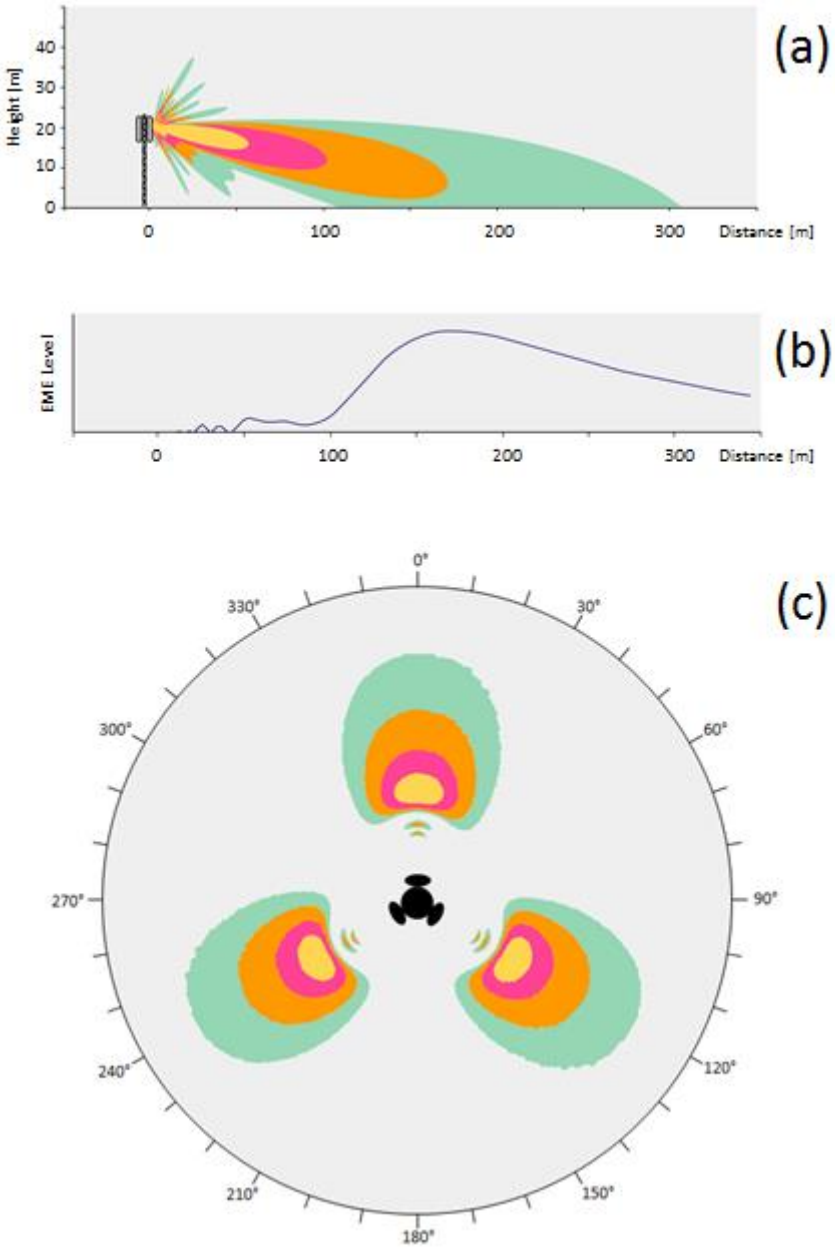

Figure 1. How the EME levels vary as you move away from a base station tower.
(a) Side view of a single antenna pattern. (b) EME level at 1.5 m above ground.
(c) Aerial view of three sector antenna pattern

The EME transmitted from small cells is more localised and, depending on its configuration, may not follow the same emission profile as a larger base station. Typically, the EME levels are very low and they decrease rapidly with distance away from the source much like the larger base stations.

How Accurate are the Calculated Values?

The values of EME provided in the report are intended to be maximum levels that can almost never be exceeded when the base station is operating. The values assume, for example, that all the planned transmitters are installed and are all operating at maximum power. Some of the transmitters at a base station are only used when there are a certain number of telephone calls or data transmissions actually in progress; otherwise they are turned off. Even when a call is in progress, the power transmitted is adjusted to be only as high as necessary to communicate with the handset. If the handset is close, or in a good signal area, the base station transmitter will reduce its power automatically.

The calculations do not take into account trees, vegetation or buildings which may alter the EME levels, generally decreasing them. Some of the EME is reflected from buildings and the ground and often this signal is used by a handset when the direct signal is blocked by a building. When the reflected signal and direct signal combine the overall level can be lower or higher than the direct signal alone depending on the exact location.

Measurements around base stations have shown actual values of EME are usually less than calculation by factors of 10 to 1000 or even more. Values of EME indoors will typically be even lower as walls, windows and roofs absorb or reflect the energy.

A similar situation applies to the emissions from small cells. The EME emissions from small cells follow the same physical process and are similarly affected by surrounding objects.

Example Snapshot of Calculated EME Levels

The maximum EME level calculated for the **existing** systems at this site is

0.46%

out of 100% of the public exposure limit, 161.98 m from the location.

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

1.0%

out of 100% of the public exposure limit, 161.10 m from the location.

EME levels with the proposed changes

Distance from the site	Percentage of the public exposure limit
0–50 m	0.09%
50–100 m	0.16%
100–200 m	1.0%
200–300 m	0.88%
300–400 m	0.43%
400–500 m	0.24%

The example snapshot above applies to the calculated EME levels around a typical base station and provides the following information:

- The highest calculated level of RF EME coming from the existing equipment at this base station is found at a distance of approximately 161.98 m and is 0.46% or less than 1/200 of the ARPANSA Standard exposure limit.
- Subsequent to the proposed alterations to the equipment at this site, the highest calculated level of RF EME rises to 1.04%, which is found at a distance of 161.10 m from the base of the tower.

The information detailing EME levels at radial distances from the installation is not included in EME reports for small cells due to the more localised emission of the antennas. In this case, information about the highest calculated EME level at the corresponding distance associated with the small cell is included. This is reported for both existing and proposed systems at the site in the same way as wireless base stations.

Example Table of an In-depth Look at Calculated EME Levels

	Existing configuration			Proposed configuration		
Distance from the site	Electric field (V/m)	Power density (mW/m²)	Percentage of the public exposure limit	Electric field (V/m)	Power density (mW/m²)	Percentage of the public exposure limit
0–50 m	0.57	0.87	0.01%	1.7	7.2	0.09%
50–100 m	0.96	2.5	0.04%	1.9	9.2	0.16%
100–200 m	3.4	31	0.46%	5.0	66	1.0%
200–300 m	3.2	27	0.40%	4.6	56	0.88%
300–400 m	2.3	13	0.20%	3.2	28	0.43%
400–500 m	1.7	7.7	0.11%	2.4	16	0.24%

The example table above provides the following information:

- At any location on level ground within 50 m of the base of the tower, the highest calculated level of RF EME coming from the existing equipment at this base station is 0.01% or approximately 1/10000 of the ARPANSA Standard exposure limit. In physical units this is a power density of 0.87 milliwatts per metre squared (mW/m²), equivalent to an electric field strength of 0.57 volts per metre (V/m).
- Subsequent to the proposed alterations to the equipment at this site, at any location on level ground within 50 m of the base of the tower, the highest calculated level of RF EME rises to a power density of 7.18 mW/m² or an electric field strength of 1.65 V/m which is equivalent to 0.09% of the ARPANSA Standard exposure limit (or less than 1/1000 of the limit).
- The values reported here are only expected to occur when the transmitters are all operating at full power and where there is clear line-of-sight to all antennas. Levels indoors will be lower.
- At any distance within 500 m of the tower the table can be used to determine the maximum level. For example at a location 330 m from the tower, that is between 300 m and 400 m, the calculated level will be less than 0.2% of the ARPANSA Standard exposure limit for the existing equipment and 0.43% of the ARPANSA Standard exposure limit for the existing and proposed equipment. In many directions, and at most times, the actual level will be much lower than this calculated level.
- For a new wireless base station where there are no antennas already installed, the above table will only contain data under the 'Proposed Configuration' columns. Similarly, for a wireless base station that is not being upgraded, the table will only contain data under the 'Existing Configuration' columns.

This table is not included in EME reports for small cells due to the more localised emission from these installations.

It should be noted that all values quoted in the above two tables are calculated at 1.5 m above ground level in a flat landscape. As stated in the section “Effects of Landscape (topography)”, If the ground height changes enough to cause significant under estimation of the worst case environmental levels, further calculations shall be reported in the “Other Areas Of Interest” section.

Example Table of Calculated EME levels at Other Areas of Interest

Location	Height range	Electric field (V/m)	Power density (mW/m^2)	Percentage of the public exposure limit
ABC Primary School	0–6 m	2.6	18	0.29%
123 Sports Centre	0–6 m	2.4	15	0.23%
XYZ Community Centre	0–6 m	2.6	18	0.29%

The 'Calculated EME levels at other areas of interest' table provides calculated levels of RF EME at locations considered to be of special community interest or at elevated locations where there may be concern about higher levels of EME. The calculations are performed over the indicated height range and include all existing and any proposed radio systems for this site This table is included in reports for both wireless base stations and small cells. In reports for small cells the EME levels are only presented as a percentage of the ARPANSA Standard.

Further Information

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is a Federal Government agency incorporated under the Health 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:

- The procedure used for the calculations in this report is documented in the ARPANSA Technical Report; “Radio Frequency EME Exposure Levels - Prediction Methodologies” [2]
- The ARPANSA RF Standard[4]

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 https://www.acma.gov.au/our-rules-eme.

The Communications Alliance Ltd Industry Code C564:2020 Mobile Phone Base Station Deployment is available from the Communications Alliance Ltd website, http://commsalliance.com.au.

Contact details for the Carriers (mobile network companies) operating in Australia and the most recent version of each site’s Environmental EME Report are available online at the Radio Frequency National Site Archive, http://www.rfnsa.com.au.

1. The Communications Alliance Ltd Industry Code C564:2020 Mobile Phone Base Station Deployment is available from the Communications Alliance Ltd website, https://www.commsalliance.com.au/Documents/all/codes/c564

2. The ARPANSA methodology produces overconservative calculations for multiple-input and multiple-output (MIMO) systems. (Radio frequency EME exposure levels - prediction methodologies technical report.)

3. Information on RF and its effects is available from ARPANSA https://www.arpansa.gov.au/understanding-radiation/what-is-radiation/non...

4. The ARPANSA RF Standard is available from https://www.arpansa.gov.au/regulation-and-licensing/regulatory-publications/radiation-protection-series/codes-and-standards/rpss-1

5. Power density is often expressed in units other than mW/m^2, other common units are watts per square meter (W/m^2) and microwatts per square centimetre ($\mu W/cm^2$). Where conversion is required: 1 watt per square metre (W/m^2) = 100 microwatts per square centimetre ($\mu W/cm^2$) = 1000 milliwats per square metre (mW/m^2).