



**KUGA
ENERGY**



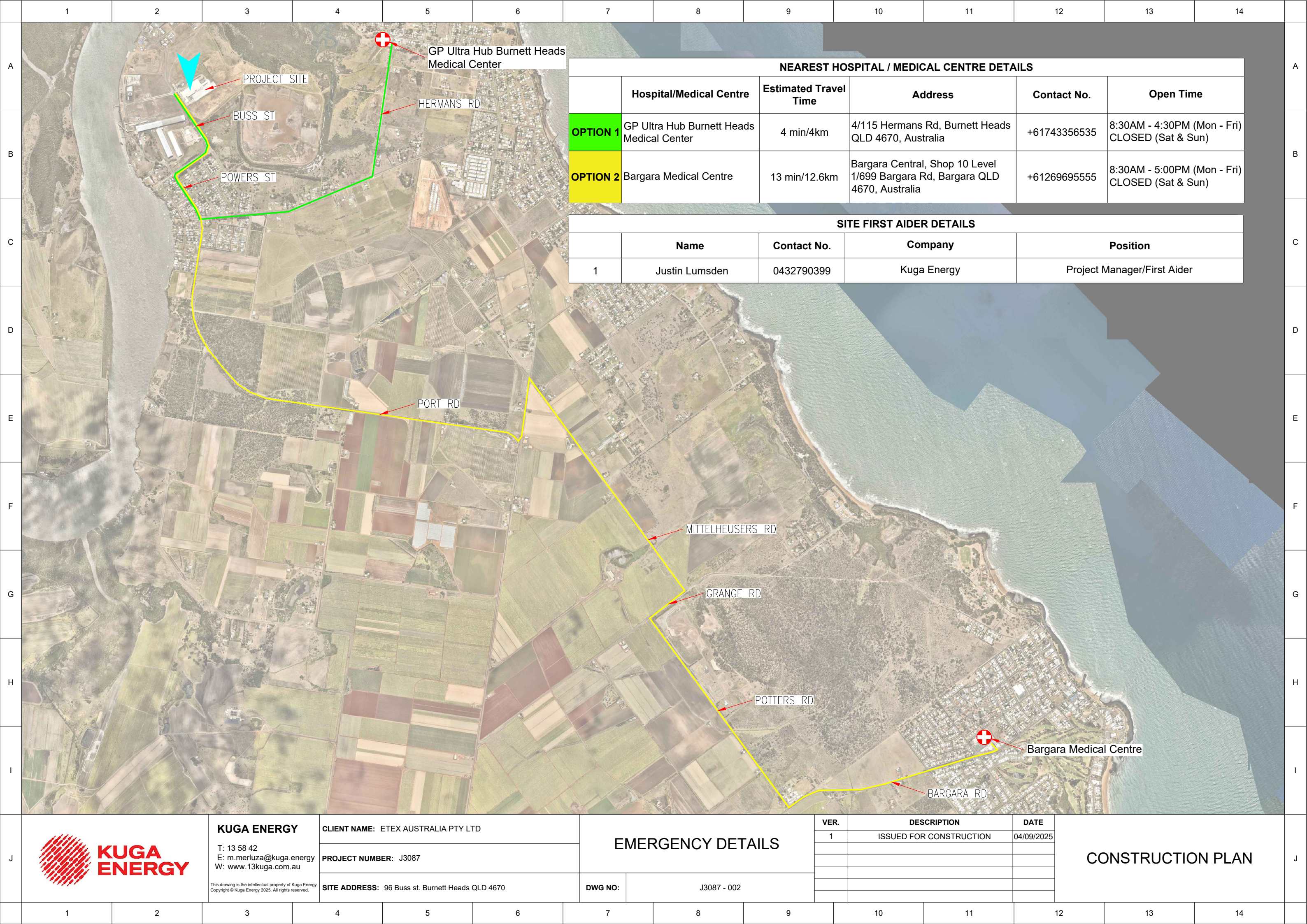
CONSTRUCTION PLAN

CUSTOMISED FOR:
ETEX AUSTRALIA PTY LTD

DATE PREPARED:
04.09.2025

REVIEWED BY:
Muhamad Zuhaili

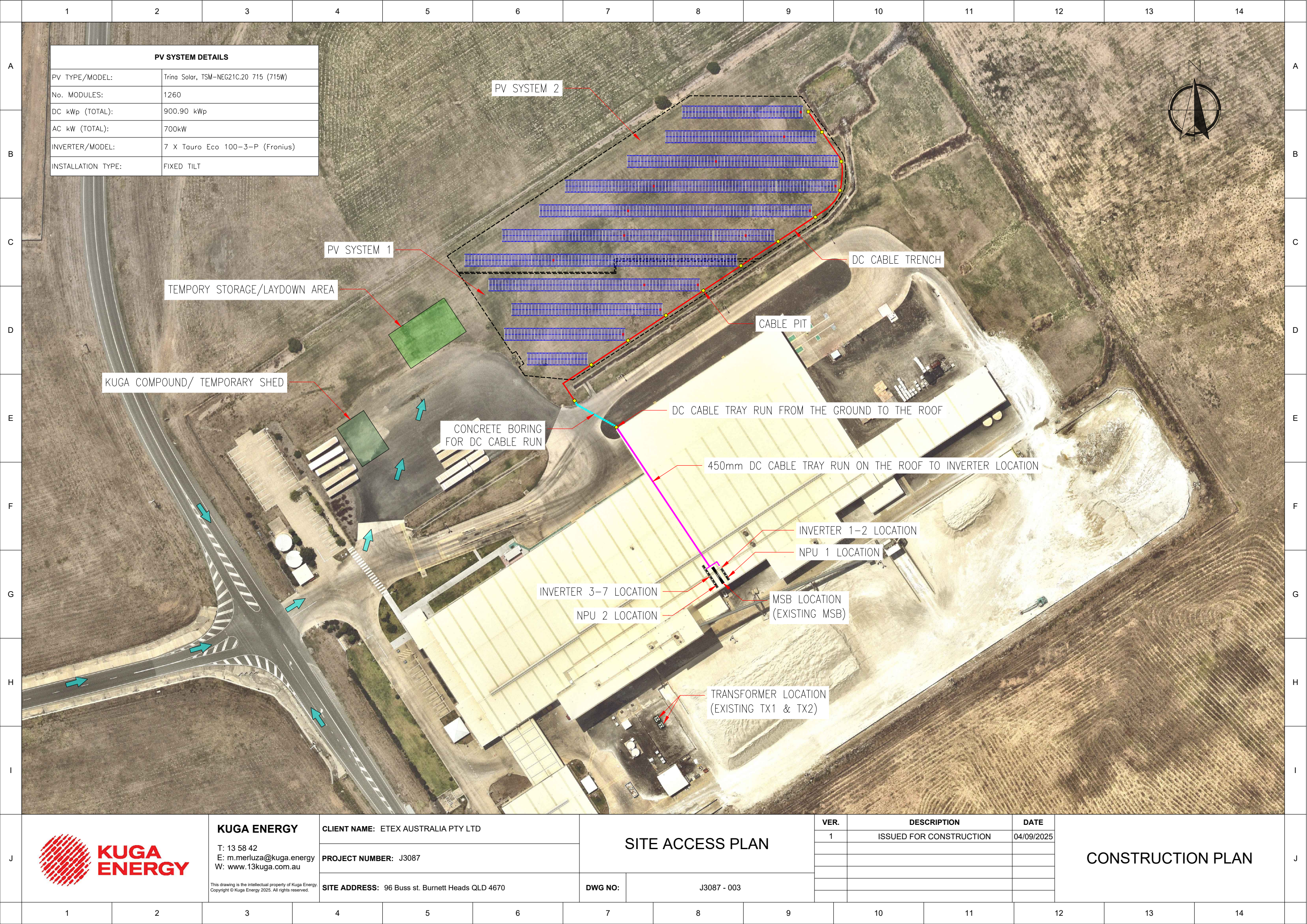
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NEAREST HOSPITAL / MEDICAL CENTRE DETAILS					
	Hospital/Medical Centre	Estimated Travel Time	Address	Contact No.	Open Time
OPTION 1	GP Ultra Hub Burnett Heads Medical Center	4 min/4km	4/115 Hermans Rd, Burnett Heads QLD 4670, Australia	+61743356535	8:30AM - 4:30PM (Mon - Fri) CLOSED (Sat & Sun)
OPTION 2	Bargara Medical Centre	13 min/12.6km	Bargara Central, Shop 10 Level 1/699 Bargara Rd, Bargara QLD 4670, Australia	+61269695555	8:30AM - 5:00PM (Mon - Fri) CLOSED (Sat & Sun)

SITE FIRST AIDER DETAILS				
	Name	Contact No.	Company	Position
1	Justin Lumsden	0432790399	Kuga Energy	Project Manager/First Aider

J		KUGA ENERGY T: 13 58 42 E: m.merluza@kuga.energy W: www.13kuga.com.au This drawing is the intellectual property of Kuga Energy. Copyright © Kuga Energy 2025. All rights reserved.	CLIENT NAME: ETEX AUSTRALIA PTY LTD		EMERGENCY DETAILS		VER.	DESCRIPTION	DATE	CONSTRUCTION PLAN	J
			PROJECT NUMBER: J3087				1	ISSUED FOR CONSTRUCTION	04/09/2025		
			SITE ADDRESS: 96 Buss st. Burnett Heads QLD 4670		DWG NO:	J3087 - 002					



PV SYSTEM DETAILS	
PV TYPE/MODEL:	Trina Solar, TSM-NEG21C.20 715 (715W)
No. MODULES:	1260
DC kWp (TOTAL):	900.90 kWp
AC kW (TOTAL):	700kW
INVERTER/MODEL:	7 X Tauro Eco 100-3-P (Fronius)
INSTALLATION TYPE:	FIXED TILT

KUGA ENERGY

T: 13 58 42
E: m.merluza@kuga.energy
W: www.13kuga.com.au

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CLIENT NAME: ETEX AUSTRALIA PTY LTD

PROJECT NUMBER: J3087

SITE ADDRESS: 96 Buss st. Burnett Heads QLD 4670

SITE ACCESS PLAN

DWG NO: J3087 - 003

VER.	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	04/09/2025

CONSTRUCTION PLAN



PV SYSTEM DETAILS	
PV TYPE/MODEL:	Trina Solar, TSM-NEG21C.20 715 (715W)
No. MODULES:	1260
DC kWp (TOTAL):	900.90 kWp
AC kW (TOTAL):	700kW
INVERTER/MODEL:	7 X Tauro Eco 100-3-P (Fronius)
INSTALLATION TYPE:	FIXED TILT

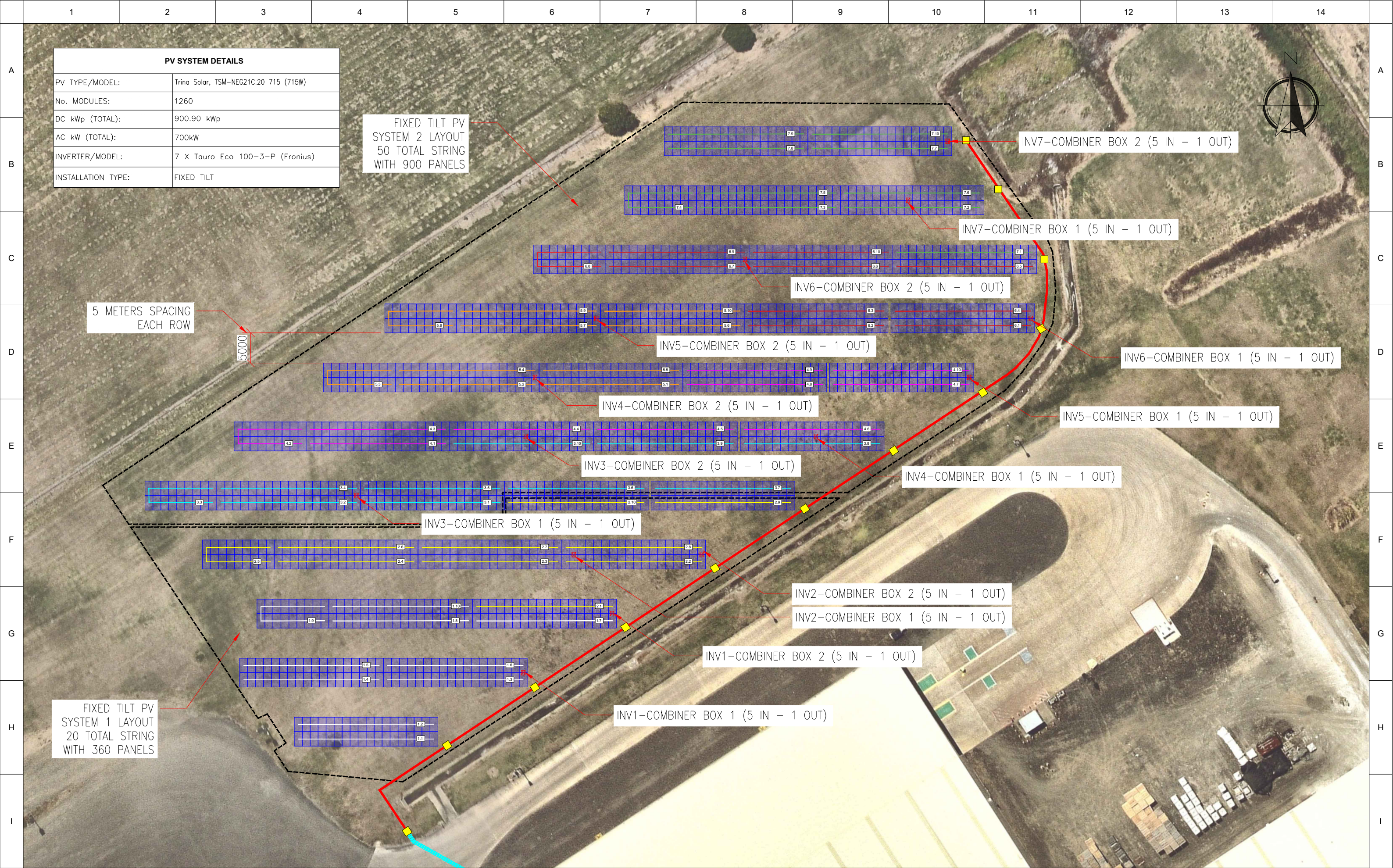
FIXED TILT PV
SYSTEM 2 LAYOUT
50 TOTAL STRING
WITH 900 PANELS

FIXED TILT PV
SYSTEM 1 LAYOUT
20 TOTAL STRING
WITH 360 PANELS

DC CABLE TRENCH

CABLE PIT

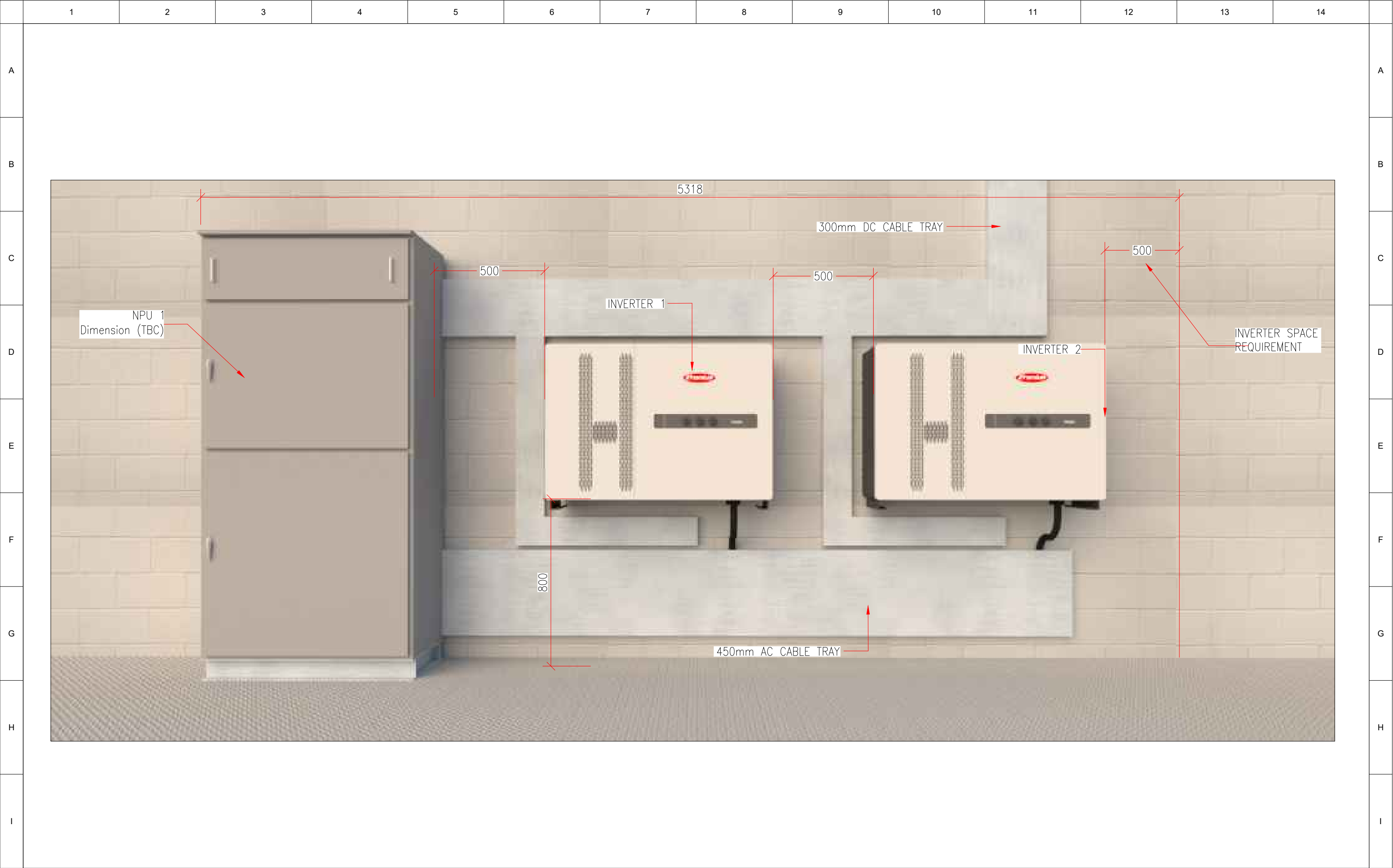
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									1	ISSUED FOR CONSTRUCTION	04/09/2025		



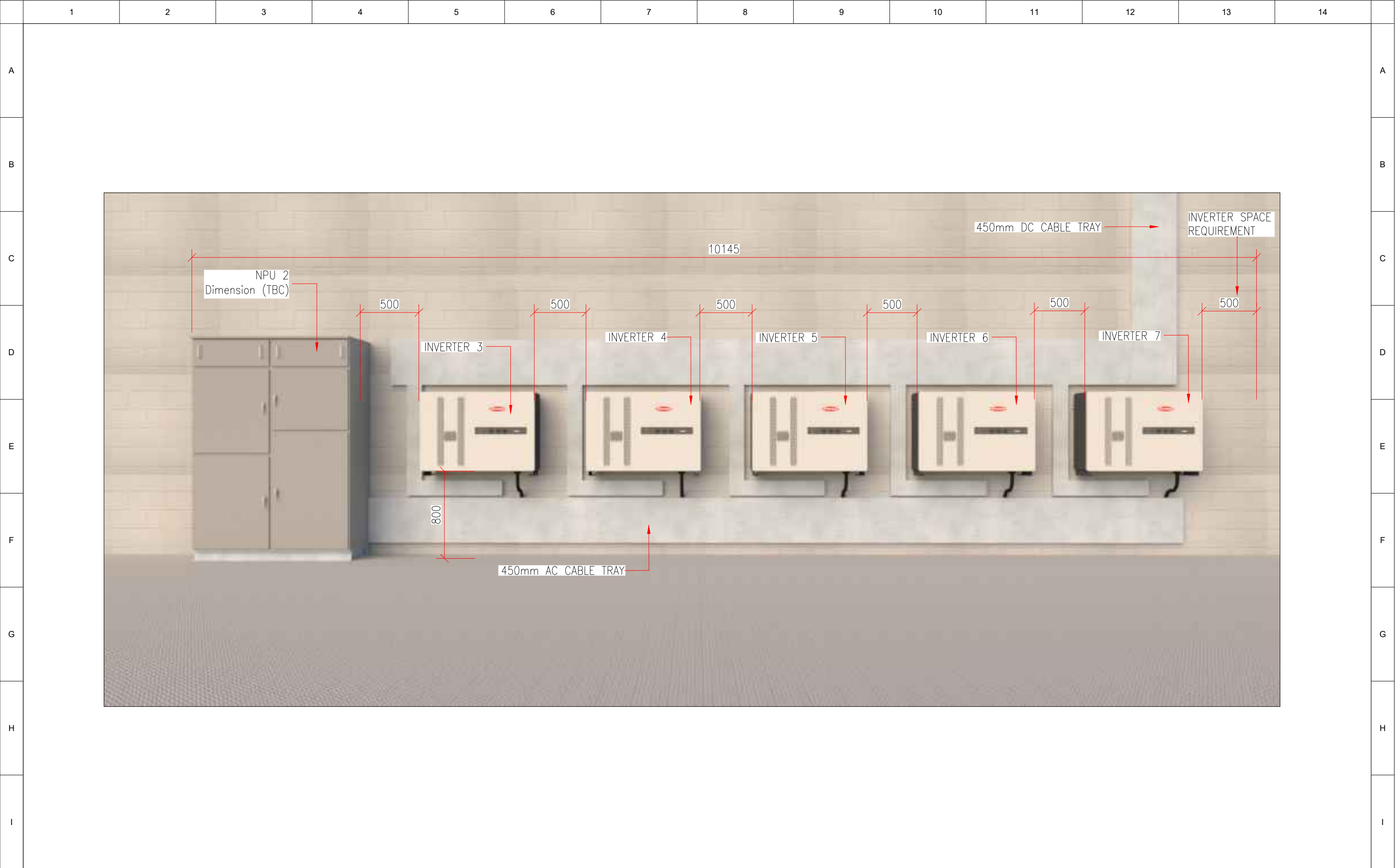
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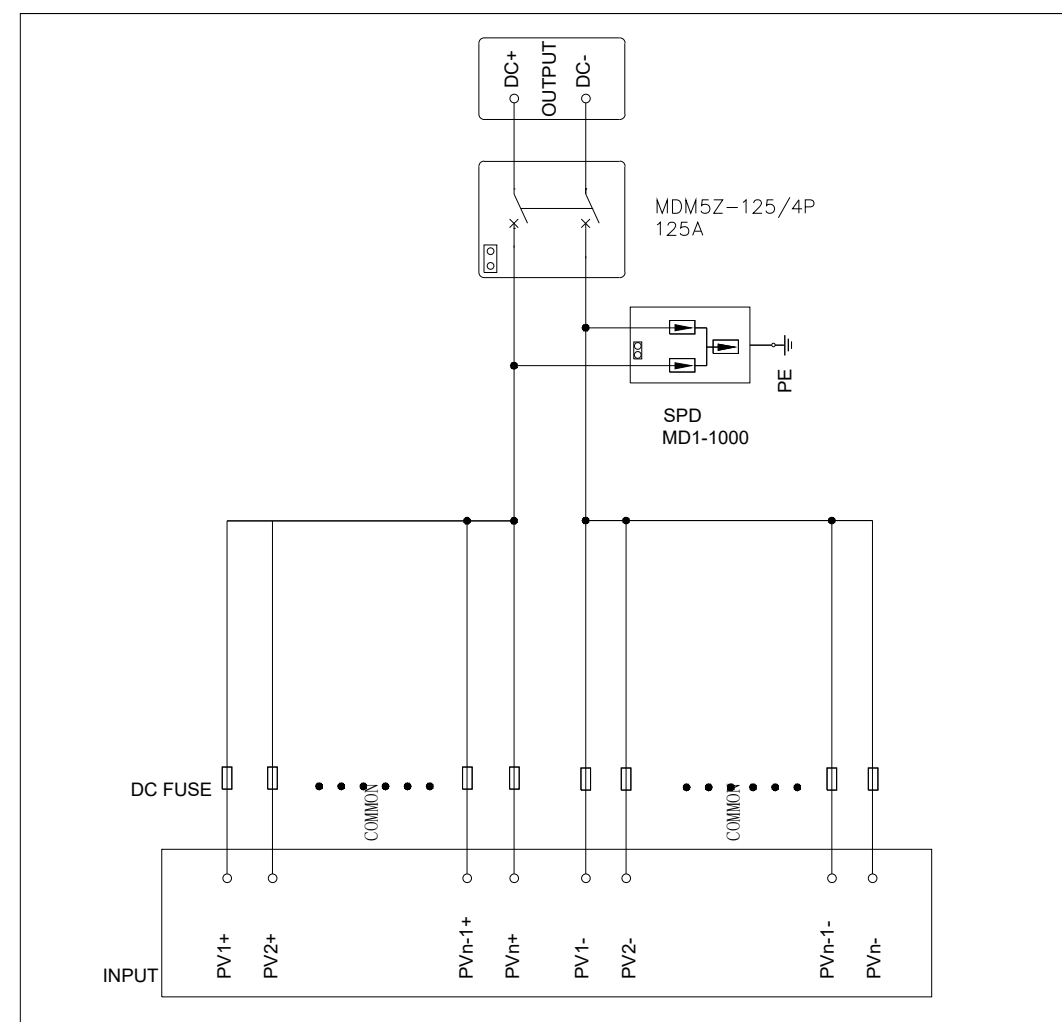
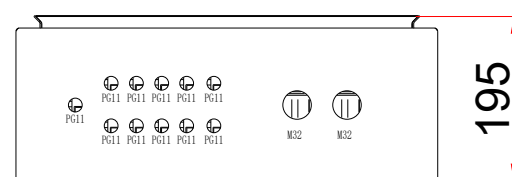
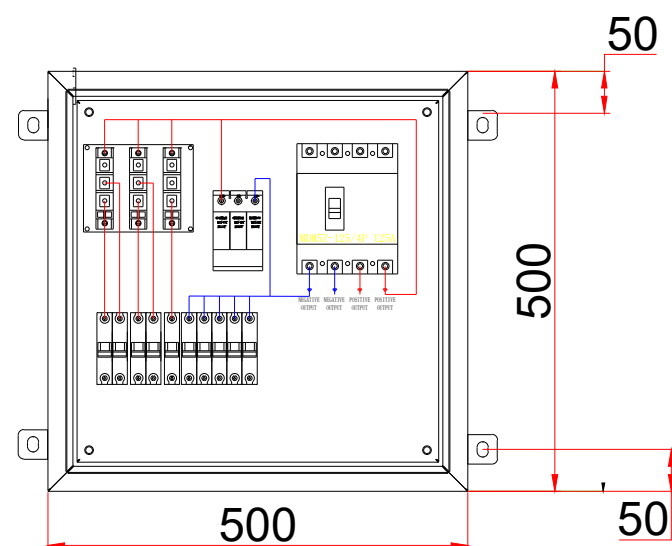
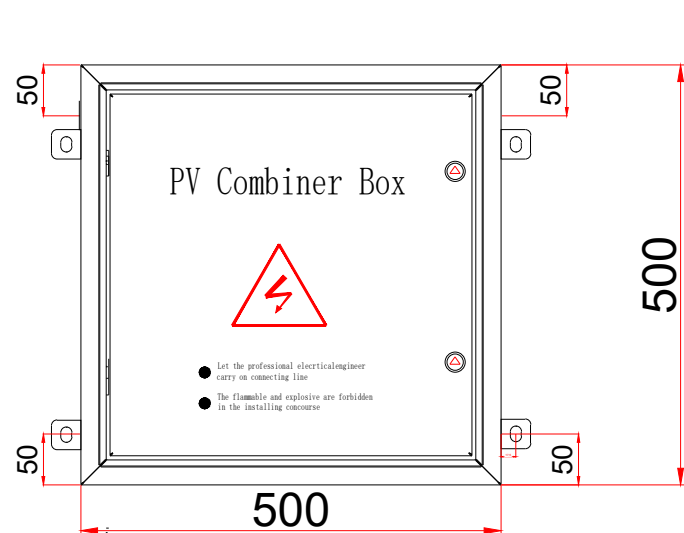
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A	INVERTER PROTECTION SETTINGS SCHEDULE <table><thead><tr><th>PROTECTION FUNCTION</th><th>PROTECTIVE FUNCTION LIMIT</th><th>TRIP TIME DELAY</th><th>MAX DISCONNECTION TIME</th></tr></thead><tbody><tr><td>Over Voltage 2 (V>>)</td><td>275V</td><td>-</td><td>0.20S</td></tr><tr><td>Over Voltage 1 (V>)</td><td>265V</td><td>1 sec</td><td>2S</td></tr><tr><td>Under Voltage 2 (V<<)</td><td>70V</td><td>1 sec</td><td>2S</td></tr><tr><td>Under Voltage 1 (V<)</td><td>180V</td><td>10 sec</td><td>11S</td></tr><tr><td>Over Frequency (Hz)</td><td>52</td><td>-</td><td>0.20S</td></tr><tr><td>Under Frequency (Hz)</td><td>47</td><td>1 sec</td><td>2S</td></tr><tr><td>ROCOF (81R)</td><td>+/- 4Hz/s</td><td>-</td><td>0.25S</td></tr><tr><td>Vector Shift (78)</td><td>8 Deg</td><td>-</td><td>Instantaneous</td></tr></tbody></table> VOLT-VAR and VOLT-WATT SETTINGS <table><thead><tr><th>REFERENCE</th><th>VOLTAGE</th><th>P OUTPUT/ P RATED (%)</th></tr></thead><tbody><tr><td>Vw1</td><td>253V</td><td>100</td></tr><tr><td>Vw2</td><td>260V</td><td>20</td></tr></tbody></table> VOLT VAR SETTINGS <table><tbody><tr><td>Vv1</td><td>207V</td><td>44% Supplying</td></tr><tr><td>Vv2</td><td>220V</td><td>0</td></tr><tr><td>Vv3</td><td>240V</td><td>0</td></tr><tr><td>Vv4</td><td>258V</td><td>60% Absorbing</td></tr></tbody></table> AC VOLTAGE RISE (PV SYSTEM 1) <table><thead><tr><th>FROM</th><th>TO</th><th>CURRENT</th><th>LENGTH (m)</th><th>CABLE SIZE</th><th>EARTH CABLE</th><th>VOLTAGE RISE(V)</th><th>VOLTAGE RISE %</th></tr></thead><tbody><tr><td>INVERTER 1</td><td>NPU 1</td><td>144.9</td><td>3</td><td>4 X 1CX95mm² +E,Cu XLPE-110deg</td><td>1CX25mm²,Cu</td><td>0.19</td><td>0.05%</td></tr><tr><td>INVERTER 2</td><td>NPU 1</td><td>144.9</td><td>6</td><td>4 X 1CX95mm² +E,Cu XLPE-110deg</td><td>1CX25mm²,Cu</td><td>0.37</td><td>0.09%</td></tr><tr><td>NPU 1</td><td>MSB1</td><td>289.8</td><td>15</td><td>4 X 1CX150mm² +E,Cu XLPE-110deg</td><td>1CX50mm²,Cu</td><td>1.37</td><td>0.34%</td></tr><tr><td>MSB 1</td><td>TRANSFORMER 1</td><td>289.8</td><td>30</td><td>16 X 1CX240mm² +E,Cu XLPE-110deg</td><td>1CX240mm²,Cu</td><td>0.46</td><td>0.11%</td></tr><tr><td></td><td>TOTAL VOLTAGE RISE (VOLTS)</td><td colspan="6">2.20</td></tr><tr><td></td><td>TOTAL VOLTAGE RISE %</td><td colspan="6">0.54%</td></tr></tbody></table> AC VOLTAGE RISE (PV SYSTEM 2) <table><thead><tr><th>FROM</th><th>TO</th><th>CURRENT</th><th>LENGTH (m)</th><th>CABLE SIZE</th><th>EARTH CABLE</th><th>VOLTAGE RISE(V)</th><th>VOLTAGE RISE %</th></tr></thead><tbody><tr><td>INVERTER 3</td><td>NPU 2</td><td>144.9</td><td>3</td><td>4 X 1CX95mm² +E,Cu XLPE-110deg</td><td>1CX25mm²,Cu</td><td>0.19</td><td>0.05%</td></tr><tr><td>INVERTER 4</td><td>NPU 2</td><td>144.9</td><td>6</td><td>4 X 1CX95mm² +E,Cu XLPE-110deg</td><td>1CX25mm²,Cu</td><td>0.37</td><td>0.09%</td></tr><tr><td>INVERTER 5</td><td>NPU 2</td><td>144.9</td><td>9</td><td>4 X 1CX95mm² +E,Cu XLPE-110deg</td><td>1CX25mm²,Cu</td><td>0.56</td><td>0.14%</td></tr><tr><td>INVERTER 6</td><td>NPU 2</td><td>144.9</td><td>12</td><td>4 X 1CX95mm² +E,Cu XLPE-110deg</td><td>1CX25mm²,Cu</td><td>0.74</td><td>0.19%</td></tr><tr><td>INVERTER 7</td><td>NPU 2</td><td>144.9</td><td>15</td><td>4 X 1CX95mm² +E,Cu XLPE-110deg</td><td>1CX25mm²,Cu</td><td>0.93</td><td>0.23%</td></tr><tr><td>NPU 2</td><td>MSB2</td><td>724.5</td><td>15</td><td>4 X 1CX300mm² +E,Cu XLPE-110deg</td><td>1CX120mm²,Cu</td><td>1.96</td><td>0.49%</td></tr><tr><td>MSB 2</td><td>TRANSFORMER 2</td><td>724.5</td><td>30</td><td>16 X 1CX240mm² +E,Cu XLPE-110deg</td><td>1CX240mm²,Cu</td><td>1.15</td><td>0.29%</td></tr><tr><td></td><td>TOTAL VOLTAGE RISE (VOLTS)</td><td colspan="6">4.04</td></tr><tr><td></td><td>TOTAL VOLTAGE RISE %</td><td colspan="6">1.01%</td></tr></tbody></table> INVERTER SPECIFICATION <table><tbody><tr><td>MODEL</td><td>Fronius Tauro ECO 100-3-P</td></tr><tr><td>MAX. AC POWER RATING</td><td>100 KVA</td></tr><tr><td>MAX. DC INPUT VOLTAGE</td><td>1000 V</td></tr><tr><td>MAX. DC INPUT CURRENT</td><td>200 A</td></tr><tr><td>RATED AC VOLTAGE</td><td>400 V</td></tr><tr><td>MAX. AC OUTPUT CURRENT</td><td>144.9 A</td></tr><tr><td>INVERTER WEIGHT</td><td>103 kg</td></tr></tbody></table>														PROTECTION FUNCTION	PROTECTIVE FUNCTION LIMIT	TRIP TIME DELAY	MAX DISCONNECTION TIME	Over Voltage 2 (V>>)	275V	-	0.20S	Over Voltage 1 (V>)	265V	1 sec	2S	Under Voltage 2 (V<<)	70V	1 sec	2S	Under Voltage 1 (V<)	180V	10 sec	11S	Over Frequency (Hz)	52	-	0.20S	Under Frequency (Hz)	47	1 sec	2S	ROCOF (81R)	+/- 4Hz/s	-	0.25S	Vector Shift (78)	8 Deg	-	Instantaneous	REFERENCE	VOLTAGE	P OUTPUT/ P RATED (%)	Vw1	253V	100	Vw2	260V	20	Vv1	207V	44% Supplying	Vv2	220V	0	Vv3	240V	0	Vv4	258V	60% Absorbing	FROM	TO	CURRENT	LENGTH (m)	CABLE SIZE	EARTH CABLE	VOLTAGE RISE(V)	VOLTAGE RISE %	INVERTER 1	NPU 1	144.9	3	4 X 1CX95mm ² +E,Cu XLPE-110deg	1CX25mm ² ,Cu	0.19	0.05%	INVERTER 2	NPU 1	144.9	6	4 X 1CX95mm ² +E,Cu XLPE-110deg	1CX25mm ² ,Cu	0.37	0.09%	NPU 1	MSB1	289.8	15	4 X 1CX150mm ² +E,Cu XLPE-110deg	1CX50mm ² ,Cu	1.37	0.34%	MSB 1	TRANSFORMER 1	289.8	30	16 X 1CX240mm ² +E,Cu XLPE-110deg	1CX240mm ² ,Cu	0.46	0.11%		TOTAL VOLTAGE RISE (VOLTS)	2.20							TOTAL VOLTAGE RISE %	0.54%						FROM	TO	CURRENT	LENGTH (m)	CABLE SIZE	EARTH CABLE	VOLTAGE RISE(V)	VOLTAGE RISE %	INVERTER 3	NPU 2	144.9	3	4 X 1CX95mm ² +E,Cu XLPE-110deg	1CX25mm ² ,Cu	0.19	0.05%	INVERTER 4	NPU 2	144.9	6	4 X 1CX95mm ² +E,Cu XLPE-110deg	1CX25mm ² ,Cu	0.37	0.09%	INVERTER 5	NPU 2	144.9	9	4 X 1CX95mm ² +E,Cu XLPE-110deg	1CX25mm ² ,Cu	0.56	0.14%	INVERTER 6	NPU 2	144.9	12	4 X 1CX95mm ² +E,Cu XLPE-110deg	1CX25mm ² ,Cu	0.74	0.19%	INVERTER 7	NPU 2	144.9	15	4 X 1CX95mm ² +E,Cu XLPE-110deg	1CX25mm ² ,Cu	0.93	0.23%	NPU 2	MSB2	724.5	15	4 X 1CX300mm ² +E,Cu XLPE-110deg	1CX120mm ² ,Cu	1.96	0.49%	MSB 2	TRANSFORMER 2	724.5	30	16 X 1CX240mm ² +E,Cu XLPE-110deg	1CX240mm ² ,Cu	1.15	0.29%		TOTAL VOLTAGE RISE (VOLTS)	4.04							TOTAL VOLTAGE RISE %	1.01%						MODEL	Fronius Tauro ECO 100-3-P	MAX. AC POWER RATING	100 KVA	MAX. DC INPUT VOLTAGE	1000 V	MAX. DC INPUT CURRENT	200 A	RATED AC VOLTAGE	400 V	MAX. AC OUTPUT CURRENT	144.9 A	INVERTER WEIGHT	103 kg	A
PROTECTION FUNCTION	PROTECTIVE FUNCTION LIMIT	TRIP TIME DELAY	MAX DISCONNECTION TIME																																																																																																																																																																																																																											
Over Voltage 2 (V>>)	275V	-	0.20S																																																																																																																																																																																																																											
Over Voltage 1 (V>)	265V	1 sec	2S																																																																																																																																																																																																																											
Under Voltage 2 (V<<)	70V	1 sec	2S																																																																																																																																																																																																																											
Under Voltage 1 (V<)	180V	10 sec	11S																																																																																																																																																																																																																											
Over Frequency (Hz)	52	-	0.20S																																																																																																																																																																																																																											
Under Frequency (Hz)	47	1 sec	2S																																																																																																																																																																																																																											
ROCOF (81R)	+/- 4Hz/s	-	0.25S																																																																																																																																																																																																																											
Vector Shift (78)	8 Deg	-	Instantaneous																																																																																																																																																																																																																											
REFERENCE	VOLTAGE	P OUTPUT/ P RATED (%)																																																																																																																																																																																																																												
Vw1	253V	100																																																																																																																																																																																																																												
Vw2	260V	20																																																																																																																																																																																																																												
Vv1	207V	44% Supplying																																																																																																																																																																																																																												
Vv2	220V	0																																																																																																																																																																																																																												
Vv3	240V	0																																																																																																																																																																																																																												
Vv4	258V	60% Absorbing																																																																																																																																																																																																																												
FROM	TO	CURRENT	LENGTH (m)	CABLE SIZE	EARTH CABLE	VOLTAGE RISE(V)	VOLTAGE RISE %																																																																																																																																																																																																																							
INVERTER 1	NPU 1	144.9	3	4 X 1CX95mm ² +E,Cu XLPE-110deg	1CX25mm ² ,Cu	0.19	0.05%																																																																																																																																																																																																																							
INVERTER 2	NPU 1	144.9	6	4 X 1CX95mm ² +E,Cu XLPE-110deg	1CX25mm ² ,Cu	0.37	0.09%																																																																																																																																																																																																																							
NPU 1	MSB1	289.8	15	4 X 1CX150mm ² +E,Cu XLPE-110deg	1CX50mm ² ,Cu	1.37	0.34%																																																																																																																																																																																																																							
MSB 1	TRANSFORMER 1	289.8	30	16 X 1CX240mm ² +E,Cu XLPE-110deg	1CX240mm ² ,Cu	0.46	0.11%																																																																																																																																																																																																																							
	TOTAL VOLTAGE RISE (VOLTS)	2.20																																																																																																																																																																																																																												
	TOTAL VOLTAGE RISE %	0.54%																																																																																																																																																																																																																												
FROM	TO	CURRENT	LENGTH (m)	CABLE SIZE	EARTH CABLE	VOLTAGE RISE(V)	VOLTAGE RISE %																																																																																																																																																																																																																							
INVERTER 3	NPU 2	144.9	3	4 X 1CX95mm ² +E,Cu XLPE-110deg	1CX25mm ² ,Cu	0.19	0.05%																																																																																																																																																																																																																							
INVERTER 4	NPU 2	144.9	6	4 X 1CX95mm ² +E,Cu XLPE-110deg	1CX25mm ² ,Cu	0.37	0.09%																																																																																																																																																																																																																							
INVERTER 5	NPU 2	144.9	9	4 X 1CX95mm ² +E,Cu XLPE-110deg	1CX25mm ² ,Cu	0.56	0.14%																																																																																																																																																																																																																							
INVERTER 6	NPU 2	144.9	12	4 X 1CX95mm ² +E,Cu XLPE-110deg	1CX25mm ² ,Cu	0.74	0.19%																																																																																																																																																																																																																							
INVERTER 7	NPU 2	144.9	15	4 X 1CX95mm ² +E,Cu XLPE-110deg	1CX25mm ² ,Cu	0.93	0.23%																																																																																																																																																																																																																							
NPU 2	MSB2	724.5	15	4 X 1CX300mm ² +E,Cu XLPE-110deg	1CX120mm ² ,Cu	1.96	0.49%																																																																																																																																																																																																																							
MSB 2	TRANSFORMER 2	724.5	30	16 X 1CX240mm ² +E,Cu XLPE-110deg	1CX240mm ² ,Cu	1.15	0.29%																																																																																																																																																																																																																							
	TOTAL VOLTAGE RISE (VOLTS)	4.04																																																																																																																																																																																																																												
	TOTAL VOLTAGE RISE %	1.01%																																																																																																																																																																																																																												
MODEL	Fronius Tauro ECO 100-3-P																																																																																																																																																																																																																													
MAX. AC POWER RATING	100 KVA																																																																																																																																																																																																																													
MAX. DC INPUT VOLTAGE	1000 V																																																																																																																																																																																																																													
MAX. DC INPUT CURRENT	200 A																																																																																																																																																																																																																													
RATED AC VOLTAGE	400 V																																																																																																																																																																																																																													
MAX. AC OUTPUT CURRENT	144.9 A																																																																																																																																																																																																																													
INVERTER WEIGHT	103 kg																																																																																																																																																																																																																													
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J		KUGA ENERGY T: 13 58 42 E: m.merluza@kuga.energy W: www.13kuga.com.au This drawing is the intellectual property of Kuga Energy. Copyright © Kuga Energy 2025. All rights reserved.	CLIENT NAME: ETEX AUSTRALIA PTY LTD PROJECT NUMBER: J3087 SITE ADDRESS: 96 Buss st. Burnett Heads QLD 4670	AC SLD DWG NO: J3087 - 008			VER. 1	DESCRIPTION ISSUED FOR CONSTRUCTION	DATE 04/09/2025	CONSTRUCTION PLAN			J																																																																																																																																																																																																																	
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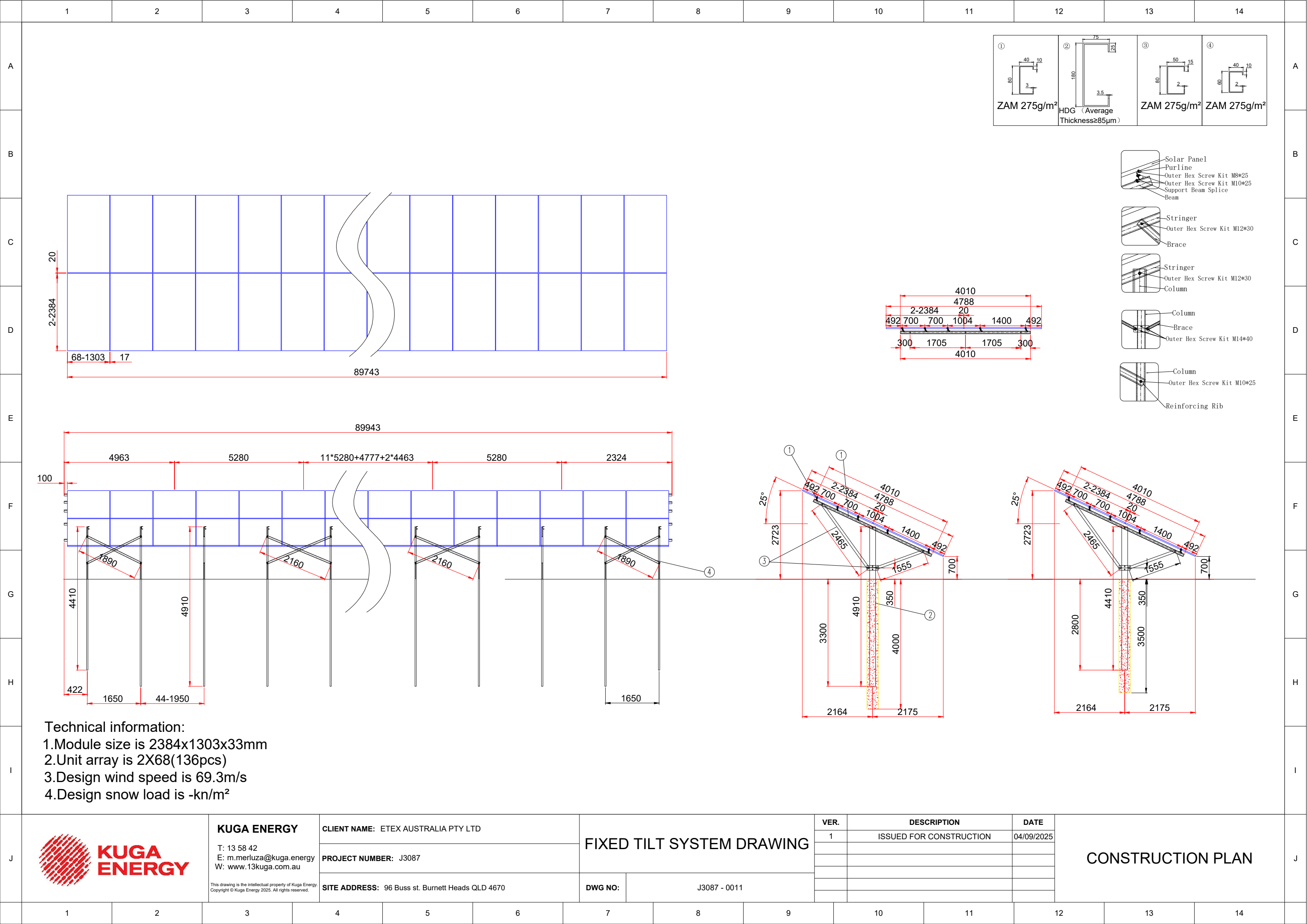
J			KUGA ENERGY T: 13 58 42 E: m.merluza@kuga.energy W: www.13kuga.com.au		CLIENT NAME: ETEX AUSTRALIA PTY LTD			INVERTER STATION 1			VER.	DESCRIPTION		DATE	CONSTRUCTION PLAN			J		
					PROJECT NUMBER: J3087						1	ISSUED FOR CONSTRUCTION		04/09/2025						
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	1	2	3	4	5	6	7	8	9	10	11	12	13	14						



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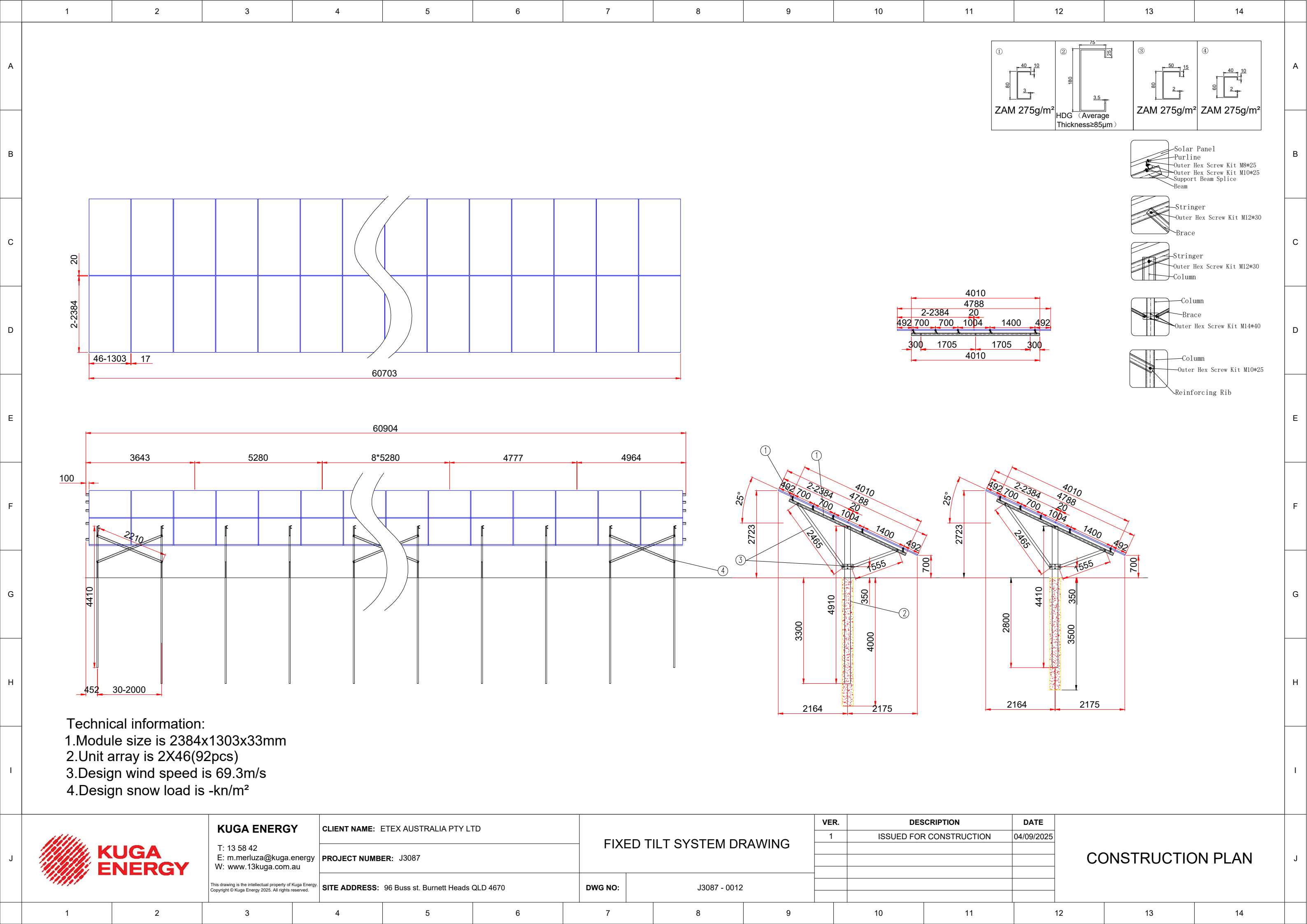


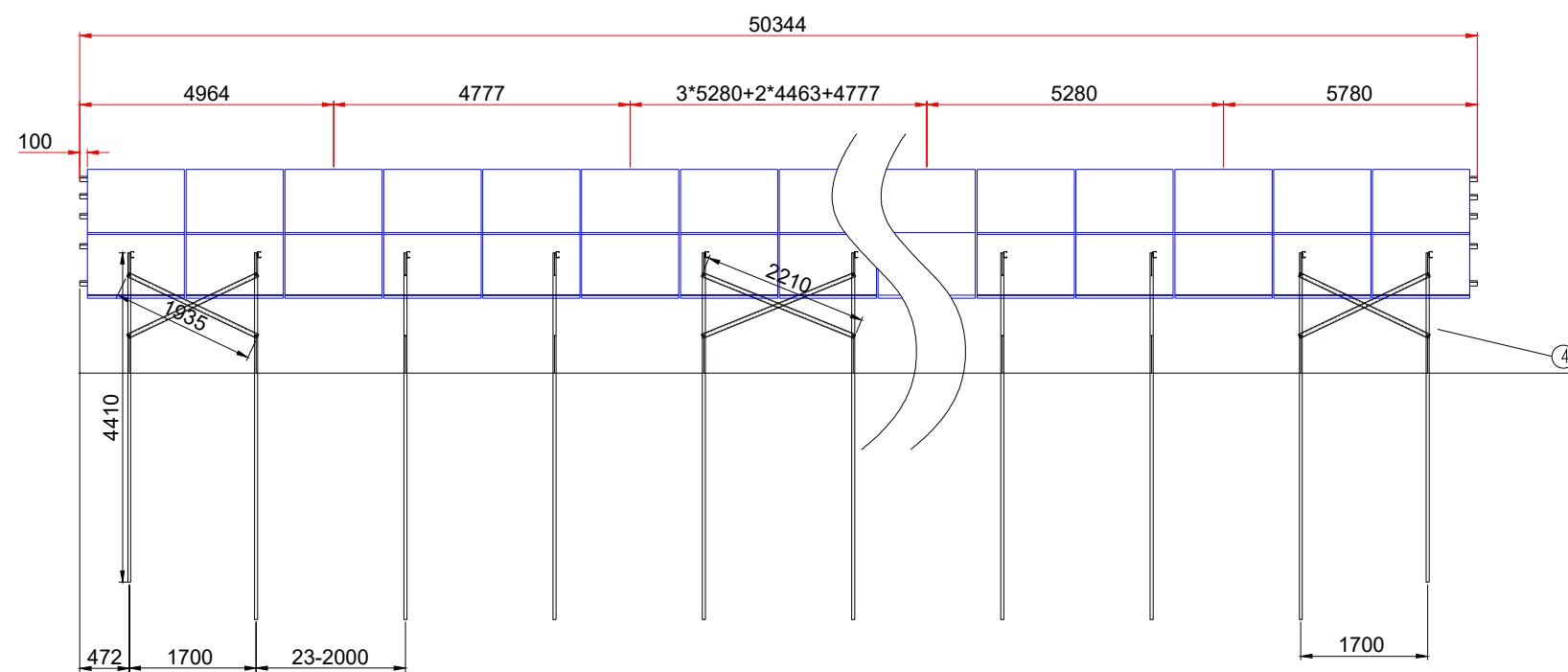
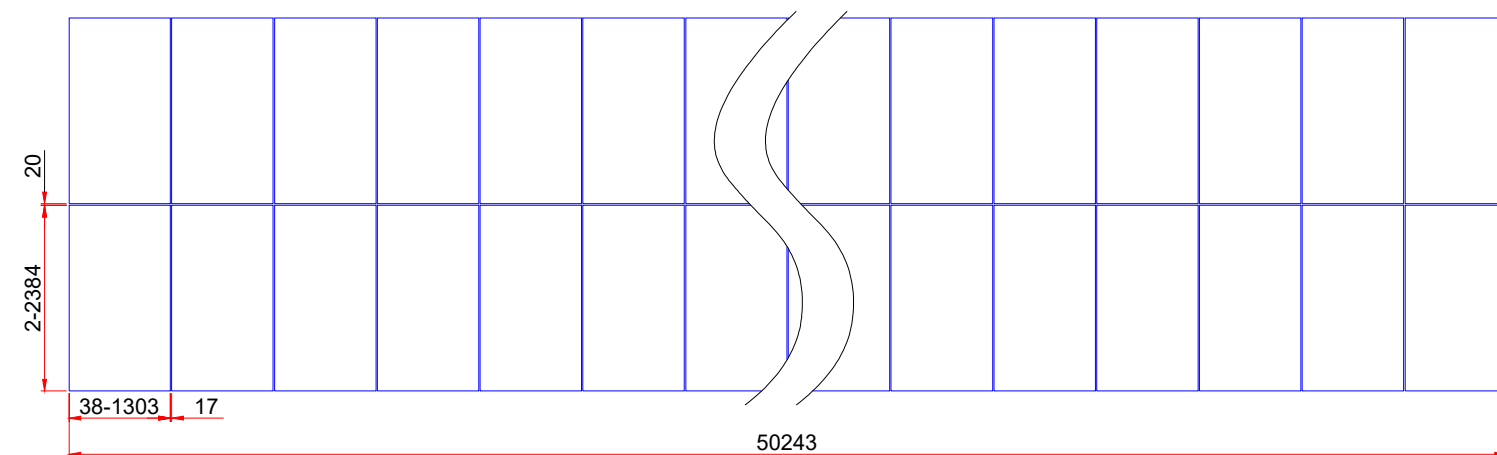
J			KUGA ENERGY T: 13 58 42 E: m.merluza@kuga.energy W: www.13kuga.com.au This drawing is the intellectual property of Kuga Energy. Copyright © Kuga Energy 2025. All rights reserved.		CLIENT NAME: ETEX AUSTRALIA PTY LTD			COMBINER BOX DETAILS				VER.	DESCRIPTION		DATE	CONSTRUCTION PLAN			J
												1	ISSUED FOR CONSTRUCTION		04/09/2025				
			PROJECT NUMBER: J3087						DWG NO:	J3087 - 0010									
			SITE ADDRESS: 96 Buss st. Burnett Heads QLD 4670																
1	2	3	4	5	6	7	8	9	10	11	12	13	14						



Technical information:
1.Module size is 2384x1303x33mm
2.Unit array is 2X68(136pcs)
3.Design wind speed is 69.3m/s
4.Design snow load is -kn/m²

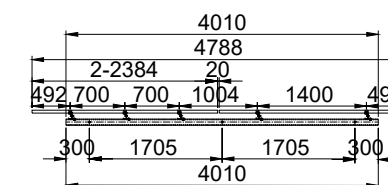
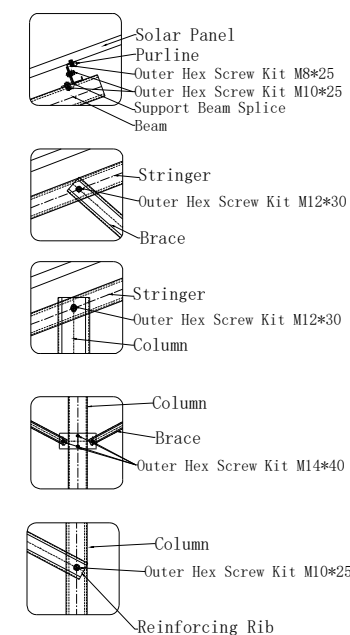
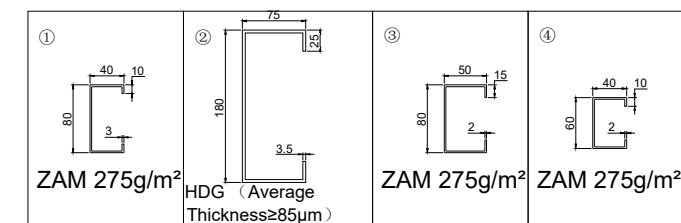
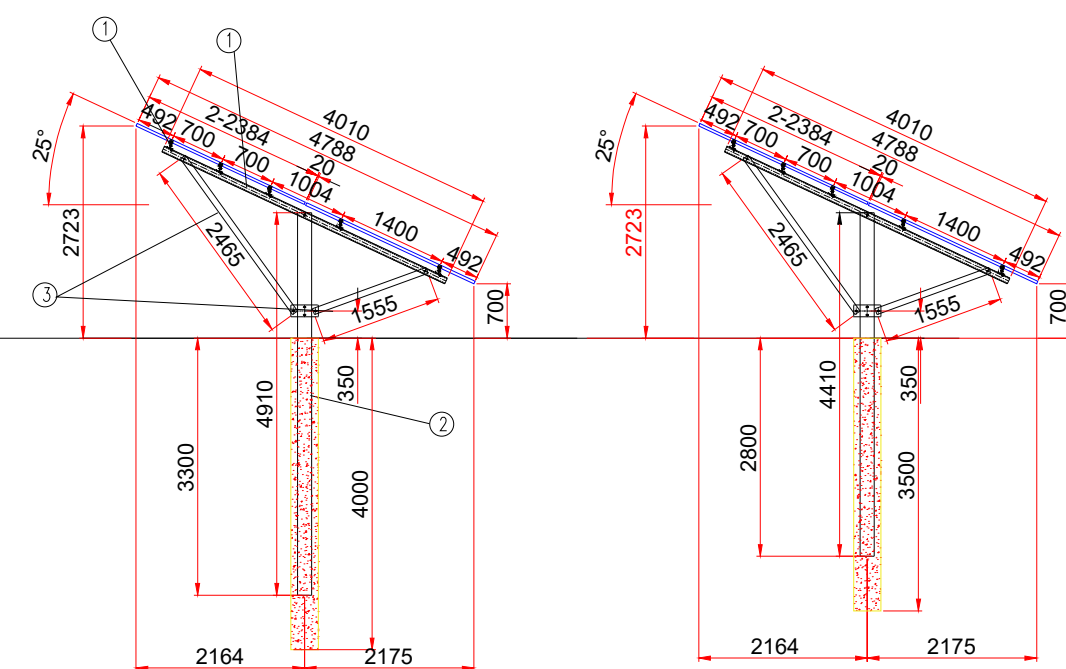
	KUGA ENERGY T: 13 58 42 E: m.merluza@kuga.energy W: www.13kuga.com.au This drawing is the intellectual property of Kuga Energy. Copyright © Kuga Energy 2025. All rights reserved.	CLIENT NAME: ETEX AUSTRALIA PTY LTD	FIXED TILT SYSTEM DRAWING		VER.	DESCRIPTION	DATE	CONSTRUCTION PLAN
	PROJECT NUMBER: J3087	1			ISSUED FOR CONSTRUCTION	04/09/2025		

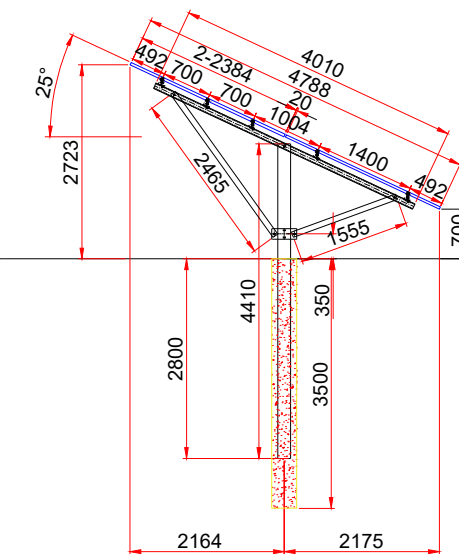
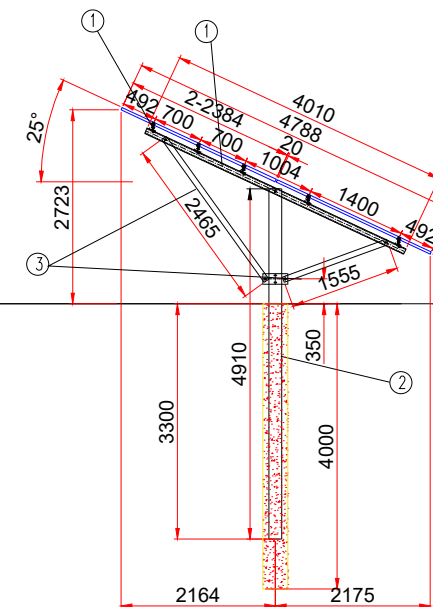
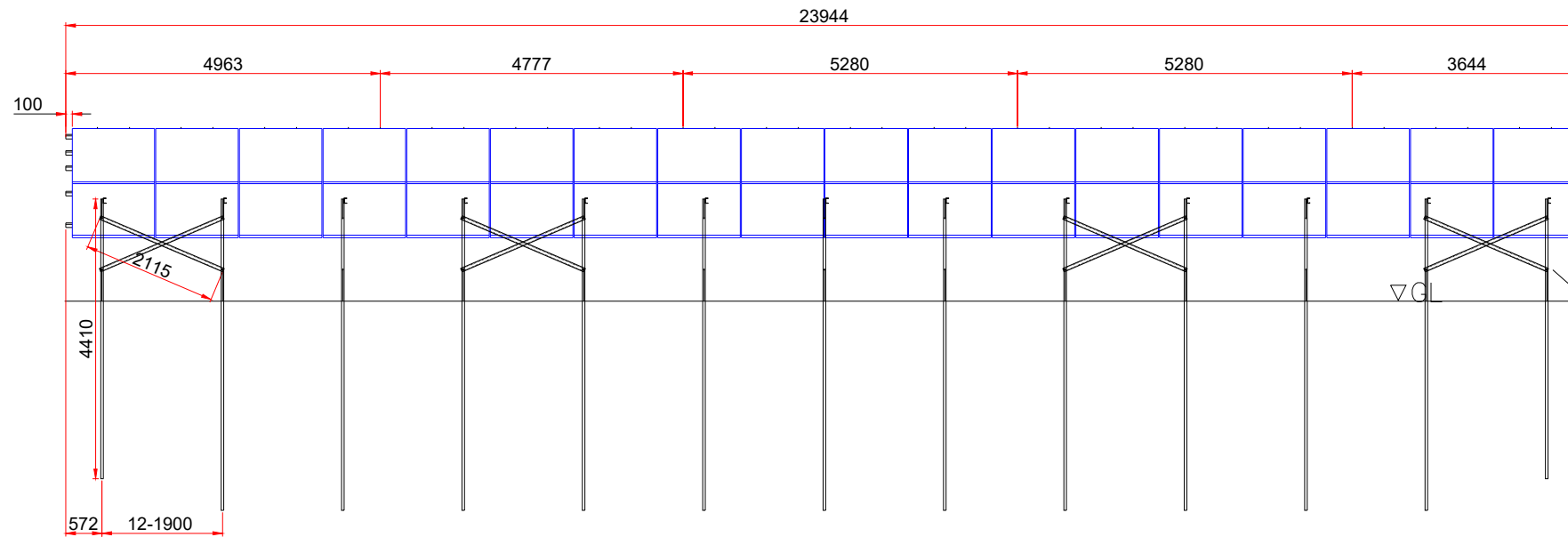
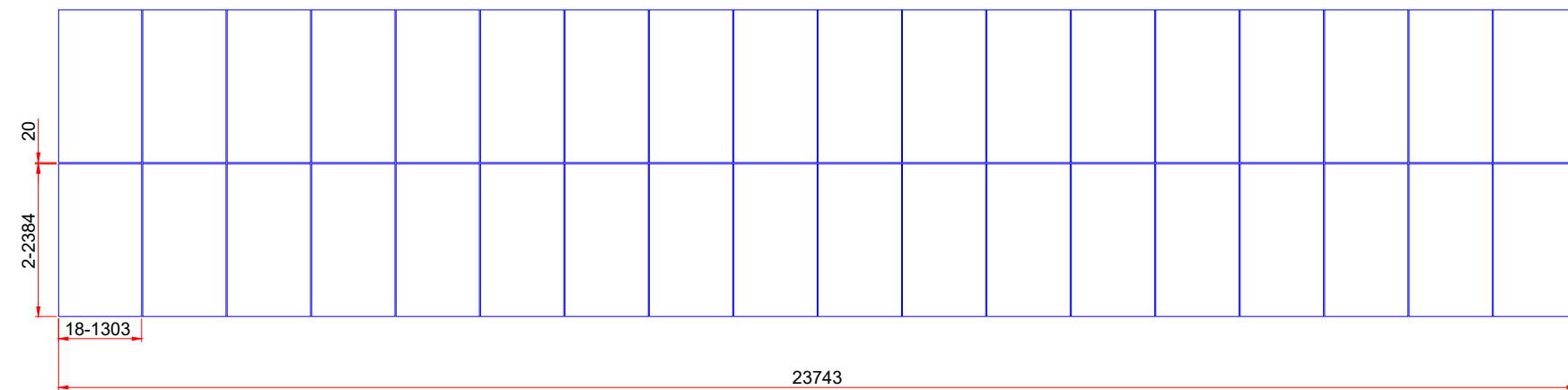




Technical information:

1. Module size is 2384x1303x33mm
2. Unit array is 2X38(76pcs)
3. Design wind speed is 69.3m/s
4. Design snow load is -kn/m²





Technical information:

1. Module size is 2384x1303x33mm
2. Unit array is 2X18(36pcs)
3. Design wind speed is 69.3m/s
4. Design snow load is -kn/m²



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PROJECT NUMBER: J3087

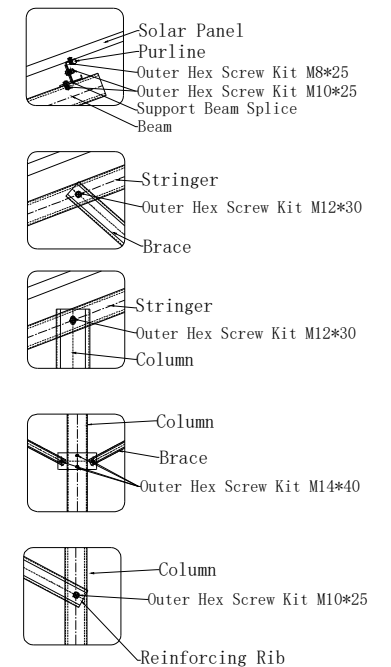
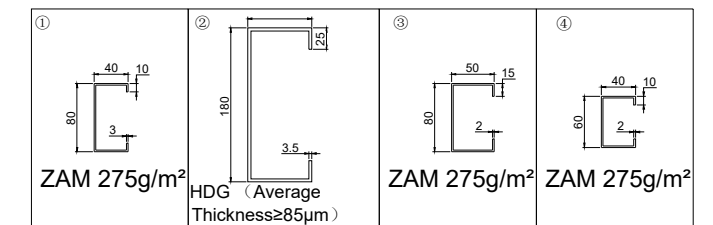
SITE ADDRESS: 96 Buss st. Burnett Heads QLD 4670

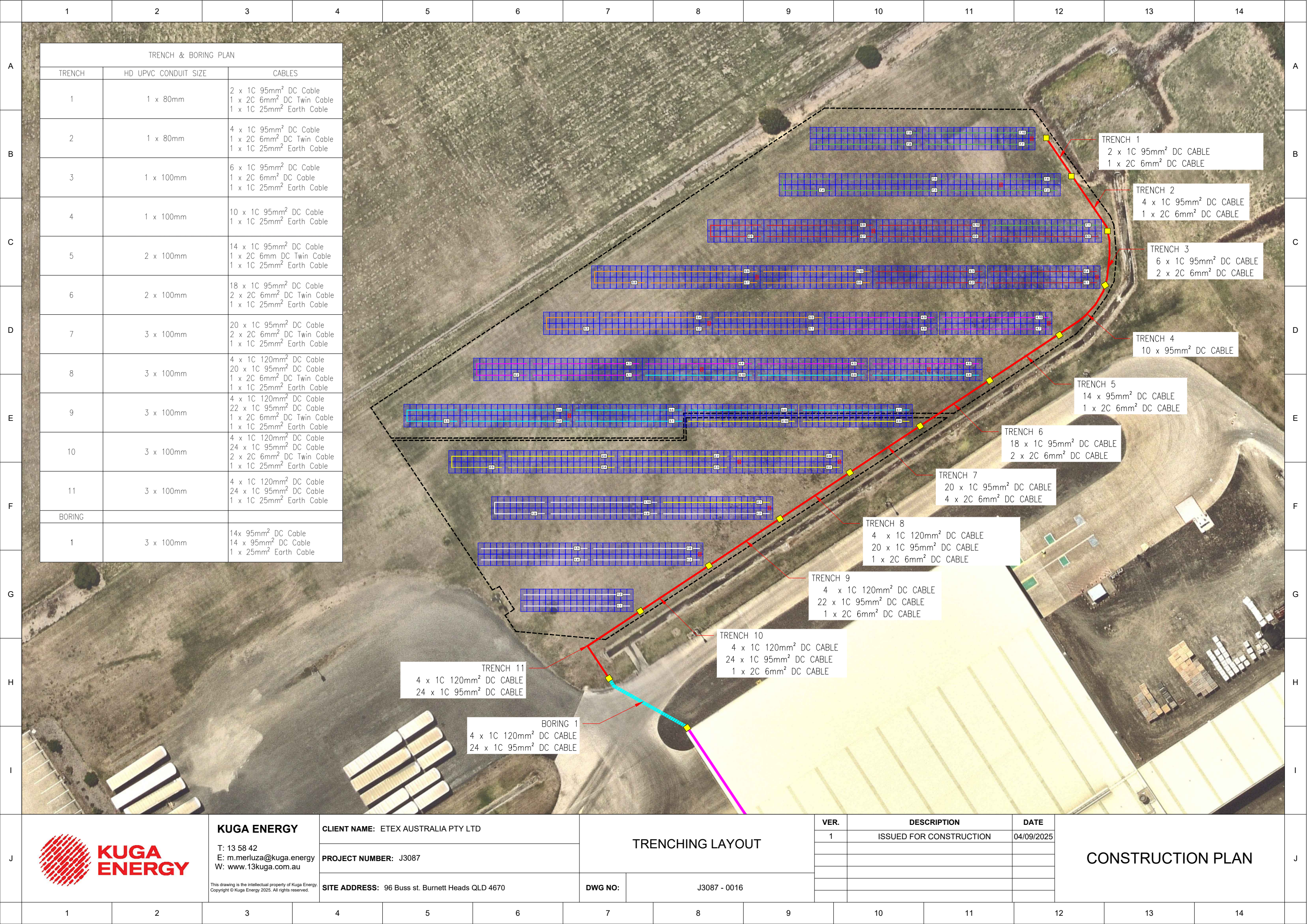
FIXED TILT SYSTEM DRAWING

DWG NO:	J3087 - 0014
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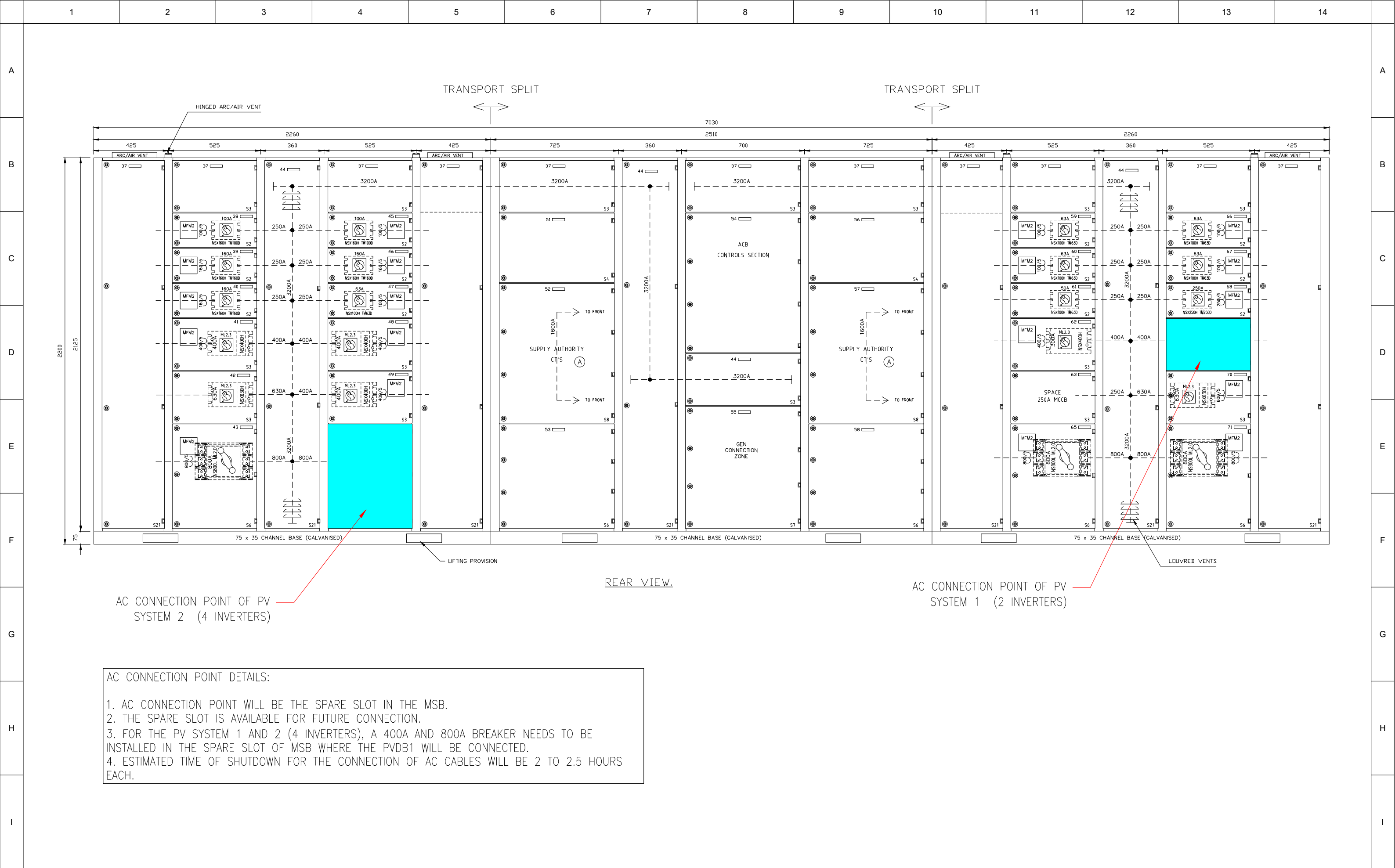
VER.	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	04/09/2025

CONSTRUCTION PLAN





	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
A	DC CABLE TRAY SCHEMATIC 4 x 95mm² DC CABLE 4 x 120mm² DC CABLE 1 x 25mm² EARTH CABLE 300 300 450 20 x 95mm² DC CABLE														A
B															B
C															C
D															D
E	INVERTER TO PVDB CABLE TRAY SCHEMATIC							PVDB TO MSB CABLE TRAY SCHEMATIC							E
F	2 x 4 x 1C 95mm² + E 450 450 <														

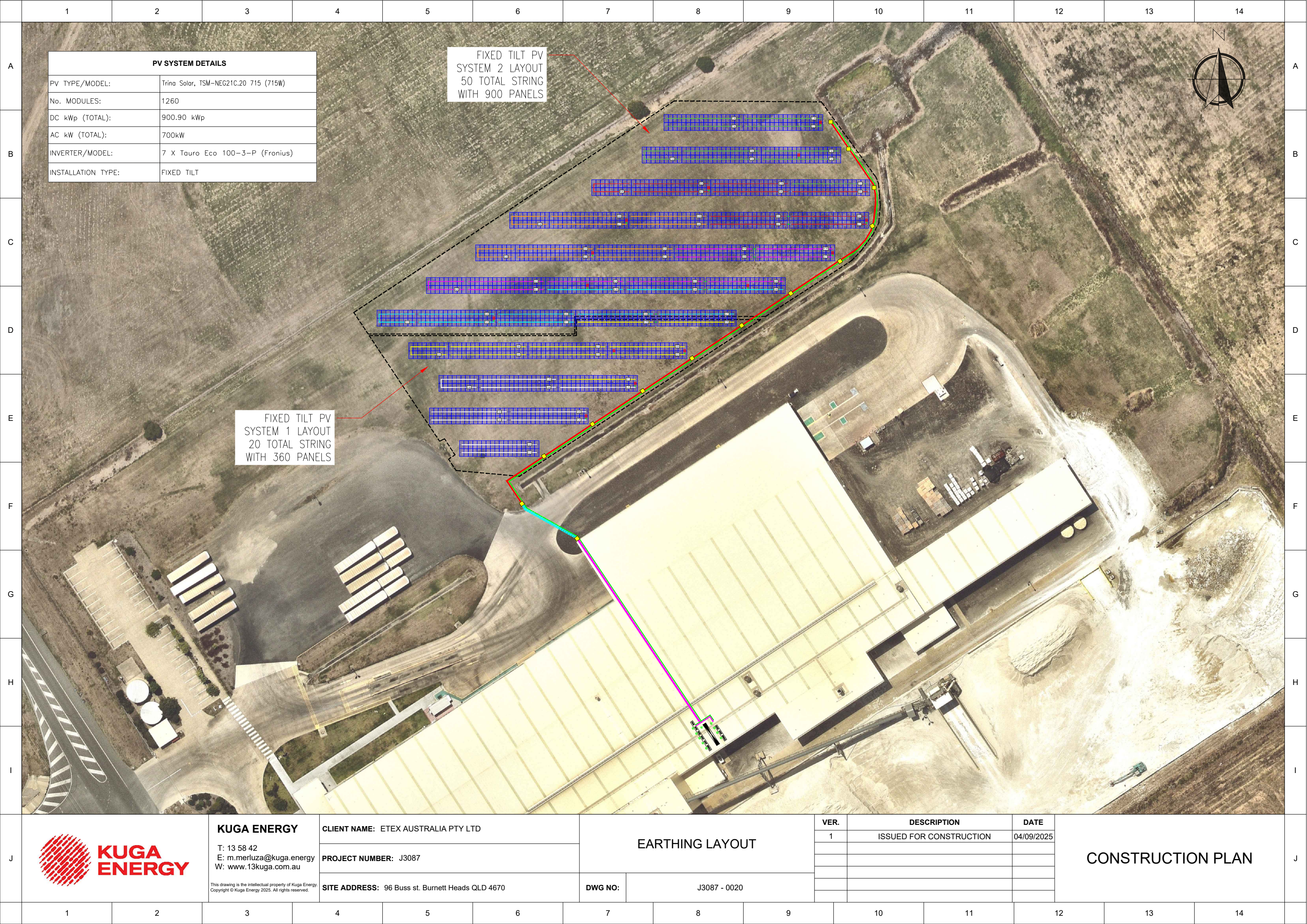


AC CONNECTION POINT OF PV
SYSTEM 2 (4 INVERTERS)

AC CONNECTION POINT OF PV
SYSTEM 1 (2 INVERTERS)

- AC CONNECTION POINT DETAILS:
1. AC CONNECTION POINT WILL BE THE SPARE SLOT IN THE MSB.
 2. THE SPARE SLOT IS AVAILABLE FOR FUTURE CONNECTION.
 3. FOR THE PV SYSTEM 1 AND 2 (4 INVERTERS), A 400A AND 800A BREAKER NEEDS TO BE INSTALLED IN THE SPARE SLOT OF MSB WHERE THE PVDB1 WILL BE CONNECTED.
 4. ESTIMATED TIME OF SHUTDOWN FOR THE CONNECTION OF AC CABLES WILL BE 2 TO 2.5 HOURS EACH.

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					PROJECT NUMBER: J3087						1	ISSUED FOR CONSTRUCTION		04/09/2025				
											SITE ADDRESS: 96 Buss st. Burnett Heads QLD 4670			DWG NO:				
						1	2	3	4	5	6	7	8	9				



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CLIENT NAME: ETEX AUSTRALIA PTY LTD

PROJECT NUMBER: J3087

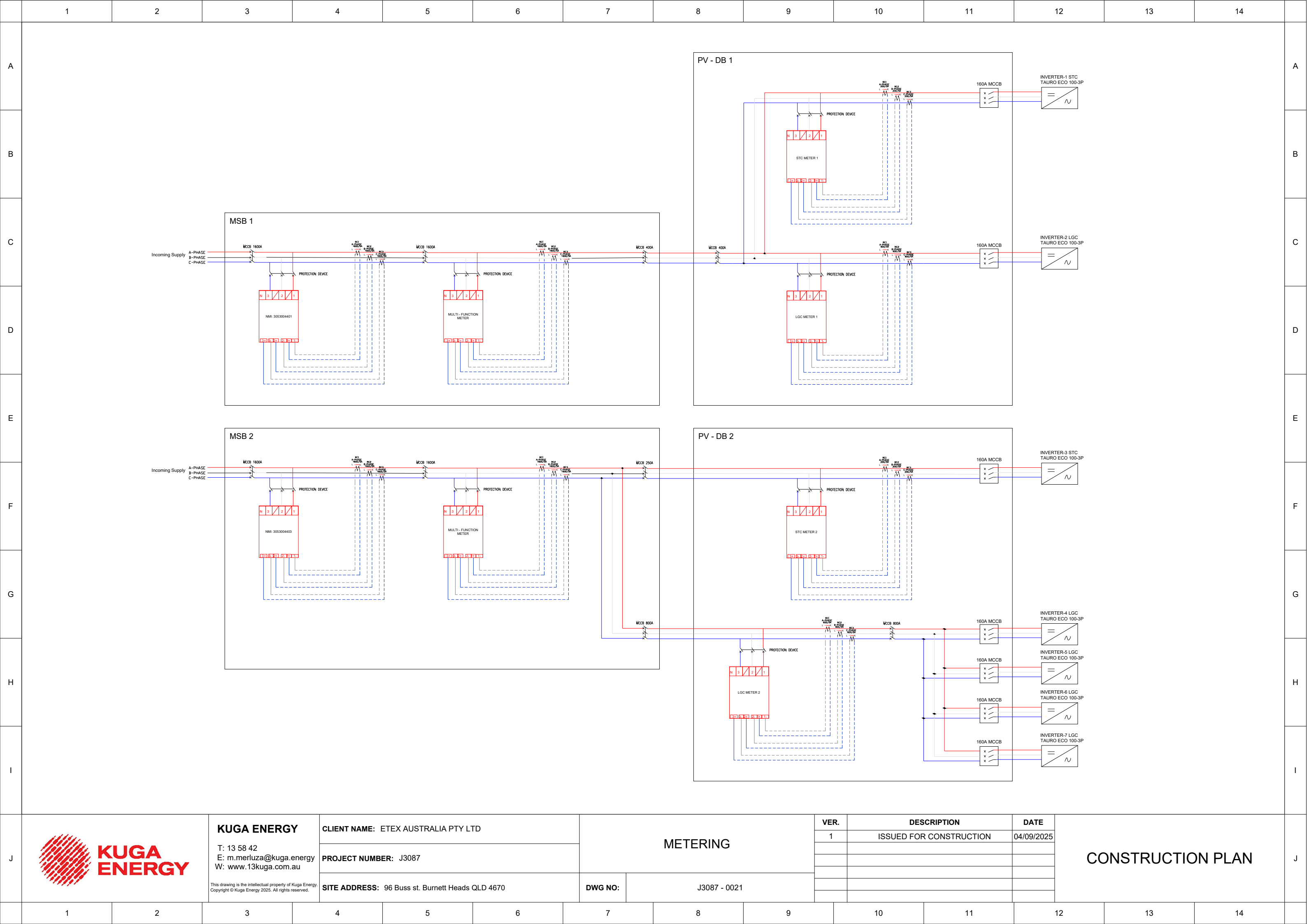
SITE ADDRESS: 96 Buss st. Burnett Heads QLD 4670

EARTHING LAYOUT

DWG NO: J3087 - 0020

VER.	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	04/09/2025

CONSTRUCTION PLAN



	1	2	3	4	5	6	7	8	9	10	11	12	13	14			
A															A		
B															B		
C															C		
D															D		
E															E		
F															F		
G															G		
H															H		
I															I		
J			KUGA ENERGY T: 13 58 42 E: m.merluza@kuga.energy W: www.13kuga.com.au This drawing is the intellectual property of Kuga Energy. Copyright © Kuga Energy 2025. All rights reserved.		CLIENT NAME: ETEX AUSTRALIA PTY LTD			REVIEW AND APPROVAL			VER.	DESCRIPTION		DATE	CONSTRUCTION PLAN		J
			PROJECT NUMBER: J3087			DWG NO: J3087 - 0022					1	ISSUED FOR CONSTRUCTION		04/09/2025			
1	2	3	4	5	6	7	8	9	10	11	12	13	14				

Vertex N

N-type i-TOPCon bifacial dual glass
Monocrystalline module

PRODUCT: TSM-NEG21C.20

POWER RANGE: 695-720W

720W

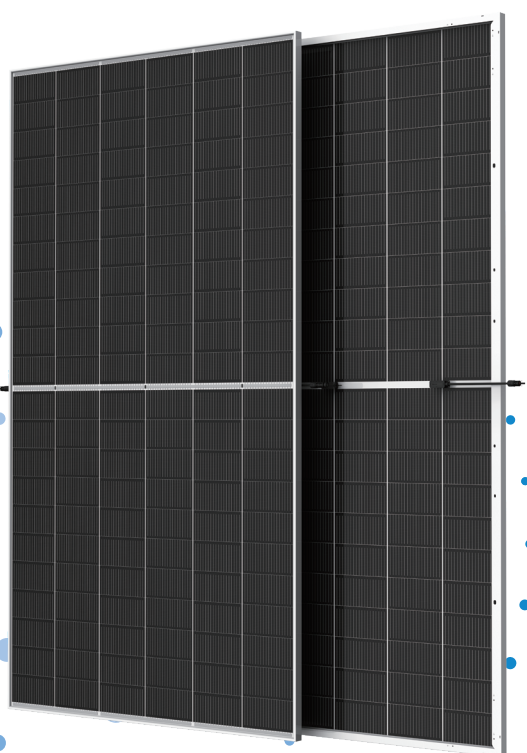
MAXIMUM POWER OUTPUT

0~+5W

POSITIVE POWER TOLERANCE

23.2%

MAXIMUM EFFICIENCY



High customer value

- Standardized module size with flagship module power, 35W higher compared with conventional technology
- Low voltage design with higher string power, effectively reducing BOS (Balance of System) and LCOE (Levelized Cost of Energy) by 2%~6%
- Higher container space utilization effectively reduces the freight cost
- Certified Low-Carbon Footprint
- The Star of LCOE



High power up to 720W

- Up to 23.2% module efficiency, on 210 innovation platform
- Patented i-TOPCon technology with continuous efficiency improvement, including contact resistance reduction, rear reflection enhancement and edge quality repairment



High reliability

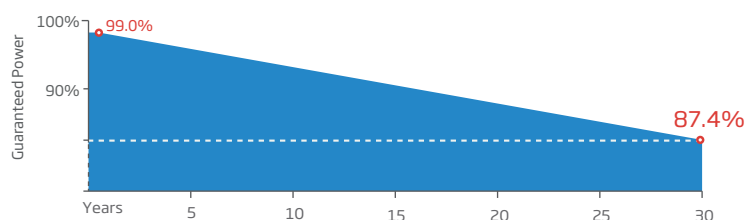
- Minimized micro-cracks with innovative non-destructive cutting technology and high-density packaging
- Reduced risks of hot-spot with half-cut technology
- Certified high resistance against salt, ammonia, sand, PID, LID, LeTID
- Sustainable in harsh environments and extreme weather conditions



High energy yield

- Excellent low irradiation performance, validated by 3rd party
- Lower temperature coefficient (-0.29%/°C)
- Higher bifaciality, with up to 10%~20% additional power gain from back side depending on albedo
- Reliable dual-glass structure with 30-year power guarantee

Trina Solar's Vertex Bifacial Dual Glass Performance Warranty



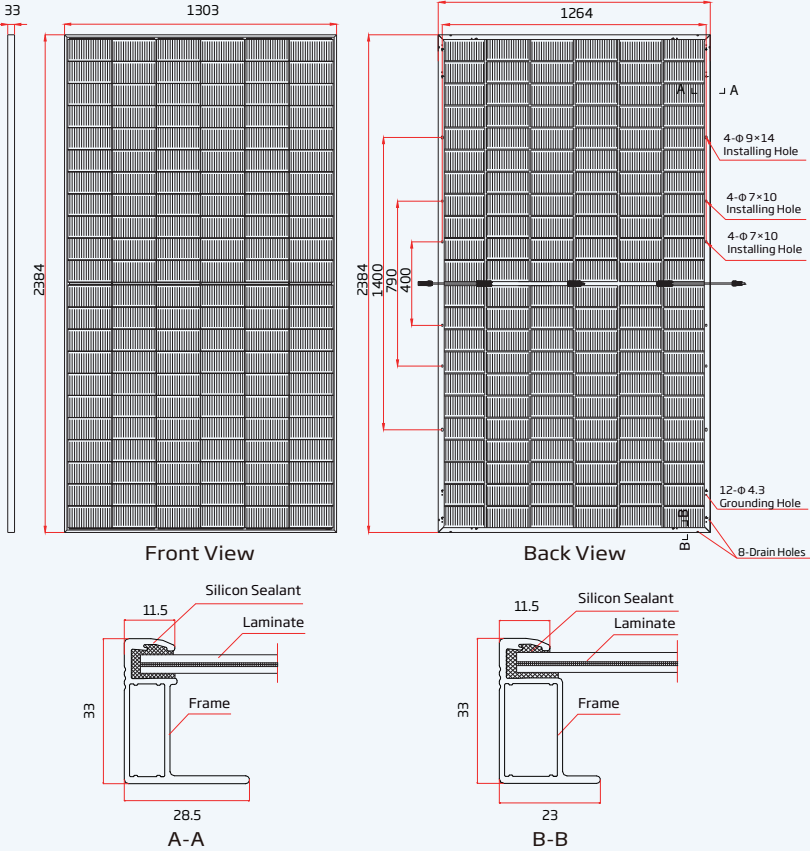
Comprehensive Products and System Certificates



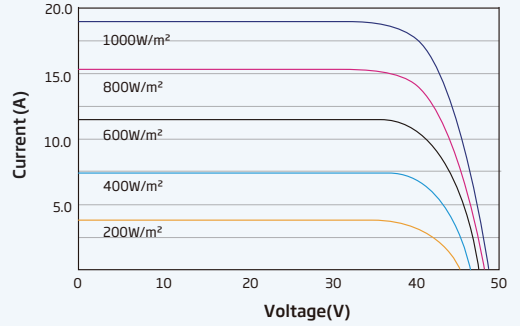
IEC61215/IEC61730/IEC61701/IEC62716
ISO 9001: Quality Management System
ISO 14001: Environmental Management System
ISO14064: Greenhouse Gases Emissions Verification
ISO45001: Occupational Health and Safety Management System
ISO14067: Product Carbon Footprint Limited Assurance

Trina solar

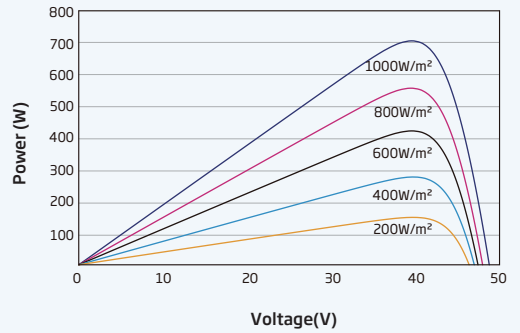
DIMENSIONS OF PV MODULE(mm)



I-V CURVES OF PV MODULE(705 W)



P-V CURVES OF PV MODULE(705 W)



MECHANICAL DATA

Solar Cells	N-type i-TOPCon Monocrystalline
No. of cells	132 cells
Module Dimensions	2384×1303×33 mm (93.86×51.30×1.30 inches)
Weight	38.3 kg (84.4 lb)
Front Glass	2.0 mm (0.08 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant material	POE/EVA
Back Glass	2.0 mm (0.08 inches), Heat Strengthened Glass (White Grid Glass)

Frame	33mm(1.30 inches) Anodized Aluminium Alloy
J-Box	IP 68 rated
Cables	Photovoltaic Technology Cable 4.0mm² (0.006 inches²) Portrait: 350/280 mm(13.78/11.02 inches) Length can be customized
Connector	MC4 EVO2 / TS4 Plus / TS4*

*Please refer to regional datasheet for specified connector.

ELECTRICAL DATA (STC & NOCT)

Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Peak Power Watts -P _{MAX} (Wp)*	695	531	700	534	705	540	710	543	715	547	720	551
Power Tolerance-P _{MAX} (W)	0 ~ +5											
Maximum Power Voltage-V _{MPP} (V)	40.3	37.9	40.5	38.0	40.7	38.3	40.9	38.5	41.1	38.7	41.3	38.8
Maximum Power Current-I _{MPP} (A)	17.25	14.00	17.29	14.04	17.33	14.08	17.36	14.12	17.40	14.14	17.44	14.19
Open Circuit Voltage-V _{OC} (V)	48.3	45.9	48.6	46.1	48.8	46.3	49.0	46.5	49.2	46.7	49.4	46.9
Short Circuit Current-I _{SC} (A)	18.28	14.72	18.32	14.76	18.36	14.80	18.40	14.83	18.44	14.86	18.49	14.90
Module Efficiency η _m (%)	22.4		22.5		22.7		22.9		23.0		23.2	

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5. NOCT: Irradiance at 800W/m², Ambient Temperature 20°C, Wind Speed 1m/s. *Measuring tolerance: ±3%.

Electrical characteristics with different power bin (reference to 5% & 10% backside power gain)

Backside Power Gain	5%	10%	5%	10%	5%	10%	5%	10%	5%	10%	5%	10%
Total Equivalent power -P _{MAX} (Wp)	730	765	735	770	740	776	746	781	751	787	756	792
Maximum Power Voltage-V _{MPP} (V)	40.3	40.3	40.5	40.5	40.7	40.7	40.9	40.9	41.1	41.1	41.3	41.3
Maximum Power Current-I _{MPP} (A)	18.11	18.98	18.15	19.02	18.20	19.06	18.23	19.10	18.27	19.14	18.31	19.18
Open Circuit Voltage-V _{OC} (V)	48.3	48.3	48.6	48.6	48.8	48.8	49.0	49.0	49.2	49.2	49.4	49.4
Short Circuit Current-I _{SC} (A)	19.19	20.11	19.24	20.15	19.28	20.20	19.32	20.24	19.36	20.28	19.41	20.34

Power Bifaciality:80±5%.

TEMPERATURE RATINGS

NOCT (Nominal Operating Cell Temperature)	43°C (±2°C)
Temperature Coefficient of P _{MAX}	-0.29%/°C
Temperature Coefficient of V _{OC}	-0.24%/°C
Temperature Coefficient of I _{SC}	0.04%/°C

MAXIMUM RATINGS

Operational Temperature	-40~+85° C
Maximum System Voltage	1500V DC (IEC) 1500V DC (UL)
Max Series Fuse Rating	35A

WARRANTY

12 year Product Workmanship Warranty
30 year Power Warranty
1% first year degradation
0.40% Annual Power Attenuation
(Please refer to product warranty for details)

PACKAGING CONFIGURATION

Modules per box: 33 pieces
Modules per 40' container: 594 pieces



Designed to perform.

Product advantages

- 01 Robust and durable
- 02 Lower costs and efficient servicing
- 03 Intelligent control and an open system
- 04 Design flexibility
- 05 Repairable and sustainable

Maximum flexibility in terms of system design with minimal overall system operating costs: the robust Fronius Tauro inverter makes large-scale PV systems even more cost-effective. Whether under direct sunlight or in extreme heat, its double-walled housing and active cooling enable full power and maximum yields even under the harshest environmental conditions. At the same time, the sturdy project inverter from Austria is quick to install and maintain.

Fronius Tauro. Designed to perform.

The solution for large-scale PV systems

01



02



03



04



01 Robust and durable

Designed to buck direct sunlight and high temperatures: its double-walled housing and active cooling give the Fronius Tauro a long service life and make it a robust commercial solar inverter that will always deliver top performance.

02 Lower costs and efficient servicing

For minimal overall system operating costs: Fronius Tauro is quick to install and efficient to maintain. When servicing is required, only the affected power stage set needs to be replaced rather than the entire project inverter. This makes for safe operation and fast, cost-efficient servicing.

03 Intelligent control and an open system

Like all Fronius products, Fronius Tauro can be conveniently monitored, controlled and maintained from a smartphone or PC. Fronius Solar.web lets you keep an eye on your system at all times. Its open system architecture means third-party components are easily integrated.

04 Design flexibility

Centralised, decentralised, vertical or horizontal: Fronius Tauro offers you maximum flexibility in the design and installation of large-scale PV systems. The flexible Tauro and the cost-effective Tauro ECO can be combined in any way you choose. Pre-integrated surge protection device and AC daisy chaining reduce the need for additional components and cables.

05 Repairable and sustainable

Fronius Tauro shows that sustainability at every stage of the product cycle pays dividends. The project inverter is designed for durability and was developed and produced in Austria with the fewest possible, replaceable components. This makes the Tauro particularly robust and failure-resistant, and means that only individual parts need to be replaced during on-site servicing, thereby saving time and conserving resources.



Fronius Tauro is available in two versions:

- **Fronius Tauro** | 50 kW | 3 MPP trackers
- **Fronius Tauro ECO** | 50, 99.99 and 100 kW | 1 MPP tracker

Technical data

Fronius Tauro. Designed to perform.

			Tauro			Tauro ECO						
			50-3-P			50-3-P		99-3-P		100-3-P		
Input data	Number of MPP trackers		3			1		1		1		
	Max. input current ($I_{dc\ max}$)	A	134			87.5		175		175		
	Max. short circuit current ($I_{sc\ max}$, inverter)	A	240			178		250		250		
	DC input voltage range ($U_{dc\ min} - U_{dc\ max}$)	V	200 - 1000			580 - 1000		580 - 1000		580 - 1000		
	Feed-in start voltage ($U_{dc\ start}$)	V	200			650		650		650		
	Usable MPP voltage range ($U_{mpp\ min} - U_{mpp\ max}$) ¹	V	400 - 870			580 ² - 930		580 ² - 930		580 ² - 930		
	Max. PV generator power ($P_{dc\ max}$)	kWp	75			75		150		150		
			PV1	PV2	PV3	PV1	PV2	PV1	PV2	PV1	PV2	
	Max. input current module array ($I_{dc\ max.\ pv}$)	A	36	36	72	75	75	100	100	100	100	
	Max. module array short circuit current ($I_{sc\ pv}$) ³	A	72	72	125	125	125	125	125	125	125	
Number of DC connections		1	1	1	1	1	1	1	1	1		
Output data	AC rated output ($P_{ac,r}$)	W	50,000			50,000		99,990		100,000		
	Max. output power	VA	50,000			50,000		99,990		100,000		
			380VAC	400VAC	380VAC	400VAC	380VAC	400VAC	380VAC	400VAC		
	Rated AC output current ($I_{ac,\ r}$)	A	75,8	72,5	75,8	72,5	151,5	144,9	151,5	144,9		
	Grid connection ($U_{ac,r}$)	V	3~ (N)PE 400/230; 3~ (N)PE 380/220									
	Frequency (frequency range $f_{min} - f_{max}$)	Hz	50 / 60 (45 - 65)									
	Power factor ($\cos \varphi_{ac,r}$)		0 - 1 ind. / cap.									
General data	Dimensions (height x width x depth)	mm	755 × 1109 × 346 (without wall mount)									
	Weight	kg	98			74		103		103		
	Degree of protection		IP 65			IP 65		IP 65		IP 65		
	Protection class		1			1		1		1		
	Night-time consumption	W	< 16			< 16		< 16		< 16		
	Cooling		Active Cooling Technologie and Double-Wall System									
	Installation		Indoor and outdoor ⁴									
	Ambient temperature range	°C	-40 to +65 °C ⁵									
	Certificates and compliance with standards ⁶		AS/NZS 4777.2:2020 IEC62109-1/-2 VDE-AR-N 4105:2018 IEC62116 EN50549-1:2019 & EN50549-2:2019 VDE-AR-N 4110:2018 CEI 0-16:2019 CEI 0-21:2019									
	Life cycle analysis		For Tauro ECO 100 in accordance with Austrian standards ÖNORM EN ISO 14040 and 14044 (verified by Fraunhofer IZM)									
Connection technology	AC	Cable cross section	mm ²	35 - 240			35 - 240		70 - 240		70 - 240	
		AC conductor material		Al and Cu								
		Connection terminals		Cable lug or V clamps								
		Single Core Option (single core cable)		Cable gland: 5 x M40 (10 - 28 mm)								
		Multi Core Option (multi core cable)		Cable gland: 1 x multi core connection Ø 16 - 61.4 mm + 1 x M32								
		AC Daisy Chaining Option (single core cable)		Cable gland: 10 x M32 (10 - 25 mm)								
	DC	Cable cross section	mm ²	25 - 95								
		DC conductor material		Al and Cu								
		Connection terminals		Cable lug or V clamps Cable gland: 6 x M40 (10 - 28 mm)								
Efficiency	Max. efficiency	%	98.5			98.5		98.5		98.5		
	European efficiency (η_{EU})	%	98.3			98.2		98.2		98.2		
	MPP-adaptation efficiency	%	> 99.9			> 99.9		> 99.9		> 99.9		

¹ The usable MPP voltage range is identical to the MPP voltage range at rated power

² At 230 V actual mains voltage; design recommendation ($U_{mpp\ min}$): 600V

³ $I_{sc\ pv} = I_{sc\ max.} \geq I_{sc\ (STC)} \times 1.25$ according to e.g. IEC 60364-7-712, NEC 2020, AS/NZS 5033:2021.

⁴ Direct sunlight is possible

⁵ Optional AC-disconnect mounted inside the inverter: from -30 to +65 °C

⁶ These are planned certificates. For the current certificates, please see www.fronius.com/tauro-cert

		Tauro	Tauro ECO		
		50-3-P	50-3-P	99-3-P	100-3-P
Protection devices	DC disconnect		integrated		
	RCMU		integrated		
	DC insulation measurement		integrated		
	DC/AC surge protection		Type 1 + 2 integrated ⁷ , Type 2 optional		
Interfaces	Wi-Fi		Fronius Solar.web, Modbus TCP Sunspec, Fronius Solar API (JSON)		
	Ethernet LAN RJ45 ⁸		10/100 Mbit; max. 100 m Fronius Solar.web, Modbus TCP Sunspec, Fronius Solar API (JSON)		
	Wired Shutdown (WSD)		Emergency stop		
	2 x RS485		Modbus RTU SunSpec		
	6 digital inputs / 6 digital I/Os		Programmable interface for ripple control receiver, energy management, load control		
	Datalogger and web server ⁸		Integrated		

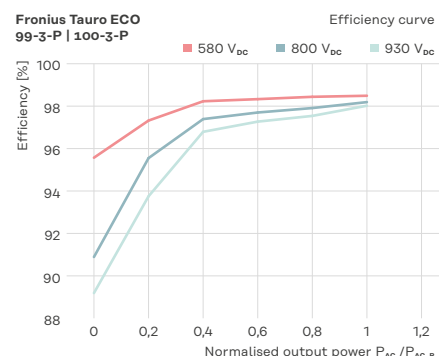
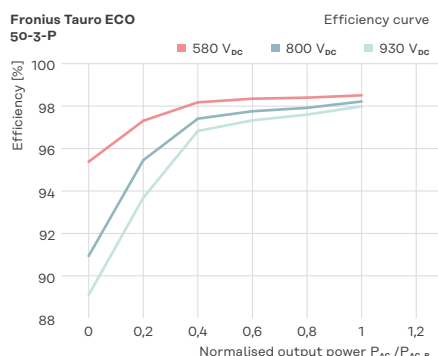
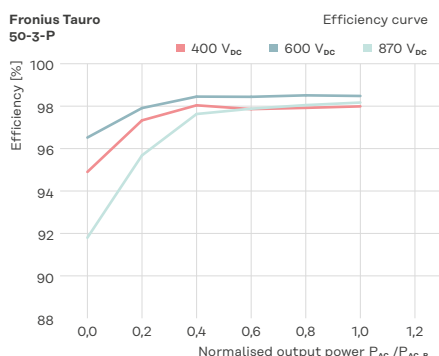
⁷ Typ 1 + 2: I_{imp} kA

⁸ An Ethernet star-configuration is used for communication with multiple inverters. Each individual inverter communicates independently with the network/Internet via its integrated data logger

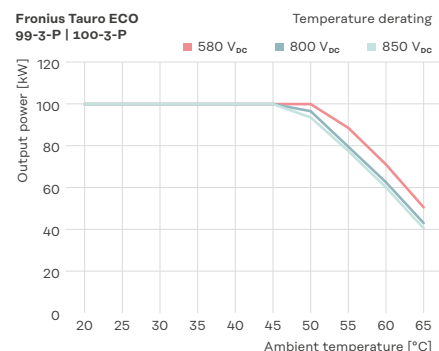
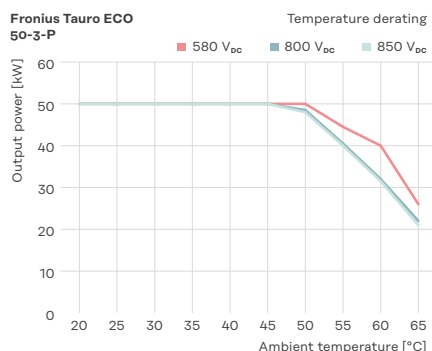
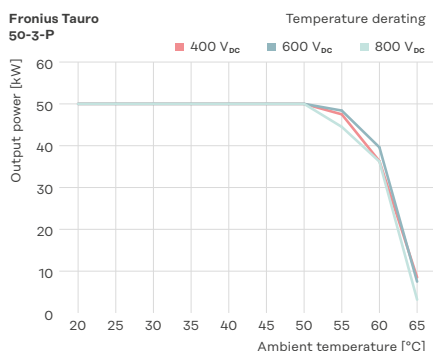
Measurably better

The performance speaks for itself: Fronius Tauro delivers impressive performance, with constant efficiency and maximum output at temperatures up to 50 °C.

Efficiency



Power derating



For more information about the product, visit: www.fronius.com/tauro

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