

Grahamvale BESS RFI Response Memorandum

Landscape Character and Visual Impact Assessment

Prepared for

Avenis Energy working on behalf of AE BESS 3

Issue

00

Project Number

2684

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Revision	Date	Author	Checked	Comment
00	17/07/2026	CD	MD	Draft for Review
01	28/7/2026	CD	-	Final



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17th July 2026

Re: Grahamvale Battery Energy Storage System (BESS) - Landscape Character and Visual Impact Assessment RFI

Moir Studio has been engaged to undertake an update to the Landscape Character and Visual Impact Assessment (LCVIA) for Grahamvale BESS (the Project). Moir Studio is a professional consultancy practice specialising in the areas of Landscape Architecture, Landscape Planning and Visual Impact Assessment. Our team has extensive experience in undertaking visual impact assessments for large scale renewable energy projects.

The purpose of this memo is to provide an updated assessment to address the following RFI from the Department of Transport and Planning received on the 2nd July, 2026:

"An updated landscape and visual impact assessment that includes:

- *The six metre acoustic barrier in the wireframe and an assessment of its visual impacts on nearby sensitive receptors;*
- *Details of proposed on-site lighting and assessment of associated impacts; and*
- *Justification for findings that the visual impacts are acceptable without any proposed on-site landscaping/vegetation screening.*

Visual Impact Assessment

- *It is suggested that further justification for Viewpoint 3 (VP03) and Photomontage 2 (PM02) be provided in the Landscape and Visual Impact Assessment (LVIA). Viewpoint 3 (VP03) and Photomontage 2 (PM02) are taken from a location that places the development directly behind existing vegetation; however, immediately to the right / south of this location is noted in the LVIA as one which offers unobstructed views of the proposal from Verney Road. While it is considered that the LVIA is sufficient to assess impacts, it is our view that the LVIA could be more robust."*

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1.0 Acoustic Barrier Assessment

1.1 Assessment of Acoustic Barrier

RFI - Assess the six metre acoustic barrier in the wireframe and include an assessment of its visual impacts on nearby sensitive receptors.

A 6 m high acoustic barrier is proposed surrounding the BESS infrastructure. Additional assessment has been undertaken to account for the visual impacts of this infrastructure.

Description:

Acoustic barriers will be incorporated into the project design where required to achieve the relevant acoustic performance requirements. The final form, finish and external treatment of the noise barriers will be confirmed during detailed design, having regard to the outcomes of the final acoustic assessment, equipment selection, site layout, and any applicable permit conditions. The barriers will be designed to provide effective noise attenuation while being integrated into the overall site layout and visual setting in a reasonable and context-sensitive manner. The final appearance and construction details will therefore be determined once the final technical requirements are confirmed.

1.1.1 Zone of Visual Influence (ZVI) of 6m Acoustic Barrier

The ZVI represents the area over which a development can theoretically be seen, and is based on a Digital Terrain Model (DTM). The ZVI is a desktop tool intended to make the fieldwork and assessment more efficient by clearly excluding areas that are screened by topography. The ZVI presents a bare ground scenario - i.e. A landscape without screening, structures or vegetation, and is usually presented on a base map. It is also referred to as a zone of theoretical visibility. It is important to note the ZVI is based solely on topographic information. This form of mapping is acknowledged as providing a worst-case scenario and is used purely as a desktop assessment tool to determine areas for further investigation. Further assessment of the extent of existing vegetation can be found in **Section 3.0**.

The ZVI for the Project has been prepared based on 6 m high Acoustic Walls surrounding the BESS modules, which occupy the majority of the Development Footprint. Results are shown in **Figure 01**.

Summary of findings of the viewshed analysis:

- Due to the flat terrain, the majority of the roads and residences within the Study Area have potential theoretical views towards the project. However, it is noted that this analysis is based on topography only, and does not take into account existing screening elements such as built structures and vegetation. Further assessment of the extent of existing vegetation (screening elements) can be found in **Section 3.0**.
- 16 non-associated dwellings were identified within the street block surrounding the Project (the primary area from which direct views of the Project may reasonably occur), and with a theoretical line of sight. Further assessment of the extent of existing vegetation around non-associated dwellings can be found in **Section 3.0**.

1.1.2 Updates to Project Visualisations

Updated visualisation for photomontages PM01 and PM 02 are provided in **"Appendix A: Photomontages"**.

With the addition of the 6 m acoustic barrier to the Project model, the findings of the visual impact assessment remain consistent with those presented in the LCVIA report. The Project is setback from public roads and is largely screened by dense vegetation associated with the surrounding fruit orchards, screening hedges along Verney Road, and vegetation associated with nearby dwellings. While gaps in vegetation may allow partial views of the BESS infrastructure from short sections of Verney Road and Grahamvale Road, viewer sensitivity is considered low due to the brief and transient nature of views experienced by road users. In addition to the wireframe assessment, **Section 3.0** examines the extent of existing vegetation to further assess potential Project visibility, taking into account existing screening elements, including vegetation.

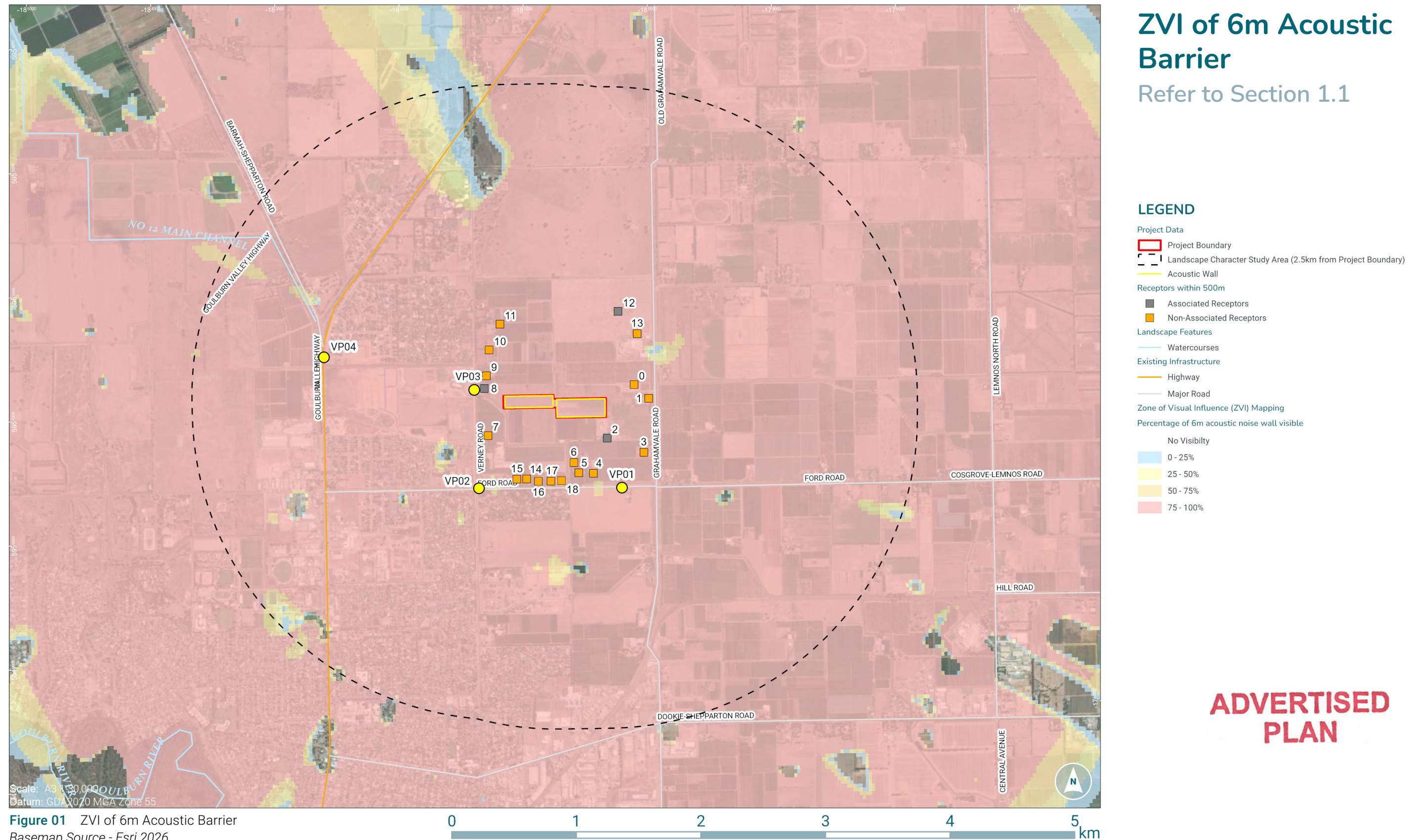
Overall, while the updates to the visualisation have resulted in minor changes to the project's appearance, the visual impact outcomes remain consistent with the findings of the LCVIA report.

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ZVI of 6m Acoustic Barrier

Refer to Section 1.1



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2.0 Night lighting

2.1 Assessment of Night lighting Impacts

RFI Quote - '*Assess the details of proposed on-site lighting and assessment of associated impacts.*'

Operational lighting for the BESS would generally be limited to security, night-time maintenance, and emergency purposes. There would be no permanent night lighting within the BESS area and no continuously illuminated external lighting is proposed. Lighting may be incorporated within battery and inverter units for maintenance or emergency access, with motion sensor, infrared or low-level security lighting installed at sensitive boundary locations and around key operational areas, including the substation, battery storage areas, operations and maintenance facilities and office areas.

All external operational lighting would be designed and installed to minimise light spill, glare and disturbance to neighbouring properties and the surrounding night-time landscape. Lighting would generally be low intensity, directed downward, and designed so that it does not shine above the horizontal, except where required for safety or emergency purposes. External lighting would only be used when staff are on site, during required night works, for site security, or during emergency situations, including remote operation where required to improve camera visibility. Given the limited nature of the proposed lighting, the siting of the infrastructure and the implementation of appropriate lighting design measures, lighting associated with the BESS is not expected to result in a noticeable visual impact on existing residences or publicly accessible viewpoints.

Any lighting would be designed and installed to comply with relevant Australian standards such as AS/NZS 4282:2023 *Control of the obtrusive effects of outdoor lighting*, and in accordance with best practice guidelines.

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3.0 Existing Vegetation Mapping

3.1 Vegetation Mapping Analysis

RFI - Justification for findings that the visual impacts are acceptable without any proposed on-site landscaping/vegetation screening.

Additional assessment was undertaken to map the existing vegetation surrounding the Project and identify areas of potential visibility of the BESS infrastructure (refer to **Figure 02**).

The vegetation mapping was undertaken using Light Detection and Ranging (LiDAR) data. The data was sourced from publicly available 1 m resolution LiDAR obtained from the ELVIS website (<https://elevation.fsdf.org.au>). The data was collected in October 2019 and includes a 1 m resolution Digital Elevation Model (DEM) and Canopy Height Model (CHM), with vegetation below 2 m excluded, and has an accuracy of approximately 0.3 m horizontally and 0.1 m vertically, based on a point density of 8 points/m².

LiDAR is a remote sensing technology that uses laser pulses to accurately measure the distance and elevation of land, vegetation, buildings, and other surface features. The resulting three-dimensional terrain and surface model provides a highly detailed and accurate dataset for assessing and visualising potential landscape and visual impacts. However, it is noted that some non-vegetation features may be classified as vegetation within the LiDAR dataset and should be considered when interpreting the results.

Figure 02 uses the LiDAR data to map the heights and locations of vegetation surrounding the Project.

3.1.1 Vegetation Mapping Analysis: Public Viewpoints

The vegetation mapping analysis determined

- As **Figure 03** demonstrates, extensive vegetation along Verney Road screens the Project from the majority of the road corridor (refer to **Image 01** & **Image 02**). Dense roadside hedging along Verney Road provides the primary screening, obscuring most views of the Project. Orchard vegetation and landscaping associated with nearby dwellings provide an additional layer of screening, although the roadside vegetation alone is sufficient to substantially limit views of the Project. Only a brief opening at a driveway, which also provides access to the Project, creates an approximately 35 m gap with potential visibility (location of VP03/PM02). While the Project is partially screened by vegetation from the viewpoint, it nevertheless demonstrates that the infrastructure is sufficiently setback from Verney Road (approximately 230 m away at its closest point), with its size and scale resulting in a low level of visual impact. Additionally, while gaps in roadside vegetation may allow partial views of the BESS infrastructure from short sections of Verney Road, viewer sensitivity is considered low due to the brief and transient nature of views experienced by road users.
- As **Figure 04** demonstrates, while the majority of Grahamvale Road is screened by vegetation associated with surrounding orchards and scattered roadside planting (refer to **Image 03** & **Image 04**), an approximately 400 m gap in vegetation allows for brief views of the Project. However, even without this screening, the Project is sufficiently set back from Grahamvale Road (approximately 400 m at its closest point) to appear only in the far background of the view. LiDAR visualisation PM03 (refer to "**Appendix A: Photomontages**") demonstrates that the proposed infrastructure is of a similar size and scale to nearby dwellings and agricultural sheds, while existing transmission infrastructure remains the dominant visual feature. Combined with the low sensitivity of road users, these factors result in a low visual impact.
- As **Figure 05** demonstrates, dense boundary planting along property lines to the south of the Project effectively screens the BESS infrastructure from view along Ford Road and from non-associated dwellings south of the Project. Although orchard vegetation provides supplementary screening, the boundary planting alone is sufficient to achieve this outcome.

3.1.2 Vegetation Mapping Analysis: Private Viewpoints

The vegetation mapping shown in **Figure 02** determined that all 16 non-associated dwellings identified within the street block surrounding the Project have sufficient boundary vegetation and/or nearby orchard vegetation to effectively screen the Project from view. Refer to **Table 01** for the results of the vegetation mapping and visual impact assessment for each dwelling. Contingency measures for potential orchard removal are outlined in **Section 5.0**.

Receptor Number	Location	Overall Visual Sensitivity	Vegetation Screening Present?	Visual Magnitude	Visual Impact
0	265 GRAHAMVALE ROAD GRAHAMVALE 3631	Low	Yes *vegetation surrounding dwelling, with additional built structures to the west screening views	Very Low	Low
1	227 GRAHAMVALE ROAD GRAHAMVALE 3631	Low	Yes *vegetation surrounding dwelling, particularly to the south, east and north	Low	Low
3	205 GRAHAMVALE ROAD GRAHAMVALE 3631	Low	Yes *orchard vegetation surrounding dwelling	Low	Low
4	215 GRAHAMVALE ROAD GRAHAMVALE 3631	Low	Yes *dense vegetation surrounding dwelling, with additional orchard vegetation to the north	Very Low	Low
5	197 FORD ROAD GRAHAMVALE 3631	Low	Yes *dense vegetation surrounding dwelling, with additional orchard vegetation to the north	Very Low	Low
6	195 FORD ROAD GRAHAMVALE 3631	Low	Yes *vegetation surrounding dwelling, with additional orchard vegetation to the north	Very Low	Low
7	255 VERNEY ROAD GRAHAMVALE 3631	Low	Yes *dense orchard vegetation surrounding dwelling	Very Low	Low
9	315 VERNEY ROAD GRAHAMVALE 3631	Low	Yes *dense orchard vegetation surrounding dwelling	Very Low	Low
10	335 VERNEY ROAD GRAHAMVALE 3631	Low	Yes *dense orchard vegetation surrounding dwelling	Very Low	Low
11	355 VERNEY ROAD GRAHAMVALE 3631	Low	Yes *dense orchard vegetation surrounding dwelling	Very Low	Low
13	315 GRAHAMVALE ROAD GRAHAMVALE 3631	Low	Yes *dense orchard vegetation surrounding dwelling, with additional built structures to the southwest screening views	Very Low	Low
14	165 FORD ROAD GRAHAMVALE 3631	Low	Yes *dense vegetation surrounding dwelling, with additional orchard vegetation to the north	Very Low	Low
15	155 FORD ROAD GRAHAMVALE 3631	Low	Yes *dense vegetation surrounding dwelling, with additional orchard vegetation to the north	Very Low	Low
16	175 FORD ROAD GRAHAMVALE 3631	Low	Yes *dense vegetation surrounding dwelling, with additional orchard vegetation to the north	Very Low	Low
17	183 FORD ROAD GRAHAMVALE 3631	Low	Yes *dense vegetation surrounding dwelling, with additional orchard vegetation to the north	Very Low	Low
18	185 FORD ROAD GRAHAMVALE 3631	Low	Yes *dense vegetation surrounding dwelling, with additional orchard vegetation to the north	Very Low	Low

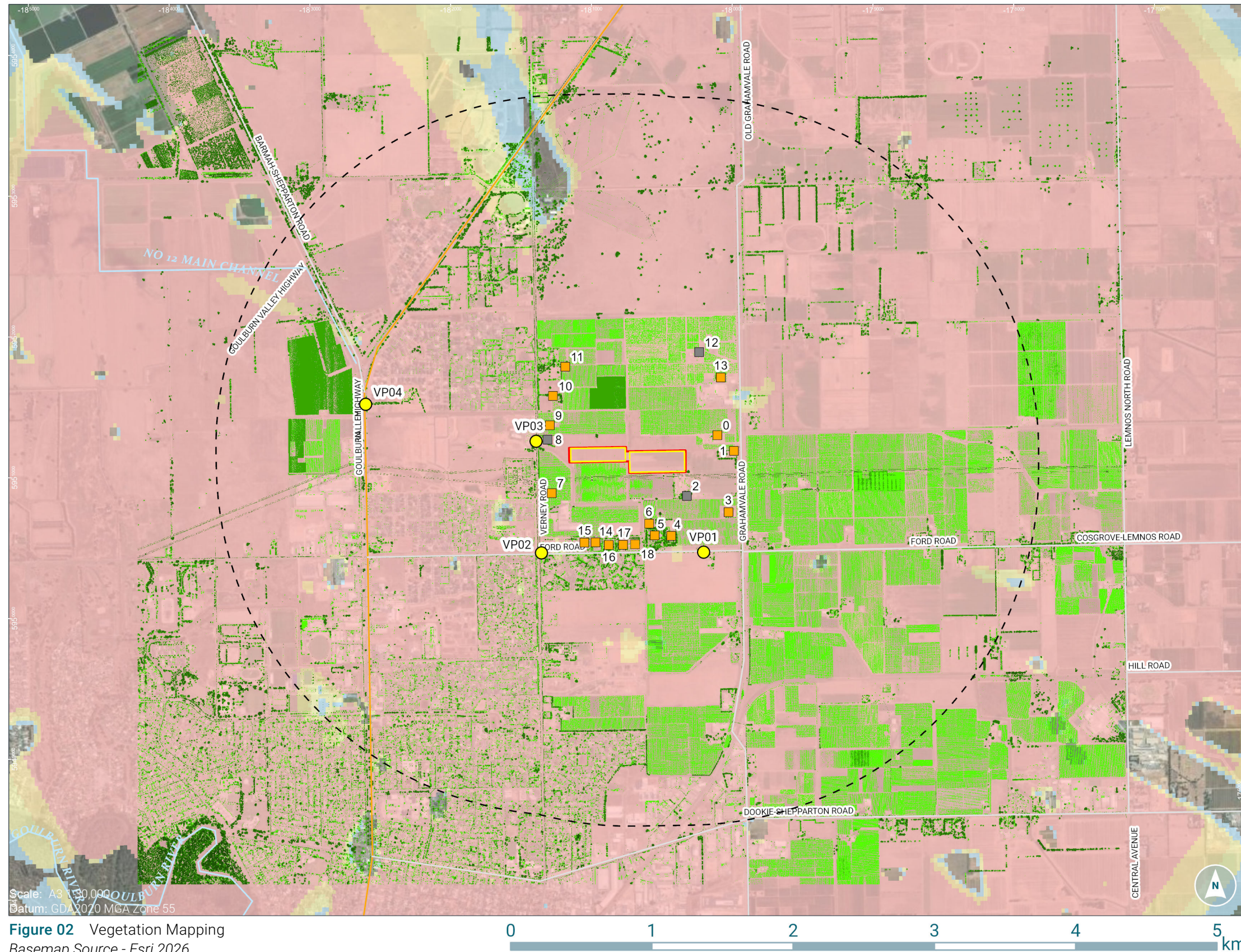
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Table 01 Private Viewpoint Assessment

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Vegetation Mapping

Refer to Section 2.1



LEGEND

Project Data

- Project Boundary
- Acoustic Wall

Receptors

- Associated Receptors
- Non-Associated Receptors

Landscape Features

- Watercourses

Existing Infrastructure

- Highway
- Major Road

Zone of Visual Influence (ZVI) Mapping

Percentage of 6m acoustic noise wall visible

No Visibility

0 - 25%

25 - 50%

50 - 75%

75 - 100%

Existing Vegetation Mapping

Less than 2m high vegetation (not mapped)

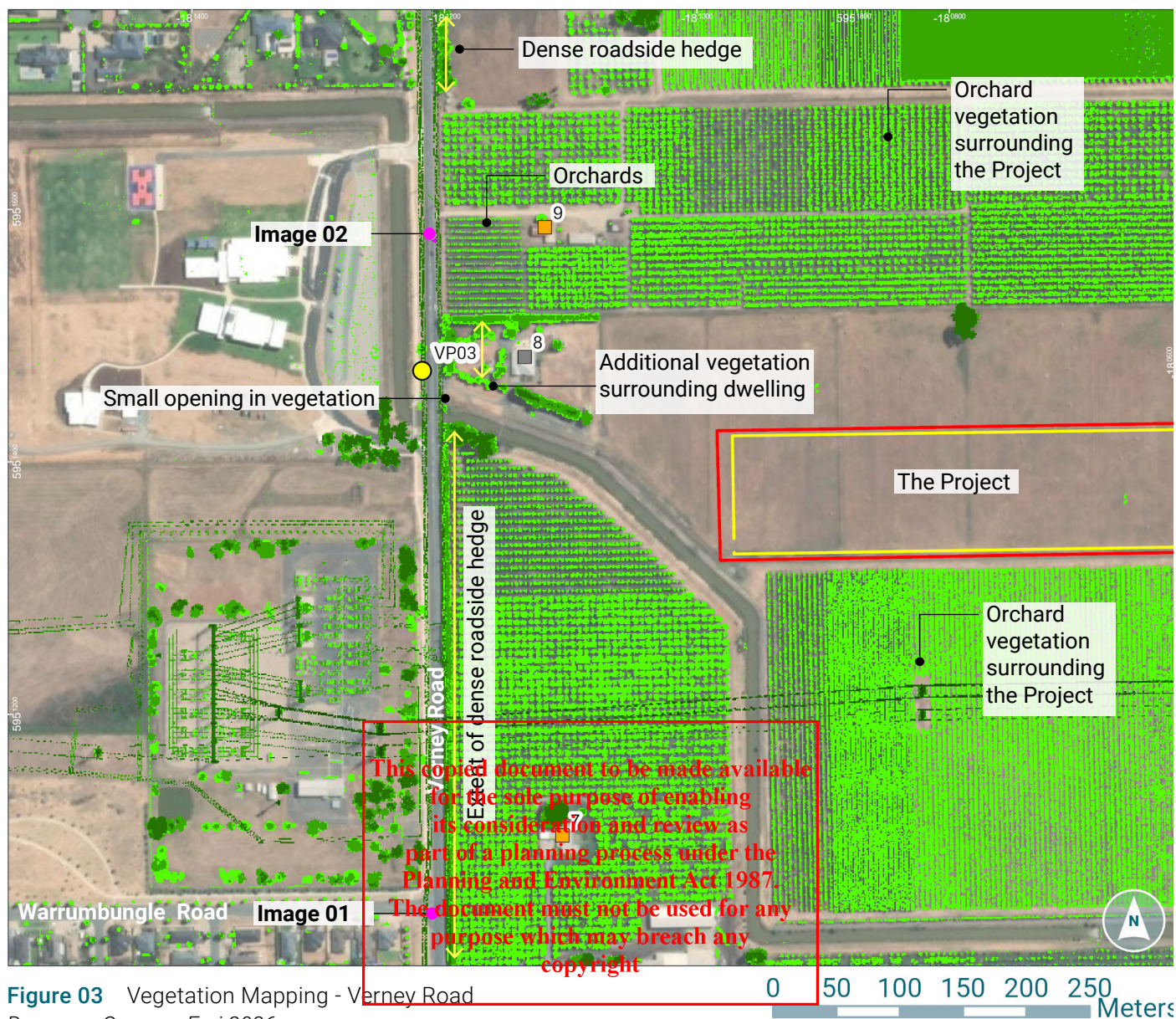
2-5 m high vegetation

5-10 m high vegetation

10-25 m high vegetation

over 25m high vegetation

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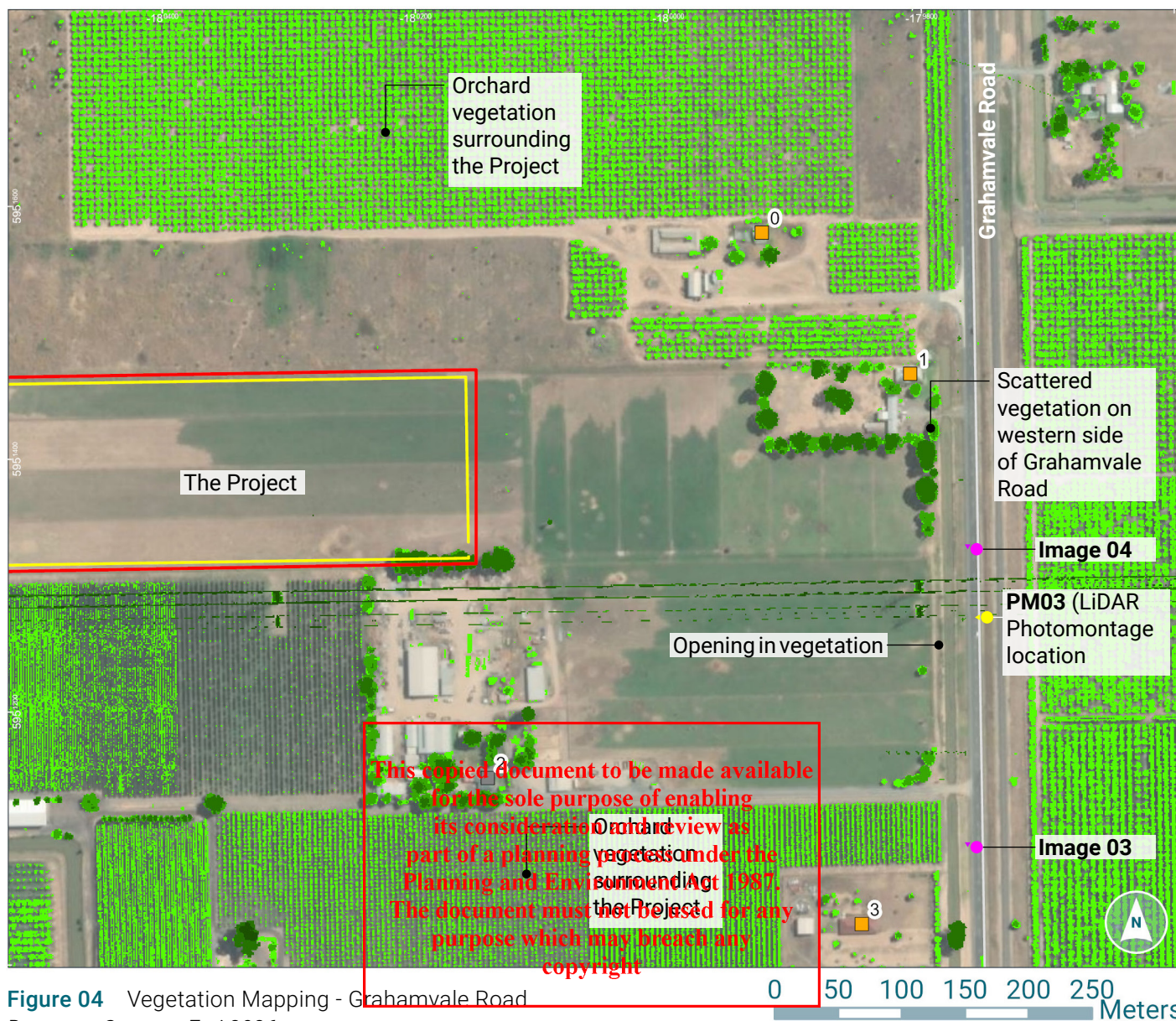


Image 03 Grahamvale Road (south) - Streetview, facing northwest

Image Source: Google Earth Streetview, February 2026

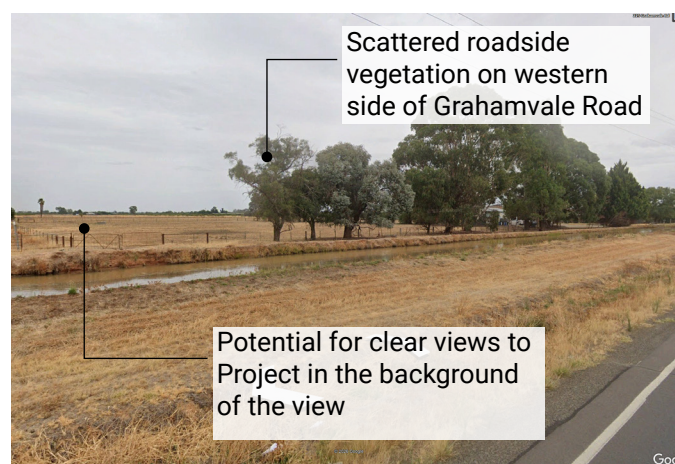


Image 04 Grahamvale Road (north) - Streetview, facing northwest

Image Source: Google Earth Streetview, February 2026

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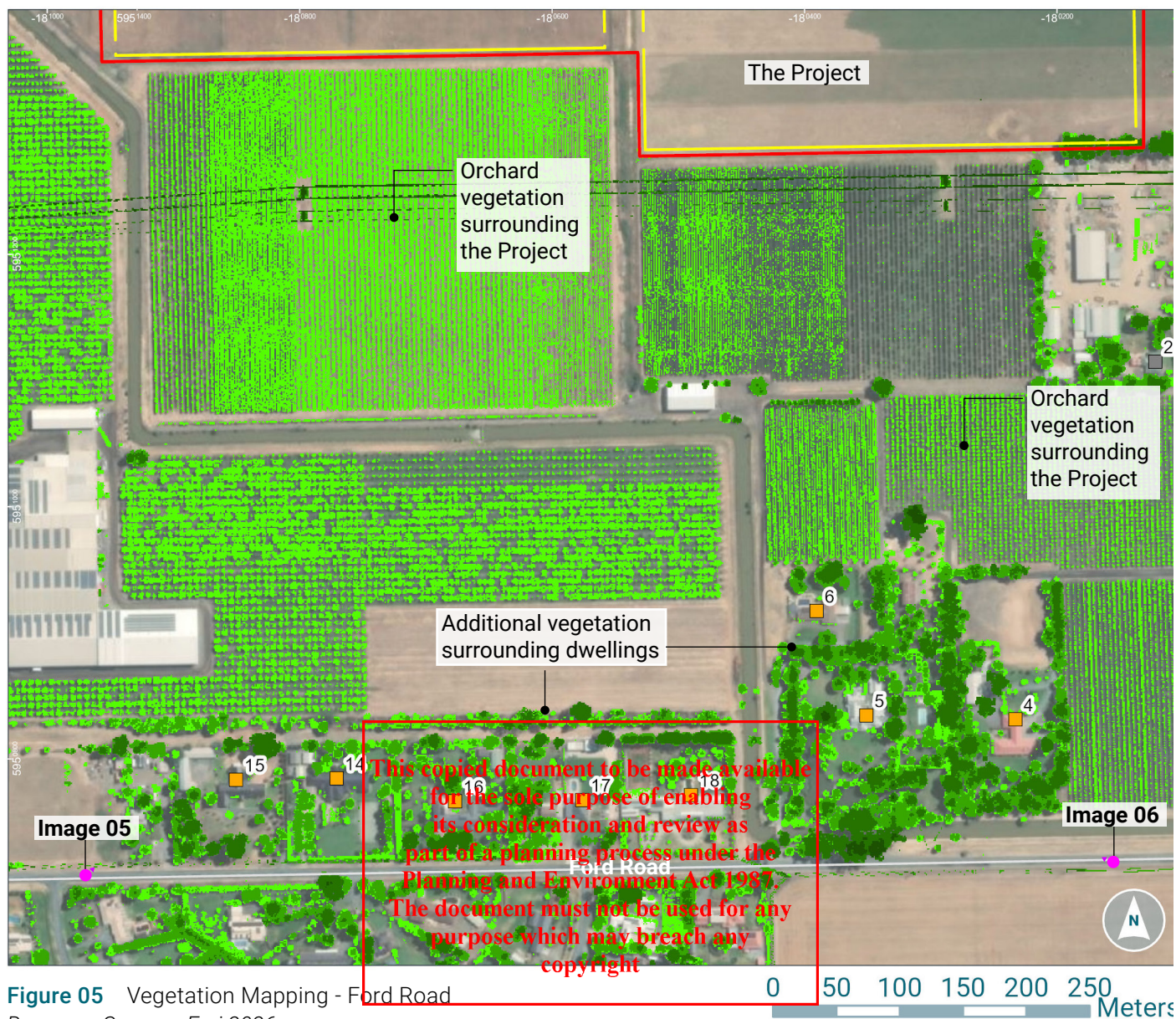


Figure 05 Vegetation Mapping - Ford Road
Basemap Source - Esri 2026



Image 05 Ford Road (east)- Streetview, facing northeast

Image Source: Google Earth Streetview, February 2026



Image 06 Ford Road (west)- Streetview, facing northwest

Image Source: Google Earth Streetview, February 2026

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4.0 Additional Viewpoints

4.1 Additional Viewpoints

As the DPH RFI noted 'Viewpoint 3 (VP03) and Photomontage 2 (PM02) were provided in the Landscape and Visual Impact Assessment (LVIA). Viewpoint 3 (VP03) and Photomontage 2 (PM02) are taken from a location that places the development directly behind existing vegetation; however, immediately to the right / south of this location is noted in the LVIA as one which offers unobstructed views of the proposal from Verney Road. While it is considered that the LVIA is sufficient to assess impacts, it is our view that the LVIA could be more robust.'

The vegetation mapping in **Section 3.0** demonstrates that the Project will not be visible for the majority of Verney Road, with only a small 35 m gap allowing for brief views of the Project. While VP03/PM02 was taken at this location, the narrow viewing angle created by the gap means the Project remains partially screened by vegetation at the viewpoint. However, the viewpoint and photomontage still demonstrate that the size and scale of the Project, combined with the setback of the infrastructure from the road (approximately 200 m at its closest point), results in a low visual magnitude (refer to the wireframe and wireframe overlay included in PM02). Additionally, while gaps in vegetation may allow partial views of the BESS infrastructure from short sections of Verney Road (refer to **Image 07** & **Image 08**), viewer sensitivity is considered low due to the brief and transient nature of views experienced by road users, leading to an overall low visual impact rating.

The vegetation mapping also identified that a section along Grahamvale Road has potential visibility of the project. An additional visualisation using LiDAR Data was prepared to visualise the potential visual impacts along Grahamvale Road (refer to **Appendix A, PM03**).

The vegetation mapping analysis and additional photomontage PM03 both demonstrate that the Project will be an additional visual feature in the far background of the view along an approximately 400 m stretch of Grahamvale Road, with the size and scale of the Project comparable to other existing features within the landscape, such as large-scale farming sheds. The Project's low visual magnitude as a result of the Project's 400 m setback from Grahamvale Road, combines with the low sensitivity of road users due to the brief and transient nature of views experienced by passing receptors. Resulting in an overall low visual impact from this road.

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Image 07 Vegetation gap on Verney Road #1 (viewpoint located south of PM02)

Image Source: Avenis Energy, image taken May, 2025

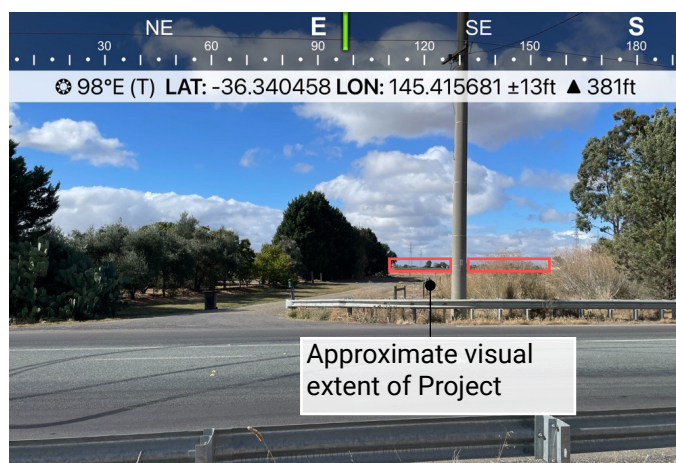


Image 08 Vegetation gap on Verney Road #2 (viewpoint located south of PM02)

Image Source: Avenis Energy, image taken May, 2025

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5.0 Conclusion

In conclusion, after incorporating the proposed 6 m acoustic wall, lighting impacts, additional vegetation mapping, and updated visualisations into the assessment, the visual impacts of the Project remain consistent with the findings of the LCVIA, with visual impacts from both public and private viewpoints assessed as low.

While the existing vegetation surrounding the Project currently provides effective screening, circumstances may change over time, such as the removal of the surrounding orchards that presently contribute to visual buffering. To address this possibility, the proponent would consider a planning permit condition requiring an Offsite Landscaping Plan to be developed for the project which will provide for off-site landscaping or other treatments to reduce the visual impact of the BESS from the non-associated dwellings outlined in **Figure 02**, if neighbouring orchards are removed.

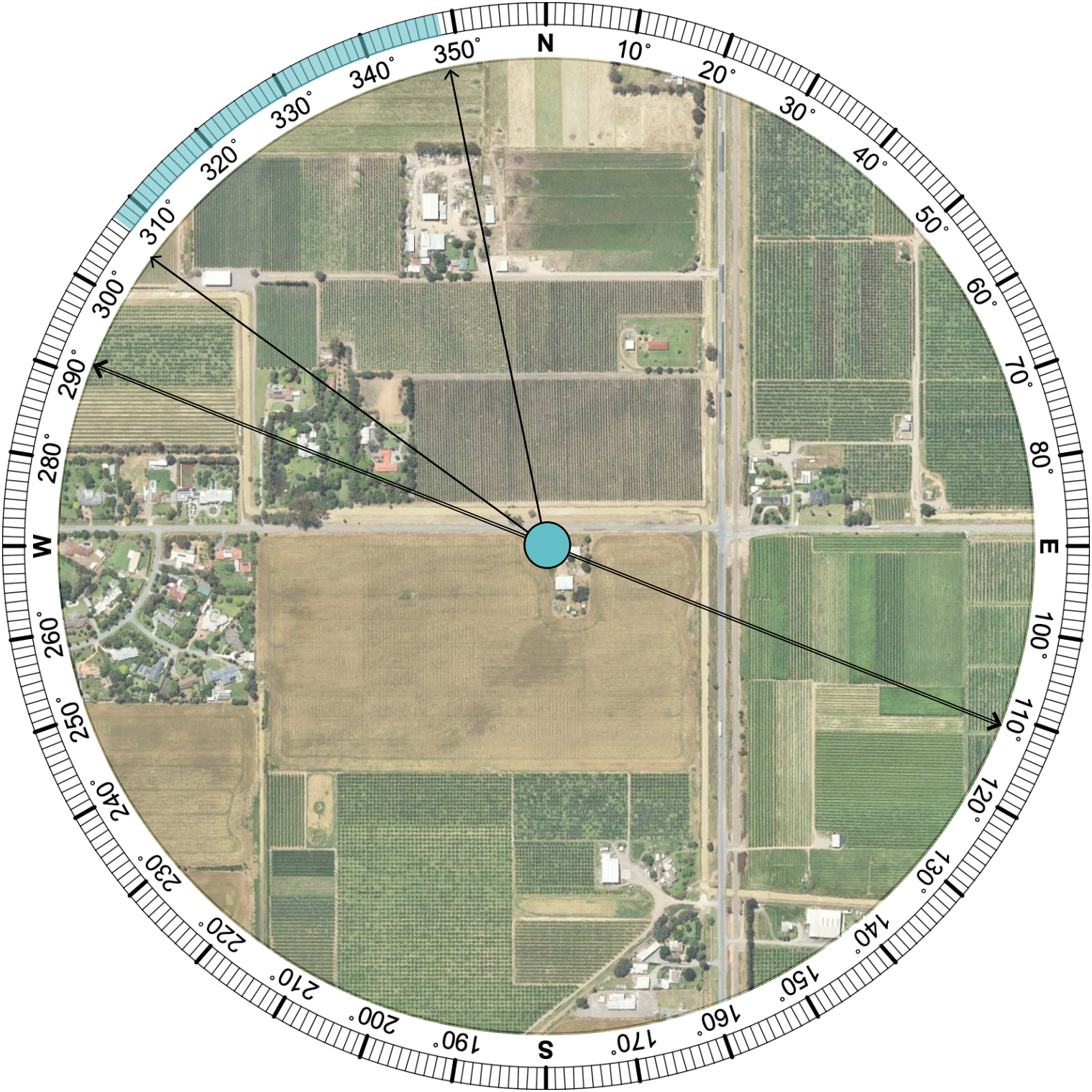
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Appendix A: Photomontages

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Photomontage:
PM01



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Summary:	
Location:	
240 Ford Rd, Garhamvale VIC	
Coordinates:	Distance to Project:
145°25'43.52"E 36°20'51.40"S	0.59km
Viewing Direction:	Elevation:
North	114m
Viewpoint Date & Time:	
13th March 2025 12:18pm	
Project Layout used:	
Grahamvale BESS - Indicative Layout.zip	
Photomontage Preparation Date:	
23rd April 2025	

- LEGEND
- Extent of Potential Visibility
 - Extent of Panorama
 - Approximate Extent of Project

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Aerial Image Source: Google Earth 2025

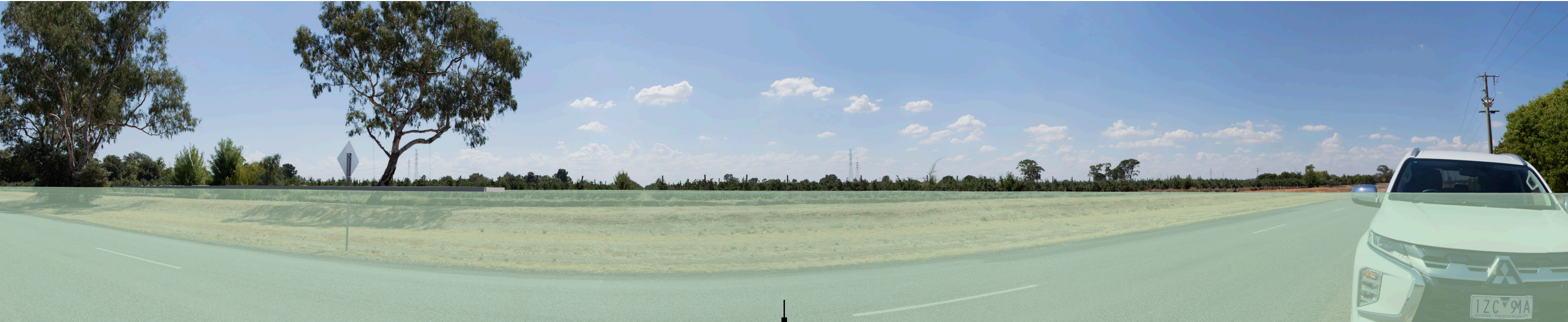
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Photomontage:

PM01 240 Ford Rd, Grahamvale VIC



180° Existing View



180° Proposed Overlay

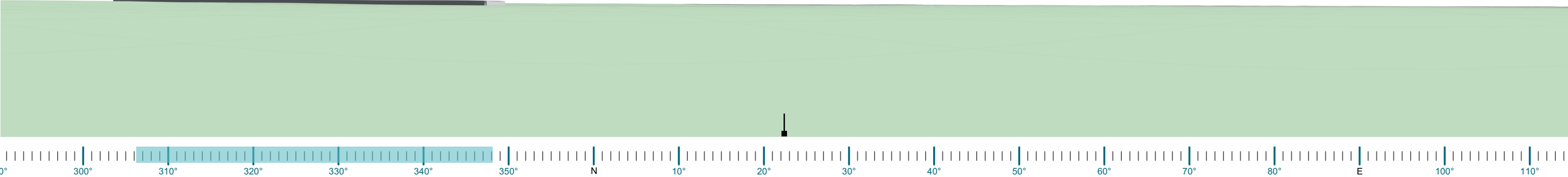
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Photomontage:

PM01 240 Ford Rd, Grahamvale VIC

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180° Wireframe Diagram

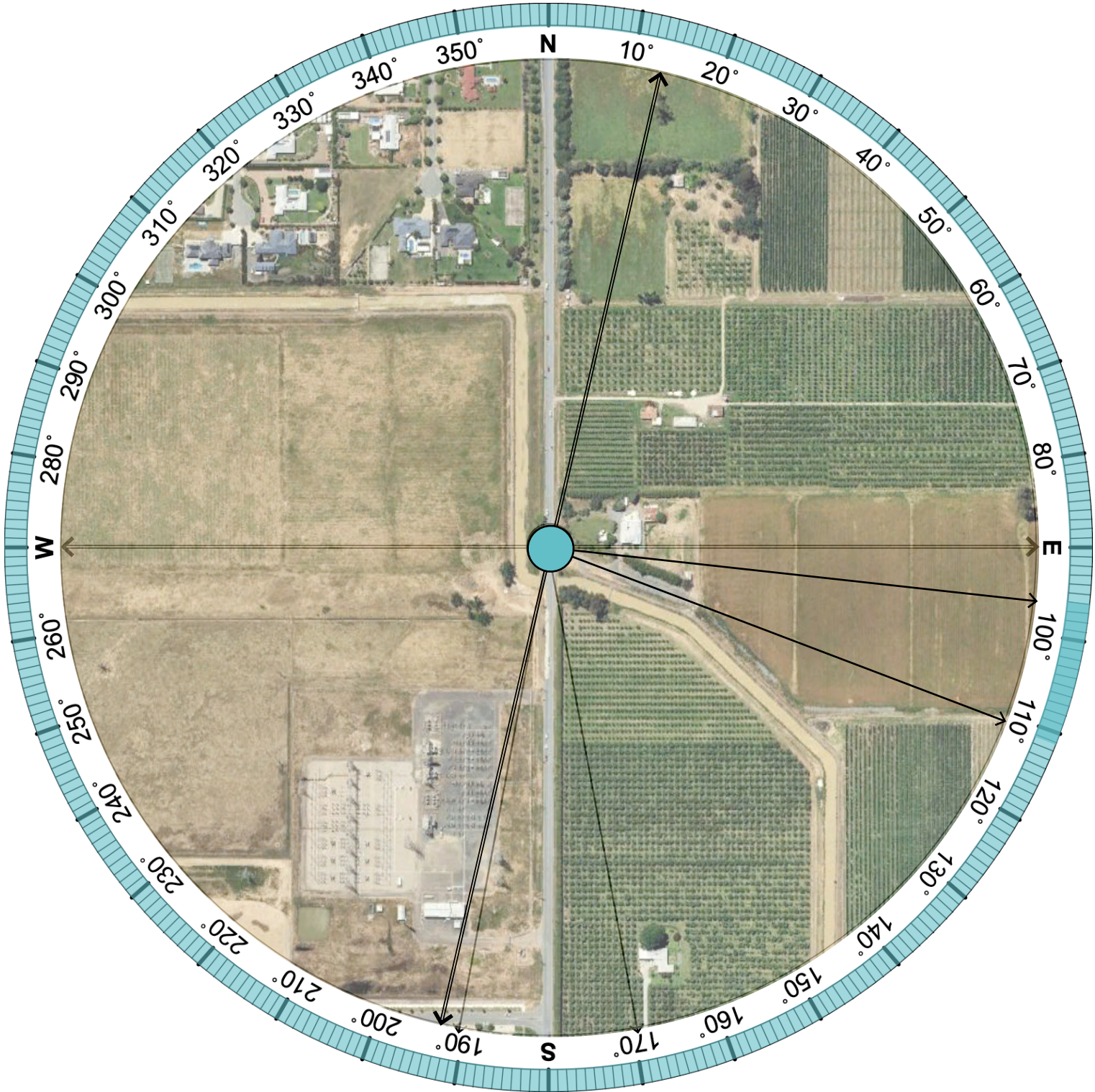


180° Proposed View

Note*: The visibility of the proposed project is fully obstructed by the existing screening vegetation.

Photomontage:
PM02

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Summary:

Location:

320 Verney Rd, Grahamvale VIC

Coordinates: Distance to Project:

145°24'56.51"E 0.25km
36°20'25.28"S

Viewing Direction: Elevation:

East 113m

Viewpoint Date & Time:

13th March 2025 1:14pm

Project Layout used:

Grahamvale BESS - Indicative Layout.zip
Rev1_20240918.shp

Photomontage Preparation Date:

23rd April 2025

LEGEND

- Extent of Potential Visibility
- Extent of Panorama
- Approximate Extent of Project

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Aerial Image Source: Google Earth 2023

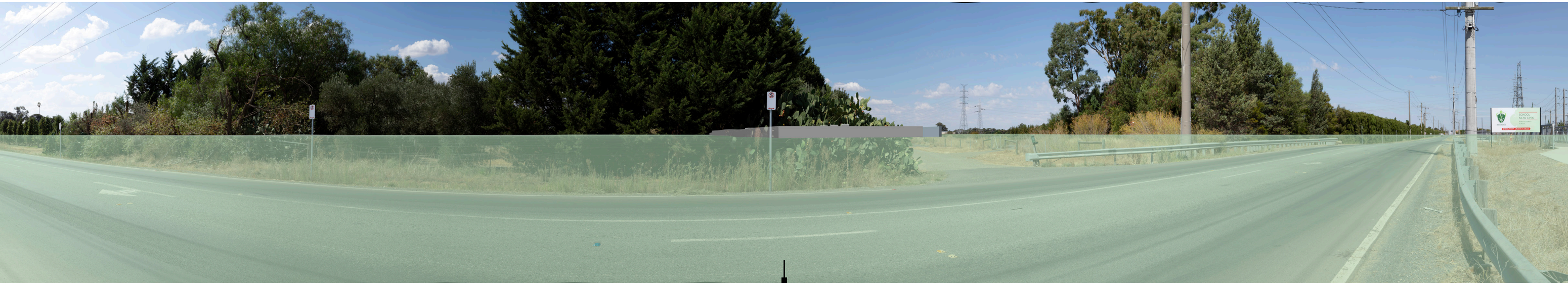
Photomontage:

PM02 320 Verney Rd, Grahamvale VIC

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180° Existing View



180° Proposed Overlay

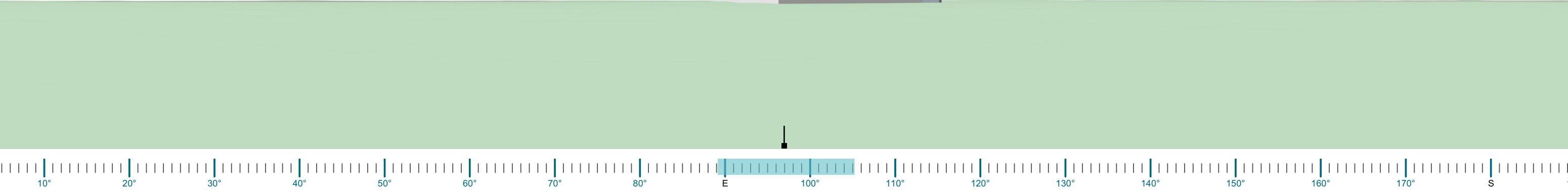
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Photomontage:

PM02 320 Verney Rd, Grahamvale VIC

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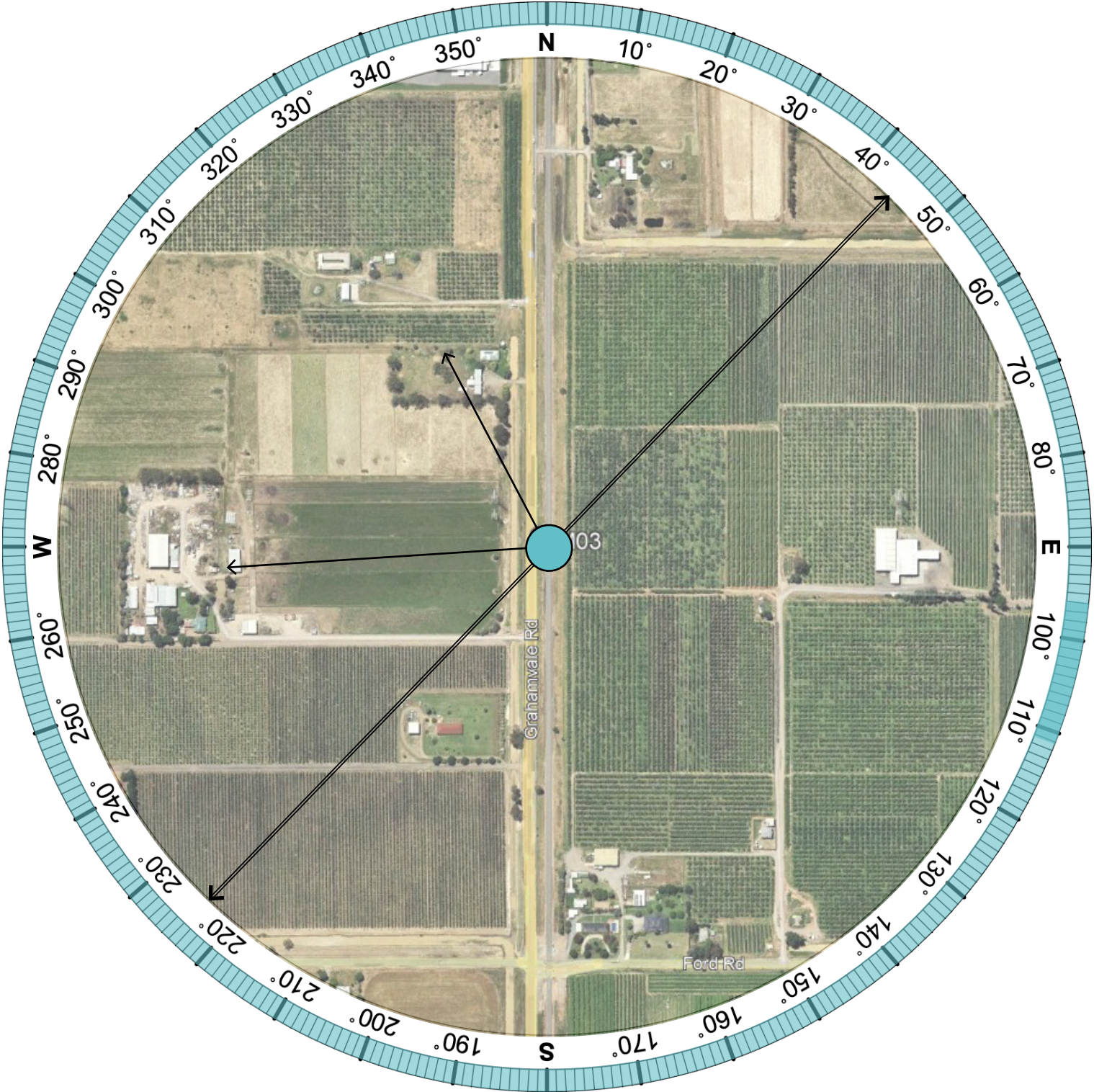


180° Wireframe Diagram



Photomontage:
PM03

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Aerial Image Source: Google Earth 2023

Summary:	
Location:	
Grahamvale Rd, Grahamvale VIC	
Coordinates:	Distance to Project:
145°25'55"E 36°20'35"S	0.41km
Viewing Direction:	Elevation:
Northwest	113m
Viewpoint Date & Time:	
LiDAR Photomontage, prepared using data collected in October 2019	
Project Layout used:	
Grahamvale BESS - Indicative Layout.zip	
Photomontage Preparation Date:	
16th July 2026	

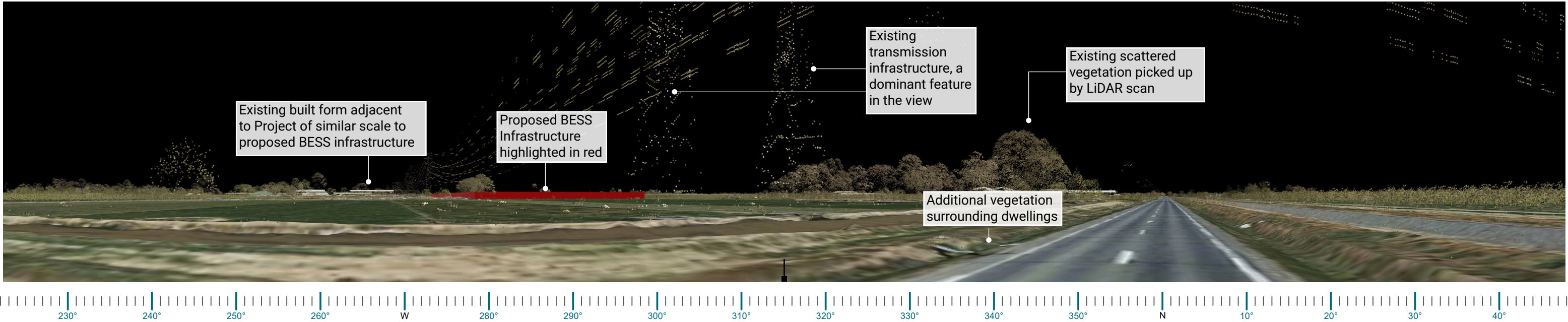
LEGEND

- Extent of Potential Visibility
- Extent of Panorama
- Approximate Extent of Project

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LiDAR Visualisation:

PM03 320 Verney Rd, Grahamvale VIC



180° LiDAR Visualisation

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