



**RES Australia Pty Ltd**

Suite 6.01 Level 6, 165 Walker Street, North Sydney  
NSW 2060, Australia

T +61 (0)2 8440 7400

E [info.australia@res-group.com](mailto:info.australia@res-group.com) [www.res-group.com](http://www.res-group.com)

1<sup>st</sup> March 2023

Attention: Iwan Davies  
Department of Planning and Environment  
Email: [iwan.davies@planning.nsw.gov.au](mailto:iwan.davies@planning.nsw.gov.au)

**Sent by email only**

Dear Iwan,

**Subject: Barneys Reef Wind Farm (Applicant: RES Australia Pty Ltd (RES), your ref: SSD-24106966)**

I refer to the Microsoft teams meeting between DPE and RES on 18<sup>th</sup> August 2022 and the letter sent via email from RES to DPE on 22<sup>nd</sup> September 2022.

**Background**

As you will be aware, RES submitted the Scoping Report and Application for SEARs for Barneys Reef Wind Farm (**Project**) in July 2021 and received the SEARs from DPE (formerly DPIE) in September 2021. Relevantly, this application was on the basis that the wind farm would comprise a maximum number of 63 turbines.

**Updated information**

Since this submission, RES has collected additional wind data across the Project site, as well as undertaken a number of surveys to inform the EIS. Taking into account the results of this work, RES has determined that there is sufficient space within the Project site to accommodate an additional six turbines, which would increase the maximum number of turbines proposed within the Project to 69. This increase would not require any change to the Project area.

The Project Scoping Report outlines several preliminary studies that were undertaken, including ecology, cultural heritage, noise, and landscape and visual impact. Taking into account the additional work done since then, RES does not expect there will be any additional impacts in any of these areas, due to the inclusion of 6 additional turbines. But as required by the SEARs, this will still be subject to detailed studies, undertaken as part of the EIS.

The preliminary landscape visual impact assessment (LVIA) tool has been re-run based on the updated turbine numbers and revised Project layout (referred in the LVIA as the "2022 Layout"). This re-run study shows that for the 2022 Layout there are fewer un-associated residences within both the blue and black lines, indicating that for the 2022 Layout, when compared to the 2021 Layout, there should be fewer houses receiving any visual impact. The comparison of the visual impact from the layouts can be seen in Appendix A, attached to this letter.

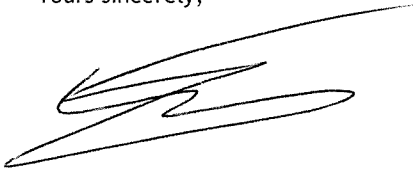
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Since the letter outlining this change to DPE in September 2022, RES has undertaken wide consultation with the community on this updated layout. This consultation has included attendance at community information sessions in September 2022 and February 2023, project information sheets mailed out to the community, targeted neighbour meetings, and attendance at the Dunedoo and Gulgong Agricultural Shows in February 2023. RES will continue to consult with the community and all relevant stakeholders on this layout before submission of the EIS.

If you have any queries, please contact Eleanor Cairns (Development Project Manager) on 0434 368 215.

Yours sincerely,

A handwritten signature in black ink, appearing to be 'Mike Whitbread', with a long horizontal stroke extending to the right.

Mike Whitbread

Director of Development, RES Australia Pty Ltd

# Preliminary Assessment Tools

## 1.1 Preliminary Assessment Tool 1: Visual Magnitude

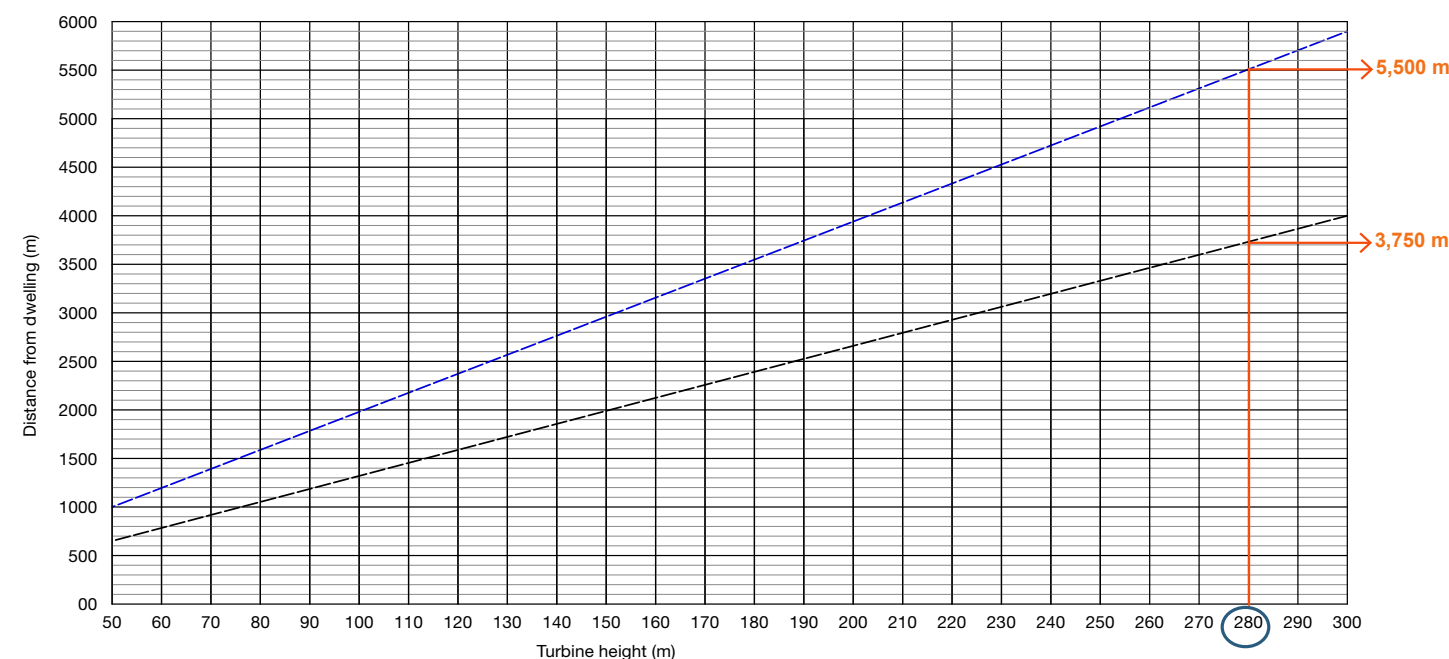
The Visual Magnitude Threshold is based on the height of the proposed wind turbines to the tip of the blade and distance from dwellings or key public viewpoints as shown in **Figure 1**.

In accordance with the Bulletin: *proposed turbines below the black line must be identified along with the dwellings or key public viewpoints as part of the request for SEARs*. The proposed wind turbines are based on a worst case scenario with a tip height of **280 metres**.

**The 'black line' intersects at a distance of 3,750 metres**

**The 'blue line' intersects at 5,500 metres**

For the purpose of the Preliminary Assessment, the Visual Magnitude thresholds are based on a 2D assessment of the Project alone. Further assessment indicates factors such as topography, relative distance and existing vegetation may minimise or eliminate the impacts of the project from residences.



**Figure 1** Preliminary Assessment Tool 1: Visual Magnitude

(Source: Visual Assessment Bulletin)

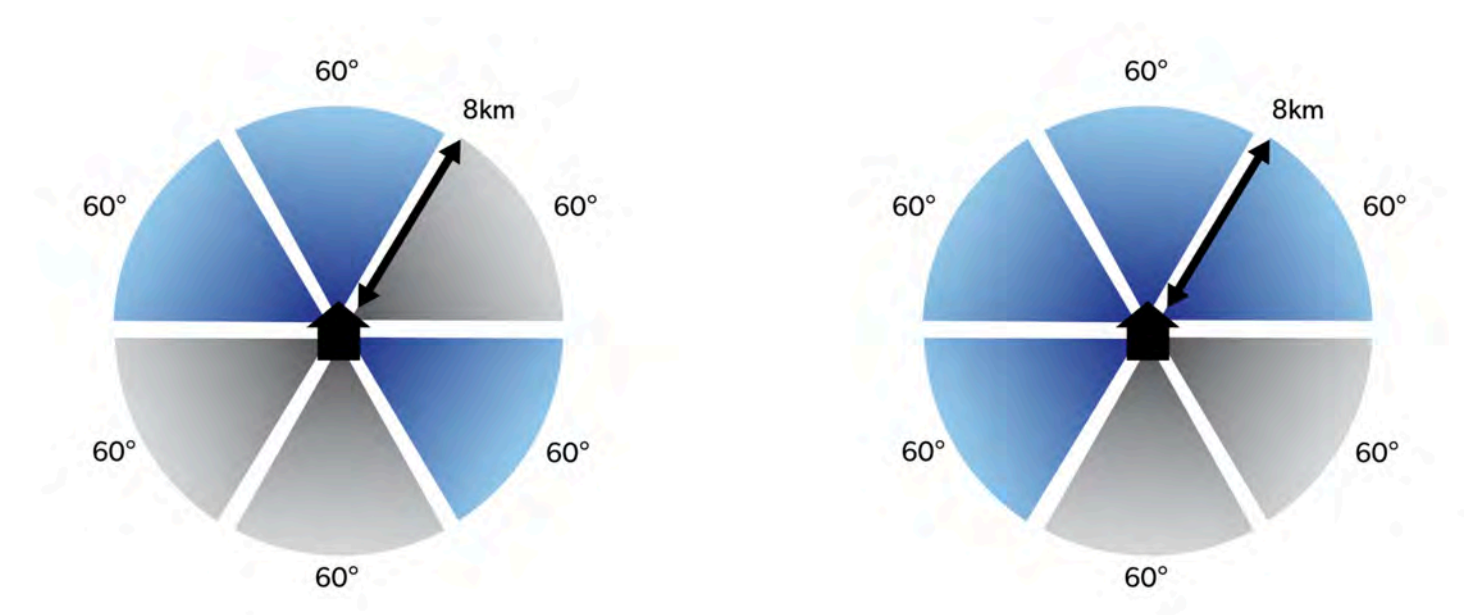
### Results of Preliminary Assessment Tool 1:

- Reduction of 5 non-involved dwellings within the black line of visual magnitude (from 45 to 40)
- Increase of 2 non-involved dwellings within the blue line (from 41 to 43)

Refer to Figure 5 & 6

## 1.2 Preliminary Assessment Tool 2: Multiple Wind Turbine Tool

The Multiple Wind Turbine Tool provides 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. **Figure 2** below provides examples of where a dwelling or key public viewpoint may have views to turbines in multiple 60° sectors.



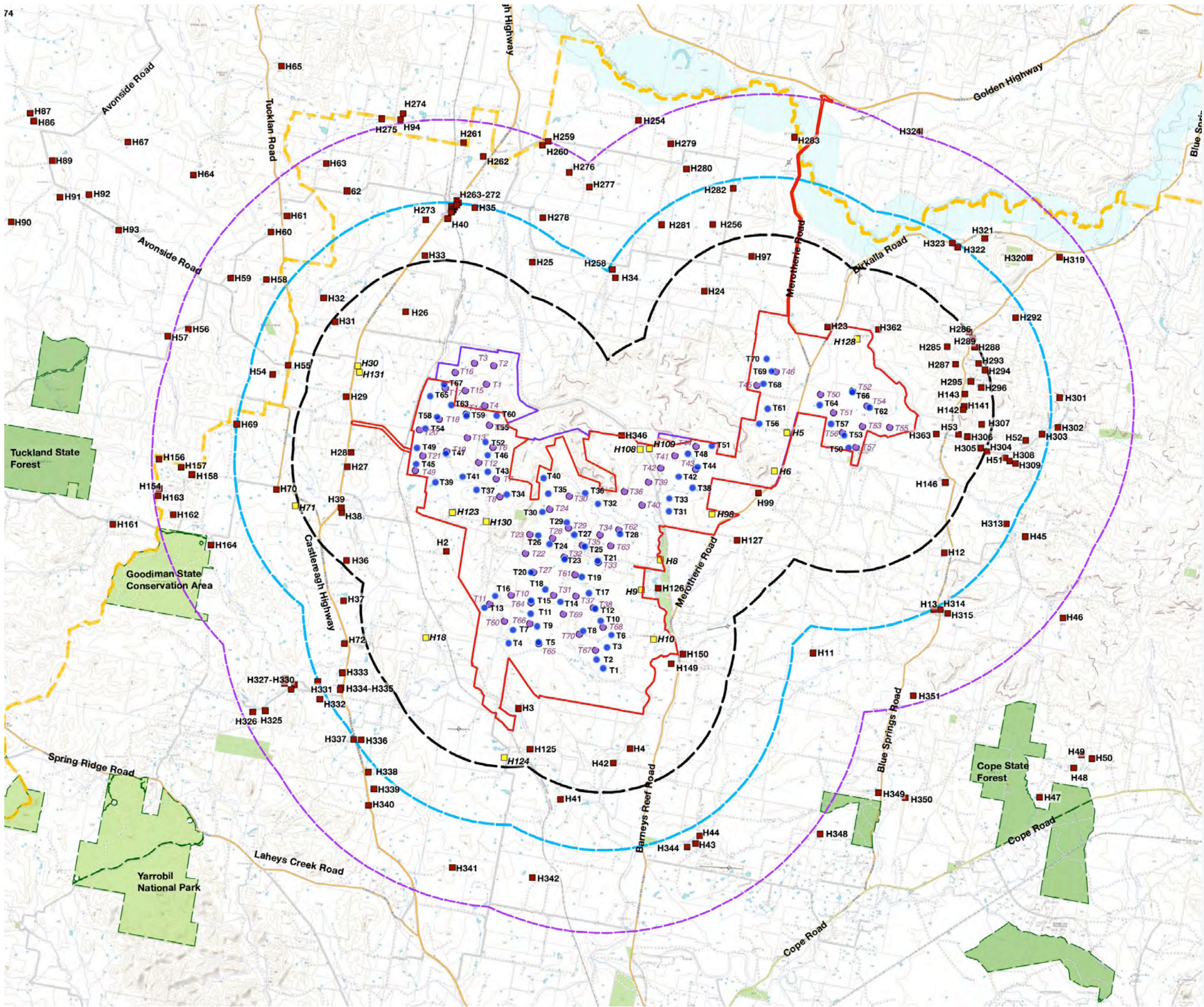
**Figure 2** Preliminary Assessment Tool 2: Multiple Wind Turbines

(Source: Visual Assessment Bulletin)

### Results of Preliminary Assessment Tool 2:

- Reduction of 1 non-involved dwelling with three (3) 60 degree sectors (from four to three)
  - No change to results of non-involved dwellings with four (4) 60 degree sectors
- Refer to Figures 7 & 8.





# Layout Comparison

## 2021 & 2022 Layout

### LEGEND

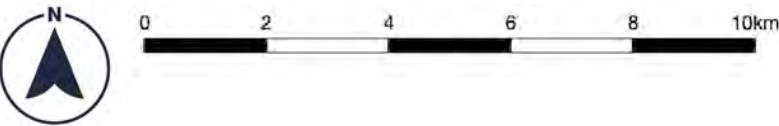
- Project Boundary (2022 layout)
- Project Boundary (2021 layout)
- T20 Proposed 280 m Turbine Location (2022 layout)
- T22 Proposed 280 m Turbine Location (2021 layout)
- Involved Dwelling
- Non-involved Dwelling
- 3,750 m from nearest turbine (2022 layout)
- 5,500 m from nearest turbine (2022 layout)
- 8,000 m from turbine (2022 layout)
- Main Road
- Minor Road

### Notes:

No. of turbines in 2021 layout = 63

No. of turbines in 2022 layout = 68

Figure 3. Layout Comparison - 2021 and 2022 Layout (Map Source: Six Maps 2011)





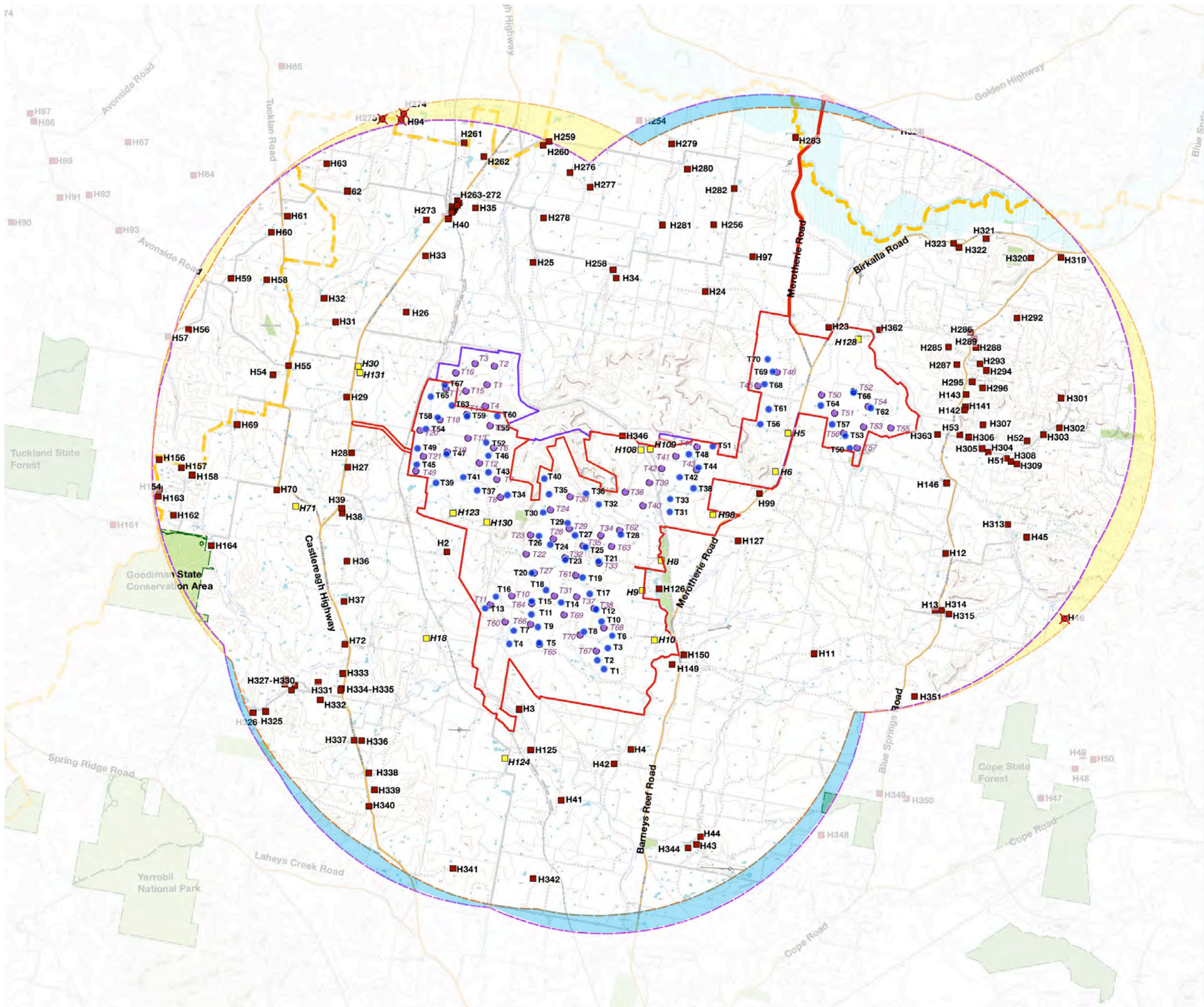
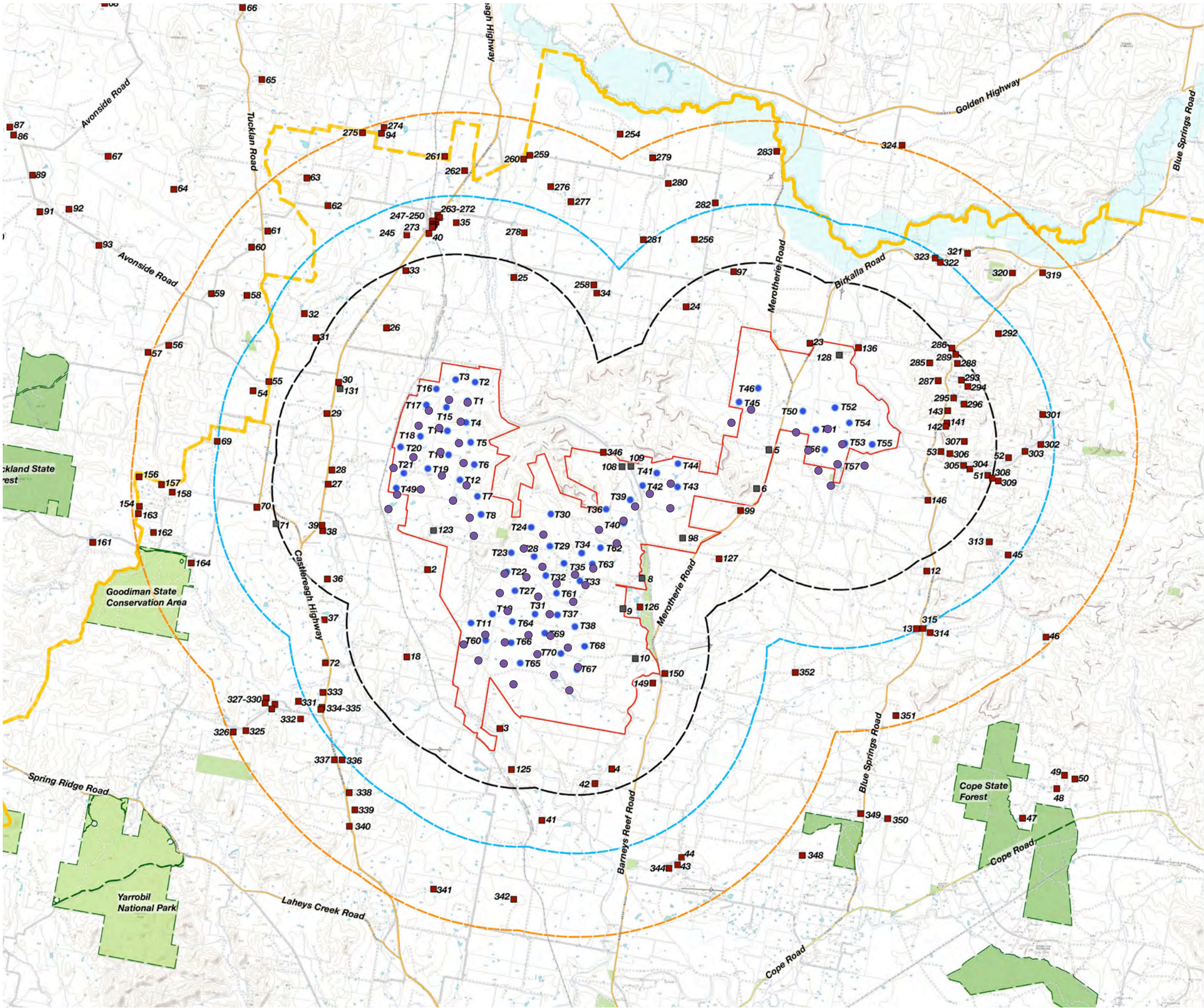


Figure 4. Layout Comparison (non-involved dwellings within 8 km)- 2021 and 2022 Layout (Map Source: Six Maps 2011)







# Visual Magnitude

## 2021 Layout

LEGEND

- Project Boundary
- T22 Proposed 280 m Turbine Location
- Involved Dwelling
- Non-involved Dwelling
- 3,750 m from nearest turbine
- 5,500 m from nearest turbine
- 8,000 m from turbine
- Main Road
- Minor Road

Results of Visual Magnitude Tool:

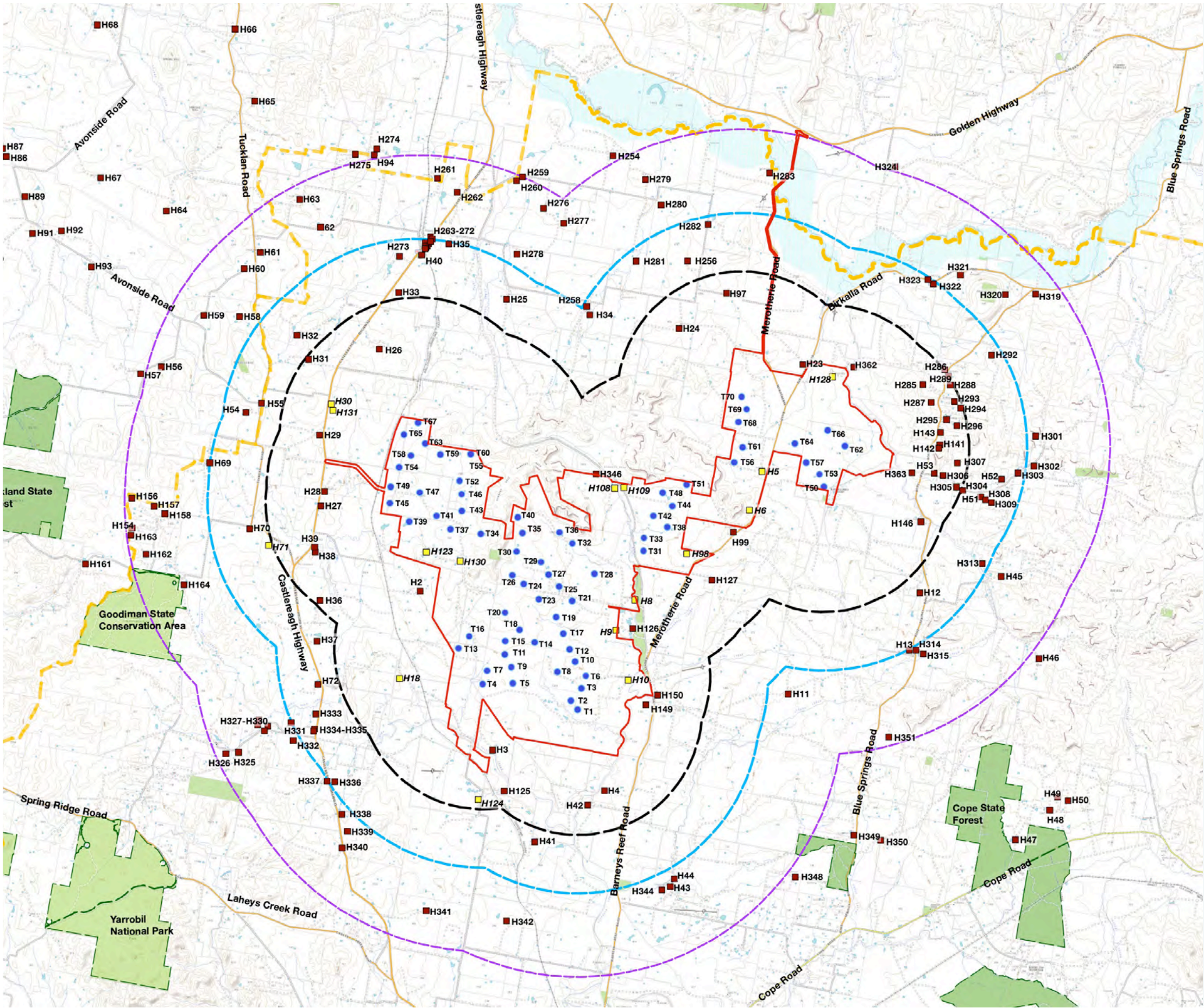
45 Non-involved dwellings within 3,750 m (Black Line)

41 Non-involved dwellings within 5,500 m (Blue Line)



Figure 5. Visual Magnitude - 2021 Layout (Map Source: Six Maps 2011)





# Visual Magnitude

## 2022 Layout

### LEGEND

- Project Boundary
- Proposed 280 m Turbine Location
- Involved Dwelling
- Non-involved Dwelling
- 3,750 m from nearest turbine
- 5,500 m from nearest turbine
- 8,000 m from turbine
- Main Road
- Minor Road

### Results of Visual Magnitude Tool:

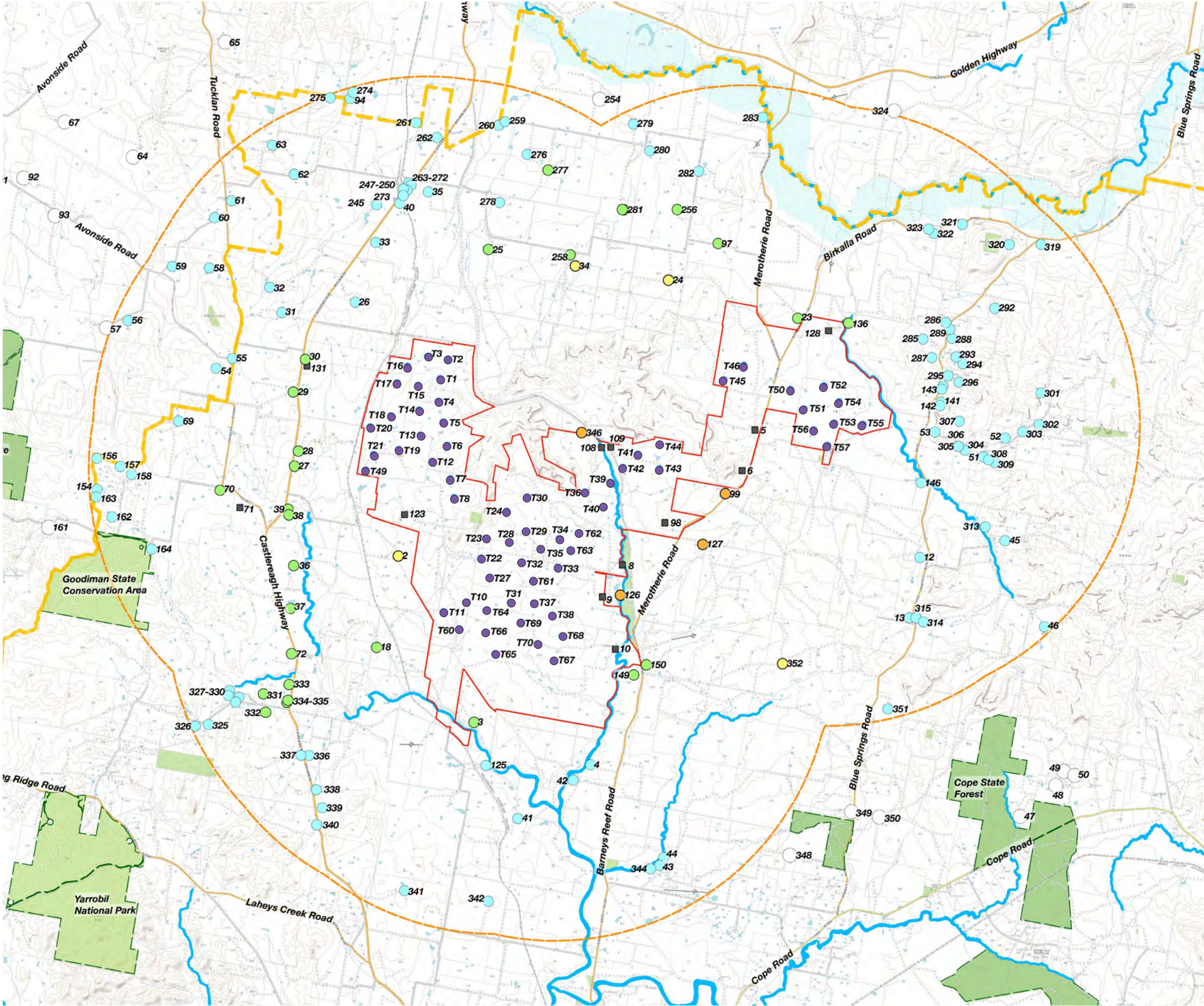
40 Non-involved dwellings within 3,750 m (Black Line)

43 Non-involved dwellings within 5,500 m (Blue Line)



Figure 6. Visual Magnitude - 2022 Layout (Map Source: Six Maps 2011)





# Multiple Wind Turbine Tool

## 2021 Layout

### LEGEND

- Project Boundary
- T22 Proposed Turbine Location
- 8,000 m from turbine
- Involved Dwelling
- Main Road
- Minor Road

### NUMBER OF 60° SECTORS WITH TURBINES:

- Dwelling in excess of 8,000 m
- One (1) 60 Degree Sectors
- Two (2) 60 Degree Sectors
- Three (3) 60 Degree Sectors
- Four (4) 60 Degree Sectors
- Five (5) 60 Degree Sectors
- Six (6) 60 Degree Sectors

### Results of Multiple Wind Turbine Tool:

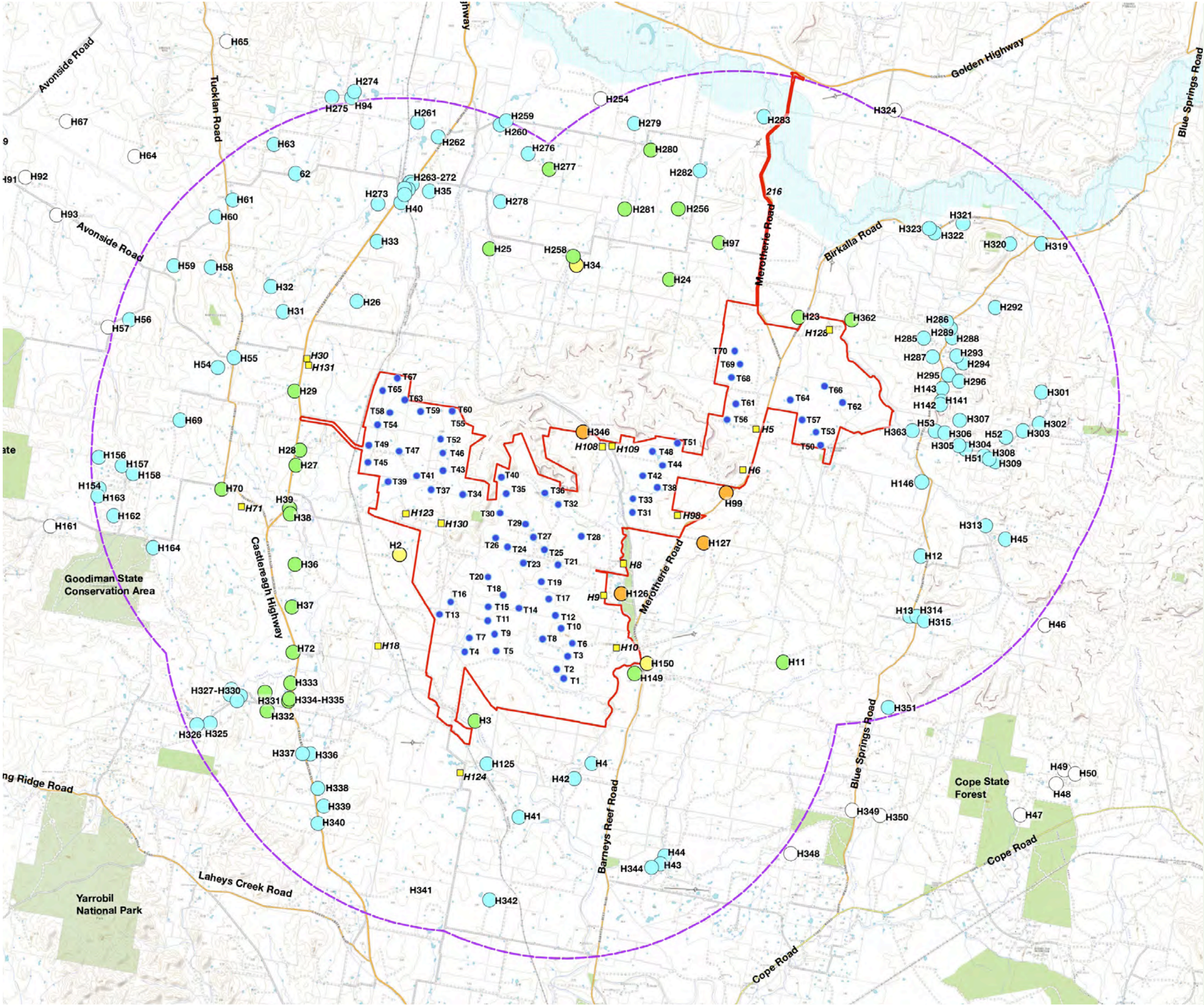
Three (3) 60 Degree Sectors =  
Four (4) Non-associated Dwellings

Four (4) 60 Degree Sectors =  
Four (4) Non-involved Dwellings



Figure 7. Multiple Wind Turbine Tool (2021 Layout) (Map Source: Six Maps 2011)





# Multiple Wind Turbine Tool

## 2022 Layout

LEGEND

- Project Boundary
- Proposed Turbine Location
- 8,000 m from turbine
- Involved Dwelling
- Main Road
- Minor Road

NUMBER OF 60° SECTORS WITH TURBINES:

- Dwelling in excess of 8,000 m
- One (1) 60 Degree Sectors
- Two (2) 60 Degree Sectors
- Three (3) 60 Degree Sectors
- Four (4) 60 Degree Sectors
- Five (5) 60 Degree Sectors
- Six (6) 60 Degree Sectors

Results of Multiple Wind Turbine Tool:

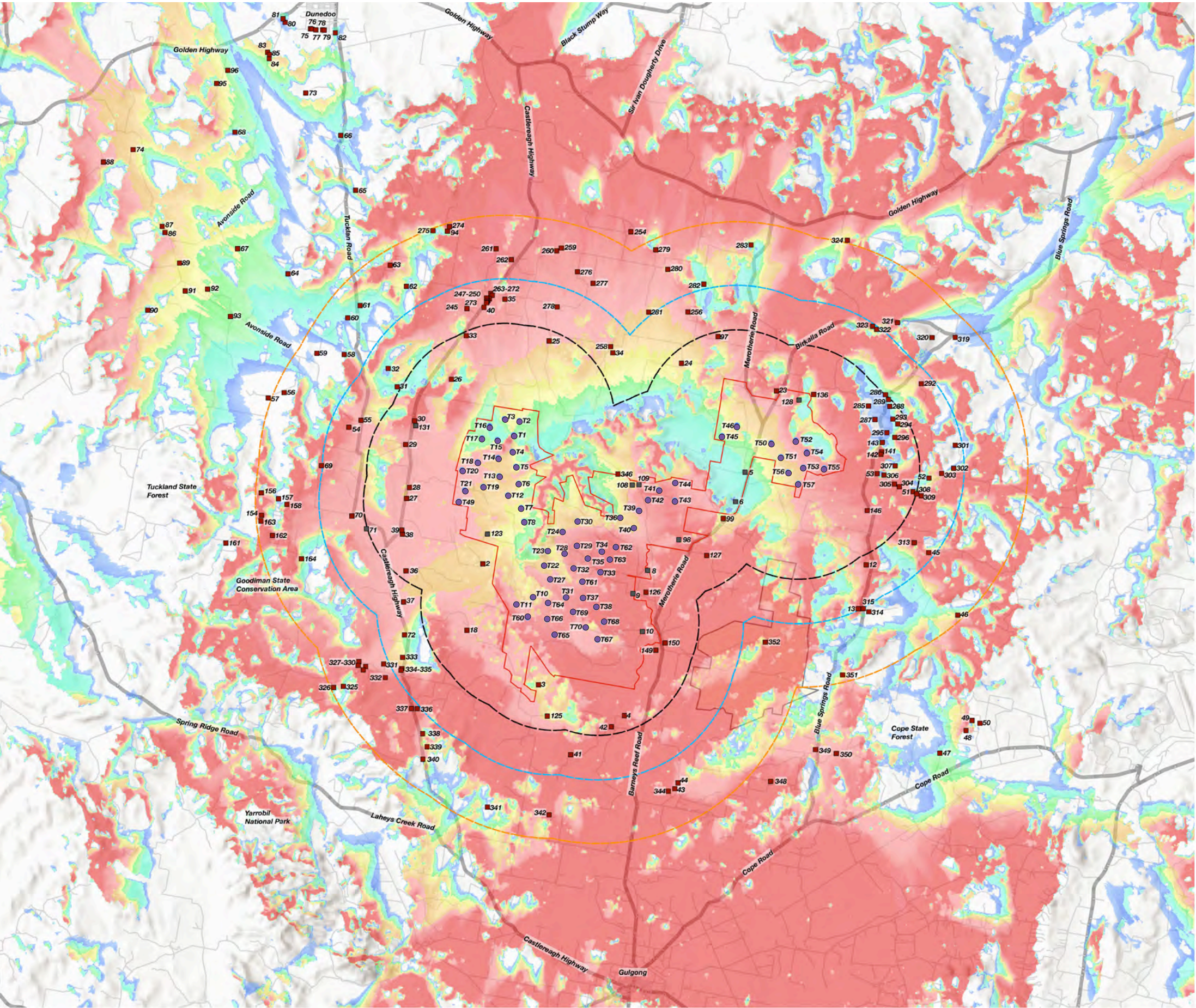
Three (3) 60 Degree Sectors =  
Three (3) Non-associated Dwellings

Four (4) 60 Degree Sectors =  
Four (4) Non-involved Dwellings

Figure 8. Multiple Wind Turbine Tool (2022 Layout) (Map Source: Six Maps 2011)







## Zone of Visual Influence

### 2021 Layout

#### LEGEND

- Project Boundary
- T22 Proposed Turbine Location
- 3,750 m from nearest turbine
- 5,500 m from nearest turbine
- 8,000 m from turbine
- Involved Dwelling
- Involved Dwelling
- Main Road
- Minor Road

Number of visible turbines (at blade tip height)  
(Based on topography alone):

- 0
- 1 - 9
- 10 - 19
- 20 - 29
- 30 - 39
- 40 - 49
- 50 - 63

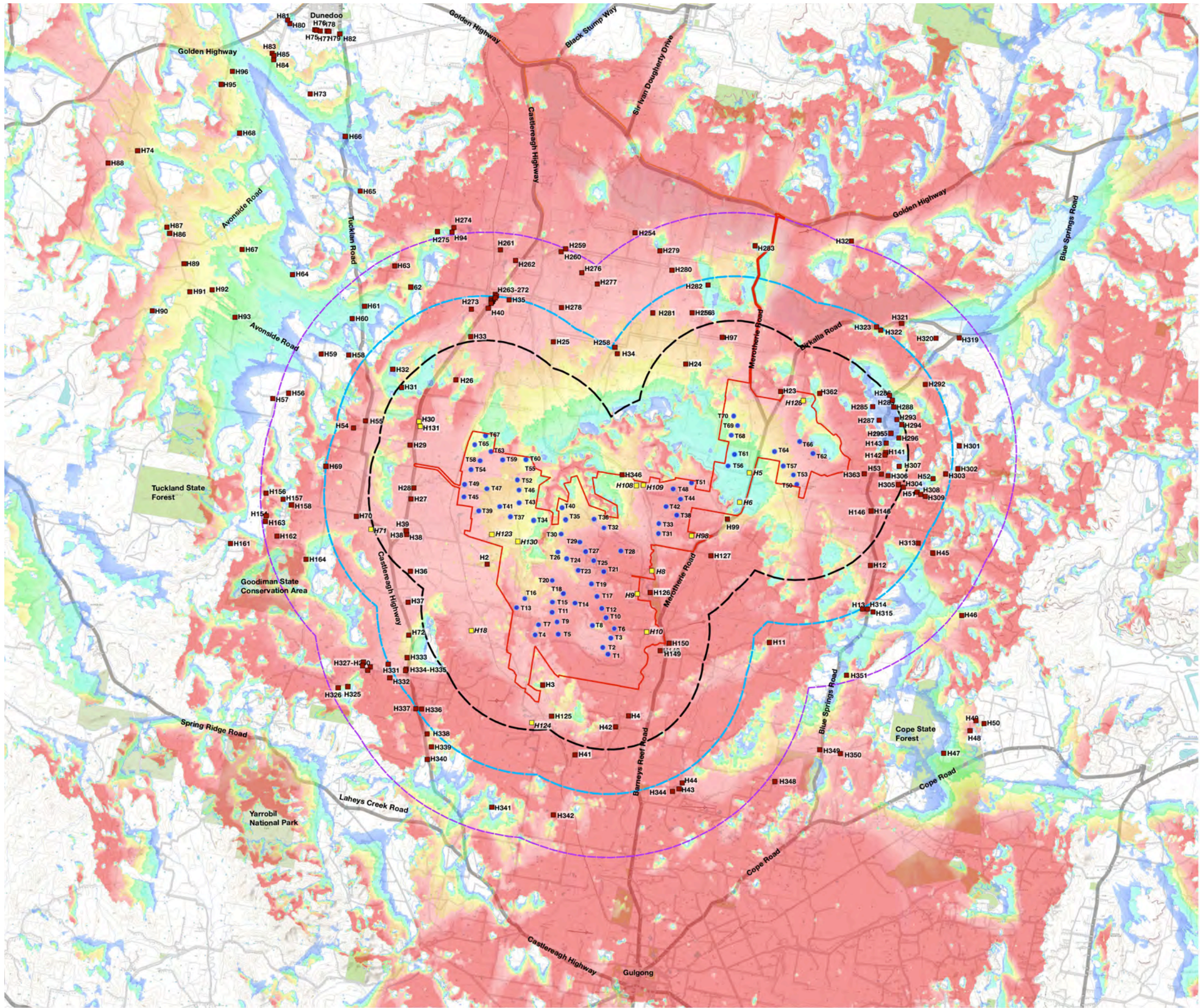
#### Note:

The ZVI is a preliminary assessment tool that represents a bare ground scenario - ie. a landscape without screening, structures or vegetation. As accurate information on the height and coverage of vegetation and buildings is unavailable, it is important to note the ZVI is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario.



Figure 0. Zone of Visual Influence (2021 Layout) (Map Source: Six Maps 2011)





## Zone of Visual Influence

### 2022 Layout

#### LEGEND

Project Boundary

Proposed Turbine Location

3,750 m from nearest turbine

5,500 m from nearest turbine

8,000 m from turbine

Involved Dwelling

Non involved Dwelling

Main Road

Minor Road

Number of visible turbines (at blade tip height)

(Based on topography alone):

0

1 - 10

11 - 22

22 - 33

34 - 45

46 - 57

58 - 68

#### Note:

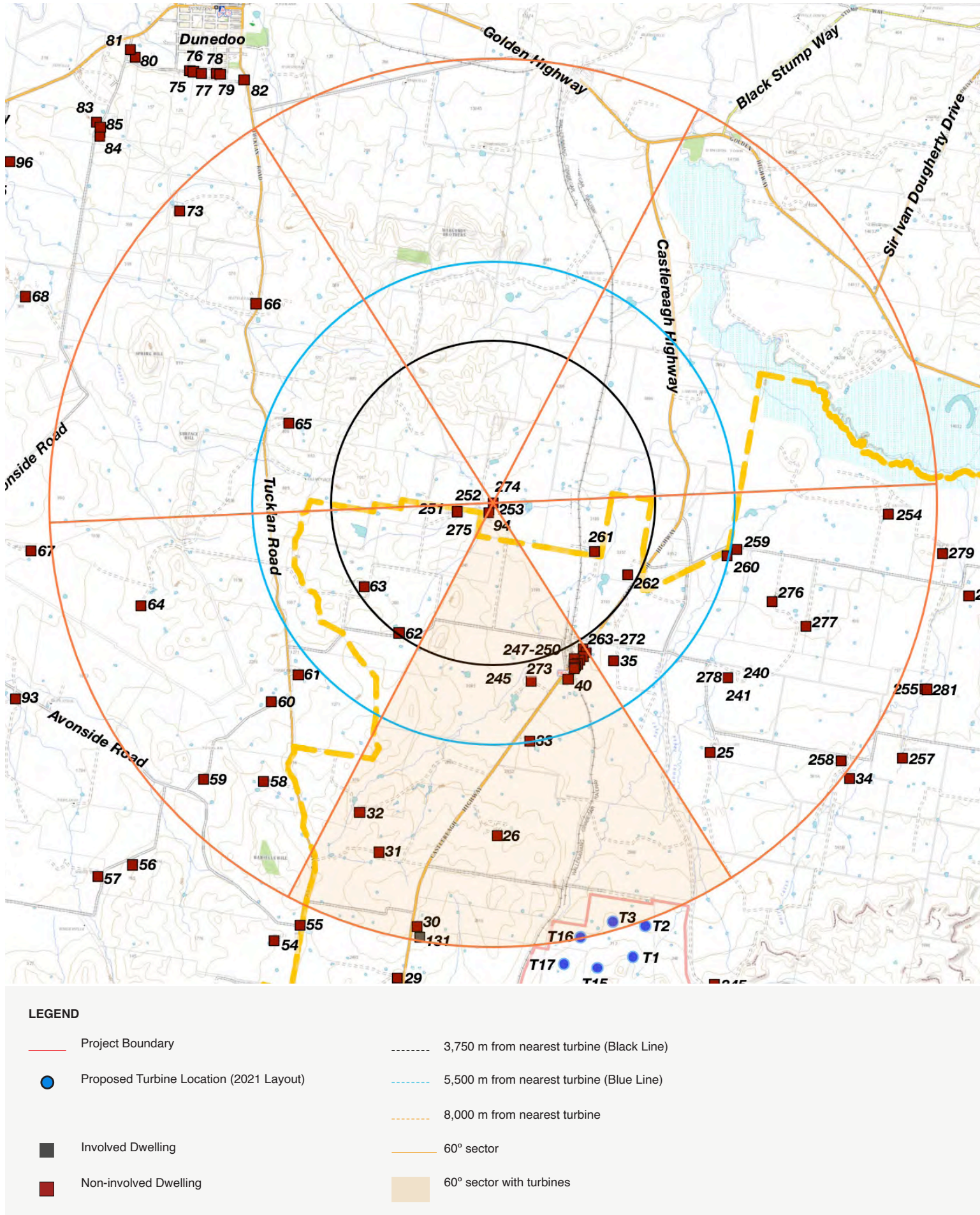
The ZVI is a preliminary assessment tool that represents a bare ground scenario - ie. a landscape without screening, structures or vegetation. As accurate information on the height and coverage of vegetation and buildings is unavailable, it is important to note the ZVI is based solely on topographic information. Therefore this form of mapping should be acknowledged as representing the worst case scenario.



Figure 10. Zone of Visual Influence (2022 Layout) (Map Source: Six Maps 2011)



A.1 Dwelling 274 Preliminary Assessment

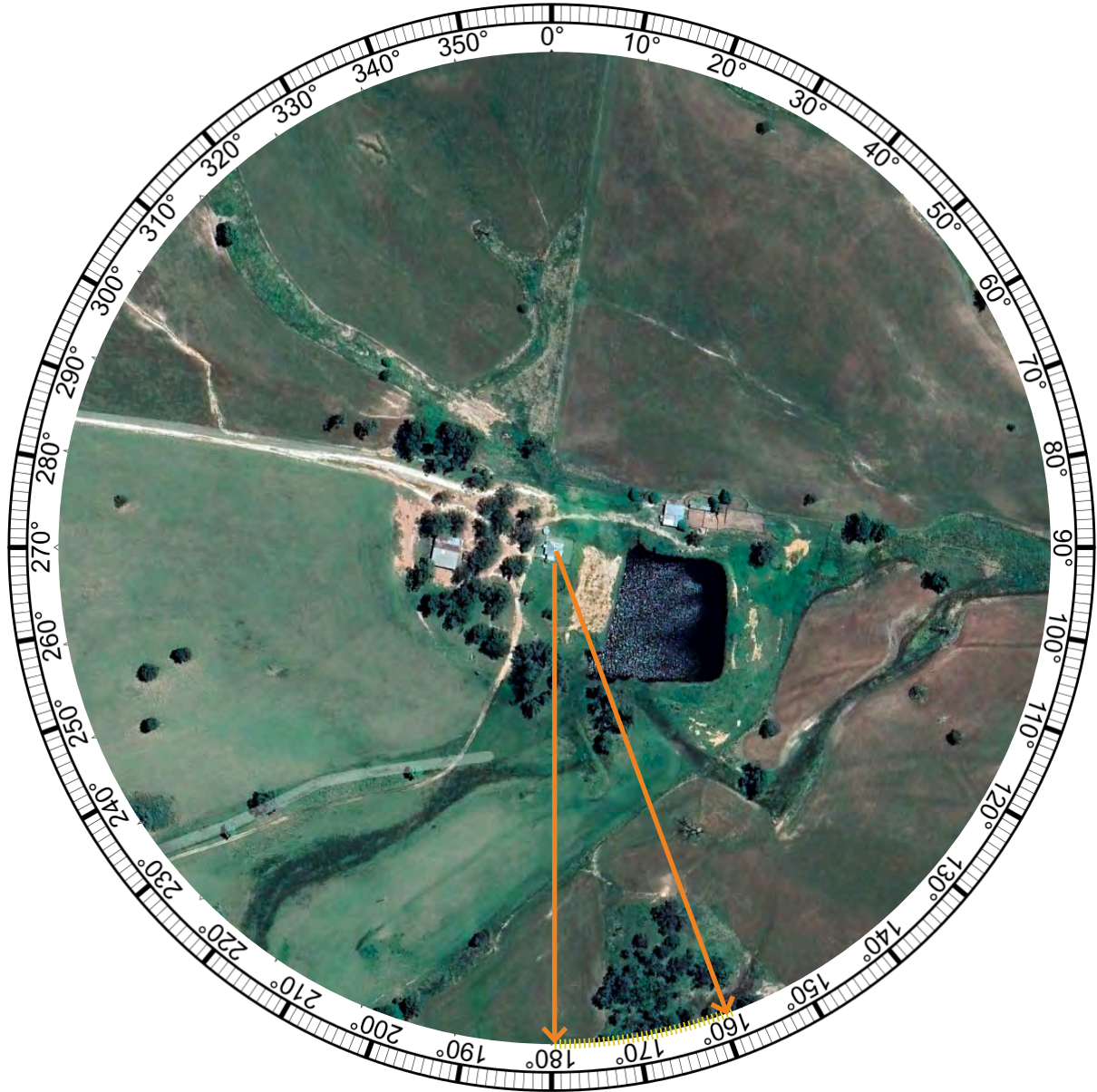
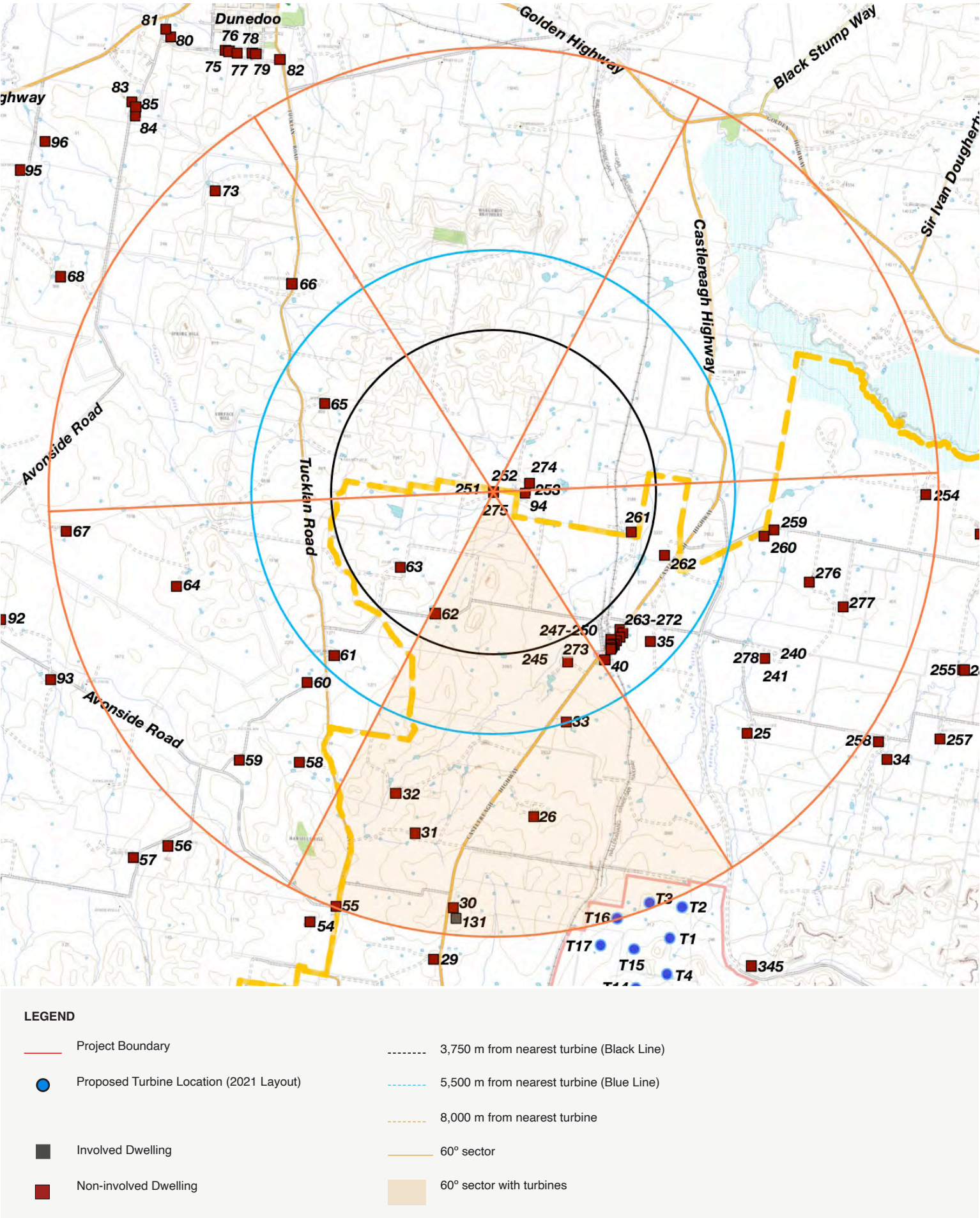


Aerial Image (Aerial Image Source: Google Earth)

| Summary of Preliminary Assessment Tools:                                   |               |
|--|---------------|
| Distance to Nearest Turbine (2021 Layout):                                 | 7.80 km (T3)  |
| Number of proposed turbines within Black Line (3,750 m) (2021 Layout):     | Nil           |
| Number of theoretical 60° sectors (Based on 2D assessment of 2021 layout): | 1 (Up to 60°) |



A.2 Dwelling 275 Preliminary Assessment

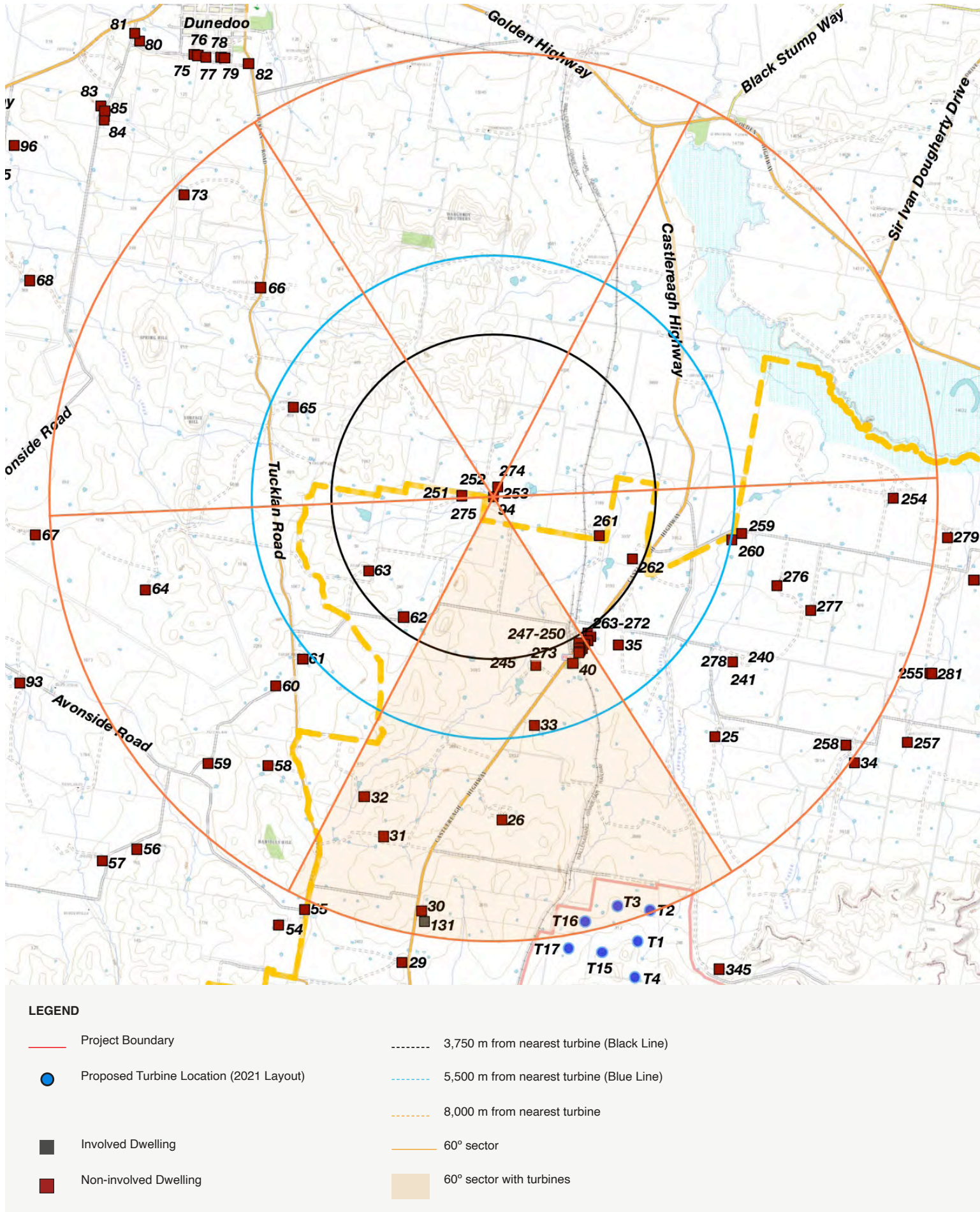


Aerial Image (Aerial Image Source: Google Earth)

| Summary of Preliminary Assessment Tools:                                   |               |
|--|---------------|
| Distance to Nearest Turbine (2021 Layout):                                 | 7.90 km (T3)  |
| Number of proposed turbines within Black Line (3,750 m) (2021 Layout):     | Nil           |
| Number of theoretical 60° sectors (Based on 2D assessment of 2021 layout): | 1 (Up to 60°) |



A.3 Dwelling 94 Preliminary Assessment

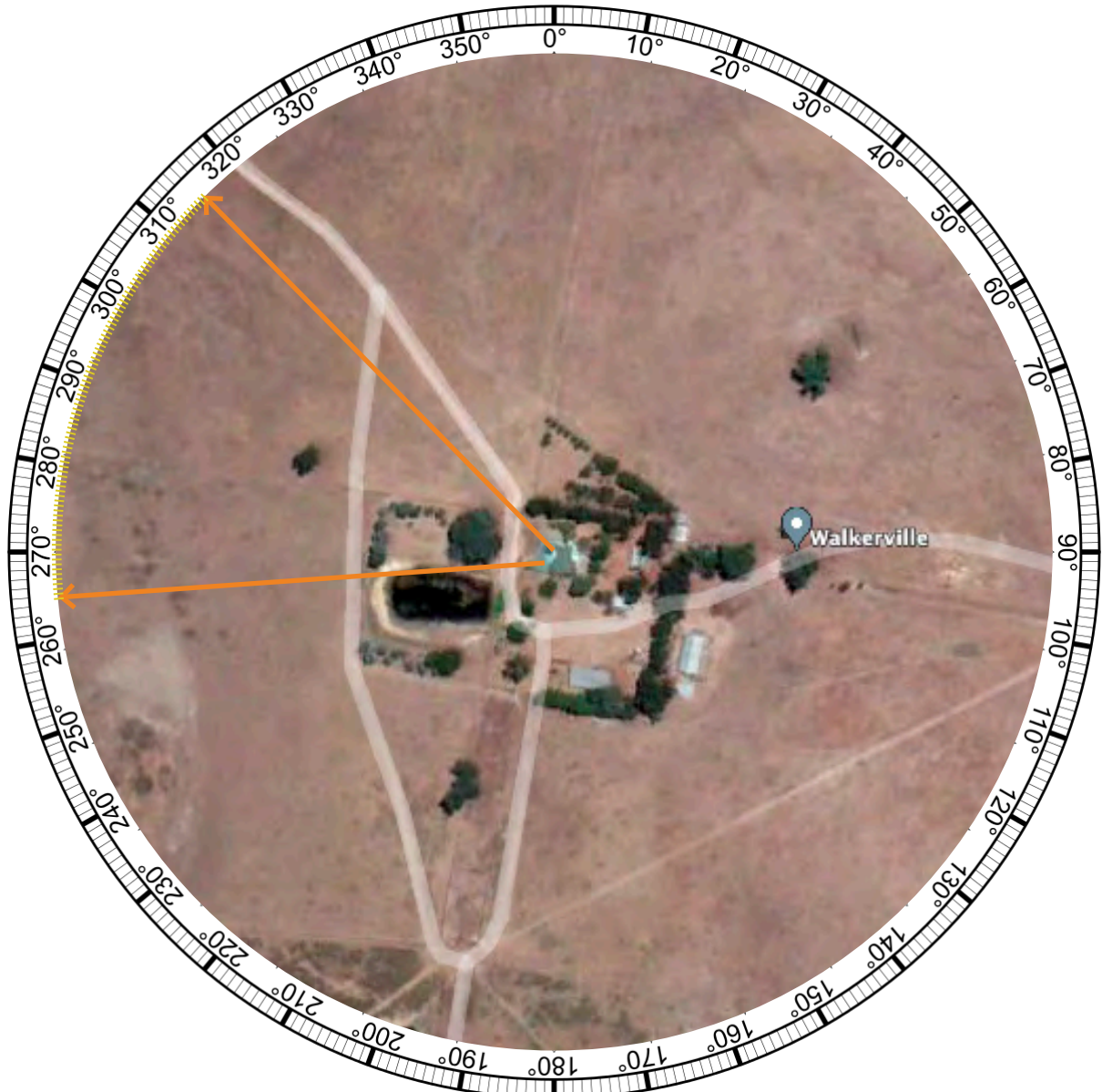
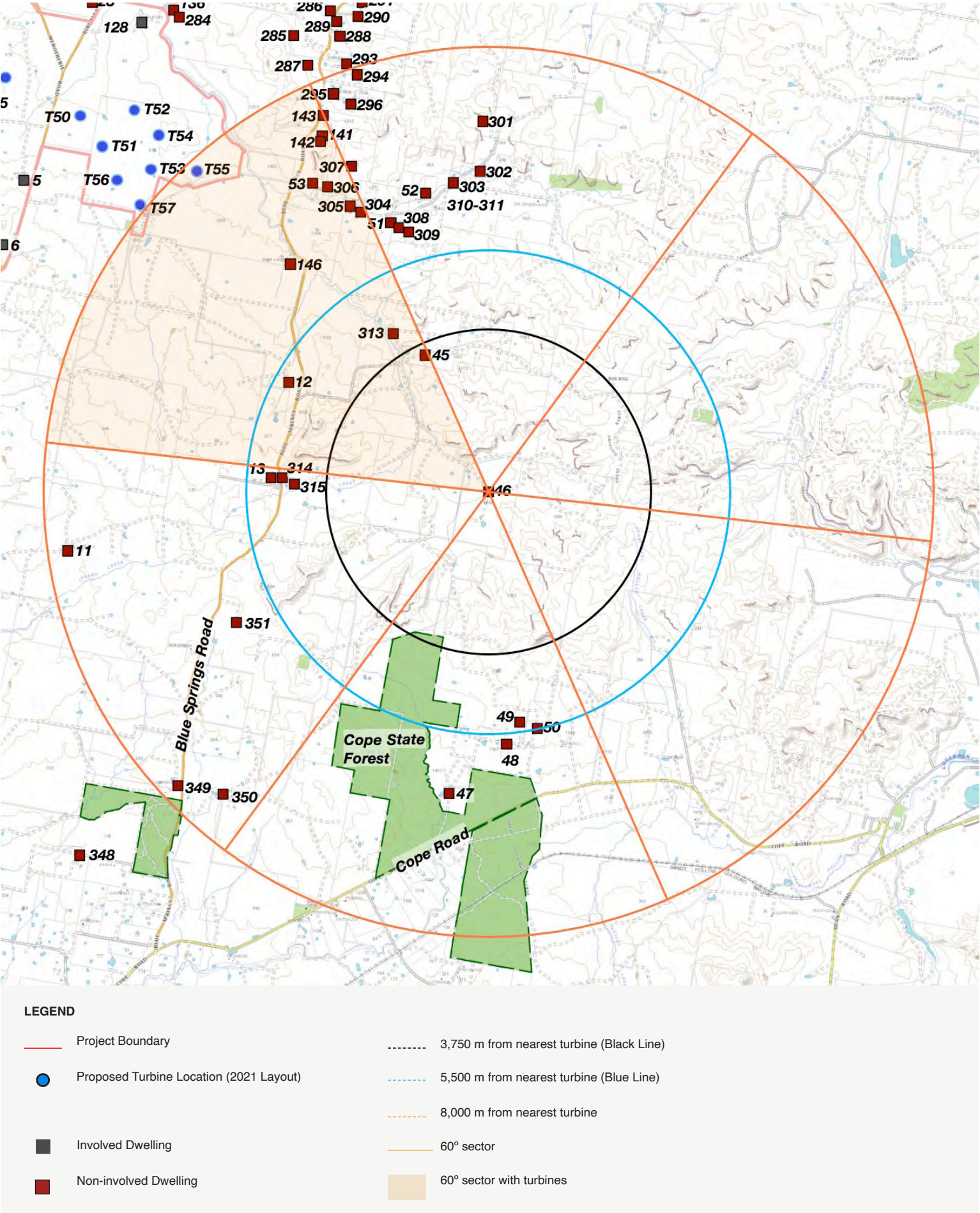


Aerial Image (Aerial Image Source: Google Earth)

| Summary of Preliminary Assessment Tools:                                   |               |
|--|---------------|
| Distance to Nearest Turbine (2021 Layout):                                 | 7.82 km (T3)  |
| Number of proposed turbines within Black Line (3,750 m) (2021 Layout):     | Nil           |
| Number of theoretical 60° sectors (Based on 2D assessment of 2021 layout): | 1 (Up to 60°) |



A.4 Dwelling 46 Preliminary Assessment



Aerial Image (Aerial Image Source: Google Earth)

| Summary of Preliminary Assessment Tools:                                   |               |
|--|---------------|
| Distance to Nearest Turbine (2021 Layout):                                 | 7.79 km (T55) |
| Number of proposed turbines within Black Line (3,750 m) (2021 Layout):     | Nil           |
| Number of theoretical 60° sectors (Based on 2D assessment of 2021 layout): | 1 (Up to 60°) |