



# Development Application for Planning Consent

*Proposed New Telecommunications Facility  
Sun City Country Club, 144 St Andrews Drive  
Yanchep WA 6035  
Lot 888 On Deposited Plan 408518*

## Town Planning Report

**Project Reference: 640244 Yanchep GC**  
**RFNSA Reference: 6035003**

**March 2023**

# Document Control

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## Executive Summary

<b>Site Information</b>	<p><b>Lot description:</b> Lot 888 On Deposited Plan 408518  <b>Physical address:</b> Sun City Country Club, 144 St Andrews Drive Yanchep WA 6035  <b>Coordinates:</b> -31.533576, 115.655230</p>
<b>Proposal</b>	<p>Catalyst ONE (Catalyst) are seeking development consent for a new Telecommunications Facility at Sun City Country Club, 144 St Andrews Drive Yanchep WA 6035 (Lot 888 On Deposited Plan 408518).</p> <p>The proposed facility will be owned by Indara Infrastructure Pty Ltd (Indara) and host Optus Mobile Pty Ltd (Optus) and TPG Telecom Ltd (Vodafone) telecommunications equipment. The facility will provide Optus and Vodafone 4G and 5G services to Yanchep and the surrounding areas.</p> <p>The proposal involves the installation of the following:</p> <ul style="list-style-type: none"> <li>• one (1) 30-metre monopole;</li> <li>• thirteen (13) panel antennas on the pole;</li> <li>• six (6) future panel antennas;</li> <li>• one (1) equipment cabinet; and</li> <li>• installation of cabling and ancillary equipment including twenty-one (21) radio remote units near the antennas, a group meter panel at the base of the pole, underground cabling and above-ground cable trays.</li> </ul> <p>The facility will be located within a fenced compound. The monopole and associated equipment will be finished in a non-reflective pale, light grey colour.</p>
<b>Purpose</b>	<p>Indara are proposing a new telecommunications facility at Yanchep. The new facility will provide Optus and Vodafone network coverage to the suburbs of the existing and future residential suburbs in the east of Yanchep as covered by the Yanchep City Structure Plan area as well as portions of the Yanchep National Park.</p> <p>The facility has been designed as a neutral host facility, capable of supporting co-location by other carriers, government entities and wireless service providers.</p>
<b>Planning Considerations</b>	<p><b>LGA:</b> City of Wanneroo  <b>Zoning:</b> Private Clubs/Recreation  <b>Overlays:</b> None Applicable</p>
<b>Applicant</b>	<p>Catalyst ONE Pty Ltd on behalf of Indara Infrastructure Pty Ltd          PO Box 1119          Crows Nest NSW 1585</p> <p>Contact Person: Elliot Nelson          Email: enelson@catalystone.com.au          Our Reference: 640244 Yanchep GC</p>

# 1. Introduction

Catalyst ONE Pty Ltd (Catalyst) on behalf of Indara Infrastructure Pty Ltd (trading as Indara), are seeking development consent for a new telecommunications facility at Sun City Country Club, 144 St Andrews Drive Yanchep WA 6035 (Lot 888 On Deposited Plan 408518).

The facility is proposed to consist of a 30-metre high monopole with antennas and an equipment cabinet at ground level contained within a 12m by 8m fenced compound. The purpose of the project is to provide Optus and Vodafone mobile telecommunications services, including coverage and network capacity to Yanchep.

This report details the proposed facility and identifies the statutory controls relating to the proposed use and development and provides an assessment of the proposed facility against the controls. In addition, this report provides an assessment of environmental impacts associated with the proposed facility and identifies relevant planning considerations to minimise any impacts.

## 2. Background

### 2.1 Indara, Optus and Vodafone

This development application has been prepared and submitted by Catalyst on behalf of Indara. Indara are Australia's leading independent owner and provider of shared wireless telecommunications infrastructure, with a portfolio of over 4300 telecommunications sites across Australia. Indara operate as a neutral host, and its facilities are specifically designed to accommodate co-location by Australia's mobile carriers, government agencies and other wireless services providers.

Indara has partnered with Optus Mobile Pty Ltd (trading as Optus) and TPG Telecom Ltd (trading as Vodafone) to expand the Optus and Vodafone mobile networks across Australia. This facility is being proposed to improve Optus and Vodafone mobile services in the Yanchep area.

The proposed facility is comprised of a new 30-metre high monopole and associated passive infrastructure, which will be owned and managed by Indara, and active infrastructure (antennas and telecommunications equipment) which will be owned and managed by Optus and Vodafone.



## 2.2 Demand for Network Services

Access to high quality telecommunications services is vitally important to the community. Mobile usage continues to trend upward.

- 99% of Australians use a mobile phone; 76% of Australians do not have a landline phone and rely exclusively on a mobile phone<sup>1</sup>.
- Mobile data usage continues to significantly increase as the network is used in different ways. Between 2020 and 2021, the amount of data downloaded by phone increased by over 29%<sup>2</sup>. In the first quarter of 2022, global mobile data usage grew by 40%<sup>3</sup>. Streaming and video calling are major drivers of this increased demand.
- Covid-19 significantly changed the way that Australians live and work – 61% of employed Australians worked online from home in 2021<sup>4</sup>. With many Australians continuing to adopt flexible or hybrid work arrangements, additional demand has been placed on the mobile network.
- Public safety is a significant driver behind improvements to mobile coverage. In 2021, around 78% of emergency calls were made from a mobile handset<sup>5</sup>.

More than ever, mobile telecommunications is an essential service. By extension, mobile base stations are essential infrastructure – it is important that mobile infrastructure keeps pace with this increasing demand.

If new base stations are not deployed, users may have difficulty connecting to the mobile network or experience call dropouts, especially indoors. Users may also experience slow data speeds, longer download times and poor network performance at peak times.

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<sup>1</sup> <https://www.acma.gov.au/publications/2021-12/report/communications-and-media-australia-how-we-communicate>

<sup>2</sup> <https://www.acma.gov.au/publications/2021-12/report/communications-and-media-australia-how-we-use-internet>

<sup>3</sup> <https://www.ericsson.com/en/reports-and-papers/mobility-report/dataforecasts/mobile-traffic-update>

<sup>4</sup> <https://www.acma.gov.au/publications/2021-12/report/communications-and-media-australia-trends-and-developments-telecommunications-2020-21>

<sup>5</sup> <https://www.triplezero.gov.au/triple-zero/How-to-Call-000/advanced-mobile-location>

## 2.3 Coverage Objectives

This proposal is specifically to improve mobile services for the the existing and future residential suburbs in the east of Yanchep as covered by the Yanchep City Structure Plan area as well as portions of the Yanchep National Park.

There are no existing Vodafone or Optus base stations specifically servicing this area as much of the surrounding land is either under development or remains to be developed. Although there are existing mobile base station facilities within Yanchep, none have been identified as being able to provide the desired coverage to service the required area. Further information about the possibility of establishing Optus and Vodafone facilities at existing sites is provided in section 3.2 of this report.

Vodafone and Optus have also identified that demand in the area is increasing dramatically due to the pending and ongoing development surrounding the proposed site location. With the location not being directly serviced by a dedicated mobile phone base station, there is a significant social, economic and safety impetus for the proposal. Indara are therefore working with Vodafone and Optus to deploy a new telecommunications facility.

**Figure 1** contains the area that is proposed to be serviced by this new facility. The location of the proposed facility is represented by the red marker.



***Figure 1: Vodafone and Optus' target coverage area, encompassing the existing and future residential suburbs in the east of Yanchep as covered by the Yanchep City Structure Plan area as well as portions of the Yanchep National Park***



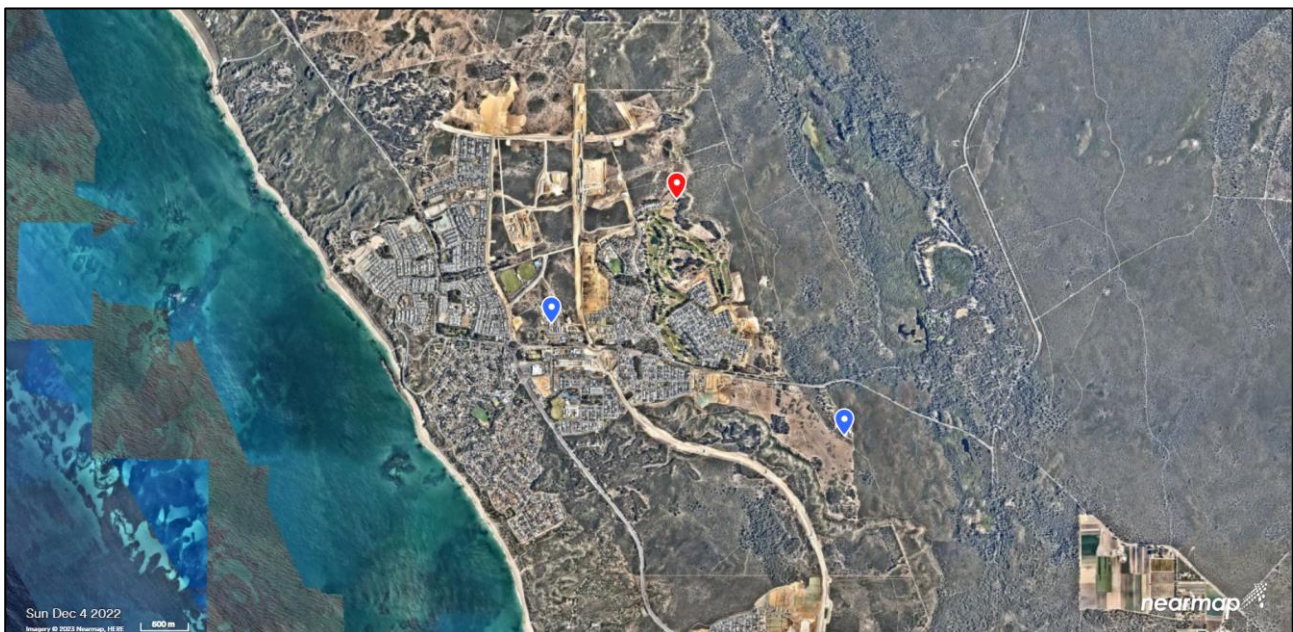
## 3. Candidate Selection

### 3.1 Site Selection

Before proposing a new base station, Vodafone and Optus attempt to resolve service issues by reconfiguring or upgrading their existing base stations. If upgrades do not resolve service issues, the carriers consider opportunities to co-locate on existing mobile facilities, buildings or structures. Where there are no co-location opportunities, Vodafone and Optus proceed to deploy new 'greenfield' base stations. In this instance, Vodafone and Optus have confirmed that a new telecommunications tower is needed and have partnered with Indara for this purpose.

### 3.2 Upgrade and Co-Location Opportunities

Existing telecommunications facilities in the area have been assessed to confirm if they are feasible for co-location. **Figure 2** shows the location of both facilities in the area around this proposed site, based on information from the Radio Frequency National Site Archive database. The red marker depicts the proposed location.



**Figure 2: Existing Communications Facilities (blue markers) in the surrounding areas (Nearmap).**

**Table 1** below provides a summary on the viability of utilising one of the five above surrounding telecommunications facilities to provide network coverage to service the surrounding areas.

RFNSA Details	Site Address	Comments
<b>6035001</b> Telstra Optus Vodafone	40-metre lattice tower 3 Glenrothes Crescent Yanchep WA 6035	This site is the only facility within the Yanchep town centre that services the surrounding residential areas. This facility is too far west of the Sun City Structure Plan area and the locations desired for coverage. Both Optus and Vodafone are also already present on this site.
<b>6035002</b> Telstra Optus Vodafone	45-metre lattice tower 401 Yanchep Beach Road Yanchep WA 6035	The site is approximately 1.5 kilometres outside of the Yanchep town centre and is too far removed to provide network coverage to the desired area. Optus and Vodafone are also already present on this site.

**Table 1: Co-location options identified as part of this proposal**

### 3.3 Alternate Candidates

Per Section 3.2 of this report, there are no suitable options for co-location. Vodafone and Optus have identified that a new base station is required and are working with Indara to establish a new telecommunications facility as part of this report.

In selecting a site for the new facility, Indara in partnership with Vodafone and Optus undertook a robust investigation process. Indara sought to avoid residential and potentially sensitive locations and have focused on options where there are opportunities to screen the proposal with existing vegetation and minimising the visual impact accordingly.

Locations subject to significant environmental constraints were also avoided. Indara have considered a number of factors, including technical feasibility (ability of the site to service the area), planning constraints, buildability and ability to secure tenure.

**Figures 3** and **4** on the following pages shows the candidates that were investigated. Further detail on the candidates is also provided within **Table 2** on the next page.





**Figure 3: Candidates A to E**



**Figure 4: Candidates F and G (near St Andrews Drive And Russley Grove)**



Candidate	Site Address	Comments
A	New Monopole Sun City Country Club 144 St Andrews Drive Yanchep WA 6035	<p>Located on the north eastern corner of the Sun City Country Club golf course, this candidate is located centrally within the coverage area and is well positioned from a technical perspective to service the surrounding required coverage area. There is existing vegetation to assist in screening the proposal and the impact on the existing surrounding uses is minimised.</p> <p>This candidate was selected as the prime candidate, and its town planning merits are assessed as part of this report.</p>
B	New Monopole Yanchep National Park 1K Indian Ocean Drive Yanchep WA 6035	<p>A site at Yanchep National Park was explored as a possibility to minimise visual impact on the surrounding residential areas. Yanchep National Park is however an A-Class Reserve in accordance with the <i>Lands Administration Act 1997 (WA)</i>, and tenure for Indara within the grounds of Yanchep National Park is therefore not feasible.</p> <p>This candidate was therefore not progressed further.</p>
C	New Monopole Yanchep Railway Station 125K Toreopango Avenue Yanchep WA 6035	<p>A site was explored within the grounds of the Yanchep Railway Station, as currently under construction. The site forms part of the Yanchep Activity Centre Structure Plan. Enquiries were sent to the developer, although agreements or arrangements were unable to progress until the completion of the station.</p> <p>This candidate was therefore not progressed further.</p>
D	New Monopole 50K Toreopango Avenue Yanchep WA 6035	<p>A site was explored potentially north of the future Toreopango Avenue. A site within this location would have been highly favourable due to the “service industrial” zoning within the Yanchep City Structure Plan for the location. The proposal however was too far north to service dwellings along St Andrews Drive and the locations south of the golf course (by approximately 1 kilometre).</p> <p>This candidate was therefore not progressed further.</p>

E	<p>New Monopole 100 Greenside Drive Yanchep WA 6035</p>	<p>A site to the currently undeveloped east of the Sun City Country Club was explored, located east of the Sun City Country Club and west of the proposed Mitchell Freeway extension. This area is zoned “urban development” and is subject to the Yanchep City Structure Plan. The site is subsequently zoned “residential” in accordance with the Structure Plan, in which Telecommunications Infrastructure is an “X” use (not permitted within residential zoned land in accordance with the City of Wanneroo District Planning Scheme Number 2).</p> <p>This candidate was therefore not progressed further.</p>
F	<p>New Monopole 82 St Andrews Drive Yanchep WA 6035</p>	<p>A location was explored within the Council-owned parkland to the east of St Andrews Drive. A sites at this location would be highly visible from dwellings opposite Russley Grove, while also being highly prominent from within the parkland itself. The site was considered inappropriate to host a new facility.</p> <p>This candidate was therefore not progressed further.</p>
G	<p>New Monopole 78 St Andrews Drive Yanchep WA 6035</p>	<p>A location was explored within the Water Corporation owned land to the east of St Andrews Drive. The site was however not considered appropriate from a design perspective due to the limited available space and the small size of the land parcel. A monopole would be highly prominent within this location.</p> <p>This candidate was therefore not progressed further.</p>

**Table 2: Candidates considered as part of this proposal**

Considering the conclusions provided above within Table 2, Indara are pursuing a site at Sun City Country Club, 144 St Andrews Drive Yanchep (candidate A), which forms part of this report.

## 4. Site Context

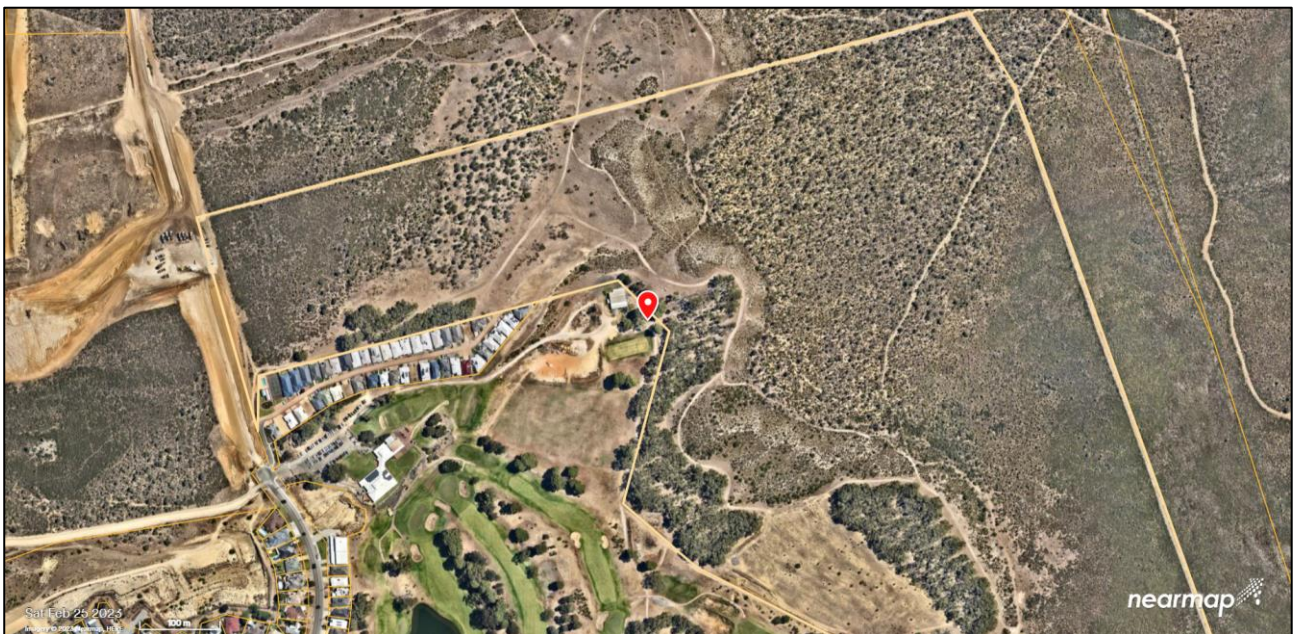
The subject land is a property at Sun City Country Club, 144 St Andrews Drive, Yanchep, which covers Lot 888 On Deposited Plan 408518. A copy of the Certificate of Title is enclosed in **Appendix 1**.

The subject site consists of an 18-hole golf course, together with a grass driving range, a chipping area and a putting green. The subject site is further supported by clubhouse and administration buildings to the northwest of the property, as well as a large garage to support the maintenance of the golf course to the northeast of the property. It is adjacent to this garage in which the Indara telecommunications facility is proposed.

The surrounding land uses are also predominantly residential, although land to the east remains undeveloped. St Andrews Drive provides connections to Yanchep Beach Road, and subsequently to the wider Yanchep area and the future Mitchell Freeway extension.

The subject site topography is variable by nature of its land use as a golf course.

Figures 5 to 8 on the following pages depict the location and surroundings of the proposed facility.



**Figure 5: Aerial photograph of the site location (larger context)**





**Figure 6: Aerial photograph of the site location**



**Figure 7: View of the proposed location**





*Figure 8: View looking east of the proposed location*

## 5. Proposed Works

### 5.1 Equipment to be Installed

The facility proposed to be installed is a 30-metre high monopole, and a six-bay equipment cabinet located at ground level adjacent to the monopole, connected by an above-ground cable tray. The monopole and cabinet are proposed to be contained within a 12-metre by 8-metre chain link fenced compound.

To facilitate the required network coverage, the monopole is proposed to contain thirteen antennas, each dedicated to different 3G, 4G and 5G frequency bands for Optus and Vodafone. **Table 3** below details the antenna sizes.

Antenna	Quantity	Size (length, width, depth)	Mounting Height (centreline)
Optus 5G Antennas	3	750mm x 450mm x 240mm	33.2 metres
Optus 5G Antenna	1	730mm x 520mm x 185mm	32.2 metres
Vodafone 5G Antenna	3	750mm x 450mm x 240mm	31.3 metres
Optus 3G-5G Antennas	3	2688mm x 498mm x 197mm	31.3 metres
Vodafone 3G-5G Antennas	3	2688mm x 498mm x 197mm	31.3 metres

**Table 3: Proposed Antennas**

In addition to the thirteen antennas and provision has also been made for eight additional future antennas (likely up to 1500mm in length) on the pole (three for each Vodafone, five for Optus). The future antennas would be mounted on the triangular headframe at the top of the pole. The headframe is also proposed to accommodate twenty-four radio remote units to be located near and behind the antennas.

The monopole is proposed to be finished in a non-reflective unpainted grey that evenly blends in with the sky and surroundings. The overall height of the facility including antennas and mounts will be approximately 33.8 metres above the ground level.

The ground of the compound is proposed to be levelled and finished with weed matting, over-which gravel will be laid.

Development plans depicting the proposal are attached within **Appendix 2**.

## 5.2 Site Access and Parking

Ingress and egress to the property is via the existing access point on St Andrews Drive, with an existing vehicle route along the northern perimeter of the golf course. The facility does not require its own dedicated access or any changes to any existing access arrangements. Once the facility is operational, it will require access 2-4 times annually for routine maintenance or in the case of emergencies. A utility vehicle can be used for visits, but the facility will otherwise operate on an unmanned basis. Accordingly, minimal vehicle traffic will be generated by the proposal.

## 5.3 Noise

The facility will not be a significant generator of noise. The only part of the facility that generates noise are the cooling fans on the equipment cabinet. The cooling fans will not operate continuously and will turn on automatically when required. The cooling fans will operate at levels generally comparable to a domestic air conditioner, in compliance with background levels prescribed by Australian Standard AS1055. The proposed facility is not expected to represent a noise nuisance, noting its separation from dwellings and built-up areas.

## 5.4 Power and Utilities

The facility is being designed to be connected to the power network via an underground power route that connects to the site from St Andrews Drive. The site will therefore be separately metered to the rest of the golf club, with specifics subject to agreements with Western Power. A group meter panel is expected to be established within the compound itself. A separate underground fibre route will also be established to connect the facility to the Optus and Vodafone mobile networks.

## 5.5 Emissions

Operation of the facility will not result in emission of dust, heat, smoke, gaseous plumes or particulates. The facility will produce electromagnetic energy (EME) emissions, which will be within the levels prescribed by Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) and regulated by the Australian Communications and Media Authority (ACMA). An ARPANSA format EME Report, demonstrating compliance with Australian safety standards is attached in **Appendix 3**. Further detail is also provided within section 10 of this report.

## **5.6 Environmental Considerations**

To facilitate the monopole, compound and associated infrastructure, the proposal will require some pruning of overhanging branches associated with the nearby trees. There is no significant ground-level vegetation that is considered to require vegetation clearing, and all pruning that is necessary will be undertaken by a suitably qualified arborist. Further information regarding the environmental impact of the proposal is discussed within Part 9 of this report.

## **5.7 Heritage**

A review of national, state and local heritage lists was considered in selecting the site. The site is not identified as being located on any list or register relating to heritage conservation, nor any area of Aboriginal Heritage as registered under the *Aboriginal Cultural Heritage Act 2021*.

Nonetheless, if artefacts or other cultural remains are discovered during the minimal excavation associated with the works to be undertaken, the work will cease pending consultation with staff of the Department of Planning Lands and Heritage and Aboriginal custodial groups.

There is however no anticipated impact on any important fabric (heritage, cultural or otherwise) resulting from the proposal.

## **5.8 Aviation**

The proposed facility is not expected to have any impact on aviation safety. The facility is approximately 50 kilometres north of Perth Airport, and 37 kilometres from the Royal Australian Air Force Base Pearce. The proposal does not penetrate any identified obstacle limitation surface. No specific aviation safety measures, such as lighting or obstacle paintwork, are proposed.



## 6. Legislative Context

### 6.1 Commonwealth Legislation

#### 6.1.1 Telecommunications Act 1997 and Telecommunications (Low-Impact Facilities) Determination 2018

Optus and Vodafone are a licensed carriers within the meaning of the *Telecommunications Act 1997* (the “Act”). *The Telecommunications (Low-impact Facilities) Determination 2018 (Amendment 1, 2021)* (the “Determination”), made under subclause 6(3) of Schedule 3 of the Act, establishes the criteria for ‘low-impact’ telecommunications facilities. A proposed facility is a low-impact facility if it meets the requirements set out in the Determination, exempting Carriers from State and Local planning laws. Under the Act and the Determination, certain telecommunications facilities cannot be classified as low-impact facilities.

The proposed facility is not classified as a low-impact facility, as new monopole facilities do not fulfill the necessary requirements. The proposal therefore requires planning approval.

#### 6.1.2 Telecommunications Code of Practice 2021

The *Telecommunications Code of Practice 2021* (the “Code”) is established under the Act, which sets out the conditions under which a carrier must operate. Section 2.11 of the Code sets out the design, planning and installation requirements for the carriers to ensure the installation is in accordance with industry “best practice”. This is required to “...*minimise the potential degradation of the environment and the visual amenity associated with the facilities.*”

Best practice also involves the carrier complying with any relevant industry code or standard that is registered by the Australian Communications and Media Authority (ACMA) under Part 6 of the Act.

#### 6.1.3 C564:2020 Mobile Phone Base Station Deployment Code

The Industry Code C564:2020 Mobile Phone Base Station Deployment (the “Deployment Code”) was developed in response to calls for greater council and community involvement when telecommunications facilities are installed. The Deployment Code supplements the existing obligations on carriers, particularly in relation to community consultation and the consideration of exposure to EME. The Deployment Code imposes mandatory levels of notification and community

consultation for sites not requiring development approval (such as low-impact facilities). It identifies varying levels of consultation depending on the type and location of the proposed infrastructure.

As the proposed facility is not considered to be a low-impact facility under the Determination, it is not subject to the notification or consultation requirements specified in the Deployment Code. These processes are handled within the relevant State and Local approval notification procedures.

Sections 4.1 and 4.2 of the Code are relevant to this proposal, and require a precautionary approach to site selection, infrastructure design and site operation. The proposed facility has been sited and designed in accordance with Sections 4.1 and 4.2. Checklists demonstrating compliance can be provided on request.

#### **6.1.4 Environment Protection and Biodiversity Conservation Act 1999**

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Act relates to the assessment and approval of proposals where those proposals involve actions that have a significant impact on matters of national environmental significance (MNES). Under this legislation, an action will require approval from the Minister of Environment if the action has or is likely to have an impact on a 'matter of national environmental significance' (MNES). In the EPBC Act there are nine MNES which must be considered.

- world heritage properties
- national heritage places
- wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under which such wetlands are listed)
- nationally threatened species and ecological communities
- migratory species
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions (including uranium mining)
- a water resource, in relation to coal seam gas development and large coal mining development.

The document Matters of National Environmental Significance Significant impact guidelines 1.1, 2013 (the MNES Guidelines) sets out relevant considerations to determine whether an action is likely to impact a MNES.

## **6.2 State Legislation**

### **6.2.1 Planning and Development Act 2005**

The *Planning and Development Act 2005* (the “Planning and Development Act”) sets out the planning and development assessment framework for Western Australia.

Parts 4 and 5 of the Planning and Development Act allows for the establishment of state and local planning schemes under which town planning proposals can be assessed throughout Western Australia. Part 2 of the Planning and Development Act establishes the Western Australian Planning Commission (the “Commission”) as the state statutory authority with regards to land use planning. A key function the Commission holds is the power to delegate its functions including its determining authority powers to local governments and other statutory bodies (established under Part 2, Clause 16). This function in turn allows for Local Governments to assess and determine certain applications that fall within their Local Planning Scheme area, including (in this case) the City of Wanneroo.

### **6.2.2 Planning and Development (Local Planning Scheme) Regulations 2015**

The Planning and Development (Local Planning Schemes) Regulations 2015 (the Regulations) provide guidance on the establishment of local planning schemes and introduces a set of deemed provisions that form part of every local planning scheme in the State. Schedule 2 (deemed provisions), Part 9, Clause 67 of the Regulations outline matters to be given due regard when considering a development application. An assessment of the proposal’s compliance with the Clause 67 regulations is provided within this report.

### **6.2.3 State Planning Policy 5.2 – Telecommunications Infrastructure**

State Planning Policy 5.2 – Telecommunications Infrastructure (SPP5.2) outlines provisions for effective telecommunications services and networks that consider visual character of local areas. Clause 4 (c) Policy Objectives of SPP5.2 states: *The objectives of this policy are to ensure that telecommunications infrastructure is included in relevant planning processes as essential infrastructure for business, personal and emergency reasons.* Part 5 Policy Measures outlines specific provisions relating to ensuring the appropriate deployment of Telecommunications Infrastructure in Western Australia. An assessment of the principles are provided within this Report.



## **6.3 Local Legislation**

### **6.3.1 City of Wanneroo District Planning Scheme No. 2**

The City of Wanneroo District Planning Scheme No. 2 (DPS2) is the primary document under-which town planning applications are assessed in the Council area. Specifically, DPS2 provides zoning and land use controls, as well as additional development controls including for with provisions for setbacks being relevant in this case.

### **6.3.2 Local Planning Policy 2.5 - Telecommunications infrastructure**

The City of Wanneroo Local Planning Policy 2.5 - Telecommunications infrastructure (Telecommunications Policy) provides guidance to Council in assessing development applications for telecommunications facilities.

The objectives of the Telecommunications Policy are to:

- 1. Facilitate the provision of telecommunications infrastructure in an efficient and environmentally responsible manner to meet community needs;*
- 2. Manage the environmental, cultural heritage, visual and social impacts of telecommunications infrastructure;*
- 3. Promote co-location of telecommunications infrastructure wherever possible; and*
- 4. Promote a consistent approach in the preparation, assessment and determination of proposals for telecommunications infrastructure.*

The Policy Table provided under Schedule 1 of the Telecommunications Policy outlines provisions for the Council area. A response to these principles and standards is provided within this report.

## 7. Planning Response

### 7.1 City of Wanneroo District Planning Scheme No. 2

#### 7.1.1 Zoning

The subject site is located within the Private Clubs/Recreation Zone, pursuant to the DPS2. Part 3 Clause 9 of DPS2 provides the following objective specific to the Private Clubs/Recreation zone. This is as follows:

*The objective of the Private Clubs/Recreation Zone is to accommodate uses such as private golf clubs, private educational, institutional, recreational and tourist accommodation activities*

The proposal will assist in supporting the golfing and social activities that form part of the use of the Sun City Country Club as a private club. The proposal is located where it does not impede any of the existing activities, while also providing a substantial public benefit to the surrounding areas.

The proposal is therefore considered to be consistent with the abovementioned objective for the Private Clubs/Recreation zone.

#### 7.1.2 Land Use

According to Schedule 1, Clause 1.9 Interpretations of DPS2, 'telecommunications infrastructure' is defined as follows:

*means premises used to accommodate the infrastructure used by or in connection with a telecommunications network including any line, equipment, apparatus, tower, antenna, tunnel, duct, hole, pit or other structure related to the network. The proposed infrastructure is consistent with the above defined land use.*

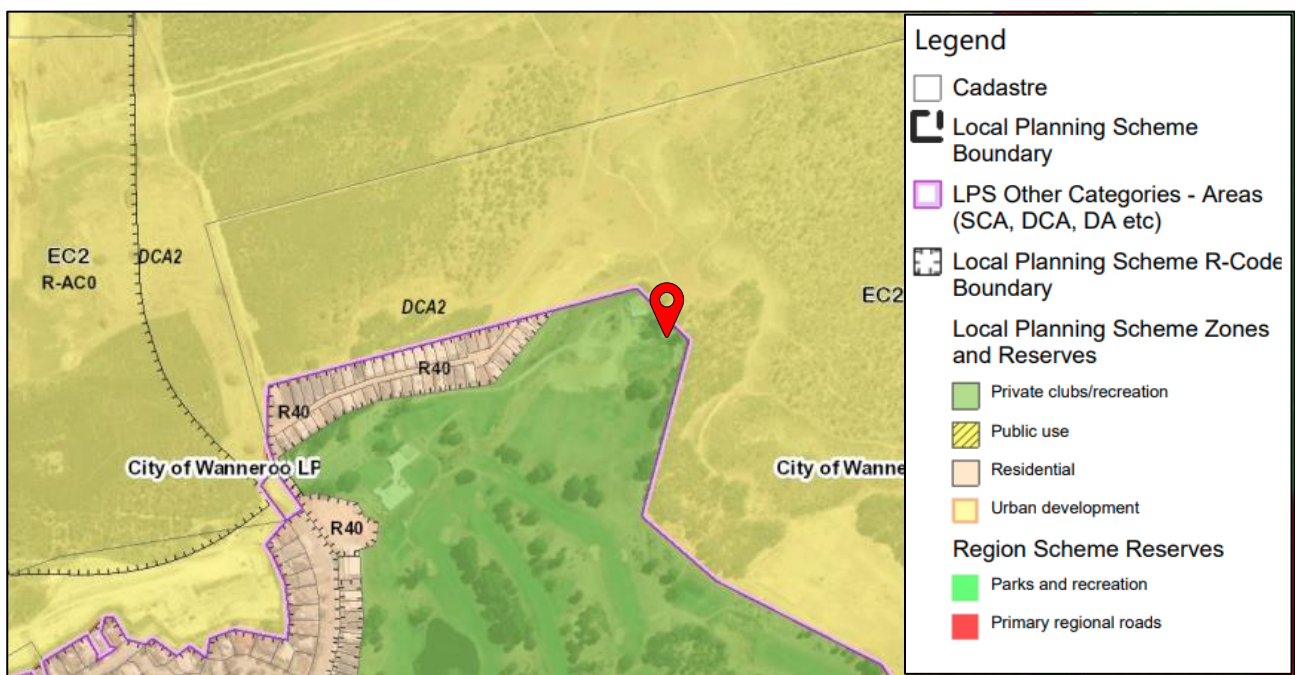
The proposed development is consistent with the above defined land use.

'Telecommunications infrastructure' is a 'D' use in the Private Clubs/Recreation zone under table 1 (clause 3.2) of DPS2. Under the provisions of Clause 6.2.2 of DPS2, the following is provided:

*The local government in exercising its discretion as to the approval or refusal of an application for Development Approval, shall have regard to the provisions of Clause 67 of the deemed provisions.*

The land use is compatible with the current zoning objectives and is positioned to not detract from the surrounding character or uses of the land. Considering the proposal's compliance with the zone objectives and its location in the context of its surroundings, the land use warrants approval.

**Figure 9** depicts the proposal's location within the Private Clubs/Recreation zone.



**Figure 9 – Zoning of the proposal (PlanWA)**

### 7.1.3 General Development Requirements

Part 4 General Development Requirements of DPS2 provides additional provisions specific to the built form of proposals within the DPS2 area.

#### 1. Setbacks

Clause 4.7.1 of DPS2 provides street, side and rear setbacks for the proposal. For the purposes of the assessment, the Lot's frontage is assessed as being to the west along St Andrews Drive, with the side and rear setbacks assumed to be the northern and eastern setbacks accordingly. An assessment of the proposal's compliance is provided within **Table 4** below.

Facility	Required	Provided	Compliance
Street	6 metres	480 metres	Yes
Rear	0 metres	52 metres	Yes
Side	0 metres	6 metres	Yes

**Table 4: Setback Provisions**

The proposed development is positioned to balance several factors including minimising the impact on the existing use of the site, ensuring there's adequate access and utilities nearby to accommodate the proposal and minimising the impact on surrounding dwellings. Acknowledging the 33.8 metre height of the proposal, the site is positioned more than 100 metres from the nearest existing dwelling, and the impact on future residential land uses to the east and north is not considered to be substantial, especially due to the existing vegetation between the proposal and these boundaries.

Considering the above, the proposal is considered to warrant approval.



## 7.2 Planning and Development (Local Planning Scheme) Regulations 2015

Clause 67 – Part 9 – Schedule 2 (deemed provisions) of the Regulations outline matters to be given due regard by local government when considering a development application. **Table 5** below provides an assessment against matters relevant to this proposal.

Clause 67 Provisions	Response
(a) the aims and provisions of this Scheme and any other local planning scheme operating within the Scheme area;	The proposal's consistency DPS2 has been addressed in Part 7.1 of this report. The proposed development is considered to be consistent with the provisions and warrants approval.
(b) the requirements of orderly and proper planning including any proposed local planning scheme or amendment to this Scheme that has been advertised under the Planning and Development (Local Planning Schemes) Regulations 2015 or any other proposed planning instrument that the local government is seriously considering adopting or approving;	This report demonstrates the proposed development is consistent with the applicable Council planning framework.  The proposed development is not affected by any identified proposed amendments or any other seriously entertained planning instrument.
(c) any approved State planning policy;	The proposed development is consistent with the provisions of SPP5.2 – Telecommunications Infrastructure as demonstrated below in this section of this report. No other state planning policy has been identified as being relevant to this application.
(d) any environmental protection policy approved under the Environmental Protection Act 1986 section 31(d);	The proposed development is not considered to be affected by any policy approved under the <i>Environmental Protection Act 1986</i> .
(e) any policy of the Commission;	The proposed development is not identified to be affected by any development control policy or any other policy adopted by the Commission.

(f) any policy of the State;	This report assesses the proposal's compliance and consistency with SPP5.2 – Telecommunications Infrastructure. The proposal is considered to be consistent with this policy.
(g) any local planning policy for the Scheme area;	An assessment against the Council Telecommunications Policy has been provided as part of this report.
(h) any structure plan, activity centre plan or local development plan that relates to the development;	The proposed development is not identified to be affected by any structure plan, activity centre plan or local development plan.
(i) any report of the review of the local planning scheme that has been published under the Planning and Development (Local Planning Schemes) Regulations 2015;	The proposed development does not appear to be impacted by any published review of the DPS2.
(j) in the case of land reserved under this Scheme, the objectives for the reserve and the additional and permitted uses identified in this Scheme for the reserve;	The proposal is on zoned land and does not appear to be affected by any proposal to re-classify the zoning into a reserve.
(k) the built heritage conservation of any place that is of cultural significance;	There are no nearby heritage items or any significant fabric that could be impacted by the proposal.
(l) the effect of the proposal on the cultural heritage significance of the area in which the development is located;	
(m) the compatibility of the development with its setting including the relationship of the development to development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development;	The height, bulk, scale and orientation of the proposal have all been considered. The proposal is positioned to minimise the impact on nearby dwellings as much as possible, as well as the surrounding primary and secondary streets. The height of the proposal is necessary to provide the required network coverage to the surrounding area.
(n) the amenity of the locality including the following —	(i) the environmental impacts of the proposed structure are minimal, with only minor vegetation removal.

<ul style="list-style-type: none"> <li>(i) environmental impacts of the development;</li> <li>(ii) the character of the locality;</li> <li>(iii) social impacts of the development;</li> </ul>	<ul style="list-style-type: none"> <li>(ii) The proposed monopole is not considered to impact on the character of the locality, by virtue of the matters mentioned under (m) above.</li> <li>(iii) The provision of network coverage to the surrounding existing and future residential and commercial areas will substantially improve opportunities for hospitality, tourism for the surrounding area, resulting in substantial social benefits.</li> </ul>
<p>(o) the likely effect of the development on the natural environment or water resources and any means that are proposed to protect or to mitigate impacts on the natural environment or the water resource;</p>	<p>The proposed structure is unmanned, has minimal impact (if any) on the natural environment and no impact on water resources. This is because the proposal is not required to be connected to a water source and can be completely dependent on power and fibre connections.</p>
<p>(p) whether adequate provision has been made for the landscaping of the land to which the application relates and whether any trees or other vegetation on the land should be preserved;</p>	<p>The separation is already considered adequate to minimise any impact from St Andrews Drive, with the existing perimeter vegetation already screening the proposal to the north and east. There are some limitations on providing more landscaping, as this in turn would impact on impact on the side and rear accesses to the existing golf course garage. There is already existing landscaping to the east of the facility, with the provision for additional landscaping not considered required.</p>
<p>(q) the suitability of the land for the development taking into account the possible risk of flooding, tidal inundation, subsidence, landslip, bush fire, soil erosion, land degradation or any other risk;</p>	<p>The proposed facility is not identified as being within a bushfire prone area, and the provisions of State Planning Policy 3.7 – Planning in Bushfire Prone Areas accordingly do not apply to this proposal.</p> <p>The subject site ground level elevation of approximately 33 AHD and is not considered to be impacted by any future flooding event.</p>
<p>(r) the suitability of the land for the development taking into account the possible risk to human health or safety;</p>	<p>The proposed structure is positioned away from dwellings, roads and pedestrian walkways. The location and the compound further restricts access to the tower and equipment. All equipment will follow</p>

	the associated industry codes, industry standards, and technical standards.
(s) the adequacy of — (i) the proposed means of access to and egress from the site; and (ii) arrangements for the loading, unloading, manoeuvring and parking of vehicles;	There is already sufficient room for vehicles during construction. There is also enough room for access and maintenance vehicles, which will service the compound several times a year. Access to the proposed is already considered adequate and does not require upgrading.
(t) the amount of traffic likely to be generated by the development, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety;	No significant traffic will be generated by the proposal and no roads will require upgrading.
(u) the availability and adequacy for the development of the following — (i) public transport services; (ii) public utility services; (iii) storage, management and collection of waste; (iv) access for pedestrians and cyclists (including end of trip storage, toilet and shower facilities); (v) access by older people and people with disability;	Power will be obtained from the existing points of supply and will be subject to the necessary agreements with Western Power. The proposed fibre route will be sought from the existing Optus network and will be subject to additional investigations.  The site is on private land where public access is restricted as much as practically possible.
(v) the potential loss of any community service or benefit resulting from the development other than potential loss that may result from economic competition between new and existing businesses;	By virtue of the provision of mobile network coverage for Optus and Vodafone, the proposal will provide a substantial community benefit to the surrounding area for businesses and residents.
(w) The history of the site where the development is to be located.	No historical considerations relevant to this application have been identified.
(x) the impact of the development on the community as a whole notwithstanding the impact of the development on particular individuals;	The proposal is for a private use, is positioned away from the nearby streets and any negative visual impact is considered to be greatly outweighed by the community benefits.



(y) any submissions received on the application;	The proposal is considered to be consistent with the applicable town planning provisions, as outlined in this report.
(za) the comments or submissions received from any authority consulted under clause 66;	
(zb) any other planning consideration the local government considers appropriate	Works that are associated with the proposal are minor, and the impact on the amenity of the locality is minimal.

**Table 5 – Clause 67 Provisions**

Based on the compliance as outlined in this submission, the proposal warrants approval.

### 7.3 State Planning Policy 5.2 – Telecommunications Infrastructure

The policy measures outlined in Part 5 of SPP5.2 are considered relevant to this proposal. These are set out in **Table 6** below.

Policy provision	Response
Telecommunications infrastructure should be sited and designed to minimise visual impact and whenever possible:	
be located where it will not be prominently visible from significant viewing locations such as scenic routes, lookouts and recreation sites;	<p>The proposal is in a rural residential setting, in a location that is considered obscure and from the St Andrews Drive</p> <p>It is not considered the proposal will be prominently visible from significant viewing locations such as scenic routes, lookouts and public recreation sites.</p>
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;	No heritage places were identified near this proposal. Furthermore, no significant landmarks, streetscapes, vistas or panoramas were identified near the proposed location from a search of Council and community documents.

not be located on sites where environmental, cultural heritage, social and visual landscape values may be compromised;	No environmental, cultural heritage, social or landscape values are considered compromised by the placement of the proposal.
display design features, including scale, materials, external colours and finishes that are sympathetic to the surrounding landscape;	The monopole is proposed to be of a galvanised finish, which is non-reflective and the most appropriate for blending in with the sky and the vegetation.  The overall design features, including the scale, materials, external colours and finishes are considered to be sympathetic to the surrounding landscape

**Table 6: Visual Impacts expectations set out in SPP 5.2.**

## 7.4 City of Wanneroo Telecommunications Policy

The relevant provisions to telecommunications infrastructure within the Telecommunications Policy are outlined within its Policy Table. These are outlined below within **Table 7 below**:

Item	Column	Provision	Planning Response
<b>Location</b>			
L1	B	The applicant has demonstrated that the proposed telecommunications infrastructure addresses an existing lack of coverage or service availability in the locality.	As provided within <b>Figure 2</b> of this report, there are no facilities that are able to adequately service the suburbs and future growth surrounding St Andrews Drive, the future Mitchell Freeway extension or the Yanchep City Structure Plan. The facility is specifically planned to fill this gap.
L2	B	Proposed telecommunications infrastructure is not located on a lot where an adjoining lot is zoned 'Residential', 'Mixed Use', 'Special Rural', 'Rural Community', 'Landscape Enhancement' or 'Special Residential'.	The proposal is not in any of the mentioned zones.
L3	B	Proposed telecommunications infrastructure situated in the 'Business',	This provision is not applicable to the proposal

		'Commercial', 'Civic and Cultural', 'Service Industrial' or 'General Industrial' zone should be located away from street boundaries, and behind any buildings that exist on the same land.	
<b>Design</b>			
D1	B	The applicant demonstrates that the proposed telecommunications infrastructure is confined to a height and dimension that balances the need to provide for appropriate network coverage for the surrounding area, whilst minimising loss of amenity in the locality.	<p>In order to achieve the required coverage criteria, a facility height of 33.8 metres is required, inclusive of the monopole and antennas. This is balancing the original radiofrequency assessment for the antennas at 35 metres, and the potential impact on the surrounding existing current and future residential.</p> <p>The height further needs to balance the provision for a future third carrier on the pole. The headframe of the proposal ensures that all pole-mounted equipment for Optus and Vodafone can be maintained on the triangular headframe, while also ensuring that a future third carrier can be accommodated at the most optimum height as possible.</p> <p>The height and scale of the pole as per the above can assist in ensuring proliferation of telecommunications facilities can be avoided,</p>
D2	B	<p>The applicant demonstrates that the telecommunications infrastructure is:</p> <ul style="list-style-type: none"> <li>• Located where it will not be prominently visible from significant viewing locations such as scenic routes, lookouts and recreation sites;</li> </ul>	<p>The proposal is positioned away from scenic routes including public and private lookouts. The proposal maintains a separation of 130 metres from the nearest dwelling, and accordingly will not be a prominent feature.</p> <p>The area to the east of the proposed location is set aside for strategic open space for the purposes of "Landform and Vegetation</p>

		<ul style="list-style-type: none"> <li>• Located to avoid detracting from a significant view of a landmark, streetscape, vista or panorama whether viewed from public or private land; and</li> <li>• Not located on sites where environmental, cultural heritage, social and visual landscape values may be compromised.</li> </ul>	<p>Retention” (in accordance with Table 1 of the Yanchep City Structure Plan No.68 Implementation Report). Future residential development to the east will therefore not be significantly affected.</p> <p>No identified environmental, cultural, heritage, social, visual or landscape values are considered to be compromised by the proposal.</p>
D3	B	The applicant demonstrates that the proposal for telecommunications infrastructure can enable the co-location of at least two (2) separate telecommunication carriers on the subject site.	The facility has been designed to allow for up to three carriers. This is through both through the structural capacity of the pole and the space available at ground level within the compound.
D4	B	Telecommunications infrastructure (including any ‘on-ground’ facilities provided) is finished with non-reflective material in a neutral colour to minimise visual intrusion.	<p>The proposed structure will be of steel construction, which will quickly fade and is a finish that is non-reflective and of neutral in colour. Antennas and associated equipment will be factory finish, which is non-reflective and neutral colours.</p> <p>The equipment cabinet will be painted to a colour to blend in with the ground-level vegetation.</p>
D5	C	The base of any monopole or lattice tower as well as any associated equipment shelters is screened from view from the public domain and adjoining properties by mature vegetation or other suitable screening or landscaping to the satisfaction of the City.	The proposed facility is 130 metres from the rear of the nearest dwellings, and it is not considered that landscaping would be beneficial in noticeably improving the visual quality of the proposed facility. Accordingly, no additional landscaping has been proposed.

**Table 7: Provisions and Standards within the Council Telecommunications Policy**

The proposal is considered consistent with the abovementioned provisions and warrants approval.



## 8. Visual Impact

By their nature, telecommunications facilities are required to protrude above the surrounding environment to provide service. At this location, a monopole of 30 metres high is required. The total height of the facility, inclusive of the antennas and headframe will be approximately 33.8 metres above ground level.

While the facility will be visible from a number of perspectives within the local area, Indara, Vodafone and Optus have attempted to minimise the visual impact of the proposed facility as far as possible. This has been achieved through the significant separation from surrounding dwellings.

The pole is proposed to be finished in an unpainted, non-reflective grey. Grey facilities tend to blend well into the skyline in all weather conditions. This is considered appropriate given the vegetation at the base of the pole and the likely viewing locations of the pole (from both public and private land). A larger profile and headframe for the pole was deliberately chosen to maximise the potential for co-location of other phone carriers, in order to avoid future proliferation of these facilities.

The ability to assess the visual impact of the proposal is limited due to the inability to access private land and development areas for the purposes of the assessment. This includes from the private gated estate to the north, as well as the undeveloped land to the east of the golf course.

The closest dwellings within the estate to the north of the golf course are orientated to the north, and it is anticipated that the visual quality of the views from these dwellings towards the proposed site location will not be significantly degraded by the proposal.

As also outlined above in addressing the provisions provided in the Policy Table of the Council Telecommunications Policy, the area to the east of the proposed location is set aside for strategic open space for the purposes of "Landform and Vegetation Retention" (in accordance with Table 1 of the Yanchep City Structure Plan No.68 Implementation Report). This area is already highly vegetated, and the anticipated views from the surrounding dwellings are not anticipated to be substantial.

The proposal is more than 450 metres from any dwelling to the west of golf course (along St Andrews Drive), and approximately 850 metres from dwellings to the south of the golf course (along Brassie Terrace). Views are therefore assessed from internally within the golf course from a distance of approximately 200 metres.

## 8.1 View from the west of the monopole.

The proposal is anticipated to be slightly visible from within the golf course, and an assessment of its impact has been undertaken from approximately 200 metres to the west. Views from this location are also likely to best replicate the views from the north within the residential estate north of St Andrews Drive. The view is likely to encompass the upper portion of the pole and its headframe, with some of the surrounding vegetation screening the compound and the lower portion of the compound.

**Figure 10** on the following page depicts the likely view of the proposal from within the golf course at a distance of approximately 200 metres.



**Figure 10:** View from within the Sun City Country Club Golf Course facing the proposed facility location (facing east).

Photomontages that depict the proposal from this location are attached within **Appendix 4**.

## 8.2 Visual Impact Conclusion

Telecommunications facilities, by their nature, must be tall enough to protrude above the surrounding environment to function. Indara acknowledge the facility will be visible from a number of perspectives within the area – however, visual impact of this project is considered appropriate in context.

- The facility's grey colour scheme is designed to help it blend into its urban surroundings and represent a lower impact visual outcome in all weathers.
- The facility has been sited to maximise setbacks and reduce the visual impacts from surrounding dwellings.

Indara have endeavoured to minimise impact on residents as far as possible. The facility will be visible from several locations within the area, but its impact has been mitigated as far as practicable.

## 9. Environmental Impacts

### 9.1 EPBC Act Protected Matters Search Tool

A search of the EPBC Act Protected Matters Search Tool (PMST) was undertaken on 22 June 2022, refer to the PMST report enclosed in **Appendix 5**. The PMST report shows the following MNES:

- 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: 24
- Listed Migratory Species: 8

There are two identified Threatened Ecological Communities and 24 Threatened Species within a 50 metre buffer of the proposal location coordinates (-31.533576, 115.655230).

Although some branch pruning removal is required, it is not considered to be substantial as to detrimentally impact any of the above. The proposal will not impact on an MNES and it is considered that the proposal does not warrant referral to the Commonwealth Minister of Environment under the requirements of the EPBC Act.



## 10. Radiofrequency Emissions and Safety

It is the position of the Australian government, and peak health bodies like the World Health Organization (WHO), that mobile base stations are safe.

### **Statement from Australia's Chief Medical Officer**

*I'd like to reassure the community that 5G technology is safe. There is no evidence that telecommunication technologies, such as 5G, cause adverse health impacts. This position is supported by health authorities in Australia – such as the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) – and around the world, such as the World Health Organization.*

*Mobile phone networks and other wireless telecommunications emit low-powered radio waves also known as radiofrequency (RF) electromagnetic energy (EME). This is different to ionising radiation associated with nuclear energy or use in medicine. The radio waves to which the general public is exposed from telecommunications are not hazardous to human health.*

**<https://www.health.gov.au/news/safety-of-5g-technology>**

### **Australian Government Advice**

*What do we know about EME? Answer: extensive scientific research confirms that mobile technology has no long or short term health effects; and the Australian Government is focused on capturing the benefits of advanced telecommunications while ensuring strict protections and safety standards are met.*

*The EME standard set by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) defines the maximum exposure limit for all wireless equipment and is strictly enforced by the Australian Communications and Media Authority (ACMA). Measurements undertaken by carriers and ACMA show that mobile telecommunication sites emit a tiny fraction of maximum EME exposure limits. The exposure limits are themselves very conservative. As such, sites which operate at 100% of the limit are still considered safe.*

*This standard is informed by decades of quality studies undertaken by expert Australian and international scientists which show the low levels of EME produced by telecommunications equipment have no adverse effects. This includes previous generations of mobile technology, like 3G and 4G, and the higher, more efficient, radio waves used for 5G.*

**<https://www.infrastructure.gov.au/media-centre/5g-and-electromagnetic-energy>**

*EME is one of the most heavily studied types of energy in the world. Decades of research shows there is no verifiable evidence that EME from telecommunications facilities pose a negative health risk, especially when emission levels are below the maximum exposure limits set out in the Standard for Limiting Exposure to Radiofrequency Fields – 100 kHz to 300 GHz (the Standard).*

**<https://www.infrastructure.gov.au/media-technology-communications/spectrum/5g-eme>**

All mobile base stations in Australia must comply with a strict safety standard called the *Standard for Limiting Exposure to Radiofrequency Fields – 100 KHz to 300 GHz (RPS S-1)*. The standard has been prepared by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), based on the recommendations of ICNIRP (International Commission for Non-Ionising Radiation Protection).

The Australian Communications and Media Authority (ACMA) regulates compliance with the standard. The safety standard applies to all mobile frequencies currently used in Australia, including 3G, 4G and 5G.

The Standard operates by placing a limit on the strength of the signal (or RF EME) that mobile carriers can transmit to and from any network base station. The environmental standard restricts the signal strength to a level low enough to protect all people at all times. It has a significant safety margin, or precautionary approach, built into it.

An ARPANSA EME report has been prepared to demonstrate compliance with the Australian standard. This report demonstrates the maximum signal strength that a proposed telecommunications facility is capable of producing, assuming it is operating at maximum capacity.

This facility will operate at maximum EME levels representing **2.53%** of the Australian standard.

Note that mobile base stations are designed to operate at minimum, not maximum, power levels at all times. The facility will only operate at a level necessary to accommodate the number of customers using the facility at any one time. Actual EME levels emitted by the facility will generally be much lower than those shown in the ARPANSA EME Report.

## 11. Conclusion

Catalyst and Indara seeking development consent to install a new telecommunications facility at Sun City Country Club, 144 St Andrews Drive, Yanchep WA 6035. The new facility is proposed to improve mobile services to the suburbs of the existing and future residential suburbs in the east of Yanchep as covered by the Yanchep City Structure Plan area as well as portions of the Yanchep National Park.

The facility has been sited to minimise impact on surrounding land uses as far as practicable, generally accords with planning requirements for the site, and has as small as possible a visual impact.

Given the significant public benefit afforded by the proposal, it is requested that planning approval be provided by the City of Wanneroo.

# Appendix 1: Certificate of Title

WESTERN



AUSTRALIA

REGISTER NUMBER <b>888/DP408518</b>	
DUPLICATE EDITION <b>N/A</b>	DATE DUPLICATE ISSUED <b>N/A</b>

**RECORD OF CERTIFICATE OF TITLE**  
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **2914** FOLIO **170**

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



**LAND DESCRIPTION:**

LOT 888 ON DEPOSITED PLAN 408518

**REGISTERED PROPRIETOR:**  
(FIRST SCHEDULE)

SUN CITY COUNTRY CLUB INC OF 144 ST ANDREWS DRIVE YANCHEP WA 6035  
(AF N458794 ) REGISTERED 8/11/2016

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

- \*EXCEPT AND RESERVING METALS, MINERALS, GEMS AND MINERAL OIL SPECIFIED IN TRANSFER 1466/1928.
- \*B365887 EASEMENT (FOR/INCLUDES WATER/DRAINAGE/SEWERAGE PURPOSE) TO CITY OF WANNEROO - SEE DEPOSITED PLAN 408518. REGISTERED 6/7/1977.
- \*M522940 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA REGISTERED 16/1/2014.
- \*N450913 EASEMENT TO CITY OF WANNEROO FOR DRAINAGE PURPOSES - SEE SKETCH ON DEPOSITED PLAN 408518. REGISTERED 5/10/2016.
- \*N450914 EASEMENT TO CITY OF WANNEROO FOR DRAINAGE PURPOSES - SEE SKETCH ON DEPOSITED PLAN 408518. REGISTERED 5/10/2016.
- \*EASEMENT BURDEN CREATED UNDER SECTION 167 P. & D. ACT FOR SEWERAGE PURPOSES TO WATER CORPORATION - SEE DEPOSITED PLAN 408518

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: DP408518  
PREVIOUS TITLE: 2709-709  
PROPERTY STREET ADDRESS: 144 ST ANDREWS DR, YANCHEP.  
LOCAL GOVERNMENT AUTHORITY: CITY OF WANNEROO

END OF PAGE 1 - CONTINUED OVER



RECORD OF CERTIFICATE OF TITLE

REGISTER NUMBER: 888/DP408518

VOLUME/FOLIO: 2914-170

PAGE 2

NOTE 1:                   DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING I791717  
NOTE 2:    I197180       SECTION 138D TLA APPLIES TO CAVEAT H659592

# Appendix 2: Proposal Plans

DATE OF ISSUE

06/03/23

DRAWING PACKAGE VERSION

1

**GENERAL DRAWINGS**

G1 | SITE AND LOCALITY PLANS

A

G2 | SITE SETOUT PLAN

A

G3 | SITE ELEVATION

A

**LEASE DRAWINGS**

L1 | LEASE PLAN

A

**RADHAZ / EXCLUSION ZONE DRAWING**

**STRUCTURAL DRAWINGS**

**ELECTRICAL DRAWINGS**

**FITOUT ROOM DRAWINGS**

**REFERENCE DRAWINGS**

**DISTRIBUTION LIST**

INDARA | INDARA REGIONAL PM

1



INDARA SITE NO: 3400948

JOINT VENTURE NO JP5020

**SITE NUMBER 640244**

**YANCHEP GC-V**

SUN CITY COUNTRY CLUB

144 ST ANDREWS DRIVE

YANCHEP, WA 6035

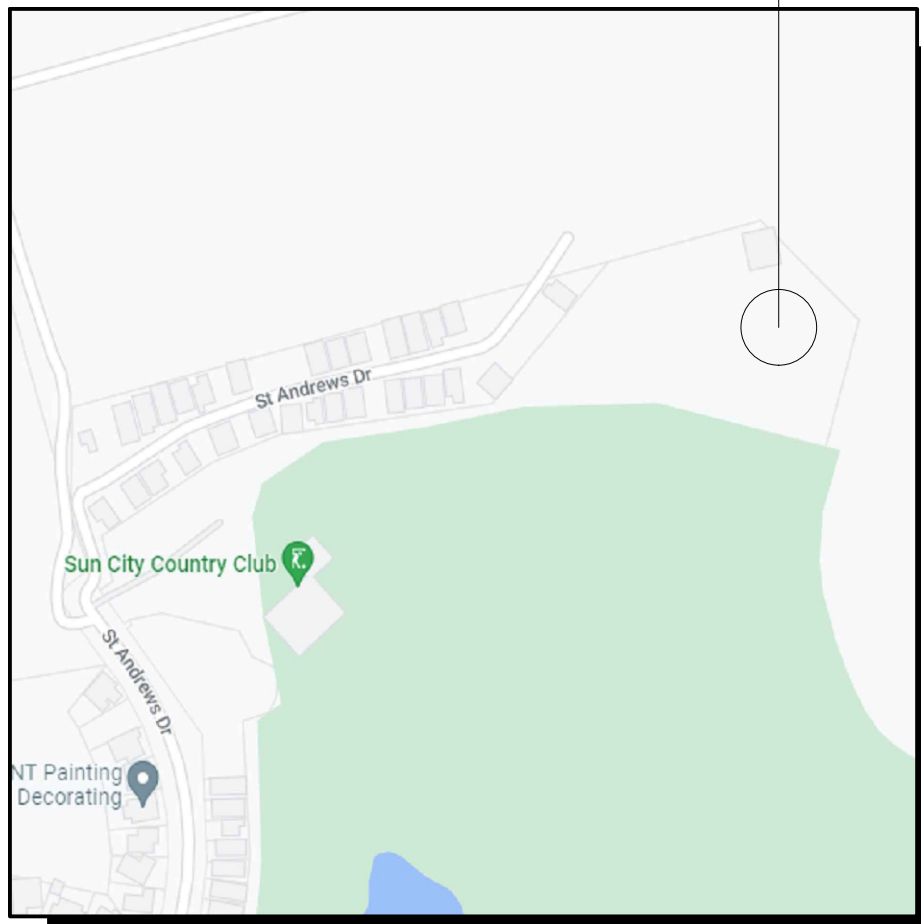
**GREENFIELD eJV - INDARA**

**PRELIMINARY**

DRAWING NO. **640244-00**



INDARA SITE 3400948

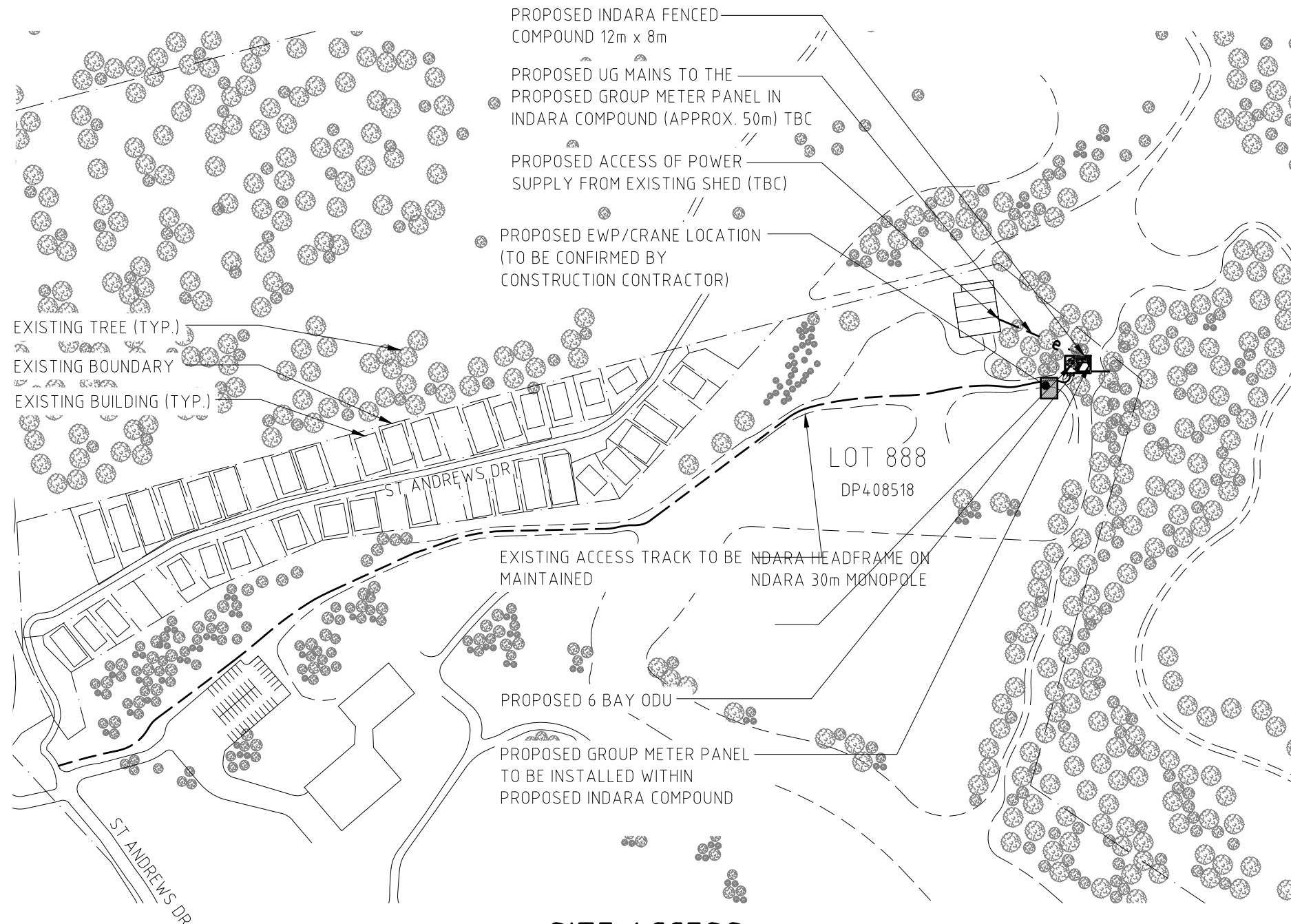


COPYRIGHT © GOOGLE MAPS

**SITE LOCALITY PLAN**

NOT TO SCALE

<b>RFNSA NUMBER: 6035003</b>	
SITE NAME	SITE ID
YANCHEP GC-V	640244



**SITE ACCESS**

SCALE 1:2500

**LEGEND**

- PROPERTY BOUNDARY
- - - e - - - PROPOSED UNDERGROUND POWER
- . - . - . - PROPOSED INDARA LEASE AREA

**NOTES:**

1. EXISTING SURFACE SOIL TO BE LEVELED.
2. EXISTING TREES TO BE REMOVED/TRIMMED TO INSTALL THE PROPOSED ODU AND MONOPOLE.
3. U/G SERVICE CHECK TO BE DONE TO DETERMINE THE SERVICES IF PRESENT NEARBY.

JOINT VENTURE NO: JP5020

TITLE		SITE AND LOCALITY PLANS	
DRAWING STATUS	DRAWING No.	REV	
PRELIMINARY	640244 - G1	A	



SITE NUMBER 640244  
YANCHEP GC-V  
SUN CITY COUNTRY CLUB  
144 ST ANDREWS DRIVE, YANCHEP, WA 6035

GREENFIELD eJV - INDARA  
INDARA SITE No: 3400948

A	06.03.23	PRELIMINARY (GREENFIELD EJV - INDARA)	INDARA	JM	NP	PM
REV	DATE	REVISION DESCRIPTION	VENDOR	DRAWN	DESIGNED	APPRD



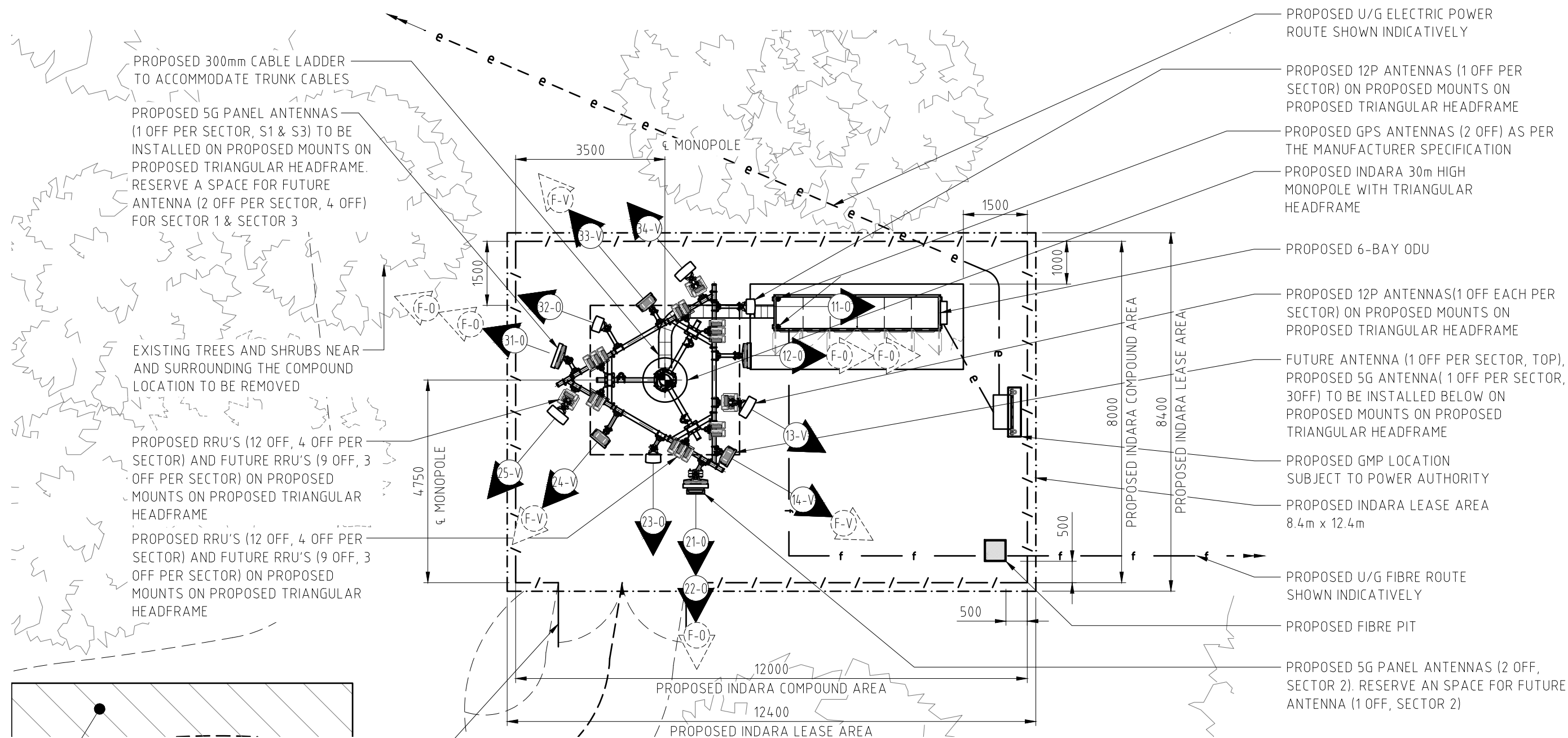
**NOTES:**

1. EXISTING SURFACE SOIL TO BE LEVELED.
2. EXISTING TREES TO BE REMOVED/TRIMMED TO INSTALL THE PROPOSED ODU AND MONOPOLE.
3. U/G SERVICE CHECK TO BE DONE TO DETERMINE THE SERVICES IF PRESENT NEARBY.

**LEGEND:**



DATUM POINT	GDA94 CO-ORDINATES		ZONE	GROUND LEVEL
●	EASTING	372 335	50	A.H.D RL. 34.00m EL 0.0m
	NORTHING	6 510 478		
	LATITUDE	-31.533576°		
	LONGITUDE	115.655230°		



**SITE SETOUT PLAN**

SCALE 1:100

**LEGEND**

- — — — — EXISTING PROPERTY BOUNDARY
- / — — — — PROPOSED FENCE
- - - - - PROPOSED INDARA LEASE AREA
- f - f - PROPOSED FIBRE ROUTE
- - e - e - PROPOSED UNDERGROUND POWER

PROPOSED EWP / CRANE LOCATION (TO BE CONFIRMED BY CONSTRUCTION CONTRACTOR)

PROPOSED INDARA 12.0m x 8.0m COMPOUND CHAINLINK SECURITY FENCE WITH 3m DOUBLE GATE

JOINT VENTURE NO: JP5020

REV	DATE	REVISION DESCRIPTION	VENDOR	DRAWN	DESIGNED	APPRD
A	06.03.23	PRELIMINARY (GREENFIELD EJV - INDARA)	INDARA	JM	NP	PM



SITE NUMBER 640244  
YANCHEP GC-V  
SUN CITY COUNTRY CLUB  
144 ST ANDREWS DRIVE, YANCHEP, WA 6035

GREENFIELD eJV - INDARA  
INDARA SITE No: 3400948

TITLE		REV
SITE SETOUT PLAN		A
DRAWING STATUS	DRAWING No.	
PRELIMINARY	640244 - G2	



REV	A
DATE	06/03/23
REVISION DESCRIPTION	PRELIMINARY (GREENFIELD E.V. - INDARA)
VENDOR	INDARA
DRAWN	JH
DESIGNED	NP
APPROD	PH



**SITE NUMBER 640244**  
**YANCHEP GC - V**  
 SUN CITY COUNTRY CLUB  
 144 ST ANDREWS DRIVE, YANCHEP, WA 6035

**GREENFIELD eJV - INDARA**  
**INDARA SITE No: 3400948**

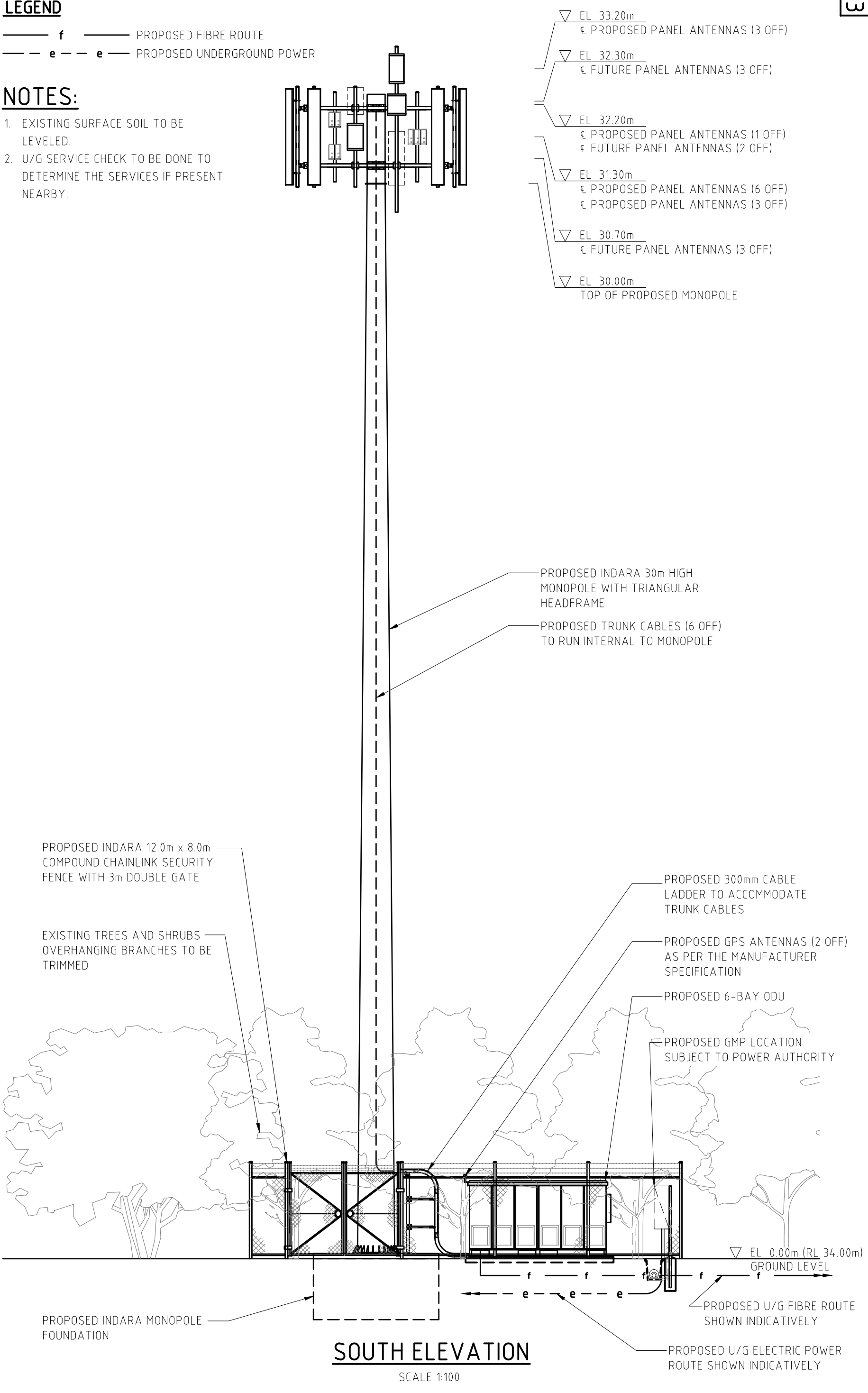
TITLE	JOINT VENTURE NO: JP5020	
DRAWING STATUS	PRELIMINARY	DRAWING No: 640244 - G3
REV	A	

**LEGEND**

- f — PROPOSED FIBRE ROUTE
- - - e - - - PROPOSED UNDERGROUND POWER

**NOTES:**

1. EXISTING SURFACE SOIL TO BE LEVELED.
2. U/G SERVICE CHECK TO BE DONE TO DETERMINE THE SERVICES IF PRESENT NEARBY.





**LEGEND:**

- - - - - PROPOSED INDARA LEASE AREA
- EXISTING PROPERTY BOUNDARY

**LEASE PLAN**

SCALE 1:2000

				JOINT VENTURE NO: JP5020			
				TITLE LEASE PLAN			
				DRAWING STATUS PRELIMINARY		DRAWING No. 640244 - L1	
				REV A			

A	06.03.23	PRELIMINARY (GREENFIELD eJV - INDARA)	INDARA	JM	NP	PM
REV	DATE	REVISION DESCRIPTION	VENDOR	DRAWN	DESIGNED	APPRD

SITE NUMBER 640244  
YANCHEP GC-V  
SUN CITY COUNTRY CLUB  
144 ST ANDREWS DRIVE, YANCHEP, WA 6035

GREENFIELD eJV - INDARA  
INDARA SITE No: 3400948

# Appendix 3: ARPANSA EME Report

# Environmental EME Report

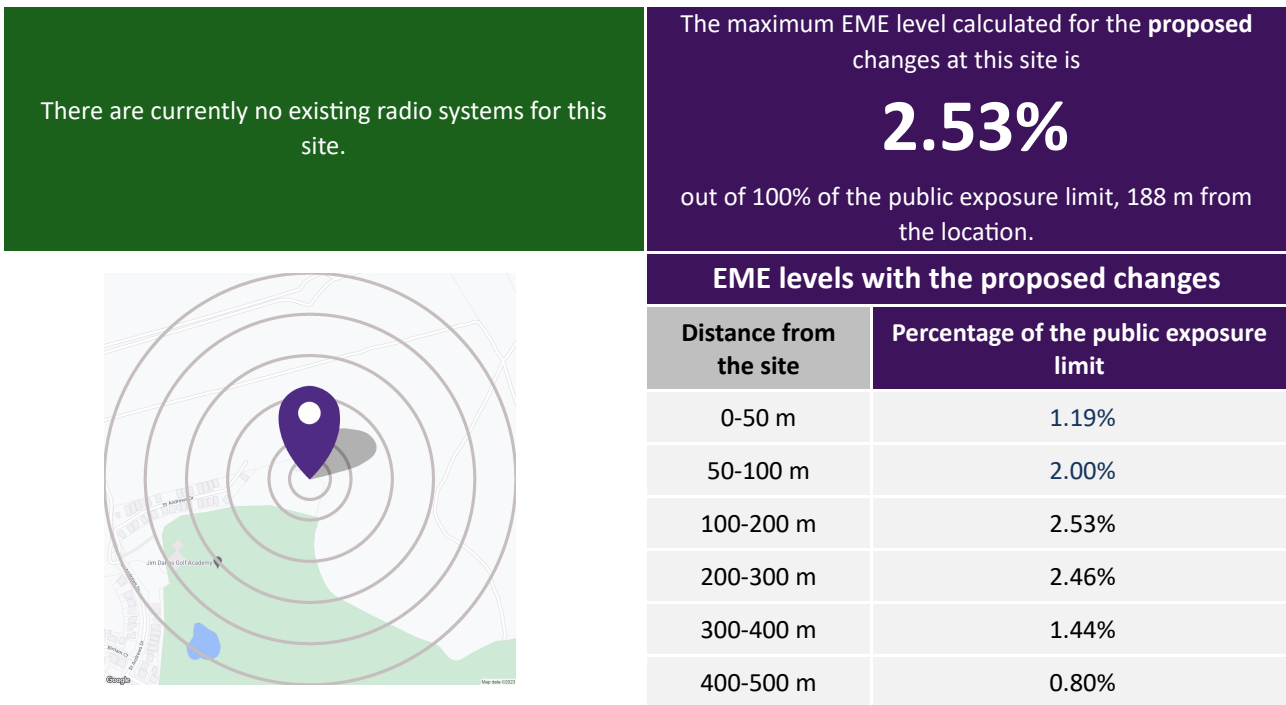
<b>Location</b>	Sun City Country Club, 144 St Andrews Drive, Yanchep WA 6035		
<b>Date</b>	10/02/2023	<b>RFNSA No.</b>	6035003

## How does this report work?

This report provides a summary of levels of radiofrequency (RF) electromagnetic energy (EME) around the wireless base station at Sun City Country Club, 144 St Andrews Drive, Yanchep WA 6035. These levels have been calculated by Indara 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



For additional information please refer to the EME ARPANSA Report annexure for this site which can be found at <http://www.rfnsa.com.au/6035003>.

## 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.

Carrier	Existing		Proposed	
	Systems	Configuration	Systems	Configuration
<b>Vodafone</b>			5G	NR/LTE700 (proposed), NR/LTE850 (proposed), NR/LTE1800 (proposed), NR3500 (proposed), NR/LTE2100 (proposed)
<b>Optus</b>			4G, 5G	NR/LTE700 (proposed), LTE900 (proposed), LTE1800 (proposed), NR/LTE2100 (proposed), LTE2600 (proposed), NR3500 (proposed), NR2300 (proposed)

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

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

Distance from the site	Existing configuration			Proposed configuration		
	Electric field (V/m)	Power density (mW/m <sup>2</sup> )	Percentage of the public exposure limit	Electric field (V/m)	Power density (mW/m <sup>2</sup> )	Percentage of the public exposure limit
0-50m				5.70	86.22	1.19%
50-100m				8.44	189.06	2.00%
100-200m				8.82	206.39	2.53%
200-300m				8.28	182.04	2.46%
300-400m				6.32	105.83	1.44%
400-500m				4.71	58.93	0.80%

## Calculated EME levels at other areas of interest

This table contains calculations of the maximum EME levels at selected areas of interest, identified through consultation requirements of the [Communications Alliance Ltd Deployment Code C564:2020](#) or other means. Calculations are performed over the indicated height range and include all existing and any proposed radio systems for this site.

### Maximum cumulative EME level for the proposed configuration

Location	Height range	Electric field (V/m)	Power density (mW/m <sup>2</sup> )	Percentage of the public exposure limit
No locations identified				



# Appendix 4: Photomontages



# Photomontage - Before





# Photomontage - After





# Appendix 5: EPBC Act Protected Matters Search Tool



Australian Government

Department of Climate Change, Energy,  
the Environment and Water

# EPBC Act Protected Matters Report

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

Report created: 03-Mar-2023

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



# Summary

## Matters of National Environment Significance

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

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance (Ramsar)</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	2
<a href="#">Listed Threatened Species:</a>	24
<a href="#">Listed Migratory Species:</a>	8

## Other Matters Protected by the EPBC Act

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

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

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

<a href="#">Commonwealth Lands:</a>	None
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	12
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None
<a href="#">Habitat Critical to the Survival of Marine Turtles:</a>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	None
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">EPBC Act Referrals:</a>	2
<a href="#">Key Ecological Features (Marine):</a>	None
<a href="#">Biologically Important Areas:</a>	None
<a href="#">Bioregional Assessments:</a>	None
<a href="#">Geological and Bioregional Assessments:</a>	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.

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text
<a href="#">Banksia Woodlands of the Swan Coastal Plain ecological community</a>	Endangered	Community likely to occur within area
<a href="#">Tuart (<i>Eucalyptus gomphocephala</i>) Woodlands and Forests of the Swan Coastal Plain ecological community</a>	Critically Endangered	Community may occur within area

### Listed Threatened Species

[\[ Resource Information \]](#)

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
<b>BIRD</b>		
<a href="#">Botaurus poiciloptilus</a> Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calyptorhynchus banksii naso</a> Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Leipoa ocellata</a> Malleefowl [934]	Vulnerable	Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
<a href="#">Zanda baudinii listed as Calyptorhynchus baudinii</a> Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Species or species habitat likely to occur within area
<a href="#">Zanda latirostris listed as Calyptorhynchus latirostris</a> Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Breeding known to occur within area
<b>MAMMAL</b>		
<a href="#">Dasyurus geoffroii</a> Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
<b>PLANT</b>		
<a href="#">Andersonia gracilis</a> Slender Andersonia [14470]	Endangered	Species or species habitat likely to occur within area
<a href="#">Anigozanthos viridis subsp. terraspectans</a> Dwarf Green Kangaroo Paw [3435]	Vulnerable	Species or species habitat may occur within area
<a href="#">Banksia mimica</a> Summer Honeypot [82765]	Endangered	Species or species habitat may occur within area
<a href="#">Caladenia huegelii</a> King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat may occur within area
<a href="#">Diplolaena andrewsii</a> [6601]	Endangered	Species or species habitat may occur within area
<a href="#">Diuris purdiei</a> Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat may occur within area
<a href="#">Drakaea elastica</a> Glossy-leaved Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
<a href="#">Eleocharis keigheryi</a> Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Eucalyptus x balanites</a> Cadda Road Mallee, Cadda Mallee [87816]	Endangered	Species or species habitat may occur within area
<a href="#">Grevillea christineae</a> Christine's Grevillea [64520]	Endangered	Species or species habitat likely to occur within area
<a href="#">Grevillea curviloba subsp. incurva</a> Narrow curved-leaf Grevillea [64909]	Endangered	Species or species habitat may occur within area
<a href="#">Macarthuria keigheryi</a> Keighery's Macarthuria [64930]	Endangered	Species or species habitat may occur within area
<a href="#">Synaphea sp. Fairbridge Farm (D. Papenfus 696)</a> Selena's Synaphea [82881]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Thelymitra stellata</a> Star Sun-orchid [7060]	Endangered	Species or species habitat likely to occur within area
<a href="#">Trithuria occidentalis</a> Swan Hydatella [42224]	Endangered	Species or species habitat likely to occur within area

### Listed Migratory Species [ [Resource Information](#) ]

Scientific Name	Threatened Category	Presence Text
<b>Migratory Marine Birds</b>		
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<b>Migratory Terrestrial Species</b>		
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<b>Migratory Wetlands Species</b>		

Scientific Name	Threatened Category	Presence Text
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat may occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

## Other Matters Protected by the EPBC Act

Listed Marine Species	[ Resource Information ]	
Scientific Name	Threatened Category	Presence Text
Bird		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat may occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
<a href="#">Bubulcus ibis as Ardea ibis</a> Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area



Scientific Name	Threatened Category	Presence Text
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Rostratula australis as Rostratula benghalensis (sensu lato)</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area

## Extra Information

EPBC Act Referrals			[ Resource Information ]
Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
<a href="#">Eradication of the European House Borer, Perth metropolitan area, WA</a>	2009/5027	Not Controlled Action	Completed
<a href="#">Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia</a>	2015/7522	Not Controlled Action	Completed

# Caveat

## 1 PURPOSE

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

The report contains the mapped locations of:

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

## 2 DISCLAIMER

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

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

## 3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

## 4 LIMITATIONS

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

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

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

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

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

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

# Acknowledgements

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

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

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



Please feel free to provide feedback via the [Contact us](#) page.

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