



Dinner Hill Wind Farm

Shadow Flicker Report



Client: Umwelt

Revision: 1

Project: Dinner Hill Wind Farm – Shadow Flicker Assessment

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FINAL



Revision control

Revision	Date	Description	Prepared by	Reviewed by	Approved by
0	18.06.26	Final Report	Ebony Apps	Priyanga Ambanwala	Priyanga Ambanwala
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Disclaimer

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In arriving at the report conclusions, a number of assumptions have been made where input information is either not available, cannot be relied upon, or is subject to change. Should these assumptions prove to be incorrect based on new relevant information coming to light, it is likely the findings of this report may also need to change. The client should validate these assumptions prior to implementation of the conclusions or recommendations found in this report.

Executive Summary

Middleton Group Engineering (MGE) has been engaged by Umwelt to undertake a Shadow Flicker study for the Dinner Hill Wind Farm (the Project), located approximately 200 km North of Perth in Western Australia, within the Dandaragan Local Government Area (LGA) and within the Northern Wheatbelt zone.



The Project consists of up to 131 wind turbine generators and associated ancillary infrastructure including (but not limited to) battery energy storage system (BESS), hardstand areas, substation and switch yard, operational and maintenance facility, control room, site offices and car parking, construction compound and laydown areas, concrete batching plants, overhead and underground cabling, and upgraded access tracks. The Project has been conceptually designed to generate up to 990 MW of electricity for transmission into the South West Interconnected System (SWIS) which will be dependent on final turbine model and numbers.

Requirements

The study addresses the shadow flicker requirements of the Western Australian Planning Commission (WAPC) Renewable Energy Planning Code [1], specifically the Element Objective (WF-EO5.1) :

Element Objective WF-EO5.1: Wind turbines are sited, designed and operated to minimise shadow flicker impacts on any existing or approved visually sensitive land use located on a non-host lot.

To demonstrate the achievement of the above Element Objective, either of the Performance Outcome or the Acceptable Outcome mentioned below shall be satisfied.

Acceptable Outcome WF-AO5.1: Wind turbines are set back a minimum distance of 265 times the maximum blade chord length from any existing or approved visually sensitive land use on non-host lots.

Performance Outcome WF-PO5.1: Wind turbines are sited and operated to ensure that shadow flicker at any visually sensitive land use on non-host lots does not exceed:

- a. 30 hours per year and 30 minutes on any single day, based on theoretical shadow flicker modelling; or
- b. 10 hours per year, based on predicted actual shadow flicker modelling

This study has also been completed with due regard to the Draft National Wind Farm Guideline [2] and the Clean Energy Council Best Practice Guidelines [3], to assess potential impacts of the Project on existing sensitive land uses.

Assessment Overview

The potential impact of shadow flicker from Dinner Hill Wind Farm has been modelled, with results indicating that all turbines comply with the minimum setback requirement from visually sensitive land uses on non-host lots. Therefore, on the basis that Acceptable Outcome WF-AO5.1 is met, the project satisfies Element Objective 5 related to Shadow Flicker.

Recommendations

It is recommended that any amendments to proposed turbine locations are assessed for compliance against WF-AO5.1

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Abbreviations/Definitions

Table 1: Abbreviations and Definitions

Abbreviation / Definition	Explanation
BESS	Battery Energy Storage System
EPHC	Environmental Protection and Heritage Council
h/year	Hours per year
km	Kilometres
LGA	Local Government Area
m	Metres
MGE	Middleton Group Engineering
MW	Mega-Watt
MWh	Mega-Watt-hour
RPM	Revolutions per minute
the Project	Dinner Hill Wind Farm
the Proponent	OX2
WA	Western Australia
WAPC	Western Australia Planning Commission
WTG	Wind Turbine Generator
ZVI	Zone of Visual Influence

1 Introduction

Middleton Group Engineering (MGE) has been engaged by Umwelt to undertake a Shadow Flicker study for the Dinner Hill Wind Farm (the Project), located approximately 200 km North of Perth in Western Australia, within the Dandaragan Local Government Area (LGA) and within the Northern Wheatbelt zone.

 The Project consists of up to 131 wind turbine generators and associated ancillary infrastructure including (but not limited to) battery energy storage system (BESS), hardstand areas, substation and switch yard, operational and maintenance facility, control room, site offices and car parking, construction compound and laydown areas, concrete batching plants, overhead and underground cabling, and upgraded access tracks. The Project has been conceptually designed to generate up to 990 MW of electricity for transmission into the South West Interconnected System (SWIS) which will be dependent on final turbine model and numbers.

Dinner Hill Wind Farm Pty Ltd (ACN 660 596 556), a subsidiary of OX2 AB and an affiliate of OX2 Holdings Pty Ltd, is proposing to develop the Project (the Proponent).

1.1 Defining Shadow Flicker

Shadow flicker is the instance where the rotating blades of a wind turbine cast intermittent shadows that appear to flicker to an observer at a fixed ground position.

The extent and duration of the shadow flicker effect are influenced by several factors, including the direction of the sensitive land use relative to the turbine, the distance from the turbine (with the effect diminishing as distance increases), and the wind direction, which determines the orientation of the blades, and the shape of the shadow based on the sun's position. Additional factors include the turbine height specifications, the time of year and day, which affect the sun's position in the sky, and weather conditions, as cloud cover can significantly reduce the occurrence of shadow flicker.

In this report, MGE is evaluating the duration of shadow flicker in relation to nearby sensitive land uses, such as dwellings. Shadow flicker is most noticeable indoors, particularly through openings like windows and doors. Due to its potential impacts on human health, a detailed assessment is required, as described in following sections, to limit the impact.

1.2 Project Overview

Existing and proposed dwellings on non-host lots within 2 km of the WTG layout, as identified by the Proponent, are shown in Figure 1.

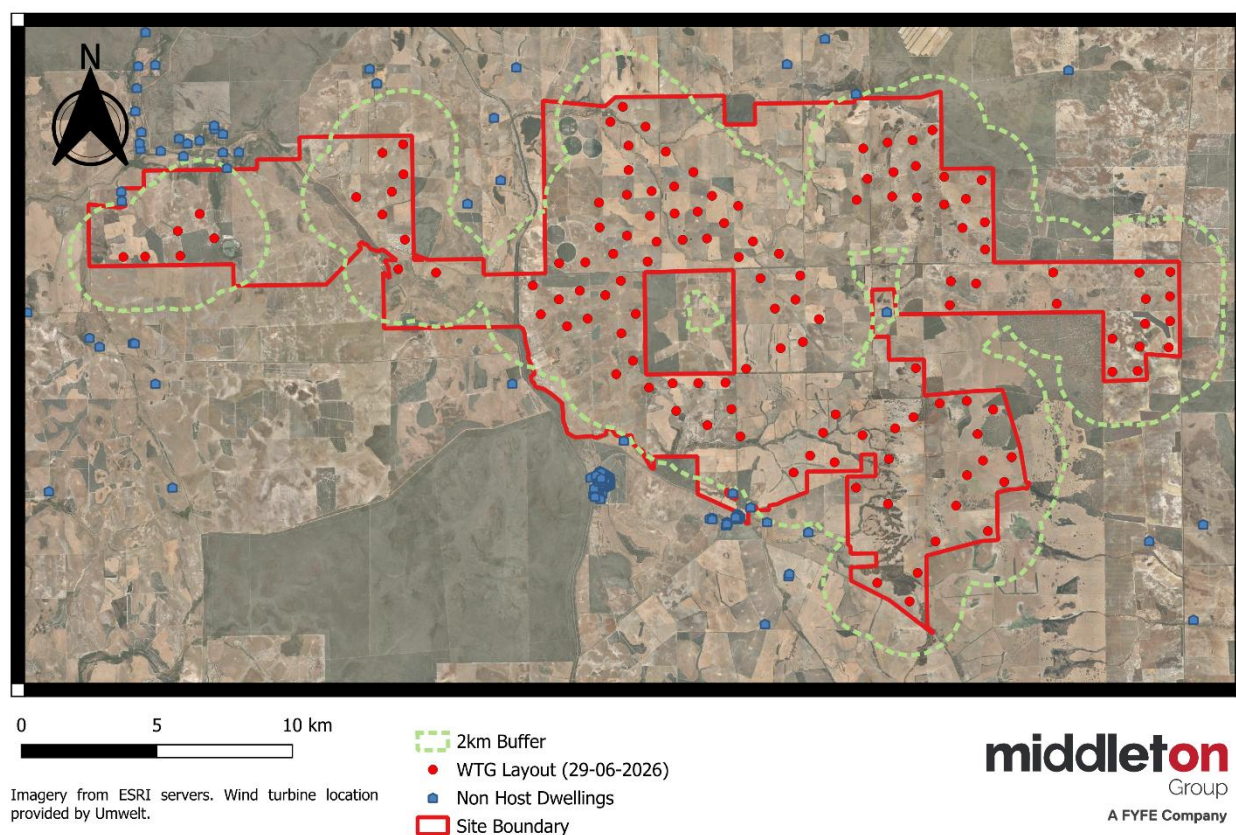


Figure 1: WTG layout overlaid with non-host dwellings

Visually sensitive land uses including residential dwellings, short-stay accommodation, schools, hospitals, childcare centres and recreation areas, where prolonged exposure can affect the well-being and comfort of residents are considered in this study.

Upon reviewing Google Maps for other labelled sensitive land uses, it was concluded that there are none within the 2km buffer zone. Schools, short stay accommodations, playgrounds and other sports facilities located in the Badgingarra township are beyond this buffer zone, hence not needed to be considered in the modelling.

2 Scope

This Shadow Flicker Study is a desktop study, modelling the WTG locations along with visually sensitive land uses on non-host lots and evaluating the impact of the wind turbines on these land uses.

The study has been undertaken to address the Shadow Flicker element of the Western Australian Planning Condition (WAPC) Renewable Energy Planning Code [1]. The Renewable Energy Planning Code sets out an Element Objective describing the intended planning outcome, supported by Performance Outcomes and Acceptable Outcomes.

Element Objective WF-E05.1: Wind turbines are sited, designed and operated to minimise shadow flicker impacts on any existing or approved visually sensitive land use located on a non-host lot.

To demonstrate the achievement of the above Element Objective, either of the Performance Outcome or the Acceptable Outcome mentioned below shall be satisfied.

Acceptable Outcome WF-AO5.1: Wind turbines are set back a minimum distance of 265 times the maximum blade chord length from any existing or approved visually sensitive land use on non-host lots.

Performance Outcome WF-PO5.1: Wind turbines are sited and operated to ensure that shadow flicker at any visually sensitive land use on non-host lots does not exceed:

- a. 30 hours per year and 30 minutes on any single day, based on theoretical shadow flicker modelling; or
- b. 10 hours per year, based on predicted actual shadow flicker modelling

2.1 Other Requirements

2.1.1 Draft National Wind Farm Development Guidelines

The Environmental Protection and Heritage Council (EPHC) – National Wind Farm Development Guidelines – Draft, dated July 2010 [2], offers guidance to the community, industry and regulators on the planning framework for the assessment of large-scale wind energy development proposals. Specifically, Section 3.5 and Appendix E define Shadow Flicker and provide detailed best-practice approach to addressing the associated risk. This outline has been considered in the development MGE’s methodology for the following report.

2.1.2 Clean Energy Council Best Practice Guidelines

The Clean Energy Council’s Best Practice Guidelines [3] are designed to assist wind farm proponents, owners and operators in the planning, approval and operational phases of onshore wind farm projects. The Clean Energy Council address shadow flicker within their guidelines.

The Clean Energy Council state that “The predicted duration of shadow flicker at all nearby houses (relevant receivers) must be determined and assessed against relevant guidance”. They define shadow flicker and provide a definition of some varying shadow flicker exposure limits. As such the Clean Energy Council has established the common objective for proponents “should be that shadow flicker from wind farms does not detrimentally affect the amenity of nearby landowners.”

This report utilises these guidelines to analyse of the impact of the Project on the stakeholders and through similar methodology, assesses impacts (incorporating feedback from relevant stakeholders) and recommends mitigation where potential impacts to telecommunication services are identified.

2.2 Inputs

This assessment is based on the details of Project and stakeholder infrastructure specified in Table 2 and Table 3.

Table 2: Study Inputs – Project Infrastructure

Project Detail	Value
Wind turbine coordinates	Wind turbine layout received from the Proponent on 01.07.26
Wind turbine dimensions	Tip Height: 270 m Hub Height: 168 m

Project Detail	Value
	Turbine Rotor Diameter: 181 m
	Blade Cord Width: 5.5 m (provided by the client)

Table 3: Study Inputs – Stakeholder Infrastructure

Input	Source	Date Provided/Accessed
Dwellings coordinates and classification	The Proponent	01.07.26
Other sensitive land uses in the surrounding areas	Google Maps	18.06.26

2.3 Assumptions

This study has been developed on the following basis:

- The study is desktop only. No site visit or on-site ground-truthing has been conducted.
- The following modelling assumptions were made in line with the Renewable Energy Planning Code and Guidelines [4]
 - Minimum angle to the sun: 3 degrees.
 - Shape of the sun: Disk.
 - Receptor height: 2 meters, with the window assumed to be 1 m², located 1 m above ground level.
 - Receptor angle: Assumed to be in "greenhouse" mode, where the window is perpendicular to all WTGs.
 - Reference year: represents conditions 15 years in the future, in 2041
- No operational reductions for WTGs have been applied.
- The Zone of Visual Influence (ZVI), accounting for obstacles between WTGs and sensitive land uses, has been considered.
- Topographic shadowing (obstacles between the sun and WTGs) has not been accounted for.
- Sunlight Hours: The average daily sunshine hours are sourced from the nearest climate station with sunshine data available in the software, Perth Airport climate station, located 180 km from Dinner Hill Wind Farm. Sunshine data is from 1964 -1992.

Table 4: Average daily sunshine hours assumption

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sunshine hours	11.13	10.26	9.14	7.29	6.25	5.21	5.54	6.54	7.40	9.10	10.04	11.09

3 Analysis

To assess the impact of shadow flicker on nearby receptors, the following high-level methodology is applied:

1. Establish the potential impact area for the WTG layout based on standard guidelines and WTG specifications.
2. Identify all visually sensitive land uses on non-host lots within the defined zone of influence of shadows.
3. Simulate both worst-case and real-case scenarios by incorporating WTG layout, receptor locations, and environmental factors.
4. Analyse the results to determine any potential shadow flicker effects on the identified receptors and assess whether mitigation measures are necessary.

3.1 Assessment Criterion

The relevant criterion for this assessment is that shadow flicker must not exceed 30 hours per year and 30 minutes per day, in accordance with the Renewable Energy Planning Code [1] for Western Australia. If a receptor lies outside the zone of influence of shadows of a WTG, the risk of shadow flicker for that receptor will be considered negligible in accordance with the Acceptable Outcome WF-AO5.1.

This report refers to the performance outcome from the Renewable Energy Planning Code in the following manner:

- *Criteria 1:* shadow flicker must not exceed 30 hours per year, based on theoretical shadow flicker modelling
- *Criteria 2:* shadow flicker must not exceed 30 minutes on any single day, based on theoretical shadow flicker modelling
- *Criteria 3:* shadow flicker must not exceed 10 hours per year, based on predicted actual shadow flicker modelling.

Either criteria 1 and 2 or criteria 3 must be satisfied to comply with the Renewable Energy Planning Code.

3.2 Influences on Shadow Flicker

When assessing shadow flicker impacts from wind turbine generators (WTGs), it is essential to account for several real-world factors that influence the severity and frequency of shadow flicker at nearby dwellings. This section provides a detailed overview of these factors to ensure a robust and realistic assessment.

Sun Position and Impact on Dwellings

The position of the sun plays a crucial role in determining which dwellings are affected by shadow flicker.

- **East-West Impact:** Dwellings located towards the east and west of the turbines are more likely to experience shadow flicker.
- **North-South Impact:** Dwellings to the north and south of the turbine experience significantly less shadow flicker due to the sun's path.
- **Seasonal Variation:** The angle and elevation of the sun change throughout the year, influencing both the intensity and duration of shadow flicker. During summer months, when the sun is higher in the sky, shadow flicker duration tends to decrease, while in winter months, longer shadows may increase potential impacts on dwellings.

Garden Fenced Area and Surrounding Vegetation

It is important to assess not only the dwelling itself but also the surrounding Garden Fenced Area, as this is where residents are likely to spend time.

- In some cases, this area may be enclosed by tall trees or other structures that block the view of the turbines, eliminating shadow flicker at the property.
- However, the presence of trees or barriers is often temporary. To account for potential changes, MGE includes all dwellings in the modelling, even if current conditions mitigate shadow flicker.

Turbine Technology and Blade Rotation Speed

Advancements in turbine technology have altered the nature of shadow flicker.

- **Historical Blade Speeds:** In the early 2010s, turbines rotated at around 20 RPM, creating 60 blade passes per minute - one flicker per second.
- **Current Blade Speeds:** Modern turbines rotate slower, at around 6 RPM, resulting in 18 blade passes per minute, producing one flicker every three seconds.

Slower rotation speeds of modern turbines significantly reduce flicker frequency and therefore its impact.

Modelling Theoretical and Realistic Shadow Flicker Impact

The assessment process typically begins by calculating the theoretical maximum impact of shadow flicker at each dwelling.

- If the theoretical impact is below 30 hours per year and 30 minutes per day, the analysis may conclude at this stage, noting that the result is a conservative estimate.

However, this theoretical model does not account for several real-world variables:

1. **Cloud Cover:** Shadow flicker only occurs under clear skies. Cloud cover eliminates shadow flicker entirely.
2. **Turbine Operation:** Turbines may not always be operational, with typical turbine availability at around 98%. Additionally, turbines are more likely to operate during peak energy demand periods, such as dawn and dusk, and then only if wind conditions are favourable.
3. **Wind Direction and Turbine Yawing:** Shadow flicker is most significant when the full rotor face of the turbine is visible to the receptor. As turbines yaw to align with changing wind directions, the extent of shadow flicker at the receptor is reduced.

Adjusting Estimates with Cloud Cover Data

If the theoretical shadow flicker exceeds 30 hours per year and 30 minutes per day at any dwelling, a more refined estimate can be developed by factoring in cloud cover data.

- The Bureau of Meteorology (BoM) records cloud cover using oktas (eighths of the sky covered by clouds). Historical shadow flicker assessments often incorporate these records to adjust the modelled impact.
- A monthly average of cloud cover data recorded by the BoM at the nearest weather station is used to produce the real case shadow flicker results.

3.3 Zone of Influence of Shadows

The extent of shadow flicker impact is determined by modelling the area within which shadows cast by turbine blades may fall and identifying sensitive receptors within this zone. The following sections outline the methodology used by MGE to calculate shadow flicker frequency and the zone of influence around each wind turbine.

$$265 \times \text{Maximum Blade Width}$$

As stated in Table 2, the maximum chord width for the WTG is 5.5 m. Based on the methodology outlined in the Renewable Energy Planning Code, Acceptable Outcome (AO5.1), the zone of influence for shadow flicker is calculated as **1457.5 m**. Sensitive receptors located outside this radius are not assessed, as they are unlikely to experience shadow flicker.

The zone of influence of shadows of the WTGs has been mapped with nearby non-host residences in Figure 2.

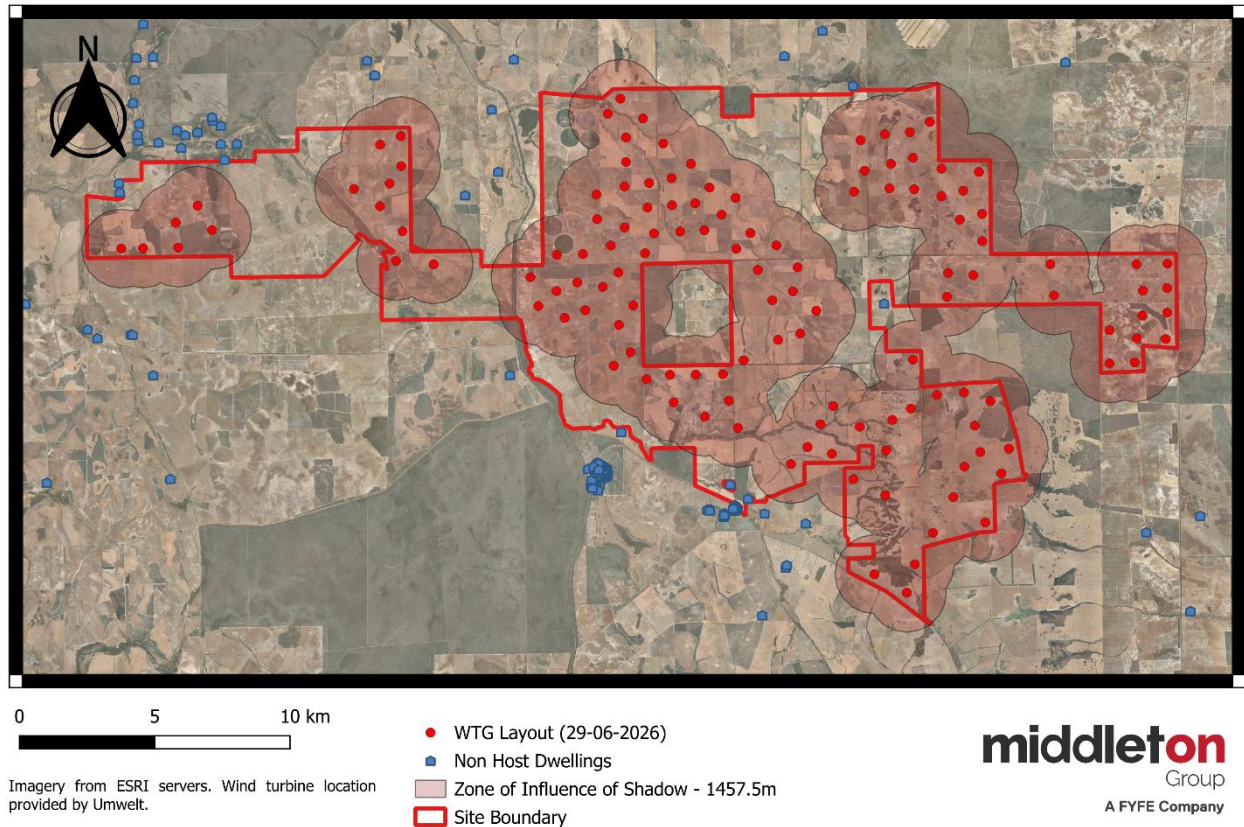


Figure 2: Location of non-host dwellings with respect to the zone of influence of shadows

According to the above map, none of the nearby non-host residences are located within a radius of 1,457.5m from any wind turbine. As no visually sensitive land uses located on non-host lots are within this zone of influence of shadows, no further analysis is required.

4 Recommendations

The Project design has achieved element objective WF-E05.1 associated with shadow flicker, as no visually sensitive land use located on a non-host lot have been identified as exceeding statutory limits for shadow flicker exposure. (i.e. Acceptable Outcome WF-AO5.1 is achieved.)

It is recommended that any amendments to proposed turbine locations are assessed for compliance against WF-AO5.1.

5 Conclusion

This assessment evaluated the shadow flicker impacts of the Project, against the Acceptable Outcome and the Performance Outcome provided in Renewable Energy Planning Code [1]. Summary of the assessment is given in Table 5 below.

Table 5: Summary of Shadow Flicker Assessment

Objective / Outcome	Description	Outcome	Remarks
Element Objective WF-EO5.1	Wind turbines are sited, designed and operated to minimise shadow flicker impacts on any existing or approved visually sensitive land use located on a non-host lot .	Element Objective ACHIEVED	Element objective achieved based on Acceptable Outcome WF-AO5.1.
Acceptable Outcome WF-AO5.1	Wind turbines are set back a minimum distance of 265 times the maximum blade chord length from any existing or approved visually sensitive land use on non-host lots.	Acceptable Outcome ACHIEVED	No visually sensitive land uses in non-host lots are located within the minimum setback distance of 1,457.5m

6 References

- [1] Western Australia Planning Commission, "Renewable Energy Planning Code," December 2025. [Online]. Available: https://www.planning.wa.gov.au/docs/default-source/policy/renewable-energy-planning-code.pdf?sfvrsn=16b9b9c1_6.
- [2] EPHC, "Draft National Wind Farm Development Guidelines," 2010 July 2. [Online]. Available: <https://www.nepc.gov.au/sites/default/files/2022-09/draft-national-wind-farm-development-guidelines-july-2010.pdf>.
- [3] Clean Energy Council, "Best Practice Guidelines," June 2018. [Online]. Available: <https://assets.cleanenergycouncil.org.au/documents/advocacy-initiatives/community-engagement/wind-best-practice-implementation-guidelines.pdf>.
- [4] Western Australia Planning Commission, "Renewable Energy Planning Code and Guidelines," December 2025. [Online]. Available: https://www.planning.wa.gov.au/docs/default-source/policy/renewable-energy-code-and-guideline.pdf?sfvrsn=ad67149a_6.

Appendix A Dwelling Classifications

No.	x	y	Classification
1	332676	6650410	Surrounding Dwelling
2	332778	6651023	Surrounding Dwelling
3	332968	6650497	Surrounding Dwelling
4	332975	6641228	Surrounding Dwelling
5	335772	6636848	Surrounding Dwelling
6	337280	6642507	Surrounding Dwelling
7	338471	6647561	Shed
8	338874	6642319	Surrounding Dwelling
9	338966	6650872	Surrounding Dwelling
10	339023	6651723	Surrounding Dwelling
11	339081	6652533	Surrounding Dwelling
12	339105	6647476	Host Dwelling
13	339156	6649470	Surrounding Dwelling
14	339189	6650102	Surrounding Dwelling
15	339251	6655092	Surrounding Dwelling
16	339347	6653783	Surrounding Dwelling
17	339702	6652580	Surrounding Dwelling
18	339708	6640815	Surrounding Dwelling
19	340342	6636986	Surrounding Dwelling
20	340585	6649859	Surrounding Dwelling
21	340893	6649681	Surrounding Dwelling
22	341342	6649789	Surrounding Dwelling
23	341900	6650207	Surrounding Dwelling
24	342203	6649356	Surrounding Dwelling
25	342204	6650028	Surrounding Dwelling
26	345471	6646505	Host Dwelling
27	346134	6648874	Host Dwelling
28	347609	6652435	Surrounding Dwelling
29	347872	6651885	Surrounding Dwelling
30	349988	6642964	Host Dwelling
31	350521	6643441	Host Dwelling
32	351228	6647460	Surrounding Dwelling
33	352208	6650626	Surrounding Dwelling
34	352450	6648326	Surrounding Dwelling
35	352533	6657531	Surrounding Dwelling
36	352883	6640824	Surrounding Dwelling
37	354427	6647324	Host Dwelling
38	354530	6641405	Host Dwelling
39	355133	6641399	Host Dwelling
40	355878	6636733	Surrounding Dwelling
41	355949	6636778	Surrounding Dwelling
42	356001	6636787	Surrounding Dwelling
43	356031	6636829	Surrounding Dwelling
44	356037	6637488	Surrounding Dwelling
45	356051	6636656	Surrounding Dwelling
46	356072	6637533	Surrounding Dwelling
47	356087	6636839	Surrounding Dwelling
48	356101	6637025	Surrounding Dwelling
49	356104	6636970	Surrounding Dwelling
50	356116	6637594	Surrounding Dwelling
51	356139	6637191	Surrounding Dwelling
52	356163	6637046	Surrounding Dwelling
53	356165	6636911	Surrounding Dwelling
54	356167	6637007	Surrounding Dwelling
55	356169	6637303	Surrounding Dwelling
56	356171	6637190	Surrounding Dwelling
57	356179	6637256	Surrounding Dwelling
58	356182	6636980	Surrounding Dwelling

No.	x	y	Classification
59	356182	6636934	Surrounding Dwelling
60	356186	6637343	Surrounding Dwelling
61	356200	6636959	Surrounding Dwelling
62	356203	6637374	Surrounding Dwelling
63	356214	6637387	Surrounding Dwelling
64	356215	6637294	Surrounding Dwelling
65	356219	6637061	Surrounding Dwelling
66	356221	6637031	Surrounding Dwelling
67	356224	6637006	Surrounding Dwelling
68	356230	6637273	Surrounding Dwelling
69	356233	6637247	Surrounding Dwelling
70	356235	6637225	Surrounding Dwelling
71	356238	6637201	Surrounding Dwelling
72	356239	6636980	Surrounding Dwelling
73	356245	6637182	Surrounding Dwelling
74	356251	6637151	Surrounding Dwelling
75	356254	6637041	Surrounding Dwelling
76	356259	6637119	Surrounding Dwelling
77	356996	6638712	Surrounding Dwelling
78	357732	6658168	Surrounding Dwelling
79	357859	6656829	Surrounding Dwelling
80	360269	6635868	Surrounding Dwelling
81	360343	6643412	Shed
82	360520	6643589	Shed
83	360636	6643581	Shed
84	360651	6636596	Host Dwelling
85	360676	6650888	Host Dwelling
86	360771	6635585	Surrounding Dwelling
87	360790	6635603	Surrounding Dwelling
88	361017	6636780	Surrounding Dwelling
89	361217	6635947	Surrounding Dwelling
90	361297	6635900	Surrounding Dwelling
91	361672	6636257	Surrounding Dwelling
92	361673	6636256	Surrounding Dwelling
93	362137	6649329	Host Dwelling
94	362205	6631949	Surrounding Dwelling
95	362284	6635710	Surrounding Dwelling
96	362404	6648866	Host Dwelling
97	362495	6639899	Host Dwelling
98	362497	6639900	Host Dwelling
99	362742	6640405	Host Dwelling
101	363016	6652605	Surrounding Dwelling
102	363074	6633713	Surrounding Dwelling
103	363809	6635342	Surrounding Dwelling
104	363896	6647225	Host Dwelling
105	364050	6646516	Host Dwelling
106	364245	6648757	Host Dwelling
107	364422	6653538	Surrounding Dwelling
108	364721	6628365	Surrounding Dwelling
109	365056	6644448	Host Dwelling
110	365166	6627805	Surrounding Dwelling
111	365282	6642055	Host Dwelling
112	365344	6642027	Host Dwelling
113	365558	6651509	Surrounding Dwelling
114	366163	6640434	Host Dwelling
115	366166	6640460	Host Dwelling
116	366362	6646266	Host Dwelling
117	366639	6645016	Host Dwelling
118	366669	6644992	Host Dwelling
119	366726	6640829	Host Dwelling
120	367165	6657589	Surrounding Dwelling
121	367649	6628920	Surrounding Dwelling
122	368107	6625592	Surrounding Dwelling

No.	x	y	Classification
123	368291	6638132	Host Dwelling
124	368633	6625762	Surrounding Dwelling
125	370417	6628440	Surrounding Dwelling
126	370573	6629134	Surrounding Dwelling
127	370724	6628954	Surrounding Dwelling
128	371481	6644221	Host Dwelling
129	371528	6628939	Surrounding Dwelling
130	371968	6628914	Surrounding Dwelling
131	373405	6652381	Surrounding Dwelling
132	374226	6627939	Surrounding Dwelling
133	374380	6644415	Host Dwelling
134	376387	6635018	Surrounding Dwelling
135	378020	6632106	Surrounding Dwelling
136	378381	6635623	Surrounding Dwelling
150	363106	6633807	Surrounding Dwelling
151	360794	6635715	Surrounding Dwelling
152	360822	6635713	Surrounding Dwelling
153	360819	6635684	Surrounding Dwelling
154	360793	6635649	Surrounding Dwelling
155	361243	6635944	Surrounding Dwelling
156	360170	6635849	Surrounding Dwelling
157	360256	6635818	Surrounding Dwelling
158	356140	6637229	Surrounding Dwelling
159	356187	6637239	Surrounding Dwelling
160	355775	6637353	Surrounding Dwelling
161	356132	6637098	Surrounding Dwelling
162	338944	6642307	Surrounding Dwelling
163	337647	6642183	Surrounding Dwelling
164	334986	6643448	Surrounding Dwelling
165	339126	6649694	Surrounding Dwelling
166	341878	6650342	Surrounding Dwelling
167	347889	6651902	Surrounding Dwelling
168	353027	6652484	Surrounding Dwelling
169	356151	6636899	Proposed Dwelling
170	356137	6636880	Proposed Dwelling
171	356474	6637298	Proposed Dwelling
172	356266	6637012	Proposed Dwelling
173	356286	6637020	Proposed Dwelling
174	356308	6637028	Proposed Dwelling
175	356330	6637038	Proposed Dwelling
176	356354	6637045	Proposed Dwelling
177	356375	6637057	Proposed Dwelling
178	356397	6637069	Proposed Dwelling
179	356420	6637080	Proposed Dwelling
180	356440	6637090	Proposed Dwelling
181	356460	6637098	Proposed Dwelling
182	356476	6637114	Proposed Dwelling
183	356485	6637137	Proposed Dwelling
184	356497	6637160	Proposed Dwelling
185	356501	6637184	Proposed Dwelling
186	356494	6637207	Proposed Dwelling
187	356490	6637228	Proposed Dwelling
188	356485	6637247	Proposed Dwelling
189	356479	6637273	Proposed Dwelling
190	356469	6637321	Proposed Dwelling
191	356464	6637344	Proposed Dwelling
192	356460	6637374	Proposed Dwelling
193	356437	6637393	Proposed Dwelling
194	356414	6637416	Proposed Dwelling
195	356399	6637393	Proposed Dwelling
196	356384	6637371	Proposed Dwelling
197	356418	6637359	Proposed Dwelling
198	356425	6637334	Proposed Dwelling

No.	x	y	Classification
199	356429	6637312	Proposed Dwelling
200	356435	6637287	Proposed Dwelling
201	356440	6637263	Proposed Dwelling
202	356446	6637237	Proposed Dwelling
203	356451	6637213	Proposed Dwelling
204	356458	6637189	Proposed Dwelling
205	356456	6637166	Proposed Dwelling
206	356445	6637143	Proposed Dwelling
207	356427	6637127	Proposed Dwelling
208	356404	6637115	Proposed Dwelling
209	356380	6637105	Proposed Dwelling
210	356360	6637096	Proposed Dwelling
211	356340	6637087	Proposed Dwelling
212	356316	6637079	Proposed Dwelling
213	356292	6637072	Proposed Dwelling
214	356270	6637066	Proposed Dwelling
215	356283	6637130	Proposed Dwelling
216	356308	6637139	Proposed Dwelling
217	356296	6637168	Proposed Dwelling
218	356294	6637192	Proposed Dwelling
219	356289	6637216	Proposed Dwelling
220	356282	6637239	Proposed Dwelling
221	356278	6637262	Proposed Dwelling
222	356272	6637286	Proposed Dwelling
223	356274	6637313	Proposed Dwelling
224	356290	6637336	Proposed Dwelling
225	356304	6637357	Proposed Dwelling
226	356317	6637378	Proposed Dwelling
227	356329	6637400	Proposed Dwelling
228	356345	6637419	Proposed Dwelling
229	356365	6637438	Proposed Dwelling
230	356344	6637456	Proposed Dwelling
231	356320	6637468	Proposed Dwelling
232	356310	6637440	Proposed Dwelling
233	356297	6637420	Proposed Dwelling
234	356285	6637398	Proposed Dwelling
235	356271	6637378	Proposed Dwelling
236	356256	6637356	Proposed Dwelling
237	356245	6637337	Proposed Dwelling
238	356228	6637318	Proposed Dwelling
239	356357	6637328	Proposed Dwelling
240	356372	6637303	Proposed Dwelling
241	356376	6637277	Proposed Dwelling
242	356381	6637253	Proposed Dwelling
243	356386	6637229	Proposed Dwelling
244	356390	6637207	Proposed Dwelling
245	356394	6637177	Proposed Dwelling
246	356362	6637156	Proposed Dwelling
247	356355	6637179	Proposed Dwelling
248	356350	6637201	Proposed Dwelling
249	356345	6637224	Proposed Dwelling
250	356340	6637247	Proposed Dwelling
251	356333	6637273	Proposed Dwelling
252	356327	6637301	Proposed Dwelling
253	356181	6637130	Proposed Dwelling
254	356119	6637138	Proposed Dwelling
255	356096	6637133	Proposed Dwelling
256	356080	6637130	Proposed Dwelling
257	356057	6637125	Proposed Dwelling
258	356037	6637108	Proposed Dwelling
259	356059	6637098	Proposed Dwelling
260	356069	6637099	Proposed Dwelling
261	356079	6637101	Proposed Dwelling

No.	x	y	Classification
262	356089	6637106	Proposed Dwelling
263	356098	6637108	Proposed Dwelling
264	356109	6637108	Proposed Dwelling
265	356037	6637187	Proposed Dwelling
266	355995	6637349	Proposed Dwelling
267	356042	6637342	Proposed Dwelling
268	356042	6637261	Proposed Dwelling
269	356135	6637248	Proposed Dwelling
270	356131	6637269	Proposed Dwelling
271	356125	6637291	Proposed Dwelling
272	356118	6637314	Proposed Dwelling
273	356120	6637337	Proposed Dwelling
274	356134	6637352	Proposed Dwelling
275	356146	6637371	Proposed Dwelling
276	356159	6637391	Proposed Dwelling
277	356170	6637409	Proposed Dwelling
278	356181	6637426	Proposed Dwelling
279	356193	6637444	Proposed Dwelling
280	356204	6637461	Proposed Dwelling
281	356215	6637479	Proposed Dwelling
282	356227	6637495	Proposed Dwelling
283	356236	6637522	Proposed Dwelling
284	356260	6637511	Proposed Dwelling
285	356280	6637494	Proposed Dwelling
286	356260	6637472	Proposed Dwelling
287	356246	6637452	Proposed Dwelling
288	356233	6637432	Proposed Dwelling
289	356220	6637412	Proposed Dwelling
290	356090	6637433	Proposed Dwelling
291	356163	6637544	Proposed Dwelling
292	355976	6637435	Proposed Dwelling
293	356202	6636761	Proposed Dwelling
294	356074	6636812	Proposed Dwelling
295	356044	6636777	Proposed Dwelling
296	356004	6636744	Proposed Dwelling
297	356069	6636713	Proposed Dwelling
298	356100	6636638	Proposed Dwelling
299	356135	6636566	Proposed Dwelling
300	355906	6636965	Proposed Dwelling
301	356085	6637197	Proposed Dwelling
302	356191	6637207	Proposed Dwelling
303	356169	6637281	Proposed Dwelling
304	356165	6637330	Proposed Dwelling
305	361274	6635913	Proposed Dwelling
306	361259	6635928	Proposed Dwelling
307	361222	6635973	Proposed Dwelling
308	361208	6635991	Proposed Dwelling
309	361191	6636013	Proposed Dwelling
310	361165	6635961	Proposed Dwelling
311	361179	6635937	Proposed Dwelling
312	361192	6635922	Proposed Dwelling
313	361205	6635906	Proposed Dwelling
314	361218	6635891	Proposed Dwelling
315	361230	6635876	Proposed Dwelling
316	361244	6635861	Proposed Dwelling
317	361189	6635815	Proposed Dwelling
318	361176	6635831	Proposed Dwelling
319	361163	6635846	Proposed Dwelling
320	361150	6635864	Proposed Dwelling
321	361138	6635877	Proposed Dwelling
322	361124	6635895	Proposed Dwelling
323	355936	6636647	Surrounding Dwelling
324	339902	6649408	Surrounding Dwelling

No.	x	y	Classification
325	338447	6647908	Surrounding Dwelling
326	339161	6647765	Shed
327	342347	6648769	Shed
328	342790	6649362	Shed
329	366702	6643463	Surrounding Dwelling