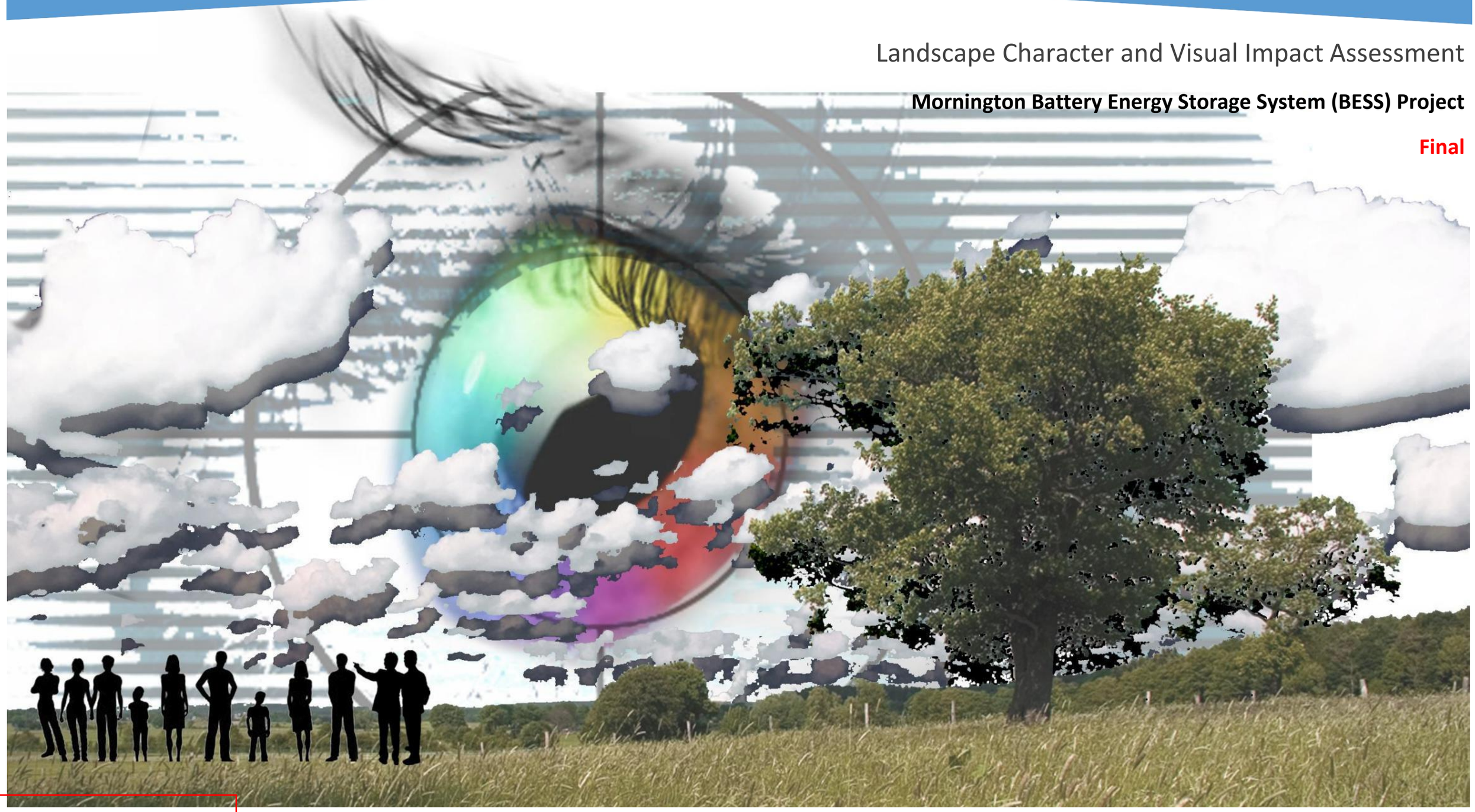
Landscape Character and Visual Impact Assessment

Mornington Battery Energy Storage System (BESS) Project

Final



Hemisphere Design (Aust) Pty Ltd

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About the author

Stuart Heseltine, Registered Landscape Architect, Principal of Hemisphere Design.

Stuart is acknowledged as a leading practitioner in the area of landscape character and visual impact assessment. In considering each visual impact assessment exercise Stuart undertakes a qualitative landscape character assessment consistent with best practice as prescribed by the Guidelines for Landscape and Visual Impact Assessment (third edition), the Landscape Institute (UK) and Institute of Environmental Management and Assessment (NSW) 2013.

Stuart has successfully applied this methodology to major projects across South Australia, the Northern Territories, New South Wales and Victoria. With relevance to this project Stuart has prepared assessments for the Adelaide, Kangaroo Island and Port Lincoln Desalination Plants, the Lincoln Gap (Stage 3) and Barn Hill Windfarm Developments, the Chaff Mill, Tailem Bend Stage two, Frasers Solar Farm (Glengarry North Victoria), Mid Murray and Berri Solar Farm developments, the Clements Gap BESS and the Torrens Island Gas Power Station Expansion.

Stuart and staff at Hemisphere Design have recently completed a Landscape Character and Visual Impact Assessment for the Environment Effects Statement (EES) for Stage 2 of the Yan Yean Road Upgrade, Vic. on behalf of the Department of Environment, Land, Water and Planning (DELWP).

Stuart provides regular advice on the likely visual impact of numerous infrastructure developments undertaken by Electranet SA and visual assessment exercises pertaining to Development Applications lodged in a numerous Adelaide metropolitan and regional council areas.

Stuart's particular expertise in undertaking visual assessments is highly sought after for the provision of expert evidence for the Environment, Resources and Development Court (SA).

Note: This document is prepared to be printed and read in A3 format

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Glossary of Terms

BESS	Battery Energy Storage System
CL	Contextual Landscape
HD	Hemisphere Design
Locality	The position or site of something
Landscape Assessment	An assessment of the elements that collectively make up the landscape, such as landform, vegetation, land-use and cultural influences
Sensitive Receptor (SR)	Locations from where it was considered the BESS is likely to be wholly or partially visible and, in some instances, prominent
Sensitive Receptor Locality (SRL)	Where a number of collocated viewpoints, e.g. adjacent or nearby dwellings, would be subject to the same degree of visual exposure to the proposed BESS
Viewpoint (VP)	A position providing an appropriate view of the proposed BESS which has been assessed to consider landscape character and the likely potential of visual impacts which may result as a consequence
Viewpoint Locality (VPL)	Where a number of collocated viewpoints, e.g. adjacent or nearby dwellings, have been assessed to consider landscape character and the likely potential of visual impacts which may result as a consequence of the proposed BESS
Visibility shadow	Areas within the likely ZTVI where it is predicted that the proposed BESS will not be visible because there are a combination of ridgelines and depressions, specific blocks of vegetation and built form between the viewer and the proposed site that potentially blocks all views
Visual Exposure	A measure of the degree to which an observer at a location can see or potentially see the area to be affected by the proposed BESS. The visual exposure is subjectively classified as either none, low, moderate or high
Zone of Theoretical Visual Influence (ZTVI)	The ZTVI is the defined area within which modification to the contextual landscape as a result of the proposed BESS could be discernible to the naked eye. A 2 km radius from the centre of the proposed site was adopted as the likely furthest extent of the likely ZTVI

List of images, maps and drawings

1.0 Executive Summary

This Landscape Character and Visual Impact Assessment (LCVIA) has been prepared as one of a number of studies to support an application for a Planning Permit to construct a Battery Energy Storage System (BESS) at No. 17 Thornells Road, Tyabb, Victoria (known as the Mornington BESS).

The introduction of Mornington BESS will alter the character and visual qualities of the locality and wider contextual landscape, however and as demonstrated the likely visual impact will be largely inconsequential, assuming that:

- the battery containers and all ancillary infrastructure and buildings will be finished in a material and muted colour appropriate to the setting; and
- the boundary security will be open mesh style fencing in a similar form to the adjacent substation security fence

Based on this LCVIA, and noting that the existing locality and landscape is characterised as being of **low scenic quality**, the visual impact that is likely to be experienced by the Mornington BESS is considered to range from between:

- **Slight adverse** at one sensitive receptor (SR 01) and, when considering the cumulative visual impact where the Tyabb Substation is a prominent and accepted visual feature - **no change;**
- **No change to slight adverse** at one sensitive receptor locality (SRL 03); and
- **Slight adverse to moderate adverse** at one sensitive receptor locality (SRL 02).

Outside the 'Zone of Theoretical Visual Influence' (ZTVI) the BESS will have no discernible impact, such as on vistas from the distant Tyabb town centre and both principal highways.

It is the authors opinion the proposed Mornington BESS will not adversely affect the amenity of the neighbourhood or have irreparable consequences for the visual amenity of the locality and wider contextual landscape.

2.0 Introduction

This Landscape Character and Visual Impact Assessment (LCVIA) has been prepared to support a Planning Permit Application by Maoneng Australia Pty Limited (Maoneng) for a 240 MW Battery Energy Storage System (BESS) at No. 17 Thornells Road Tyabb, Victoria, referred to as the Mornington BESS.

This LCVIA provides an analysis of:

- the existing landscape character and visual amenity of the proposed site;
- the sensitivity of the landscape to change; and
- the likely degree of visual impact as a result of the proposed development.

This assessment determines the likely visual impact of the proposed BESS and associated infrastructure where the adjacent Tyabb Substation is a prominent, accepted and integral visual feature of the existing contextual landscape.

This LCVIA was undertaken remotely due to COVID-19 travel restrictions by utilising on-site photography provided by EMM Consulting Pty Limited (EMM) under the direction of Hemisphere Design, aerial photography of the site captured by Veris using drone technology, Google Earth aerial photography, supplied maps, design drawings and illustrations.

A typical example of a BESS is provided in Image 1.

Image 1: Example of Battery Energy Storage System (BESS) – source unknown

2.1 Project Description

The proposed Mornington BESS is located on the Mornington Peninsula, Victoria (Map 1) on a 6.7 ha parcel of land immediately east of the existing Tyabb Substation. The development footprint is approximately 4.3 ha.

The maximum size of the battery proposed for development approval is 240MW and the technology is likely to be Lithium-ion. The BESS will consist of an integrated system of at least 2 MWh per battery unit and will comprise of approximately 200 batteries housed in containers. The containers are standard 40-foot shipping containers approximately 13 m long, 3 m wide and 3 m high, inverters and transformers would also be housed in modular containers up to 4 m in height. The surface coverage below the battery and inverter containers will comprise of concrete hardstands separated by a permeable gravel surface (refer Appendix A - site layout).

In addition, the BESS will include an onsite substation, an operations and maintenance building, a control building and 33 kV switch room. These facilities will also be placed over a concrete hardstand.

Some containers and ancillary buildings may be raised approximately 300 – 400mm above the existing ground level and 1:100-year flood event level if required.

The site will also comprise of an area for vehicular parking and gravel finished internal access roads of 4 -6 m in width, firefighting water tanks and a hard-surfaced laydown area.

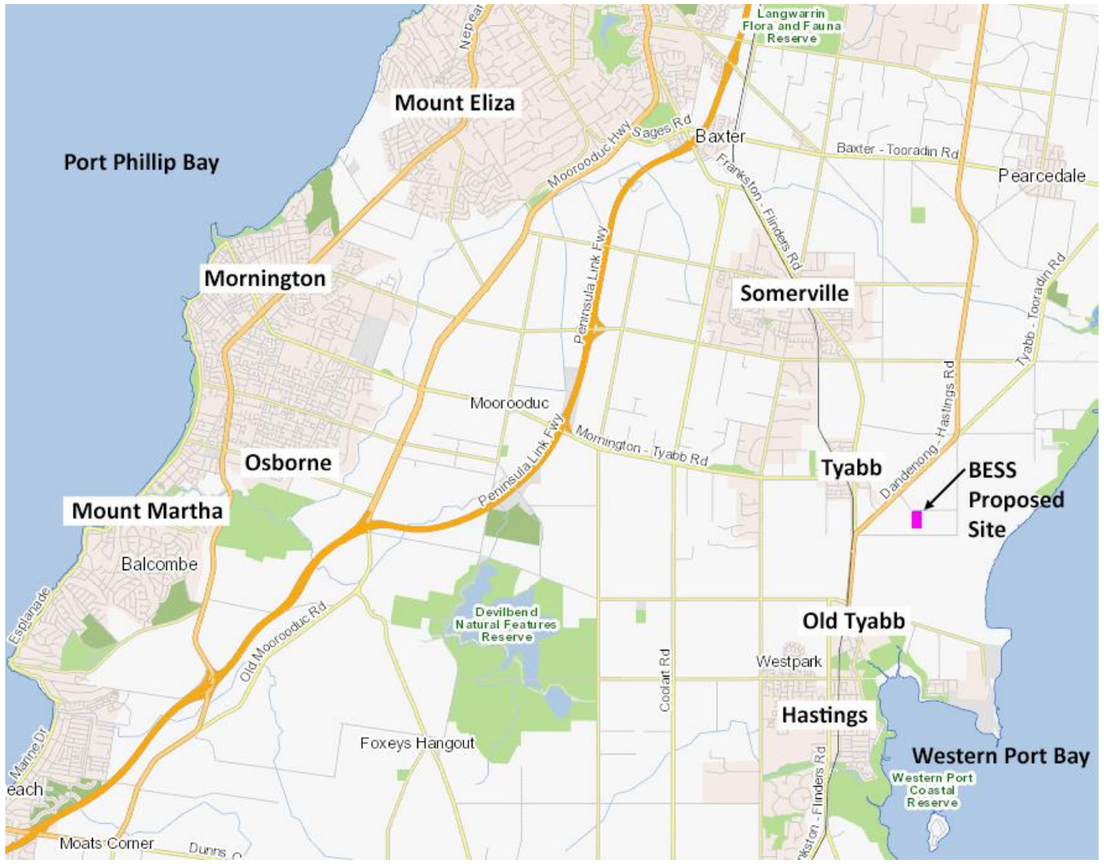
The BESS will be connected to the adjacent Tyabb Substation via either a 66 kV or 220 kV underground or overhead transmission line.

A temporary construction area will be utilised along the northern site boundary.

Emergency and security only night-time lighting will be provided through lights mounted on tall columns around the footprint of the hardstand area. Whilst further design is required to determine the precise number and location of the light columns it is anticipated that they will be positioned well away from Thornells Road and the residential properties to the north. It is envisaged that all potential light spill will be managed to eliminate inconvenience to nearby residents and adjacent road users

The requirement for vegetation screening is discussed further in this assessment.

2.2 Project Location

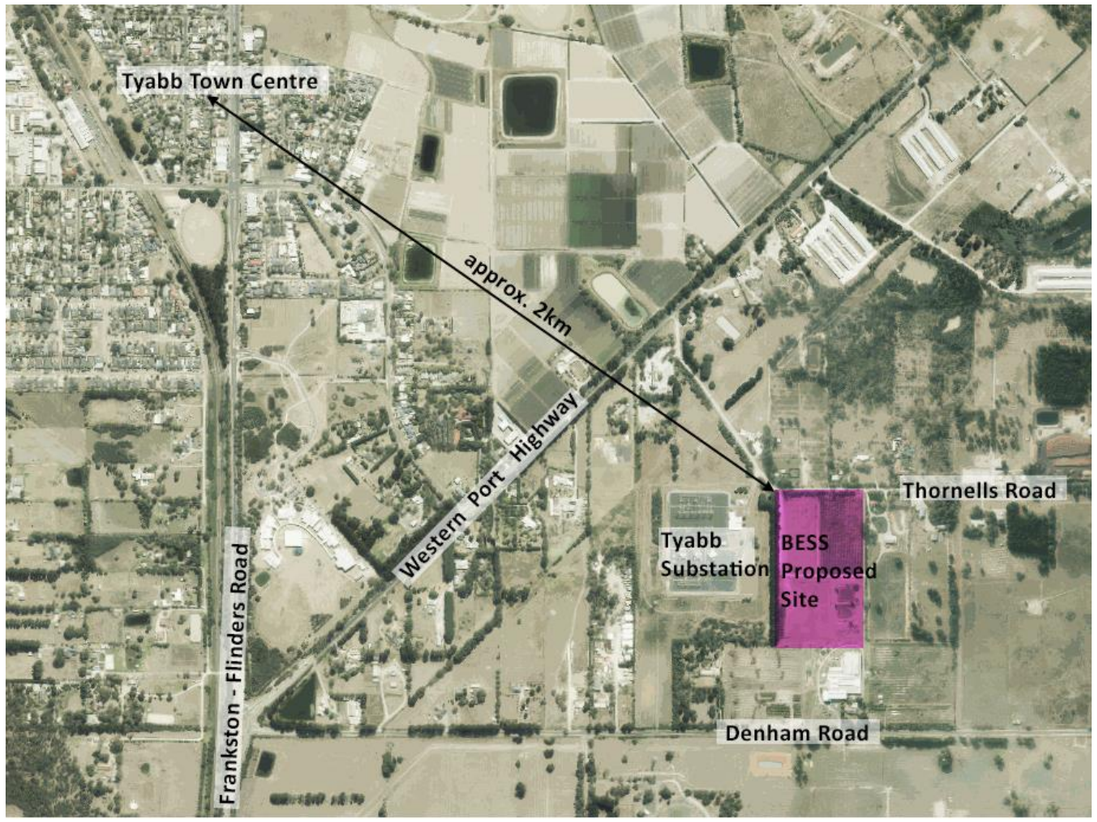


Map 1: Location of the proposed site

The proposed site is located off the unsealed Thornells Road on land previously used for fruit growing. The wider contextual landscape and more general locality comprise of an 'ad hoc' patchwork of mainly single storey dwellings on large allotments, a number of which operate as 'hobby' farms, smaller tracts of pastural and cropping land and allotments with larger industrial style sheds and buildings occupied by a variety of commercial activities. This diversity of land use activities is indicative of the ongoing transformation of the once predominantly rural contextual landscape.

To the west of the proposed site the Western Port Highway and Frankston - Flinders Road dissect the landscape carrying large numbers of commercial and private vehicles through the locality. The tree lined principal road corridor, the Western Port Highway, retains views within the immediate road corridor and as such, views to the proposed site are precluded (Images 2 and 3).

Tyabb town centre is approximately 2 km from the proposed site, over such distance and in a flat planar landscape the proposed BESS falls outside the accepted range of an observer's vision (known as the Zone of Theoretical Visual Influence (ZTVI)) and as such, it will be not be visible (Map 2).



Map 2: The proposed site and surroundings

2.2.1 Mornington Peninsula Local Planning Scheme

The relevant landscape and visual amenity clauses of the Mornington Peninsula Local Planning Scheme, SUZ1 (Clause 2) taken into consideration for this LCVIA include:

1. *The development and use of land in this zone must not adversely affect the amenity of the neighbourhood, including:*

- *through the appearance of any stored goods or materials on the site; and*
- *emission of…artificial light.*

2. *An application to use land … must be accompanied by the following information, as appropriate:*

- *The likely effects, if any, on adjoining land, including…light spill or glare.*

Image 2: The wider contextual landscape CL01- Western Port Highway, view south. The proposed site is approximately 0.6 km south east of this location and not visible

Image 3: The wider contextual landscape CL02- Western Port Highway, view north. The proposed site is approximately 0.7 km south of this location and not visible

The contextual landscape locations (CL01, CL02) are illustrated on HD Drawing 1.

2.3 LCVIA considerations

The following inputs have been considered in the preparation of this assessment:

- Location drawings and indicative layout/construction plans of the site provided by EMM – Appendix A;
- Aerial photography of the site and wider locality; and
- On site photography including video footage recorded using drone technology.

2.4 LCVIA assumptions

The assessment was undertaken based on the following assumptions:

- That the BESS battery containers will be of metal construction and that a muted colour and finish will be adopted appropriate to the setting;
- That the boundary security will be open mesh style fencing in a similar form to the adjacent Tyabb Substation security fence;
- That all ancillary buildings will be finished in a material and colour appropriate to the setting; and
- Height of modular container infrastructure would be approximately 13 m long, 3 m wide and 3 m high, inverters and transformers housed in modular containers up to 4 m in height, plus 300 mm – 400 mm to account for 1:100-year flooding, if required.

2.5 Summary of activities

The degree of likely visual impact that will arise from the proposed BESS was determined based on;

- Desktop study which determined the ZTVI – a 2 km radius from the proposed site – within which seven Viewpoints, being publicly accessible locations, were identified to enable a 'Google Earth' character assessment of the contextual landscape and locality to be prepared.
- Assessment of aerial imagery identified seven Viewpoints within the ZTVI which were used to reaffirm the findings of the character assessment.
- Identification of one 'sensitive receptor' and two 'sensitive receptor localities' where views of the proposed BESS will likely occur.
- Qualitative assessment of the likely visual impact of the proposed BESS within the locality from the three identified sensitive receptors/receptor localities, acknowledging that one sensitive receptor locality includes the adjacent No.15 Thornells Road, the owner of which is associated with the proposed BESS project

The degree of likely visual impact is presented in in Section 4.0 and supported by photomontage imagery.

3.0 Landscape Character Assessment

3.1 Evaluation of the Existing Landscape Character

A qualitative landscape character assessment has been undertaken in a rigorous manner consistent with best practice, as prescribed by the *Guidelines for Landscape and Visual Impact Assessment (Third Edition)*.[1]

A desktop study was undertaken using Google Earth aerial photography, on-site photography provided by EMM, drone aerial imagery captured by Versi on 7 September 2020 and Google Earth 'street view' to identify a 'ZTVI'.

The ZTVI is the defined geographical area within which modification to the contextual landscape as a result of the proposed BESS could be potentially discernible or visible. A two-kilometre radius from the proposed site was considered an appropriate ZTVI for this assessment (refer to HD Drawing HD Drawing 1).

Within the ZTVI seven publicly accessible Viewpoints were identified (namely VP 01 to VP 07 as shown in HD Drawing 2: Contextual Landscape and Viewpoints) from which the landscape character of the locality was determined and preliminary consideration given to the potential visual impacts which may result as a consequence of the proposed BESS.

Viewpoints VP 01 to VP 07 were chosen as they were considered representative of the locality and include views along Thornells Road and Denham Road and from public land adjacent to nearby residential dwellings.

Within the ZTVI a 'visibility shadow' was determined to illustrate areas within the ZTVI where it is predicted that the BESS will not be visible because there are a combination of subtle crests and depressions, specific blocks of vegetation and built form between the viewer and the proposed BESS that potentially blocks all views (refer to HD Drawing 2).

Subsequent on-site photography was taken from the seven viewpoints to substantiate and corroborate the initial findings of the desktop study with regards to the definition of both the ZTVI and 'visibility shadow' and also to underpin the visual impact assessment.

3.2 Site Visit and Photography

A site visit was undertaken on 7 September 2020 by a member of the EMM project team assisting Hemisphere Design with the LCVIA. Versi's drone aerial imagery used in the desktop study was also taken on 7 September 2020.

The weather was fine with clear skies. Photographs were taken at the identified seven Viewpoints and other locations typical of the general contextual landscape to support and reaffirm the landscape character assessment and underpin the visual impact assessment.

Photographs have been taken using a 35mm Single Lens Reflex (SLR) camera with an approximate lens setting of 43mm.

[1] Landscape Institute and Institute of Environmental Management and Assessment 2018.

3.3 Landscape Assessment

Landscape assessment for this LCVIA, in contrast to visual assessment, considered the fabric, character and quality of the Mornington Peninsula landscape.

The landscape fabric consists of the elements that make up the landscape, such as landform, land-use and cultural influences. The way these elements fit together in terms of proportion, pattern, scale, etc., gives rise to a particular landscape character. Changes to the fabric and character of a particular landscape may affect the perceived value of that landscape, giving rise to changes in its scenic quality.

The landscape character assessment encompassed both the wider contextual landscape and the locality, within which the proposed BESS is located.

This landscape characterisation process was used to establish a 'baseline' upon which judgments about the potential effects of the proposed development can be made. The following guiding definitions have been applied to determine the character assessments:

High scenic quality: Areas and localities which exhibit an exceptionally strong positive character with valued features which combine to give an experience of unity, richness and harmony. Within this definition 'exceptional' could apply where an area is also deemed to be worthy of a legislative designation, e.g. a National Park.

Moderate scenic quality: Areas which exhibit a strong positive character with valued features with evidence of a visually acceptable level of alteration/degradation/erosion resulting in a location of more mixed character.

Low scenic quality: Areas with a generally positive character with fewer valued features with evidence of a visually acceptable level of alteration/degradation/erosion resulting in a location of more mixed character.

No scenic quality: Areas with a little or no positive character with few or no valued features with evidence of a visually unacceptable level of alteration/degradation/ erosion resulting in a highly modified location of little character.

Further, the landscape characterisation process defines the landscape 'sensitivity to change' of both the wider contextual landscape and the locality. The following definitions have been applied to determine the landscape's sensitivity to change:

- High;
- Medium;
- Low; or
- Negligible.

A landscape that displays a high 'sensitivity to change' would not be able to absorb a development of this nature without irreparable consequences and impacts on the inherent character and visual amenity.

3.4 Landscape Character

The Contextual Landscape

The rural/commercial characterised hinterland on which the proposed Mornington BESS will be constructed comprises of a mainly planar, heavily modified agricultural, horticultural and light commercial/industrial landscape (refer to HD Drawing HD Drawing 1).

The turn of the century pressures for residential and light commercial/industrial development associated with activities such as, port related development along Western Port Highway, establishment of the Tyabb substation, quarrying, poultry farming and the ad – hoc growth in 'hobby' farms has resulted in fragmentation and loss of agricultural land to other uses (refer to Image 4).

The landscape character has changed overtime from being intermittent expansive views across open grazing and cropping fields lined with boundary plantings have been dissected by both bituminised and unsealed straight roads which have compartmentalised the landscape and reinforced the impact of the human adaptation which 'consumes' the visual context (refer to HD Drawing 1).

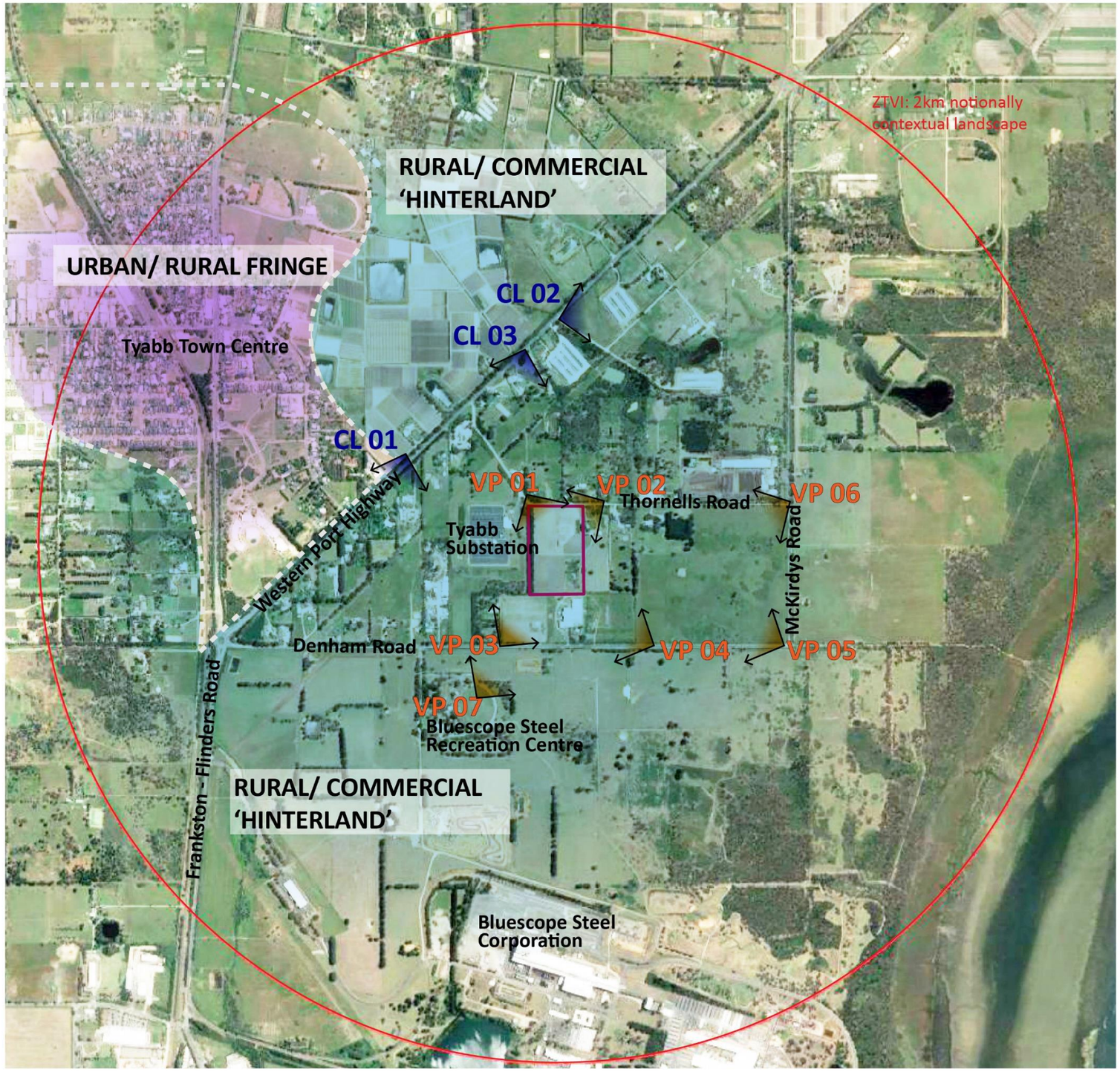
Through the clearance of native and remnant vegetation to facilitate agricultural production and development new exotic tree species have been introduced as wind breaks which further reinforce the visually defining, contrived 'geometry of place'. Larger native trees are mainly restricted to field boundaries and retained creek lines where they provide locations of visual interest.

The uniformity and regularity of rectangular fields with repetitive textures and colours create a visually underwhelming experience for the observer who is transiting through the immediate landscape on either of the locality's principal roads or the network of secondary and minor roads.

The built form of mainly single storey residences on large allotments with outhouses and barns and an array of (and in some instances it would appear disused) agricultural infrastructure is somewhat anonymous within the expansive vista across open fields to a distant horizon.

The notable visual prominence of the Tyabb Substation, large commercial galvanised steel sheds/warehouses associated with light commercial/industrial activities and the linear procession of 220 kV powerline transmission towers to and from the Tyabb Substation mar the views afforded from numerous locations within the locality.

Image 4: The wider contextual landscape CL03



LEGEND

BESS Proposed Site

CL 01 — Contextual landscape view

VP 01 — Viewpoint

ZTVI — Zone of Theoretical Visual Influence

Landscape Character description

URBAN/ RURAL FRINGE

RURAL/ COMMERCIAL 'HINTERLAND'

0 1km N

TITLE	Contextual Landscape and Viewpoints	DWG NO HD_X001_AD01	REVISION A	SHEET NO Sheet 1
PROJECT	Warrnington Battery Energy Storage System (BESS) Project	DRAWN SW	CHECKED SRH	DATE 11/20

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HD Drawing 1: Contextual Landscape and Viewpoints

The Locality

The more immediate locality is defined by:

- The site's northern boundary with Thornells Road where three residential properties on large allotments are located approximately 50 m north of the road boundary and front Thornells Road. Mature trees on and along each property boundary largely obscure views of the proposed BESS;
- Prominent electricity poles carrying 66kV power lines run along Thornells Road from the adjacent Tyabb Substation;
- The Tyabb Substation to the west, is separated from the proposed BESS by mature, large coniferous screen planting (refer to Image 5);
- No. 15 Thornells Road, a single storey dwelling on a large allotment immediately to the east of the proposed BESS. The owner and occupier of the property is the landowner and vendor of the proposed development site, consequently it should be acknowledged that they are associated with the project and considered to be accepting of all potential visual impacts on this property; and
- No. 48 and No. 36 Denham Road to the south of the proposed site. The dwelling located on No. 48 is approximately 135 m to the south of the site's southern boundary and set within a large garden. No. 36 comprises of a dwelling located off Denham Road and is shielded from the proposed site by the large commercial shed and ancillary buildings of the Hillbilly Coffee Factory, which occupies the balance of the allotment.

Within the immediate locality views are tightly confined by the presence of large trees planted as screens and buffers along the proposed BESS site and nearby property boundaries and other mature native and exotic tress collocated in copses scattered amongst the large allotments.

Glimpsed views only are afforded south across Denham Road to the wider contextual landscape which includes the BlueScope Steel Recreation Centre and oval and the distant horizon.

The development is enveloped by a visibility shadow which expands from the site property boundary and adjacent Thornells and Denham Roads to the full extent of the ZTVI (refer to HD Drawing 1 and HD Drawing 2).

Based on this assessment, it is the authors opinion that the landscape character is one of a **low to moderate scenic quality** and has a **low to moderate sensitivity to change**.

Image 5 Thornells Road adjacent Tyabb Substation, view east

4.0 Likely Visual Impact Assessment

Of the seven Viewpoints identified in the desktop study (i.e. VP 01 – 07), the LCVIA evaluation has determined that:

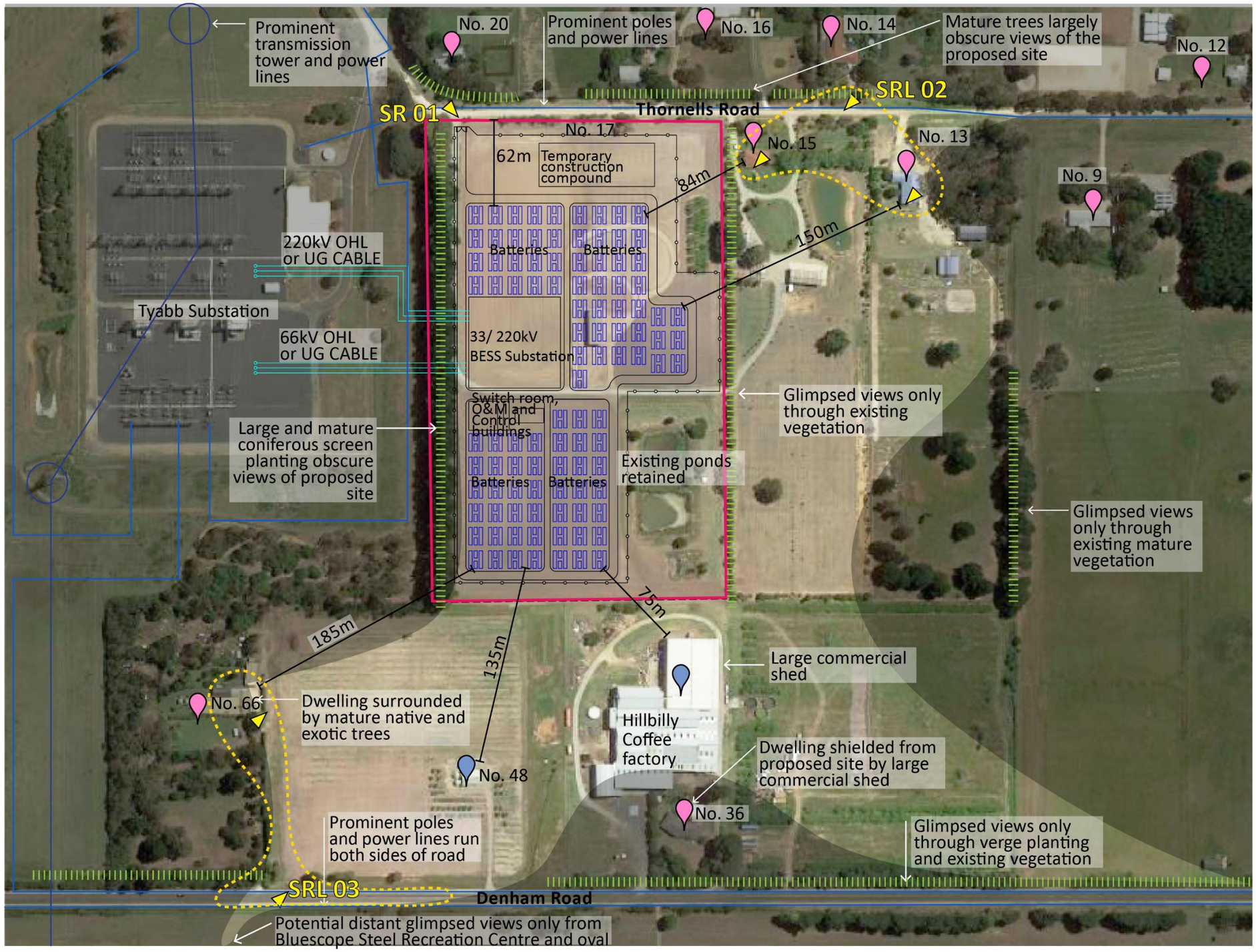
- One location within VP 01 is considered to be a 'sensitive receptor' (SR 01), namely a nearby residential property at 20 Thornells Road.
- Two locations within VP 02 and VP03 are considered to be 'sensitive receptor localities' as a consequence of;
    - At VP 02 where two residential properties (No. 15 and 13 Thornells Road) are within close proximity to each other and are afforded broadly similar views (SRL 02)
    - At VP 03 where the entrance to No. 66 Denham Road (a residential property) and a number of adjacent locations to the south west of the site along Denham Road are afforded broadly similar views (SRL 03)

These viewpoints, the sensitive receptor and sensitive receptor localities are illustrated on HD Drawing 1 and HD Drawing 2.

The following factors were considered when assessing the likely visual impact of the proposed BESS on VP 01 to VP 07, SR 01, SRL 02 and SRL 03:

- The visual qualities of the view and the duration and angle of the view in relation to the main activity of the viewer;
- The distance of the viewpoint from the proposed BESS;
- The extent of the area over which the changes would be visible and the scale of the change in the view (loss or addition of features, changes in composition, proportion of view affected);
- The degree of contrast in form, scale, mass, line, height, colour and texture introduced into the view by the proposed BESS;
- The duration and nature of the effect (temporary, permanent, intermittent); which is particularly relevant in this appraisal where the majority of viewers are travellers journeying through the landscape; and
- The numbers and types of viewers affected.

The following sub-sections further describe and illustrate the viewpoints (VP 01 - 07), sensitive receptor (SR 01) and sensitive receptor locality (SRL 02, SRL 03).



LEGEND

- BESS proposed site - No. 17 Thornells Road
- 220kV tower — Existing 220kV transmission tower and power line
- 66k — Existing 66kV transmission line and power pole
- Residential property
- Commercial property
- SR 01 — Sensitive Receptor (SR)
- SRL 02, SRL 03 — Sensitive Receptor Locality (SRL)
- Existing vegetation
- Visibility shadow within 2km ZTVI

0 100m N

TITLE	Sensitive Receptors, Sensitive Receptor Locality and Visibility Shadow Map	DWG NO HD_X001_AD01	REVISION B	SHEET NO Sheet 2
PROJECT	Mornington Battery Energy Storage System (BESS) Project	DRAWN SW	CHECKED SRH	DATE 12/20

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HD Drawing 2: Sensitive Receptors, Sensitive Receptor Localities and Visibility Shadow Map

4.1 Construction Phase

Impacts to visual amenity during the construction phase will be minor and will be temporary (nine months duration) and therefore have not been assessed.

Potential impacts will comprise the presence of construction equipment in the northern portion of the site, earthworks an increase in light and heavy traffic.

4.2 Likely Visual Impact at the Identified 'sensitive receptors'

The likely impacts at SR 01, SRL 02 and SRL 03 are described in Tables 4.1 to 4.3, using the following definitions:.

Substantial adverse impact	where the BESS would cause a significant deterioration in the existing view
Moderate adverse impact	where the BESS would cause a noticeable deterioration in the existing view
Slight adverse impact	where the BESS would cause a barely perceptible deterioration in the existing view
Slight beneficial impact	where the BESS would cause a barely perceptible improvement in the existing view
Moderate beneficial impact	where the BESS would cause a noticeable improvement in the existing view
Substantial beneficial impact	where the BESS would cause a significant improvement in the existing view
No change	No discernible deterioration or improvement in the existing view

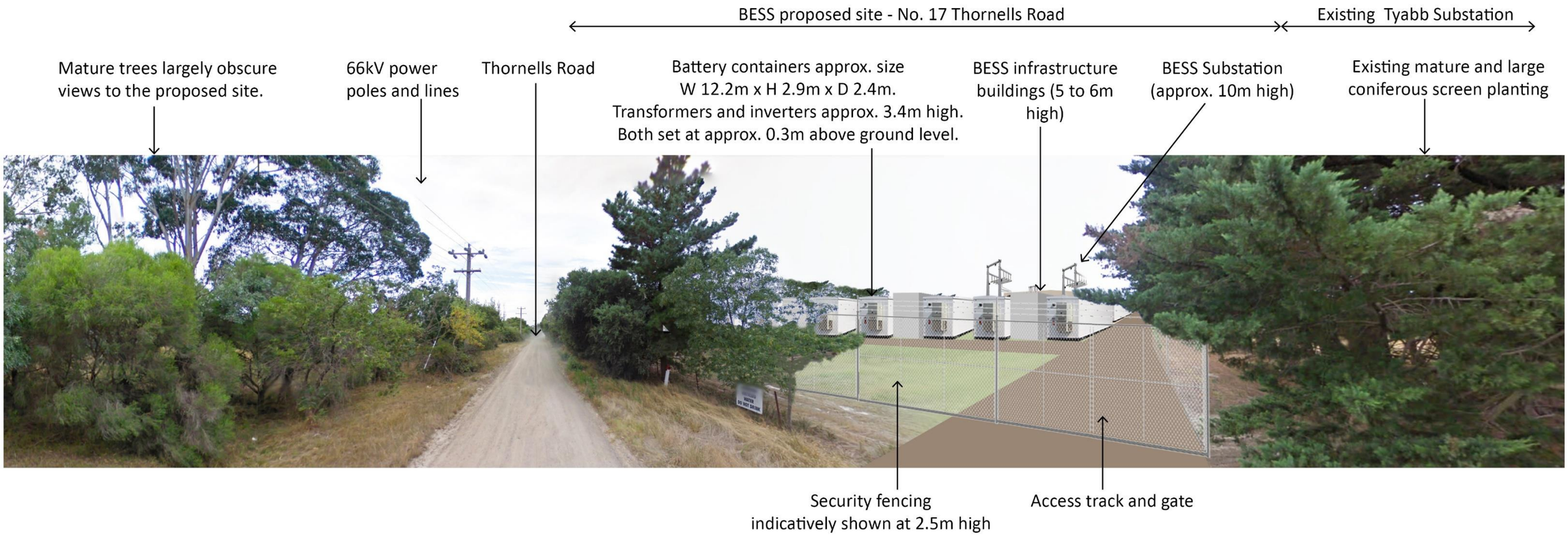
Table 4.1 - Sensitive Receptor 01 – No. 20 Thornells Road

Location	20 Thornells Road adjacent to the north western boundary of the proposed BESS site
View directions	South east - south
Landscape and setting	The landscape is considered to be of low to moderate scenic quality based upon the below. The locality is defined by boundary plantings comprising of a mixture of mature native and exotic trees and shrubs which define the extended vista along Thornells Road in an east - west axis and the dense, and visually impenetrable evergreen screen of coniferous large pines that flank the proposed sites western boundary with the Tyabb Substation. Within this vista poles and power lines along the northern boundary of the unsealed Thornells Road are obtrusive. Intermittent breaks in the boundary plantings on the northern side of Thornells Road afford glimpsed views to the single-story dwellings which sit on large allotments fronting the road. Glimpsed views through intermittent planting breaks south are afforded into and over the cleared proposed development site to the roof lines of the grey commercial sheds of the neighbouring Hillbilly Coffee factory. To the immediate west the Tyabb Substation security fencing and array of infrastructure dominates the wider, contextual panorama and horizon where large incongruous transmission towers and powerlines from the substation capture the eye of the observer.
Distance from Project Site(s)	Approximately 20m to nearest site boundary.

Visual exposure at receptor	The degree of visual exposure is moderate only where boundary planting on both the northern and western boundary of the proposed site create a reasonably impenetrable visual barrier screening views for both the residents of the nearby dwellings and the large majority of observers travelling through the receptor location along Thornells Road. The proposed BESS infrastructure of 'containers', the onsite substation, operational buildings and security fencing will sit behind the intermittent screen planting and at a setback distance of approximately 60 meters from the northern site boundary. The arrangement of 'containers' will, at this distance appear as a more linear feature juxtaposed against the rising backdrop of the horizon. Given the relatively flat north-south orientation of the site it is likely that only the first row of 'containers' will be visible from this receptor. Whilst the arrangement of the initial row of 'containers' and associated infrastructure will be an obvious visual feature at this specific location, within the wider contextual landscape view the BESS will remain largely insignificant where the Tyabb Substation and other large commercial warehouse buildings and structures are generally accepted visual features. Refer to HD Drawing 3: Photomontage for Sensitive Receptor 01
Predicted visual impact	Singularly the likely visual impact of the proposed BESS will be **slight adverse**. When considered as an addition to the modified locality where Tyabb Substation is a dominant visual feature the likely cumulative visual impact will be **No change.** Glare and reflection from site infrastructure is not considered to be an impact where muted colours and finishes are used, while any potential light spill from emergency and security lighting is envisaged to be able to be managed to eliminate inconvenience to nearby residents and road users.
Mitigation	Although deemed unnecessary, supplementary planting of quick growing evergreen exotic and native screen planting could be undertaken and would eliminate all likely visual impacts after a reasonable establishment period.

Location: Adjacent No. 17 Thornells Road, view east - south

ARTIST IMPRESSION
ILLUSTRATIVE ONLY
Subject to detail design.



DRAFT CONFIDENTIAL

Mornington Battery Energy Storage System (BESS) Project
Photomontagr for Sensitive Receptor 01 (SR 01)

Drawing no: HD_X001 photomontage_SR 01 Revision: A Date: Oct 2020

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HD Drawing 3: Photomontage for Sensitive Receptor 01

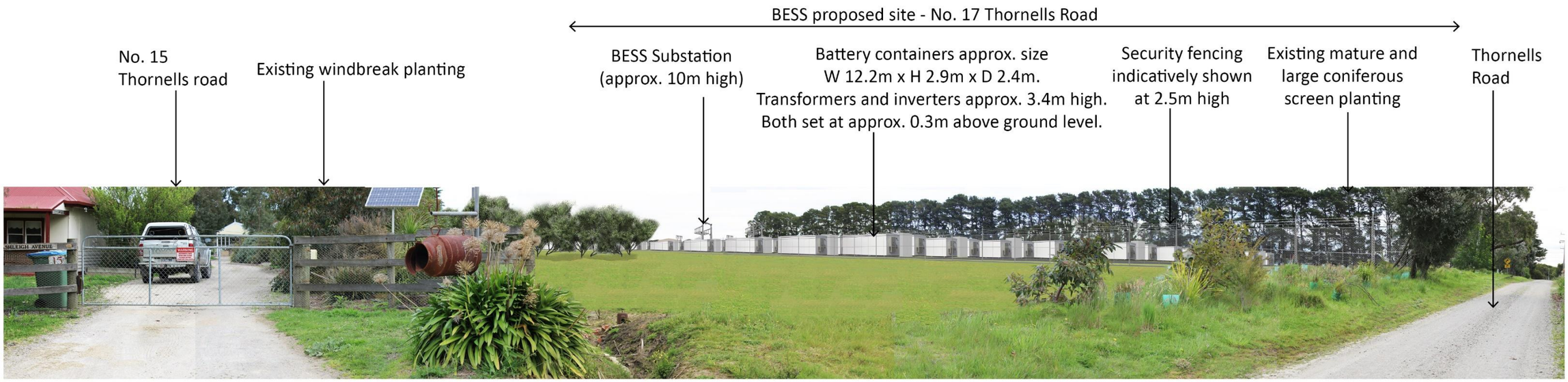
Table 4.2 - Sensitive Receptor Locality 02: No. 15 Thornells Road (landowner associated with the project)

Location	15 Thornells Road adjacent to the north eastern boundary of the proposed site, adjacent property no. 13, 15 and 16
View Direction	West - south
Landscape and setting	The landscape is considered to be of low to moderate scenic quality based upon the below. The flat, planar attributes of the locality and wider contextual landscape comprising of scattered single storey residential dwellings on large allotments amplifies the presence of the taller infrastructure features such as the 66 kV power poles and dominant 220 kV transmission towers which emanate from the Tyabb Substation. Larger columnar trees including the mature screen of coniferous pines which define the proposed sites western boundary are notable focal points. Within the immediate locality the presence of windbreak plantings across neighbouring fields restricts and contains views to within the more immediate foreground, creating a compartmentalised landscape largely concealing adjacent land uses, such as, for example the Tyabb Substation which remains anonymous until the observer is within close proximity of the facility. In such a landscape the proposed BESS will, from a number of viewpoints within the locality fall within a viewer's 'visibility shadow' (i.e. not be visible). Occasional glimpsed views only will be obtained of the BESS and associated infrastructure where breaks in boundary plantings occur. Refer to HD Drawing 5: Section for Sensitive Receptor Locality 02.
Distance from Project Site	Approximately 20 m nearest site boundary.

Visual exposure at receptor	The degree of visual exposure is moderate at one or two locations only where breaks in boundary plantings occur, most noticeably at the entrance to and within the immediate curtilage of No. 15 Thornells Road, however as previously stated the current owner is associated with the BESS project as they are the vendor of the development site. Refer to HD Drawing 4: Photomontage for Sensitive Receptor Locality 02 and HD Drawing 4: Section for Sensitive Receptor Locality 02
Predicted cumulative visual impact	The proposed BESS will be a discernible but inconsequential feature within the fore to mid- ground vista sitting below the horizon. Given the relatively flat north - south orientation of the site and the 60 m (approx.) set back from the northern site boundary it is likely that the first row of BESS 'containers' only will be visible from this SRL. As an addition to the modified wider contextual landscape where the existing Tyabb Substation is a notable and incongruous visual feature, the likely visual impact of the proposed BESS at No. 15 Thornells Drive (the adjacent property) will be **slight adverse to moderate adverse**. From No 13 and 16 Thornells Road the likely visual impact of the proposed BESS will be **no change to slight adverse** where views are restricted to glimpse views through existing mature tree and shrub planting along the property boundaries. Glare and reflection from site infrastructure is not considered to be an impact where muted colours and finishes are used, while any potential light spill from emergency and security lighting is envisaged to be able to be managed to eliminate inconvenience to nearby residents and road users.
Mitigation	When viewed from this SRL the proposed sighting and arrangement of the BESS appears sympathetic to the locality and broader contextual landscape. Although deemed unnecessary, supplementary planting of quick growing evergreen exotic and native screen planting could be undertaken and would eliminate all likely visual impacts after a reasonable establishment period.

Location: Adjacent No. 15 Thornells Road, view west - south

ARTIST IMPRESSION
ILLUSTRATIVE ONLY
Subject to detail design.



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Mornington Battery Energy Storage System (BESS) Project
Photomontage for Sensitive Receptor Locality 02 (SRL 02)

Drawing no: HD_X001 photomontage_SRL 02 Revision: A Date: Oct 2020

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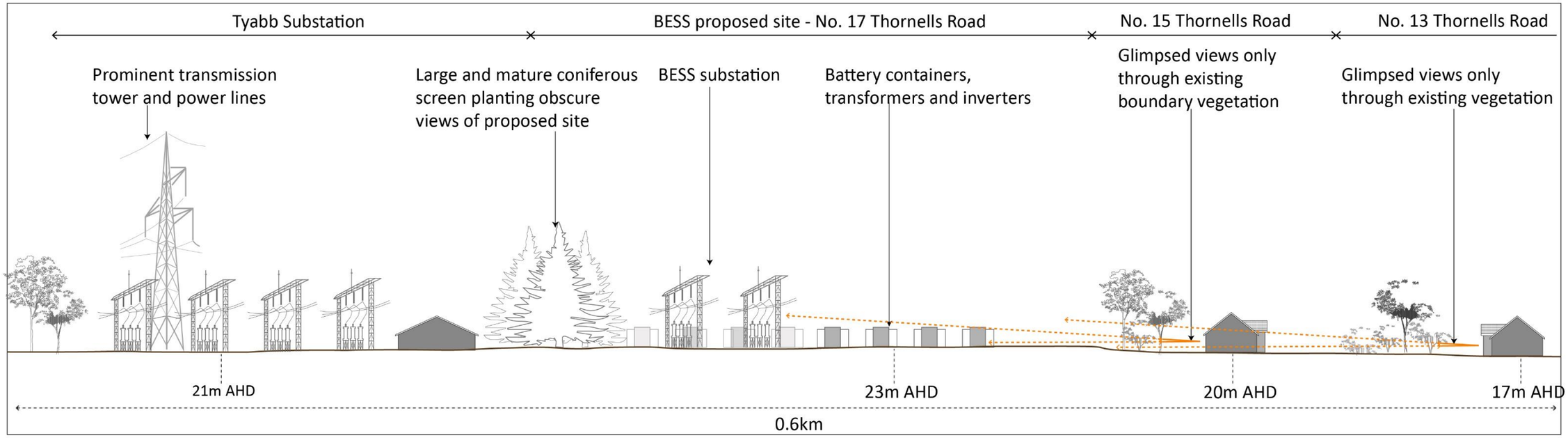
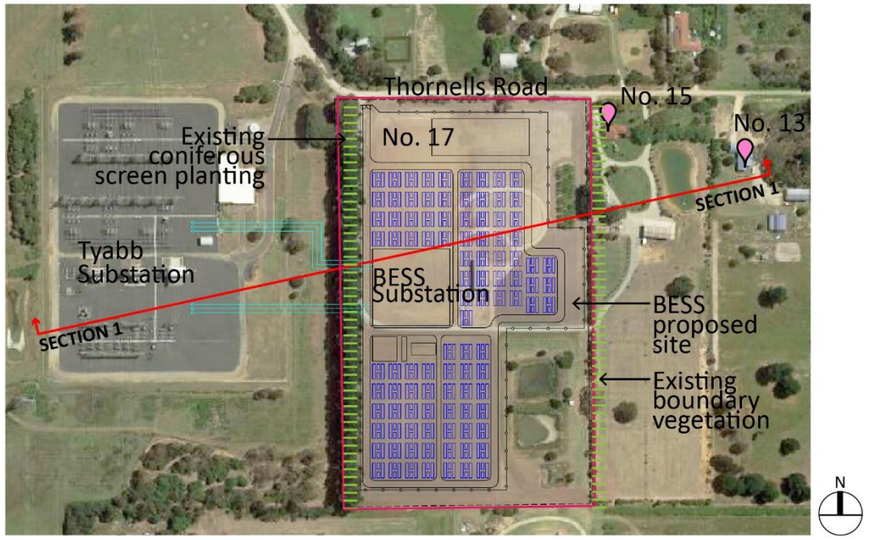
SECTION 1 - Sensitive Receptor Locality 02 (SRL 02)





MORNINGTON BATTERY ENERGY STORAGE SYSTEM (BESS) PROJECT
Built Form Visual Impact Analysis for Sensitive Receptor Locality 02 (SRL 02)

Drawing No: HD_X001_section 1 Revision: A Date: Oct 2020

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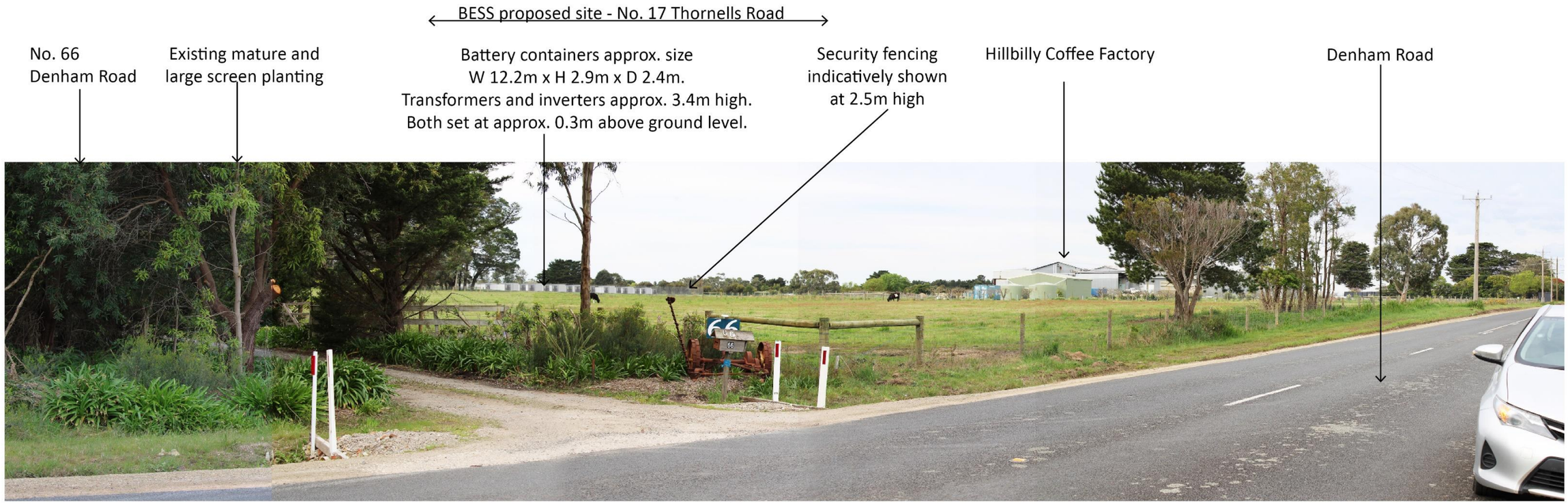
Table 4.3 - Sensitive Receptor Locality 03: No. 66 Denham Road

Location	Along Denham Road adjacent No.66 Denham Road – typical also of viewpoints 03, 04, and 05 and viewpoint 07 (Blue Scope Steel Recreation Centre oval).
View directions	North east - east
Landscape and setting	The landscape is considered to be of low to moderate scenic quality based upon the below. More expansive views are afforded where boundary plantings are less frequent, opening up the panorama across the distant horizon. Whilst a number locals may regard the prevailing landscape as one that offers an attractive setting it is the authors opinion that that the wider landscape is characterised through a somewhat monotonous vista bereft of meritorious visual incident, a view where the power poles along the linear road corridor, grey commercial sheds and the Hillbilly Coffee factory are prominent features. The western site boundary plantings of coniferous pines are the only features of note, the dense imposing form and colour drawing and capturing the eye of the observer as it sweeps across the planar landscape. From this location the dwelling within No 66 Denham Road is not visible, screened by extensive tree and shrub planting along the southern and eastern property boundary.
Distance from Project Site(s)	Approximately 250m to nearest site boundary.

Visual exposure at receptor	The degree of visual exposure is moderate where the more open aspect of the immediate locality to the south affords views into the proposed BESS site through scattered groups of mature trees and shrubs. The more extensive planting along the eastern boundary of No. 216 Denham Road would suggest that the proposed development site will be screened from view around the dwelling curtilage. The proposed orientation and layout of the BESS suggests that glimpsed views only the initial first row of containers will be visible from this receptor locality. Given the set back from the sites southern boundary, the relative low height, 'prostrate' form and benign appearance of the 'containers' and other site infrastructure the BESS will likely appear as thin punctuated grey/white line in the background against a foreground of open luscious green grazing fields and an expansive horizon where the transmission towers command attention. Refer to HD Drawing 6: Photomontage for Sensitive Receptor Locality 03
Predicted visual impact	The likely visual impact when considered will be **slight adverse** only. Glare and reflection from site infrastructure is not considered to be an impact where muted colours and finishes are used, while any potential light spill from emergency and security lighting is envisaged to be able to be managed to eliminate inconvenience to nearby residents and road users.
Mitigation	Although deemed unnecessary, supplementary planting of quick growing evergreen exotic and native screen planting could be undertaken and would eliminate all likely visual impacts after a reasonable establishment period.

Location: Adjacent No. 66 Denham Road , view north east - east

ARTIST IMPRESSION
ILLUSTRATIVE ONLY
Subject to detail design.



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Mornington Battery Energy Storage System (BESS) Project
Photomontage for Sensitive Receptor Locality 03 (SRL 03)

Drawing no: HD_X001 photomontage_SRL 03 Revision: A Date: Oct 2020

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HD Drawing 7: Photomontage for Sensitive Receptor Locality 03

4.3 Other Visual Considerations

Viewpoints VP04, VP05 and VP06 are 'transitory' viewpoints of low sensitivity as observers will be travelling through a locality of low to moderate scenic value whilst on a journey to an end destination beyond and outside the contextual landscape.

Any potential visual impact from Viewpoint VPO7 (i.e. the Bluescope Steel Recreation Centre and oval) will be distant glimpses only and largely concealed by plantings which lie between the observer and the BESS site boundary.

Consequently, the likely visual impact at and within the vicinity of these viewpoints will not change.

5.0 Mitigation Considerations

The use of vegetative screening is not considered necessary given the low level of visual impact expected, however if it is considered then the use of quick growing exotic evergreen and native tree and shrub species along the eastern property boundary and both the northern and southern boundaries would be appropriate.

The establishment of a vegetative screen along these boundaries will, after a few growing seasons likely ameliorate all visual impacts on views afforded from the identified sensitive receptors and observed viewpoints.

6.0 Summary and Recommendations

The introduction of Mornington BESS will alter the character and visual qualities of the locality and wider contextual landscape, however and as demonstrated the likely visual impact will be largely inconsequential, assuming that:

- the battery containers and all ancillary infrastructure and buildings will be finished in a material and muted colour appropriate to the setting; and
- the boundary security will be open mesh style fencing in a similar form to the adjacent substation security fence

Based on this LCVIA, and noting that the existing locality and landscape is characterised as being of **low scenic quality**, the visual impact that is likely to be experienced by the Mornington BESS is considered to range from between:

- **Slight adverse** at one sensitive receptor (SR 01) and, when considering the cumulative visual impact where the Tyabb Substation is a prominent and accepted visual feature - **no change;**
- **No change to slight adverse** at one sensitive receptor locality (SRL 03); and
- **Slight adverse to moderate adverse** at one sensitive receptor locality (SRL 02).

Outside the 'ZTVI' the BESS will have no discernible impact, such as on vistas from the distant Tyabb town centre and both principal highways.

Accordingly, it is the authors opinion the proposed Mornington BESS will not adversely affect the amenity of the neighbourhood or have irreparable consequences for the visual amenity of the locality and wider contextual landscape.

Appendix A – Site layout

SITE COORDINATES:
38°16'1.56"S, 145°12'13.39"E

SITE PLAN
1:2000

ACTUAL SITE

SYSTEM SPECIFICATION
240 MW / 480MWh
A MAXIMUM OF 200 BATTERY CONTAINERS
A MAXIMUM OF 200 BATTERY INVERTERS
A MAXIMUM OF 200 TRANSFORMERS

SITE PLAN
1:1500

MAONENG

REV	REVISION DESCRIPTION	DRWN BY	CHKD BY	APPR BY	DATE
B	PRELIMINARY CONCEPTUAL LAYOUT	GG			07/08/2020
A	PRELIMINARY CONCEPTUAL LAYOUT	GG			04/08/2020

STATUS: PRELIMINARY

PROJECT TITLE: TYABB

PROJECT LOCATION: 17 THORNELLS RD, TYABB, VIC

DRAWING TITLE: BESS SITE LAYOUT

PROJECT CODE: MNG-TYABB-BESS

DWG NUMBER: MNG-TYABB-BESS-01

SHEET: 1 OF 1

SCALE: 1:2000

REVISION: A

SHEET SIZE: A3