



AQUAREVO

LYNDHURST

Solar Battery Design Guideline Addendum

The information contained within this document is relevant to those purchasers who have qualified to receive the bonus battery. Eligible purchasers who have elected to receive the battery are required to provide this information to their chosen builder to ensure they are aware of the provisions required to be made to their house designs to enable the installation of the battery. It is also the purchaser's responsibility to ensure the chosen solar panel system to be included on the house is compliant with the bonus battery (battery specifications provided below).

PLEASE NOTE:

As outlined within your contract of sale to receive the Battery Offer (5kWh Sonnen Eco9.53/5 Solar battery) the purchaser must: -

- Within 9 months of the settlement date make a written request for the Battery and submit it with the house design plans to the Design Assessment Panel;
- Install a 3.0kW or greater solar PV array in a single phase electrical house connection which complies with the specifications within this document (please note the 5kWh Sonnen Eco9.53/5 Solar battery which forms part of this offer includes an inverter);
- Make the house ready for the installation of the Battery and either in conjunction with your builder or otherwise provide the contractors engaged for the installation with access to the premises for the purposes of installation of the Battery.
- Inform your builder of your intent to accept the Battery Offer and supply all information, details and specifications of the Battery and all other information the builder must allow for in the design and build of the home to enable the installation of the Battery.
- It is the purchaser's responsibility to ensure their solar PV array is compatible with the battery.
- As part of your builders Design Assessment Panel submission details of the proposed solar PV array needs to be provided including; size, location, supplier/installer and brand as well as confirmation that the panels are Tier 1.

FURTHER INFORMATION / LINKS:

Aquarevo Design Guidelines:

- <http://aquarevo.villawoodproperties.com.au/design-guidelines-3>

Aquarevo Building Information:

- <http://aquarevo.villawoodproperties.com.au/building-information-4>

Bristle:

- <https://bristileroofing.com.au/solar/>

Sonnen (battery):

- <https://sonnen.com.au/en-au/sonnenbatterie>

Technical Note

Date: 19th of July 2018

Project: Aquarevo - Villawood

Purpose

Design and Installation of solar PV array to suit sonnen Hybrid Eco 9.53

Technical Notes

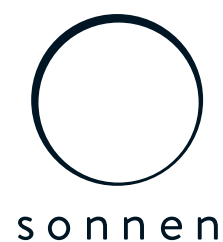
| No. | Items |
|-----|--|
| 1 | Nominal Inverter Rating <ul style="list-style-type: none"> The nominal AC output of the system is 4.6kW and is single phase, this should be used for grid connection design. Consideration should be made when oversizing the inverter with PV to comply with the Clean Energy Regulators requirements to create small technology certificates. |
| 2 | PV Input Voltage Window <ul style="list-style-type: none"> The PV Inverter MPPT has a startup voltage of 100VDC and will operate down to 75VDC. A voltage maximum power window (VMP) of 100VDC – 750VDC should be used but consideration should be made of the maximum allowable VOC of 600VDC in residential buildings. |
| 3 | Inverter MPPT Inputs <ul style="list-style-type: none"> The inverter has 2 MPPT inputs each rated at 13amps with an ISC of 15amps. |
| 4 | System Design Design example using: <ul style="list-style-type: none"> Suntech 300Watt Hypro Solar Modules each input of the inverter can have between 3 (0.9kW) and 13 (3.9kW) solar modules per string. Suntech 275Watt Poly Solar Modules each input of the inverter can have between 4 (1.1kW) and 14 (3.85kW) solar modules per string. |
| 5 | Sonnen Location <ul style="list-style-type: none"> If mounted in a garage the following applies: <ul style="list-style-type: none"> 5kWh or less the Sonnen will be wall mounted, the bottom of the Sonnen must be installed above 1.2 metres from finish floor level and will not require a bollard or nib wall; Above 5kWh the Sonnen will be ground mounted and will require protection as per AS/NZS 3845:1999 If installed inside the home the Sonnen cannot be installed in a habitable area. Storage rooms, plant rooms or designated switchboard rooms are acceptable. |
| 6 | Switchboard Configuration and Single Line Diagram <ul style="list-style-type: none"> The switchboard requirements are noted in the attached document Switchboard Layout-Single Phase-Sonnen Hybrid. The wiring of the PV system and Inverter are shown in the attached document Single Line Diagram. |
| 7 | Internet Connectivity of Sonnen for Monitoring <ul style="list-style-type: none"> The Sonnen unit requires a hardwired internet connection for monitoring and warranty. The data cable needs to be installed from the location of the internet router to the top of the Sonnen unit, terminated at the Sonnen unit and the router using a Cat 6 8 pin modular socket and wall plate. The data cable should be Category 6, installed by a licenced cabler with appropriate qualifications and installed as per regulatory requirements. |

Approved

Leeson Solar Pty Ltd: Peter Leeson – Managing Director

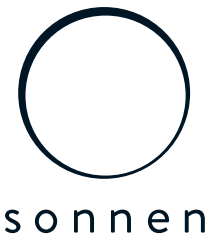
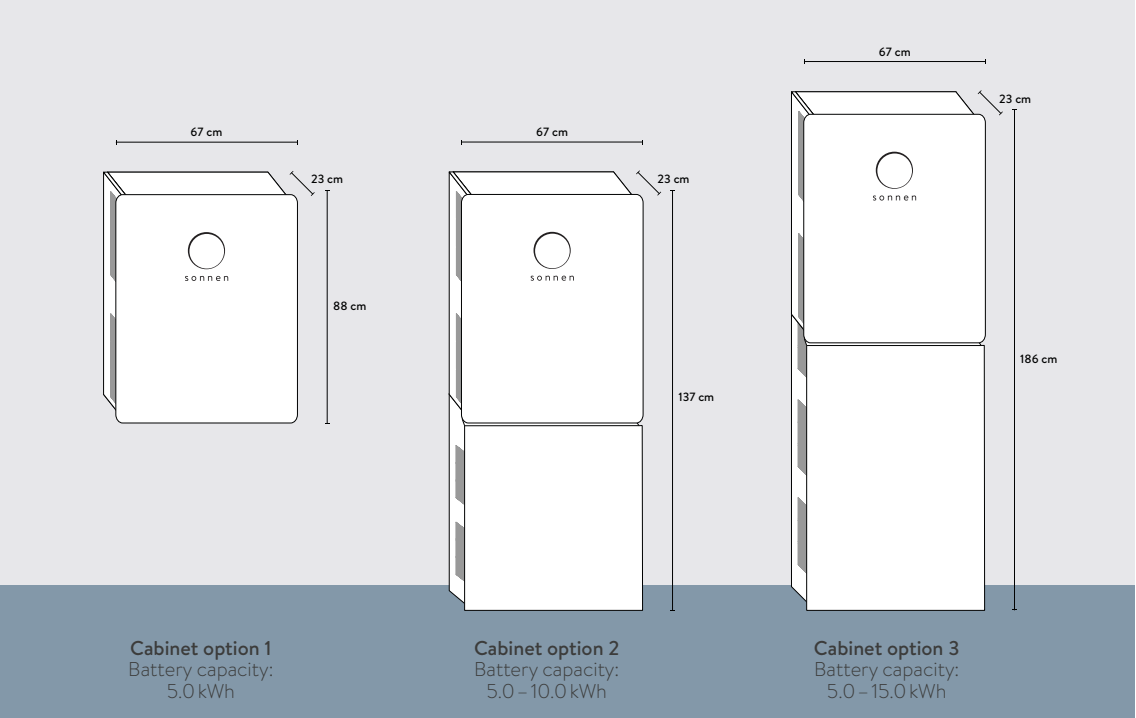
Bristile Roofing: Kellie Jenkins – Business Development Manager Victoria

Sonnen Australia: Suji Leroux – National Business Development Manager



Technical Data sonnenBatterie hybrid 9.53

| | hybrid 9.53/5 | hybrid 9.53/7.5 | hybrid 9.53/10 | hybrid 9.53/12.5 | hybrid 9.53/15 |
|--|------------------------------|-----------------|----------------|------------------|----------------|
| Nominal battery capacity in kWh | 5.0 | 7.5 | 10.0 | 12.5 | 15.0 |
| Depth of discharge (DoD) | 90 % | | | | |
| Cell technology | LFP (Lithium Iron Phosphate) | | | | |
| Cabinet option 1 (5.0 kWh) | | | | | |
| Weight in kg | 81 | – | – | – | – |
| Dimensions (H/W/D) in cm | 88/67/23 | – | – | – | – |
| Cabinet option 2 (5.0 kWh - 10.0 kWh) ¹ | | | | | |
| Weight in kg | 97 | 120 | 143 | – | – |
| Dimensions (H/W/D) in cm | 137/67/23 | 137/67/23 | 137/67/23 | – | – |
| Cabinet option 3 (5.0 kWh - 15.0 kWh) ¹ | | | | | |
| Weight in kg | 108 | 131 | 154 | 177 | 200 |
| Dimensions (H/W/D) in cm | 186/67/23 | 186/67/23 | 186/67/23 | 186/67/23 | 186/67/23 |
| Max. charging/discharging power in kW | 2.5 | 3.3 | 3.3 | 3.3 | 3.3 |
| Nominal power | 4.6 kW | | | | |
| Input voltage PV | 100 – 750 VDC | | | | |
| Max. input current PV | 13 A | | | | |
| Number of MPP-Trackers | 2 | | | | |
| MPP voltage range | 75 – 600 V | | | | |



Technical Data sonnenBatterie hybrid 9.53

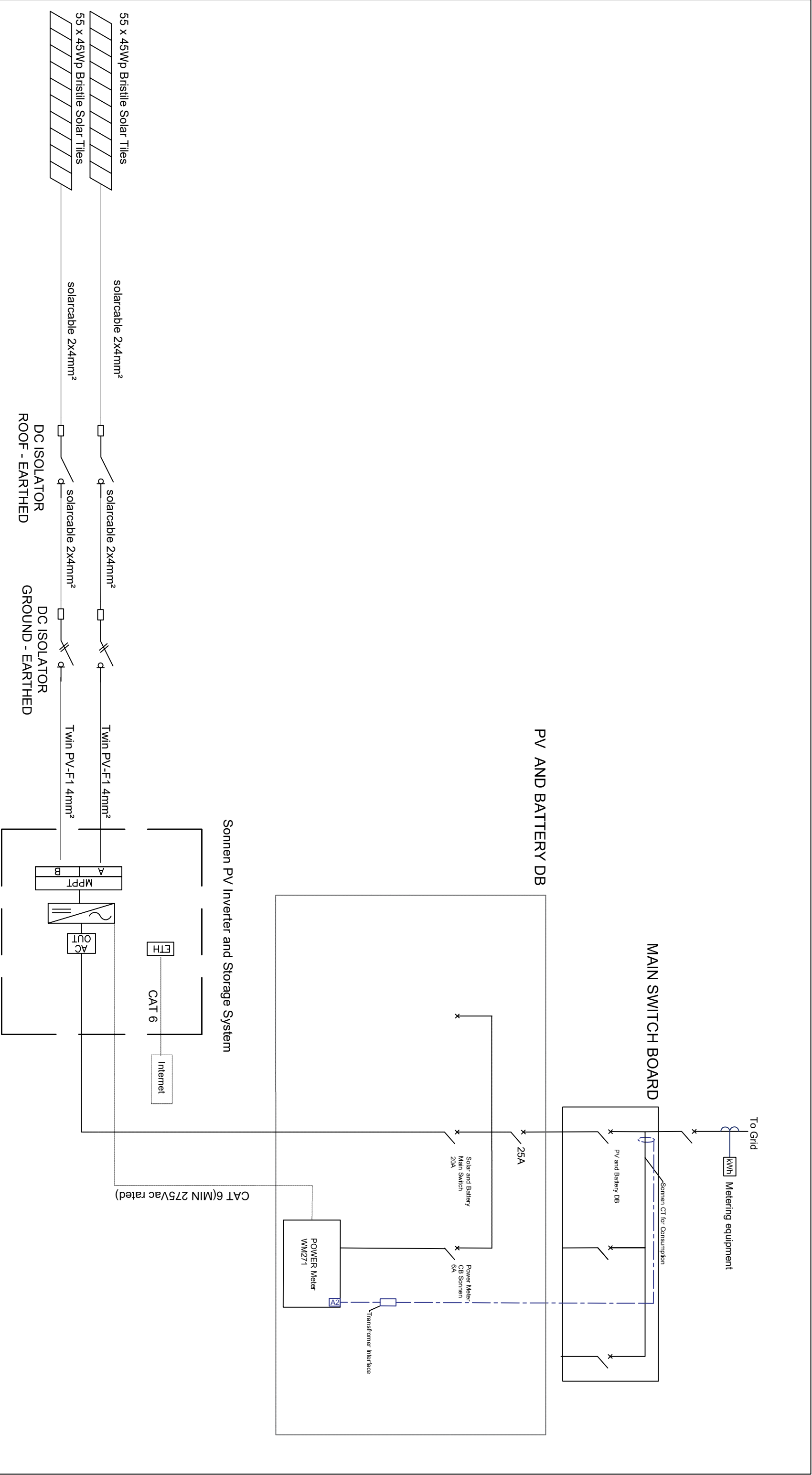
| | hybrid 9.53/5 | hybrid 9.53/7.5 | hybrid 9.53/10 | hybrid 9.53/12.5 | hybrid 9.53/15 |
|-----------------------------------|--|-----------------|----------------|------------------|----------------|
| Power factor range | 0.9 cap. – 0.9 ind. | | | | |
| DC connection | Sunclix | | | | |
| Max. efficiency (battery to grid) | 95 % | | | | |
| Max. efficiency (PV to grid) | 97.5 % | | | | |
| Max. battery efficiency | 98 % | | | | |
| Ambient temperature range | -5 °C – +45 °C ² | | | | |
| Dust & water protection | IP30 | | | | |
| Operating mode | single phase | | | | |
| Tests and directives | SGS TÜV Saar, IEC 62040-1, IEC 62109-1, IEC 62109-2, IEC 62619, UN38.3, IEC 62133, AS/NZS 4777.2 | | | | |
| Battery service life | designed for 20 years | | | | |
| Warranty | 10 years ³ | | | | |
| Cycles | 10,000 ³ | | | | |

Available options

| | |
|---------------------|--------------------|
| Multi-Touch-Display | 7 inches |
| sonnenWallmount | installation mount |

We reserve the right to make technical changes and updates without prior notice. Specific values, performance data and other information in this data sheet, brochures and other product information, as well as illustrations and drawings in these documents, are solely illustrative and are subject to ongoing revision and modification. We do not warrant the accuracy or completeness of any information in these documents unless otherwise explicitly stated. Only the information in order confirmation documents or purchase contracts is binding.

¹ There are two cabinet versions available. By default, the large cabinet is included (Dimensions H/W/D 98/67/23). If a small cabinet is needed for a storage battery of 5.0 kWh up to 10.0 kWh, this must be specified when ordering. ² Derating at approx. 35 °C. ³ Warranty on all parts. To learn more about our current warranty terms and conditions, please visit [sonnenbatterie.de/en/terms-and-conditions](https://www.sonnenbatterie.de/en/terms-and-conditions) or call our customer hotline and request a copy. · Standard housing color: white. Housing color black only on request.



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| | | | | | | | | | | Single Line Diagram 1 Phase Sonnen DC | | | | | |
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LEESON GROUP
11/23 SUSAN STREET
ELTHAM, VIC 3095

Single Phase DC Sonnen


If insufficient room in main switchboard (MSB) then PV DB required as per SLD.

| Sonnen Components Three Phase | Rating Poles | |
|------------------------------------|--------------|---|
| Battery Protection Circuit Breaker | 20 Amp | 1 |
| CT Transducer Load | | 2 |
| Circuit Breaker for Power Meter | 6 Amp | 1 |
| | | |
| Power Meter | | 4 |
| | | |
| Total Poles | | 8 |
| | | |

| | |
|-----------------------------|---|
| Total Poles Required in MSB | 8 |
|-----------------------------|---|

| Material | Rating | Quantity |
|-----------------------------------|--------|----------|
| Single Pole Circuit Breaker | 20 Amp | 1 |
| | | |
| Single Pole Circuit Breaker | 6Amp | 1 |
| Bus Bar 3 Poles Long Single Phase | 32 Amp | 1 |
| Switchboard Requirement 8 Poles | | 1 |

| Switch Board Configurations | | | | | | | | |
|-----------------------------|----------------------------------|-------------------------------|--------------------|---|---|---------------|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| MAIN SWITCH 25AMP | BATTERY/SOLAR CB SONNEN 20AMP | POWER METER SONNEN CB 6AMP | SONNEN POWER METER | | | CT TRANSDUCER | | |



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ELTHAM, VIC 3095

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| A | 19/07/18 | PRELIMINARY SWITCHBOARD CONFIGURATION - AQUAREVO | B.DEV | B.DEV | PL.EE | PROJECT TITLE : Sonnen DC Hybrid Switchboard Req PROJECT LOCATION : Aquarevo - Victoria TOWN: - | | |
| REV. | DATE | DESCRIPTION | DES. | DRW. | APR. | | | |

FOR INFORMATION ONLY

JOB NO. BR-110

SCALE: NTS

DRAWING NO.:
BR-000

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