Inspired People.
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Quality Outcomes.

Our Ref: 22847_Neoen Narrogin_ Met Mast DA Coverletter_Final V1

16 November 2022

David Johnston
Regional Planning Officer
Shire of Narrogin

E| pa@narrogin.wa.gov.au

Dear David,

RE: Application for Development Approval – Meteorological Mast

Neoen are seeking Development Approval from the Shire of Narrogin under the *Local Planning Scheme No. 2* to construct and operate a Meteorological Mast Tower (Met Mast) at one of four potential locations.

The purpose of constructing and operating the Met Mast is to conduct climatic monitoring and determine the suitability of the location for siting of a future potential wind farm. The Western Australian Energy Transformation Strategy (Energy Policy WA, 2021) aims to achieve a secure, reliable, sustainable, and affordable electricity network for the future of WA and it is well recognised that renewable energy sources such as wind power are critical to achieving this. Neoen aim to advance such strategies by increasing local renewable energy generation and is looking to undertake meteorological monitoring in areas where the potential for efficiently generating wind power is most likely.

This supporting letter:

- Provides a description of the proposed Met Mast, including the potential locations and construction and operational activities.
- Summarises consultation completed to date for the Met Mast, noting that a further consultation program will be implemented as part of a larger potential wind farm project (separate to this scope).
- Provides a brief assessment of aspects of the Western Australian planning framework in relation to this Development Application, including the Shire of Narrogin *Local Planning Scheme No. 2* (the Scheme) and other relevant policies and planning considerations.

Umwelt (Australia) Pty Limited

ABN 18 059 519 041

T| 1300 793 267
E| info@umwelt.com.au

www.umwelt.com.au

1.0 Project Location and Description

This Development Application provides for four potential locations while the final location of the Met Mast is being determined. Only one Met Mast will be constructed, following approval and further detailed designs. The proposed potential locations for the Met Mast are provided in **Table 1.1** and illustrated in **Figure 2.1**.

Table 1.1: Met Mast Location details

Location Option	Coordinates	Land Parcel	Certificate of Title (Folio/Volume)
Option 1	117.006143, -32.976205	Lot 2484 on Plan 108492	1112/539
Option 2	117.007277, -32.968456	Lot 1259 on Plan 104541	1515/112
Option 3	116.996993, -32.967193	Lot 8931 on Plan 133000	1849/436
Option 4	117.019893, -32.968969	Lot 1260 on Plan 104540	1515/111

The primary objective of the Met Mast will be to provide detailed wind speed and direction data for the area. The data that is collected will be used to characterise suitability of the site for generating wind power and inform the design and decision-making process around future proposals for a wind farm development.

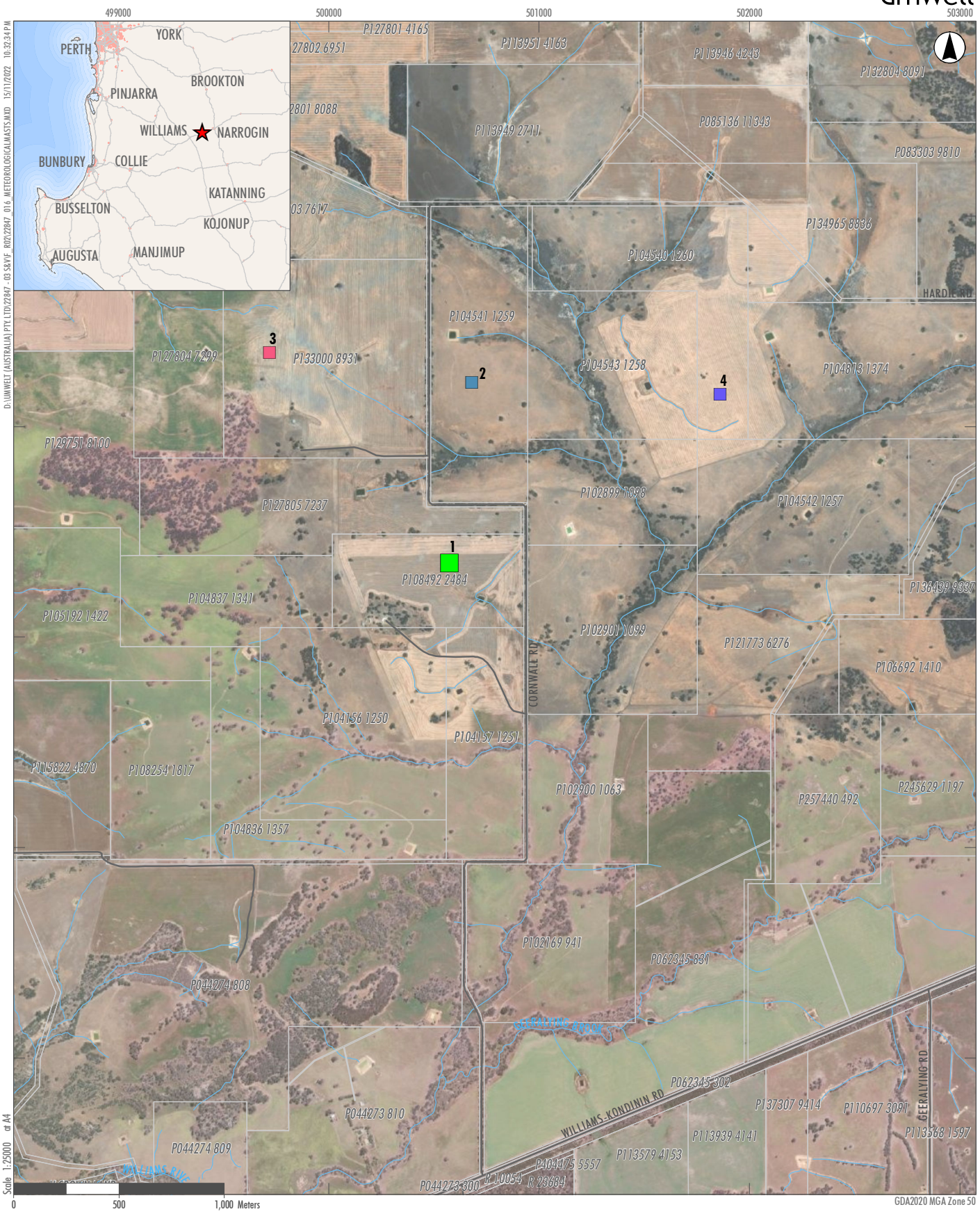
Indicative designs for the Met Mast general arrangement are provided in **Attachment 3**. The proposed Met Mast will be of triangular steel lattice construction. It will be approximately 150 m in height and will be supported by guy wires. The mast will be equipped with wind and weather sensors at various heights, allowing for the measurement of wind speed, wind direction, wind shear, wind turbulence and air density. The mast is intended to be temporary for 5 -10 years. and consist of:

- A galvanised steel framework with alternating contrasting bands of colour to at least top 1/3 of mast
- Mounting boom for anemometers (instruments that measure wind speed and direction)
- Guy-fixing system (inner, intermediate, and outer anchor footings and guy wires)
- Data and electrical cabling
- Potentially medium lighting and markers on guy wires for aviation safety (if advised by the Civil Aviation Safety Authority (CASA)).

The Met Mast construction is expected to take place between February and March of 2023 over a period of about 30 days with a construction workforce of 3–9 people. All components and construction materials for the Met Mast will be transported to site and the Met Mast will be assembled on-site. Access and parking for construction and operations will be confirmed following selection of the final Met Mast location. No clearing of native vegetation or crossing of watercourses will be required during construction.

The Met Mast will be unmanned for most of its operation and is primarily to be monitored from a remote location with inspections taken out on a periodical basis annually. The Met Mast will be similar in appearance to other Met Masts previously established for climatic monitoring for wind farms as illustrated in **Plate 1.1**.

The Met Mast is of lightweight, lattice design and has a high level of visual transparency resulting in low visibility at a distance.



Legend

- Cadastre
- Roads
- Drainage Lines

Met Mast Options

- Option 1
- Option 2
- Option 3
- Option 4

FIGURE 2.1

Meteorological Mast Location Options

Image Source: ESRI Basemap (2021) Data source: Landgate (2022)

Plate 1.1: Example of Meteorological Mast (Captains Mountain Wind Farm Pty Ltd, 2021)

2.0 Pre-submission Consultation

Neoen has undertaken limited consultation with nearby landholders and relevant government stakeholders over recent months as part of broader discussions related to a potential wind farm development.

Stakeholder engagement to date is summarised in **Table 2.1**.

Table 2.1 Consultation Summary

Stakeholder	Consultation Outcomes
Shire of Narrogin	The Shire provided guidance as related to the Development Application submission and alignment of submission with Council timelines.
Landowner: T.S. & D.E. Cowcher Farms Pty Ltd of Care of Macco Feeds	The landowner is a signatory to and supports the development application.
Adjacent landowners:	Discussions relating to a potential wind farm development have been held with surrounding landholders over recent months.
Civil Aviation Safety Authority	Notification is needed before construction commences.

More detailed consultation is planned for nearby landholders, the local community, and other stakeholders in the broader area should the Project progress past the installation of the Met Mast. This consultation is separate to the scope of this Development Application.

3.0 Planning Considerations

Relevant aspects of the Western Australian planning framework have been considered as part of planning the Project and to support this Development Application. This includes the Shire of Narrogin Local Planning Scheme No. 2 (the Scheme), the Local Planning Strategy, relevant State Planning Policies, and relevant aspects of the deemed provisions under Schedule 2 of the Local Planning Scheme Regulations 2015. In completing this Development Application, the Shire of Narrogin *Local Planning Schemes Policy Manual* (2018) has also been reviewed, however no local policies were identified as relevant to this Project.

Relevant aspects of the Western Australian planning framework as they relate to the proposed Met Mast are summarised in the following sections.

3.1 Local Planning Scheme No. 2 (the Scheme)

The Scheme classifies land zones and the permissibility of land uses within each zone. It also provides objectives for the Scheme and different zones, describes general development requirements, and outlines requirements for planning approval (among other things).

3.1.1 General development controls

An assessment of the Project's alignment with the General Development Controls under the Scheme is summarised in **Table 3.1**.

Table 3.1 Project Alignment with General Developments Controls (Part IV, LPS No. 2)

General Development Control	Project Alignment
Carparking	It is intended that once approval is obtained, the Met Mast location will be finalised using one of the options approved, and provisions for car parking will be finalised in consultation with the Shire. Car parking areas will be designated during the construction period, and informal parking is expected to be sufficient during operations.
Site Access	Met Mast Options 1, 2 and 3 are located within land parcels that directly abut Cornwall Road. Neoen intend to establish an access track from the proposed met mast location to Cornwall Rd if one of these options is selected. Met Mast Option 4 does not directly abut any gazetted road and Neoen will need to establish access from this Lot to either Hardie Rd or Cornwall Rd if this option is finalised. Access arrangements will be established in consultation with the Shire following selection of a final Met Mast location.
Setback Distances	All four potential Met Mast Locations provided in **Table 1.1** meet the minimum setback distances for developments within Farming Zone land under clause 4.5(d) of the Scheme. That is, all four locations are located >20m from the lot boundary and >40 m from a State Road.

3.1.2 Land use and zoning

The properties listed in the **Table 1.1** are currently zoned as "Farming" under the Scheme. In consideration of Table 1 of the Scheme, the proposed land use (meteorological mast) is not readily classified. It is expected that the proposal will be considered a "use not listed" by the Shire and therefore must be assessed against the objectives of the "Farming" zone for Development Approval.

Table 3.2 describes relevant elements of the "Farming" zone objectives, and how the project considers these elements.

Table 3.2: Project Alignment with General Developments Controls (Part IV, LPS No. 2)

Objective	Project Alignment
The Council intends the predominant form of farming activity in the Farming Zone will continue to be based on large farming units. It will generally be opposed to the fragmentation of farming properties through the process of subdivision.	Construction and operation of the Met Mast will not result in subdivision of the subject Lots.
Development: The Council shall not grant planning approval for any development that will in the opinion of the Council adversely affect the rural landscape or be contrary to the agricultural use of the land.	The proposed Met Mast has a small footprint and will not significantly impact the agricultural use of the surrounding land. There will be no indirect impacts outside of the footprint of the proposed Met Mast. As described in **Section 3.3**, there will be a low level of visibility and limited visual impact due to slim-line, lightweight and semi-transparent lattice design.

3.2 Local Planning Strategy (WAPC, 2020)

In the *Shire of Narrogin: Local Planning Strategy for power & energy,* the development of reliable, affordable and sustainable power supply is a key objective, and the Project aligns with this. *The Local*

Planning Strategy also encourages the development of alternative power supply schemes and the Project will allow for this by gathering the necessary data to inform the potential for a wind farm project in Narrogin.

3.3 State Planning Policy 2.5 – Rural Planning (WAPC, 2016)

State Planning Policy 2.5 (SPP2.5) provides additional context for planning in rural areas. A high-level summary of SPP2.5 and how it has been considered by the Project is described in **Table 3.3**.

Table 3.3 Project alignment with State Planning Policy 2.5

What is it?	Alignment of the Project
State Planning Policy 2.5 (SPP 2.5) provides the overarching planning objectives relating to rural zones defined in local planning schemes. SPP 2.5 aims to protect rural land, rural land uses, avoid land use conflicts, and support sustainable economic growth. The policy seeks to promote economic development opportunities, with the Western Australian Planning Commission (WAPC) to balance the need for economic opportunity with the protection of the State's primary production and natural resource assets. Relevant policy measures of SPP 2.5 include retaining land identified as priority agricultural land for that purpose and retaining and protecting rural land for biodiversity protection, natural resource management, and protection of valued landscapes and views.	The options proposed for the final location of the Met Mast have been selected following an analysis of constraints in the area to identify a "buildable area" with minimal impacts to the surrounding landscape. Constraints that were considered include, but are not limited to, sensitive receptors, agricultural land capability and environmental values. As described in **Table 3.2** , the proposed Met Mast will not significantly impact or decrease the area of agricultural land and there will be a low level of visibility and limited visual impact due to slim-line, lightweight and semi-transparent lattice design.

3.4 Position Statement – Renewable Energy Facilities (WAPC, 2020)

This Position Statement identifies assessment measures to facilitate appropriate development of renewable energy facilities and applies to development applications of these facilities in Western Australia. It supports development of facilities in areas that minimise potential impacts to the environment, natural landscape, and urban areas while maximising production and efficiencies.

Neoen has completed or is commencing a range of studies for the broader potential Narrogin Wind Farm Project. These include:

- A planning, environmental, cultural and heritage constraints assessment – this was used to inform the placement of the Met Masts and inform the future design of the potential wind farm.
- A Preliminary Aviation Assessment – to understand potential aviation impacts and constraints of the site and the Met Mast specifically.
- Early-stage scoping of Aboriginal cultural heritage and ecological studies.

Relevant aspects of the Position Statement and how these have been considered as part of this Met Mast application based on these assessments are described in **Table 3.4**.

Table 3.4 Consideration of the Position Statement – Renewable Energy Facilities

Planning Aspect	Project Alignment
Community consultation	Neoen have completed an initial assessment of the broader proposed Narrogin Wind Farm Project (separate to this development application). As part of this assessment, key stakeholders and considerations for engagement with the local community have been outlined. To date, Neoen have held discussions with involved landholders and the Shire of Narrogin as described in **Section 2.0**. Further community consultation will be completed should the broader Wind Farm Project progress.
Environmental impact	Neoen has completed an initial desktop assessment of the broader area. This has included an initial mapping of potential ecological (flora, fauna and ecological communities), water, and soils in the broader area. This assessment is being used to determine a "buildable area" that avoids environmental constraints. The proposed Met Mast is located on cleared farmland and will not require the clearing of any native vegetation. The nearest conservation areas to the proposed Met Mast locations are approximately 2 km to the east, and 7 km to the north (Dryandra National Park). Construction and operation of the proposed Met Mast will not impact on any watercourses, and the proposed Met Mast is not within a proclaimed groundwater area. There is not expected to be of significant risk to exposing Acid Sulfate Soils due to construction and operation of the Met Mast, and no significant risk of soil degradation or erosion.
Aviation/Air Safety	A Preliminary Aviation Assessment has been completed for an early-stage study area of the potential Narrogin Wind Farm (**Attachment 4**). Additionally, Neoen have been seeking the advice of Aviation Projects on the Met Mast development. Based on these assessments: • No certified aerodrome has been identified within 30 nm of the proposed Met Mast. • No aeroplane landing areas were identified within 3 nm of any of the proposed Met Mast sites. • It is expected that this Development Application will be referred to the Civil Aviation Safety Authority (CASA) to assess the effect of the structure on aircraft operations, and CASA may recommend lighting of the Met Mast.
Bushfire Hazard Management	The four potential Met Mast locations are all outside of bushfire prone areas.
Visual and landscape impact	There is expected to be a low level of visibility and resulting visual impact due to slim-line, lightweight and semi-transparent lattice design of the Met Mast.
Heritage	An initial desktop assessment of Aboriginal cultural heritage and non-Aboriginal heritage has been completed. Known heritage sites have been avoided by the proposed Met Mast. An Aboriginal Cultural Heritage Survey is being coordinated as part of the broader potential Narrogin Wind Farm.
Traffic and Transport	There will be a minimal increase in traffic during the construction and operation of the proposed Met Mast. The mast is anticipated to be constructed over about 30 days, including the installation and testing of all sensors and equipment. The mast will not be manned during operations, and minimal access will be required to conduct routine maintenance during operations.
Safety and Site Access	Site safety measures include: • The mast base will be secured with a metal grill barrier and anti-climb type protection. • Security fencing and security arrangements will be organised for the met masts.

4.0 Closing

The Met Mast proposed as part of this Development Application is necessary to collect wind data to determine the feasibility of the potential Narrogin Wind Farm. A potential wind farm development will directly contribute a secure, reliable, sustainable and affordable electricity network which is a primary aim of the Western Australian Energy Transformation Strategy (Energy Policy WA, 2021).

We understand that a Met Mast development is likely considered a "use not listed" according to the Shire of Narrogin *Local Planning Scheme No. 2*. However as described in this supporting letter, the proposed Met Mast does not significantly impact the agricultural or landscape amenity objectives of the "Farming" zone or the intent of the *State Planning Policy 2.5 – Rural Areas* (WAPC, 2016).

The proposed Met Mast will not require clearing of any native vegetation, is not located near to any conservation areas, will not impact any watercourses, will not result in material changes to local traffic, and is not located in a bushfire prone area. It is expected that this Development Application will be referred to CASA, and that there may be recommendations for measures to manage aircraft safety

A desktop social assessment has characterised the nearby community stakeholders and provides a starting point for broader community consultation for the potential Narrogin Wind Farm. Known cultural heritage constraints have been avoided, and Neoen are commencing a more in depth Aboriginal cultural heritage assessment for the broader Narrogin Wind Farm project.

The Development Application has proposed four options for the Met Mast location, with only a single Met Mast to be constructed. It is expected that development approval will require the provision of additional detailed design information once the final location has been determined.

Following completion of meteorological monitoring, the Met Mast will be decommissioned and removed from the site, allowing for the small footprint to be returned to the existing agricultural use if the area is not deemed suitable for generating wind power.

We trust this information meets with your requirements. Please do not hesitate to contact the undersigned should you require clarification or further information.

Yours sincerely

Rob Karelse
Environment Manager WA | Principal Environmental Consultant

E | rkarelse@umwelt.com.au

Suite 3, Level 3. South Shore Centre.
South Perth Esplanade, South Perth WA 6151

Attachments:

Attachment 1: Application for Planning Consent

Attachment 2: Certificates of Title

Attachment 3: 150m General Arrangement drawings

Attachment 4: Narrogin Wind Farm Monitoring Tower - Aviation Impact Assessment

5.0 References

Captains Mountain Wind Farm Pty Ltd. (2021). Development Application for Meteorological Masts. [Image] https://www.captainsmountainwindfarm.com.au/development-application-for-meteorological-masts/

Energy Policy WA. (2021). *Energy Transformation Strategy Stage 2: 2021-2025*. Government of Western Australia. https://www.wa.gov.au/government/publications/leading-western-australias-brighter-energy-future

Western Australian Planning Commission (WAPC). (2016). *State Planning Policy No. 2.5: Rural planning*. https://www.wa.gov.au/system/files/2021-06/SPP_2-5_Rural_Planning.pdf

Western Australian Planning Commission (WAPC). (2020). *Shire of Narrogin: Local Planning Strategy*. https://www.narrogin.wa.gov.au/documents/946/shire-of-narrogin-local-planning-strategy

Attachment 1 – Application for Planning Consent

APPLICATION FOR PLANNING CONSENT

(FDRS005)

89 Earl Street
PO Box 1145
Narrogin WA 6312

(08) 9890 0900

www.narrogin.wa.gov.au
enquiries@narrogin.wa.gov.au

CASHIER HOURS:
8:30am – 4:30pm
MONDAY- FRIDAY

FORMER TOWN OF NARROGIN – TOWN PLANNING SCHEME NO.2
FORMER SHIRE OF NARROGIN – LOCAL PLANNING SCHEME NO.2

Name of Applicant	NEOEN AUSTRALIA PTY LTD
ABN (If Applicable)	57 160 905 706
Correspondence Address	Level 11, Parmelia House, 191 St Georges Terrace, Perth WA, 6000
Applicant Phone Number	+61 420 779 041
Applicant Email	cj.murray@neoen.com

If Applicant and Owner are different:

Name of Owner	T.S. & D.E. COWCHER FARMS PTY LTD OF CARE OF MACCO FEEDS, NARROGIN
ABN (If Applicable)	87 207 382 140
Correspondence Address	501 Narrogin Road, Williams WA 6391
Owner Phone Number	+61 417 988 304
Owner Email	timjc@bigpond.com

I hereby apply for planning consent to:

1. Use the land described hereunder for the purpose of Meteorological Mast Tower
   and/or
2. Erect, alter or carry out development on land described hereunder in accordance with the accompanying plans.

Existing use of land	Agriculture/Farming
Approximate cost of proposed development	$ 415,080
Estimated time of completion	March 2023
No of persons to be housed / employed after completion	1 employee during operations, visiting site infrequently

TITLES OFFICE DESCRIPTION OF LAND

LOCALITY PLAN

Lot No	2484	House No	248	Street Name	Cornwall Road				
Suburb	Minigin		Nearest Street Intersection		Williams-Kondinin Rd				
Location No		Plan or Diagram	108492	Certificate of Title	112/539	Volume:	1112	Folio:	539
Title Encumbrances (e.g. Easements, Restrictive Covenants)	Bank Mortgage only.								

LOT DIMENSIONS

Site area	404,976.00	Square metres
Frontage	444.70	Metres
Depth	910.30	Metres

Print Start Over

APPLICATION FOR PLANNING CONSENT

(FDRS005)

89 Earl Street
PO Box 1145
Narrogin WA 6312

(08) 9890 0900

www.narrogin.wa.gov.au
enquiries@narrogin.wa.gov.au

CASHIER HOURS:
8:30am – 4:30pm
MONDAY- FRIDAY

FORMER TOWN OF NARROGIN – TOWN PLANNING SCHEME NO.2
FORMER SHIRE OF NARROGIN – LOCAL PLANNING SCHEME NO.2

LOCALITY PLAN

Lot No	1259	House No	N/A	Street Name	Cornwall Road				
Suburb	Minigin			Nearest Street Intersection	Williams-Kondinin Road				
Location No	1259	Plan or Diagram	104541	Certificate of Title	1515/112	Volume:	1515	Folio:	112
Title Encumbrances (e.g. Easements, Restrictive Covenants)	Bank mortgage only.								

LOT DIMENSIONS

Site area	649,094.00	Square metres
Frontage	1,407.50	Metres
Depth	460.70	Metres

LOCALITY PLAN

Lot No	8931	House No	N/A	Street Name	Cornwall Road				
Suburb	Minigin			Nearest Street Intersection	Williams-Kondinin Road				
Location No	8931	Plan or Diagram	133000	Certificate of Title	1849/436	Volume:	1849	Folio:	436
Title Encumbrances (e.g. Easements, Restrictive Covenants)	Bank Mortgage only.								

LOT DIMENSIONS

Site area	911,393.00	Square metres
Frontage	943.60	Metres
Depth	965.70	Metres

LOCALITY PLAN

Lot No	1260	House No	N/A	Street Name	Hardie Road				
Suburb	Minigin			Nearest Street Intersection	Williams-Kondinin Road				
Location No	1260	Plan or Diagram	104540	Certificate of Title	1515/111	Volume:	1515	Folio:	111
Title Encumbrances (e.g. Easements, Restrictive Covenants)	N/A								

LOT DIMENSIONS

Site area	583,038.00	Square metres
Frontage	1,024.40	Metres
Depth	1,108.80	Metres

Print **Start Over**

ADVERTISING

The information and plans provided with this application may need to be made available by the local government for public viewing in connection with the application. Do you consent to this?

YES ☑ **NO** ☐

AUTHORITY CJ Murray

Applicant's Signature ..... Date 15/11/2022

NOTE: ALL OWNERS OF THE PROPERTY MUST SIGN THIS APPLICATION FORM. WHERE PROPERTY IS OWNED BY A COMPANY, AT LEAST TWO DIRECTORS OF THE COMPANY MUST SIGN THE APPLICATION.

NOTE: WHERE THE APPLICANT IS NOT THE OWNER, THE OWNER'S SIGNATURE IS REQUIRED.

TIMOTHY J. COUCHER

Owner's Signature ..... Date 15/10/22

NOTE: THIS FORM IS TO BE SUBMITTED TOGETHER WITH COPIES OF PLANS, COMPRISING THE INFORMATION SPECIFIED IN THE PARTICULARS REQUIRED WITH THE APPLICATION OUTLINED BELOW. ADDITIONAL INFORMATION MAY BE REQUIRED AT A LATER STAGE.

NOTE: THE DEVELOPMENT APPLICATION MUST BE ACCOMPANIED WITH THE CORRECT PLANNING FEES (SEE CURRENT SCHEDULE OF FEES)

THIS IS NOT AN APPLICATION FOR A BUILDING LICENCE

PARTICULARS REQUIRED WITH APPLICATION FOR PLANNING CONSENT

Where an application involves the erection or alteration of a building or a change in levels of a site, the plans accompanying an application for planning consent shall, unless especially exempt by the Shire:

a. Indicate the position and describe the existing buildings and improvements on the site and indicate those which are to be removed;
b. Indicate the position (SITE PLAN, FLOOR PLAN AND ELEVATIONS) and describe the buildings and improvements proposed to be constructed, their appearance, height and proposed uses in relation to existing and proposed contours;
c. Indicate the position, type and height of all the existing trees on the site and indicate those to be retained and those to be removed;
d. Indicate the areas to be landscaped and the location and type of shrubs, trees and other treatment proposed;
e. Indicate site contours and details of any proposed alteration to the natural contour of the area;
f. Indicate car parking areas, their layout and dimensions and accessways and the position of existing and/or proposed crossovers; and
g. Indicate site dimensions and be to metric scale.

OFFICE USE ONLY

File Reference		Application No	
Date Received		Date of Approval / Refusal	
Date of Notice of Decision		Officer's Signature	

Attachment 2 – Certificates of Title

27447/61 Transfer 1127/5/12-18 1567/59
43343/62 Application

From Volume 922 Folio 67

ORIGINAL

INDEXED

REGISTER BOOK.

Vol. 1112 Fol. 539

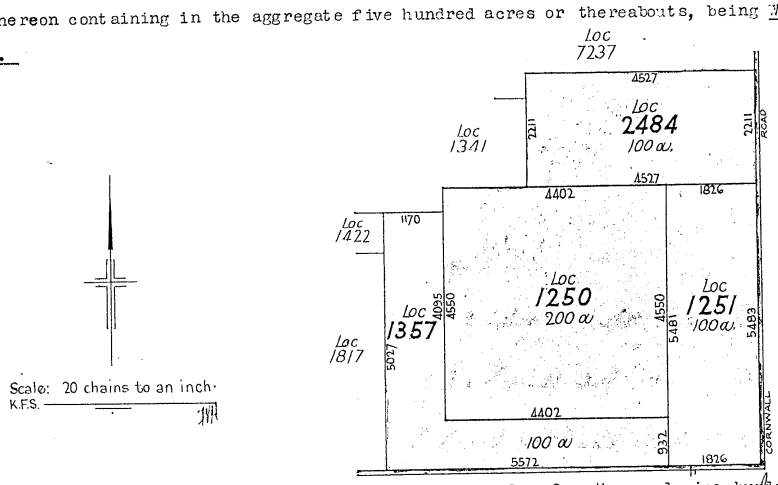
WESTERN AUSTRALIA.

CT 1112 0539 F

Certificate of Title

under "The Transfer of Land Act, 1893" (56 Vic., 14, Sch. 5).

Arnold Cowcher of Narrogin, Farmer, is now the proprietor of an estate for his life in possession and Peter John Stanyford Cowcher of Narrogin, a minor born on the twentieth day of June, 1937, is now the proprietor of an estate in fee simple in remainder expectant on the death of the said Arnold Cowcher, subject to the easements and encumbrances notified hereunder in the natural surface and therefrom to a depth of two thousand feet of all those pieces of land delineated and coloured green on the map hereon containing in the aggregate five hundred acres or thereabouts, being Williams Locations 1250, 1251, 1357 and 2484.



Dated the fourteenth day of September One thousand nine hundred and forty-eight

Registrar of Titles.

Application 3334/1961. On the 18th September 1953 Arnold Cowcher the proprietor of an estate for his life died whereupon his estate ceased and determined and Peter John Stanyford Cowcher became the proprietor of an estate in fee simple in possession.

3rd August 1961. ASSISTANT REGISTRAR OF TITLES

Transfer A253169 to Brahmaputra Pty Limited, of Fourth Floor, E.S.&A. Bank Building, 19 London Circuit, Canberra, Australian Capital Territory, Registered 28th May 1970 at 10.00 a.m.

The correct address of the registered proprietor is now: of care of G.L. Salom & Associates, 10 William Street, Perth.
By D276460. Dated 12th August, 1986 at 2.43 o'c.

Transfer E181211 to T.S. & D.E. Cowcher Farms Pty. Ltd. of care of Macco Feeds, Narrogin, Williams Road, Narrogin.
Registered 31st August 1989 at 8.11 hrs.

21892-3/7/48—10M—11/e.

For encumbrances and other matters affecting the land see back.

LANDGATE COPY OF ORIGINAL NOT TO SCALE 14/11/2022 02:16 PM Request number: 64369204

Landgate
www.landgate.wa.gov.au

EASEMENTS AND ENCUMBRANCES REFERRED TO.

Instrument stamped £4-5-0
Mortgage 8573/1961. Peter John Stanyford Cowcher to The National Bank of Australasia Limited. Registered 3rd August 1961 at 9-32 o'c.
P. Chivan
ASSISTANT REGISTRAR OF TITLES

Collateral to mortgage stamped £4. Instrument stamped £2.2.6.
Mortgage 14974/1962. Peter John Stanyford Cowcher to The National Bank of Australasia Limited. Registered 18th October 1962 at 9.29 o'c.
W. Blackmore
ASSISTANT REGISTRAR OF TITLES

Discharge 69064/64 of Mortgages 8573/1961 and 14974/1962. Registered 15th October 1964 at 9.32 o'c.
O. S. Brindal
ASSISTANT REGISTRAR OF TITLES

W.
Instrument stamped £16.5.0
Mortgage 69065/64 Peter John Stanyford Cowcher to The National Bank of Australasia Limited. Registered 15th October 1964 at 9.32 o'c.
O. S. Brindal
ASSISTANT REGISTRAR OF TITLES

W.
Discharge 68906/65 of Mortgage 69065/64 Registered 6th October 1965 at 9.02 o'c
O. S. Brindal
ASSISTANT REGISTRAR OF TITLES

Mortgage 68907/65 Peter John Stanyford Cowcher to Australian Mutual Provident Society to Secure £8,000 — Registered 6th October 1965 at 9.02 o'c
O. S. Brindal
ASSISTANT REGISTRAR OF TITLES

Instrument stamped £5-7-6
Mortgage 68908/65 Peter John Stanyford Cowcher to The National Bank of Australasia Limited. Registered 6th October 1965 at 9.02 o'c
O. S. Brindal
ASSISTANT REGISTRAR OF TITLES

Mortgage 34198/66 to Commonwealth Development Bank of Australia. Registered 25th May 1966 at 10.20 o'c.
[illegible]
ASSISTANT REGISTRAR OF TITLES

Discharge A293166 of Mortgage 68907/65 Registered 28th May 1970 at 10.06 o'c

Discharge A293167 of Mortgage 34198/66 Registered 28th May 1970 at 10.06 o'c

Discharge A293168 of Mortgage 68908/65 Registered 28th May 1970 at 10.06 o'c.

Mortgage B972171 to West Australian Trustees Limited. Registered 13th August 1980 at 9.25 o'c.

Mortgage D276460 to West Australian Trustees Limited. Registered 12th August 1986 at 2.43 o'c.

Discharge E181209 of Mortgages D276460 and B972171. Registered 31st August 1989 at 8.11 hrs.

Mortgage E181212 to Australia & New Zealand Banking Group Ltd. Registered 31st August, 1989 at 8.11 hrs.

CT 1112 0539 B

CERTIFICATE OF TITLE.

Vol. Fol.

LANDGATE COPY OF ORIGINAL NOT TO SCALE 14/11/2022 02:16 PM Request number: 64369204
Landgate
www.landgate.wa.gov.au

WESTERN AUSTRALIA

REGISTER NUMBER	
1259/DP104541	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
N/A	**N/A**

VOLUME **1515** FOLIO **112**

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

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

BGRoberts

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 1259 ON DEPOSITED PLAN 104541

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

TIMOTHY JOHN COWCHER OF NARROGIN

(T B596768) REGISTERED 29/9/1978

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

1. C525406 MORTGAGE TO AUSTRALIA & NEW ZEALAND BANKING GROUP LTD REGISTERED 6/4/1983.

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:	1515-112 (1259/DP104541)
PREVIOUS TITLE:	624-135
PROPERTY STREET ADDRESS:	NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY:	SHIRE OF NARROGIN

NOTE 1: A000001A LAND PARCEL IDENTIFIER OF WILLIAMS LOCATION 1259 (OR THE PART THEREOF) ON SUPERSEDED PAPER CERTIFICATE OF TITLE CHANGED TO LOT 1259 ON DEPOSITED PLAN 104541 ON 16-JUL-02 TO ENABLE ISSUE OF A DIGITAL CERTIFICATE OF TITLE.

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

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VOLUME 1849 FOLIO 436

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BGRoberts

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

THIS IS A MULTI-LOT TITLE

LAND DESCRIPTION:

LOT 7299 ON DEPOSITED PLAN 127804
LOT 7237 ON DEPOSITED PLAN 127805
LOT 8100 ON DEPOSITED PLAN 129751
LOT 8931 ON DEPOSITED PLAN 133000

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

TS & DE COWCHER FARMS PTY LTD OF CARE OF MACCO FEEDS, NARROGIN, WILLIAMS ROAD, NARROGIN
(T E181211) REGISTERED 31/8/1989

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

1. E181212 MORTGAGE TO AUSTRALIA & NEW ZEALAND BANKING GROUP LTD REGISTERED 31/8/1989.

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Lot as described in the land description may be a lot or location.

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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:	1849-436 (7299/DP127804), 1849-436 (7237/DP127805), 1849-436 (8100/DP129751), 1849-436 (8931/DP133000)
PREVIOUS TITLE:	1097-339
PROPERTY STREET ADDRESS:	NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY:	SHIRE OF NARROGIN

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NOTE 1: L703372 LAND PARCEL IDENTIFIER OF WILLIAMS LOCATIONS 7237, 7299, 8100 AND 8931 CHANGED TO LOT 7237 ON DEPOSITED PLAN 127805, LOT 7299 ON DEPOSITED PLAN 127804, LOT 8100 ON DEPOSITED PLAN 129751 AND LOT 8931 ON DEPOSITED PLAN 133000 ON 09.08.2011 TO ENABLE ISSUE OF A DIGITAL CERTIFICATE OF TITLE

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DUPLICATE EDITION	DATE DUPLICATE ISSUED
N/A	N/A

VOLUME 1515 FOLIO 111

RECORD OF CERTIFICATE OF TITLE

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BGRoberts

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

THIS IS A MULTI-LOT TITLE

LAND DESCRIPTION:

LOT 1098 ON DEPOSITED PLAN 102899
LOT 1063 ON DEPOSITED PLAN 102900
LOT 1099 ON DEPOSITED PLAN 102901
LOT 1260 ON DEPOSITED PLAN 104540
LOT 1258 ON DEPOSITED PLAN 104543
LOT 1374 ON DEPOSITED PLAN 104813

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

TIMOTHY JOHN COWCHER OF NARROGIN

(T B596768) REGISTERED 29/9/1978

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

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

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

STATEMENTS:

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

SKETCH OF LAND:	1515-111 (1098/DP102899), 1515-111 (1063/DP102900), 1515-111 (1099/DP102901), 1515-111 (1260/DP104540), 1515-111 (1258/DP104543), 1515-111 (1374/DP104813)
PREVIOUS TITLE:	882-133
PROPERTY STREET ADDRESS:	NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY:	SHIRE OF NARROGIN

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NOTE 1: L692547 LAND PARCEL IDENTIFIER OF WILLIAMS LOCATIONS 1063, 1098, 1099, 1258, 1260 & 1374 CHANGED TO LOT 1063 ON DEPOSITED PLAN 102900, LOT 1098 ON DEPOSITED PLAN 102899, LOT 1099 ON DEPOSITED PLAN 102901, LOT 1258 ON DEPOSITED PLAN 104543, LOT 1260 ON DEPOSITED PLAN 104540 & LOT 1374 ON DEPOSITED PLAN 104813 ON 29.07.2011 TO ENABLE ISSUE OF A DIGITAL CERTIFICATE OF TITLE

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

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Attachment 3 – 150m General Arrangement Drawings

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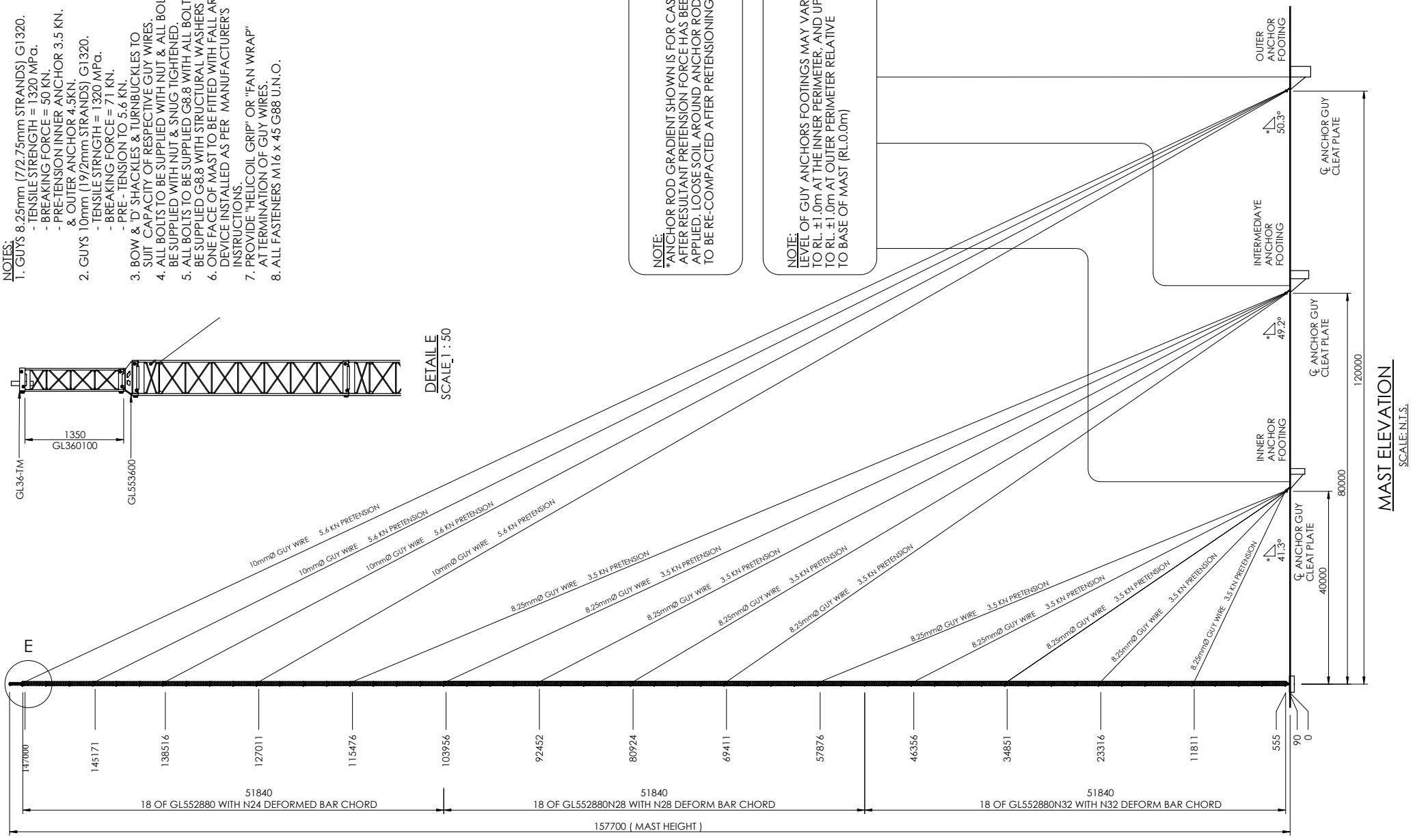
NOTES:
1. GUYS 8.25mm (7/2.75mm STRANDS) G1320.
   - TENSILE STRENGTH = 1320 MPa.
   - BREAKING FORCE = 50 KN.
   - PRE-TENSION INNER ANCHOR 3.5 KN.
   & OUTER ANCHOR 4.5KN.
2. GUYS 10mm (19/2mm STRANDS) G1320.
   - TENSILE STRNGTH = 1320 MPa.
   - BREAKING FORCE = 71 KN.
   - PRE - TENSION TO 5.6 KN.
3. BOW & 'D' SHACKLES & TURNBUCKLES TO SUIT CAPACITY OF RESPECTIVE GUY WIRES.
4. ALL BOLTS TO BE SUPPLIED WITH NUT & ALL BOLTS TO BE SUPPLIED WITH NUT & SNUG TIGHTENED.
5. ALL BOLTS TO BE SUPPLIED G8.8 WITH ALL BOLTS TO BE SUPPLIED G8.8 WITH STRUCTURAL WASHERS - U.N.O.
6. ONE FACE OF MAST TO BE FITTED WITH FALL ARREST DEVICE INSTALLED AS PER MANUFACTURER'S INSTRUCTIONS.
7. PROVIDE "HELICOIL GRIP" OR "FAN WRAP" AT TERMINATION OF GUY WIRES.
8. ALL FASTENERS M16 x 45 G88 U.N.O.

NOTE:
*ANCHOR ROD GRADIENT SHOWN IS FOR CASE AFTER RESULTANT PRETENSION FORCE HAS BEEN APPLIED. LOOSE SOIL AROUND ANCHOR RODS TO BE RE-COMPACTED AFTER PRETENSIONING

NOTE:
LEVEL OF GUY ANCHORS FOOTINGS MAY VARY UP TO RL. ±1.0m AT THE INNER PERIMETER. AND UP TO RL. ±1.0m AT OUTER PERIMETER RELATIVE TO BASE OF MAST (RL.0.0m)

DETAIL E
SCALE_1 : 50

MAST ELEVATION
SCALE: N.T.S.



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REV	DATE	REVISIONS	DRAWN	CHK	APRVD

ART GROUP
MURWILLUMBAH 119-125 QUARRY ROAD PH. 02 6672 6200
E-MAIL: ADMIN@ARTOWERS.COM.AU

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SCALE	A3	DATE	DRAWING No.	REV.
1:5000				

GENERAL ARRANGEMENT
150m (NOM)
GUYED LATTICE MAST

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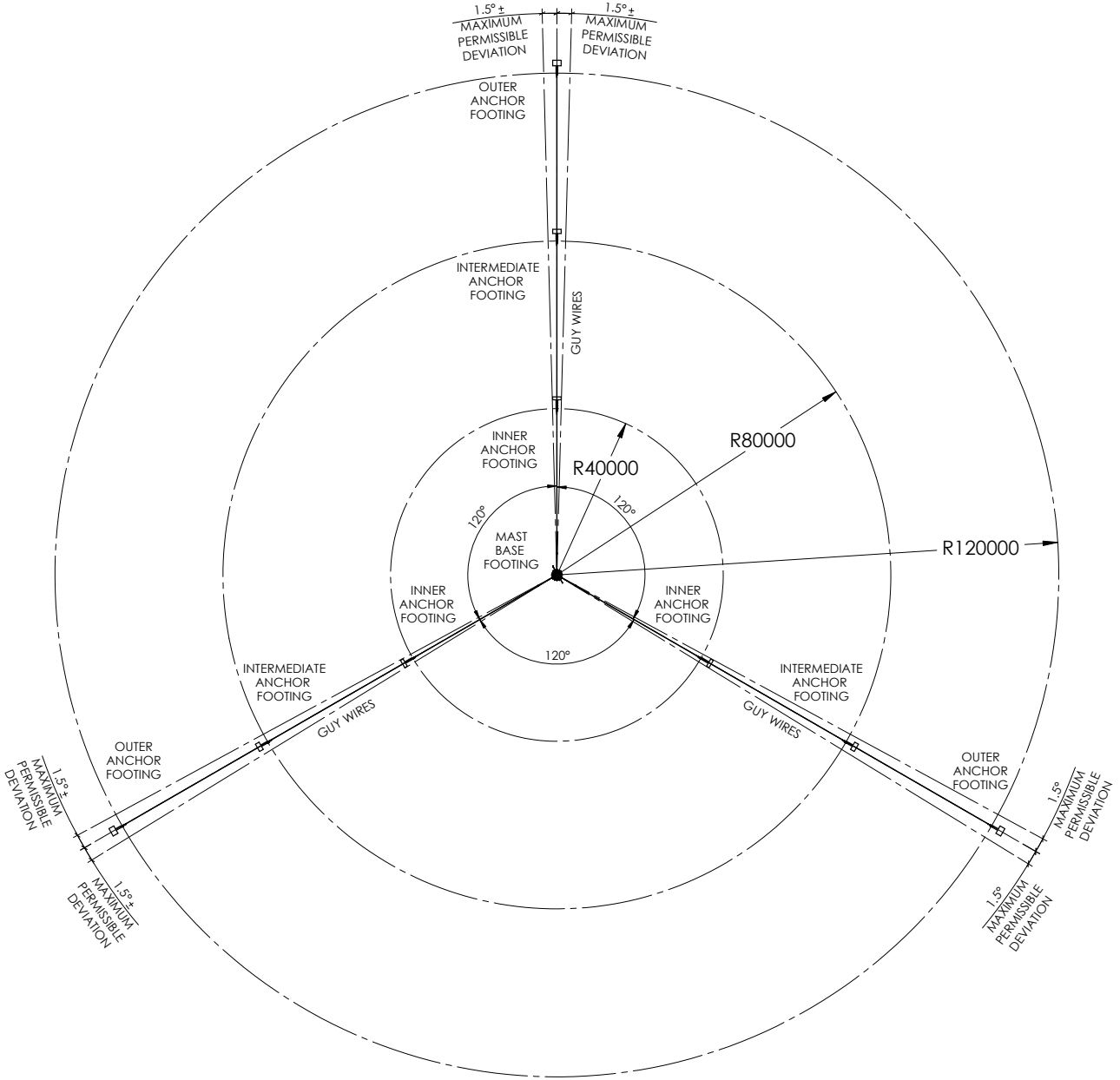

PLAN - MAST LAYOUT

SCALE 1:1100 AT A3

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REV	DATE	REVISIONS	DRAWN	CHK	APRVD

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SCALE		DATE	DRAWING No.	REV.
1:5000	A3			

GENERAL ARRANGEMENT
150m (NOM)
GUYED LATTICE MAST

Attachment 4 - Narrogin Wind Farm Monitoring Tower – Aviation Impact Assessment

CJ Murray
Junior Project Manager
Neoen Australia
Level 11, Brookfield Place, 125 St Georges Terrace
Perth WA, 6000

By email: cj.murray@neoen.com

Our ref: 104803-02

Dear CJ

Re: Narrogin wind farm wind monitoring tower – Aviation Impact Assessment

Please find in this correspondence a summary overview of the aviation impact assessment on possible constraints to the development of the wind monitoring tower (WMT) to be installed in the Narrogin wind farm project area.

1.1. Project background

Neoen Australia (Neoen) is planning the development of the Narrogin wind farm in the Shire of Narrogin Local Government Area (LGA) in the wheatbelt region of Western Australia, approximately 14 km west of the town of Narrogin, 14 km northeast of the town of Williams and 150 km southeast of Perth.

The project will include the installation of 1 wind monitoring tower (WMT) of lattice construction up to 150 m above ground level (AGL) in the project area. 4 potential sites have been selected for installation of the WMT.

Neoen wishes to understand the potential aviation impacts and the need for aviation hazard marking and lighting of the WMT.

1.2. References

References used or consulted in the preparation of this report included:

- Airservices Australia, *Aeronautical Information Package; including AIP Book, Departure and Approach Procedures and En Route Supplement Australia,* dated 08 September 2022 and 01 December 2022
- Airservices Australia, *Designated Airspace Handbook*, effective 16 June 2022 and 01 December 2022
- Civil Aviation Safety Authority, *Civil Aviation Safety Regulations 1998* (CASR)
- Civil Aviation Safety Authority, Advisory Circular (AC) 91-10 v1.1: *Operations in the vicinity of non-controlled aerodromes*, dated November 2021
- Civil Aviation Safety Authority, Part 139 (Aerodromes) Manual of Standards 2019, dated 13 August 2020 Version F2020C00797

- Civil Aviation Safety Authority, Advisory Circular (AC) 139.E-05 v1.1 Obstacles (including wind farms) outside the vicinity of a CASA certified aerodrome, October 2022
- Civil Aviation Safety Authority, Advisory Circular (AC) 139.E-01v1.0 Reporting of tall structures, December 2021
- Department of Infrastructure and Regional Development, Australian Government, National Airport Safeguarding Framework, Guideline D Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation, dated June 2013
- International Civil Aviation Organization (ICAO), *Doc 8168 Procedures for Air Navigation Services—Aircraft Operations (PANS-OPS)*
- ICAO Standards and Recommended Practices, Annex 14—Aerodromes
- Shire of Narrogin, Local Planning Strategy, adopted December 2019

1.3. Client material

Neoen provided the following material for the purposes of this analysis:

- WMT sites, *Narrogin Mast Options 20221110.*kmz, received by email 10 November 2022

1.4. Site Overview

The WMT sites are located approximately 13 km (7 nm) northwest of the town of Williams, 15 km (8 nm) southwest of the town of Narrogin and 7.1 km (3.8 nm) southwest of Narrogin aerodrome. The WMT sites are located within the Shire of Narrogin local government area.

Figure 1 shows the location of the WMT sites relative to the towns of Williams and Narrogin, the Williams-Kondinin Road and Narrogin aerodrome (source: Google Earth, Neoen).

Figure 1 Project site overview

1.5. Wind monitoring tower description

4 potential sites have been selected by Neoen for the installation of the WMT. Only 1 WMT will be installed in the Project area.

The proposed wind monitoring tower will be of steel lattice construction and a maximum of 150 m in height above ground level (AGL). The mast will be guyed at several levels in three directions.

A maximum Project height of 509 m AHD (1670 ft AMSL) has been applied for this assessment, which is the maximum site elevation of all 4 sites for development with a 5 m error budget plus the height of the WMT. Site elevation has been identified via Google Earth and NationalMaps.

The WMT may be located at any of the 4 identified sites without affecting the analysis undertaken during this assessment.

Table 1 provides the details of each of the 4 potential WMT sites (Source, Neoen).

Table 1 WMT details

WMT	Height m AGL	Location	Site elevation m AHD	+ 5 m error	WMT Height m AHD	WMT Height ft AMSL
1	150	32°58'34.34"S 117° 0'22.11"E	334	339	489	1604
2	150	32°58'6.44"S 117° 0'26.20"E	329	334	484	1588
3	150	32°58'1.90"S 116°59'49.18"E	354	359	509	1670
4	150	32°58'8.29"S 117° 1'11.62"E	327	332	482	1581

1.6. Aviation Impact Assessment

This analysis considers the aeronautical impact of the WMT on the following:

- The operation of nearby certified aerodromes
- The operation of nearby aircraft landing areas (uncertified aerodromes)
- Grid and air route Lowest Safe Altitudes (LSALTs)
- Airspace protection
- Aviation facilities
- Radar installations
- Local aircraft operations.

1.7. Shire of Narrogin

All 4 WMT sites are located within the Shire of Narrogin LGA. On 1 July 2016, the former Shire and Town of Narrogin were formally gazetted as one entity under the new Shire of Narrogin.

The Shire of Narrogin adopted a Local Planning Strategy in December 2019.

The planning strategy sets out the long-term planning directions for the LGA and provides the rationale for any zoning or classification of land under the local planning scheme.

Narrogin airport is identified in the strategy as:

> *an important part of the Shire's transport network, particularly in terms of emergency services, and has been identified as having significant potential to be developed to accommodate a flying school for international pilots, a number of tourist related activities including but not limited to sky diving, gliding, hot air ballooning and scenic flights and an aviation theme residential estate.*

Section 4.5 of the planning strategy (Transport) establishes the key issues, visions/objectives and strategies for transport infrastructure in the LGA, and includes a long-term strategy for Narrogin airport, to:

> *support and encourage an increase in air traffic volumes at the Narrogin Airport by increasing the services offered, improving utilisation of the existing facilities and creating opportunities for the establishment of complementary land uses subject to due consideration of potential impacts associated with the airport's continued operation to reduce any potential land use conflicts.*

It is evident that the Narrogin airport is recognised as an important component of the LGA transport strategy, particularly for the provision of aeromedical air transport services. The planning strategy references the 2013 Airport Master plan, which does not appear to be publicly available at the time of this assessment.

1.8. Nearby certified aerodromes

There are no certified aerodromes located within 30 nm of the proposed WMT. The nearest certified aerodromes are Katanning (YKNG), located approximately 54 nm (100 km) southeast of the closest WMT site, Murray Field (YMUL), located approximately 65 nm (120 km) northwest of the closest WMT site, and Bunbury (YBUN), located approximately 71 nm (131 km) southwest of the closest WMT site.

Figure 2 shows the location of the WMT with a 30 nm radius in relation to the nearest certified aerodromes (source, Neoen, Google Earth, Airservices).

The 30 nm radius represents an area of interest for aerodromes with terminal instrument flight procedures with a specified minimum safe altitude based on the highest obstacle in an area with 25 nm (plus 5 nm buffer) radius.

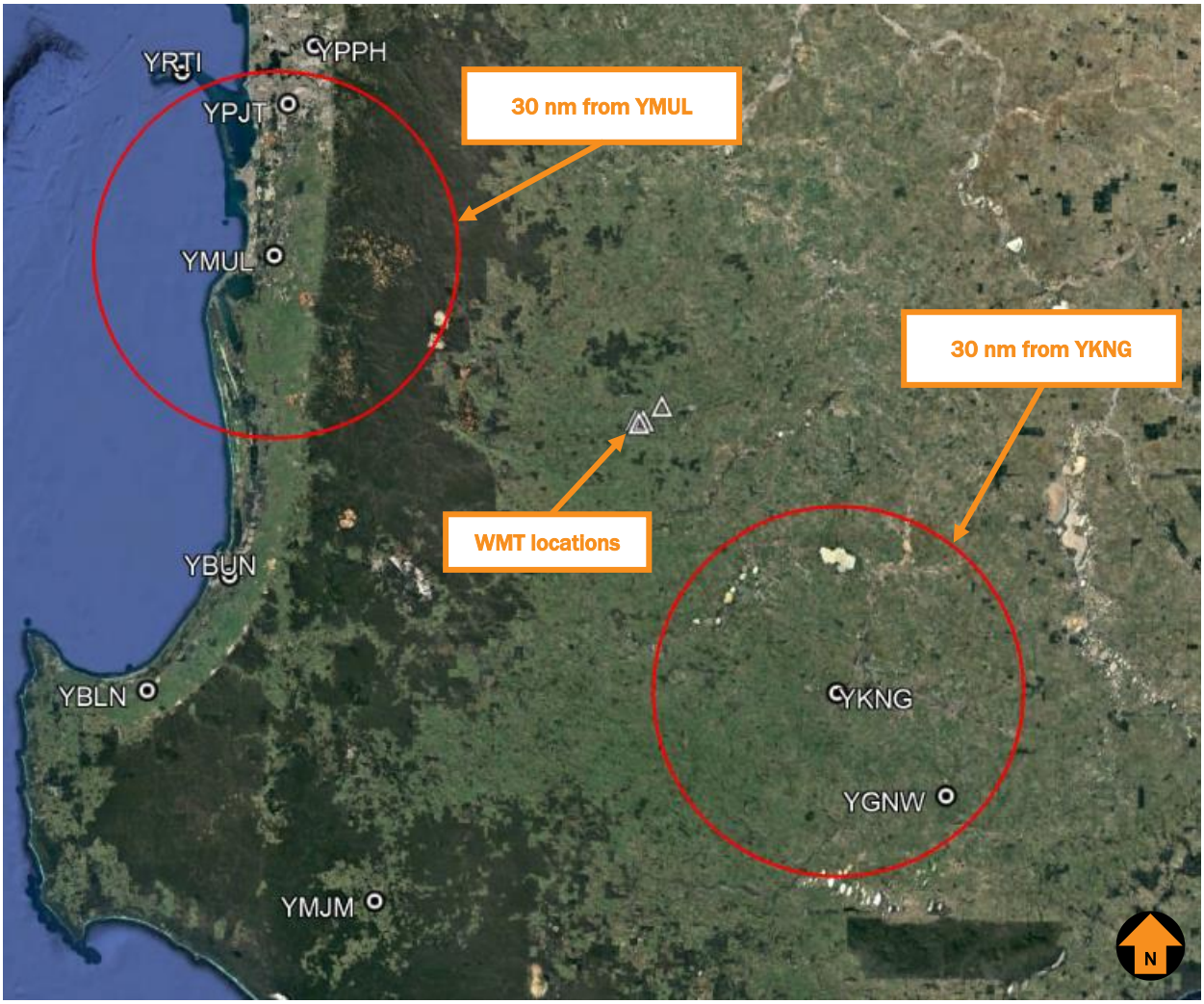

Figure 2 WMTs relative to the closest certified aerodromes

None of the 4 proposed WMT sites will affect any certified aerodrome.

1.9. Nearby aeroplane landing areas (uncertified aerodromes)

As a guide, an area of interest within a 3 nm radius of an aeroplane landing area (ALA) is used to assess potential impacts of proposed developments on aircraft operations at or within the vicinity of the ALA.

A search on OzRunways, which sources its data from Airservices Australia (AIP), did not identify any unregulated aerodromes within 3 nm of any WMT site. The aeronautical data provided by OzRunways is approved under CASA CASR Part 175.

A review of NationalMap (an online map-based tool allowing access to spatial data from Australian government agencies) was also undertaken. No aeroplane landing areas were identified within 3 nm of any of the proposed WMT sites.

1.10. Narrogin aerodrome

Narrogin aerodrome (YNRG) is an uncertified aerodrome operated by the Shire of Narrogin, which is located approximately 7.1 (3.8 nm) northeast of the nearest WMT site, Option 4.

YNRG has two runways:

- Runway 10/28, sealed runway with a length of approximately 1260 m, width 23 m and runway strip 90 m
- Runway 18/36, unsealed runway with a length of 1480 m and width of 45 m (runway strip width not identified)

As an uncertified aerodrome, aerodrome design and operational specifications are not specifically applicable at YNRG, and the pilot of aircraft operating to the aerodrome is responsible for determining if the aerodrome is suitable.

The requirement for an aerodrome to become certified under Civil Aviation Safety Regulations (CASR) Part 139 (Aerodromes) is for the implementation of terminal instrument flight procedures. Instrument approach procedures are used in weather conditions that preclude the pilots being able to navigate by visual reference to the ground or water and need to rely on aircraft instrumentation to navigate to the appropriate runway.

Currently, as an uncertified aerodrome YNRG is unable to implement instrument procedures meaning aircraft operating to the aerodrome are limited to specified visual meteorological conditions, and the accessibility of the aerodrome is limited when there is low cloud (below the applicable lowest safe altitude) and/or poor visibility.

1.11. YNRG aircraft operations

It is understood that YNRG is used primarily for private and recreational flying operations, including gliding activity, conducted in visual conditions. It is understood the aerodrome is also used frequently by the Royal Flying Doctor Service (estimated as 200 arrivals annually according to Shire of Narrogin council meeting minutes), which may include night-time operations in visual meteorological conditions.

The aerodrome does provide runway lighting on runway 10/28, although the lighting system is not inspected by the Shire of Narrogin.

1.12. Aircraft operations at non-controlled aerodromes

Advisory Circular AC 91-10 v1.1 *Operations in the vicinity of non-controlled aerodromes* provides guidance for pilots flying at or in the vicinity of non-controlled aerodromes, with respect to CASR 91.

A conventional circuit pattern and heights are provided in AC 91-10 v1.1. The standard circuit consists of a series of flight paths known as *legs* when departing, arrival or when conducting circuit practice. Illustrations of

the standard aerodrome traffic circuit procedures provided in AC 91-10 v1.1. are shown in Figure 3 and Figure 4.

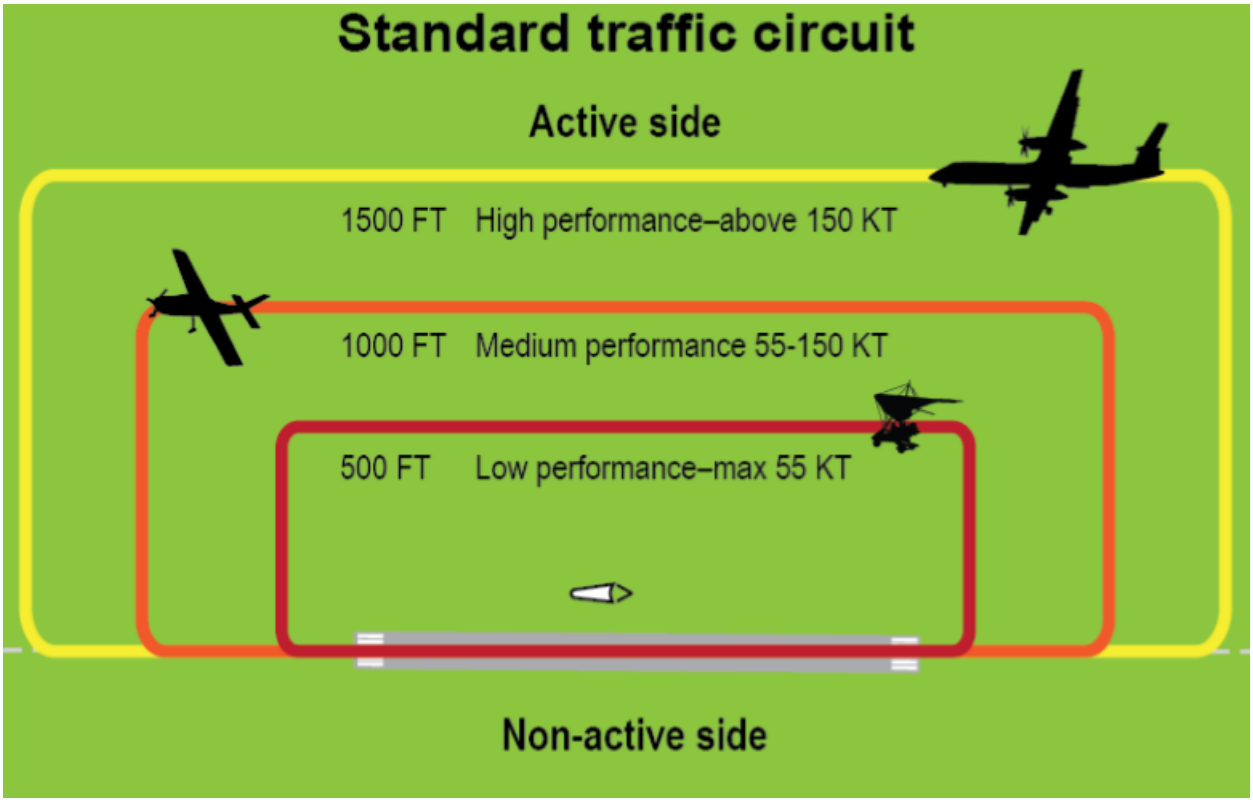

Figure 3 Lateral and vertical separation in the standard aerodrome traffic circuit

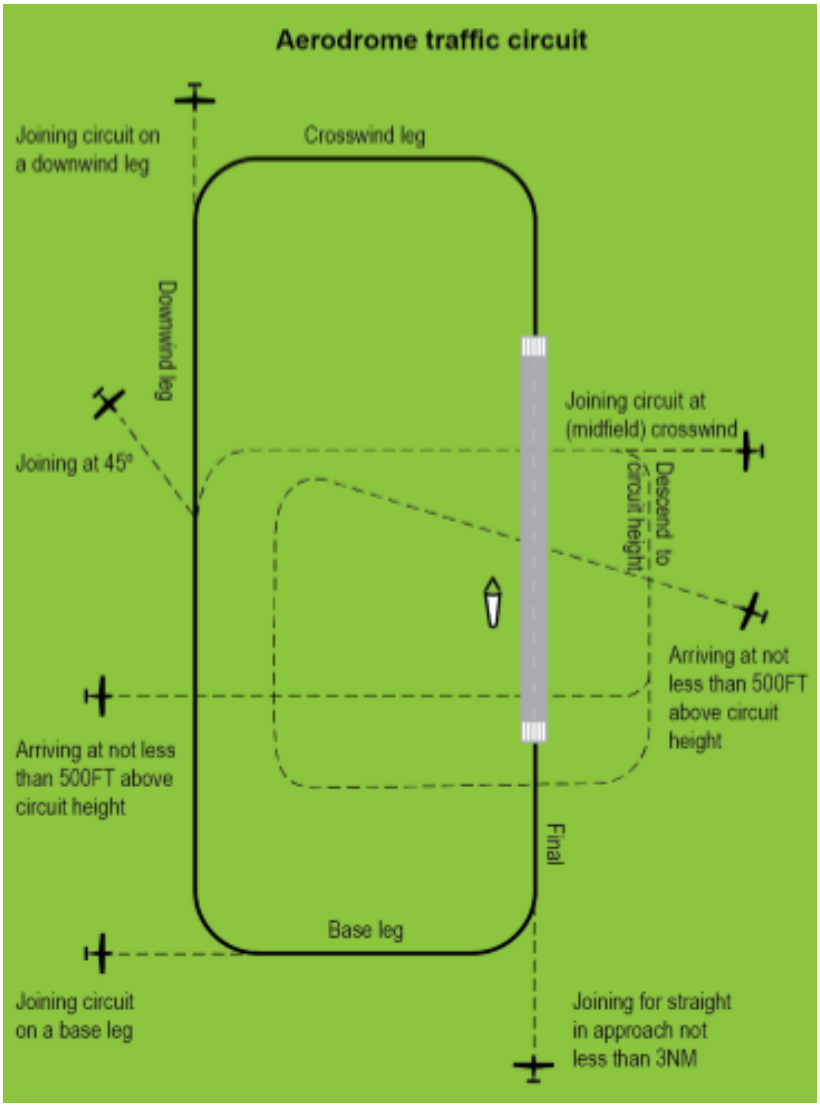

Figure 4 Aerodrome standard traffic circuit, showing arrival and joining procedures

AC 91-10 v1.1. paragraph 7.10 makes reference to a distance that is "normally" well outside the circuit area and where no traffic conflict exists, which is at least 3 nm (5556 m). The paragraph is copied below:

> *7.10 Departing the circuit area*
>
> *7.10.1 Aircraft should depart the aerodrome circuit area by extending one of the standard circuit legs or climbing to depart overhead. However, the aircraft should not execute a turn to fly against the circuit direction unless the aircraft is well outside the circuit area and no traffic conflict exists. This will normally be at least 3 NM from the departure end of the runway, but may be less for aircraft with*

high climb performance. In all cases, the distance should be based on the pilot's awareness of traffic and the ability of the aircraft to climb above and clear of the circuit area.

All WMT locations are further than 3 nm of YNRG. Figure 5 shows a nominal 1 nm circuit pattern for runway 10/28 and runway 18/36 (western circuit only), including a 3 nm straight-in approach path to runway 10 (Source, Neoen, Google Earth).

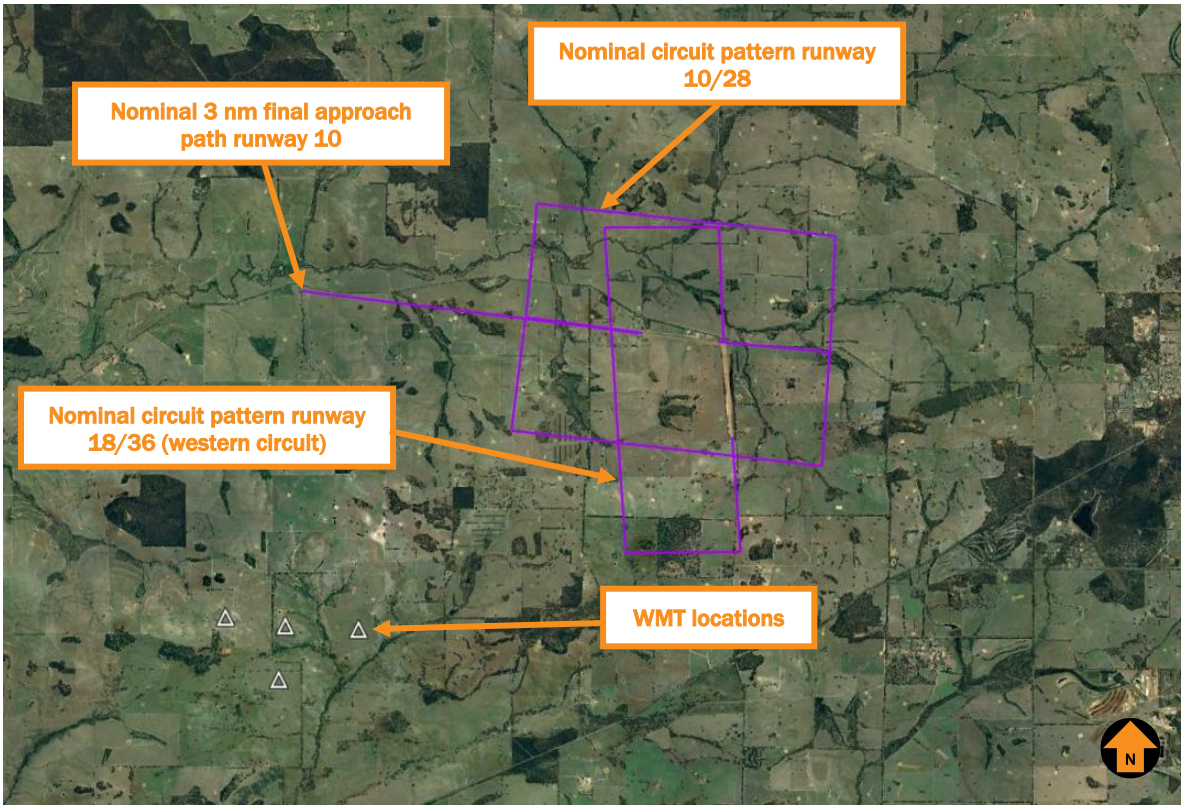

Figure 5 WMTs in relation to YNRG

Generally, aircraft operations at YNRG will not require aircraft to overfly the WMT locations while arriving or departing the aerodrome in normal operations, and aircraft operations at YNRG are not anticipated to be adversely affected by the WMT in any of the proposed locations.

1.13. Air routes and LSALT

MOS 173 requires that a minimum obstacle clearance of 1000 ft is applied above the highest terrain or obstacle within the lateral tolerance area of the individual air route to determine the applicable LSALT. This MOC is applied in the same manner within a 1° by 1° graticle, to determine the Grid LSALT

The WMT sites are located in 2 different grids, separated by longitude 117° E. WMT site 3 is located in a grid with a lowest safe altitude of 3400 ft AMSL (1036 m AHD) and a minimum obstacle clearance (MOC) surface

height of 2400 ft AMSL (731 m AHD). The remainder of the WMT sites are located east of 117°E in a grid with a lowest safe altitude of 3000 ft AMSL (914 m AHD) and a minimum obstacle clearance (MOC) surface height of 2000 ft AMSL (610 m AHD).

With a maximum height of 509 m AHD (1670 ft AMSL) across all 4 potential sites, the WMT will be below the grid LSALT protection surface by at least 330 ft (101 m) in any of the proposed sites. Therefore, the grid LSALT will not be impacted by the WMT.

The WMT is located in the vicinity of 1 low-level air route, W185, between waypoint OCKLY and the NDB location at Albany airport (ABA NDB). Figure 6 provides the air routes and grid LSALT in proximity to the WMT sites (source: ERC Low National, Neoen).

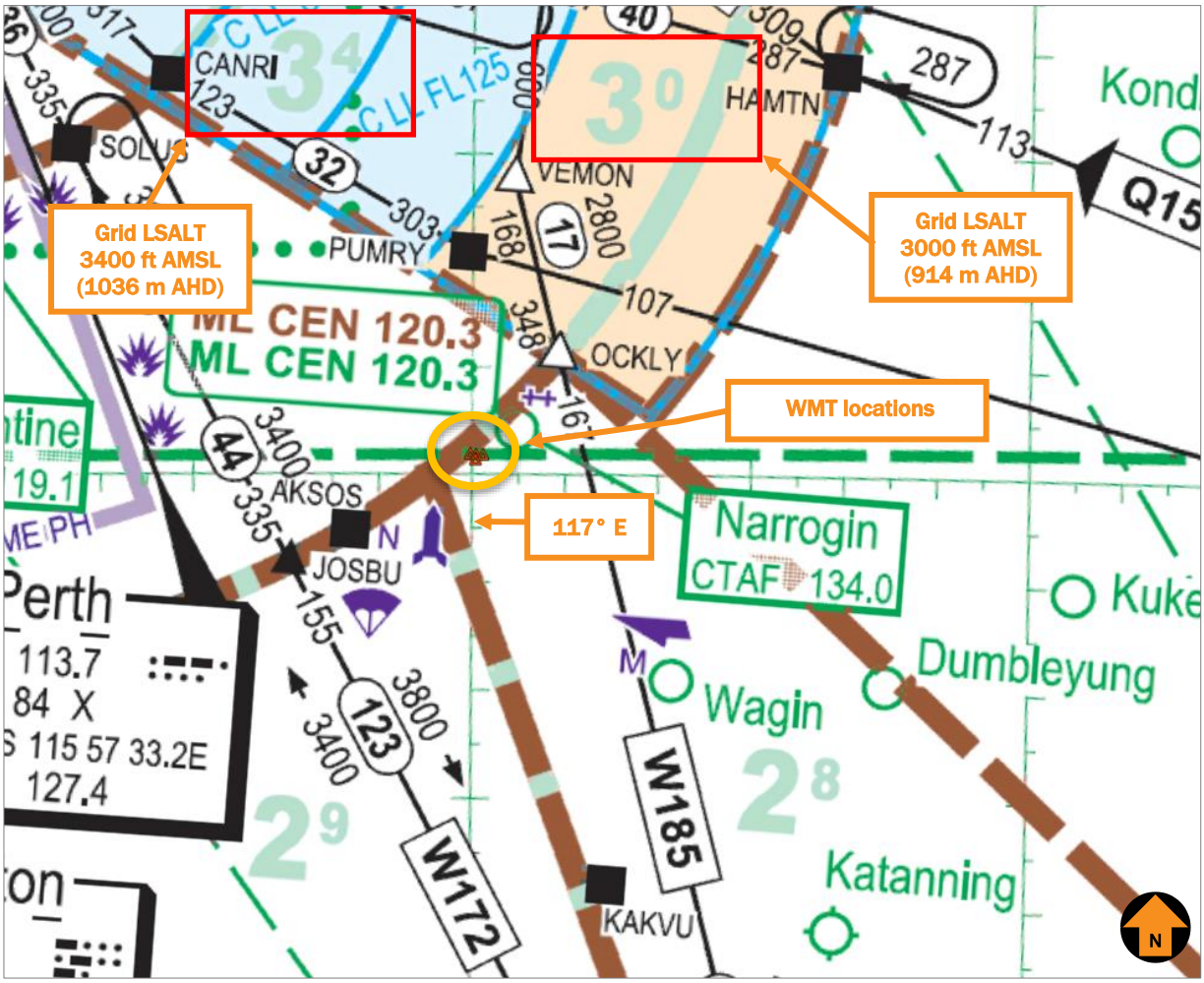

Figure 6 Air routes and grid LSALT in proximity to the WMT sites

An impact analysis of the LSALT for the grid and surrounding air routes is provided in Table 2, based on the maximum height of any of the 4 WMT sites of 509 m AHD (1670 ft AMSL).

Table 2 Air route and grid LSALT impact analysis

Air route	*Waypoint pair*	*LSALT ft AMSL*	*Minimum Obstacle Clearance height ft AMSL*	*Impact on airspace design WMT*	*Potential solution*	*Impact on aircraft ops*
W185	OCKLY – ABA NDB	3800	2800	No impact – maximum WMT height below protection surface by approximately 1130 ft.	N/A	N/A
Grid	N/A	3000	2000	No impact – maximum WMT height below protection surface by approximately 330 ft	N/A	N/A
Grid	N/A	3400	2400	No impact – maximum WMT height below protection surface by approximately 730 ft		

Note: Minimum obstacle clearance (MOC) height is the height above which obstacles would impact on LSALTs or air routes.

The WMT will not impact LSALTs of the applicable grids or nearest air routes based on the maximum height of all 4 proposed sites.

1.14. Airspace Protection

The Project site is located wholly within Class G airspace (meaning non-controlled airspace) and is not located in any Prohibited, Restricted and Danger areas. Therefore, the Project will not have an impact on controlled or designated airspace.

1.15. Communication, Navigation and Surveillance Systems

Part 139 MOS 2019 specifies the protection of Communication, Navigation and Surveillance Systems (CNS) from development which may affect the function of these systems.

The WMT sites are all located beyond the clearance zones and areas of interest prescribed in Part 139 MOS 2019 for any CNS facility.

1.16. Radar

Airservices Australia currently requires an assessment of the potential for wind monitoring towers in a Project to affect radar line of sight, although open lattice type structures such as a WMTs do not impact Air Traffic Control (ATC) radar systems.

With respect to aviation radar facilities, the closest radar is the Kalamunda Route Surveillance Radar (RSR) which is located approximately 75 nm (139 km) northwest of the nearest WMT site. The Perth Primary Surveillance Radar (PSR) is located approximately 81 nm (150 km) northwest of the nearest WMT site.

The proposed WMT in any of the 4 proposed locations is not anticipated to affect any radar facility.

1.17. Aircraft Operations in the vicinity of the WMT

Air transport aircraft normally operate under instrument flying rules (IFR). For operations to an aerodrome without an instrument approach, air transport aircraft will normally operate under IFR along a published air route and then descend to the LSALT and if visual proceed to the aerodrome in visual meteorological conditions. Air transport aircraft are not expected to operate below the LSALT in the immediate vicinity of the WMT locations.

Aerial work operations may be conducted under either the IFR or visual flying rules (VFR). Other general aviation operations under either IFR or VFR may also be conducted at various aerodromes in the region.

Operations conducted under the visual flight rules (VFR) are required to remain in visual meteorological conditions (VMC) and clear of the highest point of the terrain by 500 ft vertical distance and 300 m horizontal distance.

There may be low level military aircraft operations in close proximity to the WMTs, including military aircraft conducting exercises from Narrogin aerodrome.

There may be some low-level fixed-wing aerial agriculture operations in the area, conducted in Day VFR conditions. Private and recreational flying including glider operations occur at Narrogin aerodrome, conducted in visual conditions.

1.18. National Airports Safeguarding Framework

The National Airports Safeguarding Advisory Group (NASAG) was established by the Commonwealth Department of Infrastructure and Transport to develop a national land use planning framework called the National Airports Safeguarding Framework (NASF). The purpose of this framework is to enhance the current and future safety, viability, and growth of aviation operations at Australian airports.

NASF *Guideline D Managing the Risk to Aviation Safety of Wind Turbine Installations (wind Farms)/Wind Monitoring towers* recognises the risk to aviation by WMTs, stating:

> *These structures are very difficult to see from the air due to their slender construction and guy wires. This is a particular problem for low flying aircraft including aerial agricultural operations. Wind farm proponents should take appropriate steps to minimise such hazards, particularly in areas where aerial agricultural operations occur.*

Guideline D suggests consideration of the following measures specific to the marking and lighting of wind monitoring towers:

- the top 1/3 of wind monitoring towers to painted in alternating contrasting bands of colour. Examples of effective measures can be found in the Manual of Standards for Part 139 of the Civil Aviation Safety Regulations 1998. In areas where aerial agriculture operations take place, marker balls or high visibility flags can be used to increase the visibility of the towers
- marker balls or high visibility flags or high visibility sleeves placed on the outside guy wires
- ensuring the guy wire ground attachment points have contrasting colours to the surrounding ground/vegetation; **or**
- a flashing strobe light during daylight hours.

There may be some low-level fixed-wing aerial agriculture operations in the area of the WMT.

1.19. Civil Aviation Safety Authority - regulatory context

The Civil Aviation Safety Authority (CASA) regulates aviation activities in Australia. Applicable requirements include the Civil Aviation Regulations 1988 (CAR), Civil Aviation Safety Regulations 1998 (CASR) and associated Manual of Standards (MOS) and other guidance material. Standards for Certified Aerodromes are established in Part 139 MOS 2019.

A certified aerodrome means an aerodrome certified under Part 139 (Aerodromes) Civil Aviation Safety Regulations 1998. An aerodrome must be certified if there is a terminal instrument flight procedure implemented at the aerodrome, except for specialised helicopter operations. The standards for the operation and maintenance of a certified aerodrome are provided in Part 139 Manual of Standards 2019 (Part 139 MOS 2019).

Standards relevant to the development of WMTs in proximity to a certified aerodrome include the control of tall and hazardous objects (as defined) located in the vicinity of an aerodrome and terminal instrument flight

procedures, and specifications for lighting and marking obstacles. The WMTs will not be located in the vicinity of any certified aerodrome.

CASR 91.267 specifies the minimum permissible height for flights over non-populous areas as 500 ft above the highest feature or obstacle within a horizontal radius of 300 m of the point on the ground or water immediately below the aircraft (unless taking or landing, and as otherwise approved).

The height of the WMT at 150 m (500 ft) above ground level is consistent with the minimum permissible height for flights over non-populous areas under CASR 91.267.

Civil Aviation Safety Regulations 1998, Part 139—Aerodromes

CASR 139.165 requires the owner of a structure (or proponents of a structure) that will be 100 m or more above ground level to inform CASA. This must be given in written notice and contain information on the proposal, the height and location(s) of the object(s) and the proposed time-frame for construction. This is to allow CASA to assess the effect of the structure on aircraft operations and determine whether or not the structure will be hazardous to aircraft operations.

Neoen is required to report the WMT to CASA in accordance with CASR 139.165.

Neoen is not required to receive permission from CASA to install the WMT, however CASA may provide advice to the Shire of Narrogin as the planning authority relating to marking and lighting of the WMT.

Manual of Standards Part 139—Aerodromes

Part 139 MOS 2019 Chapter 8.109 specifies when obstacles must be marked:

> *(1) The following objects or structures at an aerodrome are obstacles and must be marked in accordance with this Division unless CASA determines otherwise under subsections (3) and (5):*
>
> *a) any fixed object or structure, whether temporary or permanent in nature, extending above the obstacle limitation surfaces;*
>
> - *Note An ILS building is an example of a fixed object.*
>
> *a) (b) any object or structure on or above the movement area that is removable and is not immediately removed.*

Chapter 8.110 sets the requirement for marking hazardous obstacles:

> *As illustrated in Figure 8.110 (5), long, narrow structures like masts, poles and towers which are hazardous obstacles must be marked in contrasting colour bands so that:*
>
> *a) the darker colour is at the top; and (b) the bands:*
>
> *i. are, as far as physically possible, marked at right angles along the length of the long, narrow structure; and*
>
> *ii. have a length ("z" in Figure 8.110 (5)) that is, approximately, the lesser of:*
>
> *(A) 1/7 of the height of the structure; or*
>
> *(B) 30 m.*

Figure 7 provides a diagram of the marking specification for masts, poles and towers as specified by CASA in Part 139 MOS 2019 figure 8.110 (5).

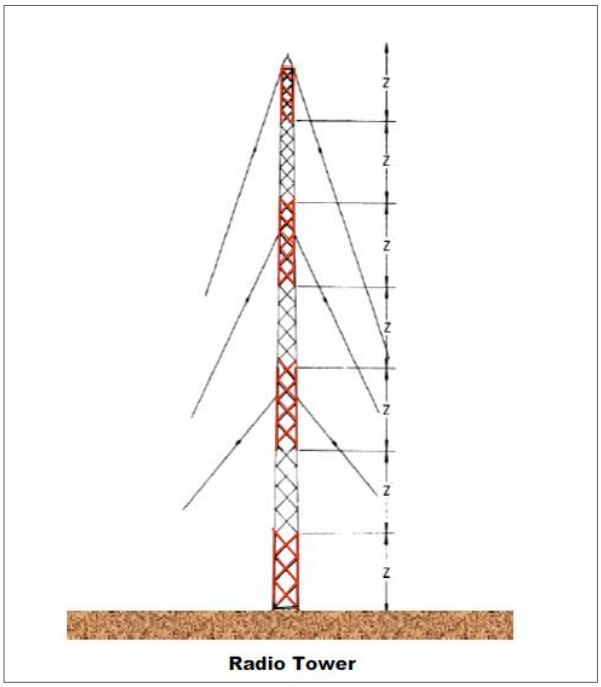

Figure 7 Part 139 MOS 2019 8.110 marking specification

The Part 139 MOS 2019 requirements relating to obstacle marking will not strictly apply to the proposed WMT as it is not located within the OLS of any certified aerodrome or above an aircraft movement area.

Given the potential for low-level aerial agriculture aircraft operations in the vicinity of the WMT locations, Neoen should mark the WMT in accordance with the specifications provided, noting there is no regulatory requirement to do so. CASA may recommend marking of the WMT to the planning authority as the WMT will be 150 m AGL.

Obstacle Lighting

Part 139 MOS 2019 specifies when obstacle lights are required in Chapter 9.27(1):

> *(1) Subject to subsection (2), for a runway intended to be used at night, the following artificial objects or structures are hazardous obstacles and must be provided with obstacle lighting:*
>
> *a) an object or structure that extends above the take-off climb surface within 3 000 m of the inner edge of the take-off climb surface;*
>
> *b) an object or structure that extends above the approach or transitional surface within 3 000 m of the inner edge of the approach surface;*
>
> *c) an object or structure that extends above the applicable inner, conical or outer horizontal surfaces;*

d) *an object or structure that extends above the obstacle assessment surface of a T-VASIS or PAPI;*

e) *an object or structure in the vicinity of a taxiway, an apron taxiway or a taxilane, that is a hazard to aircraft using the taxiway, apron taxiway or taxilane, except that obstacle lights must not be installed on elevated ground lights or MAGS.*

Part 139 MOS 2019 Chapter 9.27(4) specifies that:

(4) Despite subsection (1), CASA may determine in writing, following an assessment:

a) *that an object or structure on, or within the immediate vicinity of, the aerodrome is a hazardous obstacle; and*

b) *what, if any, lighting is required for that hazardous obstacle.*

The requirements for obstacle lighting do not strictly apply to the proposed WMT as it will not infringe any certified aerodrome's OLS or other surfaces as specified.

Given the possibility of night operations at Narrogin aerodrome by aeromedical aircraft, CASA may determine the WMT should be lit in accordance with the specifications provided in Part 139 MOS 2019 Chapter 9.33 Characteristics of medium-intensity obstacle lights:

(1) Medium-intensity obstacle lights must:

(a) be visible in all directions in azimuth; and

(b) if flashing — have a flash frequency of between 20 and 60 flashes per minute.

(2) The peak effective intensity of medium-intensity obstacle lights must be 2 000 +/- 25% cd with a vertical distribution as follows:

(a) for vertical beam spread — a minimum of 3 degrees;

(b) at -1 degree elevation — a minimum of 50% of the lower tolerance value of the peak intensity;

(c) at 0 degrees elevation — a minimum of 100% of the lower tolerance value of the peak intensity.

(3) For subsection (2), vertical beam spread means the angle between 2 directions in a plane for which the intensity is equal to 50% of the lower tolerance value of the peak intensity.

(4) If, instead of obstacle marking, a flashing white light is used during the day to indicate temporary obstacles in the vicinity of an aerodrome, the peak effective intensity of the light must be increased

This assessment recommends that Neoen consider lighting the WMT in accordance with the specifications of Part 139 MOS 2019 noting there is no regulatory requirement to do so.

1.20. Summary

The following list of findings summarises the outcomes of this assessment:

Certified aerodromes

- There are no certified aerodromes located within 30 nm of any of the 4 proposed WMT sites, and the WMT will not affect any certified aerodrome.

Aircraft Landing Areas (uncertified aerodromes)

- No aeroplane landing areas were observed within 3 nm of the Project site.
- Narrogin aerodrome (YNRG) is located approximately 3.6 nm (6.6 km) northeast of the closest WMT location (option 4). YNRG is uncertified and there are no design and operational specifications established for the aerodrome. Runway lighting is provided at for runway 10/28 at YNRG and aeromedical aircraft are known to operate to the aerodrome at night, in visual conditions.
- The WMTs are not anticipated to adversely affect the operation of aircraft at YNRG.

Air Routes and Lowest Safe Altitude

- With a maximum overall height of 509 m AHD (1670 ft AMSL) the WMT is below the applicable grid LSALT protection surface by at least 330 ft in any of the proposed locations. Therefore, grid LSALT will not be impacted.
- The WMT will not impact the LSALT of nearby air routes in any of the proposed locations.

Airspace

- The Project site is located outside of controlled airspace (wholly within Class G airspace) and is not located in any Prohibited, Restricted and Danger areas. Therefore, the Project will not have an impact on controlled or Special Use Airspace.

Aviation Facilities

- The WMT is located outside the protection areas associated with communication, navigation and surveillance facilities.

Radar

- The WMT is not anticipated to affect the Perth and Kalamunda radar facilities in any of the proposed locations.

Aircraft operations

- Some low-level operations, related to aerial agriculture and military aircraft operations are possible within the vicinity of the WMT. Aircraft operating to and from Narrogin aerodrome are not required to overfly the WMT locations at low level in normal operations.

Lighting and Marking

- It is not mandatory to mark the WMT however the following markings are recommended to be implemented:
    - Marker balls or high visibility flags or high visibility sleeves should be placed on the outside guy wires
    - Guy wire ground attachment points should be in contrasting colours to the surrounding ground/vegetation; and
    - Paint markings should be applied in alternating contrasting bands of colour to at least the top 1/3 of the mast.
- It is not mandatory to light the WMT however Neoen should consider lighting the WMT in accordance with the specifications provided in Part 139 MOS 2019 Chapter 9.30, particularly in relation to the use of Narrogin aerodrome by aeromedical aircraft at night.

Reporting

- Due to exceeding 100 m AGL, details of the WMT must be reported to CASA as soon as practicable after forming the intention to construct or erect the proposed object or structure, in accordance with CASR Part 139.165(1)(2).
- The Royal Australian Air Force (RAAF) and Airservices Australia require information on structures that are 30 m or more above ground level within 30 km of an aerodrome. 'As constructed' details of WMT coordinates and elevation should be provided to Airservices Australia, by submitting the form at this webpage: https://www.airservicesaustralia.com/wp-content/uploads/Tall-Structure-Vertical-Obstacle-Form.pdf to the following email address: vod@airservicesaustralia.com

  (At the time of this assessment, the link provided for the Airservices Australia tall object form is not serviceable. Details of the WMT can be sent to the Airservices email provided providing the location, site elevation, height (m AGL) and construction details of the WMT.)

With respect to aviation impacts, development of WMT in any of the 4 proposed locations remains feasible.

If you wish to clarify or discuss the contents of this correspondence, please contact me on 0417 862 727 or Keith Tonkin on 0417 631 681.

Kind regards

Jarrod Bell

Specialist Airport Operations Consultant

14 November 2022