

Project

Community Resilience Enhancement Project
(Additional Financing) THABAT AF
Component 1 (Community Led Delivery of
Basic Services)

Organization



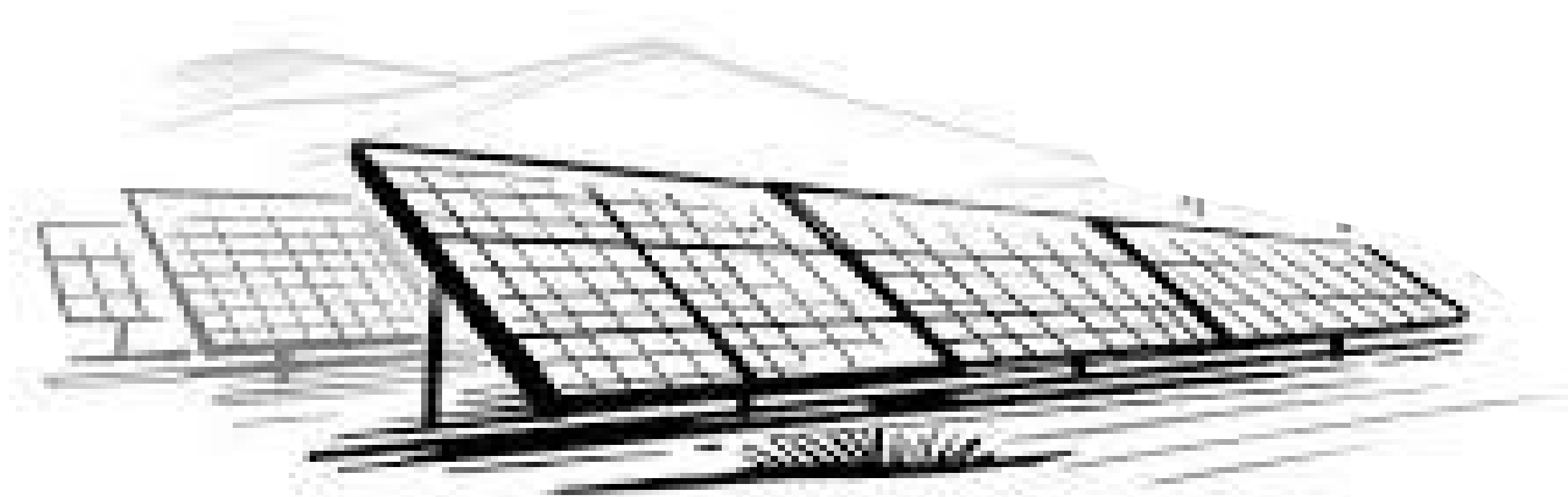
Mercy Corps Europe,
Sudan

Donor



Solar Panel Module Typical Design

Solar System for Schools



CONSULTANT :

Abbas Abdalwahab Abdulraheem

General Notes for Solar System Installation:

Site Assessment

- Evaluate solar exposure, shading, and roof orientation.
- Confirm structural integrity for mounting panels.
- Ensure access for maintenance and cleaning.

2. System Components

- Solar Panels: Select based on wattage, efficiency, and available space.
- Inverter: Match capacity to panel output; choose grid-tied or off-grid type.
- Battery Bank (if applicable): Size based on daily load and autonomy requirements.
- Charge Controller: Prevents battery overcharging and regulates input.
- Mounting Structure: Use corrosion-resistant, wind-rated materials.
- Cabling & Protection: Use UV-resistant cables, proper fuses, and grounding.

3. Installation Standards

- Follow IEC and local electrical codes.
- Maintain safe clearances between components.
- Use weatherproof enclosures for outdoor electronics.
- Label all components for identification and troubleshooting.

4. Safety Protocols

- Disconnect power before handling components.
- Use insulated tools and personal protective equipment.
- Avoid installation during wet or windy conditions.
- Ensure proper grounding and surge protection.

5. Commissioning & Testing

- Verify voltage, current, and inverter output.
- Test battery charge/discharge cycles.
- Monitor system performance for 48-72 hours before handover.

Capacity (Wattage)	Typical Dimensions (cm)	Cell Type	Weight (kg)	Use Case
540W	227 × 113 × 3.5	144 half-cut cells	~28	Commercial/Utility
600W	233 × 113 × 3.5	210mm cells	~30	Utility-scale
660W	238 × 130 × 3.5	210mm cells	~32	Utility-scale
700W	245 × 130 × 3.5	210mm cells	~34	Utility-scale

NOTES :

KEY PLAN

	Drawn	Chkd.

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No.	Description:	Date

Revisions

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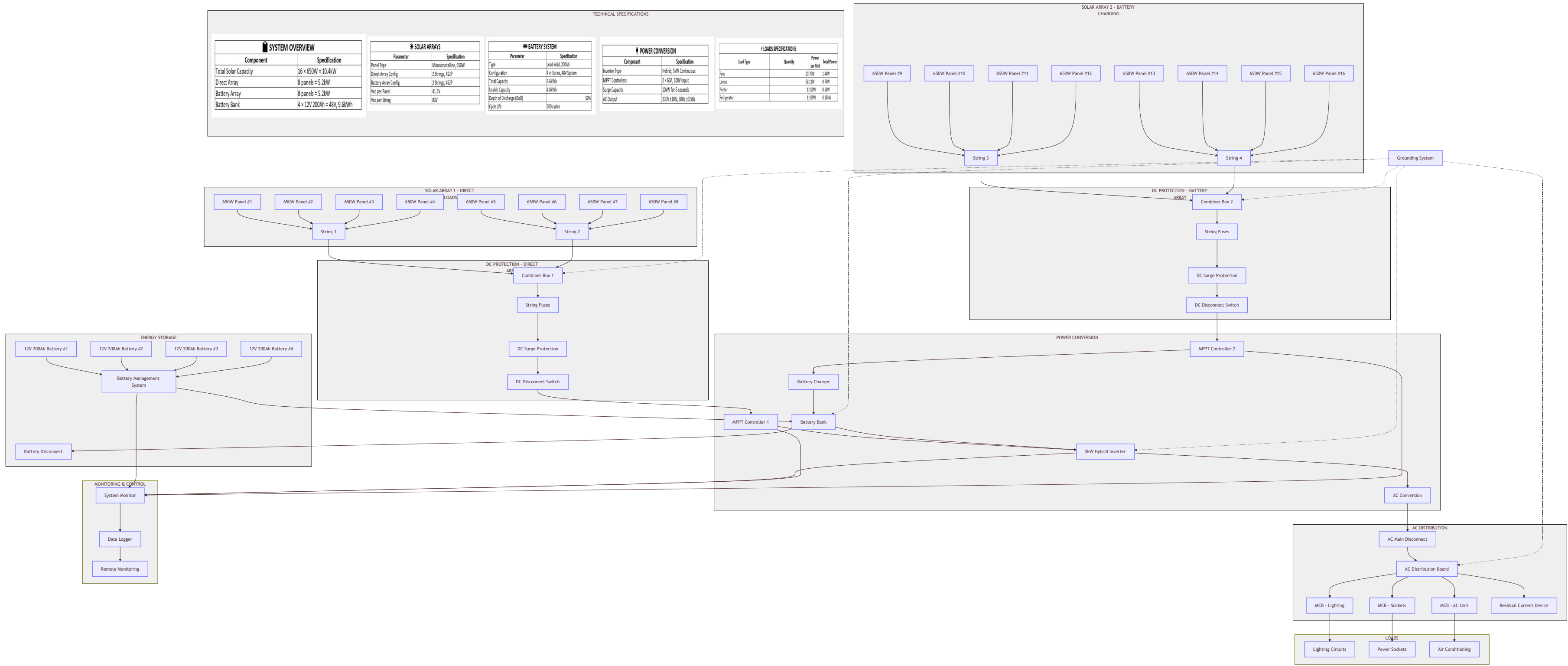
CONSULTANT :

Abbas Abdalwahab Abdulraheem

Drawing Title:

Solar Panel Typical Module Design Notes

Org. Sheet Size:	Date: October 2025	
A3	Scale:	
Project No.	Sheet No.	Rev. No.
PO# 40452947	A.01.01	0



NOTES:

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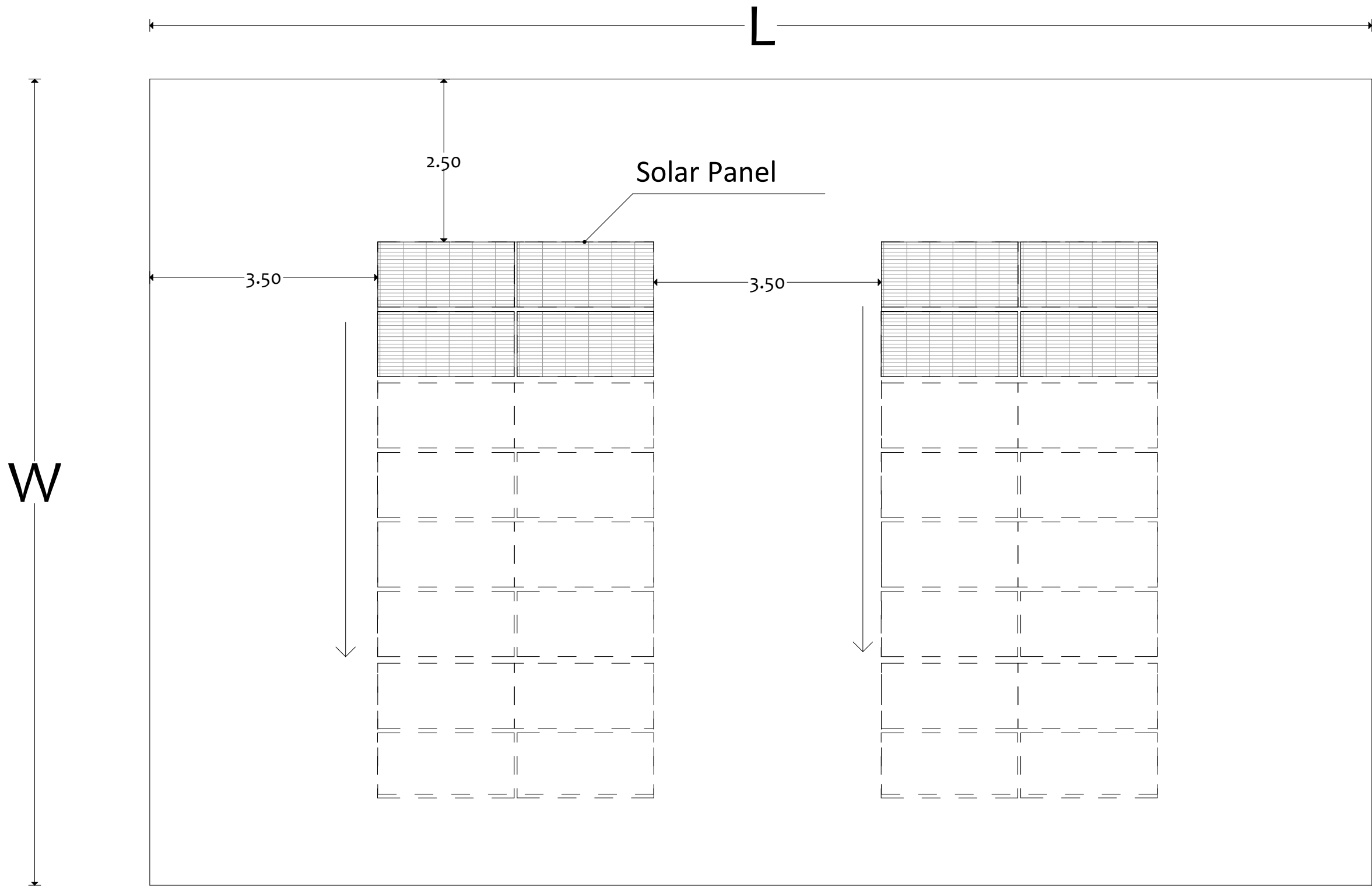
CONSULTANT :

Abbas Abdalwahab Abdulaheem

Drawing Title:

Solar Panel Diagram

Org.Sheet Size:	Date: August-2025	
A3	Scale:	
Project No.	Sheet No.	Rev. No.
PO# 40452947	A.01.02	0



Top View
Scale 1:50

NOTES:

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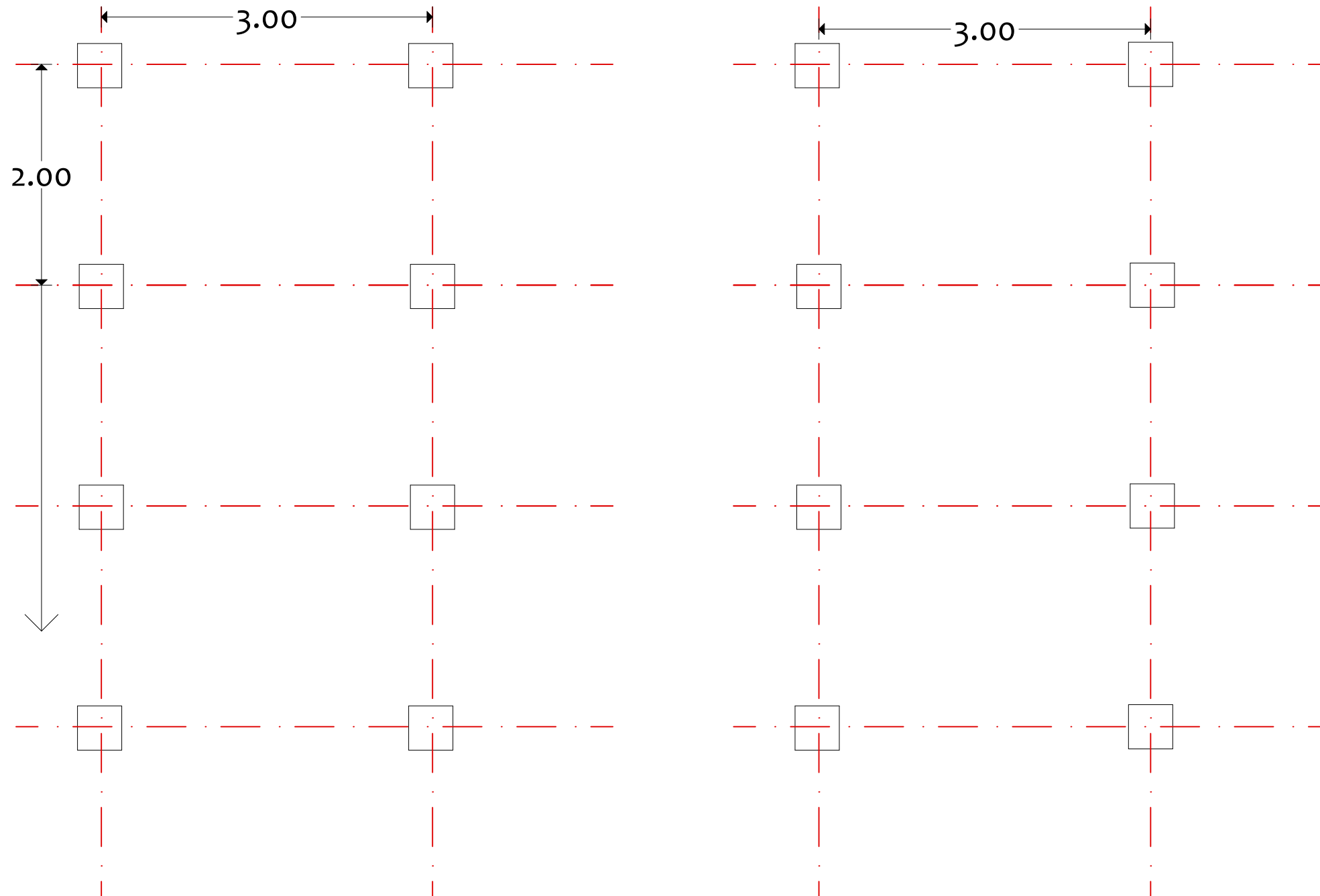
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Abbas Abdalwahab Abdulraheem

Drawing Title:

Solar Panel Typical Module Design
Top View

Org.Sheet Size:	Date: October 2025	
A3	Scale:	
Project No. PO# 40452947	Sheet No. A.01.03	Rev. No. 0



Foundation plan
Scale 1:50

NOTES :

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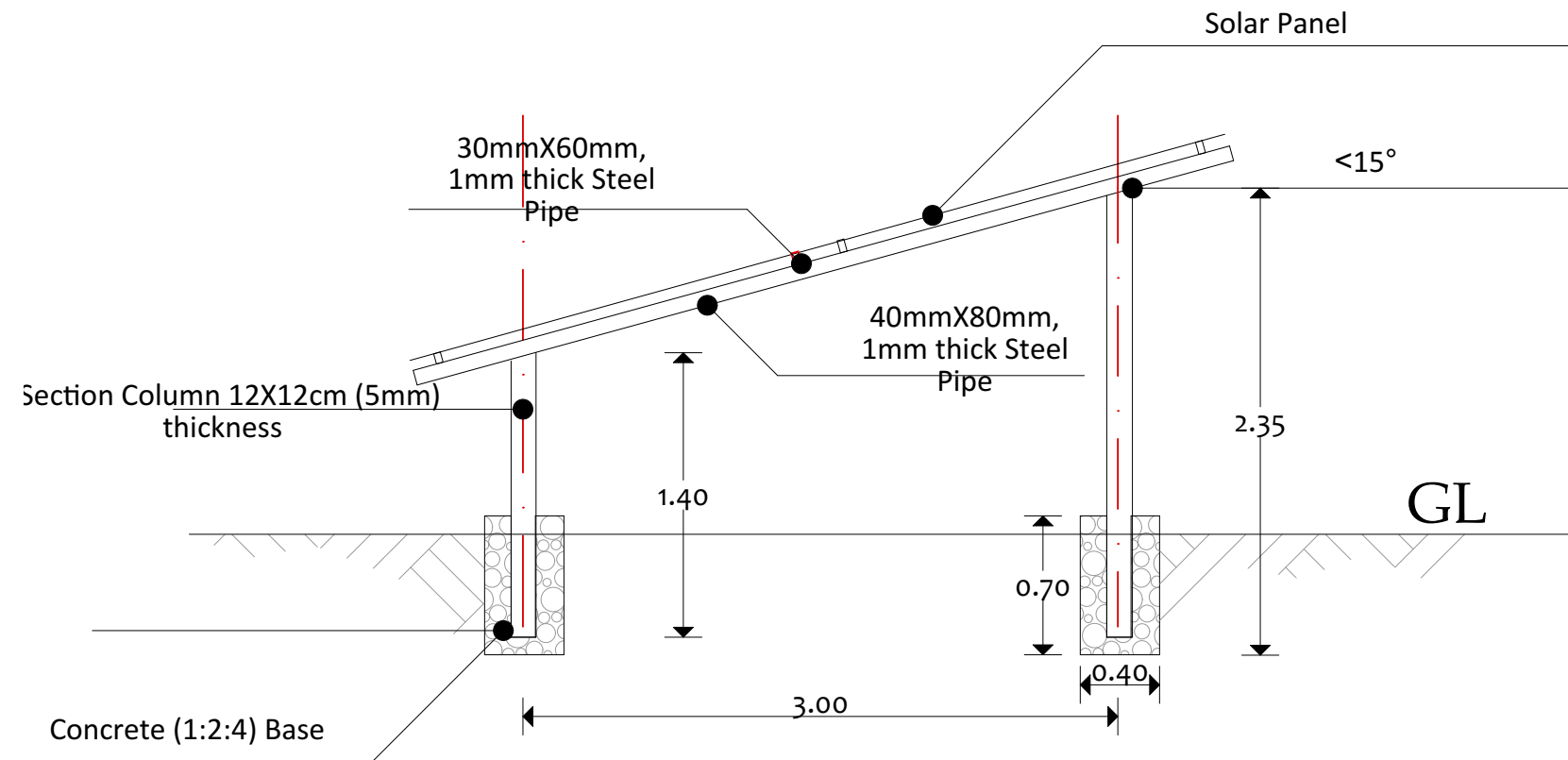
CONSULTANT :

Abbas Abdalwahab Abdulraheem

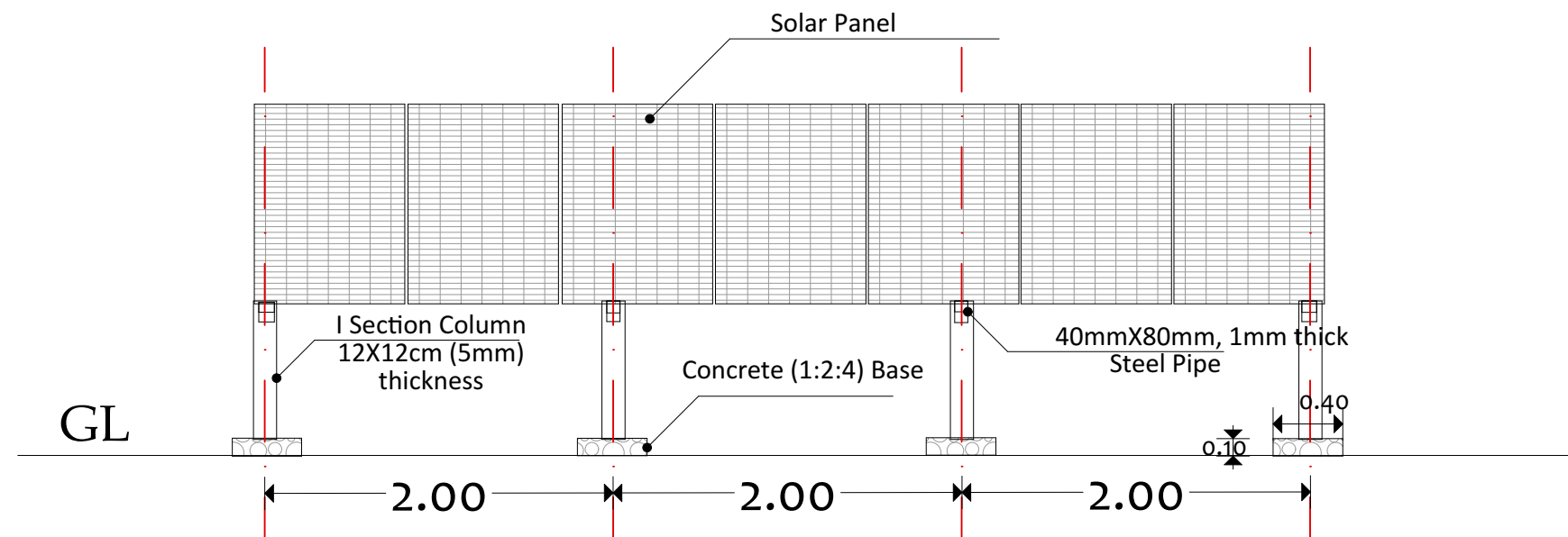
Drawing Title:

Solar Panel Typical Module Design
Foundation Plan

Org.Sheet Size: A3	Date: October 2025	
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Project No. PO# 40452947	Sheet No. A.01.04	Rev. No. 0



Side View
Scale 1:40



Fornt View
Scale 1:40

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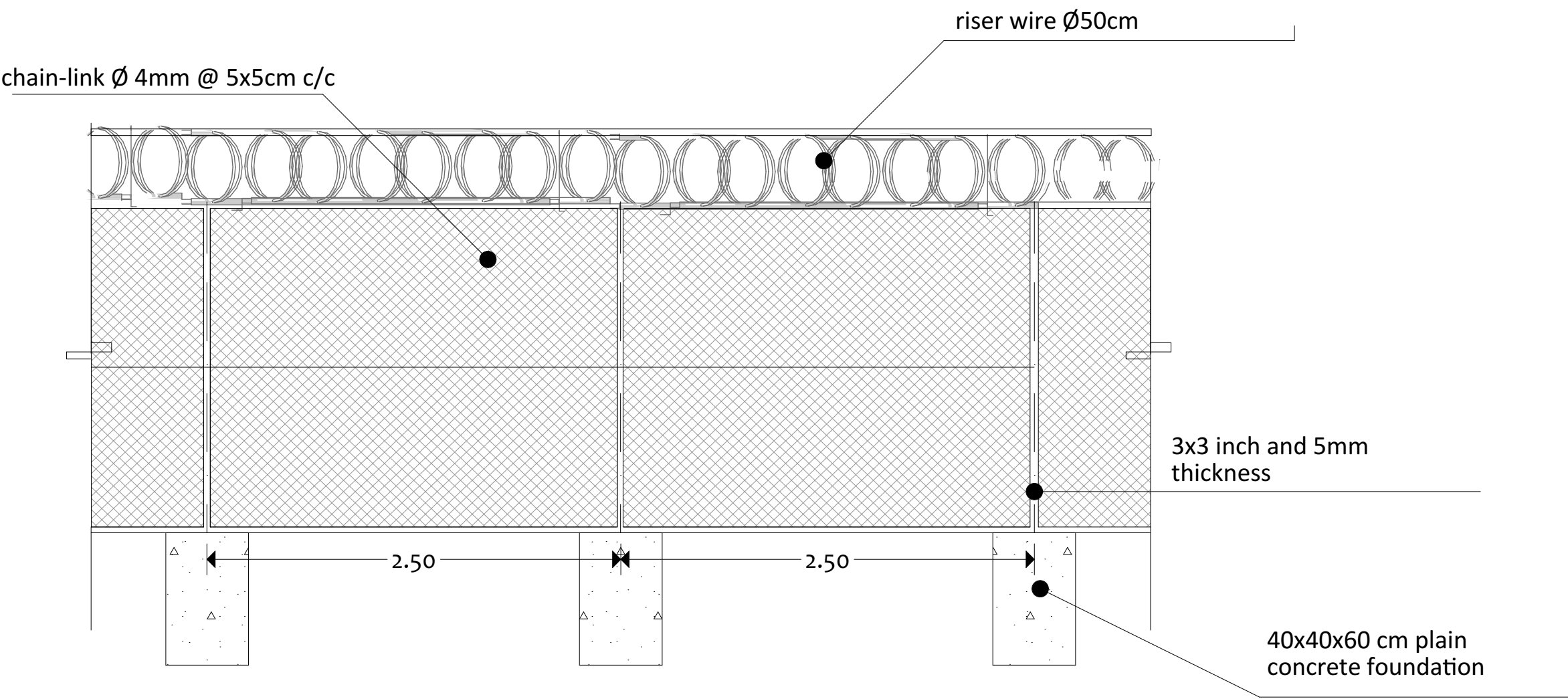
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Drawing Title:

Solar Panel Typical Module Design
Side and Front View

Org. Sheet Size:	Date: October 2025	
A3	Scale:	
Project No. PO# 40452947	Sheet No. A.01.05	Rev. No. 0



Fence Design
Scale 1:40

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CONSULTANT :

Abbas Abdalwahab Abdulraheem

Drawing Title:

Solar Panel Typical Module Design
Fence Design

Org.Sheet Size:	Date: October 2025	
A3	Scale:	
Project No. PO# 40452947	Sheet No. A.01.06	Rev. No. 0