

BOWMANS CREEK WIND FARM

Stage 1 PEA

PRELIMINARY LANDSCAPE AND VISUAL IMPACT

Prepared for:

EPURON PROJECTS Pty Ltd

Prepared by:

GREEN BEAN DESIGN
landscape architects

GREEN BEAN DESIGN PTY LTD
PO Box 3178 Austral NSW 2179
Principal: Andy Homewood Grad Dip LM. BSc (Dual Hons), Dip Hort, Registered Landscape Architect, AILA, EIANZ
(ABN: 86 603 575 702)

DOUCMENT CONTROL

ITEM	DETAIL
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Author:	Andrew Homewood , Registered Landscape Architect, AILA, EIANZ <i>Graduate Diploma Landscape Management, BSc. (Dual Honours) Landscape Design and Archaeology, National Diploma Horticulture</i>
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Introduction

Section 1

1.1 Introduction

Green Bean Design Pty Ltd (GBD) has been commissioned by Epuron Projects Pty Ltd (the Proponent) to undertake a Preliminary Landscape and Visual Impact Assessment for the Bowmans Creek Wind Farm (the project).

This Preliminary LVIA has been prepared as required by the New South Wales Government, Department of Planning and Environment (DPE) in order to meet the objectives of the Wind Energy – Visual Assessment Bulletin, December 2016 (the Bulletin). This Preliminary LVIA supports the Preliminary Environmental Assessment (PEA) and has been prepared to specifically address the Bulletin requirements applicable to a new wind farm development application for a State Significant Development (SSD) through the Secretary’s Environmental Assessment Requirements (SEARs).

This Preliminary LVIA has been prepared to consider a layout consisting of 72 wind turbines with a tip height of 220 metres. The wind turbine layout has been subject to a number of iterations and should be considered as a draft layout for the purposes of this Preliminary LVIA. This Preliminary LVIA has not considered the location or extent of some ancillary infrastructure commonly associated with wind farm developments, including electrical infrastructure and access tracks. Ancillary infrastructure items will be detailed and included in the Stage 2 Environmental Impact Statement (EIS) Assessment and Determination process.

The Bulletin requires consideration of dwellings and key public viewpoints within a defined study area. The study area has been defined within a 4.4km and 3km offset from the wind turbines. The 4.4km and 3km offsets are in accordance with the blue and black lines illustrated in the Bulletin Figure 2 and Figure 5 Visual magnitude thresholds for visual assessment. A preliminary analysis of the study area within 3km (below the black line) of the wind turbines did not identify any key public viewpoints (e.g. dedicated lookouts, public spaces, recreational areas etc.), and accordingly the preliminary analysis has focused on residential dwellings. GBD will undertake a further and detailed analysis of key public viewpoints surrounding the wind farm for the EIS.

GBD also notes the Bulletin requirement to provide an overlay of the wind resources (Issue of SEAR’s, page 11). GBD understand that the collection of wind data is ongoing and is considered ‘commercial in confidence’ at this time, therefore an overlay of the wind resource cannot be provided with the Preliminary LVIA.

Information and stated requirements from the Bulletin included in this Preliminary LVIA are presented in *italics*.

1.2 Professional assessment skills

The Bulletin states that *‘Professional assessment skills are critical to the effective application of visual assessment’*, and that *‘The proponent is expected to engage professionals from relevant natural resource management and design professions (for example environmental planners, geographers, landscape architects,*

architects, or other visual resource specialists), with demonstrated experience and capabilities in visual assessment to carry out a wind energy project visual assessment’.

GBD confirms that this Preliminary LVIA has been prepared by GBD Principal Landscape Architect Andrew Homewood. Andrew had prepared numerous wind farm LVIA in New South Wales, at preliminary and detailed stages, as well as independent expert reviews for wind farm LVIA on behalf of DPE.

Wind Energy Visual Assessment Bulletin

Section 2

2.1 Introduction

The Bulletins stated objectives are to:

- *provide the community, industry and decision-makers with a framework for visual impact analysis and assessment that is focused on minimising and managing the most significant impacts;*
- *facilitate improved wind turbine and ancillary infrastructure siting and design during the pre-lodgement phase of a project, and encourage early consideration of visual impacts to minimise conflicts and delays where possible, and provide for a better planning outcome;*
- *provide the community and other stakeholders with greater clarity on the process along with an opportunity to integrate community landscape values into the assessment process; and*
- *provide greater consistency in assessment by outlining appropriate assessment terminology and methodologies.*

GBD confirm that this Preliminary LVIA has been prepared in order to satisfy the key objectives of the Bulletin.

The Bulletin breaks the visual assessment process in to 2 main stages. These include:

- Stage 1 Preliminary Environmental Assessment. and
- Stage 2 Assessment and Determination.

This Preliminary LVIA has been prepared to address the requirements of the Stage 1 PEA, which is to be submitted to DPE as part of a request for SEAR's. Stage 1 is broken down into 3 steps which include:

- *Undertake community consultation on likely areas of development and establish key landscape features, areas of scenic quality and key viewpoints valued by the community*
- *Apply the Preliminary Assessment Tools to the preliminary turbine layout and*
- *Prepare a Preliminary Environmental Assessment.*

The Bulletin also states that Stage 1 must '*undertake a preliminary environmental assessment that considers the landscape in which a proposed wind energy project will be located. The analysis must include*':

- *undertaking community consultation to establish key landscape features valued by the community, key viewpoints in the area (both public and private) along with information about the relative scenic quality of the area*

- *production of a map detailing key landscape features (informed by community consultation and any ground-truthing undertaken), the preliminary wind turbine layout, the location of dwellings and key public viewpoints and an overlay of the wind resource; and*
- *results of the application of the preliminary assessment tools for both the visual magnitude and multiple wind turbine parameters.*

GBD confirms that this Preliminary LVIA has been prepared in accordance with the Bulletin for Stage 1 PEA (pre-lodgement).

Methodology

Section 3

3.1 Introduction

The methodology employed for this Preliminary LVIA has incorporated the key steps and analysis set out in the Bulletin, and as identified in **Table 1**.

3.2 Report structure

This Preliminary LVIA report has been structured as follows:

Table 1 – Report structure

Report section	Description
1 – Introduction	This section provides an introductory section that describes the intent and purpose of the Preliminary LVIA
2 – Wind Energy Visual Assessment Bulletin	This section sets out the objectives, stages and key steps described in the Bulletin as applicable to the Preliminary LVIA.
3 – Methodology	This section sets out the structure and methodology employed in the LVIA preparation
4 – Community Consultation	This section describes the community consultation activities undertaken by the Proponent and feedback received from the community relevant to this Preliminary LVIA.
5 – Preliminary assessment tool Visual Magnitude	This section provides an analysis of the preliminary assessment tool for visual magnitude as set out in the Bulletin.
5 – Preliminary assessment tool Multiple Wind Turbine Tool	This section provides an analysis of the preliminary assessment tool for the multiple wind turbine tool as set out in the Bulletin.
7 – Summary	This section provides a summary of the Preliminary LVIA.

Community Consultation

Section 4

4.1 Introduction

The Bulletin notes that *'Consultation with the community at this early stage may be broad, but should include discussions about the proposed project area, likely corridors for development, or preliminary turbine layouts and must involve people from the visual catchment'*.

The Bulletin describes the purpose of early communications is to:

- *establish the key landscape features, areas of scenic quality and key public viewpoints valued by that community*
- *allow the community to have input into the ranking of those features and scenic quality into high, moderate or low visual significance*
- *inform landholders about the proposed project area, likely corridors for development, preliminary turbine layouts and access routes and*
- *inform the community about the proposed project, listen to the community's concerns and suggestions for alternative siting and location designs, and discuss potential visual impacts.*

Key landscape features can include natural features of the landscape (for example, a distinctive mountain peak) as well as important cultural features (for example, an iconic church). Consideration of areas of scenic quality involves the identification of areas of the landscape that are of high scenic quality and those that are moderate or low. It is also important to establish which viewpoints are important to the community. An important source of information at this stage is likely to be the local council. A community survey or focus group could also be utilised to gather this information. Any surveys undertaken should reflect the population profile in the project area as indicated by the most up-to-date Census data available.

A detailed summary of consultation conducted for the Project is provided in the Main Volume of the PEA. Issues relevant to this assessment are described below.

In order to support the community consultation process GBD prepared a number of figures to illustrate the results of preliminary site work. The figures outline landscape characteristics associated with Scenic Quality Areas (SQA's). The landscape characteristics are generally defined by land use, land cover and topography. A preliminary landscape analysis identified 10 landscape areas within and surrounding the Project site. These included:

- Prominent hills and mountains
- Low undulating hills
- River flood plain

- Mining activities
- Township-urban
- Rural properties
- Water body
- Power generation
- Ridgelines timbered and
- Hills and ridges (pasture).

Each landscape area was photographed and described for the purpose of the community consultation 'drop in' sessions. The figures presented at the four 'drop-in' information sessions were used to inform the community about the approach to landscape analysis and processes involved in the determination of scenic quality. Refer **Appendix A Figures 1 to 6**.

Notable observations or comments made during face to face meetings, information sessions and as provided in the feedback forms which are relevant to this assessment are summarised below.

The communities surrounding the project area were all interested to understand the proposed locations for wind turbines. During the consultation process maps were prepared showing the area of investigation and identifying elevated ridges that had the potential to host wind turbines. This was done to allow for feedback to be incorporated into the design of the layout at the earliest stage.

Requests for specific landscape features be included in an assessment of visual impact during the EIS Assessment and Determination included:

- Yellow Rock;
- Well Mountain; and
- Native Dog Mountain.

Additionally, some residents expressed interest in viewing photomontages of the proposed turbine locations from their house in the EIS, these included:

- Properties along Muscle Creek Road
- Properties along Sandy Creek Road and
- Properties along Scrumlo Road.

Residents generally within 3km of proposed turbine locations expressed a desire for visual impact to be minimised and keen to understand where turbines may be visible.

The Bulletin notes that *'Where a regional survey or study of landscape values has been undertaken, it must be considered. Proponents should confirm with the Department if there is any such recognised study in place'*.

GBD is not aware of any regional surveys or study of landscape values that has been undertaken within or surrounding the wind farm site. This will be confirmed with DPE prior to the commencement of the EIS detailed assessment work.

Consultation will be ongoing during the EIS Assessment and Determination process.

Preliminary Assessment Tool – Visual Magnitude

Section 5

5.1 Introduction

The Bulletin states that *‘By mapping the dwellings, key public viewpoints and proposed turbines at scale, the potential visual magnitude of a turbine relative to that dwelling or public viewpoint can be established. This is based on the height of the proposed wind turbines to the tip of the blade and distance from dwellings or key public viewpoints shown in the graph at Figure 2’* (The Bulletin, page 9). *‘The line depicted in the graph at Figure 2 provides an indication of where proponents should give detailed consideration to the visual impacts on dwellings or key public viewpoints from turbines located below the black line’.*

For the purpose of the Preliminary LVIA the proposed wind turbines are nominated at a 220m tip height (from base of tower to tip of blade at vertical position). In accordance with the graph at Figure 2 in the Visual Bulletin, the black line intersects at a distance of 3km from a tip height of 220m. In addition, this Preliminary LVIA has also illustrated dwellings located out to a distance of 4.4km from the wind turbines which coincides with the blue line offset as indicated in the Bulletin Figure 5 (page 19).

The Bulletin states the *‘Proposed turbines below the black line must be identified, along with the dwellings or key public viewpoints as part of the request for SEARs’.*

Non-associated and associated residential dwellings located below the black line, as well as residential dwellings between the black and blue lines, are illustrated in **Appendix A Figure 7**.

The Bulletin notes that *‘Further assessment and justification for placement of turbines located in these sensitive areas in the EIS will be required, along with a description of the mitigation and management measures being employed to reduce impacts. This assessment may identify that factors such as topography, relative distance and existing vegetation may minimise or eliminate the impacts of the project’.*

The Bulletin also notes that *‘there may be circumstances where dwellings or key public viewpoints located above the line may require further consideration due to topography or other landscape features. The further detailed assessment and ground-truthing at the visual assessment stage must also consider impacts on these dwellings or key viewpoints’.*

EIS Assessment and Determination will undertake an assessment and justification for the placement of wind turbines in sensitive areas, including those located within and between the 3km and 4.4km distance offsets from the wind turbine locations.

Preliminary Assessment Tool – Multiple Wind Turbines

Section 6

6.1 Introduction

The Bulletin states that *‘This tool will provide a preliminary indication of potential cumulative impacts arising from the proposed wind energy project. To establish whether the degree to which dwellings or key public viewpoints may be impacted by multiple wind turbines, the proponent must map into six sectors of 60° any proposed turbines, and any existing or approved turbines within eight kilometres of each dwelling or key public viewpoint.*

This Preliminary LVIA has identified 31 individual representative view locations which contain single or multiple non-associated residential dwellings out to a distance of 4.4km from the wind turbines. This Preliminary LVIA has incorporated multiple residential dwellings into a single view location where dwellings occur within a 500m radius of each other. GBD consider that views from these locations would be either very similar or identical in most cases.

The Bulletin (at Stage 2 EIS Assessment and Determination, page 12) permits representative view locations, and states *‘where relatively close clustering of houses belonging to different landowners or occupants occur, representative viewpoints may be selected and assessed in lieu of every single dwelling in the following types of areas:*

- *rural residential clusters*
- *rural villages and*
- *urban residential and commercial areas.*

The 31 representative view locations are identified in **Appendix A Figure 8** (shown in purple) and the multiple wind turbine analysis in **Appendix A Figures 9 to 39**.

Figure 8 also illustrates a Zone of Visual Influence analysis which indicates areas of the landscape from which wind turbines will not be visible, or visible toward blades only. The extent of screening illustrated in **Figure 8** relates to screening by landform only, and does not account for vegetation (tree cover) within the landscape or surrounding residential dwellings.

Where wind turbines are visible within the horizontal views of the dwelling or key public viewpoints in three or more 60° sectors, the proponents must identify the turbines, relative dwelling and key public viewpoint, along with the relative distance and submit these to the Department as part of the request for SEARs. These turbines will become a focus for assessment in the EIS.

Of 31 potential view locations, two (Q5-1 and Y13-1) are predicted to have no view of a wind turbine.

Five view locations (including 10 residential dwellings) are predicted to have views towards 16-28 wind turbines within 3 or more 60° sectors including: O22-1(N21-1, N21-2); G15-3 (F16-1); G17-1 (F17-1, F18-1); Q17-3 and S17-2. Q17-3 and S17-2 are predicted to have views of wind turbines within 4 60° sectors containing up to 27 and 25 wind turbines, respectively. The remaining 21 view locations are predicted to have views toward wind turbines in up to 2 60° sectors. **Table 2** identifies non associated residential dwellings within 4.4km of the wind turbines, the distance to the closest wind turbine (and wind turbine ID), the number of 60° sectors the wind turbines occur within, and the number of wind turbines visible within 3 or more 60° sectors.

Table 2 Multiple wind turbine tool

Representative residential dwelling ID (and other proximate dwellings)	Distance (m) from representative dwelling to closest wind turbine (and turbine ID)	Number of 60°sectors with wind turbines	Number of visible wind turbines within 3 or more 60°sectors
I23-1 (I24-2)	3,439 (65)	1	
K23-1	4,186(65)	2	
M23-2 (L23-1,M23-1)	4,158(33)	2	
N22-1	3,742(33)	2	
O22-1 (N21-1,N21-2)	3,112 (23)	3	16
Y19-5 (Y19-3,Y19-4)	4,125(11)	2	
Y17-1(Y17-2, Y18-1)	3,806 (3)	1	
Y15-1	2,892(5)	1	
W14-1	1,156(1)	1	
Y13-1	3,692 (1)	0	
W8-1	3,289(12)	1	
T6-2	2,587(12)	1	

Table 2 Multiple wind turbine tool

Representative residential dwelling ID (and other proximate dwellings)	Distance (m) from representative dwelling to closest wind turbine (and turbine ID)	Number of 60°sectors with wind turbines	Number of visible wind turbines within 3 or more 60°sectors
S4-1	3,518(12)	1	
Q5-1	4,115(12)	0	
P7-1	3,513(17)	2	
H7-1 (H8-1)	3,566(56)	1	
H12-3 (H12-1, H12-2, H11-1)	1,288(54)	2	
H11-2 (G11-1,G12-1)	2,023 (54)	2	
F11-1 (E11-6, E11-7, F11-2, F12-1, F12-2)	4,162(54)	1	
E12-5	4,172(62)	1	
G15-3 (F16-1)	1,954(60)	3	28
F16-2	3,046(60)	2	
G17-1 (F17-1,F18-1)	1,994(64)	3	19
E17-3(E17-1, E17-2, E17-5, E17-6)	4,056(64)	2	
D18-1 (E17-4,D17-2,D18-2, D18-3,E18-1)	4,321(65)	2	
F19-1 (E18-2, E19-1)	2,527 (65)	1	

Table 2 Multiple wind turbine tool

Representative residential dwelling ID (and other proximate dwellings)	Distance (m) from representative dwelling to closest wind turbine (and turbine ID)	Number of 60°sectors with wind turbines	Number of visible wind turbines within 3 or more 60°sectors
D21-2 (D21-1, D21-4)	3,981(65)	1	
P22-1	1,378(23)	2	5
Q17-3	3,124 (8)	4	27
S17-2	1,704 (9)	4	25
W22-1	4,301(7)	1	

Further assessment and justification for placement of turbines in multiple sectors will need to be detailed in the EIS, along with a description of the mitigation and management measures being employed to reduce impacts. Such further assessment may identify that factors such as topography, relative distance and existing vegetation may minimise the impacts of the project. The relative position of the viewpoints in relation to a dwelling is also an important consideration that should be outlined in the EIS. For example, views to the turbines from the primary living areas of the dwelling would be considered more important than views from non-habitable areas.

The EIS Assessment and Determination will provide further assessment and justification for the placement of wind turbines within 3 or more 60° sectors where necessary and/or provide reasonable and feasible mitigation measures to reduce visual impacts.

Summary

Section 7

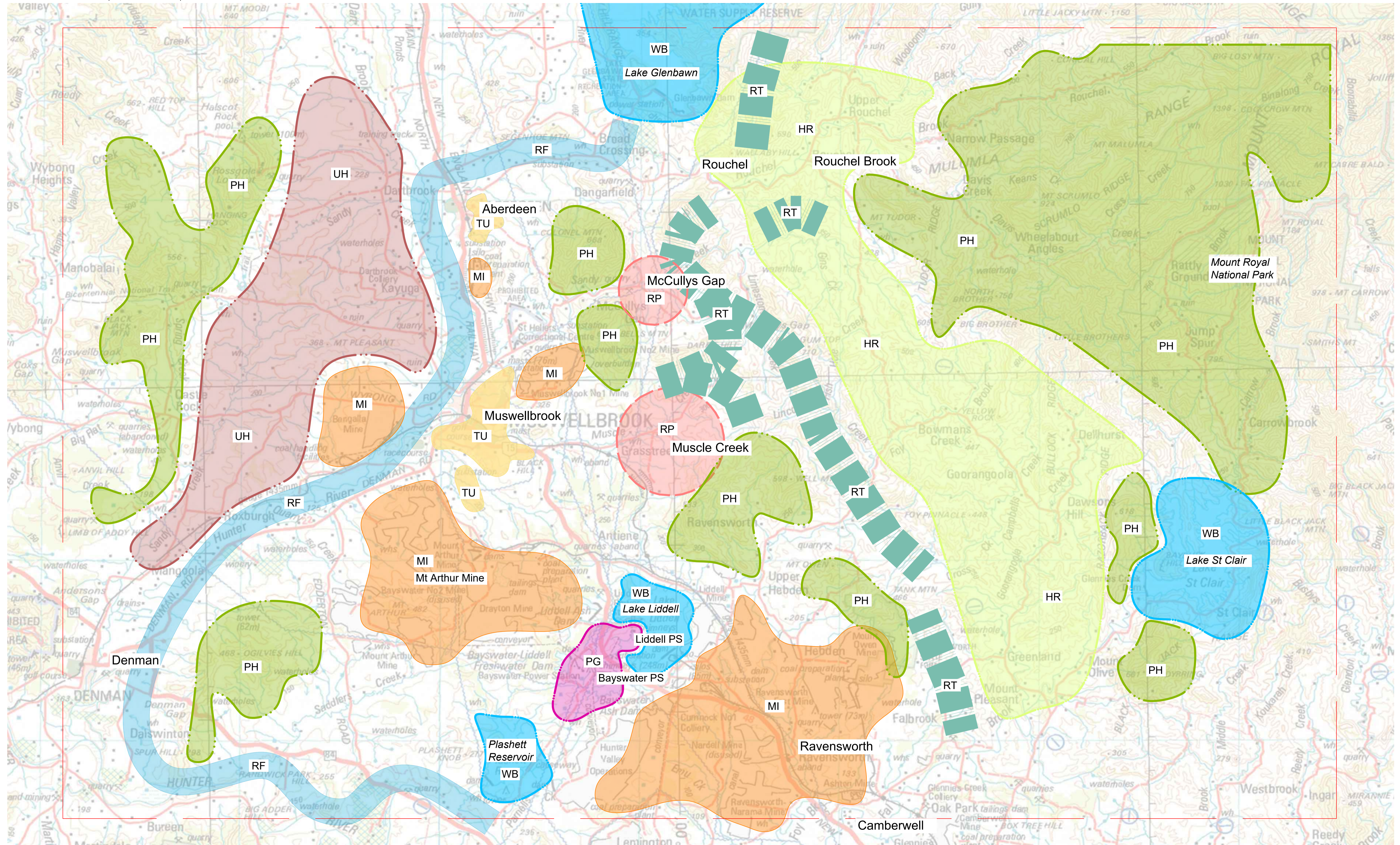
7.1 Summary

This Preliminary LVIA has been prepared in accordance with the Bulletin and specifically addresses the key steps set out in Stage 1 Preliminary Environmental Assessment (pre-lodgement). The Preliminary LVIA has:

- outlined the community consultation activities undertaken by the Proponent and identified the key landscape features and characteristics that are found within and surrounding the Project site
- noted the landscape features and locations of concern to the community and will further consider these within the Stage 2 EIS Assessment and Determination process
- Applied the preliminary assessment tools (magnitude and multiple wind turbine) to the preliminary wind turbine layout and
- documented the process and analysis of the Stage 1 Preliminary Environmental Assessment.

The Preliminary LVIA will be carried forward to the Stage 2 EIS which will consider the proposed wind farm development against the Bulletin visual performance objectives and requirements.

Appendix A – Figures 1 to 39



Legend

- Prominent hills and mountains timbered (PH)
- Low undulating hills (UH)
- Township-urban (TU)
- Mining activities (MI)
- Water body (WB)
- Rural properties (RP)
- Power generation (PG)
- River flood plain (RF)
- Hills and ridges pasture (HR)
- Ridgelines timbered (RT)

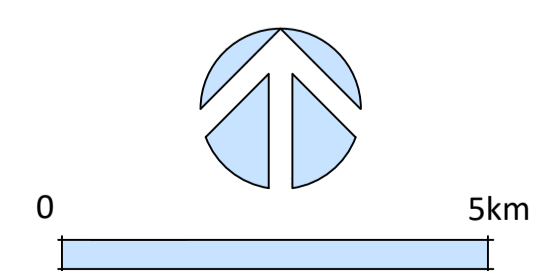


Figure 1
Scenic Quality Assessment -
Landscape Character Areas

Bowmans Creek Wind Farm Scenic Quality Assessment



Prominent hills and mountains (timbered)

Prominent timbered hills and mountains are visually prominent and large scale landscape features.

They introduce a degree of visually strong topographical variety and are visually uniform in colour and texture.

The prominent timbered hills and mountains can be viewed within both close and distant views and can form backdrop and skyline views.



Low undulating hills

Low undulating hills are not overly visually dominant within the landscape, and are generally located below more prominent distant hills to the west of the Hunter River flood plain.

They introduce a degree of moderate topographical variety and are largely visually uniform in colour and texture. Scattered tree planting across slopes and ridgelines introduces some visual interest.

The low undulating hills can be viewed within close and distant views occasionally forming backdrops and skyline views.



Figure 2 - Scenic Quality Assessment Photo Sheet 1



River flood plain

The river flood plain is a broad, but visually small scale landform with little topographical variation. Views within the river flood plain are more likely to be contained by tree planting along or beyond the river corridor.

There is a variety of human scale features and built structures within the river flood plain, with some variation in colour and texture associated with agricultural and rural activities.

The river flood plain can be viewed at close proximity from roads and dwellings, and also offers opportunities for distant views toward more prominent landscape features from elevated locations.



Mining activities

Mining activities tend to result in visually prominent and medium to large scale landscape features. They are more readily identified by overburden placement areas from middle to long distant view points.

Mine workings introduce some degree of visual topographical variety and can be visually uniform in colour and texture, although overburden stockpiles can present some contrast in both colour and texture depending upon the nature of excavated materials.

Mining activities can be viewed within close and distant views, with some mining activities forming backdrops and skyline views. Excavated voids are more likely to be contained by constructed bunds and overburden stockpiles.



Figure 3 - Scenic Quality Assessment Photo Sheet 2



Township-urban

Townships and urban areas are located on gently sloping to level areas in proximity to the river flood plain and connected by the New England Highway. The majority of structures within township and urban areas are small to moderate scale.

There are a variety of human scale features and built structures located within commercial, residential and industrial areas, creating complex and visually diverse backdrops. Colour is varied but generally muted in constructed elements.

Views are largely constrained and directed along road corridors within built areas or screened and filtered by tree planting within urban areas. Elevated residential areas offer broader views across the river flood plain and/or toward prominent landforms.



Rural properties

Rural properties, beyond township and urban areas, are located throughout the landscape and form collections of relatively small scale built elements within the context of surrounding landforms. Rural properties tend not to be visually prominent and are largely screened by tree planting.

Rural properties tend to follow local topography and can be positioned on relatively level to sloping hillside locations.

The majority of rural properties have limited views into and beyond the surrounding landscape where both landform and tree cover confine and filter longer distance views. A smaller number of rural properties in elevated locations or open landscape areas will have some potential for greater prospects toward more distant views.



Figure 4 - Scenic Quality Assessment Photo Sheet 3



Water bodies

Water bodies are visually prominent from proximate view locations, but can be enclosed by undulating landforms and tree cover.

Water bodies vary in scale but generally form moderate 'naturalistic' features within the surrounding landscape. The water features are relatively level by nature but surrounded by undulating to steep sided hills with timbered areas.

Views toward and from areas surrounding water bodies are partially screened by surrounding landforms and vegetation.



Power generation

Power generation is largely associated with the Liddell and Bayswater coal fired power station sites. Both power stations contain moderate to large scale constructed elements; however both sites are not considered to be visually prominent within the local landscape, with views largely screened by tree cover. Taller constructed elements including stacks and cooling towers are visible from moderate to distant view locations but are not overly dominant.

Colour and texture are relatively consistent within the power station sites and largely defined by construction materials.

Access to the power station sites is restricted and subsequently views toward and from the power station sites are limited to more distant views from areas around and beyond Lake Liddell.



Figure 5 - Scenic Quality Assessment Photo Sheet 4



Ridgelines (timbered)

Timbered ridgelines are visually prominent and moderate to large scale landscape features.

They introduce a degree of visually strong topographical variety and are visually uniform in colour and texture, generally defined by timbered areas.

Timbered ridgelines can be viewed within both close and distant views and can form backdrop and skyline views.



Hills and ridges (pasture)

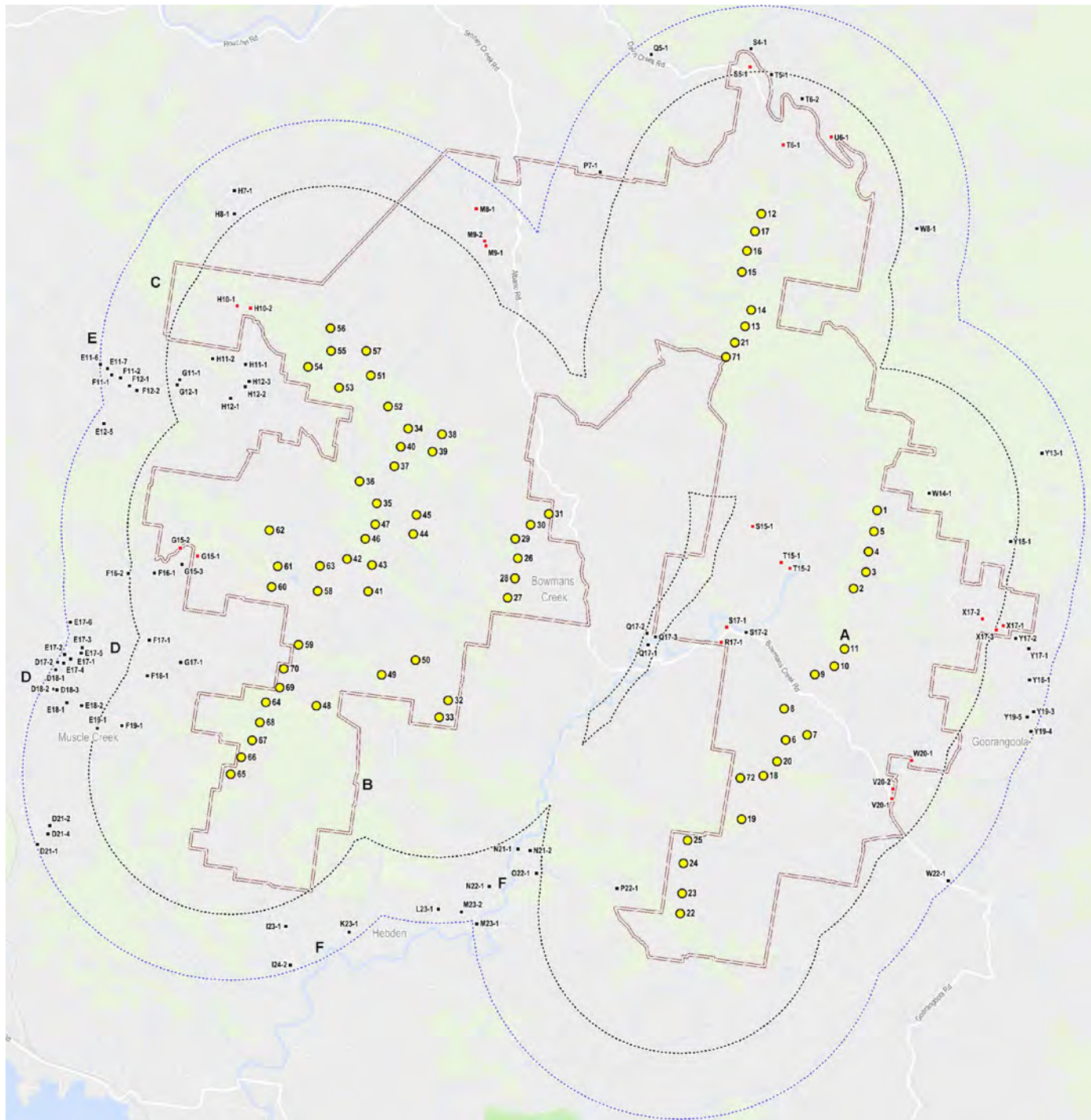
Pasture hills and ridges form a moderate scale landform, that is partially visually contained between timbered ridgelines and prominent hills and mountains to the east.

They introduce a degree of visually strong topographical variety and are visually uniform in colour and texture.

Pasture hills and ridges can be viewed within both close and distant views, but do not tend to form distinct backdrops and skyline views.



Figure 6 - Scenic Quality Assessment Photo Sheet 5



Legend







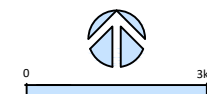
-  **Project boundary**
-  **Proposed wind turbine (indicative location)**
-  **Associated residential dwelling**
-  **Non associated residential dwelling**
-  **3km black line**
-  **4.4km blue line**
- A** **Yellow Rock**
- B** **Well Mountain**
- C** **Native Dog Hill**
- D** **Muscle Creek Road**
- E** **Sandy Creek Road**
- F** **Scrumio Road**

Figure 7
Residential dwellings - multiple wind turbine tool



Bowmans Creek Wind Farm Stage 1 Preliminary LVIA

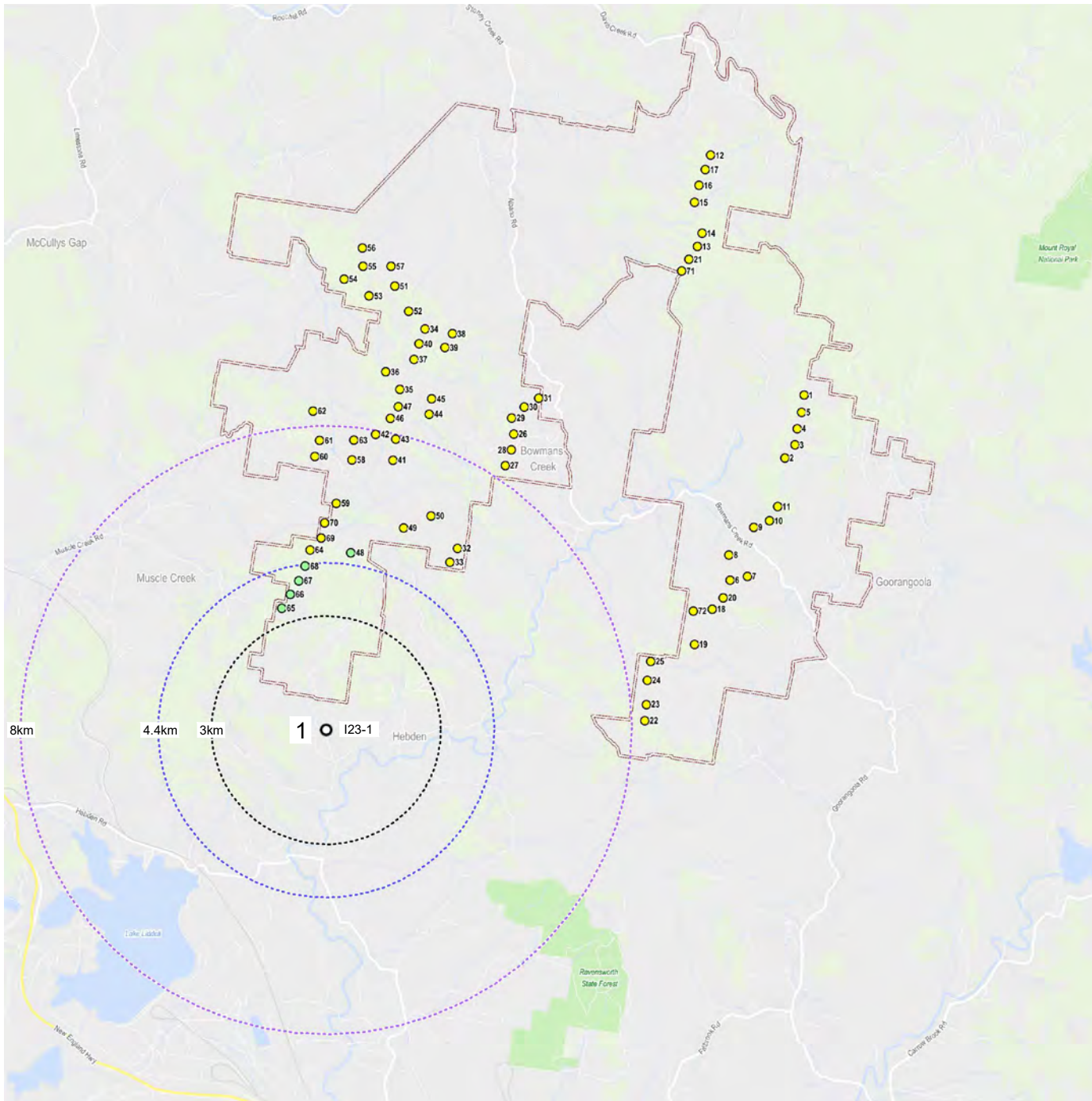


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






-  **Project boundary**
-  **Proposed wind turbine (indicative location)**
-  **Associated residential dwelling**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **Areas where wind turbines are visible above the nacelle only**
-  **Areas where wind turbines are not visible**

Figure 8
Residential dwellings - multiple wind turbine tool

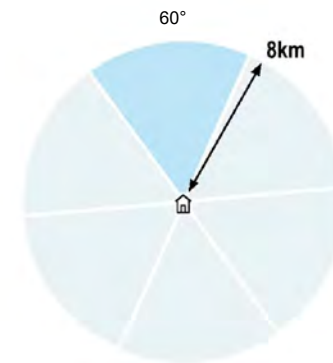




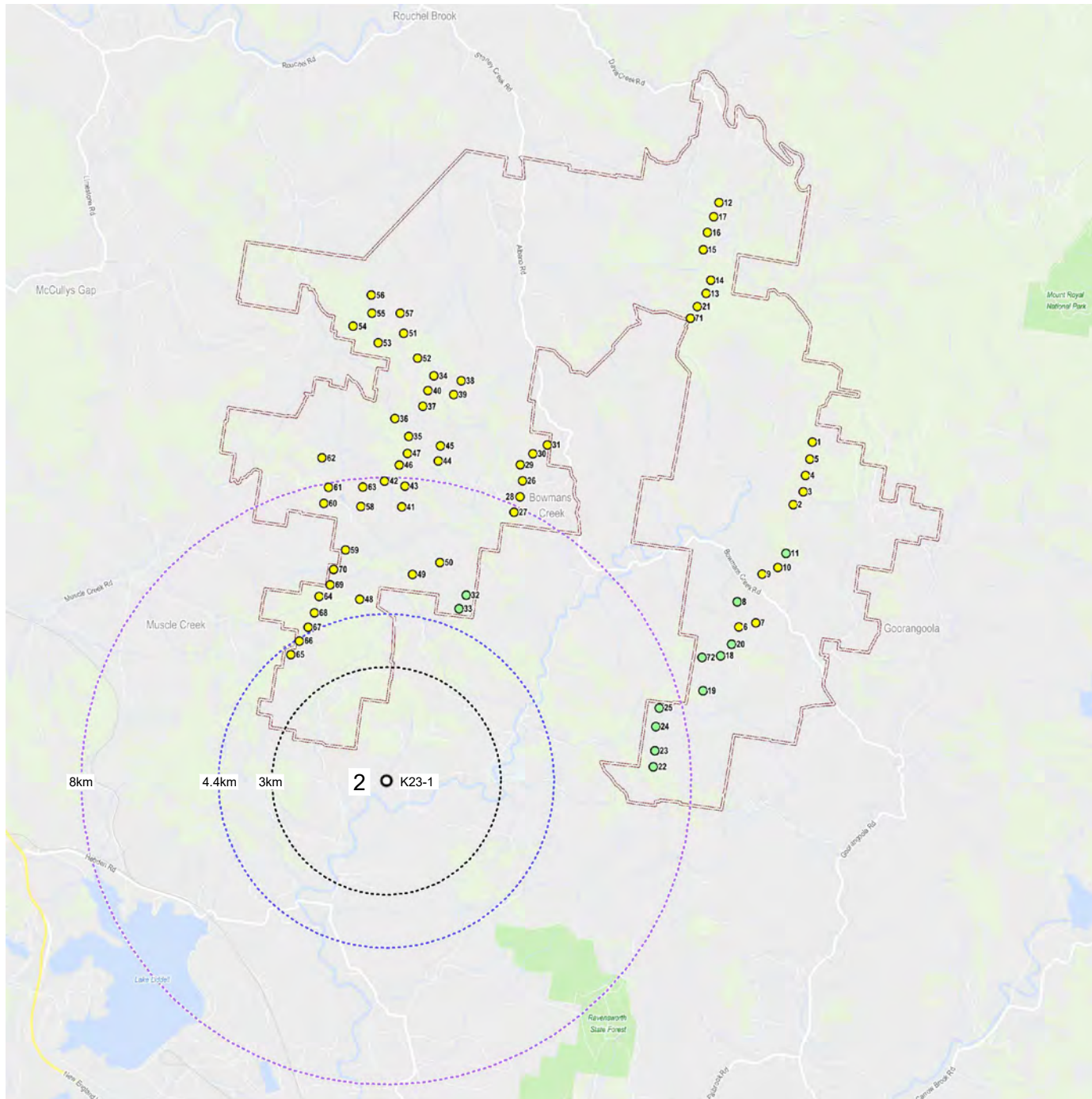
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-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **1 ○ I23-1 Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**








**Preliminary Assessment Tool 2
Multiple wind turbines**



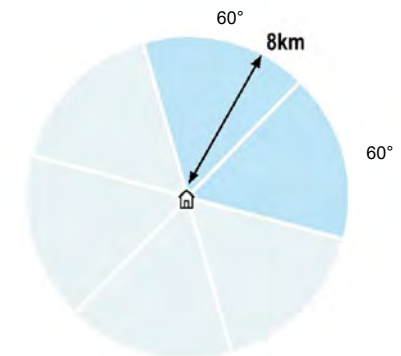
**Figure 9 Representative location 1
Residential dwellings -
multiple wind turbine tool**



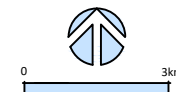
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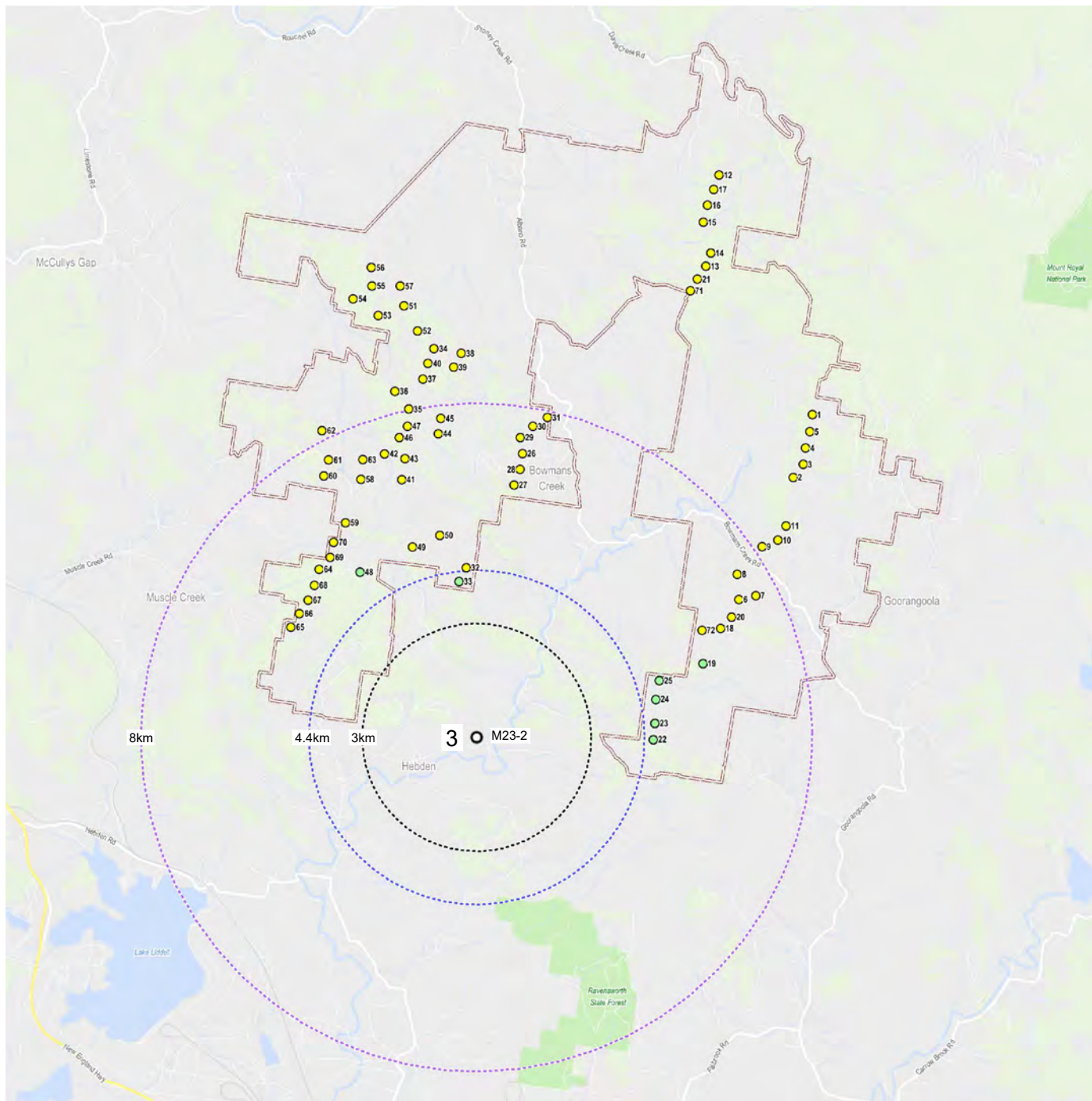
-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**










**Figure 10 Representative location 2
Residential dwellings -
multiple wind turbine tool**

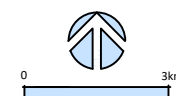
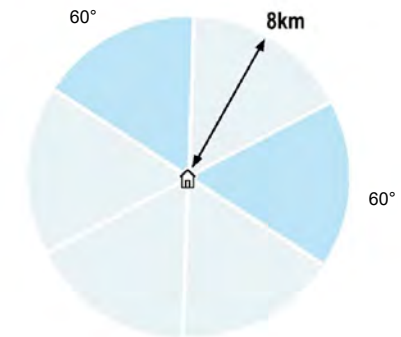




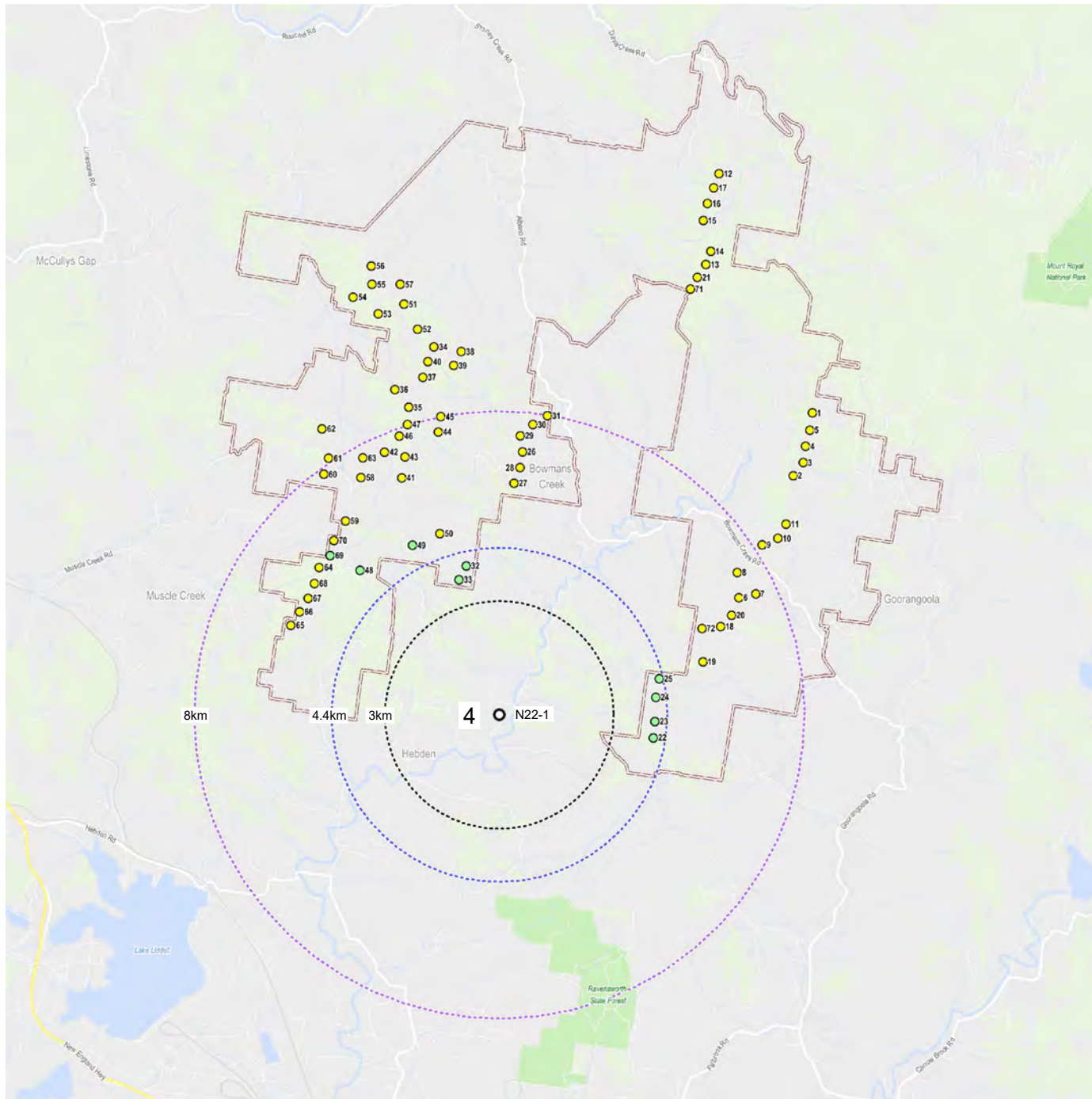
Legend

-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**








**Preliminary Assessment Tool 2
Multiple wind turbines**



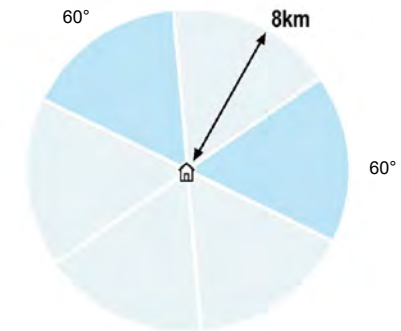
**Figure 11 Representative location 3
Residential dwellings -
multiple wind turbine tool**



Legend

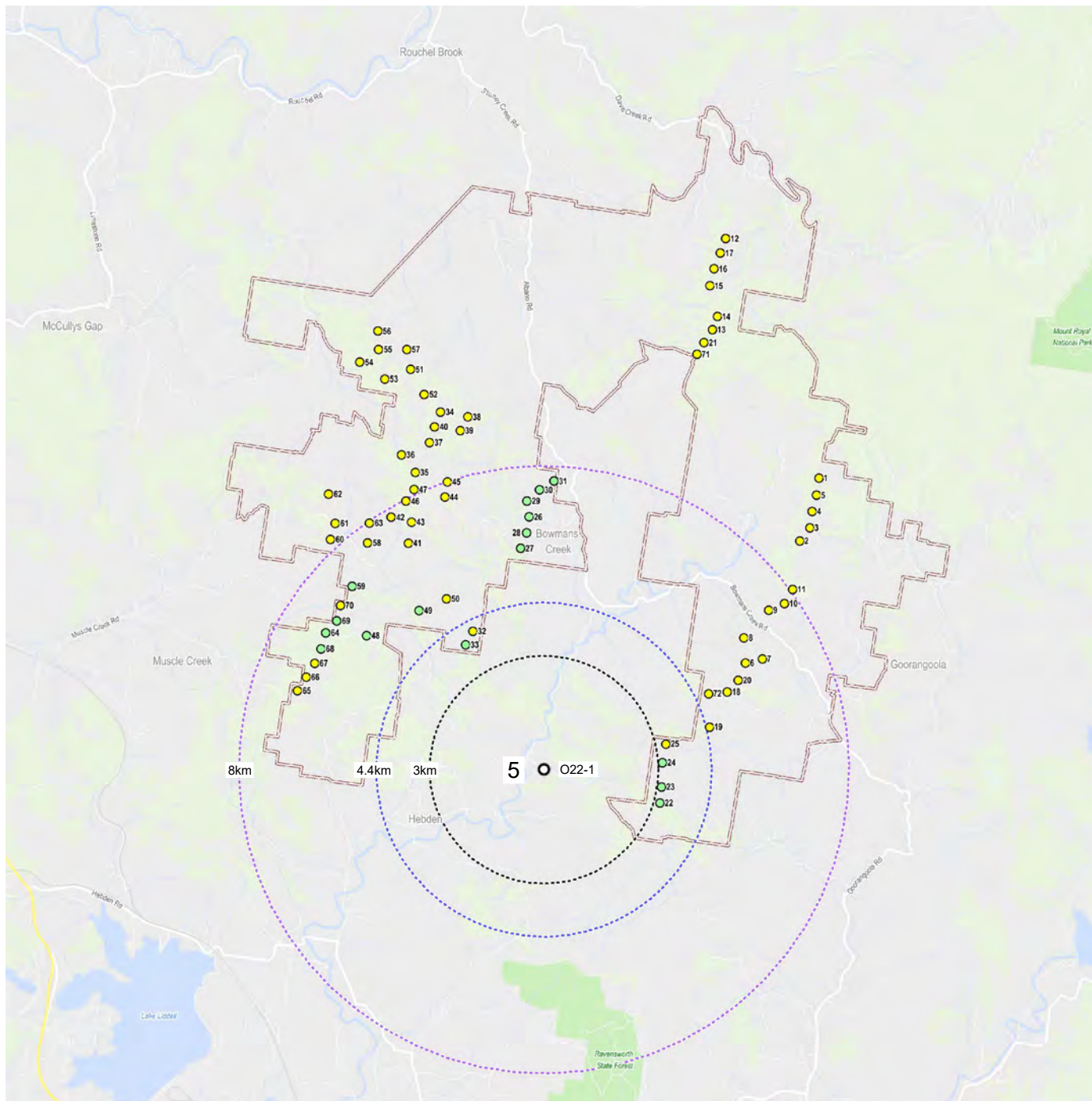
-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**










**Figure 12 Representative location 4
Residential dwellings -
multiple wind turbine tool**

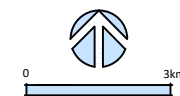
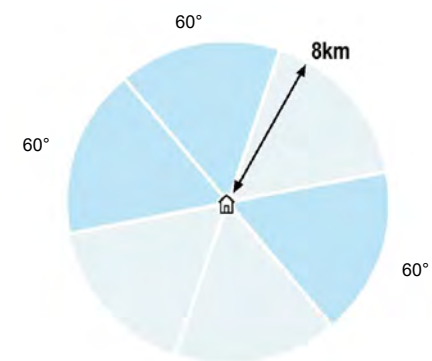




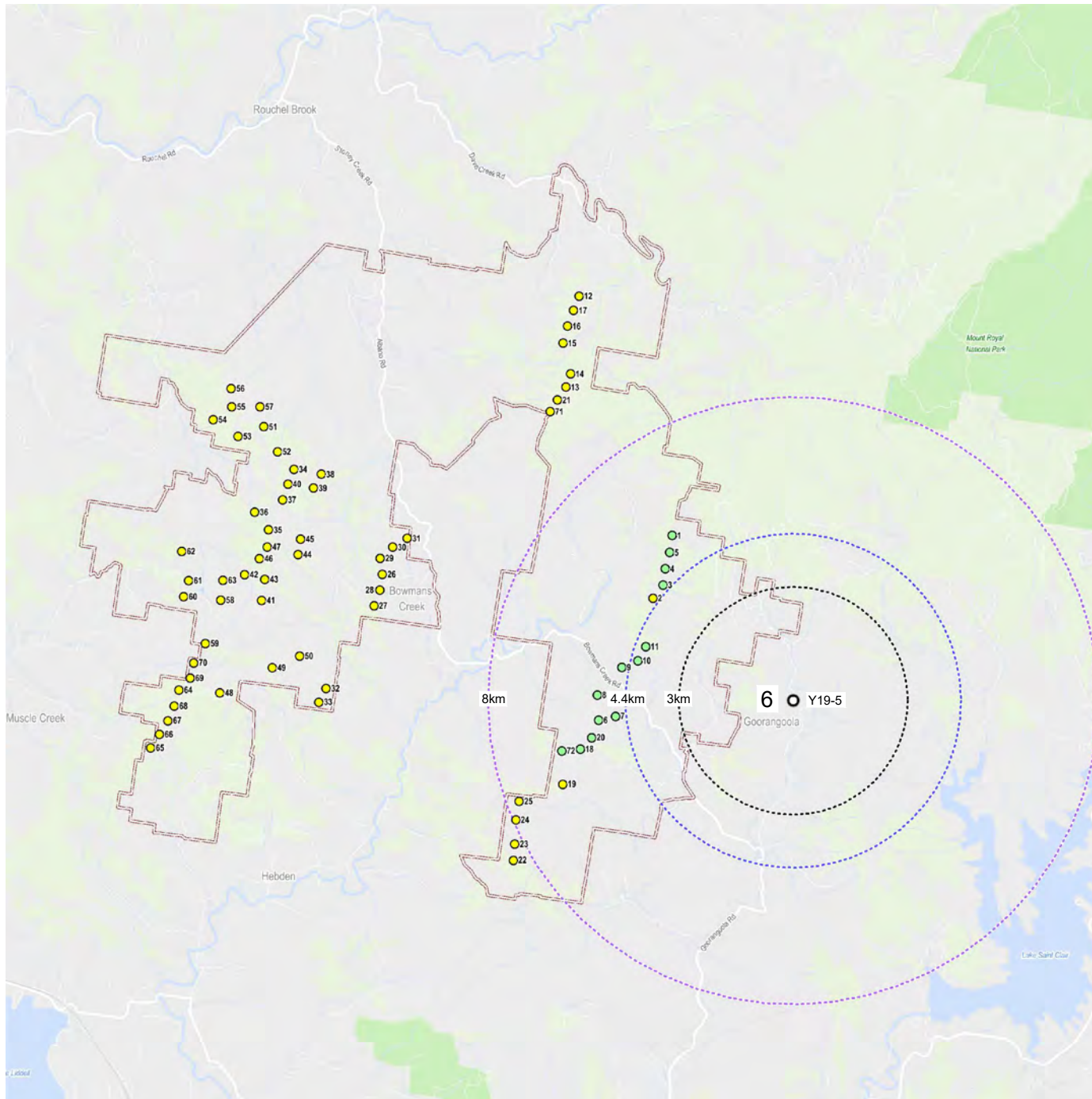
Legend

-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**








**Preliminary Assessment Tool 2
Multiple wind turbines**



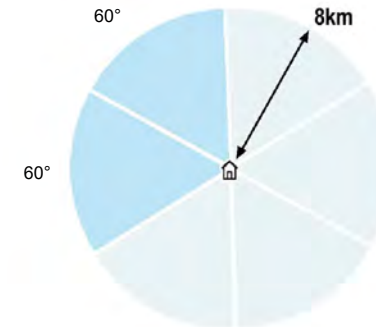
**Figure 13 Representative location 5
Residential dwellings -
multiple wind turbine tool**



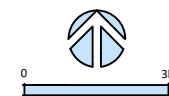
Legend

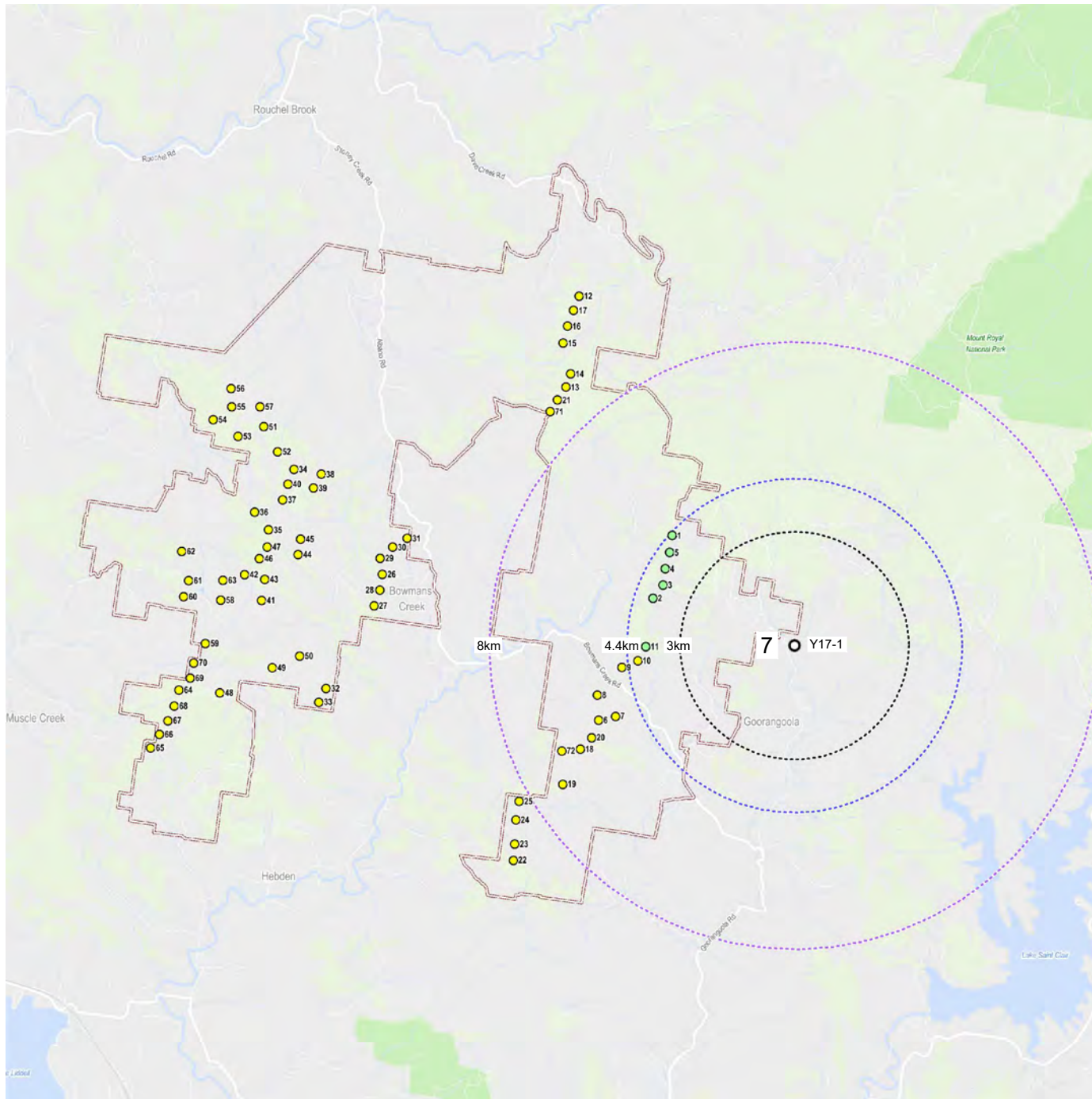
-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**










**Figure 14 Representative location 6
Residential dwellings -
multiple wind turbine tool**

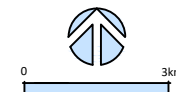
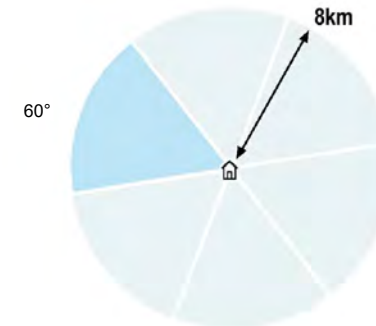




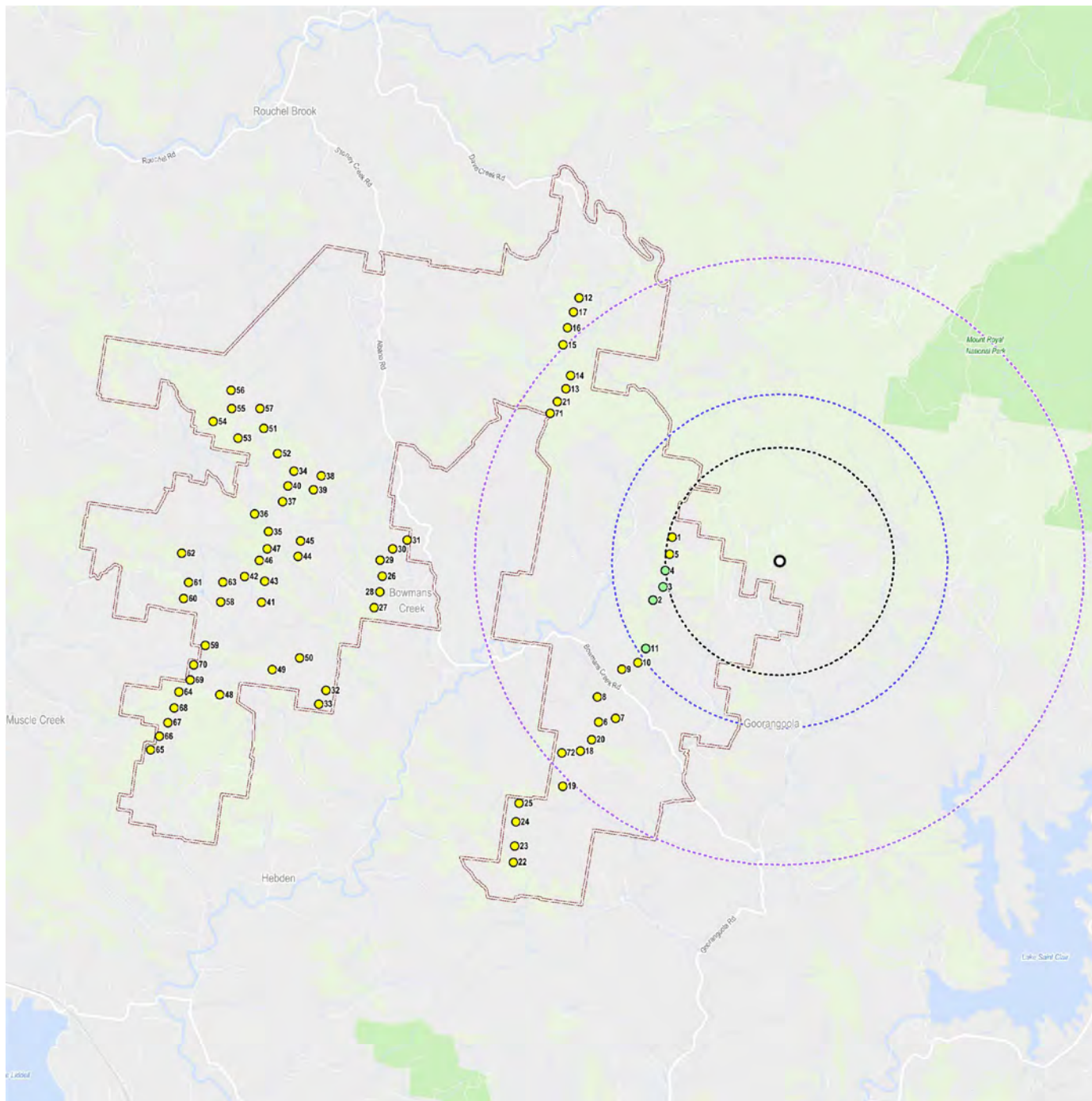
Legend

-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**








**Preliminary Assessment Tool 2
Multiple wind turbines**



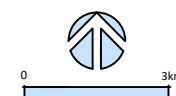
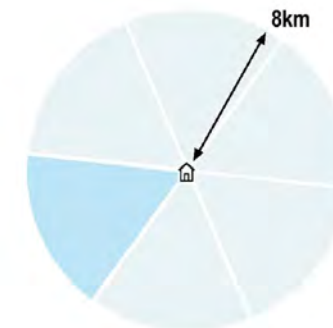
**Figure 15 Representative location 7
Residential dwellings -
multiple wind turbine tool**



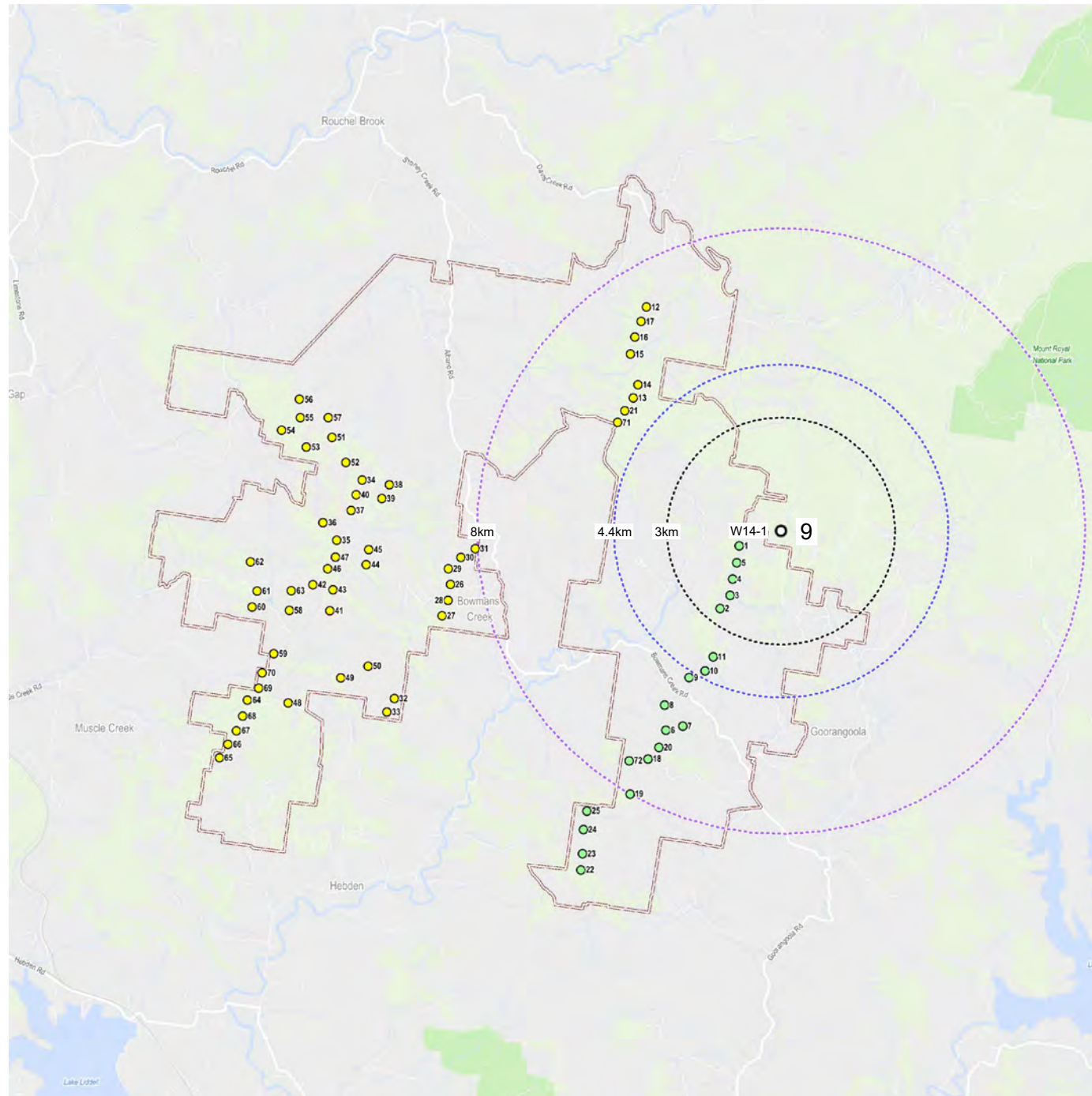
Legend

-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**







**Preliminary Assessment Tool 2
Multiple wind turbines**



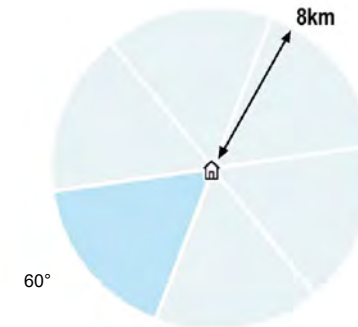
**Figure 16 Representative location 8
Residential dwellings -
multiple wind turbine tool**



Legend

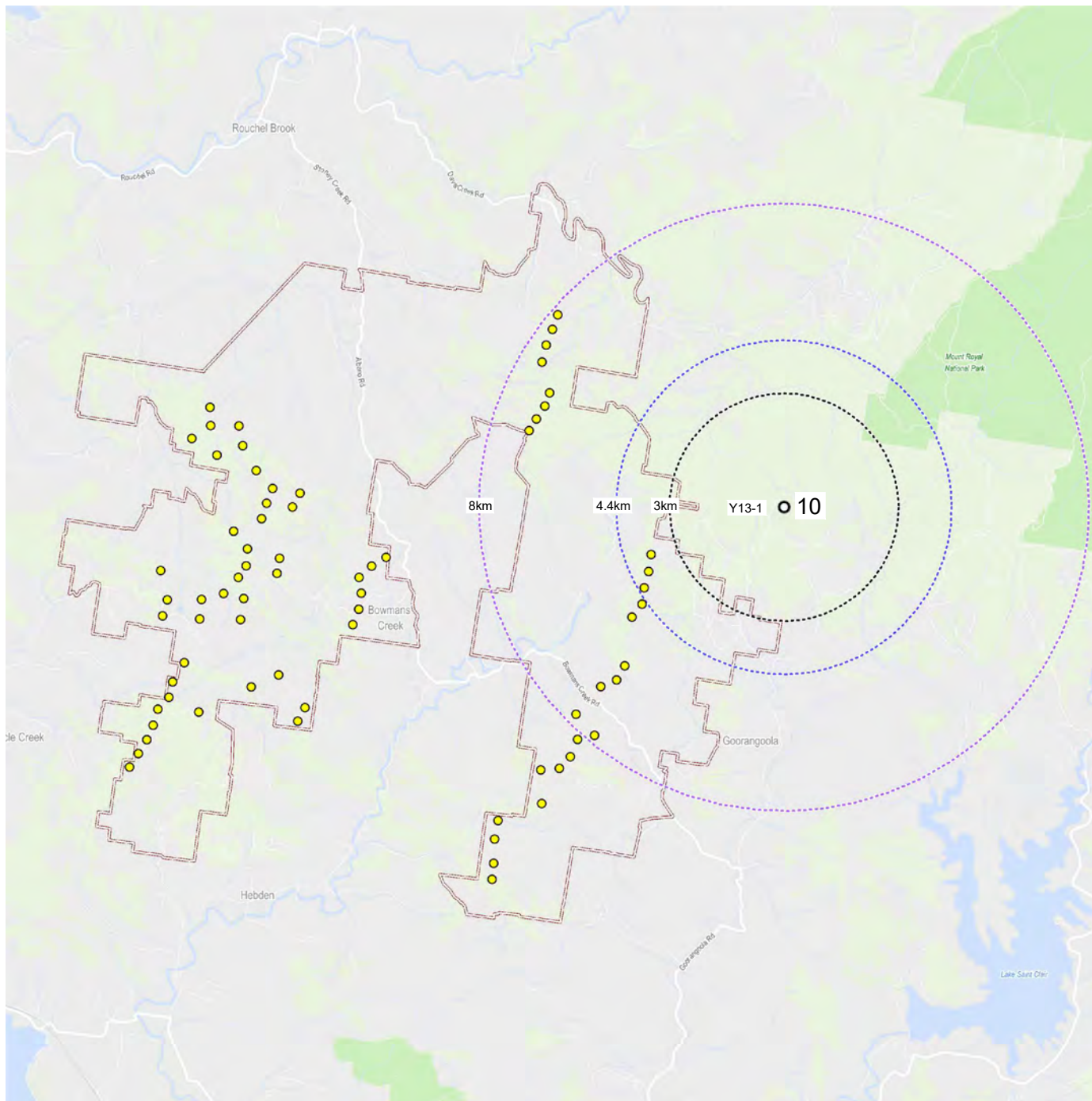
-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**









**Figure 17 Representative location 9
Residential dwellings -
multiple wind turbine tool**

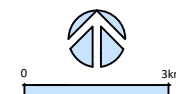
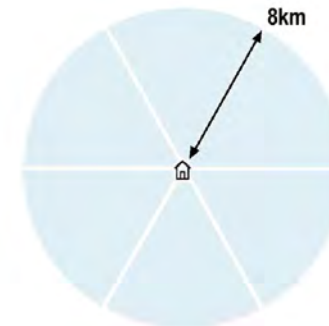




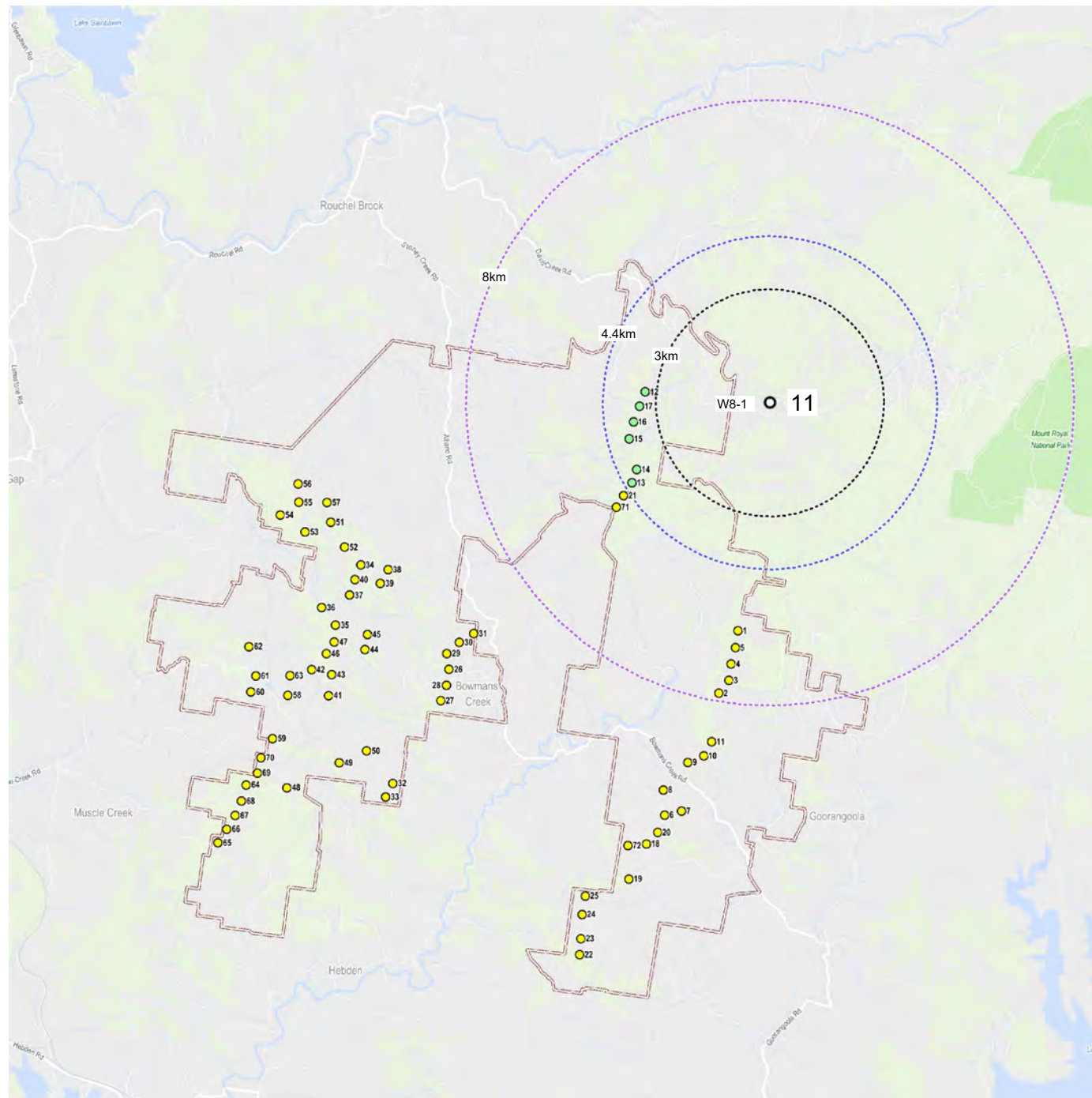
Legend

-  **Project boundary**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**








**Preliminary Assessment Tool 2
Multiple wind turbines**



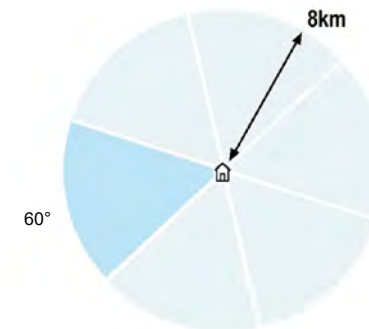
**Figure 18 Representative location 10
Residential dwellings -
multiple wind turbine tool**



Legend

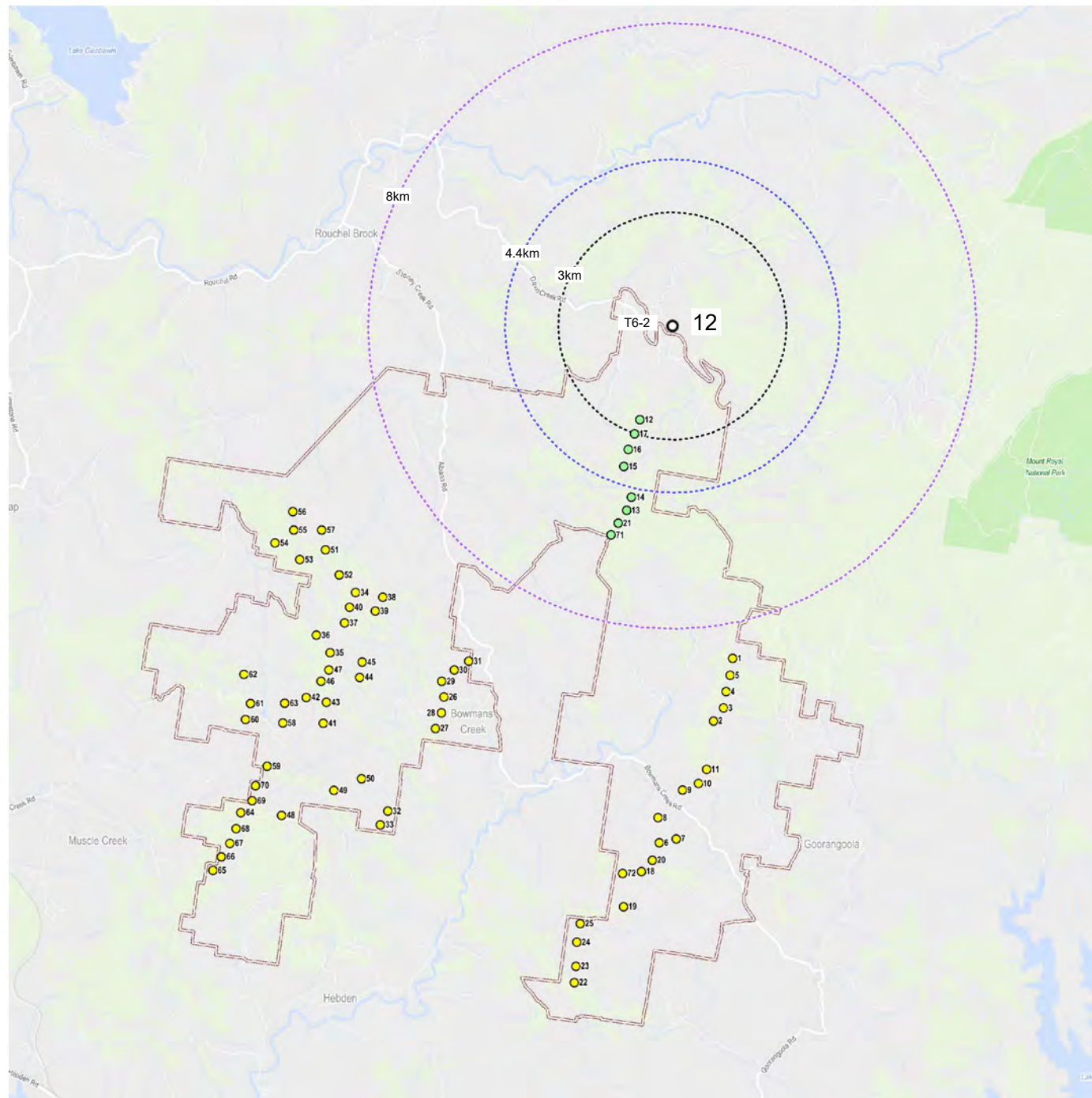
-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**










**Figure 19 Representative location 11
Residential dwellings -
multiple wind turbine tool**

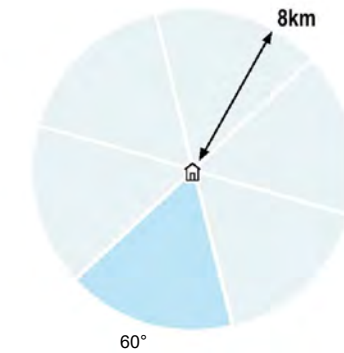




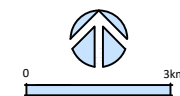
Legend

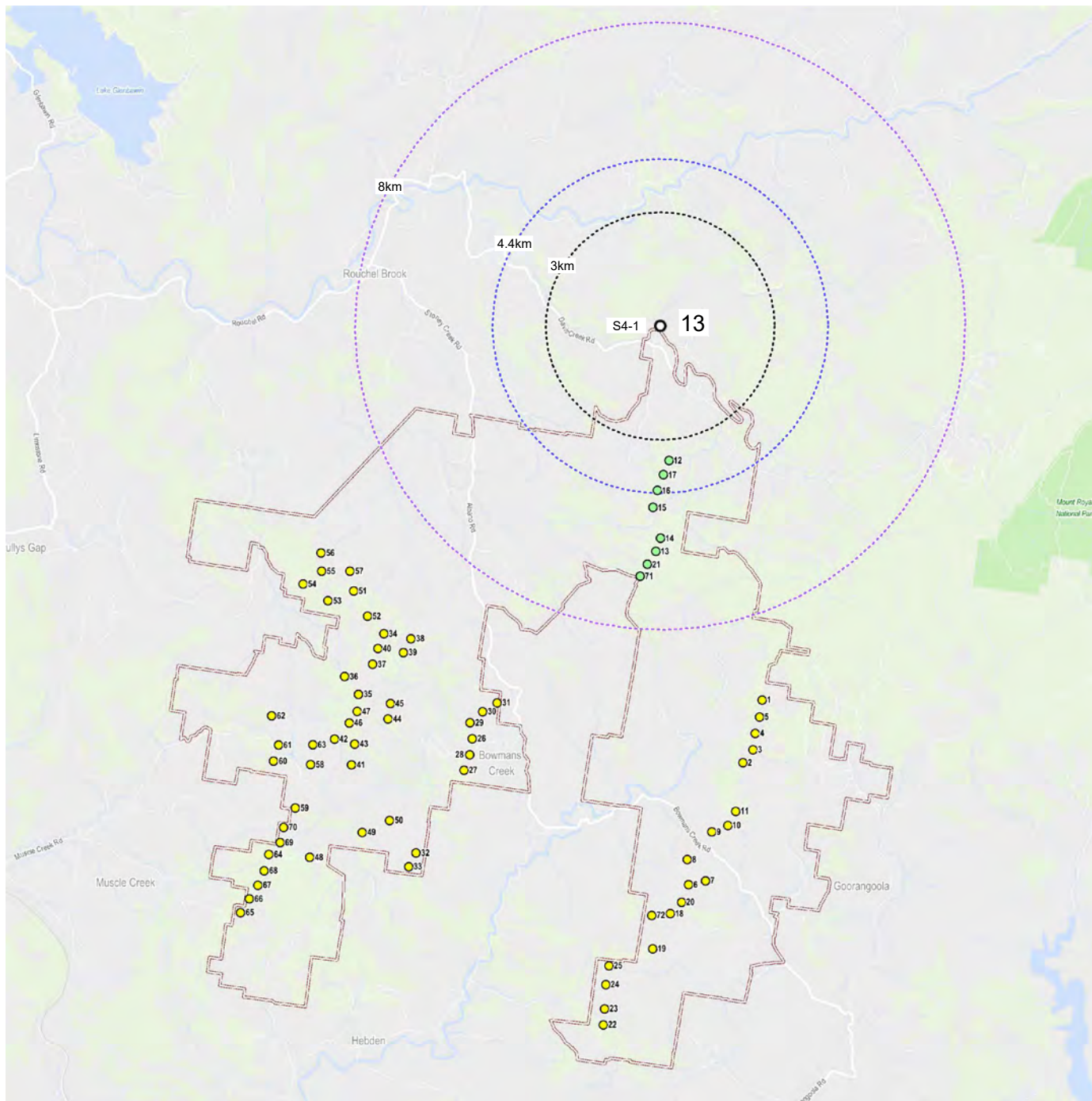
-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**










**Figure 20 Representative location 12
Residential dwellings -
multiple wind turbine tool**

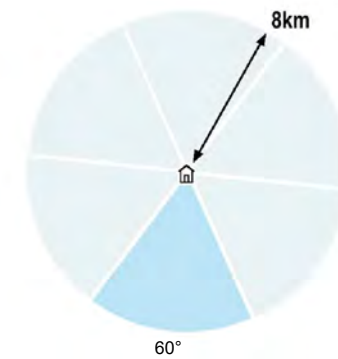




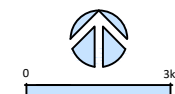
Legend

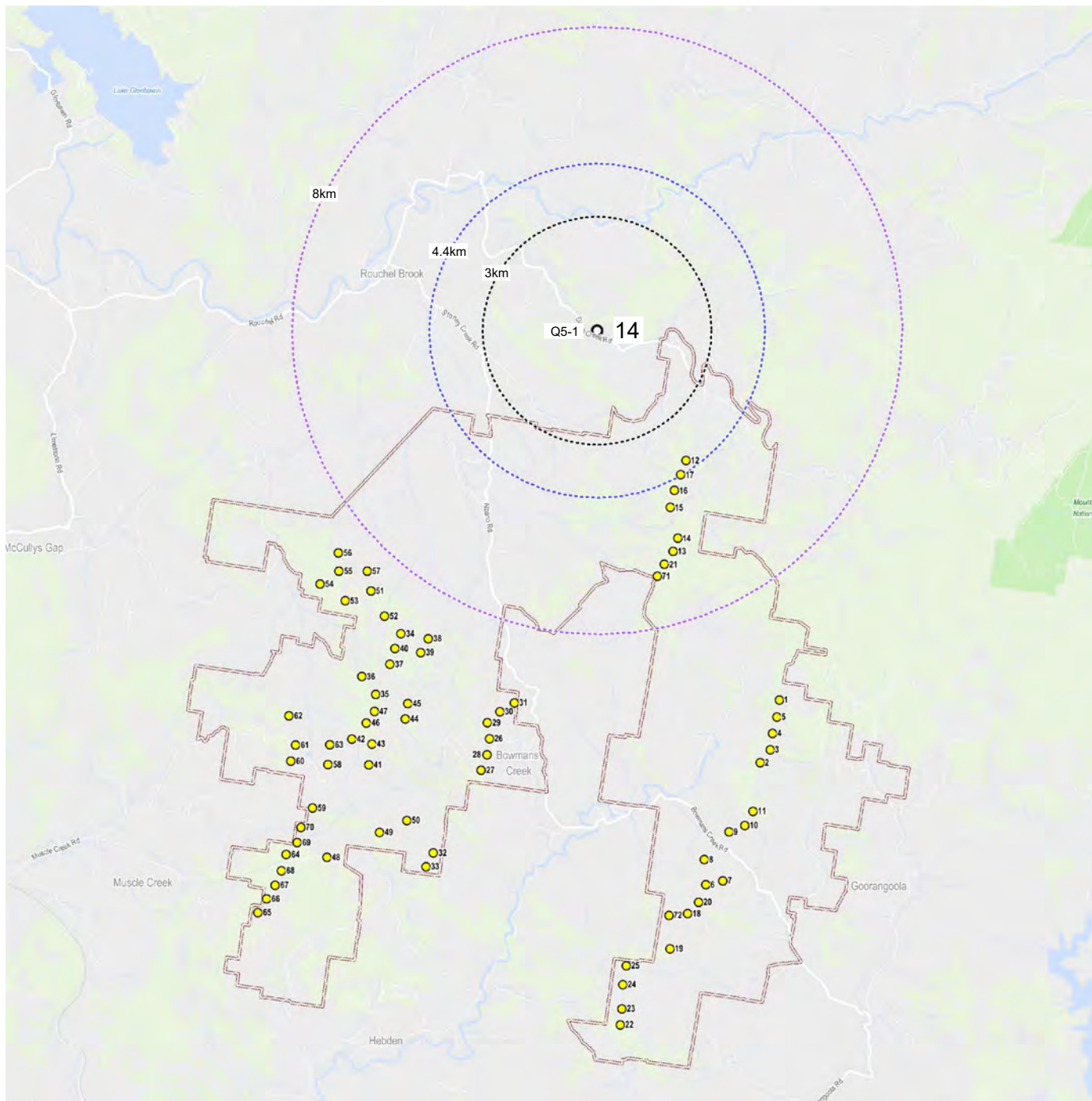
-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**









**Figure 21 Representative location 13
Residential dwellings -
multiple wind turbine tool**

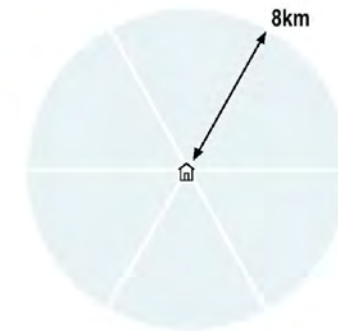




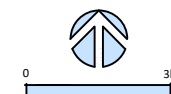
Legend

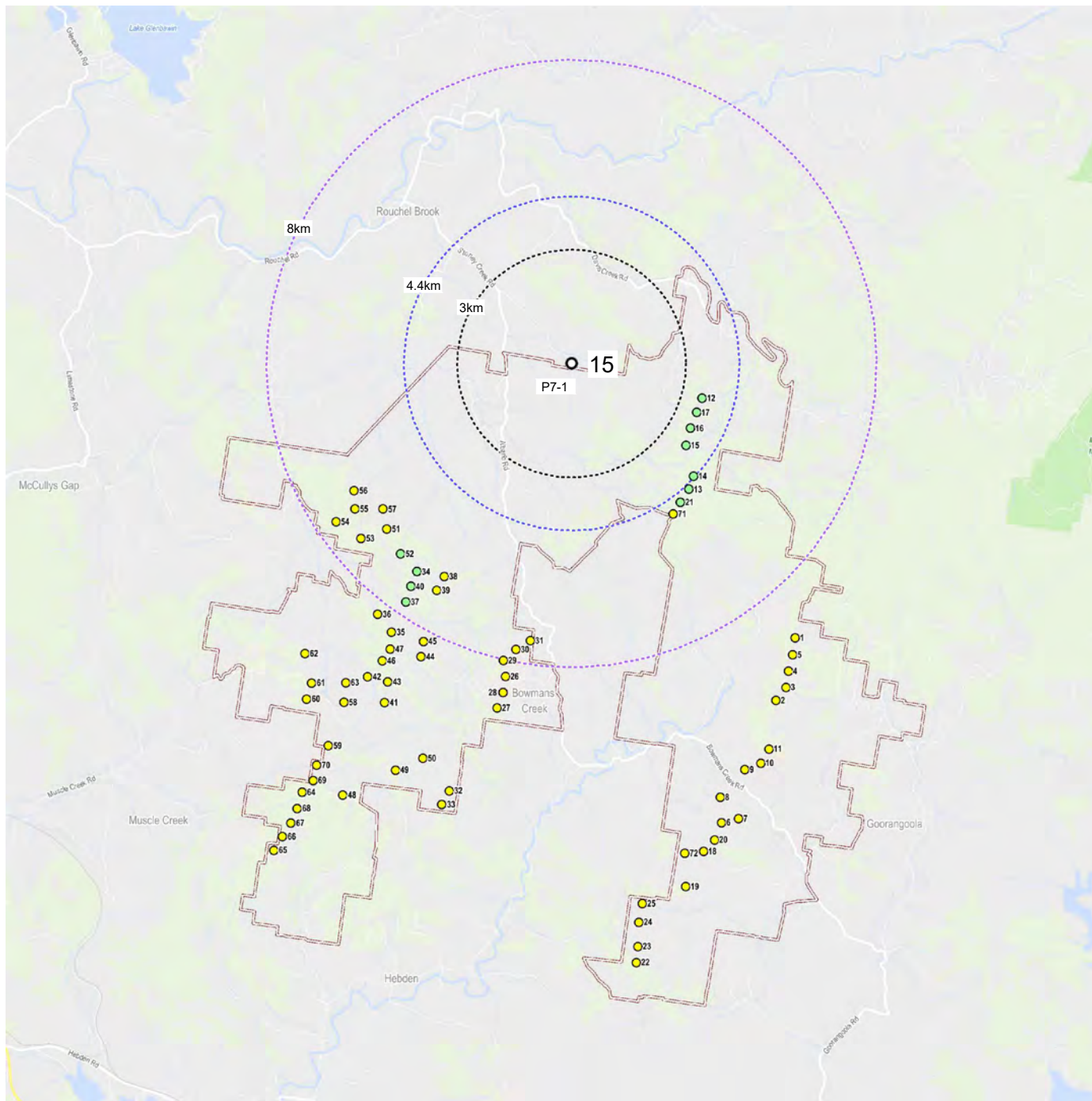
-  **Project boundary**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**










**Figure 22 Representative location 14
Residential dwellings -
multiple wind turbine tool**

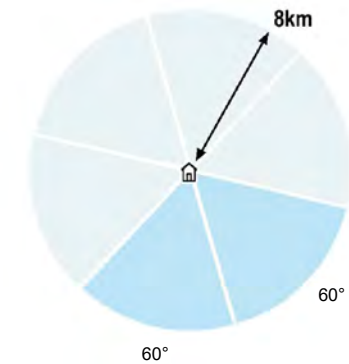




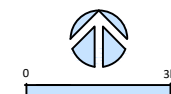
Legend

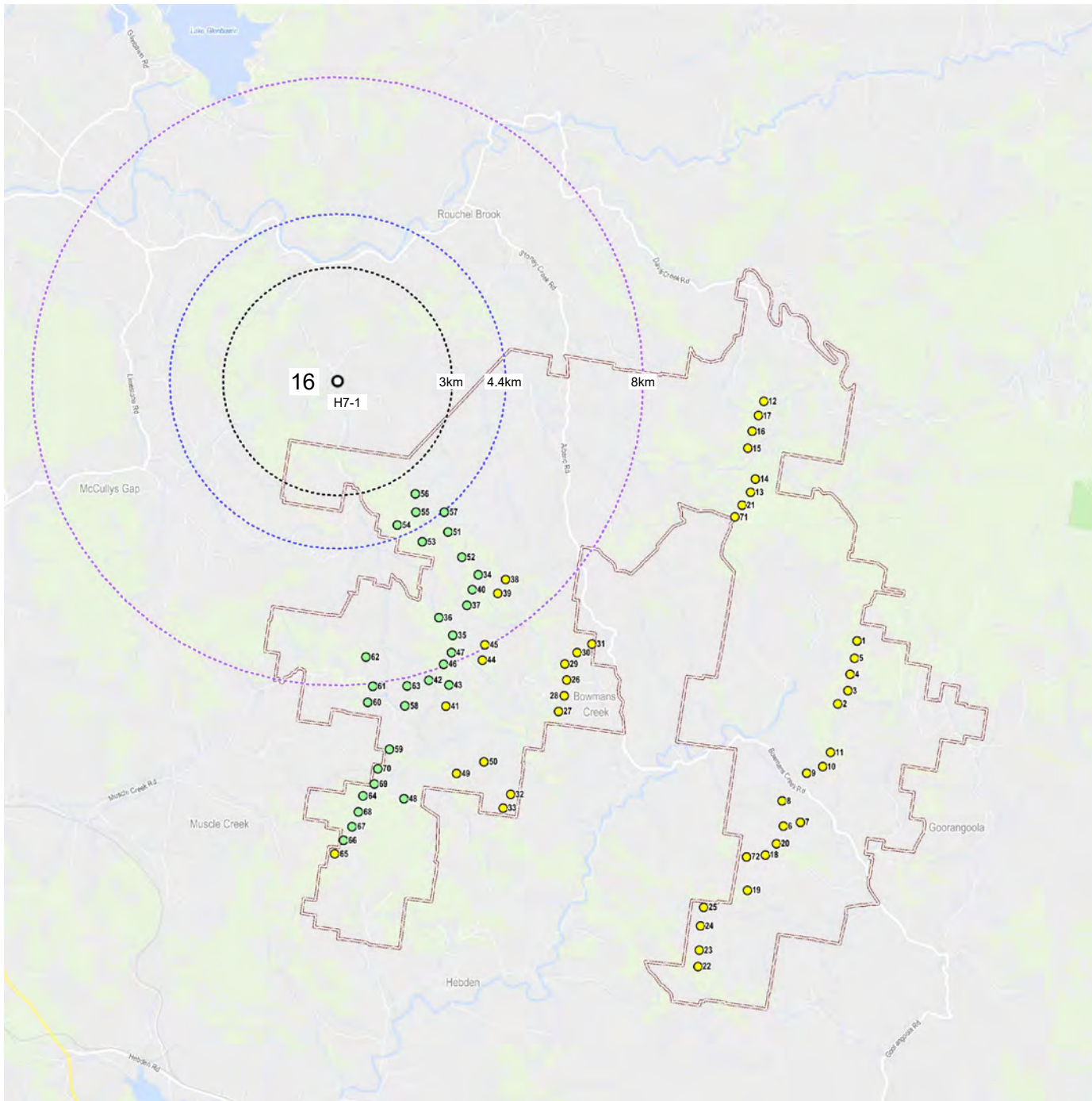
-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**










**Figure 23 Representative location 15
Residential dwellings -
multiple wind turbine tool**

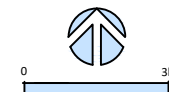
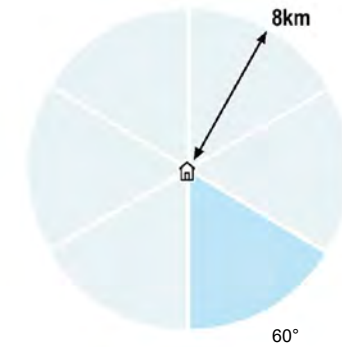




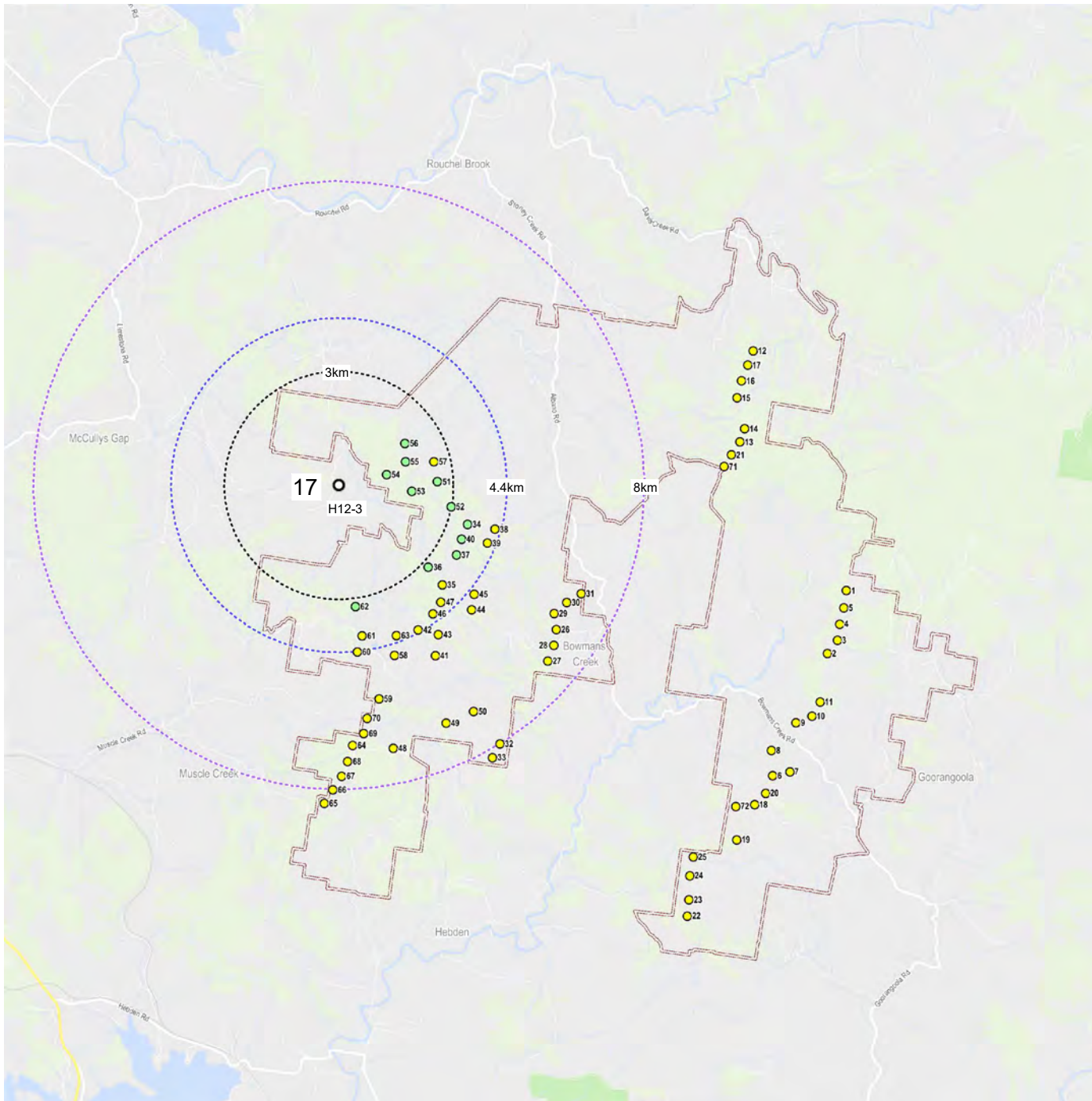
Legend

-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**








**Preliminary Assessment Tool 2
Multiple wind turbines**



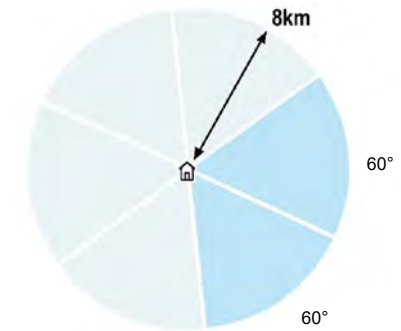
**Figure 24 Representative location 16
Residential dwellings -
multiple wind turbine tool**



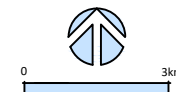
Legend

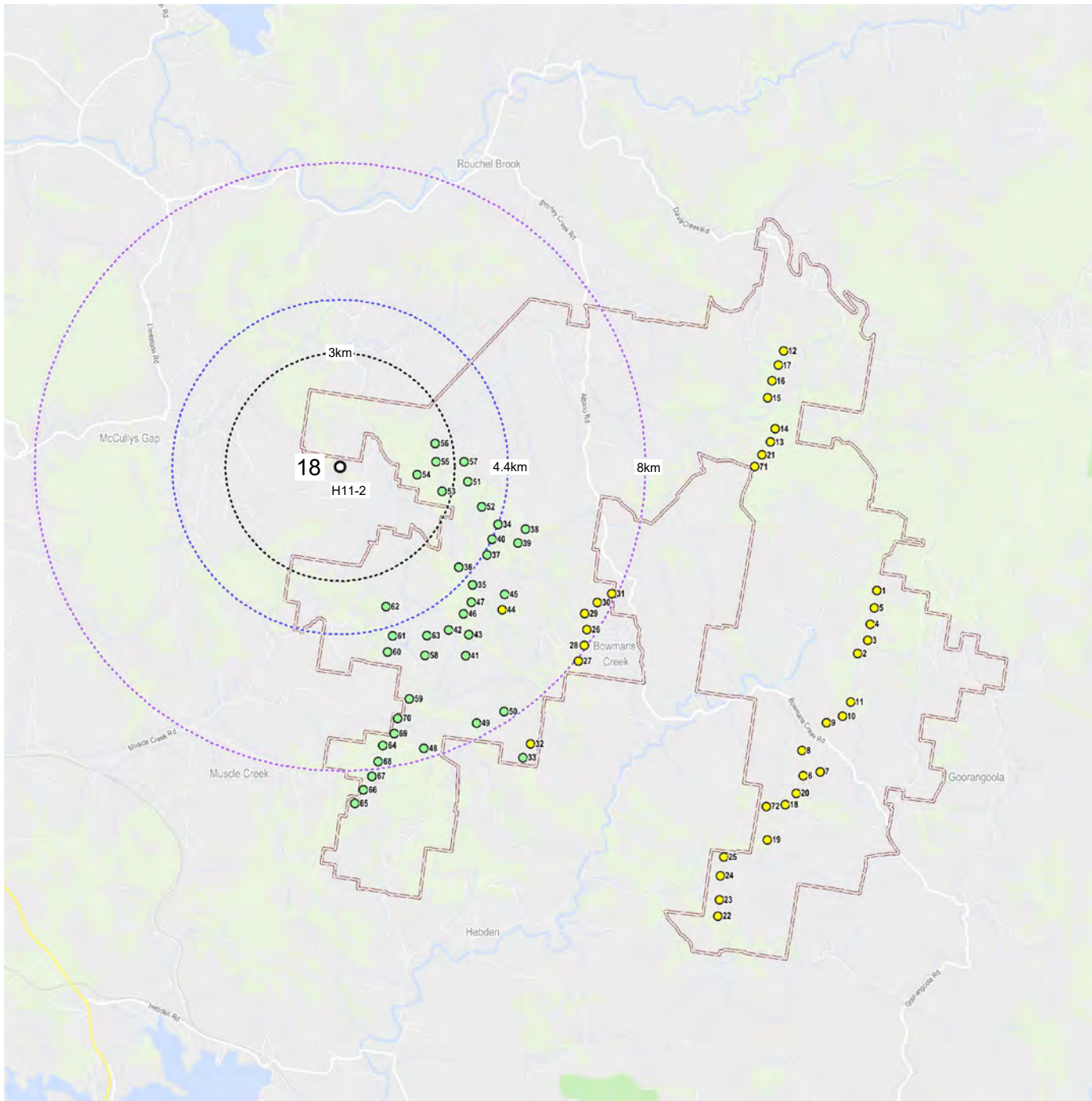
-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**










**Figure 25 Representative location 17
Residential dwellings -
multiple wind turbine tool**

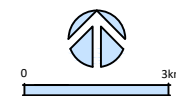
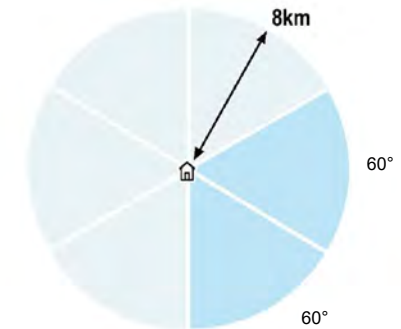




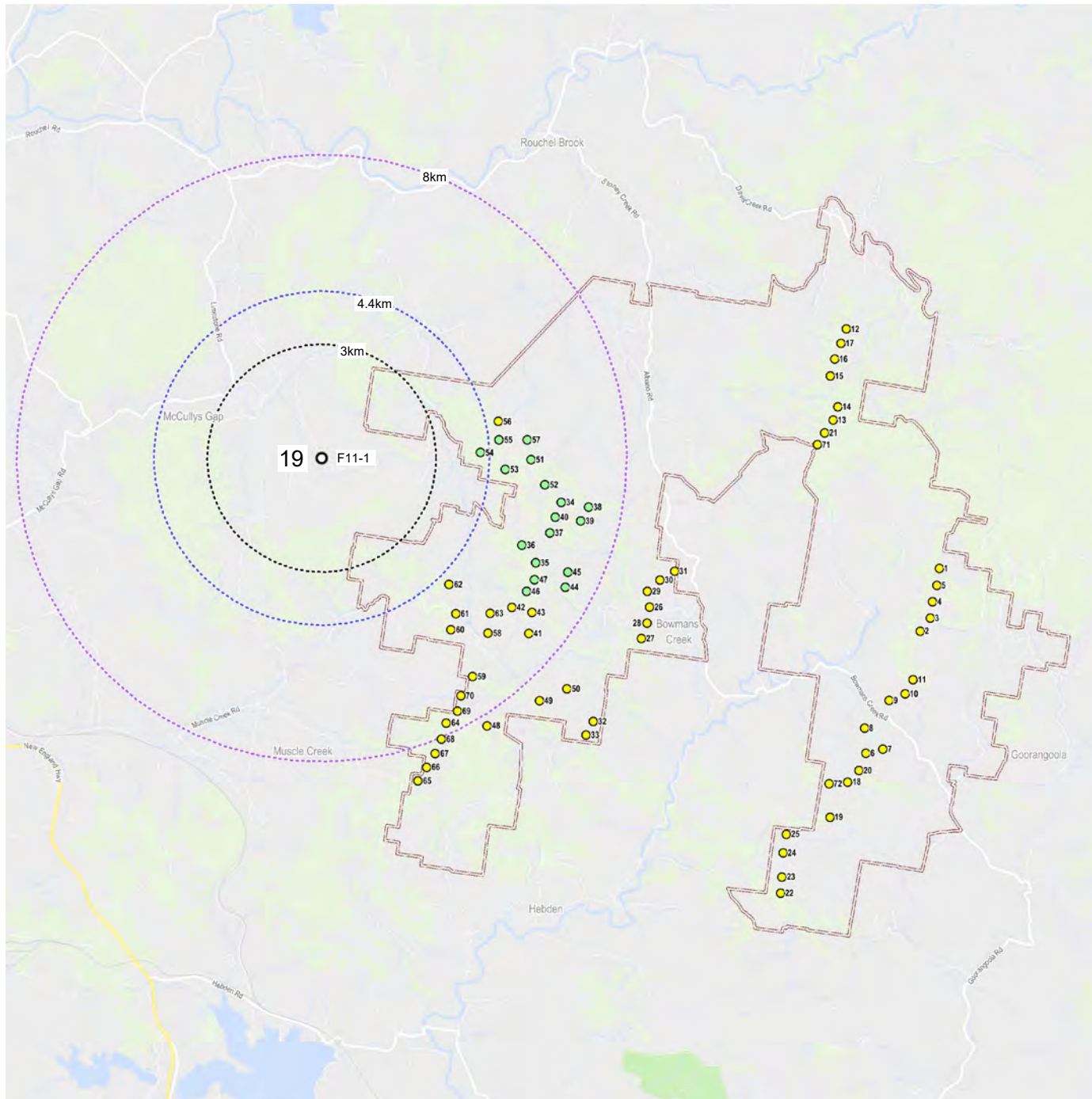
Legend

-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**







**Preliminary Assessment Tool 2
Multiple wind turbines**



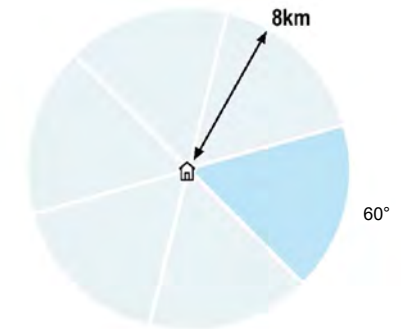
**Figure 26 Representative location 18
Residential dwellings -
multiple wind turbine tool**



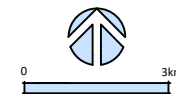
Legend

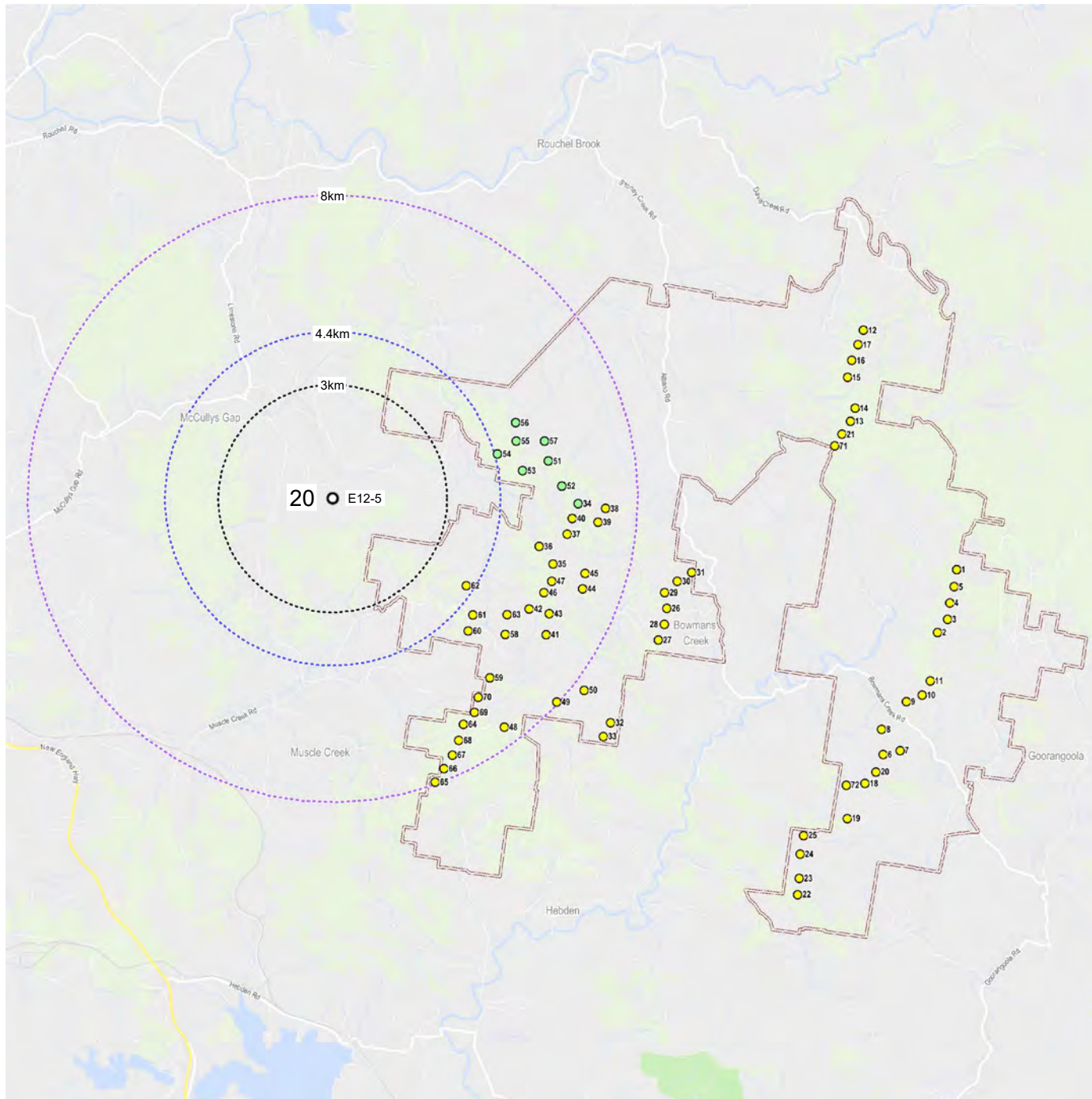
-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**










**Figure 27 Representative location 19
Residential dwellings -
multiple wind turbine tool**

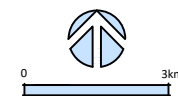
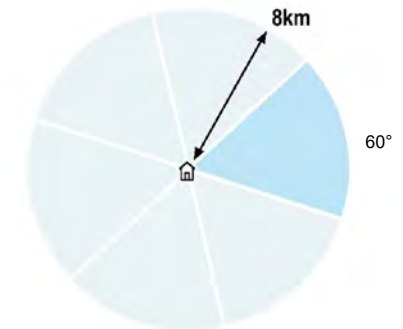




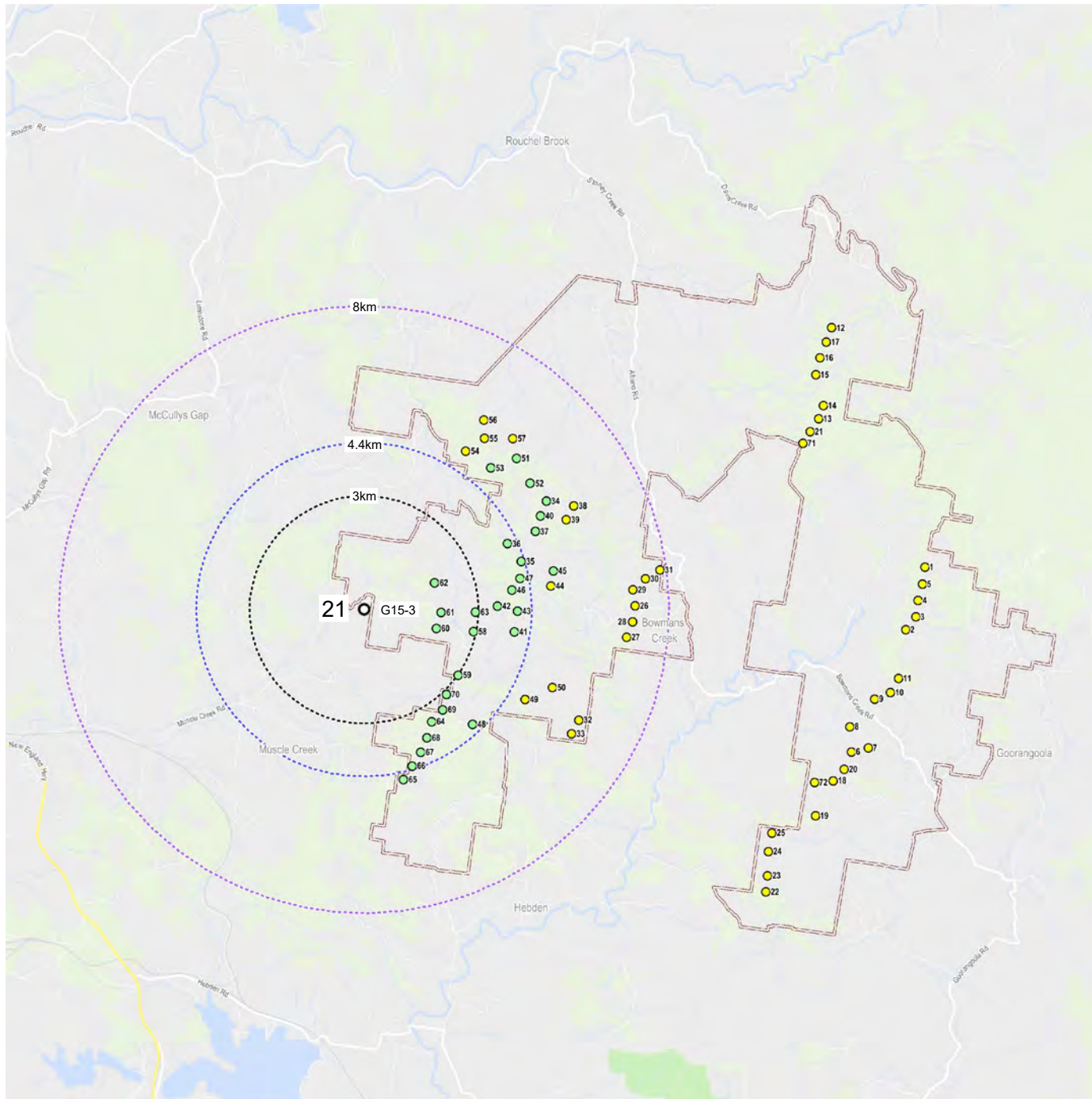
Legend

-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**








**Preliminary Assessment Tool 2
Multiple wind turbines**



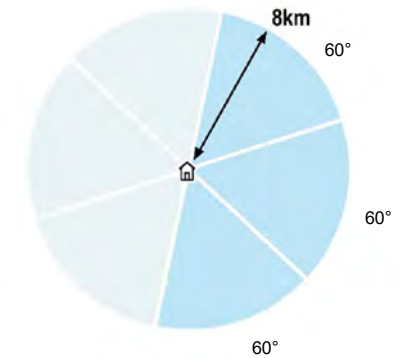
**Figure 28 Representative location 20
Residential dwellings -
multiple wind turbine tool**



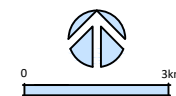
Legend

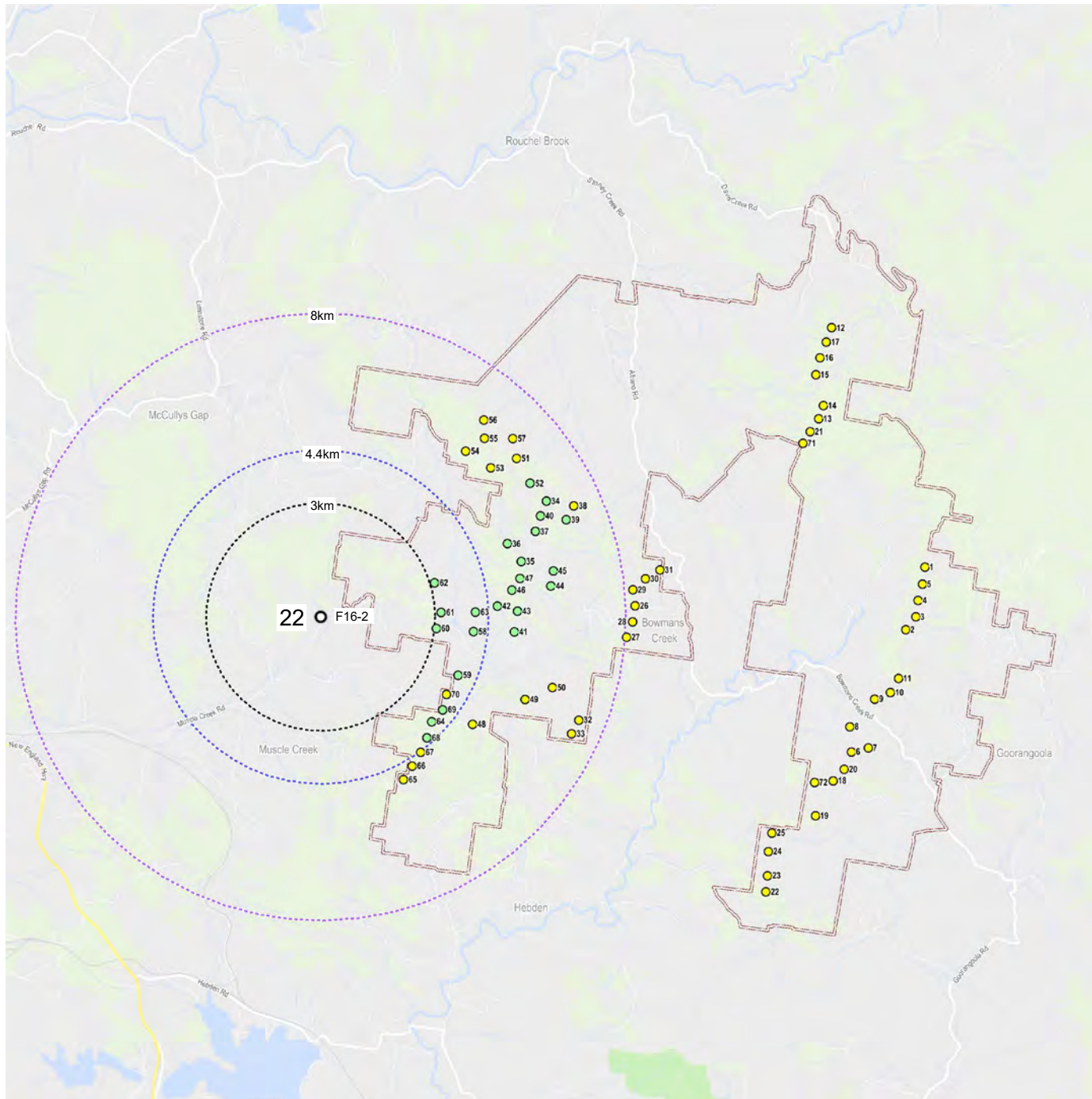
-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**










**Figure 29 Representative location 21
Residential dwellings -
multiple wind turbine tool**

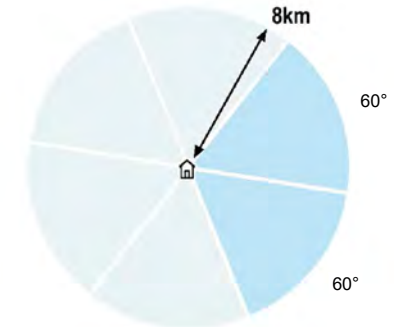




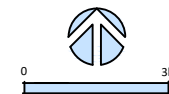
Legend

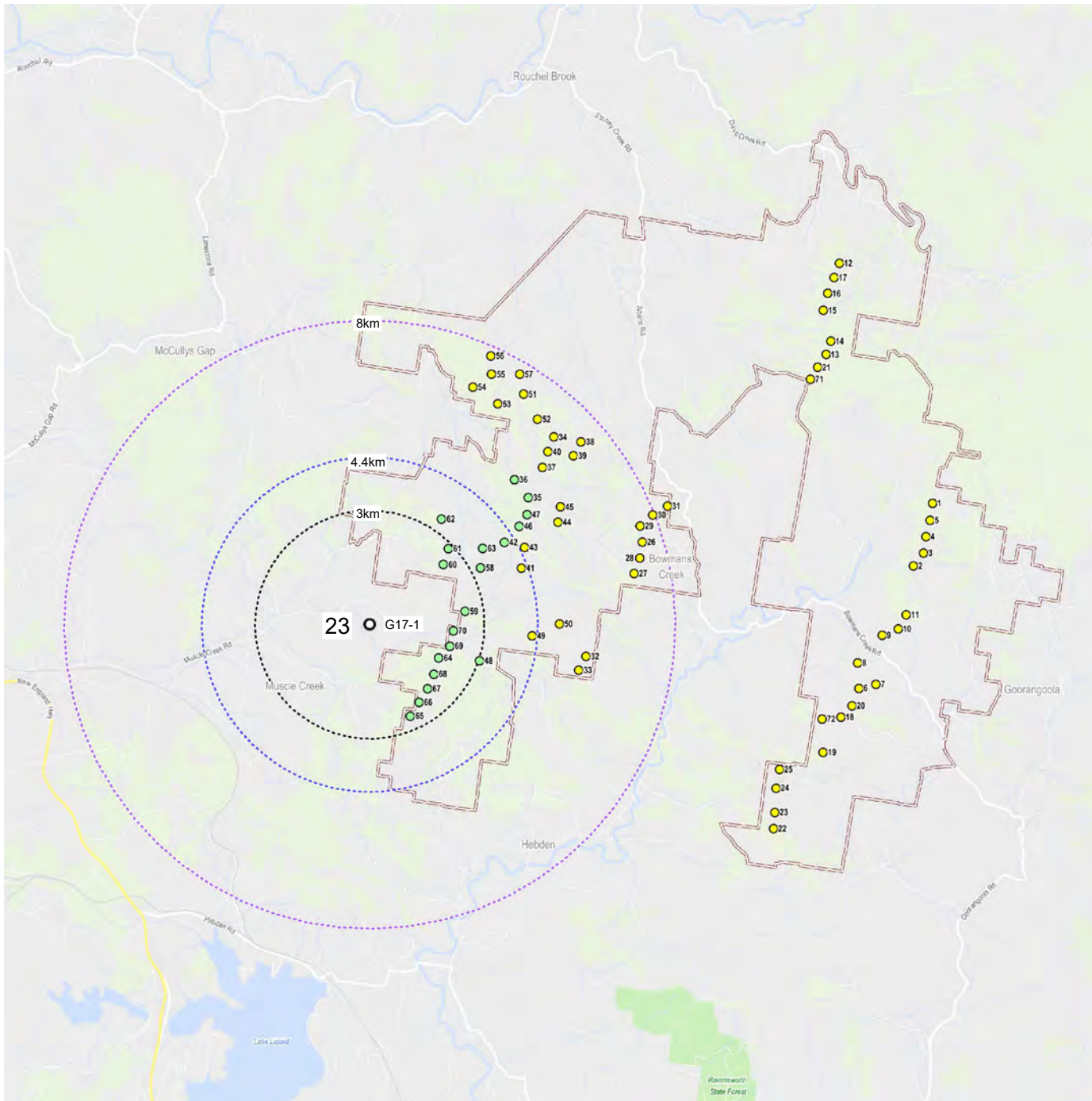
-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**










**Figure 30 Representative location 22
Residential dwellings -
multiple wind turbine tool**

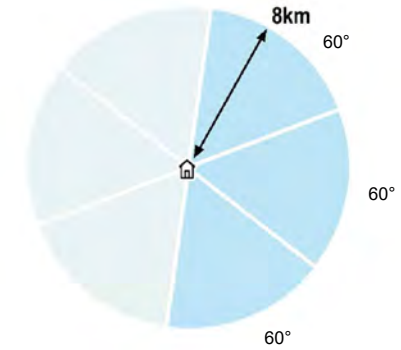




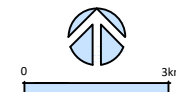
Legend

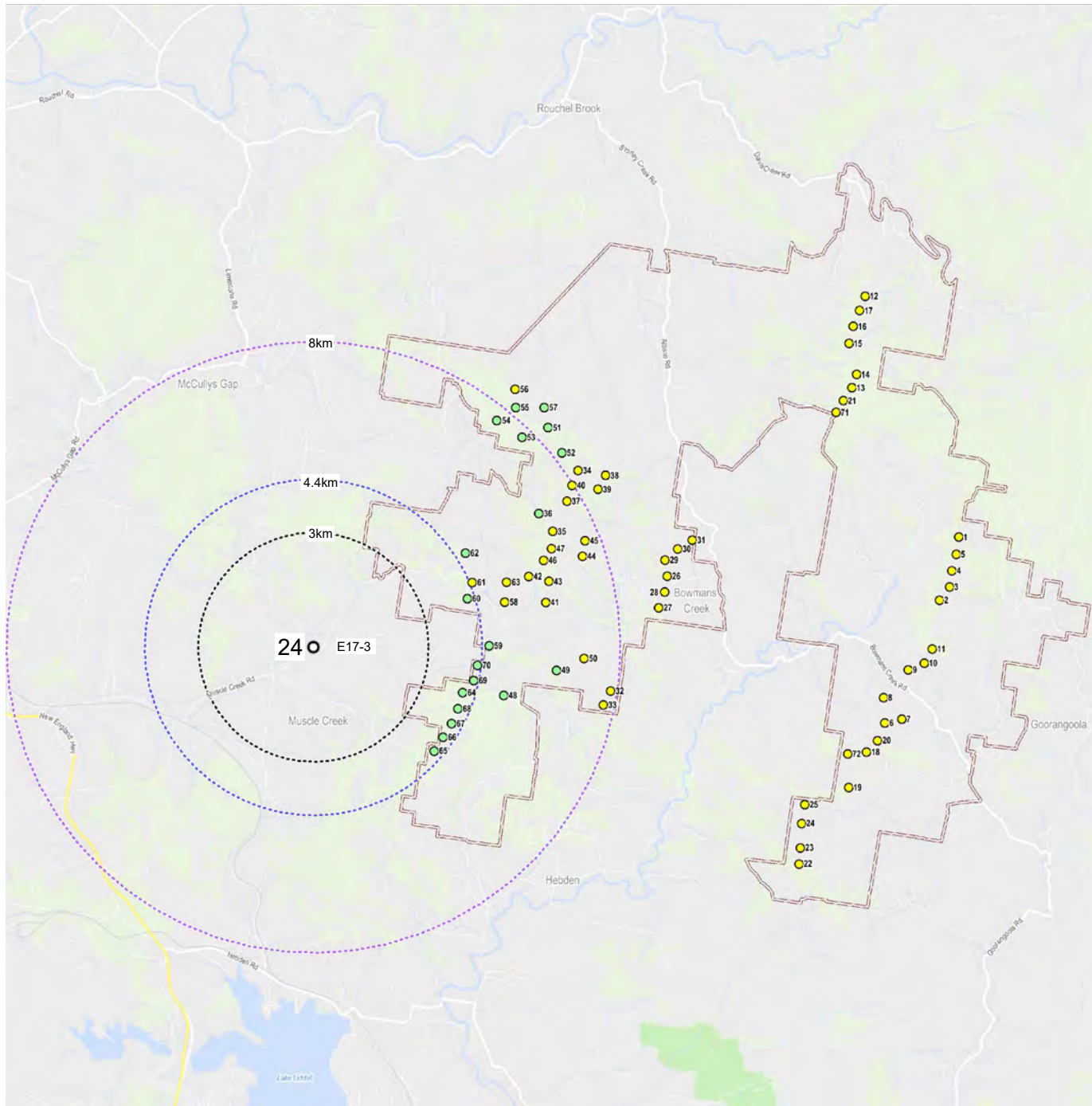
-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**










**Figure 31 Representative location 23
Residential dwellings -
multiple wind turbine tool**





Legend

-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **24 ○ E17-3 Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**

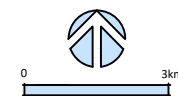
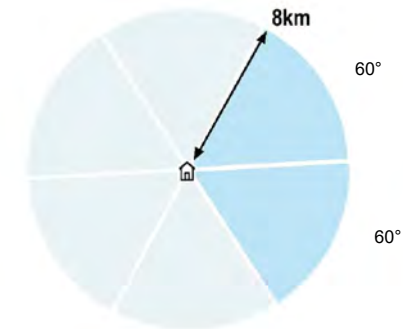
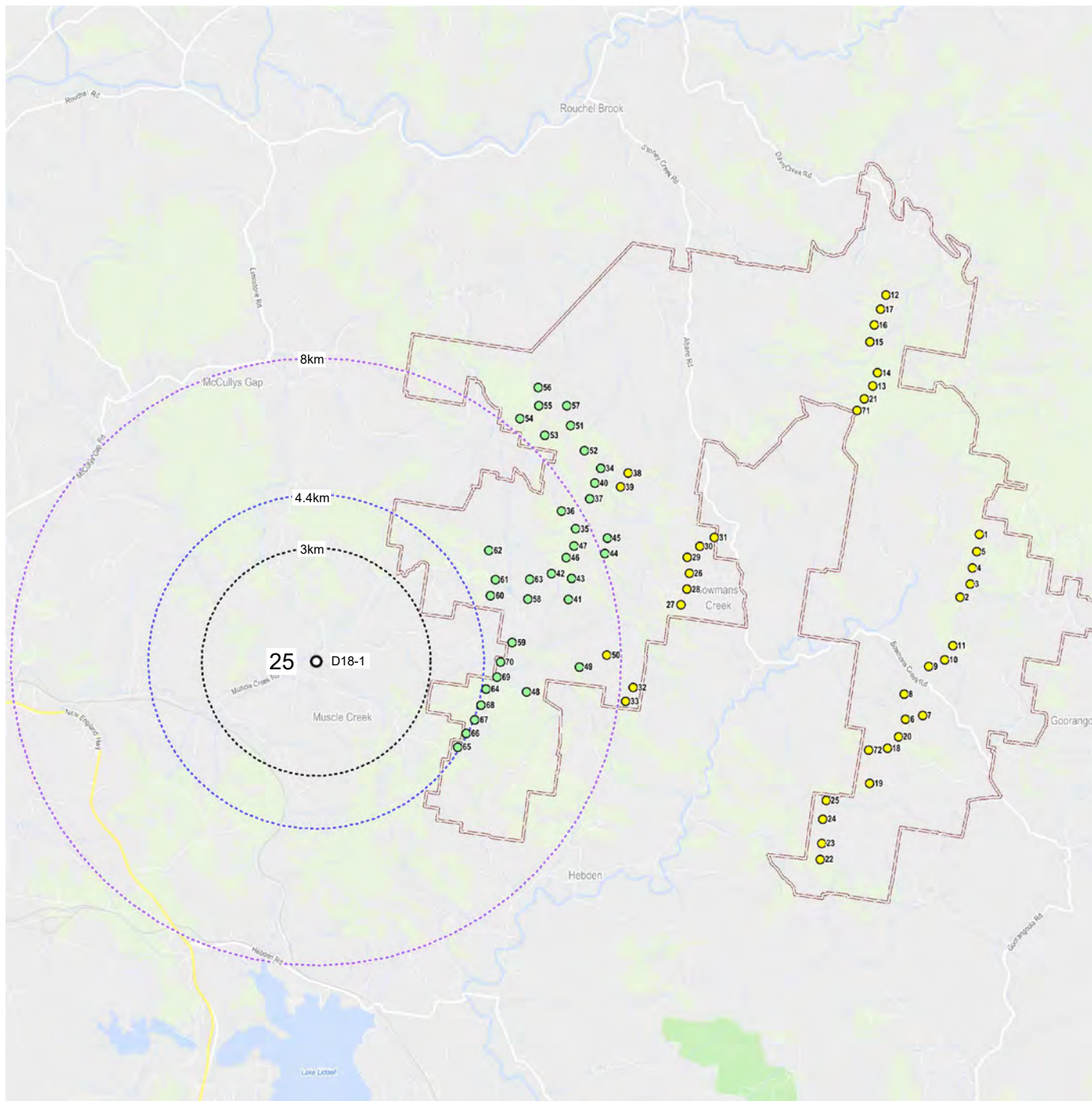









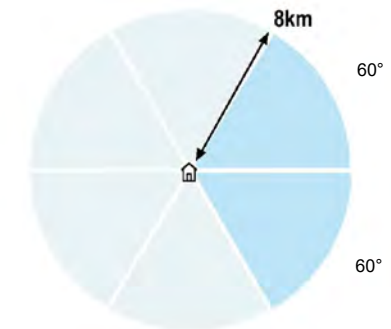
Figure 32 Representative location 24 Residential dwellings - multiple wind turbine tool



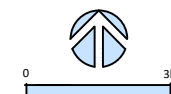
Legend

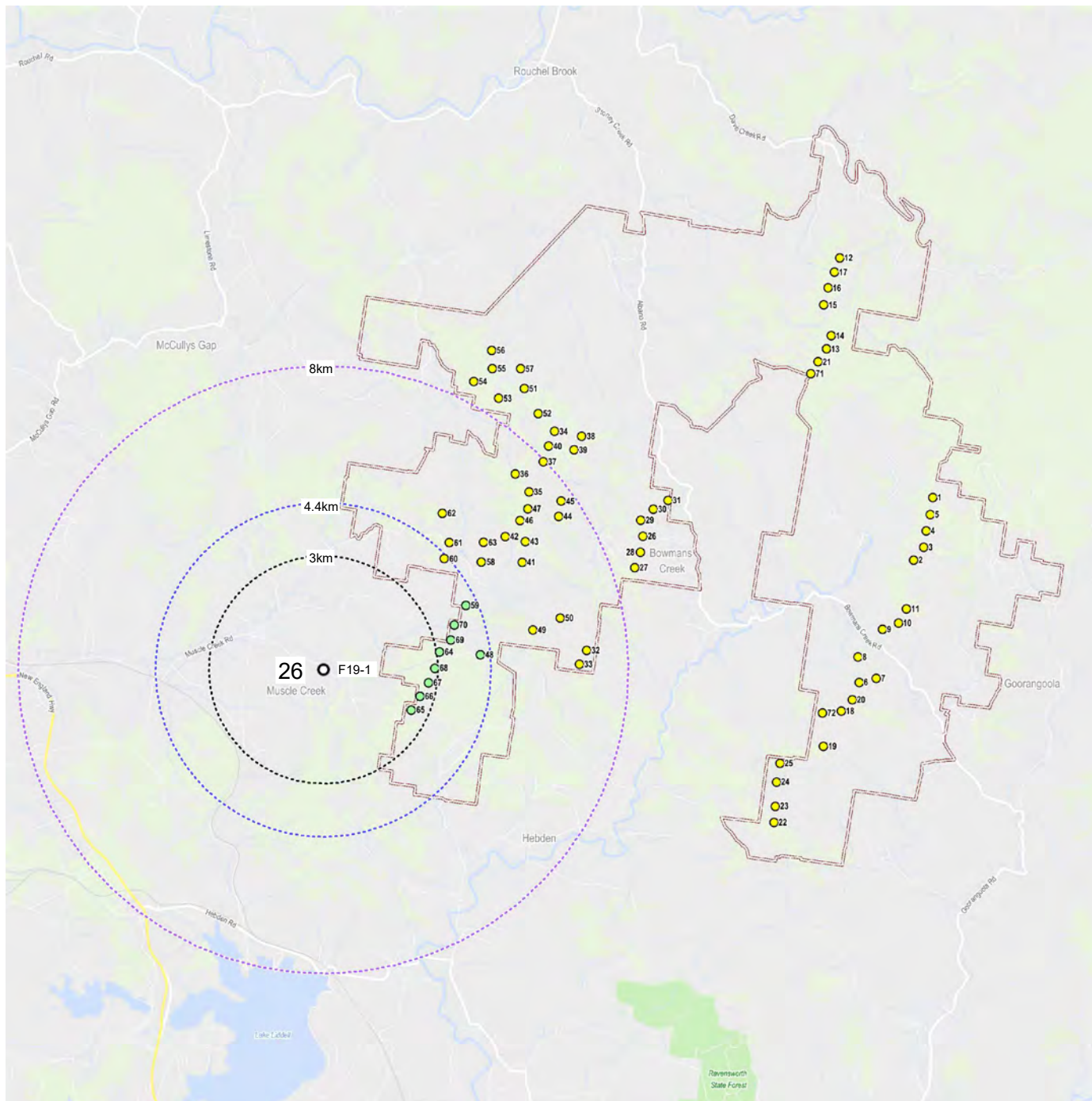
-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**










**Figure 33 Representative location 25
Residential dwellings -
multiple wind turbine tool**

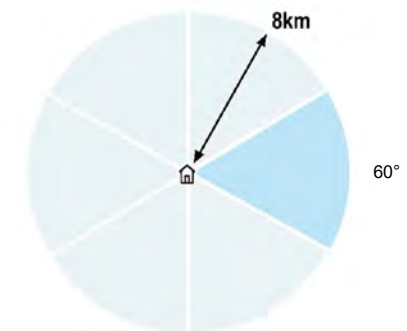




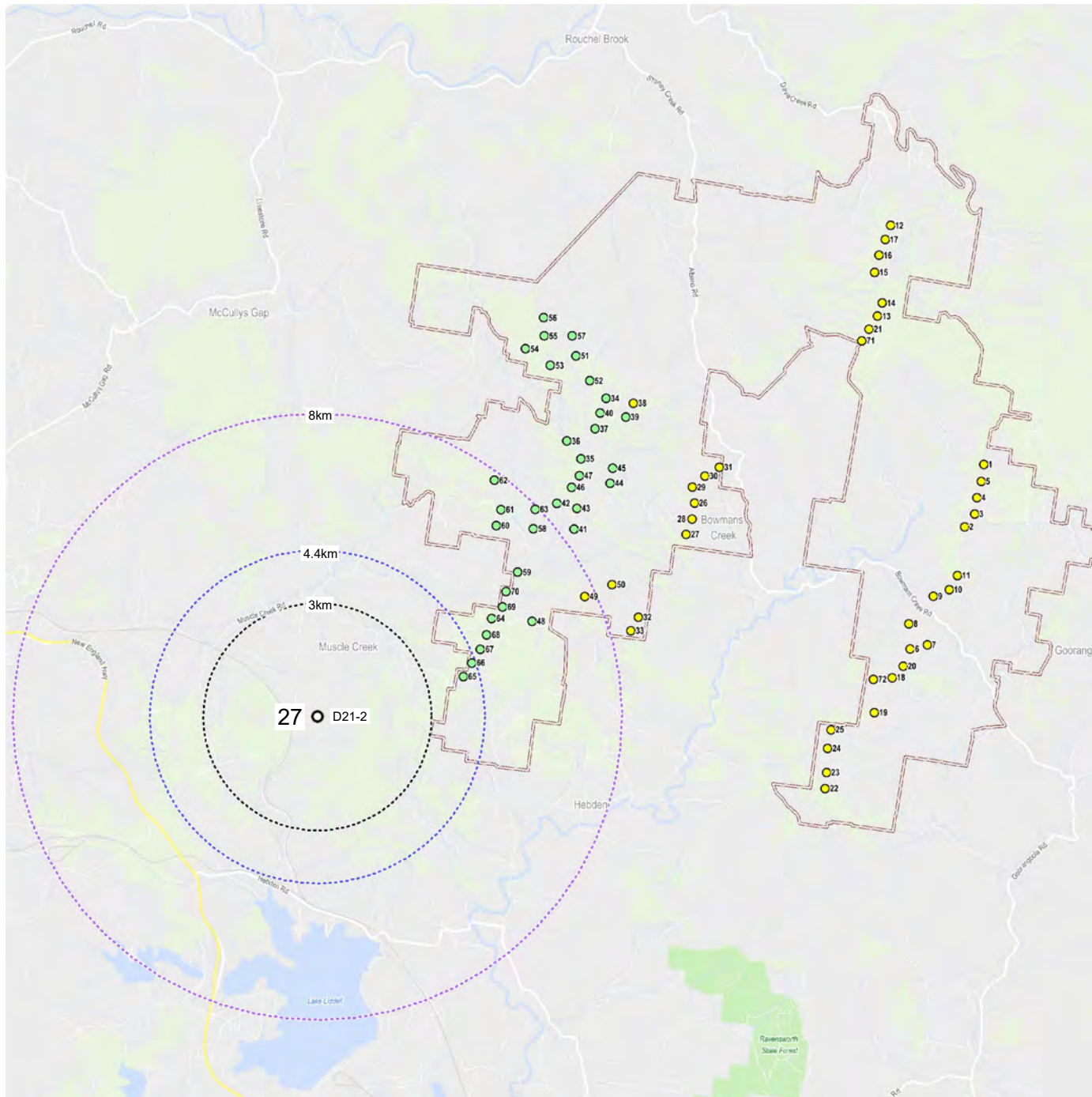
Legend

-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**








**Preliminary Assessment Tool 2
Multiple wind turbines**



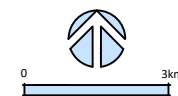
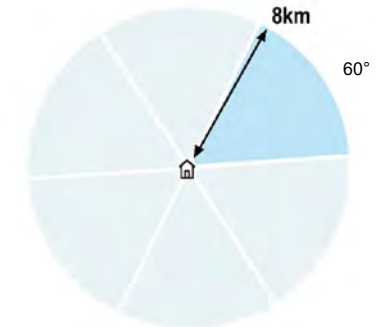
**Figure 34 Representative location 26
Residential dwellings -
multiple wind turbine tool**



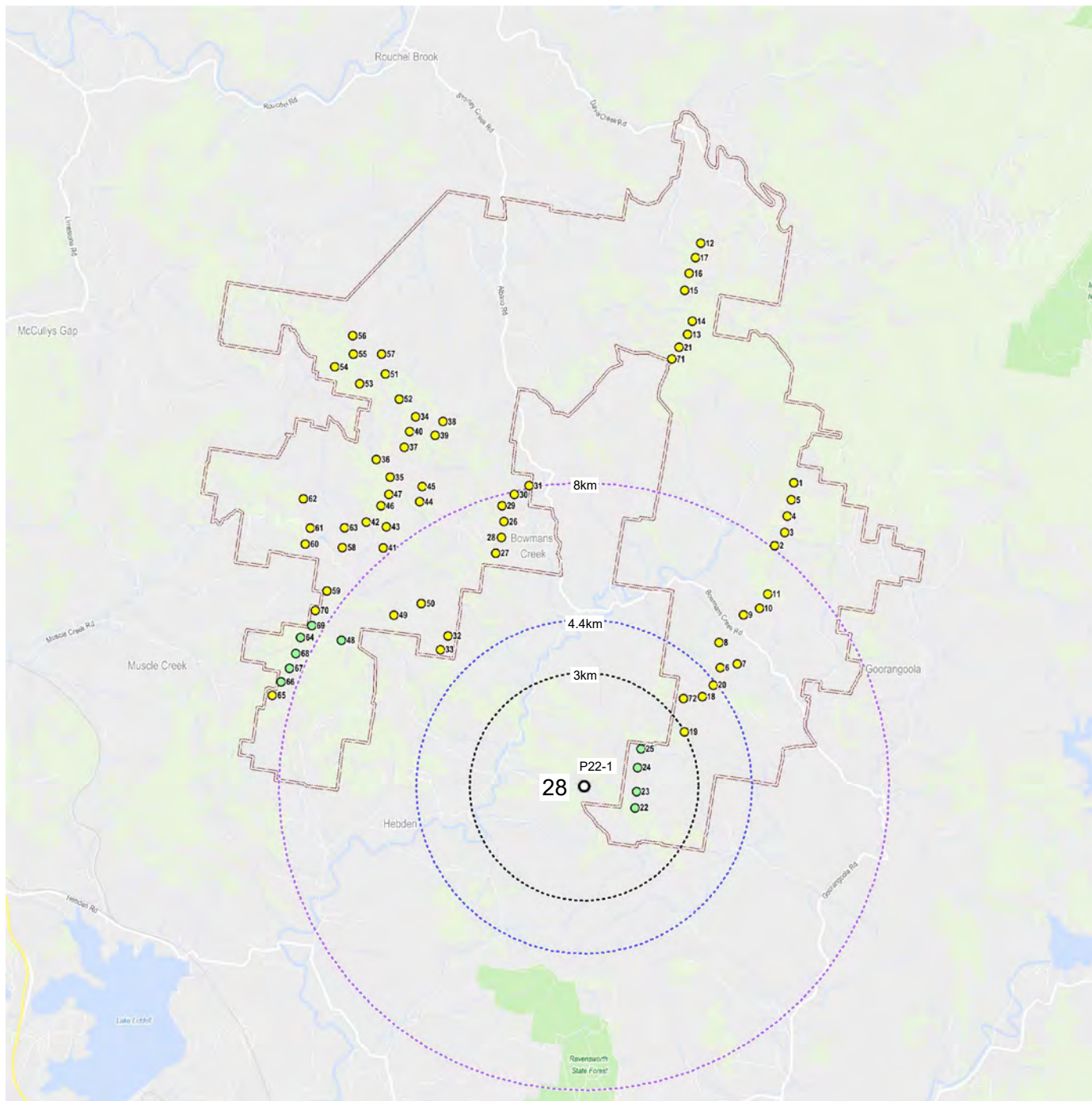
Legend

-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **27 D21-2**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**








**Preliminary Assessment Tool 2
Multiple wind turbines**



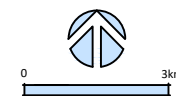
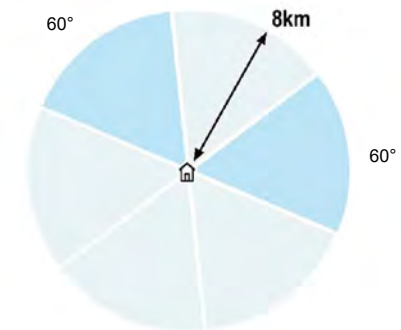
**Figure 35 Representative location 27
Residential dwellings -
multiple wind turbine tool**



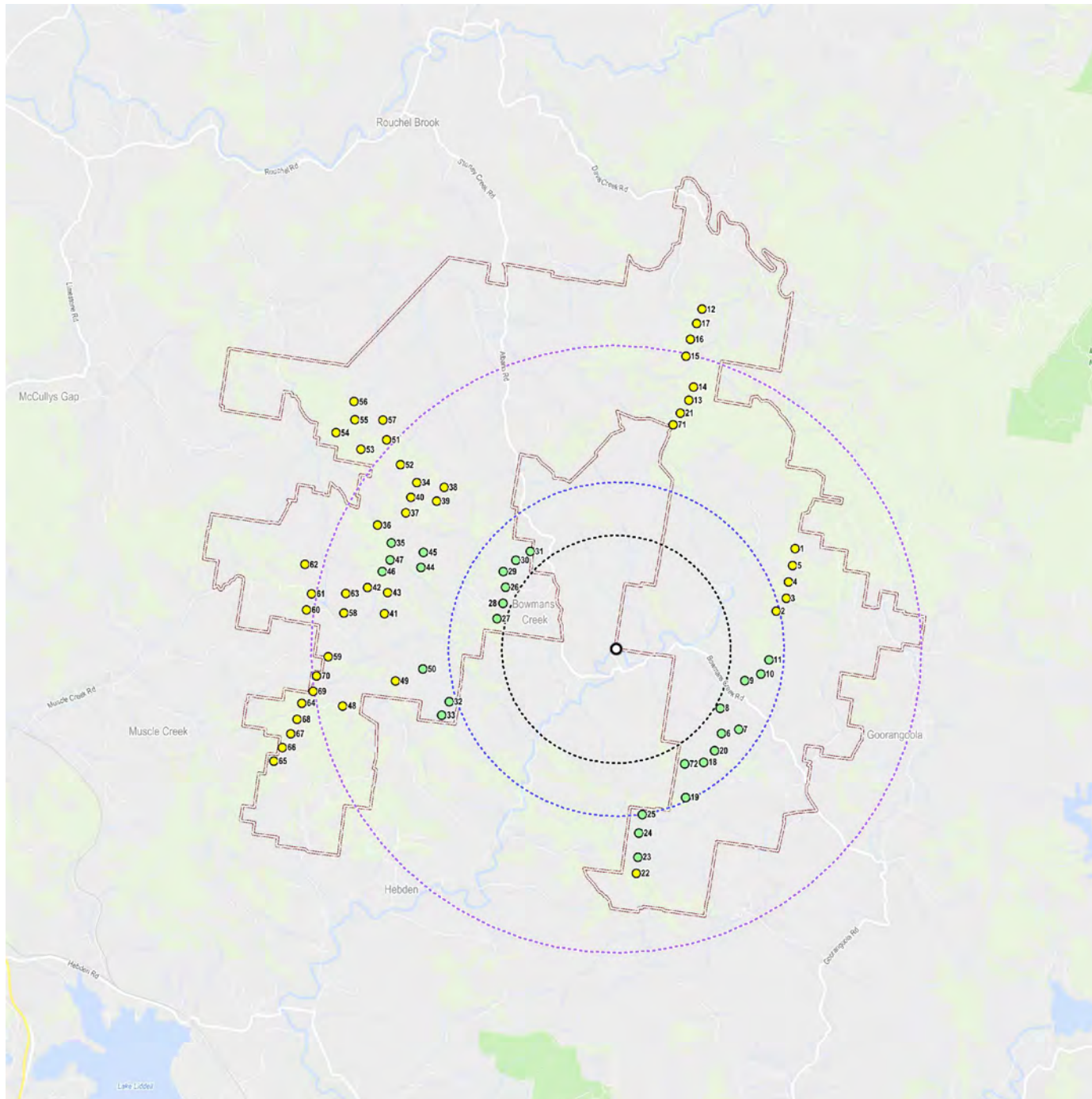
Legend

-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**








**Preliminary Assessment Tool 2
Multiple wind turbines**



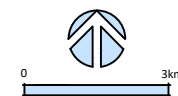
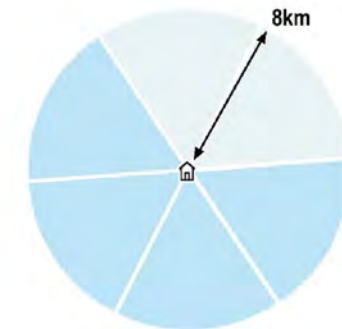
**Figure 36 Representative location 28
Residential dwellings -
multiple wind turbine tool**



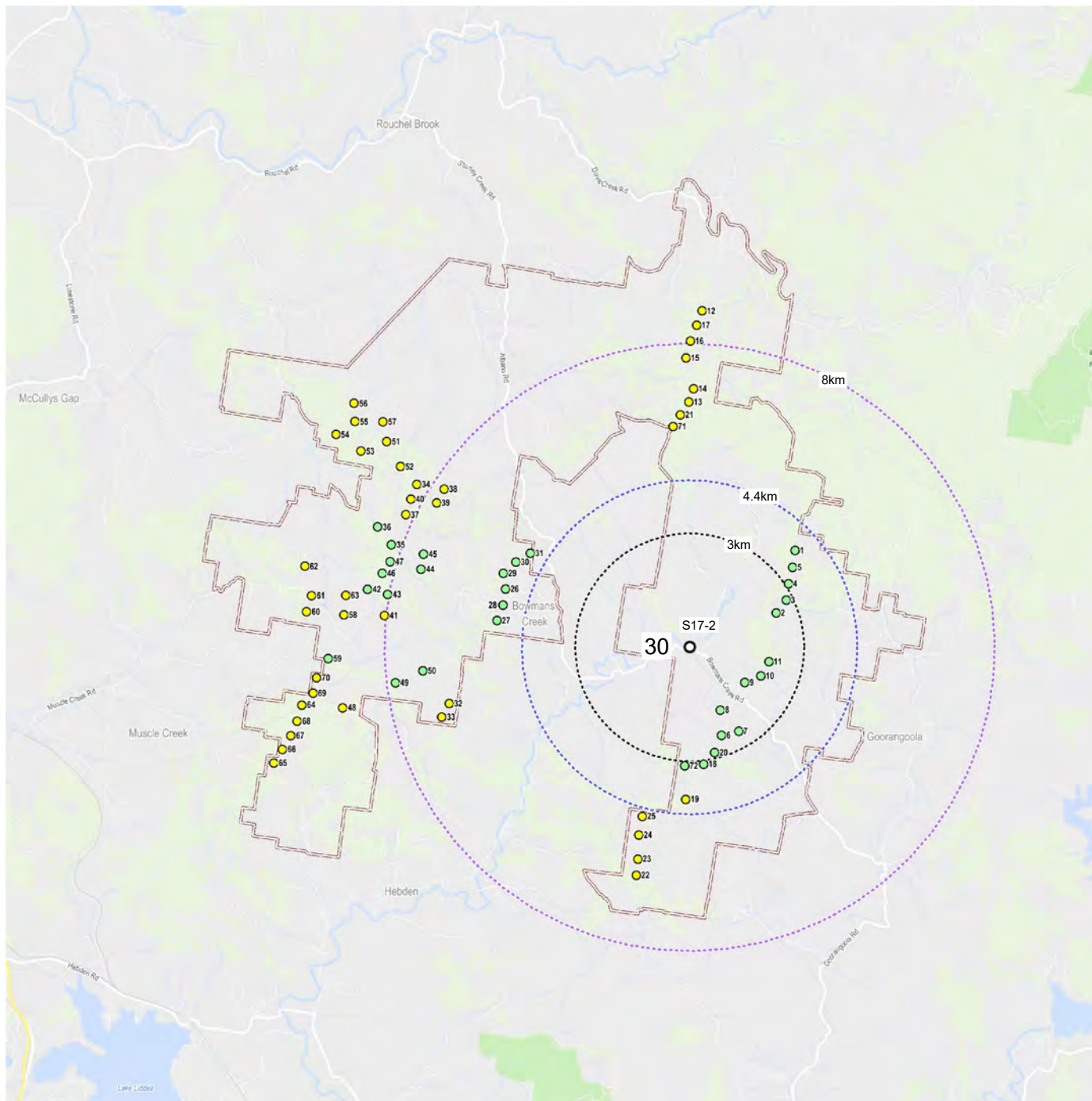
Legend

-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**








**Preliminary Assessment Tool 2
Multiple wind turbines**



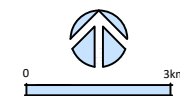
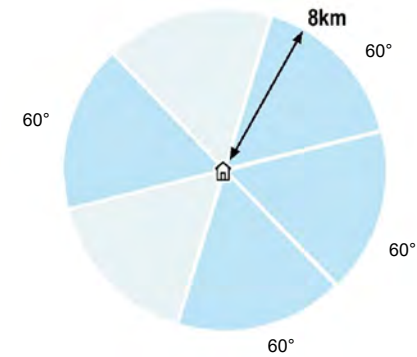
**Figure 37 Representative location 29
Residential dwellings -
multiple wind turbine tool**



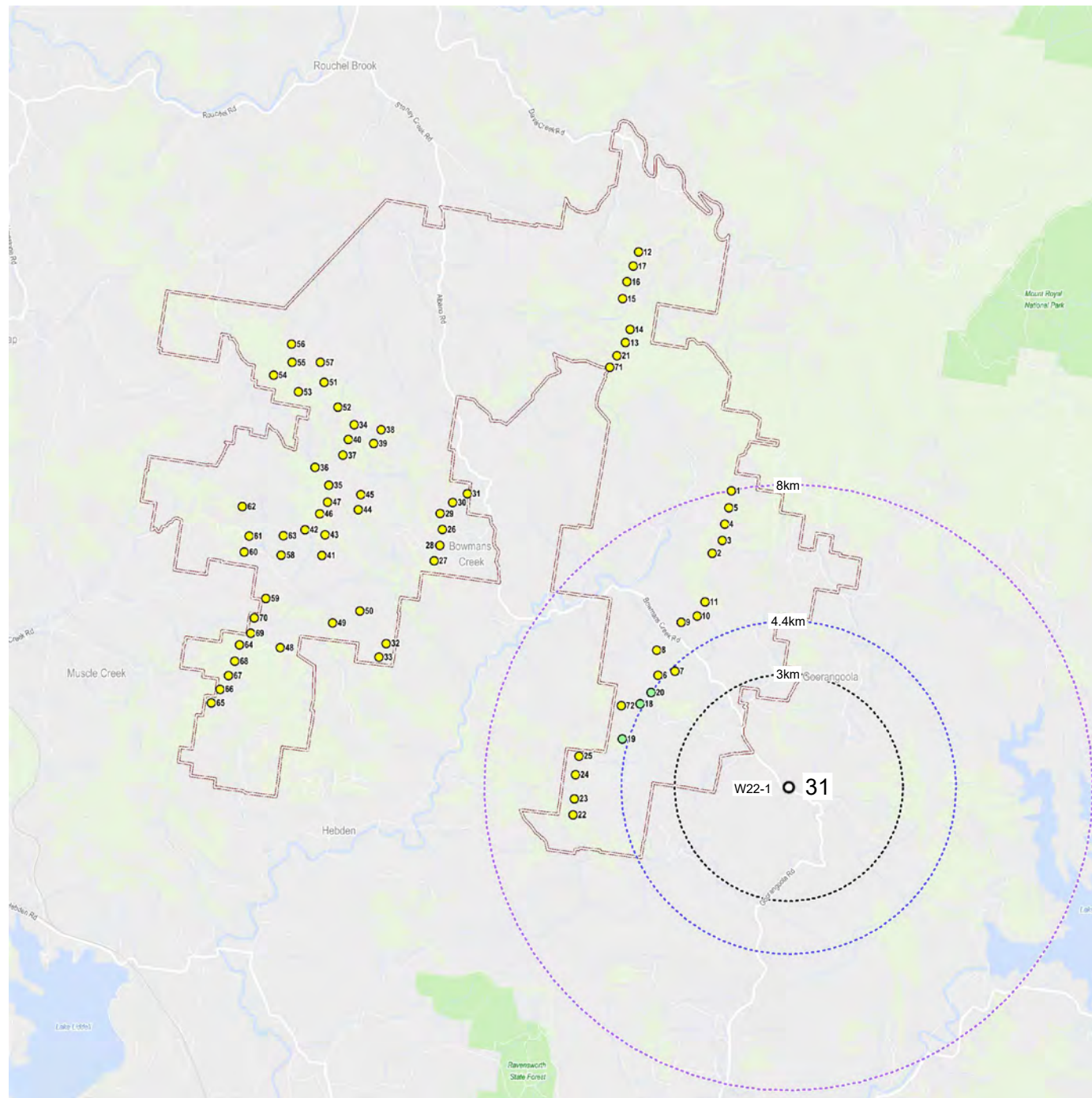
Legend

-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**








**Preliminary Assessment Tool 2
Multiple wind turbines**



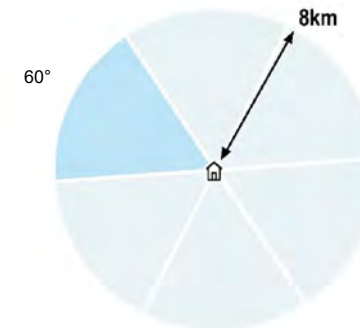
**Figure 38 Representative location 30
Residential dwellings -
multiple wind turbine tool**



Legend

-  **Project boundary**
-  **Proposed wind turbine (visible) (indicative location)**
-  **Proposed wind turbine (not visible) (indicative location)**
-  **Non associated residential dwelling and representative view location**
-  **3km black line**
-  **4.4km blue line**
-  **8km offset line from dwelling**

**Preliminary Assessment Tool 2
Multiple wind turbines**



**Figure 39 Representative location 31
Residential dwellings -
multiple wind turbine tool**