



Proposed Solar Farm - Mangamaire Road, Tararua

Graphic Attachment to Statement of Landscape Evidence - Rory Mclean Langbridge

16 August 2023

Document Information

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For Resource Consent		
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Revision	Viewpoint Location Plan	14
1 For Resource Consent 19.05.2022	Viewpoint Location Photographs 1 - 12	15 - 20
2 For Resource Consent 20.12.2022		
3 Statement of Evidence 16.08.2023		
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General Arrangement Plan




- A. 451 Mangamaire Road
- B. 431 Mangamaire Road
- D. 391 Mangamaire Road
- F. 154A Tutaekara Road
- K. 500 Mangamaire Road
- L. Lot 2 DP 546734
- M. Lots 2 DP 67352
- N. 239 Tutaekara Road
- O. Sec 90 Blk:X SD: Mangahao
- P. 3 Foughys Road
- Q. 187 Tutaekara Road
189 Tutaekara Road
205 Tutaekara Road
209 Tutaekara Road
223 Tutaekara Road
229 Tutaekara Road
189 Tutaekara Road
Tutaekara Road
- Sch. 192 Tutaekara Road
- R. Sec 7 Blk: XIV SD (Mangahao)
- S. 126 Tutaekara Road
- T. 226 Tutaekara Road



Scale: 1: 12,500

Proposed Landscape Mitigation Plan

Legend

-  Proposed security fence.
-  Single row of Cypress or Totara hedgerow planting at 1.5m crs
-  Wetland buffer plants, species and grade specified below, at an average density of 1.5m centres, and planted within the first planting season following the granting of resource consent.

Wetland Buffer Planting: 3140 m²

<i>Botanical Name</i>	<i>Common Name</i>	<i>Grade</i>	<i>No.</i>
<i>Carex secta</i>	Makura	RT	350
<i>Austroderia richardii</i>	Toetoe	RT	350
<i>Juncus edgariae</i>	Wwi	RT	275
<i>Juncus pallidus</i>	Giant rush	RT	275
<i>Phormium tenax</i>	Harakeke	RT	150

General Notes

Plants will be sourced from a local nursery who specialises in the production of native species for revegetation.

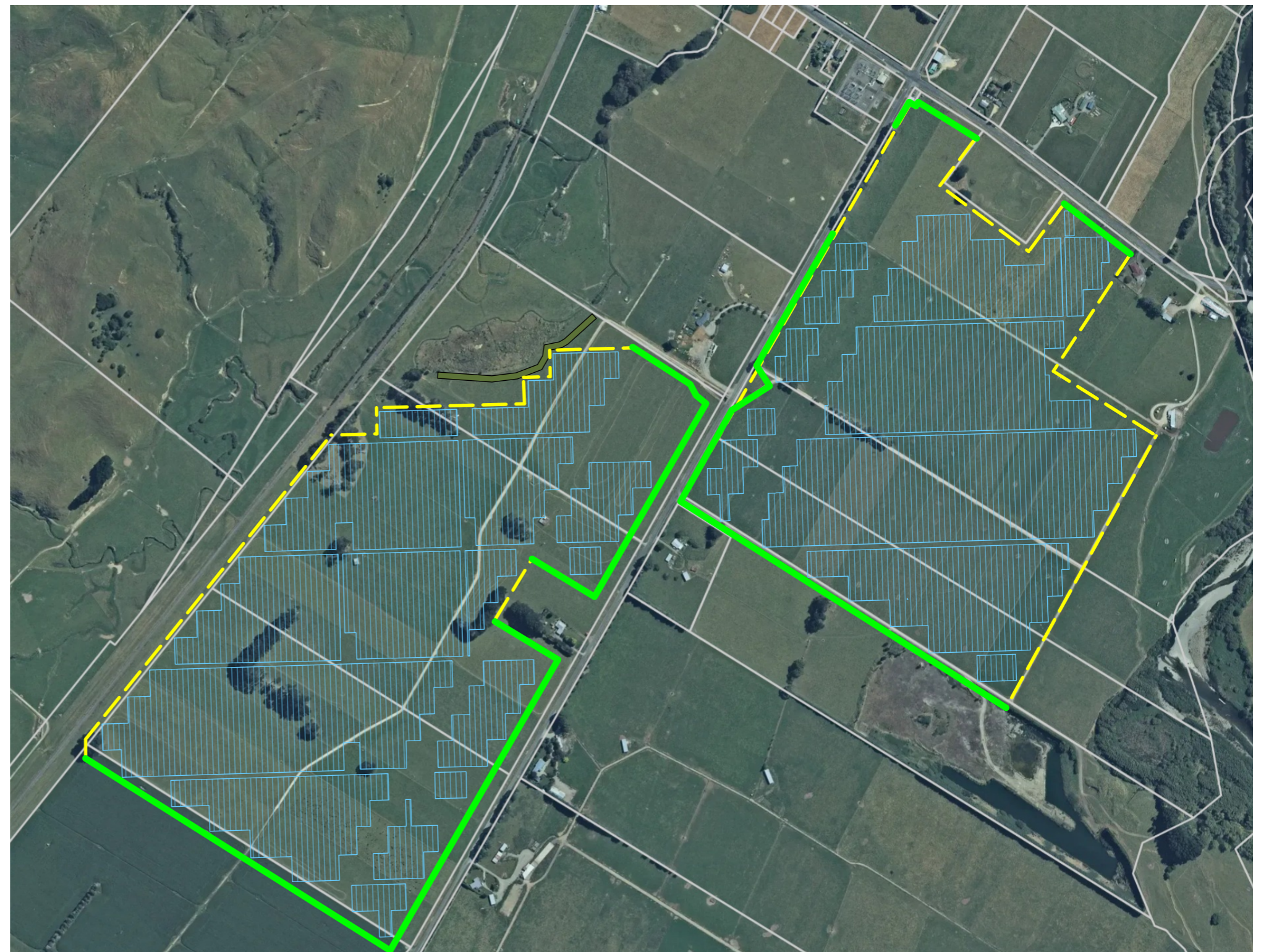
The plants will be either open ground or Root Trainer (RT) stock.

Plants will be planted within the first winter season once the resource consent has been approved and the security fence erected.

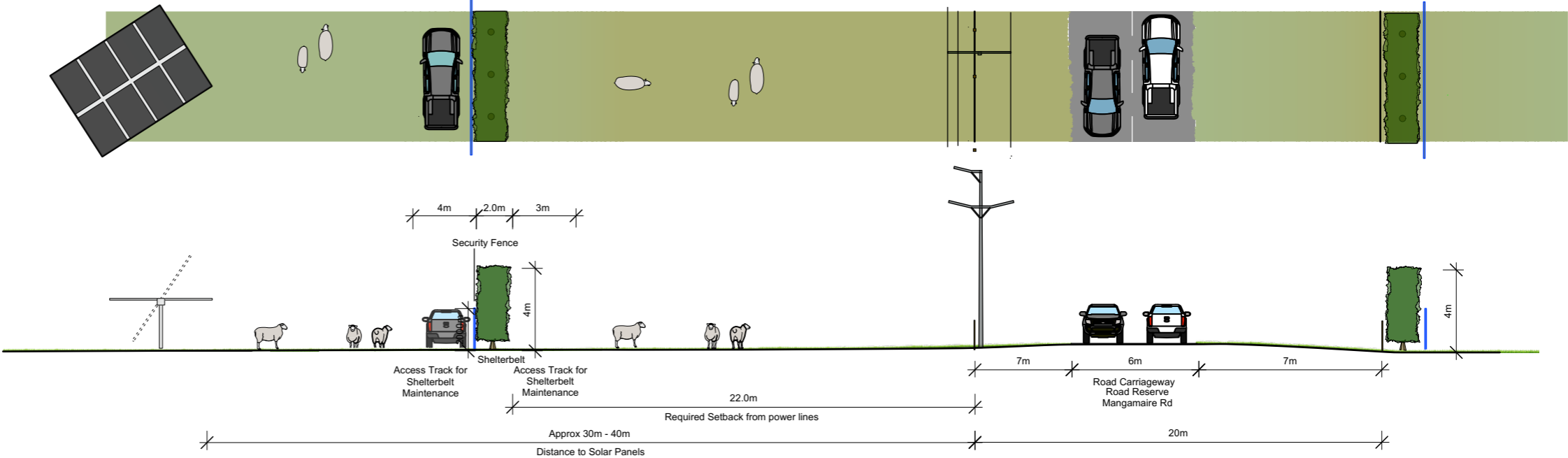


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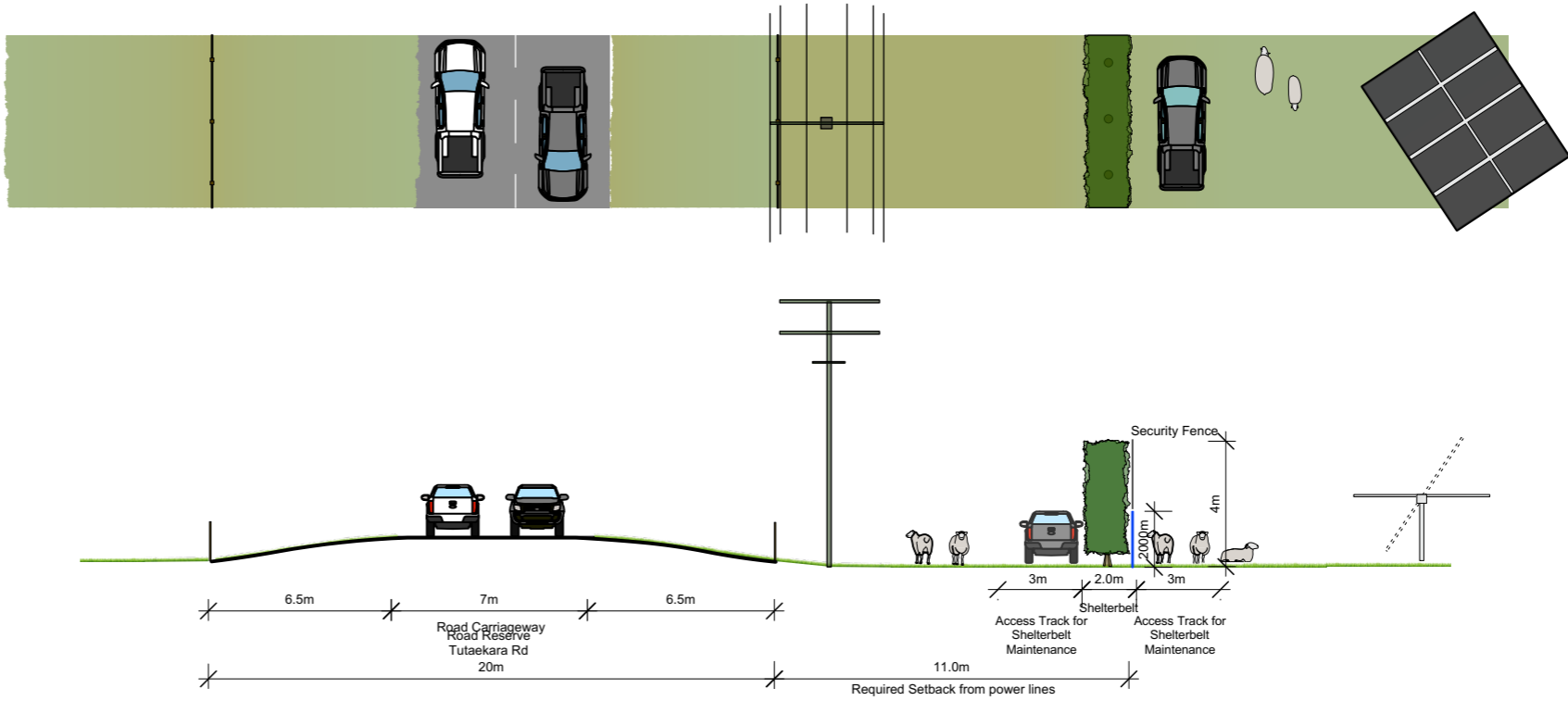
Data Source: Maps.grip.co.nz



Proposed Typical Boundary Treatments



1 Typical Section - Mangamaire Road
Scale: 1:250



2 Typical Section - Tutaikara Road
Scale: 1:250

Solar Panels Exemplar Images

- A Example of a similar Solar Farm in Marlborough
- B Example of a similar Solar Farm in Kaitaia
- C Example of a similar Solar Farm in Marlborough



A



B



C

Solar Panels Exemplar Images

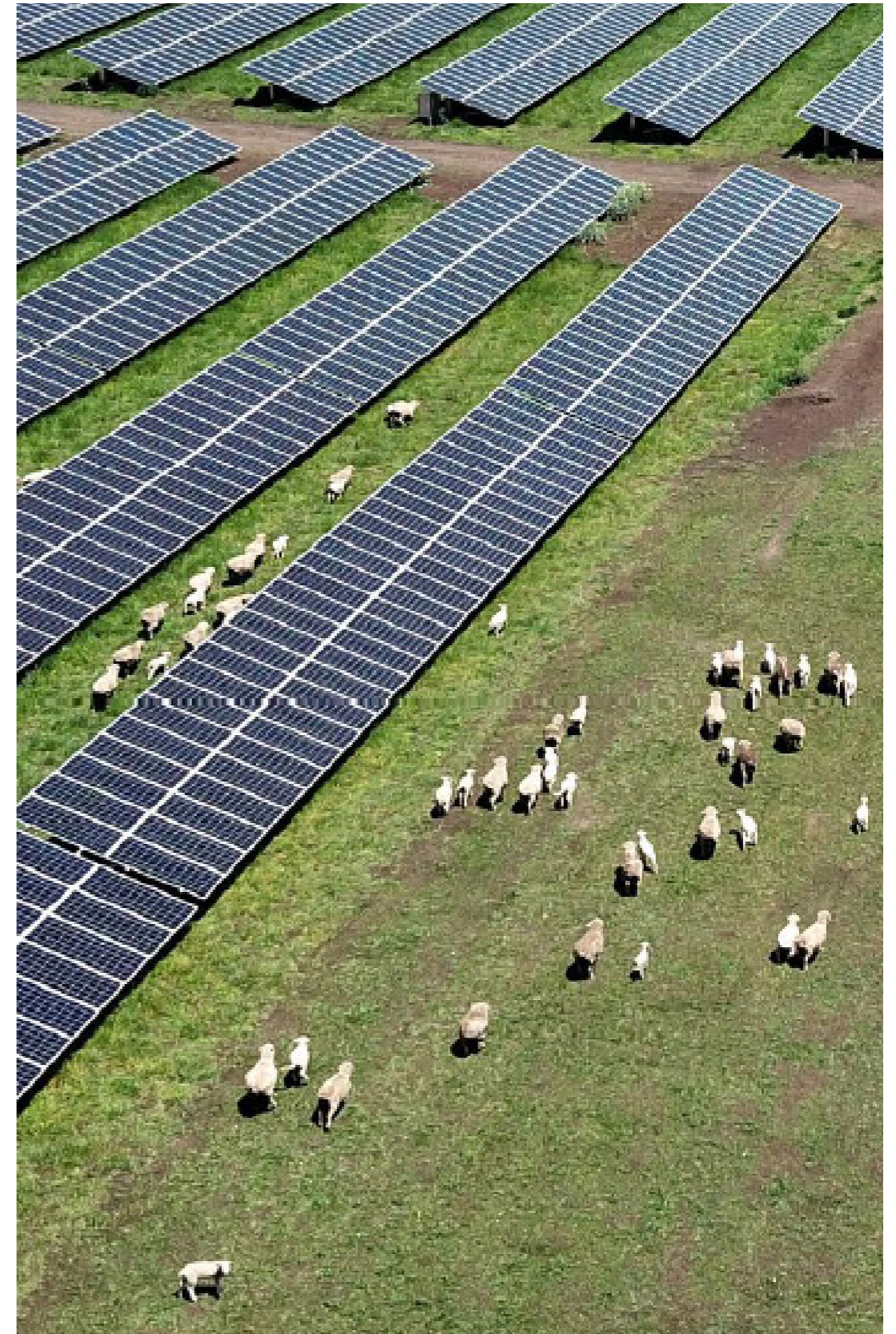
A-C Example of a similar Solar Farm in Australia



A



B

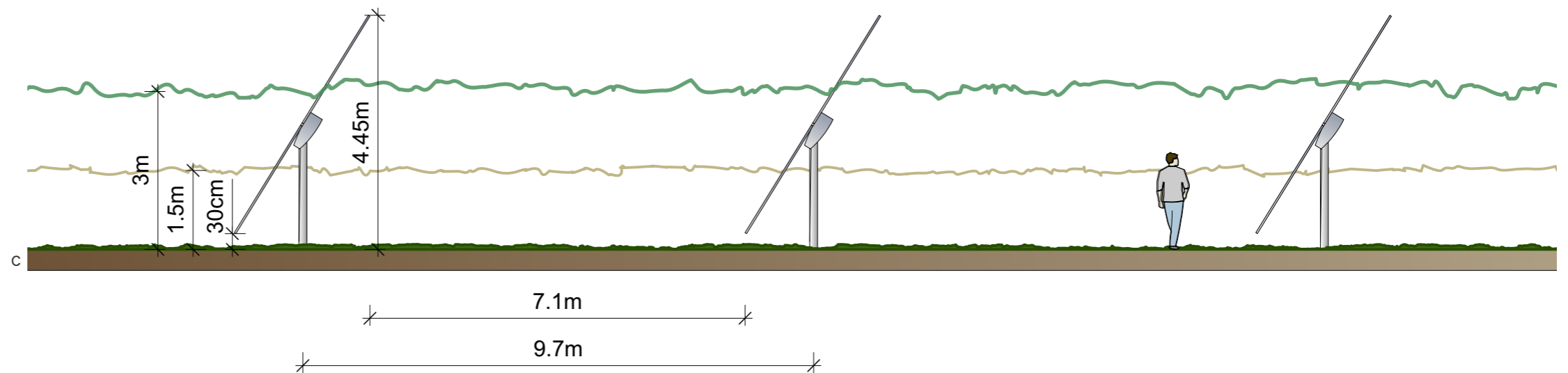
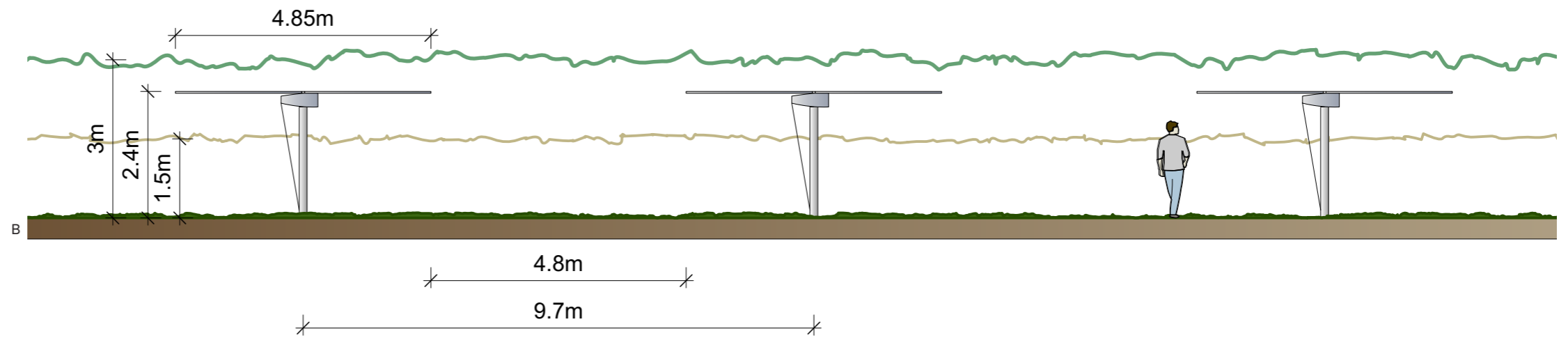
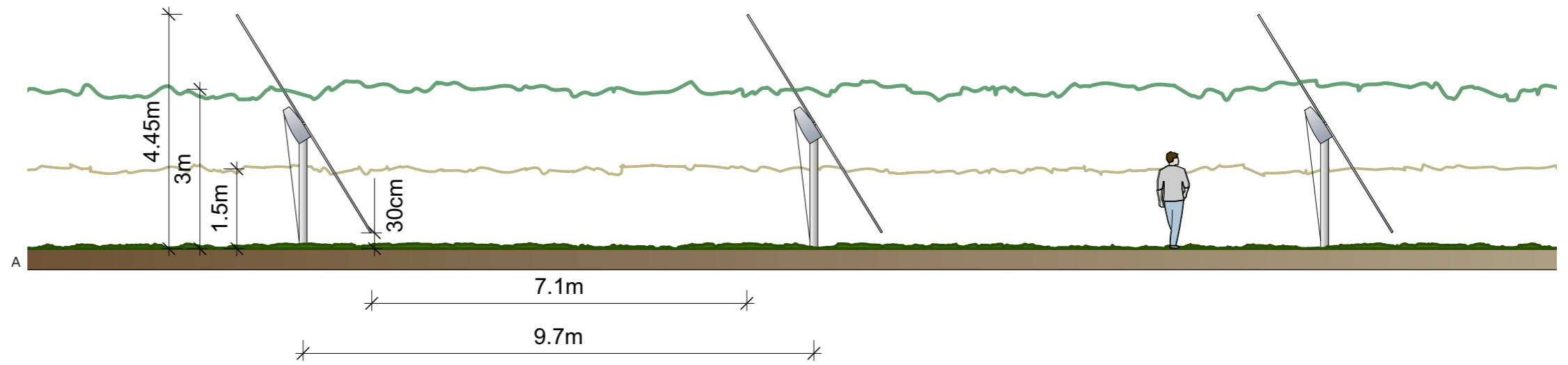


C

Indicative Cross Sections

- A Morning - Solar Tables at thier Maximum East Facing Extent
- B Midday - Solar Tables Parallel to the Ground
- C Afternoon - Solar Tables at thier Maximum East Facing Extent

Green line represents native shrub vegetation at 3m tall.
 Yellow line represents low shrub/flax vegetation at 1.5m tall.

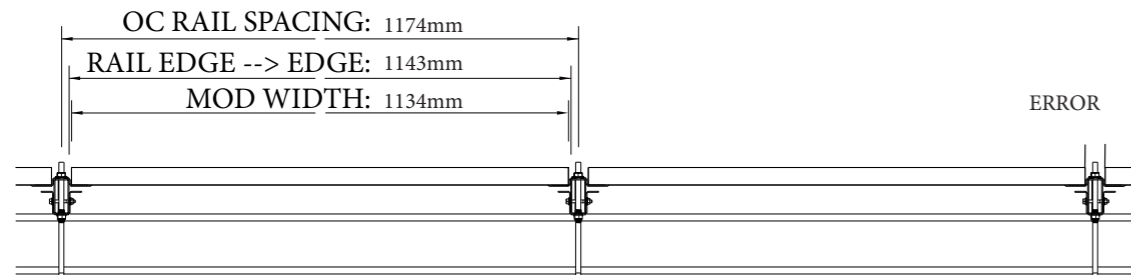


SCALE 1:100 @A3

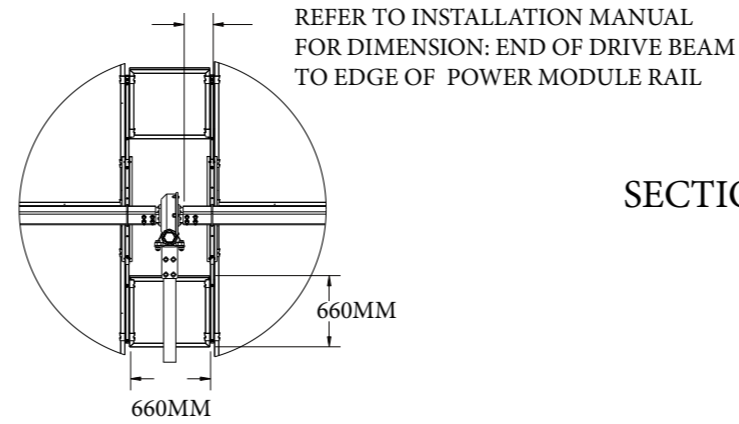
Mechanical Layout Information



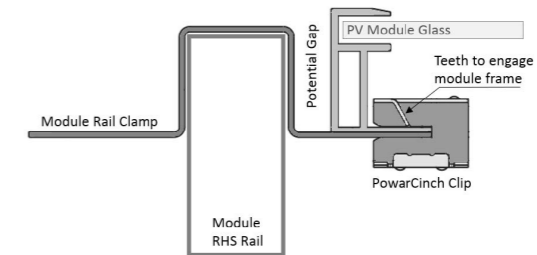
MODULE RAIL SPACING



POWER MODULE DETAIL

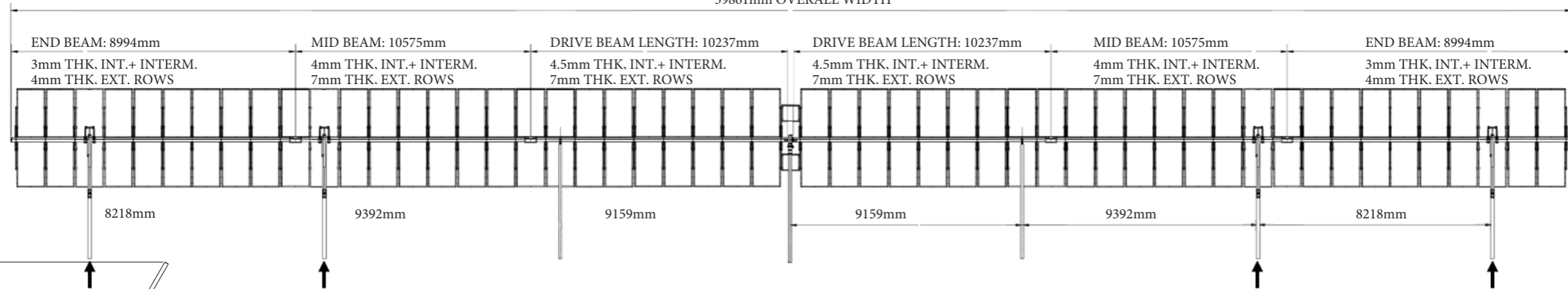


SECTION VIEW: MODULE RAIL - POWARCINCH



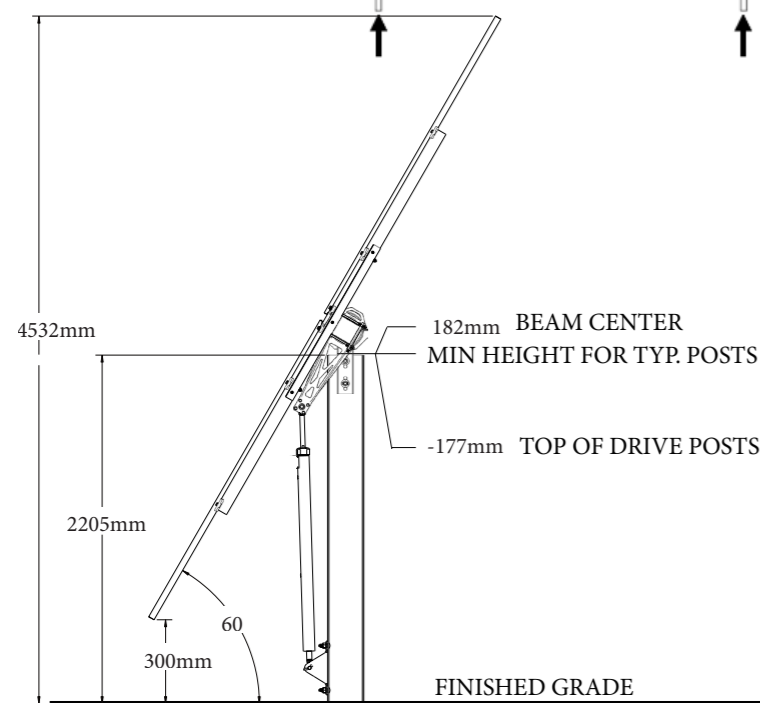
MECHANICAL LAYOUT

59861mm OVERALL WIDTH

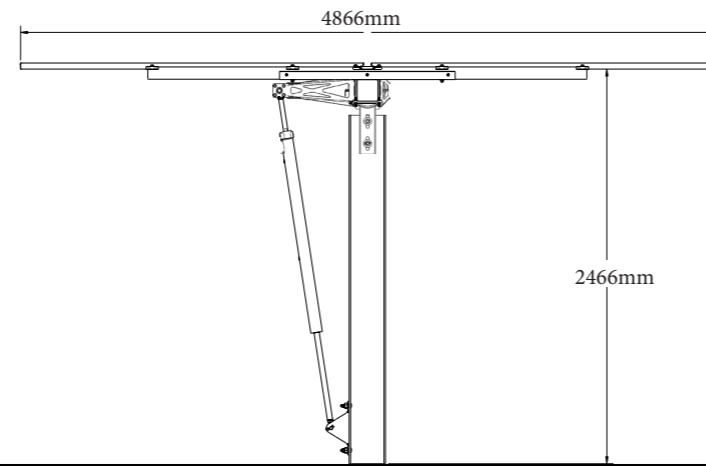


NOTE 9: DAMPER LOCATIONS

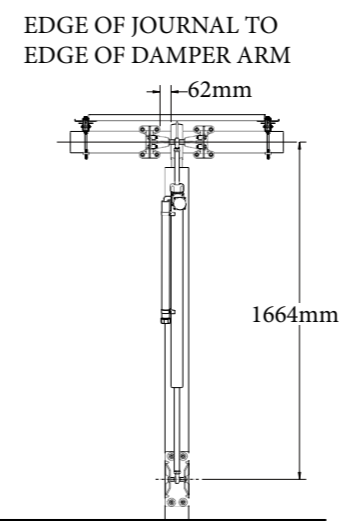
ELEVATION VIEWS



N-S ELEVATION @ MAX. TILT



N-S ELEVATION @ 0



E-W ELEVATION DAMPER DETAIL

Not to Scale - To Fit Page

Data Source: Vector Powersmart Indicative Proposal

Solar Panel and Inverter Information

Tiger Pro 7RL4-TV 565-585 Watt BIFACIAL MODULE TILING RIBBON (TR)

P-Type



- A Example of Solar Panels
- B Mechanical Characteristics of Solar Panels
- C Example of Inverter



Tiling Ribbon Technology

A.

Mechanical Characteristics

Cell Type	P type Mono-crystalline
No. of cells	156 (2×78)
Dimensions	2411×1134×35mm (94.92×44.65×1.38 inch)
Weight	30.6 kg (67.46 lbs)
Front Glass	3.2mm, Anti-Reflection Coating, High Transmission, Low Iron, Tempered Glass
Frame	Anodized Aluminium Alloy
Junction Box	IP68 Rated
Output Cables	TUV 1×4.0mm ² (+): 400mm, (-): 200mm or Customized Length
Conector	JK03M/2B, genuine MC4 evo 2
Fire Rating	Class C

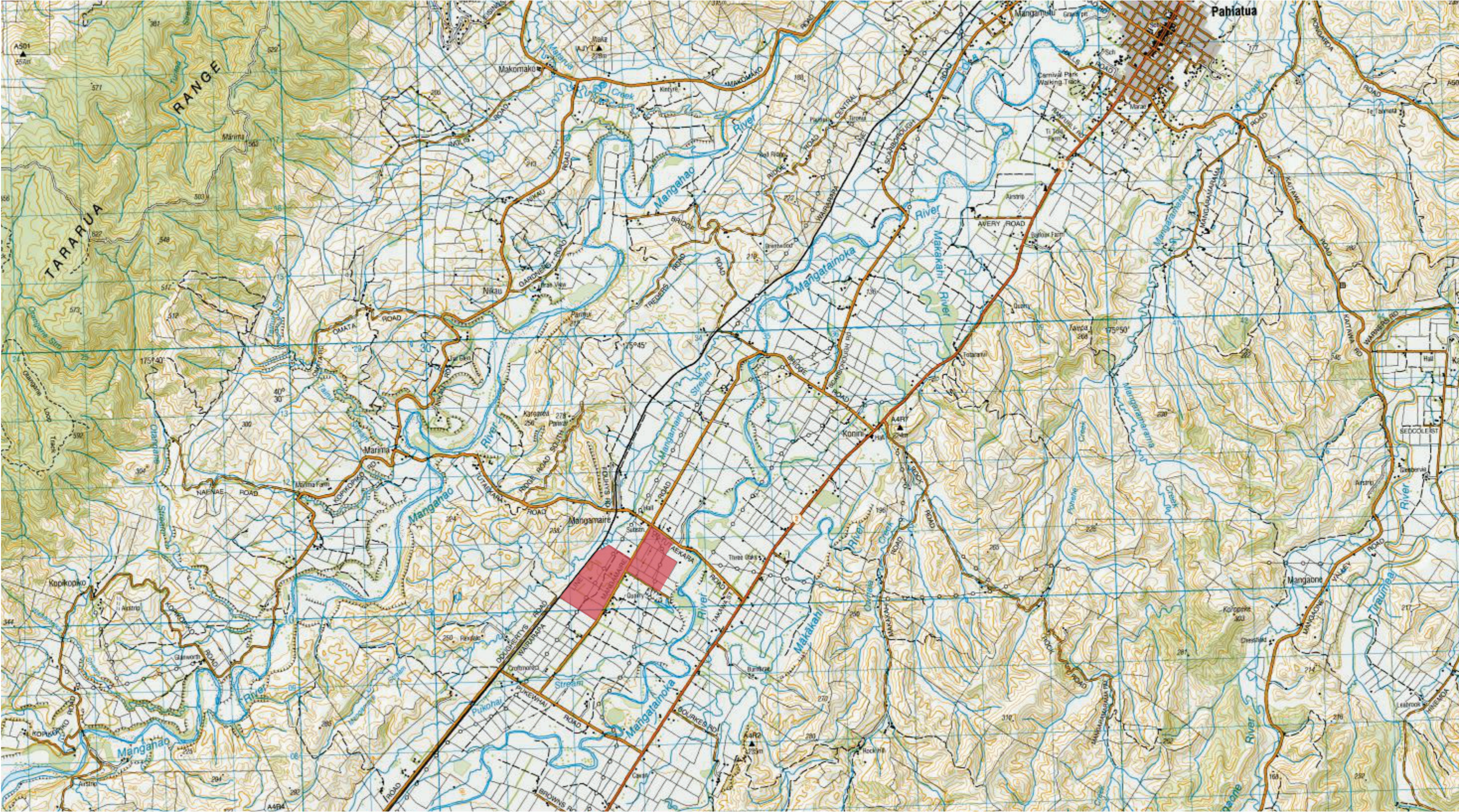
B.



Dimensions 2.815m (W) x 2.318m (H) x 1.588m (D)

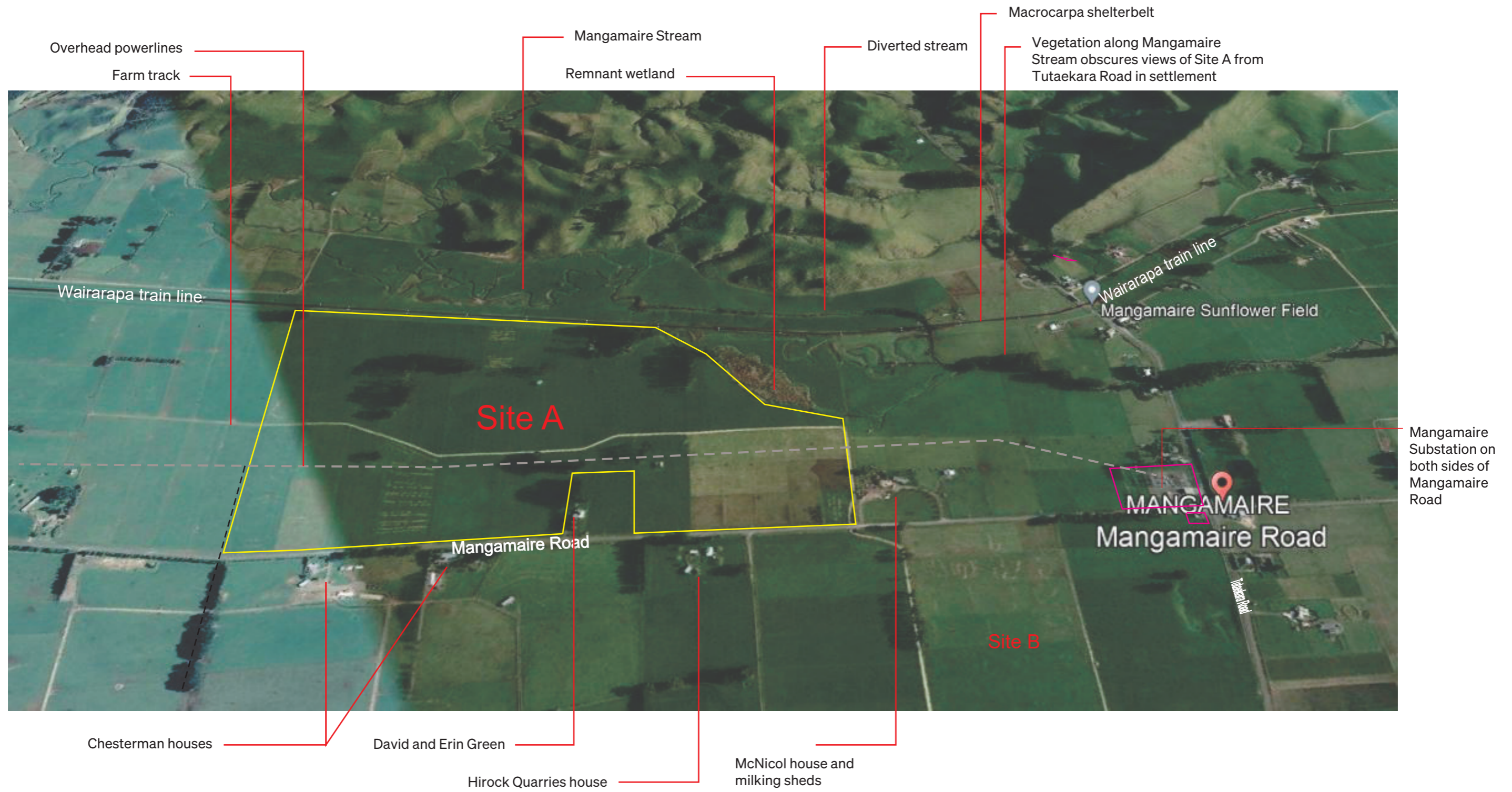
C.

Wider Context Plan

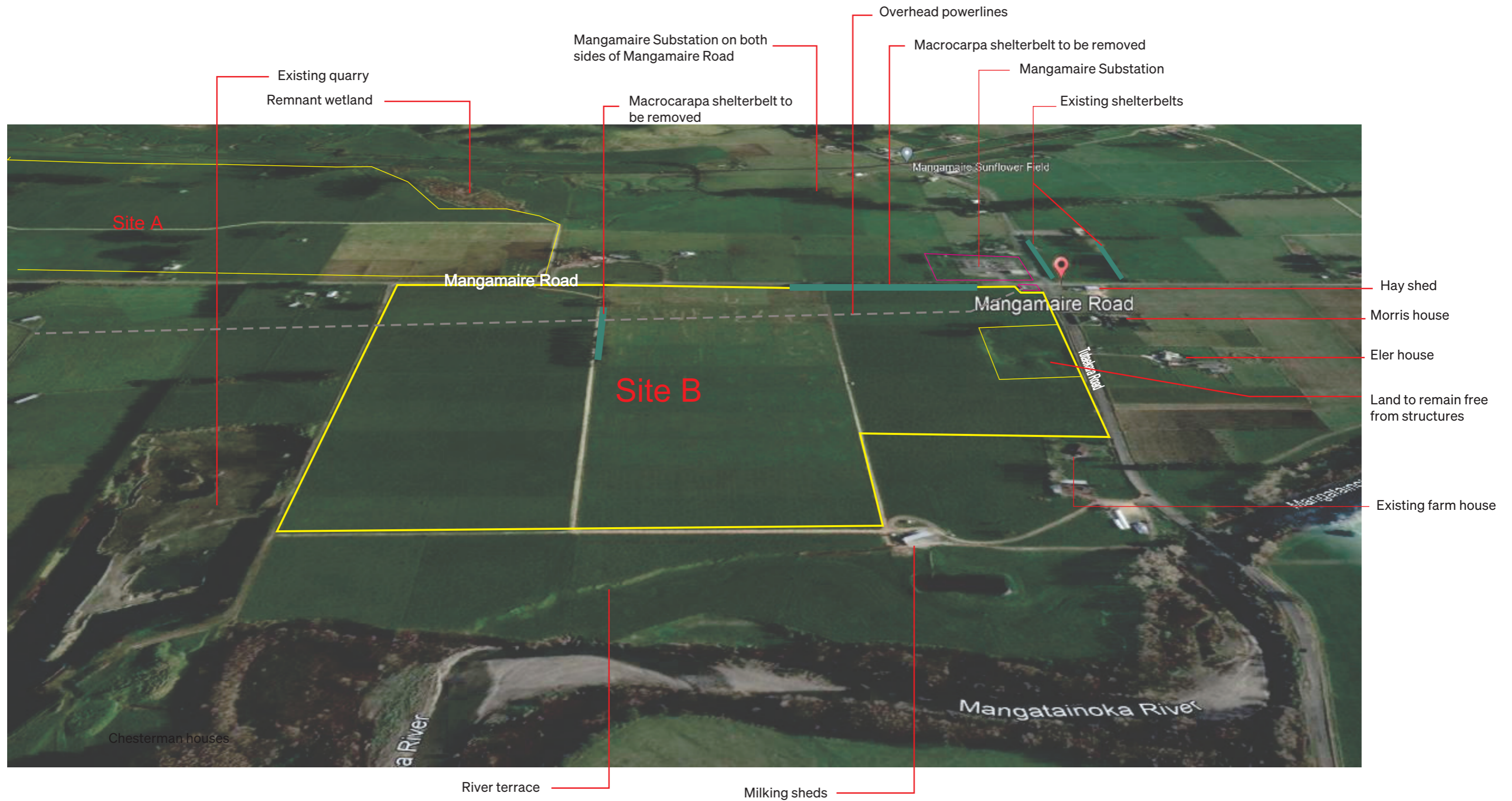


Not to Scale
Data Source: topomap.co.nz

Site A Context Plan



Site B Context Plan



Viewpoint Location Plan



Viewpoint Location Photographs



Viewpoint Location Photograph 1: When crossing the Mangatainoka River bridge, while partially screened by the existing farm house and related activities, the solar structures on site will be visible and prominent due to their industrial like qualities and vertical scale in this flat landscape. The prominence of the panels will be reduced as the proposed shelter planting is established. The 11m set back from the road boundary that will be created will be grazed as pasture management which will retain visible traditional rural character values.

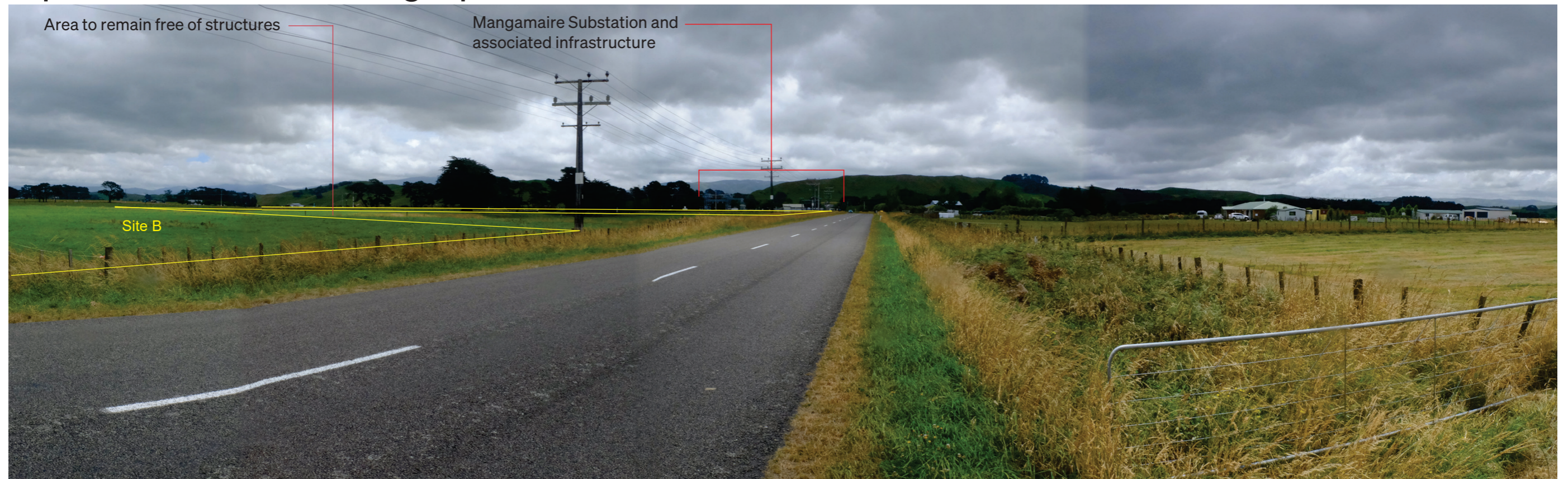
Date: 09.01.2022 **Time:** Between 11:00am and 1:00pm.



Viewpoint Location Photograph 2: On passing the farm house, the solar structures will be fully visible until such time as the shelter belt becomes established (2-5 years). The shelterbelt set back and associated grazing will both screen the solar farm and provide visible rural character values.

Date: 09.01.2022 **Time:** Between 11:00am and 1:00pm.

Viewpoint Location Photographs



Viewpoint Location Photograph 3: Travelling west along Tutaekara Road, adjacent to Site B, approximately 400m from Mangamaire Substation. As one approaches the substation the prominence of both the substation and associated infrastructure becomes more apparent with increasing adverse effects on the landscape and amenity values of this location. Solar tables will be visible beyond the southern boundary of the LINZ reserve. After the initial construction, the land nearest the intersection will remain open and grazed.
Date: 09.01.2022 **Time:** Between 11:00am and 1:00pm.



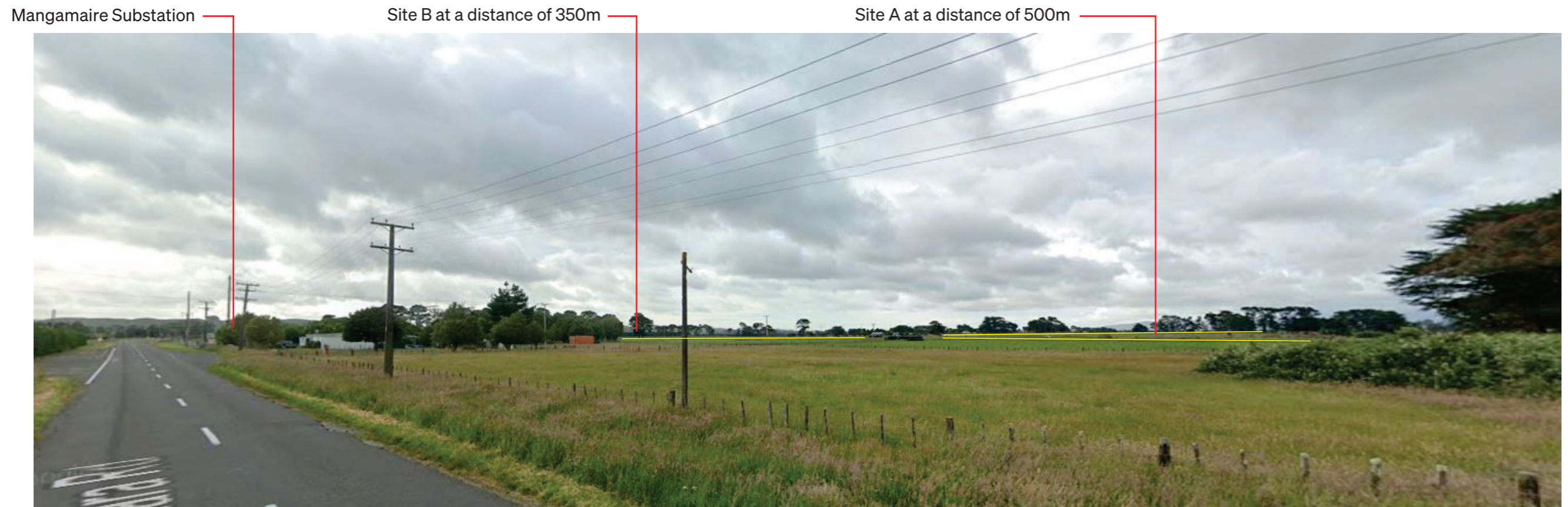
Viewpoint Location Photograph 4: The Mangamaire Substation extends to both sides of Mangamaire Road. The facility is locally prominent.
Date: 09.01.2022 **Time:** Between 11:00am and 1:00pm.

Viewpoint Location Photographs



Viewpoint Location Photograph 5: Travelling east along Tutaekara Road, on entering the valley 600-700m from the farms, until the shelterbelts become established, glimpses of the new farms will be possible between trees and other existing dwellings.

Date: 09.01.2022 **Time:** Between 11:00am and 1:00pm.



Viewpoint Location Photograph 6: Travelling east along Tutaekara Road, approximately 350-500m from the farms, the farms would potentially be visible from within the Mangamaire Settlement. Site A will be fully screened by the proposed shelterbelts within 2-5 years, views of Site B will be partially visible below the remnant shelterbelt that will remain.

Date: 09.01.2022 **Time:** Between 11:00am and 1:00pm.

Viewpoint Location Photographs

Site B
Not visible



Viewpoint Location Photograph 7: Passing Mangamaire Substation travelling east 150m from Site B. Due to the proposed shelterbelt planting, the site will not be visible from this location in the medium term. No solar panels are anticipated in this corner of the property.
Date: 09.01.2022 **Time:** Between 11:00am and 1:00pm.

Area to remain clear of structure



Viewpoint Location Photograph 8: View of Site B from the intersection between Mangamaire and Tutaekara Roads. This corner of the property will only be used during the construction of the solar farm. This view is similar to the views of site B possible from adjacent Lot 2 DP 564748.
Date: 09.01.2022 **Time:** Between 11:00am and 1:00pm.

Viewpoint Location Photographs



Viewpoint Location Photograph 9: Travelling north along Mangamaire Road, the site will first become visible as one passes #500 approximately 250m from the southern boundary of Site A. The dotted line is an approximation of a 4m hedge to illustrate the extent of view that would be affected. Establishing a shelter belt in this area is a permitted activity.
Date: 09.01.2022 **Time:** Between 11:00am and 1:00pm.



Viewpoint Location Photograph 10: Looking northwest from the southern corner of Site A on Mangamaire Road. The proposed shelterbelt will be set 22m back from the road corridor boundary to accommodate the power lines. The distant views of the hills will be blocked by what is a permitted activity.
Date: 09.01.2022 **Time:** Between 11:00am and 1:00pm.

Viewpoint Location Photographs



Viewpoint Location Photograph 11: A Google Streetview image of the Mangatainoka Road taken from the bridge over Tutaekara Road. The Mangatainoka River is an order 5 river with a flooded width of 20-25m. The river environment has high natural character values however the vegetation lining the river in this vicinity is heavily modified and now dominated by invasive willow and other exotic weed species. Views out from the course of the river are limited by the riparian vegetation



Viewpoint Location Photograph 12: Looking north along Mangamaire Road. At this point the solar farms will be located on both sides of the road. All visible boundaries will be planted using shelterbelt planting that will fully screen the farms in 2-5 years. The 'corridor' effect will be reduced through the 22m setback required on the western boundary to accommodate the power lines.

Date: 09.01.2022 **Time:** Between 11:00am and 1:00pm.

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