

# *Bango Wind Farm*

Independent Planning Commission NSW  
Briefing

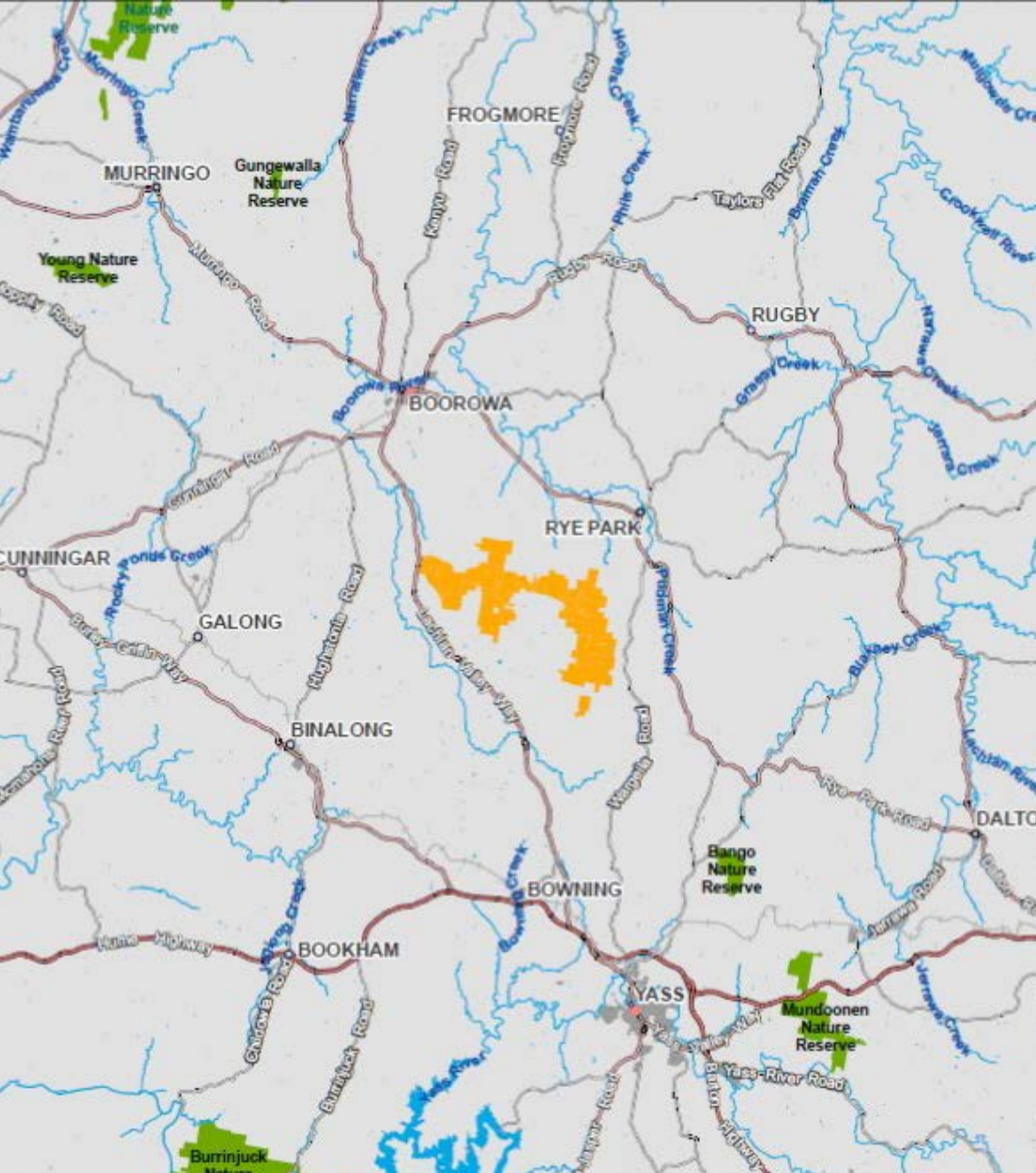
*Mike Young & Diana Mitchell*  
*March 2018*

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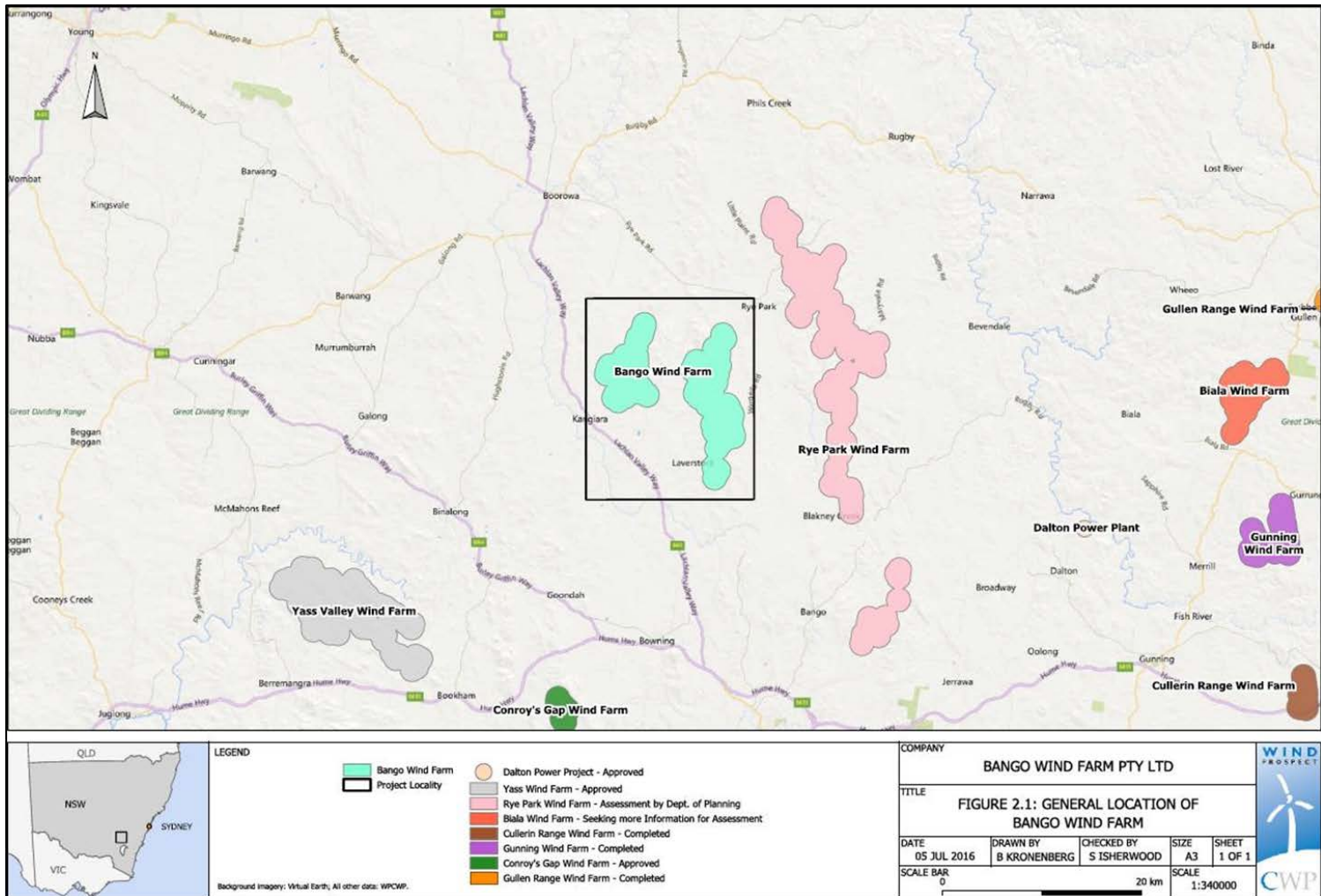
- 1. Project*
- 2. Context*
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- 4. Key Issues*
- 5. Summary*

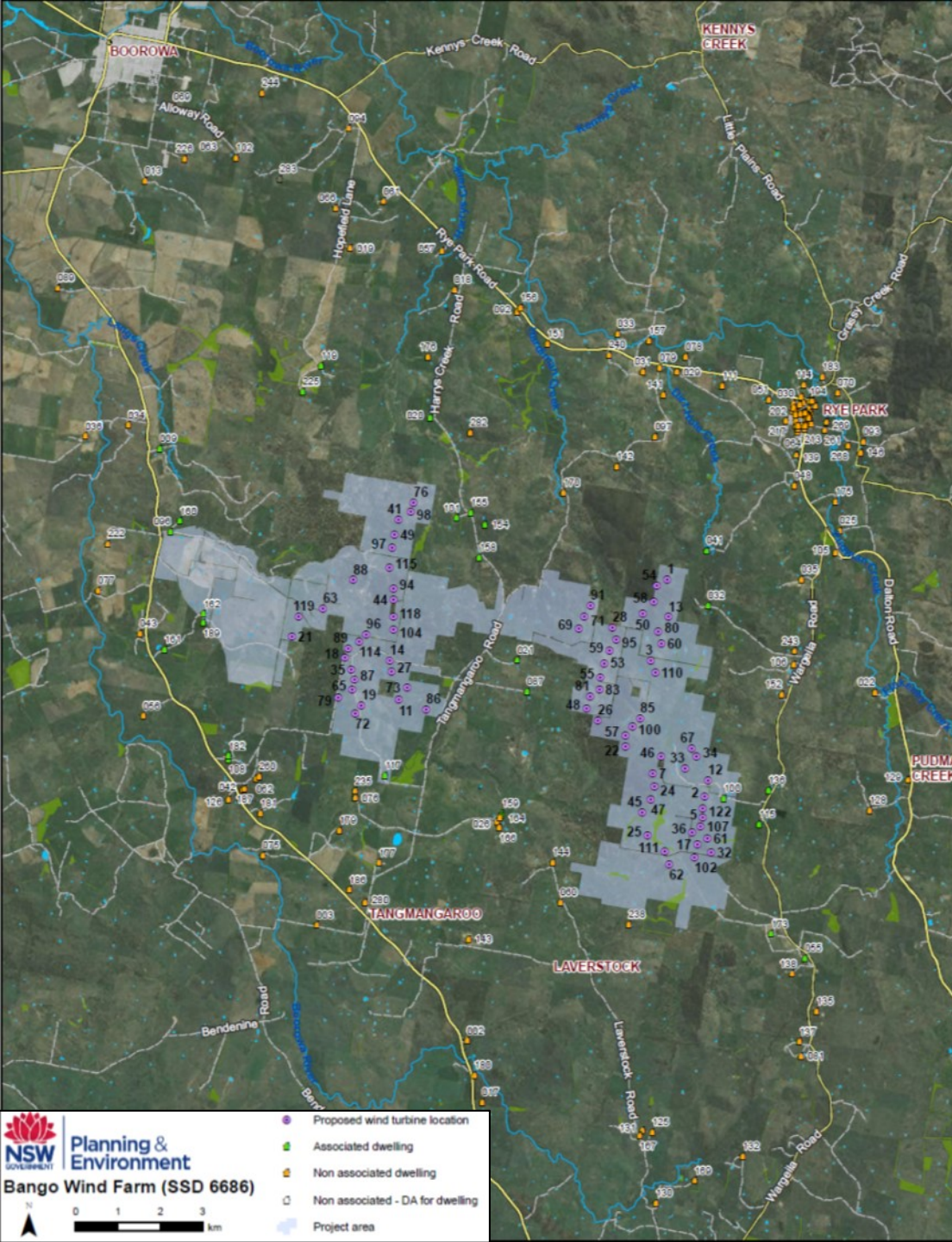
## Project Regional Context

- Southern Tablelands
- Hilltops Council & Yass Valley Council
- Between Yass and Boorowa
- Bango Nature Reserve
- Lachlan River Catchment



# Project Regional Context





## Project Local Setting

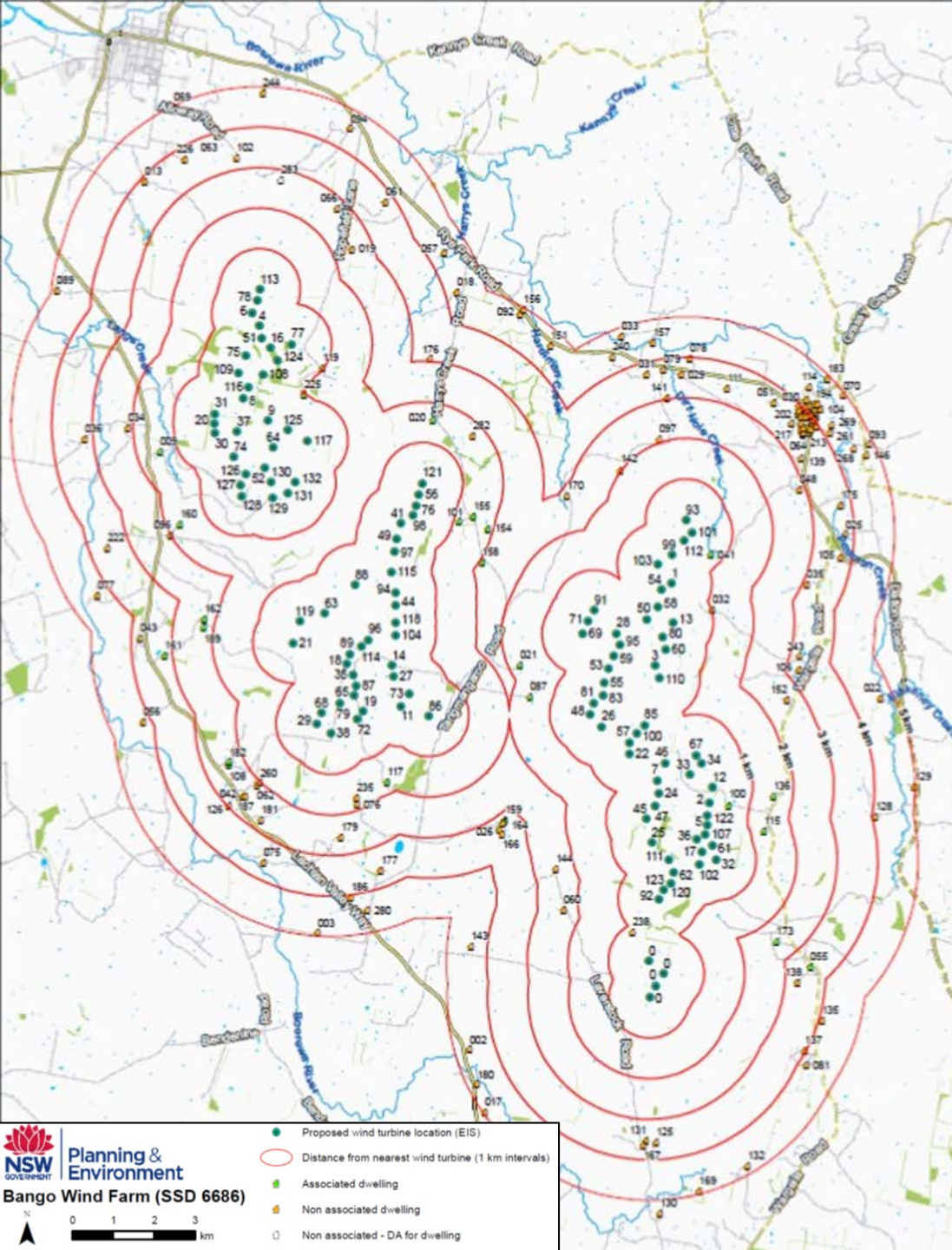
- 5 km southwest of Rye Park village
- 12 km southeast of Boorowa
- 132 kV transmission lines
- Residence located along Lachlan Valley Way, Tangmangaroo Road, Wargeila Road
- Agricultural grazing land with rolling hills and gentle ridgelines

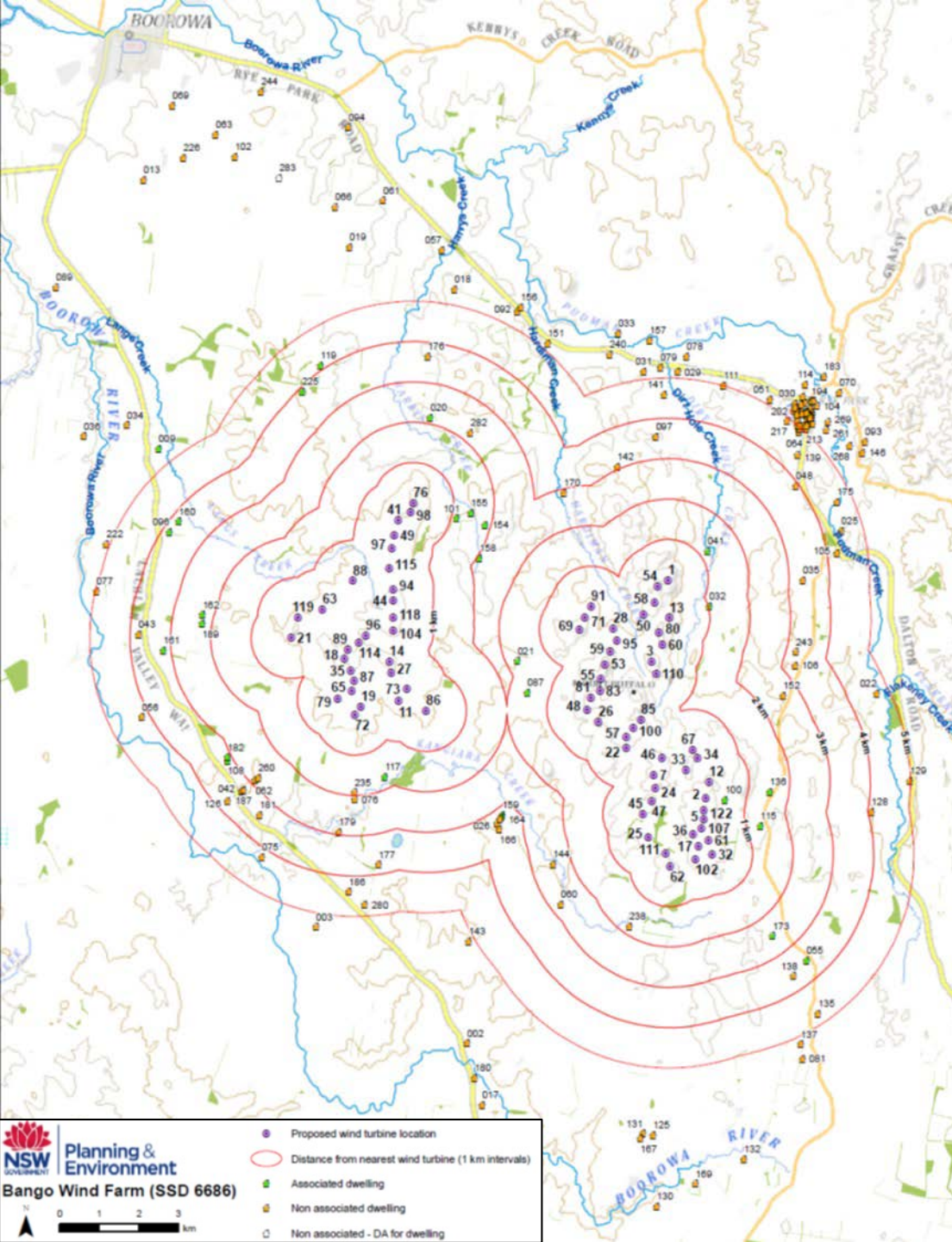
## Project Amendments

	EIS September 2016	Amended DA/RTS May 2017
Number of wind turbines	122	75
Length of high voltage overhead power line	9 km (up to 132kV)	5.5 km (up to 132 kV)
Number of site substations	2	2
Maximum tip height	200 m	200 m

## Project Original Layout

- 415 MW
- 122 turbines
- 3 clusters:
  - Langs Creek
  - Kangiara
  - Mt Buffalo
- 200 m tip height





## Project Revised Layout

- 255 MW
- 75 turbines
- 2 clusters:
  - Kangiara
  - Mt Buffalo
- 200 m tip height





## *Strategic Context*

- NSW Renewable Energy Action Plan
- NSW Wind Energy Framework
  - Visual Assessment Bulletin
  - Noise Assessment Bulletin

## *Statutory Context*

- State Significant Development
- Permissibility
  - Zoned RU1 – Primary Production
  - Permissible with consent under Boorow LEP 2012
  - Prohibited under Yass Valley LEP 2013
  - SEPP (Infrastructure) 2007
- Commonwealth approval

## *Project Benefits*

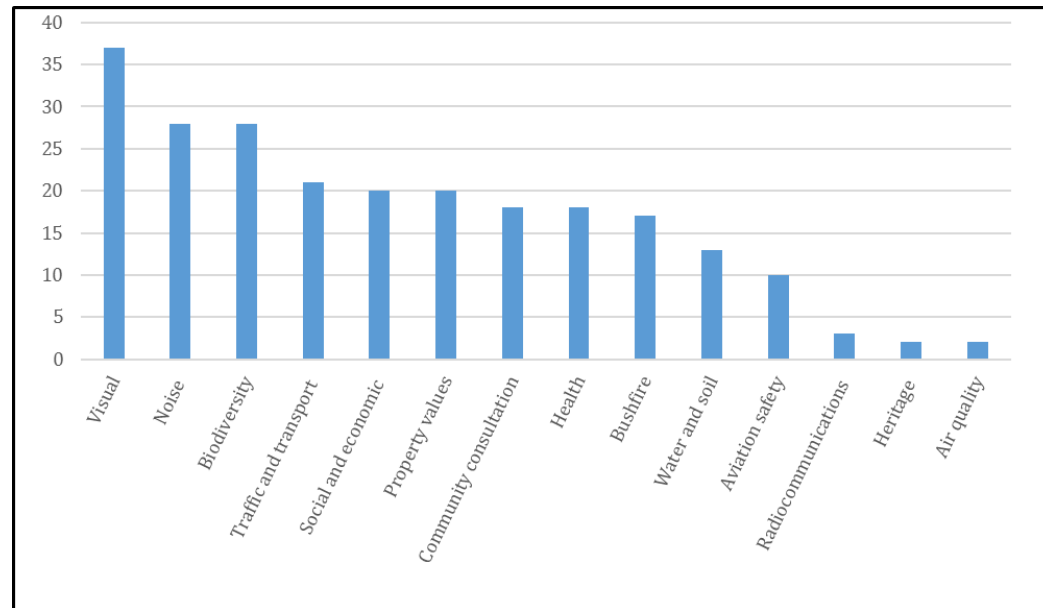
- 240 MW (71 turbines)
  - Generate 730 Gwh annually
  - Power 117,000 homes
- \$303 million capital investment value
- 160 construction jobs
- Community funding contributions up to \$200,575 a year

## *Department's Engagement*

- Community information session in Boorowa
- 3 site visits with independent visual expert
- 2 Community Consultative Committee (CCC) meetings
- Several interagency meetings
- Exhibited EIS from 27 September to 28 November 2016 (63 days)
- 101 submissions on EIS, including 51 objections

# Submissions

- 101 submissions (51 objections / 37 support / 13 comments)
  - 30 objections / 9 support from general public located < 5 km
  - 8 objections from general public located 5 – 10 km
  - 12 objections/ 25 support from general public located >10 km
- Key issues:



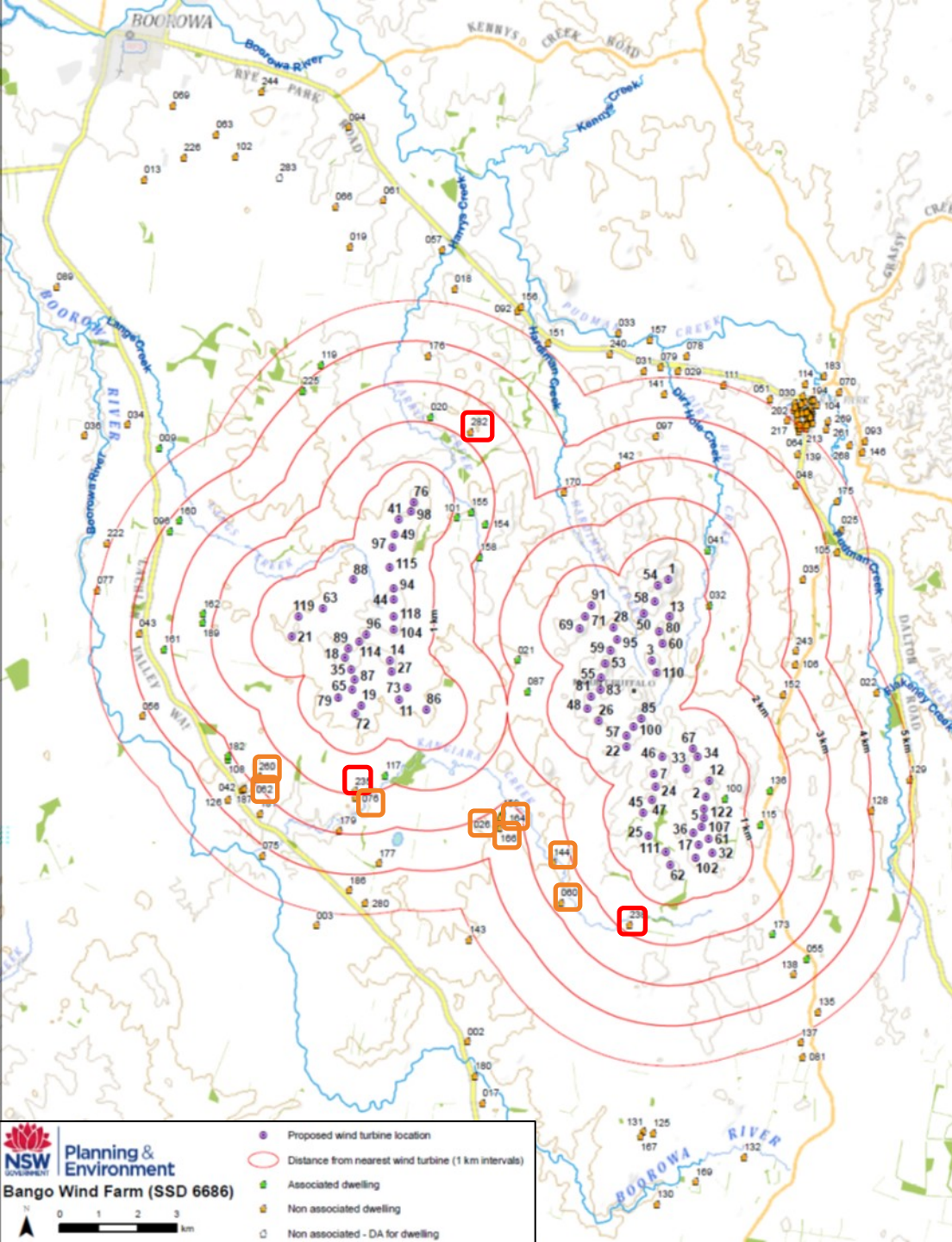
## *Key Issues*

- 1. Visual Impacts*
- 2. Noise Impacts*
- 3. Biodiversity Impacts*
- 4. Traffic and Transport Impacts*
- 5. Other*

## *Key Issues*

### *Visual Impacts – Landscape Values*

- The regional setting is **not** characterised by areas of high scenic value.
- No areas are zoned for recreation, tourism, environmental management or conservation.
- Surrounding area consists of undulating pastoral and agricultural landscape.



## Key Issues

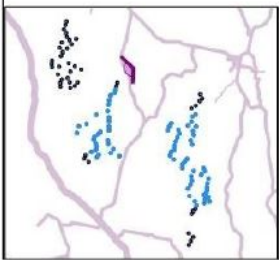
### Visual impacts - Residence

- **High** impacts:
  - 282
  - 235
  - 238
- **Medium/high** impacts:
  - 62, 76, 260
  - 26, 165, 166
  - 60, 144



# Wireframe

## Residence 282 (High)



### BANGO WIND FARM: BAN282 LEMBIT

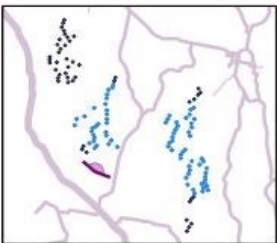
Grid reference: 666684E 6178400N  
Viewpoint elevation: 574 m AHD  
Camera height: 2 m

Turbine blade tip height: 200 m  
View direction: 247°  
Included angle: 130°  
Distance to nearest turbine: 2.2 km



# Wireframe

## Residence 235 (High)



### BANGO WIND FARM: PM13 LAVERSTOCK COTTAGE

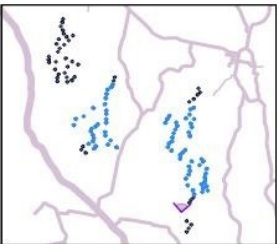
Grid reference: 663849E 6169495N  
Viewpoint elevation: 570 m AHD  
Camera height: 1.7 m  
Date/time photograph taken: 02/05/2013 11.15 am

Turbine blade tip height: 200 m  
View direction: 29°  
Included angle: 155°  
Distance to nearest turbine: 1.9 km  
Viewing distance: 150 mm



# Wireframe

## Residence 238 (High)



### BANGO WIND FARM: PM22 BROOKDALE

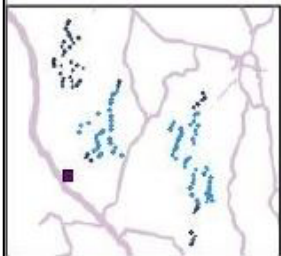
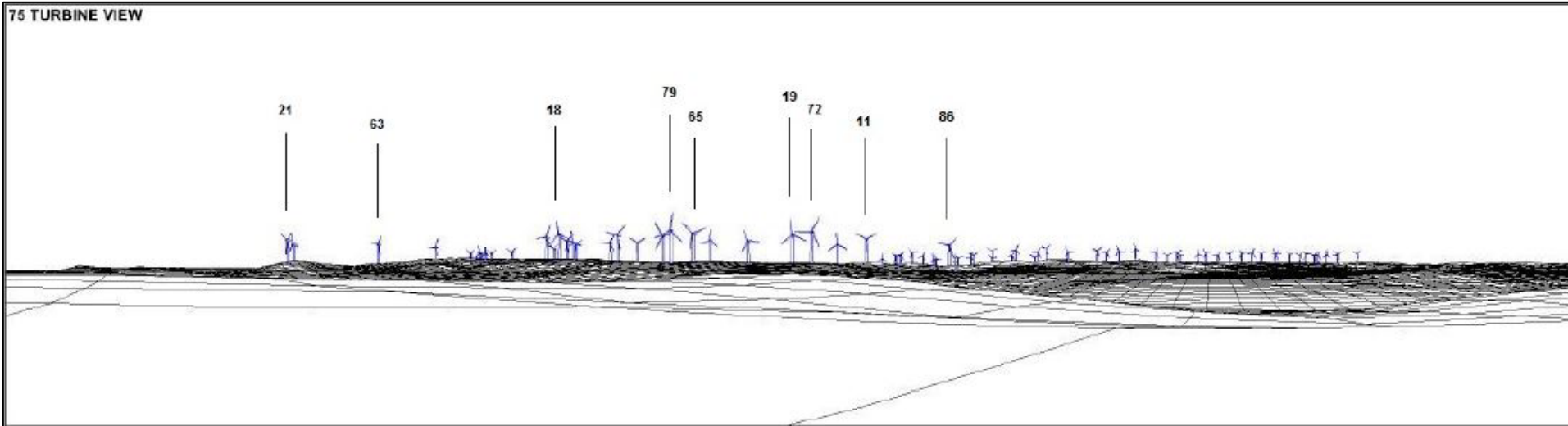
Grid reference: 670661E 6166182N  
Viewpoint elevation: 638 m AHD  
Camera height: 1.7 m  
Date/time photograph taken: 26/09/2012 10.30 am

Turbine blade tip height: 200 m  
View direction: 5°  
Included angle: 116°  
Distance to nearest turbine: 1.8 km  
Viewing distance: 200 mm



# Wireframe

## Residence 260 (Medium/high)



### BANGO WIND FARM: BAN260 SHAW

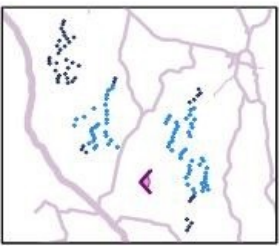
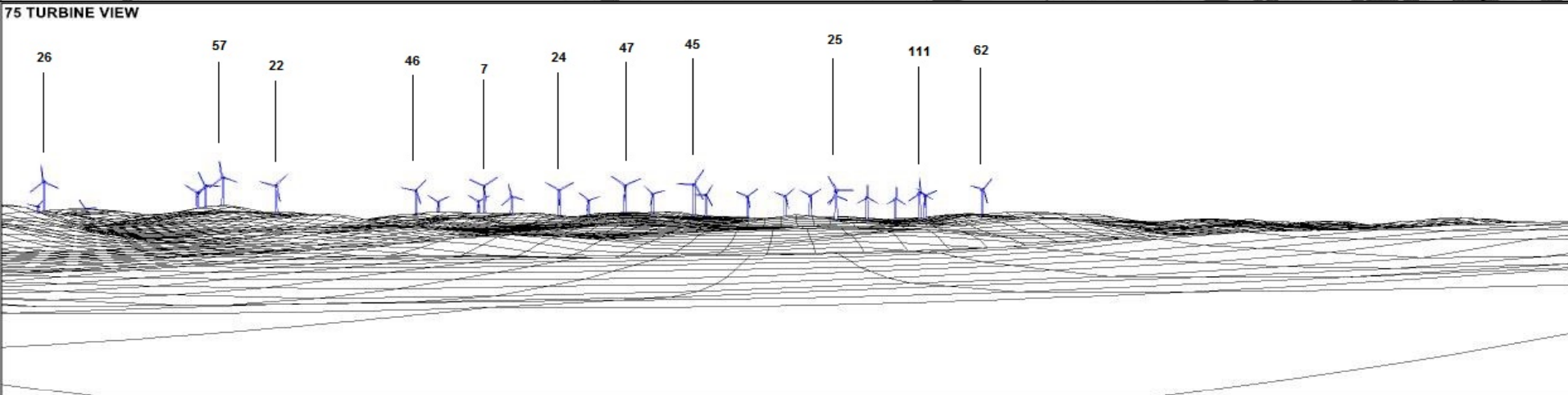
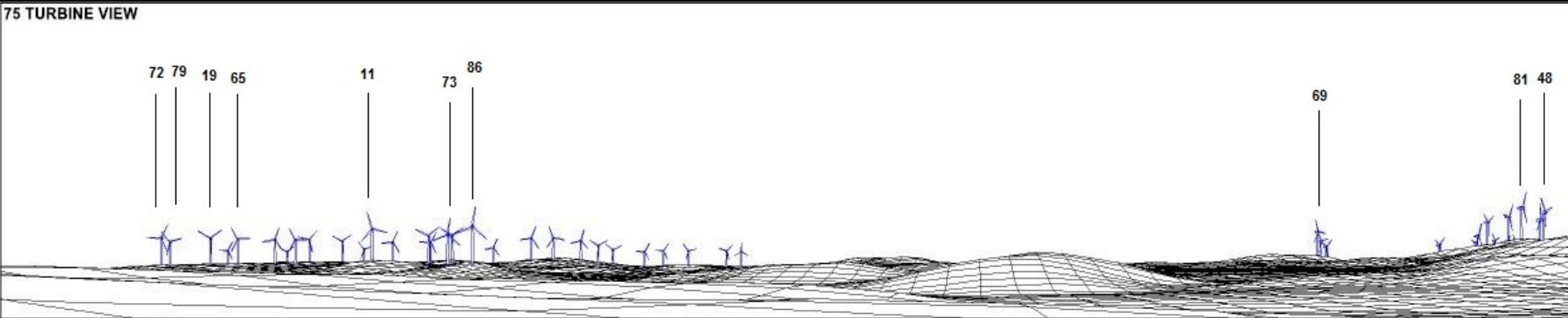
Grid reference: 661456E 6169844N  
Viewpoint elevation: 602 m AHD  
Camera height: 2 m

Turbine blade tip height: 200 m  
View direction: 55°  
Included angle: 130°  
Distance to nearest turbine: 2.8 km



# Wireframe

## Residence 166 (Medium/high)



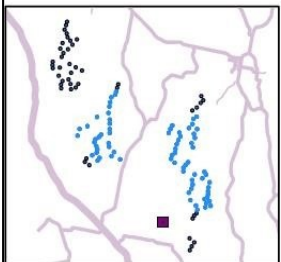
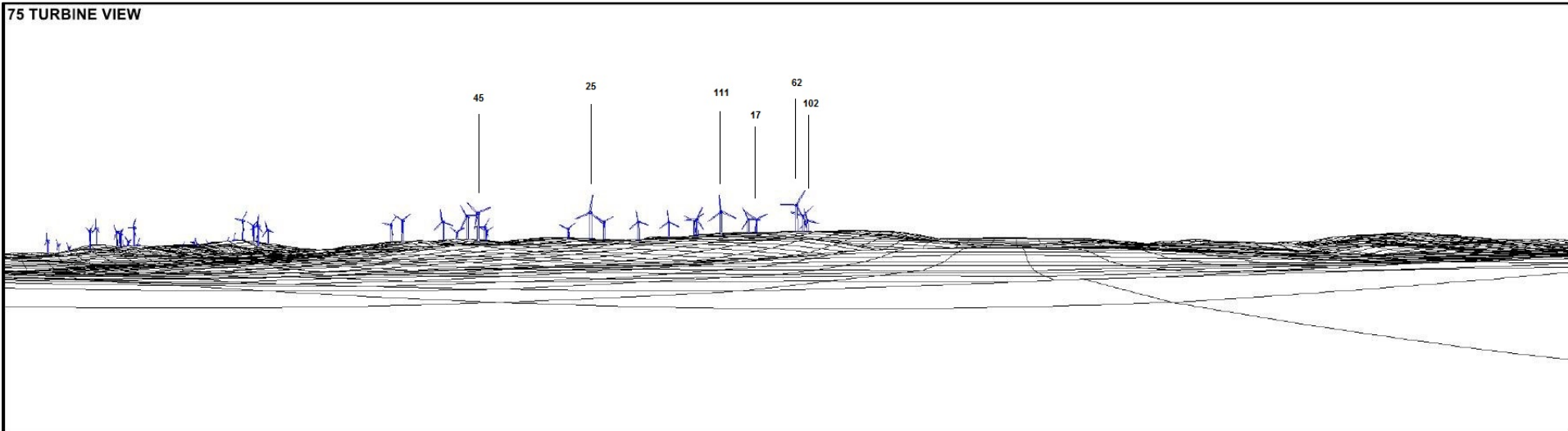
### BANGO WIND FARM: BAN166 RONEA PARK (RIGHT VIEW)

Grid reference: 667439E 6168579N  
Viewpoint elevation: 595 m AHD  
Camera height: 2 m

Turbine blade tip height: 200 m  
View direction: 90°  
Included angle: 100°  
Distance to nearest turbine: 3.4 km

# Wireframe

## Residence 60 (Medium/high)



### BANGO WIND FARM: BAN060 MONTALTA

Grid reference: 668961E 6166710N  
Viewpoint elevation: 608 m AHD  
Camera height: 2 m

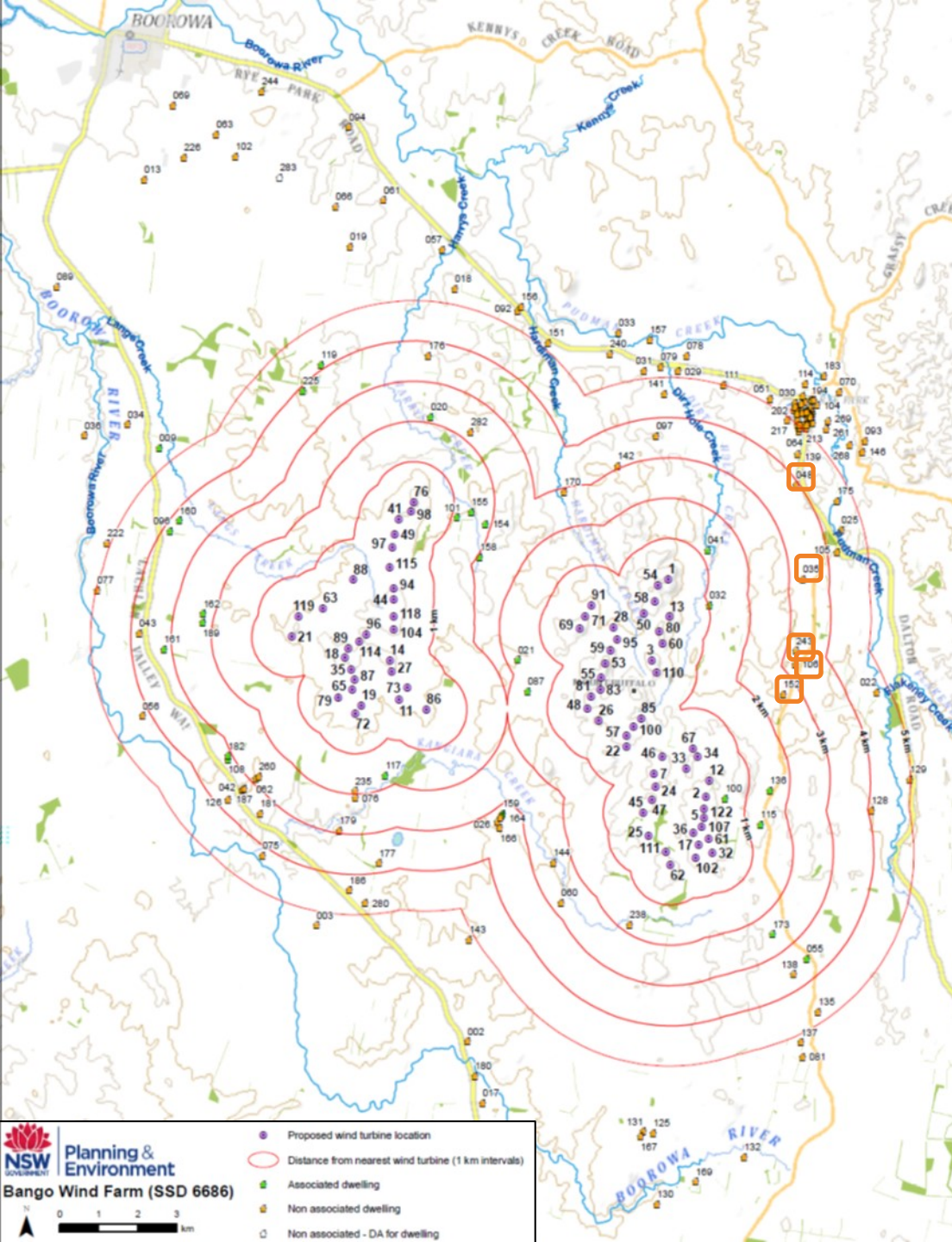
Turbine blade tip height: 200 m  
View direction: 70°  
Included angle: 140°  
Distance to nearest turbine: 2.7 km



# Key Issues

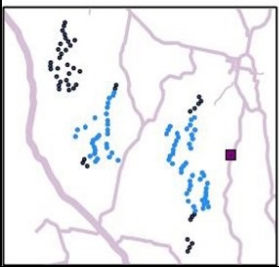
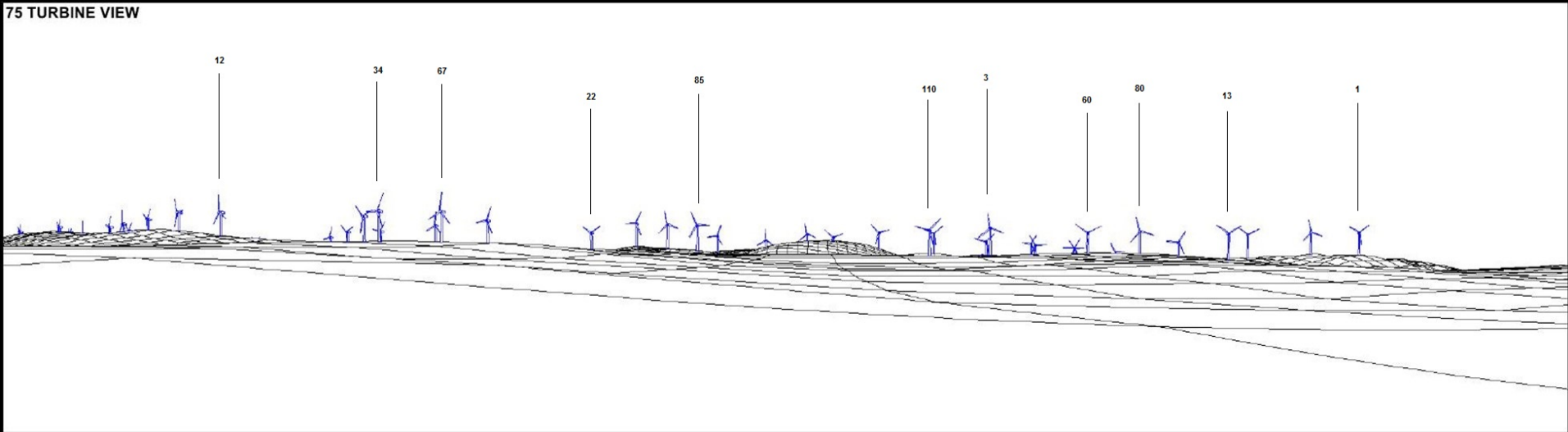
## Cumulative Visual Impacts – Rye Park Wind Farm

- **Medium/high impacts:**
  - 48
  - 35
  - 106, 152, 243



# Wireframe

## Residence 152 (Medium/high)



### BANGO WIND FARM: BAN152 EVERSLEIGH

Grid reference: 674474E 6171887N  
Viewpoint elevation: 594 m AHD  
Camera height: 2 m

Turbine blade tip height: 200 m  
View direction: 267°  
Included angle: 130°  
Distance to nearest turbine: 2.6 km





## Key Issues

### Visual Impacts – Recommended Mitigation

- Residence **282**:
  - Visual agreement for 2 turbines (76, 88)
- Residence **62, 76, 235, 260**:
  - Remove 4 turbines in southern Kangiara cluster (19, 65, 72, 79)
- Residence **26, 60, 144, 165, 166, 238**:
  - Visual impact mitigation measures
- Residence **35, 48, 106, 152, 243**
  - Visual impact mitigation measures
- All non-associated residence within 4 km:
  - Visual impact mitigation measures

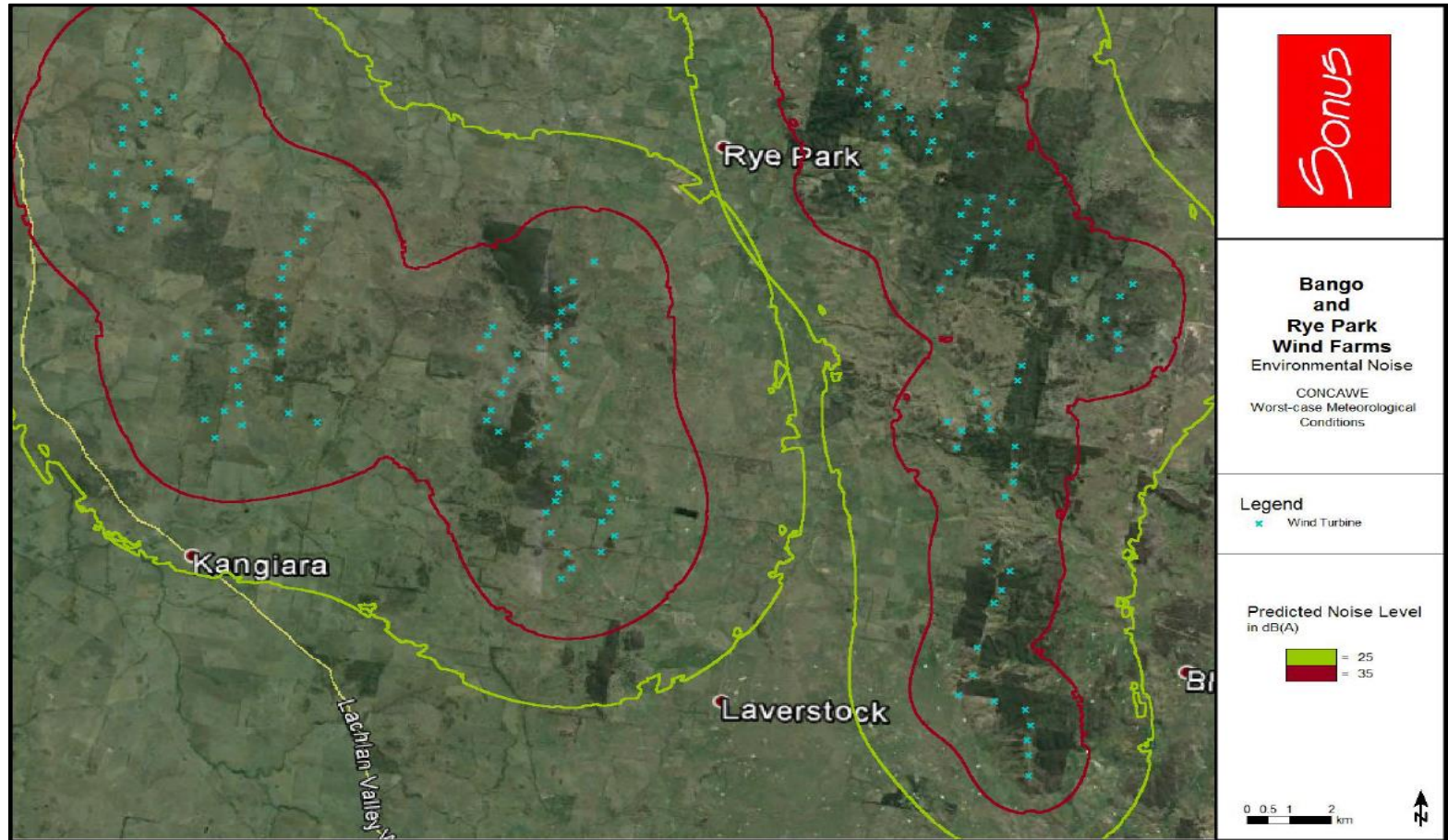
## *Key Issues*

### *Noise Impacts - Operational*

- Conservative modelling
- Residence 238 would exceed the criterion by 2 dB at wind speeds of 9 m/s and 10 m/s
- Exceedance could be mitigated through noise management mode or sector management
- EPA is satisfied compliance could be achieved at residence 238
- Operational noise monitoring
- No cumulative impacts with Rye Park Wind Farm

# Key Issues

## Noise Impacts – Operational



## *Key Issues*

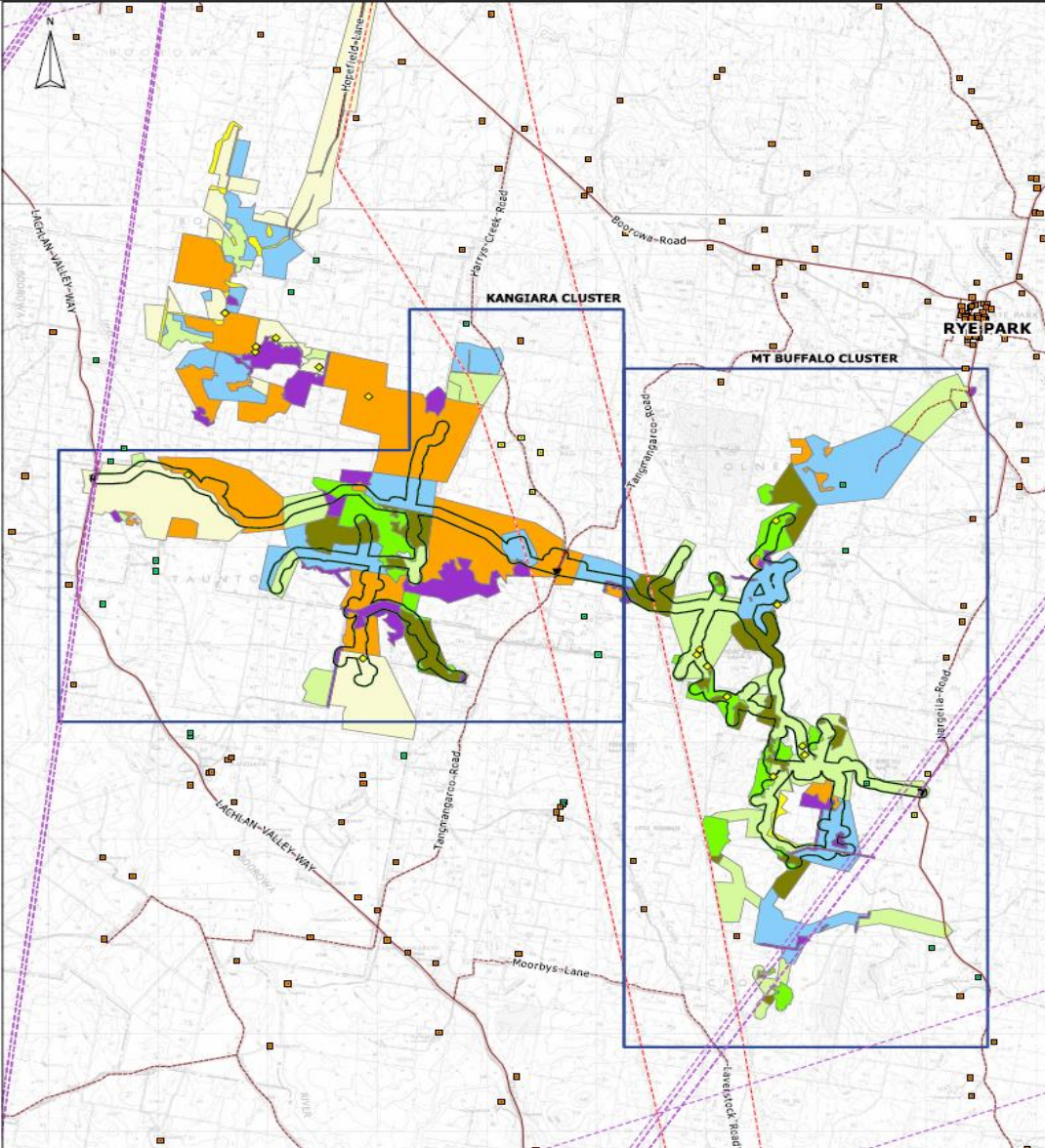
### *Noise Impacts - Construction*

- Temporary construction works
  - Nearest non-associated residence is 1.8 km away
  - No exceedance of 'highly noise affected criterion' (75 dB(A))
  - Minor temporary exceedance of 'noise affected criterion' (40 dB(A)) at 17 non-associated residences
- Construction traffic
  - 18 month construction period
  - 4 month peak construction period
- Noise mitigation for construction related traffic

# Key Issues

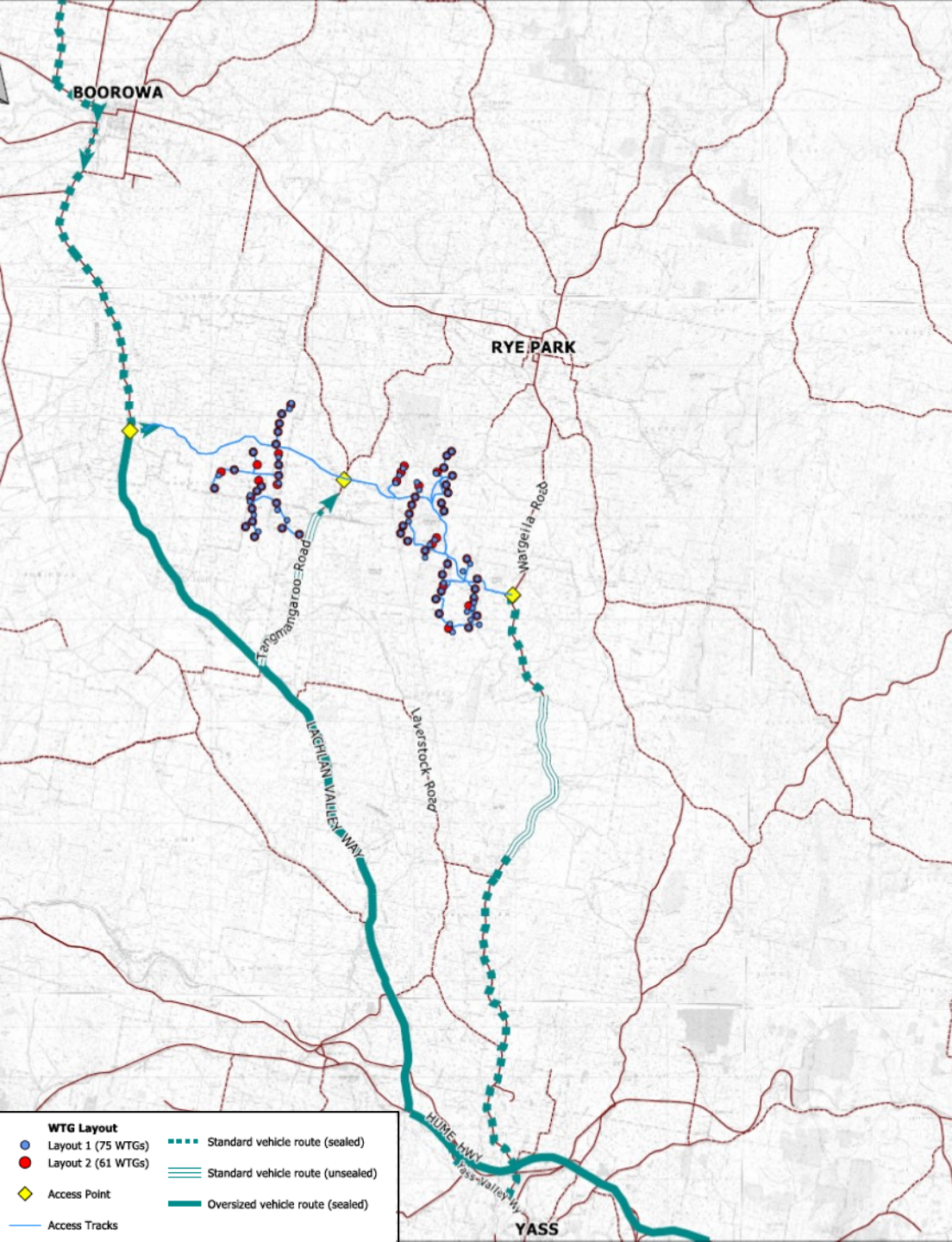
## Biodiversity Impacts

- 126.5 ha of native vegetation, largely grassland
  - Removal of Langs Creek Cluster decreased impacts on native vegetation by ~50 ha
  - Superb Parrot
  - Revision of transport route
- Micro-siting of turbines
- Biodiversity Management Plan
- Bird and Bat Adaptive Management Plan
- Offset in accordance with Framework for Biodiversity Assessment
  - Box Gum Woodland
  - Golden Sun Moth
  - Little Eagle
  - Spotted Harrier



LEGEND		EXISTING INFRASTRUCTURE	
<b>Ecological Communities</b>		Unsealed Road	Involved Residence
Box Gum Woodland - Low	Cropping	Sealed Road	Neighbour Residence
Box Gum Woodland - Medium	Pasture	132 kV Transmission Line	Non-Involved Residence
Box Gum Woodland - High	Planted Native Vegetation		
Box Gum Woodland - Poor	Archaeological Survey Unit		
Red Stringybark - Low	2nd Fresnel Zone Buffer		
Red Stringybark - Mod_Good	Study Area		
	Cluster		

COMPANY			
BANGO WIND FARM PTY LTD			
TITLE			
LAYOUT OPTION 1, CONSTRAINTS			
DATE	DRAWN BY	CHECKED BY	SIZE SHEET
27 APR 2017	B KRONENBERG	K OLD	A3 1 OF 1
SCALE BAR		SCALE	
		1:73000	



## Key Issues

### Traffic and Transport Impacts

- One over-dimensional and heavy vehicle site access point
- Road upgrades agreed with Councils:
  - Lachlan Valley Way
  - Tangmangaroo Road
  - Wargeila Road
- Dilapidation Surveys
- Traffic Management Plan



## *Other Issues*

- Heritage
- Aviation safety
- Bushfire safety
- Mineral resources





Questions?