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Ruakākā Energy Park

Ruakākā Energy Park, Solar Farm – Consent Drawings

Prepared for Meridian Energy Limited

Prepared by Beca Limited

August 2023

Reason for Issue: **For Consent**

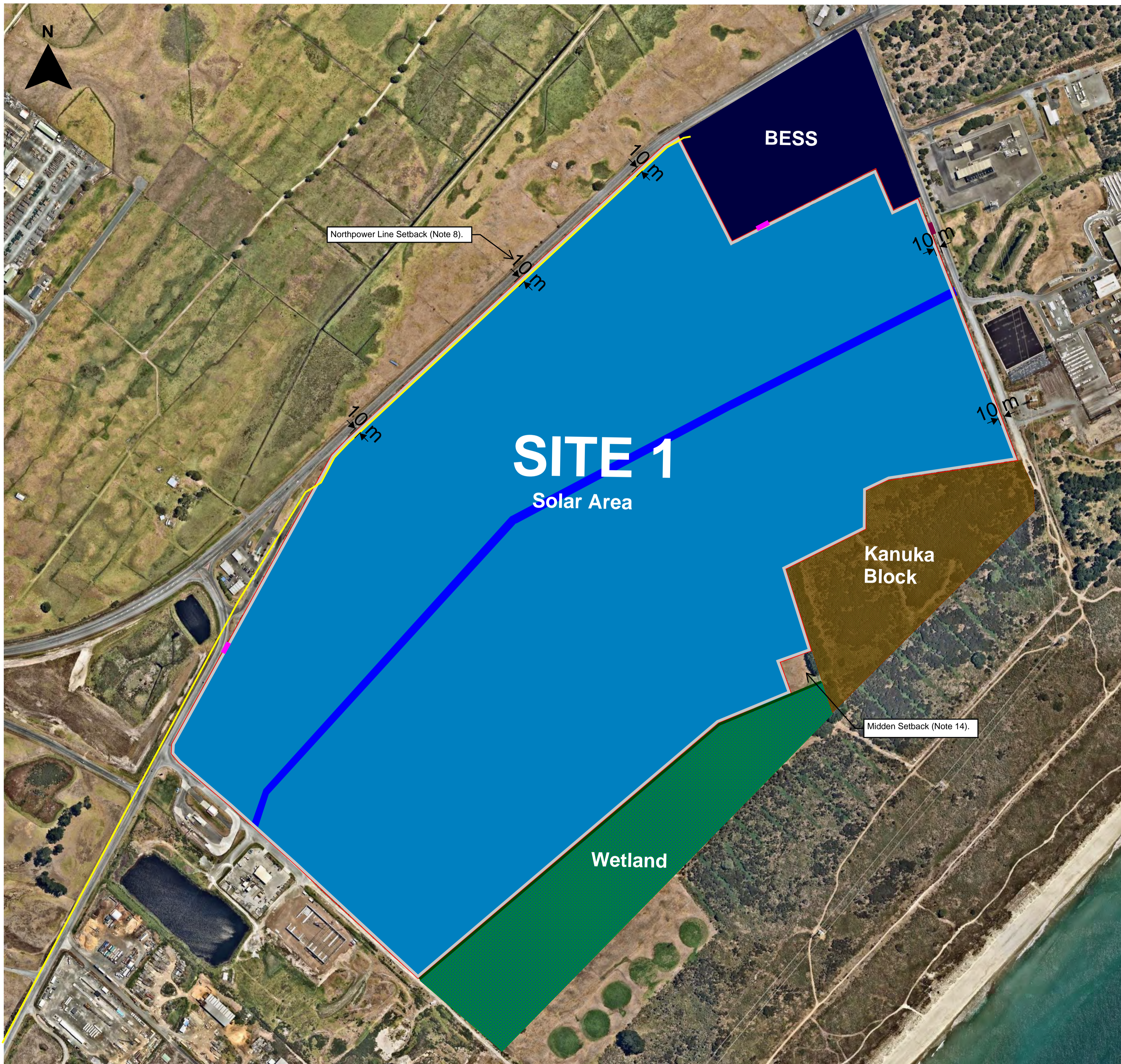
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LEGEND:

Existing

- Drain

Proposed

- Perimeter planting
- Perimeter road (4m)
- Perimeter fencing
- Proposed site access points
- Indicative 33 kV transmission line & OPGW
- Constructed wetland
- Temporary construction access point
- Solar Area (Solar panels, power stations, 33kV reticulation, laydown area and internal roading)

- NOTES:**
- O&M facility & Control room all located within BESS.
 - Refer to Ruakaka Solar Farm - Design Basis Report for constraints information.
 - Refer to Engineering Alternatives and Optimisation Report for wetland information.
 - Refer to Ruakaka Solar Farm Traffic Impact Assessment for access point information.
 - Refer to Civil Design Report for earthwork and internal roading information.
 - Do not scale from this drawing.
 - Print in Colour.
 - All dimensions are in meters and levels in meters unless noted otherwise. All dimensions to be verified and are estimates only.
 - There has been an allowance of at least 10m to accommodate clearance between solar panels and the existing Northpower lines, 'Critical Electricity Line'.
 - The 'Solar Area' includes solar panels, power stations, 33 kV reticulation, internal roading and other associated equipment. Quantities will be confirmed during design.
 - Racking solution, solar panels, power stations, roading and general solar farm arrangement to be confirmed during detailed design.
 - Possible racking solutions can be found on drawings 2318415-EL-003 & -005.
 - Indicative power station dimensions can be found on drawing 2318415-EL-007.
 - Exact locations of all parts of the installation to be determined by contractor.
 - Midden to be undisturbed with a 20m buffer.

FOR INFORMATION
NOT FOR CONSTRUCTION

E	Details removed, client comments actioned.	BEP	HP	HP	07/23
F	Client comments actioned, text font & Note 8 updated	TH	HP	HP	08/23
C	Kanuka Block re-mapped & inverter placement moved on Site 2	TH	HP	HP	03/05/23
D	Consent Drawing update	TH	HP	HP	01/06/23
No.	Revision	By	Chk	Appd	Date

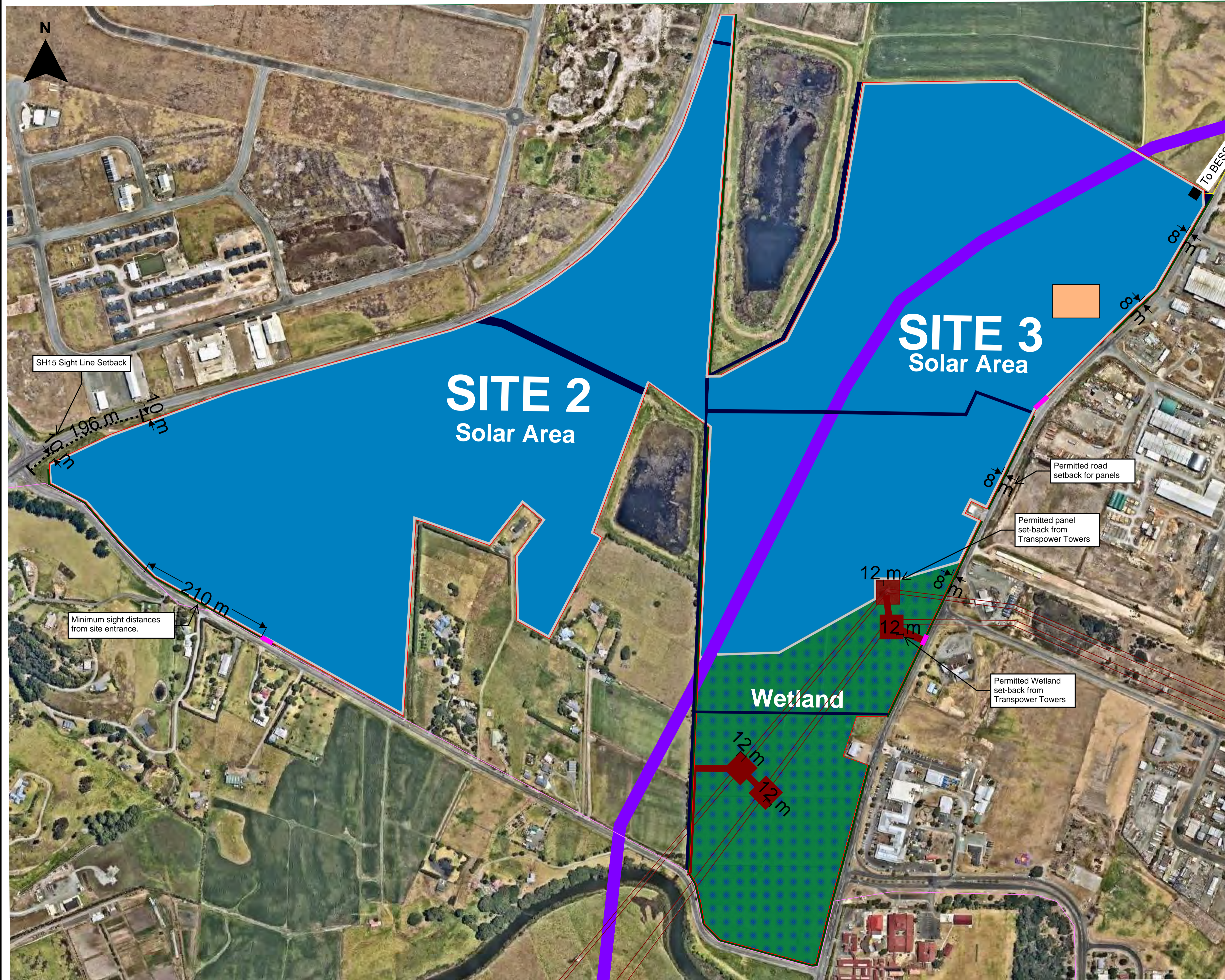
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Reduced Scale (A3)	Drawn	TH	Date
	Dwg Verifier	HP	
	Dwg Check	HP	
* Refer to Revision 1 for Original Signature			



Client: **RUAKAKĀ ENERGY PARK SOLAR FARM**

Title: **SOLAR FARM LAYOUT (1 of 2)**

Discipline	SOLAR
Drawing No.	2318415-EL-001-1
Rev.	F



LEGEND:

Existing:

- Transpower Assets (notes 13 & 19)
- Gas & RAP pipeline easement
- Dwellings to be repurposed as satellite control room & O&M facility
- Existing 11 kV Northpower line (note 18)
- Site drainage

Proposed:

- Perimeter planting (1.8m x 2m)
- Perimeter road (4m)
- Perimeter fencing
- Proposed site access points
- 33 kV Transmission line & OPGW
- Constructed wetland
- Switching Station (15m x 15m)
- Solar Area (Solar panels, power stations, laydown area and internal roading)

- NOTES:**
1. Road to run parallel to pipelines, will encroach on easement but aligned to avoid surcharge load on pipes. Design subject to agreement with Firstgas.
 2. Refer to Ruakaka Solar Farm - Design Basis Report for constraints information.
 3. Refer to Engineering Alternatives and Optimisation Report for wetland information.
 4. Refer to Ruakaka Solar Farm Traffic Impact Assessment for access point information.
 5. Road design assumes that large access vehicles will only use main access road. Recommended route would be to access from Site 2 and leave through Site 3.
 6. Panels set-back is 12m from Transpower towers as per WDC District Plan. Refer to 'Ruakaka Solar Farm - Design Basis Report'.
 7. Do not scale from this drawing.
 8. All dimensions are in meters and levels in meters unless noted otherwise. All dimensions to be verified and are estimates only.
 9. Exact locations of all parts of the installation to be determined by contractor.
 10. Print in Colour.
 11. Setback is 10m from the SH15 Sight Line Setback.
 12. Temporary lay-down areas will be set-up at the beginning of construction. These areas will reduce to the permanent lay-down areas of approximately 25 m x 25 m following completion of construction. Refer to the 'Erosion and Sediment Control Plan - Ruakaka' Report for construction details.
 13. Access to Transpower assets will be agreed with Transpower ahead of construction. Access points & routes are indicative only.
 14. Site 2 minimum sight distances from site access: 210m
 15. Site 3 Permitted road setback for panels: 8m
 18. Existing Northpower 11kV line goes through the site. Line to be relocated as per consultation with Northpower.
 19. No wetland excavation within 12m of tower legs, as per consultation with Transpower.
 20. The 'Solar Area' includes solar panels, power stations, 33 kV reticulation, internal roading and other associated equipment. Quantities will be confirmed during design.
 21. Racking solution, power station, switching station and solar farm layout to be confirmed during detailed design.
 22. Possible racking solutions can be found on drawings 2318415-EL-004, -004A & 2318415-EL-006, -006A.
 23. Indicative power station dimensions can be found on drawings 2318415-EL-008, 008A.
 24. Indicative switching station dimensions can be found on drawing 2318415-EL-009.

**FOR INFORMATION
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E	Details removed, client comments actioned.	BEP	HP	HP	07/23
F	Client comments actioned.	TH	HP	HP	08/23
C	Kanuka Block re-mapped & inverter placement moved on Site 2	TH	HP	HP	03/05/23
D	Consent Drawing update	TH	HP	HP	1/06/23
No.	Revision	By	Chk	Appd	Date

Original Scale (A1)	Design	TH	Approved For Construction*
Reduced Scale (A3)	Drawn	TH	Date
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* Refer to Revision 1 for Original Signature			



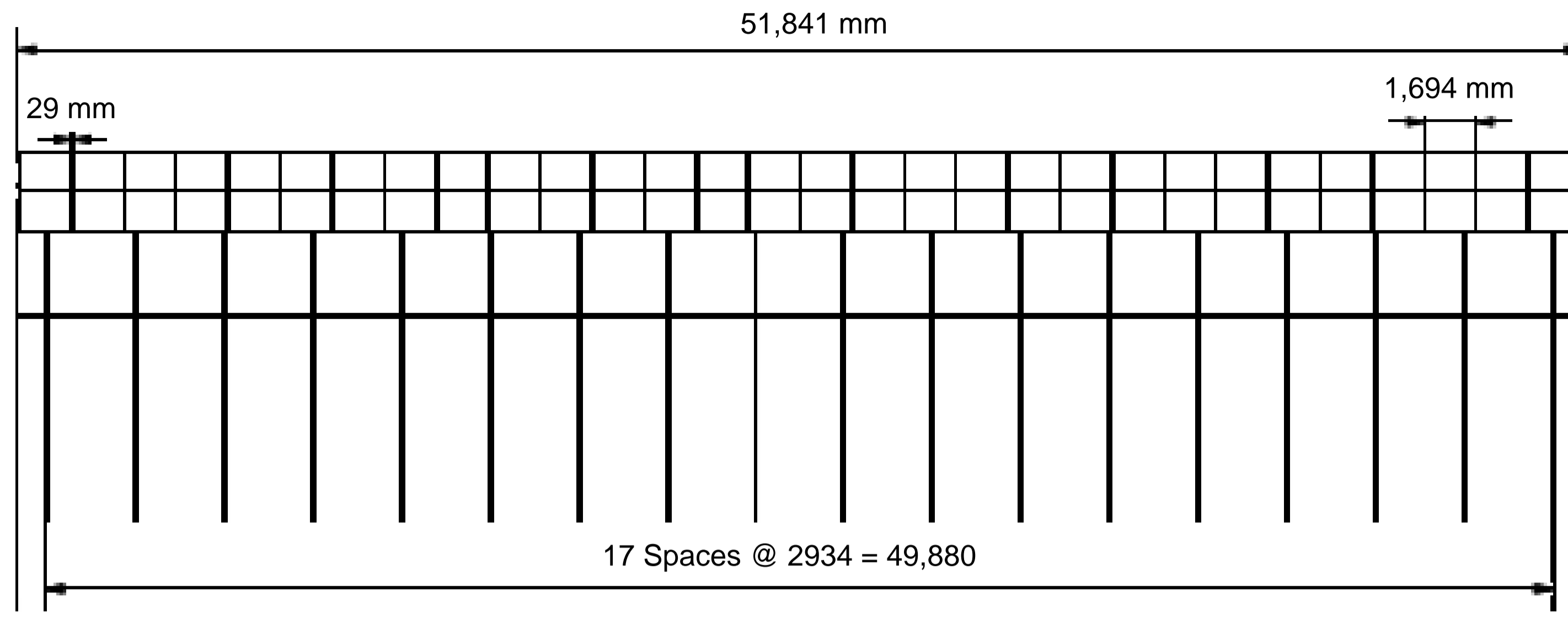
Client: **RUAKAKA ENERGY PARK SOLAR FARM**

Title: **SOLAR FARM LAYOUT (2 of 2)**

Discipline	SOLAR	
Drawing No.	2318415-EL-001-2	Rev. F

INDICATIVE MODULE BAY

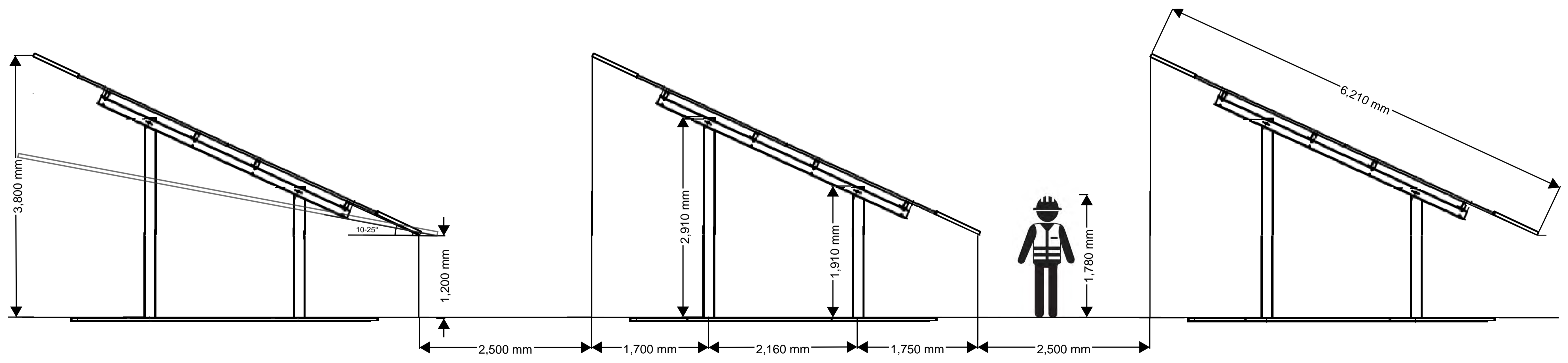
NUMBER OF MODULE BAYS WILL VARY.



INDICATIVE FIXED TILT RACKING SYSTEM



INDICATIVE RACKING DIMENSIONS



Note:
 1. Panel tilt to be confirmed during detailed design. Tilt angle will be between 10 and 25 degrees as shown.
 2. Dimensions are indicative only and to be confirmed during detailed design.
 3. Not to scale

FOR INFORMATION
NOT FOR CONSTRUCTION

A	FIRST ISSUE FOR CONSENT	BEP	HP	HP	05/23
B	Flood clearance height amended, client comments actioned.	BEP	HP	HP	07/23
C	Client comments actioned.	TH	HP	HP	07/23
No.	Revision	By	Chk	Appd	Date

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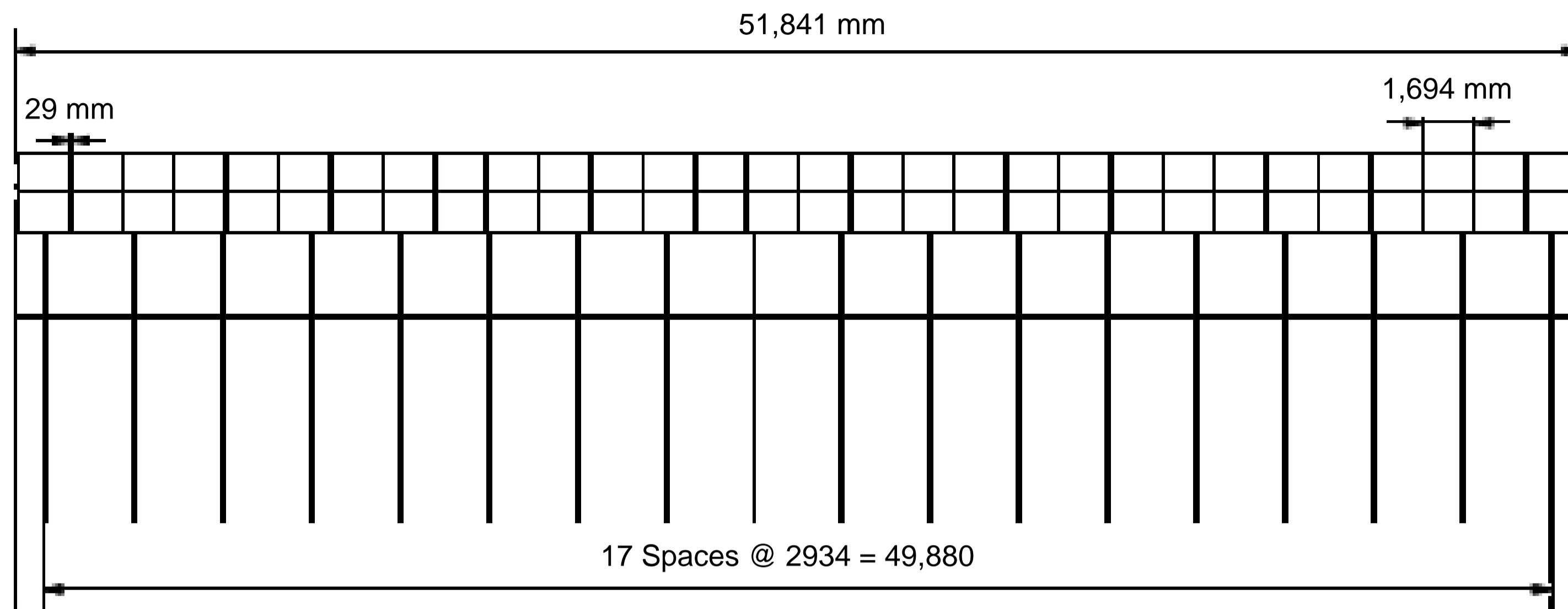
Client: **RUAKĀKĀ ENERGY PARK SOLAR FARM**

Title: **RUAKĀKĀ ENERGY PARK FIXED TILT SYSTEM SITE 1 INDICATIVE PLAN & ELEVATION DRAWING**

Discipline	SOLAR
Drawing No.	2318415-EL-003
Rev.	C

INDICATIVE MODULE BAY

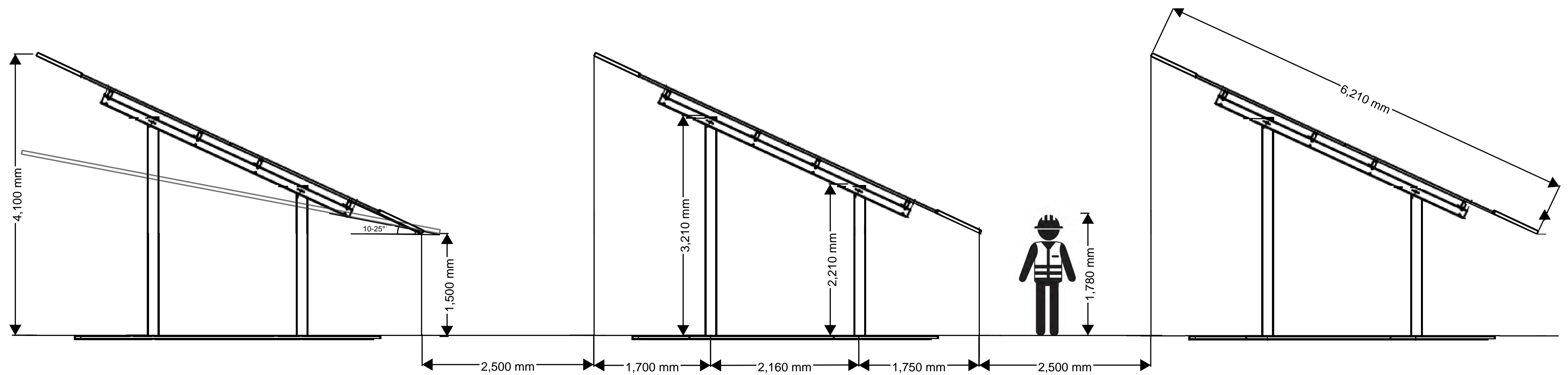
NUMBER OF MODULE BAYS WILL VARY.



INDICATIVE FIXED TILT RACKING SYSTEM



INDICATIVE RACKING DIMENSIONS



- Note:
1. Panel tilt to be confirmed during detailed design. Tilt angle will be between 10 and 25 degrees as shown.
 2. Dimensions are indicative only and to be confirmed during detailed design.
 3. Not to scale

FOR INFORMATION
NOT FOR CONSTRUCTION

A	FIRST ISSUE FOR CONSENT	BEP	HP	HP	07/23
B	Client comments actioned	TH	HP	HP	07/23
No.	Revision	By	Chk	Appd	Date

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	Dwg Check	HP	07/23	

* Refer to Revision 1 for Original Signature



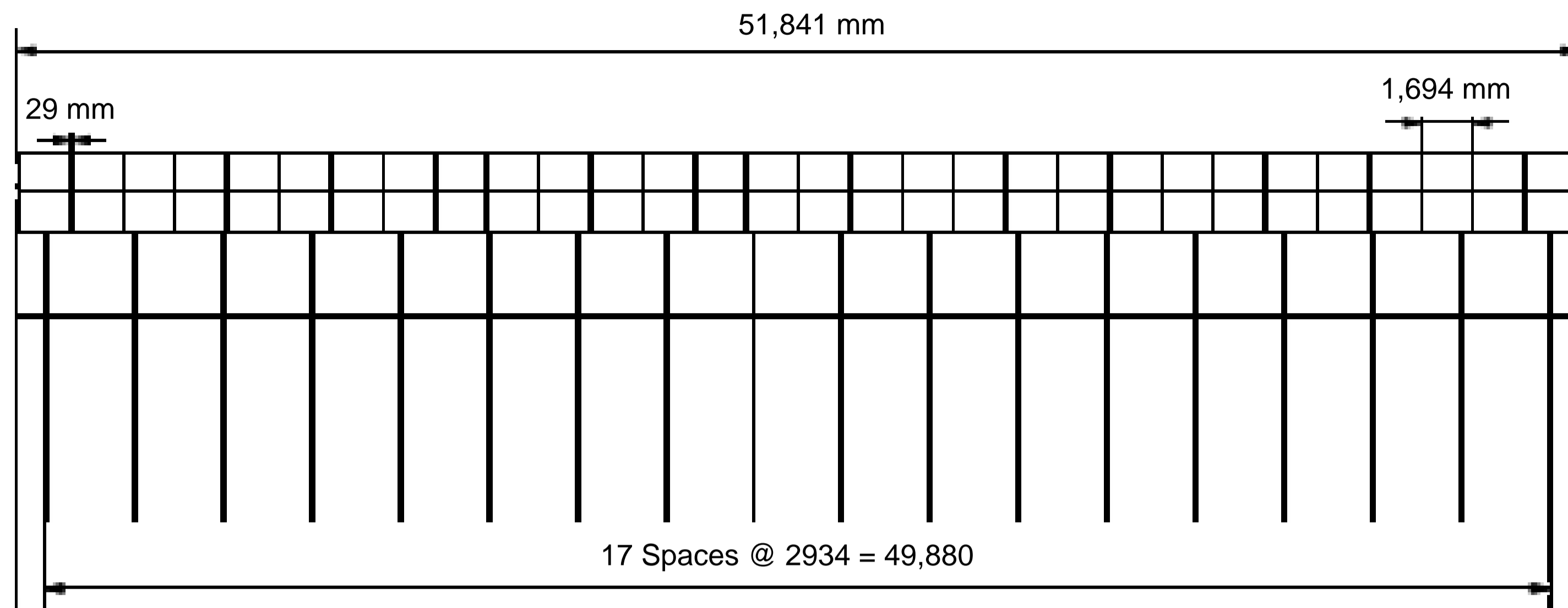
Client: RUAKĀKĀ ENERGY PARK SOLAR FARM

Title: RUAKĀKĀ ENERGY PARK FIXED TILT SYSTEM SITE 2 INDICATIVE PLAN & ELEVATION DRAWING

Discipline	SOLAR
Drawing No.	2318415-EL-004
Rev.	B

INDICATIVE MODULE BAY

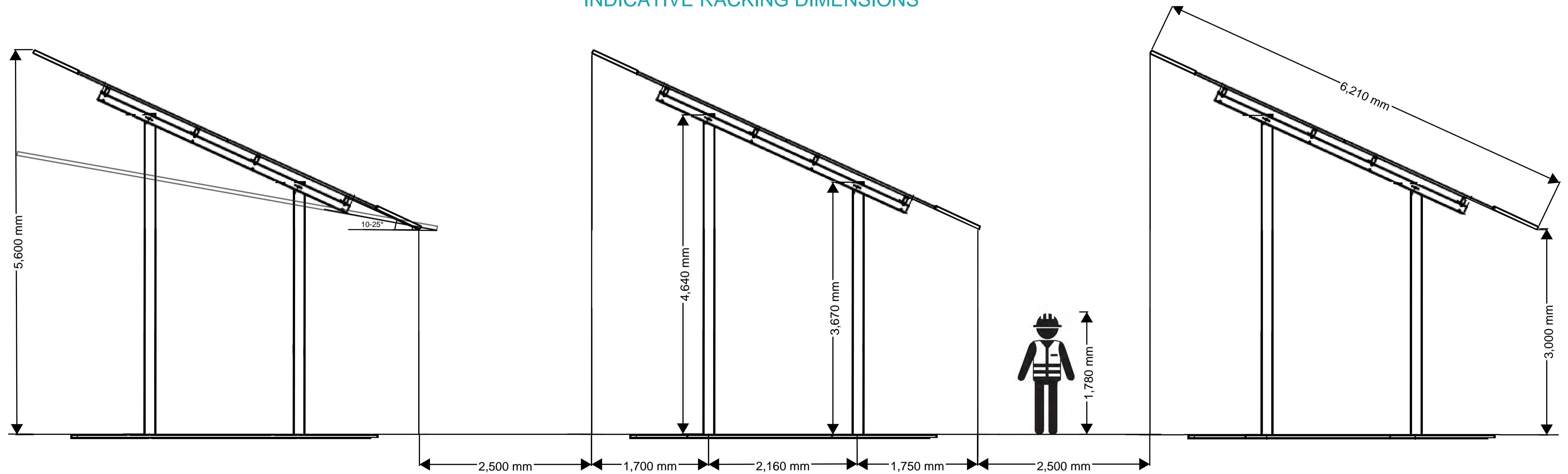
NUMBER OF MODULE BAYS WILL VARY.



INDICATIVE FIXED TILT RACKING SYSTEM



INDICATIVE RACKING DIMENSIONS



- Note:
1. Panel tilt to be confirmed during detailed design. Tilt angle will be between 10 and 25 degrees as shown.
 2. Dimensions are indicative only and to be confirmed during detailed design.
 3. Not to scale.

FOR INFORMATION
NOT FOR CONSTRUCTION

A	FIRST ISSUE FOR CONSENT	BEP	HP	HP	05/23
B	Flood clearance height amended, client comments actioned	BEP	HP	HP	07/23
C	Client comments actioned	TH	HP	HP	07/23
No.	Revision	By	Chk	Appd	Date

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* Refer to Revision 1 for Original Signature



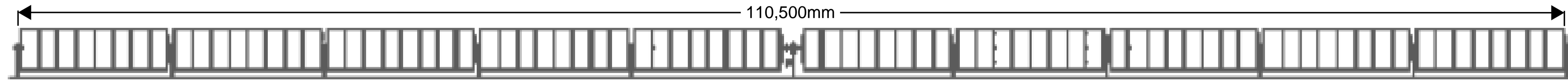
Client: **RUAKAKA ENERGY PARK SOLAR FARM**

Project: **RUAKAKA ENERGY PARK FIXED TILT SYSTEM SITE 3 INDICATIVE PLAN & ELEVATION DRAWING**

Discipline	SOLAR
Drawing No.	2318415-EL-004A
Rev.	C

INDICATIVE MODULE BAY

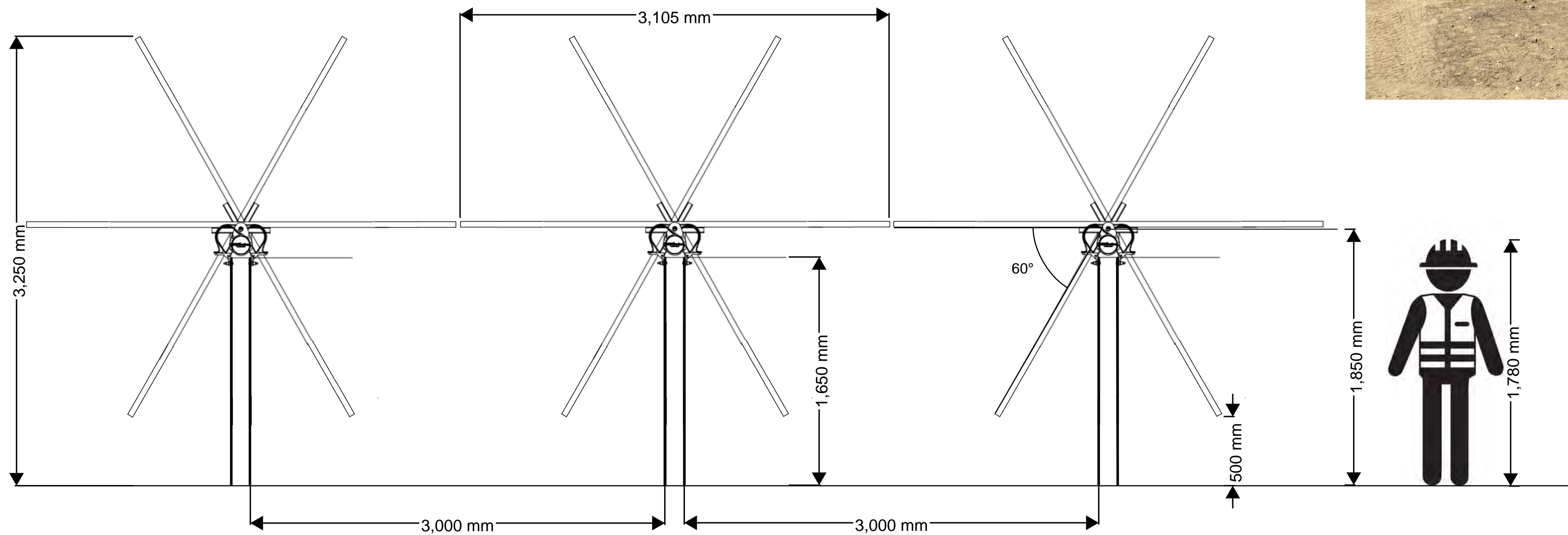
85m ROW WITH 80 PANELS MOUNTED.
ACTUAL NUMBER OF MODULE BAYS WILL VARY.



INDICATIVE SINGLE AXIS TRACKING RACKING SYSTEM



INDICATIVE RACKING DIMENSIONS



**FOR INFORMATION
NOT FOR CONSTRUCTION**

A	FIRST ISSUE FOR CONSENT	BEP	HP	HP	05/23
B	Flood clearance height amended, client comments actioned.	BEP	HP	HP	07/23
C	Drawing title and heights updated to enable clearance from ground	TH	HP	HP	07/23
No.	Revision	By	Chk	Appd	Date

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Reduced Scale (A3)	Drawn	BEP	07/23	Date
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	Dwg Check	HP	05/23	

* Refer to Revision 1 for Original Signature



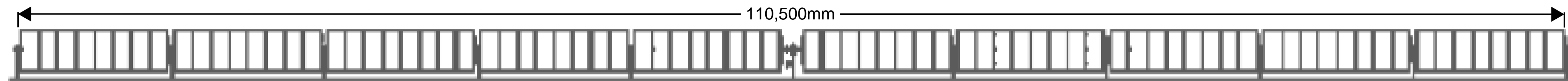
Client: RUAKĀKĀ ENERGY PARK SOLAR FARM

Project: RUAKĀKĀ ENERGY PARK SINGLE-AXIS-TRACKING SYSTEM SITE 1 INDICATIVE PLAN & ELEVATION DRAWING

Discipline	SOLAR
Drawing No.	2318415-EL-005
Rev.	C

INDICATIVE MODULE BAY

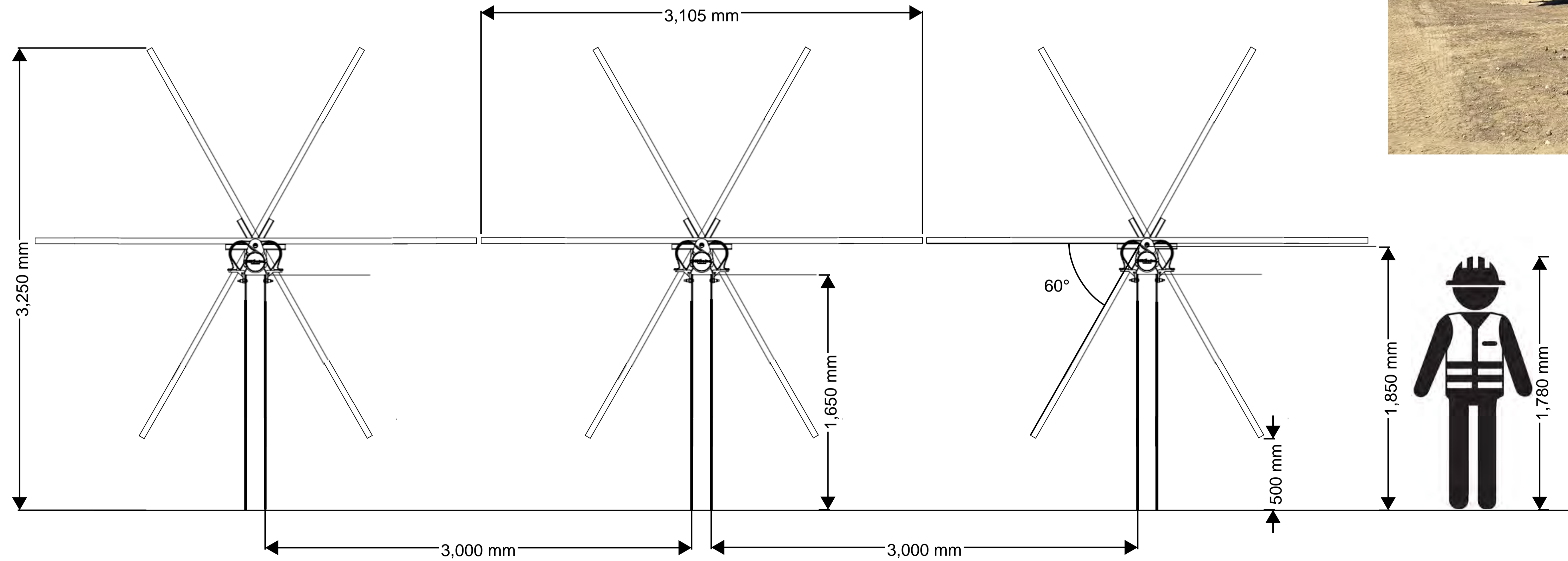
85m ROW WITH 80 PANELS MOUNTED.
ACTUAL NUMBER OF MODULE BAYS WILL VARY.



INDICATIVE SINGLE AXIS TRACKING RACKING SYSTEM



INDICATIVE RACKING DIMENSIONS



**FOR INFORMATION
NOT FOR CONSTRUCTION**

A	FIRST ISSUE FOR CONSENT	BEP	HP	HP	07/23
B	Drawing title and heights updated				
No.	Revision	By	Chk	Appd	Date

Original Scale (A1)	Design	BEP	07/23	Approved For Construction*
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Reduced Scale (A3)	Dwg Verifier	HP	07/23	Date
	Dwg Check	HP	07/23	

* Refer to Revision 1 for Original Signature

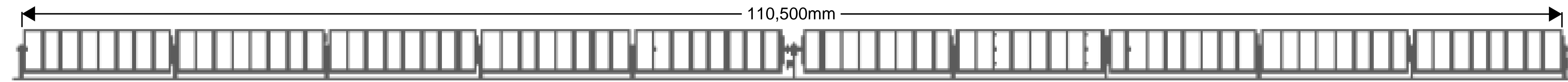


Client: **RUAKĀKĀ ENERGY PARK SOLAR FARM**

Title: **RUAKĀKĀ ENERGY PARK SINGLE-AXIS-TRACKING SYSTEM SITE 2 INDICATIVE PLAN & ELEVATION DRAWING**

Discipline	SOLAR
Drawing No.	2318415-EL-006
Rev.	B

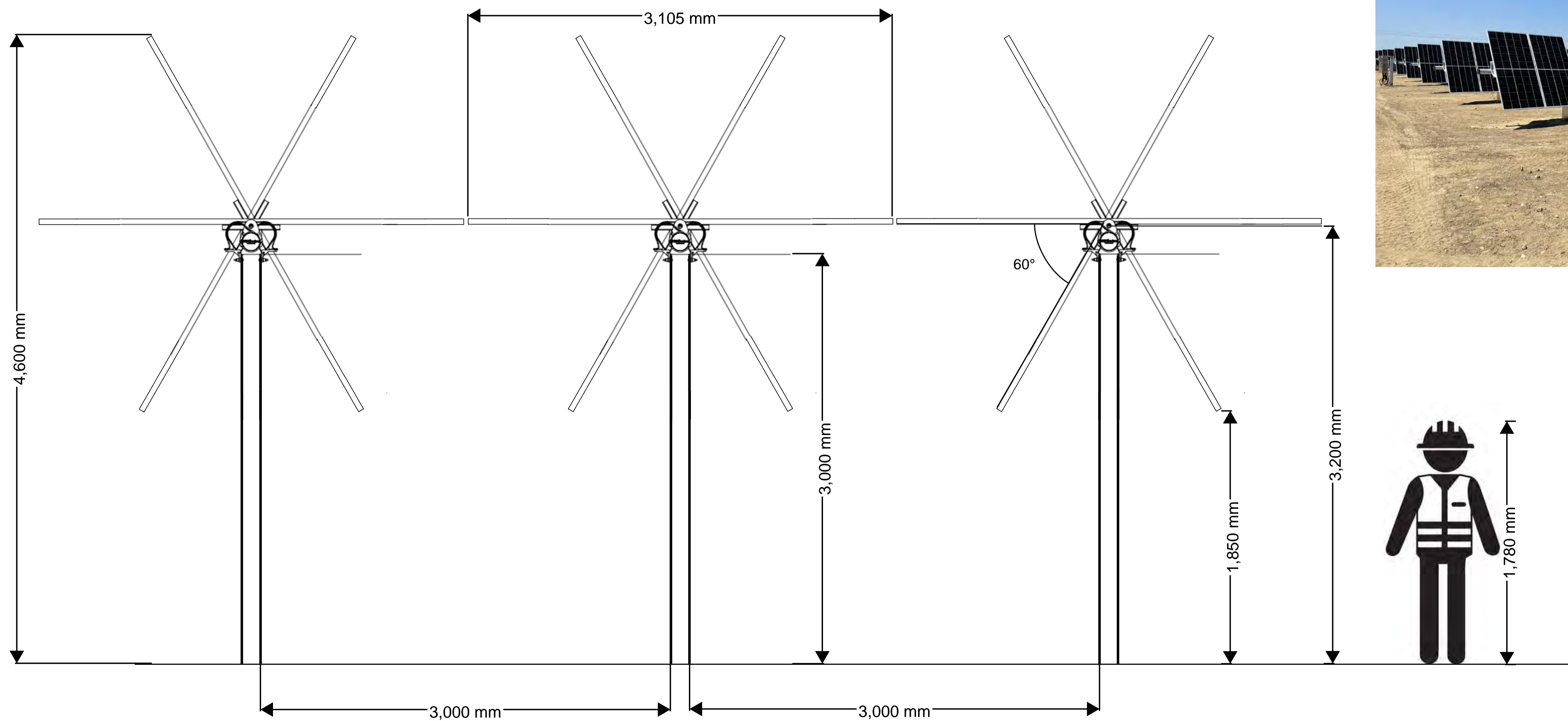
INDICATIVE MODULE BAY
 85m ROW WITH 80 PANELS MOUNTED.
 ACTUAL NUMBER OF MODULE BAYS WILL VARY.



INDICATIVE SINGLE AXIS TRACKING RACKING SYSTEM



INDICATIVE RACKING DIMENSIONS



**FOR INFORMATION
 NOT FOR CONSTRUCTION**

A	FIRST ISSUE FOR CONSENT	BEP	HP	HP	05/23
B	Flood clearance height amended, client comments actioned.	BEP	HP	HP	07/23
C	Drawing title and heights updated	TH	HP	HP	07/23
No.	Revision	By	Chk	Appd	Date

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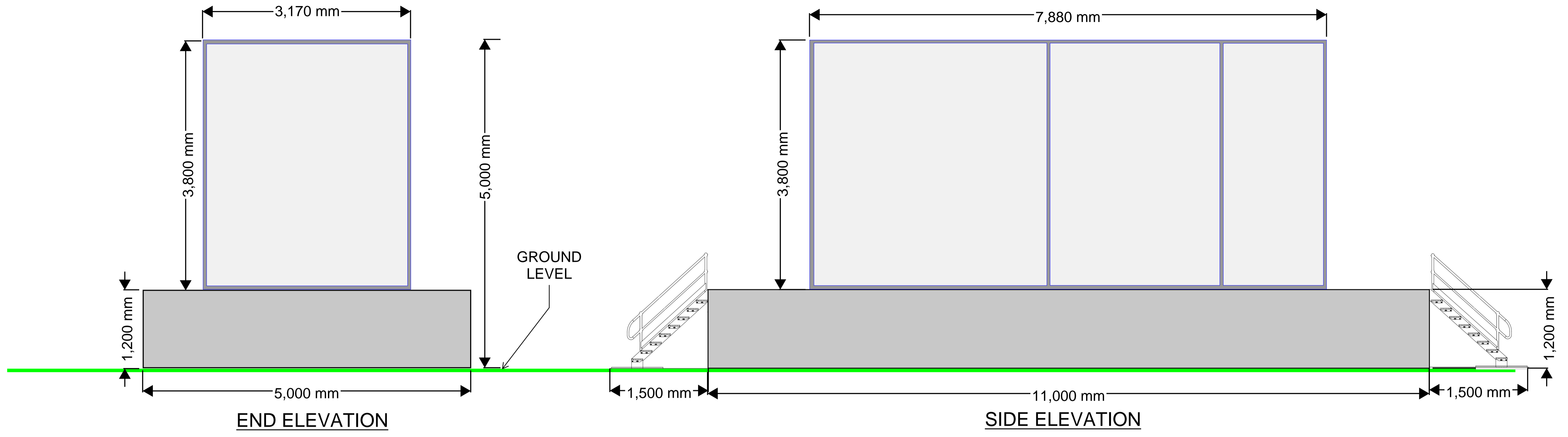
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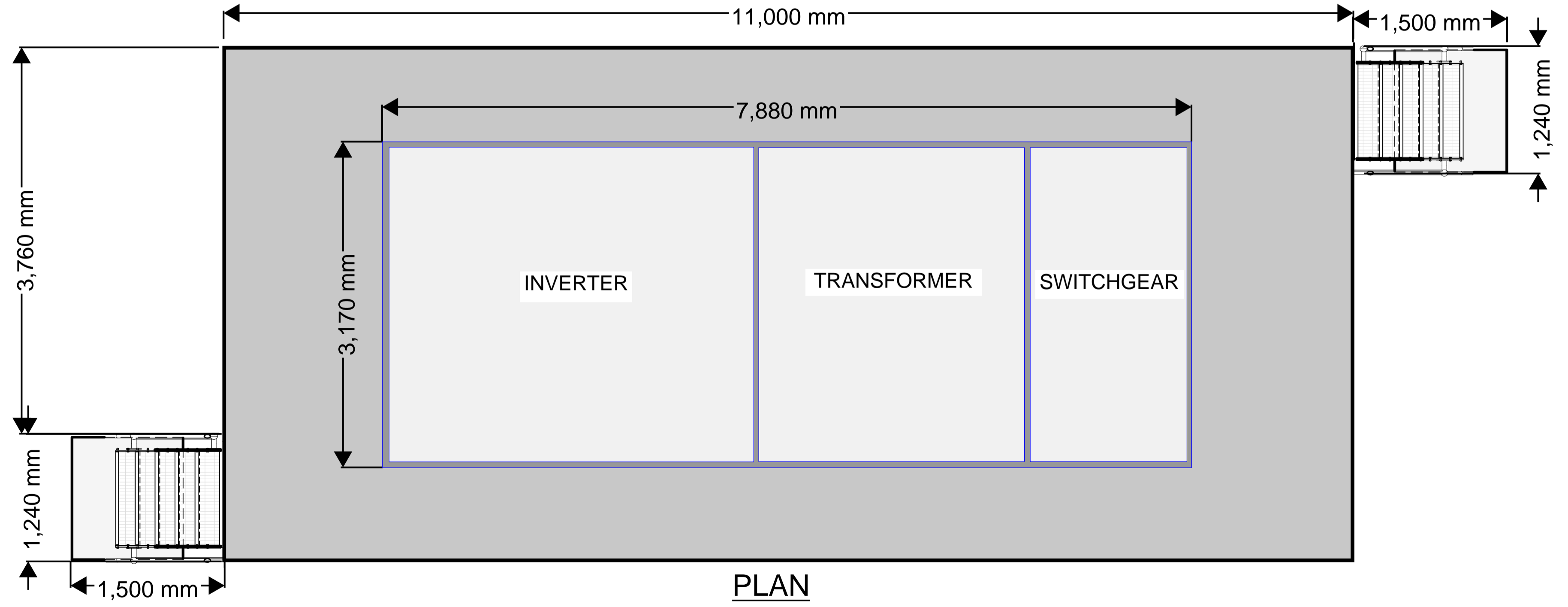
Client: **RUAKAKA ENERGY PARK SOLAR FARM**

Title: **RUAKAKA ENERGY PARK SINGLE-AXIS-TRACKING SYSTEM SITE 3 INDICATIVE PLAN & ELEVATION DRAWING**

Discipline	SOLAR
Drawing No.	2318415-EL-006A
Rev.	C



INDICATIVE POWER INVERTER STATION



PLAN

Note:
Inverter platform will be piles or a concrete pad on raised earthworks platform. To be decided during detailed design.

**FOR INFORMATION
NOT FOR CONSTRUCTION**

A	FIRST ISSUE FOR CONSENT	BEP	HP	HP	05/23
B	Flood clearance height amended, note added.	BEP	HP	HP	07/23
C	Increase MVPS height	TH	HP	HP	07/23
No.	Revision	By	Chk	Appd	Date

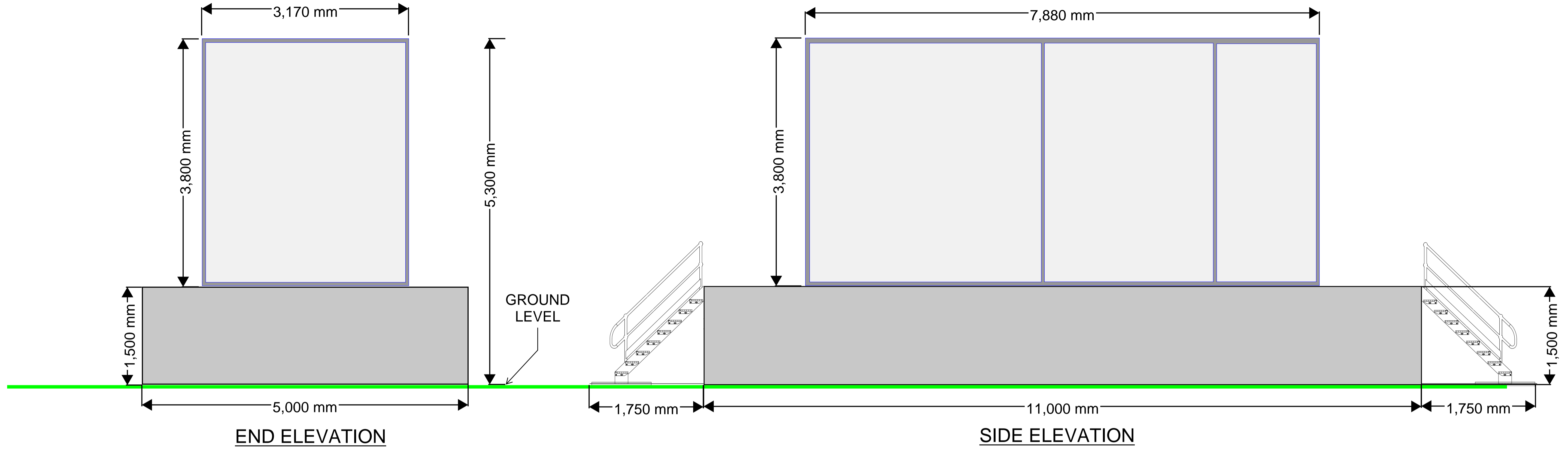
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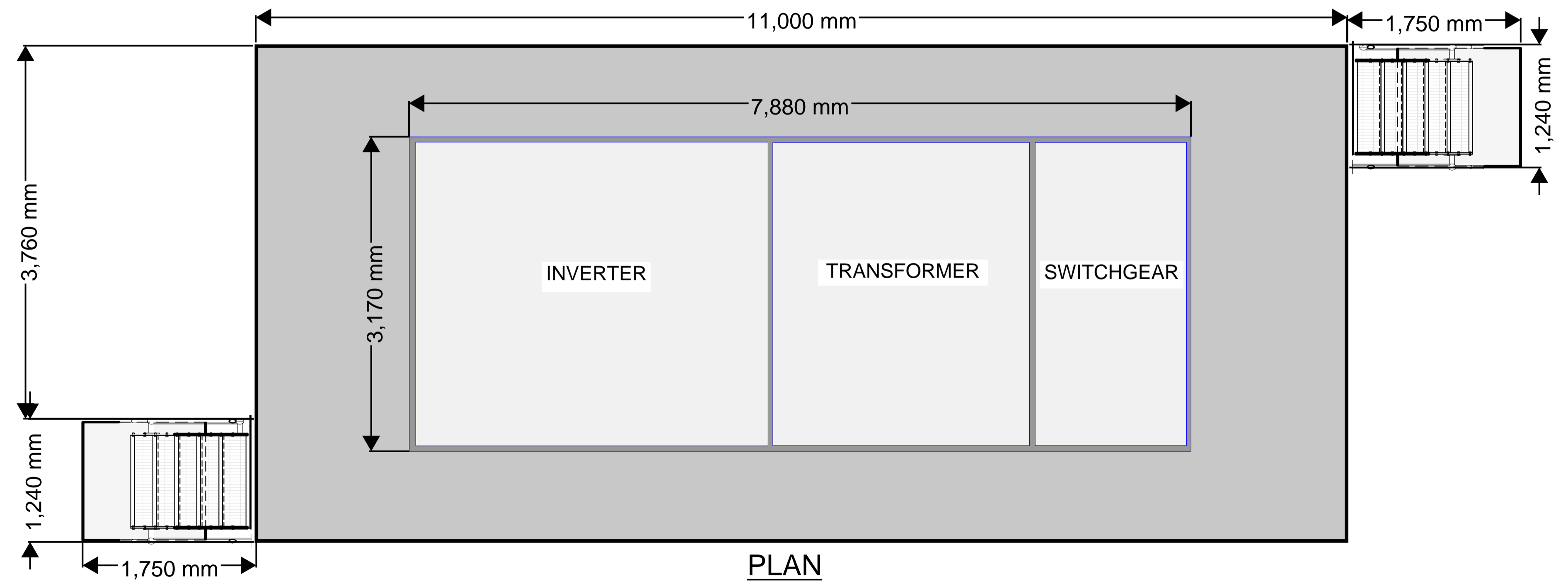
Client: **RUAKAKA ENERGY PARK SOLAR FARM**

Project: **RUAKAKA ENERGY PARK INVERTER POWER STATION SITE 1 INDICATIVE PLAN & ELEVATION DRAWING**

Discipline	SOLAR
Drawing No.	2318415-EL-007
Rev.	C



INDICATIVE POWER INVERTER STATION



PLAN

Note:
Inverter platform will be piles or a concrete pad on raised earthworks platform. To be decided during detailed design.

**FOR INFORMATION
NOT FOR CONSTRUCTION**

A	FIRST ISSUE FOR CONSENT	BEP	HP	HP	07/23
B	Increase MVPS height	TH	HP	HP	07/23
No.	Revision	By	Chk	Appd	Date

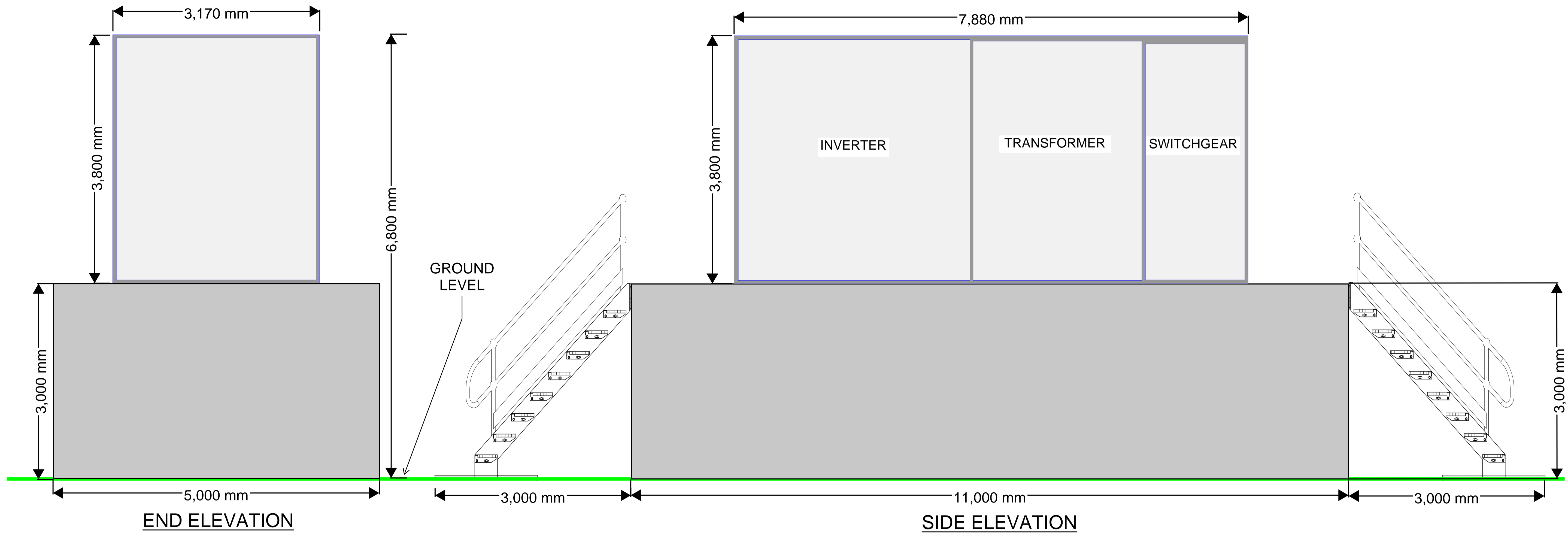
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* Refer to Revision 1 for Original Signature				



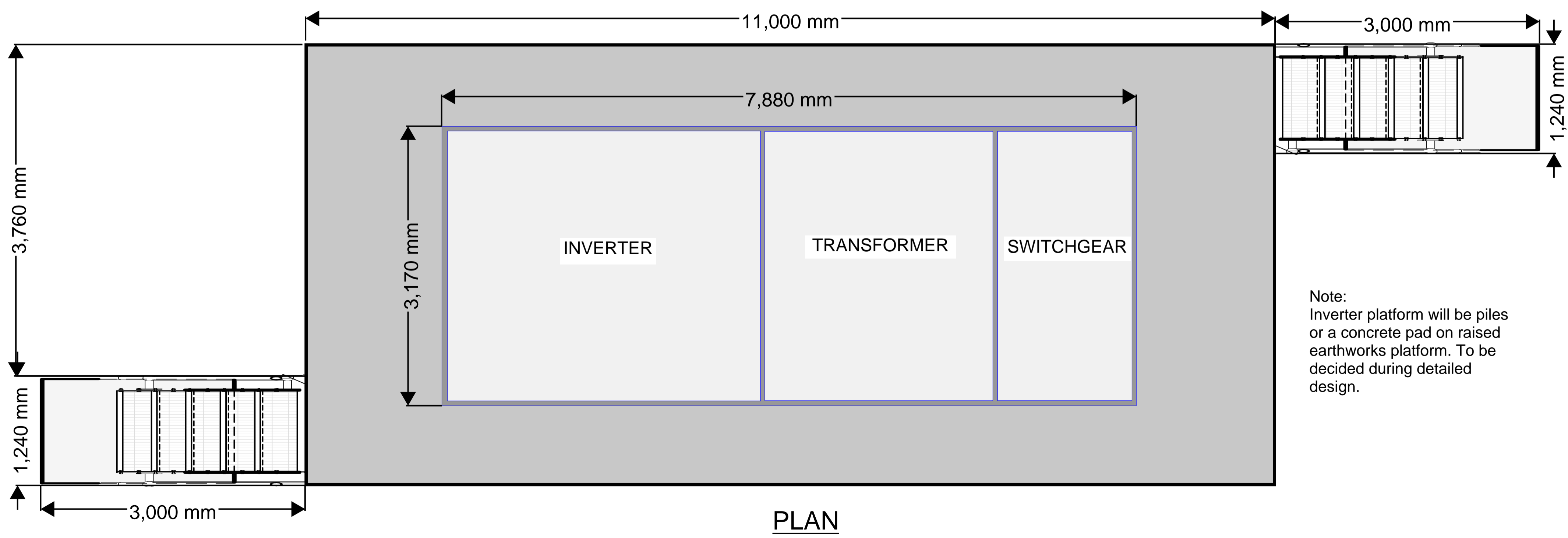
Client: RUAKĀKĀ ENERGY PARK SOLAR FARM

Project: RUAKĀKĀ ENERGY PARK INVERTER POWER STATION SITE 2 INDICATIVE PLAN & ELEVATION DRAWING

Discipline	SOLAR
Drawing No.	2318415-EL-007A
Rev.	B



INDICATIVE POWER INVERTER STATION



PLAN

**FOR INFORMATION
NOT FOR CONSTRUCTION**

A	FIRST ISSUE FOR CONSENT	BEP	HP	HP	05/23
B	Flood clearance height revised, note added.	BEP	HP	HP	07/23
C	Increase MVPS height	TH	HP	HP	07/23
No.	Revision	By	Chk	Appd	Date

Original Scale (A1)	Design	BEP	05/23	Approved For Construction*
Reduced Scale (A3)	Drawn	BEP	05/23	Date
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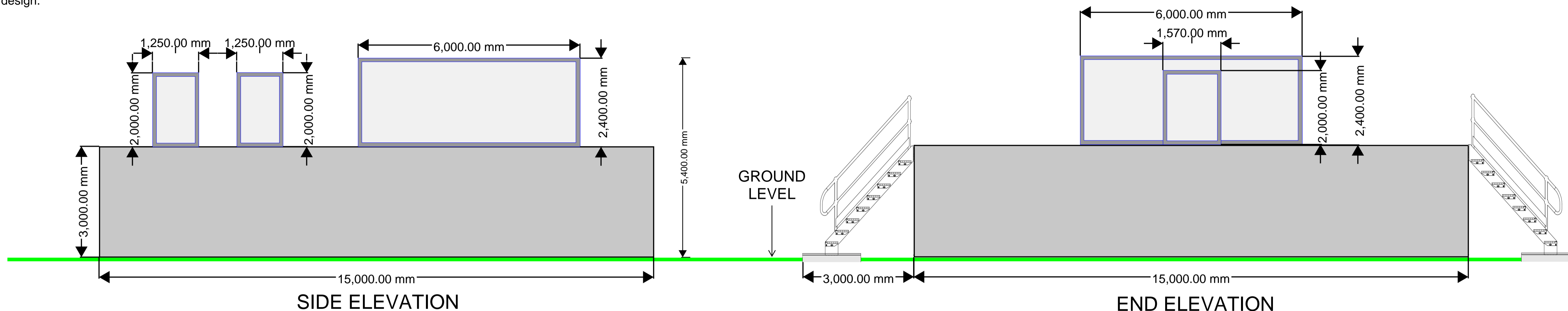
Client: **RUAKĀKĀ ENERGY PARK SOLAR FARM**

Title: **RUAKĀKĀ ENERGY PARK INVERTER POWER STATION SITE 3 INDICATIVE PLAN & ELEVATION DRAWING**

Discipline	SOLAR
Drawing No.	2318415-EL-008
Rev.	C

INDICATIVE CONTROL SHED AND RMU DIMENSIONS

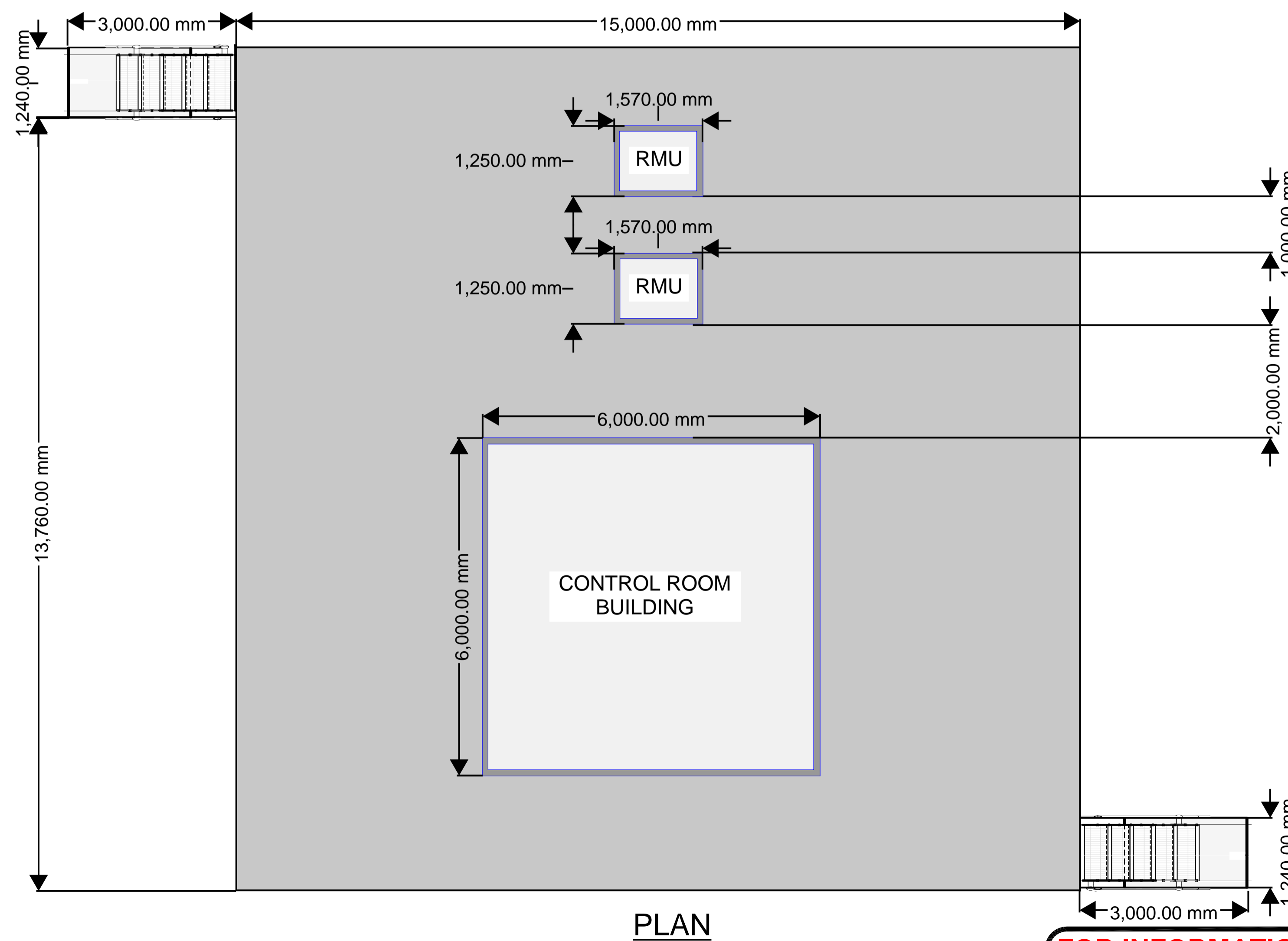
- Notes:
 1) The Control Shed will be on Site 3
 2) Inverter platform will be piles or a concrete pad on raised earthworks platform. To be decided detailed design.



**INDICATIVE OUTDOOR 3-WAY
33kV RING MAIN UNIT**



**INDICATIVE CONTROL ROOM
BUILDING**



PLAN

**FOR INFORMATION
NOT FOR CONSTRUCTION**

A	FIRST ISSUE FOR CONSENT	BEP	HP	HP	05/23
B	Maximum height added	TH	HP	HP	08/23
No.	Revision	By	Chk	Appd	Date

Original Scale (A1)	Design	BEP	05/23	Approved For Construction*
Reduced Scale (A3)	Drawn	BEP	05/23	Date
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	Drwg Check	HP	05/23	

* Refer to Revision 1 for Original Signature



Client: RUAKĀKĀ ENERGY PARK SOLAR FARM

Project: RUAKĀKĀ ENERGY PARK SWITCHING STATION
INDICATIVE PLAN & ELEVATION DRAWING

Discipline: SOLAR
 Drawing No.: 2318415-EL-011
 Rev: B