



WIND

UUNGULA WIND FARM (SSD-6687)

Response to Request for Additional Information

15 March 2021

Version 1
Author CWP Renewables Pty Ltd
Client Uungula Wind Farm Pty Ltd

REVISION CONTROL

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Introduction

This document has been prepared by CWP Renewables Pty Ltd (CWPR) on behalf of Ungula Wind Farm Pty Ltd (UWF) in response to two Requests for Additional Information (RFIs) made by the NSW Department of Planning, Industry and Environment (DPIE) regarding the Ungula Wind Farm ('the Project') development application and environmental impact assessment (SSD-6687). The RFIs were made subsequent to the first RFI dated 18 December 2020. The document is referred to throughout as 'Additional RFIs response'.

Requests for Additional Information

The DPIE issued two RFIs ('Additional RFIs') subsequent to the first RFI which was dated 18 December 2020. The RFI dated 11 February 2020 requested the following additional information:

- a list of all neighbour agreements;
- identify all receivers and assess impacts on all non-associated receivers in proximity to the site, including approved development applications; and
- a consolidated set of photomontages and wireframes (where required), and consolidated table of visual impact ratings, from potentially impacted non-associated receivers.

The RFI dated 25 February 2020 requested the following additional information:

- Noise:
 - Provide a table of non-associated residences with potential construction noise exceedances that outlines the expected construction noise levels including the distance from, type of, and duration of construction activity – including traffic noise);
- Battery Storage (ESF):
 - Confirm MWh capacity of the ESF (understood to be 150MWh)
 - Provide a copy of the Preliminary Hazard Assessment (PHA) referenced in the Executive Summary and Section 8.6.7 of EIS Main Report
- Biodiversity:
 - Further justify PCT selection and attribution to vegetation zones
 - Further justify the determination that vegetation zones are not equivalent with the State listed representation of certain TECs
- Other matters:
 - Confirm the status of residence ILG006 and evidence of consultation with the landowner (WaterNSW).
 - All relevant figures – update status of associated / non-associated residences based on final neighbour agreements (as per previous RFI)

Related Documents

This Additional RFI response is prepared following the preparation and submission to DPIE of the following documents:

- Environmental Impact Statement: Uungula Wind farm (May 2020) (Eco Logical Australia. (2020). *Uungula Wind Farm Environmental Impact Statement*. Prepared for CWP Renewables Pty Ltd on behalf of Uungula Wind Farm Pty Ltd) ('UWF EIS').
- Uungula Wind Farm: Submissions Report (November 2020) (CWPR Pty Ltd 2020) ('UWF Submissions Report').
- Uungula Wind Farm: Amendment Report (November 2020) (CWPR Pty Ltd 2020) ('UWF Amendment Report').
- Uungula Wind Farm (SSD-6687): Response to request for Additional Information (22 January 2021) (CWPR Pty Ltd 2021) ('UWF Response to First RFI').

1 Response Details

Responses are detailed below under each of the relevant subheadings.

1.1 Neighbour agreements

Table 1 details the residences which have entered into negotiated agreements in acknowledgement of all impacts predicted by the Project (Attachment B of *Wind Energy Guideline for State significant wind energy development (DPE December 2016)*).

Table 1: Neighbour Agreements held with Residences

Residence
ILG001
ILG002
ILG003
ILG004
ILG005
TMR016
TMR024
TMR025
TMR026
TMR027
TMR029
TMR043
UUN001
UUN002
UUN003
UUN004
UUN005
UUN008
UUN013
UUN014
WUU002
WUU005
WUU007
WUU012

1.2 Visual

Appendix A contains a Landscape and Visual Assessment Addendum addressing the visual queries from the Additional RFIs.

1.3 Noise

Appendix B contains a Noise Assessment Addendum addressing the noise queries from the Additional RFIs.

The assessment includes some predicted noise levels for the new road alignment construction at the intersection of Twelve Mile Road (western end) and Goolma Road as this is new road construction and provides an indicative assessment of noise levels. Road upgrade activity along Twelve Mile Road is not modelled as the required upgrades works and machinery will not be known until detailed design is completed. Notwithstanding, all external upgrades will be undertaken in accordance with the required noise considerations detailed in the prevailing industry guidelines.

1.4 Battery Storage (ESF)

The energy capacity and discharge rate of the Energy Storage Facility are nominally stated as an indicative 150MW/150MWh however the capacity and discharge rate are not intended as upper limits. The EIS and supporting studies have been prepared considering those as indicative values and the capital investment value of the project for the purposes of calculating the planning fee was calculated using a 150MW/300MWh Energy Storage Facility.

The UWF EIS Appendix F contained a preliminary risk screening in accordance with NSW DPE's SEPP 33 Guidelines, consistent with the Secretary's Environmental Assessment Requirements. That assessment concluded in section 6:

With the possible exception of sodium hydride batteries, none of the energy storage options under consideration trigger the requirements for a PHA.

Given that sodium hydride batteries are currently not commercially viable and are therefore unlikely to be selected, a PHA is not required in accordance with the SEPP 33 process.

The future selection of any of the technology options falls within the conclusions of this report. Any alternative technology option considered in future project development shall be assessed using the same process.

References in the UWF EIS to a Preliminary Hazard Analysis are typographical errors and should read Preliminary Risk Screening, supported by the assessment in Appendix F which concludes that a Preliminary Hazard Analysis is not required.

1.5 Biodiversity

Appendix C contains a Biodiversity Addendum addressing the biodiversity queries from the Additional RFIs.

1.6 Other matters

1.6.1 ILG006

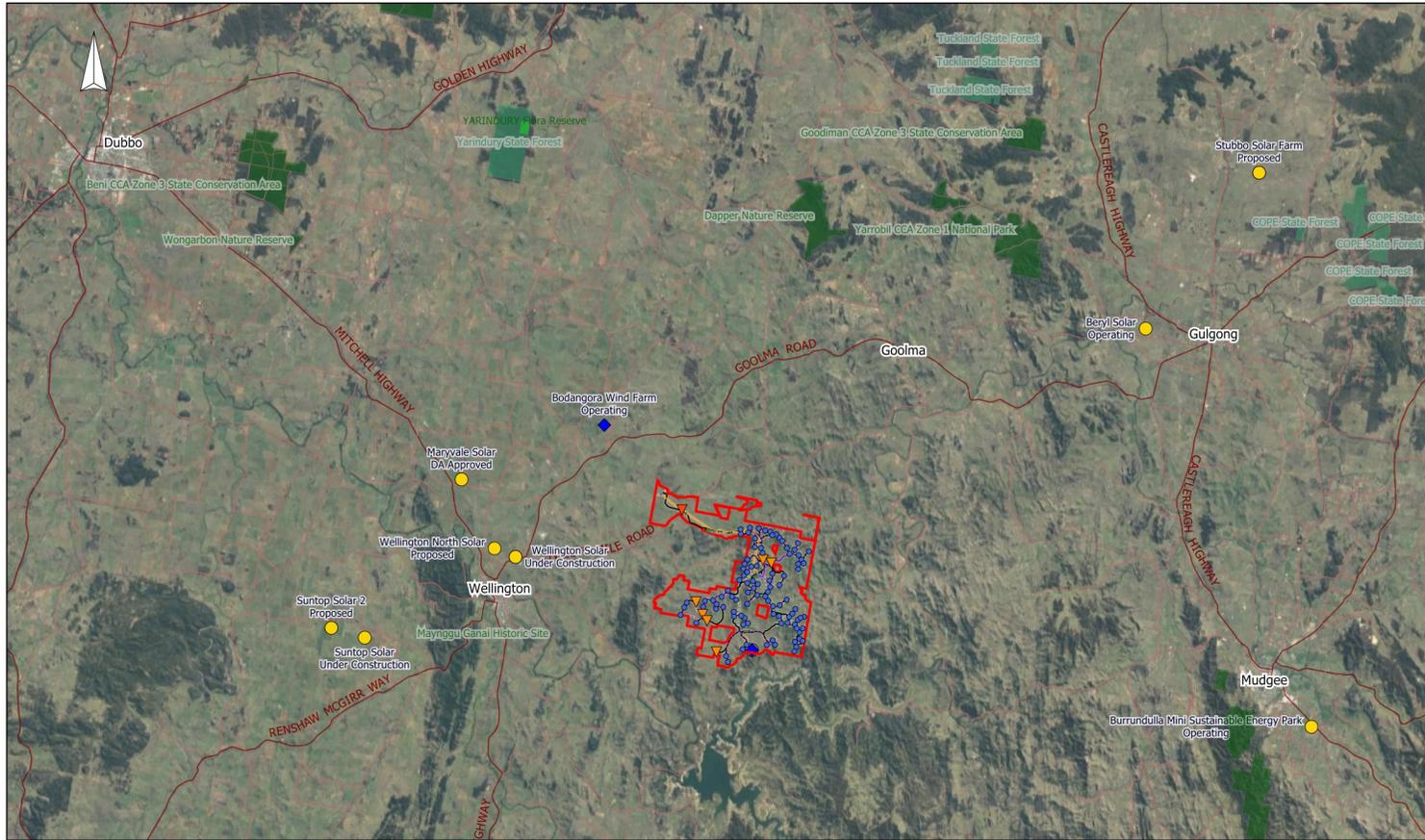
Appendix D contains correspondence with WaterNSW indicating the status of ILG006 as being uninhabitable and uninhabited.

1.6.2 Updated Figures

Updated figures are included in the following pages and sections as:

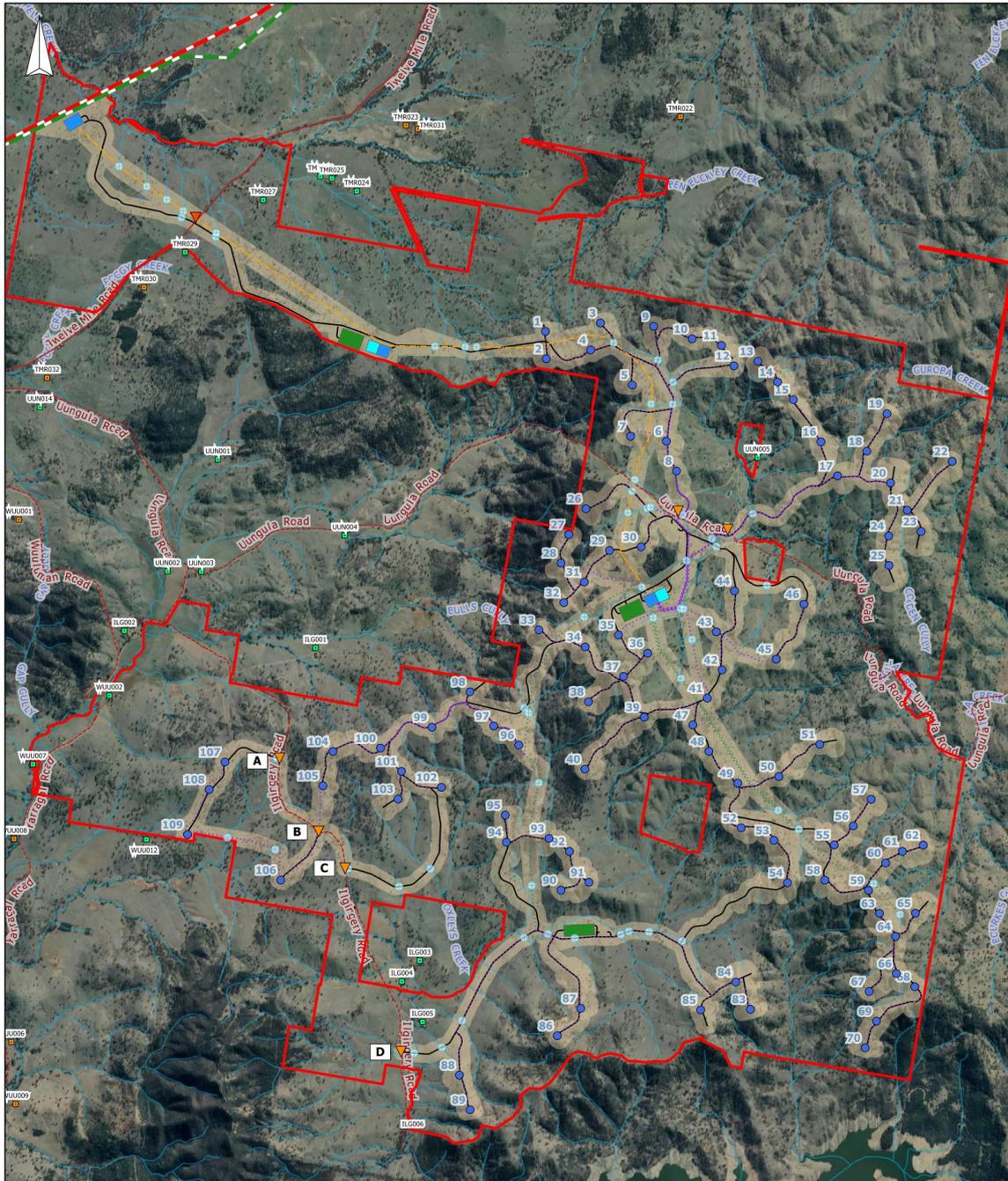
- Regional Context (including other State Significant Development in the region with SEARs issued, approved, under construction and operating): Figure 1
- Project Layout: Figure 2
- Consolidated Visual Context: Figure 3
- Transport Map 1: Figure 4
- Transport Map 3: Figure 5 (showing the Project's access route from the Golden Highway for OSOM vehicles)
- Visual Assessment (refer to Appendix A)

Figure 1: Updated Regional Context



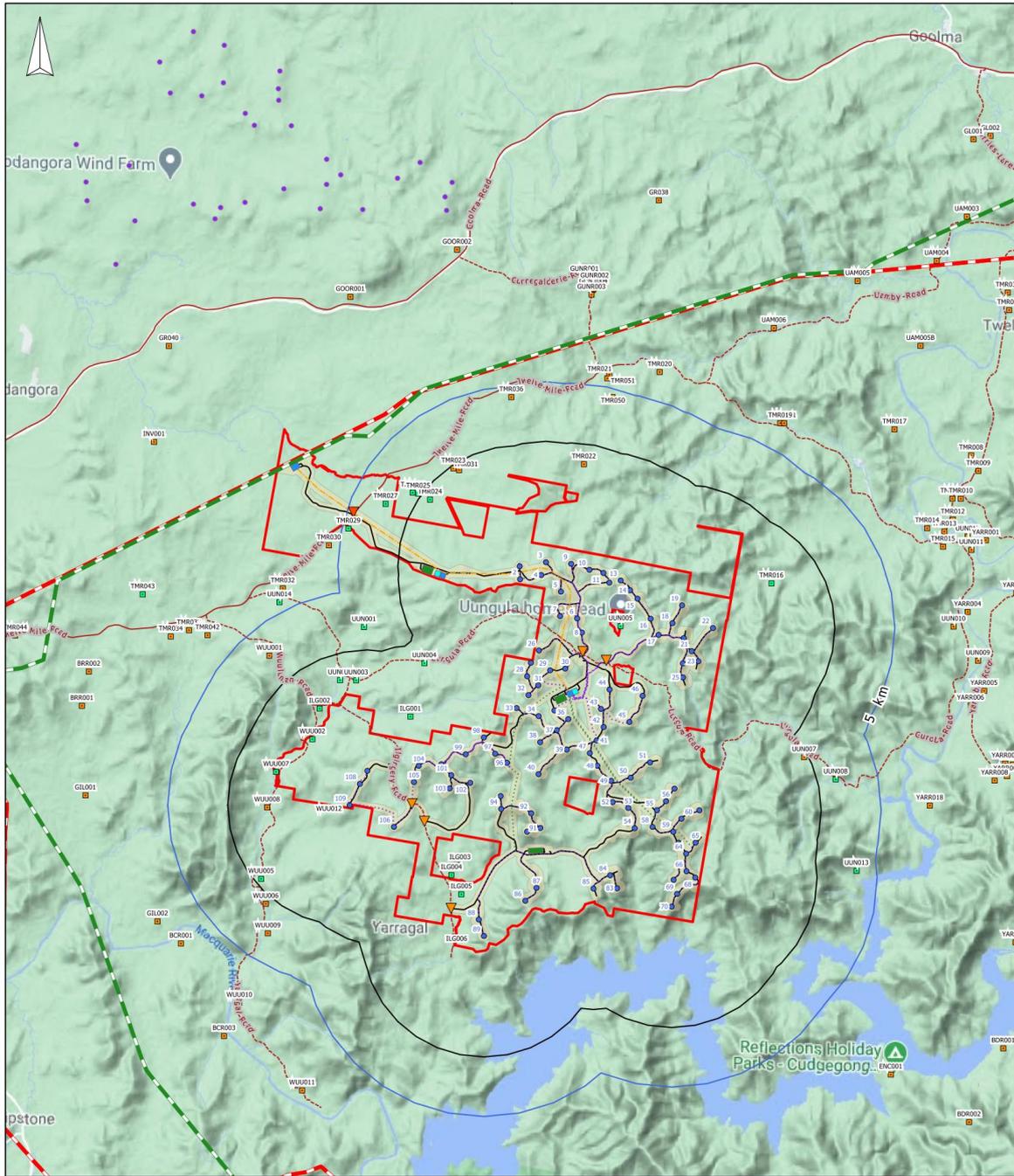
LEGEND		COMPANY	
Existing major roads	Project Site	UUNGULA WIND FARM PTY LTD	
Existing minor roads	Development Corridor		
Nature Reserve	Primary Project Site entry		
State Forest	Secondary Intersections	TITLE	
SSD Projects:	Project Access tracks	Regional Context	
Solar	Wind Turbine Generator (WTG)	DATE	05/03/21
Wind Farm		SCALE	1:280000
		DWG NO	UWF-126
		REV	C
		VER	1
		DRAWN BY	J PETERSEN
		CHECKED BY	M FLOWER
		SHEET	1 OF 1
		JOB NO	110247
		SIZE	A3

Figure 2: Project Layout



LEGEND		COMPANY																					
<ul style="list-style-type: none"> ■ Residences: Involved ■ Non-involved --- Existing Unsealed Road --- Existing Sealed Road --- Development Corridor --- Project Site --- Access tracks ▼ Primary Project Site entry ▼ Secondary intersections + Waterway Crossing 	<ul style="list-style-type: none"> ● Wind Turbine Generator (WTG) ■ Site Compound ■ Substation ■ Energy Storage Facility Existing Powerlines: <ul style="list-style-type: none"> --- 132kV --- 330kV Proposed powerlines: <ul style="list-style-type: none"> --- Overhead (high voltage) --- Underground (medium to low voltage) --- Overhead (medium to low voltage) 	<p>UUNGULA WIND FARM PTY LTD</p> <p></p>	<p>TITLE</p> <p style="text-align: center;">Project Layout</p>																				
<p>SCALE BAR</p> <p>0 5 km</p>	<table border="1"> <tr> <td>DATE</td> <td>SCALE</td> <td>DWG NO</td> <td>REV</td> <td>VER</td> </tr> <tr> <td>23/02/21</td> <td>1:49000</td> <td>UWF-127</td> <td>A</td> <td>1</td> </tr> <tr> <td>DRAWN BY</td> <td>CHECKED BY</td> <td>SHEET</td> <td>JOB NO</td> <td>SIZE</td> </tr> <tr> <td>J PETERSEN</td> <td>M FLOWER</td> <td>1 OF 1</td> <td>110247</td> <td>A3</td> </tr> </table>	DATE	SCALE	DWG NO	REV	VER	23/02/21	1:49000	UWF-127	A	1	DRAWN BY	CHECKED BY	SHEET	JOB NO	SIZE	J PETERSEN	M FLOWER	1 OF 1	110247	A3		
DATE	SCALE	DWG NO	REV	VER																			
23/02/21	1:49000	UWF-127	A	1																			
DRAWN BY	CHECKED BY	SHEET	JOB NO	SIZE																			
J PETERSEN	M FLOWER	1 OF 1	110247	A3																			

Figure 3: Consolidated Visual Context



LEGEND		COMPANY				
<ul style="list-style-type: none"> ■ Residences: Involved ■ Residences: Non-involved --- Existing Unsealed Road --- Existing Sealed Road --- Project Site --- Development Corridor --- Project Access tracks --- Primary Project Site entry --- Secondary intersections --- WTG buffer 3.35 km --- WTG buffer 5 km 	<ul style="list-style-type: none"> ● Wind Turbine Generator (WTG) ● Bodangora WTGs (from approval) ■ Site Compound ■ Substation ■ Energy Storage Facility 	<p>UUNGULA WIND FARM PTY LTD</p> 				
<ul style="list-style-type: none"> --- Existing Powerlines: 132KV --- 330KV --- Proposed powerlines: Overhead (high voltage) --- Underground (medium to low voltage) --- Overhead (medium to low voltage) 		<p>TITLE</p> <p style="text-align: center;">Consolidated Visual Context</p>				
<p>SCALE BAR</p> 		<p>DATE</p> <p>23/02/21</p>	<p>SCALE</p> <p>1:100000</p>	<p>DWG NO</p> <p>UWF-128</p>	<p>REV</p> <p>A</p>	<p>VER</p> <p>1</p>
		<p>DRAWN BY</p> <p>J PETERSEN</p>	<p>CHECKED BY</p> <p>M FLOWER</p>	<p>SHEET</p> <p>1 OF 1</p>	<p>JOB NO</p> <p>110247</p>	<p>SIZE</p> <p>A3</p>

Figure 4: Updated Transport Map 1

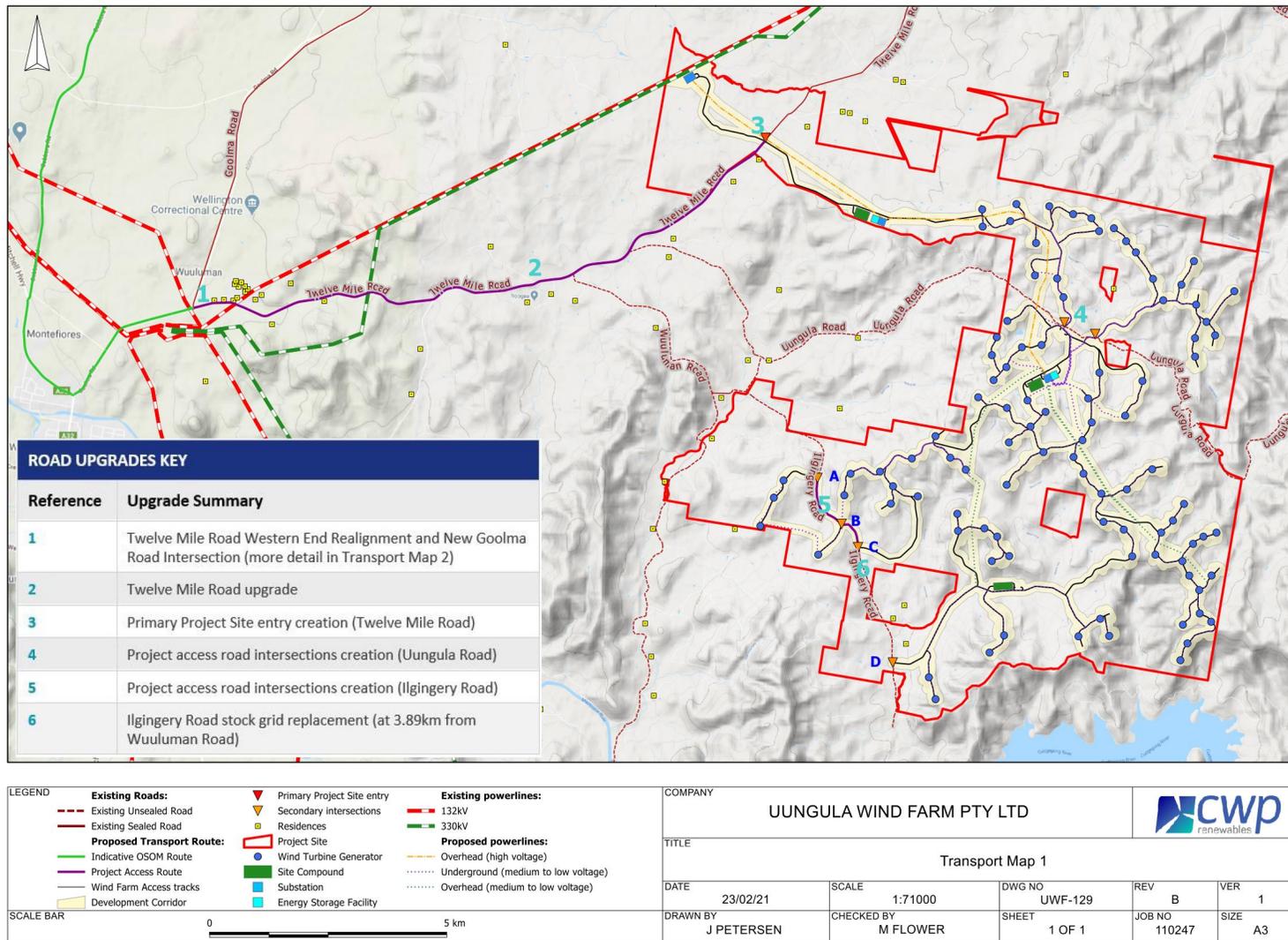
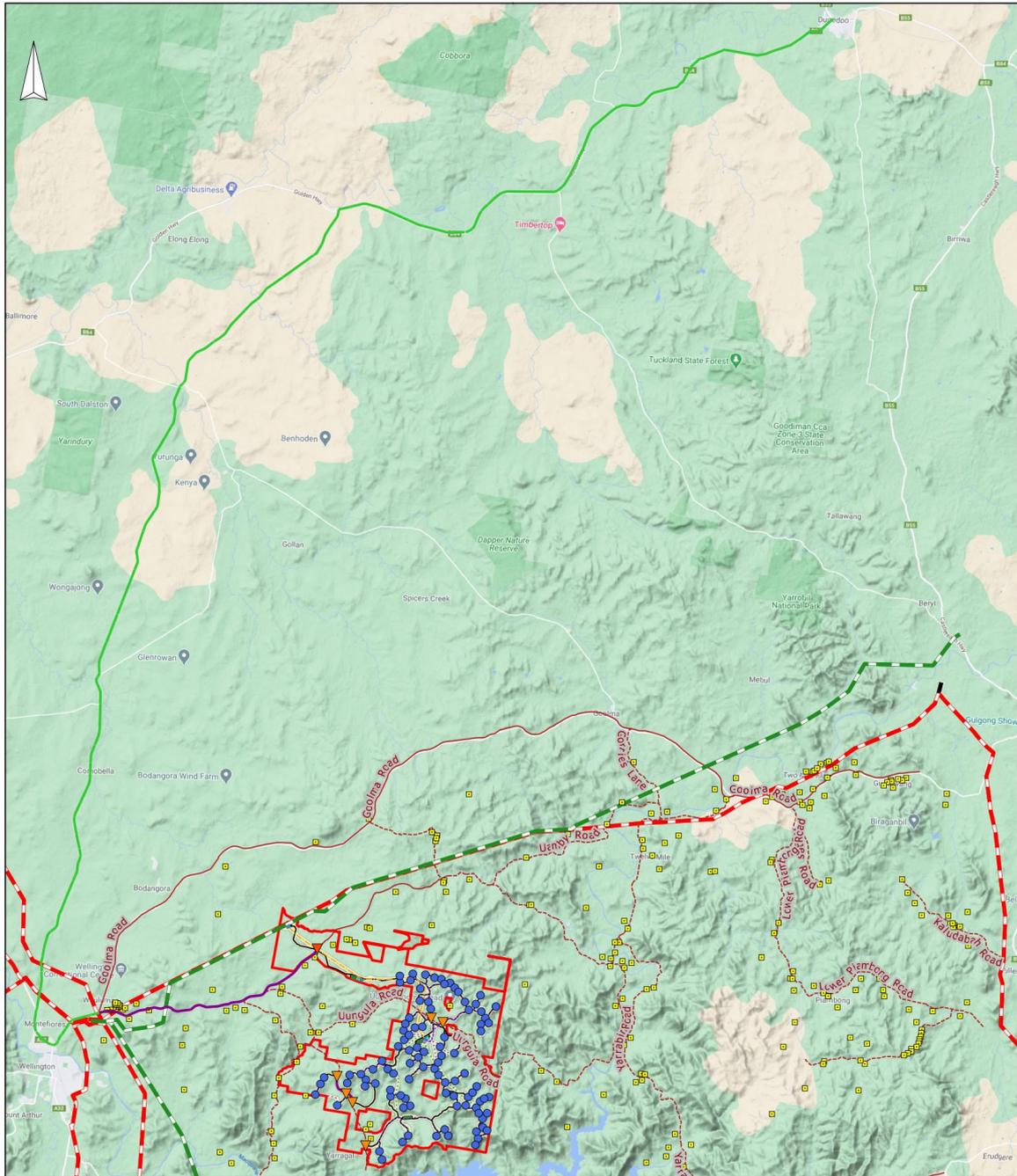


Figure 5: Project access route from the Golden Highway for OSOM vehicles



LEGEND			COMPANY		
<p>Existing Roads:</p> <ul style="list-style-type: none"> - - - Existing Unsealed Road — Existing Sealed Road <p>Proposed Transport Route:</p> <ul style="list-style-type: none"> — Indicative OSOM Route — Project Access Route — Wind Farm Access tracks — Development Corridor 	<ul style="list-style-type: none"> ▼ Primary Project Site entry ▼ Secondary intersections ■ Residences □ Project Site ● Wind Turbine Generator ■ Site Compound ■ Substation ■ Energy Storage Facility 	<p>Existing powerlines:</p> <ul style="list-style-type: none"> — 132kV — 330kV <p>Proposed powerlines:</p> <ul style="list-style-type: none"> — Overhead (high voltage) — U/G (med to low voltage) — O/H (med to low voltage) 	<p>UJUNGULA WIND FARM PTY LTD</p> 		
<p>SCALE BAR</p> 			<p>TITLE</p> <p style="text-align: center;">Transport Map 3</p>		
DATE		SCALE	DWG NO	REV	VER
09/03/21		1:200000	UWF-132	A	1
DRAWN BY		CHECKED BY	SHEET	JOB NO	SIZE
B KRONENBERG		M FLOWER	1 OF 1	110247	A3



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WIND

UUNGULA WIND FARM (SSD-6687)

Response to Request for Additional Information Appendix A: Landscape and Visual Assessment Addendum

15 March 2021

Version 1
Author Matthew Flower
Client Uungula Wind Farm Pty Ltd



Uungula Wind Farm
Landscape and Visual Impact
Addendum Report

Prepared for: **CWP Renewables**

Project No: **1684** Issue: **REV D** Date: **8th March 2021**

1.0 Introduction

The purpose of this report is to provide a response to the Request for Further Information (RFI) dated 18th December 2020 and 11th February 2021 in relation to the Landscape and Visual Impact Assessment (LVIA) prepared for Uungula Wind Farm in May 2020.

Table 1 provides an overview of the RFI requests in relation to visual impacts and a cross reference to where the request has been addressed.

RFI Dated:	DPIE Request:	Refer to:
18th December 2021	<i>The following information is required for all assessed non-associated residences and sensitive viewpoints:</i>	
	<ul style="list-style-type: none"> visual impact rating; 	Section 3.0
	<ul style="list-style-type: none"> cumulative impact rating with Bodangora Wind Farm 	Refer to Section 4.0 & Appendix C
	<ul style="list-style-type: none"> closest turbines (turbine number); 	Refer to Tables A1 - A3 (Appendix A)
	<ul style="list-style-type: none"> number of turbines within 3.35km and 5km; 	Refer to Tables A1 - A3 (Appendix A)
	<i>Confirm that visual impacts from all public viewpoints have been considered and assessed.</i>	Section 2.0
11th February 2021	<i>Identify all receivers and assess impacts on all non-associated receivers in proximity to the site, including approved development applications;</i>	Figure 1
	<i>A consolidated set of photomontages and wireframes (where required),</i>	Appendix B
	<i>A consolidated table of visual impact ratings, from potentially impacted non-associated receivers.</i>	Refer to Tables A1 - A3 (Appendix A)

Table 1. Overview of RFI

2.0 Study Method:

The following provides an overview of the study method applied to address the request. For the purpose of providing additional information for '*all assessed non-associated residences and sensitive viewpoints*' the following applies:

Residences within 5000 metres of the nearest turbine:

Following the submission of the EIS in May 2020, there has been an increase in the number of residences involved with the Ungula Wind Farm (see **Figure 1**).

- As of February 2021, there are a total of five (5) non-involved residences located within 3350m (black line of visual magnitude) of the nearest turbine: *TMR022, TMR023, TMR031, UUN007, WUU008*
- There are a total of five (5) non-involved landowners within 3350 - 5000 metres (blue line of visual magnitude) of the nearest proposed turbine: *TMR036, TMR050, WUU001, WUU006 and WUU009*
- **Table A1** provides an overview of the additional information requested for each of the dwellings within 5000m.

Residences in excess of 5000 metres of the nearest turbine:

- A total of 39 non-involved dwellings have been assessed in excess of 5000 metres from the nearest turbine.

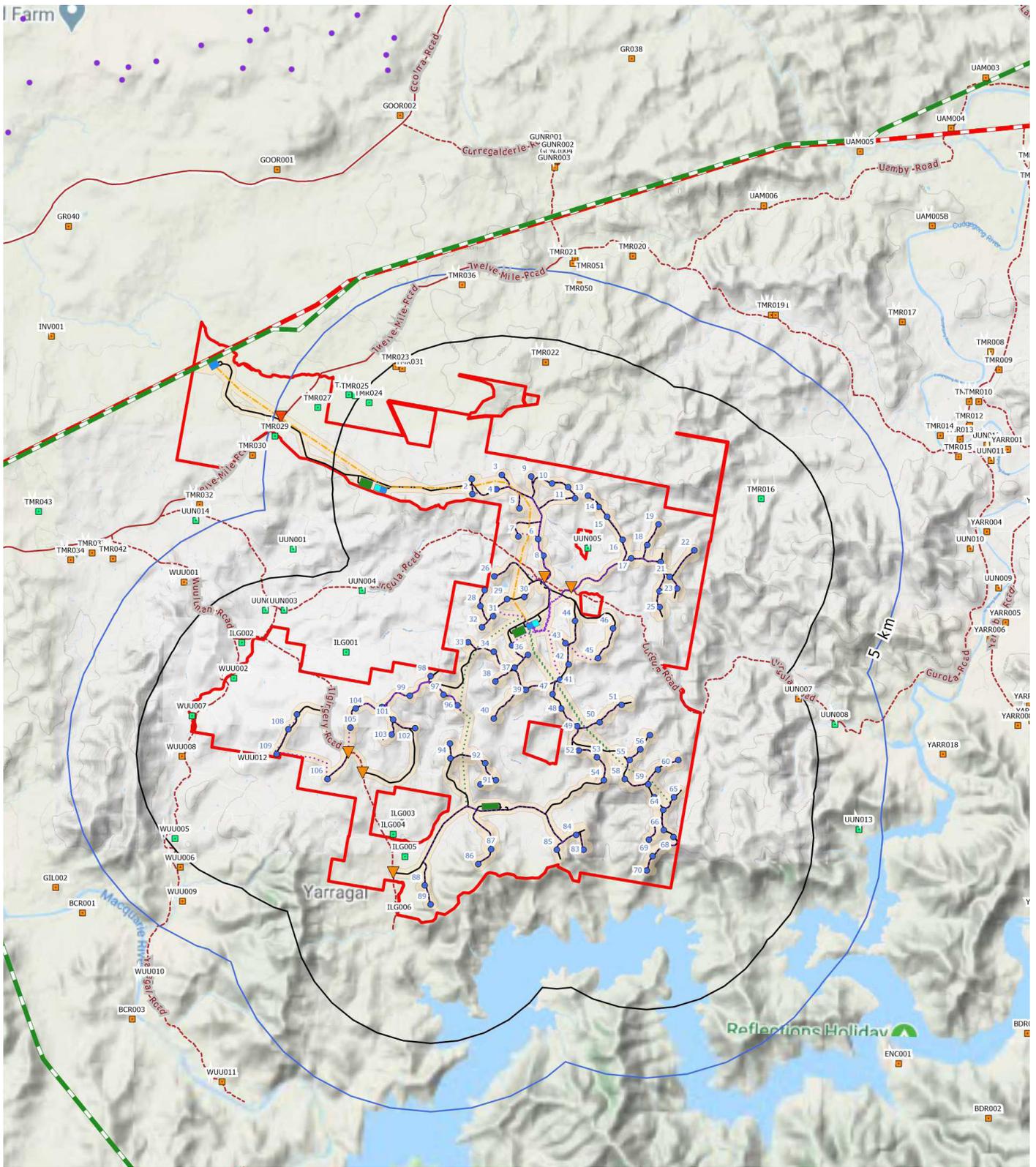
Sensitive Viewpoints

A total of 46 viewpoints were assessed in the LVIA from various publicly accessible locations throughout the study area. Of these 46 viewpoints, the following Visual Influence Zone (VIZ) ratings applied:

- 3 were rated as VIZ1
- 30 were rated as VIZ2
- 13 were rated as VIZ3

As there are no performance objectives for VIZ3 these are not considered 'sensitive viewpoints' and therefore the requested information has been provided for the 33 remaining viewpoints with a VIZ1 or VIZ2 rating.

- **Table A3 (Appendix A)** provides an overview of the requested information from 'sensitive viewpoints'.



LEGEND

- Involved
- Non-involved
- Existing Unsealed Road
- Existing Sealed Road
- Project Site
- Project Access tracks
- ▼ Primary Project Site entry
- ▼ Secondary intersections
- WTG buffer 3.35 km
- WTG buffer 5 km
- Bodangora WTGs (from approval)
- Site Compound
- Substation
- Energy Storage Facility
- Existing Powerlines:
- 132kV
- 330kV
- Proposed powerlines:
- Overhead (high voltage)
- Underground (medium to low voltage)
- Overhead (medium to low voltage)

SCALE BAR



Figure 1: Residences (Source: CWP Renewables)

3.0 Visual Impact Rating:

The application of a 'visual impact rating' of *nil, nil-low, low, low-moderate, moderate, moderate - high or high* has been provided for each of the non-associated residences and sensitive viewpoints.

The Bulletin states: *the Department adopts the widely accepted and commonly utilised approach that visual impact can be determined from a combination of receiver sensitivity and the magnitude of visual effect. This approach is documented in numerous Australian and international guidelines, and is considered to be industry best practice.*

Moir LA have developed a framework for defining and rating the level of visual effect from each dwelling. The framework in **Table 2** has been prepared with regards to the third edition of the *Guidelines for Landscape and Visual Impact Assessment (GLVIA3)*, *Residential Visual Amenity Assessment (RVAA)* and Moir LA's extensive professional experience in undertaking LVIA's for wind energy projects.

Note this assessment has been undertaken based on a desktop assessment alone which takes into account topography and assessment of available aerial imagery.

- The visual impact rating for each of the 49 non-involved dwellings and all 'sensitive viewpoints' is provided in **Tables A1 - A3** (Appendix A).

	NIL	LOW	MODERATE	HIGH
Distance		Turbines may be visible in distance or very partially visible in the foreground.	Turbines maybe visible in the middle ground or a small number may be visible in the near ground.	Turbines are highly visible in the foreground.
Type of views		Views from the dwelling are not focused on the Project.	Views from the dwelling are not focused entirely on the Project.	Views are focused directly towards the Project.
Direction of view		The Project may be visible in peripheral views or form a very minor element in primary views.	The Project may be visible from, yet will not dominate primary views.	The Project will be highly visible and has the potential to be a dominant element in primary views from the property.
Extent of visibility	The project will not be visible.	The Project may be partially visible or fragmented.	The Project may be visible from the dwelling yet will not significantly alter the existing visual character.	The Project has the potential to significantly alter the existing visual character when viewed from the dwelling.
Scale of change		The Project may be visible yet will not change to the existing visual character.	The Project has the potential to become a noticeable element in the view, yet will not overly diminish the existing visual character.	The Project has the potential to alter the existing visual character.
Degree of contrast		The Project will have a low level of contrast with the existing landscape.	The Project will result in a moderate level of contrast with the existing landscape.	The scale of the Project will result in a high level of contrast with the existing landscape.
Duration of change		Changes are temporary.	Changes to the landscape have the potential to be reduced over time (with the employment of mitigation methods).	Changes to the landscape are continuous and / or irreversible.
Mitigation Options		Existing screening factors contribute to reducing the potential visibility.	Some existing screening factors may contribute to fragmenting the Project or there is opportunity to screen the Project.	Limited or no opportunity to screen the Project.

Table 2. Visual Effect Rating

Summary of Visual Impact Rating - Non-involved Residences

Residences within 5000 metres

There are ten (10) non-involved residences within 5000m (black line of visual magnitude) of the nearest turbine. The majority of residences are likely to have a low or low-moderate visual impact rating. One residence has been rated as having a moderate visual impact and one with a moderate - high visual impact (refer to Table A1 - Appendix A).

Residences within 5000 - 8000 metres

There are 39 non-involved residences within 5000 - 8000m of the Project. The Project will be screened by topography and is therefore not visible from 13 of these residences (refer to Table A2 - Appendix A).

Table 3 summarises the visual impact rating for all non-involved residences.

Visual Impact Rating	Total number of non-involved residences	Percentage of non-involved residences (Approx.)
Nil	13	26%
Nil - Low	3	6%
Low	27	74%
Low - Moderate	4	10%
Moderate	1	2%
Moderate - High	1	2%
High	0	0%

Table 3. Overview of Visual Impact Rating from all assessed Non-involved Dwellings

Visual Impact Rating - Sensitive Viewpoints

Of the 33 'sensitive viewpoints' assessed, the Project will be screened by topography from 7 of the sensitive viewpoints (refer to Table A3 - Appendix A). Of the remaining 26 viewpoints assessed, the following visual impact ratings were determined:

- 2 = Nil - low
- 10 = Low
- 3 = Low - moderate
- 3 = Moderate
- 5 = Moderate - high
- 3 = High

4.0 Cumulative Visual Impact

There are twelve (12) non-involved residences identified within 8 kilometres of both the Bodangora and Uungula Wind Farms (see **Figure 2**).

- Eight (8) residences within 8kms of both wind farms are located along Twelve Mile Road: *TMR020, TMR021, TMR022, TMR023, TMR031, TMR036, TMR050* and *TMR051*
- Four (4) residences within 8kms of both wind farms are associated with Gunegalderie Road: *GUN001, GUN002, GUN003* and *GUN004*.

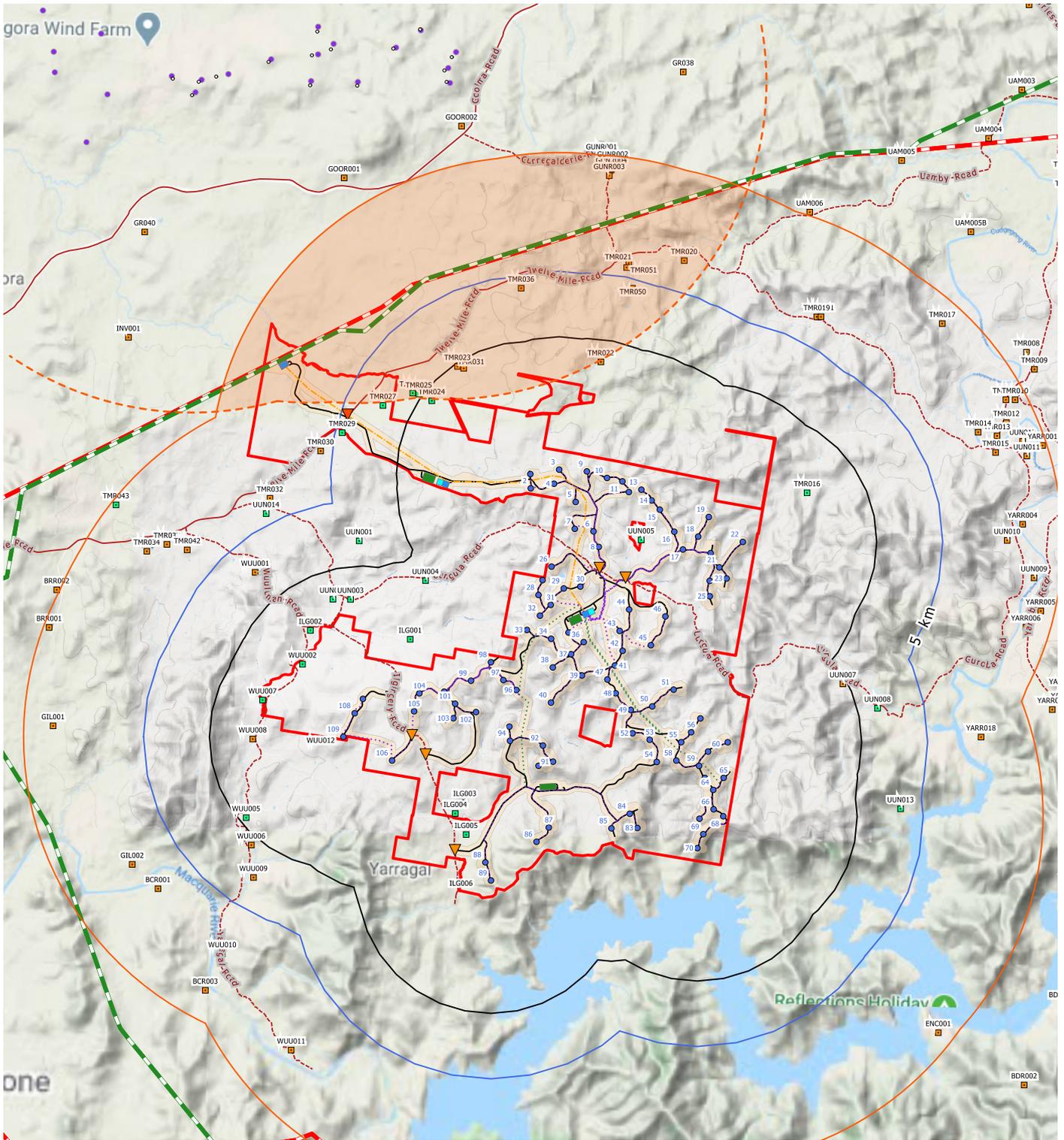
The Cumulative zone of visual influence (ZVI) diagram (Figure 14 of the LVIA) illustrates the Bodangora Wind Farm is screened by topography and would therefore have no cumulative visual impact from the following nine (9) residences: TRM020, TMR021, TMR022, TMR050, TMR051, GUN001, GUN002, GUN003 and GUN004.

Table 4 provides an overview of the potential cumulative visual impact from the remaining three (3) residences (TMR023, TMR031 & TMR036) with potential views to both wind farms.

Appendix C provides detailed assessment of these dwellings using the Multiple Wind Turbine Assessment Tool.

Residence	Number of 60° sectors with turbine (Based on 2D Plan)	Distance to nearest Bodangora WF WTG	Number of Bodangora WTGs within 8 kms of residence:	Cumulative Visual Impact Rating:	Assessment Notes:
TMR023	2	7.2 km	5	Low	Distant views to approximately 14 WTGs associated with Bodangora Wind Farm.
TMR031	2	7.2 km	4	Nil - Low	Distant views to approximately 14 WTGs associated with Bodangora Wind Farm likely to be fragmented by vegetation.
TMR036	2	5.45 km	9	Nil - Low	Vegetation to the north of the house and along Twelve Mile Road appears to screen views to Bodangora Wind Farm from this residence.

Table 4. Overview of cumulative visual impact



LEGEND

Residences:	● Wind Turbine Generator (WTG)	● Bodangora WTGs (from approval)
■ Involved	■ Site Compound	— 8000m from Ungula Wind Farm
■ Non-involved	■ Substation	--- 8000m from Bodangora Wind Farm turbine
--- Existing Unsealed Road	■ Energy Storage Facility	■ Land within 8000m of both Ungula and Bodangora Wind turbines.
— Existing Sealed Road	— Existing Powerlines:	
■ Project Site	— 132kV	
— Project Access tracks	— 330kV	
▼ Primary Project Site Entry	— Proposed powerlines:	
▼ Secondary intersections	— Overhead (high voltage)	
— WTG buffer 3.35 km	— Underground (medium to low voltage)	
— WTG buffer 5 km	— Overhead (medium to low voltage)	

SCALE BAR



Figure 2: Residences within 8 kilometres of Bodangora & Ungula Wind Farms (Map Source: CWP Renewables)



Appendix A

Residence Summary Tables

Table A1: Non-associated residences within 5000 metres

Non-associated residences within 5000m							
	Distance to nearest WTG:	WTGs within 3350m	WTGs within 3350 - 5000m	Number of sectors (2D Assessment)	Number of sectors (3D Assessment)	Visual Impact Rating	Cumulative Visual Impact Rating (with Bodangora WF)
TMR022	2.78 km <i>Turbine 9</i>	6: <i>1, 3, 4, 9, 10, 11</i>	11: <i>2, 5, 6, 7, 8, 12, 13, 14, 15, 16, 19</i>	3	2	<i>Moderate</i>	<i>Nil</i>
TMR023	3.20 km <i>Turbine 1</i>	1: <i>1</i>	6: <i>2, 3, 4, 5, 9, 10</i>	2	2	<i>Low</i>	<i>Low</i>
TMR031	3.08 km <i>Turbine 1</i>	1: <i>1</i>	8: <i>2, 3, 4, 5, 7, 9, 10, 11</i>	2	2	<i>Low - Moderate</i>	<i>Nil - Low</i>
TMR050	4.76 km	Nil	3: <i>3, 9, 10, 11</i>	1	1	<i>Low</i>	<i>Nil</i>
UUN007	3.2 km <i>Turbine 62</i>	1: <i>62</i>	24: <i>20, 21, 22, 23, 24, 25, 45, 46, 50, 51, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68</i>	2	1	<i>Low - Moderate</i>	<i>Nil</i>
WUU006	3.57 km <i>Turbine 109</i>	Nil	4: <i>106, 107, 108, 109</i>	2	1	<i>Low</i>	<i>Nil</i>
WUU008	2.26 km <i>Turbine 109</i>	3: <i>107, 108, 109</i>	4: <i>100, 104, 105, 106</i>	1	1	<i>Low</i>	<i>Nil</i>
TMR036	4.62 km <i>Turbine 3</i>	Nil	3: <i>1, 3, 9</i>	2	2	<i>Low</i>	<i>Nil - Low</i>
WUU001	4.17 km <i>Turbine 107</i>	Nil	3: <i>107, 108, 109</i>	2	2	<i>Moderate - High</i>	<i>Nil</i>
WUU009	4.19 km <i>Turbine 109</i>	Nil	3: <i>106, 108, 109</i>	2	1	<i>Low - Moderate</i>	<i>Nil</i>

Table 2: Non-associated residences within 5000 - 8000 metres

Non-associated residences within 5000 - 8000m							
	Distance to nearest WTG:	WTGs within 3350m	WTGs within 3350 - 5000m	Number of sectors (2D Assessment)	Number of sectors (3D Assessment)	Visual Impact Rating	Cumulative Visual Impact Rating (with Bodangora WF)
BCR001	7.6 km <i>Turbine 109</i>	Nil	Nil	1	0	<i>Nil</i>	Nil
BCR003	7.26 km <i>Turbine 109</i>	Nil	Nil	1	1	<i>Low</i>	Nil
BRR001	7.85 km <i>Turbine 109</i>	Nil	Nil	1	0	<i>Nil</i>	Nil
ENC001	7.6 km <i>Turbine 70</i>	Nil	Nil	1	1	<i>Low</i>	Nil
GIL001	7.26 km <i>Turbine 109</i>	Nil	Nil	1	0	<i>Nil</i>	Nil
GIL002	6.18 km <i>Turbine 109</i>	Nil	Nil	1	0	<i>Nil</i>	Nil
GUNR001	7.95 km <i>Turbine 9</i>	Nil	Nil	2	1	<i>Low</i>	Nil
GUNR002	7.79km <i>Turbine 9</i>	Nil	Nil	2	1	<i>Low</i>	Nil
GUNR003	7.47 km <i>Turbine 9</i>	Nil	Nil	2	1	<i>Low</i>	Nil
GUNR004	7.62 km <i>Turbine 9</i>	Nil	Nil	2	1	<i>Low</i>	Nil

Non-associated residences within 5000 - 8000m

TMR010	7.69 km <i>Turbine 22</i>	Nil	Nil	1	1	<i>Low</i>	Nil
TMR011	7.49 km <i>Turbine 22</i>	Nil	Nil	1	1	<i>Low</i>	Nil
TMR012	7.24 km <i>Turbine 22</i>	Nil	Nil	1	1	<i>Low</i>	Nil
TMR013	6.89 km <i>Turbine 22</i>	Nil	Nil	1	1	<i>Low</i>	Nil
TMR014	6.50 km <i>Turbine 22</i>	Nil	Nil	1	1	<i>Low</i>	Nil
TMR015	6.71 km <i>Turbine 22</i>	Nil	Nil	1	1	<i>Low</i>	Nil
TMR017	7.42 km <i>Turbine 22</i>	Nil	Nil	1	0	<i>Nil</i>	Nil
TMR018	5.59 km <i>Turbine 19</i>	Nil	Nil	1	0	<i>Nil</i>	Nil
TMR019	5.59 km <i>Turbine 19</i>	Nil	Nil	1	1	<i>Nil - Low</i>	Nil
TMR020	5.77 km <i>Turbine 13</i>	Nil	Nil	2	1	<i>Low</i>	Nil
TMR021	5.35 km <i>Turbine 9</i>	Nil	Nil	2	1	<i>Low</i>	Nil
TMR030	5.26 km <i>Turbine 1</i>	Nil	Nil	2	1	<i>Low</i>	Nil
TMR032	5.56 km <i>Turbine 107</i>	Nil	Nil	2	1	<i>Low</i>	Nil
TMR033	6.26 km <i>Turbine 107</i>	Nil	Nil	1	1	<i>Nil - Low</i>	Nil
TMR034	6.56 km <i>Turbine 107</i>	Nil	Nil	1	1	<i>Low</i>	Nil

Non-associated residences within 5000 - 8000m

TMR041	5.77 km <i>Turbine 19</i>	Nil	Nil	1	0	Nil	Nil
TMR042	5.78 km <i>Turbine 107</i>	Nil	Nil	1	1	<i>Nil - Low</i>	Nil
TMR051	5.26 km <i>Turbine 9</i>	Nil	Nil	1	1	<i>Low</i>	<i>Nil</i>
UUN009	7.27 km <i>Turbine 22</i>	Nil	Nil	1	0	Nil	Nil
UUN010	6.61 km <i>Turbine 22</i>	Nil	Nil	1	0	Nil	Nil
UUN011	7.42 km <i>Turbine 22</i>	Nil	Nil	1	0	Nil	Nil
UUN012	7.44 km <i>Turbine 22</i>	Nil	Nil	1	1	<i>Low</i>	Nil
WUU010	6.25 km <i>Turbine 109</i>	Nil	Nil	1	0	Nil	Nil
WUU011	6.57 km <i>Turbine 89</i>	Nil	Nil	1	0	Nil	Nil
YARR001	7.88 km <i>Turbine 22</i>	Nil	Nil	1	1	<i>Low</i>	Nil
YARR004	7.01 km <i>Turbine 22</i>	Nil	Nil	1	0	Nil	Nil
YARR005	7.7 km <i>Turbine 22</i>	Nil	Nil	1	1	<i>Low</i>	Nil
YARR006	7.4 km <i>Turbine 22</i>	Nil	Nil	1	1	<i>Low</i>	Nil
YARR018	6.3 km <i>Turbine 62</i>	Nil	Nil	2	1	<i>Low - Moderate</i>	Nil



Appendix B

Photomontages and Wireframes

Table B1. List of Photomontages and Wire frames

Revised Photomontages:	
Photomontage 02	TMR010, TMR011, TMR012
Photomontage 06	TMR022
Photomontage 07	TMR031
Photomontage 08	TMR023
Photomontage 15	WUU007
Photomontage 16	WUU008
Photomontage 18	WUU001
Revised Wire frames:	
Wire frame 02	UUN007
Wire frame 03	YARR018
Wire frame 04	TMR036
Additional Wire frames:	
Wire frame 06	WUU006
Wire frame 07	WUU009
Wire frame 08	WUU010
Wire frame 09	WUU011
Wire frame 10	TMR020
Wire frame 11	TMR050
Wire frame 12	TMR051

Photomontage 02 Viewpoint 17

Existing view from VP17

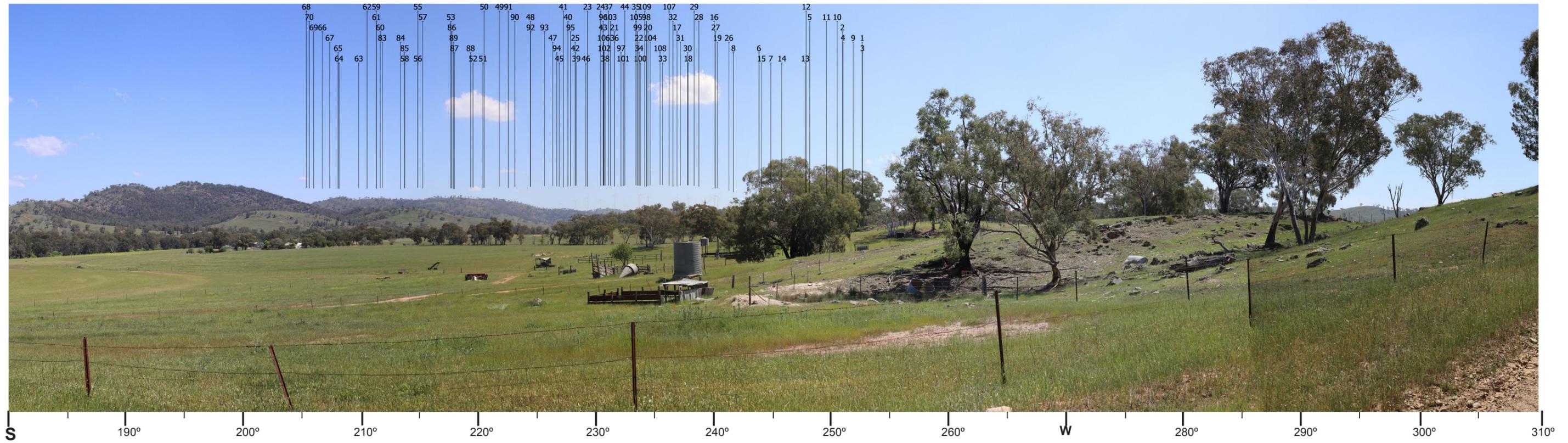


Proposed view from VP17

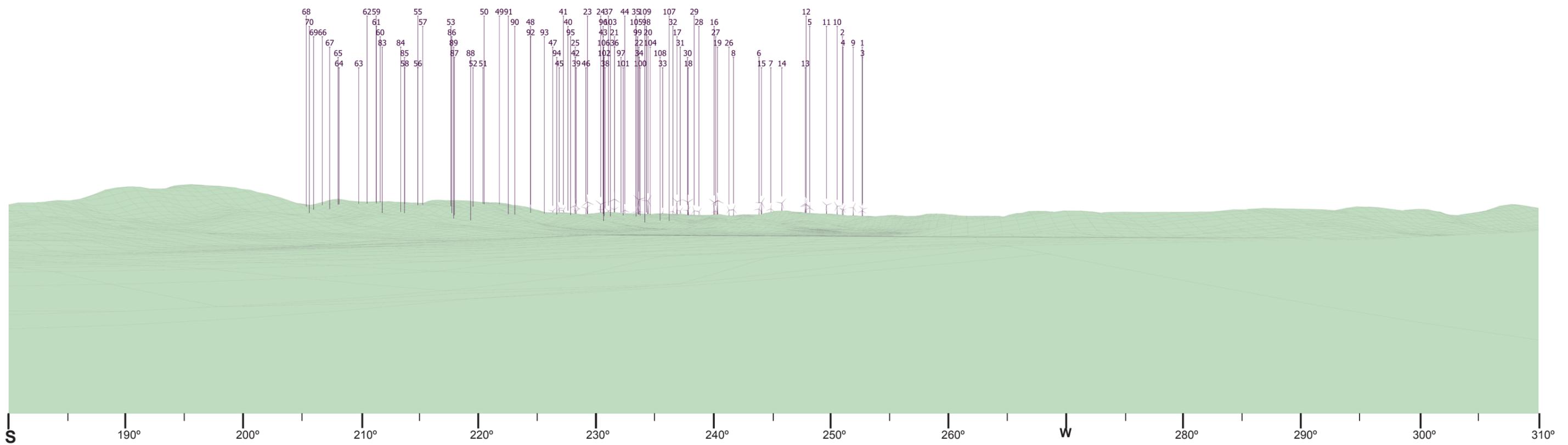


Photomontage 02 Viewpoint 17

Proposed view from VP17



Proposed wireframe from VP17



Photomontage 02 Location Map

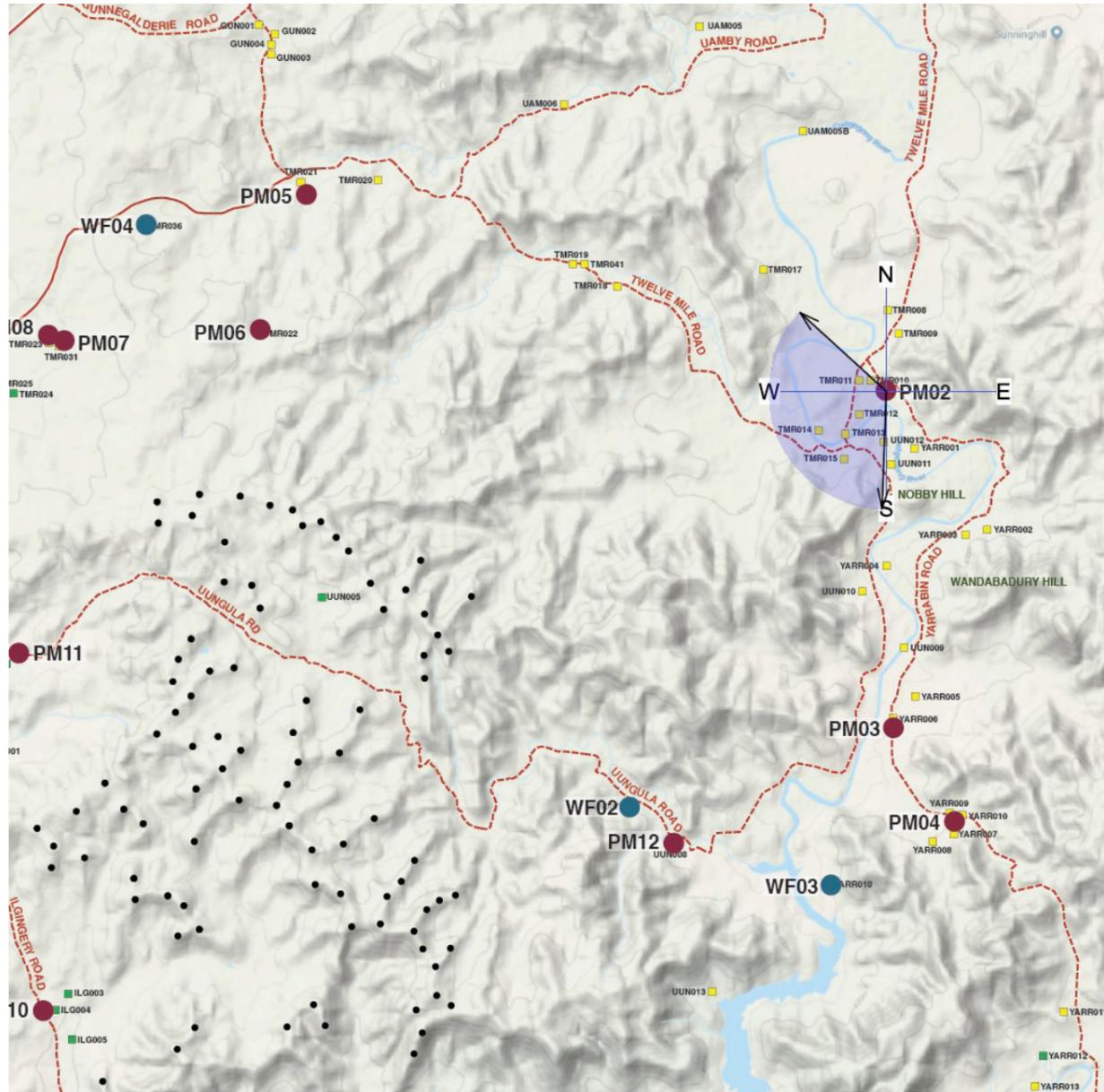
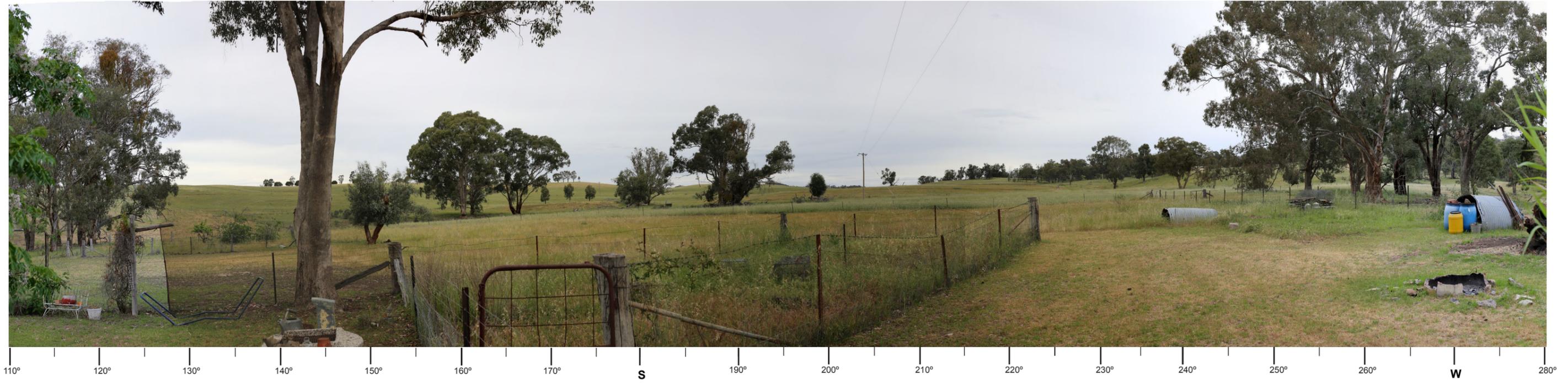


Figure D.2 Photomontage 02 Location and Viewing Direction

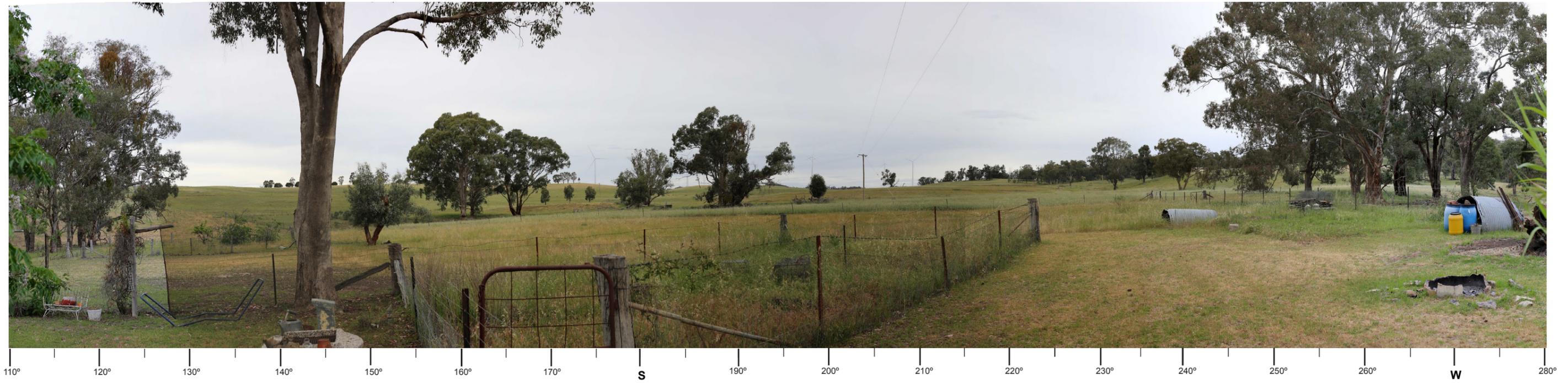
Summary of Photomontage 02	
Refer to Viewpoint 17	
Location:	Yarrabin Road
Coordinates:	149°13'12.93"E 32°27'54.37"S
Distance to WTG:	Approx. 7.8km
Viewing Direction:	Generally West
Elevation:	380m
Representative Dwelling/s:	TMR010, TMR011, TMR012

Photomontage 06 Viewpoint 38

Existing view from VP38



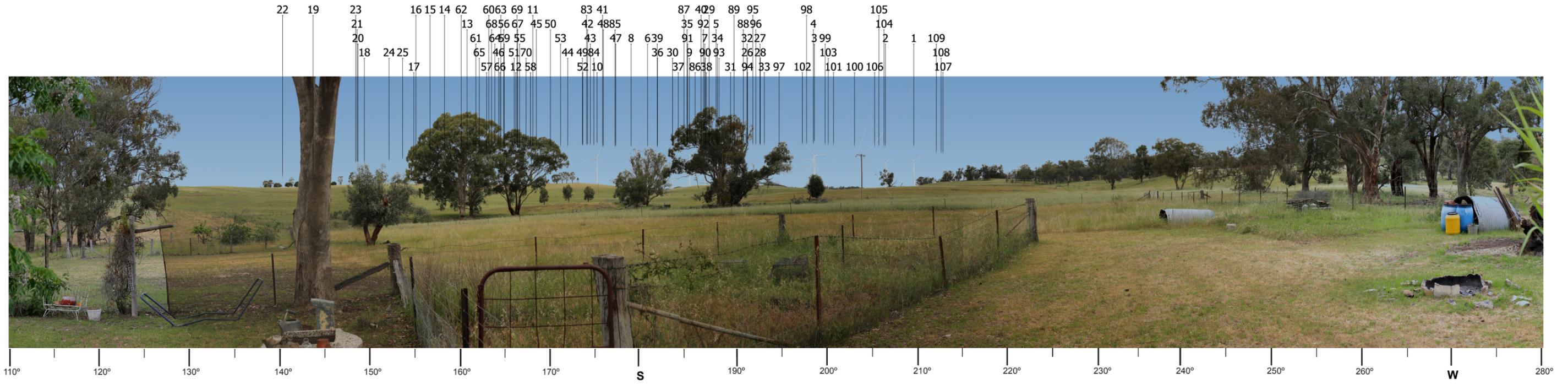
Proposed view from VP38



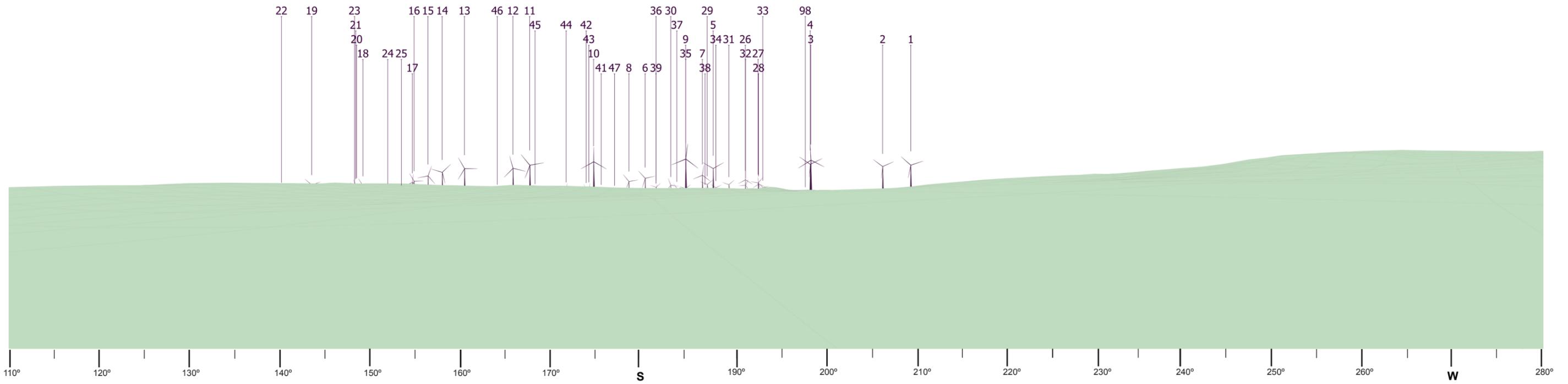
Refer to Appendix E for Blue Sky Comparison

Photomontage 06 Viewpoint 38

Proposed view from VP38 (Superimposed with blue sky)



Proposed wireframe from VP38



Refer to Appendix E for Blue Sky Comparison

Photomontage 06 Location Map

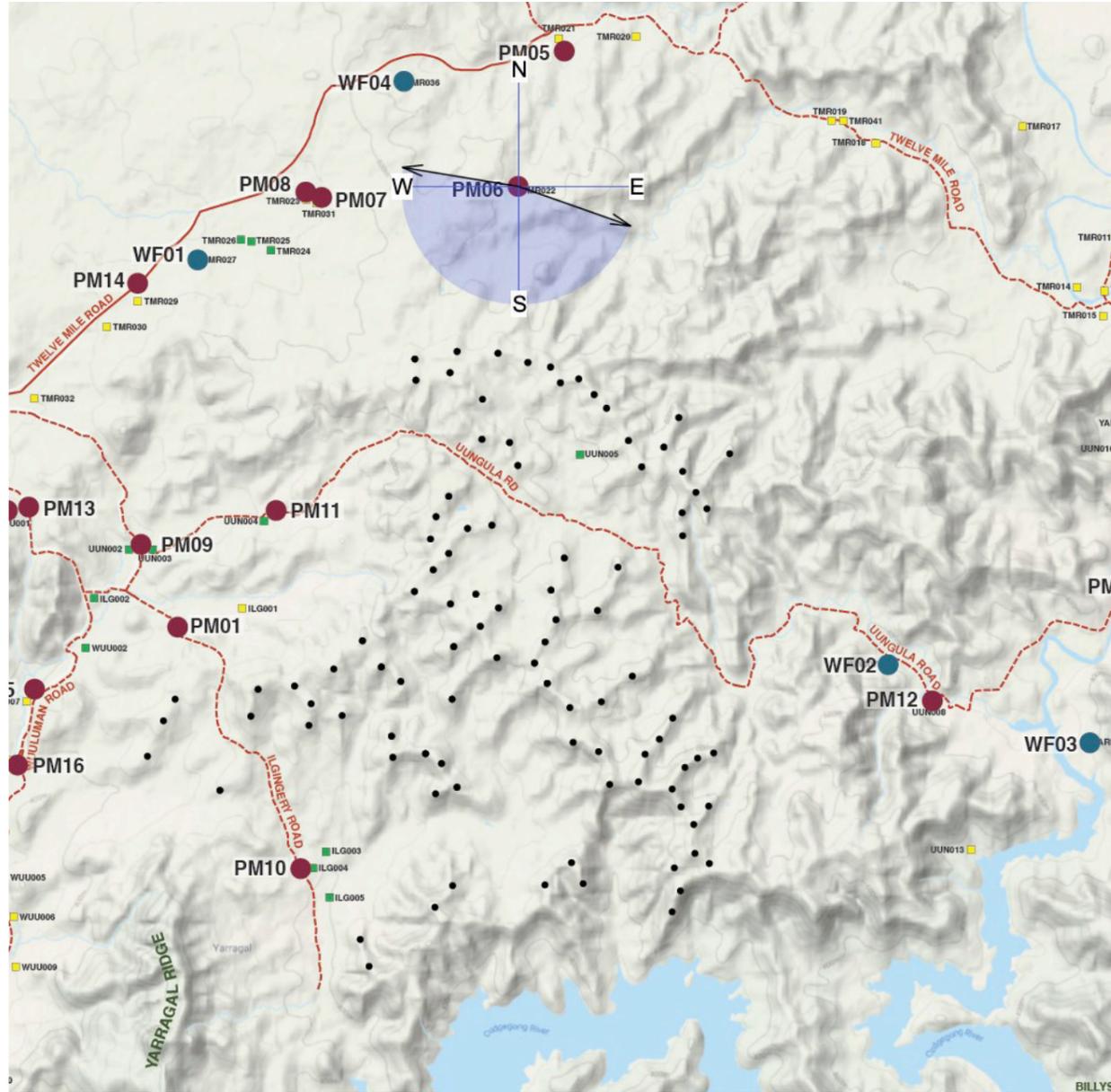


Figure D.6 Photomontage 06 Location and Viewing Direction

Summary of Photomontage 06	
Refer to Viewpoint 38	
Location:	Twelve Mile Road
Coordinates:	149° 9'48.07"E 32°28'33.08"S
Distance to WTG:	Approx. 2.7km
Viewing Direction:	Generally South
Elevation:	570m
Representative Dwelling/s:	TMR022

Photomontage 07 Viewpoint 36

Existing view from VP36



Proposed view from VP36

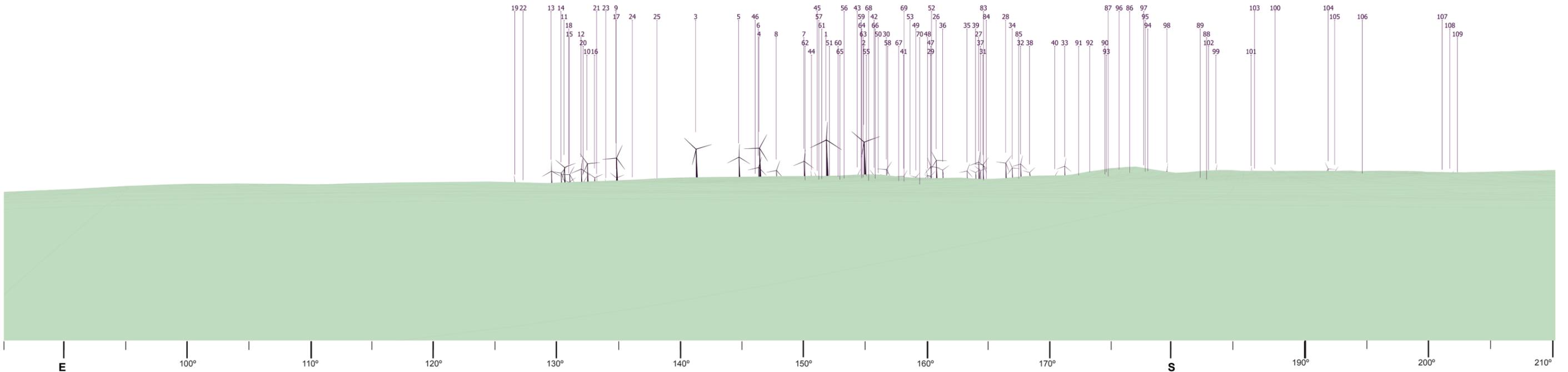


Photomontage 07 Viewpoint 36

Proposed view from VP36 (Superimposed blue sky)



Proposed wireframe from VP36



Photomontage 07 Location Map

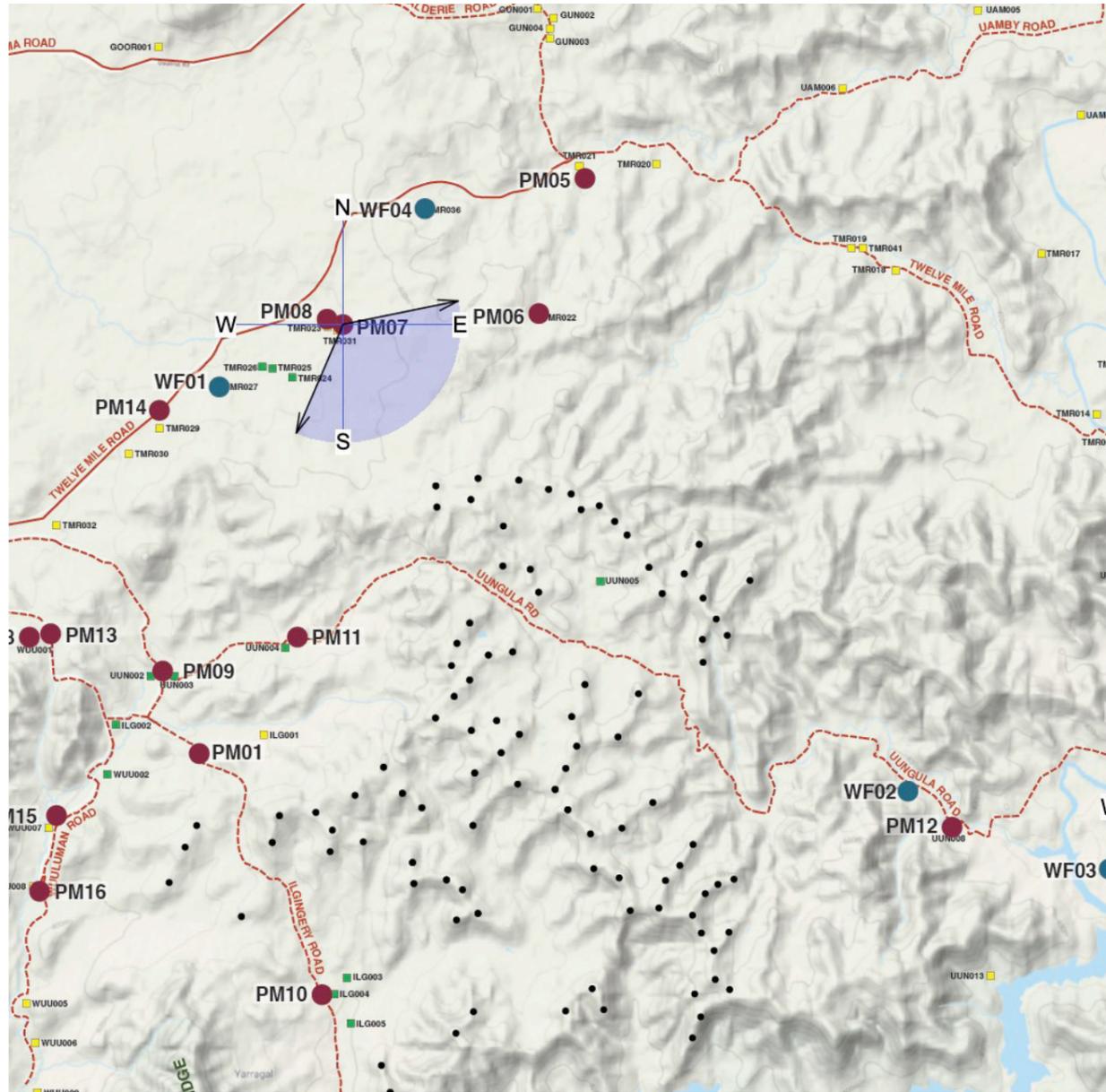


Figure D.7 Photomontage 07 Location and Viewing Direction

Summary of Photomontage 07	
Refer to Viewpoint 36	
Location:	Twelve Mile Road
Coordinates:	149° 7'32.38"E 32°28'39.45"S
Distance to WTG:	Approx. 3.2km
Viewing Direction:	Generally South East
Elevation:	550m
Representative Dwelling/s:	TMR023

Photomontage 08 Viewpoint 37

Existing view from VP37



Proposed view from VP37

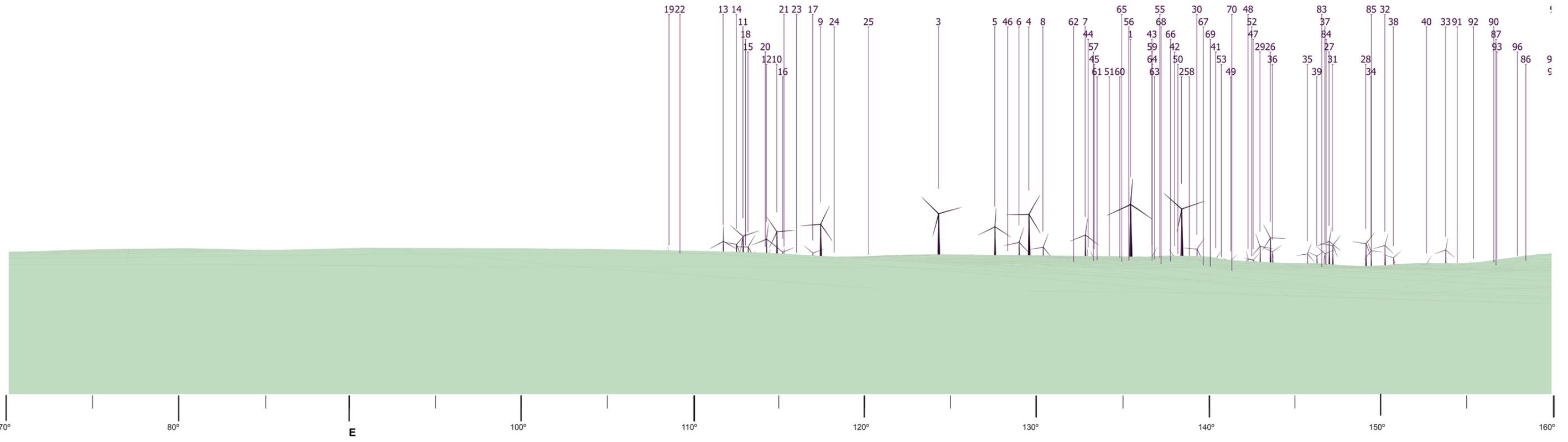


Photomontage 08 Viewpoint 37

Proposed view from VP37 (Superimposed blue sky)



Proposed wireframe from VP37



Photomontage 08 Location Map

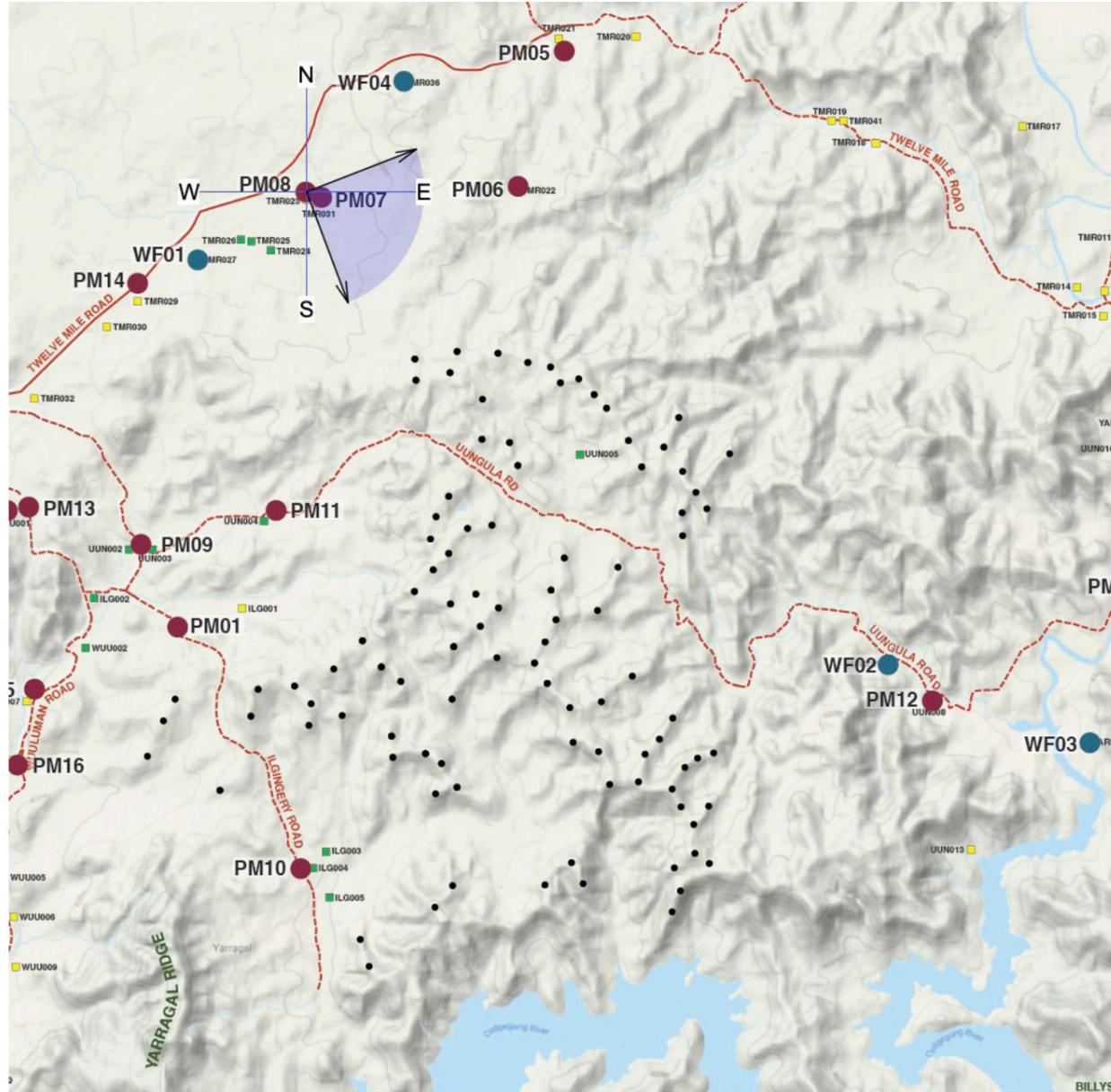
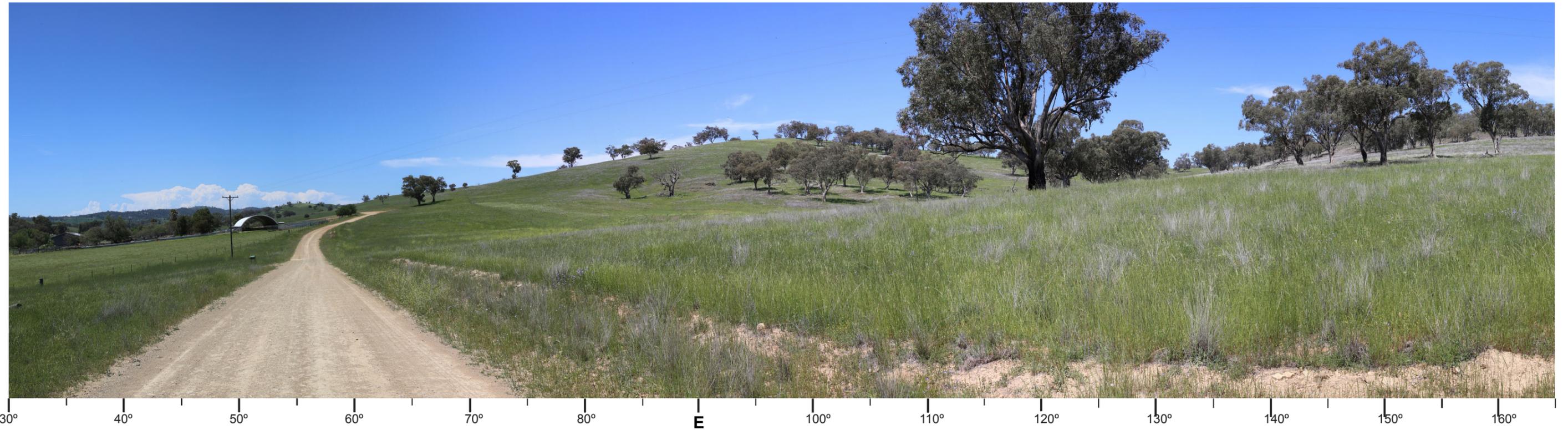


Figure D.8 Photomontage 08 Location and Viewing Direction

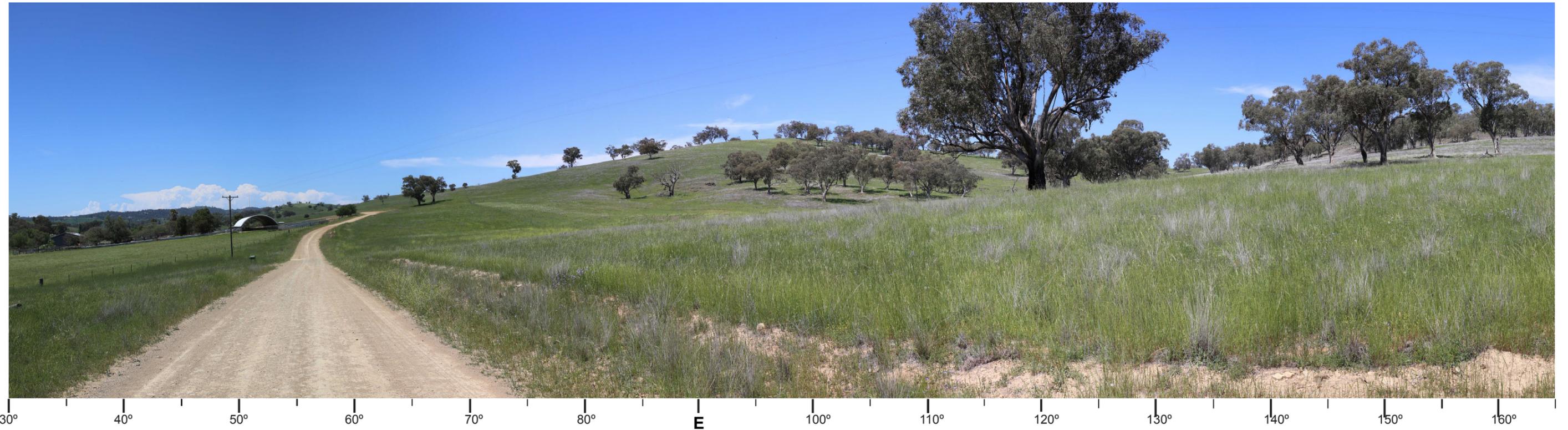
Summary of Photomontage 08	
Refer to Viewpoint 37	
Location:	Twelve Mile Road
Coordinates:	149° 7'39.54"E 32°28'40.88"S
Distance to WTG:	Approx. 3.1km
Viewing Direction:	Generally East
Elevation:	560m
Representative Dwelling/s:	TMR031

Photomontage 15 Viewpoint 26

Existing view from VP26

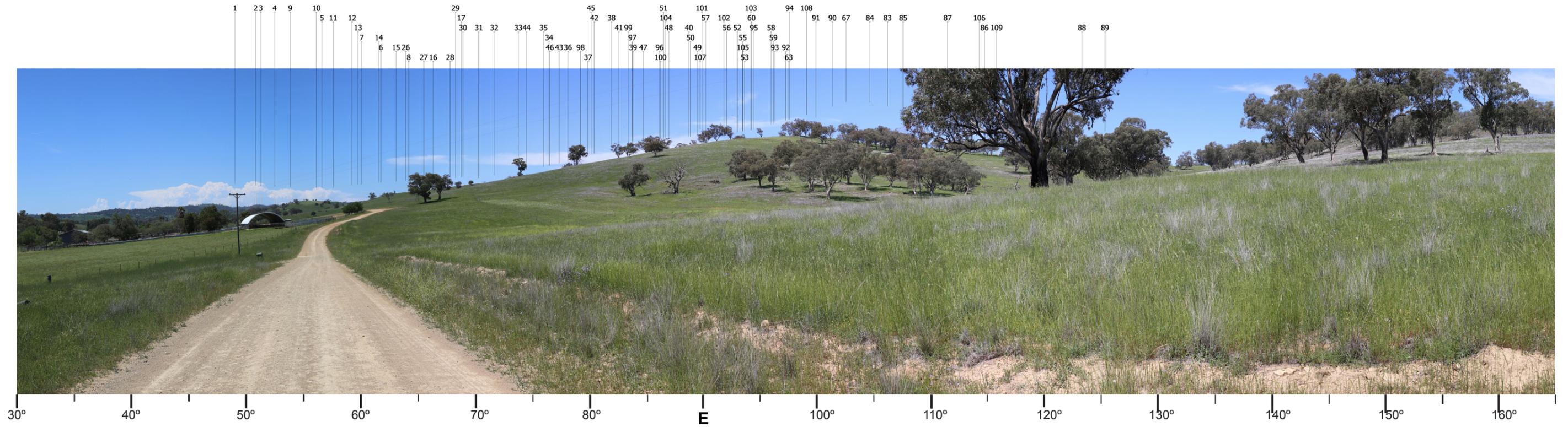


Proposed view from VP26

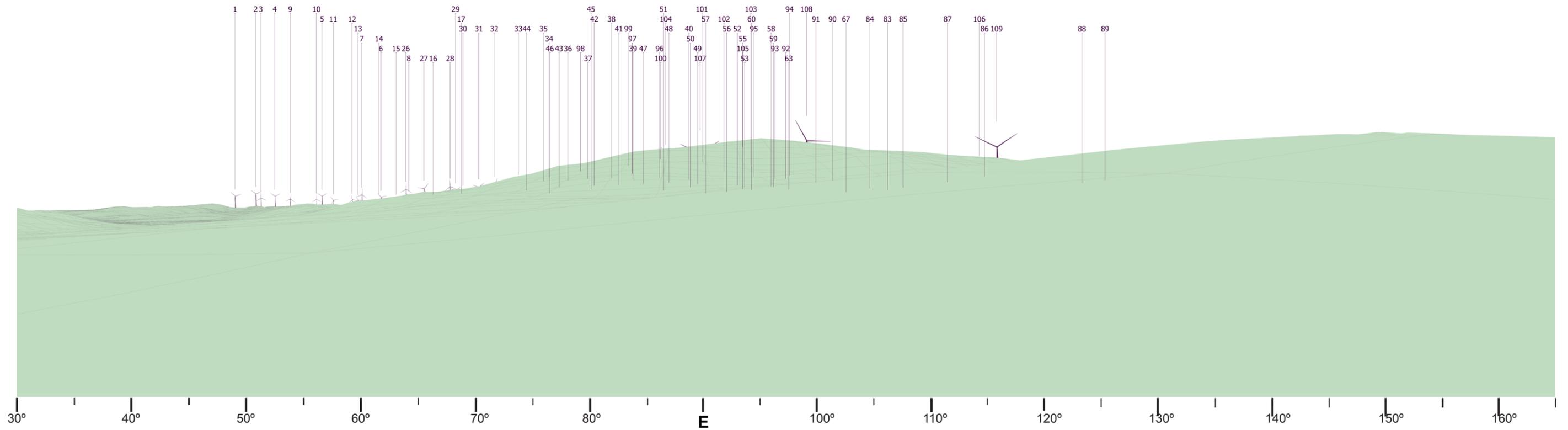


Photomontage 15 Viewpoint 26

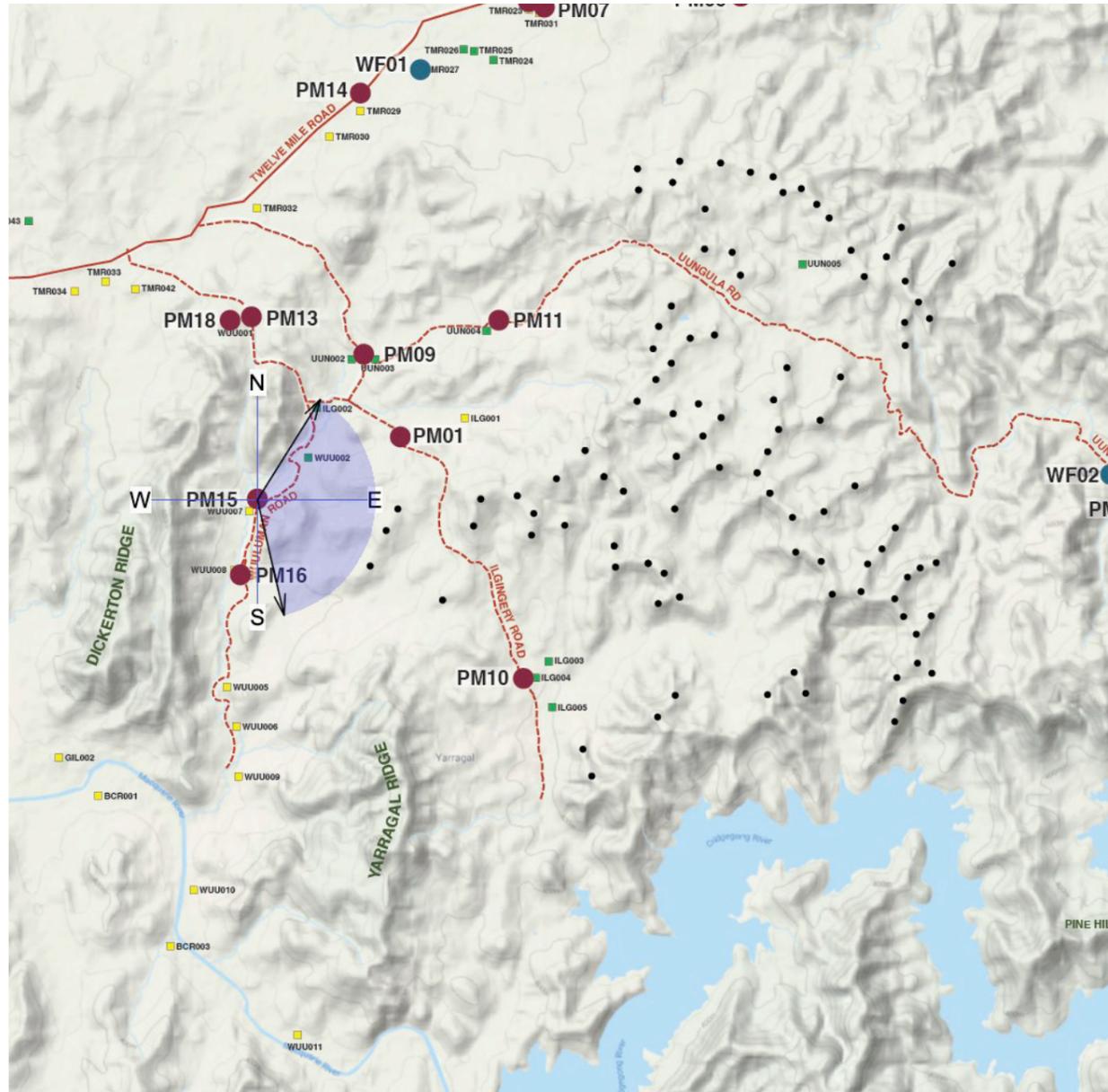
Proposed view from VP26



Proposed wireframe from VP26



Photomontage 15 Location Map

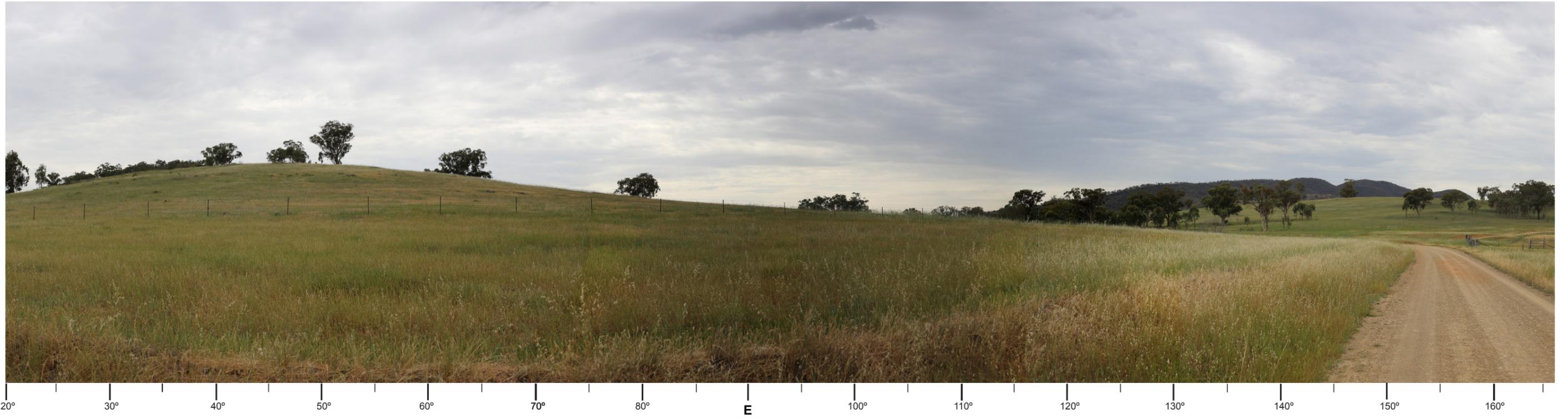


Summary of Photomontage 15	
Refer to Viewpoint 26	
Location:	Wuuluman Road
Coordinates:	149° 4'15.62"E 32°34'48.23"S
Distance to WTG:	Approx. 2km
Viewing Direction:	Generally North East
Elevation:	390m
Representative Dwelling/s:	WUU007, WUU008

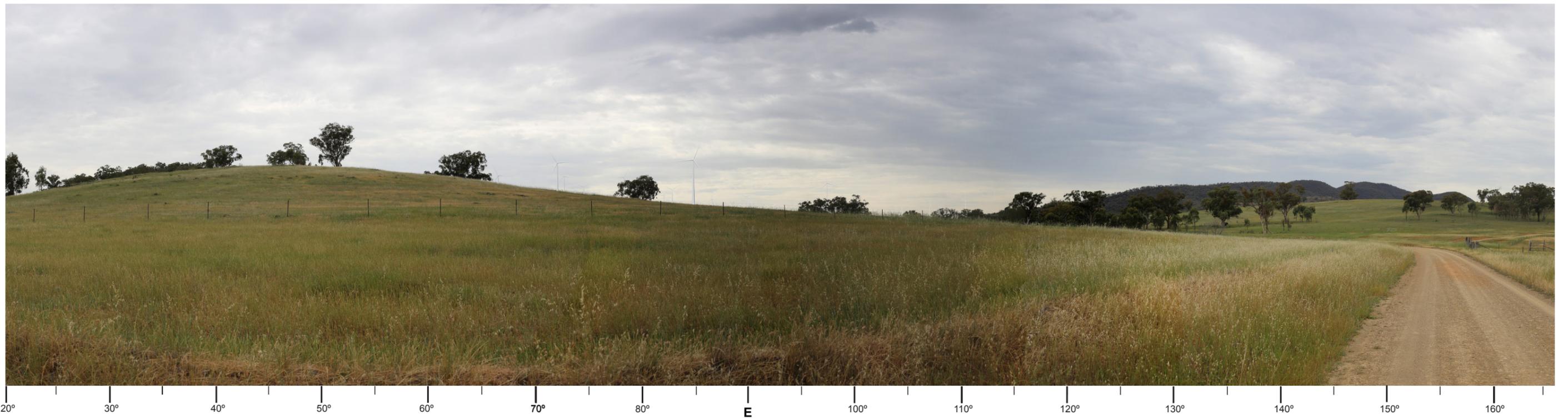
Figure D.15 Photomontage 15 Location and Viewing Direction

Photomontage 16 Viewpoint 45

Existing view from VP45

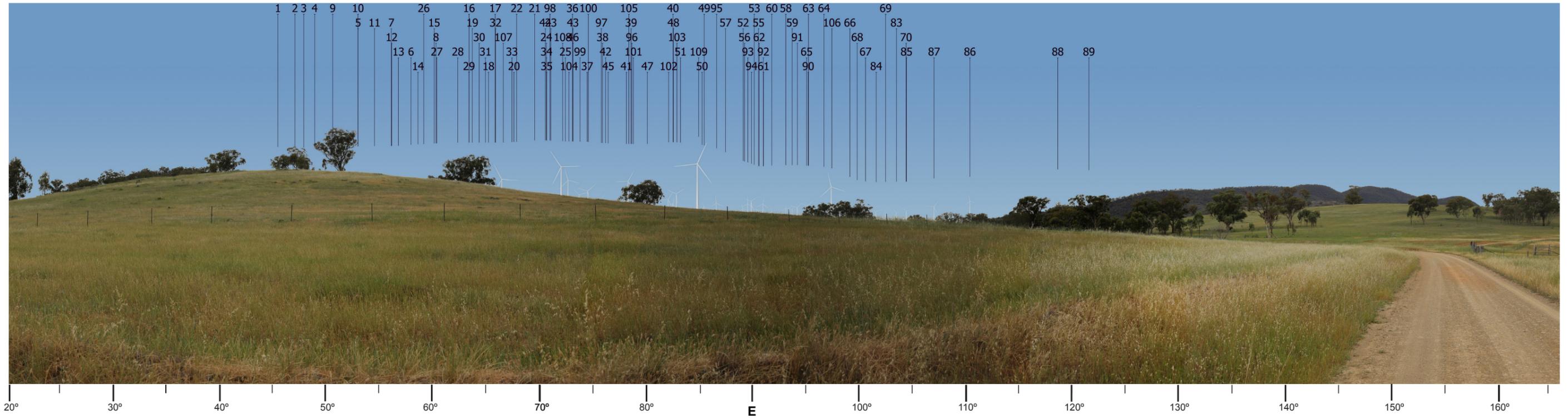


Proposed view from VP45

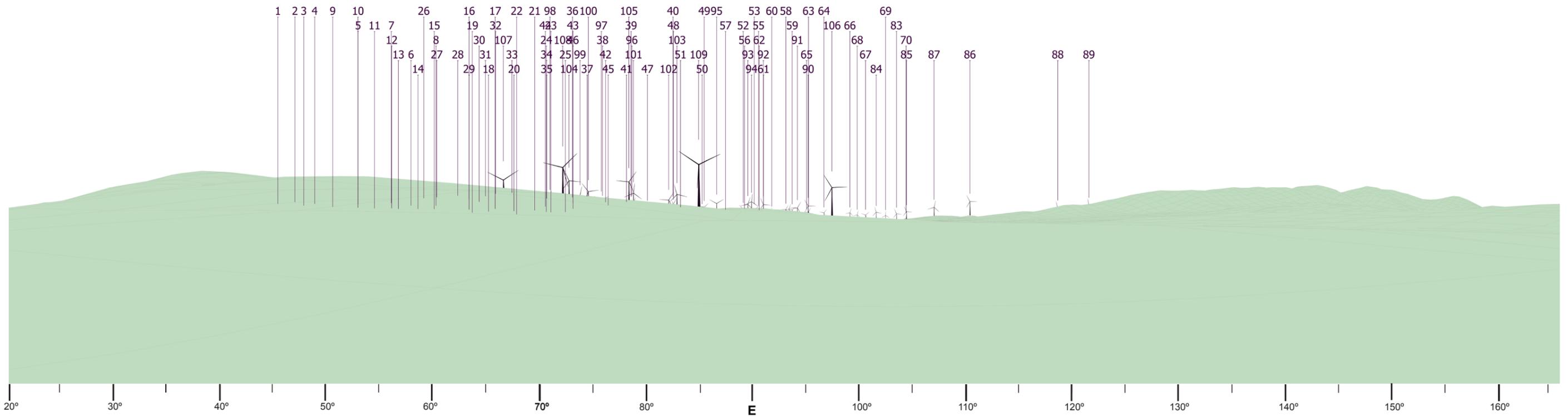


Photomontage 16 Viewpoint 45

Proposed view from VP45 (Superimposed blue sky - 3pm)

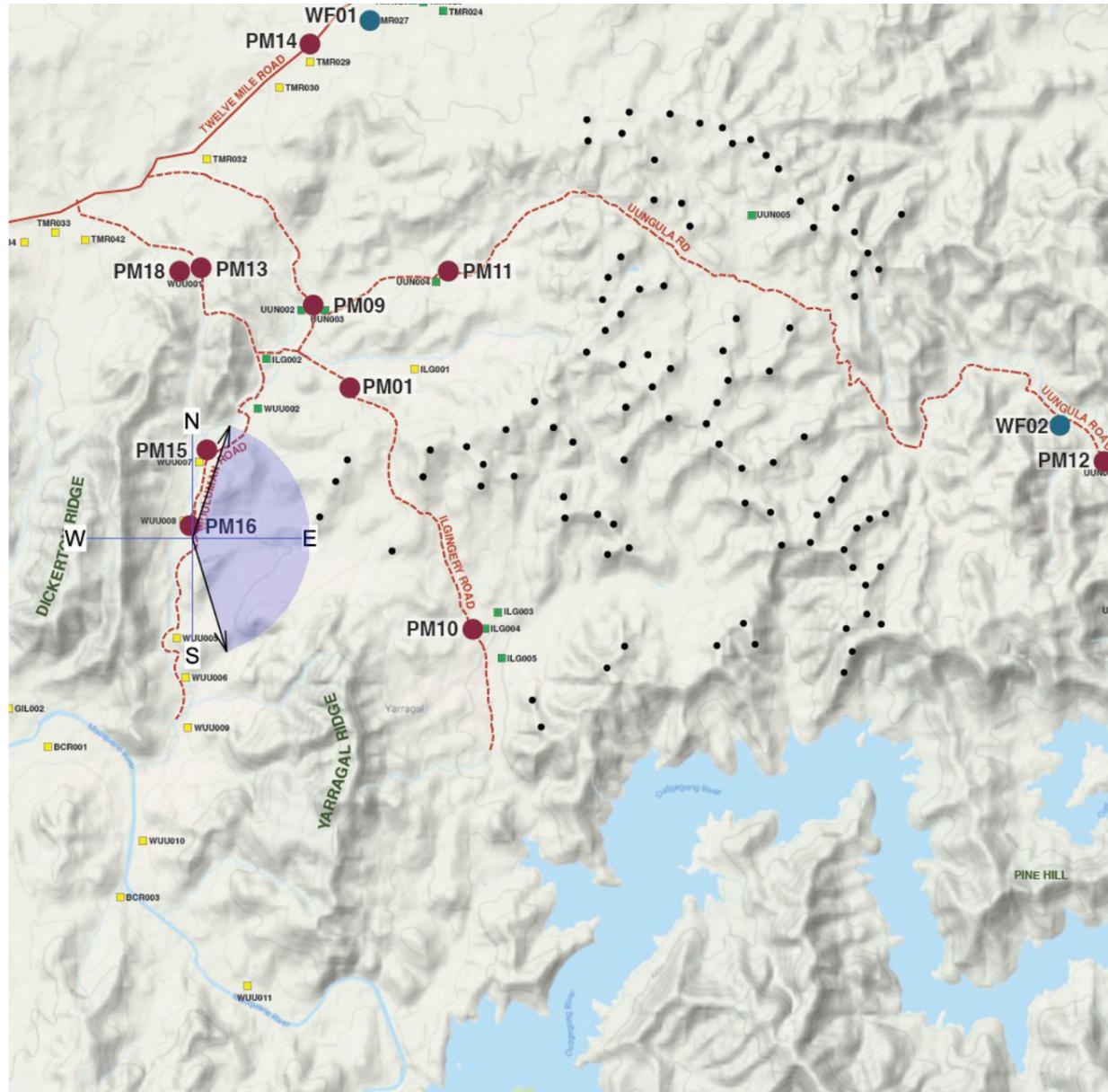


Proposed wireframe from VP45



Refer to Appendix E for Blue Sky Comparison

Photomontage 16 Location Map

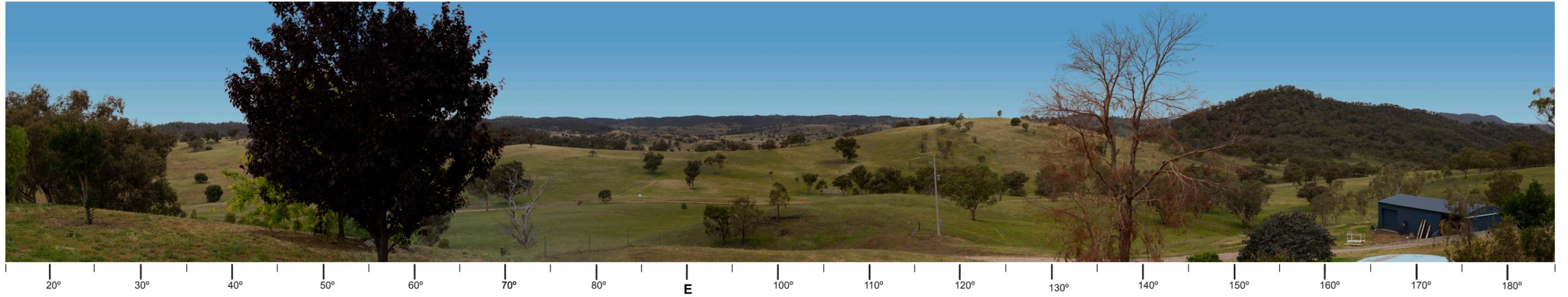


Summary of Photomontage 16	
Refer to Viewpoint 45	
Location:	Wuuluman Road
Coordinates:	149° 4'27.93"E 32°33'52.63"S
Distance to WTG:	Approx. 2.1km
Viewing Direction:	Generally East
Elevation:	370m
Representative Dwelling/s:	WUU008

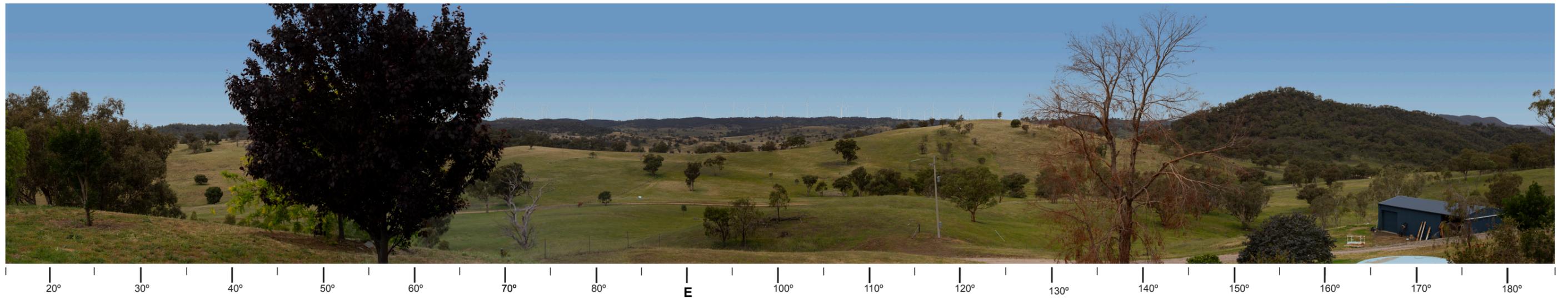
Figure D.16 Photomontage 16 Location and Viewing Direction

Photomontage 18 Viewpoint 46

Existing view from VP46

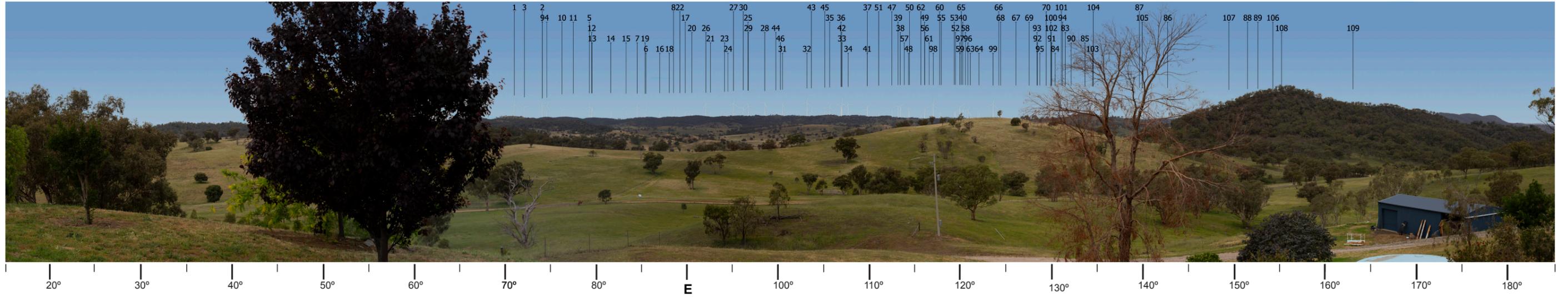


Proposed view from VP46

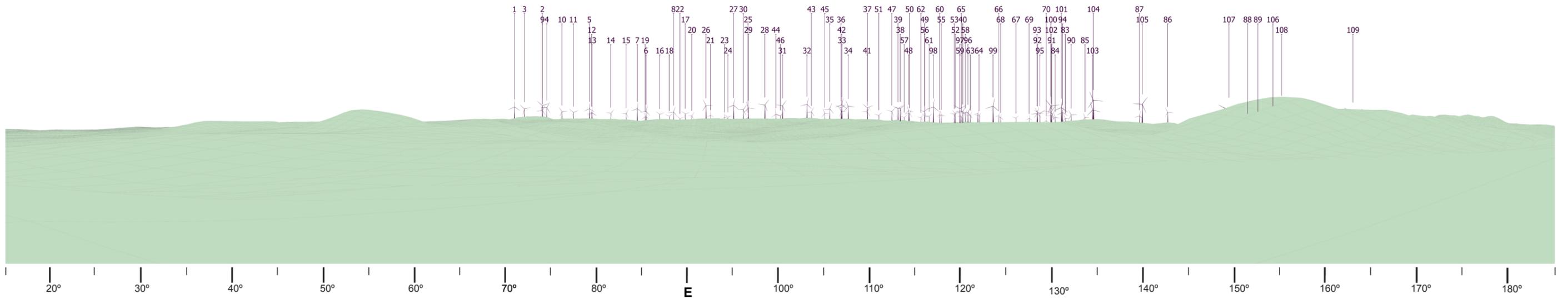


Photomontage 18 Viewpoint 46

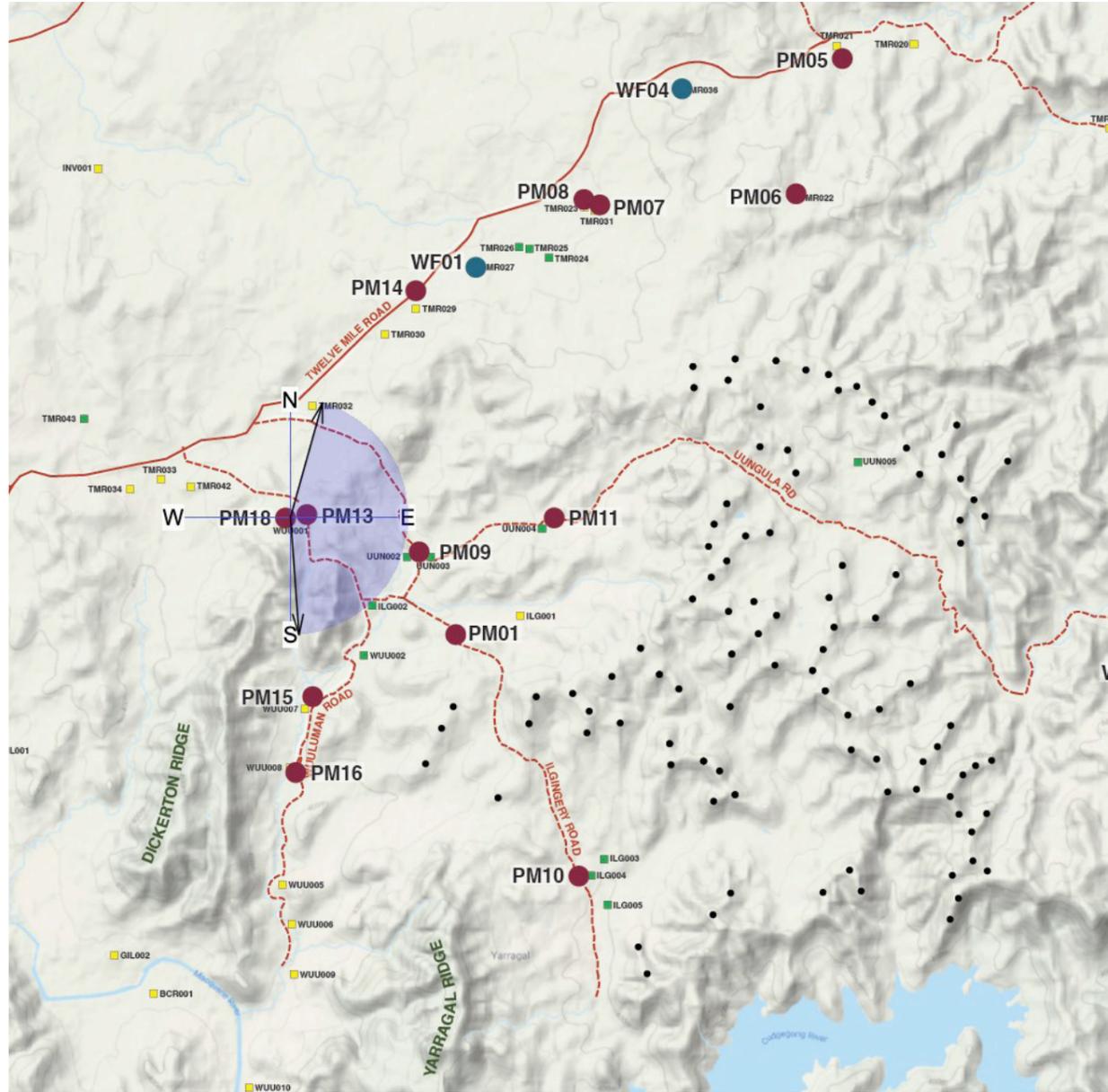
Proposed view from VP46



Proposed wireframe from VP46



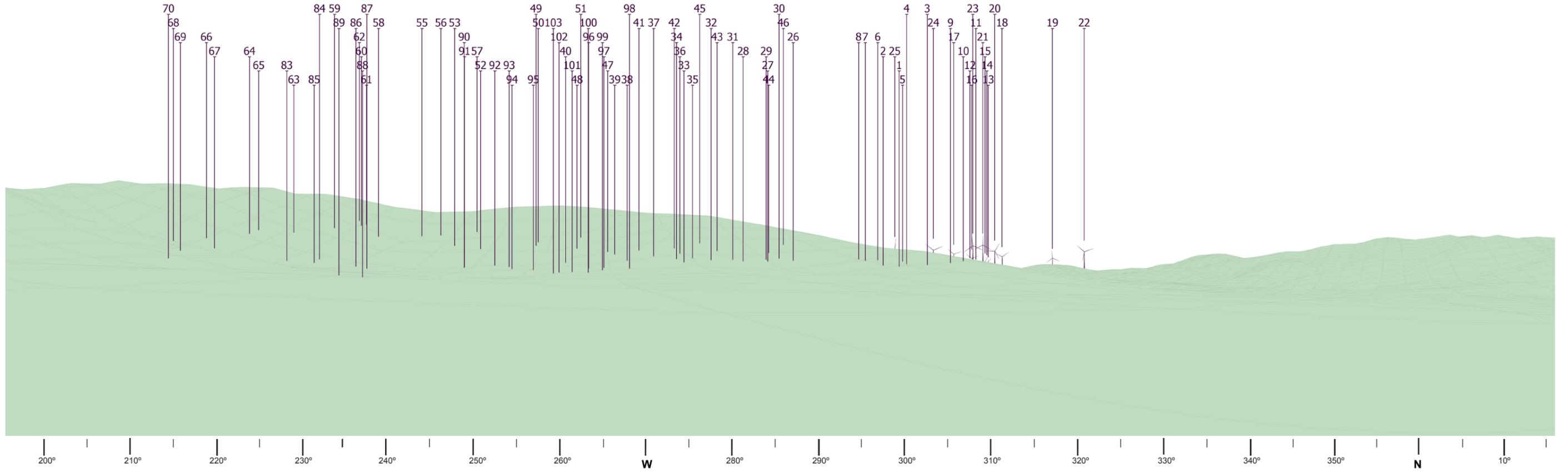
Photomontage 18 Location Map



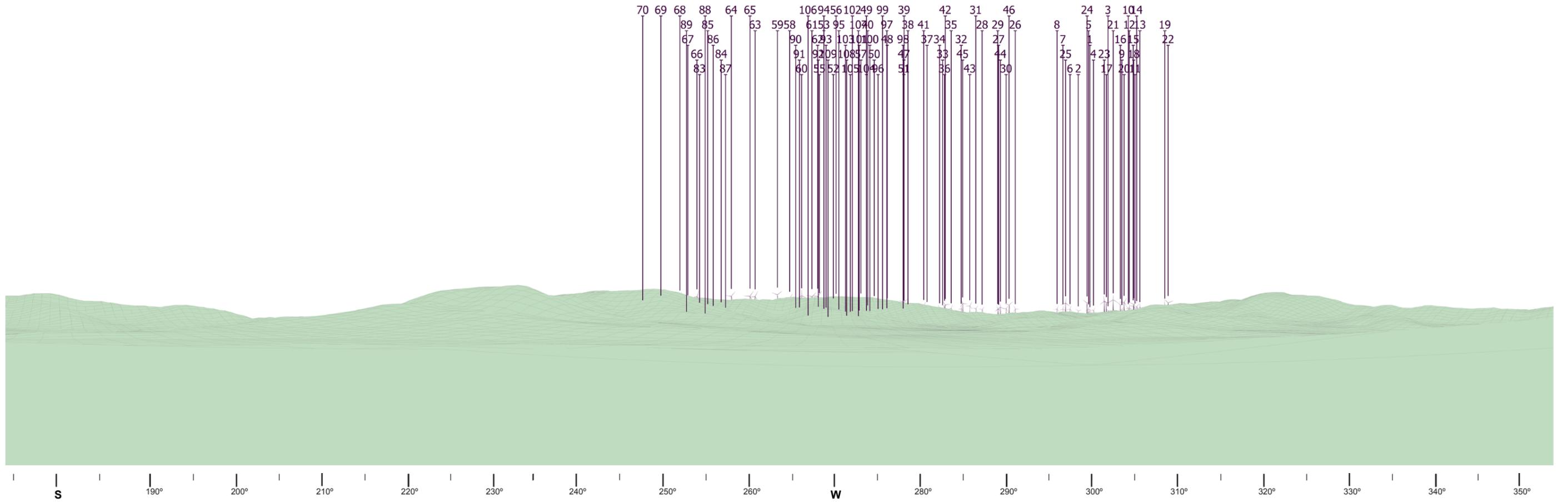
Summary of Photomontage 18	
Refer to Viewpoint 46	
Location:	Wuuluman Road
Coordinates:	149° 4'22.57"E 32°31'30.13"S
Distance to WTG:	Approx. 4.2km
Viewing Direction:	Generally East
Elevation:	520m
Representative Dwelling/s:	WUU001

Figure D.18 Photomontage 18 Location and Viewing Direction

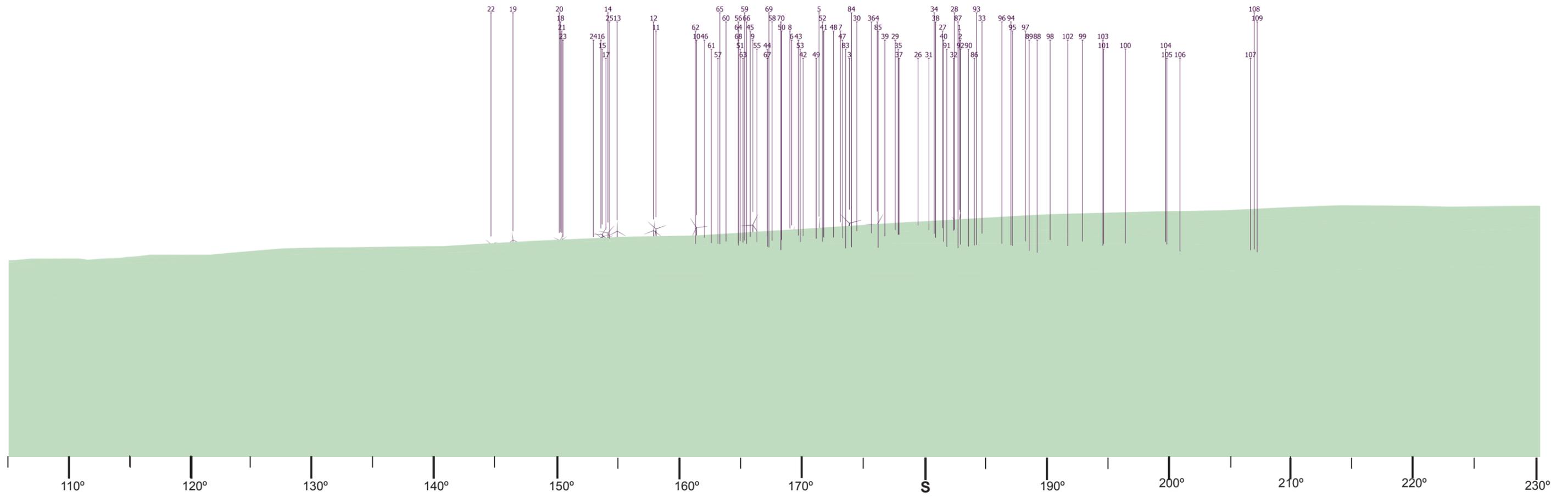
Wire frame 02 Residence UUN007



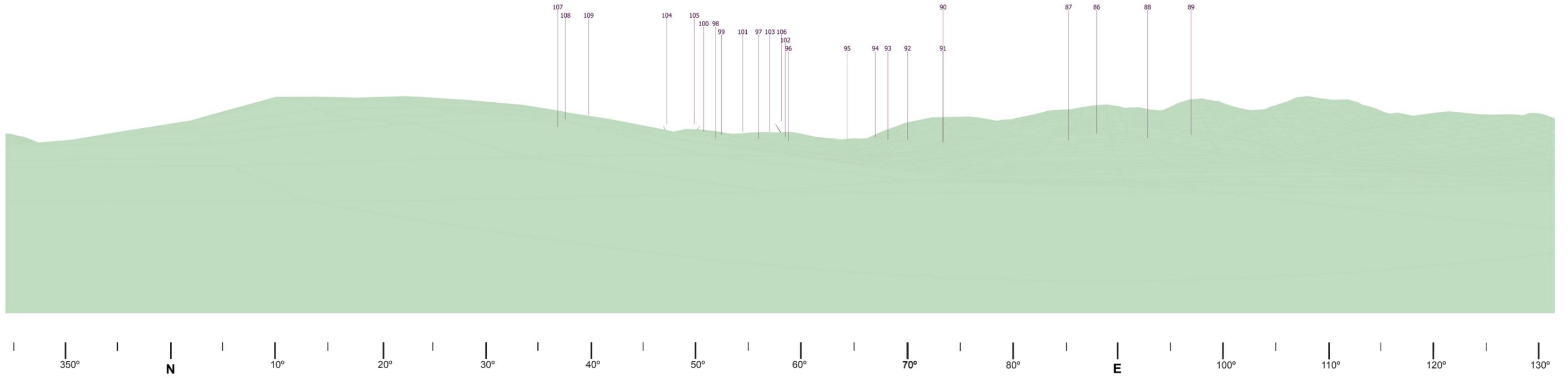
Wire frame 03 Residence YARR018



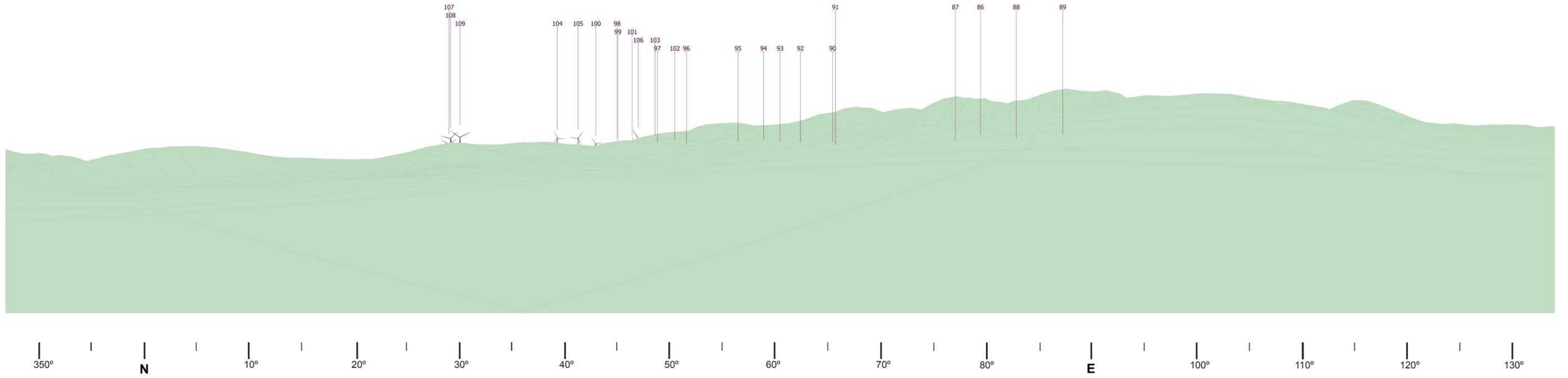
Wire frame 04 Residence TMR036



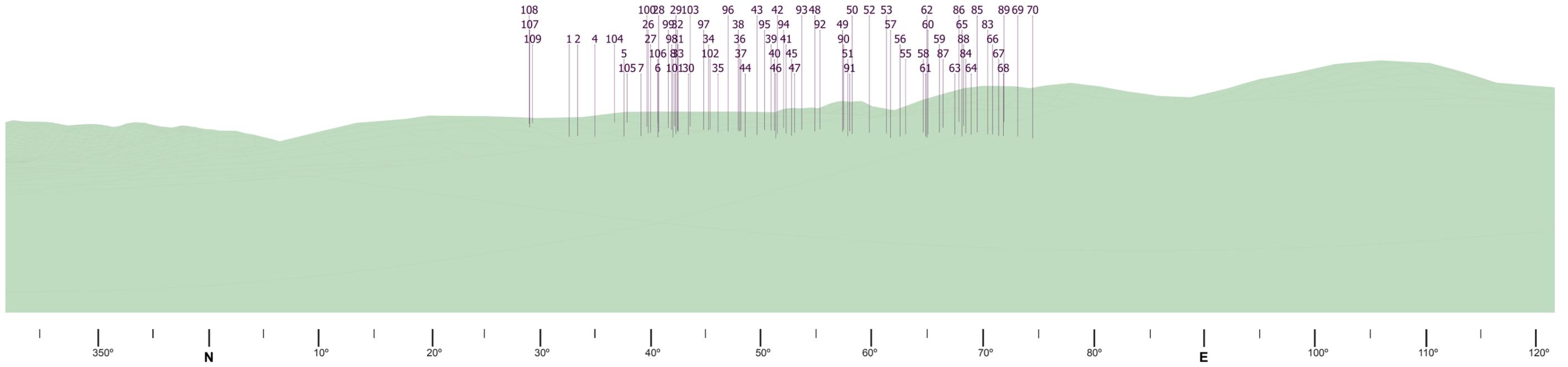
Wire frame 06 Residence WUU006



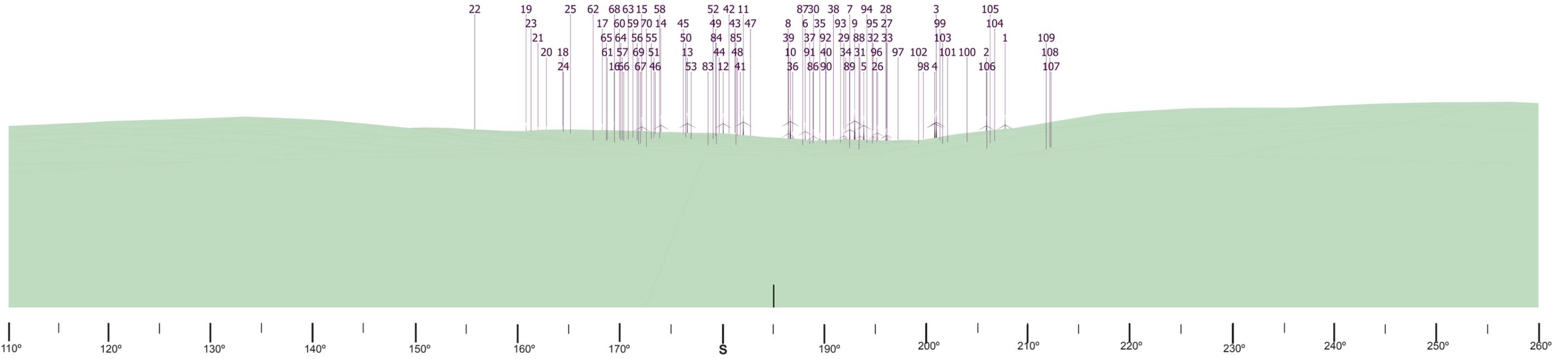
Wire frame 07 Residence WUU009



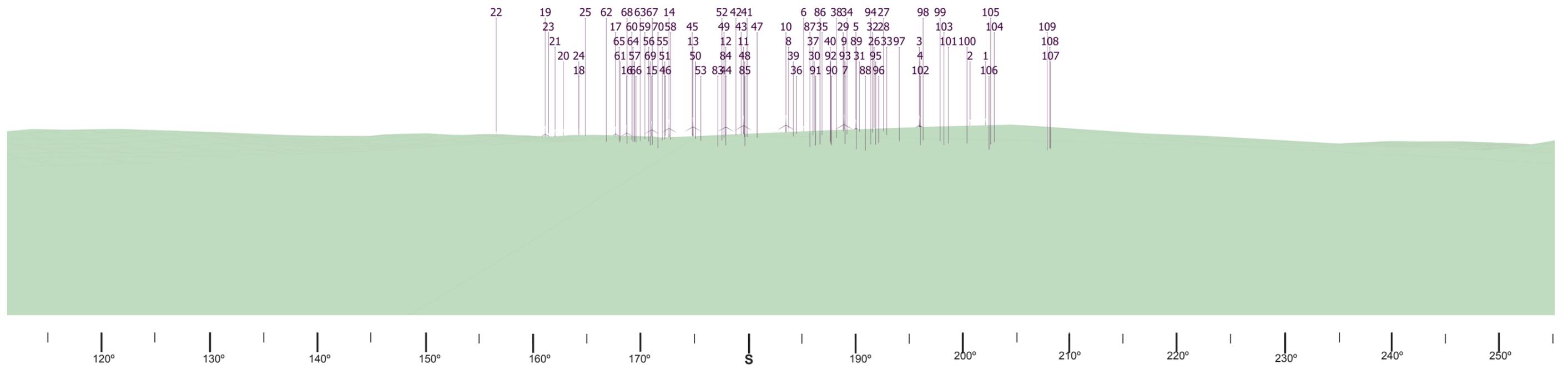
Wire frame 08 Residence WUU010



Wire frame 11 Residence TMR050



Wire frame 12 Residence TMR051

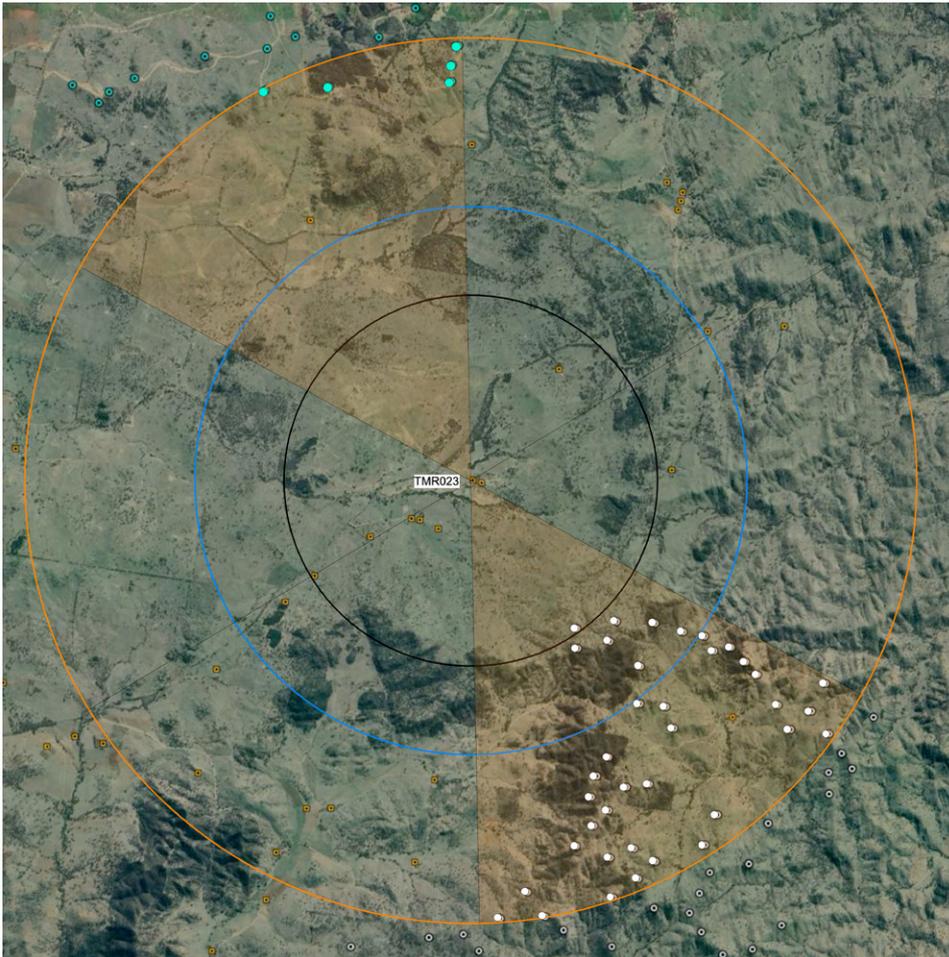




Appendix C

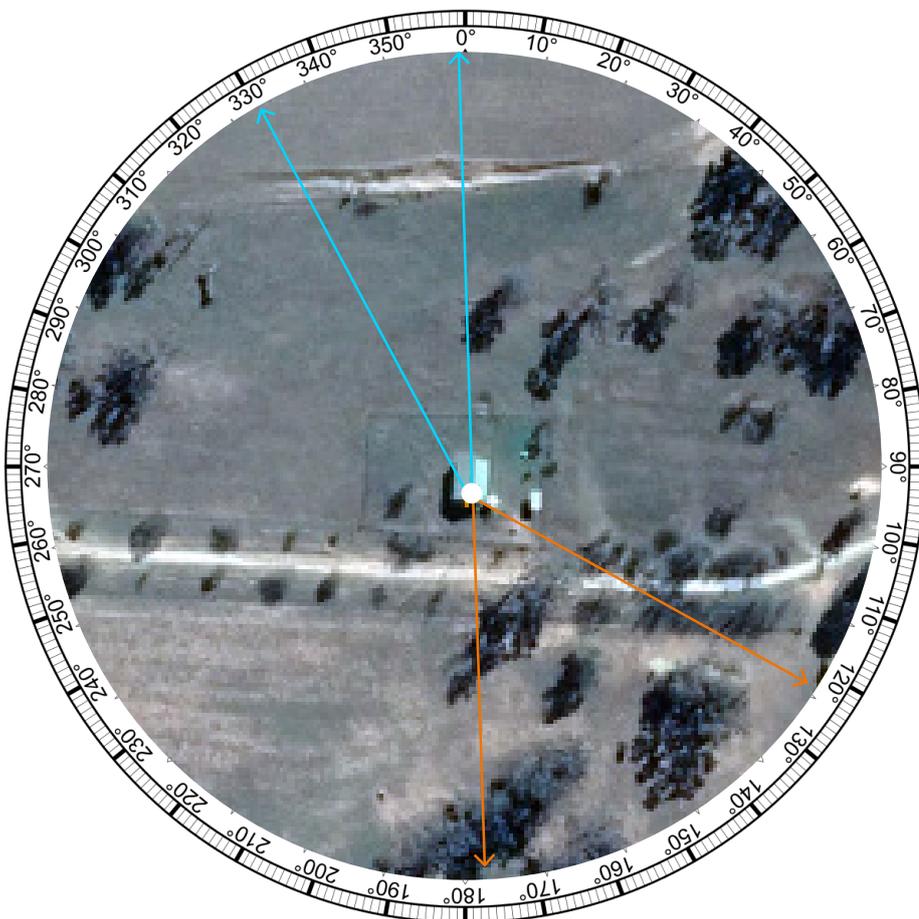
Cumulative Impact Assessment

TMR023



LEGEND:

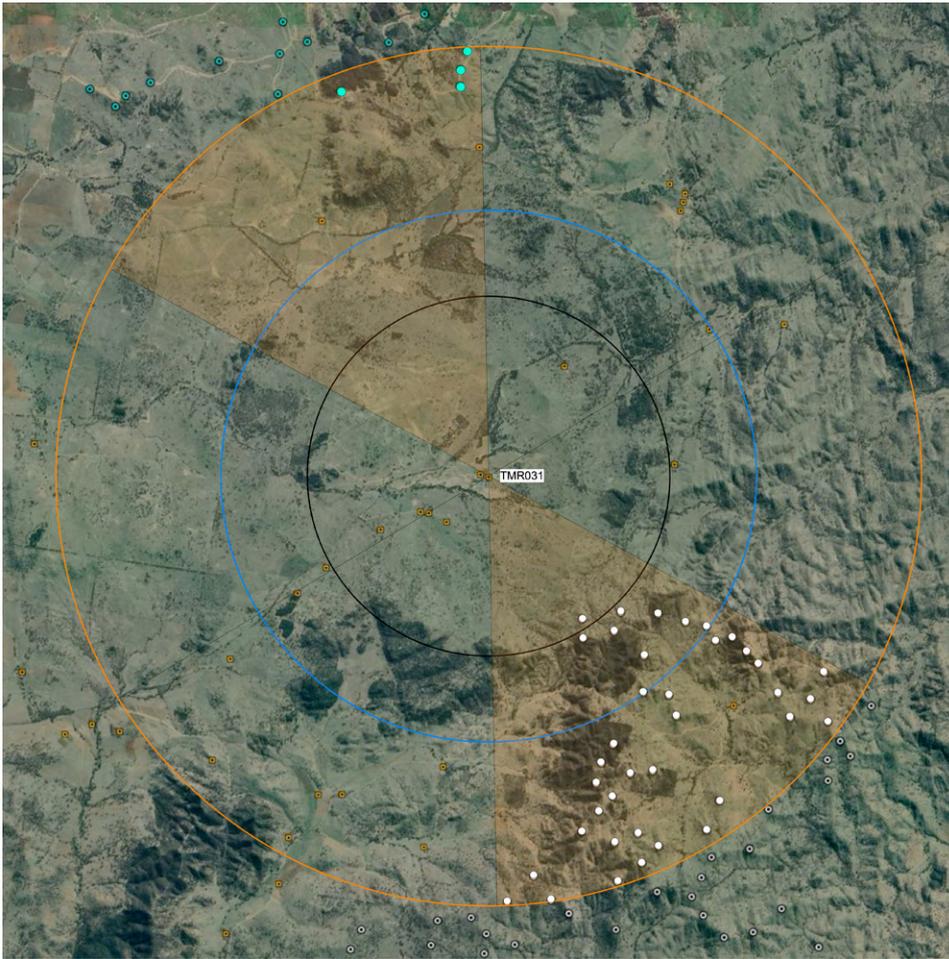
- Uungula WTG within 8km of residence
- Bodangora WTG within 8km of residence
- 3350m from residence
- 5000m from residence
- 8000m from residence
- 60° Sector with turbine (Based on 2D Plan)



LEGEND:

- ↖ ↗ Direction of Bodangora WTGs within 8kms.
- ↘ ↙ Direction of proposed Uungula WTGs within 8kms - Note: intervening vegetation.

TMR031



LEGEND:

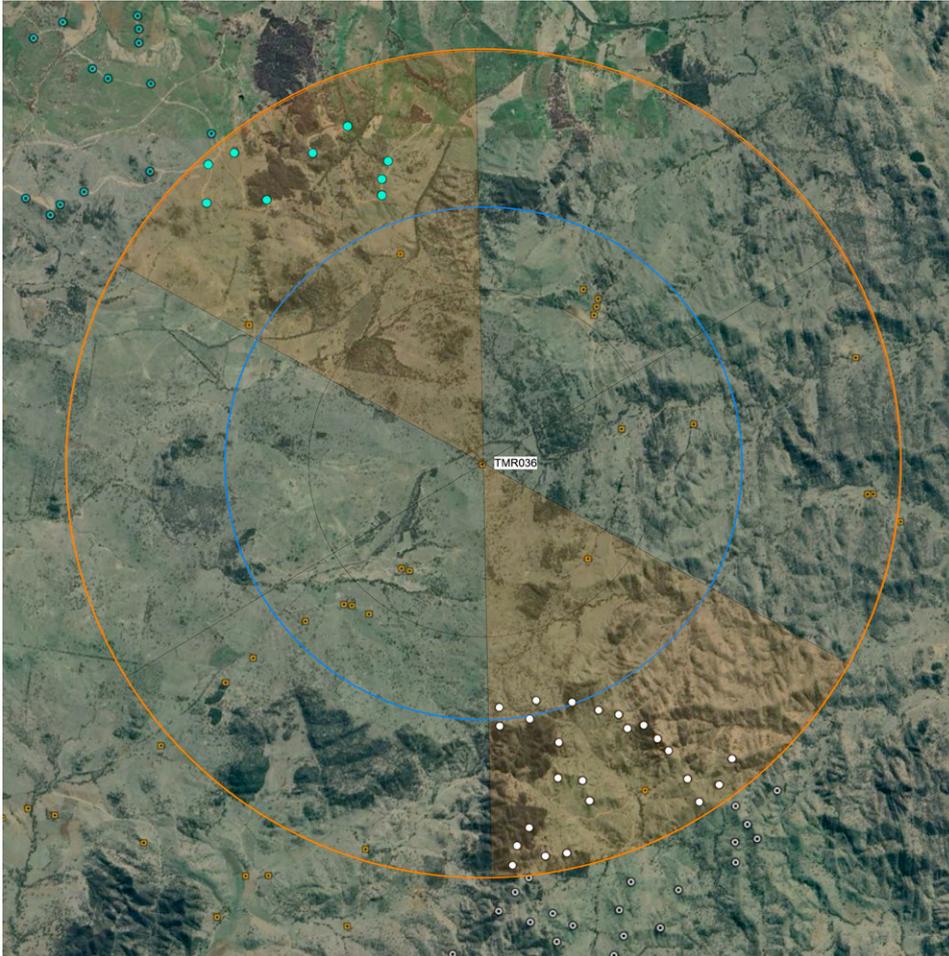
- Uungula WTG within 8km of residence
- Bodangora WTG within 8km of residence
- 3350m from residence
- 5000m from residence
- 8000m from residence
- 60° Sector with turbine (Based on 2D Plan)



LEGEND:

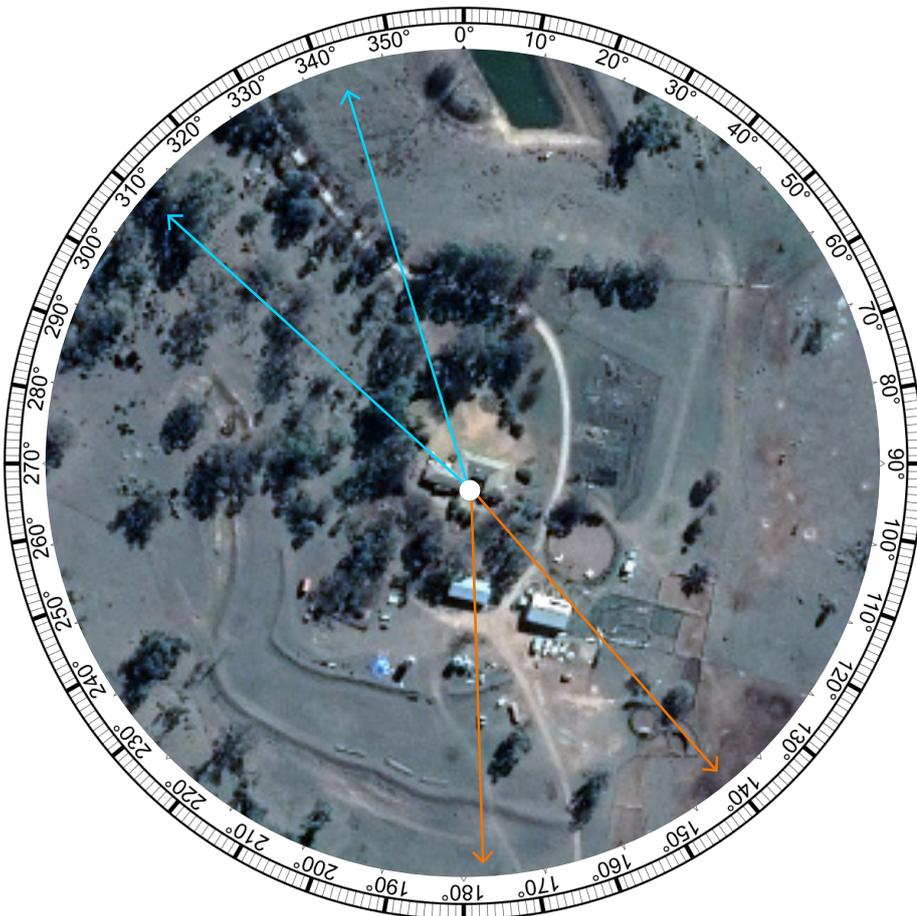
- ← Direction of Bodangora WTGs within 8kms. Note: intervening vegetation.
- ← Direction of proposed Uungula WTGs within 8kms - Note: intervening vegetation.

TMR036



LEGEND:

- Uungula WTG within 8km of residence
- Bodangora WTG within 8km of residence
- 3350m from residence
- 5000m from residence
- 8000m from residence
- 60° Sector with turbine (Based on 2D Plan)



LEGEND:

- Direction of Bodangora WTGs within 8kms.
Note: intervening vegetation.
- Direction of proposed Uungula WTGs within 8kms -
Note: intervening buildings and vegetation.



WIND

UUNGULA WIND FARM (SSD-6687)

Response to Request for Additional Information Appendix B: Noise Assessment Addendum

15 March 2021

Version 1
Author Matthew Flower
Client Uungula Wind Farm Pty Ltd

CWP Renewables
PO Box 1708
NEWCASTLE NSW 2300

S3958.2C11

Attention: Matthew Flower

12 March 2021

Dear Matthew,

**UUNGULA WIND FARM
REQUEST FOR INFORMATION**

Sonus previously conducted an Environmental Noise Assessment of the proposed Uungula Wind Farm. The assessment was summarised in report "S3958.2C8", which was provided by CWP Renewables as part of the Environmental Impact Statement (EIS).

Background

The Environmental Noise Assessment provided, among other things, objective criteria for construction activity and for traffic on local roads.

Construction

Predictions indicated that the noise from construction activities would result in some residences being "noise affected" (having an noise level of greater than 40 dB(A)), but no locations would be "highly noise affected" (noise levels of greater than 75 dB(A)).

For reference, the "noise affected" level represents the point above which there may be some community reaction to noise and the proponent should apply all feasible and reasonable work practices to minimise noise. The "highly noise affected" level represents the point above which there may be strong community reaction to noise.

Traffic

The *NSW Road Noise Policy* (DECCW, 2011, the RNP) provides objective noise criteria for new and upgraded roads. There are no criteria specific to temporary construction traffic, nor any adjustments made for the short term nature of the activity. That is, the criteria are designed to be applied for permanent changes in a road network rather than for a limited construction period.

The assessment of traffic noise indicated that moderate traffic flow levels would result in the criteria being achieved. Notwithstanding, there would be specific roads and times during the peak construction period when the criterion of 55 dB(A) may be exceeded at residences with small set back distances from the road.

Request for Further Information

A request for further information has been made as part of the application process, which includes the following relating to the noise from construction and traffic associated with development of the wind farm:

- *Provide a table of non-associated residences with potential construction noise exceedances that outlines the expected noise levels (including the distance from, type of, and duration of construction activity – including traffic noise);*

Construction Activity

As requested, a table of construction activity noise levels has been prepared, which includes all residences which are predicted to be “noise affected” (noise level greater than 40 dB(A)).

The predictions have been made based on the assumptions and activity provided in the previous assessment and at all non-associated residences which have been provided by the applicant, detailed in Appendix A.

The table of predicted noise levels for locations in the vicinity of the wind farm which may be noise affected by its construction is summarised below:



Table 1: Predicted construction noise levels for non-associated locations > 40 dB(A)

Phase	Main Plant and Equipment	Separation to Achieve 40 dB(A) Criterion	Residence ID	Approximate Distance to Activity	Predicted Noise Level
Site Set-Up and Civil Works	Generator Transport truck Excavator Low loader	1650m	ILG006****	800m	46 dB(A)
Road and Hard Stand Construction	Mobile crushing and screening plant Dozer Roller Low loader Tipper truck Excavator Scraper Transport truck	2400m	TMR030	1000m	49 dB(A)
			WUU008	2250m	41 dB(A)
			ILG006****	800m	50 dB(A)
Excavation and foundation construction	Excavator Front end loader Concrete batching plant Mobile crushing and screening plant Truck-mounted concrete pump Concrete mixer truck Mobile crane Transport truck Tipper truck	2400m	WUU008	2250m	41 dB(A)
			ILG006****	800m	50 dB(A)
Electrical Installation (Underground)	Rock trencher Concrete mixer truck Low loader Tipper truck Mobile crane	2400m	WUU008	2250m	41 dB(A)
			ILG006****	800m	50 dB(A)
Turbine Delivery and Erection	Extendable trailer truck Low loader Mobile crane	1800m	ILG006****	800m	47 dB(A)

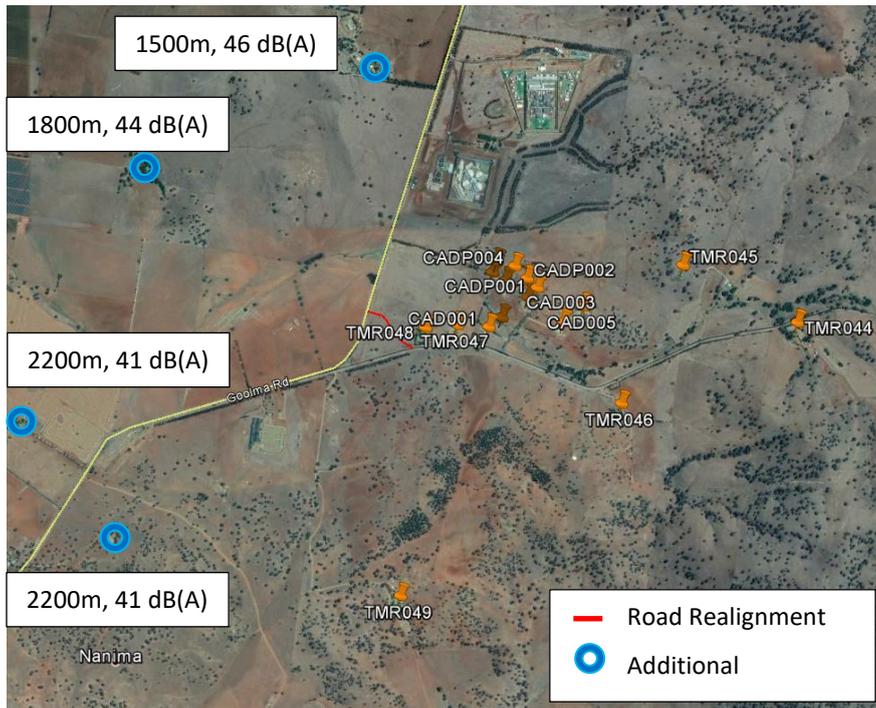
**** derelict house, on land owned by Water NSW and not a sensitive receiver for the project.

In addition to the construction of the wind farm, there will be works associated with the upgrade of Twelve Mile road between the site entrance and Goomla Road. The works include a realignment and new intersection between the two roads. Noise levels have been predicted and are provided below for residences where the level is 40 dB(A) or greater:



Phase	Main Plant and Equipment	Separation to Achieve 40 dB(A) Criterion	Residence ID	Approximate Distance to Activity	Predicted Noise Level
Intersection Upgrade / Road Realignment	Mobile crushing and screening plant Dozer Roller Low loader Tipper truck Excavator Scraper Transport truck	2400m	TMR048	75m	71 dB(A)
			TMR047	270m	60 dB(A)
			CAD001	460m	56 dB(A)
			CAD002	548m	54 dB(A)
			CADP006	680m	52 dB(A)
			CADP005	620m	53 dB(A)
			CADP004	760m	51 dB(A)
			CADP003	660m	53 dB(A)
			CADP002	780m	51 dB(A)
			CADP001	830m	51 dB(A)
			CAD004	750m	51 dB(A)
			CAD003	925m	50 dB(A)
			CAD005	1050m	49 dB(A)
			TMR046	1300m	47 dB(A)
TMR049	1600m	45 dB(A)			
TMR045	1700m	44 dB(A)			
TMR044	2400m	40 dB(A)			
Twelve Mile Road Upgrade (between site entrance & Goolma Road)	Mobile crushing and screening plant Dozer Roller Low loader Tipper truck Excavator Scraper Transport truck	2400m	TMR048	47m	75 dB(A)
			TMR047	55m	74 dB(A)
			CAD001	60m	73 dB(A)
			CAD002	130m	67 dB(A)
			CADP006	470m	56 dB(A)
			CADP005	400m	57 dB(A)
			CADP004	460m	56 dB(A)
			CADP003	350m	58 dB(A)
			CADP002	400m	57 dB(A)
			CADP001	400m	57 dB(A)
			CAD004	310m	59 dB(A)
			CAD003	250m	61 dB(A)
			CAD005	380m	57 dB(A)
			TMR046	180m	64 dB(A)
			TMR049	1600m	45 dB(A)
			TMR045	420m	57 dB(A)
			TMR044	70m	72 dB(A)
			BRR002	970m	49 dB(A)
			BRR001	1800m	44 dB(A)
			TMR034	320m	59 dB(A)
TMR033	250m	61 dB(A)			
TMR042	500m	55 dB(A)			
WUU001	1500m	45 dB(A)			
TMR032	260m	61 dB(A)			
TMR030	230m	62 dB(A)			

In addition to the residential locations identified, there are a number of potential residential locations which are in the vicinity of the road upgrade, but given they are well separated from the wind farm, no residence ID has been provided. The following figure identifies the potential additional residence locations (within 2400m) which may be classified as “noise affected” but not “highly noise affected”.



Traffic Noise

A table of predictions has also been prepared for residences closest to the access route (between Goomla Road and the site), where the 55 dB(A) criterion is predicted to be exceeded. The predictions have been conducted for both the average and peak construction periods, as summarised below:

Table 2: Predicted traffic noise levels for non-associated locations > 55 dB(A)

Phase	Separation to Achieve 55 dB(A) Criterion	Residence ID	Approximate Distance to Road	Predicted Noise Level
Peak Construction Period	100m	TMR044	70m	56 dB(A)
		CAD001	50m	58 dB(A)
		TMR047	55m	57 dB(A)
		TMR048	45m	58 dB(A)
Average Construction Period	60m	CAD001	50m	56 dB(A)
		TMR047	55m	55 dB(A)
		TMR048	45m	56 dB(A)

Yours faithfully
 Sonus Pty Ltd

Chris Turnbull
 Principal
 +61 417 845 720
 ct@sonus.com.au



APPENDIX A: Residence Coordinates

House ID	Type	Involved	Easting	Northing
TMR023	House	No	699748	6404640
TMR021	House	No	704032	6407244
UUN010	House	No	713500	6400255
TMR031	House	No	699902	6404592
UAM006	House	No	708560	6408529
TMR025	House	Yes	698779	6403943
YARR014	House	No	717682	6392503
TMR022	House	No	703336	6404755
YARR006	House	No	713969	6398069
UUN005	House	Yes	704343	6400268
YARR008	House	No	714628	6395991
TMR017	House	No	711875	6405721
UAM005	House	No	710861	6409832
UUN004	House	Yes	698948	6399242
TMR008	House	No	713984	6404999
UUN011	House	No	713990	6402382
YARR013	House	No	716303	6391861
ILG002	House	Yes	696067	6397987
WUU002	House	Yes	695870	6397135
YARR003	House	No	715225	6401187
UUN008	House	Yes	710257	6396024
ILG004	House	Yes	699692	6393372
TMR027	House	Yes	697882	6403657
UUN003	House	Yes	697072	6398768
YARR004	House	No	713887	6400662
TMR019	House	No	708735	6405892
YARR009	House	No	714920	6396467
UUN009	House	No	714173	6399311
YARR001	House	No	714387	6402649
TMR009	House	No	714182	6404568
TMR010	House	No	713699	6403801
TMR020	House	No	705420	6407309
TMR030	House	No	696324	6402510
UUN002	House	Yes	696631	6398772
WUU001	House	No	694686	6399451
YARR012	House	No	716433	6392353
TMR014	House	No	712774	6402982
TMR015	House	No	713210	6402471
TMR024	House	Yes	699104	6403775
TMR029	House	Yes	696861	6402971
TMR013	House	No	713247	6402890
TMR012	House	No	713481	6403225
TMR011	House	No	713468	6403802
YARR002	House	No	715616	6401272
YARR005	House	No	714340	6398476
WUU005	House	Yes	694461	6393267
ILG001	House	Yes	698565	6397763
ILG003	House	Yes	699929	6393647
ILG005	House	Yes	699964	6392840
TMR026	House	Yes	698627	6403970
YARR011	House	No	716793	6393097
YARR010	House	No	715129	6396432
YARR007	House	No	714968	6396111

House ID	Type	Involved	Easting	Northing
UUN012	Possible Future Dwelling	No	713887	6402753
WUU006	House	No	694589	6392576
UAM005B	House	No	712591	6408034
UUN013	Possible Future Dwelling	Yes	710833	6393491
TMR042	House	No	692986	6400016
WUU007	House	Yes	694872	6396232
WUU008	House	No	694625	6395249
WUU009	House	No	694644	6391758
WUU010	House	No	693864	6389835
TMR032	House	No	695056	6401317
TMR033	House	No	692478	6400156
TMR034	House	No	691974	6399982
TMR041	House	No	708842	6405894
YARR016	House	No	717269	6391275
TMR043	House	Yes	691204	6401151
TMR036	House	No	701340	6406613
WUU011	House	No	695586	6387408
BDR001	House	No	714866	6388572
YARR017	House	No	715205	6391509
ENC001	Holiday park	No	711775	6387846
BDR002	House	No	713926	6386527
GUNR003	House	No	703545	6409452
GUNR002	House	No	703632	6409764
GUNR001	House	No	703352	6409949
GOOR002	House	No	699849	6410699
GOOR001	House	No	696913	6409394
BRR001	House	No	689531	6398061
GIL001	House	No	689630	6395581
GIL002	House	No	691609	6392088
BCR001	House	No	692255	6391476
BCR003	House	No	693440	6388914
YARR018	House	No	712846	6395298
GUNR004	House	No	703597	6409610
BRR002	House	No	689722	6399010
TMR044	House	No	687695	6400010
TMR045	House	No	686987	6400382
TMR046	House	No	686593	6399526
CAD003	House	No	686241	6400043
CAD001	House	No	685775	6400021
CAD002	House	No	685857	6400080
CAD004	House	No	686024	6400202
CAD005	House	No	686372	6400140
CADP001	House	No	686083	6400261
CADP002	House	No	686020	6400321
CADP003	House	No	685886	6400312
CADP004	House	No	685946	6400401
CADP005	House	No	685805	6400365
CADP006	House	No	685832	6400431
TMR047	House	No	685577	6400038
TMR048	House	No	685378	6400025
TMR049	House	No	685188	6398333



House ID	Type	Involved	Easting	Northing
INV001	House	No	691515	6405373
TMR016	House	Yes	708493	6401455
RCECC	Convention Centre	No	696019	6383901
UUN014	House	Yes	694962	6400932
GR016	House	No	724430	6412353
TMR001	House	No	719628	6411785
UPBR002	House	No	725046	6397164
GR038	House	No	705395	6412065
HR002	House	No	725289	6407242
TMR004	House	No	718770	6407740
TMR002	House	No	719069	6411150
GR018	House	No	724306	6411621
GUL010	House	No	729358	6407323
UAM001	House	No	716360	6411084
LPBR004	House	No	722523	6404886
GR032	House	No	723695	6411637
LPBR001	House	No	722155	6408406
GR034	House	No	721817	6411673
UPBR001	House	No	726494	6398481
UAM004	House	No	713035	6410390
GR021	House	No	724038	6413333
LPBR015	House	No	726790	6401132
GR035	House	No	722174	6411919
GR033	House	No	722743	6412070
LPBR006	House	No	721582	6402958
LPBR008	House	No	723177	6401780
LPBR007	House	No	723325	6402186
LPBR009	House	No	723293	6401771
LPBR012	House	No	725283	6400813
TMR005	House	No	716996	6409759
UPBR004	Possible Future Dwelling	No	722786	6397974
UAM002	House	No	715478	6410986
GR037	House	No	718997	6412339
GR036	House	No	720165	6412963
GR019	House	No	723694	6412175
GR031	House	No	723853	6411462
GR030	House	No	724233	6411288
GR026	House	No	724855	6413744
GR012	House	No	726718	6413847
TMR007	House	No	715930	6407887
TMR006	House	No	716226	6409344
TMR003	House	No	719009	6407773
LPBR002	House	No	722085	6408266
LPBR005	House	No	722278	6404312
LPBR011	House	No	725009	6400970
LPBR016	House	No	727085	6401777
UPBR003	House	No	723983	6395653
LPBR019	House	No	729735	6400050
LPBR018	Possible Future Dwelling	No	728110	6401764
GUL001	House	No	732562	6404678
GUL002	House	No	732251	6404749
GUL003	House	No	732193	6404642

House ID	Type	Involved	Easting	Northing
GUL006	House	No	732022	6404850
GUL007	House	No	731914	6405282
HR001	House	No	724808	6407031
GR002	House	No	731755	6411477
GR001	House	No	731832	6412093
UAM003	House	No	713867	6411614
LPBR014	House	No	726003	6401582
LPBR013	House	No	725270	6400792
GR017	House	No	723424	6399340
LPBR010	House	No	724472	6401368
UUN001	House	Yes	697288	6400243
GUL008	Possible Future Dwelling	No	730441	6405306
GUL009	House	No	729669	6406564
GR022	Shed/House	No	724411	6413312
GR023	Shed/House	No	724507	6413375
GR024	Shed/House	No	724656	6413512
GR028	Shed/House	No	725213	6413825
GR029	Shed/House	No	725302	6413886
GR011	House	No	726798	6413145
GR013	House	No	725685	6413536
GR014	House	No	725226	6412990
GR003	House	No	729587	6412973
GR004	House	No	729361	6412832
GR005	House	No	729139	6412912
GR008	House	No	728728	6412861
GR007	House	No	728770	6412777
GR009	House	No	728542	6412740
GR006	House	No	728859	6412426
GR010	House	No	728343	6412556
GUL005	House	No	732157	6404859
GTW001	House	No	732981	6405492
YARR015	House	No	722158	6394222
TMR038	House/Shed	No	714988	6409509
TMR039	House	No	715029	6409026
TMR040	House	No	715540	6408645
YARR019	House	No	718066	6389772
LPBR020	House	No	732953	6400448
LPBR021	House	No	732569	6399688
UPBR005	House	No	730154	6399345
UPBR006	House	No	730453	6398923
UPBR007	House	No	730424	6398750
UPBR008	House	No	730388	6398533
UPBR009	House	No	730326	6398395
UPBR010	House	No	730318	6398278
UPBR011	House	No	730273	6398163
UPBR012	House	No	730160	6397970
UPBR013	House	No	729866	6397850
UPBR014	House	No	729873	6397715
UPBR015	House	No	729681	6397615
UPBR016	House	No	729461	6397505
UPBR020	House	No	727420	6398144
UPBR017	House	No	727293	6397021
UPBR021	House	No	726948	6395542
UPBR018	House	No	727058	6397210

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<i>House ID</i>	<i>Type</i>	<i>Involved</i>	<i>Easting</i>	<i>Northing</i>
UPBR019	House	No	724991	6397009
LPBR022	House	No	731054	6399957
LPBR023	House	No	728315	6401141
LPBR024	House	No	728374	6400785
LPBR025	House	No	725785	6400180
LPBR026	House	No	723375	6401111
GL001	House	No	714047	6413758
GL002	House	No	714514	6413852
GR039	House	No	725061	6411976

<i>House ID</i>	<i>Type</i>	<i>Involved</i>	<i>Easting</i>	<i>Northing</i>
GUL011	House	No	733018	6403606
GUL012	House	No	731910	6404579
GUL013	House	No	730062	6405982
ILG006	Derelict House	No	699838	6391385
GR040	House	No	691922	6408030
UUN007	House	No	709390	6396638
TMR050	House	No	704125	6406614
WUU012	Approved DA	Yes	696356	6395242
TMR051	House	No	703980	6407135



WIND

UUNGULA WIND FARM (SSD-6687)

Response to Request for Additional Information Appendix C: Biodiversity Addendum

15 March 2021

Version 1
Author Matthew Flower
Client Uungula Wind Farm Pty Ltd

8 March 2021

Our ref: UWF RFI March 2021

CWP Renewables Pty Ltd
via email: Matthew.Flower@cwprenewables.com

Attention: Matthew Flower

Dear Matthew,

RE: Ungula Wind Farm – Minor Request for Information (Biodiversity)

Eco Logical Australia (ELA) has prepared a response to the Department of Planning, Industry and Environment's (DPIE) minor Request for Information (RFI) relating to biodiversity on the Ungula Wind Farm (UWF) Environmental Impact Statement (EIS). The RFI requires more detailed justification of the selection of vegetation zones and assessment against NSW State listed Threatened Ecological Communities (TEC) to supplement the information already included in the Biodiversity Assessment Report (BAR).

The RFI is as follows:

1. Further justify PCT selection and attribution to vegetation zones

Section 3.4 of the BAR details a description of each BVT identified within the development footprint. Although dominant native species have been identified and a general description of each vegetation zone has been provided no justification of BVT selection has been detailed in the BAR.

Section 5.2.1.8 of the FBA details the requirement for an assessor to provide justification of evidence used to identify vegetation within a development site, this includes:

- a) *Evidence of a quantitative analysis of survey data; and*
- b) *Matching the outputs of the quantitative analysis of the survey data to information within the VIS Classification database.*

Request

- Justify BVT selection and attribution to vegetation zones in accordance with Section 5.2.1.8 of the FBA.

2. Further justify the determination that vegetation zones are not equivalent with the State listed representation of certain TECs

Further information is required to justify the determination that vegetation zones are not equivalent with the State listed representation of the TEC *White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grassland* in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions.

Section 3.4 of the BAR details a TEC equivalency assessment for each vegetation zone identified within the development footprint. Vegetation zones 2, 9, 11, 12 and 13 have been assessed as not meeting the NSW listing criteria for *White Box Yellow Box Blakely's Red Gum Woodland* (Box Gum Woodland) based on the relative condition of each vegetation zone.

It is unclear within the BAR which diagnostic criteria is being referred to for the TEC equivalency assessment for the vegetation zones. The assessor should note that Section 11 of the Final Determination for Box Gum Woodland states the following:

“Disturbed remnants are still considered to form part of the community including remnants where the vegetation, either understorey, overstorey or both, would, under appropriate management, respond to assisted natural regeneration, such as where the natural soil and associated seed bank are still at least partially intact”.

Request

- The assessor should clarify the diagnostic criteria used to determine that the vegetation zones are not equivalent with Box Gum Woodland.
- The assessor should provide further information to justify using relative condition of vegetation zones to determine non-equivalence with the state listed representation of Box Gum Woodland.

The Project was assessed under the former BioBanking Assessment Methodology (BBAM) in 2013 by Environmental and Resource Management (ERM), on a Study Area roughly three times the size of the current Project Development Footprint. The ERM assessment included a significant field survey effort completed in 2012 – 2013 undertaken in accordance with Director General’s Requirements (DGRs) issued for the Project in 2011 (superseded by the current SEARs), which has been considered in the preparation of this BAR. In particular, vegetation mapping and the data collected from vegetation plots under the BBAM has been used, which is consistent with the FBA plot data collection methodology.

Consultation was undertaken with the (former) NSW Office of Environment and Heritage (OEH) in October 2018 regarding the use of the ERM data for this assessment. It was concluded that the ERM data and assessment undertaken in 2012 – 2013 remained relevant and was appropriate for use in the contemporary assessment, and that supplementary field survey was only required to address gaps in the data or changes in the Development Footprint.

Based on the information within the EIS and a review of field data collected by ERM in 2012-2012, ELA has cross referenced against the vegetation type descriptions and TEC listing criteria to respond directly to the RFI.

The vegetation zones detailed in the BAR have been updated as detailed below.

Site/Field Data	Vegetation Type	Dominant Canopy Species	Main Associated Species	Landscape Position	Characteristic Mid Storey Species	Characteristic Groundcover Species	Other Diagnostic Features	Vegetation Community Justification	Threatened Ecological Community Assessment
CW112	Blakely's Red Gum - Yellow Box grassy woodland of the NSW South Western Slopes Bioregion (Benson 277)	<i>Eucalyptus blakelyi</i> (Blakely's Red Gum), <i>Eucalyptus melliodora</i> (Yellow Box)	<i>Eucalyptus bridgesiana</i> (Apple Box), <i>Eucalyptus albens</i> (White Box), <i>Eucalyptus conica</i> (Fuzzy Box), <i>Callitris glaucophylla</i> (White Cypress Pine)	Occurs on flats and on gentle slopes mainly in the upper slopes sub-region.	<i>Acacia dealbata</i> Silver Wattle	<i>Themeda triandra</i> * (Kangaroo Grass), <i>Poa sieberiana</i> var. <i>sieberiana</i> (Snowgrass), <i>Bothriochloa macra</i> (Redleg Grass), <i>Juncus usitatus</i> , <i>Lomandra filiformis</i> subsp. <i>coriacea</i> , <i>Vittadinia cuneata</i> , <i>Chrysocephalum apiculatum</i> , <i>Sida corrugata</i>	Tall woodland to about 20 m high. Occurs on fertile deep, loam or clay soils derived from a range of substrates including fine-grained sedimentary and metamorphic rocks but also volcanic and fine-grained granite.	N/A	<i>White Box Yellow Box Blakely's Red Gum Woodland</i> and <i>White Box-Yellow Box-Blakely's Red Gum Grassy Woodland</i> and <i>Derived Native Grassland</i>
Associated Field Data CW112	N/A	<i>Angophora floribunda</i> <i>Eucalyptus melliodora</i> <i>Eucalyptus blakelyi</i> <i>Eucalyptus dwyeri</i>	<i>Callitris glaucophylla</i> (present in one plot)	Located on the foot slopes of the landscape occurring in alluvial sediments within the Study Area. Occurs on the floodplains of drainage lines where the soils are presumably fertile and deep	No midstory present	<i>Bothriochloa macra</i> dominant <i>Aristida ramosa</i> and <i>A. vagans</i> <i>Elymus scaber</i> , <i>Sporobolus creber</i> <i>Wahlenbergia</i> spp. (<i>Vittadinia</i> sp. and <i>Chrysocephalum</i> sp. were present at one or two of the sites)	N/A	Modified grassy understory due to grazing which has most likely excluded <i>Themeda triandra</i> . Due to grazing land use and the unpalatability of the vegetation there is an increase in abundance of <i>Aristida</i> spp. Based on landscape positioning and the presence of Yellow box and Red Gum CW112 was the best fit for this vegetation zone. An alternative BVT could have been CW225.	<i>Vegetation Zone 1 – TEC assessment</i> The 6.28 ha of remnant CW112 remaining in the Development Footprint meets the criteria for both NSW and Commonwealth TEC as it is a grassy woodland dominated by <i>E. melliodora</i> trees. It occurs in alluvial parts of the Study Area on the floodplains of drainage lines where the soils are presumably fertile and deep. For these reasons together with the presence of regenerating <i>E melliodora</i> trees, Vegetation Zone 1 also qualifies as the Commonwealth CEEC. It is subject to agricultural impacts including grazing. <i>Vegetation Zone 2 – TEC assessment</i> CW112 exists predominately as a modified grassland community (Vegetation Zone 2 - 60.91 ha) on foot slopes in the Study Area, and has been historically cleared of the tree layer for agricultural grazing. Vegetation Zone 2 is not considered to meet either the NSW or Commonwealth CEEC listing criteria due to the history of agricultural use, resulting in the absence of a tree canopy layer, insufficient floristic diversity in the ground layer, and the seed bank is considered depleted and unlikely to support regeneration.
CW177	Red Stringybark woodland of the dry slopes of the South Western Slopes Bioregion	<i>Eucalyptus macrorhyncha</i> (Red Stringybark), <i>Eucalyptus polyanthemos</i> subsp. <i>polyanthemos</i> (Red Box)	<i>Callitris endlicheri</i> (Black Cypress Pine), <i>Eucalyptus blakelyi</i> (Blakely's Red Gum), <i>Eucalyptus sideroxylon</i> (Mugga Ironbark), <i>Eucalyptus fibrosa</i> (Red Ironbark), <i>Eucalyptus gonicalyx</i> (Long-leaved Box), <i>Eucalyptus polyanthemos</i>	On dry slopes hills and ridges at mid-altitudes on both sedimentary and volcanic substrates,	<i>Hibbertia obtusifolia</i> , <i>Macrozamia secunda</i> , <i>Acacia doratoxylon</i> (Currawang), <i>Brachyloma daphnoides</i> , <i>Acrotriche rigida</i> , <i>Leptospermum</i>	<i>Lomandra filiformis</i> , <i>Lepidosperma laterale</i> , <i>Lomandra multiflora</i> , <i>Patersonia sericea</i> , <i>Aristida calycina</i> , <i>Joycea pallida</i> (Red-anther Wallaby Grass), <i>Cheilanthes sieberi</i> subsp. <i>sieberi</i> , <i>Phyllanthus hirtellus</i> , <i>Calochilus campestris</i> , <i>Zieria cytisoides</i> , <i>Dipodium hamiltonianum</i> , <i>Stypandra glauca</i> , <i>Lomandra filiformis</i> subsp. <i>coriacea</i>	N/A	N/A	N/A

Site/Field Data	Vegetation Type	Dominant Canopy Species	Main Associated Species	Landscape Position	Characteristic Mid Storey Species	Characteristic Groundcover Species	Other Diagnostic Features	Vegetation Community Justification	Threatened Ecological Community Assessment
			subsp. <i>polyanthemos</i> (Red Box), <i>Eucalyptus rossii</i> (Scribbly Gum)		<i>juniperinum</i> , <i>Acacia lanigera</i>				
Associated Field Data CW117	N/A	<i>E. macrorhyncha</i> <i>E. polyanthemos</i>	<i>E. albens</i> <i>E. goniocalyx</i> <i>E. sideroxylon</i>	Located on the ridges and rocky outcrops	Shrubby understorey which includes <i>Olearia elliptica</i> , <i>Hibbertia obtusifolia</i> , <i>Macrozamia</i> spp, <i>Acacia doratoxylon</i> and <i>Cassinia uncata</i> .	Diverse understorey consisting of: <i>Lomandra multiflora</i> , <i>L. filliformis</i> and <i>L. glauca</i> ; <i>Lepidosperma laterale</i> , <i>Cheilanthes sieberi</i> . Grasses included: <i>Rytidosperma</i> spp, <i>Austrostipa</i> spp., <i>Bothriochloa macra</i> , <i>Elymus scaber</i>	N/A	Species composition and landscape positioning are consistent with BVT CW177. An alternative could be CW176, however given the alternative mid storey species it is more consistent with CW177.	N/A
CW184	River Red Gum riverine woodlands and forests in the Nandewar and Brigalow Belt South Bioregions (Benson 78)	<i>Eucalyptus camaldulensis</i> (River Red Gum)	<i>Angophora floribunda</i> (Rough-barked Apple), <i>Casuarina cunninghamiana</i> (River Oak), <i>Eucalyptus melliodora</i> (Yellow Box), <i>Eucalyptus blakelyi</i> (Blakely's Red Gum), <i>Eucalyptus albens</i> (White Box), <i>Corymbia tessellaris</i> (Carbeen)	On the banks of watercourses and on adjoining flats	<i>Melaleuca bracteata</i> (Bracteate Honey Myrtle), <i>Callistemon viminalis</i> (Weeping Bottlebrush), <i>Callistemon sieberi</i> , <i>Leptospermum polygalifolium</i> , <i>Acacia decora</i> , <i>Leptospermum brachyandrum</i> , <i>Leptospermum brevipes</i> , <i>Notelaea microcarpa</i> var. <i>microcarpa</i> (Native Olive), <i>Nyssanthes diffusa</i>	<i>Cynodon dactylon</i> (Couch Grass), <i>Austrostipa verticillata</i> (Slender Bamboo Grass), <i>Dichondra repens</i> (Kidney Weed), <i>Lomandra longifolia</i> , <i>Aristida vagans</i> , <i>Swainsona galegifolia</i> , <i>Ajuga australis</i> , <i>Einadia hastata</i> , <i>Urtica incisa</i> , <i>Sida rhombifolia</i> , <i>Commelina cyanea</i> , <i>Carex incomitata</i> , <i>Cyperus gracilis</i>	Tall open forest or woodland to 30 m high. This community occurs on alluvial loamy soils in undulating low hills or hill landscapes in the Nandewar and Brigalow Belt South Bioregion. The watercourses flood regularly.		N/A
Associated Field Data CW184	N/A	<i>E. camaldulensis</i>	<i>C. cunninghamia</i>	Zone confined to two narrow riparian strips occurring on the river and creek banks and in-channel sand islands. It extends only up to approximately three trees from the river/creek lines	Dominated by exotic midstorey of <i>Rubus fruticosus</i> sp agg. (blackberry), <i>Solanum nigrum</i> (black-berry night shade) and <i>Ailanthus altissima</i> (Tree of Heaven).	Groundcover dominated by <i>Cynodon dactylon</i> , with <i>Urtica incisa</i> , <i>Commelina cyanea</i> . Additional abundant species include: <i>Austrostipa ramosissima</i> and <i>Rumex</i> spp.	N/A	Due to previous land usage midstorey species do not conform however due to dominant canopy and ground cover species in addition to landscape positioning this vegetation zone conforms with BVT CW184	N/A
CW202	Tumbledown Red Gum - Black Cypress Pine - Red Box low woodland of hills of the South Western Slopes	<i>Eucalyptus dealbata</i> (Tumbledown Red Gum), <i>Callitris endlicheri</i> (Black Cypress Pine), <i>Eucalyptus polyanthemos</i> subsp. <i>polyanthemos</i> (Red Box), <i>Eucalyptus sideroxylon</i> (Mugga Ironbark)	<i>Brachychiton populneus</i> subsp. <i>populneus</i> (Kurrajong), <i>Eucalyptus macrorhyncha</i> (Red Stringybark), <i>Eucalyptus albens</i> (White Box), <i>Eucalyptus rossii</i> (Scribbly Gum), <i>Eucalyptus viridis</i> (Green Mallee)	On slopes and ridges	<i>Acacia doratoxylon</i> (Currawang), <i>Allocasuarina verticillata</i> , <i>Cassinia aculeata</i> , <i>Acacia vestita</i> , <i>Myoporum montanum</i> (Western Boobialla), <i>Dodonaea viscosa</i> , <i>Styphelia triflora</i>	<i>Calotis cuneifolia</i> , <i>Gonocarpus elatus</i> , <i>Austrodanthonia monticola</i> , <i>Austrodanthonia racemosa</i> , <i>Themeda triandra</i> (Kangaroo Grass), <i>Austrostipa scabra</i> subsp. <i>scabra</i> (Speargrass), <i>Dichelachne micrantha</i> , <i>Stypantra glauca</i> , <i>Microlaena stipoides</i> var. <i>stipoides</i> , <i>Lepidosperma laterale</i> .	N/A	N/A	N/A

Site/Field Data	Vegetation Type	Dominant Canopy Species	Main Associated Species	Landscape Position	Characteristic Mid Storey Species	Characteristic Groundcover Species	Other Diagnostic Features	Vegetation Community Justification	Threatened Ecological Community Assessment
Associated Field Data CW202	N/A	<i>E. dealbata</i> <i>E. polyanthemos</i> <i>C. endlicheri</i> <i>C. glaucophylla</i>	<i>B. populneus</i> <i>E. macrorhyncha</i> <i>E. albens</i> <i>E. dwyeri</i>	Occurs on slopes and ridges on rocky outcropping comprising metamorphosed sedimentary geology across the study area	<i>A. doratoxylon</i> , <i>A. verticillata</i> , and <i>C. aculeata</i> are present	<i>Gonocarpus elatus</i> , <i>Austrodanthonia</i> sp., <i>Austrostipa scabra</i> , <i>Themeda triandra</i> , <i>Stypandra glauca</i> and <i>Lepidosperma laterale</i> present within the plots. Other dominate groundcovers include: <i>Cheilanthes sieberi</i> , <i>Dichondra repens</i> and <i>Aristida</i> spp.	N/A	Due to the species composition of the canopy, mid and ground storey CW202 is bet fit for these vegetation zones. An alternative BVT could be CW201 however the main associated species do not conform to species composition and the location of CW202 is mainly of the Cobar Peneplain region.	N/A
CW211	White Box - Rough-barked Apple alluvial woodland on the NSW western slopes (Benson 274)	<i>Eucalyptus albens</i> (White Box), <i>Angophora floribunda</i> (Rough-barked Apple)	<i>Eucalyptus macrorhyncha</i> (Red Stringybark), <i>Eucalyptus blakelyi</i> (Blakely's Red Gum)	In valley bottoms and on adjoining lower slopes in hill landscapes in the Central Western Slopes Botanical Division.	<i>Acacia buxifolia</i> , <i>Acacia implexa</i> , <i>Olearia elliptica</i> (Sticky Daisybush), <i>Hibbertia obtusifolia</i> , <i>Hibbertia acicularis</i> , <i>Swainsona galegifolia</i> .	<i>Panicum effusum</i> , <i>Themeda triandra</i> (Kangaroo Grass), <i>Microlaena stipoides</i> var. <i>stipoides</i> , <i>Lachnagrostis filiformis</i> , <i>Austrostipa ramosissima</i> , <i>Acaena novae-zelandiae</i> , <i>Arthropodium milleflorum</i> , <i>Daucus glochidiatus</i> <i>Dichopogon fimbriatus</i> , <i>Carex appressa</i>	Tall woodland. Occurs on alluvial or colluvial red clay soils derived from shale.	N/A	<i>White Box Yellow Box Blakely's Red Gum Woodland</i> and <i>White Box-Yellow Box-Blakely's Red Gum Grassy Woodland</i> and <i>Derived Native Grassland</i>
Associated Field Data CW211	N/A	<i>E. albens</i> <i>A. floribunda</i>	<i>E. macrorhyncha</i> <i>E. blakelyi</i> (1plot) <i>E. melliodora</i> <i>E. dealbata</i>	Occurs along ephemeral drainage lines and floodplains in the study area	<i>Acacia implexa</i> <i>Swainsonii galegifolia</i> (present in one vegetation plot) <i>A. doratoxylon</i>	<i>Panicum effusum</i> , <i>Themeda triandra</i> , <i>Austrostipa ramosissima</i> , and <i>Carex appressa</i> are present. The groundcover was dominated by <i>Bothriochloa macra</i> , <i>Elymus scaber</i> , <i>Juncus subglaucus</i> , and <i>Rumex brownii</i>	Due to the dominate canopy species and the landscape positioning BVT CW211 is a fit for the associated vegetation zones. An alternative BVT could be CW214/215 however the absence of <i>Callitris</i> species within the vegetation plots does not make this an ideal selection for these classifications.	<i>Vegetation Zone 8 – TEC assessment</i> This Vegetation Zone constitutes the NSW CEEC as it is a grassy woodland dominated by <i>E. albens</i> and <i>Angophora floribunda</i> trees. It occurs across alluvial parts of the Study Area in and adjacent to drainage lines where the soils are presumably fertile and deep. For these reasons together with the presence of regenerating <i>E. albens</i> trees, and the diversity of forbs this Vegetation Zone also qualifies as the Commonwealth CEEC. It is subject to agricultural impacts including grazing. <i>Vegetation Zone 9 – TEC assessment</i> The grassland form of CW211 is not considered to meet either the NSW or Commonwealth CEEC listing criteria due to the history of agricultural use, resulting in the absence of a tree canopy layer, insufficient floristic diversity in the ground layer, and the seed bank is considered depleted and unlikely to support regeneration.	
CW212	White Box - Tumbledown Gum woodland on fine-grained sediments on the NSW	<i>Eucalyptus albens</i> (White Box), <i>Eucalyptus dealbata</i> (Tumbledown Red Gum)	<i>Eucalyptus macrorhyncha</i> (Red Stringybark), <i>Allocasuarina verticillata</i> , <i>Eucalyptus goniocalyx</i> (Long-leaved Box),	On steep slopes and ridges in central west NSW including around Wellington and the Turon-Macquarie River	<i>Olearia elliptica</i> (Sticky Daisybush), <i>Cassinia laevis</i>	<i>Stypandra glauca</i> , <i>Themeda triandra</i> (Kangaroo Grass), <i>Joycea pallida</i> (Red-anther Wallaby Grass)	Mid-high woodland. Occurs on soils derived from fine-grained sedimentary rocks	N/A	<i>White Box Yellow Box Blakely's Red Gum Woodland</i>

Site/Field Data	Vegetation Type	Dominant Canopy Species	Main Associated Species	Landscape Position	Characteristic Mid Storey Species	Characteristic Groundcover Species	Other Diagnostic Features	Vegetation Community Justification	Threatened Ecological Community Assessment
	central western slopes (Benson 270)		<i>Eucalyptus polyanthemos</i> subsp. <i>polyanthemos</i> (Red Box)	Valleys north-west of Bathurst.			such as shale and mudstone.		
Associated Field Data CW212	N/A	<i>E. albens</i> <i>E. dealbata</i>	<i>E. dwyeri</i> <i>E. macrorhyncha</i> <i>E. melliodora</i> <i>E. polyanthemos</i> <i>E. sideroxylon</i>	Present on the ridges and slopes across the study area and is likely in its present distribution due to the absence of land clearing	Midstorey was absent within these sites likely due to past management practices (grazing).	<i>Stypandra glauca</i> and <i>Themeda triandra</i> present at sites. Other dominant species include: <i>Elymus scaber</i> , <i>Dichondra repens</i> , <i>Cheilanthes sieberi</i> , <i>Bothriochloa macra</i> , <i>Austrostipa</i> spp., and <i>Aristida</i> spp.		Species composition and landscape positioning are consistent with BVT CW212. An alternative BVT could have been CW208 however the absence of <i>Callitris endlicheri</i> and other associated species is too low within the vegetation plots to be classified as CW208.	<p>This vegetation occurs as remnant woodland (Vegetation Zone 10 - 14.56 ha), which meets the listed criteria for TEC (NSW only). Three modified forms of this community are dominant and are the most common type of vegetation occurring within the Development Footprint:</p> <ul style="list-style-type: none"> • A grassland where the tree layer has been partially to completely removed and the remaining native grass is utilised for agricultural grazing (Vegetation Zone 11 - 301.67 ha) • A grassland where the tree layer has been partially to completely removed and exotic species (weeds) are prolific (Vegetation Zone 12 - 72.15 ha) • A grassland where grazing pressure has reduced the native species component and exotic species (weeds) are prevalent (Vegetation Zone 13 - 37.11 ha). <p><i>Vegetation Zone 10 – TEC assessment</i> This Vegetation Zone constitutes the NSW CEEC as it is a grassy woodland dominated by <i>E. albens</i>. Co-dominant tree species present include <i>E. dealbata</i>, <i>Brachychiton populneus</i>, <i>E. macrorhyncha</i> and <i>E. polyanthemos</i>. The Vegetation Zone occurs on ridges, hillslopes and undulating country on skeletal soil and outcropping of metamorphosed sedimentary geology. It is subject to agricultural impacts including grazing. However, it is not considered to meet the Commonwealth listing due to the widely spaced tree layer and occurrence on poor, skeletal soils and outcropping geology.</p> <p><i>Vegetation Zones 11, 12 and 13 – TEC assessment</i> The grassland forms of CW212 are not considered to meet either the NSW or Commonwealth TEC listing criteria due to the history of agricultural use, resulting in the absence of a tree canopy layer, insufficient floristic diversity and presence/dominance of exotic species in</p>

Site/Field Data	Vegetation Type	Dominant Canopy Species	Main Associated Species	Landscape Position	Characteristic Mid Storey Species	Characteristic Groundcover Species	Other Diagnostic Features	Vegetation Community Justification	Threatened Ecological Community Assessment
									the ground layer. The seed bank is considered depleted and unlikely to support regeneration.

**Themeda triandra* was previously named *Themeda australis* and the naming nomenclature has been updated for this report.

The EIS identified five Vegetation Zones (see Table 3 FBA) that are not considered to conform to the State or Commonwealth listing of the TEC. This is in part due to the lack of native vegetation particularly forbs and lack of canopy species. Whilst the State listing also includes degraded grasslands these grasslands, under appropriate management must have the ability to respond to assisted natural regeneration. It was considered that these five zones did not conform to the NSW State listing due to long-term agricultural land use through clearing, grazing and pasture improvements making it unlikely that these areas would regenerate due to the depleted soil seed bank.

Regards,

A handwritten signature in black ink, appearing to read 'Cheryl O'Dwyer', written over a faint, illegible printed name.

Dr. Cheryl O'Dwyer
Senior Ecologist



WIND

UUNGULA WIND FARM (SSD-6687)

Response to Request for Additional Information Appendix D: WaterNSW Consultation

15 March 2021

Version 1
Author Matthew Flower
Client Uungula Wind Farm Pty Ltd

Jessica Petersen

To: Justine Clarke
Subject: RE: Ungula Wind Farm - SSD6687 - EIS Submissions

From: Justine Clarke <[REDACTED]>
Sent: Thursday, 30 July 2020 10:20 AM
To: Matthew Flower <[REDACTED]>
Cc: Jessica Petersen <[REDACTED]>
Subject: RE: Ungula Wind Farm - SSD6687 - EIS Submissions

Hi Matthew

Sorry for the delay. I can confirm that your assessment is correct (as highlighted below).

I hope this assists.

Kind Regards

Justine Clarke
Catchment and Asset Protection Adviser

Please note: I am currently working remotely. I can be reached via email or 0457 535 955



Level 14, 169 Macquarie Street
PO Box 398
Parramatta NSW 2150
T: 02 9865 2402
M: [REDACTED]
[REDACTED]
www.watarnsw.com.au

From: Matthew Flower <[REDACTED]>
Sent: Monday, 27 July 2020 3:07 PM
To: Justine Clarke <[REDACTED]>
Cc: Jessica Petersen <[REDACTED]>
Subject: Ungula Wind Farm - SSD6687 - EIS Submissions

Justine,

I am the Development Manager for the Ungula Wind Farm which is State Significant Development (SSD6687) and has recently completed public exhibition of the EIS. WaterNSW provided comment to DPIE in the letter attached which nominated you as the contact.

At this stage my query is not specifically about WaterNSW's request for specific advice to address the direct and indirect impacts on the water catchment area and water storage. I have the consultants looking at how to address that point and I may come back to you in that regard.

My question to WaterNSW has come from a comment in the EPA submission which was asking the nature of a house near the project. There is a dilapidated house we identified on the ground on WaterNSW land north of the

Lake Burrendong dam wall, at the southern end of Ilgerry Road on Lot 1 in DP233293 (noting our reference is ILG006). I have attached a photo and a kmz of the location of the house. We attributed the **house as not inhabited and uninhabitable**. Could you please confirm this is consistent with WaterNSW's knowledge of the house?

Please feel free to give me a call to discuss this further.

Thanks

Matthew Flower
Development Manager

CWP Renewables Pty Ltd

t 02 4013 4640 m [REDACTED]
P.O. Box 1708 / Level 6, Suite A, 41-45 Hunter Street, Newcastle NSW 2300
[REDACTED] www.cwprenewables.com.au

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Photomontage 02 Viewpoint 17

Existing view from VP17

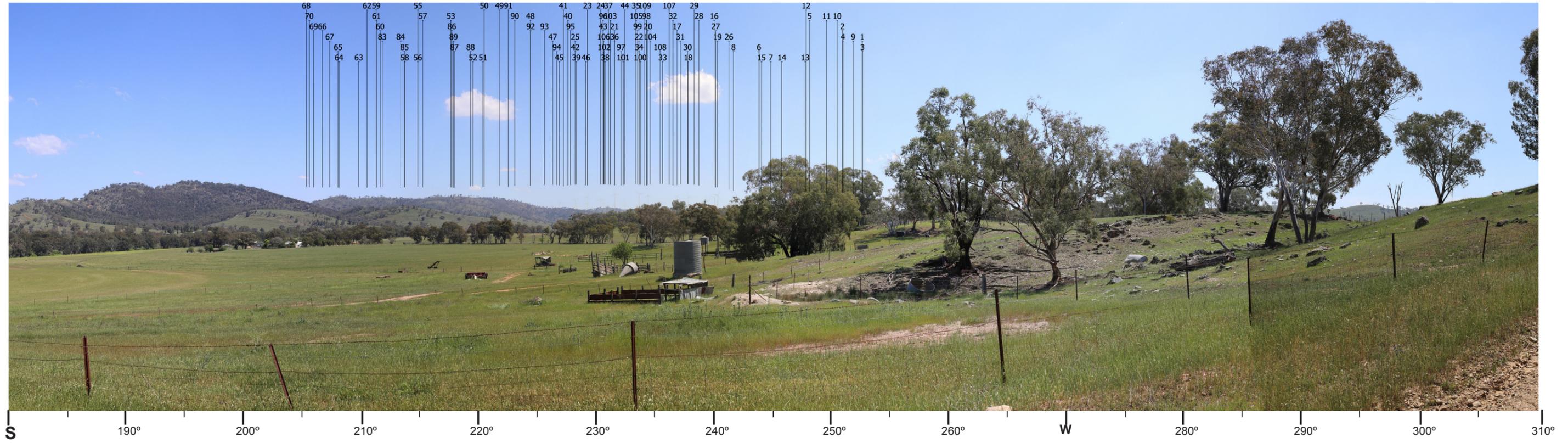


Proposed view from VP17

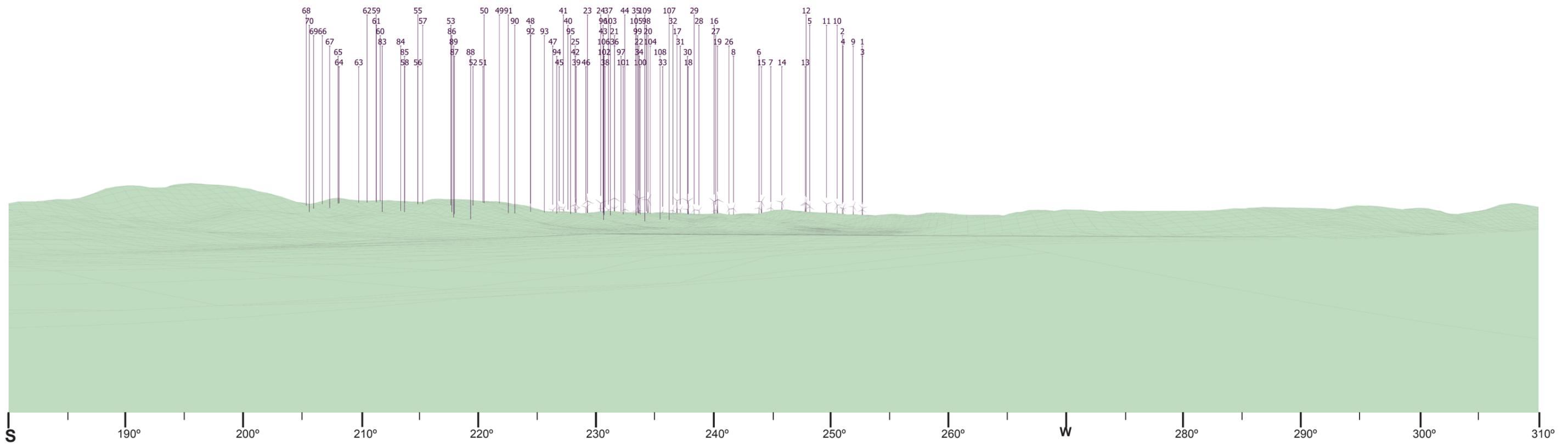


Photomontage 02 Viewpoint 17

Proposed view from VP17



Proposed wireframe from VP17



Photomontage 02 Location Map

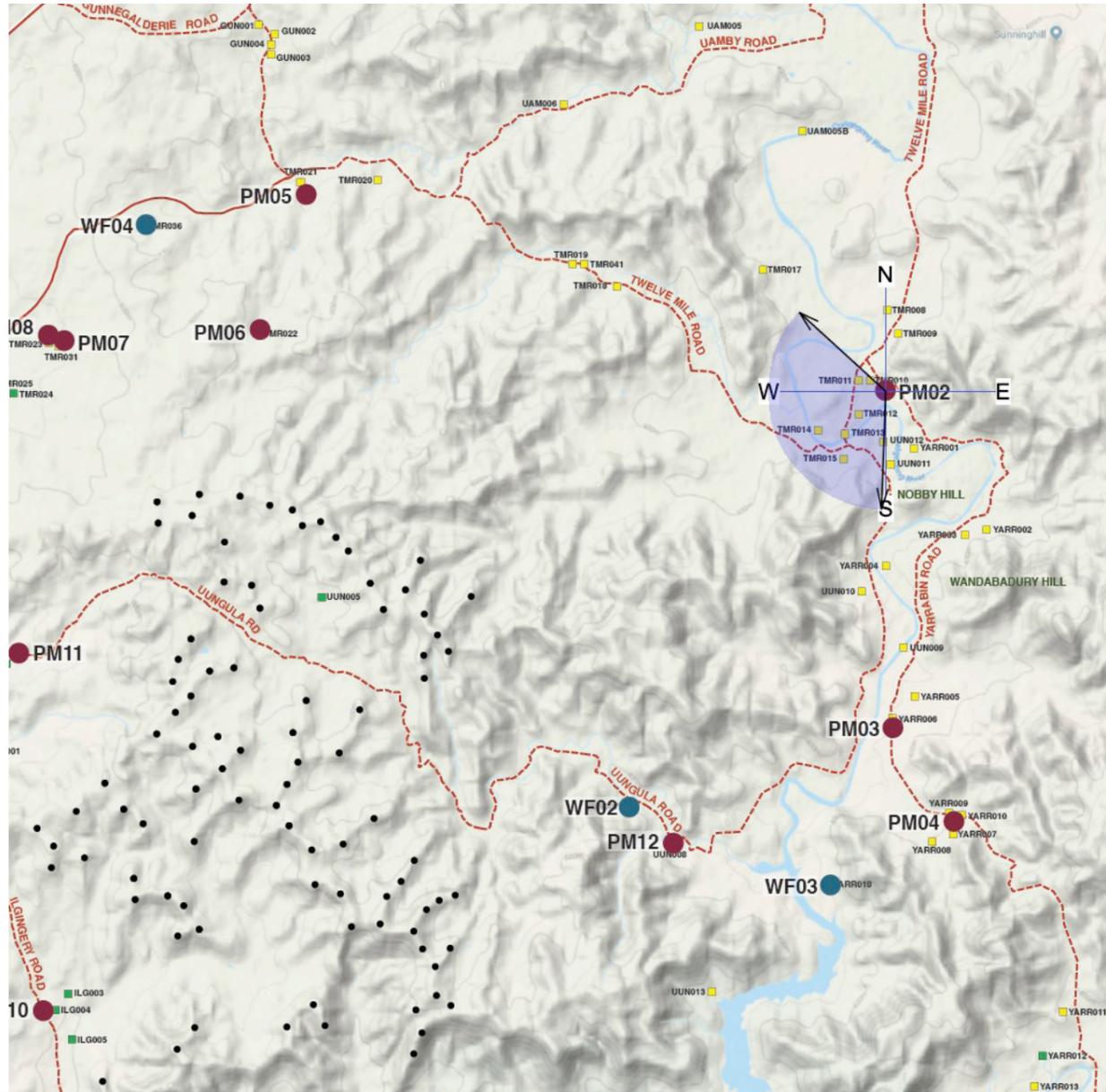


Figure D.2 Photomontage 02 Location and Viewing Direction

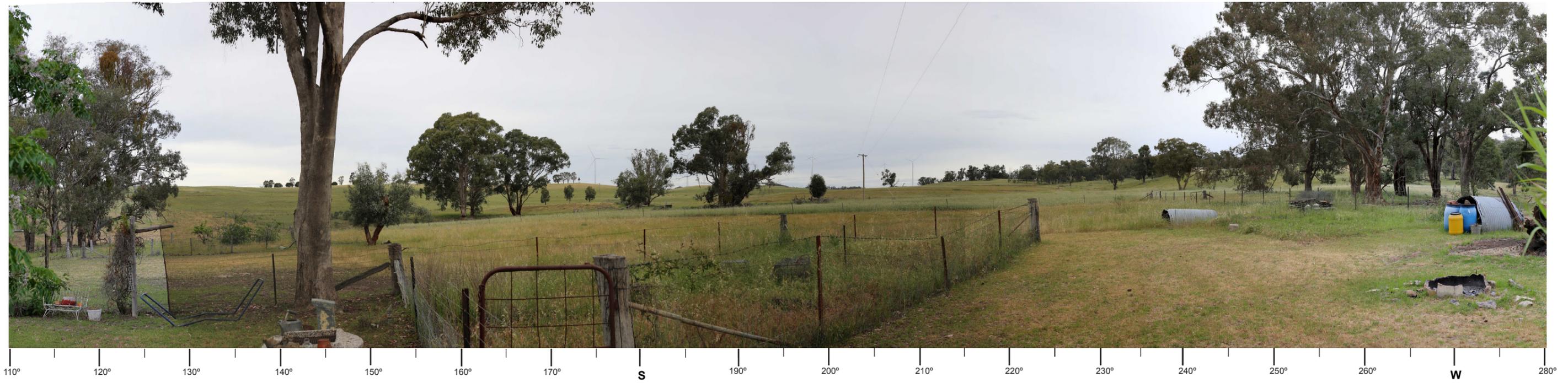
Summary of Photomontage 02	
Refer to Viewpoint 17	
Location:	Yarrabin Road
Coordinates:	149°13'12.93"E 32°27'54.37"S
Distance to WTG:	Approx. 7.8km
Viewing Direction:	Generally West
Elevation:	380m
Representative Dwelling/s:	TMR010, TMR011, TMR012

Photomontage 06 Viewpoint 38

Existing view from VP38



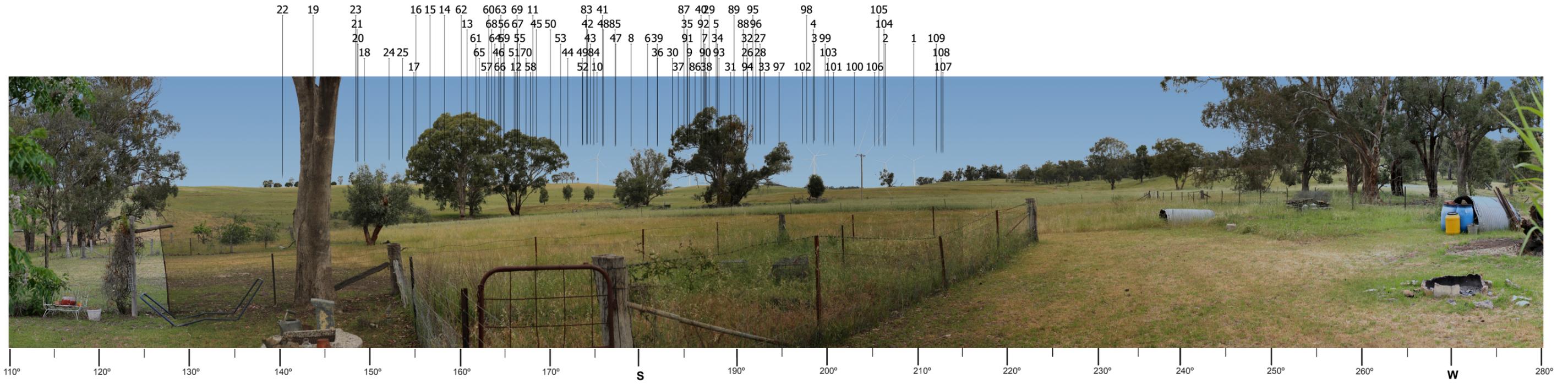
Proposed view from VP38



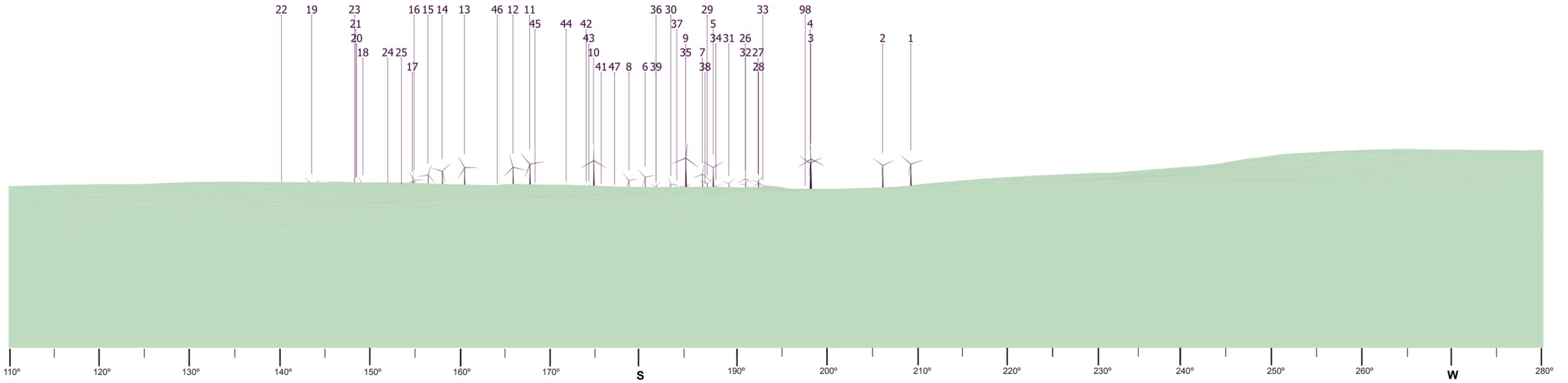
Refer to Appendix E for Blue Sky Comparison

Photomontage 06 Viewpoint 38

Proposed view from VP38 (Superimposed with blue sky)



Proposed wireframe from VP38



Refer to Appendix E for Blue Sky Comparison

Photomontage 06 Location Map

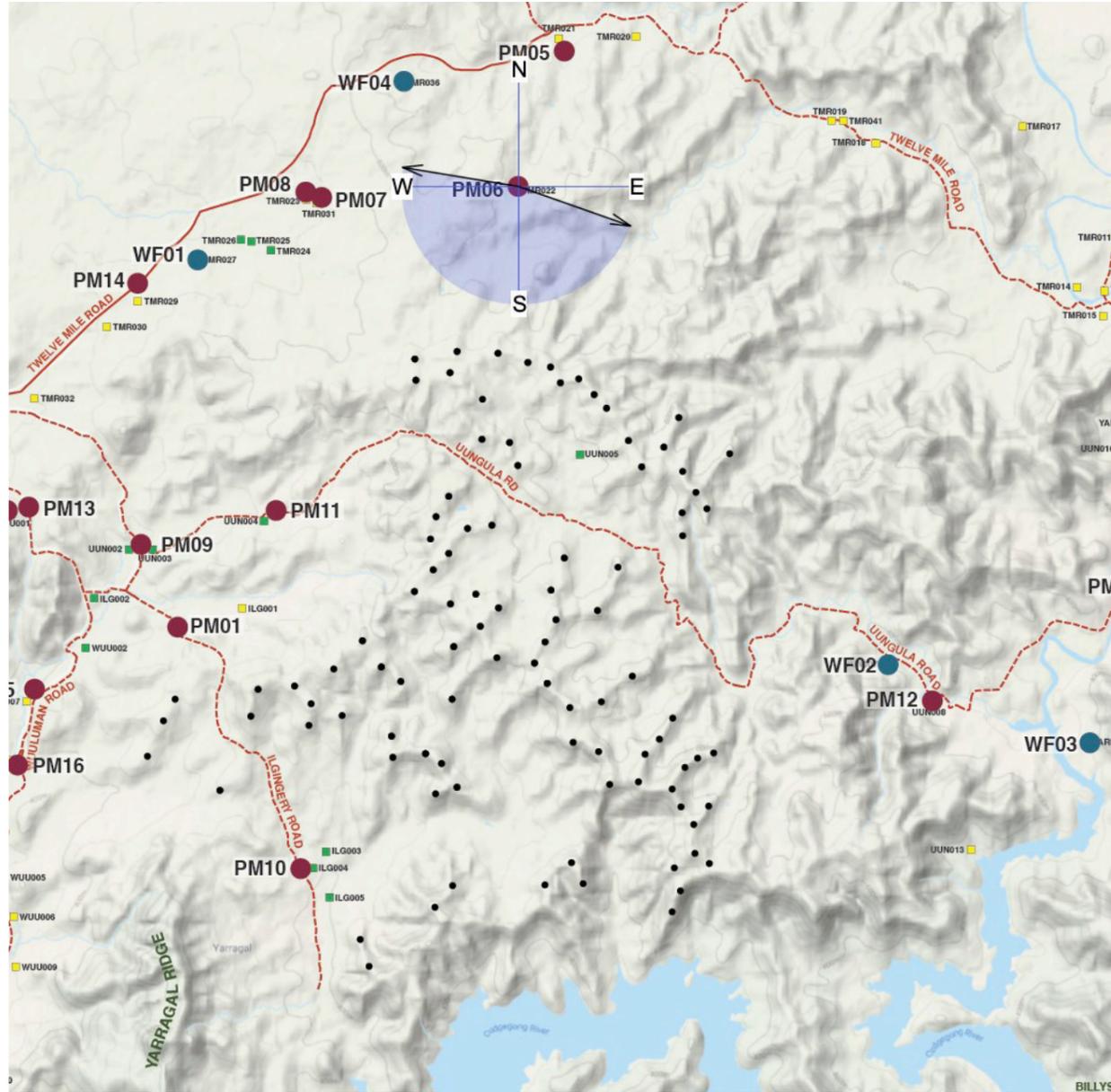


Figure D.6 Photomontage 06 Location and Viewing Direction

Summary of Photomontage 06	
Refer to Viewpoint 38	
Location:	Twelve Mile Road
Coordinates:	149° 9'48.07"E 32°28'33.08"S
Distance to WTG:	Approx. 2.7km
Viewing Direction:	Generally South
Elevation:	570m
Representative Dwelling/s:	TMR022

Photomontage 07 Viewpoint 36

Existing view from VP36



Proposed view from VP36

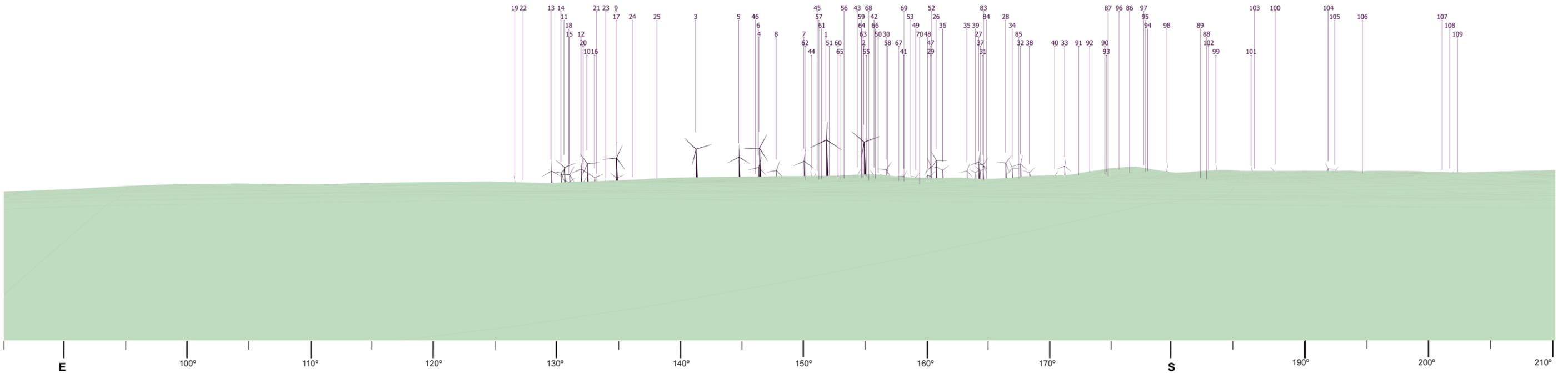


Photomontage 07 Viewpoint 36

Proposed view from VP36 (Superimposed blue sky)



Proposed wireframe from VP36



Photomontage 07 Location Map

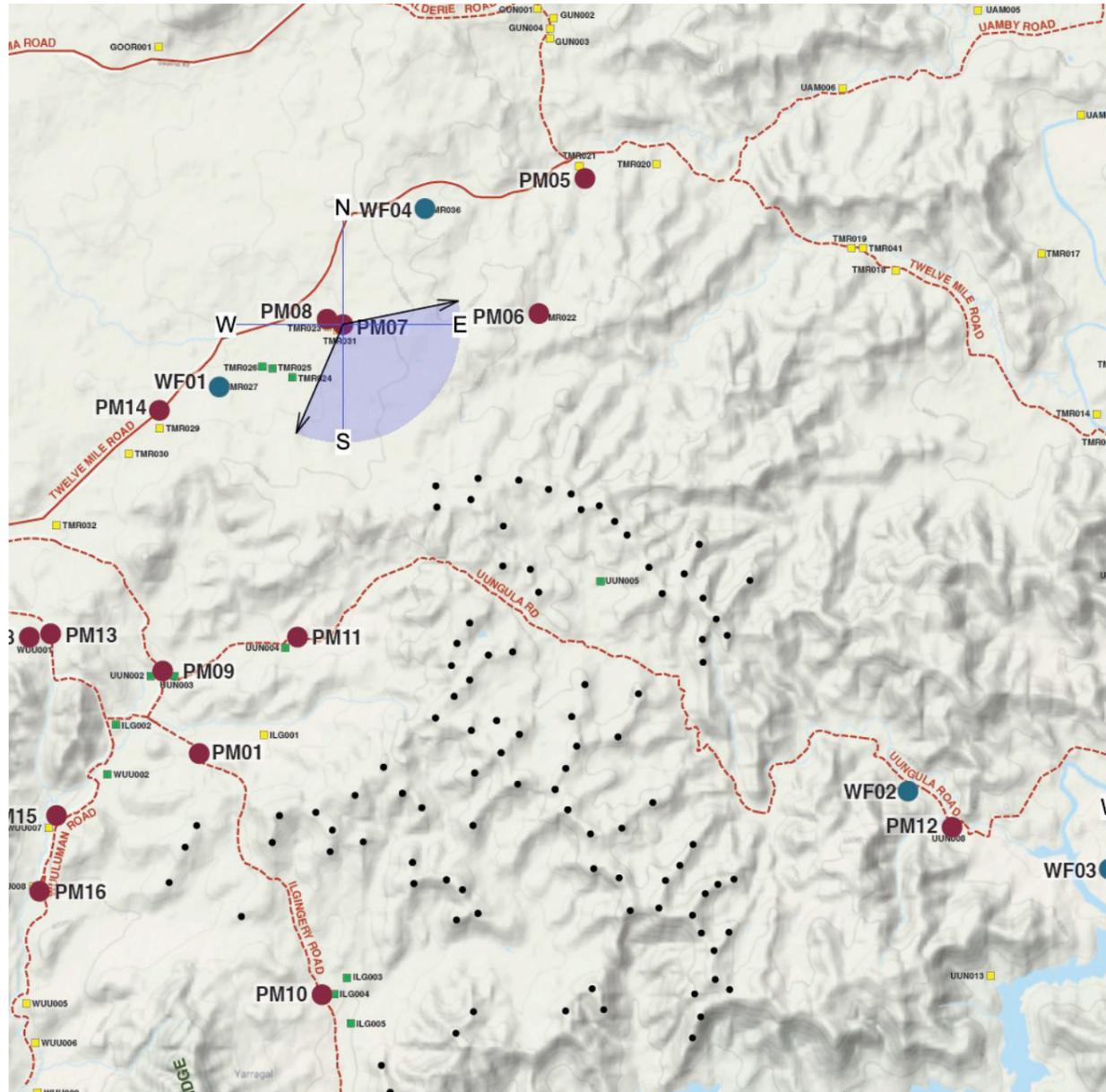


Figure D.7 Photomontage 07 Location and Viewing Direction

Summary of Photomontage 07	
Refer to Viewpoint 36	
Location:	Twelve Mile Road
Coordinates:	149° 7'32.38"E 32°28'39.45"S
Distance to WTG:	Approx. 3.2km
Viewing Direction:	Generally South East
Elevation:	550m
Representative Dwelling/s:	TMR023

Photomontage 08 Viewpoint 37

Existing view from VP37



Proposed view from VP37

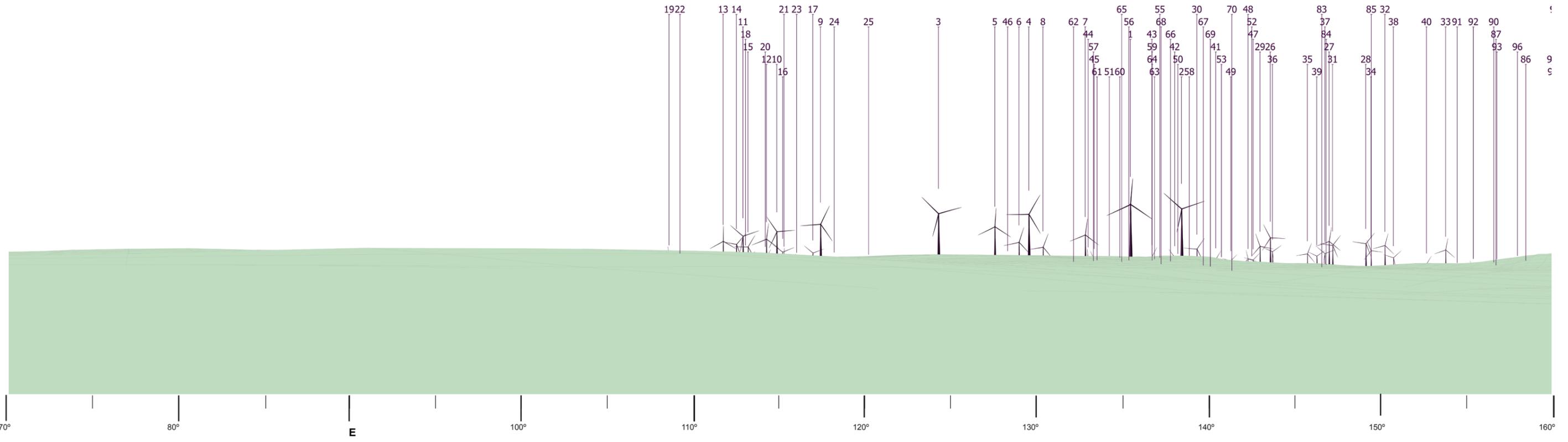


Photomontage 08 Viewpoint 37

Proposed view from VP37 (Superimposed blue sky)



Proposed wireframe from VP37



Photomontage 08 Location Map

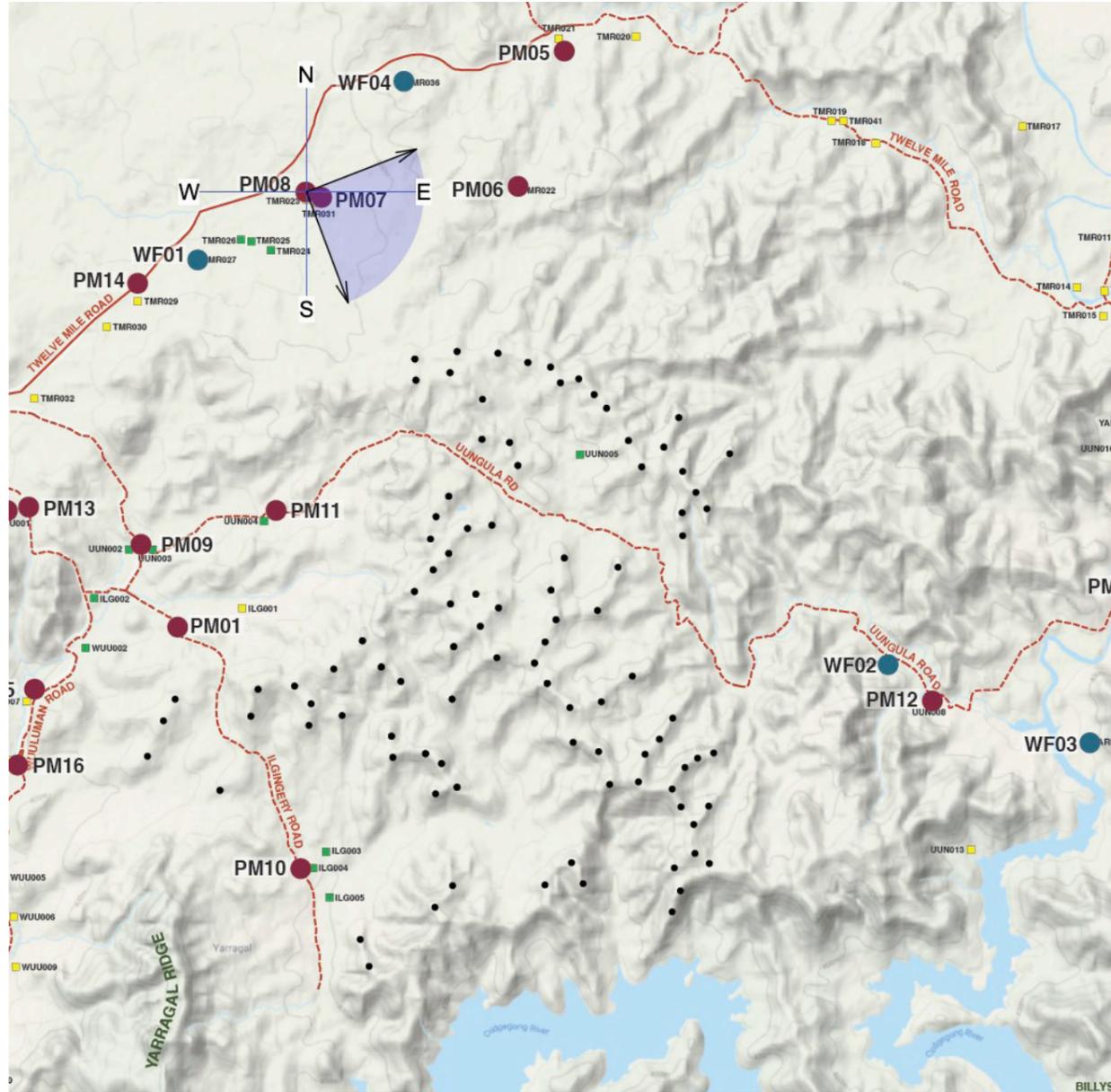
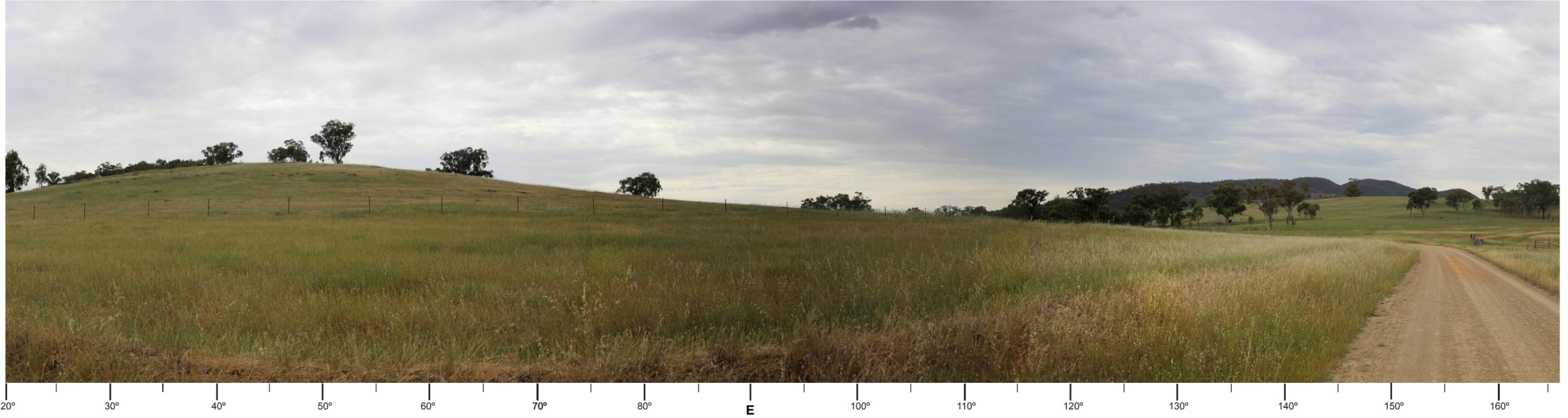


Figure D.8 Photomontage 08 Location and Viewing Direction

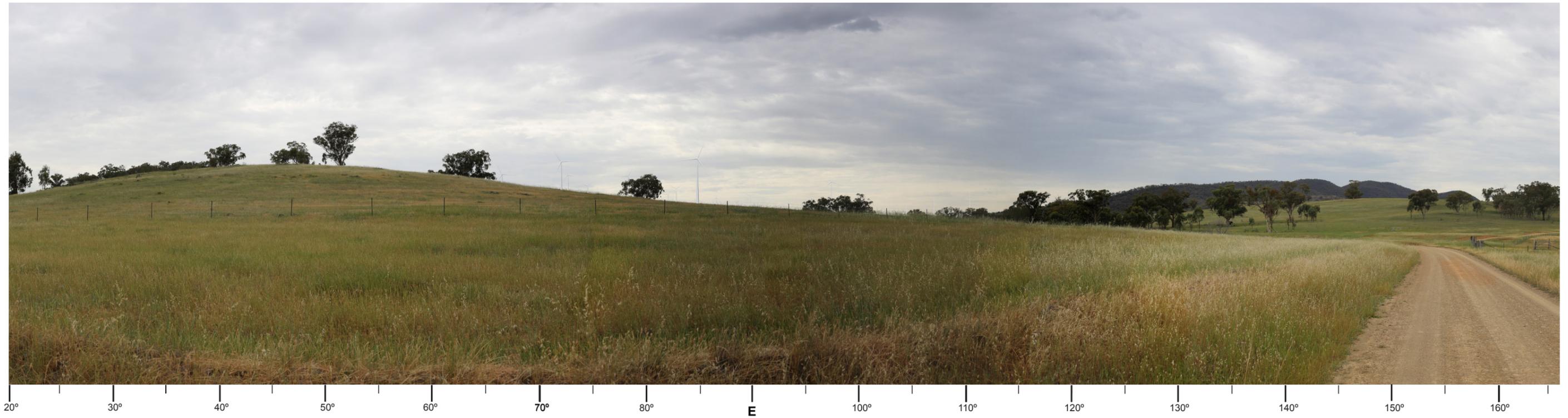
Summary of Photomontage 08	
Refer to Viewpoint 37	
Location:	Twelve Mile Road
Coordinates:	149° 7'39.54"E 32°28'40.88"S
Distance to WTG:	Approx. 3.1km
Viewing Direction:	Generally East
Elevation:	560m
Representative Dwelling/s:	TMR031

Photomontage 16 Viewpoint 45

Existing view from VP45

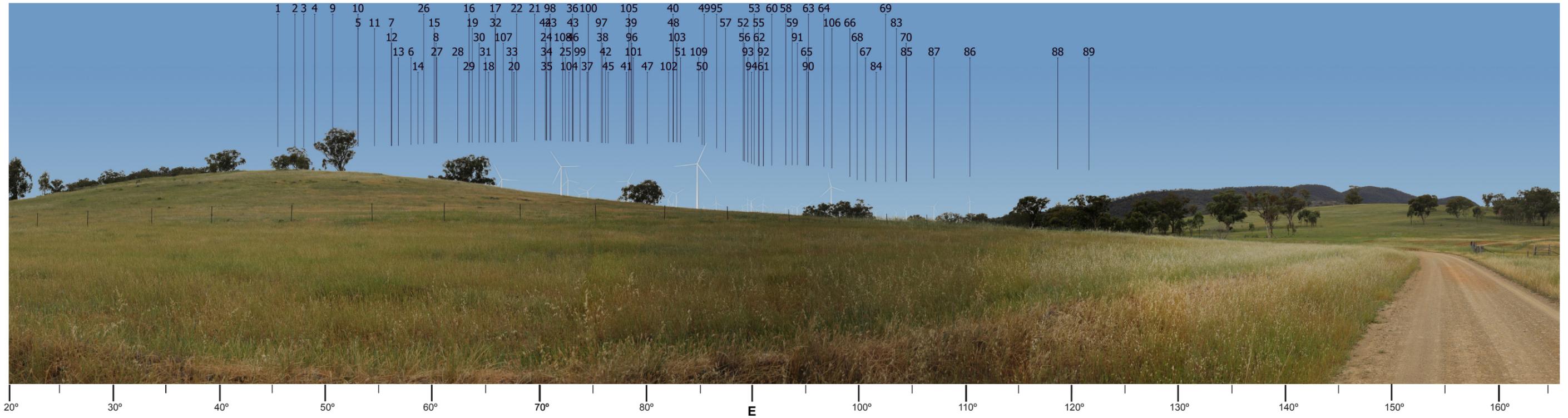


Proposed view from VP45

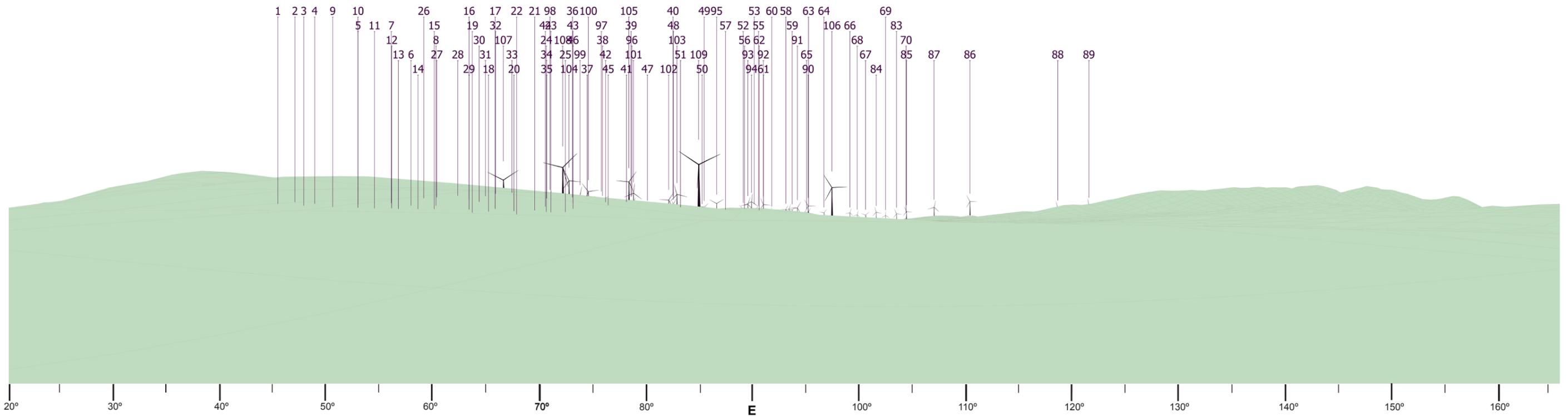


Photomontage 16 Viewpoint 45

Proposed view from VP45 (Superimposed blue sky - 3pm)

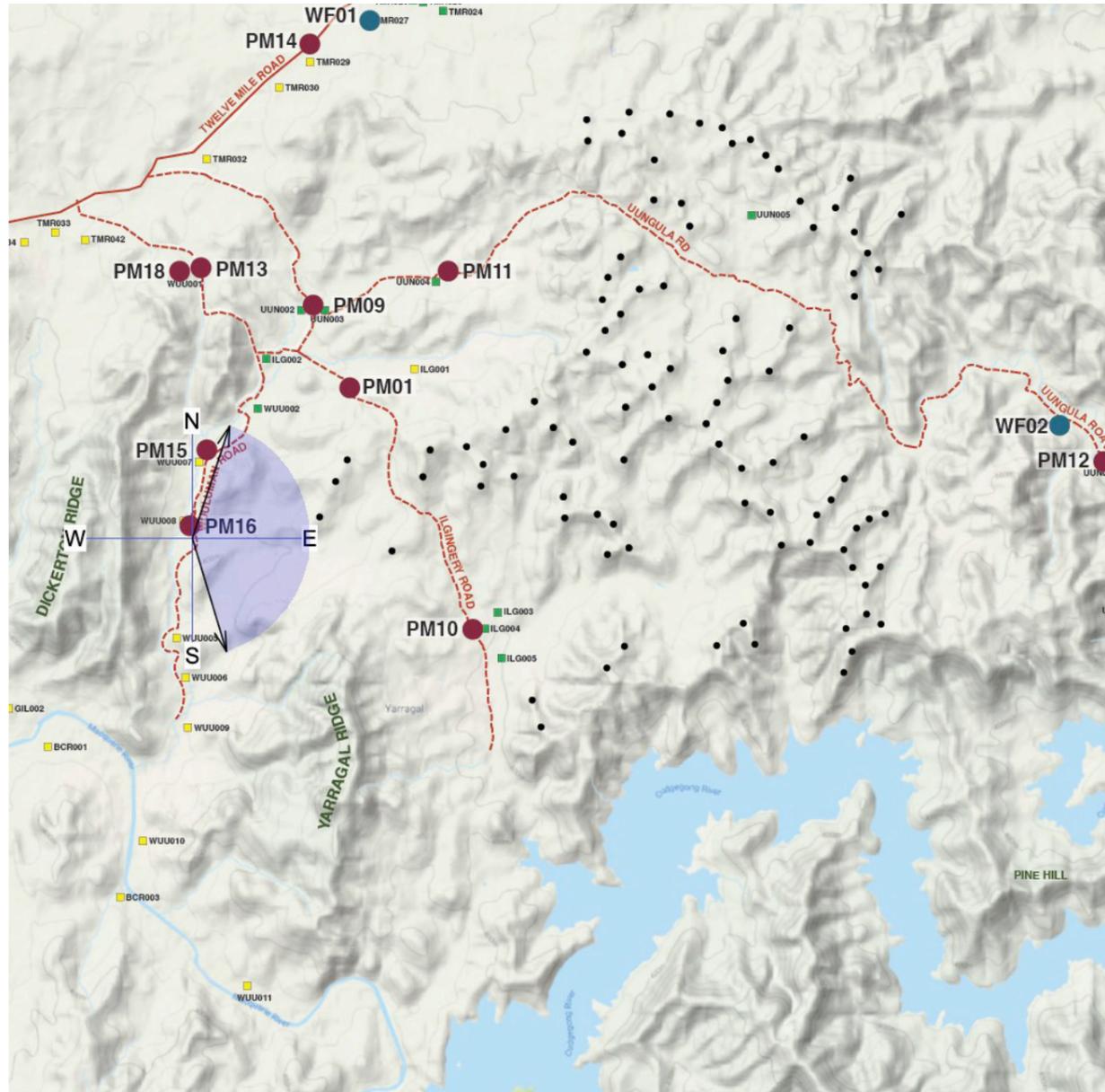


Proposed wireframe from VP45



Refer to Appendix E for Blue Sky Comparison

Photomontage 16 Location Map

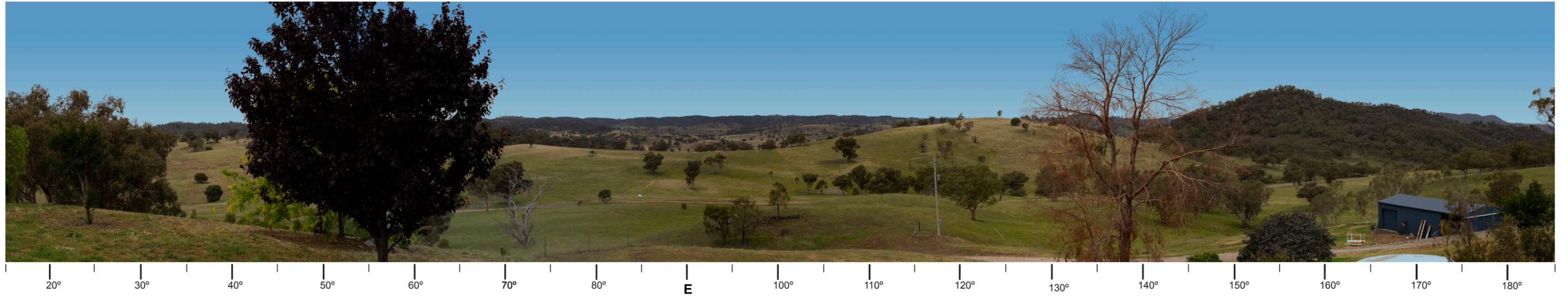


Summary of Photomontage 16	
Refer to Viewpoint 45	
Location:	Wuuluman Road
Coordinates:	149° 4'27.93"E 32°33'52.63"S
Distance to WTG:	Approx. 2.1km
Viewing Direction:	Generally East
Elevation:	370m
Representative Dwelling/s:	WUU008

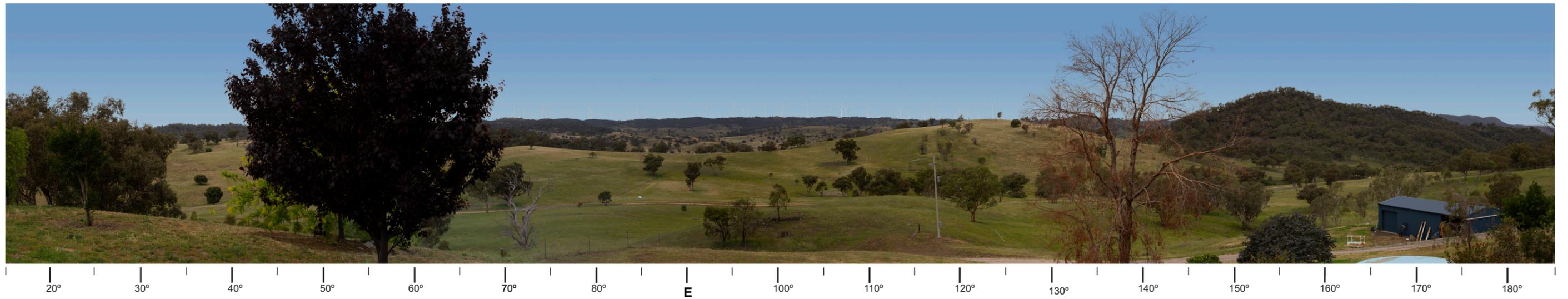
Figure D.16 Photomontage 16 Location and Viewing Direction

Photomontage 18 Viewpoint 46

Existing view from VP46

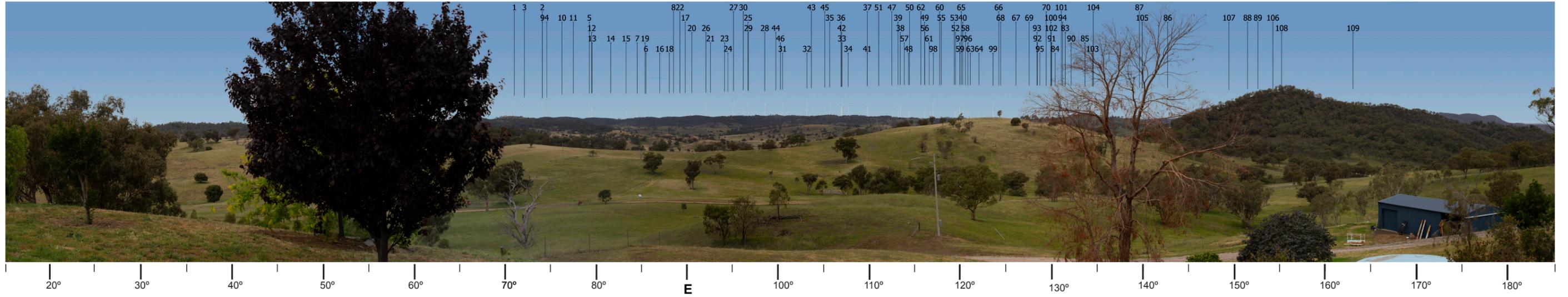


Proposed view from VP46

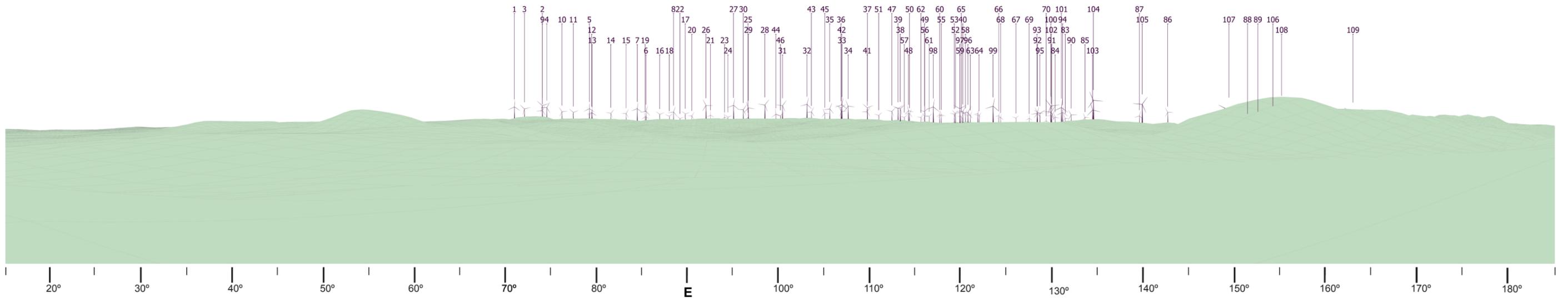


Photomontage 18 Viewpoint 46

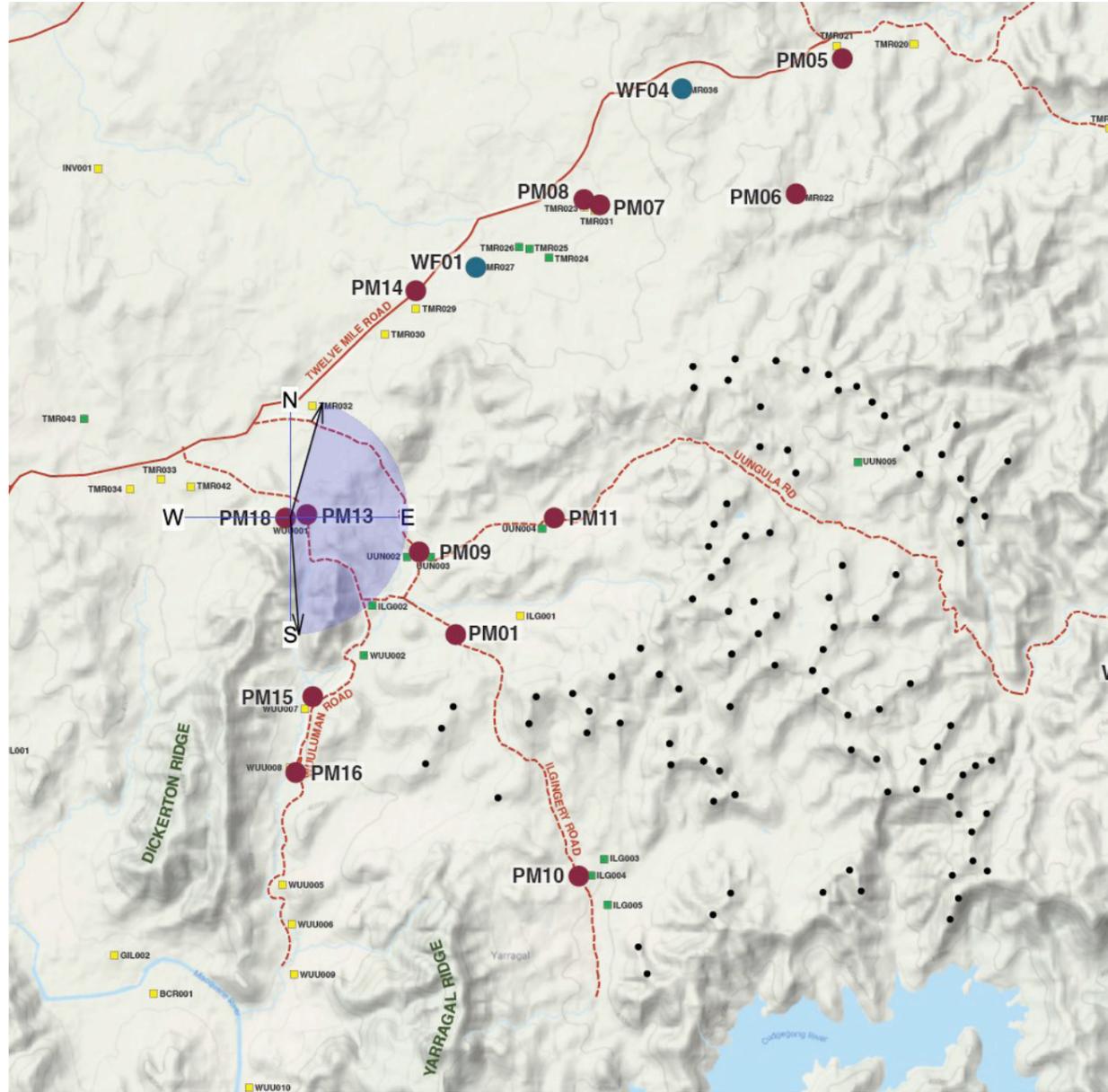
Proposed view from VP46



Proposed wireframe from VP46



Photomontage 18 Location Map

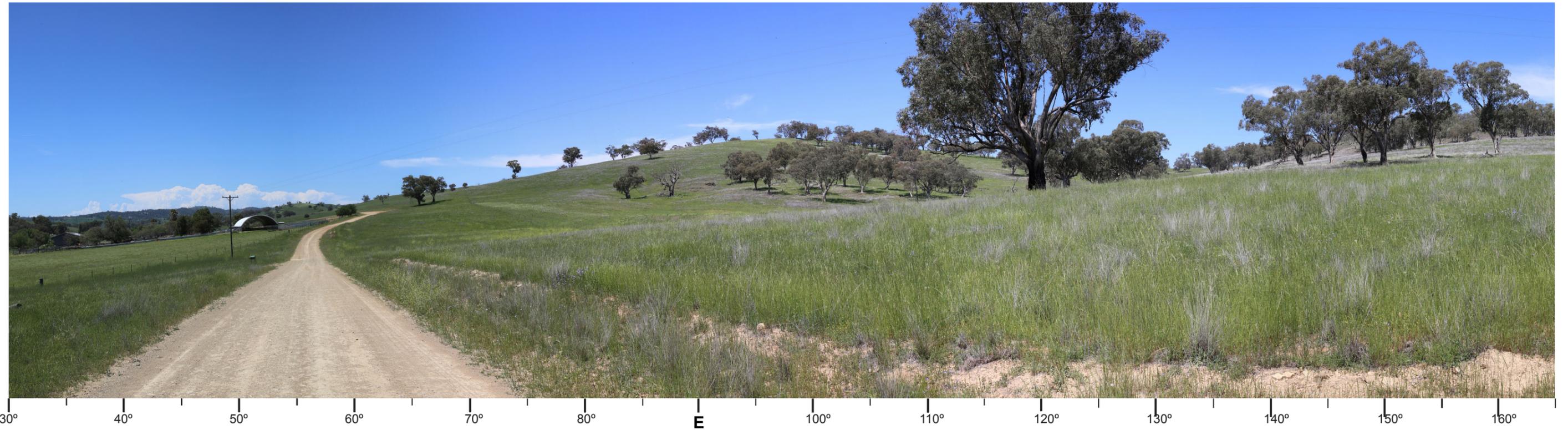


Summary of Photomontage 18	
Refer to Viewpoint 46	
Location:	Wuuluman Road
Coordinates:	149° 4'22.57"E 32°31'30.13"S
Distance to WTG:	Approx. 4.2km
Viewing Direction:	Generally East
Elevation:	520m
Representative Dwelling/s:	WUU001

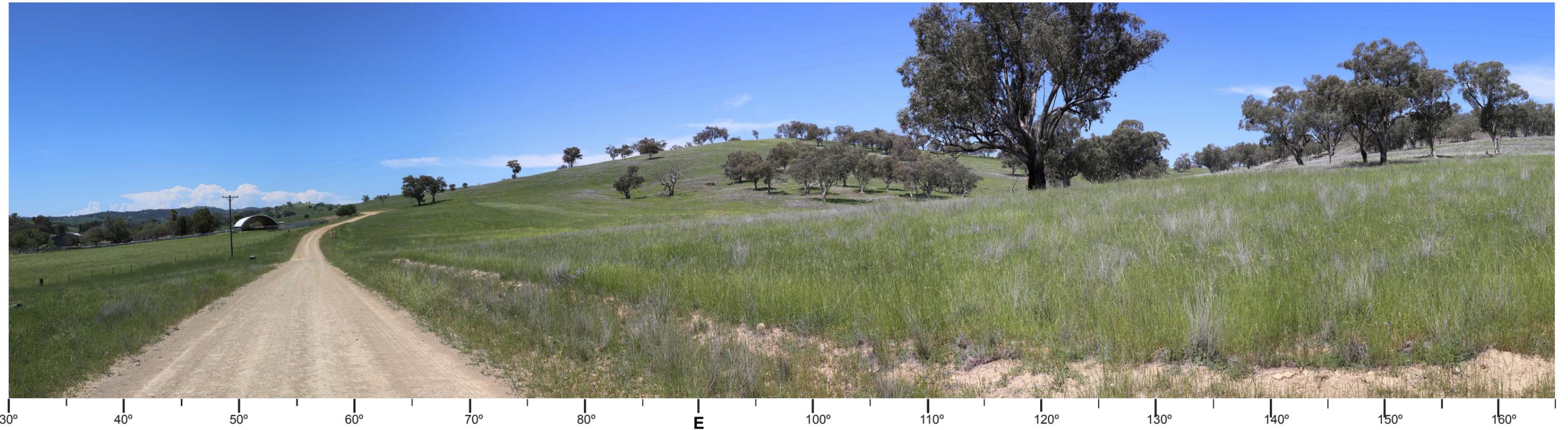
Figure D.18 Photomontage 18 Location and Viewing Direction

Photomontage 15 Viewpoint 26

Existing view from VP26

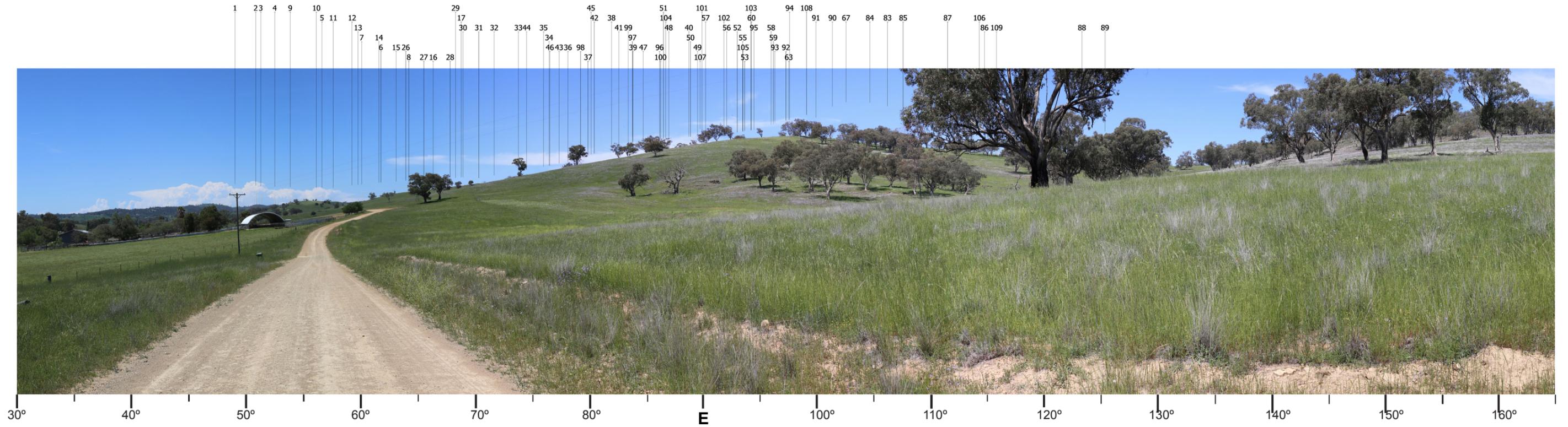


Proposed view from VP26

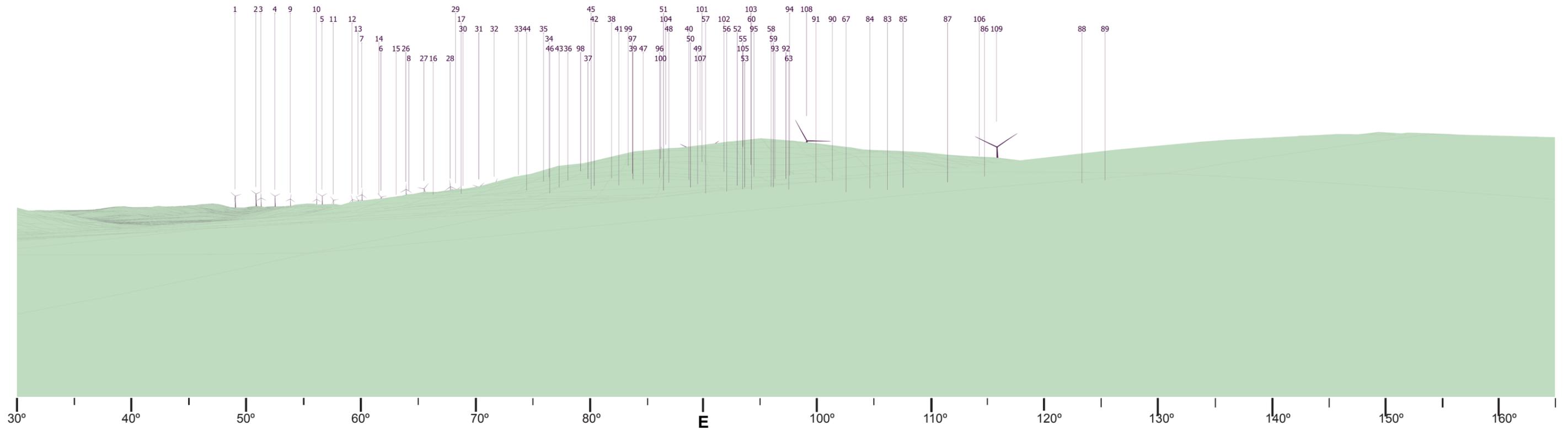


Photomontage 15 Viewpoint 26

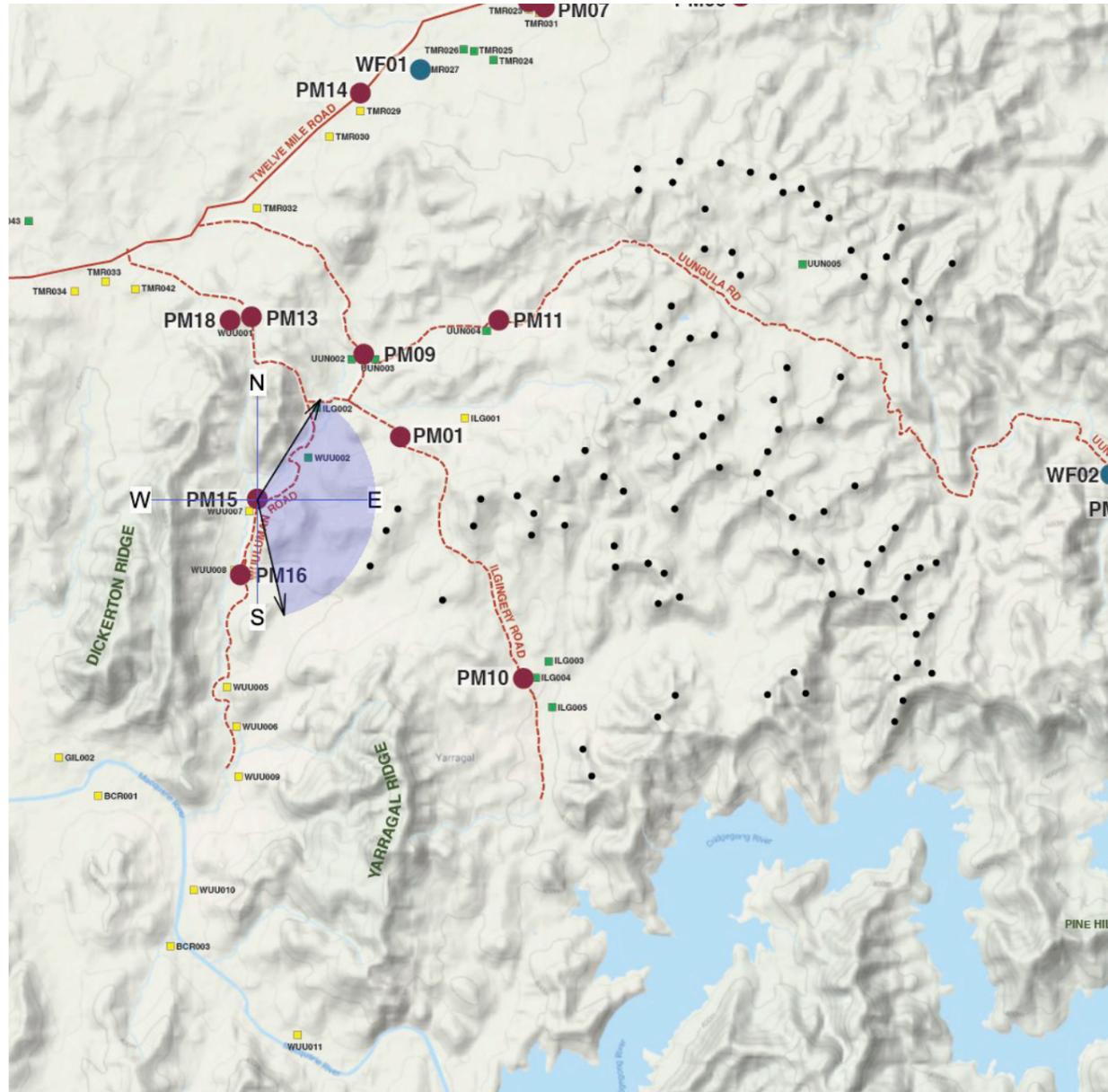
Proposed view from VP26



Proposed wireframe from VP26



Photomontage 15 Location Map



Summary of Photomontage 15	
Refer to Viewpoint 26	
Location:	Wuuluman Road
Coordinates:	149° 4'15.62"E 32°34'48.23"S
Distance to WTG:	Approx. 2km
Viewing Direction:	Generally North East
Elevation:	390m
Representative Dwelling/s:	WUU007, WUU008

Figure D.15 Photomontage 15 Location and Viewing Direction